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OFFICIAL GAZETTE

UNITED STATES

PATENT OFFICE

VOL 98

NO 1 THRU 12

JAN - MAR - 1902

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UNCLASSIFIED

OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME XCVIII.

JANUARY 7 TO MARCH 25, INCLUSIVE,

1902.

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ERRATA.

630,476, page 42, second claim, line 4, before the words "coin-receiver when" insert the words *coin from the.*

630,872, page 199, in heading, title of invention, for "Vehicle-Tire" read *Vehicle-Wheel.*

630,949, page 244, strike out all after number—heading, drawing, and claims— and insert WITHDRAWN.

630,960, page 253, in heading, title of invention, for "Compensating High-Duty Compound Engine" read *Compensating High-Duty Pumping-Engine.*

631,144, page 316, in heading, assignment, name of assignee, for "A. Kouphone Manufacturing Company" read *Akouphone Manufacturing Company.*

631,510, pages 487–488, strike out all after number—heading, drawing, and claims—and insert WITHDRAWN.

631,699, page 559, third claim, line 2, strike out the clause "loosely suspended from the truck bolster" after the word "bearing" at the beginning of the line and insert after the word "bearing" at the end of the same line.

631,944, page 637, fourth claim, line 4, for the word "posts" read *post*, and sixteenth claim, line 3, strike out the word "sheets" and insert before the word "provided," same claim and line.

632,121, page 735, in heading, assignment, name of assignee, for "Kinsey T. Richards" read *Kinsey T. Richards.*

632,202, page 766, in heading, after residence of last-mentioned patentee insert *said Keller assignor, by mesne assignments, to said Kline.*

632,513, page 904, in heading, assignment, residence of assignee, for "Westhaven, Conn." read *New Haven, Conn.*

632,683, page 969, in heading, assignment, after name of assignee insert a comma.

632,787, page 1003, strike out all after number—heading, drawing, and claims—and insert WITHDRAWN.

633,184, page 1200, forty-sixth claim, line 4, for "plurality of contacts" read *contact.*

633,287, page 1239, in heading, after name of patentee insert *Geboren Mühlenbeck.*

633,810, page 1464, in heading, assignment, after residence of patentee insert *assignor of one-half to John T. Plummer, Denver, Colo.*

633,909, page 1526, strike out all after number—heading, drawing, and claim—and insert WITHDRAWN.

634,150, page 1618, first claim, line 2, for the word "rolls" read *rows.*

635,159, page 2064, first claim, line 2, second claim, line 2, third claim, line 2, and fourth claim, line 2, strike out the words "a sound-curve."

635,415, page 2154, in heading, assignment, for "The Philadelphia Pneumatic Tool Company, Philadelphia, Pa., a Corporation of Pennsylvania," read *The Philadelphia Pneumatic Tool Company, Philadelphia, Pa., a Corporation of New Jersey.*

635,759, page 2299, in heading, title of invention, for "Closing Containing Vessel" read *Closing Containing Vessels.*

635,777, page 2307, in heading, assignment, for "The Magneto Electric Company, Incorporated, New York, N. Y., a Corporation of New York," read *The Magneto Electric Company, Incorporated, New York, N. Y.*

635,887, page 2351, in heading, assignment, residence of assignee, for "Nashua, New Hampshire, Boston, Mass.," read *Nashua, N. H., and Boston, Mass.*

636,019, page 2415, third claim, line 3, after the word "alcohol" strike out the comma and insert after the word "hydrochlorid," same claim and line.

636,371, page 2567, first claim, line 7, strike out the words "of one."

35,582, (Design,) page 409, in heading, name of patentee, for "Onerbacker" read *Ouerbacker.*

35,786, (Design,) page 1957, in heading, after residence of assignee insert *assignor to Samuel L. Barbour, Hartford, Conn.*

Commissioner's Decisions, page 417, first column, line 5, for "96 O. G." read *96 O. G.*, and same column, line 11, for "39 O. G." read *59 O. G.*

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JANUARY—MARCH, 1902.

OFFICIAL GAZETTE

OF THE

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JANUARY—MARCH, 1902.

Vol

Patents Nos. 690,385 to 690,913.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

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Arizona Territory	.....	1	New Hampshire	2	.....
Arkansas	2	.....	New Jersey	23	.....
California	16	.....	New Mexico Territ'y	.....	1
Colorado	9	.....	New York	69	12
Connecticut	7	1	North Carolina	2	.....
Delaware	1	.....	North Dakota	1	.....
District of Columbia	1	.....	Ohio	47	.....
Florida	.....	.....	Oklahoma Territ'y	.....	.....
Georgia	4	.....	Oregon	1	.....
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Idaho	.....	.....	Porto Rico	.....	.....
Illinois	60	1	Rhode Island	19	.....
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Iowa	8	1	Tennessee	4	1
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Austria-Hungary	2	.....	Netherlands	1	.....
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Bermuda	.....	.....	New Zealand	1	.....
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Canada	11	1	Queensland	.....	.....
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Ireland	1	.....	Total to citizens of foreign countries	55	5
Italy	1	.....			

Disclaimer.

558,157.—*Charles A. Harkness*, Providence, R. I. Improvement in Elevators. Patent dated January 14, 1896. Disclaimer filed January 2, 1902, by the present assignees, *Edward L. Hail* and *George Hail*, Providence, R. I.

Enter their disclaimer—

To the subject-matter of claim 19 of said Letters Patent, viz:

"19. Elevator controlling means comprising a movable door, a car, a motor actuating line, and movable door actuated means on the car for locking the line thereto, whereby if the car creeps after the car is stopped and the door is opened, the motor will be actuated to counterbalance such creeping."

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Electrical World and Engineer, a weekly digest of electrical articles.

Engineering Magazine, a monthly title-index of engineering articles in the English language only.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Railroad Digest, a monthly synopsis of universal railroad literature.

School of Mines Quarterly, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Science Abstracts, physics and electrical engineering. Monthly abstracts of the principal articles on physics published in the American and foreign journals.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business December 31, 1901.

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		New.	Amended	
	In arrears—Under one month.			
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		New.	Amended	
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Under one month.			
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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 30, 1901.

SIR: The Secretary of the Interior has ordered that Miles F. H. Farmer, of Masontown, Pa., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., December 31, 1901.

SIR: The Secretary of the Interior has ordered that William Hull, of Deerfield, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

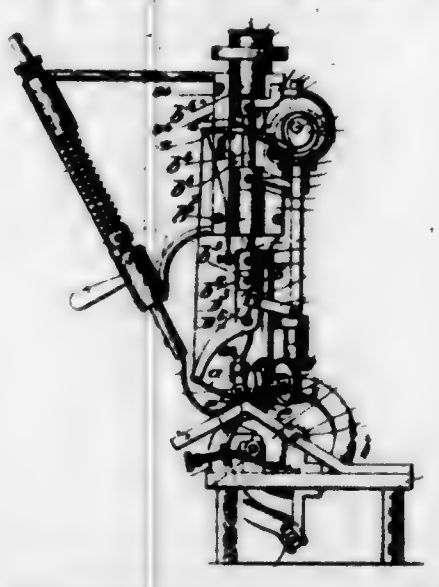
EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents

PATENTS

GRANTED JANUARY 7, 1902.

690,885. **SEWING-MACHINE FOR FELLING.** WOLF ARBEITER, Chelsea, Mass. Filed Aug. 13, 1901. Serial No. 71,602. (No model.)



Claim.—1. In a sewing-machine, a bed-plate carrying a work-support, stitch-forming mechanism including a needle and complemental devices located at one side of the bed-plate and work-support, and means for laterally changing the relative positions of the work-support and stitch-forming mechanism, whereby the needle at succeeding thrusts through the material for stitching approaches and enters the material in different lines.

2. A sewing-machine comprising a bed-plate, a work-support, stitch-forming mechanism including a needle and complemental devices located at one side of the bed-plate, and means for laterally changing the relative positions of the work-support and stitch-forming mechanism whereby the needle at succeeding thrusts through the material for stitching approaches and enters the material in different and convergent lines.

3. In a sewing-machine, a work-support, stitch-forming mechanism including a needle and a complemental device located above the work-support, and means to change the relative positions of the work-support and stitch-forming mechanism laterally about an axis substantially perpendicular to the work-support to enable the needle at succeeding thrusts through the material for stitching to approach and enter the material in different lines.

4. In a sewing-machine, a work-support to sustain the material to be stitched, a needle, and complemental stitch-forming devices located above the work-support, means to feed the material, means to actuate the stitch-forming means, and means to turn the stitch-forming means about an axis vertical to the work-support that the needle may enter the material parallel with and then at an angle to the line in which the material is fed.

5. In a sewing-machine, a work-support to sustain the material to be stitched, means to feed the material over said work-support, stitch-forming mechanism comprising a needle and a complemental thread-carrier coacting therewith, said stitch-forming mechanism being located above the work-support, and means for changing the relative positions of the needle of the stitch-forming mechanism and the work-support laterally and vertically, whereby the needle is caused to enter at one thrust the material of least thickness and at the next thrust the material of greater thickness.

6. In a sewing-machine, a work-support to sustain the material to be stitched, means to feed the material over said work-support, stitch-forming mechanism comprising a needle and a complemental thread-carrier coacting therewith, said stitch-forming mechanism being located above the work-support, and means for changing the relative positions of the needle of the stitch-forming mechanism and the work-support laterally, whereby the needle is caused to enter at one thrust the material of least thickness sustained on the work-support, and at the next thrust the material of greater thickness, and means to move the stitch-forming devices relatively vertically with relation to the work-support, to enable the needle when entering the material of least thickness to move in the arc of a circle closer to the work-support than when entering the material of greater thickness.

7. In a sewing-machine, a work-support to sustain the material to be stitched, a needle, and complemental stitch-forming devices located above the work-support, means to feed the material, means to actuate the stitch-forming means to form a stitch, and means to turn the stitch-forming means about an axis vertical to the work-support that the needle may enter the material parallel with and then at an angle to the line in which the material is fed, and means to control the extent of movement of the stitch-forming means about said vertical axis.

8. In a sewing-machine, a work-support presenting a corner to sustain and bend the work at the point where the stitch is to be made, a needle and a complemental means located to one side of said work-support to form stitches, means to control said needle that it may approach the material at alternate stitches in different lines, and means for changing the needle to different positions in the plane of its travel in alternate thrusts.

9. In a sewing-machine, a work-support, stitch-forming mechanism including a needle and a complemental device, and means to change the relative positions of the work-support and stitch-forming mechanism to enable the needle at succeeding thrusts through the material for stitching to approach and enter the material in different vertical planes, and means to further move said stitch-forming mechanism that one thrust of the needle will be made in an arc of a circle closer to the work-support than at a preceding thrust.

10. In a sewing-machine, a work-support to sustain the material to be stitched, means to feed the material over said work-support, stitch-forming mechanism comprising a needle and a complemental thread-carrier coacting therewith, said stitch-forming mechanism being located above the work-support, and means for changing the relative position of the needle of the stitch-forming mechanism and the work-support laterally and toward and away from each other, whereby the needle is caused to enter at one thrust the material of least thickness sustained on the work-support, and at the next thrust the material of greater thickness, two thrusts of the needle being made between each operation of the feeding device.

11. In a sewing-machine, a work-support presenting a corner to sustain and bend the work where the stitch is to be made, a needle, and complemental means located to one side of the material to coact with said needle and form stitches, means for controlling said needle that it may approach the material in different vertical planes at alternate stitches, and means for changing the needle to different positions in its planes of travel at alternate stitches, and feeding means to feed the material after each two thrusts of the needle through the material.

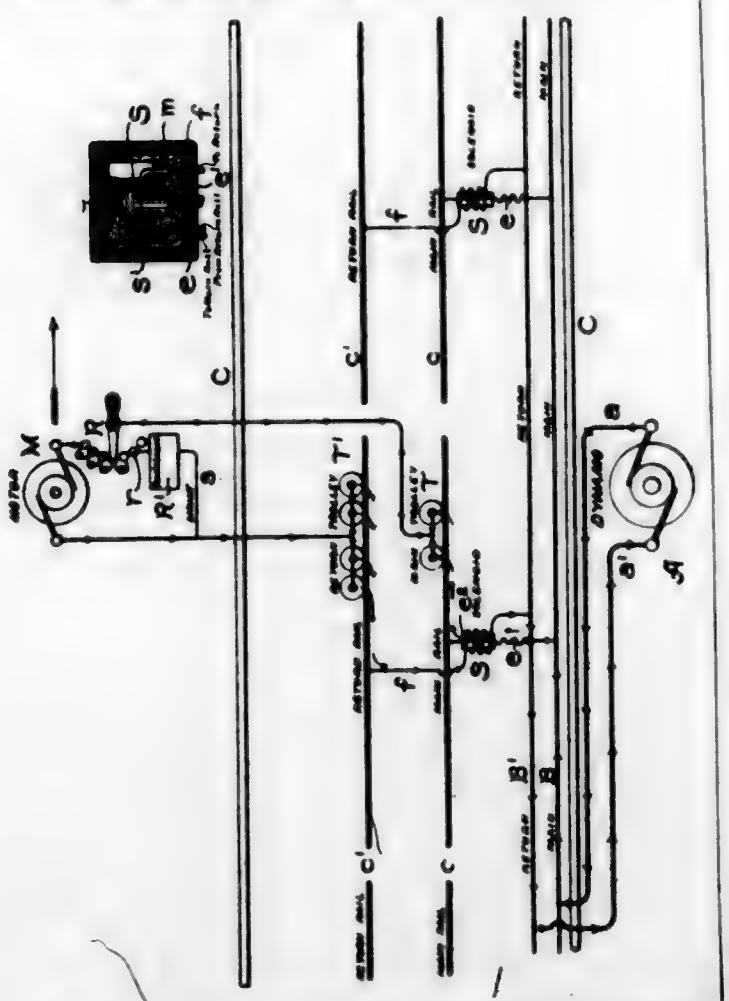
12. In a sewing-machine, a work-support, a carriage, a rock-shaft therein, stitch-forming mechanism sustained by said rock-shaft above the work-support, a shaft D in said carriage, means actuated by said shaft to operate the stitch-forming mechanism, means to rock said rock-shaft in said carriage and turn the stitch-forming mechanism with it.

13. In a sewing-machine, a work-support, a carriage, a rock-shaft therein, stitch-forming mechanism sustained by said rock-shaft above the work-support, a shaft D in said carriage, means actuated by said shaft to operate the stitch-forming mechanism, means to rock said rock-shaft in said carriage and turn the stitch-forming mechanism with it, and means to move said carriage and the rock-shaft vertically between making one and the next stitch.

14. In a sewing-machine, a work-support, a carriage, a rock-shaft sustained in said carriage, stitch-forming mechanism sustained by said rock-shaft, a shaft mounted in said carriage, devices intermediate said shaft and said stitch-forming mechanism to actuate the latter when the shaft is ro-

tated, means to rock the shaft sustaining the stitch-forming mechanism, and means including a shaft and a universal-jointed telescopic connection to operate the shaft which actuates the stitch-forming mechanism.

690,386. ELECTRIC RAILWAY. FRANK M. ASHLEY, Brooklyn, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Feb. 20, 1896. Serial No. 671,790. (No model.)



Claim.—1. A circuit-controlling device consisting of an insulating-receptacle containing mercury electrically connected to one terminal of a circuit, an electromagnet-coil vertically arranged in said receptacle above the mercury, a movable magnet member resting in the mercury and adapted to be raised by the coil, and a contact forming the other terminal fixed in the upward path of said movable magnet member.

2. In a circuit-controlling device for electric railways, the combination with two circuit-terminals, of an electromagnet-coil, a movable magnet member adapted to be drawn by said coil into contact with one terminal, and a conducting fluid for maintaining electrical connection between said movable magnet member and the other terminal.

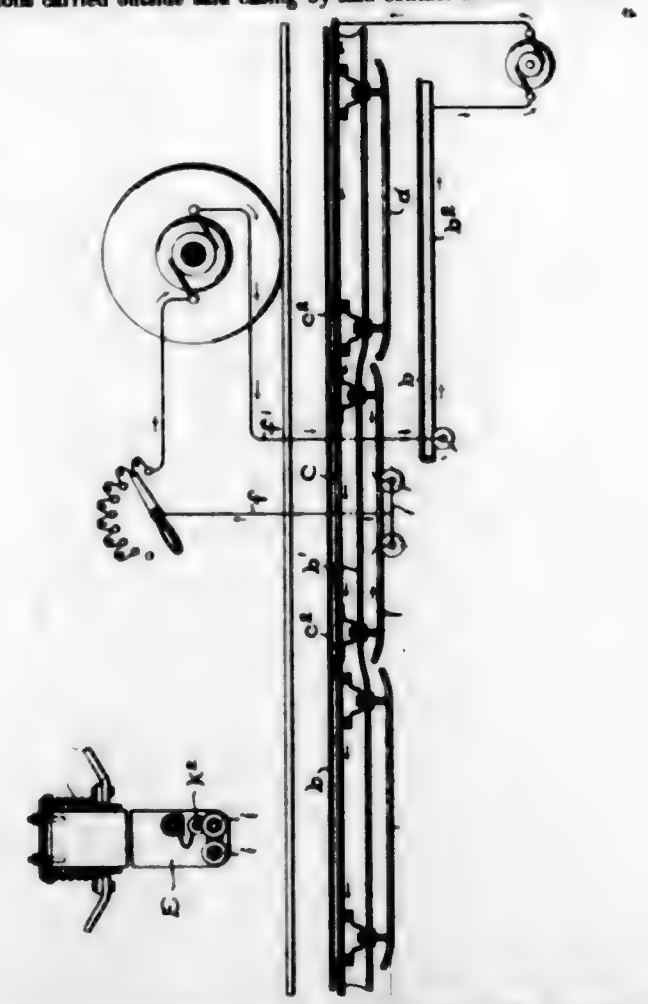
690,387. ELECTRIC RAILWAY. FRANK M. ASHLEY, Brooklyn, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Feb. 26, 1896. Serial No. 671,795. (No model.)

Claim.—1. In an electric railway, the combination with suitable supporting means, of a rigid metallic strip secured thereto and serving as a main conductor, a second main conductor carried by said supporting means, and a flexible strip of insulating material supported by said metal strip, and forming therewith an inclosure for said second main conductor, a sectional service-conductor carried by said flexible strip, and a car-collector which forces the successive sections against the main conductor.

2. In an electric-railway system, the combination with an inclosing casing, said casing being made in two sections, one of which is of conducting material, and the other of flexible non-conducting material, the non-conductor carrying contact-pieces adapted to be brought into connection with the main conductor, the conductor-section forming the return-circuit of the system, of a main conductor extending freely between said casing-section, and clips supported at intervals in the casing for suspending said conductor.

3. In an electric railway, the combination with an inclosing casing composed of a metallic section and a section of flexible non-conducting material, of insulators at intervals inside the casing, supports outside the casing, and means for securing the metallic section and the insulators to said supports, a main conductor in the casing and supported by said insulators, and sectional conductors carried by said flexible casing-section.

4. In an electric railway, the combination with an inclosing casing having a flexible portion, of a main conductor supported in the casing, contact devices carried by and extending through the flexible part of the casing and adapted to engage the main conductor in the casing and to support an auxiliary conductor outside the casing, and auxiliary-conductor sections carried outside said casing by said contact devices.



5. In an electric-railway system, the combination with a conductor-tube formed of a flexible insulating and a rigid conducting portion, a main conductor therein, a traveling contact device adapted to engage with the rigid portion, and a second traveling contact device adapted to be electrically connected to the main conductor through the flexible portion of the tube.

6. The combination with suitable supports, of a conduit having a portion of its envelop formed of conductive material and secured to said supports and insulated therefrom, insulators in said conduit and secured to said supports, a main conductor supported by said insulators, and means for completing a circuit from the main conductor through a motor on a car to the conductive envelop of said conduit.

7. The combination with suitable supports, of a conducting-strip secured thereto and insulated therefrom, a flexible strip secured to said conducting-strip to form an inclosed conduit, insulators in said conduit and secured to said supports, a main conductor supported by said insulators, and contact devices carried by a car and adapted to be electrically connected with said conducting-strip and main conductor.

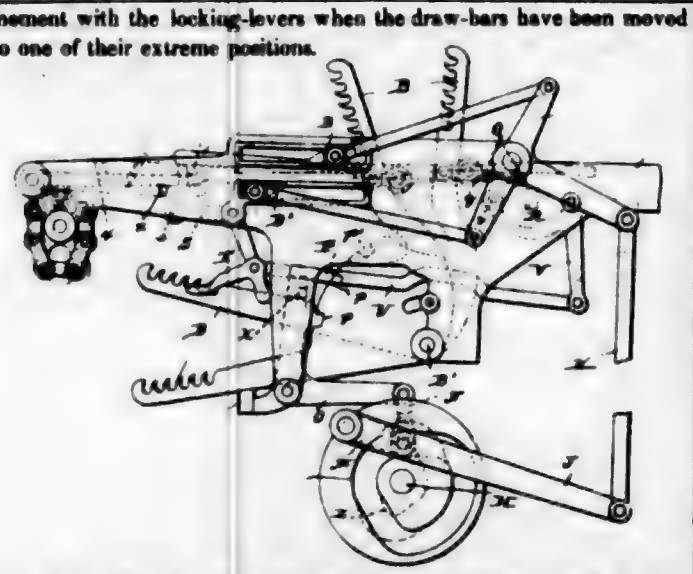
690,388. SHEDDING-MOTION FOR LOOMS. WILLIAM C. ASHCROFT, Philadelphia, Pa., assignor to himself and Gottlieb F. Bauer, Philadelphia, Pa., doing business as Bridesburg Machine Company. Filed Aug. 17, 1900. Serial No. 27,210. (No model.)

Claim.—1. In a shedding-motion for looms, the combination, with the harness-levers, and mechanism for actuating the same, of locking-levers connected with the harness-levers so as to move with the harness-levers, and a stop in alinement with the locking-levers when the harness-levers have been moved to lift the heddle-frames, whereby the harness-levers are prevented from being drawn back by the heddle-frames.

2. In a shedding-motion for looms, the combination, with the harness-levers, and mechanism for actuating the same, of locking-levers connected with the harness-levers so as to move with the harness-levers, and a stop in-alinement with the locking-levers when the harness-levers have been moved to lift the heddle-frames, whereby the harness-levers are prevented from being drawn back by the heddle-frames, and means for lifting said levers out of alinement with said stop preparatory to moving the jack-levers into position to lower the heddle-frames.

3. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of locking-levers connected to the draw-bars, and a stop in

alinement with the locking-levers when the draw-bars have been moved into one of their extreme positions.



4. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of locking-levers pivoted to the draw-bars, means to hold the locking-levers from moving on their pivots beyond a definite point, and a stop in alinement with the locking-levers, whereby the draw-bars, when moved into one of their extreme positions, will be prevented by said stop from being drawn back until they have been shifted into position to be returned by one of the knives, and whereby, when the draw-bars are again shifted to permit them to be moved by the other knife into the first-named extreme position, the locking-levers will turn on their pivots and slide upon said stops.

5. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of locking-levers pivoted to the draw-bars, lugs on the draw-bars to limit the movement of the locking-levers on their pivots, and a stop adapted to be engaged by the locking-levers when the draw-bars have been moved into one of their extreme positions.

6. In a shedding-motion for looms, the combination with the harness-levers, the draw-bars connected therewith, the knives for actuating the draw-bars, and a shifter for moving the draw-bars onto a common level to permit one of the knives to actuate the draw-bars so moved and thereby actuate all the corresponding harness-levers to lift the corresponding heddle-frames, a lock or stop for normally preventing the return of the harness-levers after they have been moved to lift the heddles, and means for unlocking the harness-levers, thereby permitting the heddle-frames to be separately raised and lowered manually.

7. In a shedding-motion for looms, the combination with the harness-levers, the draw-bars connected therewith, the knives for actuating the draw-bars, and a shifter for moving the draw-bars onto a common level to permit one of the knives to actuate the draw-bars so moved and thereby actuate all the corresponding harness-levers to lift the corresponding heddle-frames, a lock or stop for normally preventing the return of the harness-levers after they have been moved to lift the heddles, and means connected with and actuated by the shifter for rendering the lock or stop inoperative, thereby permitting the heddle-frames to be separately operated manually.

8. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, the knives for actuating the draw-bars, fingers for actuating the draw-bars, a rod *s* adapted to engage and lift all the fingers and thereby move all the draw-bars onto a common level to permit one of the knives to actuate said draw-bars and thereby actuate all the harness-levers to lift the heddle-frames, a bell-crank lever 8, one end of said bell-crank lever 8 engaging the frame of the machine while the other end is adapted to be depressed by hand, thereby raising the rod *s*, and locking the same in its raised position.

9. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of a shifter for moving the draw-bars onto a common level, locking-levers connected to the draw-bars, a stop in alinement with the locking-levers when the same have been moved into one of their extreme positions, and a connection between the shifter and the locking-levers whereby the actuating of the former moves said locking-levers out of alinement with said stop.

10. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of locking-levers connected to the draw-bars, a stop in alinement with the locking-levers when the draw-bars have been moved to one of their extreme positions, a shifter for shifting the fingers out of operative relation with the pattern mechanism, and a connection between the shifter and the locking-levers whereby the actuating of the former moves said locking-levers out of alinement with said stop.

11. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of locking-levers connected to the draw-bars, a stop in alinement with the locking-levers when the draw-bars have been moved to one of their extreme positions, a rod adapted when lifted to shift the draw-bars onto a common level, a lever pivoted to the machine-frame one part of which carries said rod, a handle on another part of said lever for tilting the same to lift said rod, and a connection between the handle and the locking-levers whereby the operation of the handle operates said rod and moves said locking-levers out of alinement with said stop.

12. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of locking-levers connected to the draw-bars, and a stop in alinement with the locking-levers when the draw-bars have been moved into one of their extreme positions, and manually-controlled means for moving said locking-levers out of alinement with said stop.

13. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of a retaining device adapted to be supported on, and movable transversely to, the frame of the machine for holding said fingers out of operative relation with the pattern mechanism.

14. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of a retaining device adapted to be supported on, and movable transversely to, the frame of the machine for holding said fingers out of operative relation with the pattern mechanism, whereby the harness-levers controlled thereby will all be thrown into one position, and a stop for preventing the return of said harness-levers.

15. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, the fingers for shifting the draw-bars into position to be acted upon by one or the other of said knives, and the pattern mechanism for operating the fingers, of a retaining device adapted to be supported on, and movable transversely to, the frame of the machine for holding said fingers out of operative relation with the pattern mechanism whereby the harness-levers controlled thereby will all be thrown into one position, locking-levers connected to the draw-bars, and a stop in alinement with the locking-levers when the same have been moved into the said position.

16. In a shedding-motion for looms, the combination, with the harness-levers and mechanism for actuating the same, of a reciprocating lock adapted to engage the harness-levers at the end of each throw of the same, and stops for limiting the throw of the harness-levers respectively in both directions, one of said stops being secured to the frame of the machine, and the other of said stops being secured to the lock, said stops being in alinement with the harness-levers in their back and forth movements respectively.

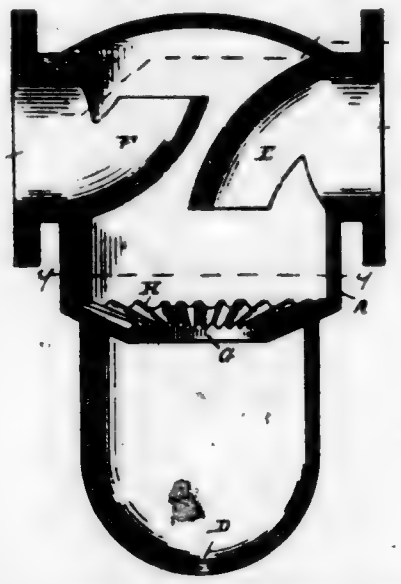
17. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, the knives for actuating the draw-bars, the pattern mechanism for raising the draw-bars, whereby the draw-bars and harness-levers will be moved into position to be engaged by one of said knives and thereby actuated to lift the corresponding heddle-frames, a stop in line of travel of the draw-bars when the same have been moved to cause the harness-levers to lift the heddle-frames, said stop being so located as to be out of locking position after the pattern mechanism allows the draw-bars to drop into position to be engaged by the other knife.

18. In a shedding-motion for looms, the combination, with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of a stop for preventing the return of the harness-levers when the same have been moved into one of their extreme positions, and means for unlocking the harness-levers, said unlocking means being thrown into operation by the shifting of the draw-bars preparatory to moving the harness-levers into the other of their extreme positions.

19. In a shedding-motion for looms, the combination with the harness-levers, the draw-bars connected therewith, and the knives for actuating the draw-bars, of a stop for preventing the return of the harness-levers when the same have been moved into one of their extreme positions, means for unlocking the harness-levers, a shifter for moving the draw-bars onto a common level, and devices connected to said shifter for

throwing said unlocking means into operation during the operation of the shifter.

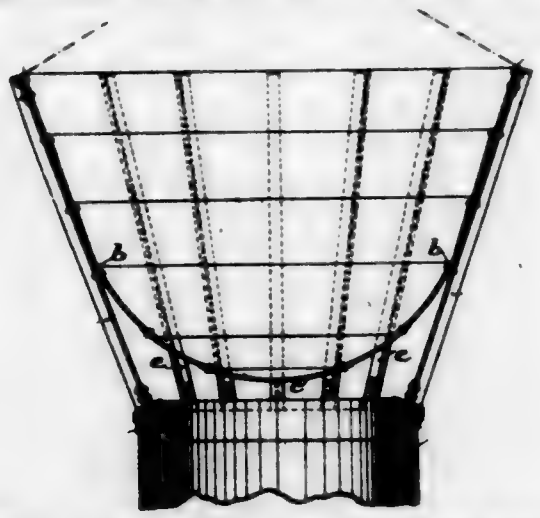
690,889. STEAM-SEPARATOR. DAVID R. AUSTIN, Detroit, Mich., assignor of two-thirds to James R. Foley and James C. McGregor, Detroit, Mich. Filed May 6, 1901. Serial No. 59,015. (No model.)



Claim.—1. A steam-separator, comprising a vertical casing having alining inlet and outlet ports formed in the opposite walls in proximity to the casing-top, a curved deflector-plate simicircular in cross-section arranged about the upper half of the outlet-port and depending within the casing, and a like deflector-plate extending upwardly from the lower half of the outlet-port.

2. A steam-separator, comprising a vertical casing having oppositely-arranged inlet and outlet ports formed therein in proximity to the casing-top, a curved deflector-plate semicircular in cross-section guarding the inlet-port, a similar deflector extending from the lower portion of the outlet-port, and an imperforate annular flange or baffle-plate, radially corrugated, extending about the inner wall of the casing substantially midway between the top and casing-bottom forming a central and unrestricted opening connecting the upper and lower portions of the interior of the casing.

690,890. DISTRIBUTING-TANK. KARL G. BARKHAUSEN, Hanover, Germany. Filed Jan. 6, 1900. Serial No. 584. (No model.)

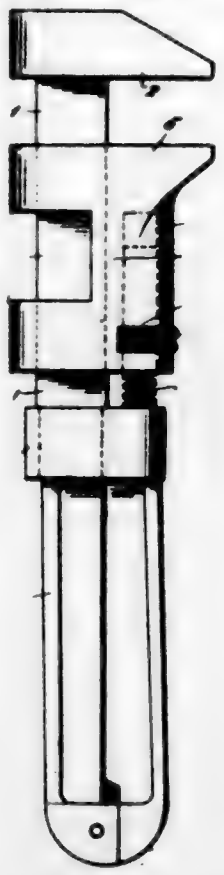


Claim.—1. The combination of a stationary tank for the storage of liquids, comprising an upper conical portion and a curved bottom having its upper edges tangentially coinciding with the lower edges of the conical portion, rectilinear standards arranged along the sides of the conical portion and extending below the lower edge of the same, and a base to which the lower ends of the rectilinear standards are secured, substantially as described.

2. The combination of a stationary tank for the storage of liquids, comprising an upper conical portion and a spherical bottom having its upper edges tangentially coinciding with the lower edges of the conical portion, rectilinear standards arranged along the sides of the conical portion and extending below the lower edge of the same, and a base to which the lower ends of the rectilinear standards are secured, substantially as described.

690,891. WRENCH. FRANKLIN P. BATES, Indianapolis, Ind. Filed Apr. 13, 1901. Serial No. 55,766. (No model.)

Claim.—1. In a wrench, the combination with a main member composed of a fixed jaw, a rectangular portion and a tang portion formed in one integral piece, and a sliding jaw, of a secondary member composed of a screw portion and a tang portion integral on said screw portion, and means for securing said secondary member to said main member.



2. In a wrench, the combination with a main member composed of a fixed jaw, a rectangular portion and a tang-handle, all formed in one integral piece, and a sliding jaw, of a secondary member composed of a screw, an intermediate retaining-strap, and a tang-handle all formed in a single integral piece, said secondary member applied to said main member so that the retaining-strap of the former member encircles said main member at a point above the tang-handle thereof, and means for retaining and securing said secondary member in position on said main member.

3. In a wrench, the combination with a main member composed of a fixed jaw, an intermediate rectangular portion and a tang-handle all formed in one integral piece, and a sliding jaw on said main member, of a secondary fixed or stationary screw member, and means for securing said screw member to said main member so that the screw will be in position relative to said sliding jaw.

4. In a wrench, the combination with a wrench composed of a main member having a fixed end jaw, and a sliding jaw on said main member and provided with a screwway, and a tang portion formed on the end of said main member, of a secondary member having a screw end, a handle end, and an intermediate strap portion, which member, after placing said sliding jaw in position on said member, is applied to said main member so that the retaining-strap thereof encircles said main member, and said screw enters the screwway of said jaw-head.

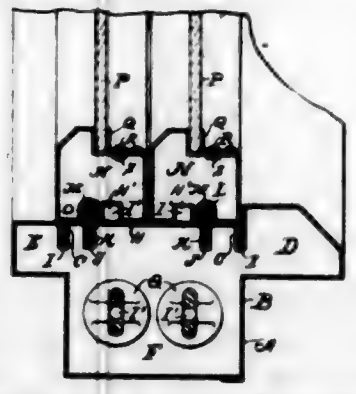
5. The combination with a wrench composed of a main member having a fixed jaw, a rectangular portion, a strap-fit, and a handle portion, of a sliding jaw-head, a secondary or screw member having a screw, a handle and an intermediate retaining-strap, said handle members having their ends halved or divided so that when said secondary member is applied to said main member to place said screw in position, said handles will lap at their ends, and suitable means for securing the lapped ends of said handles together.

690,892. FIREPROOF WINDOW. LOUIS D. BIERBACH, Milwaukee, Wis. Filed Aug. 1, 1901. Serial No. 70,443. (No model.)

Claim.—1. In a fireproof window, the combination of a hollow metallic window-frame; separate non-corrosive metallic guide-flanges, rigidly secured to the opposing vertical sides of said frame; and window-sash provided with longitudinal non-corrosive guide-bearings (U-shaped in cross-section) for the reception of said guide-flanges, substantially as set forth.

2. In a fireproof window, the combination of a hollow, metallic window-frame; separate, non-corrosive guide-flanges, respectively formed of a single strip of brass folded longitudinally and centrally back upon itself, and secured to the opposing vertical sides of said window-frame; and window-sash provided with longitudinal non-corrosive guide-bearings,

formed of a single strip of brass bent U shape in cross-section, for the reception of said guide-flanges, as set forth.



3. In a fireproof window, the combination of a hollow, metallic window-frame A; vertical sides B, which comprise the several parts between the vertical edges C, C, formed integral, all rigidly secured together; removable vertical plate H, comprising the parts between the vertical edges I, I, secured and interlocked together; separate metallic guide-flanges K rigidly secured in said removable plate H of the opposing vertical side walls of the window-frame; and window-sash, the side rails of which are provided with separate metallic guide-bearings O, for the reception of said guide-flanges, substantially as set forth.

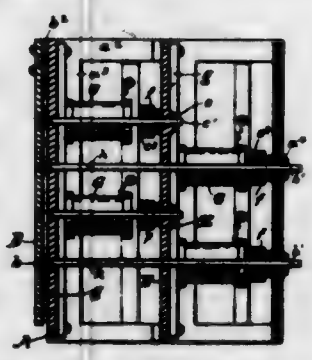
4. In a fireproof window, the combination with the respective sides of the window-frame; of separate non-corrosive guide-flanges L, and with the respective side rails of the sash; of the non-corrosive guide-bearings O formed for the reception of said guide-flanges, and with the top and bottom rails of the respective upper and lower sash, and the contiguous bearing-surfaces of the window-frame above and below said upper and lower rails; of the horizontal flanges B', rigidly affixed at their outer edges in the opposing walls of said window-frame, and adapted to engage in corresponding recesses formed in the opposing edges of the upper and lower rails of said sash, as set forth.

690,898. GUN-CLEANER. ABNER W. BISHOP, Racine, Wis. Filed Apr. 26, 1901. Serial No. 57,610. (No model.)



Claim.—As a new article of manufacture, a gun-cleaner formed from a solid cylindrical wooden body, which is tapered rearwardly and has an enlarged head upon its front end and corresponding to the general taper of the body, the head end of the body being provided with a plurality of intersected longitudinal bifurcations which taper correspondingly to the body and divide the latter into a plurality of spring members, the front end of the head being rounded and the rear end terminating in an abrupt marginal shoulder, there being a plurality of marginal grooves formed in the head portion, the front wall of each groove being radial and abrupt, and the rear wall being inclined rearwardly and outwardly and merging into the outer side of the head, and a metallic ferrule applied to the rear end of the wooden body and having a longitudinal rearwardly-directed screw-threaded stem.

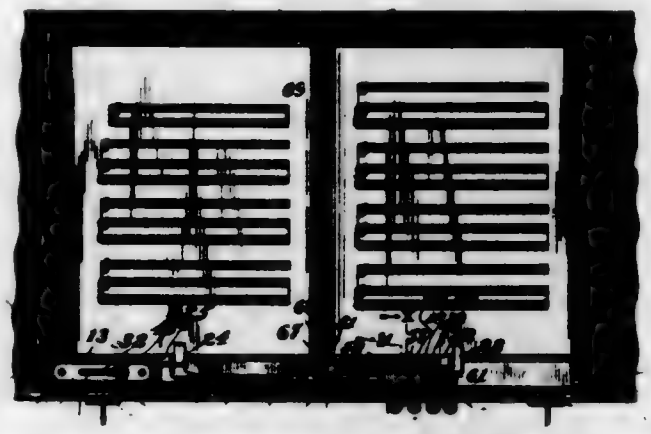
690,894. TIME-RECORDER. SIGMUND BOWER, Brooklyn, N. Y., assignor to George Gray, Brooklyn, N. Y. Filed Nov. 13, 1900. Serial No. 36,332. (No model.)



Claim.—1. In a time-recorder, the combination of punches provided with stops thereon, of armatures embracing the said punches between the stops and leaving the said punches free to vibrate or swing independently of the movement of the armature.

2. In a time-recorder, the combination of a punch provided with a hub d^2, of an armature provided with a bifurcated end, embracing the said hub and leaving the punch free to move rotatively independent of the movement of the armature.

690,895. LEAF-TURNER. WILLIAM J. BRAMHAM, Wilmington, Del. Filed Sept. 22, 1900. Serial No. 30,822. (No model.)



Claim.—1. In a leaf-turner, the combination with a frame or body and a series of turning-arms pivoted on a single pin, of an upright secured at the center of the rear edge of the body, a wire pivoted to the body in line with the pivotal pin of the arms, a loose strip between the upright and the wire normally pressed against the wire, and means for connecting the tops of the upright and wire serving also as a guide for the loose strip, substantially as described.

2. In a leaf-turner, the combination with a frame or body provided with a transverse groove and an upright secured at the rear edge of the body at one end of said groove, of a wire pivoted to the top of the body at the other end of the groove, a pin in the top of the upright, a link pivoted to the top of the wire and adapted to engage the pin, a loose strip between the wire and the upright provided with top and bottom pins to engage in the link and groove respectively, and means for normally pressing the loose strip against the wire substantially as described.

3. In a leaf-turner, the combination with a frame or body, and a series of leaf-turning arms mounted on a common pivot, of a corresponding series of latches to hold the respective arms in their right-hand positions, each latch being located in the plane of movement of its respective arm and each arm moving across the path of the release movement of the latch in advance of its own latch and when held latched resting against and locking the said advance latch, substantially as described

4. In a leaf-turner, the combination with a frame or body, of a vertical pin therein, a series of leaf-turning arms pivoted thereon and having rear projections beyond the pivot, springs connecting such rear projections with the body to the right of the pivot, a sliding block mounted in the body to the left of the pivot and connections between said block and the rear projections of the turning-arms, substantially as described.

5. In a leaf-turner, the combination with a frame or body, of a vertical pin therein, a series of leaf-turning arms pivoted thereon and having projections beyond the pivot, springs connecting such rear projections with the body to the right of the pivot, a sliding block mounted in the body to the left of the pivot, a plate secured to said block and longitudinally slotted, and wires connecting in said grooves and with the rear projections of the turning-arms, substantially as described.

6. In a leaf-turner, the combination with a frame or body, of a vertical pin therein, a series of leaf-turning arms pivoted thereon, and having rear projections beyond the pivot, springs connecting such rear projections with the body to the right of the pivot, and a sliding block mounted in the body to the left of the pivot, a plate secured to said block and provided with a series of longitudinal slots of progressively-increasing length, and wires of equal lengths engaging slidably in said grooves and connected to the rear projections of the turning-arms, substantially as described.

690,896. KEY-HOLDER. FRANK E. BROWN, Concord, N. H. Filed June 8, 1901. Serial No. 63,839. (No model.)

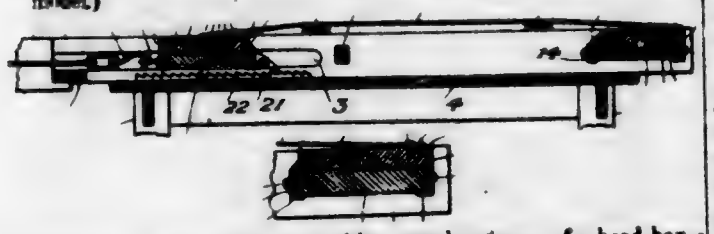


Claim.—1. In a key-holder, the combination, with a spindle having a fixed plate at one end and notches in its other end portion, of removable plates pivoted together and provided with slots for engaging with the said notches and spindle, and means for locking the said removable plates upon the said spindle, substantially as set forth.

2. In a key-holder, the combination, with a spindle having a fixed plate at one end and notches in its other end portion, of two removable plates pivoted together, one of the said removable plates being provided with a radial slot and a locking-pin, and the other said removable plate being provided with a slot arranged concentric with its pivot-pin, and

having a notched spring-tongue for engaging with the said locking-pin, substantially as set forth.

690,397. LEATHER-STRETCHING DEVICE. JOHN CALDWELL, Minneapolis, Minn., assignor to the W. S. Nott Company, Minneapolis, Minn., a Corporation. Filed Dec. 1, 1899. Serial No. 738,830. (No model.)

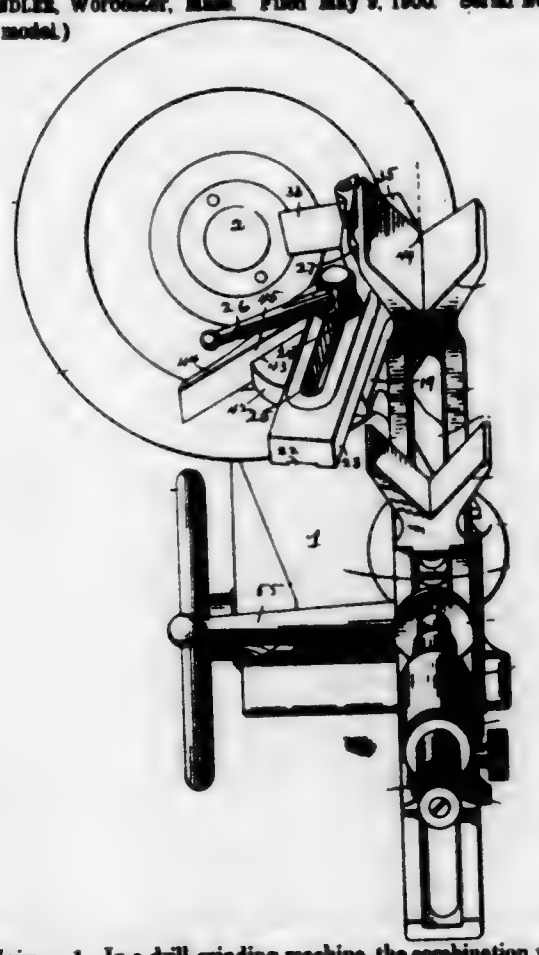


Claim.—1. The combination with a stretcher-frame, of a head having a body of wood held in place by clamp-plates, one of which plates is provided with a series of permanent tines in close arrangement and extending in a row transversely to the sides of the stretcher-frame, substantially as set forth.

2. In a leather-stretching machine, the combination with a stretcher-frame, of a stretcher-head composed of clamping-plates having suitable flanges, a board secured between the lower portions of the plates by bolts, and a removable board held in the space between the lower board and the upper flanges of the plates, for the purpose set forth.

3. In a leather-stretching machine, the combination with a stretcher-frame, of a stretcher-head consisting of clamping-plates at front and rear and provided with flanges one of which is at a right angle and the other at an obtuse angle to its plate, boards fitted between such plates, and means for clamping the plates to them, substantially as set forth.

690,398. MACHINE FOR GRINDING DRILLS. CLARENCE A. CHANDLER, Worcester, Mass. Filed May 9, 1900. Serial No. 16,006. (No model.)



Claim.—1. In a drill-grinding machine, the combination with a supporting-stand and a grinding-wheel journaled in said stand, of a bar capable of sliding longitudinally in said stand and provided with a rack, a shaft journaled in said supporting-stand and transversely to said bar, a pinion carried by said shaft and engaging said rack, a hand-wheel by which said shaft is turned and means for clamping said sliding bar in a fixed position and a drill-holder carried by said sliding bar, substantially as described.

2. The combination with a supporting-stand and a grinding-wheel journaled in said stand, of a bar capable of a longitudinal movement in said stand, a drill-holder carried by said bar, mechanism for sliding said bar comprising a screw-threaded transverse shaft, a hand-wheel and a rack and pinion, a sleeve held on said screw-threaded shaft and arranged to clamp said sliding bar and a nut on said screw-threaded bar by which said sleeve is crowded against said bar; substantially as described.

3. The combination with a supporting-stand and a grinding-wheel journaled in said stand, of a bar capable of a longitudinal sliding movement in said stand and having a rack, a transverse shaft journaled in said stand and having a screw-threaded end, a pinion attached to said shaft and engaging said rack, a sleeve held loosely on said shaft, and adapted to engage the periphery of said sliding bar, a hand-wheel held on said shaft and having a spline connection therewith and a nut held on the end of said shaft, whereby said hand-wheel and sleeve are clamped between said nut and said sliding bar, substantially as described.

4. The combination with a supporting-stand and a grinding-wheel journaled therein, of a bar capable of sliding longitudinally in said stand, means for holding said bar in a fixed position, a sleeve carried by the end of said bar, a bracket journaled in said sleeve and provided with ways, an intermediate piece adjustably attached to said bracket and a drill-holder pivotally attached to said intermediate piece, whereby its angle of inclination is varied relatively to said grinding-wheel, substantially as described.

5. The combination with a grinding-wheel, of a bracket for supporting a drill-holder, a drill-holder supported by said bracket at an oblique angle to the side of said grinding-wheel, an intermediate piece between said bracket and said drill-holder, a lip-rest held by said intermediate piece, means for adjustably attaching said drill-holder to said intermediate piece, whereby it is capable of being rocked thereon, in order to change its angle of inclination to said grinding-wheel, substantially as described.

6. The combination of a bracket for supporting a drill-holder, a drill-holder supported by said bracket, an intermediate piece between said drill-holder and said bracket, a lip-rest held by said intermediate piece, means for rocking said drill-holder concentrically with a point on the edge of said lip-rest as a center and means for adjustably attaching said drill-holder to said intermediate piece, substantially as described.

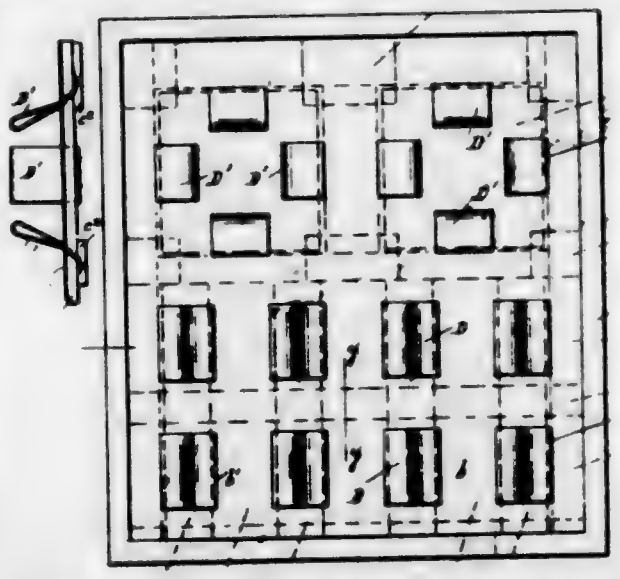
7. The combination with an adjustable drill-holder, of a lip-rest held independently of said drill-holder and means for rocking said drill-holder concentrically with a point in the edge of said lip-rest and means for holding said drill-holder at a fixed angle of inclination, substantially as described.

8. The combination with a bracket and a drill-holder supported thereby, of an intermediate piece between said bracket and said drill-holder, a lip-rest held by said intermediate piece, a T-shaped groove in said intermediate piece concentric with a point in the edge of said lip-rest, a bolt passing through said drill-holder having a T-shaped head held in said slot and a nut carried by said bolt by which said drill-holder is clamped in position, substantially as described.

9. The combination with a bracket for supporting the drill-holder and capable of an oscillating motion, of a drill-holder held on said bracket and adjustable thereon in an oblique plane to the axis of oscillation, whereby the variation of its angle of inclination moves it toward or away from the plane of its axis of oscillation and thereby automatically changes the clearance of the drill, substantially as described.

10. The combination with a lip-rest having a beveled end to receive the contact of the drill-lip and a drill-holder adjustable in a plane parallel with the beveled end of the lip-rest, substantially as described.

690,899. SHOW-TRAY. THADDEUS S. COFFIN, Revere, Mass. Filed Mar. 30, 1901. Serial No. 53,627. (No model.)



Claim.—The combination, with a rack provided with bars having beveled edges, and a facing-plate having slits in it; of inclined spring-loops secured to the bars in pairs and projecting through the said slits, and wedge-plates holding the said loops against the said beveled edges, substantially as set forth.

690,400. THREAD-CUTTING ATTACHMENT FOR SPOOLS. JOHN F. CORDES, Chicago, Ill. Filed Nov. 23, 1900. Serial No. 37,439. (No model.)



Claim.—1. A thread-cutting attachment for spools comprising a barrel, adapted to fit into a spool-hole, a cap at the upper end thereof, a knife secured diametrically upon said barrel to project therefrom at its ends, and a disk fitted upon the barrel below the knife, substantially as described.

2. A thread-cutting attachment for spools, comprising a barrel split from end to end having longitudinal slits therein at the upper end to receive the knife and at the lower end to allow the barrel to grip the spool, a knife held in the slits at the upper end of the barrel and a disk fitted upon the barrel to grip the knife and hold it thereon, substantially as described.

690,401. EXTENSION-TABLE. JOSEPH CORRELL, Barryville, N. Y. Filed June 13, 1901. Serial No. 64,449. (No model.)



Claim.—1. A table comprising the fixed end boards, means for slidingly connecting the same, the central and side longitudinal bars mounted on one of the fixed end boards and spaced apart to receive the leaves, the central longitudinal bar being extended beyond the side bars and provided at its extremity with a stop for engaging the ends of the leaves, the bottom bars connecting the longitudinal bars and supporting the leaves, and legs, substantially as described.

2. A table comprising the fixed end boards, the central and side longitudinal bars spaced apart to receive removable leaves, the central bar being extended beyond the side bars and provided with a transverse end piece forming laterally-projecting stops, the bottom bar 12 arranged at the ends of the side bars and connecting the same and the central bar, the leg-supporting bar 11 connecting the longitudinal bars and arranged near the outer ends of the same, the brackets 17, the leg-supporting bar 16 mounted on the brackets, and the corner legs secured to the leg-supporting bars 11 and 16, substantially as described.

3. A table comprising the fixed end boards 1 and 2, provided with side and end rails, the slides 3 and 4 connecting the end boards, the central and side longitudinal bars mounted on the end board 1, the central longitudinal bar being extended beyond the side bars and having laterally-projecting stops, the transverse bottom bars 11 and 12 connecting the longitudinal bars, the brackets 17 mounted on the end board 2, the transverse leg-supporting bar 16 secured to the brackets, the brackets or hangers 27 depending from the slides 3, the central leg-supporting bar carried by the hangers or brackets 27, and the central and corner legs secured to the central leg-supporting bar and to the bars 11 and 16, substantially as described.

690,402. CRADLE FOR MARINE RAILWAYS. JAMES L. CRANDALL, Boston, Mass., assignor to H. I. Crandall & Son Company, Boston, Mass., a Corporation of Maine. Filed June 25, 1901. Serial No. 66,945. (No model.)

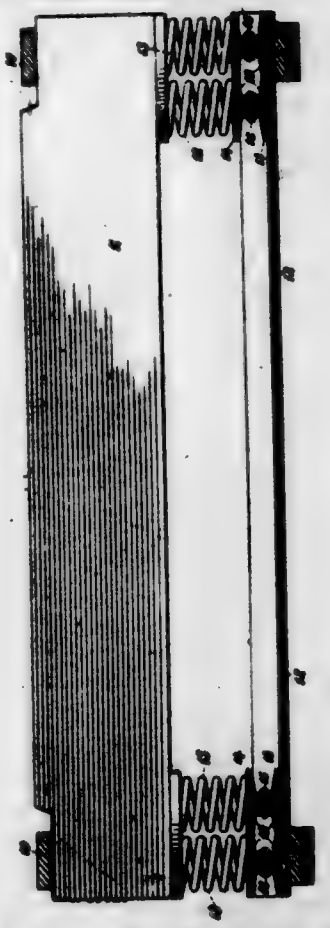
Claim.—1. In a marine railway, a cradle adapted to be hauled up the inclined runway having inclined base-bars, each provided with a number of rolls, horizontal top bars, and means for rigidly connecting all of said bars together to form a rigid structure, combined with a horizontal supplemental support movably mounted on said top bars which is adapted to receive upon it the ship, and means for limiting the independent movement of said support in opposite ways, substantially as described.

2. In a side-haul marine railway, a cradle having inclined base-bars, each provided with a number of rolls, horizontal top bars and means for rigidly connecting said bars together, combined with a supplemental support mounted on said top bars, and rolls beneath said support, whereby the support is free to move independently within prescribed limits, substantially as described.

690,402.



690,403. CAR-TRUCK. SETH A. CROSS, New York, N. Y. Filed Aug. 22, 1901. Serial No. 72,861. (No model.)



Claim.—1. In a car-truck, the bolster, and a spring-support for said bolster, combined with the interposed bearing below said bolster to permit endwise movement of the latter, said bearing comprising the upper and lower facing members 14, 15, both located at one end of the springs and each having the parallel convex surfaces 19, 19, extending at right angles to the length of said bolster, and the parallel intermediate rocker members 16, 16, also disposed at right angles to the bolster, said rocker members being elliptic or elongated in cross-section and presenting their more extended convex upper and lower surfaces to the said facing convex surfaces 19, 19 of said upper and lower members; substantially as set forth.

2. In a car-truck, the bolster, and a spring-support for said bolster, combined with the interposed bearing below said bolster to permit endwise movement of the latter, said bearing comprising the upper and lower

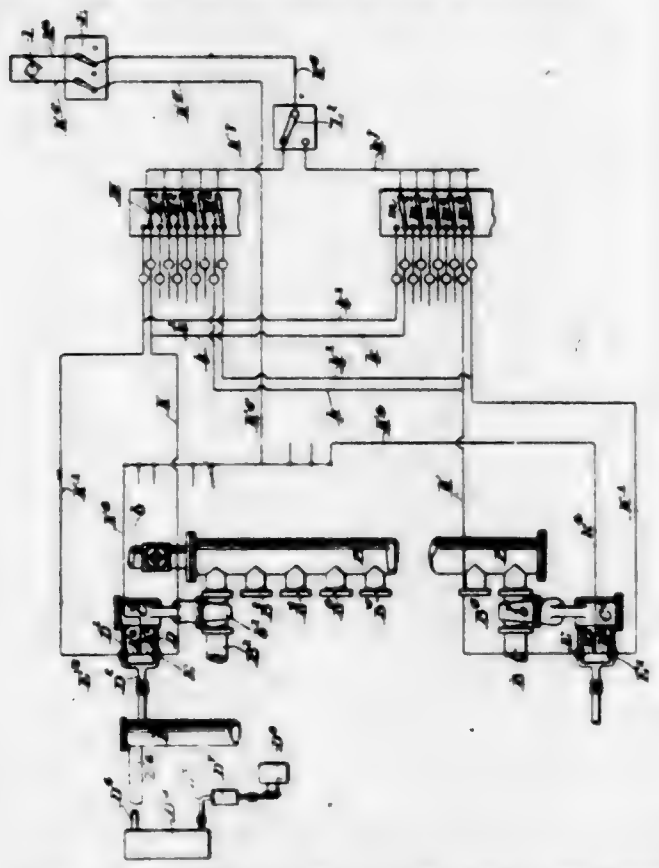
facing members 14, 15, both located at one end of the springs and each having the parallel convex surfaces 19, 19 extending at right angles to the length of said bolster, the parallel intermediate rocker members 16, 16 also disposed at right angles to the bolster, and the end teeth and recesses 17, 18, for preserving the alinement and position of said rocker members, said rocker members being elliptic or elongated in cross-section and presenting their more extended convex upper and lower surfaces to said facing convex surfaces 19, 19 of said upper and lower members; substantially as set forth.

690,404. PRICE-TAG. SIMON DARCYBER, Dayton, Ohio. Filed June 7, 1899. Serial No. 719,647. (No model.)



Claim.—As an improved article of manufacture the price-tag comprising the card and the engaging wire consisting of the body 1, the legs 2 and 3 engaging said card and the leg 3 extending beyond the edge of the same and curved outwardly from its intersection with said card, and thereby adapted to embrace the side of paper boxes, substantially as described.

690,405. FOUNTAIN. FREDERIC W. DARLINGTON, Philadelphia, Pa. Filed May 17, 1901. Serial No. 60,634. (No model.)



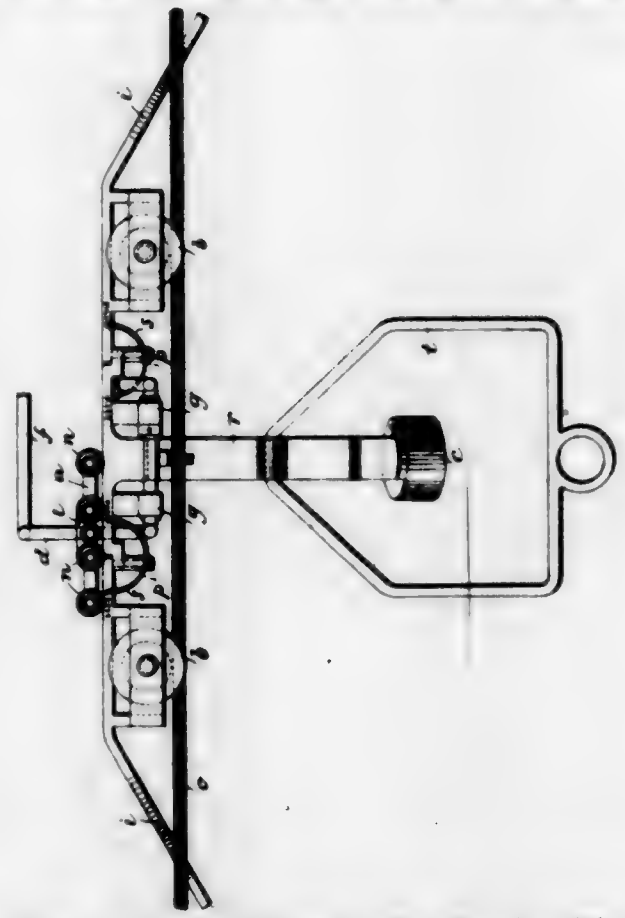
Claim.—1. In combination with a fountain having a series of electromagnetic devices for changing the visual effect produced during its operation, two sets of switches connected in multiple with said devices and one switch of each set connected to actuate one of the electromagnetic devices in one direction or the other in accordance with the position of said switch, a generator having one pole connected to all the actuating devices and a switch whereby the other pole of the generator can be connected with either set of switches at will, all substantially as described, and so that any desired effect can be set up on the disconnected set of switches and brought into effect by shifting the governing-switch.

2. In combination with a fountain having a series of water-pipes leading to jets and independently-actuatable valves for controlling the passage of water through said pipes, means for actuating said valves consisting of a double-acting cylinder and piston, said piston acting on the valve, valves controlling the admission and exhaust of the actuating fluid to the ends of the cylinder, electromagnetic means for actuating said cylinder-valves, a shifting switch whereby said valves are alternately opened and closed and an independently-actuated switching device whereby in either position of the shifting switch the closed valve can be opened and fluid admitted to both ends of the valve-actuating cylinder to arrest the piston in any desired position.

3. In combination with a fountain having a series of water-pipes leading to jets and independently-actuatable valves for controlling the passage of water through said pipes, means for actuating said valves consisting of a double-acting cylinder and piston, said piston acting on the valve, valves controlling the admission and exhaust of the actuating fluid to the ends of the cylinder, electromagnetic means for actuating said cylinder-valves, a shifting switch whereby said valves are alternately opened and closed and an independently-actuated switching device connected and moving also with the shifting switch whereby in either position of the shifting switch the closed valve can be opened and fluid admitted to both ends of the valve-actuating cylinder to arrest the piston in any desired position.

4. In combination with a fountain having a number of cylinders and pistons arranged to actuate devices for producing different visual effects, valve-casings, as E, having oppositely-disposed seats E' E^2 and an exhaust-passage, as e^2, one or more of said casings being connected in the motive-fluid conduit or conduits of each cylinder, a valve, as E^2, adapted to alternately open and close the admission and exhaust passages in each casing, an electromagnet arranged to actuate each said valve and a series of switches controlling said electromagnets as described.

690,406. ELECTRIC RAILWAY. GEORGE DAVIS, West Kensington, England. Filed Nov. 19, 1900. Serial No. 37,011. (No model.)



Claim.—1. A trolley running on double rails and consisting of a main and a supplemental contact and an arm connecting the contacts and so bent or shaped as to pass wholly without or wholly within the arm of another similar trolley running on the same rails in the opposite direction substantially as described.

2. A trolley consisting of a framework adapted to run on one of two parallel conductors, an arm hinged to the framework and adapted to rest on the other conductor and so bent or shaped as to pass wholly without or wholly within the arm of another similar trolley running on the same rails in the opposite direction, and a bridge or bow on the framework and extending above or inside the framework and below or outside the conductor for the purpose specified.

3. A trolley consisting of a framework adapted to run on one of two parallel conductors, an arm having two spindles by either of which it can be hinged to the framework so as to pass over the bridge or under the bridge as desired for the purpose specified, and a bridge or bow on the framework and extending above the framework and below the conductor for the purpose specified.

4. A trolley consisting of a bridge or framework mounted on wheels adapted to run on one of two conductors, a detachable arm adapted to be attached rigidly to insulated sockets in higher or lower positions, carried by the framework and to slide on and in contact with the other conduc-

tor, so that, on meeting another similar trolley running on the same conductors in the opposite direction, the arms of each trolley are raised and pass over the bridges of the respective trolleys, the trolleys pivoting on the conductors.

5. A pair of trolleys for the purposes described each consisting of a main and a supplemental contact connected together by an arm, such arms being so bent or shaped that on meeting the arm of the one trolley passes wholly without or wholly within the arm of the other as set forth.

690,407. **WRENCH.** FRANK W. DENT, Waukesha, Wis., assignor of two-thirds to George W. Swaggart and Byron Griffin, Waukesha, Wis. Filed Sept. 20, 1901. Serial No. 75,769. (No model.)



Claim.—1. In a wrench, the combination with a shank carrying a jaw, of another jaw slidably mounted upon the shank and coacting with the jaw thereof, a clutch pivoted upon the slidable jaw and having a swinging relation with the shank, and a holding-tooth carried by the clutch and engaging the shank, said tooth being movable upon the clutch toward and from the shank and being furthermore movable with the clutch out of and into engagement with the shank upon the swinging of said clutch.

2. In a wrench, the combination with a shank carrying a jaw, of a movable jaw slidably mounted upon the shank and coacting with the jaw thereof, a clutch having a pivotal connection with the movable jaw, said clutch surrounding and having a swinging movement upon the shank, and an adjustable tooth threaded upon the clutch and having a biting portion on its inner end that is arranged to engage the shank and is movable toward and from the same, said tooth being also movable out of and into engagement with the shank upon the swinging of the clutch.

3. In a wrench, the combination with a shank carrying a jaw, of a movable jaw coacting with the jaw of the shank, and a clutch having a pivotal connection with the movable jaw and carrying a circular biting edge arranged to engage the shank.

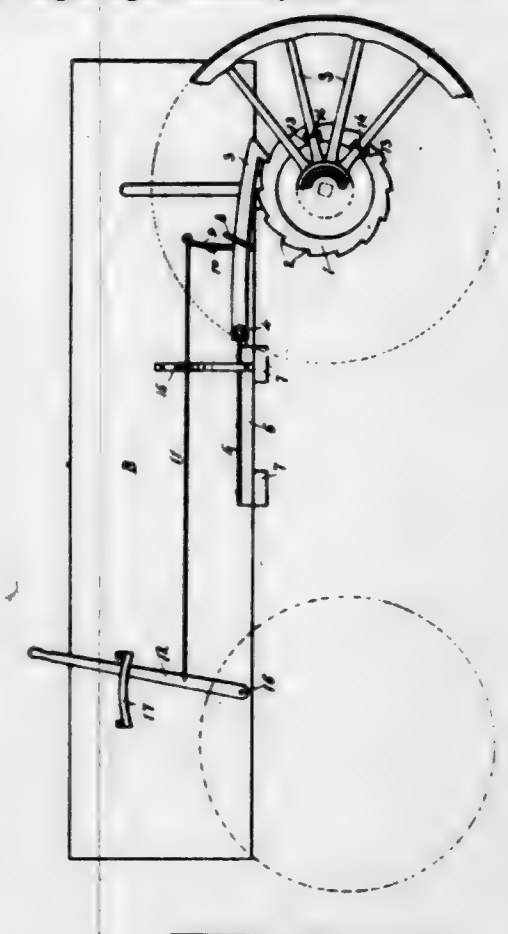
4. In a wrench, the combination with a shank carrying a jaw, of a movable jaw coacting with the jaw of the shank, a clutch having a pivotal connection with the movable jaw, and a rotatable tooth carried by the clutch and having a circular biting edge arranged to engage the shank.

5. In a wrench, the combination with a shank carrying a jaw, of a movable jaw slidably mounted upon the shank and coacting with the jaw thereof, a clutch having a pivotal connection with the movable jaw and surrounding the shank, and a tooth threaded upon the clutch and having a circular biting edge on its inner end, said biting edge being arranged to engage the shank.

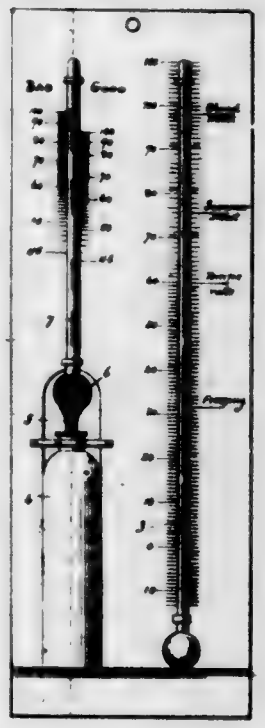
6. In a wrench, the combination with a shank carrying a supporting-jaw at one end, of a movable jaw having a portion surrounding the shank and slidable thereon, a clutch pivoted to the movable jaw and surrounding the shank, said clutch having a sliding swinging movement with respect to the shank, and an adjustable tooth threaded in the clutch and arranged to be moved into and out of engagement with the shank upon the swinging of said clutch.

690,408. **WAGON-LOCK.** CALVIN S. DOSSETT, Northpond, Nebr. Filed Oct. 16, 1900. Serial No. 33,279. (No model.)

Claim.—The combination with a wagon, of the circular rack-plate 1, secured to one of the rear wheels of said wagon, of the suitable staples 14 encompassing suitable spokes to said rear wheel to secure said rack-plate to said rear wheel, of the plate 5 secured to the side of the wagon, of the dog 3, pivotally secured to said plate 5, said dog being provided with a nosing adapted to engage said rack-plate, the lever 9, pivotally secured to the side of the wagon, the lower recurved end 8, of said lever 9, holding and supporting said dog 3, the pin 10 securing said lever 9, of the operating-lever 12 pivotally secured to the side of the wagon, and the connecting-bar 11, securing lever 12 to said lever 9, said instrumentalities being arranged substantially as shown.

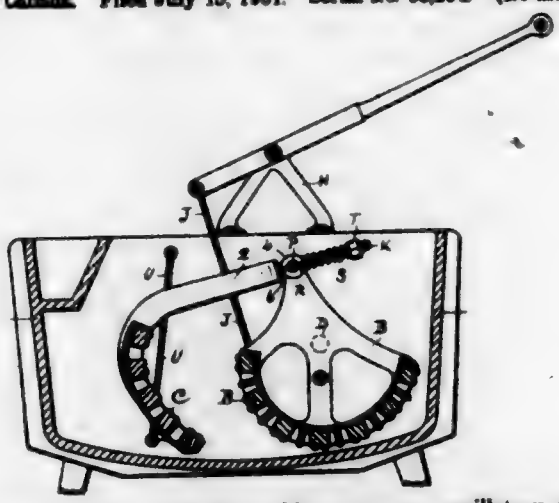


690,409. **CARBONOMETER.** EDGAR S. DOWNS, New Haven, Conn., assignor of one-half to Clarence S. McLean, Rochester, N. Y. Filed Dec. 24, 1900. Serial No. 40,990. (No model.)



Claim.—A carbonometer comprising an ordinary thermometer with its scale, and a wet-bulb thermometer having two scales one graduated with the instrument in a well-ventilated, occupied and artificially-heated room under changing temperature, by noting the registration of the wet-bulb thermometer for each point at which the liquid in the dry-bulb thermometer registers with a mark on its scale, and the other, in the same manner, but with the instrument in a badly-ventilated, occupied and artificially-heated room, each scale being suitably characterized and numbered.

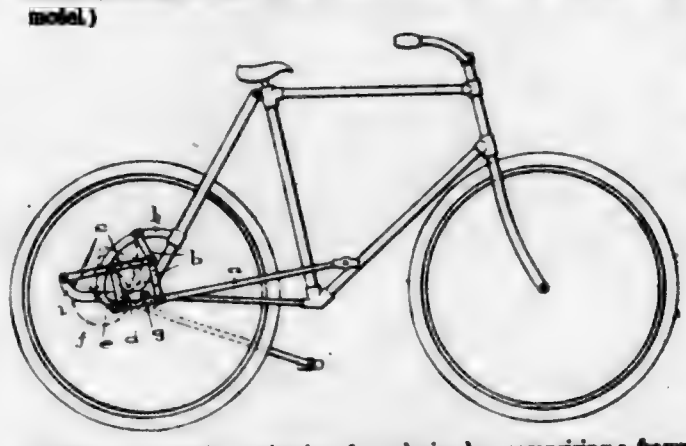
690,410. WASHING-MACHINE. GEORGE R. DOWSWELL, Hamilton, Canada. Filed July 15, 1901. Serial No. 68,294. (No model.)



Claim.—1. In a washing-machine, a convex oscillatory clothes-rubber, a concave reciprocatory clothes-compressor provided with arms extending toward the clothes-rubber, shanks extending from the end of the arms, pins journaled to the ends of the clothes-rubber, said shanks extending through said pins, spiral springs on said shanks to allow end yielding to the arms of the clothes-compressor, substantially as described and set forth.

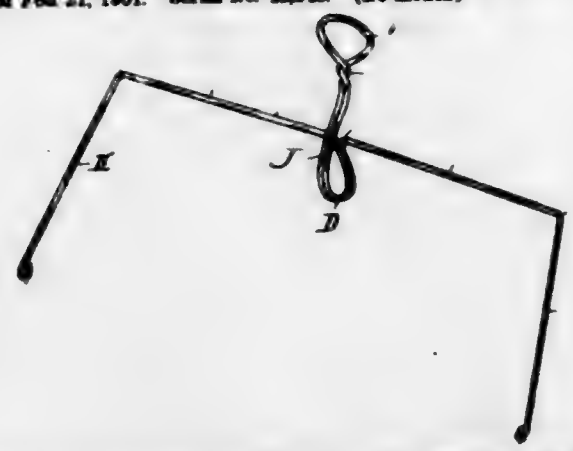
2. In a washing-machine, a convex oscillatory clothes-rubber, a convex reciprocatory clothes-compressor provided with arms extending toward the clothes-rubber, shanks extending from the end of the arms, pins journaled to the ends of the clothes-rubber, said shanks extending through said pins, spiral springs on said shanks, and nuts on the ends of said shanks to engage the ends of said springs, to allow certain end yielding to the arms of the clothes-compressor, substantially as described and set forth.

690,411. DRIVING MECHANISM FOR CYCLES. JOHAN W. EDBLAD, Asele, Sweden. Filed Nov. 6, 1900. Serial No. 35,672. (No model.)



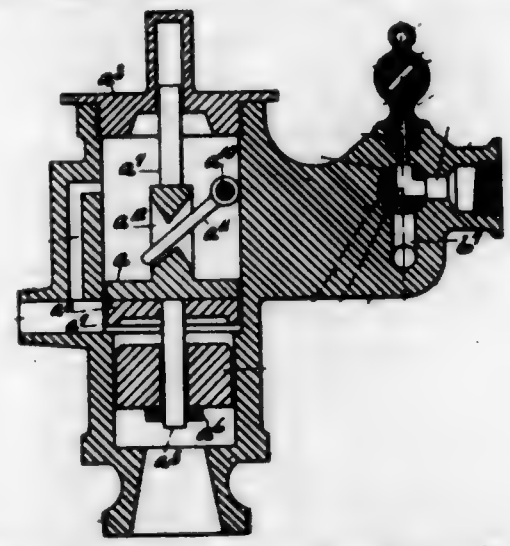
Claim.—A treadle mechanism for velocipedes, comprising a frame, a gear-wheel and crank, a pedal-lever pivotally secured at one end to the crank of the gear-wheel, two links *b* pivoted together and one link pivoted to the lever and the other to the frame above the crank, two other links *c* pivoted together, and one pivoted to the juncture-point of the first two links and the other pivoted to the frame in the rear of the crank, and a link *d* pivoted at one end to the lever between the crank and the links *b* and at its other end to the juncture-point of the links *c*.

690,412. SACK-HOLDER. PETER W. ERICKSON, Moorville, Wis. Filed Feb. 21, 1901. Serial No. 48,248. (No model.)



Claim.—A sack-holder, consisting of a frame made of a single wire bent midway between its ends to form a supporting-eye, a loop extending downward below the eye to receive the hem of the sack, and a pair of arms extending laterally in opposite directions from the loop; said arms being bent with their ends inclined downward to form springs which are adapted to engage the mouth of the sack below its hem and stretch the mouth wide open in tilted position.

690,418. COMBINED GAS AND WATER COCK FOR WATER-HEATERS. WILLIAM R. FOLGER, Cincinnati, Ohio. Filed May 5, 1900. Serial No. 15,567. (No model.)



Claim.—1. In a combined water-valve and gas-cock a water-supply pipe, a casing interposed therein, a piston within the casing to be carried to and held in its open position by the flow of water in the pipe and having a downwardly-projecting stem, a weight mounted loosely upon the stem to be thrown upward against the valve by the pressure of the water when turned on, a gas-supply pipe, a casing interposed therein, a valve in the casing for regulating the flow of gas, and means for coupling the piston and the valve whereby the flow of water controls the flow of gas, substantially as shown and described.

2. In a combined water-valve and gas-cock a water-supply pipe, a casing interposed therein, a piston within the casing to be carried to and held in its open position by the flow of water in the pipe and having a downwardly-projecting stem, a washer upon the stem below the piston, a cylindrical weight retained loosely on the stem to be thrown upward against the washer by the water when it is turned on, a shaft journaled in the casing, means for coupling the shaft and the piston whereby the piston rotates the shaft, a gas-supply pipe, a casing interposed therein, a rotatable plug-valve in the casing for opening and closing off the flow of gas through the pipe, and means for coupling the rotating shaft and the plug-valve whereby the rotation of the shaft caused by the flowing of the water in its case is communicated to the plug-valve to turn on the gas, substantially as shown and described.

3. In a water-valve and a gas-cock the combination of a piston to be raised by inflowing water, a shaft to be rotated by the raising of the piston, a lever attached to the end of the shaft, a rotating plug-valve for opening and shutting off the flow of gas through the cock, a second lever attached to the plug-valve, means for coupling the levers to communicate the motion from one to the other, a lighter, a channel for supplying it continuously with gas, a secondary plug-valve interposed in the channel having an enlarged and a contracted opening therein through which the gas passes to the lighter, a lever secured to the secondary plug-valve, a link connecting it with said second lever for rotating the secondary plug to put the lighter in direct communication with the enlarged channel therein, substantially as shown and described.

690,414. TOOL-BOX. DAVID E. FREDERIKSEN, Racine, Wis. Filed Sept. 30, 1901. Serial No. 77,128. (No model.)

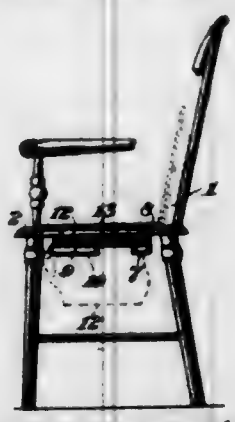
Claim.—1. A device of the class described comprising the upper and lower sections, the lower section being open at the top and the upper section being provided with a cover or lid, the interiorly-arranged locking device mounted on one of the sections and arranged to engage the other section automatically when the two sections are assembled, and a movable member arranged to swing in advance and in rear of the locking device, whereby the latter is rigidly held either in or out of engagement, substantially as described.

2. A device of the class described composed of upper and lower sections, a spring-actuated locking-lever mounted on one of the sections and arranged to engage the other section, and a pivoted arm arranged adjacent to the locking-lever in position to extend in advance or in rear of the same and rigidly locking the lever in or out of engagement, substantially as described.

3. In a device of the class described, the combination of a keeper, a spring-actuated locking-lever provided with means for engaging the keeper, and a pivoted arm having an offset engaging portion arranged to extend in advance or in rear of the locking-lever and rigidly locking the lever against movement in either direction to hold the same in or out of engagement with the keeper, substantially as described.



690,415. COMMODE. JOHN B. FROST, Naperville, Ill. Filed Aug. 5, 1901. Serial No. 70,929. (No model.)



Claim.—1. In a device for the purpose described, the combination of a chair provided with a hole in its bottom, and a pair of spring-jaws secured under said bottom at opposite sides of said hole, and each comprising a curved portion extending around the side of the hole, and two flexible portions adjoining the ends of the first said curved portion and extending toward each other, each of said flexible portions of each jaw being secured at its extremity to the chair-bottom, substantially as set forth.

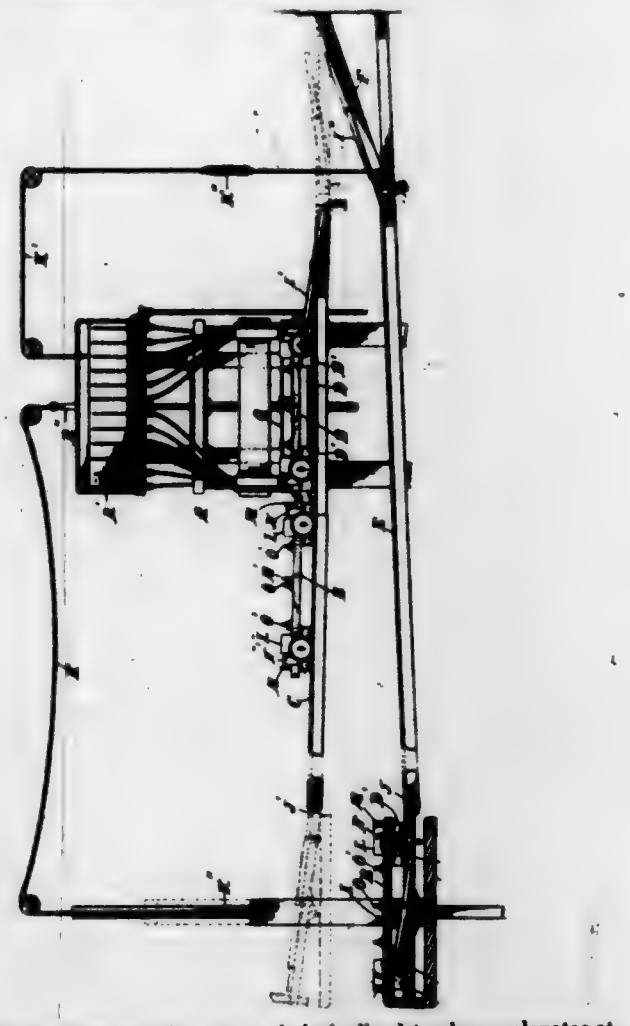
2. In a device for the purpose described, the combination of a chair provided with a hole in its bottom, and two spring-jaws secured under said bottom at opposite sides of said hole, and each comprising two curved horns, one of which consists of the curved members 7 8 running substantially parallel with each other, and the other of the curved members 9 10 running substantially parallel with each other, and pivots supporting said members 7–10, substantially as set forth.

3. In a device for the purpose described, the combination of a chair provided with a hole in its bottom, and a pair of spring-jaws secured below said bottom at opposite sides of said hole, and each comprising two curved horns 7 8 and 9 10 of different lengths, the latter having its end turned forwardly toward the front of the chair, substantially as set forth.

4. In a device for the purpose described, the combination of a chair having a hole in its bottom, and two spring-jaws secured under said bottom at opposite sides of said hole, and each comprising a longitudinally-arranged curved member located a slight distance below the said bottom and concentrically with said hole, and laterally-projecting flexible extensions secured to the bottom and supporting each end of said curved member, substantially as set forth.

690,416. WORK CONVEYING AND PRESENTING MECHANISM. RUSSELL B. FULLER, Holland, Mich. Filed Jan. 2, 1901. Serial No. 41,990. (No model.)

Claim.—1. The combination of two oppositely-inclined tracks, an elevator at the diverging ends of the tracks, a pivoted section of track at the converging ends of the tracks, and means for reciprocating the elevator and pivoted section, substantially as described.



2. The combination of two oppositely-inclined tracks, an elevator at the diverging ends of the tracks, a tilt-table on the elevator, a stop on the upper track to engage and tilt the table, means for operating the elevator, and means at the opposite ends of the tracks for shifting cars from the upper track to the lower track, substantially as described.

3. The combination of two oppositely-inclined tracks located one above the other, an elevator at the diverging ends of the tracks, a tilt-table on the elevator, a stop on each track to engage the tilt-table, a pivoted section of track at the converging ends of the tracks, a pawl on the pivoted section, and means for operating the elevator and pivoted section, substantially as described.

4. The combination of an elevator, a track inclined away from the elevator, a track inclined toward the elevator, means for transferring cars from the first-named track to the other track, a tilt-table on the elevator, a pawl pivoted on the tilt-table, stops on the respective tracks to engage the tilt-table, and means for operating the elevator, substantially as described.

5. The combination of an elevator, a tilt-table on the elevator, a pawl on the tilt-table, a track inclined from the elevator, a stop on the track to engage the table, a section of track at the opposite end of the inclined track, said section being pivoted at one end and vertically movable at the other end, a track extending from the movable end of the said section to the elevator and inclined toward the elevator, a stop on said track, and means for operating the elevator and pivoted section, substantially as described.

6. The combination of an elevator having a tilt-table to receive the cars and a pawl to hold the same, a track extending from the elevator to a pivoted section at the opposite end of the track and vertically movable at one end, a pawl on said section to engage the cars, a track extending from the pivoted section to the elevator, a pawl to stop the cars on the first-named track, and means for operating the pawls, the elevator, and the pivoted section, substantially as described.

7. The combination of an elevator having a tilt-table, a pawl pivoted to the table, a track extending from the elevator, a stop on the track to engage the pawl, a pawl to engage a car on the said track, a pivoted section to receive the cars and engaging the last-named pawl, a pawl on the pivoted section, a track extending from the said section to the elevator, a stop on the track to engage the tilt-table, and means for operating the elevator and pivoted section, substantially as described.

8. The combination of a machine having ways, a track inclined toward the ways, a series of cars having wheels to traverse the track, blocks on the cars to engage the ways and support the cars, and means for re-

turning the cars to the upper end of the inclined track, whereby the cars are propelled by gravity over the track and ways, substantially as described.

9. The combination of a machine having ways to support the cars and a pawl to stop the cars on the ways, an inclined track leading to the ways, a series of cars having wheels to traverse the track, blocks on the cars to engage the ways, and means for returning the cars to the upper end of the inclined track, substantially as described.

10. The combination of a machine having ways to support the cars, and a pawl to stop the cars on the ways, an upper inclined track at one side of the machine, a pivoted section of track at the other side of the machine, a lower inclined track extending from the pivoted section and beneath the ways and upper track, means for shifting cars from the lower track to the upper track, cars having wheels to traverse the tracks, and blocks on the cars to engage and traverse the ways, substantially as described.

11. The combination of a machine having ways, a pawl to stop the cars on the ways, an upper inclined track at one side of the machine, a pivoted section of track at the other side of the machine and operating the pawl, a pawl on the pivoted section, a lower inclined track extending from the pivoted section and beneath the ways and upper track, an elevator to shift cars from the lower to the upper track, means for operating the pivoted section and elevator, cars having wheels to traverse the various tracks, and blocks on the cars to engage and traverse the ways, substantially as described.

12. The combination of a machine, having a reciprocating member, cars adapted to hold and convey the stock to be operated upon by the machine, an elevator, and a pivoted section of track, means for connecting the elevator and pivoted section to the reciprocating member of the machine, a track extending from the elevator to the machine, and a track from the pivoted section to the elevator, substantially as described.

13. The combination of a machine having a reciprocating member, cars to hold and convey stock to the machine, an elevator having a tilting table and pawl to secure the cars, a cord having an elastic portion and connecting the elevator and said member, a track from the elevator to the machine, a stop to operate the tilt-table and pawl, a pawl on the machine to stop the cars, a pivoted section of track to receive the cars and engaging the pawl, a cord having an elastic portion and connecting the pivoted section and said member, and a track from the pivoted section to the elevator, substantially as described.

14. The combination of a nailing-machine, having a reciprocating nail-basket, cars having means for holding the stock to be nailed, an elevator, a track from the elevator to the machine, a pivoted section of track vertically movable at the end toward the machine, a track extending from the pivoted section to the elevator, a cord extending from the elevator to the nail-basket, a cord extending from the pivoted section to the nail-basket, and springs in the cords, substantially as described.

15. In combination with a nailing-machine, and means for conveying cars in succession to the machine, a car having pins and springs to hold the end segments of a basket-top, and side blocks and spring-clips to hold the strips of the same, substantially as described.

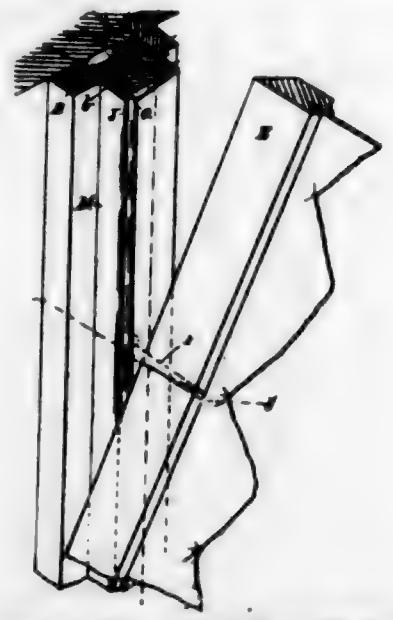
16. In combination with a nailing-machine, ways on the machine, a circuit of tracks to convey cars from one end of the ways to the other end of the same, a car having wheels to traverse the tracks, blocks on the car to engage the ways, means attached to the car for holding the segments and strips of a basket-top, and means for automatically moving the car over said tracks and ways, substantially as described.

690,417. **WEATHER-STRIP.** GEORGE W. GOLDEN, Detroit, Mich. Filed July 22, 1901. Serial No. 69,221. (No model.)

Claim.—1. The combination of two meeting members one pivoted to the other for swinging movement, and a weather-strip comprising a flat spring-section arranged between the meeting faces of the members for swinging movement, said section being secured to one of the members and having its free edge turned to form a bearing adapted to engage the meeting face of the other member.

2. The combination with two meeting members, one pivoted to the other for swinging movement, of a weather-strip covering the meeting face of one member and secured to the latter for free yielding movement, said weather-strip comprising a spring-section extending from one corner of the meeting face to the opposite corner, and a complementary section covering said opposite corner and overlapping the adjacent side of the member.

3. The combination with two meeting members, one pivoted to the other for swinging movement, of a weather-strip covering the meeting face of one member and secured to the latter for free yielding movement, said weather-strip comprising a spring-section extending from one corner of the meeting face to the opposite corner, and a complementary section covering said opposite corner and overlapping the adjacent side of the member, and means for limiting the outward movement of the spring-section.



4. In a swinging and sliding window, the combination with the casing, of a hanging stile having a sliding engagement therewith and provided with a recess formed in one of its sides, the swinging stile, two adjoining metallic strips covering the opposite sides of the hanging stile and the outer meeting face of the latter, said strips having interlocking hooks at their adjoining edges extending within the recess, a spring-strip intermediate the hanging stile and the casing, and a hook carried by one of the adjoining strips engaging the spring-strip.

5. The combination with two meeting members one pivoted to the other for swinging movement, of a weather-strip, carried by one of the members, having a swinging section extending between the meeting faces of said members, and means for limiting the swinging movement of said section.

6. The combination of two meeting members one pivoted to the other for swinging movement, and a weather-strip comprising a flat swinging section extending entirely across the meeting face of one member and secured to the latter at one of the face-corners and having its free edge turned to form a bearing adapted to engage the meeting face of the complementary member.

7. The combination of two meeting members, one pivoted to the other for swinging movement, and a weather-strip carried by one of the members having a section interposed between the meeting faces of said members for swinging movement, said section contacting at one of its edges with the member to which it is attached, and provided at its opposite edge with a bearing adapted to engage the meeting face of the complementary member.

690,418. **CAN-OPENER.** GEORGE W. GOEBER, Conyngham, Pa. Filed May 13, 1901. Serial No. 59,963. (No model.)



Claim.—1. The herein-described can-opener comprising the body portion formed of a piece of wire and bent to form the parallel sections 2, 3, 4, 12 and 13 and the laterally-extending loop-section 14, the downwardly-curved section 15 and the pointed sphere-section 16, in combination with a cutting-blade and means to adjustably secure said blade upon the sections 3 and 4 and a suitable handle adapted to receive the members 12 and 13, all combined substantially as specified and for the purpose set forth.

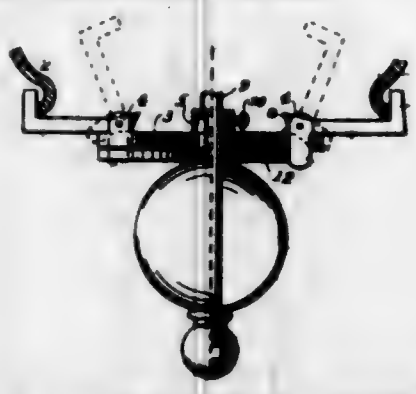
2. In a can-opener, a suitable body portion and a knife-section having a collar 5 attached thereto adapted to receive said body portion and a cam-shaft carried by said collar and adapted to engage said body portion, all substantially as specified and for the purpose set forth.

3. The herein-described can-opener comprising a main or body portion formed of the parallel members 3 and 4; a suitable handle-section connected to said members and a loop-section 14 forming an integral part of the section 4, the wire forming said section being shaped to form the

pointed terminal 16 in combination with a cutting-blade and means to adjustably secure said blade in its operative position and additional means to hold the sections 3 and 4 in union with each other, all substantially as specified and for the purpose set forth.

4. The herein-described can-opener consisting of the main or body portion formed of a single piece of wire and comprising the parts 3, 4, 12, 13, 14, 15 and 16, all integral and formed substantially as described, in combination with an adjustable collar carried by the sections 3 and 4; a knife carried by said collar and a locking-cam rotatably mounted in suitable apertures in said collar and adapted to engage one of the members 3 and 4 whereby the collar may be secured in any desired position thereon and the knife sustained against casual displacement, all substantially as specified and for the purpose set forth.

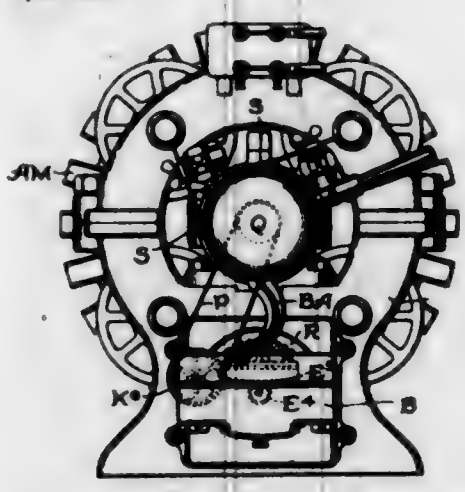
690,419. GLOBE-HOLDER. GEORGE GRAY, Brooklyn, N. Y. Filed June 10, 1901. Serial No. 63,875. (No model.)



Claim.—1. In a pendent globe-holder the combination of the stem, a body provided with a series of flanges upon its face near the edges, a series of right-angled arms pivotally connected to said flanges, projections upon the pivotal end upon opposite sides of the arms, and a cam-body rotatably mounted upon the stem so as to contact the lower projections of the arms and cause the upper projections to engage a globe.

2. In a pendent globe-holder, the combination of the stem, a flanged body, right-angled arms pivotally connected to said body, and a cam-body rotatably mounted upon the stem so as to contact the lower portion of the pivoted end of the arms and cause the right-angled ends of the arms to engage a globe.

690,420. REGULATOR FOR DYNAMO-ELECTRIC MACHINES. CHARLES M. GREEN, Lynn, Mass., assignor to the General Electric Company, a Corporation of New York. Filed May 21, 1898. Serial No. 681,270. (No model.)



Claim.—1. In a regulating device for a dynamo-electric machine, a rheostat for controlling the output of the machine, a revoluble piston rigidly mounted on the rheostat-spindle, a pump driven from the machine and driving the piston, a valve between the piston and the pump, and an electromagnet in the circuit, controlling the position of the valve.

2. In a regulating device for a dynamo-electric machine, a rheostat in shunt to the field, a revoluble piston mounted on the rheostat-spindle to change the field-excitation, a pump driven by the machine and driving the piston in either direction according to the position of a valve interposed between the pump and the piston, and an electromagnet responsive to changes of current in the main circuit, controlling the position of the valve.

3. In a regulating device for a dynamo-electric machine, a rheostat controlling the field-excitation, a device for shifting the brushes adapted to be actuated therewith, a piston rigidly connected to the spindle of said rheostat, a pump driving the piston in either direction according to the position of an interposed valve, and an electromagnet in the main circuit controlling the position of the valve so that as the current rises, the piston is forced in one direction, and as it falls, in the other.

4. In a regulating device for a dynamo-electric machine, mechanism for shifting the brushes, means adapted to actuate said mechanism and to vary the resistance in shunt to the field-coils, a piston operatively connected to said means, a valve, a pump the effect of which is regulated or reversed by the valve, and an electromagnet in the main circuit controlling the position of the valve.

5. In a regulating mechanism for a dynamo-electric machine, the combination of a gear-pump driven from the machine and delivering fluid to one side or the other of a revoluble piston, a valve for controlling the admission of the fluid, a regulating electromagnet in the main circuit, a mechanical connection between the armature of the magnet and the valve, a spring opposing the pull of the magnet, and a rheostat-arm rigidly connected to the piston.

6. In a regulating mechanism for a dynamo-electric machine, the combination of a constantly-running pump, forcing a desired fluid through a suitable channel, a piston actuated by the fluid, a valve controlling the delivery of the fluid to the one side or the other of the piston, a magnet in the main circuit, a rocker-arm connected at one end to the magnet, and at the other carrying the valve, and stops for the rocker-arm by which its stroke in either direction may be adjusted.

7. In a regulating mechanism for a dynamo-electric machine, the combination of a constantly-running pump, a revoluble piston actuated by fluid delivered from the pump, a valve controlling the delivery of the fluid to one side or the other of the piston, resistance-changing and brush-shifting means connected to the piston, a magnet in the main circuit, a rocker-arm connected at one end to the magnet-armature and at the other-end to the valve, a spring opposing the magnet-armature, and adjustable stops for the rocker-arm.

8. In a regulating mechanism for a dynamo-electric machine, the combination of a constantly-running pump, a rotary piston with a fixed abutment having a by-pass valve therein, and regulating mechanism operated by the piston and controlled by a magnet in the main circuit.

9. In a regulator for a dynamo-electric machine, the combination of a controlling-magnet, regulating mechanism, an operating-shaft therefor, a revoluble piston rigidly mounted on said shaft, and means controlling the direction and extent of the piston movement, and itself controlled by the magnet.

10. The combination of a regulator, means for operating it in either direction as desired, and means for so controlling the operation that the device acts at one rate in one direction of motion and at a different rate in the other direction.

11. The combination of a rotary piston, channels leading to the cylinder upon each side of a fixed abutment, a piston-valve opening or closing the channels, and a passage in the valve through which the contents of one side or the other of the cylinder may escape, according to the position of the valve.

12. The combination in a regulating device, with a fluid-pressure pump, of a revoluble piston actuated thereby, a rotatable shaft upon which said piston is mounted, regulating means operated by the shaft, and means actuated by the current in the electric machine which is to be regulated, to control the operation of said piston.

13. The combination in a regulating device, with a rotary fluid-pressure pump, of means for mechanically operating said pump by a dynamo-electric machine, means actuated by said pump for regulating the dynamo-electric machine, means controlled by said machine to control said regulating means, and means for changing the relation of the pump with the regulating means to maintain a uniform direction of movement of the regulating means when the direction of motion of the pump-operating means is reversed.

14. The combination in a regulating device for an electric machine, with a fluid-pressure pump, of means for mechanically operating said pump from the machine, a regulating-piston, fluid channels and ports forming communication from said pump to said piston, and adjustable stops in said channels.

15. The combination in a regulating device, with a rheostat in shunt to the field-coils of a dynamo-electric machine, of a fluid-pressure pump driven from the machine, and a revoluble piston actuated thereby, and mounted on the rheostat-spindle.

16. The combination in a regulating device, with a rheostat in shunt to the field-coils of a dynamo-electric machine, of a fluid-pressure pump, a revoluble piston actuated thereby, and mounted on the rheostat-shaft, a gear on said shaft, a rack adapted to coöperate with said gear, and a rocker-arm carrying said rack and connected to the commutator-brushes, substantially as described.

17. The combination in a regulating device with means for regulating simultaneously the field-resistance and the commutator-brushes of a dynamo-electric machine, of a fluid-pump actuating said regulating means.

18. The combination in a regulating device for electric machines

with a fluid-pressure pump driven by the machine, of a revoluble piston actuated by the pump, a rotatable rheostat-shaft upon which said piston is mounted, and means controlled by the electric machine to control the operation of said piston.

19. The combination in a current-regulator, of a fluid-tight box, a fluid-pump therein, a casing for said pump, ports forming communication between said casing and box, a piston-chamber also inclosed by said box, additional communications between said pump and chamber, and a revoluble piston in said chamber provided with a shaft extending outside said box.

20. The combination in an electric-current regulator, with a fluid-pressure regulating piston, of a pump therefor, means for rendering said piston inoperative independently of said pump, and an electromagnet operated by the current to be regulated for controlling said means.

21. The combination in an electric-current regulator, with a piston-chamber, of a revoluble piston therein, a radial abutment from said chamber, a channel through said abutment, and a valve in said channel.

22. The combination in a current-regulator, of means for controlling the speed of its regulating mechanism in either direction independently.

23. The combination in a device for controlling a regulating-valve in a current-regulator, with a controlling electromagnet and its armature, of a pivoted lever secured to said armature, adjustable means connected to the lever for balancing the electromagnetic force, and adjustable stops adapted to coact with said lever on each side of the fulcrum, substantially as described.

24. The combination in a current-regulator, of a fluid-pump, a revoluble piston driven by the fluid-pressure therefrom, a rheostat in shunt to the field-coils of the machine to be regulated, and a shaft for said piston rigidly connected to said rheostat-handle.

25. The combination in a current-regulator, with a fluid-pump, of pressure-operated regulating mechanism, a safety-valve adapted to permit the circulation within the regulator independent of said regulating mechanism, and an electromagnet operated by the current to be regulated for controlling said valve.

26. The combination in a current-regulator for electric machines with a fluid-tight box, of a pump-casing inside the box, a pump in the casing and operated by the electric machine, an inlet-passage from the interior of the box to the interior of the pump-casing, a cylinder in the box, a piston in the cylinder, current-regulating means controlled by the piston, a passage from the pump-casing to the cylinder, a valve in said passage and controlled by the electric machine, a vent-channel connecting said passage with the interior of the box, and a safety-valve operated by extra pressure of fluid to permit the latter to return to the box.

27. The combination in a current-regulator, of a fluid-tight box, a pump and a regulating mechanism in said box, a hollow perforated valve between the two, a valve-casing therefor, and means for establishing communication between said valve and box, and between said valve and said casing, substantially as described.

28. The combination in a regulating device for electric machines, of a pump driven from the machine, a piston operated by the pump, means operated by the piston for regulating the product of the machine, a piston-chamber, a valve-casing communicating therewith, a hollow valve adapted for simultaneously in either direction admitting fluid under pressure to said chamber and permitting the exhaust to pass through itself, and an electromagnet operated by the current of the machine for controlling said valve.

29. The combination in a current-regulator for an electric machine, with a pump driven from the machine, a piston operated by said pump, means operated by the piston for regulating the current of the machine, of a valve-casing having annular channels, an inlet intermediate thereof, the said channels being normally in communication with said inlet, a valve for alternately cutting off communication from each channel, and an electromagnet operated by the current to be regulated for controlling said valve.

30. The combination in a regulator for an electric machine, with a pump driven from the machine, a piston operated by the pump, means operated by the piston for regulating the current of the machine, a valve-casing having annular channels, of an inlet intermediate thereof, a piston-valve, rings on said valve, and an electromagnet operated by the current to be regulated for controlling said valve.

31. The combination in a regulator for an electric machine, with a pump driven from the machine, a piston operated by the pump, means operated by the piston for regulating the current of the machine, of a valve-casing having outlet and inlet openings and a safety-exhaust, a hollow perforated valve, and an electromagnet operated by the current to be regulated for controlling said valve.

32. The combination in a dynamo-regulator, of a fluid-tight box, regulating mechanism in said box, a casing within said box, a gear-pump in said casing, and communication between said pump and regulating mechanism and between said pump and the interior of said box, substantially as described.

33. In a regulating device for an electric machine, the combination with a rheostat adapted to control the product of the machine, of a rotatable fluid-pump driven from the shaft of the machine, a cylinder, a movable piston mounted in said cylinder on the spindle of the rheostat, a valve between the pump and cylinder, and means controlled by the product of the machine for operating said valve.

34. In a regulating device for an electric machine, the combination with a rheostat adapted to control the product thereof, a casing adapted to contain fluid, a rotatable fluid-pump in the casing and driven from the shaft of the machine, a cylinder in the casing into which extends the spindle of the rheostat, a revoluble piston mounted in said cylinder on said spindle, a valve between the pump and cylinder, and means controlled by the product of the machine for operating said valve.

35. In a regulating device for an electric machine, the combination with a rheostat adapted to control the product thereof, of a casing having two compartments, a rotary fluid-pump in one compartment and driven from the shaft of the machine, a cylinder in the same compartment, into which cylinder extends the spindle of the rheostat, a valve between the pump and cylinder, a revoluble piston in said cylinder connected with the spindle of the rheostat, and an electromagnet in the other compartment of the casing, which magnet is electrically connected with the machine and adapted to operate said valve.

36. In a regulating device for an electric machine, the combination with means for controlling the product thereof, a fluid-pump driven from the shaft of the machine, a cylinder, a valve between the cylinder and the pump, a piston in the cylinder connected with said controlling means, a pivoted lever connected with the valve, an electromagnet connected to one end of the lever and electrically connected with the machine, and an adjustable spring connected to the other end of the lever.

37. In a regulating device for an electric machine, the combination with means for controlling the product thereof, of a fluid-pump operated from the machine, a piston operated by said pump for operating said controlling means, a valve between said pump and piston, means controlled by the product of the machine for operating said valve, and means for varying the limits of movement of the valve.

38. In a regulating device for an electric machine, the combination with a rheostat adapted to control the product thereof, of a casing adapted to contain a liquid, a gear-pump in the casing, a cylinder in the casing into which cylinder extends the spindle of the rheostat, a valve between the pump and cylinder, and an electromagnet controlled by the product of the machine and adapted to control said valve.

39. The combination with a fluid-pump, of a piston operated thereby, an intermediate hollow piston-valve, a casing therefor, an opening midway of the casing and communicating with the pump, openings to the interior of the valve on opposite sides of said opening, and an opening in one end of the casing and communicating with the pump

40. The combination in a current-regulator for an electric machine with a fluid-pressure pump arranged to be operated by the machine, of a piston-box and piston therein constructed and arranged to control the current of the electric machine, a passage between said pump and piston, an independent valve in said passage, which is controlled by the electric machine, a vent-channel branching from said passage, and a safety-valve which is operated by extra pressure of the fluid to permit the latter to pass through the vent-channel.

41. The combination in a current-regulator for an electric machine with a fluid-pressure pump arranged to be operated by the electric machine, of a piston-box and piston therein constructed and arranged to control the current of the electric machine, a passage connecting the pump and piston-box, a valve in said passage, and an electromagnet connected in the circuit of the electric machine and arranged to control said valve, a vent-channel branching from said passage to the electrically-controlled valve, and a safety-valve operated by extra pressure of the fluid to permit the latter to pass through the vent-channel.

690,421. RAILWAY-SWITCH. EDWIN R. GREEN, Whiting, Ind. Filed May 31, 1901. Serial No. 62,633. (No model.)

Claim.—1. In combination with a pair of split switch-rails, open-center shoes rigidly secured to said split rails said shoes having openings through their outer portions, a switch-bar passing under the main rails and having integral screw-threaded branch arms, said arms being inserted through the said openings in the shoes, nuts on the branch arms to regulate the distance between the shoes, and locks to hold the nuts.

2. In combination with a split switch-rail, an open-center shoe directly connected to said rail, a switch-bar having integral arms connected with the shoe, and a take-up device.

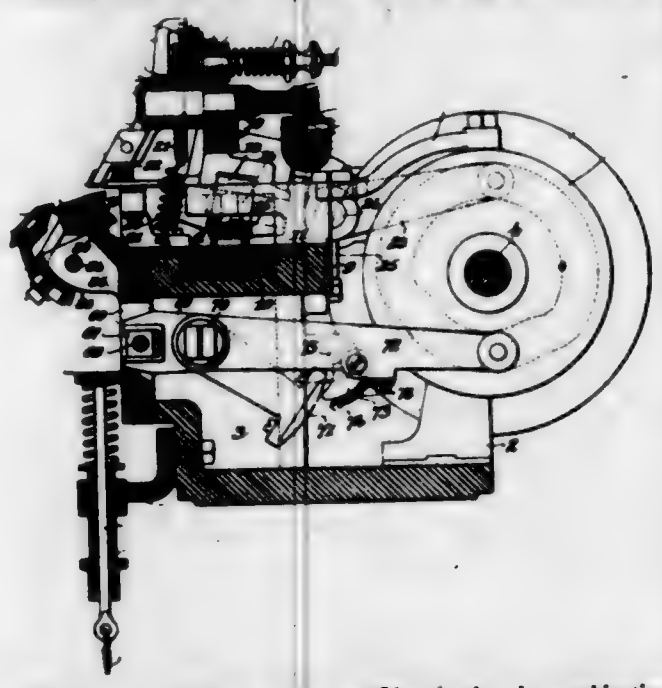
3. In combination with a pair of split switch-rails, straps looped to form an open-center shoe rigidly attached to each switch-rail, and a switch-bar adjustably connected to said shoes by means of two take-up devices.

4. In combination with a pair of split switch-rails, straps looped to form an open-center shoe, said open center being contracted in width at

its inner portion, the ends of said straps being bolted to the switch-rails and the outer end of its loop having a bolt-hole, a switch-bar passing under the main rails and having an upwardly-cranked middle portion, integral arms projecting from said middle portion to and through the bolt-holes in the shoes, said arms being screw-threaded, nuts on the threaded arms forming take-up devices and lock-nuts to hold the adjustment of the inner nuts.



690,432. STITCH-SEPARATING MACHINE. JOHN R HADAWAY, Brockton, Mass. Filed Dec. 3, 1900. Serial No. 38,426. (No model.)



Claim.—1. A stitch-separating machine, having, in combination, two indenting-tools movable relatively to each other, means to locate each of said tools in a separate stitch interval whether the stitches are of uniform or varying length, and means to actuate said tools to indent said stitch intervals, substantially as described.

2. A stitch-separating machine, having, in combination, two indenting-tools, means to locate one of said tools in a stitch interval whether the stitches are of uniform or varying length, means to move the second tool relatively to the first tool to locate said second tool in the next adjacent stitch interval, and means to actuate the tools to indent said stitch intervals, substantially as described.

3. A stitch-separating machine, having, in combination, two indenting-tools, a yielding connection between said tools, means to actuate said tools to locate one tool in a stitch interval and to move the second tool relatively to the first tool to locate the second tool in another stitch interval, and means to actuate the tools to indent the stitch intervals, substantially as described.

4. A stitch-separating machine, having, in combination, an indenting-tool and actuating means therefor, a slide, a work-support mounted thereon arranged to engage the bottom of a shoe-sole, and means for adjusting the work-support on said slide to vary the angle of inclination of the sole-engaging surface, substantially as described.

5. A stitch-separating machine, having, in combination, an indenting-tool and actuating means therefor, a main work-support arranged to engage the bottom of a shoe-sole, an auxiliary work-support outside of the main work-support, a pivotally-mounted block to which said supports are secured, means for adjusting said block to vary the angle of inclination of the sole-engaging surfaces of the main and auxiliary work-supports, and means for adjusting the auxiliary support relatively to the main work-support, substantially as described.

6. A stitch-separating machine, having, in combination, an indenting-tool and actuating means therefor, a main and an auxiliary work-support, means for adjusting said supports to vary the angle of inclination of the sole-engaging surfaces, and means for adjusting the auxiliary support relatively to the main work-support, substantially as described.

7. A stitch-separating machine, having, in combination, an indenting-tool, means to locate said tool in a stitch interval, means to actuate the tool to indent the stitch interval, means to actuate the tool to feed the work the length of the preceding stitch, and a second indenting-tool yieldingly connected to the first-mentioned tool arranged to locate and indent another stitch interval, substantially as described.

8. A stitch-separating machine, having, in combination, an indenting-tool, a lever upon which the tool is mounted, a second lever acting on the first-mentioned lever to raise the indenting-tool from the work, and means for adjusting the contact-point of said levers toward and from the pivot of the first-mentioned lever, substantially as described.

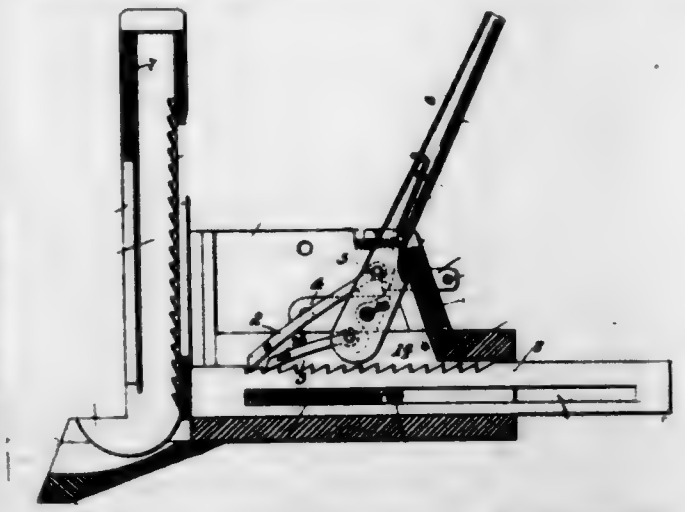
9. A stitch-separating machine, having, in combination, an indenting-tool, a lever upon one side of which the tool is mounted, a projection on the other side of the lever, a rigid support arranged to be engaged by said projection when the lever is sprung by a resistance offered to the tool, and means for actuating the lever, substantially as described.

10. A stitch-separating machine, having, in combination, an indenting-tool, means to locate said tool in a stitch interval, means to actuate the tool to indent the stitch interval, means to feed the work, and a second indenting-tool yieldingly connected to the first-mentioned tool arranged to locate and indent another stitch interval, substantially as described.

11. A stitch-separating machine, having, in combination, an indenting-tool and actuating means therefor, a slide, a main work-support mounted thereon arranged to engage the bottom of a shoe-sole, an auxiliary support mounted on said slide outside of the main work-support, and means for adjusting the auxiliary support relatively to the main work-support, substantially as described.

12. A stitch-separating machine, having, in combination, two indenting-tools movable relatively to each other, means to locate each of said tools in a separate stitch interval whether the stitches are of uniform or varying length, said means acting to locate each tool before the withdrawal of the other tool and means to actuate said tools to indent said stitch intervals, substantially as described.

690,423. RAILROAD-TRACK JACK. HENRY HALE, Astoria, and SYLVESTER J. BARTLETT, Beardstown, Ill. Filed Sept. 25, 1900. Serial No. 31,045. (No model.)



Claim.—1. A jack comprising a frame, a guide movable toward and from the frame, a lifting-bar carried by the said guide, a longitudinally-movable rack-bar carrying the aforesaid guide, and an operating-lever provided with means for actuation of either the aforementioned lifting-bar or rack-bar according as the object is to be elevated or moved from the jack, substantially as set forth.

2. In a jack, a guide, a rack-bar projected horizontally from the guide, a lifting-bar mounted for vertical movement with reference to said guide, an operating-lever provided with means for coöperation with either the lifting-bar or rack-bar, and a pivoted support having the operating-lever fulcrumed thereto to effect a shifting thereof, substantially as set forth.

3. In a jack, a vertical guide, a rack-bar projected horizontally therefrom, a vertically-movable lifting-bar carried by the said guide, a pivoted support, an operating-lever fulcrumed to the said support and provided with means for coöperation with the lifting-bar and the rack-bar, and a stop for holding the pivoted support in one of its positions against the stress imposed thereon by actuation of the lever when in operation, substantially as specified.

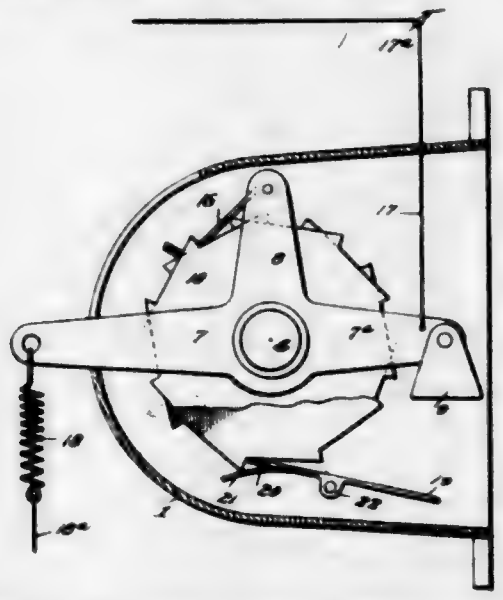
4. In a jack, a vertical guide, a rack-bar extended horizontally therefrom, a lifting-bar movable vertically with reference to the guide and carried thereby, an operating-lever provided with means for actuation of either the lifting-bar or rack-bar, and a retractile spring connected with the rack-bar for returning it and the vertical guide to a normal position, substantially as set forth.

5. In a jack, a vertical guide, a lifting-bar movable vertically with reference thereto, a rack-bar extended horizontally of the said guide and having a longitudinal slot, an operating-lever provided with means for actuation of the lifting-bar and the rack-bar, a pin extended through the longitudinal slot of the rack-bar, and a retractile spring located in the said slot and connected at one end to the rack-bar and at its opposite end to the said pin, substantially as specified.

6. In a jack, the combination with the frame, a rack-bar mounted for longitudinal movement with reference to the frame and adapted to engage at its outer end with the object to be moved, a pivoted support, an operating-lever fulcrumed to the said support and provided with means for coöperation of the rack-bar, and a pivoted element provided with a stop to engage with the aforesaid pivoted support and hold it in place, substantially as set forth.

7. In combination, a frame, a guide movable toward and from the frame, a rack-bar extended horizontally from the guide and slidably mounted in said frame, a lifting-bar movable vertically with reference to the guide, a pivoted support comprising spaced elements, an operating-lever fulcrumed between the spaced elements of the pivoted support and provided with a pair of pawls for coöperation with the lifting-bar and the said rack-bar, and a restraining device comprising a pivoted member and spaced stop members to engage with the elements of the aforementioned pivoted support to hold the latter in one of its positions, substantially as set forth.

690,424. COUNTER. HARRY R. HEAL, Camden, N. J. Filed Oct. 15, 1901. Serial No. 78,719. (No model.)



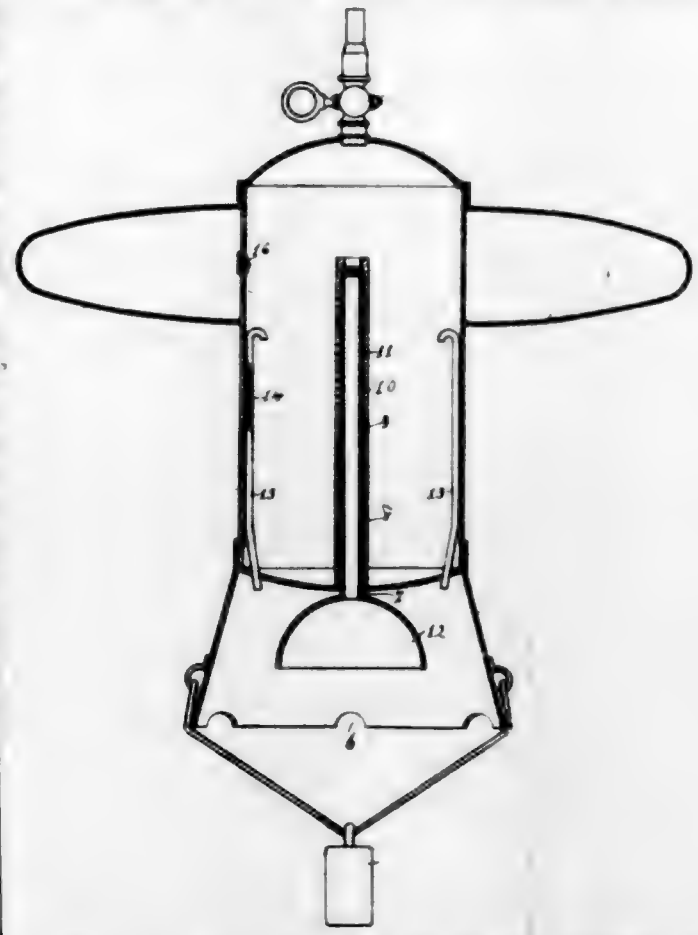
Claim.—1. In a counting-machine, a rotary shaft, a ratchet counting-disk fixedly mounted thereon and provided with numerals on the face of the ratchets, and a tripping-pin projected radially from one of the ratchets, an adjacent ratchet-disk mounted on the said shaft to turn therewith by frictional contact, a pawl to engage the second ratchet-disk and formed with a tripping-arm in the path of the pin in the first ratchet-disk.

2. In a counting-machine, the combination of a rotating shaft, a counting-disk having peripheral ratchets and numerals thereon, a plurality of counting-disks mounted on the shaft to turn therewith by frictional contact, and having numbers on the ratchets, pawls to lock each of the frictionally-mounted disks against rotation and to be released by means on the adjacent disk, substantially as described.

3. In a press counting-machine, a rotating shaft, a ratchet-disk fixed on the shaft, a lever to intermittently rotate the disk the length of one ratchet at a time, a second ratchet-disk frictionally mounted on the shaft, a pawl to hold the second disk against rotation, and means on the first disk to release the pawl and permit the second disk to rotate with the shaft.

4. In a counting-machine, the combination with a casing formed with bearings, a rotatable shaft journaled in said bearings, a counting-disk fixedly mounted on said shaft, a plurality of disks held on the said shaft by frictional contact, and formed with peripheral ratchet-teeth, a lever mounted on said shaft and having an upwardly-extending arm, means for operating said lever to turn the disk the length of one ratchet, means for connecting said lever to a moving part of the machine, a pawl secured to said upwardly-extending arm to engage the ratchet of the first disk, a stationary shaft in the casing below the disks, pawls to lock the frictionally-mounted disks on the rotatable shaft, and pins to release the pawls in determined succession.

690,425. ACETYLENE-GAS GENERATOR. JOHN J. HENDLER, Kansas City, Mo. Filed May 3, 1901. Serial No. 58,630. (No model.)



Claim.—1. An apparatus of the class described, comprising a carbid-cup having a valved discharge-opening and provided with an opening in its bottom, a suitable support for said cup whereby it is adapted to be set in a vessel of water, a perforated tube communicating with said opening in the bottom of the cup whereby the water is admitted to said cup, and an upwardly-extending gas-tube in said cup provided with a bell forming a gas-receiver exterior to the cup, substantially as and for the purpose set forth.

2. An apparatus of the class described, comprising a carbid-cup having a valved discharge-opening, and provided with an opening in its bottom, a casing forming a bowl upon which said cup is mounted, a perforated tube surrounding said bottom-opening and extending toward the top of the cup, a tube of smaller diameter mounted within said perforated tube, and a bell mounted upon said last-named tube exterior to the cup and forming a gas-receiver for the same substantially as set forth.

3. An apparatus of the class described, comprising a carbid-cup having a valved discharge-opening, and provided with an opening in its bottom, a casing upon which said cup is mounted forming a bowl under the cup, a perforated tube mounted in said cup communicating with said bowl through said bottom-opening, a gas-receiver exterior to said cup, a gas-tube extending into said cup and communicating with said gas-receiver, and small tubes mounted in said cup and communicating with the bowl formed by said casing, substantially as set forth.

4. An apparatus of the class described, comprising a gas-generating chamber having a valved discharge-opening, a casing forming a bowl under said chamber, a perforated tube communicating with said bowl and with said generating-chamber for the passage of water to the same, a gas-receiver mounted within said bowl, and a gas-tube connected with said receiver and communicating with said generating-chamber; substantially as set forth.

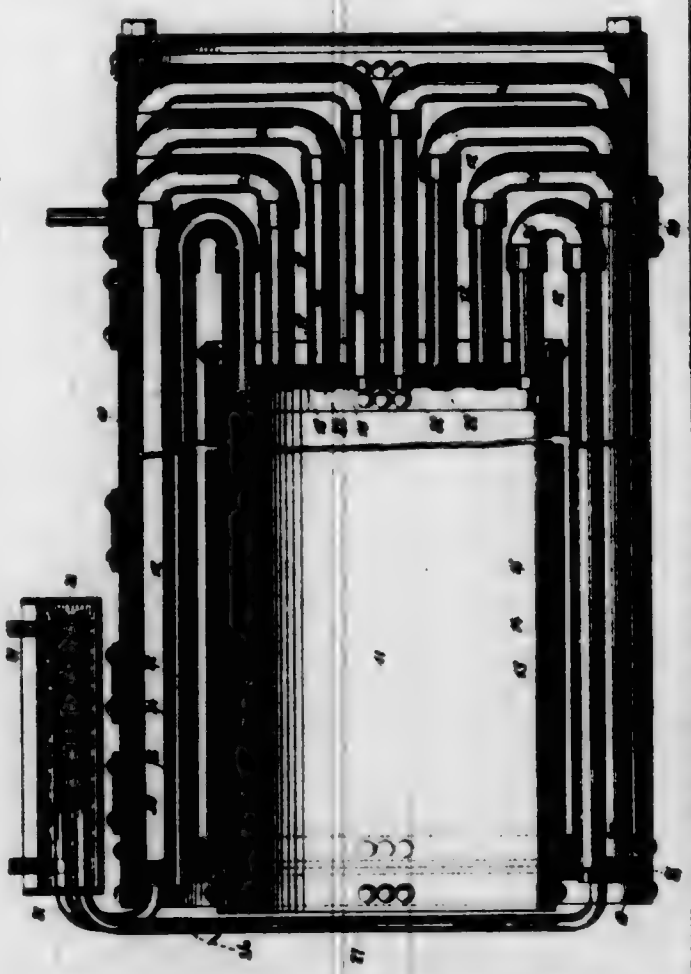
5. An apparatus of the class described, comprising a gas-generating chamber, having a valved discharge-opening, a casing forming a bowl under said chamber, a perforated tube communicating with said bowl and with said generating-chamber for the passage of water to the same, a gas-

receiver mounted within said bowl, a gas-tube connected with said receiver and communicating with said generating-chamber, a float connected with the upper part of said generating-chamber, and a sinker connected therewith for maintaining stability when floated, substantially as set forth.

6. An apparatus of the class described, comprising a gas-chamber having a valved discharge-opening, a casing forming a bowl under said chamber, a perforated tube communicating with said bowl and with said chamber for the passage of water thereto, a gas-receiver mounted within said bowl, a gas-tube connected with said receiver and communicating with said generating-chamber, a float connected with the upper part of said generating-chamber and having valved communication therewith, and a sinker connected with said casing for maintaining stability of the apparatus when floated, substantially as set forth.

7. An apparatus of the class described, comprising a gas-generating chamber having a valved discharge-opening, a casing forming a bowl under said chamber, a perforated tube communicating with said bowl and with said chamber for the passage of water thereto, a gas-receiver mounted within said bowl, a gas-tube connected with said receiver and communicating with said generating-chamber, small tubes communicating with said bowl and with said chamber, a float connected with the upper part of said generating-chamber, and a sinker connected with said casing for maintaining stability of the apparatus when floated, substantially as set forth.

690,426. BOILER FOR ENGINES. GUSTAF E. HERRE, Brooklyn, N. Y., assignor of two-thirds to Ansel L. Washburne, New York, N. Y. Filed Nov. 23, 1900. Renewed July 10, 1901. Serial No. 67,810. (No model.)



Claim.—1. A boiler having surfaces exposed to the action of the heat, and a metal or suitable substance capable of melting at a comparatively low temperature confined against the same for controlling the temperature said surfaces may attain, a portion of said metal or substance being extended beyond said heating-surfaces, combined with means for keeping a part of said metal or substance extended beyond said heating-surfaces in a solid state; substantially as set forth.

2. A boiler having heating-surfaces, and a metal or suitable substance capable of melting at a comparatively low temperature confined against the same for controlling the temperature said surfaces may attain, combined with means for preventing said metal or substance from reaching a temperature materially greater than that at which it melts; substantially as set forth.

3. A boiler having the double tubes, one tube being within but separated by a space from the outer tube, and a metal or suitable substance capable of melting at a comparatively low temperature confined within said space between the inner and outer tubes, a portion of said metal or substance being extended beyond said space, combined with means for keeping a part of said metal or substance thus extended beyond said space in a solid state; substantially as set forth.

4. A boiler having the double tubes, one tube being within but separated by a space from the outer tube, and a metal or suitable substance capable of melting at a comparatively low temperature confined within said space between the inner and outer tubes, combined with means for preventing said metal or substance from reaching a temperature materially greater than that at which it melts; substantially as set forth.

5. A boiler having tubes and a fire box or chamber, the walls of said fire box or chamber being double or of two thicknesses separated by a surrounding space, and a metal or suitable substance capable of melting at a comparatively low temperature confined within said space, a connecting portion of said metal or substance being extended beyond said space, combined with means for keeping a part of said metal or substance thus extended beyond said heating-surfaces in a solid state; substantially as set forth.

6. A boiler having surfaces exposed to the action of the heat, and a metal or suitable substance capable of melting at a comparatively low temperature confined against the same for controlling the temperature said surfaces may attain, combined with a cooling-tank, and a pipe containing a body of said metal or substance and extending from said cooling-tank to the said confined portion of said metal or substance protecting said surfaces; substantially as set forth.

7. A metal plate, and means for applying heat to the same, combined with a body of metal capable of melting at a comparatively low degree of heat confined against said plate and extended outward therefrom, and a cooling medium to act on said extended part of said body of metal so as to keep said part solid and thereby control the temperature of the remaining part of said body and of said plate; substantially as set forth.

8. The boiler having the fire-chamber 11, the exterior shell 10, the series of tubes 12 encircling said chamber 11 and having the heads 25, and the rings 19 and 20, intermediate the shell of said chamber and said shell 10, said tubes 12 being formed of the inner and outer tubes 22, 23 separated by the space 24, the latter opening into the space between said rings 19 and 20, combined with a metal capable of melting at a comparatively low degree of heat confined within the space between said tubes 22 and 23 and communicating with the space between said rings 19 and 20, a pipe leading from said space between said rings 19 and 20 and containing a part of the body of said metal which surrounds the inner tube 22, and means for keeping said metal in said pipe in a solid state; substantially as set forth.

9. A boiler, comprising the exterior shell 10, the fire box or chamber 11, the separated plates or shells 13 and 14 surrounding said fire box or chamber, the heads 16 and 17 at the end of said fire box or chamber and separated by a space, the rings 19 and 20 separated by space and connecting the end of the shell 10 with the end of the shells 13 and 14, and the double tubes 22, 23 separated by space, the tubes 22 extending through the ring 19 and head 16 and the tubes 23 extending through the ring 20 and head 17 so that said space between said tubes may communicate with the space between the rings 19, 20, and the space between the heads 16, 17, combined with a metal capable of melting at a comparatively low degree of heat filling the space between the shells 13, 14, heads 16, 17, rings 19, 20, and tubes 22, 23, the cooling-tank, and a pipe leading from the confined body of said metal to said cooling-tank and being itself filled with said metal, so that a portion of said metal may be maintained in a solid state; substantially as set forth.

10. A boiler, comprising the exterior shell, the fire box or chamber 11 and the series of double tubes 12, each of said double tubes being composed of the inner tube 22 and the outer tube 23 separated by a space 24, and said tubes having the heads 25 so as to allow for expansion and contraction, combined with a metal capable of melting at a comparatively low degree of heat intermediate said tubes 22, 23, and a portion of the body of which is extended beyond said tubes, and a cooling medium for maintaining in a solid state a part of the said body of metal thus extended beyond said tubes; substantially as set forth.

11. A boiler comprising the shell, fire-box and double tubes, one tube 22 being within the outer tube 23 and separated therefrom to form a space surrounding the inner tube, and said boiler at its ends having confined spaces in communication with the spaces surrounding said inner tubes, combined with a metal capable of melting at a comparatively low temperature filling said spaces, and means for preventing said metal from reaching a temperature substantially greater than that at which it melts; substantially as set forth.

690,427. COVERED STRIP OF SOFT METAL AND THE MANUFACTURE THEREOF. ISAAC W. HEYDRICK, Philadelphia, Pa. Filed Aug. 20, 1901. Serial No. 73,052. (No model.)

Claim.—1. An improvement in the manufacture of covered strips

of soft metal consisting of braiding over a soft flat metal strip a covering of fabric and cementing the said braided covering to the said metal strip substantially as described, and subsequently passing said braided and cemented strip through a sewing-machine and forming a continuous lock-stitch seam along the flat sides thereof, and through said braided and cemented coverings, and said soft-metal strip, substantially as and for the purposes set forth.



2. The method of manufacturing covered electrical flat copper strips, consisting in covering a soft flat copper strip with a covering of braided fabric, cemented thereto continuously, said braid and said cement applied to said strip successively while said cement is liquid, and afterward passing said braided and cemented flat copper strip through a sewing-machine and sewing the whole together by a seam passing through said fabric-covered and cemented copper strip continuously, along the flat sides thereof, substantially as described.

3. The method of manufacturing covered soft-metal strips, consisting of covering a continuous strip of flat soft metal with a coating of liquid cement and a braided covering of fabric successively and continuously applied, and subsequently passing the same through a sewing-machine, and sewing said braided and cemented covering, and soft-metal strip together from end to end, and afterward dividing the same transversely into suitable lengths, substantially as and for the purposes described.

4. In the manufacture of covered strips of flat, soft metal, a braided cover cemented to said metal strip continuously, said cemented cover and strip additionally secured to each other by a continuous sewed seam, the needle forming the said seam passing at one operation through said cemented covering and metal strip, substantially as described.

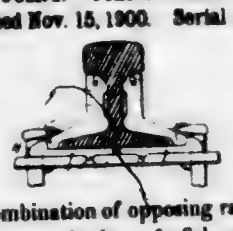
5. A covered soft-metal strip consisting of a flat elongated strip of soft metal, such as copper, adapted to form a conductor for an electric current, a braided covering of fabric cemented thereto continuously from end to end, and a continuous lock-stitch seam extended along the flat sides thereof, and passing through both sides of braided covering, both layers of cement, and said soft-metal strip, substantially as described.

6. As an article of manufacture the short, covered soft-metal strip b^3, divided from a longer length, b, of the same material, and consisting of a flat, elongated soft-metal strip, a braided covering applied and cemented thereto, a stitched seam extended continuously along the flat sides thereof, and passing through said metal strip and cement and braided covering, substantially as described.

7. A flat, soft-metal braided, cemented and stitched, strip of copper or the like, substantially as described, having the outer braided and cemented covering, and stitched seam through the same and through said metal strip, of a color corresponding with the object to which it is to be applied, substantially as described.

8. A flat, soft-metal strip provided with a covering of textile fabric, cemented to said strip continuously, and a stitched seam sewed through said strip, cement, and covering, along the flat sides thereof, substantially as and for the purposes described.

690,428. **RAIL-JOINT.** JOHN I. HICKMAN and ALFRED BORROW, Milwaukee, Wis. Filed Nov. 15, 1900. Serial No. 36,560. (No model.)

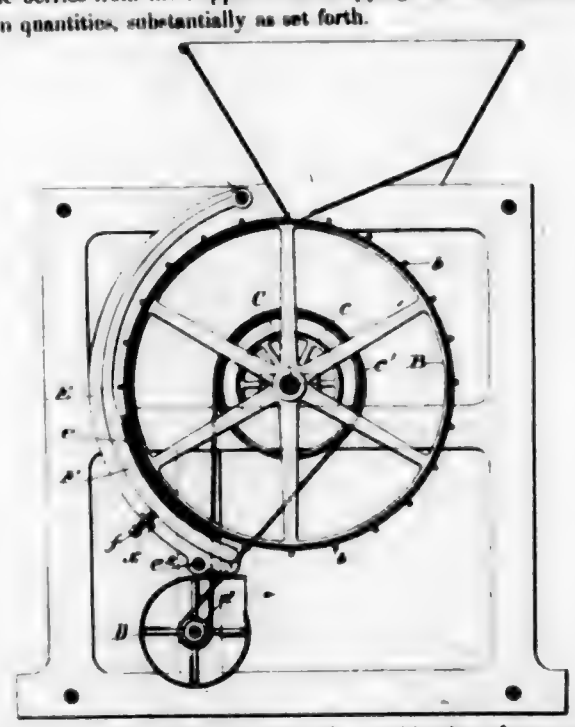


Claim.—1. The combination of opposing rail ends, having V-shaped channels or recesses in the heads thereof; fish-plates formed to interlock in said channels; a tie-plate located under the rail ends, and provided with V-shaped channels in its upper surface; and locking-plates provided with ribs, adapted to engage in the channels of the tie-plate, said locking-plates being provided with upwardly-projecting portions adapted to engage the fish-plates.

2. The combination with opposing rail ends having channels in the heads thereof; fish-plates formed to engage in said channels; a tie-plate; and locking-plates provided with projections adapted to engage the tie-plate and fish-plates respectively; together with rivets for securing the fish-plates and locking-plates together.

690,429. **COFFEE-HULLING MACHINE.** ADOLPHE H. HOPKINS, Brooklyn, N. Y. Filed Sept. 7, 1900. Serial No. 29,336. (No model.)

Claim.—1. In a coffee-hulling machine, the combination of two stationary stripping-plates facing each other, a rigid intermediate stripping-plate, said plates forming a stripping-channel, a feed-wheel having radially-projecting vanes entering the stripping-channel and whereby the berries are forced through the same in contact with the stripping-surfaces, and a hopper provided with a channel through which the vanes pass to feed the berries from the hopper to the stripping-channel in substantially uniform quantities, substantially as set forth.



2. In a coffee-hulling machine, the combination of two stationary stripping-plates facing each other, a rigid intermediate stripping-plate, said plates forming a stripping-channel, means for adjusting the position of said intermediate stripping-plate, a feed-wheel having radially-projecting vanes entering the stripping-channel and whereby the berries are forced through the same in contact with the stripping-surfaces, and a hopper provided with a channel through which the vanes pass to feed the berries from the hopper to the stripping-channel in substantially uniform quantities, substantially as set forth.

3. In a coffee-hulling machine, the combination of two or more pairs of stripping-plates, the stripping-surfaces of each pair facing each other, a rigid intermediate stripping-plate for each pair of strippers, each pair of strippers and the intermediate stripping-plate forming a stripping-channel, a feed wheel or wheels having a set of radially-projecting vanes entering each stripping-channel and whereby the berries are forced through the same in contact with the stripping-surfaces, and a hopper provided with channels through which the sets of feeding-vanes pass to feed the berries from the hopper to the stripping-channels in substantially uniform quantities, substantially as set forth.

4. In a coffee-hulling machine, the combination of two or more pairs of stripping-plates, the stripping-surface of each pair facing each other, a rigid intermediate stripping-plate for each pair of strippers, each pair of strippers and the intermediate stripping-plate forming a stripping-channel, means for independently adjusting the positions of said intermediate stripping-plates, a feed wheel or wheels having a set of radially-projecting vanes entering each stripping-channel and whereby the berries are forced through the same in contact with the stripping-surfaces, and a hopper provided with channels through which the sets of feeding-vanes pass to feed the berries from the hopper to the stripping-channels in substantially uniform quantities, substantially as set forth.

690,480. **TRANSMITTING AND RECEIVING TUBE FOR AURICULAR INSTRUMENTS.** ARTHUR O. HOUSE, Belton, Mo. Filed Sept. 9, 1901. Serial No. 74,786. (No model.)

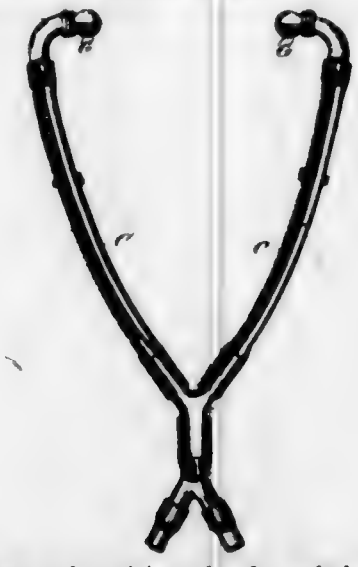
Claim.—1. A receiver for auricular instruments or machines, comprising two branch tubes with earpieces, and a holder therefor, said holder comprising a suitable yoke to extend against the throat of the user, suitable fastenings for securing the yoke in place, said yoke having outwardly-extending arms with loops at their extremities to receive the tubes, substantially as and for the purpose set forth.

2. An earpiece for receiving or hearing tubes provided with an ear-guard adjustably connected thereto and adapted to rest against the side of the face and in front of the tragus of the ear, substantially as and for the purpose described.

3. An ear-guard for earpieces of receiving or hearing tubes, said guard having a spring-coil for encircling the earpiece to adjustably connect it thereto, substantially as and for the purpose specified.

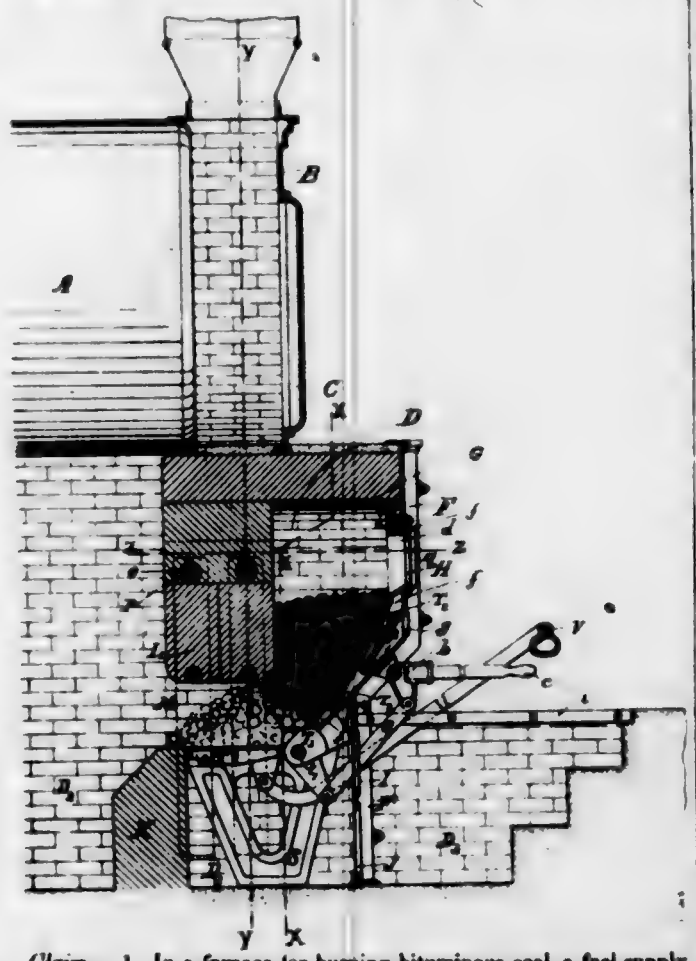
4. Branch receiving or hearing tubes for auricular instruments or machines, said tubes having spring-wires extending centrally or axially through the same, earpieces upon the ends of the tubes, and ear-guards adjustably connected to the earpieces, substantially as and for the purpose set forth.

5. In an auricular instrument, a transmitter tube provided with a suitable mouthpiece, and a holder therefor, comprising a yoke adapted to be held against the chin, suitable hangers for engaging with the ears of the user, extensible and contractible connections between the hangers and the yoke, and suitable means for connecting the speaking-tube to the yoke, substantially as and for the purpose specified.



6. Transmitter and receiving tubes for auricular instruments, earpieces upon the receiving-tubes, ear-guards adjustably connected to the earpieces a suitable holder for the receiving-tubes, and a holder for the transmitter-tubes, substantially as and for the purpose specified.

690,481. **FURNACE FOR BURNING BITUMINOUS COAL.** EMIL H. HUGENTOBLER, New York, N. Y., assignor to William De Lancey Walbridge, New York, N. Y. Filed Apr. 30, 1901. Serial No. 58,186. (No model.)



Claim.—1. In a furnace for burning bituminous coal, a fuel-supply chamber, a fuel-supply opening therein, a downwardly-directed fuel passage or chute below said opening, a transverse passage adjacent to said chute, at the bottom thereof, a horizontal grate beneath said transverse passage, an inclined rocking grate at the junction of said passages, with means for rocking the same to feed forward the fuel from the downward passage into the adjacent transverse passage, and means for supplying air freely through said grates to the fuel in the transverse passage while excluding it from the fuel in the downward passage, whereby combustion is maintained in the transverse passage and the fuel is coked in the downward passage, substantially as specified.

2. In a furnace for burning bituminous coal, a fuel-supply chamber, a fuel-supply opening therein, a downwardly-directed fuel passage or chute below said opening, a transverse passage adjacent to said chute at the bottom thereof, a horizontal grate beneath said transverse passage, an inclined rocking grate at the junction of said passages, with means for rocking the same to feed forward the fuel from the downward passage into the adjacent transverse passage, means for supplying air freely through said grates to the fuel in the transverse passage while excluding it from the fuel in the downward passage, and means for conducting the volatile products from the fuel-supply chamber to the air-currents supplied to the fuel in the transverse passage, whereby said volatile products are wholly consumed along with the fuel in said passage, substantially as specified.

3. In a furnace for burning bituminous coal, an arch or inverted bridge-wall, having a fire-outlet passage beneath the same, a fuel-supply opening opposite said wall, above the level of the fire-outlet passage, an imperforate fuel-support extending from said supply-opening to a point opposite the fire-outlet passage, inclined at the bottom toward said passage, an inclined rocking grate opposite the fire-outlet passage provided with means for rocking the same to cause the descending fuel to feed toward the fire-outlet, a horizontal grate beneath the fire-outlet passage, and means for supplying air freely through said grates to the fuel in the fire-outlet passage while excluding air from the fuel-supply in the downward passage, substantially as specified.

4. In a furnace for burning bituminous coal, a fuel-supply chamber, a fuel-supply opening therein, a downward discharge-passage in said chamber, for holding a supply of fuel, a transverse passage for incandescent fuel, leading laterally from said downward passage below the level of the supply-opening, an inclined rocking grate at the junction of said passages, with means for rocking the same to feed the fuel forward into said transverse passage, a horizontal grate at the bottom of said transverse passage, and means for supplying air freely through said grates to the fuel in said transverse passage, while excluding air from said downward passage, whereby the fuel is burned in the transverse passage and is caused to coke in the downward passage by the heat communicated from the burning fuel in the adjacent transverse passage, substantially as specified.

5. In a furnace for burning bituminous coal, an arch or inverted bridge-wall, a bridge wall below said arch, forming a constricted passage or fire-outlet between said arch and wall, a fuel-supply opening opposite said arch, above the level of the fire-outlet, an imperforate fuel-support extending from said supply-opening to a point opposite the fire-outlet, inclined at the bottom toward said outlet, an inclined rocking grate opposite the fire-outlet provided with means for rocking the same to cause the supported fuel to feed toward said outlet, a horizontal grate beneath said arch, adjacent to said bridge-wall, forming a bridge connection between said inclined grate and said bridge-wall, means for supplying air freely through said grates to the fuel thereon, and gas-passages leading from the closed space above the fuel-supply to the inclined rocking grate, for conducting the volatile components of the fuel around the non-burning portion and into the incandescent portion on said grates, whereby said volatile components are completely consumed, substantially as specified.

6. In a furnace for burning bituminous coal, a fuel-supply chamber, having a downwardly-directed fuel chute or passage, a combustion-chamber laterally adjacent to said downward passage at its bottom, an inclined imperforate fuel-support at the front of said downward passage, an inclined rocking grate at the junction of said passages, with means for rocking the same to feed the fuel forward into the combustion-chamber, a horizontal grate beneath said combustion-chamber, means for feeding air freely to the fuel in the combustion-chamber while excluding it from the fuel-supply chamber, gas-passages leading from the space above the fuel in the fuel-supply chamber around the body of fuel therein, to the entrance to the combustion-chamber, whereby the volatile products pass from the closed fuel-supply chamber into the incandescent fuel in the combustion-chamber to be consumed and air-injector passages leading into said gas-passages, for aerating the volatile products therein prior to combustion, and promoting their movement, substantially as specified.

7. In a furnace for burning bituminous coal, an arch or inverted bridge-wall, buckstays outside the abutments of said arch embracing the same, tie-rods connecting the buckstays, and compression-screws passing through the buckstays, applied against the voussoirs of the arch on either side, for compressing and setting up the latter, to restrain disintegration, substantially as specified.

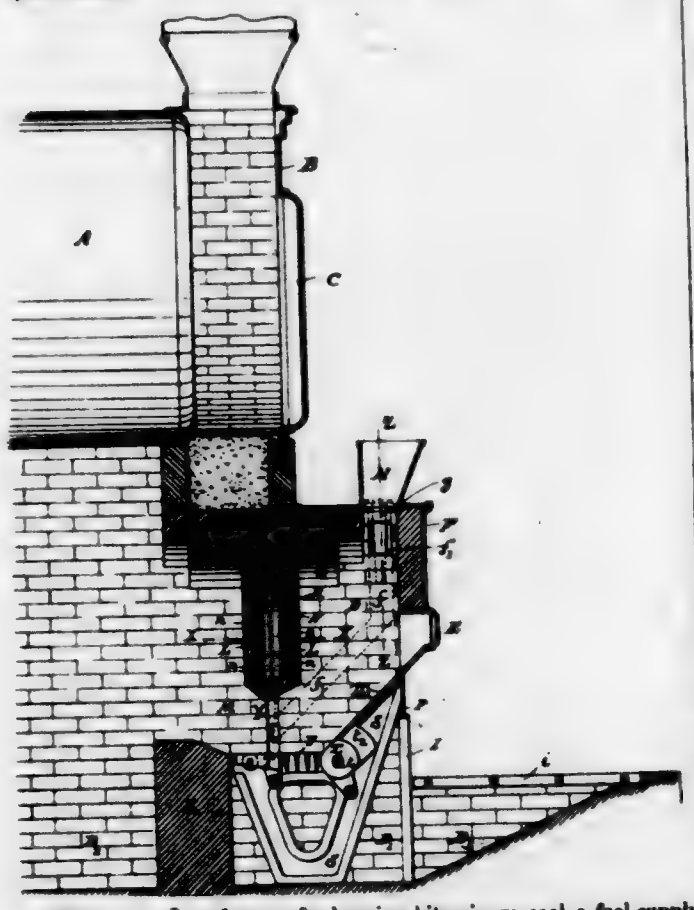
8. In a furnace for burning bituminous coal, the inverted bridge-wall L, a fuel-supply chamber D, having a supply-opening H opposite the fire-wall, a fire-outlet passage beneath said wall, below said supply-opening, an inclined imperforate fuel-support at the front of said fuel-supply chamber extending from the supply-opening to a point opposite the fire-outlet passage, forming a fuel-chute, a pivoted reciprocating inclined grate adjacent to said inclined fuel-support, means for operating the reciprocating grate to feed forward the fuel descending from the supply-chamber, a horizontal grate beneath the fire-outlet passage, means for tilting the same, means for supplying air freely through said grate to the fire-outlet passage while ex-

cluding it from the fuel-supply chamber, gas-passages leading from the upper part of the fuel-supply chamber around the fuel-chute to the entrance of the fire-outlet passage, and auxiliary injector air-passages opening into said gas-passages for aerating the volatile products in the latter before their admission into the fire-outlet passage, and for promoting their movement, substantially as specified.

9. In a furnace for burning bituminous coal, a fuel-supply chamber, having a downward extension or chute, an imperforate front wall to said chute, inclined at the bottom toward the combustion-chamber, a fuel-supply opening above said front wall, a lateral combustion-chamber adjoining said chute at the bottom thereof, draft-openings for admitting air freely to said combustion-chamber while excluding it from the fuel-supply chamber, gas-passages leading from the upper part of the fuel-supply chamber to the vicinity of said draft-openings, and air-injector passages leading from the external air into said gas-passages, for aerating the volatile products and promoting their movement, substantially as specified.

10. In a furnace for burning bituminous coal, a fuel-supply chamber, having an arch or inverted bridge-wall at its rear, a metallic front to said chamber, fire-door openings in said front, fire-mouths secured around said openings, an inclined fuel-support within said front, extending from said fire-mouths to below the bottom level of the inverted bridge-wall, shields secured to said fire-mouths at a short distance from said front, extending laterally from side to side of the chamber, downward to the top of the inclined fuel-support, and upward nearly to the top of the chamber, forming a gas-passage around the fire-mouths connecting with the downward passage between the metallic front and the inclined fuel-support, openings *g* in the metallic front into said downward passage, and a partition *e* between the metallic front and the fuel-support, substantially as and for the purposes specified.

690,482. **FURNACE FOR BURNING BITUMINOUS COAL.** EMIL M. HUSENTUBLER, New York, N. Y., assignor to William De Lancey Walbridge, New York, N. Y. Filed May 10, 1901. Serial No. 59,636. (No model.)



Claim.—1. In a furnace for burning bituminous coal, a fuel-supply chamber, a combustion-passage adjacent thereto, means for mechanically forcing the fuel from the fuel-supply chamber into said combustion-passage, and means for passing air freely through said combustion-passage while excluding it from the fuel-supply chamber, by approaches or passages entering said combustion-passage at the front, the sides, the bottom, and the top thereof, substantially as specified.

2. In a furnace for burning bituminous coal, a fuel-supply chamber, an inverted bridge-wall at the rear thereof, openings for feeding and for kindling the fuel in said chamber, a combustion-passage laterally adjacent to said fuel-supply chamber, beneath said inverted bridge-wall, passages for leading the volatile products distilled from the fuel, from the fuel-chamber to said combustion-passage, and means for supplying air freely to said combustion-passage at the front, sides, bottom, and top thereof, substantially as specified.

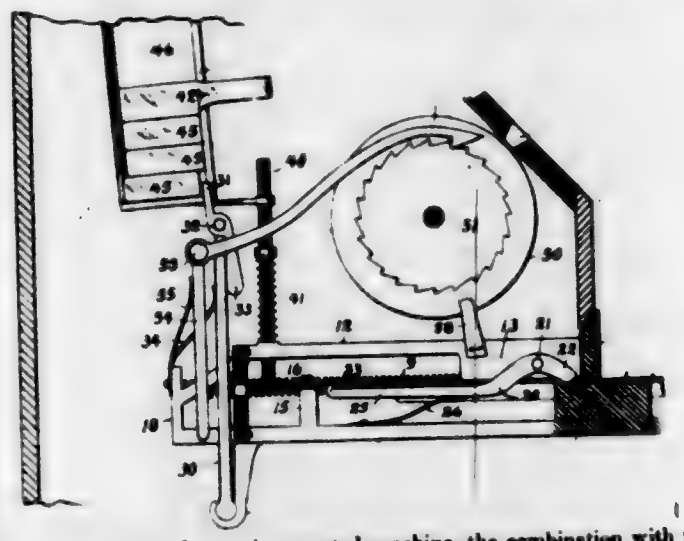
3. In a furnace for burning bituminous coal, a fuel-supply chamber, an inverted bridge-wall at the rear thereof, a combustion-passage beneath said inverted bridge-wall, adjacent to said fuel-supply chamber, air-passages communicating with the external air in said inverted bridge-wall and opening downward into said combustion-passage, air-passages *f* opening into said combustion-passage at the sides thereof, ports leading from the fuel-supply chamber into said air-passages *f*, and means for freely introducing air into said combustion-passage at the front and bottom thereof, substantially as specified.

4. In a furnace for burning bituminous coal, a fuel-supply chamber, an inverted bridge-wall at the rear thereof, a combustion-passage beneath said bridge-wall, means for mechanically forcing the fuel from the fuel-supply chamber into said combustion-passage, means for feeding air freely into said combustion-passage through the sides, bottom, and front thereof, and passages in said inverted bridge-wall for feeding air directly downward on top of the fuel in said combustion-passage, substantially as specified.

5. In a furnace for burning bituminous coal, an inverted bridge-wall, formed of refractory blocks horizontally arranged, a metallic bearing-beam for supporting said blocks, inclosed by the same, air-passages *n* between said blocks and said beam, air-passages N through the walls of the furnace communicating with said passages *n*, and webs *r'* at the lower edge of the bearing-beam forming air-passages between them leading from air-passages *n* directly downward, substantially as specified.

6. In a furnace for burning bituminous coal, a fuel-supply chamber, a feed-opening at top thereof, an inverted bridge-wall at rear thereof, an inclined imperforate fuel-support at front thereof, a lateral combustion-passage at bottom thereof, passing under said bridge-wall, an inclined rocking grate at front of said combustion-passage, a horizontal grate beneath said combustion-passage, a bridge-wall at the rear of said passage, forming a fire-outlet gap between said bridge-wall and the inverted bridge-wall, air-passages in the inverted bridge-wall, opening downward into the combustion-passage, air-passages in the side walls opening into the sides of the combustion-passage, and gas-ports opening from the fuel-supply chamber into said side air-passages, substantially as specified.

690,483. **COIN-OPERATED VENDING-MACHINE.** CHARLES L. HUBB, Chelsea, Mass., assignor of one-half to Hollis F. Smith, Chelsea, Mass. Filed Mar. 11, 1901. Serial No. 50,611. (No model.)



Claim.—1. In a coin-operated machine, the combination with the slide having the coin-opening therein and the elongated slot communicating therewith, of the locking-dog pivoted to swing in said slot with such pivotal point located above said slide, said dog having the nose projecting downward toward the forward end of the slide, and the elongated shank projecting downward and through said slot and thence rearwardly for a distance considerably in excess of the length of the nose from said pivot, said shank having the hook engaging the rear end of the slide when the nose is unsupported by a proper coin introduced into the coin-opening, substantially as described.

2. In a coin-operated machine, the combination with the slide having the coin-opening therein and the elongated slot communicating therewith, of the locking-dog pivoted to swing in said slot with such pivotal point located above said slide; said dog having the nose projecting downward toward the forward end of the slide, and the elongated shank projecting downward and through said slot and thence rearwardly for a distance considerably in excess of the length of the nose from said pivot, said shank having the hook engaging the rear end of the slide when the nose is unsupported by a proper coin introduced into the coin-opening, and the distance between the nose and throat or bend of the shank being proportioned to constitute a coin-ejector, whereby the same member serves the separate functions of slide-lock and coin-ejector, substantially as described.

3. In a coin-operated machine, the combination with the slide having the coin-opening and the slot communicating with t e said opening, of an angular member pivoted above the slide and having a nose normally riding in said slot and pressed upon any coin which may be introduced within the coin-opening; said member being constructed to lock the slide when its nose is unsupported by a proper coin, and having a throat or head projecting into said slot and constructed to eject the coin from the coin-opening, substantially as described.

4. In a coin-operated machine, the combination of the slide having the coin-opening, the slot communicating therewith and the slot in line with the first-named slot, and the ledge formed as a part of the slide; the fixed ledge; the locking-dog having the nose and the hooked shank, and pivotally supported in the first-named slot; and the spring forcing said shank upward and the nose downward, substantially as described.

5. The combination with the coin-carrying slide, and the package-chute emptied by the manipulation of the slide; of the vertical rod elastically supported with its upper end near said chute and its lower end just above and beyond the end of said slide; and a weight resting on the packages in the chute and having a projection meeting and depressing said rod when the chute is empty, substantially as described.

6. In a coin-operated machine, the combination of the slide having the circular coin-opening and a ledge beneath one point of said opening and formed as a part of the slide, and hence moving therewith; a support for the slide having a stationary ledge opposite to the moving ledge, and a coin-released locking device, substantially as described.

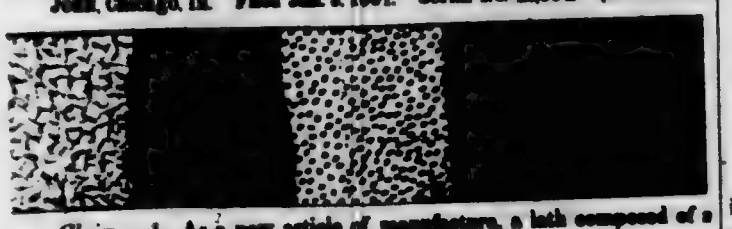
690,484. PLEASURE DEVICE. WILLIAM R. ISHAW, Brooklyn, N. Y., assignor to Isaac M. Martin, Cincinnati, Ohio. Filed June 25, 1901. Serial No. 65,906. (No model.)



Claim.—1. In a pleasure device, a support having lateral guides, a stairway movably mounted on said guides, a power-shaft, and power-transmitting devices between the shaft and stairway, adapted to reciprocate the stairway laterally on said guides, giving the same a shaking motion, substantially as specified.

2. In a pleasure device, a support, a stairway movably mounted on said support, guides and antifriction-rollers projected from the said support and stairway in different positions adapted to positively limit the movement of the stairway in a lateral direction, a power-shaft, and an eccentric-shaft connected to said power-shaft, and pivoted to said stairway, whereby the latter is given a reciprocatory lateral shaking movement, substantially as specified.

690,485. LATH FOR PLASTERING-FOUNDATIONS. JAMES JOHN, Chicago, Ill. Filed Jan. 9, 1901. Serial No. 42,594. (No model.)



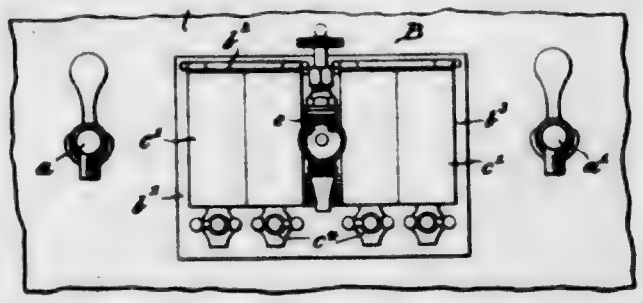
Claim.—1. As a new article of manufacture, a lath composed of a thin slab or strip of wood primarily coated with an adhesive substance or binder, a layer of gravel or similar substance, and a final covering of waterproofing material, substantially as described.

2. As a new article of manufacture, a lath composed of a thin slab of material primarily and entirely coated or covered with an adhesive binder of silicate of soda, a layer of fine gravel and sand, and an outer covering of paint, substantially as described.

3. The process of producing a new article of manufacture—a lath, comprising the coating of a thin slab of material in an adhesive substance, then providing it with a layer of gravel and sand, then subjecting it to heat to set the binder and to facilitate the handling, and finally covering the same with a waterproof coating, substantially as described.

690,486. SODA-FOUNTAIN APPARATUS AND SYRUP-DRAWING CAN THEREFOR. JOHN G. JOHNSON, Philadelphia, Pa. Filed Sept. 4, 1901. Serial No. 74,337. (No model.)

Claim.—1. The combination with a bar-fixture having its front panel cut away, of a housing adapted to be inserted in the cut-away portion of said fixture, said housing having a throat projecting beyond the front of said fixture, a can adapted to be mounted in and to be withdrawn horizontally from said throat and housing, and a draw-off cock arranged at the front end of said can and projecting downwardly from the floor of said can.



2. The combination with a bar-fixture having its front panel cut away, of a housing adapted to be inserted in the cut-away portion of said fixture, said housing having a throat projecting beyond the front of said fixture, a lid adapted to close the top of said throat, a can adapted to be mounted in said throat and housing and having an opening in the top located below the lid of said throat, said can adapted to be withdrawn horizontally from said throat and housing, and a draw-off cock arranged at the front end of said can and projecting downwardly from the floor of said can.

3. The combination with a bar-fixture having its front panel cut away, of a housing adapted to be inserted in the cut-away portion of said fixture, said housing having a throat projecting beyond the front of said fixture and the base of said throat being recessed or notched, a lid adapted to close the top of said throat, a can adapted to be mounted in and withdrawn horizontally from said throat and housing and having an opening in the top located below the lid of said throat and a draw-off cock projecting from said can and adapted to fit in the recessed or notched portion in the bottom of said throat.

4. The combination with a bar-fixture having a front panel, of a housing adapted to be inserted in said fixture, and a can adapted to be mounted in and to be horizontally withdrawn from said housing, said can having a draw-off cock arranged at the front portion of the can and projecting downwardly from the floor of said can.

690,487. CURTAIN-FIXTURE. MORGAN JOLLIFFE, New Salem, Pa., assignor of one-half to Thomas B. Brown, New Salem, Pa. Filed Apr. 11, 1901. Serial No. 55,260. (No model.)



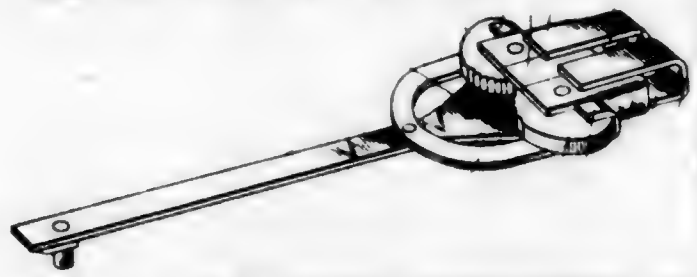
Claim.—1. In a curtain-fixture, the combination with a base having holding elements located in angular relation to each other, of a supporting-bracket comprising a shank having arms at its inner end, said arms being located in angular relation to the shank and to each other, and arranged to engage the holding elements of the base, and curtain-pole-holding means located upon the supporting-bracket.

2. In a curtain-fixture, the combination with a base-plate having sockets on its outer face, said sockets being located in angular relation to each other, of a supporting-bracket comprising a shank having arms at its inner end, said arms being located in angular relation to the shank and to each other, and being arranged to engage in the angularly-disposed sockets of the base-plate, and curtain-pole-holding means located upon the supporting-bracket.

3. In a curtain-fixture, the combination with a base having a pair of substantially horizontal slits and a pair of substantially vertical slits, of a supporting-bracket having a substantially horizontal arm arranged to engage in the vertical slits of the base and provided with a depending portion that engages over one edge of one of said slits, said bracket being also provided with a substantially vertical arm that engages in the

horizontal slits of the base, and curtain-pole-holding means located upon the bracket.

690,438. **WIRE-GRIP.** WILLIAM C JONES, Blackrun, Ohio. Filed Sept. 20, 1901. Serial No. 75,741. (No model.)



Claim.—1. A wire-grip comprising a frame having guideways, a follower mounted in the guideways and having pivoted jaws, fixed stops in the paths of movement of the jaws, for engagement thereby beyond their pivots, and means for moving the follower with the jaws into engagement with and against the stops to move the jaws into engaging positions.

2. A grip comprising a frame having guideways, a follower mounted in the guideways and having pivoted jaws, fixed stops disposed in the paths of movement of the jaws for engagement by the jaws beyond their pivots to move the jaws into engaging positions, and means for moving and holding the follower yieldably at one limit of its movement, to move and hold the jaws yieldably in engaging positions.

3. A grip comprising a frame including a plate having one end bifurcated to form fingers, said fingers being bent to lie above the plate and form spaced guideways, a follower engaged slidably with the bent-over portions of the fingers and having a rib disposed between the fingers, jaws pivoted in the follower, a helical spring disposed between the rib of the follower and the frame to hold the follower yieldably at one limit of its movement, and stops in the path of movement of the jaws with the frame to move the jaws pivotally.

4. A grip comprising a frame including a plate having one end bifurcated to form fingers, said fingers being bent to lie above the plate and form spaced guideways, a follower engaged slidably with the bent-over portions of the fingers and having a rib disposed between the fingers, said rib having an opening therein, a perforated lug upon the frame, a rod having a lug at one end engaged with the opening of the rib, the opposite end of the rod being slidably engaged with the perforation of the lug, a spring upon the rod having its ends disposed against the lugs of the frame and rod to hold the follower yieldably at one limit of its movement, jaws pivoted in the follower, and stops in the paths of movement of the jaws with the follower under the influence of the spring, to move the jaws into engaging positions.

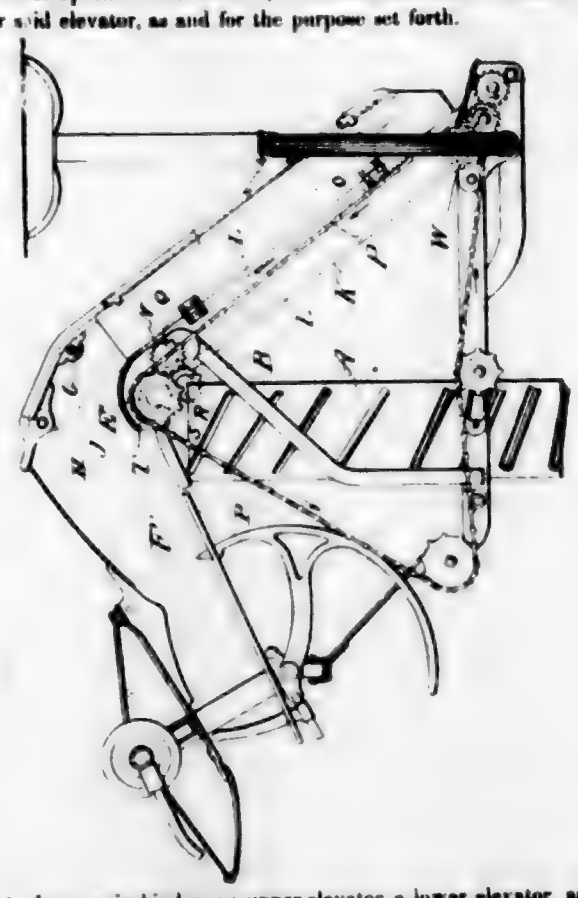
5. A grip comprising a frame having a movable follower mounted thereon and provided with movable jaws, and fixed stops carried by the frame in the paths of movement of the jaws of the follower for engagement thereby to move the jaws into engaging positions.

690,439. **GRAIN-BINDING MACHINE.** MAURICE KANE, Austin, Ill. Filed July 7, 1900. Serial No. 22,782. (No model.)

Claim.—1. In a grain-binder, a main frame, an upper-elevator frame and a lower-elevator frame, elevator-aprons operating on said frames, said upper-elevator frame supported at one end by said main frame, means for supporting the other end of said upper-elevator frame, and a door or plate independent of the supporting means for said upper-elevator frame and hinged to the lower-elevator frame and arranged to inclose the space between said upper and lower elevator frames, or to be folded down to form an extension, and a sprocket-chain for actuating the apron of said lower frame, said chain being located below said door or plate, as and for the purpose set forth.

2. In a grain-binder, a main frame including a longitudinally-extending beam, an upper-elevator frame supported upon said main frame at its front edge and supported by said beam at its rear edge, a lower-elevator frame supported upon the main frame, aprons operating upon said elevator-frames and a section or plate hinged to the lower-elevator frame and adapted when folded down to form an extension of the supporting-surface of such frame, and when swung up against the rear edge of the upper-elevator frame, to form an inclosure for the space between said upper and lower elevator frames, and a sprocket-chain for actuating the apron of said lower frame, said chain being located below said section or plate, as and for the purpose set forth.

3. In a grain-binder, a platform-carrier, an actuating-roller therefor, a drive-gear engaging and driving said roller, an elevator comprising upper and lower aprons to which said carrier delivers, a driving-roller for said lower apron, a drive-gear engaging and driving said roller, a sprocket-chain operating directly upon said drive-gears for positively actuating said carrier and elevator, said chain being normally located below the surface of the lower apron of said elevator, in combination with a foldable extension for said elevator, as and for the purpose set forth.

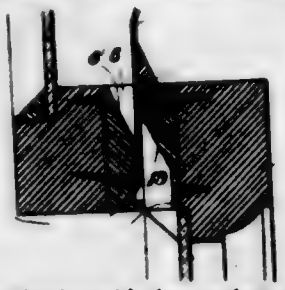


4. In a grain-binder, an upper elevator, a lower elevator, an extension hinged to said lower elevator, a platform-carrier arranged to deliver into the space between said elevators, actuating-rollers for said carrier and lower elevator, a train of gearing for driving the actuating-roller of said carrier, and a driving-sprocket for actuating said train of gearing and the roller of the lower-elevator apron, said sprocket arranged below the space between said upper and lower elevators to accommodate said extension when the latter is folded down, as and for the purpose set forth.

5. In a grain-binder, a platform-apron, an elevator to which said apron delivers, said elevator provided with a hinged extension-plate, actuating-rollers for said apron and elevator, in combination with a force-feed roller arranged at the delivery end of said elevator, a gear arranged adjacent to the delivery end of said apron, a driving-chain engaging with said force-feed roller and over said gear, and intermediate gearing between said force-feed roller and the actuating-roller of said elevator for actuating the latter, and gearing intermediate said gear and the actuating-roller of said apron for actuating said apron whereby the sprocket-chain normally lies beneath the effective surface of the elevator and out of the way of said plate when folded down to form an extension, as and for the purpose set forth.

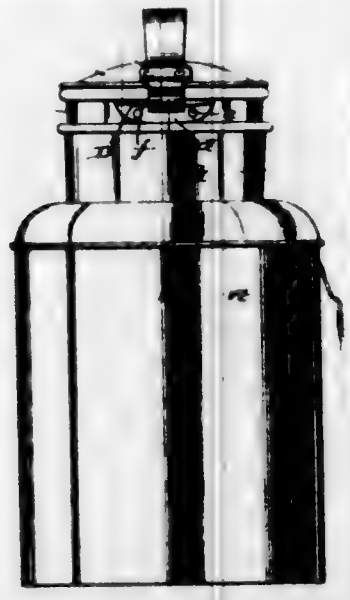
6. The combination with a platform-carrier and a lower-elevator apron, actuating-rollers for said carrier and apron respectively, gears mounted on the shafts of said rollers, a drive-gear for each of said gears, and a chain-driven sprocket-wheel mounted on the shaft of and connected to each of said drive-gears, as and for the purpose set forth.

690,440. **SASH-FASTENER.** JOHN A. KEMP, Farmington Hill, Pa. Filed Apr. 18, 1901. Serial No. 56,082. (No model.)



Claim.—The combination with the meeting-rails of an upper and a lower sash, of fastening members comprising a slotted block having a rib lying transversely of its slot and a spring-tongue secured to the bottom of the slot at one side of the rib, said tongue being adapted to be bent over the rib and rearwardly of the slot thereabove and having a latch-shoulder and a second block having a channel extending longitudinally thereof to receive the shoulder of the spring-tongue, the bottom of the channel of the second block being slanted to engage and press the spring-tongue rearwardly, whereby it may snap over the upper end of the second block.

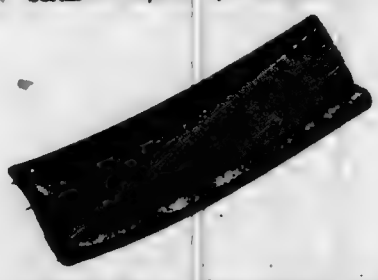
690,441. CLOSURE FOR METALLIC VESSELS. ROBERT R. KING, Bristol, Pa. Filed May 4, 1901. Serial No. 58,778. (No model.)



Claim.—1. In a closure for metallic vessels, the combination of a circular vessel, lugs of angular form in cross-section disposed at opposite sides of the vessel adjacent to the upper end thereof and comprising depending portions curved in conformity with and connected to the vessel and outwardly-projecting horizontal portions beveled at their under sides from their middles to their ends, a cover having a depending flange adapted to enter the vessel, and a handle connected to said cover and terminating at its ends in depending and inwardly-directed hooks arranged to engage the outwardly-projecting portions of the lugs on the vessel.

2. In a closure for metallic vessels, the combination of a circular vessel having a barrel at its upper edge, and a stiffening and strengthening wire therein, lugs of angular form in cross-section disposed at opposite sides of the vessel immediately below the barrel thereof, and comprising depending portions curved in conformity with and connected to the vessel and outwardly-projecting horizontal portions beveled at their under sides from their middles to their ends, a cover having a depending flange adapted to enter the vessel, and a handle connected to said cover and terminating at its ends in depending and inwardly-directed hooks arranged to engage the outwardly-projecting portions of the lugs on the vessel.

690,442. SKIRT-BINDING OR EDGE-PROTECTOR AND PROCESS OF MAKING SAME. ADOLPH S. KROHOLD, New York, N. Y. Filed Aug. 26, 1901. Serial No. 73,291. (No model.)



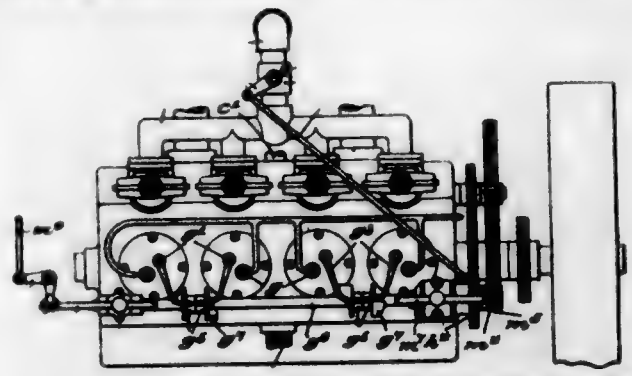
Claim.—1. A skirt-binding or edge-protector consisting of a textile fabric having a face coated with a composition derived from a gum, an oil, a solvent for the gum and a volatile solvent for removing the fatty properties, substantially as described.

2. A skirt-binding or edge-protector consisting of a suitable fabric having a face coated with a composition derived from a gum, such as gutta-percha, an oil, such as linseed-oil, and a suitable solvent, and having the fatty properties removed, substantially as described.

3. The within process of making a skirt-binding or edge-protector consisting in applying to a suitable fabric a composition of gum, such as gutta-percha, an oil, such as linseed-oil, a solvent, such as turpentine and ether, and then applying a mixture of benzin and ether to remove the fatty properties of the composition, substantially as described.

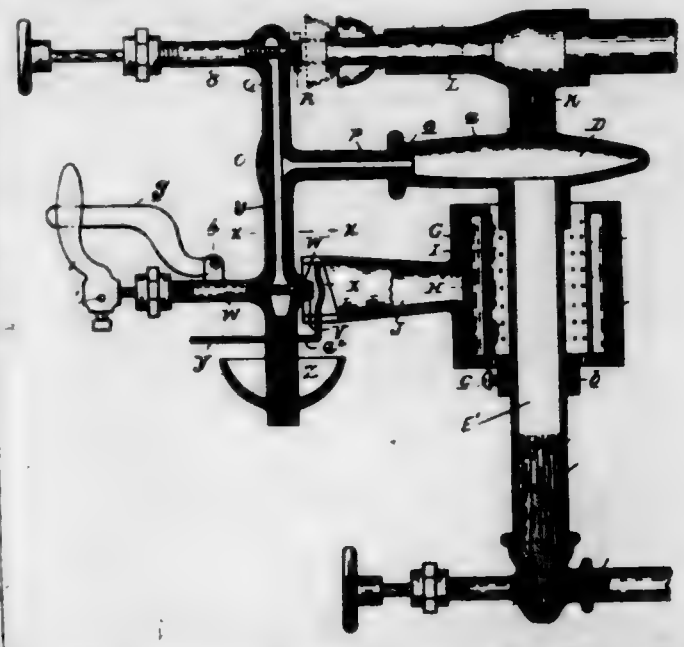
690,443. SPEED-REGULATOR FOR EXPLOSIVE-ENGINES. ALBERT L. KULL, Camden, N. J. Filed Mar. 28, 1901. Serial No. 53,178. (No model.)

Claim.—1. In an explosive-engine of the multiple-cylinder type, a series of cylinders, a series of explosion-chambers arranged to communicate directly with the cylinders, each chamber separated from the other chambers, a supply-pipe leading to all the explosion-chambers, a valve controlling the inlet from the supply-pipe to each chamber and operated by the suction in each cylinder, a feed-pipe leading from the mixing-chamber to the supply-pipe, a valve controlling the feed-pipe, a sparking device for each explosion-chamber, means for adjusting all the sparking devices simultaneously so as to vary the time when the spark may be formed, and mechanism for operating the valve in the feed-pipe, said mechanism controlled by the means for adjusting the sparking devices, substantially as and for the purposes described.



2. In an explosive-engine, a sparking device, a finger controlling said sparking device, a sleeve having a cam-surface over which the finger is adapted to ride, a shaft carrying said sleeve, a sprocket-sleeve adapted to be rotated directly by the engine, an interior sleeve to which the sprocket-sleeve is splined, said interior sleeve turning with and adapted to be shifted in the sprocket-sleeve, and a pin projecting from the shaft and adapted to enter an inclined slot in the walls of the interior sleeve, all arranged so that when the interior sleeve is shifted in the sprocket-sleeve, the shaft and cam-sleeve may be turned with respect to the sprocket-sleeve, whereby the relative position of the cam-surface with respect to the curved finger may be varied, substantially as and for the purposes described.

690,444. CARBURETER. OSCAR A. LANE and HUDSON A. DAVENPORT, Adrian, Mich., assignors to Adrian Gas Machine Manufacturing Company, Adrian, Mich., a Corporation of Michigan. Filed June 25, 1901. Serial No. 66,900. (No model.)



Claim.—1. In a gas-generator, the combination with a retort, of a burner adjacent thereto, an oil-supply conduit, capillary material within the discharge end of said conduit, a vapor-generating chamber connecting the conduit with the retort and extending between the capillary material and burner, and a valve for the supply-conduit.

2. In a gas-generator, the combination with a retort, of a burner adjacent thereto, an oil-supply conduit, capillary material within the discharge end of said conduit, a vapor-generating chamber connecting the conduit with the retort and located between the capillary material and burner, a valve within said supply-conduit in proximity to and upon the feed side of the capillary material, and a filter within the supply-conduit at the side of the valve opposite to said capillary material.

3. In a gas-generator, the combination with the retort, of an oil-supply conduit communicating therewith, a mixer above and a burner beneath said retort, and a vapor-delivery conduit, communicating with the retort, having alining upwardly and downwardly extending members leading to the mixer and burner respectively whereby the lighter portions of the vapor are delivered to the mixer and the heavier portions to the burner.

4. In a gas-generator, the combination with a supply-conduit, of a retort with which said conduit communicates, a burner having an inlet-opening formed therein, a mixer, and a vapor-conduit leading from the

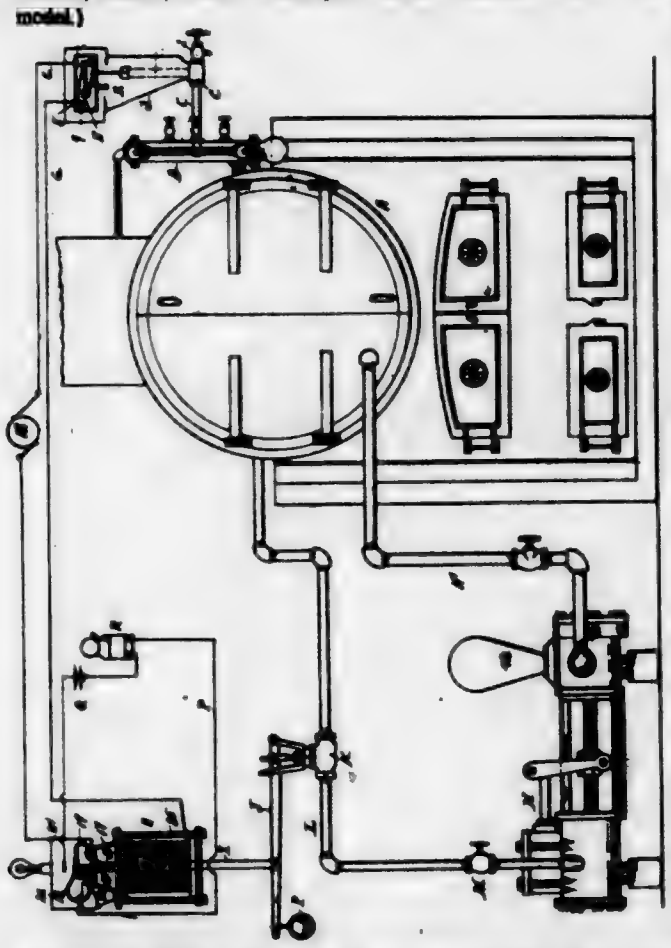
retort having alining valve-controlled branch members extending into operative relation to the mixer and burner.

5. In a gas-generator, the combination with a supply-conduit, of a retort communicating therewith, a burner for the retort, having an inlet-opening therein, a mixer, and a branched vapor-conduit having its main section or member detachably secured to and communicating with the retort, and alining valve-controlled branch members extending into operative relation to the mixer and burner respectively.

6. In a gas-generator, the combination with a supply-conduit, of a retort communicating therewith, a burner and a mixer for said retort, a branched vapor-conduit detachably secured to the retort, the branch members thereof extending adjacent to the burner and mixer respectively, a nozzle upon the vapor-conduit branch in proximity to the mixer, and a combined mixing-tube and coupler adjustably secured to the mixer and adapted to engage the nozzle upon the vapor-conduit branch.

7. In a gas-generator, the combination with a supply-conduit, of a retort with which said conduit communicates, a burner for the retort, a mixer, vapor-conduits at one side of said retort leading from the latter to the retort burner and mixer, and a burner beneath both vapor-conduits for initially heating said conduits for the purpose set forth.

690,445. AUTOMATIC BOILER-FEEDER. FREDERICK LEADBEATER, Detroit, Mich. Filed Apr. 8, 1901. Serial No. 54,781. (No model.)



Claim.—1. The combination with a boiler provided with a water-column, of a pipe communicating therewith, an expansible tube carried by said pipe and communicating with the water-column therethrough, a housing for said tube supported upon said pipe, a rod carried by the expansible tube guided in said housing, contact devices carried by said housing actuated by the elevation of said rod, an electrical circuit connected with said contact devices, an electromagnet in the circuit, and a valve in said pipe governed by said magnet.

2. The combination with a boiler provided with a pipe communicating therewith and with a water-column, of an expansible tube communicating with the water-column, a housing for said expansible tube, an adjustable rod carried by said tube, an electrical circuit, a system of levers carried by said housing to close said circuit and actuated by the elevation of said rod, an electromagnet in the circuit, and a valve in said pipe controlled by said magnet.

3. The combination with a boiler provided with a pipe communicating therewith, of an expansible tube arranged to be expanded when the water is low in the boiler, a housing for said tube, an electrical circuit, contact devices actuated by the expansion of said tube to close said circuit, a valve in said pipe, an electromagnet in said circuit to govern said valve, and means to cut the magnet out of said circuit.

4. The combination with a boiler provided with a pipe communicating therewith, of an expansible device arranged to be expanded when the water is low in the boiler, an electric circuit to be closed by the expansion of said device, a valve in said pipe, an electromagnet in said circuit to govern said valve, said magnet provided with means for breaking the circuit therethrough when the valve is open.

5. The combination with a boiler provided with a pipe communicating therewith, of an expansible device arranged to be expanded when the water is low in the boiler, an electric circuit to be closed by the expansion of said device, a valve in said pipe, an electromagnet in said circuit to govern said valve, said magnet provided with contact-arms in said circuit, and means to break the circuit through said contact-arms.

6. The combination with a boiler provided with a pipe communicating therewith, of an expansible device arranged to be expanded when the water is low in the boiler, an electric circuit to be closed by the expansion of said device, a valve in said pipe, an electromagnet in said circuit to govern said valve, said magnet provided with contact devices in said circuit, with a spring-actuated rod to break the circuit through said contact devices, and said valve provided with a plunger to be lifted by the magnet the descent of the plunger actuating said rod.

7. The combination with a boiler provided with a pipe communicating therewith, of an expansible device arranged to be expanded when the water is low in the boiler, an electric circuit to be closed by the expansion of said device, a valve in said pipe, an electromagnet in said circuit to govern said valve, said valve provided with a plunger attracted by said magnet, and said magnet provided with means for breaking the circuit therethrough when the plunger has been lifted to open the valve.

8. The combination with a boiler provided with a pipe communicating therewith, of an expansible device arranged to be expanded when the water is low in the boiler, an electric circuit to be closed by the expansion of said device, a valve in said pipe, an electromagnet in said circuit to govern said valve, said valve provided with a plunger attracted by said magnet, and said magnet provided with means for breaking the circuit therethrough when the plunger has been lifted to open the valve, and an additional electrical circuit provided with an alarm to be thrown into operation when the plunger is lifted.

9. The combination with a boiler provided with a pipe communicating therewith, of an expansible device arranged to be expanded when the water is low in the boiler, an electric circuit to be closed by the expansion of said device, a valve in said pipe, an electromagnet in said circuit to govern said valve, an additional circuit provided with an alarm, said valve provided with a plunger to be lifted by said magnet, and said magnet provided with contact devices to open and close the circuit through the magnet, and also to open and close a circuit through the alarm.

10. The combination with a boiler provided with a pipe communicating therewith, of an expansible device arranged to be expanded when the water is low in the boiler, an electric circuit to be closed by the expansion of said device, a valve in said pipe, an electromagnet in said circuit to govern said valve, a light in said circuit, and means connected with the magnet to open and close the circuit through the light when the valve is open.

690,446. EDUCATIONAL APPLIANCE. LÉOPOLD C. LEVY, Bénod-lès-Pont-à-Mousson, France. Filed July 9, 1901. Serial No. 67,650. (No model.)

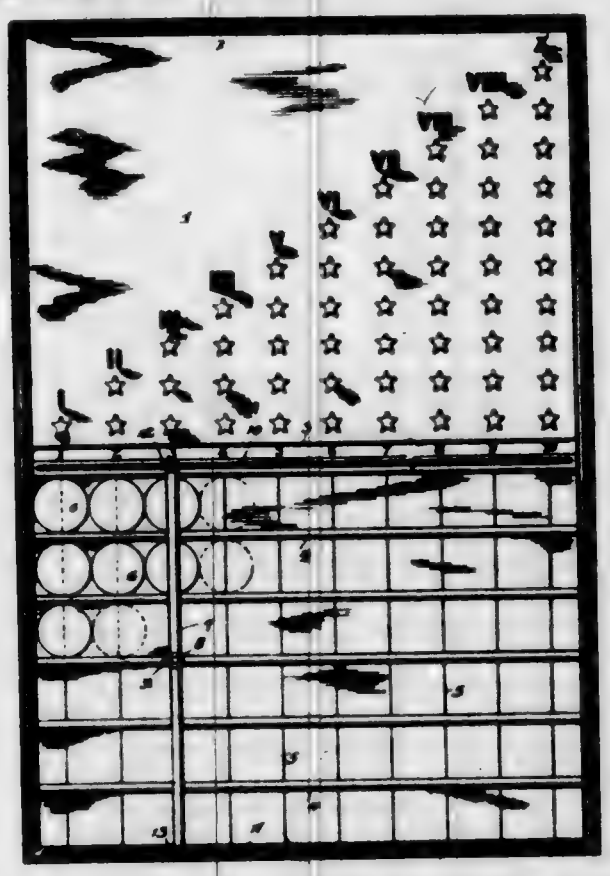
Claim.—1. An educational appliance comprising a board or base provided with transverse series of subdivisions for the reception of movable objects, and with vertical rows of permanent objects constituting an objective key indicative of the numerical value of the series of movable objects placed within the subdivisions.

2. An educational appliance comprising a board or base provided with a plurality of transverse rails for the reception of movable objects, and vertical lines intersecting the rails, and with vertical rows of permanent objects disposed directly above the vertical lines, each of said rows of permanent objects being provided with a numerical designation corresponding to the number of objects in the row, and constituting an objective key indicative of the number of movable objects upon the rails.

3. An educational appliance comprising a flat base surrounded by a band to prevent the escape of movable objects, a transverse strip disposed across the face of the base and bearing numerals "1" to "10," transverse rails extending in parallel relation across the base below the strip and intersected by vertical lines extending from the numerals, vertical rows of permanent objects disposed above the numerals and corresponding therewith in numerical value, and corresponding Roman notations above the rows of permanent objects, whereby said permanent objects, numerals and notations constitute an objective key indicative of the numerical value of groups of movable objects placed upon the transverse rails.

4. An educational appliance comprising a flat base or board provided with vertical rows of permanent objects constituting an objective key, a portion of said board being formed with a series of subdivisions for the reception of movable objects, and an indicator-bar mounted to move over the subdivided portion of the board and designed to indicate the relation of the objective key to the movable objects.

5. An educational appliance comprising a flat base provided with a series of transverse rails or guides for movable objects and with an objective key indicative of the numerical value of series of movable objects placed upon the rails or guides, and a movable indicater-bar disposed transversely of the rails or guides and designed to indicate the relation of the objective key to the movable objects.



6. An educational appliance comprising a board or base having a transverse strip disposed across the face thereof, several vertical rows of permanent objects constituting an objective key and located at one side of the transverse strip, a series of transverse rails or guides located at the opposite side of the transverse strip and designed for the reception of movable objects, and an indicater-bar having a slidable connection at its opposite ends with the board or base, and designed to be moved transversely over that portion of the board provided with rails, whereby the relation of the objective key to the movable objects may be determined without the use of the vision.

7. An educational appliance comprising a flat base surrounded by a bead, a transverse strip disposed across the face of the base and bearing the numerals "1" to "10," transverse rails extending in parallel relation across the base below the strip, vertical rows of permanent objects disposed above the numerals and corresponding therewith in numerical value, corresponding Roman notations above the rows of permanent objects, whereby said permanent objects, numerals and notations constitute an objective key indicative of the numerical value of groups of movable objects placed upon the transverse rails, and an indicater-bar disposed longitudinally of the base and having slidable connection at its opposite ends with the transverse strip and with the bead at the lower end of the base, said indicater-bar being provided with a handle to facilitate the shifting thereof transversely of the base to indicate the relation of the objective key to the groups of movable objects.

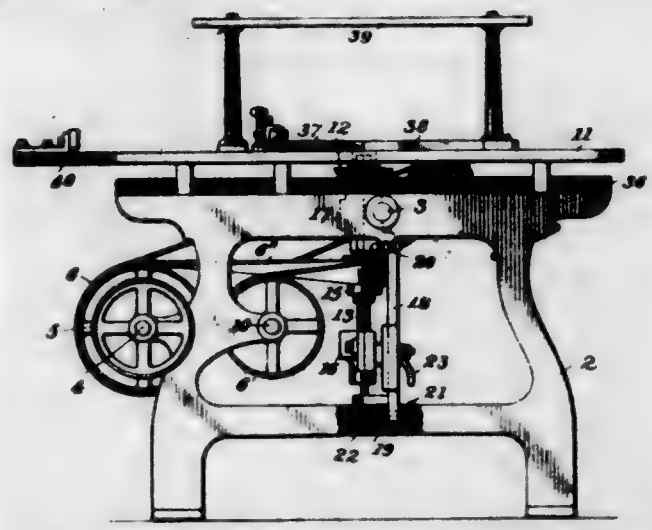
690,447. MACHINE FOR CUTTING TENONS. DAVID LYBE, Athens, Pa. Filed Jan. 2, 1900. Serial No. 701,033. (No model.)

Claim.—1. In a tenon-cutting machine, the combination of the frame-pieces, a top or table, 11, supported above the upper edges of the frame-pieces, and provided with a longitudinal groove, 14, a support, 36, below the groove, horizontally-arranged tenon-cutting saws mounted upon either side of the said groove in the table, and between the table and the top of the frame-pieces, and means for driving the saws, substantially as set forth.

2. The combination of the supporting-frame, a top or table in which is formed a longitudinal groove, a support below the groove for the material, and tenon-cutting tools arranged between the table and the said support, substantially as set forth.

3. In a tenon-cutting machine, the combination of a pair of bevel-edged tenon-cutting saws arranged edge to edge, a support below and between said saws, means for adjusting the saws vertically relative to the support, and means for adjusting the saws toward and from each other, substantially as set forth.

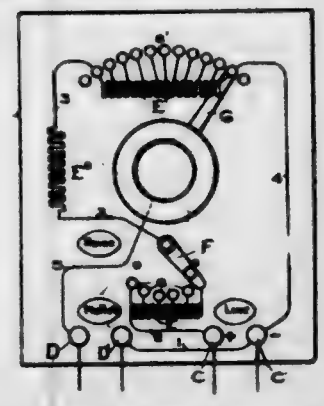
4. The combination, in a machine for cutting tenons, of the saws, 12, arranged in the same plane, means below the plane of the saws for supporting the material on edge between the saws while being operated upon thereby, means for adjusting the saws in the direction of their axes of rotation, and means for adjusting the saws toward and from each other, whereby the size of the tenons which they cut may be varied, substantially as set forth.



5. The combination of a framework, the tenon-cutting saws, 12, having beveled cutting edges, the vertical shafts upon which the saws are mounted, the bearings in which the shafts turn, means for adjusting the said shafts in their bearings axially, the carriers for such shaft-bearings, and the means for transversely adjusting the said carriers, and driving mechanism for the saws, substantially as set forth.

6. The combination of a work top or table having therein a longitudinal slot 14, a pair of tenon-cutting saws arranged below the said top or table on either side of the said slot, and in a plane substantially parallel thereto, means arranged below the saws for supporting the material on edge, means for supporting the material on one side or face near the face of the top or table, and means for supporting the material on one side or face at a distance considerably above the face of the top or table, substantially as set forth.

690,448. STARTING-RHEOSTAT FOR ELECTRIC MOTORS. FREDERICK MACKINTOSH, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 15, 1901. Serial No. 68,231. (No model.)



Claim.—1. In a starting-rheostat, a resistance connected across the line and divided into two or more portions one of which is variable, and motor-terminals one of which is connected with one side of the line, and the other with means for connecting it with any point on another portion of said resistance.

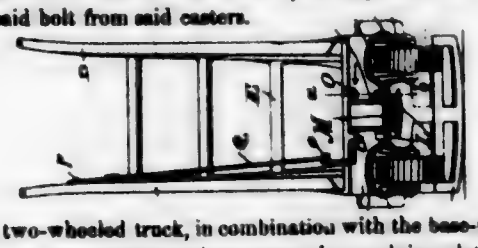
2. In a starting-rheostat, a resistance connected across the line and divided into two or more portions, a switch-arm for varying one of said portions, and means for connecting a motor in shunt to a variable section of another portion.

3. In a starting-rheostat, a resistance connected across the line and divided into two or more portions, a switch-arm for varying one of said portions, and motor-terminals one of which is connected with one side of the line, and the other with a switch-arm making varying contact with another portion of said resistance.

4. In a starting-rheostat, means for varying the total voltage supplied to a motor, and means for varying said voltage and at the same time varying the resistance of a shunt around said motor.

690,449. TRUCK. JOHN A. MARTIN, Toronto, Canada. Filed June 10, 1901. Serial No. 64,026. (No model.)

Claim.—1. In a truck, in combination with the base-plate, handles secured to same and casters for said base-plate, of a bolt designed to be engaged with said casters to lock same, or disengage from said casters so as to permit same to revolve around their pivotal point, and means for disengaging said bolt from said casters.

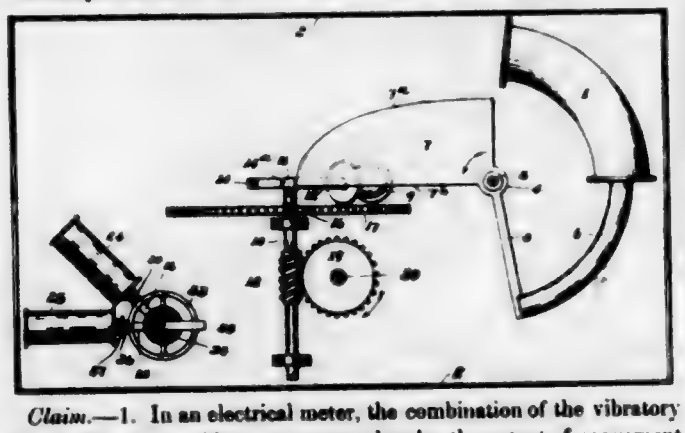


2. In a two-wheeled truck, in combination with the base-plate, handles secured to same, and ball-bearing casters, the revolving plate of which is provided with recesses, the said casters being secured to said base-plate, of a bolt, brackets forming part of said base-plate, in which said bolt has vertical movement, the ends of said bolt designed to engage the recesses in the revolving plate of said casters and lock same, and means for disengaging said bolt from the recesses of said casters for unlocking same.

3. In a two-wheeled truck, in combination with the base-plate which is provided with a horizontal shelf, handles secured to said base-plate and ball-bearing casters secured to the horizontal shelf of said base-plate, the revolving plate of said casters being provided with recesses, of a bolt, brackets forming part of said shelf, in which said bolt has vertical movement, the ends of said bolt designed to engage the recesses in the revolving plate of said casters and lock same, an arm pivoted to said base-plate and extending underneath said bolt, and means for operating said arm so as to raise said bolt and disengage same from the recesses of said casters and unlock same.

4. In a two-wheeled truck, in combination with the base-plate which is provided with a horizontal shelf, handles secured to said base-plate and ball-bearing casters secured to the horizontal shelf of said base-plate, the revolving plate of said casters being provided with recesses, of a bolt, brackets forming part of said shelf, in which said bolt has vertical movement, the ends of said bolt designed to engage the recesses in the revolving plate of said casters and lock same, an arm pivoted to said base-plate and extending underneath said bolt and a rod attached to the free end of said arm and extending in proximity to the hand, as and for the purposes specified.

690,450. ELECTRIC METER. GEORGE H. MEEKER, Media, Pa. Filed Apr. 27, 1900. Serial No. 14,535. (No model.)



Claim.—1. In an electrical meter, the combination of the vibratory bar, or the like, a movable part, means whereby the extent of movement of which part is governed by the electric current passing through the service-line wires, said movable part and said bar being so correlated that the extent of the vibrations of said bar are automatically limited by the position of said movable part, and means for imparting to said bar successive vibrations with relation to said movable part, the time intervals between which vibrations are inversely proportional to the electrical pressure of said wires, together with indicating or recording mechanism adapted to be actuated by the vibrations imparted to the said bar, substantially as and for the purpose set forth.

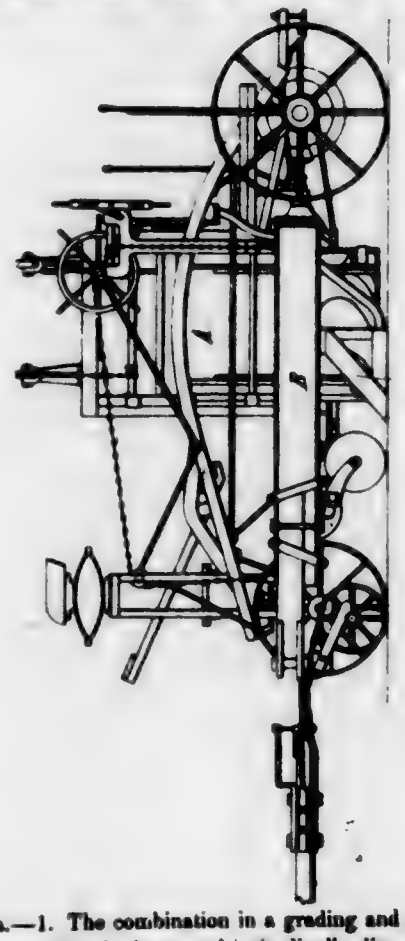
2. In an electrical meter, the combination of an oscillatory part adapted to be controlled by the electrical current and actuated thereby, a reciprocatory bar, or the like, occupying normally a definite position with relation to said oscillatory part, the extent of the reciprocation of which bar is adapted to be limited by the position which said part is caused to occupy by the action of the said electrical current, means adapted to be actuated by the electrical current for imparting to said bar successive vibrations toward and against said oscillatory part in intervals of time inversely proportional to the electrical pressure, means for returning said bar to the normal position after each of said vibrations, and mechanism connected with said bar for consecutively recording the extent of said vibrations, substantially as and for the purpose set forth.

3. In an electrical meter, the combination of the solenoid, adapted to be connected in series with the service-line wires, the core adapted to oscillate in said solenoid, the plate having the calibrated edge adapted to be oscillated by the movements of said core and in correspondence therewith, the vibratory bar, the solenoid adapted to be connected in multiple with the said service-line wires, the core adapted to oscillate in said solenoid and connected with said bar, the electromagnets connected with the service-line wires, armatures adjacent thereto, respectively, the magnetic shield adapted to oscillate in a path between said armatures and magnets, stops between which the said armatures are adapted to vibrate, and the electrical connections of said magnets, armatures and stops, together with suitable indicating or recording mechanism adapted to be actuated by the vibrations of said bar, substantially as and for the purpose set forth.

4. In an electrical meter, the combination of an oscillatory part adapted to be controlled by the electrical current and actuated thereby, a vibratory bar, the solenoid, or the like, adapted to be connected in multiple with the service-line wires, and adapted to control the movement of said bar, means for automatically closing the circuit through said solenoid when a load is placed upon the service-line wires, and for breaking the circuit when no load is upon said wires, together with suitable indicating or recording mechanism adapted to be actuated by the vibrations of said bar, substantially as and for the purpose set forth.

5. In an electrical meter, the combination of the vibratory bar, or the like, a movable part, means whereby the extent of movement of which part is governed by the electric current passing through the service-line wires, said movable part and said bar being so correlated that the extent of vibrations of said bar are limited by the position of said movable part, the solenoid, or the like, for imparting vibrations to said bar and adapted to be connected in multiple with the service-line wires, the electromagnets also adapted to be connected in multiple with the service-line wires, the respective armatures adjacent thereto, their front and rear stops, and the electrical connections between said solenoid, electromagnets, armatures and stops, whereby when the armature of either of said magnets is against its rear stop, the circuit of the other magnet will be closed and when against its front stop, the circuit of said other magnet will be open, and whereby also when one of said armatures comes against its forward stop it will thereby close the circuit through said solenoid; together with the magnetic shield adapted to automatically reciprocate in a path between said armatures and magnets, substantially as and for the purpose set forth.

690,451. GRADING AND DITCHING MACHINE. WILLIAM H. MORENUS, Lakeview, Iowa, assignor to Frederick C. Austin, Chicago, Ill. Filed Nov. 5, 1900. Serial No. 35,522. (No model.)



Claim.—1. The combination in a grading and ditching machine of a wheel-supported body-frame; a longitudinally-disposed plow-beam provided with a suitable plow and arranged at one side of the machine; a transversely-arranged stay and draft-bar D attached to the plow-beam and hinge-connected with the wheel-supported body-frame; the forward bolster and a tongue or pole connected therewith; a draft-chain or cable connect-

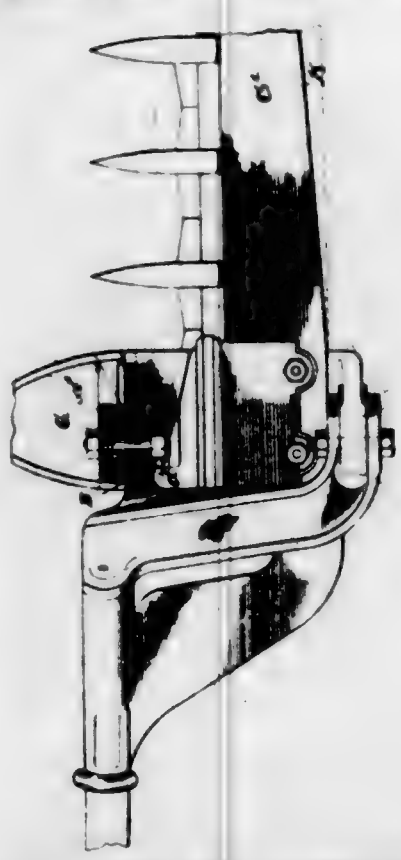
ing the draft-bar with the tongue or pole; and means for positively securing such chain or cable to the middle portion of the forward bolster, or releasing it from such positive connection with the forward bolster, at will, whereby the draft can be transferred from the pole to the forward bolster or from the latter to the former.

2. In a grading and ditching machine, the combination of a transversely-arranged draft and balance bar attached to the plow-beam and connected with a wheeled body-frame; a draft-chain or cable adapted to connect the draft-bar with the tongue or pole and including a threaded rod; a nut or stop adjustable along said rod and adapted when adjusted in one direction to connect the chain or cable with the bolster so as to throw the draft strain thereon, and when adjusted in an opposite direction to relieve the bolster from such draft strain and permit the same to be taken by the tongue or pole, substantially as described.

3. A grading and ditching machine comprising a horizontally-swinging draft-bar connected with a longitudinally-arranged plow-beam; a draft-chain or cable arranged to connect the draft-bar with the tongue or pole and including as one of its links a threaded rod; a front bolster and box or bearing thereon having guide-openings for the said rod; and a nut or stop applied for adjustment along said rod and arranged forward of the front bolster, whereby, by adjusting the nut or stop forward, the draft strain will be on the tongue or pole, and by adjusting said nut or stop rearwardly, the draft strain will be taken by the front bolster, substantially as described.

4. In a grading and ditching machine, the tongue or pole attached to the hounds or a draft-yoke; a chain or cable connecting the tongue or pole with a transversely-arranged draft-bar attached to a longitudinally-arranged plow-beam; and the front bolster and a box or bearing thereon provided with a guideway for a portion of the chain or cable.

690,452. **MEANS FOR ADJUSTING FINGER-BARS OF MOWING-MACHINES.** WILLIAM D. MYERS, Humboldt, Iowa, assignor to the Warder, Bushnell & Glessner Company, Springfield, Ohio and elsewhere, a Corporation of Ohio. Filed Nov. 3, 1900. Serial No. 35,381. (No model.)



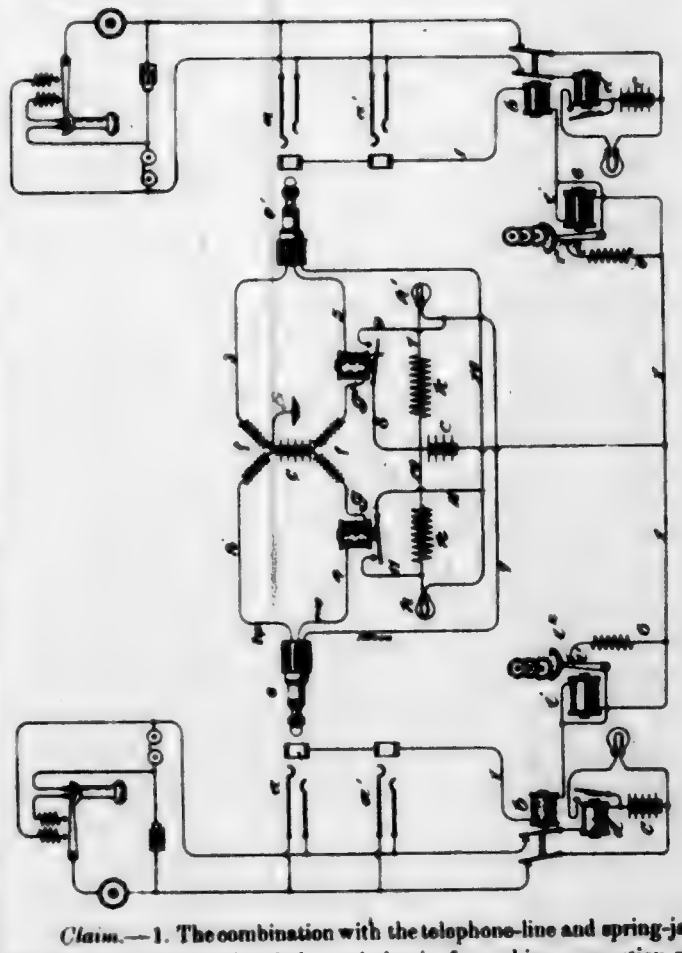
Claim.—1. In a mowing-machine, a coupling having arms or projections, pivot-bolts mounted in said arms or projections, a shoe supported upon said pivot-bolts, a finger-bar carried by said shoe, and means for adjusting one of said pivot-bolts relatively to its supporting arm or projection to overcome backward sagging of said finger-bar, as and for the purpose set forth.

2. In a mowing-machine, a coupling arm or frame provided with a projection, said projection having an elongated slot, a horizontally-arranged pivot-bolt mounted for lateral adjustment in said slot, a shoe, a finger-bar carried thereby, said pivot-bolt forming means for pivotally supporting said shoe upon said coupling-arm, whereby said finger-bar may be rocked into vertical position upon said bolt as and for the purpose set forth.

3. In a mowing-machine, a coupling-arm provided with a recessed projection having an elongated slot, a bearing-block adjustably mounted in the recess in said projection, a pivot-bolt carried by said block and extending through said elongated slot, a shoe pivotally supported upon said pivot-bolt, and a finger-bar carried by said shoe, all combined and arranged as and for the purpose set forth.

4. In a mowing-machine, a coupling-arm provided with a recessed projection having an elongated slot, a bearing-block adjustably mounted in said recess and provided with a lug arranged to project into said slot, a pivot-bolt carried by said block, a shoe pivotally supported upon said pivot-bolt, a finger-bar carried by said shoe, and means for clamping said bearing-block in adjusted position, as and for the purpose set forth.

690,458. **SERVICE-METER FOR TELEPHONE-LINES.** FRANK R. MCBERTY, Evanston, Ill., assignor to the Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Apr 9, 1900. Serial No. 12,147. (No model.)



Claim.—1. The combination with the telephone-line and spring-jacks thereof, and a plug and switch cord-circuit for making connection with the line, a cut-off relay for severing the normal connections of the line, having its actuating-magnet in a local circuit closed in registering contact-pieces of a spring-jack and a plug therein, a service-meter having its actuating-magnet in the same local circuit adapted for operation by a current greater than that required to operate the cut-off relay, a resistance in the local circuit and a switch for shunting the resistance, a normal shunt of the service-meter and switch-contacts at the armature of said meter adapted to break the shunt; whereby the cut-off relay is operated when the local circuit is completed and the service-meter is operated when the resistance is shunted and remains excited, as described.

2. The combination with a telephone-line, spring-jacks thereof and a pair of plugs and a switch cord-circuit for making connection from the line to another, said lines being provided with switches at their stations for determining the flow of current in the lines in the use of the telephones, of a cut-off relay for the line for severing normal ground connections thereof, a local circuit closed in registering contact-pieces of the answering-plug and spring-jack including said cut-off relay, a service-meter having its actuating-magnet in the local circuit, a supervisory-signal lamp in the portion of the local circuit terminating in the answering-plug, a supervisory relay in the path of current to the called line, and a shunt of the supervisory lamp controlled thereby, the cut-off relay being adapted to operate upon current through the supervisory lamp, and the service-meter being adapted to operate only when said lamp is shunted, as described.

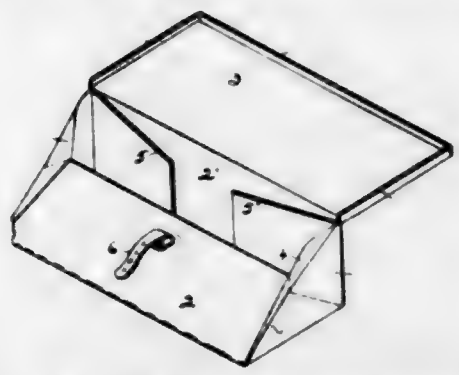
3. The combination with telephone-lines and spring-jacks thereof, the stations of said lines being provided with switches for determining the flow of current in the lines, an answering-plug and a calling-plug with a switch cord-circuit for uniting lines, a source of current in the switch cord-circuit, and a supervisory relay in the path of current therefrom to the calling-plug, a conductor for each line leading from a battery to normally open contact-pieces in the spring-jacks of the corresponding line, a cut-off relay and a service-meter for each line having their maganets

in the said conductors of the lines, the service-meter requiring for its operation a current greater than that required by the cut-off relay, and a conductor from the other pole of said battery to contact-pieces of each of said plugs adapted to register with the local contact-pieces of the spring-jacks, the conductor terminating in each plug being adapted to supply to the circuit through a cut-off relay of the line with which it is connected a current sufficient to operate the cut-off relay only, and means controlled by the said supervisory relay for increasing the current in the conductor to the answering-plug, as described.

4. The combination with telephone-lines adapted for the automatic control of signals, spring-jacks for the lines and plugs and a switch cord-circuit for uniting lines, a source of current in a bridge of the switch cord-circuit, and a supervisory relay in the path of current from the bridge to each of the plugs, a local circuit for each line closed in registering contacts of the spring-jack and plug, a cut-off relay and a service-meter in the local circuit of each line, the service-meter requiring for its operation a current greater than that required by the cut-off relay, a secondary signal in the conductor of the local circuit leading through each plug, the secondary signal in the conductor to the answering-plug being associated with the calling-plug and controlled by a shunt through switch-contacts of the supervisory relay of the called line, the said shunt being adapted to produce sufficient current in the local circuit of the answering-plug to operate the service-meter, a secondary signal associated with the answering-plug in the circuit to the calling-plug controlled by a shunt through switch-contacts of the relay for the calling-line, the resistance of said conductor leading through the calling-plug being always sufficient to prevent the operation of the service-meter, substantially as described.

5. The combination with two telephone-lines, a spring-jack for each line, an answering and a calling plug for making connection from one of the lines to the other, a switch cord-circuit for the plugs, and supervisory relays in the switch cord-circuit, each responsive to current through one of the plugs, a local circuit for each line closed through registering contacts of the spring-jack of the line and the plug therein, the local circuit to the calling-line being controlled by the supervisory relay of the calling-plug, and the local circuit of the called line being controlled by the supervisory relay of the answering-plug, and electromagnetic mechanism in the portion of the local circuit permanently associated with each line; whereby the said mechanism of either line is controlled by the supervisory relay associated with the other line, as described.

690,454. FOLDING BOX. JOHN J. MCCORMICK, Bellevue, Pa. Filed Mar. 28, 1899. Renewed Nov. 7, 1901. Serial No. 81,499. (No model.)

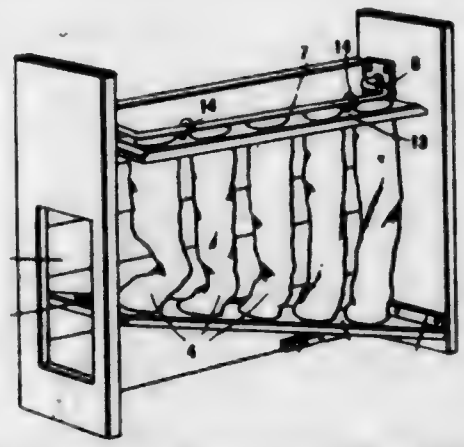


Claim.—A folding box, the top, bottom, and front and rear sides of which are formed continuous and uncreased except at the edges, and the front is of a less width than the back whereby it may be folded between the bottom and the back and the top may be folded over the bottom, flexible end pieces, each of which is creased diagonally and adapted to be folded between the front and the bottom and back respectively, two rigid end pieces, each being hinged at one edge to the interior of the box and adapted to be folded against the side to which it is secured, and a handle and means for securing the top to the front.

690,455. SUPPORT FOR DUST-COLLECTOR TUBES. CHARLES B. MCBRIAR, Richmond, Ind., assignor to Richmond City Mill Works, Richmond, Ind., a Corporation of Indiana. Filed May 13, 1901. Serial No. 60,969. (No model.)

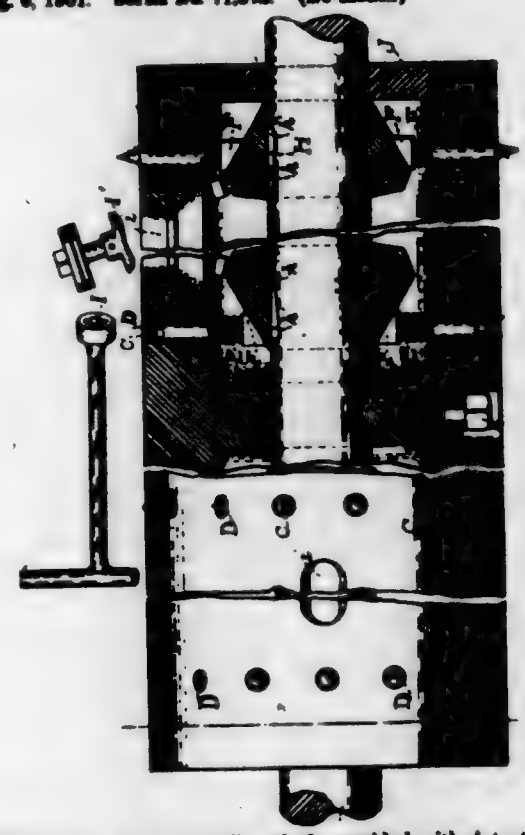
Claim.—1. In a dust-collector, the combination with an inclosing casing, of one or more collector-tubes, a bar secured to one end of said tubes, a tongue carried by the casing in position to receive one end of said bar therebeneath, a second tongue arranged in said casing so as to project beneath said bar, a catch carried by the other end of said bar and adapted to coact with the casing, a second bar secured to the opposite ends of said tubes, and means carried by the second bar for detachably suspending the same to vibrating means.

2. In a dust-collector, the combination with an inclosing casing, of one or more collector-tubes, a bar secured to one end of said tubes, a tongue carried by the casing in position to receive one end of said bar therebeneath, a catch carried by the other end of said bar and adapted to coact with the casing, a second bar secured to the opposite ends of said tubes, hooks carried by said second bar, and means mounted in the casing for receiving said hooks.



3. In a dust-collector, the combination with an inclosing casing, of a reciprocating rod mounted therein, one or more collector-tubes, a bar secured to the upper ends of said tubes means for detachably securing said bar to the reciprocating rod, a second bar secured to the lower ends of said tubes, and means carried by the casing and opposite ends of the said second bar for detachably holding said bar in the casing, whereby any set of tubes may be removed without disturbing any other set.

690,456. FEED-ROLL. EDWARD OEHME, St. Joseph, Mo. Filed Aug. 6, 1901. Serial No. 71,572. (No model.)



Claim.—1. In a feed-roll, a shaft provided with slots, the collars on said shaft provided with set-screws adapted to work in said slots, the spurs provided with shoulders, the roll-castings provided with apertures through which the spurs may operate, the springs resting upon said shoulders and adapted to bear up against the casting, and the means to slide said collars, substantially as described.

2. The combination in a feed-roll of a shaft provided with horizontally-extended slots, a collar on said shaft, a set-screw through said collar adapted to slide in one of said slots, a spur provided with a shoulder, the spring resting upon said shoulder, the casting provided with a spur-aperture and with a hole adapted to permit the insertion of a wrench to move said collar and a plug to close the same when the wrench is removed, substantially as described and for the purpose specified.

3. In a feed-roll the combination of a shaft, of the roll-casting fastened thereon and provided with one or more surrounding series of apertures and with wrench-holes, of the collars on the shaft, of the slots in the shaft and the set-screw in each adapted to slide in the slot to prevent the collar reversing around on the shaft and to keep the collar in place within reach of the wrench-hole, of the spurs adapted to operate through said apertures and provided with shoulders adapted to rest on said collars,

of the springs resting on said shoulders and bearing up against the inside of the casting and adapted to withdraw the spurs into the apertures upon withdrawal of the collar from beneath, substantially as described.

690,457. FILTER. CAROLINE S. PARKER, Chicago, Ill., assignor of one-fourth to Melville E. Erwin, Dubuque, Iowa. Filed Sept. 21, 1900. Renewed July 3, 1901. Serial No. 67,011. (No model.)



Claim.—1. In combination, a stopper body or support adapted to be seated in the neck of a canteen or the like; a filter consisting of a hollow body of rigid porous material; means for supporting said filter-body from the stopper-body, comprising a hollow support extending through the filter-body and having one end engaged in said stopper-body; a clamping device threaded upon the opposite end of said hollow support in bearing with the end of the filter-body; and a rigid mouthpiece seated upon the upper end of the stopper-body and provided with a discharge-passage communicating with the interior of the hollow support, said hollow support being provided at points within the filter-body with inlet-openings, substantially as described.

2. In combination, a stopper body or support adapted to be seated in the neck of a canteen or the like; a filter consisting of a hollow body of rigid porous material; means for supporting said filter-body from the stopper-body, comprising a hollow support extending through the filter-body and having one end engaged in said stopper-body; a clamping device threaded upon the opposite end of said hollow support in bearing with the end of the filter-body; a rigid mouthpiece seated upon the upper end of the stopper-body and provided with a discharge-passage communicating with the interior of the hollow support; inlet-openings affording communication between the interior of the filter-body and the interior of the hollow support; and a venting device consisting of a tube arranged to extend downwardly through the stopper-body alongside of, and external to, the filter-body, and a passage communicating with the upper end of said tube and extending upwardly through the mouthpiece; substantially as described.

3. In combination, a stopper body or support adapted to be seated in the neck of a canteen or the like; a filter consisting of a hollow body of rigid porous material; means for supporting said filter-body from the stopper-body, comprising a hollow support extending through the filter-body and having one end engaged in said stopper-body; a clamping device threaded upon the opposite end of said hollow support in bearing with the end of the filter-body; a rigid mouthpiece seated upon the upper end of the stopper-body and provided with a discharge-passage communicating with the interior of the hollow support; inlet-openings affording communication between the interior of the filter-body and the interior of the hollow support; a venting device comprising a tube having its upper end seated in the stopper-body and its lower end extended through the clamping-support at the lower end of the filter-body; an annular groove formed in the under side of the mouthpiece concentrical with the hollow support, and in communication with said vent-pipe; vent-passages communicating with said annular groove and extending upward through the body of the mouthpiece; and a removable cap adapted to close the discharge-passage of the mouthpiece and the vent-passages of the latter, when applied to the mouthpiece; substantially as described.

4. In combination, the stopper-body 3; the mouthpiece 10 seated upon the upper end of said stopper-body; the filter-body 4; the hollow support 6 extending through the filter-body, the stopper-body, and threaded within the mouthpiece; the clamping device threaded upon the lower end of said hollow support, and between which and the stopper-body the filter-body is clamped; the discharge-passage communicating with the upper end of the hollow extension and extending through the mouthpiece; the inlet-apertures arranged at intervals throughout the length of the hollow extension; the vent-pipe 16 extending through the stopper-body and through the clamping-support; the annular groove in the under surface of the stopper-body communicating with said vent-pipe; the vent-passages communicating with said groove and extending thence through the stopper-body; and the removable cap arranged and combined, substantially as set forth.

690,458. DETERGENT AND PROCESS OF MAKING SAME. FREDERIC B. PEASE and MILTON E. MCDONNELL, Altoona, Pa. Filed July 16, 1901. Serial No. 68,495. (No specimens.)

Claim.—1. In a process of manufacturing a cleaning preparation, the improvement which consists in mixing an acid with a nitrogenous proteid-containing substance and allowing reaction to occur until after the mixture becomes viscid and then diluting the product, substantially as set forth.

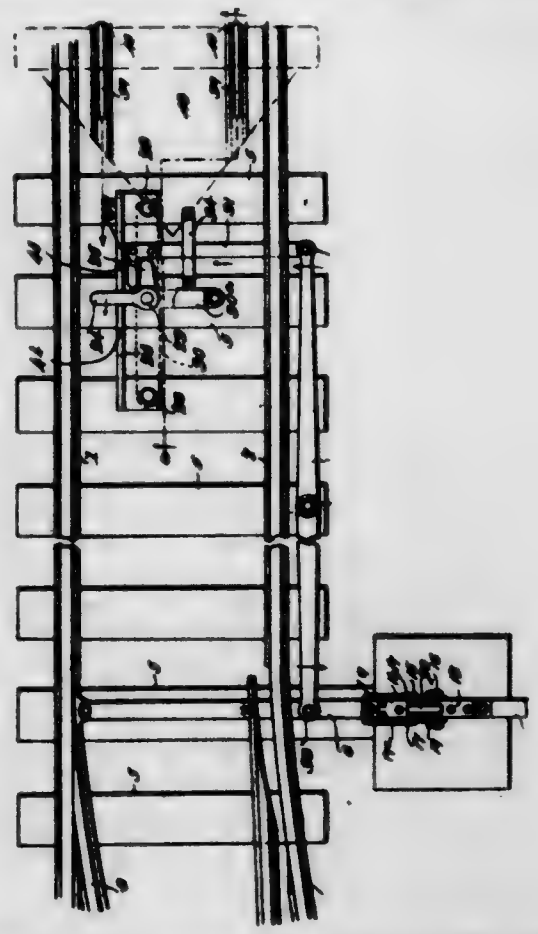
2. A cleaning preparation consisting essentially of the complex products arising and existing after a nitrogenous proteid substance is mixed with an acid, substantially as set forth.

3. A cleaning preparation consisting essentially of the complex products arising and existing after a nitrogenous proteid substance is mixed with one of the following acids: muriatic, acetic, citric, tartaric, oxalic, and sulfuric, substantially as set forth.

4. A cleaning preparation consisting essentially of the complex products arising and existing after a nitrogenous proteid substance is mixed with a volatile acid, substantially as set forth.

5. In a process of manufacturing a cleaning preparation, the improvement which consists in mixing an acid with a nitrogenous proteid-containing substance and allowing reaction to occur until after the mixture becomes viscid and then diluting the product with water, substantially as set forth.

690,459. SWITCH-OPERATING DEVICE. EDWARD L. PEECK, Memphis, Tenn. Filed July 17, 1901. Serial No. 68,643. (No model.)



Claim.—1. In a switch-operating apparatus, a switch, a switch-bar connected to the "points" of said switch, yieldable means for maintaining said points in one of their positions, a lever-arm projecting into the path of the moving train, a bar slidably disposed in relation to said lever-

arm and adapted to be actuated thereby, means including locking mechanism connecting said slidable bar to said switch-bar, and means upon the moving train for actuating said lever-arm, whereby the switch will be actuated in advance of the moving train, substantially as and for the purpose described.

2. In a switch-operating apparatus, a switch, a switch-bar connected to the "points" of said switch, yieldable means for maintaining said points in one of their positions, means for locking said switch when thrown, a lever-arm projecting into the path of the moving train, a bar slidably disposed in relation to said lever-arm and adapted to be actuated thereby, means including automatically-operating locking mechanism connecting said slidable bar to said switch-bar, and means upon the moving train for actuating said lever-arm, whereby the switch will be actuated in advance of the moving train, substantially as shown and described.

3. In a switch-operating apparatus, a switch, a switch-bar connected to the switch-points and formed in two slidably-disposed parts with a spring adapted to keep said parts normally separated, a locking means disposed to lock said separated parts together when closed, means adapted to be actuated by the passing train to operate said slidable member of said switch-bar, whereby said switch may be thrown in advance of the moving train and locked in its thrown position, substantially as shown and described.

4. In a switch-operating apparatus, a switch, a switch-bar section connected by one end to the switch-points, a coupling-bar connected slidably to the opposite end of said switch-bar section, a second switch-bar section connected to the opposite end of said coupling-bar section, a spring disposed to maintain said slidable section in its extended position, a locking means connected to said sectional switch-bar and adapted to automatically lock said slidable section in its closed relation to said second switch-bar section, and means adapted to be actuated by the passing train to operate said slidable section to throw the switch in advance of the train and lock the switch in the position thrown, substantially as shown and described.

5. In a switch-operating apparatus, a switch, means for maintaining said switch in one of its positions, a shaft revolubly supported adjacent to the path of the moving train, an arm connected to said shaft and projecting into the path of the moving train, a second arm connected to said shaft, a bar slidably supported with relation to said lever-arms and shaft and with a right-angled projection adapted to be engaged by said second arm, and means whereby said slidable bar may actuate said switch when operated and lock the switch in the position to which it is thrown, substantially as shown and described.

6. In a switch-operating apparatus, a switch, automatically-operating means for maintaining said switch in open position, a shaft revolubly supported adjacent to the path of the moving train, an arm connected to said shaft and projecting into the path of the moving train, a guard disposed to be engaged by said arm to afford support thereto, means whereby the movement of said lever-arm closes the switch, and automatically-operating means for locking the switch in its closed position, substantially as shown and described.

7. In a switch-operating apparatus, a switch, a spring for maintaining said switch in one of its positions, a shaft revolubly supported adjacent to the path of the moving train, an arm connected to said shaft and projecting into the path of the moving train, a bar including locking mechanism connecting the lever-arm and the switch, a trip-lever pivoted by one end to said train and adapted when depressed to engage said lever-arm, substantially as shown and described.

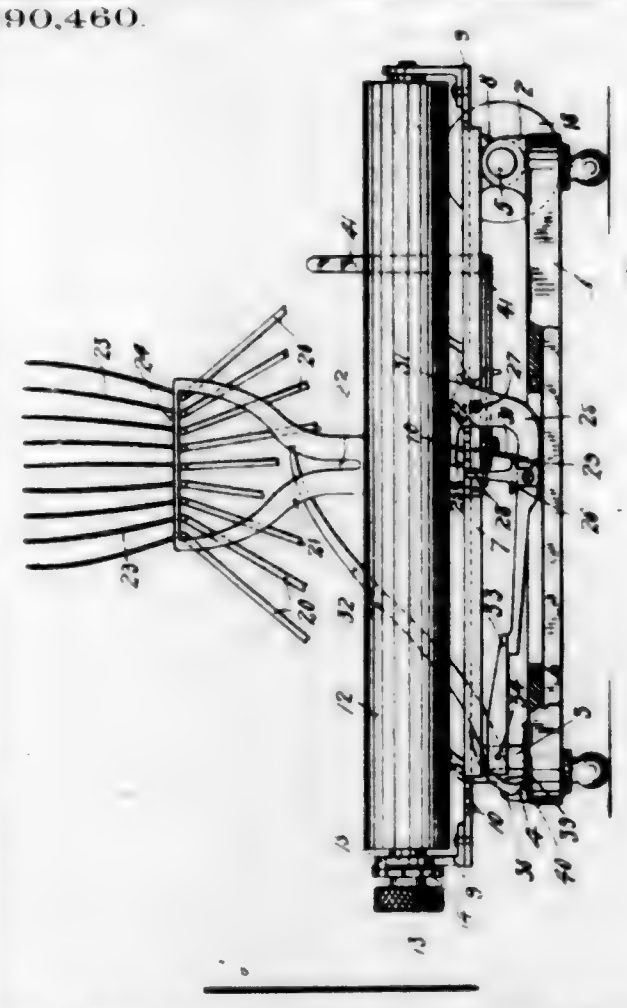
690,460. TYPE-WRITER. CHARLES E. PETERSON, Minneapolis, Minn. Original application filed Oct. 4, 1900, Serial No. 31,964. Divided and this application filed July 1, 1901. Serial No. 66,623. (No model.)

Claim.—1. In a type-writer, a carriage-escapement comprising a main lever having a lock-pawl and having a slip-pawl pivoted for vibrating escapement movements and lateral slip movements, and a spring applied to a laterally and eccentrically located projection of said slip-pawl, whereby said spring yieldingly holds said main lever upward, and said slip-pawl in an operative position, substantially as described.

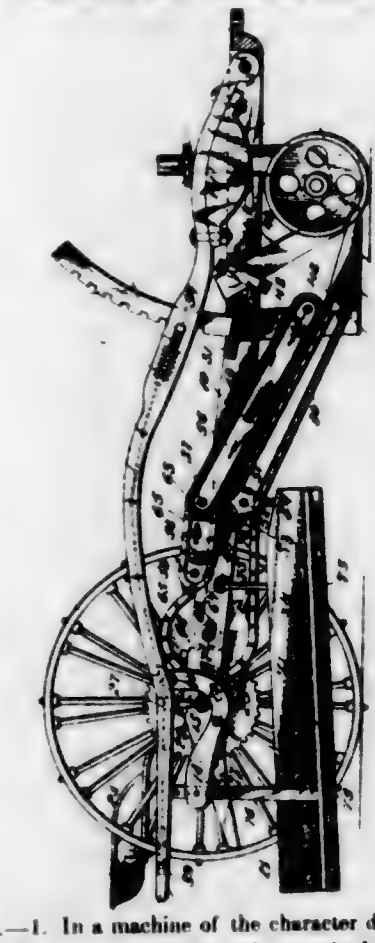
2. In a type-writer, a platen-carriage having ratchet-teeth 10, in combination with an escapement device comprising a lever 25 with rigid lock-pawl 25ª, the slip-pawl 26 pivoted to said lever 25 with freedom for vibrating escapement movements and lateral slip movements, and provided with a laterally and eccentrically located projection 29, and the spring 30 connected to the projection 29 of said pawl 26, and to a relatively fixed support, substantially as described.

3. In a type-writer, the combination with a carriage having ratchet-teeth, of a carriage-escapement comprising a main lever having a rigid lock-pawl and a pivoted spring-held slip-pawl mounted for lateral slip movements, and a releasing lever or key acting on said slip-pawl to force the same laterally out of engagement with said ratchet-teeth and to thereby release the carriage, substantially as described.

690,460.



690,461. GRASS-UPROOTER. DAVID N. PHILLIPS, Whittington, Canada. Filed Jan. 25, 1901. Serial No. 44,703. (No model.)



Claim.—1. In a machine of the character described, the combination with a wheel-supported frame, of a standard secured to the frame, a share at the lower end of the standard and having a channel at its rear end, upwardly and rearwardly inclined elevators arranged one above the other, the lower end of the lower elevator being mounted in the channel of the share, and the upper elevator being free to move vertically at its lower end, means for operating the elevators from one of the supporting-wheels, a suspended sifting and distributing box, and means for reciprocating the said box from one of the elevators, as set forth.

2. In a machine of the character described, the combination with a wheel-supported frame, of a share at the lower end of a standard secured to the frame, an upwardly and rearwardly inclined elevator having one

of its shafts mounted in the share and its other in the frame, a swinging frame above the elevator, a second elevator carried by the swinging frame, a shaft geared with the upper shaft of the second elevator and upon which shaft the swinging frame is mounted, and means for operating the upper shaft of the frame and the upper shaft of the first-named elevator from one of the supporting-wheels, as set forth.

3. In a machine of the character described, the combination with a wheel-supported frame, of a share at the lower end of a standard secured to the frame, an upwardly and rearwardly inclined elevator having one of its shafts mounted in the share and its other in the frame, a swinging frame above the elevator, an adjustable bearing for the upper shaft of said frame, a second elevator carried by the swinging frame, a shaft geared with the upper shaft of the swinging frame, a second shaft geared with one of the supporting-wheels, and means for operating the upper shafts of the elevators from the shaft geared with the supporting-wheel substantially as described.

4. A wheel-supported frame, a share, coöperating elevators arranged one above the other, and extending upward and rearward from the share, the upper elevator being pivoted at its discharge end and free at its receiving end, means for driving the elevators from a supporting-wheel of the machine, opposing stretches of the elevators moving in the same direction, a rocking frame pivoted to the main frame, a reciprocating sifting and distributing box supported partially from the main frame and partially from the rocking frame, means for operating the sifting-box from one of the elevators, and a main lever pivoted to the main frame, capable of bearing on the rocking frame to elevate the said box, as described.

5. In a machine of the class described, the combination with a wheel-supported frame, and a share at the forward part of the frame, of adjustable and obliquely-arranged hangers carried by the frame, an inclined elevator having one shaft mounted in the share and the other in the lower end of the hanger, a second hanger mounted in the upper end of the first-named hanger, a frame pivoted to the second hanger and extending downwardly above the elevator, a second elevator mounted in the pivoted frame, and means for operating the said elevators from one of the supporting-wheels, as set forth.

6. In a machine of the class described, the combination with a wheel-supported frame, and a share at the forward part of the frame of an adjustable and obliquely-arranged hanger carried by the frame, an inclined elevator having one shaft mounted in the share and the other in the lower end of the hanger, a shaft mounted in the upper end of the first-named hanger, a second hanger mounted at one end on said shaft, a frame pivoted to the free end of the second hanger and extending downwardly above the elevator, a second elevator mounted in the pivoted frame, gearing between the shaft on which the second hanger is mounted and the upper shaft of the second elevator, a shaft mounted in the main frame and geared with one of the supporting-wheels, and means for operating the shaft in the upper ends of the first-named hanger and the upper shaft of the first-named elevator from the shaft mounted in the main frame, as set forth.

7. In a machine of the character described, a wheel-supported frame, a share attached to the said frame, and provided with a longitudinal chamber in its rear portion, a shaft located within the said chamber, an opposing shaft carried by an adjustable support on the frame, an elevator carried by the said shafts, a frame located above the elevator connected with the share, an adjustable pivotal support for the upper portion of the frame, the lower portion of the frame being free to move to and from the said elevator, and an elevator carried by the said frame, as and for the purpose specified.

8. In a machine of the character described, a drive-shaft, hangers pivoted on the drive-shaft, a second shaft carried by the hangers, a driving connection between the second shaft and drive-shaft, an elevator-frame pivoted on said second shaft, the elevator being driven therefrom, the opposite end of the said elevator being free to move vertically, a second conveyer located below the first conveyer in substantially close engagement therewith, means for driving the second conveyer, and a share the upper surface of which leads to the space between the two conveyers, for the purpose described.

9. A machine of the class described, comprising a wheel-supported frame, the front supporting-wheel being a caster-wheel, a share carried by the frame, elevators arranged one above the other and extending upwardly and rearwardly from the share, the upper elevator being pivoted at its discharge end and free at its receiving end, means for operating the elevators from one of the supporting-wheels, a rocking frame, a reciprocating sifting-box having one end supported from the rocking frame, means for operating the sifting-box from one of the elevators, and a lever pivoted at its front end to the front end of the main frame, and carrying the caster-wheel, the rear end of the lever being adapted to engage the rocking frame, as set forth.

690,462. EXTENSION-LADDER. PETER PIRSON, Kenosha, Wis. Filed Apr. 4, 1901. Serial No. 54,282. (No model.)

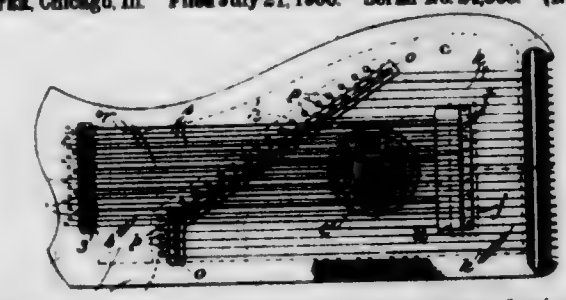
Claim.—1. In combination in extension-ladders, a principal ladder member provided with straight ribways on and along the inner sides of its two rails, an extension or fly ladder member fitting inside the rails of the principal ladder member on the rounds thereof at the front and provided with lugs adapted to bear against and run on the under or rear side of the ways on the other ladder member, and releasable stops on the principal member at the lower ends of the ways and normally in the path of said lugs.



2. In an extension-ladder, a principal ladder member having ribways on the inner sides of its rails, a fly ladder member fitting between the rails of the principal ladder member on its rounds and provided with lugs projecting under said ways, and stops pivoted on the rails of the principal ladder member adjacent to the ends of said ways and disposed to be normally in the path of said lugs preventing them from passing beyond the ways, but being capable of tilting to let the lugs pass and provided with catches adapted to engage and support the fly ladder member when the lugs have passed beyond the ways.

3. In combination in an extension-ladder, two ladder members one slidable on the other, a rock-shaft in the fly member provided with a radial hook adapted to engage a round of the other member and with a radial arm projecting toward the rear of the fly member, so as to be out of the way of a person going up or down the ladder in front and not extending into the path of the rounds of the other member of the ladder when slid one on the other and a rope attached to said radial arm on the rock-shaft and running thence upwardly over a support in the other ladder member adapted for tilting the rock-shaft and lifting the fly member.

690,468. STRINGED MUSICAL INSTRUMENT. FOREST A. FOSTER, Chicago, Ill. Filed July 21, 1900. Serial No. 24,360. (No model.)



Claim.—1. A musical instrument having two sets of strings extending in substantially the same direction, portions of said sets being coextensive or covering a common area of the instrument, each set having one or more strings terminating at points within the area covered or laterally bounded by strings of the other set, and said sets lying in different planes, one set completely above the other.

2. In a musical instrument, two sets of strings extending in the same general direction, one set being elevated above the other of said sets throughout the entire extent of the upper of said sets, and the lower of said sets extending at at least one end beyond the said upper set.

3. In a musical instrument, the combination of a sounding-body, and sets of strings extending in the same general direction and lying in two substantially parallel planes, a portion of one set of strings being superimposed above a portion of the other set of said strings, thereby exposing the entire length of the upper set of strings for striking or sounding the same and at least one end of the lower set of strings extending beyond the ends of the upper set thereby exposing a portion of said lower set for striking or sounding the same.

4. In a musical instrument or lyre-harp, the combination of a set of melody-strings, bridges for supporting the same, one of said bridges being intermediate of the extremities of said instrument, a set of chord-strings extending in both directions over said intermediate bridge, and bridges for supporting said chord-strings, one of said last-mentioned bridges lying between the bridges whereby the melody-strings are supported, said chord-strings extending their entire length above said melody-strings, thereby removing the same from the melody-strings, and permitting a plurality of said chord-strings to be sounded simultaneously with a sweeping stroke or touch.

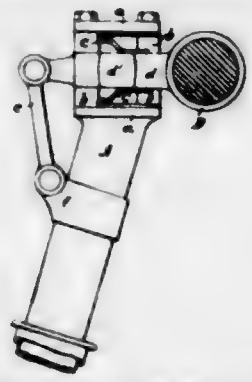
5. In a stringed musical instrument a bridge comprising a strip of wood or other suitable material mounted upon the body of the instrument and a metallic bridge-plate secured to the body of said instrument and having portions extending over portions of said strip for relieving the same from strain.

6. In a stringed musical instrument, the combination of a sounding-board, a bridge-strip mounted upon the same, a metallic bridge-plate secured to said sounding-board and extending over said strip, and pins whereto the strings may be attached, said pins being held in position by means of said strip and bridge-plate.

7. In a stringed musical instrument the combination of a sounding-board, a bridge-strip mounted thereon, a bridge-plate secured to said sounding-board and covering part at least of said strip, pins projecting through said plate and also having a portion lying between said plate and said strip, and strings attached to the projecting portions of said pins.

8. A concert zither, provided with an open scale of leading strings and a number of groups of accompanying strings arranged intermediately with the rear strings of the leading strings, the inner ends of the accompanying strings being raised above the level of the leading strings and the outer ends of the leading strings extending beyond the inner ends of the accompanying strings.

690,464. **HANDLE-BAR FOR CYCLES, &c.** FREDERICK SADLER, London, England, assignor of one-half to Percy James Hall Robinson, London, England. Filed Jan. 7, 1901. Serial No. 42,400. (No model.)

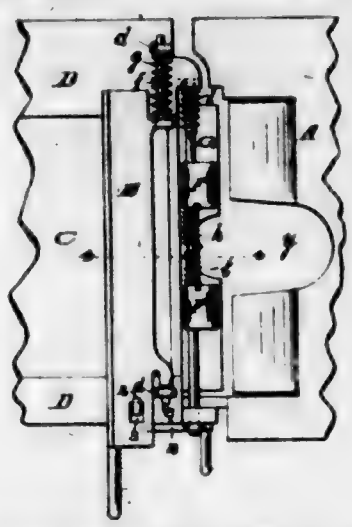


Claim.—The combination of a post A having standards *b* and plates *a* the latter being supplied with springs *c*; the clamp *f* secured to the post A; the rod *e* pivoted to the clamp; and the bar *d* pivoted to the rod and adapted to support the handle-bar, said bar *d* passing between and being supported by the springs *c* all for the purposes and substantially as set forth.

690,465. **AUTOGRAPHIC REGISTER.** THEODOR F. SCHERMER, Dayton, Ohio, assignor to the Egry Autographic Register Company, Dayton, Ohio. Filed Sept. 26, 1901. Serial No. 76,649. (No model.)

Claim.—1. In an autographic register, the combination, with a case for holding a plurality of strips of paper, a writing-tablet over which said strips of paper are disposed and a tearing-blade pivoted to the casing, of a tension device for the paper strips pivoted to the casing, means for locking out of operation said tearing-blade, and connecting mechanism intermediate said tearing-blade and tension device, whereby the tension device is released when the tearing-blade is locked out of operation, substantially as shown and described.

2. In an autographic register, the combination, with a case for holding a plurality of strips of paper, a writing-tablet over which said strips of paper are disposed and a tearing-blade pivoted to the casing, of a tension device for the paper strips pivoted to the casing, means for locking out of operation said tearing-blade, with an arm on said tension device contacting with said tearing-blade when the same is raised to release the tension device, substantially as shown and described.



3. In an autographic register, the combination, with a case for holding a plurality of strips of paper, a writing-tablet over which said strips of paper are disposed and a tearing-blade pivoted to the casing, of a rod carrying tension-fingers pivoted to said casing, an arm on said rod extending into the pathway of said tearing-blade when the same is raised, and means for locking said tearing-blade out of operation, substantially as shown and described.

4. In an autographic register, the combination, with a case for holding a plurality of strips of paper, a writing-tablet over which said strips of paper are disposed and a tearing-blade pivoted to the casing, of a rod carrying tension-fingers pivoted to said casing, an arm on said rod extending into the pathway of said tearing-blade when same is raised, and a hook on the casing and a slot in the tearing-blade to receive the same, substantially as shown and described.

690,466. **SHACKLE-SEAL.** ALBERT R. SCHOFIELD, Brooklyn, N. Y., assignor to Keystone Seal & Press Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 7, 1901. Serial No. 81,423. (No model.)



Claim.—1. A soft-metal rivet or plug blank provided with a socket for the reception of a hard-metal guard, substantially as set forth.

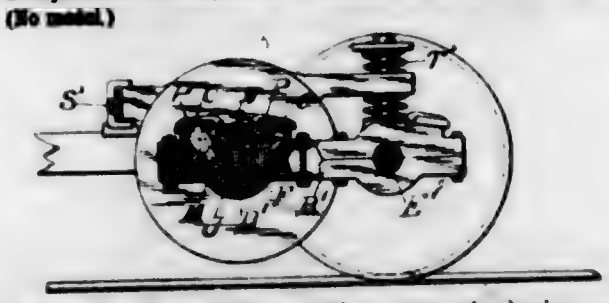
2. A soft-metal rivet or plug blank provided with a socket extending diagonally therein for the reception of a hard-metal guard, substantially as set forth.

3. A soft-metal rivet or plug for sealing purposes provided with an elongated socket extending diagonally therein and a hard-metal rod or wire secured in said socket, substantially as set forth.

4. The combination with a shackle having a soft-metal rivet or plug secured to one of its parts and provided with an elongated socket extending diagonally therein and a hard-metal rod or wire locked in said socket, substantially as set forth.

5. A sealing plug or rivet of soft metal having an elongated rod of hard metal located therein and extending in a diagonal direction from the head portion toward the opposite end of the rivet, substantially as set forth.

690,467. **BEARING FOR ELECTRIC-MOTOR SHAFTS.** SIDNEY H. SHORT, Cleveland, Ohio, assignor, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Nov. 2, 1898. Serial No. 695,287. (No model.)



Claim.—1. The combination with a motor-casing having an extension, said extension having an oil-chamber formed therein, of a bearing-sleeve arranged in said chamber and adapted to receive the motor-shaft therethrough, said sleeve being of smaller dimensions than the chamber

and having a passage or opening through the side thereof, as and for the purpose set forth.

2. In an oil-bearing for shafts, a casing having an oil-chamber formed therein, a bearing-block formed in said chamber, said block being of shorter length and width than said chamber, a bearing-sleeve corresponding in length and diameter to the length and width of said block, and adapted to receive the shaft therethrough, said sleeve arranged in said chamber to be supported upon said block, flanges formed on said sleeve at the ends thereof and arranged to fill the chamber at the ends of said block, said sleeve having an opening through the side thereof, as and for the purpose set forth.

3. In an oil-bearing for shafts, a casing having a chamber formed therein, a bearing-sleeve arranged in said chamber and adapted to receive the shaft, said sleeve being of shorter dimensions than the chamber, and provided with openings through the side thereof, said sleeve provided with flanges at the ends thereof adapted to fill the chamber, as and for the purpose set forth.

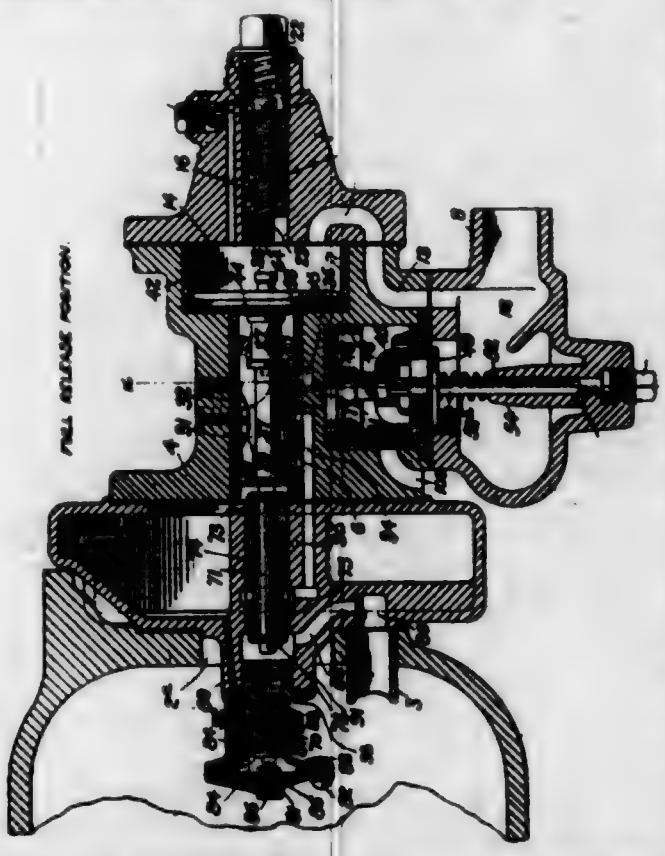
4. In an oil-bearing for shafts, a casing having a chamber formed therein, a bearing-block formed in said chamber, said block being of shorter length and width than the length and width of the chamber and having a passage formed transversely therethrough and a bearing-sleeve having a cylindrical portion of smaller dimensions than the chamber, and end flanges, said end flanges arranged to extend along the end surface of the bearing-block and to fill the space of the chamber at that point, said sleeve provided with an opening through the side thereof, as and for the purpose set forth.

5. In a bearing, a casing having a chamber formed therein, a bearing-block raised from the inner surface of said chamber, said block being of shorter length and breadth than the chamber thereby leaving cavities at each end and on opposite sides thereof, a bearing-sleeve of smaller dimensions than the chamber and having an opening through the side thereof, said sleeve provided with flanges adapted to extend into and fill said end cavities, said casing provided with a channel delivering into said chamber and a point between said flanges, as and for the purpose set forth.

6. The combination with a motor-casing having chambered extensions at the ends thereof, said extensions forming oil-chambers, of guiding-arms for the motor, said arms being journaled upon said extensions, as and for the purpose set forth.

7. The combination with a motor-shaft and axle, of a motor-casing having extensions at its ends, said extensions forming oil-chambers for the motor-shaft bearings, and guiding-arms journaled at their ends respectively upon the axle and said bearing extensions, as and for the purpose set forth.

690,468. AIR-BRAKE VALVE MECHANISM. EDWARD G. SHORTT, Carthage, N. Y., assignor to International Air Brake Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 11, 1901. Renewed Oct. 18, 1901. Serial No. 79,111. (No model.)



Claim.—1. In a fluid-pressure brake mechanism, the combination with the train-pipe, and brake-cylinder, of an auxiliary reservoir, and a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be a separate and independent chamber, said receiver supplying the pressure for service applications of the brakes while connected with the reservoir, and receiving a part of the exhaust at release after emergency, and also supplying an initial pressure in emergency applications, there being a certain constant pressure retained and reserved in the auxiliary reservoir unused at all times except in emergency action.

2. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, said receiver obtaining its supply by an intermittent feed from the train-pipe, from the excess in the auxiliary reservoir over and above a constantly-reserved emergency pressure therein, and from release after emergency action, said receiver being employed while connected with the reservoir in effecting service applications of the brakes, and also in effecting an initial braking power in emergency applications.

3. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, said receiver being supplied with a part of the exhaust-air at the time of release after emergency action, and also being supplied by the intermittent feeding from the train-pipe and from the reservoir excess, there being a certain constantly-reserved emergency pressure retained in the reservoir unused except in emergency action.

4. In a fluid-pressure brake mechanism, the combination with the train-pipe, and brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, said receiver being employed while open to the reservoir in service applications of the brakes, and also in effecting an initial braking power in emergency applications, and in venting the train-pipe air to the atmosphere at the time of emergency.

5. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, said receiver having its supply afforded by an intermittent feed from the train-pipe and also from the reservoir excess, and from the brake-cylinder during release after emergency action, said receiver while it forms a part of the reservoir being employed in effecting service applications, and when separated from reservoir in effecting an initial braking pressure in emergency applications, and in venting train-pipe air to the atmosphere at the time of emergency.

6. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, pressure-retaining means for keeping a certain constant pressure retained and reserved in the auxiliary reservoir unused at all times except in emergency action, which means permit communication between the reservoir and receiver when the air-pressure therein rises above the reservoir constant.

7. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, and a pressure-retaining valve located in a passage-way between the auxiliary and the receiver, said valve having the function of keeping a certain constant pressure retained in the reservoir for use in emergency, but being arranged to open under the action of the excess when the reservoir-pressure rises above the constant pressure so as to permit said excess to flow to the receiver.

8. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir containing a constantly-reserved volume of air for use only in emergency action, of a receive that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, means for conducting air from the receiver and reservoir to the brake-cylinder in service applications of the brakes, and means for conducting air from the receiver to the brake-cylinder to afford a preliminary braking power in emergency action.

9. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, a valve device between the reservoir and receiver that retains a constant pressure in the reservoir and allows the excess to flow into the receiver, means for conducting air from the receiver and reservoir while connected, to the brake-cylinder in service applications of the brakes, and means for transferring a portion of the braking fluid to the receiver during release after an emergency application of the brakes.

10. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, a valve device between the reservoir and receiver that retains a constant pressure in the reservoir and allows the excess to flow into the receiver, means for conducting air from the receiver and reservoir while the two are connected to the brake-cylinder in service applications of the brakes, and means for transferring braking fluid to the receiver during release after emergency, said means consisting of a valve device that permits air to flow from the brake-cylinder to the receiver at the same time that it permits an exhaust to the atmosphere.

11. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, a valve device between the reservoir and receiver that retains a constant pressure in the reservoir and allows the excess to flow into the receiver, means for conducting air from the receiver and reservoir while connected to the brake-cylinder in service applications of the brakes, means for conducting air from the receiver to the brake-cylinder to afford a preliminary braking power in the emergency action, and for conducting the constantly-retained reservoir-pressure to the brake-cylinder in emergency, and means for transferring a portion of the braking fluid from the brake-cylinder to the receiver during release after emergency action.

12. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, means for conducting air from the reservoir and receiver to the brake-cylinder in service applications means for preliminarily conducting air from the receiver to the brake-cylinder, and secondarily conducting air from the reservoir to the brake-cylinder in emergency action, and means for transferring a portion of the braking fluid from the brake-cylinder to the receiver during release after emergency.

13. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir containing a constantly-reserved volume of air intact for use only in emergency action, of a receiver that forms at one time a part of the reservoir, at which time the pressure in reservoir and receiver is in excess of the constantly-retained pressure in the reservoir and said receiver being at another time disconnected from the reservoir so as to become a separate and independent chamber, means for conducting air from the receiver and reservoir, to the brake-cylinder in service applications of the brakes, means for conducting air from the receiver to the brake-cylinder to afford a preliminary braking power in emergency action, and for conducting the constantly-retained auxiliary-reservoir pressure to the brake-cylinder to be superadded to the previously-introduced receiver-pressure.

14. In a fluid-pressure brake mechanism, the combination with the train-pipe and brake-cylinder, of an auxiliary reservoir, and a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be a separate and independent chamber, said receiver supplying the pressure for service applications of the brakes and also supplying an initial pressure in emergency applications, there being a certain constant pressure retained and reserved in the auxiliary reservoir unused at all times except in emergency action.

15. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, and means for keeping a certain constant pressure retained and reserved in the auxiliary reservoir unused at all times except in emergency action, said means permitting communication between the reservoir and receiver when the air-pressure in the former rises above the reservoir constant, and consisting essentially of a valve provided with a closing-spring having a certain retaining power and adapted to be automatically opened by the pressure of the air when it exceeds the power of the spring.

16. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, and means for keeping a certain constant pressure retained and reserved in the auxiliary reservoir unused at all times except in emergency action, said means permitting communication between the reservoir and receiver when the air-pressure in the former rises above the reservoir constant, and consisting essentially of a valve carried by a diaphragm one side of which is exposed to the air-pressure in the reservoir.

17. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, and means for keeping a certain constant pressure retained and reserved in the auxiliary reservoir unused at all times except in emergency action, said means permitting communication between the reservoir and receiver when the air-pressure in the former rises above the reservoir constant, and consisting of automatically-operating valve means arranged in connection with a passage between the reservoir and receiver, said means including a diaphragm attached to the valve proper which diaphragm is exposed on one side to the air-pressure in the reservoir and on its other side to the action of a closing-spring.

18. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, and means for keeping a certain constant pressure retained and reserved in the auxiliary reservoir unused at all times except in emergency action, said means permitting communication between the reservoir and receiver when the air-pressure in the former rises above the reservoir constant, and consisting of a valve device located in connection with a passage between the reservoir and receiver, said device having a diaphragm exposed on one side to the pressure of air in the reservoir and engaged on its opposite side by a piston acted on by a spring and subjected to a certain amount of air-pressure.

19. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, a valve device between the reservoir and receiver that retains a constant pressure in the reservoir and allows the excess to flow into the receiver, and means for transferring a portion of the fluid from the brake-cylinder to the receiver during release after an emergency application of the brakes.

20. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, a valve device between the reservoir and receiver that retains a constant pressure in the reservoir and allows the excess to flow into the receiver, and means for transferring a portion of the fluid from the brake-cylinder to the receiver during release after an emergency application of the brakes, said means consisting of two valves moving in unison and allowing a flow to the receiver simultaneously with that to the atmosphere.

21. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom so as to be separate and independent, a valve device between the reservoir and receiver that retains a constant pressure in the reservoir and allows the excess to flow into the receiver, and means for transferring a portion of the fluid from the brake-cylinder to the receiver during release after an emergency application of the brakes, said means consisting of two valves on a common stem which are adapted to be simultaneously unseated to allow a flow to the receiver at the same time with the exhaust to the atmosphere.

22. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir, and at another time is disconnected therefrom so as to be separate and independent, a valve device between the reservoir and receiver that retains a constant pressure in the reservoir and allows the excess to flow into the receiver, and means for transferring a portion of the fluid from the brake-cylinder to the receiver during release after an emergency application of the brakes, said means consisting of two valves on a common stem, the cross-section of which is triangular, or other shape, so that there may be an air-passage alongside the stem, these valves being adapted to be simultaneously unseated and one controlling the flow of air into the receiver from the passage alongside the valve-stem while the other controls the flow of air into said passage and at the same time the flow through the exhaust to the atmosphere.

23. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, a piston or abutment which actuates the valve devices by a reduction of train-pipe pressure on one side thereof in the performance of the service or emergency applications of the brakes, and a yielding graduation-stop which is not depressed in ordinary service applications, but which is depressed where equalization occurs after successive graduation applications, the depression allowing the piston to reach a fixed stop where it will uncover an escape-port in the piston-chamber to allow the exhaust of pressure through the train-pipe and thus prevent undesired emergency action.

24. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver forming at one time a part of the reservoir and at another time being disconnected therefrom, means for conducting air from the reservoir and receiver to the brake-cylinder in the different applications of the brakes, a piston or abutment for operating said means when train-pipe pressure is reduced on one side thereof, and a yielding graduation-stop that allows said piston to uncover a port in the piston-chamber at the time of equalization after suc-

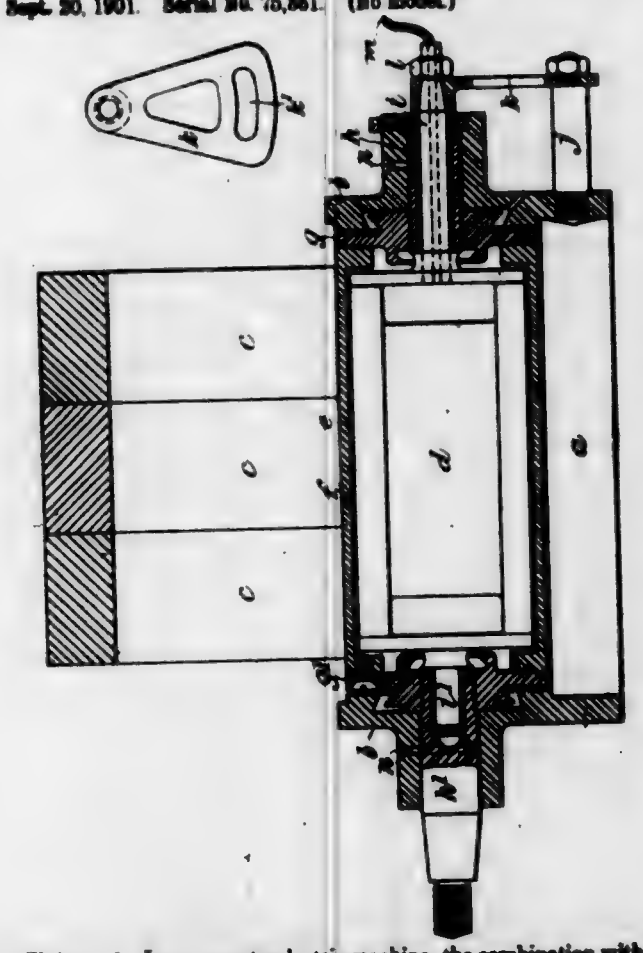
cessive service actions to allow the escape of air through said port into the train-pipe, substantially as described.

25. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, means for preliminarily conducting air from the receiver to the brake-cylinder and secondarily conducting air from the reservoir to the brake-cylinder during emergency application of the brakes, said means including a piston or abutment on one side of which train-pipe pressure is reduced, and a reservoir delivery-valve controlling a passage between the reservoir and the brake-cylinder, said valve having a certain movement before it opens to allow the passage of air, the delay being to permit an operation of a valve mechanism that controls the flow of air from the receiver to the brake-cylinder for an initial braking power previous to the passage of the full reservoir-pressure.

26. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, means for preliminarily conducting air from the receiver to the brake-cylinder and secondarily conducting air from the reservoir to the brake-cylinder during emergency application of the brakes, said means including a piston or abutment on one side of which train-pipe pressure is reduced, and a reservoir delivery-valve controlling a passage between the reservoir and the brake-cylinder, said valve having a round projection that fills a chamber entered by the passage from the reservoir whereby its movement is delayed until after the initial transfer of air from the receiver to the brake-cylinder has been made so that such transfer can be in advance of the flow of the full braking pressure from the reservoir.

27. In a fluid-pressure brake mechanism, the combination with the train-pipe, brake-cylinder, and auxiliary reservoir, of a receiver that forms at one time a part of the reservoir and at another time is disconnected therefrom, valve devices for preliminarily conducting air from receiver to the brake-cylinder in emergency applications and valve devices for secondarily conducting air from the reservoir to the brake-cylinder in emergency action, and a piston or abutment on one side of which train-pipe pressure is reduced in applying the brakes, the movement of said piston actuating both valve devices aforesaid, the valve device between the auxiliary reservoir and the cylinder having an initial ineffective movement while the receiver-air is being discharged into the cylinder after which in consequence of the return movement of the piston owing to the equalization of pressure the reservoir delivery device will actively open to permit the flow of air to the cylinder.

690,469. MAGNETO-ELECTRIC MACHINE. FREDERICK R. SIMMS, Bermondsey, England, and ROBERT BOSCH, Stuttgart, Germany. Filed Sept. 20, 1901. Serial No. 75,861. (No model.)

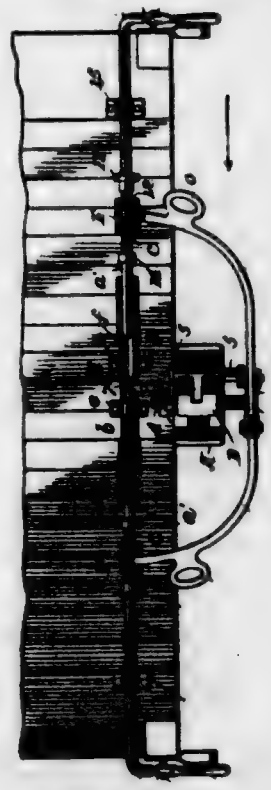


Claim.—1. In a magneto-electric machine, the combination with the field-magnets, of a rotary envelop provided with hollow spindles, an armature within said envelop, provided with spindles extending longitudinally of the hollow envelop-spindles, one of the armature-spindles extending entirely outside of its corresponding envelop-spindle, devices connected to said armature-spindle for holding it and the armature stationary, and means for rotating said envelop, substantially as described.

2. In a magneto-electric machine, the combination with the field-magnets, of a rotary envelop provided with hollow spindles, an armature within said envelop, provided with spindles extending longitudinally of the hollow envelop-spindles, one of the armature-spindles extending entirely outside of its corresponding envelop-spindle, adjustable devices connected to said armature-spindle for holding it and the armature stationary, and for adjusting the armature, and means for rotating the envelop, substantially as described.

3. In a magneto-electric machine, the combination with the field-magnets, of a rotary envelop provided with hollow spindles, an armature within said envelop, provided with spindles journaled in the said hollow spindles of the envelop, an arm secured to one of the armature-spindles and provided with a slot concentric with said spindle, a stationary bolt engaging said slot for holding said armature against rotation but permitting an adjustment of the armature around its axis, and means for driving said envelop, substantially as described.

690,470. CAR-COUPLING. LOUIS H. SIMEIN, Wallis, Pa. Filed July 17, 1901. Serial No. 68,848. (No model.)



Claim.—1. The combination with the draw-head, its knuckle, knuckle-shaft and locking-pin, of a sectional operating-shaft comprising three sections, a connection between one section and the locking-pin, connections between the knuckle-shaft and the other two sections, said connections having blocks integral therewith, and angular sockets in said blocks to receive angular shoulders upon said two sections, substantially as described.

2. The combination with a draw-head, its knuckle, knuckle-shaft, and locking-pin of a coupling, of an operating-shaft comprising three sections, the center section connected to the locking-pin, the two outer sections connected to the knuckle-shaft, the outer ends of said sections being bent at an angle, and handles for operating the shaft pivoted to the bent portions of said sections, substantially as described.

3. In a coupling, the combination of an operating-shaft extending across the end of a car, the ends of said shaft being bent at an angle beyond the sides of the car, handles for operating the shaft pivoted to the bent portions thereof and extending in substantial alinement with said bent portions, substantially as described.

4. In a coupling the combination of an operating-shaft therefor extending across the end of a car and having its ends bent at substantially right angles beyond the sides of the car, handles having recesses within which the bent ends of the operating-shaft are pivoted, said handles extending in prolongation of said bent portions, substantially as described.

5. The combination with the draw-head, its knuckle, knuckle-shaft and locking-pin, of an operating-shaft comprising a plurality of sections, one section connected with the locking-pin and the other sections connected with the knuckle-shaft, and means for operating said shaft consisting of oscillating handles having recesses fitting over bent portions of said

other sections, and a pin connecting the handles to said bent portions of the sections, substantially as described.

6. The combination with the draw-head, its knuckle, knuckle-shaft and locking-pin of a coupling, of an operating-shaft comprising three sections, the central section connected to the locking-pin, bars connected to arms on the knuckle-shaft, blocks on the ends of the bars integral therewith embracing the two outer sections of the operating-shaft, means for rocking said shaft, and means for moving the outer sections longitudinally relative to the central section, substantially as described.

7. The combination with the draw-head, its knuckle, knuckle-shaft and locking-pin, of a draw-bar, a pivotal connection between the draw-head and draw-bar, and means connected to the knuckle-shaft for moving the draw-head laterally to one side or the other of the center, substantially as described.

8. The combination with the draw-head, its knuckle, knuckle-shaft and locking-pin, of a draw-bar, a pivotal connection between the draw-head and draw-bar, an operating-shaft comprising three sections, the two outer ones being slidable with relation to the central one, arms connected to the outer sections and knuckle-shaft, handles on said outer sections, and auxiliary handles on said arms for turning the head laterally on its pivot, substantially as described.

9. The combination with the draw-head, its knuckle, knuckle-shaft and locking-pin, of a draw-bar, pivotal connection between the draw-head and draw-bar, an operating-shaft comprising three sections, the two outer ones being slidable with relation to the central one, but adapted to rock therewith, arms connected to the outer sections and the knuckle-shaft, and means on the outer sections for actuating said arms to move the draw-head laterally on its pivot, substantially as described.

10. The combination with the draw-head, its knuckle, knuckle-shaft and locking-pin, of a draw-bar, a pivotal connection between the draw-head and draw-bar, an operating-shaft comprising three sections, the two outer ones being slidable with relation to the central one but adapted to be rocked therewith, a connection between the central section and the locking-pin, arms connected to the outer sections and the knuckle-shaft, and means for moving said arms directly to turn said draw-head on its pivot, substantially as described.

690,471. **GAS-BURNER.** WALTER J. SHART, Brooklyn, N. Y., assignor to The Firm of John Williams, New York, N. Y. Filed Jan. 30, 1901. Serial No. 46,342. (No model.)



Claim.—1. An annular air-deflector combined with a cylindrical air-distributer on one side of the deflector, and an air-distributer on the other side thereof disposed adjacent to the outer edge of the deflector.

2. An annular deflector combined with a cylindrical air-distributer on one side of the deflector, and a cup-shaped air-distributer on the other side thereof consisting of a perforated flange extending from the outer edge of the deflector and a perforated disk at the end of the flange.

3. An annular deflector combined with a cylindrical air-distributer on one side of the deflector, a perforated flange extending from the cylindrical air-distributer and a cup-shaped air-distributer disposed on the opposite side of the air-deflector and consisting of a perforated flange extending from the outer edge of the deflector and a perforated disk at the end of the flange.

4. In combination with an annular burner-body, an annular air-deflector, a cylindrical air-distributer on one side of said deflector, and an air-distributer on the other side thereof disposed adjacent to the outer edge of the deflector.

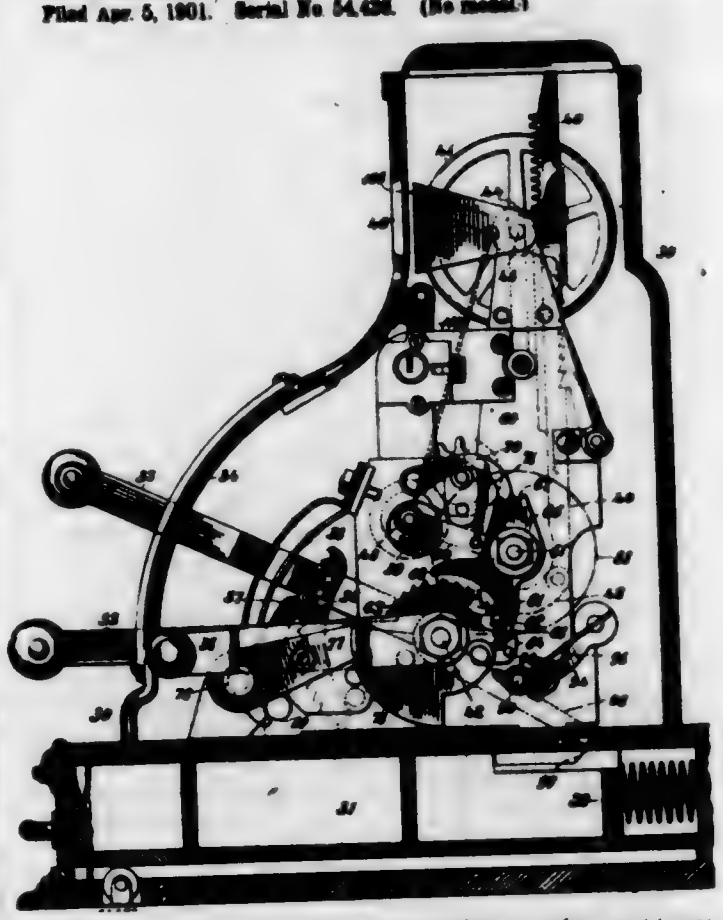
5. The combination with an annular burner-body having its inner wall chamfered or beveled adjacent to the burner-outlet, of an air-deflector located centrally of the burner-body and in proximity to the chamfered portion of the wall of the body and an air-distributer.

6. In combination with an annular burner-body having its inner wall chamfered or beveled adjacent to the burner-outlet, of an air-deflector, an air-distributer on one side of the deflector and an air-distributer on the other side thereof.

7. In combination with an annular burner-body having its inner wall chamfered or beveled adjacent to the burner-outlet, of an air-deflector, a cylindrical air-distributer on one side of the deflector and a cup-shaped air-distributer on the other side thereof.

8. In combination with an annular burner-body having its inner wall chamfered or beveled adjacent to the burner-outlet, of an annular air-deflector, a cylindrical air-distributer on one side of the deflector, a cup-shaped air-distributer on the other side thereof, and a flange connecting the cylindrical air-distributer with the burner-body.

690,472. **CASH-REGISTER.** ELMER S. SMITH, Boundbrook, and HARVEY GILES, South Boundbrook, N. J., assignors to Ideal Cash Register Company, New Boundbrook, N. J., a Corporation of New Jersey. Filed Apr. 5, 1901. Serial No. 54,626. (No model.)



Claim.—1. In a cash-register, the actuating or setting hand-levers, the segments 39 to be set by said hand-levers, the driving-shaft from which said segments are to be operated to effect registration, the operating crank-handle connected with said driving-shaft for operating the same, and the movable shaft 48 carrying the registering-wheels and their gear, combined with the rock-shaft 51, the lever-arms 49, 50 on said rock-shaft and supporting at their front ends the registering-wheel shaft, the downwardly-extending plate or section 52 integral with the lever-arm 50 and having the horizontally-disposed arm 53, the rod 54 coöperating with said arm 53 to form a stop, the spring 55 exerting a downward pull on said plate or section 52 and tending normally to move the registering-wheel shaft to its upper position, and the cam 57 on the said driving-shaft and adapted to engage the said plate or section 52 for moving the registering-wheel shaft to its lower position and there maintaining it while said segments are rotating the registering-wheels, substantially as set forth.

2. In a cash-register, the actuating or setting hand-levers, the segments 39 to be set by hand-levers, the driving-shaft from which said segments are to be operated to effect registration, the operating crank-handle connected with said driving-shaft for operating the same, and the movable shaft 48 carrying the registering-wheels and their gear, combined with the rock-shaft 51, the lever-arms 49, 50 on said rock-shaft and supporting at their front ends the registering-wheel shaft, the downwardly-extending plate or section 52 on said rock-shaft and having the arm 53, the rod 54 coöperating with said rod 53 to form a stop, the spring 55 exerting a downward pull on said plate or section 52 and tending normally to move the registering-wheel shaft to its upper position, the eccentric-pin 25 carried by said plate or section 52, the roller 56 on said eccentric-pin 25, and the cam 57 on the said driving-shaft and adapted to engage the said roller on the said plate or section 52 for moving the registering-wheel shaft to its lower position and there maintaining it while said segments are rotating the registering-wheels, substantially as set forth.

3. In a cash-register, the actuating or setting hand-levers, the segments 39 to be set by said hand-levers, the driving-shaft from which said segments are to be operated to effect registration, the operating crank-handle connected with said driving-shaft for operating the same, and the movable shaft 48 carrying the registering-wheels and their gear, combined with the rock-shaft 51, the lever-arms 49, 50 on said rock-shaft

and supporting at their front ends the registering-wheel shaft, the downwardly-extending plate or section 52 integral with said lever-arm 50 and having the horizontally-disposed arm 53, the spring 55 connected at its upper end to said plate 52 and whose tension is exerted to maintain said registering-wheel shaft in its upper position, a stop for limiting the downward motion of said plate or section 52, and to which stop the lower end of said spring 55 is secured, the roller 56 carried by said plate or section 52, and the cam 57 on said driving-shaft and adapted to engage the said roller on said plate or section 52 for moving the registering-wheel shaft to its lower position and there maintaining it while said segments are rotating the registering-wheels, substantially as set forth.

4. In a cash-register, the actuating hand-levers, the segments 39 to be set by said levers, the main driving-shaft from which said segments are to be operated, the registering-wheels, and the gear-wheels connected therewith, combined with the operating-handle for the said shaft, mechanism intermediate said shaft and said registering-wheels for bringing said gear-wheels of said registering-wheels into engagement with said segments after the latter have been set preparatory to the rotation of said registering-wheels from said handle, the segmental plate 61 rigid on said driving-shaft and having teeth along a circular portion of its periphery and also having, at the ends of said circular part of said periphery the toes 64, 65, the plate 66 pivotally mounted at a fixed point and having the integral pawl-arms 68, 69, spanning one-half of the toothed portion of said plate 61 and at their outer surfaces adapted to coöperate with the inner surfaces of said toes 64, 65, and the spring-pressed dog 70 to engage said plate 66 and permit of the change in position of same under the action of said toes 64, 65, the said spring-pressed dog 70 and said plate 66 being respectively provided with the oppositely-beveled end and the teeth 67, substantially as shown and described.

5. In a cash-register, the actuating hand-levers, the segments 39 to be set by said levers, the main driving-shaft from which said segments are to be operated, the registering-wheels, and the gear-wheels connected therewith, combined with the operating crank or handle connected with said driving-shaft for operating said segments and said registering-wheels, the serrated segments 36 secured to said actuating hand-levers, the pivotally-mounted dogs 37 adapted to engage said segments 36, the springs for pressing said dogs against said segments, the laterally-sliding locking-shaft 78 normally free of said dogs 37, the cam-arm 77 on the end of said locking-shaft 78, and the plate 76 connected with the main driving-shaft for engaging said cam-arm 77 and shifting said locking-shaft 78 laterally when the operating crank-handle is moved to effect registration, whereby said locking-shaft 78 is moved to lock said dogs 37 against movement and the actuating hand-levers are locked from the operating crank-handle and prevented from being moved until the plate 76 has been removed from contact with the said cam-arm 77, substantially as set forth.

6. In a cash-register, the actuating hand-levers, the segments 39 to be set by said levers, the main driving-shaft from which said segments are to be operated, the registering-wheels, and the gear-wheels connected therewith, combined with the operating crank or handle connected with said driving-shaft for operating said segments and said registering-wheels, the serrated segments 36 secured to said actuating hand-levers, the pivotally-mounted dogs 37 adapted to engage said segments 36, the springs for pressing said dogs against said segments 36, the sliding locking-shaft 78 having grooves 83 normally in line with said dogs, the cam-arm 77 on the end of said sliding shaft 78, and the plate 76 connected with the main driving-shaft for engaging said cam-arm 77 when the operating crank-handle is away from its normal initial position, said plate 76, when the crank-handle is away from its normal position, being adapted to maintain the locking-shaft 78 in its shifted position, in which position the said grooves 83 are removed from alinement with said dogs 37 and said shaft is caused to effect the locking of said dogs against movement, substantially as set forth.

7. In a cash-register, the actuating or setting hand-levers 33, the serrated segments 36 thereon, the main driving-shaft for setting in motion the operating parts of the register, and the operating crank-handle 38 connected with said driving-shaft, combined with the pivotally-mounted dogs 37 adapted to engage said serrated segments 36, the springs 81 connected with said dogs and yieldingly pressing the same against said segments, the slidable locking-shaft 78 provided with grooves 83 and having a portion of its surfaces within the recesses 82 formed in said dogs 37, and means connected with the said driving-shaft for sliding said locking-shaft 78 so that its grooves 83 will leave the said recesses 82 and said shaft will lock said dogs 37 against said segments 36 when said crank-handle moves from its normal position, whereby the actuating-levers 33 are locked against movement while the operating crank-handle is away from its normal initial position, substantially as set forth.

8. In a cash-register, the actuating or setting hand-levers 33, the serrated segments 36 thereon, the main driving-shaft for setting in motion the operating parts of the register, and the operating crank-handle 38 connected with said driving-shaft, combined with the pivotally-mounted dogs 37 adapted to engage said serrated segments 36, the springs 81 connected with said dogs and yieldingly pressing the same against said segments, the slidable locking-shaft 78 provided with grooves 83 and having a portion of its surfaces within recesses 82 formed in said dogs 37, mechanism operable from the main driving-shaft for shifting said locking-shaft 78 laterally to withdraw its grooves 83 from alinement with the dogs 37 and causing said shaft to lock said dogs against movement when the said operating crank-handle 38 is moved from its normal initial position, and a spring for restoring said shaft 78 to its normal inoperative position with its grooves 83 in line with said recesses 82 when the said operating crank-handle 38 is restored to its normal initial position, substantially as set forth.

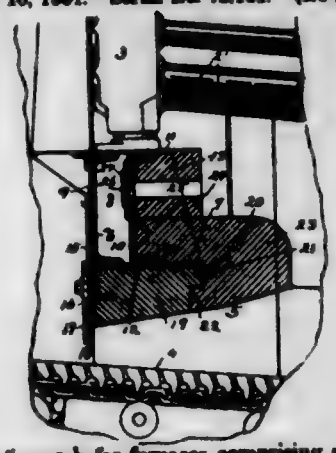
9. In a cash-register, the main operating-shaft 42, the crank-handle 38 for the manual operation of said shaft, the movable registering-wheel shaft 48, and means intermediate said driving-shaft and said registering-wheel shaft for lowering the latter preparatory to the registration being effected by the operation of said crank-handle, combined with the indicating cylinders or drums, the pivotally-mounted shutter 108 for said cylinders or drums, and the rod 110 connecting said shutter with said registering-wheel shaft, so that upon the lowering of said registering-wheel shaft said shutter may be pulled down to conceal the indicating-cylinders and upon the elevating of said registering-wheel shaft said rod may push said shutter upward to expose the indication; substantially as set forth.

10. In a cash-register, the cash-drawer 31 having the shoulder 97, the main operating-shaft 42, and the crank-handle 38 for the manual operation of the said shaft, combined with the drawer-latch 98 mounted upon said shaft and adapted, when in its lower position, to engage said shoulder 97 and lock the cash-drawer in closed position, the stirrup 100 on said driving-shaft for engaging said latch 98 to elevate the same and release said drawer when the crank-handle is moved to effect registration, the locking-arm 102 for engaging said latch 98 and holding the same free of the cash-drawer during a portion of the movement of said crank-handle, and means connected with said driving-shaft for releasing said arm 102 from said latch 97 upon the arriving of said crank-handle at its normal initial position; substantially as set forth.

11. In a cash-register, the cash-drawer 31 having the shoulder 97, the main operating-shaft 42, and the crank-handle 38 for the manual operation of the said shaft, combined with the drawer-latch 98 mounted upon said shaft and adapted, when in its lower position, to engage said shoulder 97 and lock the cash-drawer in closed position, the stirrup 100 on said driving-shaft for engaging said latch 98 to elevate the same and release said drawer when the crank-handle is moved to effect registration, the locking-arm 102 for engaging said latch 98 and holding the same free of the cash-drawer during a portion of the movement of said crank-handle, and the arm 103 connected with said driving-shaft for releasing said arm 102 from said latch 97 upon the arriving of said crank-handle at its normal initial position; substantially as set forth.

12. In a cash-register, the cash-drawer 31 having the shoulder 97, the main operating-shaft 42, and the crank-handle 38 for the manual operation of the said shaft, combined with the drawer-latch 98 mounted upon said shaft and adapted, when in its lower position, to engage said shoulder 97 and lock the cash-drawer in closed position, the stirrup 100 on said driving-shaft for engaging said latch 98 to elevate the same and release said drawer when the crank-handle is moved to effect registration, the locking-arm 102 for engaging said latch 98 and holding the same free of the cash-drawer during a portion of the movement of said crank-handle, the spring 106 connecting said latch 98 and arm 102, and means connected with said driving-shaft for releasing said arm 102 from said latch 97 upon the arriving of said crank-handle at its normal initial position; substantially as set forth.

690,478. IGNITION-ARCH. JAMES P. SHEDDON, Barberton, Ohio, assignor to the Stirling Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 10, 1901. Serial No. 78,181. (No model.)



Claim.—1. A fire-arch for furnaces comprising a transverse girder having an inwardly-projecting flange or ledge, tiles or fire-brick adapted

to cover the lower face of said girder, and tiles or fire-brick adapted to rest on the inwardly-projecting flange of the girder and having downwardly-projecting portions adapted to engage with the tiles covering the lower face of the girder and hold the same in place.

2. A fire-arch for furnaces comprising a transverse girder or beam having an inwardly-projecting flange, tiles or fire-brick adapted to cover the lower face of said girder, a ledge for supporting the outer ends of said tiles or brick, and tiles or fire-brick adapted to rest on the inwardly-projecting flange of the girder and having downwardly-projecting portions adapted to engage with the inner ends of the tiles covering the lower face of the girder and hold the same in place.

3. A fire-arch for furnaces comprising a transverse girder or beams having an inwardly-projecting flange, tiles or fire-brick adapted to cover the lower face of said girder, tiles or fire-brick adapted to rest on the inwardly-projecting flange of the girder and having downwardly-projecting portions adapted to engage with the tiles covering the lower face of the girder to hold the same in place, and other tiles above the main tiles to protect the inner face of the girder.

4. A fire-arch for furnaces comprising a transverse girder comprising a flanged shape and a plate secured to the lower flange thereof and projecting inwardly to form a ledge, tiles or fire-brick adapted to cover the lower face of said girder, and tiles or fire-brick adapted to rest on the inwardly-projecting ledge and having downwardly-projecting portions adapted to interlock with the tiles covering the lower face of the girder to hold the same in place.

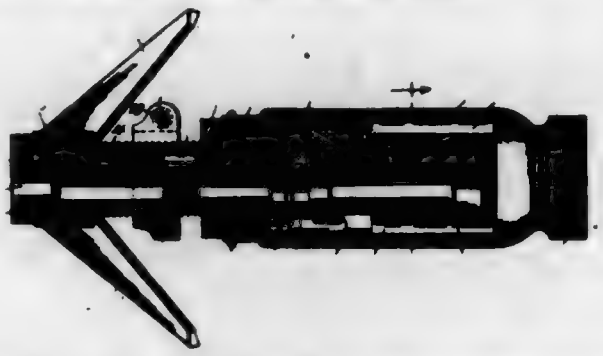
5. A fire-arch for furnaces comprising a transverse girder formed of a channel shape, plates secured to the upper and lower faces thereof, the lower plate projecting inwardly to form a ledge, gusset-braces connecting said upper and lower plates, fire-brick or tiles adapted to cover the lower face of said girder, and tiles or fire-brick adapted to rest on the inwardly-projecting ledge and having downwardly-projecting portions adapted to interlock with the tiles covering the lower face of the girder to hold the same in place.

6. A fire-arch for furnaces comprising a hollow box-girder having its ends open and having an inwardly-projecting flange or ledge, tiles or fire-brick adapted to cover the lower face of said girder and tiles or fire-brick adapted to rest on the inwardly-projecting flange and having downwardly-projecting portions adapted to interlock with the tiles covering the lower face of the girder to hold the same in place.

7. A fire-arch for furnaces comprising a hollow box-girder having open ends and having an inwardly-projecting flange, tiles or fire-brick adapted to cover the lower face of said girder, tiles or fire-brick adapted to rest on the inwardly-projecting flange and having downwardly-projecting portions adapted to interlock with the tiles covering the lower face of the girder to hold the same in place, and tiles or fire-brick above the main tiles, said last-named tiles protecting the inner face of the girder and being provided with openings registering with openings in the hollow box-girder.

8. A fire-arch for furnaces comprising a transverse girder or beam having an inwardly-projecting flange, tiles or fire-brick adapted to cover the lower face of said girder, and tiles or fire-brick adapted to rest on the inwardly-projecting flange and having downwardly-projecting portions adapted to interlock with the tiles covering the lower face of the girder to hold the same in place, said last-named tiles being provided with inwardly-projecting portions which serve to deflect the flame and heat.

690,474. BOILER-TUBE CLEANER. MAX SNYDER, Beatty, Pa.
Filed May 22, 1901. Serial No. 61,429. (No model.)



Claim.—1. A boiler-tube cleaner comprising a shell or casing having an inlet and an outlet, an endwise-movable hollow stem projected through the outlet and provided with an outer discharge end, an intermediate port, and an outer terminal tube-engaging head, and means for normally holding the stem at its outer limit with the port closed, said stem being inwardly yieldable under pressure to open the port.

2. A boiler-tube cleaner, comprising a shell or casing having an inlet, an outlet, and an internal valve-seat, an endwise-movable tubular stem working through the valve-seat, and projected outwardly through the outlet of the casing, there being an external marginal flange carried by the stem and directed to form a valve for coöperation with the valve-seat and also to form a steam impact, the intermediate portion of the tubular stem being provided with a port located between the marginal flange and the valve-seat, the stem also being inwardly yieldable under pressure to open the port, and a tube-engaging head provided upon the outer end of the stem.

3. A boiler-tube cleaner, comprising a shell or casing having an inlet, an outlet, and an internal valve-seat, an endwise-movable tubular stem working through the seat and having an outer open end projected beyond the casing, there being a port formed in the tubular stem and normally closed by the valve-seat, a tube-engaging head carried by the outer end of the stem, and means for normally holding the stem at its outer limit by the pressure of the steam within the casing.

4. A boiler-tube cleaner, comprising a shell or casing having an inlet and an outlet, an endwise-movable tubular stem projected through the outlet and provided with an inlet-port, the outer end of the stem being open and provided with a tube-engaging head, and means for holding the stem at its outer limit with its port closed by the pressure of the steam within the casing.

5. A boiler-tube cleaner, comprising a shell or casing having an inlet and an outlet, an endwise-movable tubular stem projected through the outlet and provided with a normally-closed port, the outer end of the stem being open and provided with a tube-engaging head, and means for yieldably holding the stem at its outer limit to close the port, whereby the stem is capable of being moved inwardly under pressure upon the head to open the port.

6. A boiler-tube cleaner having an endwise-movable tubular discharge-stem provided with an inlet-port and an outer open discharge end, means for yieldably holding the stem at its outer limit to close the port, whereby said stem is movable inwardly under pressure to open the port, and a tube-engaging head carried by the outer end of the stem.

7. A boiler-tube cleaner comprising a shell or casing provided at one end with a threaded extension, and at its opposite end with a threaded constricted portion, a tubular guide or socket arranged concentrically of the casing and held associated therewith by fins, the spaces between the fins and the inner side of the casing constituting steam-escapes, a spindle working in the socket and provided with an impact-surface and with escape-ports, a nut engaging the constricted portion of the casing, and having a portion coöperating with the ports to constitute a cut-off, a head carried by the spindle, and a nut adjustable on the spindle to regulate the escape of steam.

8. A boiler-tube cleaner comprising a shell or casing provided with a guide or socket a hollow spindle movable in the socket and provided with escape-ports, a nut in engagement with the casing in which the spindle works and is guided, the inner portion of the nut constituting a cut-off with relation to the ports, a collar adjustable on the spindle, and a head detachably connected with the spindle, the head comprising a collar carrying a plurality of rearwardly-diverging arms.

9. A boiler-tube cleaner comprising a shell or casing having an interiorly-arranged guide or socket, a hollow spindle movable in the socket and provided with escape-ports, a nut carried by the casing and having its rear portion adapted normally to overlap the ports whereby to cut off the escape of steam therethrough, a nut on the spindle exteriorly of the casing to limit the inward movement of the spindle, and a head carried by the spindle.

10. A boiler-tube cleaner comprising a shell or casing, a hollow spindle working within the casing, a head carried by the spindle, and a split nut on the spindle exterior to the casing, the nut being provided with extended arms or flutes, and means for clamping the nut securely on the spindle.

11. A boiler-tube cleaner comprising a shell or casing, a hollow spindle movable therein and provided with escape-ports, a nut carried by the casing and having its rear portion constituting a cut-off when the spindle is projected outward, a nut carried by the spindle to regulate the inward movement thereof, the nut being provided with means for clamping it on the spindle, thus to hold it at the desired adjustment, and an armed head carried by the outer end of the spindle.

12. A boiler-tube cleaner comprising a shell or casing, a spindle movable therein and provided with escape-ports, means for controlling the outward throw of the spindle, and a nut on the spindle for controlling the inward throw of the spindle, the nut being split and provided with orificed bosses, and a screw passed through the bosses to clamp the members of the nut securely around the spindle.

13. A boiler-tube cleaner, comprising a shell or casing having an inlet and an outlet, an endwise-movable tubular stem projected through the outlet, and provided with an inlet-port, means for regulating the inward and outward movements of the stem, and a tube-engaging head carried by the outer end of the stem.

14 In a boiler-tube cleaner, the combination with a shell or casing having an inlet and an outlet, of an endwise-movable tubular stem pro-

jected through the outlet, and provided with an inlet-port, the outer end of the stem being open and provided with a tube-engaging head, means for yieldably holding the stem at its outer limit, and a handle carried by the rear end of the casing.

15. A boiler-tube cleaner comprising a shell or casing, a spindle movable therein and provided with escape-ports, means for controlling the inward and outward throw of the spindle, a head carried by the spindle, and a bushing-nut carried by the head, the orifice in the bushing-nut being of less diameter than the bore of the spindle thereby to accentuate the force of the escaping steam.

16. A boiler-tube cleaner, having a tubular discharge member, a tube-engaging head carried by the outer end of the tubular member and having a bore in communication therewith, and a reducer removably fitted in the bore of the head.

17. A boiler tube cleaner, having a tubular discharge member, a tube-engaging head carried by the outer end of said member and having a bore in communication with the interior thereof, and a reducer-plug removably fitted in the outer end of the bore of the head and having a discharge-opening of smaller diameter than that of the head.

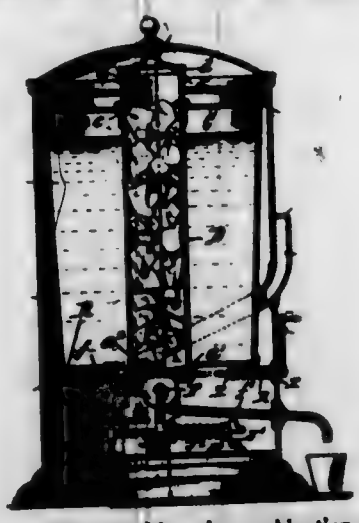
18. A boiler-tube cleaner, having a tubular discharge member, a tube-engaging head embodying a collar which is internally threaded and applied to the outer end of the tubular discharge member, the outer end of the collar being projected beyond the tubular member, and an externally-threaded reducer-plug removably fitted in the outer projected end of the collar and having a bore of less diameter than that of the collar.

19. A boiler-tube cleaner, comprising a shell or casing having an inlet and an outlet, an endwise-movable tubular stem projected through the outlet, and provided at its outer end with a tube-engaging head, there being an intermediate marginal steam-space about the stem, a marginal impact-flange upon an intermediate portion of the stem and lying within the steam-space, and the stem also having an inlet-port located in advance of the impact-flange.

20. In a boiler-tube cleaner, the combination with a shell or casing having an inlet and a contracted outlet, of an endwise-movable tubular stem projected through the contracted outlet and provided with a port which is normally closed by said contracted outlet, an external marginal flange carried by the tubular stem and in rear of the port, said flange terminating short of the walls of the casing, and having its front face constructed for normal engagement with the inner end of the contracted-outlet and its rear face constructed to form a steam impact, and a tube-engaging head carried by the outer open end of the tubular stem.

21. In a boiler-tube cleaner, a tubular discharge member having an open outer end, and a tube-engaging head carried thereby and comprising a collar adjustably embracing the open end of the discharge member and carrying rearwardly-directed and outwardly-inclined arms.

690,475. COIN-CONTROLLED LIQUID-VENDING MACHINE. OSCAR E. SONS, Buffalo, N. Y., assignor of nine-tenths to Henry Koons, Buffalo, N. Y. Filed Dec. 29, 1900. Serial No. 41,403. (No model.)



Claim.—1. In a vending-machine, the combination with the casing, of a thrust or slide rod located therein and so connected as to deliver the article to be vended, coin-controlled mechanism secured to said thrust or slide rod and serving to operate the same, an operating-shaft, and a cam secured to said operating-shaft and arranged to operate the coin-controlled mechanism and with it the thrust or slide rod, substantially as set forth.

2. In a vending-machine, the combination with the casing, of a thrust or slide rod located therein and connected to discharge the article to be vended, a spring for keeping the thrust or slide rod to the end of its travel in one direction, a balance-lever pivoted between its ends to said thrust or slide rod and having a coin-receptacle at one end and a weight at its other end, the latter being adapted to keep the coin-receptacle in its elevated or normal position, a coin-chute terminating directly over the coin-receptacle, and mechanism adapted to engage said balance-lever when a coin is deposited in the coin-receptacle and move the said lever and the thrust or slide rod in a direction opposite to which it is held by the above-mentioned spring, substantially as set forth.

3. In a vending-machine, the combination with the casing, of a thrust or slide rod arranged and connected so as to discharge the article to be vended, a spring for keeping said thrust or slide rod to the end of its travel in one direction, a balance-lever pivoted between its ends to said thrust or slide rod, a coin-receptacle formed in two parts, one part being fixedly secured to the balance-lever, the other being pivotally secured to the fixed part, a spring for keeping the two parts of the coin-receptacle together, an operating-shaft, and a cam-segment secured to said shaft and being adapted to engage said balance-lever when a coin is deposited in the coin-receptacle and move the same and the thrust or slide rod to which it is attached in a direction opposite to which it is held by the above-mentioned spring, said cam-segment being also adapted to engage the pivoted part of the coin-receptacle, separate the same from the fixed part thereof, and discharge the coin contained therein, substantially as set forth.

4. In a vending-machine, the combination with the casing, of a thrust or slide rod arranged and connected to discharge the article to be vended, coin-controlled mechanism secured to said thrust or slide rod, and operating mechanism whereby the coin is discharged from the coin-controlled mechanism and whereby the latter is operated with the thrust or slide rod, substantially as set forth.

5. In a vending-machine, the combination with the casing, of an operating-shaft, a handle secured to one end of said shaft, a cam-segment secured to its other end and having a wedge-like groove formed therein and a return-groove leading from the latter, a balance-lever having a weight at one end and a coin-receptacle at its other end and being adapted for engagement with said wedge-like groove when a coin is deposited in the coin-receptacle, and a thrust or slide rod carrying said balance-lever and being operated thereby for effecting the discharge of the article to be vended, substantially as set forth.

6. In a vending-machine, the combination with the casing, of a coin-chute, a balance-lever weighted at one end and having a coin-receptacle formed in two parts hinged together at its other end, said receptacle having an opening in its bottom slightly shorter in length than the diameter of the proper or predetermined coin and less in width than the thickness of such a coin, controlling mechanism for effecting the discharge of the article to be vended, said controlling mechanism carrying the balance-lever and being operated thereby, and operating mechanism whereby the two parts of the coin-receptacle are separated to discharge the coin contained therein and whereby the balance-lever is caused to operate the controlling mechanism, substantially as set forth.

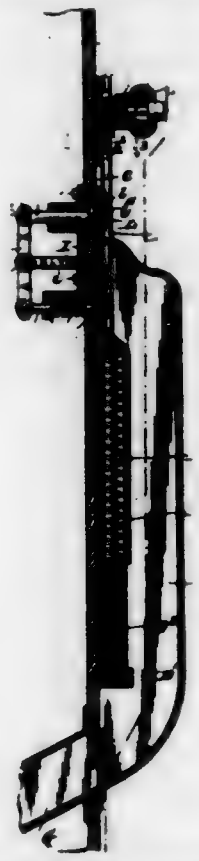
7. In a vending-machine, the combination with the casing, of controlling mechanism for effecting the discharge of the article to be vended, a balance-lever pivoted between its ends, a coin-receptacle formed in two parts hinged together, one of said parts being fixedly secured to the light end of said balance-lever, the other part thereof being pivotally secured to said fixed part, a spring for holding the two parts of said coin-receptacle together, a coin-chute terminating at one end directly over said coin-receptacle, and operating mechanism adapted to cause said balance-lever to operate the said controlling mechanism when a coin is deposited in the coin-receptacle and also to cause the two parts of said coin-receptacle to separate for discharging the coin contained therein, substantially as set forth.

8. In a vending-machine, the combination with the casing, of a thrust or slide rod working in guides and having a flange or collar and a stop formed thereon, said stop being arranged to bear against one side of one of said guides, a spring bearing with one end against the other side of said guide and with its other end against said collar, thus serving to keep the thrust or slide rod to the end of its travel in one direction, said thrust or slide rod being arranged and connected to effect the discharge of the article to be vended, a balance-lever pivoted between its ends and having a coin-receptacle formed in two parts held on the light end thereof, one of said parts being fixedly secured thereon, the other part being pivotally secured to the fixed part, a spring for keeping the two parts of the coin-receptacle together, an operating rock-shaft, a cam-segment secured to said shaft and being adapted to engage said balance-lever when a coin is deposited in the coin-receptacle and move the same and the thrust or slide rod to which it is attached in a direction opposite to which it is held by the above-mentioned spiral spring, said cam-segment being also adapted to engage the pivoted part of the coin-receptacle, separate it from the fixed part thereof, and discharge the coin contained therein, substantially as set forth.

690,476. FRAUD-PREVENTING DEVICE FOR COIN-CONTROLLED APPARATUS. OSCAR E. SONS, Buffalo, N. Y., assignor of nine-tenths to Henry Koons, Buffalo, N. Y. Filed Feb. 21, 1901. Serial No. 48,262. (No model.)

Claim.—1. The combination with the coin-chute, of a slidable coin-

receiver having an opening wherein the coin is placed, yielding coin-retaining means for holding the coin in said opening when the coin-receiver is inserted in the coin-chute, and mechanism for releasing said coin, only, when the coin-receiver is in said inserted position, substantially as set forth.



2. The combination with the coin-chute, of a slidable coin-receiver having an opening wherein the coin is placed, coin-retaining means positioned in said coin-chute at a point where the coin is discharged from the coin-receiver, and mechanism for releasing said coin-receiver when held by said coin-retaining means, substantially as set forth.

3. The combination with the coin-chute, of a slidable coin-receiver wherein the coin is placed, mechanism for discharging or releasing the coin from the coin-receiver, and a thrust-rod for operating said mechanism, substantially as set forth.

4. The combination with the coin-chute, of a slidable coin-receiver having an opening wherein the coin is placed, a spring for keeping said coin-receiver in its projected or normal position, coin-retaining means for holding the coin in the coin-receiver, a lever pivoted between its ends, a coin-releasing rod pivotally connected to one end of said lever and arranged in line with the coin when the coin-receiver is held in the coin-chute, a follower-rod pivotally connected to the other end of the said lever, and a thrust-rod adapted to operate the follower-rod, only, when the coin-receiver is held in the coin-chute, substantially as set forth.

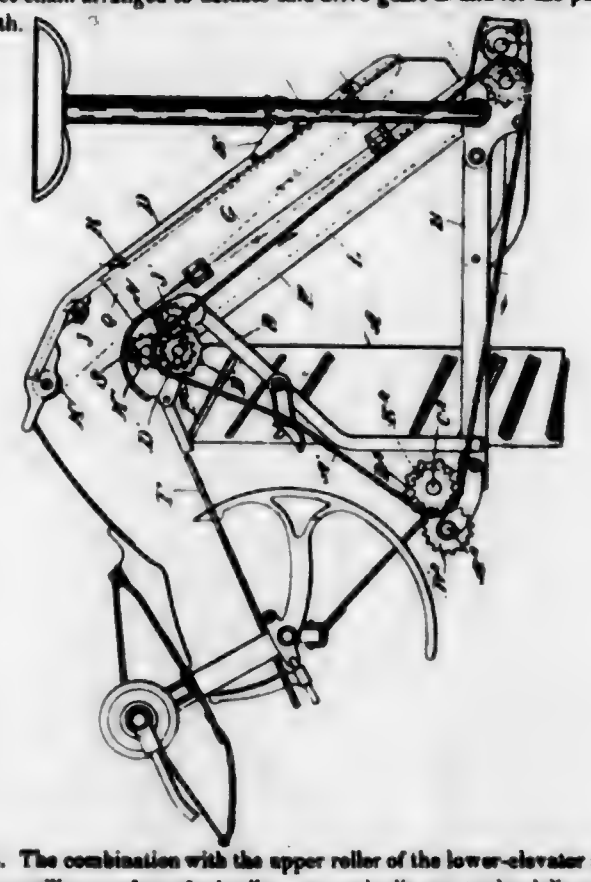
5. The combination with the coin-chute, of a slidable coin-receiver wherein the coin is placed when in its projected or normal position, a spring for keeping said coin-receiver in said position, a spring-controlled thrust-rod secured to the outer end of said coin-receiver, a follower-rod adapted to be operated by said thrust-rod, a lever pivoted between its ends and having one end pivotally secured to said follower-rod, a coin-releasing rod pivotally secured to the other end of said lever, a spring surrounding said coin-releasing rod for keeping it in its retracted position, and a coin-retaining spring or springs for holding the coin in the coin-receiver when slid into the coin-chute, the said coin-releasing rod being operated by the said thrust-rod through the medium of the follower-rod and the said lever, substantially as set forth.

690,477. **GRAIN-BINDER.** HERBERT B. SPERRY, Springfield, Ohio, assignor to the Warder, Bushnell & Glessner Company, Springfield, Ohio, and Chicago, Ill., a Corporation of Ohio. Filed Nov. 30, 1900. Serial No. 38,109. (No model.)

Claim.—1. The combination with the lower-elevator apron and an actuating-roller therefor, of a gear on the shaft of said roller, a driving-gear meshing therewith and a chain-driven sprocket-wheel mounted on the shaft of and connected to said driving-gear, said sprocket being located below the surface of said apron as and for the purpose set forth.

2. The combination with the upper roller of the lower-elevator apron and an auxiliary or force-feed roller arranged adjacent thereto, of gears mounted on said rollers and a driving-gear directly meshing with each of said gears, and a chain-driven sprocket-wheel mounted on the shaft of said driving-gear and connected to or forming part of said driving-gear, as and for the purpose set forth.

3. The combination with the upper roller of the lower-elevator apron, of a gear on the shaft of said roller, a stud arranged adjacent to said roller, a drive-gear and sprocket mounted on said stud, said drive-gear meshing with and driving a gear on said roller, a platform-carrier, a drive-gear therefor and a sprocket-chain and means for actuating the same, said sprocket-chain arranged to actuate said drive-gears as and for the purpose set forth.



4. The combination with the upper roller of the lower-elevator apron and an auxiliary or force-feed roller arranged adjacent to the delivery end of said elevator-apron, and gears mounted on the shafts of said rollers, of a stud arranged adjacent to said shafts, a chain-driven sprocket-wheel and a drive-gear connected therewith, said wheel and gear mounted on said stud and said drive-gear meshing directly with the gears of said rollers, a platform-carrier, said chain also arranged to actuate said carrier as and for the purpose set forth.

5. The combination with the main drive-shaft having a gear thereon, an independently-journaled driving-sprocket, a drive-gear connected thereto and meshing with the gear on said drive-shaft, a drive-chain operating over said drive-sprocket, an elevator-apron, a platform-carrier arranged to deliver to said apron and gearing actuated by said drive-chain for driving said apron and carrier, as and for the purpose set forth.

6. The combination with a lower-elevator apron and a platform-carrier arranged to deliver thereto, a drive-chain for actuating said apron and also carrier, a sprocket-wheel for driving said chain, a main drive-shaft, a drive-gear mounted thereon and a gear meshing with said drive-gear and connected to said sprocket-wheel for actuating the latter, as and for the purpose set forth.

7. The combination with a platform-carrier and a lower-elevator apron, actuating-rollers for said carrier and apron, a gear mounted on the shaft of each of said rollers, a stud arranged adjacent to each of said roller-shafts respectively, a drive-gear and a chain-actuated sprocket-wheel mounted on each of said studs, said drive-gears being connected to rotate with said wheels and directly meshing with the gears of said rollers respectively, as and for the purpose set forth.

8. The combination with a platform-carrier and a lower-elevator apron, actuating-rollers for said carrier and apron, and a force-feed roller arranged adjacent to the delivery end of said elevator-apron, a gear mounted on the shaft of each of said rollers, a chain-driven sprocket-wheel mounted adjacent to said elevator-apron-actuating roller and said force-feed roller, a second chain-driven sprocket-wheel mounted adjacent to said platform-carrier-actuating roller, a drive-gear connected to and driven by each of said sprocket-wheels, one of said drive-gears directly meshing with and driving said force-feed roller and said elevator-apron-actuating roller, and the other drive-gear meshing with and driving the gear on the platform-carrier-actuating roller, as and for the purpose set forth.

9. The combination of a platform-carrier, an elevator-apron to which said carrier delivers, actuating-rollers for said carrier and apron, sprocket-gears mounted adjacent to each of said rollers, a driving-gear connected to each of said sprocket-wheels, said driving-gears meshing with and driving said actuating-rollers respectively, a chain operating over said sprocket-wheels, a driving-sprocket for said chain, a main drive-shaft, a driving-gear mounted thereon, said drive-gear arranged to actuate said driving sprocket-wheel, as and for the purpose set forth.

690,478. CABINET FOR SHEET-MUSIC. Otis H. Stewart, Mid dleport, Ohio. Filed Aug. 13, 1901. Serial No. 71,684. (No model.)



Claim.—1. A rectangular structure in shape substantially of a box or parallelepiped, consisting of two sides, a back and a bottom, the sides being connected by said back and bottom, there being also a space 10 between these two latter at the lower rear edge of the structure, vertical and horizontal guide-grooves in the inner surface of the sides near their front and upper edges and parallel to said edges, a flexible sheet fitted with its edges into these guide-grooves and held within them so that when in its closed position, one of its parts forms the upright front and the other, at right angles thereto, forms the horizontal top of the rectangular cabinet, inclosing a space adapted to be filled with rectangular sheets of substantially equal size, said guide-grooves extending also in front of the back and parallel thereto and forward again below and parallel to the bottom and adapted to receive when access to the cabinet is desired, part or all of this flexible sheet, which otherwise forms front and top of the cabinet, said sheet moving then in these extended guide-grooves down in front of the back and through the space between the latter and the rear edge of the bottom and forwardly below this latter, upright rods attached with their lower ends to the bottom near its rear edge and with their upper ones to the sides, rectangular separating-sheets all of equal size fitted to substantially fill out in a horizontal plane the interior space of the structure and perforations near their rear edges whereby they are held to the upright rods in a manner to prevent their displacement horizontally, but leaving them free to be adjusted vertically to any position between top and bottom.

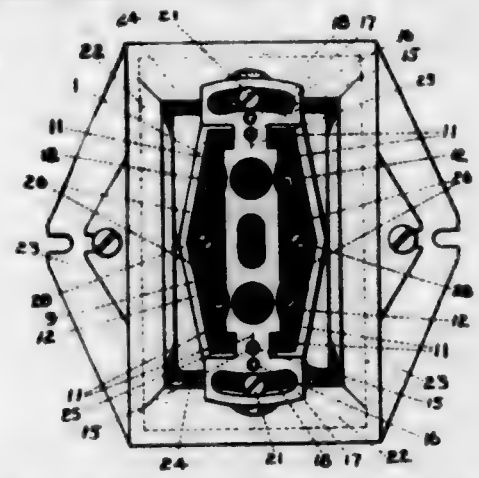
2. A box-shaped structure, consisting of two rectangular sides provided on their inner surface with guide-grooves all around and parallel to their edges, a back and a bottom connecting them, a flexible sheet fitted to occupy the guide-grooves mentioned and forming, when the cabinet is closed, its front and top, each parallel respectively to back and bottom of the cabinet, a part of the bottom near its front edge being separate from the other part, forming a removable section 11, the vertical guide-grooves therein being continued downwardly to form an outlet 14 in front, for the flexible sheet, permitting its removal therethrough, rectangular separating-sheets, all of equal size fitted to substantially fill the interior of the cabinet and vertical rods whereby these sheets are horizontally confined but left free for vertical adjustment.

3. A cabinet for sheet-music consisting of the approximately rectangular-shaped sides 5, 5, each provided on its inner face with a groove extending along the front, top, back and bottom edges, the lower end of the front portion of the groove and the front end of the lower portion of the groove being at right angles to each other, the back 6 secured to the sides and having its upper end terminating short of the upper ends of the sides, the bars 8, secured to the lower edges of the sides, the bottom 7 secured between the sides above the bottom portions of the grooves, the bottom having its front edge extending beyond the front portions of the grooves, and its rear edge terminating short of the rear portions of the grooves and back 6, producing a space 10 thereat, the flexible cover 12 mounted in the grooves of the sides, the cover when in a closed position resting upon the bottom and forming the front, top and a portion of the back of the cabinet, vertical rods secured to the bottom near its rear edge and open hooks 19 secured to sides 5, 5, and with which the upper ends of the said rods are to be engaged, substantially as described.

4. A cabinet for sheet-music, consisting of the approximately rectangular-shaped sides 5, 5, each provided on its inner face with a groove extending along the front, top, back and bottom edges, the lower end of the front portion of the groove and the front end of the bottom portion of the groove being at right angles to each other, the back 6 secured to the sides and having its upper end terminating short of the upper ends of the sides, the bottom 7 secured between the sides above the bottom portions of the groove, the bottom having its front edge extending beyond the front portions of the grooves, and its rear edge terminating short of the rear portions of the grooves and back 6, producing a space 10 thereat and the flexible cover 12 mounted in the grooves of the sides, the cover when in a closed position resting upon the bottom and forming the front, top and a portion of the back, substantially as described.

690,479. ELECTRIC SWITCH. Edwin R. Stocks, New York, N. Y., assignor of one-half to George A. Annable, New York, N. Y. Filed Oct. 16, 1899. Serial No. 733,728. (No model.)

Claim.—1. The combination, with a suitable support or base adapted to be set in a wall or other similar structure, of circuit-controlling devices mounted thereon, a cover-plate, and means whereby an angular adjustment may be effected between the cover-plate and the base.



2. The combination, with a suitable support or base adapted to be set in the wall or other similar structure, of circuit-controlling devices mounted thereon, a cover-plate, and means whereby the cover-plate may be given an angular adjustment with respect to the base.

3. The combination, with a suitable base adapted to be set in the wall or other similar structure, of a support for circuit-controlling devices mounted thereon, a cover-plate, means for securing the plate to the support, and means whereby the support may be given an angular adjustment with respect to the base.

4. The combination, with a suitable base adapted to be set in the wall or other similar structure, of a support for circuit-controlling devices mounted thereon, said support being provided with suitable slots, screws passing through the slots into the base, whereby the support may be given angular adjustment with respect to the base, a cover-plate, and means for securing the plate to the support.

5. The combination, with a suitable base adapted to be set in the wall or other similar structure, of a support for circuit-controlling devices mounted thereon, said support including a slotted bar, means engaging the slot for securing the bar to the base, and means for securing a cover-plate to the support.

6. The combination, with a base adapted to be set in a wall or similar structure, of a support for circuit-controlling devices mounted thereon, means whereby the support may be given an angular adjustment with respect to the base, and a perforated cover-plate secured to the support, through the perforations of which plate the circuit-controlling devices are accessible.

7. The combination, with a wall-box, of a switch-case covered by a face-plate, a member sustaining the switch-case adjustably upon the wall-box, and retaining-screws for securing the switch-case and face-plate in the desired position.

8. The combination, with a wall-box containing a switch, of a wall-box cover having its outer edges notched or recessed at the ends, an adjustable member having slotted ends fitted to the recesses in the cover, a face-plate attached to the adjustable member, and screws fitted through the slotted ends into the cover, the recesses permitting the adjustment of the slotted ends upon the wall-box to set the face-plate as desired, and for the purpose set forth.

9. The combination, with a wall-box, of a switch-case having tapered ends and covered by a face-plate, a member sustaining the switch-case adjustably upon the wall-box, and retaining and leveling screws for adjusting and securing the switch-case in the desired position.

10. The combination, with a wall-box having the recesses 24 at its ends, of a switch-case formed with tapered ends to permit its inclination within the wall-box, the lug-piece 9 attached to the switch-case and formed with slotted ends, and the screws 21 for securing the lug-piece to the wall-box when adjusted.

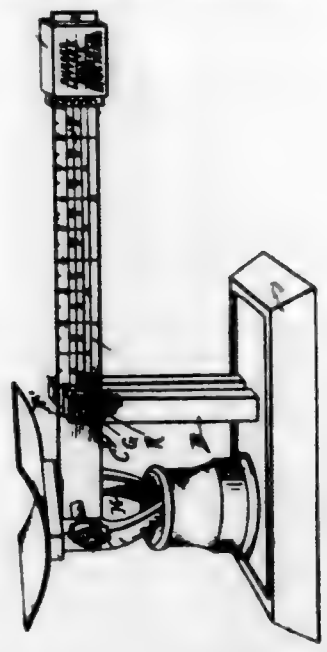
11. The combination, with a wall-box having the recesses 24 at its ends and containing a switch-case as set forth, of the lug-piece 9 attached to the switch-case and formed with slotted ends, the screws 21 for securing the lug-piece to the wall-box, and the leveling-screws 23 for adjusting the switch-case within the wall-box.

12. The combination, with a wall-box containing a switch-case having a face-plate, of an adjustable member sustaining the casing and face-plate upon the wall-box, means for clamping such member adjustably and such member being provided with the guide-line 25 as an index to its position.

13. The combination, with a wall-box containing a switch-case having a face-plate, of an adjustable member sustaining the switch-case and face-plate upon the wall-box, means for clamping such member adjustably upon the wall-box, and leveling-screws 23 provided with insulating-

caps 30 for adjusting the face-plate upon the wall-box, substantially as herein set forth.

690,480. SCALE. CHARLES G. STRUBLER, Elkhart, Ind. Filed Oct. 23, 1899. Serial No. 734,491. (No model.)



Claim.—1. In a scale, the combination with bearing-posts and a scale-beam, of open-mouthed knife-edge bearings each of which is provided with a journal-pin at each side thereof, the pins being spaced from each other to permit the knife-edge bar to pass between them, substantially as described.

2. In a scale, the combination with posts united by a web and secured to the scale-base, of a pair of open-mouthed edge-bearing stirrups, each provided with a journal-pivot at each side thereof, and caps placed above the open mouth of said stirrups, said pivots being spaced to allow the knife-edge bar to pass between them, substantially as described.

3. In a scale, the combination with hollow posts united by a web and secured to the scale-base, of open-mouthed knife-edge-bearing stirrups pivoted into the cavities of the posts and adapted to receive the knife-edge bar between the pivots, and a cap closing the posts above the stirrups, substantially as described.

4. In a scale, the combination with the scale-beam and supporting-post therefor, of a scale-pan, a hollow scale-pan hanger, an open-mouthed stirrup and independent pivots engaging each side of the stirrup within the cavity of the hanger, the pivots being spaced to permit the passage of the knife-bar between them, substantially as described.

5. In a scale, the combination with hollow posts, of open-mouthed stirrups in said posts, a knife-edge bar having its bearings in said stirrups, and means for independently pivoting each side of the stirrups in said posts, the supporting-pivots being spaced to allow the passage of the knife-edge bar between them, substantially as described.

6. In a scale, the combination with an integral bearing-block support, the block-seat whereof is formed by a base and two opposing side walls, at least one side wall being provided with an inwardly-extending lug, the distance of which from the base is less than the prevailing thickness of the bearing-block, of a bearing-block grooved on one side transversely to the line of the knife-edge bearing whereby the block is so reduced in thickness in the plane of the groove as to fit between said lug and base when the block is in its seat and as to be incapable of removal therefrom without bending the support, substantially as described.

7. In a scale, the combination with the beam, of a scale-pan and a scale-pan hanger made from bent sheet metal united at the lower part of said hanger and branching at the upper part thereof, each branch being provided with a cavity for the reception of knife-bearing stirrups, substantially as described.

8. A post for scales made from sheet metal bent to form a double post, the parts of which are united by a web, each part of said post being hollow and arranged to receive within the cavity the scale-bearing stirrups, substantially as described.

9. In a scale, the combination with the scale-beam, of a supporting-post made from sheet metal bent to form a double post the parts of which are united by a web, and fillet-blocks secured to each part of the double post and provided with screw-holes, whereby the post may be secured to the scale-base substantially as described.

10. In a scale, the combination with an integral bearing-block support, the block-seat whereof has a bearing-surface between two opposite side walls, at least one side wall being provided with an inward extension, the distance of which from the bearing-surface of the base is less than the prevailing thickness of the bearing-block, of a bearing-block grooved on one side transversely to the knife-edge bearing, whereby the block is so reduced in thickness in the plane of the groove as to engage between the the bearing-surface at the base and the inward extension, so as to be incapable of removal therefrom without distorting the parts, substantially as described.

11. A bearing-block for the pivots of a scale having grooves crossing the bearing-face at right angles to each other, one of said grooves being adapted to engage a scale-pivot, and the cross-groove being adapted to engage retaining-points, substantially as described.

12. The combination of a pivoted bearing-block support provided with side walls having inwardly-bent parts arranged to prevent the bearing-block from escaping vertically from its seat, and a bearing-block having recesses or notches adapted to interlock with said parts to prevent the longitudinal displacement of the bearing-block.

13. In combination with the bearing-block for the pivots of a scale having grooves crossing the bearing-face at right angles to each other, a supporting-stirrup of sheet metal having points punched inward and arranged to engage loosely in the opposite ends of one of said grooves, substantially as described.

14. The combination of a loosely-mounted open-ended bearing-block support provided with side walls having inward-bent parts arranged to prevent the bearing-block from escaping vertically from its seat, and means whereby the bearing-block engages with said projecting parts of the support and is prevented from escaping longitudinally, substantially as described.

15. The combination of an open-ended bearing-block support provided with side walls having inwardly-bent parts arranged to prevent the bearing-block from escaping vertically from its seat and means whereby the block engages with said projecting parts of the support and is prevented from escaping longitudinally, substantially as described.

16. In a postal scale, the combination with a computing-beam and its knife-edge bearings, of a double post the parts of which are united by a web, each part of the double post being hollow and arranged to receive within the cavity the scale-bearing stirrups, and a scale-pan having a hanger made from bent sheet metal united at the lower part of said hanger and branching at the upper part thereof, each branch forming a cavity for the reception of the scale-pan-bearing stirrups, substantially as described.

17. In a scale, the combination with an integral bearing-block support, the block-seat whereof is formed by a base and two opposing side walls each of which is provided with means for pivotally mounting the same, of a bearing-block of hard material formed with a groove upon one side and held against vertical movement by inwardly-bent parts of the side walls, said parts engaging into the grooves of the bearing-block.

18. The combination with a bearing-block, of a bearing-block support formed of a strip of sheet metal bent into the shape of a yoke open at one end and closed at the other end and formed into a seat for the bearing-block and inwardly-extending projections integrally formed with the block-support and adapted to hold the bearing-block in position on the seat.

19. The combination with a bearing-block, of a bearing-block support forming a three-sided bearing for the bearing-block, said bearing-block support made of a single piece of sheet metal and integrally formed with inward projections adapted to hold the bearing-block in position in the support and with means for pivotally mounting the support.

20. The combination with a hollow bearing-post, of a cap-support on top of said post and having depending flanges, and an open-mouthed knife-edge-bearing stirrup pivotally secured in said depending flanges, substantially as described.

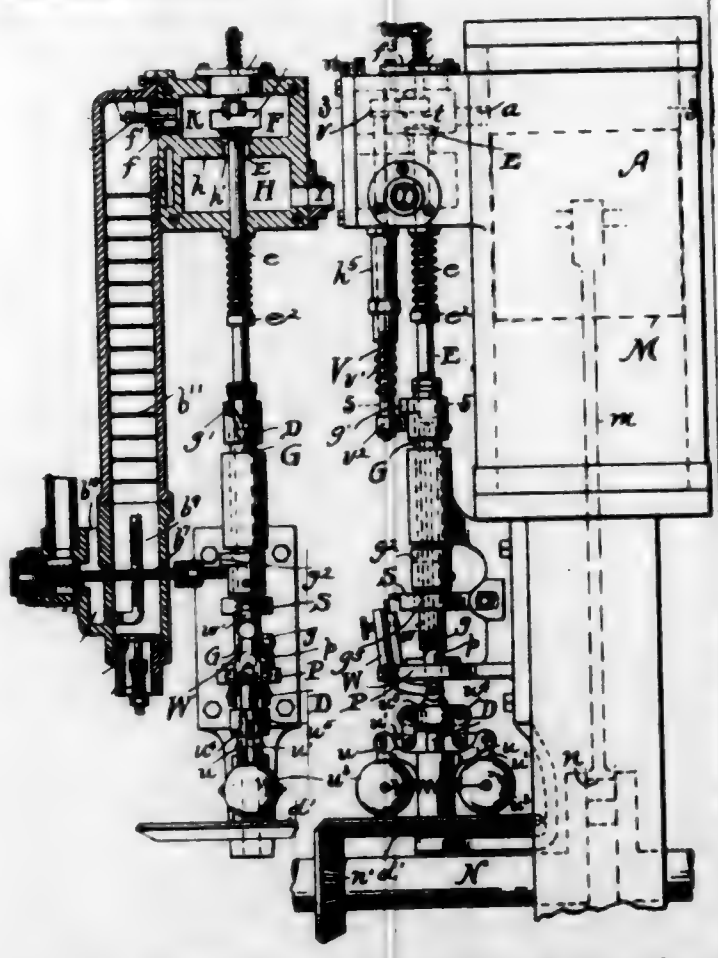
21. The combination with a hollow supporting member having holes formed in two opposite side walls, of an open-mouthed knife-edge-bearing stirrup pivotally mounted in said member free to swing, said stirrup made from a strip of sheet metal and provided at the open ends with outwardly-projecting trunnions engaging into the holes of the supporting member.

690,481. EXPLOSIVE-ENGINE. FREDERICK D. SWEET, Elyria, Ohio. Filed Apr. 10, 1900. Serial No. 12,375. (No model.)

Claim.—1. In an explosive-engine, in combination, a rotatable shaft, a sleeve thereon adapted to rotate with the shaft and slide longitudinally upon it, a cam connection between said sleeve and a relatively stationary part for causing said sleeve to shift longitudinally on the shaft, an exhaust-valve, means for operating it extending into the path of said sleeve whereby the shifting of the sleeve opens the exhaust-valve, a carburetor-valve, a cam on said sleeve for opening the same said cam operating at a different point in the rotation of the same from the cam connection which causes the shifting of the sleeve, substantially as described.

2. In an explosive-engine, in combination, a shaft, a sleeve thereon revolubly therewith and also shiftable longitudinally thereon, an exhaust-valve having its stem alined with said shaft and carrying a shoulder adapted to be engaged by said sleeve when shifted, an igniter-shaft, a cam on

the sleeve for operating such shaft, a cam connection between said sleeve and a stationary part for shifting the sleeve to open the exhaust-valve, said two cams operating at different parts of the rotation of the sleeve, substantially as described.



3. In an explosive-engine, in combination, a shaft, a sleeve thereon rotating with the shaft, and shiftable longitudinally, a cam connection with a stationary part for causing such longitudinal shifting, an exhaust-valve having its stem parallel with said shaft and carrying a shoulder adapted to be engaged by the sleeve to open the valve, an igniter-shaft parallel with the exhaust-valve, a carbureter-valve controlling the hydrocarbon admission, a pair of cams on said sleeve adapted in their rotation to operate the igniter, and open the hydrocarbon-valve, substantially as described.

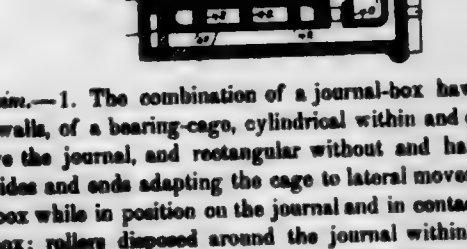
4. In a hydrocarbon-engine, in combination, a rotatable shaft, a sleeve thereon rotating with the shaft and shiftable on it, a cam connection causing such shifting of the sleeve, an arm or collar movable longitudinally with the sleeve, a centrifugal governor on said shaft, an arm movable thereby into the path of said collar, an exhaust-valve operated by the longitudinal shift of said sleeve whereby when the speed becomes too great the governor may lock the shifting of the sleeve and thus hold the exhaust-valve open, substantially as described.

5. In an explosive-engine, in combination, a shaft, a sleeve therein rotatable therewith and also longitudinally shiftable thereon, a cam connection for causing such longitudinal shift, an arm or collar movable longitudinally with the sleeve, an arm controlled by a centrifugal governor adapted when the speed is too great to engage said arm or collar on the sleeve, an igniter, a hydrocarbon-valve, cams on said sleeve adapted to normally operate said igniter and hydrocarbon-valve but rendered inoperative when the governor operates as described, and an exhaust-valve operated by the longitudinal shifting of the sleeve and adapted to be held open thereby when the governor so operates, substantially as described.

6. In an explosive-engine, in combination, a rotatable sleeve, a cam connection for giving it a longitudinal shift as it rotates, a collar or arm movable longitudinally with said sleeve, a centrifugal governor, a pivoted arm operated thereby, an adjustable arm moved by the governor-arm and adapted to lie in the path of the collar or arm which is shiftable with the sleeve thereby rendering inoperative the longitudinal shifting mechanism, and governing-valves normally controlled by said sleeve but rendered inoperative when the described engagement of the governor-arm takes place, substantially as described.

7. In an explosive-engine, in combination, a rotatable shaft, a bracket concentric therewith, two bell-cranks pivoted to said bracket, weights on one of the ends of said bell-cranks, a shiftable collar on said shaft, links connecting the other ends of the bell-cranks with the collar, a sleeve on said shaft, a cam carried thereby, a valve or igniter operated by said cam, a cam connection adapted to cause a longitudinal shifting of said sleeve as it rotates, an exhaust-valve operated by said shifting, and an arm moved by the governor to engage a projection movable with said sleeve and hold such shifting cam connection out of operation and thus retain the exhaust-valve open, substantially as described.

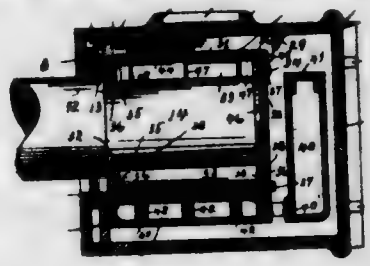
690,482. HOOF-PAD. AUGUST C. TAPPE, Cincinnati, Ohio. Filed Feb. 23, 1901. Serial No. 48,485. (No model.)



Claim.—1. A hoof-pad comprising a perforated fibrous cover and an elastic cushion having a depending portion adapted to fit the inner edge of the shoe and having a central opening leading, by means of a narrow passage, to an internal channel formed around said opening and separated therefrom by overlapping edges or walls, substantially as set forth and for the purpose specified.

2. In a hoof-pad, a fibrous covering for the foot, an elastic cushion adapted to fit thereon and having a depending portion with external central opening and internal curved channel separated from said opening by means of overlapping edges or walls and connected by a narrow passage, and a series of perforations in said fibrous material opposite said curved channel.

690,488. JOURNAL BOX AND BEARING. FRANK W. THOMAS, Toledo, Ohio. Filed Jan. 18, 1901. Serial No. 43,706. (No model.)



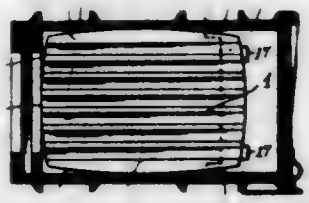
Claim.—1. The combination of a journal-box having rectangular interior walls, of a bearing-cage, cylindrical within and open at the rear to receive the journal, and rectangular without and having outwardly-curved sides and ends adapting the cage to lateral movement within the journal-box while in position on the journal and in contact with the walls of the box; rollers disposed around the journal within the cage, and a closed oil-chamber beneath the cage, connected with an oil-reservoir and with the interior of the cage.

2. In a journal-box, the combination of an outer casing, having its front end open and provided with a closure, and its rear end closed and provided with an opening adapted to freely admit the journal and a portion of the axle within the casing, a bearing for the journal, comprising a rectangular cage of equal length with the journal, outwardly curved as to its sides and rear end, adapting them for central vertical contact with the side and rear walls of the casing, when in position therein on the journal, and having an upper longitudinal cylindrical bore through it to receive the journal, and counterbored from the front toward the rear, forming a shoulder at the rear, and having a closed oil-chamber underneath the counterbore, means for supplying oil thereto, tubes opening into the oil-chamber and into the counterbore, provided with wicks, a detachable closure-plate secured to the front end of the cage, having its lateral face laterally curved outward, there being circular grooves of equal diameter cut oppositely in the faces of the front plate and in the interior shoulder, concentric with the journal, a plurality of rollers, of the length of the counterbore, disposed around the journal in the counterbore, having spindles at each end adapted to loosely enter the grooves and support the rollers within the counterbore, when the bearing is removed from the journal.

3. In a journal-box, the combination of an outer casing having its front end open and provided with a closure, and its rear end closed and

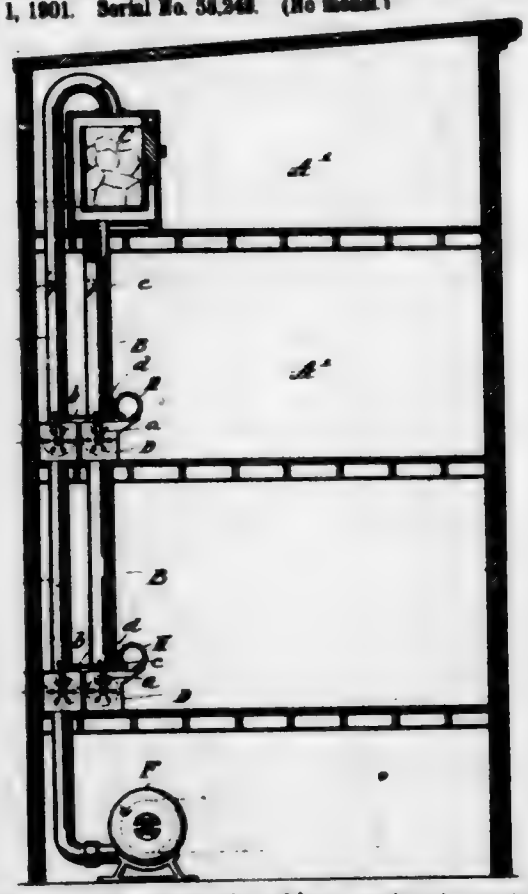
provided with an opening adapted to freely admit the journal and a portion of the axle within the casing, a bearing for the journal, comprising a rectangular cage of equal length with the journal, outwardly curved as to its sides and rear end, adapting them for central vertical contact with the walls of the casing, when in position therein on the journal, and having an upper longitudinal cylindrical bore through it to receive the journal, and counterbored from the front toward the rear, forming a shoulder at the rear end, and having a closed oil-chamber underneath the counterbore, tubes provided with wicks and connecting the oil-chamber with the counterbore, a detachable oil-reservoir secured to the cage and connected with the oil-chamber, a detachable closure-plate secured to the front end of the bearing-block, having its outer face curved laterally outward, there being circular grooves of equal diameter cut oppositely in the faces of the front plate and in the interior shoulder concentric with the journal, a plurality of rollers, of the length of the counterbore, disposed around the journal in the counterbore, having spindles at each end adapted to loosely enter the grooves and support the rollers within the counterbore, when the bearing is removed from the journal, alternate rollers being also provided with annular incuts at intervals.

690,484. ROLLER-BEARING. FRANK W. THOMAS, Toledo, Ohio. Filed Nov. 4, 1901. Serial No. 80,960. (No model.)



Claim.—The combination, in a journal-box, of a bearing-cage, cylindrical within and open at the rear to receive the journal, and rectangular without, and having outwardly-curved sides and ends adapting it to lateral movement within the journal-box, while in position on the journal and in contact with the walls of the box, and rollers disposed around the journal within the cage.

690,485. APPARATUS FOR COOLING AND VENTILATING. JOHN TITUS, Oyster Bay, and WILLIAM TITUS, Old Westbury, N. Y. Filed May 1, 1901. Serial No. 58,249. (No model.)



Claim.—1. The combination with an apartment, a vertical cold-air shaft having a register communicating with the apartment, and a closed refrigerator at the top of said air-shaft and communicating therewith, of a vertical air-pipe the upper part of which communicates with the closed refrigerator and which has a register that communicates with the apartment, and a blower at the lower part of the air-pipe for forcing air upward into the refrigerator through the air-pipe and thence through the register of the cold-air shaft into the apartment simultaneous with the exit of air from the air-pipe into the apartment through the register of said pipe, substantially as herein set forth.

2. The combination with an apartment, a vertical cold-air shaft having a register that communicates with the apartment, a closed refrigerator at the top of said cold-air shaft and communicating therewith, and a throttling-damper placed in the cold-air shaft for adjusting the descent of cold air therethrough, of a vertical air-pipe the upper part of which communicates with the closed refrigerator and which has a register that communicates with the apartment, a blower at the lower part of the air-pipe for simultaneously forcing air into the apartment from the air-pipe and the cold-air shaft through the respective registers thereof, substantially as herein set forth.

3. The combination with an apartment, a vertical cold-air shaft having a register that communicates with the apartment, a closed refrigerator at the top of the cold-air shaft and communicating therewith, of a vertical air-pipe the upper part of which communicates with the closed refrigerator and which has a register that communicates with the apartment a blower at the lower part of the air-pipe for simultaneously forcing air into the apartment from the air-pipe and the cold-air shaft through the respective registers thereof, and a throttling-damper placed in the air-pipe for controlling the proportion of air passed through the register of said pipe, substantially as herein set forth.

4. The combination with an apartment, a vertical cold-air shaft having a register that communicates with the apartment, a closed refrigerator at the top of the cold-air shaft and communicating therewith, and a throttling-damper placed in the cold-air shaft for adjusting the descent of cold air therethrough, of a vertical air-pipe the upper part of which communicates with the closed refrigerator and which has a register that communicates with the apartment, a blower at the lower part of the air-pipe for simultaneously forcing air into the apartment from the air-pipe and the cold-air shaft through the respective registers thereof, and a throttling-damper placed in the air-pipe for controlling the proportion of air passed through the register of said pipe, substantially as herein set forth.

5. The combination with an apartment, a vertical cold-air shaft having a register communicating with the apartment, and a closed refrigerator at the top of said air-shaft and communicating therewith, of a vertical air-pipe the upper part of which communicates with the closed refrigerator and which has a register that communicates with the apartment, a blower at the lower part of the air-pipe for forcing air upward into the refrigerator through the air-pipe and thence through the register of the cold-air shaft into the apartment simultaneous with the exit of air from the air-pipe into the apartment through the register of said pipe, and thermostats connected with the registers of the air-pipe and cold-air shaft respectively to operate the same in unison in the admission of air to the apartment, substantially as herein set forth.

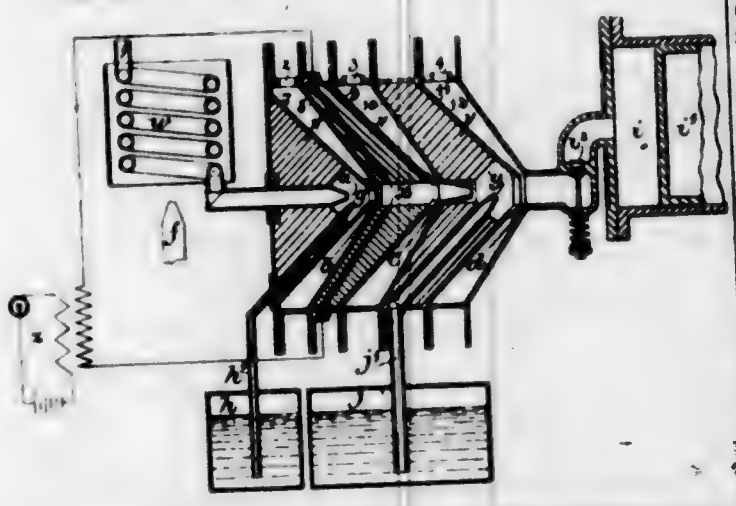
6. The combination with an apartment, a vertical cold-air shaft having a register that communicates with the apartment, a closed refrigerator at the top of the cold-air shaft and communicating therewith, and a throttling-damper placed in the cold-air shaft for adjusting the descent of cold air therethrough, of a vertical air-pipe the upper part of which communicates with the closed refrigerator and which has a register that communicates with the apartment, a blower at the lower part of the air-pipe for simultaneously forcing air into the apartment from the air-pipe and the cold-air shaft through the respective registers thereof, a throttling-damper placed in the air-pipe for controlling the proportion of air passed through the register of said pipe, and thermostats connected with the registers of the air-pipe and cold-air shaft respectively to operate the same in unison in the admission of air to the apartment, substantially as herein set forth.

7. The combination with an apartment, a vertical cold-air shaft having a register communicating with the apartment, and a closed refrigerator at the top of the said air-shaft and communicating therewith, of a vertical air-pipe the upper part of which communicates with the closed refrigerator and which has a register that communicates with the apartment, and a blower at the lower part of the air-pipe for forcing air upward into the refrigerator through the air-pipe and thence through the register of the cold-air shaft into the apartment simultaneous with the exit of air from the air-pipe into the apartment through the register of said pipe, a distributing-trunk and conduits which connect the trunk with the registers of the air-pipe and of the cold-air shaft respectively to commingle the air from the said pipe and said air-shaft prior to its admission to the apartment, substantially as herein set forth.

8. The combination with an apartment, a vertical cold-air shaft having a register that communicates with the apartment, a closed refrigerator at the top of the cold-air shaft and communicating therewith, and a throttling-damper placed in the cold-air shaft for adjusting the descent of cold air therethrough, of a vertical air-pipe the upper part of which communicates with the closed refrigerator and which has a register that communicates with the apartment, a blower at the lower part of the air-pipe for simultaneously forcing air into the apartment from the air-pipe and the cold-air shaft through the respective registers thereof, a throttling-damper placed in the air-pipe for controlling the proportion of air passed through the register of said pipe, a distributing-trunk, and conduits which

connect the trunk with the registers of the air-pipe and the cold-air shaft respectively, substantially as herein set forth.

690,486. APPARATUS FOR THE VAPORIZATION, COMBUSTION, AND UTILIZATION OF HYDROCARBON OILS. THOMAS TOMLINSON, Bray, Ireland. Filed Jan. 16, 1899. Serial No. 702,298. (No model.)



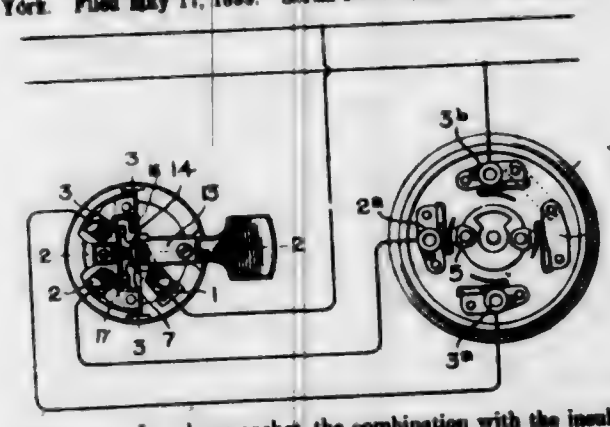
Claim.—1. The combination of means for mixing oil with air, means for igniting this mixture, means for causing the products of combustion thereof to mix with a further supply of air, means for causing this last-mentioned mixture to vaporize a further supply of oil, and means for combining a further supply of air therewith.

2. In a vaporizer, the combination, with an initial or one vaporization, of means serving respectively (*a*) to ignite the initial or one mixture, (*b*) to admit thereto a portion of the vaporizing-air for the purpose of vaporizing a second or following part of the oil-supply, and (*c*) to admit the main-air supply which final mixture is ignited, substantially as set forth.

3. The combination of a series of nozzles, means for supplying a relatively small quantity of oil to one of the nozzles, means for supplying air thereto, igniting devices for exploding this mixture, means for supplying air to the apex of the next nozzle in the series and causing it to mix with the products of combustion resulting from the air and oil supply to the first nozzle, and means for supplying oil and air to the apex of the next nozzle in the series.

4. The combination of a conical nozzle, means for supplying air to a chamber in the apex thereof, means for supplying oil to this chamber, a second conical nozzle adjacent to the first-mentioned nozzle and having a central chamber, igniting devices in this chamber for exploding the oil and air passing into it from the chamber in the first nozzle, means for supplying air at the apex of the second nozzle, a third nozzle, and means for supplying oil and air thereto near its apex.

690,487. LAMP-SOCKET. JULIUS C. TOURNIER, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed May 17, 1899. Serial No. 717,152. (No model.)



Claim.—1. In a lamp-socket, the combination with the insulating-base of two separate switch-contacts mounted thereon out of alinement with each other and adapted to be connected with an auxiliary switch, a terminal connected to line and to one lamp-lead, and a movable switch-piece connected to the other lamp-lead and having contacts out of alinement with each other to coöperate with said separate switch-contacts.

2. In a lamp-socket, the combination with the insulating-base of a two-way switch comprising two stationary contacts and corresponding movable contacts, the stationary contacts being adapted to be connected to an auxiliary switch, a switch-actuator on which the movable contacts are loosely mounted, a binding-post adapted to be connected between line and one lamp-lead, and a spring which imparts a snap action to the movable switch-contacts and serves to maintain electrical connection between the movable switch-contacts and the other lamp-lead.

3. In lamp-socket a key, three terminals connecting with different circuit-leads, and a conducting bridge-piece connected to the key formed of a sheet-metal blank having bent arms lying in different planes to connect different pairs of leads together.

4. A contact-piece for an incandescent-lamp key, formed from a cruciform sheet-metal blank having each pair of opposite limbs bent U shape and then outwardly in the same plane, the two pairs of contacts thus formed being in different planes.

5. A lamp-socket having a snap-switch yieldingly mounted on the key-stem, said switch being formed from a cruciform metal blank, the arms bent to form contacts and the center formed into a squared hub, and a spring bearing on the squared hub.

6. A lamp-socket having a snap-switch yieldingly mounted on the key-stem, said switch being formed from a cruciform metal blank, the arms bent to form contacts and the center forming a squared hub, a spring engaging the hub, and contacts engaging the arms edgewise.

7. In a lamp-socket, the combination of two elastic terminals, a key adapted to connect either of said terminals with the same lamp-terminal, a contact device controlled by the key, provided with four contact-points arranged in pairs on different planes in alinement with the terminals, and provided with a squared shoulder or face coöperating with a spring, as if the contact device being so mounted with relation to the key that it has a limited amount of free movement.

8. In a lamp-socket, the combination with the insulating-base of two binding-posts mounted thereon and adapted to be connected to an auxiliary switch, two stationary switch-contacts connected with said binding-posts, a third binding-post mounted on the base and adapted to be connected to line and to one of the lamp-leads, a switch mounted on the base and adapted to engage said switch-contacts alternately, and a spring for maintaining electrical connection between said switch and the other lamp-lead.

9. In a lamp-socket, the combination with the insulating-base of a threaded-shell lamp-contact and a center lamp-contact, both mounted on said base, two binding-posts mounted on the base and adapted to be connected to an auxiliary switch, two corresponding switch-contacts connected with said binding-posts, a third binding-post connected to the center lamp-contact and to line, a switch-spindle, a conducting-support for the spindle, said support being connected with the threaded-shell lamp-contact, a switch-piece loosely mounted on the spindle and adapted to engage said switch-contacts alternately, and a spring which is mounted on the spindle-support to bear on the switch-piece and serves to impart a snap action to the latter and to maintain electrical connection between the switch-piece and the threaded-shell contact.

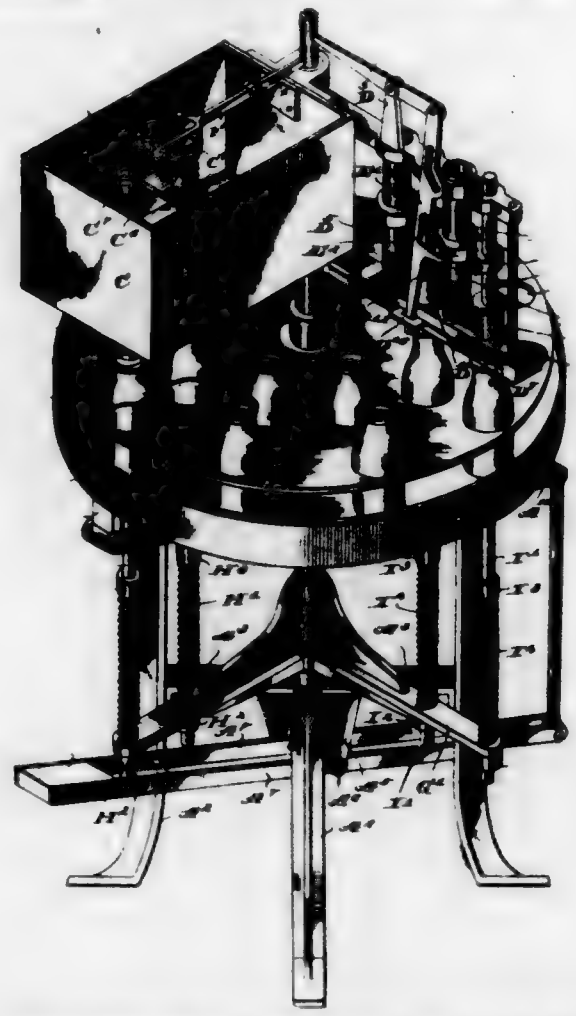
690,488. BOTTLE FILLING AND CAPPING MACHINE. THEODORE L. VALERIUS, Fort Atkinson, Wis., assignor to the Creamery Package Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 23, 1901. Serial No. 48,506. (No model.)

Claim.—1. In a capping-machine, in combination, a table for the bottles; a magazine adapted to hold a plurality of closures; a movable plate having means for carrying one closure from the magazine to a point adjacent to the throat of the bottle to be capped; a plunger for seating the closure in the throat of the bottle; a pivoted cam-bar having a cam-opening therein; a stud fixed with relation to the frame of the machine, adapted to lie within said cam-opening and move said cam-bar on its pivot; means for connecting the cam-bar with the plunger to reciprocate the latter; and means for connecting the cam-bar with the plate to move said plate.

2. In a capping-machine, in combination, a table for the bottles; a magazine adapted to hold a plurality of closures, mounted over said table; a slidable plate having an opening therein, which opening is adapted to be moved into coincidence with the closure-magazine, also into coincidence with the throat of the bottle to be capped; a plunger for seating the closure in the throat of the bottle; a lever pivotally supported upon the frame of the machine; a treadle for moving said lever; a cam-bar pivotally supported near the outer end of said lever, said cam-bar having a cam-opening therein; a stud fixed with relation to the frame of the machine, adapted to lie in said opening to move said cam-bar on its pivot; means for loosely connecting the cam-bar with the plunger to reciprocate the latter; and means for connecting said cam-bar with the plate to slide said plate.

8. In a capping-machine, in combination, a rotatable table for the bottles; a magazine adapted to hold a plurality of closures; a slidable plate having an opening adapted to be placed in coincidence with the magazine, also with the throat of the bottle; a plunger for seating the closure in the throat of the bottle; a cam-bar pivotally mounted at one of its ends and having two cam-openings therein, one of which openings is shorter than the other; a stud fixed with relation to the frame of the machine, adapted

to lie in the longer of said cam-openings; means for longitudinally reciprocating said cam-bar; a stud fixed with relation to said plunger, adapted to lie within the shorter of the cam-openings in the cam-bar; and means for connecting the lower end of said cam-bar with the sliding plate.



4. In a capping-machine, in combination, a table for the bottles; a magazine adapted to hold a plurality of closures; a slidable plate having means for carrying one closure from the magazine to a point adjacent to the throat of the bottle to be capped; an elevator mechanism for raising said bottle; a plunger for seating the closure in the throat of the bottle; a cam-bar pivotally mounted near one of its ends, and having two cam-openings therein; a stud fixed with relation to the frame of the machine, adapted to lie in one of said openings; a stud fixed with relation to the plunger, adapted to lie in the other of said openings; means for connecting the lower end of the cam-bar with the sliding plate; means for longitudinally reciprocating said cam-bar; and means for operating said elevator mechanism.

5. In a capping-machine, in combination, a table for the bottles; means for moving the bottles upon said table; a magazine adapted to hold a plurality of closures; a slidable plate having an opening adapted to be placed in coincidence with the magazine, also with the throat of the bottle to be capped; a plunger for seating the closure in the throat of the bottle; an elevator mechanism for raising a bottle into engagement with the capping mechanism; a lever pivotally supported upon the frame of the machine; a vertically-reciprocating rod for moving said lever; a treadle for reciprocating said rod; a cam-bar pivotally mounted near the free end of said lever, said cam-bar having two cam-openings therein, one of which openings is shorter than the other; a stud fixed with relation to the frame of the machine, adapted to lie in the longer of said cam-openings, to oscillate said cam-bar upon its supporting-pivot; a stud fixed with relation to the plunger, adapted to lie in the shorter of said cam-openings; and means for connecting the lower end of said cam-bar with said sliding plate.

6. In a capping-machine, in combination, a table for the bottles; means for moving the bottles upon the latter; a magazine adapted to hold a plurality of closures; a slidable plate having an opening adapted to be placed into coincidence with the magazine, also with the throat of the bottle to be capped; a plunger for seating the closure in the throat of the bottle; an elevator mechanism comprising an elevator-disk, a stem for said disk, a spring mounted on said stem, and an arm adapted to raise said disk through said spring; a cam-lever adapted to move the slidable plate and to reciprocate said plunger; and means for moving said cam-lever and for operating said elevator mechanism.

7. In a capping-machine, in combination, a table for the bottles; a magazine adapted to hold a plurality of closures; a movable plate having means for carrying one closure from the magazine to a point adjacent to the throat of the bottle to be capped; a plunger for seating the closure in the throat of the bottle; a cam-lever having L-shaped openings therein; a stud fixed with relation to said table, adapted to lie in one of said openings; a stud fixed with relation to the plunger, for lying in another of said L-shaped openings; means for longitudinally moving said cam-lever; and means for connecting the lever with the movable plate.

8. In a capping-machine, in combination, a table for the bottles; a perforated turn-table rotatably mounted over said table, for moving the bottles upon the latter; a magazine adapted to hold a plurality of closures; a slidable plate having an opening adapted to be placed in coincidence with the magazine, also with the throat of the bottle to be capped; a plunger for seating a closure in the throat of a bottle; a cam-lever having L-shaped openings therein; a stud fixed with relation to said table, adapted to lie in one of said openings; a stud fixed with relation to the plunger, for lying in the other of said L-shaped openings; a lever having a pivotal connection with said cam-lever; a tilting lever having a pivotal connection with said cam-lever; a reciprocating rod for moving said tilting lever; a treadle for operating said reciprocating rod; and means for connecting the cam-lever with the slidable plate.

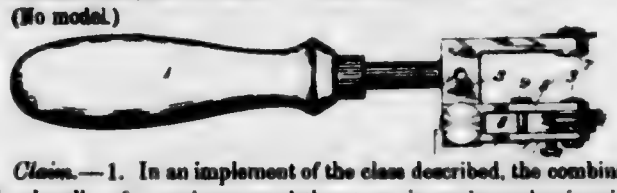
9. In a capping-machine, in combination, a table for the bottles; a perforated turn-table rotatably mounted over said table, adapted to move the bottles upon the table in radial pairs; two magazines adapted to hold a plurality of closures; a slidable plate having an opening adapted to be placed in coincidence with each of the magazines, also with the throats of the bottles to be capped; two plungers for seating the closures in the throats of said bottles; an elevator mechanism comprising two elevator-disks, a stem for each of said disks, a spring on each of said stems, and an arm adapted to raise said disks by means of said springs; a tilting lever; a cam-lever pivotally connected with the free end of said tilting lever, which cam-lever has two L-shaped cam-openings therein; a stud fixed with relation to the supporting-table, and adapted to lie in one of said L-shaped openings; a second stud adapted to move with the plunger-rods, and adapted to engage the other of said L-shaped openings; a loop for connecting the lower end of said cam-lever with said sliding plate; a vertically-reciprocating rod having engagement with said tilting lever; a foot-lever; a treadle therefor; and a transverse lever for moving said vertically-reciprocating rod.

10. In a filling and capping machine, in combination, a table for moving the bottles; a filling mechanism; and a capping mechanism, the latter comprising a magazine adapted to hold the closures for the bottles, a movable plate having an opening adapted to be placed in coincidence with the magazine, also with the throat of the bottle to be capped, a plunger for seating a closure, a cam-bar having a cam-opening therein, a fixed stud adapted to lie in said opening, means for connecting the cam-bar with said plate, means for connecting the cam-bar with the plunger, and means for longitudinally moving said cam-bar.

11. In a filling and capping machine, in combination, a table for moving the bottles; a filling mechanism; a capping mechanism, the latter comprising a magazine adapted to hold the closures for the bottles, a slidable plate having an opening adapted to be placed in coincidence with the magazine, also with the throat of the bottle to be capped, and a plunger for seating a closure; an elevator for raising a bottle to the filling mechanism; an elevator for raising a bottle to the capping mechanism; and a foot-lever for operating said elevator mechanisms, and for actuating the filling mechanism and the capping mechanism.

12. In a filling and capping machine, in combination, a table for the bottles; means for moving the bottles upon said table; a magazine adapted to hold a plurality of closures; a slidable plate having an opening adapted to be placed in coincidence with the magazine, also with the throat of the bottle to be capped; a plunger for seating a closure in the throat of the bottle; an elevator mechanism for raising a bottle into engagement with the filling mechanism; an elevator for raising a bottle into engagement with the capping mechanism; a cam-lever having two L-shaped openings therein; a stud fixed with relation to said table, adapted to lie in one of said openings; a stud fixed with relation to said plunger, adapted to lie in the other of said L-shaped openings; a loop for causing the cam-lever to engage the slidable plate; a tilting lever for moving said cam-lever; a reciprocating rod for moving said tilting lever; and a foot-lever for moving said reciprocating rod, and for operating said elevator mechanisms.

690,489. TRACING AND CUTTING IMPLEMENT. GEORGE R. VANDER WEE, New York, N. Y. Filed July 27, 1900. Serial No. 24,996. (No model.)



Claim.—1. In an implement of the class described, the combination, with a handle, of a carrier secured thereto; a journal member in said car-

rier; a normally stationary cutter mounted upon an adjusting-wheel to turn about said member; and a revoluble feed-wheel adjacent to said cutter and journaled on the member.

2. In an implement of the class described, the combination with a handle, of a carrier secured thereto; a journal member in said carrier; a normally stationary but adjustable cutter mounted to turn about said member; a revoluble feed-wheel adjacent to said cutter and journaled on the member; and an adjusting-wheel also journaled on the member.

3. In an implement of the class described, the combination with a handle, of a bifurcated carrier secured to said handle; a normally stationary but adjustable cutter having a series of individual cutting-teeth mounted between the arms of said carrier; an adjusting-wheel mounted adjacent thereto; and a feed-wheel of less diameter than the cutter and mounted adjoining said cutter.

4. In an implement of the class described, the combination, with a handle provided with a stem having a rectangular portion, of a bifurcated carrier secured to said rectangular portion; a stationary cutter located between the arms of said carrier; a toothed wheel connected with said cutter to prevent its rotation; a bolt uniting the ends of the arms of the carrier; and a feed-wheel of less diameter than the cutter and loosely mounted upon the bolt.

5. In an implement of the class described, the combination, with a bifurcated carrier and with means for supporting the same, of a stationary cutter having a series of cutting edges; toothed wheel splined thereto, a locking-pin engaging said teeth for preventing the cutter from rotation; a feed wheel or disk located adjacent to the cutter; and a bolt uniting the ends of the carrier and upon which the feed-wheel and cutter are mounted.

6. In combination with a bifurcated carrier, a cutter having a series of cutting edges; a toothed device upon the hub of which the cutter is splined; a pin located in an arm of the carrier and adapted to engage said toothed device; a feed-roll located adjacent to the cutter; and a bolt located in the ends of the carrier-arms and upon which the feed-wheel and cutter are mounted.

7. In an implement of the class described, the combination with a carrier, of a tracing-wheel mounted in one portion thereof; a normally stationary cutter adjustable to present a new cutting-surface mounted in said carrier at a distance from the tracing-wheel equal to the width of the material to be left to form a seam; and a feed-wheel mounted adjoining said cutter.

8. In an implement of the class described, the combination with a carrier, of a tracing-wheel mounted in one portion thereof; a normally stationary cutter adjustable to present a new cutting-surface mounted in said carrier at a distance from the tracing-wheel equal to the width of the material to be left to form a seam; and a feed-wheel mounted adjoining said cutter, said feed-wheel being of less diameter than the cutter and having a series of penetrating points.

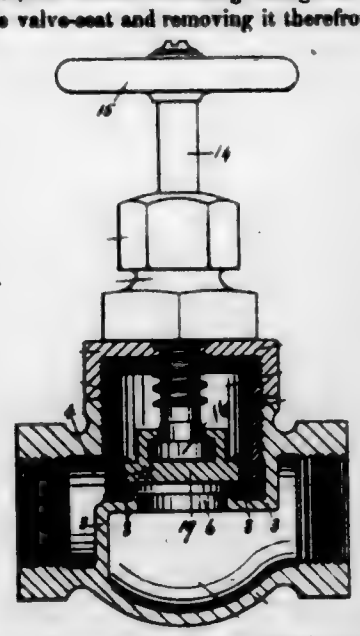
9. In an implement of the class described, the combination with a carrier, of a tracing-wheel mounted in one portion thereof; a normally stationary cutter adjustable to present a new cutting-surface mounted in said carrier at a distance from the tracing-wheel equal to the width of the material to be left to form a seam; an adjusting-wheel mounted adjacent to said stationary cutter; and a feed-wheel mounted adjoining said cutter.

10. In an implement of the class described, the combination with a carrier, of a tracing-wheel mounted in one portion thereof; a normally stationary cutter provided with a series of individual cutting-teeth flat on one side and beveled off on the other side to form sharp cutting points and edges and mounted in said carrier at a distance from the tracing-wheel equal to the width to be left to form the seam; an adjusting-wheel mounted adjacent to said stationary cutter; and a feed-wheel mounted adjacent to the flat side of the cutter.

690,490. RENEWABLE-SEAT VALVE. GEORGE W. WALTERS, London, Canada. Filed May 4, 1901. Serial No. 58,818. (No model.)

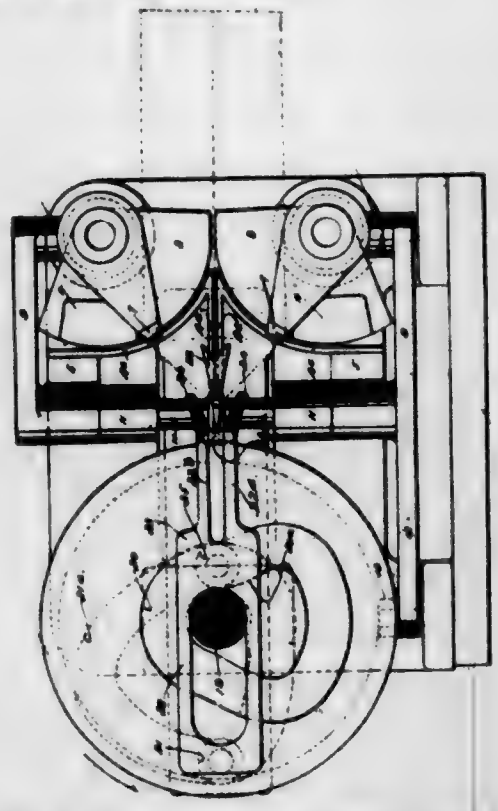
Claim.—1. In a removable-seat valve, the combination with the valve-chamber having a flat partition provided with an opening, and a flange rising from said partition close around said opening; of a removable seat comprising an annular body thicker than the height of said flange which it surrounds closely, and itself having a horizontal flange resting upon said partition, a cylindrical follower having lateral openings near its lower end which latter rests upon said horizontal flange, an internally-threaded boss on the valve-casing, exterior threads on the follower engaging within said boss above which the follower projects, an internally-threaded bonnet screwed upon the upper end of the follower and against said boss, the valve-disk within the follower, and devices extending through the bonnet for closing said disk upon the valve-seat and removing it therefrom when desired.

2. In a removable-seat valve, the combination with the valve-chamber having a flat partition provided with an opening, of a removable seat comprising an annular body and a horizontal flange resting upon said partition, a cylindrical follower having lateral openings near its lower end which latter rests upon said flange, an internally-threaded boss on the valve-casing, exterior threads on the follower engaging within said boss above which the follower projects, an internally-threaded bonnet screwed upon the upper end of the follower and against said boss, the valve-disk within the follower, and devices extending through the bonnet for closing said disk upon the valve-seat and removing it therefrom when desired.



3. In a removable-seat valve, the combination with the valve-chamber having a flat partition provided with an opening, of a removable seat comprising an annular body and a horizontal flange resting upon said partition, a cylindrical follower having lateral openings near its lower end which latter rests upon said flange, an internally-threaded boss on the valve-casing, exterior threads on the follower engaging within said boss above which the follower projects, an internally-threaded bonnet screwed upon the upper end of the follower and against said boss, the valve-disk within the follower, the threaded valve-stem passing through the bonnet and having a head at its lower end, and a socket on the disk comprising flanges engaging said head and having a lateral opening through which the head can be removed when the stem and disk are withdrawn from the valve-casing.

690,491. BAG-MACHINE. GEORGE R. WARD, New York, N. Y., assignor to Charles F. Coburn, Boston, Mass. Filed Dec. 3, 1900. Serial No. 38,413. (No model.)



Claim.—1. In a bag-machine in combination, a rotatable suction device adapted to contact with a flattened completed bellows-folded bag, means to exhaust the air from said suction device and rotate the same whereby said bag is distended at its bottom, means rotatable on substantially the same axis with said suction device and adapted to engage said bag and assist in distending the same, and means to fold the corners of said bag backward between the plies thereof.

2. In a bag-machine in combination, a set of rotatable suction devices adapted to receive between them a completed bellows-folded bag, means to exhaust air from said suction devices and means to rotate the same whereby said bag may be distended at its bottom, and a rearwardly-moving folder to then fold part of said distended bottom backward between the plies of said bag.

3. In a bag-machine in combination, a set of rotatable suction devices, adapted to receive between them a completed bellows-folded bag, means to exhaust air from said suction devices and means to rotate the same whereby said bag may be distended at its bottom, and a reciprocating folder to then fold the corners of said distended bottom backward between the plies of said bag.

4. In a bag-machine in combination, a set of oscillating rolls provided with suction devices and adapted to receive between them a bellows-folded bag, means to exhaust air from said suction devices and means to rotate said rolls to carry said bag forward and distend the same, and a rearwardly-moving folder to fold the corners of said bag backward between the plies thereof.

5. In a bag-machine in combination, a set of oscillating rolls provided with suction devices rotatable therewith and adapted to receive between them a flattened bellows-folded bag, means to exhaust air from said suction devices and means to rotate said rolls whereby said bag is fed forward and distended at its bottom, a reciprocating folder adapted to fold the corners of said bag backward between the plies thereof, and means to rotate said rolls backward to carry said folded bag backward to deliver the same.

6. In a bag-folding machine in combination, a set of rolls adapted to feed forward a bellows-folded bag, means rotatable with said rolls and adapted to contact with said bag and distend the plies of the same at its bottom, a stationary guide to receive the longitudinally-central portion of said bag as it leaves said rolls and hold the same in a substantially flattened condition, while the plies are distended, and a reciprocating folder to fold the corners of the bottom of said bag backward between the plies thereof.

7. In a bag-folding machine in combination, a roll, means to rotate the same in one direction to assist in carrying a bag forward, means to distend the bag at its bottom and means to fold backward a part of the distended bottom portion, and means to automatically rotate said roll backward and carry said folded bag backward to deliver the same.

8. In a bag-folding machine in combination a roll, means to rotate the same in one direction to assist in carrying a bellows-folded bag forward, means to distend the bag at its bottom and means to fold the corners of the bag backward between the plies of the bag, and means to automatically rotate said roll backward and carry said folded bag backward to deliver the same.

9. In a bag-folding machine in combination, a roll, means to rotate the same in one direction to assist in carrying a bag forward, means rotatable with said roll to distend the bag at its bottom, a folding device to fold backward a part of the distended portion, and means to automatically rotate said roll backward to carry said folded bag backward to deliver the same.

10. In a bag-folding machine in combination a roll, means to rotate the same in one direction to assist in carrying a bag forward, means including a suction device rotatable with said roll to distend the bag at its bottom, a folding device to fold backward a part of the distended portion, and means to automatically rotate said roll backward to carry said folded bag backward to deliver the same.

11. In a bag-folding machine in combination a roll, means to rotate the same in one direction to assist in carrying a bag forward, means to distend the bag, a folder, and means to move said folder backward and fold the corners of the bag backward and between the plies of the bag.

12. In a bag-folding machine in combination a plurality of rolls adapted to receive between them a bellows-folded bag, means to rotate the same forward to carry the bag forward, means including a suction device rotatable with each roll to distend the plies of the bag at each side, a folding device, means to move the same backward to fold the corners of the bag backward and between the plies of the bag, and means to automatically rotate said rolls backward and carry said folded bag backward to deliver the same.

13. In a bag-folding machine in combination a plurality of rolls adapted to receive between them a bellows-folded bag, each of said rolls having a hollowed portion provided with an aperture adapted to contact with one of the plies of said bag, means to rotate said rolls forward to carry said bag forward and means to exhaust the air from said hollowed portion to distend said bag, means to fold one corner of said bag backward and between the plies of the bag, and means to then rotate said rolls backward to deliver said bag.

14. In a bag-folding machine in combination means to feed forward and distend a part of the bottom of a bellows-folded bag, a rearwardly-moving folding device adapted to fold backward the corners of said bag, and means to fold down the plies over said folded corners.

15. In a bag-folding machine in combination means to feed forward and distend a part of the bottom end of a bellows-folded bag, a rearwardly-moving folding device adapted to fold backward the corners of said bag, and means, also carried by said rearwardly-moving folder, to fold down the plies over said folded corners.

16. In a bag-machine in combination a set of oscillating rolls adapted to receive between them a bellows-folded bag and hold the central portion in a substantially flattened condition, suction-chambers rotatable with said rolls and extending laterally at each side of each roll at the periphery thereof and adapted to contact with the plies near the bottom of the bag, means to rotate said rolls so that the contact-surfaces move forward, means to exhaust the air from said suction-chambers to distend the plies of said bag while the central portion of said bag is held in a substantially flattened condition, distending-fingers to assist in distending said plies, a rearwardly-moving folder to fold back the corners of said bag, and means to rotate said rolls backward to deliver said bag.

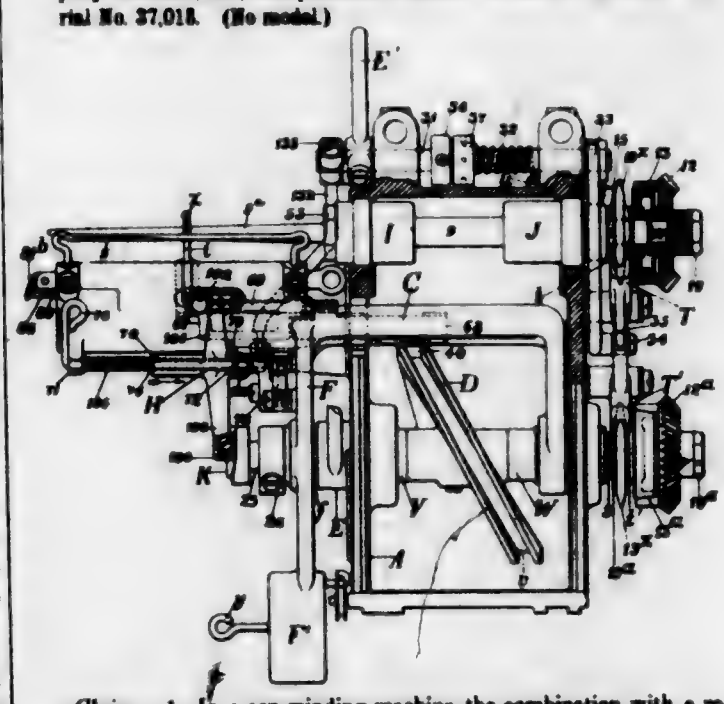
17. In a bag-folding machine in combination, a roll adapted to hold a portion of a bellows-folded bag in a flattened condition and feed the same forward, distending-fingers, means to insert said fingers within the plies of said bag near the bottom of said bag and move said fingers apart to distend said plies at the bottom of said bag, and a rearwardly-moving folder, movable independently of said roll, and adapted to press upon the bottom of said bag to turn back a part of said bottom while said fingers are distending said plies.

18. In a bag-folding machine in combination, a pair of rolls adapted to receive between them a bellows-folded bag, means to rotate the same to feed forward said bag, means to distend the bottom of the same, a folding device to fold the corners of the bag between the plies thereof, and means to reverse said rolls and carry said bag backward to deliver the same.

19. In a bag-folding machine in combination, a pair of rolls adapted to receive between them a bellows-folded bag, means to rotate the same to feed forward said bag, means to distend the bottom of the same, a reciprocating folding device to fold the corners of the bag between the plies thereof, and means to reverse said rolls and carry said bag backward to deliver the same.

20. In a bag-folding machine in combination, a pair of rotatable suction devices adapted to receive between them a bellows-folded bag, means to rotate the same to feed said bag forward and distend the same at its bottom, a folding device adapted to fold the corners of the bag between the plies thereof and means to reverse said suction devices to carry said bag backward to deliver the same.

690,492. **MACHINE FOR WINDING COMPOSITE COPS.** SIMON W. WARDWELL, Providence, R. I., assignor to Universal Winding Company, Portland, Me., a Corporation of Maine. Filed Nov. 19, 1900. Serial No. 37,018. (No model.)



Claim.—1. In a cop-winding machine, the combination with a rotary spindle, of a guide, and means for reciprocating the guide opposite one portion of said spindle to complete a cop-section, and then opposite another portion of the spindle to wind another cop-section.

2. The combination in a cop-winding machine, of a rotary spindle, a guide, means for shifting the guide to different independent positions along the spindle, and means for reciprocating it in each of such positions to build a cop-section.

3. In a cop-winding machine, the combination of a rotary spindle, guide, means for reciprocating the guide opposite one part of the spindle

to build up a cop-section, and means for then mechanically shifting the guide to different positions along the spindle during the winding of a cop, and for reciprocating it to build up another cop-section after one is completed.

4. The combination with a rotary spindle, of the guide-driver and means for reciprocating the same, the guide-carrier, guide carried thereby, and means for connecting and retaining the carrier with the driver in one position during the winding of a cop-section, and for then connecting and retaining them in a different position during the winding of another cop-section.

5. The combination of a rotary spindle, the guide-driver and means for reciprocating the same, the guide-carrier and guide carried thereby, and means for mechanically shifting the position of the guide-carrier relative to the guide-driver by an amount exceeding the length of traverse of the guide, and means for securing it fixedly in its different positions.

6. The combination of a rotary spindle, a reciprocating guide-driver, guide and guide-carrier, and a catch for connecting the carrier with the driver at different points, and means for reciprocating the driver and carrier to complete a cop-section while the carrier and driver are connected in each position.

7. The combination of a rotary spindle, the reciprocating guide driver, carrier, and guide carried thereby, catch for connecting the carrier and the driver at different points, means for reciprocating the driver and carrier while so connected to build up a cop-section, and means for putting the catch out of engagement after a cop-section has attained its desired diameter.

8. The combination in a cop-winding machine, of a rotary spindle, the guide, means for reciprocating the guide opposite the different parts of the spindle, and the devices for shifting the guide progressively from one position to another, to wind the cop in different sections.

9. The combination in a cop-winding machine, of a rotary spindle, guide, means for reciprocating the guide opposite different parts of the spindle, and devices for automatically shifting the guide progressively from one position to another to wind the cop in different sections.

10. The combination in a cop-winding machine, of a rotary spindle, guide, means for reciprocating the guide opposite different parts of the spindle, and devices arranged to operate as the cop-section attains its desired diameter, to shift the guide to a position opposite another part of the spindle to wind another cop-section.

11. In a winding-machine, the rotary spindle, the guide, the guide-carrying frame supported to move outward as the cop increases in size, means for reciprocating the guide opposite different parts of the spindle to wind the cop in successive sections, and means for shifting the guide to a different position upon the frame after each cop-section is completed.

12. In a winding-machine, the rotary spindle, guide, guide-carrying frame supported to move outward from the spindle as the cop increases in size, and means for reciprocating the guide upon the frame opposite different parts of the spindle to wind the cop in successive sections, a detent preventing the inward movement of the frame during the winding of any section, and means for mechanically acting on the detent to permit the frame to move inward toward the spindle after a cop-section has attained its desired diameter.

13. The combination with the spindle, guide, guide-supporting frame movable to carry the guide to and from the spindle, guide-driver and guide-carrier sliding on the frame, of a catch for connecting the two in different relative positions, means for mechanically operating the catch to disconnect the carrier and driver, and devices for actuating such means, when a cop-section has attained its desired diameter.

14. The combination in a winding-machine with a winding-spindle, a guide carried on an extensible, sectional traverse-bar, and devices for reciprocating the traverse-bar and its supported guide, of devices for extending said traverse-bar, comprising a lever adapted to be rocked to disengage the traverse-bar sections and to engage and shift the guide-carrying section longitudinally of the winding-spindle, a cam for rocking the lever and sliding it on its bearings to disengage and shift the guide-carrying section, and arranged with a central bearing to support the lever during the winding, and hold it from engagement with the working surfaces of the cam until the appropriate time for such engagement, a spring to throw the lever into such engagement, and a projection impelled by the spring to enter into engagement with the cam to disengage and shift the sections of the traverse-bar.

15. The combination with the swinging frame F, guide, guide-driver and guide-carrier, and catch for connecting the two, of the lever H having a projection for acting on the said catch, and means for actuating said lever to release the catch when a cop-section attains its proper diameter.

16. The combination in a winding-machine for winding sectional cops, of a winding-spindle, a traversing thread-guide, extensible devices for carrying said guide, and means to automatically extend said devices after the completion of one cop-section, to shift the position of the guide to wind another cop-section.

17. The combination in a winding-machine, of a winding-spindle, a reciprocating thread-guide, guide-driving devices, and means whereby the thread-guide is shifted upon the completion of one section of a cop, to wind a succeeding section adjacent thereto.

18. The combination in a winding-machine for winding sectional cops, of a winding-spindle, a cam, a reciprocating thread-guide, a sectional traverse-bar to carry the guide whereby the latter is driven from the cam to build a cop-section, and connections between the sections of the traverse-bar, whereby the latter may be extended to carry the guide opposite an independent part of the spindle to wind a different cop-section.

19. The combination in a winding-machine, of a winding-spindle, a cam, a reciprocating sectional traverse-bar driven by the cam, a thread-guide carried on the bar and adapted to maintain, during the winding, contact with the surface of the cop being wound, and connections between the sections of the traverse-bar adapted to be disengaged upon completion of one cop-section to permit the shifting of the thread-guide to wind a new cop-section adjacent to the one just previously wound.

20. The combination in a winding-machine of a winding-spindle, a cam, a reciprocating sectional traverse-bar driven by the cam, and adapted to be moved to and from the winding-spindle during the winding, a thread-guide carried on the reciprocating traverse-bar, connections between the sections of the traverse-bar and devices for disconnecting said sections to permit the extension of said bar, and the reconnection thereof, after said extension.

21. In a machine for winding sectional cops, a winding-spindle, a cam, an extensible traverse-bar reciprocated by the cam, a thread-guide supported on and carried by the traverse-bar and adapted to be pressed back from the winding-spindle with the increasing diameter of the cop-section being wound, a detent to prevent the return of the thread-guide to the spindle, and devices for releasing said detent at the completion of one cop-section to permit the return of the guide to the spindle to wind a new cop-section.

22. In a winding-machine comprising a winding-spindle, a cam, and a reciprocating thread-guide, the combination of a sectional extensible traverse-bar to carry the guide and driven by the cam, a spring-catch to connect the traverse-bar sections, with means whereby the said cam is caused to extend the traverse-bar.

23. In a winding-machine, a frame provided with bushings, a winding-spindle 9^n, a reciprocating guide i, a cam D supported on a cam-shaft 25 which is carried in the bushings, a guide-carrying frame supported on said bushings to swing concentrically with the cam-shaft from the winding-spindle with the increasing diameter of the cop-section being wound, a guide-carrier 67 supported to travel in suitable grooves in the swinging frame, a guide-driver 68 supported to travel in the same grooves, and to be reciprocated by the cam D, a connection 69 to join the guide-carrier to the guide-driver, and devices for mechanically disconnecting the guide-carrier from the guide-driver, to shift its position relative to the guide-driver, and to reconnect it again with the guide-driver, whereby a succession of cop-sections may be wound, one after and adjacent the other, substantially as described.

24. In a machine for winding sectional cops, a winding-spindle, a guide and carrier 67, devices to reciprocate the guide and carrier, a guide-driver 68, a spring-catch 69 for connecting the guide-driver 68 and carrier 67, and means for disengaging said catch and shifting the position of the guide, comprising a cam, a lever supported by suitable bearings with an arm adapted to press the spring-catch from engagement with the guide-carrier, and to engage the latter to shift its position, and with another arm to be acted upon by said cam to rock the latter to press the spring-catch from engagement with the guide-carrier and to then engage with the guide-carrier and shift its position longitudinally of the winding-spindle, and devices to insure that said engagement shall occur only at the appropriate time.

25. In a winding-machine, a winding-spindle, a reciprocating guide, a traverse-cam for driving the guide, a sectional traverse-bar, devices arranged to disconnect the sections of the bar and slightly move one section of the traverse-bar longitudinally while the other section is moved by the traverse-cam, and reconnected with the first section to extend the traverse-bar.

26. In a winding-machine, a winding-spindle, a reciprocating guide, a sectional traverse-bar for carrying the guide and susceptible of extension after the completion of a cop-section to wind another section adjacent the one just previously wound, and devices whereby, when the last winding on the spindle is completed, the traverse-bar can be readily contracted to its original length.

27. The combination in a winding-machine, having a winding-spindle, a reciprocating guide, a sectional, extensible traverse-bar, with a connection between the sections of the traverse-bar, and a traverse-frame, of a slide 80 carried in the frame, a plate 83 adapted to be pressed against the connection to disengage it, a recess in the traverse-frame, a projection 84 of the plate extending into the recess, and so adapted that when moved against the edge of said recess, it presses the plate 83 against the connec-

tion 69 disengaging the latter from the traverse-bar section, substantially as described.

28. The combination in a winding-machine for winding sectional cops, of a winding-spindle, a reciprocating thread-guide, a sectional, extensible traverse-bar, and means whereby when one section of a cop has been wound, the thread-guide is caused to cease its regular reciprocation and is advanced into position to wind the next cop-section while the spindle continues its rotation, winding several coils about the spindle before commencing to wind the new section, substantially as described.

29. The combination in a winding-machine, of a winding-spindle, a thread-guide, a sectional, extensible traverse-bar, a cam for disconnecting the sections of the traverse-bar and shifting one of the sections, and a traverse-cam to reciprocate the traverse-bar, and when the sections thereof are disconnected, to extend the same.

30. In a winding-machine, the combination of a winding-spindle, a reciprocating guide, an extensible, sectional traverse-bar, a frame movable to and from the spindle to carry and guide the traverse-bar, and devices for extending the traverse-bar comprising a lever mounted on said frame, to move both rotatively and longitudinally, a projection carried at one extremity of the lever, a slot in said frame through which the projection is pushed to disengage the sections of the traverse-bar, and along which it is moved to partially extend said sections, a cam to operate through the lever to disengage and partially extend the sections of the traverse-bar, and a spring between the lever and the frame to nominally withhold the projection from the traverse-bar and, after the extension thereof, to return said projection to its normal position.

31. The combination in a winding-machine, of a winding-spindle, a reciprocating guide and guide-actuating devices, a traverse-bar to support the guide consisting of a thin blade with lateral projections to prevent vertical displacement of the traverse-bar, provision to connect with the actuating devices, and a recess of dovetail section to receive and hold the thread-guide.

32. The combination of the frame F, catch, guide, guide-carrier, guide-driver, the lever H for disengaging said catch, cam K to operate the lever, having a central antifriction-bearing, a block carried by the lever H and adapted to be supported by said bearing during the winding of each section, and means for swinging the lever H to carry the block from said bearing when a cop-section is completed, to engage with the cam K, to cause the disconnecting of the guide driver and carrier, substantially as indicated.

33. The combination of the frame F, its detent, the reciprocating guide, guide carrier and driver, and catch for connecting the two, the lever H for operating said catch, and means for shifting the position of the detent on a change of position of the lever H, for the purpose set forth.

34. The combination in a cop-winding machine, of a rotary spindle, the swinging frame movable on its axis to and from said spindle, and a guide-carrier supported by said frame to move in a path at an angle to the axis of said frame.

35. The combination in a cop-winding machine, of a rotary spindle, a frame movable to and from said spindle, and a guide-carrier supported to be moved on said frame in a path inclined to the axis of the spindle and to the direction of movement of the frame.

36. In a winding-machine, a winding-spindle, a cam, a reciprocating guide, a guide-carrying frame supported to swing concentrically with the axis of the cam, and a guide-carrier supported to be driven by the cam in a channel cut in said frame at an angle with the axis of the cam.

37. In a winding-machine, a winding-spindle, a reciprocating guide, a guide-carrying frame movable to and from the winding-spindle, a detent to prevent the return of the frame toward the spindle, and a handle and connections whereby on pressing said handle toward the spindle, the detent shall be released, and the frame returned toward the spindle.

38. In a winding-machine, the combination of a winding-spindle, a reciprocating guide, a guide-carrying frame movable to and from the winding-spindle, a detent to prevent the return of the frame toward the spindle, and devices for releasing said detent comprising a rod carried in suitable bearings on the swinging frame, connections between one end of said rod and the detent, and a handle at the opposite end of the rod and in such position relative to the traverse-frame that a pressure on said handle toward the spindle shall release the detent and return the traverse-frame toward the winding-spindle.

39. In a winding-machine, the combination of a winding-spindle, a reciprocating guide and a traverse-frame movable to and from the spindle, of an arc Q free to swing on the supporting-stud 73 on the main frame of the machine, a bearing 75 on the swinging frame, a detent R also carried on the swinging frame and bearing on the arc Q to restrain the frame F from moving in one direction, a rod 74 carried in bearings on the swinging frame, connections 77, 78 and 79 between said rod and detent, and a handle 76 to release said detent, substantially as described.

40. The combination in a winding-machine, of a winding-spindle, a reciprocating guide, a guide driver and carrier, and means for shifting the carrier with respect to the driver, and a frame in which the carrier and driver are reciprocated, movable with the guide to and from the winding-spindle, stopping devices to arrest the winding provided with a screw 7, a sliding blade 80 with which the guide-carrier is adapted to make contact after the latter has been shifted, to so move the blade 80 that a portion thereof is opposite the screw 7 to engage therewith when the frame is moved back from the spindle, substantially as described.

41. In a winding-machine, the combination with a winding-spindle, reciprocating guide, extensible sectional traverse-bar, means for extending the traverse-bar, and a movable frame to support and direct the traverse-bar, of means for disconnecting the sections of the traverse-bar after extension comprising a slide 80, devices carried at one end of the slide, and operated by a longitudinal movement thereof to disengage the traverse-bar sections, an arm 81^a pivotally mounted at the opposite extremity of the slide to engage the projection 67^a on the traverse-bar when the latter is extended, a pin 86 carried in said frame and pressed by the spring 87 to hold the arm 81^a down, and in line with the projection 67^a, and to force the slide 80 outward from the frame A to bring the opening therein opposite the screw 7 and an appropriate member 81^b whereby, when the slide 80 is shifted to disconnect the traverse-bar sections, the arm 81^a may be lifted to clear the projection 67^a, substantially as described.

42. The combination in a winding-machine with a winding-spindle, a reciprocating guide, an extensible traverse-bar, movable supporting-frame therefor, and devices for arresting the winding comprising the projection 7, of the projection 57^a on the traverse-bar, the slide 80 carried on said frame behind the traverse-bar, the pivoted member 81 with the arm 81^a to be struck by the projection 67^a to so shift the slide 80 when the traverse-bar is extended, that a portion of said slide is moved into position opposite the projection 7, and, when the traverse-bar is to be contracted, to be raised to clear the projection 67^a, substantially as described.

43. The combination of the frame F, guide-carrier and guide-driver and catch for connecting the same, the blade 80, a plate 83 and projection carried thereby, and a shoulder on the frame F arranged to be engaged by said projection to thereby push out the plate 83 and disconnect the guide-driver from the guide-carrier when the blade 80 is moved inward, substantially as set forth.

44. The combination in a winding-machine with a winding-spindle, a guide carried by a sectional, extensible traverse-bar, and devices for reciprocating the traverse-bar and the guide, and stopping devices to arrest the winding, of devices for extending the traverse-bar comprising a lever supported on suitable bearings and susceptible of being rocked to disengage the traverse-bar sections, and moved longitudinally of its bearings to shift the position of the guide-carrying section, a cam to both rock the lever and slide it on its bearings, having a central bearing to support the aforesaid lever when out of engagement with the cam during the winding of a cop-section, a projection to engage said lever to swing it outward from said central bearing, and a spring to shift the lever into active engagement with the cam, and connections between said projection and the stopping devices of the machine whereby the position of the projection is so changed when the winding is stopped that it cannot engage with the lever, to then cause the disengagement and shifting of the traverse-bar section.

45. An extensible traverse-bar for a winding-machine comprising two sections of sheet metal, both adapted to slide in a common channel in a suitable frame, and each formed with ears or guides adapted to a second channel at right angles to the first to prevent upward movement of the sections, one section provided with a socket of dovetail section to receive the thread-guide, and with vertical slots in the face of the section, and the other section fitted with a spring-catch adapted to engage any one of said slots to elongate or shorten the traverse-bar, substantially as described.

46. An extensible traverse-bar for a winding-machine comprising two sections of sheet metal, both adapted to slide in a common channel in a suitable frame, each formed with ears or guides adapted to a second channel at right angles to the first to prevent vertical displacement of the sections, one section adapted to receive a thread-guide of appropriate form and the other adapted to connect with the devices for reciprocating the thread-guide, a spring-catch to join the two sections and attached to one of them, the other being provided, at a plurality of points, with means to engage said catch to elongate or contract the traverse-bar.

47. The combination in a cop-winding machine, of a main frame, rotary shaft 9, guide, cam D actuating the guide and shaft 25 carrying said cam, clutch-wheels upon the shaft 9 and cam-shaft 25, beveled-edge disks on said shafts for actuating movable clutches for engaging the clutch-wheels, levers T T' pivoted to the frame with ends for engaging said disks and with opposed forked extremities, and roll 34, movable between said forked extremities to carry the levers into and out of engagement with the disks, substantially as set forth.

48. The combination of the shafts 9 and 25, the clutch-wheels upon said shafts, each with a movable clutch 13 and beveled-edge disks, 13^x, levers T T', with ends for engaging the disks 13^x, and means for simul-

taneously swinging the said levers into and out of engagement with said disks, substantially as set forth.

49. The combination in a winding-machine, of a main frame, winding-shaft, reciprocating guide, cam for driving the guide, and shaft carrying the cam, clutch-wheels rotatable on said winding-shaft and cam-shaft, clutches carried on and rotatable with the winding-shaft and cam-shaft, levers T T' pivoted to the frame and with extremities adapted to engage the clutches to withdraw them from the clutch-wheels and arrest the rotation of winding-shaft and cam-shaft, and having opposed forked extremities and a pin 34 between said extremities to move both levers coincidently into or out of engagement with their respective clutches, substantially as described.

50. In a machine for winding sectional cops, a winding-spindle, a cam, an extensible traverse-bar reciprocated by the cam, devices for extending the traverse-bar, a thread-guide carried by the traverse-bar and adapted to bear at all times during the winding against the surface of the cop-section being wound, and devices whereby the relative speed of the spindle and thread-guide can be adjusted to regulate the distance between adjacent helices of the material wound.

51. The combination in a winding-machine, with a winding-shaft, and a reciprocating guide, of devices to start and arrest the winding comprising a clutch-wheel rotatable on the winding-shaft, a clutch movable longitudinally on the winding-shaft, and rotatable therewith and having a disk portion with an edge of substantially triangular form, a spring 15 to press the clutch into engagement with its clutch-wheel, and lever with extremity fitted to said triangular edge and so related thereto that when thrown into engagement therewith the clutch is withdrawn from the clutch-wheel, and its rotation arrested by the friction of the lever on the triangular edge of the clutch.

52. The combination with a plurality of winding-machines, and shafts 9 and 25 in each machine to operate its winding mechanism, of shafts N and U operatively connected with the shafts 9 and 25, and a gainer mechanism intermediate the shafts N and U to drive and control the machines through said shafts N and U in the manner substantially as set forth.

53. The combination with the shafts N and U and single gainer mechanism and driving means, of a plurality of winding-machines arranged in pairs opposite each other and having shafts 9 and 25 with gearing whereby all of said shafts are turned from the shafts N and U, substantially as set forth.

54. The combination with a machine-bed, and two rows of winding-machines mounted on said bed each having shafts 9 and 25, of two driving-shafts N and U extending between the opposed rows of machines and connected with the shaft 9 and shaft 25 by bevel-gearing and variable-speed devices interposed between said driving-shafts, whereby the relative speeds of the shaft 9 and shaft 25 may be adjusted, substantially as described.

55. The combination with a plurality of winding-machines mounted on a common bed in opposed rows, of driving-shafts N and U extending between said rows of machines, a shaft 10 connected with the shaft N by suitable gearing, and carrying the driving-pulley *p* and expansible pulley L, a frame *g* carried on the shaft U and free to swing thereon, a pinion 23 carried on the shaft O in suitable bearings in said swinging frame, and pulley L' at the outer end of said shaft connected with the pulley L by the belt *l*, substantially as described.

56. The combination in a winding-machine, of a winding-spindle, a traverse-bar, devices for reciprocating the traverse-bar, and a guide carried by said traverse-bar, consisting of a body of dovetail section, and with the upper extremity adapted to receive the thread.

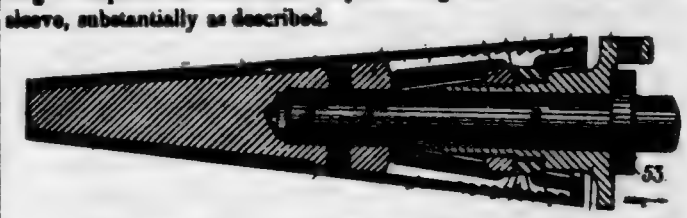
57. The combination in a winding-machine of a winding-spindle, a traverse-bar, and devices for reciprocating the traverse-bar, a guide carried by the traverse-bar, having a lower portion of dovetail section to fit the traverse-bar, a thin upper portion bent outward, and an eye to receive the thread.

58. The combination in a winding-machine, of a winding-spindle, a traverse-bar, and devices for reciprocating the traverse-bar, a guide carried by the traverse-bar having a lower portion fitted to the traverse-bar, a thin upper portion bent outward, an eye to receive the thread, and a lateral opening whereby the thread is introduced into the eye.

690,493. COP-TUBE CARRIER. SIMON W. WARDWELL, Providence, R. I., assignor to Universal Winding Company, Portland, Me., a Corporation of Maine. Filed July 30, 1901. Serial No. 70,252. (No model.)

Claim.—1. The combination in a winding-machine, of a cop-tube carrier, means for expanding the same, and a handled lever connected to operate said means, by a movement of said lever in a plane substantially parallel to the axis of rotation of the cop-tube carrier, substantially as described.

2. The combination with a winding-spindle, of an expansible cop-tube carrier rotated thereby, a sliding sleeve, a ring held longitudinally on the sleeve but free to rotate thereon, and means acting through said ring to expand the tube-carrier by the longitudinal movement of said sleeve, substantially as described.



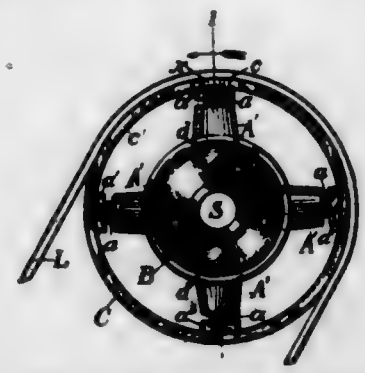
3. The combination in a winding-machine, with a rotary spindle, of an expansible tube-carrier rotated thereby, a sliding sleeve on the spindle having a beveled section, an oppositely-beveled section on the tube-carrier, and a lever pivoted to the frame of the machine to effect the engagement of said beveled surfaces to expand the carrier, substantially as described.

4. The combination in a winding-machine, with a rotary spindle, of a tube-carrier rotated thereby, a cup-shaped cavity at one end of the carrier, a plurality of cuts dividing the shell thereby formed into segments, an annular beveled section on the interior of said cavity, a sleeve extending into the cavity and provided with an oppositely-beveled ring, a flange on said sleeve with a lug, a pin to engage a hole in said lug, and a lever carrying said pin and pivoted to slide said sleeve on the spindle to expand the carrier, substantially as described.

5. The combination with a winding-spindle, of a cop-tube carrier having a shell-formed section, cuts dividing said shell into segments, beveled sections on said segments, a sleeve carrying a beveled ring to engage said beveled sections to expand the segments, and cylindrical surfaces adjacent the beveled sections to be engaged after said expansion to retain the segments in their expanded positions, substantially as described.

6. The combination with a winding-spindle, of a tube-carrier rotated thereby, a shell-formed section of said carrier having expansible segments, a sliding sleeve to expand said segments, and a flange on said sleeve to engage the cop-tube to force it free of the tube-carrier when sleeve is moved to allow the contraction of the segments, substantially as described.

690,494. EXPANSION-PULLEY. SIMON W. WARDWELL, Providence, R. I., assignor to Universal Winding Company, Portland, Me., a Corporation of Maine. Filed July 30, 1901. Serial No. 70,254. (No model.)



Claim.—1. The combination in an expansible pulley, with a sleeve adapted to be fastened on a shaft, of hollow arms radiating from said sleeve, plungers adapted to fit the openings in said arms, a continuous split spring-ring supported by the plungers and fastened to one of them, and means for forcing the plungers radially away from the axis of the pulley to expand the ring, substantially as described.

2. The combination in an expansible pulley, with a sleeve supported by the shaft, of radial arms on said sleeve, plungers fitting bores in said arms, a continuous, elastic, split ring supported by said plungers concentric with the shaft of the pulley, means for forcing the plungers outward to expand the ring, and a device for securing them in position to retain the ring expanded, substantially as described.

3. The combination in an expansible pulley, with a continuous, elastic, split ring having a substantially flat outer surface for receiving the belt, of arms supported by a sleeve on the shaft, plungers adapted to radial holes in the arms and supporting the ring, and a sleeve adjustable longitudinally of the shaft to engage said plungers to force them out to expand the ring, substantially as described.

4. The combination with a continuous, elastic, split ring for a pulley-rim, of an arm-bearing sleeve, plungers adapted to radial holes in the arms, means for connecting the ring to be supported and retained by the plungers, a second sleeve adjustable longitudinally in relation to the first to engage the plungers to vary the diameter of the ring, and means for clamping it in position to retain the ring at the diameter to which it has been adjusted, substantially as described.

5. The combination in an expansible pulley, with a continuous, elastic split ring, of radially-movable plungers supporting the same, a sleeve

A having arms radiating therefrom to guide the plungers, a second sleeve B, longitudinally adjustable in relation to the first, and having a tapered section, to engage the correspondingly-tapered extremities of the plungers to force them out to expand the ring, substantially as described.

6. The combination in an expansible pulley, with a continuous, elastic, split ring, of a sleeve having extending arms and radial bores in said arms, plungers adapted to fit said bores to support the ring, and having beveled inner ends, a second sleeve having a correspondingly-beveled surface, means for adjusting the second sleeve to engage the beveled surfaces to project the plungers to expand the ring, and means for clamping said sleeve in position to retain the ring expanded, substantially as described.

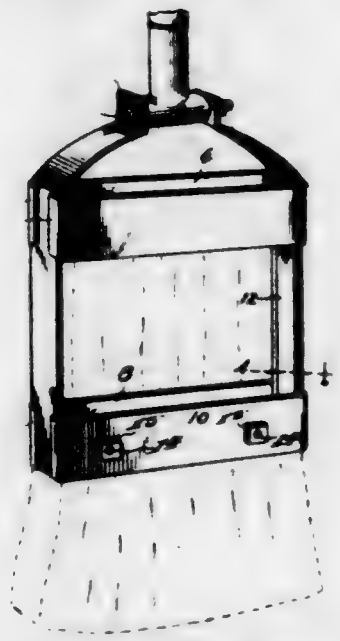
7. The combination in an expansible pulley, of a sleeve adapted to be fastened on a shaft, extending arms on said sleeve, plungers fitting radial bores in the arms, a split ring supported by the plungers concentric with the shaft of the pulley, a tapered sleeve adjustable to engage the plungers to expand the ring, a handle-nut-formed portion of said sleeve, and a screw or screws projecting through said nut portion to engage the first sleeve to clamp the second in position, substantially as described.

8. The combination in an expansible pulley with an arm-supporting sleeve, of plungers projecting from said arms and having flat-sided portions, a split ring supported thereby to receive the belt, with an internal annular groove in said ring, adapted to engage the flat-sided portions of the plungers to retain the ring longitudinally and to prevent said plungers from turning in the arms, and means for forcing the plungers outward to expand the ring, substantially as described.

9. The combination in an expansible pulley, with a split ring, of a sleeve with extending arms, radially-projecting plungers in the arms supporting the ring, and having beveled inner extremities, and a second sleeve having a beveled extreme portion and an externally-threaded section to engage an internally-threaded portion of the first sleeve to adjust the second sleeve longitudinally on the shaft to force the plungers outward by the engagement of the beveled surfaces, substantially as described.

10. The combination in an expansible pulley with a sleeve A, serving as a hub to support the arms, and an internally-threaded portion of said sleeve, of a second sleeve B threaded externally to engage said portion, plungers operating radially in the arms of sleeve A, and having beveled surfaces to engage a corresponding bevel on sleeve B, a split ring supported by said plungers, a handle to operate the plungers consisting of an overhanging portion of sleeve B, and a screw or screws projecting through and protected by said overhanging portion to engage sleeve A to clamp sleeve B in position, substantially as described.

690,495. BROOM-HEAD. JAMES H. WEBB, Ada, Ind. Ter. Filed July 25, 1901. Serial No. 69,717. (No model.)

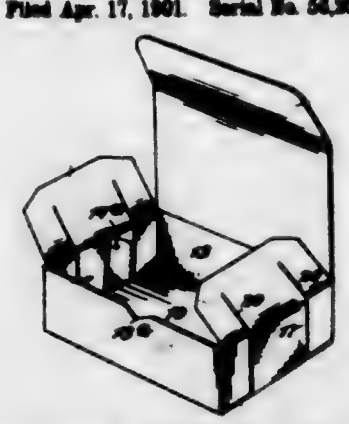


Claim.—1. A broom-head comprising a frame provided at one end with a handle socket, at the opposite end with a clamp and intermediate of its ends with a butt-socket, one member of the clamp being rigidly secured to the head and the other member being detachable therefrom to permit insertion within the head of the substance to be carried thereby, and means for effecting rigid assemblage of the clamp members.

2. A broom-head comprising a frame provided at one end with a handle-socket, at the other end with a two-part clamp and intermediate of its ends with a butt-socket, one member of the clamp being provided with arms to fit within the butt-socket, and means for effecting rigid assemblage of the clamp members.

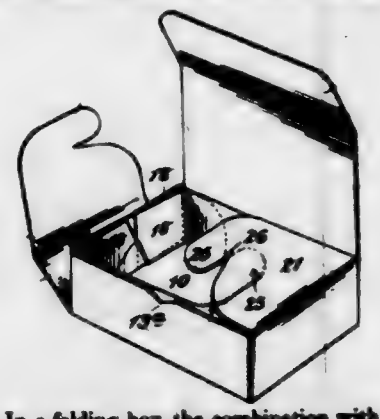
3. A broom-head comprising a frame composed of two parts, an adjustable handle-socket carried by one end of the frame, a butt-socket located adjacent to the handle-socket and holding the two members of the frame assembled, a clamp member carried by the other end of the frame member, a detachable clamp member having arms to project within the butt-socket, and bolts passing through the two-clamp members for holding the same rigidly assembled.

690,496. FOLDING BOX. SAIDA B. WEBB, Whippany, N. J., assignor to Webb Folding Box Company, Newark, N. J., a Corporation of New Jersey. Filed Apr. 17, 1901. Serial No. 56,205. (No model.)



Claim.—As an improved article of manufacture, a folding box comprising a bottom portion, end pieces projecting from two edges of the bottom portion, said end pieces being provided with extension-flaps adapted to fold inward as usual, keepers or straps formed on the end pieces and flap by making slots, which slots extend from the end pieces up into the extension-flaps, side pieces on the two remaining edges of the bottom, and end flaps projecting from the end portions of the side pieces, said flaps being notched and adapted to be tucked through the slots in the end pieces and their extensions and engage with each other so that when engaged they will be bound in place by the aforesaid straps or keepers.

690,497. FOLDING BOX. SAIDA B. WEBB, Whippany, N. J., assignor to Webb Folding Box Company, Newark, N. J., a Corporation of New Jersey. Filed Apr. 17, 1901. Serial No. 56,206. (No model.)

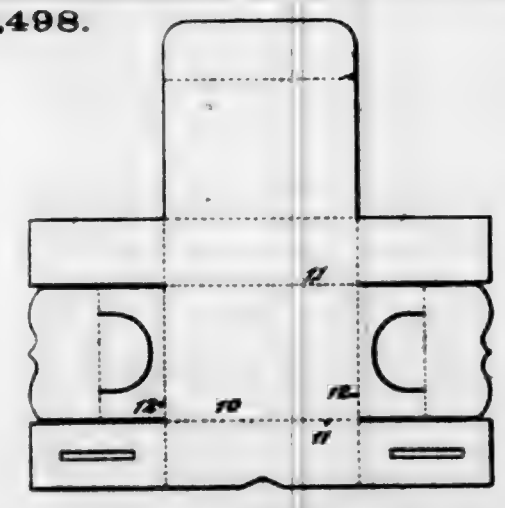


Claim.—In a folding box, the combination with the bottom portion, the side pieces projecting from two opposed edges of the bottom portion and provided with flaps adapted to fold across the box end and engage with each other, of end pieces projecting from the two remaining edges of the bottom and adapted to fold upward against the engaged flaps on the box end, and flaps on the free edges of the end pieces, said flaps being adapted to substantially cover the box and each flap being formed substantially straight on one side, inwardly curved on the opposite side and with a terminal laterally-extending tongue so that when the two flaps are engaged their straight edges will come along opposite sides of the box and the opposed tongues will engage with each other.

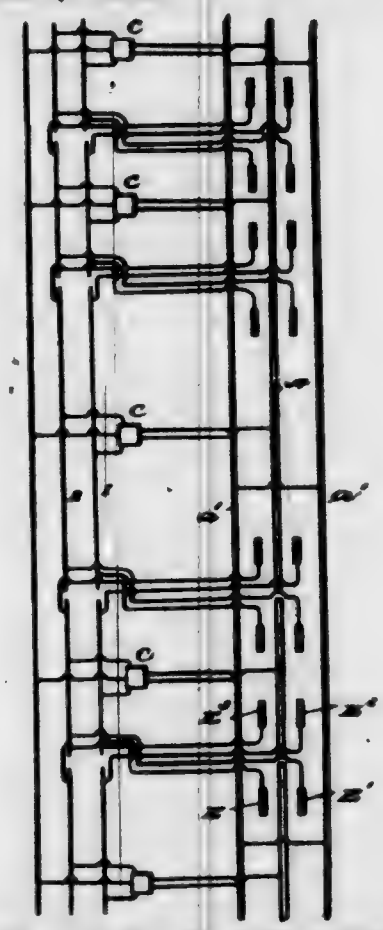
690,498. FOLDING BOX. SAIDA B. WEBB, Whippany, N. J., assignor to Webb Folding Box Company, Newark, N. J., a Corporation of New Jersey. Filed Apr. 17, 1901. Serial No. 56,207. (No model.)

Claim.—As an improved article of manufacture, a folding box comprising a bottom portion, side pieces projecting from two edges of the bottom portion each side piece having end flaps adapted to fold inward and overlap each other in forming the box ends, and one set of end flaps being slotted longitudinally so that when set up the slots will extend transversely on the box end, and end pieces formed on the two remaining edges of the box-bottom, the said end pieces having extension-flaps adapted to fold inward into the box and tucks or tongues formed by cutting a curved slot in each box end from a line substantially coincident with the top edge of the box, the said tucks being adapted to straddle the top edges of the box ends and to enter the slots in the aforesaid flaps thereby binding the end portions of the box together.

690,498.



690,499. ELECTRIC-RAILWAY SYSTEM. HARLAN P. WELLMAN, Ashland, Ky., assignor to the General Electric Company, a Corporation of New York. Filed Oct. 9, 1900. Renewed June 18, 1901. Serial No. 20,764. (No model.)



Claim.—1. The combination with a motor-car having an auxiliary current-generator, and two contact-brushes in circuit therewith, of an automatic two-point switch controlled by the direction in which the car is moving, whereby the current can be cut into either one of said brushes, as and for the purpose set forth.

2. The combination with a motor-car having an auxiliary current-generator, and a conductor composed of a series of disconnected sections, of contacts carried by said car for closing the circuits, and an automatic switch carried by said car and controlled by the direction in which the car is moving, whereby the current can be cut into either one of said contacts, as and for the purpose stated.

3. The combination with a motor-car having an auxiliary current-generator and two contact-brushes capable of being thrown in circuit therewith, of an automatic two-point switch intermediate said brushes and said generator, and connections between said switch and a rotary member of said car, whereby said switch will be controlled by the direction of travel of said car, substantially as set forth.

4. The combination with a motor-car having an auxiliary current-generator, and two contact-brushes in circuit therewith, of an automatic two-point switch comprising a shaft, a switch-arm for engaging either one of two contacts, spring-pressed disks on said shaft and a wheel engaged by a belt driven by the car-axle, substantially as set forth.

5. The combination with a sectional conductor, a feed-in switch, connection between the latter and said conductor, and terminal plates also in circuit with said feed-in switch, of a motor-car carrying a motor, a brush or brushes in circuit therewith designed to have sliding contact with said sectional conductor, brushes for engaging said terminals, a storage battery, connections between the latter and said latter brushes, and a two-point switch for controlling the current to one of said brushes at a time, substantially as set forth.

6. An electric-railway system comprising a sectional conductor, a feed-in switch adapted to control the admission of current thereto, uninsulated wires paralleling said sectional conductor, means for electrically charging said wires, whereby said switches may be operated, and a circuit-closing device adapted to cut the current into said uninsulated wires in the event of their not being charged by said means, substantially as set forth.

7. An electric-railway system comprising a sectional conductor, a feed-in switch adapted to control the admission of current thereto, a main supply-wire, uninsulated wires paralleling said former wire and said sectional conductor, means for electrically charging said wires, whereby said switches may be operated, and a circuit-closing device adapted to cut the current into said uninsulated wires in the event of their not being charged by said means, substantially as set forth.

8. An electric-railway system comprising a sectional conductor, a feed-in switch adapted to control the admission of current thereto, a continuous main supply-wire, uninsulated sectional wires paralleling said sectional conductor and corresponding in length thereto, means for electrically charging one of said wires before a car reaches said section and charging a second wire after the car leaves the latter, whereby said conductor-section will be cut in and out out of circuit, and a circuit-closing device adapted to cut the current into said uninsulated wires in the event of their not being charged by said means, substantially as set forth.

9. An electric-railway system comprising a sectional conductor, uninsulated sectional wires corresponding thereto, means for electrically charging said wires, a circuit-closing device adapted to cut the current into said uninsulated wires in the event of their not being charged by said means, magnets in circuit with said wires, a feed-in wire adapted to supply said sectional conductor with electricity, said feed-in wire having contact-plates, and a pivoted armature controlled by said magnets and adapted to close the circuit between said contact-plates, substantially as set forth.

10. An electric-railway system comprising a conductor composed of a series of disconnected sections, means for charging each section, and a motor-car, or the like, movable adjacent to said conductor and carrying contacts for automatically closing the circuits, whereby the current can be cut into and out of each section, and a device carried by said car adapted to effect the closing of said circuits in the event of failure of said contacts, said device being normally disengaged from the conductor-sections.

11. An electric-railway system comprising a conductor composed of a series of disconnected sections, means for charging said sections successively and cutting out each section after charging the next forward section, and a motor-car, or the like, movable adjacent to said conductor and carrying contacts for automatically closing the circuits, whereby the current can be cut into one section at a time and cut out therefrom after the next section is charged, and a device independent of said contacts for automatically closing the circuits, said device being adapted to effect the closing of said circuits in the event of failure of said contacts, substantially as set forth.

12. An electric-railway system comprising a sectional conductor between the track-rails, a feed-in switch for each conductor-section, a main supply-wire, uninsulated sectional wires paralleling each conductor-section and having contact-terminals also between said track-rails, said sectional wires being connected to said feed-in switch, means carried by a car movable on said track-rails for charging said sectional wires upon coöperating with said terminals, whereby said feed-in switch will be operated to cut in and cut out the electric current to said sectional conductor, and a circuit-closing device adapted to cut the current into said uninsulated wires in the event of their not being charged by said means, substantially as set forth.

13. An electric-railway system comprising a sectional conductor, a main supply-wire, uninsulated sectional wires corresponding to each conductor-section having terminals adjacent to the ends of each conductor-section, a feed-in switch for each conductor-section to which said sectional wires are connected, said feed-in switch being connected to said conductor-section, and a car having a motor, a contact brush or brushes for engaging said sectional conductor, electrically-charged contact-brushes for engaging said terminals, and an electrically-charged contact device adapted to cut the current into said uninsulated wires in the event of their not being charged by said brushes and said terminals, substantially as set forth.

14. An electric-railway system comprising a sectional conductor, a main supply-wire, uninsulated sectional wires corresponding to each conductor-section having terminals adjacent to the ends of each conductor-section, a feed-in switch for each conductor-section to which said sectional wires are connected, said feed-in switch being connected to said conduc-

tor-section, and a car having a storage battery one pole of which is in constant circuit with a brush carried by said car and designed to have sliding contact with one of said terminals of the sectional wires, a brush carried by said car having sliding contact with said conductor-section and in circuit with a motor on said car, and a contact device also in circuit with said battery and adapted to cut the current into said uninsulated wires in the event of their not being charged by said brushes and said terminals, substantially as set forth.

15. An electric-railway system comprising a sectional conductor located in juxtaposition to the track-rails and in parallelism therewith, a feed-in switch for each conductor-section, uninsulated sectional wires corresponding to said conductor-sections in circuit with said feed-in switch, terminal plates for said sectional wires also in juxtaposition to said track-rails, a car having a storage battery, a brush or brushes for engaging said terminals and operating said feed-in switch, a brush for contacting with said conductor-section, a motor in circuit with said brush, and a contact device adapted to cut the current into said uninsulated wires in the event of their not being charged by said contact brushes and terminals, substantially as set forth.

16. An electric-railway system comprising a conductor composed of a series of disconnected sections mounted between the rails of a track, a feed-in switch, a main supply-wire, uninsulated sectional wires paralleling said sectional conductors and connected to said switch, said sectional wires having terminal contact-plates adjacent to said conductor, and a motor-car carrying electrically-charged brushes for engaging said terminals and closing a circuit for charging the sections of said conductor in their order, and an electrically-charged contact device adapted to cut the current into said uninsulated wires in the event of the circuit not being closed by said brushes and said terminals, substantially as set forth.

17. The combination with a sectional conductor, and wires paralleling the same, of a motor-car carrying brushes and a storage battery in circuit with one of said brushes, another of said brushes being in circuit with the motor and engaging said conductor, a portable device designed to be placed in engagement with one of said wires, and a wire leading therefrom to said storage battery, substantially as set forth.

18. The feed-in switch having two magnets, an armature carrying a circuit-closer, the pivot-point of said armature being on a line below and centrally between said magnets, and the feed-in wire having contact-plates designed to be engaged by said circuit-closer, said armature being adapted to swing below and not contact with either of said magnets, substantially as and for the purpose set forth.

19. The combination with a sectional conductor, of the main supply-wire, the sectional wires paralleling the same, a feed-in switch located centrally of these conductor-sections and to which said sectional wires are connected, the feed-in wire having contact-plates and leading from said feed-in switch to said conductor-sections, said feed-in switch having two spaced-apart magnets, and an armature pivotally mounted below and centrally between said magnets and carrying a circuit-closer for engaging said contact-plates, said armature being adapted to swing beneath and not contact with either of said magnets, substantially as set forth.

20. The feed-in switch herein described comprising two magnets each curved at one end, an armature pivoted below said magnets and having its upper end heavier than its lower end and curved on the same radius as said magnets, and pins for limiting the movement of said armature, substantially as set forth.

21. The feed-in switch herein described comprising two magnets having their cores curved and elongated at their lower ends, means for operating said magnets successively, a feed-in wire adjacent to said magnets having contact-plates, and a pivotally-mounted armature curved at its upper end on the same radius with the ends of said cores but not contacting therewith, and a circuit-closer carried by said armature designed to engage said contact-plates, substantially as set forth.

22. In an electric railway, the combination with the feeder, of power-conductor sections, current-collecting means, means coöperating with the current-collecting means for energizing said sections as the car progresses, and means independent of the current-collecting means for energizing said sections when said coöperating means is inoperative.

23. In an electric railway, the combination with the feeder, of power-conductor sections, means along the way coöperating with current-collecting means on the car for energizing said sections as the car progresses, and an independent contact device on the car coöperating with said means along the way, for energizing said sections when said means on the car is inoperative.

24. In an electric railway, the combination with the feeder, of power-conductor sections, electromagnetically-operated switches for connecting the latter with the former, traveling contacts carried by the car for collecting current from the power-conductor and energizing said switches, and an independent contact carried by the car and adapted to make contact with a conductor-section to energize said switches independently of said traveling contacts.

25. In an electric railway, the combination with the feeder, of power-conductor sections, electromagnetically-operated switches for connecting the latter with the former, road-conductors through which the switches are energized, means carried by the car for engaging the power and road conductors, and an independent contact carried by the car and adapted to engage a road-conductor to energize said switches when said means is inoperative.

26. In an electric railway, the combination with the feeder, of power-conductor sections, electromagnetically-operated switches for connecting the latter with the former, road-conductors through which the switches are energized, current-collecting means carried by the car for engaging the power and road conductors, a storage battery on the car, and a contact on the car connected with the battery, and independent of said collecting means, for energizing said switches when they cannot be energized through the road-conductors.

27. In an electric railway, the combination with the feeder, of power-conductor sections, electromagnetic switches for connecting the latter with the former, an independent source of current, a collector carried by the car, and an independent contact device carried by the car, connected with the source, and adapted to make contact outside of the car to complete energizing-circuits for the switches.

28. In an electric railway, the combination, with the feeder, of a sectional power-conductor, switches connecting each of the latter with the former, electromagnets for opening and closing said switches, means for energizing said magnets when the car is moving in one direction, independent means for energizing the magnets when the car is moving in the opposite direction, only one of which means is operative at one time, and means whereby one or the other of said means is automatically made operative, according to the direction in which the car is moving.

29. In an electric railway, the combination with the feeder, of a sectional power-conductor, switches for connecting the sections thereof with the feeder, electromagnets for opening and closing said switches, means for energizing said magnets when the car is moving in one direction, means for energizing the magnets when the car is moving in the opposite direction, and a switch operated from the car-axle, to make said means operative as the car moves in one direction or the other.

30. In an electric railway, the combination with the feeder, of a sectional power-conductor, switches for connecting the sections of said conductor with the feeder, electromagnets for opening and closing said switches, road-contacts connected with said magnets, a contact carried by the car for engaging with road-contacts to complete a circuit and operate the switches when the car is moving in one direction, a second contact on the car for engaging with road-contacts to complete a circuit and operate the switches when the car is moving in the opposite direction, and means for preventing the closing and opening magnets from being energized simultaneously.

31. In an electric railway, the combination with the feeder, of a sectional power-conductor, a collector on the car for engaging said conductor, a switch adapted to connect a section of said conductor with the feeder, an electromagnet adapted to close the switch, an electromagnet adapted to open the switch, means operating when the car is moved in one direction, for energizing the first magnet before the conductor-section controlled by the switch is engaged by the collector and for energizing the second magnet after the collector has left said section, independent means operating when the car is moved in the opposite direction, for energizing the first magnet before the conductor-section is engaged by the collector and for energizing the second magnet after the collector has left said section, and automatically-controlled means for causing one of said means to be operative when the car is moving in one direction, and for causing the other of said means to be operative when the car is moving in the opposite direction.

32. In an electric railway, the combination with the feeder, of power-conductor sections, switches for connecting the latter with the former, electromagnets for closing said switches, electromagnets for opening said switches, means whereby each of the former magnets is energized just before a car enters upon the section which such magnet controls, means whereby each of the latter magnets is energized just after the car has departed from the section which said magnet controls, and means for making one of said means operative in each direction of travel of the car.

33. An electric switch which comprises a magnet-armature serving as a circuit-closer, said armature being pivoted at its lower end and concentrically curved at its upper end, and an electromagnet conforming with the curvature of the armature and arranged to pull the same over the center of gravity.

34. An electric switch which comprises a magnet-armature serving as a circuit-closer, said armature being pivoted at its lower end and concentrically curved at its upper end, and electromagnets each conforming with the curvature of the armature and arranged to pull the same in opposite directions over the center of gravity.

35. In an electric railway, the combination with the feeder, of conductor-sections located in the roadway, switches for connecting the conductor-sections with the feeder, electromagnets for actuating the switches,

and overhead sectional conductors by which the circuits to said electromagnets are established.

36. In an electric railway, the combination with the feeder, of a sectional power-conductor, electromagnetic switches for connecting the sections of the latter with the feeder, and a switch for energizing said magnets, which is controlled by the direction of motion of the car.

37. In an electric railway, the combination with the feeder, of a sectional power-conductor, switches for connecting the sections thereof with the feeder, an electromagnet for closing the switch, an electromagnet for opening the switch, and a switch controlled by the movement of the car for energizing the magnets alternately which control one switch.

38. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches, collectors carried by the car for engaging said conductor-sections, and a branch from each magnet-circuit which branch includes a contact along the roadway which is independent of said conductor-sections, at which contact a circuit can be completed to include an independent source of current with the switch-magnet.

39. In a contact system for electric railways having sectional conductors, the combination with a station-generator and a current feeder or main extending therefrom over the route, of switching-magnets, circuit connections for operatively connecting said current feeder or main with certain sectional conductors, an independent source of current, and a manually-operated contact connected with said source and adapted to make contact with certain other sectional conductors, to complete circuits through the switching-magnets.

40. In a contact system for electric railways having sectional conductors, the combination with a main or feeder, of switching-magnets and circuit connections for operatively connecting said feeder with the sectional conductors, and a manually-operated device making contact at a point along the line of way, to close a circuit through a switching-magnet, and thereby connect the feeder with a sectional conductor.

41. A contact system for electric railways having sectional rails or conductors arranged in the road-bed, a station-generator and a current feeder or main extending therefrom over the route, switching-magnets, and circuit connections for operatively connecting said current feeder or main with the sectional rails or conductors, in combination with an exposed conductor so arranged that circuit may be effected from an independent source of current to and through a switching-magnet.

42. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches, the coils of which are energized successively as the car progresses, to close the switch connecting the feeder with the sections; an independent source of current connected to the track through the car-wheels, and exposed contacts connected to the circuits of the switch-magnets, whereby the circuits can be established from said independent source through the switch-magnet.

43. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches supplied in normal operation with current suitable for connecting the feeder-sections with the feeder, and a circuit-closing device or switch manually operative along the way to cause the feeder to be connected with a conductor-section.

44. In an electric railway, the combination with the feeder and return, of power-conductor sections, electromagnetic switches for connecting the latter with the feeder, a collecter, means for closing said switches while sufficient current is flowing through the collector, and the following means adapted to be utilized when said means is inoperative, which consists of an auxiliary source of current on the car, a conductor along the way connected with the switch-coils, and a contact carried by the car connected with said source and adapted to engage with said conductor along the way.

45. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches for connecting the latter with the former, and a circuit including an independent source of current and the switch-magnet, in which circuit is an exposed contact outside the car, at which contact the circuit can be completed.

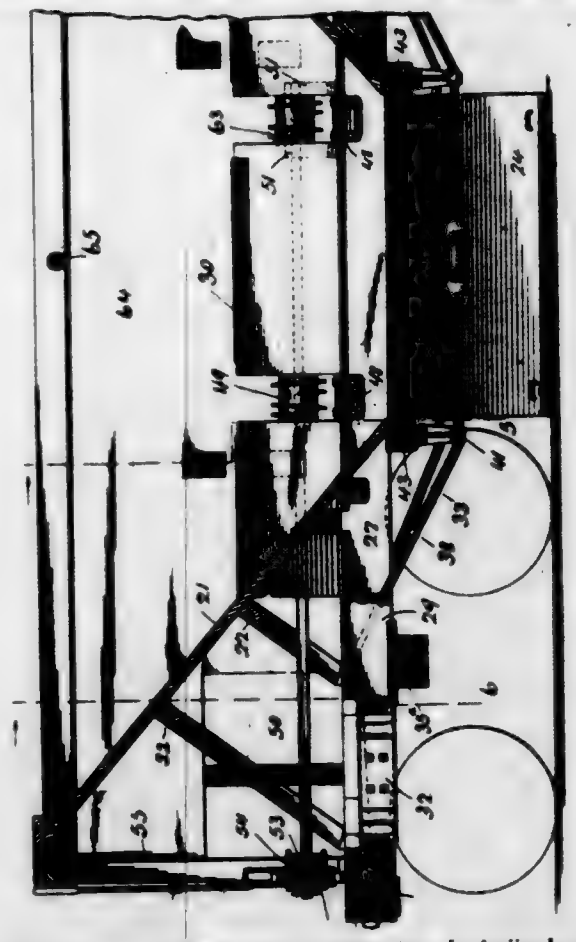
690,500. **RETURN-ENVELOP.** TIMOTHY C. WEST, Richmond, Va. Filed Apr. 4, 1901. Serial No. 54,277. (No model.)



Claim.—A return-envelop comprising a body portion consisting of back and front pieces, one of which is provided with straight, narrow side wings, and each of which is provided at its outer end with a sealing-flap, the wings on one body portion being turned inwardly, and secured by adhesive directly to the other body portion, the sealing-flap on the body portion not provided with side wings being turned inward, and inclosed in the envelop, but being unattached to the wings or the other body portion, said flaps being both provided with adhesive on their inner sides

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690,501. **DUMP-CAR.** HENRY C. WILLIAMSON and HERMAN PRIES, Michigan City, Ind. Filed June 7, 1901. Serial No. 63,585. (No model.)



Claim.—1. In a dump-car, in combination, the inclined end floors, a door-closed opening in the bottom of the car, and side walls inclined upwardly and inwardly.

2. In a dump-car, in combination, the inclined end floors, a door-closed opening in the bottom of the car, and side walls of the car bowed outwardly and inclined upwardly and inwardly.

3. In a dump-car, in combination, a car-body having door-closed bottom discharge-openings, means for controlling the doors, central sills against which the doors close, a queen-post secured to the sills beyond the ends of the openings, and truss-rods passing under the queen-posts and bowed inwardly.

4. In a dump-car, in combination, a car-body having a bottom discharge-opening, central sills passing through the center of the opening, hinged doors closing against the sills, a queen-post secured to the sills beyond each end of the opening, a pair of truss-rods passing over the queen-posts and bowed inwardly so as to clear the discharge-opening, and side truss-rods bowed outwardly around the outer sides of the discharge-opening.

5. In a dump-car, in combination, a car-body having door-closed bottom discharge-openings, means for controlling the doors, central sills against which the doors close, a pair of queen-posts secured to the sills beyond the end of each of the openings, and truss-rods passing under the queen-posts and bowed inwardly, each of the said pairs of queen-posts being connected by a bar.

6. In a dump-car, in combination, a car-body having door-closed bottom discharge-openings, means for controlling the doors, a plurality of central sills arranged in close order and against which the doors close, a pair of queen-posts comprising a rectangular frame secured to the sills beyond the end of each of the discharge-openings, truss-rods passing under the queen-posts and bowed inwardly, and side truss-rods bowed outwardly around the outer ends of the discharge-openings.

7. In a dump-car, in combination with a car-body, the inclined end floors providing a discharge-opening in the bottom of the car, a door for closing the opening, the car having an aperture in its side over the discharge-hopper, and an upwardly and outwardly inclined plate partially closing said aperture.

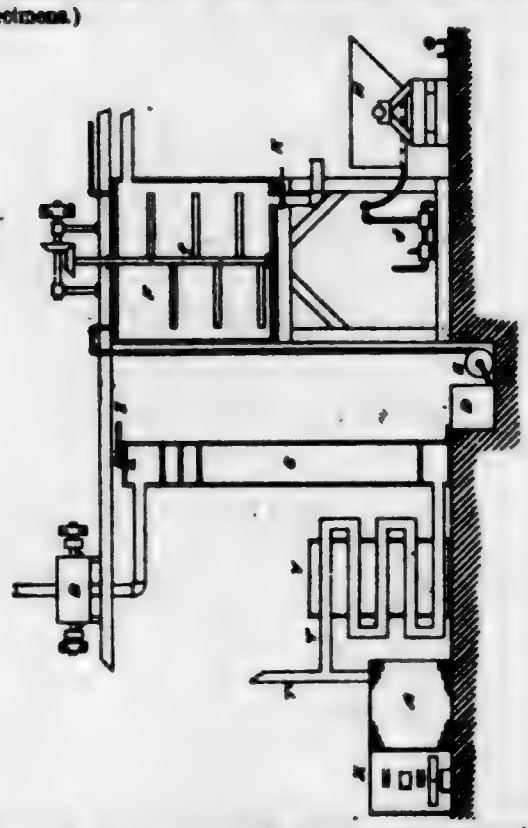
8. In a dump-car, in combination, a car-body having door-closed bottom openings, central sills against which the doors close, the sides of

the car-body having apertures over the discharge-hopper, and an upwardly and outwardly inclined plate partially closing each of said apertures.

9. A dump-car provided with a door-closed opening in the bottom thereof, and having at least one pair of its opposite walls inclined upwardly and inwardly.

10. A dump-car provided with a door-closed opening in the bottom thereof, and having at least one pair of its opposite walls bowed outwardly.

690,502. METHOD OF MAKING HYDROGEN SULFID. HERBERT H. WING, Buffalo, N. Y. Filed Apr. 5, 1900. Serial No. 11,765. (No specimens.)



Claim.—1. The herein-described process of obtaining sulfureted-hydrogen gas and a by-product which consists in bringing a solution containing available sulfurous acid into contact with a carbonate of any of the alkaline-earth metals, whereby such carbonate is converted into sulfite and carbonic-acid gas is given off; collecting the carbonic-acid gas; passing such carbonic-acid gas into contact with a sulfid of one of said metals in the presence of water, whereby a concentrated sulfureted-hydrogen gas is evolved and said sulfid is converted into a carbonate; and collecting said sulfureted-hydrogen gas; substantially as described.

2. The herein-described process of obtaining sulfureted-hydrogen gas and a by-product which consists in bringing a solution containing available sulfurous acid into contact with a carbonate of any of the alkaline-earth metals, whereby such carbonate is converted into sulfite and carbonic-acid gas is given off; collecting the carbonic-acid gas; passing such concentrated carbonic-acid gas mixed with gases containing a smaller percentage of carbonic-acid gas into contact with a sulfid of one of said metals in the presence of water, whereby a concentrated sulfureted-hydrogen gas is evolved and said sulfid is converted into a carbonate; and collecting said sulfureted-hydrogen gas; substantially as described.

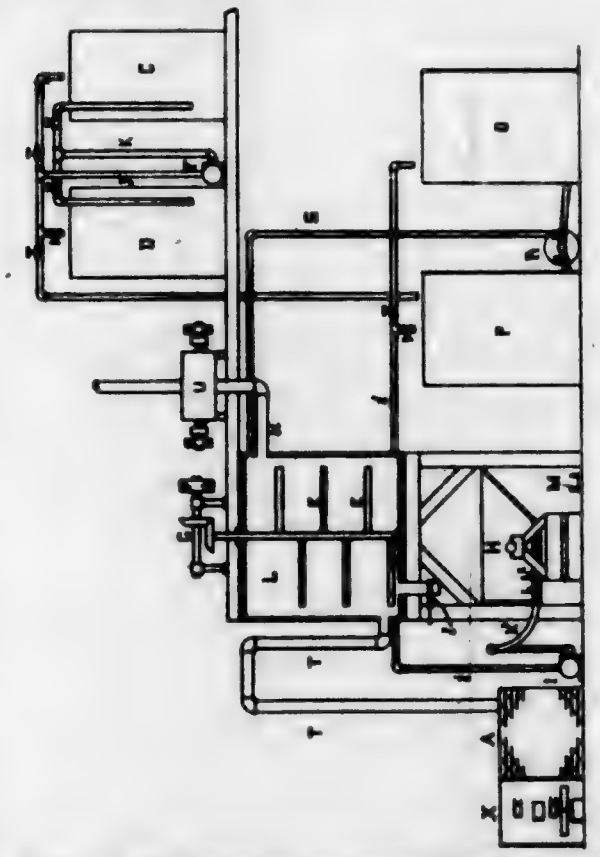
3. The herein-described process of obtaining sulfureted-hydrogen gas and by-products which consists in bringing a solution containing available sulfurous acid into contact with a carbonate of any of the alkaline-earth metals, whereby such carbonate is converted into sulfite and carbonic-acid gas is given off and collected; separating the sulfite from the liquor and converting the same into a sulfid; passing carbonic-acid gas into contact with a sulfid of one of said metals in the presence of water, whereby a concentrated sulfureted-hydrogen gas is evolved and said sulfid is converted into a carbonate; and collecting said sulfureted-hydrogen gas, substantially as described.

4. The herein-described process of obtaining sulfureted-hydrogen gas (and by-products) which consists in bringing a solution containing available sulfurous acid into contact with a carbonate of any of the alkaline-earth metals, whereby such carbonate is converted into sulfite and carbonic-acid gas is given off and collected; separating the sulfite from the liquor and converting the same into a sulfid; passing such concentrated carbonic-acid gas mixed with gases containing a smaller percentage of carbonic-acid gas into contact with the sulfid of one of said metals in the presence of water, whereby a concentrated sulfureted-hydrogen gas is evolved and said sulfid is converted into a carbonate; and collecting said sulfureted-hydrogen gas; substantially as described.

5. The herein-described process of obtaining sulfureted-hydrogen gas and a by-product which consists in bringing a solution containing available sulfurous acid into contact with a carbonate of any of the alkaline-earth metals, whereby such carbonate is converted into sulfite and carbonic-acid gas is given off; collecting the carbonic-acid gas; passing such carbonic-acid gas into contact with a sulfid of one of said metals in the presence of water, whereby a concentrated sulfureted-hydrogen gas is evolved and said sulfid is converted into a carbonate; collecting said sulfureted-hydrogen gas; and separating said carbonate from the liquor in which it was produced, substantially as described.

6. The herein-described process of obtaining sulfureted-hydrogen gas which consists in bringing a solution containing available sulfurous acid into contact with a carbonate of any of the alkaline-earth metals, whereby such carbonate is converted into sulfite and carbonic-acid gas is given off and collected; separating said sulfite from the liquor and heating it with a reducing agent, whereby the sulfite is converted into a sulfid; passing carbonic-acid gas into contact with a sulfid of one of said metals in the presence of water, whereby a concentrated sulfureted-hydrogen gas is evolved and said sulfid is converted into a carbonate; and collecting said sulfureted-hydrogen gas, substantially as described.

690,508. PROCESS OF MAKING MAGNESIUM SULFITE. HERBERT H. WING, New Brighton, N. Y. Filed May 13, 1901. Serial No. 59,923. (No specimens.)



Claim.—1. The herein-described process of producing magnesium sulfite and a by-product which consists in subjecting any compound of magnesium decomposable by sulfur dioxid in the presence of moisture, to the action of fumes containing sulfur dioxid and air, whereby the sulfite and sulfate of magnesium are produced, then separating the insoluble magnesium sulfite from the liquor in which it was produced, and then crystallizing the magnesium sulfate from said liquor.

2. The herein-described process of producing magnesium sulfite and a by-product which consists in subjecting any compound of magnesium decomposable by sulfur dioxid in the presence of moisture, to the action of fumes containing sulfur dioxid and air, whereby the sulfite and sulfate of magnesium are produced, then separating the insoluble magnesium sulfite from the liquor in which it was produced, then adding calcium chlorid to the magnesium sulfate whereby magnesium chlorid and calcium sulfate are produced, then separating the insoluble by-product calcium sulfate from the liquor in which it was produced, then adding calcium hydrate to the magnesium chlorid which remained in solution in said liquor whereby magnesium hydrate and calcium chlorid are produced.

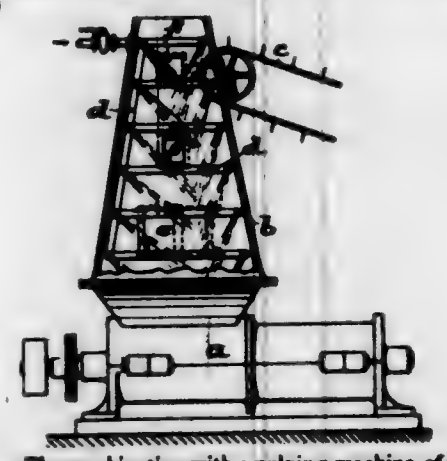
3. The herein-described process of producing magnesium sulfite and two by-products which consists in subjecting any compound of magnesium decomposable by sulfur dioxid in the presence of moisture, to the action of fumes containing sulfur dioxid and air whereby the sulfite and sulfate of magnesium are produced, then separating the insoluble magnesium sulfite from the liquor in which it was produced, then adding calcium chlorid to the magnesium sulfate whereby magnesium chlorid and the by-product, calcium sulfate, are produced, then separating the insoluble calcium sulfate

from the liquor in which it was produced, then adding calcium hydrate to the magnesium chlorid which remained in solution in said liquor whereby calcium chlorid and the by-product, magnesium hydrate, are produced, then separating the insoluble magnesium hydrate from the liquor in which it was produced.

4. The herein-described process of producing magnesium sulfite and two by-products which consists in subjecting any compound of magnesium decomposable by sulfur dioxid in the presence of moisture, to the action of fumes containing sulfur dioxid and air, whereby the sulfite and sulfate of magnesium are produced, then separating the insoluble magnesium sulfite from the liquor in which it was produced, then adding calcium chlorid to the magnesium sulfate whereby magnesium chlorid and a by-product, calcium sulfate are produced, then separating the insoluble calcium sulfate from the liquor in which it was produced, then adding dolomite lime to the magnesium chlorid which remained in solution, whereby calcium chlorid and the by-product magnesium hydrate are produced, then separating the insoluble magnesium hydrate from the liquor in which it was produced.

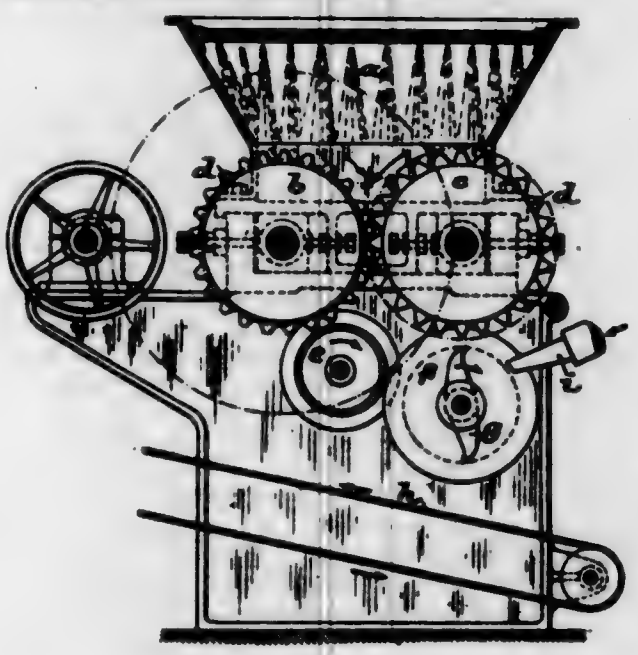
5. The herein-described process of producing magnesium sulfite and by-products which consists in subjecting magnesium hydrate to the action of fumes containing sulfur dioxid and air, whereby the sulfite and sulfate of magnesium are produced, then separating the insoluble magnesium sulfite from the liquor in which it was produced, then adding calcium chlorid to the magnesium sulfate whereby magnesium chlorid and the by-product calcium sulfate are produced, then separating the insoluble calcium sulfate from the liquor in which it was produced, then adding dolomite lime to the magnesium chlorid which remained in solution in said liquor, whereby calcium chlorid and the by-product, magnesium hydrate are produced, then separating the insoluble magnesium hydrate from the liquor in which it was produced.

690,504. **HOPPER FOR REFINING-ENGINES.** CASHIER WURSTER, London, England. Filed May 25, 1901. Serial No. 61,848. (No model.)



Claim.—The combination with a pulping-machine, of a hopper therefor, said hopper being in the form of an inverted cone or pyramid, means for feeding material to said hopper, and spraying-pipes arranged in said hopper for moistening the material fed to the same.

690,505. **MACHINE FOR TEARING UP PAPER, PAPER-PULP, AND PAPER-STOCK.** CASHIER WURSTER, London, England. Filed May 25, 1901. Serial No. 61,847. (No model.)



Claim.—1. The combination with a pair of toothed feeding and compressing rollers, of a circumferentially-fluted roller, and a set of saws cooperating with said circumferentially-fluted roller.

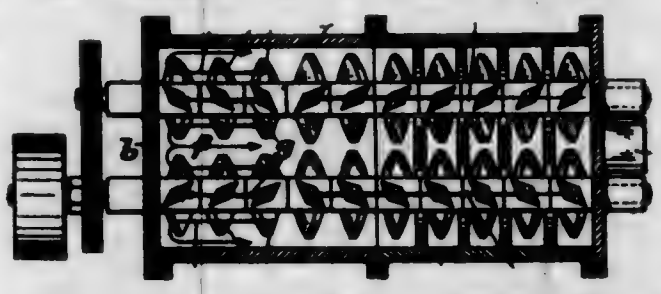
2. The combination with a circumferentially-fluted roller, of a set of saws coöperating with said roller, and a set of rotating hooks arranged between said saws and mounted on the same shaft therewith.

3. The combination with a pair of feeding and compressing rollers, of a circumferentially-fluted roller, a set of saws coöperating with said circumferentially-fluted roller, and a set of revolving hooks arranged between said saws and mounted on the same shaft therewith.

4. The combination with a pair of toothed feeding and compressing rollers, of a circumferentially-fluted roller, a set of saws coöperating with said circumferentially-fluted roller, and a set of revolving hooks arranged between said saws.

5. The combination with a circumferentially-fluted roller, of a set of saws coöperating therewith, a set of revolving hooks arranged between said saws, and means for forcing a fluid under pressure between said saws.

690,506. **PULPING-MACHINE.** CASHIER WURSTER, London, England. Filed Aug. 14, 1901. Serial No. 71,994. (No model.)



Claim.—1. In a pulping-machine, the combination with a trough having a feeding portion and a working portion, of a shaft arranged in said trough, kneading and transporting propellers carried by said shaft in said working portion and arranged to feed the material in one direction, and kneading and transporting propellers carried by said shaft in said feeding portion and arranged to feed the material in the opposite direction.

2. In a pulping-machine, the combination with a trough having a feeding portion and a working portion, an outlet for said working portion, a shaft arranged in said trough, kneading and transporting propellers carried by said shaft in said working portion and arranged to feed the material toward said outlet, and kneading and transporting propellers carried by said shaft in said feeding portion and arranged to feed the material away from said outlet.

3. In a pulping-machine the combination with a trough having an open or feeding portion and a closed or working portion of one or more horizontally-journaled propeller-shafts bearing kneading and transporting propellers arranged to force the material toward the discharge end of the trough in the closed portion and propellers reversely pitched in the open portions, the latter being shorter than the former, substantially as and for the purpose described.

690,507. **FISH-TRAP.** ANTON B. ZANGENBERG, New York, N. Y., assignor to Morris S. Newcorn, New York, N. Y. Filed Sept. 10, 1901. Serial No. 74,934. (No model.)



Claim.—1. A fish-trap comprising a bottom, a top, collapsible standards between said bottom and top and held thereby and a net attached at its lower end to the bottom and movable vertically to inclose the space between the top and bottom, said netting extending continuously about the trap, its vertical plane of movement being adjacent to that of the edges of the top and bottom of the trap, substantially as described.

2. A fish-trap comprising a top and bottom with an open space between, standards pivoted to the edges of the bottom and adapted at their other ends to support the top, a detachable connection between said top and bottom at the center and a collapsible netting encircling said parts with means for operating it, substantially as described.

3. A fish-trap comprising a top and bottom of ring shape, folding standards connecting said top and bottom, a loose ring encircling said standards, a collapsible netting having its edges connected with the ring and to the bottom and draw-cords connected to said loose ring, substantially as described.

4. A fish-trap comprising a top and bottom of circular shape, standards of inverted-U shape having their lower ends pivotally connected to the edges of the bottom and having projections on their upper portions for engaging the meshes of the top, a center rod having its lower end pivotally connected with the bottom and having a hooked upper end detachably engaging the top, a loose ring encircling the standards, a collapsible netting connecting the loose ring with the edge of the bottom and draw-cords connected to said ring, substantially as described.

690,508. **PHOTOGRAPHIC FLASH-LIGHT LAMP.** JNO. L. ZWECK, Chicago, Ill. Filed Apr. 20, 1901. Serial No. 56,693. (No model.)



Claim.—1. In a photographic flash-light lamp, the combination of a burner, a dome-shaped discharge-nozzle having a discharge-slot, a powder-chamber, and means for projecting a blast of air into the chamber to discharge the powder therefrom through the slot, substantially as described.

2. In a photographic flash-light lamp, the combination of an igniting-burner, a powder-receptacle, a dome-shaped nozzle provided with a slot extending diametrically through the apex and terminating in a plane parallel to and above the plane of the igniting-burner, and means for projecting the powder over the igniting-burner to produce a broad and thin flame, substantially as described.

3. In a photographic flash-light lamp, the combination of a powder-chamber, an igniting-burner, a discharge-nozzle having therein a slot cut longitudinally back from the terminal of the nozzle and having an inner face coacting with the slot to spread the powder laterally and vertically, and means for discharging the powder from the chamber through the slot, substantially as described.

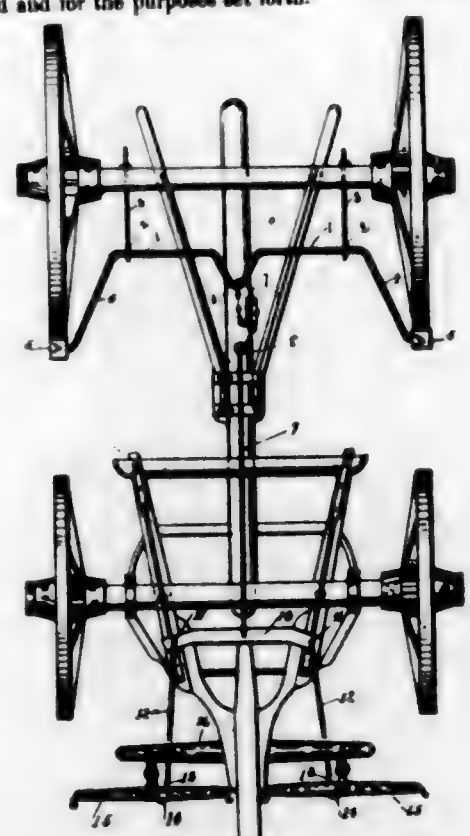
4. In a photographic flash-light lamp, the combination of a base, a sleeve mounted in the base and provided with a cross-wall, an inner tube mounted in the sleeve and forming in connection with the cross-wall a powder-chamber, a discharge-nozzle at the upper end of the inner tube, an igniting-burner carried on an outer tube slidably mounted on the inner tube, and means for discharging the powder, substantially as described.

5. In a photographic flash-light lamp, the combination of a tube forming a receiving-chamber for the powder, a dome-shaped discharge-nozzle at the upper end of the tube having a discharge-slot extending through its apex, a burner encircling the discharge-nozzle and having its upper face at right angles to the plane of the slot and below the terminals thereof, and means for projecting a blast of air into the chamber-tube to discharge the powder therefrom through the slot, substantially as described.

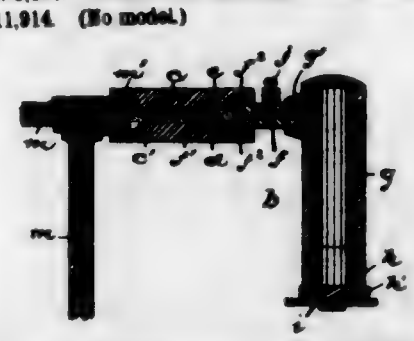
6. In combination with a flash-light lamp, a dome-shaped discharge-nozzle provided with a slot extending diametrically through the apex to the base of the dome, substantially as described.

690,509. **AUTOMATIC WAGON-BRAKE.** THOMAS H. BLACK, De Queen, Ark. Filed Aug. 22, 1901. Serial No. 72,897. (No model.)

Claim.—An automatic gravity wagon-brake, consisting of rods 3, secured to the rear axle of the wagon; a gravity-brake rod 1, provided with a central lever, arms extending from each end of said rod, said gravity-brake rod journaled in the eyes of the last-mentioned rods 3; brake-shoes 5, one secured to each end of the arms, of said brake-rod and adapted to brake the rear wheels of the wagon; a chain adjustably secured to the free end of the lever of said brake-rod; a draw-rod 9, running under the coupling-tongue of the wagon, its rear end secured to the chain 7; a cross-beam 10, running under the hounds of the wagon and pivoted to said draw-rod; rods 12, having their rear ends hooked in perforations, one in each end of said cross-beam; clevis-irons 13, pivotally secured to eyes in the front ends of the last-mentioned rods, said clevis-irons adapted to hook over the singletrees, in such fast relation thereto that when the singletrees are pulled on the wagon becomes unbraked, substantially as shown and described and for the purposes set forth.



690,510. **LUBRICATOR FOR STEAM-ENGINE PISTONS.** JOHN C. BLEVNEY, Newark, N. J. Original application filed Jan. 29, 1900, Serial No. 3,138. Divided and this application filed Apr. 7, 1900. Serial No. 11,914. (No model.)



Claim.—1. The improved automatic oiler herein described, comprising a tubular connection adapted to be tapped into the cylinder of a steam-engine, having at its extremity distant from the engine, a branch *m'*, a union-piece *c*, provided with threads to engage said branch and to receive a threaded follower, said threaded follower arranged in said union-piece and provided with a regulating-screw *j*, at a point between said union and the lubricant-receptacle, and a reversible receptacle for oil arranged upon the end of said follower, said receptacle having open communication, when in connection with the engine, with the steam-chamber of the cylinder, substantially as set forth.

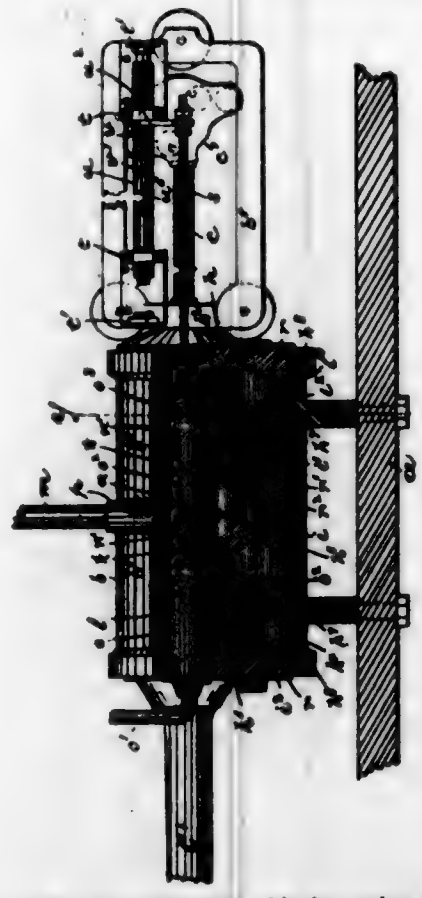
2. The improved automatic oiler herein described comprising an oil-receptacle having at the lower end a cap or plug, and at the upper end a lateral threaded opening adapted to receive a threaded follower, said follower and a stuffing-box, the follower having a tubular extension passing through said stuffing-box, the stuffing-box and follower permitting a pivotal movement of the oil-receptacle, substantially as set forth.

3. The improved automatic oiler herein described comprising a steam-pipe having a threaded branch *m'*, on which is arranged a stuffing-box or packing-union *c*, and a steam-passage *c'*, a longitudinally-open follower having a small end in the passage *c'*, and an enlargement to enter the packing-chamber, the said follower being threaded at its outer end to enter a lateral opening at the top of the receptacle, and said receptacle having said lateral opening and at the bottom a cap or plug, substantially as set forth.

690,511. **ENGINE.** JOHN C. BLEVNEY, Newark, N. J. Original application filed Jan. 29, 1900, Serial No. 3,138. Divided and this application filed Apr. 7, 1900. Serial No. 11,915. (No model.)

Claim.—1. In an engine, the combination with the casting having a main cylinder-chamber for a power-piston, and a valve-chamber paral-

lel with the said main chamber and suitable ports and steam-passages, of a power-piston, and an operating-valve having a valve-rod *s*, working in connection with and operated by a sliding cut-off governor *u*, having a piston therein in connection with the power-piston, substantially as set forth.



2. In an engine, the combination with the casting having therein chambers for a power-piston and an operating-valve and having steam ports and passages, of said power-piston and operating-valve, the latter having a valve-rod adapted to be moved by a sliding governor having pneumatic chambers at its opposite ends, valves or openings connecting said chambers with the outer atmosphere, and a piston reciprocated between said valved chambers by the power-piston, substantially as set forth.

3. In an engine, the combination with the cylinder having a power-piston chamber and power-piston, a valve-chamber and valve therein, ports and steam-passages, of a valve-rod extending from said valve to a cut-off governor and said governor comprising a pneumatic piston and cylinder, the latter having at opposite sides of the piston valves or vents leading into the open air, substantially as set forth.

4. In an engine, the combination with the cylinder, having a power-piston chamber and power-piston, a valve-chamber and valve therein, ports and steam-passages, of a valve-rod extending to and operated by a sliding governor, said sliding governor having air-escape openings at opposite ends, and a longitudinal slot between said ends and having a piston therein in connection with the said power-piston and adapted to operate the same, substantially as set forth.

5. In an engine, the combination with the cylinder having a power-piston chamber and power-piston, a valve-chamber and valve therein, ports and steam-passages, of a valve-rod operated by a sliding governor, said sliding governor having a limited movement between stops *t'*, *t'*, and having air-escape openings at opposite ends and a longitudinal slot, and having therein a piston connected to and working with the main power-piston, substantially as set forth.

6. In an engine, the combination with the cylinder having a power-piston chamber and its power-piston, a valve-chamber parallel with said piston-chamber and communicating therewith, and steam supply and exhaust passages, of a governor for operating said valve by compression of air, said governor being provided with opposite air-chambers in which air may be compressed to effect a movement of said governor and valve-rod, substantially as set forth.

7. In an engine, the combination with the cylinder having a power-piston chamber and its power-piston, a valve-chamber parallel with said piston-chamber, a reciprocating slide-valve in said valve-chamber, ports and steam-passages, of a pneumatic governor having air-chambers adapted to permit the piston when under abnormally high speed to effect an air-compression and a transmission of power due to such compression to said governor, whereby said governor effects an advanced reverse action of the valve, open vents connecting said air-chambers with the atmosphere, and means for regulating said vents, substantially as set forth.

8. In an engine, the combination with the cylinder and power-piston and means for supplying the same with steam, of a valve controlling the supply of steam to said piston, whereby it is operated, and pneumatic chambers having therein a piston u^5, in connection with the power-piston and operated by the latter, said chambers having open communication with the atmosphere at their opposite ends, on opposite sides of the piston, and said piston u^5, being adapted to either expel the air from a chamber through the said open communication with the atmosphere or effect a compression of air in said chamber to cause an operation of the valve, according to its speed, substantially as set forth.

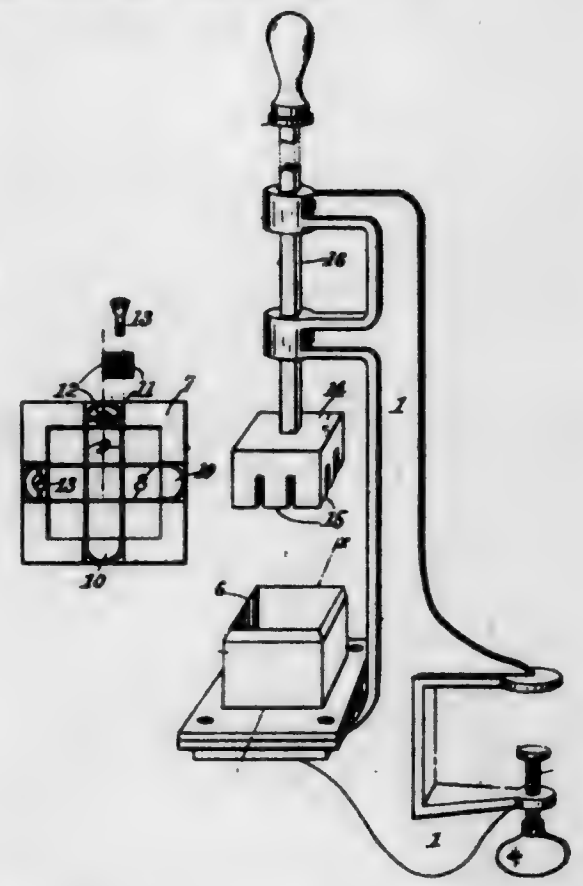
9. In an engine, the combination with the cylinder and power-piston and means for supplying the same with steam or motive fluid, of a valve controlling the supply of steam to said piston, and a governor movable to effect a movement of the valve and having therein air-chambers at opposite ends in open communication with the atmosphere and also having relief-valves u^4, and a piston arranged in said air-chambers and adapted at abnormal speed to temporarily compress entrapped air in said chambers and thus transmit power to the governor-valve, the last said piston being in communication with the power-piston, substantially as set forth.

10. In an engine, the combination with the power cylinder and piston and means operated thereby, of an operating-valve and its governor, and the valve *i*, arranged in chambers parallel with said power-cylinder, said valve *i*, having piston enlargements near its opposite ends adapted to be driven reciprocally by steam introduced thereto at the inner sides, substantially as set forth.

11. In an engine, the combination with the power-cylinder and its piston, of an operating-valve *n*, and its governor, and the valve *i*, interposed between the said operating-valve and the cylinder, said valve *i*, having piston heads or enlargements i', and further enlargements or heads i^2, to cut off the flow of steam, substantially as set forth.

12. In an engine, the combination with the casting having the power-cylinder chamber with ports *h*, *h'*, a valve-cylinder chamber in communication with said power-cylinder chamber through said ports, steam-passages opening into said valve-cylinder chamber near the opposite ends in from the said ports *h*, *h'*, exhaust-ports *r*, at the opposite ends of said valve-cylinder chamber and ports *k*, *k*, near the inner end of the first enlargement of said valve-cylinder chamber, the said valve-cylinder being small at the center, enlarged at h^1, to form a steam-chamber and further enlarged at the outer ends to receive the heads i^2, i^2, and a governing-valve chamber having a live-steam port *p*, and said ports or passages *k*, *k*, opening therein from the valve-cylinder chamber, of a power-piston, a valve *i*, having near and at its opposite ends corresponding enlargements, and a governing or operating valve controlled in its movements by a governor, substantially as set forth.

690,512. VEGETABLE-CUTTER. HORACE BOOS, Cincinnati, Ohio. Filed Feb. 18, 1901. Serial No. 47,751. (No model.)



Claim.—1. A slicing-machine comprising an open-ended box having its upper periphery beveled to a cutting edge, a set of knives beneath

and a plunger formed to fit in the box and push material through the knives in cutting.

2. In a vegetable-slicing machine, in combination with a set of knives and a subdivided plunger coöperating therewith, a hopper having a cutting edge to shape the vegetable as it descends upon the knives.

3. A slicing-machine comprising a shaping-box having a cutting edge on top combined with a removable set of knives in lines crossing at right angles, and a subdivided plunger coöperating therewith.

4. In a slicing-machine the combination of a double set of knives held in a rigid removable frame and being themselves removable in single pairs therefrom, one set being placed at an angle to, and being superposed upon, the other set, a subdivided plunger coöperating with said knives to push the material clear through both sets, and a shaping-box with a cutting edge coöperating with said plunger to shape the material as it is advanced against the knives.

5. A cutter comprising a rigid frame and a band-knife carried in slots in said frame, one of the loops of the band being supported on a split stud composed of a fixed part and a complementary sliding block adjustably held in place partly by a screw with a tapering head, so that by tightening the screw the sliding block may move to tighten the band-knife.

6. The combination with a rigid removable frame carrying several independent sets of knives of rectangular cross-section, the sets being placed in different planes, of a plunger to push material clear through all the knives and a shaping-box with a cutting edge to shape the material as it is advanced by the plunger against the knives.

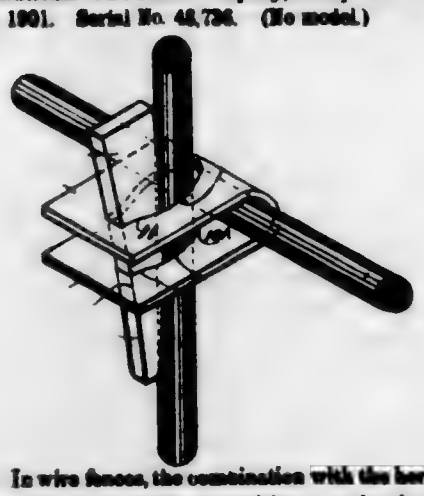
690,513. CRANE FOR HANDLING LUMBER, &c. HENRY BROOKS, Pataskala, Ohio. Filed Apr. 9, 1901. Serial No. 54,978. (No model.)



Claim.—1. In combination with a supporting-standard and a series of sockets thereon, an adjustable hinged crane-arm having a plurality of projecting points on its upper surface, said points being at different distances from the pintle, for the purpose set forth.

2. In combination with a supporting-standard, a hinged crane-arm having a plurality of projecting points on its upper surface, for the purpose of moving lumber, substantially as described.

690,514. WIRE FENCE. CHARLES T. BROWN, Denver, Colo., assignor to the National Wire Fence Company, a Corporation of Colorado. Filed Feb. 25, 1901. Serial No. 48,726. (No model.)



Claim.—1. In wire fences, the combination with the horizontal wires and vertical stay-rod, of a key-clip comprising a yoke-shaped piece of metal having in each of its ends a hole of oval form adapted to receive wire rods of different diameters and narrowing into a slot toward the extremity of the clip, and a thin, tapering key adapted to fit said slot, substantially as described.

2. In a wire fence, the combination with the horizontal wires and a vertical stay-rod of a yoke-shaped clip containing two oval holes through its sides registering with each other and of the same length and adapted to receive stay-rods of different diameter and at their outer ends terminating in a tapering, narrow slot adapted to receive tapering keys of less thickness than the diameter of said stay-rods, substantially as described.

3. In a wire fence, the combination with a horizontal wire, a vertical wire crossing and bearing against said horizontal wire and a thin, tapering key, of a yoke-shaped clip folded to surround at its curved end said horizontal wire and containing through its sides substantially centrally of the length and width of each side a substantially oval-shaped aperture arranged to register with one another and adapted to receive and support said vertical wire in bearing contact against said horizontal wire the ends of said apertures adjacent to the ends of said yoke-shaped clip terminating in a narrow aperture adapted to receive said thin tapering key, whereby wires of different diameters and larger in diameter than the thickness of said key may be locked rigidly together, substantially as described.

4. In a wire fence the combination with the horizontal wire, of a narrow strip bent centrally into a yoke-shaped clip and adapted at its curved end to fit against said horizontal wire, and its ends containing registering oval apertures narrowing near the extremities of said clip into slots of equal length; a thin, flat, tapering key in the narrow portion of said apertures and a vertical stay-rod of larger diameter than the thickness of said key in the oval part of said apertures bearing against said horizontal wire, substantially as described.

5. In a wire fence, the combination of a plurality of horizontal wires and vertical supporting-wires crossing said horizontal wires at suitable intervals apart, with yoke-shaped clips arranged to surround said horizontal wires, having oval apertures opening into keyways at one end, adapted to support said vertical wires; and keys adapted to fit in said keyways and key said vertical wires to said clip and horizontal wires substantially as described.

6. In a wire fence, the combination with the horizontal wire and the stay-rod, of a yoke-shaped clip having a rounded end arranged to fit over and against said horizontal wire and containing through its sides oval-shaped apertures arranged to support said stay-rod in bearing contact against said horizontal wires, said oval-shaped apertures converging into narrow key-receiving apertures and extending to near the ends of the sides of said clip and a curved tapering key fitting into said narrow key-apertures and bearing against said stay-rod centrally between the side members of said clip and in horizontal alinement with the axis of said horizontal wire, substantially as described.

7. In a wire fence, the combination of the horizontal wire and the vertical stay-rod, with the yoke-shaped clip provided with oval apertures in its side members converging into a narrow key-receiving aperture at the ends of said clip and a thin, curved and substantially crescent-shaped tapering key fitting operatively in the narrow key-apertures of said clip and engaging in bearing contact only that portion of said stay-rod that extends between the side members of said clip, substantially as described.

8. In a wire fence, the combination of the horizontal wire, the vertical stay-rod and the supporting-posts, with the yoke-shaped clip having the oval apertures and communicating narrow keyways, and the curved, tapering key, substantially as described.

690,515. AUTOMATIC PRESSURE-REGULATOR. ALPHONSO S. COMSTOCK, Evanston, Ill. Filed Jan. 24, 1901. Serial No. 44,094. (No model.)



Claim.—1. In a pressure-regulator, the combination with a diaphragm exposed to pump-pressure, of a lever actuated by said diaphragm,

an electric switch, a movable support for said switch, an adjustable mounting for said support, and a yielding connection between said lever and said switch-support, substantially as described.

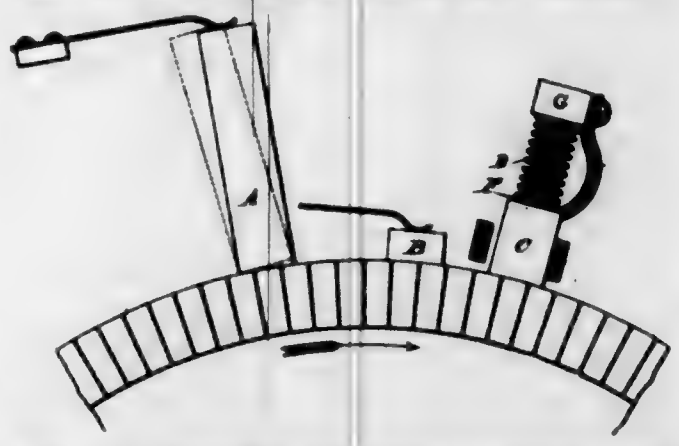
2. In a pressure-regulator, the combination with a diaphragm exposed to pump-pressure, of a lever actuated by said diaphragm, an electric switch, a movable support for said switch, an adjustable mount for said switch-support, a tension-spring attached to said lever and to said switch-support, and means for normally holding said lever against pump-pressure, substantially as described.

3. In a pressure-regulator, the combination with a diaphragm exposed to pump-pressure, of a lever operated by said diaphragm, a supporting-rod, a switch-block mounted upon said supporting-rod, a yoke mounted upon said supporting-rod, a switch-support movably attached to said yoke and carrying a switch adapted to coöperate with electrodes mounted upon said switch-block to open and close an electric circuit, and a yielding connection between said lever and said switch-support, substantially as described.

4. In a pressure-regulator, the combination with a diaphragm exposed to pump-pressure, of a lever operated by said diaphragm, a supporting-rod, a switch-block mounted upon said supporting-rod, a yoke mounted upon said supporting-rod, a switch-support movably attached to said yoke and carrying a switch adapted to coöperate with electrodes mounted upon said switch-block to open and close an electric circuit, a yielding connection between said lever and said switch-support, and a stop to limit the forward movement of said switch, substantially as described.

5. In a pressure-regulator, the combination with a diaphragm-casing containing a diaphragm exposed to pump-pressure, of a lever actuated by the movement of said diaphragm, means for normally holding said lever against pump-pressure, a rod attached to said diaphragm-casing, a switch-block mounted upon said rod, a yoke mounted upon said supporting-rod, a switch-support movably attached to said yoke and carrying a switch adapted to coöperate with electrodes mounted upon said switch-block to open and close an electric circuit, a yielding connection between said lever and said switch-support, and a stop to limit the forward movement of said switch, substantially as described.

690,516. COMMUTATOR-BRUSH. CHARLES G. CURTIS, New York, N. Y. Filed May 12, 1900. Serial No. 16,411. (No model.)



Claim.—1. A commutator-brush composed of a short carbon block, in combination with a holder in which said block is held loosely so as to be unrestrained in following the irregularities of the commutator, and a spring pressing said block against the commutator and permitting freedom of motion of the block, substantially as set forth.

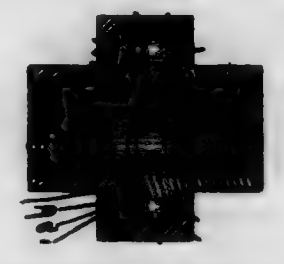
2. A commutator-brush composed of a short carbon block, in combination with a holder in which said block is held loosely so as to be unrestrained in following the irregularities of the commutator, and a spiral spring pressing said block against the commutator and permitting freedom of motion of the block, substantially as set forth.

3. A commutator-brush composed of a short carbon block, in combination with a holder in which said block is held loosely so as to be unrestrained in following the irregularities of the commutator, a spring pressing said block against the commutator and permitting freedom of motion of the block, and a flexible conducting connection between said block and the holder, substantially as set forth.

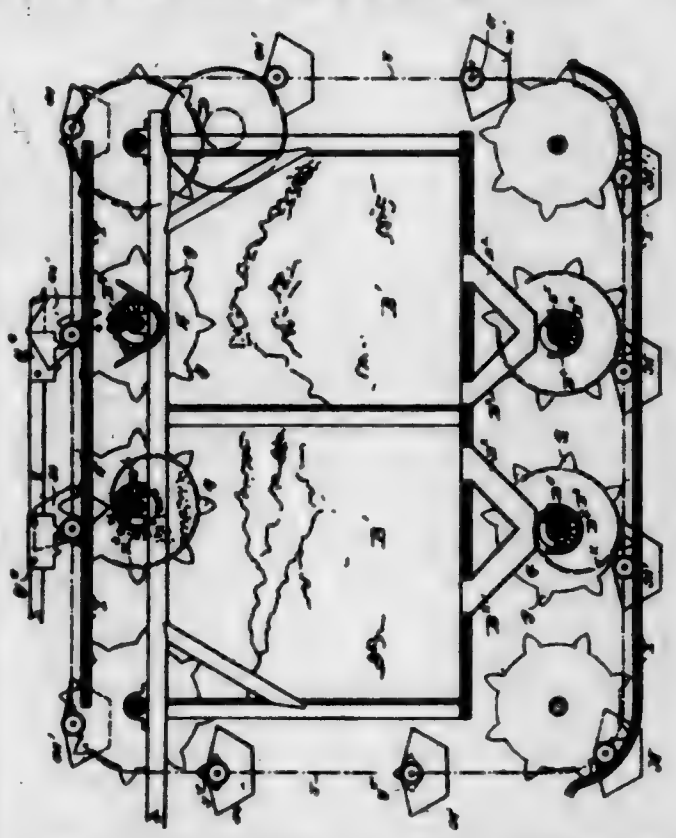
4. A commutator-brush composed of a short carbon block, in combination with a holder in which said block is held loosely so as to be unrestrained in following the irregularities of the commutator, a spiral spring pressing said block against the commutator and permitting freedom of motion of the block, and a flexible conducting connection between said block and the holder, substantially as set forth.

690,517. PIPE-COUPLING. ALBERT H. DAVY, Boston, Mass. Filed Apr. 8, 1901. Serial No. 54,970. (No model.)

Claim.—In a pipe-coupling, the combination with the coupling-ring A, having female screw-threads, and inner concaved shoulder; of the pipe-sections B, and C, the latter being provided with the annular shoulder h, having convex surface e thereon, and opposite convex surface g, this latter convex surface being adapted to engage the concave surface of the coupling-ring A, the coupling-ring D, having the thickened circular portion a, and exterior male screw-threads b, and inner female screw-threads l, engaging the threads of the section B, vertical flange c, provided with the concave portion i, for engagement with the convex surface e, of the shoulder h, all constructed and arranged for joint operation as herein described.



690,518. CONVEYER. ARTHUR J. PEITZ, New York, N. Y. Filed July 6, 1901. Serial No. 67,267. (No model.)



Claim.—1. The combination, in a conveyer, of traveling buckets; a bucket-loader; means for operating said loader to load material into the buckets; a conveying device for supplying material to said loader; and mechanism for driving said conveying device.

2. The combination, in a conveyer, of traveling buckets; a bucket-loader; a conveying device for supplying material to said loader; and means for operating said conveying device by a part of the main conveyer.

3. The combination in a conveyer of traveling buckets; a bucket-loader; means for operating said loader to load the buckets; a conveying device for supplying material to said loader; and means for operating said conveying device by the movement of said loader.

4. The combination, in a conveyer of traveling buckets; a bucket-loader; means for operating said loader to load material into the buckets; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer.

5. The combination, in a conveyer, of traveling buckets; a bucket-loader; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer by a part of the main conveyer.

6. The combination, in a conveyer, of traveling buckets; a bucket-loader; means for operating said loader to load the buckets; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer by the movement of said loader.

7. The combination, in a conveyer, of traveling buckets; a rotary bucket-loader; means for rotating said loader to load material into the buckets; a conveying device for supplying material to said loader; and mechanism for driving said conveying device.

8. The combination, in a conveyer, of traveling buckets; a rotary bucket-loader; a conveying device for supplying material to said loader;

and means for operating said conveying device by a part of the main conveyer.

9. The combination, in a conveyer, of traveling buckets; a rotary bucket-loader; a conveying device for supplying material to said loader; and means for operating said conveying device by the rotation of said loader.

10. The combination, in a conveyer, of traveling buckets; a rotary bucket-loader; means for rotating said loader to load material into the buckets; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer.

11. The combination, in a conveyer, of traveling buckets; a rotary bucket-loader; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer by a part of the main conveyer.

12. The combination, in a conveyer, of traveling buckets; a rotary bucket-loader; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer by the rotation of said loader.

13. The combination, in a conveyer, of a loading-casing provided with a discharge-opening and with side openings; means for operating said casing to load the buckets; and means for supplying material into said side openings from each side of the conveyer.

14. The combination, in a conveyer, of traveling buckets; a bucket-loader; means for operating said loader to load material into the buckets; conveying devices for supplying material to said loader from each side of the conveyer; and means for operating said conveying devices.

15. The combination, in a conveyer, of a loader; conveying devices for supplying material to said loader from each side of the conveyer; and means for operating said conveying devices by a part of the main conveyer.

16. The combination, in a conveyer, of a loader; conveying devices for supplying material to said loader from each side of the conveyer; and means for operating said conveying devices by said loader.

17. The combination, in a conveyer, of a rotary loading-casing provided with side openings and with a discharge opening and means for supplying material into the side openings of said casing from each side of the conveyer.

18. The combination, in a conveyer, of traveling buckets; a rotary loader; means for rotating said loader to load material into the buckets; conveying devices for supplying material to said loader from each side of the conveyer; and means for operating said conveying devices.

19. The combination, in a conveyer, of a rotary loader; conveying devices for supplying material to said loader from each side of the conveyer; and means for operating said conveying devices by a part of the main conveyer.

20. The combination, in a conveyer, of a rotary loader; conveying devices for supplying material to said loader from each side of the conveyer; and means for operating said conveying devices by the rotation of said loader.

21. The combination, in a conveyer, of traveling buckets; a bucket-loader; means for operating said loader to load material into the buckets; screw conveyers for supplying material to said loader from each side of the conveyer; and means for operating said screw conveyers.

22. The combination, in a conveyer, of a loader; screw conveyers for supplying material to said loader from each side of the conveyer; and means for operating said screw conveyers by a part of the main conveyer.

23. The combination, in a conveyer, of a loader; screw conveyers for supplying material to said loader from each side of the conveyer; and means for operating said screw conveyers by said loader.

24. The combination, in a conveyer, of traveling buckets; a rotary loader; means for rotating said loader to load material into the buckets; screw conveyers for supplying material to said loader from each side of the conveyer; and means for operating said screw conveyers.

25. The combination, in a conveyer, of a rotary loader; screw conveyers for supplying material to said loader from each side of the conveyer; and means for operating said screw conveyers by a part of the main conveyer.

26. The combination, in a conveyer, of a rotary loader; screw conveyers for supplying material to said loader from each side of the conveyer; and means for operating said screw conveyers by the rotation of said loader.

27. The combination, in a conveyer, of endless flexible connections; gravity-buckets suspended between said connections and spaced apart; a bucket-loader; means for operating said loader to load material into the buckets; a conveying device for supplying material to said loader; and mechanism for driving said conveying device.

28. The combination, in a conveyer, of endless flexible connections; gravity-buckets suspended between said connections and spaced apart; a bucket-loader; means for operating said loader to load the buckets; a conveying device for supplying material to said loader; and means for operating said conveying device by a part of the main conveyer.

29. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; a rotary bucket-loader; means for rotating said loader to load material into the buckets; a conveying device for supplying material to said loader; and mechanism for driving said conveying device.

30. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; a rotary bucket-loader; means for rotating said loader to load the buckets; a conveying device for supplying material to said loader; and means for operating said conveying device by a part of the main conveyer.

31. The combination, in a conveyer, of endless flexible connections; gravity-buckets suspended between said connections; a bucket-loader; means for operating said loader to load material into the buckets; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer.

32. The combination, in a conveyer, of endless flexible connections; gravity-buckets suspended between said connections; a bucket-loader; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer by a part of the main conveyer.

33. The combination, in a conveyer, of endless flexible connections; gravity-buckets suspended between said connections; a rotary bucket-loader; means for operating said loader to load material into the buckets; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer.

34. The combination, in a conveyer, of endless flexible connections; gravity-buckets suspended between said connections; a rotary bucket-loader; a screw conveyer for supplying material to said loader; and means for operating said screw conveyer by a part of the main conveyer.

35. In a conveyer, the combination of endless flexible connections; gravity-buckets pivotally suspended between said connections; and two separate loading devices arranged to load separate alternate buckets of the conveyer.

36. In a conveyer, the combination with a series of buckets connected together, of two rotary loading devices arranged to load alternate buckets of the conveyer.

37. In a conveyer the combination with a series of buckets connected together, of a spiral loading apparatus, arranged to load alternate buckets of the conveyer.

38. In a conveyer, the combination with a series of buckets connected together, of two rotary spiral chutes arranged to load alternate buckets of the conveyer.

39. In a conveyer, the combination of a series of buckets connected together; two rotary loading devices; and means for rotating said loading devices by the conveyer to load alternate buckets.

40. In a conveyer, the combination of a series of buckets connected together; a spiral loading apparatus; and means for operating said loading apparatus by the conveyer to load alternate buckets.

41. In a conveyer, the combination of a series of buckets connected together; two rotary spiral chutes; and means for rotating said spiral chutes by the conveyer, to load alternate buckets.

42. In a conveyer, the combination of endless flexible connections; gravity-buckets pivotally suspended between said connections; means, operated by the conveyer, for loading alternate buckets with material; and means for tilting each alternate bucket upon its pivot and discharging the contents of the buckets at different points.

43. In a conveyer, the combination of a series of buckets connected together; a rotary loading apparatus arranged to load alternate buckets with material; and means for discharging the contents of alternate buckets at different points.

44. In a conveyer, the combination of a series of buckets connected together; a rotary loading apparatus arranged to load alternate buckets with material; means for rotating said loading apparatus by the conveyer; and means for discharging the contents of alternate buckets at different points.

45. In a conveyer, the combination of a series of buckets connected together; a spiral loading apparatus arranged to load alternate buckets with material; and means for discharging the contents of each bucket alternately at an appropriate point.

46. In a conveyer the combination of a series of buckets connected together; a spiral loading apparatus arranged to load alternate buckets with material; means for operating said spiral loading apparatus by the conveyer; and means for discharging the contents of each bucket alternately at an appropriate point.

47. In a conveyer, the combination of endless flexible connections; gravity-buckets pivotally suspended between said connections; two separate loading devices; means for operating said loading devices so that each device will load an alternate bucket; and means for tilting each alternate bucket upon its pivot and discharging the contents of the buckets at different points.

48. In a conveyer, the combination of endless flexible connections; gravity-buckets pivotally suspended between said connections; two sepa-

rate loading devices; means for operating said loading devices by the conveyer so that each device will load an alternate bucket; and means for tilting each alternate bucket upon its pivot and discharging the contents of the buckets at different points

49. In a conveyer, the combination of a series of buckets connected together; two rotary loading devices; means for rotating said loading devices so that each will load an alternate bucket; and means for discharging the contents of each bucket alternately at an appropriate point.

50. In a conveyer, the combination of a series of buckets connected together; two rotary loading devices; means for rotating said loading devices by the conveyer, so that each will load an alternate bucket; and means for discharging the contents of each bucket alternately at an appropriate point.

51. In a conveyer, the combination of a series of buckets connected together; two spiral loading-chutes; means for operating said spiral loaders so that each will load an alternate bucket; and means for discharging the contents of each bucket alternately at an appropriate point.

52. In a conveyer, the combination of a series of buckets connected together; two spiral loading-chutes; means for operating said spiral loaders by the conveyer, so that each will load an alternate bucket; and means for discharging the contents of each bucket alternately at an appropriate point.

53. The combination, in a conveyer, of traveling buckets; means for loading said buckets; means for discharging said buckets; a rotary receiver for receiving the discharged material; and means for operating said receiver by the conveyer.

54. The combination, in a conveyer, of traveling buckets; means for loading said buckets; means for discharging said buckets; a screw-conveyer receiving the discharged material; and means for operating said screw-conveyer by the main conveyer.

55. The combination, in a conveyer, of traveling buckets; a rotary loading-casing; means for rotating said casing to load material into the buckets; means for discharging said buckets; a rotary receiver for receiving the discharged material; and means for operating said receiver.

56. The combination, in a conveyer, of traveling buckets; a rotary loading-casing; means for rotating said casing to load the buckets; means for discharging said buckets; a screw conveyer, receiving the discharged material; and means for operating said screw conveyer.

57. The combination, in a conveyer, of flexible connections; gravity-buckets suspended from said connections; means for loading material directly into said buckets; means for tilting said buckets to discharge their contents; a rotary receiver, receiving the discharged material; and means for operating said receiver.

58. The combination, in a conveyer, of flexible connections; gravity-buckets suspended from said connections: means for loading material directly into said buckets; means for tilting said buckets to discharge their contents; a screw conveyer receiving the discharged material; and means for operating said screw conveyer.

59. The combination, in a conveyer, of flexible connections; gravity-buckets suspended from said connections; a rotary loading-casing; means for rotating said casing to load the buckets; means for tilting the buckets to discharge their contents; a rotary receiver for receiving the discharged material; and means for operating said receiver.

60. The combination, in a conveyer, of flexible connections; gravity-buckets suspended from said connections; a rotary loading-casing; means for rotating said casing to load the buckets; means for tilting the buckets to discharge their contents; a screw conveyer receiving the discharged material; and means for operating said screw conveyer.

61. The combination, in a conveyer, of traveling buckets; a bucket-loader; means for operating said loader to load material into the buckets a feeding-conveyer for supplying material to the loader; means for operating said feeding-conveyer; means for discharging the buckets; a receiving-conveyer; and means for operating said receiving-conveyer.

62. The combination, in a conveyer, of traveling buckets; a bucket-loader; means for operating said loader to load material into the buckets a feeding screw conveyer for supplying material to the loader; means for operating said screw conveyer; means for discharging the buckets; a receiving screw conveyer; and means for operating said receiving-conveyer.

63. The combination, in a conveyer, of traveling buckets; a rotary bucket-loader provided with a single discharge-opening on its periphery; and means for rotating said loader by the conveyer.

64. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; a rotary bucket-loader provided on its periphery with a single discharge-opening; and means for rotating said loader to load material into the buckets.

65. The combination, in a conveyer, of traveling buckets and a rotary loading chute or casing provided on its periphery with a single discharge-opening.

66. The combination in a conveyer, of traveling buckets and a rotary loading chute or casing provided with a side opening, for receiving material, and with a single discharge-opening on its periphery.

67. The combination in a conveyer, of traveling buckets; a loading chute or casing provided on its periphery with a single discharge-opening; and means for rotating said loading-chute by the conveyer.

68. The combination in a conveyer, of traveling buckets; a loading chute or casing provided with a side opening for receiving material and with a single discharge-opening on its periphery; and means for rotating said loading-chute by the conveyer.

69. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; a loading chute or casing provided with a side opening, for receiving material, and with a single discharge-opening on its periphery; and means for rotating said chute to load the buckets.

70. The combination, in a conveyer, of traveling buckets; a rotary spiral chute or casing having a diametrically-increasing spiral; means for supplying material into said spiral; and means for positively rotating said chute to load material into the buckets.

71. The combination, in a conveyer, of traveling buckets; a rotary spiral chute or casing having a diametrically-increasing spiral; means for supplying material into said spiral; and means for positively rotating said chute by the conveyer to load material into the buckets.

72. A loading device for conveyers, consisting of a chute or casing provided with an internal spiral integral therewith and means for positively rotating said chute.

73. The combination, in a bucket conveyer, of traveling buckets, and a rotary spiral loading-chute having a diametrically-increasing spiral and provided with teeth or projections for rotating the same.

74. The combination, in a conveyer, of a series of buckets; flexible connections between said buckets; and a rotary spiral loading-chute for loading material into said buckets provided with teeth or projections for engaging said flexible connections.

75. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; and a rotary spiral chute or casing for loading material into said buckets.

76. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; a spiral chute or casing for loading material into said buckets; and means for rotating said spiral chute by the conveyer.

77. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; a spiral chute or casing for loading material into said buckets provided with a discharge-opening; means for supplying material into the side of said chute; and means for rotating said chute.

78. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; a spiral loading chute or casing open at each side and provided with a discharge-opening; means for supplying material into said side openings; and means for rotating said loading-chute.

79. The combination, in a conveyer, of endless flexible connections; gravity-buckets pivotally suspended between said connections and spaced apart; a spiral loading chute or casing open at each side and provided with a discharge-opening; means for supplying material into each side of said loading-chute; and means for rotating said chute by the conveyer.

80. A rotary spiral loader provided with an expanding discharge-opening on its periphery.

81. A bucket-loader consisting of a spiral chute or casing provided with a side opening for receiving material and with an expanding discharge-opening on its periphery.

82. A bucket loader consisting of a chute or casing provided with an opening in its side, for receiving material, and with an expanding discharge-opening on its periphery.

83. A bucket-loader consisting of a rotary casing, having an opening at each side for receiving material.

84. A bucket-loader consisting of a rotary spiral chute, having an opening at each side for receiving material.

85. A bucket-loader consisting of a rotary casing provided with a hollow neck of different diameter from the body of the loader.

86. A bucket-loader consisting of a rotary casing provided with a hollow neck of different diameter from the body of the loader; and means for supporting said casing by said neck.

87. A bucket-loader consisting of a rotary casing provided with a hollow neck at each side.

88. A bucket-loader consisting of a rotary casing provided with a hollow neck at each side; and means for supporting said necks.

89. A bucket-loader consisting of a spiral chute or casing provided with a hollow neck of different diameter from the body of the loader.

90. A bucket-loader consisting of a spiral chute or casing provided with a hollow neck of different diameter from the body of the loader, and means for supporting said neck.

91. A bucket-loader consisting of a spiral chute or casing provided with a hollow neck at each side.

92. A bucket-loader consisting of a spiral chute or casing provided with a hollow neck at each side; and means for supporting said necks.

93. A bucket-loader consisting of a rotary casing provided with a hollow neck; in combination with a feeding device entering said neck.

94. A bucket-loader consisting of a rotary casing provided with a hollow neck at each side; in combination with feeding devices entering said necks.

95. A bucket-loader consisting of a rotary spiral chute or casing provided with a hollow neck of different diameter from the body of the loader; in combination with a feeding device entering said neck.

96. A bucket-loader consisting of a rotary spiral chute or casing provided with a hollow neck at each side; in combination with feeding devices entering said necks.

97. The combination, in a bucket conveyor, of a rotary bucket-loader provided with a hollow neck of different diameter from the body of the loader, and a roller-bearing for supporting said neck.

98. The combination, in a bucket conveyor, of a rotary bucket-loader provided with a hollow neck of different diameter from the body of the loader at each side, and roller-bearings for supporting said necks.

99. The combination with a bucket-loader having teeth or projections for operating the same, of means for throwing one of said projections out of gear with the operating devices.

100. The combination with a rotary bucket-loader having teeth or projections for rotating the same, of means for throwing one of said teeth or projections out of gear with the operating devices.

101. The combination in a conveyer of traveling buckets; flexible connections; a bucket-loader provided with teeth or projections for engaging said connections; and means for throwing one of said teeth or projections out of gear with said connections.

102. The combination, in a conveyer of traveling buckets; flexible connections; a rotary bucket-loader having teeth or projections for engaging said connections; and means for throwing said teeth or projections out of gear with said connections.

103. The combination of a bucket-loader provided with teeth or projections, one of said teeth being pivoted; and means for rotating said pivoted tooth and thereby throwing it out of gear with the operating devices.

104. The combination of a rotary bucket-loader having a side piece provided with teeth or projections, one of said teeth being pivoted to said side piece; and means for rotating said pivoted tooth and thereby throwing it out of gear with the operating devices.

105. In a conveyer, the combination of a series of buckets spaced apart; flexible connections between the buckets; track-wheels; and means for supporting such flexible connections between the track-wheels, at desired points in the track.

106. In a conveyer, the combination of a series of buckets spaced apart; flexible connections between the buckets; track-wheels; and a supporting-guide for said flexible connections between the track-wheels.

107. In a conveyer, the combination of a conveyer-chain; supports for said chain; a loading device; and a supporting-guide for holding said chain to the operating-line of the loading device between the chain-supports.

108. In a conveyer, the combination of a conveyer-chain; supports for said chain; a loading device; and rails or bars beneath said loading device for supporting said chain between the chain-supports.

109. In a conveyer, the combination of a conveyer-chain; a loading device; and a supporting-guide for said chain consisting of two parallel bars, having a channel between them.

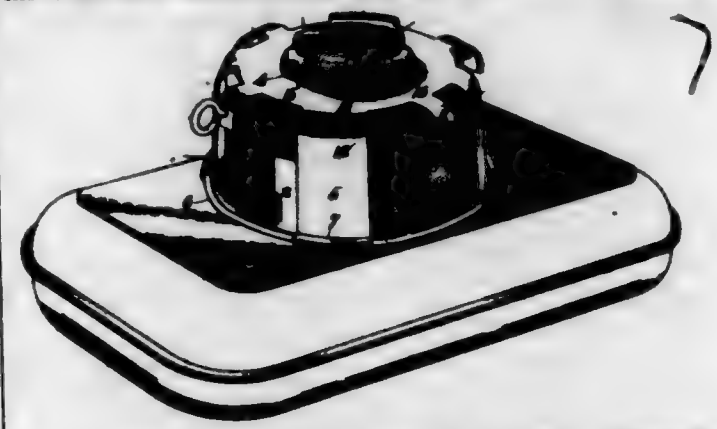
110. In a conveyer, the combination of a conveyer-chain; supports for said chain; a loading device provided with teeth or projections for engaging said chain; and a guide for supporting said chain between the chain-supports and insuring its engagement by said teeth.

111. In a conveyer, the combination of a conveyer-chain; supports for said chain; a rotary loading device provided with teeth or projections for engaging said chain; and a guide for supporting said chain between the chain-supports and insuring its engagement by said teeth.

690,519. **BURNER ATTACHMENT FOR DINNER-PAILS.** STEPHEN H. SARTORIS, Kansas City, Mo. Filed Feb. 12, 1901. Serial No. 46,974. (No model.)

Claim.—1. A burner attachment for dinner-pails, comprising a body portion, standards and spring-clasps projecting therefrom in the same general direction, and a burner proper suitably supported between said standards and clasps and contiguous to the body portion.

2. A burner attachment for dinner-pails, comprising a body portion provided with an opening and standards projecting therefrom at one side, and a burner proper pivotally supported so that its face may occupy substantially the same plane as the body portion or its upper portion project through the opening of the body portion at the side of the latter opposite to that from which the standards project, substantially as described.



3. A burner attachment for dinner-pails, comprising a body portion provided with an opening and standards projecting therefrom at one side, a skeleton platform supported at the opposite ends of said standards in a plane substantially parallel with that of the body portion, and a burner proper pivotally supported so that its base may occupy the same plane as the body portion, or its upper portion project through the opening of the body portion at the side of the latter opposite to that from which the standards project, substantially as described.

4. A burner attachment for dinner-pails, comprising a body portion provided with an opening and standards projecting therefrom at one side, a skeleton platform supported at the opposite ends of said standards in a plane substantially parallel with that of the body portion, a burner proper pivotally supported so that its base may occupy the same plane as the body portion, or its upper portion project through the opening of the body portion at the side of the latter opposite to that from which the standards project, and means for securing the attachment to the cover or cap of the pail, substantially as described.

5. A burner attachment for dinner-pails, comprising a body portion, provided with an opening, standards projecting from the body portion at one side, clamping-arms projecting from the same side as said standards and adapted to embrace the inverted cover or cap of the pail, a skeleton platform supported at the opposite ends of said standards in a plane substantially parallel with that of the body portion, and a burner proper pivotally supported so that its base may occupy the same plane as the body portion, or its upper portion project through the opening of the body portion at the side of the latter opposite to that from which the standards project, substantially as described.

6. A burner attachment for dinner-pails, comprising a body portion provided with a central opening, arms and standards projecting from the body portion at one side, a skeleton platform secured to the opposite ends of said standards, a rod journaled in said arms and extending diametrically across said opening, a burner proper secured upon said rod and adapted by the turning of the latter to operate through said opening and face in opposite directions, and means to secure the attachment to the cover or cap of the pail, substantially as described.

7. A burner attachment for dinner-pails, comprising a body portion provided with a central opening, arms and standards projecting from the body portion at one side, a skeleton platform secured to the opposite ends of said standards, a rod journaled in said arms and extending diametrically across said opening, a burner proper secured upon said rod and adapted by the turning of the latter to operate through said opening and face in opposite directions, means to secure the attachment to the cover or cap of the pail, and a non-perforate cap to cover the burner proper and prevent the evaporation of its contents, substantially as described.

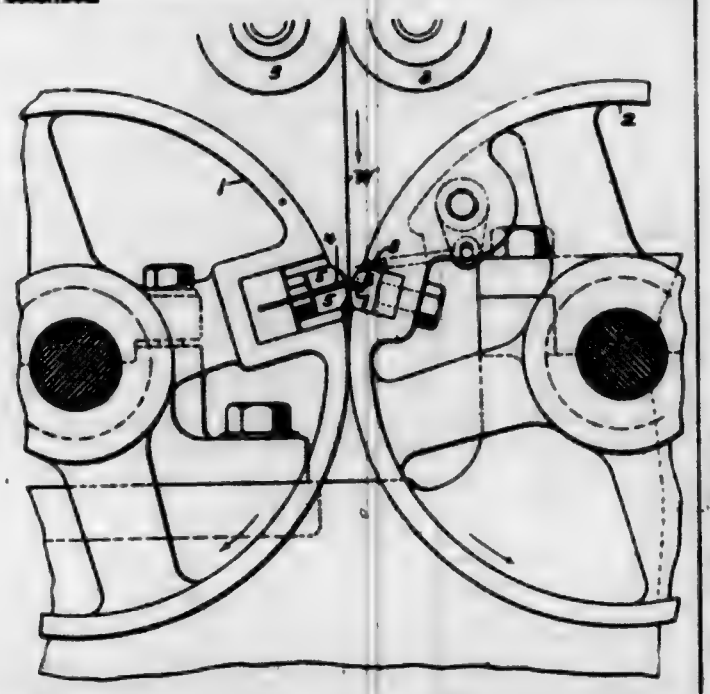
690,520. **PROCESS OF OBTAINING METALLIC LEAD FROM LEAD ORES.** ANTONIN GUESSOT, Asnières, France. Filed Dec. 15, 1900. Serial No. 740,374. (No specimens.)

Claim.—1. A process of treatment of lead ores for obtaining metallic lead therefrom consisting in blowing air through a mass of molten galena preventing any access of air to the fumes of sulfid of lead which separate from the mass and collecting the said fumes of sulfid of lead.

2. A process of treatment of lead ores for obtaining metallic lead therefrom, consisting in blowing air through a mass of molten sulfid of lead containing silver or other metals, condensing without contact of external air the fumes of sulfid of lead which separate from the mass, introducing the said condensed fumes into a mass of lead or of lead and sulfid of lead containing no silver or other metals and blowing a current of air therethrough.

690,521. **CUTTING MECHANISM.** FREDERICK HESS, New York, N. Y., assignor to Robert Hoe, New York, N. Y. Filed June 1, 1901. Serial No. 62,732. (No model.)

Claim.—1. A cutting-blade comprising a plurality of serrated members, the cutting projections of each member being arranged opposite the spaces of the cutting projections of the member next to it, substantially as described.



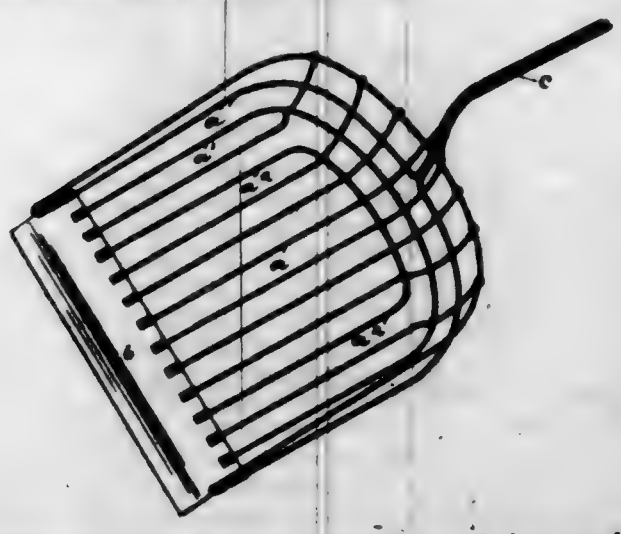
2. A cutting-blade comprising two serrated members, the cutting projections of one member being arranged opposite the spaces between the cutting projections of the other member, substantially as described.

3. A cutting-blade comprising two serrated members, the cutting projections of one member being arranged opposite the spaces between the cutting projections of the other member and substantially centrally between the same, substantially as described.

4. A cutting-blade comprising two serrated members, the cutting projections of one member being arranged opposite the spaces between the cutting projections of the other member, and means for detachably connecting the members, substantially as described.

5. A cutting-blade comprising two serrated members, the cutting projections of one member being arranged opposite the spaces between the cutting projections of the other member and substantially centrally between the same, and means for detachably connecting the members, substantially as described.

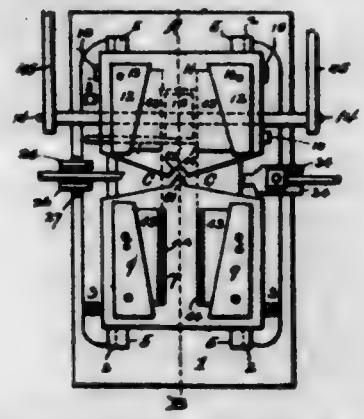
690,522. SCOOP. HENRY H. HOSELL, Cleveland, Ohio. Filed Oct. 3, 1900. Serial No. 31,822. (No model.)



Claim.—1. A scoop-blade consisting of a series of wires secured at the front of the blade to a transversely-located lip, lateral wires being inclined upwardly and bent at the rear of the blade, and intermediate wires bent upwardly at the rear of the blade, such bent portions secured to the bent portions of such lateral wires, forming with the latter a hook flange, the extreme lateral and the central wires being extended from said flange to form a shank to which the scoop-handle may be secured.

2. The scoop-blade consisting of the series of wires *a* secured at the front of the blade to the lower side of the transversely-located lip *b*, lateral wires *a'* being inclined upwardly and bent at the rear of the blade, and intermediate wires bent upwardly at the rear of the blade, such bent portions secured to such bent portion of said lateral wires *a'*, and forming with the latter a hook flange, the extreme lateral and the central wires being extended from said flange to form the shank *c* as shown and described.

690,523. COLD-TIRE-SHRINKING MACHINE. SAMUEL H. HOUSE, Dallas, Tex. Filed May 27, 1901. Serial No. 62,126. (No model.)



Claim.—In a cold-tire-shrinking machine, the combination of the base and the standards with a shaft journaled in the latter, a cog-wheel secured on the said shaft, the clamp-lever 18, pivoted at 19 and having a lip 21 and rack 17, the latter in engagement with said wheel and blocks 7 and 11 carrying the clamping-blocks 9 and 12, the block 11 being engaged by the said lip 21 for sliding movement, substantially as described.

690,524. FILTER. EDWARD M. KEISER, Brooklyn, N. Y. Filed May 17, 1901. Serial No. 60,662. (No model.)



Claim.—1. The combination of a filter-frame or supporting member forming a single element and having a self-contained groove or channel, and a filtering-pad having its edges tucked or packed edgewise into said groove or channel.

2. In a filter, a frame or supporting member having integral walls provided with a groove or channel, in combination with a filtering medium having its edges turned edgewise into said groove or channel.

3. In a filter, a frame forming a single element the surrounding walls of which are forked or bifurcated to form a circumscribing groove or channel, in combination with a filtering medium having its edges tucked or packed into said groove or channel.

4. In a filter, a frame constituting a single rigid element, said frame having a circumscribing groove or channel presented toward the flow of water through the filter, and a filtering medium supported upon the frame and having its edges turned away from the flow of water and into said groove, and tamped therein.

5. In a filter a frame having a circumscribing groove or channel, a foraminous plate or piece supported between the inner walls of said frame, a fabric covering for the plate or piece, having a surrounding binding-strip, and a filtering medium overlaying the fabric and the point between the binding-strip and inner walls of the frame and having its edges packed into said groove or channel.

6. In a filter a frame having upon each side, a circumscribing groove or channel, a foraminous plate or piece supported within said frame, one on each side, a fabric covering for each of the plates or pieces, a filtering medium upon each piece of fabric, each having its edges packed into one of said grooves or channels, outer frames of foraminous material having flanged rims overlapping the main frame, and means for uniting the outer frames and holding the parts together.

7. In a filter, a frame having corner-braces with holes therein, a foraminous plate or piece thereon, means for detachably securing the plate or piece to said corner-pieces, and a filtering medium overlying the plate or piece.

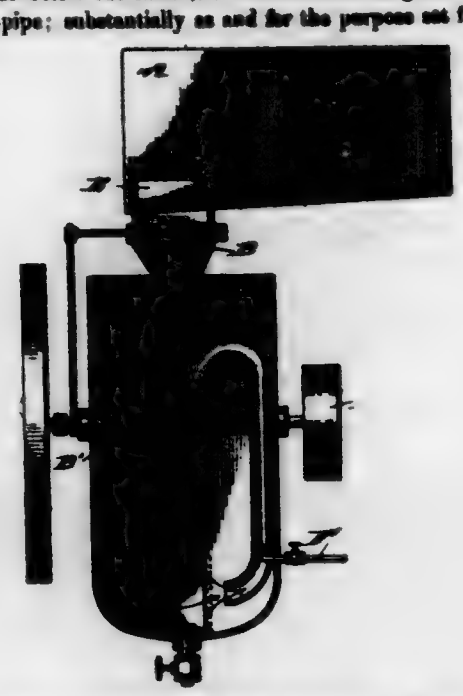
690,525. RENDERING-TANK. WILLIAM C. MARSHALL, Chicago, Ill. Filed June 10, 1901. Serial No. 63,948. (No model.)

Claim.—1. In a rendering-tank, the combination with crushing-rolls, and impelling means for carrying the meat from a point below the rolls and delivering the same to said rolls; substantially as and for the purpose set forth.

2. In a rendering-tank, the combination with crushing-rolls, of guiding means leading to the rolls from a point below the latter and impelling means for forcing the meat through the guide to the rolls; substantially as and for the purpose set forth.

3. In a rendering-tank, the combination with crushing-rolls within the tank, of a guide-pipe in said tank discharging upon the crushing-rolls

from a point below the same, and means for forcing the meat through such guide-pipe; substantially as and for the purpose set forth.



4. In a rendering-tank, the combination with the crushing-rolls, of a guide-pipe discharging upon the rolls, and a steam-pipe opening into the guide-pipe; substantially as and for the purpose set forth.

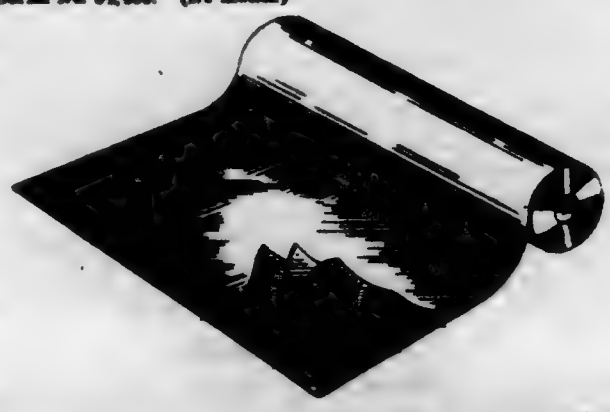
5. In a rendering-tank, the combination with crushing-rolls arranged within the tank at some distance from the bottom thereof, of a guide-pipe having an inlet-opening below such rolls and a discharge-opening above such rolls, and impelling means for forcing the material through the guide-pipe to the rolls; substantially as and for the purpose set forth.

6. In a rendering-tank, the combination with the crushing-rolls within the tank and arranged at some distance from the bottom thereof, of a guide-pipe having its inlet-opening above such rolls and a steam-pipe entering the guide-pipe and serving to force the material through the pipe upon such rolls; substantially as and for the purpose set forth.

7. In a rendering-tank, the combination with the crushing-rolls arranged at some distance above the bottom of the tank, of a guide-pipe having its inlet-opening near the bottom of said tank and extending upwardly above the crushing-rolls with a bent discharge end above the crushing-rolls, and a steam-pipe entering the guide-pipe and projecting in an upward direction; substantially as and for the purpose set forth.

8. In a rendering-tank, the combination with crushing-rolls and means for guiding the material to such rolls, of a single steam-pipe entering the tank and serving to force the material along the guiding means through the rolls and supply heat to the particles of material after being crushed so as to render the same; substantially as and for the purpose set forth.

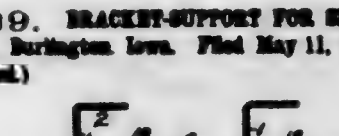
690,526. ROOFING MATERIAL. FREDERIC S. MILLER, Brooklyn, N. Y.; William B. Davenport, executor of said Miller, deceased, assignor to H. W. Johns Manufacturing Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 22, 1900. Renewed Dec. 2, 1901. Serial No. 84,469. (No model.)



Claim.—A roofing composed of a foundation of woven textile fabric a layer of asbestos felt saturated with a liquid hydrocarbon placed upon the said foundation, a backing of unsaturated asbestos paper and a top surface of unsaturated asbestos paper, together with layers of adhesive waterproof and mold-proof compounds between the adjacent surfaces of the four layers of material.

690,527. NASAL DISTENDER. WILLIAM MOORE, New York, N. Y. Filed Apr. 9, 1901. Serial No. 55,092. (No model.)

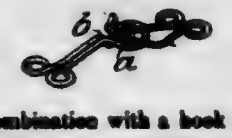
Claim.—1. A combined discharge-tip and nasal distender for adjustment upon collapsible tubes and spray devices intended for the application of medication to the interior of the nostril, the same comprising a collar portion, having a pair of curved wings projecting from its perimeter at one side thereof.



2. A removable tip for nasal spray devices and collapsible tubes, the same comprising a collar portion arranged to fit upon a discharge-nozzle, and said collar having a pair of wings extending forwardly at one side thereof, and arranged to distend the nostril while inserting medication.

3. A nose-distending tip for discharge-nozzles, comprising a collar-adjustment portion, and a pair of curved wings extending at one side therefrom, said wings having an intermediate space between them for the purpose set forth.

690,528. HOOK AND EYE. ARMINTUS K. PHILLIPS, St. Louis, Mo. Filed Mar. 22, 1901. Serial No. 52,420. (No model.)



Claim.—1. The combination with a hook having a splayed head, the widest portion thereof being located at the reflex bends of the hook, and an eye which is designed to be sprung over said widest portion, said eye being fulcrumed on the hook in this springing action when moving in either direction; substantially as described.

2. The combination with a hook having a splayed head, the widest portion thereof being located at the reflex bends of the hook, and an eye whose connecting cross-piece serves as a fulcrum to engage the top and bottom faces of the hook upon the introduction and removal of the eye to and from the hook, whereby said eye may be sprung over the widest portion of the hook in the coupling and uncoupling action; substantially as described.

3. The combination with a hook having a bend in its shank and a splayed head whose nose projects over said bend, the widest portion thereof being located at the reflex bends of the hook, and an eye whose connecting cross-piece serves as a fulcrum to engage the top and bottom faces of the hook, whereby said eye is used as a lever and sprung over the widest portion of the hook in the coupling and uncoupling action; substantially as described.

690,529. BRACKET-SUPPORT FOR SHADE-ROLLERS. JOHN RIEVER, Burlington, Iowa. Filed May 11, 1901. Serial No. 59,773. (No model.)



Claim.—1. A support for shade-rollers, comprising a hollow stationary casing, having a slot in its outer wall and an enlarged opening in its peripheral wall communicating with said slot, and a revolvable shell inclosing the casing and having a slot in its outer wall to aline with the slot in the casing and an opening in its peripheral wall to permit the introduction into the casing of a journal having lateral projections thereon.

2. The combination with a shade-roller having a journal provided with lateral projections, of a bracket, a hollow casing fixed to the bracket and having a triangular opening in its peripheral wall and a slot in its outer wall extending from a point near the center of the casing and communicating with said triangular opening, a revolvable shell mounted on and inclosing the casing, said shell having a slot in its outer wall to alinie with the slot in the outer wall of the casing and having a triangular opening in its peripheral wall to alinie with the opening in the peripheral wall of the casing.

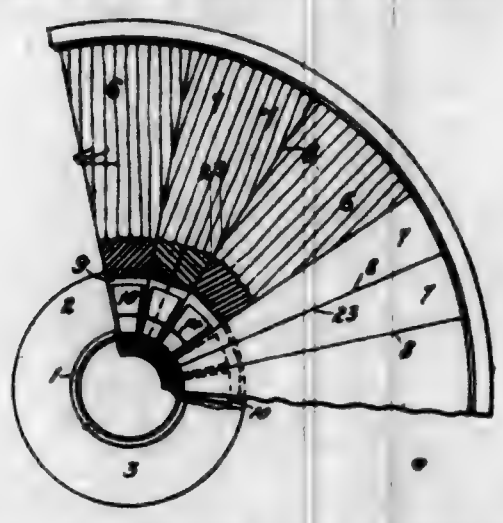
690,530. GAGE. PERRY G. SMITH, Indianapolis, Ind. Filed May 1901. Serial No. 62,642. (No model.)



Claim.—In a gage for creaming-cans, in combination with the main body of the gage having its sides formed integrally therewith, a cover, with integrally-formed sides which sides engage with corresponding sides of

the gage-body, a convex rib crimped in the upper and outer peripheral edge of the cover, the concavity of said rib forming a chamber, substantially as described and for the purpose set forth.

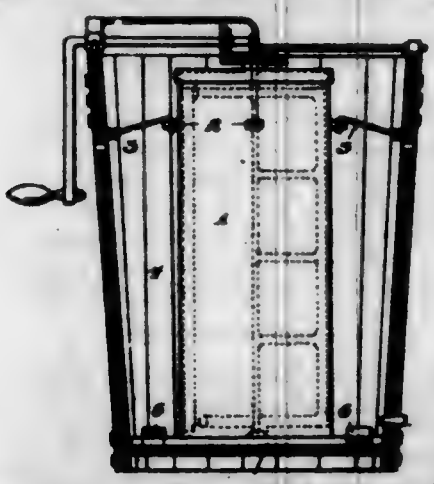
690,581. VEHICLE-WHEEL. ALLISON D. SMITH, Edinburgh, Scotland. Filed Oct. 19, 1901. Serial No. 79,216. (No model.)



Claim.—1. In a vehicle-wheel, a series of segmental sections or spokes, alternate sections being formed of a single piece having its edges cut diagonally across the grain of the wood, and the remaining sections formed of two pieces turned side by side to present the grain in the same relationship as in the single-piece sections, said two pieces and the diagonal single section being cut from a single rectangular section of wood, in combination with a hub wherein the bases of the sections are adapted to enter, said bases being transversely slitted, and a wedge adapted to enter the slit in the base of each section to expand said base into locking engagement with the hub.

2. In a vehicle-wheel, a series of segmental sections or spokes, alternate sections being formed of a single piece having its edges cut diagonally across the grain of the wood and the remaining sections formed of two pieces turned side to side to present the grain in the same relationship as in the single-piece sections, said two pieces and the diagonal single section being cut from a single rectangular section of wood.

690,582. ICE-CREAM FREEZER. JOHN A. SHIRO, Pittsburg, Pa. Filed Apr. 24, 1901. Serial No. 57,203. (No model.)

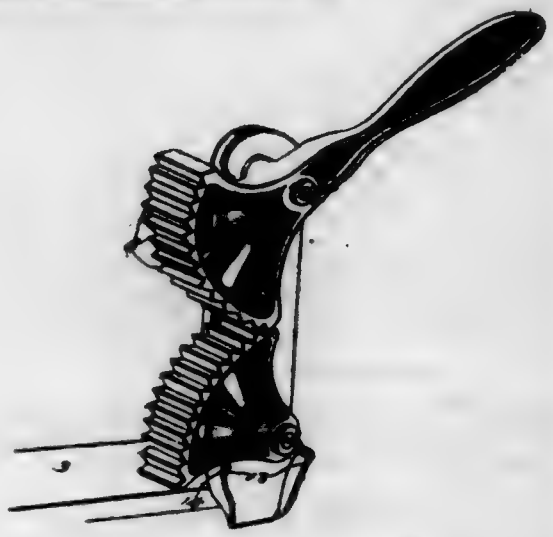


Claim.—In an ice-cream freezer, a tub having angled cleats secured to the upper face of the bottom of the tub adjacent to its inner wall and disposed in opposite directions, a can located within the tub, a bar secured to the bottom of said can, and on which bar the can is supported, with a slight space intervening between the bottom of the can and the bottom of the tub, the ends of said bar adapted to wedge under the free ends of said cleats, and means for holding the can-supporting bar stationary, as set forth.

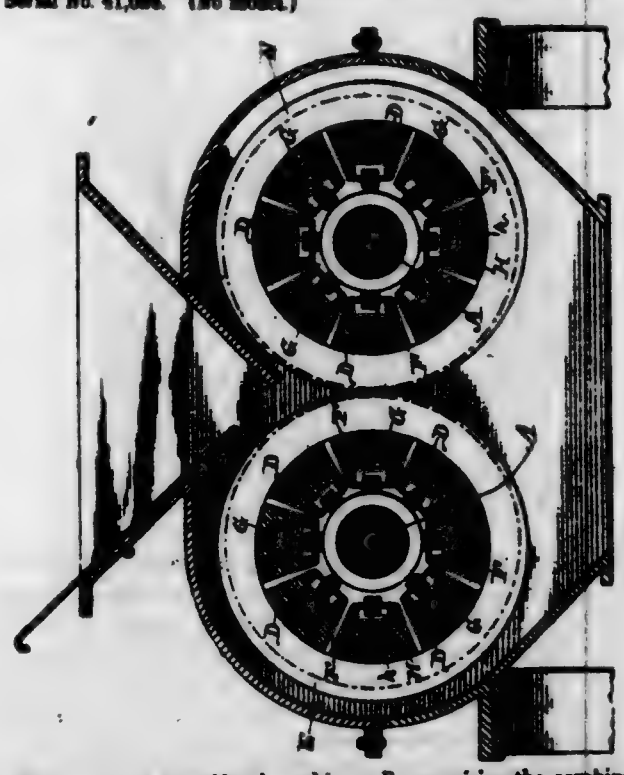
690,588. MEAT-TENDERER. RUDOLPH STOUT, Ostewin, Wis. Filed Feb. 15, 1901. Serial No. 47,501. (No model.)

Claim.—1. A meat-tenderer, having a pair of superposed intermeshed mangling-gears, one of which is provided with an operating-handle, and stops located at opposite sides of one of the gears and in the path of the movement thereof at a point prior to the operation of the gears.

2. A meat-tenderer comprising a standard provided with opposite stops, a pair of intermeshing gears mounted on the standards at the upper and lower portions thereof, the lower gear being center-shaped and arranged to engage the said stops to limit its movement and prevent it from swinging out of mesh with the upper gear, and a handle connected with the upper gear, substantially as described.



690,534. CRUSHING-MILL. THOMAS I. STURTEVANT, Quincy, and THOMAS J. STURTEVANT, Newton Center, Mass. Filed Dec. 26, 1900. Serial No. 41,096. (No model.)



Claim.—1. A centrifugal crushing-roll comprising the combination with a circular series of centrifugal weights, of a loose tire encircling said weights, and springs for yieldingly forcing said weights outward against the inner face of said tire and thereby serving, in cooperation with said tire, to normally hold said weights concentric with the shaft of the roll when the latter is at rest as well as when it is in rotation.

2. A centrifugal crushing-roll comprising the combination with two end heads having inwardly-projecting flanges, of a circular series of centrifugal weights overlapped by said flanges, a loose tire encircling said weights, and springs for forcing said weights outward against the inner face of said tire and against said flanges, to normally hold the weights concentric with the roll to balance the latter.

3. A centrifugal crushing-roll comprising the combination with two end heads, of a circular series of centrifugal weights, a series of pins or bars held in place by said heads and engaging said weights to retain them in their proper positions, a loose tire encircling said weights, and springs for yieldingly forcing said weights outward against the inner face of said tire and against said flanges, to normally hold the weights concentric with the roll and thus balance the latter when at rest.

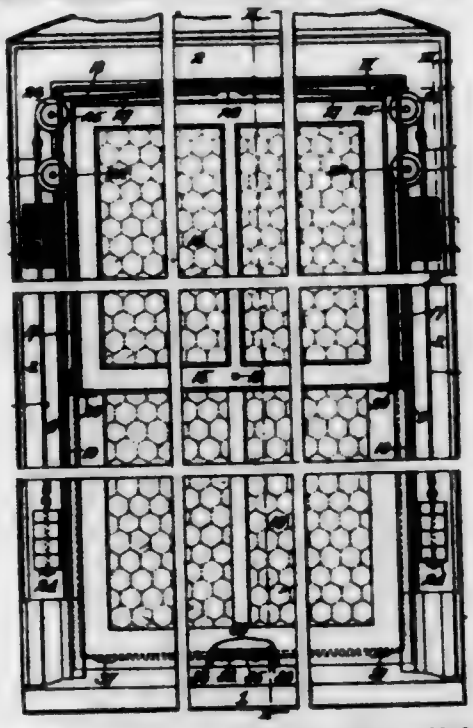
4. A centrifugal crushing-roll comprising the combination with two end heads C, C having inwardly-projecting peripheral flanges *c*, *c*, of a circular series of weights overlapped by the said flanges, a series of pins or bars held in place by said heads and engaging said weights to retain them in proper position, a tire encircling said weights and which tire is loose relative to the roll-shaft, and springs for yieldingly forcing said weights outward against the inner face of said tire to maintain the weights normally in position to balance the roll.

5. In a centrifugal crushing-mill, the combination with a roll the end-

ing face or part of which consists of a single tire which is loose relative to the shaft by which said roll is carried, a circular series of weights within said tire, and a series of springs interposed between said weights and the roll-shaft and exerting their pressure to hold said weights against the inner face of said tire to keep the latter and said weights in proper position, of an opposing roll outside of said tire and between which and the yieldingly-mounted tire of the first-named roll the material is to be crushed.

6. A centrifugal crushing-mill comprising two coöperating crushing-rolls both of which have tires which are loose relative to the shafts by which said rolls are carried, combined with centrifugal weights within said tires, springs interposed between said weights and the roll-shafts and exerting their pressure to hold said weights outward against the inner faces of said tires, to keep the latter in proper position and also to keep the said rolls balanced when at rest as well as when running.

690,585. SELF-CLOSING FIREPROOF WINDOW. FLETCHER D. SWARTY, Kansas City, Kans., assignor to John A. Ritzler, Kansas City, Mo. Filed Feb. 12, 1900. Serial No. 4,998. (No model.)



Claim.—1. In a self-closing window, a sash provided with a horizontal groove, and a destructible weighted connection extending through said groove protected when the sash is closed, but exposed to the direct action of heat and flame when the sash is open, substantially as described.

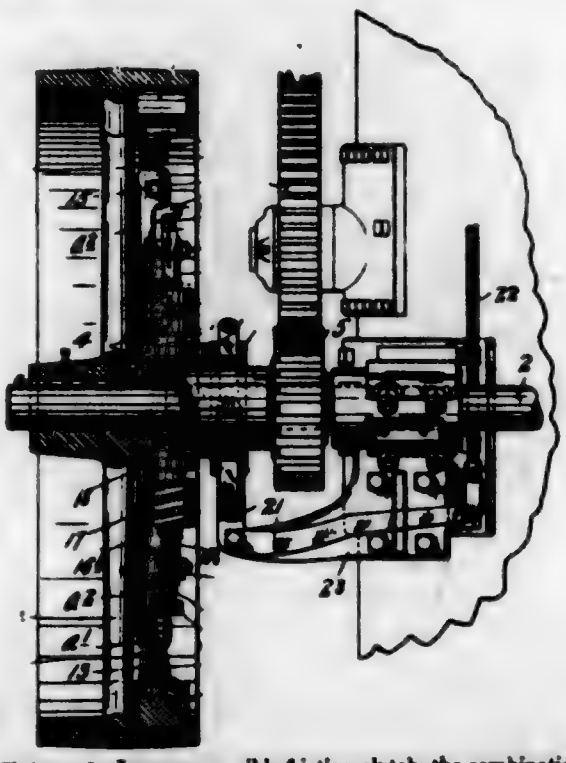
2. In a self-closing window, a casing, a counterbalanced sash fitting in the casing and provided with a horizontal groove, a connection extending through said groove, protected when the sash is closed, but exposed to the direct action of heat and flame when the sash is opened, and an independent power, adapted on the parting of said connection to effect the closing of said counterbalanced sash, substantially as described.

3. In a self-closing window, a casing, a grooved sash therein, a counterbalance-weight connected to the sash, a supplemental weight, and a connection extending through the groove of the sash protected when the latter is closed, but exposed to the action of heat or flame when it is open, and arranged to part or break under the action of heat or flame and impose the burden of the supplemental weight on the sash and thereby close the same, substantially as described.

4. In a self-closing window, a casing, a grooved sash, counterbalance-weights connected thereto, supplemental weights adapted to descend and strike the counterbalance-weights, and a connection adapted to part under the action of heat or flame extending through the groove of the sash for supporting said supplemental weights normally above and out of contact with the counterbalance-weights, and exposed to the direct action of heat or flame when the sash is opened, substantially as described.

5. In a self-closing window, a casing provided with hollow sides, a sash mounted reciprocally therein, and provided with side grooves and a horizontal groove, guide-pulleys projecting into the hollow sides of the casing and said side grooves of the sash, counterbalance-weights in said hollow casing sides, non-combustible tapes extending over said pulleys and connecting the sash and counterbalance-weights, supplemental weights mounted in said casing sides and upon the tapes therein, and a suitably-guided connection adapted to part under the action of heat or flame, supporting said supplemental weights normally above and out of contact with the counterbalance-weights, extending through said horizontal groove and protected when the sash is closed, but when the sash is opened exposed to the direct action of heat or flame, substantially as described.

690,586. FRICTION-CLUTCH FOR TRACTION-ENGINES. PAUL SWENSON, Minneapolis, Minn. Filed June 21, 1901. Serial No. 65,437. (No model.)

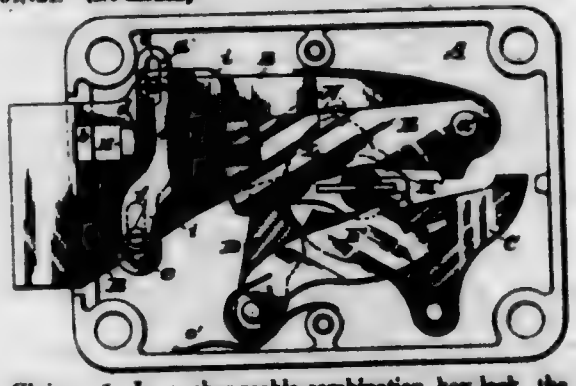


Claim.—1. In an expansible friction-clutch, the combination with a movable shoe-equipped holder and a relatively fixed resistance nut or block, of a sectional spreading-rod, the internal member of which is connected to said shoe-holder, and the external member of which has internal and external screw-threads engaging, respectively, said internal rod-section and said resistance nut or block, and an actuating device applied to impart a screw action to said spreading-rod, substantially as described.

2. In an expansible friction-clutch, the combination with a movable shoe-equipped holder and a relatively fixed resistance nut or block, of a sectional spreading-rod the internal member of which is connected to said shoe-holder and the external member of which has internal and external screw-threads engaging, respectively, said internal rod-section and said resistance nut or block, a pinion on said external rod-section, a rack engaging said pinion, and a shipper-collar connected to said rack, substantially as described.

3. The combination with the engine-shaft having a fly-wheel pulley fixed thereto, of a spider or head loose on said shaft and having secured to rotate therewith the loose or initial member of the traction-train of gears, shoe-equipped holders mounted for radial movements on said spider or head, resistance nuts or blocks fixed on said spider or head, sectional spreading-rods the internal members of which are connected to said shoe-holders and the external members of which have internal and external screw-threads engaging respectively, said internal rod-sections and said resistance-nuts, pinions on said external rod-sections, racks engaging said pinion, and a shipper-collar mounted on the external hub of said spider and connected to said racks, substantially as described.

690,587. CHANGEABLE-COMBINATION KEY-LOCK. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn. Filed Mar. 18, 1901. Serial No. 51,721. (No model.)



Claim.—1. In a changeable-combination key-lock, the combination with a bolt carrying an adjustable fence of a tumbler adapted to set the fence, means for retaining the latter in place when the bolt is locked, said adjustable fence when the bolt is retracted, automatically engaging with its tumbler and moving with it until the bolt is again locked, and a friction-plate bearing on the fence and its tumbler.

2. In a changeable-combination key-lock, the combination with a

bolt and a series of changeable fences carried by the bolt, of a pivoted tumbler for each fence, the several fences being adjusted by their respective tumblers as the bolt is moved to its locked position, so that the same key which locked the lock will properly set the tumblers to receive their respective fences as the bolt is withdrawn, means for retaining the movable fences against movement when the bolt is in its locked position, and spacing-plates for each fence and its corresponding tumbler.

3. In a changeable-combination key-lock, the combination with a bolt and a plurality of adjustable fences carried by the bolt, of a pivoted tumbler for each fence, a stationary spline engaging the series of adjustable fences when the bolt is in its locked position, for holding the adjustable fences against movement, and friction plates or washers interposed between the adjustable fences and overlapping the ends of the tumblers adjacent to the fences.

4. In a changeable-combination key-lock, the combination with a bolt and a series of longitudinally-movable fences carried by said bolt, of a tumbler for each fence and means for preventing one fence from imparting movement to another.

5. In a changeable-combination key-lock, the combination with a bolt and a series of movable fences carried thereby, of a tumbler for each fence and friction-plates interposed between the fences.

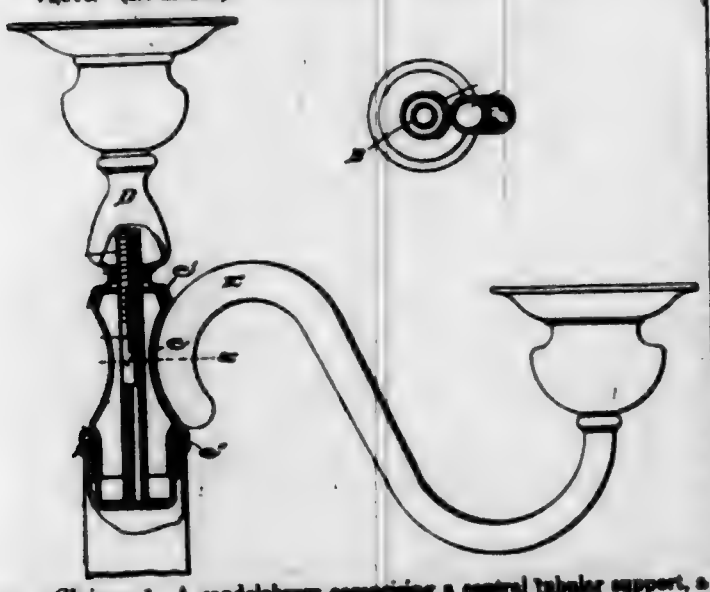
6. In a changeable-combination key-lock, the combination with a bolt and a series of movable fences carried thereby, each fence having a notched edge, of a tumbler for each fence, a stationary spline having a tongue adapted to enter a notch in each fence, and friction-plates interposed between the several movable fences.

7. In a changeable-combination key-lock, the combination with a bolt carrying adjustable fences, of a tumbler for each fence, the several fences being adjusted by their respective tumblers as the bolt is moved to its locked position, so that the same key which locked the lock will properly set the tumblers to receive their respective fences as the bolt is withdrawn, means for retaining the movable fences against movement when the bolt is in its locked position, a key-hub having a projection thereon, and a nest of supplementary guard-tumblers for locking the key-hub against rotation.

8. In a lock the combination with a bolt, tumblers and a key-plug, of a locking-lever for engaging a projection on the key-plug for locking the latter against rotation, and a nest of supplementary guard-tumblers for actuating the locking-lever.

9. In a lock, the combination with a bolt, tumblers, and a key-plug having slots for two keys, of a locking-lever for engaging a projection on the key-plug for locking the latter against rotation, and a nest of supplementary guard-tumblers for actuating the locking-lever.

690,538. CANDELABRUM. JEAN G. TERRASSA, North Attleboro, Mass., assignor to Frank M. Whiting and Company, North Attleboro, Mass., a Corporation of Rhode Island. Filed Sept. 4, 1901. Serial No. 74,316. (No model.)



Claim.—1. A candelabrum comprising a central tubular support, a plurality of candle-holding arms, and means for removably and adjustably clamping said arms to said tubular support, substantially as described.

2. A candelabrum comprising a base and a cap, an intermediate tubular support, means for clamping the base, cap and tubular support together, and a plurality of arms clamped to said support by the engagement of the base and cap with the said tubular support, substantially as described.

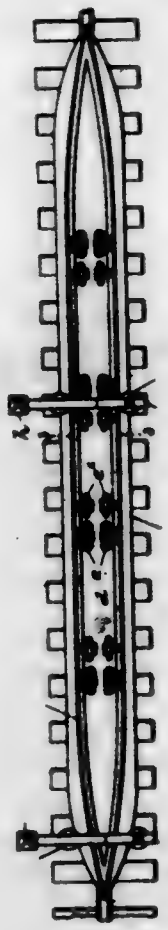
3. In combination the base and cap, a flange on both base and cap, an intermediate tubular support, arms having ears or projections thereon, said ears being engaged by the flanges, and means for securing the base, cap, intermediate support and arms together, substantially as described.

4. In combination the base having a threaded spindle projecting upward therefrom, the tube or support encircling said spindle, the cap having a threaded portion for engaging said threaded spindle, flanges on said base and cap, and candle-holding arms having projections engaged by said flanges, substantially as described.

5. In combination, the base, a spindle projecting therefrom, a tubular support encircling said spindle, a cap secured to the spindle above the tubular support, the said base having a circular flange extending upwardly thereof, and the said cap having a circular flange extending downwardly and a candle-arm having ears or projections thereon adapted to be engaged by the said upwardly and downwardly extending flanges, substantially as described.

6. In combination in a candelabrum, a central support, detachable arms thereon, means whereby said arms will be circularly adjustable on said support to permit of the insertion of other arms, substantially as described.

690,539. SINGLE-TRACK RAILWAY. HOWARD H. THEW, Windsor Hills, Md. Filed Oct. 31, 1901. Serial No. 80,606. (No model.)



Claim.—1. In a single-track railway the combination of a lower bearing-rail; a car; two balance-rails secured to and carried by said car; and pulleys having a stationary position above said bearing-rail and adapted to contact with the balance-rails as the car moves along.

2. In a single-track railway the combination of a lower bearing-rail; pulleys secured to revolve in a horizontal plane above said bearing-rail; a car; two flexible balance-rails carried by said car and adapted to contact with said pulleys as the car moves along.

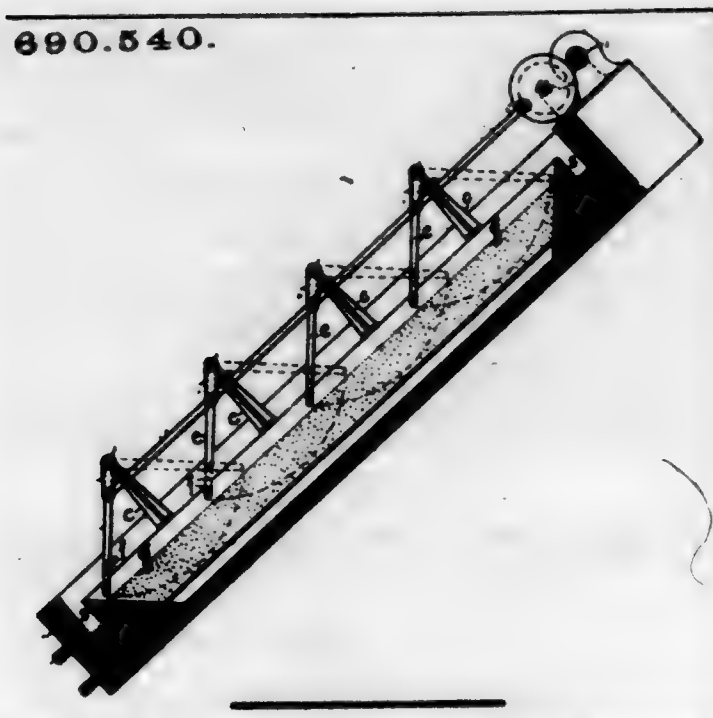
3. In a single-track railway the combination of a lower bearing-rail; pulleys secured to revolve in a horizontal plane above said bearing-rail said pulleys being arranged in pairs and spaced apart; a car mounted to travel on said lower bearing-rail; two rails secured on top of the car one at either side thereof and adapted to contact with said pulleys, said rails having a horizontal movement independent of each other; and means whereby the rails are kept pressed outward.

4. In a single-track railway the combination of a lower bearing-rail; pulleys arranged in pairs above said bearing-rail; a car; two balance-rails secured to the top of said car; guide-plates also secured to the car; a spring-pressed rod contacting with said balance-rails to keep the same pressed outward against said pulleys.

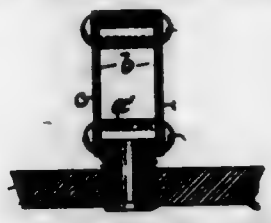
690,540. WATER-FILTER. WALTER WARNER, Berwyn, Ill. Filed Apr. 20, 1901. Serial No. 57,049. (No model.)

Claim.—The combination with a reversible-current filter-basin, of reciprocable stirring-arms in series on fixed fulcrums above said basin, substantially as specified.

690,540.



690,541. FILTER-STRAINER. WALTER WAGNER, Berwyn, Ill. Filed May 24, 1901. Serial No. 61,782. (No model.)



Claim.—1. The combination with a reversible-current gravity filter-bed, of a hollow-stemmed screen-holder provided with screens on its ends, said screens being vertical to the plane of said bed, substantially as specified.

2. A filter-strainer consisting of a case with parallel screen ends and a screw-stem to said case axially parallel with the screens, guards to said screens, and means for fastening said parts together, substantially as specified.

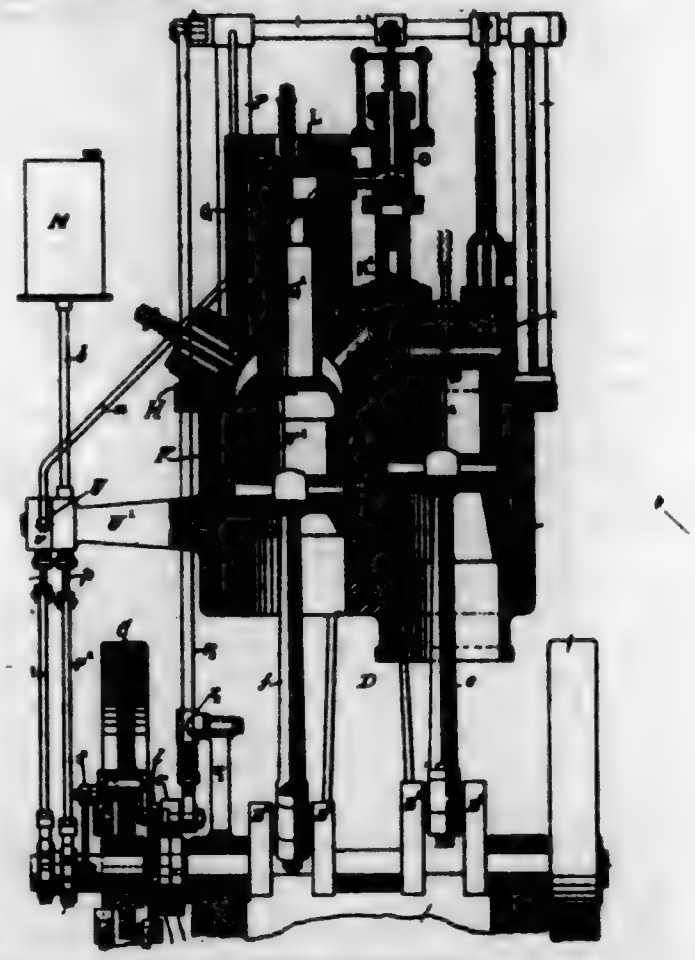
3. A filter-strainer consisting of a frame having parallel screen ends, a stem between said ends with axis parallel thereto, screens, and screen-guards provided with discharge-openings, rivet-openings to said guards and screens, and rivets to unite said parts, substantially as specified.

690,542. INTERNAL-COMBUSTION OIL-ENGINE. EDWIN F. WALLHAFE, Chicago, Ill., assignor to the Wallmann Engine Company, a Corporation of Illinois, originally designated as The Wallmann Internal-Combustion Engine Company. Filed Feb. 2, 1900. Serial No. 3,841. (No model.)

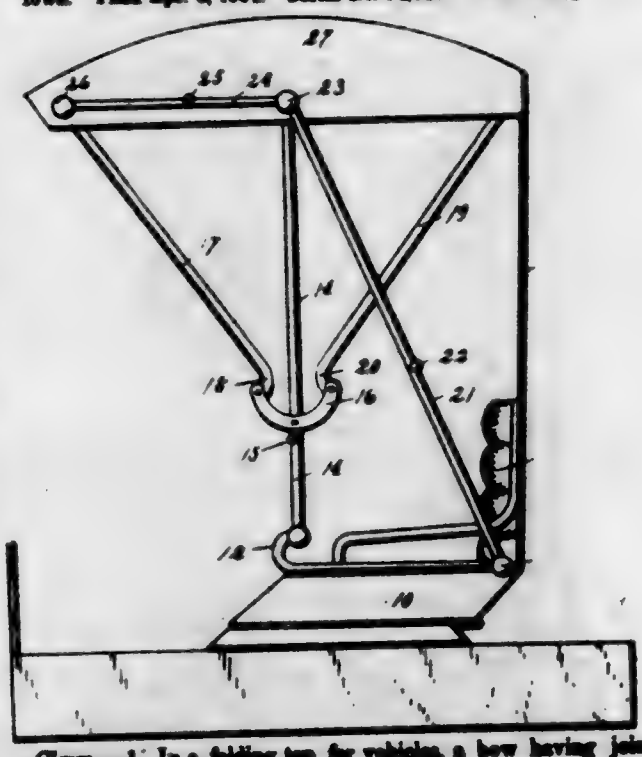
Claim.—1. In an oil-engine, in combination a combustion-cylinder, a low-pressure air-pump for scavenging the combustion-cylinder through a portion of the return stroke of the piston therein and for supplying compressed air for the combustion of the fuel after the scavenging operation has been completed, a high-pressure air-pump operating simultaneously with said low-pressure air-pump and having its discharge-port connected with the inlet-valve of the combustion-cylinder through a suitable canal or passage-way, an oil-pump for supplying oil fuel to the combustion-cylinder and having its delivery connected to said canal, whereby the compressed air delivered by said high-pressure air-pump impinges upon the oil and sprays and forces the same into the combustion-cylinder, a positively-actuated controlling-valve in said canal governing the time of admission of the oil fuel to the combustion-cylinder, and a mixer in said canal between the controlling-valve and the combustion-cylinder.

2. In an oil-engine, in combination a combustion-cylinder, a low-pressure air-pump adjacent to and parallel with the combustion-cylinder and having its discharge-port connected with the latter, a high-pressure air-pump in alinement with the low-pressure air-pump and operating simultaneously therewith, the connected plungers of said air-pumps following the piston of the combustion-cylinder approximately one-eighth of a turn of the crank-shaft, a delivery-canal connecting the discharge-port of the high-pressure air-pump with the combustion-cylinder, a liquid-fuel pump having its delivery connected to said canal, and a positively-actuated controlling-valve in said canal governing the time of admission of fuel to the combustion-cylinder.

3. In an oil-engine, in combination a combustion-cylinder, means for supplying compressed air thereto, an oil-pump for supplying oil thereto to be mixed with said compressed air and form a combustible charge, an adjustable cam on the crank-shaft, cam-actuated connections between said cam and the exhaust-valve of the combustion-cylinder, and a governor mechanism mounted on a moving part of the engine and connected with and controlling both the actuating mechanism of the oil-pump, thereby regulating the amount of fuel fed to the combustion-cylinder, and also the adjustable cam, and through the latter governing the time of closing the exhaust-valve of the combustion-cylinder.



690,548. FOLDING BUGGY-TOP. JOHN A. WILSON, Des Moines, Iowa. Filed Apr. 6, 1901. Serial No. 54,612. (No model.)



Claim.—1. In a folding top for vehicles, a bow having joints in its end portions and the ends pivotally connected with the front ends of the parallel sides of a seat, a semicircular cross-piece fixed to each end portion of the bow above the joint, a bow curved forward at its ends pivoted at said ends to the front ends of said fixed cross-pieces, a bow pivoted at its ends to the rear ends of the said cross-pieces, jointed braces pivoted to the rear ends of the parallel sides of the seat and to the jointed bow and jointed braces pivoted to the top portions of the front bow and the center bow, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a folding top for vehicles, a bow having joints in its end portions and the ends pivotally connected with the front ends of the parallel

sides of a seat, a cross-piece fixed to each end portion of the bow above the joint, a bow pivoted at its ends to the front ends of said fixed cross-pieces, a bow pivoted at its ends to the rear ends of the said cross-pieces, jointed braces pivoted to the rear ends of the parallel sides of the seat and to the jointed bow and jointed braces pivoted to the top portions of the front bow and the center bow, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a folding top for vehicles, in combination with a seat having a fixed back and supports for bows projecting from the rear portions of the sides of the seat, a bow provided with joints in its end portions to bend forward pivotally connected at its ends with the front portions of the sides of a seat and braces having joints to bend forward pivotally connected with said jointed bow and the fixed bow-supports at the rear portions of the parallel sides of the seat, to operate in the manner set forth for the purposes stated.

4. A folding top for vehicles comprising a bow pivoted at its ends to the fronts of the parallel sides of a seat having a fixed back and provided with joints for bending toward the fixed seat, cross-heads fixed to the jointed bow above its joints, a bow curved rearwardly at its ends pivoted to the rear ends of the fixed cross-pieces, a bow curved forwardly at its ends pivoted to the front ends of the cross-pieces, braces pivoted to the rear ends of the sides of the seat and provided with joints for bending forward, braces pivoted to the top end portions of the jointed bow and to the top end portions of the front bow and provided with joints to bend downward and a flexible covering material fixed to the bows and the fixed back of the seat, arranged and combined to operate in the manner set forth for the purposes stated.

690,544. TOY SAVINGS-BANK. BERTHOLD T. WOLF, Chicago, Ill. Filed May 13, 1901. Serial No. 60,047. (No model.)



Claim.—1. In a device for the purpose described the combination of a plurality of deposit-compartments, means for closing said compartments and a lock for said means, and means requiring the presence of coins in a plurality of said compartments for releasing said lock, substantially as set forth.

2. In a device for the purpose described the combination of a plurality of deposit-compartments, means for closing said compartments, a lock for said means having a member adapted to be engaged by the coins in said compartments, movable relatively to said compartments from the locked position to the unlocked position, substantially as set forth.

3. In a device for the purpose described the combination of a plurality of deposit-compartments, means for closing said compartments, a lock for said means comprising a deflectable member movable relatively to said compartments and deflectable by the coins therein and means for preventing said member from moving relatively to said compartments in the absence of coins in the latter, substantially as set forth.

4. In a device for the purpose described the combination of a plurality of coin-compartments, means for closing said compartments, a lock for said means having a deflectable member adapted to project into each of said compartments and to be deflected by the coins therein, and means corresponding to each of said compartments for engaging said member and preventing the movement thereof until deflected by the coins in the compartments, substantially as set forth.

5. In a device for the purpose described the combination of two relatively movable casing members one of which has a plurality of coin-compartments provided with coin-slots and the other with a single slot or opening adapted to coincide with either of said other slots, a lock for holding said members together comprising registering members on said casing members respectively adapted to separate when reaching a certain relative position, a deflectable member on one of said casing members adapted to move therewith relatively to said compartments and to project into said compartments successively and means on the other of said casing members engaging and holding said deflectable member against movement until coins are deposited in each of the compartments said deflectable member has to pass, substantially as set forth.

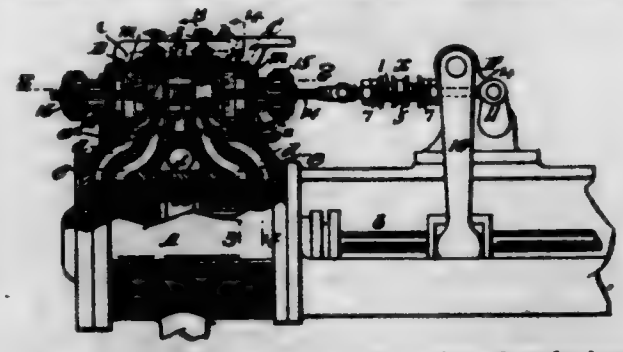
6. In a device for the purpose described the combination of two relatively movable casing members one of which has a plurality of coin-compartments provided with coin-slots and the other with a single slot or opening adapted to coincide with either of said other slots, a lock for holding said members together comprising registering members on said casing members respectively adapted to separate when reaching a certain relative position, a deflectable member on one of said casing members adapted to move therewith relatively to said compartments and to project into said compartments successively, means on the other of said casing members engaging and holding said deflectable member against movement until coins are deposited in each of the compartments said deflectable member has to pass, and means for preventing a return movement of said deflectable member, substantially as set forth.

7. In a device for the purpose described the combination of two relatively movable casing members one of which is provided with a plurality of coin-compartments each having a coin-slot and the other with a single slot adapted to register with said other slots successively, registering locking members on said casing members respectively for holding them against axial movement, a deflectable dog secured to and carried by one of said casing members and means corresponding to said coin-compartments respectively for engaging and holding said dog until deflected by the coins in said compartment, substantially as set forth.

8. In a device for the purpose described the combination of two relatively movable casing members one of which is provided with a plurality of coin-compartments each having a coin-slot and the other of which has a single coin-slot adapted to register successively with said other slots, registering locking means for holding said casing members against axial movement and a deflectable dog carried by one of said casing members and adapted to project into the coin-compartments, said dog having a beveled end deeper on one edge than on the other whereby it may pass a coin-compartment in one direction but not in the other, substantially as set forth.

9. In a device for the purpose described the combination of two relatively movable casing members, a plate fixed against rotation in one of said members and having a series of elastic tongues secured thereto and constituting the side walls of coin-compartments, said casing member having slots opposite said coin-compartments respectively and said plate having apertures opposite said compartments respectively and the other of said casing members having a single coin-slot adapted to register with said other coin-slots, registering locking members on said casing members respectively for holding them against axial movement and a deflectable dog secured to one of said casing members and having a beveled end adapted to project into said coin-compartments through said apertures, substantially as set forth.

690,545. STEAM PUMPING-ENGINE. CHARLES C. WORTHINGTON, Irvington N. Y. Filed Nov. 22, 1898. Serial No. 697,147. (No model.)



Claim.—1. A duplex piston-valve steam-chest adapted to be secured to a duplex-steam-cylinder construction in place of a duplex D or other slide-valve steam-chest and provided with separate admission and exhaust steam-ports controlled by the piston-valves and adapted to register with and form extensions of the cylinder steam-ports and having dash relief-valves controlling passages connecting the admission and exhaust ports.

2. The duplex piston-valve steam-chest B formed integral with the steam-ports d^2, e^2, g^2 and d^3, e^3, g^3 and adapted to be secured to a duplex-steam-cylinder construction with said ports registering with and forming extensions of the cylinder-ports, substantially as described.

3. The duplex piston-valve steam-chest B formed integral with the steam-ports d^2, e^2, g^2 and d^3, e^3, g^3 and passages containing dash relief-valves and adapted to be secured to a duplex-steam-cylinder construction with said ports registering with and forming extensions of the cylinder-ports, substantially as described.

4. A piston-valve steam-chest formed integral with separate admission and exhaust ports and passages connecting pairs of said ports and adapted to be secured to the steam-cylinder portion of a steam-engine with said ports registering with and forming extensions of the cylinder-ports, in combination with piston-valve mechanism in said casing controlling said admission and exhaust ports, and dash relief-valves controlling said passages, substantially as described.

5. A lost-motion link for valve-movements having a sleeve with one link end moving freely therein, an actuating member secured to said link end and extending outside said sleeve, and members on the outside of said

sleeve in position to be engaged by the actuating member and adjustable on the sleeve to vary the amount of lost motion.

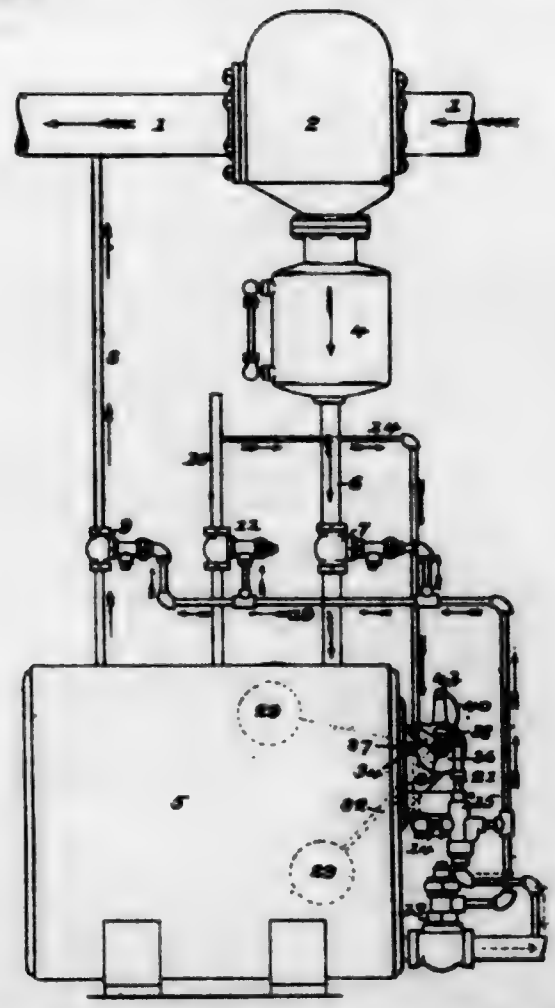
6. Lost-motion link *x* having the sleeve 1 screw-threaded on the outside and provided with slot 2, collar 5 outside sleeve 1 and secured to link end 4 through the slot 2, and adjustable nuts 7 on sleeve 1 in position for engagement with collar 5, substantially as described.

7. A lost-motion link for valve-movements having a sleeve and link-rod moving freely longitudinally of each other but held from rotation, and actuating members connected to the valve-rod and adjustable to vary the amount of lost motion, substantially as described.

8. In a lost-motion connection for valve-movements, the combination with a member connected to the valve-rod, of a collar thereon movable longitudinally of the rod but held against rotation thereon, and actuating members connected to the valve-rod and engaged by the collar to move the valve in opposite directions, substantially as described.

9. The combination with a link-rod connected to the valve-rod, of a collar, as 2, having a non-rotatable sliding connection with said link-rod, means for reciprocating said collar by the valve-movement, and adjustable actuating members on opposite sides of the collar connected to the valve-rod and engaged by the collar to move the valve in opposite directions, substantially as described.

690,546. DRAINAGE SYSTEM FOR STEAM PLANTS. JOHN ARNELL, St. Louis, Mo. Filed Apr. 24, 1901. Serial No. 57,164. (No model.)



Claim.—1. In a drainage system for steam plants, the combination of a steam-pipe, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, and a float in said tank controlling said operating means, substantially as set forth.

2. In a drainage system for steam plants, the combination of a steam-pipe, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, an equalizing-passage connecting the steam-pipe and drain-tank, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, and a float in said tank controlling said operating means, substantially as set forth.

3. In a drainage system for steam plants, the combination of a steam-pipe, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank controlling said valve, substantially as set forth.

4. In a drainage system for steam plants, the combination of a steam-pipe, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, an equalizing-passage connecting the steam-pipe and drain-tank, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means and a float in said tank controlling said valve, substantially as set forth.

5. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, and a float in said tank controlling said operating means, substantially as set forth.

6. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, an equalizing-passage connecting the steam-pipe and drain-tank, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, and a float in said tank controlling said operating means, substantially as set forth.

7. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank controlling said valve, substantially as set forth.

8. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, an equalizing-passage connecting the steam-pipe and drain-tank, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank controlling said valve, substantially as set forth.

9. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank connected to the controlling-valve and adapted as it nears the limit of its upward or downward stroke to operate said valve, substantially as set forth.

10. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, an equalizing-passage connecting the steam-pipe and drain-tank, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank connected to the controlling-valve and adapted as it nears the limit of its upward or downward stroke to operate said valve, substantially as set forth.

11. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage and adapted to be closed by steam-pressure, a steam-inlet to said tank, a valve arranged in said inlet and adapted to be opened by steam-pressure, a blow-off outlet from said tank, a valve arranged in said outlet and adapted to be opened by steam-pressure, a controlling-valve adapted to admit steam-pressure to said valves to operate the same in unison, and a float in said tank controlling said valve, substantially as set forth.

12. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage and adapted to be closed by steam-pressure, an equalizing-passage connecting the steam-pipe and drain-tank, a valve arranged in said passage and adapted to be closed by steam-pressure, a steam-inlet to said tank, a valve arranged in said inlet and adapted to be opened by steam-pressure, a blow-off outlet from said tank, a valve arranged in said outlet and adapted to be opened by steam-pressure, a controlling-

valve adapted to admit steam-pressure to said valves to operate the same in unison, and a float in said tank controlling said valves, substantially as set forth.

13. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage and adapted to be closed by steam-pressure, a steam-inlet to said tank, a valve arranged in said inlet and adapted to be opened by steam-pressure, a blow-off outlet from said tank, a valve arranged in said outlet and adapted to be opened by steam-pressure, a controlling-valve adapted to admit steam-pressure to said valves to operate the same in unison, and a float in said tank connected to the controlling-valve and adapted as it nears the limit of its upward or downward stroke to operate said valve, substantially as set forth.

14. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage and adapted to be closed by steam-pressure, an equalizing-passage connecting the steam-pipe and drain-tank, a valve arranged in said passage and adapted to be closed by steam-pressure, a steam-inlet to said tank, a valve arranged in said inlet and adapted to be opened by steam-pressure, a blow-off outlet from said tank, a valve arranged in said outlet and adapted to be opened by steam-pressure, a controlling-valve adapted to admit steam-pressure to said valves to operate the same in unison, and a float in said tank connected to the controlling-valve and adapted as it nears the limit of its upward or downward stroke to operate said valve, substantially as set forth.

15. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank connected to the controlling-valve and adapted as it nears the limit of its upward and downward stroke to operate said valve, the connection to the controlling-valve comprising a rock-shaft operated by said float, a disk loosely journaled on the rock-shaft and provided with separated lugs and a segmental slot, an arm fixed on the rock-shaft and provided with a lateral pin engaging between the separated lugs of the loose disk, the valve-stem of the controlling-valve having a lateral pin engaging the segmental slot of such disk, and a spring journaled at its upper end upon an axis vertically above the axis of the rock-shaft and at its lower end to an axis removed from the axis of the loose disk, substantially as set forth.

16. In a drainage system for steam plants, the combination of a steam-pipe, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in such passage, an equalizing-passage connecting the steam-pipe and drain-tank, a valve arranged in said passage, a steam-inlet to said tank, a valve arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank connected to the controlling-valve and adapted as it nears the limit of its upward or downward stroke to operate said valve, the connection to the controlling-valve comprising a rock-shaft operated by said float, a disk loosely journaled on the rock-shaft and provided with separated lugs and a segmental slot, an arm fixed on the rock-shaft and provided with a lateral pin engaging between the separated lugs of the loose disk, the valve-stem of the controlling-valve having a lateral pin engaging the segmental slot of such disk, and a spring journaled at its upper end upon an axis vertically above the axis of the rock-shaft and at its lower end to an axis removed from the axis of the loose disk, substantially as set forth.

17. In a drainage system of the character herein described the combination of a pipe or main, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, and a float in said tank controlling said operating means, substantially as set forth.

18. In a drainage system of the character herein described the combination of a pipe or main, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in such passage, a vent-inlet to said tank, arranged in said inlet, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, and a float in said tank controlling said operating means, substantially as set forth.

19. In a drainage system of the character herein described the combination of a pipe or main, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a blow-off outlet from said tank, a valve arranged in said outlet means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank controlling said valve, substantially as set forth.

20. In a drainage system of the character herein described the combination of a pipe or main, a water or grease separator connected thereto, a drain-tank receiving the drainage therefrom, a connecting drip-passage, a valve arranged in said passage, a blow-off outlet from said tank, a valve arranged in said outlet, means for operating said valves in unison, a main valve controlling said operating means, and a float in said tank connected to the controlling-valve and adapted as it nears the limit of its upward or downward stroke to operate said valve, substantially as set forth.

690,547. **BRAKE-BEAM.** JAMES H. BAKER, Allegheny, Pa., assignor to Jas. H. Baker Manufacturing Co., Pittsburg, Pa., a Corporation of Pennsylvania. Filed Apr. 27, 1901. Serial No. 57,660. (No model.)



Claim.—1. A brake-beam having in combination, a structurally-shaped compression member, brake shoe heads arranged on the ends of the compression member and provided with lateral extensions on their inner sides, a tension member having its ends connected to said extensions and a strut interposed between the compression and tension members, substantially as set forth.

2. A brake-beam having in combination, a structurally-shaped compression member, brake-shoe heads having lateral extensions from their inner sides, said extensions being provided with abutments, tension members having heads or enlargements adapted to fit behind said abutments and a strut interposed between the tension and compression members, substantially as set forth.

3. A brake-beam having in combination, a structurally-shaped compression member, brake-shoe heads arranged on the compression member and having lateral extensions from their inner sides, said extensions being provided with undercut shoulders or abutments, a tension member provided with heads or enlargements at its ends adapted to fit under the undercut abutments and a strut interposed between the tension and compression members, substantially as set forth.

4. A brake-beam having in combination a compression member formed of structurally-shaped material, brake-shoe heads arranged on the compression member, a tension member having its ends connected with the brake-shoe heads, a strut interposed between the tension and compression members provided at its inner end with straps adapted to be secured to the compression member, one of said straps being movably connected to the strut, substantially as set forth.

5. A brake-beam having in combination a compression member formed of structurally-shaped material, brake-shoe heads arranged on said beam, a tension member having its ends connected to the brake-shoe heads and an extensible strut arranged between the tension and compression members, said strut being provided at its inner end with straps adapted to be secured to the compression member, one of said straps being movably connected to the strut, substantially as set forth.

6. A brake-beam having in combination a compression member,

brake-shoe heads having sleeves adapted to fit over the ends of the compression member and provided with stops or shoulders adapted to bear against the ends of the compression member, lateral extensions provided with undercut abutments formed on the inner sides of the brake-shoe heads, a tension member provided at its ends with heads or enlargements adapted to engage the undercut abutments and an extensible strut interposed between the compression and tension members, substantially as set forth.

7. A brake-beam having in combination, a compression member, a tension member, and a strut interposed between the tension and compression members and provided at its inner end with straps adapted to be secured to the compression member, one of said straps being movably connected with the strut, substantially as set forth.

690,548. BRAKE-BEAM. JAMES H. BAKER, Allegheny, Pa., assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed July 31, 1901. Serial No. 70,380. (No model.)



Claim.—1. A brake-beam having in combination, a compression member, a tension member, brake-shoe heads secured directly to the compression member, and independent anchor-pieces secured to the compression member at or adjacent to both ends thereof and inside the brake-shoe heads and adapted to be secured to the tension member, substantially as set forth.

2. A brake-beam having in combination a compression member, a tension member, a strut and brake-shoe heads secured to the compression member and anchor-pieces independent of the brake-shoe heads secured to the compression and tension members and capable of removal from the compression member independent of the brake-shoe heads, substantially as set forth.

3. A brake-beam having in combination a compression member, a tension member, a strut, a brake-shoe head secured to the compression member, independent anchor-pieces adapted to be secured directly to the compression and tension members, substantially as set forth.

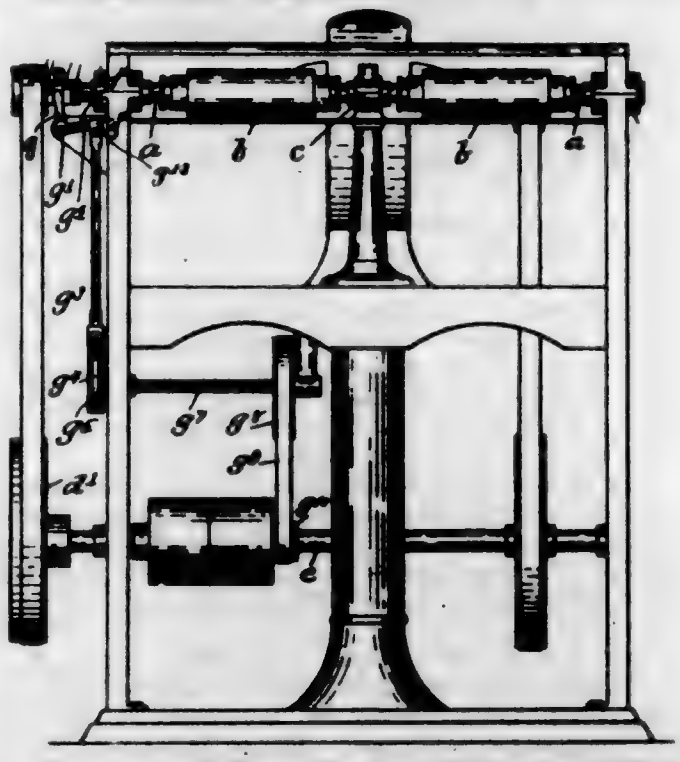
4. A brake-beam having in combination a compression member, a tension member, a strut, a brake-shoe head secured to the compression member, independent anchor-pieces provided with shoulders adapted to engage shoulders in the tension member, and means for drawing the anchor-pieces inwardly against the compression and tension members, substantially as set forth.

5. A brake-beam having in combination a compression member, a tension member, a strut, a brake-shoe head carried by the compression member and connected to the tension member, and a removable bearing-piece interposed between the head and compression member, substantially as set forth.

6. A brake-beam having in combination, a compression member, a tension member, a strut, a brake-shoe head and anchor-pieces connected to the tension member, the head and anchor-pieces being provided with flanges extending partially around the compression member and caused to fit the same closely by the securing-rivets, substantially as set forth.

7. A brake-beam having in combination a compression member, a tension member provided with inclined shoulders, a strut, a brake-shoe head carried by the compression member, anchor-pieces provided with inclined shoulders adapted to engage the shoulders in the tension member whereby the anchor-pieces are drawn inwardly toward the tension and compression members, substantially as set forth.

690,549. BUFFING-MACHINE. MILTON H. BALLARD, Lynn, Mass., assignor to George W. Emerson and Company, Lynn, Mass. Filed July 16, 1901. Serial No. 68,520. (No model.)



Claim.—1. In a buffing-machine, the combination of a rotatable longitudinally-reciprocating shaft bearing one or more buffing-rolls, of means for rotating said shaft, and means for reciprocating it longitudinally consisting of a pivoted bell-crank lever, one arm of which engages a sleeve on the shaft, and the other arm of which is connected by an eccentric-rod with the strap or ring of an eccentric, a shaft bearing said eccentric, disposed in parallelism with the main driving-shaft, a belt-pulley on said shaft and belt passing over said belt-pulley and over a belt-pulley on said main driving-shaft, substantially as described.

2. In a buffing-machine, the combination of a rotatable longitudinally-reciprocating shaft bearing one or more buffing-rolls, means for rotating said shaft, and means for reciprocating it longitudinally consisting of a sleeve on the shaft having a pair of ears at each side, a pivoted bell-crank lever, one of the arms of which is made as a yoke which works between said ears, the extremities of said arms being formed widest at points substantially midway the upper and lower ends of the ears and reduced in width above and below said widest portion, an eccentric-rod connecting said bell-crank lever with a strap or ring on an eccentric, a shaft bearing said eccentric and means for rotating said shaft, substantially as described.

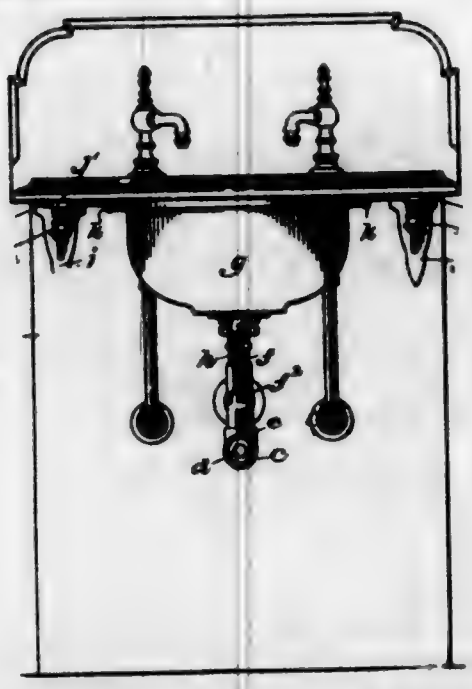
3. In a buffing-machine, the combination of a rotatable longitudinally-reciprocating shaft bearing one or more buffing-rolls, of means for rotating said shaft, and means for reciprocating it longitudinally consisting of a pivoted bell-crank lever, one arm of which engages a sleeve on the shaft, and the other arm of which is connected by an eccentric-rod with the strap or ring of an eccentric, a shaft bearing said eccentric, and means for rotating said shaft, and means for varying the stroke of said bell-crank lever to compensate for wear, substantially as described.

690,550. WASHSTAND-FIXTURE. JAMES BARRETT, Boston, Mass. Filed Mar. 31, 1900. Serial No. 10,871. (No model.)

Claim.—1. In a washstand-fixture the combination with a trap member consisting of a horizontally-disposed cylinder having an open end of the full diameter of the interior wall of the cylinder, a boss formation on one side a short distance back from said open end with a bore extending through the interior wall of the cylinder, and at the opposite end a gooseneck extension springing from the same side as the boss; of a drain-pipe engaging the boss-bore, and a closure removably engaged with the open end of the cylinder whereby the amount of projection of the drain-pipe inwardly beyond the interior wall of the cylinder may be readily ascertained, substantially as described.

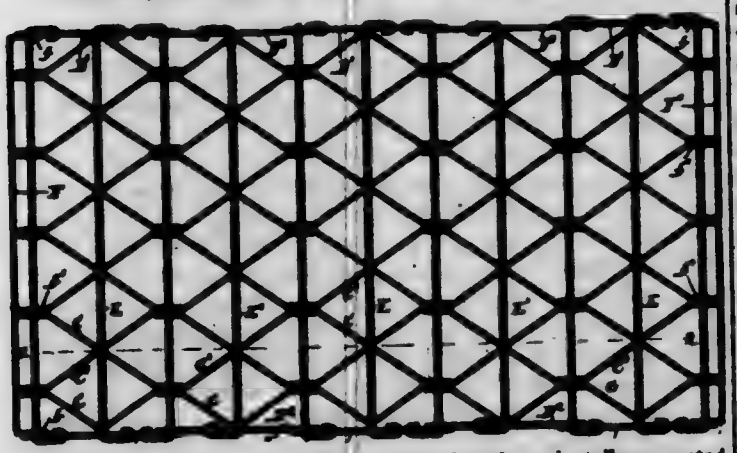
2. In a washstand-fixture the combination with the bowl and slab; of brackets having horizontal arms upon which the slab rests; clamps

having curved portions engaging the sides of the bowl and shanks extending between the slab and the bracket-arms; and clamping devices on the bracket-arms engaging the shanks of the bowl-clamps pressing the same against the slab, substantially as described.



3. In a washstand-fixture the combination with the bowl and slab; of supporting-brackets having horizontal arms upon which the slab rests; clamps having curved portions engaging the sides of the bowl and shanks extending through the bracket-arms and adjustable transversely thereof; and clamping devices engaging the bracket-arms and the shanks of the bowl-clamps to fix the latter at different adjustments, substantially as and for the purpose described.

690,551. MAT. ALBERT BAUMGARTEN, Freeport, Ill., assignor to McEeely Bros., Marshalltown, Iowa, a firm composed of Geo. W. McEeely and Henry McEeely. Filed Jan. 11, 1900. Serial No. 1,002. (No model.)



Claim.—1. A mat comprising a series of sections pivotally connected together, said sections being formed of a plurality of longitudinally-disposed strips bent laterally at their central portions, transverse rods extending through said strips and forming pivots to permit the sections to be folded, and cross-stays extending through said strips intermediate the transverse rods.

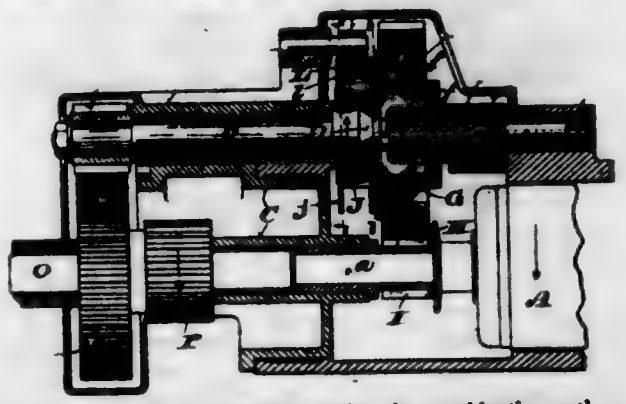
2. A mat comprising a series of sections pivotally connected together, said sections being formed of a plurality of longitudinally-disposed strips bent laterally at their central portions, transverse rods extending through perforations adjacent the terminals of said strips and forming pivots to permit the sections to be folded, cross-stays extending through said strips intermediate the transverse rods, and side bars wherein the transverse rods and cross-stays are retained.

3. A mat comprising a series of sections pivotally connected together, said sections being formed of a plurality of longitudinally-disposed strips bent laterally at their central portions, side bars and transverse rods extending through said strips and bars forming pivots to permit the sections to be folded, the terminals of said rods being bent inwardly and extended through perforations in said bars to retain the bars against lateral play on the rods.

4. In a metal door-mat the combination of a plurality of short flat pieces of metal bent laterally at their central portions and their straight end portions perforated and straight wires extended through the mating perforated ends to pivotally connect the flat end portions for the purposes stated.

5. A flexible metal door-mat consisting of short pieces of flat metal, each bent laterally into angular form at its center and perforated at their ends, straight round wires extended through its mating parallel and overlying perforated ends and provided with heads at their ends to operate in the manner set forth for the purposes stated.

690,552. AUTOMATIC BRAKE. MATTHIAS A. BECK, Milwaukee, Wis., assignor to Pawling and Harnischfeger, a firm composed of Alonzo Pawling and Henry Harnischfeger, Milwaukee, Wis. Filed July 30, 1900. Serial No. 25,239. (No model.)



Claim.—1. In an automatic brake, the combination with a rotary power-transmitting shaft having a screw-thread and a conical or tapering shoulder, of two friction-wheels loosely mounted on said shaft and having conical or tapering engaging faces, one of said friction-wheels having a screw-threaded bore engaging the screw-thread on said shaft, and the other friction-wheel having a conical or tapering recess fitting the conical or tapering shoulder on said shaft, and means for holding the last-mentioned friction-wheel from turning in one direction, substantially as and for the purpose set forth.

2. In an automatic brake, the combination of a shaft having two collars and a screw-thread between them, one of said collars having a conical end, of male and female conical friction-wheels loosely mounted on said shaft between said collars, the male friction-wheel having a central conical recess next to and fitting the conical collar and the female friction-wheel having its hub screw-threaded to engage the screw-thread on said shaft and extending into a recess in the adjacent end of the male friction-wheel, and means for holding the male friction-wheel from turning in one direction, substantially as described.

3. In an automatic brake, the combination with a rotary power-transmitting shaft having two collars and a screw-thread between them, of friction-wheels loosely mounted on said shaft between said collars, the hub of one of said wheels being screw-threaded to engage the screw-thread on said shaft, and means for preventing the other friction-wheel from turning in one direction, one of said friction-wheels having an internal recess for holding a lubricant in communication with the working faces of said wheels, substantially as described.

4. In an automatic brake, the combination with a shaft having two collars and a screw-thread between them, of male and female conical friction-wheels loosely mounted upon said shaft between said collars, the male friction-wheel having a central recess in one end and the female friction-wheel having a hub extending into said recess and screw-threaded to engage the screw-thread on said shaft, means for holding the male friction-wheel from turning in one direction, and means for supplying lubricant to the recess therein, substantially as described.

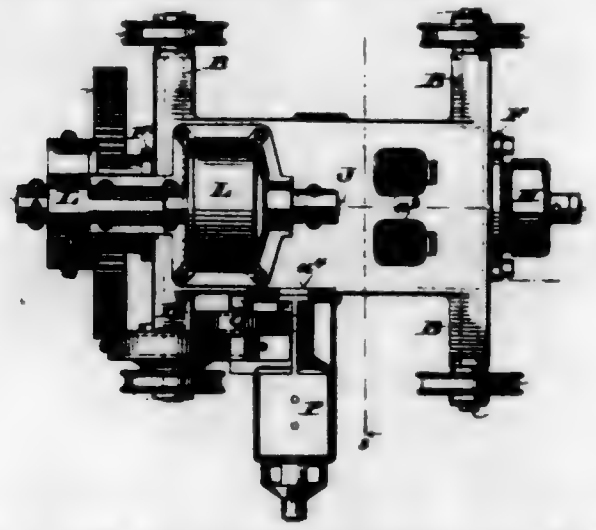
5. In an automatic brake, the combination with a shaft having two collars and a screw-thread between them, of male and female conical friction-wheels loosely mounted on said shaft between said collars, the male friction-wheel having a lubricant-holding recess opening through its inner end next to its working face, the female friction-wheel having its hub internally screw-threaded to engage the screw-thread on said shaft and an annular lubricant-recess around its hub next to its working face, and said shaft having a passage leading into said recess for supplying lubricant thereto, and means for holding the male friction-wheel from turning in one direction, substantially as described.

690,558. TROLLEY FOR ELECTRIC CRANES. MATTHIAS A. BECK, Milwaukee, Wis., assignor to Pawling and Harnischfeger, a firm composed of Alonzo Pawling and Henry Harnischfeger, Milwaukee, Wis. Filed July 30, 1900. Serial No. 25,240. (No model.)

Claim.—1. A trolley-frame for electric cranes consisting of a casing formed with openings in the ends and on the sides at or near the ends with horizontal arms or projections bored lengthwise to receive the axles of the trolley-supporting wheels, substantially as and for the purposes set forth.

2. A trolley-frame for electric cranes consisting of a casing adapted

to inclose the armature of the hoisting-motor and formed inside with pole-pieces for the field-magnets of said motor, at the ends with openings for the front and back heads and the bearings of the armature, and on the sides at or near the ends with horizontal arms or projections bored lengthwise in line with each other to receive the axles of the trolley-supporting wheels, substantially as and for the purposes set forth.



3. In a trolley for electric cranes the combination of a casing formed with openings in the ends, pole-pieces inside, and horizontal arms or projections on the sides at or near the ends for the trolley-supporting wheels, front and back heads closing said end openings and provided with journal-bearings, and a motor-armature mounted in said bearings and inclosed in said casing, substantially as and for the purposes set forth.

4. In a trolley for electric cranes the combination of a casing formed on the sides with arms or projections for the axles of the supporting-wheels and in the top and ends with openings, heads closing the end openings and formed with journal-bearings, an armature supported by said bearings within said casing, a hoisting-drum supported parallel with the armature by brackets depending from said casing, a brake-shaft mounted on top of the casing parallel with the armature-shaft and connected therewith by gears through the top opening in said casing, and a shaft between and parallel with the drum and brake shafts and connected therewith by gears, substantially as and for the purposes set forth.

5. In a trolley for electric cranes the combination of a casing formed with arms or projections on the sides for the axles of the trolley-supporting wheels, axles supported in said arms or projections, wheels mounted on said axles, one of the axles extending through said casing and the supporting-wheels being fixed thereon, a hoisting-drum supported in brackets depending from said casing, a motor-armature supported within said casing parallel with said drum and connected with the drum by gears, and a motor mounted on one side of said casing and connected by gears with one of said axles, substantially as and for the purposes set forth.

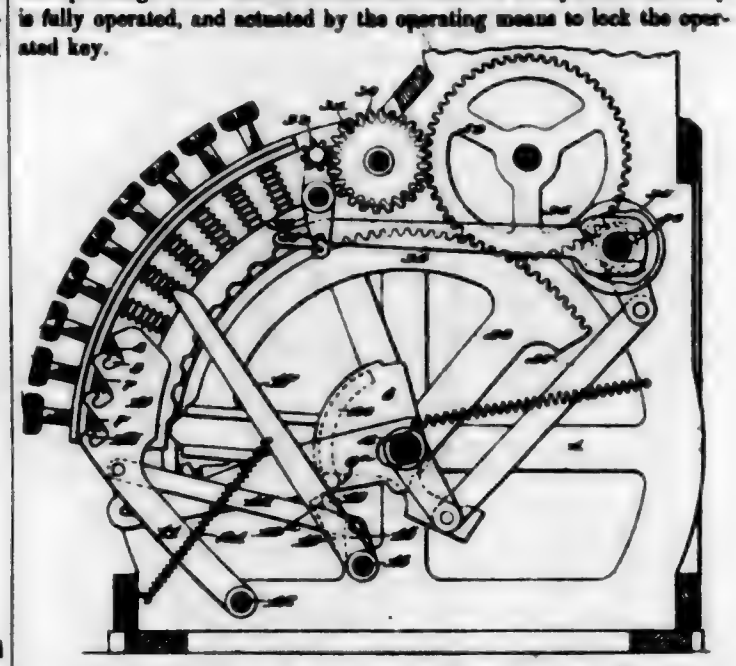
6. In a trolley for electric cranes the combination of a casing formed with openings in the ends and arms or projections on the sides for the axles of the supporting-wheels, axles supported in said arms or projections, wheels mounted on said axles, one of said axles extending through said casing and the supporting-wheels being fixed thereon, heads closing the end openings in said casing and provided with journal-bearings, a motor having its armature-shaft supported in said bearings, an automatic motor-brake mounted on one of said heads, a brake-shaft mounted on top of said casing parallel with said armature-shaft and connected therewith by gears, an automatic brake mounted upon said brake-shaft, a hoisting-drum suspended from said casing parallel with said armature-shaft, a shaft between and parallel with said drum and brake-shaft and connected therewith by gears, and a motor mounted on one side of said casing and connected by gears with one of said axles, substantially as and for the purposes set forth.

690,554. CASH-REGISTER. FRANK H. ROUTZEN, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 31, 1900. Serial No. 11,166. (No model.)

Claim.—1. In a cash-register, the combination with a series of keys, of a latch plate or lever arranged to be struck by the keys, a register-operating mechanism, and means connecting with the latch plate or lever and arranged to be thrown into position to lock the operating mechanism during the time the operated key is moving from normal to its final operated position.

2. In a cash-register, the combination with an operating mechanism, of a special key, a counter-throw-out mechanism, means operated by the key for setting said throw-out mechanism for operation in connection with the operating mechanism and devices connected to the operating mechanism for moving the said setting means to lock the operated key.

3. In a cash-register, the combination with a series of keys, of a register-operating means, mechanism controlled by the keys for locking the operating means after the initial movement of a key and until a key is fully operated, and actuated by the operating means to lock the operated key.



4. In a cash-register, the combination with a series of keys, of a register-operating means carrying a locking projection, a movable member operated by the keys and carrying a locking projection which coöperates with the first-mentioned projection to lock the operating means until a key is fully operated, and is operated by said first-mentioned projection to lock the keys.

5. In a cash-register, the combination with a series of keys having projecting pins, of a plate having notches coöperating with said pins, a movable member carrying a locking-flange and a pivoted lever connected to said plate and having a locking-leg which coöperates with said flange whereby the plate is moved to lock the keys.

6. In a cash-register, the combination with a series of keys, of a plate common to said keys, a movable member carrying a beveled flange and a locking-block operated by said plate and coöperating with said flange so as to be operated by the same.

7. In a cash-register, the combination with a series of keys, of an operating means having a beveled flange, devices set by the keys to be operated by said flange to lock the keys, and a register-controlling device actuated by said devices.

8. In a cash-register, the combination with a series of keys, of an operating means having a beveled flange, a plate common to and operated by the keys, and devices connected to said plate and arranged to coöperate with the flange and be actuated thereby to move said plate and thereby lock the keys.

9. In a cash-register, the combination with a series of keys, of an operating means, a plate common to the keys and connections arranged to be set by the plate so as to be actuated by the operating device and when so actuated to move the plate to lock the keys.

10. In a cash-register, the combination with a series of keys, of an operating means carrying a beveled flange, a plate common to the keys and connections arranged to be set by the plate so as to be actuated by the flange and when so actuated to move the plate to lock the keys.

11. In a cash-register, the combination with a series of keys, of an operating means provided with a beveled flange, a register and throw-out devices, a rock-shaft carrying a lever for operating the throwing-out devices and a lug which coöperates with said flange, and a plate coöperating with the keys and connected to said rock-shaft.

12. In a cash-register, the combination with a series of keys, of operating means provided with a flange having a bevel-face, a register and throw-out devices, a rock-shaft moving a lever for operating the throwing-out devices and having an arm provided with a stop-lug which is arranged to coöperate with said flange, a plate having detent-hooks for said keys and arranged to be operated by the latter and means connecting the rock-shaft and plate.

13. In a cash-register, the combination with a series of keys, of register-operating means, a movable member operated by the keys to first lock and then unlock or release the operating devices, and means actuated by the operating means to impart an additional movement to the movable member and thus cause it to lock the keys.

14. In a cash-register, the combination with a series of keys, of register-operating means, a movable member operated by the keys to first lock and then release or unlock the operating means and provided with locking projections for the keys, and means actuated by the operating means to impart sufficient additional movement to the movable member to cause the locking projections to lock the keys.

15. In a cash-register, the combination with a series of keys, of register-operating means, a movable member operated by the keys to first lock and then release the operating means and formed with locking-hooks for the keys and means actuated by the operating means to impart sufficient additional movement to the movable member to cause the locking-hooks to lock the keys during the registering operation.

16. In a cash-register, the combination with a series of keys, of register-operating means, a movable member adapted when operated by the movement of a key to lock all the unoperated keys in the series, means connected to said member to first lock and then release the operating means when a key is operated, and means actuated by the operating means to impart sufficient additional movement to the movable member to cause the latter to lock the operated key.

17. In a cash-register, the combination with a series of keys, of a movable member arranged to be operated by said keys, an operating means, a beveled flange connected to the operating means and a beveled lug connected to the movable member and arranged to first lock the operating means upon the movement of a key and then to be given an additional movement by said flange to lock the operated key during the registering operation.

18. In a cash-register, the combination with a series of keys, registering-wheels and an operating mechanism, of a register throw-out device, comprising a rock-frame carrying connecting-pinions, an operating device for said frame and a lever for throwing the operating device into and out of operative position, means for setting the lever by the operation of a key and means for completely operating the lever upon the movement of the operating mechanism.

19. In a cash-register, the combination with a series of keys, of a register-operating means, a latch plate or lever arranged to be struck by the keys, a register-operating means, and a locking mechanism arranged to lock the operating means during the movement of the operated key, a device arranged to then lock the latch plate or lever so as to prevent the operation of any additional key until the movement of the operating mechanism is completed.

690,555. DOOR-STOP. WILLIAM V. BLEMA, St. Louis, Mo. Filed Mar. 28, 1901. Serial No. 53,496. (No model.)



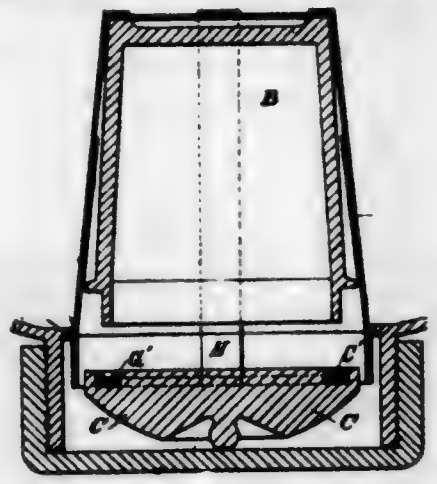
Claim.—1. A door-stop comprising an outer casing, a longitudinal peripheral way formed in the walls thereof, a sliding stem mounted and rotatable within the casing, teeth disposed on each side of the way, those on one side breaking joint with those on the opposite side, a handle carried by the stem, the handle having a base adapted to lock with either series of teeth when turned to one of its extreme positions, substantially as set forth.

2. A door-stop comprising an outer casing, a longitudinal peripheral way formed in the wall thereof, a basal lobed extension forming a continuation of the way, a sliding stem mounted and rotatable within the casing, a longitudinal socket formed in the stem for the reception of a suitable buffer, a transverse socket formed at the inner end of the stem, a spring confined in the socket and bearing against the adjacent wall of the casing, a handle secured to the stem and located diametrically opposite the transverse socket, a rear terminal peripheral gap being formed in the wall of the casing for the initial reception of the handle and stem, teeth disposed on each side of the way, those on the one side being opposite the spaces between the teeth on the opposite side, and suitable engaging ribs and spaces at the base of the handle for coöperating with the spaces and teeth of the casing, the parts operating substantially as and for the purpose set forth.

690,556. FIRE-EXTINGUISHER. JOHN H. BRITTON, Los Angeles, Cal. Filed Jan. 16, 1900. Serial No. 1,877. (No model.)

Claim.—1. In a fire-extinguisher, the combination of a closed alkali-containing tank; an acid-containing vessel in an upright position in the mouth thereof; a lid for said acid vessel adapted to cover the mouth thereof, and having on its under face an annular groove for the reception of plastic amalgam; plastic amalgam in said groove, substantially as shown and described.

2. In a fire-extinguisher, the combination of plastic amalgam interposed between the charging vessel and the lid thereof; the charging vessel for holding acid, and the lid; the lid being provided with means to hold the amalgam between itself and the top edges of the charging vessel.

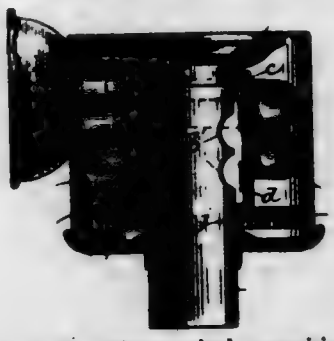


3. In a fire-extinguisher, plastic amalgam between the top of the charging-chamber and the lid thereof.

4. In a fire-extinguisher adapted to discharge the acid in the charging-chamber into the tank containing the alkali when the extinguisher is inverted, the combination of plastic amalgam interposed between the top of the charging-chamber and the lid thereon, the charging-chamber and the lid, substantially as shown and described.

5. A portable fire-extinguisher, comprising an alkali-containing tank; a charging vessel located therein for holding the acid and having a lid adapted to fall off when the extinguisher is inverted; and plastic amalgam interposed between the lid and the top of the charging-chamber for hermetically sealing the same.

690,557. TERMINAL FOR SPEAKING-TUBES. JAMES O. BROWN, Boston, Mass. Filed May 16, 1901. Serial No. 60,476. (No model.)



Claim.—1. A speaking-tube terminal comprising a mouthpiece, a rigid tube-section extending therefrom, a rotary holder or drum journaled on the said tube-section and communicating with the interior of the latter, a flexible tube secured at its inner end to said drum and having an earpiece at its outer end, and means for yieldingly rotating the drum to wind the flexible tube thereon and permit the unwinding of the tube therefrom.

2. A speaking-tube terminal comprising a mouthpiece, a rigid tube-section extending therefrom, a rotary holder or drum journaled on the said tube-section and communicating with the interior of the latter, a flexible tube secured at its inner end to said drum and having an earpiece at its outer end, and a spring connected at one end with said drum and at the other end with a fixed support, whereby the drum is yieldingly rotated to wind the flexible tube thereon, the spring permitting the unwinding of the tube from the drum.

3. A speaking-tube terminal comprising a mouthpiece, a rigid tube-section extending therefrom, a rotary holder or drum journaled on the said tube-section and communicating with the interior of the latter, a flexible tube secured at its inner end to said drum and having an earpiece at its outer end, means for yieldingly rotating the drum to wind the flexible tube thereon and permit the unwinding of the tube therefrom, and a fixed casing surrounding the drum and having a slot through which the flexible tube extends.

4. A speaking-tube terminal comprising a mouthpiece, a rigid tube-section extending therefrom, a rotary holder or drum journaled on the said tube-section and communicating with the interior of the latter, a flexible tube secured at its inner end to said drum and having an earpiece at its outer end, and means for yieldingly rotating the drum to wind the flexible tube thereon and permit the unwinding of the tube therefrom, said tube having an inner end terminal affixed obliquely to the drum.

5. A speaking-tube terminal comprising a mouthpiece, a rigid tube-section extending therefrom, a rotary holder or drum journaled on the said tube-section and communicating with the interior of the latter, a flexible tube secured at its inner end to said drum and having an earpiece at its outer end, means for yieldingly rotating the drum to wind the flexi-

ble tube thereon and permit the unwinding of the tube therefrom, and a fixed casing surrounding the drum and having a slot through which the flexible tube extends, said casing having a cushion for the earpiece.

6. A speaking-tube terminal comprising a mouthpiece, a main-tube section extending therefrom and having a perforated portion, a drum surrounding said perforated portion and separated therefrom by a space forming a chamber communicating with the main-tube section, and a branch-tube section connected at its inner end with said drum and having an earpiece at its outer end.

690,558. WATCHCASE-PENDANT. CHARLES W. BOTTS, Sag Harbor, N. Y., assignor to Pahys Watch-Case Company, New York, N. Y., a Corporation of New York. Filed Nov. 2, 1901. Serial No. 80,859. (No model.)



Claim.—1. In a watchcase-pendant, the combination with the pendant proper, of a dust-cap threaded on the outer end of said pendant, a spring-sleeve fitting within said pendant and secured to said dust-cap, a winding-stem fitting within said spring-sleeve and having its outer end projecting beyond said cap, and a crown fitting over said cap and secured to the outer end of said stem, substantially as described.

2. In a watchcase-pendant, the combination with a pendant proper, of a dust-cap threaded onto the outer end of said pendant, a spring-sleeve fitting within said pendant and adjustably connected with said dust-cap, a winding-stem passing through said spring-sleeve, and a crown secured to the outer end of said winding-stem, substantially as described.

3. In a watchcase-pendant, the combination, with a pendant proper, of a dust-cap threaded onto the outer end of said pendant, a spring-sleeve fitting within said pendant and having its outer end threaded into said dust-cap, a winding-stem passing through said spring-sleeve, and a crown threaded onto the outer end of said winding-stem, substantially as described.

4. In a watchcase-pendant, the combination, with a pendant proper, of a dust-cap threaded onto the outer end of said pendant, a spring-sleeve fitting within said pendant and threaded to said dust-cap, means for locking said spring-sleeve to said dust-cap, a winding-stem passing through said sleeve, and a crown secured to the outer end of said winding-stem, substantially as described.

5. In a watchcase-pendant, the combination with a pendant proper, of a dust-cap threaded onto the outer end of said pendant and having a threaded opening in the top thereof, a spring-sleeve having its upper end threaded in said opening in the top of the dust-cap and projecting beyond the same, a lock-nut threaded onto the projecting end of said spring-sleeve and impinging against the top of said dust-cap, a winding-stem passing through said spring-sleeve, and a crown threaded onto the outer end of said winding-stem, substantially as described.

6. In a watchcase-pendant, the combination with a pendant proper, of a dust-cap threaded onto the outer end of said pendant, a spring-sleeve fitting within said pendant and having its outer end reduced in diameter and threaded into an opening formed in the top of said dust-cap and projecting beyond the same, a nut threaded onto the projecting end of said spring-sleeve and impinging against the top of said dust-cap, a winding-stem passing through said spring-sleeve, and a crown threaded onto the outer end of said winding-stem, substantially as described.

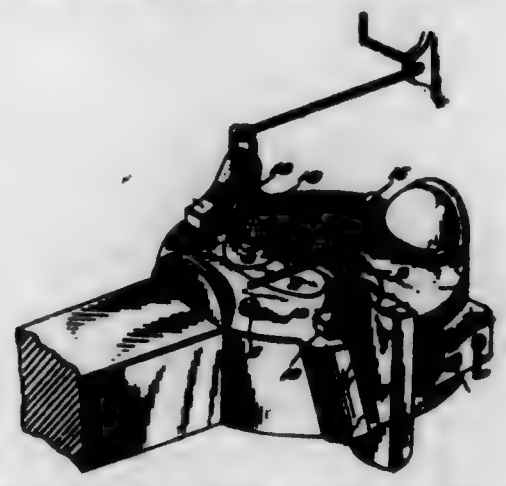
690,559. METAL FREIGHT-CAR. LEWIS T. CANFIELD, Scranton, Pa., assignor to the Sterlingworth Railway Supply Company, Boston, Pa., a Corporation of Pennsylvania. Filed Nov. 9, 1901. Serial No. 81,778. (No model.)



Claim.—1. A freight-car having its sides and ends formed of channel-bars placed vertically on flanges and the flanges riveted together, some of the channels having wings at the ends which wings extend beyond the flanges of such channel-bars and which wings are bent upon and riveted to the webs of the other channel-bars at the corners of the car, substantially as herein shown and described.

2. A freight-car having its sides and ends formed of channel-bars placed vertically on flanges and the flanges riveted together, each bar having at each end a wing extending beyond the flanges and bent rectangular upon and riveted to the web of another channel-bar, substantially as herein shown and described.

690,560. CAR-COUPLING. JOHN H. CLARK, Vincennes, Ind. Filed Oct. 31, 1901. Serial No. 79,208. (No model.)



Claim.—1. In a car-coupler, the combination with a draw-head; of a pivoted knuckle having a tailpiece, a pivoted trip-latch for locking the knuckle and tailpiece in coupling position, means independent of the knuckle upon each coupling for effecting the operation of the trip-latch upon a coöperating coupling, and a spring or springs for projecting the knuckle and tailpiece and throwing the trip-latch out of locking engagement, substantially as described.

2. In a car-coupler, the combination with a chambered draw-head; of a pivoted knuckle having a tailpiece, a pivoted trip-latch having a yielding pivotal connection with the draw-head, a slide for swinging said trip-latch, means upon the coupling for operating the slide upon a coöperating coupling, a spring or springs for projecting the knuckle and tailpiece and retracting the trip-latch, and means for throwing the slide out of operation to adapt the coupling for use in connection with an ordinary form of Janney coupling, the yielding connection of the trip-latch with the draw-head permitting of the coöperation of said latch with the tailpiece, substantially as described.

3. In a car-coupling, the combination with a chambered draw-head; of a pivoted knuckle having a tailpiece, a trip-latch coöperating therewith having a yielding pivotal connection with the draw-head, a slide for operating said trip-latch, a spring or springs for projecting the knuckle and tailpiece and retracting the trip-latch, and a vertically-sliding wedge-shaped block upon each coupling to operate the coacting slide upon the other coupling, substantially as described.

4. In a car-coupling, the combination with a chambered draw-head; of a pivoted knuckle having a tailpiece, a trip-latch coöperating therewith having a yielding pivotal connection with the draw-head, a slide for operating said trip-latch, a spring or springs for projecting the knuckle and tailpiece and retracting the trip-latch, a vertically-sliding locking-block upon each coupling to operate the coöperating slide on an opposing coupling, and a cushioned bumper or follower carried by said block, substantially as described.

5. In a car-coupling, the combination with a chambered draw-head; of a pivoted knuckle having a tailpiece, a trip-latch coöperating therewith having a yielding pivotal connection with the draw-head, a slide for operating said trip-latch and adapted when counterpart couplings are used to hold the trip-latch in locked position with the tailpiece of the knuckle, and means for holding the slide in retracted position whereby the coupling is adapted to coöperate with a Janney type coupling.

6. In a car-coupling, the combination with a chambered draw-head, its pivoted knuckle having the usual tailpiece, and a spring-actuated latch having a pin-and-slot connection with the draw-head and arranged out of the path of movement of the tailpiece, of means actuated upon the coming together of two coupling-heads, to move one end of the latch into the path of movement of the tailpiece.

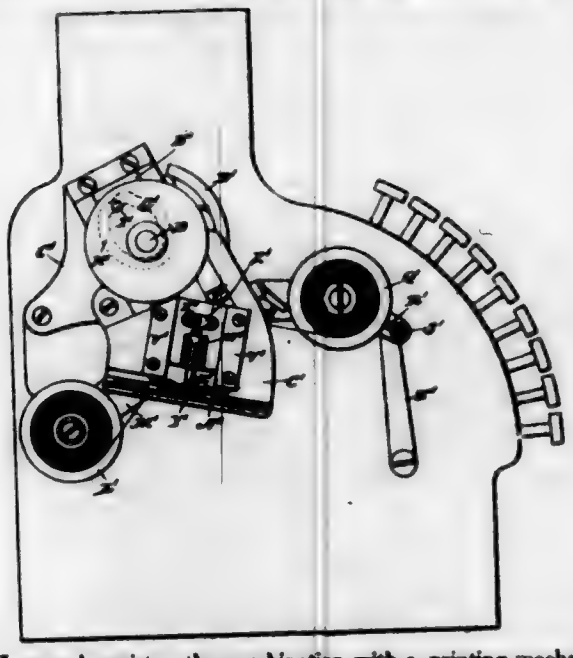
7. In a car-coupling, the combination with a chambered head; of a pivoted knuckle having a tailpiece, a pivoted yielding spring-actuated trip-latch arranged normally out of the path of movement of the tailpiece, and means for projecting it into the path of movement of the tailpiece upon coupling, and means for independently setting the trip-latch within the path of movement of the tailpiece.

690,561. CASH-REGISTER. JOSEPH P. CRAIG, Dayton, Ohio, assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Aug. 20, 1894. Serial No. 520,768. (No model.)

Claim.—1. In a cash-register, the combination with a printing mechanism, of a platen for the same, means for operating the platen, a ticket-punch, and means actuated by the platen-operating means for operating the punch.

2. In a cash-register, the combination with a printing mechanism,

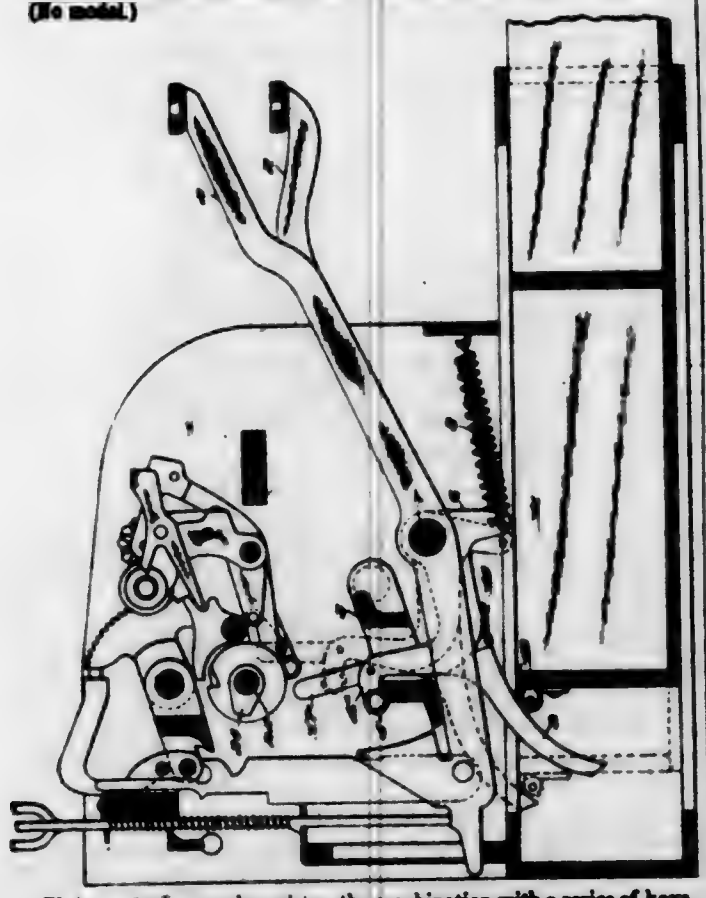
of a slide carrying a platen, actuating means for the said slide, a ticket-punch and a shiftable connection between said slide and punch.



3. In a cash-register, the combination with a printing mechanism, of a slide carrying a platen, a slide carrying a punch and means for operating the punch-slide directly from the platen-slide.

4. In a cash-register, the combination with a printing mechanism, of a rotary cam-disk, a reciprocating slide actuated thereby, a platen carried by said slide, another slide carrying a punch and having a slot formed therein and a pin mounted on the first-mentioned slide and projecting into said slot.

690,562. CASH-REGISTER. JOSEPH P. CLEAL, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 19, 1900. Serial No. 20,789. (No model.)



Claim.—1. In a cash-register, the combination with a series of keys, of a cash-receptacle, and key-returning devices arranged to be set by the movement of the cash-receptacle but to operate independently of the movement of the same.

2. In a cash-register, the combination with a series of keys, of a cash-receptacle and a spring put under tension by the closing of the receptacle but arranged to expend its power irrespective of the movement of the same, and means operated by said spring for returning the keys to their normal positions.

3. In a cash-register, the combination with a series of keys, of a key-coupler, a cash-receptacle, and spring devices put under tension by the closing of the receptacle and arranged to return the coupler to normal position irrespective of the movement of said receptacle.

4. In a cash-register, the combination with a series of keys, of a key-coupler, a cash-drawer, a spring-drawn lever arranged to be set by said drawer, another spring-drawn lever arranged to operate the coupler, a latch connecting said levers and means for tripping said latch upon the operation of the machine.

5. In a cash-register, the combination with a series of keys, of a key-coupler, a cash-drawer, a pivoted spring-drawn lever arranged to be set by said drawer, another spring-drawn lever, and means connecting the two levers whereby they are set simultaneously but may return independently.

6. In a cash-register, the combination with a series of keys, of a key-coupler, a cash-drawer, a spring-drawn lever arranged to be set by said drawer, another spring-drawn lever, a latch carried by this latter lever and engaging the first-mentioned lever, and means operated by the movable parts of the machine for releasing said latch.

7. In a cash-register, the combination with a series of keys, of a key-coupler, a cash-drawer, a pivoted spring-drawn lever arranged to be operated by said drawer, another pivoted spring-drawn lever arranged to be operated by the first-mentioned lever, a latch connecting the two levers so that they move together, and a cam operated by the movable parts of the machine for tripping said latch.

8. In a cash-register, the combination with a series of keys, of a key-coupler, a cash-receptacle, a pivoted spring-drawn lever arranged to be operated by the cash-receptacle to put its spring under tension, another spring-drawn lever arranged to be actuated by the first-mentioned lever but to be released from the same so as to alone actuate the coupler.

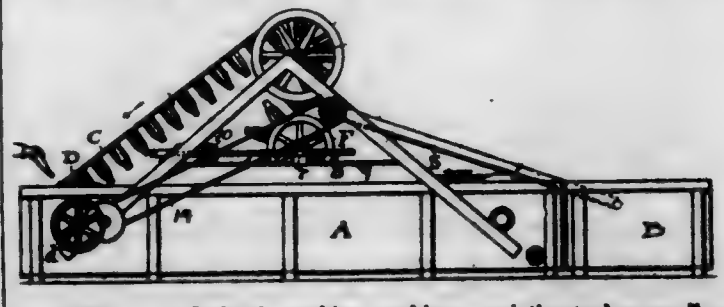
9. In a cash-register, the combination with a series of keys, of a key-coupler, a cash-drawer, pivoted spring-drawn levers arranged to be moved by the closing of the drawer to put the springs under tension, and means for releasing one of said levers to permit it to return the coupler independently of the opening of the drawer.

10. In a cash-register, the combination with a series of keys, a member common to said keys, a cash-receptacle and a returning-spring for said common member arranged to be put under tension by the movement of the cash-receptacle but adapted to expend its force independently of the movement of said receptacle.

11. In a cash-register, the combination with a series of keys, of a member common to said keys, a cash-receptacle, a spring put under tension by the closing of the receptacle, but arranged to expend its power independently of the movements of the receptacle to return the common member to normal position.

12. In a cash-register, the combination with a series of keys, of a frame common to the same, a cash-drawer, a movable member arranged to be operated by the cash-drawer, a spring-drawn member adapted to return the frame to normal position and arranged to be set by the first-mentioned member but to operate independently of the same.

690,568. BOTTLE-WASHING MACHINE. WILLIAM B. COBB, Cleveland, Ohio, assignor to Charles H. Loow, Cleveland, Ohio. Filed Mar. 8, 1901. Serial No. 50,325. (No model.)



Claim.—1. In bottle-washing machines, a solution-tank, an endless flexible carrier and a series of rolling supports over which said carrier travels and is reversed in relation to the tank, said carrier having openings through which the bottles are inserted from the outside, and receptacles inside the carrier about said openings to receive the bottles bodily, substantially as described.

2. A bottle-washing machine comprising a solution-tank, an endless flexible bottle-carrier arranged to slide over the bottom of said tank and having openings through which the bottles are bodily inserted, and receptacles for the bottles fixed to the inside of said carrier over said openings, said openings and receptacles being constructed to leave the bottles free to drop out by gravity, substantially as described.

3. A bottle-washing tank and wheels in the ends thereof, in combination with an endless carrier passing over said wheels and over a flat surface between them, said carrier having transverse bottle-supports, means on the inside of said supports to hold the bottles with their bottoms downward as they pass through the bottom of the tank, and guides for the bottles at the turns for the carrier about said wheels, substantially as described.

4. A bottle-carrier for a bottle-washing machine comprising a pair of endless chains, straight cross-pieces at intervals connecting said chains and constructed each with holes to accommodate a row of bottles, and bottle-receiving baskets on the inside of said cross-pieces about said holes of a size to receive substantially the entire bottle, substantially as described.

5. A bottle-washing machine comprising a suitable tank, a set of wheels at opposite ends in said tank, and two sets of wheels arranged substantially one above the other between the wheels in the tank and on a plane above the same, an endless carrier arranged to travel over all of said wheels and bottle-receptacles on the inside of said carrier in transverse rows, substantially as described.

6. In a bottle-washing machine, a tank and an endless carrier for bottles and four several sets of wheels supporting said carrier, two of said sets of wheels being arranged oppositely in said tank and two midway above the tank and one of these above the other, and an inclined discharge for the bottles between the two upper sets of wheels, substantially as described.

7. The cleansing-tank and the wheels in the ends thereof, and two sets of wheels above said tank arranged one above the other, in combination with an endless carrier stretched over said several sets of wheels, bottle-receptacles on the inside of said carrier, and an endless traveling apron to receive the bottles when discharged from the said carrier, substantially as described.

8. The bottle-cleansing tank and the several sets of wheels and the endless carrier having receptacles to carry the bottles on its inside and adapted to free the bottles by their own gravity, in combination with an endless apron to receive the bottles as they are discharged and a fresh-water tank into which the bottles are dropped by said apron, substantially as described.

9. In bottle-washing machines, an endless carrier having a series of cross-plates with holes of a size to pass the bottles through to the inside of the carrier, and holders for the bottles on the inside of said cross-plates about said holes, of a size to receive the entire bottle within the carrier, said holders having their inner free ends constructed to expose the mouth of the bottle to the solution and to hold the bottle from dropping out into the tank when inverted, substantially as described.

10. In bottle-washing machines, an endless flexible carrier constructed of a set of chains, cross-plates with holes for bottles fixed to said chains and an open-work bottle-holder fixed about each hole in said plates on the inside thereof, said holes and holders being of a size to allow the bottle to drop out through the carrier by gravity, and a series of wheels over which said carrier travels, one of said wheels being arranged to reverse the position of the bottles on the carrier and thereby bringing them to place of free discharge, substantially as described.

11. The tank and the endless carrier having holders on its inside for the bottles and wheels supporting said carrier, one of said wheels being arranged to reverse the position of the bottles in respect to the carrier and a support for the bottles outside the carrier and terminating at the point of their discharge from the carrier, substantially as described.

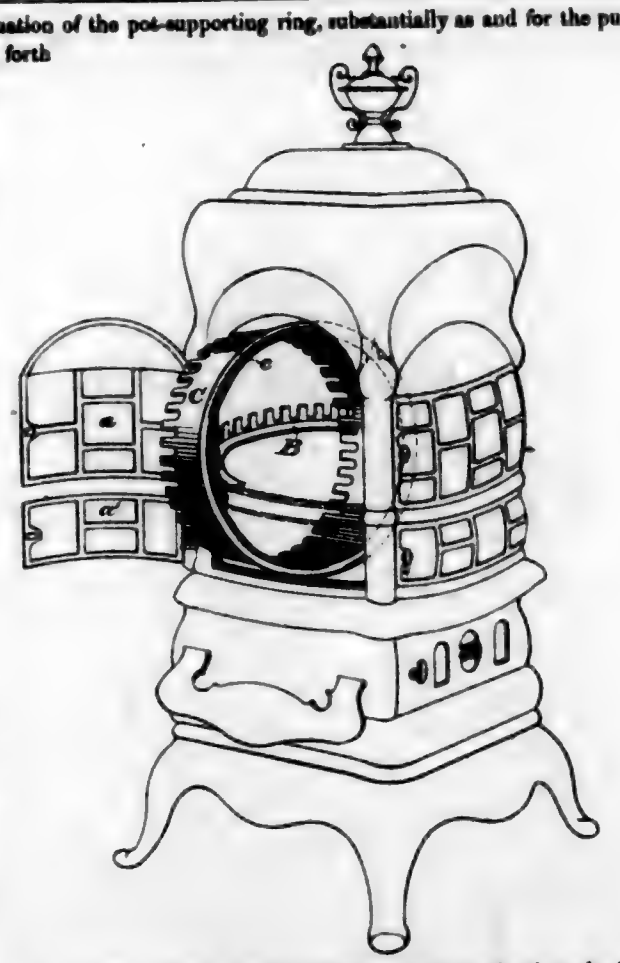
12. The machine substantially as described having an endless carrier constructed with holes to pass the bottles to its inside and holders on its inside for the bottles, in combination with wheels over which said carrier travels, one of said wheels being arranged to carry the bottle-holders around its outside with their extremities projecting away from its axis and another of said wheels arranged to carry the bottle-holders with their extremities projecting toward its axis, and a slideway from one of said wheels to the other to support the bottom of the bottles to their place of discharge from the carrier, substantially as described.

13. In bottle-washing machines, a solution-tank and an endless bottle-carrier provided with receptacles having openings at their top out of which the bottles are adapted to drop by gravity when said openings are downward, and supports over which the said carrier travels in a circuit, in combination with guards independent of the carrier to confine the bottles along portions of the line of their travel, whereby when the bottles are inverted they ride on said guards and are kept in their receptacles, substantially as described.

690,564. STOVE. GEORGE M. COOKE, Milwaukee, Wis., assignor to the Fuller-Warren Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Aug. 6, 1897. Serial No. 647,279. (No model.)

Claim.—1. A stove having upper and lower doors opening into the fire-box, a cross-bar detachably engaged at the ends with the side-door jambs between the doors and forming top and bottom jambs therefor, and a removable fire-pot adapted to pass edgewise through the door-opening when the cross-bar is withdrawn, substantially as and for the purposes set forth.

2. A stove having upper and lower doors opening into the fire-box, a removable fire-pot, a horizontally-disposed pot-supporting ring having an opening in one side next to the door-opening and a detachable cross-bar forming when in place a parting-strip between the doors and a continuation of the pot-supporting ring, substantially as and for the purposes set forth



3. A stove having upper and lower doors opening into the fire-box, a removable fire-pot of somewhat smaller diameter than the height of the door-opening, and a detachable cross-piece constituting when in place a parting-strip between and top and bottom jambs for the doors, substantially as and for the purposes set forth.

4. A stove having upper and lower doors opening into the fire-box, a removable fire-pot adapted to pass edgewise through the opening of both upper and lower doors, and a detachable cross-piece fitting at the ends in recesses in the side-door jambs between the doors, and provided at one end with a fastening for holding it in place, said cross-piece forming the top jamb for the lower door and the bottom jamb for the upper door, substantially as and for the purposes set forth.

5. A stove having upper and lower doors opening into the fire-box, a removable fire-pot adapted to pass edgewise through the opening of both doors, a horizontally-disposed pot-supporting ring open on one side next to the door-opening, and a detachable cross-piece fitted at the ends into recesses in the door-jambs between the doors, provided with a fastening for holding it in place and having an inwardly-projecting flange which forms a continuation of said ring across the door-opening, substantially as and for the purposes set forth.

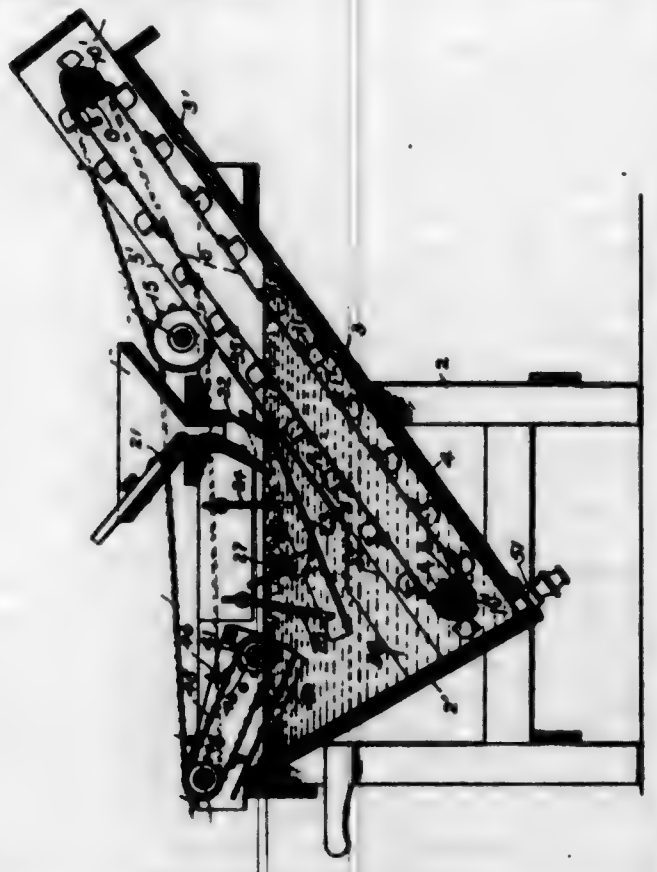
690,565. SMUT-MACHINE. ALBERT COLEMAN, Portland, N. D., assignor to Chandler S. Edwards, Mikkel L. Elken, and Gudbrand L. Elken, Mayville, N. D. Filed Jan. 20, 1900. Serial No. 2,110. (No model.)

Claim.—1. In a machine of the class described, the combination, with a tank containing a supply of water, of a hopper arranged therein, an inclined oscillating pan or shelf immersed in the water below said hopper in position to receive the grain therefrom, agitating fingers or pins provided on said pan and means for oscillating said pan, substantially as described.

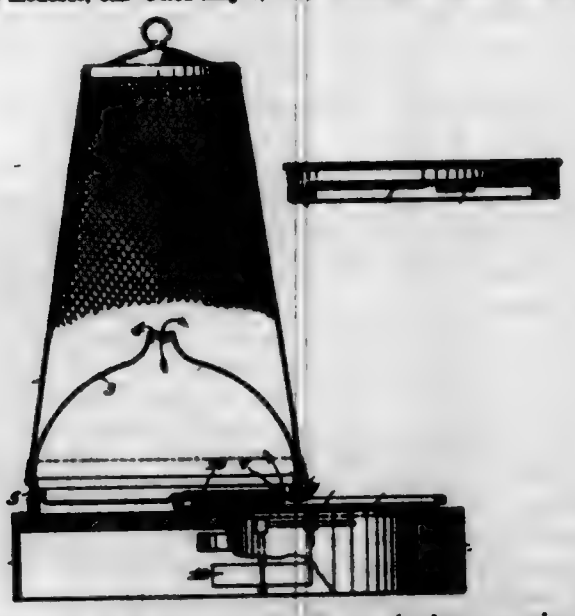
2. In a machine of the class described, the combination, with a tank containing a body of water, of a hopper supported thereon, an inclined pan or shaker immersed in the water beneath said hopper in position to receive grain therefrom, agitating-fingers provided on said pan, means for oscillating said pan, an elevator trunk or flight provided in said trunk beneath said pan to receive grain therefrom, and an endless screen having a series of buckets or pockets provided within said elevator-trunk, substantially as described.

3. In a machine of the class described, the combination, with a tank containing a body of water, of a hopper thereon, an inclined pan or shelf immersed in the water beneath said hopper said pan having an imperforate bottom, means for oscillating said pan, means operated by the movement of the pan for agitating the water above said pan to aid in separating the smut from the grain, means for gathering up the smut and conveying the same out of the machine, and a grain conveyer or elevator provided beneath said inclined pan, substantially as described.

4. In a machine of the class described, the combination, with a tank containing a body of water, of a hopper, an inclined oscillating pan beneath the same to receive grain therefrom, water-agitating devices provided on said pan, an elevator trunk or flight provided beneath said pan and having closed sides and bottom and openings in its top above and below the water-line, and a grain-conveyer provided within said elevator-trunk, for the purpose specified.



690,566. FLY-TRAP. ZACHARIAH R. DRAKE and JAMES C. SHEPLER, Modesto, Cal. Filed May 6, 1901. Serial No. 58,871. (No model.)



Claim.—1. A fly-trap consisting of a cage having an opening in the top, a receiver into which said opening delivers said cage and receiver having a ring at the bottom with a cut-away portion, a base having a horizontal surface upon which the ring rests, a horizontally-revolvable disk having its axis of rotation in line with the edge of the ring whereby its periphery is continually carried through the space in the ring into the interior of the cage, and outwardly therefrom, a closed segment located within the cage having its center approximately in the line of the axis of the disk, an open space in one side provided with a flexible brush beneath which the disk is carried within the cage to remove the flies therefrom.

2. A fly-trap consisting of a cage and receiver with connecting-opening between, a ring at the bottom of the cage having a cut-away portion, a base having a horizontal tubular surface upon one portion upon which the cage and receiver are supported, a clockwork and regulating mechanism contained in the other portion, a disk mounted upon a shaft driven by the clockwork, said shaft standing approximately in line with the edge of the cage whereby the disk revolves with a portion interior to, and another portion exterior to the cage, an inclosed segment located within the cage above the tubular surface of the base having a flexible brush upon the side through which the disk enters the segment whereby flies are carried into the cage by the revolution of the disk and removed therefrom by the brush to subsequently escape into the supplemental receiver.

690,567. FRUIT OR FLOWER PICKER. THOMAS DRYHAM, Berwickley, Pa. Filed Nov. 8, 1901. Serial No. 81,616. (No model.)

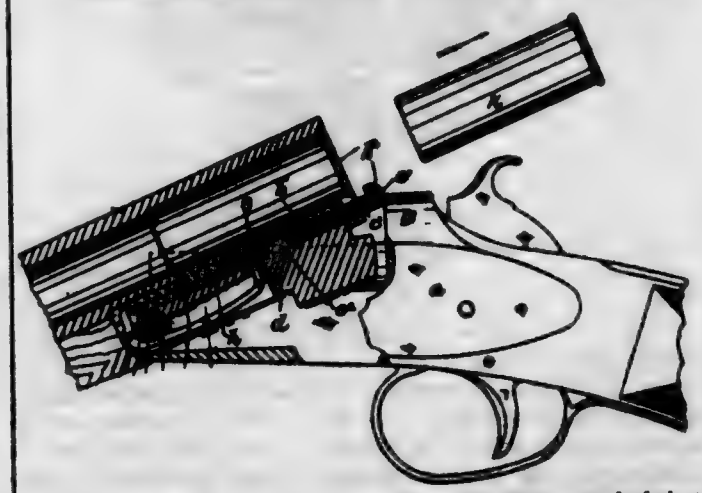


Claim.—1. The combination with two jaws, of a rod attached to one jaw, and a tube embracing said rod and extending through the jaw to which the rod is attached and attached to the second jaw and one of said jaws being provided with a knife which coacts with the opposite jaw, substantially as set forth.

2. The combination with two jaws, of a rod attached to one jaw, and a tube embracing said rod and extending through the jaw to which the rod is attached and attached to the second jaw, and one of said jaws being provided with a knife which coacts with the opposite jaw, one of said jaws being of less thickness than the other jaw whereby the stem when severed will be grasped by said jaws, substantially as set forth.

3. The combination with coacting jaws, one of which is provided with a knife and the other with a slit or groove to receive the knife, of a rod extending through the jaw and secured to the knife, a tube secured to the other jaw and extending through the jaw carrying the knife and embracing said rod and provided with longitudinal slots in which the knife works and by which the limit of movement of said jaws is effected and their true parallelism maintained, substantially as set forth.

690,568. EJECTOR FOR BREAKDOWN GUNS. EDWARD H. ELDER, Norwich, Conn., assignor to the Hopkins & Allen Arms Co., Norwich, Conn. Filed Dec. 31, 1900. Serial No. 41,702. (No model.)



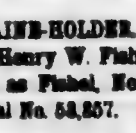
Claim.—1. In a breakdown gun, in combination, a notched ejector-bolt mounted to slide in the barrel-lug, a bell-crank lever pivotally mounted in said lug and having one of its arms extending rearwardly with its end bent upwardly to engage in said notch of the ejector-bolt, a member fixed with relation to the lever and disposed rearward of the pivotal point of the latter in position to contact with said rearwardly-extending arm and force its engaging end out of the notch of the ejector-bolt when the barrel is swung open, and a spring arranged between the other arm of said lever and the adjacent end of the ejector-bolt, substantially as described.

2. In a breakdown gun, the combination with a notched ejector-bolt mounted to slide in the barrel-lug, and the joint-pin, of a lever intermediately pivoted in said lug forward of the joint-pin and having an arm extending rearwardly beneath the pin with its rear end bent upwardly to engage in said notch of the ejector-bolt, said arm of the lever adapted to contact with said pin when the barrel is swung open and effect the withdrawal of its engaging end from the notch of the ejector-bolt, and a spring arranged between the other arm of the lever and the adjacent end of the ejector-bolt, substantially as described.

3. In a breakdown gun, the combination with a notched ejector-bolt mounted to slide in the barrel-lug, and the joint-pin notched transversely in its under side, of a lever intermediately pivoted in said lug forward of the joint-pin, and having an arm extending rearwardly beneath and positioned in said notch and having its rear end bent upwardly to engage in said notch of the ejector-bolt, said arm of the lever adapted to be moved to withdraw its engaging end from the notch of the ejector-bolt by contact with the joint-pin when the barrel is swung open, and a spring ar-

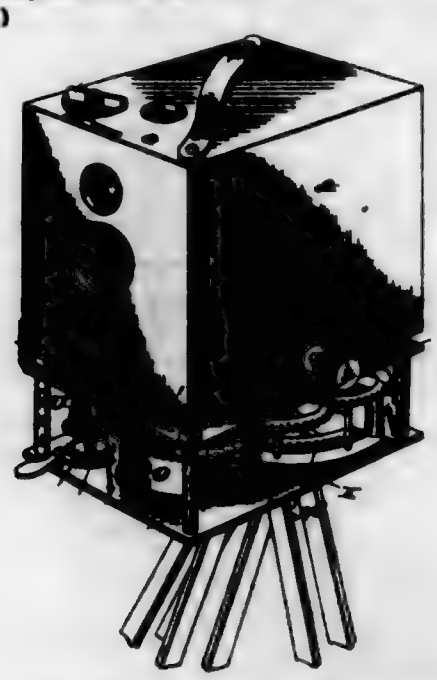
ranged between the other arm of said lever and the adjacent end of the ejector-bolt, substantially as described.

690,569. CHATELAINE-HOLDER. THEODORE H. FISHEL, New York, N. Y., assignor to Henry W. Fishel and Theodore H. Fishel, copartners doing business as Fishel, Nessler & Co., New York, N. Y. Filed May 6, 1901. Serial No. 58,857. (No model.)



Claim.—The combination of a hook for hooking over an article of wear formed by bending a flat piece, a front piece pivoted to one of the legs of said hook, a device for engaging a chatelaine rigidly connected with said front piece, and means carried by said device for engaging the other leg of the hook and coacting therewith to hold the material, substantially as described.

690,570. PANORAMIC ATTACHMENT FOR CAMERAS. HARVEY L. FISHER, Chicago, Ill., assignor, by direct and mesne assignments, to Benjamin J. Downer. Filed Mar. 3, 1900. Serial No. 7,196. (No model.)



Claim.—1. A panoramic operating attachment for cameras adapted to revolve upon a vertical axis and to have the camera removably secured to it, said attachment comprising a spring-actuated mechanism suitably connected with the pivotal support of the operating attachment and with the film-operating means of the camera to revolve the camera upon its pivotal support and properly advance the film within the camera, substantially as described.

2. A panoramic operating attachment for cameras adapted to revolve upon a vertical axis and to have the camera removably secured to it, said attachment comprising a spring-actuated mechanism suitably connected to the pivotal support of the attachment and to the storage-spool of the camera to revolve the camera upon its pivotal support and to turn the storage-spool to draw forward and wind up the film within the camera, substantially as described.

3. A panoramic operating attachment for cameras adapted to revolve upon a vertical axis and to have the camera removably secured to it, said attachment comprising a rotatable spindle adapted to be connected with the storage-spool spindle of the camera when the latter is secured in position upon the operating attachment, and a spring-actuated mechanism connected to said spindle and to the pivotal support of the operating attachment, to revolve the attachment upon its pivotal support and to turn the storage-spool to draw forward and wind up the film within the camera, substantially as described.

4. A panoramic operating attachment for cameras adapted to revolve upon a vertical axis and to have the camera removably secured to it, said attachment comprising a rotatable spindle adapted to be connected with the storage-spool spindle of the camera when the latter is secured in position upon the operating attachment, and a spring-actuated mechanism connected with the pivotal support of the operating attachment to revolve the attachment upon its support and operating to turn the rotatable spindle at a gradually-decreasing rate of speed during such revolution of the attachment upon its support, substantially as and for the purpose described.

5. A panoramic operating attachment for cameras, comprising a vertical spindle or post adapted to be detachably secured to a tripod or other support, a suitable frame mounted to turn upon said fixed spindle and adapted to have a camera detachably secured in position upon it, a rotatable spindle mounted in said frame and adapted to be connected with the film-operating means of the camera, and a spring-actuated mechanism mounted in said frame and connected to said fixed and rotatable spindles, for revolving the frame upon the fixed spindle and turning the rotatable spindle to advance the film within the camera, substantially as described.

6. A panoramic operating attachment for cameras, comprising a vertical spindle or post adapted to be secured to a tripod or other support, a fixed gear-wheel secured to said spindle or post, a suitable frame mounted to turn upon said spindle, a rotatable spindle mounted in said frame, and a spring-actuated drum or wheel mounted in the frame and geared to said fixed wheel and also connected with the rotatable spindle, for the purpose of revolving the frame and turning the rotatable spindle to advance the film within the camera, substantially as described.

7. A panoramic operating attachment for cameras, comprising a vertical spindle or post adapted to be secured to a tripod or other support, a suitable frame mounted to turn upon said spindle and adapted to have the camera detachably secured to it, a rotatable spindle mounted in said frame and adapted to be connected with the film-operating means of the camera, and a spring-actuated mechanism mounted in said frame and connected with the fixed spindle or post to revolve the frame, and operating to turn the rotatable spindle at a gradually-decreasing rate of speed during each revolution of the frame, substantially as and for the purpose described.

8. A panoramic operating attachment for cameras, comprising a vertical spindle or post adapted to be secured to a tripod or other support, a suitable frame mounted to turn thereon and adapted to have the camera detachably secured to it, a rotatable spindle mounted in said frame and adapted to be connected with the film-operating means of the camera, a spring-actuated drum or wheel also mounted in said frame and connected with the fixed spindle to revolve the frame about said spindle, and a cord wound at one end around the spring-drum and at its opposite end around the rotatable spindle, the winding-surface upon which one end of said cord is wound being cone-shaped, for the purpose described.

9. A panoramic operating attachment for cameras, comprising a vertical spindle or post adapted to be secured to a tripod or other support, a suitable frame mounted to turn thereon and adapted to have the camera detachably secured to it, a rotatable spindle mounted in said frame and adapted to be connected with the film-operating means of the camera, a winding-cone secured upon said spindle, a spring-actuated drum or wheel also mounted in said frame and connected with the fixed spindle to revolve the frame about said spindle, and a cord wound at one end upon the spring-drum and at its opposite end upon said cone, for the purpose described.

10. A panoramic operating attachment for cameras, comprising a vertical spindle or post adapted to be secured to a tripod or other support, a suitable frame mounted to turn thereon and adapted to have the camera secured to it, a rotatable spindle mounted in said frame in position to coincide with the spindle of the storage-spool of the camera when the latter is placed in position upon said frame and adapted at such time to interlock with said spool-spindle, and a spring-actuated mechanism connected to the fixed and rotatable spindles for revolving the frame and turning the storage-spool of the camera, substantially as described.

11. A panoramic operating attachment for cameras, comprising a vertical spindle or post adapted to be secured to a tripod or other support, a suitable frame mounted to turn thereon and adapted to have the camera detachably secured to it, a rotatable spindle mounted in said frame and adapted to coincide with the spindle of the storage-spool of the camera when the latter is placed in position upon the frame and to interlock with such spindle, a spring-actuated drum or wheel also mounted in said frame and connected with the fixed spindle or post to revolve the frame about said spindle, and a cord wound at one end upon said spring-drum and at its opposite end upon said rotatable spindle, the winding-surface for one end of said cord being tapered or cone-shaped, for the purpose described.

12. A panoramic operating attachment for cameras, comprising a vertical spindle or post adapted to be secured to a tripod or other support, a suitable frame mounted to turn thereon and adapted to have the camera detachably secured to it, a rotatable spindle mounted in said frame and adapted to coincide with the spindle of the storage-spool of the camera when the latter is placed in position upon the frame and to interlock with such spindle, a winding-cone secured upon said rotatable spindle, a spring-actuated drum or wheel also mounted in said frame and connected with the fixed spindle or post to revolve the frame about said spindle, and a cord wound at one end upon said drum and at its opposite end upon the cone on the rotatable spindle, for the purpose described.

13. In panoramic operating means for cameras, the combination of suitable spring-actuated mechanism for revolving the camera, and means intermediate said mechanism and the film-operating means of the camera

operating to advance the film at a uniform speed during the revolution of the camera, substantially as described.

14. In panoramic operating means for cameras, the combination of suitable spring-actuated mechanism for revolving the camera, a rotatable spindle for actuating the film-operating means of the camera, and means intermediate said spring-actuated mechanism and said rotatable spindle for turning the latter at a gradually-decreasing rate of speed during the revolution of the camera, substantially as described.

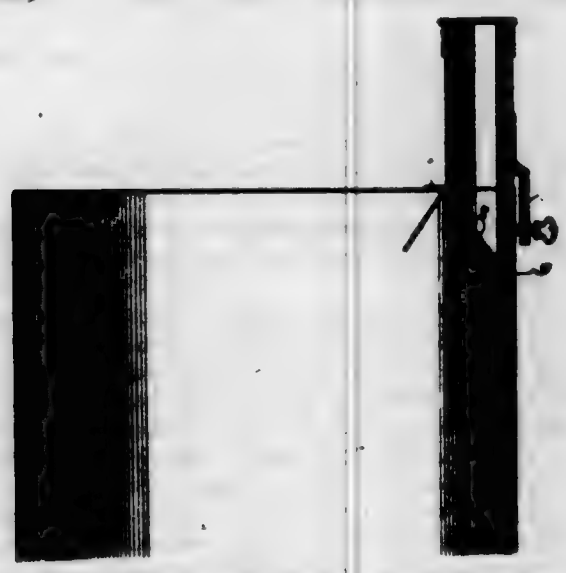
15. In panoramic operating means for cameras, the combination of a spring-actuated drum, a rotatable spindle for actuating the film-operating means of the camera, and a cord wound at one end upon said spindle and at its opposite end upon said drum, the winding-surface for one end of said cord being tapered or cone-shaped, substantially as and for the purpose described.

16. In panoramic operating means for cameras, the combination of a spring-actuated drum, a rotatable spindle for actuating the film-operating means of the camera, a winding-cone secured upon said spindle, and a cord wound at one end upon said cone and at its opposite end upon said spring-actuated drum, substantially as and for the purpose described.

17. In panoramic operating means for cameras, the combination of a spring-actuated drum, a rotatable spindle for actuating the film-operating means of the camera, a cord wound at one end upon said spindle and at its opposite end upon said drum, a ratchet secured to said spindle, and a holding-pawl adapted to be engaged with said ratchet when the cord is withdrawn from the drum and wound upon the spindle, and to be disengaged from the ratchet to permit the spring-actuated drum to turn the spindle and rewind the cord upon the drum, substantially as described.

18. In panoramic operating means for cameras, the combination of a spring-actuated drum, a rotatable spindle for actuating the film-operating means of the camera, a cone secured upon said spindle, a cord wound at one end upon said cone and at its opposite end upon the spring-actuated drum, a ratchet secured upon the cone-spindle, and a holding-pawl adapted to be engaged with said ratchet when the cone-spindle is turned to withdraw the cord from the spring-drum and wind it upon the cone, and to be disengaged therefrom to permit the spring-drum to turn the cone-spindle and withdraw the cord and rewind it upon the drum, substantially as described.

690,571. DETACHABLE SPOUT FOR POWDER-CANS. LEANDER J. GROVE, Astoria, Ill. Filed June 27, 1901. Serial No. 66,264. (No model.)

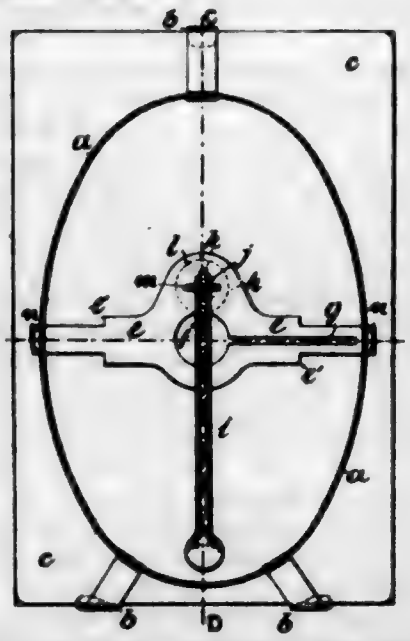


Claim.—1. A detachable spout of the class described having its lower end adapted to be driven into the head of a can and to bear against the inner side of the can, said spout having a downwardly-extending arm to lie on the outer side of the can, opposite the lower, bearing portion of the spout, and means, carried by said arm, to engage the can and clamp one side of the same between said lower portion of the spout and said arm, substantially as described.

2. A detachable spout of the class described having its lower end adapted to be driven into the head of the can and to bear against the inner side of the can, said spout having a bearing-flange to bear against the top of the can, and a downwardly-extending arm to lie on the outer side of the can, opposite the lower, bearing portion of the spout, and means, carried by said arm, to engage the can and clamp one side of the same between said lower portion of the spout and said arm, substantially as described.

3. A detachable spout of the class described, having its lower end adapted to be driven into the head of a can and to bear against the inner side thereof, and clamping means opposite the said lower, bearing portion of the spout, to engage the outer side of the can and clamp the bearing portion of the spout thereto, substantially as described.

690,572. STAND OR FRAME FOR PHOTOGRAPHS, PICTURES, &c. WILLIAM GUTTENBERG, Lancaster, England. Filed Dec. 17, 1900. Serial No. 40,222. (No model.)



Claim.—1. A stand or frame for photographs and pictures consisting of an endless compressible spring, hooks attached thereto for engaging with the photograph or picture, a central plate extending across and carried by the spring and provided with slots capable of holding an interchangeable leg, substantially as described.

2. In a stand or frame for photographs and pictures an endless compressible spring *a*, hooks *b* attached thereto capable of engaging with a photograph or picture, plate *c* carried by said spring and provided with hole *f* and slots *g* and *h*, slide *k* formed to engage and be held in position by said slots and pivoted leg *i*, substantially as described.

3. In a stand for photographs and other cards, an endless spring compressible in one direction whereby its length is extended in another direction, and hooks normally engaging the cord and located on the spring at the parts so extended.

4. In a stand or frame for photographs and pictures the combination with an endless compressible spring *a* having hooks *b* for engaging with the photograph or picture, of a plate *c* capable of sliding in slots *f* formed in spring *a* and provided with slots *g* and *h* adapted to receive a slide or bracket *k* carrying a hinged leg *i*, substantially as described.

5. In a stand or frame for photographs the combination with a plate *c* provided with slots *g* and *h* of a hinged leg *i* pivoted to a slide-block *k*, the latter being capable of being changed from one slot *h* to slot *g* and vice versa substantially as and for the purpose described.

6. In a stand or frame for photographs or other cards, a plate having a slot therein, a bracket slidable in the slot and provided with an enlarged base bearing on the rear of the plate, a pin on the bracket bearing on the face of the plate, and a leg mounted on the bracket.

7. In a stand or frame for photographs or other cards a plate having a slot terminating in an enlarged opening, a bracket slidable in the slot of the plate and provided with a base to enter the opening of the plate and bear on the rear thereof, a pin on the bracket to bear on the face of the plate, and a leg pivoted to the bracket.

690,573. AUTOMATIC GAS-BURNER PRESSURE-REGULATOR. CYRUS A. HAAS, St. Louis, Mo. Filed Mar. 23, 1901. Serial No. 53,375. (No model.)



Claim.—1. In a gas-pressure regulator, a casing having a perforated end, a regulating device located in said casing against which the gas is first to impinge, and means for retaining said regulating device in contact with the inner adjacent surface of said perforated end, substantially as set forth.

2. In a gas-pressure regulator, a casing having a perforated end, a disk located in the casing against which the gas is first to impinge, a resilient tongue for actuating the disk in one direction, and means for retaining said disk in contact with the inner adjacent surface of said perforated end, substantially as set forth.

3. In a gas-pressure regulator, a disk, a resilient tongue carried by the disk, the tongue having a fixed end and a free end, the fixed end being carried by the disk, and means for retaining the disk in coöperative relation with the free end of the regulator, substantially as set forth.

4. In a gas-pressure regulator, a casing having a perforated end, a disk within the casing, a resilient tongue disposed along, and forming an

integral continuation of the outer edge of the disk, said tongue being normally deflected in a plane at right angles to the plane of the disk, means for supporting the disk and retaining the same in coöperative relation with the inner face of the perforated end of the casing, substantially as set forth.

5. In a gas-pressure regulator, a disk, a casing therefor having a perforated end against whose inner face the disk is free to engage, a tongue severed from the adjacent portion of the body of the disk disposed along the outer edge of the latter, the tongue being deflected at an angle to the disk, permitting the latter to control the perforations successively according to the pressure of gas against the disk, and means for supporting the disk in position within the casing, substantially as set forth.

6. In a gas-pressure regulator, a disk, a resilient tongue disposed along the outer edge of the same and deflected therefrom in a plane at right angles to the plane of the disk, one end of the tongue being free, a casing for the disk, one end of the casing being closed, but perforated for the escape of gas, a spider for maintaining the disk within the casing, said disk being interposed between said spider and said perforated end of the casing, the parts operating substantially as and for the purpose set forth.

7. In a gas-pressure regulator, a disk or valve composed of suitable flexible yielding material, a spring connected thereto, a casing having a perforated end, means for retaining the disk in coöperative relation with said perforated end, the disk being adapted to yield under excessive pressure and close the perforations in succession from the series farthest from the spring, to those in near proximity thereto, substantially as set forth.

8. In a gas-pressure regulator, a casing having a series of perforations, means for coupling the casing to a suitable source of gas-supply, and regulating devices located within the casing for automatically closing or opening the perforations aforesaid in succession, according to the pressure of gas within the casing.

9. In a gas-pressure regulator, a casing having an open and a closed end respectively, the closed end being provided with one or more perforations for the escape of gas, and the open end adapted to be secured to a suitable source of gas-supply, suitable devices located in the casing in the path of the gas passing therethrough for automatically regulating the discharge of the gas from the perforations, and means for retaining said devices in contact with the inner adjacent surface of the wall containing said perforations, substantially as set forth.

10. In a gas-pressure regulator, a casing having a perforated end, a regulating device located in said casing against which the gas is first to impinge, and means for retaining said regulating device in contact with the inner adjacent surface of said end and in coöperative relation with the perforations, substantially as set forth.

11. In a gas-pressure regulator, a casing having a perforated end, a regulating device located in said casing, means for retaining said regulating device in contact with the inner face of said end and in coöperative relation with the perforations, the regulating device being adapted to control said perforations successively according to the pressure of gas in the casing, substantially as set forth.

690,574. ROASTING-PAN. JOSEPH HEISS, Redlands, Cal. Filed July 13, 1901. Serial No. 68,791. (No model.)



Claim.—1. The combination with a roasting-pan, of a reciprocatory basting-cup adapted to discharge its contents within said pan, substantially as set forth.

2. The combination with a roasting-pan, of a reciprocatory basting-cup adapted to automatically discharge its contents within said pan, substantially as set forth.

3. The combination with a roasting-pan, of a basting-cup having a spraying-head located within said pan, and means for reciprocating said spraying-head, substantially as set forth.

4. The combination with a roasting-pan, of a basting-cup having a spraying-head located within said pan, and means for rotating said spraying-head, substantially as set forth.

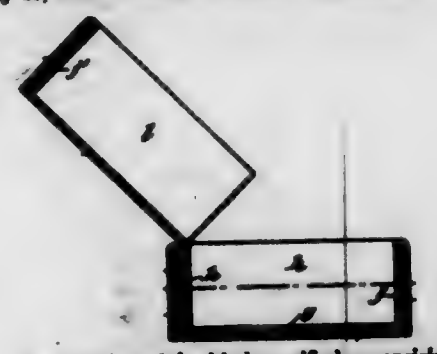
5. The combination with a roasting-pan, of a basting-cup having a spraying-head located within said pan, and means for reciprocating and rotating said spraying-head, substantially as set forth.

6. The combination with a roasting-pan having a slotted cover, of a basting-cup located upon the cover and having a discharge-tube extending downwardly into the pan, a spring-actuated ribbon secured at the opposite ends of the slot in said cover and connected to the basting-cup and adapted to close the said slot, and means for reciprocating said basting-cup, substantially as set forth.

7. The combination with a roasting-pan and its cover, of parallel fixed rack-bars, a basting-cup located on the exterior of the cover and having a discharge-tube extending into the body of the roasting-pan, a rotary spraying-head to catch the discharge from said tube, segmental gears arranged to alternately engage the rack-bars, and a train of gearing for rotating said pinion and said segmental gears to reciprocate the basting-cup, substantially as set forth.

8. The combination with a roasting-pan and its cover, of fixed rack-bars, a master-wheel having internal and beveled teeth, a suitably-journaled shaft, a pinion free to slide upon said shaft and keyed to rotate therewith and in mesh with the beveled teeth, gear-wheels in mesh with the internal teeth of the master-wheel and two of which are provided with fixed pinions, segmental gears in mesh with the rack-bars, and gear-wheels fixed to said segmental gears and in mesh with said last-named pinions, and a basting-cup mounted to reciprocate with the master-wheel, substantially as set forth.

690,575. FOLDING PAPER BOX. MAX HEBER, Chicago, Ill. Filed May 19, 1901. Serial No. 60,968. (No model.)



Claim.—1. A device of the kind specified, comprising a blank provided with flaps and divided by weakening-lines into panels adapted to be folded upon each other and over said flaps to form a box portion, and provided further with flaps and panels adapted to be folded over upon the latter to form a lid portion, said box portion and lid portion, being connected together by intervening panels adapted to lie within and form respectively a false bottom and end wall of said box portion, substantially as described.

2. A knockdown box and hinged cover, the box portion having rear and front side panels adapted to fold over into the box to form the front and rear walls thereof, the bottom and end walls of the box portion, formed in one piece, flaps on the end panels or walls, the flaps adapted to retain the end walls in position, a cover portion provided with integral end walls, flaps for retaining the end walls in position, and interior or false front and rear walls and bottom connected with said cover and receivable in the box, the last-named walls securing and retaining the flaps on the end walls of the box in place.

3. A knockdown box and hinged cover, the box portion having rear and front side panels adapted to fold over into the box to form the front and rear walls thereof, the bottom and end walls of the box portion, formed in one piece, flaps on the end panels or walls, the flaps adapted to retain the end walls of the box portion in position, a cover portion provided with integral end walls, flaps for retaining the end walls in position, interior or false front and rear walls and bottom integral with one another and with the box and cover receivable in the box, the last-named walls securing and retaining the flaps on the end walls of the box in place, and the cover portion provided with a false front wall whereby to retain the flaps on the end walls of the cover in place.

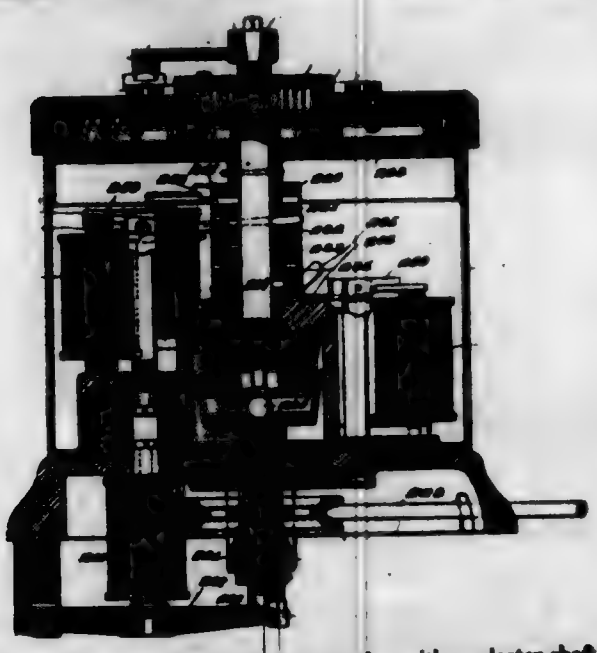
4. A knockdown box and cover hinged thereto, the box portion provided with a bottom panel having integral panels forming end and side walls therefor, flaps on the end panels for retaining the walls formed thereby in an upright position with relation to the bottom, a panel secured to the rear side wall panel adapted to retain the flaps in place, panels intermediate the cover portion and box portion and connected with both, the intermediate panels adapted to fold into the box portion forming false side and bottom walls and operating to retain the walls forming the box portion in position, the cover portion folding over the box portion.

690,576. FUSEE ATTACHMENT. WALTER A. HEISS, Alameda, Cal. Filed Feb. 4, 1901. Serial No. 45,992. (No model.)



Claim.—The combination with a funnel having a threaded spout to receive different extensions interchangeably, of an extension having an enlarged upper threaded end for engagement over the threaded end of the spout, a U-shaped guide having its ends attached to the inner walls of the extension and adapted to lie in the spout and the body of the funnel when the extension is in place, said extension having perforations in its upper portion, a conical deflecting-partition below the perforations, a float slidably disposed in the extension below the partition, and a signal-rod attached to the float and passed upwardly through the partition and guide.

690,577. SELECTOR. KIRK HINSON, Chicago, and JOHN R. TUCKER and CHARLES C. HINCKLEY, Aurora, Ill., assignors to the International Typal Telegraph Company, Detroit, Mich., a Corporation of Michigan. Filed Mar. 19, 1898. Serial No. 708,569. (No model.)



Claim.—1. In a selector, the combination with a selector-shaft normally maintained under spring tension, of a series of locking devices maintaining the shaft normally against movement and adapted when operated to allow movement of the selector-shaft to different predetermined extents, a selector-magnet for each of said locking devices, a series of selector-plates, and a contact device carried by the selector-shaft and adapted to make contact with any one of said selector-plates, substantially as set forth.

2. In a selector, the combination with a selector-shaft normally maintained under spring tension, of a series of locking devices maintaining the shaft normally against movement and adapted when operated to allow movement of the selector-shaft to different predetermined extents, a selector-magnet for each of said locking devices, a series of selector-plates, a contact device carried by the selector-shaft and adapted to make contact with any one of said selector-plates, and means to restore the selector-shaft to its normal position to again maintain the same under tension, substantially as set forth.

3. In a selector, the combination with a selector-shaft, of a series of locking devices adapted to lock the shaft normally against movement but when released to permit varying and predetermined extents of movement thereof, a series of selector-magnets for operating said locking devices, a series of selector-plates circumferentially arranged with respect to said shaft, an arm carried by the shaft, a brush adapted to make contact successively with the selector-plates, and a spring for turning the selector-shaft when released by the operation of any one or more of said locking devices, substantially as set forth.

4. In a selector, the combination with a selector-shaft, of a series of locking devices adapted to lock the shaft normally against movement but when released to permit varying and predetermined extents of movement thereof, a series of selector-magnets for operating said locking devices, a series of selector-plates circumferentially arranged with respect to said shaft, an arm carried by the shaft, a brush adapted to make contact successively with the selector-plates, a spring for turning the selector-shaft when released by the operation of any one or more of said locking devices, and means for winding said spring and simultaneously restoring the selector-shaft to its normal position, substantially as set forth.

5. In a selector, the combination with a selector-shaft, of a series of selector-plates, a contact device carried by the selector-shaft and engaging said selector-plates, a series of locking devices carried by the selector-shaft normally locking the same against movement but adapted when operated to permit varying but predetermined extents of movement of said shaft, a series of selector-magnets radially disposed with respect to said shaft for operating said locking devices, a spring connected to said shaft for rotating the same, a continually-rotating restoring-shaft, a clutch between said restoring-shaft and the selector-shaft, and a magnet for operating said restoring-shaft, substantially as set forth.

6. In a selector, the combination with a selector-shaft carrying a device to be controlled, of a series of disks carried by the selector-shaft, a series of detents carried by said disks and engaging recesses in the adjacent disks, interlocking lugs on said disks permitting graduated relative movements thereof, a series of selector-magnets for operating said detents, and means for turning the selector-shaft, substantially as set forth.

7. In a selector, the combination with a selector-shaft, a series of selector-plates and a contact device carried by the selector-shaft and engaging said plates, of a series of disks carried by the selector-shaft, a series of detents carried by said disks and engaging recesses in the adjacent disks, interlocking lugs on said disks permitting graduated relative movements thereof, a series of selector-magnets for operating said detents, and means for turning the selector-shaft, substantially as set forth.

8. In a selector, the combination with a selector-shaft carrying a device to be controlled, of a series of disks carried by the selector-shaft, a series of detents carried by said disks and engaging recesses in the adjacent disks, interlocking lugs on said disks permitting graduated relative movements thereof, a series of selector-magnets arranged radially around the selector-shaft in different vertical planes for operating said detents, and means for turning the selector-shaft, substantially as set forth.

9. In a selector, the combination with a selector-shaft carrying a device to be controlled, of a series of disks carried by the selector-shaft, a series of detents carried by said disks and engaging recesses in the adjacent disks, interlocking lugs on said disks permitting graduated relative movements thereof, a series of selector-magnets for operating said detents, and a spring for turning the selector-shaft, substantially as set forth.

10. The combination with a selector having a series of selector-plates, of a collecting-ring mounted adjacent to said selector-plates, a brush contacting with said collecting-ring and selector-plates and adapted to be engaged with any one of said plates, a series of selector-magnets controlling the position of said brush, a series of controlling-magnets each connected with one of said plates, and a circuit-maker in circuit with the collecting-ring and the controlling-magnets for closing the circuit through any selected magnet, substantially as set forth.

11. In a selector, the combination with a selector-shaft, of a contact device carried by said shaft, a series of selector-plates with which said contact device engages, a spring for turning said shaft and means for positively reversing said shaft to wind said spring, substantially as set forth.

12. In a selector, the combination with selector-shaft, of a contact device carried by said shaft, a series of selector-plates with which said contact device engages, a spring for turning said shaft, and power connections for positively restoring the selector-shaft to thereby put the spring under tension, substantially as set forth.

690,578. INCANDESCENT LIGHTING DEVICE. MARY D. HOOKER and WOODBRIDGE H. BIRCHMORE, Brooklyn, N. Y., assignors of one-third to Clarence A. Collins, New York, N. Y. Filed Mar. 19, 1901. Serial No. 51,855. (No model.)



Claim.—1. In a lighting device, the combination of a longitudinally-extended burner-base and a burner structure thereon having one side composed of a suitably-supported sheet of rigid heat-resisting material, and the side opposite thereto of a sheet of incandescing fabric, and supports for said fabric, substantially as and for the purposes set forth.

2. In a lighting device, the combination with a burner-base of a burner structure having one side composed of a flat sheet of incandescing fabric and the side opposite thereto of a sheet of rigid heat-resisting material, substantially as and for the purposes set forth.

3. In a lighting device, the combination of a flat sheet of incandescing fabric, forming one side of an inclosed structure, means for supporting the same, and a burner arranged to apply heat thereto, substantially as and for the purposes set forth.

4. In a lighting device, the combination of a longitudinally-extended sheet of incandescing fabric, means for supporting the same, and a burner arranged to apply heat thereto, substantially as and for the purposes set forth.

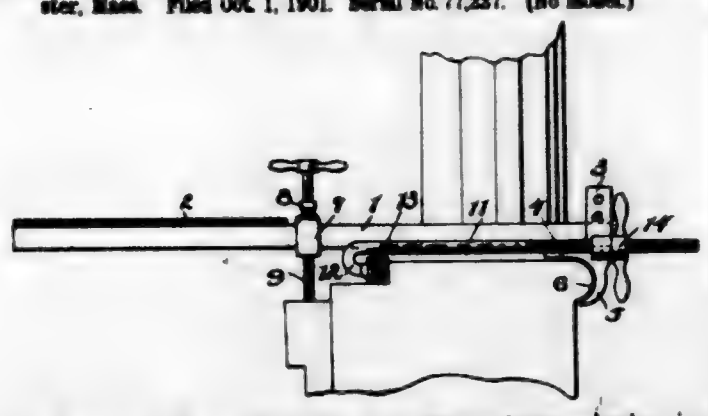
5. In a lighting device, the combination of a series of longitudinally-

extended gas-burners ranged one above another and a series of sheets of incandescing mantle fabric arranged to be heated by such burners and present a practically continuous lighting-surface.

6. In a lighting device the combination of a series of burner-bases connected at their ends so as to form a continuous multiple-sided burner, a suitably-supported sheet of incandescing mantle fabric disposed so as to present faces corresponding to the sides of said burner, and a series of backs of rigid, heat-resisting material located within the figure formed by said fabric and arranged to form therewith and with said burner-bases an inclosed burner structure, substantially as and for the purposes set forth.

7. In a lighting device, the combination of a continuous burner-base, a sheet of incandescing mantle fabric arranged to present a continuous lighting-surface and a back of rigid, heat-resisting material arranged to form with said base and said fabric an inclosed burner structure, substantially as and for the purposes set forth.

690,579. WINDOW-PLATFORM. HASEN S. HOWARD, Leominster, Mass. Filed Oct. 1, 1901. Serial No. 77,287. (No model.)



Claim.—1. The combination of a window-platform, having inwardly-extending arms, the clamping members 3 having downwardly-disposed hooks 5, the said clamping members being pivotally connected with the arms 1, the rods 11 rigidly connected to the transverse bar 13 and passing through longitudinal openings in the members 3, means for adjusting the hooks 5 and the bar 13, for the purpose of clamping a window-sill, substantially as described.

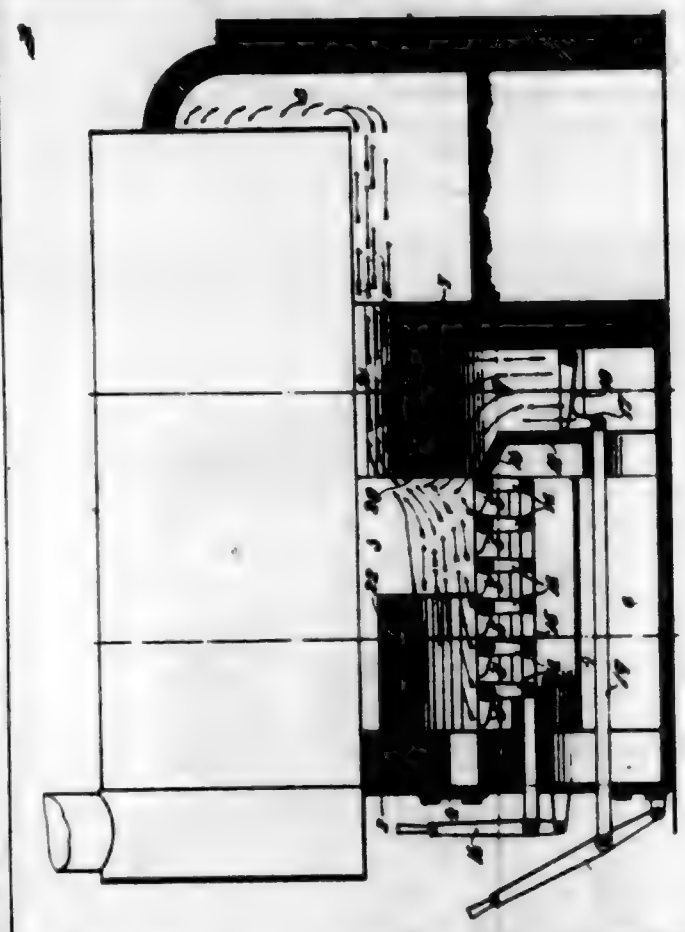
2. The combination of a window-platform, having inwardly-extending arms, openings in the inner ends of the said arms, bolts or screws 15 adapted to pass through the said openings and screw into threaded openings in the clamping members 3, the sleeves 7 longitudinally adjustable on the arms 1, and provided with set-screws 8 for locking the sleeves, laterally-disposed shoulders 10 integral with the sleeves 7, the screw-threaded supporting-rods 9 passing through vertical threaded openings in the shoulders 10, the said rods adapted to support the platform and regulate the incline of the same, substantially as described.

3. The combination of a window-platform, having inwardly-extending arms, vertically-adjustable supporting-rods carried thereby, the clamping members 3, having upwardly-extending portions and a series of transverse threaded openings, adapted to receive the screw 15 for pivoting the arms 1 at different distances above the window-sill, the downwardly-disposed hooks 5 provided with felt coverings, the longitudinal openings through the members 3, for receiving the rods 11, the said rods being connected at one end to the transverse bar 13, their free ends adapted to receive screw-handles 14, substantially as described.

4. The combination of a window-platform, having inwardly-extending arms, the vertical adjusting-rods 9 carried thereby the clamping members 3, having downwardly-disposed hooks 5, the said clamping members 3 being pivotally connected with the arms 1 at their inner ends, the rods 11 passing through longitudinal openings in the castings 3, their free ends being screw-threaded for receiving the hand-screws 14, the opposite ends of the rods being turned inward and connected with the bearing-plates 12, the transverse bar 13, rigidly connected with the plates 12 and adapted to clamp the outer edge of the window, substantially as described.

690,580. SMOKE-CONSUMING FURNACE. GEORGE S. HUFF and JAKE J. HUFF, Indianapolis, Ind., assignors of two-fifths to Frank H. Ewers and Joseph M. Beranor, Indianapolis, Ind. Filed Nov. 5, 1900. Serial No. 35,594. (No model.)

Claim.—1. In a furnace, the combination with a main furnace, and the bridge-wall thereof, of a division-wall arranged between said main furnace and said bridge-wall to form a secondary furnace between the main furnace and said bridge-wall, the secondary furnace being in a plane below the main furnace and adapted to receive the fuel in a coked state from the main furnace, a fire-arch arranged at the front of the main furnace and adapted to deflect the gases of combustion rearwardly, and a fire-arch extending forwardly from the bridge-wall and over the secondary furnace, whereby the gases from the secondary furnace are discharged into the main furnace and caused to intercept and consume the combustible gases of the main furnace in their passage to the stack.



2. In a furnace, the combination with a main furnace, and the bridge-wall thereof, of a division-wall arranged between said main furnace and said bridge-wall to form a secondary furnace between the main furnace and said bridge-wall, the secondary furnace being in a plane below the main furnace and adapted to receive the fuel in a coked state from the main furnace, a fire-arch arranged at the front of the main furnace and adapted to deflect the gases of combustion rearwardly, and a fire-arch extending forwardly from the bridge-wall and over the secondary furnace, said fire-arch terminating at a point immediately above and in vertical alinement with said division-wall, whereby the gases from the secondary furnace are discharged into the main furnace and caused to intercept and consume the combustible gases of the main furnace in their passage to the stack.

3. In a furnace, the combination with a main furnace, and the bridge-wall thereof, of a division-wall arranged between said main furnace and said bridge-wall to form a secondary furnace between the main furnace and said bridge-wall, the secondary furnace being in a plane below the main furnace and adapted to receive the fuel in a coked state from the main furnace, the top of said division-wall being inclined toward the secondary furnace to facilitate the passage of the fuel to the latter, a fire-arch arranged at the front of the main furnace and adapted to deflect the gases of combustion rearwardly, and a fire-arch having its upper and lower sides concaved extending forwardly from the bridge-wall and over the secondary furnace, whereby the gases from the secondary furnace are discharged into the main furnace and caused to intercept and consume the combustible gases of the main furnace in their passage to the stack.

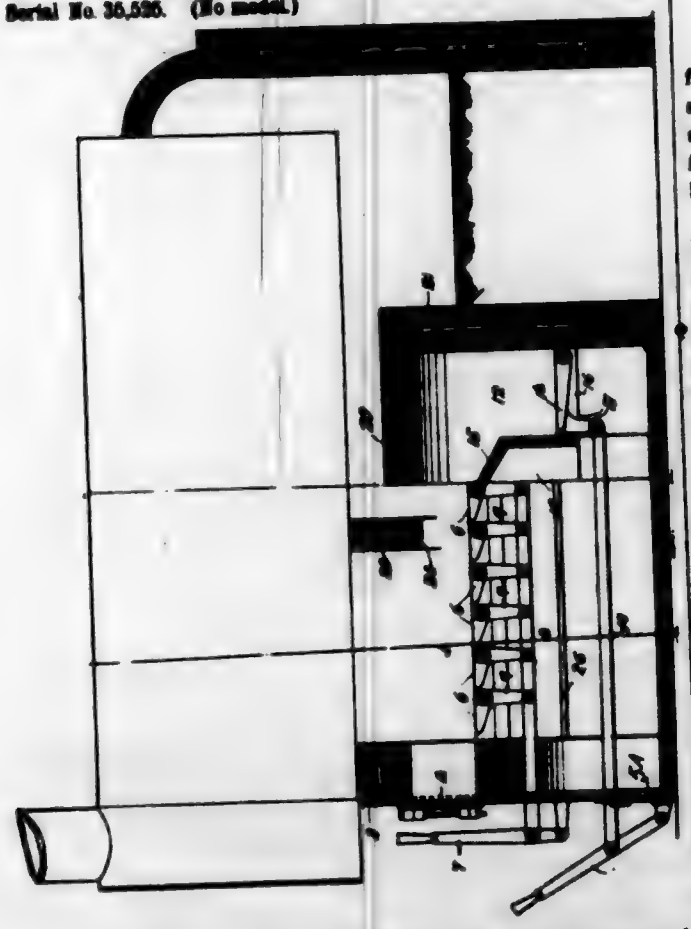
4. In a furnace, the combination with a main furnace and the bridge-wall thereof, of a division-wall arranged between said main furnace and said bridge-wall to form a secondary furnace between the main furnace and said bridge-wall, the secondary furnace being in a plane below the main furnace and adapted to receive the fuel in a coked state from the main furnace, the top of said division-wall being inclined toward the secondary furnace to facilitate the passage of the fuel to the latter, a fire-arch arranged at the front of the main furnace and adapted to deflect the gases of combustion rearwardly, and a fire-arch having its upper and lower sides concaved extending forwardly from the bridge-wall and over the secondary furnace, whereby the gases from the secondary furnace are discharged into the main furnace and caused to intercept and consume the combustible gases of the main furnace in their passage to the stack, said fire-arches being arranged in different horizontal planes.

5. In a furnace, the combination with a main furnace, and the bridge-wall thereof, of a division-wall arranged between said main furnace and said bridge-wall to form a secondary furnace between the main furnace and the bridge-wall, a fire-arch arranged at the front of the main furnace and adapted to deflect the gases of combustion rearwardly, a fire-arch

extending forwardly from the bridge-wall and over the secondary furnace, whereby the gases from the secondary furnace are discharged into the main furnace and caused to intercept and consume the combustible gases of the main furnace in their passage to the stack, means at one side and below the grate of the main furnace for feeding air thereto, and means for deflecting the air upwardly through said grate.

6. In a furnace, the combination with a main furnace, a secondary furnace, and a dividing-wall between said main furnace and said secondary furnace, of an air-box extending longitudinally beneath the grate of the main furnace and provided with a series of air-outlet openings discharging below said grate, a deflecting-plate arranged beneath said grate and opposite to said air-box, whereby the discharged air is deflected upwardly, and means for supplying air under pressure to said air-box.

690,581. **SMOKE-CONSUMING FURNACE.** JAKE J. HUFF and GEORGE S. HUFF, Indianapolis, Ind., assignors of two-fifths to Frank H. Ewers and Joseph M. Bernner, Indianapolis, Ind. Filed Nov. 5, 1900. Serial No. 35,525. (No model.)

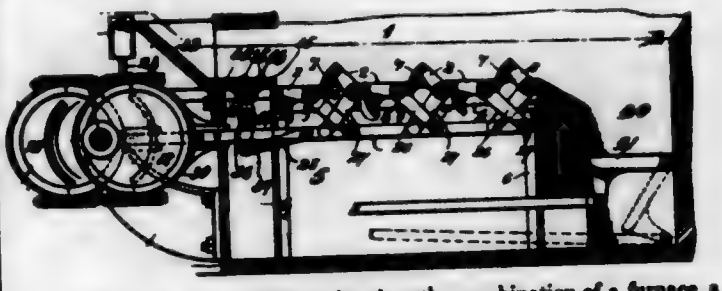


Claim.—1. In a furnace, the combination with a main furnace, and the bridge-wall thereof, of a division-wall arranged between said main furnace and the bridge-wall, a secondary furnace between the division-wall and the bridge-wall, an arch extending from said bridge-wall over said secondary furnace and having its rear end closed by the bridge-wall and its open end directed toward the main furnace, and a baffling-wall having its upper portion closed and its base open, said wall extending transversely over the grate of the main furnace at the rear of the latter and in advance of the bridge-wall to form a passage for the gases from the main and secondary furnaces.

2. In a furnace, the combination with a main furnace and the rear bridge-wall thereof, of a secondary furnace or fire-pit to the rear of said furnace in advance of said bridge wall, a dividing-wall between said main furnace and said secondary furnace or fire-pit, an arch extending from said bridge-wall over said secondary furnace or fire-pit and having its rear end closed by said bridge-wall and its open end directed toward said main furnace, said arch so situated that the area of the space at its mouth between the fuel on the grate of the main furnace and the said arch will be either equal to or slightly in excess of the area of the space between the top of said arch and the boiler or top of the furnace.

3. In a furnace, the combination with a main furnace, and the rear bridge-wall thereof of a secondary furnace or fire-pit to the rear of said main furnace and in advance of said bridge-wall, a dividing-wall between said main furnace and fire-pit, an arch extending from said bridge-wall over said secondary furnace or fire-pit and having its rear end closed by said bridge-wall and its open end directed toward said main furnace, and a baffling-wall having its top end closed and its base open, said wall extending transversely across and over the grate of said main furnace to the rear of the latter and in advance of said rear or bridge arch, said arch and said depending wall so situated in said furnace and relatively to each other that the areas of the spaces between the main-furnace fire and the depending wall, the depending wall and said bridge-arch, and said bridge-arch and the boiler shall be equal, substantially as and for the purpose set forth.

690,582. **MECHANICAL STOKER.** GEORGE S. HUFF and JAKE J. HUFF, Indianapolis, Ind., assignors of two-fifths to Frank H. Ewers and Joseph M. Bernner, Indianapolis, Ind. Filed Nov. 27, 1900. Serial No. 37,862. (No model.)



Claim.—1. In a mechanical stoker, the combination of a furnace, a fuel-feeding hopper, two series of rocking grate-bars, arranged transversely across said furnace and parallel to each other, the bars of the one series alternating with those of the other series and continuously-operating means for rocking said two series of bars alternately, the bars of the one series being at rest while the bars of the other series are in motion.

2. In a mechanical stoker, the combination of a furnace, a fuel-feeding hopper, and two series of rocking grate-bars, the bars of the first series alternating with those of the second series, a feed-plate between said hopper and said grate-bars, means for connecting said feed-plate to said second series of grate-bars to coöperate therewith and continuously-operating means for rocking said first and second series of bars alternately, the bars of the first series being at rest while the bars of the second series are in motion.

3. In a mechanical stoker, the combination with two series of grate-bars arranged in parallel relation, of continuously-operating means for rocking or tilting the two series of bars alternately, the bars of one series being at rest while the bars of the other series are in motion.

4. In a mechanical stoker, the combination with two series of grate-bars arranged in parallel relation, each of said bars being provided at its free or tilting edge with a downwardly-extending guard, of continuously-operating means for rocking or tilting the two series of bars alternately, the bars of one series being at rest while the bars of the other series are in motion.

5. In a mechanical stoker, the combination with a furnace, and a fuel-feeding hopper, of two series of grate-bars arranged in parallel relation, each of said bars being provided at its free or tilting edge with a downwardly-extending guard, a feed-plate arranged between said hopper and the grate-bars and operatively related to one of the series of said bars, and continuously-operating means for rocking or tilting the two series of bars alternately, the bars of one series being at rest while the bars of the other series are in motion.

6. In a mechanical stoker, the combination with two series of rocking grate-bars arranged in parallel relation, of a driving-shaft, eccentrics mounted on said shaft, connecting-rods between said eccentrics and said grate-bars for rocking the latter, and a clutch automatically operated to alternately engage said eccentrics.

7. In a mechanical stoker, the combination with two series of rocking grate-bars arranged in parallel order, segmental guards extending along the free or rocking edge of said grate-bars, and depending rocker-arms on each of said grate-bars, of a rotative driving-shaft, eccentrics mounted loosely on said driving-shaft, rods connecting a series of alternate depending rocker-arms and eccentric-rods independently connecting each of said grate-bar-connecting rods to said eccentric-rods, a clutch mounted on said driving-shaft between said eccentrics and adapted to turn therewith and to slide longitudinally thereon, and means for automatically operating said clutch to engage each eccentric alternately.

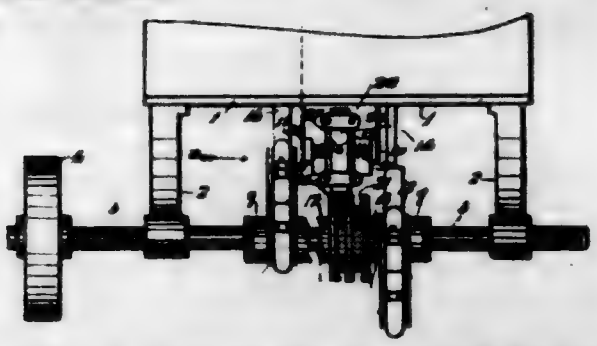
8. In a mechanical stoker, the combination with two series of rocking grate-bars arranged in parallel order and provided with depending rocker-arms, of a driving-shaft, eccentrics on said driving-shaft, connecting-rods connected to said eccentrics and to the rocker-arms of alternate grate-bars and a clutch operated automatically to alternately engage said eccentrics.

9. In a mechanical stoker, the combination with a series of rocking grate-bars arranged in parallel order and provided with depending arms, of a driving-shaft, eccentrics carried by said shaft, connecting-rods connected to said eccentrics and to alternate bars to form two independent series, a clutch on said driving-shaft between said eccentrics, a weighted clutch-lever, and cams on said eccentrics arranged to alternately operate said clutch-lever to engage and to disengage said clutch.

10. In a mechanical stoker, the combination with a furnace and a

fuel-feeding hopper, of two sets of grate-bars arranged in parallel relation, each of said bars being provided at its free or tilting edge with a downwardly-extending guard, a driving-shaft, eccentrics carried by said shaft, connecting-bars between said eccentrics and the grate-bars for rocking the latter, a feed-plate arranged between the fuel-feeding hopper and the grate-bars and operatively related to one set of the latter, a clutch mounted on the driving-shaft between the eccentrics, a weighted lever for actuating said clutch, and cams carried by the eccentrics and adapted to alternately operate said lever for engaging and releasing the clutch.

690,583. AUTOMATIC CLUTCH. GEORGE S. HUFF and JAKE J. HUFF, Indianapolis, Ind., assignors of two-fifths to Frank H. Bowes and Joseph M. Brenner, Indianapolis, Ind. Filed Mar. 18, 1901. Serial No. 51,828. (No model.)



Claim.—1. In an automatic clutch, the combination with a shaft, a driving member mounted thereon, and a driven member adapted to be engaged by said driving member, said driving member being provided with a pair of parallel peripheral grooves connected by an intermediate pass, of a shifting pin operatively related to said driving member and adapted to be engaged by either of said grooves, and means for shifting said pin alternately from one of said grooves to the other to impart to the driven member alternate periods of movement and rest.

2. In an automatic clutch, the combination with a shaft, a driving member mounted thereon, and a driven member adapted to be engaged by said driving member, said driving member being provided with a pair of parallel peripheral grooves connected by an intermediate pass, of a shifting pin operatively related to said driving member and yieldingly supported for engagement by either of said grooves, and means for shifting said pin alternately from one of said grooves to the other to impart to the driven member alternate periods of movement and rest.

3. In an automatic clutch, the combination with a shaft, a driving member slidably mounted thereon, and a driven member adapted to be engaged by said driving member, said driving member being provided with parallel peripheral grooves connected by an intermediate pass, of a shifting pin operatively related to said driving member and adapted to be engaged by one of said grooves, and means for automatically shifting the driving member while rotating to cause the shifting pin to be directed alternately from one of the peripheral grooves to the other, whereby alternate periods of movement and rest are imparted to the driven member.

4. In an automatic clutch, the combination with a shaft, a driving member slidably mounted thereon, and a driven member adapted to be engaged by said driving member, said driving member being provided with parallel peripheral grooves connected by an intermediate pass, of a yieldingly-supported shifting pin operatively related to the driving member and adapted to be engaged by one of said grooves, and means whereby said shifting pin is directed alternately from one groove to the next adjacent one at the end of each rotation of the driving member to cause the latter to be alternately moved in opposite directions.

5. In an automatic clutch, the combination with a shaft, a driving member slidably mounted thereon, and a driven member adapted to be engaged by said driving member, said driving member being provided with parallel peripheral grooves connected by an intermediate pass, of a yieldingly-supported shifting pin operatively related to the driving member and adapted to be engaged by one of said grooves, and a switch-bar arranged in said connecting-pass and adapted to swing in transverse relation to said grooves, whereby said shifting pin is caused to move from one groove to the next adjacent one for shifting the driving member into and out of engagement with the driven member.

6. In an automatic clutch, the combination with a shaft, a driving member slidably mounted thereon, and a driven member adapted to be engaged by said driving member, said driving member being provided with peripheral grooves connected by an intermediate pass, of a shifting pin operatively related to the driving member and adapted to be engaged by one of said grooves, a switch-bar arranged in said connecting-pass and adapted to swing in transverse relation to said grooves, and means carried by said switch-bar and adapted to be engaged by said shifting pin for swinging the switch-bar in opposite directions.

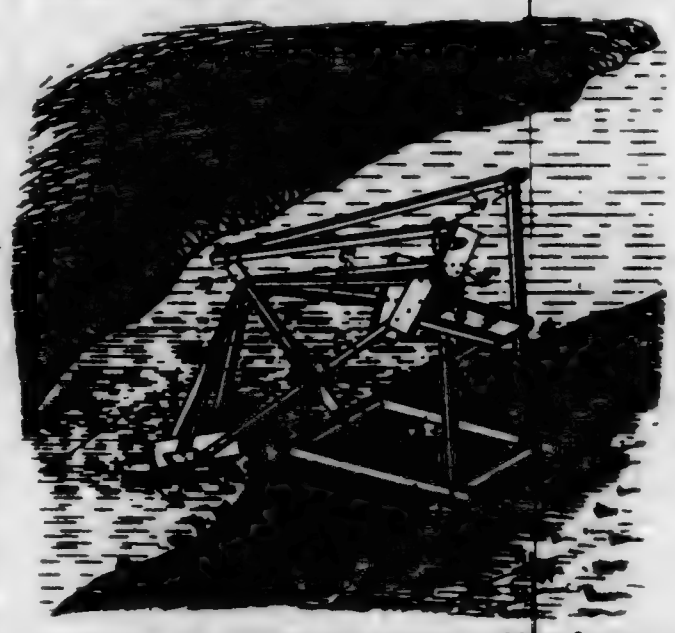
7. In an automatic clutch, the combination with a shaft, a driving member mounted thereon, and a driven member adapted to be engaged by said driving member, said driving member being provided with peripheral grooves connected by an intermediate pass, of a switch-bar arranged in said connecting-pass and adapted to swing in transverse relation to said grooves, a shifting pin operatively related to the driving member and adapted to be engaged by one of said grooves for alternately shifting the switch-bar from one groove to the next adjacent one, a latch for said shifting pin, a cam for said latch, and means for operating said latch to position the shifting pin in operative relation to the driving member.

8. In an automatic clutch, the combination with a shaft, a driving member mounted thereon, and driven members arranged at the sides of the driving member and adapted to be alternately engaged by the latter, said driving member being provided with a pair of parallel peripheral grooves connected by an intermediate pass, of a shifting pin operatively related to said driving member and adapted to be engaged by either of said grooves, and means for shifting said pin alternately from one of said grooves to the other to impart to the driven members alternate periods of movement and rest.

9. In an automatic clutch, the combination with a shaft, a driving member mounted thereon, and driven members arranged at the sides of the driving member and adapted to be alternately engaged by the latter, said driving member being provided with a pair of parallel peripheral grooves connected by an intermediate pass, of a shifting pin operatively related to said driving member and adapted to be engaged by either of said grooves, and means for shifting the driving member while rotating to cause the shifting pin to be directed alternately from one of the peripheral grooves to the other, whereby alternate periods of movement and rest are imparted to the driven members.

10. In an automatic clutch, the combination with a shaft, a driving member mounted thereon, and driven members arranged at the sides of the driving member and adapted to be alternately engaged by the latter, said driving member being provided with a pair of parallel peripheral grooves connected by an intermediate pass, of a yieldingly-supported shifting pin operatively related to the driving member and adapted to be engaged by one of said grooves, and means whereby said shifting pin is directed alternately from one groove to the next adjacent one at the end of each rotation of the driving member to cause the latter to be alternately moved in opposite directions.

690,584. NORIA. DAVID HUTTON, Quartette, Nev. Filed Apr. 22, 1901. Serial No. 57,004. (No model.)

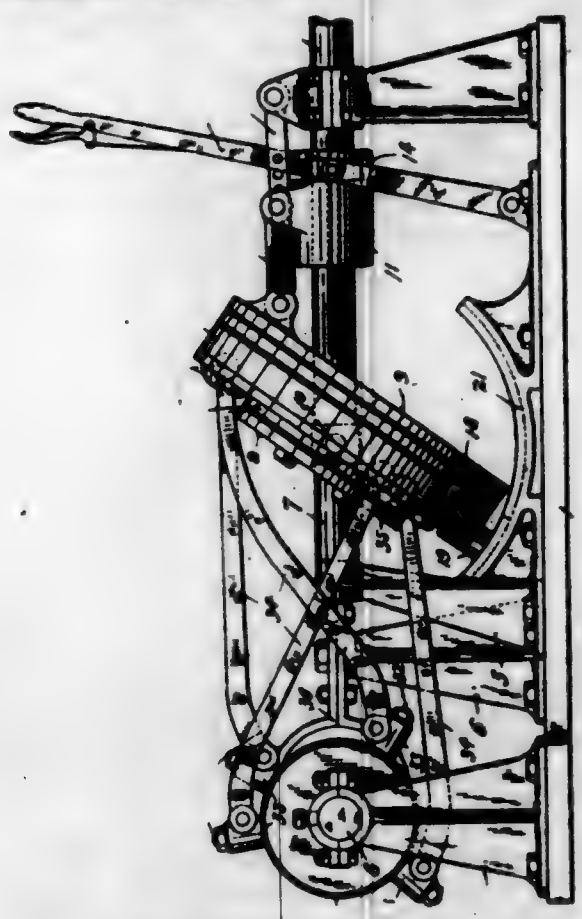


Claim.—1. The herein-described noria, comprising a frame; a central shaft rotatively mounted in said frame, and set therein at an angle of forty-five degrees to the plane of the surface of the water; a paddle-wheel, rotatively mounted therein, having radial arms at right angles to the central shaft and carrying, at the extremities of said arms, paddles; said wheel adapted to rotate its paddles at an angle to the surface of the stream; brace-rods affixed to and running from the outer extremities of said arms to and affixed to the central shaft near the top thereof; buckets pivoted to said paddles having the nose thereof adapted to project beyond the paddle at the uppermost point of its revolution; a chute affixed to the frame; a rod affixed to said chute adapted to contact with the nose of the bucket at the highest point of its revolution and cause the bucket to empty its contents in the chute, substantially as described herein.

2. The herein-described noria, comprising frame A, having paddle-wheel B mounted therein, with its shaft B' at an angle of forty-five degrees, or thereabout, to the surface of the water; radial arms C affixed to

said shaft at right angles thereto; brace-rods C; and buckets E, pivoted to the extremities of the radial arms, in combination with the chute F having contact-rod G affixed thereto.

690,585. POWER-TRANSMISSION DEVICE. WESLEY I. JOHNSON, Chicago, Ill. Filed Feb. 28, 1901. Serial No. 48,413. (No model.)



Claim.—1. The combination with a driving-shaft, of a rotary obliquely-acting thrust-disk connected thereto for rotation therewith, a non-rotary thrust-ring loosely mounted on said thrust-disk, a driven member and connections for imparting motion from said non-rotary thrust-disk to said driven member.

2. The combination with a driving-shaft, of a rotary thrust-disk pivotally connected to said shaft, for oblique adjustments with respect thereto, a non-rotary thrust-ring loosely mounted on said thrust-disk, a driven member, and connections for imparting motion from said non-rotary thrust-disk to said driven member.

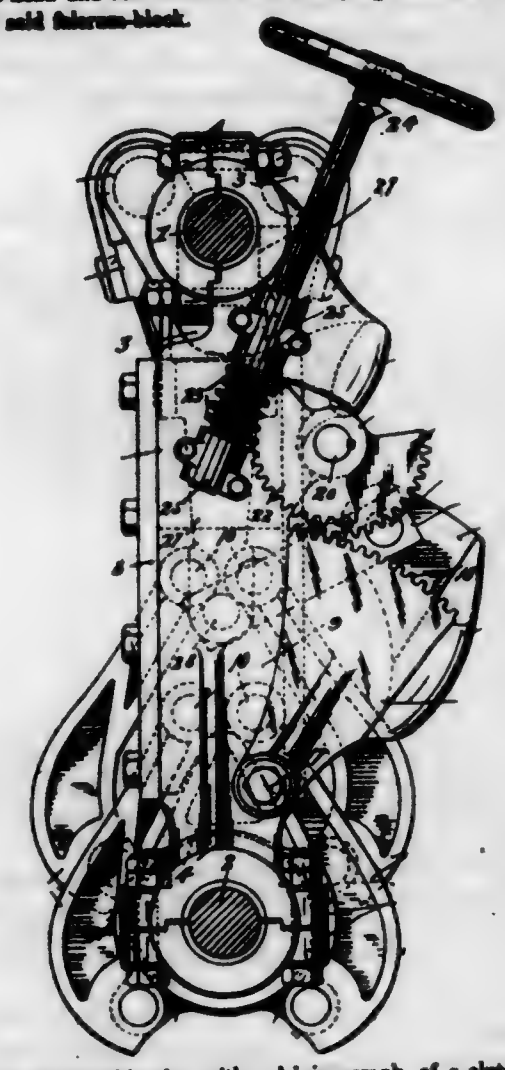
3. The combination with a driving-shaft, of an obliquely-acting thrust-disk connected thereto for rotation therewith, a non-rotary thrust-ring loosely mounted on said rotary thrust-disk, a driven shaft, and connections for imparting motion from said thrust-ring to said driven shaft, involving a friction-clutch.

4. The combination with a driving-shaft and a driven shaft, of a thrust-disk carried by said driving-shaft and connected therewith for oblique adjustments with respect to the axis thereof, means for adjusting said thrust-disk while under motion, a thrust-ring loosely mounted on said thrust-disk, a guide permitting said thrust-ring to wobble but holding the same against rotation, a clutch acting on said driven shaft, and clutch-actuating connections subject to said thrust-ring.

5. The combination with a driving-shaft and a driven shaft having transversely-extended axes, a thrust-disk connected to said driving-shaft by a diametrically-extended pivot, means for adjusting said thrust-disk while under motion, a thrust-ring loosely mounted on said thrust-disk and provided with a pivoted cross-head, a fixed segmental guide in which said cross-head works to hold said thrust-ring against rotation while permitting the same to wobble, a plurality of clutches operating on said driven shaft, and clutch connections attached to said non-rotary thrust-ring at different points circumferentially thereof.

690,586. VARIABLE-SPEED POWER-TRANSMISSION MECHANISM. WESLEY I. JOHNSON, Chicago, Ill. Filed Mar. 5, 1901. Serial No. 49,702. (No model.)

Claim.—1. The combination with a driving-crank and a driven member, of a pitman driven by said crank, a cross-head with connections for action on said driven member, an adjustable fulcrum-block, and an oscillating lever pivoted at or near its extremities to said fulcrum-block and to said pitman, which lever has an endwise adjustment with respect to said cross-head and acts thereon with a varying leverage, under adjustments of said fulcrum-block.



2. The combination with a driving-crank, of a clutch, a cross-head with connections for actuating said clutch, an adjustable fulcrum-block, an oscillating lever pivoted to said fulcrum-block and adjustable endwise with respect to said cross-head and operating thereon with a varying leverage under adjustments of said fulcrum-block, a pitman driven by said crank and pivoted to the vibrating end of said lever, and a driven shaft subject to said clutch.

3. The combination with a driving-shaft having a plurality of cranks, of a corresponding plurality of cross-heads, clutches connected to said cross-heads in reversely-acting pairs, an adjustable fulcrum-block, oscillating levers pivoted to said fulcrum-block and adjustable endwise with respect to said cross-head and operating thereon, with correspondingly-varying leverages, under adjustments of said fulcrum-block, pitmen driven by said cranks and pivoted to the vibrating ends of said levers, and a driven shaft subject to said clutches.

4. The combination with a driving-shaft, of a clutch, a cross-head, connections for actuating said clutch, a wrist-block pivoted in said cross-head, an adjustable fulcrum-block, an oscillating lever pivoted to said fulcrum-block and adjustable endwise through said wrist-block, a pitman connecting said driving-crank to the free end of said oscillating lever, and a driven shaft subject to said clutch.

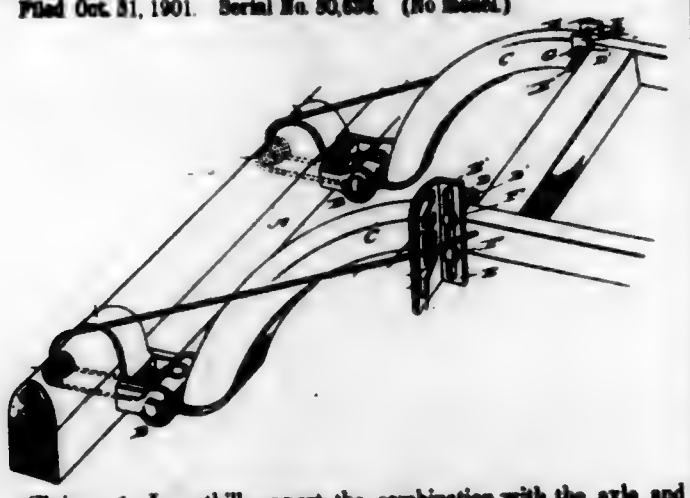
5. The combination with a driving-crank, of a clutch, a cross-head, connections for actuating said clutch, laterally-spaced wrist-blocks pivoted in said cross-head, an adjustable fulcrum-block, an oscillating lever pivoted to said fulcrum-block and adjustable diametrically through said wrist-blocks, its pivotal connection to said fulcrum-block being movable into concentricity with the axis of said wrist-block, a pitman connecting said driving-crank to the free end of said oscillating lever, and a driven shaft subject to said clutch.

6. The combination with a driving-shaft having a plurality of cranks, of a plurality of cross-heads, laterally-spaced wrist-blocks pivoted in said cross-heads, bifurcated oscillating levers mounted to slide endwise through diametrical seats in said wrist-blocks, a pivotally-adjustable fulcrum-block having lugs embraced by and pivoted to the fulcrumed ends of said oscillating levers, pitmen connecting said cranks to the vibrating ends of said levers, a driven shaft, clutches acting on said driven shaft, and links connecting said clutches to said cross-heads.

7. The combination with the driving-shaft having three cranks set one in advance of the other, of the three cross-heads with laterally-spaced sides, the laterally-spaced wrist-blocks mounted in said cross-heads and provided with diametrical face-grooves, the bifurcated levers adjustable in the face-grooves of said wrist-blocks, the pitmen connecting said cranks to the vibrating ends of said lever, the pivotally-adjustable fulcrum-block

having lugs to which the fulcrumed ends of said levers are pivoted, segmental gears on the sides of said fulcrum-blocks, a rock-shaft with gears meshing with said segmental gears, a worm-gear on said rock-shaft, a hand-operated shaft having a worm coöperating with said worm-gear, a driven shaft, clutches acting on said driven shaft, and links connecting said clutches with said cross-heads.

690,587. THILL-SUPPORT. JOHN H. KEMLER, Syracuse, N. Y. Filed Oct. 31, 1901. Serial No. 80,636. (No model.)



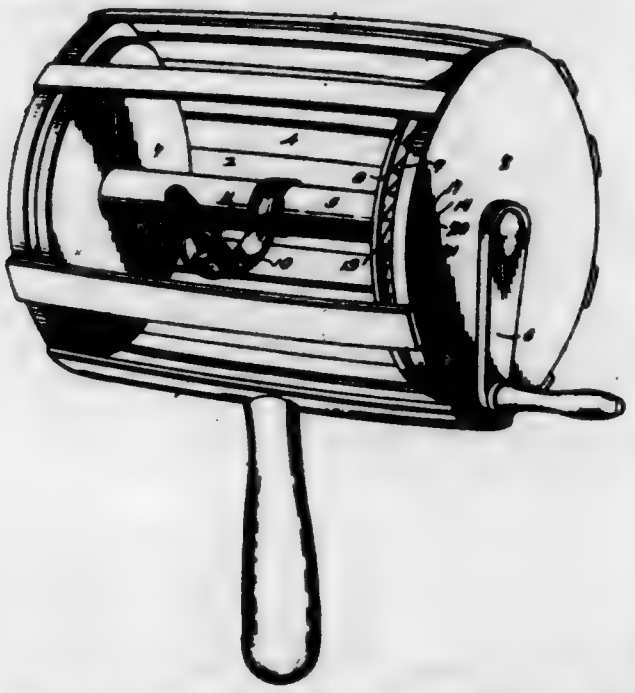
Claim.—1. In a thill-support the combination with the axle and thills, a pair of springs connected to the coupling and formed with spring-arms, and a device connected to the thills and adapted to receive the said spring-arms and secure the free ends of said spring-arms at various vertical adjustments, to hold the thills at any desired angle.

2. In a thill-support, the combination with the thills, the plates formed with a series of recesses and connected to the thills, and the coil-springs having the spring-arms the free outer ends of which are adapted to engage the recesses of said plates to support the thills at any desired height or angle.

3. In a thill-support and in combination with the thills, the flat plates having elongated bolt-openings, the angle-plates having the slots to receive the bolts, and the recesses to receive the spring thill-supporting arms.

4. The combination of the thills and coupling, the plates connected to the thills, one being angled and having a series of recesses, and a pair of springs connected to the coupling to form an antirattler and having their free ends constructed to engage any of the recesses of the angled plates to adjustably support the thills.

690,588. CLOTHES-LINE REEL. PAUL KREX, South Bethlehem, Pa. Filed July 24, 1901. Serial No. 69,545. (No model.)



Claim.—In a clothes-line reel, the combination of a frame, a shaft journaled in the frame, a ratchet-wheel mounted on the shaft and located within the frame, a pivot passing through the same and provided with an exterior resilient arm, a resilient pawl secured to the inner end of the pivot and engaging the ratchet-wheel and adapted to be swung out of such engagement, and the keeper mounted on the exterior of the frame and having inner and outer seats to receive the arm and provided with an intermediate projecting portion forming opposite shoulders, substantially as described.

690,589. PLATE FOR SECONDARY BATTERIES. BERTHOLD KUETTNER, Woking, England. Filed Aug. 8, 1901. Serial No. 71,388. (No model.)



Claim.—1. A plate of the Planté type for secondary batteries, divided into a number of panels by cross-bars of diamond shape in section, each panel consisting of two sets of ribs wedge-shaped in cross-section extending respectively from the opposite sides to half the depth of the plate and crossing each other at right angles, substantially as herein described and shown.

2. A secondary-battery plate of the Planté type, consisting of the rim A, the cross-bars B of diamond shape in section dividing the plate into a number of panels, and the two sets of ribs C wedge-shaped in cross-section extending respectively from the opposite sides to half the depth of the plate crossing each other at right angles and arranged alternately in the panels, substantially as herein described and shown.

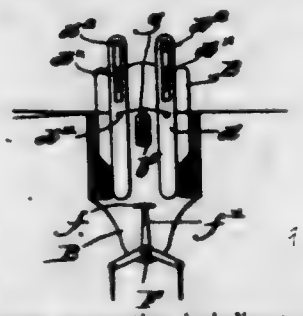
690,590. ELASTIC CHAIN BRACELET. JOSEF KUH, Pforzheim, Germany. Filed July 24, 1901. Serial No. 69,506. (No model.)



Claim.—1. In an elastic chain bracelet, the combination of a spiral spring, with small pipes *c* situated around this spiral spring, hollow bodies shifted over the ends of two adjacent pipes *c*, and a chain, the links *d* of which are fixed to the hollow bodies, substantially as set forth.

2. In an elastic chain bracelet, the combination of two spiral springs *a a*, with small pipes *c* situated around these spiral springs, hollow bodies shifted over the ends of two adjacent pipes *c*, and a chain situated between the two spiral springs, each link *d* of which chain is connected to one of the hollow bodies of each spiral spring, substantially as set forth.

690,591. WARP-STOP-MOTION APPARATUS. JOHN A. LAMB, Grosvenor Dale, Conn., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed July 20, 1901. Serial No. 69,016. (No model.)

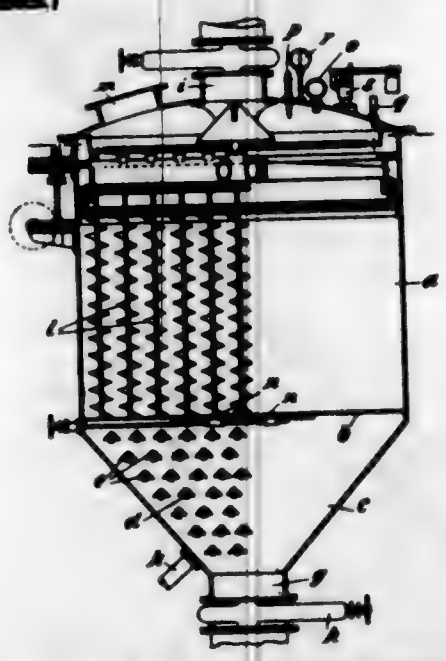


Claim.—1. In a warp stop-motion, including two parallel series of controlling-detectors normally maintained inoperative by intact warps, front and back warp-rests, and means to elevate the warps, between the series of detectors, above the said warp-rests.

2. In a warp stop-motion, including two parallel series of control-

ling-detectors normally maintained inoperative by intact warps, front and back warp-rests, and a thin bar of slight depth mounted between the series of detectors and having its upper, warp-supporting edge above the warp-rests, to take up warp slack.

690,592. PROCESS OF DRYING GRAIN. VALENTIN LAPP, Lindenau, near Leipsic, Germany. Filed May 15, 1901. Serial No. 60,864. (No specimens.)



Claim.—1. The method of drying, kiln-drying and terrefying germinated and ungerminated grain, consisting in depriving the grain of air and part of the water without any heating by means of a vacuum in a closed space, leading again air into said space and to said grain, removing quickly about a half of the remaining water by the application of a moderate degree of heat, removing gradually another part of the remaining water in definitive and adjustable quantities, and terrefying the thus-treated grain, substantially as described.

2. The method of drying, kiln-drying and terrefying germinated and ungerminated grain, consisting in depriving the grain of air and part of the water without any heating by means of a vacuum in a closed space, leading again compressed air into said space and to said grain, removing quickly about a half of the remaining water by the application of a moderate degree of heat, removing gradually another part of the remaining water in definitive and adjustable quantities, and terrefying the thus-treated grain, substantially as described.

690,593. AUTOMATIC CAN-HEADING MACHINE. ANDREW W. LEVERETTE, Alameda, Cal. Filed Dec. 4, 1900. Serial No. 38,697. (No model.)

Claim.—1. An automatic can-heading machine comprising conveyers by which the heads and bodies are separately introduced into the machine, and the heads placed upon the bodies, said can-head conveyer having notches or stops on its surface adapted to engage the rear edge of the head as the latter is advanced, means for advancing the heads on their conveyer and means for seaming the heads and bodies.

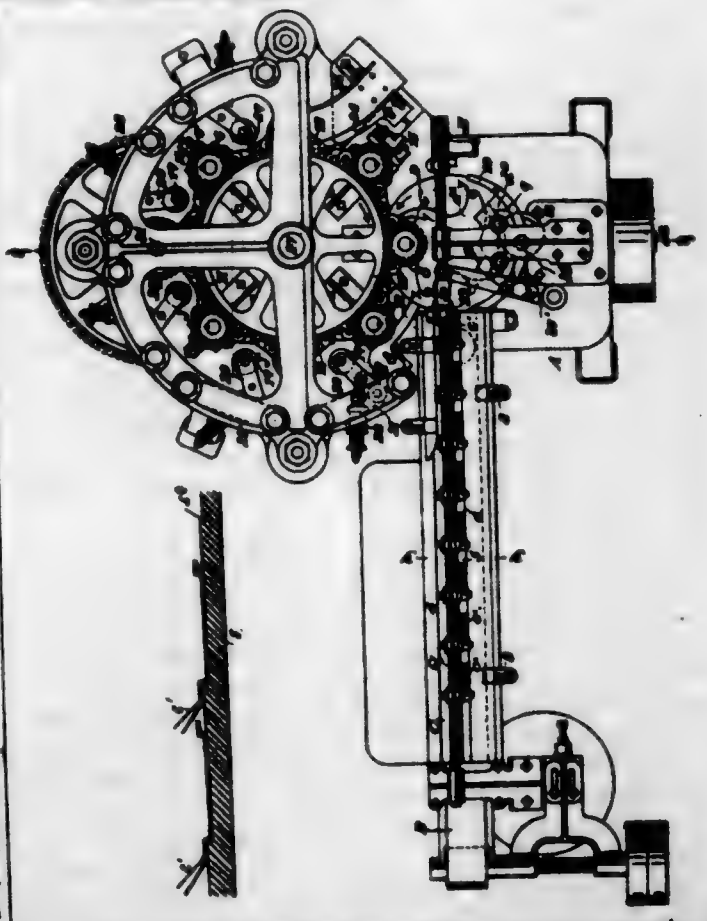
2. In a can-heading machine, a can-head conveyer having a ratcheted bottom adapted to engage the rear edge of the heads, in combination with means for advancing the heads along the conveyer.

3. An automatic can-heading machine, including superposed conveyers one of said conveyers having a ratcheted bottom adapted to engage the rear edge of the head as the latter is advanced, means for advancing the heads on their conveyer, a revolving table upon which the heads and bodies are delivered, means for centering the heads upon the bodies, and means whereby the heads and bodies are seamed and the cans delivered from the machine, the operation throughout being entirely self-regulating.

4. In a can-heading machine, the combination of conveyers for the heads and bodies said head-conveyer including a ratcheted portion to engage the rear edge of the head, means for advancing the heads, a table upon which the heads and bodies are received, guides and supports which receive and center the heads upon the bodies, and means by which the bodies and heads are united and seamed.

5. In a can-heading machine, the combination of a can-body conveyer, a can-head conveyer having a ratcheted surface to engage the can-head, means for advancing the heads on their conveyer, a revolving table upon which the heads and bodies are delivered, and the heads centered upon the bodies, a pressure-plate by which the parts are united, and means for securing the seam of the heads and bodies.

6. In an automatic can-heading machine, an endless conveyer upon which the can-bodies are supported, a superposed conveyer carrying the can-heads, the latter conveyer having a ratcheted bottom adapted to engage the rear edge of the heads as the latter are advanced, a reciprocating means by which this advance is made, and means whereby the heads and bodies are united and seamed.



7. In an automatic can-heading machine, a conveyer supporting the can-bodies, a superposed reciprocating conveyer supporting the can-heads, means by which can-bodies may be automatically discharged from the conveyer in case the cans are fed thereon too rapidly, a revolving table upon which the bodies are received, guides or spiders upon this table and revolving therewith and whereby the bodies are held thereon and the can-heads are received and centered upon the bodies, and means by which the flanges of the heads and bodies are united in a tight joint.

8. In an automatic can-heading machine, a revolving table, means for delivering can-bodies thereon, guides or spiders against which the bodies are received and held in place, one of these spiders provided with projecting pins by which the entering can-heads are centered over and placed upon their respective bodies, means by which the head is pressed down upon the body, and means whereby cans unprovided with heads are ejected from the spiders.

9. In an automatic can-heading machine, a revolving table, guides or spiders thereupon and revolving therewith, means by which can-bodies are delivered into the spiders, a reciprocating carrier delivering the can-heads upon the bodies, pins upon the spiders by which the centering of the heads and bodies is effected, a pawl upon the reciprocating rod of the can-head carrier whereby cans unprovided with heads are ejected from the spiders.

10. In an automatic can-heading machine, a revolving table, conveyers by which can-heads and can-bodies are delivered simultaneously upon this table, spiders by which these bodies are held, projections upon certain of the spiders, whereby the heads are guided and centered upon the bodies, a fixed segmental plate under which the bodies and heads are passed, and the heads forced tightly upon the bodies, an annular groove in the bottom of the plate allowing the spiders to revolve freely therebeneath.

11. In an automatic can-heading machine, the combination with a revolving table upon which the can-heads and can-bodies are received, and the heads placed in position upon the bodies, of a revolving support upon which the cans are delivered from the said table, means for revolving these cans independently of the revolution of the said support, and seaming devices including rollers, swinging arms upon which the rollers are carried, and a tension member connected to the arms and by which the rollers are held against the can and adjustment made for the cans in the revolution of the table, said rollers each performing only a part of the operation of seaming.

12. In an automatic can-heading machine, a revolving support or drum, brackets upon the upper and lower portions of the drum and projecting horizontally beyond the circumference thereof, an upper and lower

set of chucks, connections with the drum-shaft whereby the upper chucks are revolved, and means, including a centrally-fulcrumed lever having one end connected with the lower-chuck spindle, and a cam-surface in the path of the other end of said lever, whereby the lower chucks may be made to approach the upper chucks and hold securely cans interposed between the lower chucks and their respective upper chucks.

13. In an automatic can-heading machine, a revolving support or drum, an upper and lower set of chucks carried thereon outside of and concentric with, the circumference of said drum, connections whereby the upper chucks are made to revolve independently of the revolution of the drum, each of the lower chucks provided with a lever, each centrally fulcrumed and having one end connected with the lower-chuck spindle by which a lower chuck may be lifted and made to hold a can firmly between it and its respective upper chuck, and means including a cam in the path of the other end of the lever for operating this lever.

14. In an automatic can-heading machine, a revolving support or drum, an upper and lower set of revolvible chucks carried thereon, each of the lower chucks connected with one end of a lever, which latter is centrally fulcrumed, and having its other end adapted to engage a cam whereby a lower chuck is lifted toward its respective upper chuck and a can firmly held between the two chucks, a box on the spindle of each lower chuck and to which the upper end of the lever is connected, and a cushion between the box and a fixed part adapted to relieve the jar when the box is suddenly lifted.

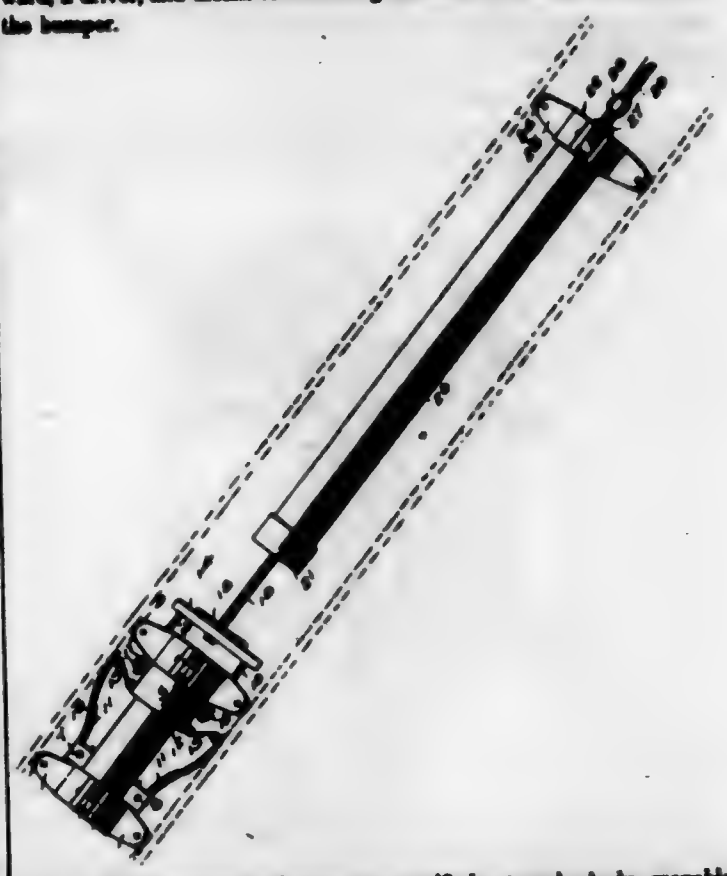
15. In an automatic can-heading machine, a revolving support or drum, brackets upon the drum carrying an upper and lower set of chucks, means by which the upper chucks are revolved, the spindles of each of the lower chucks made slidable in its journal, a collar upon each spindle, a box upon the spindle and below the collar, a spring interposed between the collar and the box, one end of a lever slidable in this box, the lever centrally fulcrumed and having a roller upon its lower end which is adapted to engage, during the revolution of the drum, a cam and raise the lower chuck and bind the can held thereon against a respective upper chuck, causing the chucks and can to revolve together.

16. The combination in an automatic can-heading machine with a revolving support or drum, of a means by which can-bodies with their can-heads in position may be delivered upon a lower set of chucks and beneath an upper set of chucks upon this drum, means by which the upper chucks are revolved independently of the revolution of the drum, a centrally-fulcrumed lever in connection with each of the lower chucks, one end of which attaches to the spindle of the chuck and the other is provided with a roller adapted to engage an annular cam-plate upon the frame by the revolution of the drum, whereby the lower chuck is raised and the can brought in contact with the upper chuck, securely held and rapidly revolved, seamers engaging and crimping the flanges of the can, means by which the lower chuck is again dropped and the can delivered from the machine.

17. A can-heading machine, consisting in combination, of a horizontal endless conveyer upon which the can-bodies, having exterior end flanges, are carried, guides upon this conveyer, an automatic discharge-gate at the inner end of the conveyer, a second conveyer superposed above the first, consisting of a reciprocating rod, fingers upon this rod adapted to engage the can-heads, a ratcheted bottom to this carrier by which the edges of the head are stopped and prevented from backward movement by the reciprocation of the rod and fingers, a guide by which the head is prevented from transverse or lateral displacement, a revolving table upon which the can-bodies are delivered, spiders thereon to hold and guide these bodies, the upper spider provided with pins which arrest the can-heads, center them above the can-bodies and allow them to drop in place upon the latter; a fixed segmental pressure-plate under which the bodies and heads in position, now known as cans, are passed by the revolution of the table and its spider, and the heads firmly pressed down upon the bodies so as to bring their extending flanges in close contact; a pawl upon the end of the reciprocating rod extending over the table by which bodies unprovided with heads are ejected from the spiders; guides by which the cans are led onto and centered upon lower chucks upon a revolving drum, said chucks turnable in journals upon their bracket-supports, each of these chucks provided with a corresponding upper chuck, which latter is revolved independently of the revolution of the drum; a means by which the lower chucks may be lifted and the cans held thereon forced against the upper chucks and revolved, adjustable seamers engaging the flanges of the bodies and heads, certain of these seamers adapted to roll the seam, and certain of them adapted to flatten and finish the seam, and means for releasing the cans from the chucks and delivering them from the machine.

690,594. TRAVELER. ALPHONSUS LOHRDAR, New York, N. Y. Filed May 2, 1901. Serial No. 58,312. (No model.)

Claim.—1. In a traveler for the purpose specified, a traveler-body provided with movable clutch members mounted thereon, a bumper connected with said clutch members so as to move the same inward and outward, a driver, and means for throwing the driver in flexible contact with the bumper.



2. In a traveler for the purpose specified, a traveler-body, movable clutch members mounted thereon, a runner for moving said clutch members outward and inward, a driver adapted to be thrown in flexible contact with the traveler for propelling the latter, the driver also serving to operate the clutch members, and means for impelling the driver.

3. In a traveler for the purpose specified, a traveler-body, clutch members pivotally connected thereto, a runner slidingly mounted with respect to the traveler-body, and operatively connected to the movable ends of the clutch members, a bumper-head coupled to the runner, and a spring-actuated driver adapted to operate against the bumper-head.

4. In a traveler for the purpose specified, a traveler-head, movable clutch members mounted thereon, a runner operatively connected to the clutch members, a bumper-head adjustably connected to the runner, and a spring-actuated driver adapted to be thrown against the bumper-head.

5. In a traveler for the purpose specified, the combination with a traveler-body, and movable clutch members carried thereby, of a runner operatively connected with the clutch members, means for normally holding the clutch members outward, a bumper-head connected to the runner, and a spring-actuated driver adapted to be impelled against the bumper-head.

6. In a traveler for the purpose specified, the combination with the traveler-body, and clutch members carried thereby, of a bumper-head operatively connected with the clutch members, a connecting guide-rod attached to said bumper-head, and a spring-actuated driver mounted on said connecting guide-rod.

7. In a traveler for the purpose specified, a traveler-body, movable clutch members carried thereby, a runner operatively connected with said clutch members, a bumper coupled to the runner, a cushion on said bumper, a driver arranged to be thrown into contact with said cushion, and a guide-rod connecting the bumper and driver.

8. In a traveler for the purpose specified, a traveler-body provided at each end with centering and carrying rollers, in combination with movable clutch members carried by the traveler-body and mounted between the rollers at each end of the traveler-body, a driver adapted to propel the traveler-body and provided at one end with centering and carrying rollers, and a guide-rod connecting the traveler-body and driver.

690,595. WEATHER-BOARD MARKER. ALBERT G. MADDEN, St. Joseph, Mo. Filed June 21, 1901. Serial No. 65,469. (No model.)

Claim.—1. A device of the character described, comprising a body, a rotatably-adjustable marker-guide which is normally fixed against rotation and is slidably mounted upon the body, and a marker eccentrically carried by the guide, whereby rotary adjustment of the guide produces a lateral adjustment of the marker toward and away from the work.

2. A device of the character described, comprising a body having a groove, and a marking device embodying a shank having a handle at its outer end, a marking-disk rotatably mounted upon an intermediate portion of the shank, and a fixed guide-disk carried eccentrically by the

opposite end of the shank and slidably mounted within the groove of the body, the shank and guide-disk being adjustably rotatable with respect to the marking-disk to adjustably move the latter in an edgewise direction.

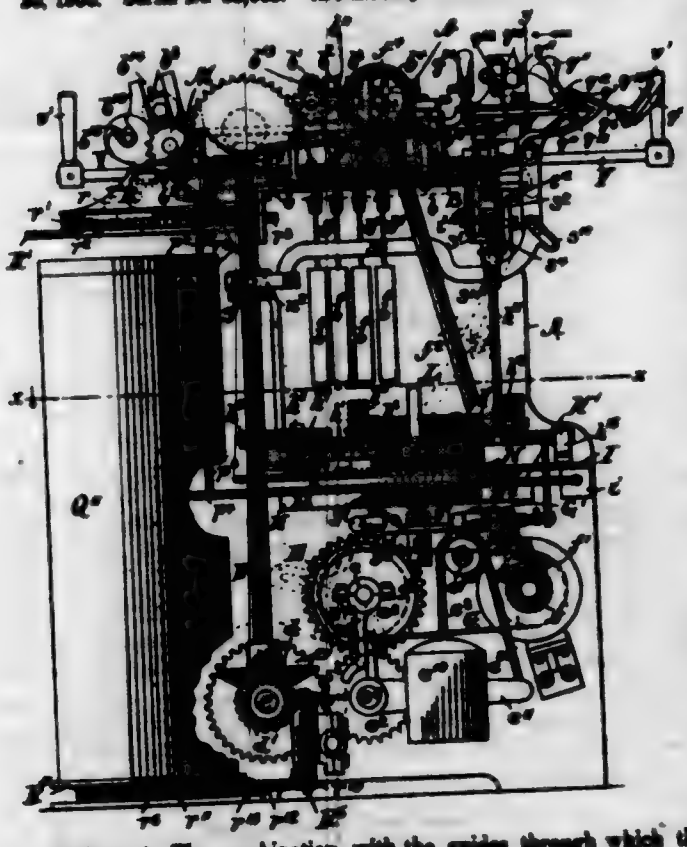


3. A weather-board marker comprising a frame having a longitudinal groove, a guide-plate carried by the frame and having a longitudinal slot, and a marking-wheel having associated therewith two eccentrically-disposed disks, one to engage the groove in the frame and the other the slot in the guide-plate.

4. A weather-board marker comprising a frame provided with a groove, a guide-plate carried by the frame and provided with a slot, a marking-wheel, two disks, one of which engages the groove, and the other the slot, and means for eccentrically connecting the disks to the wheel.

5. A weather-board marker comprising a body having a longitudinal groove, a plate applied to the grooved face of the body and provided with a longitudinal slot corresponding to and narrower than the groove, said plate also being provided with opposite laterally-directed stop shoulders or projections, and a movable marking device consisting of a rotatable disk, a shank inserted loosely through the center of the disk and provided at its outer end with a handle, a guide-disk eccentrically fixed upon the inner end portion of the shank and working in the slot of the plate, and a larger fixed disk also eccentrically carried by the inner end of the shank and working in the groove of the body, the latter disk having a diameter to overlook the edge of the slot in the plate, the shank and the two eccentric guide-disks being simultaneously rotatable to adjust the marking-disk in an edgewise direction.

690,596. RAILWAY-HEAD OR OTHER SIMILAR FIBER-DRAWING MACHINE. ARTHUR W. MATHEWSON, Lewiston, Me. Filed Oct. 20, 1900. Serial No. 33,995. (No model.)



Claim.—1. The combination, with the guides through which the material is supplied to the machine, and the rear trumpet, of the arrow-head-shaped guides arranged in front of the first-mentioned guides, whereby to impart to the material passing through the machine an appropriate tension, substantially as described.

2. The combination, with the guides through which the material is supplied to the machine, the rear trumpet, and the arrow-head-shaped guides, of the spoon-levers over which such material passes, pivoted in front of the first-mentioned guides, and a tension-roll arranged in front of these spoon-levers, whereby the material in passing through the machine is caused to incline upward slightly from the arrow-head-shaped guides to the forward ends of the spoon-levers and thence downward slightly to the tension-roll before entering the rear trumpet, substantially as described.

3. The combination, with the guides g' through which the material is supplied to the machine, and the rear trumpet, of the spoon-levers, a tension-roll arranged in front of these levers, and a guide disposed in front of the tension-roll for partially consolidating the material before entering the rear trumpet, substantially as described.

4. The combination, with the tension-roll, and one of the drawing-roll stands, of a frame in which the tension-roll is mounted, a hanger to which the tension-roll-supporting frame is jointed at one of its ends, and means for controlling the swinging movements of this frame, whereby the tension-roll may be held in proper operative position over the material being treated, and not only swung upwardly and away from over the same when the piecing or mending of an end is required, but held in that position during that operation, substantially as described.

5. The combination, with the evener-mechanism ratchet-wheel, the pawls for coöperating therewith provided with upwardly and rearwardly extending arms, means by which the pawls are reciprocated, and the evener-mechanism belt-shifter, of lifting-plates for coöperating with such pawls, and connecting devices intermediate the belt-shifter and the lifting-plates, whereby, when the shifter is moved beyond certain limits in either direction, the pawl which effects the movement is removed from operative connection with the ratchet-wheel, by the descent of its respective lifting-plate upon its upwardly and rearwardly extending arms, and is returned into operative connection therewith, when the shifter is moved in an opposite direction, by such lifting-plate being raised from said arms, substantially as described.

6. The combination, with the evener-mechanism ratchet-wheel, the pawls for coöperating therewith provided with upwardly and rearwardly extending arms, means by which the pawls are reciprocated, the evener-mechanism belt-shifter, and a stopping mechanism, of lifting-plates for coöperating with such pawls, and connecting devices intermediate the shifter and the lifting-plate and the shifter and stopping mechanism, whereby, when the shifter is moved beyond certain limits in either direction, the pawl which effects the movement is removed from operative connection with the ratchet-wheel by the descent of its respective lifting-plate upon its upwardly and rearwardly extending arm, and the stopping of the parts effected, substantially as described.

7. The combination, with the ratchet-wheel H provided with the ratchet-teeth h, the pawls $k\,k$ provided with upwardly and rearwardly extending arms, the lifting-plates k^9 and k^7, the levers k^{10} and k^{11} by which the lifting-plates are respectively carried, the belt-shifter G′ provided with the rearwardly-extending lug k^{21} and the means by which it is moved back and forth along its guide-rods, of the shaft k^{14} provided with the oppositely-arranged crank-like portions k^{15} and k^{17} upon which the levers k^{10} and k^{11} respectively rest, the arm k^{20} fixedly secured to such shaft, and the rod k^{19} provided with the collars k^{22} and k^{23}, with which the backwardly-extending lug k^{21} is adapted to contact, substantially as described.

8. The combination, with the pawls $k\,k$, the lifting-plates k^9 and k^7, the levers k^{10} and k^{11} by which the lifting-plates are respectively carried, the shaft k^{14} provided with the oppositely-arranged crank-like portions k^{15} and k^{17}, and also with the arm k^{20}, and the rod k^{19}, of the oppositely-arranged arms k^{23} and k^{22} fixedly secured to said shaft, and the lever k^{20} resting on these arms, whereby to return the parts to their normal positions when removed therefrom, substantially as described.

9. The combination, with the shaft k^{14} provided with the arms k^{20}, the belt-shifter G′ provided with the backwardly-extending lug k^{21}, mechanism for moving this shifter back and forth along its guide-rods, and the rod k^{19} provided with the collars k^{22} and k^{23}, of the oppositely-arranged arms k^{23} and k^{22} fixedly secured to said shaft k^{14}, the lever k^{20} resting upon such arms, the vertical rod k^{25}, the latch s', the bar s', shipper-lever S, and the spring s^6, whereby the stopping of the machine is effected whenever the shifter G′ is moved beyond certain limits in either direction, substantially as described.

10. The combination, with the rock-shaft T, the rock-shaft s^{12}, and the belt-shipping devices, of mechanism intermediate the rock-shaft T and the rock-shaft s^{12} and intermediate the latter rock-shaft and the belt-shipping devices, whereby when the oscillation of the rock-shaft s^{12} is arrested by the rotation of the rock-shaft T around its axis, the shipping of the belt from the fast to the loose pulley and the stopping of the machine are automatically effected, substantially as described.

11. The combination, with the collar, and the belt-shipping devices, of the rock-shaft T provided with an arm that rests at its free end upon the collar, and connecting devices intermediate the rock-shaft and the belt-shipping devices, whereby when the collar is raised from its seat by the pressure of the sliver against its under surface or otherwise, and the rock-shaft oscillated therefrom through its arm, the shipping of the belt from the fast to the loose pulley and the stopping of the machine are automatically effected, substantially as described.

12. The combination, with the collar, and the belt-shipping devices,

of the rock-shaft T provided with an arm that rests upon the coiler and is equipped at its outer extremity with an upwardly-inclined lip, and connecting devices intermediate the rock-shaft and the belt-shipping devices, whereby when the free end of the said arm is raised by the passage of the sliver between it and the coiler and the rock-shaft oscillated thereby, the shipping of the belt from the fast to the loose pulley and the consequent stopping of the machine are automatically effected, substantially as described.

13. The combination, with the rock-shaft T, provided with an arm, of the front trumpet provided with a weighted arm and an underturned lug for engaging with the free end of the first-mentioned arm, and the trumpet-supporting shaft to which the trumpet is jointed, whereby when the sliver supplied to the trumpet is reduced below a given size the trumpet will be swung back upon its supporting-shaft by its weighted arm and the rock-shaft thereby oscillated upon its axis by the underturned lug engaging with and raising the free end of the arm on such rock-shaft, substantially as described.

14. The combination, with the rock-shaft T provided with an arm, and the calender-rolls, of a trumpet provided with a weighted arm and an underturned lug for engaging with the free end of the arm on the rock-shaft, and the trumpet-supporting shaft to which the trumpet is jointed, whereby when the sliver breaks between the trumpet and the calender-rolls the trumpet will be swung back upon its supporting-shaft by its weighted arm and the rock-shaft thereby oscillated upon its axis by the underturned lug engaging with and raising the free end of the arm on the rock-shaft, substantially as described.

15. The combination, with the rock-shaft T provided with an arm, and the bottom calender-roll, of a trumpet provided with an underturned lug for engagement with the free end of the arm on the rock-shaft and with an arm that is equipped with a laterally-extending portion for cooperation with the bottom calender-roll, and a trumpet-supporting shaft to which the trumpet is jointed, whereby when the sliver winds around such calender-roll the trumpet will be swung back on its supporting-shaft and the rock-shaft thereby oscillated upon its axis by the underturned lug engaging with and raising the free end of the arm on the rock-shaft, substantially as described.

16. The combination, with the bottom calender-roll, and the trumpet-supporting shaft, of a trumpet carried by such shaft and provided with an arm that is equipped with a laterally-extending portion for coöperation with such calender-roll, whereby when the trumpet is in its normal position the laterally-extending portion of the arm carried thereby will prevent the winding of the sliver around said bottom calender-roll, substantially as described.

17. The combination, with the rock-shaft T provided with an arm, a trumpet-supporting shaft provided with an arm for engagement with the arm on the rock-shaft, and the calender-rolls, of a trumpet carried by such trumpet-supporting shaft, whereby when the trumpet becomes choked and is drawn forward by the calender-rolls beyond certain limits, the rock-shaft will be oscillated upon its axis by the arm on the trumpet-supporting shaft engaging with and raising the free end of the arm on the rock-shaft, substantially as described.

18. The combination, with the rock-shaft T, the belt-shipping devices and connecting mechanism intermediate the rock-shaft and the shipping devices, of a trumpet, an axis upon which it is mounted, and mechanism for connecting such trumpet with the rock-shaft, whereby when the trumpet is swung either forward or backward beyond certain limits the rock-shaft will be oscillated upon its axis, and the shipping of the belt from the fast to the loose pulley and the consequent stopping of the machine thereby automatically effected, substantially as described.

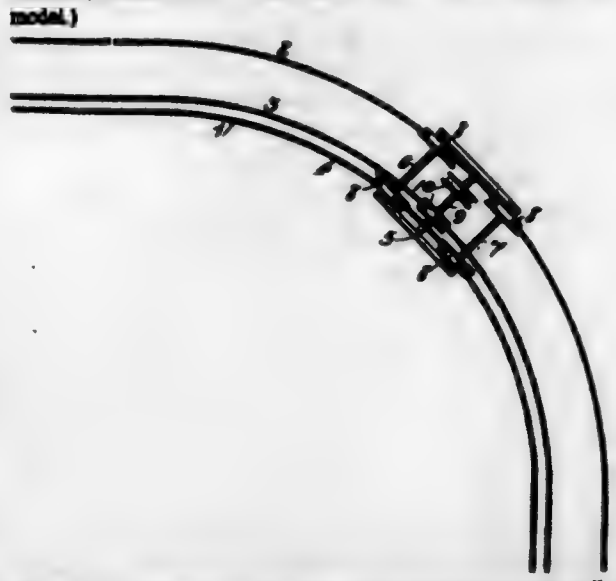
19. The combination, with the rock-shaft T, provided with an arm, the belt-shipping devices, and the connecting mechanism intermediate the rock-shaft and the shipping devices, of a trumpet, a shaft s upon which it is mounted provided with an arm for engagement with the arm on the rock-shaft T, whereby when the trumpet is swung upon its axis beyond certain limits the rock-shaft will be oscillated upon its axis and the shipping of the belt from the fast to the loose pulley thereby automatically effected, substantially as described.

20. The combination, with the rock-shaft s^{13} provided with the arms s^{12} and t^{11}, the eccentric S', rod s^9 provided at its free end with the downwardly and rearwardly extending slot s^{10}, the stud s^{11} with which the slot engages, the bar s', the shipper-lever S, bearings s^3 and s^4, spring s^6, and latch s^5, of the rock-shaft T provided with the arm t^9, the rock-shaft t^8 provided with the arms t^7 and t^{10}, and mechanism for oscillating the rock-shaft T, whereby, when such rock-shaft T is oscillated upon its axis, the arm t^{10} will be brought into engagement with the arm t^{11} and the stopping of the machine thereby automatically effected, substantially as described.

21. The combination, with the trumpet-supporting shaft provided with the upwardly and rearwardly extending stop s^{20}, of the trumpet jointed thereto and provided with a rearwardly-extending weighted arm and with a stop s^{21} for coöperating with said shaft, substantially as described.

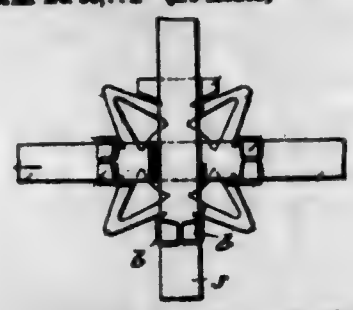
22. The combination, with the front and back trumpets, the means by which they are connected, and the supporting-shaft for the front trumpet provided with an upwardly-extending arm s^{16}, the yielding stop s^{14} and the fixed stop s^{15}, whereby, the forward and backward movements of such trumpets beyond certain limits are positively restrained, and their movements through a portion of their forward travel yieldingly resisted, substantially as described.

690,597. RAILWAY-TRACK AND CAR-TRUCK. GEORGE MEADER, Fowler, Ind. Filed May 2, 1901. Serial No. 58,468. (No model.)



Claim.—A railway-track having at its curves the main rails 1 and 2 and the auxiliary rail 3, the rail 1 being depressed below the rail 3, in combination with a truck having the auxiliary axle 9 arranged between the main axles and carrying the flanged wheels 10 to run upon right and left auxiliary rails, whereby, when the truck is rounding a curve, the main wheels on one side of the truck will run upon the coöperating main rail, while the auxiliary wheel on the other side of the truck will run upon the auxiliary rail, as set forth.

690,598. ROSETTE FOR FORMING CROSSED JOINTS FOR METAL BARS. MORITZ MEISSEL, St. Johann, Germany. Filed July 26, 1901. Serial No. 69,774. (No model.)



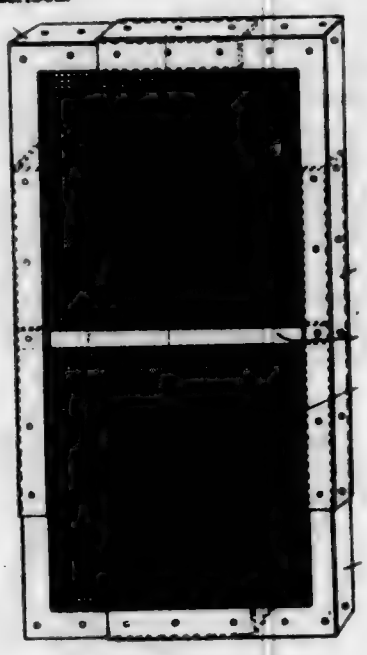
Claim.—1. In a joint for bars, the combination of a star-shaped rosette having cut-away portions in the points thereof forming claws, a semispherical central portion, bars forming a joint inclosed on one side by said claws and on the other side by said semispherical portion, substantially as described.

2. In a joint for bars, the combination of a star-shaped rosette having cut-away portions in the points thereof forming inwardly-extending claws, clamps formed between the points of said star-shaped rosette extending outwardly therefrom, cross-bars, engaged by said last-named clamps, a central semispherical portion inclosing one side of the intersection of said cross-bars and said inwardly-extending clamps inclosing the other side of the joint, substantially as described.

690,599. ADJUSTABLE METALLIC SCREEN-FRAME. MILLER MEISER, Mount Pleasant, Iowa. Filed Aug. 5, 1901. Serial No. 70,979. (No model.)

Claim.—A screen-frame consisting of sections each comprising two legs at right angles to one another and L-shaped in cross-section, the legs of adjacent sections overlapping and closely registering one within the other, whereby an approximately flat surface is provided for attaching the screen fabric, and means for adjustably connecting said sections together, a screen fitted to the screen-frame, nailing-strips placed against the rear side of the screen, and fastening devices subserving the double function of connecting the nailing-strips and screen to the screen-frame

and holding the sections of the screen-frame in their adjusted position, substantially as described.



690,600. DOOR-CHECK. FRANCIS J. MILLER, Washington, D. C. Filed July 23, 1901. Serial No. 69,430. (No model.)



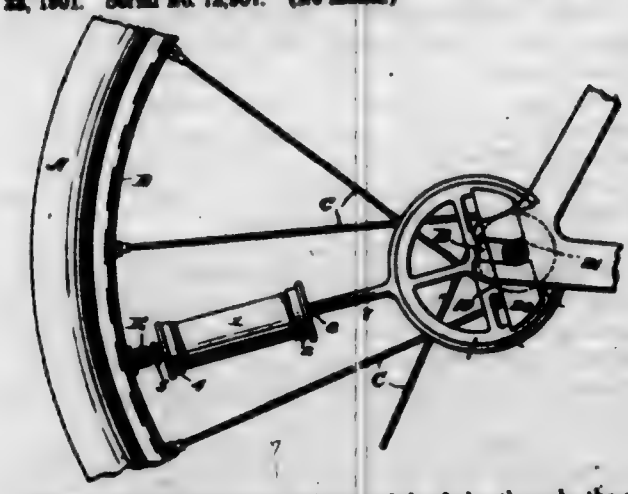
Claim.—1. A door-check comprising telescopic members having a slidable and pivotal connection to the door; a frictional device carried thereby; and a crank-arm secured to the door-knob spindle and having a pivotal connection with one of said telescoping members.

2. A door-check comprising a tube; a rod arranged therein; means for adjustably securing the rod within the tube; a crank-arm having a pivotal connection with the upper end of the rod and secured to the door-knob spindle; a bracket adapted to be secured to the door; a clamp embracing the tube; and a spring surrounding the tube and attached at its respective ends to said clamp and bracket.

3. A door-check comprising a tube externally threaded at its lower end and having a slidable and pivotal connection to the door; an internally-threaded socket carrying a friction-ball; a rod adjustably supported within the tube; a crank-arm pivotally secured to the upper end of said rod and secured upon the door-knob spindle; and a spring surrounding the tube for projecting the latter downward.

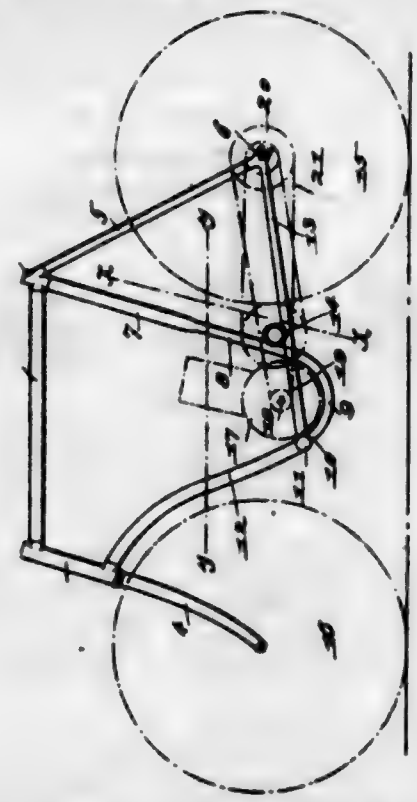
4. A door-check comprising a tube; a socket at the lower end thereof; a friction device within said socket; a rod adjustably secured within the tube; a bracket adapted to be secured to the door; a screw-eye supported by said bracket through which the tube extends; a clamp surrounding the tube; a coil-spring surrounding the tube and attached at its respective ends to the clamp and screw-eye; and a crank-arm pivotally secured to the upper end of said rod and comprising metallic straps twisted and curved to form clamping-jaws which embrace the door-knob spindle.

690,601. DEVICE FOR AUTOMATICALLY INFLATING PNEUMATIC TIRES. GEORGE O. MORRIS, Moline, Ill., assignor of two-thirds to Samuel S. Crompton and George H. McKinley, Moline, Ill. Filed Aug. 22, 1901. Serial No. 72,807. (No model.)



Claim.—The combination with one of the forks, the axle, the pneumatic-tired wheel and its hub of a bicycle; of a pump connected to the valved nipple of the wheel, a segmental eccentric-strap secured to the pump-rod, an eccentric having a portion of its rim broken away and provided with a segmental portion fixedly secured to the hub, said eccentric being engaged by said strap, and an arch-shaped brace fixed to the eccentric and located to one side of the broken rim portion of said eccentric and said segmental portion and having a recess which is engaged by the axle between one end of the hub and one of the forks and thereby relieving the eccentric, at its point of connection with the hub, of undue strain, substantially in the manner set forth.

690,602. MOTOR-CYCLE. HIRAM H. PEIRCE, Indianapolis, Ind., assignor to Annie W. Peirce, Indianapolis, Ind. Filed May 18, 1901. Serial No. 60,840. (No model.)



Claim.—1. In a motor-cycle, the combination with the top reach and the head and the rear stays, the seat-post comprises a one-piece upper portion having bifurcated lower extensions bowed vertically and extending upwardly and forwardly and their ends connected in a reinforcement, the lower reach extending from the head and connected with said reinforcement and the rear forks crossing the bifurcated lower portion of the post and connected in said reinforcement, substantially as shown and described.

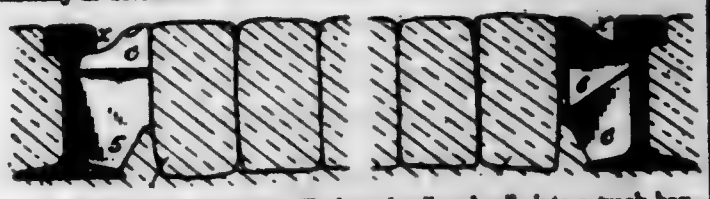
2. In a motor-cycle, the combination with front and rear axles, a frame having the top reach, head and rear stays, the lower reach and rear forks connected with a reinforcement, the forks secured beneath the hanger-bracket and extending forwardly thereof, the seat-post having bifurcated extensions extending downwardly between the rear forks and curved upwardly and forwardly and having their forward ends connected with the aforesaid reinforcement, substantially as described.

3. The combination with the head, reach and rear stays of a motor-cycle frame, of a seat-post bifurcated lower extensions bowed vertically and having upwardly-extending ends connected with a reinforcement, a lower reach connecting the head and said reinforcement and forming a sinuous line, rear forks connected with the stays and extending forwardly crossing the bifurcated extensions adjacent to their outer faces and having their ends connected with the said reinforcement and a hanger-bracket arranged at the rear of the bifurcated extensions and above the rear forks and adjacent to each of said faces, substantially as described.

4. A motor-cycle frame having a seat-post with duplicate lower extensions curved upwardly and forwardly and connected with a suitable reinforcement and having its lower reach extending downwardly in a sinuous line from the head and connected with the reinforcement, rear forks extending forwardly of the duplicate portions of the post and tapering from their rear ends to enlarged forward ends which are connected with the reinforcement, of a driving-motor supported on the duplicate curved extensions of the post and between the forward extensions of the rear forks, substantially as shown and described.

690,608. GROOVED RAIL APPLIANCE FOR STREET-RAILWAY T-RAILS. HENRY G. PEELE, Lee, Mass. Filed May 20, 1901. Serial No. 60,909. (No model.)

Claim.—1. A series of metallic devices for converting T-shaped railroad-rails into a track having a wheel-flange groove, consisting of block-like metallic sections each having a top of ogee form, legs beneath said top supporting the same on the feet of the rail, and an outer side having openings therethrough for engagement with the road-bed, substantially as described.



2. Devices for converting T-shaped railroad-rails into a track having a wheel-flange groove consisting of block-like metallic sections, each having a top of ogee form, a series of indentations in the surface of the higher portion of said top, legs beneath said top supporting the same on the feet of the rail, and an outer side having openings therethrough for engagement with the road-bed, substantially as described.

690,604. RUBBER VEHICLE-TIRE. RAYMOND B. PRIME, Chicago, Ill. Filed Apr. 11, 1901. Serial No. 55,206. (No model.)

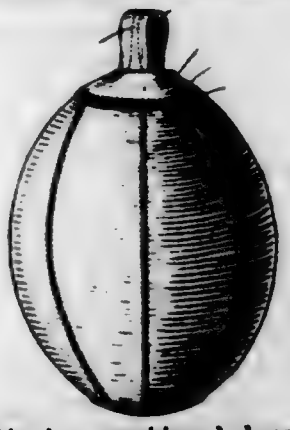


Claim.—1. In a vehicle-tire, the combination of a wheel rim or channel, a rubber tire, and a supplemental rim or channel secured to the wheel rim or channel and receiving the tire, the flange edges of the supplemental rim or channel being bent over to engage the tire after the insertion of the latter.

2. In a vehicle-tire, the combination of a wheel rim or channel, a rubber tire, devices intermolded in the tire and extending laterally to the surface thereof, and a supplemental rim or channel secured to the wheel rim or channel and receiving the tire, the flanged edges of the supplemental rim or channel being bent to engage the devices after the insertion of the rim.

3. In a vehicle-tire, the combination of a wheel rim or channel, a rubber tire, a plurality of parallel wires intermolded in and extending laterally to the surface of the tire, means in the tire holding the wires regularly spaced, and a supplemental rim or channel secured to the wheel rim or channel and receiving the tire, the flanged edges of the supplemental rim or channel being bent over to engage the wires after the insertion of the tire.

690,605. STRIKING-BAG. WALTER H. PRIME, Brockton, Mass., assignor to Stall & Dean Manufacturing Company, Brockton, Mass., a Copartnership, comprising Walter T. Stall and Chas. H. Dean, Brockton, Mass. Filed Apr. 3, 1901. Serial No. 54,907. (No model.)



Claim.—A striking-bag comprising a body portion composed of sections, and a suspending-loop formed of an integral portion connecting the opposite body-sections, and a cap-piece covered to the body portion about said strap.

690,606. MANTLE-HOLDER FOR INCANDESCENT GAS-BURNERS. FRANZ GRATHAN, Berlin, Germany. Filed Aug. 9, 1901. Serial No. 71,468. (No model.)

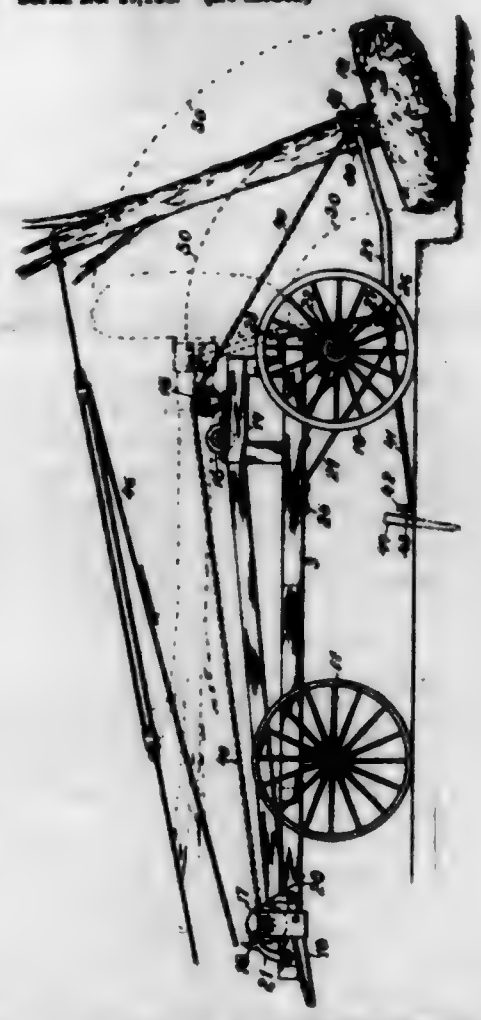


Claim.—1. In a device for removing portions of mantle-holders after same have been broken in the burner, a piece of wire engaging the mantle-holder and normally projecting above the burner, whereby the said wire may be grasped and the holder removed after the holder has been broken, substantially as described.

2. A device for removing portions of mantle-holders after the same have been broken in the burner, which consists of a piece of wire engaging the lower end of said holder and projecting above the upper face of the burner, whereby the upper portion of said wire may be grasped and the portion of the broken mantle remaining in the burner removed, substantially as described.

3. A device for removing portions of mantle-holders after the same have been broken in the burner, which consists of a piece of wire having a head on the lower end thereof which engages the lower end of the mantle-holder, the upper end of the piece of wire projecting above the burner whereby the same may be grasped and the broken portion remaining in the burner removed, substantially as described.

690,607. APPARATUS FOR TRANSPLANTING AND TRANSPORTING TREES. JAMES M. RALSTON, Allenhurst, N. J. Filed Feb. 13, 1901. Serial No. 47,181. (No model.)



Claim.—1. An apparatus for transplanting trees comprising a vehicle having on the forward end thereof a stationary frame which extends to a point near the surface of the ground, in combination with a raising-frame hinged at one end to the lower end of said stationary frame, and having a saddle and gripping appliances for attaching the same to the body of a tree and means on said vehicle for swinging up the raising-frame, as set forth.

2. An apparatus for transplanting trees, comprising a vehicle having on its forward end a depending frame of two bars, each U-shaped in structure extending below the front axle to permit said axle to swivel in the usual manner, in combination with a cross-rod connecting the lower ends of said frame, a raising-frame hinged to said rod and having on its outer end a saddle and means for attaching same to the body of a tree, chains attached to the end of said frame, and means on the vehicle for swinging up the raising-frame, as set forth.

3. An apparatus for transplanting trees, comprising a vehicle, having on its forward end a depending frame of two bars, each U-shaped in structure, extending below the front axle, in combination with a cross-rod connecting the lower ends of said frames, a pair of pushers hinged to said cross-bar, and extending rearwardly, and a raising-frame also hinged to said cross-rod and extending forwardly, and means on said vehicle for swinging said frame upwardly, as set forth.

4. An apparatus for transplanting trees comprising a vehicle having on its forward end a stationary frame which extends downwardly, in combination with a raising-frame hinged to the lower end of said stationary frame, a saddle on the outer end of said raising-frame hinged to the

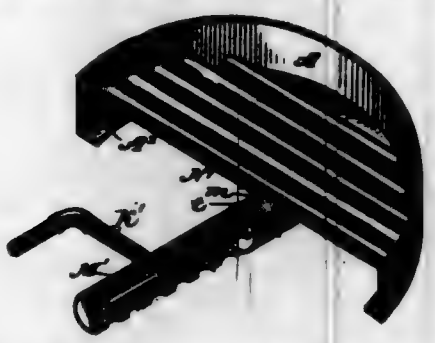
lower end of said stationary frame, a saddle on the outer end of said raising-frame, and means for attaching same to a tree, a pair of grooved pulleys on the forward end of the vehicle, a cross-roller shaft on the rear end of the vehicle and levers and pawls for rotating the same, and chains from said roller-shaft extending over said grooved pulleys and secured to the end of the raising-frame, as set forth.

5. An apparatus for transplanting trees, comprising a vehicle having on its forward end a depending stationary frame, in combination with a raising-frame hinged thereto and having at its outer end a saddle and means for clamping the same to the body of a tree, a pair of grooved pulleys on the forward end of the vehicle, and a cross-roller on said frame behind said grooved pulleys, a cross-roller shaft on the rear end of the vehicle and levers and pawls for operating the same, and chains from said roller-shaft passing over the grooved pulleys and secured to the end of the raising-frame, as set forth.

6. In an apparatus for transplanting trees a saddle and means for clamping the body of a tree, comprising a semicircular portion having at each end a pair of ears and threaded bolts hinged thereto, a boss projecting out from each end between the ears, a curved portion also provided with ears for receiving the aforesaid bolts, and cushions on the inner surfaces of the curved portions, substantially as set forth.

7. In an apparatus for transplanting trees, a saddle comprising a curved portion, having at each end a pair of ears and one end of a threaded bolt hinged thereto, a boss projecting out between each of the pairs of ears in combination with a curved portion having projecting ears and adapted to receive the bolts, a raising-frame hinged to said saddle by means of bolts through the bosses on the saddle, as and for the purposes set forth.

690,608. GASOLENE-BURNER. WILLIAM C. RAED, Lewiston, Me. Filed June 18, 1900. Serial No. 20,680. (No model.)



Claim.—1. In a gasolene-burner for steam-boilers, a supporting-shell which corresponds in shape with the boiler and has an inwardly-projecting flange that supports the other parts of the device, a series of parallel chambers perforated throughout their length to act as burners, separated by relatively narrow air-spaces, and approximately covering the whole lower opening of the shell and a mixing-chamber which is clamped to the lower side of each perforated chamber and communicates therewith; all in combination with each other and with means for supplying air and vapor to the mixing-chamber, substantially as and for the purpose set forth.

2. In a gasolene-burner for steam-boilers, a supporting-shell which corresponds in shape with the boiler and has an inwardly-projecting flange that supports the other parts of the burner, a series of parallel-sided chambers resting upon the supporting-shell which have burner-perforations regularly distributed throughout their whole length, and vary in length to correspond with the varying width of the supporting-shell, a mixing-chamber to which each parallel perforated chamber is attached near the middle of its lower side, and with which each communicates and a feed-tube through which air and vapor are supplied to the mixing-chamber, all combined with each other as and for the purpose set forth.

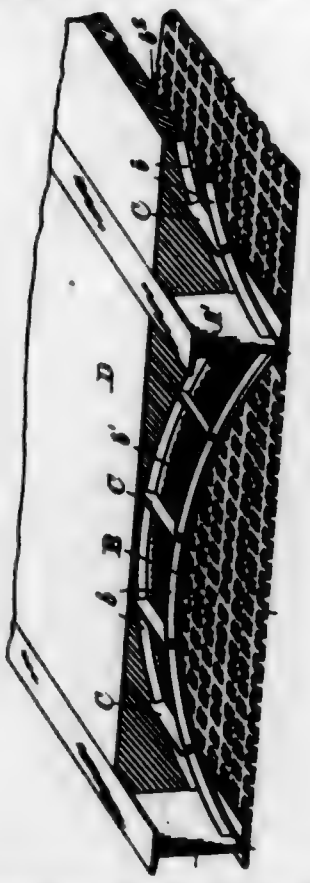
3. In a gasolene-burner a series of cylindrical chambers perforated on their upper sides, a mixing-chamber having a series of transverse notches in its upper surface in which the cylindrical perforated chambers fit closely, and through which they communicate with the mixing-chamber, and a series of screws which screw into the lower side of each perforated chamber, pass through the lower side of the mixing-chamber and clamp the perforated chambers to the mixing-chamber, all combined with each other and with means of supplying air and vapor to the mixing-chamber, substantially as and for the purpose set forth.

4. In a gasolene-burner a series of cylindrical chambers perforated on the upper side, a primary mixing-chamber having a curved upper surface, a series of transverse notches in this curved upper surface in which the perforated cylinders fit and through which they communicate with the primary mixing-cylinder, and a series of screws which, passing through the lower side of the mixing-chamber and into the bottoms of the perforated chambers clamp the perforated chambers to the primary mixing-chamber, all combined with each other and with means of supplying air and vapor to the primary mixing-chamber substantially as and for the purpose set forth.

5. In a gasolene-burner, a series of perforated burner-chambers, a primary mixing-chamber, means of supplying air and vapor thereto a series of screws which clamp the perforated chambers to the primary mixing-chamber and an air-chamber in each screw which communicates with both the primary mixing-chamber and the perforated chamber all combined with each other as and for the purpose set forth.

6. In a gasolene-burner a cylindrical chamber closed at the ends, burning-apertures symmetrically arranged on the upper surface of the chamber, a roof-shaped distributing-partition which fits tightly in the cylindrical chamber and divides it into an upper and a lower compartment, a series of perforations which pass through the upper part of the roof-shaped partition and connect the upper compartment of the cylindrical chamber with the lower, and a connection between the lower side of the cylindrical chamber and a source of mixed air and vapor all as and for the purpose set forth.

690,609. FLOOR CONSTRUCTION. JOHN W. RAPP, New York, N. Y. Filed Apr. 18, 1900. Serial No. 13,421. (No model.)



Claim.—1. In a floor construction, the combination of supporting-beams, a floor-filling between the beams, a support for said filling, said support being made up of sections each of which has formed in it a plurality of loop portions, and spacing-strips for said loop portions.

2. A spacing-bar for use in floor constructions, made from a strip of metal and consisting of a number of loops and intermediate connecting portions which are turned upward.

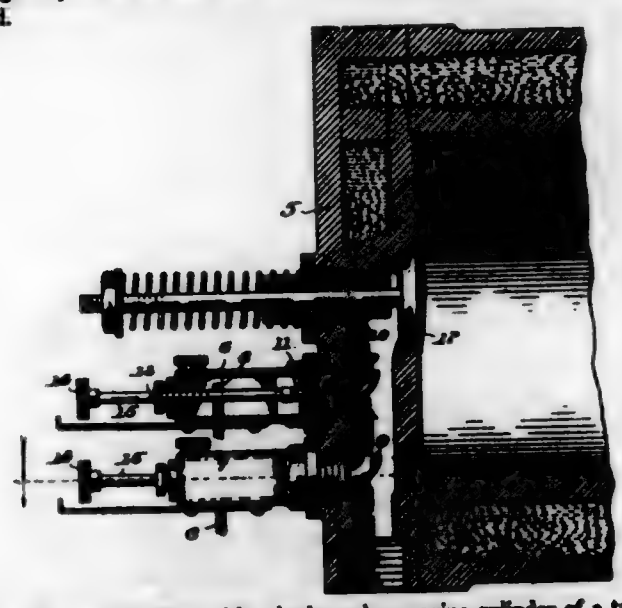
3. In a floor construction, the combination of supporting-beams, a floor-filling between the beams, and a support for said filling, said support consisting of sections of expanded metal, each of which is provided with a plurality of loop portions.

4. In a floor construction, the combination of supporting-beams, a floor-filling and metallic sections intermediate the beams for supporting said floor-filling, said sections being each provided with loop portions, and openings intermediate the loop portions, and spacing-strips for bracing the loop portions.

690,610. HYDROCARBON-ENGINE. AARON D. RICHARDSON, Beloit, Wis. Filed Feb. 2, 1901. Serial No. 45,701. (No model.)

Claim.—1. A hydrocarbon-engine comprising the combination of an engine-cylinder, a reservoir containing a supply of water located adjacent to said cylinder and attached thereto, an opening or passage establishing communication between said reservoir and the inlet to said engine-cylinder, means for maintaining a constant level of water in said reservoir, and means adjacent to said reservoir for controlling the passage of water from the said reservoir into said communicating passage, the said devices being arranged so that the suction of the piston of the cylinder draws the water into the cylinder past said last-mentioned means, substantially as described.

2. A hydrocarbon-engine having a cylinder, a reservoir attached to said cylinder, containing a supply of water, an opening or passage establishing communication between said reservoir and said cylinder, means for maintaining the water in said reservoir at a constant level, a valve controlling the opening into said communicating passage, and means for adjustably fixing said valve in open position whereby to govern the amount of water admitted to the cylinder in proportion to the degree of compression employed, said parts being so arranged as to permit the suction in the engine-cylinder to draw the water into the same, substantially as described.



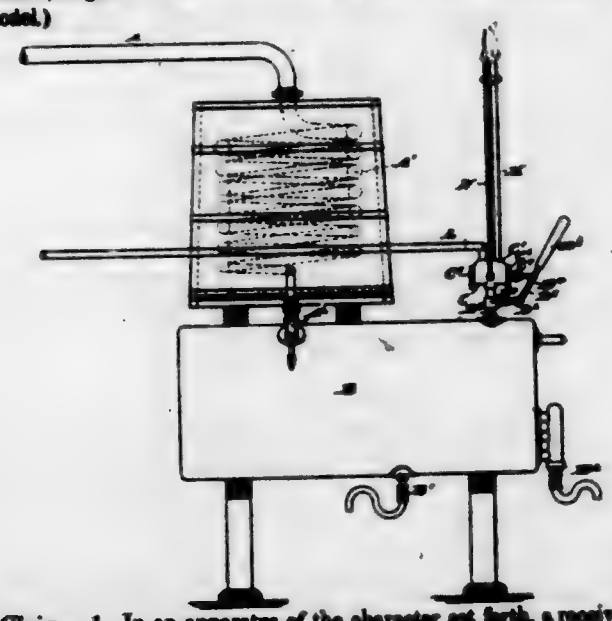
3. The combination with a hydrocarbon-engine cylinder of a twin-reservoir device, comprising a casing, an oil-chamber, and a water-chamber in said casing, and means for permitting the oil and water to enter the cylinder, substantially as described.

4. The combination with a hydrocarbon-engine cylinder of a twin-reservoir device, comprising a casing, an oil-chamber, and a water-chamber in said casing and separate means for permitting the oil and water to enter the cylinder, substantially as described.

5. The combination with a hydrocarbon-engine cylinder of a twin-reservoir device comprising a casing, an oil-chamber, and a water-chamber in said casing, a tube through which oil from said oil-chamber may enter the cylinder, a tube through which water from said water-chamber may enter the cylinder, said tubes formed with their outlets adjacent, and means for controlling the openings of the said tubes, substantially as described.

6. The combination with a hydrocarbon-engine cylinder of a twin-reservoir device comprising a casing, an oil-chamber, and a water-chamber in said casing, a tube through which oil from said oil-chamber may enter the cylinder, a tube through which water from said water-chamber may enter the cylinder, and means for controlling the openings of the said tubes, substantially as described.

690,611. **DISTILLING APPARATUS.** JOHN S. ROAKE, Brooklyn, N. Y., assignor to Will K. Hale, Catskill, N. Y., and Curtiss W. Kirkstetter, Englewood, N. J. Filed May 18, 1901. Serial No. 60,816. (No model.)

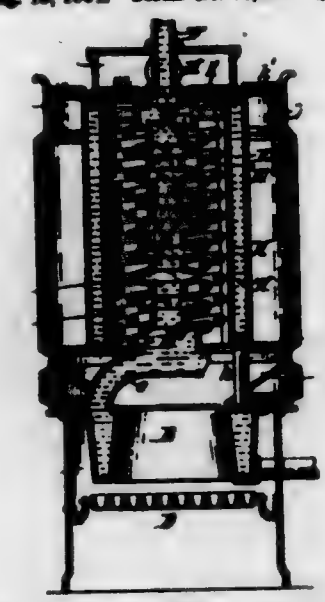


Claim.—1. In an apparatus of the character set forth, a receiver, a casing communicating with the interior thereof, two escape-pipes leading from said casing, and a single valve controlling both pipes and arranged to permit gas from the receiver to flow unobstructedly through one or both under all conditions, and a torch receiving its supply of gas through an open pipe from said receiver and adapted to ignite gas issuing from one of said escape-pipes, all combined and arranged to serve substantially as and for the purposes herein specified.

2. The casing C, inlet-pipe B^2 and port *c* therefor, valve D in said casing having the pistons D^2 D^3, outlet-ports d' d^3 communicating with chambers C^2 C^3 in said casing, escape-pipes L and M leading from said chambers respectively, and means for moving said valve, the said ports and pistons so proportioned and arranged that gas entering the casing through said inlet-pipe may flow unobstructedly through one or both of said escape-pipes in all positions of said valve, all combined and arranged to serve with the receiver of a distilling apparatus, substantially as herein specified.

3. The casing C, inlet-pipe B^2 and port *c* therefor, valve D in said casing having the pistons D^2 D^3, outlet-ports d' d^3 communicating with the chambers C^2 C^3 in said casing, escape-pipes L and M leading from said chambers, and means for moving said valve, the said ports and pistons so proportioned and arranged that gas entering the casing through said inlet-pipe may flow unobstructedly through one or both of said escape-pipes in all positions of said valve, and pipe N leading from the casing between said pistons to the open end of one of said escape-pipes and adapted to serve as a torch to ignite gas issuing therefrom, all combined and arranged to serve with the receiver of a distilling apparatus, substantially as herein specified.

690,612. **HOT-WATER HEATER.** FREDERICK ROSSIUS, New York, N. Y. Filed Aug. 13, 1901. Serial No. 71,903. (No model.)



Claim.—1. The combination with an outer casing, of a hollow-walled, inner casing separated from the outer casing and constituting a combustion-chamber or passage for the smoke and products of combustion, the space between the casings forming a fuel-magazine above the fire-pot, and a fire-pot arranged beneath the inner casing, substantially as set forth.

2. The combination with an outer casing, of a hollow-walled, inner casing separated from the outer casing and constituting a combustion-chamber or passage for the smoke and products of combustion, the space between the two casings constituting a fuel-magazine above the fire-pot, a fire-pot arranged beneath the inner casing, a water-heating column arranged within the inner casing, and water connections between the hollow-walled casing and the water-column, substantially as set forth.

3. The combination with an outer casing, of a hollow, inner casing separated from the outer casing and constituting a combustion-chamber or passage for the smoke and products of combustion, the space between the casings forming a fuel-magazine above the fire-pot, a hollow fire-pot, and a water connection between the fire-pot and the hollow casing, substantially as set forth.

4. The combination with an outer casing, and a hollow fire-pot, of a hollow inner casing arranged above the fire-pot, pipes connecting the fire-pot and hollow casing, and a water heating and circulating column connecting with the hollow casing and with the hollow fire-pot, substantially as set forth.

5. The combination with an outer casing, of a hollow inner casing separated from the outer casing and constituting a combustion-chamber or passage for the smoke and products of combustion, the space between the two casings constituting a fuel-magazine above the fire-pot, the hollow fire-pot arranged beneath the inner casing, a water-heating column arranged within the inner casing, and water connections between the upper part of the casing and the water-column and between the lower part of the casing and the fire-pot, substantially as set forth.

6. The combination with an outer shell or casing and a fire-pot, of

an inner concentric casing composed of segmental sections, which are hollow and provide water-spaces, said inner casing being separated from the outer shell and constituting a combustion-chamber or passage for the smoke and products of combustion and the space between the two casings forming a fuel-magazine above the fire-pot, substantially as set forth.

7. The combination with an outer shell or casing and a fire-pot, of an inner concentric casing composed of hollow, segmental sections having their contiguous upright faces provided with overlapping shoulders, said inner casing being separated from the outer shell and constituting a combustion-chamber or passage for the smoke and products of combustion, and the space between the two casings forming a fuel-magazine above the fire-pot, substantially as set forth.

8. The combination of an outer casing or shell, a fire-pot, a water-column above said fire-pot, a hollow inner casing arranged between the water-column and the outer casing or shell and provided with an upright opening through which access can be had to the water-column, and a movable panel closing said opening, substantially as set forth.

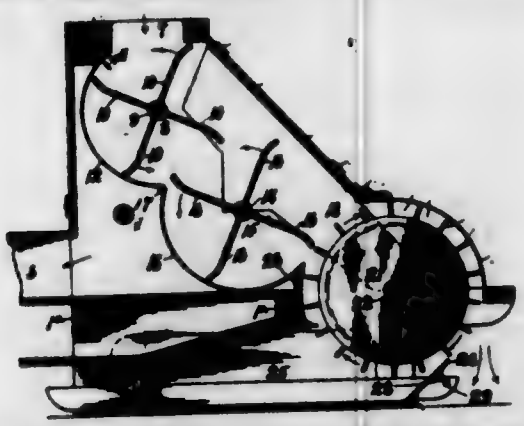
9. The combination of an outer casing or shell, a fire-pot, a water-column above said fire-pot, a hollow inner casing arranged between the water-column and the outer casing or shell and provided with an upright opening through which access can be had to the water-column, supporting-lugs arranged on both sides of said opening, and a removable panel provided in its sides with notches which engage said lugs, substantially as set forth.

690,613. BILLIARD-CUE TIP. FREDERICK I. ROBINSON, New Bedford, Mass. Filed May 20, 1901. Serial No. 62,444. (No model.)



Claim.—A cue-tip comprising a substantially cylindrical ferrule, a transverse partition therein separating the said ferrule into a lower socket adapted to receive the end of the cue and an upper socket to receive the base of a cue-tip, a pin having parallel sides projecting from the transverse partition into the upper chamber, and a tip proper comprising the portion *a*, and a base portion *b* adapted to be seated within the upper socket of the ferrule and provided with an aperture arranged to be forced over the projection on the partition whereby the said tip is held securely in operative position.

690,614. COTTON-CLEANER. JAMES T. ROGERS, WILLIAM R. ROGERS, and GEORGE R. ROGERS, Memphis, Tenn. Filed Dec. 30, 1899. Serial No. 742,118. (No model.)

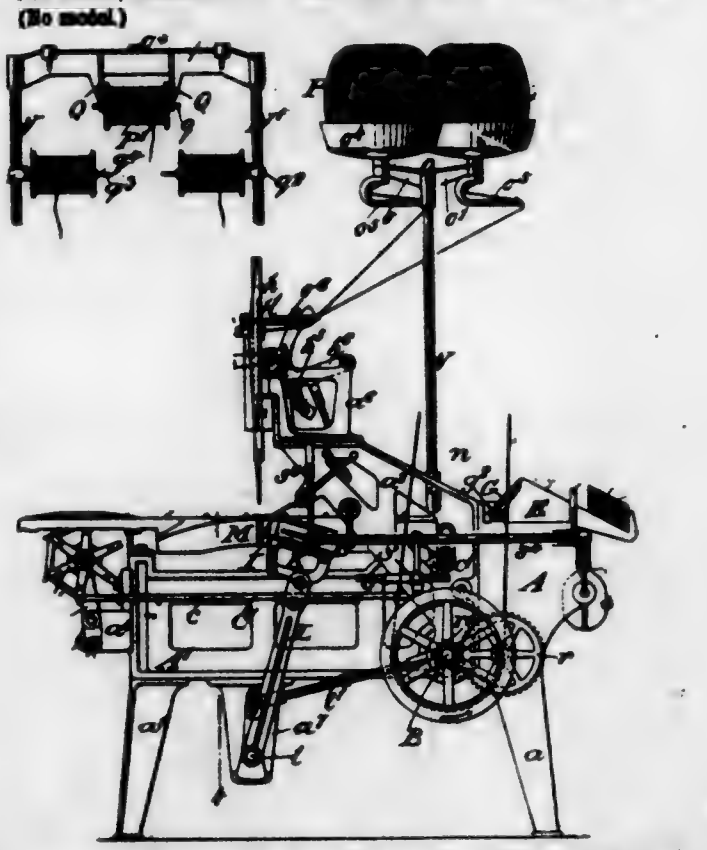


Claim.—1. In a cotton-cleaner, the combination of a pneumatic feed-pipe, an air-tight casing through which an air-current is set up, provided with a feed-opening with which the pneumatic feed-pipe is connected, beaters, one above the other and the screens toward which the respective beaters revolve, so that the opposed arms of the two beaters move in opposite directions, means whereby an air-current may be set up through both screens, a trash-flue and a suitable cotton-discharge, for discharging the cotton in another direction than through the trash-flue, cutting off the admission of air through the discharge-opening.

2. In a cotton-cleaner, the combination of a suitable casing containing means for detaching foreign substances from the cotton, and provided with a tailing-opening, a drum located at said tailing-opening and provided with radial longitudinal flights by which material is received and discharged from the casing, a trash-flue into which the drum dips, terminating in a cant-board adjacent the periphery of the drum and to the point at which said drum discharges material, whereby the flights produce a current of air into the trash-flue, for the purpose set forth.

3. In a cotton-cleaner, the combination of the casing containing a beater, the discharging and separating drum located at the tailing-opening of the casing and provided with radial longitudinal flights, and the trash-flue located beneath the drum and terminating at its forward end, near the discharge-point of the drum, in an adjustable cant-board 26; substantially as and for the purpose set forth.

690,615. MACHINE FOR LACING JACQUARD-CARDS. VERNON ROYLE, Paterson, N. J. Filed Sept. 15, 1897. Serial No. 651,748. (No model.)



Claim.—1. The combination with a needle and its operating mechanism, of a shuttle, a shuttle-holder, a shuttle-holder support, means for operating the shuttle-holder and hence the shuttle, means for adjusting the shuttle-holder bodily along its support and means for adjusting the shuttle-holder in different tilted positions on its support to permit the removal of the shuttle, substantially as set forth.

2. The combination with a needle and its operating mechanism, of a shuttle, a shuttle-holder, a base-piece carrying the shuttle-holder, an arm to which the base-piece is secured, means for operating the said arm and hence the base-piece, shuttle-holder and shuttle, means for adjusting the base-piece with respect to the arm and means for tilting the shuttle-holder with respect to its base-piece, substantially as set forth.

3. The combination with a lacing mechanism and means for feeding the cards to the lacing mechanism, of a reciprocating and rocking auxiliary feeding device for conveying the cards from the hand of the operator to the feeding mechanism, substantially as set forth.

4. The combination with the lacing mechanism, the feed mechanism and the auxiliary feeding device, of a card-support for holding the cards to be fed to the auxiliary feeding device, the said card-support being provided with an abutment set at an acute angle to the floor of the support, substantially as set forth.

5. The combination with the drive-shaft, the shuttle and the shuttle-support operated directly from the drive-shaft, of the needle, a cam-shaft, means for driving the cam-shaft from the main drive-shaft at a reduced speed and a cam on the cam-shaft adapted to reciprocate the needle for each revolution of the drive-shaft, substantially as set forth.

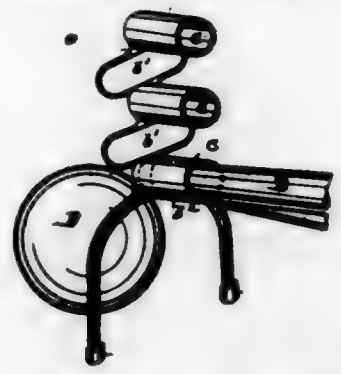
690,616. SHUTTLE FOR SEWING-MACHINES. VERNON ROYLE, Paterson, N. J. Original application filed Sept. 15, 1897, Serial No. 651,748. Divided and this application filed Oct. 25, 1901. Serial No. 79,916. (No model.)



Claim.—1. A shuttle provided with one or more peep-holes through its wall and a transparent film covering the said peep hole or holes, substantially as set forth.

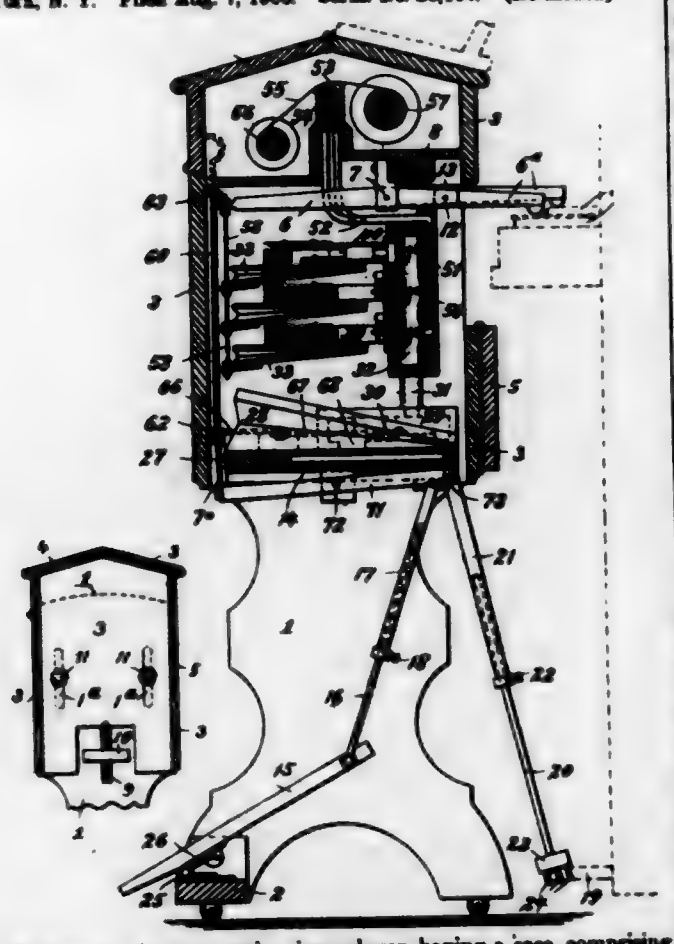
2. A shuttle comprising a body portion and a cap at its end for closing and opening access to the interior of the shuttle, the said cap being provided with a cord-discharge opening therethrough and with a tension device located on the exterior of the cap, substantially as set forth.

690,617. BILLIARD-CUE BRIDGE. SIDNEY RUHLAND, New York, N. Y. Filed Oct. 25, 1901. Serial No. 79,915. (No model.)



Claim.—A cue-bridge composed of a forked support adapted to straddle a billiard-ball, an arm projecting upwardly from said support, a series of tubular cue-guides projecting from the arm, and sight-openings between said guides, substantially as specified.

690,618. AUTOMATIC PIANO-PLAYER. JOSH SAMPERS, New York, N. Y. Filed Aug. 7, 1900. Serial No. 26,167. (No model.)



Claim.—1. An automatic piano-player having a case comprising floor-supports and a body portion adjustable thereon, combined with hammers and means including a bellows supported by the case-body and actuating the hammers for playing a piano or other musical instrument, pedals sustained from the case-floor supports, and lengthwise-adjustable connections between the pedals and bellows.

2. An automatic piano-player having a case comprising floor-supports and a body portion adjustable thereon, hammers, bellows, and a communicating wind-chest and tracker and music-sheet-holding devices sustained by said case-body, valve-controlled pneumatics within the body and actuated by or from the bellows, connections between said pneumatics and hammers for operating the latter for playing a piano or other musical instrument, pedals sustained from the case-floor supports, and lengthwise-adjustable connections between the pedals and bellows.

3. A pneumatically-operated music-producing instrument having a case made with opposite end floor-supports and a body portion adjustable thereon and containing the music-producing devices, a removable cross-bar connecting said floor-supports, bellows sustained by the case-body and actuating said music-producing devices, pedals hinged to the removable cross-bar, and connections between the bellows and pedals.

4. A pneumatically-operated music-producing instrument having a case made with opposite end floor-supports and a body portion adjustable thereon and containing the music-producing devices, a removable cross-bar connecting said floor-supports, bellows sustained by the case-body and actuating said music-producing devices, pedals hinged to the removable cross-bar, connections between the bellows and pedals, and springs at the pedal-hinges normally closing the movable walls of the bellows.

5. An automatic piano-player having a case comprising opposite ends forming floor-supports and a body portion adjustable thereon, a lower removable cross-bar connecting said supports, pedals hinged to said cross-bar, bellows in the case-body, connections between the pedals and bellows, springs at the pedal-hinges normally closing the movable walls of the bellows, and hammers and means actuating them supported in the case-body for playing a piano or other musical instrument; the case and pedal connections having a "knockdown" construction, substantially as described.

6. In an automatic piano-player, the combination, with the main wind-chest having valve-chambers within its wall and inner valve-seats at said wall, of plates each having one opening to the corresponding pneumatic and another opening to the atmosphere and also having an outer valve-seat, said plates being held directly and removably to the chambered main wind-chest wall, guides arranged within the wind-chest and on said removable plates, and two-faced valves sustained by said guides within the valve-chambers in the main wind-chest wall and controlling the pneumatics.

7. In an automatic piano-player, the combination, with the main wind-chest having valve-chambers within its wall and inner valve-seats, of plates each having one opening to the corresponding pneumatic and another opening to the atmosphere and also having an outer valve-seat, said plates being held directly and removably to the chambered main wind-chest wall, two-faced valves arranged within the chambers of the main wind-chest wall and having stems each provided with a button or shoulder, springs held to and within the main wind-chest and having openings at their free ends which receive and guide the valve-stems while the springs bear on the stem buttons or shoulders to assist pneumatic action of the valves, and outer supports for the valve-stems on the removable plates which are held to the main wind-chest wall.

8. In an automatic piano-player, the combination, with the main wind-chest and communicating pneumatics, and valve-seats at openings of the chest giving communication between the wind-chest and pneumatics and between the pneumatics and the atmosphere, of valves adapted to the valve-seated openings and each having a shoulder on its stem, and springs within the wind-chest having openings at their free ends which receive the valve-stems while said springs bear on the valve-stem shoulders, whereby the springs guide the movements of the valves and also facilitate closing of the valves by atmospheric pressure for quickly cutting off the pneumatics from the wind-chest and opening them to the atmosphere.

9. In an automatic piano-player, the combination, with the main wind-chest and communicating pneumatics, and valve-seats at openings of the chest giving communication between the wind-chest and pneumatics and between the pneumatics and the atmosphere, of valves adapted to the valve-seated openings and each having an adjustable button or shoulder on its stem, and springs within the wind-chest having openings at their free ends which receive the valve-stems while said springs bear on the adjustable valve-stem button or shoulder, whereby the springs guide the valves and also facilitate closing of the valves by atmospheric pressure for quickly cutting off the pneumatics from the wind-chest and opening them to the atmosphere and whereby provision also is made for regulating the tension of the valve-springs.

10. In an automatic piano-player having an air-current controller for the pneumatics and a piano-pedal actuator, a device operative manually and independently of the main bellows or air-supplying means and coupling devices connecting said device with said controller and actuator to operate either of them separately or both together for regulating "expression" of the music.

11. In an automatic piano-player having an air-current controller for the pneumatics and a piano-pedal actuator, a manually-operative device coupled with said controller and actuator and having both lateral and vertical movements for operating the controller or actuator separately or both together for regulating "expression" of the music.

12. In an automatic piano-player having an air-current controller for the pneumatics and a piano-pedal actuator, a two-motion manually-operative device and two systems of levers coupling said device to the controller and actuator respectively for operating either of them separately or both together to regulate "expression" of the music.

13. An automatic piano-player having a case comprising floor-supports and a body portion adjustable thereon, combined with hammers and means pneumatically operating them to play a piano or other musical instrument and supported by said case-body, and "expression-regulating" devices comprising an air-current controller for the hammer-operating pneumatics and a piano-pedal actuator, a device operative manually and independently of the main bellows or air-supplying means and coupling devices connecting said device with said air-current controller, and coupling devices also connecting said devices to the piano-pedal actuator by parts including a lengthwise-adjustable connection; said manually-opera-

tive device thereby operating either the controller or actuator alone or both together for regulating "expression" of the music.

14. The combination of a base, an action vertically, adjustably supported on the base, a bellows movable within the action, pedals on the base and an adjustable connection between the bellows and pedals.

15. In an automatic piano-player, the combination, with the two music-rolls and their shafts, of a motor having one gear-train adapted to operate both the take-up and delivery rolls and normally operating the take-up roll during playing of the music, a friction-brake adapted to control the speed of the motor and music-sheet, devices adapted to release the motor-shaft from said take-up roll and engage said shaft with the delivery-roll, means for adjusting the friction-brake including an arm or lever, a rocking shaft having an arm in the path of said brake-adjusting arm or lever, and connections from said rocking shaft to the rewinding mechanism adapted to release the take-up roll from the motor and operatively engage therewith the delivery-roll, thereby causing rewinding of the music-sheet while automatically relaxing or releasing the motor friction-brake device.

16. In an automatic piano-player, the combination, with the two music-rolls and their shafts and the music-sheet, of a tracker, hammers, valved pneumatics connected to said hammers, air-current devices adapted to actuate the pneumatics and hammers for playing the piano, a valve controlling the air-current through the pneumatic wind-chest, a motor normally operating the take-up roll, a friction-brake adapted to control rotative speed of the motor and music-sheet, devices adapted to release the motor-shaft from said take-up roll and engage said shaft with the delivery-roll, means for adjusting the friction-brake including an arm or lever, a rocking shaft having one arm in the path of said brake-adjusting arm or lever and having another arm and connections therefrom to the pneumatic-wind-chest air-current-controlling valve, and connections from said rocking shaft to the rewinding mechanism adapted to release the take-up roll from the motor and operatively engage therewith the delivery-roll, thereby causing the rewinding of the music-sheet while automatically relaxing or releasing the brake device and also automatically opening the pneumatic-wind-chest controlling-valve and preventing operation of the pneumatics or playing of the piano during rewinding of the music-sheet.

17. In an automatic piano-player, the combination, with a main shaft adapted to rotate the music-rolls, of a motor having one gear-train adapted to operate both the take-up and delivery rolls and adapted to rotate said main shaft and having an auxiliary aligned shaft, a sleeve or part revolvable with the auxiliary shaft, a spring held to said sleeve and to a rotating part of the motor, a collar normally loose on the auxiliary shaft and adapted for clutching thereto, a lever hung on said collar and carrying a pawl adapted to engage the collar for winding the motor-spring when the collar is clutched to the auxiliary shaft, air-current devices actuating the music-producing devices and including bellows and pedals, and connections from said pawl-carrying lever operating it to wind the spring from the player-bellows or pedals.

18. The combination, with the player-floor supports 1 and the case-body adjustable thereon and sustaining the bellows, of the cross-bar 2, pedals 15 held to said cross-bar, and a lengthwise-adjustable connection 16, 17, between the bellows and pedals.

19. An "expression-regulating" mechanism for automatic piano-players, comprising a valve 30 controlling the air-current, a lever 64 fulcrumed to the player-case and connections between lever 64 and valve 30, a rod adapted to actuate the piano-pedal, a lever 62 fulcrumed to the player-case, another lever 71 fulcrumed to the player-case and coupled to the pedal-actuating rod, connections coupling the levers 62, 71; a lever 60 pivoted to lever 62, and a link 63 coupling the levers 60, 64, substantially as described, whereby the air-current controller and the piano-pedal actuator may be operated either alone or together by duplex movements of the lever 60, as and for the purposes set forth.

20. An "expression-regulating" mechanism for automatic piano-players, comprising a valve 30 controlling the air-current, a lever 64 fulcrumed to the player-case and connections between lever 64 and the valve 30, a lengthwise-adjustable rod 20, 21 adapted to actuate piano-pedals of varying relative heights, a lever 62 fulcrumed to the player-case, another lever 71 fulcrumed to the player-case and coupled to the pedal-actuating rod 20, 21, connections coupling the levers 62, 71; a lever 60 pivoted to lever 62, and a link 63 coupling the levers 60, 64, substantially as and for the purposes set forth.

21. The combination, with the player-case, hammers, pneumatics, air-current-producing devices, a valve 30 controlling current to the pneumatics, a coupled lever system 64, 66, 67 connected to valve 30, and a lever system 62, 71 coupled to the piano-pedal actuator, of a two-motion device 60 coupled to both levers 64, 62, and adapted to operate either the valve 30 or the piano-pedal actuator alone or both together at the will of the performer.

22. The combination, with the wind-chest 32 having chamber 47 with openings at valve-seat 46 and at 48 49, of the pneumatics 33 communicating at 48 with the chamber 47, the puppet-valves adapted to close the openings at 46, 49, and having stems each provided with a shoulder, and springs 44 within the wind-chest and having openings at their free ends which receive the valve-stems while said springs bear on the stem-shoulders, whereby the springs guide the valves and facilitate opening of the pneumatics to the atmosphere.

23. The combination, with the wind-chest 32 having chamber 47 with openings at valve-seat 46 and at 48, 49, of the pneumatics 33 communicating at 48 with the chamber 47, the puppet-valves adapted to close the openings at 46, 49, and having stems provided with adjustable nuts 45 and springs 44 within the wind-chest and having openings at their free ends receiving the valve-stems next said nuts, whereby the springs guide the valves and facilitate opening of the pneumatics to the atmosphere while the nuts provide for regulating the tension of the valve-springs.

24. The combination with the wind-chest 32, having valve-chambers within its wall, the pneumatics and their communicating passages and the controlling-valves located within said chambers of the main wind-chest wall, of plates 41 having air-passages 48, 49, and held removably to the wind-chest to give access to the valves without necessarily removing the valves from the main wind-chest.

25. The combination, with the wind-chest, the pneumatics and their communicating passages and controlling-valves, of puppet-valves 34, 35, springs 44 within the wind-chest and guiding the valve-stems and quickly opening the pneumatics to the atmosphere, removable plates 41 held to the wind-chest and having air-passages 48, 49, and supports 43 held to plates 41 and guiding the outer ends of the valve-stems and removable with said plates.

26. The combination, with the endwise-movable main shaft 75 normally having clutch connection at 100 with the music take-up roll 57 and also having a clutch at 105, of a loose pulley 102 having a clutch at 104, a pulley 107 on the shaft of music delivery-roll 56, belt 106 connecting pulleys 102, 107, a motor having revolvable friction-brake disk 90, a brake-lever 92 bearing on said disk, a screw-shaft 94, 95, an operating-arm 96 turning said shaft, an armed lever 114, 115, 116, operative by arm 96, and clutch connections to part 114 adapted to move shaft 75 endwise to cause rewinding of the music-sheet on the delivery-roll while also effecting release of the motor-brake.

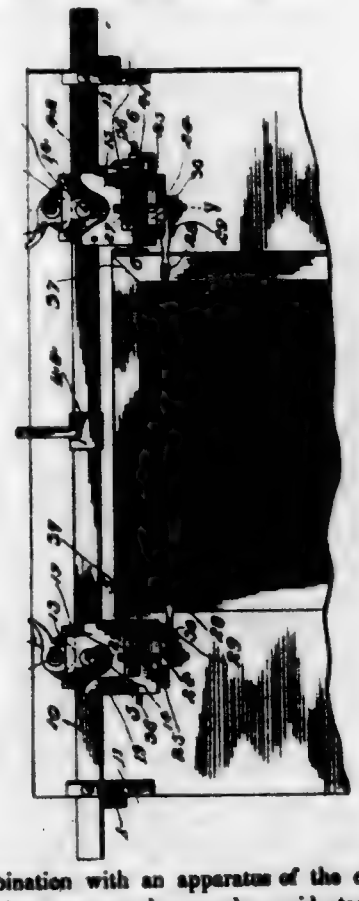
27. The combination, with the music-rolls and the motor, the pneumatics, the air-current-producing devices, and mechanism adapted to uncouple the take-up roll from the motor-shaft and couple the delivery-roll thereto, of a brake device at the motor, a lever bearing thereon, a screw-shaft 94, 95, an arm 96 actuating said brake-lever, a rocking lever 114, 115, 116, operative by arm 96, connections from part 114 to effect the above-named mechanical uncoupling and coupling of the music-rolls, a valve 120 at the wind-chest, and connections 118, 119 from said valve to part 115, whereby playing of the music is prevented during rewinding of the music-sheet.

690,619. ADJUSTABLE HOLDER FOR PRINTING-FILMS. Joseph A. Sauter, Buffalo, N. Y. Filed Aug. 6, 1901. Serial No. 71,116. (No model.)

Claim.—1. In an apparatus of the character described, standards adapted to be clamped to the opposite edges of a table or other flat support, a cross-bar supported by said standards at each end, means for adjusting said cross-bar vertically within the standards, two film-frame carriers carried by the cross-bar and adjustable longitudinally of the same, cams carried by the film-frame carriers for binding the same upon the cross-bar, each carrier composed of two members, one member adapted to slide upon the other member at right angles to the cross-bar, a screw swiveled in one of the members and threaded through the other member, a ratchet-wheel secured to the screw, a lever pivoted upon the screw, a pawl pivoted to the lever and adapted to engage the ratchet-wheel, a spring interposed between the two members, means for taking up any lost motion between the two members where they slide upon one another, pivot-points carried by the movable members, a film-frame adapted to be interposed between the pivot-points, a rest secured to the cross-bar against which the frame is adapted to lie when out of use, substantially as and for the purpose set forth.

2. In combination with an apparatus of the character described, film-frame carriers, a bar along which said carriers are adjustable, cams carried by the carriers for the purpose of clamping said carriers in position upon the bar, each carrier consisting of two members, one member adapted to slide upon the other at right angles to the cross-bar, a block interposed between the two members, a screw threaded through one member and adapted to bear against the block for the purpose of taking up the lost motion between the two members where they slide one upon the other, a screw swiveled in one member and threaded into the other member, a toothed wheel secured to the outer end of said screw, a pawl adapted to engage the toothed wheel, a lever for operating the pawl, a spring interposed between the two members, lugs extending downward from the

movable member, pivot-pins extending through openings formed through the lugs, the pivot-pin in one of the carriers being yielding, the pin in the other carrier being adjustable, a toothed wheel threaded upon the outer end of the adjustable pin, said toothed wheel confined between two points, a pawl in engagement with said toothed wheel, a lever for rocking the pawl, substantially as and for the purpose specified.



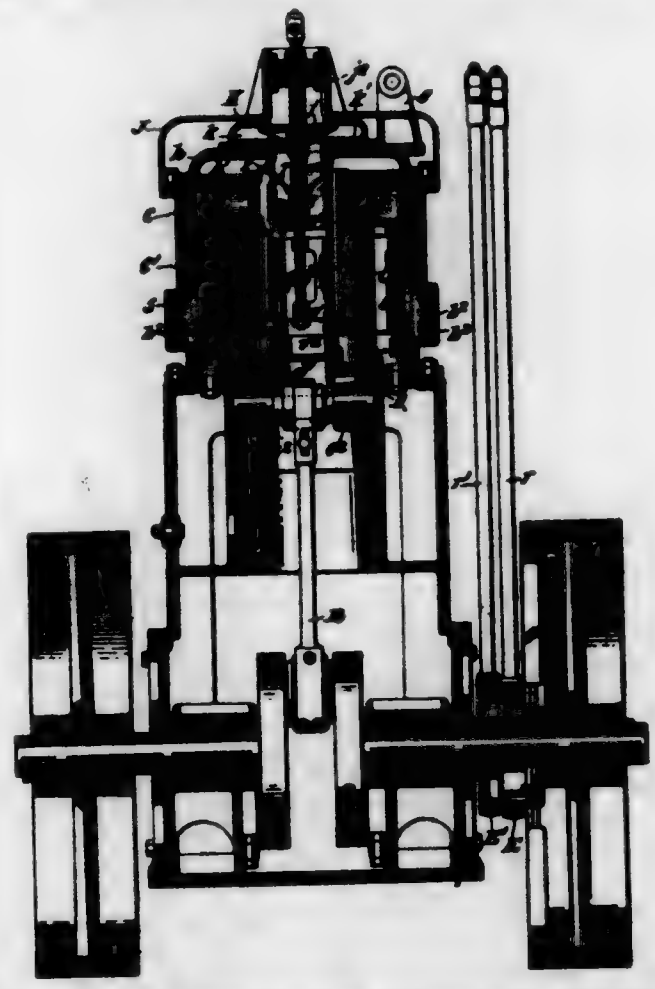
3. In combination with an apparatus of the character described, standards adapted to support the cross-bar, said standards consisting of two parts, a channel formed in one part adapted to embrace the edge of the table, a clamping-screw adapted to clamp said standards to the table, a channel formed in the upper end of the clamp member, the second member adapted to slide within said channel, means for holding said second member in position after it is adjusted, said adjustable member being provided with a horizontal slot formed in the upper end thereof, set-screws threaded through said adjustable member, a cross-bar adapted to protrude through said slots and be held in position by said set-screws, substantially as and for the purpose set forth.

690,620. TELESCOPIC COMPOUND ENGINE. WILLIAM SCHNEIDER, Chicago, Ill., assignor to the Whitfield Company, Memphis, Tenn., a Corporation of Mississippi. Filed Mar. 14, 1901. Serial No. 51,171. (No model.)

Claim.—1. A telescopic compound engine, comprising a low-pressure cylinder, a stationary abutment and a high-pressure piston-cylinder working in said low-pressure cylinder and on said abutment, an exhaust-chamber encompassing one end of the low-pressure cylinder, an exhaust-chamber at the opposite end thereof and ports leading from said cylinder to said exhaust-chambers; in combination with means controlling said ports to cause steam to exhaust into both chambers on the low-pressure stroke of the piston-cylinder, for the purposes set forth.

2. In a telescopic compound engine, the combination with the low-pressure cylinder having a chambered head, a chambered stationary abutment, the high-pressure piston-cylinder working in said low-pressure cylinder and on said abutment, and a casing on the low-pressure cylinder having a live-steam chamber in communication with the chamber in the low-pressure-cylinder head, an exhaust-chamber above said head, and a second exhaust-chamber encompassing the opposite end of said low-pressure cylinder, and ports leading therefrom to said exhaust-chambers, the ports leading to the encompassing exhaust-chamber being controlled by the movements of the piston; of a valve-casing, a steam-chest surrounding the same in communication with the chambers in the head of the low-pressure cylinder and in the piston-abutment, ports leading from the valve-casing to the high and low pressure cylinders and valves controlling said ports to cause the engine to work compound, for the purposes set forth.

3. A telescopic compound engine, comprising a low-pressure cylinder, a stationary abutment, a high-pressure piston-cylinder working in said low-pressure cylinder and on said abutment, an exhaust-chamber encompassing one end of the low-pressure cylinder, an exhaust-chamber at the opposite end thereof, an air-chamber between the last-named exhaust-chamber and said low-pressure cylinder and ports leading therefrom to said exhaust-chambers; in combination with means controlling said ports to cause steam to exhaust from the low-pressure cylinder into both exhaust-chambers on the low-pressure stroke, for the purposes set forth.



4. In a compound telescopic engine organized as described, the combination with the high and low pressure cylinders, the stationary abutment, the axially-disposed valve-casing provided with ports as described and the steam-chest surrounding said casing and communicating therewith through ports 4; of the valves v v', the valve-head v^2 connected with valve v', a tubular valve-rod to which the latter valve is secured, an eccentric on the crank-shaft connected with said valve-rod, a second valve-rod carrying valve v and extending through the aforesaid tubular valve-rod, and an automatic eccentric on aforesaid crank-shaft connected with the rod of valve v, for the purposes set forth.

5. A steam-engine comprising a low-pressure cylinder having a live-steam-supply chamber connectible with the boiler formed in one of its heads, a stationary abutment, and a high-pressure cylinder working in said low-pressure cylinder and on said abutment; in combination with a steam-chest connected with said abutment and opening into the chamber in said cylinder-head, a tubular valve-casing concentric with the steam-chest and extending through the steam-chamber in the head of the low-pressure cylinder, suitable distributing ports and passages in said chest and casing, and suitable valves in the latter controlling said ports and passages, for the purpose set forth.

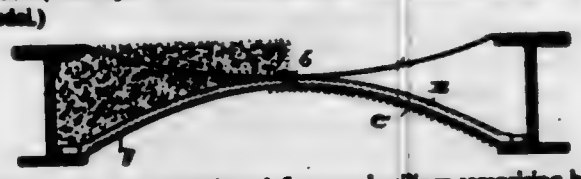
6. A steam-engine comprising a low-pressure cylinder, a stationary abutment, a high-pressure cylinder working in said low-pressure cylinder and on said abutment, and a valve-casing extending from said abutment through the opposite head of the low-pressure cylinder; in combination with a jacketed exhaust-chamber on said head having an opening in line with and of greater diameter than that of said valve-casing, a removable cover for said opening and a distributing-valve in the valve-casing whose stem extends through said cover, for the purpose set forth.

7. The combination with the low-pressure cylinder of a telescopic engine organized as set forth, the axially-arranged valve-casing, and the exhaust-chamber on the head of said low-pressure cylinder, said exhaust-chamber having an opening in line with and of greater diameter than that of said valve-casing; of the jacketing-casing J constructed to close the opening in said exhaust-chamber and carrying the bearings for the valve-rods and for the shaft that carries the rock-levers for said rods and also the cross-head guide for one of said valve-rods, substantially as and for the purpose set forth.

8. In a telescopic compound engine, the combination with the low-pressure cylinder, a stationary abutment and the high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder; of means for exhausting the steam from opposite points of the high-pressure piston-cylinder into the low-pressure cylinder on the low-pressure stroke, for the purpose set forth.

9. In a telescopic compound engine, the combination with the low-pressure cylinder, the stationary abutment and the high-pressure piston-cylinder working on said abutment and in said low-pressure cylinder, said high-pressure cylinder extended beyond the packing on the abutment; of a tubular guide for the high-pressure cylinder carried by and in extension of the low-pressure cylinder, for the purposes set forth.

690,621. FLOOR AND CEILING CONSTRUCTION. JACOB SCHRATWIESER, Brooklyn, N. Y. Filed Mar. 26, 1900. Serial No. 10,079. (No model.)



Claim.—1. A construction of floors and ceilings comprising beams, cross-pieces composed of angle-iron extending from one lower flange to the other of said beams and sheet-metal lath provided with ribs adapted to receive said cross-pieces.

2. In the construction of floors and ceilings, the combination of beams, secured to the lower flanges of which and extending across from beam to beam, are cross-pieces, sheet-metal lath supported upon said cross-pieces and provided with ribs corresponding to the same and tension-rods suspended from the upper part of said beams and secured to said cross-pieces.

3. A construction of floors and ceilings comprising beams, arched cross-pieces composed of angle-iron extending from one lower flange to the other of said beams and sheet-metal lath provided with ribs corresponding to said cross-pieces and tension-rods connecting said cross-pieces with the upper parts of said beams.

690,622. HANDLE. EDWARD SEYBOLD and CLARENCE E. MOUNTFORD, Ottawa, Canada, assignors to the Eclipse Office Furniture Company of Ottawa, Limited, Ottawa, Canada, a Corporation. Filed June 22, 1901. Serial No. 65,626. (No model.)



Claim.—1. A D-handle frame consisting of a single piece of sheet metal bent in the form of a fork with hollow prongs and the shank whereof consists of two resilient semicircular portions detached from and abutting against each another, substantially as described and for the purpose set forth.

2. A D-handle frame consisting of a single piece of sheet metal bent in the form of a fork the shank whereof consists of two resilient semicircular portions detached from and abutting against one another and having an outwardly-projecting bead encircling said shank at the end thereof, substantially as described and for the purpose set forth.

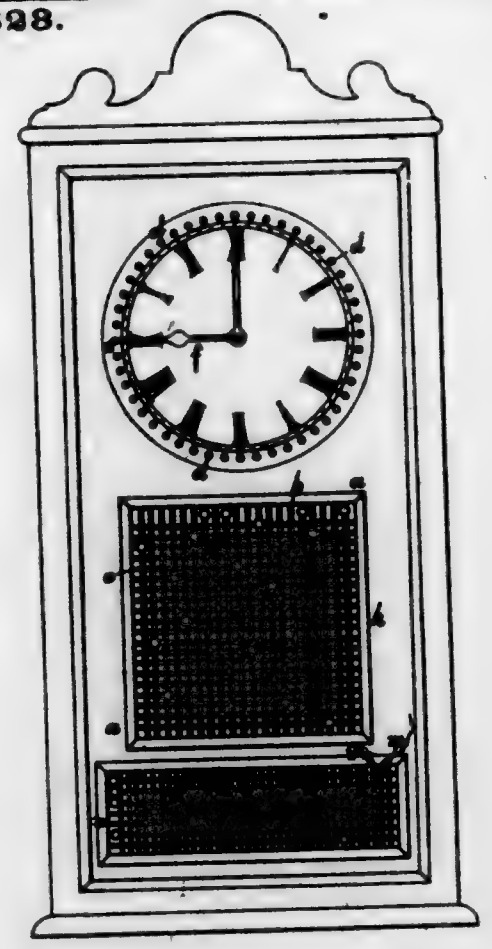
3. A D-handle frame consisting of a single piece of sheet metal bent in the form of a fork the ends whereof consist of said single piece of sheet metal bent upon itself, the shank of said fork consisting of two resilient semicircular portions detached from and abutting against one another, substantially as described and for the purpose set forth.

4. A D-handle frame consisting of a single piece of sheet metal bent in the form of a fork the ends whereof consist of said single piece of sheet metal bent upon itself, the shank of said fork consisting of two resilient semicircular portions detached from and abutting against one another and having an outwardly-projecting bead encircling said shank at the end thereof, substantially as described.

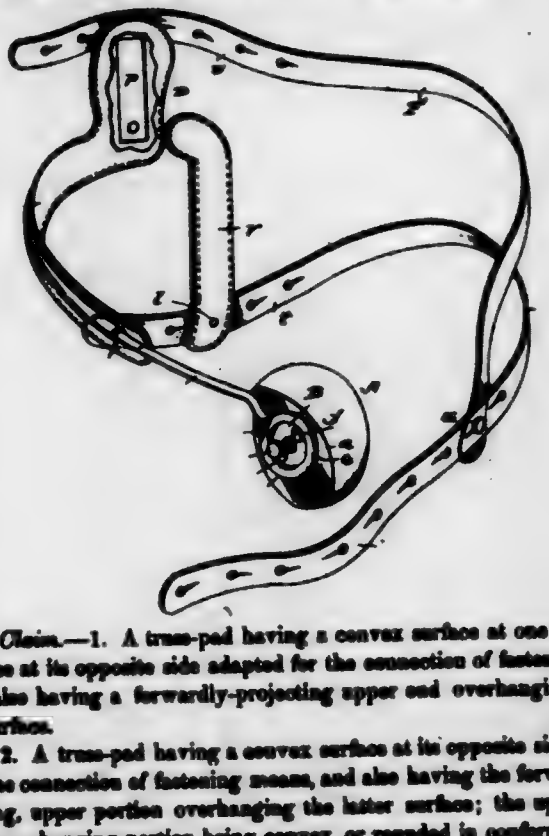
690,628. ELECTRIC-CALL APPARATUS. CHARLES SHUCK, Bolton, England, assignor of one-half to Charles Heap, Caldershaw, Rochdale, England. Filed Apr. 3, 1901. Serial No. 54,947. (No model.)

Claim.—In a call apparatus the combination with a clock-dial and contact-pieces thereon, clock-hands, an electric battery, and an electric circuit, of a connection-board or call-board with transverse bars, one set representing the place where the call is to be given, a second set representing the time when the call is to be given, and a third set to connect the connection-board or call-board to a second board, and a second board with one set of bars to connect it with the first board, and a second set of bars to connect it with the contact-pieces on the clock-dial to give a longer range of time-periods substantially as described.

690,628.



690,624. HERNIAL TRUSS. LOUIS A. SMITH, Topeka, Kans. Filed June 27, 1901. Serial No. 66,234. (No model.)



Claim.—1. A truss-pad having a convex surface at one side, and a surface at its opposite side adapted for the connection of fastening means, and also having a forwardly-projecting upper end overhanging the latter surface.

2. A truss-pad having a convex surface at its opposite side, adapted for the connection of fastening means, and also having the forwardly-projecting, upper portion overhanging the latter surface; the upper side of said overhanging portion being convex or rounded in conformity to and forming a continuation of the convex side of the pad.

3. A truss-pad having a forwardly-projecting overhanging portion at its upper end, and also having a recess arranged immediately below said portion, and in a plane considerably within the edge thereof; in combination with a clamping-plate having its side wall arranged in the recess, a wire for pressing the pad against a hernia and provided with a loop interposed between the plate and the recess of the pad, and a screw passed through the plate and the loop of the wire and into the pad for clamping the loop of the spring between the plate and pad.

4. In a truss, the combination of a pad having a recess in one of its sides, a clamping-plate having its side wall arranged in said recess, the bolt-wire comprising the arch, the upwardly-projecting loop at the rear end thereof, the arm depending from the loop, and the loop *g* at the forward end of the arch; said loop being interposed between the clamping-

plate and the pad, and means passed through the loop *g* of the bolt-wire and connecting the clamping-plate and the pad.

5. In a truss, the combination of a pad, and a wire connected thereto and comprising the arch, the upwardly-projecting loop at the rear end thereof, and the arm depending from the loop.

6. In a truss, the combination of a pad having a forwardly-projecting overhanging portion at its upper end, rounded on its upper side, a wire for pressing the pad against a hernia, a clamping-plate disposed obliquely on the pad, and having its side walls arranged in the recess thereof whereby said pad is held in an inclined position, and an adjustable connection between the plate and pad for clamping the plate on a portion of the wire and holding the pad thereto.

7. In a truss, the combination of a pad, a wire connected thereto and having the curved arch extending rearwardly from the pad, and also having the upward projection at the rear end of the arch and the arm depending from said portion, and straps for securing or fastening the pad and wire on the body of a patient.

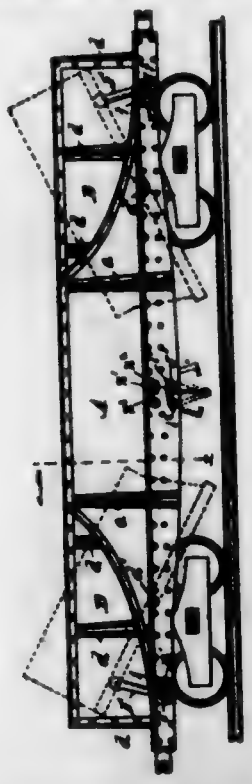
8. In a truss, the combination of a pad, a wire connected thereto and having the curved arch extending rearwardly from the pad, and also having the upward projection at the rear end of the arch, and the arm depending from said upward projection, a cushion of suitable material applied to the wire, and straps for securing or fastening the pad and wire on the body of a patient.

9. In a truss, the combination of a pad, and a wire connected thereto and having the arch, the upward projection at the rear end of the arch, and the arm depending from said upward projection.

10. In a truss, the combination of a pad provided with a stud, a wire connected thereto and comprising the arch, the upwardly-projecting loop at the rear end thereof, and the arm depending from the loop; said wire being provided on its loop and depending arm with studs, a cushion of suitable material applied to the wire, and straps for securing or fastening the pad and wire on the body of a patient.

11. In a truss, the combination of a pad, a wire connected to the pad and comprising the arch, the upwardly-projecting loop at the rear end thereof, and the arm depending from the loop, the cushion having the portion arranged at the inner side of the loop of the spring, and also having sleeves receiving the arch and depending arm of said wire, a clip connected to the loop and having a resilient tongue connected to the portion of the cushion at the inner side thereof, and straps for securing or fastening the pad and wire on the body of a patient.

690,625. DUMPING-CAR. JOHN G. STURGEON and RALPH A. PETERSON, Erie, Pa. Filed Apr. 20, 1901. Serial No. 56,622. (No model.)



Claim.—1. In a dumping-car, a car-frame, a central car-body section, oscillating car-body end sections so pivoted in the car-frame that their inner ends can drop below the plane of the central section of the car-body, and a drop-floor section in the central car-body section, for the purpose set forth.

2. In a dumping-car, a car-frame, a central car-body section, oscillating car-body end sections so pivoted in the car-frame that their inner ends can drop below the plane of the central car-body section, a drop-floor section in the central car-body section, and mechanism for locking the oscillating car-body sections and the drop-floor sections, for the purpose set forth.

3. In a dumping-car, a car-frame, a central car-body-section, side plates on the central part thereof forming the sides of the central car-body section, end car-body sections so pivoted in the car-frame that their inner ends are overlapped by the side plates thereon and can be dropped below the level of the central car-body section, drop-floor sections in the central car-body section, and mechanism adapted to lock the oscillating car-body end sections and the drop-floor sections in a horizontal position, for the purpose set forth.

4. In a dumping-car, a car-frame, side plates on the central part thereof, a central car-body floor-section between said side plates, a drop-floor section therein, oscillating car-body sections so pivoted in the car-frame that when in their normal positions the floors thereof are substantially on the same plane with the central car-floor section, and mechanism for locking the oscillating car-body sections and the drop-floor section of the central portion of the car-body floor in substantially a horizontal position, for the purpose set forth.

5. In a dumping-car, a car-frame, side plates on the central part thereof, a horizontal central car-body floor-section between said side plates, drop-floor sections therein, oscillating car-body end sections so pivoted in the car-frame that when in their normally horizontal positions, the floors thereof are substantially on a horizontal plane with the central car-floor section, mechanism for locking said end sections and said drop-floor sections in their normally horizontal positions, and releasing them so that the inner ends of the oscillating car-body sections and the free ends of the drop-floor sections will drop below the floor of the car-body, for the purpose set forth.

6. In a dumping-car, side plates forming part of the car-frame and the central portion of the sides of the car-body, oscillating dumping-sections centrally pivoted in the car-frame so that the inner ends thereof are adapted to tip downward, transverse strips of permanent car-body floor, at the inner ends of said oscillating sections, a transverse strip of permanent car-body floor, in the center of the car, and drop-sections between said strips of permanent floor-plate, for the purpose set forth.

7. In a dumping-car, side plates forming part of the car-frame and the central portions of the sides of the car-body, oscillating dumping-sections pivoted between the side plates, so that the inner ends thereof are overlapped by the portions of the side plates forming the central part of the car-body, transverse strips of permanent car-body floor at the inner ends of the oscillating sections, a transverse strip of permanent car-body floor at the center of the car, drop-sections between said strips of permanent floor-plate, mechanism for locking said dumping-sections and said drop-sections in a horizontal position and for releasing the same, for the purpose set forth.

8. In a dumping-car, a car-frame comprised substantially of longitudinal and transverse sills and side plates, oscillating dumping-sections pivoted between the side plates of said frame, transverse strips of permanent car floor at the inner ends of the oscillating sections, a transverse strip of permanent car-body floor at the center of the car, drop-sections hinged at the sides of the central strip of permanent car-body floor so that the free ends thereof close up to the edges of the strips of permanent car-body floor at the inner ends of the oscillating sections, and mechanism under said strips of permanent car-body floor for locking and releasing the inner ends of said oscillating sections and the free ends of the drop-sections, for the purpose set forth.

9. In a dumping-car comprising substantially a frame, side plates, and a floor-section forming the central part of the car-body, a hinged drop-floor section therein, oscillating car-body end sections pivoted in the frame, locking mechanism adapted to lock the inner ends of the oscillating sections and the free ends of the hinged drop-floor section in a horizontal position, and shaft mechanism for operating the same for the purpose set forth.

10. In a dumping-car comprising a car-frame, oscillating car-body end sections and hinged central drop-floor sections mounted in said frame, locking mechanism mounted in said frame between the inner ends of the oscillating car-body end sections and the free ends of the hinged central drop-sections, and shaft-and-link mechanism for operating said locking mechanism, for the purpose set forth.

11. In a dumping-car comprising a car-frame, oscillating car-body end sections and hinged central drop-floor sections mounted in said frame, locking-arms mounted in said frame between the inner ends of the oscillating car-body end sections, and the free ends of the hinged central drop-floor sections, and shaft-and-link mechanism for operating said locking-arms, for the purpose set forth.

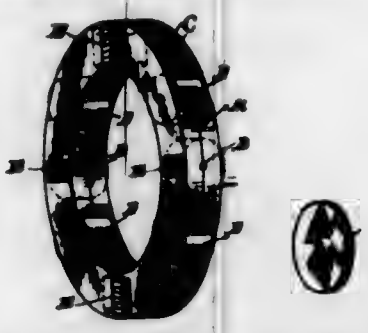
12. In a dumping-car comprising a car-frame, oscillating car-body end sections and hinged central drop-floor sections mounted in said frame, locking-arms mounted in said frame between the inner ends of the oscillating car-body end sections and the free ends of the hinged central drop-floor sections, shaft-and-link mechanism for operating said locking-arms,

and mechanism for closing said hinged drop-sections, for the purpose set forth.

13. In a dumping-car comprising a car-frame, oscillating car-body end sections and hinged central drop-floor sections mounted in said frame, locking-arms mounted in said frame between the inner ends of the oscillating car-body end sections and the free ends of the hinged drop-floor sections, transverse shafts between the free ends of the locking-arms and operatively connected therewith, an actuating-shaft centrally mounted in said frame and operatively connected with and adapted to simultaneously actuate the transverse shafts operating the locking-arms, for the purpose set forth.

14. In a dumping-car, a car-frame comprised of longitudinal and transverse sills, and side plates forming the central portions of the car-body, oscillating dumping-sections forming the end portions of the car-body pivoted between said plates so as to overlap them, and form a continuous car-body, permanent transverse car-body floor-sections at the inner ends of the oscillating sections, a permanent transverse car-body floor-section at the center of the car, drop-floor sections hinged at the center floor-section so that their free ends will meet the other permanent floor-sections mechanism under the floor-sections between the inner ends of the oscillating sections and the free ends of the drop-floor sections for locking the same in a horizontal position, lever mechanism for operating said locking mechanism, mechanism for raising said drop-floor sections into a horizontal position, and mechanism for raising and lowering the ends of the oscillating car-body sections, for the purpose and substantially as set forth.

690,626. ROLLER-BEARING. FRANK WHITNEY, Winnetka, Ill. Filed July 30, 1900. Serial No. 25,242. (No model.)



Claim.—1. In a roller-bearing a series of disks assembled and retained in the form of a roller, a series of said rollers arranged with their axis radiating from a common center, and means for guiding said rollers relative to each other.

2. In a roller-bearing the combination of a series of the composite rollers arranged with their axis radiating from the axis of the shaft, and a series of the usual cylindrical rollers arranged parallel with the shaft and interposed alternately between the composite rollers in the same annular path around the shaft.

3. In a roller-bearing the combination of the shaft of an outer casing, two series of cylindrical rollers alternately with each other in an annular space around the shaft, the rollers of one series arranged parallel with the shaft, the rollers of the alternating series arranged with their axes radiating from the shaft, and means for guiding all the rollers around the shaft simultaneously, said rollers providing the vertical thrust and end thrust of the bearing, substantially as described.

4. In a roller-bearing the combination of a wedge-shaped ring, a spiral steel casing, the stationary annular wedge, and means for moving and retaining the wedge-shaped ring against the stationary wedge for the purpose described.

5. In a roller-bearing the combination of the outer casing and the rollers, the spirally-wound steel inner casing, the wedge-shaped ring, the nut for jamming the wedge-shaped ring against the wedge in the outer casing for the purpose of modifying the diameter of the inner casing.

6. In a roller-bearing the combination of the casing, the stationary annular wedge K, the movable wedge-shaped ring J, the nut L, the spirally-wound steel casing and the rollers all for the purpose described.

7. In a roller-bearing the combination of the composite rollers, composed of a series of disks, each disk rotating independent of the others, the steel washers for end-thrust bearings, and the usual cylindrical rollers, the shaft with the spirally-wound steel casing thereon, the outer casing with the spirally-wound steel casing therein for the cylindrical bearing.

690,627. SYSTEM FOR DISTRIBUTING MERCHANDISE. ROBERT O. WHITE, Troy, N. Y. Filed Aug. 10, 1901. Serial No. 71,589. (No model.)

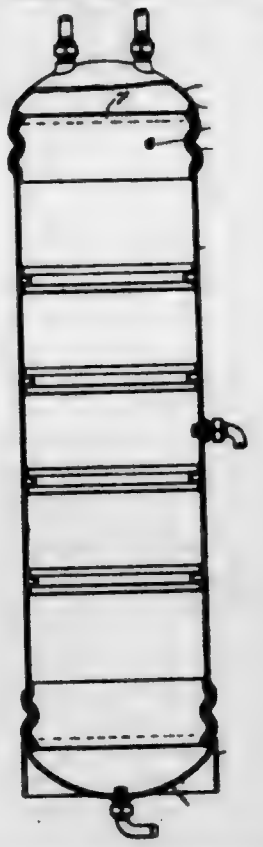
Claim.—1. The combination with a series of check-receptacles marked by differing symbols designating different store-rooms and having differing interior arrangements; of a series of checks similarly marked and constructed to fit, respectively, the receptacles, substantially as described.



2. The combination with a series of differing check-receptacles, marked by differing symbols representing differing store-rooms and adapted to be arranged in such store-rooms; of a series of checks, each check having a symbol differing from the symbols on the other checks and like the symbol on one of the receptacles, and constructed to fit that receptacle only which bears a symbol like its own.

3. The combination with a series of differing check-receptacles, marked by differing symbols representing different railway-cars and adapted to be arranged in such cars; of a plurality of sets of checks, one set for each check-receptacle, the checks of each set being adapted to enter and fit one of such check-receptacles only and having car-symbols like that of the receptacle which they fit.

690,628. RANGE-BOILER. ARTHUR C. BARNES, Boston, Mass. Filed Feb. 10, 1900. Serial No. 4,758. (No model.)

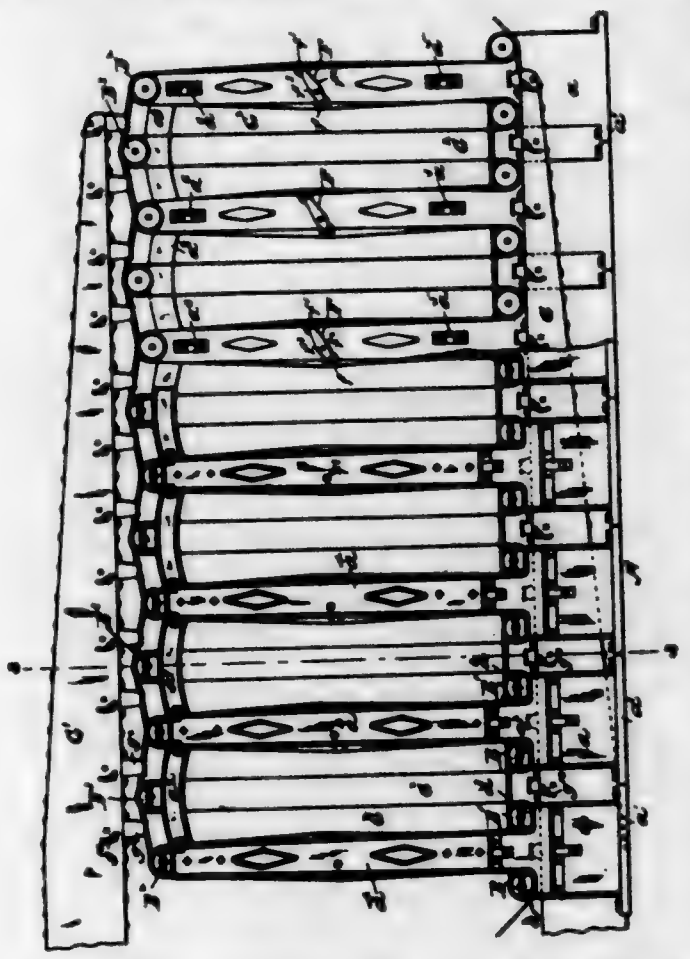


Claim.—In a range-boiler, a joint having two outer layers consisting of the overlapping margins of the shell parts to be joined, and an inner third layer consisting of a sheet-metal reinforcing-ring having one edge extending beyond the edge of the adjacent or intermediate layer, all of said layers being conformably beaded or corrugated and in close contact throughout their overlapped portions, and a filling of solder in the space beyond the edge of the intermediate layer and between the extended edge of the inner layer and the inner surface of the outer layer.

690,629. PAPER-DRYING MACHINE. WILLIAM M. BARBER, Somerville, Mass., assignor of one-half to the Smith and Anthony Company, Boston, Mass., a Corporation of Massachusetts. Filed Oct. 22, 1900. Serial No. 33,943. (No model.)

Claim.—1. In a device for drying paper in the continuous web as it leaves the paper-making machine, a grid comprising two lines of rolls of comparatively small diameter, about which the web of paper passes in a manner to form narrow spaces or compartments which are open at

two sides and at one end, said line of rolls being a substantial distance apart, whereby the web of paper forming the walls of said narrow spaces will be vertical and of considerable length, and means for directing dry-air currents or blasts into said air spaces or compartments from their open ends whereby both sides of said web will be simultaneously dried by said air-currents, as and for the purposes set forth.



2. In a device for drying paper a grid comprising two lines of rolls about which the web of paper passes in a manner to form narrow spaces or compartments which are open at two sides and at one end and means for directing dry-air currents or blasts into said spaces or compartments from their open ends and automatic tension-equalizers between the two lines of rolls.

3. In a device for drying paper in the continuous web, a grid comprising two lines of rolls about which the web of paper passes in a manner to form narrow spaces or compartments which are open at two sides and at one end, and means for directing air currents or blasts into said spaces or compartments from their open ends, in combination with means for rotating said rolls, said means consisting of a power-shaft and frictional devices connecting each roll with said power-shaft, and means for adjusting the amount of friction between each frictional device and its roll, whereby the speed of rotation of the various rolls of said grid may be adjusted to conform to the shrinkage of the web being dried thereon, as set forth.

4. In a device for drying paper in the continuous web as it leaves the paper-making machine, a grid comprising two lines of rolls about which the web of paper passes in a manner to form narrow spaces or compartments which are open at two sides and at one end, frictional devices for rotating said rolls, automatic tension-equalizers between the two lines of rolls and means for directing dry-air currents or blasts into said spaces or compartments from their open ends.

5. In a device for drying paper in the continuous web as it leaves the paper-making machine, a grid comprising two lines of rolls about which the web of paper passes in a manner to form narrow spaces or compartments which are open at two sides and at one end, frictional devices for rotating said rolls, additional devices for rotating said rolls independently of said frictional devices and means for directing dry-air currents or blasts into said spaces or compartments from their open ends, as and for the purposes set forth.

6. In a device for drying paper in a continuous web, a series of pairs of independent vertical supports, each pair carrying at its upper and lower end, rolls of the character described, in combination with intermediate supports each carrying a roll arranged as described with reference to the rolls on said vertical supports whereby said rolls will form a grid extensible in length about which a web of paper may pass in a manner to form narrow spaces or compartments open at two sides and at one end, as and for the purposes described.

7. In a device for drying paper in the continuous web as it leaves the paper-making machine, a series of pairs of independent vertical supports, each pair carrying rolls of the kind described at its top and bottom, whereby said rolls will form a grid extensible in length about which a web of paper may pass in a manner to form narrow spaces or compartments open at two sides and at one end, the walls forming said compartments being composed of said web of paper, and means for directing dry-air currents or blasts into said air spaces or compartments and simultaneously upon both sides of the same portion of said web, as and for the purposes set forth.

8. As a means for drying paper in a continuous web, a grid comprising two lines of rolls, a web of paper passing around said rolls in a manner to form narrow spaces or compartments, two sides of which are formed by said web, the two ends of which are open, one of the other sides of said compartments being formed of one of said rolls, and means for directing dry-air currents or blasts simultaneously into the open end of each compartment, whereby each portion of the web will be dried by currents passing into the open ends of said compartments simultaneously.

9. As a means for drying paper in a continuous web, paper-stretching rolls or devices over which the web is caused to travel and by which the web is held under tension, frictional devices by means of which said rolls are caused to rotate and means for simultaneously directing dry-air currents or blasts against both surfaces of said traveling web of paper while under tension, whereby the paper will be dried and allowed to shrink during its travel, as and for the purposes set forth.

10. In a device for drying paper in the continuous web, a grid comprising two lines of rolls about which the paper passes in a manner to form narrow spaces or compartments which are open at two sides and at one end, and two air-ducts, one located above the upper line of rolls and the other below the lower line of rolls, each air-duct gradually decreasing in area from one end to the other, the large ends of the air-ducts being respectively above and below the same end of said grid and each air-duct being provided with an opening in line with the end openings of said compartments, as and for the purposes set forth.

11. In a device for drying paper in the continuous web a grid consisting of two lines of rolls about which the web of paper passes in a manner to form narrow spaces or compartments which are open at two sides and at one end, means for directing air currents or blasts into said spaces or compartments from their open ends consisting of nozzles connected with a source of air-supply and devices for varying or adjusting the size of the outlet of said nozzles.

12. In a paper-drying machine the combination of the stand, the rolls supported thereby and the automatic tension-equalizer comprising the arms f^2 pivoted to the stands as described and bearing at their outer ends the tension-rolls f, f'.

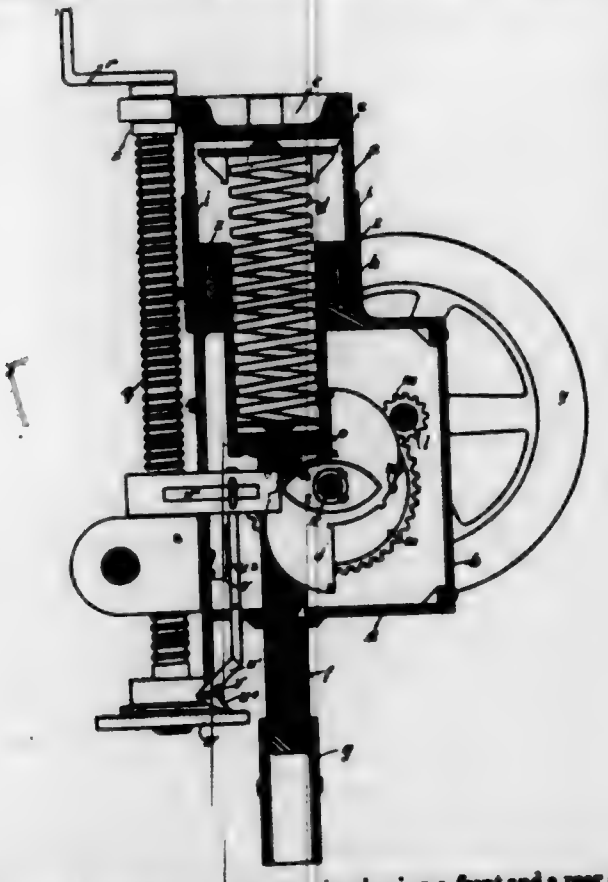
13. In a paper-drying machine, in combination with a continuously-traveling web arranged to travel on parallel or substantially parallel lines, means for deflecting a drying-blast angularly against said web whereby it is caused first to strike one of the surfaces of said web and then to be deflected by it so as to strike the surface of the web diagonally opposite where it first strikes.

690,680. ROCK-DRILL. ARTHUR C. RATH, San Francisco, Cal. Filed Apr. 6, 1901. Serial No. 54,708. (No model.)

Claim.—1. In a rock-drill a machine-casing having a forward and rear chamber, said forward chamber inclosing parts of its mechanism and said rear chamber being provided with vents for admitting air therein, a plunger provided with a recess for inclosing a spring to drive it forward and having a flange or head at the mouth of said recess adapted to fit closely against the walls of said rear chamber so as to permit of the formation of a cushion of compressed air between said flange or head and the forward inclosed part of said rear chamber surrounding the recessed portion of said plunger slidable therein, in combination with a cam-wheel having two parts for successively forcing back said plunger and compressing said spring and suddenly releasing the same, and having spurs on the rim thereof to act in conjunction with pockets in said plunger opposite thereto for twisting the same, a cam adapted consecutively to set upon and release a feed attachment provided with a pawl arranged to engage the teeth of a ratchet-wheel attached to a feed-screw for the forward movement of the machine, substantially as described.

2. In a rock-drill a machine-casing having a forward and rear chamber said forward chamber inclosing parts of its mechanism and said rear chamber being provided with vents for admitting air therein, a plunger provided with an open recess for inclosing a spiral spring to drive it forward the ends of said spring resting against metallic washers having their outer sides provided with centrally-positioned rounded knobs so as to permit of the proper adjustment of the spring, the forward washer being in contact with the inner inclosed end of said recess, the rear washer being in contact with the threaded movable cap to regulate the spring-pressure said plunger having a flange or head at the mouth of said recess adapted to fit closely against the walls of said rear chamber so as to permit of the formation of a cushion of compressed air between said projections or lugs

and the forward inclosed part of said rear chamber surrounding the recessed portion of said plunger slidable therein, in combination with a cam-wheel having two parts for successively forcing back said plunger and compressing said spring and suddenly releasing the same and having sprockets on the rim thereof to act in conjunction with pockets in said plunger opposite thereto for twisting the same, a cam adapted consecutively to act upon and release a feed attachment provided with a pawl arranged to engage the teeth of a ratchet-wheel attached to a feed-screw for the forward movement of the machine, substantially as described.



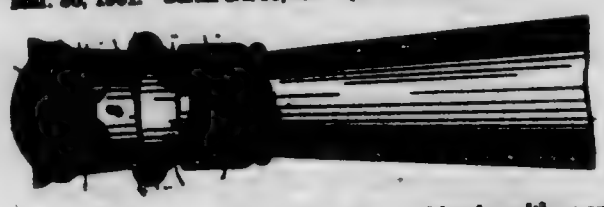
3. In a rock-drill a machine-casing having a front and a rear chamber, said front chamber containing a main shaft and a cam-wheel and gearing for the movement of a balance-wheel attached to a counter-shaft, a plunger for the working of a drill operating through the same, said plunger consisting of a shaft provided with a collar for holding a drill and having a recess in its rear end for holding a spring for driving said plunger forward, said plunger at the mouth of said recess having a flange or head presenting a straight surface to the inner sides of said rear chamber and slidable against said sides, the front wall of said rear chamber having an opening for the operation of the rear section of said plunger therein and the inner surface of said wall being inclosed by expansible packing so as to prevent the escape of compressed air from the cushion thereof formed on the release of said spring, between the said lugs and said packing opposite thereto, said rear chamber having vents in its sides and the rear wall thereof consisting of a threaded cap adjusted to the opening of said rear chamber for the shortening of said spring as may be desired, in combination with a cam-wheel having two parts for successively forcing back said plunger compressing said spring and suddenly releasing the same and having spurs on the rim thereof to act in conjunction with the pockets in said plunger opposite thereto for turning the same, a cam adapted to act upon and release a feed attachment provided with a pawl arranged to engage the teeth of a ratchet-wheel attached to a feed-screw for the forward movement of the machine, said feed attachment consisting of a centrally-pivoted bar, a rectangular block having a slot, a thumb-screw securing said block to said bar through said slot said bar having an angular branch and said pawl being pivotally connected therewith substantially as described.

4. In a rock-drill a machine-casing having a forward chamber and a rear chamber, a plunger with means for holding a drill, said plunger moving through apertures of said chambers and actuated by a spring to drive it forward, said plunger provided with an open recess containing a spring having rear lateral extensions presenting a straight surface to the inner sides of said rear chamber and moving in contact therewith the front walls of the said front and rear chambers having an aperture for the movement of said plunger therein and the inner surface of said wall being inclosed by expansible packing so as to prevent the escape of compressed air from the cushion thereof formed on the release of said spring for the propulsion of said plunger between said extensions and said packing opposite thereto said rear chamber having vents in its sides and the rear wall thereof consisting of a threaded cap adjusted to the opening of said rear chamber for the shortening of said spring as desired, in combination with a cam-wheel having two parts for successively forcing back said plunger and compressing said spring and suddenly releasing the same and having spurs on the rim thereof to act in conjunction with the pockets in said plunger opposite thereto for turning the same, a cam adapted to act upon and release a feed attachment provided with a pawl arranged to engage the teeth of a ratchet-wheel attached to a feed-screw for the forward movement of the machine, said feed-screw having a handle for the backward movement of the same, and said machine having means for the regulation of the same and its adjustment to any angle or position desired, substantially as described.

5. In a rock-drill a machine-casing having a forward chamber and a rear chamber said forward chamber inclosing parts of its mechanism and said rear chamber being provided with vents for admitting air therein, a plunger provided with an open recess for inclosing a spiral spring to drive it forward the ends of said spring resting against metallic washers having their outer sides provided with centrally-positioned rounded knobs so as to permit of the proper adjustment of the spring and reducing friction arising from the turning movement of the plunger, the rear washer being in contact with a threaded movable cap to regulate the pressure of the spring, said plunger having outer projections at the mouth of said recess adapted to fit closely against the inner sides of said rear chamber and so as to permit of the formation of a cushion of compressed air between said projections and the forward inclosed parts of said rear chamber surrounding the recessed portion of said plunger slidable therein, in combination with a cam-wheel having two parts for forcing back said spring and suddenly releasing the same and having spurs on the rim thereof to act in conjunction with pockets in said plunger opposite thereto for turning the same, a cam adapted to act upon and release a feed attachment provided with a pawl having a spring bearing against the same and arranged to engage the teeth of a ratchet-wheel attached to a feed-screw for the forward movement of the machine and said feed attachment consisting of a centrally-pivoted bar and spring, a rectangular block having a slot, a thumb-screw securing said block to said bar through said slot and said bar having an angular branch, said pawl being pivotally connected therewith substantially as and for the purpose described.

6. In a rock-drill a machine-casing having a front and a rear chamber and containing a plunger having a flange or head presenting a straight surface to the inner sides of said rear chamber and slidable against said sides, the front wall of said rear chamber having an opening for the operation of the rear section of said plunger therein and the inner surface of said wall being inclosed by expansible packing so as to prevent the escape of compressed air from the cushion thereof formed on the release of the spring contained within the recess in the rear section of said plunger between the said flange or head and said packing opposite thereto, and said rear chamber having vents in its sides for admitting air therein, such cushion being formed to prevent the jarring of the machine in the operation thereof all substantially as shown and described.

690,681. **NON-REFILLABLE BOTTLE.** OTIS E. BLAIR, Victor, Colo., assignor of one-half to Lewis M. Hammond, Victor, Colo. Filed Mar. 20, 1901. Serial No. 52,741. (No model.)

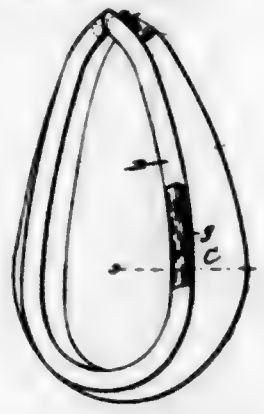


Claim.—In a non-refillable bottle, the combination with a nozzle having an interior circumferential recess or groove in its lower portion, a stopper adapted to enter said nozzle, and a retaining device carried by the stopper, the said device comprising a bell-shaped spring formed from an integral piece of material, having its extremities embedded in the stopper, the horns or projections of the lower part of the spring being adapted to engage the recess on opposite sides when the stopper is inserted, the two horns being connected by an intermediate, upwardly-bowed bridge-piece.

690,682. **HORSE-COLLAR.** HERBERT J. BRIDEN, Port Huron, Mich. Filed Nov. 14, 1900. Serial No. 736,947. (No model.)

Claim.—The herein-described normally-closed horse-collar formed in one section and comprising an after-wale, partially-inflated tubes arranged side by side in and extending throughout the length of the after-wale with their ends adjacent to the ends of said after-wale and each occupying a portion of the interior thereof; said tubes having a tendency press their ends together to assist in normally holding the ends of the collar together and the collar closed, a fore-wale, and the resilient shape-retaining frame formed in one piece and arranged in and fully occupying and extending throughout the length of the fore-wale with its ends arranged adjacent to those of said wale; said resilient frame being nor-

mally closed whereby it is adapted to normally hold the ends of the collar under pressure against each other and thereby hold the collar closed and retain the shape of the same.



690,688. FIRE-EXTINGUISHER. CHARLES F. BRIGHAM, Chicago, Ill. Filed Jan. 26, 1901. Serial No. 44,329. (No model.)



Claim.—1. A fire-extinguisher, comprising an outer and an inner closed vessel permanently secured together and providing separate compartments, the outer surrounding compartment containing a dry-powder extinguishing composition, and the inner compartment charged with air under pressure and used as a means in forcibly expelling the dry powder, substantially as described.

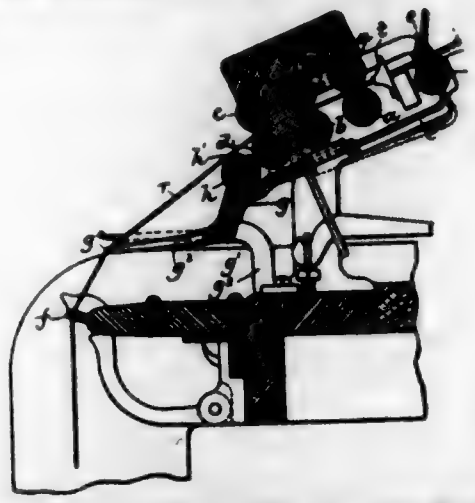
2. A fire-extinguisher, comprising an outer and an inner closed vessel permanently secured together, one of said vessels being filled with a dry-powder composition, and the other vessel charged with a volume of air under pressure, each of said vessels being provided with discharge-nozzles, and means for controlling the volume of air in mingling the same with the dry-powder composition in forcibly expelling the same, substantially as described.

3. In a fire-extinguisher, the combination with a closed outer and inner vessel permanently secured together and providing an annular space between, of a nozzle connected to the outer vessel, and a second nozzle connected to the inner vessel and located on the inside of the first nozzle whereby the contents of the one vessel may be expelled by the action of the contents of the other vessel, substantially as described.

4. In a fire-extinguisher, the combination with an outer vessel, of a nozzle connected thereto and gradually contracting in the direction of the discharge end, an inner vessel inclosed by the outer vessel and provided with a nozzle surrounded by the nozzle of the outer vessel but stopping short of the end thereof, and means for controlling the flow through the nozzle of the inside vessel whereby the inactive contents of one vessel may be expelled by the active contents of the other vessel, substantially as described.

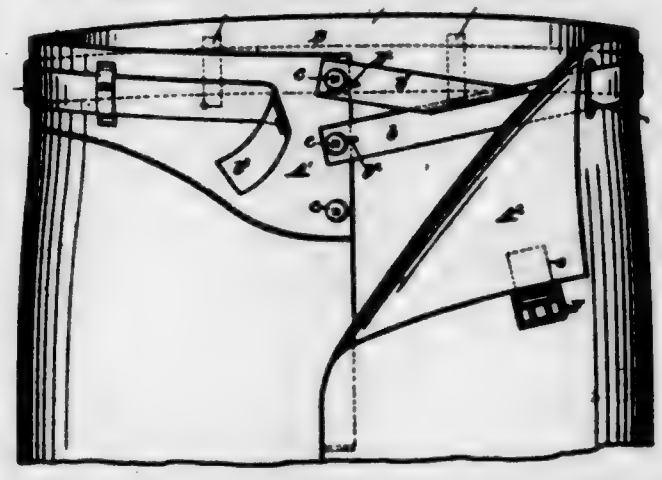
690,684. SPINNING OR TWISTING MACHINE. LEON W. CAMPBELL, Woonsocket, R. I. Filed May 8, 1901. Serial No. 59,444. (No model.)

Claim.—1. In a spinning or twisting machine, the combination with the drawing-rolls of a roving-clamp adjacent to the receiving side of the rolls, and clamp-closing means normally held inoperative by a normal or unbroken roving, said means comprising a gravitating member of a couple of rotation, the other member of which is one of said drawing-rolls, and connections between said gravitating member and the clamp, whereby upon the breakage of a roving at the delivering side of the rolls the clamp is closed by the conjoint action of gravitation and of the power that rotates the rolls, and caused to continuously hold the roving so that the roving is broken at the receiving side of the rolls, its broken end remaining in the nip of the first pair of rolls, ready for reengagement with said rolls when the clamp is opened by the attendant.



2. In a spinning or twisting machine, the combination with the drawing-rolls, of a roving-clamp adjacent to the receiving side of the rolls, one of the members of said clamp being movable, a pivoted arm supporting said movable clamp member and mounted to swing toward and from the fluted lower roll, an idle roll journaled in bearings on said arm and having a recess adapted to fit a portion of the periphery of the fluted roll, said arm and idle roll being normally pressed toward the fluted roll, and toward the position required to cause the movable clamp member to engage the roving, and a finger attached to the arm and arranged to be held by a normal or unbroken thread at the delivering side of the rolls in position to hold the arm and idle roll away from the fluted roll and the movable clamp member out of engagement with the roving, the breakage of the roving at the delivery side of the rolls releasing the arm and causing the idle roll to engage the fluted roll and rotate therewith until the recess in the idle roll bears upon the periphery of the fluted roll.

690,685. GARMENT-SUPPORTER. ELIZA W. CARTER, Cohoes, N. Y. Filed Nov. 14, 1900. Serial No. 36,490. (No model.)



Claim.—The combination with the waistband of a garment provided with an aperture, of an auxiliary band secured to one end of said waistband and extending across the inner side of the opposite end of said waistband, through said aperture, and around the outside of the remainder of said waistband to the said opposite end of said waistband, and adapted to be secured to said opposite end of the waistband, substantially as shown and described.

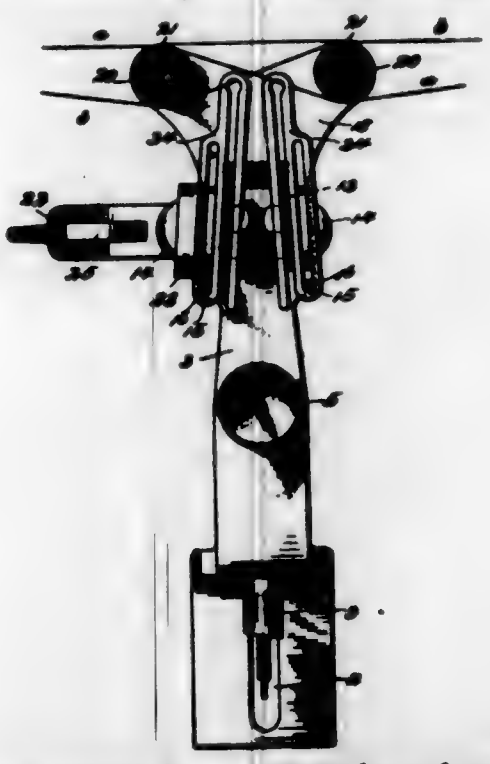
690,686. WARP STOP-MOTION FOR LOOMS. JOSEPH CALDWELL and CHRISTOPHER S. GILDARD, Fall River, Mass. Filed Dec. 18, 1900. Serial No. 40,341. (No model.)

Claim.—1. As an article of manufacture, a drop-bar bifurcated at its lower end to form a thread-receiving opening and having one of its bifurcations provided with a longitudinal slot.

2. The herein-described drop-bar or detector, the same being formed with a circuit-rod-receiving opening, and at one side thereof with a retaining-rod-receiving closed slot.

3. The combination, in a stop-motion for looms, of a circuit-rod, a

contact-bar therebelow, a series of drop-bars or detectors loosely mounted on the circuit-rod and adapted to be suspended above the contact-bar by the warp-threads of the loom, and each provided at one side with an elongated slot, and a retaining-rod passed through the slots of the series of drop-bars or detectors to limit their longitudinal movements.



4. The combination, in a stop-motion for looms, of opposite circuit-rods, a lower intermediate contact-bar, and opposite drop-bars or detector-retaining rods, of opposite series of detectors or drop-bars adapted to be supported by the warp-threads of the loom and mounted loosely on said circuit-rods and provided at their outer sides with longitudinal slots receiving the said retaining-rods, whereby the longitudinal movements of the said drop-bars or conductors are limited, and whereby an undesired removal thereof is prevented.

5. In a loom, the combination with circuit-rods and their supports, of bridge-pieces connecting the same, and a transversely-disposed yoke-brace supported adjacent at one side thereof and connected rigidly to said bridge-pieces.

6. In a loom, the combination with circuit-rods, supports for the same, and bridge-pieces recessed to receive the said circuit-rods, of a yoke-brace located at one side of said circuit-rods and connected rigidly to the support thereof and to each of said bridge-pieces.

7. In a loom, the combination with a pair of brackets rising from the loom-frame, a pair of ears extending inwardly from each of the same, and circuit-rods bolted to the ears, of bridge-pieces mounted upon and connecting the bars, and a transverse yoke-brace connected to the bridge-pieces and terminating securing-plates and secured to the ears of the brackets by the same bolts that connect the latter to the circuit-rods.

8. In a loom, the combination with opposite brackets, a pair of lease-rods and their supports, and a pair of circuit-rods below the lease-rods, of bridge-pieces connecting the circuit-rods and lease-rods.

9. In a loom, the combination with a pair of lease-rods and their supports, a pair of circuit-rods supported below the lease-rods, of bridge-pieces connecting the circuit-rods and lease-rods, and a longitudinally-disposed yoke-brace supported at one side of and secured to the said bridge-pieces.

10. In a loom, the combination with opposite supports, a pair of circuit-rods supported thereby, of a series of bridge-pieces connecting the circuit-rods and provided with perforations alining with similar perforations formed in the said supports, opposite series of drop-bars or detectors bifurcated to loosely receive the circuit-rods and adapted to be supported by the warp-threads of the loom, and provided at one side with a longitudinal slot, and opposite retaining-rods passed through said slots and the alining openings in the bridge-pieces and supports.

11. In a loom, the combination with opposite supports, a pair of circuit-rods supported thereby, of a series of bridge-pieces connecting the circuit-rods and provided with perforations alining with similar perforations formed in the said supports, opposite series of drop-bars or detectors bifurcated to receive the circuit-rods and adapted to be supported by the warp-threads of the loom, and provided at one side with a longitudinal slot, and opposite retaining-rods passed through said slots and the alining openings in the bridge-pieces and supports, and means for securing said retaining-rods against accidental withdrawal.

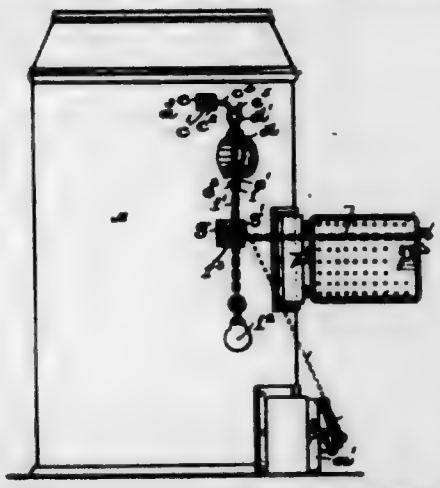
12. In a loom, the combination of a pair of supports, a pair of circuit-rods connected thereto, a contact-bar carried by the supports, said supports being provided with perforations, a series of bridge-pieces connecting the circuit-rods and provided with perforations alining with said perforations in the supports, bifurcated drop bars or detectors loosely mounted on the circuit-rods and each provided at one side with a slot, retaining-rods located in the perforations of the bridge-pieces and supports and in the slots of said drop-bars or detectors, and lease-rod-supporting brackets mounted upon said supports and overlapping the perforations thereof.

13. In a loom, the combination of a pair of supports, a pair of circuit-rods connected thereto, a contact-bar carried by the supports, said supports being provided with perforations, a series of bridge-pieces connecting the circuit-rods and provided with perforations alining with said perforations in the supports, bifurcated drop-bars or detectors loosely mounted on the circuit-rods and each provided at one side with a slot, retaining-rods located in the perforations in the bridge-pieces and supports and in the slots of said drop-bars or detectors, lease-rod-supporting brackets mounted upon said supports and overlapping the perforations thereof, and bolts for pivoting the lease-rod brackets upon the supports, whereby the brackets may be tilted to expose either of the perforations in said supports.

14. In a loom, the combination with opposite supports and circuit-rods supported thereby, of the bridge-pieces 27, having the slots 29 and shanks 28, mounted on the circuit-rods, the yoke-brace having lugs 25, and connections between the lugs and shanks.

15. In a loom, the combination, with the opposite supports, the circuit-rods connected thereto, and the yoke-brace also connected to the said supports, of the lease-rod brackets, the lease-rods supported thereby, and the bridge-pieces 27, slotted as at 29, to receive the circuit-rods, and having their upper ends bifurcated as at 30, and recessed as at 31, to receive the lease-rods.

690,687. TIME DAMPER MECHANISM. SAMUEL S. COLT, Orange, N. J. Filed Dec. 30, 1899. Serial No. 742,086. (No model.)



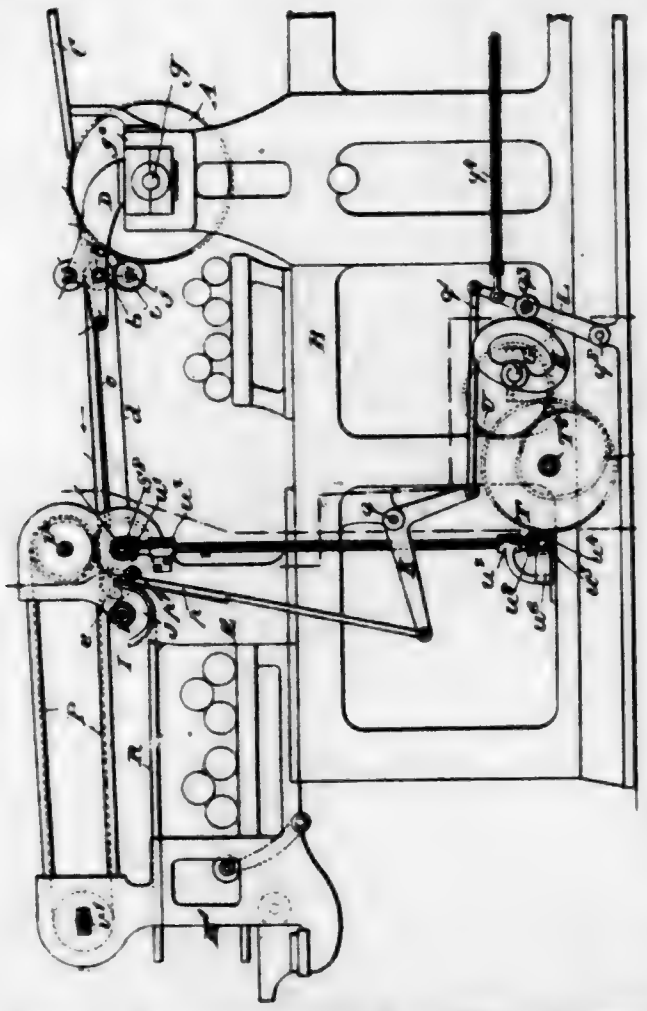
Claim.—1. The combination, with the casing or frame of a furnace, heater, range, and the like, of a supporting device secured directly to said casing or frame, a clock mechanism removably suspended from said supporting device, comprising the frame thereof and a downwardly-extending arm projecting from an opening in the clock-casing, a holding device pivotally attached to said arm, and a load-releasing means detachably connected with said holding device for operating a door or damper, substantially as and for the purposes set forth.

2. The combination, with the casing or frame of a furnace, heater, range, and the like, of a supporting device secured directly to said casing or frame, a clock mechanism removably suspended from said supporting device, said clock mechanism comprising the frame thereof and a downwardly-extending arm projecting from an opening in the clock-casing, a lever pivoted on said downwardly-projecting arm, normally in holding engagement with said clock mechanism, but adapted to be released therefrom, a spring connected with the upper portion of said lever and the frame of the clock mechanism, within the clock-casing, a hook-shaped holding portion on the lower end of said lever extending from an opening in said clock-casing, and a load-releasing means detachably connected with said hook-shaped portion of said lever, substantially as and for the purposes set forth.

3. The combination, with the casing or frame of a furnace, heater, range, and the like, of a supporting device, secured directly to said casing or frame, a clock mechanism removably suspended from said supporting device, said clock mechanism comprising the frame thereof and a downwardly-extending arm projecting from an opening in the clock-casing, a lever pivoted on said downwardly-projecting arm, normally in holding engagement with said clock mechanism, but adapted to be released therefrom, a spring connected with the upper portion of said lever and the frame of the clock mechanism, within the clock-casing, a hook-shaped holding portion on the lower end of said lever extending from an open-

ing in said clock-casing, and a load-releasing means detachably connected with said hook-shaped portion of said lever, consisting, essentially, of a flexible connection attached at one end to said hook-shaped portion of said lever, a weight at the other end of said flexible connection, and a second flexible connection attached to said first-mentioned flexible connection and attached to a door or damper for operating the same, substantially as and for the purposes set forth.

690,688. SHEET-DELIVERY MECHANISM FOR PRINTING-MACHINES. CHARLES P. COTTRELL, Westerly, R. I., assignor to C. B. Cottrell & Sons Company, Stonington, Conn., and New York, N. Y., a Corporation of New Jersey. Filed Aug. 24, 1901. Serial No. 73,151. (No model.)



Claim.—1. In a printing-machine, the combination of a rotary impression-cylinder, a fly delivery-frame, a chain delivery-carrier consisting of chains and attached grippers, and tapes common to said fly-frame and to said carrier for receiving the printed sheets from the cylinder and presenting them either to said fly-frame or said carrier, substantially as herein described.

2. In a printing-machine fitted with an endless-chain delivery device and a fly-delivery, the combination with the fly rock-shaft of a rod and attached fly-fingers detachably connected with said rock-shaft, substantially as herein described.

3. In a printing-machine, the combination of a rotary impression-cylinder, endless delivery-tapes arranged in front of said cylinder for carrying the sheets forward therefrom, a receiving-table in front of said tapes, an endless-chain delivery-carrier also in front of said tapes for receiving the sheets therefrom and depositing them on said table, an oscillating fly-frame the rock-shaft of which is forward of the tapes and the fingers of which are capable of swinging forward between the tapes and backward between the chains of said carrier, and means for rendering said carrier inoperative during the operation of the printing-machine with the fly-delivery, substantially as herein described.

4. In a printing-machine, the combination of a rotary impression-cylinder, a sheet-delivery device consisting of endless chains and attached grippers and on which are sheet-stops, an endless-tape carrier for carrying printed sheets from the cylinder to said delivery device, means for driving said endless-tape carrier, and means for disengaging said carrier from its driving mechanism on the arrival of the sheets at the stops on the delivery device, substantially as herein described.

5. In a printing-machine, the combination of a rotary impression-cylinder, a sheet-delivery device consisting of endless chains and attached grippers, an endless-tape carrier for carrying printed sheets from the cylinder to said carrier, and means for driving said delivery device at a varying speed which is reduced at the time of the presentation of the sheets by the tape-carrier to said delivery device, substantially as herein described.

6. In a printing-machine, the combination of a rotary impression-cylinder, a sheet-delivery device consisting of endless chains and attached grippers, an endless-tape carrier for carrying printed sheets from the cylinder to said carrier and stops on said grippers for arresting the sheets presented thereto by the endless-tape carrier, substantially as set forth.

7. In a sheet-delivery mechanism for printing-machines, the combination of endless gripper-carrying chains and grippers consisting each of two jaws one of which is forked to overlap the sides of the other and form a sheet-stop, substantially as herein described.

690,689. TROLLEY-HARP. FRED P. CROCKETT and OSMO F. JOHNSON, Kalamazoo, Mich. Filed Oct. 31, 1901. Serial No. 79,404. (No model.)



Claim.—1. The combination of the harp divided into forks above, said forks being suitably ribbed as at A' and having keyhole-slots *a*, *a*, therethrough; a journal-pin retained in position in said forks by suitable means to carry a trolley-wheel; a forked spring D secured to the outside of said harp and extending upwardly between and protected by said ribs; a contact-washer E having lugs E' which are adapted to be inserted through the said slots *a*, *a*, to contact with the hub of the trolley-wheel and with the arms of the said spring, all coacting for the purpose specified.

2. The combination of the harp divided into suitably-ribbed forks, having perforations therethrough; a journal-pin extending through said forks to carry a trolley-wheel; a forked spring secured to said harp and extending upwardly between the said ribs; and a washer having lugs adapted to be inserted through the perforations in said forks to contact with the said wheel and with the arms of said spring, all coacting as specified.

3. The combination of the harp divided into forks; a journal-pin extending through said forks to carry a trolley-wheel; a forked spring secured to the outside of said harp; and a washer having lugs thereon adapted to extend through suitable perforations in said harp to contact with said wheel and the said spring, for the purpose specified.

4. The combination of the harp divided into forks; a journal-pin extending through said forks to carry a trolley-wheel; and a washer having lugs thereon adapted to extend through suitable perforations in said harp to contact with said wheel and the said spring for the purpose specified.

5. A forked trolley-harp; a spring secured to the outside of said harp; and a washer having suitable projecting lugs adapted to extend through suitable perforations in said forks and contact with the said spring for the purpose specified.

6. The combination with a trolley-harp of a spring secured to the outside of the same; a contact-block resting against the wheel and extending outwardly through the side of the frame against the contact-spring, for the purpose specified.

7. In a trolley-harp, the combination of a side thereof containing a keyhole slot or slots, with a contact-block adapted to rest against the wheel within, and having lugs adapted to extend outwardly through the keyhole-slots and engage the narrow portion of the same; and a spring outside of the frame resting against the block, whereby the contact-block is retained in position in the harp as specified.

690,640. IGNITING-PLUG. ISAAC H. DAVIS, Boston, and EDWIN D. MELLEN, Cambridge, Mass. Filed July 22, 1900. Serial No. 23,062. (No model.)

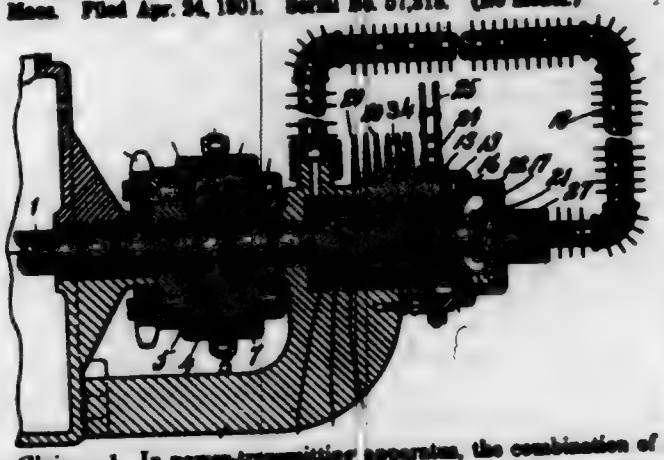


Claim.—1. An igniting-plug comprising a metallic casing having an aperture with an elongated slight taper formation, a vitreous core characterized by the absence of abrupt projecting shoulders or flanges and having an elongated slight taper formation complemental to that of the casing-aperture and fitting closely therein and projecting beyond the smaller end of the casing-aperture, a cup-shaped insulating-collar inclosing the projecting end of the core and bearing on the casing around the core, an electrode passing through said core and collar, and a nut screwed on the

upper end of the electrode and bearing on the collar to retain the latter and the core and the electrode in their proper relative locations.

2. An igniting-plug for explosive-engines, comprising a metallic socket formed for attachment to the engine, a refractory insulating-plug seated in said socket and its outer end projecting beyond the outer end of the same, an electrode engaged with the insulating-plug and having a threaded stem projecting beyond the outer end thereof, a cup-shaped insulating-collar inclosing the projecting end of the plug and bearing against the outer end of the socket, and a nut screwing on the stem and bearing against the collar, whereby the plug is held to its seat in the socket.

690,641. POWER-TRANSMITTING DEVICE. ISAAC H. DAVIS, Boston, Mass., assignor of one-half to Edwin D. Mellen, Cambridge, Mass. Filed Apr. 24, 1901. Serial No. 57,218. (No model.)



Claim.—1. In power-transmitting apparatus, the combination of a differential transmitting device, a driving member for said device, a driven member, and a controlling member, and a liquid-immersed friction device for braking the controlling member.

2. In power-transmitting apparatus, the combination of a differential transmitting device, a driving member for said device, a driven member, and a controlling member, a liquid-lubricated friction device for braking the controlling member, and a cooler for the lubricating liquid.

3. In power-transmitting apparatus, the combination of a differential transmitting device, a driving member for said device, a driven member, and a controlling member, a liquid-lubricated friction device for braking the controlling member, a cooler for the lubricating liquid, and means operated by the movement of the controlling member for circulating the lubricating liquid through the cooler.

4. In power-transmitting apparatus, the combination of an epicyclic transmitting device, the driving, driven and controlling members for said device, a friction device to variably brake the controlling member, means to vary the friction thereof, and a body of lubricating liquid immersing said device.

5. In power-transmitting apparatus, the combination of an epicyclic transmitting device, the driving, driven and controlling members for said device, a friction device to variably brake the controlling member, means to vary the friction thereof, a body of lubricating liquid immersing said device, and a cooler for said liquid comprising an elongated pipe-circuit.

6. In power-transmitting apparatus, the combination of an epicyclic transmitting device, the driving, driven and controlling members for said device, a friction device to variably brake the controlling member, means to vary the friction thereof, a body of lubricating liquid immersing said device, a cooler for said liquid comprising an elongated pipe-circuit, and means operated by the movement of said controlling member for circulating the liquid through said cooler.

7. In power-transmitting apparatus, the combination of an epicyclic transmitting device, the driving, driven and controlling members for said device, a shaft connected to the controlling member, a series of friction-disks connected with said shaft so as to rotate therewith, a series of interposed friction-disks held against rotation, means to vary the friction between said disks, and a lubricating liquid immersing said disks.

8. In power-transmitting apparatus, the combination of an epicyclic transmitting device, the driving, driven and controlling members for said device, a shaft connected to the controlling member, a series of friction-disks connected with said shaft so as to rotate therewith, a series of interposed friction-disks held against rotation, said disks being movable axially of the controlling-shaft, means to vary the axial pressure between said disks, and a stop to limit the maximum pressure.

9. In power-transmitting apparatus, the combination of an epicyclic transmitting device, the driving, driven and controlling members for said device, a shaft connected to the controlling member, a series of friction-disks connected with said shaft so as to rotate therewith, a series of interposed friction-disks held against rotation, a rotary nut adapted to vary the axial pressure between said disks, and an adjustable stop to limit the pressure-increasing movement of said nut.

690,642. SAFETY ATTACHMENT FOR HARNESS. MARY A. DUNN, New York, N. Y. Filed Sept. 14, 1900. Renewed Oct. 17, 1901. Serial No. 79,080. (No model.)



Claim.—1. The combination, with a bridle provided with a bit and an adjustable blinder proper, of a driving-rein connected with the bit, and a blinder-rein connected with the blinder proper and extending in longitudinal relation to the driving-rein, the driving-rein being provided with a plurality of rings or similar devices secured to the same in spaced relation, and the blinder-rein being provided with a hook or similar device adapted for separate connection with said rings, whereby the blinder proper may or may not be adjusted into "blinding" position when the driving-rein is drawn upon.

2. The combination, with a bridle provided with a bit and an adjustable blinder proper, of a driving-rein connected with the bit, a blinder-rein connected with the blinder proper and extending in longitudinal relation to the driving-rein, and a spring interposed between the blinder proper and the blinder-rein, the driving-rein being provided with a plurality of rings or similar devices secured to the same in spaced relation, and the blinder-rein being provided with a hook or similar device adapted for separate connection with the said rings, whereby the blinder proper may or may not be maintained in "blinding" position when the driving-rein is drawn upon.

3. The combination, with a bridle provided with a bit and an adjustable blinder proper, of a driving-rein connected with the bit, and tensional connection means between the blinder proper and the driving-rein, said connection means being adapted for connection with said driving-rein at a plurality of points, whereby adjustment of the blinder proper by the driving-rein may be regulated.

690,648. INK-WELL. LOUISE M. DYER and ADA R. COLBURN, Yazoo City, Miss. Filed Mar. 23, 1901. Serial No. 52,652. (No model.)

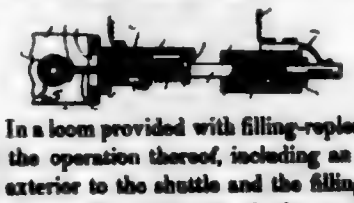


Claim.—1. An improved ink-well, comprising a body portion or ink-reservoir provided with a pivoted main cover adapted in form to close the orifice of the ink-reservoir and provided with a central dipping-opening and a supplemental pivoted cover for the same, and a dished or concave guard arranged within the body portion at the top of the same and provided with an opening in registration with the dipping-opening in the main cover.

2. An improved ink-well, comprising a body portion or ink-reservoir

provided with a pivoted main cover adapted in form to close the orifice of the ink-reservoir and provided with a central dipping-opening and with a supplemental pivoted cover for the same, and a dished or concave guard arranged within and at the top of the body portion and provided with an opening in registration with the dipping-opening in the main cover, said guard consisting of a continuous downwardly-slanting flange provided with radially-arranged corrugations forming centrally-tapering grooves whereby the ink is directed to and through the opening in said guard.

690,644. ELECTROMECHANICAL CONTROLLING MECHANISM FOR LOOMS. JOHN C. EDWARDS, Brookline, Mass. Filed Sept. 26, 1901. Serial No. 76,568. (No model.)



Claim.—1. In a loom provided with filling-replenishing mechanism, means to control the operation thereof, including an electric circuit and a circuit-changer exterior to the shuttle and the filling therein, a shuttle, and means to permit actuation of the circuit-changer by the shuttle upon predetermined exhaustion of the filling in the latter.

2. In a loom, an electric controlling-circuit, a circuit-changer forming a part thereof and mounted independently of the shuttle, a shuttle, and means to permit actuation of the circuit-changer by the shuttle upon predetermined exhaustion of the filling in the latter.

3. In a loom, an electric controlling-circuit, a circuit-changer forming a part thereof and mounted independently of the shuttle, a shuttle, and means to intermittently engage the filling in the shuttle and prevent actuation of the circuit-changer by the shuttle until predetermined exhaustion of the filling in the latter.

4. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including an electric circuit and a controller governed thereby, a shuttle adapted to contain a supply of filling, and means mounted exterior to the shuttle and actuated by impact thereof to change the condition of the circuit and render the controller operative when the filling in the shuttle is exhausted to a predetermined extent.

5. In a loom, a shuttle to contain filling, an electric circuit and a controller governed thereby, and means exterior to the shuttle and actuated by mechanical engagement therewith upon predetermined exhaustion of the filling in said shuttle to change the condition of the circuit and render the controller operative.

6. In a loom, an electric circuit including an electromagnet and having circuit-changing means exterior to the shuttle and the filling therein, a shuttle, and a device to render said means inoperative by the presence of filling in the shuttle and operative by or through the shuttle upon substantial absence of the filling therein.

7. In a loom, means to control its operation, including an electric circuit and a controller governed thereby, a shuttle to contain a supply of filling, and means exterior to the shuttle and the filling therein to change the condition of the circuit and render the controller operative upon substantial exhaustion of the filling in the shuttle.

8. In a loom, filling-replenishing and stopping mechanisms, means, including an electric circuit, to determine the time of operation thereof, a shuttle to contain filling, and a circuit-changer exterior to the shuttle and its contained filling, to govern the condition of the circuit, said circuit-changer being operated by or through the shuttle to change the condition of the circuit upon predetermined exhaustion of the filling and thereby render said determining means effective.

9. In a loom, a shuttle adapted to contain a supply of filling, filling replenishing mechanism, means, including an electric circuit and a controller governed thereby, to effect the operation of said mechanism, and means exterior to the shuttle and operated by impact thereof upon predetermined exhaustion of the filling, to change the condition of the circuit and render the controller operative, through the first-mentioned means, to effect actuation of the filling-replenishing mechanism.

10. In a loom, filling-replenishing and stopping mechanisms, means, including an electric circuit, to determine the time of operation thereof, a shuttle to contain filling, a circuit-changer exterior to the shuttle and its contained filling, to govern the condition of the circuit, said circuit-changer being operated by or through the shuttle to change the condition of the circuit upon predetermined exhaustion of the filling and thereby render said determining means effective, and a selecting device to render one of said mechanisms responsive to the operation of the said determining means.

11. In a loom, a shuttle to contain filling, a feeler to intermittingly engage and be moved by the filling until predetermined exhaustion of the latter in the shuttle, mechanism to automatically supply filling, controlling means therefor including an electric circuit and a normally quiescent controller operative by a change in the condition of the circuit, and means exterior to and operated by the shuttle to change the condition of the circuit upon failure of filling-induced movement of the feeler.

12. In a loom, a shuttle-box and shuttle each having an opening in its side for the entrance of a feeler when the shuttle is boxed, the feeler, an electric circuit including an electromagnet and having coöperating and relatively movable terminals, and means exterior to and operated by the shuttle to effect relative movement of the terminals and change the condition of the circuit, the feeler, in the operation of the loom, periodically passing through the openings in the shuttle and box to engage the filling and thereby prevent the operation of said means by the shuttle until exhaustion of the filling in the latter to a predetermined extent.

13. In a loom, the combination with an electric circuit including a generator and an electromagnet, a yieldingly-sustained feeler independent of the shuttle and having a terminal of said circuit thereon, a second circuit-terminal mounted on and movable upon the feeler into and out of contact with the first terminal, to thereby change the condition of the circuit, and a shuttle having an aperture for the periodical entry of the feeler to contact with the filling therein and be moved thereby until predetermined exhaustion of the filling, the second terminal being thereupon moved, by impact of the shuttle, relatively to the feeler, to change the condition of the circuit and render the electromagnet operative.

14. In a loom, an electric circuit including a generator and an electromagnet and having two coöperating, yieldingly-sustained and relatively movable terminals, a shuttle to contain filling, and means to periodically move the terminals in unison by the presence of filling in the shuttle, and to effect their relative movement by the substantial absence of the filling to thereby change the condition of the electric circuit and operate the electromagnet.

15. In a loom, an electric circuit including a generator and an electromagnet and having two coöperating, yieldingly-sustained and relatively movable terminals, a shuttle to contain filling, means to periodically engage the filling in the shuttle and move said terminals in unison, and means to contact with the shuttle and effect relative movement of the terminals upon predetermined exhaustion of the filling, to thereby change the condition of the circuit and operate the electromagnet.

16. In a loom, an electric circuit including an electromagnet responsive to a change in the condition of the circuit, a shuttle to contain filling, means to indicate filling exhaustion to a predetermined extent, circuit-changing means exterior to the shuttle and the filling therein and operated by the former upon predetermined filling exhaustion, to change the condition of the circuit, and means to vary the extent to which filling exhaustion shall be carried before the operation of said circuit-changing means.

17. In a loom, an electric circuit including an electromagnet responsive to a change in the condition of the circuit, a shuttle to contain filling, means exterior to the shuttle and the filling therein and rendered inoperative by the presence of filling in the shuttle, and operative by the substantial exhaustion of the filling, to change the condition of the circuit, and a device to predetermine to what extent such substantial exhaustion of the filling shall be carried.

18. In a loom, an electric circuit including an electromagnet responsive to a change in the condition of the circuit, the latter having two cooperating terminals movable in unison, and also relatively to each other to change the condition of the circuit, a shuttle to contain filling, means to periodically move the terminals in unison by the presence of filling in the shuttle, and to effect their relative movement by substantial exhaustion of the filling, and means to predetermine to what extent such exhaustion shall be carried.

19. In a loom, filling-replenishing mechanism, controlling means therefor, comprising an electric circuit including an electromagnet responsive to a change in the normal condition of the circuit, a feeler to periodically engage and be moved by the filling in the shuttle until predetermined exhaustion of the filling therein, and circuit-changing means movable with the feeler and adapted to be operated by engagement with the shuttle, filling-induced movement of the feeler preventing operation of said circuit-changing means until the predetermined exhaustion of the filling is effected.

20. In a loom, the combination with an electrically-controlled filling-replenishing mechanism, and a yieldingly-sustained feeler upon which the terminals of the controlling-circuit are mounted, of a shuttle having an aperture for the entrance of the feeler, and means mounted on the feeler and in the path of the shuttle, to change the normal relative position of the terminals and thereby render the controlling-circuit operative, the filling in the shuttle acting through the feeler, until exhausted to a predetermined extent, to prevent movement of said means by engagement with the shuttle before such predetermined exhaustion of filling.

21. In a loom, filling-replenishing mechanism, an electric controlling-circuit therefor, a feeler to intermittingly engage and be moved by the filling in the shuttle, a shuttle to contain filling, and circuit-changing means movable with and also relatively to the feeler, the said circuit-changing means being moved by the shuttle relatively to the feeler when the filling is exhausted to a predetermined extent, to thereby change the condition of and render the controlling-circuit operative.

22. In a loom, filling-replenishing mechanism, an electric controlling-circuit therefor, including a generator and a normally quiescent electromagnet, a feeler having a terminal movable with it, a shuttle to contain filling and having an opening in its side for the periodical entrance of the feeler, and a yielding carrier slidably mounted on the feeler and supporting a second terminal, intermittent movement of the feeler by engagement with the filling preventing engagement of the carrier with the side of the shuttle until predetermined exhaustion of the filling, subsequent movement of the carrier by the shuttle effecting relative movement of the terminals to change the condition of the circuit and thereby render the electromagnet operative.

23. In a loom, an electric controlling-circuit including a generator and an electromagnet responsive to a change in the circuit, a shuttle to contain a supply of filling, circuit-changing means yieldingly sustained exterior to the shuttle and the filling therein and operated by engagement with the shuttle, and a feeler to periodically engage and be moved by the filling in the shuttle and thereby prevent operative engagement of the latter with said circuit-changing means until predetermined exhaustion of the filling.

24. In a loom, an electric controlling-circuit including a generator and an electromagnet responsive to a change in the circuit, a shuttle to contain a supply of filling, circuit-changing means yieldingly sustained exterior to the shuttle and the filling therein and operated by engagement with the shuttle, a feeler to periodically engage and be moved by the filling in the shuttle and thereby prevent operation of the circuit-changing means by the shuttle until predetermined exhaustion of the filling, and means to vary the extent to which such filling exhaustion shall be carried.

25. In a loom, an electric controlling-circuit including a generator and an electromagnet responsive to a change in the circuit, a shuttle to contain a supply of filling, circuit-changing means mounted exterior to the shuttle and the filling therein and operated by engagement with the shuttle, and a device to move said means away from the shuttle and thereby render it inoperative until the filling in the shuttle is exhausted to a predetermined extent.

26. In a loom, filling-replenishing mechanism, stopping mechanism, common actuating means, a manually-operated selecting device to determine which of said mechanisms shall be actuated, a controlling-circuit for said means, including an electromagnet, a shuttle to contain filling, circuit-changing means exterior to the shuttle and its filling, and a device to render said circuit-changing means inoperative by the presence, and operative by the substantial absence, of filling in the shuttle, to thereby render said actuating means operative by or through the controlling-circuit.

27. In a loom provided with mechanism to effect a change of filling, electromechanical means wholly exterior to the shuttle and the filling therein, and operated by the shuttle upon substantial exhaustion of the filling to effect the actuation of the filling-changing mechanism, and a shuttle to contain filling.

28. In a loom provided with mechanism to effect a change of filling, means to determine the time of operation thereof, including an electrically-governed and normally quiescent controller, a shuttle adapted to contain filling, and means wholly exterior to the shuttle, and its contained filling and operated by the shuttle upon substantial exhaustion of the filling to render said controller operative and thereby effect actuation of the filling-changing mechanism.

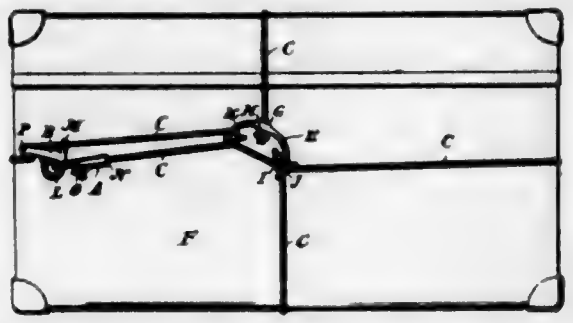
29. In a loom, electromechanical controlling means wholly exterior to the shuttle and the filling therein and operative by the shuttle upon substantial exhaustion of the filling, and a shuttle to contain filling.

30. In a loom, a closed electric circuit containing an electromagnet, a shuttle to contain a supply of filling, and means wholly exterior to the shuttle and the filling therein and operated by the former upon substantial exhaustion of the filling to open the circuit.

690,645. TRUNK OR BALE ROPE ATTACHMENT. LESTER S. FORD, Reidsville, N. C. Filed Apr. 17, 1901. Serial No. 56,342. (No model.)

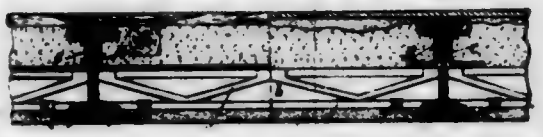
Claim.—1. As an article of manufacture, the attachment B having a hook M and a ring L, said hook and ring being at same end of said attachment and on opposite sides thereof and at right angles to each other, said attachment being formed with an axial bore extending partly through the attachment and with opening curving outwardly from the end of said bore through the side of the attachment, substantially as set forth.

2. The combination with the ring B having the perforation G and the hooks I and K, of the rope C having a hook at one end thereof and its other end inserted in said perforation G and knotted, said rope also having loops therein engaging the hooks I and K, the attachment B having a hook M and a ring L, and also having an axial bore extending partly through the attachment with an opening from said bore, through the side of said attachment, the rope passing through said bore and said hook, and said hook at the end rope engaging the ring L on said attachment, substantially as described.



3. The combination with a rope, of a ring connected with one end of the rope, the rope also having a looped engagement with said ring, of an attachment having thereon a ring and a hook and also having an axial bore extending partly through the attachment with an opening from said bore curving outwardly through the side of the attachment, the rope passing through said bore and said hook, and said hook at the end of said rope engaging the ring on said attachment, substantially as described.

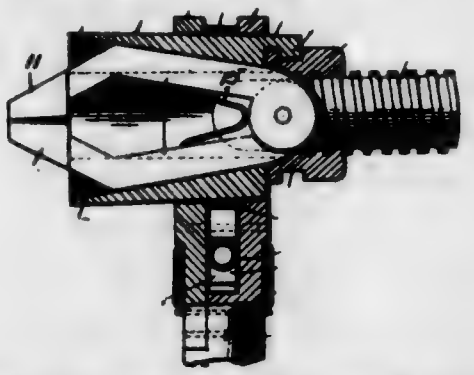
690,646. CEILING. JOSEPH FRENKHAUS, Hildesheim, Germany. Filed Aug. 21, 1901. Serial No. 72,810. (No model.)



Claim.—1. A cement block having grooved ends, the grooves being provided with zigzag channels, substantially as specified.

2. A cement block for ceilings having grooved ends and zigzag channels, and with joists embedded within the blocks, substantially as specified.

690,647. RATCHET-WRENCH. WILLIAM T. GARRETT, Cedarville, Cal., assignor of one-half to James A. Street, Cedarville, Cal. Filed June 18, 1901. Serial No. 65,053. (No model.)

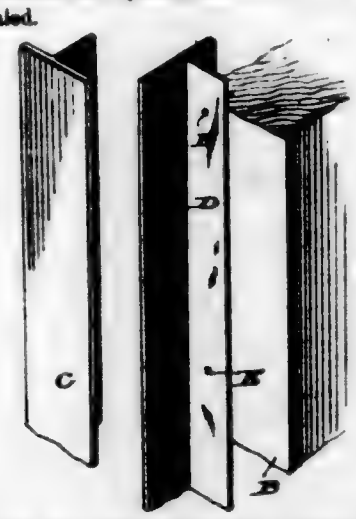


Claim.—In a ratchet-wrench, the combination of a handle, having an enlarged head formed in opposite sections which are spaced apart and having corresponding circular openings, a cylindrical rotatable chuck mounted within the openings of the head, and also provided with an intermediate external marginal series of teeth received between the head-sections, one end of the chuck having a substantially semicylindrical flange, provided with an inner marginal shoulder, there being opposite longitudinal ways formed in the interior of the chuck and converged toward the flanged end of the chuck, opposite ratchet-dogs pivoted between the inner portions of the heads and in operative relation to the ratchet-teeth of the chuck, a spring interposed between the rear ends of the dogs, a rotatable band mounted upon the handle and embracing the rear ends of the dogs, there being a notch formed in one side of the band for the reception of the rear end of either dog, a pair of jaws, having shanks mounted in the ways of the chuck, a screw-threaded stem having its inner end pivotally connected to the shanks and projected outwardly through the flanged end of the chuck, a spring interposed between the shanks of the jaws, and a circular adjusting-nut fitted to the stem, and having an outer marginal groove receiving the shoulder of the semicylindrical flange, whereby the nut is swiveled to the chuck.

690,648. WEATHER-STRIP. CHARLOTTE W. GAUSMEL, Milwaukee, Wis. Filed Jan. 14, 1901. Serial No. 43,130. (No model.)

Claim.—1. The combination with a door-casing and door of a single straight flat longitudinal flexible strip, attached to the edge of said door between the same and the opposed edge of said casing, and another flexible longitudinal strip permanently secured to said first-named strip, at right angles thereto and projecting in opposite directions therefrom, whereby,

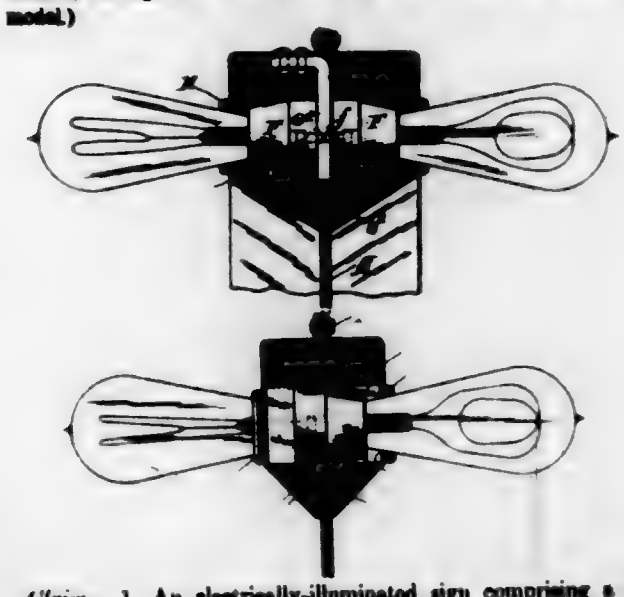
when said door is closed, the opening between it and the casing is wholly closed and concealed.



2. The combination with a door-casing and door, of a single straight flat flexible longitudinal strip, secured to the free edge of said door and being of sufficient thinness to avoid contact with the opposed edge of the casing when the door is closed, and another flexible longitudinal strip permanently secured to said first-named strip at right angles thereto, and projecting in opposite directions therefrom, that portion of said last-named strip which extends beyond said door projecting laterally to a point beyond the line of the opening between the opposed edges of the said door and casing.

3. A weather-strip, comprising a flexible longitudinal strip in combination with another longitudinal strip permanently secured to the first-named strip and projecting therefrom at right angles on a line at one side of the longitudinal center of said first-named strip.

690,649. **ELECTRICALLY-ILLUMINATED SIGN.** JOHN H. GOSNER, Chicago, Ill. Filed Mar. 21, 1901. Serial No. 52,145. (No model.)



Claim.—1. An electrically-illuminated sign comprising a central sign-body and a surrounding tubular socket-inclosing frame having internal socket-supports, and sockets mounted on the opposite sides of said supports, said frame being provided on the opposite sides thereof in line with the sockets with lamp-receiving apertures.

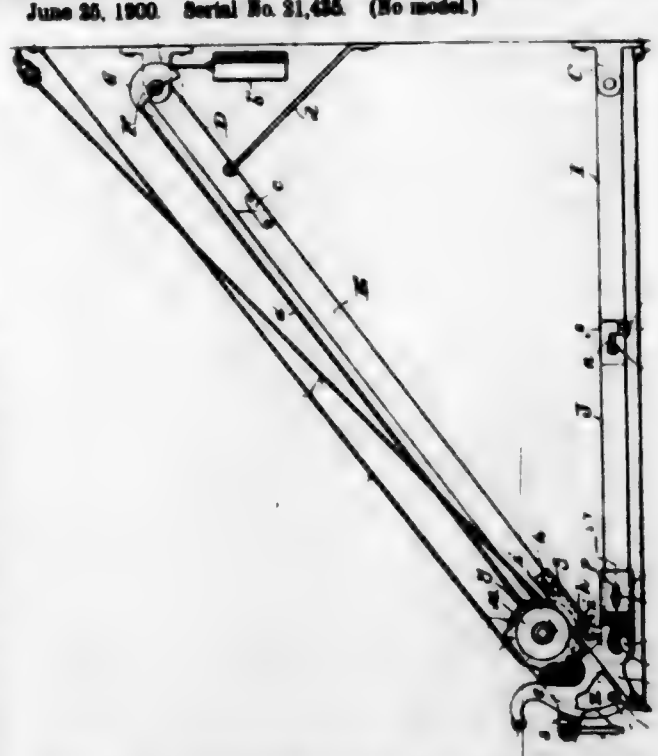
2. An electrically-illuminated sign comprising a central sign-body, and a surrounding tubular socket-frame comprising side members separably joined at their margins, socket-supports inclosed by said side members, and sockets mounted on said supports, said members being provided with lamp-receiving apertures, and the inner margins of said side members being shaped to form a groove constructed to receive and retain the margin of the sign-body.

3. An electrically-illuminated sign comprising a tubular socket-frame, said frame comprising separable side members joined at their margins, socket-supports inclosed by said side members, and sockets supported thereon, the outer margins of said side members being overlapped, and a strip of U shape in cross-section applied over said overlapping margins, said side members being provided with lamp-receiving apertures.

4. An electrically-illuminated sign comprising a tubular socket-inclosure having separable sheet-metal side members made with overlapping flanges on the outer margins of said side members, fastening devices passing through said flanges, socket-supports secured to one of said side members, and sockets mounted on said supports, said inclosure being provided in line with said sockets with lamp-receiving apertures.

5. An electrically-illuminated sign comprising a central sign-body and a surrounding tubular socket-supporting frame having internal socket-supports, and sockets mounted on said supports, said frame being provided on opposite sides thereof in line with the sockets, with lamp-receiving appertures through which are adapted to project in opposite directions lamps mounted in said sockets.

690,650. **AWNING.** CHARLES H. HAMEN, Racine, Wis. Filed June 25, 1900. Serial No. 21,435. (No model.)



Claim.—1. The combination with a supporting structure of a pair of suitably-supported traveler-bars extending therefrom; a pair of travelers movable on said bars; and a longitudinally-adjustable awning-roller journaled in said travelers, and consisting of two telescoping sections, each section comprising outer and inner disks and a series of bars held in place thereby, one set of said disks being provided with arbors, and the other set with hubs in which the arbors are adjustably supported.

2. The combination with a supporting structure of a pair of brackets projecting from said structure, and a pair of suitably-supported traveler-bars pivotally connected to said brackets; a pair of travelers movable on said bars; a transverse roller having arbors journaled in said travelers, and having spools or drums on the outer ends of said arbors; an awning secured at its inner end to said structure, and at its outer end to said roller; a pair of grooved pulleys loosely mounted on the pivots which connect the traveler-bars to the brackets; cords or chains secured to said travelers and extending back to and over said grooved pulleys, and provided with counterbalance-weights at their free ends; a series of pulleys secured to said supporting structure above the plane of the inner end of said awning; and operating cords or chains secured to said spools or drums and passing around said last-named pulleys for drawing said travelers upward, and thereby winding up said awning on said roller.

3. The combination with a supporting structure, of upper and lower brackets extending therefrom; a pair of inclined traveler-bars pivotally attached to said upper brackets; brackets secured to the lower ends of said traveler-bars, and provided with depending projections formed with recesses therein; a pair of folding support-bars pivotally attached to the lower brackets on said supporting structure, and the forward ends of said support-bars being formed with tongues for removable engagement with the recesses in the said depending projections; a pair of travelers movable on said traveler-bars; a transverse roller journaled in said travelers; and an awning, secured at its inner end to said structure, and at its outer end to said roller.

4. The combination with a supporting structure, of upper and lower brackets extending therefrom; a pair of inclined divided folding traveler-bars, pivotally attached to said upper brackets, and the divided parts of each traveler-bar being hinged together; brackets adjustably secured to the lower ends of said traveler-bars, and provided with depending projections formed with curved recesses therein; a pair of three-part folding support-bars pivotally attached to the lower brackets on said supporting structure, the forward end of the inner part of each support-bar being formed with a supporting-hook and a laterally-projecting set-screw, and the rear end of the intermediate part being formed with a longitudinal slot therein for permitting adjustable engagement with said set-screw and hook, the forward end of said intermediate part being adjustably united to the outer part of the said support-bar, and the said outer part being forked at its outer end and provided with a curved tongue for removable

engagement with the curved recess in the depending projection of the adjacent adjustable bracket; a pair of travelers movable on said traveler-bars; a transverse roller journaled in said travelers; and an awning, secured at its inner end to said structure, and at its outer end to said roller.

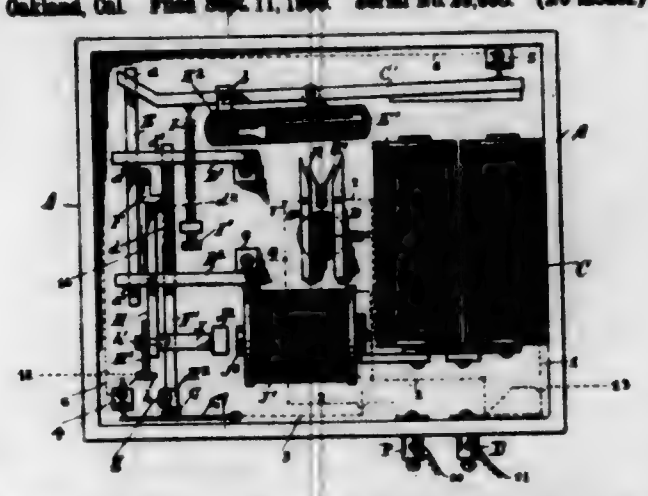
5. The combination with a supporting structure and a pair of suitably-supported traveler-bars extending therefrom, of travelers adapted to move back and forth upon said bars, said travelers having brackets projecting therefrom; a transverse roller having arbors journaled in said travelers, and spools or drums fast on the outer projecting ends of said arbors; a main awning, secured at one end to said supporting structure, and at the other end to said transverse roller; a series of pulleys attached to the supporting structure; cords or chains attached to said spools or drums, and passing around said pulleys; a front transverse supporting-frame secured to the said traveler-brackets, and a front transverse awning suspended from said front transverse supporting-frame, whereby, as the main awning is rolled upon the roller and carried upward by the travelers, the front transverse awning is simultaneously carried upward thereby.

6. The combination with a supporting structure and a pair of suitably-supported traveler-bars extending therefrom, of travelers adapted to move back and forth upon said bars, said travelers having brackets projecting therefrom; a longitudinally-adjustable transverse roller provided with arbors journaled in said travelers, and spools or drums fast on the outer projecting ends of said arbors; a main awning, secured at one end to said supporting structure, and at the other end to said transverse roller; a series of pulleys attached to the supporting structure; cords or chains attached to said spools or drums, and passing around said pulleys; a longitudinally-adjustable front transverse supporting-frame secured to the said traveler-brackets, and a front transverse awning suspended from said front transverse supporting-frame.

7. The combination with a supporting structure, and a pair of suitably-supported traveler-bars extending therefrom, of brackets secured to the lower ends of said traveler-bars and having perforations through their upper ends; travelers adapted to move back and forth upon said bars, said travelers having brackets projecting therefrom, inside of the vertical line of the traveler-bar brackets, and having like perforations through their upper ends; a longitudinally-adjustable transverse roller provided with arbors journaled in said travelers, and spools or drums fast on the outer projecting ends of said arbors; a main awning, secured at one end to said supporting structure, and at the other end to said transverse roller; a series of pulleys attached to the supporting structure; cords or chains attached to said spools or drums, and passing around said pulleys; a longitudinally-adjustable front transverse supporting-frame, having extensible rods adapted for engagement with the perforated upper ends of either pair of the hereinbefore-named brackets; and a front transverse awning suspended from said front transverse supporting-frame.

8. The combination with a supporting structure of suitably-supported traveler-bars extending therefrom; travelers movable on said bars; a longitudinally-adjustable awning-roller, comprising telescoping sections each provided with outer and inner disks, united by series of bars, the inner disk of each section having circumferentially-arranged perforations for the reception of the bars of the other section, and a central perforation and central hub in line therewith, and the outer disk of each section having an outwardly-projecting arbor journaled in one of said travelers, and an inwardly-projecting arbor passing through the central perforation and hub of the inner disk of the other section; and set-screws for securing the said hubs and inwardly-projecting arbors together, after adjustment.

690,651. TELEPHONE ATTACHMENT. HARRY I. HAUKEDAHL, Oakland, Cal. Filed Sept. 11, 1900. Serial No. 29,695. (No model.)



Claim.—1. The combination with the call mechanism of a party-line telephone, of auxiliary means attached thereto for sounding only the bell or call of the subscriber desired by central, the same comprising a step-by-step mechanism actuated by the vibration of the telephone-clapper, devices for adjusting the step mechanism and setting the auxiliary means for the subscriber's call or telephone number, of connections for operating the auxiliary means after the call from central office has ceased and of means for breaking the connections after the sounding of the subscriber's call.

2. The combination with the call mechanism of a party-line telephone, of auxiliary means for sounding only the bell of the desired subscriber, the same comprising connections whereby said means are actuated after the call from central office has ceased, and of devices for destroying the connections after the call has been made.

3. In auxiliary means for actuating the call-bell of only the subscriber of a party-line telephone desired by the central office, the combination of a fulcrumed lever actuated thereby, of step mechanism actuated by the fulcrumed lever, adjusting devices for regulating the step mechanism and setting the same for the call or telephone number, fulcrumed levers actuated by the vibration of the clapper of the telephone, means actuated after the central call ceases by means of which an electrical circuit is completed in order to operate the auxiliary means so as to sound the call and of devices whereby the circuit is broken after the call has been made.

4. The combination with the call mechanism of a party-line telephone, of auxiliary means for sounding the call of only the telephone of the subscriber desired by central, said auxiliary means being actuated by the vibration of the telephone call mechanism, said auxiliary means comprising electrical connections whereby said auxiliary means are operated after the central call has ceased and said connections are broken after the subscriber's call has been made.

5. In a party-line telephone, the combination with the call mechanism thereof, of electrically-controlled auxiliary means connected therewith whereby only the telephone call or number of the subscriber desired by central is made, said auxiliary means comprising means whereby the auxiliary means are actuated after the central call ceases and whereby the operating-current therefor is broken after the subscriber's call has been made.

6. In a party-line telephone, the combination with the call mechanism, of electrically-controlled means interposed between the call mechanism and the telephone-bell whereby only the bell of the subscriber desired by central is actuated after the central call ceases, and of means for breaking the current of said electrically-controlled means after the subscriber's call has been made.

7. The combination with the auxiliary means for actuating the call-bell of party-line telephones, of the toothed slide-rod, a notched collar secured to the lower end thereof, a spring-pressed fulcrumed dog-lever which engages said slide-rod, a slide-rod carrying a dog which engages and lifts the toothed slide-rod, an insulated adjustable plate secured to the fulcrumed dog-lever, said plate carrying a contact-point, of electrically-actuated devices for imparting movement to the slide-rod, of means for drawing the contact-point of the insulated plate into the notch of the collar of the toothed rod, when said rod has raised the notched collar in line therewith, and of electrical connection for sounding the call-bell of the telephone upon the contact-point moving into said notched collar and continuing the alarm until the connection is broken.

8. The combination with the coils C, of the fulcrumed lever C', the tube attached thereto, a movable device secured therein, a tension-regulated spring connection for the outer end of the fulcrumed lever, the step mechanism actuated by the movement of the fulcrumed lever, electrically-controlled releasing mechanism for said step mechanism, adjustably-set devices by means of which an electrical circuit is completed when the step mechanism has moved upward a given distance and of means for breaking said circuit after the release of said step mechanism.

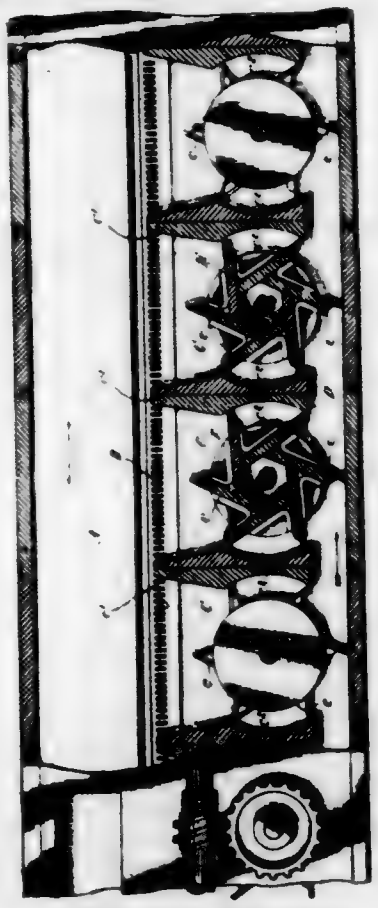
690,652. CLEANSING-TRUNK. FREDERICK H. L. JAMES, Pawtucket, R. I., assignor to Saco and Pettee Machine Shops, Newton, Mass., a Corporation of Massachusetts. Filed Aug. 30, 1901. Serial No. 73,807. (No model.)

Claim.—1. In a cleansing-trunk, a passage through which cotton or other fiber is drawn or impelled, a grated bottom thereto, a passage for the removal of dirt and interposed means for receiving dirt from the cotton and transferring it to the dirt-removal passage, which means also act to feed or assist in feeding the dirt in the removal-passage.

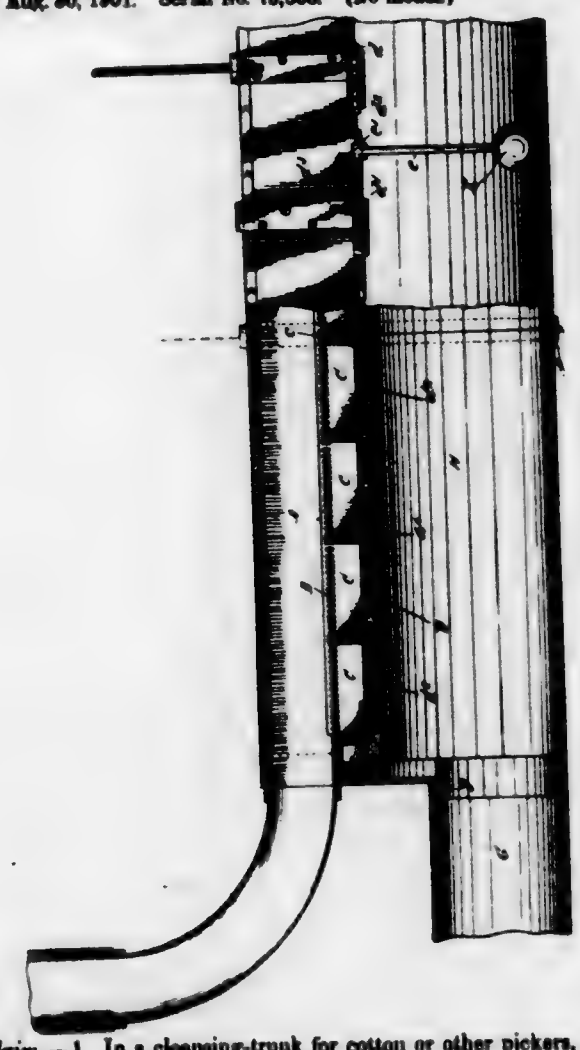
2. In a cleansing-trunk, a passage for cotton or other fiber, a grated bottom thereto, a dirt-removal passage and rotary devices interposed between the two passages acting as an air-barrier between them and also serving to transfer dirt from one passage to the other, the said rotary device having arms which sweep through the portions of the dirt-removal passage in close contact with the floor thereof and serve to advance the dirt by successive impulses in said removal-passage.

3. In a cleansing-trunk, a passage in which cotton or other fiber is drawn or impelled, a grated bottom thereto, a dirt-escape passage and automatic means interposed between the two passages adapted to feed dirt

from one to the other, to form an air-barrier and to automatically feed the dirt along the removal-passage.



690,653. CLEANSING-TRUNK FOR COTTON OR OTHER PICKERS. FREDERICK H. L. JAMES, Pawtucket, R. I., assignor to Saco and Pettee Machine Shops, Newton, Mass., a Corporation of Massachusetts. Filed Aug. 30, 1901. Serial No. 73,808. (No model.)



Claim.—1. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is adapted to be fed, a grid comprising the bottom of said passage, a dirt-receiving chamber and dirt-escape passage beneath said grid, and a bottom to said dirt-receiving chamber movable from a closed position, when it separates said chamber from the dirt-escape passage, to an open position providing an inclined egress from said dirt receiving chamber into said dirt-escape passage.

2. In a cleansing-trunk for cotton or other pickers having a passage through which cotton or other fiber is adapted to be fed, a bottom having openings through which dirt from said passing cotton or fiber may escape, dirt-receiving chambers beneath said bottom in parallel lines separated from each other by a longitudinal partition, and bottoms for said lines of chambers, one set of which are hinged at or near the lower corner of the trunk at one side and the other set of which are hinged at or near the lower corner of the trunk at the other side and which bottoms are movable upon said hinges or pivots from a closed position to an inclined position, and an escape-passage common to both chambers and bottoms.

3. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grid comprising the bottom of said passage, an escape-passage for the dirt and intermediate dirt-receiving chambers in two longitudinal lines continuously connected with the said first-named passage and intermittently connectible with the dirt-escape passage.

4. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is adapted to be fed, a grid comprising the bottom of said passage, an escape-passage for the dirt, dirt-receiving chambers intermediate the two passages constantly connected with the passage through which the cotton or fiber is fed, to receive the dirt therefrom, a chamber between said dirt-receiving chambers and the dirt-escape passage having inclined walls extending into said passage, and bottoms for said dirt-receiving chambers movable from a position which closes said chambers to a downward-inclined position parallel with the inclined sides of said intermediate chamber and whereby the dirt-receiving chambers are connected through said intermediate chamber with the dirt-escape passage and the inclined bottoms serve to direct the dirt into said escape-passage.

5. A cleansing-trunk for cotton or other pickers having a passage through which cotton or other fiber is fed, a grid comprising the bottom of said passage, an escape-passage and a series of dirt-receiving chambers connected with the said first-named passage, each having a hinged bottom and an overbalancing-weight for holding it in a closed position.

6. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grid comprising the bottom of said passage, a dirt-escape passage, a plurality of dirt-receiving chambers constantly connected with the fiber-passage, and a movable bottom for each chamber hinged at or near the outer side of the trunk, the said bottoms being so connected with each other that a group of them may be simultaneously tipped from a closed position to a position providing an inclined egress into the said escape-passage.

7. The combination in a cleansing-trunk for cotton or other pickers of a passage through which cotton or other fiber is fed, a grid comprising the bottom of said passage, dirt-receiving chambers beneath it and connected therewith, a dirt-escape passage and a movable bottom for said dirt-receiving chambers at one side of the trunk, adapted to be movable from a closed position to a position inclined with respect to said side, and a pendent overbalancing-weight connected with said bottom.

8. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grid comprising the bottom of said passage, a dirt-receiving chamber connected therewith, a dirt-escape passage with which said dirt-receiving chamber is adapted to be connected at will, a movable bottom for said dirt-receiving chamber which also acts as a slide upon which the dirt is directed to the dirt-escape passage, and means for holding the bottom in its closed position.

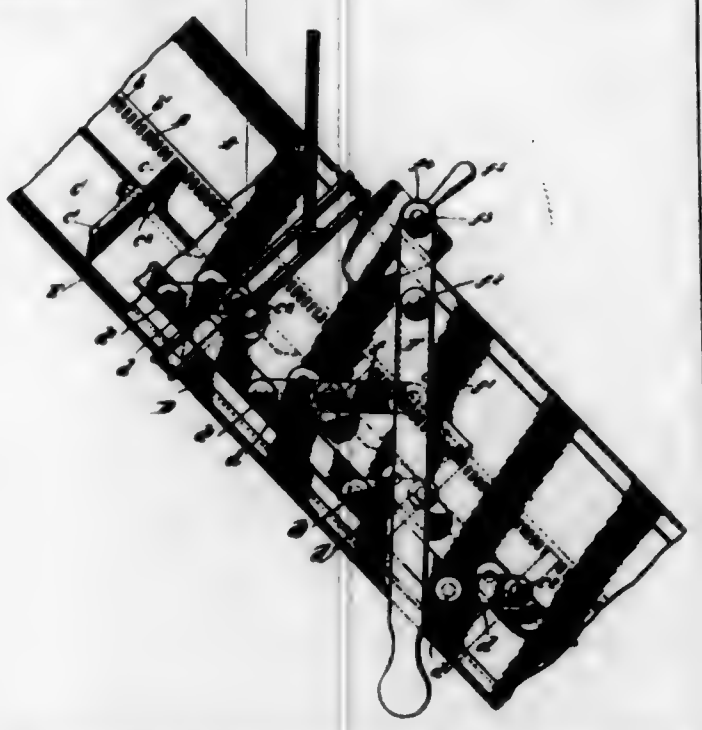
690,654. CLEANSING-TRUNK FOR COTTON OR OTHER PICKERS. FREDERICK H. L. JAMES, Pawtucket, R. I., assignor to Saco and Pettee Machine Shops, Newton, Mass., a Corporation of Massachusetts. Filed Aug. 30, 1901. Serial No. 73,809. (No model.)

Claim.—1. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grated bottom to said passage through which dirt may escape from the passing cotton or fiber in said passage, and dirt-receiving chambers beneath said bottom having gates or partitions separating the same, and so movable that a portion of the chambers may be converted into a dirt-escape passage.

2. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grated bottom thereto, dirt-receiving chambers beneath said passage connected therewith by openings through which dirt may pass from the said passage and which chambers are separated by movable gates or partitions, which serve in one capacity to separate the chambers and in another capacity to open them so that they then form a continuous escape-passage.

3. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grated bottom thereto, a line of dirt-receiving chambers beneath said passage connected with it by openings and the bottoms of which chambers form a continuous incline, and

movable gates or partitions between the chambers for closing and opening the same.



4. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grated bottom thereto, and the dirt-receiving chambers C beneath said passage having the inclined bottom E and the partitions C' extending to the bottom E and movable downwardly from an inclined closed position to open the chambers and provide a dirt-escape.

5. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grated bottom thereto, the dirt-receiving chambers C beneath said passage, and the movable partitions between them connected with each other to be simultaneously moved in the same direction, either to open any number of chambers to form an escape-passage or to close them.

6. In a cleansing-trunk for cotton or other pickers, a passage through which cotton or other fiber is fed, a grated bottom thereto, the dirt-receiving chambers, their movable partitions, a common operating-lever and means for connecting said lever with the various movable partitions.

7. In a cleansing-trunk for cotton or other pickers, having a passage through which cotton or other fiber is fed and a grated bottom thereto, the combination of a dirt-escape passage adapted to be converted into a series of dirt-receiving chambers, movable gates or partitions for transforming the one into the other, means for connecting the gates or partitions together whereby they may be simultaneously moved, and means for locking them in their open position.

8. In a cleansing-trunk for cotton or other pickers, having a passage through which cotton or other fiber is fed and a grated bottom thereto, the combination of a dirt-escape passage adapted to be converted into a series of dirt-receiving chambers, movable partitions or gates for transforming the one into the other, means for connecting the gates or partitions together whereby they may be simultaneously moved, and means for locking them in their closed position.

9. In a cleansing-trunk for cotton or other pickers, having a passage through which cotton or other fiber is fed and a grated bottom thereto, the combination of a dirt-escape passage adapted to be converted into a series of dirt-receiving chambers, movable partitions or gates for transforming the one into the other, means for connecting the gates or partitions together whereby they may be simultaneously moved, and means for locking them in their open and in their closed positions.

10. In a cleansing-trunk for cotton or other pickers, the combination of a passage through which cotton or other fiber is fed, and a grated bottom thereto with a dirt-escape passage adapted to be converted into a series of dirt-receiving chambers, movable partitions or gates for transforming the one into the other, means for connecting the gates or partitions together whereby they may be simultaneously moved, and means for locking them in any desired position.

11. The combination in a cleansing-trunk for cotton or other pickers of the passage through which cotton or other fiber is fed, a grated bottom thereto, with a plurality of dirt-receiving chambers beneath said grated bottom, and a gate or movable partition adapted in one position to close a chamber from the next in order, and in another position to connect the same.

12. The combination in a cleansing-trunk for cotton or other pickers of a passage through which cotton or other fiber is fed, a grated bottom thereto, with a plurality of dirt-receiving chambers, a partition between the same, and means for moving it from without the trunk to connect the chambers.

13. The combination in a cleansing-trunk for cotton or other pickers of the inclined passage through which cotton or other fiber is fed, its inclined grated bottom, the dirt-receiving chambers C having an inclined bottom, the fixed cross-partition *c* and the hinged movable partition in extension of the fixed partition between it and the inclined bottom.

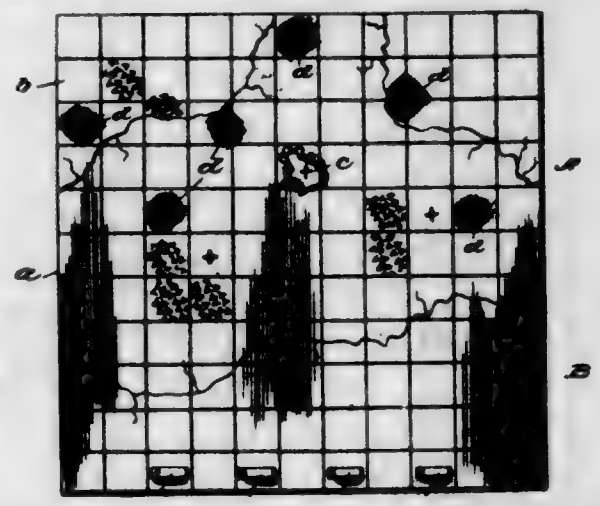
14. The combination in a cleansing-trunk for cotton or other pickers of a passage through which cotton or other fiber is fed, a grated bottom thereto, with a plurality of dirt-receiving chambers, a movable partition between them, and means for moving said partition and for locking it in any desired position.

690,655. CANE. SYED A. M. KHAN, London, England. Filed July 19, 1901. Serial No. 68,369. (No model.)



Claim.—A convertible hooka composed of detachable parts comprising a bowl for the material to be smoked, a bulb for purifying liquid having two apertures, a stem having a mouthpiece and fitted to one of said apertures, and a second stem forming a communication between the bowl and the other of said apertures, the said stems being provided with means for connecting them together end to end and the bulb being shaped to fit the bowl and close its mouth for the conversion of the hooka into a stick, substantially as herein described.

690,656. GAME DEVICE. EMANUEL LASKER, Manchester, England. Filed June 5, 1901. Serial No. 63,263. (No model.)

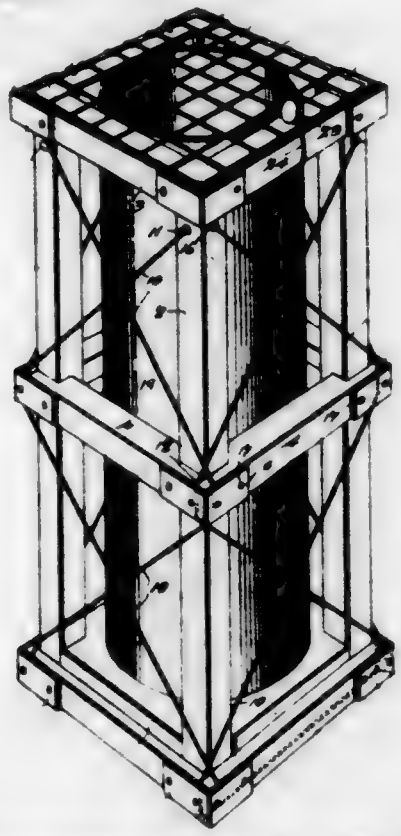


Claim.—1. Apparatus for teaching strategy, comprising a main board or playing-surface, devices to be moved over said playing-surface, and an auxiliary board or map constructed and adapted to receive a graphic record of countermoves, and having the same design as the main board, substantially as described.

2. Apparatus for teaching strategy, comprising a main board or playing-surface having objective points toward which figures, devices or symbols are moved by one opponent, and an auxiliary board or map upon which countermoves are marked or traced by another opponent, said auxiliary board having the same design as the main board.

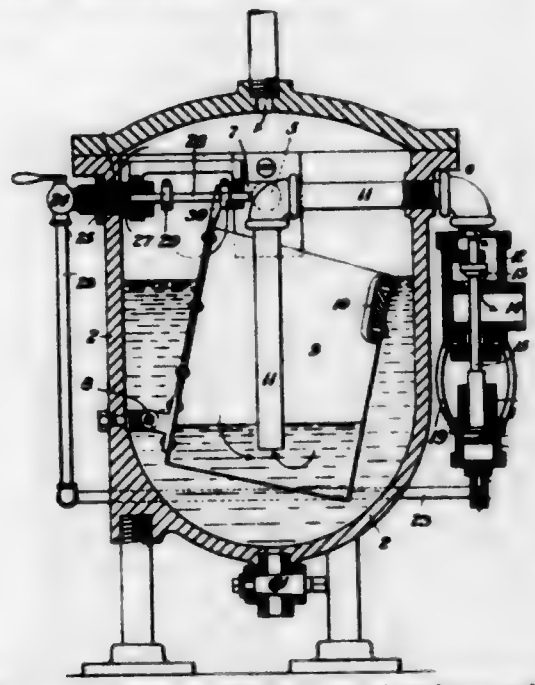
690,657. SHIPPING-CRATE FOR BANANAS. THOMAS J. LOWTHER, Shreveport, La. Filed Sept. 11, 1901. Serial No. 75,087. (No model.)

Claim.—1. A crate comprising corner-posts, end and intermediate brace-frames having an interlocked relation with the posts, diagonally-disposed stay-wires associated with the corners of the brace-frames and with the posts, and corner-cleats for holding the stay-wires assembled with the said brace-frames.



2. A crate comprising an open-work diagonally-stayed supporting-frame provided with a bottom, a yieldable air-proof fruit-holder resting on the bottom and secured to the frame, and an open-work cover carried by the top of the frame.

690,658. TRAP. ROBERT G. MCAULEY, Pittsburg, Pa. Filed Mar. 28, 1901. Serial No. 53,527. (No model.)



Claim.—1. A trap consisting of a case adapted to contain fluid under pressure, a pivotally-mounted movable vessel therein, a valve-controlled exhaust-opening leading outwardly from the case, a valve therefor, a piston-chamber and a piston connected with the valve, a pipe leading from the piston-chamber to the interior of the case, a valve controlling the outlet through such pipe, and means for opening and closing such valve by movement of the vessel.

2. A trap consisting of a case adapted to contain fluid under pressure, a vessel tiltingly mounted therein, and an outlet-pipe extending from within such vessel outwardly through the case and communicating with an outlet-opening provided with a valve, a piston connected with the valve, a pipe leading from the piston-chamber to the interior of the case, a valve controlling the outlet through such pipe, and means for opening and closing such valve by movement of the vessel.

3. A trap consisting of a case adapted to contain fluid under pressure, a vessel tiltingly mounted therein, and an outlet-pipe extending from within such vessel outwardly through the case and communicating with an outlet-opening provided with a valve, a piston connected with the valve, a pipe leading from the piston-chamber to the interior of the case, a valve controlling the outlet through such pipe, and an arm attached to the tilting vessel and adapted to operate such valve in conformity with its own movement.

4. A trap consisting of a case adapted to contain fluid under pressure, a vessel tiltingly mounted therein upon a pivotal bearing on the inner side of the case, an outlet-pipe extending into the interior of the case and downwardly into the tilting vessel and outwardly through the case to an outlet-valve, an outlet-valve controlling the outlet-pipe provided with a piston within a chamber, a pipe leading from the chamber of such piston to a valve-controlled opening communicating with the interior of the case, a movable valve for closing such opening and means connected with the tilting vessel for operating such valve.

5. A trap consisting of a case adapted to contain fluid under pressure, a vessel tiltingly mounted therein upon a pivotal bearing on the inner side of the case, an outlet-pipe extending into the interior of the case and downwardly into the tilting vessel and outwardly through the case to an outlet-valve, an outlet-valve controlling the outlet-pipe, provided with a piston within a chamber, a pipe leading from the chamber of such piston to a valve-controlled opening communicating with the interior of the case, a movable valve for closing such opening, provided with abutments, and an arm connected with the tilting vessel adapted to contact with said abutments to open or close the valve by falling or rising movement of the vessel.

6. A trap consisting of a case adapted to contain fluid under pressure, a vessel tiltingly mounted therein upon a pivotal bearing on the inner side of the case, an outlet-pipe extending into the interior of the case and downwardly into the tilting vessel and outwardly through the case to an outlet-valve, an outlet-valve controlling the outlet-pipe provided with a piston within a chamber, a pipe leading from the chamber of such piston to a valve-controlled opening communicating with the interior of the case, a movable valve for closing such opening, provided with abutments adjustably secured on the valve-stem, and a bifurcated arm connected with the tilting vessel, embracing the stem and adapted to open or close the valve by falling or rising movement of the vessel.

7. In a trap, the combination of a case, a fluid-pipe and a pressure-pipe connected therewith, a vessel tiltingly mounted therein, a valve adapted to be abruptly opened and closed by movement of the tilting vessel at the limit of its travel downwardly and upwardly, a pipe leading from said valve to a piston-chamber, a piston therein provided with a stem and a valve for controlling an exhaust-opening, and a pipe leading from the interior of the tilting vessel to such valve-controlled exhaust-opening.

8. In a trap, the combination of a case, a condensation-pipe leading thereinto, a pressure-pipe connected with the case, a vessel tiltingly mounted within the case, an opening from the interior of the case provided with a valve-seat, a valve adapted to fit therein and to be abruptly opened and closed by movement of the tilting vessel at the limit of its travel downwardly and upwardly, a pipe leading from said valve-controlled opening to a piston-chamber outside of the case, a piston therein provided with a stem carrying a valve controlling an exhaust-opening, and a pipe leading from the interior of the tilting vessel to such valve-controlled exhaust-opening.

9. In a trap of the class described, provided with a case and means for charging liquid thereinto, and for providing a fluid-pressure upon such liquid contents, a tilting vessel adapted to buoyantly rise, and to fall when filled by overflow, provided with an abutment for actuating a valve to establish pressure communication through a conduit leading to means for actuating an exhaust-opening, and an outlet-pipe leading from within the vessel outwardly through the case to such exhaust-opening whereby the contents of the vessel are discharged by internal pressure when the vessel tilts downwardly.

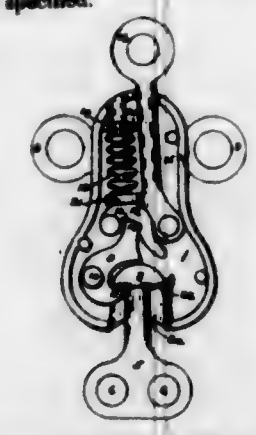
10. In a trap of the class described provided with a piston-chamber, a piston therein carrying a valve controlling an exhaust-opening, and a pressure-conduit leading from the interior of the case through a valve-controlled opening to the piston-chamber; a reduced drain-opening communicating with the piston-chamber.

690,659. SLING-LOCK TRIP. JACOB NEY, Canton, Ohio, assignor to the V. L. Ney Company, Canton, Ohio, a Corporation of Ohio. Filed Sept. 14, 1901. Serial No. 75,415. (No model.)

Claim.—1. The combination of a casing or housing, a detachable trip-head provided with a connecting-head, a dog provided with a hooked end and an extension, a pawl pivotally connected to the casing and provided with a recess, a trip-bar pivoted to the pawl and provided with an arm, and a spring located around the arm, all arranged, substantially as and for the purpose specified.

2. In a sling-lock trip the combination of a casing provided with an opening at one end thereof, a dog located in the casing opposite the

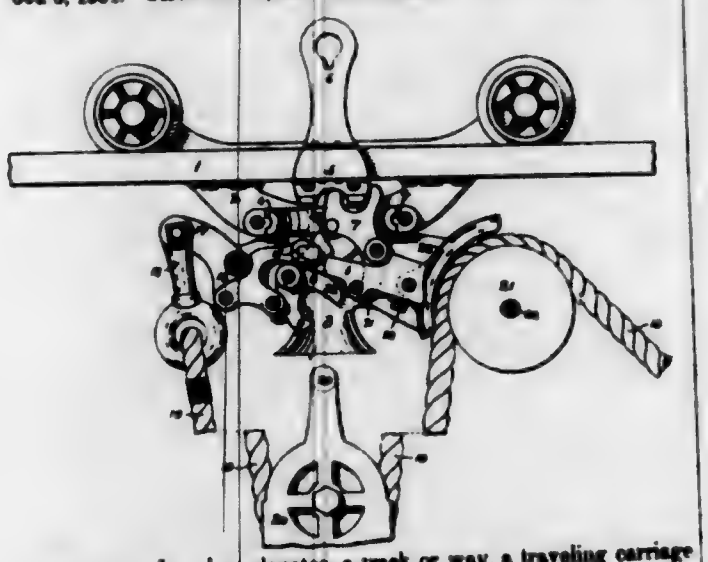
opening, a detachable trip-head provided with a connecting-head, a spring-actuated trip-rod pivotally connected to a pawl and the pawl provided with a recess adapted to engage the extension of the dog, substantially as and for the purpose specified.



3. The combination of a casing having an opening and provided with sling-rope connecting-eyes, a detachable trip-head provided with sling-rope connecting-eyes, a spring-actuated trip-bar and means for locking the trip-head to the casing, substantially as and for the purpose specified.

4. The combination of a casing having an opening, a guide-flange located upon one side of the opening, a trip-head, a dog pivotally connected to the casing and provided with an extension, a pawl provided with a recess, a spring-actuated trip-rod pivotally connected to the pawl and means for connecting the sling-rope to the trip-head and to the casing, substantially as and for the purpose specified.

690,660. HAY-ELEVATOR. JACOB HEY, Canton, Ohio, assignor to the V. L. Hey Company, Canton, Ohio, a Corporation of Ohio. Filed Oct. 3, 1901. Serial No. 77,396. (No model.)



Claim.—1. In a hay-elevator, a track or way, a traveling carriage mounted upon the track or way, a stop-block fixed to the track, a dog adapted to lock the carriage to the stop-block, and a register-head-engaging dog, a register-head engaging the dog and a carriage-releasing device located intermediate the dogs, said releasing device provided with a brake-shoe, substantially as and for the purpose specified.

2. In a hay-elevator of the class described, a track provided with a stop-block, a carriage movable thereon, dogs carried by the traveling carriage, a carriage-release lever pivotally connected to the carriage-frame, parallel bars provided with a stop-bar, a rope-clamping shoe pivotally connected to the parallel bars and a push dog or head connected to and carried by the parallel bars, and an elevating-rope suspended from the push dog or head, substantially as and for the purpose specified.

3. In a hay-elevator the combination of a track or way provided with a stop-block, a carriage located thereon, said carriage provided with a release-lever and means for releasing the lever from engagement with the interposed carriage-releasing device, a dog adapted to lock the carriage in fixed position upon the track independent of the registering-head-engaging dog, and an interposed carriage-releasing device, substantially as and for the purpose specified.

4. In a hay-elevator, the combination of a track or way, a traveling carriage mounted upon the track or way, dogs adapted to lock the carriage and registering head, said dogs located in operative position with each other and independent of the interposed carriage-releasing device, a stop-block located upon the track or way, and an interposed carriage-releasing device, substantially as and for the purpose specified.

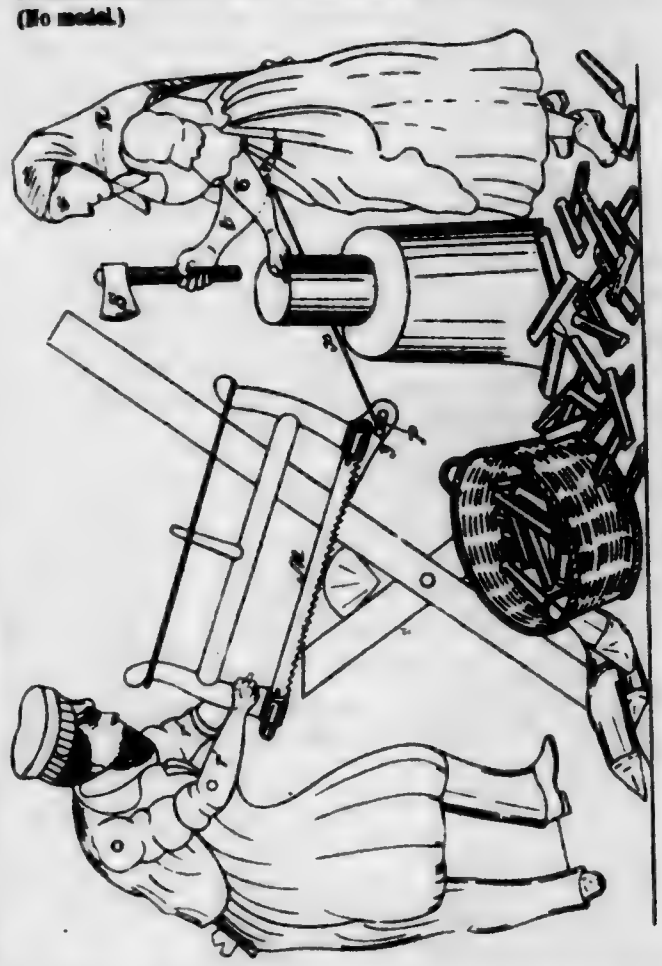
5. In a hay-elevator the combination of a track or way provided with a stop-block, a carriage-locking dog carried by the carriage and provided with a downward-extending arm, sliding parallel bars spaced one from the other and provided with a bolt or rivet adapted to engage the downward-extending arm of the carriage-locking dog, a push dog or head pivotally connected to the carriage and to the spaced parallel bars, one end of the elevating-rope suspended from the push head or dog, and a registering-head-engaging dog and a pivoted lever carried by the carriage-frame and adapted to lock the parallel bars against end movement, substantially as and for the purpose specified.

6. The combination of a traveling carriage mounted upon a track or way, a stop-block fixed to the track or way, a dog carried by the carriage to engage the stop-block and lock the carriage, a register-head-engaging dog carried by the carriage and in operative position with the carriage-locking dog, and the dogs adapted to operate with contact with the registering head and independent of the interposed carriage-releasing device, and an interposed carriage-releasing device substantially as and for the purpose specified.

7. The combination of a track or way provided with a stop-block, a carriage mounted thereon and provided with a carriage-locking dog and a register-head-locking dog, and an interposed carriage-releasing device provided with a push-dog and an elevating-rope-clamp shoe carried by the interposed carriage-releasing device, and a lever adapted to lock the carriage-releasing device against end movement and to release the interposed releasing device, substantially as and for the purpose specified.

8. The combination of a track or way provided with a stop-block, a carriage mounted thereon, means for locking the carriage to the stop-block, a sliding carriage-releasing device adapted to be operated by the down-pull of the elevating-rope to release the carriage and lock the elevating-rope, and a lever carried by the carriage adapted to lock the carriage-releasing device when in normal position and to release the carriage from the track or way and lock the elevating rope when out of normal position, substantially as and for the purpose specified.

690,661. COIN-OPERATED MECHANICAL TOY. FRANK PARTSCH, Dorchester, Mass. Filed May 21, 1901. Serial No. 61,301. (No model.)

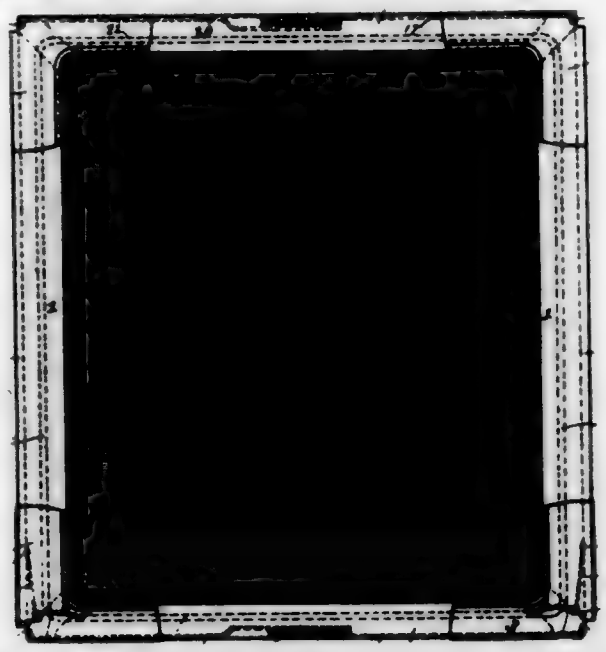


Claim.—1. In a mechanical figure toy, the combination with a crank-shaft and clockwork for revolving the same, of the figure of a wood-sawyer having a pivoted arm and a saw grasped by the hands, the figure of a wood-chopper having a pivoted arm and an ax grasped by one hand, a connecting-rod extending between the crank-shaft and the wood-chopper's said arm, and an inclosing case subdivided into two compartments, in one of which is located the moving mechanism and in the other, the said figures, all constructed and arranged to operate substantially as described.

2. In a figure toy apparatus, the combination of a clock mechanism, a crank-shaft operated thereby, a figure having pivoted arms, a saw connected at one end to the crank-shaft and at the other to the arms of the

said figure, another figure having one arm pivoted at the elbow, a projection extending from the bent arm on the side of its pivot which is opposite to the hand, and a connection between the said projection and the crank-shaft, substantially as set forth.

690,662. ADJUSTABLE METALLIC WINDOW-SCREEN. THOMAS J. PERRIN, Dayton, Ohio. Filed Mar. 29, 1901. Serial No. 53,422. (No model.)

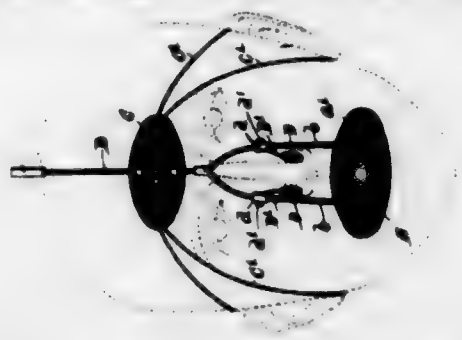


Claim.—1. An adjustable metallic window-screen, comprising side rails having longitudinal grooves therein adapted to receive tongues or guide-pieces extending from the sides of a window-frame, top and bottom rails, corner-pieces uniting the side rails with the top and bottom rails, the said corner-pieces fitting in the grooves on the side rails, catches inclosed in the bottom corner-pieces, a tension-frame, wire-cloth secured thereto, said frame and cloth being inclosed in the side, bottom and top rails, and means for expanding the side rails to maintain them in close contact with the window-frame, substantially as specified.

2. In an adjustable metallic window-screen, an adjustable screen-frame consisting of side rails having longitudinal grooves therein, and top and bottom rails, corner-pieces having rigid connections with the side rails and telescopic connection with the top and bottom rails, a tension-frame, a wire-cloth secured to said tension-frame, said frame and cloth being inclosed in the rails, and the said rails being adapted to be adjusted inwardly and outwardly in order to increase or decrease the dimensions of the screen, catches secured within the lower corners of the frame and adapted to lock the screen in position, a finger-piece projecting from said catches on the interior of the screen, and means for maintaining the screen in rigid contact with the window-frame.

3. In an adjustable metallic window-screen, an outer metallic frame, telescopic corners therefor, a screen and frame inclosed in said outer metallic frame, adjusting-bars, springs connected to said bars, said adjusting-bars and springs being inclosed in the top and bottom rails whereby the sides of the outer frame are pressed outwardly to increase the width of the screen, and means for locking the screen in position in the window.

690,668. APPLIANCE FOR SWIMMERS. HARRY PRATT, Kenilworth, Ill. Filed Aug. 16, 1901. Serial No. 72,313. (No model.)



Claim.—1. An appliance for swimmers, comprising a mouthpiece, an air-tube, and means for securing the upper part of the air-tube to the head, said air-tube being branched at a point above the nose and the branches of said tube being connected with the mouthpiece at a point below the nose of the wearer.

2. An appliance for swimmers, comprising a mouthpiece, an air-tube and nose-pads.

3. The combination with a mouthpiece, an air-tube, a forehead-piece attached to the tube, and a head band or bands attached to the forehead-piece, said air-tube being branched at a point above the nose of the wearer and said branches being connected with the mouthpiece at a point below the nose of the wearer.

4. An appliance for the purpose stated, comprising a mouthpiece, an air-tube and nose-pads and means for supporting said pads affording adjustment of the position of the same with respect to the mouthpiece.

5. The combination of a mouthpiece, an air-tube, nose-pads, and spring-supports for said pads.

6. The combination of a mouthpiece, an air-tube, nose-pads and springs attached to the air-tube and supporting said pads.

7. The combination of a mouthpiece, an air-tube branched to form a loop opposite the nose, nose-pads, and springs connecting said nose-pads with the side portions of said loop.

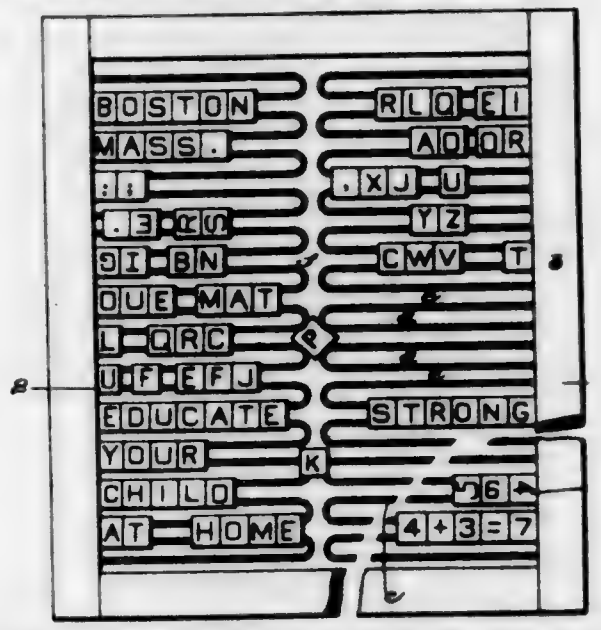
8. The combination of a mouthpiece, an air-tube, nose-pads, and leaf-springs supporting said pads from the air-tube, said springs being adjustable up and down on the air-tube.

9. The combination of a mouthpiece, an air-tube branched to form a loop opposite the nose, nose-pads, and leaf-springs supporting the nose-pads, said springs being secured to the side portions of the loop by means affording adjustment of the springs endwise on the sides of the loop.

10. The combination with a mouthpiece, an air-tube, a flat forehead-piece made of sheet material attached to the tube, a band or bands attached to the forehead-piece, said tube being adapted to pass downwardly at the side of the nose of the wearer, and attached to said mouthpiece.

11. An appliance for swimmers comprising a mouthpiece, an air-tube, adjustable nose-pads on said air-tube, and a cap which covers the upper end of said tube while permitting access and egress of air.

690,664. EDUCATIONAL APPLIANCE. WILLIAM A. PROCTOR, Lynn, Mass., assignor of one-half to Alonzo P. Grinnell, Lynn, Mass. Filed Dec. 7, 1900. Serial No. 39,110. (No model.)



Claim.—1. The combination with a reversible frame comprising resilient tongues or bars, secured at one end only to the sides of said frame and extending therefrom toward the longitudinal medial line of said frame, and forming a longitudinal passage extending from end to end of the frame, and lateral passages extending in parallel alinement from the longitudinal passage, of double-ended blocks or counters supported by the resilient tongues or bars and freely movable along the passages, said blocks or counters having a squared end, substantially as described.

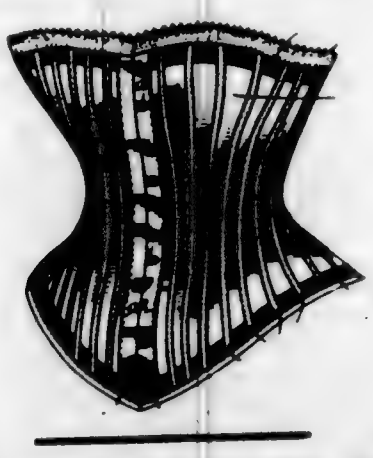
2. The combination with a suitable frame of resilient tongues or bars supported by said frame at one end only and in parallel alinement with each other, and movable blocks or counters supported by such resilient tongues or bars and arranged to move along the passages between said tongues or bars, substantially as described.

3. The combination with a suitable frame, of resilient looped wires secured at one end only to one side thereof and extending inward from the side of said frame, said wires being properly spaced and forming supporting tongues and intermediate passages, and double-ended blocks or counters supported by said tongues and movable along said passages.

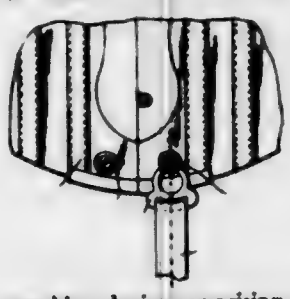
690,665. APPAREL-CORSET. CHARLES H. SCHOPBACH, Aurora, Ill., assignor to Simon Florsheim and Norman S. Florsheim, copartners under the firm-name of Chicago Corset Company, Aurora, Ill. Filed Aug. 3, 1899. Renewed Aug. 12, 1901. Serial No. 71,876. (No model.)

Claim.—A corset comprising a body-layer, a plurality of superposed

strips attached to the body-layer and forming stay-pockets, stays in said pockets, and a reinforcing-strip of substantially uniform width attached to the marginal part of each side of said body-layer beneath the strips which form the stay-pockets and extending continuously from the front to the rear margins thereof, the outer margin of the strip extending in all its parts beyond the extremities of the stays, and the strip being parallel with the margin of the body-layer, the parts of said reinforcing-strip beneath said pocket-strips being located between the ends of the stays therein and said pocket-strips.



690,666. ATTACHING BUTTON OR STUD. CHARLES H. SCHOPBACH, Aurora, Ill., assignor to Simon F. Florsheim and Norman Florsheim, Chicago, Ill. Filed Oct. 20, 1899. Serial No. 735,176. (No model.)

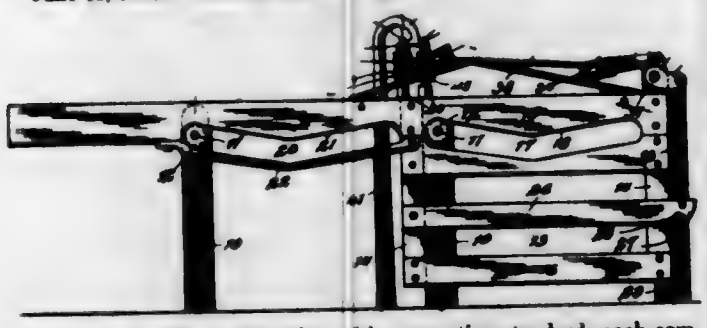


Claim.—1. An attaching device comprising a shank having at its outer end a head and inside of said head a flange forming with the head a reduced part or groove, and having on its inner end means for attaching the shank to the garment, and a peripherally-grooved washer on the shank between the said flange and the attaching means, said grooved washer being available for receiving a hose-supporter or the like when an article of apparel is engaged with the head.

2. An attaching device comprising a head, a shank attached thereto, a clamping-washer engaging the inner end of the shank, and a peripherally-grooved washer on said shank between said clamping-washer and head and located entirely inside of that part which is adapted to be engaged by a garment which may be attached to the device.

3. The combination with an attaching device comprising an expansible and contractible head, a shank connected with said head and a peripherally-grooved washer on said shank, of an eyelet adapted for connection with the garment to be supported and adapted to be slipped over and held in yielding engagement with said expansible and contractible head.

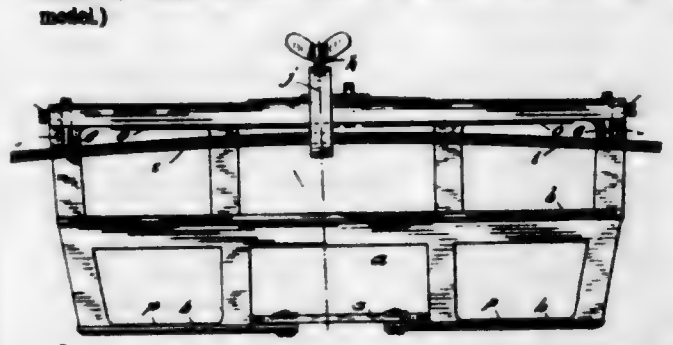
690,667. GATE. WILLIAM R. SNYDER, Puyallup, Wash. Filed June 13, 1901. Serial No. 64,452. (No model.)



Claim.—1. The combination with supporting-standards each comprising spaced uprights connected at their upper ends by a rod, of supporting-rollers journaled upon the connecting-rods of the standards, and a sliding gate comprising spaced longitudinal bars connected by spaced upright bars, one of said longitudinal bars extending beyond one end of the gate and being provided in its lower face with cut-out portions, one of which is located between and terminates short of the vertical bars, the other of said cut-out portions being located in the projecting end of the bar, said cut-out portions forming reversely and correspondingly inclined tracks which rest upon the peripheries of the supporting-rollers, the ends of the cut-out portions constituting stops that abut against the periphery of the rollers to limit the sliding movement of the gate and keepers secured beneath the cut-out portions of the top bar.

2. The combination with supporting-standards, of a gate slidably mounted upon the standards, a longitudinally-disposed brace secured to the top of the gate, a movable locking-catch carried by the gate, a pair of pulleys located at the top of the gate, one of the pulleys being pivoted to the brace and the other having a pivotal connection with the locking-catch, and operating-cords for the gate passing through the pulleys.

690,668. COMBINED SAW JOINTER AND GAGE. DAVID W. SOLOMON, Arlington, Wash. Filed Aug. 6, 1901. Serial No. 71,044. (No model.)

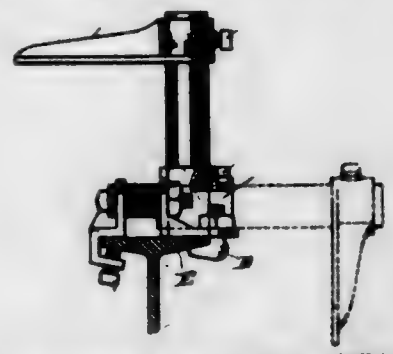


Claim.—1. In a device of the class described, in combination with a frame having a series of saw-bearing strips disposed upon opposite sides of the web thereof, a file-supporting flange extending along one of the longitudinal edges of said frame and projecting transversely outside of the plane of the said saw-bearing strips upon one side of the frame-web, an adjustable swage-gage extending through said flange, another flange disposed upon the opposite diagonal longitudinal edge to the aforesaid flange and extending transversely outside of the plane of the bearing-strips upon that side, a raker-tooth jointing-block having an oblong aperture extending therethrough attached to the last-named flange, and a file, of means to secure the said file to the said file-supporting flange so that the file can be bent to an arc longitudinally of the frame and of the entire length thereof, and means to change the inclination or slant of the file transversely of the frame, such means including a clamp having a yoke which straddles the upper portion of the frame with inwardly-projecting toes at the lower extremities thereof to overlap and engage the said file and a clamp-screw which extends through the yoke and bears upon the frame, and supports for said file positioned beneath the file-supporting flange adjacent to the ends thereof two of said supports being adjustable as to height, substantially as described.

2. In a device of the class described, in combination with a file, a frame having a series of saw-bearing strips disposed upon the web thereof, and a flange extending along one of the longitudinal edges of said frame and projecting outside of the plane of the said bearing-strips transversely of the frame; of supports for said file comprising two fixed bearings and two adjustable bearings disposed, respectively, upon the inner and outer edges of the said flange and a clamp straddling the said flange and adapted to draw the file against the said supports, substantially as and for the purposes set forth.

3. In a device of the class described, in combination with a frame and a file, of adjustable bearing-supports for said file comprising pins extending through a flange of said frame and binding-screws for securing said supports to any set position.

690,669. ATTACHING DEVICE FOR DRILL-BRACES. JOHN F. STOCKBRIDGE, Chicago, Ill. Filed June 3, 1901. Serial No. 62,848. (No model.)



Claim.—1. An attaching device for ratchet-drill braces comprising a socket member provided with two or more sockets for receiving the drill-brace standard, the axes of which intersect at an angle and are located in the same plane, said socket member being provided with oppositely-extending base-flanges which are adapted to fit flat upon the articles to be drilled and means for removably attaching said flanges to said articles.

2. An attaching device for ratchet-drill braces comprising a socket member provided with two or more sockets for receiving the drill-brace standard, the axes of which intersect at an angle and are located in the same plane, said socket member being provided with oppositely-extending base-flanges which are adapted to fit flat upon the articles to be drilled and attaching devices on the opposite margins of two of said flanges which are adapted to hook over the opposite margins of the article to be drilled.

3. An attaching device for drill-braces comprising a socket member provided with two or more sockets for receiving the drill-brace standard, the axes of which intersect at an angle and are located in the same plane and attaching means for said socket member comprising hook-bolts which are rotatively connected with the opposite margins of the socket member.

4. An attaching device for drill-braces comprising a socket member provided with two or more sockets for receiving the drill-brace standard, the axes of which intersect at an angle and are located in the same plane, attaching means for said socket member, and means for adapting said socket member to varying widths and thicknesses of beams and the like.

5. An attaching device for drill-braces comprising a socket member provided with two or more sockets for receiving the drill-brace standard, the axes of which intersect at an angle and are located in the same plane, said socket member being provided with an angle-piece at one side thereof adapted to engage one margin of a beam or the like, and a hook-bolt on the other side of said socket member adapted to engage the other margin of a beam.

6. An attaching device for drill-braces comprising a socket member provided with two or more sockets for receiving the drill-brace standard, the axes of which intersect at an angle and are located in the same plane, a rotative hook-bolt which passes through said member at one side thereof, an angle-piece at the other side of said socket member, and a clamping-bolt connecting said angle-piece and socket member.

7. An attaching device for drill-braces comprising a socket member provided with two or more sockets for receiving the drill-brace standard, the axes of which intersect at an angle and are located in the same plane, a rotative hook-bolt which passes through said member at one side thereof, an angle-piece at the other side of said socket member, a clamping-bolt connecting said angle-piece and socket member, and washers on said bolt filling the space between said angle-piece and socket member.

8. An attaching device for drill-braces comprising a socket member provided with a socket for receiving a drill-brace standard, and means for attaching the same to a beam or the like comprising a rotative hook-bolt which passes through the socket member and adapted for engagement with one margin of a beam or the like, an angle-piece adapted to engage the other margin of the said beam, and a clamping-bolt passing through and connecting said socket member and angle-piece.

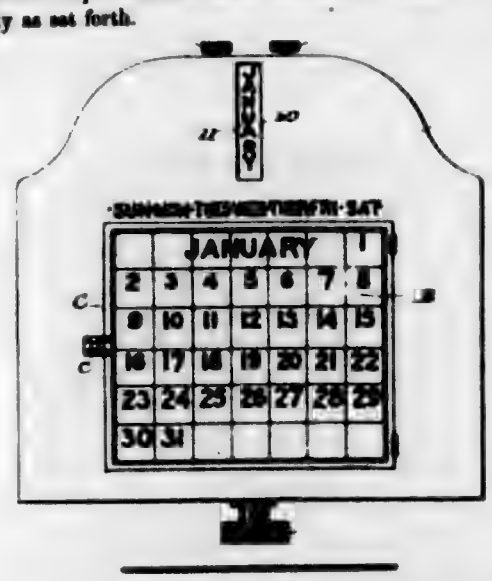
9. An attaching device for drill-braces comprising a socket member provided with a socket for receiving a drill-brace standard, and means for attaching the same to a beam or the like comprising a rotative hook-bolt which passes through the socket member and adapted for engagement with one margin of a beam or the like, an angle-piece adapted to engage the other margin of the said beam, a clamping-bolt passing through and connecting said socket member and angle-piece, and washers on said bolt filling the space between the angle-piece and socket member.

10. An attaching device for drill-braces, comprising a socket member provided with a socket for receiving a drill brace standard, and means for attaching the same to a beam or the like comprising a hook-bolt which passes through the socket member and is adapted to engage one margin of a beam or the like, an angle-piece adapted to engage the other margin of said beam, set-screws passing through said angle-piece and adapted to bear at their ends against the inner face of the beam, and a clamping-bolt passing through and connecting said clamping member and angle-piece.

690,670. CALENDAR. FRANCIS C. W. STELTER, Long Island City, N. Y. Filed May 13, 1901. Serial No. 60,033. (No model.)

Claim.—1. In a perpetual calendar, a strip having twelve divisions or sections one for each month of the year arranged consecutively, each section having a plurality of parallel rows of divided spaces in which the numbers indicating the days of the particular month are printed or otherwise marked, the numbers indicating the days of the month in the central vertical row of each section appearing once only and all the other numbers in each section being duplicated, combined with a support for such strip having on its face marks indicating the days of the week, and means for moving said strip across the face of the support adjacent to said marks, substantially as set forth.

2. In a perpetual calendar, a strip having twelve divisions or sections one for each month of the year arranged consecutively, each section having a plurality of parallel rows of divided spaces in which the numbers indicating the days of the particular month are printed or otherwise marked, the numbers indicating the days of the month in the central vertical row of each section appearing once only and all the other numbers in each section being duplicated, and each section having letters indicating the name of the month it is designed for on each side of the vertical row of numbers and adjacent thereto, combined with a support for such strip having on its face marks indicating the days of the week, and means for moving said strip across the face of the support adjacent to said marks, substantially as set forth.



690,671. SMOKE-CONSUMING DEVICE. JOSEPH H. STRELLI, Cincinnati, Ohio. Filed Apr. 1, 1901. Serial No. 53,894. (No model.)



Claim.—1. In a smoke-consumer air-nozzle C and steam-nozzle D, the steam-nozzle D lying within the air-nozzle C, pipe D′, in combination with fixed plate K having ways M, flange E′ having trunnions F, all in combination with adjustment-bolts H′ and nuts *b*, *b*′ for adjusting the angle at which said nozzles C and D enter the furnace, the plate E′ and nozzles tilting for adjustment through the medium of the trunnions F working on the ways M when the nuts *b*, *b*′ are moved to the right or left on the adjustment-bolts H′, all combined and operating as and for the purposes set forth.

2. In a smoke-consumer air-nozzle C and steam-nozzle D, the steam-nozzle D lying within the air-nozzle C, pipe D′, in combination with fixed plate K having wings M, flange E′ having trunnions F, all in combination with adjustment-bolts H′ and nuts *b*, *b*′ for adjusting the angle at which said nozzles C and D enter the furnace, the plate E′ and nozzles tilting for adjustment through the medium of the trunnions F working on the ways M when the nuts *b*, *b*′, are moved to the right or left on the adjustment-bolts H′; and air-regulator R, all combined and operating as set forth.

690,672. BISMUTH OXYIODID METHYLENE DIGALLATE AND PROCESS OF MAKING SAME. SAMUEL L. SUBERRS, Philadelphia, Pa. Filed Oct. 9, 1901. Serial No. 78,082. (No specimens.)

Claim.—1. The product described, which is the methylene digallate of bismuth oxyiodid, which in a dry state is an impalpable powder, of a reddish-brown color, contains about 39.33 per cent. of metallic bismuth, and about 24.1 per cent. of iodin, insoluble in water, and in alcohol, decomposes slowly in a moist atmosphere, and has the chemical formula $Bi_2I_2C_{15}H_{12}O_{12}$.

2. The process herein described of producing bismuth oxyiodid methylene digallate, which consists in reacting on bismuth oxyiodid with methylene digallic acid, with constant stirring, and then repeatedly washing the precipitate and evaporating its contained moisture at a temperature not exceeding 60° centigrade.

3. The process herein described of producing bismuth oxyiodid methylene digallate, which consists in reacting on a compound of crystallized bismuth nitrate, iodin and potassium iodid, with methylene digallic acid, with constant stirring, and then repeatedly washing the precipitate and evaporating its contained moisture at a temperature not exceeding 60° centigrade.

690,673. PROCESS OF MAKING METHYLENE DIGALLATE OF BISMUTH OXYIODIDS. SAMUEL L. SUBERRS, Philadelphia, Pa. Filed Nov. 5, 1901. Serial No. 81,202. (No specimens.)

Claim.—1. The process of producing the methylene digallate of bismuth oxyiodid, which consists in first preparing a solution of bismuth oxyiodid from bismuth nitrate in the presence of glacial acetic acid as a solvent, then preparing a water solution of potassium iodid in the presence of sodium acetate to render it primarily insoluble, and adding to such solution crystallized methylene digallic acid which is held in suspension therein; then admixing the solutions and purifying the precipitate formed, by washing and filtration.

2. The process of producing the methylene digallate of bismuth oxyiodid by reacting on bismuth oxyiodid in nascent state, by a solution of potassium iodid in which is suspended the crystals of methylene digallic acid; and then purifying the precipitate formed by the resulting reaction.

690,674. CAR-FENDER. JOHN H. SURTIS, St. Louis, Mo., assignor of one-half to Edward Butler, Jr., St. Louis, Mo. Filed Aug. 26, 1901. Serial No. 73,215. (No model.)



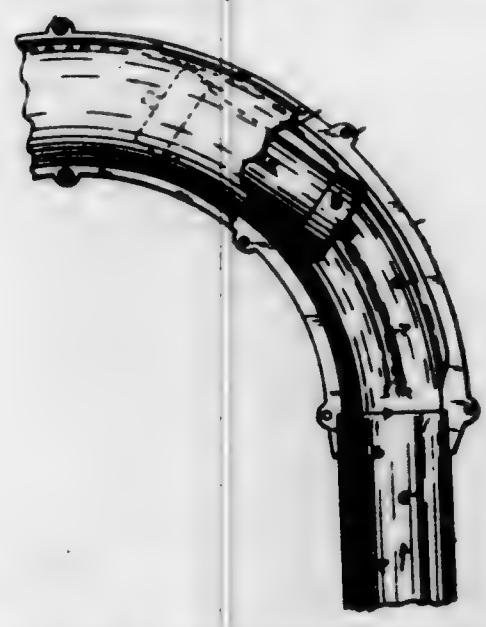
Claim.—1. In combination with a car, a bar secured in the center to the under side of the platform, a link pivoted to said bar to swing in a horizontal plane, a fender hinged to said link to swing in a vertical plane and springs interposed and connecting each end of the fender and platform.

2. In combination with a car, a bar secured in the center to the under side of the platform, having a forked end, a link pivoted to swing horizontally in said forked end and having an upturned outer end, a bracket pivoted to said upturned end of the link to swing in a vertical plane, and a fender secured to said bracket, and coiled springs interposed and connecting each end of the fender and car-platform.

4. In combination with a car, a fender-frame comprising ribs extending downward from a common center at an angle to each other, thence outward in a horizontal plane, a semicircular buffer-rim connecting the outer ends of said ribs.

4. In combination with a car, a fender secured to the car having a flat horizontal portion, a vertical portion and a central substantially conical-shaped portion disposed in the center and at the rear of the horizontal portion.

690,675. DESPATCH-TUBE. FRED R. TAMEY, Indianapolis, Ind., assignor to The Tamey Pneumatic Service Company, Indianapolis, Ind., a Corporation of Indiana. Filed May 9, 1901. Serial No. 58,520. (No model.)



Claim.—1. A curved section of a despatch-tube having a pair of internal longitudinally-extending antifriction-ribs placed on the outer curve of said section for preventing a free carrier-box engaging the wall of the section.

2. A despatch-tube consisting of a straight portion and a curved portion combined, and internal longitudinally-extending antifriction-ribs placed in said portion, those in the straight portion being in the lower half thereof and those in the curved portion being in the outer half thereof.

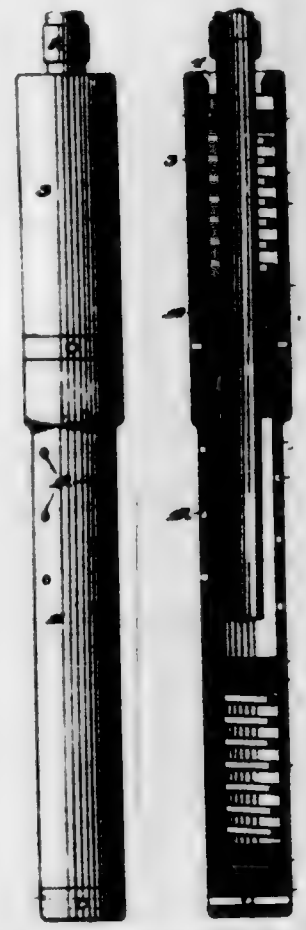
3. The combination of a despatch-tube provided with internal longitudinally-extending ribs, and a wheelless carrier-box movable therethrough and directly engaging said ribs.

4. The combination of an independent carrier-box, and a despatch-tube provided with a pair of internal longitudinally-extending ribs placed on the side of the tube against which such carrier-box would move for preventing the box engaging the wall of the tube.

5. The combination of a despatch-tube provided with three or more internal longitudinally-extending ribs, and a wheelless carrier-box movable therethrough and directly engaging said ribs.

6. A combination of a despatch-tube provided with a pair of internal longitudinally-extending ribs placed diametrically opposite each other and another pair of ribs placed between the first pair of ribs, and a wheelless carrier-box movable therethrough and directly engaging said ribs.

690,676. TUBING-PROTECTOR FOR OIL-WELLS. GEORGE F. TAFT, McDonald, Pa. Filed Sept. 20, 1901. Serial No. 75,744. (No model.)



Claim.—1. In a tubing-protector for oil and Artesian wells, the combination of tubing, cylindrical casings surrounding the lower end of said tubing, a spring arranged in the upper end of said casing, a sleeve arranged upon said spring, a buffer-spring in the lower end of said casing, and washers arranged on the upper end of said spring, all parts being arranged and operated substantially as described and for the purpose set forth.

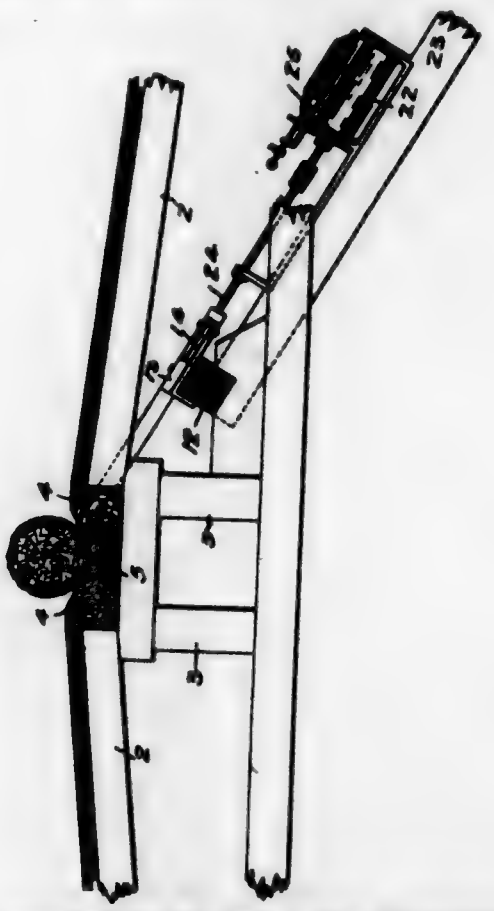
2. In a tubing-protector for oil and Artesian wells, the combination of tubing, a coupling secured on said tubing, a cylindrical casing having an enlarged opening formed therein at the upper end thereof, a union interposed in said casing having a central opening formed therein through which said tubing extends, a spring arranged in the upper end of the said casing above said union, a sleeve arranged upon said spring, a screw-threaded plug secured in the lower end of the said casing, a buffer-spring arranged above said plug in said casing, and a washer arranged in said casing above said buffer-spring, all the parts being arranged substantially as described and for the purpose set forth.

690,677. HAUL-UP-CHAIN UNLOADER FOR SAWMILLS. EDWIN E. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Sept. 26, 1901. Serial No. 76,607. (No model.)

Claim.—1. The combination, with a haul-up chain, of a log-unloader, means for projecting said unloader to roll the log from said chain and said unloader during such projection presenting a face diagonal with respect to said chain and inclined to the end of the next succeeding log.

2. The combination, with a haul-up chain, of log-unloaders pivoted

at their ends next to the incoming log and means for projecting the opposite free ends of said unloaders to present inclined faces to the end of said log.



3. The combination, with a haul-up chain, of log-unloaders pivoted near one end and when inoperative substantially parallel with said chain, and means for projecting the free ends of said unloaders across said chain to engage and roll the log therefrom, substantially as described.

4. The combination, with a haul-up chain, of a log-unloader, means for projecting said unloader to roll the log from said chain and said unloader during such projection presenting a face that is inclined horizontally with respect to the end of the next succeeding log.

5. The combination, with a log-deck the haul-up chain and the chainway, of log-unloaders pivoted near their outer ends in said way and substantially parallel with said chain, and means for reciprocating the free ends of said unloaders to project them across said chain to engage and roll the log therefrom and said unloaders during such projection presenting inclined faces to the end of the next succeeding log, substantially as described and for the purpose specified.

6. The combination, with a log-deck the haul-up chain and the chainway provided with mortises or slots, of unloader-arms pivoted within said slots, bell-cranks pivoted near said chainway, reciprocating bars connecting said bell-cranks and the free ends of said unloader-arms, and means for simultaneously oscillating said bell-cranks, substantially as described.

7. The combination, with a haul-up chain and the chainway-timbers provided with inclined mortises or slots having housings 7, of channel-bar unloader-arms pivoted near their outer ends within said housings and substantially parallel with said chainway when in their inoperative position, longitudinally-reciprocating bars pivoted to the free ends of said unloader-arms, and means for reciprocating said bars to project said arms across said chainway into engagement with the log brought up by said chain, substantially as described.

8. The combination, with a haul-up chain and the chainway-timbers, of the log-unloader bars pivoted near one end in said timbers, and means for projecting the free ends of said bars to engage the logs, and said bars during such projection presenting horizontal inclined faces to the end of the next succeeding log and in the path of the same.

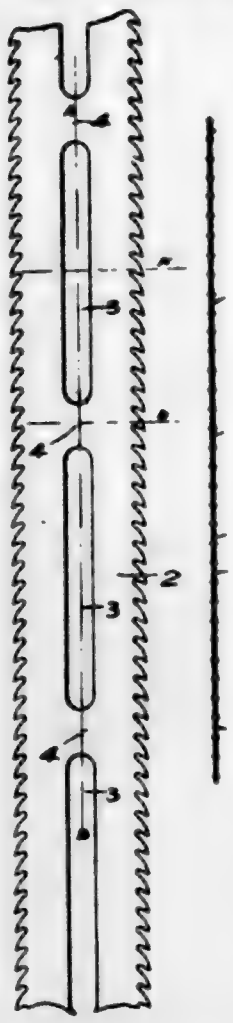
690,678. DOUBLE-CUTTING BAND-SAW. EDWIN R. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Oct. 12, 1901. Serial No. 78,411. (No model.)

Claim.—1. A band-saw provided with a series of elongated slots extending lengthwise thereof at intervals.

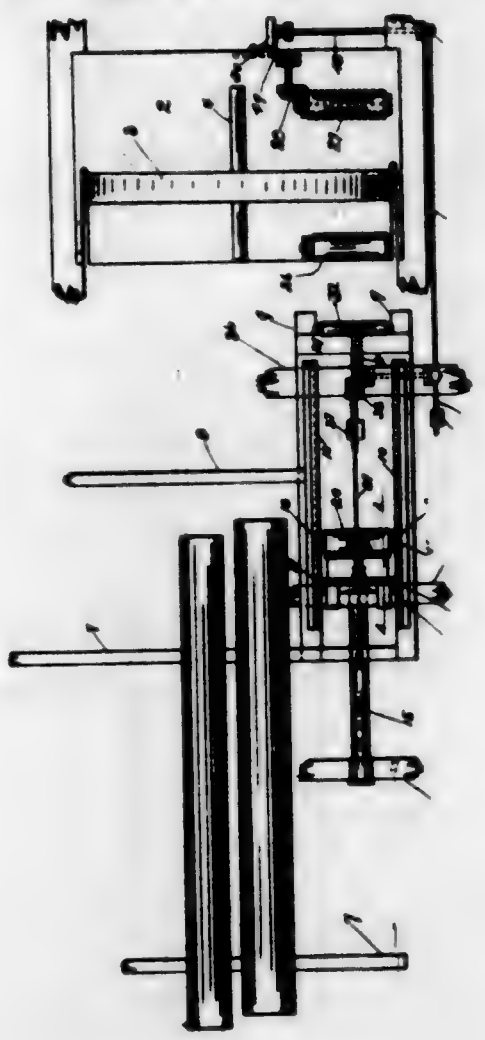
2. A double-cutting band-saw provided with a series of comparatively long narrow slots extending lengthwise thereof along its medial line.

3. A double-cutting band-saw provided with a series of comparatively long narrow slots extending lengthwise thereof along its medial line, the ends of said slots being curved, for the purpose specified.

4. A double-cutting band-saw provided with a series of elongated slots extending lengthwise thereof at suitable intervals.



690,679. RECIPROCATING LUMBER-MOVER FOR SAWMILLS. EDWIN R. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Nov. 5, 1901. Serial No. 81,181. (No model.)



Claim.—1. The combination, with a reciprocating lumber-moving means and means for operating the same, of idle rolls or supports whereon the lumber falls, and means operated by the descent of the lumber toward said rolls for releasing said operating means.

2. The combination, with a reciprocating cross-head provided with a lumber-engaging dog, of means for operating said head, rolls or supports whereon the lumber falls, and means operated by the descent of the lumber for releasing said operating means.

3. The combination, with a band-mill, of reciprocating lumber-moving means and means for operating the same, idle rolls whereon the lumber falls, and means operated by the descent of the lumber toward said rolls for releasing said operating means.

4. The combination, with a band-mill, of a reciprocating cross-head and means for operating the same, a lumber-engaging dog provided on said head, idle rolls, and means depressed by the weight of the lumber falling on said rolls for releasing said operating means.

5. The combination, with a double-cutting band-mill and the log-deck, of a reciprocating cross-head arranged between said mill and deck, means for operating said head, a lumber-engaging dog provided on said head, idle rolls, and means operated by the lumber falling upon said rolls for releasing said operating means.

6. The combination, with a double-cutting band-mill, of a reciprocating cross-head located between the mill and log-deck, means for operating said head, a lumber-engaging dog provided on said head and having a series of teeth, idle rolls below the level of said teeth, and means depressed by the weight of the lumber falling on said rolls for releasing said operating means.

7. The combination, with reciprocating lumber-moving means and means for operating the same, of idle rolls, and a vertically-movable roll depressed by the weight of the lumber falling thereon for releasing said operating means.

8. The combination, with a double-cutting band-mill, of reciprocating lumber moving means located between said mill and the log-deck, a motor for operating said lumber-moving means, idle rolls whereon the lumber falls that is cut on the return or backward movement of the carriage, a vertically-movable roll projecting above the level of said idle rolls and adapted to be depressed by the weight of the lumber falling thereon, and operative connections provided between said vertically-movable roll and said motor.

9. The combination, with a double-cutting band-mill, of a reciprocating cross-head located between said mill and the log-deck, a motor for operating said head, a lumber-engaging dog and an idle roll provided on said head, said dog normally projecting above the level of said roll, vertically-movable means adapted to be depressed by the weight of the lumber falling from the carriage on its return or backward movement, and operative connections provided between said vertically-movable means and said motor.

10. The combination, with a double-cutting band-mill, of reciprocating lumber-moving means provided between said mill and the log-deck, a cylinder having its piston connected with said lumber-moving means, idle rolls whereon the lumber falls on the return or backward movement of the carriage, a vertically-movable frame, a roll carried thereby and normally projecting above the level of said idle rolls, and operative connections provided between said frame and said cylinder-valve, substantially as described.

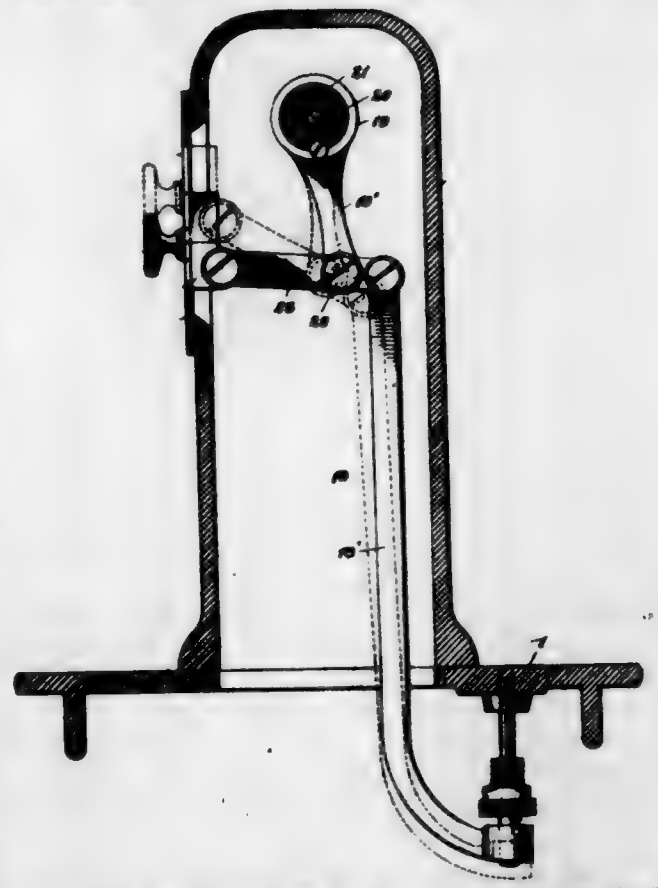
11. The combination, with reciprocating lumber-moving means and means for operating the same, of idle rolls whereon the lumber falls, means normally projecting above said rolls and actuated by the falling lumber to automatically release said operating means, and means within control of the operator for releasing said operating means by hand.

12. The combination, with a double-cutting band-mill, of reciprocating lumber-moving means located between the mill and log-deck, a motor for operating said reciprocating means, idle rolls whereon the lumber falls on the return or backward movement of the lumber, the vertically-movable frame, a roll carried thereby and normally projecting above the level of said idle rolls, operative connections provided between said frame, a motor, and means within the control of the operator for depressing said frame by hand, substantially as described.

13. The combination, with a double-cutting band-mill provided with a spiked live roll, of reciprocating lumber-moving means provided between said mill and the log-deck, a motor for operating said reciprocating means, idle rolls whereon the lumber falls on the return or backward movement of the carriage, a vertically-movable roll normally projecting above the level of said idle and spiked rolls and adapted to be depressed by the weight of the lumber falling thereon, and operative connections provided between said vertically-movable roll and said motor.

14. In a double-cutting band-mill, a lumber-moving device arranged between the saw and the log-deck and whereon the lumber falls that is cut on the return or backward movement of the carriage, means for operating said lumber-moving device, and means actuated by the falling lumber for releasing said operating means.

690,680. **FEEDING MECHANISM FOR SEWING-MACHINES.** Thomas M. Todd, Newark, N. J., assignor to New Domestic Sewing Machine Company, Newark, N. J., a Corporation of New Jersey. Filed Mar. 21, 1901. Serial No. 52,183. (No model.)



Claim.—1. In a sewing-machine, the combination, with the feed-bar and means for communicating vertical movement thereto, of means for moving said feed-bar horizontally, including the driving-shaft provided with an eccentric or actuating device, a vertically-reciprocating connection operated from said eccentric or actuating device, said connection being formed in two sections, an adjustable lever to which the adjacent ends of said sections are pivoted at points distant from each other, means for movably holding said lever in adjusted position, and means actuated by said reciprocating connection for moving the feed-bar horizontally.

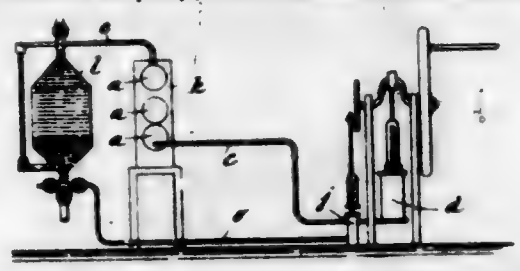
2. In a sewing-machine, the combination, with the feed-bar and means for communicating vertical movement thereto, of means for moving said feed-bar horizontally, including the driving-shaft provided with an eccentric or actuating device, a vertically-reciprocating connection operated from said eccentric or actuating device, said connection being formed in two sections, an adjustable lever to which the adjacent ends of said sections are pivoted at points distant from each other, means for adjusting the position of said lever so as to move one of the sections longitudinally relative to the other, and means actuated by said reciprocating connection for moving the feed-bar horizontally.

3. In a sewing-machine, the combination, with the feed-bar and means for communicating vertical movement thereto, of means for moving said feed-bar horizontally, including the driving-shaft provided with an eccentric or actuating device, a vertically-rocking feed-lever, means for movably holding said lever in a normal stationary position, a vertically-reciprocating connection having one end connected with said eccentric or actuating device and at its opposite or lower end having means for engaging with said lever, the said connection being formed in two sections, an adjustable lever to which the adjacent ends of said sections are pivoted, and means for adjusting the position of said lever so as to move the lower end of the reciprocating connection vertically relative to the feed-lever, for the purpose set forth.

4. In a sewing-machine, the combination, with the feed-bar and means for communicating vertical movement thereto, of means for moving the feed-bar horizontally, including the driving-shaft provided with an eccentric or actuating device, a vertically-rocking feed-lever, a vertically-reciprocating connection between said eccentric or actuating device and the feed-lever, said connection being formed in two sections, an adjustable lever to which the adjacent ends of said sections are directly connected at points distant from each other, a slide-block to which said lever is pivotally connected, and an adjusting-screw engaging said block through a vertical slot in the arm for holding the same in stationary adjusted position.

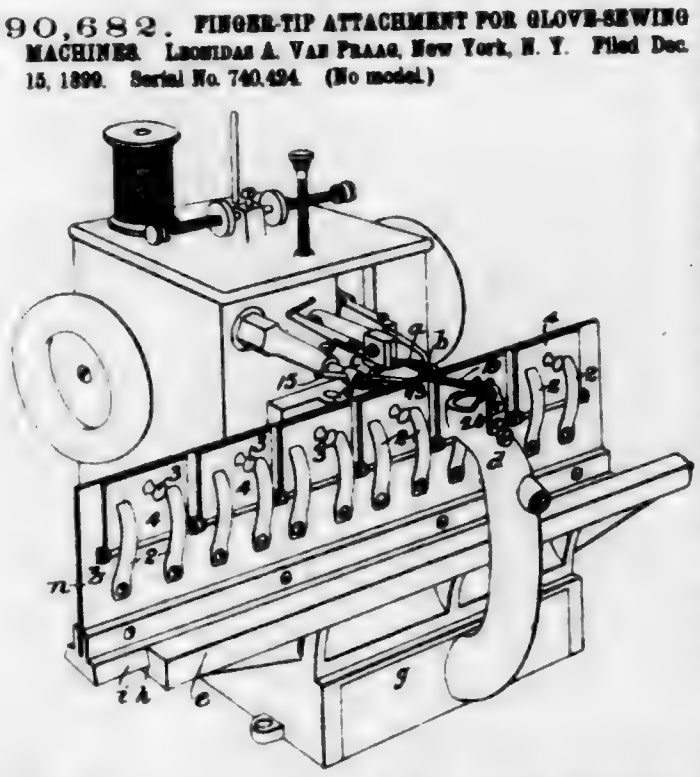
690,681. **APPARATUS FOR CARBURETING AIR.** Paul R. van der Made, Broukelen, Netherlands. Filed July 16, 1901. Serial No. 68,482. (No model.)

Claim.—1. The combination of the carbureting-chamber *a*, air-pump *d*, force-pump *j*, for water or other liquid; a common motor operating the said pumps *d* and *j* in regular sequence; a perforated delivery-pipe *b* in lower part of the carbureting-chamber; a pipe *c* connecting the pump *d* with the delivery-pipe *b*; a reservoir *l* for hydrocarbon liquid; a pipe *o* connecting the pump *j* with reservoir *l* and a pipe *e* from the reservoir *l*, delivering a modicum of hydrocarbon liquid to the carbureting-chamber *a*, at each stroke of the pump *j*, and a suitable gas-discharge pipe *f*.



2. A plurality of superposed carbureting-chambers *a a*; perforated pipes *b* in the lower part of said carbureting-chambers; an air-pump *d*; a pipe *c* connecting the air-pump *d* with the delivery-pipe *b* in lower carbureting-chamber; a reservoir *l* for hydrocarbon liquid; a force-pump *j* for water or other liquid; a pipe *o* connecting the pump *j* with the reservoir *l*; a pipe *e* connecting the reservoir *l* with the uppermost carbureting-chamber; pipes *g* connecting the carbureting-chambers and permitting overflow of liquid from one carbureting-chamber to another; pipes *h* conveying gas from one carbureting-chamber to one above it; a suitable discharge *f* for the gas, and a common motor operating the pumps *d* and *j* in regular sequence, substantially as and for the purposes set forth.

690,682. FINGER-TIP ATTACHMENT FOR GLOVE-SEWING MACHINES. LEONIDAS A. VAN PRAAG, New York, N. Y. Filed Dec. 15, 1899. Serial No. 740,494. (No model.)

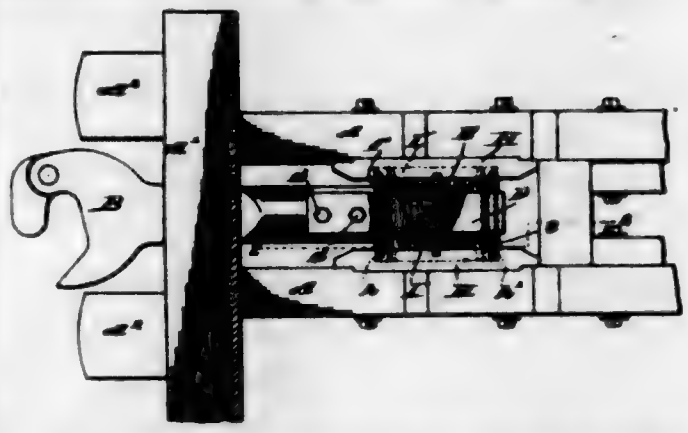


Claim.—1. The improved work holder and feeder comprising the plate set edgewise and rigidly supported on a sliding base adapted to be fed intermittingly along a slideway, a plurality of independently operative tip-clamps hinged to one side of said plate and provided with controlling-springs, and a clamping-plate on the other side of said plate carried on the base-slide, and being independent of the tip-clamps and adapted to secure on that side, the work hung on the edge of said plate of the base-slide and previously secured and while securely retained on the other side of said plate by the tip-clamps.

2. The combination with the stitch-forming elements, of apparatus for sewing glove parts, consisting of the feeding-clamp having a plurality of separate and independently operative holding parts placed at intervals apart along the clamp, and the stitch-retaining finger which operates to hold unbroken and at a uniform tension the stitches in the interstices between the successive parts of the work being sewed.

690,688. DRAW-BAR DRAFT-RIGGING FOR CAR-COUPLINGS. JAMES M. WAUGH, Chicago, Ill. Filed May 17, 1901. Serial No. 60,626. (No model.)

Claim.—1. A draft-rigging comprising draft-sills provided with inwardly-facing shoulders, a draw-bar, a coiled draw-bar spring, spring follower-plates located one at each end of said draw-bar spring and adapted for engagement at their middle parts with the draw-bar spring and for contact at their ends with the said shoulders, and movable abutment-plates located between the ends of the said follower-plates and adapted to transmit pressure from one to the other of said follower-plates.



2. A draft-rigging comprising draft-sills provided with inwardly-facing shoulders, a draw-bar, a draw-bar spring, two sets of spring follower-plates, located one at each end of the draw-bar spring, with the middle parts of the plates of each set in engagement with the draw-bar spring and the draw-bar, and movable abutment-plates located between the ends of the sets of follower-plates, the plates of each set of follower-plates being separated at their ends from each other, the outermost plate or plates of each set being adapted to bear against said shoulders and the innermost plate or plates of each set being adapted for contact with the said abutment-plates.

3. A draft-rigging comprising draft-sills provided with inwardly-facing shoulders, a draw-bar, a coiled draw-bar spring, two sets of spring follower-plates located one at each end of the said draw-bar spring with the middle parts of the plates of each set in engagement with the spring and the draw-bar and endwise-movable abutment-plates interposed between the ends of the sets of follower-plates; one or more of the plates of each set of follower-plates being curved so as to separate the ends of the plates from each other, the outermost plate or plates of each set being adapted to bear against said shoulders on the draft-sills and the ends of the innermost plate or plates of each set being adapted for contact with the said abutment-plates.

4. A draft-rigging comprising draft-sills provided with forwardly and rearwardly facing shoulders, a draw-bar, a coiled draw-bar spring, longitudinally-sliding abutment-plates on said draft-sills between the said shoulders, and a straight and a curved follower-plate located between each end of the draw-bar spring, and the draw-bar, said straight plates being adapted for engagement at their ends with the ends of said abutment-plates, and the curved plates being adapted to act against the shoulders on the draft-sills.

5. A draft-rigging comprising draft-sills provided with forwardly and rearwardly facing shoulders, a draw-bar, a coiled draw-bar spring, sliding abutment-plates mounted on said sills between said rearwardly and forwardly facing shoulders, and two sets of spring follower-plates interposed between the ends of said coiled spring and the draw-bar, each of said sets of plates embracing a flat follower-plate located in contact with the draw-bar with its ends in position to engage the shoulders on the draft-sill, a second flat follower-plate adapted to bear at its middle part against the end of the coiled spring with its ends in position for contact with the ends of said sliding abutment-plates and a curved follower-plate interposed between said straight follower-plates.

6. A draft-rigging comprising draft-sills provided with forwardly and rearwardly facing shoulders, endwise-sliding abutment-plates mounted on the draft-sills between said shoulders, a draw-bar, a coiled draw-bar spring and two sets of spring follower-plates, each set comprising two flat plates and a curved plate or plates interposed between said flat plates, the outer flat plate of each set being adapted for contact at its ends with the outer shoulders of the draft-sills, the inner flat plate of each set being adapted for contact at its ends with the ends of the said sliding abutment-plates and the curved plate of each set having its convex side in contact with the inner flat plate.

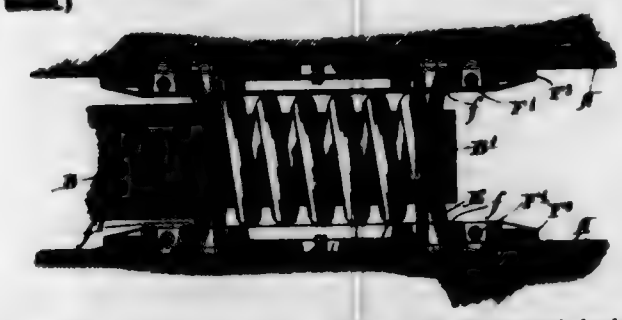
7. A draft-rigging comprising draft-sills, draft-irons attached to the sills and provided with outer forwardly and rearwardly facing shoulders, a draw-bar, a coiled draw-bar spring, longitudinally-sliding abutment-plates mounted on said draft-irons between the rearwardly and forwardly facing shoulders thereof, and spring follower-plates, the middle portions of which are adapted to engage the said draw-bar and the ends of the said draw-bar springs, and the end portions of which are adapted to engage said forwardly and rearwardly facing shoulders on the draft-irons and the ends of said sliding abutment-plates.

8. A draft-rigging comprising draft-sills provided with forwardly and rearwardly facing shoulders, a draw-bar, a coiled draw-bar spring, spring follower-plates interposed between the draw-bar and the ends of said

coiled spring, longitudinally-sliding abutment-plates mounted on the sills, said abutment-plates being located between the ends of said follower-plates and being adapted to transmit pressure from one to the other of said follower-plates, and means for detachably supporting said abutment-plates in place on the sills.

9. The combination with draft-sills, of draft-irons having rearwardly and forwardly facing shoulders at their ends, a sliding abutment-plate interposed between said shoulders, and means for detachably holding the abutment-plate on the draft-irons comprising slots in the abutment-plates and lugs on the draft-irons which extend outwardly through said slots, and keys inserted through said lugs.

690,684. DRAFT-RIGGING FOR RAILWAY-CARS. JAMES M. WADDE, Chicago, Ill. Filed Aug. 7, 1901. Serial No. 71,144. (No model.)



Claim.—1. A draft-rigging comprising draft-sills, provided with inwardly-facing shoulders, a draw-bar, a coiled draw-bar spring, spring follower-plates located one at each end of said draw-bar spring and adapted for engagement at their middle parts with the draw-bar spring and for contact at their ends with said shoulders, and endwise-sliding abutment-plates located between the ends of said follower-plates, said abutment-plates being connected with the draft-sills by means embracing a guide-groove on one part and a flange on the other part, adapted for interlocking connection when the abutment-plates are in their normal or working positions and for disconnection when said plates are thrown out of said normal or working positions.

2. A draft-rigging comprising draft-sills, draft-irons secured to said sills and provided with inwardly-facing shoulders, a draw-bar, a coiled draw-bar spring, spring follower-plates located one at each end of said draw-bar spring, and endwise-sliding abutment-plates located between the ends of said follower-plates, said draft-irons and abutment-plates being provided with guide-grooves and flanges adapted for interlocking engagement when the abutment-plates are in their normal positions and for disconnection when the said plates are swung away from the draft-irons.

3. A draft-rigging comprising draft-sills, recessed draft-irons secured to said sills, and endwise-sliding abutment-plates mounted on the draft-irons, each of said draft-irons being provided on one of its edges with a flange-like projection provided with a guide-groove and the abutment-plates being provided with laterally-projecting flanges adapted to engage and slide in said guide-grooves.

4. A draft-rigging comprising draft-sills, recessed draft-irons provided with inwardly-facing shoulders, and sliding abutment-plates mounted on said draft-irons, each of said abutment-plates having a sliding interlocking connection with the draft-irons on which it is mounted, embracing a flange-like projection of curved form on one edge of the draft-iron, said projection being provided with a guide-groove and a curved flange on the corresponding edge of the abutment-plate adapted to engage said guide-groove.

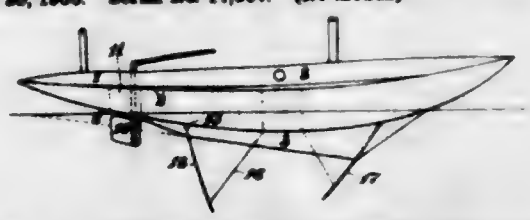
5. A draft-rigging comprising draft-sills, draft-irons attached to said sills and provided with detachable supporting-strips detachably secured to the lower edges thereof and abutment-plates having sliding interlocking engagement at their upper edges with the draft-irons by means of projections on said upper edges of the draft-irons shaped to form guide-grooves, and flanges on the upper edges of the draft-irons adapted to engage said guide-grooves, said supporting-strips being adapted to engage the lower edges of said abutment-plates to hold the same in operative position.

6. A draft-rigging comprising draft-sills, recessed draft-irons secured to said sills, and follower-plates located in the recesses of the draft-irons, and detachable strips forming the lower walls of said recesses, said abutment-plates having interlocking engagement at their upper edges with the draft-irons by means of grooved projections on the draft-irons and flanges on the abutment-plates, and said abutment-plates being provided at their lower edges with depending flanges which engage the inner edges of the said detachable strips.

7. A draft-rigging comprising draft-sills, draft-irons secured to said sills, a draw-bar, a coiled draw-bar spring, spring follower-plates located one at each end of said draw-bar spring and extending at their ends into the recesses of the draft-irons, said draft-irons being provided with detachable bottom strips and sliding follower-plates located within the recesses of the draft-irons and having sliding interlocking engagement at their upper edges with the said draft-irons and sliding engagement at their lower edges with said strips.

8. A draft-rigging comprising draft-sills provided with forwardly and rearwardly facing shoulders, a draw-bar, a coiled draw-bar spring, spring follower-plates located between each end of the draw-bar spring and the draw-bar, and having their ends separated from each other, the outermost of said spring-plates being adapted to act against the shoulders on the draft-sills, longitudinally-sliding abutment-plates on the said draft-sills located between the ends of the innermost follower-plates and adapted to transmit pressure from one to the other of said innermost follower-plates, each of said abutment-plates having sliding and interlocking connection at one of its edges with its associated draft-sill.

690,685. LIFE-BOAT. ALEXIS ARREP, Moscow, Russia. Filed May 25, 1900. Serial No. 17,907. (No model.)



Claim.—1. A life-boat adapted to be launched from a vessel, having the lines of the deck and bottom at that end of the boat which is ahead in launching, forming with each other an acute angle, and having the lines of the deck and bottom at the other, or following end of the boat curved upward, whereby the boat is caused to dive through the water in a downwardly-curved path, substantially as set forth.

2. A life-boat of the form described, having a plurality of supporting-keels for launching, said keels forming with their lower bearing-surfaces an acute angle with the water-line of the boat at that end which is ahead in launching, substantially as and for the purpose set forth.

3. A life-boat adapted to be launched from a vessel, having the lines of the deck and bottom at that end of the boat which is ahead in launching, forming with each other an acute angle, and having the lines of the deck and bottom at the other or following end of the boat curved upward, and said boat having one or more folding sag-keels 12, extending athwartship and hinged at their upper edge to the bottom of the boat, substantially as set forth.

4. A life-boat of the form described, having a hinged sag keel or keels 12, and sliding bolts 14, for holding the said keels folded up close against the bottom of the boat, said bolts being provided each with a plate 15 to engage the water in launching and draw the bolt, substantially as set forth.

690,686. PAPER-MAKING MACHINE. CHARLES H. ATKINS, Springfield, Mass. Filed Apr. 15, 1901. Serial No. 55,884. (No model.)

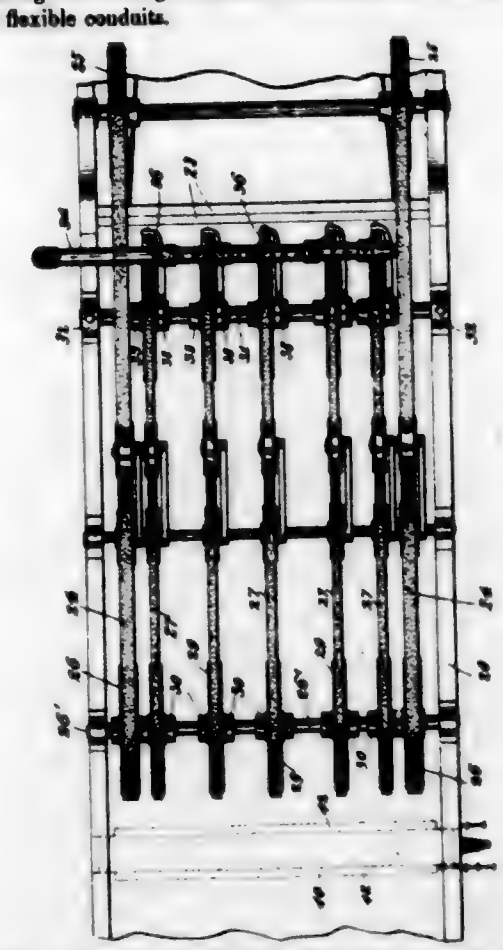
Claim.—1. The combination, with the endless wire apron, the outer pair of deckles and the slice-bar transversely arranged between the lower courses of the outer deckles, of a plurality of deckle-straps coöperative with the wire along courses forward of the slice-bar, nozzles directed upon the wire adjacent the initial point of contact of the intermediate deckles therewith, and conduits for forcing fluid under pressure through said nozzles.

2. The combination, with the endless wire apron, the outer pair of deckles and the slice-bar transversely arranged between the lower courses of the outer deckles, of a plurality of deckle-straps which are bodily transversely adjustable, and coöperative with the wire along courses forward of the slice-bar, nozzles which are transversely adjustable to correspond with the positions of said intermediate deckles, directed upon the wire adjacent the initial point of contact of the said intermediate deckles therewith, and conduits for forcing fluid under pressure through said nozzles.

3. In a paper-machine, the combination with the endless wire apron, the usual pair of side deckles, and the plurality of intermediately-arranged deckles transversely adjustable, of a transversely-arranged support adjacent the initial ends of the said intermediate deckles, a plurality of brackets individually transversely adjustable on said support, and a plurality of nozzles carried by said brackets directed upon the wire adjacent the initial point of contact of the intermediate deckles therewith.

4. In a paper-machine, the combination with an endless wire apron, the usual pair of outer deckles, and the plurality of intermediate deckles transversely adjustable, of the transversely-arranged shaft 31 supporting the series of adjustable brackets 38, the series of nozzles corresponding to the intermediate deckles, carried by said brackets, and directed upon the wire adjacent the initial point of contact of the intermediate deckles therewith, the common supply-pipe 34, and the series of flexible conduits between said pipe and the several nozzles.

5. The combination with the endless wire apron, the usual pair of outer deckles, and the plurality of intermediate deckles bodily transversely adjustable, of the transversely-arranged shaft 31 supporting the series of adjustable brackets 38 corresponding to the intermediate deckles, the series of nozzles carried by said brackets, the common supply-pipe 34, the series of flexible conduits between said pipe and the several nozzles, and the cocks 35 for opening and closing connection between the supply-pipe and the individual flexible conduits.



6. The combination, with the endless wire apron, the usual pair of outer deckles, a plurality of intermediate deckle-straps coöperative with the wire, and a transverse shaft, having pulleys for the intermediate deckles, of a series of nozzles for removing the pulp from the wire adjacent to the intermediate deckle-straps and near the initial point of contact thereof with said wire, fluid-supply conduits connected with said nozzles, and bracket-arms, on which said nozzles are individually mounted, which are supported on and radially adjustable relatively to the said deckle-pulley shaft.

7. The combination, with an endless wire apron, a pair of outer deckle-straps coöperative therewith; and one or more intermediate deckles laterally adjustable, and a suction-box having a foraminous cover: of sealing-sections for closing the holes in portions of the cover movable endwise in the box and also bodily movable against and away from the under side of the cover; and means operable exteriorly of the suction-box for both endwise adjusting the sealing sections and moving them from or against the cover.

8. The combination, with an endless wire apron, and deckle-straps which are bodily adjustable to occupy positions nearer or farther apart as desired; of a suction-box, having a foraminous cover; devices for sealing the holes in said cover, comprising a pair of outer end sections, and sections intermediate thereof which latter have inclined tops as described, are mounted for longitudinal movements, bodily vertical movements, and lifting movements, externally-accessible means for shifting said intermediate sections longitudinally in said box, externally-accessible means for tilting said sections, and externally-operable means for raising and lowering said intermediate sections.

9. The combination, with the endless wire apron; and a plurality of deckles one or more of which are bodily adjustable transversely of their lengths; of a suction-box having a foraminous cover; a device for sealing the holes in said cover, in sections; and a longitudinally-movable member and a yoke carried thereby for shifting said device longitudinally in said box.

10. The combination, with the endless wire apron and the deckles; of a suction-box, having a foraminous cover; a device for sealing the holes in said cover, in sections; and a cam for bringing said device into contact with said cover.

11. The combination, with the wire apron and the deckles, one or more of which are transversely adjustable, of a suction-box having a foraminous cover; a device for sealing the holes in said cover, in sections; and a member movable longitudinally in said box: a yoke loosely supported on said member, and for shifting said device longitudinally in said box; and means for bringing said device into contact with said cover.

12. The combination, with the wire apron and the deckles, one or more of which are transversely adjustable, of a suction-box, having a foraminous cover; and a device for sealing the holes in said cover, in sections; an oscillatory member for bringing said devices into contact with said cover; and a longitudinally-movable yoke movable longitudinally of said box, and for shifting said device.

13. The combination, with the wire apron and the deckles, one or more of which are transversely adjustable, of a suction-box, having a foraminous cover; a device for sealing the holes in said cover, in sections; a yoke for shifting said device longitudinally of said box; and an oscillatory member for forcing said device into contact with said cover.

14. The combination with the screen and the deckles of a suction-box, having a foraminous cover; a device for sealing the holes in said cover, in sections; and means for varying the sealing efficiency of said device at opposite sides thereof.

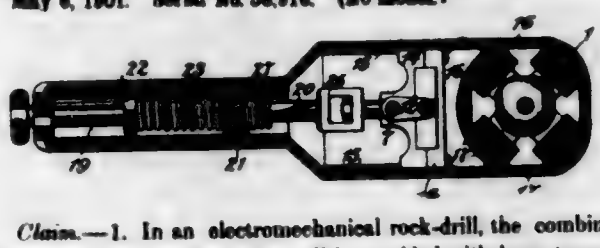
15. The combination, with the screen and the deckles one or more of which are transversely adjustable, of a suction-box, having a foraminous cover; a device for sealing the holes in said cover, in sections; a yoke for shifting said device, movable longitudinally of said box; and an arm engaging said device at a point remote from its point of support, and movable relatively to and independently of said yoke.

16. The combination, with the screen and the several deckles one or more of which are transversely adjustable, of a suction-box, having a foraminous cover; a device for sealing the holes in said cover, in sections; means for shifting said device longitudinally of said box; an arm engaging the said device at a point remote from its point of support; and a rotatable sleeve for operating said arm relatively to the yoke.

17. The combination, with the screen and the several deckles one or more of which are transversely adjustable, of a suction-box, having a foraminous cover; a device for sealing the holes in said cover, in sections; a yoke for shifting said device longitudinally of said box; an arm engaging said device at a point remote from its point of support; and a screw-threaded sleeve for moving said arm relatively to the yoke and for positioning said device relatively to the cover.

18. The combination with the screen and the several deckles of a suction-box, having a foraminous cover; a laterally-tiltable device for sealing the holes in said cover, in sections; and a rotatable member for operating said device.

690,687. ROCK-DRILL. ALVIN M. BALLOU, Denver, Colo. Filed May 6, 1901. Serial No. 58,916. (No model.)



Claim.—1. In an electromechanical rock-drill, the combination of a driving-wheel 6, having holes, a disk provided with loose tapered keys and with springs holding said keys in said holes, and a shaft, upon which said wheel is loose and upon which said disk is mounted with friction-rolls for permitting rotation in one direction and not in the other, a motor for driving said wheel, a crank on said shaft, and a plunger for holding a bit connected up with said crank against the resistance of the spring.

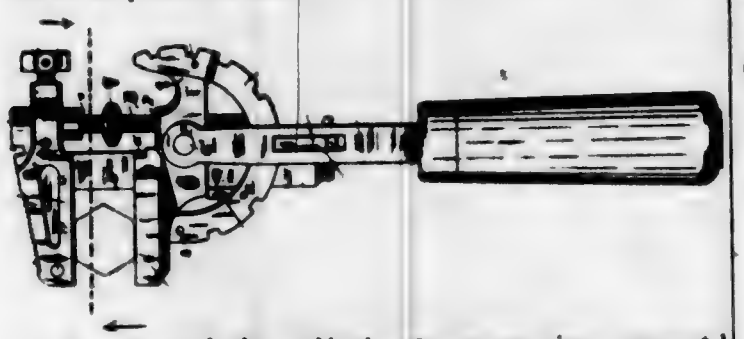
2. An electromechanical rock-drill, consisting of the combination of a driving-wheel 6, having holes, a disk provided with loose tapered keys and with springs holding said keys in said holes, a shaft, upon which said wheel is loose and upon which said disk is mounted with friction-rolls for permitting rotation in one direction and not in the other, a crank upon said shaft, a plunger for holding a bit, a cross-head movable to and fro and connecting said crank to said plunger, means for rotating said plunger during its longitudinal movement, a spring acting to drive out said plunger and adapted to be compressed by the turning of said crank, a link 25 connecting said cross-head to said plunger, and a spring 27 in front of said link to act as a cushion.

690,688. COMBINATION-WRENCH. CLARENCE J. BARNES, Liverpool, N. Y. Filed May 9, 1901. Serial No. 59,367. (No model.)

Claim.—1. In a wrench, the combination of a stationary jaw, a handle pivotally attached thereto and provided with means for locking the same at various angles to said jaw, a longitudinally-movable shank sustained on said jaw, an adjustable jaw fixed to said shank and formed wedge shape, a pair of integrally-formed interchangeable gripping-plates disposed divergent to each other and sustained on said adjustable jaw, and a screw for moving the aforesaid shank as and for the purpose set forth.

2. In a wrench, the combination of a stationary jaw, a segmental rack rigidly secured to said jaw, a handle pivotally attached to the jaw.

means on the handle to engage said rack to lock the handle at various angles to the jaw, a longitudinally-movable shank sustained on said jaw, an adjustable jaw fixed to said shank and formed wedge shape, a pair of integrally-formed interchangeable gripping-plates disposed divergent and sustained on said adjustable jaw, and a screw for moving said shank as and for the purpose set forth.



3. In a wrench, the combination of a stationary jaw, a segmental rack rigidly fastened to said jaw, a handle pivotally attached to said jaw and provided with a dog to engage said rack to lock the handle at various angles to the jaw, a longitudinally-movable shank sustained on said jaw, an adjustable jaw fixed to said shank and having its inner face diverging outwardly from the corresponding face of the stationary jaw, a pair of integrally-united gripping-plates disposed divergent and embracing the respective faces of the adjustable jaw, one of said plates formed with a smooth outer face and a serrated or toothed face, and the other plate formed vice versa, a pair of parallel arms pivoted to said plates at their junction and embracing the sides of said adjustable jaw and united by a yoke extending around the rear end of said latter jaw, a set-screw working in said yoke and bearing against said adjustable jaw, and a right-and-left screw engaging both jaws as and for the purpose set forth.

4. In a wrench, the combination of a stationary jaw, a segmental rack rigidly secured to said jaw, a handle pivotally attached to said jaw and provided with a dog to engage said rack to lock the handle at various angles to the jaw, a longitudinally-movable shank sustained on said stationary jaw, a screw to move said shank, an adjustable jaw fixed to said shank and formed with a head on its rear end, a pair of interchangeable gripping-plates integrally formed and disposed on the respective faces of said adjustable jaw, a pair of parallel arms embracing the sides of the latter jaw and pivotally connected to said gripping-plates and united by a yoke extending around the aforesaid head, a set-screw working in said yoke and bearing on the aforesaid head, and a right-and-left screw engaging both jaws as and for the purpose set forth.

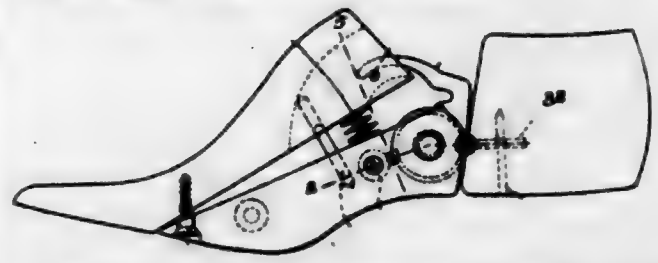
5. In the herein-described tool, the combination of a stationary jaw, a handle connected thereto, a longitudinally-movable shank sliding in said jaw, an adjustable jaw fixed to said shank, a screw for operating said shank to set the adjustable jaw, a pair of integrally-formed interchangeable gripping-plates on the adjustable jaw, a pair of parallel arms pivoted to the front ends of said gripping-plates and integrally united by a yoke extending around the rear end of adjustable jaw, and a set-screw passing through said yoke and engaging said jaw for the purpose set forth.

6. In a wrench, the combination of a stationary jaw, a handle pivotally attached thereto and provided with means for locking the same at various angles to said jaw, a longitudinally-movable shank sustained on said jaw, an adjustable jaw fixed to said shank, a right-and-left screw for moving said shank, a pair of integrally-united interchangeable gripping-plates disposed on the outer and inner faces respectively of said adjustable jaw, one plate formed with a smooth inner face and a serrated or toothed outer face, and the other plate formed vice versa, a pair of parallel arms embracing the sides of said adjustable jaw and pivoted to said gripping-plates, said arms being integrally connected by a yoke extending around the rear end of the latter jaw and each having a toothed surface corresponding to the toothed face of one of the gripping-plates, and a set-screw working in said yoke and bearing on the adjustable jaw as and for the purpose set forth.

7. In a wrench, the combination of a stationary jaw, formed on its rear end with an extension, a segmental rack composed of two like-disposed circular plates secured to said extension and outer face of said jaw, a handle pivotally attached to said jaw, a spring-pressed dog sliding on said handle to engage said rack to lock the handle at various angles to the jaw, a longitudinally-movable shank sustained on said stationary jaw, an adjustable jaw fixed to said shank and formed on its rear end with a head, a right-and-left screw engaging said head and extension, a pair of integrally-united interchangeable gripping-plates disposed on said adjustable jaw, a pair of parallel arms embracing the sides of the latter jaw and pivotally attached to said gripping-plates, said arms being integrally connected by a yoke extending around the aforesaid head, and a set-screw working in said yoke and bearing against said head as and for the purpose set forth.

8. In the herein-described tool, the combination with a stationary jaw and a handle connected thereto, of an adjustable jaw sustained on said stationary jaw, a screw for setting said adjustable jaw, supplemental jaws carried on said adjustable jaw, a pair of arms pivotally connected to the supplemental jaws and integrally united by a yoke extending around the back of the latter jaw, and a set-screw passing through said yoke and engaging the jaw substantially as set forth.

690,689. HINGED SPLIT FOLLOWER. CHARLES A. RATCHELDER, Brockton, Mass., assignor to Oliver A. Miller, Brockton, Mass. Filed Jan. 20, 1900. Serial No. 3,228. (No model.)



Claim.—1. A hinged follower, comprising a heel-section, a sectional distensible fore part hinged to said section, and means for contracting the fore part laterally and vertically when the heel-section is swung upward.

2. A hinged follower, comprising a heel part, a sectional distensible fore part hinged to said heel part, means for simultaneously contracting the fore part laterally and vertically as the heel-section is thrown upward, the said means being arranged to lock the parts in a closed position.

3. A hinged follower, comprising a heel part, a divided fore part, and means for contracting the fore part in a vertical direction as the heel is swung upward, having provision for locking the fore part when it is contracted.

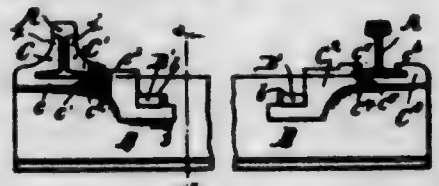
690,690. THRESHING-MACHINE. JOHN A. BEAN, Baden, Canada. Filed June 11, 1900. Renewed Oct. 2, 1901. Serial No. 77,394. (No model.)



Claim.—1. In a threshing-machine, the combination with the threshing-cylinder, its concave and an endless straw-carrier, extending rearwardly therefrom, of a rotary separator comprising a cylinder having teeth curving backward in relation to the direction of rotation, said cylinder being arranged across said carrier and adapted to pick up the straw therefrom and throw it over, and a vibratory beater arranged between said threshing and separator cylinders, for the purpose described.

2. In a threshing-machine, the combination with a threshing-cylinder, its concave and an endless straw-carrier extending rearwardly therefrom, of a series of rotary separators arranged above said carrier, each comprising a cylinder having teeth curving backward in relation to the direction of rotation, a cleaning comb or bar for each separator, and a vibratory beater arranged between the threshing-cylinder and the adjacent rotary separator, for the purpose described.

690,691. RAILWAY-TIE. JAMES P. BECKENBAUGH, Rochester, Pa., assignor of one-half to John A. Miller, Rochester, Pa. Filed May 14, 1901. Serial No. 60,511. (No model.)

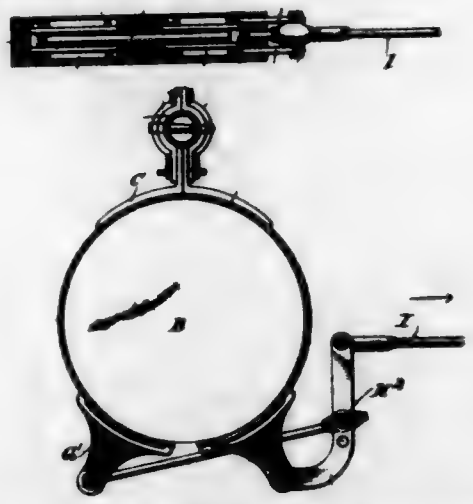


Claim.—1. The combination of a tie B having a shoe rigidly connected to it to engage the outer edge of a rail, said tie having a web portion provided with an opening b, a shoe provided with a slot to fit over said web portion and being movable thereon to engage the inner side of the rail, a wedge fitted in said opening and engaging said movable shoe to force it against the rail, and said movable shoe having fingers projecting below and engaging said wedge, substantially as set forth.

2. The combination of a tie B having a shoe rigidly connected to it to engage the outer side of the rail and said shoe having a beveled inner

edge below the rail, said tie having a web portion provided with an opening *b*, a shoe provided with a slot to fit over said web portion and being movable thereon to engage the inner side of the rail, a wedge fitting in said opening and engaging said movable shoe to force it against the rail, and said movable shoe being provided with a lip projecting under the rail and having a beveled edge to engage the beveled edge of the other shoe, and having also fingers projecting below and engaging the said wedge, substantially as set forth.

690,692. **BRAKE.** THOMAS G. BLATCH, Hazleton, Pa. Filed July 30, 1901. Serial No. 70,235. (No model.)



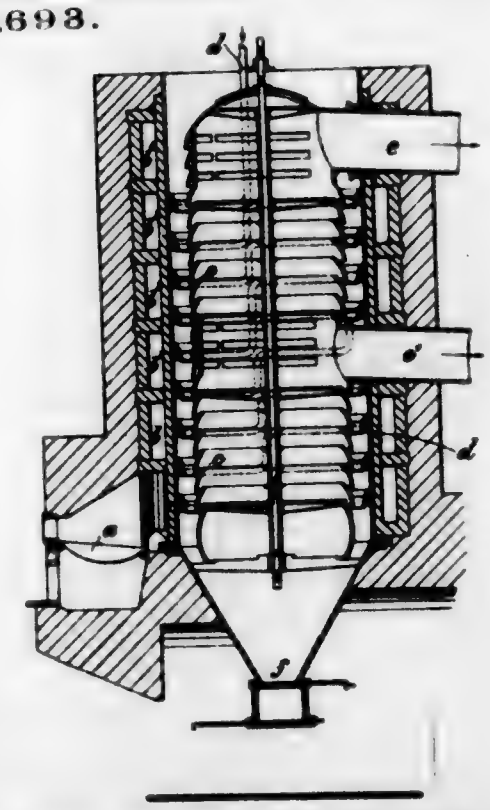
Claim.—1. A brake, comprising a brake-band suspended by its middle, provided with loose ends and bent into a substantially cylindrical form, radially-disposed brackets provided with arc-shaped bases and mounted upon said free ends, a lever provided with a bent portion pivoted directly upon the extreme outer end of one of said brackets, and a link pivoted upon the extreme outer end of the other bracket and upon the said lever, the arrangement being such that in applying the brake the link and the bent portion of said lever move toward each other and toward a common dead-center.

2. A brake, comprising a brake-band suspended by its middle, provided with loose ends and bent into a substantially cylindrical form, radially-disposed brackets provided with arc-shaped bases and mounted upon said free ends, a lever pivoted upon one of said brackets at a point substantially in line with the center of the base thereof and with the center of the brake-band, a link pivoted at one end to said lever and at the other end to the other bracket, at a point substantially in line with the center of the base of said bracket, and the geometrical center of said brake-band.

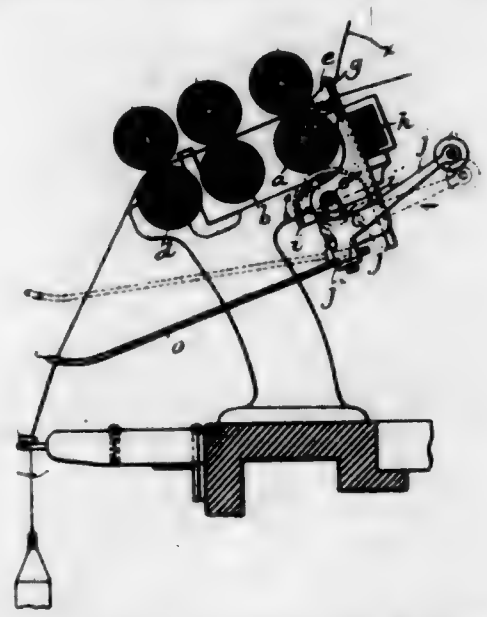
3. A brake, comprising a brake-band suspended by its middle, provided with loose ends and bent into a substantially cylindrical form, brackets comprising radially-disposed stems mounted centrally upon arc-shaped bases, said bases being secured to the ends of said brake-band, a lever provided with a bent arm, said arm being pivoted upon the extreme outer end of one of the stems, at a point radially in line with the center of one of said arc-shaped bases and the center of said brake-band, and a link pivoted at one end to said lever and at the other end to the extreme outer end of the other stem, at a point radially in line with the center of the arc-shaped base thereof and the geometrical center of said brake-band, the arrangement being such that said link and the bent portion of said lever move to and from the line constituting a mutual dead-center.

4. A brake-band suspended by its middle, provided with loose ends and bent into a substantially cylindrical form, radially-disposed brackets mounted upon said loose ends, a substantially L-shaped lever pivoted at one of its ends upon the extreme outer end of one of said brackets and also pivoted to said lever intermediate of the ends thereof, and a rod pivotally connected with the other end of the said lever for the purpose of actuating said brake, the arrangement being such that the outer ends of said brackets are drawn toward each other by a progressive leverage due to the tendency of the pivots of the lever to aline with the pivots of the said brackets.

690,693.



690,694. **SPINNING OR TWISTING FRAME.** LEON W. CAMPBELL, Woonsocket, R. I. Filed May 9, 1901. Serial No. 59,442. (No model.)



Claim.—1. In a spinning or twisting machine, the combination with the drawing-rolls of a roving-clamp having a fixed member and a movable member, a rotary clamp-closing device geared to said movable member, means for holding said clamp-closing device yieldingly in engagement with one of the drawing-rolls, and a detent controlled by a normal thread at the delivering side of the rolls to hold said closing device out of engagement with said roll.

2. In a spinning or twisting machine, the combination with the drawing-rolls, of a roving-clamp having a fixed member and a movable member, a rotary clamp-closing segment geared to the said movable member and having trunnions journaled in elongated bearings which permit the segment to move toward and from one of the drawing-rolls, a pivoted lever having a longer weighted arm and a shorter segment-supporting arm, the said lever normally holding the segment in engagement with said roll, and a finger attached to said lever and arranged to be held by a normal thread, at the delivering side of the rolls in position to hold the lever in its inoperative position.

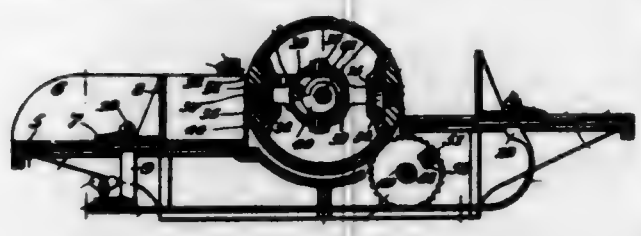
690,698. **PROCESS OF MANUFACTURING MINERAL WAX FROM BITUMINOUS BROWN COAL.** EDGAR VON BOYEN, Hamburg, Germany. Original application filed Apr. 30, 1900, Serial No. 14,997. Divided and this application filed Jan. 3, 1901. Serial No. 41,998. (No specimens.)

Claim.—The process hereinbefore described for producing mineral wax, which consists in distilling bituminous brown coal, in a dry condition in the presence of superheated steam and then distilling the extract thus obtained, in presence of superheated steam and under rarefaction, substantially as set forth.

690,695. **MAIL-MARKING MACHINE.** EDWARD CREHORE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Apr. 9, 1896. Serial No. 676,984. (No model.)

Claim.—1. In a mail-marking machine, the combination of an air-exhausting device, and a marking device for marking the letters or other pieces of mail-matter, said device having a wall surrounding its marking-surface and adapted to bear against the surface of the letter or other piece of mail-matter to be marked, said marking device having an air duct or

port arranged within said wall and communicating with the air-exhausting device, substantially as set forth.



2. In a mail-marking machine the combination of two tables or holders for the mail-matter, a carrier for carrying the mail-matter from one table or holder to the other, a marking device, and parts to hold the letters or other pieces of mail-matter on the respective tables or holders in erect position, said parts being connected together and arranged for movement in unison, substantially as set forth.

3. In a mail-marking machine, the combination of two tables or holders for the mail-matter, a carrier for carrying the mail-matter from one table or holder to the other, a marking device, and parts to hold the letters or other pieces of mail-matter on the respective tables or holders in erect position, said parts being adjustably connected together and being arranged for movement in unison, substantially as set forth.

4. In a mail-marking machine, the combination of two tables or holders for the mail-matter, a carrier for carrying the mail-matter from one table or holder to the other, a marking device, parts to hold the letters or other pieces of mail-matter on the respective tables or holders in erect position, said parts being connected together and arranged for movement in unison, and means for moving one of said parts toward the carrier with a gradually-decreasing pressure, substantially as set forth.

5. In a mail-marking machine, the combination of a segregating device having a recess surrounded by a wall, a marking device secured in said recess, and means for creating a partial vacuum in said recess, substantially as specified.

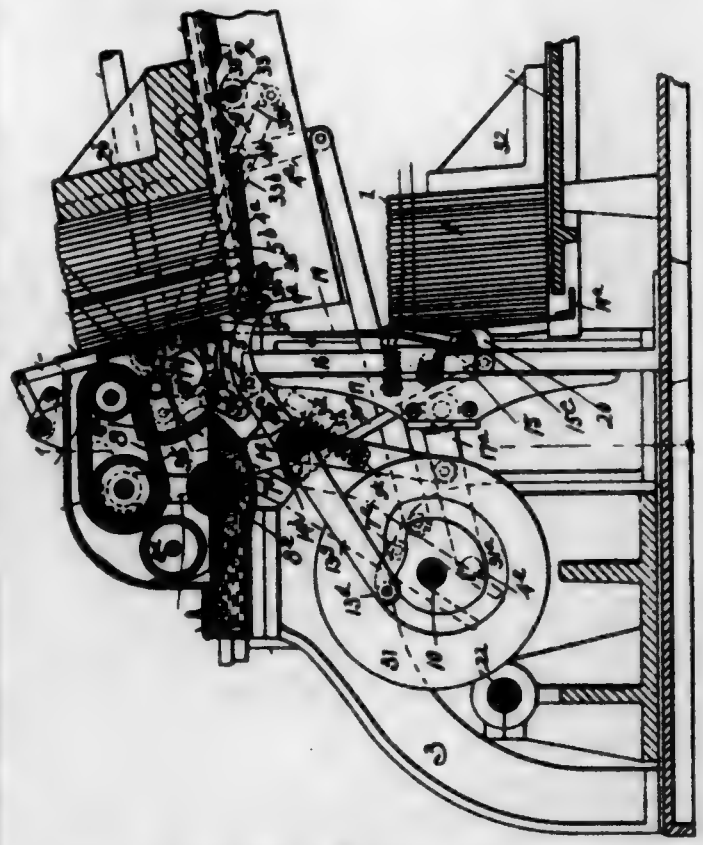
6. In a mail-marking machine, the combination of a frame, a drum mounted to turn thereon, means to support the mail-matter, a cam connected to the frame, two devices connected together and arranged to act alternately and in unison, respectively, to seize and release the letters or other pieces of mail-matter, said devices being actuated by said cam, and means to mark the letters, substantially as set forth.

7. In a mail-marking machine in combination, a table adapted to support a pack of unmarked letters, means for maintaining the letters on said table in a substantially vertical position resting upon their edges, a movable device having in its face a recess constituting a vacuum-chamber, a marking-plate secured in said recess, mechanism for feeding the pack of letters toward said movable device, mechanism for moving said device to periodically present said recess and marking-plate toward and close to the foremost letter in said unmarked pack, means for then creating and subsequently breaking a partial vacuum in said chamber whereby the foremost letter in the unmarked pack is moved by atmospheric pressure over the mouth of said recess and against said printing-plate, substantially as and for the purpose specified.

8. In a mail-marking machine, in combination, a table adapted to support a pack of unmarked letters, means for maintaining the letters on said table in a substantially vertical position resting upon their edges, a movable device having in its face a recess constituting a vacuum-chamber, a marking-plate secured in said recess, mechanism for moving said movable device to periodically present said recess and marking-plate toward and close to the formost letter in said unmarked pack, means for then creating and subsequently breaking a partial vacuum in said chamber, whereby the foremost letter in the unmarked pack is moved by atmospheric pressure against said printing-plate and over so as to close the mouth of said recess and be temporarily attached to and carried by said movable device until the partial vacuum in said chamber is broken, thereby marking said letter and segregating it from the unmarked pack, substantially as and for the purpose specified.

9. In a mail-marking machine, in combination, a table adapted to support a pack of unmarked letters, means for holding said letters in a substantially vertical position resting upon their edges, a movable device having in its face a recess constituting a vacuum-chamber, a marking-plate in said recess, mechanism for moving said movable device to periodically present the mouth of said recess and the marking-plate contained therein toward and close to the foremost letter in said unmarked pack, means for then creating and subsequently breaking a partial vacuum in said recess whereby said foremost letter is moved by external atmospheric pressure against the marginal edges of said recess and against the printing-plate in said recess, and mechanism for inking said marking-plate in the intervals between its successive presentations to the pack of unmarked letters, substantially as and for the purpose specified.

690,696. MAIL-MARKING MACHINE. EDWARD CHESMIRE, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Feb. 5, 1900. Serial No. 4,059. (No model.)



Claim.—1. In a mail-marking machine, the combination of a table for supporting a pack of unmarked letters, means for clamping the upper part of the unmarked pack, a marking device for marking the foremost letter in the pack, an independent device which takes hold of said foremost letter at its lower edge and bends said edge away from the unmarked pack, and a segregating device which engages with the bent lower edge of said letter, substantially as specified.

2. In a mail-marking machine the combination of a table for supporting a pack of unmarked letters, means for clamping the upper part of said pack, and means for marking the foremost letter in said pack, with a plurality of needles, means for moving said needles, first, upward to cause them to penetrate the foremost letter in the pack, then from the pack to bend said letter, then down whereby they are withdrawn from the letter and finally back to the original position, and means for maintaining the separation of said letter from the pack effected by said needles, substantially as specified.

3. In a mail-marking machine, the combination of a device for bending the foremost letter in the unmarked pack which consists of a rocking frame having arms, and a rocking support upon which said frame is mounted, with blocks pivoted to said arms and having beveled upper ends, needles secured to said blocks opposite the beveled ends thereof, and means for rocking said frame and its support, substantially as specified.

4. In a mail-marking machine a movable arm and block pivoted thereto and having a beveled upper end, a spring which opposes the movement of said block in one direction, and a needle secured to said block in the described relation to the beveled side thereof, and means for moving said arm, substantially as specified.

5. In a mail-marking machine, the combination of a swinging frame, a marking-block pivotally secured thereto, and having a recess in its front side, a marking-plate secured in said recess, means for periodically creating a partial vacuum in said recess, mechanism for swinging said frame, an inking device, means for turning the block upon its supports in said frame whereby the printing-surface is presented automatically to the inking device, and to the foremost letter in the pack, substantially as specified.

6. In a mail-marking machine, the combination of a swinging frame, its operating mechanism, and an inking device, with a marking-block having a recess in its front face and having trunnions by which it is pivoted to said frame, one of said trunnions being tubular and communicating with said recess, a printing-plate secured in said recess, an air-pump, and a flexible connection between the air-pump and the tubular trunnion with means for turning the block upon its trunnion while its supporting-frame is swinging, whereby the printing-face is presented alternately to the inking device and to the letter to be marked, substantially as specified.

7. In a mail-marking machine, the combination of a swinging frame and its operating mechanism, a marking-block pivotally connected with said swinging frame and having a rearwardly-extended arm, a recess in its front face, and a marking-plate secured in said recess, with means for

periodically producing a partial vacuum in said recess, a fixed track with which said arm engages, means for holding said arm against said track, and an inking device, substantially as specified.

8. In a mail-marking machine, the combination of a swinging frame having two depending arms, a pneumatic marking-block pivotally connected with said arms, an arm secured to said marking-block, a fixed track with which said arm is adapted to engage, a link pivotally connected with said arm, and a spring which acts constantly on said link whereby the arm is against said track, substantially as specified.

9. In a mail-marking machine the combination of a table for supporting a pack of unmarked letters, means for marking the foremost letter in the pack, means for bending the lower edge of this letter away from the unmarked pack, and a table for receiving the marked letters, with a vertically-movable head carrying fixed and movable fingers, a rock-shaft to which all of said movable fingers are secured, a spring or springs for closing said fingers, an arm on the rock-shaft, a rocking block adapted to engage with said arm to open said fingers and means for operating said block, substantially as specified.

10. In a mail-marking machine the combination of a vertically-movable head having a plurality of fixed fingers, mechanism for moving said head up and down, a rock-shaft mounted in said head, fingers carried thereby, a spring or springs acting to close said fingers against the fixed fingers, an arm secured to said rock-shaft, a rocking block engaging with said arm, and means for operating said block, substantially as specified.

11. In a mail-marking machine the combination of a table for supporting a pack of unmarked letters, means for marking the foremost letter in the pack and for bending its lower edge away from the pack, a vertically-movable device adapted to grasp the bent letter and segregate it from the unmarked pack, a table upon which said letter is delivered, and mechanism for moving the marked letters along said table, substantially as specified.

12. In a mail-marking machine, the combination of mechanism for marking and segregating letters from an unmarked pack, a table upon which said letters are delivered, a spring-frame, a cam which may press said frame against the marked letters, and a pivoted link connecting said cam with the segregating mechanism, substantially as specified.

13. In a mail-marking machine the combination of a table for supporting a pack of unmarked letters, means for clamping the upper part of said pack, mechanism for marking the foremost letter and for bending its lower edge away from the pack, with a plurality of pins adapted to be moved up and down through the table into engagement with the lower edge of the unmarked letters thereon behind the foremost letter, substantially as specified.

14. In a mail-marking machine, the combination of a table for supporting an unmarked pack of letters, a marking device, and movable needles adapted to penetrate the lower edge of the foremost letter in the unmarked pack and to bend said letter to effect its partial segregation from the pack, and means to force the foremost letter down upon the supporting-table, substantially as specified.

15. In a mail-marking machine, a support for a pack of unmarked letters, a marking device, and movable needles adapted to penetrate the edge of the foremost letter and to bend said letter to effect its partial segregation from the pack, a plate having spurs which has a reciprocating movement in front of the foremost letter, and means for causing it to engage with said letter in its movement toward said support, substantially as specified.

16. In a mail-marking machine, means for segregating a marked letter from the unmarked pack, and automatic means for arresting the marking operation, said automatic arrest being operated by a failure in the segregating mechanism, substantially as specified.

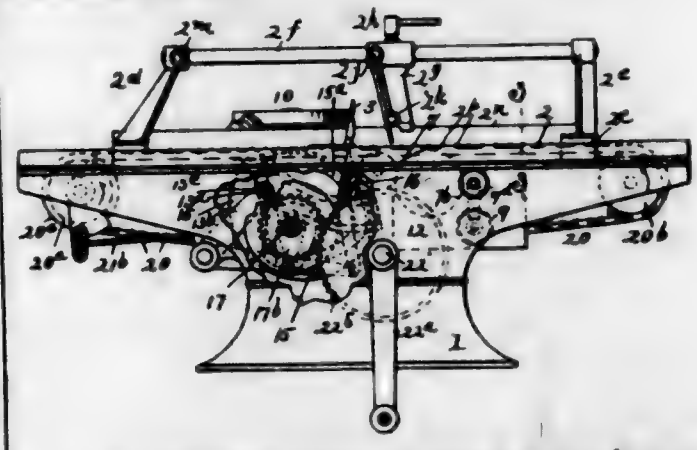
17. In a mail-marking machine, a table supporting an unmarked pack of letters, a rock-shaft, means connected therewith for arresting the feed movement of said pack, a crank on said rock-shaft, a rod pivoted thereto, means allowing movement of said rod in one direction but locking it against return, substantially as specified.

18. In a mail-marking machine, a feed-table, a rock-shaft journaled therein, fingers carried by said rock-shaft, a crank carried by said rock-shaft, a rod pivoted on said crank, a block rigidly connected to said rod, said block having notches the lower of which normally grasps said table, whereby a thrust of said rod brings the said upper notch into contact with said table and locks said rod against return, substantially as specified.

19. In a mail-marking machine, a feed-table, a segregating-arm, a rock-shaft, fingers carried thereby, contiguous to said segregating-arm, whereby a letter caught between said arm and said fingers moves said rock-shaft, and means for locking said rock-shaft against return, substantially as specified.

690,697. MAIL-MARKING MACHINE. EDWARD CHESHIRE, Milwaukee, Wis., assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Mar. 31, 1900. Serial No. 10,914. (No model.)

Claim.—1. In a mail-marking machine, the combination of a support whereon a pack of unmarked letters may stand on edge, means for clamping together the upper ends of the letters in said pack, a marking device for marking the foremost letter in said pack near its lower edge, and means for bending the lower edge of said letter away from the next letter in the unmarked pack whereby to effect a partial segregation of the marked letter, and means for rendering said segregation permanent, substantially as specified.



2. In a mail-marking machine, in combination, means for supporting on edge a pack of unmarked letters and for moving them forward to properly present the foremost letter in the pack to the action of the marking and segregating instrumentalities, means for clamping together the upper ends of the letters in said pack, a marking device, and means for bending the lower edge of the foremost letter away from the unmarked pack without withdrawing the said upper edge from the grasp of said clamping device, substantially as specified.

3. In a mail-marking machine, a support whereby a pack of unmarked letters may stand on edge, combined with means for marking each individual letter without destroying the integrity of said pack, substantially as described.

4. In a mail-marking machine, a combined segregating and marking device consisting of a plate having a recess in its face, a printing-plate in said recess, and a movable arm to which said recessed plate is secured, combined with a vacuum device, a flexible connection between said vacuum device and said recess, means for presenting mail-matter to the action of said segregating and marking device, and means for moving said device, substantially as specified.

5. In a mail-marking machine, the combination of a carriage movable longitudinally and having a longitudinal opening through its base, and means for clamping the upper end of a pack of letters resting upon said base, with a marking device movable up and down through the slot in said carriage toward and from the pack of unmarked letters, and means for segregating the marked letters one by one from the unmarked pack, substantially as specified.

6. In a mail-marking machine, the combination of a movable carriage for supporting letters, a marking device for marking the foremost letter in the unmarked pack, and means for moving the lower edges of the letters one by one as they are marked along said carriage whereby to segregate the marked from the unmarked letters without removing them from said carriage, substantially as specified.

7. In a mail-marking machine, in combination, means for supporting a pack of unmarked letters and for presenting the foremost letter in said pack to the action of the marking device, an inking device, a marking device, mechanism for moving it toward and from the foremost letter in said pack and into contact with said inking device, and means for bending the lower edge of each marked letter away from the unmarked pack to effect its partial segregation therefrom, substantially as specified.

8. The combination of a moving carriage, means for holding a pack of letters thereon for presentation to the marking device, and an inking device below said table, with a combined segregating and marking device, and mechanism for moving the same toward the foremost letter in the unmarked pack whereby the same is seized and marked, then away from said pack whereby said letter is segregated therefrom, then below the table and into contact with the inking device and then up between the segregated letter and the unmarked pack whereby to repeat said movements, substantially as specified.

9. In a mail-marking machine, the combination of a moving carriage adapted to hold a pack of letters for presentation to the marking and segregating device, an inking device below the carriage, with a combined segregating and marking device consisting of a plate with a recess in its face and a marking device secured in said recess, a vacuum device, and a flexible connection between it and the recess in the marking and segregating device, and mechanism for moving said segregating and marking device from the inking device up through the carriage to a position in front of the unmarked pack, then toward the foremost letter in said pack,

then away from said pack, then down below the table, and then into contact with the inking device, substantially as specified.

10. In a mail-marking machine, the combination of a moving carriage for holding a pack of unmarked letters, means for clamping together the upper ends of the letters in said pack, a marking device and means for moving the lower ends of the marked letters along the carriage and away from the pack of unmarked letters, with a separating device which is movable into a position in front of the unmarked pack and between it and the segregated letters (whereby to preserve the segregation) and then below the unmarked pack to permit the segregation of another letter, substantially as specified.

11. In a mail-marking machine, the combination of a carriage having an adjustable back-rest for a pack of letters resting upon edge upon said carriage, a fixed clamping-finger for coöperation with the upper end of said back-rest to clamp the upper end of said pack of letters, with a marking device, and means adapted to seize the foremost letter in said pack and to move its lower edge away from the unmarked pack without removing the upper edge of said letter from the grasp of said clamping members, substantially as specified.

12. In a mail-marking machine, the combination of a carriage having an adjustable back-rest for a pack of letters resting upon edge upon said carriage and a fixed clamping-finger for coöperation with the upper end of said back-rest to clamp the upper end of said pack of letters, with a combined segregating and marking device adapted to seize the lower part of the foremost letter in the unmarked pack and to mark the same, and to move its lower edge away from the unmarked pack, and means for making and breaking a vacuum in said segregating and marking device to seize and release said letters, substantially as specified.

13. In a mail-marking machine, the combination of a moving carriage for holding a pack of unmarked letters, and a clamping device for the upper ends of said letters, with a combined segregating and marking device adapted to seize the letters singly and to mark them and to bend them so as to carry their lower ends away from the pack of unmarked letters, means for preserving the segregation thus effected, means for making and breaking a partial vacuum within said device to cause it to seize and release the letters, and mechanism for moving said device, substantially as specified.

14. In a mail-marking machine, a moving carriage for holding a pack of letters, a clamping device for the upper ends of said letters, a combined segregating and marking device adapted to seize the letters singly and to mark them and to bend their lower ends away from the pack, and means for moving said segregating and marking device, after it has thus segregated a letter, below the letter so segregated, and then up between it and the foremost letter in the unmarked pack, then toward the last-named letter whereby it may repeat said operations, and a separator device which moves into a position in between the unmarked pack and the segregated letters during the time the letter is being segregated, and then moves below such position as the combined segregating and marking device moves into that position preparatory to repeating its described movements, substantially as specified.

15. In a mail-marking machine, a movable carriage for holding the pack of letters, the clamping device for the upper ends of said letters, a combined segregating and marking device adapted to seize upon the letters singly and mark them, mechanism for moving said device toward the foremost letter in the unmarked pack whereby said letter may be seized, and then away from said pack as upon an axis substantially coincident with the upper edge of said plate, whereby the letter so seized is bent at its lower edge away from the unmarked pack, substantially as specified.

16. In a mail-marking machine, a carriage having projections on its upper surface, a device for clamping the upper ends of a pack of letters resting on edge on said surface, combined with a marking device, and means for bending the lower edge of the marked letter away from the unmarked pack, and means for lifting said letter above said projections, substantially as specified.

17. The combination of a table having projections on its top surface, means for holding on said table a pack of letters for presentation to a marking and segregating device, combined with said marking and segregating device which is adapted to mark the foremost letter in the unmarked pack and to move its lower end away from said pack, and vertically-movable separators having rearwardly-projecting fingers which are adapted to engage with the foremost letter in the unmarked pack and to lift it above the projections on said table, substantially as specified.

18. In a mail-marking machine, a carriage having projections on its upper surface, a device for clamping the upper ends of a pack of letters resting on edge on said surface, combined with a combined segregating and marking device adapted to seize the foremost letter in the unmarked pack and to mark the same and to move the lower end of said letter away from the unmarked pack, and means for lifting said letter, before it is seized by said device, above said projections, and fixed plates which extend above the projections on said table and upon which the letter is deposited when released by said segregating and marking device, substantially as specified.

19. In a mail-marking machine, a carriage having projections on its upper surface, a device for clamping the upper ends of a pack of letters resting on edge on said carriage, combined with a combined segregating and marking device adapted to seize the foremost letter in the unmarked pack and to mark the same and to move the lower end of said letter away from the unmarked pack, and means for lifting said letter before it is seized by said device above said projections, and separators movable up between the letter so segregated and the unmarked pack whereby to preserve the segregation and then down below the path of the lower edge of the letters whereby another letter may be segregated, substantially as specified.

20. A marking device consisting of a plate having a recess in its front face, and a stem containing a port which communicates with said recess, a marking-plate secured in said recess, and means connected with said port for producing a vacuum therein, substantially as specified.

21. In a mail-marking machine, a marking device consisting of a plate having a recess in the lower end of its front face, and a stem in which is formed a port which communicates with said recess, a tube connected with said stem and projecting rearwardly therefrom, a printing-plate secured in said recess, a vacuum device, a flexible connection between the same and said tube, an arm to which said stem is attached, and mechanism for operating said arm, substantially as specified.

22. A marking device, consisting of the following parts in combination, a plate having a recess in its face, lugs in said recess, and a port communicating with said recess, a printing-plate secured to said lugs and having slots and rearwardly-projecting resilient flanges along the edges of said slots, a removable type held in said slots by said flanges, substantially as specified.

23. A marking device consisting of a plate having a recess in its front face, and a printing-plate secured therein, a vacuum device and a flexible connection between said device and the recess in said plate, combined with a plate movable lengthwise of the machine, an arm to which the marking device is secured, which arm is mounted on the plate referred to and is movable thereon in a direction transverse to its movement, and mechanism for simultaneously moving said plate and arm, substantially as specified.

24. A marking device consisting of a plate having a recess in its front face, and a printing-plate secured therein, a vacuum device, and a flexible connection between said device and the recess in said plate, a plate movable lengthwise of the machine, an arm to which the combined marking device is secured, which arm is mounted on the plate referred to and is movable in a direction transverse to its movement, and two rotating cam-grooves adapted to independently move said arm and plate, substantially as specified.

25. A marking-plate having a recess in its front face and a printing-plate secured in said recess, a vacuum device, a flexible connection between the same and said recess, combined with a plate movable in an arc-shaped path having a guide-arm which lies in a direction substantially transverse to its path of movement, an arm movably mounted upon said guide-arm and secured to the marking device, mechanism for independently moving said plate and arm, a carriage movable transversely with respect to the vertical movement of said device, and means for holding a pack of letters thereon for presentation to the action of said marking device, substantially as specified.

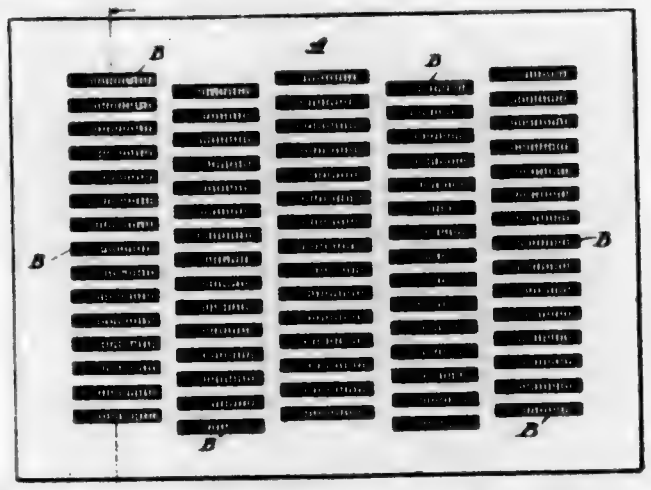
26. In a mail-marking machine, the combination of the marking device 3 having the stem and a port through said stem to the recess in said marking device, and an operating-arm 6 to which said stem is secured; a vacuum device, and a flexible connection between it and said port, with the plate 12 having a curved groove, a curved plate 12^a movable therein having the arm 12^d which supports and guides the arm 6, and the grooved arm 12^b, a slide-block 12^c in the groove, a rocking sleeve having two arms 13^a 13^b of which the former is pivotally connected with said slide-block, a rotating disk having two cam-grooves and pins projecting respectively from the arms 13^b and 6 into said grooves, substantially as specified.

27. In a mail-marking machine, the combination of a vacuum-pump having an intake-port a short distance below its head, and a relief-port at a greater distance from said head, a piston movable past both ports, and its operating mechanism, with a pneumatic marking device consisting of a plate having a recess in its face, and a printing-plate in said recess, a flexible connection between said recess and the said intake-port, a carriage for supporting a pack of letters for presentation to said marking device, and mechanism for moving said device, substantially as specified.

690,698. REGISTER TOP PLATE. DWIGHT G. CLARK, Plainville, Conn. Filed July 17, 1901. Serial No. 68,584. (No model.)

Claim.—1. A top plate for registers, ventilators and the like, said plate comprising, a main body the central portion of the same being per-

forated, that portion of the metal between the opposite edges of each perforation being depressed and formed into a span.



2. A top plate for registers, ventilators and the like, said plate comprising, a main body, a perforation therein, a span corresponding substantially in outline to said opening, and connecting opposite ends of said opening, said span being located below the lower face of said body.

3. A top plate for registers, ventilators and the like, said plate comprising, a main body portion, a perforation therein, a span extending from one end of said perforation to the other, the said spanning portion being folded so as to bring the opposite edges thereof toward each other.

690,699. LUGGAGE-RACK. HOBART CLARK, West New Brighton, N. Y. Filed May 29, 1901. Serial No. 62,330. (No model.)



Claim.—1. A luggage-rack comprising a body or basket generally yoke-shaped in cross-section and pivoted at either end thereof in such a manner to be normally held or supported by gravity, with its main portion downwardly and its mouth upwardly directed, and adapted to be drawn into receiving or discharging position and to return to its normal position with its mouth upwardly directed when released.

2. A luggage-rack comprising a body adapted to receive the goods and pivotally supported forwardly of its center of gravity, whereby its mouth is normally directed upwardly and may be drawn forwardly and downwardly to receive or discharge the contents therefrom.

3. A luggage-rack comprising a body adapted to receive the goods and pivotally supported forwardly of its center of gravity, whereby its mouth is normally directed upwardly and may be drawn forwardly and downwardly to receive or discharge the contents therefrom, and means for limiting the upward and downward movement of the said body.

4. A luggage-rack comprising brackets, a rack-body generally yoke-shaped and pivoted through its forward portion to said brackets and normally retracted by its weight and the weight of the luggage, and adapted to be drawn into receiving or discharging position.

5. A luggage-rack comprising brackets, a rack-body generally yoke-shaped and pivoted through its forward portion in said brackets and normally retracted by its weight and the weight of the luggage, and adapted to be drawn into receiving or discharging position, the said brackets being provided with vertically-arranged segmental guides formed with corresponding slots, and the rack-body being provided with studs working in the said slots whereby to limit the forward tilting and the normal downward movement of the rack-body.

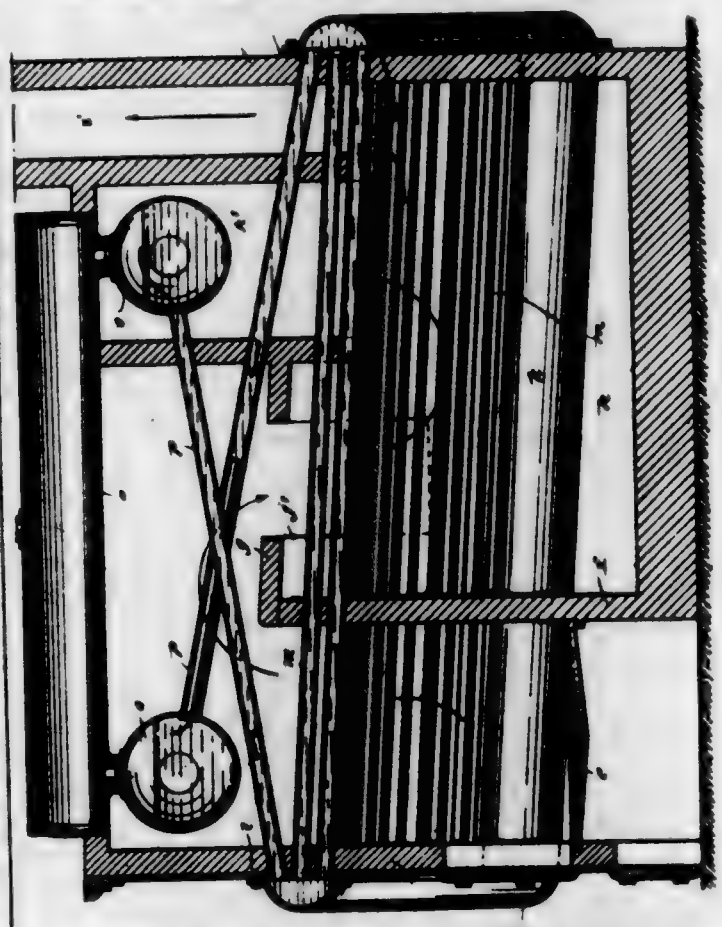
6. A luggage-rack comprising end brackets or supports, a plurality of yokes formed with forwardly-extended ends, cross-bars connecting the yokes to form an open rack-body, trunnions secured to the outside yokes in the forward ends thereof and pivoted in the forward ends of the brackets, vertically-arranged segmental guides formed upon the said brackets and provided with slots therein, and studs mounted upon the outside yokes of the rack-body rearwardly of the trunnions and working in the said slots to limit the forward tilting and the normal downward motion of the said rack-body.

690,700. COMBINATION ILLUMINATING AND HEATING BURNER. VOLNEY K. COFFILL, Brooklyn, N. Y. Filed July 20, 1901. Serial No. 69,058. (No model.)



Claim.—In a Bunsen burner, the combination with a tube provided with a burner-tip, of a slidable and turnable tube mounted on the first-named tube and provided with a longitudinal slot and a plurality of lateral slots communicating therewith, said first-named tube being also provided with a lug or pin adapted to move in said slots and said last-named tube being also provided with a lever pivotally connected with the lower end thereof and one end of which is adapted to bear on said lug or pin when said lug or pin is in one of the lateral slots or in the longitudinal slot opposite said lateral slot, substantially as shown and described.

690,701. BOILER. CORNELIUS J. CROWE, Youngstown, Ohio. Filed Aug. 31, 1901. Serial No. 73,921. (No model.)



Claim.—1. In a steam-boiler, the combination of a number of water-tubes arranged in arched form over and around the fire-box and extending down into the vicinity of the grate at the sides thereof, the arched tube-sheet securing said tubes in place, the arch-shaped heads of oval cross-sectional form fastened to the tube-sheets to form the water-passages with which said tubes communicate, and the mud-drums communicating with said water-passages and extending longitudinally along each side of the boiler substantially parallel with and the full length of the water-tubes.

2. A boiler having a fire-box, a number of water-tubes arranged in arc-shaped form over the fire-box to surround the top and sides thereof, means forming arc-shaped water-passages with which the ends of the tubes communicate, and a mud-drum extending longitudinally along each side of the fire-box essentially parallel with the water-tubes and communicating with said water-passages.

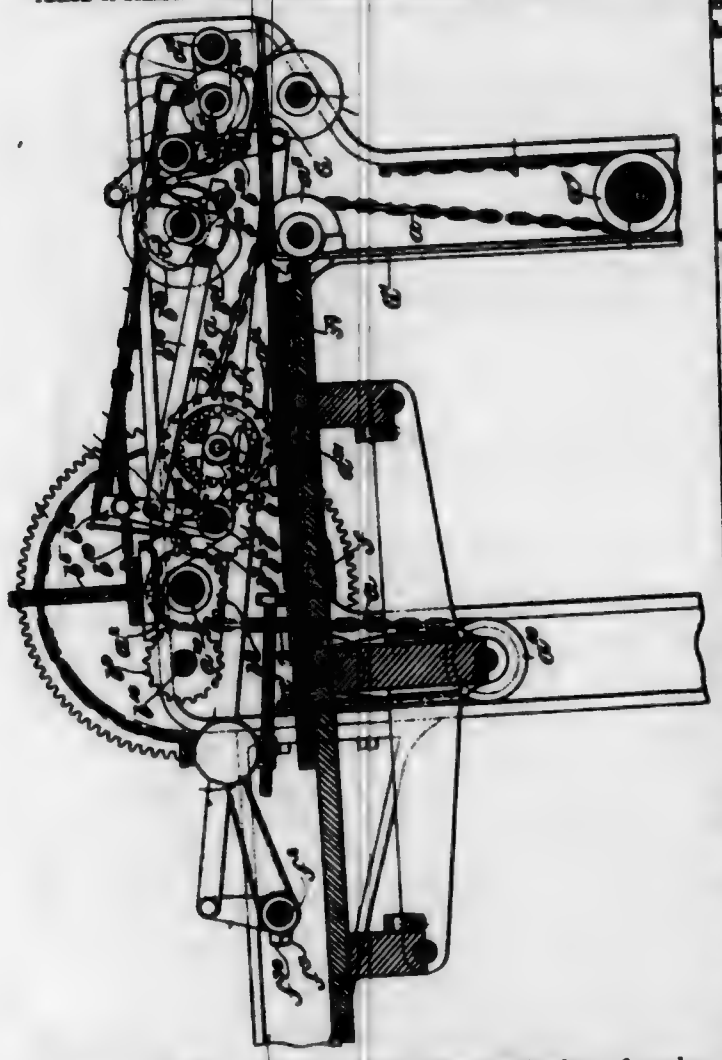
3. A boiler having a fire-box, a number of water-tubes arranged in arc-shaped form over the fire-box to surround the top and sides thereof, means forming arc-shaped water-passages with which the ends of the tubes communicate, a mud-drum extending longitudinally along each side of the fire-box essentially parallel with the water-tubes and communicating with said water-passages, transverse drums located above the water-tubes, and tubes passing from the said arc-shaped water-passages to the said transverse drums.

4. A boiler having a fire-box, a number of water-tubes arranged in arc-shaped form over the fire-box to surround the top and sides thereof, means forming arc-shaped water-passages with which the ends of the tubes communicate, a mud-drum extending longitudinally along each side of the fire-box essentially parallel with the water-tubes and communicating with said water-passages, transverse drums located above the water-tubes, tubes passing from the said arc-shaped water-passages to the said transverse drums, and a steam-dome extending longitudinally of the boiler and communicating at its ends with said transverse drums.

5. A boiler having a casing comprising opposite walls, water-tubes extending through the casing from one of said walls to the other, a tube-sheet lying against the outer surface of each wall, through which tube-sheets all of said tubes are passed, and an outwardly-bulged head fastened over each tube-sheet to form on each of said opposite walls of the casing a water-passage with which the tubes communicate.

6. A boiler having means for forming water-passages, water-tubes extending between said passages, drums located above the tubes respectively adjacent to the passages, and additional tubes connecting the drums with the water-passages, the said additional tubes extending alternately across each other to connect together in pairs the distant drums and water-passages.

690,702. **FEEDING-MACHINE.** FRANK L. CROSS, Mystic, Conn., assignor to American Paper Feeder Company, Boston, Mass., a Corporation of Maine. Filed Oct. 22, 1900. Serial No. 33,863. (No model.)



Claim.—1. The combination with feeding mechanism, of mechanism for arresting the action of the same comprising, a driver and a pawl which is engaged with the driver by the action of the sheet.

2. The combination with feeding mechanism, of mechanism for controlling the same, a driver for operating said controlling mechanism and a pawl controlled by the article fed for connecting said controlling mechanism and driver.

3. The combination with feeding mechanism, of mechanism for disengaging said feeding mechanism and the sheets, a driver for operating said disengaging mechanism, and a sheet-controlled pawl for connecting said driver and disengaging mechanism.

4. The combination with a feeding device, of mechanism for raising said device from the sheets, a driver for operating said raising mechanism, and a pawl carried by said raising mechanism and engaged with said driver by the action of the sheet.

5. The combination with a feeding device, of mechanism for arresting the action of the same, a driver for operating said arresting mechanism, a pawl for connecting said driver and arresting mechanism engaged with said driver by the action of the sheet, and mechanism for resetting the arresting mechanism and pawl.

6. The combination with a feeding device, of mechanism for arresting the action of the same, a driver for operating said arresting mechanism, a pawl for connecting said driver and arresting mechanism engaged with said driver by action of the sheet, mechanism for resetting the arresting mechanism and pawl, and mechanism for throwing the feeding device into action.

7. The combination with a feeding device, of mechanism for arresting the action of the same, a driver for operating said arresting mechanism, a pawl for connecting said driver and arresting mechanism engaged with said driver by the action of the sheets, mechanism for holding said feeding device out of action and returning the same into action, and mechanism for resetting the arresting mechanism and pawl.

8. The combination with a feeding device, of an oscillating block connected therewith, a rotating disk having teeth, a pawl carried by said block and normally out of the path of said teeth, and a trip for causing the engagement of said pawl with said teeth.

9. The combination of a rotary disk having teeth, a mechanism operated by said disk, a pawl carried by said mechanism and normally out of the path of said teeth, and a trip for causing said pawl to engage said teeth and connect said disk and mechanism.

10. The combination of a rotary disk having teeth, an oscillating block, a pawl mounted on said block and normally out of the path of said disk, and means for engaging said pawl with said teeth.

11. The combination with a feeding device, of an oscillating block connected therewith, a rotary disk having teeth, a pawl carried by said block and engaged with said teeth by the action of the sheet.

12. The combination with a feeding device, of an oscillating block connected therewith, a rotary disk having teeth, a pawl carried by said block and engaged with said teeth by the action of the sheet, and means for returning the block and pawl to position to be again connected with said disk.

13. The combination with a feeding device, of an oscillating block connected therewith, a rotary disk having teeth, a pawl carried by said block, and a trip-lever for holding said pawl out of engagement with said teeth.

14. The combination with a feeding device, of an oscillating block connected therewith, a rotary disk having teeth, a pawl carried by said block and engaged with said teeth by the action of the sheet, means for returning said block, and a moving abutment engaged by said pawl on the return of said block.

15. The combination with a feeding device, of an oscillating block connected therewith, a rotary disk having teeth, a pawl carried by said block and engaged with said teeth by the action of the sheet, a plate connected with said block, and a crank-roll engaging said plate to return said block.

16. The combination with a combing-roll, of an arm connected to lift the same, a rod pivoted to said arm, an oscillating arm pivoted to said rod, a pawl connected with said oscillating arm, a rotary disk having teeth, and a trip in the path of the sheet for causing the engagement of said pawl with said teeth.

17. The combination with devices for acting on a pile of sheets, of a table for carrying the pile of sheets, a chain having a loop in which said table is supported, a sprocket-wheel over which said chain passes, a counterweight acting on said chain, a ratchet-wheel connected with said sprocket-wheel, and a stop-pawl engaging said ratchet to prevent the descent of the table.

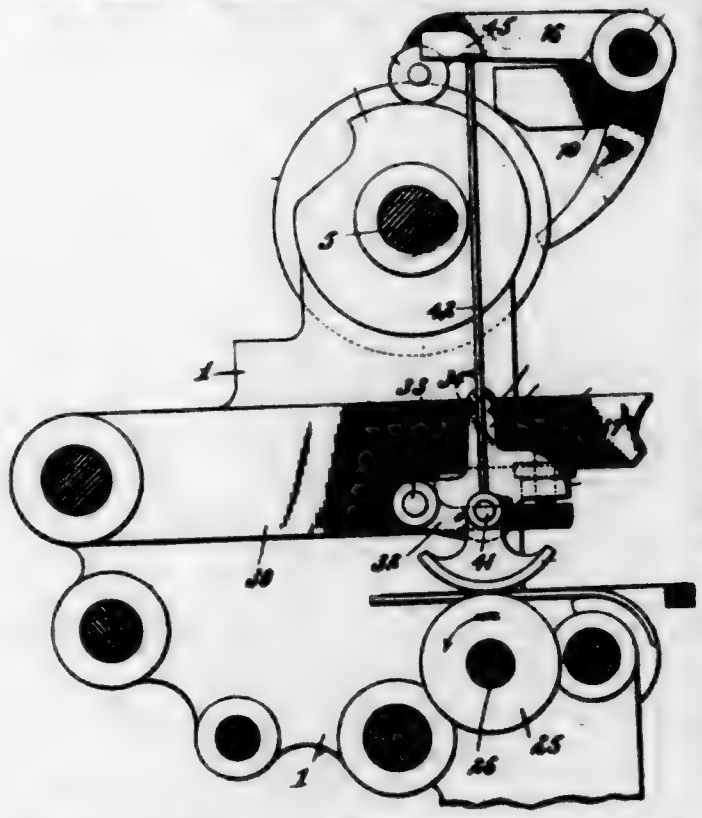
18. The combination with devices for acting on a pile of sheets, of a table for carrying the pile, a chain having a loop in which said table is supported, a counterweight acting on said chain, a sprocket-wheel over which said chain passes, a shaft connected with said sprocket-wheel to operate the same, a ratchet-wheel secured to said shaft, a stop-pawl engaging said ratchet-wheel, means whereby said shaft may be manually operated, and a pawl controlled by the level of the top of the pile on the table for operating said ratchet-wheel.

19. The combination with devices for operating on a pile of sheets, of a table for carrying said pile, a ratchet-wheel connected to raise said

table when rotated, a reciprocating pawl, a guard reciprocating therewith for preventing the engagement of the pawl with said ratchet-wheel, and means controlled by the level of the pile for arresting the movement of the guard.

20. The combination with devices for operating on a pile of sheets, of a table for carrying said pile, a ratchet-wheel connected to raise said table when rotated, a reciprocating pawl, a guard reciprocating therewith for preventing engagement of said pawl with said ratchet-wheel, an arm having a shoulder for engaging said guard and arresting the same, and a device engaging the top of the pile connected with said arm.

690,708. SHEET-CALIPERING DEVICE. TALBOT C. DEXTER, Pearl River, N. Y. Filed Mar. 20, 1901. Serial No. 52,090. (No model.)



Claim.—1. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary sheet-calipering arm or lever pivotally mounted adjacent to the path of the sheets, and normally resting in position to prevent the operation of the throw-out mechanism, said arm or lever being arranged and adapted to be directly engaged by an abnormal thickness of sheets and be moved by the sheets in the direction of travel of the sheets to cause or allow the operation of the throw-out mechanism, substantially as set forth.

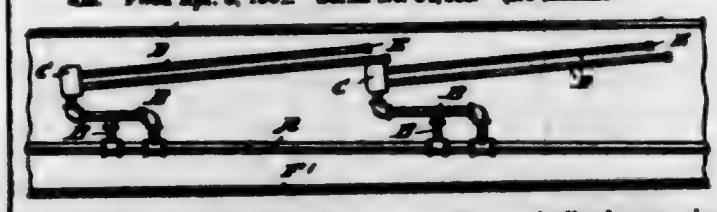
2. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary sheet-calipering arm or lever pivotally mounted above the path of the sheets, the upper end of said arm or lever being normally in position to engage and prevent the operation of the throw-out mechanism, and the lower end of said arm or lever being supported in position to be directly engaged by an abnormal thickness of sheets and be moved by the sheets in the direction of travel of the sheets to cause the upper end of said arm or lever to be disengaged from the throw-out mechanism and cause or allow the latter to operate, substantially as set forth.

3. In combination with a machine through which sheets of paper are passed, suitable throw-out mechanism adapted to arrest the operation of said machine and an arm connected with and operating said throw-out mechanism, of a normally stationary sheet-calipering arm or lever pivotally mounted above the path of the sheets, the upper end of said arm or lever being normally in position to engage and support said throw-out-operating arm to prevent the operation of the throw-out mechanism, and the lower end of said calipering arm or lever being supported in position to be directly engaged by an abnormal thickness of sheets and be moved by the sheets in the direction of travel of the sheets to cause the upper end of said arm or lever to be disengaged from the operating-arm of the throw-out mechanism and cause or allow the latter to operate, substantially as set forth.

4. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary sheet-calipering arm or lever pivotally mounted above the path of the sheets, the upper end of said arm or lever being normally in position to engage and prevent the operation of the throw-out mechanism, and the lower end of said arm or lever being supported in position to be directly engaged by an abnormal thickness of sheets and be moved by the sheets in the direction of travel of the sheets to cause the upper end of said arm or lever to be disengaged from the throw-out mechanism and cause or allow the latter to operate, and a lower rotatable sheet-calipering member arranged directly beneath the path of the sheets and the lower end of said sheet-calipering lever so as to allow the sheets of paper to pass between the calipering-lever and lower rotatable calipering member, substantially as set forth.

5. In combination with a machine through which sheets of paper are passed, and suitable throw-out mechanism adapted to arrest the operation of said machine, of a normally stationary sheet-calipering arm or lever pivotally mounted adjacent to the path of the sheets, and normally resting in position to prevent the operation of the throw-out mechanism, and a curved friction-shoe rigidly mounted on the lower end of the calipering arm or lever and arranged adjacent to the plane of feeds of the sheets and adapted to be directly engaged by an abnormal thickness of sheets and be moved by the sheets in the direction of travel of the sheets to cause or allow the operation of the throw-out mechanism, substantially as set forth.

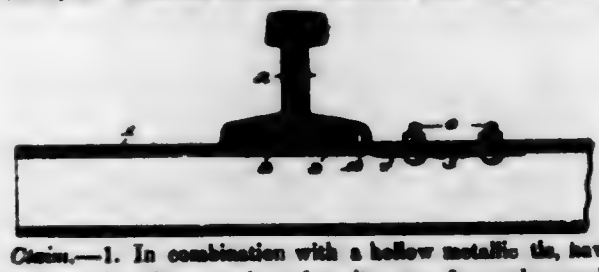
690,704. HEATING APPARATUS. JAMES A. DENNIS, Kingston, Ala. Filed Apr. 5, 1901. Serial No. 54,468. (No model.)



Claim.—1. A heating apparatus comprising an inclined steam-pipe, connection-pipes rising therefrom, heads located at the upper ends of the connection-pipes, and inclined tubes closed at their upper ends and having their lower ends connected with the said head, said tubes being arranged in two sets, one at a higher level than the other, the upper portions of the tubes of the lower set connected with one head resting upon the head located in front thereof.

2. A heating apparatus comprising an inclined steam-pipe, connection-pipes rising therefrom, heads located at the upper ends of the connection-pipes, and inclined tubes closed at their upper ends and having their lower ends connected with the said head, said tubes being arranged in two sets, one at a higher level than the other, the upper portions of the tubes of the lower set connected with one head resting upon the head located in front thereof, and the tubes of one set being located in break-joint fashion relatively to those of the other set, that is, out of vertical alinement therewith.

690,705. STEEL TIE FOR RAILWAYS. ISAAC DIMMIE, McKees Rocks, Pa. Filed Oct. 15, 1901. Serial No. 78,682. (No model.)



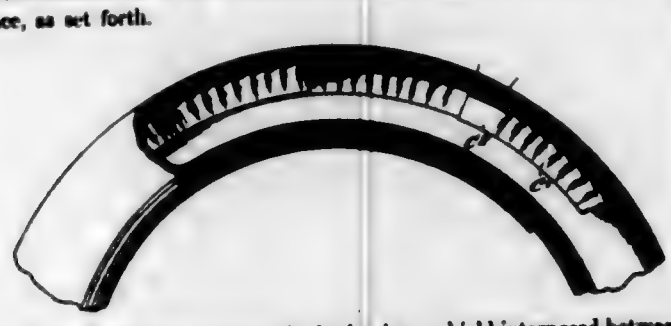
Claim.—1. In combination with a hollow metallic tie, having an integral clamping-plate struck up from its upper face and engaging the base and web of the rail, of a removable clamping-plate engaging the opposite side of the rail web and base and provided with a tongue which lies against the underneath face of the upper plate of the hollow tie, said tongue having a shoulder that fits in a recess provided therefor in the upper plate of the tie, and bolts for securing said removable clamping-plate in position.

2. In combination with a hollow metallic tie rectangular in cross-section and having an integral clamping-plate struck up from its upper face, of a removable clamping-plate having a tongue, bolts passing through said tongue and through the upper face of the tie for securing the removable clamping-plate in position, and a saddle-plate underneath the clamping-plate upon which the rails rest, substantially as described.

690,706. PNEUMATIC-TIRE PROTECTOR. CLARENCE S. DUNBAR, Stanleyburg, N. Y. Filed Apr. 18, 1901. Serial No. 56,289. (No model.)

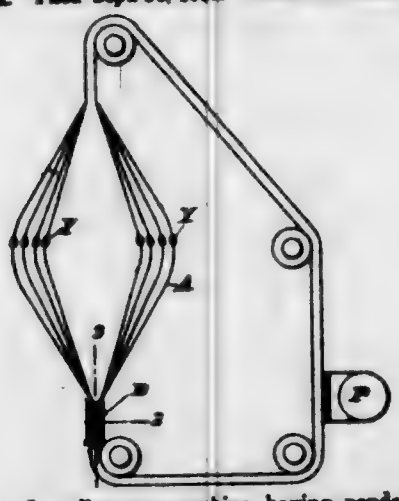
Claim.—1. A double-tube pneumatic tire having a shield interposed between the outer and inner tube, the ends of the shield overlapping and being free to permit the shield to yield in the direction of its length, the said shield being formed with outwardly-extending flanges arranged to

embed themselves in the material of the outer tube to hold the shield in place, as set forth.



2. A double-tube pneumatic tire having a shield interposed between the inner tube and the outer tube, the shield being made in one continuous piece arched transversely and having transverse corrugations, the ends of the shield being free from corrugations and overlapping, the side edges of the shield having outwardly-extending flanges adapted to embed themselves in the material of the outer tube, the said shield being also formed with an outwardly-extending V-shaped flange along the middle of the shield to engage the material of the outer tube, as set forth.

690,707. **LINOTYPE-MACHINE.** PHILIP T. DODGE, New York, N. Y., assignor to the Mergenthaler Linotype Company, a Corporation of New York. Filed Sept. 30, 1901. Serial No. 77,127. (No model.)



Claim.—1. In a linotype-machine, having pendent matrices and guides therefor extending to and from the point of assemblage, an assembler or holder adapted to receive the composed matrices and to permit their individual removal substantially as described.

2. In a linotype-machine, and in combination with pendent matrices, an inclined box or assembler to receive the composed matrices, adapted to permit their individual removal at the top, a series of inclined guides arranged to deliver the respective matrices into said assembler, and a corresponding series of guides arranged to receive the matrices from the assembler.

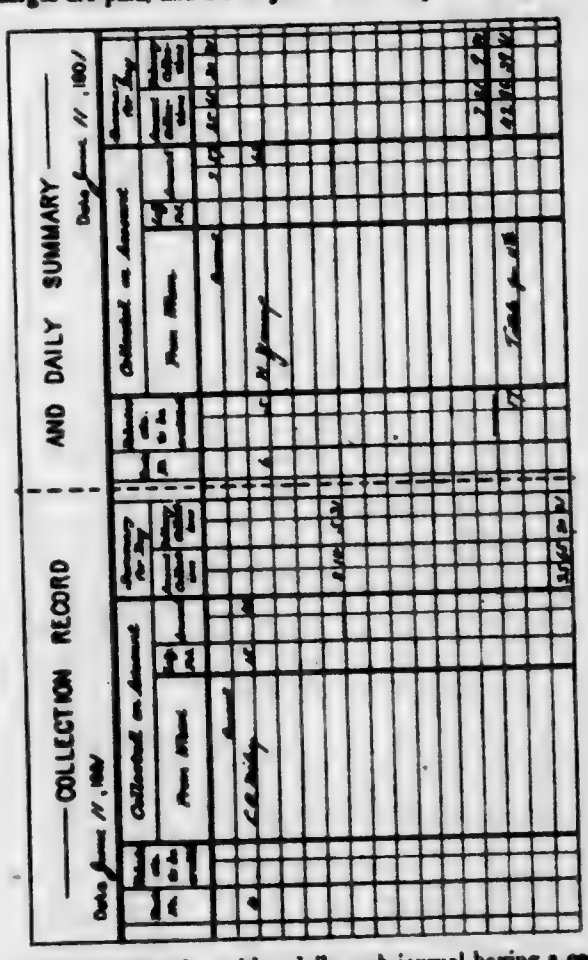
3. In a linotype-machine, in combination with the box or assembler B, adapted to receive and sustain the lower ends of the matrices, the series of matrices with sustaining-hooks at their upper ends, and the series of guides A, extending in parallel lines from the lower end of the assembler and returning in diverging and converging lines to the upper end of the assembler, whereby the matrices are assembled in line, the change of matrices in the line permitted and the line finally distributed.

4. In a linotype-machine, a series of pendent matrices differing in length, a series of parallel guides whereon said matrices are arranged to travel, said guides severed at one point in their length and separated to leave a gap between the ends, and a receiver or assembler spanning said gap and adapted, as described, to receive the matrices from the guides on one side and deliver them to the guides at the opposite side and adapted to permit their individual removal from the receiver.

5. In a linotype-machine and in combination with pendent matrices arranged to travel thereon, a series of inclined guides interrupted or divided to leave an opening at one point in their length, and a laterally-movable assembler or receiver adapted to receive the matrices and carry them across the opening in the guides, whereby convenient removal of individual matrices from the composed line in the receiver is permitted.

690,708. **SYSTEM OF KEEPING ACCOUNTS.** EDWARD R. EDWARDS, Norwood, Ohio. Filed Dec. 18, 1900. Serial No. 40,461. (No model.)

Claim.—1. In an accounting system the combination with a register having ruled and properly-headed columns for entry of items of work undertaken for each customer, and a set of columns subheaded one for each day in the week showing date of payments on delivery of the work, of a supplementary book having a similar set of columns showing charges on delivery of work to the same parties, a collection-record showing when such charges are paid, and a cash-journal for entry of said payments.



2. The combination with a daily cash-journal having a central column for entry of items and on opposite sides thereof, "Cash-debit" and "Customers' credit," columns respectively so headed, of a register of daily orders containing entry-columns for detailed lists and price and sets of vertical columns respectively headed for entry of amounts of charge deliveries and cash deliveries of goods, each set containing one column headed for each day in the week, so that the entries may be summed up to give a total for each day for entry in the said cash-journal.

3. A cash-journal and abstract having a page with wide medial column for entering names and properly-headed ruled columns showing the correlative entries, in both the debit and credit aspects, of all revenues placed on opposite sides of the medial column, and side by side therewith an opposing page similarly ruled and headed to exhibit both the debit and credit aspects of all liabilities incurred, whereby an immediate balance of finances at any time is provided for in one book by simple summation of the columns.

4. A cash-journal and abstract in which is provided on one page ruled columns properly headed for entry of the correlative accounts credit and accounts debit under the general head of revenues, and in juxtaposition therewith an opposing page having ruled columns properly headed to show the correlative accounts credit and accounts debit under a general head indicating expenditures, combined with a daily register and a ledger each having sets of columns headed one for each day of the week respectively under the general heads of charge deliveries and cash deliveries, so that the sums of the payment-columns therein may be gotten directly for each day, for entry in the said cash-journal.

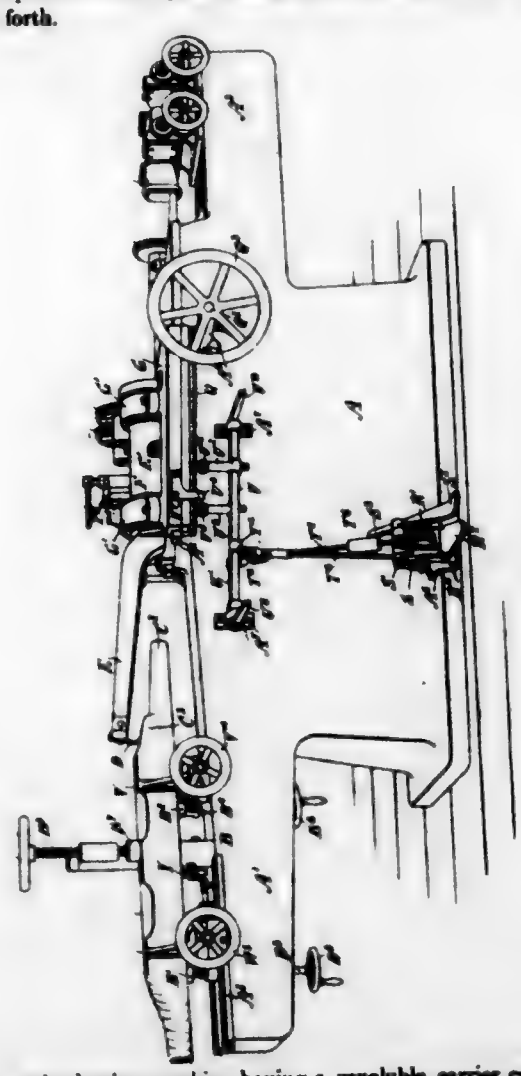
5. The combination with a daily register, of a customer's weekly-balance ledger having respectively headed columns for customer's name, for amount owed, sets of columns for charge deliveries of goods and for cash deliveries of goods, each of these latter sets of columns being headed one for each day in the week, so that the sums of all payments may be directly made up for each day of the week.

690,709. **AXLE-SHAPING MACHINE.** GEORGE A. HAMER, Defiance, Ohio, assignor to The Defiance Machine Works, Defiance, Ohio, a Corporation of Ohio. Filed Apr. 9, 1901. Serial No. 55,622. (No model.)

Claim.—1. An axle-shaping machine having a revolvible carrier carrying a cutter-bar, a carriage, a feed mechanism for feeding the carriage, a driving-gear for actuating said feed mechanism and rotating said carrier, and means for controlling said driving-gear, to automatically change the speed of the carriage and that of the carrier during the time the cut is made by the cutter-bar, as set forth.

2. An axle-shaping machine having a revolvible carrier carrying a

cutter-bar, a carriage in which the carrier is mounted to turn, a feed mechanism for feeding the carriage forward, a driving-gear for said feed mechanism and said carrier, and means for controlling said driving-gear, to automatically change the speed of the carriage and that of the carrier from a high speed to a low speed during the forward travel of the carriage, as set forth.



3. An axle-shaping machine having a revoluble carrier carrying a cutter-bar, a carriage in which the carrier is mounted to turn, a feed mechanism for feeding the carriage forward, a driving-gear for said feed mechanism and said carrier, and means for controlling said driving-gear, to automatically change the speed of the carriage and that of the carrier from a high speed to a low speed during the forward travel of the carriage, said means being actuated from said carriage, as set forth.

4. An axle-shaping machine having a revoluble carrier carrying a cutter-bar, a carriage in which the carrier is mounted to turn, a feed mechanism for feeding the carriage forward, a driving-gear for said feed mechanism and said carrier, and means for controlling said driving-gear, to automatically change the speed of the carriage and that of the carrier from a high speed to a low speed during the forward travel of the carriage, said means being also under the control of the operator, as set forth.

5. An axle-shaping machine, comprising a carriage mounted to slide, a carrier mounted to turn in said carriage, a feed-screw for said carriage, a shaft geared with said feed-screw and said carrier, and a driving mechanism for said shaft, to rotate the latter at different speeds during the travel of the carriage in one direction, said driving mechanism comprising a drive-shaft geared with said first-mentioned shaft, pulleys loose on the said drive-shaft and driven at different speeds, a double clutch mounted to turn with and to slide on said drive-shaft and adapted to engage either of said pulleys, and means controlled by said carriage, to automatically shift the said double clutch and move it out of engagement with the high-speed pulley, and to move it in engagement with the low-speed pulley during the forward travel of the carriage, as set forth.

6. An axle-shaping machine, comprising a carriage mounted to slide, a carrier mounted to turn in said carriage, a feed-screw for said carriage, a shaft geared with said feed-screw and said carrier, and a driving mechanism for said shaft, to rotate the latter at different speeds during the travel of the carriage in one direction, said driving mechanism comprising a drive-shaft geared with said first-mentioned shaft, pulleys loose on the said drive-shaft and driven at different speeds, a double clutch mounted to turn with and to slide on said drive-shaft and adapted to engage either of said pulleys, and means controlled by said carriage, to automatically shift the said double clutch and move it out of engagement with the high-speed pulley, and to move it in engagement with the low-speed pulley during the forward travel of the carriage, said means also serving to shift the double clutch to a central inactive position when the carriage reaches the end of its stroke, as set forth.

7. A woodworking-machine having a carriage mounted to slide, a driven feed-screw, a feed-nut made in two parts held on a pivot carried by said carriage, a spring for normally holding the feed-nut parts open out of engagement with the feed-screw, a slide on the carriage and under the control of the operator, the slide carrying a wedge for engaging bevels on said feed-nut parts, to close the latter onto said feed-screw, a shaft journaled on said carriage, and having a handle under the control of the operator, and an arm for engaging and shifting the said slide, as set forth.

8. A woodworking-machine having a carriage mounted to slide, a driven feed-screw, a feed-nut made in two parts held on a pivot carried by said carriage, a spring for normally holding the feed-nut parts open out of engagement with the feed-screw, a slide on the carriage and under the control of the operator, the slide carrying a wedge for engaging bevels on said feed-nut parts, to close the latter onto said feed-screw, a spring connected with said slide, means for moving said slide against the tension of said spring, and a catch adapted to engage said slide and lock it in place against the tension of the spring, as set forth.

9. A woodworking-machine having a carriage mounted to slide, a driven feed-screw, a feed-nut made in two parts held on a pivot carried by said carriage, a spring for normally holding the feed-nut parts open out of engagement with the feed-screw, a slide on the carriage and under the control of the operator, the slide carrying a wedge for engaging bevels on said feed-nut parts, to close the latter onto said feed-screw, a spring connected with said slide, means for moving said slide against the tension of said spring, a catch adapted to engage said slide and lock it in place against the tension of the spring, and means for automatically throwing the catch out of engagement with the slide at the time the carriage reaches the end of its forward stroke, as set forth.

10. A woodworking-machine having a carriage mounted to slide, a driven feed-screw, a feed-nut made in two parts held on a pivot carried by said carriage, a spring for normally holding the feed-nut parts open out of engagement with the feed-screw, a slide on the carriage and under the control of the operator, the slide carrying a wedge for engaging bevels on said feed-nut parts, to close the latter onto said feed-screw, a spring connected with said slide, means for moving said slide against the tension of said spring, a catch adapted to engage said slide and lock it in place against the tension of the spring, and means connected with said catch and under the control of the operator and moving with said carriage, to enable the operator to throw the catch out of engagement with the slide at any time during the forward movement of the carriage, as set forth.

11. A machine of the class described having a screw-feed for a carriage, and comprising a feed-screw, a two-part feed-nut on the carriage, a spring for normally holding the parts of the nut open, a device for holding the nut in a closed position on the feed-screw, means for unlocking the said device, to allow the nut to open, and an auxiliary or emergency device for opening the nuts directly in case the spring fails to operate, as set forth.

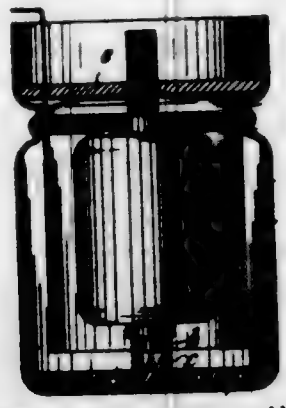
12. In an axle-shaping machine, the combination, with a suitable horizontal bed, a rotary cutter, and means for operating it, of axle-holding devices, comprising clamps for securing the axle near one end, and the means described for securing and shifting the outer end of the axle, for varying the angle of its axis to that of the said cutter, such means consisting of a bed fixed on the foundation-bed transversely thereof, a guideway adapted to slide on said transverse bed in the direction of the length of the latter, two vertical clamps arranged on said guideway and means for adjusting them toward or from each other as required; means for shifting the guideway consisting of a crank having a fixed pivot, and a bar slidable on said crank lengthwise thereof, and having a pivotal engagement with the aforesaid guideway; and means for clamping the crank and bar in any required adjustment; substantially as shown and described.

13. An axle-shaping machine having a pair of clamps, a screw-rod for moving the clamps toward or from each other, a guideway for the clamps to slide on, a bed for the guideway to slide in a transverse direction, and means for shifting said guideway in said bed, said means comprising two arms adjustable one on the other, and adapted to be fastened together, one of the arms being fulcrumed on the bed and the other on the guideway, as set forth.

14. An axle-shaping machine having a pair of clamps, a screw-rod for moving the clamps toward or from each other, a guideway for the clamps to slide on, a bed for the guideway to slide in a transverse direction, and means for shifting said guideway in said bed, said means comprising two arms slidable one on the other and adapted to be fastened together, a pin on one arm and journaled in said bed, and a friction-roller on the other arm and extending between lugs on the guideway, as set forth.

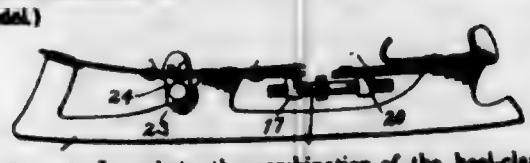
690,710. GALVANIC BATTERY. WILHELM ERNY, Halle-on-the-Saale, Germany. Filed Mar. 6, 1901. Serial No. 50,062. (No model.)

Claim.—1. A galvanic battery having a vessel provided with an inner annular recess and a zinc electrode which consists of a slotted cylinder, with an outer projection at its upper end, the said projection engaging the said groove, so that the zinc electrode is freely suspended in the vessel.



2. A galvanic battery, having a vessel provided with an inner annular recess and a zinc electrode which consists of a slotted cylinder, with an outer projection at its upper end, the said projection engaging the said groove, a conical elevation on the bottom of the cell, and a carbon electrode, the lower end of which is provided with an india-rubber tube adapted to fit over said conical elevation.

690,711. **SKATE.** OTIS W. EVERETT, Worcester, Mass., assignor to the Samuel Winslow Skate Mfg. Co., Worcester, Mass., a Corporation of Massachusetts. Filed May 13, 1899. Serial No. 716,649. (No model.)



Claim.—1. In a skate, the combination of the heel-clamp, a toe-clamp for engaging one side of the shoe of the wearer, connections for simultaneously actuating said clamps, a second toe-clamp for engaging the other side of the shoe of the wearer, and an adjusting-screw for setting the second toe-clamp to fixed positions independently of the other clamps, said adjusting-screw being arranged to transmit the clamping-pressure applied to the second toe-clamp to the skate-blade, substantially as described.

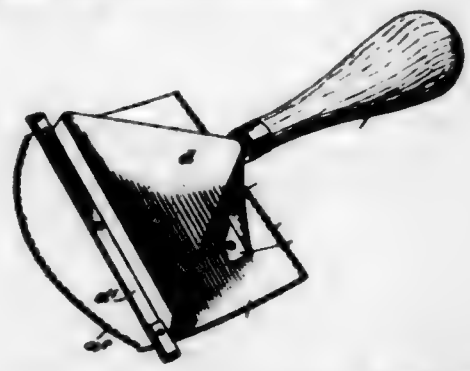
2. In a skate, the combination of a heel-clamp, a toe-clamp for engaging one side of the shoe of the wearer, connections for simultaneously actuating said clamps, a second toe-clamp for engaging the other side of the shoe of the wearer, an adjusting-screw for setting the second toe-clamp to fixed positions independently of the other clamps, said adjusting-screw being mounted in a bracket arranged to bear on the opposite side of the skate-blade from said second toe-clamp, substantially as described.

3. In a skate, the combination of a toe-clamp for engaging one side of the shoe of the wearer, a heel-clamp, a clamping-lever mounted on the forward part of the heel-clamp, an adjusting-screw connecting the clamping-lever and toe-clamp so that said clamps may be adjusted and simultaneously operated, a second toe-clamp arranged to engage the opposite side of the shoe of the wearer, and an adjusting-screw for setting said toe-clamp to different fixed positions independently of the other clamps, said adjusting-screw being mounted in a bracket at the opposite side of the skate-blade from the second toe-clamp so that pressure applied to said second toe-clamp will be transmitted to the skate-blade, substantially as described.

4. The combination of a skate and a toggle-clamping mechanism therefor for clamping and locking the skate to the shoe of the wearer, comprising a toe-clamp for engaging one side of the shoe of the wearer, a clamping-lever pivotally mounted on the forward part of the heel-clamp, an adjusting-screw for connecting the clamping-lever and toe-clamp, whereby said clamping-lever and toe-clamp may be first adjusted with respect to each other by the screw, and then simultaneously operated by the lever which springs past its center of motion to lock the skate in its clamped position, a second toe-clamp for engaging the other side of the shoe, and an adjusting-screw for setting said second toe-clamp to fixed positions independently of the other clamps, whereby the skate may be adjusted transversely with respect to the foot of the wearer and clamped without the use of special tools, substantially as described.

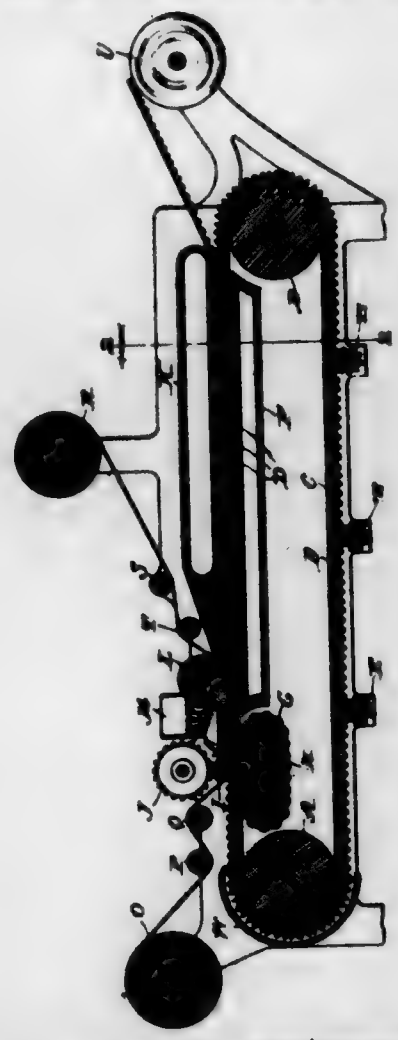
690,712. **CURRYCOMB.** SAMUEL B. FELTY, Pembrook, Pa. Filed Mar. 13, 1901. Serial No. 50,945. (No model.)

Claim.—1. A currycomb, comprising a flat body-plate having a straight transverse rear edge provided with serrations, and a convexedly-curved front edge also provided with serrations, and a rearwardly-extending handle connected with the body-plate between the serrated edges, whereby the said body-plate when in use extends at but a slight inclination to the surface being cleaned, as set forth.



2. A currycomb, comprising a body-plate slightly convexed on its under face from front to rear, and having a straight transverse rear edge provided with serrations, and a convexedly-curved front edge also provided with serrations, bracket-plates each having a flange secured to the top of the body-plate at the front and rear respectively, between the serrated edges, and a rearwardly-extending handle fastened to the bracket-plates, the flange of the front bracket-plate having its ends extended laterally beyond the body-plate and turned back upon the flange, for the purpose specified.

690,713. **APPARATUS FOR CORRUGATING PAPER.** JEFFREY T. PEARSE, Anderson, Ind., assignor of one-half to J. E. Cleary, Chicago, Ill. Filed July 1, 1901. Serial No. 66,672. (No model.)



Claim.—1. In apparatus for corrugating paper, an endless corrugated lagging composed of a plurality of endless metal bands and a plurality of longitudinally fluted or corrugated lags secured thereto side by side transversely of the machine; substantially as described.

2. In apparatus for corrugating paper, an endless lagging composed of a plurality of endless steel bands and a plurality of longitudinally fluted or corrugated iron lags riveted to said bands side by side transversely of the machine; substantially as described.

3. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, a small corrugating-roller meshing with the corrugations of the lagging in its passage from the forward to the rear supporting-roll, a larger and stronger corrugated roller located immediately above and meshing with the smaller corrugating-roller to maintain it in firm engage-

ment with the corrugations of the lagging throughout the length of said roller, and a support for the lagging beneath said rollers; substantially as described.

4. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, a small corrugating-roller meshing with the corrugations of the lagging in its passage from the forward to the rear supporting-roll, a larger and stronger corrugated roller located immediately above and meshing with the smaller corrugating-roller to maintain it in firm engagement with the corrugations of the lagging throughout the length of said roller, a supporting block or bar extending transversely of the machine beneath said rollers, and an endless chain of antifriction-rollers passing around said block and supporting the lagging beneath the corrugating-rollers; substantially as described.

5. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, a small corrugating-roller meshing with the corrugations of the lagging in its passage from the forward to the rear supporting-roll, a larger and stronger steam-heated corrugated roller located immediately above and meshing with the smaller corrugating-roller to heat the latter and maintain it in firm engagement with the corrugations of the lagging throughout the length of said rollers, and a support for the lagging beneath said rollers; substantially as described.

6. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, a small corrugating-roller meshing with the corrugations of the lagging in its passage from the forward to the rear supporting-roll, a larger and stronger steam-heated corrugated roller located immediately above and meshing with the smaller corrugating-roller to heat the latter and maintain it in firm engagement with the corrugations of the lagging throughout the length of said roller, a supporting block or bar extending transversely of the machine beneath said rollers, and an endless chain of antifriction-rollers passing around said block and supporting the lagging beneath the corrugating-rollers; substantially as described.

7. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums for said lagging at the opposite ends of the machine, a corrugating-roller meshing with the corrugations of the lagging adjacent the forward supporting-roll, and a heater-plate located immediately above the lagging in its passage from the corrugating-roller to the rear supporting-roll; substantially as described.

8. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, a corrugating-roller meshing with the corrugations of the lagging adjacent the forward supporting-roll, a paste-box and paste-roll located in rear of the corrugating-roller, and a heater-plate located immediately above the lagging in its passage from the paste-roll to the rear supporting-roll to heat and dry and iron the paper in its passage with the lagging beneath said plate; substantially as described.

9. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, a corrugating-roller meshing with the corrugations of the lagging adjacent the forward supporting-roll, a paste-box and paste-roll located in rear of the corrugating-roller, and heater-plates located immediately above and beneath the lagging in its passage from the paste-roll to the rear supporting-roll; substantially as described.

10. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting-rolls therefor at the opposite ends of the machine, a small corrugating-roller meshing with the corrugations of the lagging in its passage rearward from the forward supporting-roll, a larger and stronger corrugated roller located immediately above and meshing with the smaller roller, a support for the lagging beneath said rollers, and a heater-plate located immediately above the lagging in its passage from the corrugating-roller to the rear supporting-roll; substantially as described.

11. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting-rolls therefor at the opposite ends of the machine, a small corrugating-roller meshing with the corrugations of the lagging in its passage rearward from the forward supporting-roll, a larger and stronger corrugated roller located immediately above and meshing with the smaller roller, a support for the lagging beneath said rollers, and heater-plates located immediately above and beneath the lagging in its passage from the corrugating-roller to the rear supporting-roll; substantially as described.

12. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting-rolls therefor at the opposite ends of the machine, a small corrugating-roller meshing with the corrugations of the lagging in its passage from the forward to the rear supporting-roll, a larger and stronger corrugated roller located immediately above and meshing with the smaller corrugating-roller, a support for the lagging beneath said corrugating-rollers, a paste-box and paste-roll in rear of said corrugating-rollers, and a heater-plate located immediately above the lagging in its passage from the paste-roll to the rear supporting-roll; substantially as described.

13. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting-rolls therefor at the opposite ends of the machine, a small corrugating-roller meshing with the corrugations of the lagging in its passage from the forward to the rear supporting-roll, a larger and stronger corrugated roller located immediately above and meshing with the smaller roller, a support for the lagging beneath said corrugating-rollers, a paste-box and paste-roll in rear of said corrugating-rollers, and heater-plates located immediately above and beneath the lagging in its passage from the paste-roll to the rear supporting-roll; substantially as described.

14. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, corrugated supporting-rollers meshing with the under side of said lagging in its passage from the rear to the forward supporting-roll, and means for supporting the upper side of the lagging in its passage from the forward to the rear supporting-roll; substantially as described.

15. In apparatus for corrugating paper, the combination of an endless corrugated lagging composed of a plurality of endless metal bands and a plurality of longitudinally fluted or corrugated lags secured to said bands side by side transversely of the machine, supporting rolls or drums for said lagging at the opposite ends of the machine, corrugated supporting-rollers meshing with the under side of said lagging in its passage from the rearward to the forward supporting roll or drum, and means for adjusting the supports of said lagging to accommodate expansion and contraction of the metal bands; substantially as described.

16. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, and a supporting heater-plate located immediately beneath said lagging in its passage from the forward to the rearward supporting-roll and provided with longitudinal strips of antifriction metal projecting above the surface of said heater and upon which the lagging rests and travels in its rearward passage; substantially as described.

17. In apparatus for corrugating paper, the combination of an endless corrugated lagging, supporting rolls or drums therefor at the opposite ends of the machine, and a shield for said lagging in its passage over one of said rolls; substantially as described.

18. In apparatus for corrugating paper, the endless corrugated lagging, composed of the plurality of metal bands C and the longitudinally fluted or corrugated lags D secured thereto side by side transversely of the machine; substantially as described.

19. In apparatus for corrugating paper, the endless corrugated lagging composed of the plurality of metal bands C and the longitudinally fluted or corrugated lags D riveted to said bands, in combination with the rolls or drums A B for supporting said lagging and provided with the circumferential grooves *a* for the passage of the heads of the rivets by which the lags are secured to the bands; substantially as described.

20. In apparatus for corrugating paper, the combination of the endless corrugated lagging composed of the metal bands C and lags D, the supporting rolls or drums A B for said lagging at the opposite ends of the machine, the corrugated supporting-rollers E for the under side of said lagging, the corrugating-roller I meshing with the upper surface of the lagging, the corrugated roller J located above and meshing with the roller I, a support for the lagging beneath the roller I, and the heater-plates F K adjacent the lagging between the roller I and supporting-roll B; substantially as described.

21. In apparatus for corrugating paper, the combination of the endless corrugated lagging composed of the metal bands C and lags D, the supporting rolls or drums A B for said lagging at the opposite ends of the machine, the corrugated supporting-rollers E for the under side of said lagging, the corrugating-roller I meshing with the upper surface of the lagging, the corrugated roller J located above and meshing with the roller I, a support for the lagging beneath the roller I, the paste-box M and paste-roll L in rear of the roller I, and the heater-plates F K adjacent the lagging in rear of the roll L; substantially as described.

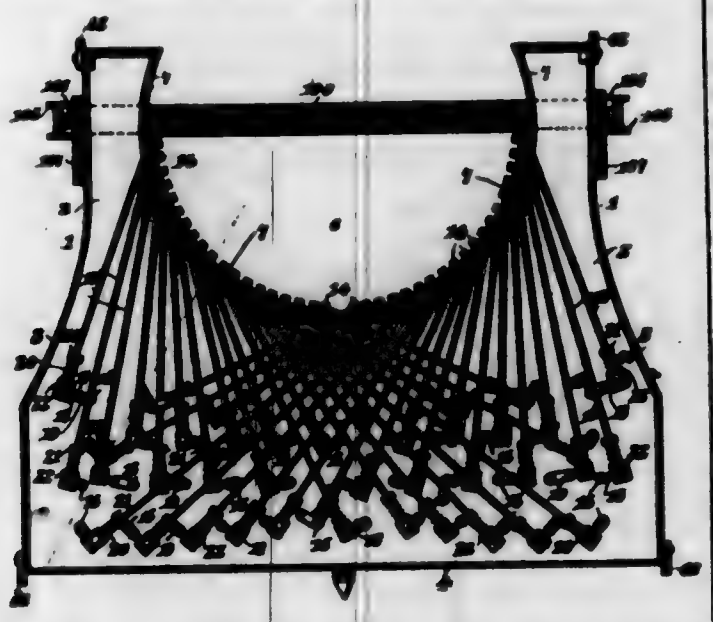
22. In apparatus for corrugating paper, the combination, with the endless corrugated lagging D and its supports, of the small corrugating-roller I, the larger corrugated roller J meshing therewith, the supporting-block H beneath the roller I, and the endless chain of rollers G passing around said block and supporting the lagging beneath the roller I, substantially as described.

23. In apparatus for corrugating paper, the combination, with the endless corrugated lagging D and its supporting rolls or drums A B, of the corrugated supporting-rollers E meshing with said lagging in its passage from the rear roller B to the forward roller A; substantially as described.

24. In apparatus for corrugating paper, the combination, with the endless corrugated lagging D and its supports, of the corrugating-roller I meshing with said lagging in its passage rearward from the supporting-

roll A, the paste-box M and paste-roll L in rear of the roller I, and the plate N located immediately above the lagging D between the roller I and paste-roll L; substantially as described.

690,714. TYPE-WRITING MACHINE. ROBERT J. FISHER, Athens, Texas. Filed June 22, 1900. Serial No. 21,206. (No model.)



Claim.—1. In a type-writing machine, the combination with a frame, and a rearwardly-opening crescent-shaped series of type-bars having a common printing-point, of operating rock-shafts directly connected to the type-bars, and keys connected to said rock-shafts and located at the front of the frame.

2. In a type-writing machine, the combination with a frame, and a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, of operating rock-shafts directly connected to the type-bars and disposed out of parallel, all of said rock-shafts extending toward the front of the frame, and keys for operating said rock-shafts.

3. In a type-writing machine, the combination with a series of upstanding type-bars arranged in crescent formation, of operating rock-shafts rigidly connected to the type-bars, and keys disposed above the rock-shafts and operatively connected therewith.

4. In a type-writing machine, the combination with a frame, of a series of keys disposed adjacent to one side thereof, a series of upstanding type-bars disposed adjacent to the opposite side thereof and arranged in crescent formation, and a series of operating rock shafts rigidly connected to the type-bars and extended forwardly into operative relation with the keys.

5. In a type-writing machine, the combination with a frame, of a keyboard at one side thereof, a series of upstanding type-bars disposed at the opposite side thereof and arranged in crescent formation, and a series of operating rock-shafts directly connected with the type-bars and extended under the keyboard.

6. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of upstanding type-bars having a common printing-point, a series of keys, and a series of rock-shafts having direct connection with the type-bars, said rock-shafts being disposed in the interval between the type-bars and keys and having operative connection with said keys.

7. In a type-writing machine, the combination with a series of upstanding type-bars having a common printing-point, of operating rock-shafts rigidly connected to the type-bars and disposed obliquely thereto, and having substantially direct connection with the type-bars.

8. In a type-writing machine, the combination with the keys, and a crescent-shaped series of type-bars, of operating rock-shafts directly connected to the type-bars and disposed obliquely thereto, said rock-shafts being disposed in a plane or planes below the keys.

9. In a type-writing machine, the combination with a rearwardly-opening, crescent-shaped series of normally-upstanding type-bars having a common printing-point, of operating rock-shafts rigidly connected to the type-bars and disposed obliquely thereto, and keys located at points removed from the type-bars, said rock-shafts being extended beyond the type-bars for operative connection with the keys.

10. In a type-writing machine, the combination with a bearing member, of a series of operating rock-shafts journaled therein and extended beyond opposite sides thereof, a series of type-bars rigidly connected to the rock-shafts at one side of the bearing member, and arranged in a rearwardly-opening, crescent-shaped series, and keys operatively related to the rock-shafts.

11. In a type-writing machine, the combination with a series of operating rock-shafts disposed in staggered relation, of a series of upstanding type-bars directly connected to the shafts, and keys disposed above the rock-shafts for operating the same.

12. In a type-writing machine, the combination with a crescent-shaped series of type-bars, of operating rock-shafts disposed in staggered relation and rigidly connected to the type-bars, and keys disposed above and connected to said rock-shafts.

13. In a type-writing machine, the combination with a frame, and a crescent-shaped series of type-bars adjacent to one side thereof, of a series of type-keys adjacent to the opposite side of the frame, and operating rock-shafts disposed in staggered relation and rigidly connected to the type-bars, said rock-shafts being extended into operative relation with the keys.

14. In a type-writing machine, the combination with a series of operating rock-shafts in staggered relation, of upstanding type-bars rigidly connected with the rock-shafts and bearing oblique relation thereto, and keys for operating the rock-shafts.

15. In a type-writing machine, the combination with a series of staggered operating rock-shafts, and type-bars rigidly connected thereto, of keys disposed above the rock-shafts and connected therewith.

16. In a type-writing machine, the combination with a series of type-bars having a common printing-point, and operating-keys therefor, of a series of divergently-related rock-shafts directly connected to the type-bars below the upper ends thereof, and extended into operative relation with the keys.

17. In a type-writing machine, the combination with a crescent-shaped series of upstanding type-bars, and operating-keys therefor, of a series of staggered, divergently-related operating rock-shafts rigidly connected to the type-bars and extended in operative relation with the keys.

18. In a type-writing machine, the combination with a crescent-shaped series of type-bars, and operating-keys therefor, of operating rock-shafts rigidly connected to the type-bars and extended into operative relation with the keys, said rock-shafts being disposed in oblique relation to the type-bars and in divergent relation with each other.

19. In a type-writing machine, the combination with a crescent-shaped series of type-bars, and operating-keys therefor, of operating rock-shafts rigidly connected to the type-bars and extended below the keys for operative connection therewith, said rock-shafts being disposed in oblique relation to the type-bars and in divergent relation to each other

20. In a type-writing machine, the combination with a crescent-shaped series of type-bars, and operating-keys therefor, of operating rock-shafts in staggered and divergent relation, said rock-shafts being rigidly connected to the type-bars and disposed obliquely thereto, and a connection between the keys and rock-shafts.

21. In a type-writing machine, the combination with a crescent-shaped series of upstanding type-bars, of operating-keys therefor, and operating rock-shafts rigidly connected to the type-bars and extending tangentially from the type-bar crescent and into operative relation with the keys.

22. In a type-writing machine, the combination with a crescent-shaped series of upstanding type-bars, and operating-keys therefor, of operating rock-shafts connected to the type-bars and extending from the type-bar crescent at uniform tangents, and connections between the type-bars and keys.

23. In a type-writing machine, the combination with a crescent-shaped series of type-bars, and operating-keys, of operating rock-shafts rigidly connected to the type-bars and disposed obliquely thereto, said rock-shafts extending from the type-bar crescent at uniform tangents and disposed in operative relation with and below the keys.

24. In a type-writing machine, the combination with operating mechanism, of a crescent-shaped series of type-bars composed of separate groups, the bars of said groups being reversely inclined normally to define a work-vista of upwardly-increasing width.

25. In a type-writing machine, a support for the type-action, and separate groups of type-bars having operating rock-shafts rigid therewith, the rock-shafts for each group of type-bars extending from the latter in divergent relation.

26. In a type-writing machine, the combination with a series of type-bars, and operating-keys therefor, of operating rock-shafts rigidly connected to the type-bars and disposed in angularly-related groups, and connections between the keys and shafts.

27. In a type-writing machine, the combination with a series of type-bars, and operating-keys therefor, of operating rock-shafts connected to the type-bars and keys respectively and disposed in groups, the shafts of each group being reversely inclined with respect to the shafts of the other group.

28. In a type-writing machine, the combination with a crescent-shaped series of type-bars, and operating-keys therefor, of operating rock-shafts connected to the type-bars and extending at uniform tangents from

the type-bar crescent, said shafts being divided in separate groups disposed in different horizontal planes.

29. In a type-writing machine, the combination with a crescent-shaped series of type-bars, and operating-keys therefor, of operating rock-shafts connected to the type-bars and extending tangentially from the type-bar crescent, said shafts being composed of separate groups in reverse relation.

30. In a type-writing machine, the combination with a crescent-shaped series of type-bars, and operating-keys therefor, of operating rock-shafts extending at uniform but reverse tangents from the type-bar crescent.

31. In a type-writing machine, the combination with a crescent-shaped series of type-bars and operating-keys therefor, of operating rock-shafts rigidly connected to the type-bars and composed of separate groups, the rock-shafts of each group being disposed at uniform tangents from the type-bar crescent, this tangential disposition of the shafts of one group being the reverse of the tangential disposition of the shafts of the other group.

32. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a series of keys, and a series of operating rock-shafts having rigid connection with the type-bars and extended to a position below the keys for operative connection therewith.

33. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a keyboard, and a series of operating rock-shafts having direct connection with the type-bars and extended under the keyboard.

34. In a type-writing machine, the combination with a frame, and a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, of a keyboard in front of the series of type-bars, and divergently-related operating rock-shafts rigidly connected to the type-bars and extended under the keyboard.

35. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a keyboard located in front of the type-bars, and operating rock-shafts directly connected to the type-bars and disposed tangentially to the type-bar crescent, said operating rock-shafts being extended under the keyboard.

36. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a keyboard located in front of the type-bars, and operating rock-shafts directly connected to the type-bars and extended under the keyboard, said rock-shafts being divided into separate angularly-related groups.

37. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a keyboard located in front of the type-bars, operating rock-shafts directly connected to the type-bars and extended under the keyboard, the type-bars being divided into separate groups, the bars of one group being disposed in angular relation to the bars of the other group.

38. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a keyboard in front of said type-bars, and a series of operating rock-shafts directly connected to the type-bars and extended under the keyboard, said type-bars being divided into separate groups, the bars of one group being angularly related normally to the bars of the other group, and said operating rock-shafts being divided into separate angularly-related groups.

39. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a keyboard disposed in front of the type-bars, and operating rock-shafts directly connected to the type-bars and extended under the keyboard, said rock-shafts being arranged in separate groups disposed in different planes.

40. In a type-writing machine, the combination with a frame, of a rearwardly opening, crescent-shaped series of type-bars having a common printing-point, a keyboard disposed in front of the type-bars, operating rock-shafts directly connected to the type-bars and extended under the keyboard, said rock-shafts being arranged in separate angularly-related groups disposed in different planes.

41. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a keyboard disposed in front of the type-bars, and operating rock-shafts directly connected to the type-bars and extended under the keyboard, the rear ends of adjacent shafts being disposed in different planes.

42. In a type-writing machine, the combination with a frame, of a rearwardly-opening, crescent-shaped series of type-bars having a common printing-point, a keyboard located in front of the type-bars, and operating rock-shafts directly connected to the type-bars and extended under the keyboard, said rock-shafts being divided into separate groups located in different planes, and the alternate type-bars only of each group being located in the same plane.

43. In a type-writing machine, the combination with a frame, of an operating rock-shaft, a key-stem connected to the rock-shaft at one side of its axis, and a type-bar directly connected to said shaft and disposed in oblique relation thereto.

44. In a type-writing machine, the combination with a frame, of an operating rock-shaft, an arm extending laterally from the shaft, a key-stem having direct connection with said arm, and a type-bar directly connected to the rock-shaft and disposed in angular relation thereto.

45. In a type-writing machine, the combination with a frame, and a rearwardly-opening, crescent-shaped group or series of type-bars having a common printing-point, of a series of vertically-disposed key-stems located in front of the type-bars, and operating rock-shafts provided with arms directly connected with said key-stems, said rock-shafts being rigidly connected to the type-bars.

46. In a type-writing machine, a support for the type-action having a type-basket opening, the swinging type-bars provided with operating rock-shafts rigid therewith, a bearing-support about the type-basket opening for the shaft ends contiguous to the type-bars, separate bearings for the end portions of the shafts remote from the type-basket opening, and the keys having their stems connected directly to a fixed part of said shafts contiguous to the last-mentioned bearings.

47. In a type-writing machine, the combination of a common crescent bearing element, and a crescent-shaped series of type-bars having operating rock-shafts rigid therewith and mounted in the bearing element, certain of said shafts extending from one side of said element, and in divergent relation to certain others extending from the opposite side thereof.

48. In a type-writing machine, the combination of a common crescent bearing element, and type-bars having operating rock-shafts rigid therewith and mounted in said bearing element, certain of said shafts extending from opposite sides of the bearing element and arranged in crossing relation.

49. In a type-writing machine, the platen and movable carriage, a common crescent bearing element carried by the carriage, type-bars having operating rock-shafts rigid therewith and extending from the crescent bearing element toward the front of the carriage, and operating-keys.

50. In a type-writing machine, a crescent bearing element, and type-bars having operating rock-shafts mounted in said bearing element and disposed in a substantially tangential relation thereto.

51. In a type-writing machine, a crescent bearing element, and type-bars having operating rock-shafts rigid therewith and all extending from the crescent bearing element toward the front of the machine at a uniform tangent.

52. In a type-writing machine, a support for the type-action having a type-basket opening, a crescent-shaped series of type-bars grouped within the type-basket opening and provided with operating rock-shafts rigid therewith, a common bearing element for all of the rock-shafts contiguous to the type-bars, and individual bearings for said shafts remote from the common bearing element.

53. In a type-writing machine, a support for the type-action having a crescent-shaped type-basket opening, a plurality of type-bars having operating rock-shafts rigid therewith, a common crescent-shaped bearing element bounding said opening and receiving all of the operating-shafts contiguous to the type-bars, and bearings for the operating rock-shafts remote from the common bearing element.

54. In a type-writing machine, a support for the type-action having a crescent-shaped type-basket opening, a series of type-bars grouped within the opening and provided with rock-shafts rigid therewith, a crescent-shaped common bearing element bounding said opening and constituting a bearing for the end portions of all of the shafts contiguous to the type-bars carried therewith, bearings for the shafts remote from the common bearing element, and keys having their stems connected with a fixed part of the rock-shafts.

55. In a type-writing machine, a support for the type-action having a type-basket opening, a plurality of swinging type-bars grouped within said opening and having operating rock-shafts rigid therewith, a common bearing element provided with a multiplicity of bearings and constituting a common bearing-support for the ends of all of the shafts contiguous to the type-bars, and individual bearings for said shafts remote from the common bearing element.

56. In a type-writing machine, a support for the type-action having a crescent type-basket opening, a plurality of type-bars grouped within said opening and having operating rock-shafts rigid therewith, a single crescent bearing element bounding said opening and constituting a common bearing-support for the ends of the rock-shafts contiguous to the type-bars, and bearings for said shafts remote from the single bearing element.

57. In a type-writing machine, a support for the type-action having a crescent type-basket opening, a series of swinging type-bars grouped within said opening and provided with operating rock-shafts rigid therewith, bearings for the rock-shafts about said opening, separate bearings

for the rock-shafts remote from said opening, and keys having their stems connected with a fixed part of the rock-shafts.

58. In a type-writing machine, a support for the type-action, and a series of type-bars having operating rock-shafts arranged in crossing relation.

59. In a type-writing machine, a support for the type-action, a series of type-bars having operating rock-shafts rigid therewith, certain of said rock-shafts being arranged to cross in different planes.

60. In a type-writing machine, a support for the type action, and a series of type-bars having operating rock-shafts rigid therewith, and arranged to cross at different elevations.

61. In a type-writing machine, a support for the type-action, and a plurality of swinging type-bars arranged in separate groups and provided with operating rock-shafts rigid therewith, the operating-shafts for each group of type-bars extending from the latter in divergent relation, and certain of the shafts for the opposite groups of type-bars being arranged to cross each other at different elevations.

62. In a type-writing machine, a support for the type-action having a type-basket opening, a plurality of swinging type-bars grouped within the type-basket opening and provided with operating rock-shafts rigid therewith, said type-bars being grouped in opposite banks with the operating-shafts of each bank of type-bars extending from the latter in divergent relation, and reaching toward the transverse center of the support for the type-action, certain of the operating-shafts for opposite banks of type-bars crossing each other at different elevations.

63. In a type-writing machine, a support for the type-action having a type-basket opening, a plurality of type-bars grouped within said opening, and provided with operating rock-shafts rigid therewith, a single bearing element for the rock-shafts contiguous to the type-bar, said single bearing element being provided with a plurality of rows of bearing-openings to receive the rock-shafts, said rows of openings being disposed respectively in different planes to permit of the crossing of the shafts.

64. In a type-writing machine, a support for the type-action having a type-basket opening, a series of type-bars grouped within the opening and provided with operating rock-shafts rigid therewith, and bearings about the opening for the ends of the rock-shafts contiguous to the type-bars, said bearings being arranged in different planes to permit of the crossing of the rock-shafts at different elevations.

65. In a type-writing machine, a support for the type-action having a type-basket opening, the type-bars provided with operating rock-shafts rigid therewith, a single bearing-plate surrounding the basket-opening and provided with a multiplicity of bearing-openings receiving the ends of the rock-shafts contiguous to the type-bars, and bearings for the rock-shafts remote from the said bearing-plate.

66. In a type-writing machine, a support for the type-action provided with a type-basket opening, a single metallic crescent bearing-plate surrounding the said opening and provided with a multiplicity of drilled bearing-openings, a plurality of type-bars grouped within the type-basket opening at one side of the bearing-plate, and provided with operating rock-shafts rigid therewith, said rock-shafts having their end portions contiguous to the type-bars extending through and working in the openings of the plate, and bearings for the rock-shafts remote from the plate.

67. In a type-writing machine, a support for the type-action having a crescent type-basket opening, a plurality of swinging type-bars grouped within said opening and provided with operating rock-shafts rigid therewith, a metallic bearing-plate fitted to the edge of the type-basket opening and provided with a multiplicity of bearing-openings receiving the ends of the shafts contiguous to the type-bars, and separate bearings for the ends of the rock-shafts remote from the bearing-plate, each separate bearing being arranged in direct alinement with the complementary bearing in the plate.

68. In a type-writing machine, a support for the type-action having a crescent type-basket opening, a plurality of swinging type-bars grouped within the basket and provided with operating rock-shafts rigid therewith, a single crescent bearing-plate fitted to the edge of the type-basket opening and provided with a multiplicity of bearing-openings receiving the ends of the rock-shafts contiguous to the type-bars, and separate bearings for the ends of the rock-shafts remote from the bearing-plate, each separate bearing being disposed in direct alinement with the complementary bearing-opening in the bearing-plate, said operating rock-shafts of the type-bars extending from the bars in a straight line through both of the bearings therefor.

69. In a type-writing machine, the platen and movable type-carriage provided within the rear portion thereof with a crescent type-basket opening, a single crescent bearing-plate bounding said opening and provided with a multiplicity of bearing-openings, a plurality of swinging type-bars grouped within the type-basket opening outside of the bearing-plate, and provided with operating rock-shafts rigid therewith, and extending through the bearing-plate into the carriage, and bearings within the carriage for the ends of the rock-shafts remote from the bearing-plate.

70. In a type-writing machine, the combination with a series of type-bars and operating rock-shafts directly connected therewith, of key-stems directly connected to a fixed part of said rock-shafts at one side of the axis thereof.

71. In a type-writing machine, the combination with a series of type-bars, of operating rock-shafts directly connected to said bars and provided with crank-arms, and key-stems directly pivoted to said arms.

72. In a type-writing machine, the combination with a series of type-bars and operating rock-shafts directly connected therewith, of resetting-springs connected to the shafts, and operating-keys likewise connected to the shafts.

73. In a type-writing machine, a support for the type-action having a type-basket opening, swinging type-bars grouped within said opening and provided with operating rock-shafts rigid therewith, bearings about the type-basket opening for the rock-shafts, bearings for the ends of the shafts remote from the type-basket opening, said remote ends of the rock-shafts being provided with short crank-arms, vertically-movable key-stems pivotally connected with said crank-arms, and resetting-springs coiled upon the individual operating-shafts.

74. In a type-writing machine, the carriage provided within the rear side thereof with a crescent type-basket opening, a plurality of type-bars grouped within said opening, and provided with operating rock-shafts rigid therewith, said type-bars being arranged oblique to the axis of rotation of their operating-shafts and normally standing in substantially upright positions within the type-basket opening.

75. In a type-writing machine, the carriage provided within the rear portion thereof with a crescent type-basket opening, and the swinging type-bars grouped within said opening in opposite side banks, the type-bars in each bank thereof being disposed obliquely to a vertical plane, to provide a flaring work-vista at the center of the basket between the separate banks of type-bars, said work-vista exposing the interior of the type-basket opening from the front of the carriage.

76. In a type-writing machine, the traveling type-carriage provided at the rear portion thereof with a crescent-shaped type-basket opening, and a crescent-shaped series of type-bars having operating rock-shafts rigid therewith and extending within the type-carriage from said opening in a plane below the keyboard.

77. In a type-writing machine, the traveling type-carriage provided at the rear portion thereof with a type-basket opening, a crescent bearing element bounding said opening, and type-bars having operating rock-shafts supported by said bearing element and extending therefrom toward the front of the carriage.

78. In a type-writing machine, the traveling type-carriage provided within the rear portion thereof with a type-basket opening, a plurality of swinging type-bars grouped within the type-basket opening and provided with operating rock-shafts extending forwardly into the carriage-casing, all of the said operating-shafts being arranged in horizontal planes in close proximity to the base or floor of the carriage-casing, and the vertically-movable key-stems having operative connections with the said shafts.

79. In a type-writing machine, the type-carriage provided within the rear portion thereof with a type-basket opening, a single crescent bearing-plate partly bounding said opening, a similarly-shaped back casing-plate surmounting the said bearing-plate, a plurality of type-bars provided with operating rock-shafts rigid therewith and extending through the single bearing-plate and forwardly within the carriage-casing, and the key-stems having connections with said operating rock-shafts.

80. In a type-writing machine, the carriage provided at the rear portion thereof with a type-basket opening, the swinging type-bars grouped within said opening and bearing type-heads and triggers or latches therefor, said type-bars being arranged in side banks to leave an intervening central working vista, and a suitably-operated trip-ring arranged to coöperate with said triggers for the type-heads and provided with a central depressed portion skirting beneath the central work-vista.

81. In a type-writing machine, the casing provided at its rear portion with a type-basket opening, the type-bars grouped within the said opening and bearing type-heads and triggers or latches associated with such heads, a type-bar rest-ring sustained above the type-basket opening, a vertically-movable trip working beneath the said rest-ring and coöperating with the trigger for the type-heads, stationary guide-posts mounted within the carriage-casing, adjusting-sleeves slidably fitted upon the said posts and connected with said trip-ring, and a key-actuated rock-shaft carrying swinging arms operatively connected with said adjusting-sleeve.

82. In a type-writing machine, a series of type-bars arranged in a crescent relation and having rock-shafts rigid therewith, certain of the rock-shafts crossing each other at different elevations.

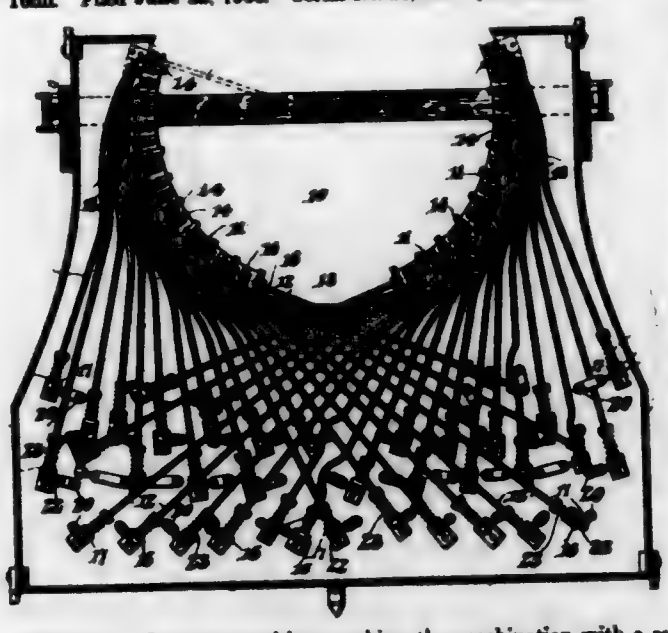
83. In a type-writing machine, a series of type-bars arranged in a crescent grouping, the opening or mouth of said crescent being at the rear of the machine, and type-bars having rock-shafts rigid therewith and extending toward the front of the machine, certain of said rock-shafts crossing at different horizontal planes.

84. In a type-writing machine, the combination with a series of type-bars and operating rock-shafts therefor, of key-stems having connection with said rock-shafts and provided with laterally-deflected portions.

85. In a type-writing machine, the combination with a type-bar, of an operating rock-shaft therefor, and a crooked key-stem having connection with the rock-shaft.

86. In a type-writing machine, the combination with a plurality of type-bars and operating rock-shafts for said bars, located in different planes, of key-stems connected to said rock-shafts and having laterally-deflected portions to prevent interference between the stems and rock-shafts.

690,715. TYPE-WRITING MACHINE. ROBERT J. FISHER, Athens, Tenn. Filed June 22, 1900. Serial No. 21,207. (No model.)



Claim.—1. In a type-writing machine, the combination with a series of type-bars arranged in crescent formation, of operating rock-shafts rigid with said type-bars, a series of separate bearing members for the inner or rear ends of the rock-shafts, and operating-keys disposed in a plane above said shafts.

2. In a type-writing machine, the combination with a type-bar, of a laterally deflected or bowed operating rock-shaft rigidly connected to said type-bar, and a key for operating said shaft and disposed in a plane above the same.

3. In a type-writing machine, the combination with a series of type-bars arranged in crescent formation, of laterally deflected or bowed operating rock-shafts rigidly connected to the type-bars, and operating-keys disposed in a plane above said shafts.

4. In a type-writing machine, the combination with a series of type-bars arranged in crescent formation, of laterally deflected or bowed operating rock-shafts rigidly connected to the type-bars, each of said type-bars being disposed at right angles to the axis of its rock-shaft, and operating-keys located in a plane or planes above said shafts.

5. In a type-writing machine, the combination with a series of type-bars arranged in crescent formation, of laterally deflected or bowed operating rock-shafts rigidly connected to said type-bars, each of said type-bars being disposed at right angles to its rock-shaft, a series of separate bearing members supporting the inner or rear ends of the rock-shafts, and keys for operating said shafts and located in a plane or planes above the same.

6. In a type-writing machine, the combination with a frame for the type-action having an approximately crescent-shaped type-basket opening, of a series of individual bearing members grouped about the edge of said opening, operating rock-shafts journaled in said bearing members, type-bars rigid with said operating-shafts and grouped in crescent form within the opening, and keys for operating said shafts and located in a plane or planes above the same.

7. In a type-writing machine, the combination with a supporting-frame for the type-action, said frame having a crescent-shaped type-basket opening, of a series of individual bearing members of different projection arranged about the edge of said opening, operating rock-shafts journaled in said bearing members, type-bars rigidly connected with the rock-shafts and arranged in crescent form within the type-basket opening, said rock-shafts extending away from the type-basket and bearing an angular relation to each other, and keys for operating said rock-shafts.

8. In a type-writing machine, the combination with a supporting-frame for the type-action, said frame having a crescent-shaped type-basket opening, a series of individual bearing members arranged about the edge of said opening and of different projection, other bearings removed from the type-basket and paired with those about the opening, operating rock-shafts journaled in said paired bearings, certain of said shafts being crossed, and type-bars rigidly connected to said shafts and arranged in crescent formation about the edge of the type-basket opening.

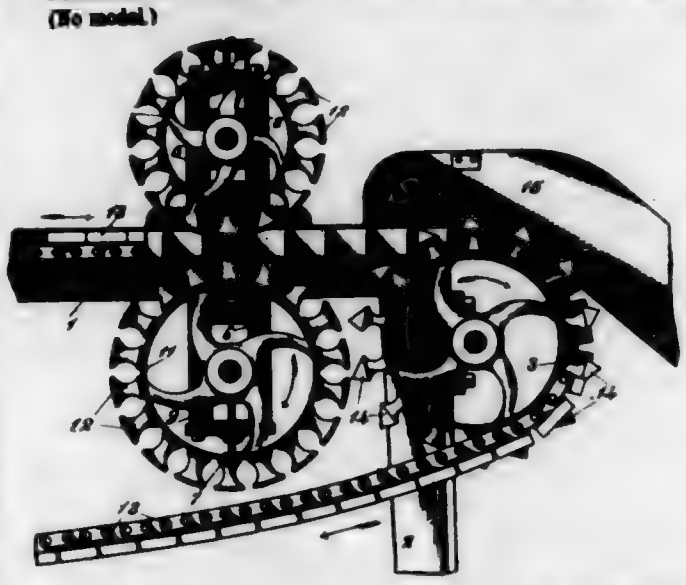
9. In a type-writing machine, the combination with the keys, of a series of type-bars, and operating rock-shafts rigidly connected to the type-bars and disposed at right angles thereto, said rock-shafts being extended under the keys.

10. In a type-writing machine, a support for the type-action having a crescent type-basket opening, a plurality of swinging type-bars provided with operating rock-shafts rigid therewith and extending forwardly of said type-basket opening, all of said rock-shafts extending in divergent relation from the type-basket opening and bunched toward the center of the support for the type-action, and bearings for the operating-shafts arranged respectively about the type-basket opening and remote from the latter.

11. In a type-writing machine, a support for the type-action having an approximately crescent type-basket opening, a series of closely-arranged individual bearings arranged about the edge of said opening and of different projection, other bearings arranged remote from the type-basket opening and paired with those about the opening, and swinging type-bars provided with operating rock-shafts rigid therewith and journaled in the paired remotely-arranged bearings, all of said rock-shafts extending in divergent relation away from the type-basket, and certain of which cross each other in different planes.

12. In a type-writing machine, the carriage provided within the rear side thereof with an approximately crescent type-basket opening, a series of individual bearings grouped about and arising from the edge of said opening, said bearings being of different projection and disposed in staggered relation, other bearings fitted within the carriage-casing remote from those about the type-basket opening, and paired with the latter, and swinging type-bars grouped within the type-basket opening and provided with operating rock-shafts journaled in the paired bearings, all of said rock-shafts extending in divergent relation forwardly of the type-basket opening and grouped or bunched toward the center of the carriage-casing, whereby certain of such shafts cross each other in different planes.

690,716. CONTINUOUS MOLDING-MACHINE. BENJAMIN FLETCHER, Toronto, Canada. Filed Aug. 23, 1901. Serial No. 72,976. (No model.)



Claim.—1. In a continuous molding-machine, the combination of an endless chain of molds adapted to travel longitudinally over the bed of the machine, vertically-adjustable upper and lower compression-wheels, and a discharging-wheel for ejecting the contents of the molds, substantially as set forth.

2. In a continuous molding-machine, the combination of an endless chain of molds adapted to travel longitudinally over the bed of the machine, a vertically-adjustable compression-wheel meshing with the upper side of said chain of molds, a vertically-adjustable compression-wheel meshing with the under side of said chain of molds, and a discharging-wheel for ejecting the contents of the molds, substantially as set forth.

3. In a continuous molding-machine, the combination of an endless chain of molds adapted to travel longitudinally over the bed of the machine, an upper compression-wheel provided with a serrated periphery and adapted to mesh with said chain of molds, a lower compression-wheel provided with a serrated periphery and adapted to mesh with said chain of molds, means for vertically adjusting said compression-wheels, whereby their respective addenda can be operated to any desired depth within the molds, a discharging-wheel provided with a serrated periphery and adapted to mesh with the said chain of molds, and the faces of the addenda of said discharging-wheel tangential to the periphery, whereby the

faces meet the contents of the molds parallel with the under side of the same, substantially as set forth.

4. In a continuous molding-machine, the combination of an endless chain of molds adapted to travel longitudinally over the bed of the machine, a table surrounding a plurality of the molds and having the upper surface level with the top of the same, an idler-pulley located below the bed from the periphery of which the chain of molds pass to the surface of the same, a discharging-wheel over which the chain of molds pass to the under side of the said bed, an upper and lower compression-wheel adapted to mesh with the chain of molds, means for vertically adjusting said compression-wheels, whereby the addenda of the serrated peripheries can be operated to any desired depth within the molds, and the faces of the addenda of said discharging-wheel tangential with the periphery, whereby the faces meet the contents of the molds parallel with the under side of the same, substantially as set forth.

690,717. TOBACCO-PIPE CLEANER. JOHN F. FORTH, New York, N. Y. Filed Oct. 7, 1901. Serial No. 77,839. (No model.)

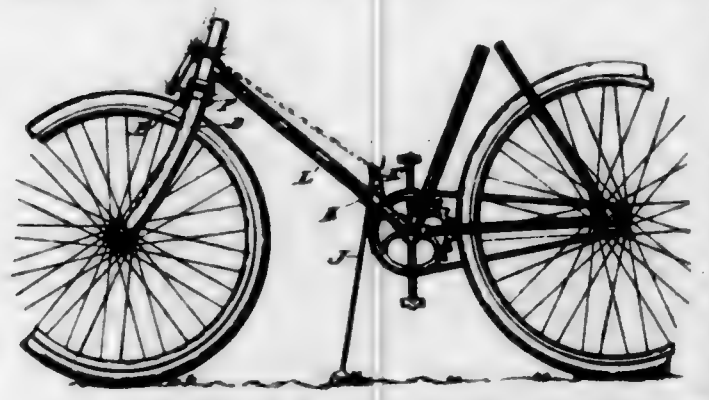


Claim.—1. A tobacco-pipe cleaner comprising a center or core of absorbent material, having wires plaited or twisted over substantially the entire outside thereof.

2. A tobacco-pipe cleaner comprising a core of folded paper having wires plaited around substantially the entire outside thereof.

3. A tobacco-pipe cleaner having a center of folded paper with wires plaited around substantially the entire outside thereof, a portion of the paper being uncovered so as to form a brush.

690,718. BICYCLE-SUPPORT. VICTOR M. GABRIELLE, National Soldiers Home, Va. Filed July 15, 1901. Serial No. 68,315. (No model.)



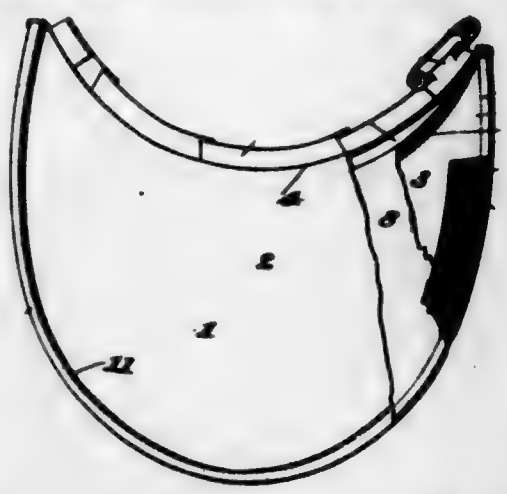
Claim.—1. In a bicycle-support, a fork-section composed of a rear member having openings for the bolts, a front member having laterally-elongated slots for the passage of the fastening-bolts and arranged to lap in front of the fork, and provided with a seat for the latch-plate, the bolts connecting said front and rear members, and the latch-plate, substantially as set forth.

2. In a bicycle-support, a fork-section composed of a front member having a central forwardly-opening slot forming a seat for the latch-plate and laterally-projecting portions to overlap the arms of the fork and provided with openings for the clamping-bolts, back plate to overlap the arms of the fork on the side opposite the front member and the clamping-bolts connecting said member and back plate, the latter being adapted for application to the fork of a bicycle and the latch-plate, substantially as set forth.

3. A fork-section composed of a front member bent from a length of suitable material to provide the forwardly-projecting portion returned providing the forwardly-opening slot, and the lateral portions providing the laterally-elongated slots and arranged to overlap the front of the fork-bars, the back plate overlapping the rear of the fork-bars and the clamping-bolts connecting the front member and back plate and the latch-plate, substantially as set forth.

4. The combination of the bicycle, the supporting-bar therefor, a clasp embracing the frame-bar of the bicycle and to which the supporting-bar is pivoted at one end, and the wheel-fastening devices comprising a clasp embracing the post of a bicycle, a bolt connecting the ends of said clasp and the bracket carried by said bolt and arranged to form a support for the swinging end of the bicycle-support, substantially as set forth.

690,719. DRESS-SHIELD. MARTHA B. GAULT, Cincinnati, Ohio. Filed Sept. 16, 1901. Serial No. 75,639. (No model.)



Claim.—1. A dress-shield formed of two parts or wings having convex edges and provided with a moisture-proof sheet, curved reinforces of thickened pliant material extended along the convex edges of the shield, a binding extended around the convex edges of the shield and a seam extended along said binding for holding the same to the shield, said seam being also passed through the curved reinforces for holding the same to the moisture-proof sheet, substantially as set forth.

2. A dress-shield formed with two wings or parts secured together and formed with convex lower edges and provided with a moisture-proof sheet and curved reinforces of thickened pliant material attached to and extended along the convex edges of the wings, the ends of said reinforces being spaced apart from the points where the convex edges of the wings join at the connection between the wings, whereby a portion of the convex edge of each wing at each end of the reinforce thereon is left free from such reinforce to permit free movement of the parts or wings at their point of connection, substantially as set forth.

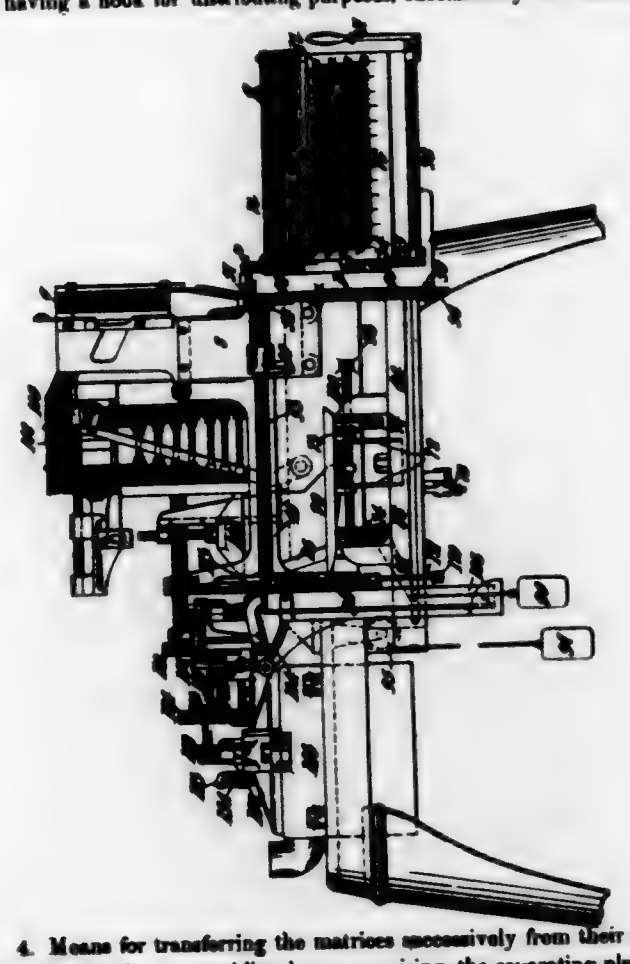
690,720. APPARATUS FOR CASTING AND COMPOSING TYPES. HENRY J. S. GILBERT-STRINGER, Westbourne Park, London, England. Filed May 27, 1901. Serial No. 62,113. (No model.)

Claim.—1. In an apparatus for producing lines of single types and spaces, means of selecting matrix-bars, means of assembling the selected bars with their proper characters in a line, means of justifying the line by insertion and expansion of space-matrices between the word groups, means for presenting the matrices singly to a type-mold and casting the type or space from it, means for returning the matrices to the magazine in which they were previously stored, and means of delivering the cast types and spaces in the order of casting line upon line on a galley, substantially as described.

2. In an apparatus for producing lines of single types and spaces, a set of matrix-bars constituting a font and each of which carries a number of intaglio characters on its face and has one edge provided with alining notches and the other edge with notches of depths suited to the set widths of the characters a hook corresponding in height to the group to which the bar belongs, for distribution purposes, each bar having thickness of the types to be cast from it or thickened by a definite amount, substantially as described.

3. In an apparatus for producing lines of single types and spaces, a space-matrix composed of two united tapered side pieces having between them a tapered blade-piece capable of being moved upward to expand the thickness of the space-matrix and being also inclined on one edge at such an angle that when raised, its edge presented in a notch of the side pieces is so related to the thickness to which the space-matrix is expanded, that when the matrix is brought to the mold, the width of the mold is determined by the part of the inclined edge so presented, the said space-matrix having also a projection for holding its sides up while its middle

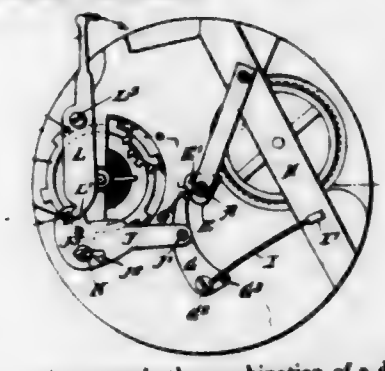
piece is pushed down by pressure on a projection from it, and these side parts having a hook for distributing purposes, substantially as described.



4. Means for transferring the matrices successively from their casting position to the reassembling-box, comprising the separating-plunger 173, the thin leaves 176, the yoke-piece 184 and its connections to the separating-plunger, substantially as described.

5. In a type-casting apparatus, the combination with a metal-pump provided with a discharge-tube, a pump-nozzle sliding in the latter, a mold, and a matrix, of means for moving the mold to and from the matrix along with the pump-nozzle.

690,721. STOP-WATCH. SAM GOLDFADEN, New York, N. Y., assignor of one-half to Victor Hivon, Brooklyn, N.Y. Filed Mar. 30, 1901. Serial No. 53,636. (No model.)



Claim.—1. In a watch, the combination of a driving-wheel, a seconds-hand loosely connected therewith, a friction connection or clutch between the wheel and the seconds-hand, a heart-cam rigid with the seconds-hand, a spring-pressed arm arranged to strike said cam to cause the seconds-hand to fly back to a predetermined position, a projection or stop for engaging the watch-movement to stop the same, and an operating-arm having a step-by-step movement in one direction, said arm being arranged to move the projection or stop on its initial or first step into engagement with the watch-movement and to bring about the operative movement of the spring-pressed arm during the second step, the return movement of the said arm serving to disengage the projection or stop from the watch-movement and the spring-pressed arm from the cam.

2. In a watch, the combination of a driving-wheel, a seconds-hand loosely connected therewith, a friction connection or clutch between the wheel and the seconds-hand, a heart-cam rigid with the seconds-hand, a spring-pressed arm arranged to strike the cam to cause the seconds-hand to fly back to a predetermined position, an elastic projection or stop for engaging the watch-movement to stop the same, and an operating-arm having a step-by-step movement in one direction, said arm being arranged to move the projection or stop on its initial or first step into engagement with the watch-movement and to bring about the operative movement of the spring-pressed arm during the second step, the return movement of the said arm serving to disengage the projection or stop from the watch-movement, and the spring-pressed arm from the cam.

3. In a watch, the combination of a driving-wheel, a seconds-hand loosely connected therewith, a friction connection or clutch between the wheel and the seconds-hand, a heart-cam rigid with the seconds-hand, a spring-pressed arm arranged to strike said cam to cause the seconds-hand to fly back to a predetermined position, a retaining-link arranged to hold said arm away from the cam, an operating-arm arranged to release said link and to bring it into the locking position, said operating-arm being capable of an independent initial movement during which it does not affect said spring-pressed arm, and a projection or stop arranged to be shifted by the initial movement of the operating-arm against the clockwork, to arrest the latter and stop the seconds-hand in the position it momentarily occupies.

4. In a watch, the combination of a driving-wheel, a seconds-hand having a friction or clutch connection therewith, an operating-arm having a two-step movement in one direction, a stop mechanism arranged to be actuated by the initial or first step of the operating-arm's movement to stop the seconds-hand, and a fly-back mechanism arranged to be actuated by the second or final step of the operating-arm's movement, the return movement of the operating-arm serving to release the seconds-hand from the action of the fly-back mechanism and of the stop mechanism.

5. In a watch, the combination of a driving-wheel, a seconds-hand loose thereon, a friction connection or clutch between the driving-wheel and the seconds-hand, a heart-cam rigid with the seconds-hand, a spring-pressed arm adapted to strike said cam, a link having a pivotal connection with the said arm and an L-shaped guideway, a stationary pin engaging said guideway, and an operating-arm having an actuating connection with said link.

6. In a watch, the combination of a driving-wheel, a seconds-hand having a friction or clutch connection therewith, an operating-arm having a two-step movement in one direction, a stop arranged to be shifted against the clockwork by the initial or first step of the operating-arm's movement, and a fly-back mechanism arranged to be actuated by the second or final step of the operating-arm's movement, the return movement of the operating-arm serving to release the seconds-hand from the action of the fly-back mechanism, and the clockwork from the action of the stop.

7. In a watch, the combination with a seconds-hand mounted to be turned by the watch-movement or to turn independently thereof, and a fly-back mechanism for returning the seconds-hand to a predetermined position, of a locking device for holding the fly-back mechanism inactive, a stop for engaging the watch-movement to stop the same, and a moving lever for operating the stop into engagement with the watch-movement and releasing the locking device when moved in one direction, the return movement of the lever disengaging the stop from the watch-movement and restoring the locking device to its normal position.

8. In a watch, the combination with a seconds-hand mounted to be turned by the watch-movement or to turn independently thereof, and a fly-back mechanism for returning the seconds-hand to a predetermined position, of a locking device for holding the fly-back mechanism inactive, and an operating-lever operatively connected with the locking device and provided with a stop for engaging the watch-movement to stop the same, said lever when moved in one direction bringing the stop into engagement with the watch-movement and releasing the locking device, and when moved in the opposite direction disengaging the stop from the watch-movement and restoring the locking device to its normal position.

9. In a watch, the combination with a seconds-hand mounted to be turned by the watch-movement or to turn independently thereof, and a heart-cam rigid with the seconds-hand, of a spring-pressed arm adapted to strike the cam to cause the seconds-hand to fly back to a predetermined position, a locking device for the said arm, and an operating-lever having one end operatively connected with the locking device and provided with a stop for engaging the watch-movement to stop the same, said lever when moved in one direction bringing the stop into engagement with the watch-movement and releasing the locking device, and when moved in the opposite direction disengaging the stop from the watch-movement and restoring the locking device to its normal position.

10. In a watch, the combination with a seconds-hand mounted to be turned by the watch-movement or to turn independently thereof, and a heart-cam rigid with the seconds-hand, of a spring-pressed arm adapted to strike the cam to cause the seconds-hand to fly back to a predetermined position, a link pivoted to the arm and provided with an L-shaped guideway, a fixed pin working in the guideway of the link, and an operating-lever having one end operatively connected with the link and provided with a stop for engaging the watch-movement to stop the same.

11. In a watch, the combination with a seconds-hand mounted to be turned by the watch-movement or to turn independently thereof, and a heart-cam rigid with the seconds-hand, of a spring-pressed arm adapted to strike the cam to cause the seconds-hand to fly back to a predetermined position, a link pivoted to the arm and provided with an L-shaped guide-

way and with spaced projections, a pin working in the guideway of the link, and an operating-lever having at one end inclined faces extending between the projections of the link and provided with a stop for engaging the watch-movement to stop the same.

12. In a watch, the combination with a stop and fly-back hand, of an operating-arm having a yielding stop arranged to engage a part of the clockwork during the movement of said arm in one direction, and a fly-back mechanism arranged to be operated by the further movement of said arm in the same direction.

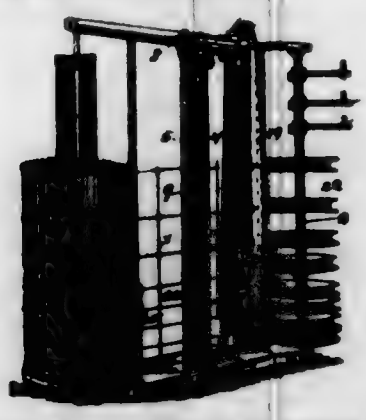
690,722. LOOP-TAKER MECHANISM FOR SEWING-MACHINES. WILLIAM GROTER, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed June 17, 1901. Serial No. 64,813. (No model.)



Claim.—1. In a sewing-machine, the combination of a rotatable loop-taker having holes which are substantially parallel with its axis and are adapted to receive the driver-fingers, a guard-plate lying behind and close to the loop-taker and mounted to rotate upon the same axis, and having holes through which the driver-fingers may pass, with a rotatable driver-shaft having fingers rigidly secured thereto and projecting forward from its end through the holes in the guard-plate and into the holes in the loop-taker, whereby both the loop-taker and guard-plate are simultaneously rotated by the driver-fingers, said driver-shaft being mounted with its longitudinal axis at an angle to the loop-taker and guard-plate, whereby the driver-fingers are caused to engage and recede from the holes in the loop-taker, substantially as and for the purpose specified.

2. In a sewing-machine, the combination of a loop-taker housing, having a bell-shaped end in which is an annular groove in which the loop-taker is rotatably mounted, and behind this another annular groove in a plane parallel to the plane of the first-named groove, with a loop-taker rotatably mounted in the groove provided therefor, and having holes to receive the driver-fingers, a guard-plate located between the loop taker and driver and composed of two separable sections secured together, and having its edge rotatably mounted in the groove in the housing behind the loop-taker, and having also two holes through which the driver-fingers pass to said loop-taker, and a driver-shaft having, inside the bell-shaped end of the housing, forwardly-projecting driving-fingers which pass through the holes in the guard-plate and engage the holes in the loop-taker and operate to simultaneously rotate both the loop-taker and guard-plate, said driver-shaft being mounted with its longitudinal axis at an angle to the axis of the loop-taker and guard-plate whereby the driver-fingers are caused to engage and retreat from the holes in the loop-taker, substantially as and for the purpose specified.

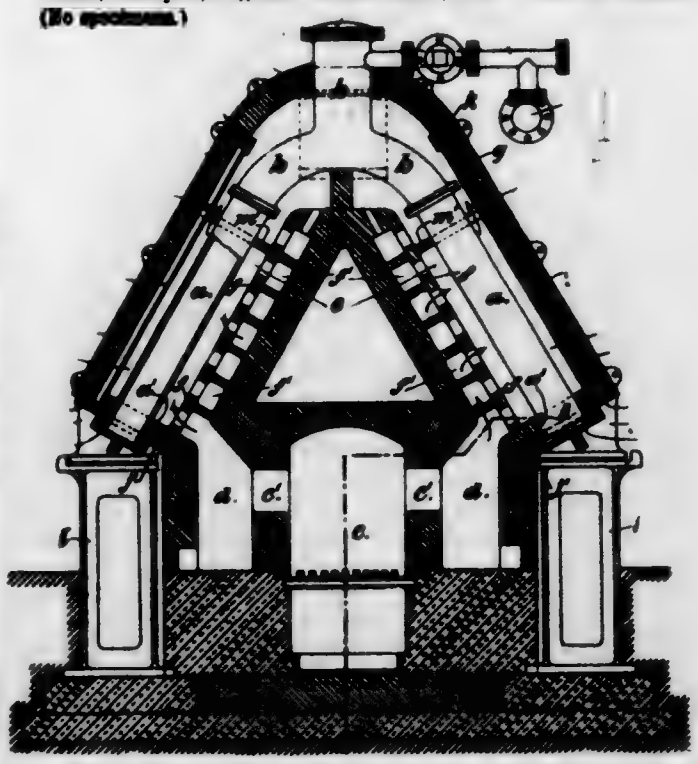
690,723. HAND-MACHINE FOR CASTING BALLS UPON WIRE CROSSINGS. JONATHAN HARRIS, Oxford, Mich., assignor to the Harris Wire Fence Company, Oxford, Mich., a Corporation. Filed Aug. 24, 1900. Serial No. 27,907. (No model.)



Claim.—1. A hand-machine for the purpose described comprising in combination, spools for horizontal wires, a reel for the completed product, means for feeding the longitudinal wires consisting of an elongated cam and a compression-post mounted upon sliding plates and adapted to grip securely each wire, a hand-lever and links connected with said cam whereby the cam and post can be moved and fixed molds and movable molds, arranged to engage said longitudinal wires and each vertical wire in turn, the said fixed molds being mounted upon a vertical support adjacent to said horizontal wires, and said movable molds being mounted upon a pivoted bar, a locking-lever for the pivoted bar, and a perforated guide-bar for the horizontal wires, substantially as described.

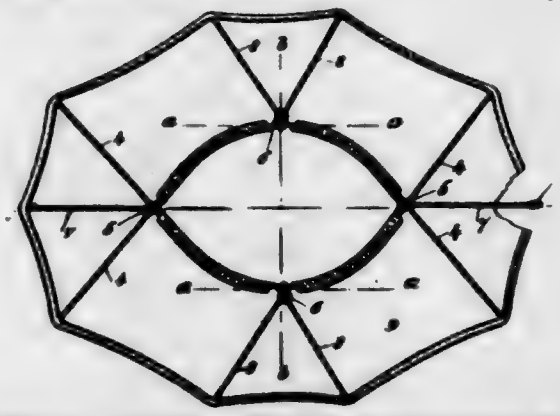
2. In a machine for casting balls upon wire crossings, the combination with spools adjustably placed to receive the longitudinal wires and a reel for the final product, a cam and post adapted to grip the longitudinal wires, sliding plates supporting said cam and post, lever mechanism for rotating said cam and for moving said cam, post and sliding plates, stops arranged to limit the movements of said plates, and stationary and movable molds arranged to engage said longitudinal wires on either side respectively, the said movable molds being provided with V-shaped guides constructed and arranged to guide the horizontal and vertical wires to the molds, substantially as described.

690,724. PROCESS OF MAKING ACETONE. JOSEF L. HAWLICEK, Liverpool, England. Filed Feb. 21, 1899. Serial No. 706,282. (No specimens.)



Claim.—The herein-described process of manufacturing acetone direct from wood, and an alkaline earth, consisting in cutting wood into blocks of a suitable size for handling, as described, coating such wood blocks with fluid lime and water, by immersing them therein, subsequently subjecting these combined substances to heat in a closed and externally-heated vessel, heated to a temperature below bright-red heat, and subsequently artificially cooling the said resultant vapors of distillation; substantially as described.

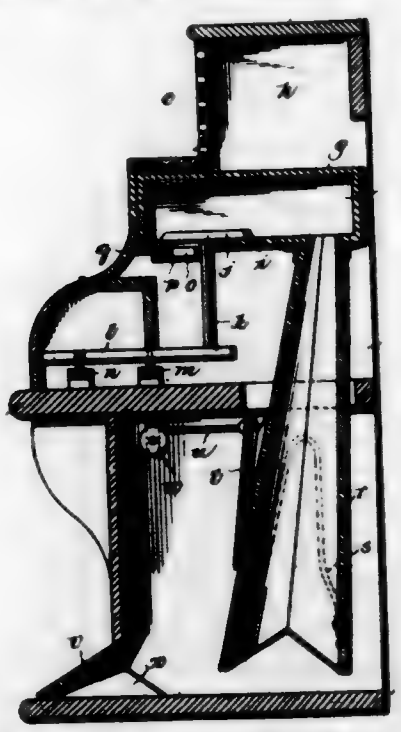
690,725. SHADE. WILLIAM A. HAYWOOD, Denver, Colo. Filed Sept. 24, 1901. Serial No. 76,425. (No model.)



Claim.—1. A shade comprising a frame formed of two pairs of bars, the members of which pairs are pivotally connected together intermediate their ends, the said pairs of bars being pivotally connected together at their inner or adjacent ends, a side bar located at each side of the said pairs of bars and extending outward therefrom, and a fabric covering on the bars.

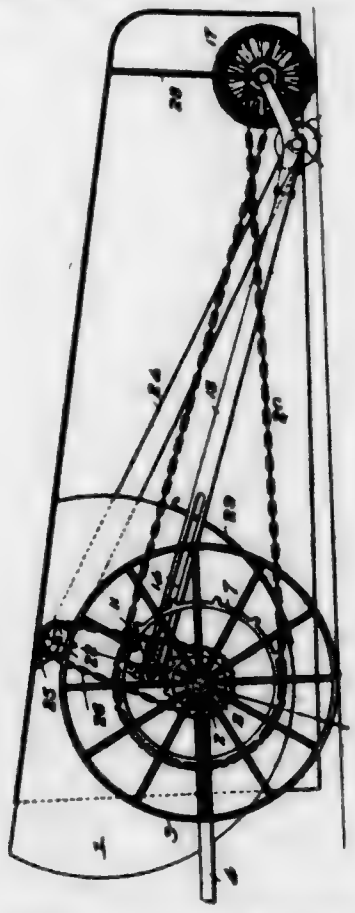
2. A shade comprising a folding frame formed of two pairs of bars, the members of which are pivoted together at their adjacent ends, side bars located at each side of the said pairs of bars and pivotally connected therewith, and end bars connected to the pivot of each of the said pairs of bars, the end bars extended outward oppositely from each other, and a fabric covering held on the frame.

690,726. ORGAN. LOGAN D. HICKMAN, Wichita, Kans. Filed May 22, 1901. Serial No. 61,414. (No model.)



Claim.—In an organ, the combination with the case, and a keyboard and bellows mounted therein; of a horizontally-disposed wind-chest mounted in the upper portion of said case above said keyboard and bellows, reeds mounted upon the under side of said wind-chest, valves also mounted in the under side of said wind-chest, said valves having depending stems adapted to be actuated from said keyboard, said valves controlling openings in the under side of said wind-chest communicating with said reeds, a chamber formed above said wind-chest, a perforated board extending from the upper side of said wind-chest to the top of the organ-case and forming the front of said chamber, a tight casing extending from the bottom of said perforated board to the keyboard, and a hinged lid in the bottom of said casing adapted to expose said keyboard when opened, said casing and lid protecting said wind-chest and its reeds and valves from dust and the like, substantially as described.

690,727. STREET-SWEEPER. DAVID D. HITCHINGS, Norfolk, Va. Filed Mar. 14, 1901. Serial No. 51,182. (No model.)

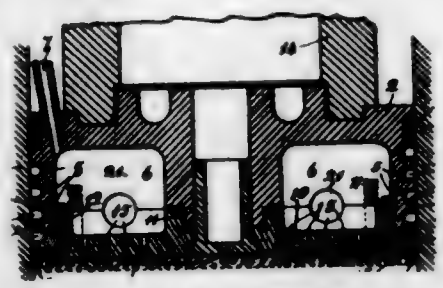


Claim.—1. In a street-sweeper, the combination with a wheeled cart, of arms having slots, a stay extending across the cart and having reduced ends passed through the sides of the cart and projecting into the slots, nuts on the extremities of said ends, and sweeping mechanism carried by the arms adapted to elevate the material into the cart.

2. In a street-sweeper, the combination with a wheeled cart, of arms connected thereto, a roller carried by the arms, a movable or shiftable roller, guides on the cart having portions receiving the journals of said movable roller, which portions are disposed upwardly in relation to the wheels of the cart and the roller on the arms, a chain operatively connecting said movable roller to the wheels of the cart, and an endless carrier or apron running over the rollers, whereby as the carrier is tightened or its slack taken up, the movable roller will be moved and the tension on the chain tightened.

3. In a street-sweeper, the combination with a wheeled cart, of arms connected thereto, a roller carried by the arms, a roller carried by the cart, an endless carrier operating over said rollers, gearing interposed between the wheels of the cart and the endless carrier to operate the same, a rotary brush carried by the arms, a chain operatively connecting the brush with the wheels of the cart, and a cover connected to the cart and extending across the top thereof and down close to the ground on the outside of the cart wheels and inclosing the cart and all of the said sweeping mechanisms, said cover being supported at its rear end from the arms.

690,728. PRESS FOR GUNCOTTON. ALFRED HOLLINGS, Charlton-cum-Hardy, England. Filed Apr. 12, 1901. Serial No. 55,561. (No model.)



Claim.—1. A ram-head for guncotton-presses having a groove in the periphery thereof, a packing-ring in rear of the groove, and water-passages leading to said groove, substantially as described.

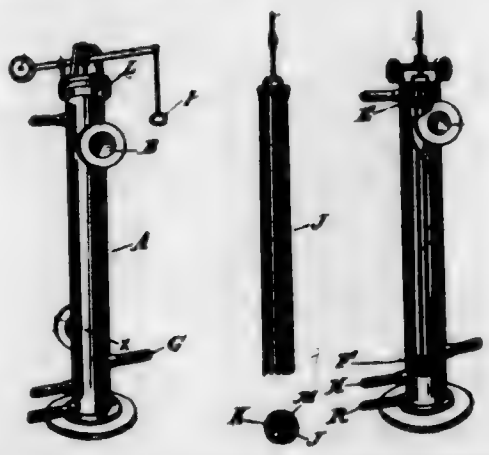
2. A ram-head for guncotton-presses having a water-chamber therein, a groove in the periphery of the head, a packing-ring in rear of the groove and water-passages connecting said groove and chamber, substantially as described.

3. A ram-head for guncotton-presses having an annular hollow chamber therein, a groove in the periphery of the head, a packing-ring in rear of the groove and water-passages leading from said chamber to said groove and to the face of the head, substantially as described.

4. A ram-head for guncotton-presses having an annular interior water-chamber, a helical groove in the periphery of said head, and a plurality of passages connecting said chamber and groove, substantially as described.

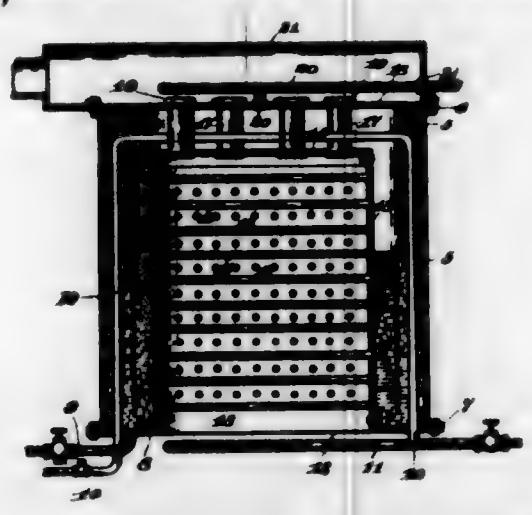
5. A ram-head for guncotton-presses having an annular interior water-chamber, a helical groove in the periphery of the head, a packing-ring in rear of the grooved portion thereof, and a plurality of passages connecting said chamber with said groove and with the face of the head, substantially as described.

690,729. TUBULAR CONDENSER AND WATER-HEATER. CHARLES P. HORTON, Birmingham, England. Filed Aug. 15, 1901. Serial No. 72,111. (No model.)



Claim.—In the water-circulating tubes of steam-condensers and water-heaters, the employment of internal rods or tubes of rather smaller diameter than the interior of said circulating-tubes with means for reciprocating said internal rods or tubes to and fro to keep the circulating-tubes free from incrustation and mud substantially as set forth.

690,730. STEAM-BOILER. BENJAMIN F. JACKSON, North Cambridge, Mass., assignor of three-fourths to Joseph W. Lovett, Wollaston, Mass., William R. Reeve, Dorchester, Mass., and Maurice Douglas Flattery, Boston, Mass. Filed Apr. 2, 1901. Serial No. 54,012. (No model.)



Claim.—1. The combination with a rectangular tube-chamber furnished at its lower end with a base, fixed thereto and having a central opening, and at its upper end with a flue having a screw-thread, of a cylindrical shell embracing the tube-chamber and removably secured to said base, and having at its upper closed end an opening to receive the flue end, and a nut screwed onto the end of the flue and bearing against the shell-top, as and for the purpose described.

2. A steam-boiler comprising a cylindrical casing provided at one end with a plate having an opening, a water-tube chamber secured to such plate and having an open end and an end closed, and a fluid-fuel-supply pipe located between the shell and the tube-chamber.

3. A boiler comprising a cylindrical shell provided with end plates one of which has an opening, a rectangular water-tube chamber secured therein and having a closed end, a series of flues connecting the interior of said tube-chamber with the exterior of the closed end of the shell, and a steam-pipe centrally disposed with relation to said flues.

4. In a steam-boiler, the combination with the cylindrical shell having the ends, one of which has a rectangular opening, the rectangular water-tube chamber secured to such plate above said opening and having the top plate supplied with a series of openings, and the flues secured in said top plate, of the steam-pipe extending through an opening of the end plate of the shell and coiled above the open ends of the flues.

5. In a boiler, the combination with the cylindrical shell having the closed upper end, and the rectangular water-tube chamber mounted within the shell and connected with the closed end thereof by flues, of the fluid-fuel-supply pipe extending between the shell and the tube-chamber and over the top of said chamber, as described.

6. The combination with the shell 5 provided with the plate 8, the tube-chamber 12 secured to said plate 8 and provided with the top 14 and with tubes 15 and 16, the flues 17 secured in openings in the top 14, the crown-sheet 18 secured at its edges to the shell 5, and having openings through which the flues 17 extend, and the nuts 19 secured to the ends of said flues, of the steam-supply pipe 20 extending through a central perforation in the crown-sheet and coiled above the ends of the flues 17, as described.

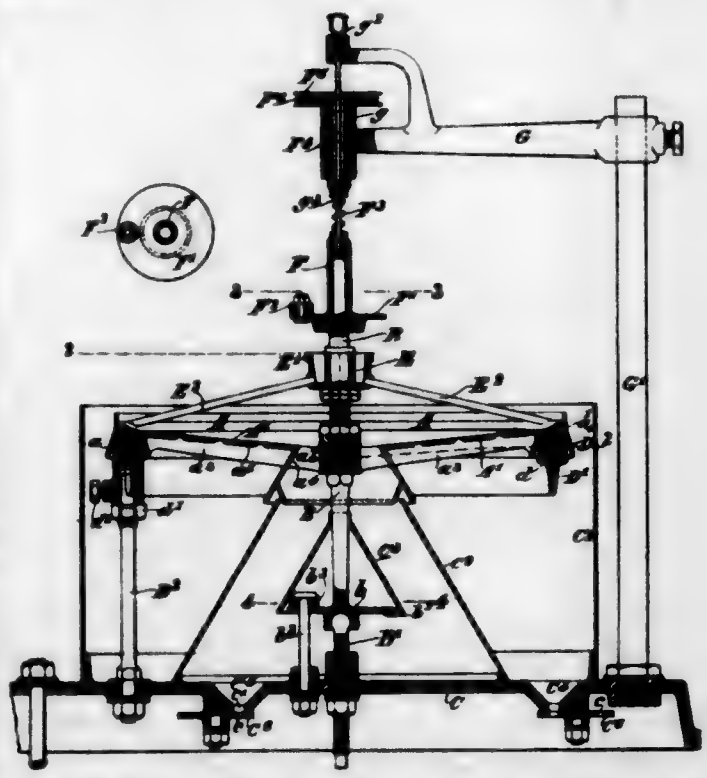
690,731. APPARATUS FOR SIFTING PULVERIZED ORES OR THE LIKE. WILLIAM JAMIESON and FRANCIS J. OLLIVE, Melbourne, Victoria. Filed June 10, 1901. Serial No. 64,135. (No model.)

Claim.—1. In combination, a conically-dished sifter having a central discharge, a spindle carrying the same, and supported to tilt in different directions, a weighted disk above the sifter for acting upon the spindle, and means for driving the weighted disk to allow the same to have a lateral deflection under the action of the weight to thus tilt the spindle and sifter in different directions.

2. In combination, the dish-shaped sifter having an annular rim a' formed with a flat seating-surface on its under side, a rubber cushion upon which said flat surface rests, said sifter having the central discharge, a spindle carrying the said dished sifter, and means for causing said spindle and sifter to tilt in different directions, substantially as described.

3. In an apparatus for the purpose specified a conically-dished sifting or sizing dish A formed of an annular rim or ring a' having an annular rim a formed with a flat seating-surface on its under side, yielding means upon which said surface a rests, radial ribs or arms a^3, central boss a^2, central discharge-opening a^4, the perforated or meshed material A′ covering open surface between the outer ring and central discharge above the said ribs or arms and means for giving the sifting-dish a tilting movement substantially as described and illustrated.

4. In an apparatus for the purpose specified, the conically-dished sifting or sizing appliance A having its surface A′ perforated or meshed and provided with a central discharge a^4, and a central pivotal spindle B, combined with the hopper E rotatable on spindle B and provided with radial feed-pipes E^2, the sleeve-disk F, F′ having a weight F^3 at one side and designed to rotate on upper part of spindle B, and the rubber or other cushion D upon which dish A is seated, substantially as described and illustrated.



5. In an apparatus for the purpose specified the combination of the conically-dished sifting or sizing appliance A A′ provided with a central discharge a^4 and with a peripherical feed appliance, the central spindle B provided with pivotal cup b and flange b' at its lower end, weighted rotating disk F′ F^2, flexible shaft F^1, disk-driving spindle F^4, dish-seating cushion D supported in an adjustable ring D′, the spherical-headed adjustable bolt B′, the holding-bolts b^2, the rubber washers b^3 between bolt-heads and disk, and the bed-plate C substantially as described and illustrated.

6. In combination, the conically-dished sifting appliance A A′, a cushion D upon which said appliance rests, a ring D′ supporting the cushion, adjustable pillars D^3 supporting the ring, a spherically-headed adjustable pivot-bolt B′, the dish-spindle B having a cup and a flange b' connected to its lower end, said cup resting on the head of the pivot-bolt, a bed-plate C, the bolts b^2 extending therefrom having heads, rubber washers on the flange b' upon which said heads rest, a casing, and means for giving the spindle a tilting movement in a direction circumferentially of the sifter, substantially as described.

7. In combination, a dish-shaped sifter, a spindle supporting the same, means for tilting said spindle in a direction circumferentially of the sifter while said spindle and sifter are held against actual rotation, and means for so holding the spindle and sifter, substantially as described.

690,732. GLAZING-BAR. DENZIL J. JARVIS and JOSEPH W. WADKIN, Leicester, and THOMAS S. KING, Colchester, England. Filed July 8, 1901. Serial No. 67,497. (No model.)

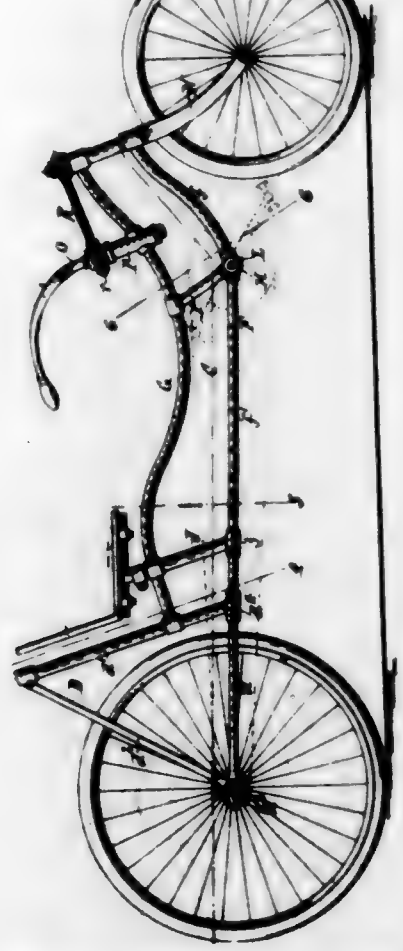


Claim.—1. A glazing-bar having a core of hard metal, said core being formed with a web, the lower projections c and the overhanging projections d extending from said web and a soft-metal covering for said core having flaps extending therefrom at the points where the upper parts of the core overhang, substantially as described.

2. In a glazing-bar, a stop plate or bracket attached to the end of the bar, projections on such plate or bracket for entering between the web and the edge of the glass, as described and illustrated.

690,733. BICYCLE. HAROLD JARVIS, Buffalo, N. Y., assignor of one-half to Richard H. Thompson, Buffalo, N. Y. Filed June 17, 1901. Serial No. 64,777. (No model.)

Claim.—1. In a bicycle, the combination of a frame comprising a steering-head arranged at its front end, a forked frame for the rear wheel arranged at its rear end and an intermediate reach composed of a pair of tube members arranged one above the other and connected at their front ends to the steering-head and at their rear ends to the lower front portion of said rear-wheel frame, whereby said wheel-frame extends above the upper reach member, a seat mounted on the upper reach member immediately in front of the rear-wheel frame, a crank-shaft journaled on the lower reach member near the steering-head, and driving-gearing connecting the crank-shaft with the rear wheel, substantially as set forth.



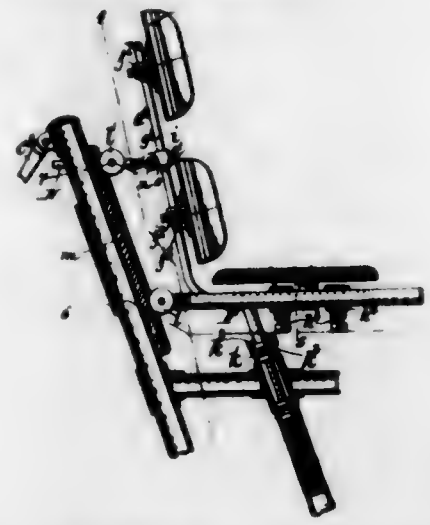
2. In a bicycle, the combination of a frame comprising a steering-head arranged at its front end, a forked frame for the rear wheel arranged at its rear end and an intermediate reach composed of a pair of tube members arranged one above the other and connected at their front ends to the steering-head and at their rear ends to the lower front portion of said rear-wheel frame, whereby said wheel-frame extends above the upper reach member, a seat mounted on the upper reach member immediately in front of the rear-wheel frame, a steering-spindle journaled on the upper reach member directly in rear of the steering-head and connected with the stem of the front-wheel fork, and a crank-shaft arranged on the lower reach member underneath said steering-spindle, substantially as set forth.

3. In a bicycle, the combination with a frame having a depressed front part and an elevated rear part, said rear part consisting of a substantially upright bar, a lower fork extending rearwardly from the lower end of said bar, and an upper fork extending downwardly from the upper end of said bar to the rear end of the lower fork, and said front part consisting of a steering-head, a lower reach member extending from the lower end of the steering-head rearwardly to the lower end of said bar, an upper reach member extending from the upper end of the steering-head rearwardly to said bar below the upper end thereof, a seat-post connecting the upper and lower reach members in front of said bar and having its upper end terminated below the upper end of said bar, and a seat mounted on the upper end of the seat-post, substantially as set forth.

4. In a bicycle, the combination with a frame having a depressed front part and an elevated rear part, said rear part consisting of a substantially upright bar, a lower fork extending rearwardly from the lower end of said bar and an upper fork extending downwardly from the upper end of said bar to the rear end of the lower fork, and said front part consisting of a steering-head, a reach extending from the steering head rearwardly to said bar, a seat-post connected with said reach in front of said bar and having its upper end terminated below the upper end of said bar, and a seat mounted on the upper end of the seat-post and having a back-rest, substantially as set forth.

5. In a bicycle, the combination with a frame having a depressed front part and an elevated rear part, said front part consisting of a steering-head, upper and lower reach members extending rearwardly from the steering-head, and a seat-post connecting the rear portions of the reach members, and said elevated part consisting of a substantially upright bar connecting the rear ends of the reach members and upper and lower forks converging rearwardly from said bar, a seat mounted on the seat-post, and a crank-hanger mounted on the depressed part of the frame between the steering-head and the seat-post, substantially as set forth.

690,784. BICYCLE-SEAT. HAROLD JARVIS, Buffalo, N. Y., assignor of one-half to Richard H. Thompson, Buffalo, N. Y. Filed Aug. 19, 1901. Serial No. 72,462. (No model.)



Claim.—1. The combination of a bicycle-frame comprising a steering-head, a rear-wheel frame and a reach member extending rearwardly from the steering-head and connected at its rear end to the lower front end of said rear-wheel frame, whereby the upper portion of the latter frame projects above the reach member, a seat having a back-rest and supported upon said reach member immediately in front of the projecting upper portion of said rear-wheel frame, and a brace or connection extending rearwardly from the back-rest of the seat to the adjacent raised portion of said rear-wheel frame, substantially as set forth.

2. In a bicycle-seat the combination of a seat-post having a horizontal member, a seat proper capable of forward and backward adjustment on the horizontal member of the seat-post, a back-rest attached to the seat, and an adjustable brace extending rearwardly from the back-rest and constructed to engage with a member of a bicycle-frame located in rear of the back-rest, substantially as set forth.

3. The combination of a bicycle-frame, a vertically-movable seat having a back-rest, a brace extending rearwardly from the back-rest, and a guide-roller carried by said brace and arranged to bear against an upright member of the bicycle-frame located in rear of the back-rest, substantially as set forth.

4. In a bicycle-seat, the combination of a vertically-movable seat-post having a horizontal member provided at its rear end with a guide-roller, a seat proper mounted on said seat-post and having a back-rest, and a brace attached at its front end to the back-rest and provided at its rear end with a guide-roller, said guide-rollers being arranged to run against a member of the bicycle-frame located in rear of the back-rest, substantially as set forth.

5. The combination of a bicycle-frame having its rear portion raised above its front portion, a vertically-movable seat-post mounted on the depressed portion of the frame immediately in front of the raised portion thereof and having a head provided at its rear end with a roller which runs against the adjacent raised portion of the bicycle-frame, and a seat mounted on said head, substantially as set forth.

6. A vertically-movable bicycle-seat having a back-rest, a brace-yoke extending rearwardly from said rest, and a guide-roller journaled between the arms of the yoke and adapted to run against the bicycle-frame, substantially as set forth.

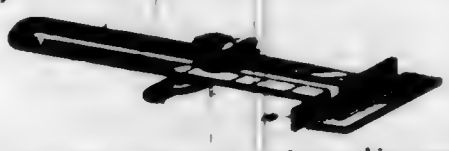
7. A bicycle-seat having a frame provided with upright members, a back-rest attached to said members, a cross-bar composed of sections attached at their outer ends to said upright members and provided at their inner ends with horizontal eyes, a brace-yoke formed in a single piece and having its bow arranged in the eyes of said cross-bar, and a guide-roller journaled between the arms of said yoke, substantially as set forth.

8. In a bicycle-seat, the combination of a frame composed of a pair of horizontal bars arranged side by side and a pair of connected upright bars extending upwardly from the rear ends of said horizontal bars, a pair of separated transverse bars connecting said horizontal bars and provided centrally with eyes adapted to receive the head of a seat-post, a

seat provided on its under side with clips which are attached to said horizontal frame-bars between said transverse bars, and a back-rest attached to said upright frame-bars, substantially as set forth.

9. A bicycle-seat having a back-rest provided centrally in its front side with a vertical groove, and having the portions thereof on opposite sides of the groove rounded to conform closely to the rider's back, forming a broad abutment which, when the seat is occupied, is in contact with the rider's back throughout its width, substantially as set forth.

690,785. TUCKING-GUIDE FOR SEWING-MACHINES. RUSSELL C. JOHNSON, Cincinnati, Ohio. Filed Dec. 13, 1900. Serial No. 39,621. (No model.)



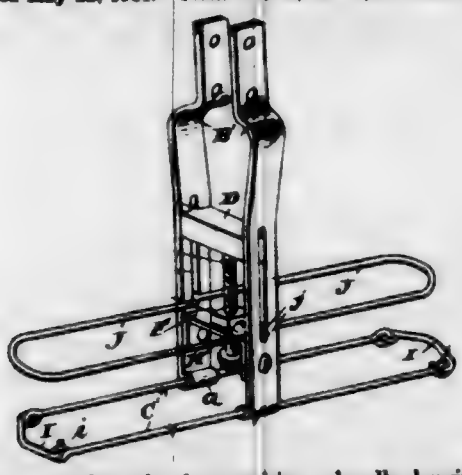
Claim.—1. A tucking-guide for a sewing-machine, comprising an anchor-plate, designed to be adjustably secured to the bed-plate of the machine, and a gage-bearing plate or arm having a gage adjustable longitudinally thereon, the said plate or arm being formed at one end with an integral downwardly-extending flange, and a rearwardly-extending plate by which said gage-bearing arm is connected with the anchor-plate and adjustable transversely thereon, the said rearwardly-extending plate being connected by a reduced portion with the flange between the ends thereof, the ends of the flange extending beyond the connection of the said rearwardly-extending plate with the flange, and having straight lower edges adapted to engage tightly against the bed-plate of the machine, when the anchor-plate is secured in position on said bed-plate, substantially as specified.

2. A tucker attachment for a sewing-machine, comprising an anchor-plate designed to be attached to the bed-plate of the machine, a longitudinally-slotted gage-carrying plate, or arm having a downwardly-extended flange at its inner end, a rearwardly-extended transversely-slotted plate on said rear end, a threaded lug extended from the anchor-plate through said slot, a thumb-nut engaging said lug, and a curved gage adjustable along the longitudinal slot of the gage-plate, substantially as specified.

3. A tucker attachment for a sewing-machine, comprising an anchor-plate having a portion cut away at one edge at its forward end, a gage-carrying plate having a rearward extension adjustable transversely of the anchor-plate, a flange extended upward from the anchor-plate for engaging with the rear edge of said rearwardly-extended plate, a flange extended downward on the gage arm or plate, and having end portions the lower edges of which are slightly below the lower surface of said rearwardly-extending plate, and adapted to engage tightly against the bed-plate of the machine, and a curved guide or gage on said gage-carrying arm or plate, substantially as specified.

4. A tucking-guide for a sewing-machine, comprising an anchor-plate designed to be secured to the bed-plate of the machine, and a longitudinally-slotted gage-bearing arm or plate having a downwardly-extending flange at its inner end having straight end portions the lower edges of which are arranged to engage tightly against the bed-plate of the machine, a rearwardly-extending and transversely-slotted plate on said inner end and slightly above the plane of the lower edges of the end portions of the flange, the said rearwardly-extending plate resting on the anchor-plate and adjustable thereon, and the end portions of the flange engaging the end of the anchor-plate, substantially as set forth.

690,736. BROOM-HEAD. HENRY W. JUDEVINE, Edgar Springs, Mo. Filed May 22, 1901. Serial No. 61,434. (No model.)



Claim.—1. A broom-head comprising a handle, longitudinally-extending arms, a straw-embracing member rigidly connected with the lower portions of said arms, and a longitudinally-movable straw-embracing member located at a point between the handle and said rigid embracing member, substantially as described.

2. A broom-head comprising a handle, downwardly-projecting arms carried thereby and adapted to receive the straw, a clamping member between said arms, means for forcing said member against the straw, transverse bars rigidly secured to the lower ends of said arms, and adapted to receive the straw, and links passing around the straw and connecting the outer ends of said transverse bars, substantially as described.

3. A broom-head comprising a handle, downwardly-extending arms carried thereby and adapted to receive the straw and having elongated openings therein, a clamping member sliding within said openings, means carried by the arms for operating the said clamping member, U-shaped clips passing around the straw and having outwardly-extending ends adapted to enter the elongated openings in the arms, and transverse bars rigidly secured to the lower ends of the said arms.

4. A broom-head comprising a handle, downwardly-extending arms carried thereby, a clamping member slidable between said arms, a plate rigidly secured between the lower ends of said arms and having an opening therein, a screw loosely passing through said opening and engaging the clamping member, a nut on said bolt between the clamping member and the plate, and means carried by said plate for preventing the nut from turning, substantially as described.

5. A broom-head comprising a handle, downwardly-projecting arms carried thereby, a sliding clamping member between said arms, a plate rigidly secured between said arms below the clamping member, having an opening therein, a screw loosely passing through said opening and engaging the clamping member, a nut on said bolt between the clamping member and the plate, and an upwardly-depressed portion carried by the plate adjacent the opening, whereby the nut is prevented from turning, substantially as described.

6. In a broom-head, the combination with a handle, downwardly-extending arms carried thereby and having elongated openings therein, transverse rods rigidly secured to the lower end of said arms, links connecting the outer ends of said rods, a clamping member between said arms and having outwardly-projecting portions sliding in said elongated openings, a plate secured between the lower ends of said arms, and having a transverse opening therein, a bolt passing loosely through said opening and engaging said clamping member, a nut on said bolt between the clamping member and said plate, and U-shaped clips having outwardly-extending ends adapted to enter the openings in said arms, substantially as described.

7. A broom-head comprising a handle, downwardly-projecting arms carried thereby and adapted to receive the straw, a straw-clamping member supported by the arms, transverse bars rigidly secured to the lower ends of said arms, and connecting-links for the ends of said rigid bars, substantially as described.

8. A broom-head comprising a handle, downwardly-projecting arms carried thereby and adapted to receive the straw, a straw-clamping member supported by the said arms, and oppositely-extending U-shaped clips passing around the straw and having their inner ends connected with the said downwardly-extending arms, substantially as described.

9. A broom-head comprising a handle, downwardly-extending arms carried thereby and adapted to receive the straw, U-shaped clips passing around the straw and extending in opposite directions from said arms, the inner ends of the clips detachably connected with the arms, substantially as described.

10. A broom-head comprising a handle, downwardly-extending arms carried thereby and adapted to receive the straw, said arms having longitudinally-arranged openings, a clamping member supported by the said arms, U-shaped clips passing around the straw and having their inner ends engaging the walls of the said longitudinally-extending openings in said arms, substantially as described.

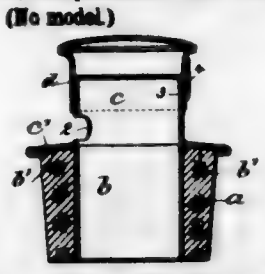
11. A broom-head comprising a handle, downwardly-extending arms adapted to receive the straw between them, transversely and parallel arranged bars intermediately connected with the lower portion of said arms, connecting members for the ends of said arms, and a straw-clamping member supported by the said arms at a point between the said bars and the handle, substantially as described.

12. A broom-head comprising a handle, downwardly-extending arms adapted to receive the straw between them, transversely and parallel arranged straw-embracing members supported by the said arms, one located at a point above the other, and a longitudinally-adjustable straw-clamping member engaging the said arm at a point between the innermost straw-embracing member and the said handle, substantially as described.

13. A broom-head comprising a handle, downwardly-extending arms connected with the handle and adapted to receive the straw between them, a straw-clamping device carried by the said arms and at a point above their lower ends, and a straw-embracing member connected with the said arms at a point below the straw-clamping member, substantially as described.

14. A broom-head comprising a handle, downwardly-extending arms connected therewith and adapted to receive the straw between them, a straw-embracing member extending transverse the arms and connected therewith, and a longitudinally-adjustable straw-clamping member extending between the said arms in a direction transverse the said straw-embracing member, substantially as described.

690,787. TOP FOR TOOTH-POWDER BOTTLES. HENRY B. KENT, New Brunswick, N. J., assignor to Consolidated Fruit Jar Company, New Brunswick, N. J., a Corporation of New Jersey. Filed Nov. 5, 1901. Serial No. 81,172. (No model.)

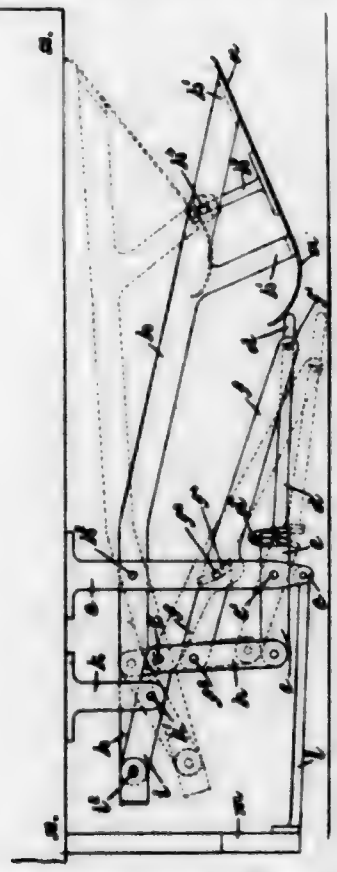


Claim.—1. The combination with the tubular portion *b* and integral flange *b'*, of a tubular portion *c* closed at the outer end and having an integral flange *c'* with a downwardly-turned periphery or edge and an orifice 2 in the tubular portion *c* for the delivery of the tooth-powder, the flanges *c'* and *b'* being connected by overturning the edge of the flange *c'*, and a longitudinally-movable cap *d* fitting upon the tubular portion *c*, substantially as set forth.

2. The combination with the cork *a* having a central opening, the tubular portion *b* and integral flange *b'*, of a tubular portion *c* closed at the outer end and having an integral flange *c'* with a downwardly-turned periphery or edge and an orifice 2 in the tubular portion *c* for the delivery of the tooth-powder, the flanges *c'* and *b'* being connected by overturning the edge of the flange *c'*, and a longitudinally-movable cap *d* fitting upon the tubular portion *c*, substantially as set forth.

3. A top or stopper for tooth-powder bottles or receptacles comprising a cork *a* perforated and of a size adapted to fill the mouth of the bottle or receptacle, a tubular portion *b* and integral flange *b'* of sheet metal stamped to shape, the same fitting the opening in the cork and lying upon its upper surface, a tubular portion *c* closed at its outer end and an integral flange *c'* having a downwardly-turned periphery or edge, the tubular portion *c* having an orifice for the delivery of the tooth-powder and the flanges connected by overturning the periphery or edge and a cap *d* fitting upon the tubular portion *c'* and movable longitudinally so as to expose or cover the orifice in the tubular portion *c*, substantially as set forth.

690,738. RAILWAY-VEHICLE LIFE-GUARD. GEORGE KIRBY, Kirkdale, Liverpool, England. Filed June 15, 1901. Serial No. 64,711. (No model.)

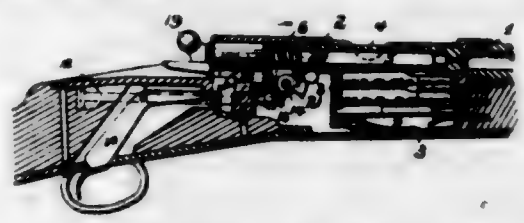


Claim.—1. A vehicle or locomotive life-guard, comprising levers *b* having an inclined front end *a*, fulcra b^2, a pick-up frame *d* hinged at a point behind its leading end, and levers *f* supporting the front end of said frame, and connected with the back portion of the levers *b* through levers *i*, whereby when the forward ends of the levers *b* are raised, the forward ends of the supporting-levers *f* and the frame *d* are lowered; substantially as described.

2. In a vehicle or locomotive life-guard, the combination of pick-up frame *d*, frame *e*, hinges *d'*, connecting frame *e* and pick-up frame *d*, supporting-brackets *c*, and hinges *c'* connecting the brackets and frame *e*, and means for lowering and raising the said frame *e*.

3. In a railway vehicle or locomotive life-guard, the combination with a pick-up frame *d*, frame *e*, hinges *d'* connecting the frame *e* and pick-up *d*, brackets *c*, and hinges *c'* connecting brackets *c* and frame *e*, levers *f* supporting the front end of the pick-up *d*, and supported by brackets *c*, by hinges f^3, and slots f^4, and links *h* connecting the back ends of said levers *f*, and frame *e* together; substantially as set forth.

690,739. AUTOMATIC FIREARM. RUDOLF H. KJELLMAN and GUSTAF L. ANDERSSON, Stockholm, Sweden, assignors to Aktiebolaget Automatgevar, Stockholm, Sweden. Filed Apr. 30, 1900. Serial No. 14,880. (No model.)



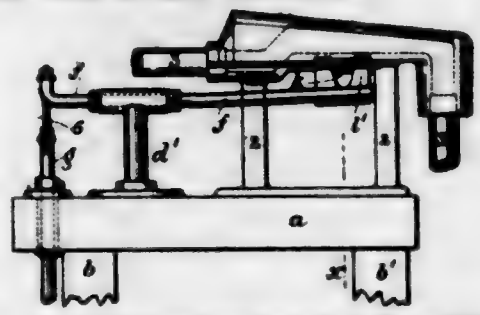
Claim.—1. An automatic firearm, having a recoiling receiver, a breech-bolt mounted to slide therein, a firing-pin slidably mounted in said bolt, an operating-lever 7, fulcrumed in said receiver and adapted to engage and operate the breech-bolt positively in closing the latter and to swing out of engagement with said bolt when the latter closes, and a frame having shoulders or lugs for actuating said lever, whereby the breech-bolt, when closed, may be drawn back independently of the operating-lever.

2. An automatic firearm, having a frame provided with actuating-lugs 16 and 17, a recoiling receiver, a breech-bolt slidably mounted therein, and an operating-lever 7, fulcrumed in said receiver, said lever having a lateral lug 15, to engage the lug 16, and a face 32 to engage the lug 17, whereby, when the breech is closed the said lever is held firmly in position and cannot rise into engagement with the breech-bolt.

3. An automatic firearm, having a magazine, a cartridge-lifter in said magazine, a spring-buffer on said lifter in the path of the breech-bolt when the magazine is empty, the said breech-bolt, and means for operating the latter.

4. An automatic firearm, having a frame provided with a spring-hook 25, a recoiling receiver in said frame, and provided with a shoulder 26 to engage said hook when the receiver moves rearward from the recoil, and a pin 27 in front of the shoulder 26 and adapted to be protruded by the entering hook 25, a breech-bolt slidably mounted in said receiver and provided with an inclined surface 28, adapted to depress said pin and release the hook 25 when said bolt is moved rearward, and means for operating said bolt.

690,740. CORSET-SHAPING MACHINE. SAMUEL KOPS, New York, N. Y., assignor to Kops Brothers, New York, N. Y. Filed Oct. 23, 1901. Serial No. 79,639. (No model.)



Claim.—1. In a corset-shaping machine, the combination with a hollow metal form adapted to be heated, of a spring device connected thereto and spring devices upon opposite sides of said heated form adapted to engage the spring device connected thereto, the corset being held between said spring devices, and means for applying and holding the pressure, substantially as set forth.

2. In a corset-shaping machine, the combination with a hollow metal form adapted to be heated, of a spring device connected thereto and spring devices upon opposite sides of said heated form adapted to engage the spring device connected thereto, the corset being held between said spring devices, and rocker-arms and journaled supports therefor, said rocker-arms

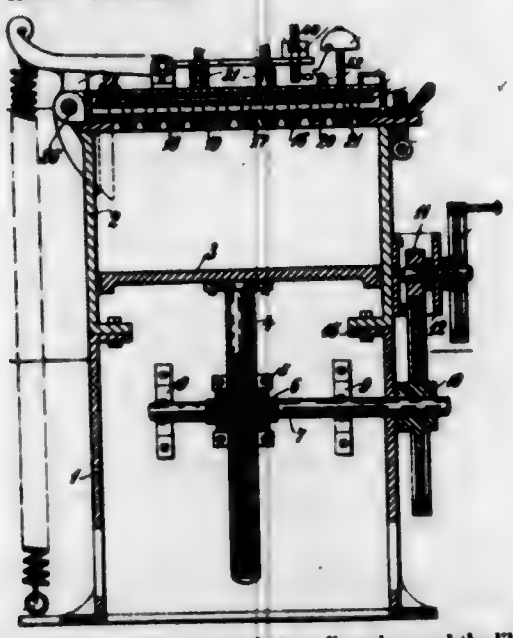
being connected to the opposite spring devices, and means for swinging the said rocker-arms in their journals and applying pressure as between the aforesaid spring devices, substantially as set forth.

3. In a corset-shaping machine, the combination with a hollow-metal form adapted to be heated, of a spring device connected thereto and spring devices upon opposite sides of said heated form, adapted to engage the spring device connected thereto, the corset being held between said spring devices, and rocker-arms and journaled supports therefor, said rocker-arms being connected to the opposite spring devices, and links pivotally connected to the said rocker-arms, a vertical rod and foot-lever connected to the said links, a latch-arm and pin for holding the said parts in their lowermost or desired position, and a spring for returning the parts to their normal position when released, substantially as set forth.

4. In a corset-shaping machine, the combination with a hollow tapering metal form of semicylindrical shape adapted to be heated and a suitable support therefor, of a spring-plate with curved ends secured to the under side of said form, rocker-arms, supports therefor and means for operating said arms, curved spring-blades secured to the ends of the rocker-arms coming at opposite sides of said hollow heated form and occupying a position adapted to contact with the sides of the spring-plate secured to the under surface of said form and in operation to press the corset fabric between the said spring devices, substantially as set forth.

5. In a corset-shaping machine, the combination with a hollow tapering metal form of semicylindrical shape adapted to be heated, and a suitable support therefor, of a spring-plate with downward inwardly-curved ends secured to the under side of said form, rocker-arms, supports therefor, and means for operating said arms, upwardly and outwardly curved spring-blades secured to the ends of the rocker-arms coming at opposite sides of said hollow heated form and occupying a position adapted to contact with the sides of the spring-plate secured to the under surface of said form, and in operation to press the corset fabric between the said spring devices, substantially as set forth.

690,741. **MACHINE FOR MAKING ROLLS, CAKES, OR THE LIKE.** MARTIN KORTH, Cologne, Germany. Filed Feb. 11, 1901. Serial No. 46,882. (No model.)



Claim.—1. In a machine for making rolls, cakes and the like, a cylindrical vessel for the dough containing an air-tight piston forming a movable bottom of said vessel and driven by suitable means outside the cylinder, a plate closing the end of, and pivoted to said cylinder and provided with a number of perforations, a second plate likewise provided with perforations, corresponding to those in the first plate, and having sharpened or knife edges, a device arranged above said plates for strewing flour or the like on the dough forced through said perforations, said device being adapted to exercise a yielding and regulating pressure on the dough, substantially as set forth.

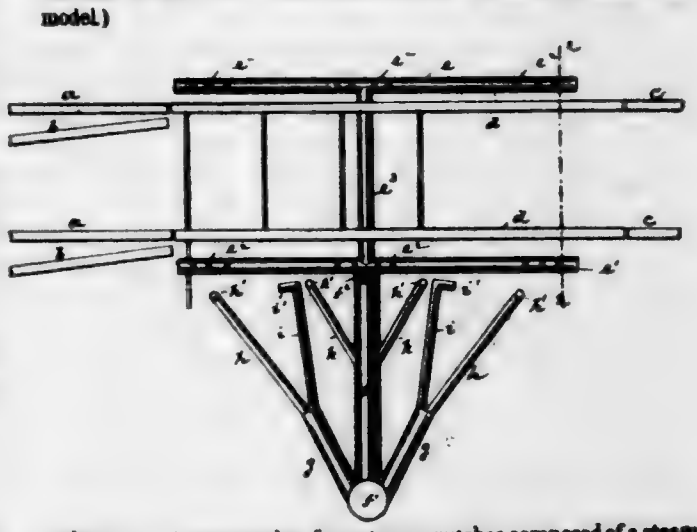
2. In a machine for making rolls, cakes, a cylindrical vessel for the dough containing an air-tight piston driven by suitable means outside the cylinder, a plate closing the end of, and pivoted to, said cylinder and provided with a number of perforations, a second plate likewise provided with perforations corresponding to those in the first plate and having sharpened or knife edges, a third, removable plate provided above the second plate and having perforations corresponding in position but larger in size than the perforations in the first plate, a device arranged above said plates for strewing flour or the like on the dough forced through said perforations, said device being adapted to exercise a yielding pressure on the dough, substantially as set forth.

3. In a machine of the kind described the combination of means for dividing the dough into portions of the size required for rolls or such like, a strewing device provided in the cover of the machine and means to exercise a yielding regulating-pressure on said dough portions, substantially as set forth.

4. In a machine of the kind described a cover consisting of a receptacle for the flour to be strewed, ridge-pieces on the inner side of the top plate of said receptacle, a perforated plate forming the bottom of said receptacle, and a cloth or fabric of loose texture stretched over said bottom plate, substantially as set forth.

5. In a machine for making rolls, cakes and the like, a cylindrical vessel for the dough containing an air-tight piston forming a movable bottom of said vessel, a plate closing the end of said cylinder and provided with a number of perforations through which the dough is compressed by the said air-tight piston, means for cutting off the dough portions pressed through said perforations, a device arranged above said cutting means for strewing flour or the like on the dough forced through said perforations, said device being adapted to exercise a yielding and regulating pressure on the dough, substantially as set forth.

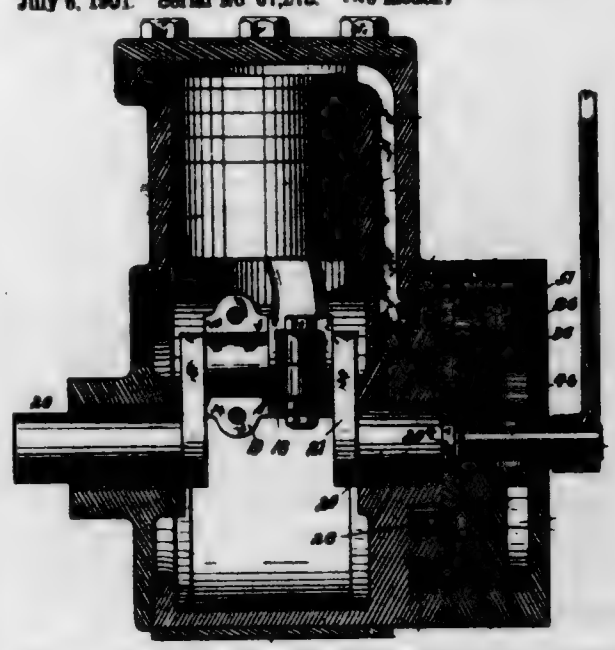
690,742. **SNOW-MELTER FOR RAILROAD-SWITCHES.** GEORGE KOVACS, Trenton, N. J. Filed Aug. 13, 1901. Serial No. 71,905. (No model.)



Claim.—1. A snow-melter for railway-switches composed of a steam-supply pipe, and a series of branch pipes radiating therefrom and having nozzles turned in different directions, substantially as specified.

2. A snow-melter for railway-switches composed of a steam-supply pipe, a pair of radial pipes *g*, having branches *h*, *i*, provided with nozzles *h'*, *i'*, and a pair of branches *k*, having nozzles *k'*, substantially as specified.

690,743. **CUT-OFF VALVE.** JOHN LA BURT, Brooklyn, N. Y., assignor to Henry A. Kessel and Andrew Olsen, Brooklyn, N. Y. Filed July 6, 1901. Serial No. 67,275. (No model.)



Claim.—1. In a valve, two pairs of steam-chambers, a cut-off plate and a controller-plate rotatively arranged between them, said cut-off plate rotating with the shaft of the engine, and means for independently rotating the controller-plate, substantially as set forth.

2. In a valve, two pairs of steam-chambers, a sliding valve-block in each of one pair of chambers, a cut-off plate and a controller-plate rotatively arranged between the pairs of chambers, the cut-off plate rotating

with the shaft of the engine, and means for independently actuating the controller-plate, substantially as set forth.

3. In a valve, two pairs of steam-chambers, a sliding valve-block in each of one pair of chambers, a cut-off plate and a controller-plate rotatively arranged between the pairs of chambers, said controller-plate being provided with lugs fitting in the other pair of chambers, a lever and shaft controlling the controller-plate, the cut-off plate rotating with the shaft of the engine, substantially as set forth.

4. In a valve, two pairs of steam-chambers, a sliding valve-block in each of one pair of plates a cut-off plate and a controller-plate rotatively arranged between the pairs of chambers, said controller-plate being actuated by a shaft and lever, and having lugs thereon extending into the other pair of chambers, stops in said chambers for the controller-plate and valve-blocks, said cut-off plate rotating with the engine-shaft, substantially as set forth.

5. In a valve, a pair of chambers connected with the ports of a pair of cylinders, valve-blocks in said chambers, a pair of chambers connected by ports with a steam-chest, a cut-off plate and a controller-plate rotatively arranged between said pairs of chambers, lugs on the controller-plate projecting into the pair of chambers connected with the steam-chest, stops in said chambers to limit the movement of the valve-blocks and the controller-plate, said cut-off plate rotating with the shaft of the engine, substantially as set forth.

6. In a valve, a pair of chambers connected by ports with the ports of a pair of cylinders, valve-blocks in said chambers, a pair of chambers connected by ports with a steam-chest, circular controller-plate and cut-off plate rotatively arranged between the pairs of chambers, lugs on the controller-plate fitting into the pair of chambers connected with steam-chest, stops in the chambers limiting the movement of the valve-blocks and the controller-plate.

7. In a valve, a pair of chambers connected with the ports of a pair of cylinders by ports arranged at right angles, a valve-block in each chamber, a pair of chambers connected with a steam-chest by ports arranged in line with the ports of the other pairs of chambers, a controller-plate and a cut-off plate rotatively arranged between the pairs of chambers, lugs on the controller-plate, at right angles, projecting into the pair of chambers connected with the steam-chest, stops in the chambers limiting the movement of the controller-plate and valve-blocks, the cut-off plate rotating with the shaft of the engine substantially as set forth.

8. In a valve, a pair of chambers, connected with the ports of a pair of cylinders by ports arranged at right angles, a valve-block in each chamber, a pair of chambers connected with a steam-chest by ports arranged in line with the ports of the other pair of chambers, a controller-plate and a cut-off plate rotatively arranged between the pairs of chambers, lugs on the controller-plate at right angles, projecting into the pair of chambers connected with the steam-chest, stops in the chambers limiting the movement of the controller-plate and valve-blocks, the cut-off plate being provided with ports radially in line, and rotating with the shaft of the engine, substantially as set forth.

9. In a valve, a pair of chambers connected with the ports of a pair of cylinders by ports arranged at right angles, a valve-block in each chamber, stops to limit the movement of said blocks, a pair of chambers connected with a steam-chest by ports arranged in line with the ports in the other pair of chambers, a controller-plate and a cut-off plate rotatively arranged between the pairs of chambers, cut-away portions on the controller-plate corresponding to the chambers, lugs projecting from the controller-plate into said chambers, stops to limit the movement of the lugs of the controller-plate, the cut-off plate being provided with ports radially in line, and rotating with the shaft of the engine, substantially as set forth.

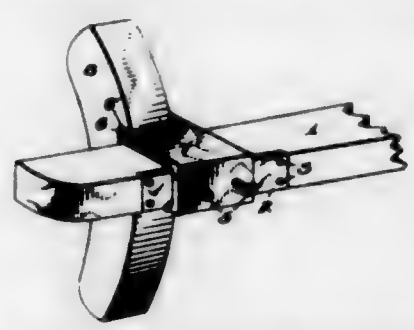
10. In a valve, a bed-plate provided with a pair of chambers, ports arranged at a right angle communicating from said chambers to the inlet-ports of a pair of cylinders, sliding valve-blocks in said chambers, stops limiting the movement of said blocks either side of the ports, a casing on said bed-plate provided with a steam-chest, and pair of chambers, ports connecting them, the ports and chambers being in line with those on the bed-plate, a controller-plate and a cut-off plate rotatively arranged between said pairs of chambers, said controller-plate being actuated by a shaft, and provided with cut-away portions corresponding to the chambers and lugs arranged at right angles projecting into the chambers, the cut-off plate being provided with ports arranged radially in line and of the same radii as the chambers, said cut-off plate rotating with the shaft of the engine, substantially as set forth.

690,744. AIR-CONDUCTING TUBE. FRANCIS LEE, Cleveland, Ohio. Filed June 27, 1900. Renewed Nov. 4, 1901. Serial No. 81,054. (No model.)

Claim.—As a new article of manufacture, a pipe-section consisting of a body of sheet-asbestos formed with plain inner and outer walls and an intermediate corrugated sheet bracing and separating said walls their entire length, whereby air-spaces are produced within the said body, and a sheet-metal lining forming the inner surface of the pipe, said lining having its extremities lapped back on the outside of said body to form finished ends for joints, substantially as described.

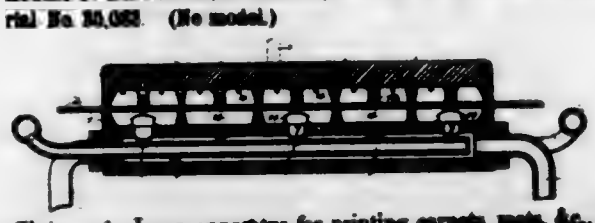


690,745. ADJUSTABLE BRAKE-BLOCK FOR VEHICLES. NOAH LISTON, Turtlecreek, Pa. Filed Apr. 17, 1901. Serial No. 56,223. (No model.)



Claim.—In a device of the character described, the combination with a rectangular brake-beam, of a rectangular yoke, the sides and ends of which are at right angles to one another, the inner and outer faces of the said sides and ends being perfectly flat, the said yoke adapted to be slidably mounted on said brake-beam, the outer face of one of said ends being concaved to receive the rear face of the rubber block, guides extending the entire length of the said face and made integral with the extremities thereof, said guides being of greater width at the top and converging toward the bottom, the inner ends of said guides being V-shaped and adapted to grasp the sides of the rubber block throughout their entire length, the opposite face of said yoke having a single pair of screw-threaded apertures formed therein, a single pair of set-screws operating in said apertures, a rectangular plate of greater length than the width of said yoke countersunk and secured in one face of said brake-beam with its outer face and upper and lower edges exposed, the exposed portion of said rectangular plate adapted to engage a portion of the inner surface of said yoke, the outer face of said plate adapted to be engaged by said single pair of set-screws, and a rubber block segmental in shape and rectangular in cross-section adapted to be engaged by the entire inner surfaces of the said guides and concaved face, substantially as described.

690,746. APPARATUS FOR PRINTING CARPETS, MATS, &c. ADOLPH F. LUNDBERG, Stockholm, Sweden. Filed Nov. 1, 1900. Serial No. 35,053. (No model.)



Claim.—1. In an apparatus for printing carpets, mats, &c., in variegated patterns, the combination with an upper sucking-block and a lower opposing pattern-block having pattern edges forming cells, of means connected to the sucking-block for creating a vacuum in the interior of the same, means also connected to the pattern-block for introducing colored fluids in the cells thereof, and means for introducing air or gas into the said cells for interrupting the contact between the fluid and the material to be colored when the fluid has partly penetrated the latter, substantially as specified.

2. In an apparatus for printing carpets, mats, &c., in through-colored patterns, the combination with pressure-blocks having cells whose edges correspond forming the pattern and between which the material to be printed is placed, of a vacuum-pump in connection with the cells of one block, supply-conduits beneath the cells of and within the other block, there being suitable openings between the said conduits and cells, supply-pipes for the coloring liquids leading to the said conduits and other supply-pipes for gas and air leading to and extending within said conduits, substantially as and for the purposes set forth.

3. In an apparatus for printing carpets, mats, &c., in through-col-

ored patterns, the combination with pressure-blocks having cells whose edges correspond forming the pattern and between which the material to be printed is placed, of a vacuum-pump in connection with the cells of one block, supply-conduits beneath the cells of and within the other block there being suitable openings between the said conduits and cells, screens covering the top of said openings, supply-pipes for the coloring liquids leading to the said conduits, and other supply-pipes for gas and air leading to and extending within said conduits, and having holes corresponding with the said openings, substantially as and for the purposes set forth.

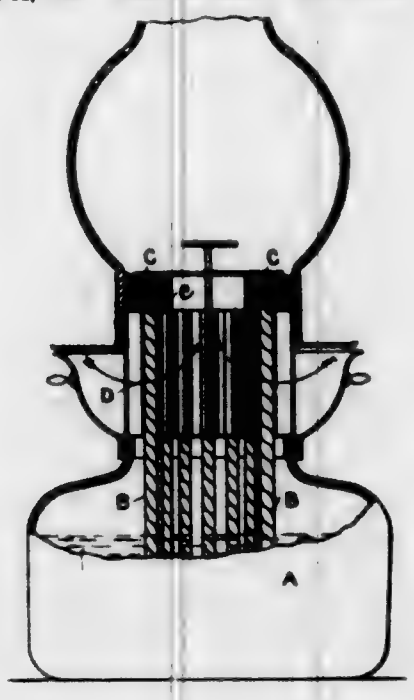
4. In an apparatus for printing carpets, mats, &c., in through-colored patterns, the combination with an upper pressure-block having cells or depressions whose edges form the pattern, and a vacuum-pump connected to said cells, of a lower pressure-block having cells whose edges correspond with those of the said upper block, supply-conduits in the said lower block and having suitable openings from said conduits to said cells, screens covering the tops of said openings, supply-pipes for the coloring liquids leading to one end of each of said conduits, and other supply-pipes for gas and air leading to the other end of each of said conduits and extending within the same, the said supply-pipes for the coloring liquid and the gas and air being arranged alternately, substantially as and for the purposes set forth.

5. In an apparatus for printing carpets, mats, &c., in through-colored patterns, the combination with an upper sucking pressure-block and a lower opposing pattern-block having cells whose edges form the pattern and between which blocks the material to be printed is placed, of a vacuum-pump in connection with the sucking-block, supply-conduits beneath the cells of and within the pattern-block, there being suitable openings between the said conduits and cells, supply-pipes for the coloring liquids leading to the said conduits and other supply-pipes for gas or air leading to and extending within said conduits, substantially as and for the purposes set forth.

6. In an apparatus for printing carpets, mats, &c., in through-colored patterns, the combination with an upper sucking pressure-block and a lower opposing pattern-block having cells whose edges form the pattern and between which blocks the material to be printed is placed, of a vacuum-pump in connection with the sucking-block, supply-conduits beneath the cells of and within the pattern-block there being suitable openings between the said conduits and cells, screens covering the top of said openings, supply-pipes for the coloring liquids leading to the said conduits, and other supply-pipes for gas or air leading to and extending within said conduits, and having holes corresponding with the said openings, substantially as and for the purposes set forth.

7. In an apparatus for printing carpets, mats, &c., in through-colored patterns, the combination with an upper sucking pressure-block having cells or depressions whose edges form the pattern, and a vacuum-pump connected to said block, of a lower pressure pattern-block having cells whose edges correspond with the pattern-supply conduits in the said lower block and having suitable openings from said conduits to said cells, screens covering the tops of said openings, supply-pipes for the coloring liquids leading to one end of each of said conduits, and other supply-pipes for gas or air leading to the other end of each of said conduits, the said supply-pipes for the coloring liquid and the air being arranged alternately, substantially as and for the purposes set forth.

690,747. LAMP-WICK. EDMUND S. MAPPLE, Southport, England. Filed Mar. 11, 1901. Serial No. 50,573. (No model.)



Claim.—1. As an improved article of manufacture, a lamp-wick of fibrous, refractory mineral fiber, in the form of a flattened rope or cord coiled into a ring, the said cord being loosely twisted so as to insure ample capillary interstices for the oil, substantially as set forth.

2. The combination with a circular series of pendent wicks, of a ring-like wick in operative contact with the upper end of said pendent wicks, said ring-like wick being composed of a coiled, loosely twisted or formed cord of asbestos fiber, substantially as set forth.

690,748. COKE-OVEN. RICHARD D. MARTIN, Alderson, Ind. Ter. Filed Mar. 11, 1901. Serial No. 50,704. (No model.)



Claim.—1. Adjoining coke-ovens separated by an intervening wall having a V-shaped passage leading directly from one oven to the other through the outer part of the masonry, in combination with means for opening and closing said passage.

2. Adjoining coke-ovens separated by an intervening wall having a V-shaped passage leading directly from one oven to the other through the outer part of the masonry, flues leading upward from the ovens, and caps fitted to said flues, in combination with means for opening and closing said passage.

3. The combination with a series of coke-ovens separated by intervening walls having V-shaped passages leading directly from one to the other through the outer part of the masonry and also provided with flues in their upper portions, and caps for closing said flues, of dampers arranged in the passages between said ovens and adapted to open and close said passages.

4. Adjoining coke-ovens separated by an intervening wall having a connecting V-shaped passage with inwardly-diverging end portions communicating with the ovens and a middle portion provided with draft-openings, and extending through the outer part of the masonry, and means for opening and closing said passage adjacent to the point of convergence of the said inwardly-diverging end portions.

5. The combination with a series of coke-ovens separated by intervening walls, of V-shaped air-passages leading through the masonry between the ovens and entirely inclosed within the masonry, means for closing said passages, and flues leading outward from the upper portions of the ovens and provided with closing-caps.

690,749. ELEVATOR-DOOR. JOHN MATHEWS, Chicago, Ill. Filed Feb. 4, 1901. Serial No. 45,943. (No model.)

Claim.—1. An elevator-door having two movable members moving in planes parallel with each other and adapted by their combined widths to close an entrance, and means for transmitting motion from one to the other of said members, said means including a yielding stop on one mem-

ber adapted to project into the path of a part of the other member, said part on said last-named member being adapted, in passing said yielding stop, to produce sufficient friction to start said first-named member in motion.



2. An elevator-door comprising two movable members of practically equal widths, said movable members being movable in planes parallel with each other, means for limiting the movements of said movable members, a spring-actuated plate carried by one of said movable members and movable thereon, and stops carried by the other of said movable members and adapted to be engaged by said plate to move said last-named movable member to either limit of its movement simultaneously with said first-named member.

3. The combination with a door-frame, of three members of practically equal width adapted by their combined widths to fill and close said door-frame, one of said members being rigidly mounted in one end of said frame and the other members being movable in guides in said frame, means for limiting the movements of said movable members in both directions, and means carried by said movable members for transmitting motion from one to the other thereof, said means comprising a longitudinal groove in one member, a yielding stop projecting into said groove, a projection carried by the other movable member and projecting into said groove, said projection being adapted to engage said yielding stop and force same out of its path, thereby starting into motion the member carrying said stop and subsequently to engage one of the end walls of said groove to cause said last-named member to move with said first member to the limit of motion of said member carrying said projection.

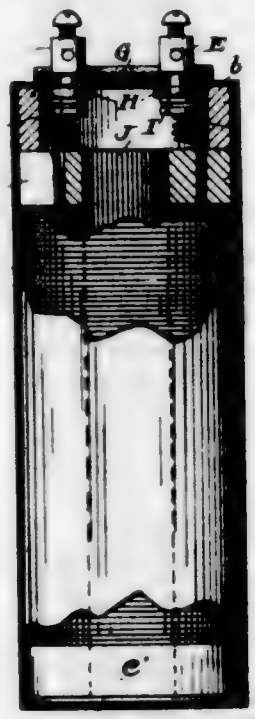
4. The combination with a door-frame, of three members of practically equal width adapted by their combined widths to fill and close said door-frame, one of said members being rigidly mounted in one end of said frame, and the other members being movable in guides in said frame, means for limiting the movements of said movable members in both directions, and means carried by said movable members for transmitting motion from one to the other thereof, said means comprising a longitudinal groove in one member, a yielding stop projecting into said groove, a spring-actuated projection carried by the other member normally held at one limit of its movement and projecting into said groove, said projection being adapted to engage said yielding stop and force the same out of its path, thereby starting the member carrying said stop into motion, and subsequently to engage one of the end walls of said groove to cause said last-named member to move to the limit of its motion simultaneously with said member carrying said projection.

5. The combination with a door-frame, of three members of practically equal width adapted by their combined widths to fill and close said door-frame, one of said members being rigidly mounted in one end of said frame and the others being movably mounted therein, means for limiting the movements of said movable members, and means carried by said members for transmitting motion from one to the other thereof, said means comprising a longitudinal groove in one member, a yielding stop projecting into said groove, a spring-actuated projection carried by the other member and projecting into said groove, said projection being adapted to engage said yielding stop and force the same out of its path, thereby starting said grooved member in motion, and adapted subsequently to engage one of the end walls of said groove to cause said grooved member to move to either limit of its motion simultaneously with said other member, said projection being moved to the rearward limit of its motion against the action of its spring when the member carrying the same reaches its closed position, thereby retarding its motion and cushioning the blow upon the door-frame and acting to start said member rearwardly when released.

6. In a device of the kind specified, the combination with a door-frame and two movable door-members, the latter being movable in guides, of means for limiting the movements of said movable members, and means carried by one of said movable members for transmitting motion from one to the other thereof, said means including a yielding stop carried by one of said members, a projection carried by the other thereof and adapted to engage said yielding stop, and a spring engaging said projection to produce yielding engagement between said movable members, said spring being adapted to cushion the final movement of the member carrying said projection to its forward limit and to start said member rearwardly when released.

7. In a device of the kind specified, the combination with a door-frame and two movable door members, the latter being movable in guides, of means for engaging one of said movable members with the other thereof with a yielding spring-contact whereby said second member will be started into motion without shock or jar and will be caused to move to the limit of its motion simultaneously with said first-mentioned member.

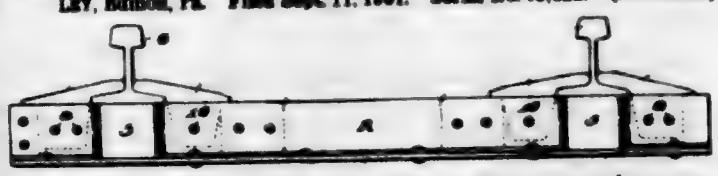
690,750. SPARKING-COIL. MARCUS H. MOFFETT, Cleveland Ohio, assignor to the National Carbon Company, Cleveland, Ohio, a Corporation of New Jersey. Filed Feb. 9, 1901. Serial No. 46,662. (No model.)



Claim.—1. A sparking-coil consisting of a core having a head at each end and a coil of wire around the core between the heads, the terminal wires of said coil extending through openings in the upper head, combined with a metallic case snugly embracing the coil and extending beyond the upper end thereof, a distance-ring within the case outside of said terminal wires at the upper end of the coil and substantially filling the space to the head of the case, a metallic head for said case, and a pair of binding-posts insulatingly carried by said head and projecting into the space within said distance-ring, said terminal wires being clamped to said binding-posts within said space, substantially as described.

2. A sparking-coil consisting of a central core, a pair of circular insulating-heads surrounding the core at each end and a coil of wire around the core between the heads, terminals of said coil projecting at one end through openings in the head, combined with a cylindrical metallic case snugly embracing the coil and extending beyond the end thereof, an insulating distance-ring within the case around said projecting terminals and between the adjacent head of the coil and the end of the case, the case being sealed up by an end plate, insulating material on the inner side and outer side of said end plate, binding-posts extending through said insulating material and clamped thereto, and binding-nuts on the inner side of the inner insulating material clamping the ends of said terminals, substantially as described.

690,751. STEEL RAIL TIE AND FASTENER. JOHN S. MCAWLEY, Edmon, Pa. Filed Sept. 11, 1901. Serial No. 75,082. (No model.)



Claim.—1. In a steel tie, a base-plate, angle-irons spaced apart secured at right angles to said base-plate, filler-plates secured between said angle-irons, enlarged portions made integral with said angle-irons forming a seat for the rail-base, clamps secured between said angle-irons engaging the rail-base and said filler-plates, and means passing through said angle-irons and clamps for securing the latter to said angle-irons, substantially as described.

2. In a steel tie, the combination with the rails, a base-plate, angle-irons secured upon said base-plate, filler-plates attached to said angle-irons spacing the same apart, enlarged portions forming seats for said rails, and clamps secured between said angle-irons engaging the base of said rails, all parts being arranged and operating substantially as described.

690,752. TUBULAR BOILER. WILLIAM B. MCCORD, Battlecreek, Mich. Filed Sept. 5, 1901. Serial No. 74,420. (No model.)

Claim.—1. In a tubular boiler, the combination of a boiler A; a fire-box arranged in connection therewith; tubes or flues A'; a tube-plate B, secured to the walls of the said fire-box and arranged in a series of upwardly and rearwardly extending steps to which the said tubes or flues are united: and an upwardly and forwardly extending plate C secured to

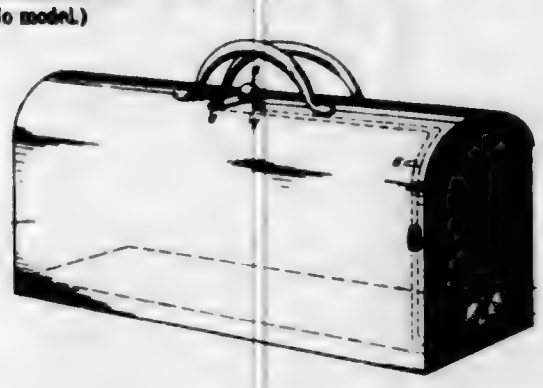
the walls of the said fire-box and to the said flue-plate, all coacting for the purpose specified.



2. In a tubular boiler, the combination of a boiler; a fire-box arranged in connection therewith; tubes or flues for said boiler; an upwardly and rearwardly extending flue-plate secured to the walls of the said fire-box to which the said tubes or flues are united; and a forwardly-extending plate secured to the walls of the said fire-box and to the said flue-plate, all coacting for the purpose specified.

3. In a tubular boiler, the combination of a boiler, flues of different lengths and an upwardly and rearwardly extending flue-plate with step formation for the said flues of different lengths.

690,758. BAG OR SATCHEL LIGHTING DEVICE. WILLIAM W. MCCORMICK, Santa Rosa, Cal. Filed Mar. 2, 1901. Serial No. 49,572. (No model.)



Claim.—1. A satchel or the like having a stiffening-plate in its bottom serving as a battery element, conducting-wires connected with said plate, switch-points and a switch-lever connecting with the wires, and a lighting device in the circuit and exposed through one of the walls of the satchel.

2. A satchel or the like having let into one of its walls a lighting device, a battery of tabular form in the bottom of the satchel and serving to stiffen said bottom, and conductors and a switch-lever and contacts whereby the current is established or broken.

3. A satchel or the like having a dry-plate battery in its bottom, of tabular form and adapted to stiffen said bottom, conducting-wires leading through the lining of the satchel, and contact-points and a switch-lever exterior of the satchel, for making and breaking the circuit.

4. The combination with a portable satchel or the like having the usual compartment for articles, of an electric-lighting device, switch-points fixed upon the frame of the satchel, wires connecting the lighting device therewith, a battery for the generation of an electric current having wires connecting it with the switch-points, said battery forming a horizontal stiffening base or bottom for the satchel.

690,754. HOSE-TERMINAL. HARRY E. MCKECHNEY, Rochester, N. Y. Filed July 23, 1901. Serial No. 70,156. (No model.)

Claim.—1. A hose-terminal comprising a threaded base-piece, an end piece or tip threaded to engage the threads of the base-piece, a thimble inserted in the base-piece, and yielding sections secured to the thimble and having portions disposed at an angle to said sections in position to be directly engaged and controlled by the tip or end piece, substantially as and for the purpose specified.

2. A hose-terminal comprising a base-piece, an end piece or tip adapted to move longitudinally upon the base-piece, and a variable nozzle comprising yielding sections with portions disposed at an angle thereto and adapted to be bent or compressed by the tip, substantially as and for the purpose stated.

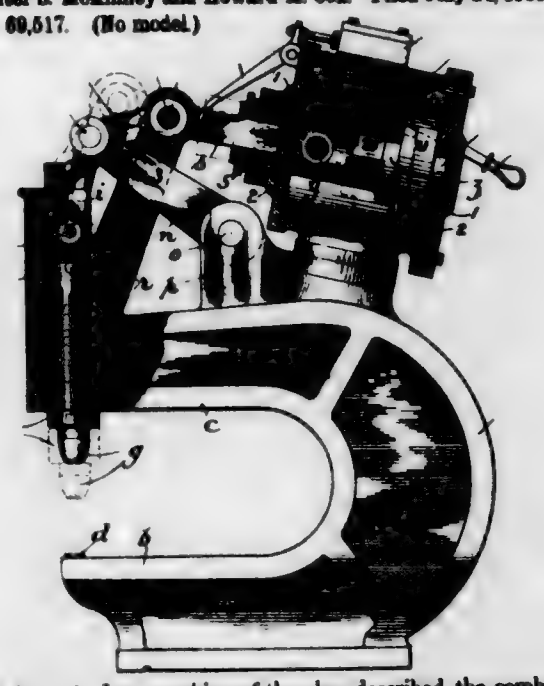
3. A hose-terminal consisting of a base-piece, an end piece or tip adapted to move longitudinally upon the base-piece, and a center piece or variable nozzle having longitudinal yielding sections each provided with a bar or rib secured to its outer end, substantially as shown and described.

4. A hose-terminal consisting of a base-piece, an end piece or tip adapted to move longitudinally upon the base-piece, and a center piece or variable nozzle having longitudinal yielding sections each provided with a bar secured to its outer end, said sections lapping one upon another, substantially as shown.



5. A hose-terminal comprising a base-piece, and an end piece or tip, having a conical part, adapted to move longitudinally upon the base-piece, and a variable nozzle within the tip, having yielding sections each provided with a bar secured to its outer end, said bars being curved or tapered, at their outer or confined ends, to meet the conical part of the tip substantially as shown and set forth.

690,755. RIVETING-MACHINE. WALTER S. MCKINNEY, Chicago, Ill., assignor to Walter S. McKinney and Company, a firm composed of Walter S. McKinney and Howard M. Cox. Filed July 24, 1901. Serial No. 69,517. (No model.)



Claim.—1. In a machine of the class described, the combination of a reciprocating tool-holding bar, side bars having one end pivoted at a fixed point and the other end revolable about said fixed point, toggle members or links connecting said tool-holding bar to said side bars, means for revolving said side bars about said fixed point, and other means for controlling said toggle members.

2. In a machine of the class described the combination with the tool-bar, side bars, and a power device, of a pitman-like link or bar having an articulate bearing at a fixed point, link connections between said pitman-like member and the side bars; and other link connections between said pitman-like member and said tool-bar.

3. In a machine of the class described, the combination of a tool-bar, a machine-frame, a head formed thereon to guide said tool-bar, revoluble side bars pivoted to said head, a plurality of links connecting said side bars to said tool-bar, means for controlling the position of said links relatively to each other, and other means for revolving said side bars.

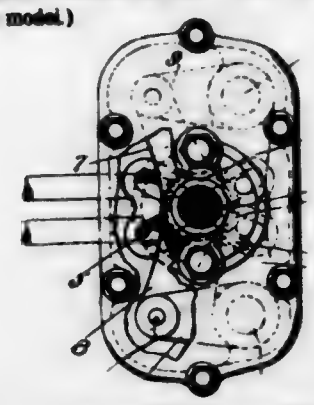
4. In a machine of the class described, the combination of a frame-work, a tool-bar reciprocating therein, revoluble side bars having fixed bearings at one end and having connections at the other end to a power device whereby said bars are revolved, link connections between said side bars and said tool-bar, said link connections having at least one joint between said power device and said tool-bar; and a member having a fixed pivot at one end and connected at the other end to said link connections to thereby limit the motion of said link connections when said side bars are being revolved.

5. In a machine of the class described, the combination of a machine-frame, a tool-bar reciprocating therein, side bars pivoted to said frame, a power device connected to said bars, two links or sets of links connecting said side bars to said tool-bar, a pitman-like link or bar, a pivot whereby said pitman-like member is connected to said frame, and a second pivot whereby said pitman like member is connected to said first-mentioned links to flex the same when said tool-bar is being raised, thereby augmenting the raising action of the parts whereby the tool-bar is operated.

6. In a machine of the class described, the combination of a tool-bar, a machine-frame, a head formed thereon to guide said tool-bar, side bars pivoted to said head, a piston-chamber, a piston therein, a rod connecting said piston and said side bars, a plurality of links connecting said tool-bar to the connecting-rod of the piston; and a member having a fixed pivot at one end and connections at the other end to at least one of said plurality of links for the purpose described.

7. In a machine of the class described, the combination of a machine-frame, a tool-bar reciprocating therein, revolving side bars pivoted to said frame, means for revolving said side bars, and a self-operating toggle mechanism two of the members whereof form the connection between said side bars and said tool-bar, and the third or pitman-like member whereof has a fixed pivot at one end and is connected at the other end to at least one of said first two toggle members.

690,756. **CONTROLLING MECHANISM FOR MOTOR-VEHICLES.** JOHN F. MCHUTT, Cincinnati, Ohio. Filed June 22, 1901. Serial No. 65,705. (No model.)



Claim.—1. In a motor-vehicle, the combination with two independent sets of means controlling the brake, the low and high gears and the reverse-gear, each set performing a double function, of a single lever for independently actuating each set of means, as set forth.

2. In a motor-vehicle, the combination with two independent sets of means controlling the brake, the low and high gears and the reverse-gear, each set performing a double function, of a single lever for actuating each set of means, and means for holding one set practically immovable while the other set is being so actuated, substantially as set forth.

3. In a motor-vehicle, the combination with two rods for controlling the brake, the low and high gears and the reversing-gear, each rod performing a double function, of a single lever for actuating both rods, connecting means between the lever and each rod, and means for guiding the lever when actuating either rod, substantially as set forth.

4. In a motor-vehicle, the combination with the controlling means of the brake and gears, of a single lever having intermediate its ends a universal fulcrum-bearing, means with which such lever engages at one end for guiding the movements thereof, and independent means connected to the controlling means, each independently actuated by the lever without affecting the other means, substantially as set forth.

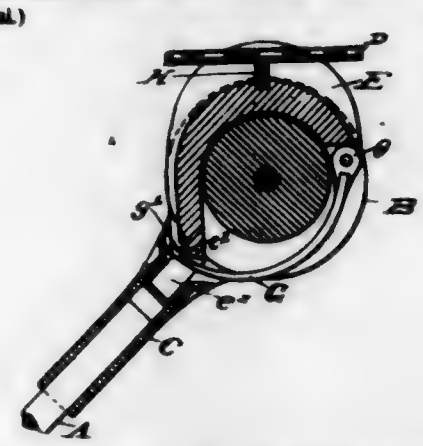
5. In a motor-vehicle, the combination with the controlling means of the brake and gears, of a single lever having a universal fulcrum-bearing, a double guide for the lever, independent sets of links, arms and shafts, connected to the controlling means, each set being practically inoperative as the other set is being actuated by the lever, substantially as set forth.

6. The combination with the two controlling-rods, of the single lever having a universal fulcrum-bearing, two sets of links engaged by said lever, means for guiding the lever, and connections between the links and the rods, substantially as set forth.

7. The combination with the two controlling-rods, of the case having a double or intersecting groove therein, the lever fulcrumed on a universal bearing and having its end fitted in said groove, the two links engaged by said lever, the shafts, and connections between the shafts and links and between the shafts and rods, substantially as set forth.

8. The combination with the two controlling-rods, of the case having an X-shaped groove in its bottom, the lever having its inner end working in said groove, two links movable by said lever, arms to which the links are connected, shafts carrying said arms, and arms connecting said shafts to said rods, substantially as set forth.

690,757. **SLEET-CLEANING DEVICE FOR TROLLEY-ARMS.** MORRIS M. NASH, Lowell, Mass. Filed Nov. 8, 1901. Serial No. 81,606. (No model.)



Claim.—1. An ice-scraper for trolley-arms consisting of a curved shoe adapted on one side to fit into the groove of the trolley-wheel rim and provided with a groove on its other side to receive the trolley-wire, a cutter attached to said shoe transversely across said last-named groove and a tang at one end of said shoe adapted to fit into the socket of the trolley-harp, combined with a curved band-spring pivoted at the other end of said shoe and provided with a tooth adapted to engage with a transverse shoulder in said tang thereby to hold said shoe in place.

2. In a sleet-scraper for trolley-cars, a curved shoe adapted to fit into the grooved rim of the trolley-wheel and presenting a similar grooved surface to the trolley-wire, a tang formed at one end of said shoe and adapted to fit into the hollow socket of the trolley-fork, combined with an oblong cutter driven across the groove and through a suitable transverse hole in said shoe at a point which is below the flanges of the trolley-wheel when the scraper is in place.

3. In a sleet-scraper for trolley-cars, a curved shoe adapted to fit into the grooved rim of the trolley-wheel and so formed as to present a similar grooved surface to the trolley-wire, a transverse cutter across said last-named groove and a tang at one end of said shoe adapted to prevent said shoe from revolving about the trolley-wheel, combined with a curved band-spring pivoted at one end to the end of said shoe opposite to the tang and carrying a tooth at the other end adapted to engage with a shoulder of said tang.

4. In a sleet-scraper for trolley-cars, a curved shoe adapted to fit into the grooved rim of the trolley-wheel and so formed as to present a similar grooved surface with a transverse cutter to the trolley-wire, a tang formed at one end of said shoe adapted to fit between the arms of the trolley-wheel fork into the hollow socket thereof and also formed with a hole or eye and a shoulder, combined with a curved band-spring pivoted at one end to one end of said shoe and provided at its other end with a tooth adapted to be passed through said eye to engage the shoulder in said tang.

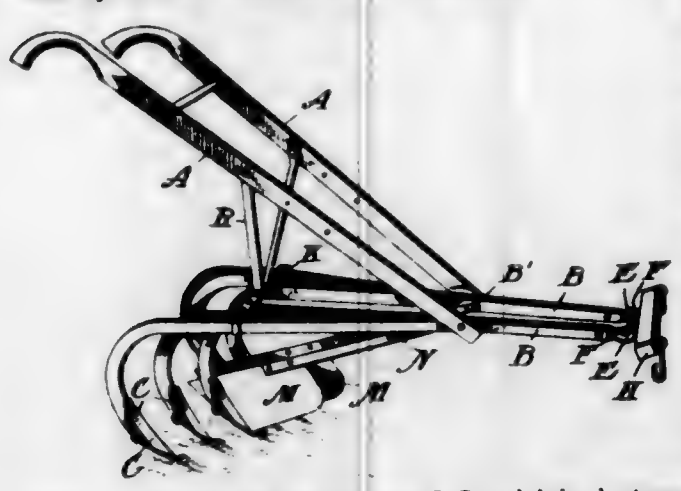
5. An ice-scraper for trolley-arms, consisting of a curved shoe E adapted on its lower side to fit into the grooved rim of the trolley-wheel B and so formed on the upper side as to present a substantially similar grooved surface to the trolley-wire D, a tang e formed at one end of shoe E, and adapted to be passed between the arms C^1 C^2 and into the hollow socket C of the trolley-wheel fork, and a band-spring G pivoted at one end to one end of shoe E and carrying a tooth g' at its other end adapted to swing between arms C^1, C^2, and through eye e' in tang e to engage with shoulder e^3, combined with an oblong cutter H, driven through a suitable transverse hole in shoe E at a point which is below the flanges of the trolley-wheel B when the scraper is in place.

6. An ice-scraper for trolley-arms, consisting of a curved shoe adapted on one side to fit into the grooved rim of the trolley-wheel, and on the other side curved and grooved in such a manner as to present to the trolley-wire a surface similar to that presented by a trolley-wheel, a cutter extending across the outer grooved surface of said shoe and a tang extending from one end of said shoe in such manner as to come in contact with the trolley-arm and so prevent the shoe from revolving, combined

with means of detachably connecting the tang end of said shoe with the other end along the groove of the trolley-wheel.

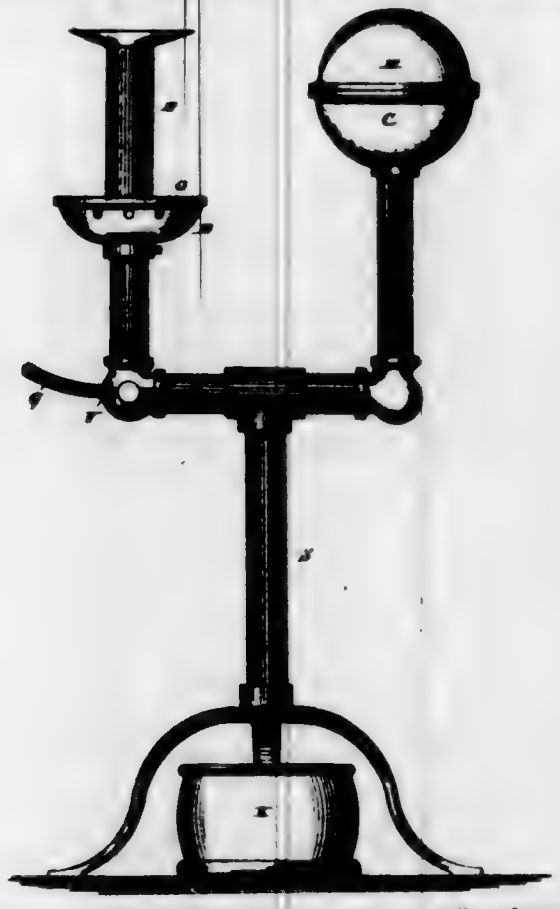
7. An ice-scraper for trolley-arms consisting of a curved shoe adapted on its lower side to fit into the grooved rim of the trolley-wheel and on the other side so grooved as to present a suitable surface to the trolley-wire, a cutter consisting of an oblong piece of metal driven across the groove in the shoe and through a tight-fitting hole therein at a point somewhat below the flanges of the trolley-wheel when the shoe is in position, and means for detachably attaching said shoe to the trolley-harp.

690,758. CULTIVATOR. PETER J. WELSH, Mountville, Ga. Filed Sept. 11, 1901. Serial No. 75,069. (No model.)



Claim.—In combination with the beams B, B, each being bent upon itself and forming an eye E, harrow-teeth at the ends of said beams, a singletree having eyes F, which are connected to said eyes E, the cross-bars K holding the rear ends of said bars spaced apart, the fender-bars N disposed at inclinations, and the fenders M secured thereto, and suitable handles, as set forth.

690,759. STERILIZER FOR SURGEONS' USE. CHARLES R. HORTON, Lewiston, Me. Filed Feb. 23, 1900. Serial No. 6,206. (No model.)



Claim.—1. In a sterilizer for surgeons' use a boiler adapted in size and shape to the tools to be sterilized, a cup, a tube connecting the cup and boiler, and a removable water-holder which fits the cup and has an opening in its lower side, all combined with each other substantially as and for the purpose set forth.

2. In a sterilizer for surgeons' use the combination of a boiler which is relatively narrow and deep with a reservoir which replaces the waste from the boiler and a flaring foam-chamber which prevents the liquid from boiling over; all as and for the purpose set forth.

3. In a sterilizer for surgeons' use the combination of a boiler, a reservoir and an inverted siphon which passes below the source of heat, all as and for the purpose set forth.

4. In a sterilizer for surgeons' use the combination of a boiler, a pneumatically-controlled reservoir, a waste-pipe and a valve which connects the boiler alternately with the reservoir and with the waste-pipe; all as set forth.

5. In a sterilizer for surgeons' use a boiler, a source of heat therefor, a cut-off for the source of heat, a reservoir from which the boiler is fed, a waste-pipe draining the boiler, a valve alternately connecting the boiler with the reservoir and with the waste-pipe, and a power-transmitting connection between the valve and the cut-off for the source of heat; all as set forth.

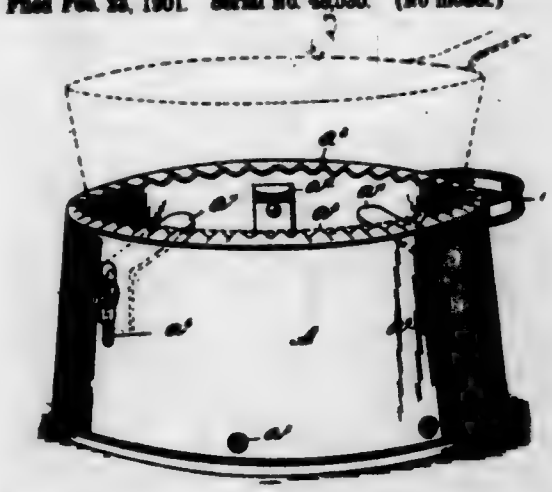
6. In a sterilizer for surgeons' use, a boiler, a source of heat therefor, a valve controlling the source of heat, a reservoir from which the boiler is fed, a waste-pipe draining the boiler, a valve alternately connecting the boiler with the reservoir and with the waste-pipe, and a power-transmitting connection between the two valves.

7. In a sterilizer for surgeons' use, a boiler, a reservoir supplying water to the boiler, a waste-pipe leading from the boiler, a burner which heats the boiler, a valve which connects the boiler alternately with the reservoir and with the waste-pipe and a valve which turns about the same axis and controls the flow of gas to the burner, all combined with each other substantially as and for the purpose set forth.

8. In a sterilizer for surgeons' use a boiler, a reservoir, a waste-pipe, a burner and a gas-pipe all in combination with each other and with a conical valve which has a transverse aperture that in one position connects the boiler with the reservoir and in a second position connects the boiler with the waste-pipe, and has a second transverse aperture which connects the burner with the gas-pipe when the boiler is connected with the reservoir; all as set forth.

9. In a sterilizer for surgeons' use an open-topped boiler which has its lower end enlarged to form an annular heating-table substantially as and for the purpose set forth.

690,760. COOKING UTENSIL. ELI S. OLIVER, Dixfield, Me. Filed Feb. 23, 1901. Serial No. 48,535. (No model.)



Claim.—1. A device of the character described, comprising a body portion provided, near its base, with a plurality of openings, and at its top with a crimped or fluted supporting edge, and supports connected with the body portion, substantially as described.

2. A device of the character specified, comprising an open-ended body portion provided, near its base, with a plurality of openings, and at its top with a crimped or fluted supporting edge, and supports adjustably connected with the body portion, substantially as described.

3. A device of the character specified, comprising an open-ended body portion provided near its base with a plurality of openings, and at its top with a crimped or fluted supporting edge, supports adjustably connected with the body portion, and a handle secured to the body, substantially as described.

690,761. PLOW. WILLIAM R. OYLER, Akron, Ohio, assignor to the Oyler Plow Company, Akron, Ohio. Filed Oct. 31, 1901. Serial No. 80,660. (No model.)



Claim.—1. In a plow, the combination with the standard, low landside and share, of the high landside and cutter consisting of a flat metallic plate fastened to the standard, said plate extending rearward of the standard to form the high landside and extending forward of said standard and sharpened on its front edge to form a cutter, substantially as described.

2. In a plow, the combination with the standard, low landside and share, of the high landside and cutter consisting of a flat metallic plate fastened to the standard, said plate extending rearward of the standard to form the high landside and extending forward of said standard and inclined downward and sharpened on its front edge to form a cutter, substantially as described.

3. In a plow, the combination with the standard, low landside and share, of the high landside and cutter consisting of a flat metallic plate fastened to the standard and extending in front and rear of the latter to form respectively the high landside and cutter, said cutter being provided on its share side with an overhanging guard-strip or flange forming a pocket for the reception of the forward edge of the moldboard, substantially as described.

4. In a plow, the combination with the standard, low landside and share, of the high landside and cutter consisting of a flat metallic plate fastened to the standard and extending in front and rear of the latter to form respectively the high landside and cutter, an approximately vertical guard-strip or overhanging flange on the share side of the cutter, and a glass moldboard forming a continuation of the share and seated at its forward edge between said cutter and overhanging flange or guard-strip, substantially as described.

5. In a plow, the combination with the standard and landside, of a plow-point provided on its forward edge with an overhanging and rearwardly-inclined flange and on its under edge with a laterally-projecting flange, said flanges forming a pocket for the reception of the plowshare, and a plowshare seated at its front edge in said pocket, substantially as described.

6. In a plow, the combination with the standard and the landside attached to the lower end thereof, of two bed-plates, the upper of said bed-plates being bolted at its forward end to the standard and extending outwardly and rearward therefrom, and braced at its rear end to the landside, the lower bed-plate being attached at its forward end to the landside in front of the standard and braced at its rear end to the landside in rear of the standard, a glass moldboard resting against said bed-plates and provided on its rear side with perforated rectangular lugs projecting through slots in the bed-plates, washers fitted over said lugs and provided with blocks fitting in said slots in rear of the lugs, and pins passing through the lugs behind the washers, substantially as described.

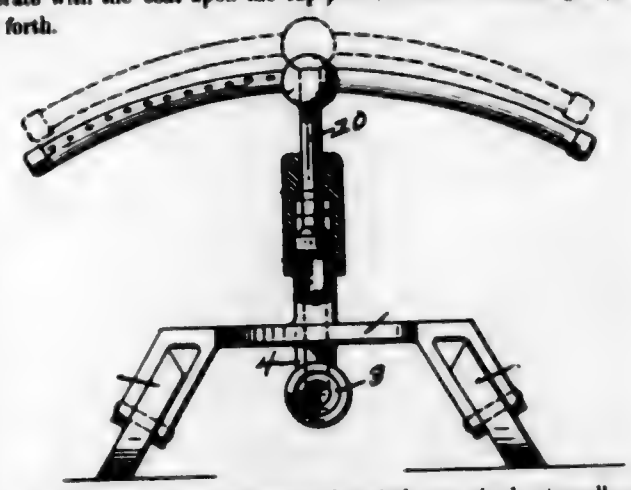
7. In a plow, the combination with the standard and low landside, of the high landside and cutter, a guard-strip or overhanging flange on the cutter forming a pocket for the reception of the forward edge of the moldboard, bed-plates rigidly fixed in rear of the moldboard and provided with elongated slots, a glass moldboard provided on its rear side with perforated rectangular lugs projecting through said slots, the forward edge of the moldboard being seated in the said pocket, washers fitted over the lugs and provided with blocks fitted in said slots in rear of the lugs, and pins passing through the lugs behind the washers, substantially as described.

8. In a plow, the combination with the standard and landside, of the plow-point bolted to the landside and provided on its forward edge with an overhanging rearwardly-inclined flange and on its bottom edge with a laterally-projecting flange, said flanges forming a pocket for the reception of the edge of the plowshare, a bed-plate bolted at its forward end to the standard and inclining rearwardly and outward therefrom and braced at its rear end to the landside, and a plowshare seated at its forward edge in said pocket and bolted at its upper edge to said bed-plate, substantially as described.

9. In a plow, the combination with the standard and landside, of the plow-point bolted to the landside and provided on its forward edge with an overhanging rearwardly-inclined flange and on its bottom edge with a laterally-projecting flange, said flanges forming a pocket for the edge of the plowshare, a bed-plate bolted at its forward end to the standard and inclining rearwardly and outwardly therefrom and braced at its rear end to the landside, a plowshare seated at its forward edge in said pocket and bolted at its upper edge to said bed-plate, and a moldboard secured to said bed-plate and resting at its lower edge on the upper edge of the share, substantially as described.

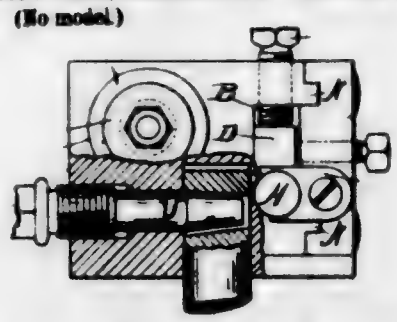
690,762. LAWN-SPRINKLER. HERMAN PAPENFUS, Toledo, Ohio. Filed July 5, 1901. Serial No. 67,077. (No model.)

Claim.—1. In a lawn-sprinkler, an upright tubular standard, the cap-piece mounted thereon having internal cylindrical sections of large and small diameter respectively, and a tapered seat between said sections, a tubular stem, carrying perforated sprinkler-arms, provided with an enlargement at its lower end and a tapered seat upon the enlargement, the same being adapted to lift within the cap-piece when water under pressure is introduced into the sprinkler to cause the seat upon the stem to cooperate with the seat upon the cap-piece, to form a water-tight joint, as set forth.



2. In a lawn-sprinkler, an upright tubular standard externally screw-threaded at its upper extremity, a cap-piece adapted to be screwed thereon having internal cylindrical sections of large and small diameter respectively and a tapered seat between said sections, a tubular stem disposed within the cap-piece, carrying perforated sprinkler-arms and having an enlargement at its lower extremity and a tapered seat upon the enlargement, and a perforated or reticulated disk adapted to be secured upon the lower face of the enlargement upon the stem, as shown and for the purpose set forth.

690,768. LATHE ATTACHMENT FOR RELIEVING THE TEETH OF CUTTERS. FRANK W. PARKER, Providence, R. I., assignor of one-half to Herbet J. Bacon, Providence, R. I. Filed May 20, 1901. Serial No. 61,042. (No model.)



Claim.—1. In a lathe attachment for the purpose described, the combination of a block having a reciprocating motion with the slide-rest, a tool to shape the teeth of a cutter adjustably held in said block, a follower also held adjustable in said block to bear on a templet or form held on the same arbor with the cutter, with means for holding said block on the slide-rest of a lathe, substantially as described.

2. The combination of a block, a tool to shape the teeth of a cutter held in a slot in said block, a cap to cover said slot fitted to the side of said block by rabbeting, two set-screws to hold the tool vertically, two set-screws in said cap to hold the tool laterally, means for raising said tool, substantially as described.

3. The combination of a block, a tool held in said block to shape the teeth of a cutter, a wedge and screw to raise said tool, a follower to rest on a templet and control the motion of said block and tool, with means for holding said block on the slide-rest of a lathe, substantially as described.

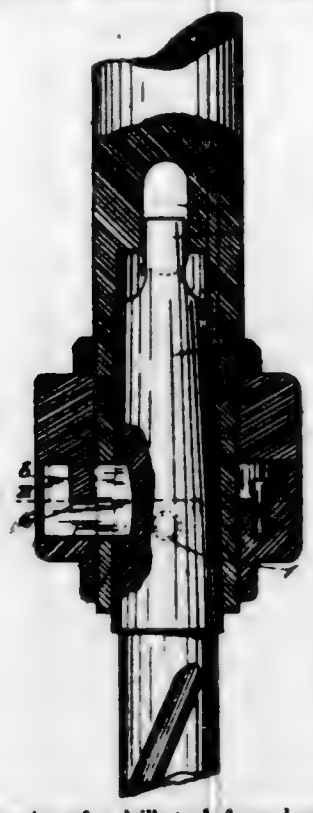
4. The combination of a block, a shaping-tool held in said block, a wedge and screw to raise said tool, a follower also held in said block, means for adjusting and holding said follower, a stud having a screw-collar on its lower end, a hole in the under side of said block to receive said stud, a screw fitted into the side of said block, and having a tapering end entering a taper hole in said stud, substantially as described.

5. The combination of a block, a shaping-tool held in said block, a wedge and a screw to adjust said tool a follower held in said block, a screw held by a cap on the front of the block and fitted to screw into said follower to adjust it, a stud held in a hole in the bottom of said block, a screw fitted in the side of said block and having a tapering end fitting into a hole in said stud, substantially as described.

690,764. DRILL-SOCKET. OTTO A. PARPART, Cleveland, Ohio, assignor to the Standard Tool Company, Cleveland, Ohio, a Corporation of Ohio. Filed Nov. 20, 1900. Renewed Nov. 14, 1901. Serial No. 82,291. (No model.)

Claim.—1. The combination of a drill-stock formed with a socket having a radial guide-slot, a cap secured upon said stock and formed with

a registering radial guide-slot extending through the flange of the cap and in the bottom of the internal recess of the same, a sleeve secured to rotate upon the stock and having its face abutting against the flange of the cap and formed with an eccentric scroll-rib upon said face and engaging the notch in the locking-bolt to move the latter radially in the guide-slots, and a stop-pin projecting from the bottom of the recess in the cap to be engaged by the ends of the scroll-rib, substantially as set forth.



2. The combination of a drill-stock formed with a socket having a radial guide-slot, a cap secured upon said stock and formed with a registering radial guide-slot extending through the flange of the cap and in the bottom of the internal recess of the same, a sleeve secured to rotate upon the stock and having its face abutting against the flange of the cap and formed with an eccentric scroll-rib upon said face extending to one side of the stock between diametrically opposite points and engaging the notch in the locking-bolt to move the latter radially in the guide-slots, and a stop-pin projecting diametrically opposite the slot from the bottom of the recess in the cap to be engaged by the ends of the scroll-rib, substantially as set forth.

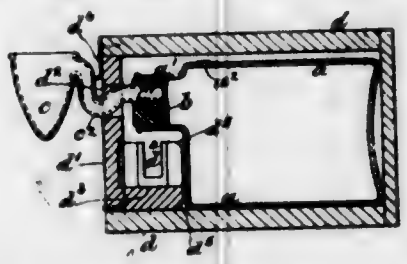
690,765. **SAFETY HOOK AND EYE.** THOMAS PEDERSEN, Kragero, Norway. Filed Jan. 2, 1901. Serial No. 41,761. (No model.)



Claim.—1. In combination, a hook formed of a loop and a loop extension connected therewith, said extension having upwardly-projecting knees, the projections at the junction of the loop and loop extension and an eye having a portion to engage the said projection and portions to engage the said knees, substantially as described.

2. A hook having a cross-bar provided with a projection extending in one direction, said hook having also upwardly-extending knees which face in the opposite direction from the projection, and an eye having a portion to fit under the projection and portions to engage the knees, substantially as described.

690,766. **INKSTAND.** LOUIS I. PERRY, Slough, England. Filed June 7, 1901. Serial No. 63,641. (No model.)



Claim.—1. In an inkstand, the combination of a bottle *a* having a filling-aperture or neck *a'* in its upper part at the front and a permanently-open vent a^3 at top in close proximity to said filling-aperture or neck, a perforated stopper *b* fitting the filling-aperture or neck *a'*, and a removable dipping-cup *c* having a stem *c'* which fits the aperture in the stopper *b* and is removable therefrom, thus enabling ink contained in the bottle to be poured into the dipping-cup and back again therefrom into the bottle, substantially as set forth.

2. In an inkstand, the combination of a bottle having an air-vent at top and a neck in its upper part, a perforated stopper in the neck, a loose dipping-cup, and a stem on said dipping-cup fitting at its extremity the aperture in the stopper and having a bend in its intermediate part, substantially as and for the purposes set forth.

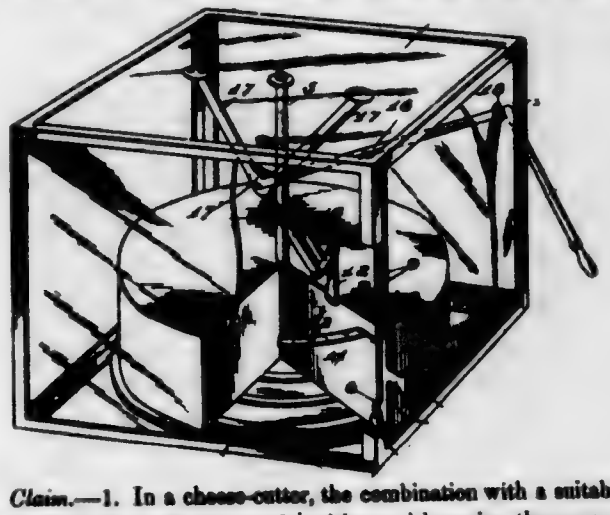
3. In an inkstand, the combination of a bottle having an air-vent at top and a neck in its upper part; a perforated stopper in the neck; a loose dipping-cup and a stem on said dipping-cup fitting at its extremity the aperture in the stopper and having a downward bend in its intermediate part, substantially as and for the purposes set forth.

4. In an inkstand, the combination of a bottle having a vent at top and a neck in its upper part; a perforated stopper in said neck; a removable dipping-cup; and a hollow stem for said dipping-cup, communicating with the upper part of the cup, inclined downward and thence upward so as to form a depressed curve, and at its extremity fitting the aperture in the stopper, as and for the purposes set forth.

5. In an inkstand the combination of a bottle, a perforated stopper in the neck or filling-aperture, a box with a door to inclose the bottle, a hole in said door opposite the aperture in the stopper, a loose dipping-cup, and a stem on said dipping-cup which is passed through the hole in the door and, when the inkstand is in use, removably fits the aperture in the stopper, substantially as herein set forth.

6. In an inkstand the combination of a bottle, a perforated stopper in the neck or filling-aperture, a box with a door to inclose the bottle, a hole in said door opposite the aperture in the stopper, a loose dipping-cup, a stem on said dipping-cup which is passed through the hole in the door and removably fits the aperture in the stopper when the inkstand is in use, and a block on the inside of the door to receive the dipping-cup when the inkstand is packed for transport and which secures the bottle in correct position, substantially as herein set forth.

690,767. **CUTTING APPARATUS.** GEORGE H. PETERSON, Nemaha county, Nebr. Filed June 25, 1901. Serial No. 65,970. (No model.)



Claim.—1. In a cheese-cutter, the combination with a suitable casing, a knife, reciprocating means for raising and lowering the same, a connection between said knife and said reciprocating means for permitting a horizontal movement of the knife, and a lever for operating said reciprocating means, of a handhold extending from said knife by which the same may be drawn back and forth horizontally, means for guiding said knife positively in its vertical movement, means for permitting the knife to be moved horizontally when it is in a lowered position, and means for guiding said knife in its horizontal movement, substantially as described.

2. A cheese-cutter comprising in its construction a knife movably mounted in a suitable casing, means for reciprocating the knife, comprising a rock-shaft pivoted in the casing, and a connection between said knife and said shaft for permitting a horizontal movement of the knife, a lever-arm for operating the shaft, a guide at the inner end of the knife which extends low enough in the casing to hold the knife but not low enough to interfere with the insertion of the cheese beneath it, an outer guide for the knife, comprising vertical bars, one of said bars having an offset formed therein, and guiding means on the knife for engaging each side of the offset bar, the structure being such that the knife will be guided in its vertical movement, and the offset portion of the outer guide-bar will permit of the knife being moved longitudinally when lowered, substantially as set forth.

3. In a cheese-cutter, the combination with a casing, of a knife mounted therein, mechanical means for reciprocating said knife, and a connection between said knife and said reciprocating means for permitting a horizontal movement of the knife, an inner guide engaging the inner end of the knife, an outer guide near the outer end thereof, said outer guide com-

prising two bars, one of which is provided with an offset portion near its lower end, guiding-rollers carried by the knife, one of said rollers being arranged near the upper edge of the knife and on the outer side of one of the guide-bars, while the other roller is arranged near the lower edge of the knife and so as to come opposite the offset portion of the guide-bar when the knife is lowered, whereby the knife may be pulled out and pushed in again for producing a draw cut, substantially as described.

4. In a cheese-cutter, the combination with a casing, of a knife within the same, and means for guiding said knife in a vertical plane, comprising a vertically-arranged post secured to the top of the casing and extending only partially across the interior of said casing, a sufficient distance being left between the inner end of said post and the bottom of said casing to admit of the passage of a cake of cheese or other articles to be cut, means for raising and lowering said knife, comprising a lever composed of two parallel members spaced apart and pivotally connected with said knife, a rock-shaft carried by the free end of said lever and extending outside of said casing, and means whereby said rock-shaft may be rocked, substantially as described.

5. In a cheese-cutter, the combination with a casing, of a vertically-operating knife within the same, a table rotatably mounted within the casing for supporting a cake of cheese, antifriction-bearings beneath the table, a plurality of separate circular rings of different diameters laid upon the upper surface of the table, the said rings all being concentric, whereby the cheese can be easily centered beneath the knife, a scale-bar for measuring the size of slices of the cheese carried by the said rings, and means for moving said scale-bar laterally in a horizontal plane for accommodating cheeses of varying diameters, substantially as described.

6. In a cheese-cutter, the combination with a suitable casing, of a knife mounted within the same, a rock-shaft for reciprocating said knife finding bearings in said casing, a connection between said knife and said reciprocating means for permitting a horizontal movement of the knife comprising an arm carried by said shaft and pivotally connected with said knife, means for rocking the said rock-shaft, guides for directing the vertical movement of said knife, and a handle carried by the outer edge of said knife for moving the same horizontally, substantially as described.

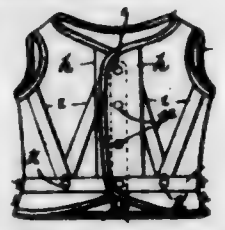
7. In a cheese-cutter, the combination with a suitable casing, of a knife mounted within the same, means for reciprocating said knife and a connection between said knife and said reciprocating means for permitting a radial movement of the knife, a post secured to the top of the casing and extending downwardly therefrom and provided with a longitudinal groove flared at its lower end, the said groove being adapted to guide the inner edge of said knife in its vertical movement, a vertically-arranged post on each of the opposite sides of said knife, adapted to guide the knife both in its radial and vertical movements, antifriction-bearings carried by said knife arranged to engage opposite sides of one of said posts, whereby said knife during its vertical stroke will be held against oscillation, a bend near the lower end of one of said guiding-posts adapted to permit the passage between said posts of the inner antifriction-bearing, thereby also permitting a radial movement of said knife when at the lowest point of its vertical stroke, and a handle carried by the outer edge of said knife adapted to be grasped for drawing the same back and forth, substantially as described.

8. In a cheese-cutter, the combination with a suitable casing, of a vertically-operable knife mounted within the same and means for operating said knife, comprising an upwardly-extending arm rigidly secured to said knife, a link pivoted to said arm, comprising two spaced parallel members, one of said members being secured on either side of said arm, inner and outer guide-posts for guiding the inner and outer edges of said knife, an arm comprising two spaced parallel members, each of which is pivotally secured to the free end of one of the link members, the members comprising said arm extending on either side of the said inner guide-post, a rock-shaft carrying said arm at its inner end and adapted to actuate it and extending outside said casing at its other end, and means for rocking said rock-shaft, whereby said knife will be vertically oscillated passing between the members comprising said link and said lever, substantially as described.

9. In a cheese-cutter the combination with a suitable casing, of a vertically-operable knife mounted within the same and means for operating said knife, comprising an arm pivotally connected therewith, a rock-shaft for actuating said arm provided with a polygonal end adapted to be passed through a polygonal aperture in the free end of said arm, means for rocking said rock-shaft and means for supporting the arm-carrying end of the same, consisting of an arch having its ends secured to the top of said casing, and bifurcated centrally, thereby providing bearings for the said inner end of the rock-shaft on both sides of said lever, substantially as described.

690,768. CHILD'S WAIST. FRANK A. PLATT, Brooklyn, N. Y. Filed Mar. 1, 1901. Serial No. 49,414. (No model.)

Claim.—1. A garment of the class described provided with a back member folded upwardly and downwardly so as to form a double back, said back being provided with suspending-straps placed within the folded portion and projecting through the bottom thereof and being also detachable, substantially as shown and described.



2. A waist, the body portion of which is composed of a back, sides, and front side portions, the back portion being folded upwardly and downwardly so as to form a double back, said back being also provided with suspending-straps placed within the folded portion and projecting through the bottom thereof, substantially as shown and described.

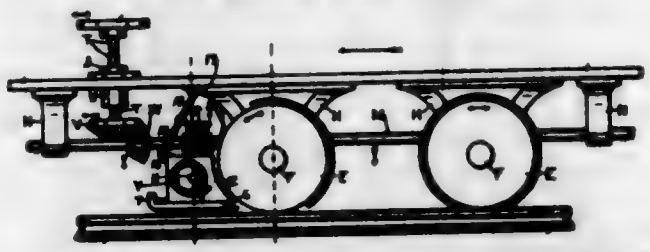
3. A waist, the body portion of which is composed of a back, sides, and front side portions, the back portion being folded upwardly and downwardly so as to form a double back, said back being also provided with suspending-straps placed within the folded portion and projecting through the bottom thereof, said suspending-straps being detachable, substantially as shown and described.

4. A waist comprising a body portion having a bottom member connected therewith, said waist being also provided at the front and bottom with detachable strips at the inner side thereof, and provided with buttons or other fastening devices, and with an interior detachable waistband having suspending devices connected therewith, substantially as shown and described.

5. A waist, the body portion of which is composed of a back, sides, and front and side portions, reinforcing-strips placed over the seams, which connect said portions, a bottom member connected with the body portion of said waist, a detachable strap placed over the connection of the body portion and the bottom member at the inner side of the waist, said strap being provided with suspending devices, and a vertically-arranged front strip detachably connected with the inner side of one of the side portions of the waist and provided with fastening devices, substantially as shown and described.

6. A waist, the body portion of which is provided with reinforcing-strips arranged over the seams which connect the back, the sides, and front and side members, said strip terminating at the waistband, said waist being also provided at the front and at the waistband with detachable interior strips having fastening devices connected therewith, substantially as shown and described.

690,769. CAR-BRAKE. STEPHEN H. POCOCK, Hamilton, Canada. Filed May 20, 1901. Serial No. 61,825. (No model.)



Claim.—1. In a car-brake, a frame, a longitudinal shaft, bearings secured to said frame to support said shaft, a transverse shaft, bearings to support said transverse shaft, a spiral gear-wheel on the transverse shaft, a spiral gear-wheel on the longitudinal shaft, to revolve the transverse shaft, friction brake-blocks, eccentrics secured on the transverse shaft, and capable of revolving in said brake-blocks, substantially as described and set forth.

2. In a car-brake, a frame, a transverse shaft, bearings to support said shaft, friction brake-blocks, eccentrics secured on said shaft to revolve in said brake-blocks, slidable shoes on the lower part of the brakes, rack-teeth on the inner sides of said shoes, eccentric gear-wheels secured on said shaft to gear into the teeth of the shoes and means to revolve said shaft to propel the brakes and the shoes, rails, substantially as described and set forth.

3. In a car-brake, a frame, a longitudinal shaft, bearings secured to the frame for said shaft, a spiral gear-wheel secured on said shaft, a transverse shaft, bearings to support the transverse shaft, a spiral gear-wheel on the transverse shaft to gear into the spiral gear on the longitudinal shaft, friction brake-blocks, eccentrics on the transverse shaft, said eccentrics capable of revolving in said brakes, pivotal arms pivotally connected to the upper part of the brakes and to the frame, and means to revolve the longitudinal shaft, substantially as described and set forth.

4. In a car-brake, a frame, a transverse shaft, bearings to support said shaft, brake-blocks, eccentrics on said shaft to revolve in said brakes,

slidable shoes on the lower part of the brakes, rack-teeth on the inner sides of said shoes, eccentric gear-wheels on said shaft to gear into said rack-teeth, pivotal elbow-arms, said arms pivotally connected to the upper part of said brakes and to the frame, and means to revolve said transverse shaft to engage the brakes, and the shoes, substantially as described and set forth.

5. In a car-brake, a transverse shaft, bearings secured to the car for said shaft, eccentrics secured on the ends of the shaft, brake-blocks on said eccentrics, slidable shoes on the lower part of the brake-blocks, teeth on the inner sides of the shoes, eccentric gear-wheels on said shaft to gear into the teeth of the shoes, and means for revolving said shaft, substantially as described and set forth.

690,770. **GALVANIC BATTERY OR PILE.** CHARLES J. REED, Philadelphia, Pa., and MARCELLUS T. MORRILL, Golden, Colo. Filed July 6, 1899. Serial No. 722,963. (No model.)



Claim.—1. A galvanic battery or pile comprising a thin flexible, carbon-plate electrode, an electropositive-plate electrode, a body containing electrolytic material, and means for securely holding said parts in cooperative relation to each other, substantially as herein set forth.

2. A galvanic battery or pile composed of a number of elements in the form of sheets or layers superposed upon each other and connected in series, one of said sheets or layers being formed of flexible carbon and the entire pile being embedded in insulating-cement, substantially as herein set forth.

3. A galvanic element consisting of a carbon electrode, a zinc electrode, a porous septum of non-conducting material in contact with the zinc, and a porous body containing electrolytic material and located between the carbon electrode and the porous septum, said electrode and septum being of greater length and width than said body, substantially as herein set forth.

4. A galvanic element consisting of a carbon electrode, a zinc electrode, a porous septum of non-conducting material in contact with the zinc, and a porous body containing electrolytic material and located between the carbon electrode and the porous septum, said electrode and septum being of greater length and width than said body, all being embedded in insulating-cement, substantially as herein set forth.

5. A galvanic battery or pile composed of a number of elements connected in series, each element consisting of a carbon electrode, a zinc electrode, a porous septum of non-conducting material in contact with the zinc, and a porous body containing electrolytic material and located between the carbon electrode and the porous septum, said electrode and septum being of greater length and breadth than said body, all being embedded in insulating-cement, substantially as herein set forth.

6. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another, all inclosed in a single metallic receptacle, the receptacle being electrically connected to one pole of the pile, but otherwise insulated from the pile by an insulating wax or cement, substantially as herein set forth.

7. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another, and comprise flexible carbon electrodes, electropositive electrodes and an electrolyte, substantially as herein set forth.

8. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another and comprise flexible electrodes of carbon impregnated with wax or equivalent waterproof cement, electropositive electrodes and an electrolyte, substantially as herein set forth.

9. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another, and comprise flexible electrodes of carbon impregnated with wax or equivalent waterproof cement, the entire pile being embedded in wax or equivalent waterproof cement, substantially as herein set forth.

10. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another, and comprise flexible electrodes of carbon impregnated with wax or equivalent waterproof cement, zinc electrodes, porous septa in contact with the zinc, and an electrolytic mixture of smaller area than the electrodes and located between the carbon electrodes and the porous septum, substantially as herein set forth.

11. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another, and comprise flexible electrodes of carbon impregnated with wax or equivalent waterproof cement, zinc electrodes, porous septa in contact with the zinc and an electrolytic mixture of smaller area than the electrodes and located between the carbon electrodes and the porous septa, all embedded in wax or equivalent waterproof cement, substantially as herein set forth.

12. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another, and comprise flexible electrodes of carbon impregnated with wax or equivalent waterproof cement, zinc electrodes, porous septa in contact with the zinc, and electrolytic mixture of smaller area than the electrodes and located between the carbon electrodes and the porous septa, the entire periphery of each septum being impregnated with wax or equivalent waterproof cement, substantially as herein set forth.

13. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another, and comprise flexible electrodes of carbon impregnated with wax or equivalent waterproof cement, zinc electrodes, porous septa in contact with the zinc, an electrolytic mixture of smaller area than the electrode and located between the carbon electrode and the porous septum, the entire periphery of each septum being impregnated with wax or equivalent waterproof cement, and all the parts being embedded in wax or equivalent waterproof cement, substantially as herein set forth.

14. A galvanic battery or pile consisting of two or more galvanic elements, electrically connected together in series, the parts of each element being in the form of flat plates superimposed one upon another, the negative electrode of one element being mechanically separated from the positive electrode of the adjacent element by an insulating plate or layer, and containing flexible electrodes of carbon impregnated with wax or equivalent waterproof cement, substantially as herein set forth.

15. A galvanic battery or pile consisting of two or more galvanic elements, the parts of which are in the form of flat plates, superimposed one upon another, which comprise flexible electrodes of carbon impregnated with wax or equivalent waterproof cement, all being inclosed in a single metallic receptacle, and the receptacle being electrically connected to one pole of the pile, but otherwise insulated from it, substantially as herein set forth.

16. A galvanic battery or pile consisting of two or more galvanic elements electrically connected in series, the parts of which are in the form of flat plates superimposed one upon another, and comprise carbon and zinc electrodes, porous septa in contact with the zinc, an electrolytic mixture of smaller area than the electrodes between the carbon electrodes and the porous septa, the negative electrode of one element being mechanically separated from the positive electrode of the adjacent element by an insulating plate or layer, substantially as herein set forth.

690,771. **APPARATUS FOR BRANDING ANIMALS OR PACKAGES.** GEORGE REEVES and WILLIAM H. BOYENS, Christchurch, New Zealand. Filed Aug. 1, 1900. Serial No. 25,580. (No model.)



Claim.—1. A branding-stamp comprising a reservoir, a chamber *c*, a conduit-tube leading from the chamber to the reservoir with a tap therein, a porous felt pad secured to the face of the chamber, the said chamber having the perforated wall between the pad and the said chamber, substantially as described.

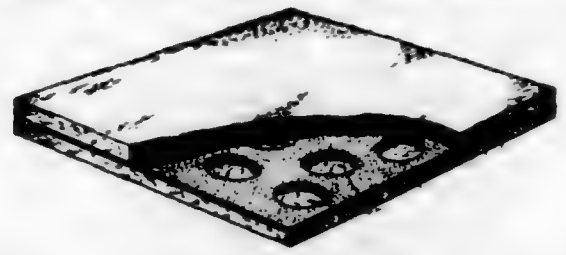
2. In combination, in a branding-stamp, a reservoir, a conduit-tube leading from the chamber with a tap therein, a chamber at the end of said conduit-tube, said chamber extending laterally about the said tube and having a perforated lower wall and a pad held against said perforated wall, substantially as described.

690,772. **TYPE-WRITER PAD.** RICHMOND R. REVALK, San Francisco, Cal. Filed Oct. 3, 1901. Serial No. 77,443. (No model.)

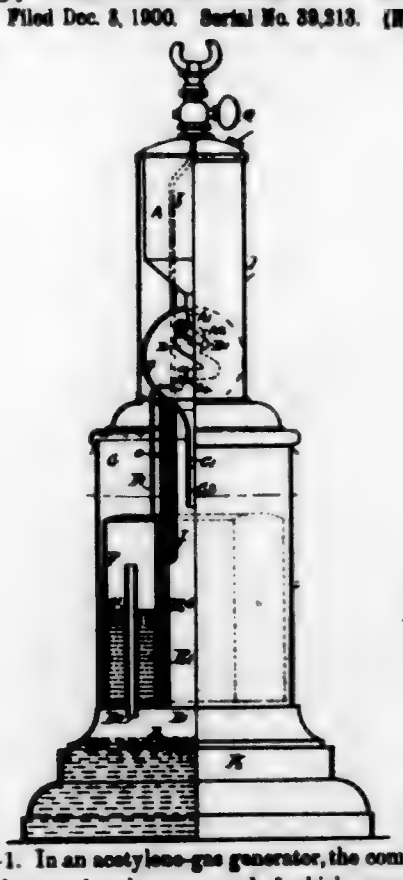
Claim.—1. A means for diminishing and muffling the noise created by writing and other machines consisting of alternate layers of soft fibrous material and an interposed resilient dense material united thereto and having openings inclosed on both sides by the fibrous material.

2. A means for diminishing and muffling the noise created by writing and manually-operated machines, consisting of a pad capable of being

fitted under the machine and including alternate layers of soft fibrous material and an interposed sheet of resilient dense material united thereto and having openings in it serving to further reduce the sound.



690,778. ACETYLENE-GAS GENERATOR. JOHN H. ROSS, Aston, England. Filed Dec. 8, 1900. Serial No. 39,313. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a hopper and a tubular member the upper end of which surrounds the delivery end of the hopper, said tubular member being supported for oscillation about an axis situated above the lower end of the hopper and having an acute bend intermediate its length.

2. In an acetylene-gas generator, a hopper and a tubular member the upper end of which surrounds the delivery end of the hopper, said tubular member being supported for oscillation about an axis situated above the lower end of the hopper and having an acute bend intermediate its length, combined with a cut-off controlling the discharge end of said tubular member.

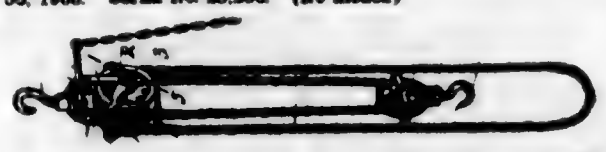
3. In an acetylene-gas generator, a hopper and a tubular member the upper end of which surrounds the delivery end of the hopper, said tubular member being supported for oscillation about an axis situated above the lower end of the hopper and having an acute bend intermediate its length, combined with a generating-tank, a movable gas-holder and connections between said gas-holder and said tubular member for operating the latter.

4. In an acetylene-gas generator, the combination of a movable gas-holder, a generating vessel and a hopper to feed carbid thereto, a movable tubular member arranged at the lower end of the hopper to regulate the feed of carbid, a forked lever connected to the tubular member to operate the same, a reciprocating slide connected with the gas-holder, and having a longitudinal rib thereon which is straddled by the forked portion of said lever to hold the same in fixed position, and a stud on the slide also coöperating with the said forked portion to turn said lever and feed carbid to the generating vessel.

5. In an acetylene-gas generator, the combination of a hopper and an oscillatory tubular member having an acute bend intermediate its length and arranged to receive carbid from said hopper, said tubular member serving to measure definite charges of carbid from the hopper.

6. In an acetylene-gas generator, a hopper and an oscillatory tubular member having an acute bend intermediate its length and arranged to receive carbid from said hopper, said tubular member serving to measure definite charges of carbid from the hopper, combined with a gas-holder and connections between said gas-holder and said tubular member for actuating the latter.

690,774. HOIST. DAVID E. ROWLAND, Canton, Ohio. Filed July 30, 1900. Serial No. 25,238. (No model.)

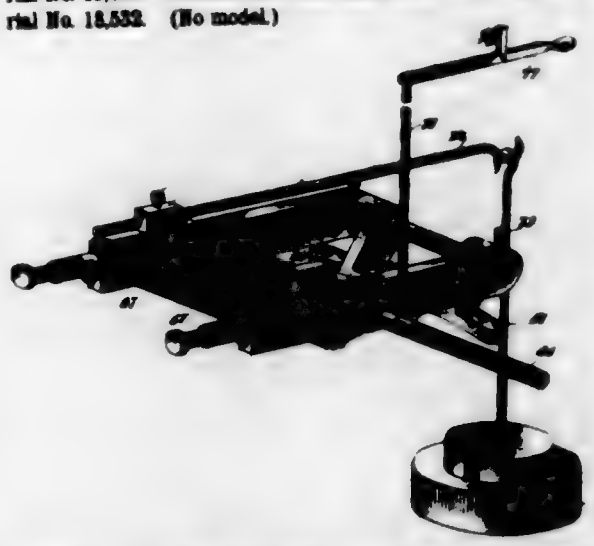


Claim.—1. In a hoist of the class described, a frame provided with a chamber at its upper portion, a coupling-head located in the chamber, a head journaled to the coupling-head, a lever pivotally connected to the coupling-head and to the frame, a downward-extending yoke, a sliding collar operatively connected to the yoke and provided with a pin, a hub carrying the sliding collar, pulleys mounted upon the shaft and provided with apertures to engage the pin of the sliding collar, an elevating pulley-block and an endless chain, all arranged substantially as and for the purpose specified.

2. In a hoist a frame, means for suspending the frame, a shaft carried by the frame, a coupling-head, a lever pivoted to the coupling-head and to the frame, said lever provided with a brake-shoe, pulleys mounted upon the shaft carried by the frame and means for disconnecting and connecting the pulleys and an elevating-chain, all arranged substantially as and for the purpose specified.

3. In a hoist of the class described, a frame, pulleys carried by the frame, a coupling-head connected to the frame, a flanged head connected to the coupling-head, a hook connected to the flanged head, a lever pivotally connected to the frame and to the coupling-head and an elevating-chain, and an elevating-block, substantially as and for the purpose specified.

690,775. TENSION DEVICE FOR KNITTING-MACHINES. GEO. W. RUTH, Norristown, Pa. Original application filed Apr. 20, 1900, Serial No. 13,625. Divided and this application filed May 31, 1900. Serial No. 18,532. (No model.)



Claim.—1. A knitting-machine tension device, having a frame, tension-rollers mounted therein and geared together to turn in unison, a drive-shaft mounted in the frame parallel with the tension-rollers, a spur-gear carried on the drive-shaft outside of the frame, a spur-gear carried on one of the tension-rollers and meshed directly with the gear of the drive-shaft, whereby the tension-rollers are driven, and two pawls mounted on a common pivot on the outer side of the frame, said pawls being extended in the same direction and being of different lengths to engage with different parts of the said spur-gear on the tension-roller.

2. A knitting-machine tension device, having a frame, tension-rollers mounted therein and geared together to turn in unison, a drive-shaft mounted in the frame parallel with the tension-rollers, a spur-gear on the drive-shaft at the outer side of the frame, and a spur-gear on one of the tension-rollers at the outer side of the frame and meshed directly with the spur-gear on the drive-shaft.

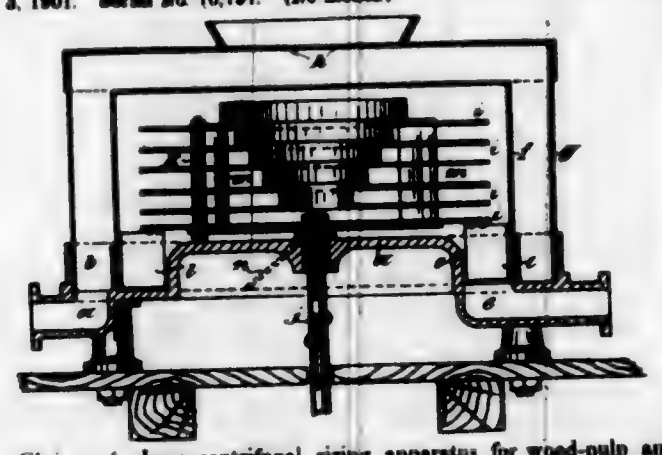
690,776. HARROW-TOOTH. AUGUSTUS H. SCHAFFER, Ontonagon, Mich. Filed Apr. 30, 1901. Serial No. 58,118. (No model.)



Claim.—A harrow-tooth constructed of flat spring-steel, the said tooth being longitudinally tapered and provided with a flange at its upper

edge extending at right angles from the body, and also provided centrally with a bolt-hole parallel with said flange and midway between the edges thereof, one side face of the tooth being convexed and the opposing side face concaved, the forward edge of the tooth being the cutting edge and longitudinally convexed, the cutting edge extending to the rear edge of the tooth at the bottom, which rear edge is longitudinally concaved, as described.

690,777. CENTRIFUGAL SIZING APPARATUS FOR SIZING WOOD-PULP OR SIMILAR MATERIALS FOR THE MANUFACTURE OF PAPER. HEINRICH SCHILLER, Weissenfels, Germany. Filed Aug. 3, 1901. Serial No. 70,797. (No model.)



Claim.—1. In a centrifugal sizing apparatus for wood-pulp and similar materials, the combination of a rotary system of horizontal disks provided within an upright sieve-casing, with upright plates *m* arranged radially between the said horizontal disks at a point in juxtaposition to the outer edges of the disks, and forming "compartments" solely adjacent to said outer edges, substantially as described.

2. In a centrifugal sizing apparatus for wood-pulp and similar materials, the combination of a system of horizontal disks provided within an upright sieve-casing, with upright plates *m* arranged radially and between the said horizontal disks and inclined plates *n* arranged radially to the lower side of the bottom horizontal disk, substantially as described.

690,778. CHIMNEY-THIMBLE. CHARLES F. SCHROTH, Winona, Minn. Filed Mar. 13, 1901. Serial No. 51,094. (No model.)



Claim.—1. A chimney-thimble having that end designed to fit within the chimney-opening flared upwardly at the top in the direction of the line of draft in the chimney, the inner edge of the thimble being designed to be flush with the inner face of the chimney-casing, as set forth.

2. The combination with a chimney-casing having an orifice therein the upper wall of which is flared upwardly and inwardly in the line of draft, of a thimble designed to fit within said orifice and having its top flared upwardly and inwardly to conform to the wall of said casing, the inner end of the thimble being flush with the inner face of the casing, substantially as set forth.

3. The combination with a chimney-casing having an orifice the inner portion whereof is upwardly inclined at its top and horizontal at the bottom, of a thimble designed to fit within said orifice having a horizontal portion and upwardly inclined at its top in the direction of the line of draft of the chimney, the bottom of the thimble being designed to conform to the bottom of said orifice, the inner end of the thimble being flush with the inner face of the chimney-casing, substantially as set forth.

690,779. CUSHION FOR SHOE-HEELS. LOUIS SCHWARZ, Jersey City, N. J. Filed May 21, 1901. Serial No. 61,237. (No model.)



Claim.—1. A cushion for shoe-heels, consisting of thin metal plates arranged one above the other, and a marginal connecting-strip tapering from the back in direction of the front, and deeper at the back than at the front, substantially as described.

2. A cushion for shoe-heels, comprising spaced thin metal plates arranged at an angle to each other, the plates being connected at the sides and rear and open at the front, as described.

3. A cushion for shoe-heels, consisting of thin metal plates arranged one above the other, and a marginal connecting-strip, which connecting-strip is arranged between the plates and extends from the forward edges of the plates along the sides and at the rear, an open space being formed between the said plates at their forward edges, the said connecting-strip being of greatest depth at its rear, tapering in direction of its forward ends, whereby the plates of the cushion are at angle to each other, as described

690,780. SAFETY-RAZOR. ALBERT L. SILBERSTEIN, New York, N. Y. Filed June 6, 1901. Serial No. 63,379. (No model.)



Claim.—1. A safety-razor having a blade-holding casing, and transversely-extending clips on said casing for engaging and retaining the blade, said clips being secured at their forward ends to the casing and having their other ends working in guides and free to yield upward when the blade is pushed into position, as set forth.

2. A safety-razor having a blade-holding casing, and angular spring-clips on said casing for engaging and retaining the blade, said clips being secured at their forward ends to the casing and being free to yield upward when the blade is pushed into position, said clips having guide-arms engaging bearings on the casing, to guide the clips in their up-and-down movement, as set forth.

3. A safety-razor having a casing provided with end cross-pieces, and a top for the casing and pivoted on said cross-pieces, the rear end of said top being adapted to rest on the rear edge of the casing, as set forth.

4. A safety-razor having a casing provided with end cross-pieces, and a top for the casing and pivoted on said cross-pieces, the front end of said top being provided with a guard, as set forth.

5. A safety-razor having a casing provided with end cross-pieces, and a top for the casing and pivoted to said cross-pieces, the rear end of said top being adapted to rest on the rear of the casing and the front end of said top being provided with a guard, as set forth.

6. A safety-razor having a casing provided with end cross-pieces, said cross-pieces having their front ends slotted, spring-bars secured to the casing and projecting through the slots of the said end pieces, and screws mounted in the casing and engaging the said bars, as set forth.

7. A safety-razor having a casing provided with end cross-pieces, yielding clips carried by the cross-pieces, a top pivoted to the said cross-pieces and provided at its front end with a guard, and a latch for engaging the back of the razor, as set forth.

8. A safety-razor having a casing, and a spring-latch connected at one end with the casing and adapted to engage with its other end the back of the blade, said spring-latch being formed near its fastening end with an S-shaped bend, to allow the free end of the latch to readily yield in a lateral direction, and having a U-shaped free end straddling the rear wall of the casing and a handle at said free end, as set forth.

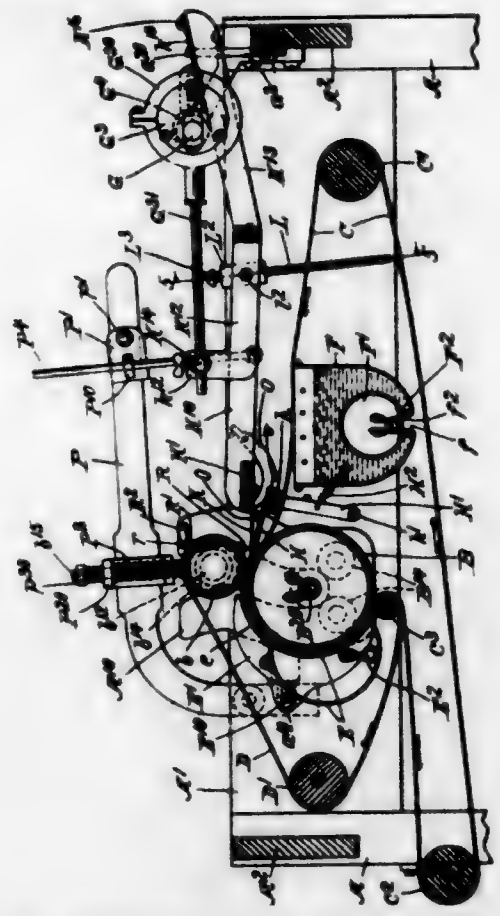
9. A safety-razor, comprising a U-shaped casing provided with end cross-bars, whose front ends are slotted, a top pivoted to the cross-bars, yielding clips on said cross-bars, adjustable stops secured to the casing and projecting through the slots of the cross-bars, and a pivoted spring-catch for engaging the back of the razor, as set forth.

690,781. PLAITING-MACHINE. EUGENE W. SILSBY, Lagrange, Ill. Filed May 21, 1900. Serial No. 17,388. (No model.)

Claim.—1. In a plaiting-machine, a pair of pressing-rolls, and means for revolving them; endless aprons which pass about the rolls respectively, and are both pressed between them; means for moistening one of the aprons as it advances toward the rolls; means located between the plies of the other apron, in position to divert the emerging ply thereof about the opposite roll and for heating the two aprons where they are thus caused to overlie upon said roll; and plait-laying means, operating at the entering side of the rolls to plait the fabric and lay the plaits between the aprons as the latter enter between the rolls.

2. In a plaiting-machine, a pair of pressing-rolls; endless aprons which pass about the rolls respectively and are both pressed between them; means for moistening one of the aprons as it advances toward the roll;

means located between the plies of the other apron, in position to divert the emerging ply thereof about the opposite roll; means for heating said opposite roll; and plait-laying means operating at the entering side of the rolls to plait the fabric, and to enter the plaits between the aprons as the latter enter between the rolls.



3. In a plaiting-machine, a pair of pressing-rolls; an endless apron passing about each of the rolls, both aprons being pressed between them; plait-laying means operating at the entering side of the rolls to lay the plaits in the fabric and enter them between the aprons as the latter enter between the rolls; and a pressing-shoe located between the plies of one of the aprons, having its face conformed substantially to the cylindrical surface of the opposite roll; and in position to divert the emerging ply of the apron between whose plies it is located, about said opposite roll.

4. In a plaiting-machine, a pair of pressing-rolls; an endless apron passing about each of the rolls, both aprons being pressed between them; plait-laying means operating at the entering side of the rolls to lay the plaits in the fabric and enter them between the aprons as the latter enter between the rolls; and a pressing-shoe, located between the plies of one of the aprons, having its face conformed substantially or approximately to the cylindrical surface of the opposite roll, and located in position to divert the emerging ply of the apron between whose plies it is located, about said opposite roll, and means for heating said shoe.

5. In a plaiting-machine, a pair of pressing-rolls; an endless apron passing about each roll and both aprons passing between the rolls; means for heating one of the rolls; a shoe located between the plies of the apron running about the other roll at the emerging side of the rolls, having a face substantially conformed to the cylindrical surface of the heated roll and in position to divert the emerging ply of said apron about said roll, and means for heating said shoe; and plait-laying means operating at the entering side of the rolls to lay the plaits in the fabric and to enter same between the aprons as the latter enter between the rolls.

6. In a plaiting-machine, a pair of pressing-rolls; an endless apron passing about each roll and pressed between the rolls; plaiting means located at the entering side of the rolls operating to lay the plaits in the fabric and enter the same between the aprons as the same enter between the rolls; means for moistening one of the aprons before it enters between the rolls; a pressing-shoe located between the plies of the other apron at the emerging side, having a face substantially or approximately conformed to the cylindrical surface of the opposite roll, and in position to divert the emerging ply of the apron between whose plies it is located, about said roll; and means for heating the shoe.

7. In a plaiting-machine, a pair of pressing-rolls; an endless apron passing about each roll and pressed between the rolls; plaiting means located at the entering side of the rolls, operating upon the fabric to lay the plaits and enter the same between the aprons as the latter enter between the rolls; means for moistening one of the aprons before it enters between the rolls; a pressing-shoe located between the plies of the other apron at the emerging side of the roll, having one face conformed to the cylindrical surface of the opposite roll and in position to divert the emerging ply of the apron between whose plies it is located onto said opposite roll; means for heating said opposite roll, and means for heating the shoe.

8. In a plaiting-machine, a pair of pressing-rolls; an apron passing about one of them and pressed between them; a plait-laying device, comprising a tacking-blade and means for reciprocating it; means for giving the rolls step-by-step rotation with rest intervals; the advancing movement of the tacker-blade being timed to commence during the rest interval of the rolls, and to continue after the movement of the rolls commences, agreeing in speed substantially therewith.

9. In a plaiting-machine, a pair of pressing-rolls; an apron which passes between them and means for diverting it around one of them at the emerging side; a plait-laying device operating to lay the plaits on such apron at the side toward the roll about which it is diverted; such plait-laying means comprising a tacking-blade and means for reciprocating it to form the plait; means for giving the roll and apron step-by-step movement with rest intervals, the tacker-reciprocating mechanism being timed to commence the advance movement during the rest interval of the rolls, and to continue such movement after the rolls start, substantially at the speed of the latter.

10. In a plaiting-machine a pair of pressing-rolls; an endless apron which passes and is pressed between them, a plait-laying device comprising a tacking-blade and means for reciprocating it, means for giving the rolls step-by-step rotation with rest intervals, the tacking-blade operating to lay the plaits on the apron, its advancing movement being timed to commence during the rest interval of the rolls and apron, and to continue after the movement of the apron commences at a speed agreeing substantially with that of the apron; whereby the tack or fold laid on the latter is positively carried with it in its advancing movement regardless of the grasp of the rolls on the tack.

11. In a plaiting-machine, a pair of pressing-rolls and means for operating them; an endless apron which passes and is pressed between them as they rotate, and means for diverting such apron against one of the rolls at the emerging side; in combination with a plait-laying device comprising a tacking-blade to lay the plait on the apron at the entering side of the rolls at the side of the apron toward the roll against which it is diverted, having its range of action such as to carry the forward fold of the plait between the rolls; mechanism for reciprocating such blade timed to cause the blade in the closing part of its advancing tack-forming movement to accompany the rotating movement of the rolls and the forward movement of said apron.

12. In a plaiting-machine, the pressing-rolls, and a platen and tacker-blade coöperating to lay the plaits at the entering side of the rolls; means for advancing both the platen and the tacker-blade toward the rolls; and means for retracting first the platen and subsequently the tacker-blade.

13. In a plaiting-machine, the pressing-rolls; a platen and tacker-blade between which the fabric is grasped at the entering side of the rolls; means for giving the rolls step-by-step rotation with rest intervals; means for advancing both the platen and tacker-blade toward the rolls during a rest interval of the latter; and means operating after the rotating step movement of the rolls commences for retracting first the platen and afterward the tacker-blade.

14. In a plaiting-machine, the pressing-rolls; a platen and tacker-blade between which the fabric is grasped at the entering side of the rolls; means for giving the rolls step-by-step rotation with rest intervals; means for advancing both the platen and tacker-blade toward the rolls during the rest interval of the latter; means coöperating after the rotating step movement of the roll commences, for retracting the platen, and continuing the advance of the tacker-blade during the early part of the feed movement of the rolls.

15. In a plaiting-machine, a pair of pressing-rolls, an apron which passes about one of them and is pressed between them, a platen overhanging the apron at the entering side of the rolls; a plait-laying tacker operating on the platen opposite the apron; means for reciprocating the tacker, and means for giving the rolls step-by-step rotation and for reciprocating the platen; the advancing movement of the platen being timed to correspond to the step rotation of the rolls both of said movements being timed to occur after a certain advance movement of the tacker, whereby the plait is first laid by the tacker on the platen, and then carried bodily between the rolls by the rotation of the latter and the advancing movement of platen and tacker.

16. In a plaiting-machine, a pair of pressing-rolls, an apron which passes about one of them and is pressed between the rolls; a platen overhanging the apron at the entering side of the rolls; a plait-laying tacker operating on the platen opposite the apron; means for rotating the rolls; means for reciprocating the tacker; a dog connected to the tacker, and engaging the platen after a certain part of the advance movement is performed, and carrying the tacker with the platen during a subsequent part of said advance movement; a trip disengaging the dog, and a spring which retracts the platen.

17. In a plaiting-machine, in combination with a pair of pressing-rolls,

plaiting devices, comprising a platen and a tucker coöperating therewith to lay the plaits and advance the plaited fabric toward the pressing-rolls; means for reciprocating the tucker, and for causing it to press upon the platen during its advancing movement; means for lifting it from the platen during the retracting movement; means for adjusting the reciprocating and lifting devices to vary the reciprocating stroke and the lifting movement.

18. In a plaiting-machine, in combination with the pressing-rolls, the tucker, the frame by which it is carried, and tilting fulcrum-supports for such frame, inclined toward the rolls; said frame having a guide-arm extended oblique to the plane of reciprocation of the blade.

19. In a plaiting-machine, in combination with the pressing-rolls, a plait-laying means, consisting of a tucker and frame by which it is carried, tilting fulcrum-supports for said frame, inclined toward the rolls at the most advanced position of the frame; said frame having a guide-arm extending at the opposite side of said fulcrum from said rolls in an oblique direction approximately parallel to the chord of the arc through which the tilting fulcrum swings from its foremost inclined position to erect position; and a cam rotated above the inclined guide-arm and operating thereon to check the movement of said arm upward, shaped and located to operate downwardly upon said arm after the tilting fulcrum has commenced to approach erect position in the retracting motion of the tucker-frame.

20. In a plaiting-machine, plait-laying devices, consisting of a platen, H, a tucker coöperating therewith; a frame by which said tucker is carried; a rotating shaft and an eccentric thereon, and connections from the ring of said eccentric to the frame pivotally connected to the latter; whereby the eccentric communicates to said tucker-frame direct reciprocating motion only; a shifting fulcrum for said reciprocating frame intermediate the tucker and the opposite end of the frame; and a cam on the eccentric-shaft, operating on said opposite end to depress the same and elevate the tucker during the retracting movement.

21. In a plaiting-machine, plait-laying means, comprising a platen, H, a tucker-blade coöperating therewith, a frame to which said blade is attached, by which it is reciprocated over the platen; a shifting fulcrum for such frame; a revolving shaft and an eccentric thereon, and a connecting-rod extending from the ring of said eccentric to the tucker-frame and suitably connected to the latter; a cam on the eccentric-shaft, operating upon the end of the same opposite the tucker-blade to depress said end and elevate the blade, the fulcrum of said tucker-frame being adjustable up and down.

22. In combination with the tucker-frame, the tilting supports, L, L, for the same; clips, L^3, pivoted to the tucker-frame, and socketed to adapt them to enter upon the upper ends of the supports L, and adjustable screws, L^2, set into said clips to limit the depth of the socket and adjustable therein to vary the vertical position of the clips on the supports, and thereby adjust the fulcrum vertically.

23. In a plaiting-machine, in combination with a pair of pressing-rolls, plaiting devices adapted to lay the tucks in the fabric and advance the same between the rolls; a check-bar, T, located in position to rest against the folds of the plaits; means by which such check-bar is suspended from pivots located above and forward of said position of the check-bar; whereby said check-bar tends by gravity to press bodily yieldingly inward toward the rolls to hold the plaits yieldingly toward and between the latter.

24. In combination with the pressing-rolls and the plaiting means, the eccentrics which operate said rolls and plaiting means, comprising each an inner disk and an outer ring, having peripheral grooves facing each other and balls in such grooves, said outer ring being divided at one side and provided with clamping-lugs and means for forcing them together, and grooves in the faces of such lugs extending to the groove in the inner periphery of the ring, and suitable means for closing up the passage formed by such grooves in the lugs after the balls are inserted therethrough.

25. In a plaiting-machine, in combination with pressing-rolls, plaiting means operating at the entering side of the rolls to lay the plaits and enter the same between the rolls; a check, R, extending along the rolls at the entering side, in position to rest against the folds of the plait, and means tending to press such check bodily yieldingly inward toward the rolls, to hold the plaits yieldingly toward and between the rolls.

26. In a plaiting-machine, in combination with a pair of pressing-rolls, plaiting means adapted to lay the tucks in the fabric and advance the same between the rolls; a check-bar, R, suspended at the entering side of the rolls, tending to swing in toward their line of contact, to hold the plaits against the upper roll until they are grasped between the rolls.

27. In a plaiting-machine in combination with the pressing-rolls, a plait-laying tucker-blade, means by which the blade is reciprocated toward and from the rolls, adjustable means for controlling the reciprocation to cause one end of the blade to make a longer stroke than the other.

28. In a plaiting-machine, in combination with the pressing-rolls, the plait-laying tucker, the frame by which it is carried, parallel guides for said frame at opposite sides thereof at the end toward the rolls; a single guide for the opposite end of the tucker-frame, said last-mentioned guide being adjustable to deflect it from the direction parallel with the other guides; and means for reciprocating said frame.

29. In a plaiting-machine, in combination with the pressing-rolls, the plait-laying tucker and the frame by which it is carried; independent supports for the frame, widely separated transversely with respect to the reciprocating movement of the frame; parallel lateral guides for the frame, at the end toward the rolls; a third guide for the opposite end, said third guide being adjustable to deflect it from the direction parallel with the other guides; and means for reciprocating the frame over its said transversely-separated supports.

30. In a plaiting-machine, in combination with the pressing-rolls, the plait-laying tucker, the frame by which it is carried, independent supports at opposite sides thereof, by means of which it may be reciprocated; the laterally-projecting studs at the end toward the rolls, and parallel guides for the same on the frame; the single guide-arm for the frame at the opposite end, having the guide-plate, k^{13}, adjustable on said arm to deflect its guide edges; and the guide projections on the frame between which said plate reciprocates.

31. In a plaiting-machine, in combination with a pair of pressing-rolls, standards in which they are mounted having upwardly open guideways for the bearings of the upper roll; levers pivoted to the frame and extending transversely with respect to the rolls; links pivoted to said levers respectively; bearings for the upper roll; stops on the links respectively, located above the pivots of the links to the levers, and springs resting between said stops and said bearings.

32. In a plaiting-machine, in combination with a pair of pressing-rolls, one above the other, levers, P, P, connected to the rolls, having pivoted to them the links, P^{2}, said links having horizontally-jutting eyes; bearings for the upper roll having stems extending through said eyes; stop-nuts on the ends of the stems respectively, and springs interposed between said eyes and the bearings on the one side, and the stop-nuts on the other side, and means for adjustably securing said levers to the frame.

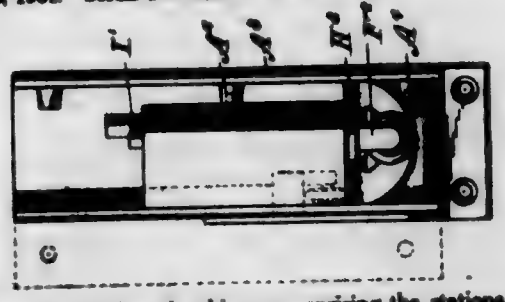
33. In combination with a pair of pressure-rolls, the levers, P, P, pivoted to the frame, the bearings for the upper roll carried by said levers; springs reacting between the bearings and levers, respectively, to hold the upper roll yieldingly toward the lower roll; the link, P^{7}, pivoted to the lever, having sideward-jutting eyes, P^{10}, and the rod, P^{4}, pivoted to the frame and extending through such eyes.

34. In combination with plait laying and pressing devices, means for carrying the fabric to be plaited to such devices, and a steamer over which the fabric is then carried on its way to the pressing devices, said steamer having a tubular chamber extending from end to end and open at the ends, and a fuel-gas burner extending longitudinally through such tubular chamber, whereby the products of combustion are diverted longitudinally with respect to the chamber, and delivered laterally beyond the fabric.

35. In a plaiting-machine, in combination with the plait laying and pressing devices, an endless apron for carrying the plaits between the pressing devices, a steamer over which said apron passes on its way to such pressing devices, said steamer having a tubular chamber extending from end to end and open at the ends, and a fuel-gas burner extending longitudinally through such tubular chamber, whereby the heating-flame for said steamer and the products of combustion thereof are deflected longitudinally with respect to the steamer, transversely with respect to the path of movement of the apron and fabric to be plaited, and delivered laterally beyond said fabric.

36. In a plaiting-machine, in combination with the plait laying and pressing devices, an endless apron for carrying the plaits between the pressing devices; a steamer, over which said apron passes on its way to said pressing devices, said steamer having a tubular chamber extending from end to end and open at the ends; a longitudinal aperture at the bottom of the steamer leading into the tubular chamber; and a fuel-gas burner extending longitudinally through such tubular chamber at the lower part thereof, above said bottom aperture.

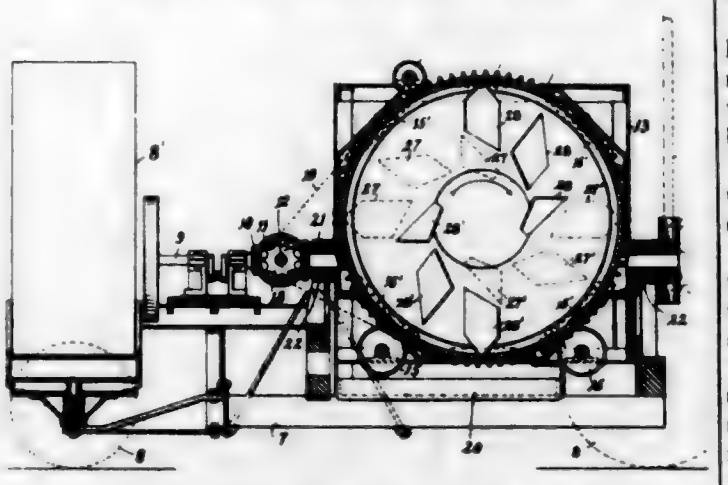
690,782. **HINGE.** JAMES G. SMITH, Covington, Ky., assignor to Hildenbrandt's Automatic Hinge Company, Cincinnati, Ohio. Filed July 3, 1901. Serial No. 67,004. (No model.)



Claim.—A double-acting hinge, comprising the stationary plate A having a lateral extension B, a central boss on the latter, an inclined and

spiral track about said boss, the pintle seated in a threaded hole in said boss, the two complemental plates A^1 and A^2, notched as described and having their rear longitudinal edges curved toward each other and held in contact over said extension, the box on the inner face of said plate A^2, the plunger working in said box, the antifriction-wheel, the stem of the plunger guided in an aperture in said box, the lower end of the pintle-engaging portion of said box resting on said boss and against a concaved shoulder of the extension, as shown and described.

690,783. MIXING-MACHINE. THOMAS L. SMITH, Milwaukee, Wis. Filed Oct. 1, 1900. Serial No. 31,625. (No model.)



Claim.—1. In a mixing-machine, the combination with a revoluble mixing-drum consisting of two end pieces and a central ring or annulus to which the end pieces are connected, of driving means engaging the ring, and guiding means also engaging the ring.

2. A revoluble drum for a mixing-machine having open ends and spirally-arranged mixing-blades disposed in alternate sets to deflect the material or contents from the ends toward and across the central plane alternately.

3. A revoluble drum for a mixing-machine having open tapering ends and spirally-arranged mixing-blades disposed in alternate sets to deflect the material or contents from the ends toward and across the central plane alternately.

4. In a mixing-machine, a drum provided with interior blades having an approximate formation into right and left hand spirals alternately, each spiral formation beginning at or near one end of the drum and extending toward and past the central plane.

5. In a mixing-machine, the combination with a tiltable frame provided with trunnions, bearings in which said trunnions are supported, a revoluble mixing-drum, rollers supported by the tiltable frame and constructed to guide and entirely support said drum, and means for driving the drum.

6. In a mixing-machine, the combination with a tiltable frame provided with trunnions, bearings in which said trunnions are supported, a revoluble mixing-drum, a spur-gear around the drum, an intermediate spur-bevel, and a driving beveled gear in the axis of the trunnions and meshing with the beveled teeth of the intermediate spur-bevel.

7. In a mixing-machine, the combination with a tiltable frame provided with trunnions, of bearings in which said trunnions are mounted, a revoluble mixing-drum, a spur-gear around the drum, an intermediate spur-gear to drive the spur-gear of the drum, a bevel-gear on the axis of the intermediate spur-gear, and a driving bevel-gear meshing with said first-named bevel-gear, said driving bevel-gear being in the axis of the trunnion.

8. In a mixing-machine, the combination of a base provided with upwardly-extending bearings, a frame provided with projecting trunnions mounted in said bearings, one of said trunnions having a wheel mounted thereon, said wheel provided peripherally with recesses adapted to be engaged by a tool, a revoluble drum within the frame and provided with a discharge-opening at one end, and mixing-blades arranged within the drum.

9. In a mixing-machine, the combination of a base, a frame tiltably mounted on said base, a revoluble mixing-drum carried by the frame, said drum being of double truncated conical form, the bases of the cone being innermost and joined together, and the open truncated apices being outermost, and mixing-blades arranged within the drum.

10. In a mixing-machine, the combination, with a revoluble mixing-drum, of mixing-blades within the drum, said blades being arranged in sets, the blades of two sets being correspondingly inclined or slanted, and the blades of another two sets being correspondingly inclined or slanted, but at opposite inclinations to the first referred to two sets of blades, and the blades of each set being so disposed as to give a spiral formation thereto, and each successive blade of a set starting where the preceding blade terminates, and being arranged a slight distance below so as to form a step-by-step arrangement of the blades of a set.

11. A revoluble mixing-drum, having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set stepped in a general spiral.

12. A rotatable mixing-drum having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set stepped in a general spiral, and the inner end blades passing beyond the middle of the drum, whereby the mixture is thrown back and forth.

13. A rotatable mixing-drum having end openings smaller than the maximum cross sectional area of said drum, and also having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set stepped in a general spiral.

14. A rotatable mixing-drum with enlarged center and tapering ends, having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set stepped in a general spiral, and with the inner end blades passing beyond the middle of the drum, whereby the mixture is thrown back and forth.

15. In a mixing-machine, a drum comprising two cone-shaped parts united at their bases to an annulus, and means engaging said annulus to support and to rotate the drum.

16. In a mixing-machine, a drum comprising two cone-shaped parts united at their bases to an annulus, bearings mounted on a frame and rotatably supporting said annulus, and driving means on the frame engaging said annulus.

17. In a mixing-machine, a drum comprising two cone-shaped parts united at their bases to an annulus, a frame inclosing the drum, bearings mounted on the frame and rotatably supporting said annulus, and driving means on the frame engaging said annulus.

18. In a mixing-machine, a drum comprising two cone-shaped parts united at their bases to an annulus, roller-bearings mounted on a frame and rotatably supporting said annulus, and a driving means on the frame engaging said annulus.

19. A rotatable mixing-drum of the general form of two cones with a common base having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set stepped in a general spiral.

20. In a mixing-machine, a rotatable drum, having end openings smaller than the maximum cross-sectional area of said drum, and said drum rotatable on its axis and having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set stepped in a general spiral, a drum-frame supporting said drum, and means for axially tilting said drum to effect discharge.

21. In a mixing-machine, a rotatable drum having end openings smaller than the maximum cross-sectional area of said drum, and rotatable on its axis and having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set stepped in a general spiral, and the inner end blades passing beyond the middle of the drum, whereby the mixture is thrown back and forth, a drum-frame supporting said drum, and means for axially tilting said drum to effect discharge.

22. A rotatable mixing-drum having end openings smaller than the maximum cross-sectional area of said drum, and having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set stepped in a general spiral, a drum-frame supporting said drum, and means for tilting said drum to effect discharge.

23. A rotatable mixing-drum with enlarged center and tapering ends, said drum rotatable on its axis and having sets of internal blades arranged to feed from the ends toward the middle of the drum, the blades of each set being stepped in a general spiral, and the inner end blades passing beyond the middle of the drum, whereby the mixture is thrown back and forth, a drum-frame supporting said drum and means for axially tilting said drum to effect discharge.

24. In a mixing-machine, a drum having end openings smaller than the maximum cross-sectional area of said drum, and rotatably mounted, and having sets of internal blades arranged to feed from the ends toward the middle of the drum, driving means engaging said drum, and means for tilting said drum.

25. In a machine for mixing plastics, an open-ended double conical drum rotatably mounted and having sets of internal blades arranged to feed from the ends toward the middle of the drum, driving means engaging said drum, and means for tilting said drum.

26. In a machine for mixing plastics, an open-ended double conical drum rotatably mounted, and having sets of internal blades arranged to feed from the ends toward the middle of the drum, and the inner ends of the blades passing beyond the middle of the drum, whereby the mixture is thrown back and forth, driving means engaging said drum, and means for tilting said drum.

27. In a mixing-machine, a rotatably-mounted drum open at each end and normally held in mixing position by an excess of weight, a peripheral toothed annulus around said drum, means engaging the toothed

annulus for driving the drum, and tilting means constructed to overcome the excess weight in order that the drum may be freely and rapidly tilted, and the entire contents of the drum thereby quickly discharged.

28. In a mixing-machine, a rotatably-mounted drum open at each end, and normally held in mixing position by an excess of weight, roller-bearings for the drum, peripheral driving means for said drum, and tilting means constructed to overcome the excess weight, in order that the drum may be freely and rapidly tilted, and the entire contents of the drum thereby quickly discharged.

29. In a mixing-machine, a rotatably-mounted drum open at each end, and normally held in mixing position by an excess of weight, peripheral driving means for the drum, a frame, roller-bearings carried by the frame and engaging the drum, and tilting means constructed to overcome the excess weight, in order that the drum may be freely and rapidly tilted, and the entire contents of said drum thereby quickly discharged.

30. In a mixing-machine, the combination of a rotatable drum, a tiltable frame in which the drum is mounted, said frame provided with trunnions, whose axes are below the axis of the drum, and suitable supports for said trunnions.

31. In a mixing-machine, the combination with a revolvable mixing-drum, of mixing-blades arranged within the drum, said blades being arranged in sets, the blades in each set being so disposed as to give an approximate spiral formation to the set of blades, one-half of the sets of blades having a right-hand spiral formation, and the remaining sets, a left-hand spiral formation, each successive blade of a set starting where the preceding blade terminates, and arranged a slight distance below.

32. In a mixing-machine, the combination of a drum, a tiltable frame supporting the drum, the trunnions of the frame being below the axis of the drum, and a counterweight attached to the frame.

33. A mixing-machine comprising a drum open at each end, and enlarged between the ends, and means whereby the drum may be tilted.

34. A mixing-machine, comprising a drum open at each end, and having internal blades so disposed as to throw the material from the ends toward the middle, and means whereby the drum may be tilted.

35. A mixing-machine, comprising a drum having internal blades inclined relatively to the drum-axis, and means whereby the drum may be tilted.

36. A mixing-machine, having internal spirally-arranged blades inclined relatively to the drum-axis, and means whereby the drum may be tilted.

37. A mixing-machine, comprising a rotatable drum, a trunnioned frame supporting the drum, and supports on said frame engaging the drum at or near the middle of the drum-axis.

38. A mixing-machine, comprising a rotatable drum, and a frame supporting the drum, and having trunnions at or near the middle and below the drum-axis.

39. A mixing-machine, comprising a rotatable drum and a counterweighted frame supporting the drum, and having trunnions at or near the middle of and below the drum-axis.

40. A mixing-machine, comprising a drum open at one end for feed and at the other end for discharge, a trunnioned frame supporting the drum at or near the middle of the drum-axis, and means whereby the drum may be tilted.

41. A mixing-machine, comprising a drum open at each end and having internal blades so disposed as to throw the material from the ends toward the middle, a trunnioned frame supporting the drum at or near the middle of its axis, and means whereby the drum may be tilted.

42. In a mixing-machine, a drum supported at its middle on a tilting trunnioned frame, and driving connections on the tilting frame engaging the drum periphery and concentric with the trunnions.

43. A mixer for concrete and other substances, comprising a rotary, double cone-shaped mixing-drum; a tilting support for the rotary mixing-drum, with antifriction-rollers between the mixing-drum and such tilting support; means for rotating the mixing-drum and means for operating the tilting support.

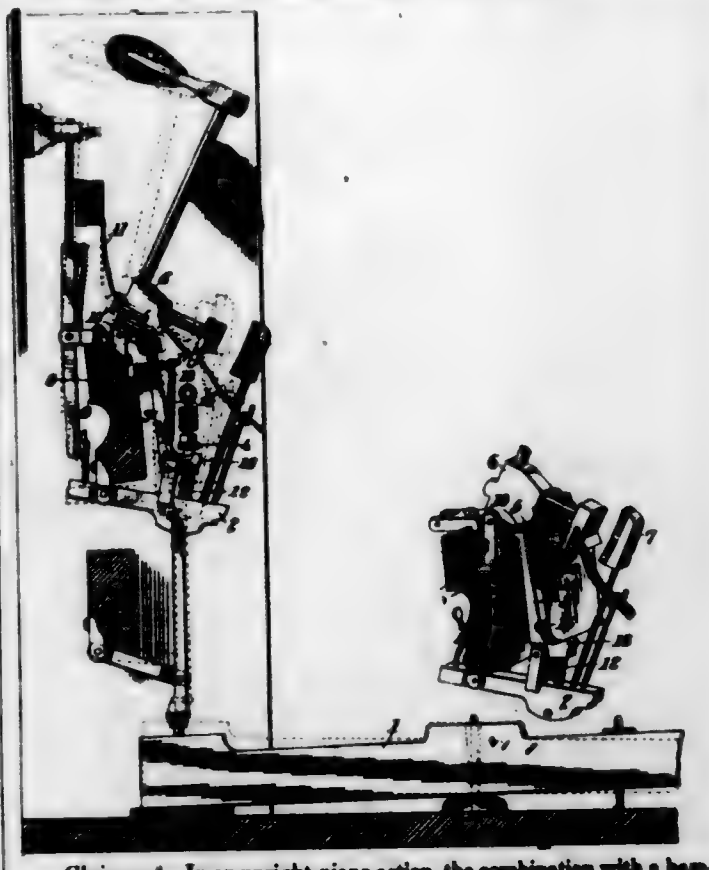
44. A mixer for concrete, and other substances, comprising a rotary mixing-drum, having end openings smaller than the maximum cross-sectional area of said drum, a tilting support for the drum, with antifriction-rollers between the mixing-drum and such tilting support, means for rotating the mixing-drum, and means for operating the tilting support.

45. In a mixing-machine, the combination of a tiltable frame, a drum supported by the frame, said drum provided with open ends tapered to permit discharge by tilting, means for tilting said frame, and means for rotating said drum continuously while mixing, or while tilted for discharge.

46. In a mixing-machine, the combination of a tiltable frame, a drum supported by the frame, said drum provided with open ends tapered to permit discharge by tilting, means for tilting said frame, rollers mounted on the frame and adapted to guide and support said drum, and means for rotating the drum continuously while mixing or while tilted for discharge.

47. In a mixing-machine, the combination of a tiltable frame, a drum supported by the frame said drum provided with open ends tapered to permit discharge by tilting, means for tilting said frame, rollers mounted on the frame, and adapted to guide and support the drum at the center of said drum, and means for rotating the drum continuously while mixing or while tilted for discharge.

690,784. PIANO-ACTION. LEWIS N. SOPER, Guelph, Canada. Filed June 19, 1901. Serial No. 65,169. (No model.)

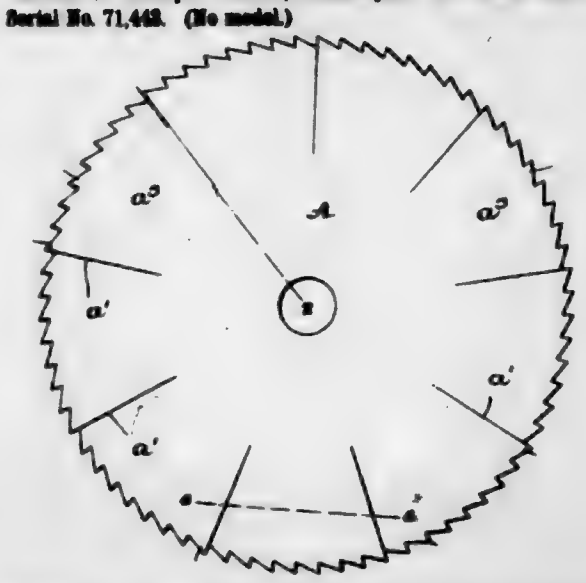


Claim.—1. In an upright-piano action, the combination with a hammer-butt, jack, and spring on the jack, of a flexible connection between the free end of the jack-spring and the action-rail, substantially as and for the purpose specified.

2. In an upright-piano action, the combination with a hammer-butt, jack, and spring on the jack, of a flexible connection between the free end of the spring and the action-rail, and a continuous jack-cushion attached to the action-rail and extending between the action-brackets, substantially as described.

3. In an upright-piano action, the combination with a hammer-butt, an apertured jack, and a spring mounted on the jack, of a supplemental rail forming a part or extension of the action-rail, a continuous jack-cushion attached to such supplemental rail or extension and extending between the action-brackets, and a flexible connection between the free end of the jack-spring and the action-rail extension.

690,785. SAW. LEOPOLD R. SOMMA, Philadelphia, Pa., assignor of one-half to Rudolph J. Somma, Philadelphia, Pa. Filed Aug. 9, 1901. Serial No. 71,443. (No model.)



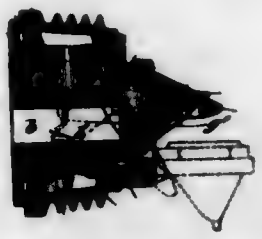
Claim.—1. A saw having on its respective faces cutters extending inwardly from and affording in effect a continuation of the forward edges

of certain saw-teeth, the cutters on the respective faces being directly opposite to each other, and the thickness of each tooth from which extends a pair of cutters, including the width of both cutters.

2. A circular saw provided on its respective sides with radial cutters extending from and forming in effect a continuation of the radial edges of certain saw-teeth, the cutters on one side being directly opposite the cutters on the other side, and the thickness of each tooth from which extends a pair of cutters, including the width of both cutters.

3. A circular saw having its respective faces ground or reduced in spaces between predetermined teeth and radially inward to form integral radial cutters extending from and forming in effect a continuation of the radial edges of said teeth.

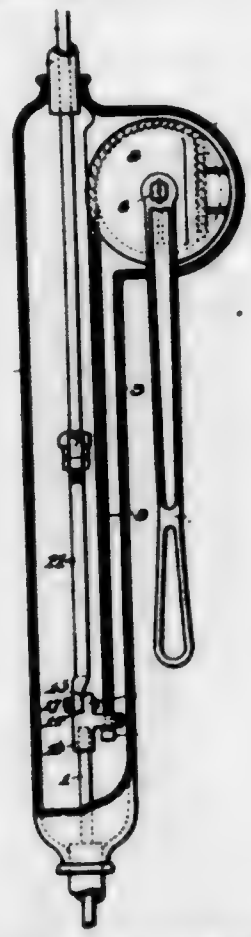
690,786. BUNG. RUDOLPH SPAHN, Brooklyn, N. Y., assignor to Andrew Stenger, Brooklyn, N. Y. Filed Sept. 21, 1901. Serial No. 76,070. (No model.)



Claim.—1. The combination of a bung, a valve mounted on the bung and commanding the passage in the same said valve having an incline thereon, and a member yieldingly pressed against the incline, to hold the valve normally closed, the incline riding on the said yielding member as the valve opens.

2. The combination of a bung, a pivoted valve mounted on the bung and commanding the passage in the same, said valve having a projection with an incline thereon, a member pivoted out of coincidence with the valve and a spring for yieldingly pressing said pivoted member against the said incline, to hold the valve normally closed, the incline of the projection riding on said pivoted member as the valve opens.

690,787. INDEPENDENT OPERATING MEANS FOR ELECTRIC SWITCHES. JOHN H. SPANGLER, Crafton, Pa. Filed Apr. 17, 1901. Serial No. 56,250. (No model.)



Claim.—1. In a device of the character described, the combination, with a connecting-rod between the switch-operating mechanism and the solenoid whereby the switch may be operated electrically, of manual means for operating the switch including a flexible connection, means for operating said flexible connection, a connecting member carried by the connecting-rod and slidably engaging the flexible connection so as to move independently of the flexible connection when the switch is operated electrically, and means whereby the flexible connection when actuated engages with the connecting member to operate the connecting-rod, substantially as described.

2. Manual means for independently operating electric switches, comprising, in combination, a connecting-rod between the switch-operating mechanism and the solenoid, a pulley, a lever for operating said pulley, a flexible connection having its one end secured to said pulley, and a connecting member attached to the connecting-rod and provided with an apertured lug to receive the flexible connection, the said flexible connection remaining inactive when the switch is operated electrically, substantially as described.

3. In a device of the character described, the combination with a divided connecting-rod between the switch-operating mechanism and the solenoid, of a connecting member carried by one of the members of the connecting-rod, a pulley, a lever for operating said pulley, and a flexible connection between the connecting member and the pulley, substantially as described.

4. In a device of the character described, the combination with a connecting-rod between the switch-operating mechanism and the solenoid whereby the switch may be operated electrically, of manual means for actuating the switch including a flexible connection, and means for operating said flexible connection, a connecting member carried by the connecting-rod and through which the flexible connection is passed, the said flexible connection remaining stationary when the switch is operated electrically, and means carried by the flexible connection for engagement with the connecting-rod when the flexible connection is actuated, substantially as described.

5. In a device of the character described, the combination with a connecting-rod between the switch-operating mechanism and the solenoid whereby the switch may be operated electrically, of manual means for actuating said rod to operate the switch, said means including a flexible connection, means connected thereto for operating the same, a connecting member carried by the connecting-rod and provided with an apertured lug through which the flexible connection is passed said connecting member adapted to slide on the flexible connection when the switch is operated electrically, and means carried on the free end of the flexible connection for engagement with the connecting member to permit the manual operation of the connecting-rod and the switch, substantially as described.

6. Manual means for independently operating electric switches, comprising in combination with a divided connecting-rod between the switch-operating mechanism and the solenoid, a link connected to one end of said rod and slidable on the other end, a flexible connection with said link, a pulley-wheel to which said flexible connection is secured, and a hand-lever for actuating the pulley-wheel to operate the switch-throwing mechanism, substantially as described.

7. In a device of the character described, the combination with the divided connecting-rod, of a casing into which said rod extends, a link connected to one end of said rod and slidable on the other end thereof within the casing, a pulley mounted within the casing, a hand-lever for operating said pulley, and flexible connections between the link and the pulley, as and for the purpose described.

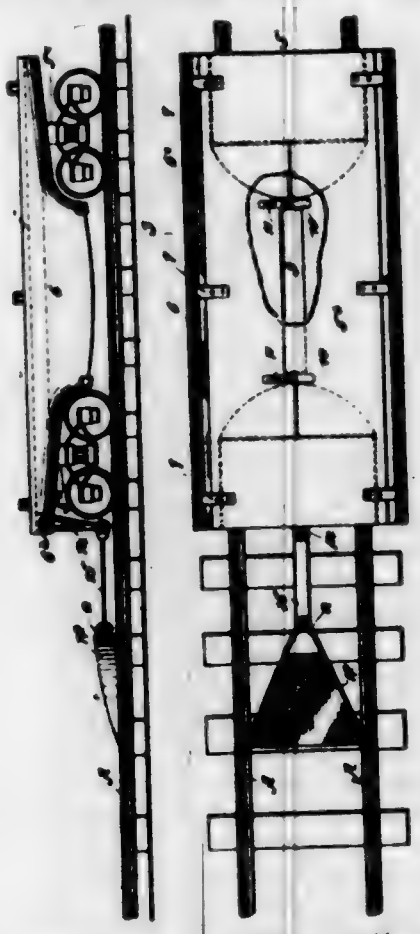
690,788. BALLAST CONVEYER AND LEVELER. GEORGE F. SPURLIN, Camden, Ala. Filed Aug. 27, 1901. Serial No. 73,448. (No model.)

Claim.—1. In a ballast-conveyer, the combination with a car-platform, of guide-walls held spaced at the sides of said platform, and curved to extend under the platform between the car-trucks, the meeting lower edges of the guide-walls being notched, to provide a discharge-slot for material moved from the platform into openings at the sides of the platform where the guide-walls are spaced from the platform.

2. In a ballast-conveyer, the combination with a car having a platform and trucks near the ends of said platform, of guide-walls formed of plate metal, each guide-wall having hinged connection with a side edge of the platform, and spaced therefrom by members of the hinges and also by strut-braces projecting from the guide-walls toward the sides of the car-frame, each guide-wall curving downwardly and inwardly to provide sloped portions thereon, the lower edges of which portions impinge upon each other, said edges near the longitudinal center of the guide-walls being notched to form a discharge-slot for material passing down over the sloped surfaces of the guide-walls, and means for holding the lower edges of the guide-plates together.

3. In a ballast-conveyer and leveling device, the combination with a car and a conveying-device on said car, comprising two curved and hinged guide-plates adapted to guide material thrown thereon and to discharge it on a road-bed from an opening at the lower edges of said guide-plates, of a leveling device in triangular form, connected to the car rearward of the conveyer device.

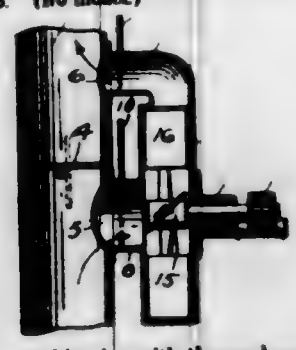
4. The combination with a car, and a ballast-distributing device thereon, of a ballast-leveling device, comprising a drag formed with a substantially V-shaped upright wall, the sides of which are spaced by a transverse brace, an arm depending from an end of the car, and a draft-bar pivoted by one end on the arm and by the other end on the narrow end of the drag.



5. The combination with a car-platform, of guide-walls held spaced at the sides of the platform and extending under it, having a discharge-opening at their lower edges.

6. The combination with a car-platform, of guide-walls held spaced at the sides of the platform, extending under it, having a discharge-opening at their lower edges, and means to hold said edges detachably secured together.

690,789. **DRAFT-GENERATOR FOR THRESHING-MACHINE ENGINES.** VALENTINE STOLTZ, Montrose, Minn. Filed Aug. 1, 1900. Serial No. 725,733. (No model.)

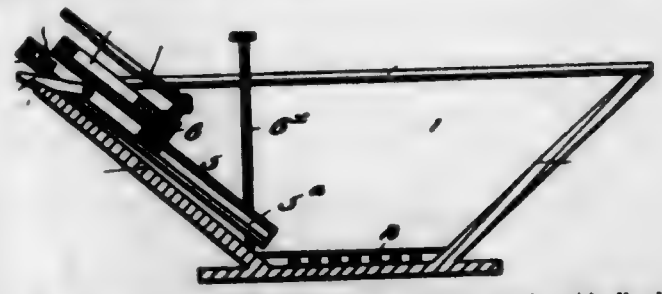


Claim.—1. The combination with the smoke-stack having openings in its walls and a damper between said openings, of the fan-casing located outside of the smoke-stack, the two pipes projecting laterally from the smoke-stack one above the other and communicating with both the stack and fan-casing, the lower pipe being of greater capacity than the upper pipe, and a valve located in each pipe intermediate of the connection of the pipe with the fan-casing and the smoke-stack, substantially as described.

2. The combination with the smoke-stack having an opening in its wall, of the fan-casing located outside of the stack, the pipes one above the other and connecting the casing with the stack through said openings, the lower pipe being of greater capacity than the upper pipe, the fan-shaft and its blades in the casing, the axis of the shaft lying opposite to the lower opening in the smoke-stack, said shaft being supported entirely from the far side of the fan-casing opposite to the opening in the wall of the stack, and valves located in the two pipes connecting the casing and stack, substantially as described.

690,790. **DEVICE FOR FILLING CANS.** FREDERICK STRATTNER, Salisbury, Md. Filed Mar. 21, 1901. Serial No. 52,218. (No model.)

Claim.—1. In apparatus of the character described, a tank, an adjustable inclined pivoted track or guideway arranged therein, and means adapted to hold the article to be dipped and manipulated along said track, and means for effecting the adjustment of said track, substantially as set forth.



2. In apparatus of the character described, a tank, an inclined pivoted track or guideway arranged therein, means for effecting the vertical adjustment of said track, and means adapted to hold the article to be dipped and manipulated along said tank, and means for effecting the adjustment of said track, substantially as set forth.

3. In apparatus of the character described, a tank, an inclined pivoted track or guideway arranged therein, adjusting-screws adapted to effect the vertical adjustment of said track or guideway, and means adapted to hold the article to be dipped and manipulated along said tank, and means for effecting the adjustment of said track, substantially as set forth.

4. In apparatus of the character described, a tank, an inclined adjustable pivoted track or guideway arranged therein, and having lateral grooved rails or bars and a carrier or carriage adapted to engage said grooved rails, and be manipulated along the same, and means for effecting the adjustment of said track, substantially as set forth.

5. In apparatus of the character described, a tank having means therein for heating it, an inclined track or guideway adjustably arranged in said tank and having laterally-grooved rails, and a carrier or carriage adapted to hold the article for dipping and having lateral ledges or extensions adapted to engage said grooved rails, substantially as set forth.

6. In apparatus of the character described, a tank having an inclined pivoted track and a carrier or carriage adapted to be manipulated along said track and having a dog adapted to engage said tank at its upper edge, and means for effecting the adjustment of said track, substantially as set forth.

7. In apparatus of the character described, a tank having an inclined pivoted track, a carrier or carriage adapted to be manipulated along said track, and having a lid or cover adapted to engage the article to be dipped arranged upon said carrier, and means for effecting the adjustment of said track, substantially as set forth.

8. In apparatus of the character described, a tank, an inclined track arranged therein, a carrier adapted to be manipulated along said track, a tray arranged upon said carrier, said carrier having a hinged lid or cover adapted to rest upon the article to be dipped, substantially as set forth.

9. In apparatus of the character described, a tank having an inclined pivoted track, and a carrier or carriage adapted to be manipulated along said track and having a lid or cover comprising a wire-netting, and means for effecting the adjustment of said track, substantially as set forth.

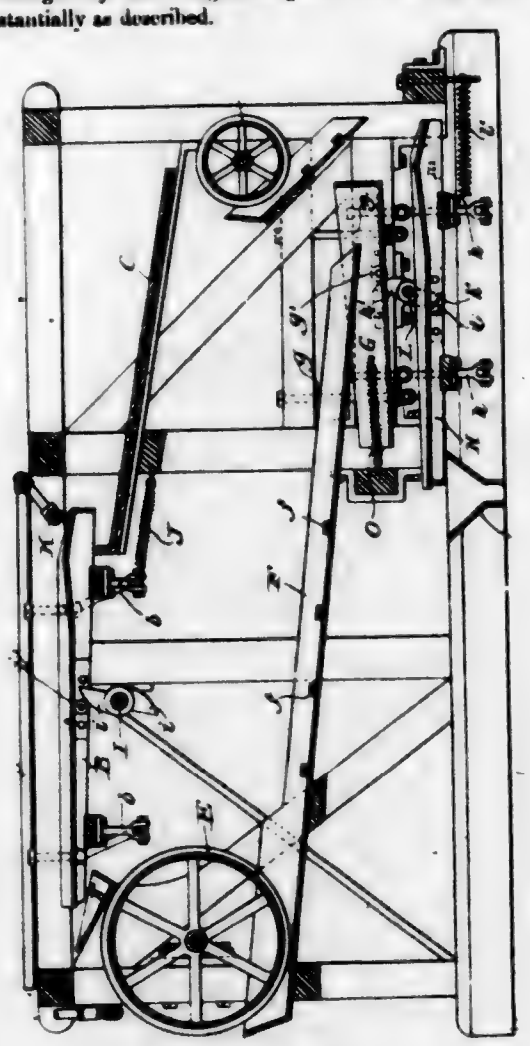
10. In apparatus of the character described, a tank having an inclined pivoted track or guideway, a conveyer adapted to travel through said tank and connected up to an endless belt or chain compassing pulleys or wheels arranged at the ends of said tank, respectively, and a carrier adapted to be carried by said conveyer, and means for effecting the adjustment of said track, substantially as set forth.

690,791. **GOLD-SEPARATING MACHINE.** BENJAMIN W. SWEET, Denver, Colo., assignor to J. Platt Underwood, Chicago, Ill. Filed Feb. 20, 1899. Serial No. 706,212. (No model.)

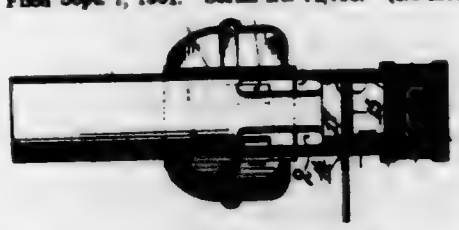
Claim.—1. In a gold-separating machine, the combination with an inclined concentrating-table, and means for operating the same, of amalgamating-surfaces at each end of said table for receiving the heavier and lighter grades respectively, a lower inclined concentrating-table, sizing-screens located above said lower table for separating out the heavier grades and discharging the lighter concentrates with a fall sufficient to submerge them on the lower table, means for operating the lower table and the screens, and means for discharging the material passing from the amalgamating-surface which treats the lighter grades into the sizing-screens, substantially as described.

2. In a gold-separating machine, the combination with an inclined concentrating-table, and means for operating the same, of an amalgamating-roll at the tail end of said table, a lower inclined concentrating-table, sizing-screens located directly above the lower table and at a sufficient height to cause the particles discharged therefrom onto the lower table to be submerged in the pulp thereon by the impact of the fall, devices located between the lower table and the screens for imparting a bumping

or jolting movement to the table and screens, and a carrier receiving the material discharged by the amalgamating-roll and conveying it to the screens, substantially as described.



690,792. BUNSEN BURNER. CLARENCE W. TAYLOR, Sioux City, Iowa. Filed Sept. 7, 1901. Serial No. 74,700. (No model.)

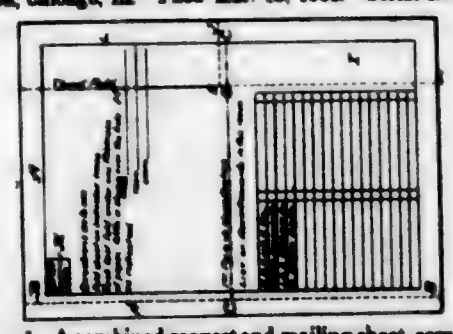


Claim.—1. In a Bunsen burner, the combination with the burner-tube having a diaphragm therein provided with a central opening and with a plurality of perforations formed eccentrically therein, of a rotatable disk arranged in contact with the diaphragm and provided with a plurality of radial apertures communicating with one another at the center of the disk and with said central opening in the diaphragm, and means for turning the disk, said radial apertures being arranged to successively open or close the eccentric perforations in the diaphragm one at a time as the disk is turned in one or the other direction, substantially as described.

2. In a Bunsen burner, the combination with the burner-tube provided with a fixed internal projection near its lower end, and a diaphragm adjustably arranged below the said projection and provided with a central opening and a plurality of openings formed at points between said central opening and the edge of the diaphragm, of a rotatable disk arranged between said projection and diaphragm and provided with a central aperture constantly registering with the central opening in the diaphragm, said central aperture having extensions extending outwardly in position to be placed in communication with the openings formed in the diaphragm between the central opening and the edge of the diaphragm, and means for turning the disk to open and close the openings, excepting the central one, in the diaphragm, substantially as described.

3. In a Bunsen burner, the combination with the burner-tube provided with an internal collar near its lower end, of a coupling-thimble internally threaded for engaging a gas-fixture and closed at its upper end by a perforated diaphragm, said thimble being screwed into the lower end of the burner-tube, a disk rotatably seated between the diaphragm and collar, said diaphragm and disk being provided with openings adapted to be thrown into and out of register by turning the disk, and means for turning said disk, substantially as described.

690,793. COMBINED REQUEST AND MAILING SHEET. DAVID L. TAYLOR, Chicago, Ill. Filed Mar. 15, 1900. Serial No. 8,761. (No model.)

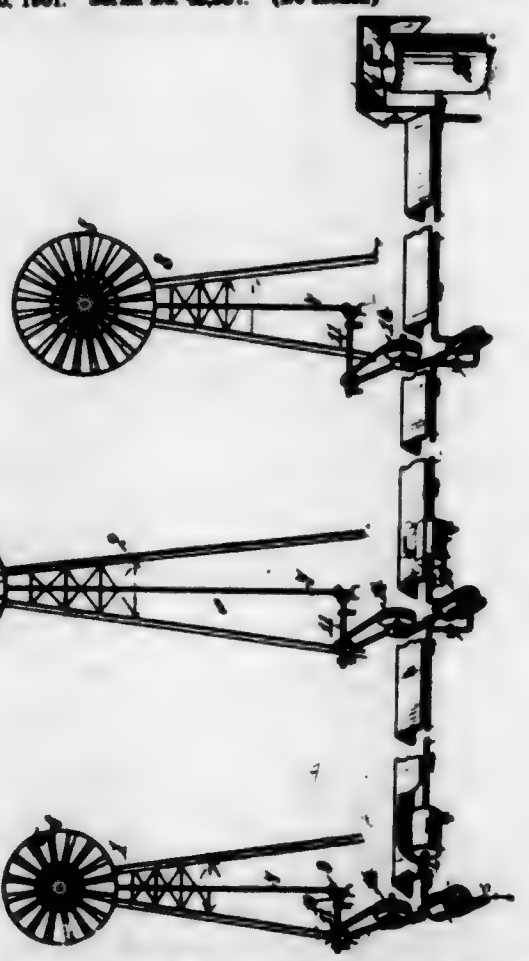


Claim.—1. A combined request and mailing sheet, comprising a rectangular sheet having on one side thereof a designated space for a list of names and a designated space for a written address, a printed address on the other side of the sheet in a corner section thereof bounded by adjacent side edges of the sheet and adjacent lines of folding and constituting the face of the envelop when the sheet is folded and directions on the sheet for folding the sheet twice on transverse lines to leave a flap-section and then tucking said flap-section in between the folds of the opposite section, substantially as described.

2. A combined request and mailing sheet, comprising a rectangular sheet having a designated space for a list of names, a space for a written address, a printed-address section which constitutes the face of the envelop when the sheet is folded, a designated section opposite the printed-address section to be cut out to leave a flap-section, and directions for folding the sheet twice on transverse lines and then tucking the flap-section under, substantially as described.

3. A combined request and mailing sheet, comprising a rectangular sheet having a designated space for a list of names, a space for a written address, a printed-address section which constitutes the face of the envelop when the sheet is folded, a designated section in said printed-address section to be cut out, a designated section opposite the printed-address section to be cut out to leave a flap-section, and directions for folding the sheet twice on transverse lines and then tucking the flap-section under that part of the address-section which contains the cut-out section and applying a sealing device around the edges of the section cut out of the address-section and on that part of the flap-section exposed by said cut-out section, substantially as described.

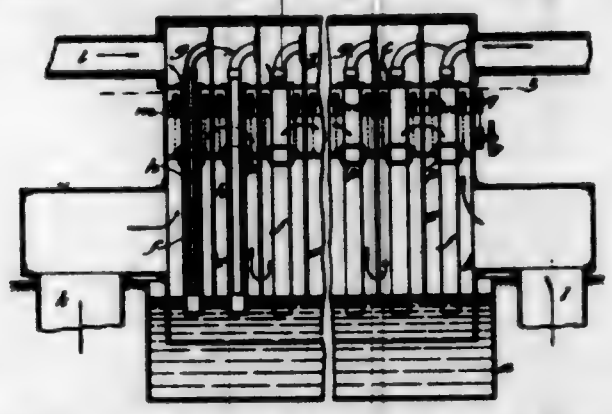
690,794. APPARATUS FOR CONVERTING, STORING, AND UTILIZING WIND-POWER. PETER F. THEIS, Chicago, Ill., assignor to the General Pneumatic Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 30, 1901. Serial No. 45,257. (No model.)



Claim.—The combination with a series of wind-motors arranged at great intervals apart, of a series of air-compressors respectively con-

nected with and independently operated by said motors, the first compressor of the series communicating with and drawing in air from the atmosphere, valved connections between each successive pair of said compressors, the said connections being exposed to the atmosphere, a storage-tank located at a distance from the last compressor of the series, a pipe or conduit connecting said storage-tank with said last compressor of the series and exposed to the atmosphere, and a covering for said pipe, said storage-tank and said connections, the said covering being located a short distance above these parts, so as to protect the same, while permitting them to be acted upon by the currents of air.

690,795. APPARATUS FOR COOLING AND CLEANSING BLAST-FURNACE GASES. BENJAMIN H. TEWAITE, Westminster, England, assignor to the Blast Furnace Power Syndicate, Limited, London and Westminster, England. Filed Sept. 12, 1901. Serial No. 75,230. (No model.)



Claim.—1. An apparatus for cooling and cleansing blast-furnace gases comprising a vessel placed over a water-trough and having a suitable inlet and outlet for the gases, partitions in said casing provided with openings for the passage of the gases therethrough, an upper compartment in the said vessel having a suitable air inlet and outlet and divided into subsidiary compartments, tubes depending from each of said subsidiary compartments to the water and provided with closed bottoms, and a tube extending in each of the said depending tubes, having an open bottom and connected at the top to one of the subsidiary compartments, substantially as and for the purpose set forth.

2. In combination in an apparatus for cooling and cleansing blast-furnace gases, vertically-extending tubes and partitions over which the gases are caused to pass, scrapers adapted to be moved alternately up and down along the surfaces of the said tubes and partitions, and means for so moving them, substantially as described.

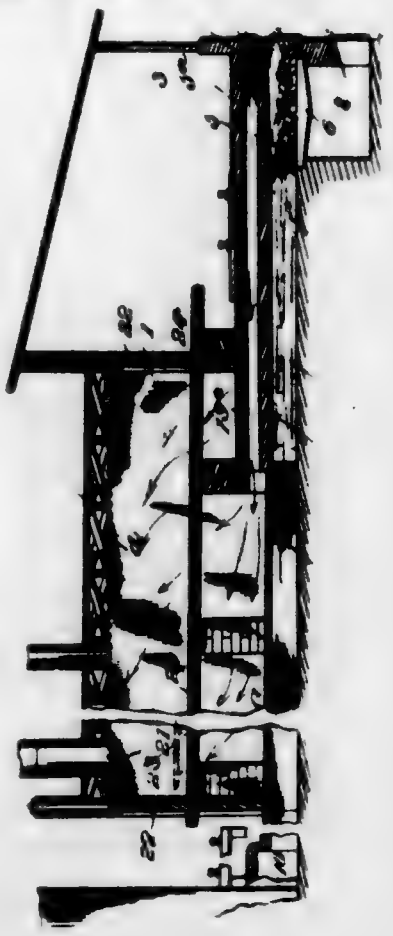
690,796. DRIER. GEORGE W. TRAHERN and WILLIAM MCDUFFIE, Rome, Ga. Filed Apr. 27, 1901. Serial No. 57,728. (No model.)

Claim.—1. An apparatus of the class described, comprising a drying-chamber, furnaces, combustion-flues leading from said furnaces and extending under the drying-chamber, air-heating chambers, flues arranged immediately above and in proximity to the combustion-flues and running parallel therewith, said flues communicating with air-heating chambers and the drying-chamber, tracks situated above the flues, and means to support and carry the material being dried.

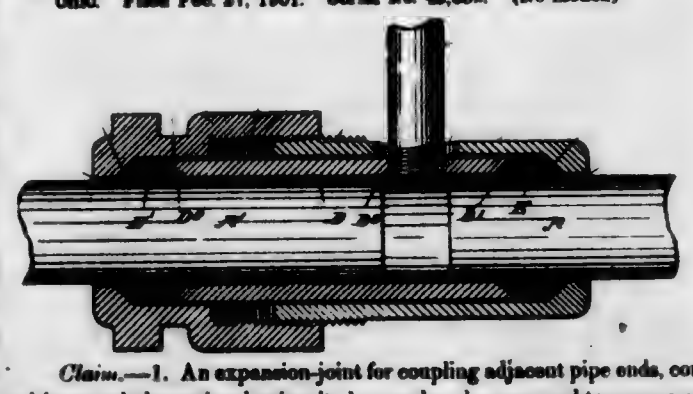
2. An apparatus of the class described, comprising a drying-chamber, a plurality of furnaces outside of and below said chamber, combustion-flues branching from said furnaces and running entirely under said drying-chamber, a chimney common to all of said flues, an air-heating chamber in each furnace, flues located above and in alinement with the combustion-flues, said flues communicating at one end with the air-heating chambers, and their opposite ends extending within and communicating with the drying-chamber, a chimney communicating with the drying-chamber, tracks located above both sets of flues, and means for supporting and carrying the material to be dried.

3. An apparatus of the class described, comprising a drying-chamber, a furnace having an air-passage in its walls, combustion-flues communicating with said furnace and extending throughout the length of the drying-chamber, a partition in said combustion-flues extending from the furnace to a point within the drying-chamber, a layer of brick forming the top of the flues and supported by said partition, a layer of sheet metal covering the top of the remainder of the flues, and a flue opening at its inner end into the drying-chamber and communicating at its opposite end with the air-space formed in the furnace, substantially as described.

4. An apparatus of the class described comprising a drying-chamber, a roof covering said chamber, said roof consisting of a covering, a corrugated metallic ceiling, means for supporting said ceiling and a layer of sand covering the top of said corrugated ceiling, a furnace, a series of flues under the drying-chamber which communicate with the furnace and the atmosphere, and means for circulating heated air through the drying-chamber, substantially as described.



690,797. EXPANSION-JOINT. RALPH R. VAIL, Mount Vernon, Ohio. Filed Feb. 27, 1901. Serial No. 48,059. (No model.)

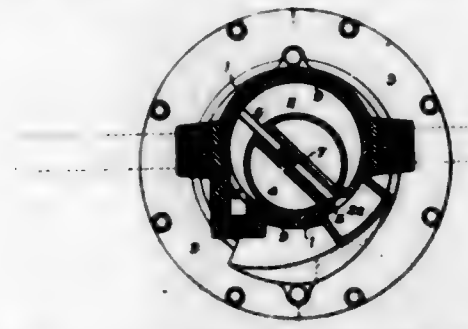


Claim.—1. An expansion-joint for coupling adjacent pipe ends, comprising a tubular casing having its bore reduced at one end to engage one of the pipe ends, a nut screwing on the other end of the casing and provided at its free end with a bore to fit another pipe end, a sleeve fitted upon both pipe ends and extending within the nut and the casing, said sleeve being provided with a bore for engaging a third pipe end and having its opposite ends beveled in the opposite direction to the adjacent inclined surfaces of the casing and nut respectively, and packing-rings located between said surfaces and the sleeve ends and filling the spaces between them, said packing-rings being beveled so as to fit the nut, casing and sleeve and being narrow at the periphery and wide at their inner surfaces.

2. An expansion-joint for adjacent pipe ends, comprising a casing having its outer end formed with a bore for engaging one of the pipe ends, a nut screwing on the inner end of the casing and having two concentric smooth bores, the smallest of which is adapted to engage the other pipe end, a sleeve fitted upon both pipe ends and extending into the large bore of the nut and into said casing, packing-rings at the ends of the sleeve, one for engagement by the casing and the other by the nut, and a branch pipe extending through an enlarged opening in said casing, and screwing into a threaded opening in said sleeve between adjacent pipe ends, as set forth.

3. An expansion-joint for pipe ends, comprising a casing having one of its ends formed with a bore for slidably engaging a pipe end, and also provided with an aperture, a cap screwed on the other end of the casing and provided with a bore for slidably engaging a second pipe end, a sleeve inclosed within the said casing and cap and provided with a bore registering with the said aperture in the casing for the purpose of engaging a third pipe end, and packings located in the casing and cap respectively and abutting respective ends of the sleeve.

690,798. ROTARY ENGINE. HORACE W. VAN AUKEN, Philadelphia, Pa. Filed May 31, 1901. Serial No. 62,600. (No model.)

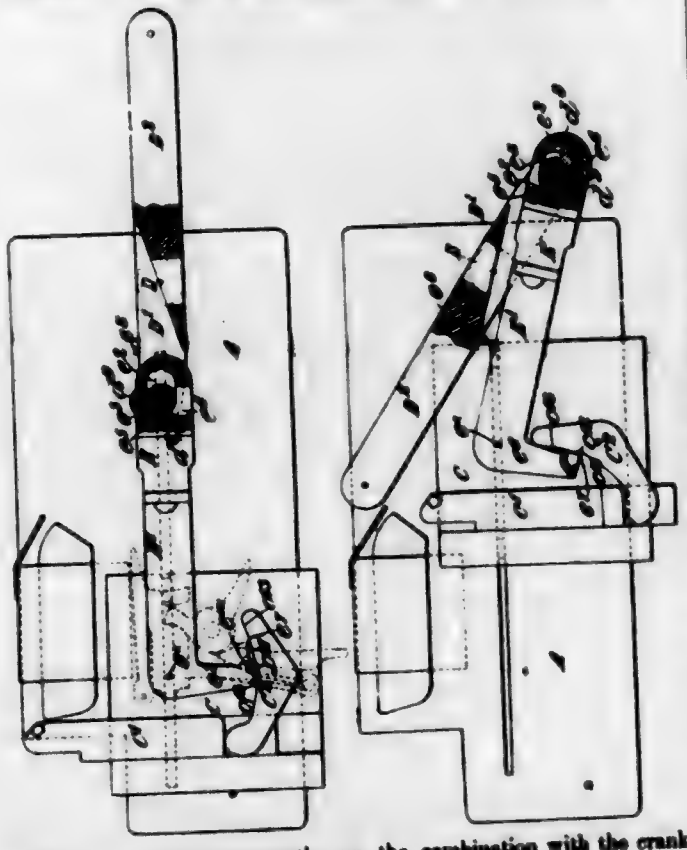


Claim.—1. The combination in a rotary air-engine, of the casing, a rotating drum within the same, flanges carried by said drum, a bushing forming the inner wall of the casing arranged between said flanges, and self-adjusting means between the upper flange and the drum whereby any wear between these parts may be compensated for during the operation of the tool.

2. The combination in a rotary air-engine of the character described, of the casing, a rotatable drum arranged therein, flanges carried by said drum, a hardened-metal bushing arranged between said flanges, headed pins carried by the drum and extending through one of the flanges and springs interposed between the heads of said pins and the flange whereby any wear between the parts may be taken up and an air-tight fit assured at all times.

3. In a rotary air-engine of the character described, the combination of the cylinder or casing, a rotating drum within said casing, movable vanes or blades carried by said drum by which the latter is driven by the aid of motive fluid under pressure, a driving-pinion carried by said drum and serving to actuate transmitting-gearing whereby the movement of the drum may be conveyed to a cutting instrument carried by the engine, said casing having a passage leading from the side of the same adjacent to the rotating drum, to the chamber containing the transmitting-gearing, whereby the exhausting motive fluid may be discharged upon said transmitting-gearing in the direction in which said gearing is moving.

690,799. AUTOMATIC GUN. ALBERT VICKERS, Westminster, England, assignor to Vickers, Sons & Maxim, Limited, Westminster, England. Filed Oct. 20, 1900. Serial No. 34,235. (No model.)



Claim.—1. In an automatic gun, the combination with the crank, the crank-shaft, the connecting-rod and the lock, of lifting-levers for the cartridge-carrier, formed with a transverse pivot-pin having recesses to engage with the inner ends of curved slots formed in the lock-casing substantially as and for the purpose specified.

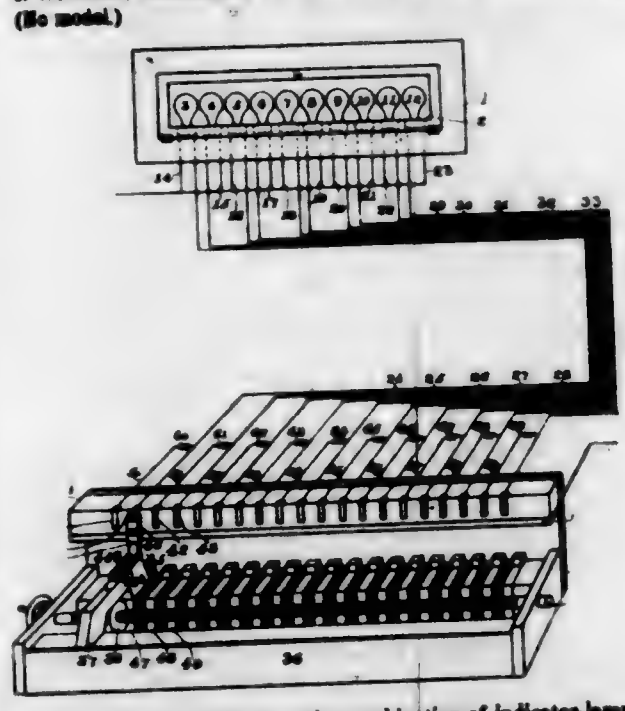
2. In an automatic gun, the combination with the crank, the crank-shaft, the connecting-rod and the lock, of loose pivot-pins for the tumbler, the hand-gear, the safety-gear and the side levers, of webs and fins on the side levers and of ribs on the recoil-plates, the said webs, fins and ribs operating to retain the said loose pins in position in the lock substantially as described.

3. In an automatic gun, the combination with the crank-shaft, the crank, the connecting-rod, the side levers and the lock, of a protuberance on the crank, and of a slot in the connecting-rod, substantially as and for the purpose specified.

4. In an automatic gun, the combination with the crank-shaft, the crank, the connecting-rod, the side levers and the lock, of protuberances d^3 d^3 formed on the crank D', of a slot e^3 in the connecting-rod for receiving the crank-pin, of recesses e^4 e^4 for the protuberances, and of curved surfaces e^5 for the said protuberances to bear against during the free movement of the crank-pin in its slot e^3 substantially as and for the purpose specified.

5. In an automatic gun, the combination with the crank-shaft the crank, the connecting-rod, the side levers, the lock, the cartridge-carrier and the lifting-levers therefor, of toe-pieces on said side levers, having curved extremities forming arcs struck from the pivotal axis of the side levers, of a notch in each of the lifting-levers for the edge of the said toe-pieces to engage with for actuating said lifting-levers, and of curved surfaces on each side of said notch, said curved surfaces forming arcs struck from the aforesaid pivotal axis of the side levers, substantially as described and for the purpose specified.

690,800. BATTERY-END-CELL SWITCH-INDICATOR. ARTHUR C. WALTHER, Brooklyn, N. Y. Filed Apr. 19, 1901. Serial No. 56,561 (No model.)



Claim.—1. In an indicator, the combination of indicator-lamps, an indicator-circuit and local lamp-circuits extending therefrom to each lamp, a movable body adapted to be brought into a plurality of consecutive positions, and devices constructed and arranged to close the indicator-circuit through the local lamp-circuits successively and to reduce the light proceeding from each lamp as the said movable body reaches certain of its predetermined positions and to permit full lamplight at the remaining positions of the said body.

2. In an indicator of the character described, the combination of an indicator-lamp, an indicator-circuit, a local lamp-circuit extending from the said indicator-circuit through the lamp and having one end divided into two branches, a resistance included in one of the said branches, a movable battery-switch and devices actuated by the movement of the switch whereby the indicator-circuit is completed through the lamp by way of said branches one after another including and excluding the said resistance, substantially as described.

3. In an indicator, the combination of an indicator-lamp, an indicator-circuit, a local lamp-circuit derived from the said indicator-circuit, a movable body adapted to be brought into different positions, a resistance, and means actuated and governed by the movable body whereby the said resistance may be included in circuit with the lamp at one position of the said movable body and cut out at another position, substantially as described.

4. In a battery-end-cell switch-indicator, the combination of the indicator-lamps, an indicator-circuit and local lamp-circuits extending therefrom through each lamp, the said local lamp-circuits having each a terminal portion divided into two branches, resistances included in one of the branches of each local lamp-circuit, a movable battery-switch, and devices actuated by the movement of the said battery-switch whereby the indicator-circuit is completed through the said branches of the local lamp-

circuits one after another in correspondence with predetermined positions successively attained by the switch, substantially as described.

5. In a battery-and-cell switch-indicator, the combination of the indicator-lamps, an indicator-circuit and local lamp-circuits extending therefrom through each lamp, the said local lamp-circuits having each a terminal portion divided into two branches, suitably-supported contact-plates connected with the said branches, resistances included in one branch of each of the said local lamp-circuits, a movable battery-switch, a knee secured upon and insulated from the said switch, a conducting-brush borne by the knee, a conductor-strip in the said indicator-circuit arranged to be constantly in contact with the said brush, the brush meeting the said contact-plates and joining them electrically one after another to the said conductor-strip, substantially as described.

690,801. HALTER-CHAIN. STEPHEN M. WELLS, Jr., Bristol, Conn., assignor to the Greystone Manufacturing Company, Greystone, Conn., a Corporation of Connecticut. Filed May 1, 1901. Serial No. 58,350. (No model.)

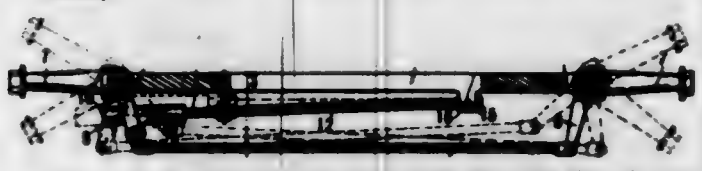


Claim.—1. The combination with a chain, provided with a T-bar, of a loop-plate carried by said chain provided with an opening designed to permit the free passage of the chain through the plate, and means in said opening for engaging one of the chain-links, substantially as described.

2. The combination with a chain, provided with a T-bar, of a loop-plate carried by said chain provided with an opening for the free passage of the chain, and a post to engage one of the chain-links, substantially as described.

3. A loop-plate for chains provided with a substantially keyhole-shaped opening, and having a post extending from the base of said opening toward the circular part, substantially as described.

690,802. STEERING-GEAR. FRANK H. WHITE, Indianapolis, Ind., assignor to the White Steam Wagon Company, Indianapolis, Ind., a Corporation of Indiana. Filed May 27, 1901. Serial No. 62,087. (No model.)



Claim.—1. In a steering-gear, the combination with the axle, of a stub-axle pivoted thereto, a threaded shaft, and a threaded nut coacting therewith, one pivotally connected to the stub-axle and the other pivotally connected to the axle, and means for causing a relative rotation between the nut and shaft.

2. In a steering-gear, the combination with the axle, of a pair of stub-axles independently pivoted thereon, a link connecting the two stub-axles, a threaded shaft, and a threaded nut coacting therewith, one pivotally connected to one of the stub-axles and the other pivotally connected to the axle, and means for causing a relative rotation between the nut and shaft.

3. In a steering-gear, the combination with the axle, of a stub-axle pivoted thereon, an operating-arm carried by the stub-axle, a threaded nut pivoted to said operating-arm, on an axis parallel to the pivotal axis of the stub-axle, a rotatable threaded shaft coacting with the nut and pivotally connected to the axle upon an axis parallel to the pivotal axis of the stub axle, and means for rotating said shaft.

4. In a steering-gear, the combination with the axle, of a pair of stub-axles independently pivoted thereon, an operating-arm carried by each of said stub-axles, a link connecting said stub-axles, a threaded nut pivoted upon one of said operating-arms upon an axis parallel to the axes of said stub-axles, a threaded shaft coacting with said nut and pivotally connected to the axle upon an axis parallel to the axes of the stub-axles, and means for rotating said shaft.

5. In a steering-gear, the combination with the axle, of a stub-axle pivoted thereon, an operating-arm carried by said stub-axle, a bearing-block pivoted upon the axle upon an axis parallel to the axis of the stub-axle, a threaded nut pivoted upon said operating-arm upon an axis parallel to the axis of the stub-axle, a threaded shaft revolubly mounted in the bearing-block and coacting with the nut, and means for rotating said shaft.

6. In a steering-gear, the combination with the axle, of a pair of stub-axles independently pivoted thereon, a link connecting the two stub-axles, an operating-arm carried by each of said stub-axles, a bearing-block pivoted upon the axle upon an axis parallel to the axes of the stub-axles, a threaded nut pivoted upon one of said operating-arms upon an axis parallel to the axes of the stub-axles, a threaded shaft revolubly mounted in the bearing-block and coacting with the nut, and means for rotating said shaft.

690,803. HANGER FOR BROOMS OR THE LIKE. JOHN F. WHITEHEAD, New Brighton, Pa. Filed Feb. 9, 1901. Serial No. 46,606. (No model.)



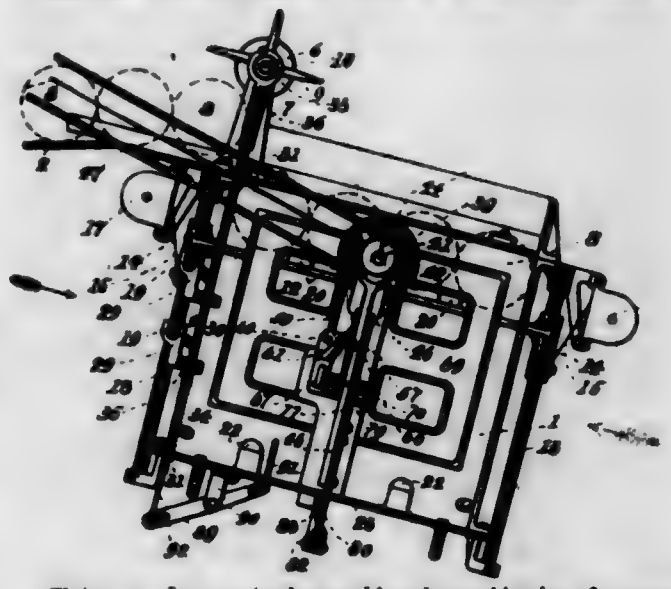
Claim.—In a hanger for brooms or the like, the combination with a handle that may be readily indented, of a hanger device therefor, comprising a wire body bent near its center to form a loop, which spaces two limbs thereof, each extremity of said limbs having an inwardly-turned trunnion thereon, said trunnions being pointed so as to be embedded in the handle by pressure, an outward swell formed on each limb near the trunnion, like angular bends on the limbs near said swells disposing the main portion of the hanger at one side of the handle, and a wire keeper-bar having ring-eyes on the ends, which rings are loosely mounted on the limbs below the swells, said bar by contact with the handle keeping the limbs of the hanger away from said handle.

690,804. SALT OF HEXAMETHYLENTETRAMIN AND QUINIC ACID AND PROCESS OF MAKING SAME. GEORG WEHMER and MAX GABLER, Berlin, Germany, assignors to Chemische Fabrik auf Actien, (vorm. E. Schering,) Berlin, Germany. Filed Nov. 11, 1901. Serial No. 81,926. (No specimens.)

Claim.—1. The herein-described salt of hexamethylentetramin and quinic acid, consisting practically of about fifty-eight per cent. of quinic acid and about forty-two per cent. of hexamethylentetramin, which is a white crystalline body, melting between 118° and 125° centigrade, insoluble in ether and chloroform, slowly soluble in alcohol, and easily soluble in water.

2. The herein-described method of producing the salt of hexamethylentetramin and quinic acid, which consists in dissolving molecular quantities of hexamethylentetramin and quinic acid in a suitable solvent and evaporating the solution, substantially as set forth.

690,805. BOXING-MACHINE. FREDERICK W. WILD, Jr., Baltimore, Md. Filed Aug. 23, 1901. Serial No. 73,000. (No model.)



Claim.—1. In a can-boxing machine, the combination of a runway, a supported downwardly-moving platform to receive cans delivered by or from the runway, detaching devices to effect the drop of the platform as it receives its complement of cans, and a boxing-head with means to move it laterally of the machine to push out the stack of cans which is seated on the platform, to a box placed to receive it, substantially as specified.

2. In a can-boxing machine, the combination of a runway, a downwardly-moving platform to receive cans delivered by or from the runway, spacing mechanism to separate the cans as they are delivered to the platform, a boxing-head with means to force it against the stack of cans and thereby push it to a box situated in alinement with the stack, and devices to withdraw the said boxing-head, and others to return the platform to its highest or original position, substantially as specified.

3. In a can-boxing machine, the combination of a runway, an in-

clined downwardly-moving platform to receive the cans delivered by or from the runway, partition-bars arranged on the platform, fixed partition-bars situated laterally of the machine and in alinement with those on the platform when the said platform is in its lowest position, adapted to project into a box placed to receive the stack of cans, a boxing-head with means to move it laterally of the machine to push the stack of cans into the packing-box, means to withdraw the boxing-head, and other means to lift the platform to its original position to receive another stack of cans, substantially as specified.

4. In a can-boxing machine, the combination of a runway, an inclined platform to receive cans delivered by or from the runway, the said platform having a downward movement, stop mechanism to hold the downwardly-moving platform during the placing of a layer of cans thereon, means to release the platform before another layer of cans is placed in position on the first or preceding one, a boxing-head with means to force it laterally of the machine and thereby push the stack of cans from the platform to a packing-box, mechanism to withdraw the boxing-head, and other means to reinstate the platform so that it will be in a position to receive the first layer of another stack of cans, substantially as specified.

5. In a can-boxing machine, the combination of a runway, a downwardly-moving platform to receive cans delivered by or from the runway, with stop mechanism to hold the downwardly-moving platform until a layer of cans is deposited thereon, devices to release the said platform when filled, stop devices to hold back the cans delivered by the runway, after the platform has received its full complement of cans or a complete stack, a boxing-head with means to force it laterally of the machine and push the stack of cans from the platform into the packing-box, mechanism to withdraw the boxing-head, devices to reinstate the platform or place it in its original position, and other devices to withdraw the stop mechanism whereby the passage of cans from the runway is reëstablished, substantially as specified.

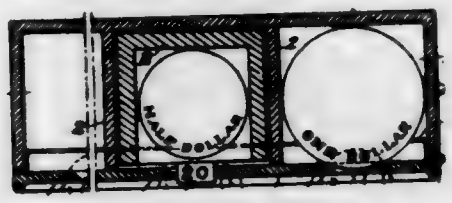
6. In a machine of the class described, the combination with a can-delivering apparatus, of a preliminary receptacle for cans which is arranged under said delivering apparatus, and a constantly-running driving mechanism, of a can-ejecting mechanism, means whereby the same may be operatively connected with or disconnected from said driving mechanism, and an automatic trip mechanism which throws said ejecting mechanism into action, substantially as shown and described.

7. In a machine of the class described, the combination with the preliminary can-receptacle, of an ejector arranged therein and adapted to reciprocate horizontally, a rack-bar attached to the ejector, and a lateral guide for said rack-bar, a gear-wheel, which meshes with the latter, means for driving said gear-wheel, a clutch operatively connecting said gear-wheel and said driving means, and trip mechanism for throwing the clutch into action, substantially as shown and described.

8. In a machine of the class described, the combination with a preliminary can-receptacle, of a can-ejector arranged in the latter, a gear-shaft for operating said ejector intermittently, driving mechanism for operating the gear-shaft, a clutch between said driving mechanism and said gear-shaft, and trip mechanism which includes means for acting on the clutch to force it into action, and a movable device arranged in the path of the cans as they pass into said receptacle, substantially as shown and described.

9. In a machine of the class described, the combination with the preliminary can-receptacle, and the can-ejector arranged therein, of gearing for actuating said ejector, a driving mechanism operatively connected with such gearing, a device for temporarily locking the latter with said driving mechanism, and the trip mechanism which shifts said device and is operated by the cans as they pass into place, substantially as shown and described.

690,806. COIN-HOLDER. JOHN WILLIAMS, Oakland, Cal., assignor to Security Coin Box Company, San Francisco, Cal., a Corporation of California. Filed Sept. 9, 1901. Serial No. 74,771. (No model.)



Claim.—1. A coin-holder including a box having a back and closed ends and sides, a partition extending longitudinally through the box and dividing the latter into compartments, and a cover or door for closing the front of the box said door being hinged to the box and having a plurality of longitudinally-extending slots, one on each side of the partition and centrally located with reference to a compartment whereby a portion of the periphery of each and every coin in said box is visible, and means for securing the door.

2. A coin-holder including a box closed at the back, ends and sides and having a longitudinal partition extending between said ends and dividing the box into compartments, a door extending over the front of the box, hinged at one side and having means for sealing the door said door having slots made through it, one upon each side of the partition to allow a portion of the periphery of each and every coin in the box to be exposed, and the portion of the door between said slots being provided with horizontal spacings successively numbered from the bottom of each column upward.

3. A coin-holder consisting of a compartment-box having a closed back, sides and ends said ends projecting beyond the front edges of the sides and provided with ledges, and a door or closure for the box, having slots centrally located with reference to the compartments of the box said door closing against the ledges on the ends of the box, and means for securing the door.

4. A coin-holder consisting of a compartment-box having a closed back, sides and ends said ends extending beyond the plane of the front edges of the sides, and provided with internal ledges, and said projecting portions of the ends being grooved on the inner surface, and a door hinged to the box and having slots centrally located with reference to the compartments of the box, and seating against said ledges, and the walls of the slots beveled so that the cover when closed will have its outer surface approximately tangential to the coins within the box.

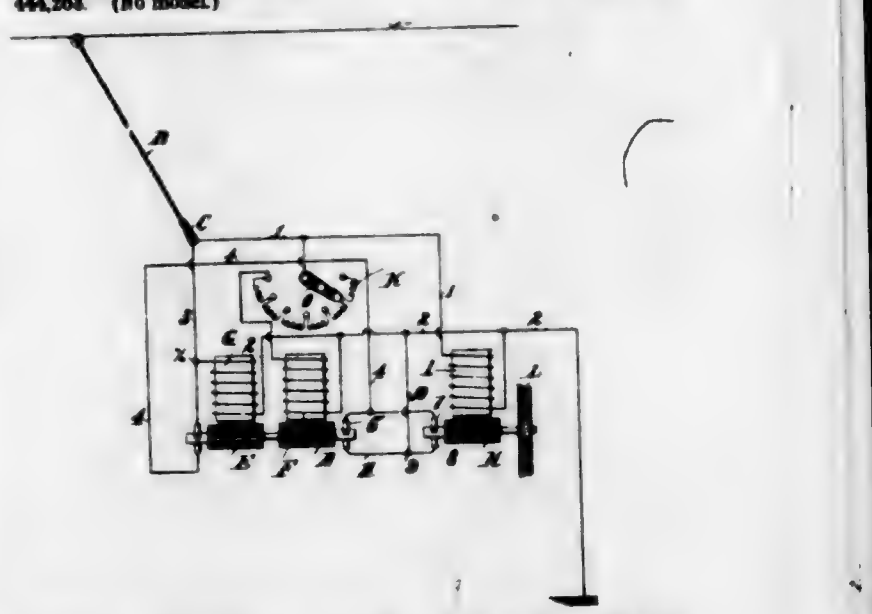
5. A coin-holder comprising a box having compartments adapted each to contain a single column of coins, a cover for said box, slots in said cover corresponding to the compartments, the inner edges of said slots beveled so that the cover, when closed, upon the box, will have its outer surface approximately tangential to the upper surface of the column of coins, spacings on the outer surface of said cover corresponding to the coins therebeneath, and numbers in said spacings indicating the amount.

6. A coin-holder consisting in combination of a box, having longitudinal compartments, a cover for said box, slots in said cover corresponding to said compartments, coin-receptacles adapted to fit in said compartments and to contain a column of coins, and means by which the amount in the box may be indicated.

7. In a coin-holder, a box having longitudinal compartments, a cover for said box having longitudinally-extending slots centrally disposed with relation to the compartments, coin-receptacles removably fitting said compartments, said receptacles adapted to contain a single column of coins, and means upon said receptacles whereby the total amount in each receptacle is indicated.

8. In a coin-holder, a box having longitudinal compartments, a cover for said box having longitudinally-extending slots centrally disposed with relation to the compartments, coin-receptacles in said compartments, and projections on said receptacles extending through said slots, whereby the latter may be engaged to effect their separate removal from the box.

690,807. METHOD OF CONTROLLING ELECTRIC MOTORS OR OTHER ELECTRICAL TRANSLATING DEVICES. GRANVILLE T. WOODS, Parkridge, N. J., assignor, by mesne assignments, to Harry Ward Leonard, East Orange, N. J. Filed Aug. 27, 1892. Serial No. 444,263. (No model.)



Claim.—1. The method of controlling electric motors which consists in supplying to the motor a current of electricity, and producing by magnetic induction in the circuit between the source of supply and the motor, a variable magnetically-induced counter electromotive force independently of that of the motor, substantially as set forth.

2. The method of controlling electric motors which consists in supplying to the motor a current of electricity, and producing by magnetic

induction in the circuit between the source of supply and the motor a variable magnetically-induced counter electromotive force independently of that of the motor and opposing the current from the source of supply, substantially as set forth.

3. The herein-described method of regulating an electric motor, which consists in inductively developing exterior thereto and in the circuit thereof a counter electromotive force opposing the main current, varying such counter electromotive force to thereby vary the quantity of the main current supplied to the motor, generating a current by the expenditure of energy required for the development of said counter electromotive force and supplying such current to the motor.

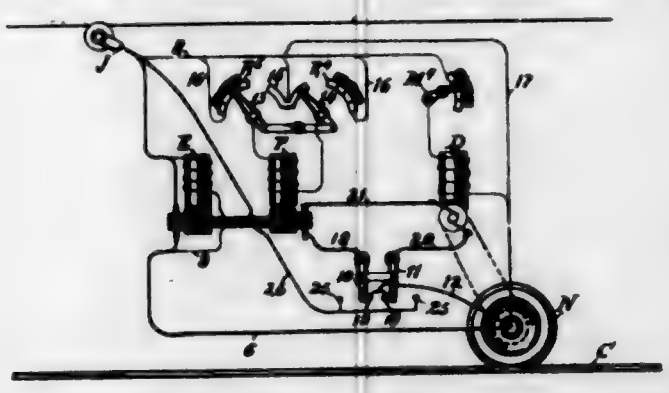
4. The method of varying the speed of an electric motor, which consists in placing in series with its armature the armature of a dynamo-electric machine generating by dynamic induction in the armature of said dynamo-electric machine a counter electromotive force and varying the counter electromotive force so generated, substantially as set forth.

5. The method of varying the electromotive force at the terminals of a translating device, which consists in developing in series with the translating device by means of a revolving winding an electromotive force between the source of supply and the translating device which is variable at will, substantially as set forth.

6. The method of generating and regulating the supply of electric energy to translating devices, which consists in generating current, passing same into a multiple-arc distribution system and through a source of variable electromotive force, and causing the electromotive force of the variable source to oppose the electromotive force of the source of supply, substantially as set forth.

7. The method of obtaining from a source of electromotive force a different and controllable electromotive force at the terminals of a translating device with a minimum waste of energy, consisting in placing in the path of the current leading to the translating device the armature of a dynamo-electric machine, and operating said machine as a motor to reduce the electromotive force at the terminals of the translating device, substantially as set forth.

690,808. METHOD OF CONTROLLING ELECTRIC MOTORS OR OTHER ELECTRICAL TRANSLATING DEVICES. GRANVILLE T. WOODS, Parkridge, N. Y., assignor, by mesne assignments, to Harry Ward Leonard, East Orange, N. J. Filed Mar. 20, 1895. Serial No. 542,457. (No model.)



Claim.—1. The method of operating and regulating the work of an electric motor, consisting in partly supplying its armature from a constant potential source of electricity, and adding to or opposing the electromotive force supplied from the said constant potential source by varying and reversing the electromotive force of a supplementary force.

2. The method of operating and regulating the work of an electric motor, consisting in maintaining the field-magnet of the motor at a constant strength, partly supplying its armature from a constant potential source of electricity, and adding to or opposing the electromotive force supplied from the said constant potential source by varying and reversing the electromotive force of a supplementary source.

3. The method of regulating and controlling electric-power apparatus, consisting in supplying current to two electrodynamic machines whose armatures are in series with each other; and regulating one of the machines by driving the armature of the other machine at a constant speed and varying the field at will.

4. The method of regulating and controlling electric-power apparatus, consisting in supplying current to two electrodynamic machines whose armatures are in series with each other, and regulating the electromotive force of one of the machines, both in amount and direction, to control the other machine, by maintaining the speed and connections of the armature of the regulating-machine constant and varying and reversing its field.

5. The method of regulating and controlling electric-power apparatus, consisting in supplying current to two electrodynamic machines whose armatures are in series with each other, and regulating the electromotive force of one of the machines to control the other machine by driving the armature of the regulating-machine at a practically constant speed and varying its field and varying the field of the machine to be controlled.

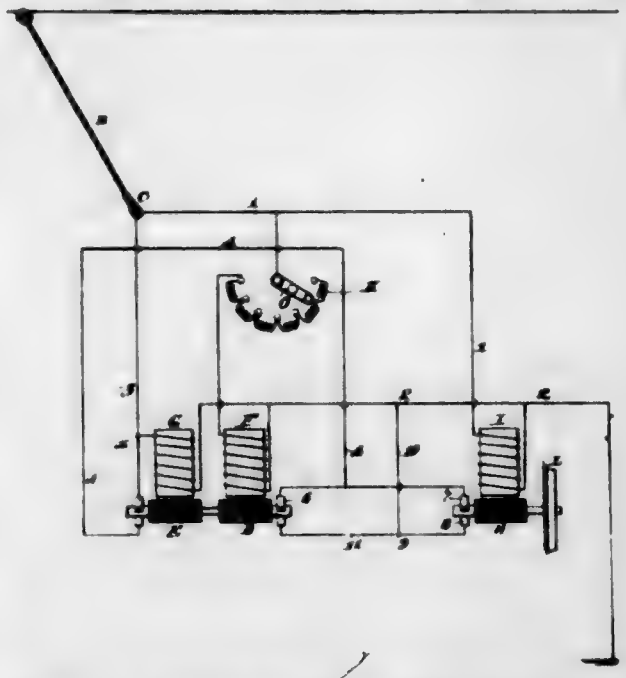
6. The method of regulating and controlling electric-power apparatus, consisting in supplying current to two electrodynamic machines whose armatures are in series with each other, and regulating the electromotive force of one of the machines, both in amount and direction, to control the other machine, by maintaining the speed and connections of the armature of the regulating-machine practically constant and varying and reversing its field and varying the field of the other.

7. The method of regulating the electromotive force at the terminals of a translating device, consisting in so placing in the circuit, mechanically independent of the source, a dynamo-electric machine that by varying and reversing the electromotive force of said dynamo it will both assist and oppose the electromotive force of the source to vary the electromotive force at the terminals of the translating device.

8. The method of operating an electric motor at any desired speed from rest to full speed, which consists in operating a transformer of electric energy having one or more moving parts, which transformer receives electric energy in series with the motor and delivers electric energy in multiple with the motor, substantially as set forth.

9. The method of securing through the armature of a dynamo-electric machine by means of a small current from the source of supply, a much larger current, which consists in placing in electrical connection with the armature of the dynamo-electric machine a generator-winding and a motor-winding, which generator-winding supplies current to the said dynamo-electric machine.

690,809. APPARATUS FOR CONTROLLING ELECTRIC MOTORS OR OTHER ELECTRICAL TRANSLATING DEVICES. GRANVILLE T. WOODS, New York, N. Y., assignor to H. Ward Leonard, New York, N. Y. Original application filed Aug. 27, 1892, Serial No. 444,268. Divided and this application filed Mar. 26, 1901. Serial No. 53,212. (No model.)



Claim.—1. The combination of a translating device, a source of supply for said translating device, and a regulating device producing by magnetic induction an electromotive force between the source and the translating device and whose electromotive force is variable, substantially as set forth.

2. The combination of a translating device, a source of supply for said translating device, a dynamo-electric machine located between the source and the translating device and whose electromotive force is variable, and means for varying the electromotive force of said dynamo to regulate said translating device, substantially as set forth.

3. The combination with a source of supply and a circuit extending therefrom, of an electric motor, and a regulating dynamo-electric machine connected in series with said motor across said circuit, said dynamo being adapted to produce an electromotive force variable independently of the electromotive force of said circuit, substantially as set forth.

4. The combination with an electric motor, of a counter-electromotive-force regulator consisting of a second dynamo-electric machine whose armature is in series with the armature of the motor to be regulated, and independent means for varying the counter electromotive force of said second dynamo-electric machine, substantially as set forth.

5. The combination with a source of electric energy, of a motor driven thereby, a translating device connected in series with the motor, and means whereby the mechanical energy of said motor is converted into electrical energy and used to supply said translating device, substantially as set forth.

6. The combination of a source of electric energy, a constantly-revolving motor connected therewith, a generator driven by said motor, and a motor supplied with energy from both the source and said generator, substantially as set forth.

7. The combination with a translating device, of two generators simultaneously supplying current thereto, one being operated by power derived from the other, substantially as set forth.

8. The combination with a source of constant electromotive force, of a motor driven thereby, a generator driven by said motor, and a motor whose armature is in series with both the source and said motor, substantially as set forth.

9. The combination of two generators located at distant points and supplying current to the same translating device, the electromotive force of the generators being different, substantially as set forth.

10. The combination of a source of electric energy, a circuit extending therefrom, and two electromotive-force-producing windings connected electrically therewith and mechanically connected together, one of said windings being connected in series with a translating device the electromotive force upon whose terminals is regulated by varying the electromotive force of said winding, substantially as set forth.

11. The combination of two moving electromotive-force-producing windings, both being electrically and mechanically connected together and the voltage upon the terminals of the two windings being normally different, and a translating device connected therewith, substantially as set forth.

12. The combination, substantially as set forth, of the main circuit, a main electric motor to be regulated and an auxiliary electric motor, the armatures of the two motors being connected in series, a generator driven by the auxiliary motor, circuit connections by which the current therefrom is supplied to the main motor, and means for varying the current traversing the field coil or coils of the generator.

13. The combination of a source of electric energy, a circuit extending therefrom, two dynamo electric machines E and D electrically connected therewith and mechanically connected together, and a dynamo-electric machine H, the armatures of the machines D and H being connected in shunt relation relative to the source and in series with the armature of the machine E, said machine D being adapted to produce an electromotive force variable independently of the electromotive force upon the armature-terminals of the machine H, substantially as set forth.

14. The combination with a source of electric energy, of an electrically-propelled vehicle having three dynamo-electric machines, one of said machines being connected to the driving mechanism of the vehicle, the other two having their armatures mechanically connected together and rotating independently of the motion of the vehicle, substantially as set forth.

15. In a system of electrical distribution, the combination with the main source supplying electrical energy to translating devices, of a motor supplied with current therefrom, means for regulating the counter electromotive force of said motor to control the electrical energy delivered to the translating devices, said means consisting of an auxiliary generator of electric energy driven by said motor and means for varying the energy developed therein.

16. The combination with a main source of electric energy, of a working motor and a regulating dynamo-motor, the armature of the working motor being connected to the feed-circuit in series with the motor-armature of the dynamo-motor and in shunt with the dynamo-armature of the dynamo-motor, and means for controlling the current generated in the dynamo-armature of the dynamo-motor.

17. In a system of electrical transmission of power, the combination with a main source of electric energy and a circuit extending therefrom, of a local or distant closed loop connected therewith, there being in series in the closed loop two armatures, one being a generator-armature and one a motor-armature.

18. The combination with an electric motor, of a supply-circuit, means for connecting the motor with the supply-circuit, a converter in circuit with the motor and with the supply-circuit, and means for varying the relative values of the currents from the supply-circuit and converter-circuit.

19. The combination of a source of electric energy, a vehicle having an electrical propelling-motor mounted thereon, a rotary transformer of electric energy electrically connected with said source of electric energy and with said propelling-motor, and means on the vehicle for varying the voltage of the electric energy delivered by said transformer.

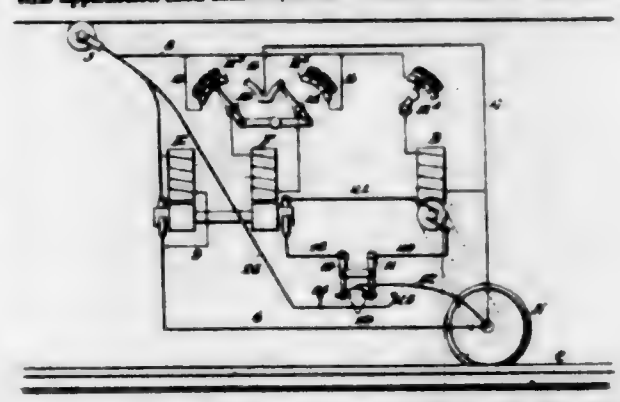
20. The combination of a source of electric energy, a vehicle having an electrical propelling-motor mounted thereon, a rotary transformer of electric energy carried by said vehicle and electrically connected with said source of electric energy and with said propelling-motor, and means on the vehicle for varying the voltage of the electric energy delivered by said transformer.

21. The combination of a source of electric energy, a circuit extending therefrom, a vehicle having an electrical propelling-motor mounted thereon, means on or forming part of the vehicle for making traveling contact with said circuit, a rotary transformer of electric energy electrically connected with said source of electric energy and with said propelling-motor, and means on the vehicle for varying the voltage of the electric energy delivered by said transformer.

22. The combination of a source of electric energy, a circuit extending therefrom, a vehicle having an electrical propelling-motor mounted thereon, means on or forming part of the vehicle for making traveling contact with said circuit, a rotary transformer of electric energy carried by said vehicle and electrically connected with said source of electric energy and with said propelling-motor, and means on the vehicle for varying the voltage of the electric energy delivered by said transformer.

23. The combination of a constant-potential supply-circuit, a motor operated therefrom, and a plurality of regulating dynamo-electric machines mechanically coupled together and connected across said circuit, the first-named motor being coupled between the regulating-machines so that its armature is in series with one of the regulating-machines and is shunted by a second machine.

690,810. APPARATUS FOR CONTROLLING ELECTRIC MOTORS OR OTHER ELECTRICAL TRANSLATING DEVICES. GRANVILLE T. WOODS, New York, N. Y., assignor to H. Ward Leonard, New York, N. Y. Original application filed Mar. 20, 1896, Serial No. 583,457. Divided and this application filed Mar. 28, 1901. Serial No. 53,213. (No model.)



Claim.—1. In electric power apparatus, the combination of a line, two electrodynamic machines whose armatures are in series with each other, and in electrical communication with the line, and whose fields are in multiple with each other, and means whereby the field of one of said machines can be controlled at will, and its armature be driven at a controlled speed.

2. In combination with a constant-potential electrical generator having conductors leading therefrom and a translating device, a dynamo-electric machine having its armature operating in a variable magnetic field and connected with the said conductors and with the translating device, and switches whereby the said variable magnetic field is controlled and the electromotive force upon the terminals of the translating device reversed.

3. The combination with a source of electric energy, a multiple-arc distribution leading therefrom and across which a translating device is connected, of a transformer of electric energy having two electromotive-force-producing windings, one of which is in series between the source and the translating device and the other of which is in multiple with the translating device, relative to the source.

4. The combination with a source of electric energy, of an armature whose speed is to be regulated connected in series with a regulating-armature, the two armatures being in series under all operative conditions and the regulating-armature being in a reversible field.

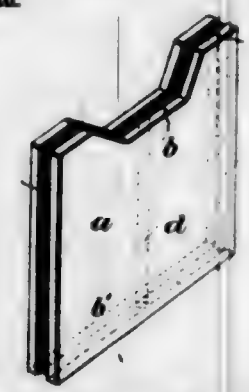
5. In electric power apparatus, the combination of a source of electric energy, two dynamo-electric machines whose armatures are in series with each other, and whose fields are in multiple with each other, means whereby the field of one of said machines may be varied and reversed, and means whereby its armature is driven at a practically constant speed.

690,811. BLOCK OR TILE FOR PARTITIONS, WALLS, &c. WILLIAM A. C. WALLER, London, England, assignor to the Aston Concrete Partition Company, Limited, London, England, a Corporation. Filed Sept. 23, 1901. Serial No. 76,157. (No model.)

Claim.—1. A tile having a recess centrally located on one of its longer edges said recess being so shaped that the end half of each of two correspondingly-shaped tiles will when reversed and fitted together form the exact counterpart of and fit accurately said recessed edge, a straight edge on the opposite edge to said recessed edge, and a continuous groove extending all around the edge of said tile including the recessed edge and the said opposite straight edge substantially as and for the purposes set forth.

2. A tile having a recess centrally located on one of its longer edges said recess being so shaped that the end half of each of two correspond-

ingly-shaped tiles will when reversed and fitted together form the exact counterpart of and fit accurately said recessed edge, a straight edge on the opposite edge to said recessed edge, a continuous groove extending all around the edge of said tile including the recessed edge and the said opposite straight edge and a central vertical passage right through said tile located equidistant from each end of the tile substantially as and for the purposes set forth.

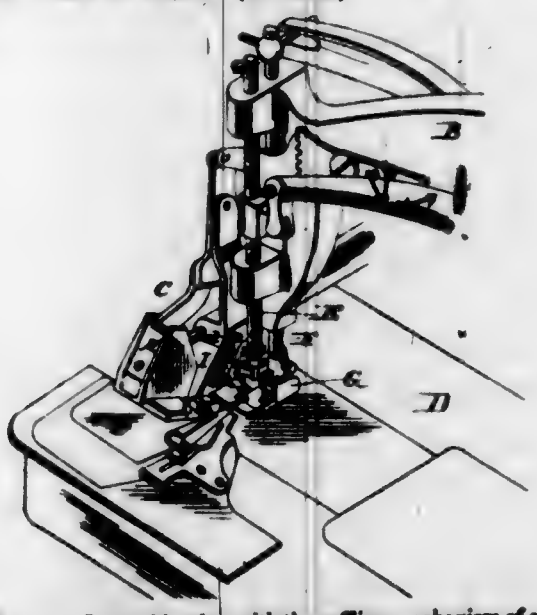


3. A tile having a recess centrally located on one of its longer edges said recess being so shaped that the end half of each of two correspondingly-shaped tiles will when reversed and fitted together form the exact counterpart of and fit accurately said recessed edge, a straight edge on the opposite edge to said recessed edge, a continuous groove extending all around the edge of said tile including the recessed edge and the said opposite straight edge and a central vertical passage right through said tile located equidistant from each end of the tile in combination and arranged to act in conjunction with vertical tie-rods such as *e* substantially as and for the purposes set forth.

4. A tile having a recess centrally located on one of its longer edges said recess being so shaped that the end half of each of two correspondingly-shaped tiles will when reversed and fitted together form the exact counterpart of and fit accurately said recessed edge, a straight edge on the opposite edge to said recessed edge, a continuous groove extending all around the edge of said tile including the recessed edge and the said opposite straight edge in combination and arranged to act in conjunction with horizontal tie-rods such as *f* inserted in the grooves along said adjoining straight edges substantially as and for the purposes set forth.

5. A tile having a recess centrally located on one of its longer edges said recess being so shaped that the end half of each of two correspondingly-shaped tiles will when reversed and fitted together form the exact counterpart of and fit accurately said recessed edge, a straight edge on the opposite edge to said recessed edge, a continuous groove extending all around the edge of said tile including the recessed edge and the said opposite straight edge, a central vertical passage right through said tile located equidistant from each end of the tile, and vertical tie-rods such as *e* in combination and acting in conjunction with horizontal tie-rods *f* and junction-pieces or unions *g* substantially as and for the purposes set forth.

690,812. STRIPPER-PLATE FOR SEWING-MACHINES. RUSSEL G. WOODWARD, Waukegan, Ill., assignor to the Union Special Sewing Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 1, 1899. Serial No. 729,195. (No model.)



Claim.—1. In combination with the ruffling mechanism of a sewing-machine, a stripper-blade attached to the framework of the machine independent of the cloth-plate and ruffling mechanism, and means for raising it above said cloth-plate; substantially as described.

2. In combination with the ruffling mechanism of a sewing-machine, an arm pivotally secured to the frame of the machine independent of the cloth-plate and above the same, a stripper-blade supported thereby, and means for moving said supporting-arm on its pivot; substantially as described.

3. In a sewing-machine having a ruffling mechanism and a presser-foot with means for raising and lowering the presser-foot, a stripper-blade, an arm supporting the same pivoted to the frame of the machine above the cloth-plate, and having a projection extending into the path of movement of the presser-foot, whereby when the presser-foot is raised, it strikes the projection and raises the stripper-blade; substantially as described.

4. In a sewing-machine having a ruffling mechanism, and a presser-foot with means for raising and lowering the presser-foot, a stripper-blade, a pivoted arm attached to the frame of the machine above the cloth-plate supporting the same, and having a projection offset from the vertical line of the pivot-point, and extending into the path of movement of the presser-foot, whereby when the presser-foot is raised, it strikes the projection and swings the stripper-blade-supporting arm on its pivot; substantially as described.

5. In a sewing-machine having a ruffling mechanism, and a presser-foot with means for raising and lowering the presser-foot, a stripper-blade, an arm pivotally secured on the machine-frame and supporting the said stripper-blade, and having a projection offset from the vertical line of the pivot-point, and extending into the path of movement of the presser-foot, whereby when the presser-foot is raised, it strikes the projection and swings the stripper-blade-supporting arm on its pivot, said stripper-blade normally projecting beneath the forward end of the presser-foot, and held thereby in engagement with the work; substantially as described.

6. In combination with the ruffling mechanism of a sewing-machine, an arm pivotally attached to the lower part of the overhanging arm or head of the machine, a stripper-blade supported thereby, and means operated by the movement of the presser-foot to swing said supporting-arm on its pivot; substantially as described.

690,813. HYDRAULIC MOTOR OR PUMP AND REVERSING-VALVE THEREFOR. WILLIAM O. WORTH, Chicago, Ill., assignor of two-thirds to William R. Donaldson, Louisville, Ky., and Henry W. Kellogg, Battlecreek, Mich. Filed June 9, 1899. Serial No. 719,987. (No model.)



Claim.—1. In a motor, the combination of a working chamber, a rotatable piston therein, fluid-chambers on opposite sides of said working chamber, each having an inlet and an outlet, and means whereby the inlet of either chamber and the outlet of the other chamber can be opened at will, while the inlet of the latter chamber and outlet of the former chamber are closed, for the purpose of reversing the rotation of the piston substantially as described.

2. The combination of the working chamber, a rotatable piston therein, fluid-chambers on opposite sides of said working chamber, an inlet and an outlet for each fluid-chamber, and valve mechanism whereby when the

inlet of one chamber is opened, that of the other is closed, and whereby when the outlet of the latter is opened that of the former is closed for the purpose of reversing the rotation of the piston, substantially as and for the purpose described.

3. The combination of the working chamber, a rotatable piston therein, fluid-chambers on opposite sides of said working chamber, inlet and outlet passages communicating with opposite ends of each fluid-chamber, and means substantially as described, whereby communication may be opened between the inlet of either chamber, and a power-supply, and between the outlet of the other chamber and the exhaust; and simultaneously the inlet of the latter chamber and the outlet of the first chamber be closed, substantially as and for the purpose described.

4. The combination of a working chamber, a rotatable piston therein, fluid-chambers on opposite sides of said working chamber, inlet and outlet passages communicating with opposite ends of each fluid-chamber, and a single valve substantially as described, whereby, when the inlet of one chamber is opened, that of the other is closed, and simultaneously the outlet of the latter is opened and that of the former closed.

5. The combination of a working chamber, a rotatable piston therein, fluid-chambers at opposite sides of said working chamber, an inlet and an outlet passage for each fluid-chamber, and a main inlet and a main outlet; with valve mechanism substantially as described, whereby communication may be established between said main inlet and the inlet of either one of said chambers, and also whereby communication can be established between the outlet of the other chamber and the main outlet, while at the same time the inlet of the latter chamber and the outlet of the former chamber are closed, substantially as described.

6. In a motor, the combination of a working chamber, the rotatable piston therein, the opposite fluid-chambers at opposite sides of said working chamber, and the inlet and outlet passages for each chamber; with a valve-chamber, ports therein communicating respectively with said passages, and a valve in said chamber adapted to simultaneously open certain of said ports and close others, so that the motor can be reversed at will, substantially as and for the purpose described.

7. In a motor, the combination of the working chamber, a rotatable piston therein, the opposite fluid-chambers at opposite sides of the working chamber, a valve chamber, a main inlet and a main outlet, separate outlet-passages leading from said main outlet to each of said fluid-chambers respectively, separate inlet-passages leading from the main inlet to each of said fluid-chambers respectively, and a valve within said valve-chamber adapted to establish communication between the main inlet and either of said inlet-passages, and between the main outlet and either of said outlet-passages, substantially as described.

8. In a motor, the combination of the working chamber, a rotatable piston therein, the fluid-chambers at opposite sides of said working chamber, a valve-chamber, a main inlet and a main outlet separated by said valve-chamber, separate outlet-passages leading from said valve-chamber to each of said fluid-chambers respectively, separate inlet-passages leading from said valve-chamber to each of said fluid-chambers respectively, and a valve within said valve-chamber adapted to prevent direct communication between the main inlet and outlet, and provided with a port adapted to establish communication between the main inlet and the inlet-passage of either of said chambers, and also provided with ports adapted to simultaneously establish communication between the main outlet and the outlet of the other of said chambers, substantially as described.

9. In a reversing-valve, the combination of the main-valve chamber, the main inlet and outlet at opposite ends thereof, two subsidiary inlet-passages and two subsidiary outlet-passages communicating with said valve-chamber, and a by-pass in the wall of said valve-chamber; with a valve in said chamber having a partition adapted to prevent direct communication between the main inlet and outlet and having ports in its walls whereby communication may be established between the main inlet and either of the subsidiary inlets, and between the main outlet and either of the subsidiary outlets, said ports being also adapted to communicate with the by-pass when the valve is properly turned, and thus establish a short circuit between the main inlet and outlet, for the purpose and substantially as described.

10. The combination of a working chamber, fluid-chambers on opposite sides thereof, an inlet and an outlet passage communicating at opposite ends of each fluid-chamber, and a safety-valve interposed between the two inlet-passages; with means substantially as described, whereby communication may be opened between the inlet of either chamber, and a fluid-supply and between the outlet of the other chamber and a fluid-exhaust, and simultaneously the inlet of the latter chamber and the outlet of the first chamber closed, substantially as and for the purpose described.

11. In a reversing-valve, the combination of the main-valve chamber, the main inlet and outlet at opposite ends thereof, two subsidiary inlet-passages and two subsidiary outlet-passages communicating with said valve-chamber, a safety-valve interposed between and closing communication between said subsidiary inlet-passages, and a by-pass in the wall of said valve-chamber; with a valve in said chamber having a partition adapted to prevent direct communication between the main inlet and outlet and having ports in its walls whereby communication may be established between the main inlet and either of the subsidiary inlets, and between the main outlet and either of the subsidiary outlets, said ports being also adapted to communicate with the by-pass when the valve is properly turned, and thus establish a short circuit between the main inlet and outlet, substantially as and for the purpose described.

12. In a motor, the combination of the main shaft, a gear thereon, diametrically opposite gear-pistons meshing with said gear, four fluid-chambers, B, C, B', C', the fluid-passage connecting chambers C', C', the fluid-passage connecting chambers B, B'; the valve-chamber, the inlet and outlet ports, separate passages connecting the inlet-ports with one end of chambers B' and C' respectively, and separate passages connecting the outlet-ports with the opposite ends of chambers B' C' respectively, and a valve whereby the fluid may be directed into either chamber B' or C' and withdrawn from the other, substantially as described.

13. In a motor, the combination of the main shaft, the gear thereon, the gear-pistons meshing therewith, the fluid-chambers on opposite sides of said gear-pistons, and passages establishing communication between diagonally opposite fluid-chambers; with the valve-chamber, separate inlet and outlet passages leading from the valve-chamber to each of the nearest fluid-chambers, and a valve, whereby the inlet to either fluid-chamber may be closed and the outlet to the other opened, for the purpose and substantially as described.

14. In a reversible motor or pump, the combination of a main shaft, a gear thereon, a gear-piston meshing with said gear, the upper fluid-chamber and the lower fluid-chamber at opposite sides of said gear-piston, the valve-chamber, the fluid-passage B^2 communicating with said valve-chamber and with the lower fluid-chamber, the fluid-passage C^2 communicating with the upper fluid-chamber, and the valve-chamber, the subsidiary fluid-passage B^3 communicating with the lower fluid-chamber, and the valve-chamber, and the subsidiary passage C^3 communicating with the upper fluid-chamber and the valve-chamber; with valve mechanism in said valve-chamber whereby fluid may be admitted into passages B^2 or C^2 and allowed to escape from passages C^2 or B^2, for the purpose and substantially as described.

15. The herein-described reversible motor or pump, comprising the working chambers A, A', the gear-pistons therein, the interposed gear-chamber, the gear therein meshing with both the said pistons, the upper fluid-chambers B, C', and the lower fluid-chambers C and B', the valve-chamber, the fluid-passage B^2 communicating with said valve-chamber and with chambers B, B', the fluid-passage C^2 communicating with the valve-chamber and chambers C, C', the subsidiary fluid-passage B^3 communicating with the chamber B' and the valve-chamber, the subsidiary passage C^3 communicating with chamber C' and the valve-chamber, and valve mechanism in said valve-chamber, whereby fluid may be admitted into passages B^2 or C^2 and allowed to escape from passages C^2 or B^2, for the purpose and substantially as described.

690,814. CAR-CHECKING DEVICE. ALFRED M. ACKLIN, Pittsburg, Pa. Filed June 27, 1901. Serial No. 66,224. (No model.)



Claim.—1. In a car-checking device, the combination of a car, an endless chain, and a succession of hooks or projections on said chain adapted to engage with said car to automatically move said chain and retard the movement of said car.

2. In a car-checking device, the combination of a car, an endless chain, and a succession of hooks or projections on said chain extending throughout the entire length of the same and adapted to engage with said car to automatically move said chain and retard the movement of the car.

3. In a car-checking device, the combination of a car, an endless chain adapted to be moved in one direction, and a succession of hooks or projections on said chain adapted to engage with said car to automatically move said chain and retard the movement of said car.

4. In a car-checking device, the combination of a car, and an endless chain having a series of hooks or projections thereon adapted to engage with said car to automatically move said chain and retard the movement of said car, said chain being adapted to receive and check a car, and while so doing be in position to receive and check another independent car.

5. In a car-checking device, the combination of a car, an endless chain having a succession of hooks or projections thereon adapted to engage with said car to automatically move said chain and retard the movement of said car, and mechanism for restricting the movements of said chain and car.

6. In a car-checking device, the combination of a car, an endless chain having a succession of hooks or projections thereon adapted to engage with said car to automatically move said chain and retard the movement of said car, and mechanism for restricting the movements of said chain and car, said mechanism deriving its motive power from the moving car.

7. In a car-checking device, the combination of a car, an endless chain having a succession of hooks or projections thereon adapted to engage with said car to automatically move said chain and retard the movement of said car, and mechanism for restricting the movements of said chain and car, said mechanism deriving its motive power solely from the moving car.

8. In a car-checking device, the combination of a car, an endless chain having a succession of hooks or projections thereon adapted to engage with said car to automatically move said chain and retard the movement of said car, wheels mounted on shafts engaging with said chain, and mechanism connected to one of said wheel-shafts for restricting the movement of said chain and car.

9. In a car-checking device, the combination of a car, an endless chain having a succession of hooks or projections thereon adapted to engage with said car to automatically move said chain and retard the movement of said car, wheels mounted on shafts engaging with said chain, a gear-wheel on one of said wheel-shafts adapted to engage with a gear-wheel on another shaft, and mechanism connected to said second-named shaft for restricting the movement of said chain and car.

10. In a car-checking device, the combination of a car, an endless chain having a succession of hooks or projections thereon adapted to engage with said car to automatically move said chain and retard the movement of said car, wheels mounted on shafts engaging with said chain, a gear-wheel on one of said wheel-shafts adapted to engage with a gear-wheel on another shaft, and blades or arms connected to said second-named shaft for restricting the movement of said chain and car.

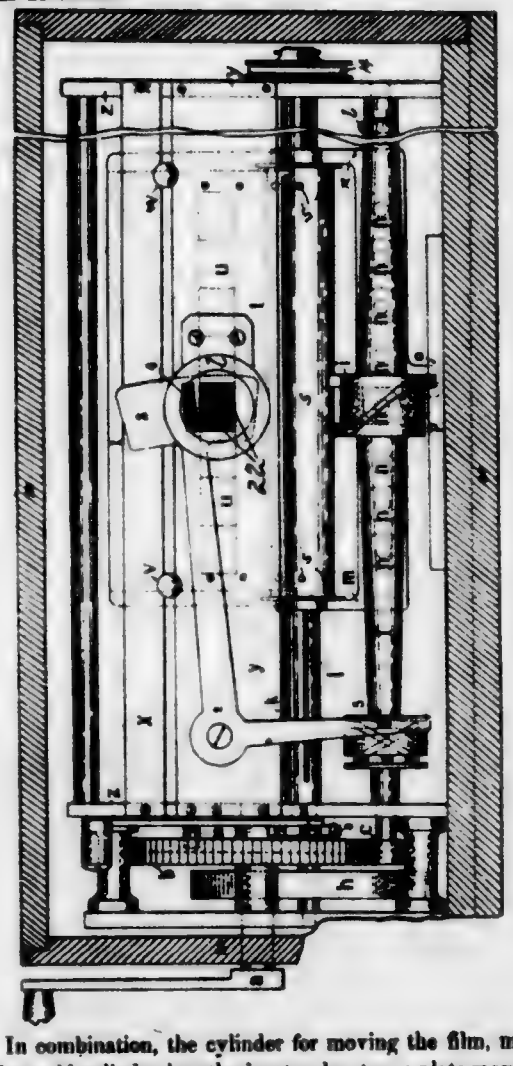
690,815. CINEMATOGRAPHIC APPARATUS. FILOTEO ALBERINI, CAPPELLETTI ARCHERI, and LIGHELLO GAFUCCI-CANCELLIERI, Florence, Italy. Filed Oct. 18, 1899. Serial No. 733,944. (No model.)

Claim.—1. In combination, the cylinder for moving the film, a frame carrying the cylinder and arranged to move in a direction longitudinally of the cylinder, a shaft to which the cylinder is splined, means for rotating the shaft intermittingly, means for automatically reciprocating the frame carrying the cylinder and means for intermittingly exposing the film, substantially as described.

2. In combination, the cylinder for the film, the shaft to which the cylinder is splined, a frame movable in a direction longitudinally of the cylinder to shift the same, said frame being arranged to have swinging movement in a direction laterally of the cylinder, means for giving the cylinder a longitudinal reciprocating movement including devices for swinging the frame laterally and means for giving to the shaft of the cylinder an intermittent rotary motion, substantially as described.

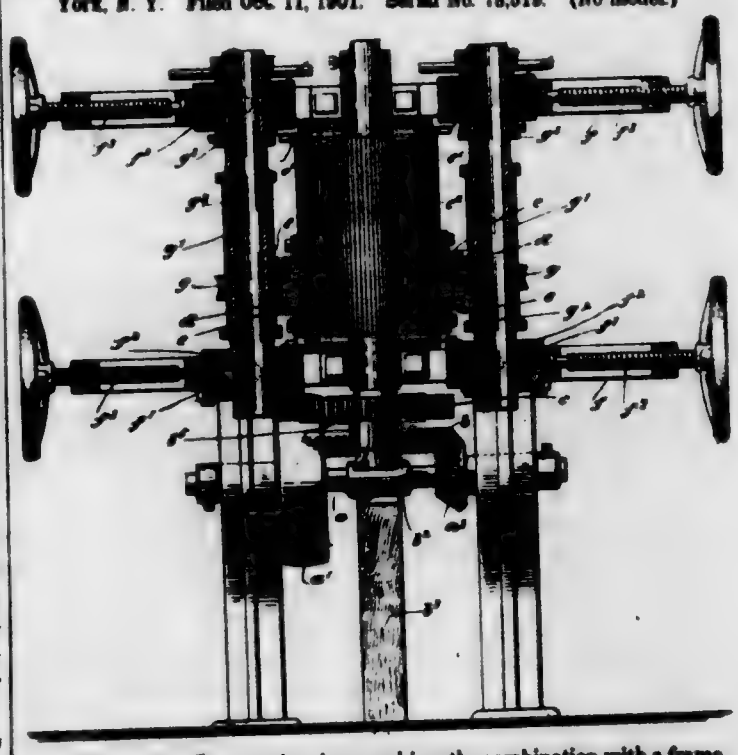
3. In combination, the cylinder for the film, a shaft to which the cylinder is splined, means for giving the shaft an intermittent rotary movement, a frame arranged to move in a direction longitudinally, of the cylinder to shift the same and having movement laterally of the shaft, the shafts *f*, *g*, the cams *i* on said shafts for engaging portions of the frame and eccentrics on said shafts for swinging the frame at the end of its longitudinal movement in either direction, substantially as described.

4. In combination, the cylinder for the film, a shaft to which the cylinder is splined, means for rotating the shaft intermittingly, a frame carrying the cylinder, the cams for moving the frame longitudinally, back and forth, the shafts for the cams, a cam 6 on one of the shafts and an arm carrying a shutter and arranged to be operated by the said cam, substantially as described.



5. In combination, the cylinder for moving the film, means for reciprocating said cylinder lengthwise step by step, a plate movable lengthwise with the cylinder and having an opening, and a shutter with means for operating the same, substantially as described.

690,816. EMBOSSING-MACHINE. FREDERICK J. ALBRECHT, New York, N. Y. Filed Oct. 11, 1901. Serial No. 78,319. (No model.)

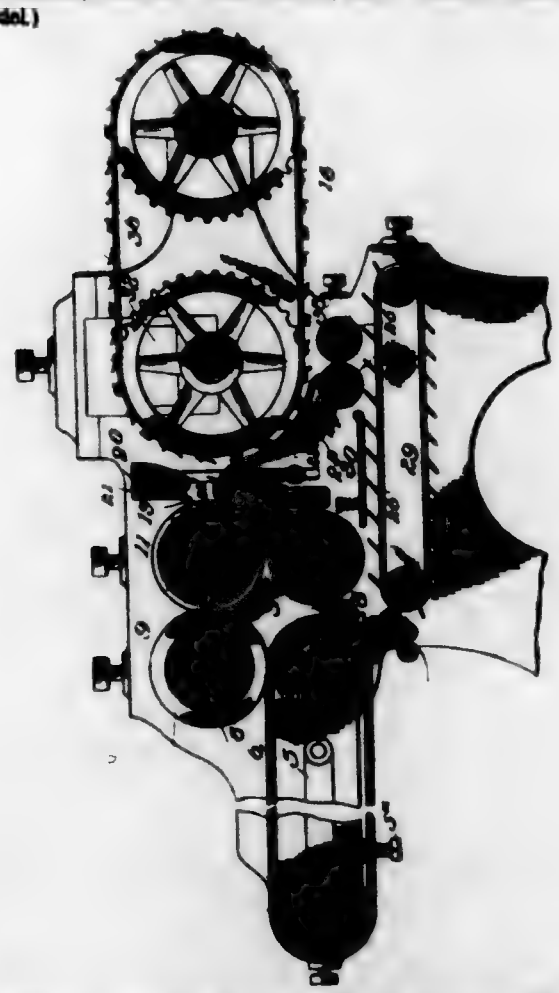


Claim.—1. In an embossing-machine, the combination with a frame, comprising two horizontally-disposed guides arranged one above the other, of a feed-roller mounted intermediately of the guides, a drive-shaft at one side of the feed-roller, gearing for connecting said shaft with the feed-roller, tubes arranged one at each side of the feed-roller and adapted to be heated and to carry the embossing-tools, boxes connected to the ends of the tubes, slides mounted in the guides and pivotally carrying the boxes to move toward and from the feed-roller, and means for moving the slides.

2. In an embossing-machine, the combination of a frame, comprising two horizontal guides arranged one above the other, a feed-roller mounted intermediately of the guides and extending between them, the axis of the feed-roller passing through the guides, gearing for turning the feed-roller, slides mounted in the guides at each side of the feed-roller, means for moving the slides toward and from the feed-roller, boxes pivotally mounted in the slides, and tool-carrying tubes fastened in the boxes and extending vertically in parallelism with the feed-roller.

3. In an embossing-machine, the combination of a frame, comprising two horizontally-disposed guides arranged one above the other, a feed-roller situated intermediate the ends of the guides, the axis of the feed-roller extending through the guides from one to the other, a drive-shaft located at one side of the guides in parallelism therewith, gearing connecting the drive-shaft with the feed-roller, slides mounted in the guides, boxes pivotally carried in the slides, and tool-holding devices supported by the boxes, said devices lying at opposite sides of the feed-roller in parallelism therewith.

690,817. MACHINE FOR SEPARATING FIBER FROM STALKS. SAMUEL R. ALLISON, Galveston, Tex.; C. A. Dorrestein administrator of said Allison, deceased. Filed Feb. 13, 1900. Serial No. 5,101. (No model.)



Claim.—1. In a machine for separating fiber, the combination of the several blades to split each one side of a stalk, an endless feeding-belt, a stalk supporting and guiding roller coacting with the belt and having grooves embracing each a stalk and holding them against the transverse action of the knives, and the flattening and breaking rollers situated in proximity to the blades.

2. In a machine for separating the fiber of plants, the combination of a grooved feeding-belt, and a roller having annular guides registering with the belt-grooves.

3. In a machine for separating the fiber of plants, the combination of a stalk-feeding device, a blade to split a stalk, and a stalk-support, the operative edge of the blade being supported out of contact with the stalk-support to avoid splitting both sides of said stalk.

4. In a machine for separating the fiber of plants, the combination of a stalk-feeding device, a plurality of blades, a stalk-support, devices for separating the stalks and guiding them individually under the several blades.

5. In a machine for separating the fiber of plants, the combination of a stalk-feeding device, a plurality of blades, a stalk-support, devices for separating the stalks and guiding them individually under the several blades, a stalk opening and flattening roller having operative faces corresponding in number and plane of rotation with the blades, and a roller coöperating with said stalk-opening roller.

6. In a machine for separating the fiber of plants, the combination of stalk splitting and opening devices, a block having a working bed, wood and fiber separating blades, pins to follow the blades, and brushes to follow the pins, said splitting and opening devices being adapted to present the woody side of stalks to said blades, pins and brushes to separate the wood.

7. In a machine for separating the fiber of plants, the combination of the wood and fiber separating blades, a block having a working bed, means for presenting the woody side of stalks to said blades to separate the wood, pins to follow the blades, and brushes to follow the pins, both devices acting on the material, the pins of said blades being arranged to travel in laterally-alternating paths to straighten and open the material preparatory to the action of the brushes.

8. In a machine for separating the fiber of plants, the combination of scutching rollers, a block having a working bed conformed to one of the rollers and extending to near their approximate lines, a reciprocating scutcher, a hinged plate to receive the fiber from said scutcher, and a tool-carrying belt coacting with the bed.

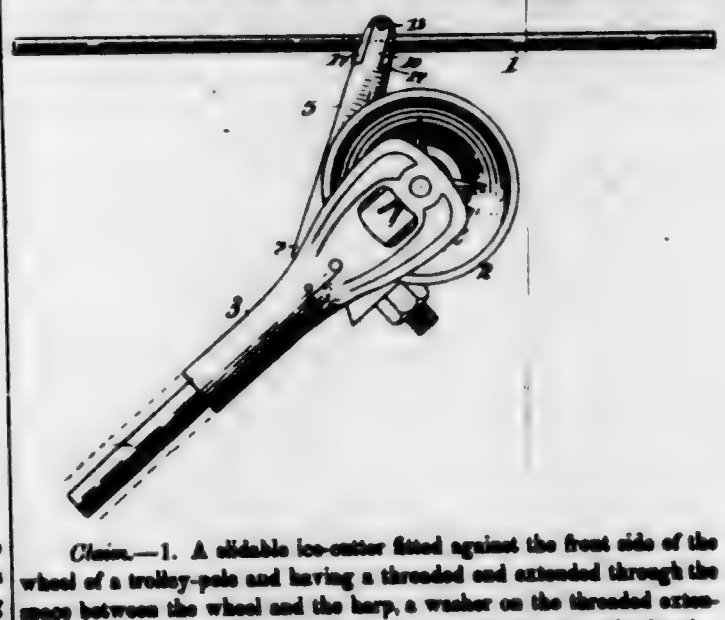
9. In a machine for separating the fiber of plants, in combination with a working bed, the wood-separating blades carrying combing-pins fixed thereto behind the edges of the blades.

10. In a machine for separating the fiber of plants, in combination with a working bed, the wood-separating blades carrying combing-pins fixed thereto behind the edges of the blades, said blades being concave between said edges, and pins to provide receptacles for fine refuse combed out by the pins.

11. The combination of a scutching device, an endless belt carrying tools adjacent the scutcher, a bed to coact with said tools, a second endless belt carrying blades, a bed coacting with the blades and devices intermediate the belts to convey the material from one to the other.

12. The combination of a scutching device, an endless belt carrying tools adjacent the scutcher, a bed to coact with said tools, a second endless belt carrying blades, a bed coacting with the blades and devices intermediate the belts to convey the material from one to the other, the tools and blades being arranged and adapted to act upon the same side of the material.

690,818. ICE-CUTTER FOR TROLLEY-WIRES. ANDREW ARNOLD, Decatur, Ill. Filed Dec. 6, 1900. Serial No. 38,888. (No model.)



Claim.—1. A slidable ice-cutter fitted against the front side of the wheel of a trolley-pole and having a threaded end extended through the space between the wheel and the harp, a washer on the threaded extension of the cutter bearing against the harp and against the wheel and a nut to tighten the washer and clamp the cutter in place.

2. A slidable ice-cutter for trolley-wires comprising an arm forked at its upper end and diverged and threaded at its lower end, a shoulder at the place of divergence to form a clamp-bearing, a collar to form the opposite clamp-bearing and a nut to tighten the washer.

3. The combination with the harp and the wheel of a trolley-pole, of a forked contact-arm bearing against the front of the wheel and against the harp, a clamp-washer bearing against the rear of the wheel and against the harp and a connection between the fork and the clamp-washer extending through the space between the wheel and the fork of the harp.

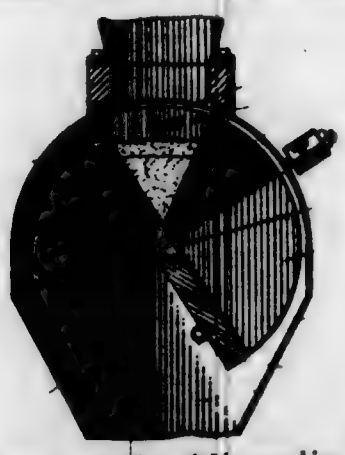
4. In an ice-cutter for trolley-poles the combination of a forked arm adapted to be clamped against the trolley-wheel, each arm having its ends diminished, and a detachable contact-block forked to conform to the inner surface of the forks of the arm and recessed to receive the diminished ends of the forks of the arm.

690,819. HOSE-MENDER. WILLIAM C. ARENDSEN, Detroit, Mich., assignor to Buckley-Hart Manufacturing Company, Detroit, Mich., a Corporation. Filed Jan. 7, 1901. Renewed Nov. 2, 1901. Serial No. 80,913. (No model.)

Claim.—A device for mending hose consisting of a ring in two portions lying in different planes, said ring having a U-shaped lug, the branches of which are connected to the respective portions of said ring.



690,820. **AUTOMATIC WEIGHING-MACHINE.** ALBERT ARTHUR, East Pittsburg, Pa., assignor of nine-twentieths to Walter Lautenslager, East Pittsburg, Pa. Filed Oct. 14, 1901. Serial No. 78,567. (No model.)



Claim.—1. In an automatic weighing-machine, the combination with a casing and a tiltable trough therein, of a shiftable partition disposed within said trough and united thereto by an intermediate flexible connection, and means for limiting the movement of said partition with relation to said trough, substantially as described.

2. In an automatic weighing-machine, the combination with a casing, of a tiltable trough mounted therein, means for limiting the tiltable movement of said trough, a partition disposed within the trough and united thereto by an intermediate flexible connection, a resistance device opposing the movement of the trough, and means for limiting the movement of the partition relative to the casing and to the trough, substantially as described.

3. In an automatic weighing-machine, a trough provided with a tiltable partition which is united thereto by an intermediate flexible connection adapted to serve in conjunction with said partition in forming separate compartments within the trough, in combination with a casing, a resistance device opposing the action of the trough, and means for limiting the movement of the partition relative to the trough and the casing, substantially as described.

4. In an automatic weighing-machine, the combination of a casing, a hopper provided with stop-shoulders, a tiltable trough within said casing, a partition united to the trough by an intermediate flexible connection and provided with a lug which is extended into the hopper to engage alternately with the stop-shoulders thereof, and a resistance device opposing the action of the trough, substantially as described.

5. An automatic weighing-machine comprising a casing, a hopper surmounting the casing and having stop-shoulders, a rock-shaft mounted in the casing and provided with a weighted arm, a tiltable trough secured to the rock-shaft and disposed within the casing, stops supported in the casing in the path of the trough, and a shiftable partition united to the trough by an intermediate flexible connection and provided with a lug which is adapted to engage with the stop-shoulders of the hopper, substantially as described.

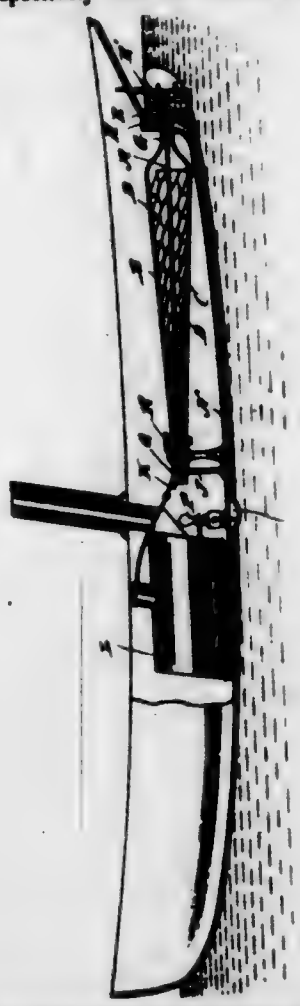
6. In a weighing-machine, a tiltable trough provided with a hinged partition adapted to have a limited movement within said trough, said partition having such relation to the sides of the trough as to cut off the passage of material from one compartment to the other of said trough.

7. In a weighing-machine, a tiltable trough provided with a partition having a limited movement relative to the ends of said trough, combined with means for limiting the movement of the partition independently of the trough.

8. A tiltable trough provided with a movable partition, and a flexible connection uniting the sides of said partition to the trough, said flexible connection coöperating with the partition in forming isolated compartments in the trough.

690,821. **MARINE PROPULSION.** JOHN J. ASTOR, New York, N. Y. Filed Sept. 3, 1901. Serial No. 74,092. (No model.)

Claim.—1. In an apparatus for marine propulsion, the combination of a central rotative shaft, an exterior shell inclosing the shaft and mounted to rotate independently thereof, oppositely-disposed spiral blades fastened respectively to the shaft and to the interior wall of the shell, the blade of the shell running across the blade of the shaft and said blades having their adjacent edges abutting against each other, and oppositely-set screw-propellers connected respectively with the central shaft and with the said shell.

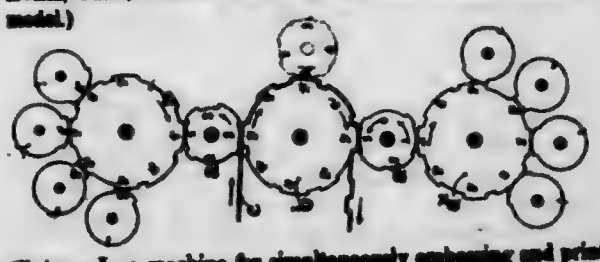


2. In an apparatus for marine propulsion, the combination of a central rotative shaft, an exterior shell inclosing the shaft and mounted to rotate independently thereof, oppositely-set spiral blades fastened respectively to the central shaft and the interior wall of the shell and running continuously throughout the working length of the shaft and shell and oppositely-set screw-propellers connected respectively with the central shaft and with the said shell.

3. The combination with a marine vessel, of an exterior shell located fore and aft therein, a bearing revolubly carrying the forward end of the shell, the rear end of the shell being contracted to form a neck projected through and revolubly mounted in the stern-post of the vessel, a centrally-disposed rotative shaft located in the shell and running rearward through the neck thereof, bearings for the said shaft, spiral blades attached to the shaft and shell and disposed oppositely for the purpose specified, and oppositely-disposed propellers fastened to the neck of the shell and to the central shaft.

4. In an apparatus for marine propulsion, the combination of an exterior shell, a centrally-disposed shaft running through it, oppositely-disposed spiral blades attached to the shell and shaft, for the purpose specified, oppositely-disposed propellers connected respectively with the shell and shaft, a bearing for revolubly mounting the front end of the shell, a bearing-head fitted revolubly in the front end of the shell, means for rigidly supporting said bearing-head, the said bearing-head revolubly carrying the centrally-disposed shaft, and brakes respectively for the shaft and shell.

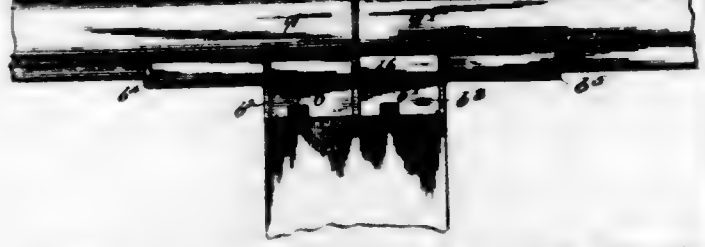
690,822. **EMBOSSING AND PRINTING MACHINE.** PAUL V. AVRIL, Paris, France. Filed Apr. 1, 1901. Serial No. 53,267. (No model.)



Claim.—In a machine for simultaneously embossing and printing in several colors, a central cylinder around which the material operated upon

passes, the said cylinder having raised and depressed portions thereon, a plurality of cylinders arranged about said central cylinder having counterpart raised and depressed portions thereon, and separate inking mechanism for the outer cylinders, the raised and depressed portions of said outer cylinders registering with the depressed and raised portions of the central cylinder, and coöperating with said central cylinder to simultaneously emboss and impress in superposed colors on the material operated upon while said material remains on said central cylinder.

690,823. RAILWAY-RAIL JOINT. FOREST BAIR, Chicago, Ill., assignor to James G. McMichael, Chicago, Ill. Filed Sept. 12, 1901. Serial No. 75,119. (No model.)



Claim.—1. In a rail-joint for securing the ends of rails together, the combination of two like vertical sections curved outwardly from the web of the rail, each adapted to fit the rail along its entire length between the under surface of the head and the flange thereof, a rail base-plate under the base-surface of the rail, extending longitudinally the entire length of the joint, and extending laterally from the middle thereof, forming the tie-plates, an intermediate folded portion between said base-plate and said vertical curved portion, vertical webs connecting said vertical portion, folded portion and tie-plates, and other vertical webs connecting said vertical, outwardly-curved portion and said folded portion at points between said tie-plate and the ends of said section, substantially as set forth.

2. In a rail-joint for securing the ends of rails together, the combination with an ordinary angle-bar, or fish-plate, of a vertical, outwardly-curved section adapted to fit the rail along its entire length between the under surface of the head and the flange thereof, a continuous-rail base-plate under and beyond the base-surface of the rail, extending uninterruptedly and longitudinally the entire length of the joint-section, and extending laterally to form a central tie-plate, an intermediate, folded portion between said base-plate and said vertical, curved portion, vertical webs connecting said vertical portion, folded portion and central tie-plate, other vertical webs connecting said vertical portion and bolts for securing the said angle-bar and said section to the rails, and said folded portion, substantially as set forth.

690,824. BRAKE-BEAM. JAMES H. BAKER, Allegheny, Pa., assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed May 10, 1901. Serial No. 59,657. (No model.)

Claim.—1. A truss brake-beam, having in combination, a structurally-shaped compression member, a tension member, and box-shaped seats for brake-shoe heads formed on the ends of the tension member and secured to the compression member, substantially as set forth.

2. A truss brake-beam, having in combination, a structurally-shaped compression member, a tension member provided at its ends with open side boxes or troughs adapted to fit over the ends of the compression member and serve as a means for connecting the ends of the tension member to the compression member, substantially as set forth.

3. A truss brake-beam, having in combination, a structurally-shaped compression member having its ends twisted through an arc of ninety degrees, a tension member and seats for brake-shoe heads formed on the ends of the tension member and secured to the ends of the compression member, substantially as set forth.

4. A truss brake-beam, having in combination a structurally-shaped compression member, a tension member, and box-shaped seats having yielding sides for the brake-shoe heads, secured to the ends of the tension member, substantially as set forth.

5. A truss brake-beam, having in combination, an I-shaped compression member having its ends twisted through an arc of ninety degrees, a tension member, box-shaped seats for the brake-shoe heads arranged on the ends of the compression member, brake-shoe heads fitting on said seats and bolts extending from the heads through the seats and the web of the compression member, substantially as set forth.

6. A trussed brake-beam having in combination an I-shaped compression member, having its ends twisted through an arc of ninety degrees, a tension member having its ends secured to the ends of the compression member, and brake-shoe heads, substantially as set forth.



7. A trussed brake-beam having in combination a structurally-shaped compression member, a tension member, box-shaped seats having yielding sides, brake-shoe heads carried by said seats, and spring-actuated bolts for holding the heads upon their seats, substantially as set forth.

690,825. BRAKE-BEAM. JAMES H. BAKER, Allegheny, Pa., assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Sept. 12, 1901. Serial No. 75,197. (No model.)



Claim.—1. A brake-beam having in combination a compression member, a tension member, a strut and a brake-shoe head, the tension

member having portions extending on opposite sides of the compression member and having a bearing on the compression member in the rear of the points of attachment of the brake-shoe head and independent thereof, substantially as set forth

2. A brake-beam having in combination a compression member having bearing-seats formed thereon, a tension member having portions extending on opposite sides of the compression member to said seats outside of the brake-shoe heads, a strut and a brake-shoe head secured to the compression member independent of the tension member, substantially as set forth.

3. A brake-beam having in combination a compression member, a tension member and a strut, the compression member being provided with seats or bearings for the tension member formed by upsetting portions of the compression member, substantially as set forth.

4. A brake-beam having in combination a compression member having curved seats at its ends, a tension member having its end portions arranged on opposite sides of the compression member, the portions of the tension member connecting the sides or legs thereof, having a bearing on the seats of the compression member, a strut and means for applying a tension to the tension member, substantially as set forth.

5. A brake-beam having in combination a compression member having seats on its ends, a tension member having its ends divided and passing on opposite sides of the compression member, the portions connecting the legs or sides of the tension member bearing on the seats on the compression member, a strut and means for applying an equal strain to all parts of the tension member, substantially as set forth.

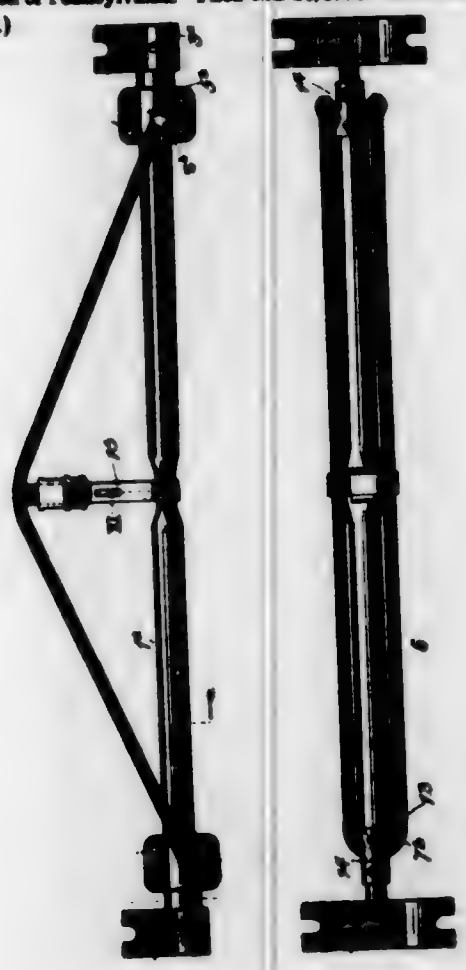
6. A brake-beam having in combination a compression member having circular convex seats formed on its ends, a U-shaped tension member, the closed portion of such member bearing upon the seat carried by the compression member, a strut and means for applying an equal tension to the parts of the compression member, substantially as set forth.

7. A brake-beam having in combination a compression member having a curved seat formed on its end, a U-shaped tension member, a bearing-block interposed between the tension member and the seat on the compression member, substantially as set forth.

8. A compression member for a brake-beam consisting of an I-beam having one of the flange portions at both ends of the beam upset to form seats or bearings for the tension member, substantially as set forth.

9. A brake-beam having in combination a compression member, a tension member, a bearing-block arranged on the ends of the compression member, the bearing-faces of the block and tension member being constructed to permit the block to move on the tension member, and a strut, substantially as set forth.

690,826. BRAKE-BEAM. JAMES H. BAKER, Allegheny, Pa., assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Oct. 21, 1901. Serial No. 79,401. (No model.)



Claim.—1. A brake-beam having in combination, a compression member, a tension member having its end portions divided and passing on opposite sides of the compression member, and means passing through the compression member for connecting the ends of the tension member to each other and forming the bearing between the tension and compression members, substantially as set forth.

2. A brake-beam having in combination, a compression member, a tension member, a strut, brake-shoe heads and two pairs of anchor-plates secured to opposite sides of the compression member inside of the points of attachment of the brake-shoe heads, the ends of the tension member adjacent to the compression member being divided and secured to the anchor-plates on opposite sides of the compression member, substantially as set forth.

3. A brake-beam having in combination, a compression member, anchor-plates secured to the compression member, a tension member formed in two parts, a strain-transmitting member passing through the anchor-plates and compression member near one end of the latter and bearing on said parts, the parts of the tension member being connected at one end to the strain-transmitting member and at the other ends to the anchor-plates near the opposite end of the compression member, substantially as set forth.

4. A brake-beam having in combination, a compression member, anchor-plates secured to the compression member at points adjacent to its ends, a lever passing through openings in the anchor-plates and compression member adjacent to one end of the compression member, and having a pivotal bearing on said parts, a tension member formed in two parts, said parts being connected at one end to the lever and at their opposite ends to the anchor-plates secured to the compression member at that end, a strut, and brake-shoe heads secured to the ends of the compression member, substantially as set forth.

5. A brake-beam having in combination, a tubular compression member having its end portions egg-shaped and the inner portions adjacent thereto circular or substantially so in cross-section, thereby forming shoulders adapted to prevent the inward movement of the brake-shoe heads, a tension member, a strut and brake-shoe heads mounted on the egg-shaped portions, substantially as set forth.

6. A brake-beam having in combination, a tubular compression member having portions at its ends flattened to form egg-shaped bearings at such ends, brake-shoe heads provided with egg-shaped sockets adapted to fit the bearing portions of the compression member, anchor-plates secured to the compression member inside of the brake-shoe heads and bearing against shoulders formed by flattening the end portions of compression member, and a strut, substantially as set forth.

7. A brake-beam having in combination, a compression member, brake-shoe heads secured to the ends of the compression member, anchor-plates secured to the compression member and bearing against shoulders formed on the compression member at points intermediate of its ends, a tension member having its ends connected to the anchor-plates, and a strut, substantially as set forth.

8. A brake-beam having in combination, a tubular compression member, brake-shoe heads secured to the ends of the compression member, a tension member having its ends connected to the compression member at or near the ends thereof, a strut mounted on a seat formed on the compression member formed by flattening the middle portion of the compression member, the longer axis of the flattened portion being in or approximately in a vertical plane when the beams are in use, substantially as set forth.

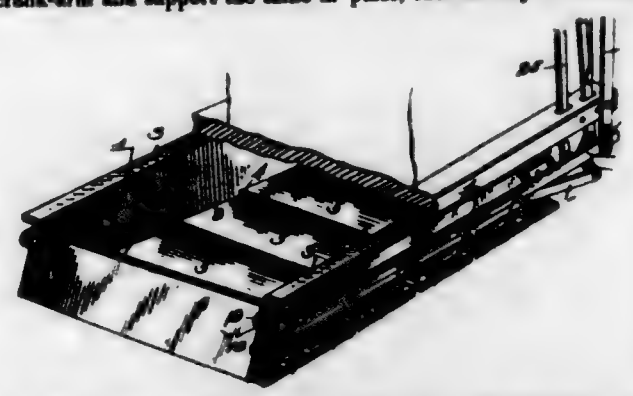
9. A brake-beam having in combination, a tubular compression member having its ends flattened to form egg-shaped bearing portions, brake-shoe heads secured to such egg-shaped bearings, anchor-plates secured around the compression member at the points of junction of the bearing portions with the body of the compression member, a tension member secured to said anchor-plates, and a strut, substantially as set forth.

690,827. LOCOMOTIVE ASH-PAN. HENRY L. BROWNER, Holcomb City, Miss. Filed Oct. 14, 1901. Serial No. 78,641. (No model.)

Claim.—1. In a locomotive ash-pan, the combination with the side pieces thereof, one of which is formed with a ledge and with slots therein and the other of which is formed with bearing-apertures, of a bottom composed of a series of leaves or shutters provided at one end with bearing-studs to engage the bearing-apertures and provided at the other end with crank-arms to pass upwardly through the slots and ledge, and pivoted buttons or latches adapted to close the slots in said ledge and thereby support the leaves or shutters and at the same time permit of their independent removal from the side pieces of the ash-pan, substantially as set forth.

2. In a locomotive ash-pan, the combination with side pieces, one of which is formed with vertical slots and with a horizontally-extending ledge provided with registering slots and the other side piece of which is provided with bearing-apertures, of leaves or shutters having at one end studs to engage said bearing-apertures and having at their opposite

end crank-arms which are inserted upwardly through the slots in the edge and into the slots of the side pieces, and latches or buttons pivoted to said ledge and adapted to be swung under the horizontal portion of said crank-arm and support the same in place, substantially as set forth.



3. In a locomotive ash-pan, the combination with side pieces, one of which is formed with vertical slots and with a horizontally-extending ledge provided with registering slots and the other side piece of which is provided with bearing-apertures, of leaves or shutters having at one end studs to engage said bearing-apertures and having at their opposite end crank-arms which are inserted upwardly through the slots in the ledge and into the slots of the side pieces, latches or buttons pivoted to said ledge and adapted to be swung under the horizontal portion of said crank-arm and support the same in place, said ledge having seats or depressions, and the free ends of said latches or buttons having studs to engage said seats or depressions to securely retain the latches or buttons in place across the slots in the ledge, substantially as set forth.

4. In a locomotive ash-pan, the combination with side pieces, one of which is formed with vertical slots and with a horizontally-extending ledge provided with registering slots and the other side piece of which is provided with bearing-apertures, of leaves or shutters having at one end studs to engage said bearing-apertures and having at their opposite end crank-arms which are inserted upwardly through the slots in the ledge and into the slots of the side pieces, latches or buttons pivoted to said ledge and adapted to be swung under the horizontal portion of said crank-arm and support the same in place, said ledge having seats or depressions, the free ends of said latches or buttons having studs to engage said seats or depressions to securely retain the latches or buttons in place across the slots in the ledge, a bar pivotally connected to the crank-arms, and means for reciprocating said bar to rock said crank-arms and tilt said leaves or shutters, substantially as set forth.

690,828. COVER-RETAINING DEVICE FOR POTS OR KETTLES. CHARLES D. BROWN, Valley Center, Mich. Filed Feb. 11, 1901. Serial No. 46,770. (No model.)



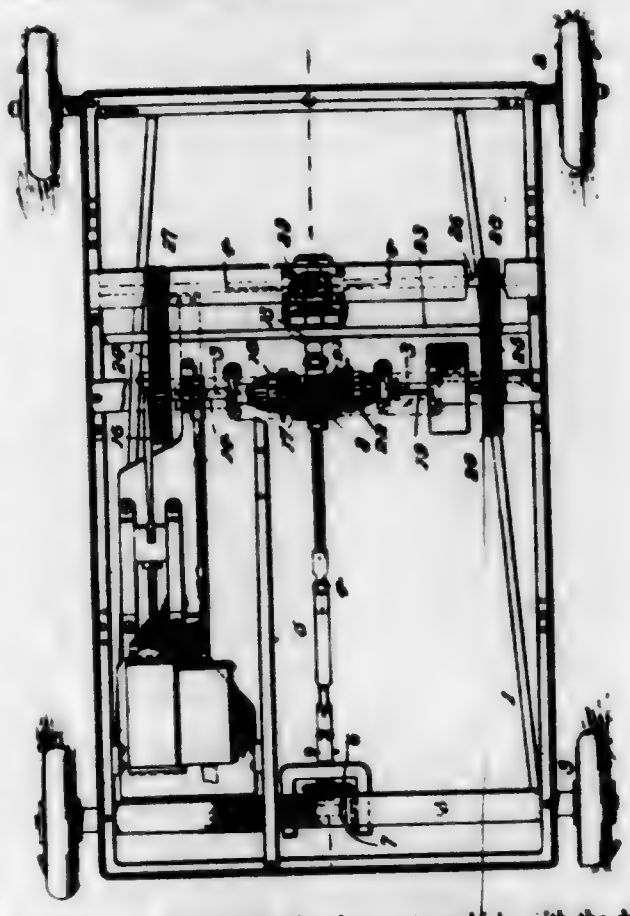
Claim.—1. The combination with a pot, of a cover adapted to close the top thereof, a bail or handle hinged to the top and having a projection adapted to bear upon the cover when the bail is in a vertical position, the ends of said bail depending at the sides of the pot and having weights attached thereto, substantially as set forth.

2. The combination with a pot, of a cover adapted to close the top thereof, a bail hinged to the top and having a loop or coil therein eccentric to the axis of oscillation of said bail, said eccentric loop being adapted to bear upon the cover of the pot, when the bail is in a vertical position, to hold the cover against accidental displacement, the free end of said bail extending substantially parallel to the side of the pot and a weight attached thereto adapted to hold the bail in a vertical position.

690,829. ICE-PICK. WILLIAM G. BROWER, Kingston, N. Y. Filed Nov. 23, 1900. Serial No. 37,426. (No model.)

Claim.—In an ice-pick, the combination with the handle having an approximately ball-shaped outer end, said handle constructed in sections, one of which is concave, the other convex, whereby to form a semicircular recess between said sections, of a semicircular blade, having flat edge portions mounted in the recess formed by said concave and convex sections, and pins or bolts for securing said sections and the blade together, and the operating end of the blade being contracted or decreased whereby to form a concave conical-shaped pointed end, substantially as specified.

690,830. MOTOR-VEHICLE. WILLIAM J. BUEL, Ilion, Ohio, assignor of one-fourth to Wm. H. Smiley, Ilion, Ohio. Filed June 22, 1901. Serial No. 65,626. (No model.)



Claim.—1. The combination, in a motor-vehicle, with the driving-shaft, of a constantly-rotated operating-shaft, gearing between said shafts, a clutch therefor, a reversing-shaft, gearing between the latter and said driving-shaft, a clutch therefor, and a shaft constantly rotated by said operating-shaft and in turn constantly actuating the reversing-shaft, substantially as set forth.

2. The combination, in a motor-vehicle, with the driving-shaft, of a shaft for operating the same to propel the vehicle in one direction, gearing between said shafts, a clutch therefor, a second shaft for rotating the driving-shaft to propel the vehicle in the opposite direction, gearing between said second shaft and the driving-shaft, a clutch therefor, gear-wheels on said operating and second shafts, and a shaft having gear-wheels in mesh with said former gear-wheels, said latter shaft being constantly operated by said operating-shaft, substantially as set forth.

3. The combination, in a motor-vehicle, with the driving-shaft, means for operating the same, to propel the vehicle forward, and means for reversing such shaft, of an independent shaft for operating the driving-shaft under a slow gear when said operating and reversing means are not directly acting thereon, substantially as set forth.

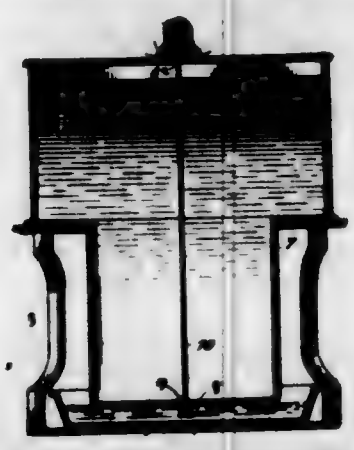
4. In a motor-vehicle, the combination with the driving-shaft, and the operating and reversing shafts, of a shaft driven by said operating-shaft, and means actuated thereby for rotating said driving-shaft when said operating and reversing shafts are out of engagement therewith, substantially as set forth.

5. In a motor-vehicle, the combination with the driving-shaft, the driving-cone and the gear-wheel thereon, and the operating-shaft having a beveled gear meshing with said driving-cone, a reversing-shaft driven by said operating-shaft and having a beveled gear designed to mesh with said driving-cone, of a shaft also driven by said operating-shaft having a worm meshing with said gear-wheel of the driving-shaft for actuating the

latter when the gears of said operating-shaft and reversing-shaft are out of engagement with said driving-cone, and clutches controlling the respective engagements, as set forth.

6. In a motor-vehicle, the combination with the longitudinally-disposed driving-shaft for directly actuating one axle, the driving-cone and gear-wheel on said shaft, and the operating-shaft arranged transversely to said driving-shaft, a beveled gear on said operating-shaft designed to engage said driving-cone, a reversing-shaft in axial line with said operating-shaft, and a beveled gear on said reversing-shaft, of a shaft actuated by said operating-shaft, a worm thereon meshing with the gear-wheel of said driving-shaft, gearing connecting said operating-shaft to the reversing-shaft and also to the worm-gear shaft, and clutches controlling the several gears, substantially as set forth.

690,831. DRINKING-FOUNTAIN FOR FOWLS. WILLIAM H. BUSCH, Stewardson, Ill. Filed Sept. 20, 1897. Serial No. 652,268. (No model.)



Claim.—An intermittently and automatically operating chicken-fountain comprising a frame consisting of a base-plate, supporting-legs and a surmounting ring, a drinking-pan located on the base-plate, a normally sealed tank having an upper part seating on the ring and formed with a central filling-opening in the top, and a reduced lower part extending through the ring and into the drinking-pan and formed with a central outlet-opening providing a valve-seat, an externally-screw-threaded filling-tube surrounding the filling-opening, an internally-screw-threaded cap and packing-ring sealing the filling-tube and seating on the top of the tank, and a valve located normally in lowered position beneath the outlet-opening and having a lifting-rod extending through the outlet-opening and filling-opening, formed with a ring providing a lifting-handle seating on the filling-tube whereby the valve and lifting-rod are supported wholly from the filling-tube.

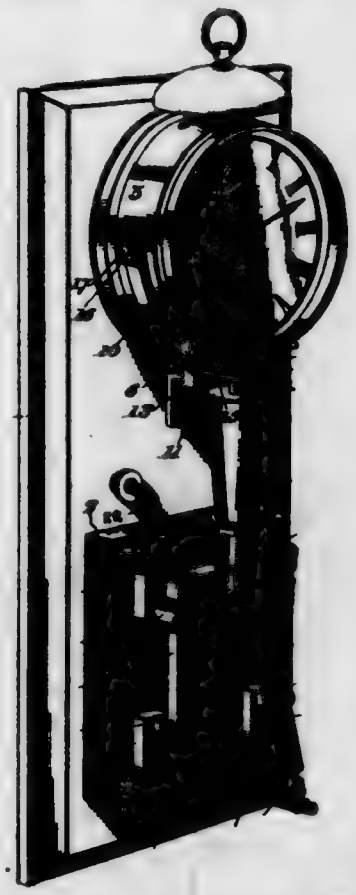
690,832. COMBINED BRIDLE AND HALTER SNAP-HOOK. JAS. CARLISLE, Rawlings, Wyo. Filed Aug. 8, 1901. Serial No. 71,378. (No model.)



Claim.—1. In a snap, a flat base-plate provided with a series of parallel rectangular slots, a neck portion formed integral therewith, a link formed integral with said neck portion, a hook formed integral with one end of said plate and having the inner face of its free end formed with a seat and a shoulder, a lug formed integral with said neck portion, a latch having a bifurcated end surrounding said lug, means for pivotally connecting said bifurcated end to the said stud, said latch adapted to have its free end engage said seat and shoulder, a downwardly-extending curved stop-arm operating through the center one of said slots and formed integral with the free end of said latch, and a spring secured to the lower face of said latch for keeping the free end normally in engagement with said seat and shoulder of said hook.

2. In a combined bridle and halter snap, a base-plate provided with a rectangular slot at each side thereof, extending parallel to one another, said plate further provided with a rectangular slot between the said side slots and which extends at one end past the ends of said side slots, a hook formed integral with one end of said plate and bent upon itself so that its free end will extend above the end of the plate, said free end of the hook having its inner face formed with a seat and shoulder, a neck portion formed integral with the opposite end of said plate and provided with a pair of grooves, a link formed integral with the said neck portion, a latch adapted to be normally in engagement with said seat and shoulder of the hook, a stop-arm formed integral with one end of said latch and operating within the central slot of the plate, a pair of apertured ears formed integral with the opposite end of said latch and adapted to operate partly within the grooves of the neck portion, an apertured lug connected with said neck portion and extending upwardly between the said ears and through the end of the latch, means for pivotally connecting the said ears to the said lug, and a spring secured to the inner face of said latch and engaging the said neck portion for retaining the free end of the latch in engagement with the said seat and shoulder.

690,833. ELECTRIC TIME-SWITCH. WILLIAM J. CARTER, Brookton, Mass. Filed Mar. 9, 1901. Serial No. 50,434. (No model.)



Claim.—In a time-switch, the combination with an alarm-clock, a rod actuated by the clock, and electric wires, of a pivotally-mounted switch to close and open a circuit between the wires, a handle to the switch formed with a pin projecting from its free end, an antifriction-roller on the pin, and a latch to engage the roller and having its other end in the path of the rod of the clock, substantially as described and for the purpose set forth.

690,834. FRUIT-DRIER. WILLIAM A. CATES, Fisher, Wash. Filed Sept. 27, 1901. Serial No. 76,778. (No model.)

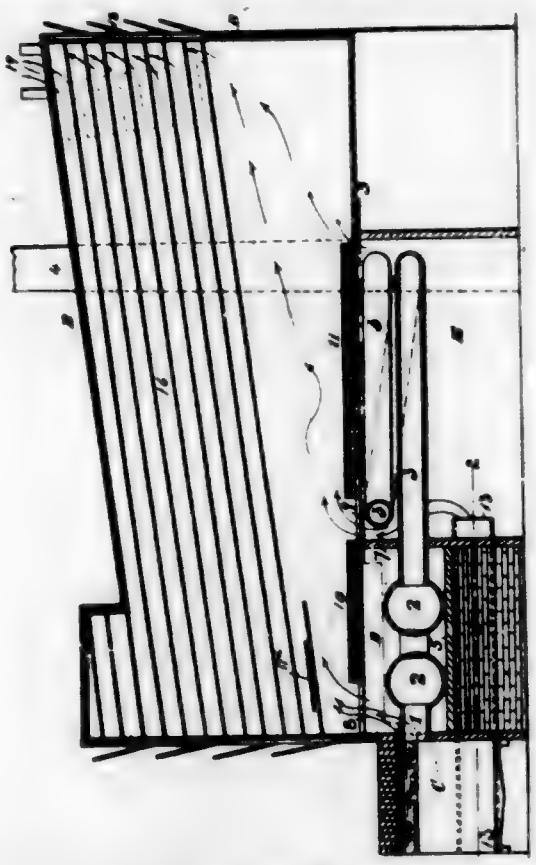
Claim.—1. In a drying apparatus, a base furnace portion, comprising a fire-box and two alined chambers, a conductor for the products of combustion passing through the two chambers, and side passages for conducting air arranged adjacent to the fire-box and extending into the outer chamber, substantially as shown and described.

2. In a drying apparatus, the base furnace portion comprising a fire-box proper, two alined chambers separated by a cross-partition, a smoke-conductor leading from the fire-box through the two chambers and their separating-partition, and side passages arranged adjacent to the fire-box and leading into the first chamber, the same serving for conducting heated air into the said chamber, substantially as shown and described.

3. In a drying apparatus, the combination with the drier proper, of the base furnace portion comprising a fire-box and two alined chambers separated as specified, a conductor for the products of combustion traversing the two chambers, air-pipes extending alongside the fire-box and entering the outer chamber, and shorter passages arranged above the first and opening into the first chamber, whereby air is heated in passing through both passages and enters the two chambers and thence passes into the drier proper, substantially as shown and described.

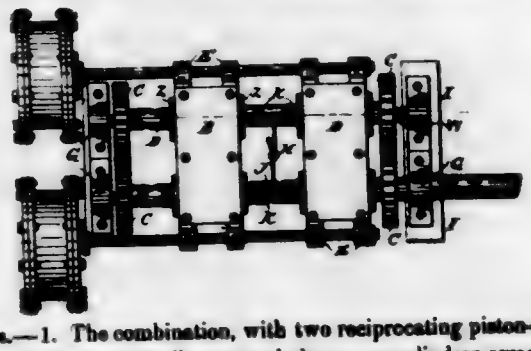
4. The combination with the drier proper, of the base furnace portion, separated therefrom by a horizontal partition having openings as specified, and comprising a fire-box which is exterior to the drier, and two chambers alined with said fire-box, but arranged beneath the drier

proper, passages for conducting the products of combustion and the passages for entrance of heated air, substantially as shown and described.



5. In a drier of the class specified, the base furnace portion comprising a fire-box, and two alined chambers separated by a cross-partition, the chamber adjacent to the fire-box having a transverse and vertical partition, and a heated-air conductor arranged on each side of the vertical partition, and a smoke-conductor arranged upon the horizontal partition and extending through the outer chamber, substantially as shown and described.

690,835. ENGINE-SHAFT. JAMES L. CLAYLAND, Fort Smith, Ark. Filed Mar. 25, 1901. Serial No. 52,828. (No model.)



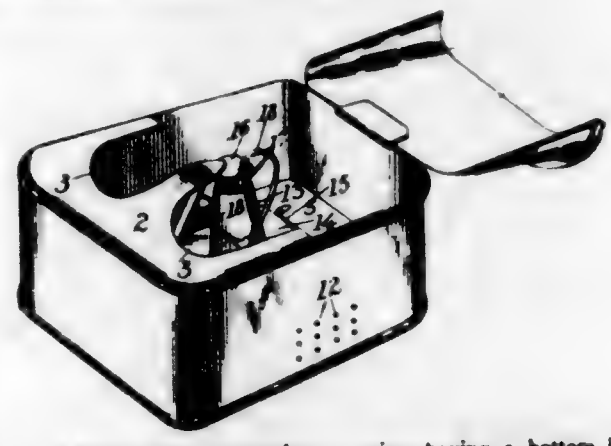
Claim.—1. The combination, with two reciprocating piston-rods, of boxes secured thereto, spirally-grooved sleeves or cylinders arranged in said boxes and provided with circumferential ratchets of opposing pitch, two spirally-grooved shafts which are engaged with the sleeves, and pawls adapted for engaging the ratchets, substantially as shown and described.

2. The combination, with two piston-rods, and boxes secured thereto and adapted to reciprocate therewith, of two parallel shafts which are geared together and each provided with two spiral grooves pitched in opposite directions, a sleeve or cylinder having a device engaging the spiral grooves, and circumferential ratchets as described, pawls projecting in opposite directions and adapted to engage opposing ratchets, and means for shifting said pawls for reversing motion, substantially as shown and described.

3. The combination with piston-rods arranged parallel and two shafts also arranged parallel between the piston-rods and provided with spiral grooves pitched in opposite directions, gears applied to said shafts and meshing as described, sleeves or cylinders having flanged ends and applied to the spirally-grooved shafts, a device which locks the said cylinders with the said shafts, pawls projecting in opposite directions within the boxes, rods on which said pawls are secured, and lever mechanism for adjusting the pawls, substantially as shown and described.

690,836. FOOT-WARMER. JOHN T. COLE, Malmaison, Va. Filed Mar. 29, 1901. Serial No. 53,497. (No model.)

Claim.—1. A foot-warmer comprising a casing having an internal foot-rest arranged above the lower edge of said casing and having a central opening, a lamp-socket arranged below said opening, a chimney having a lower outwardly-extending flange pivoted to the foot-rest and adapted to cover the said central opening, said chimney being independent of the lamp structure and supported by said foot-rest.



2. A foot-warmer, comprising a casing, having a bottom located above the bottom edge of the sides of the casing, and provided with a central opening, a lamp-socket carried by the under side of the bottom and alined below the opening therein, one or more air-passages from the lower side portion of the casing to the lamp-socket, a chimney located above the opening in the bottom and having a hinged connection with the latter, a protecting-cage embracing the chimney and carried thereby, a fixed top section having foot-receiving openings therein, and a hinged cover to overlap the openings of the top section.

3. The combination in a foot-warmer, of the casing having a fixed upper portion provided with recesses for the reception of the ankles or legs, an internal brace supporting said upper portion, a hinged cover 4, an internal foot-rest having a central opening, a lamp-socket arranged centrally of and below the foot-rest, a lamp therein, a metallic chimney hinged to the foot-rest above the opening, said casing being provided with air-passages below the foot-rest.

690,837. NEWSPAPER-HOLDER. JOHN CONZETT, Fortuna, Cal. Filed Apr. 22, 1901. Serial No. 56,260. (No model.)



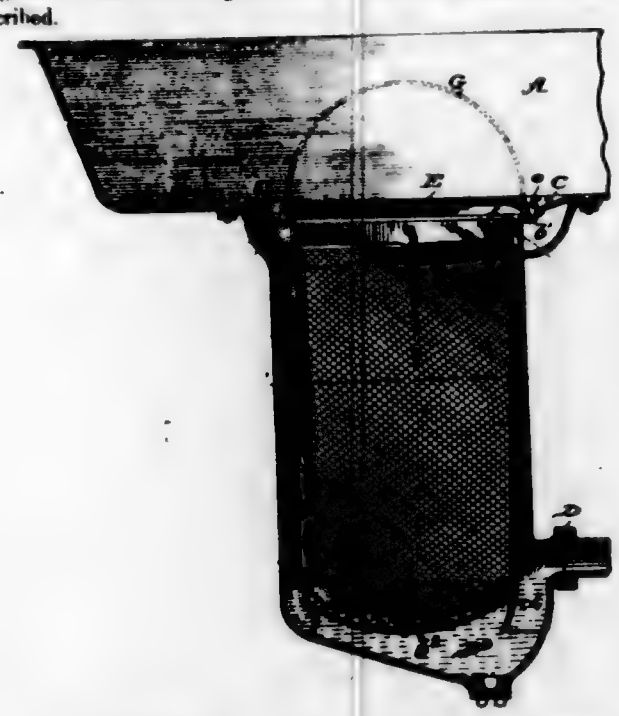
Claim.—A newspaper-holder of the character described, comprising in combination with the bar A, having a handle member at one end, a longitudinally-extending guide-loop a^3, at the other end, and provided with two parallel longitudinally-extending slots a', adjacent the handle portion, the laterally-extending bars A^1, the leaf-spring E, secured at one end to the under side of the bar A, and the bail-piece F, pivotally secured to the free end of the spring E, and projected up through the slots a' a'; of the swinging bar B, having parallel extensions C C, and a cross-pintle c, mounted on said extensions, the flat spring member D secured at one end to the under side of the bar A, said spring having an angle end d, adapted to pass up between the guide a^3, said end being looped upon and forming the pivotal bearing for the pintle c, all being arranged substantially as shown and for the purposes described.

690,888. GARBAGE-HOLDING ATTACHMENT FOR SINKS. CHARLEY R. COX, Chicago, Ill. Filed May 24, 1901. Serial No. 61,735. (No model.)

Claim.—1. The improved garbage sink attachment comprising the pendent cylinder having a lateral enlargement at the top provided with a circumferential flange, and a vertical extension constructed with a radial flange having a groove forming a gutter and arranged as described whereby it is adapted to support a grating and a cover substantially as shown and described.

2. The combination with a pendent cylinder having a lateral en

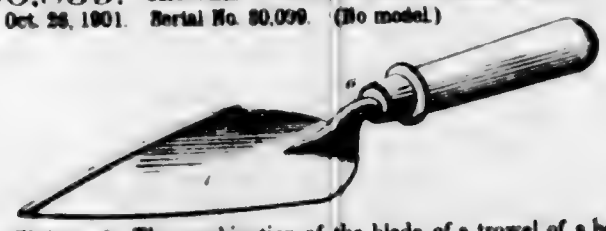
largement at the top forming a gutter, and a vertical extension constructed with a radial flange having an annular groove of the annular grating C whose inner edge rests upon said flange and the detachable cover whose flange fits in the aforesaid groove and is supported therein as shown and described.



3. The cylinder having a gutter surrounding the top portion, and a vertical lateral swell or enlargement extending from said gutter to the bottom of the cylinder as shown and described.

4. The combination with the sink, the pendent cylinder secured thereto, and provided with a grooved flange at the top, and the annular perforated plate surrounding said flanges, of a cover for the cylinder which is constructed with a pendent flange that seats and is adapted to be seated in said groove, and a hinged, semicircular bail pivoted on opposite sides of said cover and folding in the annular space surrounding the cover, as shown and described.

690,839. **TROWEL.** WILLIAM H. COVAN, Homestead, Pa. Filed Oct. 26, 1901. Serial No. 80,099. (No model.)



Claim.—1. The combination of the blade of a trowel of a beveled rib located adjacent to the edge of said blade and constructed to strengthen the trowel for cutting brick, substantially as described.

2. A trowel-blade having a beveled rib formed thereon adjacent to one edge thereof, as and for the purpose set forth.

690,840. **STRENGTHENED CAST CEMENT.** JOSEPH DAHER, Marseilles, France. Filed Aug. 3, 1901. Serial No. 70,821. (No specimens.)



Claim.—1. A structural arrangement for reservoirs, dikes, barrages, sustaining-walls and the like, consisting of an inclosing wall, and counterweight-caissons integral therewith.

2. A structural arrangement for reservoirs, dikes, barrages, sustaining-walls and the like, consisting of an inclosing wall of strengthened cement, and counterweight-caissons integral therewith.

3. A structural arrangement for reservoirs, dikes, barrages, sustaining-walls and the like, consisting of an inclosing wall, counterweight-caissons integral therewith, and means for connecting the caissons to each other.

4. A structural arrangement for reservoirs, dikes, barrages, sustaining walls and the like, consisting of an inclosing wall constructed of strengthened cement, counterweight-caissons integral therewith and constructed of strengthened cement, and means constructed of strengthened cement for connecting the caissons together.

5. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall, counterweight-caissons suitably connected thereto and provided with an opening, and a perforated wall arranged between each pair of caissons.

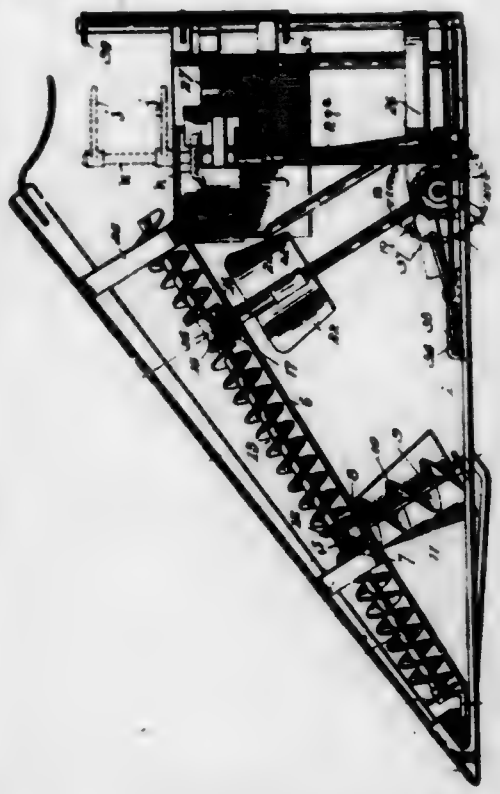
6. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall constructed of a series of vertical half-cylinders, and a series of counterweight-caissons eccentrically arranged in relation to the half-cylinders.

7. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall constructed of a series of vertically-extending integral half-cylinders, and a series of counterweight-caissons eccentrically arranged in relation to the half-cylinders and integral therewith.

8. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall constructed of a series of vertically-extending integral half-cylinders, a series of counterweight-caissons eccentrically arranged in relation to the half-cylinders and integral therewith, and walls arranged between the caissons and suitably connected thereto.

9. A structural arrangement for reservoirs, barrages, dikes, sustaining-walls, and the like, consisting of an inclosing wall, caissons integral therewith, and a wall arranged between each pair of caissons.

690,841. **CORN-HARVESTER.** VALENTINE DEGENHARD, Lincoln, Ill. Filed May 3, 1900. Serial No. 15,584. (No model.)



Claim.—1. In a device of the character described, the combination with a frame of inclined converging worms mounted thereon, parallel inclined worms journaled on the frame, means substantially as described for imparting rotation to said worms, a vertically-arranged worm disposed beneath the said worms at the upper ends of the converging worms, and a beater on a vertically-inclined shaft to coact with the adjacent worm, substantially as described.

2. In a device of the character described, the combination with a frame, of inclined and converging worms journaled thereon, pinions upon said worms, pinions meshing therewith, downwardly-extending shafts secured to said pinions, a worm upon one of said shafts, parallel inclined worms adapted to impart motion to the pinions of said shafts and means for imparting motion to said worms from a shaft.

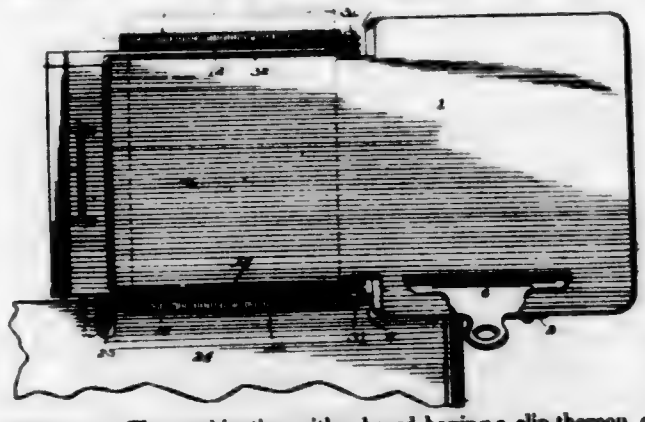
3. In a device of the character described, the combination with a frame and axle of upwardly-extending shafts adapted to receive motion therefrom, beaters upon said shafts, pinions on the shafts, parallel inclined worms having pinions between their ends engaging said pinions, upwardly-inclined convergent worms, downwardly-extending shafts at the upper ends thereof, a beater upon one of the shafts, a worm upon the second shaft, and means for imparting motion from the parallel worms to said shafts and the converging worms.

4. In a device of the character described, the combination with a frame and an axle of upwardly-inclined converging worms downwardly-

extending shafts at the upper ends thereof, a beater clamped upon one of said shafts, a worm upon the second shaft, parallel upwardly-inclined worms, beaters extending downwardly from each of said worms and means for imparting motion from the shaft to each of the beaters and worms, said worms adapted to revolve in opposite directions.

5. In a device of the character described, the combination with a frame having worm conveyers and beaters, of a platform thereon, a curved flat strip at one side thereof, a shaft journaled at one side thereof, fingers projecting from the shaft, an arm thereto, a shaft journaled within the frame, a crank thereto, a rod connecting said arm and crank, means for holding said crank, and an operating-crank at the opposite end of the shaft.

690,842. **MEMORANDUM CLIP-BOARD.** ROBERT B. DICKEY, Waco, Tex. Filed Feb. 23, 1901. Serial No. 48,561. (No model.)

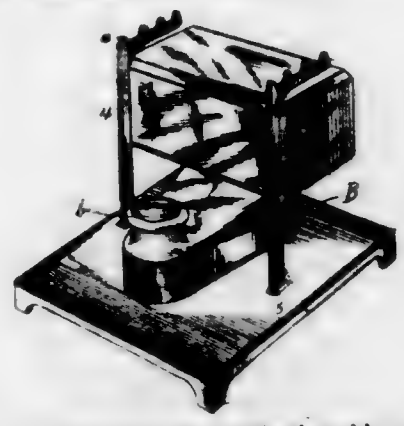


Claim.—1. The combination with a board having a clip thereon, of a bracket secured to said board, a hooked rod mounted within the bracket, means for locking the rod in position therein, and a hooked arm adjustably secured upon the rod.

2. The combination with a board, of a frame adapted to support the same, hangers secured to the lower surface of the board and adapted to support a roll of paper or similar material, strips secured to the side edges of the board, a toothed flange to each strip and having a slot therein, said slots being adapted to receive the paper from the roll, studs extending laterally from the board, and a spring-clip mounted upon the studs and normally contacting with the board at points between the toothed flanges.

3. The combination with a board, of hangers depending therefrom and adapted to support a roll of paper or similar material, strips secured to the sides of the board, toothed flanges to said strips and having slots therein adapted to receive the paper from the roll, a spring-clip between the toothed flanges and normally contacting with the board, a bracket secured to the board, a hooked rod adjustably secured within the bracket, a hooked arm adjustably mounted upon the rod, and laterally-extending ears adapted to engage the box of a telephone.

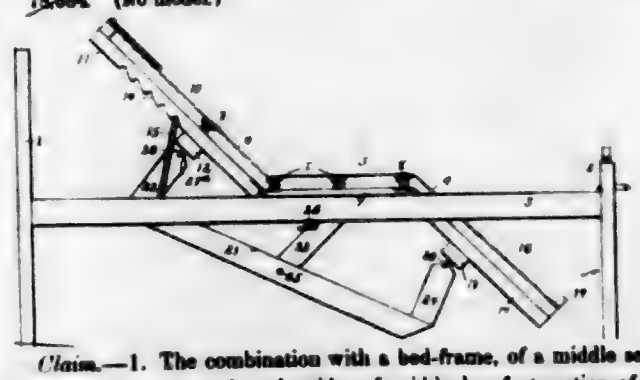
690,843. **INK-WELL.** GEORGE DORRITY, Boston, Mass. Filed Apr. 4, 1901. Serial No. 54,365. (No model.)



Claim.—1. In an ink-well, the combination with a reservoir having a neck provided with a mutilated shoulder, of a well having an opening surrounded by an upstanding neck, said neck formed with curved ends and two oppositely-disposed straight sides, and inclined shoulders beneath the straight sides to be engaged by the shoulders on the neck of the reservoir to lock the parts together and a suitable packing between the reservoir and the well, substantially as specified.

2. An ink-well of the barometer type comprising a well proper having a contracted portion and a dipping-bit merging therefrom, an opening formed in the top of the well and provided with inclined shoulders beneath its edges, a reservoir mounted on top of the well and provided with a shouldered neck adapted to engage the inclined shoulders of the well and a suitable packing between the contiguous faces of the reservoir and well, substantially as specified.

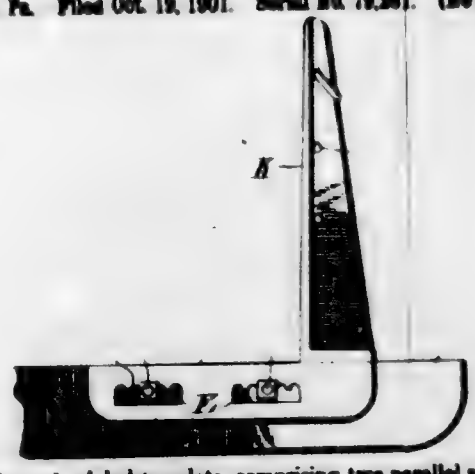
690,844. **COMBINED SPRING-BED AND INVALID-CHAIR.** JAMES H. T. EDWARDS, Sanford, N. C. Filed Oct. 15, 1901. Serial No. 78,654. (No model.)



Claim.—1. The combination with a bed-frame, of a middle section of mattress-frame secured to the sides of said bed, a foot-section of mattress-frame hinged to said middle section, a head-section of mattress-frame hinged to said middle section, and a lever bearing a rigid arm and two pivoted arms, said rigid arm being pivoted to said foot-section and one of said pivoted arms being connected to said middle section and the other to said head-section, substantially as described.

2. The combination with a bed-frame, of a middle section of mattress-frame rigidly secured to said frame, a head-section of mattress-frame hinged to said middle section, a foot-section of mattress-frame hinged to said middle section, a lever bearing a rigid arm on one end, a pivoted arm on the other end and a pivoted arm in the middle, said rigid arm being pivoted to said foot-section, said middle arm to said middle section and the other of said pivoted arms to said head-section, said arms being connected to be swung up, together with the lever, parallel to the mattress, and a catch for securing said lever when swung up.

690,845. **WAGON-BOLSTER STAKE.** ABEL R. EBANAR, Greensburg, Pa. Filed Oct. 19, 1901. Serial No. 79,261. (No model.)



Claim.—1. A bolster-plate, comprising two parallel portions spaced apart and having oppositely-disposed elongated apertures therein, the upper edges of each aperture having a series of grooves designed to receive a bolt passed through a bolster, said parallel portions designed to be clamped to the bolster by means of the head of the bolt and the nut thereon, a bolster stake or projection rising from one end of the parallel portions, as set forth.

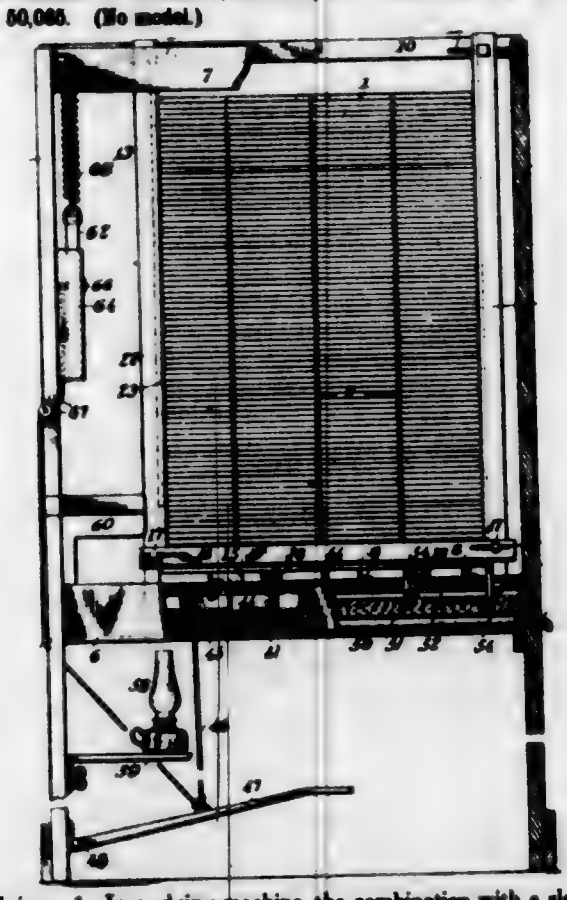
2. In combination with a bolster of a wagon, the bolster-plate comprising the two parallel portions spaced apart, a bolster stake or box engaging projection connecting the outer ends of said parallel portions, the parallel sections having elongated apertures the upper edges of which are grooved transversely, the bolster and bolt carried thereby which is adapted to pass through said apertures and engage said grooves, the upper edges of the plate being flush with the upper edge of said bolster, as set forth.

690,846. **NUT-LOCK.** PETER S. RELIEF, Newcastle, Pa. Filed Apr. 1, 1901. Serial No. 53,981. (No model.)



Claim.—A nut-lock comprising a bolt having a longitudinal slot or groove in its threaded portion and a nut having a detent or pawl, and a spring connected up with said detent to provide for turning the detent to allow it to snap past said groove or slot, and to be reversed to lock it with relation to said groove, substantially as set forth.

690,847. GLUING-MACHINE. GEORGE W. FARRETT, Middlebury, and RINALDO A. WHITTIER, Hancock, Vt. Filed Mar. 6, 1901. Serial No. 50,085. (No model.)



Claim.—1. In a gluing-machine, the combination with a slat-holding rack, and a glue-applying device, of slat-feeding mechanism including a reciprocatory slat-carrier, a reciprocatory carrier-actuating band, and means providing for the lateral adjustment of the band.

2. In a gluing-machine, the combination with a slat-holding rack, and a glue-applying device, of slat-feeding mechanism including a reciprocatory slat-carrier, a band for actuating said carrier, a roller for driving said band, and means for adjusting the actuating-band lengthwise of the roller and correspondingly adjusting the slat-carrier laterally.

3. In a gluing-machine, the combination with a slat-holding rack, and a glue-applying device, of slat-feeding mechanism including a reciprocatory slat-carrier, an oscillatory roller, a carrier-actuating band having one end fastened directly to said roller, and means for retracting said band.

4. In a gluing-machine, the combination with a slat-holding rack, and a glue-applying device, of slat-feeding mechanism including parallel oscillatory members, a band actuated by said members and having its ends fastened thereto, and a slat-carrier operatively connected with and actuated by the band.

5. In a gluing-machine, the combination with a slat-holding rack, and a glue-applying device, of slat-feeding mechanism including parallel oscillatory rollers, a band connecting said rollers, a slat-carrier actuated by said band, a belt for actuating one of the rollers, and a spring for winding the other roller.

6. In a gluing-machine, the combination with a slat-holding rack, and a glue-applying device, of slat-feeding mechanism including an oscillatory roller having a longitudinal groove, a reciprocatory slat-carrier, and a carrier-actuating band adjustably fitted and held in the groove of the roller.

7. In a gluing-machine, the combination with slat feeding and gluing mechanism, of a vertically-slidable jointing-hammer, a work-table beneath and in the path of the hammer, and means for simultaneously actuating the hammer and slat-feeding mechanism.

8. In a gluing-machine, the combination with slat feeding and gluing mechanism, of a spring-retracted vertically-slidable jointing-hammer, parallel guides in which the hammer slides, a work-table beneath and in the path of the hammer, and means for simultaneously actuating the hammer and slat-feeding mechanism.

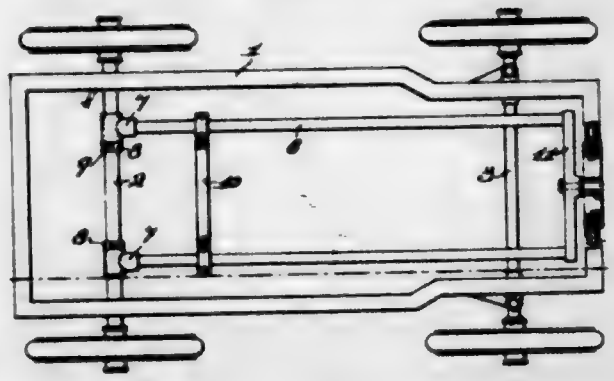
690,848. TOILET CREAM. JOHN C. FLEMING, Summit, N. J. Filed Dec. 13, 1900. Serial No. 39,894. (No specimens.)

Claim.—1. The process herein described which consists in heating an animal or vegetable oil to a temperature not materially to exceed 120° Fahrenheit, adding thereto a solution of potash and whey, and then, after the mixture has been allowed to stand until the process of saponification has taken place, boiling the same with an additional quantity of whey, as set forth.

2. The herein-described process of making toilet cream which consists in dissolving an alkali in whey and intimately mixing the solution with an animal or vegetable oil, as set forth.

3. The herein-described process of making a composition of matter suitable for use as a substitute for toilet soap by intimately mixing an animal or vegetable oil with a solution of whey and potash obtained from wood-ashes, as set forth.

690,849. MOTOR-VEHICLE. ALFRED B. FOWLER, Central Falls, R. I. Filed Feb. 23, 1901. Serial No. 48,486. (No model.)



Claim.—1. A motor suspension device for motor-vehicles, having, in combination, a motor-supporting frame mounted at one end upon the driving-axle of the vehicle, and a support for the other end of the frame constructed and arranged to permit relative lateral horizontal movement of the end of the frame and the support, and longitudinal tipping movement of the frame in a plane substantially at right angles to the driving-axle, substantially as described.

2. A motor suspension device for motor-vehicles, having, in combination, a motor-supporting frame mounted at one end upon the driving-axle of the vehicle, and a support for the other end of the frame constructed and arranged to permit relative lateral horizontal movement of the end of the frame and the support, and lateral and longitudinal tipping movements of the frame and the other axle of the vehicle, substantially as described.

3. A motor suspension device for motor-vehicles, having, in combination, a motor-supporting frame mounted at one end upon one axle of the motor-vehicle and a support for the other end of said frame arranged to tip in a plane substantially at right angles to said axle, substantially as described.

4. A motor suspension device for motor-vehicles, having, in combination, a motor-supporting frame mounted at one end upon the driving-axle of the vehicle, a stud mounted upon the other end of the said frame, a support for the stud arranged to permit relative, laterally-tipping movements of said frame and the support, and bearings arranged to permit the support to tip in a plane substantially at right angles to the driving-axle of the vehicle, substantially as described.

5. A motor suspension device for motor-vehicles, having, in combination, a motor-supporting frame rotatably mounted at one end upon the driving-axle of the vehicle, a stud mounted on the other end of said frame, a roll on said stud, and a slotted support for said roll, substantially as described.

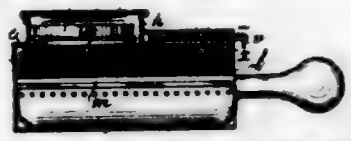
6. A motor suspension device for motor-vehicles, having, in combination, a motor-supporting frame rotatably mounted at one end upon the driving-axle of the vehicle, a stud mounted on the other end of said frame, a roll on said stud, and a tipping slotted support for said roll, substantially as described.

7. A motor suspension device for motor-vehicles, having, in combination, a motor-supporting frame rotatably mounted at one end upon the driving-axle of the vehicle, a stud mounted on the other end of said frame, a roll on said stud, a tipping slotted support for said roll, and spring-sustained bearings for said support, substantially as described.

690,850. DEVICE FOR BLACKING OR COLORING BOOTS OR SHOES. FRED GIBBENS, Upper Norwood, England. Filed Apr. 12, 1901. Serial No. 55,827. (No model.)

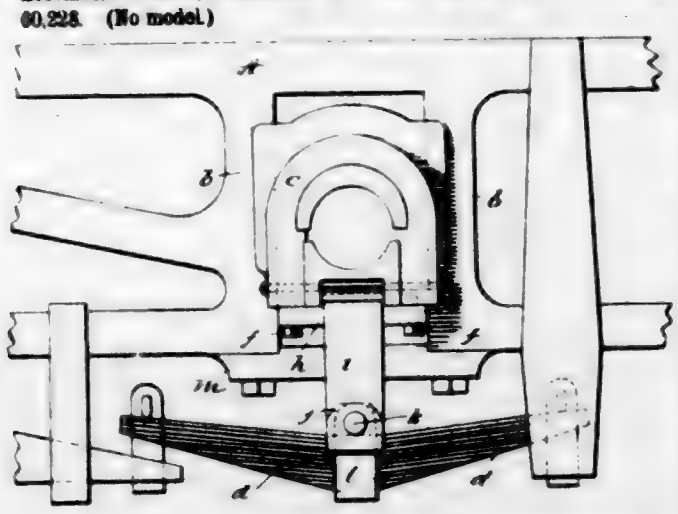
Claim.—1. The combination with a portable case, of a movable blacking-brush, a guiding-tube, a loose receptacle for blacking, a spring, a sliding shutter, a spindle on said shutter, and a handle on said spindle substantially as set forth and shown.

2. The combination with a portable case, of a movable blacking-brush, a guiding-tube, a loose receptacle for blacking, within said tube, a spring acting on said receptacle for blacking, a sliding shutter, a spring acting on said shutter, a spindle on said shutter and a handle on said spindle, substantially as described.



3. The combination with a portable case, of a hinged blacking-brush, catches for holding said brush, a guiding-tube, a blacking-receptacle, within said guiding-tube, a spring acting on said receptacle, a sliding shutter, a spindle on said shutter, having a handle, and a spring acting on said shutter, substantially as described.

690,851. SPRING-HANGER FOR UNDERHUNG LOCOMOTIVE-SPRINGS. HARRY A. GILLIS, Richmond, Va., assignor to The Richmond Locomotive Works, Richmond, Va. Filed May 14, 1901. Serial No. 60,228. (No model.)



Claim.—In a spring-hanger for underhung locomotive-springs, the combination of a bearer consisting of the yoke-supporting bar with end pieces adapted to bolt on the bottom of the driving-box, and the yoke suspended on said bar and having the spring-bearer connected to it between the ends of its two members.

690,852. TOY. CHARLES GORDON, Buffalo, N. Y., assignor of three-fifths to John G. Marchand, Buffalo, N. Y. Filed Apr. 1, 1901. Serial No. 53,880. (No model.)



Claim.—1. A toy comprising a case having transparent panes in opposite walls thereof, a stationary partition arranged within the case to face said panes and extending nearly from end to end of the case, and reversely-arranged hoppers having their discharge-passages located at opposite ends of said partition and on opposite sides thereof, substantially as set forth.

2. A toy comprising a case having transparent panes in opposite walls thereof, a stationary, inclined partition arranged within the case to face said panes, and extending nearly to diagonally opposite corners of the case, and reversely-arranged hoppers having their discharge-passages located at opposite ends of said partition and on opposite sides thereof, substantially as set forth.

3. A toy comprising a case having transparent panes in opposite walls thereof, a stationary, inclined partition arranged within the case to face said panes and terminating near diagonally opposite corners of the case, reversely-arranged hoppers located at opposite ends of the case and provided in their deepest portions with discharge-troughs arranged at opposite ends of said partition and on opposite sides thereof and each provided in its front side with delivery-openings, substantially as set forth.

4. A toy comprising a case having transparent panes in opposite walls thereof, a stationary partition arranged within the case to face said panes and extending nearly from end to end of the case, and reversely-arranged hoppers having their discharge-openings located at opposite ends of said partition and on opposite sides thereof, said partition and the bottoms and rear walls of both of said hoppers being bent from a single strip of flexible material, substantially as set forth.

690,858. PAPER-MARKER. PETER GRABLER, Cleveland, Ohio, assignor, by mesne assignments, to Columbia Specialty Manufacturing Company, Washington, D. C., a Corporation of West Virginia. Filed Oct. 22, 1901. Serial No. 79,570. (No model.)

Claim.—1. A paper-marker comprising a frame, and two serrating-rollers mounted thereon adapted to be moved into coöperative rotation by the hand of the user and having pointed teeth adapted to permanently distort the surface of the paper acted on.

2. A paper-marker comprising two arms movable by the hand of the user, and two coacting serrating-rollers placed opposite each other on the arms and having pointed teeth adapted to permanently distort the surface of the paper acted on.

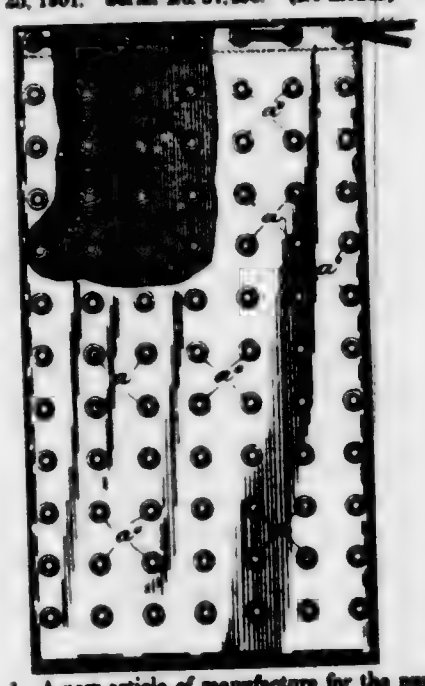
3. A paper-marker comprising a bifurcated frame, the two arms of which are movable by the hand of the user, and two coacting serrating-rollers journaled one on each arm and having pointed teeth adapted to permanently distort the surface of the paper acted on.

4. In a paper-marker, a frame comprising a strip of metal bent on itself and having ears integral therewith, and paper-roughening rollers journaled in the ears.

5. In a paper-marker, a frame comprising a strip of metal bent on itself and having ears integral therewith, rollers journaled in the ears, a plate movable on the frame and an inking-roller carried by the plate.

6. In a paper-marker, a bifurcated spring-frame, bearings on each end of the frame, and rollers having serrated surfaces, journaled in the bearings.

690,854. LAUNDRY-BAG. GEORGE H. GRANT, Chicago, Ill., assignor to H. Kohnstamm & Co., Chicago, Ill., a Corporation of Illinois. Filed Apr. 25, 1901. Serial No. 57,496. (No model.)



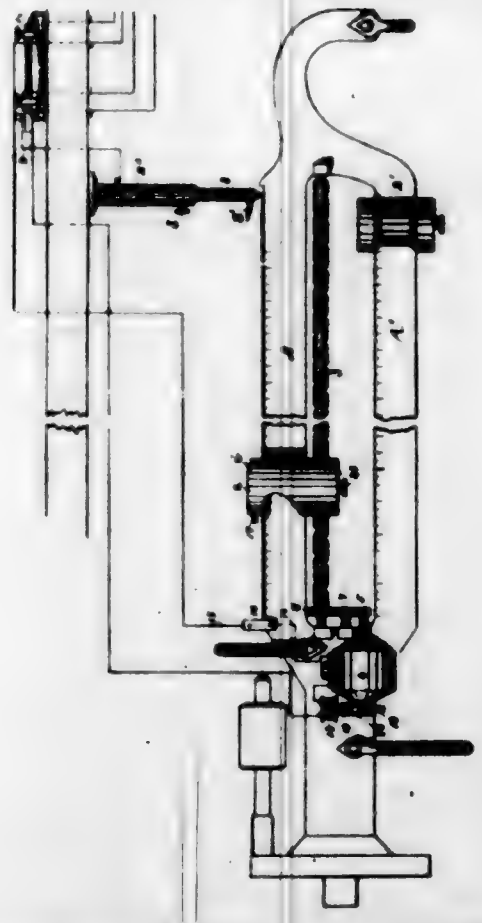
Claim.—1. A new article of manufacture for the purpose set forth, comprising a flexible unstayed laundry-bag provided throughout its body with bound perforations permitting free ingress and egress of fluids, substantially as described.

2. A new article of manufacture for the purpose set forth, comprising a flexible unstayed laundry-bag provided throughout its body with metal-bound perforations permitting free ingress and egress of fluid throughout said body, substantially as described.

690,855. WEIGHING AND RECORDING APPARATUS. WILLIAM GREENE and STEIN CHESHOLM, San Francisco, Cal. Filed Mar. 13, 1901. Serial No. 50,945. (No model.)

Claim.—1. The combination in a weighing apparatus of a fulcrumed tilting scale-beam, a weight movable thereon, a screw-threaded spindle turnable about an axis parallel to the line of travel of the weight, means for engaging it with the weight, an electric motor with intermediate con-

sections whereby the screw is revolved and the weight advanced along the beam, and a brake mechanism engaging the motor when the current to the motor is shut off and releasing said motor when the latter is energized.



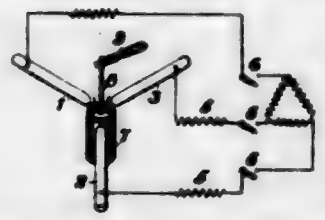
2. The combination in a weighing apparatus of a fulcrumed tilting scale-beam, a weight movable upon said beam, a screw-threaded spindle journaled and turnable about an axis parallel to the line of travel of the weight, means engaging said screw with the weight, an electric motor, mechanism between it and the spindle whereby the latter is revolved to advance the weight, contacts through which the electrical circuit is completed, said contact being broken by the sinking of the scale-beam when the weight has been moved to the point where it counterbalances the article being weighed, and a brake positively operating on the motor to stop its revolution when the motor is deënergized, said brake releasing the motor when the latter is energized.

3. The combination in a weighing apparatus of a fulcrumed tilting scale-beam, a weight slidable thereon, a screw revolvable about an axis parallel to the line of travel of the weight, and means engaging the weight with the screw, an electric motor and intermediate gearing by which the screw is revolved, wires forming with the scale-beam, an electric circuit through the motor, a contact-point through which the current passes to the beam when the latter is elevated, said contact being broken and the current cut off when the beam sinks by the counterbalancing of the weight, and a brake mechanism controlling the motor and actuated by the energizing and deënergizing of the latter.

4. The combination in a weighing apparatus of a fulcrumed tilting scale-beam, a weight slidable thereon, a screw journaled about an axis parallel to the line of travel of the weight, and a projection upon the weight engaging the screw-threads, a motor by which the screw is revolved, wires through which an electrical current is transmitted to the motor, a contact-point within the circuit through which the current passes, said contact being broken by the sinking of the scale-beam when the weight is completed, a brake-wheel mounted upon the motor-shaft, an electromagnet and an armature thereafter between the magnet and the brake-disk, and a spring by which said armature is forced into contact with the brake-disk when the electrical current is cut off, said current energizing the magnet to raise the armature and release the brake-disk when the current is caused to energize the motor.

5. The combination in a weighing apparatus of a fulcrumed tiltable scale-beam, a weight slidable thereon, a screw-shaft journaled about an axis parallel to the line of travel of the weight, a projection on the weight engaging the screw, an electric motor and connections between it and the screw whereby the latter is revolved, a clutch-brake acting upon the motor-spindle, an electromagnet which is energized and deënergized in unison with the motor, whereby the brake is released when the magnet and motor are energized, and a spring by which the brake is applied to stop the motor when the parts are deënergized, contact-points within the electrical circuit, means for breaking said contacts and cutting off the current automatically when the scale-beam sinks, and a current-reverser within said circuit whereby the movement of the motor and the screw are changed to advance or retract the counterbalance-weight.

690,856. METHOD OF MAKING GLOWERS FOR ELECTRIC LAMPS. MARSHALL W. HAMM, Pittsburg, Pa., assignor to George Westinghouse, Pittsburg, Pa. Filed June 7, 1900. Serial No. 19,992. (No specimens.)



Claim.—1. The improvement in the art of treating glowers which consists in subjecting a glower-blank to an electric arc formed between a plurality of carbon electrodes and at the same time withdrawing the products of combustion by suction.

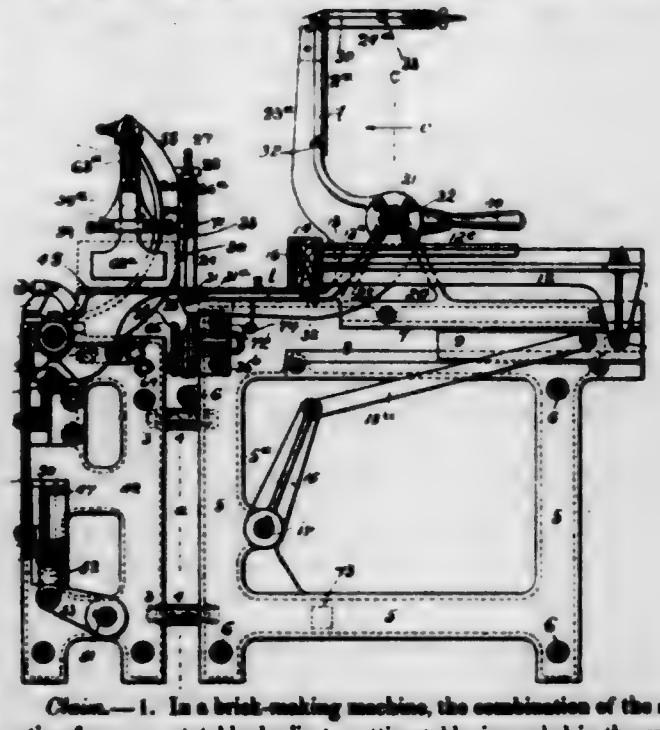
2. The improvement in the art of making glowers which consists in forming a terminal bead on the end of a glower-blank in an electric arc formed between a plurality of carbon electrodes and at the same time withdrawing the products of combustion by suction.

3. The improvement in the art of making glowers which consists in subjecting the glower-blank or some part of it to an arc formed between three electrodes supplied with current from a three-phase circuit.

4. The improvement in the art of making glowers which consists in forming a terminal bead on the end of the glower in an electric arc formed between three carbon electrodes traversed by three-phase currents.

5. The improvement in the art of making glowers which consists in forming a terminal bead on the end of a glower in an electric arc formed between three carbon electrodes traversed by three-phase currents and at the same time withdrawing the products of combustion by suction.

690,857. BRICK-MAKING MACHINERY. HENRY HAMM, Portland, Oreg. Filed May 9, 1901. Serial No. 59,531. (No model.)

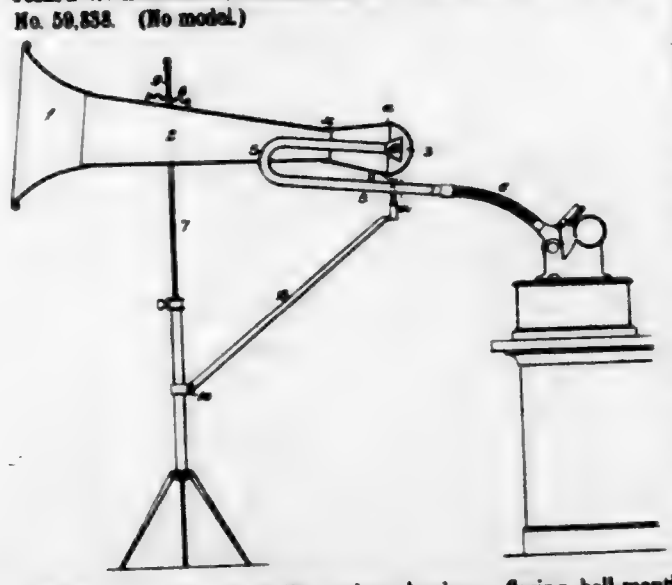


Claim.—1. In a brick-making machine, the combination of the supporting-frame, a rotatable duplicate cutting-table journaled in the upper portion of such frame, a support for the free end thereof; a reciprocating pusher for pushing the slab of clay deposited on the cutting-table through the cutting-wires; a series of blocks horizontally movable in front of the cutting-table; means for operating such movable blocks to spread them apart, and bring the same together again; arms journaled in the upper part of said frame; a swinging frame suspended from said arms and provided with laterally-movable hands; and operative connections, adapted to spread said hands apart, for the purpose of grasping the newly-cut brick and lifting the same off said blocks and onto the pallet, substantially as described.

2. In a brick-making machine, the combination of the supporting-frame, a rotatable duplicate cutting-table journaled in the upper portion of such frame, a support for the free end thereof; a reciprocating pusher for pushing the slab of clay deposited on the cutting-table through the cutting-wires; a series of blocks horizontally movable in front of the cutting-table; means for operating such movable blocks to spread them apart, and bring the same together again; arms journaled in the upper part of

said frame; a swinging frame suspended from said arms and provided with laterally-movable hands; and operative connections adapted to spread said hands apart, for the purpose of grasping the newly-cut brick and lifting the same off said blocks and onto the pallet; and a device for feeding the slab exuding from the pug-mill to the cutting-table, said device comprising a belt traveling through a trough of water for the purpose specified, substantially as described.

690,858. **HORN FOR PHONOGRAPHS OR GRAPHOPHONES.** JOSEPH W. HENDERSON, Philadelphia, Pa. Filed May 11, 1901. Serial No. 59,838. (No model.)



Claim.—1. A sound-amplifying horn having a flaring bell-mouth at its larger end, and a rounded cap at its smaller end, said members having tapering portions joined together near the rounded-cap end, thereby contracting the internal diameter of the horn at a point in advance of the rounded-cap end, and a connection between said horn and the diaphragm of a sound recording and reproducing machine, said connection having its open end within the horn adjacent to the rounded-cap portion of the same.

2. The combination with a machine for recording and reproducing sound, of an amplifying-horn having a bell-mouth at its larger end, and a rounded cap at its smaller end, said members having tapered portions joined together near the rounded-cap end thereby contracting the internal diameter of the horn at a point in advance of the rounded-cap end, a diaphragm carried by said machine, a tube carried by the horn having a portion within the latter terminating adjacent to the rounded-cap end, and a portion outside said horn suitably supported, and means for connecting said tube with the diaphragm.

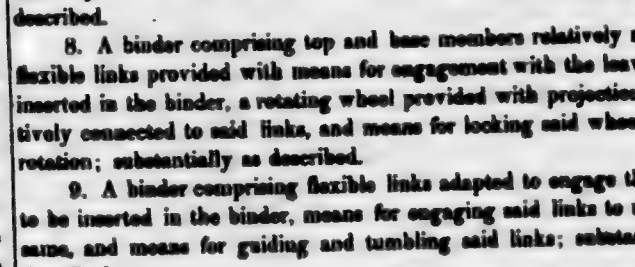
3. The combination with a machine for recording and reproducing sound, of an amplifying-horn comprising a conical body portion having a flaring bell-mouth at its larger end and a rounded conical cap closing the opposite end, the point of junction between the body portion of the horn and the cap being of less diameter than the rounded end of the cap, a diaphragm carried by said machine, a bent tube carried by the horn and affording communication between the same and said diaphragm, said tube entering the horn at a point in advance of the connection with the cap and having its open end extending into said cap, the portion of said tube outside the horn being secured to a flexible connection leading to the diaphragm, substantially as and for the purpose set forth.

4. The combination with a machine for recording and reproducing sound, of an amplifying-horn having a flaring bell-mouth at its larger end, and a rounded cap at its smaller end, said members having tapered portions joined together near the rounded-cap end, thereby contracting the internal diameter of the horn at a point in advance of the rounded-cap end, a diaphragm carried by said machine, a bent tube carried by the horn and having a portion within the latter terminating adjacent to the rounded-cap end in a bell-mouth, and a portion outside said horn suitably supported, and a flexible connection between the end of the outer portion of the bent tube and the diaphragm, whereby the movement of the latter will not be affected by the movement of the horn, substantially as described.

5. The combination with a machine for recording and reproducing sound, of a sound-amplifying horn, a support for said horn, a bent tube forming the connection between the machine and the horn, a trolley or roller carried by said tube, an adjustable arm carried by the support for the horn, and a track carried by said arm to which said wheel or trolley is adapted.

690,859. **BINDER.** HERMAN H. HOFFMANN, Chicago, Ill. Filed Aug. 23, 1897. Renewed Aug. 29, 1901. Serial No. 73,696. (No model.)

Claim.—1. A binder comprising relatively movable base and top members and flexible binding means between the two members, said flexible binding means carrying casings adapted to receive and protect the rear side edges of the leaves to be inserted in the binder; substantially as described.



2. A binder comprising relatively movable base and top members and flexible vertical casings located between said members and having recesses constructed to receive and protect lateral projections on the rear side edges of the leaves to be inserted in the binder, substantially as described.

3. A binder comprising relatively movable base and top members and flexible binding means between the two members, said flexible binding means carrying casings adapted to receive and protect the rear side edges of the leaves to be inserted in the binder, with means carried by one of said members for operating the flexible binding means; substantially as described.

4. A binder comprising relatively movable base and top members and flexible binding means between the two members, said flexible binding means carrying casings adapted to receive and protect the rear side edges of the leaves to be inserted in the binder, with means carried by one of said members for operating the flexible binding means, and means for locking the same in any position; substantially as described.

5. A binder comprising relatively movable base and top members with means for drawing the same toward and from each other, comprising flexible chains adapted to engage the leaves to be inserted in the binder, means for operating the chains comprising a rotating part operatively engaging the chains, and a casing upon one of the members within which the unused portions of the chains and also the operating means may be stored, substantially as described.

6. A binder comprising top and base members relatively movable, and means for engaging the leaves to be inserted between the members, said means comprising a series of pivoted casings with mechanism for operating the same; substantially as described.

7. A binder comprising top and base members relatively movable, flexible links provided with means for engagement with the leaves to be inserted in the binder, and a rotating wheel provided with projections operatively connected with said links to move the same; substantially as described.

8. A binder comprising top and base members relatively movable, flexible links provided with means for engagement with the leaves to be inserted in the binder, a rotating wheel provided with projections operatively connected to said links, and means for locking said wheel against rotation; substantially as described.

9. A binder comprising flexible links adapted to engage the leaves to be inserted in the binder, means for engaging said links to move the same, and means for guiding and tumbling said links; substantially as described.

10. A binder comprising relatively movable top and base members, a rotating shaft carrying a toothed wheel and journaled on one of said members, flexible chains for guiding and holding the rear side edges of the leaves to be bound, each of said chains being provided with a rack engaging one the upper and one the lower periphery of said wheel; substantially as described.

11. A temporary binder comprising relatively movable base and top pieces, flexible chains each adapted to receive and protect the rear side edges of the leaves to be bound in the binder and a toothed roller which is operatively connected with the flexible chains; substantially as described.

12. A binder comprising relatively movable base and top pieces, a casing carried by the upper piece, a flexible chain secured to the base-piece and extending upwardly into the casing, a rack-bar secured to the upper end of each of said chains, one rack-bar having downwardly and the other upwardly projecting teeth and a toothed roller engaging said teeth for moving the rack simultaneously in opposite directions; substantially as described.

13. A binder comprising base and top pieces relatively movable toward and from each other and each provided with a casing, flexible chains extending between the top and base pieces and means for manipulating the said chains, whereby they may be stored in the top and bottom casings as desired; substantially as described.

14. A binder comprising top and bottom members relatively mov-

able toward and from each other, flexible chains extending between the two and adapted to receive and protect the rear side edges of the leaves to be inserted in the binder means for manipulating the said chains and a centrally flexible cord or rope also engaging recesses in the leaves and means for extending or relaxing said rope as the top and bottom members are moved relatively away from or toward each other; substantially as described.

15. In the herein-described binder, the flexible chains and the flexible cord movable by the same mechanism which moves the chains, substantially as described.

16. As an extension-back for temporary binders, a centrally-recessed member and upper and lower members telescoping within the recesses of said central member; substantially as described.

17. A binder, comprising relatively movable base and top members, and flexible extensible binding means between the two members, said flexible extensible binding means being formed to receive and protect the rear side edges of the leaves to be inserted in the binder; substantially as described.

690,860. **TONGS.** WILLIAM HOPKIS, Muscatine county, Iowa. Filed June 4, 1901. Serial No. 63,157. (No model.)



Claim.—1. The combination of the slotted lever-handle and jaw A, the removable and reversible lever-handle and jaw B substantially as described.

2. The combination of the slotted lever-handle and jaw A, the removable pin C and the removable and reversible lever-handle and jaw B substantially as described.

3. The combination of the lever-handle and jaw A the lever-handle and jaw B, the hooked jaw of the lever-handle A enlarged so as to give a longer pull when using the implement as a lever with the portion J as the fulcrum for stretching wires held by the jaws, substantially as described.

690,861. **GAME-BALL.** WILLIAM H. HOYT, Wyoming, N. J., assignor to the Burt Company, Milburn, N. J., a Corporation of New Jersey. Filed Mar. 22, 1901. Serial No. 52,373. (No model.)



Claim.—A game-ball composed of plastic material and having an apertured spot of plastic material set therein, the walls of the aperture in the spot extending radially so as to converge toward the center of the ball and to stand normally to the exposed surface of the spot, and the outer walls of the spot converging outwardly and extending obliquely to the exposed surface of the spot, the material of the ball overlapping the edge of the spot and also extending into the aperture of the spot, whereby the spot will be firmly anchored in place.

690,862. **COPYING-INK.** EDWARD P. LAWTON, Charleston, S. C. Filed July 2, 1900. Serial No. 22,360. (No specimens.)

Claim.—1. Copying-ink consisting of an infusion of nutgalls, ferrous sulfate, sugar and chlorid of ammonium in substantially the proportions stated.

2. Copying-ink consisting of nutgalls, ferrous sulfate, sugar, chlorid of ammonium and carbolic acid.

690,868. **BELT.** JACOB LOEFFELHOLZ, New York, N. Y. Filed May 28, 1901. Serial No. 62,216. (No model.)



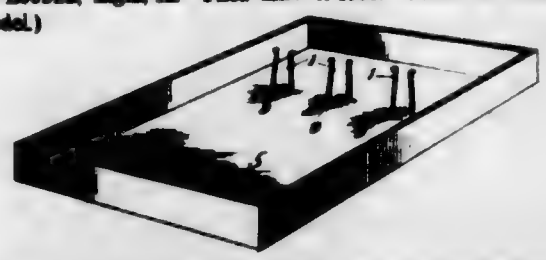
Claim.—1. A belt, provided at one end with an enlarged portion, and at the other end with perforations, said enlarged portion having a transverse opening, a reinforcing-plate secured to said enlarged portion and having an opening registering with the opening of the same, and a tongue attached to the reinforcing-plate and passed through the opening in the enlarged portion to the other side of the same, so as to engage the perforated end of the belt, substantially as set forth.

2. In a belt, an enlarged end portion provided with a transverse opening, a reinforcing-plate secured to said portion at one side of the same and having a transverse opening registering with the transverse opening in the same, and a curved tongue, the inner end of said tongue being attached to said plate and the curved portion passing through said openings to the opposite side of the enlarged portion, substantially as set forth.

3. As an improvement in belts, the combination, with an enlarged portion at one end of a belt, provided with a transverse opening, of a reinforcing-plate attached to said enlarged portion and provided with a transverse opening registering with the opening in said enlarged portion, a covering layer extending over said reinforcing-plate, and a tongue, the flattened rear end of which is attached to the reinforcing-plate, while the curved end is passed through the openings to the other side of the enlarged portion, substantially as set forth.

4. A belt, consisting of a belt-body, an enlarged portion at one end of said body, provided with an opening adapted to permit the passage of the same, a reinforcing-plate of yielding material provided with a corresponding opening and applied to said enlarged portion at one side of the same, and a stationary tongue attached at its rear end rigidly to said plate and extending across the openings of the enlarged portion and plate, substantially as set forth.

690,864. **DISPLAY-BOX AND SUPPORT FOR NECKTIES.** JOHN H. LOUDER, Elgin, Ill. Filed May 7, 1901. Serial No. 59,163. (No model.)

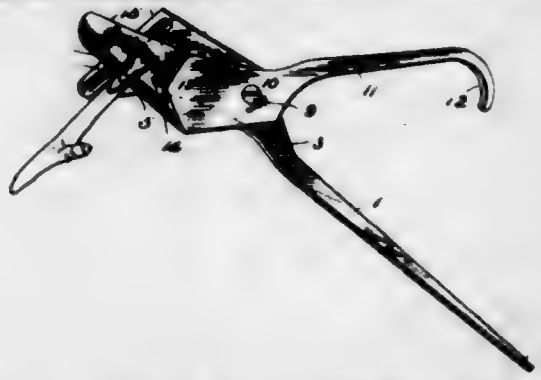


Claim.—1. The combination with a support, of the herein-described U-shaped necktie-holder, the same formed of round wire and comprising upwardly-disposed terminals and the lower transverse portion, the latter and the terminals for a short distance above their point of junction with the same being flattened, whereby said transverse portion forms a base and the said terminals are made resilient, and means for securing said transverse flattened base to the said support.

2. The combination with a base, as a box, tray, &c., of a series of U-shaped tie-supports, each provided with a flat transverse portion, and the clips 9, one for each support, each of said clips having the depending barbs engaging the base, and the substantially horizontally disposed tongues resting on the base.

3. The combination, with a base, as a box, tray, &c., of a series of U-shaped tie-supports, each comprising upwardly-disposed terminals substantially cylindrical in cross-section above their lower ends, and a base located between said terminals, said base and the adjoining lower ends of the terminals being flattened, of an independent clip for each support, each of said clips surmounting and extending transversely beyond the flat base of the tie-support and provided at its ends with barbs engaging the box or tray and further provided with substantially horizontally disposed tongues resting on the base and steadying the support.

690,865. **GRAFTING IMPLEMENT.** DAVID A. MANUEL, Calistoga, Cal. Filed Sept. 13, 1901. Serial No. 75,338. (No model.)



Claim.—1. A grafting implement consisting of a guiding-blade, and a cutting-blade pivotally connected with said guiding-blade so as to swing clear of each side of the guiding-blade and cut on the return in both directions, said cutting-blade having a straight and a curved cutting edge.

2. A grafting implement comprising a long handle, a guiding-blade carried by said long handle, and a cutting-blade pivotally secured to said guiding-blade and adapted to swing clear of both sides thereof, said cutting-blade having a straight cutting edge and an oppositely-arranged curved cutting edge.

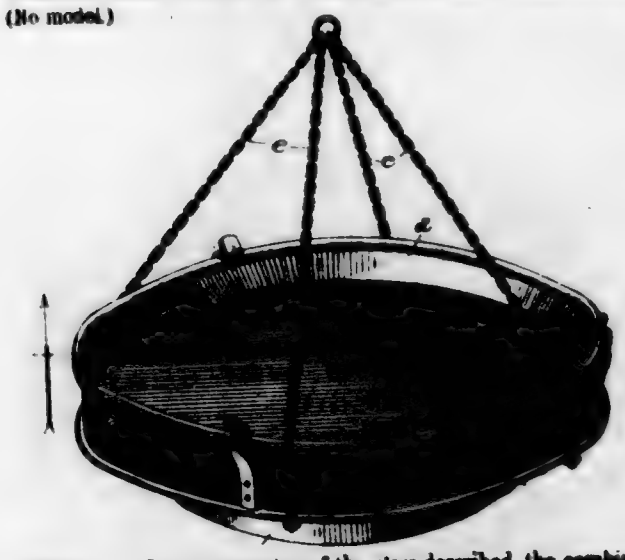
3. A grafting implement comprising a long handle, a guiding portion carried by said long handle, said guiding portion being provided with a beveled groove, and a cutting-blade pivotally connected with said long handle and guided in its movements by said guiding portion, said cutting-blade having a straight cutting edge and an oppositely-arranged curved cutting edge.

4. A grafting implement, comprising a long handle, a guiding portion carried by said handle and provided with a groove, and a double-edged cutting-blade pivotally connected with said long handle and guided in its movements by said guiding portion.

5. A grafting implement comprising a guiding portion, an inclined groove formed in the body of said guiding portion, and a double-edged blade pivotally connected to said guiding portion and adapted to swing so as to cut with either edge.

6. A grafting implement comprising a long handle, a guiding means carried by said handle and another handle pivotally connected to said long handle and carrying a blade to split or cut a scion, said blade being at a slight angle to the handle and having a straight and a curved cutting edge.

690,866. **APPARATUS FOR DISINFECTING SEWER-VAULTS.** WILLIAM MARTIN, Chicago, Ill. Filed Mar. 25, 1901. Serial No. 52,761. (No model.)



Claim.—1. In an apparatus of the class described, the combination of a main pan having an imperforate bottom portion, an upper outward-extending flange and side wall of reticulated material, a supplementary imperforate pan supported in and above the main pan and having a free unobstructed open upper portion, and means for sustaining the main pan, substantially as described.

2. In an apparatus of the class described, the combination of a main pan having a depending imperforate bottom portion and an upper radially-extending annular flange portion, a circular wall thereon formed of reticulated material, a supplementary imperforate circular pan supported in and above the main pan and having an unobstructed opening at the top, and means for supporting the main pan, substantially as described.

690,867. **COMPOUND FOR DISINFECTING PURPOSES.** WILLIAM MARTIN, Chicago, Ill. Filed Mar. 25, 1901. Serial No. 52,762. (No specimens.)

Claim.—The herein-described compound for disinfecting, composed of a mixture of sulfur and black oxid of manganese, substantially as described.

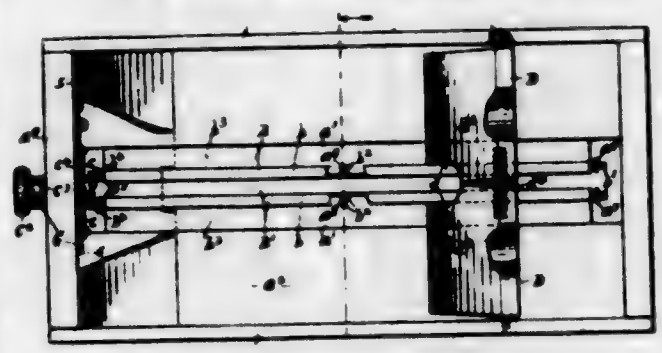
690,868. **PROCESS OF WATERPROOFING FABRICS.** JAMES MEUNIER, London, England. Filed July 8, 1901. Serial No. 67,542. (No specimens.)

Claim.—1. The herein-described process of rendering fabric waterproof which consists in immersing the fabric first in a solution containing a soap, sodium silicate and paraffin-wax and thereafter in a fixative solution.

2. The herein-described process of rendering fabric waterproof which consists in immersing the fabric first in a solution prepared by boiling caustic potash with fatty acid and adding sodium silicate and paraffin-wax thereto, and thereafter in a fixative solution of acetate of alumina.

3. The herein-described process of rendering fabric waterproof which consists in immersing the fabric first in a solution prepared by boiling caustic potash with oleic and stearic acids and adding sodium silicate and paraffin-wax thereto and thereafter in a fixative solution of acetate of alumina, the fabric being finally dried and calendered.

690,869. **FILE.** LUTHER C. McNEAL, Rochester, N. Y. Filed Jan. 13, 1899. Renewed Feb. 26, 1900. Serial No. 6,017. (No model.)



Claim.—1. A file comprising a frame for receiving cards or other articles having apertures therein, and a locking-bar provided with a projecting flange or shoulder for entering the apertures, substantially as and for the purpose described.

2. A file comprising a frame for receiving cards or other articles having engaging shoulders, and a locking-bar provided with a projecting flange or shoulder detachably interlocking with the former shoulders, substantially as and for the purpose specified.

3. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar provided with a projecting flange or shoulder for entering the apertures and with a second flange or shoulder arranged substantially parallel with the first flange or shoulder, substantially as and for the purpose set forth.

4. A file comprising a frame for receiving cards or other articles having engaging shoulders, and a locking-bar detachably interlocking with the shoulders and provided with a substantially lengthwise flange or shoulder, substantially as and for the purpose described.

5. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar provided with a projecting flange or shoulder for entering the apertures and with a second flange or shoulder projecting beyond the first flange or shoulder, substantially as and for the purpose specified.

6. A file comprising a frame for receiving cards or other articles having apertures therein, said frame being formed with a guide, and a locking-bar provided with a projecting flange or shoulder for entering the apertures and with a second flange or shoulder arranged in the guide, substantially as and for the purpose specified.

7. A file comprising a frame for receiving cards or other articles having engaging shoulders, a locking-bar provided with a projecting flange or shoulder for detachably interlocking with the former shoulders and with a second flange or shoulder arranged substantially parallel with the first flange or shoulder and projecting laterally beyond the same, substantially as and for the purpose described.

8. A file comprising a frame for receiving cards or other articles having engaging shoulders, a locking-bar provided with a projecting flange or shoulder for detachably interlocking with the former shoulders and with a second flange or shoulder arranged beneath the cards or other articles, substantially as and for the purpose specified.

9. A file comprising a frame for receiving cards or other articles having oppositely-arranged engaging shoulders, and a pair of locking-bars having portions thereof arranged substantially parallel with each other and provided with flanges or shoulders extending laterally from their opposite faces for engaging the oppositely-arranged shoulders of the cards or other articles, substantially as and for the purpose set forth.

10. A file comprising a frame for receiving cards or other articles having oppositely-arranged engaging shoulders, and a pair of locking-bars arranged substantially parallel with each other and provided with flanges or shoulders extending laterally from their opposite faces for engaging the oppositely-arranged shoulders of the cards or other articles, said locking-bars being also provided with additional flanges or shoulders projecting from their opposite faces, substantially as and for the purpose described.

11. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar provided with a projecting flange or shoulder for entering the apertures, and an axially-movable operating-piece for actuating the locking-bar, substantially as and for the purpose specified.

12. A file comprising a frame for receiving cards or other articles having engaging shoulders, and a rocking locking-bar provided with a projecting flange or shoulder for detachably interlocking with the former shoulders, substantially as and for the purpose set forth.

13. A file comprising a frame for receiving cards or other articles

having apertures therein, and a rocking locking-bar having its opposite ends pivotally connected to the frame, said rocking bar being provided with a projecting flange or shoulder for entering the apertures, substantially as and for the purpose described.

14. A file comprising a frame for receiving cards or other articles having engaging shoulders, and a locking-bar provided with a projecting flange or shoulder for detachably interlocking with the former shoulders, said locking-bar having its intermediate portion connected to the frame, substantially as and for the purpose specified.

15. A file comprising a frame for receiving cards or other articles having apertures therein, and a rocking locking-bar having its central portion pivotally connected to the frame and provided with a projecting flange or shoulder for entering the apertures, substantially as and for the purpose set forth.

16. A file comprising a frame for receiving cards or other articles having engaging shoulders, a rocking locking-bar provided with a projecting flange or shoulder for detachably interlocking with the former shoulder, and an axially-movable operating-piece for actuating the locking-bar, substantially as and for the purpose described.

17. A file comprising a frame for receiving cards or other articles having apertures therein, a locking-bar provided with a projecting flange or shoulder for entering the apertures, and an axially-movable operating-piece for actuating the locking-bar, said operating-piece having its axis arranged substantially parallel with the locking-bar, substantially as and for the purpose specified.

18. A file comprising a frame for receiving cards or other articles having engaging shoulders, a rocking locking-bar provided with a projecting flange or shoulder for detachably interlocking with the former shoulders, an axially-movable operating-piece for actuating the locking-bar, and a stop for holding the operating-piece ir its adjusted position, substantially as and for the purpose set forth.

19. A file comprising a frame for receiving cards or other articles having engaging shoulders, a rocking locking-bar provided with a projecting flange or shoulder for detachably interlocking with the former shoulders, an axially-movable operating-piece for actuating the locking-bar, a stop for holding the operating-piece in its adjusted position, and means for forcing the stop from its operative position, substantially as and for the purpose described.

20. A file comprising a frame for receiving cards or other articles having engaging shoulders, a rocking locking-bar provided with a projecting flange or shoulder for detachably interlocking with the former shoulders, a pivoted lever for forcing the locking-bar into its operative position, and an axially-movable operating-piece for actuating the pivoted lever, substantially as and for the purpose specified.

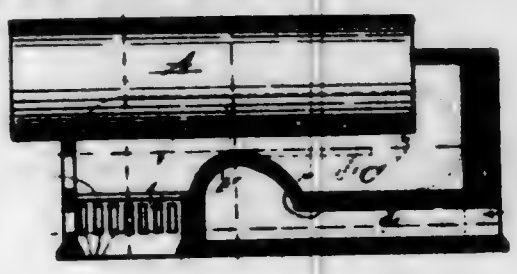
21. A file comprising a frame for receiving cards or other articles having oppositely-arranged engaging shoulders, and a pair of locking-bars arranged substantially parallel with each other and provided with flanges or shoulders extending laterally from their opposite faces for engaging the oppositely-arranged shoulders of the cards or other articles, a pair of pivoted levers for forcing the locking-bars into their operative position, and an axially-movable operating-piece for actuating the pivoted levers, substantially as and for the purpose set forth.

22. A file comprising a frame for receiving cards or other articles, said frame having opposite sides or walls, and a follower interposed between the opposite sides or walls and composed of sections hinged together, and means for forcing the sections toward the opposite sides or walls of the frame, substantially as and for the purpose described.

23. A file comprising a frame for receiving cards or other articles having engaging shoulders, a pair of rocking locking-bars for detachably interlocking with said shoulders and a pivoted operating-piece having cams for actuating the locking-bars, substantially as and for the purpose specified.

24. A file comprising a frame for receiving cards or other articles having engaging shoulders, a pair of rocking locking-bars for detachably interlocking with said shoulders, the locking-bars being without longitudinal movement and having opposite ends pivotally connected to the frame, and a pivoted operating-piece having cams for actuating the locking-bars, substantially as and for the purpose described.

690,870. BOILER-SETTING. GODFREY L. HORNEMAN, Atlanta, Ga. Filed May 1, 1901. Serial No. 58,236. (No model.)



Claim.—1. In a boiler-setting, a bridge-arch having a laterally-extending chamber therein, a flue lying along the floor communicating exteriorly at one end and with said bridge-arch chamber at the other end, convoluted flues in the side walls each connected at one end with said bridge-arch chamber and at the other end through ports with the ash-pit below the grate.

2. In a boiler-setting, chambered side walls, a horizontal partition dividing the said chambers into convolutions, ports below the plane of the grate opening into said chambers, a hollow bridge-arch having internal connection with said chambered walls and a flue leading from said bridge-arch exteriorly of the setting.

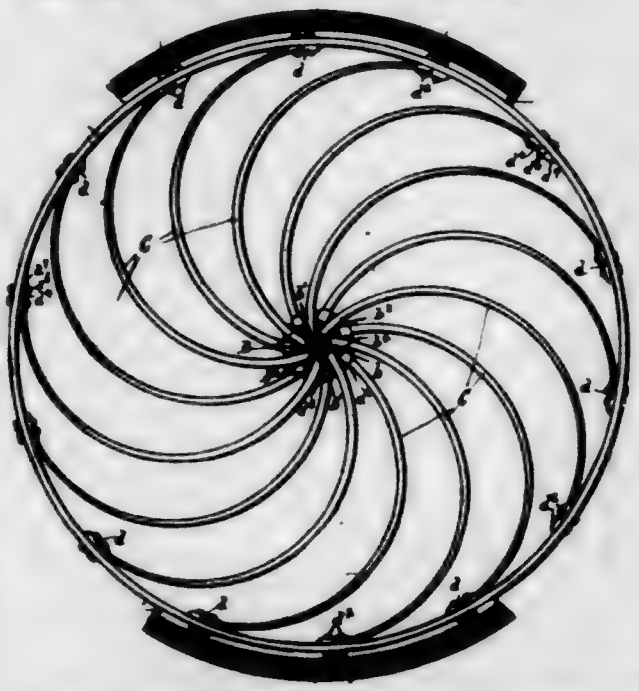
3. In a boiler-setting a hollow bridge-wall having its interior divided into two compartments by a central partition, a fresh-air flue leading from the outside into each of said compartments, convoluted flues in the side walls leading from the bridge-wall compartments respectively along each side wall to a point in said side walls below the plane of the grate and ports opening into the ash-pit just below said grate and connecting said convolute flues therewith.

690,871. BROOM. WILLIAM H. O'KEEFE, Lockport, N. Y. Filed Oct. 23, 1900. Serial No. 34,049. (No model.)



Claim.—A bridle for a broom comprising a strip of metal bent at two points to form a curved rear member, a bolt connected to said rear member and passed through alined holes in the ends of the strip forming the front member, and a thumb-nut on said bolt adapted to clamp the bridle to a broom and dispose the ends parallel to the rear curved member.

690,872. VEHICLE-TIRE. WELLS H. PECK, Syracuse, N. Y. Filed May 2, 1900. Serial No. 715,305. (No model.)



Claim.—1. The combination with the hub of a vehicle-wheel; of a rim provided with sockets extending substantially lengthwise thereof, and spokes having their inner ends secured to the hub and their outer ends inserted into the sockets, substantially as and for the purpose set forth.

2. The combination with the hub of a vehicle-wheel; of a rim provided with sockets extending substantially lengthwise thereof, and substantially C-shaped spokes tapered in width and thickness from end to end, said spokes having their inner ends secured to the hub and their outer ends inserted into the sockets, substantially as and for the purpose specified.

3. The combination with the hub of a vehicle-wheel; of a rim, engaging members detachably secured to the rim and formed with sockets extending substantially lengthwise of the rim, and spokes having their inner ends secured to the hub and their outer ends inserted into said sockets, substantially as and for the purpose described.

4. The combination with the hub of a vehicle-wheel; of a rim, engaging members detachably secured to the rim, and each consisting of an inner wall arranged in proximity to the inner face of the rim, and side and end walls projecting from the inner wall toward the rim for forming a socket, and spokes having their inner ends secured to the hub and their outer ends engaged with the rim and the walls of said engaging members, substantially as and for the purpose set forth.

5. The combination with the hub of a vehicle-wheel; of a rim, engaging members detachably secured to the rim and formed with sockets extending substantially lengthwise of the rim, securing-plates engaged with the periphery of the rim and secured to the engaging members, and spokes having their inner ends secured to the hub and their outer ends inserted into said sockets, substantially as and for the purpose specified.

6. The combination with the hub of a vehicle-wheel; of a rim, engaging members each consisting of an inner wall arranged in proximity to the inner face of the rim, and side and end walls projecting from the inner wall toward the rim for forming a socket, spokes having their inner ends secured to the hub and their outer ends inserted into said sockets, securing-plates engaged with the periphery of the rim and formed with threaded apertures and clamping-screws passed through the rim and spokes and engaged with the engaging members and securing-plates, substantially as and for the purpose set forth.

7. The combination with the hub of a vehicle-wheel; of a rim, securing-plates arranged upon the periphery of the rim, spokes having their inner ends secured to the hub and their outer ends secured to said plates, and a tire encircling the rim and having its inner face formed with a groove for receiving the securing-plates, substantially as and for the purpose specified.

8. The combination with the hub of a vehicle-wheel provided with bearing-faces and sockets projecting outwardly from the bearing-faces, of a rim provided with sockets extending substantially lengthwise thereof, and spokes having their inner ends movable into and out of the sockets of the hub and their outer ends inserted into the sockets of the rim, substantially as and for the purpose described.

9. The combination with the hub of a vehicle-wheel provided with a plurality of series of peripheral bearing-faces, the bearing-faces of one series being arranged out of alinement with the bearing-faces of another series, a rim provided with sockets extending substantially lengthwise thereof, and spokes having their inner ends secured to said bearing-faces and their outer ends inserted into the sockets of the rim, substantially as and for the purpose specified.

10. The combination with the hub of a vehicle-wheel provided with a plurality of series of peripheral bearing-faces, the bearing-faces of one series being arranged out of alinement with the bearing-faces of another series, a rim, said hub being also provided with sockets projecting outwardly from the bearing-faces and formed with openings or slots extending through corresponding side walls thereof from their outer extremities, a rim provided with sockets extending substantially lengthwise thereof, and substantially C-shaped spokes having their inner ends movable into the sockets of the hub and their outer ends engaged with said bearing-faces inserted into the sockets of the rim, substantially as described.

690,873. LOOM SHEDDING MECHANISM. JOHN W. PLATT, Dover, N. H. Filed Feb. 27, 1901. Serial No. 49,026. (No model.)

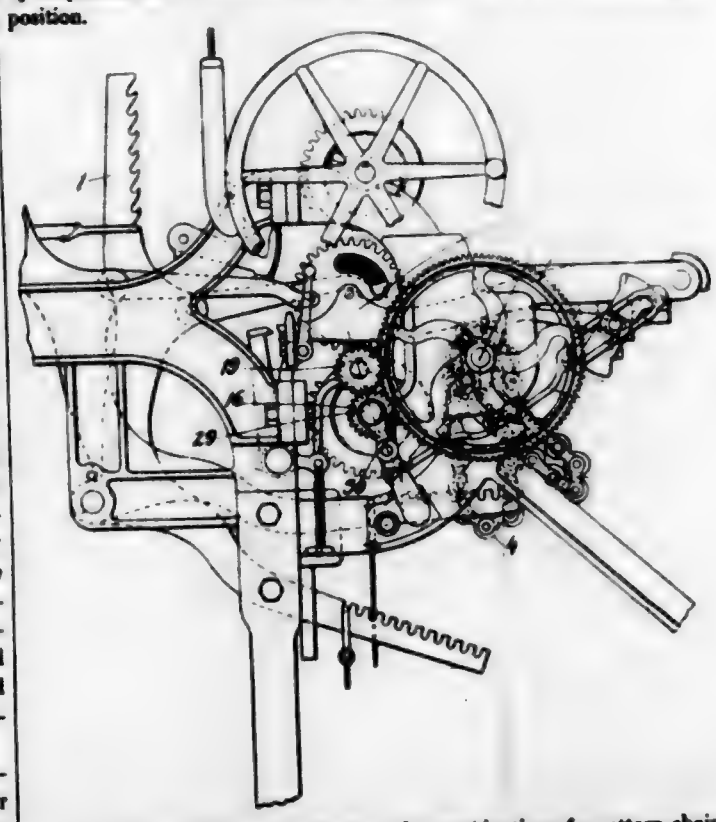
Claim.—1. In loom shedding mechanism, the combination of a pattern-cylinder, a pattern-chain mounted thereon, and a device movable by radial displacement of the chain on the cylinder for stopping said chain.

2. In loom shedding mechanism, the combination of a pattern-chain having a series of selectors, a rotary propelling-support therefor, a series of feelers coacting with the chain opposite said support, and a device movable by displacement of the chain on said support for stopping the chain.

3. In loom shedding mechanism, the combination of a pattern-chain, chain-propelling mechanism, a member movable to throw said mechanism out of action, an oscillating finger movable by displacement of the chain, a cam on the axis of said finger, and a sliding rod operated by said cam and operatively connected to said member.

4. In loom shedding mechanism, the combination of a pattern-chain, chain-propelling mechanism, a normally rotating member adapted, when arrested, to throw said mechanism out of action, an arresting member, and a device movable by displacement of the chain for throwing said arresting member into arresting position.

5. In loom shedding mechanism, the combination of a pattern-chain, a driving-shaft, a chain-propelling gear thereon, a key movable to connect said gear with and disconnect it from the shaft, and means operated by displacement of the chain for throwing said key into disconnecting position.



6. In loom shedding mechanism, the combination of a pattern-chain, a driving-shaft, a chain-propelling gear thereon, a key movable longitudinally of the shaft to connect said gear with and disconnect it from the shaft, a cam member fixed to the shaft, a complemental normally rotating cam-sleeve loose on the shaft and adapted when arrested to slide the key into disconnecting position, and means operated by displacement of the chain for arresting said sleeve.

7. In loom shedding mechanism, the combination of a pattern-chain, a unidirection driving-shaft, two gears thereon adapted to propel the chain in opposite directions, a sliding key having two extreme positions in which it connects the respective gears to the shaft and an intermediate position in which it disconnects both of said gears from the shaft, a handle on said key whereby it may be moved manually into position to connect the reversing-gear and means operated by displacement of the chain for moving the key into position to disconnect the other gear.

8. In a loom shedding mechanism, the combination of a pattern-chain, mechanism to operate the same, and a device for stopping the chain, said device being unmoved during the normal running of the chain, but adapted to be moved by the engagement of the chain therewith so as to stop the chain when the latter is displaced with respect to its operating mechanism.

690,874. BREAD OR CAKE BOX. JAMES POWERS, New York, N. Y., assignor of one-half to Nahum I. Stone, New York, N. Y. Filed Apr. 10, 1901. Serial No. 55,167. (No model.)



Claim.—1. A bread and cake box, consisting of a suitable base, corner-posts attached to said base, side walls suitably guided on said posts and provided with top frames having overlapping eyes and interior ledges, screw-knobs passing through said eyes and fastening the top frames to the posts and a lid resting on said ledges, substantially as set forth.

2. A bread and cake box, consisting of a suitable base, tubular sheet-metal corner-posts attached to the base, filling-pieces inserted into the upper ends of the posts, side walls provided with top frames at their upper ends, said top frames having horizontal eyes, a lid hinged to the top frame of the rear wall, screw knobs or fastenings connecting the eyes of the top frames with the upper ends of the corner-posts, ledges at the lower inner edges of the top frames for supporting the hinged lid, and means for attaching the hinged lid to the front frame of the box, substantially as set forth.

3. In a bread and cake box, the combination of a suitable base, side

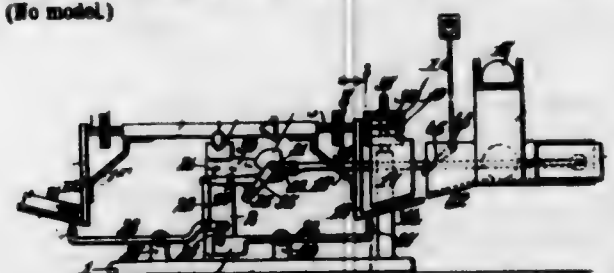
walls, said base being provided with grooves for receiving the side walls of the box, corner-posts provided with filling-pieces at their upper and lower ends, said corner-posts being attached to said base, and said side walls being guided in the corner-posts, and provided with metallic frames at their upper ends, said frames having horizontal overlapping eyes, a lid provided with a metallic edge frame, hinged to the top frame of the rear wall, the said top frames being provided with interior ledges for supporting said lid, and screw-knobs passing through the central openings of the eyes into the filling-pieces at the upper ends of the corner-posts, for holding the corner-posts in position, substantially as set forth.

690,875. ANIMAL-POKE. BENJAMIN F. PROVITT, Loveland, Iowa. Filed Nov. 9, 1900. Serial No. 35,975. (No model.)



Claim.—An animal-poke comprising a yoke adapted to straddle and rest upon the neck of an animal and having a top portion extending above the animal, said yoke being also provided with depending sides adapted to extend below the neck of the animal, the plates or members located at the sides of the yoke and hinged at their upper ends to the same, springs interposed between the sides of the yoke and the plates or members, spurs or projections normally arranged within the spaces between the plates or members and the sides of the yoke and adapted to project and engage an animal when the springs are compressed, and the continuous flexible connections or pieces arranged at the outer edges of the yoke and the plates or members and limiting the movement of the parts and closing the said spaces at the sides of the device, to protect the latter, substantially as described.

690,876. COIN WEIGHING AND COUNTING MACHINE. CHAS. W. REEVES, Columbus, Ohio. Filed Apr. 4, 1901. Serial No. 54,380. (No model.)



Claim.—1. In a machine of the character described, a scale-beam provided with weight and coin pans, means for supporting said pans, a coin-separating vane, releasing means for said supporting means, and means for operating said vane for separating coins.

2. In a machine of the character described, a weighing mechanism, a coin-separating vane pivotally connected thereto and means for oscillating said mechanism causing thereby the operation of said vane for separating coins.

3. In a machine of the character described, a weighing mechanism, a series of levers for supporting the same in an inoperative position, means for releasing said levers, means for operating said weighing mechanism when said levers are released, and pivotal means carried by said mechanism for separating coins when the weighing mechanism is oscillated.

4. In a machine of the character described, a weighing mechanism, means for supporting the same in an inoperative position, releasing mechanism for said supporting means, operating means for said releasing mechanism, an arm for oscillating said weighing mechanism, and means for separating coins when the weighing mechanism is operated.

5. In a machine of the character described, a weighing mechanism, means for supporting the same in an inoperative position, releasing mechanism for said supporting means, operating means for said releasing mechanism, means for oscillating said weighing mechanism, a vane adapted to receive the coin to be weighed, and means for operating said vane for separating the coins when the weighing mechanism is operated.

6. In a machine of the character described, a weighing mechanism, means for supporting the same in an inoperative position, releasing mechanism for said supporting means, means for separating coins when the weighing mechanism is operated, a chute for the passage of the coins to said separating means, and means operated by the passage of the coins to the separating means for operating a suitable registering mechanism.

7. In a machine of the character described, a weighing mechanism, means for separating coins pivotally connected to said mechanism, means contacting with said coin-separating means for operating the same, a chute for the passage of the coins to said coin-separating means, mechanism for supporting the weighing mechanism in an inoperative position, and means for releasing said supporting mechanism.

8. In a machine of the character described, a weighing mechanism, a series of levers for supporting said mechanism in an inoperative position, a coin-separating vane pivotally connected to said weighing mechanism, a shifting pin carried by said vane, means contacting with said pin for operating said vane, means for feeding coins to said vane, and means for releasing said levers when said feeding means is operated.

9. In a machine of the character described, a weighing mechanism, a series of levers for supporting said mechanism in an inoperative position, a standard, a pair of stop-nuts carried thereby, a coin-separating vane pivotally connected to said weighing mechanism, a shifting pin adapted to engage the nuts for operating the vane, means for feeding coins to said vane, and means for releasing said levers when said feeding means is operated.

10. In a machine of the character described, a weighing mechanism, a series of levers for supporting said mechanism in an inoperative position, a standard, a pair of stop-nuts carried thereby, a coin-separating vane pivotally connected with said weighing mechanism, a shifting pin adapted to engage the nuts for operating the vane, an arm engaging said mechanism for oscillating the same, means for feeding coins to said vane, means operated by the passage of the coin to said vane for operating a suitable registering mechanism, and means operated by said coin-feeding means for releasing said levers and operating said arm.

11. In a device of the character described, a weighing mechanism normally in an inoperative position, a coin-separating means pivotally connected to said mechanism, releasing means for said weighing mechanism, and means for operating said coin-separating means in opposite directions.

12. In a device of the character described, a weighing mechanism normally held in an inoperative position, a coin-separating means pivotally connected to said mechanism, means for releasing said mechanism to permit of the operation thereof, and means for operating said coin-separating means when the weighing mechanism is released.

13. In a device of the character described, a weighing mechanism, a coin-separating means carried thereby, releasing means for said weighing mechanism, and a pair of stop-nuts for operating said coin-separating means in opposite directions.

14. In a device of the character described, a weighing mechanism, means for retaining said mechanism in an inoperative position, a coin-separating means pivotally connected to said weighing mechanism, releasing means for said retaining means, and a pair of stop-nuts for operating said coin-separating means in opposite directions.

15. In a device of the character described, a weighing mechanism normally in an inoperative position, means for releasing said weighing mechanism to permit of the operation thereof, a coin-separating means pivotally connected to said weighing mechanism, a pair of stop-nuts arranged in suitable relation to said coin-separating means, and a shifting pin carried by said coin-separating means and adapted to engage said stop-nuts for operating the coin-separating means.

16. In a device of the character described, a weighing mechanism, a coin-separating means, a releasing means for said weighing mechanism, a pair of stop-nuts mounted in suitable relation to said separating means, and a pin carried by said separating means and adapted to engage said nuts for operating the former.

17. In a device of the character described, a scale-beam provided with weight and coin pans, means for supporting said pans, a coin-separating vane pivotally connected to said scale-beam, releasing means for said supporting means, and a pair of stop-nuts for operating said vane for separating coins.

18. In a device of the character described, a scale-beam provided with weight and coin pans, means for supporting said pans, releasing mechanism for said supporting means, operating means for said releasing mechanism, an arm for oscillating said scale-beam, a coin-separating vane pivotally connected to said scale-beam, a pin carried by said vane, and a pair of stop-nuts that may be engaged by the said pin for operating the said vane.

19. In a machine of the character described, a scale-beam provided with weight and coin pans, a projection connected to said beam, means for supporting said pans, releasing mechanism for said supporting means, operating means for said releasing mechanism, an arm engaging said projection for oscillating said beam, a coin-separating vane connected with

said beam, a pin carried thereby, and a pair of stop-nuts engaged by the said pin for operating said vane.

20. In a machine of the character described, a scale-beam provided with weight and coin pans, a projection connected thereto, means for supporting said pans, a cam, means engaged by said cam for releasing said supporting means, operating means for said cam, an arm engaging said projection for oscillating said weighing mechanism, a coin-operating vane connected with said beam, and means for operating said vane for separating coins.

21. In a machine of the character described, a scale-beam provided with weight and coin pans, a projection connected thereto, means for supporting said pans, a cam, means engaged by said cam for releasing said supporting means, operating means for said cam, an arm engaging said projection for oscillating said weighing mechanism, a coin-operating vane connected with said weighing mechanism, a pin carried thereby, and means engaged by the said pin for causing the operation of the said vane.

22. In a machine of the character described, a scale-beam provided with weight and coin pans, a projection connected thereto, means for supporting said pans, a cam, means engaged by said cam for releasing said supporting means, operating means for said cam, an arm engaging said projection for oscillating said weighing mechanism, a coin-operating vane pivotally connected to said beam, a pin carried by said vane, and a pair of stop-nuts mounted in suitable relation to said vane and adapted to be engaged by the said pin for operating the former.

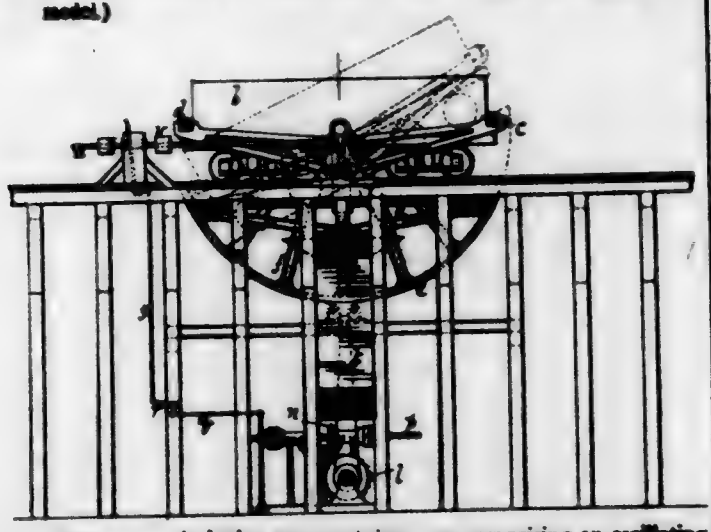
23. In a machine of the character described, a scale-beam provided with weight and coin pans and a pair of adjusting-poises, a series of levers for supporting said pans, a coin-operating vane pivotally connected to the said beam, releasing means for said levers, and means for operating said vane for separating coins.

24. In a machine of the character described, a scale-beam provided with weight and coin pans and adjusting-poises, a series of levers for supporting said pans, a coin-separating vane pivotally connected to said beam, means for releasing said levers, an arm engaging the said beam for oscillating the same, a pin connected to said vane, and a pair of stop-nuts mounted in suitable relation to said vane and engaged by said pin for operating the former.

25. In a machine of the character described, a weighing mechanism, means for separating coins pivotally connected to said mechanism, means contacting with said coin-separating means for operating the same, a chute for the passage of the coins to said separating means, a series of levers for supporting the weighing mechanism in an inoperative position, a cam, means engaged by said cam for releasing said levers, a rod for operating said cam, and a slide for forcing coins through the chute and for operating the said rod.

26. In a machine of the character described, a weighing mechanism, means for separating coins pivotally connected to said mechanism, means contacting with said coin-separating means for operating the same, a chute for the passage of the coins to said separating means, a series of levers for supporting the weighing mechanism in an inoperative position, a cam, means engaged by said cam for releasing said levers, an arm connected to said cam for oscillating said weighing mechanism, a rod for operating said cam, and a slide for forcing coins through the chute and for operating the said rod.

690,877. **MECHANISM FOR EMPTYING CARS.** JAMES H. REID, M.D., New York, N. Y. Filed May 1, 1901. Serial No. 58,333. (No model.)

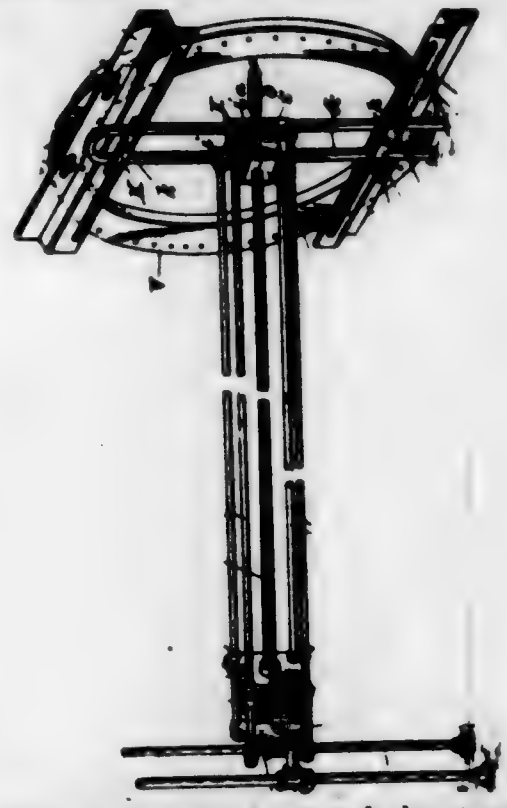


Claim.—1. A device for emptying cars comprising an oscillating table or support, mechanism for tilting the support in one direction or another, and a stop for limiting the tilt or inclination of the support, said stop consisting of a rod connected to the table so as to reciprocate or slide back and forth on the swing or tilt of the table, a post through which the movable rod is guided, and stops or enlargements on the rod made to impinge against the post for arresting or limiting the slide or play of the rod substantially as described.

2. A tilting table or support provided with a segment, a flexible connection secured along the segment for tilting the support, a drum and driving mechanism for actuating the connection, and gear-wheels and clutch mechanism for driving the drum in different directions substantially as described.

3. A rail or car supporting table having a segment, a pivot or gudgeons from which the table is movably suspended, a flexible connection or chain connected to the segment, a drum made to engage the chain for tilting the table, mechanism for rotating the drum in opposite directions, a stop-arm provided with shoulders or steps, and a riser or post for engaging the steps to limit the motion of the stop-arm and the tilt of the table substantially as described.

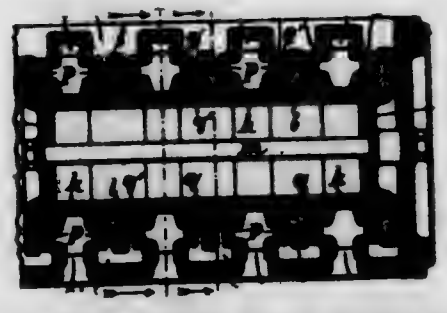
690,878. **APPARATUS FOR BORING OUT TUBES.** JAMES ROAN, Portsmouth, Va. Filed Aug. 3, 1901. Serial No. 70,787. (No model.)



Claim.—1. The front and rear stands, the nut-supporting frame sleeved on the front stand, the feed-nut, longitudinal guide-rods attached at the front to the nut-supporting frame, and sleeved upon the rear stand, and means for holding the frame and rods in their adjusted position upon said stands, in combination with a carriage mounted on said guide-rods and a lead-screw and driving-gearing therefor mounted in said carriage as and for the purposes hereinbefore set forth.

2. The front and rear stands, and the plates to which the front stand is secured so as to be laterally adjustable with relation thereto, in combination with the feed-nut and its supporting-frame the guide-rods extending between and connecting said stands, said nut-supporting frame and guide-rods being vertically adjustable bodily and together relatively to the stands, the carriage supported by and movable on the guide-rods, and the lead-screw and driving-gearing therefor mounted in the carriage, substantially as and for the purposes hereinbefore set forth.

690,879. **ARRANGEMENT OF VALVES FOR PUMPS, &c.** FRANZISKUS W. ROSLER, Budapest, Austria-Hungary. Filed Apr. 12, 1901. Serial No. 55,197. (No model.)



Claim.—1. In a device of the character described, the combination with a series of disks having recesses in their peripheries, and ports opening through their sides into said recesses, of collars fitting between said

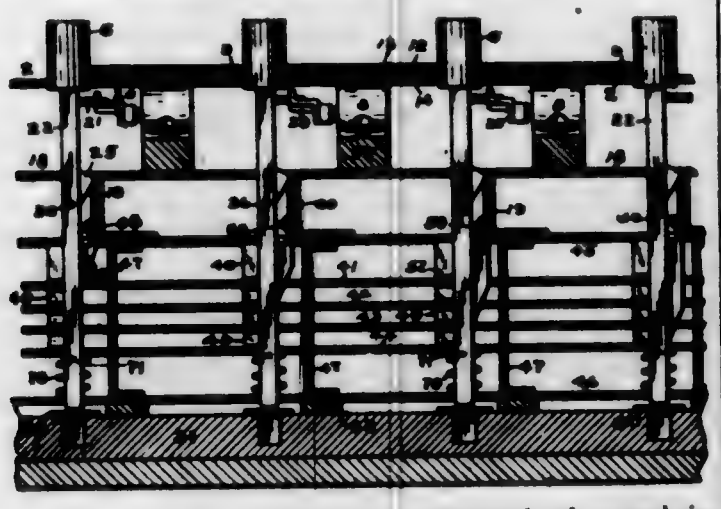
disks and having stop-disks thereon, valves arranged between said ports, and said stop-disks, and flexibly connected with the latter, substantially as described.

2. In a device of the character described, the combination with a series of disks having recesses in their peripheries, and ports opening through their sides into said recesses, of collars fitting between said disks and having stop-disks thereon, valves arranged between said ports, and said stop-disks and flexibly connected with the latter, and means for binding said disks and collars together, substantially as described.

3. In a device of the character described, the combination with a spindle, disks mounted on said spindle and having recesses in their peripheries, and ports through their sides opening into said recesses; of collars fitting between said disks and having stop-disks thereon, valves arranged between said stop-disks and said ports and flexibly connected with said stop-disks, and heads on said spindle for binding said disks and collars together, substantially as described.

4. In a device of the character described, the combination with a casing, and partitions in said casing having central openings therethrough; of a series of disks fitting in said openings, said disks having recesses in their peripheries, ports opening through their sides into said recesses, collars between said disks, stop-disks on said collars, valves arranged between said ports and said stop-disks, and flexibly connected to the latter, and means for binding said disks and collars together, substantially as described.

690,880. VOTING-MACHINE. ALBERT J. ROYS, Lafayette, Ind. Filed Jan. 10, 1901. Serial No. 42,819. (No model.)



Claim.—1. In a voting-machine, a row of push-rods, a pawl pivoted to each of the same, a rack beside each push-rod for engaging the pawls and a common means for disengaging the pawls from the rack.

2. In a voting-machine, a row of push-rods, a pawl pivoted to each of the same, a plate through which said rods may reciprocate, an angle-bar secured on said plate near the row of push-rods and having the face thereof adjacent said push-rods notched for engaging the pawls on the push-rods and means for simultaneously disengaging the pawls from the notched plate.

3. In a voting-machine, a series of push-rods with stops and locking-bar-actuating lugs thereon, and a series of independent locking-bars through all of which said push-rods extend, there being a separate bar for each push-rod to actuate that, when actuated, stops the other push-rods.

4. In a voting-machine, a series of push-rods, a series of apertured locking-bars slidably mounted one for each push-rod and one above the other and through which the push-rods loosely extend, an inclined lug on each push-rod to operate its particular locking-bar, and stops on the push-rods under which the locking-bars move when operated.

5. In a voting-machine, a series of push-rods, a frame formed of two parallel plates at a right angle to the push-rods and apertured for the passage of the push-rods and which are secured to a series of intervening plates, a series of locking plates or bars one for each push-rod slidably mounted in said intervening plates and apertured for the passage of the push-rods, an inclined lug on each push-rod arranged to actuate a locking plate or bar when its corresponding push-rod is actuated, and stops on the push-rod to prevent the actuation of any push-rod in the series after one of the locking plates or bars has been actuated.

6. In a voting-machine, push-rods to be actuated by the voter, a slidable plate or frame beyond the ends of the push-rods with apertures to permit the movement of the push-rods, and means actuated by one push-rod for moving said plate or frame into the path of the end of the other push-rods.

7. In a voting-machine, push-rods to be actuated by the voter, one for each straight ticket, and a row for all the individual candidates on each ticket, a slidable frame and a plate beyond the ends of each row of push-rods apertured to permit the movement of the push-rods, and means actuated by one of the straight-ticket keys for moving said frame into the path of all the push-rods for the individual candidates.

8. In a voting-machine, push-rods to be actuated by the voter, including one for each straight ticket, and push-rods for all the candidates on a ticket arranged in a row, a slidable frame having a plate beyond the end of each row of push-rods apertured to permit the movement of the push-rods, a plate connected with said frame extending into close proximity to each straight-ticket push-rod, an oscillatory frame extending loosely through an aperture in said plate, and a finger rigidly connected with the straight-ticket push-rods that engages said frame when the straight-ticket push-rod is depressed and thereby moves said slidable frame beneath the push-rods for all the individual candidates.

9. In a voting-machine, push-rods to be actuated by the voter, a pawl pivoted to each push-rod, a rack or notched plate for said pawl to engage, and a sliding plate between the push-rod and the notched plate with an inclined face for disengaging the pawl from the notched plate.

10. In a voting-machine, push-rods arranged in rows to be actuated by the voter, a pawl pivoted to each push-rod, a notched plate adjacent the push-rods for engaging the pawls, and a plate slidable between the notched plate and row of push-rods with a series of inclined faces to disengage the pawls of all the push-rods in the row from the notched plate.

11. In a voting-machine, a number of push-rods arranged in a number of rows, a pawl pivoted to each push-rod, a notched plate for the push-rods to engage, a slidable frame including a plate between each row of push-rods and the notched plate and having an inclined face near each push-rod, and means outside of the machine for actuating said frame whereby the pawl on all the push-rods will be simultaneously disengaged from the notched plates.

12. In a voting-machine, a number of push-rods arranged in a number of rows, a pawl pivoted to each push-rod, a notched plate for the push-rods to engage, a slidable frame including a plate between each row of push-rods, and a notched plate for disengaging the pawls of the push-rods and having an inclined face near each push-rod, and a spring for returning each push-rod to its unoperated position when said unlocking-frame is operated.

13. In a voting-machine, a number of push-rods arranged in a number of rows, a pawl pivoted to each push-rod, a notched plate for the push-rods to engage, a slidable frame including a plate between each row of push-rods and the notched plate and having an inclined face near each push-rod, and a sprng for returning said slidable frame to its unoperated position.

14. In a voting-machine, a row of push-rods, pawls pivoted to the push-rod for holding said push-rods when they are actuated, a sliding plate for releasing the said pawls, means for returning the push-rods to their unoperated position, stops on said push-rods, a locking-bar actuated by one of said push-rods and locking the others against actuation, and a spring for returning the said locking-bar to its unoperated position when said pawl is released.

15. In a voting-machine, a row of push-rods, a pawl pivoted to each push-rod for holding the same when it is actuated, means for disengaging the pawls and returning the push rods to their unoperated position simultaneously, a series of locking-bars one for each push-rod, an inclined lug on each push-rod for actuating its corresponding locking-bar, stops on the push-rods for engaging the locking-bars to prevent actuation of the push-rods, and a spring connected with each locking-bar to return it to the unoperated position when the push-rods are released.

16. In a voting-machine, a number of push-rods, a slidable frame at the ends of the push-rods, means for moving said frame into the path of the ends of the push-rods, and a spring for withdrawing said frame to its unoperated position when released.

17. In a voting-machine, a number of push-rods, a frame near the ends of the push-rods, a lock actuated by the key outside of the machine, and a connection between the bolt of said lock and sliding frame whereby said sliding frame may be moved into the path of all the push-rods to lock them.

18. In a voting-machine, a series of straight-ticket push-buttons for the individual candidates, a slidable frame with plates near the ends of the individual-candidate push-rods that when moved will prevent the operation of such push-rods, means actuated by each straight-ticket key for moving said frame, a sliding plate beneath each straight-ticket push-rod having a slot in it, a pin secured to the sliding frame that extends loosely through said slot whereby when said sliding plate is actuated the sliding frame will be actuated and the sliding frame can be actuated without affecting the sliding plate, and a lock actuated by a key outside with its bolt connected with said sliding plate.

690,881. CURTAIN-FIXTURE. ORVILLE L. SHARADIN, Bustleton, Pa., assignor of one-half to Henry Gleckler, Bustleton, Pa. Filed Mar. 26, 1901. Serial No. 53,203. (No model.)

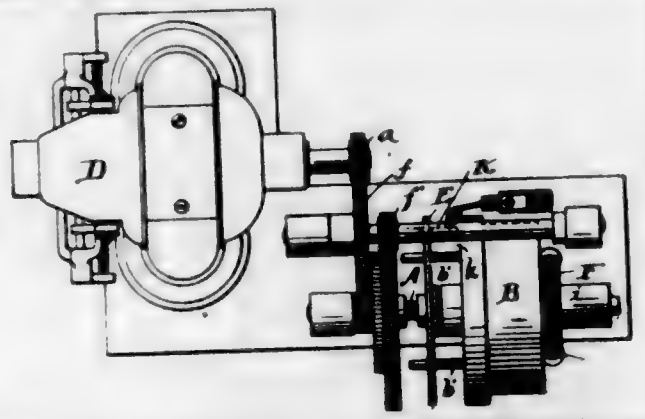
Claim.—1. A curtain-fixture comprising a bracket consisting of a

plate having a vertically-disposed flange at its outer end formed with an elongated slot, and an extension at its inner edge having its ends separated by slits from the plate and bent toward each other to form a guide or keeper; and an adjustable hanger consisting of a bar extending through said slot and keeper, notched at its lower edge and having its outer end bent forward at right angles and perforated to form a bearing for a roller-journal.



2. A curtain-fixture comprising a bracket consisting of a plate having a vertically-disposed flange at its outer edge formed with a slot the lower wall of which is oppositely beveled, and an extension at its inner edge the ends of which are bent toward each other to form a guide or keeper; and a hanger-bar extending through said slot and keeper formed on its lower edge with notches adapted to be engaged by the beveled lower wall of said slot, and having its outer end provided with a perforated ear.

690,882. **AUTOMATIC WINDING MECHANISM FOR SPRING-MOTORS.** RICHARD H. SEARS, Cleveland, Ohio. Filed May 21, 1900. Serial No. 17,342. (No model.)



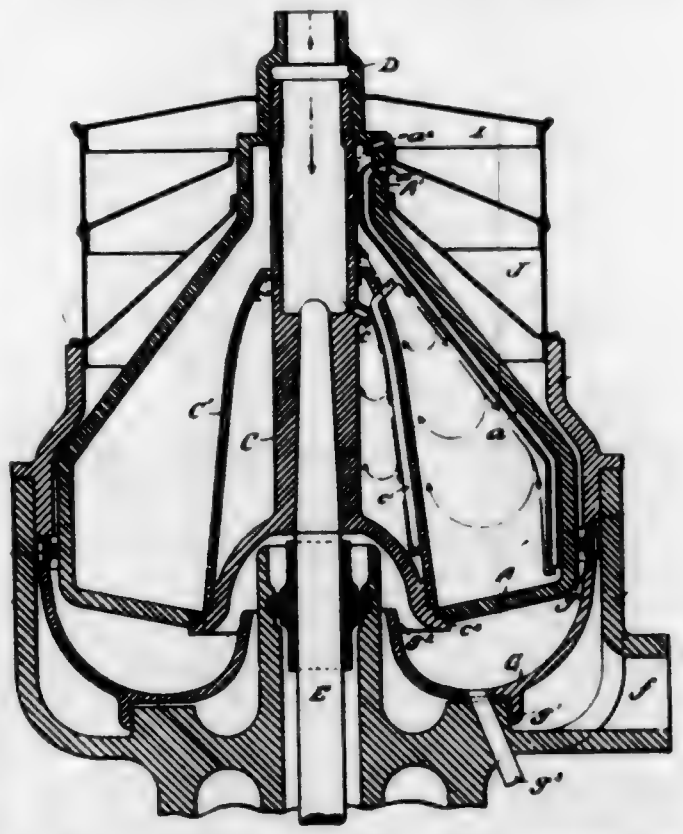
Claim.—1. The combination of a spring-motor which includes a rotatable shaft having a threaded portion and an unthreaded portion, a spring-barrel rotatably mounted upon the unthreaded portion of said shaft, and a volute spring embracing the shaft and connected at one end with the shaft and at the other end with the spring-barrel, with a disk screwed and rotatably mounted upon the threaded portion of said shaft, connections between the disk and spring-barrel whereby the disk will rotate with the spring-barrel but is permitted to move lengthwise of the shaft as it rotates, a supplemental motor operatively connected with said shaft, and mechanism operated by said disk whereby said motor is stopped and started, substantially as specified.

2. The combination of a spring-motor which includes a rotatable shaft having a threaded portion and an unthreaded portion, a spring-barrel rotatably mounted upon the unthreaded portion of said shaft, a volute spring embracing the shaft and connected at one end with the shaft and at the other end with the spring-barrel, with a disk screwed and rotatably mounted on the threaded portion of said shaft, connections between said disk and spring-barrel whereby the disk rotates with the spring-barrel but is permitted to move lengthwise of the shaft as it rotates, an electric motor in a normally open circuit, mechanism connecting said motor with the spring-motor shaft, a switch for closing the electric-motor circuit, and connections between said switch and disk whereby the movement of the latter lengthwise of the spring-motor shaft opens and closes said electric circuit, substantially as specified.

3. The combination of a spring-motor comprising a rotatable shaft having a threaded portion and an unthreaded portion, a spring-barrel rotatably mounted upon the unthreaded portion of said shaft, and a volute spring embracing the shaft and connected at one end with the shaft and at the other end with the spring-barrel, with a disk which is screwed and rotatable upon said shaft and has holes through it parallel with the axis of the shaft, pins parallel with said shaft and fast to the spring-barrel and loosely passing through said holes, a supplemental motor, and mechanism whereby the movement of the disk along the shaft causes said motor to stop and start, substantially as described.

4. The combination of a spring-motor which includes a rotatable shaft having a threaded portion and an unthreaded portion, a spring-barrel rotatably mounted upon said shaft, and a volute spring embracing the shaft and connected at one end with the shaft and at the other end with the spring-barrel, with a disk screwed and rotatable upon said shaft, connections between the disk and spring-barrel whereby the disk rotates with the spring-barrel and moves lengthwise upon the shaft as it rotates, an electric motor connected in a normally open circuit, mechanism operatively connecting said motor with the spring-motor shaft, a pivoted switch-lever having fingers which lie on opposite sides of said disk, and a switch connected with said lever whereby to close and open the electric circuit, substantially as described.

690,883. **CENTRIFUGAL LIQUID-SEPARATOR.** PHILIP M. SHARPLES, Westchester, Pa. Filed Mar. 27, 1893. Serial No. 467,780. (No model.)



Claim.—1. In a centrifugal separator, the combination of a separating vessel having a large central opening at one end, a center piece adapted to form a seat for said vessel and to close said opening therein, said center piece having a central extension projecting through the opposite end of the vessel and serving as a means of fastening the vessel to the spindle, and a receiver located below the vessel and its center piece and adapted to catch the contents of said vessel when it is loosed from its seat, substantially as specified.

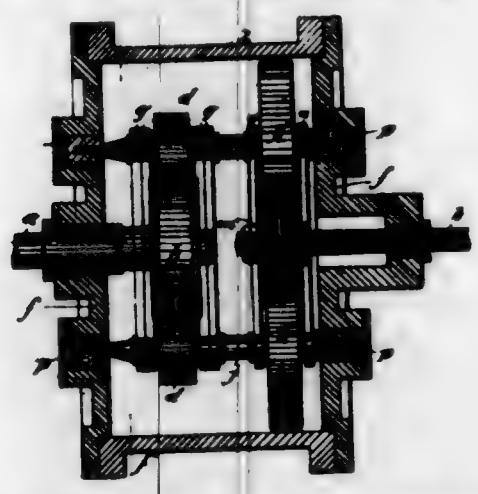
2. In a centrifugal separator, the combination of the separating vessel having projecting peripheral buckets with fixed plates surrounding said separating vessel and forming between them an annular pathway for the rotating buckets, said plates also forming passages around the separating vessel through which passages air can pass, substantially as specified.

3. The combination of the separating-bowl having an inlet for the full milk, a discharge for the skim-milk communicating with the peripheral portion of the bowl, and a cream-discharge communicating with the cream-space of the bowl, with a hollow separating-cone extending through the liquid-space of the bowl and having a cream-discharge at about the same distance radially from the axis of the bowl as the receiving end of the cream-outlet of said bowl, said cone being provided with a duct leading from the large end of the same toward the small end and serving for the passage of liquid from the inside of the cone at the large end to the outside of the cone at or near the small end, whereby the full milk is first separated within the cone, and the cream is discharged from the cream-outlet of said cone, while partially-skimmed milk passes from the large end of the cone into the chamber surrounding the cone at the upper portion of said chamber in which chamber the partially-skimmed milk is separated and from which chamber the cream and the skim-milk are separately discharged, substantially as specified.

4. The combination of the separating-bowl having an inlet for the full milk, a discharge for the skim-milk communicating with the peripheral portion of the bowl near the bottom of the same, and a cream-discharge communicating with the cream-space of the bowl, with a hollow separating-cone extending through the liquid-space of the bowl, and having a cream-discharge at about the same distance radially from the axis of the bowl as the receiving end of the cream-outlet of said bowl, said

cone being provided with a duct leading from the large end of the same toward the small end and serving for the passage of the liquid from the inside of the cone at the large end to the outside of the cone at or near the small end, whereby the full milk is first separated within the cone and the cream is discharged from the cream-outlet of said cone, while the partially-skimmed milk passes from the large end of the cone into the chamber surrounding the cone at the upper portion of said chamber, in which chamber the partially-skimmed milk is further separated and from which chamber the cream and the skim-milk are separately discharged, the skim-milk discharge being from the bottom of the chamber, substantially as specified.

690,884. **FRICTIONAL GEARING.** GIULIO SILVESTRI, Vienna, Austria-Hungary. Filed Feb. 10, 1900. Serial No. 4,748. (No model.)



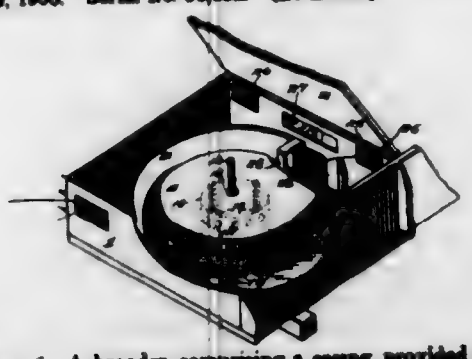
Claim.—1. The combination with a driving-shaft, and a friction-disk fast thereon, of driven shafts arranged parallel with the driving-shaft, friction-disks on the driven shafts adapted to frictionally engage with the disks on the driving-shaft, and a pressure device sprung around all of the driven shafts, and comprising a helical-shaped ring and an undulatory spring-ring surrounding the said helical-shaped ring.

2. The combination with a driving-shaft, and a friction-disk fast thereon, of driven shafts arranged parallel with the driving-shaft, friction-disks on the driven shafts adapted to frictionally engage with the disks on the driving-shaft, and a pressure device sprung around all of the driven shafts, and comprising a helical-shaped ring and an undulatory spring-ring surrounding the said helical-shaped ring, a shaft adapted to receive rotation from the said driven shafts, and gearing between the latter shafts and the shaft to be driven therefrom.

3. The combination with a driving-shaft, and a friction-disk fast thereon, of driven shafts arranged parallel with the driving-shaft, friction-disks on the driven shafts adapted to frictionally engage with the disk on the driving-shaft, and a pressure device sprung around all of the driven shafts, and comprising a helical-shaped ring and an undulatory spring-ring surrounding the said helical-shaped ring, a shaft arranged in alinement with the driving-shaft, a disk on the first shaft, disks on the driven shafts adapted to frictionally engage with the said disk and spring-bands sprung around the driven shafts and exerting pressure thereon, as and for the purpose specified.

4. A device for use as described comprising a helical-shaped ring and an undulatory spring-ring surrounding the helical-shaped ring.

690,885. **BROODER.** JOHN M. SONTAG, St. Charles, Ill. Filed Nov. 19, 1900. Serial No. 36,852. (No model.)

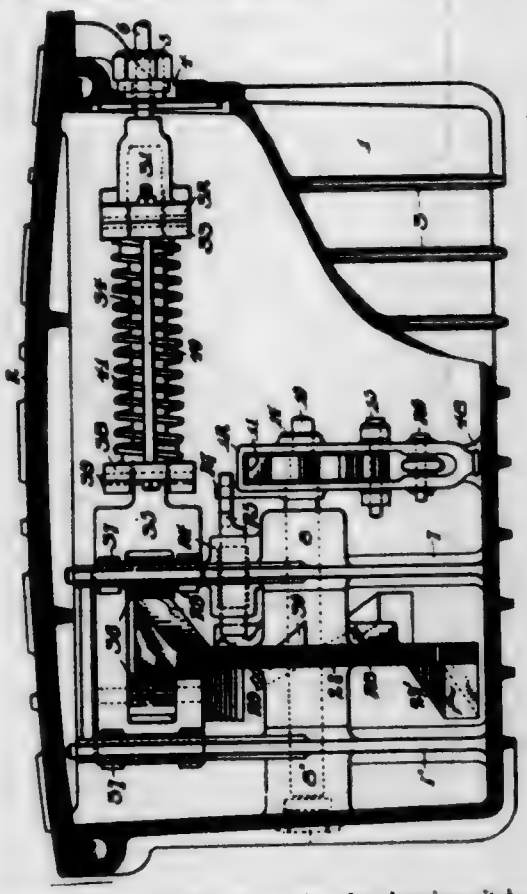


Claim.—1. A brooder comprising a casing provided at its bottom with an opening designed to be placed over a heater, the reservoir provided with inner and outer walls forming a central flue, the outer wall being extended above the inner wall and having apertures, said reservoir being also provided with a top resting upon the upper edges of the outer wall and spaced from the inner wall, and a pipe or flue connected to and extending upward from the top of the reservoir, substantially as described.

2. A brooder comprising a casing provided at its bottom with an opening designed to be placed over a heater, the reservoir provided with inner and outer walls forming a central flue, the outer wall being extended above the inner wall and having apertures, said reservoir being also provided with a top resting upon the upper edges of the outer wall and spaced from the inner wall, a pipe or flue connected to and extending upward from the top of the reservoir, and the shield 29 supported by and spaced from the upper edges of the inner wall and interposed between the same and the pipe or flue, substantially as described.

3. A brooder comprising a casing provided at its bottom with an opening designed to be placed over a heater, the reservoir provided with inner and outer walls forming a central flue, the outer wall being extended above the inner wall and having apertures, said reservoir being also provided with a top resting upon the upper edges of the outer wall and spaced from the inner wall, a pipe or flue connected to and extending upward from the top of the reservoir, the shield 29 interposed between the inner wall and the pipe or flue and spaced from the former and from the top of the reservoir, the cylindrical wall arranged within the casing, and the fabric covering or diaphragm having a central opening to receive the pipe or flue and spaced from the reservoir, substantially as described.

690,886. **OPERATING MECHANISM FOR ELECTRIC SWITCHES.** JOHN H. SPANGLER and REINHOLD HERMAN, Crafton, Pa. Filed Apr. 17, 1901. Serial No. 56,251. (No model.)



Claim.—1. In operating mechanism for electric switches, an operating-wheel having lugs on each side thereof, combined with a spring-lock the arms of which spread under action of the lugs on the forward movement of the wheel and retract after the passage of each lug to lock the wheel against rearward movement, substantially as described.

2. In operating mechanism for electric switches, an operating-wheel having lugs on each side thereof, combined with a substantially Y-shaped locking-spring having angular ends which engage back of the lugs at each operation of the wheel and lock the latter against rearward movement, substantially as described.

3. In operating mechanism for switches, the combination with an operating-wheel having operating-lugs, of a Y-shaped locking-spring the arms of which are engaged and spread by the lugs in the forward movement of the wheel, and the ends of which arms engage back of the lugs to lock the wheel against rearward movement, substantially as described.

4. In operating mechanism for switches, an operating-wheel having inclined-faced lugs on both sides thereof, and a spring-lock having arms which are spread by the lugs on the forward movement of the wheel, said arms when in their normal position lying back of the lugs to lock the wheel against rearward movement, substantially as described.

5. In operating mechanism for electrical switches, an operating-wheel having lugs alternately arranged on opposite sides thereof, and means for actuating said wheel, of means for engagement back of the lugs on each operation of the wheel to prevent the rearward movement of said wheel, substantially as described.

6. In operating mechanism for electrical switches, an operating-wheel having lugs alternately arranged on opposite sides thereof, and means for actuating said wheel, of means for engagement back of the lugs on each operation of the wheel to prevent rearward movement of said wheel, and means operated by the operating mechanism of the wheel for limiting the forward movement of said wheel at each operation.

7. In switch-operating mechanism including an operating-wheel having lugs alternately arranged on opposite sides thereof, and lugs arranged circumferentially on one face of said wheel around its hub, of a locking-pin operated simultaneously with the wheel and adapted to be engaged by said lugs for limiting the movement of said wheel at each operation thereof, substantially as described.

8. In switch-operating mechanism including an operating-wheel having lugs alternately arranged on opposite faces thereof, and lugs arranged circumferentially on one face of said wheel around its hub, of a locking-pin operated simultaneously with the wheel and adapted to be engaged by said lugs, for limiting the movement of said wheel at each operation, and means within the path of travel of said wheel to engage with the alternately-arranged lugs and prevent backward movement of the wheel, substantially as described.

9. In switch-operating mechanism, an operating-wheel having lugs alternately arranged on opposite sides of said wheel, means for actuating said wheel, and means projecting into the path of travel of the wheel to engage with said lugs and prevent backward movement of the wheel, substantially as described.

10. In switch-operating mechanism, an operating-wheel, a shaft upon which said wheel is mounted, a ratchet-wheel mounted on said shaft, a operating-lever straddling said ratchet-wheel, a spring-pressed pawl engaging said ratchet-wheel, a pin carried by the operating-lever, and means connected to the operating-lever for actuating the same, combined with a locking-pin having a slotted head to receive the pin carried by the operating-lever whereby the locking-pin is operated simultaneously with the operation of the operating-lever and operating-wheel, and lugs on the face of said operating-wheel to engage with the locking-pin to limit the forward movement of the operating-wheel, substantially as described.

11. In operating mechanism for switches, an operating-wheel having inclined-faced lugs on both sides thereof, a spring-lock having arms which are spread by the lugs on the forward movement of the wheels, said arms when in their normal position lying back of the lugs to lock the wheel against rearward movement, a series of lugs circumferentially arranged around the hub of the operating-wheel, and a locking-pin operated simultaneously with the wheel to engage with the circumferentially-arranged lugs to limit the forward movement of the said wheel, substantially as described.

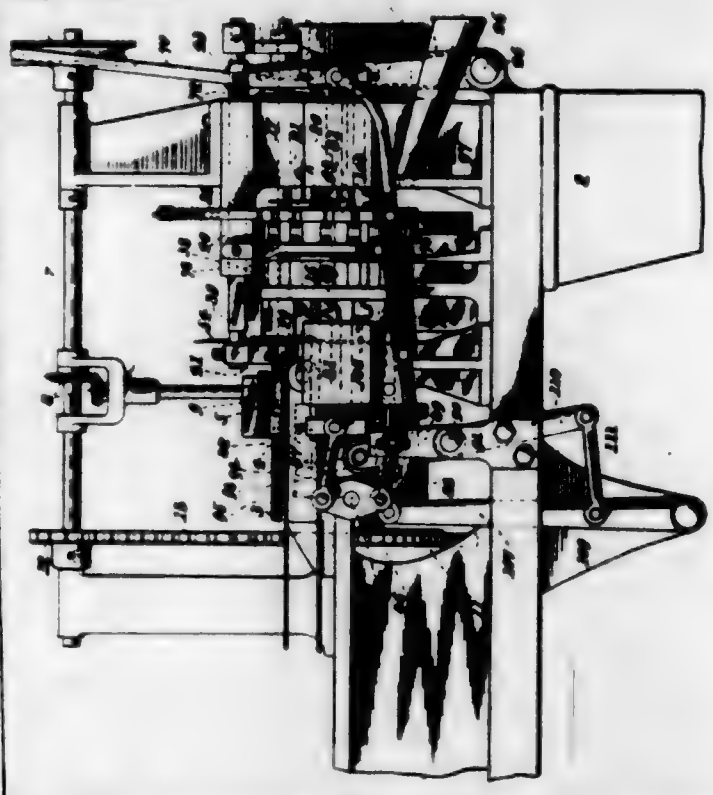
12. In switch-operating mechanism, an operating-wheel, a shaft upon which said wheel is mounted, a ratchet-wheel mounted on said shaft, an operating-lever straddling said ratchet-wheel, a spring-pressed pawl carried by the operating-lever and engaging said ratchet-wheel, means connected to the operating-lever for actuating the same, a pin carried by the operating-lever, a locking-pin provided with a slotted head to receive the pin carried by the operating-lever, and lugs carried by the side of the operating-wheel to engage with the locking-pin and limit the movement of the operating-wheel at each operation, substantially as described.

13. In switch-operating mechanism, an operating-wheel, a shaft upon which said wheel is mounted, a ratchet-wheel mounted on the shaft, an operating-lever straddling said ratchet-wheel and connected to the shaft, a spring-pressed pawl carried by the operating-lever and engaging said ratchet-wheel, means connected to the operating-lever for actuating the same, a pin carried by the operating-lever, a locking-pin having a slotted head to receive said pin whereby the locking-pin is operated simultaneously with the operating-wheel, lugs carried by said wheel for engagement with said locking-pin to limit the movement of the operating-wheel at each operation, and means within the path of travel of the wheel to prevent backward movement of said wheel, substantially as described.

14. In switch-operating mechanism, the combination with an operating-wheel inclined-faced lugs on said wheel, and means for actuating the wheel, of a locking-spring the ends of which straddle the wheel and engage the back of the lugs to hold the wheel against rearward movement, and a locking-pin operated simultaneously with the wheel to engage with the latter and limit the forward movement thereof at each operation, substantially as described.

690,887. CIGARETTE-MACHINE. CHARLES R. SPENCER, Baltimore, Md., assignor to William D. Colt, Washington, D. C. Filed May 18, 1901. Serial No. 60,305. (No model.)

Claim.—1. In a cigarette-machine, the combination of means to feed a paper-covered tobacco rod, an intermittently-rotated drum having pockets with means to bring the said pockets successively into alinement with the said tobacco rod, compressible shells situated in the said pockets with mechanism to project from the drum the shell which is in alinement with the tobacco rod so that it may receive the rod, a rotary knife to sever the portion of the rod contained in the shell, means to return the filled shell to the drum, devices to compress the filled shell, packing mechanism to longitudinally compress the tobacco in the shell, and tucking-in fingers to tack in the paper wrapper onto the compressed tobacco rod, and an ejector to force the completed cigarette from the drum, substantially as specified



2. In a cigarette-machine, an intermittently-rotated drum containing pockets which extend longitudinally of its axis, compressible shells situated in the said pockets and means to compress them combined with devices which successively pack in the ends of the portion of a tobacco rod contained in the shells and tuck in the ends of the wrapper which are exposed by the previous packing of the tobacco, substantially as specified.

3. In a cigarette-machine, the combination of an intermittently-rotated drum having pockets which extend in the direction of its axis, and compressible shells within the said pockets, with means to project them from the drum and then replace them in the drum, devices to effect the compression of the shells during a part of the rotation of the drum, means to pack the tobacco of a cigarette rod contained in a shell, and other means to tuck in the paper wrapper over the contained tobacco, substantially as specified.

4. In a cigarette-machine, the combination of an intermittently-rotated drum having pockets which extend in the same direction as its axis, compressible shells with means to give them a reciprocating sliding movement in the said pockets, means to deliver a paper-covered tobacco rod to the said shells, packing-rods with means to force their ends into the paper wrapper to compress the tobacco in the same, tucking-fingers with means to make them pass from beyond the circumference of the paper wrapper to the center of the tobacco rod and then force them inward, and mechanism to eject the completed cigarette from the drum substantially as specified.

5. In a cigarette-machine, an intermittently-rotated drum having pockets therein which extend longitudinally of its axis, compressible shells in the said pockets with means to compress them during part of the rotation of the drum, combined with means to feed a paper-covered tobacco rod into the said shells, and mechanism to successively pack the tobacco in the compressed shells and tuck in the ends of the paper wrapper over the contained tobacco rod, substantially as specified.

690,888. MANUFACTURE OF ARTIFICIAL FUEL. ERNST STRENGERS, London, England. Filed June 20, 1900. Serial No. 21,206. (No specimens.)

Claim.—1. The method of treating carbonaceous substances for the production of fuel, consisting in first impregnating such substances with sugar, then immersing it in hydrocarbon liquor, then adding to said liquor while the substances is immersed therein a solution of alkali, and finally allowing it to dry, substantially as described.

2. The method of treating carbonaceous substances for the production of fuel, consisting in impregnating the substance with sugar, then immersing it in hydrocarbon liquor, then adding to said liquor while the

substance is immersed therein a solution of alkali, then allowing it to dry, and then compressing it, substantially as described.

3. The method of treating carbonaceous substance for the production of fuel, consisting in impregnating such substance with sugar, then immersing it in bituminous liquor, then adding to said liquor while the substance is immersed therein a solution of alkali, and then allowing it to dry, substantially as described.

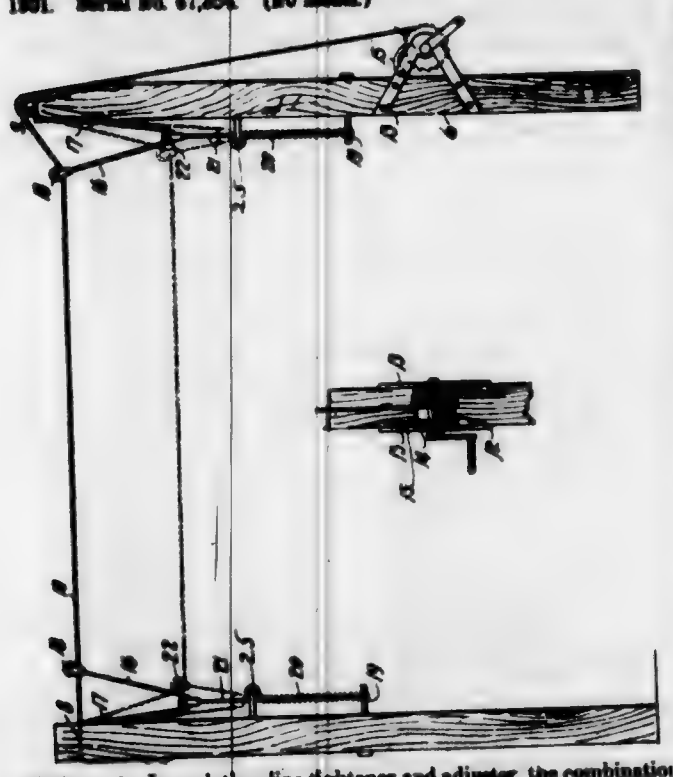
4. The method of treating carbonaceous substance for the production of fuel, consisting in impregnating such substance with sugar, then immersing it in a solution of coal-tar, petroleum and resin, then adding alkali to the said solution, and then allowing the substance to dry, substantially as described.

5. Solid fuel consisting of carbonaceous substance, sugar, coal-tar, petroleum, resin and alkali, substantially as described.

690,889. DECORATING GLASS, &c. HARRY L. VON BOSENECK, Los Angeles, Cal., assignor of two-thirds to John Edward Kelly and Nicholas A. Dan, Los Angeles, Cal. Filed June 8, 1901. Serial No. 63,862. (No specimens.)

Claim.—The ornamenting of plates or sheets of glass or other transparent material by means of paint dropped into a semifluid body of slaked lime, said paint being mixed or commingled in any desired proportions of coloring or imitative effect of color in ornamental stones, after which said paint or imitative coloring is caused to adhere to the surface of a plate or sheet of glass in the imitation desired, and whereon said commingled coloring is allowed to dry; and after being dried, the whole is washed with water, whereby any slaked lime is removed from the intermediate spaces of the colored imitation in the paint blended and adhering to the inner surface of the glass which intermediate surfaces are then covered by a ground or basic coloring caused to adhere thereto by drying thereon, the said inner surface being afterward finely coated with sand or equivalent material, for protecting it in the manner and for the purposes hereinbefore described.

690,890. CLOTHES-LINE TIGHTENER AND ADJUSTER. DAVID T. BLEVINS and DAVID H. TAYLOR, New Windsor, Colo. Filed July 6, 1901. Serial No. 67,254. (No model.)



Claim.—1. In a clothes-line tightener and adjuster, the combination with suitable stationary supports, and a line, the latter being made fast at one extremity to one of the supports, of a winding-drum to which the other extremity of the line is secured, a suitable locking device for holding the drum in the adjusted position, a pulley mounted on one of the supports and engaged by the line, a flexible device attached at one extremity to one support and provided at its opposite extremity with a device engaging the line and arranged to travel thereon, an antifrictional device engaging the flexible device between its extremities, and a yieldingly-retained connection between one of the supports and the antifrictional device.

2. In a device of the class described, the combination with a line and suitable supports, of a pulley mounted on one support, a winding-drum mounted on the same support, the line being made fast at one extremity to a support, passing over the pulley of the other support, and connected with the drum to wind thereon, a flexible device attached at one extremity to one support and provided at its opposite extremity with a device engaging the line and arranged to travel thereon, a coiled spring attached to a post, and an antifrictional device connected with the said spring and engaging the flexible device between its extremities.

3. In a device of the class described, the combination with a line and suitable stationary supports, of a pulley mounted on the upper part of one support, a winding-drum mounted below the pulley, the cord being attached at one extremity to the other support and passing over the pulley of the opposite support, its opposite extremity being attached to the drum, a flexible device attached at one extremity to one support and provided at its opposite extremity with a device engaging the line and arranged to travel thereon, an antifrictional device engaging the flexible device between its extremities, and a spring-held connection between one of the posts and the antifrictional device.

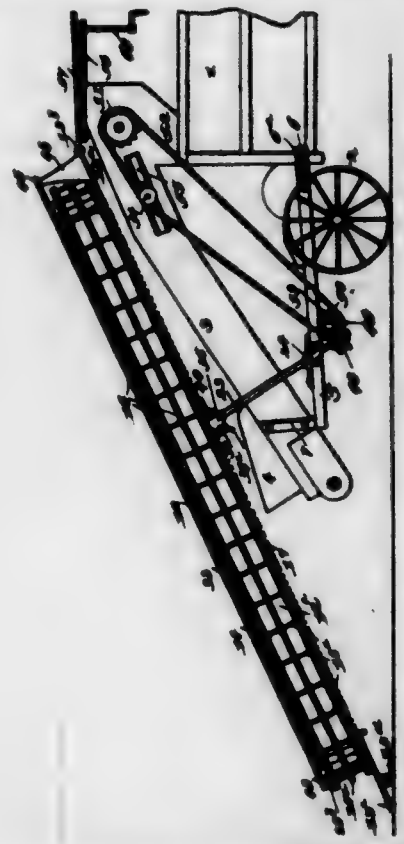
4. The combination with the line and suitable stationary supports, of a winding device mounted on one support, to which the line is attached, the line being also attached to the other support, a flexible device attached at one extremity to one support, and provided with a pulley engaging the line at its opposite extremity, and a suitable device movably attached to the flexible device between its extremities, for taking up the slack and holding the line taut as the line is released by unwinding.

5. The combination with a line and suitable stationary supports, of a winding device mounted on one support, to which device the line is attached, the line being also attached to the other support, a flexible device attached at one extremity to one support and provided with a pulley engaging the line at its opposite extremity, a spring attached to a support, and a pulley connected with the spring and engaging the flexible device intermediate its extremities.

6. The combination with a line and suitable stationary supports, of a winding device mounted on one support, to which the line is attached, the line being also attached to the other support, a flexible device attached at one extremity to each support and provided at its opposite extremity with a pulley engaging the line, a spring attached to each support, and a pulley connected with each spring and engaging the flexible device intermediate its extremities.

7. The combination with a line and suitable stationary supports, of a winding device mounted on one support, to which the line is attached, the line being also attached to the other support, a flexible device attached at one extremity to each support and provided at its opposite extremity with a pulley engaging the line, a spring attached to each support, a pulley engaging the flexible device, a flexible connection between the last-named pulley and the spring, and a guide-pulley mounted on each support and engaging said flexible connection.

690,891. AUTOMATIC FEEDER OR ELEVATOR. HENRY L. MCCOY, Manito, Ill., assignor of one-half to Charles M. Smith, Peoria, Ill. Filed Apr. 18, 1901. Serial No. 56,421. (No model.)



Claim.—1. An attachment for corn-shellers, comprising a frame with supplemental side frames, supported on a standard projecting from the sheller proper, a force-feed gatherer traveling through the carrier and around the supplemental frames, means of extending the carrier bodily

on its support and a sectional bottom therefor slidable in ways beneath the carrier and means of locking the same in adjusted positions, substantially as described.

2. In a corn-sheller, the combination of a tubular standard supported on the sheller-frame, a swinging frame journaled on the standard, a carrier-frame supported by the swinging frame, said carrier provided with rack-bars engaged by pinions on the swinging frame for extending the carrier bodily, a force-feed gatherer and a shaft journaled in the standard having a universal joint in its length and adapted to impart movement to the force-feed gatherer, substantially as described.

3. In combination with a corn-shelling machine, a tubular standard supported on the sheller-frame, a swinging frame supported on the standard and a carrier supported by the swinging frame arranged with devices engaging mechanism whereby the carrier may be extended bodily on the swinging frame, a scoop on the forward end of the carrier, a force-feed gatherer and a shaft journaled in the tubular standard for actuating the gatherer and a sectional bottom slidably arranged in ways beneath the carrier, and devices for connecting the sections in a series, substantially as described.

4. The combination with a corn-shelling machine, a tubular standard supported from the sheller, a transverse frame-support having a swinging connection with and supported by the standard, a carrier-frame supported by the transverse frame provided with rack-bars engaged by pinions carried on a transverse spindle of the standard, a scoop at the forward end of the carrier and a bottom formed of sections slidable in ways in the rack-bars, force-feed gatherers arranged to automatically drag material into and convey it to the discharge of the carrier, and a shaft journaled in the standard supporting the carrier and means for actuating the force-feed from said shaft, substantially as described.

5. An attachment for corn-shellers, comprising a carrier arranged with force-feed gatherers journaled in such a manner as to travel around the side frame-supports thereof, a scoop at its forward end, a tubular standard extending up from the sheller-frame, a transverse support of the standard arranged beneath the carrier and the means shown for supporting the carrier from the support, rack-bars under the carrier and pinions journaled in the transverse supports engaging said racks for moving the carrier bodily, a shaft journaled in the standard having a universal coupling in its length, a sprocket-chain drive for the gatherer arranged to be actuated by the shaft in the standard and the means of actuating said shaft, substantially as described.

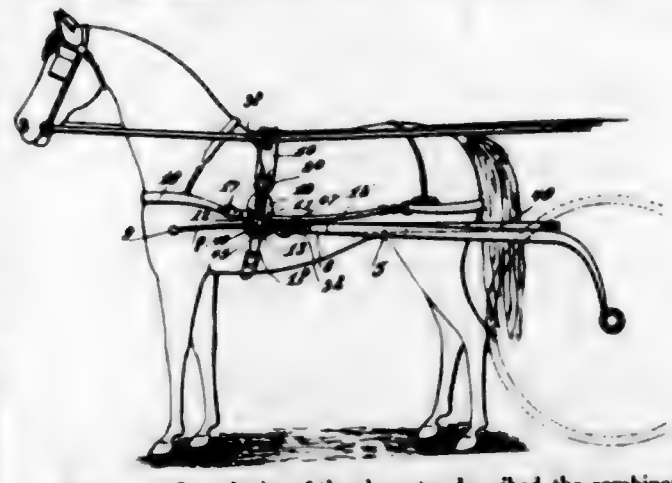
6. An attachment for corn-shellers, comprising a carrier-frame movably supported from a tubular standard mounted on a frame-support of the sheller capable of being raised or lowered, a transverse swingable support from the standard, longitudinal guideways on the sides of the carrier-frames and rollers arranged to travel in said guides supported from the swingable frame, a sectional bottom of the frame adapted to be slidably connected and disconnected in the manner shown, gathering devices of the carrier arranged to automatically drag material into and convey it to the discharge of the carrier and a shaft journaled in the standard for imparting movement to the gatherer and means provided for extending the carrier-frame bodily on the swingable frame, substantially as herein shown and described.

7. An attachment for corn-shellers supported and movable on a standard mounted on a swinging frame of the sheller and having side frames 11 and supplemental side frames 12, a scoop at its forward end, cog-racks arranged beneath the frames 11 and pinions engaging said racks for moving the carriers bodily, a sectional bottom for the frame sliding in grooves in the rack-bars and the means of connecting and detaching the sections, devices supported by said standard supporting the carrier and having a movable relation therewith, of force-feed gatherers traveling around devices at the forward and rear ends of the carrier and having a bearing relation with the inner and outer faces of the frames 11 and 12 of the carrier, means for actuating the gatherers and the arrangement of mechanism for swinging the carrier on its support, substantially as described.

8. An attachment for corn shellers, comprising a carrier-frame supported from a tubular standard 23, side frame-supports 11 and 12 of said frame, a series of belts connected and provided with fingers traveling around the supports, a transverse bearing-frame 34 supporting the flanged wheels 38 arranged to travel in channels on the sides of the supports formed by the straps 39, cog-racks of said frame engaged by rack-pinions for shifting the carrier bodily through the cog-racks, a sectional bottom of said carrier, a driving-shaft for said belts journaled in the standard and having a universal coupling in its length, the upper end of said shaft journaled in a bearing provided with devices traveling in a channel arranged between the supports 11 and 12 and means of connecting and detaching the sections of the bottom and means for swinging the support bodily, substantially as described.

9. In combination, the carrier 10 provided with oppositely-arranged gathering devices movable longitudinally in the carrier, supplemental side supports of the carrier, a tubular standard for supporting the carrier and a transverse support of said standard, straps 39, forming a longitudinal channel, flanged wheels 38 traveling in said channels and supported by the transverse support, a shaft in the standard and connections with devices for actuating the gathering devices, bearing-plates 27 of said carrier forming a channel for the upper end of said shaft and provided with studs carried in said channel, a series of bottom sections or plates 19 movably carried in the carrier and connecting-rods 20 between the plates, all arranged substantially as herein shown and described.

690,892. **DEVICE FOR HITCHING OR UNHITCHING HORSES.** SAMUEL McINTYRE, Canterbury Station, Canada, assignor of one-fourth to Archie Douglass Annett, Saco, Me. Filed Mar. 30, 1901. Serial No. 53,572. (No model.)

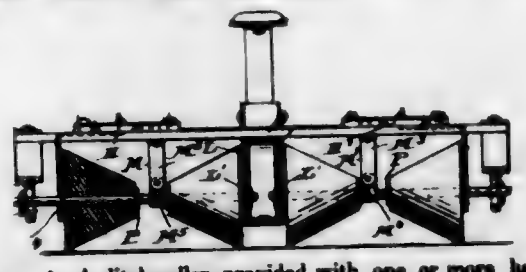


Claim.—1. In a device of the character described, the combination of a carrier-plate provided with a keeper, a latch slidably fitted on the carrier-plate and engageable with said keeper, a lever fulcrumed on said carrier-plate, and a link pivoted to the latch and slidably connected to the lever, substantially as described.

2. In a device of the character described, the combination with a carrier-plate provided with a keeper and with flanges forming a guideway, a latch slidably fitted in the guideway and adapted to be engaged with said keeper, a lever fulcrumed on the carrier-plate and provided with an eccentrically-arranged stud or pin, and a slotted link pivoted to the latch and having slidable engagement with said stud or pin of the lever, substantially as described.

3. In a device of the character described, the combination of a carrier-plate, a retaining-keeper pivoted thereon and controlled by a spring which quickly throws said keeper to its open position, a latch slidably fitted on said carrier-plate, a cam-lever pivoted to said plate and having a safety-line attached thereto, a segment pivoted to said slidable latch and engaging with said cam-lever, and a trace-thimble arranged to be confined by and between the carrier-plate and the keeper, as and for the purposes described.

690,893. **DITCH-ROLLER.** SQUIRE D. McGUIRE, Guilford, Mo., assignor of one-half to Jefferson C. Hocker, Guilford, Mo. Filed Sept. 21, 1901. Serial No. 76,122. (No model.)



Claim.—1. A ditch-roller provided with one or more hangers, a shaft pivoted to each hanger, and rollers loosely mounted on each shaft, one of said rollers being adapted to slide laterally on its shaft, substantially as shown and described.

2. A ditch-roller provided with one or more pivoted shafts, having rollers mounted thereon, one of which is loosely mounted and adapted to slide laterally on its shaft, and means for regulating the sliding lateral movement of said roller, substantially as shown and described.

3. A ditch-roller provided with one or more pivoted vertically-movable shafts having rollers thereon, one of which is loosely mounted and adapted to slide laterally, and means for limiting the said sliding lateral movement, substantially as shown and described.

4. A ditch-roller provided with a shaft having rollers, a hanger consisting of depending arms, and a tubular support pivoted between said arms in which said shaft is mounted, substantially as described.

5. A ditch-roller provided with a shaft having rollers, one of which is loosely mounted and laterally adjustable on said shaft, a hanger, a support pivoted thereto in which said shaft is mounted, and means for regu-

lating the movement of the laterally-adjustable roller, substantially as shown and described.

6. A ditch-roller provided with a vertically-pivoted shaft having rollers, one of which is laterally adjustable, means for limiting said lateral movement, and means for receiving and guiding the ends of the shaft, substantially as shown and described.

7. A ditch-roller provided with a shaft having rollers, one of which is laterally adjustable on said shaft, a hanger, a support pivoted thereto in which said shaft is mounted, a hand-lever, a stop-lever one end pivoted to the hand-lever and the other end adapted to engage with the laterally-adjustable roller and limit its lateral movement, substantially as shown and described.

8. A ditch-roller provided with a shaft having rollers, one of which is laterally adjustable thereon, a hanger, a support pivoted thereto in which said shaft is mounted, a stop-lever, one end of which is pivoted to a hand-lever and the other end adapted to engage with the laterally-adjustable roller to limit its lateral movement, and brackets having slots in which the ends of said shaft engage and slide, substantially as shown and described.

9. A ditch-roller provided with one or more pivoted shafts, each shaft having a roller loosely mounted thereon adapted to slide laterally, and a non-slidable roller, and means for limiting the movement of the laterally-slidable roller, substantially as shown and described.

10. A ditch-roller provided with a shaft having rollers, one of which is laterally adjustable, a hanger on which the shaft is pivoted, a lever provided with a slot which embraces said shaft and limits the lateral movement of the laterally-adjustable roller, substantially as shown and described.

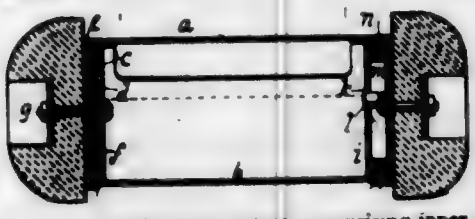
11. A ditch-roller provided with pivoted shafts, each having rollers thereon, a bracket provided with slots with which the inner ends of said shafts engage and in which they move, and brackets provided with slots with which the outer ends of said shafts engage and in which they move, substantially as shown and described.

12. A ditch-roller provided with a frame, shafts having rollers, one of which is laterally adjustable, hangers, depending from said frame, supports pivoted to said hangers in which the shafts are mounted, a U-shaped bracket at the center of the frame provided with slots, with which the inner ends of the shaft engage, brackets at the sides of the frame, with which the outer ends of the shafts engage, substantially as shown and described.

13. A ditch-roller provided with a vertically-pivoted shaft, rollers mounted loosely on said shaft, one of which is adapted to move vertically and the other to move vertically and slide laterally, and means for limiting the sliding movement of the laterally-movable roller, substantially as shown and described.

14. A ditch-roller provided with one or more hangers, and one or more shafts each provided with a pair of rollers, comprising a loosely-mounted slidable roller and a loosely-mounted non-slidable roller, said shafts pivoted to the hangers at a point between said rollers, substantially as shown and described.

690,894. PNEUMATIC-DESPATCH-TUBE CARRIER. ALBERT W. PEARSALL, Mount Vernon, N. Y. Filed Apr. 3, 1901. Serial No. 54,208. (No model.)



Claim.—1. A carrier or receptacle comprising inner and outer sections pivoted eccentrically with respect to one another substantially as described.

2. A carrier or receptacle comprising inner and outer sections made to pivot or rotate eccentrically with respect to one another each part being provided with a packing or felt made to rotate or swivel with its respective part substantially as described.

3. A carrier or receptacle comprising inner and outer sections pivoted eccentrically with respect to one another, each section being provided with an end felt or packing and having such end braced or backed by the other section substantially as described.

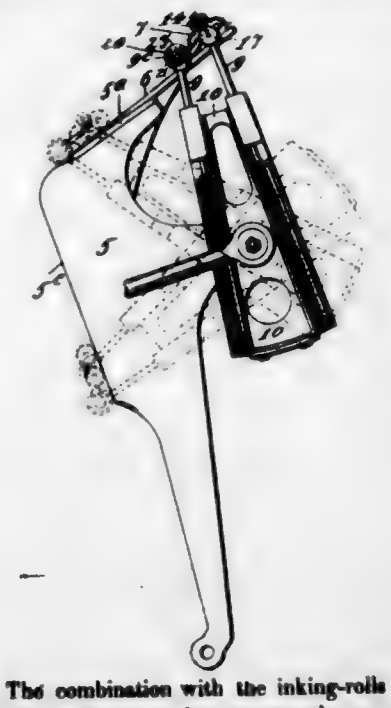
4. A carrier or receptacle comprising two parts operating one within the other pivoted eccentrically and made to move to a concentric position when closed and to move to an eccentric position when open substantially as described.

5. A carrier or receptacle comprising two eccentrically-pivoted parts or sections, each part having a mouth or cut-away part in its wall and said mouths being made to coincide for opening the carrier and for bringing the weight of material of the same opposite the coinciding mouths for holding the open carrier in position with its mouth upward substantially as described.

6. A carrier or receptacle comprising two sections operating one within the other each provided with a felt or packing, and pivoted eccentrically to one another so that on swiveling the parts to open the carrier a point on the circumference of the felt of one part is made to project beyond the boundary of the other part substantially as described.

7. A carrier or receptacle comprising parts placed one within the other and having cuts or openings in their walls or sides, the inner part when opening and closing being made to swivel or move eccentrically with regard to the outer part and said outer part having its mouth of such size as to allow such eccentric movement of the inner part substantially as described.

690,895. MEANS FOR INKING PRINTING-PRESS ROLLS. JOHN H. SCHUMLER, Denver, Colo., assignor of one-half to William M. Caldwell, Denver, Colo. Filed Feb. 4, 1901. Serial No. 45,869. (No model.)



Claim.—1. The combination with the inking-rolls of a printing-press, of a distributing-roll mounted to engage the two inking-rolls, a pinion fast on the distributing-roll, a cam-gear mounted to engage said pinion and impart an endwise movement to the distributing-roll, a spindle upon which said gear is loosely mounted, an arm for locking the cam-gear against endwise movement while the rolls are passing over the ink-disk, and means for disengaging said arm from the gear whereby the latter is permitted to move endwise, and the endwise movement of the distributing-roll stopped as the rolls are passing over the type-surface.

2. The combination with the inking-rolls of a printing-press, of a distributing-roll mounted to engage two of the inking-rolls, a pinion fast on the distributing-roll, a spindle mounted to travel with the rolls, a cam-gear loosely mounted on said spindle and provided with a sleeve, the connection between the gear and the spindle being such that the distributing-roll or the gear and its sleeve, must move endwise, an arm mounted to travel with the rolls and normally locking the sleeve against endwise movement, means for automatically disengaging said arm from the sleeve to allow the latter to move endwise whereby the endwise movement of the distributing-roll ceases, and means for automatically returning said arm to its locking position.

3. The combination with the inking-rolls of a printing-press, of an endwise-movable distributing-roll mounted to engage two of said inking-rolls, a spindle mounted to travel with the rolls, a sleeve loose on said spindle, a cam-gear connection between the distributing-roll and the sleeve of the spindle, whereby the one or the other must move endwise during the operation of the rolls, a device for locking the sleeve against endwise movement, and means for automatically unlocking the said device and returning it to the locking position at predetermined intervals, whereby the endwise movement is alternately imparted to the sleeve and distributing-roll.

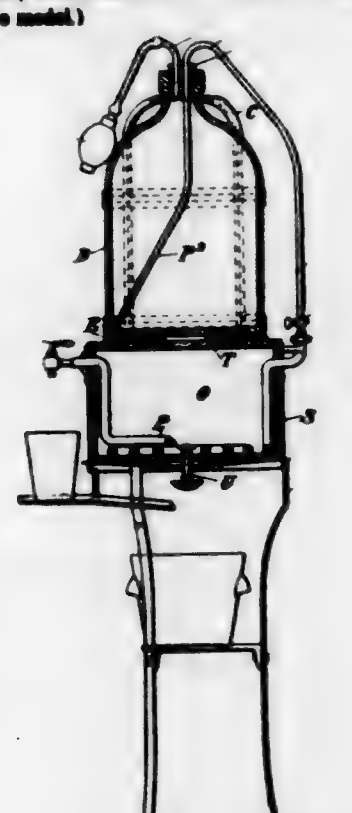
4. The combination with the inking-rolls of a printing-press, of an endwise-movable distributing-roll engaging two of the inking-rolls, an endwise-movable sleeve mounted to travel with the inking-rolls, a cam-gear connection between the sleeve and the distributing-roll whereby the one or the other moves endwise during the travel of the rolls, an arm mounted to travel with the rolls and arranged to lock the sleeve against endwise movement, a high-tread truck part mounted on the third inking-roll and movable longitudinally thereon, and a connection between the said locking-arm and the said high-tread truck part whereby the position of the locking-arm is automatically changed by the action of the high-tread truck part of the roll, to control the action of the distributing-roll.

5. The combination with the inking-rolls of a printing-press, of an

endwise-movable distributing-roll engaging two of the inking-rolls, and a third inking-roll provided with a movable high-tread truck part, and a connection between the distributing-roll and the high-tread truck part, whereby the endwise movement of the distributing-roll is regulated and controlled by the said truck part.

6. The combination with the inking-rolls of a printing-press, of an endwise-movable distributing-roll mounted to engage two of the inking-rolls, a spindle mounted to travel with the inking-rolls, an endwise-movable sleeve mounted on said spindle, a cam-gear connection between the sleeve and the distributing-roll whereby one of them must move endwise, a jointed spring-held arm mounted on the hook of the third inking-roll, and normally arranged to engage the spindle and lock the sleeve against endwise movement, a spring-held high-tread truck part mounted on the third inking-roll, a projection extending from the locking-arm to engagement with the said truck part, whereby as the said truck part moves in a direction parallel with the axis of the roll, the locking-arm is shifted for the purpose set forth.

690,896. SANITARY WATER FOUNTAIN AND COOLER. SIDNEY S. SHEARS, New York, N. Y. Filed Oct. 24, 1900. Serial No. 734,022. (No model.)



Claim.—1. In a portable water tank and cooler the following elements in combination: a portable receptacle for water provided with an inlet and outlet opening at the top; a siphon-pipe, the short leg of which passes through the inlet cork or stopper, and the long leg of which extends outside of the receptacle; a rubber air-bulb having antiseptic material located in the bulb and also a pipe connection passing through the inlet cork or stopper of the receptacle; and a support supporting an ice-box or refrigerating-chamber containing a coil of pipe detachably connected with the long leg of the siphon-pipe and extending through and out of the chamber and having a terminal cock, on or over which refrigerating-chamber the portable receptacle is placed and supported, substantially as shown and described.

2. In a portable water tank and cooler the following elements in combination: a portable receptacle for water provided with an inlet and outlet opening at the top; a siphon-pipe, the short leg of which passes through the inlet cork or stopper, and the long leg of which extends outside of the receptacle and is provided with a branch outlet and cock; a rubber bulb having antiseptic material located in the bulb and also a pipe connection passing through the inlet cork or stopper of the receptacle; and a support supporting an ice-box or refrigerating-chamber containing a coil of pipe detachably connected with the long leg of the siphon-pipe and extending through and out of the chamber and having a terminal cock, on or over which refrigerating-chamber the portable receptacle is placed and supported, substantially as shown and described.

690,897. TAPE-HOLDER. RICHARD SIMS, Newark, N. J., assignor to the Whitehead & Hoag Company, Newark, N. J., a Corporation of New Jersey. Filed Apr. 24, 1901. Serial No. 57,225. (No model.)

Claim.—1. A tape-holder comprising a shell having a tape-opening and a stud projecting from its periphery, and a sliding bar mounted on the periphery of the shell and provided with a slot receiving the stud, said bar being movable across the opening for the purpose described.



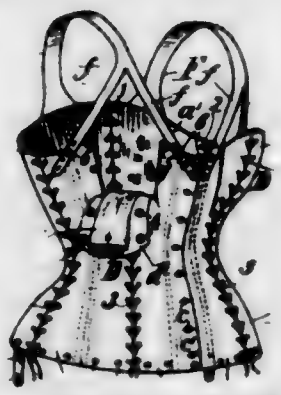
2. The combination with a cylindrical shell having a tape-opening in its peripheral wall, a manually-operating sliding bar engaged with the periphery of the shell and movable across the opening, said bar being formed with an elongated slot, and a fastening member having one end passed through the slot and secured to the shell and its outer end formed with a head wider than the slot for the purpose set forth.

3. The combination with a shell having separated annular shoulders and a tape-opening, a spring-wound tape supported in the shell and movable through said opening, and a circumferentially-movable bar mounted on the periphery of the shell between said shoulders and having one end arranged to frictionally engage the tape for the purpose set forth.

4. A tape-receiving shell comprising a cylindrical ring having a tape-opening, and opposite heads or caps having inturned flanges lapped upon the periphery of the ring, in combination with a spring-wound tape movable through the opening, and a manually-operated circumferentially-movable bar mounted on the periphery of the ring between said flanges and having one end arranged to engage the tape for the purpose set forth.

5. A tape-holder comprising a cylindrical shell having a tape-opening, a fixed circular plate adjacent to one of the side walls of the shell and having portions thereof cut and bent inwardly for forming a trunnion, a spring-actuated drum journaled on the trunnion and a tape connected to the drum and movable through the opening and a circumferentially-movable bar mounted on the periphery of the shell and movable across the opening for engaging the tape.

690,898. EXTENSIBLE CORSET. FRANCES C. SMITH, Atlanta, Ga., assignor of one-fourth to Annie Inman Grant, Atlanta, Ga. Filed Sept. 12, 1901. Serial No. 75,150. (No model.)



Claim.—1. A corset comprising a plurality of sections laced together, and having flaps formed over the bust, said flaps forming part of two adjacent sections of the corset whereby they may be extended, substantially as shown and described.

2. The combination, with the corset embodying the plurality of sections laced together, and the bust-flaps, of the shoulder-straps having bifurcated ends, and means for attaching said ends to the corset at the sides of the flaps, whereby pressure is removed from the breasts, substantially as shown and described.

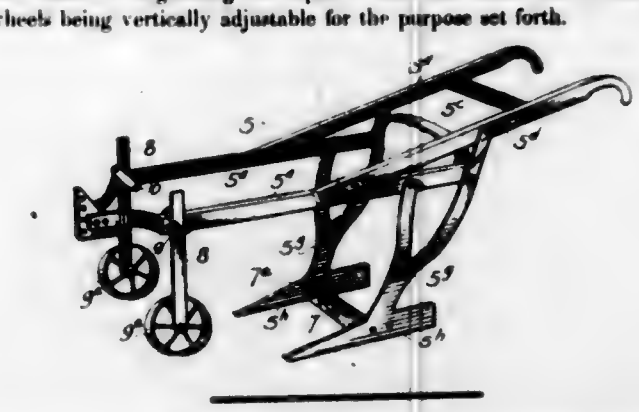
3. In a corset, the combination, with the plurality of sections laced together, and the extensible connections at the joints of said sections, and the flaps and fasteners therefor, of the shoulder-straps having the bifurcated ends, and a row of buttons on the lower edge of the corset for supporting a skirt, substantially as shown and described.

690,899. CELERY-HARVESTING IMPLEMENT. JOHN G. SMYTH, Denver, Colo., assignor of one-half to Frank M. Irish. Filed June 13, 1901. Serial No. 65,049. (No model.)

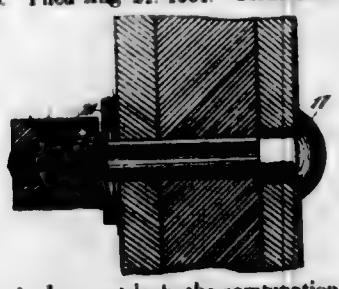
Claim.—1. In an implement for harvesting celery, the combination with a suitable frame, of depending bars located on opposite sides of the frame and attached thereto, said bars terminating in integral parallel runners suitably separated and extending in the direction of the line of travel, and a knife whose extremities are respectively attached to the bars and arranged to extend transversely to the direction of travel, and pass beneath the ground at a suitable depth to cut the roots of the celery.

2. In an implement of the class described, the combination with an

upper framework, of two depending bars one on each side, said bars being attached to the framework, runners connected with the lower extremities of the bars, said runners being parallel with each other, and extending in the direction of the line of travel, a transverse knife connecting the runners which extend both forward and back from the knife extremities, and wheels for regulating the depth of the knife below the surface, said wheels being vertically adjustable for the purpose set forth.



690,900. NUT-LOCK. LEVI T. STEPHENSON, Trinidad, Colo., assignor of one-half to William P. Dunlavey and James P. Dunlavy, Trinidad, Colo. Filed Aug 21, 1901. Serial No. 72,841. (No model.)



Claim.—1. In a nut-lock, the combination with a shank having oppositely-threaded portions, of a nut threaded on each portion, said nuts being provided on their adjacent faces with interlocking holding means, and a spring-washer fitted upon the shank beneath the inner nut, said washer comprising a base, and a sectional washer, the sections being secured to the base intermediate their ends, and having their terminals spaced from said base.

2. In a nut-lock, the combination with a shank having oppositely-threaded portions, of a nut threaded on each portion, said nuts being provided on their adjacent faces with interlocking holding means, and a spring-washer fitted upon the shank beneath the inner nut, said washer comprising a base and a sectional washer, the sections being secured to the base intermediate their ends and having their terminals located adjacent to each other, said terminals being spaced from the base and bearing against the under side of the lower nut.

3. A spring-washer comprising a base having a bolt-receiving opening therethrough, and a spring element secured to one face of the base, said spring element comprising sections secured to the base intermediate their ends and having said ends spaced from the base and located adjacent to each other.

690,901. SIGN FOR STREET-LAMPS. CHAS I. TERRELL, Chicago, Ill., assignor of one-half to Daniel W. Fishell, Chicago, Ill. Filed Nov. 18, 1899. Renewed Oct. 28, 1901. Serial No. 80,325. (No model.)

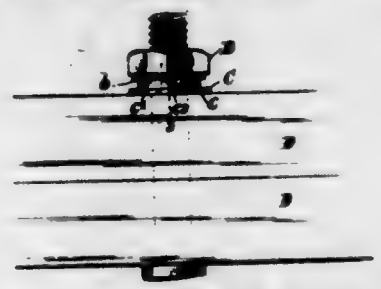


Claim.—1. In a street-lamp-post device for indicating streets and other things, the combination of a sheet having the upper and lower edges thereof turned to form a guard and rest respectively, a strip secured to the back of such sheet, the strip curved to encircle the lamp-post, means for securing the ends of the strip together and thereby securing it to the lamp-post, sheets secured, respectively, to the ends of the first-named sheet so as to extend in planes substantially at right angles to each other, additional sheets attached to the last-named sheets, respectively, all of such sheets additional to the first-named one having the upper and lower edges and the outer ends thereof turned to form guards and rests, respectively, means for securing together and to the strip encircling the lamp-post the meeting ends of the last-named additional sheets, plates fitting into the respective guards and rests, and vertical guards over the several meeting ends of the plates; substantially as described.

2. In a street-lamp-post device for indicating streets and other things, the combination of sheets having the upper and lower edges thereof turned to form guards and rests, respectively, such sheets positioned relative to each other so that plates may be slid into the guards and rests at the meeting ends of the sheets, additional sheets pivotally attached to the outer ends of the end sheets, such last-named sheets also having the upper and lower edges turned to form guards and rests, respectively, guards on the ends of the pivotally-attached sheets and on the adjacent ends of the sheets to which such sheets are pivotally attached, a strip attached to the middle one of the first-named sheets and curved to surround the lamp-post, such strip having the ends thereof extending beyond the curved part and the pivotally-attached sheets having the inner and meeting ends bent into planes substantially parallel with the planes in which the ends of the curved strip extend so as to be bolted thereto, bolts for securing such ends together, and plates fitting into the respective guards and rests, substantially as described.

3. In a street-lamp-post device for indicating streets and other things, the combination of sheets joined together with the upper edges thereof respectively back from a vertical plane so as to receive light from a lamp above the device, all of such sheets provided with upper and lower guards and rests, two of such sheets at an obtuse angle with the sheet interposed between them and at substantially a right angle with each other, and the remaining two sheets pivotally attached to the outside ends of the sheets which are at substantially a right angle to each other, a curved strip attached to one of the sheets and means for attaching the ends adjacent to such strip on the pivotally-attached sheets, when such sheets are closed, to such strip, plates fitting into the guards and rests, guards covering the meeting ends of the plates, and guards on the outer ends of the respective sheets, substantially as described.

690,902. NUT-LOCK. DAVID T. WALLACE, Chicago, Ill. Filed May 27, 1901. Serial No. 61,980. (No model.)



Claim.—1. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections which extend beyond the plane of the inner face of the nut, of a washer non-rotatively mounted on the bolt having a cylindric body which fits snugly within the space surrounded by said teeth or projections and provided on its inner end with a radial annular flange, said flange being cut and bent outwardly to form a click which engages said teeth or projections.

2. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections which are formed entirely inside the plane of said inner face of the nut, of a washer mounted non-rotatively on the bolt having a cylindric body which fits snugly within the space surrounded by said teeth or projections and provided on its inner end with a radial annular flange, said flange being cut and bent outwardly at one side thereof to form a click which engages said teeth or projections, said cylindric body of the washer extending past the end of said click.

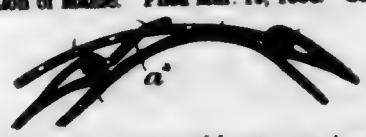
3. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections which are formed entirely inside the plane of the inner face of the nut, of a washer having a cylindric body which fits snugly within the space surrounded by said teeth or projections and provided on its inner end with a radial annular flange, said flange being cut and bent outwardly at one side thereof to form a click which engages said teeth or projections, said bolt being provided with a longitudinal groove and an inwardly-directed lug on the washer adapted to engage the groove.

4. The combination with a bolt and a nut, said nut being provided on its inner face with an annular series of teeth or projections, of a washer mounted non-rotatively on the bolt, consisting of a sheet-metal part having a hollow cylindric body which is adapted to enter the space surrounded by said teeth or projections, and a radial annular flange on one end of said body which is cut and bent outwardly to form a click for engagement with said teeth or projections, and a ring adapted to fill said hollow cylindric body to prevent crushing thereof.

690,903. COMPOSITION FOR REPAIRING BICYCLE-TIRES. OLIN J. CAMPBELL and JACOB R. BEAM, Bigrun, Pa., said Beam assignor to said Campbell. Filed June 7, 1901. Serial No. 63,612. (No specimens.)

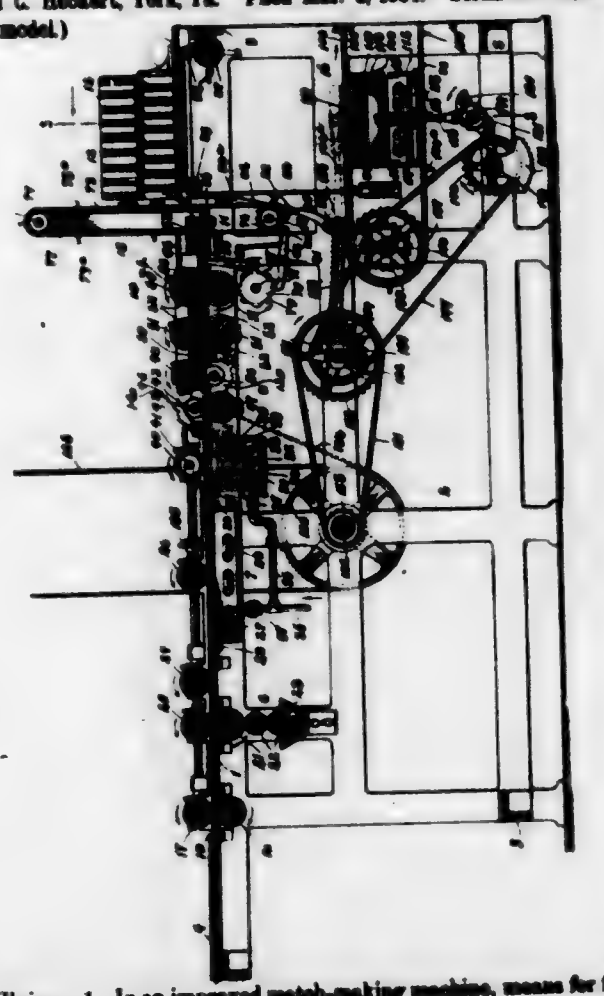
Claim.—The herein-described composition of matter, consisting of gum-arabic, gray ocher, whiting, rye-flour, and lampblack, in substantially the proportions specified.

690,904. CLASP. NEWTON CRANE, Newton, Mass., assignor, by direct and mesne assignments, to the Crane Buckle Company, Portland, Me., a Corporation of Maine. Filed Mar. 19, 1896. Serial No. 674,419. (No model.)



Claim.—A clasp or fastener comprising two parts, one part consisting of an elongated strip having a number of engaging portions at intervals along its length, and the other part consisting of a plate bent or formed to present substantially parallel end portions at different elevations and an oblique intermediate portion, and having an aperture through said oblique portion through which the said strip passes, and also having a rigid tongue projecting from one of the end portions into said aperture which is disposed to engage any one of the said engaging portions on the strip, substantially as described.

690,905. MATCH-MAKING MACHINE. JOSEPH DELA MAR, New York, N. Y., assignor of nine-tenths to Samuel Kaufman, New York, N. Y., and George A. Kohler, George S. Mayer, William H. Mayer, Jacob A. Mayer, Frank W. Mayer, Gertrude C. McDade, Isaac Kohler, and John C. Heckert, York, Pa. Filed Mar. 8, 1901. Serial No. 50,287. (No model.)



Claim.—1. In an improved match-making machine, means for feeding the stock in strip form, means for heating the same, means for applying paraffin to the same at predetermined points, longitudinal-severance means whereby the stock is divided into match widths, transverse-severance means whereby the match widths are divided into match-bodies, and means for applying the match-head compound to the match-bodies.

2. In an improved match-making machine, means for feeding the stock in strip form, means for applying paraffin to the same at predetermined points, longitudinal-severance means whereby the stock is divided into match widths, transverse-severance means whereby the match widths are divided into match-bodies, finishing means whereby the match-bodies are rounded or finished in form, and means for applying the match-head compound to the match-bodies.

3. In an improved match-making machine, means for feeding the stock in strip form, means for applying paraffin to the same at predetermined points, longitudinal-severance means whereby the stock is divided into match widths, transverse-severance means whereby the match widths are divided into match-bodies, and means for applying the match-head compound to the match-bodies.

4. In an improved match-making machine, means for feeding the stock in strip form, means for printing predetermined parts of the same, means for applying paraffin to predetermined parts of the same, longitudinal-severance means whereby the stock is divided into match widths, transverse-severance means whereby the match widths are divided into match-bodies, and means for applying the match-head compound to the match-bodies.

5. In an improved match-making machine, means for feeding the stock in strip form, means for applying paraffin to predetermined portions of the stock, means for reducing the stock to match-bodies, and means for applying the match-head compound to the match-bodies.

6. In an improved match-making machine, means for feeding the stock in strip form, means for printing the stock in predetermined portions, means for applying paraffin to predetermined portions of the stock, means for reducing the stock to match-bodies, and means for applying the match-head compound to the match-bodies.

7. In an improved match-making machine, means for feeding the stock in strip form, means for applying paraffin to predetermined portions of the stock, means for reducing the stock to match-bodies, finishing means whereby the match-bodies are rounded or finished in form, and means for applying the match-head compound to the match-bodies.

8. In an improved match-making machine, means for feeding the stock in strip form, means for reducing the stock to match-bodies, a plurality of frames in which the match-bodies are received, a vertical carrier by which the frames are moved successively across the path of movement of the stock in position to receive the match-bodies, means for successively feeding the frames to the vertical carrier, a horizontal carrier by which the filled frames are successively moved to a point of deposit, and a conveyer by which the frames are successively transferred from the vertical carrier to the horizontal carrier.

9. An improved match-making machine, comprising means for feeding the stock in strip form, printing-rollers between which the stock is passed and whereby the stock is printed in predetermined portions, means for heating the stock, a paraffin-roller whereby paraffin is applied to predetermined portions of the heated stock, a gang of rotary saws whereby the stock is divided into match widths, fluted finishing-rollers between which the stock is passed and whereby the match widths are rounded in form, means for dividing the match widths into match-bodies, and means for applying the match-head compound to the match-bodies.

10. In an improved match-making machine, means for feeding the stock in strip form, means for applying paraffin to predetermined portions of the stock, means for dividing the stock into match widths, finishing means whereby the match widths are rounded in form, and means for dividing the match widths into match-bodies.

11. In an improved match-making machine, means for feeding the stock in strip form, means for heating the stock, means for applying paraffin to predetermined portions of the stock, means for dividing the stock into match widths, finishing means whereby the match widths are rounded in form, and means for dividing the match widths into match-bodies.

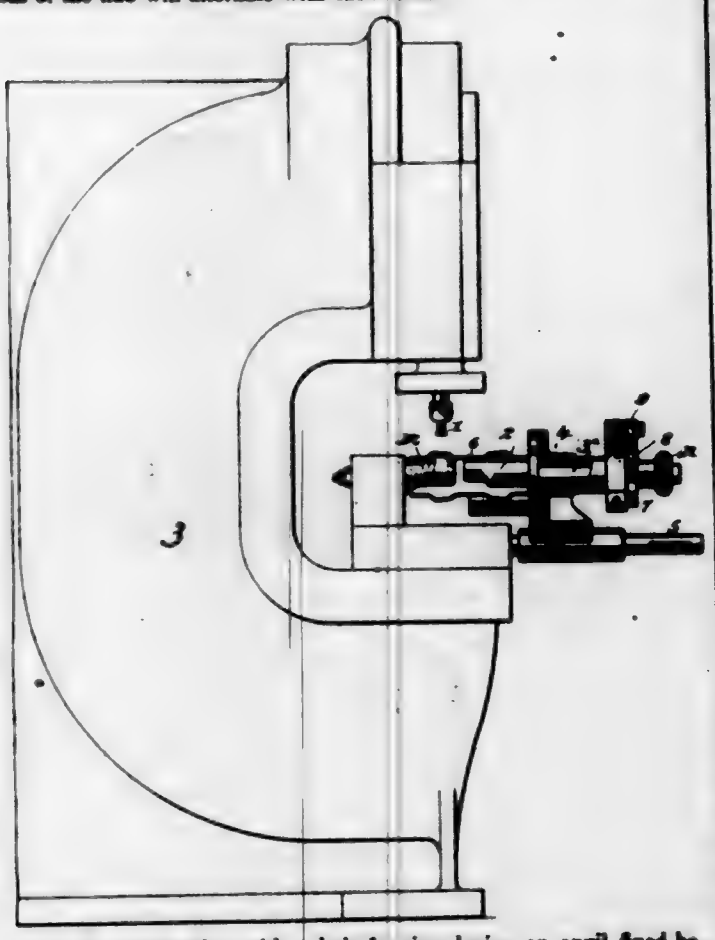
690,906. MACHINE FOR FORMING SPOKE-HOLES IN HUBS. EMIL ENGELST, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company, a Corporation of Illinois. Filed Aug. 28, 1901. Serial No. 73,668. (No model.)

Claim.—1. In combination with a hole-forming tool, a hub-holding device adapted to be detachably engaged with the hub and present the same in reverse positions to the tool to receive holes at predetermined points, the relation of the tool and engaging means being such that the holes formed in one end will be opposite the intervals between the holes in the other end.

2. The combination with a hole-forming tool, of a hub-holding device adapted to present the hub in predetermined positions with relation to the tool, and means for engaging the holding device with the hub in reverse positions; whereby both ends of the hub may be presented to the tool.

3. In combination with an operating-tool, a hub-holding device adapted to present the hub in predetermined positions to the tool and means for

engaging the hub with the holding device in reverse positions, said means being so formed with relation to the tool that the holes formed in the two ends of the hub will alternate with each other.



4. In combination with a hole-forming device, an anvil fixed beneath the same, a rotating core adapted to enter one end of a hub and movable to and from the anvil; whereby the opposite end of the hub may be presented over the anvil to the action of the tool.

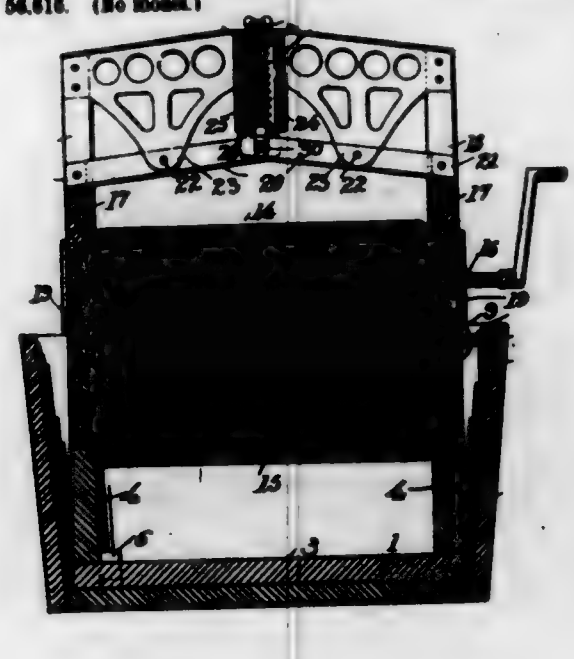
5. In combination with an operating-tool, a hub-holder comprising a rotary device adapted to enter the hub, means for engaging the device with the hub in reverse positions and means for determining the movement of the device to advance the hub step by step.

6. In combination with a hole-forming tool, a rotary core adapted to extend within the hub and provided with a pin arranged to enter a hole in the hub; whereby the hub may be reversed end for end on the core, and means for determining the movement of the core to present the hub to the tool in predetermined positions.

7. In combination with an operating-tool, a rotary core provided with a pin arranged to one side of a longitudinal plane through the core and tool.

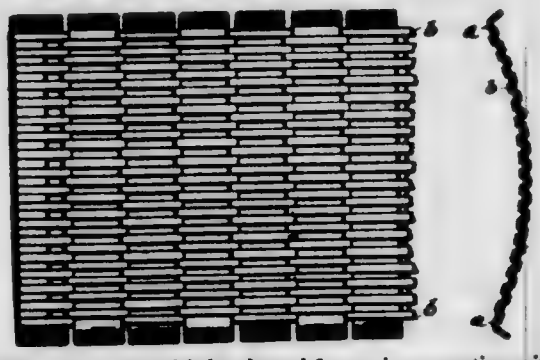
8. In combination with a hole-forming tool, a slide movable to and from the same, a rotary hub-holder carried by the slide and adapted to engage and present a hub to the action of the tool, and means for rotating the hub-holder to present the hub at predetermined positions with reference to the tool.

690,907. WASHING-MACHINE. ORIN L. JOHNSON, Mills, Pa., assignor to Joseph R. Johnson, Mills, Pa. Filed Apr. 19, 1901. Serial No. 56,616. (No model.)



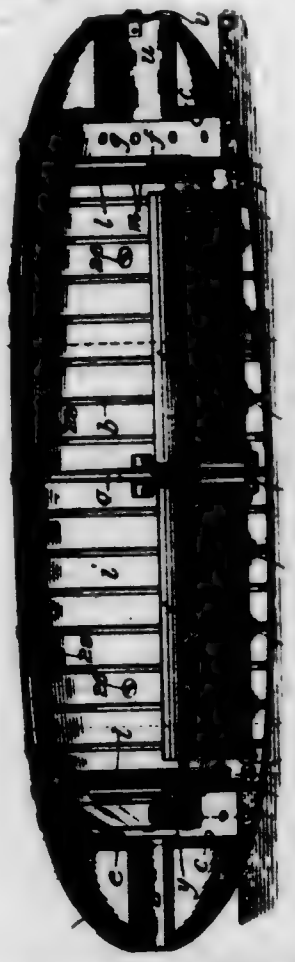
Claim.—The combination of a frame provided at its top with a vertical tubular casing depending from the center of the top of the frame having a bottom flange, said frame being provided at opposite sides with ways, slides mounted in the ways, upper and lower rolls mounted, respectively, on the slides and on the sides of the frame, levers fulcrumed between their ends and pivoted at their outer ends to the slides, a stem pivotally connected at its lower end to the inner ends of the levers and extending through the bottom of the casing and provided with a nut, a coiled spring arranged within the casing, and a cap disposed on the stem and engaging the coiled spring, and adapted to be adjusted by the nut, substantially as described.

690,908. VEHICLE-WHEEL TIRE. JOHANN LUDWIG, Mayence, Germany, assignor of one-half to Ferdinand Siebel, Mayence, Germany. Filed Feb. 18, 1898. Serial No. 670,857. (No model.)



Claim.—A woven fabric adapted for use in connection with bicycle or other tires, composed of narrow longitudinal strips of metal and relatively broad strips of spring metal extending transversely across the fabric, the said transverse strips being separated and out of contact with each other and having their ends bent upwardly to engage with the flanges or channels of a wheel-rim, substantially as described.

690,909. LIFE-BOAT. ROBERT D. MAYO, Frankfort, Mich. Filed Jan. 21, 1901. Serial No. 44,114. (No model.)



Claim.—1. In a life-boat of the class described, the combination of an outer cylindrical inclosing shell, a transverse bulkhead arranged at or near each end thereof between which is formed a living-compartment, an oscillating carriage in each compartment, and chain mechanism secured to each oscillating carriage and movably mounted on the bulkhead at a point above the axial center thereof to permit independent oscillations of the carriage, substantially as described.

2. In a life-boat of the class described, the combination of a rotatable cylindrical containing and inclosing shell, a bulkhead at or near each

end thereof between which is provided a living-compartment, an annular track on the inner side of the bulkheads, and flexible mechanism supported on such track and connected to the oscillating carriage to support the outer ends thereof, substantially as described.

3. In a life-boat of the class described, the combination of a cylindrical inclosing shell provided with axial openings at each end thereof, bulkheads *c* arranged transversely of the shell at or near each end thereof and providing in connection with the containing-shell annular compartments, a second pair of bulkheads arranged adjacent thereto and providing an air and water space between the bulkheads at each end of the shell and a living-chamber at the central portion of the shell, an oscillating carriage in the living-compartment, and means suspending it therein movably secured to the bulkheads at a point above the axial center thereof, substantially as described.

4. In a life-boat of the class described, the combination of an outer cylindrical inclosing shell, bulkheads arranged at or near each end thereof providing a living-chamber between the same, an annular track secured to the inside of such bulkheads, an oscillating carriage or carriages in such living-chamber, and a roller-chain passed around the upper part of the annular track and secured to the outer ends of the oscillating carriages, substantially as described.

5. In a life-boat of the class described, the combination of an outer cylindrical inclosing shell, bulkheads arranged transversely thereof at or near each end of the same providing air-compartments at the ends and a living-compartment between them at or near the central portion of the shell, an annular track on the side of such bulkheads, a door in one of such bulkheads inside the annular track at the central portion thereof, an oscillating carriage in the living-compartment, and flexible mechanism, such as a chain, secured to the carriage and passed around the upper portion of the annular track to sustain the carriage and permit it to oscillate, substantially as described.

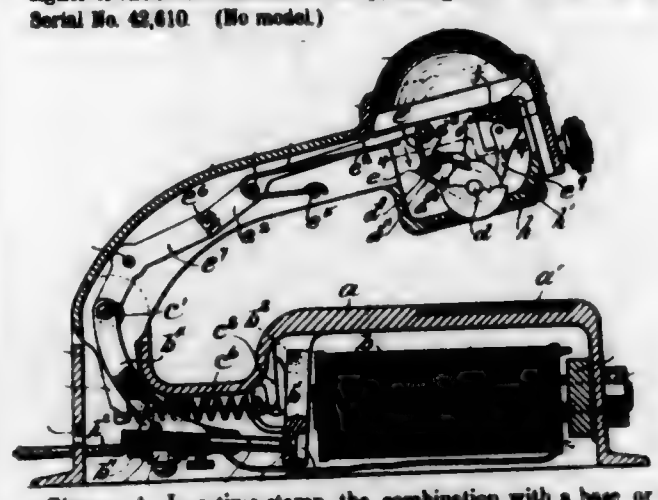
6. In a life-boat of the class described, the combination of an outer inclosing cylindrical shell, bulkheads at or near each end thereof providing air-spaces adjacent to the end portion of the shell and a living-chamber between them at the center of the shell, an annular track on the inside of such bulkheads, a pipe or similar element forming an air-duct rotatably secured to one of the bulkheads inside of such annular track with its outer open end located above the axial center of the boat, an oscillating carriage in the living-compartment, chain mechanism connected to the oscillating carriage and passed over the upper portion of the annular track to suspend the oscillating carriage, and means connecting the air-tube and oscillating carriage to move the same simultaneously and keep the open end of the air-tube at all times above the axial center of the boat, substantially as described.

7. In a life-boat of the class described, the combination of an outer inclosing cylindrical shell, a pair of bulkheads arranged at or near each end of the boat providing air-spaces between them and a living-compartment between the inner pair of bulkheads, a tube passed from the exterior bulkheads out through the axial center of the boat and providing in connection with such bulkheads annular air-tight compartments, annular tracks inside of the inner bulkheads, a skeleton bulkhead or frame arranged transversely of the shell at or near the central portion thereof, two oscillating carriages in the living-compartment arranged between the skeleton partition and the inner bulkheads, a hollow trunnion upon which the inner ends of the carriages are rotatably suspended, roller-chain mechanism for suspending the outer ends of the oscillating carriages on annular tracks, a door rotatable in one of such bulkheads and connected with the oscillating carriage to be moved thereby and arranged in line with the axial opening in the shell, and an air-tube bent upwardly at right angles rotatably mounted in the other bulkhead and connected with the other oscillating carriage to be moved thereby, substantially as described.

8. In a life-boat of the class described, the combination of an outer inclosing cylindrical shell, a pair of bulkheads, one arranged at or near each end of the shell and providing a living-compartment between them, an annular track secured to the inside of each of such bulkheads, an oscillating carriage or carriages inside of such living-chamber, mechanism secured to the outer ends thereof and passed over the upper part of the annular track to movably hold the oscillating carriage in position, and antifriction-rolls secured to the lower part of such carriage and adapted under certain conditions to contact the outer and containing shell to permit the easy and independent oscillations of the carriage, substantially as described.

9. In a life-boat of the class described, the combination of an outer inclosing cylindrical shell, a pair of bulkheads, one arranged at or near each end of the shell and providing a living-compartment between them, an annular track secured to the inside of each of such bulkheads, an oscillating carriage or carriages inside of such living-chamber, mechanism secured to the outer ends thereof and passed over the upper part of the annular track to movably hold the oscillating carriage in position, a brake-shoe movably attached to the carriage, and means for moving it into engagement with the outer and inclosing shell to prevent the independent movement of the parts, substantially as described.

690,910. **TIME-STAMP.** CHARLES S. MOSELEY, Chicago, Ill., assignor of one-half to Charles S. Perry, Chicago, Ill. Filed Jan. 9, 1901. Serial No. 42,610. (No model.)



Claim.—1. In a time-stamp, the combination with a base or bed, of a swinging arm mounted thereon and carrying the indicator mechanism, an electromagnet mounted upon said base or bed, and means for transmitting motion from the armature of said electromagnet to said indicator mechanism, and comprising a rocking lever pivoted at an intermediate point upon said swinging arm and having one end connected with and receiving motion from said armature, and having the other end connected with and transmitting motion to said indicator mechanism, substantially as described.

2. In a time-stamp, the combination with a base or bed, of a swinging arm mounted thereon and carrying the indicator mechanism, an electromagnet mounted upon said base or bed, a rocking lever pivoted at an intermediate point upon said swinging arm and having one end situated approximately concentric with the pivotal axis of said swinging arm and connected with the armature of said electromagnet and having the other end connected with the indicator mechanism, substantially as described.

3. In a time-stamp, the combination with a base or bed, of a swinging arm mounted thereon and carrying the indicator mechanism, an electromagnet mounted upon said base or bed, a rocking lever pivoted to said swinging arm and having one end connected with the armature of said electromagnet, a rack deriving motion from the opposite end of said rocking lever, a pinion adapted to be engaged by said rack and intermediate mechanism for imparting motion from said pinion to said indicator mechanism, substantially as described.

4. In a time-stamp, the combination with a base or bed, of a swinging arm mounted thereon and carrying the indicator mechanism, an electromagnet mounted upon said base or bed, a rocking lever pivoted upon said swinging arm and having one end situated approximately concentric with the pivoted axis of said swinging arm and connected with the armature of said electromagnet, and carrying upon the opposite end a rack, a pinion engaging said rack, a crank-pin moving with said pinion, and a connecting-rod or link extending between said crank-pin and indicator mechanism, substantially as described.

5. The combination with the pivoted armature of an electromagnet, of a part deriving motion therefrom, a rod interposed between said armature and said part, said rod being threaded at one end to engage suitably-formed threads in said part, the opposite end of said rod carrying a head with a spherical surface adapted to engage a correspondingly-formed spherical socket in said armature, substantially as described.

6. The combination with the pivoted armature of an electromagnet, of a part deriving motion therefrom and having a split end, a bore in said split end provided with suitable threads, a rod interposed between said armature and said part and having a threaded end adapted to engage the threads in said part, a clamping-screw for securing said split end to said rod, the opposite end of said rod carrying a head with a spherical surface adapted to fit a correspondingly-formed socket in said armature, substantially as described.

7. In a time-stamp, the combination with a moving arm, having a head carrying the recording apparatus and provided with an upper wall carrying a seat and having a central opening passing through said wall, and a disk of rubber forming a cushion for said moving arm and having its edges compressed and fitting in said seat, said disk being adapted to be passed into position through said central opening from beneath, substantially as described.

8. In a time-stamp, the combination with a reciprocating part carrying the indicator mechanism, and having an opening through which the indicator-wheels are adapted to project, of a face-plate having an opening for the passage of said indicator-wheels, and having one edge adapted

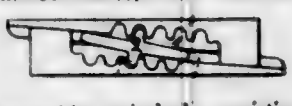
to engage an overhanging wall formed on said reciprocating part and a screw extending at an angle to said face-plate, the head thereof being adapted to engage the opposite edge of said face-plate to maintain the same in position, substantially as described.

9. In a time-stamp, the combination with a reciprocating part carrying the indicator mechanism and provided with an overhanging wall, of a face-plate having one edge formed to interlock with said overhanging wall, and one or more screws extending at an angle to said face-plate, the head or heads thereof adapted to engage the opposite edge of said face-plate to maintain the same in position, substantially as described.

10. In a time-stamp, the combination with a hollow base or bed, of an electromagnet mounted therein, a binding-post mounted upon the inner wall of said base, said base having an opening therethrough, whereby the leading-in wire may pass through said opening to said binding-post, and all of the live parts of the electrical connections be inclosed within said base, substantially as described.

11. In a time-stamp, the combination with the indicator-wheels, of a rotatable part carrying a crank, a connecting-rod between said crank and said indicator-wheels and means for moving the part carrying said crank, whereby, due to the interposition of said crank movement, the indicator-wheels are gradually started and stopped, substantially as described.

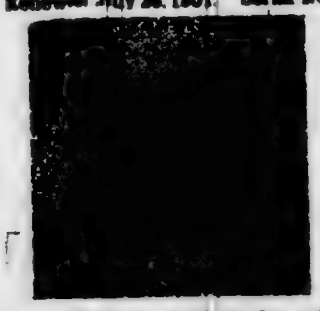
690,911. QUOIN-LOCK. GEORGE F. PECK, Brooklyn, N. Y. Filed July 28, 1898. Renewed June 18, 1901. Serial No. 65,062. (No model.)



Claim.—1. A removable quoin-lock, consisting of a flat body having four arms, and arranged to lie in the keyway of a quoin, two of said arms engaging with the racks of the quoin, substantially as shown and described.

2. The combination with a quoin made in two parts, each part being provided with a rack and keyway, as set forth, of a removable lock consisting of a flat body having four arms arranged to drop within the keyway, two of the arms engaging with the racks, substantially as shown and described.

690,912. WOVEN PILE FABRIC. ALFRED F. MCCOLLUM, Espy, Pa., assignor of three-fifths to James Magee, 2d, Bloomsburg, Pa. Filed Dec. 5, 1899. Renewed July 26, 1901. Serial No. 69,825. (No model.)



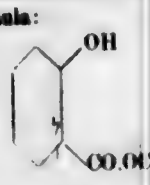
Claim.—1. A fabric having a pile-surface with cut and uncut figures formed by uncut pile-loops and cut pile-tufts in the same transverse line or row of pile, the loops and tufts being of the same height, and the outline of the figures sharp and well defined, substantially as specified.

2. A fabric having a pile-surface with cut and uncut figures formed by uncut pile-loops and cut pile-tufts in each transverse line or row of pile, the loops and tufts being of the same height, and the outline of the figures sharp and well defined, substantially as specified.

REISSUES.

11,960. SALICYLIC ETHER OF QUININ. FRITZ HOFMANN, Elberfeld, Germany, assignor to the Farbenfabriken of Elberfeld Co., a Corporation of New York. Filed Dec. 9, 1901. Serial No. 85,202. Original No. 673,401, dated July 16, 1901.

Claim.—The herein-described new salicylic ether of quinin having most probably the formula:



being a tasteless white crystalline powder melting at 140° centigrade when purified which is very readily soluble in chloroform, readily soluble in hot alcohol and in benzene and soluble with difficulty in ether and in cold alcohol, the alcoholic solution being colored reddish brown by a ferric-chlorid solution, substantially as hereinbefore described.

DESIGNS.

35,547. SECURING-BAR FOR TROUSERS-CLASPS. HENRY S BREWINGTON, Baltimore, Md. Filed Dec. 9, 1901. Serial No. 85,292. Term of patent 7 years.



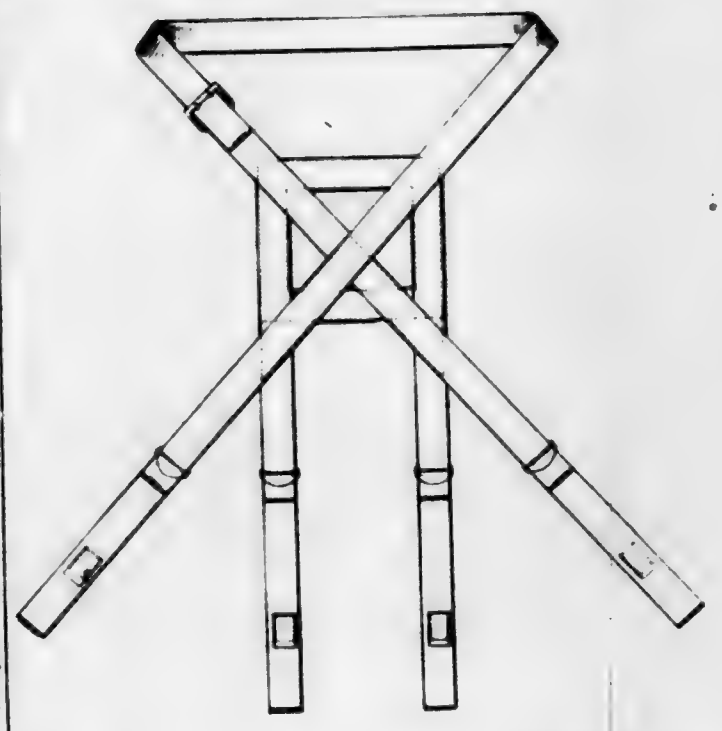
Claim.—The design for a securing-bar for trousers-clasps herein shown and described.

35,548. GARMENT-SUPPORTER. FRANCIS G. DIETZ, New York N. Y. Filed Dec. 5, 1901. Serial No. 84,536. Term of patent 14 years.



Claim.—The design for a garment-supporter, substantially as shown and described.

35,549. HOSE-SUPPORTER. ANDREW HUNTER, San Francisco, Cal. Filed Dec. 2, 1901. Serial No. 84,481. Term of patent 14 years.



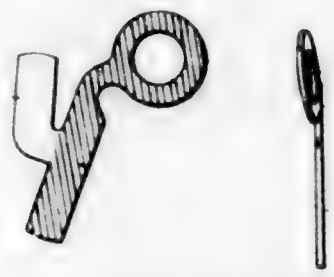
Claim.—The design for a hose-supporter, as herein shown and described.

35,550. LIFE-PRESERVER BODY. HAGHIG A. AYVAD, Hoboken, N. J. Filed Dec. 2, 1901. Serial No. 84,480. Term of patent 14 years.



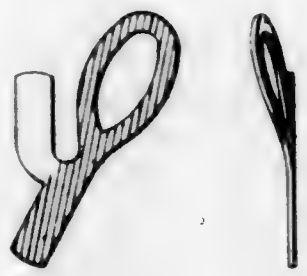
Claim.—The design for a life-preserver body, substantially as shown and described.

35,551. NOSE-PIECE FOR SPECTACLES OR EYEGLASSES. IVAN FOX, Lansdowne, Pa. Filed Oct. 24, 1901. Serial No. 79,880. Term of patent 14 years.



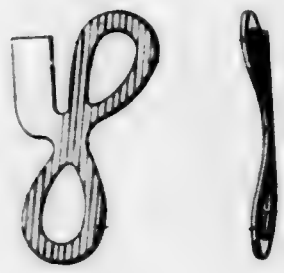
Claim.—The design for a nose-piece for spectacles and eyeglasses, as herein shown and described.

35,552. NOSE-PIECE FOR SPECTACLES OR EYEGLASSES. IVAN FOX, Lansdowne, Pa. Filed Oct. 24, 1901. Serial No. 79,881. Term of patent 14 years.



Claim.—The design for a nose-piece for spect. les and eyeglasses, as herein shown and described.

35,553. NOSE-PIECE FOR SPECTACLES OR EYEGLASSES. IVAN FOX, Lansdowne, Pa. Filed Oct. 24, 1901. Serial No. 79,882. Term of patent 14 years.



Claim.—The design for a nose-piece for spectacles and eyeglasses, as herein shown and described.

35,554. BUTTER-KNIFE. WICK HATHAWAY, Madison, Ohio. Filed Dec. 13, 1901. Serial No. 85,854. Term of patent 14 years.



Claim.—The design for a butter-knife, substantially as herein shown and described.

35,555. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. CHARLES A. BENNETT, Taunton, Mass. Filed Oct. 25, 1901. Serial No. 79,965. Term of patent 14 years.

35,555.



Claim.—The design for the handle of spoons, forks, and similar articles, substantially as shown and described.

35,556. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. WILLIAM C. COGHAN, Providence, R. I., assignor to Gorham Manufacturing Company, Providence, R. I. Filed Dec. 12, 1901. Serial No. 85,704. Term of patent 7 years.



Claim.—The design for the handle of a spoon, fork or similar article, as herein shown and described.

35,557. DRINKING-VESSEL. GEORGE FERRACH, Glenlyon, Pa. Filed Nov. 18, 1901. Serial No. 83,782. Term of patent 7 years.



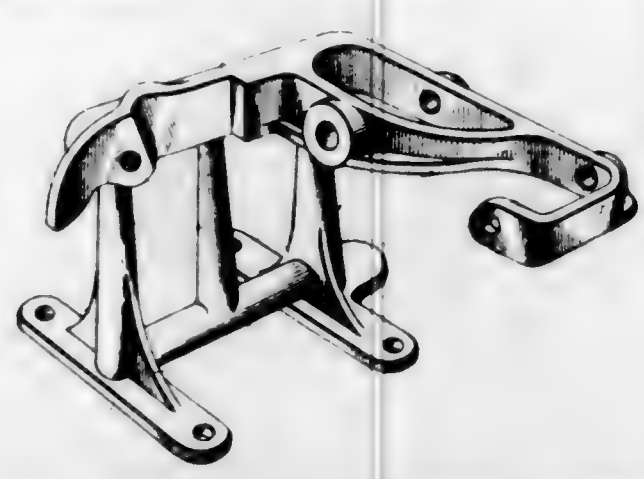
Claim.—The design for a drinking vessel, substantially as herein shown and described.

35,558. BOTTLE. KARL KIEFER, Cincinnati, Ohio. Filed Apr. 1, 1901. Serial No. 53,969. Term of patent 7 years.



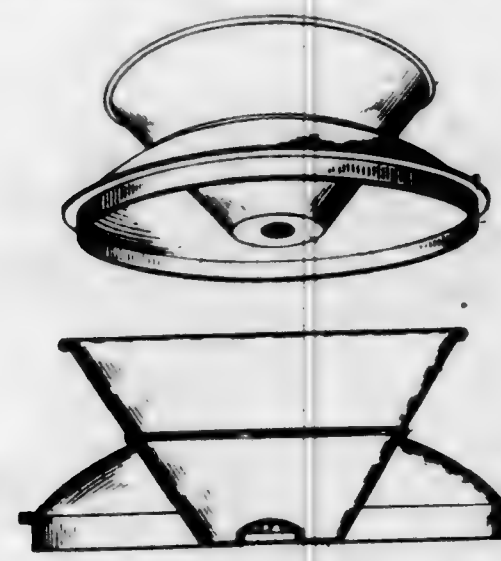
Claim.—The design for the bottle herein shown and described.

35,559. FRAME FOR FRUIT-PARERS. FREDERICK W. BELKO, Model City, N. Y. Filed Nov. 25, 1901. Serial No. 83,656. Term of patent 14 years.



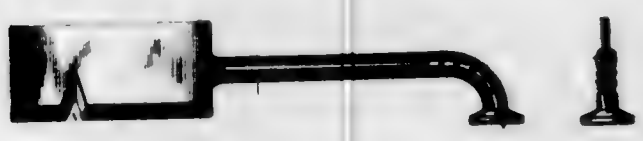
Claim.—The design for the frame of a fruit-parer, substantially as herein shown and described.

35,560. PAIL-COVER. JOHN S. ROSLER, Detroit, Mich. Filed Nov. 25, 1901. Serial No. 83,665. Term of patent 14 years.



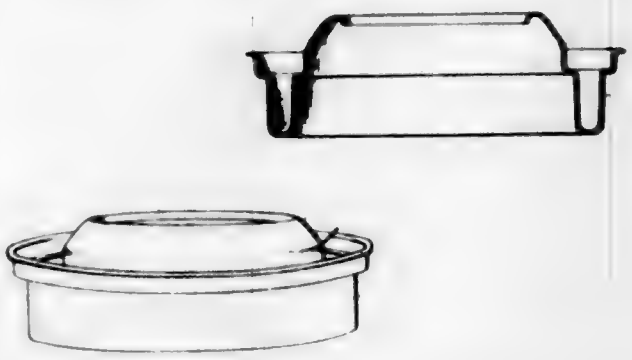
Claim.—The design for a pail-cover, substantially as herein shown and described.

35,561. BOX-OPENER. WICK HATHAWAY, Madison, Ohio. Filed Dec. 13, 1901. Serial No. 86,855. Term of patent 14 years.



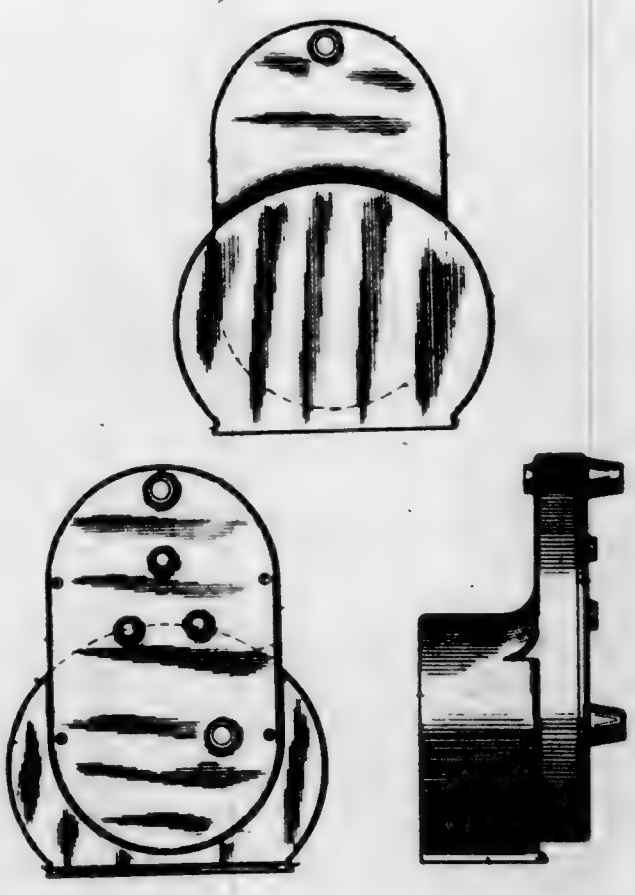
Claim.—The design for a box-opener, substantially as herein shown and described.

35,562. BOWL FOR HYDROCARBON-BURNERS. WILLIAM R. JEAVONS, Cleveland, Ohio. Filed Dec. 4, 1901. Serial No. 84,708. Term of patent 7 years.



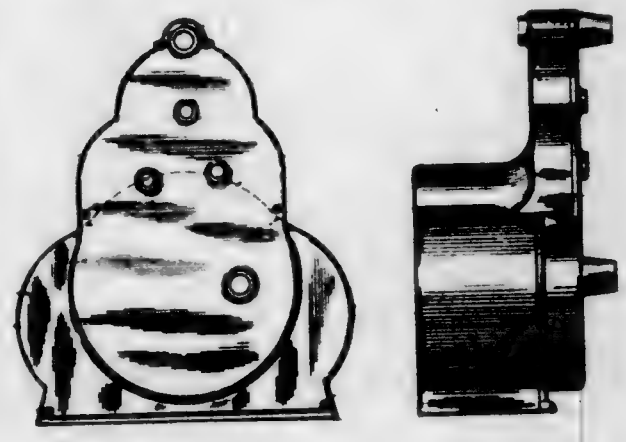
Claim.—The design for a bowl for hydrocarbon-burners, substantially as shown and described.

35,563. FAN-CASING. ALFRED L. STREETER, Chicago, Ill. Filed Dec. 11, 1901. Serial No. 85,528. Term of patent 14 years.



Claim.—The design for a fan-casing substantially as herein shown and described.

35,564. FAN-CASING. ALFRED L. STREETER, Chicago, Ill. Filed Dec. 11, 1901. Serial No. 85,529. Term of patent 14 years.

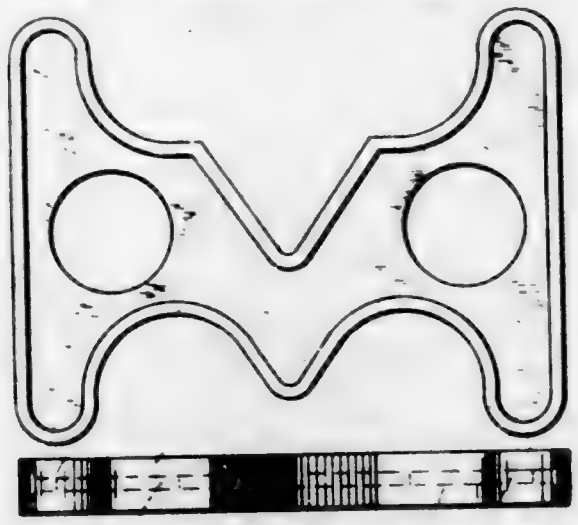


35,564.



Claim.—The design for a fan-casing substantially as herein shown and described.

35,565. WALL-TIE. ROBERT GODFREY, Cambridge, Mass. Filed Dec. 5, 1901. Serial No. 84,539. Term of patent 7 years.



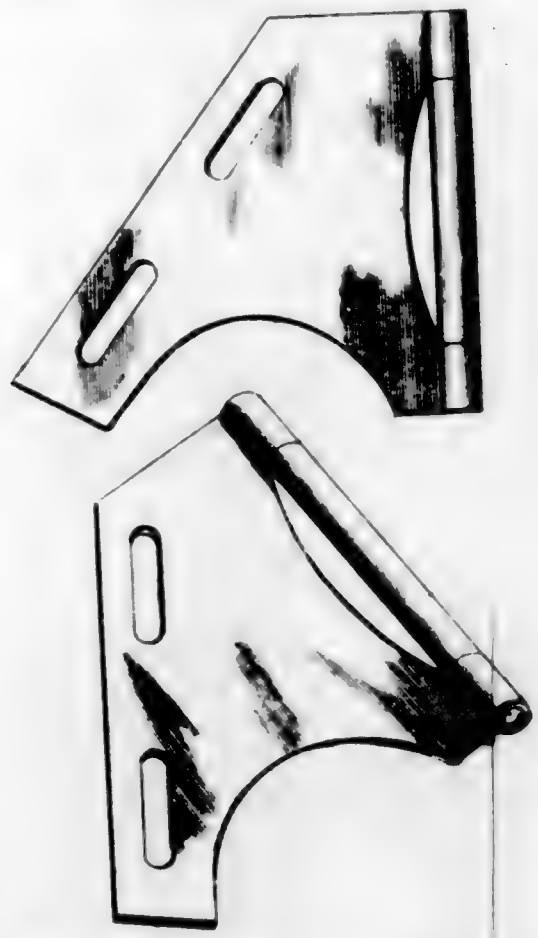
Claim.—The design for a wall-tie, as herein shown and described.

35,566. PLOWSHARE-LAY. WILLIAM GIBSON, JR., Wolseley, Canada, assignor of one-half to John Dean Gale, Whitewood, Canada. Filed Dec. 3, 1901. Serial No. 84,596. Term of patent 14 years.



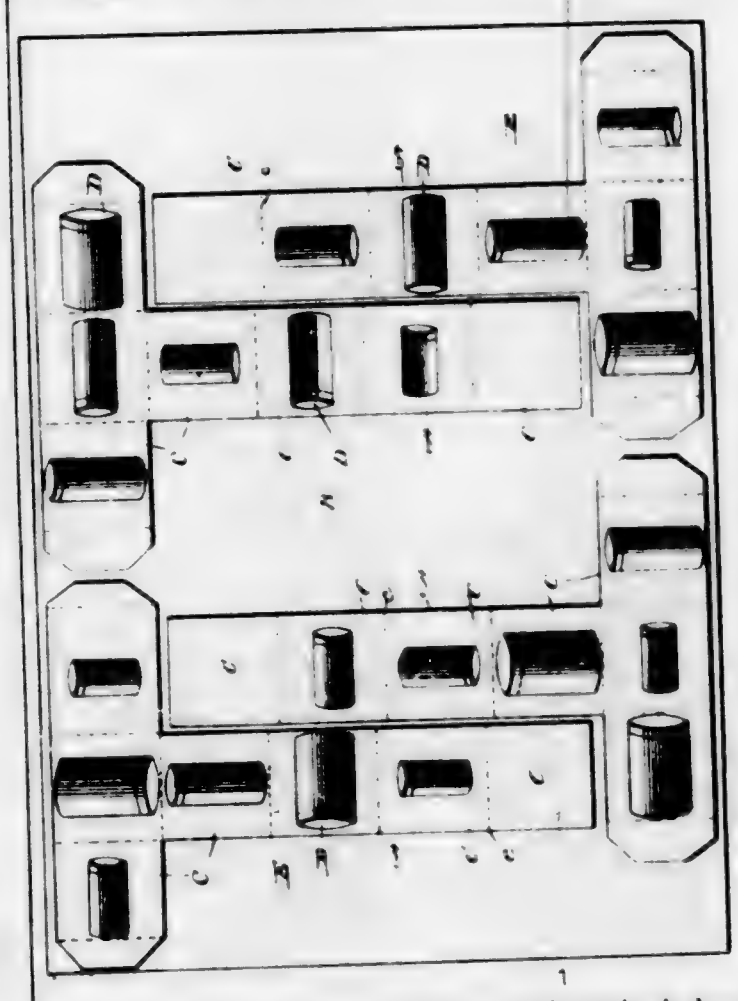
Claim.—The design for a plowshare-lay as herein shown and described

35,567. RUB-IRON OR FENDER FOR VEHICLES. JOSEPH F DREDGE and JAMES BURKE, Racine, Wis. Filed Nov 23, 1901. Serial No. 83,489. Term of patent 3½ years.



Claim.—The design for a vehicle rub-iron, substantially as herein shown and described.

35,568. ADVERTISING PUZZLE-SHEET. CHARLES E. JAQUES, Oakpark, Ill. Filed Dec. 13, 1901. Serial No. 85,058. Term of patent 7 years.



Claim.—The design for an advertising puzzle-sheet as herein shown and described.

35,569. SHOE-SOLE. JOHN S. BUSEY, New York, N. Y. Filed Nov. 11, 1901. Serial No. 81,804. Term of patent 7 years.



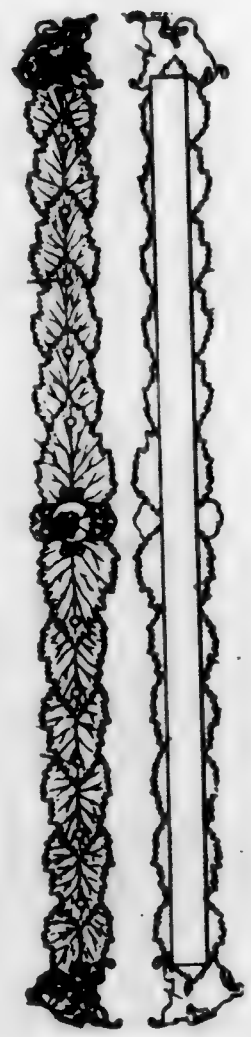
Claim.—The design for a shoe-sole as herein shown and described.

35,570. BELT. LOUIS SANDERS, Brooklyn, N. Y. Filed Dec. 13, 1901. Serial No. 85,980. Term of patent 3½ years.



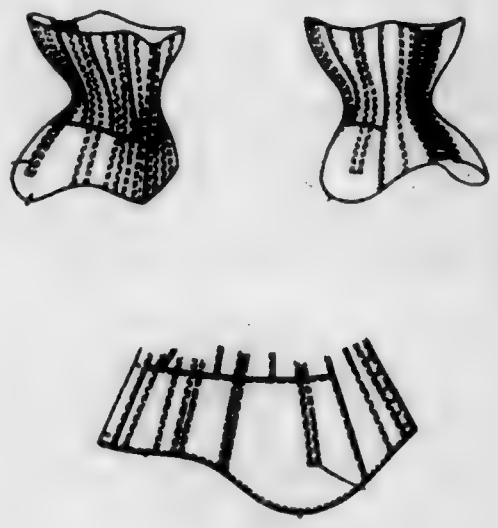
Claim.—The design for a belt herein shown and described.

35,571. BELT. BERNHARD WILENTSKIK, New York, N. Y. Filed Dec. 14, 1901. Serial No. 85,994. Term of patent 7 years.



Claim.—The design for a belt, as herein shown and described.

35,572. CORSET. JOHN M. VAN ORDEN, Newark, N. J. Filed Dec. 11, 1901. Serial No. 85,581. Term of patent 14 years.



Claim.—The design for a corset substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 7, 1902.

87,606. DRESS-SHIELDS. I. B. Kleinert Rubber Co., New York, N. Y. Filed Sept. 27, 1901.



Essential feature.—A keystone with a representation of a dress-shield thereon. Used since 1896.

87,607. SHIRT-WAISTS AND WRAPPERS FOR WOMEN. A. M. & A. R. Clemens, Minneapolis, Minn. Filed Nov. 18, 1901.

ROYAL.

Essential feature.—The word "Royal." Used since October 1, 1900.

87,608. WOVEN, KNIT, DYED, OR PRINTED FABRICS AND YARNS. Compañia General de Tabacos de Filipinas, Barcelona, Spain. Filed Sept. 20, 1901.



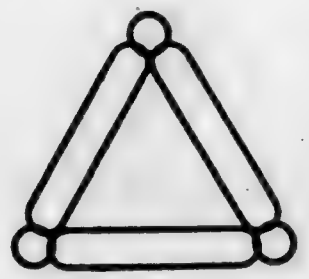
Essential feature.—The representation of a woman standing with uplifted arm before a censer and a column behind her, upon the top of which is a draping upon which are placed jewels and other articles. Used since September, 1900.

87,609. WOVEN, KNIT, DYED, OR PRINTED FABRICS AND YARNS. Compañia General de Tabacos de Filipinas, Barcelona, Spain. Filed Sept. 20, 1901.



Essential feature.—The representation of two girls standing at the margin of a pool and a dog swimming in the water thereof. Used since September, 1900.

87,610. BOOTS AND SHOES. Dorsovitis Shoe Company, St. Louis, Mo. Filed Dec. 3, 1901.



Essential feature.—The representation of a triangle formed of three links and an intervening circle or ring on each corner. Used since November 1, 1901.

87,611. HAIR-RESTORATIVES. Robert Addinsell Perkins, Kountze, Tex. Filed Nov. 20, 1901.



Essential feature.—The representation of a human hand holding an open bottle, from the mouth of which hair is represented as growing, and the letter "R" beneath a curved line on the front of the bottle. Used since July 31, 1900.

87,612. REMEDY FOR WOUNDS, BURNS, AND OTHER INJURIES TO THE SKIN. Valentiner & Schwabe, Leipsic-Plagwitz, Germany. Filed Nov. 30, 1901.

NEODERMIN

Essential feature.—The word "Neodermin." Used since July 1, 1901.

87,618. REMEDY FOR CERTAIN NAMED DISEASES. BENIGNO ROMERO, Las Vegas, N. Mex. Filed Nov. 27, 1901.

LA SANADORA

Essential feature.—The words "LA SANADORA." Used since June, 1898.

87,614. REMEDY FOR CERTAIN NAMED DISEASES. MAX LEUVENSTEIN, Jerome, Ariz. Filed Nov. 4, 1901.

HUSTLER

Essential feature.—The word "HUSTLER." Used since October, 1900.

87,615. CERTAIN NAMED MEDICINAL PREPARATION. THE DOMINION DRUG COMPANY, LIMITED, Hamilton, Canada. Filed Nov. 18, 1901.

DOMINION

Essential feature.—The word "DOMINION." Used since August 1, 1901.

87,616. DANDRUFF CURE AND HAIR-TONIC. ROLLA M. CRANE, Bethel, Vt. Filed Nov. 21, 1901.

MO' HAIR

Essential feature.—The word "MO," accompanied by an apostrophe and associated with the word "HAIR." Used since December 10, 1900.

87,617. SYRUPS, SUGAR, AND MOLASSES. CLARKE E. COE, Memphis, Tenn. Filed Dec. 7, 1901.



Essential feature.—The words "ROKLAND PLANTATION" associated with a stalk of sugar-cane. Used since November, 1901.

87,618. COFFEE. DOHERTY BUILDING COFFEE CO., New York, N. Y. Filed July 19, 1901.



Essential feature.—The representation of a cup and saucer. Used since May 1, 1895.

87,619. BEER. UNITED STATES BREWING COMPANY OF CHICAGO, Chicago, Ill. Filed Nov. 18, 1901.

87,619.



Essential feature.—A monogram composed of the letters "U S B Co." Used since June 1, 1899.

87,620. CHEWING-GUM. CURTIS & SON COMPANY, Portland, Me. Filed Oct. 4, 1901.



Essential feature.—The letter "C" repeated three times, combined with a larger "C," a banner, and an arrow, intertwined. Used since February 16, 1901.

87,621. CIGARETTES. S. ANARGYROS, New York, N. Y. Filed Dec. 13, 1901.



Essential feature.—The facsimile signature "S. ANARGYROS" and the words "EGYPTIAN EMBLEMS," arranged diagonally on a fancy panel inclosed by a block border and containing representations of a serpent and two birds, one above the other, each with outstretched wings, and one bearing on its wings the words "Egyptian Emblems." Used since March, 1901.

87,622. CIGARETTES. S. ANARGYROS, New York, N. Y. Filed Dec. 13, 1901.

EGYPTIAN DEITIES

Essential feature.—The words "EGYPTIAN DEITIES." Used since 1889.

87,623. CIGARETTES. S. ANARGYROS, New York, N. Y. Filed Dec. 13, 1901.

TURKISH TROPHIES

Essential feature.—The words "TURKISH TROPHIES." Used since June, 1901.

87,624. CIGARETTES. S. ANARGYROS, New York, N. Y. Filed Dec. 13, 1901.



Essential feature.—The facsimile-signature "S. ANARGYROS" and the words "EGYPTIAN DEITIES," arranged diagonally on a fancy panel inclosed by a block border and containing at or near its upper end a ribbon bearing the words "Egyptian Deities," and beneath said ribbon on a fancy base two columns, two seated figures facing each other, and the bust of a third figure between said two seated figures. Used since 1893.

87,625. CIGARETTES. S. ANARGYROS, New York, N. Y. Filed Dec. 13, 1901.

TURKISH TROPHIES



Essential feature.—The words "TURKISH TROPHIES" and the representation of a star, crescent, and simitar. Used since June, 1901.

87,626. CIGARETTES. S. ANARGYROS, New York, N. Y. Filed Dec. 13, 1901.

EGYPTIAN EMBLEMS

Essential feature.—The words "EGYPTIAN EMBLEMS." Used since March, 1901.

87,627. RUBBER HOSE, BELTING, PACKING, AND GASKETS. NEW YORK BELTING AND PACKING CO., LTD., New York, N. Y. Filed July 6, 1901.

VULCAN

Essential feature.—The word "VULCAN." Used since January 1887.

87,628. COMBUSTIBLE AGGLOMERATIONS FOR USE AS FUEL. FRANÇOIS PHYLOSSIER VALLET-ROUSE, Roubaix, France. Filed Sept. 6, 1901.

VULCANINE



Essential feature.—The representation of two pairs of pincers with flames and the word "VULCANINE." Used since July 31, 1901.

87,629. CERTAIN NAMED BATTERIES AND ELECTRICAL APPLIANCES. MANHATTAN ELECTRICAL SUPPLY COMPANY, New York, N. Y. Filed Dec. 9, 1901.

ANTI-DOC

Essential feature.—The compound word "ANTI-DOC." Used since October 1, 1901.

87,630. EXPANSION-BOLTS, SCREWS, AND EXPANSION-SHIELDS. HENRY B. NEWHALL, New York, N. Y. Filed Oct. 21, 1901.

DIAMOND

Essential feature.—The word "DIAMOND." Used since January 12, 1897.

87,631. GASOLENE-ENGINES. DAVIS GASOLENE ENGINE WORKS CO., Waterloo, Iowa. Filed Dec. 12, 1901.

ALL PURPOSE

Essential feature.—The words "ALL PURPOSE." Used since October 1, 1901.

PHOTO-LITH WASHINGTON D.C. THE NORRIS PETERS CO.

LABELS

REGISTERED JANUARY 7, 1902.

8,887.—*Title:* "PHONOGRAPHIC LANGUAGE LESSON." (For Phonographic Records.) INTERNATIONAL TEXTBOOK CO., Scranton, Pa. Filed December 12, 1901.

8,888.—*Title:* "TOBASCO PEPPER." (For Extract of Tobasco Pepper.) CHRISTIAN SCHERTZ, New Orleans, La. Filed July 31, 1901.

8,889.—*Title:* "DE GRATH'S LINIMENT." (For Liniment.) A. B. DE GRATH, Brooklyn, N. Y. Filed October 11, 1901.

8,890.—*Title:* "BAILEY." (For Planes.) STANLEY RULE & LEVEL CO., New Britain, Conn. Filed December 12, 1901.

PRINTS

REGISTERED JANUARY 7, 1902.

445.—*Title:* "ST. LOUIS SOUVENIR PLAYING CARDS." (For Playing-Cards.) MEYERS BROTHERS DRUG CO., St. Louis, Mo. Filed December 12, 1901.

C

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE LEBLANC.

Decided December 21, 1901.

AMENDMENT AFTER DECISION OF EXAMINERS-IN-CHIEF—RECOMMENDATION UNDER RULE 139 (a).

Where in a decision of the Examiners-in-Chief affirming the rejection of the claims by the Primary Examiner a statement occurs in the body of said decision pointing out a difference between the construction of the device claimed and the construction of the device shown in the reference and no opinion is expressed by the Examiners-in-Chief that the claims if limited to this difference of construction would be allowable, *Held* that said reference in the decision to the differences of construction unaccompanied by a recommendation is not such an action as is provided for in Rule 139 (a) and that the application is without the jurisdiction of the Examiner and his action in refusing to enter an amendment containing limited claims was correct.

ON petition.

GLOVE-FASTENERS.

Application of Alfred Leblanc filed March 20, 1899, No. 709,768.

Mr. Ernest Hopkinson and *Mr. William B. Corwin* for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner refusing to enter and consider a certain amendment filed November 5, 1901, after the decision of the Examiner had been affirmed on appeal by the Examiners-in-Chief.

The Examiner refused to enter the amendment, which amendment canceled the claims held to be not patentable on appeal and substituted in lieu thereof two new claims, on the ground that the application having been considered on appeal was without his jurisdiction.

Counsel for petitioner contends that the Examiners-in-Chief in effect made a recommendation that claims such as filed in the amendment of November 5, 1901, would be allowable. The portion of their decision relied upon by the petitioner in support of this contention is taken from the body of the decision and is as follows:

> It will be noticed that the engaging portion of the patented construction is in two parts, A and D, while the engaging member of the pending device is composed of only a single part; but, as will appear upon an examination of the claims, this distinction is not brought out in either of them.

This statement is not followed by any expression of opinion as to whether or not the claims if so amended would be patentable.

Rule 139 (*a*) provides, among other things, that—

should they (Examiners-in-Chief) discover any apparent grounds not involved in the appeal for granting or refusing Letters Patent in the form claimed, or any other form, they will annex to their decision a statement to that effect, with such recommendation as they shall deem proper.

It is to be assumed that the Examiners-in-Chief if they regarded the limited claims to be patentable would have annexed to their decision a specific statement and recommendation to that effect.

The Examiner was clearly right in holding the statement referred to in the body of the decision of the Examiners-in-Chief not to be a suggestion under the provisions of Rule 139, (*a*,) and therefore in holding that the case was without his jurisdiction.

The reasons submitted by the petitioner as to why the amendment was not earlier presented are deemed sufficient, and it is therefore directed that this case be reopened in order that the amendment filed November 5, 1901, which seems to contain features not previously acted upon, may be entered and considered by the Examiner.

For this reason alone the petition is granted.

WHIPPLE *v.* SHARP.

Decided December 23, 1901.

1. INTERFERENCE—TIME FOR FILING PRELIMINARY STATEMENTS—EXTENSION BY INDIRECT ACTION—PARTY HELD STRICTLY TO HIS RIGHTS.

Where a party files a motion one day before his time for filing his preliminary statement expires, and thereby indirectly obtains an extension of time to which he was not otherwise entitled, *Held* that if after the motion is decided he fails to file his statement within the one day remaining of his time it is his own fault, and he has no right to complain if he is held strictly to his rights.

2. SAME—SUSPENSION—ACTION WITHIN REASONABLE TIME—NEGLIGENCE AND DELAY.

The rule that where a suspension has been granted pending the final determination of a motion and the party receiving an adverse action acts within a reasonable time thereafter will be held to have preserved his rights is equitable and a good one for general application where further action cannot properly be taken until the matter at issue is settled; but it should not be applied to relieve a party from the effects of his own negligence and delay.

3. TIME LIMITED FOR ACTION—NOTICE—DATE OF DECISION.

Where an action is required to be taken within a certain time after a decision, the date of the decision and not the date of the receipt of a notice of it is what governs.

APPEAL on motion.

HARROWS.

Patents of Effinger M. Whipple granted August 30, 1898, and November 7, 1899, Nos. 609,981, 610,115,

636,371, and 636,477. Application of Charles S. Sharp filed December 21, 1897, No. 662,802.

Mr. Hubert E. Peck and *Messrs. Whitaker & Prevost* for Whipple.

Mr. B. J. Noyes and *Messrs. Dodge & Sons* for Sharp.

ALLEN, *Commissioner:*

This is an appeal by Sharp from the decision of the Examiner of Interferences that the preliminary statement of Whipple was properly filed and should be received.

After several extensions of time for filing statements granted upon stipulation of the parties, May 1, 1901, was fixed as the day for filing, and the parties were notified that there would be no further extension, except upon a showing of good reasons. On April 29, 1901, Whipple filed a motion to dissolve and for a stay of proceedings, and on May 2 the stay was granted; but the motion was refused transmission to the Primary Examiner. An appeal was taken by Whipple to the Commissioner, and on June 21 the decision of the Examiner of Interferences was affirmed, (71 MS. Dec., 240,) and on June 24 Whipple filed his preliminary statement. On July 9 Whipple filed a motion that proceedings be resumed and that the time for filing preliminary statements be set. This motion was granted to the extent of accepting the statement already filed by Whipple, and it is from this action that an appeal is taken.

When the motion of April 29, 1901, was filed, Whipple had one day remaining within which to file his statement, and considering the decision of May 2 as relating back to that date he was, in accordance with that decision, entitled to one day after that matter was finally settled in which to file his statement. The decision said that "proceedings are suspended pending the final determination of the aforesaid motion to transmit." That motion was finally determined on June 21, when the decision of the Commissioner was rendered, and Whipple's preliminary statement was not filed until June 24, three days thereafter.

Whipple states that he did not receive notice of the Commissioner's decision until June 24 and relies upon that fact and the technical contention that he was entitled to notice that proceedings were resumed before it became necessary for him to file his statement.

Technically and in strict accordance with the decision of the Examiner of Interferences the suspension in this case was ended when the decision of June 21 was rendered. Where an action is required to be taken within a certain time after a decision, the date of the decision and not the date of the receipt of a notice of it is what governs. (*Barton* v. *Bentley*, 87 O. G., 2326.) The twenty days for the filing of motions runs from the date of the acceptance of the statements and not from the date when the applicant receives the notice.

Whipple knew that he would have only one day within which to file his statement after the decision was rendered if it was against him and that this limited time was due to the fact that he postponed making his motion until the latter part of the time allowed him. Knowing his time to be so short, there was nothing to prevent the filing of his statement out of precaution before receiving the decision; but instead of doing so he chose to wait until the decision was rendered and then came in after his time had expired. He had the right to delay filing his statement until one day after the decision; but by voluntarily postponing the filing, so as to take the full limit technically allowed him, he took his chances, and it may be said that it was his own fault if he delayed too long. Relying strictly upon his technical rights, he should not be heard to complain if he is held bound technically when he comes outside of the strict rule even by the short period of two days. By indirect action he virtually obtained an extension of nearly two months within which to file his statement after notice from the Office that he would be given no more time without a showing, and while this was perfectly proper, because in accordance with the rules, it would seem that it is equally proper under the circumstances to hold him strictly to his rights under the rules.

This would be done in the present case if it were not for the fact that the practice of the Office in cases of this kind seems to have been such as to furnish some basis for Whipple's conclusion that he would have the right to file his statement after receiving notice. In view of that fact it is believed that a refusal to accept a preliminary statement from Whipple would be too harsh a penalty for the fault committed by him.

The Examiner says:

> Where a suspension has been granted pending the final determination of a motion, and the party receiving an action adverse to his interests on appeal acts within a reasonable time thereafter, the Examiner is of the opinion that he should be held to have preserved his rights. This has been done in the present case.

This rule is equitable and a good one for general application where further action cannot properly be taken until the matter at issue is settled; but it should not be applied to relieve a party from the effect of his own negligence and delay where the interests of other parties are adversely affected.

The decision of the Examiner of Interferences accepting the preliminary statement on behalf of Whipple is affirmed.

WHIPPLE v. SHARP.

Decided December 23, 1901.

INTERFERENCE—PRELIMINARY STATEMENTS—SEALING FROM INSPECTION OF OPPOSING PARTIES.

After preliminary statements are filed and approved they will not be sealed up so that motions for dissolution may be made before they are open to the inspection of the opposing parties.

APPEAL on motion.

BARROWS.

Patents of Effinger M. Whipple granted August 30, 1898, and November 7, 1899, Nos. 609,961, 610,115, 636,371, and 636,477. Application of Charles S. Sharp filed December 21, 1897, No. 662,802.

Mr. Hubert E. Peck and *Messrs. Whitaker & Prevost* for Whipple.

Mr. B. J. Noyes and *Messrs. Dodge & Sons* for Sharp.

ALLEN, *Commissioner:*

This is an appeal by Whipple from the decision of the Examiner of Interferences denying his motion that the preliminary statements filed in this case be sealed up and that times be set within which he will be permitted to make a motion for dissolution.

The rules provide that when the preliminary statements are filed and approved the opposing parties will be permitted to see and obtain copies of their opponents' applications and all of the papers in the case and to make motions for dissolution within twenty days. It is not the practice to seal the preliminary statements until after the time for making motions is past. No more reason is seen for sealing Whipple's statement in this case than exists in any interference for similar action. Whipple does not wish Sharp to know his dates until the question of a dissolution is settled; but in any interference there may be a similar desire by one or both of the parties, and therefore it does not distinguish this case from others. It may be that no great harm would result from a rule which required that preliminary statements after approval be sealed until after the parties have had an opportunity to inspect each other's applications and make motions for dissolution; but the present rule was adopted long ago and has been found to be satisfactory. It should be followed or abolished and a new rule established.

There is nothing which would justify making this case an exception to the general rule, and therefore the ordinary course of procedure should be followed.

The decision of the Examiner of Interferences is affirmed.

EX PARTE THOMPSON.

Decided December 31, 1901.

1. INTERFERENCE—CLAIMS TO THE SAME PATENTABLE INVENTION—IMMATERIAL DIFFERENCES.

Where an applicant discloses a novel means for changing the gearing and thereby the speed of a bicycle by back pressure upon the pedals and claims it in combination with a sprocket-wheel and another applicant claims the same means in combination with a bevel-gear and the Examiner regards the sprocket-wheel and bevel-gear as equivalent in the combination, *Held* that both cases cannot properly be allowed.

2. SAME—IMMATERIAL LIMITATIONS—MECHANICAL EQUIVALENTS—DECISIONS CONSTRUED.

The decisions that an element included in a claim cannot be regarded as immaterial were not intended to exclude from consideration the doctrine of mechanical equivalents. An element cannot be held to be immaterial where there is no corresponding element in the other party's claim; but where there is a corresponding element the question whether they are mechanical equivalents must be determined.

3. INTERFERENCE IN FACT—MECHANICAL EQUIVALENTS.

Where two parties claim the same combination and real invention and the claims differ merely in the statement of the specific form of one of the elements of the combination and the two forms are mechanical equivalents of each other, *Held* that each device would infringe the other party's claim and that there is a conflict between the claims.

4. SUGGESTION OF CLAIMS—PURPOSE OF THE PRACTICE.

The purpose of the recent practice of the Office is not to avoid interferences between applications because of some differences in the form of the claims, but merely by suggestions to bring the parties together upon an issue which shall be as nearly as possible the same as the claims of the parties, so as to reduce to a minimum the chances for motions and controversies during the progress of the interference based upon differences in the claims.

5. SAME—CLAIM NOT MADE BY EITHER PARTY.

Where two parties make claims to the same real invention, neither of which claims is patentable over the other, but neither party can make a claim in the words of the other because of limitations therein to immaterial features not disclosed by him, *Held* that the Examiner may, under Rule 96, suggest to both parties a claim covering the real invention common to the two cases and leaving out immaterial limitations.

REFERENCE by Primary Examiner.

BICYCLE-GEARING.

Messrs. Chapin & Haywood for the applicant.

ALLEN, *Commissioner:*

The Primary Examiner calls attention to a peculiar situation involving the above-entitled application and asks for instructions as to the action which should be taken.

The applicant's invention relates to a means for changing the gearing and thereby the speed of a bicycle by back pressure upon the pedals. The real invention resides in this means, but the applicant shows it applied to a chain-bicycle and includes the sprocket-wheel as an element of the combination in his claims.

Another applicant discloses the same means for changing the gearing, but applies it to a chainless bicycle and includes the bevel-gear as an element of the combination. It is apparent, therefore, that neither party can make a claim in the words of the other party's claim, but the real invention upon which the claims would be allowed is the same in both cases. It would clearly not be proper to allow both cases so long as the Office is of the opinion that neither device is patentable over the other. Assuming that the Examiner's position is correct, one party is entitled to a patent, but not both, and this Office does not know which is the prior inventor and entitled to a patent.

It seems clear that there should be an interference and that in no other way can this Office properly dispose of the two cases, unless one party concedes priority to the other under the interference rules. The Examiner says:

> Under the existing practice, however, I have not felt at liberty to suggest the omission from any of these claims of the elements referred to and I submit these cases with a request for instruction as to the steps to be taken to effect an interference between these two substantially the same inventions, if in your judgment any such step should be taken.

It was announced in *Wolfenden* v. *Price* (83 O. G., 1801) and *Streat* v. *Freckleton* (87 O. G., 695) that the Office cannot say that an element included in a claim is immaterial, and therefore the Examiner is of the opinion that he cannot declare an interference in this case with either party's claim as the issue, since the other party could not make it and there would be no interference in fact as to it. He could not, furthermore, formulate an issue broader than either of the claims, leaving out the limitations to the sprocket-wheel and bevel-gear, under

the decision in *Hammond* v. *Hart*, (68 O. G., 743,) wherein it was said:

> The Examiner has constructed the issues out of Hart's claims 4 and 5. In other words, the Examiner has made two new issues, neither of which is an allowed claim made by either party. I believe this to be bad practice. The applicants should make the issues by their claims.

Rule 96 permits the Examiner to suggest to one party an allowable claim made by another, so as to bring about a proper interference, when they are both claiming the same thing in different ways, but it does not in terms permit the suggestion to both parties of a claim not made by either. The suggestion of such a claim, however, in a case like the present to cover the real invention common to the two cases clearly comes within the spirit of the rule. The purpose of the rule and the recent practice of the Office are not to avoid interferences between applications because of some differences in the form of the claims, but merely by suggestions to bring the parties together upon an issue which shall be as nearly as possible the same as the claims of the parties, so as to reduce to a minimum the chances for motions and controversies during the progress of the interference based upon differences in the claims. There is nothing in the rule which prohibits the suggestion of a claim to constitute the issue in a case of this kind, and the suggestion would be in accordance with the general purpose of the rule.

It is not believed that the decisions cited and others of the same character were intended to mean that there is in law no interference in fact in a case of this kind, where the real invention claimed is the same in both cases, merely because the claims differ in the statement of the specific form of one of the elements of the combination. If those specific elements are the mechanical equivalents of each other, there is an interference under the well-settled principles of law. (*Winans* v. *Denmead*, 15 How., 330; *Rodebaugh* v. *Jackson*, 47 O. G., 658; *Reece Button-Hole Co.* v. *Globe Co.*, 67 O. G., 720.) Each party's device would infringe the other's claim under the doctrine of mechanical equivalents, and under such circumstances it can scarcely be said that there is no conflict.

In reference to the Office decisions to the effect that an element included in a claim or the issue cannot be regarded as immaterial I said in *Braucht* v. *Murdock*, (71 MS. Dec., 492:)

> It is not understood that on the question of interference in fact these decisions intend to exclude from consideration the doctrine of mechanical equivalents. An element included in one claim cannot be held to be immaterial where there is no corresponding element in the other claim, but where there is a corresponding element, the question whether they are mechanical equivalents must be determined. Where the elements are well-known mechanical equivalents in the combination, the structures are under the law regarded as substantially the same and there is an interference in fact.

In regard to the court decisions that a party is bound by the limitations in his claims it was said in *Rodebaugh* v. *Jackson*, above cited:

> So all that was said in *Fay* v. *Cordesman* (109 U. S., 420) is that if the patentee specified any element as entering into the combination, he makes such element material, and the court cannot declare it to be immaterial. It is his province to make his own claim and his privilege to restrict it. If it be a claim to a combination and be restricted to specified elements, all must be regarded as material, leaving open only the question whether an omitted part is filled by an equivalent device or instrumentality. There is nothing in any of these cases inconsistent with what had been previously regarded as well settled, or to lead one to believe that it was the intention of the court to debar the patentee from his right to pursue an infringer who has endeavored to avoid his patent by the use of a well-recognized mechanical equivalent.

This seems to be the only proper construction of the law, and under it the Office might in this case properly declare an interference upon an issue which is the claim of one of the parties upon the ground that the corresponding elements in the other party's claim are equivalents, if it were not possible to bring the claims into such form as to avoid all controversies upon the question of equivalency.

The present applications are pending and subject to amendment, however, and it is deemed best in accordance with the principles of the present practice to suggest a claim to each party which will cover the real invention common to the two cases, leaving out limitations to the form of elements which are not of the essence of the invention.

The Examiner will suggest a claim to the parties in accordance with this decision.

EX PARTE STECK.

Decided December 31, 1901.

1. DESIGNS—USEFUL—MECHANICAL DEVICES.

   The word "useful" placed in section 4929 of the Revised Statutes by amendment leaves no room for doubt of the fact that articles intended for mechanical use can properly be made the subjects of design patents.

2. SAME—PATENTABILITY—QUESTION OF BEAUTY NOT CONTROLLING.

   An article of manufacture designed primarily for the performance of a mechanical function and not for the purpose of beauty may please the taste better than those that have gone before it, or it may not; but this is not controlling so long as the shape is new and is the result of inventive thought.

3. SAME—FUNCTIONAL UTILITY—NOVELTY IN APPEARANCE.

   Functional utility cannot be given the same consideration and effect in design cases as in mechanical, since designs are judged by their appearance, whereas mechanical inventions are judged by the functions performed. In a design there must be novelty in appearance whether or not new functions are performed.

4. SAME—TEST OF INFRINGEMENT AND ANTICIPATION—APPEARANCE.

   Notwithstanding the insertion of the word "useful" in the statute, the sole test of infringement and anticipation in design cases is similarity in appearance such as would deceive an ordinary observer and induce him to purchase one supposing it to be the other.

5. SAME—MACHINE NOT PATENTABLE AS A DESIGN.

   Under the express provisions of the statute a design patent is limited to "an article of manufacture," and there is no warrant in the law for granting such a patent upon a machine whose parts bear certain functional relations to each other.

6. SAME—SAME—MOVABLE PARTS—CHANGE IN APPEARANCE.

   Aside from the express provision of law a machine made up of movable parts whose change in position changes the appearance of the device could not be patented as a design, because the subject-matter of the patent would not be definite and certain.

7. SAME—ARTICLE OF MANUFACTURE—MOVEMENT OF PARTS.

   In the case of a single article of manufacture there may be some relative movement of the parts without changing the appearance of the article or taking it outside of the design law; but nothing which amounts to a machine can come within the law whether or not the motion of the parts materially changes the appearance of the device as a whole.

8. SAWS—FRAME FOR WATER-TOWERS—MACHINE—NOT PATENTABLE.

A frame of a water-tower for the use of fire departments consisting of the frame proper and a hose-support hinged or pivoted to it and adapted to be raised to a vertical position, *Held* to constitute a machine which is not patentable as a design.

ON petition.

DESIGN FOR FRAMES OF WATER-TOWERS.

Application of Ernst F. Steck filed March 18, 1895, No. 542,266.

Messrs. Elliott & Hopkins for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner of Designs refusing to allow a patent in this case on the ground that the application is not limited to a single definite article of manufacture.

This action relates to the merits, (*ex parte Adams*, 84 O. G., 311; *ex parte Sherman & Harms*, 89 O. G., 2067,) and the petition would be dismissed with this statement if it were not for the fact that there seems to be some confusion as to the treatment which should be accorded design applications of this kind. Because of this confusion it is thought best to take this opportunity to indicate some line of practice which should be followed. In doing this it will be necessary to consider the merits of this case to a certain extent.

It must be apparent that a design having reference to the parts of a machine or to an instrument made primarily for the performance of a mechanical function must, if it is patentable at all, come under that clause of section 4929, Revised Statutes, which refers to "any new, useful, and original shape or configuration of any article of manufacture."

Some Commissioners have taken the position that such mechanical devices are not patentable as designs. Commissioner Leggett, for instance, in considering a design for a claw-hammer said that the law—

> was intended to provide for an entirely different class of inventions in the field of esthetics, taste, beauty, ornament,

and that—

> by "article of manufacture" as used in this section the legislature evidently meant only ornamental articles, articles used simply for decoration. (*Ex parte Parkinson*, C. D., 1871, 251.)

The circuit court took a similar view in considering a design for a horseshoe-calk in the case of *Rowe* v. *Blodgett & Clapp Company*, (108 Fed. Rep., 818.)

Most of the Commissioners, however, have not adopted that view, and prior to *ex parte Parkinson* Commissioner Foote had announced in *ex parte Crane* (C. D., 1869, 7) that—

> there is a large class of improvements in manufactured articles that are not regarded as new inventions, or as coming within the scope of general patent laws. They add to the market value and salability of such articles, and often result from the exercise of much labor, genius, and expense. They promote the best interests of the country, as well as the creations of inventive talent. It seems to me to have been the intent of Congress to extend to all such cases a limited protection and encouragement. Wherever there shall be produced by the exercise of industry, genius, efforts and expense any new and original design, form, or configuration or arrangement of a manufactured article, it comes within the provisions and objects of the act creating design patents, whatever be its nature, and whether made for ornament merely, or intended to promote convenience and utility.

This decision was approved by Commissioner Fisher, who was Commissioner at the time that the design law was changed by the insertion of the word "useful" in the clause quoted above, in the case of *ex parte Bartholomew*, (C. D., 1869, 108.)

Acting Commissioner Duncan in the case of *ex parte Fenno*, (C. D., 1871, 52,) decided soon after the law was changed, said:

> There is here no limitation as to the use to which the article, wrought into the particular shape designed for it, is to be subjected; and no suggestion that mere beauty of form or ornamental configuration are the ends sought. In fact, the language quoted expressly implies that utility may be the sole object had in view, in the invention or selection of the particular form to be impressed upon the manufacture; and I am of the opinion that under the present statute, if a new, and at the same time useful, shape be devised for a particular article of manufacture, even though no ornamental effect be produced thereby, the inventor of the same is entitled to protection for it under the design section of the patent law.

These decisions, made at the time that the law was changed, are entitled to much weight in determining the intent of the law. If there were doubt upon the subject they should control. (*Bate Refrigerator Co.* v. *Sulzberger*, 70 O. G., 1633; *Bronson Co.* v. *Duell*, 95 O. G., 229.)

It is believed that it was the intent of the law that design patents should be granted upon mechanical devices or "articles of manufacture" of a new shape or configuration, notwithstanding the fact that the shape was adopted primarily for the performance of a mechanical function and not for the purpose of beauty. It may please the taste better than those that have gone before it or it may not, but this is not controlling, so long as the shape is new and is the result of inventive thought. Our ideas of beauty are derived to a certain extent from our sense of the fitness of things for the purpose for which they were designed; and therefore it is practically impossible to disassociate the idea of beauty from the idea of use in all articles intended for mechanical use. It seems to have been the intention of Congress in placing the word "useful" in the statute merely to leave no room for doubt of the fact that articles intended for mechanical use could be made the subjects of design patents.

The question how far the use or usefulness of the device for the performance of a mechanical function should enter into the consideration of design cases is one of some difficulty. The court of appeals in one of the latest cases upon this subject said, *in re Tournier*, (94 O. G., 2166:)

> But since the introduction of the word "useful" into the statute; the Supreme Court of the United States has held, in more than one case, that, in certain classes of designs embraced by the statute, in addition to the mere esthetical or artistic effect of the design upon the senses of the spectator, the element of functional utility may be considered in determining the question of the patentability of the design claimed. (*Lehnbeuter* v. *Holthaus*, 21 O. G., 1788; 105 U. S., 94; *Smith* v. *Whitman Saddle Co.*, 68 O. G., 912; 148 U. S., 674.)
>
> We do not, however, understand the court as intending to go further than this, and to hold that functional utility is to be regarded as a controlling or even an essential element in a patent for a design. For if so, the design patents would virtually be placed upon the same footing and with the same requirements of patents for mechanical inventions.

It seems clear, as stated by the Court, that functional utility cannot be given the same consideration and effect in design cases as in mechanical. For instance, an article which is useful for the performance of a mechanical function may be old in a mechanical sense—in the sense that it performs the same function in substantially the same way as previous articles—but at the same time it may be new and original in shape and patentable as a design. On the other hand, two articles may upon mere inspection appear to be of substantially the same shape, so that they would not be distinguished by their appearance as separate designs, but at the same time embody such differences as would make them perform different mechanical functions and constitute different mechanical inventions. Inventions in mechanical cases are judged by the novelty of the functions performed or the manner

of performing them, whereas in designs they are judged by the appearance of the article. It is the shape or configuration which is patented in design cases, and the patent does not give protection against the use of devices which perform the same function in substantially the same way, but only against the use of devices having the same appearance without regard to their functions.

As said by the Supreme Court in *Gorham* v. *White*, (2 O. G., 592:)

> If in the eye of an ordinary observer, giving such attention as a purchaser usually gives, two designs are substantially the same, if the resemblance is such as to deceive such an observer, inducing him to purchase one supposing it to be the other, the first one patented is infringed by the other.

This is the sole test of infringement in all design cases, notwithstanding the insertion of the word "useful" in the statute. It is also the test of anticipation, under the well-settled principle that what would infringe if later would anticipate if earlier.

A design which is ornamental may be useful from the standpoint of beauty, and even where it is not ornamental it may be useful and is not to be refused because of its lack of beauty, so long as the shape is new and original.

While functional utility is no bar to the patenting of an article as a design, there is no warrant in the law for granting such a patent upon a machine whose parts bear certain functional relations to each other. Under the express provisions of the statute such patents are limited to "an article of manufacture," and there is a clear and well-defined distinction in patent law between a machine and an article of manufacture. It seems clear that the legislature had this distinction in mind in framing the law, for aside from the fact that it limited the part of section 4929 under consideration to only one of the classes of invention mentioned by it in section 4886, there are good reasons why this limitation should have been made. The subject-matter of patents must be definite and certain, and since designs relate solely to shape or configuration their subject-matter must be of a fixed and definite shape. This is not possible in the case of a machine made up of movable parts whose change in position changes the appearance of the device. It was probably because of this fact that the design law was limited to articles of manufacture.

The position of the Office upon the question of granting design patents upon machines was thus stated in *ex parte Adams*, above cited:

> The several articles of manufacture of peculiar shape which when combined produce a machine or structure having movable parts, may each separately be patented as a design, but the machine itself cannot be so patented.

This ruling has been approved in numerous other decisions and is believed to be correct. It has never, however, been the practice of the Office to require absolute immovability of the parts of an article in order to warrant the holding that it is an article of manufacture and patentable as a design. There may be some relative movement of the parts of a single article of manufacture without changing the appearance of the article, and in such case it comes within the design law; but nothing which amounts to a machine can come within the law. Two things are to be considered—first, is its shape fixed and definite? and, second, is it an article of manufacture and not a machine? On both questions the presence of movable parts is material, since in most cases where the parts move the device is not fixed in appearance and constitutes a machine. If it is a machine, it is not patentable under the law, whether or not the movement of the parts is such as to materially change the appearance of the machine as a whole.

In the case of *ex parte Smith* (81 O. G., 969) it was held that an atomizer provided with a handle which moved in and out was an apparatus and not patentable as a design. In *ex parte Tallman* (82 O. G., 837) a can-opener provided with a blade-holder which was to be moved along an opening in the body was held to be an apparatus and not a single article of manufacture. In *ex parte Kapp* (83 O. G., 1993) a pair of tongs was held to constitute a machine and not a patentable design. In *ex parte Adams*, *supra*, a car-truck embodying side frames, springs, and other elements was held to be a machine. It seems in the last-cited case that there was not sufficient movement between the parts to materially change the appearance of the machine as a whole; but it is believed, nevertheless, that the decision holding it unpatentable was correct. It constituted a machine and not an article of manufacture.

The circuit court in the case of *Chandler Adjustable Chair & Desk Company* v. *Heywood et al.* (91 Fed. Rep., 163) referred to and criticised the practice announced in the above decisions. It said:

> The broad proposition advanced by the defendant, that section 4929 of the Revised Statutes was not intended to apply to structures having movable parts, is not supported by the citation of any judicial decision; and, though certain rulings of the Patent Office (*ex parte Tallman*, 82 O. G., 837; *ex parte Adams*, 84 O. G., 811; *ex parte Smith*, 81 O. G., 969; *ex parte Brower*, 1873, C. D., 151) are presented to support this proposition, I am of the opinion that such a construction of the statute calls for an unwarranted and unreasonable limitation of the terms "manufacture" and "any article of manufacture," and leads to absurd and unjust results. For example, such a construction would defeat claims like those in *Burton* v. *Town of Greenville* (3 Fed. Rep., 642) and *Britton* v. *Manufacturing Co.*, (61 Fed. Rep., 94.)

This criticism of the Office practice does not seem to have been warranted by the facts, and even in that case the court did not go so far as to say that a machine could be patented as a design. It merely decided that the desk-support in that case constituted an article of manufacture within the meaning of the design law, although it was made up of upper and lower portions having sliding connection with each other for the purpose apparently of adjusting the height of the desk. This decision may have been controlled by the hesitation which courts have to declare a patent invalid because of its form. There is sufficient doubt in this case whether the two parts constitute a single design to warrant the holding, under the circumstances, that they constitute an article of manufacture, and this seems to have been the view taken by the Office in allowing the patent in that form.

This decision cannot be accepted by the Office as authority for allowing design patents upon what it regards as machines any more than the broad statements in *Rowe* v. *Blodgett & Clapp Co.*, *supra*, can be accepted as authority for refusing all designs relating to mechanical devices. The statute itself is controlling in this matter, and these apparently conflicting rulings by the circuit courts are believed to be of little aid in construing it.

The invention in this case is said to be an improvement in frames of water-towers. The tower is one used by fire departments to support the hose when playing upon a fire in a tall building. It consists of the tower or hose-support proper and the frame to which the tower is hinged or pivoted and upon which it is shown as resting in a horizontal position. The pivotal connection between the parts is very plain and the purpose and operation of the device are clear, notwithstanding the absence of description in the specification. The tower is intended to be raised upon its pivot to a vertical position and to rest upon the frame as shown only when not in use. The device constitutes a machine and not an article of manufacture.

If this were not obvious from the disclosure in this case, it would at once become so upon an inspection of this petitioner's mechanical patent, No. 546,627, upon the same machine.

The applicant is, under the rules, entitled to all of the appeals in this case provided by law, and therefore this petition is dismissed.

Patents Nos. 690,913 to 691,842.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Reissues	None.	
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TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and prints.
Alabama	2		Nevada		
Arizona Territory	2		New Hampshire	4	1
Arkansas	2		New Jersey	18	1
California	8	1	New Mexico Territ'y	1	1
Colorado	8		New York	69	11
Connecticut	12		North Carolina	2	
Delaware	1		North Dakota	2	
District of Columbia	4		Ohio	34	4
Florida	1		Oklahoma Territ'y	1	
Georgia	2		Oregon		
Hawaii Territory			Pennsylvania	57	6
Idaho	1		Porto Rico		
Illinois	22	2	Rhode Island	6	
Indian Territory	1		South Carolina		
Indiana	8		South Dakota		
Iowa	7		Tennessee	3	
Kansas	4		Texas	4	
Kentucky	5		Utah	1	
Louisiana			Vermont	1	
Maine	1	1	Virginia	4	
Maryland	6		Washington	4	1
Massachusetts	27	1	West Virginia	1	
Michigan	9	2	Wisconsin	13	1
Minnesota	2		Wyoming		
Mississippi	1		U. S. Navy	1	
Missouri	10	2			
Montana	3	1	Total to citizens of the United States	309	73
Nebraska	4	1			

TO CITIZENS OF FOREIGN COUNTRIES.

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Algeria			Mexico		
Austria-Hungary	4		Natal	1	
Barbadoes			Newfoundland		
Belgium			New South Wales		
Bermuda			New Zealand		
Brazil			Norway		
Canada	4		Queensland		
Cape Colony			Roumania		
Chile			Russia	2	
China			Scotland	1	
Colombia			South African Republic		
Cuba			South Australia		
Denmark	1		Spain		
Egypt			Sweden		
England	20	1	Switzerland		
France	5	1	Turkey in Asia		
Germany	13	1	Victoria		
Guatemala			Western Australia		
Haiti					
India					
Ireland			Total to citizens of foreign countries	50	3
Italy					

Disclaimers.

497,971.—*Pardon W. Tillinghast*, Providence, R. I. Improvement in Pneumatic Tires. Patent dated May 23, 1893. Disclaimer filed January 8, 1902, by the present assignee, the *Single Tube Automobile & Bicycle Tire Company*, a corporation of New Jersey.

Enters its disclaimer—

"To claim 1 of said patent, which is in the following words, to wit:

"1. A pneumatic tire, consisting of a rubber air tube, and outer covering, substantially as specified, with the ends of the air tube and other component parts securely united by vulcanization, substantially as described, thereby constituting an integral complete tire."

673,033.—*Arthur B. Pickett*, Union City, Ohio. Improvement in Bowling-Balls. Patent dated May 7, 1901. Disclaimer filed January 3, 1902, by the assignee, the *Bowling Ball Company*, New York, N. Y.

Enters its disclaimer—

"To that claim in said patent which is in the following words, to wit:

"3. A bowling-ball provided with finger-sockets, the said finger-sockets having inner lining-tubes, and an interposed layer of yielding material between the wall of the socket and the lining-tube, the said lining-tube having an opening at its inner end adapted to be closed when the lining is in place to hold the lining under atmospheric pressure against displacement, substantially as set forth."

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 7, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	In arrears—Under one month.			
317	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Dec. 17	Dec. 20	98
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149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Dec. 10	Dec. 16	178
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213	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Dec. 9	Dec. 24	160
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207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Dec. 9	Dec. 24	161
44	XXIV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Dec. 9	Dec. 24	224
222	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 9	Dec. 24	137
253	X. Carriages and Wagons	Dec. 9	Dec. 19	118
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109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Dec. 9	Dec. 6	126
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 7	Dec. 24	165
203	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 7	Dec. 22	218
128	XXIX. Wood-Working Machines, Coopering and Roofing.	Dec. 7	Dec. 20	164
108	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Dec. 7	Dec. 19	195
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Dec. 7	Dec. 13	188
	Between one and two months.			
225	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 5	Dec. 23	200
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Dec. 5	Dec. 10	207
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125	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Dec. 3	Dec. 19	173
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Dec. 3	Dec. 18	144

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Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
197	XXX. Paper Manufactures, Lamps, and Gas-Fittings.	Dec. 2	Dec. 11	2
80	IV. Civil Engineering, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Dec. 2	Dec. 7	2
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 2	Dec. 3	2
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221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Nov. 27	Dec. 13	1
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120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 11	Nov. 18	2
80	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Nov. 11	Nov. 10	2
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	Between two and three months.			
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Nov. 4	Dec. 3	4
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Nov. 4	Oct. 24	6
245	XVIII. Steam-Engineering, etc.	Oct. 24	Nov. 2	4

Total number of applications awaiting action.....8,

Under one month.		
*Designs	Dec. 16	Dec. 20
†Trade-Marks	Dec. 7	Dec. 21
‡Labels and Prints	Jan. 7	Jan. 4

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simu[lta]neously with the weekly issue of patents. From January 1, 1[872] (the commencement of its publication,) to June 30, 1880, it [was] published and bound in semi-annual volumes; since July 1, 1[880] in quarterly volumes. Terms: To subscribers within the Uni[ted] States, Canada, and Mexico, $5 per annum; to foreign subscri[bers], $10; single copies, 10 cents; if mailed to foreign countries, 10 cents additional for postage; bound semi-annual volumes (prior to June 30, 1880,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1880,) full sheep, $[5.75] volume. Payment in advance. No subscription will be received for less than three months. All orders should be addressed to "The Commissioner of Patents, Washington, D.

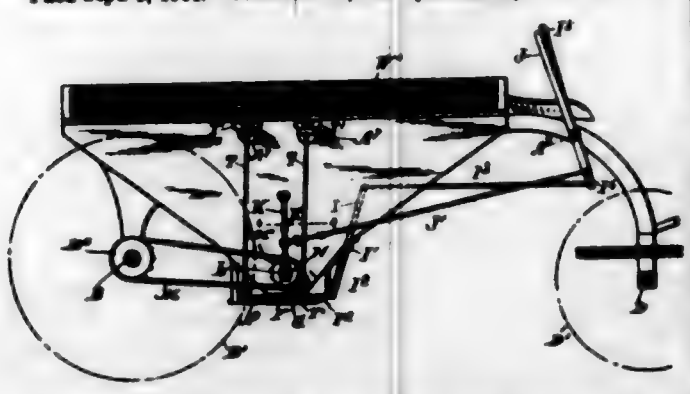
Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

PATENTS

GRANTED JANUARY 14, 1902.

690,913. SAND-WAGON. SILAS W. ALBERTSON, Lincoln, N. Y. Filed Sept. 5, 1901. Serial No. 74,373. (No model.)



Claim.—1. In a vehicle of the character described, a hopper A having a discharge-slot *a* and means for opening and closing such slot, the pair of oppositely-inclined screens W' W² arranged above, the revolving agitator H H² and means for operating it, receiving motion from the carrying-wheels controlled by a clutch, in combination with a lever I² and connections therefrom adapted to control the valve, all arranged to serve substantially as herein specified.

2. In combination, a hopper A, wheels for carrying the same, a delivery-slot *a* at the bottom of the hopper, a shaft H having teeth H² with provisions for revolving it and a shield A³ extending across the interior of the hopper over the said shaft, all substantially as herein specified.

3. In combination, a hopper A, wheels B' B² D' D² for carrying the same, a transversely-extended delivery-aperture *a* at the bottom of the hopper, a toothed shaft H H² with provisions for revolving it, the clutch L controlling the connection of a driving-wheel B' with the said shaft, provisions by the carrier F uniformly moved by the lever, a slide G adjustable on such carrier for varying the opening with a given movement of the carrier, and an operating-lever I² arranged to be worked by the driver with connections therefrom to the carrier, all substantially as herein specified.

4. In a vehicle of the character described, a hopper having a transverse discharge aperture or slot *a* and means for opening and closing such slot, the revolving agitator H H² and means for operating it, receiving motion from a carrying-wheel controlled by a clutch, and a screen for the sand carried with the wagon and constituting a part thereof in combination with each other and with a transversely-extended aperture *a* and a slide G with means for conveniently opening and closing it, all arranged for joint operation substantially as herein specified.

690,914. SOFA-PILLOW OR CUSHION. CHARLES E. BENTLEY, New York, N. Y. Filed Dec. 5, 1901. Serial No. 84,793. (No model.)



Claim.—1. A sofa-pillow having a casing comprising top and bottom portions each including marginal edge-bound tabs connected in pairs at the edge of the pillow, substantially as described.

2. A sofa-pillow having a casing comprising top and bottom portions each including marginal edge-bound tabs connected in pairs at the edge of the pillow, and puffed finishing fabric overlying the pillow-casing between said tabs, substantially as described.

3. A sofa-pillow having a casing including top and bottom portions each comprising a center piece and a margin consisting of separately-formed and individually-edge-bound tabs attached to the top and bottom center pieces and connected in pairs at the edge of the pillow, substantially as described.

4. A sofa-pillow having a casing including top and bottom portions each comprising a center piece and a margin consisting of separately-formed and individually-edge-bound tabs attached to the top and bottom center pieces and connected in pairs at the edge of the pillow, and puffed finishing fabric overlying the pillow-casing between said tabs, substantially as described.

5. A sofa-pillow having a casing comprising top and bottom portions each including edge-bound marginal tabs, and ribbons connecting pairs of tabs at the edge of the pillow, substantially as described.

6. A sofa-pillow having a casing comprising top and bottom portions each including edge-bound marginal tabs, ribbons connecting pairs of tabs at the edge of the pillow, and puffed finishing fabric overlying the pillow-casing between the tabs and under their connecting-ribbons, substantially as described.

7. A sofa-pillow-casing top or bottom, comprising a center piece and edge-bound tabs projecting therefrom and forming its margin, substantially as described.

8. A sofa-pillow-casing top or bottom, comprising a center piece and separately-formed and individually-edge-bound tabs fastened to and projecting from the center piece and forming its margin, substantially as described.

690,915. COATING PREPARATION. HARRIET A. BENTLEY, Glens Falls, N. Y. Filed Sept. 20, 1901. Serial No. 75,990. (No specimens.)



Claim.—1. A sheet of material for artists' use, said sheet having a painting-surface coated with a mixture of amyl acetate and cedar-oil.

2. A sheet of material for artists' use, said sheet having a painting-surface coated with a mixture of amyl acetate, cedar-oil and pyroxylin.

3. A sheet of material for artists' use, said sheet having a painting-surface coated with a mixture of amyl acetate, cedar-oil and pyroxylin in or about the proportions specified, and an outer coating of gelatinous material.

4. The herein-described compound for preparing surfaces consisting of amyl acetate and cedar-oil.

5. The herein-described compound for preparing surfaces consisting of pyroxylin, amyl acetate, in or about the proportions set forth, and a gelatinous material.

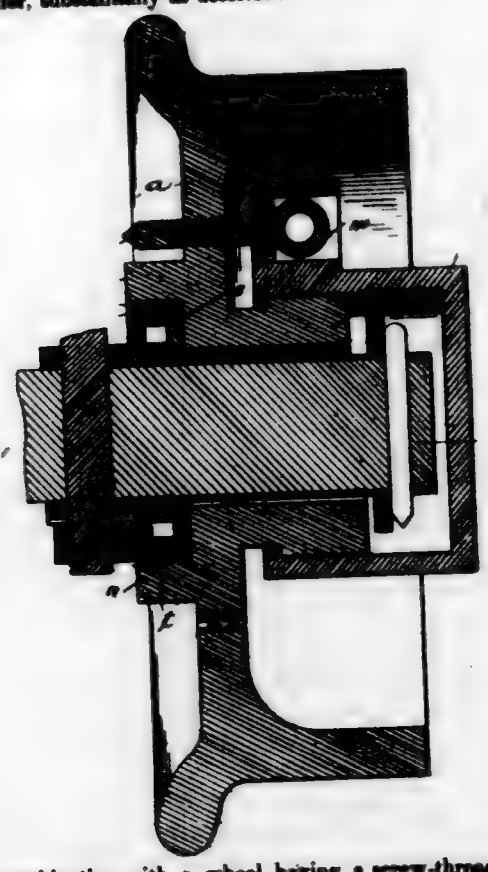
6. The herein-described compound for preparing surfaces consisting of pyroxylin, amyl acetate, in or about the proportions set forth, and isinglass in the form of jelly.

690,916. WHEEL-BEARING. IRVINE BEELY, Denver, Colo. Filed Mar. 12, 1900. Serial No. 8,268. (No model.)

Claim.—1. In combination, an axle, a wheel having a hub projecting from one face thereof with a threaded end portion, and a cap having a chamber therein of greater depth than the length of the hub adapted to hold a plastic lubricant, said cap covering the end of the hub and completely inclosing the end of said axle, said cap being designed to be adjusted on the hub to reduce the area of the chamber therein and a device for retaining the cap in adjusted position, substantially as described.

2. In combination, a wheel having a hub projecting from one face and screw-threaded, a cap adjustable on said hub to force the lubricant contained therein to the parts to be lubricated and a series of washers on

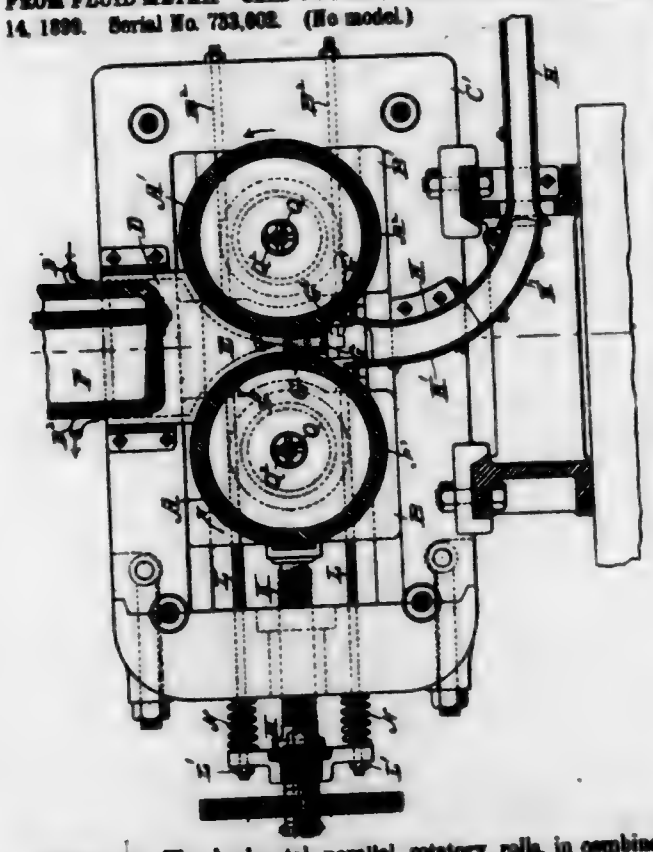
the side of the wheel opposite the hub, said series comprising an intermediate washer and a side washer on each side of the same, a close joint being formed between one of the said side washers and the wheel and a second close joint being formed between the intermediate washer and the other side washer, substantially as described.



3. In combination with a wheel having a screw-threaded hub, a reservoir screw-threaded thereon and means for holding the reservoir in different positions to which it may be turned about the hub, said means being independent of the screw-threads substantially as described.

4. In combination, a wheel having a screw-threaded laterally-projecting hub, a reservoir screw-threaded thereon, to be adjusted longitudinally of the said hub and means for holding the reservoir in different positions, substantially as described.

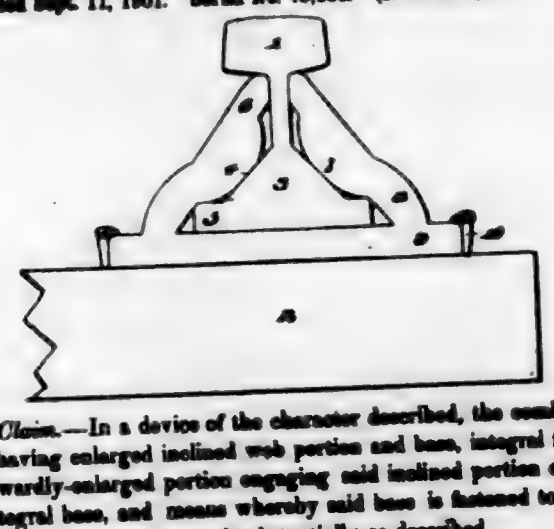
690,917. APPARATUS FOR CONTINUOUS ROLLING DIRECT FROM FLUID METAL. CARL W. BILDT, Worcester, Mass. Filed Oct. 14, 1899. Serial No. 733,602. (No model.)



Claim.—1. The horizontal, parallel, rotatory, rolls, in combination with the vertical partitions arranged transversely to said rolls and extending up from the peripheries thereof, the removable plug arranged longitudinally with and between the rolls, and means for cooling said rolls, partitions and plug, substantially as and for the purpose set forth.

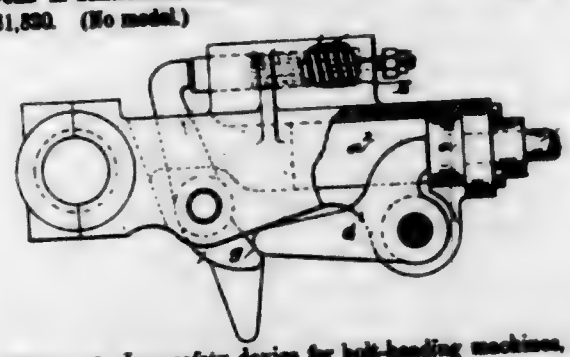
2. The horizontal, parallel, rotatory, rolls, in combination with the vertical partitions arranged transversely to said rolls and extending up from the peripheries thereof; the removable plug arranged longitudinally with and between the rolls, the conducting pipe or guide for conducting the metal from the aforesaid rolls to the rolling-mill or other desired point, and means for cooling said rolls, partitions and plug, substantially as and for the purpose set forth.

690,918. RAIL-JOINT CONNECTION. JOHN T. BLAKE, Pittsburg, Pa., assignor of two-thirds to Ira P. Brainard and Frederick A. Schmitz. Filed Sept. 11, 1901. Serial No. 75,002. (No model.)



Claim.—In a device of the character described, the combination of rails having enlarged inclined web portion and base, integral fish-plates, an inwardly-enlarged portion engaging said inclined portion of the rail, an integral base, and means whereby said base is fastened to the crossties, all parts being arranged substantially as described.

690,919. SAFETY DEVICE FOR BOLT-HEADING MACHINES. JOHN R. BLAKESLEE, Glenville, Ohio. Filed May 28, 1901. Serial No. 61,820. (No model.)



Claim.—1. In a safety device for bolt-heading machines, the combination of a pitman provided with a yielding member, a spring-actuated member, and two levers intermediate of said yielding and said spring-actuated members, such latter two members adapted to engage respectively, each of such levers, the latter adapted to operatively engage each other, and said spring-actuated member adapted to effect and maintain such engagement.

2. In a safety device for bolt-heading machines, the combination of a pitman provided with a yielding member, a spring-actuated bolt, two levers fulcrumed upon said pitman, the one lever adapted to engage said bolt and the other said yielding member, and adapted to engage one another in a manner such as to fix said yielding member relatively to the pitman, said bolt adapted to maintain such engagement of said levers.

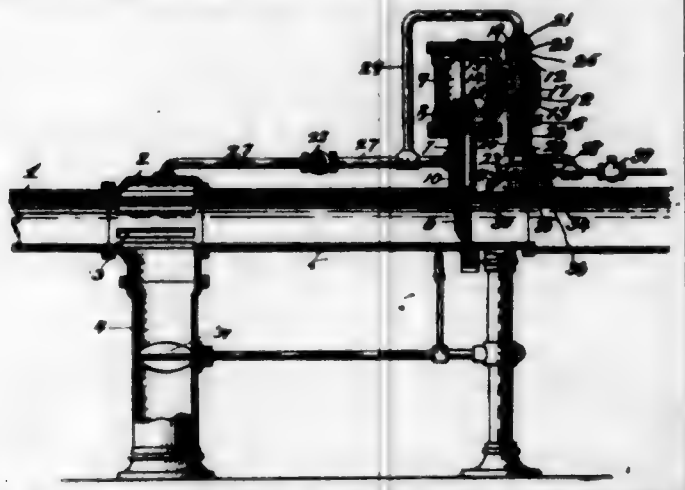
3. In a safety device for bolt-heading machines, the combination of a pitman provided with a yielding member, a spring-actuated bolt, two levers fulcrumed upon said pitman, the one lever adapted to engage said bolt and the other said yielding member, the one lever provided with a shoulder and the other adapted to engage such shoulder, said spring-actuated bolt adapted to maintain such engagement of said levers with each other and of said lever with said yielding member, whereby the latter may be fixed relatively to said pitman.

690,920. TUBULAR TRANSIT APPARATUS. BRYANT H. BLOOD, Brooklyn, N. Y. (Original application filed Nov. 3, 1900, Serial No. 35,383. Divided and this application filed Mar. 11, 1901. Serial No. 50,606. (No model.)

Claim.—1. In apparatus for tubular transit systems, in combination with a receiving and cushioning chamber, a by-pass connecting the forward and rearward ends of said chamber and a regulating-valve disposed in said by-pass, substantially as and for the purpose set forth.

2. In apparatus for tubular transit systems, in combination with a receiving and cushioning chamber, a gate therefor and pneumatic operating mechanism for said gate, an air-pressure supply for said pneumatic operating mechanism, a pneumatically-operated valve for said air-pressure

supply, pneumatic operating mechanism for moving said valve, pipe connection between said pneumatic operating mechanism and said cushioning-chamber, pneumatic returning mechanism for returning said valve to its normal position, an air-pressure-generating mechanism, pipe connection between said air-pressure-generating mechanism and said pneumatic returning mechanism, and a trip-finger for actuating said air-pressure-generating mechanism, substantially as and for the purpose set forth.



3. In apparatus for tubular transit systems, the combination with a receiving and cushioning chamber, a gate therefor, pneumatic operating mechanism for said gate, and an air-pressure supply for said pneumatic operating mechanism, of a valve for said air-pressure supply, operating mechanism for said valve, pneumatic returning mechanism for said valve, an air-pressure-generating mechanism consisting of piston in a cylinder, a trip-finger and connecting means between said trip-finger and piston, and pipe connection between said pneumatic returning mechanism and said cylinder, substantially as and for the purpose set forth.

4. In apparatus for tubular transit systems, an air-pressure-generating mechanism consisting of a cylinder, a piston in said cylinder, a trip-finger, connecting means between said piston and trip-finger, inlet and outlet pipes for said cylinder and an intake check-valve in said inlet pipe, substantially as described.

5. In apparatus for tubular transit systems, an air-pressure-generating mechanism consisting of a cylinder, a piston in said cylinder, a piston-rod, a trip-finger having a crank portion, a link connecting said crank portion and piston-rod, a returning-spring, inlet and outlet pipes for said cylinder and an intake check-valve in said inlet-pipe, substantially as described.

6. In apparatus for tubular transit systems, an air-supply valve consisting of a reciprocating valve member, a tension device for said member, cylinders adjacent either end of said valve member, pistons in said cylinders, returning-springs for said pistons, piston-rods integral with said pistons in alinement with said valve member and adapted to abut the same upon the movement of said pistons, substantially as described.

7. In apparatus for tubular transit systems, the combination with a receiving and cushioning chamber, a gate therefor and pneumatic operating mechanism for said gate, of an air-pressure supply for said pneumatic operating mechanism, a valve for said air-pressure supply consisting of a reciprocating valve member, a tension device for said member, cylinders adjacent either end of said valve member, pistons in said cylinders, returning-springs for said pistons, piston-rods integral with said pistons in alinement with said valve member and adapted to abut the same upon the movement of said pistons, pipe connection between one of said cylinders and said cushioning-chamber, pipe connection between the other of said cylinders and an air-pressure-generating mechanism consisting of a cylinder, a piston in said cylinder, a piston-rod, a trip-finger having a crank portion, a link connecting said crank portion and piston-rod, a returning-spring, inlet and outlet pipes for said cylinder and an intake check-valve in said inlet-pipe, substantially as described.

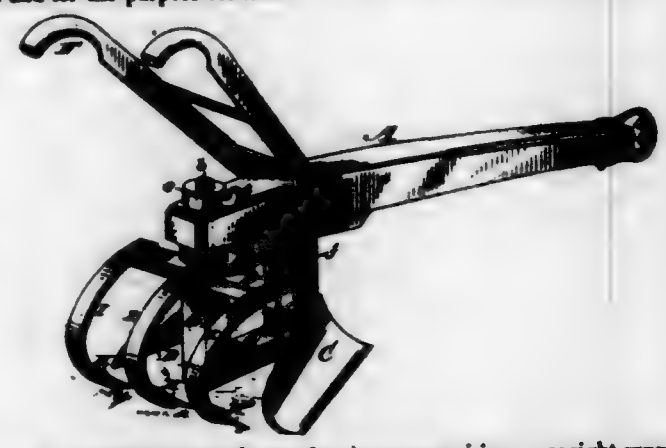
8. In tubular transit apparatus, a valve, a trip-finger for actuating said valve, and a resilient cushion between said valve and trip-finger designed to impart movement from one to the other, substantially as described.

9. In tubular transit apparatus, a valve, a trip-finger for actuating said valve, and an air-cushion between said valve and trip-finger designed to impart movement from one to the other, substantially as described.

10. In tubular transit apparatus, a valve, pneumatic operating mechanism for said valve, a trip-finger and a pressure-generating mechanism actuated by said trip-finger for supplying pressure to said pneumatic operating mechanism, substantially as described.

690,921. **CULTIVATOR ATTACHMENT FOR PLOWS.** RICHARD S. BONNER, Little Rock, Ark. Filed Aug. 14, 1901. Serial No. 71,977. (No model.)

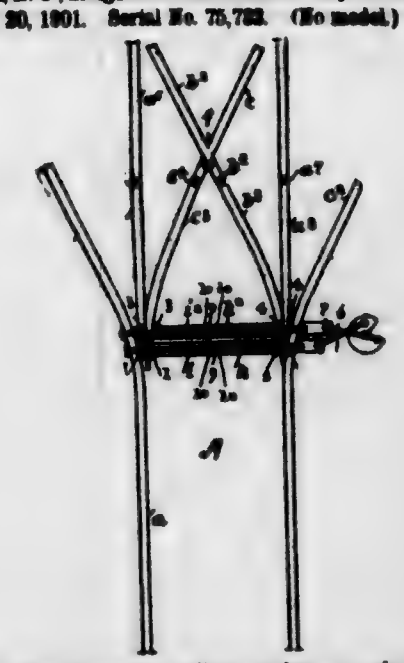
Claim.—1. A cultivator attachment for plows, comprising an upright support connected to the rear end thereof, a cross-head with cultivator-shovels connected to the support, said cross-head being both vertically adjustable and adjustable horizontally in the arc of a circle, and suitable means for holding said cross-head in its adjusted positions, substantially as and for the purpose set forth.



2. A cultivator attachment for plows, comprising an upright support pivotally connected to and between the rear end of the plow-beam and a suitable step projecting from the plow, a cross-head carrying suitable cultivator-shovels and pivotally connected to the support, said cross-head being both vertically adjustable and adjustable horizontally on the arc of a circle, and means for holding the cross-head in its adjusted positions, substantially as and for the purpose described.

3. A cultivator attachment for plows, comprising a suitable suppport connected to the rear end of the plow, a cross-head carrying cultivator-shovels, said cross-head being vertically adjustable, and removable and adjustable washers or nuts to hold the cross-head in its adjusted position, substantially as and for the purpose specified.

690,922. **THREE-WAY RAILWAY-SWITCH.** WILLIAM F. BOSSERT, Utica, N. Y., assignor of one-third to Henry P. Crouse, Utica, N. Y. Filed Sept. 20, 1901. Serial No. 75,782. (No model.)



Claim.—1. In a three-way railway-switch, a main track and a divergent track from each side thereof, the two rails of the main track being severed at the switch and movable points introduced on one side, while on the other side the rails extend outwardly to form one entrance-rail of the respective divergent tracks, the second entrance-rails of the divergent tracks terminating in movable points adjacent to the main-track-rail movable points and inside the same, the movable point of one main rail rigidly connected by a bar with the movable point of a rail of a divergent track on one side, and the second main-rail movable point connected rigidly by a bar with the movable point of a rail of the second divergent track, a switch consisting of a casing supporting a vertical rod bearing upon its lower end a disk, two links, one pivoted at the upper side of the disk and also to the connecting rail-bar of one divergent track, and the second link pivoted at the lower side of the disk and also with the connecting rail-bar of the second divergent track, a lever pivoted to said vertical rod and linked to a sliding sleeve on said rod, which sleeve normally rests in a slot in said casing, while the lever is locked to one of three studs upon the said casing.

2. In a three-way railway-switch, a main track and a divergent track from each side thereof, the two rails of the main track being severed at the switch and movable points introduced on one side, while on the other

side the rails extend outwardly to form one entrance-rail of the respective divergent tracks, the second entrance-rails of the divergent tracks terminating in movable points adjacent to the main-track-rail movable points and inside the same, the movable point of one main rail rigidly connected by a bar with the movable point of a rail of a divergent track on one side, and the second main-rail movable point connected rigidly by a bar with the movable point of a rail of the second divergent track, a switch consisting of a casing supporting a vertical rod bearing upon its lower end a disk, two links, one pivoted at the upper side of the disk and also to the connecting rail-bar of one divergent track, and the second link pivoted at the lower side of the disk and also with the connecting rail-bar of the second divergent track, a lever pivoted to said vertical rod and linked to a sliding sleeve on said rod, which sleeve normally rests in a rest in said casing, while the lever is locked to one of three studs upon the said casing, a signal-lantern at the upper end of said vertical rod having six sides, each provided with differently-colored transparent windows, the opposite windows having the same colors, with means for illuminating the same, a second or target signal under the lantern, having six sides each colored the same as the window above it.

3. In a three-way railway-switch, a main track and a divergent track from each side thereof, the two rails of the main track being severed at the switch and movable points introduced on one side, while on the other side the rails extend outwardly to form one entrance-rail of the respective divergent tracks, the second entrance-rails of the divergent tracks terminating in movable points adjacent to the main-track-rail movable points and inside the same, the movable point of one main rail rigidly connected by a bar with the movable point of a rail of a divergent track on one side, and the second main-rail movable point connected rigidly by a bar with the movable point of a rail of the second divergent track, a switch consisting of a casing supporting a vertical rod bearing upon its lower end a disk, two links, one pivoted at the upper side of the disk and also to the connecting rail-bar of one divergent track, and the second link pivoted at the lower side of the disk and also with the connecting rail-bar of the second divergent track, a lever pivoted to said vertical rod and linked to a sliding sleeve on said rod, which sleeve normally rests in a rest in said casing, while the lever is locked to one of three studs upon the said casing, whereby when the main track may be switched to one divergent track then to close its own track, and finally switched to the second divergent track, by successively turning the switch-lever in the same direction.

4. In a three-way railway-switch, a main track and a divergent track from each side thereof, the two rails of the main track being severed at the switch and movable points introduced on one side, while on the other side the rails extend outwardly to form one entrance-rail of the respective divergent tracks, the second entrance-rails of the divergent tracks terminating in movable points adjacent to the main-track-rail movable points and inside the same, the movable point of one main rail rigidly connected by a bar with the movable point of a rail of a divergent track on one side, and the second main-rail movable point connected rigidly by a bar with the movable point of a rail of the second divergent track, a switch consisting of a casing supporting a vertical rod bearing upon its lower end a disk, two links, one pivoted at the upper side of the disk and also to the connecting rail-bar of one divergent track, and the second link pivoted at the lower side of the disk and also with the connecting rail-bar of the second divergent track, a lever pivoted to said vertical rod and linked to a sliding sleeve on said rod, which sleeve normally rests in a rest in said casing, while the lever is locked to one of three studs upon the said casing, whereby when the main track may be switched to one divergent track then to close its own track, and finally switched to the second divergent track, by successively turning the switch-lever in the same direction, and as the movable points connect with the severed main track to form a completed track, a signal is automatically made for each track.

5. In a railway-switch consisting of a main track and a divergent track from each side thereof, the rails of the main track bending outward on each side to form approaches for a rail of each divergent track, covering the main-track rails, each of which is adapted to be closed by pivoted movable points from the rail continuations; the second rails of each divergent track meeting at a junction between the main-track rails and provided with pivoted movable points; each main-track movable point rigidly connected to the movable point of the divergent-track rail adjacent thereto by a rod which is in flexible connection with a disk on the end of a vertical rod located in suitable bearings; with means for rotating the said disk and for locking the same to hold the said movable points in any one of three positions.

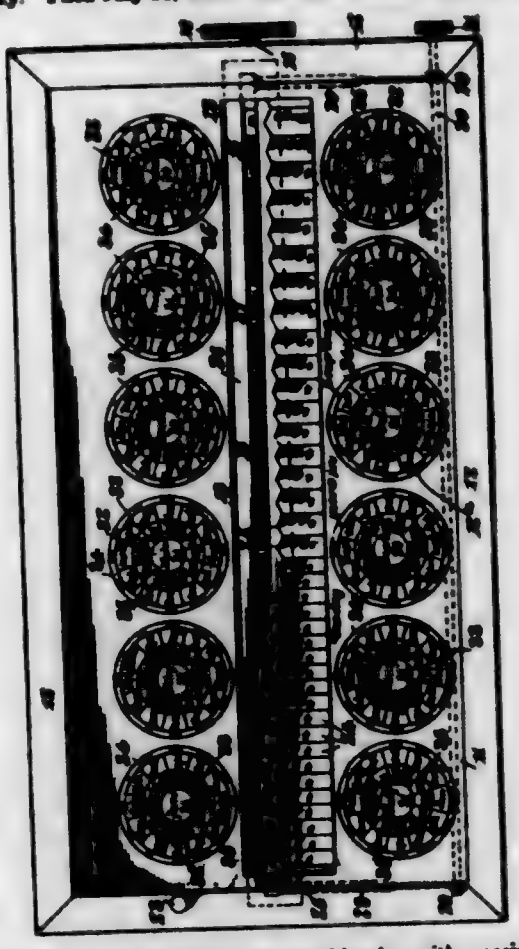
6. In a three-way railway-switch, a main track and a divergent track from each side thereof, the two rails of the main track being severed at the switch and movable points introduced on one side, while on the other side the rails extend outwardly to form an entrance-rail of the respective divergent tracks, the second entrance-rails of the divergent tracks terminating in movable points adjacent to the main-track-rail movable points and inside the same, the movable point of one main rail rigidly connected by a bar with the movable point of a rail of a divergent track on one side, an operating-rod extending parallel with the said bar under the rails provided with adjustable means of attachment to the said bar and having a link pivoted to one end; and the second main-rail movable point connected rigidly by a bar with the movable point of a rail of the second divergent track, an operating-rod extending parallel with the said bar under the rails provided with adjustable means of attachment to the said bar and having a link pivoted to one end; a switch consisting of a casing supporting a vertical rod bearing upon its lower end a disk, one of said links pivoted at the upper side of the disk, and the second link pivoted at the lower side of the disk; a lever pivoted to the said vertical rod and linked to a sliding sleeve on said rod; which sleeve normally rests in a rest in said casing, while the lever is locked to one of three studs upon the casing.

690,928. RUNNING GEAR FOR VEHICLES. MARTIN BEHNER, Buckland, Ohio. Filed Oct. 15, 1901. Serial No. 78,726. (No model.)



Claim.—In a running-gear, the combination with an extensible reach and the front bolster thereof, of a bracket having side flanges which embrace the sides of one of the reach-sections and suitably secured thereto, said bracket extending under the reach-section and between the bolster and axle, and a strap being connected to the upper side of the reach-section, both bracket and strap having inwardly-extending flanges to lap the bolster at its outer side, substantially as and for the purpose set forth.

690,924. CALCULATING DEVICE. ALBERT L. BOYD, Russellville, Ky. Filed July 20, 1901. Serial No. 69,060. (No model.)



Claim.—1. In a calculator, the combination with a casing having a sight-opening, of a cylinder rotatably mounted within the casing and carrying a table of interest calculations, said calculations being successively displayed through the sight-opening upon the movement of the cylinder, an index for said table located adjacent to the sight-opening, an operating-handle located on the exterior of the casing and connected to one end of the cylinder, and a holding device located within the casing and arranged on the opposite end of the cylinder to the handle to hold said cylinder against movement.

2. In a calculator, the combination with a casing having a sight-opening, of a cylinder rotatably mounted within the casing and carrying a table of interest calculations, said calculations being successively displayed through the sight-opening upon the movement of the cylinder, an index for the table located adjacent to the sight-opening, an operating-

handle arranged on the exterior of the casing and connected to one end of the cylinder, a ratchet-disk secured to the other end of the cylinder, and a spring-pressed dog engaging the disk to hold the cylinder against movement.

3. In a calculator, the combination with a casing having a sight-opening, of a cylinder rotatably mounted within the casing and having a table of interest calculations, an index for said table located adjacent to the sight-opening, means for rotating the cylinder, a ratchet-disk secured to the cylinder, a spring-pressed dog engaging the disk to hold the element against movement, and a controlling-stem bearing against the dog to move the same out of engagement with the disk.

4. In a calculator, the combination with a closed casing having a sight-opening through one of its walls, of a movable element mounted within the casing and carrying a table of interest calculations comprising independent sets, a plurality of which are simultaneously displayed through the sight-opening, an index located upon the casing contiguous to the sight-opening, and a finder-plate movable across the sight-opening and provided with an opening of smaller size than the said sight-opening, the opening in said finder-plate being of sufficient size to expose a single set of interest calculations.

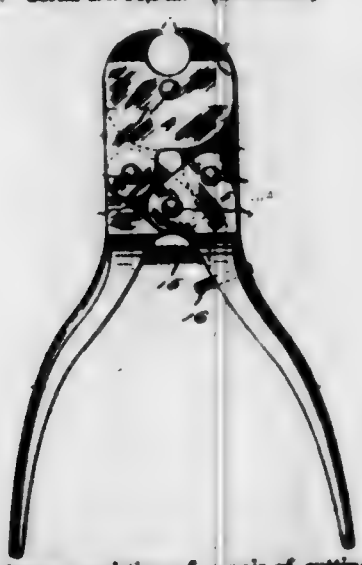
5. In a calculator, the combination with a casing having a sight-opening, of a movable element mounted within the casing and carrying a table of interest calculations, an index located contiguous to the sight-opening, a finder-plate movable across the said opening and provided with an opening of smaller size than said sight-opening, and means for moving the finder-plate.

6. In a calculator, the combination with a casing having a sight-opening, of a movable element mounted within the casing and carrying a table of interest calculations, an index located contiguous to the sight-opening, a finder-plate movable across the said opening and provided with an opening of smaller size than said sight-opening, a rock-shaft having an exposed handle, and a connection between the shaft and finder-plate.

7. In a calculator, the combination with a casing having a sight-opening, of a cylinder rotatably mounted within the casing and carrying a table of interest calculations, an index located contiguous to the sight-opening, a finder-plate slidably mounted across the said opening and provided with an opening of smaller size than said sight-opening, a rock-shaft journaled upon the casing and having an exposed handle and a pair of crank-arms, and links connecting the crank-arms to the finder-plate

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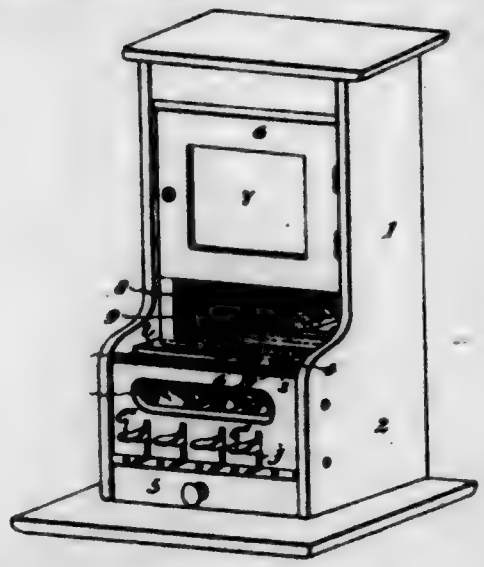
690,925. NIPPERS. GEORGE J. CAPEWELL, Hartford, Conn. Filed Mar. 11, 1901. Serial No. 50,542. (No model.)



Claim.—A nipper, consisting of a pair of cutting-jaws, the shank of one jaw having a mortise that divides it so as to form two cheek-pieces that extend the full width of both jaws, and the shank of the other jaw having a tenon that fits the mortise and also extends the full width of both jaws between the cheek-pieces, the cheek-pieces embracing the tenon to the back edge of the tenon-cheek and the tenon fitting between the cheek-pieces to the back edge of the mortised shank, a jaw pivot-pin holding the tenon between the cheek-pieces, a handle having a tenon fitting the mortise in the shank, a pin pivotally holding the handle-tenon in the shank-mortise, a handle having a mortise, a pin pivotally holding the shank-tenon in the handle-mortise, and a link-pin more remote from the jaw pivot-pin than either of the pins connecting the ends of the handles with the jaw-shanks, pivotally holding the handle-tenon in the handle-mortise, substantially as specified.

690,926. COIN-CONTROLLED VENDING-MACHINE. AUGUSTUS C. CAREY, Lake Pleasant, Mass. Filed Aug. 7, 1901. Serial No. 71,231. (No model.)

Claim.—1. In a coin-controlled vending-machine, a case, a pusher, an operating-lever therefor, and a single integral bracket adapted to be secured within said case and upon which said pusher and operating-lever are mounted, the said pusher, lever and bracket provided with arms or extensions combined and arranged to form a coin-catcher, whereby the coin is caused to effect the engagement of the operating-lever with the pusher, substantially as described.



2. In a coin-controlled vending-machine, a case, a single integral bracket adapted to be secured in said case, a pusher pivoted to said bracket, and a pusher-operating lever also pivoted to said bracket, the said bracket, pusher and lever provided with arms or extensions combined and arranged to form a coin-catcher, whereby the coin is caused to effect the engagement of the operating-lever with the pusher, substantially as described.

3. In a coin-controlled vending-machine, a case, a single integral bracket adapted to be secured in said case and having an arm extending at substantially right angles therefrom, a pusher pivoted to said bracket and provided with a yoke-shaped arm, and a pusher-operating lever also pivoted to said bracket and having an extension arranged adjacent the arms of said bracket and pusher to thereby form a coin-catcher, whereby the coin is caused to effect the engagement of the lever with the pusher, substantially as described.

4. In a coin-controlled vending-machine, a pusher mechanism, comprising a bracket having an arm extending at substantially right angles therefrom and terminating in a series of fingers, a pusher pivoted to said bracket and provided with a yoke-shaped arm having its closed end terminating at and arranged above the fingers of the bracket-arm, and a pusher-operating lever also pivoted to said bracket and having an upwardly-extending arm passing through said fingers and terminating within the yoke-shaped arm, thereby forming a coin-catcher whereby the coin is caused to effect the engagement of the lever and pusher, substantially as described.

5. In a coin-controlled vending-machine, a pusher mechanism, comprising a bracket having an arm extending at substantially right angles therefrom and terminating in a series of fingers, a pusher pivoted to said bracket and provided with a yoke-shaped arm having its closed end terminating at and arranged above the fingers of the bracket-arm and provided with an undercut shoulder, and a pusher-operating lever also pivoted to the bracket and having an extension passing through said fingers and terminating within the yoke-shaped arm, thereby forming a coin-catcher, and a shoulder or projection on said lever adapted to engage the undercut shoulder on the yoke-shaped arm when a dummy of less thickness than the predetermined coin is inserted in the machine, to thereby lock the pusher mechanism against operation, substantially as described.

6. In a coin-controlled vending-machine, a pusher mechanism, comprising a bracket having an arm extending at substantially right angles therefrom and terminating in a series of fingers, a pusher pivoted to said bracket and provided with a yoke-shaped arm having its closed end terminating at and arranged adjacent the fingers of the bracket-arm, and a pusher-operating lever also pivoted to said bracket and having an upwardly-extending arm passing through said fingers and terminating within the yoke-shaped arm, thereby forming a coin-catcher, and an extension on said lever adapted to pass into said coin-catcher when the lever is depressed, substantially as and for the purpose described.

7. In a coin-controlled vending-machine, a pusher mechanism, comprising a bracket having an arm extending at substantially right angles therefrom and having a longitudinal slot and terminating in a series of fingers, a pusher pivoted to said bracket and passing through said slot and provided with a yoke-shaped arm having its closed end terminating at and arranged adjacent said fingers, and a pusher-operating lever also

pivoted to said bracket and having an upwardly-extending arm passing through said fingers and terminating in said yoke-shaped arm, thereby forming a coin-catcher, and an extension on said lever working in said slot and passing through the coin-catcher when the lever is depressed, substantially as and for the purpose described.

8. In a coin-controlled vending-machine, a pusher mechanism comprising a bracket having an arm extending at substantially right angles therefrom and having a longitudinal slot and terminating in a series of fingers, a pusher pivoted to said bracket and passing through said slot and provided with a yoke-shaped arm having its closed end terminating at and arranged adjacent said fingers, and a pusher-operating lever also pivoted to said bracket and having an upwardly-extending arm passing through said fingers and terminating in said yoke-shaped arm, thereby forming a coin-catcher, an extension on said lever working in said slot and passing through the coin-catcher when the lever is depressed, springs for retracting said pusher and lever, and an extension on said lever adapted to engage the pusher to limit the rearward movement of said lever, substantially as described.

9. In a coin-controlled vending-machine, a case, a door therefor, and coin slots or openings in said case adjacent said door, combined with a removable slot-coverer, adapted to be secured in place over said slots when the door is closed, substantially as described.

10. In a coin-controlled vending-machine, a case, a door therefor, and coin slots or openings in said case, combined with a rightangular block adapted to be placed over said slots and engaged by said door to thereby lock said block in place, substantially as described.

11. In a coin-controlled vending-machine, a case, article chutes or receptacles, a pusher-operating mechanism within said case, a drawer arranged at the bottom of said case below said pusher mechanism, combined with a locking mechanism for said drawer, comprising a sliding bolt arranged within said case between the back thereof and the article chutes or receptacles and provided at its upper end with a handle extending over said article chutes or receptacles toward the front of the case, and at its lower end adapted to engage the rear wall of the drawer, to thereby lock the drawer in place, substantially as described.

690,927. KNIFE. JOHN R. CARLSON, Bristol, Conn. Filed Feb 12, 1900. Serial No. 4,871. (No model.)

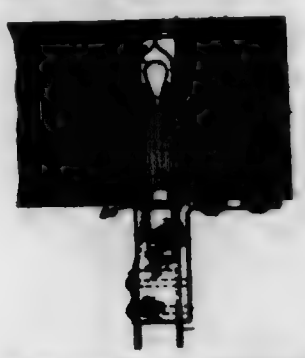


Claim.—1. In a knife, in combination, a stationary side part having an eye, a pivot secured to said part and having a head on its projecting end, a blade mounted on said pivot, a pivoted side part mounted on said pivot, a sliding ear having a lipped recess for the reception of the head on the pivot, and a sliding latch secured to the ear and arranged to engage the eye in the stationary side part.

2. In a knife, in combination, a stationary side part having an eye, a pivot secured to said part, a blade mounted on said pivot, a pivoted side part having a grip with a recess on its inner surface, screws passing through said recess and securing the grip to the side part, and a sliding latch having guide-slots engaged by the said screws and arranged to engage the eye on the stationary side part, and means for sliding the latch.

3. In a knife, in combination, a stationary side part having an eye, a pivot secured to said part and having a head on its projecting end, a pivoted side part having a grip with a recess in its under surface, screws passing through said recess and securing the grip to the side part, a sliding latch having guide-slots engaged by said screws and arranged to engage the eye in the stationary side part, and an ear secured to the latch and having a lipped recess for the reception of the head on the pivot.

690,928. LAMP-SOCKET. HENRY P. CLAUSEN, Chicago, Ill., assignor to American Electric Telephone Company, a Corporation of New Jersey. Filed Apr. 1, 1901. Serial No. 53,764. (No model.)



Claim.—1. A switchboard lamp-socket comprising a bracket of sheet metal bent intermediate its ends so as to provide an arm to be secured to the switchboard and another arm, and lamp terminal springs insulated from each other and secured to the latter arm and adapted to receive and hold a lamp.

2. In a switchboard lamp-socket, the combination with a metallic supporting bracket having an arm adapted to be secured to the switchboard and another arm, of a spring socket-terminal located adjacent to said arm, an insulating-block placed against said terminal, another spring terminal at the other side of the block, screws passing through said terminal and block into the said arm, and an insulating-washer between the screws and the outer spring-terminals.

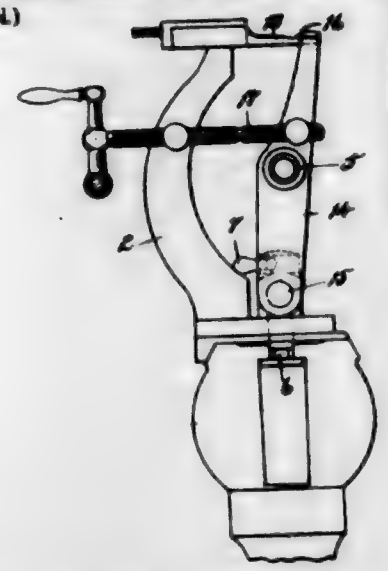
3. In a switchboard lamp-socket, the combination with a bracket having arms at right angles to each other, one of said arms having apertures therein, screws for the said apertures to secure it in desired position, socket spring-terminals secured near its end to the other arm of the bracket, an insulating-block between said terminals, insulating-washers for one of said springs, and screws passing through said washers, terminals and block and threaded into said arm to securely fasten all the parts together, and extensions of the spring-terminals below the block to adapt it to be connected with circuit-wires.

4. The combination with a switchboard part, as a keyboard, having an aperture therein, of a lamp-socket comprising a bracket having arms substantially at right angles to each other, one of said arms being secured to the switchboard adjacent the aperture, spring switch socket terminals in line with the aperture, an insulating-block between said terminals, and screws passing through said terminals and block and into the other arm of the bracket to secure them in proper operative position.

5. The combination with a switchboard part having an aperture therein, of a lamp-socket beneath the same comprising a bracket having a horizontal arm secured to the board, and a vertical arm parallel with the aperture and at the side of the same, an insulating-block, spring socket-terminals on each side of the block, one of said terminals having insulating-washers therethrough, and screws passing through said insulating-washers, block, and other spring-terminal and threaded into the vertical arm of said bracket to insulatingly secure the terminals in place in line with the aperture, and a lamp in said socket having its terminals engaging with the socket-terminals.

6. A lamp-socket comprising a block of insulation having arms on opposite sides, flat spring-terminals secured near one end to said block with their free ends between the said arms and being outwardly curved at the ends to permit a lamp to be thrust therebetween, a supporting brace or bracket having arms at right angles to each other, screws to secure the said terminals and block to one of said arms and the other arm adapted to be used to secure the socket in place.

690,929. TAIL-STOCK FOR WATCHMAKERS' LATHES. WILLIAM D. CLEMENT, Waltham, Mass. Filed Oct. 3, 1900. Serial No. 31,823. (No model.)



Claim.—1. In a lathe, a horizontal tail-stock spindle, mounted to turn about a vertical axis and guided to move with its longitudinal axis in parallelism to itself in a path perpendicular to itself.

2. In a lathe, a horizontal tail-stock spindle, mounted to turn about a vertical axis and to swing about an axis parallel to its longitudinal axis.

3. In a lathe, a base, a frame pivoted thereto on a vertical axis, a horizontal spindle, and a bearing for the spindle guided to move on the frame in a path perpendicular to the axis of the spindle.

4. In a lathe, a base, a frame pivoted thereto on a vertical axis, a horizontal spindle, and a bearing for the spindle hinged to the base on an axis parallel to the spindle.

5. In a lathe, a base, a frame pivoted thereto on a vertical axis, a horizontal spindle, a bearing for the spindle guided to move on the frame in a path perpendicular to the axis of the spindle, and provisions for adjusting the spindle axially in its bearing.

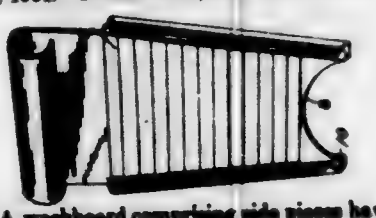
6. In a lathe, a tail-stock comprising a base, a frame pivoted thereto on a vertical axis and having a jewel-holding jaw, a rock-frame hinged to said frame on a horizontal axis and having a complemental jewel-holding jaw, and a spindle mounted on said rock-frame parallel to the hinge-axis half-way between said axis and said complemental jaw.

7. An attachment for lathes comprising a head having a coupling-stem, and a holder having provisions for holding a plurality of tools and pivoted on an axis at right angles to the longitudinal axis of the stem, whereby to aline with the said axis any tool thus held.

8. In a lathe, a tail-spindle, and a tool-holding device mounted thereon and comprising a tool-holder having provisions for holding two cutting-tools and movable pivotally on an axis perpendicular to the axis of the spindle into position to center the cutting edge of either tool on the axis of the spindle.

9. In a lathe, a tool-holding device having a support or head, a holder pivoted thereon and having provisions for holding two tools, and adjustable stop-screws mounted in the holder and adapted to abut against the head, said screws determining two positions of the holder at right angles to each other.

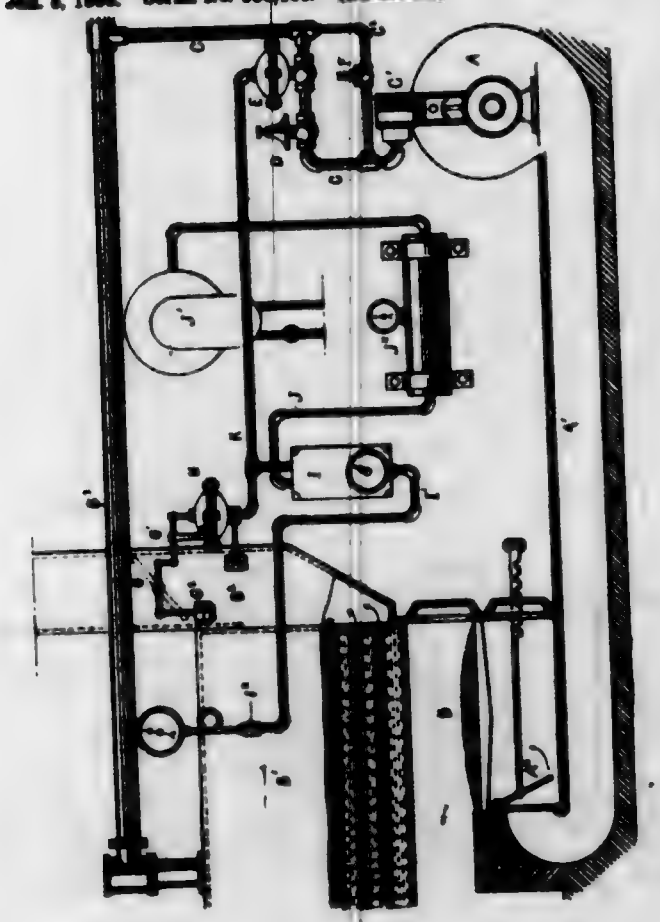
690,930. WASHBOARD. PHEBA J. COLLMANN, George, Iowa. Filed Feb. 27, 1901. Serial No. 49,104. (No model.)



Claim.—1. A washboard comprising side pieces having a plate having its edges engaged therewith and extending thereabove, the portion of the plate between the side pieces being corrugated to form a rubbing-surface and the portion above the side pieces being curved forwardly and upwardly and then downwardly and terminating short of the body of the plate to form an open-ended soap-holding compartment having a drain-opening throughout its length to permit of draining from the soap onto the board.

2. A washboard comprising converging side pieces grooved longitudinally in their inner faces, and a metal plate having its edges engaged in the grooves, the plate being continued above the side pieces and curved forwardly and upwardly and then downwardly and terminating short of the body of the plate to form an open-ended split tube adapted to receive and hold soap and to permit of draining from the soap to the body of the plate.

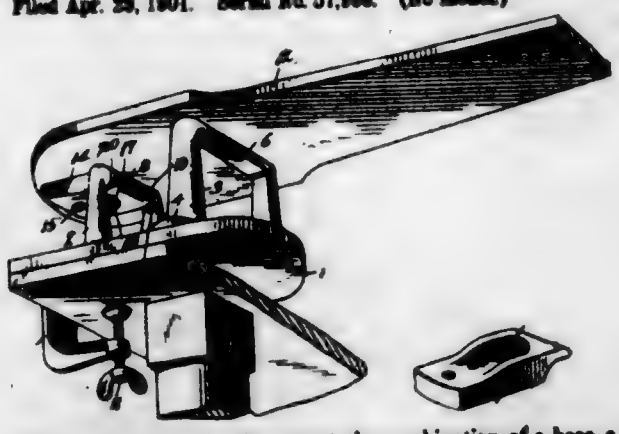
690,931. AUTOMATIC HEAT CONTROLLER FOR STEAM-BOILER FURNACES. DAVID H. DARRIN, Cranford, N. J., and HENRY MCLEAN, Brooklyn, N. Y.; said Darrin assignor to said McLean. Filed Jan. 8, 1898. Serial No. 666,103. (No model.)



Claim.—1. An automatic apparatus for controlling the heat of a steam-boiler furnace, consisting of a blower for supplying a forced-air draft to the furnace, a motor for operating the blower, a damper in the flue or stack, two controllers for regulating respectively the forced-draft motor and the damper, and a single regulator or governor actuated by steam from the boiler to simultaneously set in action the forced-draft motor and damper controllers, when the pressure in the boiler rises to close the damper and check the blower-motor, and when the pressure falls to open the damper and permit the blower-motor to resume its normal speed.

2. An automatic apparatus for controlling the heat of a steam-boiler furnace, consisting of a blower for supplying a forced-air draft to the furnace, a motor for operating the blower, a damper in the flue or stack, two controllers for regulating respectively the forced-draft motor and the damper, a fluid-controlling medium from an independent source for actuating the controllers, and a single regulator or governor actuated by steam from the boiler to permit said fluid medium to simultaneously cause the action of said controllers, whereby when the boiler-pressure rises the damper is closed and the blower-motor checked, and when the pressure falls the damper is opened and the blower-motor permitted to resume its normal speed.

690,932. IRONING-BOARD. GODFREY DAWE, Eau Claire, Wis. Filed Apr. 29, 1901. Serial No. 57,998. (No model.)



Claim.—1. In an ironing-board, the combination of a base, a table-engaging clamp therefor, opposite upstanding and inverted substantially U-shaped board-supports connected to the upper side of the base, one of the supports having an intermediate upstanding stud or projection rising from the top thereof, and the other support having its top in the form of a substantially cylindrical cross-bar, a board to lie upon the tops of the supports, and provided in its under side with a socket or seat for the ready and detachable reception of the stud or projection, and a hinge-bracket secured detachably to the under side of the board and having an inwardly-directed hook or tongue constructed to pivotally engage the cross-bar from the under and outer side thereof.

2. In an ironing-board, the combination of a base, opposite inverted substantially U-shaped supports connected to the base, the top of one of the supports being flat and provided with an intermediate upstanding stud or projection, the other support having its top in the form of a substantially cylindrical cross-bar, a board, and a bracket detachably connected to the under side of the board, and provided with an inwardly-directed tongue constructed for detachable hinged engagement with the cross-bar of said other support, the sides of the latter being constructed to form stops for preventing lateral movement of the bracket, there being a socket or seat provided upon the under side of the board for the reception of the stud or projection.

690,988. BENDING AND CUTTING PLIERS. STEPHEN M. DOOKER, Malden, Mass. Filed Apr. 15, 1901. Serial No. 55,842. (No model.)



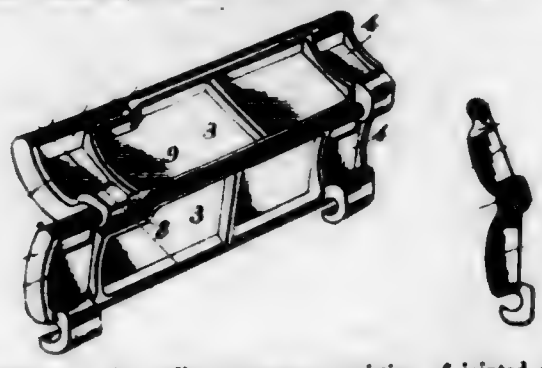
Claim.—1. Pliers composed of two levers each presenting a nose-piece and a cutting edge, the stock leading to the outer end of said edge being tapered that the outer ends of said edge may constitute a point adapted to enter the opening in a small coil of wire to cut the same.

2. Cutting-pliers presenting cutting-blades pointed at one end and having nosepieces extended beyond the points of the blades.

3. Pliers presenting nosepieces and cutting-blades having pointed ends leaving a space between the under sides of the points and the contiguous sides of the nosepieces.

4. Pliers composed of levers presenting nosepieces and cutting edges located in planes diagonal to the pivot uniting the levers.

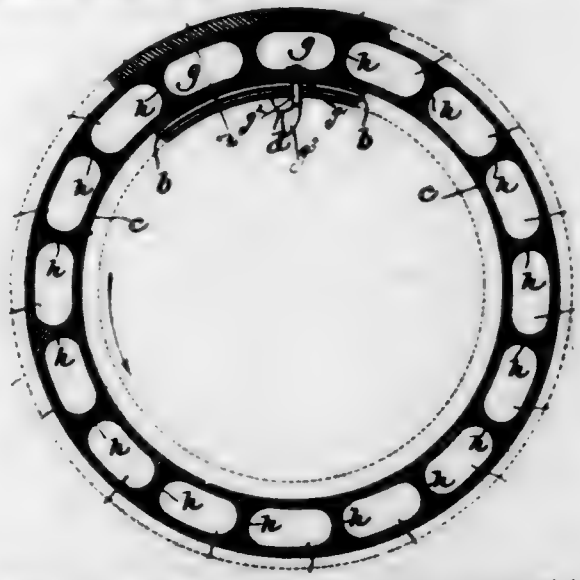
690,934. ENDLESS CONVEYER-CHAIN. JOSEPH DICK, Canton, Ohio. Filed Aug. 3, 1901. Serial No. 70,770. (No model.)



Claim.—1. An endless conveyer consisting of jointed detachable links formed with sprocket members having connecting hooks and pintles, each link having a reduced edge portion and a channel leading therefrom to one of its sprocket members to admit the coöperating hook on another link, whereby two links may be connected and disconnected by a longitudinal sliding movement, substantially as described.

2. An endless conveyer consisting of jointed detachable links, each consisting of a bar having integral sockets or sprocket members provided with hooks and pintles, all formed in a single casting, each link having a reduced edge portion and a channel leading therefrom to one of its sprocket members to admit the coöperating hook on another link, whereby two links may be connected and disconnected by a longitudinal sliding movement, substantially as described.

690,935. PNEUMATIC TIRE. ALFRED DUCASBLE, Paris, France. Filed Feb. 23, 1901. Serial No. 49,190. (No model.)



Claim.—1. A tire for vehicles consisting of a cylindrical body of rubber or other elastic material, closed at its ends and provided throughout its length with a series of chambers, each of which except the last is connected by small air-passages the first chamber of the series having an opening for the ingress of air.

2. A tire for vehicles, comprising a cylindrical body of rubber or other flexible material, provided throughout its length with a series of chambers having curved walls, each of which except the first and last is connected together in a circular series by small passages, the first of the series being provided with a bent tube having a flaring mouth for the admission of air.

3. A tire for vehicles, consisting of a cylindrical body of rubber or other elastic material, closed at the ends and provided throughout its length with a series of chambers curved at the ends and connected by small passages, the first chamber of the series being provided with an opening for the admission of air.

4. A tire for vehicles, consisting of a cylindrical body of rubber or other elastic material, closed at its ends and provided throughout its length with a series of elliptical chambers connected by air-passages, one of said chambers having an opening communicating with the atmosphere.

5. A tire for vehicles, consisting of a cylindrical body of rubber closed at its ends, and bent in the form of a circle and provided with a series of ovoid chambers communicating by small openings or passages one of said chambers being open to the atmosphere, and a curved flaring tube or trumpet communicating with said opening.

6. A tire for vehicles, consisting of a cylindrical tube of rubber closed at its ends and divided into a number of communicating chambers having curved walls united at the thickened ends by contracted openings, one of the chambers having an opening for the ingress of air.

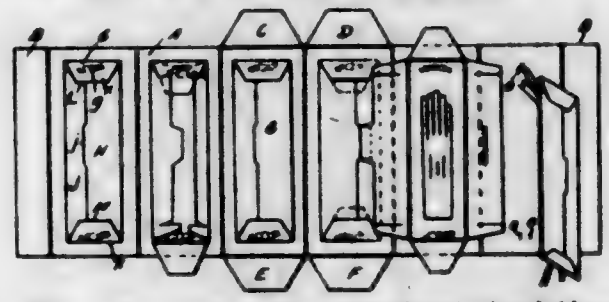
690,936. LIQUID-MEASURING DEVICE. CHARLES DYER, Osage City, Kans. Filed Apr. 3, 1901. Serial No. 54,164. (No model.)



Claim.—1. A liquid-measuring device of the class described comprising a portable standard whose lower end constitutes the rest for the device and which is provided at one side with a longitudinal guideway, an indicator-stem of a size substantially equaling the guideway and slidably registering in the latter, said stem having graduations disposed solely at the upper end of the standard, and a float having a rigid connection with the indicator-stem and working wholly at one side of the standard.

2. A liquid-measuring device of the class described, comprising a standard having at one side thereof inturned guiding-flanges, a graduated sliding indicator-stem working within the guideway formed by said flanges, said stem having an offset rib lying between said flanges, and a float carried by the lower end of the stem.

690,937. GLOVE-CASE. NICHOLAS FASCHER, Johnstown, N. Y. Filed Aug. 20, 1901. Serial No. 73,033. (No model.)



Claim.—In a glove-case, the combination of a detachable package, consisting of a center piece; two leaves on each side thereof; a tongue on one of the leaves adapted to engage in the slot on the opposite leaf; projections at each end of said center piece adapted to engage with slots cut near the ends of each leaf; with a means for detachably securing said package in the case; projecting pieces on the side of the case adapted to fold over the ends of the sections of the case containing the packages; with slotted openings in the back of the case into which said projections may be passed and hold the case together when folded.

690,938. BELT-FASTENER. CHRIST FAHR, Tyrone, Pa. Filed July 8, 1901. Serial No. 67,508. (No model.)



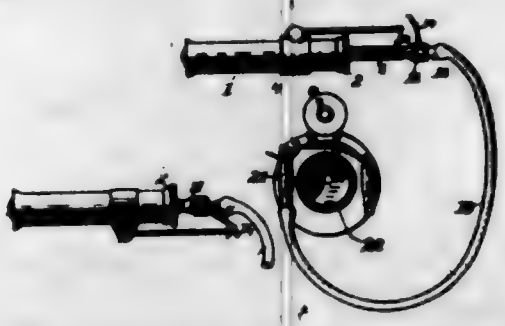
Claim.—1. In a belt-fastener, the combination with the hinge, of a sleeve secured in apertures formed in the leaves of said hinge, said sleeve extending beyond both faces of said leaves, means for clamping said leaves and means for securing one end of said sleeve to the end of a belt.

2. In a belt-fastener, the combination with a hinge, the leaves of which have apertures near their outer ends, of a sleeve secured in said apertures, an annular clamping-nut secured upon the upper end of said sleeve, a rivet passing through said sleeve and means for clamping said rivet in said sleeve.

3. In a belt-fastener, the combination with a hinge, the leaves of which have apertures formed near their outer ends, of sleeves secured in said apertures and extending from both sides of said leaves, an annular collar integral with said sleeve adapted to bear against one side of said leaves and a clamping-nut adjustable upon one end of said sleeve and adapted to bear upon the other face of said leaves, a rivet or pin adapted to pass through said sleeve and means for clamping said rivet in position.

4. In a belt-fastener, the combination with a hinge, the leaves of which have apertures near their outer ends, of a sleeve secured in said apertures and extending beyond the faces of said leaves, screw-threads formed on one of the ends of said sleeves, a countersink formed in the other end of said sleeve and an annular collar formed integral with the sleeve near the countersunk end, an annular clamping-nut adapted to be secured upon the screw-threaded end of the sleeve, a rivet adapted to enter said sleeve having a head of greater diameter than the sleeve, and a set-screw passing through said sleeve and annular nut and adapted to bite into said rivet, whereby the same is firmly secured in place.

690,939. SHUTTER-TRIPPER FOR CAMERAS. ROBERT FARIES, Decatur, Ill., assignor to Faries Manufacturing Company, Decatur, Ill., a Corporation of Illinois. Filed Aug. 10, 1900. Serial No. 26,456. (No model.)



Claim.—1. A shutter-tripper comprising a chamber adapted to contain a fluid, such chamber having an escape-hole, spring-actuated means tending to force the fluid out of the chamber and means for transferring the force of the spring to a shutter-releaser.

2. In a shutter-tripper, the combination of a cylinder, a piston in the cylinder, a hollow stem for the piston extending out of the cylinder, a spring tending to press the piston toward the inner end of the cylinder, means for controlling the wastage of air from the inner end of the cylinder as the spring acts on the piston, and means for transmitting motion of the piston-stem to a shutter-releaser at a predetermined point in the movement of the spring.

3. In a shutter-tripper, the combination of a cylinder, a piston in the cylinder, a hollow stem for the piston extending out of the cylinder, a spring tending to force the piston toward the inner end of the cylinder, a valve in the outer end of the piston-stem regulating the escape of air from the space behind the piston as the spring acts on the piston and means for transmitting motion from the piston-stem to a shutter-releaser at a predetermined point in the movement of the spring.

4. In a shutter-tripper, the combination of a cylinder, a piston in the cylinder, a hollow stem for the piston extending out of the cylinder, a spring tending to force the piston toward the inner end of the cylinder, a rockable air-plug crosswise of the extended end of the piston-stem, a trigger on the plug, an obstruction on the cylinder in the path of the trigger and a tube to convey air from the piston-stem to a shutter-releaser when the plug is turned by the trigger.

5. In a shutter-tripper, the combination of a cylinder, a piston in the cylinder, a hollow piston-stem extending outside the cylinder, a tapered air-plug crosswise of the extended end of the piston-stem, the small end of which plug is split and threaded, a nut on the threaded end of the plug to vary the closeness of the fit of the plug, a trigger on the plug, a trip-bar on the cylinder with its head in the path of the trigger and a tube to carry air from the piston-stem to a shutter-releaser when the trip-bar rocks the trigger-finger and opens the air-plug.

690,940. GOLF-CLUB. HENRY R. FERNON, Philadelphia, Pa. Filed Oct. 7, 1901. Serial No. 77,754. (No model.)



Claim.—1. In a golf-club, a head, and a weight adapted to be carried in said head and movable therein at an angle to the striking-face of said head.

2. In a golf-club a shaft, a head, a slot therein extending laterally with respect to said shaft, and a weight freely movable in said slot.

3. In a golf-club, a shaft, a head thereon, a weight freely movable transversely within said head, and means for retaining said weight therein.

4. In a golf-club, a head, a shaft and a weight freely movable transversely in said head toward and away from the striking-face of said head whereby an additional blow is imparted to the ball when struck.

5. In a golf-club, a head, a shaft, a slot in said head, and a weight in said slot adapted to move transversely in said slot toward and away from the striking-face of said head, whereby when the ball is struck the weight connects with the wall of the slot adjacent the said striking-face so that an additional blow may be imparted to the ball on impact with the head.

6. In a golf-club, a head, a shaft, a slot in said head extending at substantially a right angle from the striking-face of said head and a weight carried in said slot adapted to freely move in said slot.

7. In a golf-club, a head, a shaft, and a weight carried in said head adapted to freely move in said head in a line substantially at right angles to the striking-face of said head.

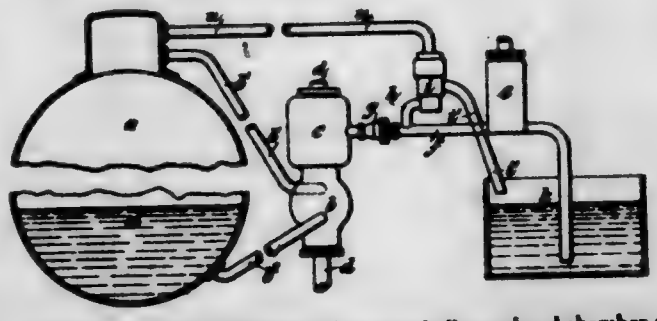
8. In a golf-club, a head, and a weight carried thereby and movable relative to said head in a plane which is a continuation of the plane of movement of said head.

9. In a golf-club, a shaft, a head, and a weight carried by said head and freely movable therein in a plane substantially at right angles to the axial line of said shaft.

10. In a golf-club, a shaft, a head therefor, and a weight freely movable therein in a plane transverse to the axis of the shaft.

11. A golf-club head having a weight movable transversely to the striking-face of said head.

690,941. APPARATUS FOR SUPPLYING WATER TO STEAM-BOILERS. HENRY A. FLEUSS, Staines, England. Filed May 10, 1901. Serial No. 59,823. (No model.)



Claim.—1. The combination of a steam-boiler, a closed chamber outside the boiler at the same level as the level to which the boiler is to be kept filled with water and having its upper part connected by a pipe with the upper part of the boiler and its lower part by another pipe with the lower part of the boiler, a continuously-moving plug, a cavity within it which by the plug's movement is brought alternately into the chamber and into a second chamber kept filled with water, a force-pump supplying water to this water-chamber and a loaded relief-valve by which excess of water delivered by the pump can pass away when the pressure within the water-chamber is approximately the same as or greater than the pressure in the boiler.

2. The combination of a steam-boiler, a closed chamber on the same level as the water in the boiler, pipes connecting this chamber with the upper and lower parts of the boiler, a continuously-moving plug, a cavity within it which by the plug's movement is brought alternately into this chamber and into a second chamber kept filled with water, a force-pump supplying water to this second chamber, a loaded relief-valve by which excess of water delivered by the pump can pass away and a non-return valve to prevent water leaking back from the water-chamber when the pump is not working.

3. The combination of a steam-boiler, a closed chamber on the same level as the water in the boiler, pipes connecting this chamber with the upper and lower parts of the boiler, a continuously-moving plug, a cavity within it which by the plug's movement is brought alternately into this chamber and into a second chamber kept filled with water, a force-pump supplying water to this second chamber, a relief-valve for allowing excess of water delivered by the pump to pass away held closed by the pressure of steam from the boiler but free to open when the pressure of water from the pump is approximately the same as or greater than the pressure in the boiler.

4. The combination of a steam-boiler, a closed chamber on the same level as the water in the boiler, pipes connecting this chamber with upper and lower parts of the boiler, a continuously-moving plug, a cavity within it which by the plug's movement is brought alternately into this chamber

and into a second chamber kept filled with water, a force-pump supplying water to this second chamber, a relief-valve for allowing excess of water to pass away closed by the pressure of steam from the boiler but opened by the water-pressure when this pressure is approximately the same as or greater than the pressure in the boiler and a non-return valve to prevent water leaking back from the water-chamber when the pump is not working.

690,943. MAIL-MARKING MACHINE. CHARLES V. FYKE, Kansas City, Mo. Filed June 8, 1901. Serial No. 63,738. (No model.)



Claim.—1. In a mail-marking machine, the combination with means for feeding the letters to be marked, a rotating printing-cylinder, and an impression-surface, said cylinder and surface normally lying at the printing position, of means for periodically moving one of said printing-couple from the printing position consisting of a cam on the rotating parts of the machine, a pivoted elbow-lever moved by said cam, a pivoted arm connected with the movable member of the printing-couple, and an abutment intermediate said elbow-lever and arm for transmitting the cam-imparted motion from the former to the the latter and from the latter to the movable member of the printing-couple, substantially as set forth.

2. In a mail-marking machine, the combination with means for feeding the letters to be marked, a rotating printing-cylinder, and an impression-surface normally lying at the printing position, of means for periodically moving said impression-surface away from the printing position consisting of a cam on the rotating parts of the machine, a pivoted elbow-lever moved by said cam, a pivoted arm connected with the impression-surface, and an abutment intermediate said elbow-lever and arm for transmitting the cam-imparted motion from the former to the latter and from the latter to the impression-surface, substantially as set forth.

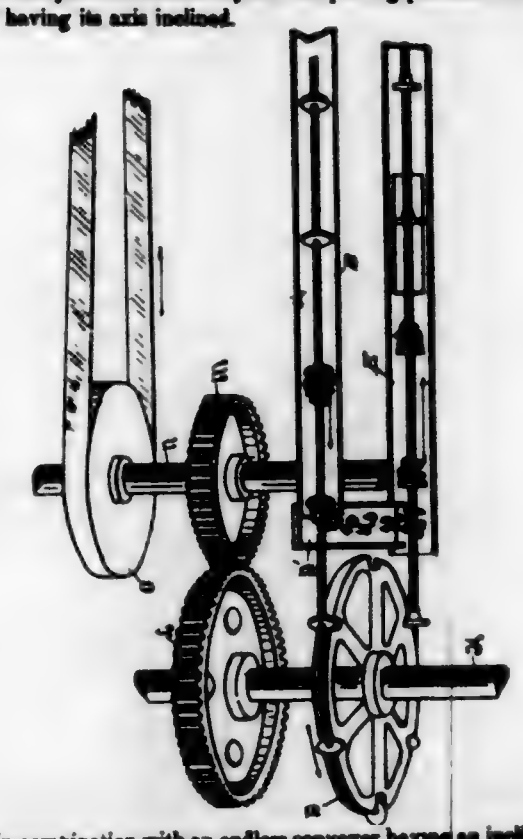
3. In a mail-marking machine, the combination with means for feeding the letters to be marked, a rotating printing-cylinder, an impression-surface, said cylinder and surface normally lying at the printing position, and means for periodically moving one of said printing-couple from the printing position consisting of a cam on the rotating parts of the machine, a pivoted elbow-lever moved by said cam, a pivoted arm connected with the movable member of the printing-couple, and a movable abutment intermediate said elbow-lever and arm for transmitting the cam-imparted motion from the former to the latter and from the latter to the movable member of the printing-couple, of a finger in the letter-path, and connections intermediate said finger and abutment and operated by said finger to shift said abutment from its position between the elbow-lever and arm, substantially as set forth.

4. In a mail-marking machine, the combination with means for feeding the letters to be marked, a rotating printing-cylinder, an impression-surface normally lying at the printing position, and means for periodically moving said impression-surface away from the printing position consisting of a cam on the rotating parts of the machine, a pivoted elbow-lever moved by said cam, a pivoted arm connected with the impression-surface, and a movable abutment intermediate said elbow-lever and arm for transmitting the cam-imparted motion from the former to the latter and from the latter to the impression-surface, of a finger in the letter-path, and connections intermediate said finger and abutment and operated by said finger to shift said abutment from its position between the elbow-lever and arm, substantially as set forth.

5. In a mail-marking machine, the combination of means for feeding the letters to be marked, a rotating printing-cylinder, an impression-cylinder normally lying at the printing-point, a pivoted arm carrying said impression-cylinder, a vertical pivoted arm carrying a projection engaged with a loop on said impression-cylinder arm, an elbow-lever having a common pivot with the vertical arm, a cam on the printing-cylinder shaft controlling the movement of said elbow-lever, an abutment pivoted to said vertical arm and normally lying in the path of movement of the free end of said elbow-lever when actuated by said cam, a finger in the letter-path, and means intermediate said abutment and finger and operated by said finger to shift said abutment from its position between the elbow-lever and vertical arm, substantially as set forth.

690,948. CONVEYER SYSTEM. MICHAEL GARLAND, Bay City, Mich., assignor to the M. Garland Company, Bay City, Mich. Filed Nov. 4, 1901. Serial No. 81,126. (No model.)

Claim.—1. In combination with a conveyor having an inclined flight and a substantially horizontal flight which pass each other; a pulley carrying said conveyer and located beyond the passing-point of said flights; said pulley having its axis inclined.



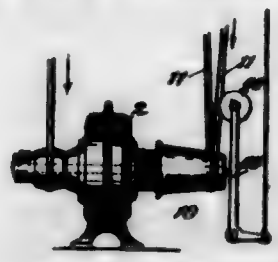
2. In combination with an endless conveyer having an inclined flight and a substantially horizontal flight which pass each other; a conveyer-pulley carrying said flights and located beyond their passing-point, said pulley having its axis inclined, whereby said flights are prevented from interfering; together with a straight chute sloping downwardly from the upwardly-inclined flight to the horizontal flight.

3. In combination with an endless conveyer having an inclined upwardly-moving flight and a substantially horizontally-moving flight which pass each other; a conveyer-pulley carrying said flights and located beyond their passing-point, said pulley having its axis inclined and provided with means for driving the conveyer, substantially as described.

4. In a conveyer having an inclined elevating-flight and a horizontal distributing-flight, the means for transferring material from the inclined flight to the horizontal flight and for preventing interference of the flights: comprising a conveyer-pulley having its axis inclined and carrying the upwardly-inclined flight on its upper periphery and the horizontal flight on its lower periphery, substantially as described and for the purpose set forth.

5. In combination with an endless conveyer having an inclined flight and a trough for carrying said flight, together with a substantially horizontal flight passing the first flight and a trough for carrying said horizontal flight; a conveyer-pulley for driving said flights, said pulley being located beyond their passing-point and having its axis inclined; trap-doors at intervals along the horizontal trough; and a downwardly-sloping chute for delivering material from the upwardly-inclined flight to the horizontal flight, substantially as described.

690,944. ELEVATOR. EDWIN R. GILL, Englewood, N. J., assignor to Invention Developing Company, a Corporation of New Jersey. Filed Aug. 26, 1899. Serial No. 728,512. (No model.)



Claim.—1. In an elevator apparatus, an endless driving-cable forming two bights, two pulleys, one in each of said bights, one of which is conical, a common motor for running said pulleys simultaneously at a constant speed, and means for changing the relative positions of one of said pulleys and its coöperating bight of cable.

2. In an elevator apparatus including a counterweight and a traveling part moving in opposition to said counterweight, a block connected with said counterweight and a block connected with said oppositely-traveling part; in combination with an endless cable forming two bights in

said blocks, a driving-pulley in each bight of said cable, one of which pulleys is conical, and means for shifting the relative positions of one of said pulleys and its coöperating bight of cable.

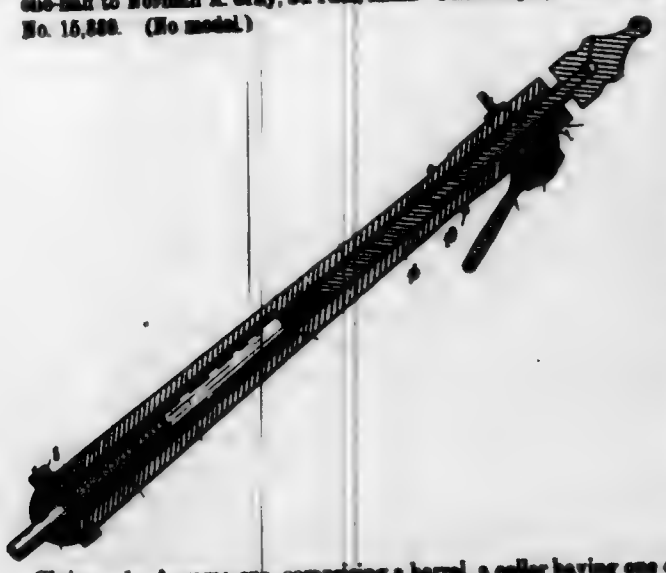
3. In an elevator apparatus a counterweight and a traveling part moving in opposition to said counterweight, a block connected with said counterweight and a block connected with said oppositely-traveling part; in combination with an endless cable forming two bights in said blocks, a driving-pulley in each bight of said cable, one of which pulleys is conical, said pulleys being on the same driving-shaft, and means for shifting the relative positions of one of said pulleys and its coöperating bight of cable.

4. In an elevator apparatus a counterweight and a traveling part moving in opposition to said counterweight, a block connected with said counterweight and a block connected with said oppositely-traveling part; in combination with an endless cable forming two bights on said blocks, a driving-shaft, a motor therefor, two reversed cones on said shaft, one for each bight of cable and a shifting device for moving said bights of cable on both of said cones.

5. In an elevator apparatus, an endless driving-cable forming two bights, two pulleys, one of which is conical adapted to run simultaneously one in each bight of said cable, means for driving said pulleys at a constant speed, a spring take-up in each bight of cable and means for changing the relative positions of one of said pulleys and its coöperating bight of cable.

6. In an elevator apparatus, driving means adapted to run continuously in one direction, hoisting means actuated thereby arranged to move the elevator in either direction and automatic locking means for preventing backward rotation of said driving means.

690,945. GAME-CUE. ALBERT J. GRAY, Pepin, Wis., assignor of one-half to Norman A. Gray, St. Paul, Minn. Filed May 8, 1900. Serial No. 15,889. (No model.)



Claim.—1. A game-cue, comprising a barrel, a collar having one or more flat faces provided near the forward end of said barrel, a striking member provided within said barrel and normally held out of contact with the game-board by said collar, and means for operating said striking-pin.

2. A game-cue, comprising a barrel having a tapered surface, a striking-pin, a hammer to engage and actuate said striking-pin, an elastic band connected with said hammer, and a ring slidably arranged on said barrel and adapted to clamp the ends of said band on said tapered surface, substantially as described.

3. In a game-cue, the combination, with a barrel, of a yieldingly-held striking-pin therein, a hammer slidably arranged in said barrel and spring-actuated to operate said pin, a pivoted dog having a serrated face to engage said sliding hammer, and a finger-piece for operating said dog, substantially as described.

4. A game-cue, comprising a barrel, a striking-pin, a hammer to engage and actuate said striking-pin, an elastic band connected with said hammer, and means provided on said barrel and adapted to clamp said band thereon, substantially as described.

5. In a game-cue, a barrel, a striking-pin, a hammer adapted to actuate said pin, and a flexible ring or collar provided on said barrel near said pin, for the purpose specified.

6. A game-cue, comprising a barrel, a striking-pin in the forward end thereof, a hammer for actuating said pin, and a collar provided on said barrel near said pin, for the purpose specified.

7. A game-cue, comprising a barrel having an annular groove near one end, a ring fitting therein and projecting beyond the surface of said barrel, a striking-pin, and a hammer adapted to actuate said pin.

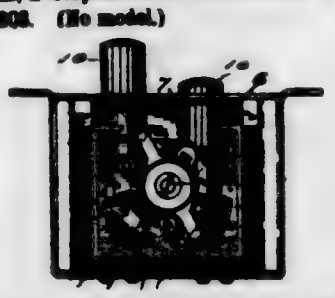
8. A game-cue, comprising a barrel having its point of greatest diameter near one end, a striking-pin provided in said end and elevated above the game-board thereby, and a hammer in the opposite end of said barrel and adapted to actuate said pin.

9. A game-cue, comprising a barrel, a head or enlargement provided thereon near one end, said head being formed by tapering the barrel from one end toward the other, a striking-pin provided in the end of said barrel near said head and adapted to be elevated above the game-board thereby, and a spring-actuated hammer for operating said pin.

10. A game-cue, comprising a barrel, a normally-retracted striking-pin provided in the forward end thereof, a correspondingly-retracted hammer in the rear end of said barrel, a finger-piece provided on said hammer projecting through said rear end to permit the withdrawal of said hammer to adjust it in position to actuate said pin when released, and means for raising the contacting end of said pin up away from the game-board, for the purpose specified.

11. In a game-cue, the combination, with a barrel having a head or enlargement at its forward end, of a striking-pin normally retracted within said forward end and having its tip raised out of engagement with the game-board by said head and adapted to strike the counter at or near its perpendicular center, and a hammer provided in said barrel for actuating said pin.

690,946. PUSH-BUTTON SWITCH. MONROE GUEST, Hartford, Conn., assignor to the Hart and Hegeman Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed Sept. 23, 1901. Serial No. 76,208. (No model.)



Claim.—1. A snap-switch having a supporting-plate, a spring, a locking-plate oscillated by push-buttons for making the spring tense, a latch-plate oscillated by the spring, and an oscillating latch connected with the latch-plate and extending into an opening in the supporting-plate and an opening in the locking-plate, substantially as specified.

2. A snap-switch having a supporting-plate, an oscillating locking-plate, push-buttons connected with the locking-plate, an oscillating latch-plate, a spring, and an oscillating latch connected with the latch-plate and extending into an opening in the supporting-plate and an opening in the locking-plate, substantially as specified.

3. A snap-switch having a supporting-plate with a radial opening, a spring, a locking-plate oscillated by the push-buttons for making the spring tense, and having a curved slot and radial openings, a latch-plate oscillated by the spring, and an oscillating latch connected with the latch-plate and extending into the openings in the supporting and locking plates, substantially as specified.

4. A snap-switch having a supporting-plate with a radial opening, a spring, a locking-plate oscillated by push-buttons for making the spring tense and having a curved slot and radial openings, a latch-plate oscillated by the spring, a latch pivoted to the latch-plate, and having a lug extending into the opening in the supporting-plate and a stud extending into the opening in the locking-plate, substantially as specified.

5. A snap-switch having a supporting plate with a radial opening, a spring, a locking-plate oscillated by push-buttons for making the spring tense and having a curved slot and radial openings and a lug, a latch-plate oscillated by the spring and having a lug, said lugs on the locking-plate and latch-plate extending between the ends of the spring, and a latch pivoted to the latch-plate and having a lug extending into the opening in the supporting-plate and a stud extending into the opening in the locking-plate, substantially as specified.

6. A snap-switch having a supporting-plate, a locking-plate, a latch-plate, a spring, means for moving the locking-plate and making the spring tense, and a latch pivotally connected with the latch-plate and held from movement along the supporting-plate by the locking-plate until the spring is made sufficiently tense, substantially as specified.

690,947. SAFETY-RAZOR. FRANZ J. HALBEHAUS, Solingen, Germany, assignor to The Firm of Keller & Co., Solingen, Germany. Filed Sept. 5, 1901. Serial No. 74,360. (No model.)



Claim.—1. Safety-razor, thereby characterized that the part of the casing that catches the lather is arranged so as to act after the manner of a spring, and so that it is held by the outwardly-bent ends of its sides *a b*

against the inwardly-bent parts d'-d^3 of the protecting-comb d, but so that it can easily be removed on the said sides being pressed together.

2. A safety-razor composed of a U-shaped casing, a guard having bent ends adapted to engage the same, and a spring-finger pivoted to the guard and adapted to bear against the back of the blade, substantially as specified.

3. A safety-razor composed of a U-shaped casing, a guard having bent ends adapted to engage the same, and plates pivoted to the guard and having jaws adapted to engage the blade, substantially as specified.

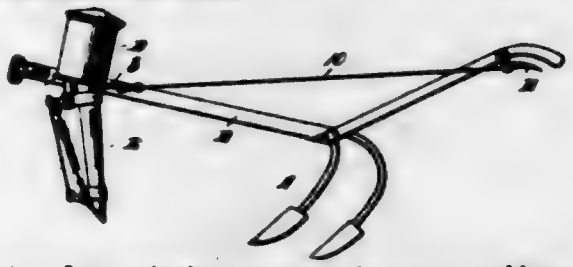
4. A safety-razor composed of a U-shaped spring-casing, and of a guard having bent ends adapted to be sprung over the ends of said casing, substantially as specified.

5. A safety-razor composed of a U-shaped spring-casing, a guard having bent ears adapted to engage the same, a pair of jaws secured to the guard, and a spring-finger adapted to engage the back of the razor-blade, substantially as specified.

6. A safety-razor composed of a U-shaped spring-casing, a guard having bent ends adapted to engage the same, a pair of jaws pivotally connected to the casing, set-screws for adjusting the jaws, and a spring-finger adapted to engage the back of the razor-blade, substantially as specified

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690,948. **REPLANTING ATTACHMENT FOR CULTIVATORS OR PLOWS.** WILLIAM HARRISON, Hanover, Ill. Filed Nov. 6, 1901. Serial No. 81,327. (No model.)



Claim.—In a replanting attachment for plows or cultivators, the combination with the seed-receptacle of the adjustable seed-slide constructed as described, a chute secured to the under side of the receptacle, and a seed-slide-operating mechanism secured to the chute consisting of a bell-crank lever, spring, pitman-bar, and chute-closure, all arranged for joint operation, substantially as described.

690,949. **CONTROLLING DEVICE FOR MOTOR-VEHICLES.** WILLIAM A. HATCHER and JAMES W. PACKARD, Warren, Ohio; said Hatcher assignor to said Packard. Filed June 26, 1900. Serial No. 21,660. (No model.)



Claim.—1. The combination with mechanism for controlling the movement of a motor-vehicle, of a plurality of operating elements therefor, a lever for moving said elements, and means preventing engagement of said lever with either operating element except when both said lever and the element to be engaged are respectively in intermediate positions.

2. The combination with mechanism for controlling the movement of a motor-vehicle, of a plurality of operating elements therefor, and a lever common to all of said elements, means for normally holding each of said elements in an intermediate position, and means for positively engaging the lever with any one of said elements while the latter is in said intermediate position, said lever being thus adapted to move any particular element in either of two directions.

3. The combination with mechanism for controlling the movement of a motor-vehicle, of two operating-links therefor, means for normally holding each of said links in an intermediate position, and a lever mounted between and adapted to be moved laterally into engagement with either of said links and to move the engaged link longitudinally in either direction from its normal intermediate position.

4. The combination with mechanism for controlling the movement of a motor-vehicle, of two operating-links therefor, a lever adapted to engage with either of said links while in its central position, means for preventing disengagement of the lever from its engaged link excepting when said link is in normal central position, and means for yieldingly holding each of said links in normal central position.

5. In a controlling mechanism for motor-vehicles, the controlling-lever and the operating-links, in combination with a box in which said lever is fulcrumed, said box having two parallel guide-slots for the lever and a wall between said guide-slots having an opening intermediate its ends, said lever being movable through said opening and to and from either extremity of either guide-slot whereby it is made to assume four different positions and effect four distinct functions, for the purpose set forth.

6. In a controlling mechanism for motor-vehicles, the combination with a lever having a rocking movement and a lateral movement upon its pivot, of two parallel slotted guides for the lever having an opening between them midway of their length through which the lever may pass from one guide to the other, and two operating-links adapted to engage alternately with said lever, the lever being adapted to rock toward either extremity of either guide from its position in alinement with said opening, for the purpose set forth.

7. In a controlling mechanism for motor-vehicles, the combination of two operating-links, two spring-pawls arranged to engage said links when the latter are in mid-position, and a pivoted lever arranged between said links and having a rocking and a lateral movement, the lateral movement of the lever adapting it to engage with either of said links, and means for preventing such lateral movement of the lever except when the links are engaged by said pawls.

8. In a controlling mechanism for motor-vehicles, the combination of the lever-box having two parallel slots in its upper end connected by a central opening in the partition-wall, a lever adapted to rock upon its pivot in opposite directions from said central opening in either of said slots and to move laterally from one slot to the other, operating-links connecting the power mechanism with the lever-box, and means for engaging the lever with either of said links, for the purpose set forth.

9. In a controlling mechanism for motor-vehicles, the combination with the links 17, 18 provided with studs at their forward ends, of the lever-box in which the forward ends of said links are located, guides in said box for said links, a lever pivotally mounted within the box and provided with an opening adapted to engage the studs upon the links, and means for locking the links yieldingly in mid-position in the box, said links being movable in either direction from mid-position by means of said lever, for the purpose set forth.

690,950. **WINDMILL.** ANDREW H. HAY, St. Croix, Wis. Filed July 1, 1901. Serial No. 66,722. (No model.)

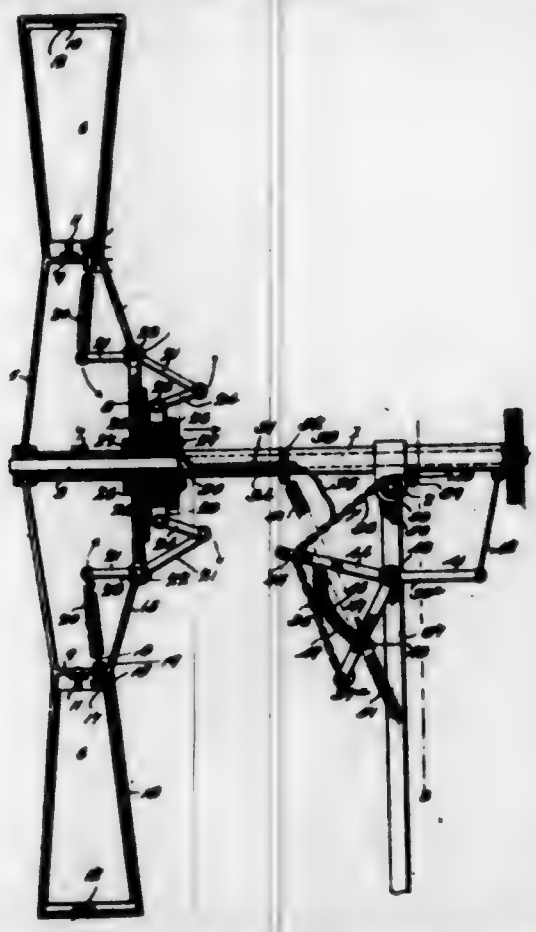
Claim.—1. In a windmill, the combination of a wind-wheel having pivoted blades, a spring connected with the pivoted blades, a brake for engaging the wind-wheel, a lever fulcrumed on and carried by the wind-wheel and connected with the said spring and with the brake, and operating mechanism connected with the brake, substantially as described.

2. In a windmill, the combination of a wind-wheel provided with pivoted blades, a movable ring connected with the pivoted blades, an annular series of levers fulcrumed on the wind-wheel, springs connected with the levers and with the blades, a brake arranged to engage the wind-wheel and connected with the levers, and operating mechanism connected with the brake, substantially as described.

3. In a windmill, the combination of a wind-wheel having pivoted blades, a movable ring connected with the pivoted blades, guide-pulleys mounted on the wind-wheel, flexible connections extending from the ring and passing over the guide-pulleys, springs connected with the flexible connections, levers fulcrumed between their ends on the wind-wheel and connected at one arm with the springs, a brake connected with the other arms of the levers and arranged to engage the wind-wheel, and means for operating the brake, substantially as described.

4. In a windmill, the combination of a wind-wheel having movable

blades, a brake arranged to engage the wind-wheel, means for yieldingly connecting the brake with the blades, a spring for holding the brake in engagement with the wind-wheel, a hinged vane, and operating mechanism connected with the hinged vane and with the brake and adapted to operate the pivoted blades, substantially as described.



5. In a windmill, the combination of a wind-wheel having movable blades, a vane, a brake, and operating mechanism connected with the vane, the brake and the blades and adapted to swing the vane and to disengage the brake and to set the blades at an angle, substantially as described.

6. In a windmill, the combination of a frame, a hinged vane, a bell-crank lever fulcrumed on the vane and connected at one end with the frame, an arm arranged at an angle to one of the arms of the bell-crank lever and yieldingly connected with the same, and a flexible connection extending from such arm of the bell-crank lever to the oscillatory arm and passing therefrom to the frame, substantially as described.

7. In a windmill, the combination of a frame, a vane hinged to the frame, a lever fulcrumed between its ends on the vane, a link connecting one of the arms of the lever with the frame, a flexible connection extending from the other arm of the lever to the frame, and an oscillatory arm receiving the flexible connection and yieldingly connected with the lever, substantially as described.

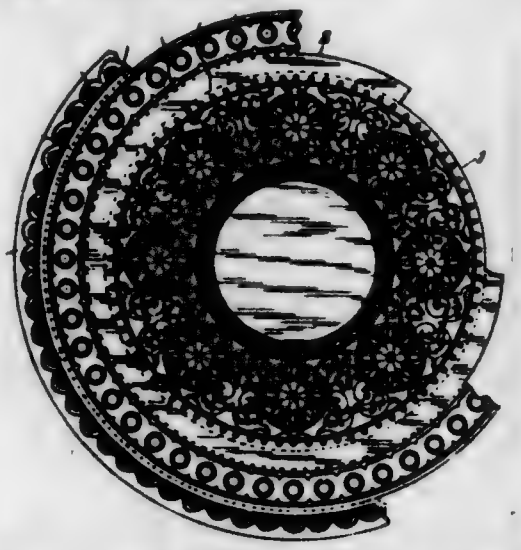
8. In a windmill, the combination of a frame, a wind-wheel having movable blades, a vane hinged to the frame, a lever fulcrumed between its ends on the vane and connected at one of its arms with the frame, a flexible connection extending from the other arm of the lever to the frame, and means for connecting the blades with the said flexible connection, substantially as described.

9. In a windmill, the combination of a frame, a wind-wheel having movable blades, a lever fulcrumed between its ends on the vane, a link connecting one arm of the lever with the frame, a flexible connection extending from the other arm of the lever to the frame, the arm 44 yieldingly connected with the lever and receiving the flexible connection, and means for connecting the latter with the blades, substantially as described.

10. In a windmill, the combination of a frame, a wind-wheel having movable blades, a vane hinged to the frame, a lever fulcrumed between its ends on the vane, a link connecting one arm of the lever with the frame, the pivoted arm 44, the curved rod connecting the pivoted arm with the adjacent arm of the lever, a coiled spring disposed on the said rod and interposed between the pivoted arm and the lever, a flexible connection extending from the lever to the pivoted arm and passing therefrom to the frame, and means for connecting the blades with the flexible connection, substantially as described.

11. In a windmill, the combination of a frame, a wind-wheel having pivoted blades, a brake engaging the wind-wheel and connected with the blades, a rod extending from the brake, a spring disposed on the rod and adapted to actuate the brake, a vane hinged to the frame, a lever fulcrumed on the vane and connected at one end with the frame, a flexible connection extending from the other end of the lever, a pivoted arm receiving the flexible connection, and yieldingly connected with the lever, and a flexible connection extending from the said flexible connection to the rod, substantially as described.

690,951. METHOD OF MANUFACTURING LACE-PAPER PAIL COVERS OR CIRCULARS. JOHN HESS, Milwaukee, Wis. Filed July 22, 1901. Serial No. 69,318. (No model.)



Claim.—1. The method of manufacturing lace-paper or similar articles of several dimensions of substantially the same design from one die, which consists in cutting from a blank of paper or similar material an article of a given size whose design is provided with intermediate and substantially blank portions extending thereround, and of cutting from said article a smaller article whose edge will fall within one of said intermediate portions, substantially as described.

2. The method of manufacturing lace-paper covers or circulars or similar articles of several sizes and of substantially the same design by means of one die, which consists in cutting from a blank an article of a given size provided with intermediate substantially blank portions extending parallel to the outer edge thereof, and of cutting from said article a smaller article whose outer edge will fall entirely within one of said intermediate portions, substantially as described.

3. The method of manufacturing lace-paper covers or similar articles of several sizes having the same center design from one die, which consists in cutting from a blank of paper or similar material an article of a given size the design of which is provided with intermediate substantially blank portions extending thereround parallel to the outer edge thereof, and of cutting from said article an article the outer edge of which will fall within one of said intermediate portions, substantially as described.

4. The method of manufacturing pail covers or circulars of several sizes and of the same general design from paper or similar material, by means of one die, which consists in cutting from a blank an article of a given size whose design is provided with one or more substantially blank portions extending thereround parallel to the outer edge thereof, and of cutting from said article a smaller article whose outer edge will fall entirely within one of said substantially blank portions, substantially as described.

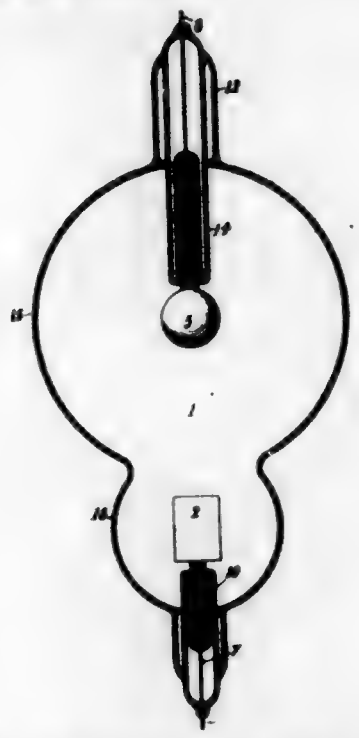
5. The method of manufacturing pail covers or doilies of several sizes and of substantially the same general design, from paper or similar material, by means of one die, which consists in cutting a doily of a given size whose design is provided with one or more intermediate substantially blank portions extending thereround parallel to the outer edge thereof, and of cutting from said doily a smaller doily whose outer edge will fall within or on the edge of one of said substantially blank portions, substantially as described.

6. As a new article of manufacture, a lace or embossed pail-cover or similar article formed of paper or similar material, having a complete center design and one or more substantially blank portions extending thereround between said design and the outer edge of said article interposed by a lace or embossed portion, all formed for the purpose of allowing a smaller article having a complete design to be cut therefrom, the outer edge of which will fall within or on the edge of one of said blank portions, substantially as described.

690,952. INCANDESCENT ELECTRODE VAPOR ELECTRIC LAMP. PETER C. HEWITT, New York, N. Y., assignor to Peter C. Hewitt, trustee, New York, N. Y. Filed Apr. 13, 1900. Serial No. 12,990. (No model.)

Claim.—1. In an electric lamp consisting of an inclosing chamber, two electrodes within the chamber, an intervening gas whose resistance decreases with increments of current flowing, and means for creating about

the cathode a resistance to the passage of current, the development of heat by the passage of current therethrough being sufficient to raise the cathode to a light-emitting temperature.



2. An electric lamp consisting of an inclosing chamber, two electrodes contained therein, the cathode being of such material as to become light-emissive under the influence of heat without undergoing physical change of state, and means for creating such resistance to the passage of current into the cathode as to develop sufficient heat around the cathode to render the cathode incandescent.

3. In an electric lamp having two separated electrodes and an inclosing chamber, a conducting gas or vapor, the vapor or gas and one of the electrodes both constituting luminous elements, the resistances of said luminous elements being mutually corrective under increments of current.

4. In an electric lamp having two separated electrodes, one or both of which constitutes a luminous element, within the lamp, the vapor or gas contained within the lamp constituting a steadying resistance.

5. In an electric lamp of the character described, a sealed chamber containing a conducting gas or vapor, a pair of electrodes within said chamber, a part of said chamber being substantially globe-shaped and having the cathode at or near its center, the anode being disposed in a ring surrounding the cathode.

6. A gas or vapor electric lamp consisting of a hermetically-sealed inclosing chamber, a ring-shaped anode therein, an exposed cathode within the anode, and a gas or vapor surrounding the anode and cathode.

7. In a gas or vapor electric lamp consisting of a hermetically-sealed inclosing chamber and a composite illuminating medium or body therein, one element of which is a gas or vapor and the other a stationary solid body.

8. In an electric lamp of the character described, a composite illuminating medium or body one element of which is solid and adapted to become incandescent, the other element being a gas or vapor normally translucent and becoming itself luminous under the influence of the current through the lamp, and a hermetically-sealed inclosing chamber containing the same.

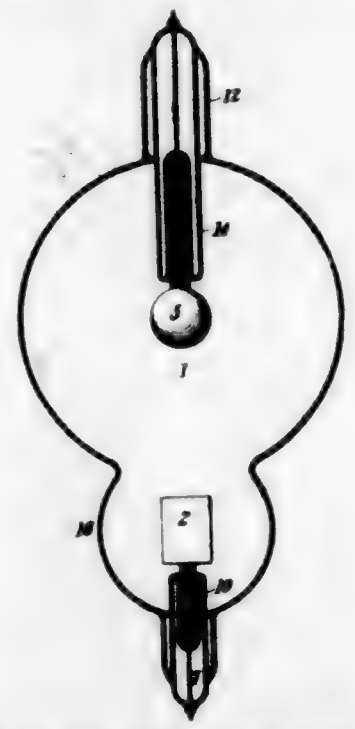
9. The combination with a protected cathode of the character described, of an annular anode surrounding the cathode, substantially as described.

690,953. METHOD OF ELECTRIC LIGHTING. PETER C. HEWITT, New York, N. Y., assignor to Peter C. Hewitt, trustee, New York, N. Y. Original application filed Apr. 18, 1900, Serial No. 13,290. Divided and this application filed Oct. 10, 1901. Serial No. 78,157. (No specimens.)

Claim.—1. The method of transforming electrical energy into light through the instrumentality of a lamp having two electrodes and an intervening gas or vapor, which consists in establishing such a physical condition of the gas or vapor surrounding the cathode as to present resistance to the entrance of the electric current thereto, and by the passage of the current developing heat around the cathode, with a minimum development of light, and thereby heating the cathode and rendering it luminous.

2. The method of maintaining at a constant resistance a gas or vapor lamp having a solid cathode and a surrounding medium of gas or vapor, which consists in compensating for the increased resistance at the cathode under increments of current by a corresponding decrease of resistance in the gas or vapor.

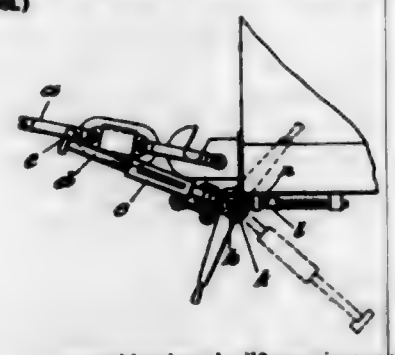
3. The method of adapting gas or vapor lamps to use upon circuits subject to slight variations of current, which consists in forming the conducting element of the said lamp of a composite body partly solid and partly gaseous and so proportioning the density of the gas to the other conditions of the lamp as to cause the gaseous element to compensate by a decreased resistance under increments of current, for the normal increase in resistance of the solid element under the same conditions.



4. The method of transforming electrical energy into light through the instrumentality of a lamp having a solid cathode and a surrounding medium of gas or vapor which consists in surrounding the cathode with a gas or vapor of such quality and density that the resistance of transition is very high, and by the passage of the current utilizing the high transition resistance for the development of heat around the cathode, whereby the cathode is heated and rendered luminous.

5. The method of transforming electrical energy into light through the instrumentality of a lamp having two electrodes and an intervening gas or vapor, which consists in establishing such a physical condition of the gas or vapor at one electrode as to present resistance to the entrance of the electric current thereto, and by the passage of current developing heat around the cathode, and thereby heating the cathode and rendering it luminous.

690,954. CAR-COUPLING. GEORGE S. HOLDEN, Liverpool, England. Filed June 4, 1900. Renewed June 10, 1901. Serial No. 64,027. (No model.)



Claim.—1. In combination, the lifter *c* pivoted to its operating-spindle *b*, the gapped disk *k* on the spindle *b*, and the detent *l* engaging such disk and arranged to be withdrawn from such engagement by the inclined plane *m*, rod *n*, levers *o*, and bars *p* on impact of the buffers *q*, as described.

2. The combination with the lifter-operating spindle *b*, of the gapped disk *k* keyed thereon and engaged by the detent *l*, and means such as the inclined plane *m* and rod *n* for withdrawing such detent and releasing the lifter, substantially as described.

690,955. RECOIL-OPERATED FIREARM. GEORGE A. HORSE, Syracuse, N. Y. Filed Apr. 27, 1901. Serial No. 57,726. (No model.)

Claim.—1. In a recoil-operated firearm, the combination with the lock-frame, the reciprocating barrel extension and barrel, and the breech-block adapted to reciprocate with respect to said barrel extension, of a latch pivoted to the frame and adapted to engage said breech-block, a cartridge-lifter, pivotally mounted in said frame, and having a cam part adapted to be engaged by said barrel extension, a vertically-disposed trip-pin,

interposed between said cartridge-lifter and said latch, whereby the upward movement of the cartridge-lifter will lift said latch and release said breech-block, substantially as described.



2. In a recoil-operated firearm, the combination with the lock-frame, the reciprocating barrel extension and barrel, and the breech-block having a sliding movement in said barrel extension, of a pivoted cartridge-lifter, provided with a cam portion adapted to be engaged by said barrel extension to depress the lifter, a spring for raising said lifter, a cartridge-magazine, a detent adjacent to the discharge end of the magazine, having a part in the path of the cartridge-lifter, a spring in said magazine provided with a head adapted to pass said detent, and engage the cartridge-lifter, and an auxiliary device for moving said spring-head out of engagement with the cartridge-lifter, substantially as described.

3. In a recoil-operated firearm, the combination with the lock-frame, the reciprocating barrel extension and barrel, and the breech-block having a sliding movement in said barrel extension, of a pivoted cartridge-lifter, provided with a cam portion, adapted to be engaged by said barrel extension to depress the lifter, a spring for raising said lifter, a cartridge-magazine, a detent adjacent to the discharge end of the magazine, having a part in the path of the cartridge-lifter, a spring in said magazine provided with a head adapted to pass said detent, and engage the cartridge-lifter and an auxiliary, inwardly and longitudinally movable device normally out of engagement with the spring-head but capable of being pressed inwardly to engage said head and moved longitudinally of the gun to move said head out of engagement with the cartridge-lifter, substantially as described.

4. In a recoil-operated firearm, the combination with the lock-frame, the barrel extension and barrel, and the breech-block movable with respect to said barrel extension, of laterally-movable spring-actuated pawls carried by said breech-block, and adapted to engage the barrel extension, a firing-pin in said breech-block, provided with a locking-recess, and a locking device secured to one of said pawls, and adapted to engage said locking-recess, when the pawl is retracted to lock the firing-pin, substantially as described.

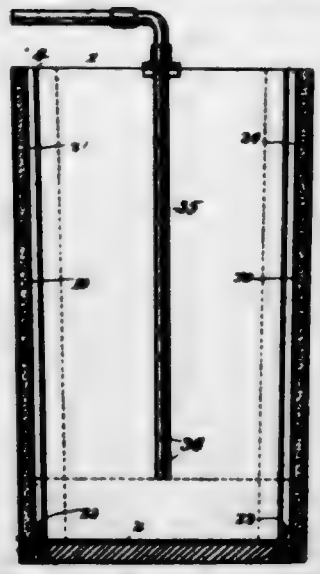
5. In a recoil-operated firearm, the combination with the lock-frame, the barrel extension and barrel and the breech-block carrying the firing-pin, of the trigger, the sear, a trip-piece pivoted to the trigger and provided with a part for engaging and operating the sear, and a part connected with the barrel extension for engaging said trip-piece and disengaging it from the sear, substantially as described.

6. In a recoil-operated firearm, the combination with the lock-frame, the barrel extension, and barrel and the breech-block carrying the firing-pin, of the hammer, the sear, the trigger, a trip-piece pivoted to the trigger and provided with a part for engaging and operating the sear, a part connected with the barrel extension for engaging and cocking the hammer during the rearward movement and a part connected to said barrel extension, and extending in rear of the hammer-engaging part, for engaging the trip-piece and throwing it out of engagement with the sear before the hammer is fully cocked, substantially as described.

7. In a recoil-operated firearm, the combination with the lock-frame, the barrel extension and barrel, and the breech-block having an independent movement with respect to the barrel extension, of the hammer, provided with a locking projection, the trigger, a locking-bar pivoted thereto lying normally above the said locking projection, and provided with a recess for the passage of the said locking projection, said recess being normally out of line with the said projection, a movable device for preventing the movement of said locking-bar, and tripping mechanism for said movable device, operated by the breech-block substantially as described.

8. In a recoil-operated firearm, the combination with the lock-frame, the barrel extension and barrel, and the breech-block movable longitudinally with respect to said barrel extension, of a locking-pawl carried by said breech-block for engaging said barrel extension and locking the breech-block therein, the hammer, provided with a locking projection, the trigger, a locking-bar pivoted to the trigger and provided with a recess for the passage of the said locking projection, normally out of line with said projection, a movable device having a part in the path of said locking-bar, a trip-pin for moving said part out of the path of the locking-bar, said pin having one end in position to be operated by the pawl on said breech-block, substantially as described.

690,956. APPARATUS FOR MAKING ICE. JAMES HUMM, New York, N. Y. Filed Apr. 8, 1897. Serial No. 631,252. (No model.)



Claim.—1. The combination of an ice-making vessel, a support extending across the top of said vessel, a rigid air-injecting pipe provided with a series of lateral openings practically throughout its length and extending into the vessel substantially throughout the depth thereof and detachably mounted upon said support, a flexible air-pipe detachably connected with the upper end of said rigid section, whereby in the event of the rigid pipe becoming frozen in the block of ice such pipe may be disengaged from the support and also from the flexible supply-pipe, substantially as and for the purpose set forth.

2. An ice-making vessel comprising the combination of a bottom provided with a flange, side pieces secured by the lower edges to the flange of said bottom, one or more of said sides having mounted upon its exterior a plate having its two side edges flanged and its lower edge provided with an offset and secured by said lower edge and the two flanges of its side edges to the said side and suitably spaced therefrom, substantially as and for the purpose set forth.

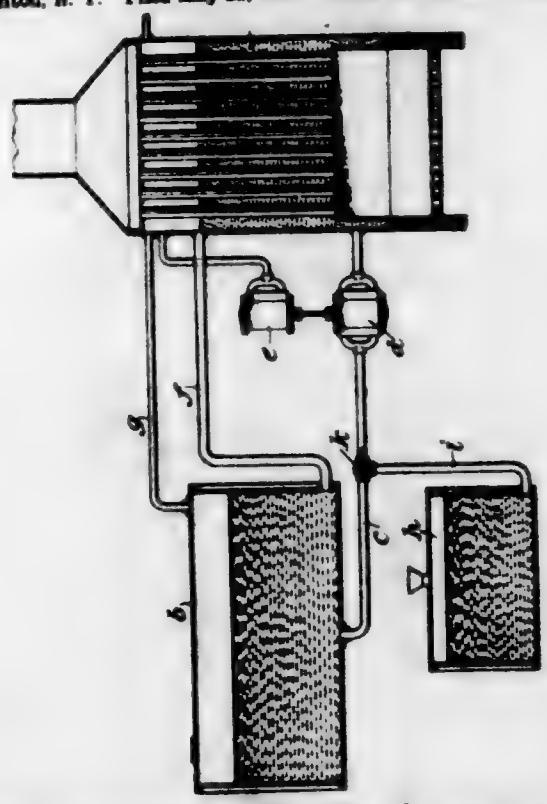
3. An ice-making vessel comprising the combination of a bottom formed with a flange, two opposite sides of said vessel being formed by plates each secured by its lower edge to the flange of said bottom piece, side pieces secured by their lower edges to the flange of said bottom, two of the said sides opposite each other having their side edges provided with flanges overlapping and secured to the two remaining sides, and a plate flanged at its bottom and side edges and provided at its bottom edge with an offset and secured by said flanges to the side of the vessel and spaced therefrom to form an air-chamber, substantially as and for the purpose set forth.

4. An ice-making vessel comprising the combination of a bottom formed with a flange, two opposite sides of said vessel being formed by plates each secured by its lower edge to the flange of said bottom piece, side pieces secured by their lower edges to the flange of said bottom, two of the said sides opposite each other having their side edges provided with flanges overlapping and secured to the two remaining sides, and a plate flanged at its bottom and side edges and provided at its bottom edge with an off-

set and secured by said flanges to the side of the vessel and spaced therefrom to form an air-chamber, a second plate flanged at its bottom and side edges and provided at its bottom edge with an offset and secured by its flanges to the side of the vessel and spaced from the first-mentioned plate, and suitable insulating material placed within the space between the two said plates for insulating or protecting the side of the vessel, substantially as and for the purpose set forth.

5. An ice-making vessel having the bottom and two opposite sides wholly insulated or protected against freezing temperature, and having the other two opposite sides thereof provided with non-conducting material from the base-line part way up and entirely across the same with the remaining upper portion thereof free from non-conducting material and constituting the freezing zones, substantially as and for the purpose set forth.

690,957. BOILER-FEEDER. CHARLES W. HUNT, West New Brighton, N. Y. Filed May 22, 1901. Serial No. 61,377. (No model.)



Claim.—The combination with a boiler, of a water tank or reservoir, supply and return connections between said tank or reservoir and said boiler, a separate connection from the upper part of the boiler to the upper part of the tank to equalize the pressures and means for supplying water from the tank or reservoir to the boiler in excess of the amount evaporated.

690,958. METHOD OF ELECTRIC WELDING. RUDOLPH M. HUNTER, Philadelphia, Pa. Filed Apr. 7, 1898. Serial No. 676,756. (No model.)



Claim.—1. The method of welding two wide thin flat sheets of metal together to form one continuous sheet which consists of first shaping the end of one or both sheets so as to produce a large number of small projecting portions arranged in line across the sheet or sheets, then overlapping the ends of said sheets so as to bring them in contact alone at a series of small points in the lapped surface of the sheets, then passing a current of electricity simultaneously through all of the series of small points of contact, simultaneously pressing the two sheets together as the metal about the points of contact melts whereby a large series of small fluid portions of metal are formed and gradually increased in area and separated by gradually-decreasing areas of solid or non-fluid portions until the several fluid portions just meet to form a long weld, and then arresting the current to prevent burning off of the ends of the sheets.

2. The herein-described method of electric welding of two wide and thin sheets of metal which consists in placing the two sheets in contact at a large number of small independent points arranged in the line of the weld transversely across the sheets, then passing a current of electricity simultaneously through the series of points of contact and pressing the two sheets together as the welding operation progresses, and continuing the said pressure until the several independent series of welds increase on all sides sufficiently to extend into each other to form one complete and long welded joint.

3. The method of forming a long sheet from two or more sheets of metal, consisting in producing a series of projections upon one of the sheets near its edge, lapping the two sheets so that they make electrical contact through the projections only, passing an electric current through the projections and both sheets, pressing the two sheets together as the weld advances, and finally passing the welded sheets through a pair of rolls to reduce the welded joint to the same thickness as the body of the sheets.

4. The method of forming a long sheet from two or more sheets of metal, consisting in producing a series of projections upon one of the sheets near its edge, lapping the two sheets so that they make electrical contact through the projections only, passing an electric current through the projections and both sheets, pressing the two sheets together as the weld advances, passing the welded sheets through a pair of rolls to reduce the welded joint to the same thickness as the body of the sheets, and subsequently coating the continuous sheet with an outer covering as a protection to the metal forming the body of the sheet.

5. The method of forming a large sheet of metal from two smaller sheets, consisting in overlapping the adjacent ends of the sheets and holding them in contact at a series of points arranged in line across the sheet so that they are in contact for an area greatly less than the extent of surface required to constitute the completed weld, then passing an electric current through all of the portions of the sheets in contact, and as the welding proceeds forcing the two sheets into greater contact to reduce the electrical resistance and to cause the fluid pieces in the weld to spread toward each other.

6. The herein-described process of welding consisting in generating a current of electricity of uniform voltage and fixed maximum current, supplying this current to a large series of equally-distributed points of contact in multiple between two sheets to be welded of uniform sectional area and resistance throughout so as to offer a sufficient but subdivided resistance to secure the welding effect at a large number of points simultaneously, then pressing the two sheets together as the welding proceeds until the resistance becomes so low that the current will cease to be sufficient in volume to continue the welding after a given extent of weld has been made, whereby the union of the sheets is secured and the destruction of the lapped portions guarded against.

7. The herein-described process of welding consisting in generating a current of electricity of uniform voltage and fixed maximum current, supplying this current to a large series of equally-distributed points of contact in multiple between two sheets to be welded of uniform sectional area and resistance throughout so as to offer a sufficient but subdivided resistance to secure the welding effect at a large number of points simultaneously, then pressing the two sheets together as the welding proceeds until the resistance becomes so low that the current will cease to be sufficient in volume to continue the welding after a given extent of weld has been made, and automatically interrupting the current when the maximum current required is reached, whereby the union of the sheets is secured and the destruction of the lapped portions guarded against.

690,959. MACHINE FOR CASING-IN BOOKS. ARTHUR I. JACOBS, Hartford, Conn., assignor to the Smyth Manufacturing Company, Hartford Conn., a Corporation of Connecticut. Filed July 31, 1901. Serial No. 70,427. (No model.)

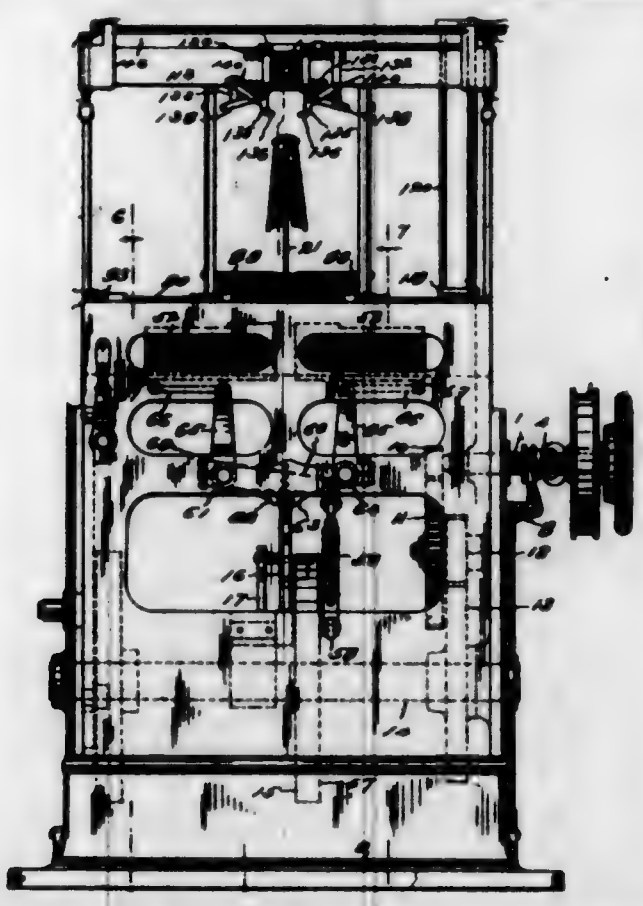
Claim.—1. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, a head with blade-like jaws that open to permit the entrance of the back of a case and the back of a book between them and then close to stretch the back of the case over the back of the book and form the case-joints, and mechanism for moving the support and the head relatively to each other for stretching the back of a case over the back of a book, substantially as specified.

2. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, a head with stretching-jaws, mechanism for moving the support and the head relatively to each other for stretching the back of a case over the back of a book, and mechanism for opening and closing the jaws for forming the joints, substantially as specified.

3. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, a head with stretching-jaws, mechanism for moving the support and the head relatively to each other for stretching the back of a case over the back of a book, mechanism for opening and closing the jaws for forming the joints, and mechanism for folding and clamping the leaves of the case against the pasted leaves of the book, substantially as specified.

4. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, mechanism for feeding a case from a magazine above the support, a head with blade-like jaws that open to permit the entrance of the back of a case and the back of a book between them and then close to stretch the back of the case over the back of the book and form the case-joints, and mechanism for

moving the support and the head relatively to each other for stretching the back of a case over the back of a book, substantially as specified.



5. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, mechanism for feeding a case from a magazine over the support, a head with stretching-jaws, mechanism for moving the book-support and the head relatively to each other for stretching the back of a case over the back of a book, and mechanism for opening and closing the jaws for forming the joints, substantially as specified.

6. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, mechanism for feeding a case from a magazine over the support, a head with stretching-jaws, mechanism for moving the support and the head relatively to each other for stretching the back of a case over the back of a book, mechanism for opening and closing the jaws for forming the joints, and mechanism for folding and clamping the leaves of a case against the pasted leaves of the book, substantially as specified.

7. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, a head with stretching-jaws, mechanism for moving the head vertically, and mechanism for moving the jaws horizontally, substantially as specified.

8. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, a head with stretching-jaws and folding-bars, mechanism for moving the head vertically, mechanism for moving the jaws horizontally, and mechanism for swinging the folding-bars, substantially as specified.

9. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, a head with stretching-jaws and folding-bars, mechanism for moving the head vertically, mechanism for moving the jaws horizontally, yielding connections between the horizontally-moving stretching-jaws and the folding-bars, whereby the horizontally-moving-jaw mechanism causes the swinging of the folding-bars when the jaws are forming the joints, substantially as specified.

10. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, mechanism for moving the carriage with the support and head vertically, and mechanism for moving the head vertically independently of the support, substantially as specified.

11. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws and folding-bars, mechanism for moving the carriage with the support and head vertically, and mechanism for moving the head vertically independently of the carriage and swinging the bars independently of the jaws, substantially as specified.

12. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, mechanism for moving the carriage with its support and head vertically, mechanism for moving the head vertically independently of the carriage, and mechanism for moving the jaws horizontally, substantially as specified.

13. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, mechanism for applying paste to the outside leaves of a book on the support, mechanism for moving the carriage with the support and jaws vertically, and mechanism for moving the head vertically independently of the carriage, substantially as specified.

14. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws and folding-bars, mechanism for applying paste to the outside leaves of a book on the support, mechanism for moving the carriage with the support, jaws and bars vertically, and mechanism for moving the head vertically independently of the carriage and swinging the bars independently of the jaws, substantially as specified.

15. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, mechanism for applying paste to the outside leaves of a book on the support, mechanism for moving the carriage with the support and jaws vertically, mechanism for moving the head vertically independently of the carriage, and mechanism for moving the jaws horizontally, substantially as specified.

16. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, mechanism for feeding a case over the support, mechanism for moving the carriage with the support and jaws vertically, and mechanism for moving the jaws horizontally independently of the carriage, substantially as specified.

17. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws and folding-bars, mechanism for feeding a case over the support, mechanism for moving the carriage with the support, jaws and bars vertically, and mechanism for moving the head vertically independently of the carriage and swinging the bars independently of the jaws, substantially as specified.

18. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, mechanism for feeding a case over the book-support, mechanism for moving the carriage with the support and jaws vertically, mechanism for moving the head vertically independently of the carriage, and mechanism for moving the jaws horizontally, substantially as specified.

19. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, mechanism for applying paste to the outside leaves of a book on the support, mechanism for feeding a case over the support, mechanism for moving the carriage with the support and jaws vertically, and mechanism for moving the head vertically independently of the carriage, substantially as specified.

20. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws and folding-bars, mechanism for applying paste to the outside leaves of a book on the support mechanism for feeding a case over the support, mechanism for moving the carriage with the support, jaws and bars vertically, and mechanism for moving the head vertically independently of the carriage and swinging the bars independently of the jaws, substantially as specified.

21. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, mechanism for applying paste to the outside leaves of a book on the support, mechanism for feeding a case over the support, mechanism for moving the carriage with the support and jaws vertically, mechanism for moving the head vertically independently of the carriage, and mechanism for moving the jaws horizontally, substantially as specified.

22. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, paste-boxes movable toward and from the book-support, paste-rolls carried by the boxes, and mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, substantially as specified.

23. In a casing-in machine, a vertically-movable carriage with a book-support, paste-boxes movable toward and from the book-support, paste-rolls carried by the boxes, mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, and rotated oppositely during a portion of the downward movement of the support, substantially as specified.

24. In a casing-in machine, a vertically-movable carriage with a book-support and a head with stretching-jaws, paste-boxes movable toward and from the support, paste-rolls carried by the boxes, mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, and mechanism for feeding cases from a magazine over the support, substantially as specified.

25. In a casing-in machine, a vertically-movable carriage with a book-support and stretching-jaws, paste-boxes movable toward and from the support, paste-rolls carried by the boxes, mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, mechanism for moving the carriage with the support and jaws vertically, and mechanism for moving the jaws vertically independently of the carriage, substantially as specified.

26. In a casing-in machine, a vertically-movable carriage with a book-support and stretching-jaws and folding-bars, paste-boxes movable toward and from the support, paste-rolls carried by the boxes, mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, mechanism for moving the carriage with the support, jaws and bars vertically, and mechanism for moving the jaws vertically independently of the carriage and swinging the bars independently of the jaws, substantially as specified.

27. In a casing-in machine, a vertically-movable carriage with a book-support and stretching-jaws, paste-boxes movable toward and from the support, paste-rolls carried by the boxes, mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, mechanism for moving the carriage with the support and jaws vertically, mechanism for moving the jaws vertically independently of the carriage, and mechanism for moving the jaws horizontally, substantially as specified.

28. In a casing-in machine a vertically-movable carriage with a book-support, mechanism for feeding a case from a magazine over the support, paste-boxes movable toward and from the support, paste-rolls carried by the boxes, mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, and rotated oppositely during a portion of the downward movement of the support, substantially as specified.

29. In a casing-in machine, a vertically-movable carriage with a book-support and stretching-jaws, mechanism for moving the carriage with the support and jaws vertically, mechanism for raising and lowering the stretching-jaws independently of the carriage, mechanism for opening and closing the jaws, mechanism for feeding a case from a magazine over the support, paste-boxes movable toward and from the support, paste-rolls carried by the boxes, mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, and rotated oppositely during a portion of the downward movement of the support, substantially as specified.

30. In a casing-in machine, a vertically-movable carriage with a book-support, paste-boxes movable toward and from the support, paste-rolls carried by the boxes, mechanism connecting the carriage and the rolls whereby the rolls are rotated for applying paste when the support is raised between them, and rotated oppositely during a portion of the downward movement of the support, and means for disengaging the connecting mechanism between the carriage and the rolls, substantially as specified.

31. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, mechanism for feeding a case from a magazine over the support, means for disconnecting the case-feeding mechanism, a head with stretching-jaws, mechanism for moving the support and head relatively to each other for stretching the back of a case over the back of a book, and mechanism for closing the jaws for forming the joints, substantially as specified.

32. In a casing-in machine, a vertically-movable book-support, paste-boxes, mechanism for moving the boxes horizontally toward and from each other, a yielding connection between the horizontally-moving boxes and the mechanism for moving the boxes, a head movable with the support, also independently thereof, mechanism for moving the support vertically and mechanism for moving the head vertically, substantially as specified.

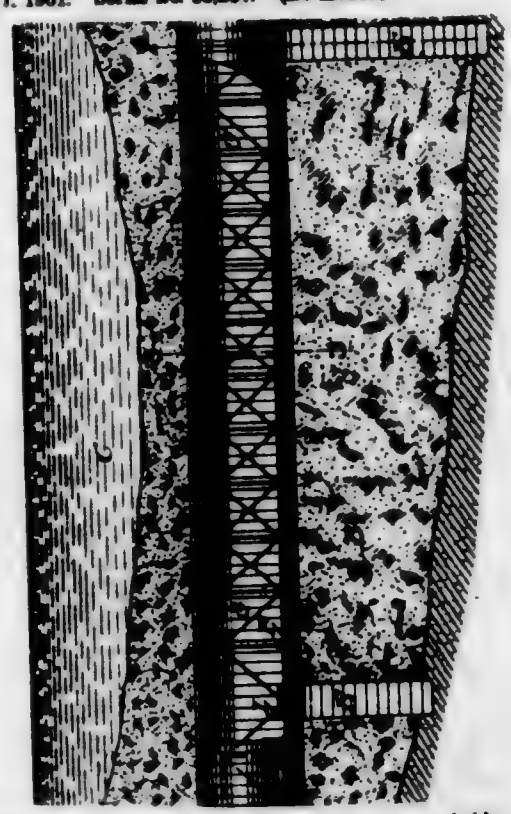
33. In a casing-in machine, a vertically-movable book-support, paste-boxes, mechanism for moving the boxes horizontally toward and from each other, a yielding connection between the horizontally-moving boxes and the mechanism for moving the boxes, a head movable with the support and independently thereof, mechanism for moving the support vertically, mechanism for moving the head vertically, and mechanism for feeding a case from a magazine over the support, substantially as specified.

34. In a casing-in machine, a book-support, mechanisms for applying paste to the outside leaves of a book on the support, a head with stretching-jaws, mechanism for moving the support and the head relatively to each other for stretching the back of a case over the back of a book, and an adjustable connection between the head and the mechanism for moving the head, substantially as specified.

35. In a casing-in machine, a book-support, mechanisms for applying paste to the outside leaves of a book on the support, mechanism for feeding a case from a magazine over the support, means for adjusting the magazine and the feeding mechanism to different sizes of books, a head with stretching-jaws, and mechanism for moving the support and the head relatively to each other for stretching the back of a case over the back of a book, substantially as specified.

36. In a casing-in machine, a book-support, mechanism for applying paste to the outside leaves of a book on the support, a head with stretching-jaws, mechanism for moving the support and the head relatively to each other for stretching the back of a case over the back of a book, and mechanism with yielding connections for opening and closing said jaws for forming the joints, substantially as specified.

690,960. TUNNEL. CHARLES M. JACOBS, New York, N. Y. Filed Dec. 17, 1901. Serial No. 86,207. (No model.)



Claims.—1. A subterranean tunnel, comprising a bridge-span, a pier underneath and supporting said span, and a surrounding shell forming a tunnel cavity or passage.

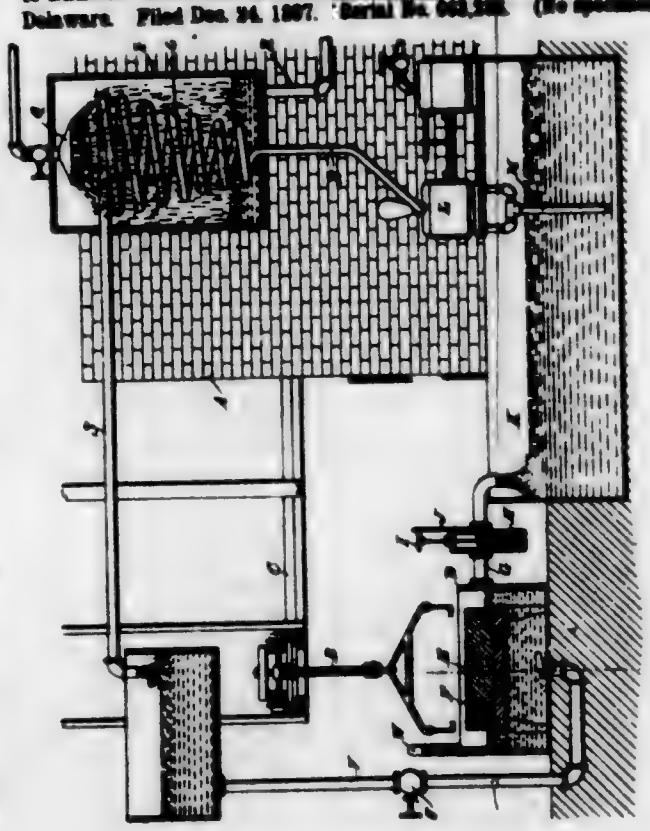
2. A subterranean tunnel, comprising a bridge-span, a pier underneath and supporting said span, a roadway carried by said span, and a surrounding shell forming a tunnel cavity or passage.

3. A subterranean tunnel, comprising a bridge-span, a pier underneath and supporting said span, and a surrounding shell forming a tunnel cavity or passage, said shell being secured to said bridge-span.

4. A subterranean tunnel composed of piers carrying a truss-like structure bearing a roadway and a shell forming the tunnel cavity or passage and holding back the earth through which the tunnel passes.

5. A tunnel for projecting a passage-way through unstable earthy material, said tunnel comprising a shell for protecting a passage-way therethrough, a bridge-span within said shell and a roadway carried by said bridge-span and piers underneath and supporting said bridge and roadway, said piers extending downwardly through said unstable earthy material to solid foundation.

690,961. MANUFACTURE OR TREATMENT OF ARMOR-PLATES. BENTON K. JAMESON, Philadelphia, Pa., assignor, by mesne assignments, to National Steel Refining Company, Wilmington, Del., a Corporation of Delaware. Filed Dec. 24, 1897. Serial No. 663,288. (No specimens.)



Claim.—1. The described treatment of armor-plates, which consists in slowly heating a steel plate to a bright-red heat, submerging it when at this heat in a bath of hardening liquid to a depth corresponding with the depth to which it is required to harden the plate, keeping it in the bath for a sufficient length of time to effect the hardening process and maintaining the bath during the process as nearly as practicable at a temperature of about 60° to 70° Fahrenheit whereby the face of said plate is hardened to the required depth, and then toughening the face of the hardened portion in surface-tempering, whereby an armor-plate of three different grades of steel may be obtained, substantially as set forth.

2. The mode of manufacturing an armor-faced plate hardened to any required depth, which consists in slowly heating a plate of low-grade or mild open-hearth steel containing from .20 to .50 per cent. of carbon, and alloyed with from one and one-half to five per cent. of nickel, to a bright-red heat, submerging it when at this heat for a sufficient length of time to effect the hardening process in a bath of hardening liquid to a depth corresponding with the depth to which it is required to harden it, maintaining the bath during the process at as nearly as practicable a temperature of about 60° to 70° Fahrenheit by cooling it, annealing the back portion of the plate by placing upon the back of the plate when so heated, a plate heated to a greater heat, as a white heat, removing the plate from such bath, and then toughening the face of the hardened portion of the plate by surface-tempering, substantially as set forth.

690,962. TREATMENT OF ARMOR-PLATES. BERTON E. JANISON, Philadelphia, Pa., assignor, by mesne assignments, to National Steel Refining Company, Wilmington, Del., a Corporation of Delaware. Original application filed Dec. 24, 1897, Serial No. 663,294. Divided and this application filed June 18, 1900. Serial No. 20,566. (No specimens.)

Claim.—1. The herein-described solution for the treatment of steel, comprising the following ingredients in substantially the following proportions: sweet spirits of niter, three ounces; aqua-ammonia, three ounces; chlorid of ammonium, six ounces; sulfate of zinc, three ounces; ground alum, three ounces; glycerin, eight ounces; water, one gallon.

2. The herein-described solution for the treatment of steel, comprising the following ingredients in substantially the following proportions: sweet spirits of niter, three ounces; aqua-ammonia, three ounces; chlorid of ammonium, six ounces; sulfate of zinc, three ounces; ground alum, three ounces; glycerin, eight ounces; sulfate of copper, one ounce; nitrate of soda, one ounce; water, one gallon.

690,963. PROCESS OF PREPARING SOLUTIONS FOR THE TREATMENT OF STEEL. BERTON E. JANISON, Philadelphia, Pa., assignor, by mesne assignments, to National Steel Refining Company, Wilmington, Del., a Corporation of Delaware. Original application filed Dec. 24, 1897, Serial No. 663,294. Divided and application filed June 8, 1900, Serial No. 20,566. Again divided and this application filed Aug. 26, 1901. Serial No. 73,321. (No specimens.)

Claim.—1. The herein-described method of mixing solutions for the treatment of steel containing ground alum, sulfate of zinc, water and glycerin, which consists in first introducing the alum and sulfate into the water, maintaining such mixture in a state of rest for approximately twelve hours, and then adding the glycerin.

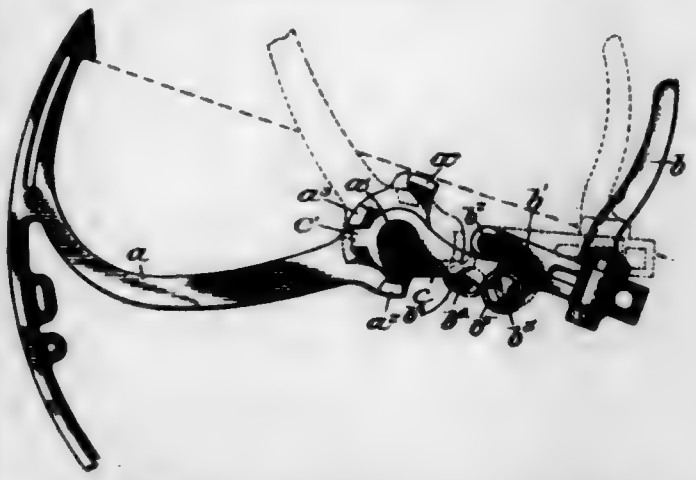
2. The herein-described method of mixing solutions for the treatment of steel containing ground alum, sulfate of zinc, water, glycerin and other ingredients, which consists in first introducing the alum and sulfate into the water, maintaining such mixture in a state of rest for approximately twelve hours, then adding the glycerin and other ingredients, and maintaining the resultant solution in a state of rest for approximately twenty-four hours before using.

3. The herein-described method of making a solution for the treatment of steel which consists in first introducing three ounces of ground alum and three ounces of sulfate of zinc into one gallon of water, maintaining such mixture in a state of rest for approximately twelve hours, then adding glycerin, eight ounces; chlorid of ammonium, six ounces; aqua-ammonia, three ounces; and sweet spirits of niter, three ounces.

690,964. SELF-BINDER. EDWARD A. JOHNSTON, Chicago, Ill., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Filed Mar. 5, 1901. Serial No. 49,747. (No model.)

Claim.—1. In a self-binder, the combination of a compressor-arm pivoted relatively eccentrically to the needle, a latch pivoted concentrically to the needle to hold the arm in elevated position, and projections on the needle to engage and release the latch when the needle rises and allow the compressor to fall, and to cause the latch and cause it to lift the compressor when the needle falls.

2. In a self-binder, the combination of a pivoted compressor-arm, a pivoted latch to hold the arm in elevated position, a connection between the needle and the arm to give a final compression to the bundle, and a connection between the needle and the latch whereby the latter is caused to lift the compressor when the needle descends, and is released to allow the compressor to fall when the needle ascends.



3. In a self-binder, a pivoted compressor-arm, a pivoted latch, a projection on the heel of the compressor-arm, a cam on the needle coöperating therewith to give a final compression to the bundle, a projection on the compressor-arm engaged by the latch, and coöperating projections on the needle and latch to raise the latter and cause it to lift the compressor.

4. In a self-binder, the combination of a compressor-arm pivoted eccentrically to the needle, a latch freely pivoted on the needle-shaft, a projection on the arm to be engaged by the forward end of the latch, a projection on the heel of the latch, and projections on the needle to engage the latch projection when the needle is raised for the purpose of releasing the latch and allowing it to fall, and lifting it when the needle descends and causing it to raise the compressor.

5. In a self-binder, the combination of a pivoted compressor-arm, a latch freely pivoted on the needle-shaft and having a heel projection, a projection on the compressor-arm to be engaged by the forward end of the latch, projections on the needle to engage opposite sides of the heel projection of the latch as the needle rises and falls, a projection on the heel of the compressor-arm, and a cam on the needle to engage the latter and give the bundle a final compression after the latch is released.

6. In a self-binder, the combination of a pivoted compressor-arm, a pivoted latch to lift and hold the arm in elevated position, a projection on the latch, a projection on the needle to engage the upper side of the latch projection as the needle falls to lift the latch, a projection on the needle to engage the under side of the latch projection as the needle rises to release the latch, and a cam on the needle to catch the compressor-arm when released by the latch to hold it until the needle starts to recede.

7. In a self-binder, the combination of a pivoted compressor-arm having a projection b^3, a freely-pivoted latch having its front end c^3 constructed to fit the projection b^3, a projection c' on the heel of the latch, and a needle having the projection a^3 to engage the latch projection c'.

8. In a self-binder, the combination of a compressor-arm pivoted upon a shaft b^3, a pivoted latch having a heel projection c', a projection a^3 on the needle to engage the projection c' and lift the latch, and a projection b^3 on the compressor-arm to be engaged by the front end of the latch, the needle projection a^3 serving to lift the latch and raise the compressor-arm until the projection b^3 runs off its end, and the shaft b^3 serving to limit the upward movement of the latch after it has passed the projection b^3, thereby forming a toggle-lock to hold the compressor up.

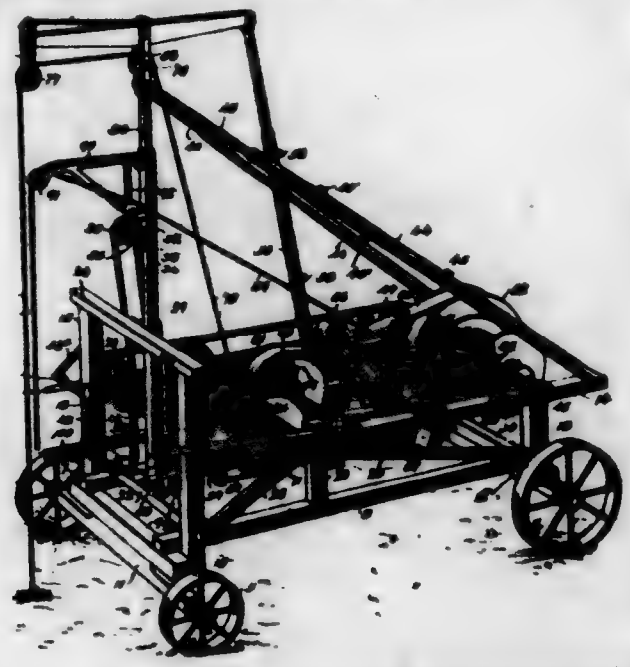
690,965. DRILLING-MACHINE. ARCH S. JOHN, Clifton, Kans. Filed Jan. 14, 1901. Serial No. 43,236. (No model.)

Claim.—1. In a well-drilling machine, the combination with a pivoted walking-beam and means for operating it, of a hanger pivoted to the beam, a guide-pulley in the hanger, a guide-pulley pivoted below the pivot of the beam, the pivots of the pulleys lying in a line parallel with a line connecting the pivots of the beam and hanger, and a rod pivoted to the hanger at one end and pivoted at its opposite end in line with the pivots of the walking-beam and the adjacent pulley and lying parallel with a line connecting the pivots of the pulleys.

2. In a well-drilling machine, the combination with a pivoted walking-beam of a hanger pivoted thereto adjacent an end thereof, a guide-pulley mounted in the hanger, a second guide-pulley mounted vertically below the pivot of the walking-beam, the line connecting the centers of the pulleys lying parallel with a line connecting the pivots of the beam and hanger, and means operable by movement of the beam for pivotally moving the hanger to maintain it in a vertical position.

3. In a well-drilling machine, the combination with a mast and a walking-beam pivoted thereto and having means for operating it, of a

hanger pivoted to an end of the beam and extending thereabove and below, a pulley in the hanger below the beam, a pulley mounted upon the mast vertically below the pivot of the beam, the pulleys being equally spaced from the pivots of the beam and hanger, respectively, and a rod pivoted to the hanger above the beam and to the mast above the beam and lying parallel with a line connecting the pivots of the beam and hanger, said pulleys being adapted to receive a drill-rope.



4. The combination with a support, of a pivoted sand-line crane having a guide-pulley, and a guide carried by the frame and arranged parallel with the plane of the pivots thereof, said guide being adapted to receive a sand-line between it and the support to prevent displacement of the line from the pulley.

5. In a well-drilling machine, the combination with a supporting-frame of a telescopic mast mounted thereon, a section thereof having a rack, a pinion carried by a second section and engaged with the rack, a shaft at the base of the mast, connections between the shaft and pinion for operating the latter, means for throwing said connections into and out of operative relation to the shaft, a drill-rope-winding drum, connections between said shaft and drum for rotating the latter, a drive-shaft, and means for throwing the drive-shaft into and out of operative relation to the first shaft.

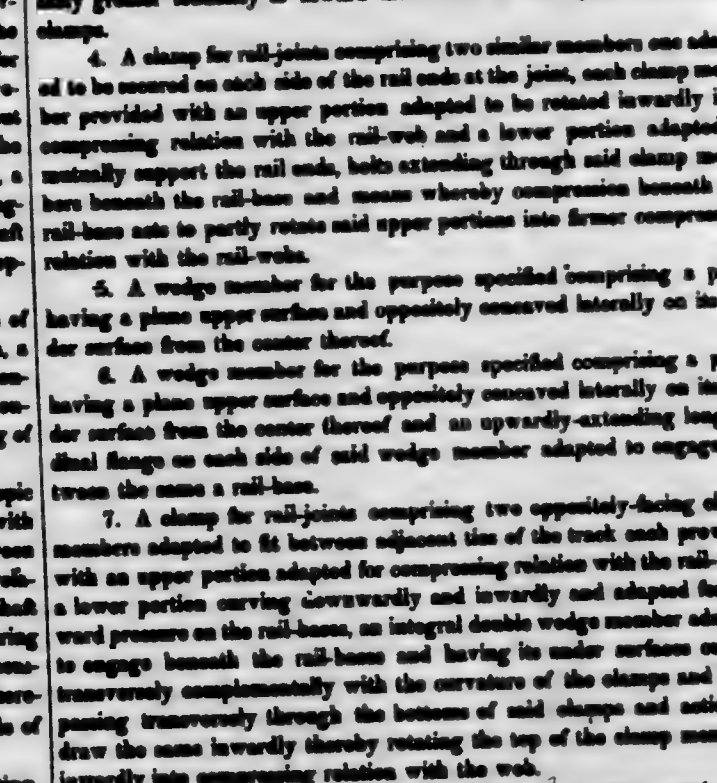
6. In a well-drilling machine, the combination with a supporting-frame having a telescopic drill-mast thereon, a section of said mast having a rack, a pinion engaged with said rack, a shaft at the base of the mast connections between the shaft and pinion and having means for throwing them into and out of operative relation to the shaft, a drive-shaft connections between the shafts adapted for movement into and out of operative relation to the drive-shaft, a drill-rope-winding drum in the rear of the first shaft and having connections for operation thereby, a walking-beam upon the mast, a crank-shaft connected with the walking-beam for operating the latter, belt connections between the crank-shaft and the drive-shaft, and means for varying the tension of the belt to operably connect the crank-shaft and drive-shaft.

7. In a drilling-machine, the combination with a walking-beam of a drill-rope-winding drum, a shaft operably connected with the drum, a telescopic supporting-mast for the walking-beam, means adapted for connection with the shaft for raising the mast, and a brake mechanism connected with the shaft for lowering the mast and preventing unwinding of the rope from the drum.

8. In a well-drilling machine, the combination with a telescopic drill-mast one member of which carries a rack, of a pinion engaged with the rack, a shaft at the base of the mast operating connections between the shaft and pinion adapted for movement into and out of operative relation to the shaft, a drill-rope-winding drum mounted adjacent to the shaft and having operative connections, and a brake mechanism for lowering the shaft and retarding rotation of the drum, said brake mechanism comprising a strap wound about the shaft and having a spring attached thereto to hold the strap under tension, said strap being fixed at one side of the shaft.

9. In a well-drilling machine, the combination with a supporting-frame having a mast, of a walking-beam mounted in the mast, a crank-shaft mounted in the frame and connected with the walking-beam, a winding-drum mounted between the crank-shaft and the mast and adapted to receive the drill-rope, means carried by the mast and beam to receive the rope, a shaft mounted at the base of the mast and operatively connected with the drum for operating it, a drive-shaft, connections between the shaft at the base of the mast and the drive-shaft and adapted for movement into and out of operative relation to the drive-shaft, a drive-pulley on the drive-shaft, a drive-pulley on the crank-shaft, a belt connecting said pulleys, a belt-tightener for said belt, a sand-reel on the drive-shaft and adapted for movement independently thereof rotatably and slidably, means for moving the reel into frictional engagement with the pulley on the drive-shaft for rotation thereby, an internal gear within the drive-pulley, a shaft having a pinion engaged with the internal gear, a brake-wheel carried by the shaft and a brake in operative relation to the brake-wheel.

690,966. CLAMP FOR RAIL-JOINTS. WILLIS S. JONES, Chicago, Ill., assignor to David S. Wegg, Chicago, Ill. Filed June 6, 1901. Serial No. 63,209. (No model.)



Claim.—1. In a clamp for rail-joints a clamp member adapted to partly inclose a rail-base and comprising an upper portion adapted to press against the rail-web and a lower portion convexly curved transversely, the center of curvature thereof being located below and laterally of the rail-web when the clamp is in position, said lower portion having bolt-apertures extending transversely through the bottom portion thereof.

2. A clamp member for rail-joints comprising an upper portion and a lower portion, said lower portion being convexly curved transversely and adapted to extend beneath the rail-base, and the center of curvature thereof being below and laterally of the rail-web when the clamp is in position, said lower portion having transverse apertures extending therethrough below the rail-base and transverse strengthening-webs in alinement with said apertures.

3. A rail-joint clamp comprising two similar members adapted to be secured on opposite sides of a railway-rail, means for securing said clamps together beneath the rail-base and means whereby inward movement of the clamp members beneath the rail-base acts to produce a proportionately greater tendency to inward movement at the upper end of said clamps.

4. A clamp for rail-joints comprising two similar members one adapted to be secured on each side of the rail ends at the joint, each clamp member provided with an upper portion adapted to be rotated inwardly into compressing relation with the rail-web and a lower portion adapted to mutually support the rail ends, bolts extending through said clamp members beneath the rail-base and means whereby compression beneath the rail-base acts to partly rotate said upper portions into firmer compressing relation with the rail-webs.

5. A wedge member for the purpose specified comprising a plate having a plane upper surface and oppositely concaved laterally on its under surface from the center thereof.

6. A wedge member for the purpose specified comprising a plate having a plane upper surface and oppositely concaved laterally on its under surface from the center thereof and an upwardly-extending longitudinal flange on each side of said wedge member adapted to engage between the same a rail-base.

7. A clamp for rail-joints comprising two oppositely-facing clamp members adapted to fit between adjacent ties of the track each provided with an upper portion adapted for compressing relation with the rail-web, a lower portion curving downwardly and inwardly and adapted for upward pressure on the rail-base, an integral double wedge member adapted to engage beneath the rail-base and having its under surfaces curved transversely complementally with the curvature of the clamps and bolts passing transversely through the bottoms of said clamps and acting to draw the same inwardly thereby rotating the top of the clamp members inwardly into compressing relation with the web.

8. Insulating clamp members for rail-joints comprising complementary clamp members adapted to be secured on each side of the rails, the upper portions thereof adapted to engage on each side of the web, the lower portion curving downwardly and inwardly transversely of and below the rail-base, a wedge member having oppositely-inclined concave surfaces complemental to the curved surfaces of the clamp members and means engaging said clamps below the rails and acting to draw the same in-

wardly thereby partly rotating the pans on said wedge members and producing compression along the rail-web.

9. A self centering clamp for rail-joints comprising a wedge member provided on its upper surface with a groove complemental to and adapted to receive the rail ends, the under surface of said wedge member being concavely curved inwardly and downwardly on each side thereof to a center beneath the rail-web, clamp members curved at their lower portions to engage said wedge member, upper portions thereon adapted for compression on the rail-web and bolts extending through said clamps and wedge members and acting to draw said clamp into positive engagement with said wedge member and into compressing relation on each side of the web.

10. A self-centering clamp for rail-joints comprising a wedge member provided on its upper surface with a groove complemental to and adapted to receive said rail ends, the under surface of said wedge member being concavely curved inwardly and downwardly on each side thereof to a center beneath the rail-web, clamp members curved at their lower portions to engage said wedge member, upper portions thereon adapted for compression on the rail-web and means acting from beneath the rail-base to draw said clamp into positive engagement with said wedge member and into compressing relation on each side of the web.

11. A self-centering clamp for rail-joints comprising a wedge member provided on its upper surface with a groove complemental to and adapted to receive the rail ends with their insulation, the under surface of said wedge member being concavely curved inwardly and downwardly on each side thereof to a center beneath the rail-web, clamp members curved at their lower portions to engage said wedge member, upper portions thereon adapted for compression on the rail-web and means acting from beneath the rail-base to draw said clamp into positive engagement with said wedge member and into compressing relation on each side of the web.

12. A clamp member for rail-joints adapted to partly inclose a rail-base, and comprising an upper portion adapted to press against a rail, and a lower portion convexly curved transversely, the center of curvature thereof being located below the rail when the clamp is in position, substantially as described.

13. A clamp member for rail-joints adapted to partly inclose a rail-base, and comprising an upper portion adapted to press laterally against the web and perpendicularly against the base of a rail, and a lower portion convexly curved transversely, the center of curvature thereof being located below the rail when the clamp is in position, substantially as described.

690,967. COMPOSITE CAR-WHEEL. HARALSON G. KIRBAN, Bloomington, Ill. Filed Apr. 24, 1901. Serial No. 57,244. (No model.)



Claim.—1. A composite car-wheel comprising a flanged plate having a solid metal hub integral therewith, and wood and metal sections which form the tread of the wheel, said sections extending to the hub and abutting against the periphery thereof, and suitable means for holding the sections together, substantially as and for the purpose set forth.

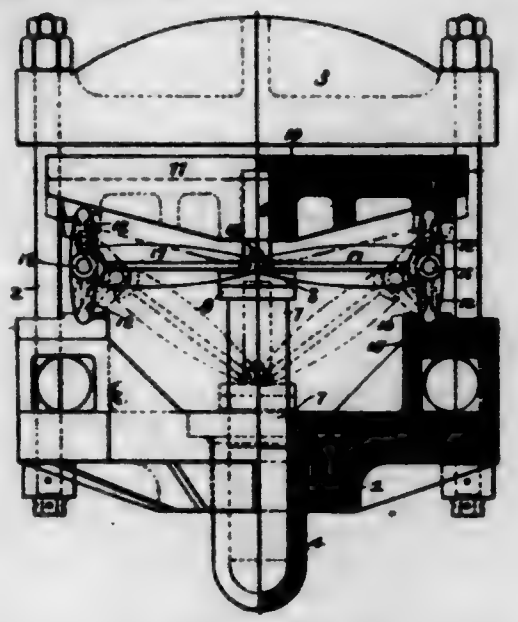
2. A composite car-wheel consisting of an integral solid hub, axle and flanged plate with the hub projecting beyond the plate outward, and a composite tread of disks sleeved upon the projecting portion of the hub, a metal clamping-disk on the outside of said disks, and means for detachably holding said parts together whereby the disks may be removed without removal of the wheel, as set forth.

690,968. HYDRAULIC PRESS. FRANK E. KEITH, Holyoke, Mass. Filed June 26, 1901. Serial No. 66,113. (No model.)

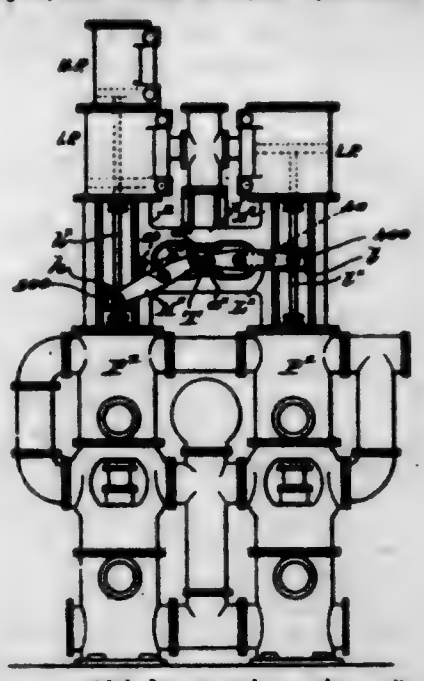
Claim.—1. In a hydraulic press, the combination with a platen and a ram, the former having a socket in its lower face to receive the upper end of the ram as the latter rises, of a series of toggle-links engaging the platen and means connecting the links and ram whereby the former is actuated by the latter.

2. In a hydraulic press, the combination with a platen and a ram, the former having a socket in its lower face to receive the upper end of the ram, of toggle-links on opposite sides of the ram and engaging and supporting the platen at or near its ends, and thrust-plates connecting the ram and toggle-links, substantially as set forth.

3. In a hydraulic press the combination with a platen and a ram, the face of the platen adjacent to the ram having a socket to receive the free end of the ram as the latter moves outwardly, of toggle-links supported on antifriction-bearings and supporting the platen, and thrust-plates connecting the ram and toggle-links.



690,969. COMPENSATING HIGH-DUTY COMPOUND ENGINE. GUSTAF DE LAVAL, Cambridge, and GUSTAF P. ADLER, Boston, Mass. Filed July 27, 1900. Serial No. 24,991. (No model.)



Claim.—1. In a high-duty pumping-engine, a direct-acting pump, a pair of steam-cylinders and their pistons, to actuate the pump, mechanism constituting with the piston-rods compensating toggles, a movable support intermediate and operatively connected with the toggles, and means to guide said support in a path substantially perpendicular to the piston-rods.

2. In a high-duty pumping-engine, a direct-acting pump, high and low pressure steam-cylinders and their pistons and their rods, to actuate the pump, a reciprocating power-transmitting member between and movable substantially at right angles to the piston-rods, compensating mechanism between the latter and said member and pivotally connected with each, and means to guide said member in a fixed path.

3. In a high-duty pumping-engine, a direct-acting pump, high and low pressure steam-cylinders and their pistons, to actuate the pump, compensating mechanism comprising two sets of toggles operatively connected with the piston-rods of said pistons, a coupling member pivotally connected with the toggles, and means located between the piston-rods to guide the coupling member in a fixed path of movement.

4. The combination with a duplex direct-acting pump, and high and low pressure steam-cylinders and their moving pistons, of compensating mechanism operatively connecting the piston-rods of said pistons, said mechanism including a transmitting member movable in a fixed path substantially at right angles to the stroke.

5. The combination with a duplex direct-acting pump, and high and low pressure steam-cylinders and their pistons, of compensating mechanism operatively connecting the piston-rods of said pistons, said mechanism

including two oppositely-acting toggle devices connected respectively with the piston-rods, and a connecting member between the toggles and means independent from the toggle to guide said connecting member in a fixed path substantially at right angles to the stroke.

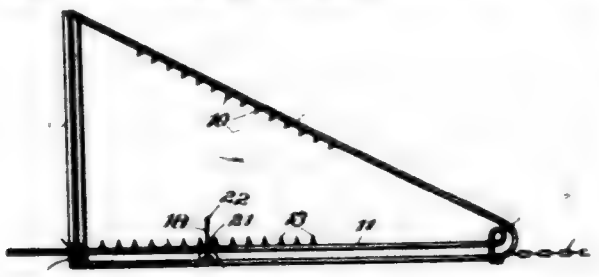
6. The combination with a duplex direct-acting pump, and high and low pressure steam-cylinders and their pistons, of compensating mechanism, operatively connecting the piston-rods of said pistons, said mechanism including two oppositely-acting toggles connected respectively with the piston-rods, a fixed fulcrum for a member of each toggle, a common power-transmitting member pivotally connected with the toggles, and means independent of the toggles to guide the transmitting member.

7. The combination with a duplex direct-acting pump, and high and low pressure steam-cylinders and their pistons, of two levers, pivotal connections between their outer ends and the piston-rods of said pistons, a connecting member, to which the inner ends of the levers are pivotally attached, swinging supports on which the levers are fulcrumed, and means independent from the levers to guide said connecting member in a fixed path substantially at right angles to the stroke.

8. The combination with a duplex direct-acting pump, and high and low pressure steam-cylinders and their pistons, of two levers, pivotal connections between their outer ends and the piston-rods of said pistons, a connecting member between the latter, to which the inner ends of the levers are pivotally attached, swinging supports on which the levers are fulcrumed, and means independent from the levers to guide the connecting member in a fixed path of movement between the piston-rods, whereby a force is transmitted from one side to the other through different portions of the stroke, to assist the other of said pistons.

9. The combination, in a compound direct-acting pumping-engine, of a plurality of steam-cylinders taking steam at different pressures, their reciprocating pistons, and a pump actuated thereby, of compensating mechanism between and connecting the piston-rods of said pistons, to bring into operation a force to assist the movement of the other piston, said compensating mechanism including a power-transmitting compression member reciprocating in a fixed path substantially at right angles to the stroke, and guide for said compression member independent from the levers.

690,970. **STEEL TRAP.** ELMER LEWIS, Saco, Mont. Filed Sept. 24, 1901. Serial No. 76,373. (No model.)



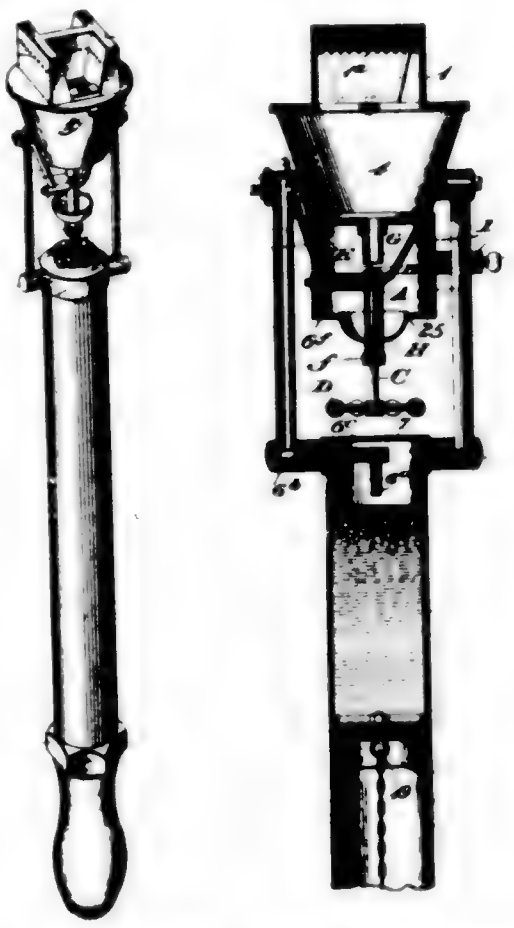
Claim.—1. A steel trap consisting of a metallic plate bent to form two convergent members, one of which is provided with teeth, a second plate having a spring formed at one end and attached to a member of the first plate, the second plate having teeth for coöperation with the teeth of the first plate, and a latch pivoted to the first plate and constructed and arranged for engagement with the second plate to hold it against the tendency of its spring, said latch being extended through the second plate and adapted for attachment of bait thereto.

2. A steel trap comprising a plate bent to form diverging members, one of which is provided with teeth, spaced rods connected with the free ends of the members, a second plate having flexible connection with a member of the first plate and provided with teeth for coöperation with the teeth of the first plate, a helical spring connecting the plates and arranged to move the second plate toward the teeth of the first plate, and a bait-latch constructed and arranged to engage the second plate and hold it retracted.

690,971. **SELF-HEATING BRANDING-IRON.** MARVEL A. LOWE, Marfa, Tex., assignor of one-third to Maggie Gilbert McCulloch, Denver, Colo. Filed Sept. 27, 1901. Serial No. 76,774. (No model.)

Claim.—1. The combination of a hollow branding-iron, a heating-drum to which the said iron is detachably secured and an oil-burner located beneath the same; a cylindrical reservoir which carries at its upper end, arms or brackets, which support the said drum, one of the arms or brackets being tubular, and having connection at one end with the burner, and at its other end with the reservoir; and a pump by means of which the oil in the reservoir is conveyed to the burner under pressure, substantially as shown.

2. In combination with a hollow branding-iron, a heating-drum to which the said iron is removably secured and an oil-burner located beneath the same carrying a cup and means for governing the flow of the oil; a cylindrical reservoir, the upper end of which carries arms or brackets which support the drum, one of said arms or brackets being tubular and having connection at one end with the burner, and at the other end with the reservoir; an air-pump secured to the lower end of the reservoir, and a piston within the reservoir, interposed between the air-supply and the oil, which serves, when the air behind it is compressed to move the body of oil forward and deliver it to the burner under pressure, substantially as shown.



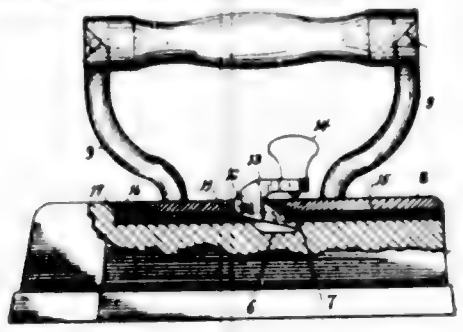
3. In combination with a hollow branding-iron, a drum, to the top of which the said iron is removably secured, while from the bottom depends a flue; and an oil-burner located on a line with, and adjacent to the flue, carrying a cock for controlling the flow of oil; a cylindrical reservoir, the upper end of which carries arms or brackets which support the drum, one of said arms or brackets forming an oil-tube, and connecting at one end with the burner and at the other with the reservoir; a removable hood surrounding the lower end of the drum and inclosing the burner; an air-pump secured to the lower end of the reservoir; and a piston within the reservoir interposed between the air-supply and the oil, which serves, when the air behind is compressed, to move the body of oil forward, and deliver it to the burner under pressure, said piston carrying a chain for withdrawing the same from the upper end of the reservoir, substantially as shown.

4. A branding implement comprising a hollow branding-iron, a drum to which the said iron is removably secured, an oil-burner located beneath the drum; an oil-reservoir carrying at its upper end brackets which support the said drum, one of which is tubular and connects with the burner and with the reservoir; and an air-pump secured to the lower end of the reservoir; in combination with a cylindrical hood which extends beyond the face of the branding-iron and incloses the same and parts connected therewith, the lower end of which encircles the upper end of the reservoir upon which it slides a helical spring being interposed between the bottom of the drum and a collar carried by the reservoir, so that the drum may slide upon the reservoir against the action of the spring substantially as shown.

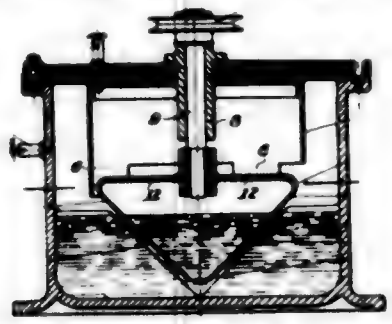
690,972. **SAD-IRON.** ALEXANDER LUETH, Lakemills, Wis. Filed Nov. 2, 1900. Serial No. 35,194. (No model.)

Claim.—In a sad-iron, the combination of the body of the iron, said body provided upon its upper surface with a longitudinal mortise, the bottom of said mortise provided with a depression, and the rear end wall of said depression being inclined, a handle portion having a base adapted to fit in the mortise, said base provided with a slot therethrough, and a catch consisting of a bell-crank lever pivoted in the slot, the arms of said bell-crank lever extending rearwardly from the pivot so that the weight is all on one side of the pivot, and the lower arm of the bell-crank lever extending below the base and at an incline so as to adapt its end to engage the inclined wall of the depression, the inclination of the inclined

wall of the depression being such that the upper end of said inclined wall is a greater distance than the lower end thereof from the center of the arc described by the lower arm of the bell-crank lever.



690,973. ROTARY CIRCUIT-BREAKER. AUGUST R. LUSCHKA, Chicago, Ill., assignor, by mesne assignments, to William Scheidel, Chicago, Ill. Filed Aug. 22, 1901. Serial No. 72,870. (No model.)



Claim.—1. In a rotary circuit-breaker, the combination of a vessel containing a conducting fluid, a centrifugal jet-head dipping into the conducting fluid and formed with a closed top, an annular wall having an inverted-cone shape truncated to form a central inlet at bottom, and a discharge-orifice formed at the point of intersection of said top and the conical wall, and a series of spaced conducting-segments arranged concentrically around the jet-head and in line with the discharge-opening of said head, substantially as set forth.

2. In a rotary circuit-breaker, the combination of a vessel containing a conducting fluid, a centrifugal jet-head dipping into the conducting fluid and formed with a closed top, an annular wall having an inverted-cone shape truncated to form a central inlet at bottom, and a discharge-orifice formed at the intersection of said top and the conical wall, and a series of spaced conducting-segments forming integral parts of a circular ring, arranged concentrically around the jet-head, the said contact-segments being in line with the discharge-opening of the jet-head, substantially as set forth.

3. In a rotary circuit-breaker, the combination of a vessel containing a conducting fluid, a cover of insulating material secured to the top of the same, a vertical shaft journaled in said cover, a centrifugal jet-head carried by said shaft and dipping into the conducting fluid, said jet-head being formed with a closed top, an annular wall having an inverted-cone shape truncated to form a central inlet at bottom, and a discharge-orifice formed at the intersection of said top and inclined wall, and a series of spaced conducting-segments forming integral parts of a circular ring attached to the insulating-cover and arranged concentrically to the jet-head, the said contact-segments being in line with the discharge-opening of the jet-head, substantially as set forth.

4. In a rotary circuit-breaker, the combination of a vessel containing a conducting fluid, a cover of insulating material secured to the top of the same, a vertical shaft journaled in said cover, a centrifugal jet-head carried by said shaft and dipping into the conducting fluid, said jet-head being formed with a closed top, an annular wall having an inverted-cone shape truncated to form a central inlet at bottom, and a discharge-orifice formed at the intersection of said top and the conical wall, a series of spaced conducting-segments forming integral parts of a circular ring attached to the insulating-cover and arranged concentrically to the jet-head, and a series of stationary blades secured in the bottom of the containing-chamber and adapted to prevent a circular movement of the conducting fluid, substantially as set forth.

690,974. PROCESS OF REPRODUCING COLORED ORIGINAL ETCHINGS. BERNHARD MANNFELD, Frankfort-on-the-Main, Germany. Filed Apr. 7, 1898. Serial No. 712,072. (No specimens.)

Claim.—1. The process for producing colored etchings, which consists in etching the design as an intaglio-plate, then reproducing said design on the requisite number of stones or plates, the number corresponding to the number of colors used, then etching portions of the several stones or plates, as desired, to form relief-plates for printing the several colors, and subsequently printing the several colors from the corresponding relief stones or plates upon the paper or surface to be printed, and then after moistening the said paper or surface, printing the outlines and shadings by the said intaglio-plate, substantially as set forth.

2. The process for producing colored etchings, which consists in etching the design as an intaglio-plate, then reproducing said design on the requisite number of stones or plates, the number corresponding to the number of colors used, then etching portions of the several stones or plates, as desired, to form relief-plates for printing the several colors, and subsequently printing the several colors from the corresponding relief stones or plates upon the paper or surface to be printed, and then moistening the printed sheets with benzin, drying them, and afterward moistening the prints on the picture side with a weak solution of alum, and lastly printing the outlines and shadings by the said intaglio-plate, substantially as set forth.

690,975. JOURNAL-BOX. GEORGE S. MARSHALL, St. Louis, Mo. Filed Feb. 8, 1901. Serial No. 46,520. (No model.)



Claim.—1. The combination with a journal-box having a tapered hinge-lug whose side faces are inclined, of a lid having a tapered housing for coöperating with said hinge-lug; substantially as described.

2. The combination with a journal-box having a tapered hinge-lug provided with grooves in its side faces, of a lid having a housing provided with converging ribs coöperating with the grooves in the hinge-lug; substantially as described.

3. The combination with a journal-box having a hinge-lug provided with a groove in its upper face, of a lid having a housing formed with a rib on the under side of its top wall for coöperating with the groove in the hinge-lug; substantially as described.

4. The combination with a journal-box having a tapered hinge-lug provided with grooves in its side faces and a groove in its upper face, registering with the side grooves, of a lid having a housing, and ribs on the under faces of the walls of said housing for coöperating with the grooves in the hinge-lug; substantially as described.

5. The combination with a journal-box having an opening in its front wall, the side and bottom edges of said opening being recessed, and a lid having laterally-extending flanges 5 and 6 for coöperating with the recessed edges of the opening; substantially as described.

6. The combination with a journal-box having a hinge-lug formed with flat faces, said journal-box having an opening in its front wall, the side and bottom edges of said opening being recessed, of a lid formed with a housing coöperating with the hinge-lug, a pintle coöperating with a slot in said lid, whereby said lid is pivotally mounted on the hinge-lug and is likewise movable in a direction at right angles to the axis of the pintle, said lid having flanges 5 and 6 for coöperating with the side and bottom edges of the opening in the front wall of the box, and a spring carried by the lid for coöperating with the flat faces on the hinge-lug; substantially as described.

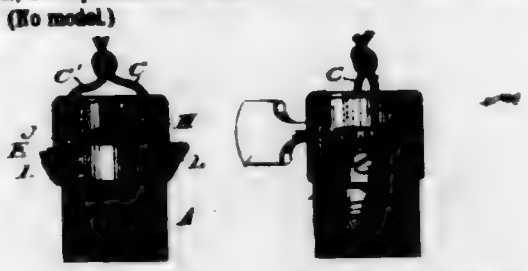
7. The combination with a journal-box having a tapered hinge-lug whose side faces are provided with grooves, the front wall of said box having an opening whose edges are recessed, of a tapering lid having flanges for coöperating with the edges of the opening in the front wall of the box, said lid also having a tapered housing provided with ribs coöperating with the grooves in the converging faces of the hinge-lug, and having elongated slots in its side wall, a pintle arranged in the hinge-lug and passing through the slots in the side walls of the housing on the lid, and a spring secured to the lid for coöperating with the hinge-lug; substantially as described.

8. The combination with a journal-box having a flange a^7 and a hinge-lug, of a lid pivoted to the hinge-lug, said lid being capable of moving bodily in a vertical direction with respect to said hinge-lug, and having a recess for receiving the flange a^7, which flange a^7, when in the recess, locks the lid in position, substantially as described.

9. The combination with a journal-box having a hinge-lug and flanges a^7 at the forward edge of its top wall on each side of said hinge-lug, of a lid having a slot-and-pin connection with the hinge-lug, and also having a housing for receiving the hinge-lug, and hooded extensions on each side of the housing for coöperating with the flanges a^7; substantially as described.

10. The combination with a journal-box having a grooved hinge-lug and flanges a^7 arranged on each side of said hinge-lug, the side and bottom edges of the opening in the front wall of the box being recessed and formed with a seat 4, of a lid having a ribbed housing for coöperating with the grooved hinge-lug, a seat for a spring, and marginal flanges 5 and 6 for coöperating with the seat 4, substantially as described.

690,976. SOCKET FOR INCANDESCENT LAMPS. NORMAN MARSHALL, Newton, Mass., assignor to Marshall-Sanders Company, Boston, Mass., a Corporation of Maine. Filed Aug. 3, 1900. Serial No. 26,284. (No model.)



Claim.—1. In a socket for incandescent lamps the combination, with a metallic outer shell of an insulating body portion, wire terminals carried thereby, and a sheet of insulating material fixed to said body portion adapted to cover said terminals.

2. In a socket for incandescent lamps the combination with a metallic outer shell, an insulating body portion having cavities for the contacts, and flexible insulating attachments on the body portion adapted to cover the contacts.

3. In a socket for incandescent lamps the combination of a metallic outer shell an insulating body portion having cavities for the contacts and flexible insulating attachments inseparable therefrom, adapted to cover the contacts, and a lamp-terminal with a complete fixed insulation.

4. In a socket for incandescent lamps, the combination of a metallic outer shell and insulating-body, supporting lamp-terminals, with insulating-ears adapted to cover the wire terminals, rings and appurtenances inseparable therefrom completely covering all current-carrying parts and separating the same from the metallic shell substantially as shown and described.

5. In a socket for incandescent lamps, the combination with an outer metallic shell of an insulating-body preferably of pottery, having a central cavity for the reception of the circuit-controlling mechanism in one end, holes from the same end leading to lateral recesses containing wire terminals upon the opposite end, an insulating-strip adapted to cover said wire terminals when the body is inserted in the shell and adapted to bend outward to give access to the terminals.

6. In a socket for incandescent lamps the combination with a metallic outer shell of an insulating-body having a central cavity for the reception of the circuit-controlling mechanism, a contact-spring within said cavity and an insulating-sheet covering said spring.

7. In a socket for incandescent lamps, the combination of an insulating-body preferably of pottery, having opposite cavities on one end, containing circuit-terminals, holes from the terminal cavities to the opposite end of the body, a complete insulating-ring permanently attached to the outer lamp-terminal and body, flexible insulating-ears permanently attached to the body adapted to insulate the circuit-terminals from the metallic shell when the body is within the shell and to expose the circuit-terminals for connecting the terminal wires when the body is separated from the shell, an outer metallic shell substantially as shown and described.

8. In a socket for incandescent lamps, the combination of an insulating-body preferably of pottery, having in one end a central cavity for the reception of the circuit controlling devices, and shoulders upon one end of the cavity for limiting the motion of the contact-spring, holes from one end of the body, lateral recesses connecting with said holes and adapted to receive the wire contacts, a fibrous covering for the contacts when the body is inserted in the shell of the socket and capable of being turned aside when the body is out of the shell of the socket; a complete insulating-ring fastened to the outer contact of the socket and a metallic outer covering or shell and cap substantially as shown and described.

9. In a socket for incandescent lamps the combination with a metallic outer shell, of an insulating-body carrying wire terminals, and insulating-coverings for said terminals when the body is inserted in the shell and capable of being turned aside when the body is out of the shell.

10. In an incandescent-lamp socket, an insulating and supporting body constructed with two opposite cavities for the circuit-connecting screws and insulating-covers therefor, one of these cavities also enlarged for the screw connecting said block with the shell; two holes for two circuit-wires from the base to said above-mentioned cavities; a central excavation from one side of, and in the bottom of, the block nearly to the opposite side for the frame-piece, key-shaft, and contact-block, and having recessed shoulders for holding and connecting the contact-spring O and its insulator within the lower surface of the block; and a hole in the top of the block for the contact-spring Y; all substantially as described and shown.

11. In an incandescent-lamp socket, the combination of an insulating-block constructed substantially as described and shown, in combination with a circuit-controlling key and metallic support and spring therefor inclosed within said block; a metallic lamp-contact connected and held by a screw upon one end of said block, a spring recessed and held in the opposite end of said block above its central cavity and having an insulating-cover therefor and circuit-terminals for the two wire circuits, one connecting permanently with the socket-shell and the other with the said insulated spring, and all being adapted to enable the circuit-controlling key to make contact with said spring to open and close the circuit; substantially as described and shown.

12. In an incandescent-lamp socket, in combination with an insulating-block and circuit-controlling key, circuit-terminals and a metallic shell mounted upon said block, an insulating shell or rim of fiber connected with depending flexible ears adapted to cover the recesses containing the circuit-terminals; substantially as described and shown.

13. In an incandescent-lamp socket the combination of an insulating-body having a recess therein for inclosing the circuit-controlling devices, a contact-spring arranged over said recess and supported on shoulders formed on said body, and a circuit-controlling key for engaging said spring.

14. In a socket for incandescent lamps a body portion of pottery with a hole extending partially through from one end for the conducting-wires, a recess extending in from the other end for the wire terminal, with a lateral opening connecting the two, substantially as shown and described.

15. In a socket for incandescent lamps a body portion B formed with contact recesses F F' extending in from one end, holes I I' formed from the other end, an opening between the hole I' and the recess F' as shown and described.

16. An insulating-body for incandescent-lamp sockets provided with a cavity in one end for the circuit-controlling devices, holes I, I' extending from said end, lateral recesses F, F', extending from the opposite end and opening into said holes.

17. In a socket for incandescent lamps, the combination of a body portion having exposed wire contact in lateral recess on the side of said body portion with a flexible fiber sheet adapted to close over and separate the wire terminals from the metallic shell and covering.

18. In a socket for incandescent lamps a fixed insulated lamp-terminal formed by lancing at several points the metallic contact into an insulating-ring surrounding it, substantially as shown and described.

19. In a socket for incandescent lamps the combination of an insulating-body, a lamp-terminal shell provided with a flange or rim, a nut expanded in a hole in said flange and screw-threaded, a screw passing through said body and engaging said nut.

20. In a socket for incandescent lamps, an insulating-block with cavities for the circuit-terminals and circuit-controlling mechanism with insulating-ears and appendages, adapted to receive fittings for Edison, Thomson-Houston, and Westinghouse lamps, substantially as shown and described.

21. In a socket for incandescent lamps, an insulating-block with cavities for the circuit-controlling mechanism with insulating-ears and appendages adapted to insulate all current-bearing parts, an outer screw-shell contact, an inner flexible contact, substantially as shown and described.

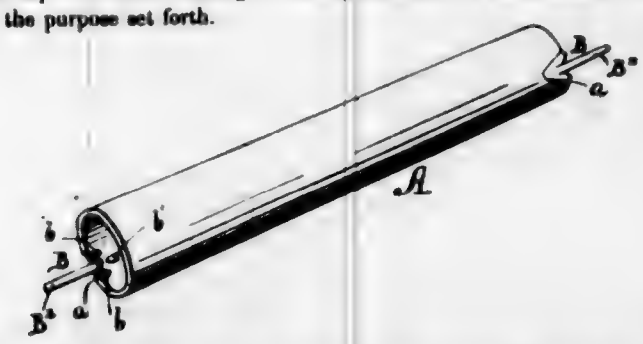
22. In a socket for incandescent lamps the combination of an insulating-body, lamp-terminals carried thereby, a sheet of insulating material provided with tips X, X', for separating the lamp-terminals of opposite polarity.

23. In a socket for incandescent lamps the combination of an insulating-body, a socket-shell, a sheet of insulating material between said shell and base, provided with an opening for the passage of the central contact, and having tips for separating the contacts of opposite polarity.

690,977. MAILING-PACKAGE. OLIVER MARSTELLER, South Bethlehem, Pa. Filed Apr. 6, 1901. Serial No. 54,587. (No model.)

Claim.—1. In a mailing-package, the combination, with a tube, having recesses; and a clip, embodying spurs, base, and tongue, adapted

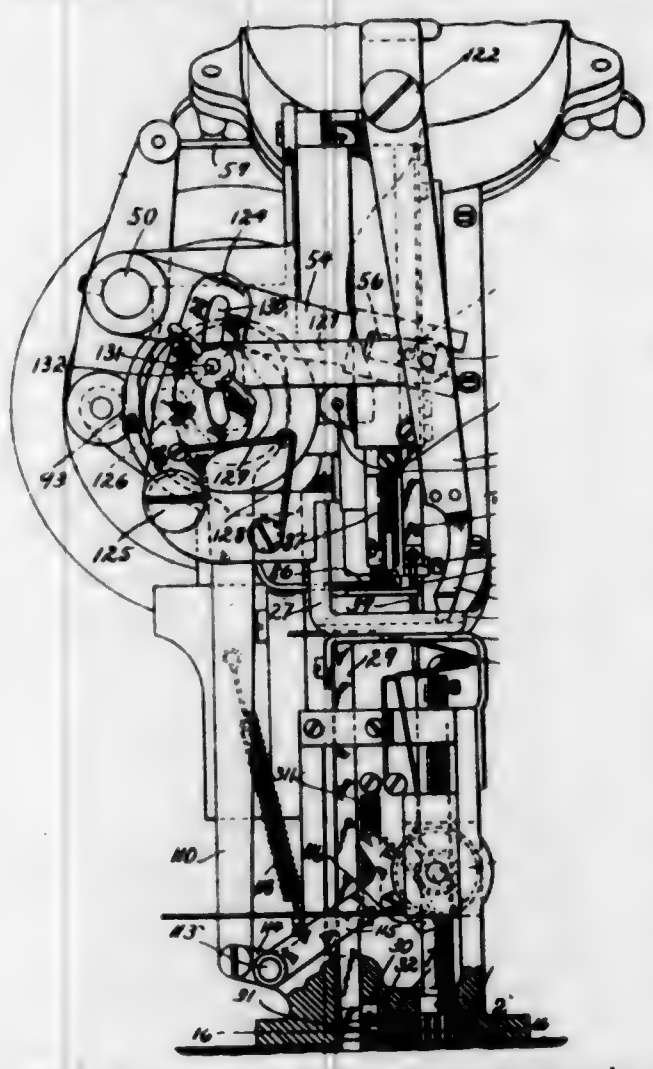
and arranged to be fastened to said tube by its spurs, and said tongue adapted and arranged to be folded into the end of said tube to secure its contents; of a sheet, embodying a smooth central part, and flexible extensions on opposite sides thereof, and adapted and arranged to be rolled, placed in said tube, and secured therein, by folding in its flexible extensions, and folding said tongues upon them, and said sheet, together with said clips and tube, forming a mailing-package, all substantially as and for the purpose set forth.



2. The combination with the tube A, embodying the notches *a* and openings *a'*; and the clip B, embodying base B', spurs *b* and *b'*, and tongue B², adapted and arranged to engage the said tube with spurs *b* and *b'*, and the said tongue adapted and arranged to be folded within said tube; of the sheet C, embodying the smooth central part C', and extended portions C², and adapted and arranged to be rolled, placed in said tube, and secured therein, and together with said tube, and clips, to form a mailing-package, all substantially as and for the purpose set forth.

690,978. MACHINE FOR SEWING SHANK-EYED BUTTONS.

JOSEPH MATHEWS, Boston, Mass., assignor to New Button Sewing Machine Company, Newark, N. J., a Corporation of New Jersey. Filed Feb. 27, 1901. Serial No. 49,052. (No model.)



Claim.—1. In a machine for sewing shank-eyed buttons, the combination of button-supplying mechanism, knot-forming mechanism organized to form a plurality of loops, one of which passes through and the other around the button-eye, thread-controlling mechanism having provisions for taking up the thread of each knot and positively locking the supply-thread after the thread has been taken up, and means for lifting the button-eye while the supply-thread is locked, whereby the bight of one loop is caused to slip under the button-eye and both bights are drawn inwardly to tighten the knot.

2. In a machine for sewing shank-eyed buttons, the combination of button-supplying mechanism, knot-forming mechanism organized to form an incipient knot, means for tipping the button and thereby raising its eye, and means for positively locking the supply-thread while the button is being tipped, whereby the tipping of the button is caused to tighten the knot.

3. In a machine for sewing shank-eyed buttons, the combination of button-supplying mechanism, knot-forming mechanism organized to form an incipient knot, a button-head support, a button-finger adapted to strike one side of a button-head after the formation of the incipient knot and thereby force the other side against the support to raise the eye, and means for holding the supply-thread while the button is being tipped, whereby the tipping of the button is caused to tighten the knot.

4. In a machine for sewing shank-eyed buttons, the combination of button-supplying mechanism, knot-forming mechanism organized to form a plurality of loops, one of which passes through and the other around the button-eye, a button-support, button-tipping means, and means for holding the supply-thread while the button is being tipped, whereby the bight of one loop is caused to slip under the button-eye and both bights are drawn inwardly to tighten the knot.

5. A machine for sewing shank-eyed buttons, comprising button-feeding mechanism, a button-support, knot-forming mechanism organized to form a plurality of loops, one of which passes through and the other around the button-eye, mechanism for tipping the button against said button-support to tighten the knot, and means for holding the supply-thread while the button is being tipped.

6. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, knot-forming mechanism, a button-head support and guide above the work, a supporting-foot below the work, means for raising and depressing the said foot to alternately hold and release the work, a spacing device having a back-and-forth movement above the work and arranged to strike the button last attached during its forward movement and thereby feed the work, and mechanism for operating the spacing device, the said button-head support and foot constituting guides between which the work is moved when the foot is depressed.

7. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, knot-forming mechanism, a button-head support above the work, a button-engaging finger having a back-and-forth movement above the work and arranged to strike the head of the button last attached, mechanism for giving said finger a forward-and-back movement of sufficient length to cause the finger during its forward movement to first tip the button-head over against the support to tighten the knot, and then move the button and the work to feed the work, and means for holding the supply-thread while the button is being tipped.

8. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, knot-forming mechanism, a button-head support above the work, a button-engaging finger having a back-and-forth movement above the work and arranged to strike the head of the button last attached, a finger-operating cam, an oscillatory lever engaged with the cam, a link connected with the button-engaging finger, and an adjustable connection between said link and the oscillatory lever, whereby the throw of the finger may be adjusted, said adjustable connection having provisions for moving the finger to an unvarying starting position.

9. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, knot-forming mechanism, a work-support below the work, a button-engaging finger having a back-and-forth movement above the work and arranged to strike the head of the button last attached, a finger-operating cam, an oscillatory lever engaged with the cam and having a segmental slot, a link connected at one end by a pivot with the carrier of said finger and having at the other end a stud which is adjustable in said slot to vary the throw of the finger, the slot being concentric with the said pivot when the lever is at the forward extreme of its movement, whereby the finger is moved to an unvarying starting position, regardless of the adjustment of the connection between the finger and link.

10. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, loop-forming mechanism having provisions for forming a series of loops into an incipient knot engaged with a button-eye, and thread-controlling mechanism having provisions for positively engaging the thread at a point between the loop-forming mechanism and the thread-supply and pulling the thread positively from the said loop-forming mechanism and thread-supply to simultaneously take up the thread of each knot and measure off a predetermined length of thread for the next series of loops.

11. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, loop-forming mechanism having provisions for forming a series of loops into an incipient knot engaged with a button-eye, a work-feeding mechanism, and thread-controlling mechanism having provisions for positively engaging the thread at a point between the loop-forming mechanism and the thread-supply, pulling the thread positively from the loop-forming mechanism and the thread-supply to simultaneously take up the thread of each knot and measure off a sufficient length of thread for the next series of loops and for the stretch of thread between

two adjacent knots and delivering a portion of the measured-off thread to the feeding mechanism.

12. A machine for sewing shank-eyed buttons, comprising button supplying mechanism, loop-forming mechanism having provisions for forming a primary and a secondary loop and for passing one through and the other around the eye of a button, and thread-controlling mechanism having provisions for positively engaging the thread at a point between the loop-forming mechanism and the thread-supply and pulling the thread positively from the said loop-forming mechanism and thread-supply to simultaneously take up the thread of each knot and measure off a predetermined length of thread for the next series of loops.

13. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, loop-forming mechanism having provisions for forming a primary and a secondary loop and for passing one through and the other around the eye of a button, button tipping and feeding mechanism, and thread-controlling mechanism having provisions for releasing supply-thread to the loop-forming mechanism for each loop, locking the thread after the formation of each loop, taking up the thread after the formation of the secondary loop, and releasing thread after the button has been tipped and while it is being fed.

14. In a machine for sewing shank-eyed buttons, the combination with button-supplying and knot-forming mechanism, of an inverted bed-plate, a work-supporting presser-foot movable toward and from the bed-plate to clamp and release the work, and mechanism for alternately locking and releasing said presser-foot, whereby the foot is held rigidly in its work-clamping position to resist the downward thrust of the needle of the knot-forming mechanism and is free to be depressed below said position after the formation of the knot.

15. A machine for sewing shank-eyed buttons, comprising loop-forming mechanism including a reciprocating needle having two paths of movement, a stationary button-chute and a positively-actuated clamp coöperating with a portion thereof for holding a button-eye in the path first taken by the needle, whereby the needle passes in its first descent through the eye of a button held by the stationary chute, and in its next descent outside the said eye.

16. A machine for sewing shank-eyed buttons, comprising loop-forming mechanism including a reciprocating needle having two paths of movement, a stationary button-chute, a positively-actuated clamp coöperating with a portion thereof for holding a button-eye in the path first taken by the needle, whereby the needle passes in its first descent through the eye of a button held by the stationary chute, and in its next descent outside the said eye, and automatic means independent of the stationary chute, for removing the button from the chute.

17. A button-sewing machine comprising a button-supplying mechanism, and a loop-forming mechanism having the following instrumentalities, namely: first, a reciprocating hooked needle having two paths of movement, whereby the needle is adapted to draw a primary loop through the eye of a button presented by the supplying mechanism, and a secondary loop outside of said eye and through the primary loop; secondly, a primary cast-off which releases the primary loop from the needle; thirdly, a loop-bender which bends the primary loop while the needle is descending through it; fourthly, a loop-spreader which engages one strand of the secondary loop while the raised needle is engaged with said loop; and fifthly, a secondary cast-off which releases the secondary loop from the needle while the loop is held by the spreader.

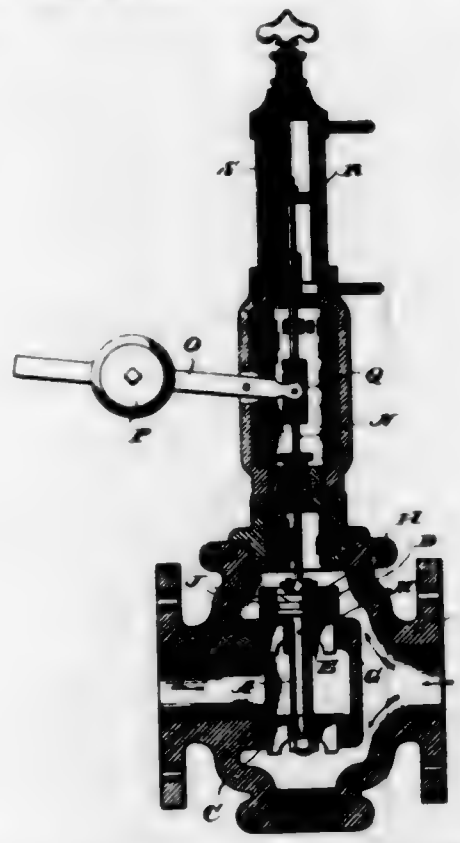
18. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, a needle-bar having a hooked needle, means for reciprocating the needle-bar, a carrier supporting and guiding the needle-bar, means for moving the carrier to cause the needle to pass alternately through and outside the eye of a button presented by the supplying mechanism to form successively a primary and a secondary loop, a primary and a secondary cast-off supported by the carrier, mechanism for successively operating said cast-offs, a primary loop-bender also supported by the carrier, mechanism for operating said loop-bender, a spreader-shaft journaled in the carrier and having a spreader-hook arranged to enter the secondary loop, and mechanism for rocking or reversely rotating the spreader-shaft to cause its hook to alternately engage and release the secondary loop.

19. A machine for sewing shank-eyed buttons, comprising a carrier, mechanism for holding it in different positions, a needle-bar movable in said carrier and having a hooked needle, mechanism for reciprocating the needle-bar, a spreader-shaft journaled in the carrier at one side of the needle-bar, a spreader-hook affixed to the shaft and projecting from one side thereof, and mechanism for operating the shaft to cause the spreader-hook to move first from an inoperative position at one side of the path of the needle, across said path and to the opposite side thereof, to engage one strand of a loop held by the needle and spread said loop, and then return to said inoperative position.

20. A machine for sewing shank-eyed buttons, comprising button-supplying mechanism, loop-forming mechanism organized to form a primary and a secondary loop, the former passing through and the latter outside the eye of a button, and a spreader-plate affixed to a rock-shaft and having a spreader-hook which moves in a plane substantially at right angles with the path of movement of the needle and is advanced by a movement of the rock-shaft into the secondary loop to engage one strand of the same.

21. A machine for sewing shank-eyed buttons, comprising loop-forming mechanism organized to form a primary and a secondary loop, the former passing through and the latter outside the eye of a button, and a spreader-plate affixed to a rock-shaft and having a spreader-hook which is advanced by a movement of the rock-shaft into the secondary loop to engage one strand of the same, and a finger which follows the hook to bear on the other strand of the loop.

690,979. **BALANCED PUPPET-VALVE.** ANDREW METS, Chicago, Ill., assignor to A. Mets & Company, Chicago, Ill., a Firm. Filed Jan 23, 1901. Serial No. 44,347. (No model.)



Claim.—1. In a valve construction, a double-seated valve arranged to be unbalanced when seated and to become balanced immediately when said valves are unseated, and an adjustable counterweight for the pressure on said valve when seated whereby said pressure may be adjustably regulated, as and for the purpose set forth.

2. A casing provided with valve-seats, a disk valve coöperating with one of said seats, a chambered valve coöperating with another of said seats, a stem connecting said valve-disk and chambered valves, said stem provided with a piston operating within the chamber of said chambered valves, loose connections between said chambered valve and stem, and a counterweighted operating-rod connected to said piston, and means for actuating said rod, as and for the purpose set forth.

3. In a valve construction, a double-seated valve arranged to be unbalanced when seated and to become balanced immediately when said valves are unseated, in combination with an operating-rod connected to said valves, a piston and cylinder for operating said rod, and a weighted lever connected to said rod, as and for the purpose set forth.

4. In a valve construction, a double-seated valve arranged to be unbalanced when seated and to become balanced immediately when said valves are unseated, an operating-rod for said valves, and a pivotally-mounted weighted lever having loose connection with said rod, and an operating-piston connected to said rod, as and for the purpose set forth.

690,980. **SPRING-ACTUATED CURTAIN-HOLDING DEVICE.** JOSEPH H. MILAM, Washington, D. C., assignor to Curtain Supply Company, Jersey City, N. J., and Chicago, Ill., a Corporation of New Jersey. Filed May 25, 1901. Serial No. 61,896. (No model.)

Claim.—1. In a shade-holding fixture, the combination with a shade-stick, of a frictiou member at the end of the stick having a loose connection therewith, a retracting-spring interposed between the friction member and stick, and a projecting head on the stick loosely engaging the

friction member at a point along one side of the stick, substantially as described.



2. In a shade-holding fixture, the combination with a stick, of an elongated friction-block, a head interposed between the stick and block and extending laterally beyond the stick, a pivotal engagement between the head and block and a retractile spring carried by the stick and connected to the block, substantially as described.

3. The combination with a shade-stick, of an elongated friction device at the end of the stick, means for forcing said friction device outwardly, and a retractile spring secured to the friction device and stick and constituting the fastening means between the same, substantially as described.

4. The combination with a stick, of an elongated friction device at the end of the stick, a projection extending laterally from the end of the stick and engaging the friction device laterally beyond its center and a retractile spring for holding the parts in position, substantially as described.

5. The combination with a hollow stick, of a head at the end of the stick having a tubular shank entering the stick, a friction-block resting against the head and a retractile spring connecting the block and head, substantially as described.

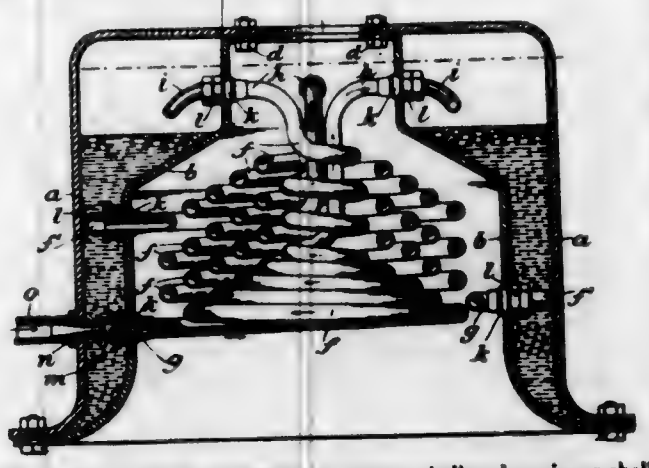
6. The combination with a tubular stick, of a head at the end of the stick having a recess in its outer face, a friction-block having a portion fitted loosely in the recess, and a spring for uniting the parts to permit an independent tilting movement between the head and block, substantially as described.

7. The combination with a stick, a head at the end of the stick having a recess therein, of an elongated friction-block having a projection fashioned to fit the recess, and a retractile spring for uniting the parts, substantially as described.

8. The combination with a stick, of a head thereon having a recess, a friction-block having a flanged extension fitting the recess and a spring for connecting the parts, substantially as described.

9. The combination with a stick, a head at the end of the stick, and a retractile spring uniting said stick and head connected at its outer end to the head and at its inner end to the end of the stick, substantially as described.

690,981. **BOILER.** RALPH L. MORGAN, Toledo, Ohio, assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y., a Corporation of New Jersey. Filed July 6, 1901. Serial No. 67,297. (No model.)



Claim.—1. A boiler comprising an outer shell and an inner shell both of said shells being substantially bell-shaped and being secured directly together at their tops and bases, substantially as shown and described.

2. A boiler comprising an outer shell and an inner shell secured directly together at their tops and bases and a coil within the inner shell, said coil having its ends secured to said inner shell and communicating with the annular space between said shells, substantially as shown and described.

3. A boiler comprising an outer shell and an inner shell both of said shells being substantially bell-shaped and secured directly together at their tops and bases, and a plurality of coils superimposed one upon another within the inner shell, the ends of each coil being secured to the inner shell and communicating with the annular space between said shells, substantially as shown and described.

4. A boiler comprising an inner shell and an outer shell forming a water-space between them, a coil having its ends secured to the inner shell and communicating with the space between said shells, one end of said coil having a bell-mouth within the space between the shells, and a feed-water nozzle in line with said bell-mouth, substantially as shown and described.

5. A boiler comprising an inner shell and an outer shell, both of said shells being substantially bell-shaped, and secured together at their tops and bases, a coil within the inner shell having its ends secured to said inner shell, connecting with the space between said shells, one end of said coil having a bell-mouth in the water-space between the shells, and a feed-water nozzle extended through the outer shell in line with said bell-mouth, substantially as shown and described.

6. A boiler comprising an inner shell and an outer shell forming a water-space between them, and a coil located within the inner shell and having its inlet end communicating with the space between the shells below the water-level and its outlet end extended into the space between the shells and turned in a substantially horizontal plane substantially parallel with the circumference of each shell, substantially as shown and described.

7. A boiler comprising an inner shell and an outer shell forming a water-space between them, and a coil located within the inner shell and having its inlet end communicating with the space between the shells below the water-level and its outlet end extended into the space between the shells and turned in a substantially horizontal plane, substantially parallel with the circumference of each shell, the inlet end having a hood opening within the space between the shells in a direction opposite that in which the extension of the outlet end is turned, substantially as described.

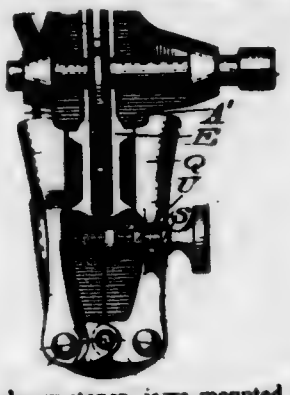
690,982. **CAP.** ANNIE R. MORSE, Montreal, Canada. Filed May 29, 1901. Serial No. 62,360. (No model.)



Claim.—1. As a new article of wearing-apparel, a cap having a body portion to receive the head of the wearer and an auxiliary member adjacent the fore portion of the cap to overlie and protect the hair upon the forehead of the wearer, said member having fastening means on each side of the medial operating portion.

2. A cap of the class described having a body portion, and a band connected with the forepeak of the body and having free attaching ends.

690,983. **CHERRY-STONER.** CHARLES P. MOSHER, Philadelphia, Pa. Filed Aug. 3, 1901. Serial No. 70,746. (No model.)



Claim.—1. In a cherry-stoner, jaws mounted thereon and means for simultaneously adjusting said jaws and holding said jaws in adjusted position, whereby the device is adapted to stone different-sized cherries.

2. In a cherry-stoner, jaws mounted thereon, and means for connecting said jaws whereby the same are simultaneously adjusted and held in adjusted position.

3. In a cherry-stoner, a spout thereon, a wheel mounted in said spout, jaws pivoted thereto, lugs thereon, a pin connecting said jaws and means connected with one of said jaws for operating both jaws.

4. In a cherry-stoner, jaws pivoted thereto, lugs thereon, a pin connecting said jaws, means for operating said jaws, a wheel suitably journaled and projections on the periphery of said wheel.

5. In a cherry-stoner, a wheel suitably journaled, a spout, jaws therefor, and means for simultaneously adjusting said jaws and holding the same in adjusted position.

6. In a cherry-stoner, a wheel suitably journaled, a spout, jaws pivoted thereto, means connecting said jaws, a lug on said spout and a screw engaging with one of said jaws and with said lug and adapted to be operated to adjust said jaws.

690,984. HORSESHOE. JOHN M. MYERS, Louisville, Ky. Filed May 1, 1901. Serial No. 58,233. (No model.)

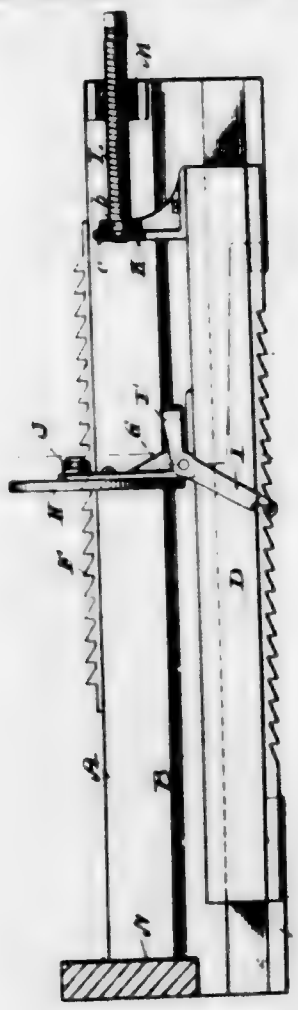


Claim.—1. The combination of the plate attached to the hoof having the recesses at the heel, and the perforated lug at the toe, the removable member having the hooks at the heel and the perforated screw-threaded lug at the toe, and a bolt for attaching the lugs at the toe.

2. The combination of the hoof-plate having the recesses at the heel and the perforated lug at the toe, the pad-plate having the hooks at the heel and the perforated screw-threaded lug at the toe, a bolt attaching the two lugs together, and a cushion of soft material secured to the pad-plate.

3. The combination of the hoof-plate having the undercut recesses at the heel and the perforated lug at the toe, the pad-plate having the forwardly-projecting hooks at the heel and the perforated screw-threaded lug at the toe, the cushion of relatively soft material secured to the pad-plate, and the filling surrounding the pad-plate and attached to the pad.

690,985. CHEESE-PRESS. MARTIN McKINNON, Sheboygan Falls, Wis. Filed June 15, 1901. Serial No. 64,681. (No model.)

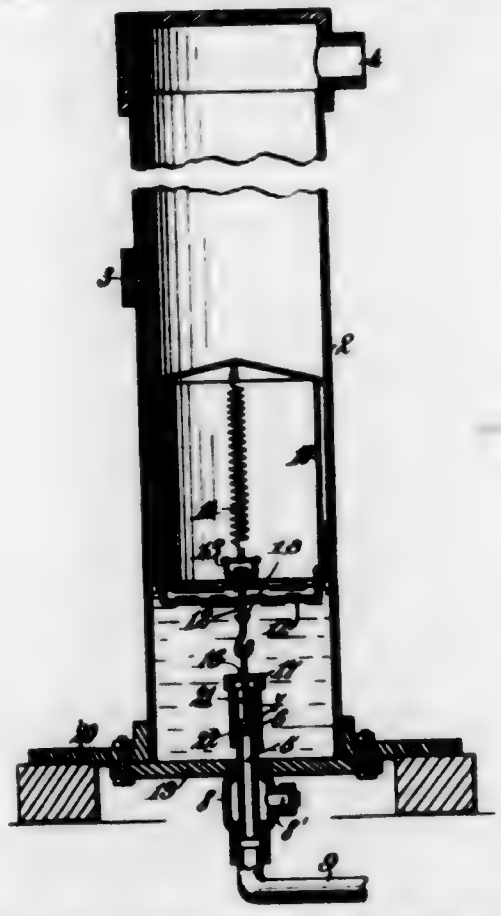


Claim.—1. In a cheese-press of the type specified, a loose center beam, an adjusting-screw in connection with the beam, a follower-block support on the beam, means for holding the follower-block support to said beam so as to have forward movement therewith, and other means for holding said follower-block in its forward adjusted position independent of the aforesaid beam.

2. In a cheese-press of the type specified, a loose center beam provided with a rack, an adjusting-screw in connection with the beam, a follower-block bracket supported by said beam, a gravity-pawl in pivotal connection with the bracket and engaging the beam-rack, other racks on frame-beams of the press, and latches in pivotal connection with said bracket to engage the frame-beam racks, the teeth of the loose-beam rack and those of frame-beam racks being beveled in opposite directions.

3. In a cheese-press of the type specified, a loose center beam having an under-side rack, a nut supported between frame-beams of the press, a screw engaging the nut and having a journal end that turns in a block on the loose beam, a follower-block bracket supported by said loose beam, a counterweighted yoke in pivotal connection with the bracket and engaged with said rack, other racks on the frame-beams, and latches in pivotal connection with said bracket to engage the frame-beam racks, the teeth of the loose-beam rack and those of said frame-beam racks being beveled in opposite directions.

690,986. GAS AND WATER SEPARATOR. IRA L. NEELY, Fairmount, Ind. Filed Oct. 25, 1901. Serial No. 79,909. (No model.)



Claim.—1. In a device of the class described, a reservoir having a discharge-outlet, a valve for controlling said outlet and a float in said reservoir yieldingly connected with the valve.

2. In a device of the class described, a reservoir having a discharge-outlet, a valve for controlling said outlet, a float in said reservoir, and a coiled spring connected respectively with the float and valve.

3. In a device of the class described, a reservoir having a discharge-outlet, a valve for controlling said outlet, a float in the reservoir having a guide member, a rod guided by said guide member and connected with the valve, and a spring connected respectively with said rod and float.

4. In a device of the class described, a reservoir having a discharge-outlet, a valve for controlling said outlet, a float in the reservoir having a perforated cross-bar, a rod connected with the valve and extending through the perforation in said cross-bar, and a spring connected respectively with said rod and float.

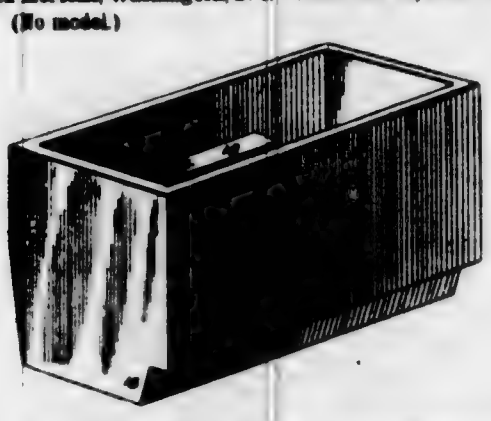
5. In a device of the class described, a reservoir having a discharge-outlet, a valve for controlling the discharge-outlet, a float in said reservoir, a rod connected to the valve and having a projection to engage a part of the float, and a yieldable connection between said rod and float.

6. In a device of the class described, a reservoir having a discharge-outlet, a valve for controlling said outlet, a rod connected to said valve, a float in said reservoir, and a yieldable connection detachably united to the rod and float respectively.

7. In a device of the class described, a reservoir, a pipe passing into said reservoir, a casing detachably connected with said pipe and having a removable cap, a valve in said casing, a float in the reservoir, and a yieldable connection between the float and valve.

8. In a device of the class described, a casing, a T-coupling connected with said casing, a discharge-pipe inclosed in part by said coupling and communicating with the reservoir, a casing on said pipe, a valve in said casing, a float in the reservoir, and a yieldable connection between the valve and float.

690,987. **MOLD FOR PAVING-BRICKS.** WILLIAM H. NELSON, Washington, D. C., assignor of two-thirds to Cuthbert W. Ridley and Frederick Mertens, Washington, D. C. Filed Jan. 17, 1901. Serial No. 43,594. (No model.)



Claim.—1. A mold of the class described, comprising a mold-box provided at one side with a straight plain wall and at its opposite side with an inclined portion, said box being further provided upon the inner face of the latter side with an inwardly-projecting core-block of downwardly-tapering thickness and extending over said inclined portion.

2. A mold of the class described comprising a mold-box provided at one side with a straight plain wall and at its opposite side with an inclined portion and also upon the inner face of the latter side with an inwardly-projecting core-block extending over said inclined portion to the bottom of the box.

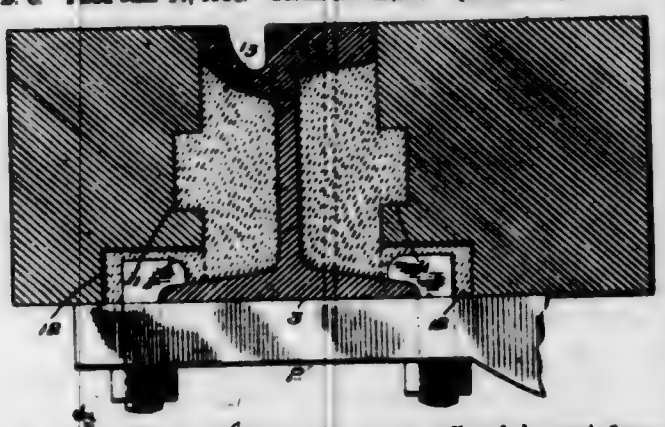
3. A mold of the class described comprising a mold-box having at one side a straight plain wall provided at the bottom corner thereof with an inset angular rib, said box having upon the inner face of its opposite side an inwardly-projecting core-block.

4. A mold of the class described comprising a mold-box having at one side a core-block extending to the bottom of the box, and a detachable false shaping-bottom registering within the bottom portion of the box and interlocking with said core-block.

5. A mold of the class described comprising a box provided at one corner with an inset angular rib having a beveled portion, a lower inclined side portion opposite the rib, and an inwardly-projecting core-block extending over said lower inclined side portion, and a detachable false shaping-bottom loosely interlocked with the core-block and having beveled edges fitting the lower inclined side of the box and the inclined portion of said rib.

6. A mold of the class described comprising a mold-box having at one side a core block, and a detachable false shaping-bottom provided at one side with a forming-boss.

690,988. **PAVING-BRICK FOR TRACK PAVING AND FASTENING PURPOSES.** WILLIAM H. NELSON, Washington, D. C., assignor of two-thirds to Cuthbert W. Ridley and Frederick Mertens, Washington, D. C. Filed Jan. 17, 1901. Serial No. 43,595. (No model.)



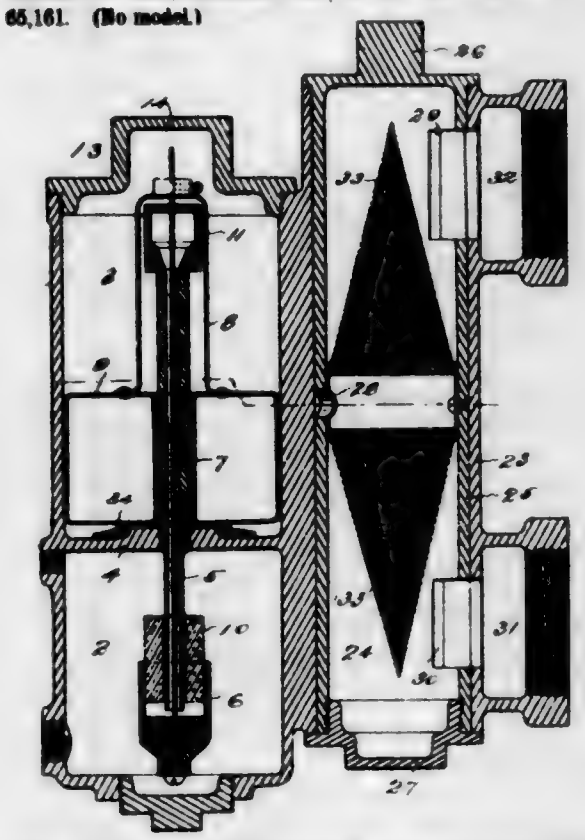
Claim.—1. The combination with a track-rail and the track-fastenings engaging the base-flange thereof, of paving-brick arranged to face the opposite sides of the rail and resting on the base-flange, each brick being constructed to receive therein the projecting ends of the track-fastenings, and also a body of cement enveloping said fastenings.

2. A brick of the class described, comprising a body having a base adapted to rest on the base-flange of a rail and provided in such base with a reëntrant pocket adapted to receive the projecting portions of the track-fastenings, and a body of cement enveloping such fastenings.

3. A brick of the class described comprising a body having a beveled base resting directly upon the base-flange of the rail and provided therein with a reëntrant pocket receiving the heads of the track-fastening bolts, and a body of cement enveloping the latter.

4. A brick of the class described comprising a body provided in the inner side thereof with a reëntrant holding-pocket for the reception of a body of cement, and also in its base with a separate reëntrant pocket for the reception of a body of cement and the heads of the track-fastening bolts.

690,989. **LIQUID-FUEL FEED FOR EXPLOSIVE-ENGINES.** ALFRED W. OLDS, Hartford, Conn. Filed June 19, 1901. Serial No. 65,161. (No model.)



Claim.—1. A liquid-fuel feed having a supply-chamber, a float-chamber, a float in the float-chamber, a cup containing a dense sealing liquid located in the supply-chamber and connected with the float, a fixed tube extending vertically from the supply-chamber to the float-chamber for the passage of fuel and opening into the cup to permit the entrance of the sealing liquid as it is forced up into a column in the tube by the pressure of the fuel in the supply-chamber, a vaporizing-chamber, and a passage from the float-chamber to the vaporizing-chamber, substantially as specified.

2. A fuel-feed having a supply-chamber, a float-chamber, a passage from the supply-chamber to the float-chamber, a float in the float-chamber, a cup containing a dense sealing liquid located in the supply-chamber and connected with the float, a vaporizing-chamber, a passage from the float-chamber to the vaporizing-chamber with an adjustable valve controlling the opening to said passage, and a rotatable cylinder movable in the vaporizing-chamber and having an air-inlet port, a mixture-outlet port and a fuel-opening between the inlet and outlet ports, the inlet-port being the same width but of less height than the outlet-port, whereby when the cylinder is moved the air-inlet and mixture-outlet ports are simultaneously opened or closed without changing the relative proportions of their areas and without affecting the vacuum which draws the fuel into the cylinder through the valve, substantially as specified.

3. A fuel-feed having a supply-chamber, a float-chamber, a passage leading from the supply-chamber to the float-chamber, a float in the float-chamber, a cup containing a dense sealing liquid located in the supply-chamber and connected with the float, a vaporizing-chamber, a passage leading from the float-chamber to the vaporizing-chamber, a needle-valve located in said passage for regulating the area of the outlet-orifice, a rotatable cylinder fitting the walls and extending through the vaporizing-chamber, said cylinder being free to rotate but held against longitudinal movement in the vaporizing-chamber and having an air-inlet port, a mixture-outlet port and an opening for the needle-valve between the inlet and outlet ports, whereby on the application of a wrench to the end of the cylinder the air-inlet and mixture-outlet ports are simultaneously opened or closed without changing the relative proportions of their areas, substantially as specified.

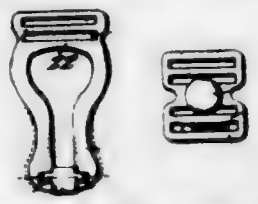
4. A fuel-feed having a supply-chamber, a float-chamber, a passage leading from the supply-chamber to the float-chamber, a float in the float-chamber, a cup containing a dense sealing liquid located in the supply-chamber and connected with the float, a vaporizing-chamber, a passage leading from the float-chamber to the vaporizing-chamber, a needle-valve located in said passage for regulating the area of the outlet-orifice, a rotatable cylinder fitting the walls and extending through the vaporizing-chamber, said cylinder being free to rotate but held against longitudinal movement in the vaporizing-chamber and having an air-inlet port, a mixture-outlet port and an opening for the needle-valve between the inlet and outlet ports, whereby on the application of a wrench to the end of the cylinder the air-inlet and mixture-outlet ports are simultaneously opened or closed without changing the relative proportions of their areas, and gauze screens supported in the cylinder and inclosing the outlet of the passage from the float-chamber, substantially as specified.

5. The combination with a vapor-fuel feed, of a vaporizing-chamber having a fuel-inlet, an air-inlet and a mixture-outlet, a cylinder fitting the walls of and extending through the vaporizing-chamber with heads whereby the cylinder may be rotated but not moved longitudinally, said cylinder having an air-inlet opening and a mixture-outlet opening of the same width but different heights, substantially as specified.

6. A liquid-fuel feed having a supply-chamber, a float-chamber, a float in the float-chamber, a cup containing a dense sealing liquid located in the supply-chamber and connected with the float, a fixed tube extending vertically from the supply-chamber to the float-chamber for the passage of fuel and opening into the cup for the entrance of the sealing liquid as it is forced up into a column in the tube by the pressure of the fuel in the supply-chamber, substantially as specified.

7. A liquid-fuel feed having a supply-chamber, a float-chamber, a float in the float-chamber, a spring located in the float-chamber beneath the float, a cup containing a dense sealing liquid, located in the supply-chamber and connected with the float, a fixed tube extending vertically from the supply-chamber to the float-chamber for the passage of fuel and opening into the cup for the entrance of the sealing liquid as it is forced up into a column in the tube by the pressure of the fuel in the supply-chamber, substantially as specified.

690,990. GARMENT-CLASP. BENJAMIN F. OBERWILER, Cleveland Ohio. Filed Dec. 13, 1900. Serial No. 39,665. (No model.)



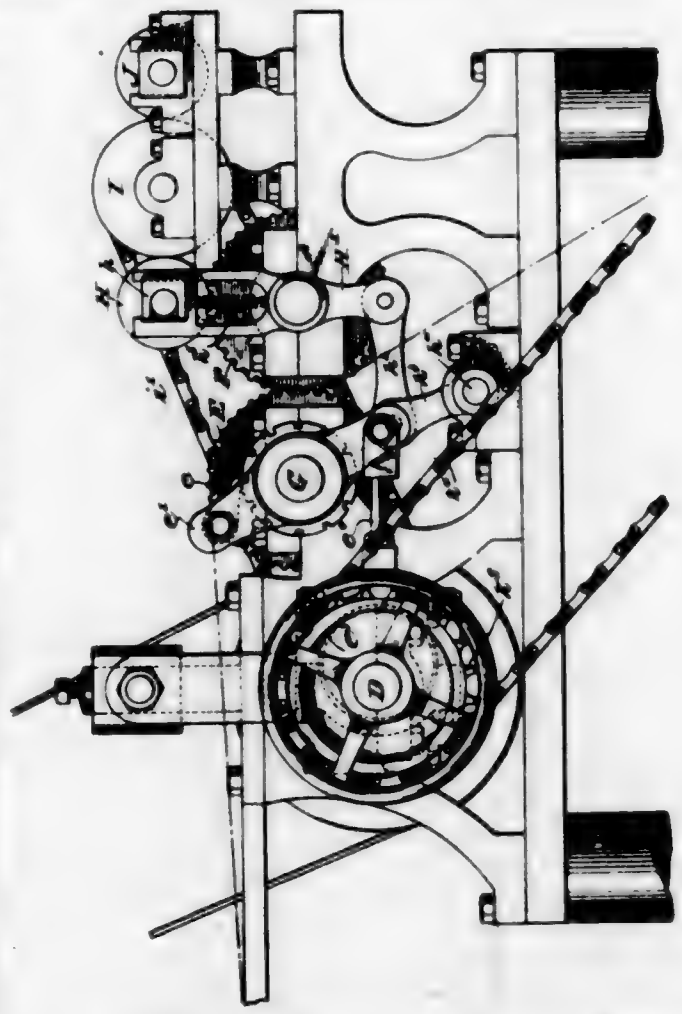
Claim.—1. A button member for clasps comprising a plate having a central transverse bar and a headed stud rigidly mounted thereon, and a pair of transverse retaining-bars located beyond each side of the central bar, the retaining-bar next below the central bar being provided with a compressible fin having a straight edge disposed parallel with said bar and in close relation to the lowermost of the several retaining-bars of the plate.

2. The combination with a button member comprising a plate having a series of transverse slots defining a central bar provided with a rigid projecting button, and a pair of parallel retaining-bars beyond each side of the central bar, of a tape passed under the retaining-bar at the upper end of the button-plate, over the next adjacent retaining-bar, under the central bar carrying the button, over the two retaining-bars below the central bar, and around the lowermost retaining-bar, and a compressible fin extending from the retaining-bar next above the lowermost retaining-bar, and engaging the end of the tape passed around said lowermost retaining-bar.

3. A loop member for clasps having a comparatively narrow divided lower end, a tubular bridge-piece inclosing the divided end of the loop member and entirely obscuring the division, said loop member being provided with slots located beyond the opposite ends of said tubular member, and lugs extending from the opposite ends of the tubular bridge-piece at the front side thereof and entirely covering the slots under normal conditions, said lugs being provided with angular extremities passed into the slots but not entirely through the loop member, whereby both the division of the loop member and the slots therein are entirely covered and obscured at the front side of the member under normal conditions.

690,991. MACHINE FOR CUTTING AND PRINTING STENCIL-SHEETS. WILLARD S. PAIN, Meriden, Conn., assignor to the Aeolian Co., New York, N. Y., a Corporation of Connecticut. Filed May 24, 1901. Serial No. 61,693. (No model.)

Claim.—1. In a machine for preparing a stencil for mechanical music-sheets, the combination of a table having guides which coact with the edges of a stencil-sheet, punches for forming marginal apertures in the stencil-sheet, toothed wheels coacting with the marginal apertures of the stencil-sheet, a step-by-step feed for said toothed wheels, a printing-roll for supplying rows of parallel dots to the stencil-sheet, and means for rotating the said printing-roll and supplying ink thereto.



2. In a machine for preparing a stencil for mechanical music-sheets, the combination of a table along which the stencil-sheet travels, punches for forming marginal apertures, an eccentric on a main driving-shaft for operating said punches, toothed wheels coacting with the marginal apertures of the stencil-sheet, a pawl-and-ratchet feed for said toothed wheels operated by an eccentric on the main driving-shaft, a printing-roll for supplying rows of parallel dots to the stencil-sheet and means for operating said printing-roll and supplying ink thereto.

3. In a machine for preparing a stencil for mechanical music-sheets, the combination of a table along which the stencil-sheet travels, punches for forming marginal apertures in the sheet, intermittently-operated toothed wheels coacting with the marginal apertures of said sheet, a printing-roll for supplying parallel rows of dots to the stencil-sheet, a take-up roll for the stencil-sheet, and a friction device to prevent excessive motion of the take-up roll.

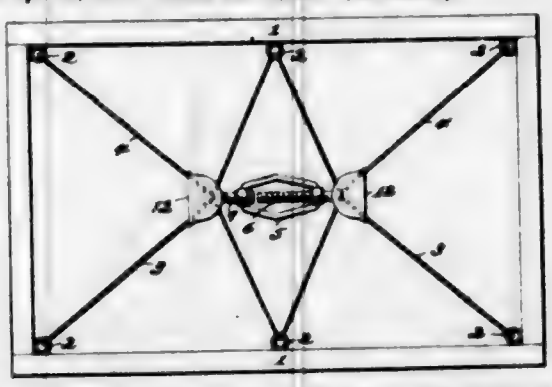
4. In a machine for preparing a stencil for mechanical music-sheets, the combination of a table along which the stencil-sheet travels, intermittently-operated punches for making marginal openings in the stencil-sheet, a bed-roll over which said sheet passes, toothed wheels for coacting with said stencil-sheet to draw the stencil-sheet over the bed-roll, means for intermittently moving the bed-roll and the toothed wheels, and a rotary printing-roll coacting with said bed-roll for supplying parallel rows of dots to the stencil-sheet.

5. In a machine for preparing a stencil for mechanical music-sheets, the combination of a table along which the sheet is fed, punches for making marginal apertures in the stencil-sheet, means for intermittently moving the stencil-sheet from under the punches, a printing-roll for supplying parallel rows of dots to the stencil-sheet, an inking-roller, and means for moving the inking-roller into and out of engagement with said printing-roll.

6. In a machine for preparing a stencil for mechanical music-sheets, the combination of a table along which the stencil-sheet is fed, punches for making marginal apertures in the stencil-sheet, means for intermittently moving the stencil-sheet from under the punches, a printing-row for supplying parallel rows of dots to the stencil-sheet, an inking-roller, and means for moving the inking-roller into and out of engagement with said printing-roll, said means consisting of rocking arms in which the

roller is journaled, rollers A^5 carried by the journals of the inking-roller and other rollers A^6 on which said rollers A^5 ride.

690,992. BED-BRACE. JULIAN L. PEACOCK, Lexington, N. C. Filed Apr. 16, 1901. Serial No. 56,065. (No model.)



Claim.—1. In a bed-brace the combination of the frame, eyes secured therein, brace-wires secured in said eyes, a turnbuckle, hooks at the ends thereof, pulleys secured in said hooks, which engage the wires at the intersection, said wires crossing each other within said hooks at both ends of said turnbuckle, the whole arranged whereby uniform tension is exerted on the wires, shields or guards covering said hooks and pulleys, and covering said wires at their intersection, substantially as described.

2. As an article of manufacture and commerce, a detachable turnbuckle and tension device for bed-braces consisting of the turnbuckle having hooks at its ends, pulleys secured in said hooks and a protecting shield or guard over said hook and pulley, substantially as described.

690,993. LACING-HOOK. FRANK J. A. PERRY, Lynn, Mass., assignor of one-third to Charles H. Walden, Lynn, Mass. Filed May 2, 1901. Serial No. 58,445. (No model.)



Claim.—1. A lacing-hook comprising a head provided with means for its attachment to the article to be laced and provided at one side with a rigid shank formed integral with the head, said shank being arched above the plane of the head and terminating in an underturned hook-bill bent laterally to one side from beneath the shank, the transverse plane of said arched portion of the shank being disposed at an angle to the head.

2. A lacing-hook comprising a head provided with means for its attachment to the article to be laced and provided at one side with a shank terminating in an underturned hook-bill, said shank being torsionally twisted, whereby the hook-bill lies in a plane inclined relatively to the plane of the head, substantially as described.

3. A lacing-hook comprising a head having means for its attachment to the article to be laced and provided at one side with a shank terminating in an underturned hook-bill bent laterally to one side from beneath the shank, said shank being torsionally twisted, substantially as described.

4. A lacing-hook comprising a head having means for its attachment to the article to be laced and provided at one side with a shank terminating in an underturned hook-bill bent laterally to one side and inclined or beveled off at its under corner, said shank being torsionally twisted, substantially as described.

5. A lacing-hook comprising a head having means for its attachment to the article to be laced and provided at one side with an arched shank terminating in a flat underturned hook-bill bent laterally to one side from beneath the shank, said shank being torsionally twisted in the direction toward which the hook-bill is laterally bent, substantially as described.

6. In combination with an article to be laced, a lacing-hook comprising a head attached to said article and provided at one side with an integral rigid shank arched above the plane of the head and terminating in an underturned hook-bill bent laterally to one side from beneath the shank, said hook-bill lying in a plane inclined relatively to the plane of the head and having its under corner beveled off so that the said beveled end of the bill lies parallel with the surface of the article to which the head is attached.

690,994. BRUSH FOR FLOUR SCREENS OR BOLTERS. JOHN G. PETERSON, Milwaukee, Wis. Filed June 28, 1901. Serial No. 66,341. (No model.)



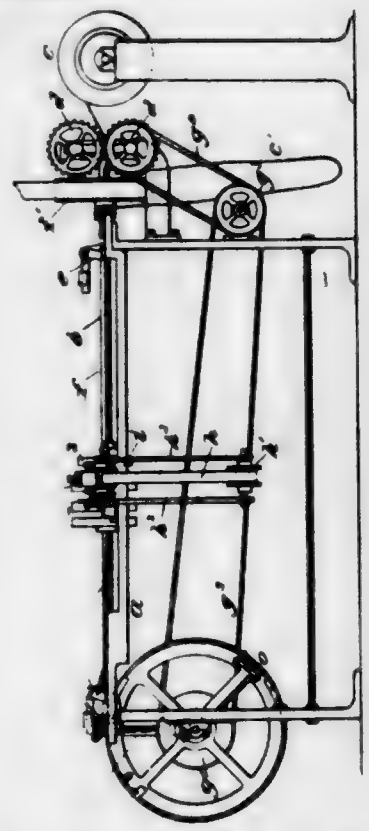
Claim.—1. In a brush for cleaning bolting-cloth of flour-sieves, an integrally-formed metal body comprising a central portion having a pivotal projection, and two annular bristle-retaining flanges surrounding the central portion, said projection extending below the plane of the central portion and flanges, in combination with an annular tuft of bristles located between and held in place by said clamping-flanges, substantially as set forth.

2. In a brush for cleaning bolting-cloth of flour-sieves, an integrally-formed metal body comprising a central portion having a pivotal projection, and two annular bristle-retaining flanges surrounding the central portion, said projection extending below the plane of the central portion and flanges, in combination with an annular tuft of bristles interlaced and wound together with a plurality of wires, located between and held in place by said clamping-flanges, substantially as set forth.

3. In a brush for cleaning bolting-cloth of flour-sieves, an integrally-formed metal body comprising a central portion, provided with perforations or apertures having a pivotal projection and two annular bristle-retaining flanges surrounding the central portion, said projection extending below the plane of the central portion and flanges, in combination with an annular tuft of bristles located between and held in place by said clamping-flanges, substantially as set forth.

4. In a brush for cleaning bolting-cloth of flour-sieves, an integrally-formed metal body comprising a central portion provided with a plurality of apertures for the escape of flour therefrom, having a pivotal projection and two annular bristle-retaining flanges surrounding the central portion, said projection extending below the plane of the central portion and flanges, in combination with an annular tuft of bristles interlaced and wound together with a plurality of wires, located between and held in place by said clamping-flanges, substantially as set forth.

690,995. MACHINE FOR MANUFACTURING SHOE-LACES, &c. HERBERT S. PULLMAN, Meriden, Conn. Filed May 2, 1901. Serial No. 58,470. (No model.)



Claim.—1. In a machine for making laces, clamp devices for holding the lacing extended, mechanism for supplying a thin metallic blank for a tip, means for securing the tip to the extended lacing, and means for dividing the tip and severing the lacing.

2. In a machine for making laces, clamp devices for holding the lacing extended, mechanism for supplying a thin metallic blank for a tip, means for securing the tip to the extended lacing, means for drawing the lacing along the machine, and means for dividing the tip and severing the lacing.

3. In a machine for making laces, a frame supporting the operative parts, means for holding a lacing extended along the frame, a delivery-wheel carrying a lace-clamp, means for supplying a thin metallic blank for a tip, means for securing the tip upon the extended lacing and means for dividing the tip and severing the lacing.

4. In a machine for making laces, a frame supporting the operative parts, means for holding a lacing extended along the frame, a delivery-wheel carrying a lace-clamp, means for supplying a thin metallic blank for a tip, means for securing the tip upon the extended lacing and means borne by the delivery-wheel for dividing the tip and severing the lacing.

5. In a machine for making laces, a frame supporting the several

mechanisms, a driving-shaft, cams mounted on the driving-shaft, a delivery-wheel mounted on the frame and in operative engagement with the driving-shaft, means for feeding a length of lacing from a roll, means for holding the lacing extended along the frame, mechanism for supplying a metallic blank for a tip, means for securing the tip upon the extended lacing, and means for automatically dividing the tip and severing the lacing.

6. In a machine for making laces in combination with means for temporarily holding the lacing extended, an adjustable carriage mounted on the frame, means for holding and feeding a ribbon of thin metal, a cutter for severing a blank from the end of the ribbon, a feed device for moving the severed blank along the lacing, means for attaching the blank upon and securing it to the lacing, means for drawing the lacing along the frame, and means for dividing the tip and severing the lacing.

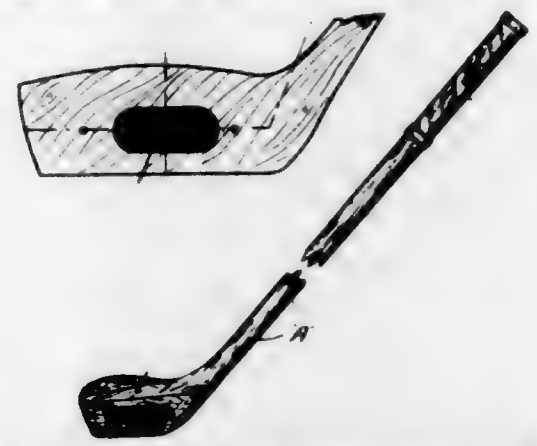
7. In a machine for automatically applying a tip or like device to an extended cord or lacing and securing it thereto, a slide for moving the blank lengthwise along the lacing and including pivoted fingers adapted to engage the edge of the blank, one of said fingers having a lengthwise movement with reference to the other finger.

8. In a machine for automatically applying a tip or like device to an extended cord or lacing and securing it thereto, a delivery-wheel with an adjustable clamp device and means for automatically grasping the end of a lacing and a cut-off device borne by the delivery-wheel and operated by a cam fixed in the path of movement of the cutter.

9. In a machine for tipping laces, means for supplying a continuous length of lacing to the machine, a carriage adjustable along the frame of the machine and supporting mechanism for applying a metallic tip to and securing it upon the lacing, and a delivery-wheel carrying near its periphery an automatic clamp for grasping the end of the lacing and an automatic cut-off for dividing the tip and severing the lacing.

10. In a machine for tipping laces, means for supplying a continuous length of lacing to the machine, means for holding the lacing extended along the frame of the machine, cam-wheels borne on the main shaft and severally engaging mechanisms for feeding a blank into place upon the lacing, for then feeding it lengthwise along the lacing and then closing it upon and securing it to the lacing, and a delivery-wheel carrying an adjustable clamp adapted to grasp the end of the lacing, and a cut-off device for dividing the tip and severing the lacing.

690,996. GOLF-CLUB. WILLIAM M. RAMSOM, WARREN, R. I. Filed Jan. 23, 1901. Serial No. 44,411. (No model.)



Claim.—1. In a golf-club, a weight located in the head and extending from the rear face toward the striking-face of the head, said weight diminishing in horizontal width from a horizontal line whose extremities lie in the interior of the head, toward said faces.

2. In a golf-club, a weight located in the head and extending from the rear face toward the striking-face thereof, said weight being substantially elliptical in horizontal section with the extremities of the major axis of the ellipse lying in the interior of the head.

3. In a golf-club, a weight located in the head and extending from the rear face to a place in close proximity to the striking-face of the head.

4. In a golf-club, a weight located in the head and extending from the rear face to a place in close proximity to the striking-face of the head, said weight diminishing in vertical section from an interior part toward said faces.

5. In a golf-club, a weight located in the head and extending from the rear face to a place in close proximity to the striking-face of the head, said weight diminishing in horizontal width from a part lying inside of the head toward said faces.

6. In a golf-club, a weight located in the head and extending from the rear face to a place in close proximity to the striking-face of the head, said weight being substantially elliptical in horizontal section with one axis of the ellipse lying in the interior of the head.

7. In a golf-club having a head composed of a plurality of connected members, a weight located in the head and having different portions disposed respectively in different members.

8. In a golf-club having a head composed of a plurality of connected members in which the adjoining faces are substantially transverse to the base, a weight located in the head and having different portions disposed respectively in different members, said weight diminishing in vertical section from one of said faces to the extremities of the weight.

9. In a golf-club having a head composed of a plurality of connected members in which the adjoining faces are substantially transverse to the base, a weight located in the head and having different portions disposed respectively in different members, said weight diminishing in horizontal width from one of said faces to the extremities of the weight.

10. In a golf-club having a head composed of a plurality of connected members in which the adjoining faces are substantially transverse to the base, a weight located in the head and having different portions disposed respectively in different members, said weight being substantially elliptical in section transverse to the striking-face with one axis of the ellipse lying in one of said faces.

11. In a golf-club having a head composed of a plurality of connected members in which the adjoining faces are substantially transverse to the base, a weight located in the head and having different portions disposed respectively in different members, said weight being substantially elliptical in section transverse to the striking-face with the minor axis of the ellipse lying in said one of said faces.

12. In a golf-club having a head composed of a plurality of connected members, one of the members being a back block that is joined to the adjacent members with the adjoining faces substantially transverse to the base, a weight having different portions disposed respectively in different members and extending through the said back block.

13. In a golf-club having a head composed of a plurality of connected members, one of the members being a back block that is joined to the adjacent member with the adjoining faces substantially transverse to the base, a weight having different portions disposed respectively in different members and extending through the said back blocks, said weight diminishing in vertical section from said transverse adjoining faces toward its extremities.

14. In a golf-club, a head composed of an intermediate member having a back block and also a face block attached thereto in such a manner that the adjoining faces are substantially transverse to the base, and a weight having different portions lying respectively in each of said three members of the head.

15. In a golf-club, a head composed of an intermediate member having a back block and also a face block attached thereto in such a manner that the adjoining faces are substantially transverse to the base, and a weight extending through the back block and through said intermediate member and into said face block from its adjoining face.

16. In a golf-club, a head composed of an intermediate member having a back block and also a face block attached thereto in such a manner that the adjoining faces are substantially transverse to the base, and a weight located partly in each of said three members of the head, said weight being of maximum cross-section at the joining face of the back block.

17. A golf-club having a head composed of an intermediate member to which a back block and a face block are joined on planes substantially transverse to the base of the head, in combination with a weight located partly in each of said three members of the head, said weight being substantially elliptical in section transverse to the striking-face of the head.

18. In a golf-club having a head composed of three members, the combination of an intermediate member to which a face block and a back block are joined on planes transverse to the base, said intermediate member having a horizontal aperture tapering from one of said joining faces to the other, said back block having a horizontal aperture registering with the said aperture in the intermediate member and tapering from said joining face to the outer side of the block, said face block having a cavity in its joining side that registers with said aperture in the intermediate member, and a weight located in the said apertures and said cavity and engaging the walls thereof.

19. In a golf-club having a head composed of three members, the combination of an intermediate member to which a face block and a back block are joined on planes transverse to the base, said intermediate member having a horizontal aperture tapering from its end adjacent to the back block to the other end, said back block having a horizontal aperture registering with the said aperture in the intermediate member and tapering from said joining face to its outer end, said face block having a cavity in its joining side that registers with said aperture in the intermediate member, and a weight located in the said apertures and in said cavity and engaging the walls thereof.

20. In a golf-club having a head composed of three members, the combination of an intermediate member to which a face block and a back

block are joined on planes transverse to the base, said intermediate member having a horizontal aperture tapering from one of said joining faces to the other, said back block having a horizontal aperture registering with the said aperture in the intermediate member and tapering from said joining face to the outer side of the block, said face block having a cavity in its joining side that registers with the said aperture in the intermediate member, said apertures and cavity being substantially elliptical in horizontal section, and a weight located in the said apertures and said cavity and engaging the walls thereof.

21. In a golf-club the combination of a shaft or handle extending down into and forming the center portion of the head, a face block and a back block attached thereto, a metal weight inserted from the back and extending through the back block and center portion of the head into the front block, substantially as described.

22. In a golf-club, a shaft having an integral portion extending out therefrom at an angle, into and forming a central portion of the head, a face block and a back block attached to said central portion only in combination with an oblong metal weight placed in the head with its longest axis at right angles to the line of the shaft and in direct line with the point of impact of the force of the blow, said weight being made larger in the interior of the head and tapering toward the back side to prevent it from coming out, substantially as described.

690,997. BURGLAR-ALARM. WILLIAM H. REIFF, Philadelphia, Pa. Filed Mar. 22, 1901. Serial No. 53,174. (No model.)



Claim.—In a device of the character described, the combination with a support provided at its ends with a lug and a cartridge-chamber, respectively, and provided between said lug and chamber, with a housing of a plunger slidingly fitted to the ends of said housing a laterally-extending arm on said plunger adapted to be engaged with said lug, and a spring contained in said housing and tending normally to maintain said plunger in close relation to the cartridge-chamber, together with a concussion-plate loosely mounted on said plunger adjacent to the housing.

690,998. RAILWAY-TIE. JOHN J. RIDGWAY, Rosebank, N. Y. Filed Feb. 19, 1901. Serial No. 47,991. (No model.)



Claim.—1. A railway-tie comprising a body portion of plastic material with posts projecting therefrom and provided with heads formed thereon adapted to extend in proximity to the rail, and adjustable clamping means adapted to be inserted between said heads and the rail to clamp the rail in place.

2. A railway-tie comprising a body of plastic material, a tie-bar embedded therein, posts extending from said tie-bar and projecting from said body of plastic material and provided with heads formed thereon, and adjustable clamping means adapted to engage with said heads and with the rail.

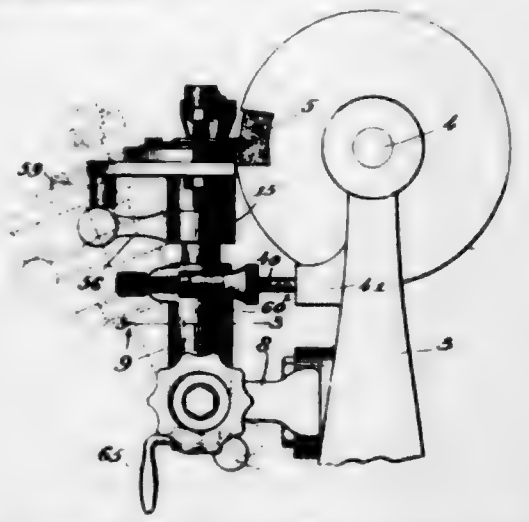
3. The combination with a tie comprising a body portion of plastic material, a tie-bar embedded therein and posts projecting from said tie-bar through said body portion and provided with heads formed thereon, of clamping-plates adapted to rest on the tie and on the rail, and pins adapted to be driven between said clamping-plates and said heads.

4. A railway-tie comprising a body of plastic material, a wooden block resting thereon and extending the full width of the tie, posts projecting from the body of plastic material provided with heads formed thereon, and clamping means adapted to engage with said heads and with the rail, said wooden block being arranged to come beneath the rail only and furnish an elastic support for same.

5. As an article of manufacture, a tie comprising an integral body of plastic material, a tie-rod embedded therein and posts extending from said tie rod, projecting from said body of plastic material and provided with heads formed integral thereon adapted to extend into proximity with the rail-base on each side, and to afford support for the fastening devices inserted between said heads and the rail-base.

690,999. GRINDING-MACHINE. EDWARD RIVETT, Boston, Mass. Filed May 8, 1901. Serial No. 59,228. (No model.)

Claim.—1. In a machine for grinding milling-machine cutters, an abrasive wheel, a work-supporting device adapted to be moved toward and from the abrasive wheel, said work-supporting device including a centering device for the cutter, and an index-pawl adapted to engage the outside face of the teeth of the cutter.



2. In an apparatus of the class described, an abrasive wheel, a work-support adapted to be moved toward and from the abrasive wheel, said work-support including an adjustable centering device for the cutter, and an adjustable index-pawl adapted to be engaged by the ends of the teeth of the cutter to thereby angularly position the cutter.

3. In a machine for grinding milling-machine cutters, an abrasive wheel, a work-supporting device adapted to be moved toward and from the abrasive wheel, said work-supporting device including a centering device for the cutter, an index-pawl adapted to engage the outside face of the teeth of the cutter, and an adjustable stop device to limit the movement of the work-supporting device toward the abrasive wheel

4. In a machine of the class described, an abrasive wheel, a work-support adapted to be moved toward and from the abrasive wheel, said work-support including a table, an adjustable index-pawl pivoted thereto, and an adjustable centering device for the cutter, the index-pawl operating to give to the cutter correct position for grinding.

5. A work-supporting attachment for grinding-machines, comprising an adjustable table, an adjustable centering device supported thereon and adapted to hold the cutter to be ground, and an index-pawl adapted to be engaged by the ends of the teeth of the cutter.

6. A work-supporting attachment for grinding-machines, comprising a holder or stand, a table vertically adjustable therein, a centering device on said table and adapted to be adjusted toward and from the abrasive wheel, and an index-pawl pivoted to the table and adapted to be engaged by the ends of the teeth of the cutter to thereby properly position the cutter with relation to the abrasive wheel.

7. In a machine of the class described, an abrasive wheel, a work-support mounted to be moved toward and from the abrasive wheel, an adjustable stop for limiting the movement of the work-support toward the abrasive wheel, said work-support including a vertically-adjustable table, a centering device supported on the table and adjustable toward and from the abrading-wheel, and an index-pawl pivoted to the table and operating to give the correct position to the cutter.

8. In an apparatus for grinding toothed cutters, an abrasive wheel, a work-support adapted to be moved toward and from the abrasive wheel, said work-support comprising a stand, a table vertically adjustable therein, a centering device supported on said table and mounted to move about a vertical axis, means for locking the said centering device to the table in any of its adjusted positions, and an index pawl or stop to engage the teeth of the cutter and properly position the same for grinding.

9. A machine for grinding toothed cutters, comprising an abrasive wheel, a work-support including a vertically-adjustable table, a centering device carried thereby, said centering device comprising a plate mounted to turn about a vertical axis, and having extended from its upper face a projection eccentric to the axis of the plate, said projection being adapted to have a cutter placed thereover, a centering-cone on said projection adapted to engage the central aperture in said cutter, and means to properly position the cutter for the grinding operation.

10. In a grinding-machine, an abrasive wheel, a cutter-holding device adapted to be moved toward and from the abrasive wheel, said device comprising a table, centering means for the cutter to be ground and adjustably secured to said table, and means for allowing a slight free turning movement of the table about a vertical axis whereby the cutter-tooth being ground may be brought against the face of the abrasive wheel.

11. In a grinding-machine, an abrasive wheel, a work-support adapted to be moved toward and from the abrasive wheel, said support comprising a table adjustable about a vertical axis, a centering device for the

cutter to be ground, adjustably secured to the table, said centering device supporting the cutter at one side of the line of the vertical axis of the table, and means for allowing a slight free turning movement of the table about its axis whereby the cutter-tooth being ground may be brought against the face of the abrasive wheel after the work-support has been moved to its operative position.

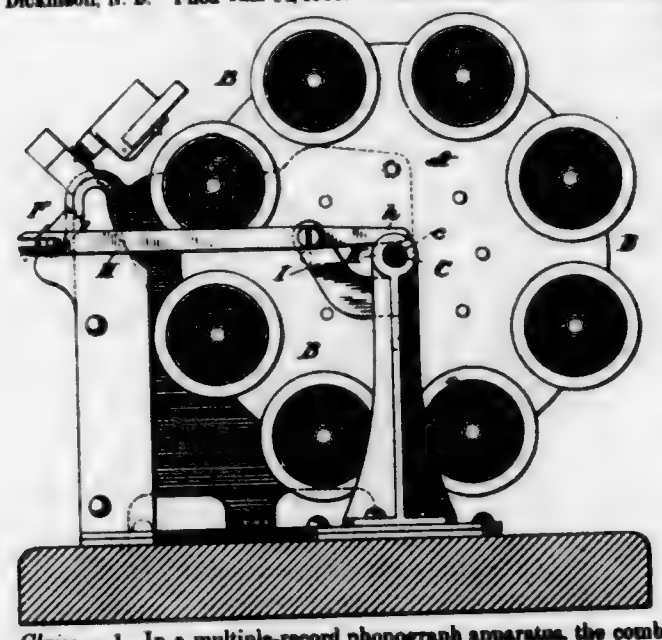
12. In a grinding-machine, an abrasive wheel, a cutter-holding mechanism adapted to be moved at right angles to the axis of the abrasive wheel, said cutter-holding mechanism comprising a table adjustable about a vertical axis, a centering device for the cutter adjustably secured to said table, a stop for limiting the movement of the table toward the wheel, and means for allowing a limited free turning movement of the table about its axis whereby after the table has been brought into operative position the cutting-face of each tooth of the cutter may be brought against the face of the abrasive wheel.

13. In a grinding-machine, an abrasive wheel, a work-support adapted to be moved toward and from said abrasive wheel, said support comprising a table adjustable about a vertical axis, a centering device for the cutter to be ground, adjustably secured to the table, said centering device supporting the cutter at one side of the line of the vertical axis of the table, means for allowing a slight free turning movement of the table about its axis whereby the cutter-tooth being ground may be brought against the face of the abrasive wheel after the work-support has been moved to its operative position, and an index-pawl adapted to be engaged by the outer edges or ends of the teeth of the cutter as they are ground, said index-pawl serving to properly position the cutter about its axis.

14. In a machine for grinding toothed cutters, an abrasive wheel, a work-supporting device mounted to swing toward and from the said wheel and adjustable in a line parallel to the axis of the wheel, a stop to limit the movement of the work-supporting device toward the abrasive wheel, said work-supporting device comprising a table adjustable about a vertical axis, a plate supported on said table and having an independent movement about the same vertical axis, means for adjustably securing the plate to the table, said plate having an eccentric projection adapted to receive a cutter, means for centering said cutter on said projection, and an index-pawl pivoted to the table and adapted to be engaged by the ends of the cutter-teeth.

15. In a machine for grinding toothed cutters, an abrasive wheel, a work-supporting device mounted to swing toward and from the abrasive wheel and adjustable in a line parallel to the axis of the wheel, a stop to limit the movement of the work-supporting device toward the abrasive wheel, said work-supporting device comprising a table adjustable about a vertical axis, a plate supported on said table and having an independent movement about the same vertical axis, means for adjustably securing the plate to the table, said plate having an eccentric projection adapted to receive a cutter, means for centering said cutter on said projection, an index-pawl pivoted to the table and adapted to be engaged by the ends of the cutter-teeth, and means for allowing a limited free turning movement of the table about its axis whereby after the work-support has been moved to its operative position the table may be turned slightly to bring the cutting-face of the cutter against the face of the abrasive wheel.

691,000. PHONOGRAPH APPARATUS. ARTHUR B. ROBINSON, Dickinson, N. D. Filed Jan. 14, 1901. Serial No. 43,200. (No model.)

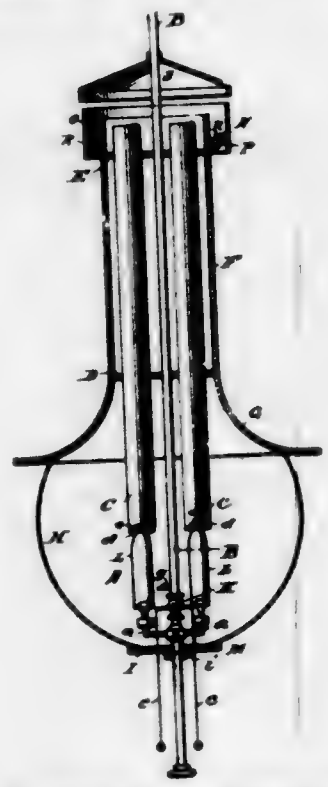


Claim.—1. In a multiple-record phonograph apparatus, the combination with the multiple-record carrier, reproducer and screw feed-shaft with which the reproducer is engaged when lowered and disengaged from when raised, of a locking mechanism operated by the raising of the reproducer to lock the multiple carrier when in a normal position against manipulation.

2. In a multiple-record phonograph apparatus, the combination with the multiple-record carrier, reproducer and screw feed-shaft with which the reproducer is engaged when lowered and disengaged from when raised, of a locking mechanism controlled by the up-and-down movement of the reproducer, and acting either to prevent the descent of the reproducer if the carrier is not in a normal position, or on the descent of the reproducer to lock the carrier if it is in a normal position.

3. In a multiple-record phonograph apparatus, the combination of the multiple-record carrier having and endwise-movable annularly-grooved shaft, the rocking reproducer, the screw-feed-shaft with which it is engaged when lowered and from which it is disengaged when raised, the rocking trough controlling the position of the reproducer, and a locking-lever actuated by the trough to either enter the groove and lock the carrier if in a normal position when the reproducer descends, or to abut against the shaft and prevent the descent of the reproducer if the carrier is not in a normal position.

691,001. GAS ARC-LAMP. JOHN K. RUSSELL and WILLIAM F. CLAUSEN, Sheboygan, Wis. Filed June 28, 1901. Serial No. 66,373. (No model.)



Claim.—1. In a gas arc-lamp, the combination of a cluster of lamps with a draft-flue for each lamp, a casing, disks within the casing for supporting the draft-tubes, mantles below said draft-tubes, and means for attaching said mantles to said draft-tubes, substantially as described.

2. In a gas arc-lamp the combination of a cluster of lamps, with a draft-tube for each lamp, a casing, disks within the casing for supporting the draft-tube and preventing the circulation of air outside of the same, mantles supported by the ends of the draft-tubes and means for supporting the casing and lamps.

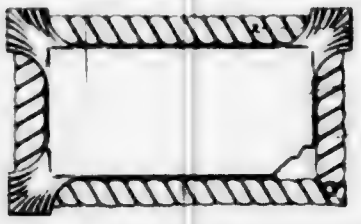
3. In a gas arc-lamp the combination of a cluster of lamps with a draft-flue for each lamp, a casing, disks within the casing for supporting the draft-tubes and preventing the circulation of air outside of the same, slots in the ends of the draft-tubes, rods supported in the slots, mantles supported on the rods and means for supporting the casing and the lamps.

4. In a gas arc-lamp the combination of a lamp with a draft-flue, a casing, disks within the casing, for supporting the flue, curved slots near the end and on each side of the flue, a rod supported in the slots and mantle carried by the rod.

5. In a gas arc-lamp, the combination of a cluster of lamps with a draft-flue for each lamp, a casing, disks within the casing for supporting the draft-flues and preventing the circulation of air outside of the same, a hood formed on said casing, a globe resting against said hood, a tube supporting said disks, casing and globe, and mantles within said globe and supported by said draft-flues, substantially as described.

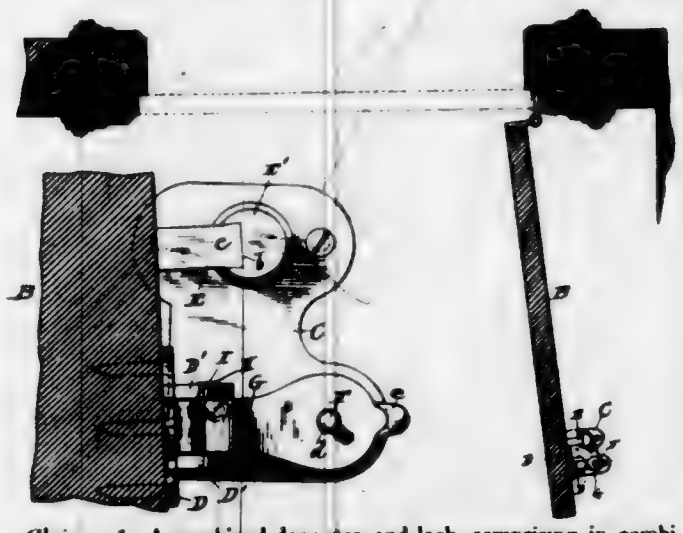
691,002. CASKET ORNAMENT. EDWARD R. SARGENT, New Haven, Conn., assignor to Sargent & Co., New Haven, Conn., a Corporation of Connecticut. Filed Nov. 2, 1901. Serial No. 80,953. (No model.)

Claim.—1. A two-part casket ornament, or similar article, consisting of a flat plate with one or more lateral projections, and a continuous ornamental border over which said projection or projections extend, and to which the same are secured, substantially as described.



2. A two-part casket ornament, or similar article, consisting of a flat plate with one or more lateral concave projections, each having on its under side a screw-socket, and a continuous ornamental border over which said projection or projections extend, and which is provided with one or more perforations corresponding to and adapted to receive said socket or sockets, together with means for securing said border to said socket or sockets, substantially as described.

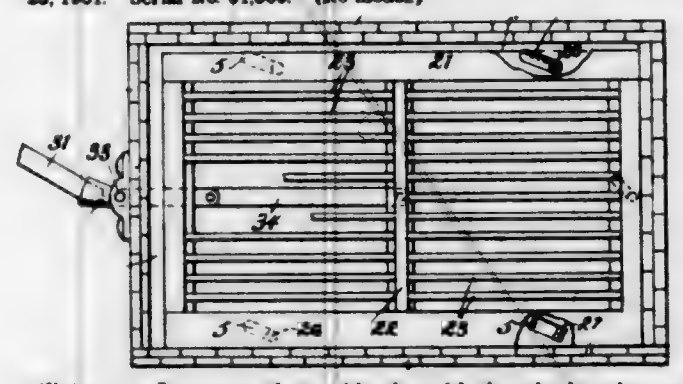
691,008. COMBINED DOOR STOP AND LOCK. GEORGE H. SAWIN, Worcester, Mass. Filed Apr. 28, 1900. Serial No. 14,700. (No model.)



Claim.—1. A combined door stop and lock, comprising in combination the floor-plate provided with an elastic bumper and a holding pin or projection; the door-plate, a latch pivoted thereto, adapted to be engaged and disengaged to and from the aforesaid pin or projection, and a spring for exerting a pressure upon said latch, substantially as and for the purpose set forth.

2. The plate D, secured to door B and provided at its lower end with the parallel ears D' D'; latch G, provided with a transverse hole near its outer end and whose inner end is fitted between said ears D' D', and pivot-pin H, passed transversely through said ears and latch, in combination with plate C, secured to floor A and having the pin F projecting vertically therefrom; the elastic bumper *c*, and means for holding it in position on said plate C, substantially as and for the purpose set forth.

691,004. GRATE. GEORGE SAYLOR, Mattawana, Pa. Filed May 23, 1901. Serial No. 61,569. (No model.)



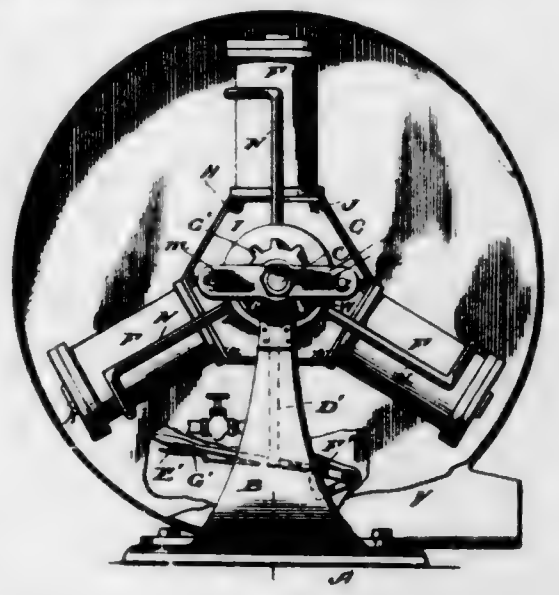
Claim.—1. In a grate, the combination with the ash-pit casing, and a rectangular plate carried thereby and having oblique grooves in its upper face; of the grate proper comprising a rectangular frame containing the grate-bars, said frame having oblique grooves in its under face normally registering with those in the plate, rolling bearings in said registering grooves, and means for agitating the grate.

2. In a grate, the combination with a rectangular support, the grate proper having a rectangular frame and grate-bars, the support and the frame having normally registering grooves which stand at an angle to both the length and breadth of the grate, and rolling bearings in said registering grooves; of shaking mechanism adapted to impart a direct inward and outward movement to the grate in the direction of it: longitudinal axis.

3. In a grate, the combination with the support, the grate-frame registering therewith and containing the grate-bars, said support and frame having registering grooves oblique to the longitudinal axis of the grate, and roller-bearings in said grooves; of shaking mechanism comprising an oscillating member, a bearing for supporting the same, a handle therefor, and connections between such member and the grate whereby the latter is given two movements for each complete movement of the handle.

4. The combination with a grate and its support having registering grooves oblique to the longitudinal axis of the grate, roller-bearings within said grooves, and the ash-pit casing by which said support is carried; of a bearing attached to the support, an oscillating member carried by such bearing, a handle removably attached to this member, and connections between the inner portion of the member and the grate whereby the latter is given two movements for each complete movement of the handle.

691,005. ENGINE. WILLIAM SCANTLEBURY, Sr., Washington, D. C., assignor, by direct and mesne assignments, of two-thirds to R. Bathurst Rives, Washington, D. C., and J. J. Rives, Baltimore, Md. Filed Sept. 6, 1900. Serial No. 29,458. (No model.)



Claim.—1. In an engine such as described, in combination with the multicylinders revolubly mounted upon a fixed shaft having a central crank portion, said cylinders provided with ports *a* communicating with steam-conduits leading to a steam-supply valve mounted upon the fixed shaft, reciprocating pistons within the cylinders and revolubly connected with the crank portion of the fixed shaft, piston-valves *q*, *q*, an eccentric A', strap Z, rod D' and operating-lever E', substantially as and for the purposes set forth.

2. In an engine, the combination of pillars B, a continuous fixed shaft mounted upon said pillars and formed with a central crank portion D, a series of radiating cylinders rigidly connected with a central hub revolubly mounted upon the fixed shaft, reciprocating pistons within the cylinders and having the piston-rods thereof rotatively connected directly to the central crank portion of the fixed shaft, steam-ports at the outer ends of the cylinders, conduits from said ports, and a supply-valve connected with said conduits and mounted upon one end of the fixed shaft and automatically and longitudinally adjustable thereon, substantially as and for the purposes described.

3. In combination with the radiating cylinders rotatively mounted upon a fixed crank-shaft and provided with reciprocating pistons having their piston-rods rotatively connected with the crank portion of the fixed shaft, ports leading from the outer ends of the cylinders to steam-conduits, connected with a two-part supply-valve mounted upon one end of the fixed shaft, one portion of said valve being connected rigidly with the hub of the cylinders and rotative therewith upon the shaft, and the other portion capable of longitudinal adjustment upon the fixed shaft, substantially as and for the purposes set forth.

4. The supply-valve mounted upon one end of the continuous fixed shaft, one portion of said valve being fixed to the hub of the radiating cylinders and communicating with the steam-conduits leading to the ports in said cylinders, and the other portion of said valve adapted to longitudinal adjustment upon the fixed shaft, and yielding pressure devices mounted upon the fixed shaft for holding said valve portion in proper adjustment with the rotating portion of the valve, substantially as hereinbefore set forth.

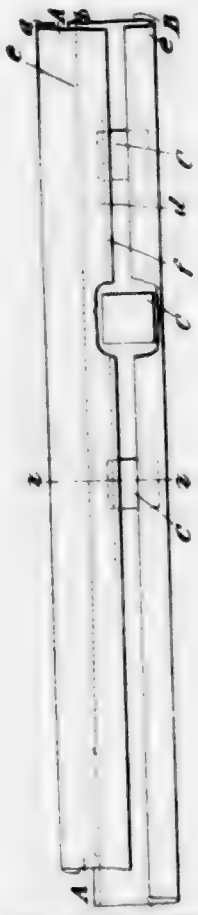
5. The valve composed of the two parts O, O', the part O formed

with circular channel *g* and ports *h*, and the part O' formed with circular channel *i*, intersecting orifices *j*, and trunnions *f*, in combination with springs *k*, equalizing-bar X, and means for securing the springs and bar in position substantially as and for the purpose set forth.

6. In an engine such as described and with cylinders radiating from a hub G, mounted upon a fixed shaft and having one portion of a supply-valve secured thereto, said hub reduced and extended through the second or longitudinally-adjustable portion of the supply and exhaust valve, and having secured upon its projecting end a sprocket-wheel or other means for transmitting power, substantially as hereinbefore set forth.

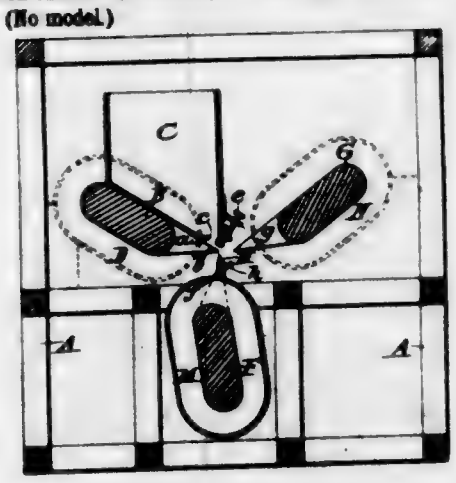
7. The valve composed of the two parts O, O', the part O formed with a circular channel *g* and ports *h*, and the part O' formed with a circular channel *i* and transverse intersecting orifices *j*, substantially as and for the purposes set forth.

691,006. SUPPLEMENTAL WAISTBAND FOR PANTS. SOLOMON SCHELINSKY, New York, N. Y. Filed Aug. 17, 1901. Serial No. 72,323. (No model.)



Claim.—A waistband for pants, comprising a back-band composed of the two strips A and B secured together to provide an overlapping tongue *d*, and elastic strips secured to the lower edge of the strip B, and to the lower edge of the overlapping tongue and below the point of attachment of the strip A to the strip B, and a buttonhole-band attached to the lower edge of the overlapping tongue, the lower edge of the buttonhole-band being secured to the lower edge of the back-band, the stitching being intermitted between the place on the back-band where the elastic strips are located, so as to leave the lower edge of the buttonhole-band at this point free of the back-band, as and for the purposes set forth.

691,007. MAGNETIC SEPARATOR. FRIEDRICH A. M. SCHIECHEL, Frankfort-on-the-Main, Germany. Filed Nov. 26, 1898. Serial No. 697,534. (No model.)



Claim.—1. In a magnetic separator, the combination of a supply-magnet having a tapered pole-piece, a plurality of magnets the pole-pieces of which are of like polarity with respect to each other, but of unlike polarity with respect to the supply-magnet, the pole-pieces of similar polarity facing the pole-piece of the supply-magnet with an intervening space between, and mechanism for feeding the material to be treated over the edge of the supply-magnet and between it and the other two magnets.

2. In a magnetic separator, the combination of a supply-magnet having a tapered pole-piece, and arranged in a horizontally-inclined position so that the material to be treated will gravitate over its edge, and a plurality of magnets the pole-pieces of which are of like polarity with respect to each other, but of unlike polarity with respect to the supply-magnet, the pole-pieces of similar polarity facing the pole-piece of the supply-magnet with an intervening space between through which the material passes from the supply-magnet.

3. In a magnetic separator, the combination of a supply-magnet having a tapered pole-piece over the edge of which the material to be treated passes, and a plurality of magnets the pole-pieces of which are of opposite polarity to that of the supply-magnet, one of said last-named magnets having its pole-piece arranged in substantially the vertical plane of the pole-piece of the supply-magnet, and below the same, and the pole-piece of another of the last-named magnets being arranged in substantially the horizontal plane of the supply-magnet with intervening spaces between the respective pole-pieces.

4. In a magnetic separator, the combination of a supply-magnet having a tapered pole-piece and arranged in a horizontally-inclined position so that the material to be treated will gravitate over its edge, and a plurality of magnets whose pole-pieces are of opposite polarity to that of the supply-magnet, one of said last-named magnets having its pole-piece arranged below and in substantially the vertical plane of that of the supply-magnet, and another of said last-named magnets being arranged in a horizontally-inclined position with its pole-piece in substantially the horizontal plane of that of the supply-magnet with intervening spaces between the respective pole-pieces.

5. In a magnetic separator, the combination of three magnets having tapered pole-pieces pointing toward one another with intervening spaces between the respective pieces, and over the edge of one of which pieces the material to be treated is adapted to pass into and through the space between the other pieces.

6. In a magnetic separator, the combination of three magnets having tapered pole-pieces pointing toward one another with intervening spaces between the respective pieces, over the edge of one of which pieces the material to be treated is adapted to pass into and through the space between the other pieces, and an energizing-coil on that magnet only from which the material passes to the intermediate space.

7. In a magnetic separator, the combination of three magnets having tapered pole-pieces pointing toward one another in a substantially radial arrangement, and a central space intermediate the respective pole-pieces, and means for passing the material to be treated from the edge of one of the pole-pieces into the intermediate space.

8. In a magnetic separator, the combination of three magnets having tapered pole-pieces pointing toward one another in a substantially radial arrangement, some of said magnets having energizing-coils, and others consisting of cores only.

9. In a magnetic separator, the combination of a magnet having a tapered pole-piece arranged in a horizontally-inclined position, a feed-hopper located above said magnet and having its outflow near the edge of the pole-piece, and a horizontal lip or flange projecting within the hopper to deflect the material slightly just before its passage out of the hopper.

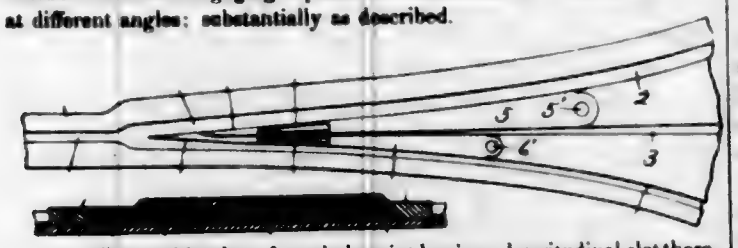
10. In a magnetic separator, the combination of a magnet having a tapered pole-piece and arranged in a horizontally-inclined position, a feed-hopper located above said magnet and having its bottom inclined and its outflow near the edge of the pole-piece, a horizontal lip or flange on one side of said outflow to deflect the material slightly just prior to its passage out of the hopper, and an adjustable gage at the opposite side.

11. In a magnetic separator, the combination of a vertically-disposed magnet having a tapered pole-piece, and arranged in the path of delivery of the material to be treated, said magnet being adapted to receive the separated constituents of the material on opposite sides thereof, and an adjustable cap of non-magnetic material secured to the edge of the pole-piece.

691,008. DEVICE FOR OPERATING STREET-RAILWAY SWITCHES. WILLIAM R. SCHILLING, Laporte, Ind., and ORVILLE M. RIDGWAY, Kansas City, Mo. Filed Apr. 25, 1901. Serial No. 57,414. (No model.)

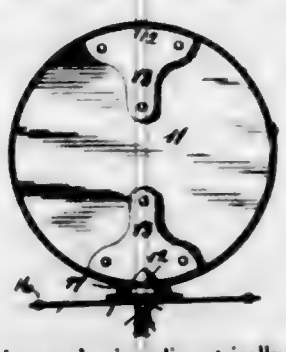
Claim.—1. A switch-operating apparatus comprising a vertical shaft carried by a car, a switch-operating shoe, having forwardly-converging sides, secured on the lower end of said shaft, a collar secured on said shaft

a coiled spring supporting said collar, a stationary support for said spring, a slotted pedal straddling said shaft, a collar secured on said shaft beneath said pedal, a crank for rocking said shaft, and a casting having notches therein for engaging a portion of said crank, for holding said shoe at different angles; substantially as described.



2. The combination of a switch-point having a longitudinal slot therein, a spring-supported block lying within said slot and normally projecting above the switch-point, a plurality of springs for yieldingly supporting said block, and means carried by a moving car for throwing the switch-point by engaging said block, substantially as described.

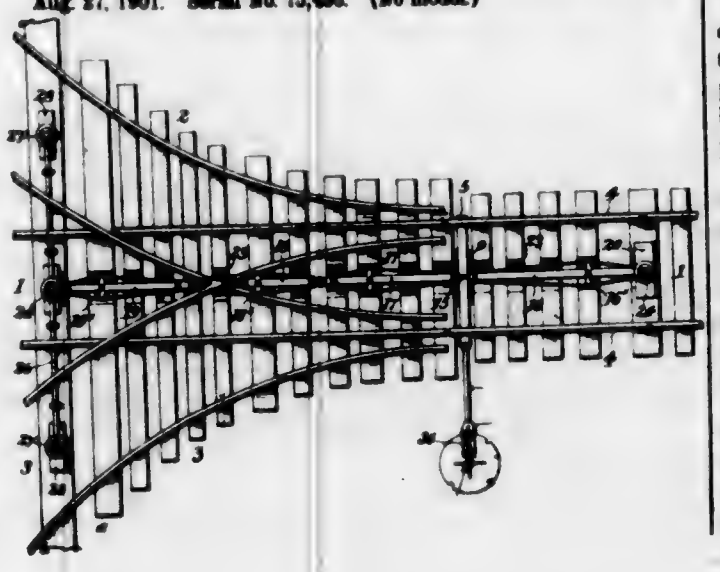
691,009. LOCKING MEANS FOR DAMPERS. JOSEPH SCHUESSLER, Cincinnati, Ohio. Filed Feb. 13, 1901. Serial No. 47,105. (No model.)



Claim.—1. A damper having diametrically opposite trunnions by which it is to be supported within a conduit, a locking-disk 17 attached to the outside of this latter and having a central perforation through which one of these trunnions extends, a lever mounted on this extension, a spring on the outside of the lever and holding the same yieldingly against the locking-disk, notches arranged around the face of this latter and two projections on the opposite side of the lever and diametrically apart with reference to the locking-disk, the number of these notches being an uneven one, so that while one of them is occupied by one of the projections, the other one of these latter is in the diametrically opposite space between two notches.

2. A damper having diametrically opposite trunnions by which it is to be supported within corresponding bearings within a conduit, the support being such as to confine the damper between its bearings and hold the same immovable except for rotation around its supported axis, one of the trunnions being extended beyond the walls of the conduit, a circular locking-disk 17, having a central perforation to be attached to the outside of the conduit in a position where such perforation receives the extended trunnion, a lever mounted on this latter in a manner to be rigidly connected thereto for rotating it, but free to slide thereon toward or from the face of the locking-disk, which movement is independent from and does not affect the damper or any of its parts, a spring to yieldingly hold the lever against the face of the locking-disk and projections on one and depressions on the other adapted to engage each other to hold the damper in its adjusted position.

691,010. AUTOMATIC RAILWAY-SWITCH. CARL SCHWARZ, Quincy township, and WILLIAM H. DRITTLER, Hancock, Mich. Filed Aug. 27, 1901. Serial No. 73,486. (No model.)



Claim.—1. In a railway-switch, the combination of means for locking the switch-rails in their shifted positions against hand operation and means for automatically operating said switch-rails by a passing train when in such locked condition, substantially as described.

2. In a railway-switch, a switch-bar connected to the switch-rails, and a switch-stand connected with said switch-bar for throwing said switch-rails by hand, combined with means for locking said switch-bar in its shifted positions against operation by hand but permitting automatic operation thereof, and means for unlocking said switch-bar, whereby the switch may be operated by hand when desired, substantially as described.

3. In a railway-switch, a switch-bar connected to the switch-rails, and a switch-stand connected with said switch-bar for throwing said switch-rails by hand, combined with means for automatically operating said switch-rails, means for locking said switch-bar in its shifted positions against operation by hand but permitting automatic operation thereof, means for unlocking said switch-bar, and means for maintaining said switch-bar in such unlocked condition, whereby the switch may be operated by hand when desired, substantially as described.

4. In a railway-switch, a switch-bar connected to the switch-rails, combined with a series of levers connected with said switch-bar and comprising a single lever arranged between the switch-rails and a compound lever consisting of a series of bars pivoted together at their ends and arranged in alinement between the main track adjacent to the sidings, said levers being adapted to be engaged by a passing train to thereby automatically operate the switch, substantially as described.

5. In a railway-switch, a switch-bar connected to the switch-rails, combined with a series of levers connected to said switch-bar and comprising a single lever arranged between the switch-rails and a compound lever arranged between the main track adjacent to the sidings, a sliding bar connected directly with the free end of said compound lever and extending to the sidings, said levers and bar being adapted to be engaged by a passing train to thereby automatically operate the switch, substantially as described.

6. In a railway-switch, a switch-bar connected to the switch-rails, combined with a series of levers connected to said switch-bar and comprising a single lever arranged between the switch-rails and a compound lever arranged between the main track adjacent to the sidings, a sliding bar connected with said compound lever and extending to the sidings, and rollers mounted upon the free ends of said levers and bar adapted to be engaged by a moving train to thereby automatically operate the switch, substantially as described.

7. In a railway-switch, a switch-bar connected to the switch-rails, combined with a series of levers connected to said switch-bar and comprising a single lever arranged between the switch-rails and a compound lever arranged between the main track adjacent to the sidings, a sliding bar connected with said compound lever and extending to the sidings, and rollers on said levers, and bar having portions of different diameters adapted to be engaged independently by mechanism carried by a moving train, to throw the switch a greater or less distance, substantially as and for the purpose described.

8. In a railway-switch, a switch-shifting lever, comprising a bar having lateral lugs and independent brace-rods connected at their ends to said bar near its ends and engaging said lugs, substantially as described.

9. In railway-switch, a switch-shifting lever, comprising a bar adapted to be pivoted between its ends and provided with lateral lugs adjacent the pivotal point, and independent brace-rods connected to said bar near its ends and supported by said lugs, substantially as described.

10. In a railway-switch, a switch-shifting lever, comprising a bar adapted to be pivoted between its ends and having lateral lugs adjacent the pivotal point, independent brace-rods connected to said bar near its ends and supported by said lugs, and a friction-roller mounted upon one end of said bar, substantially as and for the purpose described.

11. In a railway-switch, a switch-shifting lever, comprising a bar adapted to be pivoted between its ends and having lateral lugs adjacent the pivotal point, brace-rods connected to said bar at its ends and supported by said lugs, and a friction-roller mounted upon one end of said bar and having portions of different diameters, substantially as and for the purpose described.

12. In a railway-switch, a switch-shifting lever provided with a friction-roller having portions of different diameters, substantially as and for the purpose described.

13. In a railway-switch, a switch-bar connected to the switch-rails, a switch-stand to which said switch-bar is connected for operation by hand, and means for automatically operating said switch-bar, combined with a locking-plate carried by said switch-bar, a pillow-block in which said locking-plate is slidably mounted, a spring-bolt in said pillow-block adapted to engage said locking-plate to lock said switch-bar against hand operation but permitting automatic operation thereof by a passing train or locomotive, and means connected with said switch-stand for disengaging said bolt from the locking-plate, whereby the switch may be operated by hand when desired, substantially as described.

14. In a railway-switch, the combination with the switch-rails, of a switch-bar, a locking-plate carried thereby having a flanged base, a pillow-block grooved to receive said flanged base, and a spring-bolt within said pillow-block adapted to engage the locking-plate, substantially as described.

15. In a railway-switch, a pillow-block, a spring-pressed bolt arranged therein and adapted to normally engage and lock the switch-bar, and a bolt-releasing lever, in combination with a switch-bar slidably mounted in said pillow-block, substantially as described.

16. In a railway-switch, a switch-bar connected to the switch-rails, a switch-stand to which said switch-bar is connected for hand operation, and means for automatically operating said switch-bar, combined with a locking-plate carried by said switch-bar, a pillow-block in which said locking-plate and switch-bar are slidably mounted, a spring-bolt in said pillow-block adapted to engage said locking-plate to lock said switch-bar against hand operation but permitting automatic operation thereof by a passing train or locomotive, a vertically-movable rod arranged adjacent said switch-stand, and connections between said rod and bolt, whereby said bolt may be disengaged from the locking-plate, substantially as and for the purpose described.

17. In a railway-switch, a switch-bar connected to the switch-rails a switch-stand to which said switch-bar is connected for hand operation, and means for automatically operating said switch-bar, combined with a locking-plate carried by said switch-bar, a pillow-block in which said locking-plate and switch-bar are slidably mounted, a spring-bolt in said pillow-block adapted to engage said locking-plate to lock said switch-bar against hand operation but permitting automatic operation thereof by a passing train or locomotive, a vertically-movable rod arranged adjacent said switch-stand, and connections between said rod and bolt, whereby said bolt may be disengaged from the locking-plate, a table on said switch-stand through which said rod passes, and means on said table and rod for locking the rod against operation, substantially as described.

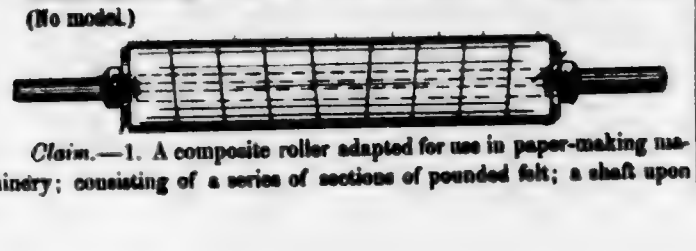
18. In a railway-switch, a switch-bar connected to the switch-rails, a switch-stand to which said switch-bar is connected for hand operation, and means for automatically operating said switch-bar, combined with a locking-plate carried by said switch-bar, a pillow-block in which said locking-plate and switch-bar are slidably mounted, a spring-bolt in said pillow-block adapted to engage said locking-plate to lock said switch-bar against hand operation but permitting automatic operation thereof by a passing train or locomotive, a vertically-movable rod arranged adjacent said switch-stand, and connections between said rod and bolt, whereby said bolt may be disengaged from the locking-plate, a table on said switch-stand through which said rod passes, a lug on said rod adjacent the opening in said table, and adapted to engage either side thereof, a notched plate pivoted to said table and adapted to embrace said rod and engage the lug thereon, and means for locking said plate in such position, substantially as and for the purpose described.

19. A switch-operating device, comprising a pair of guides adapted to be secured upon the end of a car or locomotive, stems or legs arranged in said guides and adapted to slide therein, shoes horizontally mounted upon the lower ends of said legs and having inclined or beveled edges extending toward each other, a shifting-lever also mounted upon the car or locomotive, connections between the ends of said shifting-lever and said legs, and a rack adapted to be engaged by the shifting-lever to maintain any given adjustment of the shoes, substantially as and for the purpose described.

20. A switch-operating device, comprising a pair of guides adapted to be secured upon the end of a car or locomotive, stems or legs arranged in said guides and adapted to slide therein, shoes horizontally mounted upon the lower ends of said legs and having inclined or beveled edges extending toward each other, a shifting-lever also mounted upon the car or locomotive, and having a detachable handle, connections between the ends of said shifting-lever and said legs, and a rack adapted to be engaged by the shifting-lever to maintain any given adjustment of the shoes, substantially as and for the purpose described

21. In an automatic railway-switch, switch-operating levers provided with friction-rollers having portions of different diameters, and switch-operating shoes carried by a car or locomotive and adapted to be adjusted to engage one or the other of the portions of said friction-rollers to thereby throw the switch a greater or less distance, substantially as described.

691,011. ROLLER FOR PAPER-MAKING MACHINERY. WILLIAM R. SHERMAN, Albany, N. Y. Filed July 15, 1901. Serial No. 68,448. (No model.)

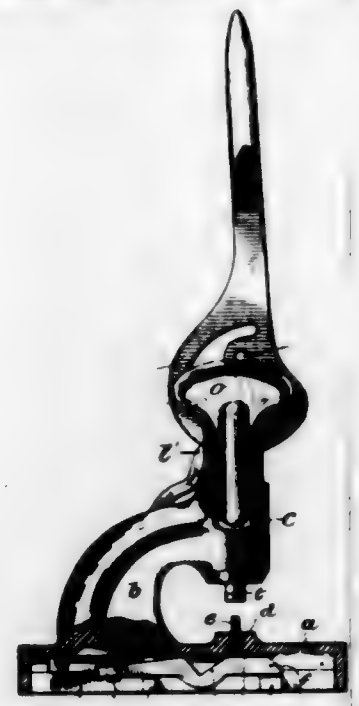


Claim.—1. A composite roller adapted for use in paper-making machinery; consisting of a series of sections of pounded felt; a shaft upon which said sections are mounted end to end; a means at each end of said series for exerting uniform pressure thereon simultaneously.

2. A composite roller adapted for use in paper-making machinery, consisting of a shaft; a series of sections of pounded felt mounted thereon, and arranged for preventing said sections from marking the paper brought in contact with said roller; with a means at each end of said series for exerting uniform pressure thereon simultaneously.

3. In paper-making machinery, a roller consisting of a shaft; a series of sections of pounded felt mounted thereon; said sections so constructed that when brought in contact with the wet paper they will not mark the same, substantially as described.

691,012. EYELETING-MACHINE. EDWARD L. SIBLEY, Bennington, Vt. Filed Apr. 8, 1901. Serial No. 54,911. (No model.)



Claim.—1. An eyelet-press, having a plunger, a punch-lever provided with a shoulder, a punch, and a spring-pulled sliding-plate incline, combined with a trip-lever engaging a hole in the said sliding-plate incline and adapted to be engaged by the shoulder of the punch-lever to forcibly retract the sliding plate, substantially as described.

2. In an eyelet-press, a sliding-plate incline, having a hole in one end, a spring for normally drawing the said incline in one direction, and a trip-lever engaging the said hole, combined with a punch, a plunger, and a punch-lever having a cam-surface and a shoulder coöperating with the trip-lever, substantially as and for the purpose described.

3. An eyelet-press, comprising a sliding-plate incline, a spring for normally drawing the said incline beneath the punch, a trip-lever engaging a hole in said incline, a punch-lever having a slot, a shoulder, and an internal cam-surface with which said trip-lever coöperates, and a plunger, substantially as described.

4. In an eyelet-press of the class described, a sliding-plate incline and a trip-lever positively connected with the same, combined with means to actuate the trip-lever and through it the sliding-plate incline to insure the return of the said incline.

691,018. MENUGRAPH. WILLIAM H. SMYTH, Berkeley, and KARL I. FAUST, San Francisco, Cal., assignors, by direct and mesne assignments, to the Faust Menugraph Company, San Francisco, Cal., a Corporation of California. Filed Oct. 11, 1900. Serial No. 32,785. (No model.)

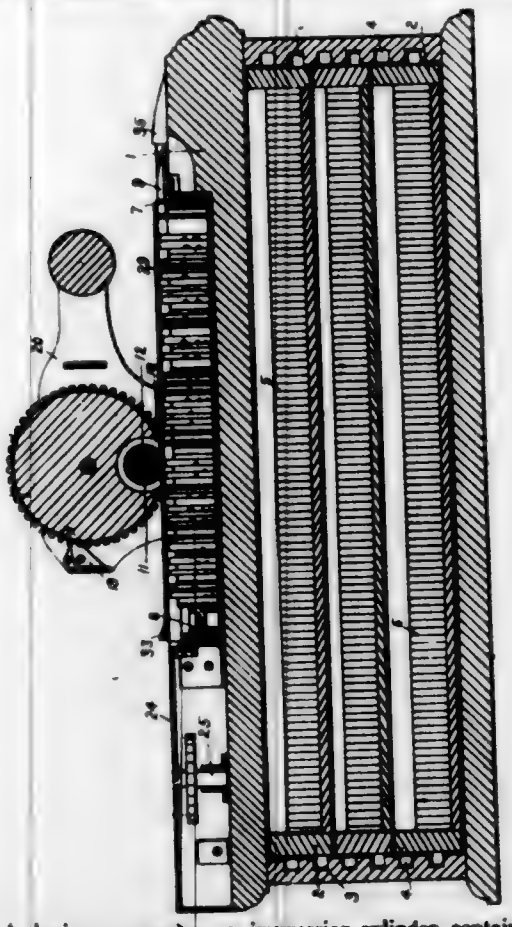
Claim.—1. A device comprising a suitable form-receptacle and a traveling impression-cylinder containing an inking-roller located within its circumference.

2. A device comprising a suitable form-receptacle and an impression-cylinder containing an inking-roller located within its circumference, a sliding frame in which the impression-cylinder is journaled, movable in a plane parallel to the form-receptacle.

3. A device comprising a suitable form-receptacle and an impression-cylinder provided with gear-teeth on its periphery, said cylinder containing an inking-roller located within its circumference, a sliding frame in which the impression-cylinder is journaled movable in a plane parallel to the form-receptacle and a rack adapted to engage with the impression-cylinder to rotate it.

4. A device comprising a suitable form-receptacle and an impression-cylinder provided with a segmental gear having a flattened portion

forming a chord of the gear-circle, containing an inking-roller located within its circumference, a sliding frame in which the impression-cylinder is journaled movable in a plane parallel to the form-receptacle and a rack adapted to engage with the segmental gear, provided with a toothless portion to engage with the chord portion of the segmental gear.



5. A device comprising an impression-cylinder containing an inking-roller within its circumference and means for rotating the impression-cylinder in one direction of its back-and-forth journey and means for locking the impression-cylinder with the inking-roller downward during the other portion of its back-and-forth journey.

6. A device comprising an impression-cylinder journaled in a sliding frame and an inking-roller within the circumference of the impression-cylinder and means for applying ink to the inking-roller.

7. A device comprising an impression-cylinder journaled in a sliding frame and an inking-roller within the circumference of the impression-cylinder and a horizontally-rotatable ink-distributing plate with means for rotating said plate.

8. In a printing apparatus, the combination with a stationary printing-surface, of a revoluble impression-cylinder and an inking-roller carried by said cylinder revolubly therewith and adapted to ink the form on said bed or surface.

9. In a printing apparatus, the combination with a stationary printing-surface, of an intermittently-revoluble impression-cylinder therefor, said cylinder having a segmental impression-surface and an inking-roller revolubly secured to said cylinder within the peripheral line of said impression-surface.

10. In a printing apparatus, the combination with a printing bed or surface, of an impression-cylinder therefor, said cylinder having a segmental impression-surface and an inking-roller on its periphery, means for intermittently revolving said cylinder and means for intermittently locking the same against revolution with the inking-roller next to the printing-surface.

11. In a printing apparatus, the combination with a bed, of a frame on said bed, said frame carrying an impression-cylinder having a segmental impression-surface and an inking-roller on its periphery, intergearing gearing on said bed and said cylinder for intermittently revolving the latter and coöperating stop devices on said frame and said cylinder for intermittently locking the latter against revolution with the inking-roller next to the bed.

12. In a printing apparatus, the combination with a bed, of a reciprocating carriage therefor, an impression-cylinder mounted on said carriage having a segmental impression-surface and an inking-roller on its periphery, rack-teeth on said bed and mutilated gears on said cylinder for intermittently revolving the latter as the carriage travels in one direction, a spring-latch on said carriage and a stop-pin on said cylinder for intermittently locking the latter against revolution as the carriage travels in the reverse direction.

13. In a printing apparatus, the combination with a printing bed or surface, of an impression-cylinder therefor said cylinder having a segmental or mutilated impression-surface, an inking-roller movable to and from said printing-surface, means for intermittently revolving said impression-cylinder and means for intermittently locking the same against revolution with the mutilated portion of its impression-surface next to said printing-surface when the inking-roller is in contact with the latter.

14. In a printing apparatus, the combination with a fixed printing-surface, of a traveling carriage therefor, said carriage carrying an impression-cylinder and an inking-roller, said inking-roller movable to and from said printing-surface, said impression-cylinder having a segmental or mutilated impression-surface, means for revolving said impression-cylinder during one portion of the travel of the carriage and means for locking it against revolution with the mutilated portion of its impression-surface next to the printing-surface during another portion of the travel of the carriage and when the inking-roller is in contact with the printing-surface.

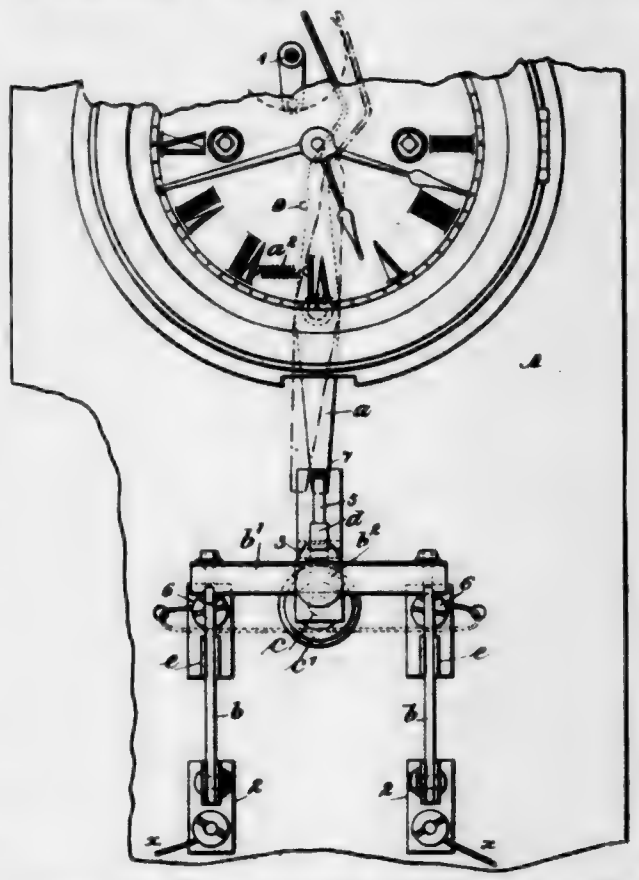
15. In a printing apparatus, the combination with a form-carrying bed, of strips yieldingly secured to either side of said bed for normally holding the paper to be printed out of contact with the type-form and means for depressing said paper-carrying strips to bring the paper to be printed into contact with the type-form.

16. In a printing apparatus, the combination with a form-carrying bed, outwardly-spring-pressed strips connected to said bed by pin-and-slot connections for normally holding the paper to be printed out of contact with the type-form, an impression-cylinder for depressing said strips to bring the surface to be printed into contact with the type-form.

17. In a printing apparatus, the combination with a stationary printing-surface, of an impression-cylinder therefor, having an inking-roller yieldingly journaled on its periphery.

18. In a printing apparatus, the combination with a stationary printing-surface, of an impression-cylinder therefor having an inking-roller journaled thereto and movable to and from its periphery and means for yieldingly holding the roller in either its raised or depressed position.

691,014. ELECTRIC TIME-SWITCH MECHANISM. PETER SORENSEN, Brooklyn, N. Y., assignor to James Jones and James Jones, Jr., Brooklyn, N. Y. Filed Nov. 6, 1900. Serial No. 35,614. (No model.)



Claim.—1. In a time cut-out for electric-service systems, the combination with a timepiece and alarm-release mechanism adapted to be set at predetermined periods, of a pivoted lever operated by such mechanism, a pivoted switch, an electric circuit made by the switch in one position and broken by the switch in its opposite position, a latch held in position by the aforesaid lever for engaging the switch and a spring-actuated device for swinging the switch when released by the latch to break the circuit, substantially as set forth.

2. In a time cut-out for electric-service systems, the combination with a timepiece and alarm-release mechanism adapted to be set at predetermined periods, of a pivoted lever, a spring and stop for holding the lever in one direction, means connected with the alarm-release for moving the lever in the opposite direction, pivoted switch-bars, electric connections to the pivoted end of the switch-bars, and clip-contacts engaged

by the switch-bars in one position, a latch device engaging the pivoted switch-bars and means for holding the latch in engagement with the switch-bars by the lower end of the said lever, and a spring-actuated plunger bearing upon the pivoted switch-bars for forcing the same out of the clip-contacts when released by the latch upon the swinging of said lever, substantially as set forth.

3. In a time cut-out for electric-service systems, the combination with a timepiece and alarm-release mechanism, adapted to be set at predetermined periods, of a pivoted lever, a spring and stop for holding the lever in one direction, means connected with the alarm-release for moving the lever in the opposite direction, pivoted switch-bars and a cross-head of insulating material connecting the same at one end, a latch-plate and a handle connected to the cross-head, contact-supports at the pivoted end of said switch-bars and electrical contacts thereto, clip-contacts and electrical connections between the same engaging the said switch-bars, a spring-actuated latch device engaging the latch-plate of the switch-bars and held in engagement by the interposition of the lower end of the aforesaid lever, and a spring-actuated plunger for forcing outward the pivoted switch-bars when released by the latch to disconnect the same from the clip-contacts, substantially as set forth.

4. In a time cut-out for electric-service systems, the combination with a timepiece and alarm-release mechanism adapted to be set at predetermined periods, of a pivoted lever, a spring and stop for holding the lever in one direction, means connected with the alarm-release for moving the lever in the opposite direction, pivoted switch-bars and a cross-head of insulating material connecting the same, a handle and a latch-plate connected to said cross-head, contact-supports to which said switch-bars are pivoted and electrical connections thereto, clip-contacts electrically connected and engaged by the switch-bars, a spring-actuated latch device pivoted to the block of insulating material and having a stop 4 and an arm 5 between which arm 5 and block of insulating material the lower end of the aforesaid pivoted lever is interposed to hold the latch in engagement with the latch-plate, and a spring-actuated plunger bearing upon the latch-plate and adapted to force the pivoted switch-bars out of engagement with the clip-contacts when released by the latch device, substantially as set forth.

5. In a time cut-out for electric-service systems, the combination with a timepiece and alarm-release mechanism adapted to be set at predetermined periods, of a pivoted lever, a spring and stop for holding the lever in one direction, means connected with the alarm-release for moving the lever in the opposite direction, a pair of pivoted switch-bars, a cross-head of insulating material connecting the same, a handle and a latch-plate connected to said cross-head, contact-supports to which said switch-bars are pivoted, and electrical connections thereto, clip-contacts electrically connected and engaged by the switch-bars, a spring-actuated latch device pivoted to the block of insulating material and having a stop 4 and an arm 5 between which arm 5 and block of insulating material the lower end of the aforesaid pivoted lever is interposed to hold the latch in engagement with the latch-plate, a roller 7 upon the free end of the arm 5 and a roller 8 in the block of insulating material in proximity thereto, and between which rollers the lower end of the arm *a* is interposed, and a spring-actuated plunger bearing upon the latch-plate and adapted to force the pivoted switch-bars out of engagement with the clip-contacts when released by the latch device, substantially as set forth.

6. In a time cut-out for electric-service systems, the combination with a timepiece and alarm-release mechanism adapted to be set at predetermined periods, of a pivoted lever operated by such mechanism, a pivoted switch, an electric circuit made by the switch in one position and broken by the switch in its opposite position, a latch for engaging the switch held in position by the aforesaid lever and a spring-actuated device for swinging the lever when released by the latch to break the circuit, clip-contacts engaged by the pivoted switch in its swung-over position, a latch for holding the switch and a shunt-circuit made by the switch in this latter position, substantially as specified.

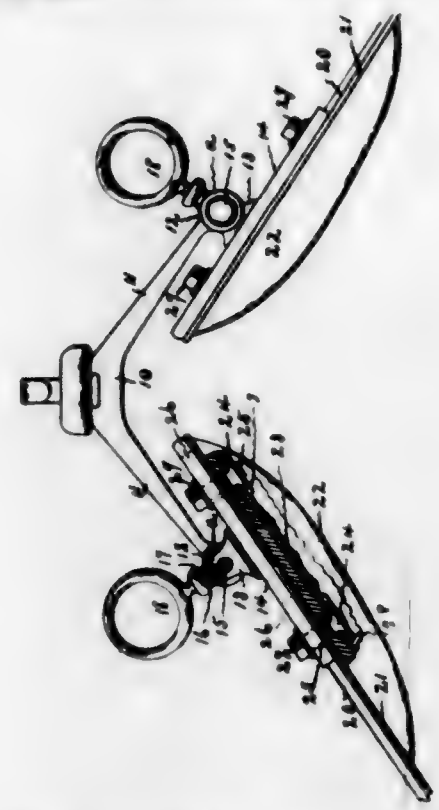
691,015. HARNESS-SADDLE. EDGAR A. SPAULDING, Phœnix, Ariz. Filed Oct. 22, 1900. Serial No. 34,018. (No model.)

Claim.—1. A harness-saddle comprising a saddletree, plates pivotally supported by said saddletree, and rein-terrets having members arranged to hold said plates against pivotal movement, as set forth.

2. A harness-saddle comprising a saddletree, pad-supporting plates, pivots uniting said saddletree and said plates, and means for engaging said pivots whereby said plates are held as against movement, as set forth.

3. A harness-saddle comprising a saddletree, pad-supporting plates, pivots uniting said saddletree and said plates, and rein-terrets having members arranged to engage said pivots, whereby said plates may be held against pivotal movement, as set forth

4. A harness-saddle comprising a saddletree, plates having lugs pivotally supported by said saddletree, and rein-terrets carried by said saddletree and arranged to hold said plates as against pivotal movement, substantially as set forth.



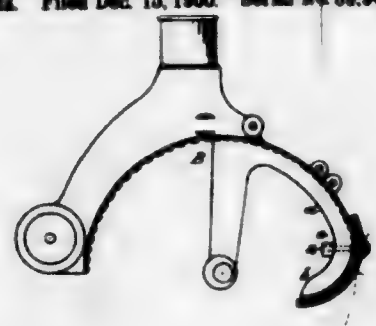
5. A harness-saddle comprising a saddletree having bifurcated ends, said ends being each provided with a boss or enlargement having a threaded bore, plates having lugs secured thereto, pivot-pins uniting said lugs and said bifurcated ends, and rein-terrets having threaded shanks working in said threaded bores, and engaging said pivot-pins, whereby said plates are rigidly held from pivotal movement in said tree, substantially as set forth.

6. A harness-saddle comprising a saddletree having bifurcated ends, the bifurcations of which are connected by a web having a boss or enlargement provided with a threaded bore, pad-plates, lugs secured thereto and having ears, pivot-pins uniting said lugs and said bifurcations, and rein-terrets having threaded shanks working in the bores of said bosses or enlargements, and engaging said pivot-pins, substantially as set forth.

7. A harness-saddle comprising a saddletree, pad-plates supported thereby, and provided with longitudinal slots, pads for each of said plates, clamping-plates passed under said pads, and threaded bolts passed through said slots and engaging said clamping-plates, substantially as set forth.

8. A harness-saddle comprising a saddletree, pad-plates supported thereby and provided with longitudinal slots, pads for each of said plates, clamping-plates passed under said pads, and provided with internally-threaded bosses, and threaded bolts passed through said slots and engaging said bosses, substantially as set forth.

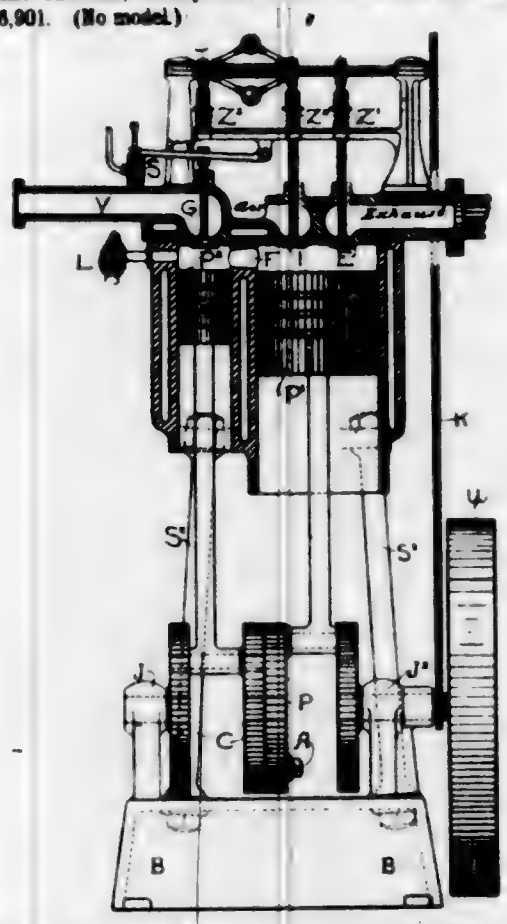
691,016. SCRAPER FOR SEED-DRILLS. WILLIAM STEPHENSON, Morris, Canada. Filed Dec. 15, 1900. Serial No. 39,948. (No model.)



Claim.—1. In combination with the disks of a seed-drill shoe, a center scraper constructed of concavo-convex form, and secured between the disks, whereby the edges of the center scraper impinge on the disks at an angle to prevent noise.

2. In combination with the disks of a seed-drill shoe, a curved center scraper C, formed concavo-convex with a vertical slot *g*, formed therein and secured to the corresponding curved frame *a*, *b*, of the grain-spout of a seed-drill by a projection *c*, having hole *d*, screw-threaded to receive bolt *f* to operate between the disks to keep the inside faces of the disks free from soil and operate smoothly without noise substantially as specified.

691,017. GAS OR OIL INTERNAL-COMBUSTION ENGINE. ELIHU THOMSON, Swampscott, Mass. Filed Jan. 17, 1896. Serial No. 666,901. (No model.)



Claim.—1. In an internal-combustion engine, the combination of a power cylinder and piston, a fire-cylinder and piston, both pistons having the same cycle of operation, a crank-shaft to which both of the pistons are connected, the piston of the fire-cylinder being arranged to lag behind that of the power-cylinder, so that on the compression the power-piston tends to force air into the fire-cylinder, while after the firing takes place and the power-piston starts outward the piston in the fire-cylinder continues to move inward and force the charge into the power-cylinder, different-sized clearance-spaces for the cylinders, the smaller one being for the fire-cylinder, and a port which connects the two cylinders and is open at all times.

2. In an internal-combustion engine, the combination of power and fire cylinders and their pistons, the piston of the fire-cylinder being arranged to lag behind that of the power-cylinder whereby the first-mentioned piston will continue to move inward and force out the fuel charge after the power-piston has started on its outer stroke, a crank-disk for each piston, means for adjustably securing the disks, a port which connects these cylinders and is always open, an admission-valve, an exhaust-valve, and means for actuating the valves.

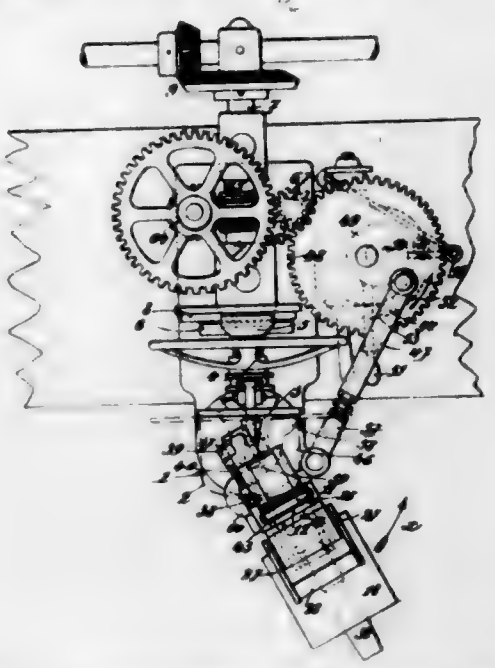
3. In an internal-combustion engine, the combination of fire and power cylinders which are always in free communication, pistons for each cylinder, that of the fire-cylinder being practically without clearance, while that of the power-cylinder is provided with a substantial amount of clearance, a crank-shaft to which the pistons are connected, a valve for introducing fuel into the limited space back of the fire-cylinder piston, a valve for admitting air to the larger space back of the power-piston, an ignition device, and an exhaust-valve which opens into the power-cylinder.

4 In an internal-combustion engine, the combination of fire and power cylinders which are always in open communication, pistons therefor, a crank-shaft to which the pistons are connected, an auxiliary shaft geared to the crank-shaft, a valve for admitting fuel to the fire-cylinder, cams actuated by the auxiliary shaft for actuating the valves, and a governor which is driven by the auxiliary shaft and is arranged to move into and out of operative engagement with the cam that operates the fuel-admitting valve.

5. In an internal-combustion engine, the combination of a piston, a cylinder therefor, a crank-shaft, an auxiliary shaft, a fuel-admitting valve, a cam for actuating the valve which is loosely mounted on the auxiliary shaft, a ratchet for preventing the cam from rotating backward, an automatic governor driven by the auxiliary shaft, and means actuated by the governor for engaging with and driving the cam forward.

6. In an internal-combustion engine, the combination of a power-cylinder and a fire-cylinder which are in permanent communication through an open port, a piston for the fire-cylinder which has a slight clearance, a piston for the power-cylinder which has a much greater clearance, a crank-shaft, and means for connecting the pistons to the crank-shaft in such a manner that the piston of fire-cylinder will lag behind that of the power-cylinder whereby all of the combustible will be discharged from the fire-cylinder.

691,018. HAT-POUNCING MACHINE. CLEMENT M. TIRARD, Paris, France. Filed Sept. 10, 1901. Serial No. 74,931. (No model.)



Claim.—1. A hat-pouncing machine, comprising a pouncing member, eccentrics on which it is mounted, a frame therefor and a prime motor in the frame to drive the eccentrics, substantially as described.

2. A hat-pouncing machine, comprising a pouncing member, a frame therefor, forks in which the frame is mounted, shafts in the frame adapted to move the member, and an independent prime motor carried by the frame to operate the shafts, the said member being on one side of the forks and the motor on the other, substantially as described.

3. A hat-pouncing machine, comprising a pouncing member, a frame therefor, mechanism carried by the frame to operate the said member, forks to support the frame, said frame being mounted therein eccentrically to the point of support of the forks, substantially as described.

4. A hat-pouncing machine, comprising a pouncing member, a frame therefor, a prime motor in the frame, a pivoted base for the frame, a latch therefor, and mechanism to move said base around the hat to be pounced, and against the hat when the base is latched down, substantially as described.

5. A hat-pouncing machine having a horizontal shaft carrying the hat, a rotary pouncing member, substantially vertical, a frame therefor, a prime motor in the frame and means for traversing the frame with the vertical member from the crown to the brim and back, as described.

6. A hat-pouncing machine having a horizontal shaft carrying the hat, a pouncing member, a pivoted frame therefor, a prime motor on said frame, means for moving the frame from the crown to the brim and back again, and a latching means to latch the frame into position to bring the pouncing member into substantially vertical position, substantially as described.

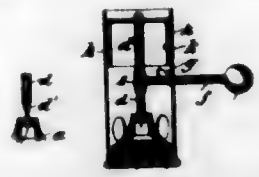
7. A hat-pouncing machine, comprising a frame carrying a movable pouncing member, a gear-wheel, a connecting-rod connecting said frame and wheel, said wheel being eccentrically mounted, a second gear-wheel, means for throwing said wheels into gear, whereby the frame is caused to travel from the crown to the rim and back again, and automatic means to throw the wheels out of gear at this stage, substantially as described.

8. A hat-pouncing machine, comprising a frame, a movable member and a prime motor therein, a pivoted base for the frame, a latch for the base, gearing to move the frame and base from the crown to the rim and back again and means to automatically release the latch at this stage, substantially as described.

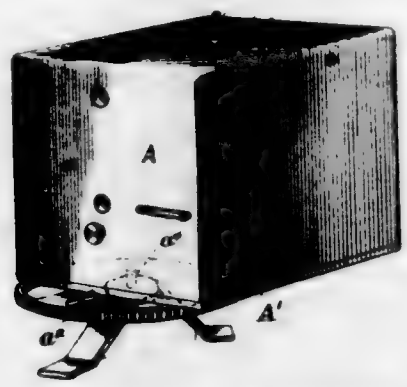
9. A hat-pouncing machine, comprising a frame, a movable member, a pivoted base in which the frame is eccentrically mounted, an eccentrically-mounted gear-wheel, a connecting-rod, means for throwing said gear into mesh with another gear-wheel, a latch mechanism for the base and means for automatically throwing the gears out of mesh and releasing the latch upon the travel of the pouncing member from the crown to the rim and back, whereby the movement of the base is stopped and the frame is allowed to fall back free of the hat, substantially as described.

691,019. REGULATING DEVICE FOR GAS OR VAPOR STOVES. GUSTAV TRESSENREUTER, Berlin, Germany, assignor to The Firm of Arit and Fricke, Berlin, Germany. Filed Dec. 28, 1898. Serial No. 700,497. (No model.)

Claim.—The combination of a burner-head provided with a gas-outlet of conical form, a burner-tube mounted on said burner-head, a guide-tube slidably mounted within the burner-tube, a rod provided with a passage to form a pilot-burner and having a coned end to fit said gas-outlet of the burner-head and attached to said guide-tube, and means for moving said rod and guide-tube to open and close the gas-outlet.



691,020. INTERCHANGEABLE PANORAMIC CAMERA. ROLLIN H. TRUMBULL, Chicago, Ill. Filed Dec. 13, 1900. Serial No. 39,587. (No model.)



Claim.—1. In a rotatable camera, the combination with a rotating camera-box, of clockwork for rotating the same, supported by the box and separated therefrom by elastic washers to take up any vibration of the clockwork; substantially as described.

2. In a panoramic camera, a motor for rotating the camera-box and moving the film transversely to the lens through a predetermined distance, means for releasing said motor and means for locking the same automatically, of a device for arresting the movement of the motor and shutting off the light from the film intermediate said movement of the motor; substantially as described.

3. In a panoramic camera, the combination with the lens, camera-box, mechanism for rotating the box and simultaneously moving the film transverse to the lens, and devices for setting said mechanism to rotate the box and move the film through a predetermined distance, and automatically stopping the movement thereof at the end of said time, of a hand-operated device and suitable connections therewith adapted to simultaneously arrest the movement of the box and film and shut off the light therefrom, intermediate said predetermined movement thereof; substantially as described.

4. In a panoramic camera, the combination with a rotating box and a motor for running the same, of a train of gears driven by the motor, a stop-lever tending to move into a position to stop the train, a notched stop-disk rotated by the motor and adapted to engage the stop-lever and hold it out of operative position, except when the portion of the lever bearing upon the disk registers with the notch and an independently-movable device for covering the notch to prevent the end of the lever from entering the same; substantially as described.

5. The combination with a camera having a device for supporting and moving a film, of a movable tension device adapted to bear upon the film and an adjusting device adapted to move the tension device toward the film; substantially as described.

6. The combination with a camera containing film supporting and moving devices, of a fixed guide and a pivoted guide between which the film passes and an adjusting device for crowding the pivoted guide toward the film; substantially as described.

7. In a camera having film supporting and moving devices, the combination with a fixed guide and pivoted guide having a roller upon its free end adapted to bear upon the film, of means for crowding the pivoted guide toward the film; substantially as described.

8. In a panoramic camera, the combination with a slotted film-cover between the lens and film, of a slide mounted alongside of said film-cover and guided to move over the slide, bell-crank levers pivoted to said slide and film-cover and a link connecting the ends of said bell-cranks adapted to move said slide over said slot; substantially as described.

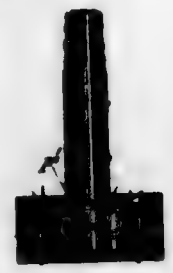
9. In a panoramic camera, the combination with a slotted film-cover between the lens and the film, of a slide mounted alongside of said film-cover and guided to move over the slot and an operating device connected with both ends of said slide and adapted to move them simultaneously; substantially as described.

10. In a panoramic camera, the combination with devices for supporting and rotating the camera and for supporting and simultaneously moving the film, of a film-cover slotted transversely of the film movement and arranged between the film and the lens and a device on the opposite side of the film adapted to press the same closely to the slotted portion of the film-cover; substantially as described.

11. The combination with a panoramic camera and with a slotted film-cover between the film and the lens, of a pivoted device for pressing the film toward the slotted portion of the cover, said pressing device being provided with a spring tending to crowd it toward said cover; substantially as described.

12. In a panoramic camera, the combination with the box, lens, and motor for rotating the box and moving the film transverse to the lens, a device for locking said motor, a setting device for unlocking the motor to permit the same to move the camera-box and film through a predetermined distance, of a curtain, a button, devices connecting said button with the motor and with the curtain adapted by the movement of said button to simultaneously arrest the movement of the motor and draw the curtain over the lens; substantially as described.

691,021. ATTACHMENT FOR SIPHONS. HENRY C. TULLER, Philadelphia, Pa. Filed Jan. 3, 1901. Renewed Oct. 21, 1901. Serial No. 79,345. (No model.)

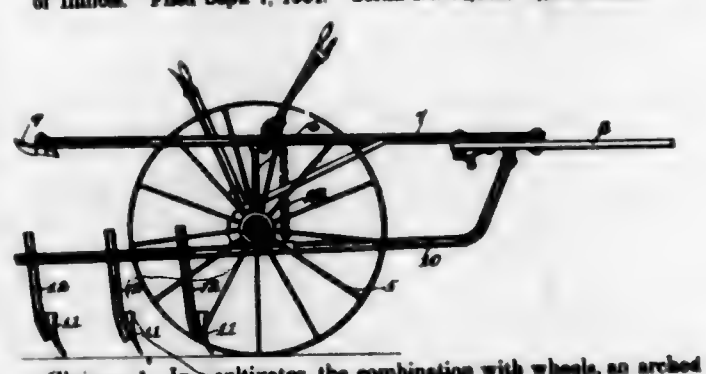


Claim.—1. A casing for the purpose described having a closed bottom, a closed side, and an inlet therefor only at the top of the same and a siphon-attaching branch which is passed through said cap, supported on the bottom of the casing, and having an inlet therein below said top.

2. An attachment for a siphon for preventing the entrance of sediment thereinto, consisting of a casing, the same having a closed side, a closed bottom and an open cap at top, the latter providing the only inlet into said casing, and a siphon-attaching branch which enters said casing and is doubly supported by said cap and the bottom of the casing and having an inlet below said cap.

3. An attachment for a siphon for the purpose described consisting of a casing, having a closed bottom, a closed side, a perforated cap at top as the only inlet to said casing, and a siphon-connecting branch which passes through said cap, is continued downwardly therefrom into said casing and has an inlet below said cap.

691,022. CULTIVATOR. JOHN C. TUBBOLIFF, Moline, Ill., assignor to D. M. Sechler Carriage Company, Moline, Ill., a Corporation of Illinois. Filed Sept. 7, 1901. Serial No. 74,908. (No model.)

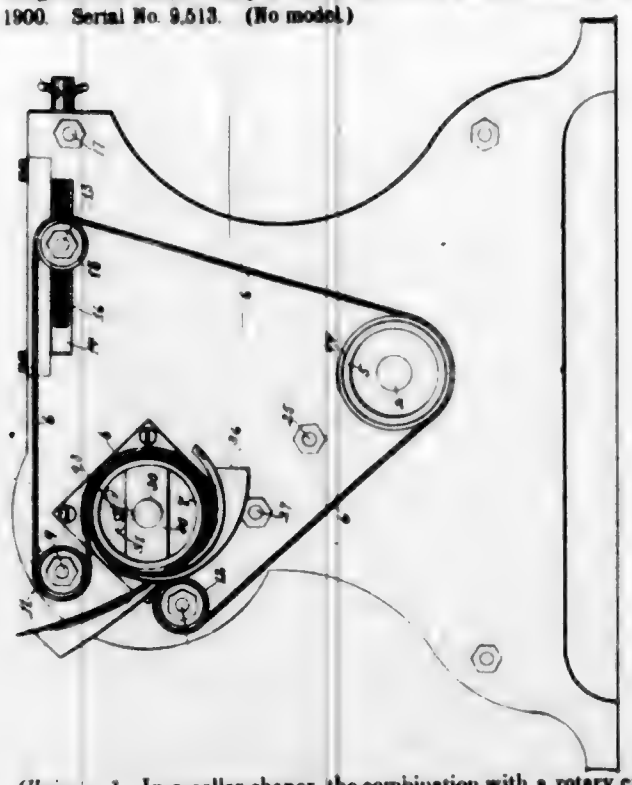


Claim.—1. In a cultivator, the combination with wheels, an arched axle journaled in said wheels, a frame supported by said arched axle, and a cultivator-beam pivotally suspended at its forward end from said frame, of a vertical socket mounted on said arched axle, a segmental rack provided with a pin journaled in said socket and revoluble therein, a lever pivoted upon said segmental rack, and a flexible connection between said lever and said cultivator-beam, substantially as described.

2. In a cultivator, the combination with wheels, an arched axle journaled in said wheels, a frame supported by said arched axle, and cultivator-beams pivotally suspended at their forward ends from said frame, of sleeves removably secured to said arched axle, a socket secured to each of said sleeves and vertically secured to said arched axle by means of said sleeves, segmental racks provided each with a pin, journaled in said sleeves and revolubly mounted therein, a lever pivoted upon each of said

segmental racks, and flexible connections between said levers and said cultivator-beams, substantially as described.

691,023. COLLAR-SHAPER. ARTHUR J. UNDERHILL, Troy, N. Y., assignor to Cluett, Peabody & Co., Troy, N. Y., a Firm. Filed Mar. 21, 1900. Serial No. 9,513. (No model.)



Claim.—1. In a collar-shaper, the combination with a rotary cylindrical former, and means for positively driving the same; of a belt-driven pulley; means for positively driving the same; a pair of loose guide-pulleys separated from each other a distance approximately the diameter of the former and located at one side of the former; and a shaper-belt supported by and engaging such former and pulleys whereby the belt is positively driven by the former and drive-pulley and incloses half the periphery of the former on one side leaving an open passage on the opposite side extending from the former out between the guide-pulleys, and means for heating the former, substantially as described.

2. In a collar-shaper, the combination with a rotary cylindrical former having a free end projecting to one side of its support, and a pair of similarly-projecting guide-pulleys separated from each other a distance approximately the diameter of the former and located on one side of the former; of a shaper-belt supported by such former and pulleys wholly to one side of the supporting-frame, whereby either end of a collar can be guided by the hand of the operator while the other end is spirally inserted, or withdrawn from, between the free edges of the belt and former as the work of shaping progresses, and means for heating the former, substantially as described.

691,024. BATTERY CHUTE OR WELL. EUGENE W. VOGEL, Chicago, Ill., assignor to David S. Wegg, Chicago, Ill. Filed Nov. 5, 1900. Serial No. 35,559. (No model.)

Claim.—1. A battery-chute adapted to be buried in the ground, comprising an integral cast-metal casing having a closed end, the length of said casing being at least twice its width, substantially as described.

2. In a battery-chute, the combination with an integral cast-metal tubular casing closed at its lower end and provided near its upper end with a lateral opening, of a cap having a downwardly-opening hood covering said end and lateral opening, substantially as described.

3. In a battery-chute the combination with an integral tubular casing sealed at its lower end and divided into two non-communicating chambers, of a transverse removable partition supported on projecting lugs integral with the inner side of the casing.

4. In a battery-chute the combination with an integral tubular casing sealed at its lower end and provided near its upper end with a lateral opening, of a cover having a downwardly-opening hood covering said opening on the outer side, and a transverse removable partition intermediate of the ends of the casing and supported on an integral shoulder on the inner side thereof.

5. The combination with an integral tubular battery-chute sealed at its lower end and provided near its upper end with a lateral opening of a cover having a downwardly-opening hood covering said opening and a tube secured at its upper end within said hood and extending outwardly therefrom.

6. The combination with a tubular battery-chute sealed at its lower end and provided at its upper end with a lateral opening of a cap adapted to close the upper end of said tube and provided with a laterally-extending downwardly-opening hood adapted to cover said opening and a tube secured at its upper end in said hood and extending outwardly therefrom.



7. A battery-chute adapted to be buried in the ground consisting of an integral casing having a closed lower end and a cover engaged directly to the other end substantially as described.

8. The combination with a battery-chute consisting of an integral tubular casing sealed at the lower end, of a removable cover adapted to be secured at the upper end thereof, a transverse bolt passing through registering apertures in said cover and the upper end of said casing, substantially as described.

9. In a battery-chute the combination with a tubular casing sealed at its lower end, of a flanged cover adapted to be removably secured to the upper end of said casing by means of a part engaging said flange and said casing and a laterally and downwardly projecting hood secured to said cover adapted to afford means for admitting conductor-wires into the chute.

10. In a device of the class described, the combination with an integral tubular casing sealed at its lower end and provided with an opening near its upper end, of a flanged cover adapted to be removably secured at the top of said casing, a laterally-projecting downwardly-opening hood formed integral with said cover and adapted to close the opening in said casing and to receive one end of a wire trunking.

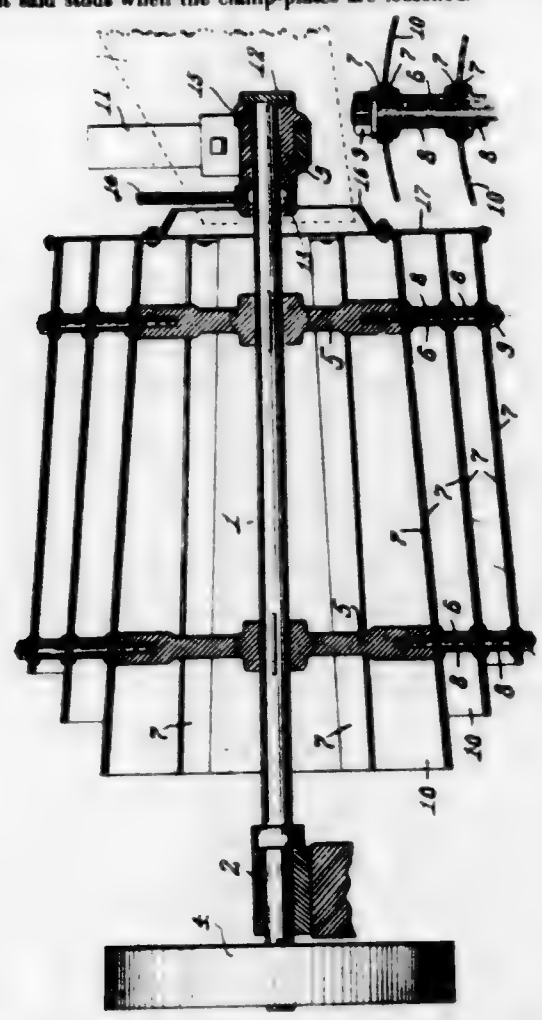
11. In a device of the class described the combination with a tubular casing sealed at one end and provided at its other end with a lateral opening of a detachable flanged cover adapted to close the upper end of said chute provided with a laterally and downwardly projecting hood adapted to cover said lateral opening and means for locking said cover on said casing comprising a part adapted to engage the casing and flanged cover.

12. In a battery-chute the combination with a tubular casing sealed at its lower end and provided at its upper end with a lateral opening of a flanged cover adapted to close the upper end of said casing and provided at one side with a laterally-extending downwardly-opening hood adapted to cover the lateral opening in the casing, means for locking said cover to the casing and lugs disposed on said casing in alinement with the lateral opening and affording means together with said hood for securing wire trunking to the chute.

691,025. TROMMEL. GEORGE F. WADDELL, Anaconda, Mont. Filed July 15, 1901. Serial No. 68,342. (No model.)

Claim.—1. In a trommel, the combination, substantially as set forth, of a shaft, spiders fast thereon, studs projecting radially from the extremities of the spider-arms, longitudinal flat clamp-plates arranged in pairs and engaging said studs, and staves of screen metal arranged in circum-

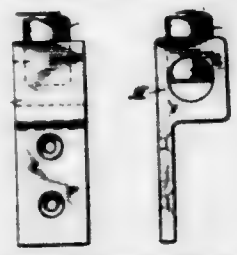
ferential series and having flat edges engaging between the clamp-plates at the sides of and straddling said studs and adapted for longitudinal movement past said studs when the clamp-plates are loosened.



2. In a trommel, the combination, substantially as set forth, of a shaft, spiders fast thereon, studs projecting radially from the extremities of the spider-arms, longitudinal flat clamp-plates loose upon said studs, distance-pieces loose upon said studs between the separate pairs of clamp-plates thereon, and staves of screen metal having flat edges engaging between the clamp-plates at the sides of and straddling said studs and adapted for longitudinal movement past said studs when the clamps are loosened.

3. In a trommel, the combination, substantially as set forth, of a shaft, spiders fast thereon, a circular screen of screen metal carried by the spiders, a mouth-ring carried by the trommel between the head thereof and the head-bearing of the shaft, a head-bearing supporting the head-journal of the shaft and provided with an annular recess around the shaft near the inner end of said bearing, a closure for the outer end of the head-bearing, a pipe connected with said recess and adapted to convey thereto a medium under pressure to discharge from the head-bearing into the trommel, and a lubricating-passage communicating with said head-bearing between said annular recess and said closure.

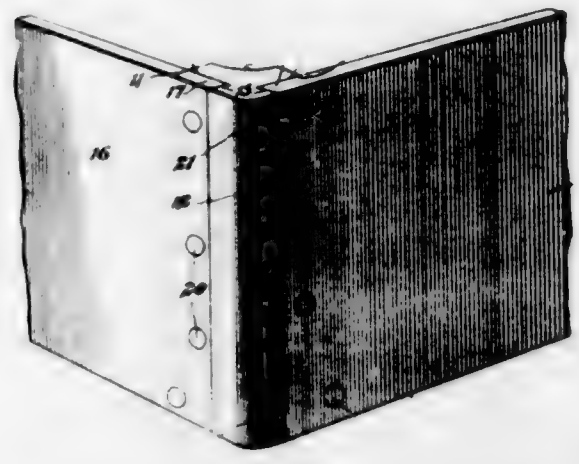
691,026. **BRACKET FOR SUPPORTING AWNING-RODS.** RICHARD WARD, New York, N. Y., assignor to Lyman G. Bloomingdale, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,288. (No model.)



Claim.—1. In an awning, a bracket device, made of metal cast in one piece, provided with screw-holes and adapted to be attached by means of screws to a vertical, fixed support, such as a wall or window-casing, and provided with a fixed socket adapted to support and at either side or at the top to receive the end of a curved or straight rod for the attachment and support of the cover of the awning, substantially as and for the purpose described.

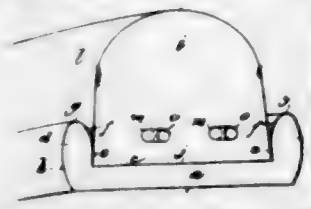
2. In an awning, the combination of a single rod, adapted for the attachment and suitable for the support of the cover of the awning, and a bracket device made of metal cast in one piece provided with screw-holes and adapted to be attached by means of screws to a vertical, fixed support, such as a wall or window-casing, and provided with a fixed socket adapted to support and at either side or at the top to receive said rod, substantially as and for the purpose described.

691,027. **CORNER-JOINT FOR VEHICLE-BODIES.** JAMES F. WATTS, Wadsworth, Ohio. Filed Jan. 24, 1900. Serial No. 2,655. (No model.)



Claim.—A corner-joint, for vehicle-bodies, comprising a hard-wood corner-post having longitudinal rabbets extending from end to end thereof, and also provided at its lower end with a terminal shoulder and a projecting tenon, the outer surface of which forms a continuation of the floor of one of the rabbets, intersecting bottom sills mortised to receive the tenon, said sills abutting against the shoulder on the post at the base of the tenon, side and end panels extending the entire height of the post and concealing the bottom sills, fasteners passing through the panels into the post, other fasteners passing through the panels into the bottom sills, and diagonal reinforcing-pins inserted in the post, and having a firm engagement with the wood at opposite sides of the narrow neck formed by the panel-rabbets.

691,028. **RUBBER-TIRE EQUIPMENT FOR VEHICLE-WHEELS.** JOHN G. WEBB, Springfield, Ohio, assignor to the Victor Rubber Company, Springfield, Ohio, a Corporation of Ohio. Filed July 5, 1900. Serial No. 22,487. (No model.)



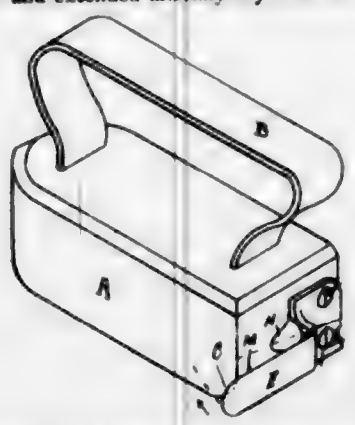
Claim.—In a rubber-tire equipment, the combination, with a channel-iron having a flat base, the outer surface whereof forms a flat tire-seat, and rigid flanges extending upward from said base and tire-seat, the exterior surface of each flange curving first outward and upward, and then inward and upward, and the interior surface of each flange being smooth or without ribs or projections and curving first upward and inward, and then upward and outward, and joined to the exterior surface of said flange by a curve which forms a rounded edge for the flange, said flanges being thicker near their middle than either above or below said thickened portion, of a rubber tire proper having a flat base fitting upon the tire-seat in the channel-iron, and straight sides converging toward each other from said base, the base portion of said tire fitting within the dovetailed recess formed by the converging portions of the inner surfaces of the channel-iron flanges and the portion lying outward from said base portion diverging from the outwardly-curved portions of the inner surfaces of the flanges to form spaces about half the depth of the flanges to permit lateral bulging of the rubber under compression, said straight portions being joined by a curved tread, and retaining-wires within said rubber tire for holding said tire within said channel-iron and united at their ends.

691,029. **COLLAR TURNER AND EDGER.** EDWARD WEBER, Hamilton, Ohio. Filed Apr. 10, 1901. Serial No. 55,270. (No model.)

Claim.—1. In combination, a pivotally-mounted plate, an arm formed thereon, a tapering lug on the plate forming a V-shaped notch with the base of the arm, and means to secure the plate with the arm in different positions of elevation with respect to the heel of a polishing-iron.

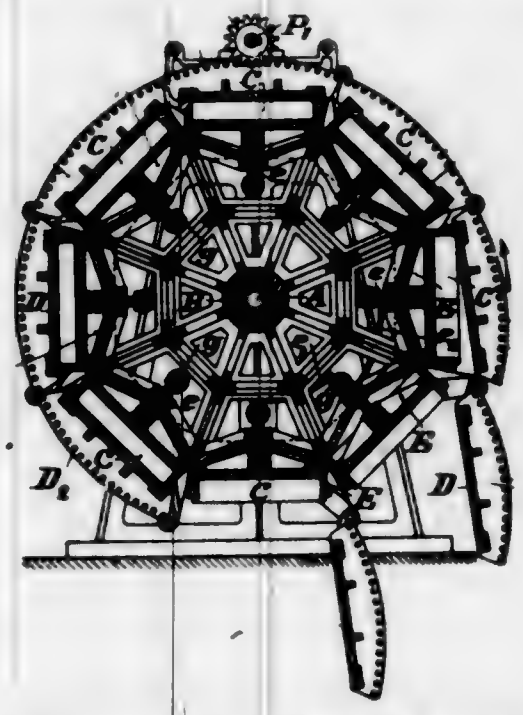
2. The combination with an arm pivotally mounted and formed with a V-shaped notch on one side of its base, of means to secure the arm in different positions of adjustment on the heel of the polishing-iron and parallel therewith.

3. The combination with a polishing-iron, of an arm pivotally secured thereto in a horizontal position a short distance from and parallel with the heel thereof and extended laterally beyond one side of said iron.



4. An attachment to a polishing-iron, comprising a plate with an arm having convex surface and a lug on the plate tapered from the base of said arm to form with said arm a V-shaped notch, said plate being formed with an open-ended slot, as and for the purpose specified.

691,030. **FILTER-PRESS.** EUGEN WERNECKE, Gerstewitz, near Weissenfels, Germany. Filed Aug. 31, 1901. Serial No. 73,957. (No model.)



Claim.—1. In a filter-press the combination with a stationary frame of a hollow shaft adapted to admit the liquid that is to be filtered, a system of filtering-chambers arranged in a circle around said shaft and provided with pistons and hinged covers and of means for locking said covers, admitting a charge of liquid to each of said chambers, reopening the covers, advancing and retracting the pistons and relocking the covers such means being adapted to be automatically operated by rotating the said system of chambers around the said shaft, substantially as and for the purpose described.

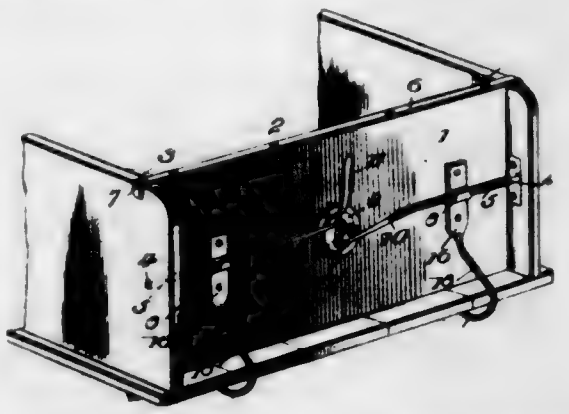
2. In a filtering-press the combination with a stationary frame having a number of projections or cams attached thereto of a hollow shaft adapted to admit the liquid to be filtered, a system of filtering-chambers arranged in a circle and adapted to rotate around said shaft, said chambers being provided with hinged lids and radially-movable pistons and of means for advancing and retracting said pistons and for locking and unlocking said lids or covers, such means being adapted to engage with said projections or stationary cams and to be operated thereby when the system of chambers is rotated around said shaft substantially as and for the purpose set forth.

3. In an automatically-operated filtering-press the combination with a stationary frame provided with a number of projections or cams of a system of filtering-chambers arranged in a circle and adapted to rotate around a hollow shaft admitting the liquid to be treated, said shaft being provided with an opening in its circumference and of ducts communicating with the said chambers and registering with said opening in a predetermined position of every chamber, substantially as and for the purpose described.

4. In a filtering-press the combination with a stationary frame of a hollow shaft adapted to admit the liquid to be treated a system of filtering-chambers arranged in a circle and adapted to rotate around said shaft of means for rotating said system of chambers around said shaft and of other means for charging operating and discharging said chambers such means being adapted to be automatically actuated by the rotation of said system of chambers, substantially as and for the purpose described.

5. In a filtering-press the combination with a stationary frame, a hollow shaft adapted to admit the liquid to be treated, an opening in said shaft, a system of filtering-chambers arranged in a circle and adapted to rotate around said shaft, means for rotating said system of chambers and ducts communicating with their interior and in certain positions of the said chambers registering with said opening in said shaft, of a suitable number of stationary cams or projections attached to said frame and of means for charging, operating and discharging said chambers such means being adapted to engage with said cams and to be operated thereby, substantially as and for the purpose set forth.

691,031. **END-GATE.** FREDERICK L. WHEATLEY, Glassmanton, and SCHRADER STEEN, Mechanicsburg, Pa. Filed July 5, 1901. Serial No. 67,215. (No model.)



Claim.—1. In combination with a wagon-body and the end-gate lock-bars, actuating mechanism therefor, and hinge connections between the end-gate and wagon-body, the upper hinge members forming guides or keepers for the lock-bars and having their lower end portions extended downwardly and rearwardly, thence forwardly and pivoted to the bottom of the wagon-body, substantially as and for the purpose specified.

2. In combination, a wagon-body, an end-gate, a metal bar reinforcing the upper edge of the end-gate and extended beyond the extremities thereof and terminating in hooks to engage over the upper edges of the side-boards, lock-bars, a pivoted disk having an operating-handle, links pivoted at their outer ends to the inner ends of the lock-bars and at their inner ends to the said disk at points diametrically opposite to and equidistant from its pivotal connection with the end-gate, and hinge connections between the end-gate and the bottom of the wagon-body, the upper hinge members constituting guides or keepers for the locking-bars and curved rearward and downward, thence forward to provide braces and having pivotal connection with the bottom of the wagon-body a distance from its rear end to admit of the end-gate swinging beneath the bottom entirely out of the way, substantially as set forth.

691,082. **BRUSH.** ADOLPH R. WIESE, Milwaukee, Wis. Filed Mar. 22, 1901. Serial No. 52,293. (No model.)



Claim.—1. A brush-back provided with a channel open to tuft-butts, a reservoir attachment provided with a nozzle having an apertured soft-metal plug therein, a pin-valve primarily seated by force in said plug to close the aperture of same, and a valve-controlling spring of sufficient

power to reseat the valve from time to time against resistance of obstructing particles that may find their way into the seat.

2. A brush-back provided with a channel open to tuft-butts, a reservoir attachment having a nozzle that leads to said channel, an inner seat and an inclined lug spaced apart in the upper portion of the reservoir attachment, and a stopper having lug clearance and a spiral groove engageable with the lug, the inner end of the stopper being compressible against said seat.

3. A brush-back provided with a channel open to tuft-butts, a reservoir attachment in the form of a bulb having a nozzle leading to said channel and a tubular neck, an inner annular seat at the junction of the bulb and neck, an inclined lug in the upper portion of the neck, a stopper having a slabbed end provided with a spiral groove, and a compressible plug in connection with the stopper to abut the aforesaid seat.

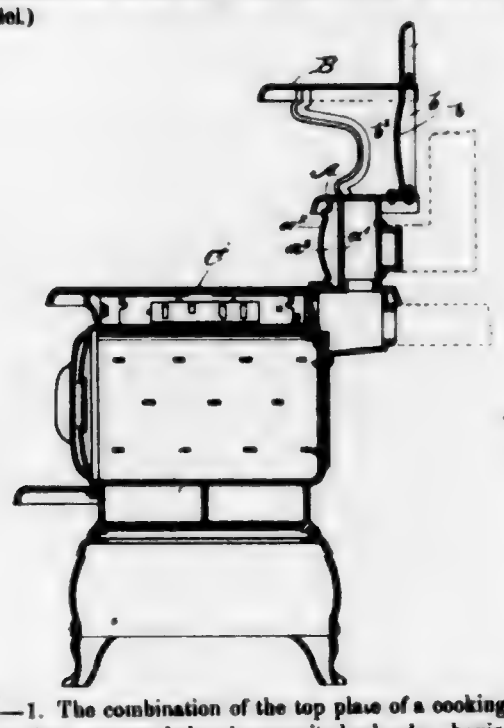
4. A brush-back provided with a channel open to tuft-butts, a reservoir attachment having a foot-plate provided with a toe embedded in the brush-head, a nozzle depending from the foot-plate into said channel, and fastening devices extended through apertures in said foot-plate in opposite directions from a line transversely of the same central of its toe.

5. A brush-back provided with a channel open to tuft-butts, a reservoir attachment provided with a nozzle leading to said channel, a foot-plate, and a spring-controlled valve in pivotal connection with plate-ears.

6. A brush-back provided with a channel intercepted by sockets, and tufts having solidified butts in said sockets provided with longitudinal passages.

7. A brush-back provided with a channel intercepted by sockets, tufts having solidified butts in said sockets provided with longitudinal passages, and a reservoir attachment having a nozzle leading to said channel.

691,033. **COOKING STOVE OR RANGE.** GEORGE E. WILBUR, Taunton, Mass., assignor to the Weir Stove Company, Taunton, Mass., a Corporation of Massachusetts. Filed Nov. 10, 1899. Serial No. 736,467. (No model.)



Claim.—1. The combination of the top plate of a cooking stove or range, a back plate supported thereby near its back edge, having a pipe-box, a tea-shelf covering the box and attached to the top edge of the back plate the surface of which is unobstructed, with a back plate having end brackets adapted to rest upon the tea-shelf and to be secured to it, and an upper shelf supported by said back plate and end brackets, said back plate, bracket and top plate being imperforate, whereby a heat-holding chamber is thereby formed.

2. The combination of a top plate of a stove or range, a rectangular tea-shelf unobstructed throughout its length secured to the said top plate near the back edge thereof with a top shelf and a top-shelf-supporting back plate provided with end brackets secured to the tea-shelf said top shelf, said back plate and said brackets being imperforate as and for the purposes set forth.

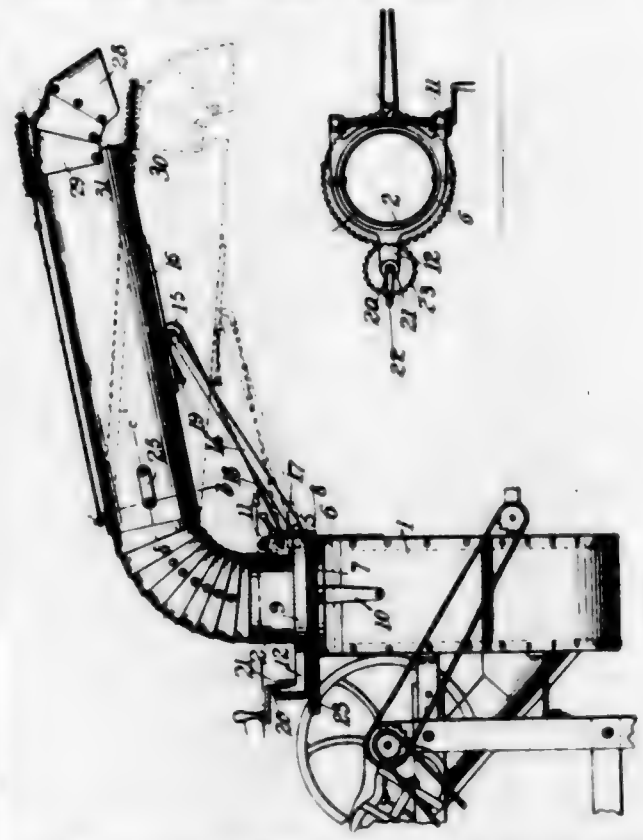
3. The combination of a top plate of a stove or range, a back plate having a recess to receive a smoke-pipe, a tea-shelf resting on and supported by said back plate and having an unobstructed surface throughout its length, and a top shelf supported above said tea-shelf and considerably wider than said tea-shelf, arranged to extend considerably beyond the front edge of said tea-shelf over the top of the range or stove, whereby said stove is provided with two shelves, one above the other, the lower shelf being heated by the products of combustion passing through said smoke-pipe, as described.

4. The combination of a top plate of a range or stove, a tea-shelf supported thereby having an unobstructed surface, an imperforate back plate and end brackets mounted on said tea-shelf and inclosing its back and ends, and an imperforate top shelf supported by said back plate and end brackets above said tea-shelf.

5. A back plate having a recess to receive a smoke-pipe, a tea-shelf resting on and supported by said back plate above and in close proximity to said smoke-pipe, and a second back plate and brackets resting on said tea-shelf, and a top shelf supported thereby, all as described.

6. The combination of the top plate of a stove or range, a tea-shelf attached thereto having an unobstructed surface throughout its length, an inclosed boxing comprising a back plate and end brackets formed to rest upon the tea-plate and secured thereto and a top plate covering the space inclosed by the end brackets and back plate and having a hood-like, forward extension beyond the front edge of the tea-plate, said back plate, end brackets and top plate being imperforate, as and for the purposes described.

691,034. **PNEUMATIC FEED-CONVEYER FOR FEED-CUTTERS.** EDWIN C. WILHARMS and ADOLPH J. WILHARMS, Greenleaf, Wis. Filed May 6, 1901. Serial No. 59,017. (No model.)



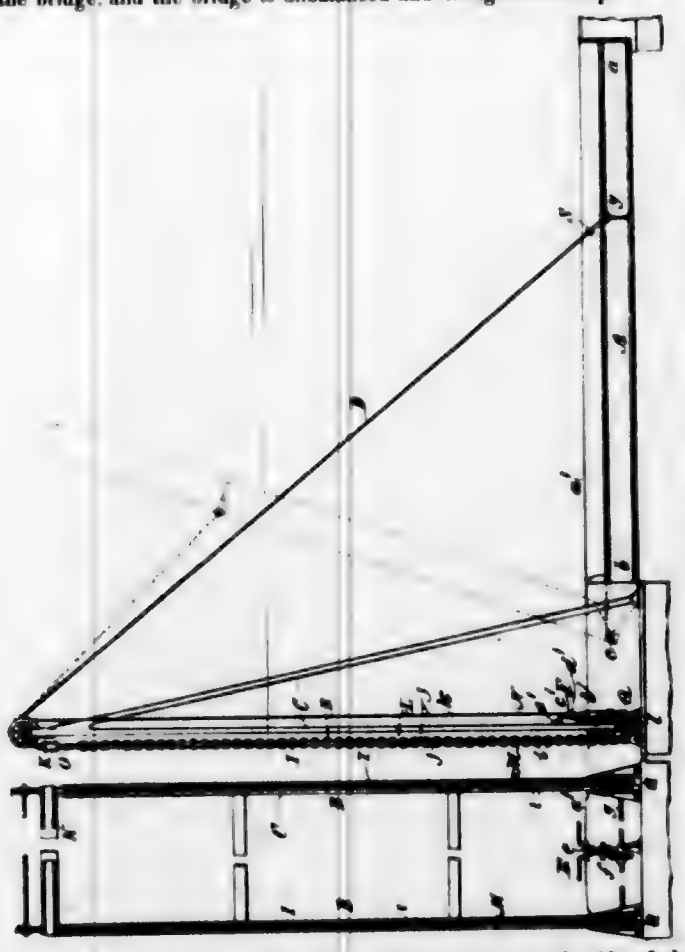
Claim.—1. In a pneumatic conveyer-tube of the class described, a lower section, a flexible elbow-section thereon, an outer section detachably secured to said flexible elbow-section, an elbow-cap at the outer end of said outer section, said cap comprising a pair of telescopically-fitted sections one pivoted to said outer section and said telescopically-fitting sections being pivotally connected together on one side, a rod connected to the outer cap-section, a guide on said outer section for said rod, a spring on the latter, bearing against said guide and said outer cap-section, to normally depress the latter, and an operating-cord attached to said rod, substantially as described.

2. The combination of a pneumatic conveying-tube having a lower section 2, the cylindrical sleeve 5 on the lower end of said lower section and in which the latter is secured, said sleeve having the base-ring 6, the spur-ring in which said sleeve is revoluble, said spur-ring bearing on said base-ring, means to secure said spur-ring on a support, the turning ring secured to said sleeve and bearing on said spur-ring, and a pinion carried by said turning ring and provided with means whereby it may be rotated, said pinion meshing with said spur-ring, substantially as described.

691,035. **COUNTERBALANCE FOR LIFT-BRIDGES, &c.** JOHN D. WILKENS, New York, N. Y., assignor of one-half to R. Walter Creuzbaur, New York, N. Y. Filed Nov. 25, 1895. Serial No. 569,995. (No model.)

Claim.—1. As a means for operating a bascule bridge and the like, a tower; a sheave mounted upon the tower, a series of weights flexibly connected and incorporated in a loop suspended from said sheave; a cable connecting said loop with the free end of the bridge; means for moving said loop around the axis of said sheave, whereby part of its weights are shifted from one side of the loop and sheave to the other side thereof; in combination with automatic means for stopping the rising bridge at

a predetermined angle, consisting of a preponderating constant weight incorporated in said loop at or near the upper end of its counterweights when the bridge is closed, together with a lodgment located so as to uphold said constant weight when the bridge has reached its predetermined angle of rise; whereby said weight becomes inactive as a counterweight to the bridge, and the bridge is unbalanced and brought to a stop.



2. In end-lift bridges, the bridge; a tower upon each side of the fulcrum end of the bridge; a sheave mounted upon each tower; a series of independent weights flexibly connected and incorporated in a loop suspended from each respective sheave; in combination with a constant counterweight reaching across from one loop to the other loop, and attached to both loops; together with a flexible connection from the free end of the bridge to said loops, and means for moving said loops in unison around the axis of their respective sheaves.

3. In end-lift bridges, the bridge; a tower upon each side of the fulcrum end of the bridge; a sheave mounted upon each tower; a series of independent weights flexibly connected and incorporated in a loop suspended from each respective sheave, and adapted to be shifted from one side of said loop and sheave to the other side thereof; in combination with a constant counterweight reaching across from one loop to the other loop, attached to both loops, and adapted to move in substantially a vertical path only; whereby the weight common to both loops remains a constant counterweight, and the independent weights serve in turn as counterbalance to the bridge, and when shifted to the other side of the respective loop, as counterbalance to the constant weight common to both loops; together with a flexible connection from the free end of the bridge to said loops; and means for moving said loops in unison around the axis of their respective sheaves.

4. In an end-lift bridge, the bridge; two sheaves mounted each upon a tower a distance apart from each other along the fulcrum end of the bridge; a loop suspended from each sheave; a series of independent weights flexibly connected incorporated in each loop; a connection from each loop to the free end of the bridge adapted to move them in unison; and a means to move said loops in unison around the axis of their respective sheaves, whereby the said weights are shifted from one vertical member of the loop to the other vertical member thereof while the bridge is in motion; in combination with a constant counterweight reaching across and attached to both loops so as to move in a vertical path only or nearly so; together with a lodgment for said weight common to both loops, whereby the rising bridge is brought to a stop.

5. In end-lift bridges and the like, a tower; a sheave rotatively mounted upon the same; a preponderating counterweight suspended from said sheave adapted to be moved up and down only; auxiliary counterweights flexibly connected suspended from said sheave and adapted to be shifted from one side of said sheave to the other side thereof; a connection from all said weights to each other and to the free end of the bridge adapted to cause them to move in unison; and means for giving motion to said weights and the bridge.

6. In end-lift bridges, a tower; a sheave rotatively mounted upon the tower; a preponderating constant counterweight suspended from said sheave adapted to be moved up and down only; auxiliary counterweights, flexibly connected, suspended from said sheave and adapted to be shifted from one side of said sheave to the other side thereof; a connection from all said weights to each other and to the free end of the bridge adapted to cause them to move in unison; means for giving motion to said weights and the bridge; and a lodgment for said constant preponderating counterweight, whereby the bridge is unbalanced and automatically brought to a stop.

7. In an end-lift bridge and the like, a frame; a sheave mounted upon the frame; a constant counterweight, exceeding in weight the pull of the bridge upon its hoisting-cable when raised to its maximum angle, suspended from said sheave and adapted to be moved up and down only; auxiliary counterweights flexibly connected and incorporated in a loop suspended from said sheave; a connection between the constant counterweight and the auxiliary counterweights adapted to cause them to move in unison; a connection from said weights and loop to the free end of the bridge; and a means for moving said loop around the axis of said sheave; whereby the bridge is moved, and the auxiliary weights gradually shifted from one side of the sheave to the other side thereof, and thereby the constant counterweight reinforced by the auxiliary weights when upon the same side of the sheave; and the excess of the constant weight over the pull of the bridge upon its hoisting-cable neutralized by the auxiliary weights when upon the opposite side of the sheave.

8. In devices of the character described, a frame; a sheave mounted upon the frame; an endless member or loop supported by said sheave and connected with the object to be lifted and balanced; a constant weight incorporated in said loop having its path of travel confined to a vertical movement in the main; a lodgment for said constant weight adapted to limit the travel of said loop; a series of weights suspended from said constant weight and forming a part of said loop, and substantially the side thereof below the constant weight when the latter is in its highest position, and substantially located in the other side of the loop when the constant weight is lodged; together with a connection from said loop to an actuating power; whereby the object to be lifted under a varying strain upon its lifting-cable is under perfect control, balanced in all its positions, and automatically brought to a stop.

9. In end-lift bridges and the like, a tower; a bridge pivoted at one end, with its free end adapted to swing toward and from the tower; counterweights mounted in the tower and connected to the free end of the bridge, consisting of a constant counterweight adapted to move up and down only; a lodgment for said weight adapted to limit the descent and the rise of the bridge; auxiliary counterweights adapted to be shifted, from a path in which they add their gravity to that of the constant counterweight in counterbalancing the bridge, to a path in which these auxiliary weights act in opposition to the constant counterweight, and as a reinforcement to the pull of the bridge upon its hoisting-cable; and actuating means adapted to give motion to the said counterweights and the bridge.

10. As a means for quickly operating and fully balancing end-lift bridges and the like, without jars and sudden checks of momentum and change of inertia, a tower; a sheave mounted upon the tower; a mass serving as constant counterweight, constituting the larger part of the counterweight used; together with a series of auxiliary weights, flexibly connected, suspended from the said mass, forming the lesser part of the counterweight used; a flexible connection joining the end of said flexibly-connected weights farthest from the mass, to the upper part of said mass, so as to form a continuous loop adapted to ride upon said sheave and suspended from the same; a flexible connection from said loop to the free end of the bridge, whereby the bridge is balanced by said counterweights; and actuating means adapted to move the free end of the bridge and the said loop in unison; whereby the said auxiliary weights are gradually shifted from the leg of the loop wherein the said mass has its path of travel, to the other leg of the loop, thereby adding the gravity of the auxiliary weights to the diminishing pull of the rising bridge upon its counterweight; whereby a complete balance of the bridge is maintained, and shocks in its operation are eliminated.

11. In end-lift bridges and the like, a tower; a sheave mounted upon said tower; counterweights flexibly incorporated in a loop suspended from said sheave; a flexible connection from said loop to the free end of the bridge; a means for giving motion to said loop and for shifting part of its weight from one side of the sheave to the other side thereof; in combination with a locking device adapted to prevent the movement of said loop while the bridge is to remain at rest.

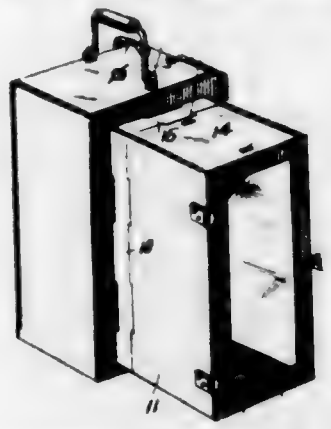
12. In devices of the class described, a weight member consisting of a plurality of weights movably connected together at predetermined points, each independently rotative, and the whole movable through a curved path.

13. In bridges, a lifter, comprising a tower, a cross-weight extend-

ing across the latter, two series of weights suspended from said cross-weight, means connecting the top of said cross-weight with the last of each of said series of weights, means sustaining said weights movably, means transmitting the effective gravity of said weights to a bridge, sprocket-wheels moving said weights, a driving-shaft moving said wheels together, and means operating said shaft.

14. In end-lift bridges and the like, a flexible counterbalance consisting of an endless loop, pulleys forming a pathway for said looped counterbalance, means for rotating one of said pulleys, such driven pulley moving said counterbalance in unison with it, the distribution of said counterbalance and its movement relative to the free end of the bridge as described, and an oblique hoisting-cable connecting said counterbalance with the free end of the bridge, whereby such free end of the bridge is approximately counterbalanced in any and all its respective positions, and the effect of the varying obliquity of the hoisting-cable is compensated for.

691,086. COMBINED DINNER-PAIL AND LANTERN. WILLIAM WILLIAMS, Teller, Colo. Filed Aug. 12, 1901. Serial No. 71,809. (No model.)



Claim.—1. The combination with a dinner-pail, of a lantern including a bottom, top and sides hinged to the pail, a door hinged to one of the sides, the bottom being adapted to receive a candle, and a common carrying-bail attached to the pail.

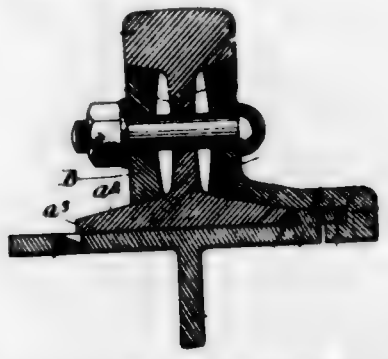
2. The combination with a dinner-pail, of a lantern comprising a top, bottom and sides hinged to the pail, the back of the lantern being formed by the pail, a transparent door hinged to one of the sides, and a common carrying-bail pivoted to the pail.

3. The combination with a dinner-pail, of a lantern comprising a bottom, top and sides hinged to the pail and adapted to fold to lie thereagainst, and means carried by the pail for holding the parts of the lantern in their folded positions.

4. The combination with a dinner-pail, of a top, bottom and sides hinged to fold against the pail, one of the sides being provided with a hinge-door, and a U-shaped wire pivoted to the pail and adapted for movement to lie over the parts of the lantern to hold them in folded positions.

5. The combination with a dinner-pail, of a lantern comprising a top, bottom and sides hinged thereto, the sides having upwardly-directed flanges at their upper and lower edges, and the top and bottom having downwardly-directed flanges at their side edges for engagement behind the flanges of the sides, to hold the parts in unfolded position, said parts being adapted to fold and lie against the side of the pail, a common carrying-bail attached to the pail, and means carried by the pail for holding the parts of the lantern in folded position.

691,037. RAIL-JOINT. BENJAMIN WOLHAUPTER, Chicago, Ill. Filed May 11, 1899. Serial No. 716,351. (No model.)



Claim.—1. The combination with track-rails, of a base plate provided near its margin on its upper surface with an inwardly-facing shoulder against which the edge of the rail-flange rests, and outside of said shoulder with a laterally-directed flange, of an angle-plate applied to the side of the rail and provided with a flange which has interlocking engagement with the flange of the base-plate.

2. The combination with track-rails, of a base-plate provided near its margin on its upper surface with an inwardly-facing shoulder against which the edge of the rail-flange rests, and an angle-plate applied to the side of the rail and provided with a flange which has interlocking engagement with the flange of the base-plate, said flanges on the base-plate and the angle-plate having engaging surfaces which are constructed to afford lateral adjustment of the angle-plate with respect to the base-plate.

3. The combination with track rails, of a base-plate provided near its margin with an inwardly-facing shoulder against which the base-flange of the rail rests, and outside of said shoulder with a laterally-directed flange which is located above the lower surface of the base-plate, and an angle-plate applied to the side of the rail and provided with a flange which fits over the flange of the base-plate with its margin engaging the under surface of the said flange of the base-plate.

4. The combination with track-rails, of a base-plate provided near its margin with an inwardly-facing shoulder against which the base-flange of the rail rests, and outside of said shoulder with a laterally-directed flange which is raised above the lower surface of the base-plate, and an angle-plate applied to the side of the rail and provided with a flange which fits over the flange of the base-plate with its margin engaging the under surface of the said flange of the base-plate, and with its lower surface not lower than said lower surface of the base-plate.

5. The combination with track-rails, of a base-plate provided near its margin and on its upper surface with an inwardly-facing shoulder and, outside of said shoulder, with a laterally-directed flange the upper surface of which is not higher than the upper surface of the rail-flange, and an angle-plate applied to the side of the rail and provided with a flange which has interlocking engagement with the flange of the base-plate.

6. The combination with track-rails, of a base-plate provided near one margin thereof with an inwardly-facing shoulder against which one edge of the flange of the rail rests, and outside of said shoulder with a laterally-directed flange, and provided also adjacent to its opposite margin with a spike-hole, said spike-hole being located with its inner side inside of the vertical plane of the adjacent edge of the rail-flange, and an angle-plate applied to the side of the rail and provided with a flange which has interlocking engagement with the flange of the base-plate.

7. The combination with track-rails, of a base-plate provided near its margin on its upper surface with an inwardly-facing shoulder and outside of said shoulder with a laterally-directed flange, and an angle-plate applied to the side of the rail and provided with a flange which has interlocking engagement with the flange of the base-plate, a fish-plate applied to the side of the rail opposite the angle-plate and a bolt passing through said fish-plate, angle-plate and the rail.

8. The combination with track-rails, of a base-plate provided near its margin on its upper surface with an inwardly-facing shoulder and outside of said shoulder with a laterally-directed flange, an angle-plate applied to the side of the rail and provided with a flange which has interlocking engagement with the flange of the base-plate, a fish-plate applied to the side of the rail opposite to the angle-plate and a bolt passing through the fish-plate, angle-plate and the rail, said base-plate being provided on its margin opposite to the flange thereof with a spike-hole, the inner side of which is located inside of the vertical plane of the edge of the adjacent rail-flange.

9. The combination with track-rails, of a base-plate provided at one side with a shoulder against which one flange of each rail rests and with an outwardly-extending flange, exterior to said shoulder and above the level of the bottom of the surface of the base-plate, and at its opposite side with spike-holes, adjacent to the edge of the rail-flanges, an angle-plate the lower part of which extends outwardly over the rail-flange and extends around and engages the under surface of the said outwardly-extending flange on the base-plate, said lower part of the angle-plate being provided on its outer margin with one or more notches for spikes, and means for securing said angle-bar to the rails.

10. The combination with track-rails, a base-plate provided at one side with a shoulder against which one flange of each rail rests and with an outwardly-extending flange exterior to said shoulder and above the level of the bottom surface of the base-plate and at its opposite side with a spike hole or holes adjacent to the edges of the rail-flanges, an angle-plate which extends outwardly over the rail-flange and the outer margin of the base-plate and is provided with a spike notch or notches in the outer margin and means for adjustably securing the angle-plate to the rails, said flange of the base-plate and angle-plate being provided with contact-surfaces one of which is extended laterally and horizontally to afford lateral adjustment to the angle-plate with respect to the base-plate.

11. The combination with track-rails, the surfaces on the top of the rail-flanges and the under side of the rail-head being oppositely inclined at like angles, an angle-plate provided with upper and lower angular surfaces corresponding with those on the rail flanges and heads, means for

adjustably securing the said angle-plate to the rail, of a base-plate provided adjacent to its margin on its upper surface with an inwardly-facing shoulder and outside of said shoulder with a laterally-directed flange, and a flange on said angle-plate which has interlocking engagement with the flange of the base-plate to afford lateral adjustment of the angle and base plates.

12. The combination with track-rails, a base-plate provided at one side with a continuous shoulder against which one flange of each rail rests and an outwardly-projecting flange, exterior to said shoulder and above the level of the bottom of the plate, and at its opposite side with a spike hole or holes adjacent to the edges of the rail-flanges, an angle-plate which is extended at its outer margin around the said flange and engages the lower surface thereof, and means for adjustably securing the angle-plate to the track-rails, said flange of the base-plate and angle-plate having contact-surfaces, one of which is extended horizontally and laterally to afford lateral adjustment of the angle-plate with respect to the base-plate.

13. The combination with track-rails, each having angular surfaces on the top of the rail-flange and under side of the rail-head which are oppositely inclined at like angles, of a base-plate provided at one side with a shoulder against which one flange of each rail rests, and at its opposite side with spike-holes adjacent to the edges of the rail-flanges, an angle-plate provided with upper and lower inclined surfaces corresponding with those on the rail flanges and heads, and means for adjustably securing the angle-plate to the rails, said base-plate and angle-plate being provided with interlocking parts having contact-surfaces one of which is extended laterally and horizontally to afford lateral adjustment of the angle-plate with respect to the base-plate.

14. The combination with track-rails, each having angular surfaces on the top of the rail-flange and under side of the rail-head, which are oppositely inclined at like angles, of a base-plate provided at one side with a shoulder against which one flange of each rail rests and with an outwardly-projecting flange, and at its opposite side with spike-holes adjacent to the margins of the rail-flanges, an angle-plate having upper and lower inclined surfaces corresponding with those on the rail flanges and heads, which is extended at its outer edge around the said flange on the base-plate and engages the lower surface of said flange, and means for adjustably securing said angle-plate to the rails, said flange of the base-plate and the angle-plate having contact-surfaces one of which is extended laterally and horizontally to afford lateral adjustment of the angle-plate with respect to the base-plate.

15. A base-plate for rail-joints provided on its upper surface with an inwardly-facing shoulder and laterally outside of said shoulder with a laterally-directed flange which is located above the level of the lower surface of the plate.

16. A base-plate for rail-joints provided on its upper surface with an inwardly-facing shoulder and laterally outside of said shoulder with a laterally-directed flange which is located above the level of the lower surface of the plate, and provided also near its margin opposite said flange with a spike-hole.

17. The combination with the track-rails, of a base-plate provided with a plurality of parallel longitudinal ribs and grooves extending from end to end thereof and also provided with a continuous longitudinal shoulder at one side of its top surface against which the rail-flanges rest, and a laterally-projecting longitudinal flange exterior to said shoulder located above the level of the bottom surface of said base-plate, an angle-plate adapted to engage the top of the rail-flange, and constructed to extend around and engage the lower surface of the said flange of the base-plate and means for securing said angle-plate to the rails.

18. The combination with track-rails, of a longitudinally-ribbed girder base-plate provided with an integral depending flange and having a longitudinal shoulder at one side of its top surface against which one flange of each rail rests, and a laterally-projecting flange exterior to said shoulder located above the level of the bottom surface of said base-plate, an angle-plate engaging the top surface of the rail-flanges and extending over and engaging the lower surface of the said flange of the base-plate and means for securing the said angle-plate to the rails.

19. A base-plate for rail-joints provided throughout its width with longitudinal parallel grooves and ribs on its top and bottom surfaces, giving corrugated form to the plate, the said ribs having flat faces arranged in parallel planes and affording practically flat top and bottom faces on the plate for contact with the rail which rests on the same and with the ties on which the plate is supported.

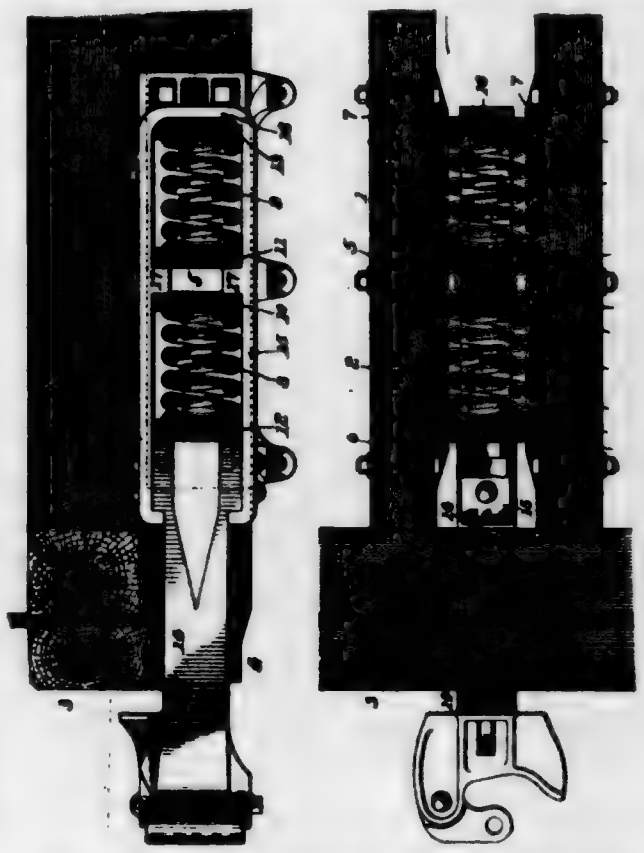
20. A base-plate for rail-joints provided with longitudinal parallel grooves and ribs on its top and bottom surfaces extending from end to end thereof giving corrugated form to the plate, and having at one side of its top surface a longitudinal shoulder for contact with the edges of the rail-flanges and at its opposite side with a spike hole or holes.

21. The combination with track-rails of a base-plate provided with longitudinal parallel grooves and ribs on its top and bottom surfaces, giving a corrugated form to the plate, and an angle-plate applied to the side of the rail and having interlocking engagement with the base-plate.

22. The combination with track-rails, of a base-plate provided with longitudinal, parallel grooves and ribs on its top surface and at one margin with spike-holes, and an angle-plate applied to the side of the rail and having interlocking engagement with the other side of the base-plate.

23. The combination with track-rails, of a base-plate provided with longitudinal parallel grooves and ribs on its top surface and at one side of said top surface with a shoulder for contact with the edges of the rail-flanges, and an angle-plate fitting between the heads and flanges of the rail and extending outwardly over the side margins of the base-plate.

691,038. **DRAFT-RIGGING FOR RAILWAY-CARS.** EDWIN S. WOODS, Chicago, Ill. Filed Jan. 7, 1901. Serial No. 42,425. (No model.)



Claim.—1. In a draft-rigging, the combination with the draw-bar, its tandem springs and follower-plates, of counterpart cheek-plates secured to the longitudinal draft-timbers of the car and provided with stop-lugs for the follower-plates, and a draft-bar tail-strap formed by a metal bar substantially rectangular in cross-section and having permanently-attached and intermediately-arranged lugs on the opposing faces of the two parallel portions of the same, which lugs are adapted to lie between the central follower-plates to engage one or the other of the same to compress one or the other of the tandem springs in a buffing or pulling action of the draw-bar, substantially as set forth.

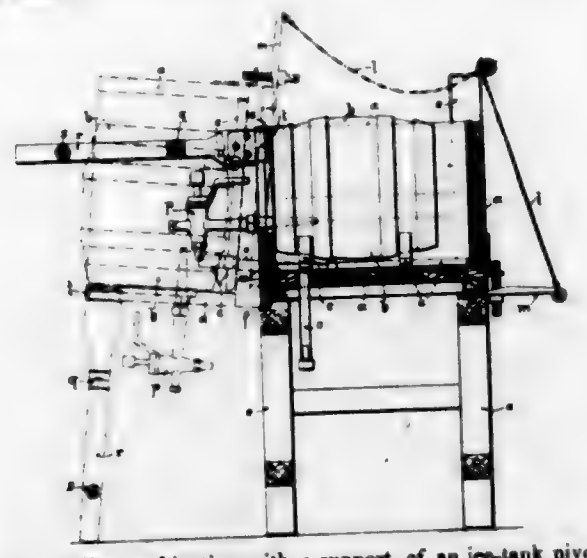
2. In a draft-rigging, the combination with the draw-bar, its tandem springs and follower-plates, of counterpart cheek-plates secured to the longitudinal draft-timbers of the car and provided with stop-lugs for the follower-plates, and a draft-bar tail-strap formed by a metal bar substantially rectangular in cross-section and provided with integrally-formed lugs intermediately arranged on the opposing faces of the two parallel portions of the same, which lugs are adapted to lie between the central follower-plates and adapted to engage one or the other of the same to compress one or the other of the tandem springs in a buffing or pulling action of the draw-bar, substantially as described.

3. In a draft-rigging, the combination with the draw-bar, its tandem springs and follower-plates, of counterpart cheek-plates secured to the longitudinal draft-timbers of the car and provided with stop-lugs for the follower-plates and a draft-bar tail-strap formed by a metal bar substantially rectangular in cross-section bent into a single-piece stirrup form and having integrally-formed lugs intermediately arranged on the opposing faces of the two parallel portions of the same, which lugs are adapted to lie between the central follower-plates to engage one or the other of the same to compress one or the other of the tandem springs in a buffing or pulling action of the draw-bar, substantially as set forth.

4. In a draft-rigging, the combination with the draw-bar, its tandem springs and follower-plates, of counterpart cheek-plates secured to the longitudinal draft-timbers of the car and provided with stop-lugs for the follower-plates, and a draft-bar tail-strap formed by a metal bar substantially rectangular in cross-section and having permanently-attached and intermediately-arranged lugs on the opposing faces of the two parallel portions of said strap which lugs are adapted to lie between the follower-plates which separate one spring from another and are further adapted to en-

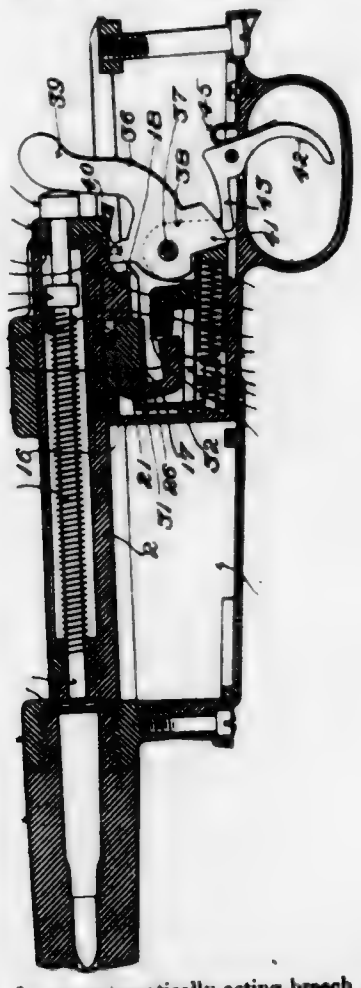
gage one or more of the follower-plates thus effecting compression of one or more of the draft-springs, substantially as set forth.

691,039. TRANSPORTABLE ICE-CASE. WILHELM WORF, Gross St. Florian, Austria-Hungary. Filed June 13, 1900. Serial No. 20,200. (No model.)



Claim.—The combination with a support, of an ice-tank pivotally mounted thereon, as described, and having an opening in its front side, a slide adapted to close said opening and means for supporting the tank when tilted into a vertical or substantially vertical position, comprising bars *r*, a jointed connection for said bars, clutches at one end of the bars and adapted to engage the described opening in the ice-tank and a spring adapted to act upon the bars as set forth.

691,040. FIREARM. FRANKLIN K. YOUNG, Boston, Mass. Filed Apr. 16, 1901. Serial No. 56,078. (No model.)



Claim.—1. In an automatically-acting breech mechanism for firearms, a locking-block, means for opening and closing said block and locking it in an open or closed position, a hammer which when it is thrown back actuates the locking-block-opening mechanism to open and lock said block and which prevents the said block from being unlocked until the hammer is thrown forward, and when the hammer is thrown forward it actuates the locking-block-closing mechanism, substantially as described.

2. In an automatically-acting mechanism for firearms, a locking-block, means for opening the locking-block and locking it in an open position, a hammer which when it is thrown back actuates the locking-block-opening mechanism to open said block and to hold it open until the hammer is thrown forward, mechanism which closes the locking-block when the hammer is thrown forward, the hammer then locking said block in its closed position, substantially as described.

3. In an automatically-acting breech mechanism for firearms, a locking-block, a hammer having a projection which when the hammer is thrown back opens the locking-block and locks it open until the hammer is thrown forward and then releases it, and having a projection which when the hammer is thrown forward and the locking-block is closed locks it in the closed position, substantially as described.

4. In breech mechanism for firearms, a pivoted locking-block having an arm, and a sliding arm actuated by the hammer when the latter is thrown back which engages with the arm of the locking-block and opens said block and locks it open, substantially as described.

5. In breech mechanism for firearms, a pivoted locking-block, means for opening said block when the hammer is thrown back, a pivoted dog which engages said block, a spring which tends to actuate the dog to close said block, means which lock said block open while the hammer is back, and which release the block when the hammer is thrown forward, whereby said dog is permitted to close said block, substantially as described.

6. In breech mechanism for firearms, a locking-block, a sliding arm having a tubular base, a spring which is held in said tube, and a hammer which when thrown back actuates said arm to open and lock said block and compress said spring, said spring actuating said arm to release said block when the hammer releases the arm, substantially as described.

7. In breech mechanism for firearms, a slotted bolt, a recessed receiver for the bolt, a firing-pin within said bolt and extending through the rear end thereof, stops on said firing-pin which permit a limited sliding movement thereof relative to the bolt, a flanged yoke in front of the inside stop which extends through said bolt into said receiver, whereby when the firing-pin is moved either forwardly or rearwardly it will move a limited distance without movement of the bolt, substantially as described.

8. In breech mechanism for firearms, a slotted bolt, a recessed receiver for the bolt, a firing-pin extending through the rear end of the bolt, stops on said firing-pin outside and inside of said bolt which permit a limited movement of the pin relative to the bolt, a flanged yoke on said firing pin in front of the inside stop which extends through said bolt into said receiver, whereby when the firing-pin is moved rearwardly from its forward position it will move a limited distance without movement of the bolt and then further rearward movement of the firing-pin will also move the bolt rearwardly, a spring around said firing-pin between the yoke and the forward end of the bolt which tends to hold the bolt closed and the firing-pin in its rearward position, substantially as described.

9. In an automatically-acting breech mechanism for firearms, a bolt, a locking-block, a hammer which when in its forward position against the firing-pin locks said block in engagement with the bolt, mechanism actuated by the hammer when thrown back which opens said block and locks it open, thereby releasing the bolt, a firing-pin which extends through the rear end of the bolt and has a limited sliding movement before the bolt is moved, and which in its rearward movement throws back the hammer, the locking-block and bolt being kept locked by the hammer until the hammer has been thrown a portion of its backward throw by the firing-pin and then being unlocked, the bolt then being carried rearward by the further movement of the firing-pin, substantially as described.

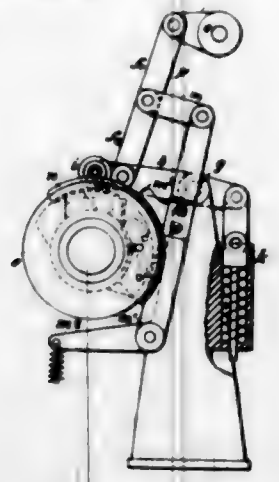
10. In breech mechanism for firearms, a bolt, a pivoted locking-block, a sliding arm which engages said block to open it and lock it open, a spring in combination with said sliding arm, a pivoted dog which engages said block to close it, a hammer which engages said sliding arm, and a firing-pin which in its rearward movement engages said hammer and thereby actuates said sliding arm to open said block, substantially as described.

691,041. MECHANISM FOR ADMITTING OR SHUTTING OFF STEAM FOR ROTARY MOTORS. JOSEF B. ZUBA, Berlin, Germany. Filed June 30, 1898. Serial No. 684,901. (No model.)

Claim.—1. In rotary motors a mechanism for governing the admission of unthrottled steam into the steam-cylinder, consisting in the combination of a lever A which is in connection with the slide-valve *a* through rod F and lever *d*, with the cam *l* composed of two concentric circular curves of different radius on which the cam part l^2 is radially displaceable, and with a governor which is connected with the cam part l^2 for the purpose of varying the duration of the admission of the unthrottled steam into the steam-cylinder, said cam part l^2 being connected with the part operated by the governor, substantially as described and shown.

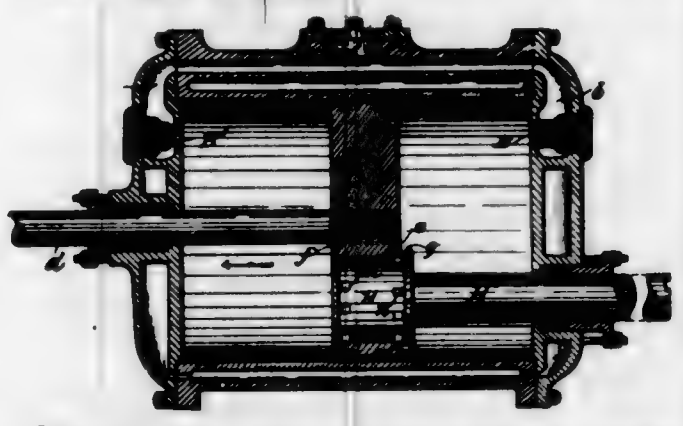
2. In rotary motors, a mechanism for governing the admission of unthrottled steam into the steam-cylinder, consisting in the combination of a lever A which is in connection with the slide-valve *a* through rod F and lever *d*, with the lever m', m^2, connected with the rod F through the

link *m*, and with a mechanism for drawing open the rod F at the joint of its two parts f, f^2, consisting of the disk *o* connected with the governor and of the cam *n* in movable connection with said disk *o*, substantially as described and shown.



3. In rotary motors, a mechanism for governing the admission of unthrottled steam into the steam-cylinder, consisting in the combination of a lever A which is in connection with the slide-valve *a* through rod F and lever *d*, with the cam *l* on which the cam part l^2 is radially displaceable for the purpose of varying the duration of the admission of the unthrottled steam into the steam-cylinder, and with a governor connected with the cam part l^2 said governor consisting of a disk *p* on which are eccentrically carried the levers p^2 carrying the weights p' and of a sleeve o' carried on the same shaft as the disk *p* and in jointed connection through links *q* with the levers p^2, substantially as described and shown.

691,042. PISTON-VALVE FOR AIR-COMPRESSORS. BURTWIN L. BRIFTON and WILLIAM P. BRIFTON, Bradford, Pa. Filed Apr. 23, 1901. Serial No. 57,072. (No model.)



Claim.—1. In an air-compressor or analogous apparatus, a cylinder, a piston working in said cylinder, a piston-rod rigidly connected to the piston for operating the same, a valve traveling with and moved by the piston but having a limited movement in an opening therein whereby the position of the valve is changed at each reversal of the direction of travel of the piston, and a hollow stem on and movable with the valve working through an opening in one end of the cylinder and adapted to communicate with the interior of the cylinder on one side or the other of the piston according to the position of the valve relative to the piston.

2. In an air-compressor or analogous apparatus, a cylinder, a piston working in said cylinder, a piston-rod rigidly connected to the piston for operating the same, a perforated valve having two oppositely-arranged seats or stops thereon and adapted to have a limited sliding movement in the piston to bring one or the other of said seats or stops into contact with a corresponding seat or stop on the piston thereby opening the perforations through the valve first to the interior of the cylinder on one side of the piston and then to the interior of the cylinder on the other side of the piston, according to the direction of travel of the piston, and a hollow stem on and movable with the valve and working through an opening in one end of the cylinder.

3. In an air-compressor or analogous apparatus, a cylinder, a piston having an opening therethrough enlarged at its opposite ends, a perforated valve traveling with the piston but having a limited movement in the opening therein, whereby the position of the valve is changed at each reversal in the direction of travel of the piston, a seat or stop at each end of the valve adapted to engage in the enlarged ends respectively of the opening through the piston, and a hollow stem on and movable with the valve working through an opening in one end of the cylinder and adapted to communicate with the interior of the cylinder on one side or the other of the piston according to the position of the valve relative to the piston.

691,043. WEFT-REPLENISHING MECHANISM FOR LOOMS. CAMILLE BRUN and GUSTAVE BRUN, St. Etienne, France. Filed July 18, 1899. Serial No. 724,283. (No model.)

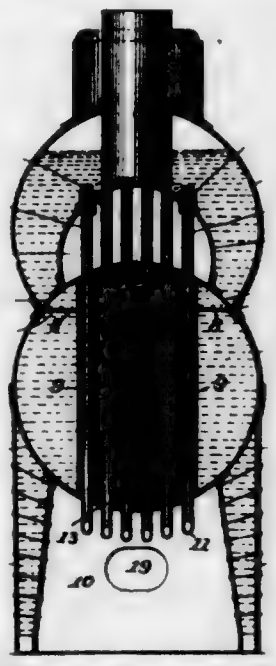


Claim.—1. In a loom, the combination with a magazine of superposed shuttles, of a shuttle-box containing three superposed compartments, the upper and middle ones being in communication, but the lower one permanently cut off from the middle one, means for feeding a full shuttle down into the middle compartment, means for discharging the empty shuttle from the lower compartment, and a vertically-movable bar carrying said shuttle-box and provided with means for operating said feeding and releasing device.

2. In a loom, the combination with a shuttle-box having three superposed compartments, the upper and middle ones being in communication and the lower one permanently cut off from the middle one, and having a normally open bottom, of means for lifting said box to effect a change of an empty shuttle from the middle to the lower compartment, and means for closing the lower compartment when the box rises and for opening it when the box is lowered.

3. In a loom, the combination with a magazine of superposed shuttles, of a vertically-movable shuttle-box below said magazine, two sets of supporting-pins pivoted to a lever, an inclined bar moving with said box for operating said lever and pins to release a shuttle from the magazine, a sliding plate for the shuttle-box, and a fixed inclined element engaging with and operating said plate when the box rises and falls.

691,044. STEAM-BOILER. FRANK BURGER and HENRY M. WILLIAMS, Fort Wayne, Ind.; said Burger assignor of one-half of his right to said Williams. Filed Oct. 11, 1900. Renewed June 17, 1901. Serial No. 64,931. (No model.)



Claim.—1. In a boiler, three horizontally-disposed shells substantially coextensive in length, one of said shells being cylindrical and supporting the other two, and one of the supported shells forming the smoke-box, substantially as set forth.

2. In a boiler, three horizontally-disposed shells substantially coextensive in length, one of said shells being cylindrical and supporting the other two, and one of the supported shells being within the other supported shell and forming the smoke-box, substantially as set forth.

3. In a boiler, a horizontally-disposed cylindrical shell, two semicylindrical shells supported thereon and secured thereto, one of said supported shells forming a smoke-box, substantially as set forth.

4. In a boiler, a horizontally-disposed cylindrical shell, two semicylindrical shells supported thereon and secured thereto, one of said supported shells being within the other supported shell and forming a smoke-box, substantially as set forth.

5. In a boiler, a horizontally-disposed cylindrical shell, two semicylindrical shells supported thereon and secured thereto, one of said supported shells being within the other supported shell and forming a smoke-box, and the outer semicylindrical shell being in communication with the cylindrical shell, substantially as set forth.

6. In a boiler, the combination with a horizontally-disposed cylindrical shell supported above a fire-box, two horizontally-disposed shells,

one within the other, supported upon the cylindrical shell, the inner supported shell forming a smoke-box, and vertical fire-tubes extending through the cylindrical shell and opening into the fire-box and the smoke-box, substantially as set forth.

7. In a boiler, the combination with a horizontally-disposed cylindrical shell supported above a fire-box, two horizontally-disposed shells, one within the other, supported upon the cylindrical shell, the inner supported shell forming a smoke-box and the outer one being in communication with the cylindrical shell, and fire-tubes extending through the cylindrical shell, and opening into the fire-box and the smoke-box, substantially as set forth.

8. In a boiler, the combination with a horizontally-disposed cylindrical shell supported above a fire-box, two horizontally-disposed shells, one within the other, supported upon the cylindrical shell, the inner supported shell forming a smoke-box, and vertical fire-tubes extending through the cylindrical shell and opening into the fire-box and the smoke-box, and field-tubes communicating at their upper ends with the interior of the outer supported shell, said tubes extending through the fire-tubes into the fire-box and having their lower ends closed, substantially as set forth.

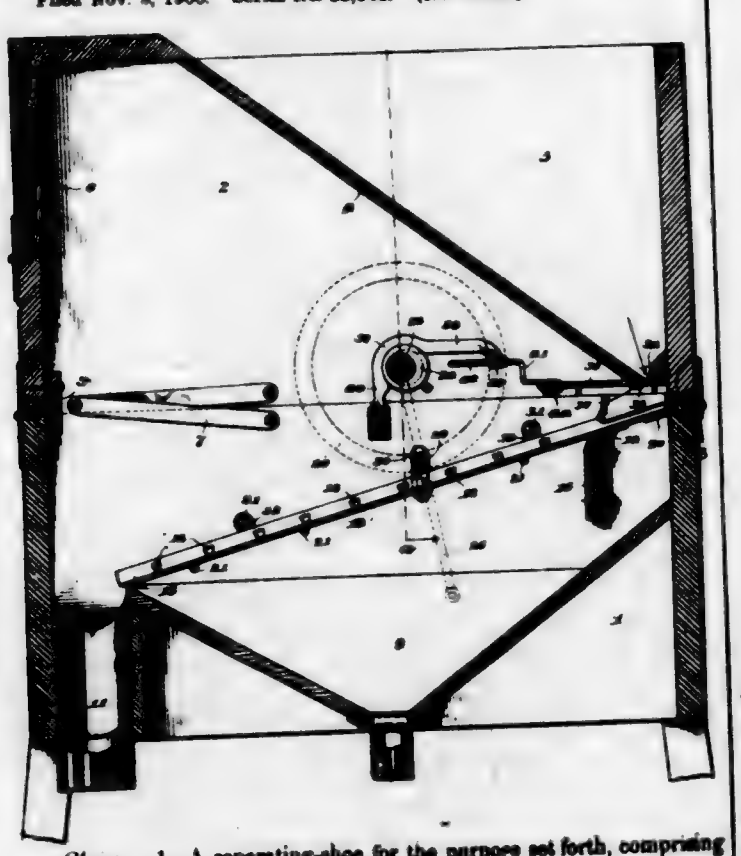
9. A fire-box, a horizontal boiler supported above said box, a smoke-box extending through the water-space the entire length of the boiler, and vertical fire-tubes extending through the water-space between the smoke-box and the fire-box and opening into said smoke and fire boxes, substantially as set forth.

10. A fire-box, a horizontal boiler supported above said box, a smoke-box extending through the water-space the entire length of the boiler, vertical fire-tubes extending through the water-space between the smoke-box and the fire-box and opening into said smoke and fire boxes, and field-tubes extending through the fire-tubes, the upper ends of said field-tubes being open and within the water-space of the boiler, and their lower ends closed and projecting into the fire-box, substantially as set forth.

11. In a boiler, the combination with a horizontally-disposed cylindrical shell supported above a fire-box, of two horizontally-disposed shells, one within the other, supported upon the cylindrical shell, the inner supported shell forming a fire-box, vertical fire-tubes extending through the cylindrical shell and opening into the fire-box and the smoke-box, field-tubes extending through the fire-tubes, said field-tubes being open at one end and closed at the other, and water-tubes open at both ends and supported within and of less diameter than the field-tubes and terminating at a point removed from the closed ends of the field-tubes, substantially as described.

12. In a boiler, a horizontally-disposed cylindrical shell, a semicylindrical shell supported thereon and secured thereto and a horizontal stay-plate secured to the interior of the cylindrical shell on the line of junction between the cylindrical and semicylindrical shells, substantially as set forth.

691,045. MACHINE FOR SEPARATING COCKLE FROM WHEAT. WILLIAM W. CLEMENSON and WILLIAM D WINGER, Honeybrook, Pa. Filed Nov. 9, 1900. Serial No. 35,970. (No model.)



Claim.—1. A separating-shoe for the purpose set forth, comprising a series of sections each of which forms a trough with inclined sides having openings therein, the said sides of the said sections at one side of the said shoe being bent outward and overlapped, and a cross bar or strip bearing under said overlapped portion of the said sections and secured to certain of them at suitable distances apart, whereby said sections are maintained in place when assembled, substantially as described.

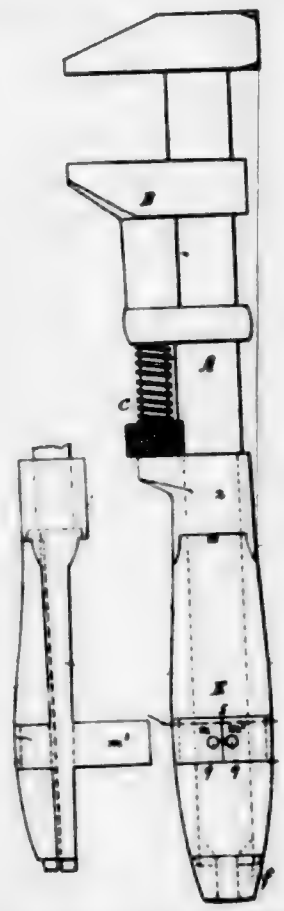
2. In a machine for separating cockle from wheat, the combination of a casing having a hinged upper section, provided with a feed-hopper, and a lower section having a discharge-hopper for cockle and a discharge-trough for wheat, at one side of said cockle-hopper, a shaft journaled in bearings in the sides of said upper hinged section, an eccentric and a cam-wheel on said shaft, a feed-plate in the throat of said feed-hopper, a strap engaging said eccentric and connected to said feed-plate, a separating-shoe in the lower section of the casing, above the cockle-hopper and adapted to discharge into the wheat-trough, said shoe having a tappet engaging said cam-wheel, and a spring, coacting with said cam-wheel and tappet to vibrate said shoe, substantially as described.

3. A separating-shoe for the purpose set forth, comprising a series of sections each of which forms a V-shaped trough, the inclined sides of which have openings therein, and said sides of said sections, at one side of the said shoe, being outturned to form horizontal overlapping wings, substantially as described.

4. The combination of a separating-shoe having a tappet, a revoluble shaft having a cam-wheel to engage and operate said tappet and thereby vibrate said shoe, eccentrics on said shaft, a feed-hopper having a feed-opening, a feed-plate, and connections including an adjusting device between said feed-plate and said eccentrics whereby said feed-plate is operated and may be adjusted, for the purpose set forth, substantially as described.

5. In a machine of the class described, the combination of a hopper having a feed-opening in its lower side, a reciprocating feed-plate to open and close said opening, an eccentric, means to operate the same, a strap engaging the upper side of said eccentric, adapted to be lifted therefrom, and having the arms 39 and 40, and a screw-link connected to the arm 39, adjustable longitudinally therein and having a hook engaging an opening in the feed-plate, substantially as described.

691,046. WRENCH-HANDLE. FRANK L. COES, Worcester, Mass., assignor to Loring Coes & Company, Incorporated, Worcester, Mass., a Corporation of Massachusetts. Filed Nov. 9, 1901. Serial No. 81,660. (No model.)



Claim.—1. In a wrench-handle, a circumferential band composed of band-sections formed integral with the handle-frame and folded around the side plates or handle-scales, and having their ends secured by rivets or interlock fastenings.

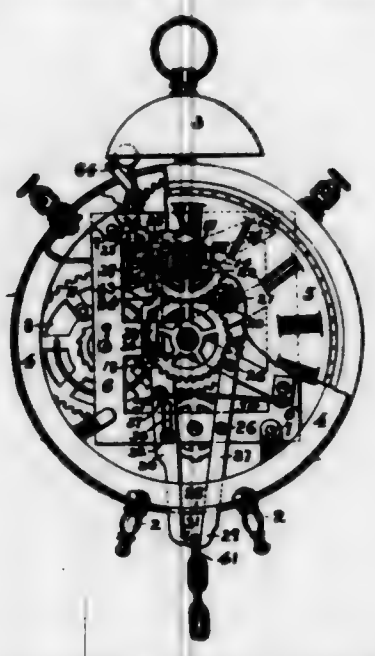
2. In a wrench-handle, the metal handle-frame provided at its outer edges with arms, straps or band-sections integrally cast or formed upon the sides thereof, said straps curved or bent inward to circumferentially embrace the side plates, the straps from opposite edges having their un-

attached ends disposed adjacent to each other, in combination, with the wooden side plates having circumferential grooves for the reception of said straps, and securing pins or rivets that confine said adjacent ends within the grooves and connect the sides of the handle.

3. In a wrench-handle, the handle-frame provided with projecting straps or band-sections integrally cast or formed upon the sides of said handle-frames, said band-sections circumferentially embracing the wood side plates or handle-scales, their opposite ends abutting upon each other at the sides of the handle and respectively secured by rivets that extend through the handle and bar-shank and connect the band ends at the opposite sides of the handle, substantially as set forth.

4. In a wrench-handle, the handle-frame comprising a collar portion, longitudinally-extended edge bars, and a transverse web, or webs, uniting said edge bars across the shank-receiving space, and provided with projecting band-sections adapted for surrounding the non-metallic side plates, said collar, edge bars, webs and band-sections all formed integral in a single piece, and adapted to receive the bar-shank and to support the side plates, in the manner set forth.

691,047. TIME RELEASING MECHANISM. SAMUEL S. COLT, Orange, N. J. Filed June 20, 1900. Serial No. 20,936. (No model.)



Claim.—1. In a releasing mechanism, the combination, with a gear mechanism, of a load-releasing device, a time-set gear for normally retaining the load-releasing device in its locked or holding engagement with the load to be released but at some predetermined time releasing said device, consisting, essentially, of a toothed wheel having a cam-shaped hub, a spindle or arbor on which said wheel is slidably arranged, a releasing finger or projection on said spindle or arbor, and means connected with said toothed wheel for prematurely setting or locking the same after the release of the time-set mechanism, comprising a toothed pinion and spindle for partially rotating said toothed wheel, a spindle or arbor 21, a pair of pinions 19 and 20, each provided with a stud or projection, and a disk 49 on said spindle 21, provided with a slot 50 into which the said studs or projections extend and are movably arranged therein, said spindle 19 being in mesh with a toothed wheel of the main gear mechanism, and said pinion 20 being in mesh with the toothed wheel of said time-set releasing-gear, substantially as and for the purposes set forth.

2. In a releasing mechanism, the combination, with a gear mechanism, of a load-releasing device, consisting of a fixed bar 27, having a holding portion or jaw 29, and a slidable bar 30 having a holding portion or jaw 31, a spring-plate 38 for retaining said bar 30 normally in its locked position, and a time-set gear for normally causing the holding or locked engagement of said spring-plate 38 with a portion of said slidable bar 30, substantially as and for the purposes set forth.

3. In a releasing mechanism, the combination, with a gear mechanism, of a load-releasing device, consisting of a fixed bar 27, having a holding portion or jaw 29, and a slidable bar 30 having a holding portion or jaw 31, a spring-plate 38 for retaining said bar 30 normally in its locked position, and a time-set gear for normally causing the holding or locked engagement of said spring-plate 38 with a portion of said slidable bar 30, and means connected with said time-set gear mechanism for prematurely setting or locking the same after its release, substantially as and for the purposes set forth.

4. In a releasing mechanism, the combination, with a gear mechanism, of a load-releasing device, consisting of a fixed bar 27, having a holding portion or jaw 29, and a slidable bar 30 having a holding portion or jaw 31, a spring-plate 38 for retaining said bar 30 normally in its locked position, and a time-set gear for normally causing the holding or locked engagement of said spring-plate 38 with a portion of said slidable bar 30, and means connected with said time-set gear mechanism for prematurely setting or locking the same after the release of the time-set mechanism, consisting, essentially, of a toothed wheel having a cam-shaped hub, a spindle or arbor on which said wheel is slidably arranged, a releasing finger or projection on said spindle or arbor, and means connected with said toothed wheel for prematurely setting or locking the same after the release of the time-set mechanism, substantially as and for the purposes set forth.

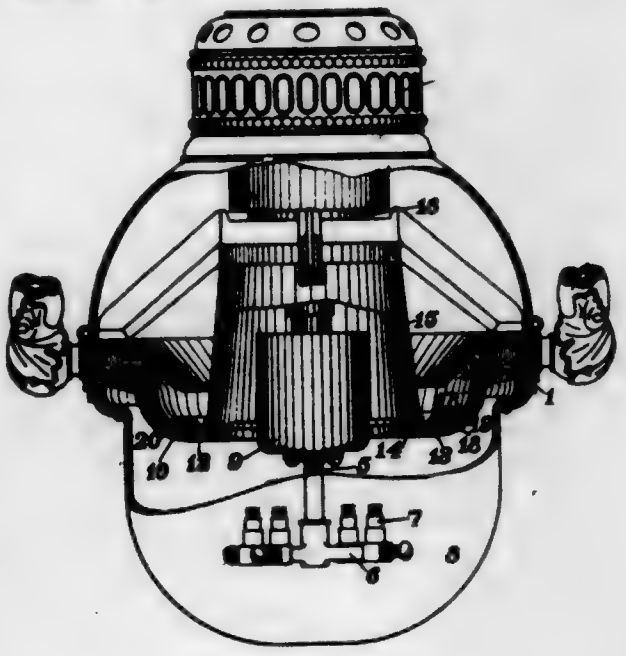
5. In a releasing mechanism, the combination, with a gear mechanism, of a load-releasing device, consisting of a fixed bar 27, having a holding portion or jaw 29, and a slidable bar 30 having a holding portion or jaw 31, a spring-plate 38 for retaining said bar 30 normally in its locked position, and a time-set gear for normally causing the holding or locked engagement of said spring-plate 38 with a portion of said slidable bar 30, and means connected with said time-set gear mechanism for prematurely setting or locking the same after its release, consisting, essentially, of a toothed wheel having a cam-shaped hub, a spindle or arbor on which said wheel is slidably arranged, a releasing finger or projection on said spindle or arbor, and means connected with said toothed wheel for prematurely setting or locking the same after the release of the time-set mechanism, comprising, a toothed pinion and spindle for partially rotating said toothed wheel, a spindle or arbor 21, a pair of pinions 19 and 20, each provided with a stud or projection, and a disk 49 on said spindle 21, provided with a slot 50, into which said studs or projections extend and are movably arranged therein, said spindle 19 being in mesh with a toothed wheel of the main gear mechanism and said pinion 20 being in mesh with the toothed wheel of said time-set releasing-gear, substantially as and for the purposes set forth.

6. In a releasing mechanism, the combination with a gear mechanism, a spring 38 and means for actuating said spring, of a load-releasing device, consisting, of a fixed bar and a slidably-arranged bar, both provided with holding portions arranged and constructed to be separated by the action of the mechanism for the release of the load, and means on said slidable bar in normal retaining engagement with said spring 38, substantially as and for the purposes set forth.

7. In a releasing mechanism, the combination with a gear mechanism and the frame 6 thereof, a spring 38 secured to said frame and means for actuating said spring, of a load-releasing device, consisting, of a fixed bar secured on said frame 6, and a second bar having slotted portions slidably arranged over pins or screws in said frame 6, and said slidable bar having a holding portion or projection at its lower end in slidable engagement with the lower portion of said fixed bar, substantially as and for the purposes set forth.

8. In a releasing mechanism, the combination with a gear mechanism and the frame 6 thereof, a spring 38 secured to said frame and means for actuating said spring, of a load-releasing device, consisting, of a fixed bar secured on said frame 6, and a second bar having slotted portions slidably arranged over pins or screws in said frame 6, and said slidable bar having a holding portion or projection at its lower end in slidable engagement with the lower portion of said fixed bar, and a holding finger or projection at the upper end of said slidable bar in normal retaining engagement with said spring 38, substantially as and for the purposes set forth.

691,048. REFLECTOR. JOHN L. CREVELING, New York, N. Y. Filed Dec. 1, 1899. Serial No. 738,819. (No model.)



Claim.—1. In a lamp having a chimney defining a draft-passage, a reflector having an outer metallic portion, supporting an inner portion of refractory material, said inner portion forming a support for the chimney, substantially as described.

2. In a lamp having a draft-passage, a reflector having an outer metallic portion forming a support for an inner portion of refractory material, said inner portion defining the entrance to the draft-passage, as and for purpose set-forth.

3. In a lamp having a chimney defining a draft-passage, a reflector comprising an outer metallic portion with a central aperture and an inner portion of refractory material forming a support for the chimney, substantially as described.

4. A reflector comprising an outer portion having a central aperture and an annular inner portion, fitting said aperture and provided with a shoulder resting upon the upper side of the outer portion, as and for the purpose set forth.

5. A reflector composed of inner and outer portions each provided with a central aperture, the inner portion having at its inner edge an upturned flange 14 and at its outer edge a shoulder 13 substantially as described.

6. A reflector having an outer metallic portion and an inner portion of refractory material, said inner portion being provided with a binding-wire as and for the purpose set forth.

7. A reflector composed of outer and inner portions, said inner portion having a flange 14 at its inner edge and shoulder 13 at its outer edge substantially as described.

8. A reflector composed of inner and outer portions, the said inner portion having a grooved surface and a binding-wire in said groove, substantially as described.

691,049. SYSTEM OF JOINTING FOR JOINING UP BOXES, &c. CHARLES D'ESPINE, Paris, France, assignor to the Société D'Espine Achard et Cie., Paris, France. Filed Feb. 6, 1900. Serial No. 4,250. (No model.)



Claim.—The improvement in the manufacture of boxes, consisting of box sides, having at their joints, grooved faces, extending along the entire side, said faces each having two grooves extending into the wood of the side, each groove of equal width throughout its depth and parallel to a face of the adjoining box sides, so that when the faces are joined a keyway will be formed shaped as a cross and a key to fit the keyway, as and for the purpose described.

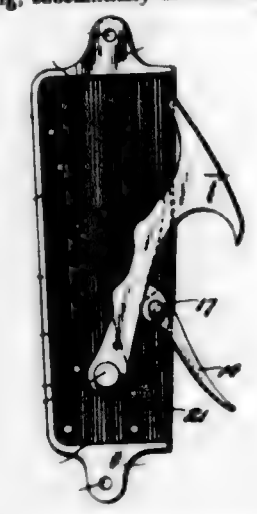
691,050. DETACHABLE HANDLE FOR COOKING VESSELS. FRANCOIS DROUIN, Annadale, N. Y. Filed Aug. 24, 1901. Serial No. 73,115. (No model.)



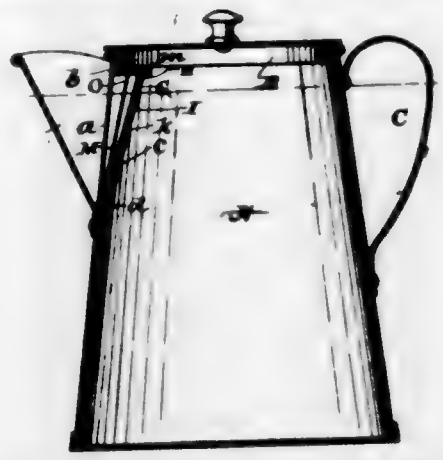
Claim.—A cooking vessel provided at one side with a horizontal radial socket which opens outwardly and a detachable handle adapted at one end to enter said socket and provided adjacent to said end with a longitudinal chamber, a lever pivoted in said chamber and ranging longitudinally thereof, the end of said lever adjacent to the end of the handle which is adapted to enter said socket being provided with a downwardly-directed projection adapted to pass through holes in the bottom of said chamber and in the bottom of said socket and the opposite end of said lever being spring-supported, substantially as shown and described.

691,051. AUTOMATIC EXTENSION-LADDER LOCK. LYMAN FERGUSON, Ithaca, N. Y. Filed Mar. 25, 1901. Serial No. 53,343. (No model.)

Claim.—In a device of the character described, the combination with the side rail of a ladder having sockets formed therein, of an automatic locking device consisting of a casing having two side pieces formed with two sets of alined apertures and having one side piece formed with apertured studs to seat in said sockets, bolts extending through the side pieces of the casing, its studs and through the side piece of the ladder, a spring-actuated hook having integral oppositely-projecting lugs to engage one set of apertures of the side pieces of the casing, and a latch having integral oppositely-projecting lugs to engage the other set of apertures of the side pieces of the casing, substantially as set forth.



691,052. COFFEE OR TEA POT. SIMON J. FREEMAN, Bradford, Pa. Filed Jan. 24, 1901. Serial No. 44,577. (No model.)



Claim.—1. The combination with a coffee-pot having an opening below its top, a spout surrounding said opening, of a straight horizontal bar extending across the pot adjacent the upper end of said opening, a strainer removably resting on said bar and carrying a second strainer, both adapted to cover said opening, substantially as described.

2. The combination with a coffee-pot, having an opening below its top, a spout surrounding said opening, a straight horizontal bar extending across the pot adjacent the upper end of said opening, of a strainer having a rearwardly-extending portion adapted to rest on said bar, and a forwardly-extending portion adapted to engage the curved portion of the pot, a second strainer carried by the forwardly-extending portion of the first strainer, substantially as described.

3. The combination with a coffee-pot having an opening below its top, a spouting surrounding said opening, and an inwardly-projecting ledge surrounding said opening and forming a groove, a straight horizontal bar extending across the pot adjacent the end of said opening, of a strainer resting within said groove and having a rearwardly-extending portion adapted to rest on said bar, and a forwardly-extending portion engaging the pot or rib left by the opening, and a second strainer resting within the groove and secured to the forwardly-extending portion of the first strainer, substantially as described.

4. A strainer for pots, comprising a vertical straining-surface, a horizontally rearwardly extending supporting-ledge, a forwardly-extending horizontal portion, and a second strainer supported by said forwardly-extending horizontal portion, substantially as described.

5. A strainer for pots, comprising a vertical straining-surface having its upper end bent at right angles thereto and rearwardly, and then bent upon said rearwardly-extending portion and extending forwardly having its outer edge rounded, and an opening therein, and a second vertical strainer having an upwardly-extending tongue adapted to enter the opening in the forwardly-extending portion of the first strainer and supported thereby, substantially as described.

691,053. SEAT FOR UMBRELLAS. SAMUEL S. FRETZ, Philadelphia, Pa. Filed May 13, 1901. Serial No. 59,962. (No model.)

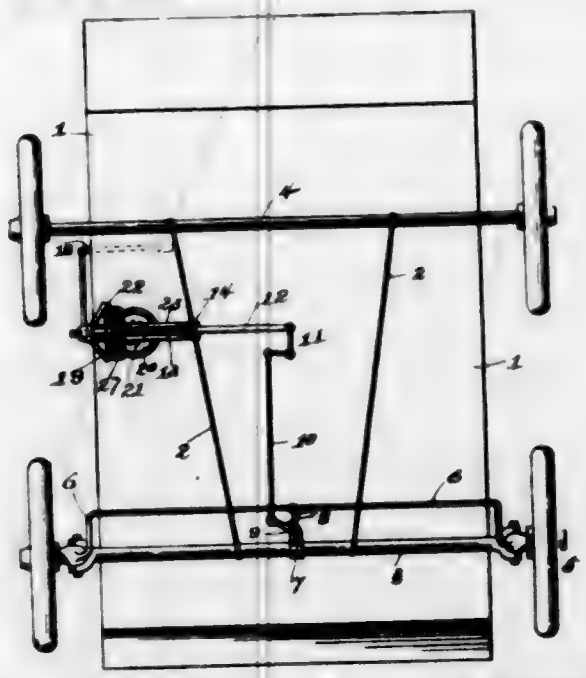
Claim.—1. The combination of a paragon-rib; a lap surrounding said rib, and having its ends lying inside of and against the inside of the side walls of the rib; a flat end stretcher, having the flat end inserted between the ends of the lap and fitting against the same; and a pin penetrating one side wall only of the rib and through the lap and the stretcher,

whereby the side walls of the rib are left free to spring toward and away from each other; substantially as described.



2. The combination of a paragon-rib; a lap surrounding said rib and having its ends lying inside of and against the inside of the side walls of the rib; a flat end stretcher, having the flat end inserted between the ends of the lap, one of the side walls of the rib and the portions of the lap lying at either side of it being provided with holes, and the end of the lap lying opposite thereto having a hole therein somewhat larger in diameter than the hole through the stretcher; and a pin passing through these holes and having an enlarged end fitting the enlarged hole in the last-named end of the lap; substantially as described.

691,054. STEERING MECHANISM FOR MOTOR-VEHICLES. FRANKLIN R. HIESTER, Centerport, Pa. Filed Sept. 28, 1901. Serial No. 76,898. (No model.)



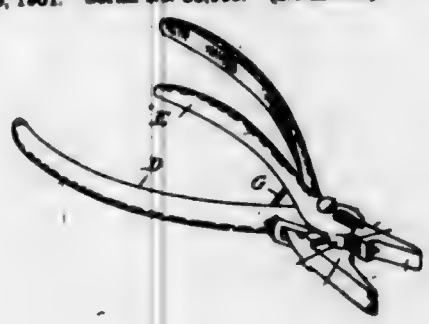
Claim.—1. The combination, with the frame, and the screw-shaft, the head thereof having prongs, of the grooved collar held loose upon the shaft by the prongs to receive the longitudinal movement of the shaft without rotary motion.

2. The combination, with the screw-shaft, and the gearing, of a shell or frame in which the shaft is permitted to turn and slide, said frame having an opening, loops around the opening in which one of said gear is fixed against longitudinal movement to turn the shaft, supports on the frame for the others of said gear, and standards by which the frame is fixed.

3. In combination, the levers connected to the front wheels of a vehicle, a suitable hand-lever, a screw-shaft, a gear screwed upon the shaft to turn and slide it, a collar held against turning by the shaft-head, a frame to hold said gear against longitudinal movement and to permit the shaft to rotate and slide therein, and the gearing to operate said gear.

4. In combination, the frame, the screw-shaft rotatably and slidably held by the frame, a collar held by the shaft-head so as to receive the longitudinal movement of the shaft without turning, means to give the shaft a rotary and longitudinal movement, consisting of a gear screwed upon the shaft and fixed by the frame against longitudinal movement, a gear meshing with said shaft-gear and carrying a pinion, a toothed segment meshing with the pinion, and a hand-lever to operate the segment.

691,055. REPAIR-TOOL. FRANKLIN HOOVER, Detroit, Mich. Filed May 6, 1901. Serial No. 58,903. (No model.)

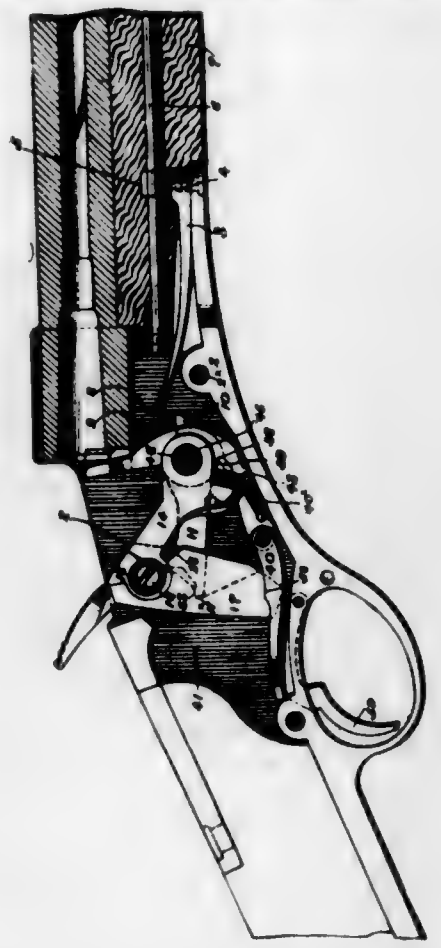


Claim.—1. In a repair-tool, the combination of two concaved jaws pivoted to each other and each having a handle-section integral therewith, and a lever fulcrumed upon the handle-sections having a forked end or claw extending into operative relation to the jaws.

2. In a repair-tool, the combination of two concaved jaws each having a handle-section integral therewith, of a lever fulcrumed upon the handle-sections and provided with a forked end or claw extending into operative relation with the jaws, and a single pivot-pin connecting the handle-sections and lever, substantially as described.

3. In a repair-tool, the combination with two pivoted concaved jaws each having a handle-section integral therewith, of a lever fulcrumed upon the handle-sections having a forked end or claw extending into operative relation with the jaws, and a stop-pin depending from and limiting the lateral swinging movement of the lever.

691,056. BREECH-LOADING FIREARM. DANIEL HUB, Denver, Colo. Filed Oct. 13, 1898. Serial No. 693,381. (No model.)



Claim.—1. In a breech-loading firearm, the combination of a breech-block, having an overhanging projection 43 forming a housing, a spring 42 secured to said breech-block and within said housing, and an extractor, the latter having a shoulder adapted to contact with the free end of said spring, the latter being disconnected from said extractor.

2. In a breech-loading firearm, the combination of a breech-block provided with a housing, a spring in said housing, an extractor having a shoulder situated in the path of said spring, a recoil-block pivotally mounted upon said breech-block, said recoil-block having a rearwardly and upwardly inclined channel or surface 31, a recess 32 at the upper end of said channel or surface, and a rearwardly and downwardly inclined channel or surface extending from said recess, said recess being adapted to engage the upper extremity 11× of said hammer.

3. In a breech-loading firearm, the combination with a hammer, extractor, breech-block, recoil-block, of a mainspring 3, a trigger-plate 2 on which said mainspring is mounted, fastening devices 4 common to said trigger-plate and mainspring, a lug 5 projecting inwardly from said mainspring and engaging the fore-stock 7, said lug having an opening through which the cleaner-rod 6 is adapted to pass, and a roller mounted on the free end of said mainspring, said roller bearing upon a suitable portion of said hammer, said mainspring resting normally upon the pin 2× located in the trigger-plate 2.

4. In a breech-loading firearm, a frame, a recess 48 in the inner wall thereof, a safety-post pivotally mounted in said recess, means for actuating said safety-post from the exterior of the firearm, the upper portion 55 of said recess being rounded or curved, whereby the upper portion 54 of said safety-post is adapted to be deflected into the path of the recoil-block when it is desired to prevent the action from opening.

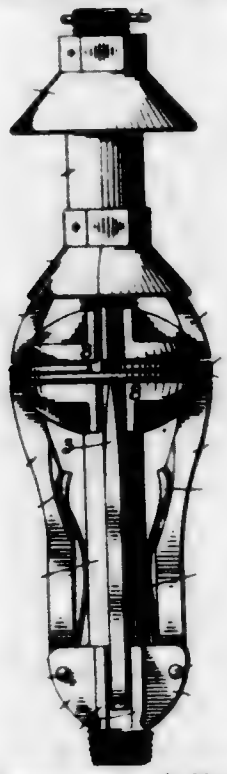
In a breech-loading firearm, the combination with a recoil-block

and breech-block, of a pin-bolt, the latter consisting of a suitable body portion having a spring 23 mounted therein, a portion 24 of said spring being deflected and passing transversely through the body of said bolt, a head 25 on said spring, a recess $22^{\times}$ at the end of said bolt, the inner portion 27 of said head being adapted to seat in said recess to extend across the opening between the said spring and the opposing wall of the recess, and the outer portion 26 of said head being chamfered and projected above said spring, and thus adapted to prevent unlocking or disengagement of said pin and its adjuncts.

6. A pin-bolt consisting of a suitable body portion having a spring 23 mounted therein, a portion 24 of said spring being deflected and passing transversely through the body of said bolt, a head 25 on said spring, and a recess $22^{\times}$ at the end of said bolt, the inner portion 27 of said head being adapted to seat in said recess, to extend across the opening between the said spring and the opposing wall of the recess and the outer portion 26 of said head being chamfered and projected above said spring, and thus adapted to prevent unlocking or disengagement of said pin and its adjuncts.

7. In a breech-loading firearm, a breech-block having an overhanging projection 43 forming a housing, a spring 42, secured to said breech-block and within said housing, and an extractor, the latter having a shoulder adapted to contact with the free end of said spring, the latter being disconnected from said extractor, and the lower end of said projection coming in contact with the lower end of said extractor, on opening the breech, thereby starting the shell by leverage, the action of said spring throwing said shell out.

691,057. FLUE-CLEANER. ALFRED A. HULL, Knoxville, Tenn. Filed Apr. 6, 1901. Serial No. 54,649. (No model.)



Claim.—1. In a flue-cleaner, the combination of a rod, fingers carrying scrapers pivoted to the rod having a recess and a convexity, a spring for each finger having a projection taking into said recess upon one side of the pivotal points of the fingers, and a concavity embracing said convexity upon the opposite side of said pivotal points, collars for holding the scraper-blades, and means for adjustably setting the fingers.

2. In a flue-cleaner, the combination of a rod, a pair of segment-shaped collars rigidly secured to said rod, said collars having radial slots therein and cored-out portions between said slots, fingers pivoted to the rod carrying scrapers within the collars, an adjusting-nut for the fingers, a sleeve beyond the nut, means for preventing the rotation of the sleeve upon the rod, a lock-nut beyond the sleeve and means for securing the lock-nut from becoming displaced.

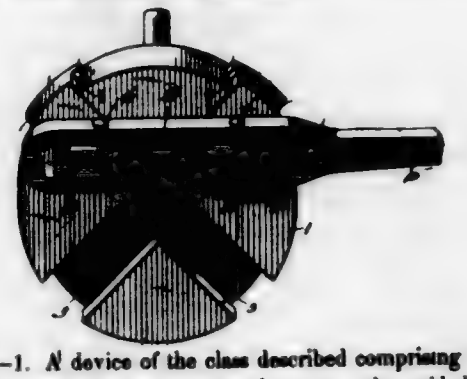
691,058. PASTIL FOR MAKING OXYGEN GAS AND PROCESS OF PRODUCING SAME. GEORGES F. JAUBERT, Paris, France. Filed July 3, 1901. Serial No. 67,067. (No specimens.)

Claim.—1. The improvement in the art of producing oxygen gas, which consists in first mixing chlorid of lime and an alkaline peroxid, then compressing the mixture under strong pressure, and finally placing the compressed mixture in water, substantially as and for the purposes described.

2. For the production of oxygen gas, a pastil or cartridge consisting of well-dried chlorid of lime and an alkaline peroxid.

3. For the production of oxygen gas, a pastil or cartridge consisting of chlorid of lime and sodium dioxid.

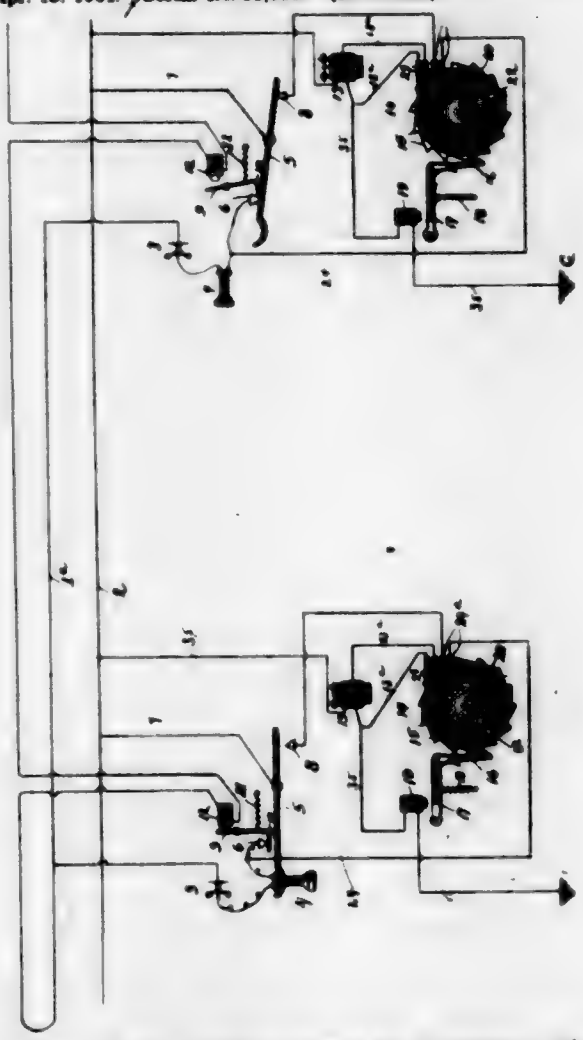
691,059. PITMAN. PARKE D. JOHNS, Loveland, Iowa. Filed Apr. 26, 1901. Serial No. 57,451. (No model.)



Claim.—1. A device of the class described comprising a disk having diametrical ways, slides arranged in the ways and provided with wrist-pins, a head receiving the wrist-pins and connecting the slides, and adapted to prevent the latter from leaving the disk, a pitman having an opening receiving the said head, fastening devices arranged on the exterior of the head for securing the same to the wrist-pins, said fastening devices being of a size to pass through the opening of the pitman, and means for detachably securing the pitman to the head, whereby the pitman may be removed without separating the slides from the disk, substantially as described.

2. A device of the class described comprising a disk having diametrical ways, slides arranged in the ways and provided with wrist-pins having threaded portions, a connecting-head having perforations receiving the wrist-pins, said head being adapted to prevent the slides from leaving the disk, a pitman having an opening receiving the head, nuts arranged on the threaded portions of the wrist-pins and engaging the head and being of a size to pass through the opening of the pitman, and the transverse fastening devices detachably securing the pitman to the head and adapted to permit the pitman to be removed without detaching the slides from the disk, substantially as described.

691,060. TELEPHONY. ISIDOR KITSEE, Philadelphia, Pa. Filed Apr. 15, 1901. Serial No. 55,939. (No model.)



Claim.—1. In a telephone system, the combination with a party-line, of a series of subscriber-stations connected in multiple arc therewith, each of said subscriber-stations including telephonic devices and a

switch, and electromagnetic devices connected in series with the party-line and adapted to prevent the establishment of a circuit between the telephonic devices of each station and the switch thereat when such circuit has been established at one of the stations.

2. In a telephone system, the combination with a party-line, of a series of subscriber-stations connected in such manner with the party-line as to be normally open, each of said subscriber-stations including telephonic devices and a switch, and electromagnetic devices connected in series with the party-line and adapted to prevent the establishment of a circuit between the telephonic devices of each station and the switch thereat when such circuit has been established at one of the stations.

3. In telephony, a party-line, two or more subscriber-stations connected in multiple arc as to each other and said party-line, each of said stations provided with an electromagnetic device connected in series as to one of the line-wires constituting the circuit of said party-line, said electromagnetic device adapted to prevent the closing of the circuit in the remaining subscribers' stations, after the circuit in one of the subscriber-stations has been established.

4. In a telephone system, the combination with a central station, and a party-line, of a series of subscriber-stations connected in multiple arc to said line, a signal device for each of said stations, each of said devices being provided with opposing pairs of coils so wound as to neutralize the effect of the current flowing through the signal device, means for shunting one of the pairs of said coils, and means at the central station for actuating said shunting means.

5. In telephony, a party-line, two or more subscriber-stations connected to said party-line, an alarm device for each of said stations, said alarm device provided with opposing coils so wound as to neutralize the effect of the current flowing through said alarm device, in combination with means to open or shunt the opposing coils of said alarm device at the will of the operator located at the central or exchange.

6. In telephony, a party-line, two or more subscriber-stations connected in multiple arc to said party-line, an alarm device provided with opposing coils so as to neutralize the effect of the current flowing through said alarm device, a step-by-step movement for each of said alarm devices, and means located at the central or exchange to actuate said step-by-step movement, said step-by-step movement provided with means to close or open the shunt-circuit with which said alarm device is provided.

7. In telephony, a party-line, two or more subscriber-stations connected in multiple arc as to said party-line, means at each station to connect electrically one line-wire of said party-line through the transmitter with the other line-wire of said party-line, and means at each of said stations to connect the two line-wires, including the transmitter, of each station through a second circuit, normally broken but electrically connected at the will of the operator at the central or exchange.

8. In telephony, a party-line, two or more subscriber-stations connected in multiple arc as to said line, a step-by-step movement for each subscriber-station, said step-by-step movement provided with means to close a shunt-circuit of the alarm device with which said station is provided, and to connect the normally broken parts of a circuit adapted to make connection between that part of the circuit connected to the lever and that part of the circuit connected to the transmitter.

9. In a telephone system, the combination with a party-line, and a series of subscriber-stations connected in multiple arc therewith, of an auxiliary circuit formed by a shunt located at each of said stations and including the transmitter and the receiver-hook, and means controlled by the central station and coöperating with the receiver-hook for opening and closing the auxiliary circuit.

10. In telephony, a party-line, two or more subscriber-stations connected in multiple arc as to said line, means for each station to prevent the flow of the current through the telephonic devices placed at said station, if the circuit is closed at a second station, an alarm device for each station, said alarm device provided with means to nullify the effect of the current impulses on the movable parts of said device, means for each of said alarm devices to make ineffective said nullifying means, and means at each station to close the circuit of said party-lines including the telephonic devices at said station, through an auxiliary circuit with which each station is provided.

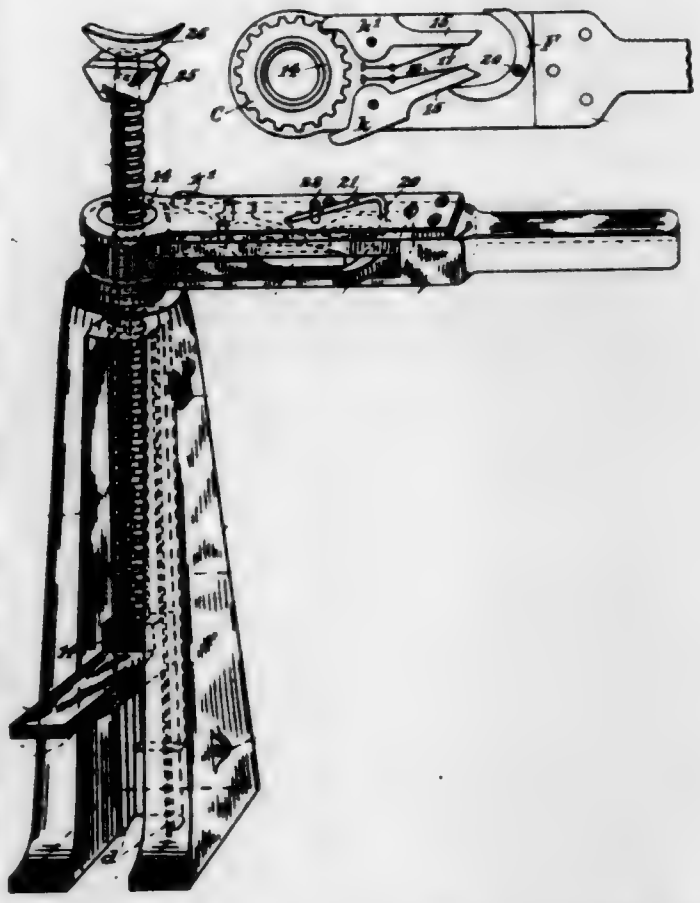
11. In a telephone system, the combination with a party-line, of a series of subscriber-stations connected in multiple arc with said line, an auxiliary circuit located at each of said stations and including a signal device, means for controlling said auxiliary circuit, a second auxiliary circuit located at each of said stations and adapted to establish connection between the line and each of said stations independently of the other stations, said second auxiliary circuit including the transmitter and the receiver-hook, and means coöperating with the receiver-hook for opening and closing the second auxiliary circuit.

12. In a telephone system, the combination with a party-line, of a series of subscriber-stations connected in multiple arc with said line, an auxiliary circuit located at each of said stations and including a signal device, means for controlling said auxiliary circuit, a second auxiliary circuit located at each of said stations and adapted to establish connection between the line and each of said stations independently of the other stations, said second auxiliary circuit including the transmitter and the receiver-hook, and means controlled by the central station and coöperating with the receiver-hook for opening and closing the second auxiliary circuit.

13. In a telephone system, the combination with a party-line, of a series of subscriber-stations connected thereto and each including telephonic devices, an auxiliary circuit located at each of said stations and including a signal device, a step-by-step mechanism also located at each of said stations and controlled by said auxiliary circuit, a second auxiliary circuit located at each of said stations and adapted to establish through the step-by-step mechanism connection between the line and its stations independently of the other stations, and a make-and-break device located at the central station and controlling the auxiliary circuits of the several stations.

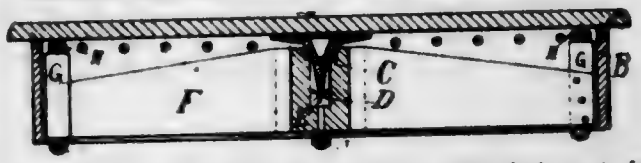
14. In a telephone system, the combination with a party-line, of a series of subscriber-stations connected thereto and each including telephonic devices, a stationary contact, and a switch, and an electromagnetic device for each of said stations connected to the line, said electromagnetic devices having their armatures provided with means adapted to be interposed between the stationary contacts and the switches to prevent the establishment of the telephonic circuits.

691,061. JACK-SCREW. GEORGE L. KOLLOCK and SAMUEL W. M. KOLLOCK, Seattle, Wash. Filed Apr. 23, 1901. Serial No. 57,096. (No model.)



Claim.—In a jack-screw, the combination of a stand having a longitudinal recess, a head and guides, a foot having a screw and a head with grooves to receive said guides, a nut on said screw and supported by the head of the stand, and having ratchet-teeth and hubs upon opposite sides thereof, a ratchet-lever bifurcated and having portions embracing said hubs, pawls mounted in the bifurcation of the lever, a yoke pivoted in the bifurcation of the lever to engage said pawls, the pivot of the yoke being extended to form a handle, and a lock-pin removably inserted in the lever for coöperation with said handle, all substantially as shown and described.

691,062. DRESS-FITTING STAND. EMMA KUHNT, Chicago, Ill. Filed May 11, 1901. Serial No. 59,564. (No model.)

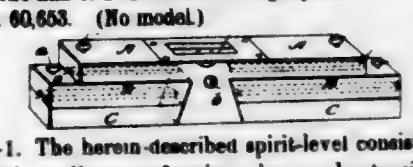


Claim.—1. In a dress-fitting stand, a rotatable platform consisting of a flat top with a downwardly-extending casing and having a central pivotal support upon a central block, arms extending horizontally outwardly from said center block, a post at the free end of each arm, a roller

in a bearing on the head of each post and a caster at the foot substantially as specified.

2. In a dress-fitting stand, the combination of a level platform rotatably mounted upon a center block, with arms extending outwardly from said center block, a post at the free end of each of said arms, a roller mounted in a bearing on the head of each post and a caster under each foot substantially as specified.

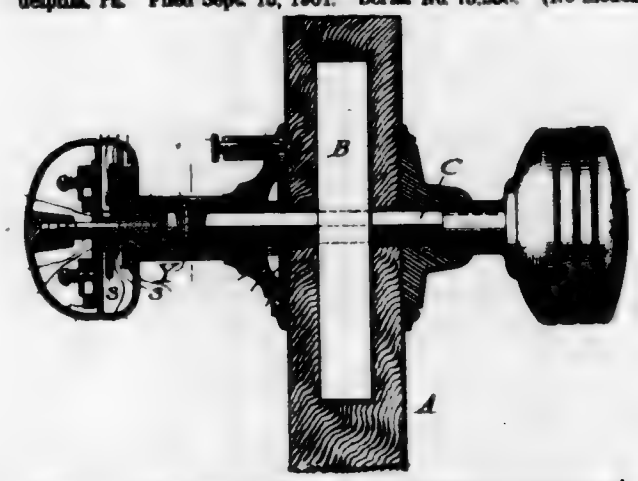
691,063. SPIRIT-LEVEL. DANIEL LESH, West Fairview, Pa., assignor of one-half to D. L. Kaufman, Highspire, Pa. Filed May 17, 1901. Serial No. 60,653. (No model.)



Claim.—1. The herein-described spirit-level consisting of a central portion having depending part forming a base and extensions horizontally disposed from the top thereof, the alcohol-filled glass tubes in said central portion over said base, and a series of slides dovetailed to slide one upon the other and upon and beneath the extensions of the central portion, substantially as described.

2. The herein-described spirit-level consisting of the central portion comprising a base and rigid lateral extensions projecting in opposite directions from the top thereof, alcohol-filled glass tubes in said central portion, a series of slides dovetailed to slide one upon the other and in grooves in the under faces of said extensions, and set-screws for holding the slides in their distended and closed positions, all substantially as shown and described.

691,064. ALARM OR CALL BELL. JESSE O. LIPPINCOTT, Philadelphia, Pa. Filed Sept. 13, 1901. Serial No. 75,255. (No model.)



Claim.—1. The combination with the spindle of a door-latch, of a bell secured to one end thereof and provided with a knob therefor, a sounding device connected with the train of gears mounted upon and carried by said bell, a support, said spindle and support being relatively rotatable, a gear rigidly mounted upon said support and intermeshing with said train of gears, and devices for preventing the rotation of said support, handle and the gear carried thereby, so that the sounding devices will be operated by turning the spindle.

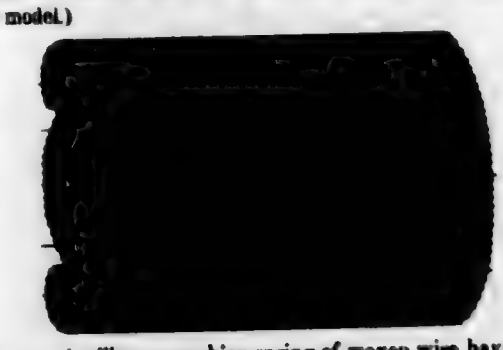
2. The combination with the spindle of a door-latch, of a bell secured to one end thereof, a rotatable post or support mounted upon the door and upon said spindle, sounding devices mounted upon and connected with the train of gears, a gear rigid with said post or support and intermeshing with one of said train of gears, said spindle and post or support being relatively rotatable, and means for holding said post or support and the gear carried thereby against rotation.

3. The combination with a spindle of a door-latch, of a bell secured to one end thereof, sounding devices and gearing for operating the same carried by said bell, a gear intermeshing with said gearing, a sleeve surrounding said stem and carrying said gear, and means for preventing the rotation of said sleeve whereby when the sleeve is held against rotation the bell will be sounded upon the turning of the spindle.

4. The combination with a spindle of a door-latch, of a bell secured to one end thereof, sounding devices connected with a train of gears carried by said bell, a gear intermeshing with one of said train of gears, a post or support for said gear, and a detent carried by said post or support adapted to engage a stationary part and prevent the rotation thereof.

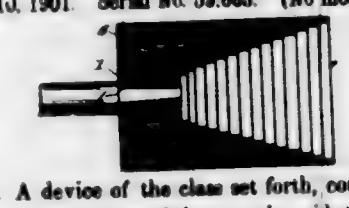
5. The combination with a spindle of a door-latch, of a bell secured to one end thereof and having a sounding device, a train of gears for operating the same, a gear intermeshing with one of said train of gears, openings through the casing of said bell, a sleeve rotatably mounted upon said spindle and having fingers extending through said openings in the casing, and upon which said gear is secured, and a spring-actuated detent carried by said sleeve, and adapted to engage a suitable socket upon the door.

691,065. SPRING FOR PILLOWS, CUSHIONS, &c. JOSEPH H. MASLAND, Philadelphia, Pa. Filed Sept. 24, 1901. Serial No. 76,343. (No model.)



Claim.—A pillow or cushion spring of woven wire having a pocket formed by folding the woven wire into two sections, and coiling or rolling the opposite edges of the doubled wire into convolutions, with spiral springs inserted in the pocket, substantially as and for the purpose described.

691,066. GRINDING OR POLISHING CONE. HENRY C. MILLER, Jr., Hazleton, Pa., assignor of one-half to Peter J. Miller, Hazleton, Pa. Filed May 10, 1901. Serial No. 59,663. (No model.)

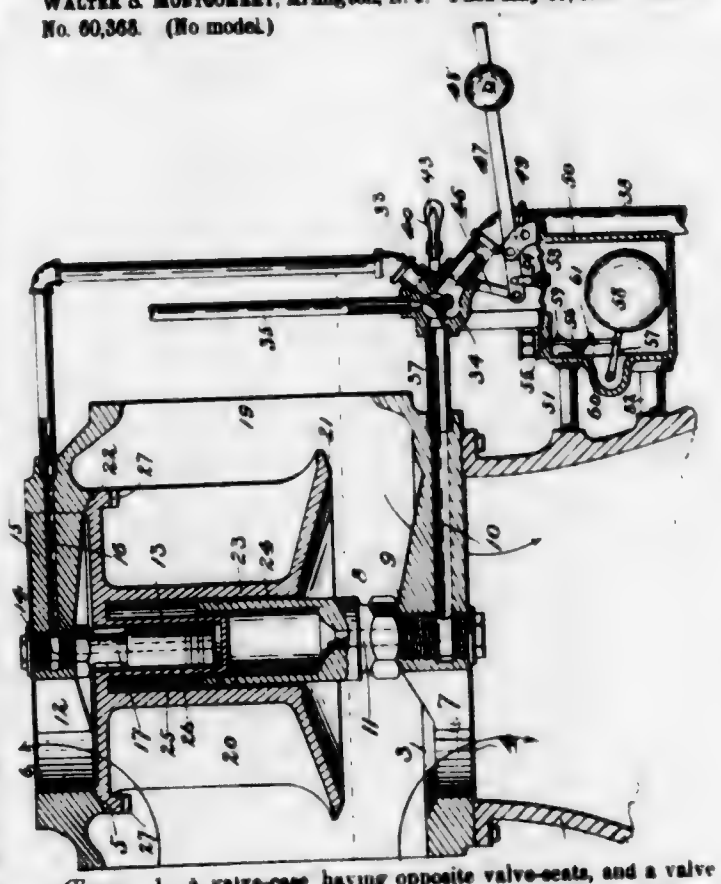


Claim.—1. A device of the class set forth, comprising a core, and a strip of abrading material wound thereon, the said strip having a straight edge and an oblique edge whereby one extremity of the device will be flexible or freely bendable to conform to the contour of the surface against which it is brought to bear.

2. A device of class described, comprising a tubular cork core, an abrading-strip wound thereon and having one straight edge and an opposite oblique edge to regularly project the laminæ of the strip successively beyond each other to form a conical hollow in a greater portion of the device and provide the latter with a flexible or freely-bendable extremity, and means for holding the strip in wound condition until unwound to present a new abrading-surface.

3. A device of the class set forth having a body composed of a wound strip of abrading material with the edges flush at one end and regularly projected beyond each other at the opposite end to provide a flexible extremity.

691,067. AUTOMATIC RELIEF AND CONDENSER VALVE. WALTER S. MONTGOMERY, Arlington, N. J. Filed May 15, 1901. Serial No. 60,368. (No model.)



Claim.—1. A valve-case having opposite valve-seats, and a valve having corresponding faces; in combination with means within the valve-case for operating the valve in opposite directions, means for supplying fluid-pressure thereto, and a condenser-chamber.

2. A valve-case having opposite valve-seats, and a valve having corresponding faces; in combination with opposite cylinders within the valve-case, and means for supplying a fluid thereto and a condenser-chamber.

3. A valve-case having opposite valve-seats, and a valve having corresponding faces; in combination with opposite cylinders within the valve-case, a valve for supplying a fluid to said cylinders, and means for automatically operating the fluid-supply valve and a condenser-chamber.

4. A valve-case, a valve, and means within the valve-case for operating the valve by fluid-pressure; in combination with a fluid-supply valve, and means operated upon by the atmosphere to control the fluid-supply valve and a condenser-chamber.

5. A relief-valve, a condenser-chamber, and a fluid-pressure chamber in communication with the condenser-chamber, and means operated from said pressure-chamber for holding the valve to its seat against the vacuum.

6. A relief-valve, and means for operating the valve by fluid-pressure; in combination with a fluid-supply valve, and an automatically-operated valve-controlling mechanism and a condenser-chamber.

7. A relief-valve, and a condenser-chamber; in combination with an air-chamber connected to said condenser-chamber, an air-valve, and a float for operating said valve to destroy the vacuum in said condenser-chamber.

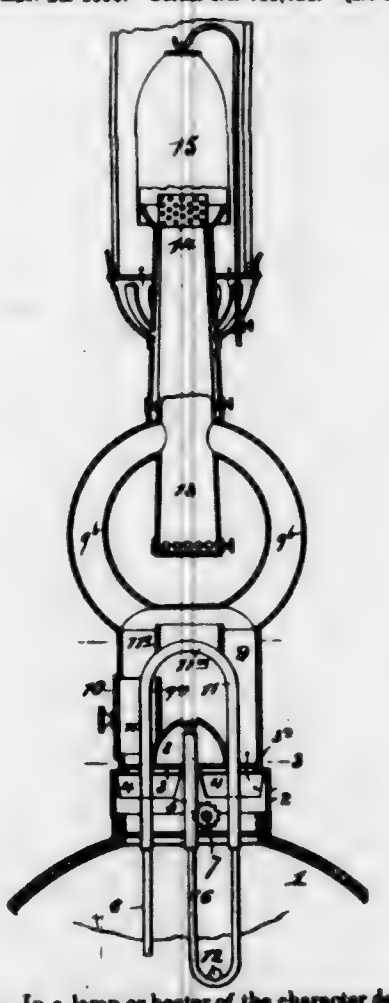
8. A relief-valve, and means for operating said valve by fluid-pressure; in combination with a fluid-controlling valve, and a lever connected to said valve and a condenser-chamber.

9. A relief-valve, and means for operating said valve by fluid-pressure; in combination with a fluid-controlling valve, and levers detachably connected together and engaging the stem of the operating-valve and a condenser-chamber.

10. A valve-case having opposite valve-seats, and a valve having corresponding faces, concentric cylinders formed in the valve, and a piston for the inner cylinder, and means for supplying a fluid to said cylinder; in combination with a condenser-chamber.

11. A valve-case, a valve having concentric cylinders therein, a cylinder secured to the valve-case and extending into the outer cylinder in the valve, a piston secured to the valve-case and extending into the inner cylinder in the valve, and means for supplying a fluid to said cylinders; in combination with a condenser-chamber.

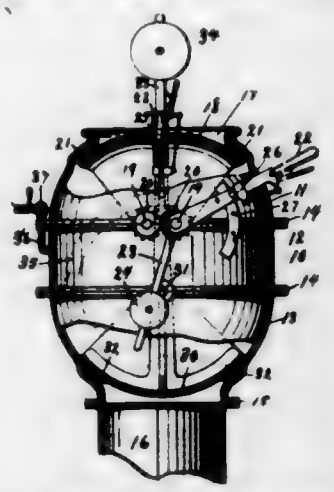
691,068. **HYDROCARBON-LAMP** STEPHEN B. MORSE, Rahway, N. J. Filed Apr. 20, 1899. Serial No. 713,723. (No model.)



Claim.—1. In a lamp or heater of the character described, the combination of a burner having a wick-tube 5, and a tube or duct having a portion overlying the wick-tube 5 and two depending portions lying on opposite sides of wick-tube 5 and opening downwardly, and a wick extending continuously from wick-tube 5 to an oil-font, thence up into and through the duct and depending therefrom into the oil, the overlying portion of the duct having means to permit the escape of vapor, substantially as described.

2. In a lamp or heater of the character described, the combination of a burner having a wick-tube 5, and a tube or duct having a portion overlying the wick-tube 5 and two depending portions lying on opposite sides of wick-tube 5 and opening downwardly, and a wick extending continuously from wick-tube 5 to an oil-font, thence up into and through the duct and depending therefrom into the oil, the overlying portion of the duct having means to permit the escape of vapor, a guide for the wick below the burner, and a shield surrounding said escape means and extending upwardly, substantially as described.

691,069. **AIR-LOCK FOR CAISSONS.** JOHN F. O'ROURKE, New York, N. Y. Filed Dec. 30, 1896. Serial No. 617,437. (No model.)



Claim.—1. An air-lock for caissons, comprising a shell convex at top and bottom and provided with end openings, a single gate for closing the bottom opening, the gate corresponding in shape to the shape of the shell, a pair of oppositely-arranged swinging gates to close the top opening, said gates being geared together so as to move in unison, counterbalances for the upper and lower gates, mechanism for working the gates, and means for admitting air to and exhausting it from the shell, substantially as described.

2. The combination with the shell and the swinging gate therein, of an oscillating cylinder serving as a counterbalance for the gate, a stationary support for the piston-rod of the cylinder, and means for admitting air or steam to the cylinder, substantially as described.

3. In an air-lock for caissons, the combination with the shell and the swinging gate therein, of the cranks on the pivot-shaft of the gate, a cylinder pivoted between the cranks, a stationary support forming a pivot of the piston-rod of the cylinder, and means for admitting air or steam to the cylinder, substantially as described.

4. An air-lock for caissons comprising a shell having an opening therein with a curved seat surrounding the same, gates to close said opening having curved surfaces to fit said curved seat and pivoted so that said gates shall move toward and from each other with their curved surfaces sliding against said seat, each of said gates having a journal extended through the wall of said shell, and gears applied to said journals outside of said shell and connected so that said gates shall open and close in unison.

5. An air-lock for caissons comprising a shell having openings at its upper and lower ends with a curved seat around each opening, two gates to close the upper opening having curved surfaces to fit the curved seat around the same and pivoted so that said gates shall move toward and from each other with their curved surfaces sliding against said seat said gates having a rope opening between them, and a single gate to close the lower opening, said single gate having a curved surface to fit the curved seat around the lower opening and pivoted so that it shall move to open or close said opening with its curved surface sliding against said seat.

6. An air-lock for caissons comprising a shell having openings at its upper and lower ends with a curved seat around each opening, two gates to close the upper opening having curved surfaces to fit the curved seat around the same and pivoted so that said gates shall move toward and from each other with their curved surfaces sliding against said seat, said gates having a rope opening between them, a single gate to close the lower opening, said single gate having a curved surface to fit the curved seat around the lower opening and pivoted so that it shall move to open or close said opening with its curved surface sliding against said seat, means to operate the upper gates and independent means to operate the lower gates.

7. An air-lock for caissons comprising a shell having an opening at its upper end with a seat curved about a center below it and having an

opening at its lower end with a seat curved about a center above it, and gates to close said openings having curved surfaces to fit the curved seats and pivoted so that the curved surfaces thereof shall slide against said seats respectively.

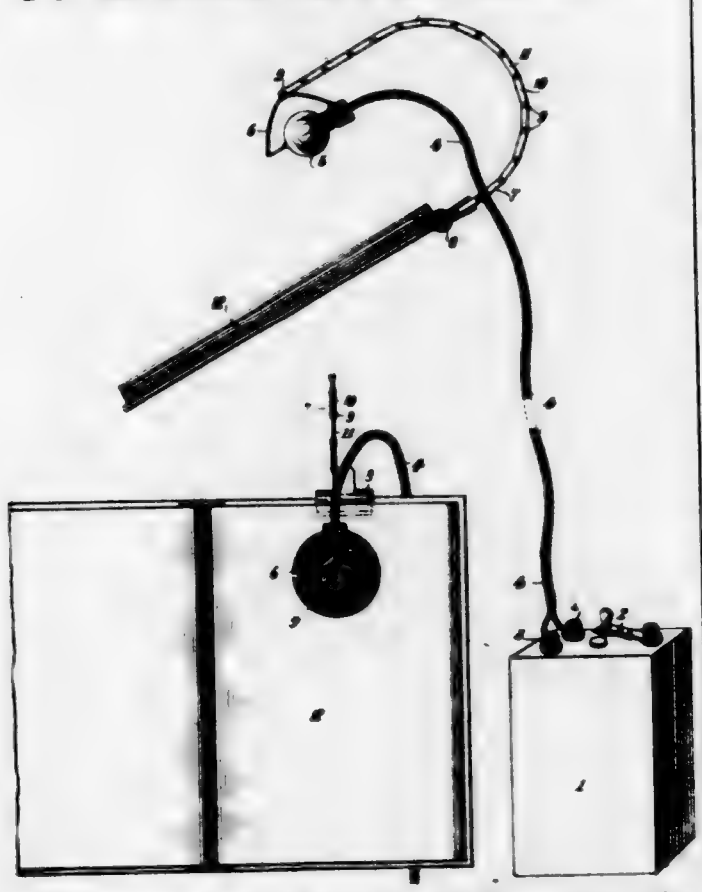
691,070. HAMMOCK-SUPPORT. ISAAC E. PALMER, Middletown, Conn. Filed Aug. 18, 1898. Serial No. 688,871. (No model.)



Claim.- 1. The combination with suitable supporting-legs and a backbone formed in sections, one of said sections being formed of spaced bars, of a clamp provided with a cam for locking the sections together and a guide partially embracing one of the bars of the spaced-bar section and connected with the adjacent section for holding the parts in the desired relation to one another, substantially as set forth.

2. The combination with the extensible backbone, of a folding awning-support hinged to the backbone and arranged to swing from its extended adjustment over into a folded position alongside the backbone, substantially as set forth.

691,071. LIGHTING DEVICE. BURTON S. PHILBROOK, New York, N. Y. Filed Feb. 4, 1901. Serial No. 45,860. (No model.)



Claim.—1. In an electrical lighting device, the combination of an incandescent lamp; an adjustable attaching device, capable of attachment to any suitable support; and a suitable flexible member attached at one extremity to the attaching device and at the other end connected with the lamp, whereby the latter may be adjusted with respect to said support at will.

2. In an electrical lighting device, the combination of an incandescent lamp; a suitable shade for screening the same; an adjustable attaching device capable of attachment to any suitable support; and a suitable flexible member attached at one end to the attaching device and at the other end connected with the lamp, whereby the latter may be adjusted with respect to said support at will.

3. In an electrical lighting device, the combination of an incandescent lamp, a suitable shield screening the same; an adjustable attaching device capable of attachment to any suitable support; an adjustable flexible arm composed of a series of joints and connected to said attaching device; and means for connecting the lamp and screen to said arm.

4. In an electrical lighting device, the combination of an incandescent lamp; a suitable shield screening the same; an adjustable attaching device capable of attachment to any suitable support; an adjustable arm flexible at intervals throughout its length and connected to the said lamp and shield; and means for connecting the arm to the attaching device.

5. A portable electrical lighting device, comprising a movable source of electrical energy; an incandescent lamp; a suitable shade screening the same; an adjustable attaching device capable of attachment to any suitable support; and a suitable folding flexible member attached at one extremity to the attaching device and connected at the other end to the lamp, whereby the lamp may be adjusted with respect to the support at will.

6. A portable electrical lighting device comprising a movable source of electrical energy; a miniature incandescent lamp supported under a shield and connecting with the source of energy, said shield supporting and screening said lamp; an adjustable arm supporting the shield and lamp; and an adjustable attaching device attached to the adjustable arm.

7. A portable electrical lighting device comprising a pocket-battery; a miniature incandescent lamp connected with the battery; a shield supporting the lamp and screening the same; an adjustable arm supporting the shield and lamp; and an adjustable attaching device attached to the adjustable arm.

691,072. SAW-SET. LEONIDAS H. PRICE, Indianapolis, Ind. Filed Apr. 3, 1901. Serial No. 54,121. (No model.)

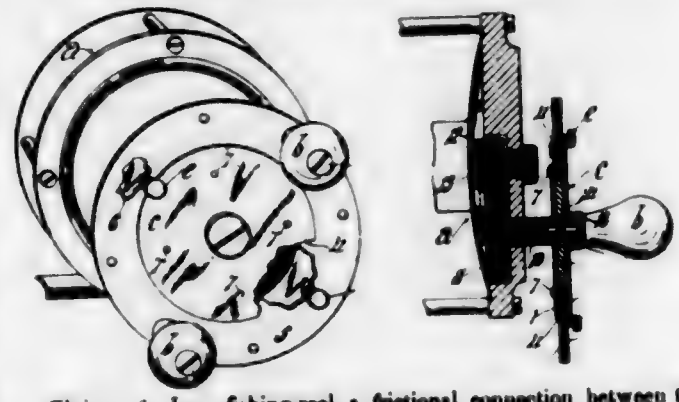


Claim.—1. The combination, in a saw-set, of a body-block, two flexible bearing-plates secured thereto, adjusting-screws for determining the positions of said bearing-plates, a housing rigidly secured to the body-block, a set-pin mounted in said housing, a spring adjacent to said set-pin, and a connection between said set-pin and said spring.

2. The combination, in a saw-set, of a body-block, a housing, a set-pin mounted in said housing, a coiled spring surrounding said set-pin and interposed between two members of said housing, and a connection between said set-pin and said spring at a point intermediate the ends thereof whereby said spring is enabled to hold said set-pin to its proper at-rest position in both directions, substantially as set forth.

3. The combination, in a saw-set, of a body-block, a housing mounted thereon, a set-pin mounted in said housing, a coiled spring surrounding said set-pin and interposed between two bearing-points therefor on said housing, and a pin passing through said set-pin and between the coils of said spring, whereby, by turning said spring around said pin, the latter is adjusted longitudinally in its bearings, substantially as set forth.

691,073. FISHING-REEL. FRANCIS J. RABBITT, Boston, Mass. Filed Aug. 30, 1900. Serial No. 28,565. (No model.)



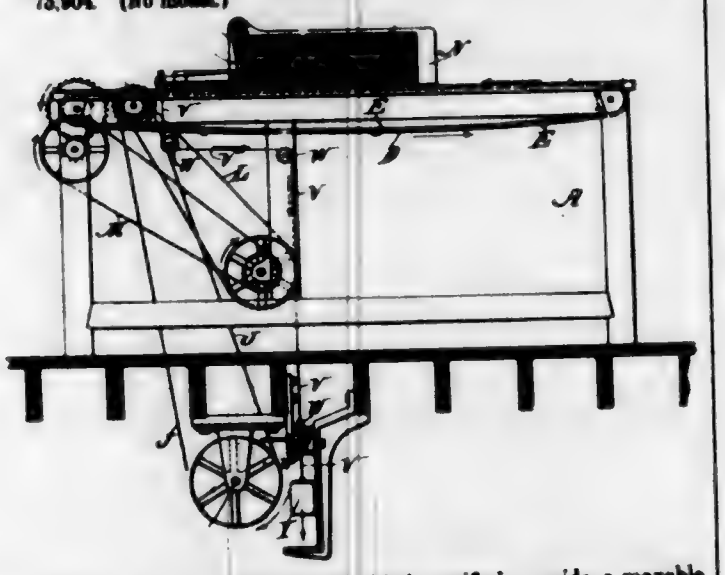
Claim.—1. In a fishing-reel, a frictional connection between the handle and the barrel of the spool, comprising a wheel member; a ring member on said wheel member; one of said members being furnished with a groove in which the other member is seated, and said other member being formed in two parts in said groove; and means for varying the frictional contact between the grooved member and the other member.

2. In a fishing-reel, the combination with the spool; of a wheel member connected with the spool to turn the same; and a ring member furnished with a handle and surrounding the wheel member; one of said members being formed of two parts embracing the other member between

them; and means for increasing and decreasing the frictional contact between said parts and the member embraced thereby.

3. In a fishing-reel, the combination with the spool; of a peripherally-grooved wheel connected with the spool to turn the same; a ring furnished with a handle and comprising two plates surrounding said wheel and embraced in the groove thereof; and means for moving said plates from and toward each other, to vary the frictional contact between the wheel and the ring.

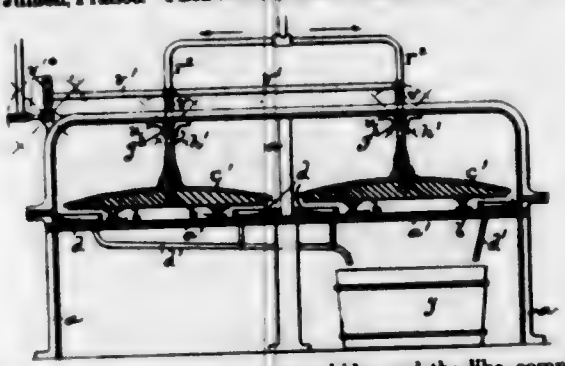
691,074. **SAFETY DEVICE FOR WOODWORKING-MACHINES.** THOMAS B. RICE, Jr., Philadelphia, Pa. Filed Aug. 31, 1901. Serial No. 73,904. (No model.)



Claim.—1. In a machine of the kind specified, a guide, a movable gate at one end thereof, an arm carried by said gate, fixed means on the frame of the machine, a bar having one end detachably and normally engaged over said means, and extended over said arm, a belt-shifting mechanism and a connection between the same and the said bar, and means for actuating said shifting mechanism when the bar is released from its holding means by the upward movement of said arm.

2. In a machine of the kind specified, a guide mounted upon the bed thereof, a movable gate at one end of said guide, the lower edge of which is situated above said bed, an arm upon said gate, a pin upon the frame of the machine, a bar engaging said pin and extending across the upper edge of said arm, a slide carrying a belt-shifter that engages the power-belt of the machine, a weight for moving said slide in one direction, and a connection between said slide and said bar.

691,075. **APPARATUS FOR COLORING HIDES.** ALBERT RIGAUD, St. Junien, France. Filed Oct. 25, 1900. Serial No. 34,393. (No model.)



Claim.—1. A machine for dyeing hides and the like, comprising a frame, a movable platform thereon, spraying devices above the platform but not in contact therewith and means for causing the spray to travel from side to side of the movable platform, substantially as described.

2. A machine for dyeing hides or the like, comprising a frame, a movable platform therefor, to which the hides are secured, spraying devices above but not in contact with the hides and means for reciprocating said spraying devices from side to side of the platform, substantially as described.

3. A machine for dyeing hides, or the like, comprising a frame, a movable platform therefor, a holder *g* above the platform, means to reciprocate it from side to side above the platform, and spraying devices in the holder adjustable therein, substantially as described.

4. A machine for dyeing hides or the like, comprising a frame, and movable platforms therefor, in combination with sets of spraying devices over the platforms, a separate container for each set of spraying devices, separate gutters and tanks therefor under each set whereby on placing different liquids in the separate containers and traversing the platforms the successive steps of a process may be carried out as described.

5. A machine for dyeing hides, or the like, comprising a frame, a longitudinally-movable platform thereon, said platform being higher above its center line than at the sides, and gutters secured to the frame beneath the sides in combination with spraying means above the platform, substantially as described.

691,076. **BOOT OR LIKE STRETCHING AND MOLDING DEVICE.** EUGÈNE SALUTRYBSKI, Genillé, France. Filed Aug. 12, 1901. Serial No. 71,772. (No model.)

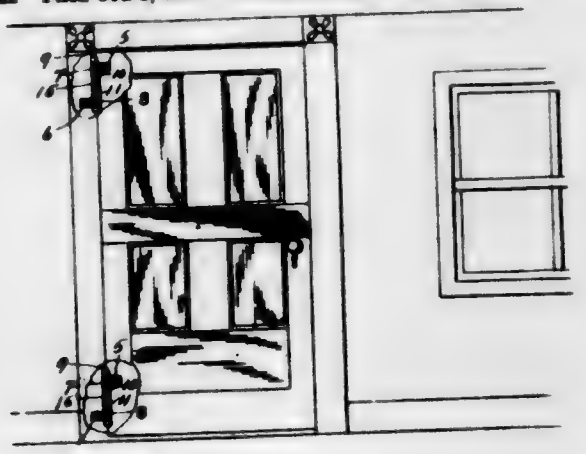


Claim.—1. A device of the character described comprising in combination two bars or legs, a die adjustably mounted on one of said bars, a cup adjustably mounted on the other bar and adapted to coöperate with the die, as described, one of said bars being adapted to be moved longitudinally relatively to the other to cause the die and cup to clamp the boot or shoe between them as set forth.

2. A device of the character described comprising in combination two bars or legs having a hinged connection with each other to adapt them to swing toward and from each other as described, a die adjustably mounted on one bar and a cup adjustably mounted on the other bar and adapted to coöperate with the die, one of said bars being adapted to be moved longitudinally relatively to the other bar to cause the die and cup to clamp the boot or shoe between them as set forth.

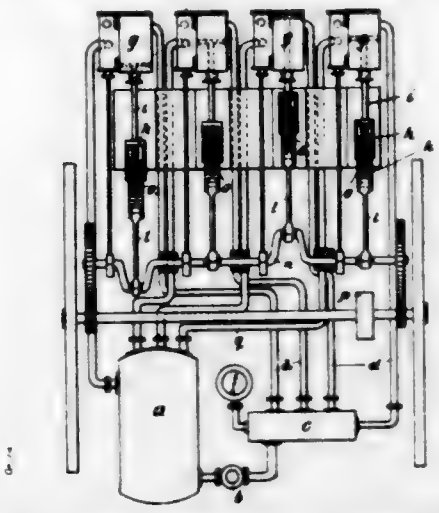
3. A device of the character described comprising in combination two bars or legs having a hinged connection with each other, a die adjustably mounted on one bar and a cup mounted on the other bar and adapted to coöperate with the die, as described, one of said bars being adapted to be moved longitudinally relatively to the other bar to cause the die and cup to clamp the boot or shoe between them, means for locking the bars together to prevent swinging movement after the boot or shoe is clamped between the die and cup, and means for adjusting the movable bar and for locking the same after being adjusted to its clamping position.

691,077. **BUTT-HINGE.** FREDERICK W. L. SCHAFER, Los Banos, Cal. Filed Oct. 3, 1900. Serial No. 31,899. (No model.)



Claim.—A hinge comprising separate leaves each having a sleeve, a pintle connecting the sleeves to permit of rotation of the sleeves with respect to each other, the adjacent ends of the sleeves being continuously beveled to form converging helical cams and longitudinally-extending shoulders, and a separate sleeve mounted loosely upon the pintle between the first-named sleeves and having its ends continuously beveled to form converging helical cams corresponding to the adjacent cams of the first sleeves and longitudinally-extending shoulders, whereby the upper leaf will be raised when swung in either direction from the plane of the lower leaf.

691,078. AUTOMOBILE CAR. KARL SCHILLER, Žižkow, Austria-Hungary. Filed Jan. 27, 1900. Serial No. 3,053. (No model.)



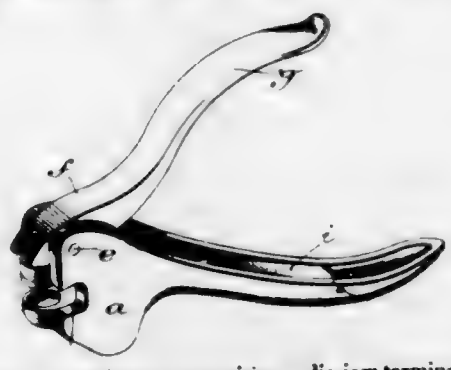
Claim.—1. In a driving mechanism for automotor-vehicles, the combination with a liquid-reservoir, a piston-cylinder, connections between the latter and the reservoir, a piston operating in the cylinder, the piston-rod, a driving-shaft, a connecting-rod connected at one end with the driving-shaft, and a spring connection between the opposite end of the connecting-rod and the piston-rod.

2. In a driving mechanism for automotor-vehicles, the combination with a liquid-reservoir, of a piston-cylinder, connections between the latter and the reservoir, a piston operating in the cylinder, the piston-rod, a driving-shaft, a connecting-rod connected at one end with the driving-shaft, sleeves on the connecting-rod and piston-rod and telescoping one into the other, and a spring interposed between the sleeves, in the manner and for the purposes specified.

3. In a driving mechanism for automotor-vehicles, the combination with a liquid-reservoir *a*, a pump *b*, pipes *d* and *q*, cylinder *g*, a piston operating in the cylinder, the piston-rod, the driving-shaft, a connecting-rod connected at one end with the driving-shaft, sleeves *h* and *k* arranged as described, and a spring interposed between said sleeves for the purposes specified.

4. In a driving mechanism for automotor-vehicles, the combination with a liquid-reservoir, of a piston-cylinder, connections between the latter and the reservoir, a piston operating within the cylinder, the piston-rod, a driving-shaft, a connecting-rod connected at one end with the driving-shaft, a spring connection between the opposite end of said connecting-rod and the piston-rod, a road-wheel shaft geared to the driving-shaft and a brake-disk mounted on the road-wheel shaft.

691,079. SEAL-PRESS. ALBERT B. SCHOFIELD, Brooklyn, N. Y., assignor to Keystone Seal & Press Company, New York, N. Y., a Corporation of New Jersey. Filed July 13, 1901. Serial No. 68,140. (No model.)



Claim.—1. A seal-press comprising a die-jaw terminating in a handle portion, a rigid die-holder bar pivoted at one end to the handle portion of said die-jaw with its die-carrying end free to swing toward and away from the die in said jaw, and an operating-jaw pivoted to the die-jaw and terminating in a handle portion, the said operating-jaw being provided with a cam arranged to travel along the swinging die-holder toward its die-carrying end as the compression progresses, substantially as set forth.

2. A seal-press comprising a die-jaw terminating in a handle portion, an operating-jaw pivoted to said die-jaw and terminating in a handle portion, a die-holder bar arranged to swing between said jaws, the said operating-jaw being provided with a cam arranged to engage the swinging die-holder, and the said swinging die-holder being provided with a pronounced incline with which the said cam engages during the initial compression movement to cause the dies to rapidly approach each other, and with a bearing-surface at an angle to said pronounced incline along which the cam travels during the final compressing movement to cause the dies to approach each other more slowly, substantially as set forth.

691,080. BOW-FACING OAR. ORLANDO B. SHEDD, St. Johnsville, N. Y. Filed May 3, 1901. Serial No. 58,618. (No model.)



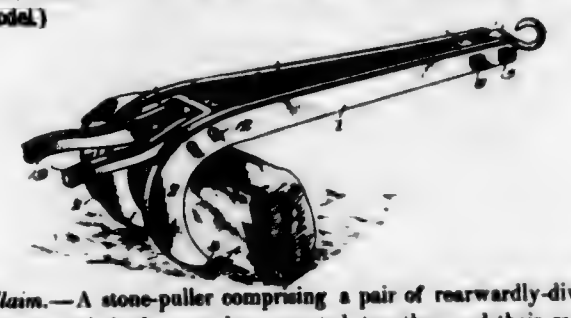
Claim.—1. An oar in two sections having rounded ends and substantially U-shaped, channel-plates connected to said ends and chains lying in the channels of the plates and connected respectively with said sections.

2. An oar in two sections having rounded ends, substantially U-shaped, channel-plates connected to said ends, chains lying in the channels of the plates, and means for adjustably connecting the chains with said sections.

3. An oar in two sections having rounded ends, substantially U-shaped, channel-plates connected to said ends, chains lying in the channels of the plates, hooks on the sections for engaging one end of each chain, the hooks having threaded shanks, projections on said sections to receive said shanks, and nuts on the latter.

4. An oar in two sections, sleeves extending through the sections, a member having bolts extending through the sleeves, chains connecting said sections, a tie-bar uniting the bolts, nuts on said bolts, and channeled plates, the channels of which receive said chains.

691,081. STONE-PULLER. HENRY P. STROH and JAMES HUTCHISON, Sanborn, N. D. Filed Aug. 21, 1901. Serial No. 72,840. (No model.)

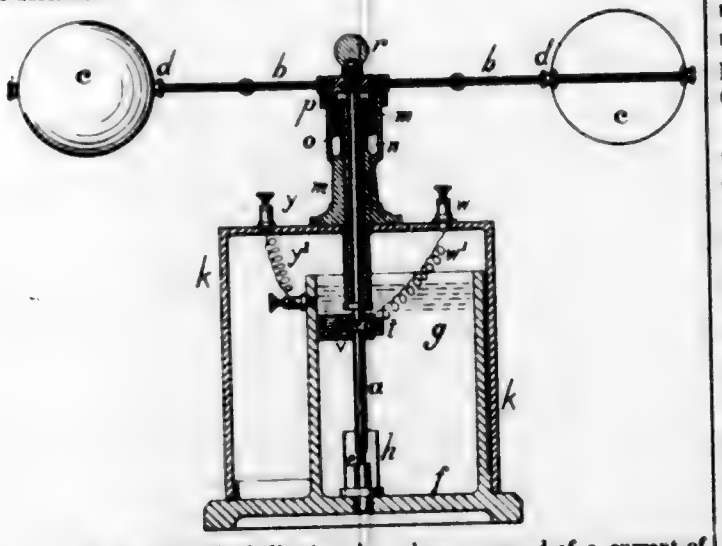


Claim.—A stone-puller comprising a pair of rearwardly-diverging beams having their front ends connected together and their rear ends formed into downwardly-extending, forwardly-curving hooks, disposed abreast of each other, a U-shaped bar disposed between the said beams near the rear ends thereof, the said U-shaped bar having its arms extended rearwardly and bearing against the inner sides of said beams, a pair of rearwardly-extending downwardly-inclined handles having their front portions bearing against the inner sides of said rearwardly-extending arms of said U-shaped bar, and bolts passing through said beams, said arms of said bar and said handles, and securing the same together, substantially as described.

691,082. APPARATUS FOR MEASURING AIR-CURRENTS. JOSEPH THOMPSON, Manchester, England. Filed Jan. 5, 1901. Serial No. 42,261. (No model.)

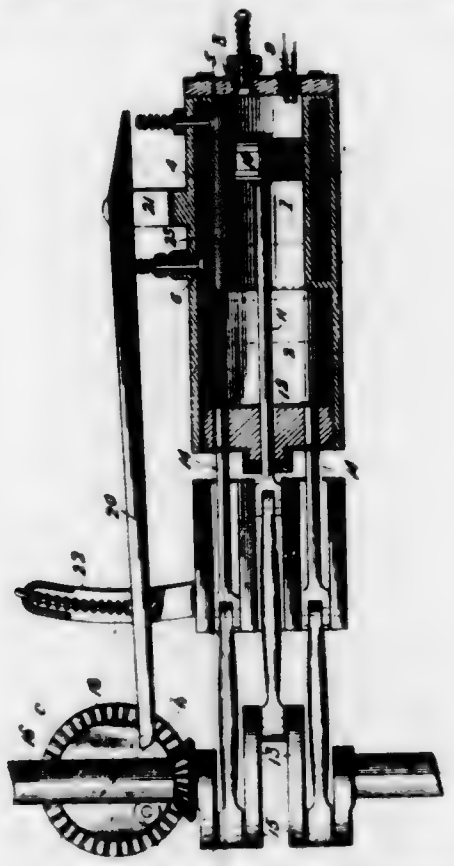
Claim.—1. In apparatus for indicating the volume or speed of a ventilating-current of air, the combination with a rotating vertical spindle, air-cups by which it is rotated, and a conical footstep-bearing, of an inner

chamber *g* filled with a non-conducting liquid in which the spindle is submerged, a cover *k* inclosing the inner chamber, a cam on said spindle rotating therewith and an insulated contact-maker in the closed chamber with which the cam makes and breaks contact at each revolution and means for preventing the entrance of dust to said chamber substantially as described.



2. In apparatus for indicating the volume or speed of a current of air, the combination with a rotating vertical spindle, air-cups by which it is rotated and a footstep-bearing, of a closed chamber filled with a non-conducting liquid in which the spindle rotates, an upper bearing provided with an oil-cup, and a flange depending from the rotating arms of the air-cups into the oil-cup to seal the bearing substantially as described.

691,088. COMPOUND EXPLOSIVE-ENGINE. FREDERICK W. TORDT, Hamburg, Iowa. Filed Mar. 19, 1901. Serial No. 51,921. (No model.)



Claim.—1. An explosive-engine having a high-pressure cylinder and in line therewith a low-pressure cylinder, the piston-rod of the high-pressure piston passing through the low-pressure piston, a crank-shaft to which the piston-rods are connected so that the pistons will move first toward and then away from one another, a valved port for establishing communication between the cylinders and means for placing the cylinders in direct communication at the end of the first movement or impulse to admit a part of the exploded charge from the high-pressure cylinder into the low-pressure one, for the purpose set forth.

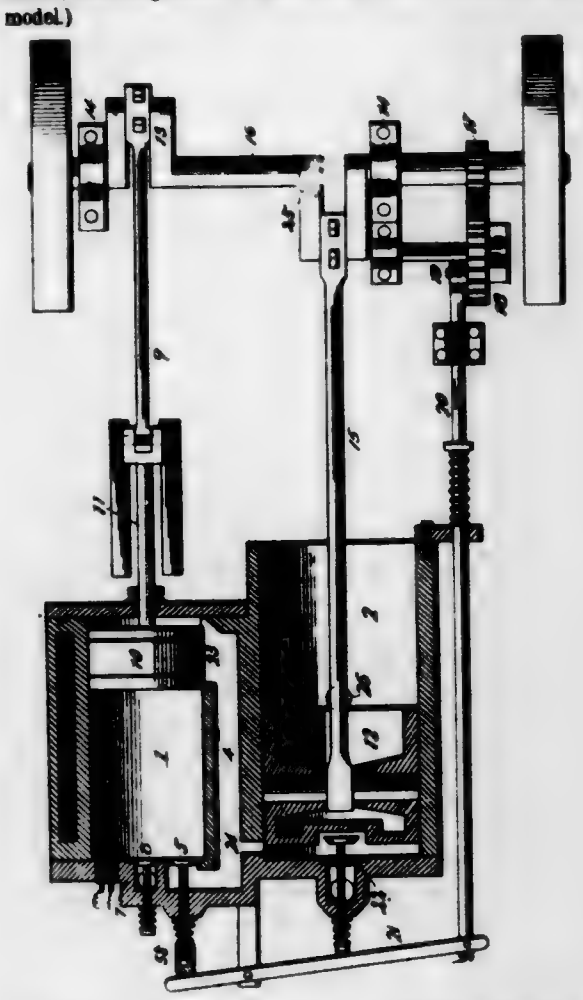
2. An explosive-engine having high and low pressure cylinders arranged in line one with the other and end for end, pistons for the cylinders, which pistons are actuated to move first toward and then away one from the other, a port for establishing communication between the cylinders when the pistons thereof are adjacent and at the limit of the stroke of the high-pressure piston toward the low-pressure one, and a second port which is opened after the high-pressure piston has passed the first-mentioned port, the second port being held open during the movement of the pistons away from each other, substantially as set forth.

3. In a gas-engine, a high-pressure cylinder and a low-pressure cylinder arranged in line one with the other, a way to one side of the high-pressure-cylinder ports for establishing communication between the cylinders, said cylinders having open ends, in combination with pistons which move toward and then away from one another, each piston being connected to the same shaft, a valve for a port between the way and the high-pressure cylinder, a valved exit-port, and means for operating the valve, substantially as shown and for the purpose set forth.

4. In a compound gas-engine, the combination with a high-pressure cylinder and a low-pressure cylinder and their pistons, the pistons being connected to the cranks of a shaft so that the pistons will move first toward and then away from each other, of valves and an overrunning port as shown, an exit-valve and a valve for establishing communication between the cylinders, the valves being held over their ports by springs, a lever fulcrumed between the ports and means for actuating the lever, substantially as set forth.

5. A compound gas-engine comprising a double-crank shaft, high and low pressure pistons which operate in cylinders and are connected to the cranks of the shaft so that the pistons will move first toward and then away from one another, a way between the cylinders, a valved entrance-port, a port between the high-pressure cylinder and the way which is overrun by the high-pressure piston, a valved port between the high-pressure cylinder and the way, a valved exit-port, a lever fulcrumed as shown, a gear-wheel on the driven shaft which meshes with a larger gear-wheel, a trip carried by the larger gear-wheel which engages with the lever, substantially as shown and for the purpose set forth.

691,084. COMPOUND EXPLOSIVE-ENGINE. FREDERICK W. TORDT, Hamburg, Iowa. Filed June 27, 1901. Serial No. 66,240. (No model.)



Claim.—1. An explosive-engine having high and low pressure cylinders arranged alongside of one another, a way between the cylinders, a valveless port located at the opposite end of each cylinder, said ports connecting the cylinders with each other through the way, a valved port between the high-pressure cylinder and the way, a valved entrance-port leading to the high-pressure cylinder, a valved exit-port through the head of the low-pressure cylinder and a lever for alternately actuating the valve of the port leading to the way and the valve of the exit-port, substantially as shown.

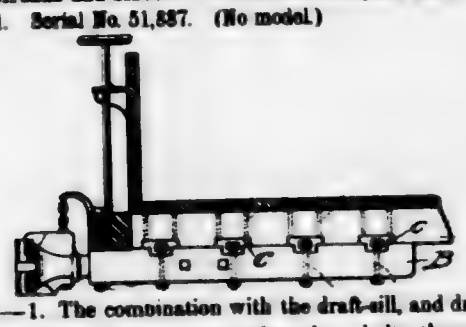
2. In a compound explosive-engine, the combination of high and low pressure cylinders arranged alongside of each other, a port for admitting gas to the high-pressure cylinder, a way between the cylinders and ports adjacent to the opposite ends of the way, one of said ports being overrun by the high-pressure piston, a port the valve of which is oper-

ated to establish communication between the high-pressure cylinder and the way, an exit-port closed when the port just mentioned is opened, a shaft having opposed cranks to which the piston-rods are connected, a pinion which meshes with a gear-wheel having a roller and a valve tripping mechanism actuated by said roller, substantially as shown.

3. In a compound explosive-engine, the combination of a high and a low pressure cylinder arranged side by side, the low-pressure cylinder being opened at one end, a way between the cylinders, a port at one end of the high-pressure cylinder which connects with the way and is overrun by the piston of said cylinder, a port adjacent to the closed end of the low-pressure cylinder, a port at the opposite end of the high-pressure cylinder from the port which is overrun by its piston, which port communicates with a way, a valve-spring actuated in one direction for closing such port, a cap movable on the valve-stem and engaged by the spring, a valved inlet-opening and means for igniting the charge at the same end of the cylinder as the valve between said cylinder and the way, a valved exit-port through the head of the low-pressure cylinder and means for operating the valves alternately against the movement given thereto by the spring, substantially as shown.

4. In a compound explosive-engine the combination of high and low pressure cylinders arranged side by side and connected by a way, the low-pressure cylinder being open at one end, a valved port between the high-pressure cylinder and the way, valveless ports between the way and cylinders which ports may be overrun by the pistons, an exit-port having a valve which is closed prior to the opening of the valve over the port between the high-pressure cylinder and the way, an opening through the low-pressure cylinder which communicates with the exit-port, substantially as shown and for the purpose set forth.

691,085. **MEANS FOR ATTACHING DRAFT-TIMBERS.** ARTHUR L. TURNIPSEED and SIDNEY T. WILLIAMS, Memphis, Tenn. Filed Mar. 19, 1901. Serial No. 51,887. (No model.)



Claim.—1. The combination with the draft-sill, and draft-timber to be fastened together, of a key connecting-piece, bolts through said key-piece and draft-sill to attach said key-piece to said sill, a depressed pocket in said key-piece, a slot leading from one side of said key-piece to said pocket and a bolt inserted through said draft-timber and into said pocket, substantially as and for the purposes set forth.

2. The combination with the draft-sill and draft-timber to be fastened together and mortises in each of said timbers, of key connecting-pieces, fitting said mortises, bolts passing through said key-pieces and draft-sill to attach said pieces to said sill, a depressed pocket in the center of each key-piece, a slot in each leading from the side to said pocket and a bolt in each of said pockets extending through said draft-timber, substantially as shown and described.

3. The combination with two timbers to be fastened together of a key connecting-piece, bolts through said key-piece and one of said timbers to attach said key-piece to said timber, a depressed pocket in said key-piece, a slot leading from one side of said key-piece to said pocket and a bolt inserted in said pocket and extending through the other of said timbers, substantially as and for the purposes set forth.

4. A key-piece for attaching two timbers together, having oppositely-disposed bolt-holes through which bolts may be inserted to attach it to one of the timbers, a centrally-located pocket, a bolt-hole leading from the bottom of said pocket through the key-piece, a slot connecting said pocket and bolt-hole with one side of the key-piece and raised lugs at the entrance to said pocket, all substantially as shown and described.

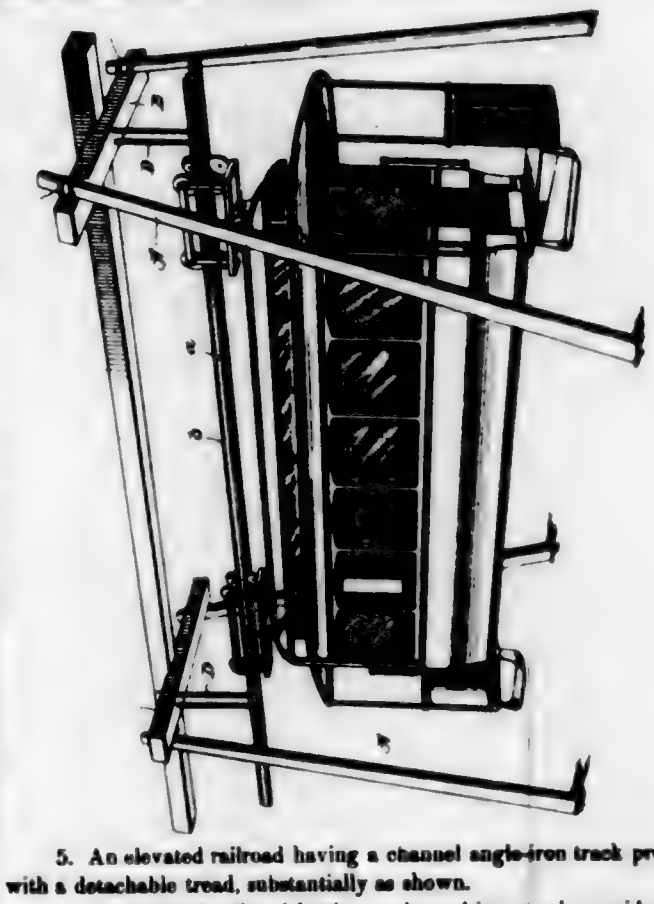
691,086. **ELEVATED RAILROAD.** JOHN H. VALLEY, Jersey City, N. J. Filed Apr. 3, 1901. Serial No. 54,154. (No model.)

Claim.—1. An elevated-railway structure comprising supporting-posts, girders held thereto, longitudinal stringers supported above the girders and held in place upon the latter by depending track-hangers.

2. In an elevated-railway structure, the combination with supporting-posts, of girders held thereto, longitudinal stringers mounted on top of the girders, depending hangers suspended from the stringers and passing through the girders and adapted to support a track and hold the stringers and girders together.

3. In an elevated railway, a track formed from an inverted-U-shaped bar, provided with a detachable tread.

4. In an elevated railroad, the combination with the supporting-posts, of girders held thereto, stringers mounted on the girders, hangers suspended from the stringers and girders, said hangers consisting of two bolts which pass through both stringers and girders and suspend a channel-iron track provided with a raised tread, substantially as described.



5. An elevated railroad having a channel angle-iron track provided with a detachable tread, substantially as shown.

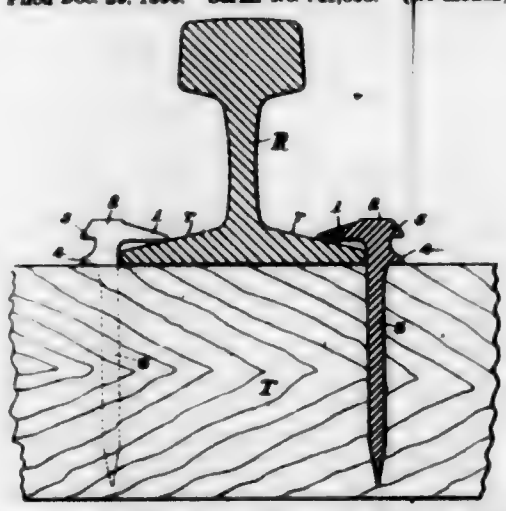
6. An elevated railroad having a channel-iron track provided with a detachable raised tread, substantially as shown.

7. An elevated railroad having an angle-iron track provided with a raised tread, the ends of which overlap the joint of the track on opposite sides thereof, substantially as described.

8. In an elevated railroad, the combination with supporting-posts, of girders held thereto, stringers mounted on the girders, hanger-bolts passing through both stringers and girders and suspending an angle-iron track, each bolt adapted to engage the track near their meeting ends, and thereby prevent injurious strains on the track and its supports substantially as described.

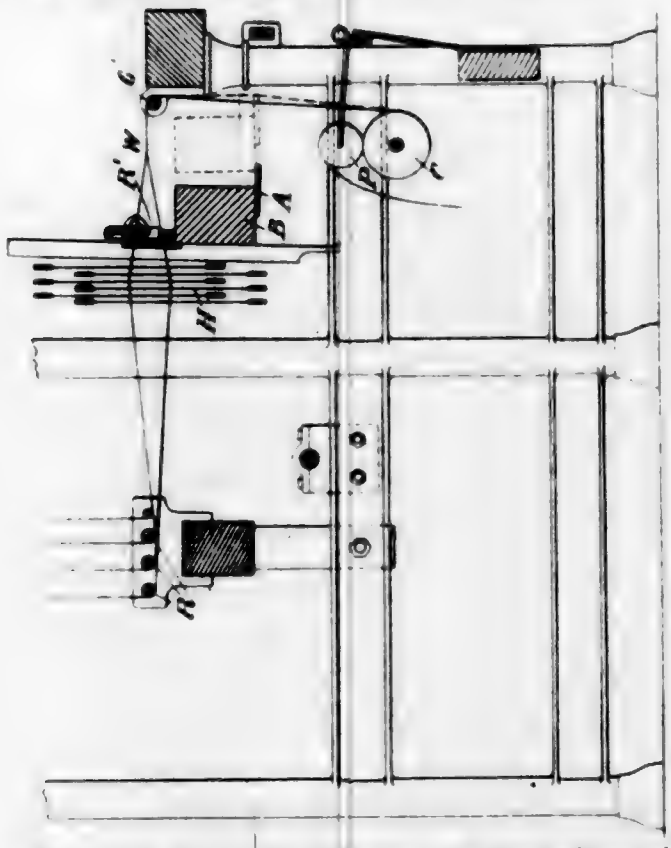
9. In an elevated railway, a track formed from an inverted-U-shaped bar, having a portion of its horizontal face provided with a detachable tread.

691,087. **RAILROAD-SPIKE.** DAVID F. VAUGHAN, Haddonfield, N. J. Filed Dec. 29, 1899. Serial No. 741,893. (No model.)



Claim.—As an article of manufacture, a spike rectangular in cross-section having plain flat sides, a tang extending laterally from the front face of the spike at the upper end thereof, said tang having a flat under surface extending at right angles to the face of the spike, a lug projecting from the rear face of the spike in a lower plane than said tang, having a flat under surface extending at right angles to the rear face of said spike, and a second lug arranged above the first having an under surface of substantially the same dimensions as the under surface of the first lug, the under surface of said second lug being also flat and in a plane at right angles to the rear face of said spike, substantially as described.

691,088. LOOM. EDWARD WACKERHAGEN, Fort Lee, N. J. Filed Aug. 20, 1901. Serial No. 72,651. (No model.)



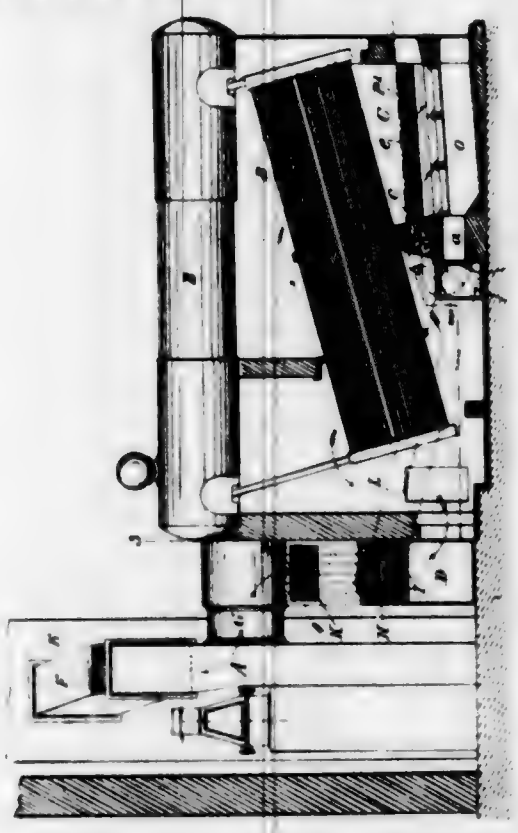
Claim.—1. In a loom, the combination of the front and rear rods, and means for loosening the material from said rods periodically, substantially as described.

2. In a loom, the combination of the front and rear rods and means actuated by the lathe for loosening the material from said rods periodically, substantially as described.

3. The combination with a loom of a lathe having a projection thereon so placed as to strike the web when the lathe swings, substantially as described.

4. The combination with a loom having suitable means for guiding the warp-threads both before and after the weft is incorporated of means striking said threads near one of said guiding means periodically, substantially as described.

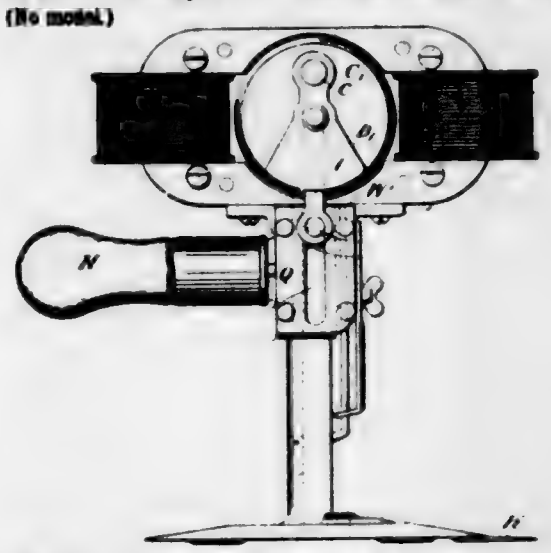
691,089. FURNACE FOR WATER-TUBE STEAM-BOILERS. WILLIAM C. WALLACE, Sheffield, England, assignor of one-half to John Brown & Company, Limited, Sheffield, England. Filed Mar. 29, 1901. Serial No. 53,460. (No model.)



Claim.—1. The combination with a water-tube boiler, having a combustion-chamber or fireplace in which the products of combustion ascend vertically in contact with the water-tubes above said chamber, of a device for heating air, hollow side walls having perforations discharging air horizontally into the fireplace, passages connecting the air-heating device with the said hollow perforated walls, and a fan or fans situated between the furnace and the chimney, by means of which fan or fans the products of combustion are drawn from the furnace and heated air in streams is drawn through the perforations in the hollow side walls to the fireplace, substantially as described.

2. The combination with a water-tube boiler having a combustion-chamber or fireplace in which the products of combustion ascend vertically in contact with the water-tubes above said chamber, of a device for heating air, perforated walls at the sides and back of the furnace and perforated plates in the front of the fireplace, a duct or passage, in connection with the air-heating device, extending along both sides, the back, and partly across the front of the fireplace and horizontally communicating with the interior of the fireplace through the perforations in the side walls of the furnace and in the plates at the front of the fireplace, whereby the heated air is distributed horizontally over the fuel from the sides, back, and front of the fireplace, substantially as and for the purpose described.

691,090. LONG-KNIFE CLOTH-CUTTING MACHINE. EDWARD M. WARING, Brooklyn, N. Y. Filed Mar. 26, 1900. Serial No. 10,229. (No model.)



Claim.—1. The combination with the base, of a recessed column arising therefrom and provided with integral flanges at its upper end, of the motor mounted upon said flanges, the guide secured to the side of the column, the cross-head therein, the knife secured to one side of the cross-head and reciprocating in the recess of the standard, and the pitman secured to the other side of the cross-head and connecting it to the motor, all substantially as set forth.

2. In a cloth-cutting machine, the combination of an electric motor having a balanced crank-pin on its armature, a standard for said motor located directly under the center of gravity thereof and in a plane at right angles to the axis of the armature, a reciprocating knife mounted in a recess in said standard, a guided cross-head to one side of which the knife is connected, and a connection between said crank-pin and said cross-head for reciprocating the latter

691,091. APPARATUS FOR PURIFYING PAPER-PULP. ALBERT ÅSERS, Hermagor, Austria-Hungary. Filed Mar. 23, 1901. Serial No. 52,564. (No model.)

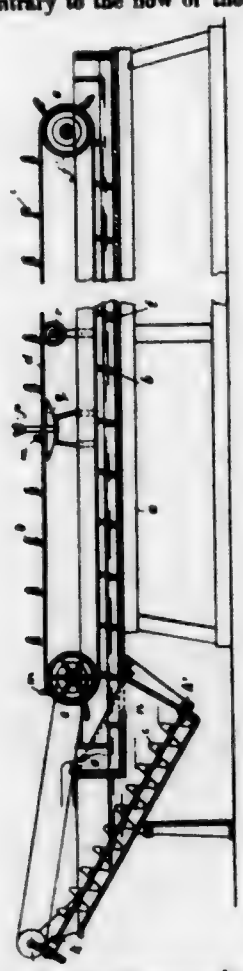
Claim.—1. An apparatus for purifying paper-pulp and the like, comprising a trough and a communicating collector, means for introducing the material adjacent to the collector, a series of cross baffle-plates, and means whereby said baffle-plates may be caused to move in a direction contrary to the flow of the material.

2. An apparatus for purifying paper-pulp and the like, comprising a trough and a collector, means for introducing the material, a series of cross baffle-plates resting on the bottom of said trough, intermediate scum-removing laths, and means whereby said baffle-plates may be caused to move in a direction contrary to the flow of the material.

3. An apparatus for purifying paper-pulp and the like, comprising a trough and a communicating collector, means for introducing the material adjacent to the collector, a series of cross baffle-plates, endless chains supporting said baffle-plates, pulleys supporting said chains, and means for rotating said pulleys, whereby said baffle-plates may be caused to move in a direction contrary to the flow of the material.

4. An apparatus for purifying paper-pulp and the like, comprising a trough and a collector, means for introducing the material, a series of cross baffle-plates, intermediate scum-removing baffle-plates, endless chains supporting said baffle-plates, pulleys supporting said endless chains, and

means for rotating said pulleys, whereby said baffle-plates may be caused to move in a direction contrary to the flow of the material.



5. An apparatus for purifying paper-pulp and the like, comprising a trough and a collector, means for introducing the material, a series of cross baffle-plates, intermediate brushes resting on the bottom of said trough, and means whereby said baffle-plates and brushes may be caused to move in a direction contrary to the flow of the material.

6. An apparatus for purifying paper-pulp and the like, comprising a trough and a collector, means for introducing the material, a series of cross baffle-plates, and intermediate brushes resting on the bottom of said trough, intermediate scum-removing baffle-plates, and means whereby said baffle-plates and brushes may be caused to move in a direction contrary to the flow of the material.

7. An apparatus for purifying paper-pulp and the like, comprising a trough and a collector communicating, means for introducing the material adjacent to the collector, a series of cross baffle-plates, a spray-pipe and a receiving-gutter, and means whereby said baffle-plates may be caused to move in a direction contrary to the flow of the material.

8. An apparatus for purifying paper-pulp and the like, comprising a trough and a collector, means for introducing the material, a series of cross baffle-plates resting on the bottom of said trough, intermediate scum-removing laths, a spray-pipe and a receiving-gutter, and means whereby said baffle-plates may be caused to move in a direction contrary to the flow of the material.

691,092. FORMER FOR AIR-CHAMBERS FOR DENTAL PLATES. LOUIS ARENDT, Jersey City, N. J. Filed June 7, 1900. Serial No. 19,387. (No model.)

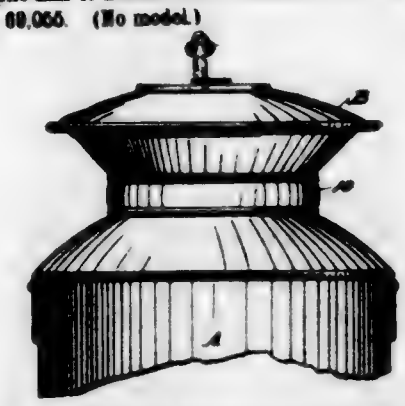


Claim.—1. A form for producing an offset on a dental cast, and consisting of a body portion and a marginal flange forming a chamber for the reception of a plastic material, the said body portion being provided with a central pocket in its upper surface, and a handle provided with a knob at its lower end adapted to enter the pocket in the form and to be retained therein by frictional contact, as set forth.

2. A flexible or elastic form for producing an offset upon a dental cast, the said form consisting of a body portion and a flange forming a receptacle for a plastic material, the said receptacle being shaped to correspond with the desired offset, and a handle detachably connected with the body portion, for guiding the form and exerting pressure to distort said form and plastic material, substantially as described.

3. A flexible or elastic mold or form for producing an offset on a dental cast, the said mold consisting of a body portion and a flange forming a receptacle for a plastic material, the body portion of the mold being provided with a central pocket adapted to receive a handle.

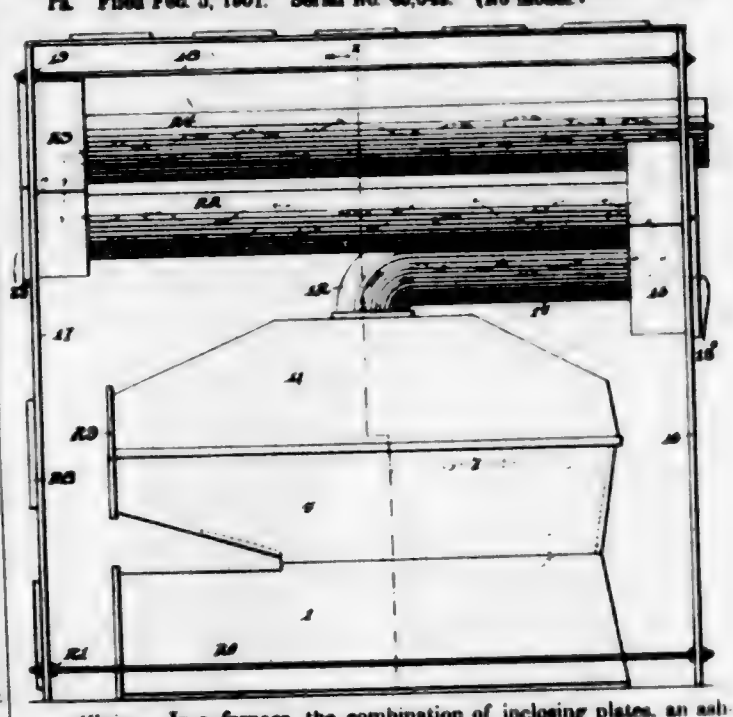
691,093. MILK-CAN. CHARLES H. BASLEY, Hoboken, N. J., assignor of one-half to Louis Bender, Hoboken, N. J. Filed July 20, 1901. Serial No. 69,055. (No model.)



Claim.—1. In a device of the class described, a receptacle provided with a tubular neck or orifice having an outwardly-flaring rim at the top thereof, said rim being provided at the top edge thereof with an inwardly-curved annular portion forming an annular groove, a removable cover provided with a central tubular portion adapted to enter said neck or orifice, said cover being adapted to rest on the top flange or rim of the neck or orifice portion and said central tubular portion of said cover being provided with a transverse plate having diametrically-arranged keepers, at the opposite sides thereof, sliding locking-bolts mounted in said keepers and passing through each side orifice in the tubular portion of the cover and the outer ends of which are adapted to enter said annular groove, said cover being also provided centrally of the top with an opening closed by a hinged lid or supplemental cover and means for locking said hinged lid or supplemental cover, substantially as shown and described.

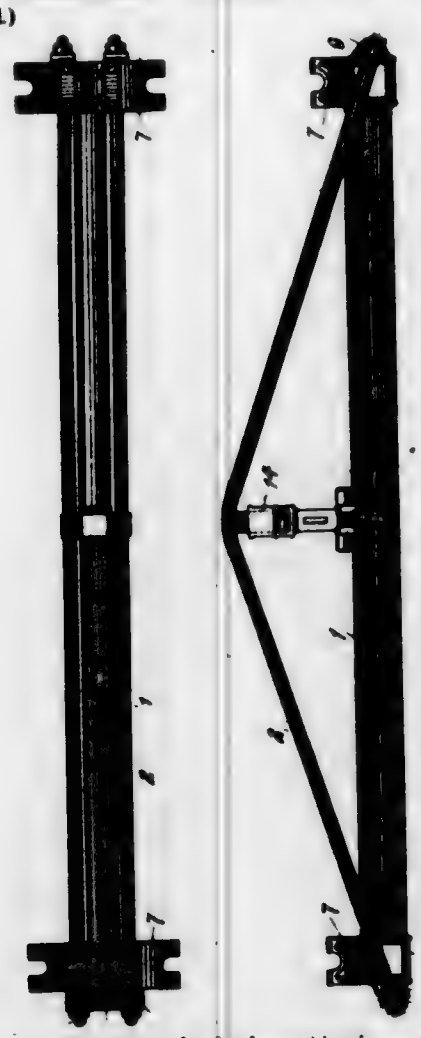
2. In a device of the class described, a receptacle provided with a tubular neck or orifice having a flaring top flange at the top of which is an annular groove, a cover adapted to rest on said top flange and provided with a depending central tubular portion adapted to enter the neck or orifice of the receptacle, said central tubular portion of the cover being provided with radially-arranged locking-bolts adapted to enter said groove and said cover being also provided centrally of the top thereof with an opening closed by a hinged door and means for locking said door, substantially as shown and described.

691,094. HOT-AIR FURNACE. HARRY W. BAKER, Oakmont, Pa. Filed Feb. 5, 1901. Serial No. 46,048. (No model.)



Claim.—In a furnace, the combination of inclosing plates, an ash-pit, grate-bars secured at the upper end thereof, side walls in said combustion chamber, a hood carried thereby, substantially V-shaped smoke-chambers secured to the inner faces of said plates, an elbow centrally connected to the hood directly over the combustion-chamber, a flue connected to said elbow and to one of said smoke-chambers, a pair of flues connected to said smoke-chamber one on each side of said first-named flue and above said flue, the said pair of flues being connected to the other of said smoke-chambers, and a flue connected to said second-named smoke-chamber above said pair of flues, whereby the products of combustion are collected by the elbow and flue connected thereto, carried to the first-named smoke-chamber, are then conducted to the second-named smoke-chamber and thence to the flue communicating with the stack, substantially as described.

691,095. BRAKE-BEAM. JAMES H. BAKER, Allegheny, Pa., assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Aug. 17, 1901. Serial No. 72,346. (No model.)



Claim.—1. A brake-beam having in combination a compression member, a strut, a tension member having the portions adjacent to the ends of the compression member divided and extending on opposite sides of the compression member, and means for transmitting strains from one part of the tension member to another part thereof, thereby equalizing strains between different parts of the tension member, substantially as set forth.

2. A brake-beam having in combination a compression member, a strut, a tension member formed in two parts passing on opposite sides of the compression member, anchor-plates interposed between the tension and compression members, and means for transmitting the strains from one portion of the tension member to the portion passing on the opposite side of the compression member, substantially as set forth.

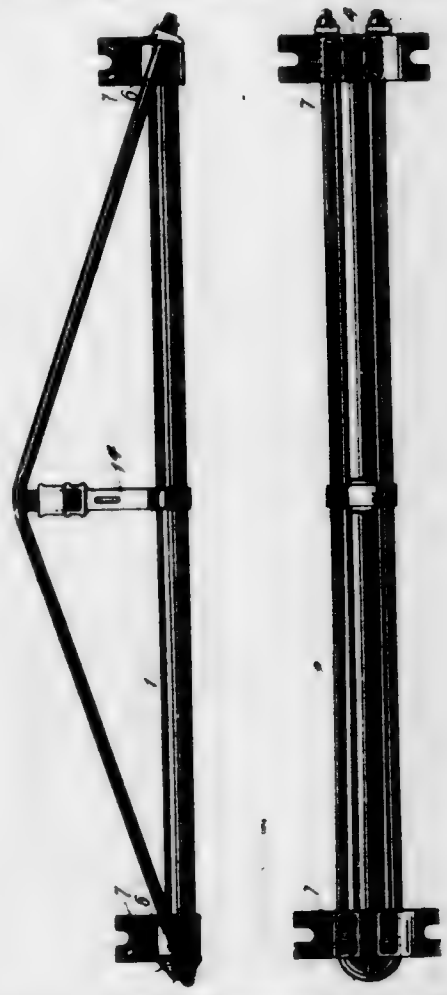
3. A brake-beam having in combination a compression member, brake-shoe heads carried by the compression member, a strut, a tension member having the portions adjacent to the ends of the compression member divided and extending on opposite sides of the compression member, anchor-plates interposed between the tension and compression members, and serving to hold the brake-shoe heads as against movement off the compression member, and means for transmitting strains from one portion of the tension member to the other, substantially as set forth.

4. A brake-beam having in combination a compression member, a strut, a tension member having the portions adjacent to the ends of the compression member divided, and extending along opposite sides of the compression member, brake-shoe heads carried by the compression member, anchor-plates formed integral with the brake-shoe heads and interposed between the tension and compression members, and means for transmitting strains from one portion of the tension member to another portion thereof, substantially as set forth.

5. A brake-beam having in combination a compression member, a tension member consisting of two rods having their ends extending on opposite sides of the compression member, anchor-plates interposed between the tension and compression members, a lever having its bearing against the anchor-plate at one end of the compression member, and connected to one end of the rods forming the tension member, the other ends of said rods being connected to the anchor-plate at the opposite end of the compression member, substantially as set forth.

691,096. BRAKE-BEAM. JAMES H. BAKER, Allegheny, Pa., assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Oct. 21, 1901. Serial No. 79,400. (No model.)

Claim.—1. A brake-beam having in combination a compression member, a strut, a tension member consisting of two rods, brake-shoe heads arranged on the compression member, anchor-plates formed integral with the brake-shoe heads, one of said plates being provided with ears extending beyond the sides of the compression member, and the other plate being provided with a curved seat or saddle, and a strain-transmitting portion formed integral with the rods at one end of the compression member and bearing against the saddle, substantially as set forth.



2. A brake-beam having in combination a compression member, a strut, a tension member consisting of two rods, brake-shoe heads arranged on the compression member, anchor-plates interposed between the tension and compression members, and provided with ears extending beyond the sides of the compression member and forming bearings for the tightening-nuts, and means for transmitting strains from one part of the tension member to another part thereof, substantially as set forth.

691,097. HORSE-MUZZLE. HENRY BARR, Yonkers, N. Y. Filed July 5, 1901. Serial No. 67,093. (No model.)



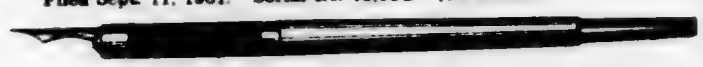
Claim.—1. A horse-muzzle consisting of two baskets contained one within the other, and rigid connections between the baskets by which their bodies are prevented from coming in contact, substantially as described.

2. A horse-muzzle consisting of two baskets contained one within the other, and rigid connections between the baskets at their rims by

which their bodies are prevented from coming in contact, substantially as described.

3. A horse-muzzle consisting of a woven-wire basket and a surrounding rigid fender which is connected to the rim and separated from the body of the basket, substantially as described.

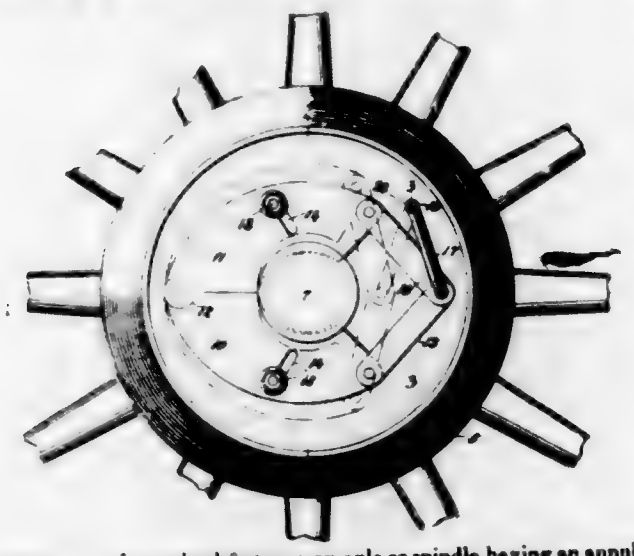
691,098. **PENHOLDER.** CHARLES W. BARKLEY, Seward, Nebr. Filed Sept. 11, 1901. Serial No. 75,084. (No model.)



Claim.—1. A penholder, comprising a ferrule, a stock having a spring end removably fitted in the ferrule, the other end of the stock being reduced for the purpose specified, and a pen-securing slide fitting in the ferrule.

2. In a penholder, the combination of the ferrule, a stock removably fitted therein for the purpose specified, and a pen-securing slide mounted in the ferrule, said slide being made of a section of spring sheet metal rolled to form a split tube having a reduced portion terminating in a shoulder, the reduced portion being engaged by the shank of the pen and the shoulder striking the end of the shank to eject the pen.

691,099. **WHEEL-FASTENER.** AUREN M. BEEBE, Bannor, Ill. Filed Aug. 15, 1901. Serial No. 72,135. (No model.)



Claim.—1. In a wheel-fastener, an axle or spindle having an annular channel at its end, segmental locking-plates pivotally connected to the wheel-hub and adapted to engage in said channel, links extended from the free ends of the plates, and a crank with which the links connect, substantially as specified.

2. A locking device for a vehicle-wheel, comprising a spindle having an annular channel formed at its end, segmental locking-plates pivotally connected together and to the wheel-hub, said plates being adapted to engage in the channel, links extended from the free ends of the plates, a crank-link with which said links connect, the said crank-link being adapted to receive a turning-tool, and means for locking said crank-link, substantially as specified.

3. A fastener for a vehicle-wheel, comprising a spindle having an annular channel at its end, a plate attached to the wheel-hub and spaced from the end of said hub, segmental locking-plates mounted to swing between the ends of the hub and said plate, the said locking-plates being adapted to engage in said channel, links extended from the free ends of the locking-plates, a crank-link with which the first-named links connect, said crank-link having a portion bearing in the end of the wheel-hub and a portion extended out through the plate and adapted to be engaged by a key, and a spring-pressed locking device for engaging with said portion extended through the plate, substantially as specified.

4. A fastening device for a wheel, comprising a spindle having an annular channel formed at its end, segmental locking-plates mounted to swing on the end of the hub, guide-bolts for said locking-plates, links pivoted to the free ends of the locking-plates, a crank-link with which said first-named links connect, the said crank-link having a portion extended outward and adapted to be engaged by a turning-key, said portion being provided with a channel, and a spring-pressed locking device adapted to engage in said channel, substantially as specified.

691,100. **FURNACE.** EDWARD BERRIE, Bolton, England. Filed Dec. 28, 1897. Serial No. 663,865. (No model.)

Claim.—1. The combination of a movable forced-draft-furnace trough-bar having a bell-mouth; a series of interlocking grid-bars forming its upper surface; and a jet placed in front of the bell-mouth at a short distance therefrom for forcing air into the same, substantially as described.



2. The combination of a movable forced-draft-furnace trough-bar having a bell-shaped mouth, said bar being provided with a series of openings in the bottom thereof; a series of grid-bars forming the upper surface of said trough-bar; a jet placed in front of and at a short distance from the bell-mouth; a perforate cleaner resting on the bottom of the trough-bar over the perforations therein; and means for holding the cleaner stationary as the trough-bar is moved.

3. In combination with an apparatus for feeding fuel to a fire, a movable forced-draft-furnace trough-bar provided with a series of openings in the bottom thereof; a series of independent perforated interlocking grid-bars forming the upper face of said main bar, said grid-bars having air-openings between them throughout the major portion of the length thereof; means for blowing air into the main bar; means for periodically moving said bar; a perforate cleaning device resting on the bottom of said movable bar over the openings therein; and means for holding said cleaning device against movement when the main bar is operated.

4. The combination of a movable forced-draft-furnace trough-bar having grid-bars forming its upper surface and provided with openings in its bottom, with a cleaning device consisting of a perforated stationary cleaner-plate *g* lying on the bottom of the trough, the perforations in the plate and the openings in the bar being brought into and out of register by movement of the bar.

5. The combination with a movable forced-draft-furnace trough bar having a series of cross-pieces disposed throughout its length; a series of small grid-bars arranged to interlock with each other and supported by said cross-bars; and a dead-plate supported at one end of the furnace-front and resting at the opposite end on the forward end of the approximate small grid-bar, whereby the grid-bars are held in place throughout the entire series.

6. The combination with a movable forced-draft-furnace trough-bar, of a series of small grid-bars forming its upper surface, said bars having interlocking ends and having cast thereon inclined ribs pointing toward the front of the bar, said ribs being of a substantially V-section, whereby as the air is forced into the bar it is caught by the successive ribs and driven up approximately equally all over the furnace.

691,101. **PROCESS OF REGAINING TIN.** PAUL BERGSØE, Copenhagen, Denmark. Filed May 10, 1900. Serial No. 16,145. (No specimens.)

Claim.—1. The herein-described process of regaining tin, which consists in subjecting a tin-bearing material to the action of a stannic-salt solution, bringing the resulting stannous solution into contact with a cathode, and with an anode of indifferent material, and passing an electric current through said solution between said anode and cathode, substantially as set forth.

2. The herein described process of regaining tin, which consists in subjecting a tin-bearing material to the action of a stannic-salt solution, bringing the resulting stannous-salt solution into contact with a cathode and with an anode of indifferent material, passing an electric current through said solution between said anode and cathode, whereby metallic tin is deposited upon the cathode and the solution converted into a stannic-salt solution, and thereafter continuously subjecting said solution alternately to contact with a tin-bearing material and to electrolysis in the presence of a cathode and an indifferent anode, substantially as set forth.

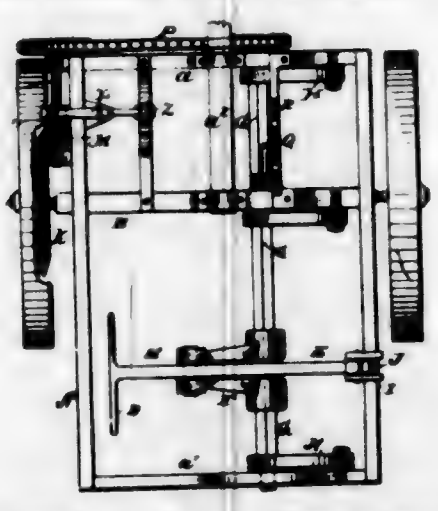
691,102. **COTTON-CHOPPER.** GEORGE BERRINGER, Blanco, Tex. Filed Oct. 5, 1901. Serial No. 77,885. (No model.)

Claim.—1. The combination, with the wheeled frame and a series of swinging arms pivoted thereto, of a shaft mounted rotatably in the free ends of said arms and provided with a crank as described; a chopper proper having a lever-arm hinged upon said crank; means for raising the said shaft with its attached chopper, and means for imparting rotation thereto; substantially as shown and described.

2. The combination, with the wheeled frame and arms pivoted thereto and adapted to swing in a vertical plane, of a shaft journaled in the free ends of said arms and provided with a crank; a chopper having a lever arm hinged on said crank; a keeper arranged on the frame, the said lever-arm working in the same; and means for rotating the said shaft; substantially as shown and described.

3. The combination, with the wheeled frame having an axle and cross-bar each provided with an upward spring or arch, of a crank-shaft passing beneath said arches, swinging arms in which the shaft is mounted.

a chopper attached to the crank of said shaft, and means for rotating and raising said shaft, substantially as shown and described.



4. The combination, with the wheeled frame and arms pivoted thereto so as to swing in a vertical plane of a rotatable shaft journaled in said arms and formed in sections, which are alined; a crank-arm which rigidly connects the said sections and is provided with an open slot as shown; a chopper having a lever-arm which is hinged on said crank; a keeper fixed on the frame and through which the chopper-arm reciprocates; and means for raising the said shaft and chopper in the manner described.

5. The combination, with the wheeled frame and arms pivoted thereto so as to swing in a vertical plane, a rotatable crank-shaft journaled in said arms, and a chopper attached to the crank of said shaft, of a lever pivoted upon the frame and provided with means for locking it in different adjustments, and a link connection between said lever and shaft, substantially as shown and described.

6. The combination, with the wheeled frame and arms pivoted thereto and swinging in a vertical plane, of a rotatable crank-shaft journaled in said arms and having a sprocket-wheel affixed to one end thereof, a bevel-gear attached concentrically to one of the transporting wheels; a shaft geared therewith and having a sprocket-wheel on its front end; a chain running on said sprocket-wheels; a chopper attached to the crank-shaft; and lever-and-link mechanism for raising said shaft, the arrangement being such as described, whereby, when the shaft is lowered to carry the chopper into position for operation, the sprocket-chain is taut, substantially as shown and described.

7. The combination, with the wheeled frame having an axle and cross-bars each provided with an upward arch, of arms pivoted and swinging in a vertical plane, the rotatable shaft journaled in said arms and provided with a crank having an open slot, a chopper attached to a lever-arm, the latter being hinged upon the crank and working in a keeper fixed on the frame; a lever-and-link mechanism connected with the shaft, whereby it may be swung up into the aforesaid arches; a driving-shaft geared with one of the transporting-wheels; sprocket-wheels affixed to the aforesaid shafts; and a chain running on such sprocket-wheels; all as shown and described.

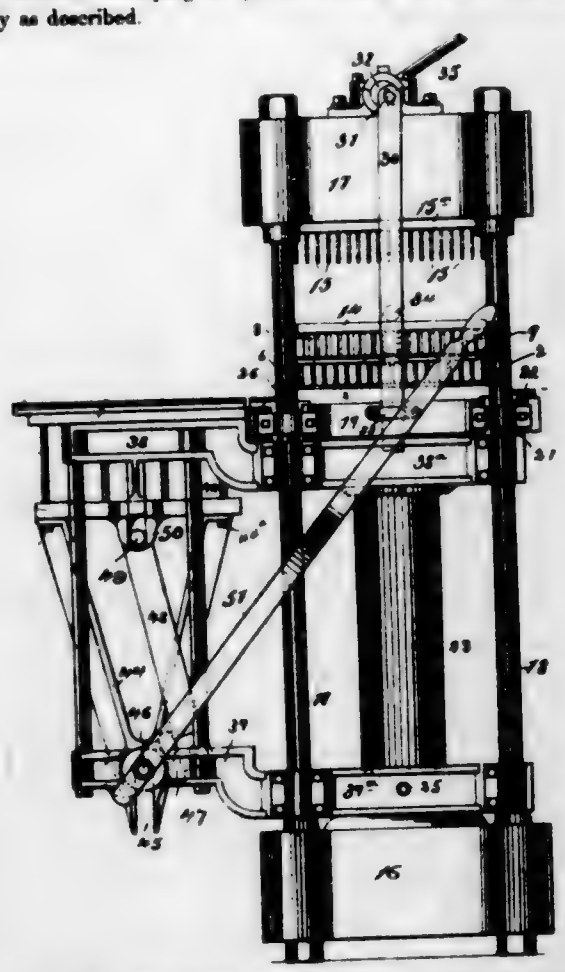
691,108. MACHINE FOR LOADING FIRE-CRACKERS. CHARLES B. BIDWELL, Metropolitan, N. Y., assignor, by mesne assignments, to the Nordlinger-Charlton Fireworks Company, New York, N. Y., a Corporation of New Jersey. Filed May 27, 1898. Serial No. 681,858. (No model.)

Claim.—1. A die comprising a plurality of plates, a plurality of pins projecting from one of said plates, a plurality of tubes opening through one plate and adapted to receive said pins, and a plurality of tubes connecting two other plates and adapted to aline with and to receive said pins, substantially as described.

2. A die comprising a plurality of plates, a plurality of pins projecting from one plate, a plurality of tubes projecting from and opening through another plate and adapted to receive said pins and to rest upon the plate carrying said pins, and a plurality of tubes carried by two other plates and adapted to receive the protruding ends of said tubes and said pins, and adapted to rest upon the plate carrying the first-mentioned tubes, the second-mentioned tubes being adapted to receive fire-cracker bodies, substantially as described.

3. A die comprising a plurality of plates, a plurality of pins projecting from one plate, a plurality of tubes projecting from another plate and adapted to receive said pins, a plurality of tubes connected with two other plates and adapted to aline with and to receive said pins, and an apertured plate adapted to have its apertures alined with the bores in the second-mentioned tubes, substantially as described.

4. A die comprising a plurality of plates, a plurality of pins carried by one plate, a plurality of tubes carried by another plate, said tubes being adapted to fit over and receive said pins, said tubes projecting at both ends through the said plate, a plurality of tubes carried by two other plates and adapted to receive said pins and also to receive fire-cracker bodies, and means for clamping the plates carrying said tubes together, substantially as described.



5. A die comprising a plurality of plates, a plurality of pins carried by one plate, a plurality of tubes carried by another plate, said tubes being adapted to fit over and receive said pins, said tubes projecting at both ends through the said plate, a plurality of tubes carried by two other plates and adapted to receive said pins and also to receive fire-cracker bodies, means for clamping the plates carrying said tubes together, a plate having perforations to aline with the second-mentioned tubes, and means for clamping said plate to one of the plates connected with the second-mentioned tubes, substantially as described.

6. A die comprising a plurality of plates, a plurality of pins carried by one plate, a plurality of tubes carried by another plate, said tubes opening through said plate and having their protruding ends at one side of the plate rounded, and a plurality of tubes carried by two other plates, and adapted to receive said protruding ends of the first-mentioned tubes and said pins, substantially as described.

7. A die comprising a plurality of plates, a plurality of pins carried by one plate, a plurality of tubes carried by and opening through another plate and adapted to receive said pins, the bores of said tubes being tapered from their outer ends inwardly, and a plurality of tubes carried by two other plates and adapted to aline with the first-mentioned tubes and to receive said pins, substantially as described.

8. A die comprising a plurality of plates, a plurality of pins projecting therefrom, a plurality of tubes carried by and opening through another plate, a plurality of tubes connected with two other plates, said plates having countersunk apertures in which the ends of said tubes fit, and means for holding said two plates together upon said tubes, substantially as described.

9. A die comprising a plurality of plates, a plurality of pins projecting therefrom, a plurality of tubes carried by and opening through another plate, a plurality of tubes connected with two other plates, said plates having countersunk apertures in which the ends of said tubes fit, and means for holding said two plates together upon said tubes, one plate having a plurality of holes adapted to aline with the second-mentioned tubes, and means for clamping corresponding pairs of said plates together, substantially as described.

10. A die comprising a plurality of plates, a plurality of pins projecting from one plate, a plurality of tubes projecting from and opening through another plate, and a plurality of tubes carried by two other plates and adapted to receive said pins, combined with a plurality of rammers or plungers adapted to enter the second-mentioned tubes, substantially as described.

11. A die comprising a plurality of plates, a plurality of pins projecting from one plate, a plurality of tubes projecting from and opening through another plate, and a plurality of tubes carried by two other plates

and adapted to receive said pins, combined with a plurality of rammers or plungers to enter the second-mentioned tubes and having bores at their operative ends to receive said pins, substantially as described.

12. A die comprising a plurality of plates, a plurality of pins projecting from one plate, a plurality of tubes projecting from and opening through another plate, a plurality of tubes carried by two other plates and adapted to receive said pins, combined with a plurality of rammers or plungers to enter the second-mentioned tubes and having bores at their operative ends to receive said pins, said rammers or plungers each having a side opening leading to its bore, substantially as described.

13. A die comprising a plurality of plates, a plurality of pins carried by one plate, a plurality of tubes carried by and opening through one plate, and a plurality of tubes carried by two other plates, the plate that carries said pins having means for attaching it to the table or bed, substantially as described.

14. A die comprising a plurality of plates, a plurality of pins carried by one plate, a plurality of tubes carried by and opening through one plate, a plurality of tubes carried by two other plates, the plate that carries said pins having one or more grooves that are wider at the top than at the bottom and adapted to receive ways, substantially as described.

15. In a machine of the character described, the combination of a frame, a reciprocative table adapted to carry a laterally-movable and detachable die, a plurality of rammers or plungers supported above said table to act upon the die means for independently supporting and raising and lowering the die in coöperative relationship with the table and further means for raising and lowering the table to and from the rammers, substantially as described.

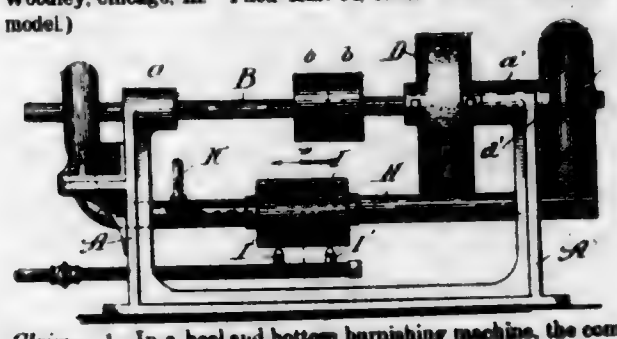
16. In a machine of the character described, the combination of a frame, a reciprocative table adapted to receive a die, a plurality of rammers or plungers above said table, a rock-shaft having eccentric pins, and rods depending from said pins and having studs to act upon said table to dislodge the rammers from the die, substantially as described.

17. The combination of a frame, a table carried thereby, means for holding a die upon said table, a plurality of pins adapted to pass through said die, a plate carrying said pins, a shaft, a bracket carried by said plate and adapted to be guided by said shaft, a crank carried by said shaft, a link connecting said plate with said crank, and means for operating said shaft, substantially as described.

18. The combination of a frame, a table carried thereby, means for holding a die upon said table, a plurality of pins adapted to pass through said table, a plate carrying said pins, a bracket carried by said plate and having a recess or bore, a shaft to enter said recess or bore, a crank carried by said shaft, a link connecting said crank with said plate, and means for operating said shaft, substantially as described.

691,104. MACHINE FOR FINISHING HEELS AND BOTTOMS.

WILLIAM A. BLODGETT, Chicago, Ill., assignor of one-half to Thomas E. Woodley, Chicago, Ill. Filed Mar. 14, 1901. Serial No. 51,176. (No model.)



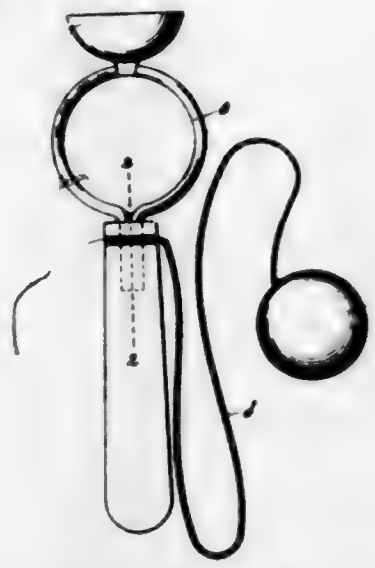
Claim.—1. In a heel and bottom burnishing machine, the combination with a rotary burnishing-wheel carrying finishing compound on its working face, an air-conduit connected with a compressed-air supply and arranged to discharge against the working face of said wheel during its rotation, means for moistening and means for warming the air in its passage through the conduit.

2. In a heel and bottom burnishing machine, the combination with a rotary burnishing-wheel carrying finishing compound on its working face, a hood partly housing the wheel and mounted to be swung therefrom, a conduit connected with a compressed-air supply and communicating with the hood, and means for moistening and means for warming the air in its passage through the conduit.

691,105. TOY. JAMES H. BOWEN, Bland, England. Filed July 11, 1901. Serial No. 67,835. (No model.)

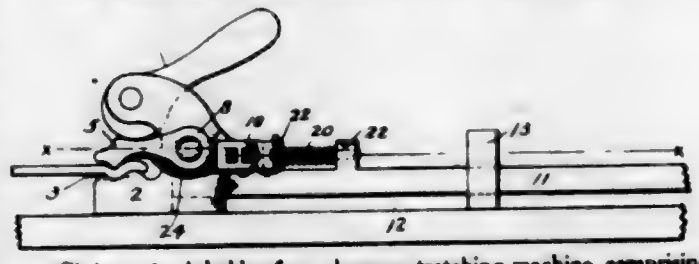
Claim.—A toy comprising a handle, a ring secured to one end of said handle and projecting in line therewith, a cup secured to the side of said ring opposite the handle, and ranging in line with said handle and ring, and an elastic cord connected with the handle adjacent to the ring and provided with a ball, substantially as shown and described.

691,105.



691,106. CLAMP FOR LEATHER-STRETCHING MACHINES.

ROY L. BRAUCHT, Minneapolis, Minn.; Katie D. Braucht, as guardian of said Roy L. Braucht, minor, assignor to the W. S. Nott Co., a Corporation. Filed Mar. 10, 1900. Serial No. 8,120. (No model.)



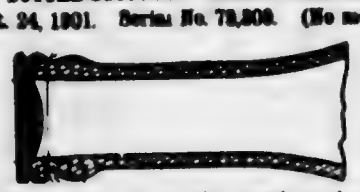
Claim.—1. A holder for a leather-stretching machine, comprising, in combination, a suitable bar, a head pivotally connected therewith and having a swinging lateral movement with respect thereto, means for locking said head at any desired angle with respect to said bar, a fixed jaw provided on said head, a movable jaw pivotally supported on said head and adapted to engage said fixed jaw, and a locking device adapted to engage said movable jaw and force it into engagement with and look it against said fixed jaw, substantially as described.

2. A clamp for leather-stretching machines, comprising, in combination, a suitable bar, a head pivotally supported upon said bar and adapted to swing in the plane of the same, means for locking said head at any desired angle with respect to said bar, a fixed jaw provided on said head, a movable jaw pivotally supported upon said head and adapted to engage said fixed jaw, and a cam-lever arranged to engage said movable jaw and lock the same in engagement with said fixed jaw, substantially as described.

3. The combination with a bar provided with a vertical pivot, of a head mounted upon said pivot and adapted to swing thereon and provided with a face forming a fixed jaw, a movable jaw arranged upon said head, means for clamping said movable jaw against said fixed jaw, and a spring-latch upon said bar adapted to engage any one of a series of notches upon said head, for the purpose set forth.

4. In a leather-stretching machine, the combination with a bed-piece having a transverse rib provided with an opening, of a bar provided with notches and arranged to slide lengthwise in such opening, a latch for engaging the said notches to lock the bar to the rib, and a leather-holder connected to said coupling-bar, substantially as set forth.

691,107. BOTTLE-STOPPER. HENRY S. BREWINGTON, Baltimore, Md. Filed Oct. 24, 1901. Serial No. 79,209. (No model.)

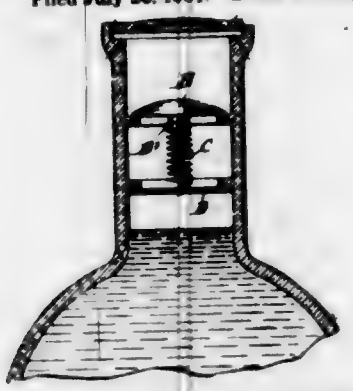


Claim.—1. The combination, with a bottle-neck provided with an exterior annular shoulder at its edge and a groove below the same, of a sealing-cap having an external circumferential corrugation which forms an interior annular bead, and having a depending cylindrical portion below said bead adapted to fit around said exterior annular shoulder of the bottle-neck, and its lower edge compressed into said groove, and a packing-disk retained in the upper portion of the cap above said internal bead, the upper and lower walls of the corrugation being separated when the cap is affixed to the bottle, substantially as set forth.

2. The combination, with a bottle-neck provided with an exterior

annular shoulder, of a sealing-cap having an external annular corrugation forming an internal annular bead and also having a depending cylindrical portion below said bead compressed inwardly below the shoulder of the bottle, and a packing-disk retained in the upper portion of the cap above the bead, the upper and lower walls of the corrugation being separated when the cap is affixed to the bottle, substantially as set forth.

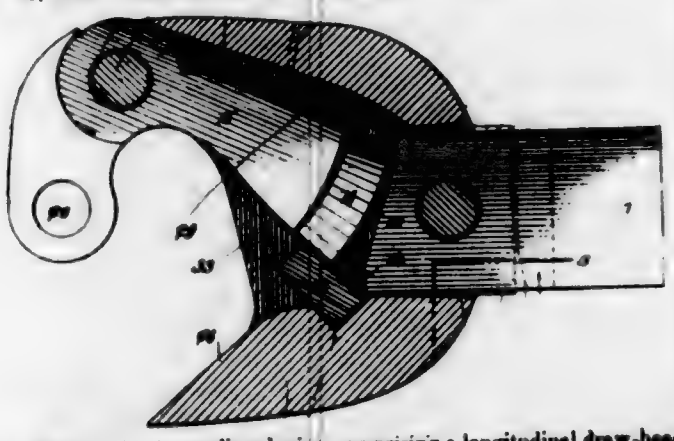
691,108. NON-REFILLABLE BOTTLE. JOHN S. BRONHEAD, Brooklyn, N. Y. Filed July 26, 1901. Serial No. 69,776. (No model.)



Claim.—1. A non-refillable bottle having a neck formed with seats located one above the other, a valve on one of the seats, a valve-retaining plate on the other seat, a spring connection between the valve and the retaining-plate, and a cap integral with the neck of the bottle, for closing the mouth thereof, the said cap having outlets near the edge of the cap for the escape of the contents of the bottle, as set forth.

2. A bottle having its neck provided internally with seats located one above the other and adapted for the reception of the valve and its retaining-plate, and provided at the outer end of said neck with an opening through which the contents of the bottle may be discharged and in line with the bore of the bottle-neck, with an opening for the introduction of the valve and having a projecting flange around said opening adapted to seal the same, substantially as set forth.

691,109. COUPLING DEVICE. MARK A. BROWN, Douglas, Ga., assignor of one-half to William O. Parson, Douglas, Ga. Filed July 25, 1901. Serial No. 69,686. (No model.)



Claim.—1. A coupling device, comprising a longitudinal draw-head provided with a beveled surface, a coupling-head pivoted centrally upon said draw-head, a radially-movable member pivoted upon said coupling-head at a point eccentric to the center thereof and substantially facing said beveled surface, and means for locking and releasing said movable member, the arrangement being such that the path of said radially-movable member is partially bounded by said beveled surface, whereby the entire structure is rendered compact and strong.

2. A coupling device, comprising a hollow coupling-head provided rearwardly with an aperture, a longitudinal draw-head extending through said aperture into said coupling-head and provided therein with a beveled end, a radially-movable wing pivoted in said coupling-head at a point out of alinement with the general longitudinal direction of said draw-head, but free to swing across the general direction of said coupling-head, in a path bounded by said beveled end of said draw-head.

3. A coupling device, comprising a hollow coupling-head provided rearwardly with an aperture having diverging walls of different sizes constituting bearing-surfaces, a longitudinal draw-head extending through said aperture and provided with bearing-surfaces of different sizes for engaging said diverging walls, the forward end of said draw-head being provided with an oblique face adjacent to the smaller of the said diverging walls, a rearwardly-movable wing pivoted in said coupling-head at a point out of alinement with the general longitudinal direction of said draw-head, but free to swing in a direction substantially parallel to said oblique face, the free end of said wing normally lying adjacent to said beveled end the arrangement constituting a strong and compact coupling of light weight, substantially as described.

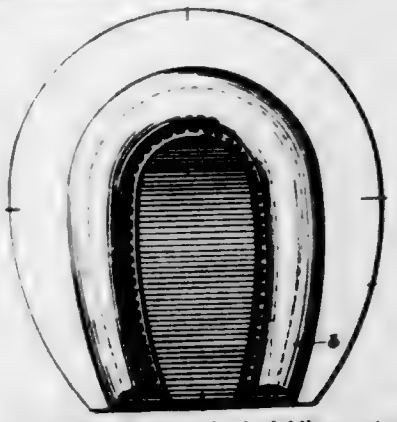
691,110. LIQUID-SCALE. WILLIAM BUSCHMANN, Haledon, N. J. Filed Aug. 29, 1901. Serial No. 73,682. (No model.)



Claim.—1. The combination of a pail, bucket or other similar receptacle having a bail, said bail being provided with a central opening, an index-rod penetrating said opening, a spring engaging the lower end of said rod and a portion of the receptacle, and a sustaining device connected to said index-rod above the bail, said index-rod having openings affording tactile indices, substantially as described.

2. The combination of a pail, bucket or other similar receptacle having a bail, said bail being provided with a central opening, an index-rod penetrating said opening, the lower end of said rod being divided and the divided portions turned up to form hooks, and a spiral spring surrounding said index-rod and interposed between said hooks and the bail, substantially as described.

691,111. HOOF-PAD. JOHN CAMPBELL, New York, N. Y. Filed Oct. 17, 1901. Serial No. 78,965. (No model.)



Claim.—1. A hoof-pad, formed of yielding material in essentially horseshoe shape the central portion of the pad being open, said pad being provided with an air-chamber therein, at the inner face, the chamber running continuously throughout the length of the pad and having an opening into the atmosphere.

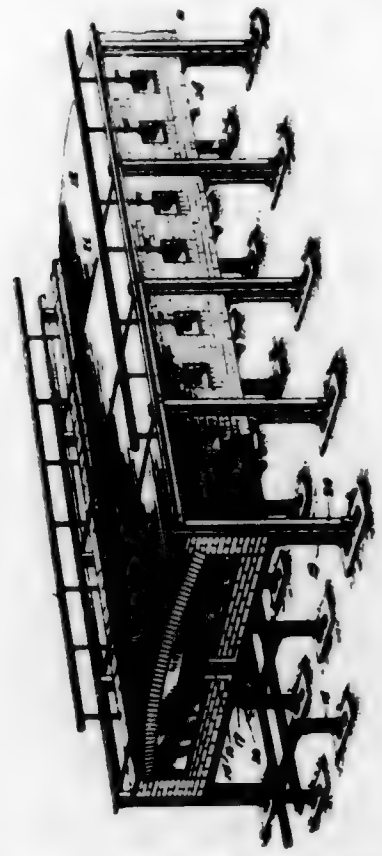
2. A hoof-pad, formed of yielding material in essentially horseshoe shape the central portion of the pad being open, said pad being provided with an interior air-chamber therein, the chamber being largest at the toe of the shoe, and gradually tapering or diminishing in cross-sectional area at each side toward the heel at which point it opens into the atmosphere.

3. A hoof-pad of horseshoe shape, the central portion of the pad being open, said pad being formed with an air-channel in the face, said channel extending around the pad following the horseshoe shape thereof and extending through the pad to the atmosphere at the heel, the channel decreasing in depth at each side from the front rearwardly and the material between the channel and the face of the pad increasing in thickness from the front to the heel.

691,112. ORE-ROASTING FURNACE. JOSEPH P. CAPPEAU, Joplin, Mo. Filed Apr. 20, 1901. Serial No. 56,704. (No model.)

Claim.—1. A roasting-furnace comprising a hearth supported on standards to permit free circulation of air beneath the floor of said hearth, an opening in said floor for permitting the passage of air into the hearth, and adjustable means for controlling the passage of air through said opening.

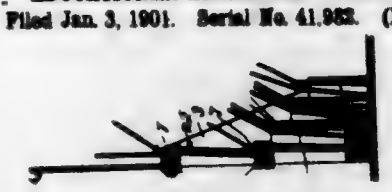
2. The combination, with a roasting-furnace comprising a hearth having an unconfined air-space beneath the floor thereof, and an opening in said floor; of a plurality of gates controlling said opening; and means for adjusting said gates and variably controlling the passage of air through said opening.



3. The combination, with a roasting-furnace comprising a hearth, and having a longitudinally-disposed slot in the floor thereof for admitting air to said hearth; of a series of gates for normally closing said slot; and means for varying the normal position of said gates and for controlling the passage of air through said slot.

4. The combination, with an ore-roasting furnace, comprising a hearth having a longitudinally-disposed slot in the floor thereof for admitting air to said hearth; of a rake for stirring and advancing the ore; a carrier disposed externally of said hearth and connected with said rake; a series of gates in said slot; and adjustable means for controlling the passage of air through said slot into the hearth, and mounted to give way to the rake-operating device during its travel from end to end of the furnace.

691,118. **EDUCATIONAL APPLIANCE.** ALICE M. CATLIN, Montrose, Colo. Filed Jan. 3, 1901. Serial No. 41,982. (No model.)



Claim.—1. An educational apparatus comprising a frame having a series of horizontal supports formed with elongated slots therein, screens extending between the supports and arranged in different planes approximately parallel to each other, and cards or slides adapted to be placed in the said slots, the cards being placed in position by inserting them behind one screen and permitting them to project in front of the screen below, substantially as described.

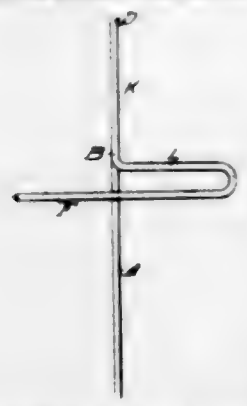
2. An educational apparatus comprising a frame, longitudinal supports formed thereon and provided with slots, screens interposed between the supports and extending in planes approximately parallel with each other, each successive upper screen being a little in advance of the one below, and cards or slides adapted to project through the slots in the support, the structure being such that they may be inserted behind one screen so as to project in front of the next lower screen and indications thus be presented upon the opposite side of the apparatus from the operator, substantially as described.

3. An educational appliance comprising a frame, screens in said frame, a series of supports arranged upon both sides of said screens, a series of cards or slides having configurations or designs formed thereon which are arranged upon the said supports so as to extend through from one side to the other side of the said screens, substantially as described.

4. An educational appliance comprising a frame, a series of supports formed thereon having slots in them, shields to the rear of each slot, a series of partitions mounted upon the frame and forming pockets to the rear of the supports, the said pockets having indications upon them corresponding with indications upon cards or slides, and cards or slides assorted in proper order in the said pockets, whereby a teacher or instructor may take such slides as he desires from the pockets and insert them in the slot so as to appear on the series of screens, substantially as described.

5. An educational appliance comprising a frame, screens in said frame, one or more supports upon each side of the screens, cards or slides for said supports, the structure being such that the cards may be suspended from the rear by an instructor upon a front support so as to appear on the opposite side of the screen from the instructor, or the cards may be entirely manipulated upon the same side of the device on which they are exposed by pupils themselves or others to be instructed or edified, substantially as described.

691,114. **HANGER.** HENRY C. CLAYTON, Marion, Ind. Filed Nov. 11, 1901. Serial No. 81,948. (No model.)



Claim.—1. As an improved article of manufacture, the herein-described posting-hanger, constructed of a single piece of wire, of suitable elasticity, comprising the U-loop C, with its integral elongated prong F and prong L, the open loop D with its elongated integral penetrating shank A and prong K, said loops having said prongs L and K intermediate between the loops and connected at right angles with each other by the bend B continuous with said prongs, said open loop D having the elongated integral penetrating shank A bent at E forward and in the plane of its loop D, said shank A and the prong F crossing each other at right angles, substantially as shown and described.

2. A posting-hanger, constructed of a single piece of wire, of suitable elasticity, having two similar open loops placed in planes substantially at right angles, with the free prongs of the loops elongated, and crossing each other, the free prong of one of the loops being bent forward in the plane of its loop toward the other prong, and adapted to hook through, and attach, the hanger to any flat sheet of suitable material to support it, and combine the hanger with such material, whereby the elasticity of the wire may be exerted to hold the face of the hanger against the surface of the sheet with sufficient pressure to receive and retain in position any sheets of paper, or other material, which may be inserted in or under the front loop, or face of the hanger, substantially as and for the purposes set forth.

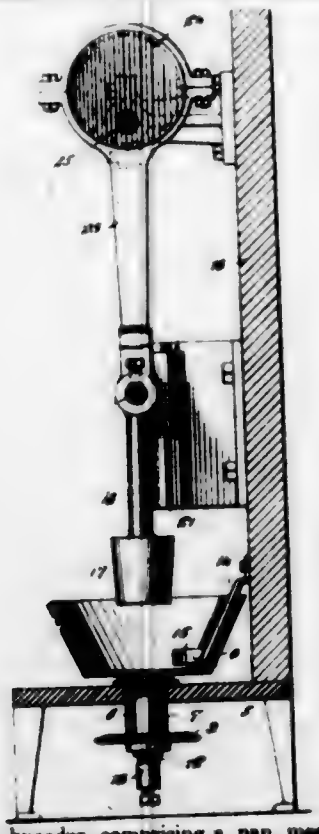
3. The combination in a posting-hanger of a wire framework, formed of a single piece of wire of suitable elasticity, together with suitable material to support said framework; said framework having a hook, consisting of the loop D and the penetrating shank A, with its terminal part inclined forward, and adapted to hook through said material, said framework having an integral prong K continuous with loop D, and pendent therefrom, and having at its lower end, and at right angles thereto, the loop C, with its integral elongated prong F; said penetrating prong F, and said shank A, crossing each other at right angles, the inclination of the shank A is forward against the material supporting the framework, whereby the elasticity of the wire holds the prong F of the loop C with more or less pressure, sufficient to retain any sheets of paper, or other material, inserted in or under the loop C, and its prong F, as and for the purposes set forth.

4. The improved wire posting-hanger herein described, composed of a single piece of wire, of suitable elasticity, formed into a pair of open loops, at right angles to each other, and having integral prongs elongated, and crossing each other at right angles, the prong A forming a penetrating shank, and having a bend at E, and its terminal inclined toward the transverse prong F, substantially as shown and described as and for the purposes set forth.

691,115. **MIXER AND KNEADER.** LOUIS COHNHOFF, Mattapan, Mass., assignor, by direct and mesne assignments, to himself and Samuel L. Siegel, both of Roxbury, Mass., and Isaac E. Feinberg, Boston, Mass. Filed May 27, 1901. Serial No. 62,146. (No model.)

Claim.—1. A mixer and kneader, comprising a pan, means for im-

parting a rotary motion to the pan, a cross-head, a pestle mounted to swing on said cross-head, a shaft, an eccentric on said shaft, and a connection between said eccentric and the cross-head, substantially as specified

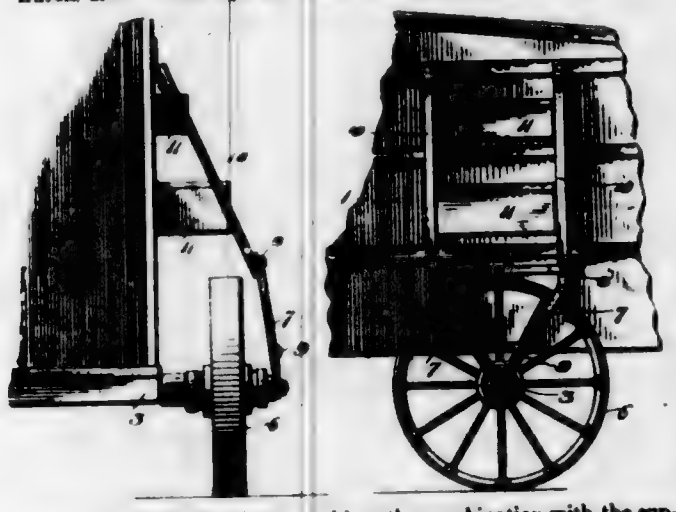


2. A mixer and kneader, comprising a pan, means for imparting a rotary movement to the pan, a fixed arm extended into the pan, a curved blade on the lower end of said arm, a cross-head arranged above the pan, a pestle attached to said cross-head, a shaft, an eccentric on said shaft, and an eccentric-rod connecting the said eccentric with the cross-head, substantially as specified.

3. A mixer and kneader, comprising a pan, an arm extended into said pan, a curved blade on the lower end of said arm, means for imparting a rotary motion to the pan, a cross-head arranged above the pan, a pestle attached to said cross-head, a shaft, an eccentric on said shaft, an eccentric-rod connection between said eccentric and the cross-head, a balance-wheel on said shaft, a driving-shaft, and gear connections between said driving-shaft and the first-named shaft, substantially as specified.

4. In a mixer and kneader, a base, a sleeve extended through said base, a pan, a spindle on said pan extended through the said sleeve, a step-bearing for the lower end of the spindle, a gear-wheel on said spindle, a shaft, a pinion on said shaft engaging with the gear-wheel, a main shaft, a band connection between the main shaft and the first-named shaft, and the vertically-operating pestle, substantially as specified.

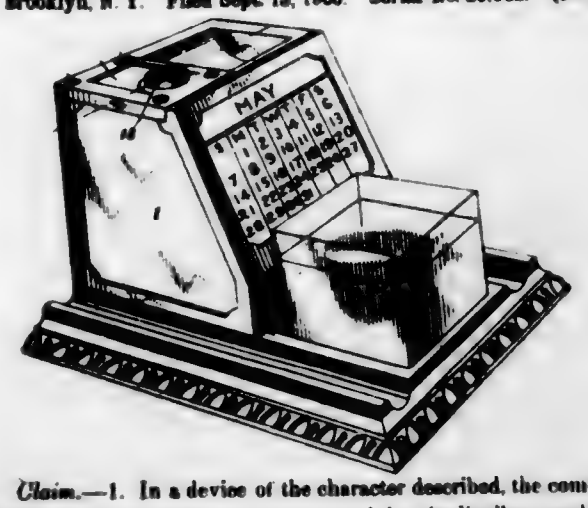
691,116. THRESHING-MACHINE. GEORGE F. CORNER, Port Huron, Mich. Filed Apr. 15, 1901. Serial No. 55,916. (No model.)



Claim.—1. In a threshing-machine, the combination with the supporting-axle and body, of a V-shaped brace-frame connected with the axle, inclined supporting-bars connected between said V-shaped frame and side wall of the body, and one or more intermediate braces secured to the body and to said supporting-bars and forming the steps of a ladder of which the braces and supporting-bars constitute the side rails, substantially as described.

2. In a threshing-machine, the combination with the supporting-axle and body, of diverging braces connected to the axle, one or more cross-bars connecting said braces, a pair of inclined supporting-bars connected to the upper ends of the diverging braces and extending therefrom to, and connected with, the side wall of the body, and boxes secured to the side wall of the body and supporting-bars and forming in connection with the said cross-bars the steps of a ladder-frame of which the braces and supporting-bars constitute the side rails, substantially as described.

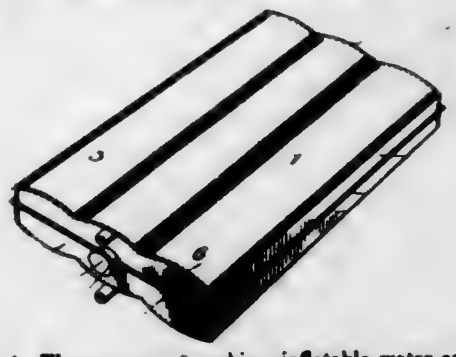
691,117. AUTOMATIC PENCIL-SHARPENER. CHARLES S. COX, Brooklyn, N. Y. Filed Sept. 13, 1900. Serial No. 29,902. (No model.)



Claim.—1. In a device of the character described, the combination, with the frame or casing, of a rotary and longitudinally-movable cutter device, a spring-actuated mechanism, embodying a rotating wheel having a stop thereon, for operating said cutter device, a pivoted lever movably held in a normal position with one end engaging said stop on the rotating wheel and its other end engaging the said cutter device whereby it will be operated by the longitudinal movement of the latter to release said wheel, and means carried by said rotating wheel for engaging with the lever to return the same to its normal position at a certain predetermined time in the rotation of the wheel, for the purpose set forth.

2. In a device of the character described, the combination, with the frame or casing, of a rotary and longitudinally-movable spindle carrying a cutter or knife, a spring-actuated mechanism, embodying a rotating wheel having a stop-lug thereon, for operating said spindle, a pivoted lever movably held in a normal position with one end engaging said stop-lug on the rotating wheel and its other end engaging the said spindle whereby it will be operated by the longitudinal movement of the latter to release said wheel, and an inclined or cam surface on said rotating wheel for engaging with the lever to return the same to its normal position at a certain predetermined time in the rotation of the wheel, substantially as and for the purpose set forth.

691,118. INFLATABLE ARTICLE. CHARLES W. CURLIN, Hickman, Ky. Filed Feb. 14, 1901. Serial No. 47,299. (No model.)



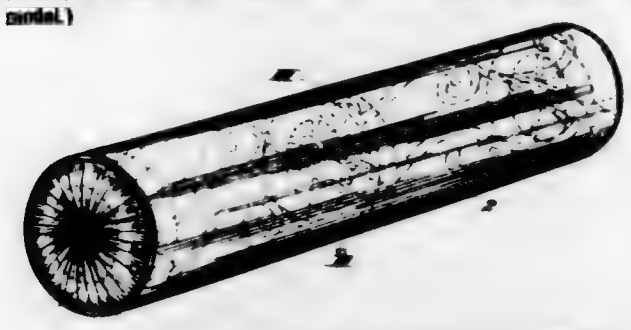
Claim.—1. The process of making inflatable water and air proof articles of textile material, which consists in partially making the article; coating the folded meeting edges of the sections of said fabric with a suitable liquid and applying a binding-strip by sewing to said edges; and subjecting the whole while yet moist to pressure, forcing the liquid into the needle-punctures, as set forth.

2. The process of making inflatable water and air proof articles of textile material, which consists in partially making the article; coating the normally inside of the parts of said article, in its incomplete condition, with a water and air proofing liquid and thoroughly drying the same before completing the article; coating the infolded meeting edges of said article upon the inside with a water and air proofing liquid, and applying a binding-strip by sewing to said edges; and subjecting the same while yet moist or wet to pressure; substantially as set forth.

3. The process of making inflatable water and air proof articles of textile material, which consists in partially making the article; coating the normally inside of the parts of the article in its incomplete condition with a water and air proofing liquid and thoroughly drying the same

before completing the article; connecting stays to the parts of said article while yet moist or wet; coating the folded meeting edges of said article with a water and air proofing liquid, and applying a binding-strip by sewing to said edges; and subjecting the same to pressure while yet moist or wet, substantially as described.

691,119. SPREADER FOR SHAM ROLL-BOLSTERS. JOSEPH DAVID, St. Louis, Mo. Filed Oct. 19, 1901. Serial No. 79,260. (No model.)

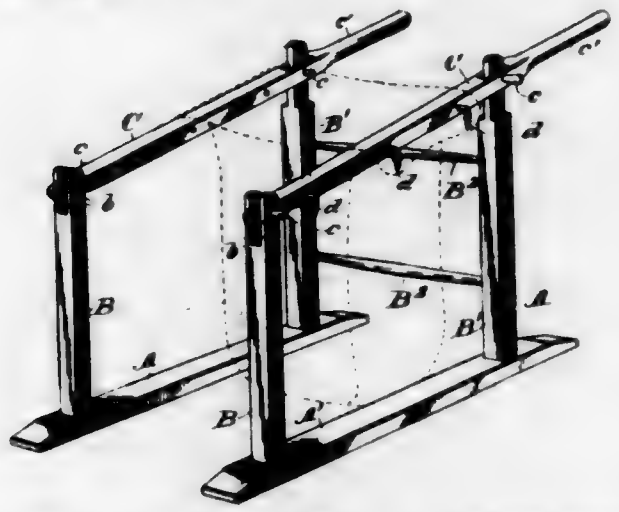


Claim.—1. The combination with a roll-bolster, of a spreader comprising a pair of sections each consisting of a board and semicircular side pieces fixed to said board and a spring interposed between said sections, substantially as and for the purpose set forth.

2. The combination with a roll-bolster, of a spreader comprising a pair of sections, each consisting of a board, semicircular side pieces, a separating-board located between said side pieces, and a spring positioned between said boards and adapted to hold said sections in a spread condition, substantially as specified.

3. The combination with a roll-bolster, of a pair of spreader-sections, each consisting of a board, side pieces attached to said board, a separating-board located between said side pieces; the hinge whereby said first-named boards are united, and a spring interposed between said boards, substantially as and for the purpose set forth.

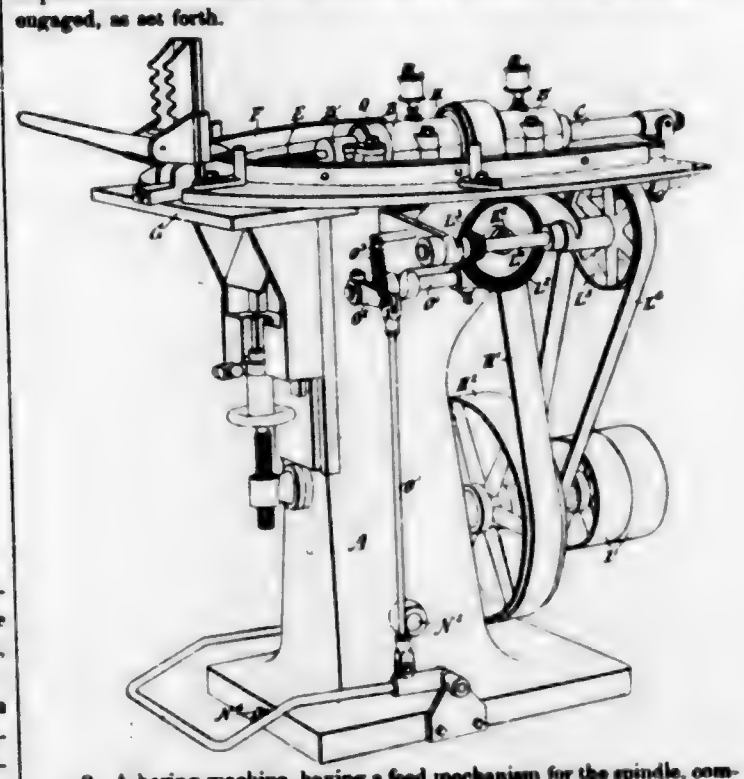
691,120. BAG-HOLDER. WILLIAM Y. ELLIOTT, Anaconda, Mont. Filed Apr. 22, 1901. Serial No. 56,884. (No model.)



Claim.—A bag-holder comprising a pair of similarly-constructed side frames each having base-pieces to which are attached uprights, the forward uprights having bifurcated upper ends, rear uprights which are of a greater length than the forward ones, said rear uprights having reduced upper ends, cross-bars detachably connected to the rear uprights, a pair of bag-holding bars which are reduced at their ends to engage the front uprights, openings through the bag-holding bars through which pass the reduced ends of the rear uprights, pins for adjustably connecting the bag-holding bars to the uprights, and a plurality of hooks on each of the bag-holding bars said hooks extending outward and downward therefrom, substantially as shown.

691,121. HORIZONTAL BORING-MACHINE. GEORGE A. ERNST, Defiance, Ohio, assignor to The Defiance Machine Works, Defiance, Ohio, a Corporation of Ohio. Filed Sept. 25, 1901. Serial No. 76,491. (No model.)

Claim.—1. A boring-machine, having a feed mechanism for the spindle, comprising a rack connected with the spindle and mounted to travel in the direction of the spindle, a pinion in mesh with the rack, a pinion-shaft, a movable clutch member mounted to rotate with and to slide on the said pinion-shaft, a driven clutch member adapted to be engaged by the said first-named clutch member, a manually-controlled shifter for the said first-named clutch member, and a spring device for imparting a quick return movement to the rack when the clutch members are disengaged, as set forth.



2. A boring-machine, having a feed mechanism for the spindle, comprising a rack connected with the spindle and mounted to travel in the direction of the spindle, a pinion in mesh with the rack, a spring-pressed lever connected with the rack, a pinion-shaft, a movable clutch member mounted to rotate with and to slide on the said pinion-shaft, a driven clutch member adapted to be engaged by the said first-named clutch member, and a manually-controlled shifter for the said first-named clutch member, comprising a shifter-arm engaging the movable clutch member, a shaft carrying the shifter-arm, a crank-arm on the shaft, and a treadle connected with the said crank-arm, as set forth.

3. A boring-machine, having a feed mechanism for the spindle, comprising a rack connected with the spindle and mounted to travel in the direction of the spindle, a pinion in mesh with the rack, spring-pressed lever connected with the rack, a pinion-shaft, a movable clutch member mounted to rotate with and to slide on the said pinion-shaft, a driven clutch member adapted to be engaged by the said first-named clutch member, and a manually-controlled shifter for the said first-named clutch member, comprising a shifter-arm engaging the movable clutch member, a shaft carrying the shifter-arm, a crank-arm on the shaft, a treadle connected with the said crank-arm, and a spring for the shifter to move the movable clutch member out of mesh with the driven clutch member, as set forth.

4. A boring-machine having a feed mechanism for the spindle, comprising a rack connected with the feed-spindle, a pinion meshing with the rack, a shaft on which the pinion is mounted, a driving mechanism, means for connecting and disconnecting the driving mechanism with the pinion-shaft, and a spring-pressed device imparting a quick return movement to the rack when the pinion-shaft is disconnected with the driving mechanism, as set forth.

5. A boring-machine having a feed mechanism, comprising a rack connected with the feed-spindle, a pinion meshing with the rack, a shaft on which the pinion is mounted, a driving mechanism, means for connecting and disconnecting the driving mechanism with the pinion-shaft, and a spring-pressed lever pivotally connected with the rack, as set forth.

6. A boring-machine, having a feed mechanism comprising a rack connected with the feed-spindle, a spring-pressed lever connected with the said rack, a pinion in mesh with the rack, a pinion-shaft, and a clutch mechanism on the said shaft and consisting of a driven clutch member and a movable clutch member rotating with the pinion-shaft and adapted to be moved in and out of gear with the said driven clutch member, as set forth.

7. A boring-machine, having a feed mechanism comprising a rack connected with the feed-spindle, a spring-pressed lever connected with the said rack, a pinion in mesh with the rack, a pinion-shaft, a clutch mechanism on the said shaft and consisting of a driven clutch member and a movable clutch member rotating with the pinion-shaft and adapted to be moved in and out of gear with the said driven clutch member, and a manually-controlled shifter for the said movable clutch member, as set forth.

8. A boring-machine, having a driven sleeve, a feed-spindle mounted to slide in and to rotate with the said sleeve, and a pneumatic cushion for the said spindle and arranged on the sleeve, as set forth.

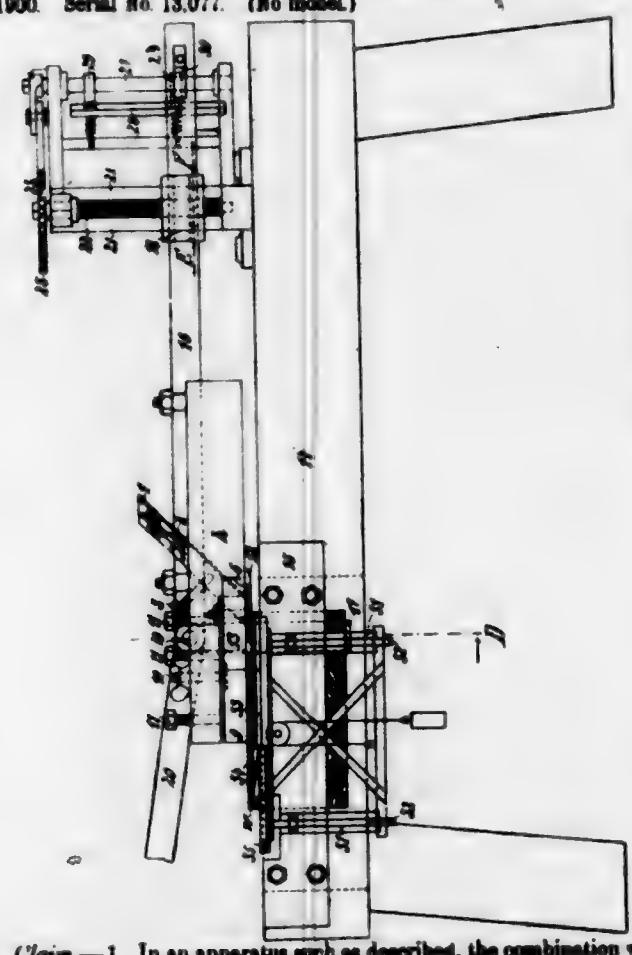
9. A boring-machine, having a driven sleeve, a feed-spindle mounted

to turn with and to slide on the said sleeve, means for gradually feeding the feed-spindle forward, means for suddenly returning the feed-spindle, and a pneumatic cushion for the feed-spindle to take up the slack incident to the sudden return movement of the feed-spindle, as set forth.

10. A boring-machine, having a pneumatic cushion for the feed-spindle, comprising a head formed with inlet-openings, a piston movable in the head and carried by the feed-spindle, and valves over the said openings to control the ingress and egress of air to the said head at the closed end thereof, as set forth.

11. A boring-machine, having a revoluble sleeve formed with a head, a feed-spindle mounted to slide in and to turn with the said sleeve, a piston on the said spindle and fitted in the said head, and a flexible washer in the closed end of the head and extending over air-openings in the said closed end, as set forth.

691,122. APPARATUS FOR THE PRODUCTION OF SPIRALLY-WOUND SHAVINGS. CURT ETZOLD, Apolda, Germany. Filed Apr. 16 1900. Serial No. 13,077. (No model.)



Claim.—1. In an apparatus such as described, the combination with the plane, provided with a rounded recess in front of the cutting edge of the blade, of a round rod arranged concentrically in said recess, for supporting the shaving.

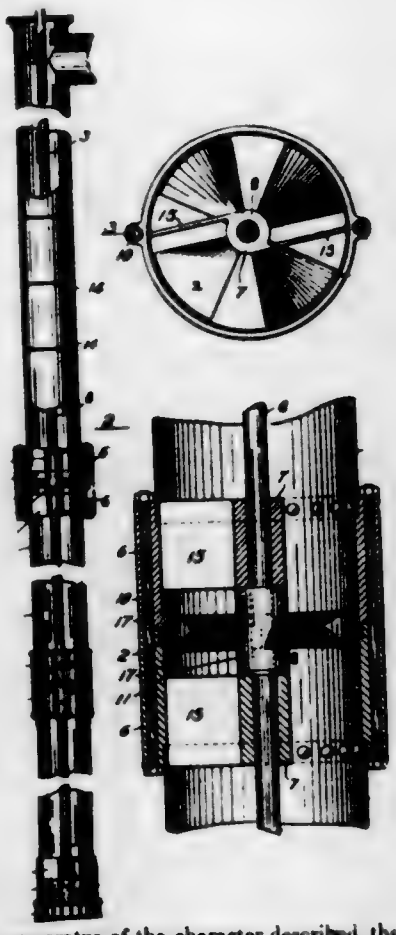
2. In an apparatus such as described, the combination with the plane, the rod carrying the plane, means for reciprocating the rod, the vertical screw-shaft, the nut on said shaft through which the rod passes, the guides for the nut, the ratchet on the screw-shaft, the rack-bar coöperating with the ratchet, the pivoted lever-arm, on one end of which the ratchet-bar is carried, the pivoted pawl carried by the reciprocating rod, adapted to strike the end of the pivoted lever, on the backward movement of the rod, whereby the screw-shaft will be turned and the rod carrying the plane lowered, substantially as described.

3. In an apparatus such as described, the combination with the plane, the reciprocating rod 16 carrying the plane, the vertical screw-shaft, the nut on said shaft, through which the rod 16 is adapted to slide, the ratchet-wheel at the top of the screw-shaft, the rack-bar coöperating with said ratchet to turn the screw-shaft, the bell-crank lever, in one arm of which is adjustably mounted the end of the rack-bar, the pawl on the rod 16 adapted to strike the other arm of the bell-crank lever; substantially as described.

4. In an apparatus such as described, the combination with the reciprocating plane, a vertically-movable table or platform extending under the side of the plane, and means for yieldingly holding said table in elevated position, whereby the table may be depressed by the plane to the level of the work.

691,123. PUMPING AND DREDGING APPARATUS. GEORGE A. FARWELL, Manchester, N. H. Filed Mar. 5, 1901. Serial No. 49,787. (No model.)

Claim.—1. In an apparatus of the character described, the combination of a pipe, a shaft journaled therein, one or more propellers secured to said shaft, and one or more longitudinal riffle-boards secured within said pipe, each extending from the circumference thereof to a point forward of its center with respect to the direction of rotation of said shaft, for the purpose set forth.

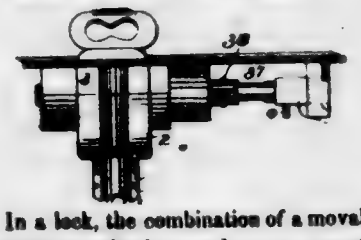


2. In an apparatus of the character described, the combination of a series of pipe-sections secured together at their ends, a bearing located at each end of each pipe-section and united thereto by integral ribs forming riffle-boards, each riffle-board extending from the circumference of its pipe-section to a point forward of the center thereof, a sectional shaft journaled in said bearings, and a series of propellers secured to said shaft between the bearings located at the adjacent ends of each pair of pipe-sections and supported on said bearings, spaces being provided between said propellers and the adjacent riffle-boards, substantially as described.

3. In an apparatus of the character described, a pipe-section provided at each end with a flange, a bearing, and one or more radial riffle-boards, a shaft-section journaled in said bearings, and a propeller secured to the upper end of said shaft and supported on the adjacent bearing, the hub of said propeller forming a coupling adapted to receive the interlocking end of an adjacent section of shaft, substantially as described.

4. In an apparatus of the character described, the combination of a series of pipe-sections detachably secured together and provided respectively at each end with a flange and a central bearing secured thereto by radial ribs, forming riffle-boards, a corresponding series of shaft-sections journaled in said bearings and provided with detachably-interlocked ends, and a propeller secured to each shaft-section and supported on the upper bearing of the corresponding pipe-section, between the adjacent sets of riffle-boards, substantially as described.

691,124. LOCK. ALAN R. FERGUSON, New York, N. Y. Filed May 9, 1901. Serial No. 59,370. (No model.)



Claim.—1. In a lock, the combination of a movable tumbler having peripheral key-engaging projections, and means mounted independent of and engaging said tumbler for preventing, in the first instance, movement thereof until released by the proper key.

2. In a lock, the combination of a movable tumbler having peripheral key-engaging projections, and means, comprising independent devices mounted independent of and engaging said tumbler, for preventing, in the first instance, movement thereof until released by the proper key.

3. In a lock, the combination of a rotary tumbler having peripheral

key-engaging projections, and shiftable means mounted independent of and engaging said tumbler for preventing, in the first instance, the rotation thereof until released by the proper key.

4. The combination of a rotary tumbler; means controlled thereby, and a spring member mounted independent of and directly engaging said tumbler for preventing, in the first instance, the rotation thereof until released by the proper key.

5. In a lock, the combination of a rotary tumbler; means controlled by said tumbler, and means, comprising a pair of spring members mounted independent of and engaging such tumbler, for preventing, in the first instance, the rotation thereof until released by the proper key.

6. The combination of a rotary tumbler having one or more projections, and one or more peripheral key-engaging projections; means controlled by said tumbler, and means located at one side of said first-mentioned projection or projections for coöperating therewith to prevent the rotation of the tumbler until released by the proper key.

7. The combination of a rotary tumbler, means controlled thereby and having two sets of key-engaging projections, and means located at one side of each set of projections for preventing the rotation of the tumbler until released by the proper key.

8. The combination with a bolt, of a rotary tumbler for controlling it and having two sets of projections, and a spring member located at one side of each set of projections for preventing the rotation of the tumbler until released by the proper key.

9. The combination of a rotary tumbler having one or more projections adapted to register with a recess or recesses in a key, and a device located in position to directly engage said key-engaging projection or projections and interfere with the rotation of said tumbler until released by the proper key.

10. The combination with a bolt, of a tumbler for controlling it and having projections adapted to register with recesses in a key, and means comprising a pair of devices in position to engage said key-engaging projections and interfere with the rotation of said tumbler until released by the proper key.

11. In a lock, the combination with a shiftable tumbler, of means controlled thereby; and automatically-operative primary and secondary locking means shiftable independently of each other, and both directly engaging and locking one of said parts against movement.

12. In a lock, the combination with a shiftable tumbler, of means controlled thereby, primary locking means engaging one of said parts and secondary locking means also engaging one of said parts, one of said locking means having its direction of movement transverse to the direction of movement of the other locking means.

13. In a lock, the combination with a shiftable tumbler, of means controlled thereby, and primary and secondary locking means engaging and locking said tumbler, one of said locking means having its direction of movement transverse to the direction of movement of the other locking means.

14. In a lock, the combination with a rotary tumbler, of means engaging and preventing the rotation thereof until released by the proper key, and means for interfering with the rotation thereof until released by the proper key, each of said means shiftable independently of the other.

15. In a lock, the combination with a rotary tumbler, of means engaging and preventing the rotation thereof until released by the proper key, and means for interfering with the rotation thereof until released by the proper key, each of said means shiftable independently of the other and one of said means comprising a pair of devices.

16. In a lock, the combination with a rotary tumbler, of means engaging and preventing the rotation thereof until released by the proper key, and means for interfering with the rotation thereof until released by the proper key, each of said means supported independently of the other means and each comprising a pair of devices.

17. In a lock, the combination with a rotary tumbler, of means directly engaging said tumbler for preventing the rotation thereof and comprising a spring member, and means for interfering with the rotation thereof and comprising a spring-controlled member.

18. In a lock, the combination with a rotary tumbler, of means directly engaging said tumbler for preventing the rotation thereof and comprising a pair of independent spring members, and means for interfering with the rotation thereof and comprising a pair of spring-controlled devices.

19. In a lock, the combination with a rotary tumbler having two sets of projections, a pair of devices in position to engage one projection of each set and prevent the rotation of said tumbler, and a pair of devices in position to engage one projection of each set after the tumbler has been partially rotated, thereby to interfere with the further rotation of said tumbler.

20. In a lock, the combination with a movable tumbler, of a bolt controlled thereby, and successively-effective automatically-operative means supported independently of each other directly engaging one of said parts and preventing the manipulation of the lock by means other than the proper key.

21. In a lock, the combination of a shiftable tumbler, and successively-effective means shiftable independently of each other directly engaging said tumbler to prevent the manipulation of the tumbler by means other than the proper key.

22. In a lock, the combination of a rotary tumbler having two sets of key-engaging projections located with a space intermediate thereof the projections of each set being located one in advance of the other; and means controlled by said tumbler on the rotation thereof.

23. In a lock, the combination with a rotary tumbler having two sets of key-engaging projections separated by one or more annular grooves and one or more annular ribs, and means controlled by said tumbler.

24. A lock having a rotary tumbler provided with two sets of projections separated by an annular groove.

25. A lock having a rotary tumbler provided with two sets of projections separated by an annular rib

26. A lock having a rotary tumbler provided with a set of key-engaging projections, formed by a plurality of disks each having projections one disk having projections some registering and others non-registering with projections of a companion disk.

27. A lock having a rotary tumbler provided with two sets of key-engaging projections, each set formed by a plurality of disks having projections.

28. A lock having a rotary tumbler provided with two sets of key-engaging projections, each set formed by a plurality of disks having projections, the projections of one disk of a set having some projections registering and others non-registering with projections of its companion disk, the registering projections of one set corresponding in position with the non-registering projections of the other set.

29. A lock having a rotary tumbler provided with two sets of key-engaging projections, each set formed by a plurality of disks having projections, the sets of projections being separated by an annular groove or rib.

30. A lock having a rotary tumbler provided with two sets of projections, each set formed by a plurality of disks having projections, the sets of projections being separated by a plurality of annular grooves and ribs.

31. A lock having, in combination with lock mechanism, a guide-plate comprising a centrally-located, longitudinally-extending curved portion having a relatively flat surface at each outer side thereof.

32. A lock having, in combination with lock mechanism, a guide-plate comprising a centrally-located, longitudinally-extending projection having at one side a relatively flat surface.

33. A lock having, in combination with lock mechanism, a guide-plate comprising a centrally-located, longitudinally-extending curved portion having a flat surface at each outer side thereof terminating at its outer end in a projection.

34. A lock having, in combination with lock mechanism, a guide-plate comprising a centrally-located, longitudinally-extending curved surface having at each outer side a flat surface, said plate having at each side thereof a resilient member coöperating with a part of said lock mechanism to prevent movement thereof.

35. A lock provided with a rotary tumbler comprised of a plurality of independent separable disks, each having one or more key-engaging projections.

36. A lock-casing having a face-plate provided with a keyhole comprising a curved portion and a pair of straight portions, one at each side thereof, and a guide-plate located therein provided with a longitudinally-extending, centrally-located portion and a pair of flat surfaces, one at each side thereof.

37. A lock having a rotary tumbler provided with a plurality of sets of key-engaging projections, each set carried by a disk removable and interchangeable with its companion disk.

38. A lock having a rotary tumbler provided with sets of key-engaging projections, each set carried by an independent disk.

39. In a lock, the combination of a shiftable bolt comprising a two-part member; a spring for normally throwing one of said parts outwardly, the other of said parts carrying threads; a rotary tumbler having a part thereof provided with threads coöperating with said bolt-threads, whereby on the rotation of said tumbler the bolt is shifted, said tumbler having two sets of key-engaging projections with a plurality of annular grooves and ribs located intermediate thereof; a pair of spring members for preventing the rotation of said tumbler until released by the proper key; and a pair of spring-actuated devices for interfering with the rotation of said tumbler until released by the proper key.

40. In a lock, the combination with a sliding bolt, of a rotary tumbler connected therewith for shifting it, said tumbler having two sets of separated projections, and means for locking said tumbler against rotation until released by the key.

41. In a lock, the combination with a sliding bolt, of a rotary tum-

bler connected therewith for shifting it, said tumbler having two sets of separated projections, and successively-effective means for locking said tumbler until released by the key.

42. In a lock, the combination with a sliding bolt, of a rotary tumbler connected therewith for shifting it, said tumbler having two sets of separated projections, and successively-effective means for locking said tumbler until released by the key, each of said means comprising a plurality of devices.

691,125. LOCK. ALAN R. FERGUSON, New York, N. Y. Filed May 16, 1901. Serial No. 60,451. (No model.)



Claim.—1. The combination with a closure, of lock mechanism therefor embodying a bolt and a tumbler; means adapted to engage a part of said lock mechanism and maintain the bolt in its unlocked position until said means is tripped on the shutting of the closure; and means for controlling the movement of said tumbler until said means is directly engaged and shifted by a key.

2. The combination with a closure, of lock mechanism therefor embodying a bolt and a tumbler; means adapted to engage said bolt and hold it in its unlocking position until said means is tripped on the shutting of the closure; and means for controlling the movement of said tumbler until said means is directly engaged and shifted by a key.

3. The combination with a closure, of lock mechanism therefor embodying a bolt and a rotary tumbler having one or more peripheral key-engaging projections; and means effective to engage a part of said lock mechanism and hold the bolt in its unlocking position until the shutting of the closure.

4. The combination with a closure, of lock mechanism therefor embodying a rotary tumbler having one or more peripheral key-engaging projections; and means for preventing the return of said tumbler to its normal position until the shutting of the closure.

5. The combination with a closure, of lock mechanism therefor embodying a rotary tumbler comprising a series of interchangeable disks having key-engaging projections; and means for preventing the return of said tumbler to its normal position until the shutting of the closure.

6. The combination with a closure, of lock mechanism therefor embodying a rotary tumbler comprising a series of interchangeable disks having key-engaging projections, and a bolt; and means for maintaining said bolt in its unlocking position until the shutting of the closure.

7. The combination with a closure, of lock mechanism embodying a rotatable tumbler having a plurality of projections, and a bolt; means effective to maintain the bolt in its unlocking position until the shutting of the closure; and means for controlling the movement of said tumbler until said means is directly engaged and shifted by a key.

8. The combination with a closure, of lock mechanism therefor embodying a bolt, and rotary means connected with and effective on the rotation thereof to withdraw the bolt; and means adapted to engage a part of said lock mechanism and maintain said bolt in its withdrawn position until the shutting of the closure, whereupon the bolt will be automatically thrown into its locking position.

9. The combination with a closure, of lock mechanism therefor embodying a sliding bolt, and rotary means connected with and effective on the rotation thereof to withdraw the bolt; and means adapted to engage said bolt and maintain it in its withdrawn position until the shutting of the closure, whereupon the bolt will be automatically thrown into its locking position.

10. The combination with a closure, of lock mechanism therefor adapted to be actuated by a key and embodying means for automatically throwing the key out of the lock on the shutting of the closure.

11. The combination with a closure, of lock mechanism therefor embodying a spring-controlled tumbler adapted to be actuated by a key and effective to throw the key out of the lock on the shutting of the closure.

12. The combination with a closure, of lock mechanism therefor embodying a spring-controlled rotary device adapted to be actuated by a key and effective to throw the key out of the lock on the shutting of the closure.

13. The combination with a closure, of lock mechanism therefor adapted to be actuated by a key; means for throwing the key out of the lock on the shutting of the closure; and means for preventing the key from being withdrawn from the lock until the shutting of said closure.

14. The combination with a closure, of lock mechanism therefor adapted to be actuated by a key; means for throwing the key out of the lock on the shutting of the closure; and means for preventing the key from being withdrawn from the lock until the shutting of said closure, each of said means comprising a spring-controlled device.

15. The combination with a closure, of lock mechanism therefor comprising a rotary tumbler having a plurality of projections and adapted to be operated by a key; a spring for returning said tumbler to its normal position and thereby throw said key out of the lock on the shutting of the closure; a bolt controlled by said tumbler; and means cooperating with said bolt to prevent the unlocking of said bolt until the shutting of the closure.

16. The combination with a closure, of lock mechanism therefor comprising a rotary tumbler having a plurality of projections and adapted to be operated by a key; a spring for returning said tumbler to its normal position and thereby throw said key out of the lock on the shutting of the closure; a bolt controlled by said tumbler; and a spring-controlled member engaging said bolt for preventing the withdrawal of the key until the shutting of the closure.

17. In a mail-box having a closure, the combination of lock mechanism comprising a rotary tumbler having a plurality of projections and adapted to be actuated by a key; a bolt controlled by said tumbler; and means adapted to engage said bolt to prevent the return of said tumbler to its normal position until the shutting of the closure, said bolt having a threaded connection with said tumbler.

18. In a mail-box having a closure, the combination of lock mechanism therefor comprising a rotary tumbler having a plurality of projections and adapted to be actuated by a key; a spring for returning said tumbler to its normal position thereby to throw the key out of the lock; a bolt having a threaded connection with said tumbler whereby it is shiftable thereby on the rotation thereof; a device carried by said closure and effective to engage said bolt to hold it in its unlocking position and thereby prevent the withdrawal of the key, said device being in position to be engaged by a part of the box on the shutting of the closure, thereby to automatically release the bolt and permit the key to be thrown out of the lock.

19. In a mail-box having a closure, the combination of lock mechanism therefor comprising a rotary tumbler having a plurality of projections and adapted to be actuated by a key; a spring for returning said tumbler to its normal position, thereby to throw the key out of the lock; a bolt having a threaded connection with said tumbler whereby it is shiftable thereby on the rotation thereof; means for interfering with the rotation of said tumbler until released by the key; a spring-actuated device carried by said closure and effective to engage said bolt to hold it in its unlocking position and thereby prevent the withdrawal of the key, said device being in position to be engaged by a part of the box on the shutting of the closure thereby to automatically release the bolt and permit the key to be thrown out of the lock.

20. In a mail-box having a closure, the combination of lock mechanism comprising a rotary tumbler having a plurality of interchangeable projections and adapted to be actuated by a key; a pair of bolts controlled by said tumbler; and means in engagement with one of said bolts for maintaining the bolts in their unlocking position until the shutting of the closure.

21. In a mail-box having a closure, the combination of lock mechanism comprising a rotary tumbler having a plurality of interchangeable projections and adapted to be actuated by a key; a spring for returning said tumbler to its normal position thereby to throw the key out of the lock; a pair of bolts controlled by said tumbler, said bolts having threaded connection with said tumbler whereby they are shifted on the rotation thereof; means carried by the closure for locking the bolts in their unlocking position and located in position to be operated by a part of the box on the shutting of the closure thereby to permit the withdrawal of the key.

22. A lock comprising a pair of bolts; and a key-operated tumbler for controlling it and having threaded connection with each of said bolts.

23. A lock comprising a rotary tumbler formed of a plurality of interchangeable sections having projections; a pair of bolts shiftable by said tumbler, each of said bolts having threaded connection therewith; a spring for returning the tumbler to its normal position; and means for interfering with the rotation of the tumbler until released by the key.

24. The combination with a closure, of lock mechanism therefor embodying a tumbler having one or more key-engaging projections and adapted to be shifted by a key; means for controlling the movement of said tumbler until said means is engaged and shifted by a key; and means for preventing the withdrawal of such key from the lock until the closure is shut.

25. The combination with a closure, of lock mechanism therefor embodying a rotary tumbler having a plurality of projections; means for preventing the return of said rotary tumbler to its normal position until the shutting of the closure; and means for interfering with the rotation of the rotary member until engaged and shifted by the key.

26. The combination with a closure, of lock mechanism therefor embodying a rotary tumbler having a plurality of projections; means for preventing the return of said rotary tumbler to its normal position until the shutting of the closure; and means for interfering with the rotation

of the rotary tumbler until released by the key, said means comprising a pair of spring-controlled members.

27. The combination with a closure, and with a part supporting the same, of lock mechanism adapted to be operated by a key and embodying a tumbler and a bolt; means for preventing the withdrawal of the key until the shutting of the closure and comprising a device carried by one of said parts and effective to engage a part of said lock mechanism on the unlocking of said bolt and thrown into operation by its engagement with the other of said parts on the shutting of the closure; and means for interfering with the movement of said tumbler until engaged and shifted by the key.

28. The combination with a closure, of lock mechanism therefor embodying a spring-controlled rotary device adapted to be actuated by a key and effective to throw the key out of the lock on the shutting of the closure; and means for interfering with the rotation of said device until released by the proper key.

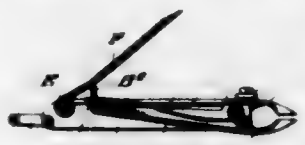
29. The combination with a closure, of lock mechanism therefor adapted to be actuated by a key and embodying a tumbler; means for throwing the key out of the lock on the shutting of the closure; means for preventing the key from being withdrawn from the lock until the shutting of said closure; and means for preventing the movement of said tumbler except by the proper key and thereby the picking of the lock.

30. A lock comprising a pair of bolts; a key-actuated tumbler having threaded connection with each of said bolts; and means for controlling the movement of said tumbler.

31. A lock comprising a rotary tumbler having one or more peripheral key-engaging projections; a pair of bolts shiftable by said tumbler; and means for controlling the rotation of said tumbler until said means is engaged and shifted by a key.

32. The combination with a closure, of lock mechanism therefor embodying a bolt, a key-actuated tumbler connected with and effective on the shifting thereof to withdraw the bolt, and means adapted to engage a part of said lock mechanism and maintain it in its withdrawn position until the shutting of the closure, whereupon the bolt will be automatically thrown into its locking position.

691,126. NAIL CUTTER AND FILE. EMIL FORQUIGNON, New York, N. Y. Filed May 15, 1901. Serial No. 60,354. (No model.)



Claim.—1. A nail cutter and file having a pair of cutters curved reversely to the curved edge of the nail to be cut, the cutters being pivotally connected with each other, and a file hinged on one of the cutters and adapted to engage the other cutter to close the same, as set forth.

2. A nail cutter and file having a pair of cutters curved reversely to the curved edge of the nail to be cut, the cutters being pivotally connected with each other, and a file hinged on one of the cutters and adapted to engage the other cutter to close the same, the file being adapted to fold into a slot in the cutter on which it is hinged, as set forth.

3. A nail cutter and file having a pair of cutters curved reversely to the curved edge of the nail to be cut, the cutters being pivotally connected with each other, a file hinged on one of the cutters and adapted to engage the other cutter to close the same, and a spring for holding the cutters and the file normally open, as set forth.

4. A nail cutter and file having a pair of cutters curved reversely to the curved edge of the nail to be cut, the cutters being pivotally connected with each other, a file hinged on one of the cutters and adapted to engage the other cutter to close the same, the file being adapted to fold into a slot in the cutter on which it is hinged, and a catch for engaging the file and locking the same in place in the slot, to hold the cutters in a closed position, as set forth.

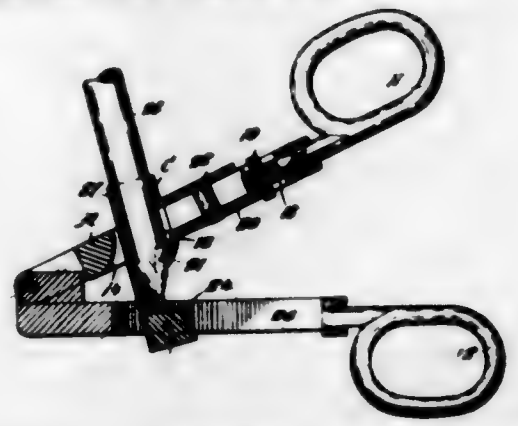
5. A nail cutter and file having pivoted cutters, and a file pivoted on one of the cutters and arranged to engage the other cutter and close the cutters, as set forth.

6. A nail cutter and file having a pair of spring-pressed cutters, and a file pivoted on one of the cutters and adapted to engage a lug on the tail of the other cutter, to move the latter into a closed position, as set forth.

7. A nail cutter and file having a pair of cutters pivotally connected with each other, one of the cutters having its tail end formed into a casing to receive and inclose the tail end of the other cutter, and a file pivoted on said casing and adapted to engage a lug on the tail of the other cutter, as set forth.

8. A nail cutter and file having a pair of cutters pivotally connected with each other, one of the cutters having its tail end formed into a casing to receive and inclose the tail end of the other cutter, a file pivoted on said casing and adapted to engage a lug on the tail of the other cutter, and a catch pivoted on the casing, for engaging the free end of the file and locking the latter and the cutters in a closed position.

691,127. PENCIL-SHARPENER. ANOS T. FOX, Tacoma, Wash. Filed June 8, 1901. Serial No. 63,737. (No model.)



Claim.—1. A pencil-sharpener consisting of pivotally-connected body members having movement to and from each other, a pencil-holder pivoted to one body member, passing loosely through and having play in an opening in the opposing body member, whereby the pencil-holder accommodates itself to the movement of the body members, the said pencil-holder having a longitudinal opening in one side, and a knife adjustably carried by the body member through which the pencil-holder extends, which knife extends at an angle downward to the slot in the pencil-holder, as described.

2. A pencil-sharpener, consisting of pivotally-connected body members, a pencil-holder attached to one member, and passed through the other member of the body, the pencil-holder having a longitudinal recess in one of its sides, and a knife having a downward and forward inclination, adjustably carried by the member of the body through which the pencil-holder loosely passes, for the purpose specified.

3. A pencil-sharpener consisting of pivotally-connected slotted body members, each member having a handle attached thereto, a slotted and recessed pencil-holder attached in the slotted portion of one member and loosely passed through the slotted portion of the opposing member of the body, a knife adjustably mounted upon the body member through which the pencil-carrier is loosely passed, which knife extends within the pencil-holder, and means for limiting the adjustment of the knife, as and for the purpose described.

4. In a pencil-sharpener, the combination, with an upper and a lower slotted body member, the said body members being pivotally connected at their forward ends and provided with loop-handles at their inner ends, of a pencil-holder having a longitudinal recess in one of its sides, the said pencil-holder being pivotally mounted in the slotted portion of the lower member of the body, passing loosely through the slotted portion of the upper member of the body, a knife having an inclination downward and forward, and adapted to extend within the pencil-holder, the shank of the knife being movable upon the upper member of the body, a set-screw connected with the shank of the knife, and an adjusting-nut arranged to limit the end movement of the shank of the knife, for the purpose described.

691,128. SHOE-LACE FASTENER. EDWARD E. PRUTSMEY, Towanda, Pa. Filed June 14, 1901. Serial No. 64,555. (No model.)

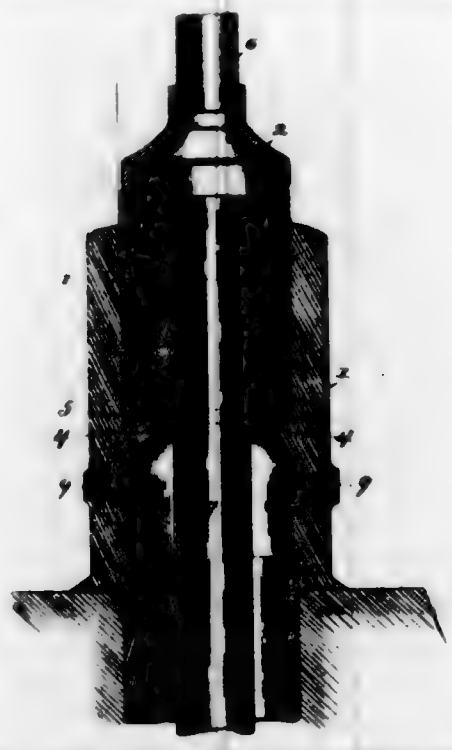


Claim.—1. A lace-fastener provided with a tongue, attaching-prongs, arms extending laterally from said tongue, and rearwardly-extending offsets directly connecting said prongs and arms, substantially as described.

2. A lace-fastener adapted to be applied to the upper of a shoe and provided with prongs engaging and bearing against the inner surface of the upper, offsets extending through holes in the upper, arms extending laterally from the offsets, said offsets directly connecting the prongs and arms, and a tongue extending from the arms, said arms and tongue bearing on the outer surface of the upper, substantially as described.

691,129. CASING-HEAD FOR OIL-WELLS. JOHN W. PEYS, Oil City, Pa. Filed July 5, 1901. Serial No. 67,120. (No model.)

Claim.—1. A casing-head for wells having on its inner surface near its middle a support for the tubing, a stand-pipe, a tubing extending into the well and having an enlargement at its upper end resting upon said support, and a reducer connected to the stand-pipe and also to the top of the casing-head and inclosing the upper end of the well-tubing without being directly connected to the same substantially as described.

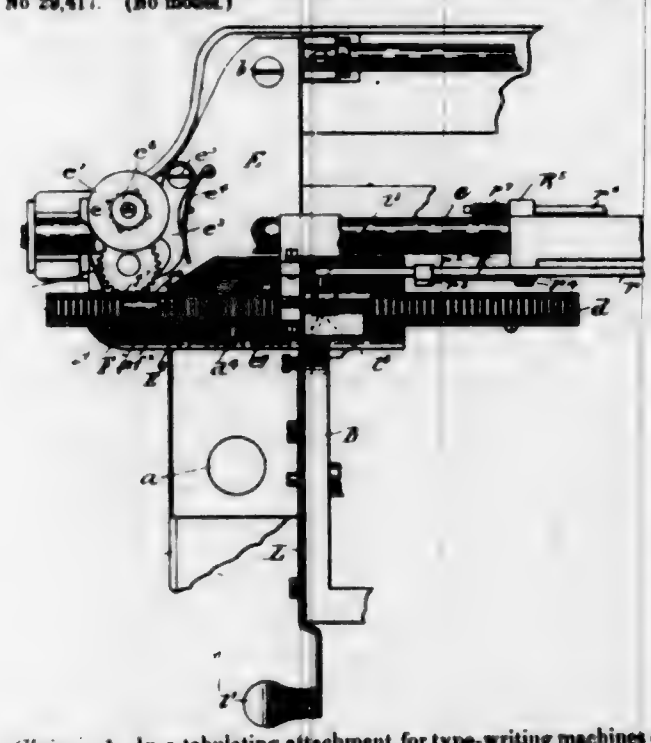


2. A casing-head for wells having near its middle on its inner surface a supporting-shoulder for the tubing, and a detachable ring sustained on said shoulder, a tubing extending into the well and having an enlargement at its upper end resting upon said ring, and a reducer having a connection for the stand-pipe above and secured to the top of the casing-head so as to inclose the upper end of the well-tubing without direct connection to the same and give continuous passage-way from the well-tubing to the stand-pipe substantially as shown and described.

3. A casing-head for wells having on its inner surface near the middle a supporting-shoulder for the tubing and a gas-discharge outlet below the same in its side, a detachable ring sustained on said shoulder, a tubing extending into the well and having an enlargement on its upper end resting upon said ring, and a reducer having a connection for the stand-pipe above and secured to the top of the casing-head so as to inclose the upper end of the well-tubing without touching the same and give continuous passage-way from the well-tubing to the stand-pipe substantially as described.

691,130. TABULATING ATTACHMENT FOR TYPE-WRITERS.

JAMES A. GARLAND, Jr., Hamilton, Mass. Filed Sept. 8, 1900. Serial No. 29,417. (No model.)



Claim.—1. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, the combination of a rack-frame adapted to attachment to the machine-frame, an adjustable stop-rack, mounted and movable upon the rack-frame, means secured to the rack-frame for adjusting and moving the stop-rack, a paper-carriage stop upon the stop-rack, and a detent carried by the paper-carriage and so placed as to make contact with the paper-carriage stop when the paper-carriage is lineally advanced by means other than its normal step-by-step feed mechanism.

2. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, the combination of a rack-frame adapted to attachment to the machine-frame, an adjustable stop-rack mounted and movable upon the rack-frame, a paper-carriage stop upon the stop-rack, a detent, carried by the paper-carriage and so placed as to make contact with the paper-carriage stop when the paper-carriage is lineally advanced by means other than its normal step-by-step feed mechanism, an index-marker carried by the stop-rack, and an index-scale adjacent to the stop-rack upon the stop-rack frame having a series of marks corresponding to the normal feed-spaces of the paper-carriage.

3. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, wherein the paper-carriage is advanced step by step by means, among other things, of a letter-space feed-rack, which is so mounted as to be susceptible of a movement of release out of mesh with the rest of the step-by-step feed mechanism, the combination of an adjustable stop-rack, a paper-carriage stop upon the stop-rack, and a detent, carried by the letter-space feed-rack, and so placed thereon as to make contact with the paper-carriage stop when the letter-space feed-rack is released from mesh with the feed mechanism and the paper-carriage is lineally advanced.

4. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, wherein the paper-carriage is advanced step by step by means, among other things, of a letter-space feed-rack, mounted so as to be susceptible of a movement of release out of mesh with the rest of the step-by-step feed mechanism, the combination of an adjustable stop-rack, a paper-carriage stop upon the stop-rack, a detent carried by the letter-space feed-rack, and so placed thereon as to lie out of reach of the paper-carriage stop while the letter-space feed-rack is in mesh with the step-by-step feed mechanism, and to move into contact reach of the paper-carriage stop when the letter-space feed-rack is moved out of mesh with the step-by-step feed mechanism.

5. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, the combination of a stop-rack, a paper-carriage stop thereon, a detent carried by the paper-carriage, and so placed as to make contact with the paper-carriage stop when the paper-carriage is advanced independently of its normal step-by-step feed mechanism, and a dash-pot adapted to receive and absorb the shock of contact between the paper-carriage stop and the detent.

6. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, the combination of a stop-rack, a paper-carriage stop thereon, a detent carried by the paper-carriage and so placed as to make contact with the paper-carriage stop when the paper-carriage is advanced independently of its normal step-by-step feed mechanism, one of the two coöperating members (the paper-carriage stop and the detent) being mounted on the plunger of a dash-pot, whereby the shock of contact between the paper-carriage stop and the detent is absorbed.

7. In a tabulating attachment for type-writing machines of the traveling paper-carriage class, the combination of a stop-rack, a paper-carriage stop thereon, a detent carried by the paper-carriage and so placed as to make contact with the paper-carriage stop when the paper-carriage is advanced independently of its normal step-by-step feed mechanism, a dash-pot adapted to receive and absorb the shock of contact between the paper-carriage stop and the detent, and automatic means for restoring the dash-pot to its receptive condition when contact between the paper-carriage stop and detent is broken.

8. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, the combination of a stop-rack, a paper-carriage stop thereon, a detent carried by the paper-carriage and so placed as to make contact with the paper-carriage stop when the paper-carriage is advanced independently of its normal step-by-step feed mechanism, one of the two coöperating members (the paper-carriage stop and the detent) being mounted on the plunger of a dash-pot, and a spring whereby the dash-pot plunger is restored to its normal position when the contact between the said members is broken.

9. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, the combination of a toothed stop-rack parallel with the line of feed of the paper-carriage, a guide therefor, means for adjustably moving the stop-rack in its guide, a paper-carriage stop adapted to fit between the teeth of the stop-rack, a letter-space feed-rack, movable into and out of mesh with the letter-space feed mechanism, means for moving the letter-space feed-rack, a detent, secured to the letter-space feed-rack and so proportioned and placed as to make contact with the paper-carriage stop when the letter-space feed-rack is moved out of mesh with the letter-space feed mechanism, and to run clear of the paper-car-

riage stop when the letter-space feed-rack is in mesh with the letter space feed mechanism.

10. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, the combination of a bed-plate, means for securing the bed-plate to the machine-frame, a guideway on the bed-plate, a toothed stop-rack movable in the guideway, means for intermittently sliding the stop-rack in its guideway, and a detent whereby the stop-rack is held in position between movements, a paper-carriage stop upon the stop-rack adapted to be secured in any tooth-space of the rack, and a detent, carried by the paper-carriage and so placed as to make contact with the paper-carriage stop when the paper-carriage is linearly advanced by means other than its normal step-by-step feed movement.

11. In a tabulating attachment for type-writing machines of the traveling-paper-carriage class, the combination of a bed-plate, means for attaching the bed-plate to the machine-frame, a guideway on the bed-plate, a toothed stop-rack movable in the guideway and parallel to the line of feed of the paper-carriage, a gear-wheel mounted on the bed-plate and in mesh with the stop-rack, a mutilated gear in mesh with the gear-wheel, a spring-pressed detent, engaging with the gear-wheel, and with the mutilated gear in such manner that when the mutilated gear is turned the detent is released thereby and held released while the gear-wheel and rack are moved, a paper-carriage stop on the stop-rack, and a detent carried by the paper-carriage, substantially as described.

691,131. TOY. HERMAN T. GAY, Baltimore, Md. Filed July 16, 1901. Serial No. 68,466. (No model.)

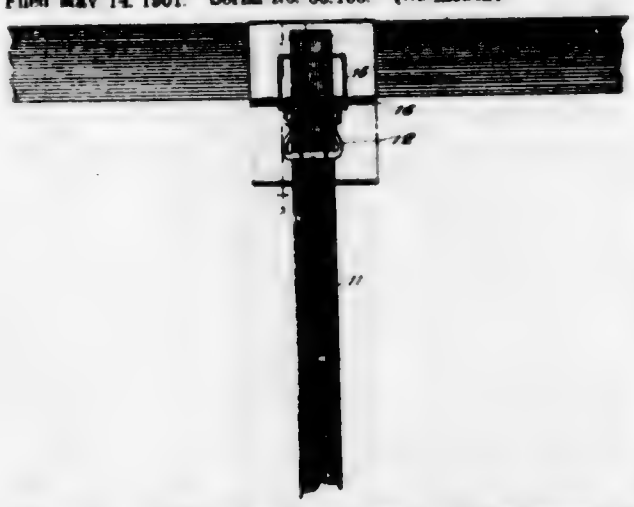


Claim.—In a toy of the character described, a casing formed of two plates which stand apart and are united by connecting-pieces, each plate having inturned ears which stand away from the plates, combined with a rubber band which is stretched over the four ears of the device, substantially as, and for the purpose specified.

691,132. PROCESS OF REDUCING NITRO COMPOUNDS. HUGO GERRESHEIM, Cologne-Ehrenfeld, Germany. Filed May 16, 1901. Serial No. 60,575. (No specimens.)

Claim.—The process for effecting the reduction of organic nitro compounds and of intermediate reduction products still capable of reduction which consists in the treatment of these substances with iron and alkali, substantially as described.

691,133. SLIDE LOOP-CLIP. ISAAC GOURIS, New York, N. Y. Filed May 14, 1901. Serial No. 60,166. (No model.)

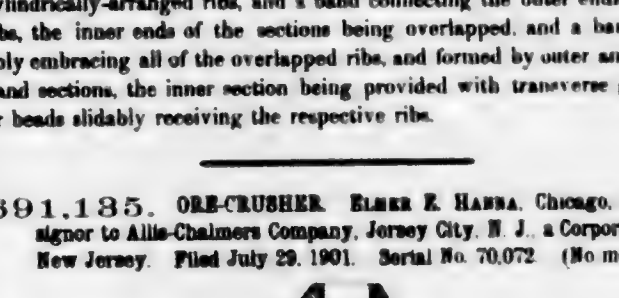


Claim.—1. A slide loop-clip, comprising a single length of wire bent to form an inner frame-like section and an outer frame-like section, the ends of said wire being secured together, a belt, and a loop mounted to slide on said belt, the inner section of the clip being arranged between the material of the loop and the belt, the said clip being held from detachment by the line of stitching across the lower portion of the loop substantially as specified.

2. In a suspending device, a belt or web, a loop extended around said belt or web and adapted to slide thereon, the said loop comprising two thicknesses at the inner side, and a clip consisting of wire having an inner frame-like section adapted to slide between the two inner laps or portions of the sliding loop, and a frame-like section to engage against the outer surface of said loop, substantially as specified.

691,134. SHAM-BOLSTER FRAME. LEONTINA GUILY, Uvalde Tex. Filed July 9, 1901. Serial No. 67,670. (No model.)

Claim.—1. A sham-bolster frame, comprising opposite telescopic sections, each section having an outer substantially circular band, and substantially parallel ribs carried by and projected in the same direction from the band to form a skeleton substantially cylindrical section, the inner ends of the sections being overlapped, and a guide-band slidably embracing all of the rods at the overlapped portions thereof.



2. A sham-bolster frame, comprising opposite telescopic sections, each section having an outer substantially circular band, and a plurality of return-bend ribs, which have their opposite ends connected to the band and projected therefrom in the same direction to form a substantially cylindrical skeleton section, the outer ends of the sections being overlapped and a band slidably embracing all of the rods at the overlapped portions of the sections.

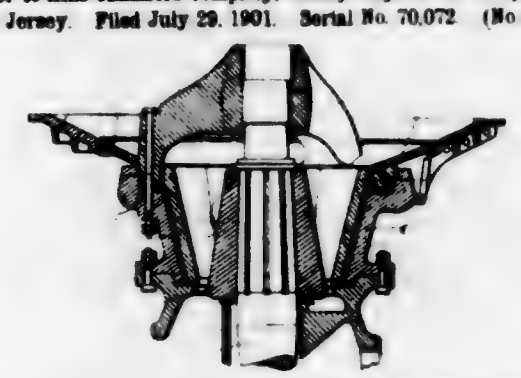
3. A sham-bolster frame, comprising opposite telescopic sections, each of which is substantially cylindrical in shape and formed by separate longitudinal ribs, and a substantially circular band embracing the outer ends thereof, the band being folded longitudinally and embracing the ends of the rods, and a substantially circular band slidably embracing the inner overlapped portions of the sections.

4. A sham-bolster frame comprising two sections having a telescopic connection with each other, each section comprising a plurality of return-bend ribs, an end band held against lateral movement by beading the metal of the band around the ends of the ribs, and a center band comprising an inner and an outer plate, the inner plate being formed with grooves or beads in which the ribs slide when the sections are telescoped.

5. A sham-bolster frame comprising two sections having telescopic connection with each other, each section comprising a plurality of return-bend ribs, and an end band in which the ends of the ribs are housed and are held against lateral movement by beading the metal of the band around the ends of the ribs, and a center band comprising two pieces of metal the outer one of which is plain, and the inner one provided with beads or openings in which the ribs work when the frame is telescoped.

6. A sham-bolster frame, comprising opposite substantially cylindrical skeleton telescoped sections, each section comprising a plurality of cylindrically-arranged ribs, and a band connecting the outer ends of the ribs, the inner ends of the sections being overlapped, and a band slidably embracing all of the overlapped ribs, and formed by outer and inner band sections, the inner section being provided with transverse grooves or beads slidably receiving the respective ribs.

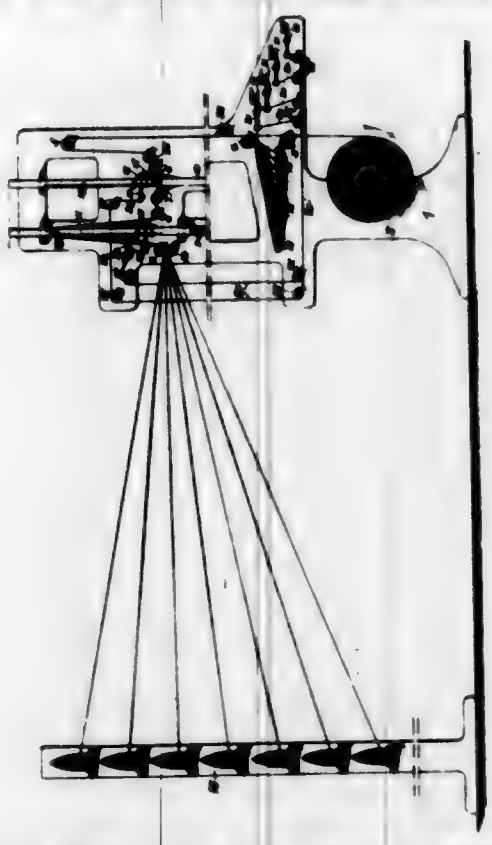
691,185. ORE-CRUSHER. ELMER E. HANNA, Chicago, Ill., assignor to Allis-Chalmers Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 29, 1901. Serial No. 70,072. (No model.)



Claim.—1. In a rock and ore breaker of the class described, the combination of a main frame portion provided with a recess in its upper inner surface, crushing-concaves in such frame portion, the upper ends extending above the base of the recess to form the same into a groove, and a spider portion provided with a base portion resting in such groove and secured therein, substantially as described.

2. In a rock and ore breaker of the class described, the combination of a main frame portion provided with an annular flange at the upper part thereof forming a portion of an annular groove in its upper inner surface, crushing-concaves secured to the inner side of such frame and extending upward to form the other walled portion of said annular groove, and a spider portion provided with a circular base secured in such annular groove, substantially as described.

691,186. DEVICE FOR CORRECTING IMPROPER REGISTRY OF PARTY-COLORED WARP-THREADS. HARRY HARDWICK, Philadelphia, Pa. Filed June 8, 1900. Serial No. 19,539. (No model.)



Claim.—1. The combination in means for correcting improper registry of party-colored warp-threads in textile machinery, of two sets of guides for deflecting the warp-threads from a straight course, one set of guides being adapted to tighten the threads and the other set to slacken the same, and each set of guides having movable elements, one for each of the threads to be controlled; and provision for varying the deflective position of said warp-controlling element of each set of guides, substantially as specified.

2. The combination in means for correcting improper registry of party-colored warp-threads in textile machinery, of a set of guides for deflecting said threads from a straight course, said set of guides having for each thread to be controlled a movable element adapted to vary the extent of deflection of the thread, and escapement devices for controlling the movement of said elements, substantially as specified.

3. The combination in means for correcting improper registry of party-colored warp-threads in textile machinery, of a set of guides for deflecting said threads from a straight course, said set of guides having for each thread to be controlled, a movable element to vary the extent of deflection, escapement devices for controlling such movement of said elements, and key-levers for operating said escapement mechanism, substantially as specified.

4. The combination in means for correcting improper registry of party-colored warp-threads in textile machinery, of a frame carrying the spools from which the threads are drawn, a set of guides having movable elements for independently deflecting each of said threads from a straight course, means for varying the extent of deflection of each thread, and tension devices interposed between said deflecting devices and the spools, substantially as specified.

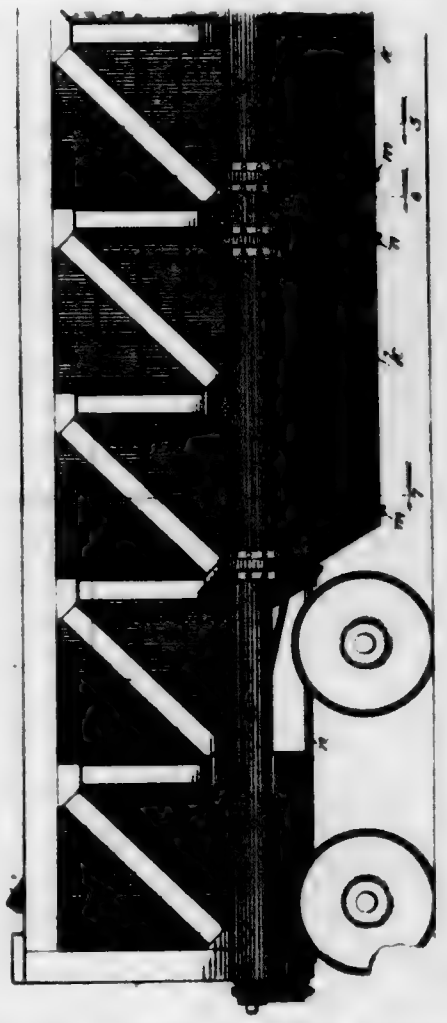
5. The combination in means for correcting improper registry of party-colored warp-threads in textile machinery, of independent and separately controllable tension devices for each of the threads to be governed, and means for deranging the threads so as to bring portions of the same which are normally out of line, into line with each other, and thereby form a stripe or band extending across a series of threads, substantially as specified.

6. The combination in means for correcting improper registry of party-colored warp-threads in textile machinery, of independent and separately controllable tension devices for each of the threads to be governed, and an index-bar extending across the series of threads, substantially as specified.

7. The combination in means for correcting improper registry of party-colored warp-threads in textile machinery, of a frame carrying spools from which the threads are drawn, a rotatable beam upon which the threads are wound, and independent and separately controllable tension devices for each of the threads to be governed, said devices acting upon the threads in their course from the spools to the beam, substantially as specified.

8. The combination in means for correcting improper registry of party-colored warp-threads in textile machinery, of thread-controlling devices each having as elements a toothed bar, a self-locking escapement-lever therefor, and means for vibrating said lever, substantially as specified.

691,187. CONVERTIBLE DUMP-CAR. HARRY S. HART, Chicago, Ill., assignor to Rodger Ballast Car Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 6, 1901. Serial No. 81,284. (No model.)



Claim.—1. In a convertible dump-car, the combination of a supporting frame portion and an A-shaped bottom portion arranged longitudinally of the car with its apex substantially at the longitudinal center thereof the leg portions of which extend downwardly and outwardly to a point substantially outside the supporting-wheels and made of movable sections arranged to be inclined to form the A-shaped portion of a dumping-car in one position and laid in a flat plane to form the flat bottom of a car in another position, substantially as described.

2. In a convertible dump-car, the combination of a frame portion, vertical side and end boards, and an A-shaped hopper portion arranged longitudinally of the car with its apex at or near the longitudinal center thereof and substantially at the floor-level the leg portions of which extend downwardly and outwardly to a point substantially outside the supporting-wheels of the car and made in movable sections arranged to form the inclined sides of the A-shaped portion when in one position and the flat bottom of a gondola car in another position, substantially as described.

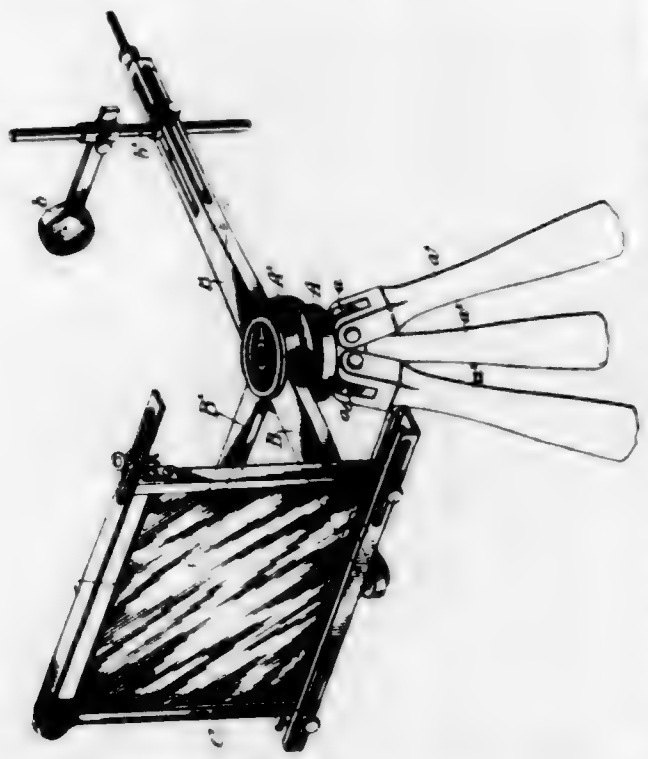
3. In a convertible dump-car, the combination of a supporting frame portion provided with vertical side and end boards, an A-shaped bottom portion arranged longitudinal of the car with its apex at or near the longitudinal center thereof and substantially at the floor-level the leg portions of which extend downwardly and outwardly to a point substantially outside the supporting-wheels and made in movable sections arranged to form the inclined boards of the A-shaped portion when in one position and be laid in a flat plane to form a portion of the flat bottom of a gondola car, and movable end boards arranged when in one position to form the inclined ends of a hopper-car and to be laid in a flat plane in another position and complete the floor of a flat-bottom car, substantially as described.

4. In a convertible dump-car, the combination of a frame portion provided with vertical side and end boards, an A-shaped bottom portion arranged longitudinally of the car with its apex at or near the longitudinal center thereof and substantially at the floor-level the leg portions of which extend downwardly and outwardly to a point substantially outside the supporting-wheels and made in movable sections arranged to form the inclined boards of the A-shaped portion in one position and the flat bottom of a gondola car in another position, and longitudinal girths secured to such movable sections for supporting them in both positions, substantially as described.

5. In a convertible dump-car, the combination of a frame portion provided with vertical side and end boards, an A-shaped bottom portion arranged longitudinally of the car with its apex at or near the longitudinal center thereof and substantially at the floor-level the leg portions of which extend downwardly and outwardly to a point substantially outside the supporting-wheels and made in movable sections arranged to form the inclined boards of the A-shaped section in one position and the flat bottom of the gondola car in another position, movable end boards arranged when in one position to form the inclined ends of a hopper-car and adapted to be laid in a flat plane in another position to form a portion of a flat-bottom car, and a foldable portion on such end boards adapted to be opened and laid in a flat plane to complete the bottom portion of a flat-bottom car, substantially as described.

6. In a convertible dump-car, the combination of a frame portion provided with vertical side and end boards, an A-shaped bottom portion arranged longitudinally of the car with its apex at or near the longitudinal center thereof and substantially at the floor-level the leg portions of which extend downwardly and outwardly to a point substantially outside the supporting-wheels and made in movable sections arranged to form the inclined boards of the A-shaped section in one position and the flat bottom of a gondola car in another position, movable end boards arranged when in one position to form the inclined ends of a hopper-car and adapted to be laid in a flat plane in another position to form a portion of a flat-bottom car, a foldable portion on such end boards adapted to be opened and laid in a flat plane to complete the bottom portion of a flat-bottom car, and swinging hopper-boards depending downwardly from the car-frame to meet the legs of the A-shaped bottom portion and complete a pair of twin hoppers, substantially as described.

691,138. PROCESS OF MAKING PICTURES. BENJAMIN HAWLEY, Philadelphia, Pa. Filed Sept. 13, 1901. Serial No. 75,306. (No specimens.)

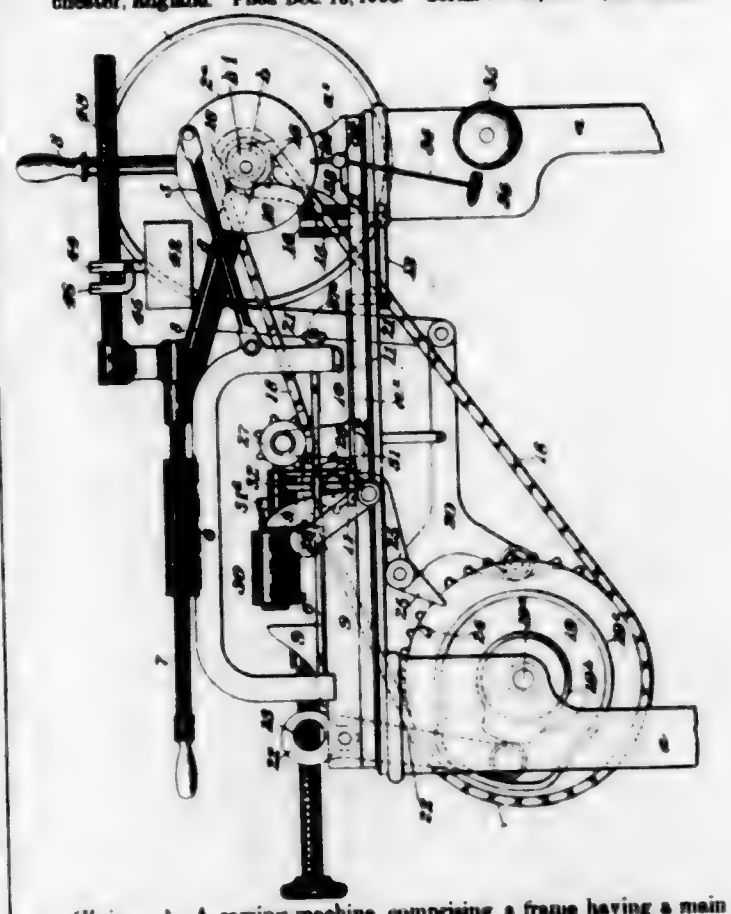


Claim.—1. The process of producing a picture, said process consisting of locating a transparent plate between the object to be copied and the eye, said plate being distant from both the object and the eye, and engraving the image of said object upon the said plate to form a negative and taking an impression from said negative, substantially as described.

2. The herein-described process of producing a picture, the same consisting of mounting a transparent plate some distance in front of the body to be copied, locating the eye of the operator at a fixed point some distance in front of the plate, whereby said object is seen through said plate in perfect perspective, etching the surface of said plate on the lines of the object seen therethrough, and printing from said etching, substantially as described.

3. The herein-described process of producing drawings direct from an object, the same consisting in graving on a film of a transparent gelatinous substance carried upon a plate of glass, the image of said object seen when the same is observed by looking through the plate from a fixed point, said plate being placed at a distance from both the object and the eye of the observer, applying ink to the lines so produced and making a print from the same, substantially as described.

691,139. SAWING-MACHINE. EDWARD G. HERBERT, Manchester, England. Filed Dec. 18, 1900. Serial No. 40,234. (No model.)



Claim.—1. A sawing-machine comprising a frame having a main shaft, and vise-jaws one of which is movable, a vertically-movable saw-blade carrier mounted on said shaft, devices for feeding the material to be sawed transversely of the frame between the vise-jaws, a sprocket-wheel mounted on the main shaft, a cam sprocket-wheel mounted in the opposite end of the frame, means for gearing said sprocket-wheels in connection, and devices in operative connection with said cam-wheel for raising the saw-carrier, substantially as shown and described.

2. A sawing-machine, comprising a frame, a main shaft mounted therein, and vise-jaws arranged transversely of the frame, a vertically-movable saw-frame connected with the main shaft and adapted to rise and fall, a sprocket-wheel mounted on the main shaft, a corresponding cam sprocket-wheel mounted in the frame of the machine opposite the main shaft, means for gearing said wheels in connection, devices connected with the cam sprocket-wheel for operating one of the vise-jaws, and devices in operative connection with said cam sprocket-wheel for raising the saw-frame, substantially as shown and described.

3. A sawing-machine, comprising a frame, a main shaft mounted therein, a saw-frame connected with said shaft and adapted to rise and fall, vise-jaws connected with the frame, one of which is movable, a sprocket-wheel mounted on the main shaft, a cam sprocket-wheel in the opposite end of the frame, a chain for gearing said sprocket-wheels in connection, devices in operative connection with the cam sprocket-wheel for moving one of the vise-jaws, other devices in operative connection with the cam sprocket-wheel for feeding the material to be sawed transversely of the machine, and devices in connection with said last-named devices for operating an alarm device, substantially as shown and described.

4. A sawing-machine, comprising a frame, a main shaft mounted therein, a saw-frame connected with said shaft and adapted to rise and fall, vise-jaws connected with the frame, one of which is movable, a sprocket-wheel mounted on the main shaft, a cam sprocket-wheels in connection, end of the frame, a chain for gearing said sprocket-wheel for moving devices in operative connection with the cam sprocket-wheel in connection with the cam one of the vise-jaws, other devices in operative connection with the cam sprocket-wheel for feeding the material to be sawed transversely of the machine and devices in connection with said last-named devices for operating an alarm device, said saw-frame being also provided with a weight-support, and a weight mounted thereon, the connection of the weight with its support being such that said weight moves in the direction of the saw as the saw-frame rises and falls, substantially as shown and described.

5. A sawing-machine, comprising a frame, a main shaft mounted therein, a saw-carrier supported by said shaft and adapted to rise and fall, devices connected with said shaft for giving the saw-carrier a reciprocating motion, vise-jaws connected with the frame, one of which is movable, and devices for operating the movable vise-jaw, and for giving a vertical movement to the saw-frame, and other devices for feeding the material to be sawed transversely of the frame, substantially as shown and described.

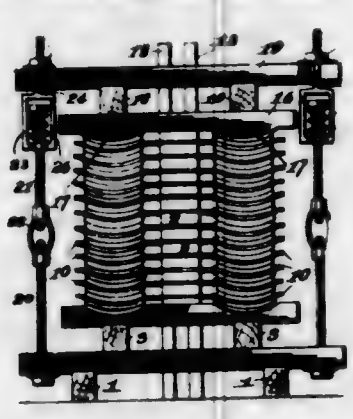
6. A machine of the class described, comprising a frame, a main shaft mounted therein, a saw-support connected with the main shaft and adapted to rise and fall thereon, devices connected with the main shaft for giving the saw-support a reciprocating movement, a sprocket-wheel mounted on the main shaft, another sprocket-wheel in the opposite end of the frame and beneath the bed-plate thereof, vise-jaws connected with the frame, one of which is movable, devices in operative connection with the last-named sprocket-wheel for operating the movable vise-jaws, other devices in connection with said sprocket-wheel for feeding the material to be sawed transversely of the machine, means for giving the saw-carrier a vertical movement, and devices for regulating the pressure of the saw-carrier on the material to be sawed, substantially as shown and described.

7. In a machine of the class described, a frame provided with a main shaft, and vise-jaws, one of which is movable, a vertically-movable saw-carrier mounted on the main shaft and provided with devices for giving it a reciprocating motion, a sprocket-wheel mounted on the main shaft, a cam sprocket-wheel in the opposite end of the frame and beneath the bed-plate thereof, said wheels being geared in connection, devices in connection with the cam sprocket-wheel for moving the movable vise-jaw, other devices in operative connection with said cam sprocket-wheel for giving the saw-carrier a vertical movement, and for feeding the material to be sawed transversely of the machine, and a bell or gong adapted to be operated by the operating devices of the machine at a predetermined time, substantially as shown and described.

8. A sawing-machine, comprising a frame having a main shaft, vise-jaws, one of which is movable, a vertically-movable saw-blade carrier connected with an arm mounted on eccentrics arranged on said main shaft, devices for feeding the material to be sawed transversely of the frame between the vise-jaws, a sprocket-wheel mounted on the main shaft, a cam sprocket-wheel mounted in the opposite end of the frame, said sprocket-wheels being geared in connection, and devices in operative connection with said cam-wheel for raising and lowering the saw-carrier, substantially as shown and described.

9. A sawing-machine, comprising a frame, a main shaft mounted therein, a saw-support connected with the main shaft and adapted to rise and fall thereon, and devices for regulating the pressure of the saw on the material comprising an automatically-movable weight, the action of which is controlled by the saw as it sinks into the material, substantially as shown and described.

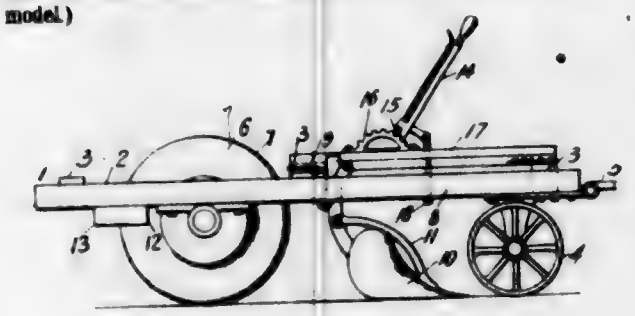
691,140. STAVE-DRYING APPARATUS. WARREN H. HIBBS, Poplarbluff, Mo., assignor to Lowell M. Palmer, New York, N. Y. Filed Jan. 24, 1901. Serial No. 44,482. (No model.)



Claim.—1. In a stave-drying apparatus, the combination of a frame-work within which the staves are piled in tiers, separators comprising bars and flexible crossing strips, and means for effecting pressure upon the staves, substantially as described.

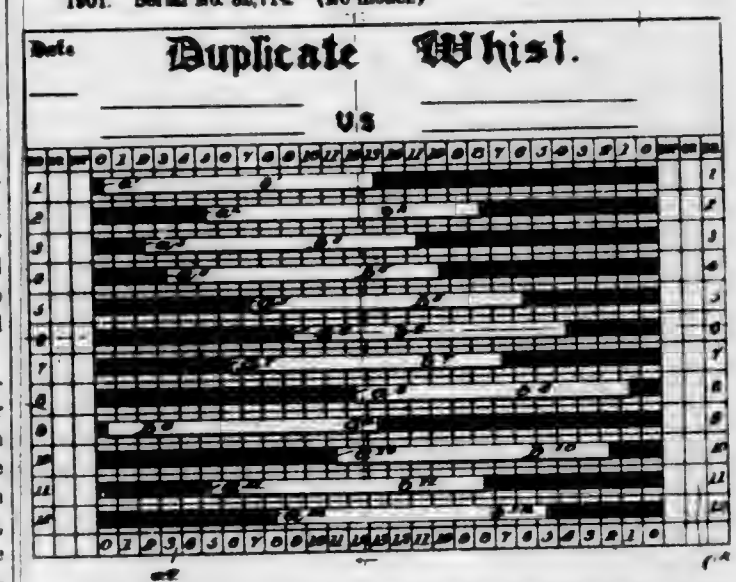
2. In a stave-drying apparatus, the combination of a framework within which the staves are piled in tiers, flexible separators arranged between the staves throughout the tiers, means by which said separators are confined, and means for effecting pressure upon the staves, substantially as described.

691,141. DITCHING-MACHINE. DAVID J. HOFFMAN and JOHN W. HELM, Parachute, Colo. Filed Aug. 12, 1901. Serial No. 71,699. (No model.)



Claim.—In a ditching-machine, the combination with the main frame, of wheels supporting the forward end thereof, a roller supporting the rear end thereof and formed with an annular bulge, a plow-beam hinged at one end to the main frame and provided with a standard, means for releasably connecting it at its other end to the main frame, a plow carried by the said standard in line with the annular bulge of the roller, and means for holding the plow in elevated position free from contact with the ground, substantially as set forth.

691,142. COUNTER. JOHN S. HOEY, Chicago, Ill. Filed Nov. 18 1901. Serial No. 82,714. (No model.)



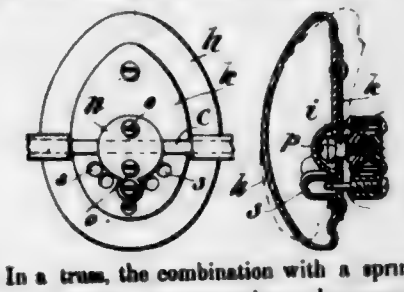
Claim.—1. In a game-counter, the combination with a series of parallel elements consecutively numbered from a minimum at either side to a maximum number at the center, of means movable transversely across said parallel elements for simultaneously registering with two of said elements the sum of whose numbers equals said maximum number, substantially as described.

2. In a game-counter, the combination with a series of numbered columns the numbers of which increase from a minimum at either side to a maximum at the center corresponding to the maximum points attainable in the game, of a device transversely movable across said columns for simultaneously indicating two columns the sum of whose numbers equals the maximum number, substantially as described.

3. In a game-counter, the combination with a series of columns consecutively numbered from zero at each side to a predetermined maximum number at the center, of a transversely-movable device substantially equal in length to the width of a number of columns corresponding to the predetermined maximum number, substantially as described.

4. In a duplicate-whist counter, the combination with a series of parallel numbered columns, the numbers of which decrease from "13" at the center to "0" at either side, of a series of devices equal to the number of hands to be played movable transversely across said columns each of said devices being equal in length to the width of thirteen of said columns, whereby the ends of each of said movable devices register with columns the numbers of which represent the points made by the opposing sides.

691,143. HERNIAL TRUSS. RICHARD HUMMEL, New York, N. Y. Filed Aug. 24, 1901. Serial No. 73,108. (No model.)



Claim.—1. In a truss, the combination with a spring adapted to encircle the body of a patient; of compression-pads, comprising a hollow oval structure, formed with pits and recesses as specified, and backed by a perforated plate; the said perforations arranged to register with said pits and recess; screws held by said plate with their heads in said recesses, two-part and spring clamps held by said screws, and detachably connecting said pads and said spring; pins passing through the said perforations in said plates and working in said pits, and said clamps and said pins arranged to adjust said pads on said spring; and an elastic band connecting the ends of said spring; all substantially as and for the purpose set forth.

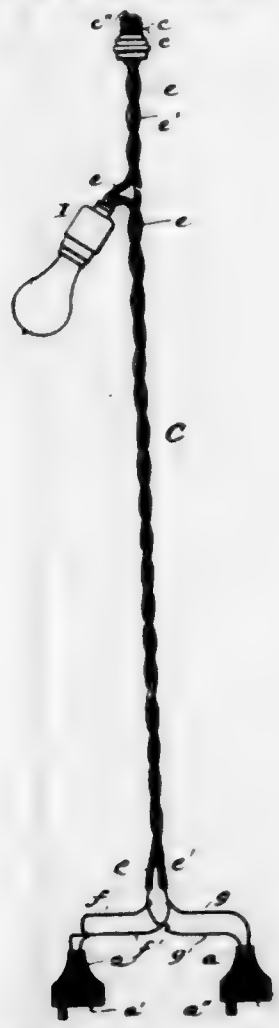
2. In a truss, the combination with a spring adapted to encircle the body of a patient; of compression-pads, formed with pits and recesses as

specified; perforated plates fastened on the backs on said pads, the perforations whereof register with said pits and recess, screws held by said plates in said recesses; two-part and spring clamps held by said screws, and detachably and adjustably connecting said pads to said spring; screws operating said clamps; screw-pins working through said plates and in said pits and with said clamps affording facility for adjusting said pads on said spring; and an elastic band connecting the ends of said spring; all substantially as and for the purpose set forth.

3. In a truss, the combination with a spring adapted to encircle the body of a patient; of hollow compression-pads formed with pits and recesses as specified, perforated plates fastened on the backs of said pads; screws held by said plates in said recesses; two-part and spring clamps held by said screws, and detachably connecting said pads to said spring; pins formed with screw-threads, and working in one member of said clamps through said plate and in said pits, and with said clamps affording facility for adjusting said pads on said springs; and an elastic band connecting the ends of said spring; and means for holding said band in position; all substantially as and for the purpose set forth.

4. In a truss, the combination with a spring adapted to encircle the body of the patient; of hollow compression-pads, formed with pits, recesses, and air-vents as specified; perforated plates fastened on the backs of said pads; and arranged with their perforations registering with said pits and recess, screws held in said recesses by said plates; adjusting two-part and spring clamps held by said screws, and detachably, and adjustably connecting said pads with said spring; screws working in said clamps to operate them; pins formed with screw-threads, and working in one member of said clamps through said perforated plate and in said pits, and in connection with said clamps affording facility for adjusting said pads on said spring; and an elastic band connecting the ends of said spring, and by its resilience adapted to adjust the distance between said ends; all substantially as and for the purpose set forth.

691,144. APPARATUS FOR CHARGING BATTERIES. MILLER R. HUTCHISON, New York, N. Y., assignor, by mesne assignments, to A. Keuphone Manufacturing Company, a Corporation of New York. Filed July 19, 1901. Serial No. 68,918. (No model.)



Claim.—1. An electrical device consisting of a pair of conductors adapted to form the positive and negative sides of a circuit, in combination with two connectors each having a positive and a negative terminal respectively connected with said two conductors.

2. An electrical device consisting of a pair of conductors adapted to form the positive and negative sides of a circuit, in combination with two connectors each having male and female terminals connected respectively with the two conductors.

3. An electrical device consisting of a pair of conductors adapted to form the positive and negative sides of a circuit, and mechanically connected to form a flexible cord, said cord having at one end a device for connection to a source of electricity and at the other end, two connectors each having two terminals in character differing from each other but being the same on each connector and a different terminal of the other connector being connected with one of said conductors while the other two terminals are connected with the other conductor, substantially as described.

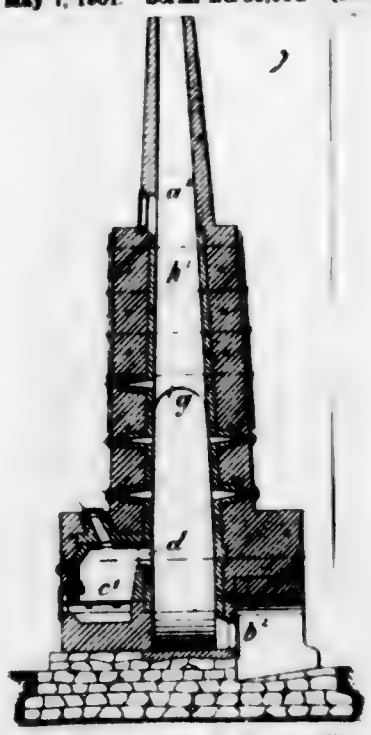
4. An electrical device consisting of a pair of conductors adapted to form the positive and negative sides of a circuit, in combination with two connectors each having a male and a female terminal, the male terminal of one and the female terminal of the other being connected to one of said conductors, and the other two terminals being connected to the other conductor, substantially as described.

5. The combination of two mechanically-joined connectors of like character, each having two terminals of different form, and means for connecting them with a current outlet or source, for the purpose set forth.

6. An article of manufacture, consisting of a flexible cord composed of two conductors, a circuit-connecting plug at one end, two connectors each having two terminals at the other end and a lamp-socket connected in series in one of the conductors, substantially as described.

7. The combination of a battery having a connector provided with two terminals of differing character, a polarity-indicator having a similar connector and charging-cord for the battery consisting of two conductors and two connectors each similar to the other connectors and adapted to fit the same, the terminal of one connector and a different terminal of the other connector being attached to one of said conductors while the other two terminals are connected with the other conductor.

691,145. LIME, CEMENT, OR LIKE KILN. ISRAI ISSERLIS, Kiew Russia. Filed May 7, 1901. Serial No. 59,114. (No model.)



Claim.—1. A limekiln, consisting of a plurality of compartments communicating at the lower ends and each provided with a chimney in the upper end, feed-doors in said chimneys, discharge-doors at the base of said compartments, and oppositely-arranged hearths in said compartments, substantially as set forth.

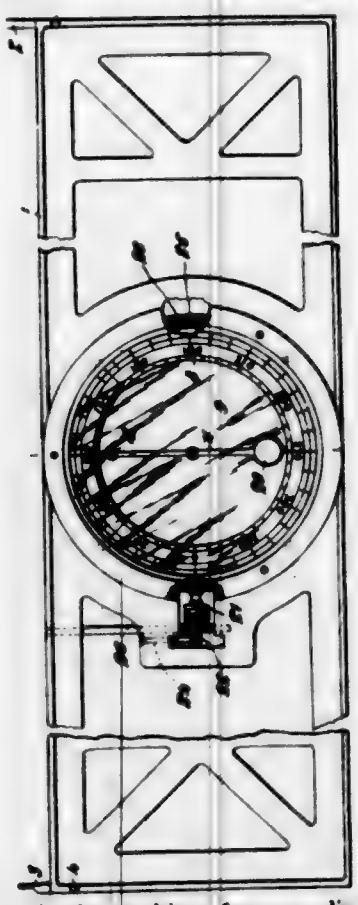
2. A kiln, consisting of a plurality of compartments linearly arranged and having opposite side walls in proximity, said compartments communicating at their lower ends, a chimney provided at the upper end of each compartment, a feed-door therein, discharge-doors at the base of the kiln, hearths oppositely arranged in each compartment, fire-grates and auxiliary grates provided in said hearths, a liquid-containing ash-pan, and means for supplying fuel to said hearths, substantially as set forth.

691,146. LEVEL AND PLUMB. JOHN V. JAHIE, Seattle, Wash., assignor of one-half to Constant Cleys, Seattle, Wash. Filed May 31, 1901. Serial 61,230. (No model.)

Claim.—1. A plumb or level, comprising a frame, an adjusting-screw mounted upon the same and provided with a thumb-nut, a locking-screw mounted upon the frame and free to engage said thumb-nut, so as to clamp the same in a fixed position, and a cylindrical member journaled in said frame and connected with said adjusting-screw.

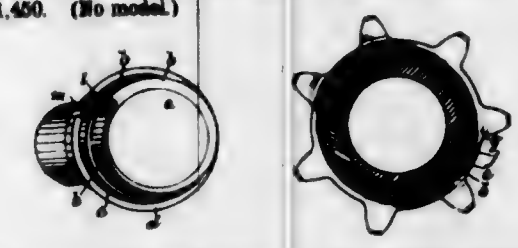
2. A plumb or level, comprising a frame, an adjusting-screw mounted

upon the same and provided with a nut, a locking-screw mounted upon the frame parallel with said adjusting-screw and free to engage said nut, so as to secure the same in a fixed position, and a cylindrical member loosely mounted within the frame and provided with a rigid yoke straddling the edge of said nut and free to move therewith to a limited extent.



3. A plumb or level, comprising a frame, an adjusting-screw mounted therein and normally free to move lengthwise of its axis, a nut fixed upon said screw and movable therewith, a locking-screw mounted upon said frame, parallel with said adjusting-screw, and free to engage one face of said nut so as to lock the same against rotation, and a cylindrical member journaled in said frame and provided with a yoke extending radially therefrom, straddling the edge of the nut opposite said locking-screw.

691,147. BACK-PEDALING BRAKE. ROBERT M. KEATING, Springfield, Mass., assignor to the R. M. Keating Motor Company, Portland, Me., a Corporation of Maine. Filed Sept. 13, 1897. Serial No. 651,450. (No model.)



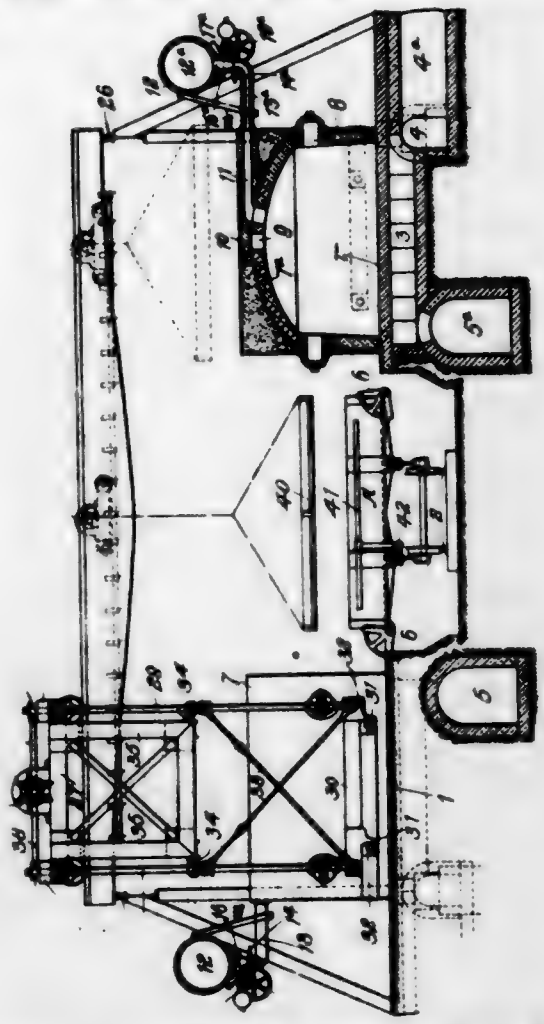
Claim.—1. The combination of a hub provided with an eccentric exterior portion and a concentric portion, a sprocket-wheel mounted on said concentric portion, an eccentric split ring mounted in reverse direction on said eccentric portion and arranged to engage the sprocket-wheel, and a surface adapted to be engaged by said ring when expanded, substantially as set forth.

2. The combination of the hub *a* having eccentric circumferential portion *b*, and concentric circumferential portion *c*, and recess between the walls *l* and *m*; a sprocket-wheel having a recess *k*, mounted upon the concentric circumferential portion *c*, eccentric split ring *e* having a lug *f* and mounted upon the eccentric circumferential portion *b* with the lug resting in said recess, and a cap *i*, having flange *j* arranged with the flange closely adjacent to the circumference of the split ring, substantially as shown.

3. In a brake mechanism, a rotating part provided with an eccentric circumferential surface, an eccentric split ring mounted in reverse direction thereon, a fixed surface for the ring to bear against when expanded, and means to rotate said ring on the eccentric surface whereby the same is expanded, substantially as set forth.

4. In a brake mechanism, the combination of a hub, a ring mounted thereon, an inclined surface between the ring and hub adapted to cause the former to expand when moved in one direction, a fixed friction-surface for the ring to bear against, and positive means to cause movement between the movable parts, substantially as set forth.

691,148. PLANT FOR COKE-MAKING. WALTER KENNEDY, Allegheny, Pa. Filed May 24, 1901. Serial No. 61,741. (No model.)



Claim.—1. In an apparatus for manufacture of coke the combination of a hearth, one or more ovens movably arranged on the hearth, a car having a movable side arranged in such relation to the hearth that the movable side will form a bridge from the car-bottom to the hearth and means for shifting the oven and its charge from the hearth over the bridge onto the car and for lifting and returning the oven to the hearth, substantially as set forth.

2. In an apparatus for manufacture of coke, the combination of two lines of hearths, two series of two or more ovens movably arranged on the hearths, a car movable between the lines of hearths, a bridge movably mounted on rails parallel with the hearths, a buggy movably mounted on the bridge and hoisting mechanism arranged on the buggy and adapted to be connected to the ovens in turn, substantially as set forth.

3. In an apparatus for manufacture of coke, the combination of a hearth, a series of two or more ovens movable arranged on the hearth, a gas-conduit extending along the line of ovens, movable connections between the ovens and conduit and valves controlling such connections, substantially as set forth.

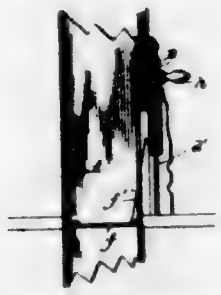
4. In an apparatus for manufacture of coke, the combination of a hearth provided with heating-flues, a series of two or more ovens movably arranged on said hearth, a gas-conduit extending along the line of ovens, movable connections between the ovens and conduit, valves controlling such connections, branches extending from the conduit to the hearth, heating-flues and valves controlling such branch connections, substantially as set forth.

5. In an apparatus for manufacture of coke, the combination of two lines of hearths, two series of two or more ovens movably arranged on the hearths, a car movable between the lines of hearths, a bridge movably mounted on rails parallel with the hearths, a buggy movably mounted on the bridge, rods extending down from the buggy and provided with means for engaging the ovens, means for raising and lowering the rods, and guides for holding the rods as against lateral movement, substantially as set forth.

6. In an apparatus for the manufacture of coke, the combination of a line of two or more hearths, one or more movable ovens having open bottoms adapted to be supported by said hearths, an oven-hoisting mechanism movable along the line of hearths and means for detachably connecting the hoisting mechanism to the oven or ovens, substantially as set forth.

7. In an apparatus for the manufacture of coke, the combination of a line of two or more hearths, one or more movable ovens having open bottoms and mechanism for hoisting and shifting the ovens, substantially as set forth.

691,149. DUST-CHUTE FOR BUILDINGS. JAMES C. KINSEY, Philadelphia, Pa. Filed Nov. 23, 1901. Serial No. 83,413. (No model.)



Claim.—1. A dust-chute for buildings, consisting of a chute A extending from a room to the cellar, an opening to the chute on a line with the floor of the room, a door forming part of the washboard covering said opening, and a door at the lower end of the chute fitting the same tightly, substantially as shown and described.

2. A dust-chute for buildings, comprising a chute A extending from a room to the cellar, an opening to the chute on a line with the floor of the room, a vertically-sliding door forming a part of the washboard and adapted to cover said opening, and a door at the lower end of the chute adapted to cover an opening therein through which the dust is taken from said chute, substantially as shown and described.

3. In a dust-chute for buildings, the combination, of a chute A located in the partitions and extending from the upper rooms to the cellar, said chute having inlet-openings on a line with the floor of each room, doors covering said inlet-openings, cut-offs located in the chute below the inlet-openings, and means connecting the cut-offs to the doors so as to be operated thereby, substantially as shown and described.

4. In a dust-chute for buildings, the combination, of a chute A located in the partitions and extending from the upper rooms to the cellar, said chute having inlet-openings on a line with the floor of each room, vertically-sliding doors B forming a part of the washboard and adapted to cover said inlet-openings, a mortised spring-catch *e* for holding the door open, swinging cut-offs *f* located in the chute below the inlet-openings, and rods *f'* connecting the cut-offs to the sliding doors; together with a door closing an opening at the lower end of the chute, as herein shown and for the purpose set forth.

691,150. SHEET-METAL ELBOW. ORVILLE H. LAWRENCE, Waverly, N. Y. Filed June 25, 1901. Serial No. 65,971. (No model.)



Claim.—1. A pipe-elbow formed of a straight blank in which are flat folds or crimps of metal extending entirely around the circumference of the elbow when bent into form, substantially as described.

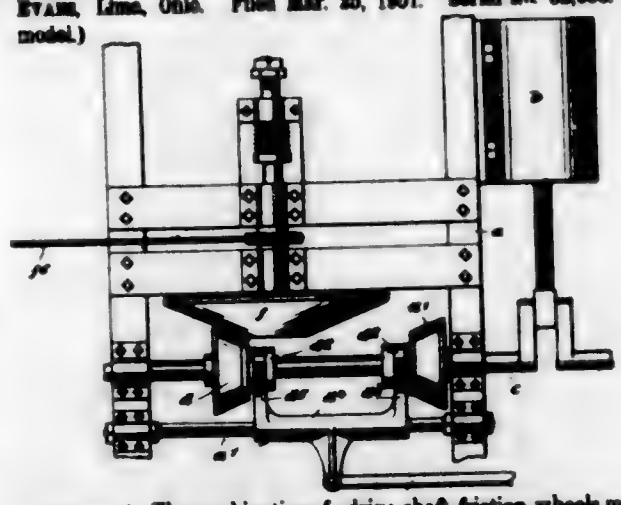
2. A pipe-elbow provided with flat folds or crimps extending entirely around its circumference, increasing in width from the outer convex side to the inner or throat side of the elbow, the surplus metal being entirely upon the outside of the elbow, the interior being smooth, substantially as described.

3. A pipe or elbow having crimps or folds extending around its entire circumference, and provided with a hooked joint at the meeting edges of the blank, substantially as described.

4. A pipe-elbow provided with flat folds or crimps extending entirely around the circumference and formed wholly on the outside surface, leaving the interior smooth and practically uninterrupted and of its original diameter, the edges being joined by a hooked joint, substantially as described.

5. A pipe-elbow having flat folds or crimps of greater width on the inner or throat side, and gradually decreasing to the outer side and extending entirely around the circumference of said elbow, all the surplus metal being folded on the outside, leaving the interior substantially uninterrupted and of its original diameter, the meeting edges, including the edges of the folds, being bent over in opposite directions to form a hook-joint, substantially as described.

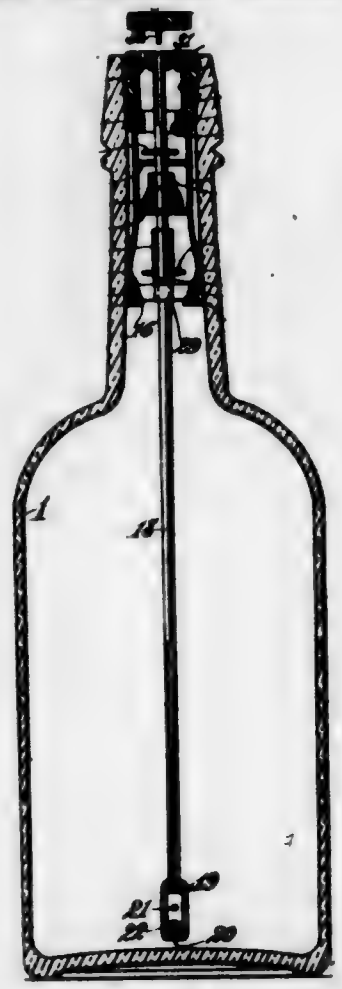
691,151. DRIVING-GEAR. CHARLES M. LEACH and SEYMOUR D. EVANS, Lima, Ohio. Filed Mar. 25, 1901. Serial No. 53,090. (No model.)



Claim.—1. The combination of a drive-shaft, friction-wheels mounted thereon to turn therewith and having beveled faces inclined toward each other, means for sliding the friction-wheels on the drive-shaft, a second shaft disposed transversely to the drive-shaft and arranged to slide on and rotate in its bearings, a friction-wheel fastened to the second shaft and adapted to be engaged by either one of the first-named friction-wheels, a means pressing the second-named shaft toward the drive-shaft, and a gear mounted on the second-named shaft and turning therewith to transmit movement therefrom, the said gear being stationary with respect to the axial movement of the shaft.

2. The combination of a drive-shaft, friction-wheels arranged to be driven therefrom and movable longitudinally thereon, a second shaft running transversely to the first shaft and arranged to slide in its bearings, a friction-wheel fastened to the second-named shaft and adapted to be engaged by the first-named friction-wheels, the said second-named shaft having a portion angular in cross-section, stationary hoods into which said angular portion of the second-named shaft is movable as the shaft slides, means pressing the second shaft toward the first-named shaft, and a gear mounted on the angular portion of the second-named shaft to turn therewith, the gear being held from axial movement by the hoods.

691,152. BOTTLE OF THE NON-REFILLABLE CLASS. SAMUEL LOVE, New York, N. Y., assignor, by direct and mesne assignments, of one-half to Harry Lee Maynard and Theodore J. Weal, Portsmouth, Va. Filed Sept. 21, 1901. Serial No. 76,091. (No model.)



Claim.—1. The combination with the neck of a bottle, of a valve, means for supporting said valve in the bottle-neck, a vent-tube, means

carried by the supporting means and adapted when operated to secure the said supporting means in the bottle-neck, and means carried by the vent-tube and adapted to engage with and operate the said securing means for the purpose described.

2. In combination with a bottle-neck, of a sleeve mounted therein and provided with a valve-seat, a valve engaging the said seat, a weight for normally retaining said valve against the said seat, means carried by the sleeve for securing the latter within the bottle-neck, a vent-tube extending into the bottle, and means carried by the vent-tube and engaging the securing means for impinging the same against the bottle-neck to secure the sleeve within the bottle.

3. In combination with a bottle-neck, of an upper and lower sleeve suitably connected together and mounted therein, a valve-seat connected with the lower sleeve, a valve engaging the said seat, a weight engaging the valve for normally retaining the same against the said seat, a vent-tube extending through the said sleeves, weight and valve, and means carried by the vent-tube and engaging with the lower sleeve for securing it within the bottle-neck.

4. In combination with the neck of a bottle, of means mounted therein to prevent the entrance of a substance to the bottle, a pair of fastening-arms depending from said means and adapted when operated to secure said means within the bottle-neck, a vent-tube, and means carried by the vent-tube and adapted to engage with and operate said arms for the purpose set forth.

5. In combination with a bottle-neck, of means mounted therein to prevent the entrance of a substance to the bottle, a pair of fastening arms depending from said means, a vent-tube extending through the said means, and a bar carried by the vent-tube and engaging said fastening-arms for impinging them against the bottle-neck to secure the said means therein.

6. In combination with a bottle-neck, of means mounted therein to prevent the entrance of a substance to the bottle, a pair of fastening-arms depending from said means, a vent-tube extending through the said means, a valve-casing connected to the lower end of the vent-tube communicating therewith and provided with an opening communicating with the body portion of the bottle, a valve mounted in the said casing, and a bar carried by the vent-tube and engaging said arms to impinge them against the bottle-neck for securing said means therein.

7. In combination with a bottle-neck, of an upper and lower sleeve mounted therein and suitably connected together, a sealing means surrounding said upper sleeve, a disk integral with the upper sleeve and provided with openings, a closure-disk secured to said upper sleeve and provided with openings communicating with the openings of the disk, a pair of fastening-arms depending from the lower sleeve, a valve-seat carried by the lower sleeve, a valve mounted in the lower sleeve, a weight engaging the valve for retaining it against the valve-seat, a vent-tube extending through the said sleeve, and means carried by the vent-tube and engaging the fastening-arms for impinging them against the bottle-neck thereby securing the said sleeves to prevent their removal.

8. In combination with a bottle-neck, of a sleeve mounted therein and provided with a valve to prevent the entrance of a substance to the bottle, a pair of fastening-arms depending from the said sleeve, a vent-tube, and means carried by the vent-tube and engaging the fastening-arms for impinging them against the bottle-neck to prevent the removal of the said sleeve.

9. In combination with a bottle-neck, of a sleeve, means carried thereby and impinging against the bottle-neck for retaining said sleeve therein, a vent-tube, means carried thereby for operating the said impinging means, a valve-seat carried by the sleeve, a valve mounted upon the vent-tube, and a weight mounted upon the vent-tube and engaging the valve for retaining it against the seat, substantially as herein shown and described.

10. In combination with a bottle-neck, of an upper sleeve provided with an enlarged lower portion forming an inwardly-extending annular ridge and an outwardly-extending annular shoulder, a sealing means surrounding said sleeve and engaging said shoulder, suitable closure means for the said sleeve, a lower sleeve connected to the enlarged portion of the upper sleeve, an inwardly-extending annular flange suitably secured to the inner face of said lower sleeve, a valve-seat suitably secured to the lower end of said lower sleeve, means carried by the lower sleeve for securing it within the bottle-neck, a vent-tube extending through said sleeves, means carried by the vent-tube for operating said securing means carried by the lower sleeve, a valve mounted upon said vent-tube and adapted to normally engage the said seat, and a weight carried by the vent-tube and abutting against said valve for keeping it in engagement with the said seat.

11. In combination with a bottle-neck, of means mounted therein to prevent the entrance of a substance to the bottle, a pair of fastening-arms carried by said means for securing it within the bottle-neck, and a vent-tube engaging with said arms for causing them to impinge against the bottle-neck and securing said means therein.

12. In combination with the neck of a bottle, of means mounted therein to prevent the entrance of a substance to the bottle, fastening-arms carried by said means for securing it within the bottle-neck, a vent-tube, and a bar carried thereby and engaging the said arms for impinging them against the bottle-neck, thereby securing the said means within the bottle.

13. In combination with the neck of a bottle, of a valve, means for supporting the valve within the bottle-neck, a weight engaging the valve for normally retaining it in closed position, means carried by the supporting means and adapted when operated to secure the said supporting means within the bottle-neck, a vent-tube extending through the said valve, weight and supporting means, and a bar carried by the vent-tube and engaging with and adapted to operate said securing means for the purpose described.

14. In combination with the neck of a bottle, of a valve, a weight for normally retaining said valve in a closed position, means for supporting said valve within the bottle-neck, means connected with the supporting means and adapted when operated to secure the said supporting means within the bottle-neck, a vent-tube, a bar carried thereby and engaging with and operating said securing means for the purpose set forth, means carried by the vent-tube for arresting the movement of said weight and valve, and means carried by the vent-tube to assist in opening the said valve.

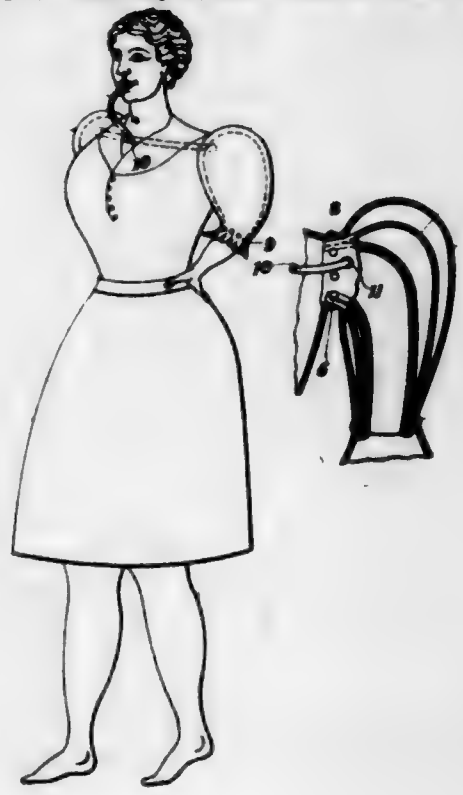
15. In combination with the neck of a bottle, of a valve, means for supporting the valve within the bottle-neck, means carried by the supporting means and adapted when operated to secure the said supporting means within the bottle-neck, a vent-tube, a bar carried by the vent-tube and adapted to engage and operate said securing means for the purpose described, a slotted tube engaging said valve for opening the same, means for retaining the valve normally in closed position, and means carried by the tube for arresting the movement of the valve.

16. In combination with the neck of a bottle, of a valve, a weight for normally keeping the said valve in a closed position, means for supporting said valve and weight within the bottle-neck, a pair of depending arms carried by the said supporting means and adapted when operated to secure the said supporting means within the bottle-neck, a vent-tube, a bar carried thereby and adapted to engage in the said arms for operating them for the purpose described, means carried by the vent-tube for arresting the movement of said valve and weight, and a valve suitably carried by the lower end of the vent-tube.

17. In combination with the neck of a bottle, of a valve, means for supporting said valve in the bottle-neck, a pair of arms depending from said means, a vent-tube extending in the bottle-neck, and a bar carried by the vent-tube and engaging with the said arms for retaining the supporting means within the bottle-neck.

18. In combination with the neck of a bottle, of a valve, means for supporting said valve in the bottle-neck, means depending from said supporting means for securing it within the bottle-neck, a vent-tube, and means carried by the vent-tube and adapted to engage the said depending means to cause it to impinge against the neck of the bottle for securing the said supporting means therein.

691,158. LIFE-SAVING APPARATUS. IGILIUS W. MACCOLINI, Inwood, N. Y. Filed July 10, 1901. Serial No. 67,726. (No model.)



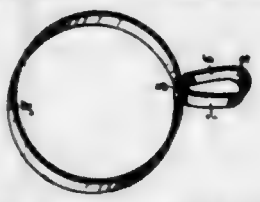
Claim.—1. A bathing-garment provided with air-receptacles which are placed in the sleeves thereof and which are secured therein at the shoulders and at the lower ends of the sleeves and through which the arms are adapted to be passed, and means for inflating said air-receptacles, substantially as shown and described.

2. A bathing-garment provided with air-receptacles which are placed in the sleeves thereof and which are secured therein at the shoulders and at the lower ends of the sleeves and through which the arms are adapted to be passed, and means for inflating said air-receptacles, consisting of a flexible tube connected therewith and a flexible branch tube communicating with first-named tube and adapted to be held in the mouth, substantially as shown and described.

691,154. DRESSING FOR FISH, &c. HUGH K. MACGREGOR, Clydebank, Scotland. Filed Sept. 24, 1901. Serial No. 76,433. (No specimens.)

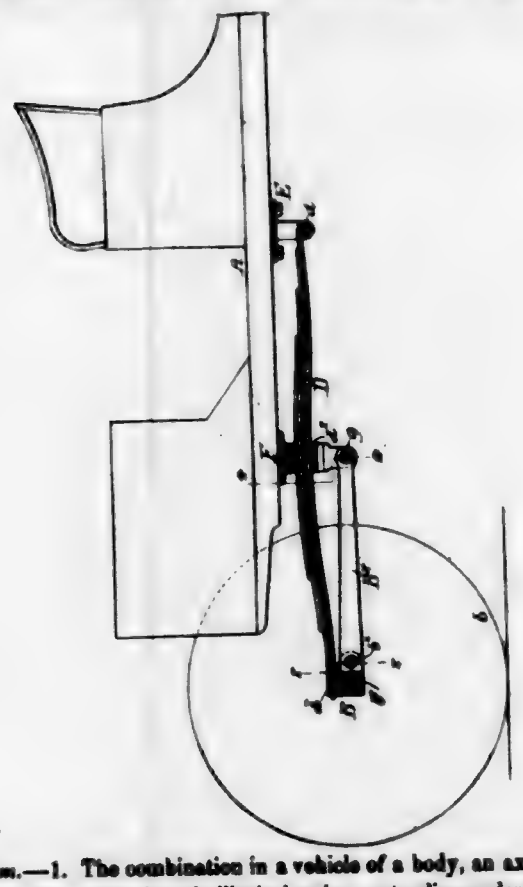
Claim.—The preparation for dressing fried fish, cutlets, and the like, consisting of crushed toasted or browned bread, to which is added fine salt; ground nutmeg, mace, ground savory herbs, cloves, Jamaica pepper and white pepper, substantially in the manner as set forth.

691,155. CURTAIN-HOLDER AND POLE-RING. EMIL MARSHY, San Jose, Cal. Filed Mar. 8, 1901. Serial No. 50,298. (No model.)



Claim.—An improved curtain-holder and pole-ring consisting of a strip of spring metal having notches upon opposite edges at points near the ends, said notches extending to about the longitudinal center of the strip and forming shoulders which face in opposite direction and the walls of said notches extending from the inner ends of said shoulders at an angle and merging into the side edges of the strip, said strip capable of being bent into circular form and given a twisting action to permit the entrances to the notches to be alined, and the shoulder portions to engage and interlock, said notches capable of ready disengagement by a sidewise movement and the portions of strip beyond the notches forming holding-jaws, substantially as described.

691,156. MEANS FOR ATTACHING AXLE-SPRINGS TO VEHICLE-FRAMES. WILHELM A. MAYBACH, Cannstadt, Germany, assignor to Daimler Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Mar. 28, 1901. Serial No. 53,344. (No model.)



Claim.—1. The combination in a vehicle of a body, an axle mounted in advance thereof and semi-elliptical springs extending under the body, one end of each spring being attached to the same and the opposite end of each spring being attached to the axle, said body having brackets resting upon the centers of the springs, said brackets being provided with arms extending around the springs, a non-resilient piece connecting each of the said brackets and the axle, said arms of the brackets extending below the springs and being provided with pins for the attachment of said non-resilient pieces, substantially as described.

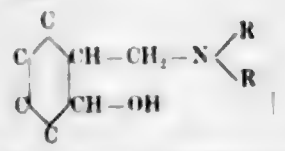
2. The combination of a vehicle frame or body, a front axle extending beyond the front of the vehicle-body, a semi-elliptical spring pivoted to a bracket, the outer end of the spring resting upon the axle, a strap on said spring, a bearing against which the strap rests, said bearing having arms acting as guides for the spring, and arms extending rearwardly from the axle and coupled to the arms of the bearing, one of said arms being pivotally connected to the axle, substantially as described.

3. The combination of a vehicle-body, brackets attached to the bottom thereof, an axle having wheels, leaf-springs confined at the center by a strap having one of its surfaces rounded, one end of each of the springs bearing upon the axle and the other end pivoted to one of the brackets, a second bracket bearing upon the curved surface of the strap and a relatively non-resilient bar connecting the second bracket to the axle, substantially as described.

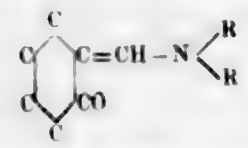
4. In a device of the character described, the combination of a vehicle-body provided with two sets of brackets on the under side thereof, an axle having wheels, a bar rigidly fixed to said axle and a second bar pivoted to the axle, both of said bars being pivoted to the brackets of one of said sets, and two springs extending over said bars each having one end fixed to the axle and the other end fixed to the second set of brackets, the brackets to which said bars are attached bearing upon said springs at approximately the middle part thereof, substantially as described.

691,157. TRIMETHYL HEXAHYDROOXYBENZYLANILIN AND PROCESS OF MAKING SAME. GEORG MERLING, Frankfort-on-the-Main, Germany, assignor to the Farbwerks, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany, a Corporation of Germany. Filed July 7, 1900. Serial No. 22,771. (Specimens.)

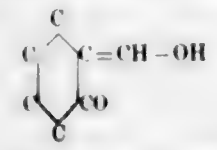
Claim.—1. The herein-described process of making hexahydro-oxybenzylamin bases of the type:



wherein R represents either hydrogen, or a fatty or aromatic radical, which consists in treating amidomethylenecycloketones of the type:

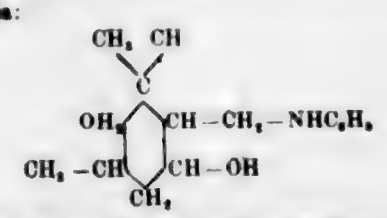


obtained by the action of ammonia upon ketones of the general formula:



with reducing agents, substantially as set forth.

2. As a new product, the trimethylhexahydro-oxybenzylanilin, having the formula:



and being in the form of crystals with a melting-point of 68° to 70° centigrade, and boiling at 121° centigrade, (fifteen millimeters pressure,) the compound being readily soluble in alcohol, ether and benzene, substantially as set forth.

691,158. ELECTROLYTIC SOLUTION. OTTO MEYER, Richmond, Va. Filed Aug. 22, 1901. Serial No. 73,246. (No specimens.)

Claim.—1. An electrolytic solution containing zinc salts, magnesium salts and dextrine dissolved in water, substantially as described.

2. An electrolytic solution, containing sulfate of zinc and sulfate of magnesium, dextrine and water, the solution having a specific gravity of about 18° Baumé, substantially as described.

3. An electrolytic solution, containing six parts of sulfate of zinc, six parts of the sulfate of magnesia, with one part of dextrine, dissolved in

water, the solution having a specific gravity of about 18° Baumé, substantially as described.

4. An electrolytic solution, containing zinc salts together with magnesium and aluminium salts and dextrine, in water, substantially as described.

691,159. APPARATUS FOR METAL-ROLLING. JOSEPH MORGAN, Johnstown, Pa. Filed Dec. 19, 1900. Serial No. 40,425. (No model.)



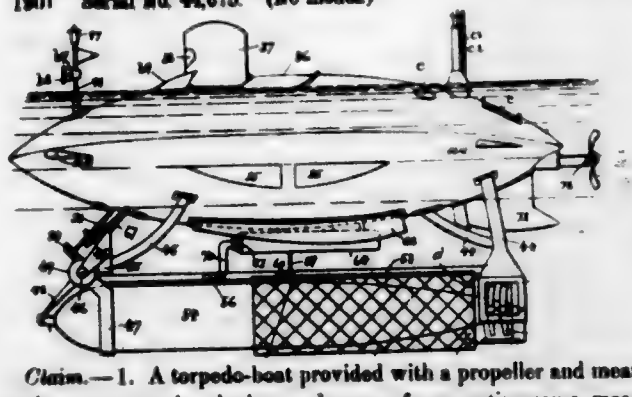
Claim.—1. A metal-rolling apparatus comprising rolls provided with grooves or passes, a plurality of separate conveying-tables fixed end to end and extending longitudinally from one pass to the next pass, each of said tables having an independent motor for operating the conveying means thereof, all so arranged as to receive the metal from one pass, hold it as long as necessary to cool it to the temperature required, and then deliver it to the next pass.

2. A metal-rolling apparatus, comprising rolls provided with grooves or passes, a series of conveying-tables stationary as regards lateral movement, arranged substantially in the line of delivery from one pass, a similar series of conveying-tables arranged substantially in the line of delivery to the next pass, independent motors on each of said tables for operating the conveying means thereof, all so arranged as to receive the metal from one pass, hold it as long as necessary to cool it to the temperature required, and then deliver it to the next pass.

3. A metal-rolling apparatus, comprising rolls provided with grooves or passes, one or more conveying-tables arranged in the line of delivery from one groove, one or more similar conveying-tables arranged in the line of delivery to the next groove, a stationary conveying-table adjoining those ends of the tables aforesaid most remote from the rolls and in operative connection with the aforesaid tables, each of said conveying-tables being provided with an independent motor for operating the conveying means thereof, all so arranged that the metal may be received from one pass, held in transportation as desired, and then delivered to the next pass.

4. A metal-rolling apparatus, comprising rolls provided with grooves or passes, one or more conveying-tables arranged in the line of delivery from one pass, one or more similar conveying-tables arranged in the line of delivery to the next pass, a conveying-table adjoining the ends of and in operative connection with the aforesaid tables, a spring-switch located at the junction of the tables and automatically operated by the motion of the metal, each of said tables being provided with an independent motor, all arranged to receive the metal from one pass, hold it in transportation as desired, and then deliver to the next pass.

691,160. TORPEDO-BOAT. THOMAS J. MORIARTY, Newport, R. I., assignor of one-half to John T. Reagan, Newport, R. I. Filed Jan. 25, 1901. Serial No. 44,675. (No model.)



Claim.—1. A torpedo-boat provided with a propeller and means for operating same, steering devices and means for operating same, means for supporting the torpedo under said boat, and devices operating through the bottom of the boat for starting the torpedo on its course, all of said means and said devices being under the control of a man within the boat, substantially as shown and described.

2. A torpedo-boat provided with means for propelling and guiding the same, torpedo-supports suspended beneath the bottom of the boat and in central vertical line therewith, and devices operating through the bottom of the boat for releasing said torpedo and starting it on its course, all of said means and devices being under the control of a man within the boat, substantially as shown and described.

3. A torpedo-boat, provided with propelling and steering devices, supports for a torpedo suspended beneath the boat and provided with a longitudinal track or way adapted to receive and guide a hanger connected with the torpedo, and an air-actuated device operating in connection with said hanger for projecting and starting the torpedo on its course, substantially as shown and described.

4. A torpedo-boat, provided with torpedo-supports suspended thereunder, and comprising a longitudinal track or way and a pivoted device adapted to receive the front end of the torpedo and provided with a finger which operates in connection with the propeller connected with the "war-nose" of the torpedo, substantially as shown and described.

5. A torpedo-boat, provided with torpedo-supports suspended thereunder, a pivoted device adapted to receive the front end of the torpedo and provided with a finger which operates in connection with the propeller connected with the "war-nose" of the torpedo, means for operating said pivoted device and means for projecting the torpedo or starting it on its course, substantially as shown and described.

6. A torpedo-boat, provided with propelling and steering mechanism and adapted to be submerged, devices for automatically regulating the extent of the submergence, other devices operated by hand and also designed to regulate the extent of the submergence, and means for suspending a torpedo thereunder, and for projecting the same or starting it on its course, all of said devices being under control of a man within the boat, substantially as shown and described.

7. A torpedo-boat, provided with devices for suspending a torpedo thereunder and for projecting the same or starting it on its course, said devices including a horizontal track or way adapted to receive and guide a hanger connected with the torpedo, an air-cylinder within the boat, a supplemental air-cylinder supported longitudinally beneath the bottom of the boat and in communication with the first-named cylinder, said supplemental cylinder being provided with a piston and a piston-rod which passes forwardly through said cylinder and is provided with a depending finger which operates in connection with said hanger, and means for releasing said torpedo, substantially as shown and described.

8. A torpedo-boat, provided with devices for suspending a torpedo thereunder, and for releasing and projecting the same or starting it on its course, said boat being also adapted to be submerged, and being provided with air-tanks which are automatically operated, so as to regulate the extent of said submergence and with water-tanks, under the control of an operator within the boat, which also serve to regulate the extent of said submergence, the devices for releasing and starting the torpedo being also under the control of the said operator, substantially as shown and described.

9. A torpedo-boat, provided with torpedo-holding devices which are suspended from the bottom of the boat, and provided with a pivoted device adapted to receive the front end of the torpedo, and having a finger which operates in connection with the propeller forming a part of the "war-nose" of the torpedo, means for operating said pivoted device and said finger, substantially as shown and described.

10. A torpedo-boat, provided with torpedo-holding devices which are suspended from the bottom of the boat, and provided with a pivoted device adapted to receive the front end of the torpedo, and having a finger which operates in connection with the propeller forming a part of the "war-nose" of the torpedo, means for operating said pivoted device and

said finger, and air-controlled devices for projecting the torpedo or starting it on its course, substantially as shown and described.

11. A torpedo-boat, provided with means for suspending a torpedo thereunder and a pivoted finger which operates in connection with the propeller which forms a part of the "war-nose" of the torpedo, said finger being adapted to be operated by a man within the boat, and said boat being also provided with devices operating to project the torpedo, or starting it on its course, and for starting the propelling mechanism thereof, substantially as shown and described.

12. A torpedo-boat having means for suspending a torpedo thereunder and provided with a motor, a propeller-shaft in operative connection therewith, means for guiding or steering the boat, air-actuated devices for projecting or starting the torpedo on its course and a pivoted device operating in connection with the propeller which forms a part of the nose of the torpedo, so as to prevent said propeller from operating until after the torpedo is started on its course, substantially as shown and described.

13. A torpedo-boat having means for suspending a torpedo thereunder and provided with a motor, a propeller-shaft in operative connection therewith, means for steering or guiding the boat, air-actuated devices for projecting or starting the torpedo on its course, and a pivoted device operating in connection with the propeller which forms a part of the nose of the torpedo, so as to prevent said propeller from operating until after the torpedo is started on its course, all of said devices and the propelling mechanism of the boat being under the control of a man within the boat, substantially as shown and described.

14. A torpedo-boat, provided with a conning-tower, a propeller, and devices for operating the same, steering devices and means for operating the same, devices for suspending a torpedo thereunder, and for projecting the same or starting it on its course, all of said devices being under control of a man within the boat, said boat being also provided with means for supporting a man therein, under the conning-tower, substantially as shown and described.

15. A torpedo-boat, provided with a conning-tower, a propeller, and means for operating the same, steering devices and means for operating the same, devices for suspending a torpedo thereunder, and for projecting the same or starting it on its course, all of said devices being under control of a man within the boat, said boat being also provided with means for supporting a man therein, under the conning-tower, said conning-tower being connected with a slidable plate mounted in the top of the boat, and adapted to close a corresponding opening therein, substantially as shown and described.

16. A torpedo-boat, provided with a conning-tower, and devices for suspending a torpedo thereunder, and for projecting or starting the same on its course, said devices being provided with a pivoted finger arranged beneath the forward end of the boat, and operating in connection with the propeller which forms a part of the "war-nose" of the torpedo, and being also under the control of an operator within the boat, and means for supporting the operator beneath the conning-tower, substantially as shown and described.

17. A torpedo-boat, provided with a conning-tower, and devices for suspending a torpedo thereunder, and for projecting or starting the same on its course, said devices being provided with a pivoted finger arranged beneath the forward end of the boat, and operating in connection with the propeller which forms a part of the "war-nose" of the torpedo, and being also under the control of a man within the boat, and said boat being also provided with a sight-tube which passes downwardly therethrough in front of the conning-tower and through which said finger and the parts connected therewith and the depth of the water may be observed, substantially as shown and described.

18. A torpedo-boat, provided with a conning-tower, and devices for suspending a torpedo thereunder, and for projecting or starting the same on its course, said devices being provided with a pivoted finger arranged beneath the forward end of the boat, and operating in connection with the propeller which forms a part of the "war-nose" of the torpedo, and being also under the control of a man within the boat, and said boat being also provided with a sight-tube which passes downwardly therethrough in front of the conning-tower and through which said finger and the parts connected therewith may be observed, and a lamp-receptacle in the bottom of the boat over said pivoted finger and inclosed by a glass or lens, substantially as shown and described.

19. A torpedo-boat, provided with means for suspending a torpedo thereunder, and devices for projecting the same, or starting it on its course, an air-tank located within the boat and in operative connection with said devices, said boat being also provided with a whistle in operative connection with said air-tank, substantially as shown and described.

20. A torpedo-boat, provided with a conning-tower, means for supporting an operator therein beneath said conning-tower, propelling and steering devices under the control of the operator, devices for suspending a torpedo beneath the boat, an air-tank within the boat, a supplemental air-tank mounted longitudinally of and beneath the bottom of the boat, a piston located in the supplemental tank and provided with means for projecting the torpedo or starting it on its course, a pivoted device supported at the front end of the torpedo-supporting devices and operating in connection with the propeller which forms a part of the "war-nose" of the torpedo, and devices for operating said pivoted devices, said last-named devices being under the control of the operator, and means whereby the operator may observe the operation of said pivoted device, substantially as shown and described.

21. A torpedo-boat provided centrally thereof with an adjustable device for supporting a man therein, and forwardly and centrally of said boat with a longitudinal support provided with an adjustable weight whereby said boat may be balanced, substantially as shown and described.

22. A torpedo-boat, adapted to be operated by a man supported therein, said boat being provided with a conning-tower and a support for the operator thereunder, said conning-tower being mounted on or connected with a slidable plate forming part of the top hull of the boat, and adapted to close a corresponding opening therein, substantially as shown and described.

23. A torpedo-boat, provided with devices for suspending a torpedo thereunder, devices for projecting or starting the torpedo on its course, and other devices for starting the propelling mechanism of the torpedo before it is projected or started on its course, substantially as shown and described.

24. A torpedo-boat, provided with devices for suspending a torpedo thereunder, devices for projecting or starting the torpedo on its course, and other devices for starting the propelling mechanism of the torpedo before it is projected or started on its course, the suspending devices being also provided with a pivoted finger which operates in connection with the propeller forming a part of the "war-nose" of the torpedo and which is designed to prevent the operation of said propeller until after the torpedo is projected, or started on its course, substantially as shown and described.

25. A torpedo-boat, provided with devices for suspending a torpedo thereunder, and other devices for projecting the torpedo or starting it on its course, the suspending devices being also provided with a pivoted finger or prong which operates in connection with the propeller forming part of the "war-nose" of the torpedo and which is adapted to be operated from within the boat, substantially as shown and described.

26. A torpedo-boat, provided with devices for suspending a torpedo thereunder, other devices for projecting the torpedo or starting it on its course, said last-named devices being also adapted to start the propelling mechanism of the torpedo, substantially as shown and described.

27. A torpedo-boat, provided with devices for suspending a torpedo thereunder, other devices for projecting the torpedo or starting it on its course, said last-named devices being also adapted to start the propelling mechanism of the torpedo, said boat being also provided with other devices for starting the propelling mechanism of the torpedo, while the latter is suspended beneath the boat, substantially as shown and described.

28. A torpedo-boat provided with means for suspending a torpedo thereunder and devices for starting the propelling mechanism of the torpedo, while the latter is suspended beneath the boat, said devices operating through the bottom of the hull of the boat and said boat being also provided with devices for starting the torpedo or projecting it on its course, all of said devices being under the control of a man within the boat.

29. A torpedo-boat adapted to be submerged and provided with a tube for supplying air thereto, and devices operated by the pressure of the water when the boat is submerged for closing said tube, substantially as shown and described.

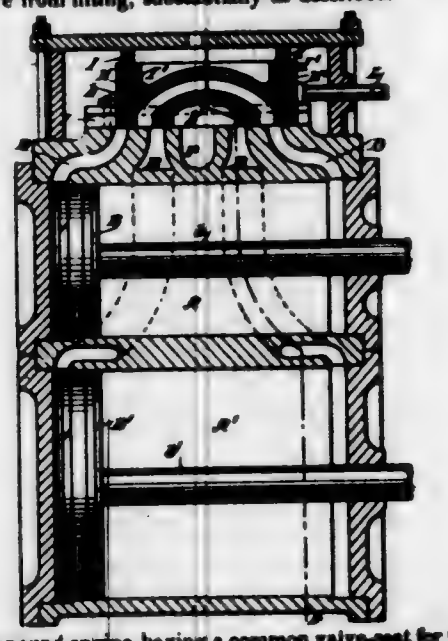
30. A torpedo-boat, provided with a tube for supplying air thereto, valve mechanism operated by the pressure of the water when the boat is submerged, for closing said tube, an air-tank within the boat, and devices operated by the propelling mechanism of the boat for compressing the air into said tank, and devices in operative connection with the first-named valve mechanism for releasing the air from said tank, substantially as shown and described.

31. A torpedo-boat, provided with a series of air-cylinders arranged vertically at each side thereof and provided in the lower ends with pistons which are adapted to be operated by the water in which the boat is placed, a horizontal cylinder arranged over each series of said air-tanks and the ends of which are provided with outlets, said horizontal cylinders being in communication at their central portion with each of the series of air-cylinders thereunder and being also provided with two pistons, one of which is at each side of said communication, substantially as shown and described.

691,161. COMPOUND-ENGINE VALVE. SWENEY MUNSON, Alliance, Nebr. Filed July 25, 1898. Serial No. 725,087. (No model.)

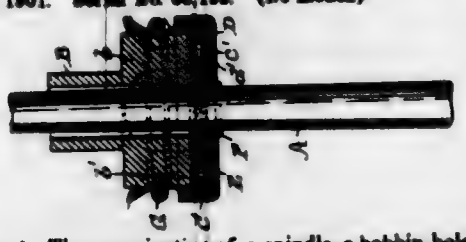
Claim.—1. A compound engine, having a common valve-seat for the high and low pressure cylinders, the valve-seat having a central exhaust-port, two intermediate ports located one on each side of the exhaust-

port, high-pressure admission-ports located outside of the intermediate ports, and a valve having a central exhaust-port in its face in communication with the exhaust-port in the valve-seat, an intermediate port in its body extending over the exhaust-port and having an opening in the face on each side of the exhaust-ports, bars fitting grooves in the back of the valve and engaging the inner surface of the steam-chest cover to form a balancing-chamber, springs located in the said grooves beneath the bars and holding said bars against the steam-chest cover, flanges on the sides of the valve, and guide-bars engaging the tops of the said flanges and preventing the valve from lifting, substantially as described.



2. A compound engine having a common valve-seat for the high and low pressure cylinders, the valve-seat having a central exhaust-port, two intermediate ports located one on each side of the exhaust-port, the said ports passing downward on the outside of the high-pressure cylinder to the low-pressure cylinder, and high-pressure admission-ports located outside of the intermediate ports, a valve having a central exhaust-port in its face communicating at all times with the exhaust-port in the valve-seat, and an intermediate port in its body passing over the exhaust-port and having an opening in the face on each side of the exhaust-port, a balancing device on the slide-valve, and means for holding the slide-valve to its seat, substantially as described.

691,162. **BOBBIN-HOLDER.** THOMAS J. MURDOCK, Franklin, Mass., assignor to Murdock and Gob Company, Franklin, Mass. Filed June 27, 1901. Serial No. 66,198. (No model.)



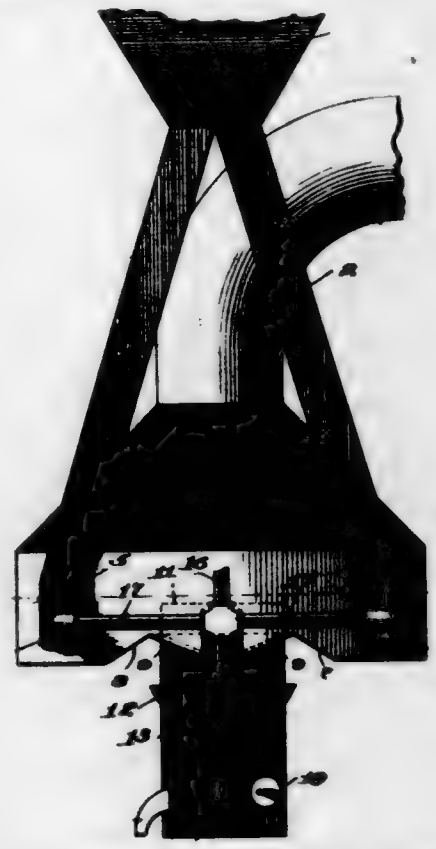
Claim.—1. The combination of a spindle, a bobbin-holder comprising an annular member provided with a set of outwardly-projecting spring-necks each having a clamping-arm adapted to grip the head of the bobbin, and an annular spring-plate secured within said bobbin-clamping member for supporting the bobbin and pressing the same upwardly against the spring action of said clamping members, substantially as described.

2. The combination of a spindle, a bobbin-holder comprising an annular member provided with a set of outwardly-projecting spring-necks each having a clamping-arm adapted to grip the head of the bobbin, and an annular cup-shaped body having a convexed bottom secured beneath said bobbin-clamping member, the under side of said clamping member resting upon the high part of said convexed bottom, substantially as described.

3. The combination of a sleeve adapted to be fixed upon a spindle, an annular member secured to said sleeve and provided with a set of radial spring-necks each having a comparatively rigid clamping-arm adapted to grip the bobbin, an annular cup-shaped body secured beneath said clamping member and the sides of the said cup-shaped body serving as a stop for limiting the outward movement of said clamping-arms when inserting the bobbin, and a concavo-convex spring-plate secured to said sleeve above and within the said clamping member for receiving the base of the bobbin and supporting the same, substantially as described.

4. The combination of a sleeve F adapted to be fixed upon a spindle, the annular member D secured to said sleeve and provided with a set of radial spring-necks each having a comparatively rigid clamping-arm adapted to grip the bobbin, the annular cup-shaped body C secured beneath said clamping member, the sides of said cup-shaped body serving as a stop for limiting the outward movement of said clamping-arms when inserting the bobbin, a concavo-convex plate E secured to said sleeve above and within said clamping member and supporting the same, and the auxiliary spring-ring G to assist the clamping-arms in gripping the bobbin, substantially as described.

691,168. **APPARATUS FOR PULVERIZING.** WILLIAM F. McCLELLAN, Seattle, Wash. Filed Apr. 1, 1901. Serial No. 53,871. (No model.)



Claim.—1. A pulverizer, comprising in its construction means for supplying material to be pulverized, oppositely-disposed, similarly-rifled nozzles to which said material is supplied, and means for forcing said material through said nozzles, whereby the stream of material from one nozzle is revolved in an opposite direction to the revolution of the stream of material from the opposite nozzle, substantially as described.

2. A pulverizer, comprising in its construction a suitable hood, hoppers above said hood for supplying material to be pulverized, oppositely-disposed, similarly-rifled nozzles extending into said hood, ducts leading from said supply-hoppers to said nozzles, means for supplying fluid-pressure to said nozzles, whereby the material from said hopper will be forced in a whirling stream from each of said nozzles and the said streams from the two opposing nozzles caused to contact centrally of the intermediate space, and means for conducting said pulverized material from said hood, substantially as described.

3. A pulverizer, comprising in its construction a hood, a draft-duct leading therefrom and formed of two parts, one extending from beneath said hood into the same, and another above the upper end of said lower part and spaced therefrom and leading from said hood, a plurality of oppositely-arranged nozzles extending into said hood, means for supplying fluid-pressure to said nozzles, means for supplying material to be pulverized to said nozzles, whereby said fluid-pressure will force said material from said nozzles, the material from one nozzle impacting against the material of its opposing nozzle, and being pulverized thereby, oppositely-arranged nozzles extending into said lower part of the draft-duct and provided with similar means for pulverizing material as said first-mentioned nozzles, ducts leading from said hood to said lower nozzles, and an elevation formed in the floor of said hood between said first-mentioned nozzles and said ducts leading to the lower nozzles, the construction and arrangement being such that after the first impact the pressure from the upper nozzles escapes through said draft-duct and carries with it the pulverized material, and that part of the material not pulverized is drawn by said pressure over said elevation in the floor of said hopper and permitted to drop into the ducts leading to the lower nozzles, whereby it is subjected to a second concussion and the material pulverized thereby is carried with the escaping pressure out said draft-duct, substantially as described.

4. The combination of a nozzle, a delivery or discharge tip removably secured in the end of said nozzle; means of supplying material to be pulverized thereto, and a forcing-conduit delivering into said nozzle; said tip having a rifled bore for imparting rotation to the material being forced through the same.

5. In a pulverizer, the combination of a pair of rifled nozzles adapted

to have the material to be pulverized forced therethrough, said nozzles being arranged opposite each other whereby the meeting of the streams of material is adapted to pulverize the same, of means for imparting an oppositely-rotating motion to said streams of material, consisting of similarly, internally rifled discharge-tips adapted to be applied to said nozzles, substantially as described.

691,164. FASTENING DEVICE. GEORGE W. McGILL, Riverdale-on-the-Hudson, N. Y. Filed Mar. 7, 1901. Serial No. 50,237. (No model.)



Claim.—1. In a spring-button or fastening device, the combination with a stud member having a reëntrant cavity in the stud thereof, provided with a closed base or lower end constituting an anvil, of a socket member adapted to receive said stud and having an inwardly-extending engaging portion adapted to fit within said cavity, and a securing device for said stud member having a tubular portion adapted to be spread outwardly by said anvil.

2. In a spring-button or fastening device, the combination with a stud member having a reëntrant cavity in the stud thereof provided with a closed base or lower end constituting an anvil, of a socket member adapted to receive said stud and having an inwardly-extending recess or cavity forming an engaging portion adapted to fit within the cavity in said stud, and a securing device for said stud member having a tubular portion adapted to be spread outwardly by said anvil, as and for the purpose set forth.

3. In a spring-button or fastening device, the combination with a stud member having a reëntrant cavity in the stud thereof provided with a closed lower end which tapers inward and forms an anvil, of a socket member adapted to receive said stud and having an inwardly-extending cavity therein forming a projection or engaging portion which fits within the cavity in said stud, a securing device for said stud member having a tubular portion adapted to be spread outwardly by said anvil, and interlocking means between said stud and socket members, as and for the purpose set forth.

4. In a spring-button or fastening device, a stud member having a conoidal-shaped reëntrant cavity in the stud thereof, providing a covered annulus between the wall of such stud and the wall of the reëntrant cavity, such cavity decreasing in diameter from its mouth toward its base where it is closed, the outer surface of such closed base forming an anvil, conoidal in form, on which may be upset or spread the tubular end of an attaching-eyelet, and which also serves to retain the stud in correct vertical and lateral position in its member; the upper portion of the walls, and the roof connecting the same, of such covered annulus, provided with a plurality of horizontally and vertically disposed and radially-arranged slots dividing such parts into a plurality of looped spring-sections radially disposed around said cavity.

5. In a spring-button or fastening device, a stud member provided with a plurality of compressible arched spring-sections radially disposed around the inner circumference of an encircling base-flange and the outer circumference or upper part of a conoidal-shaped hollow anvil central to such sections, each of said sections having their two respective ends in webbed connection with such flange and anvil, respectively, providing a stud having an outside cylindrical lower part or neck, and a bulging upper part or head projecting laterally outward above said neck, and having the central top part or crown of such head depressed in manner to provide a central reëntrant cone-shaped cavity or socket within the same, the walls of such cavity converging from its mouth toward and terminating in a conoidal or cup shaped bottom of lesser diameter than such mouth, and said cavity or socket adapted to receive the correspondingly-shaped dependent and engaging portion of a socket member.

6. In a spring-button or fastening device, a stud member provided with a plurality of compressible arched spring-sections radially disposed around the inner circumference of an encircling base-flange and the outer circumference or upper portion of a conoidal-shaped hollow anvil central to such sections, each of said sections having its two respective ends in webbed connection with such flange and anvil, respectively, providing a stud having an outside cylindrical lower part or neck, and a bulging upper part or head projecting laterally outward above said neck, and having the central top part or crown of such head depressed in manner to provide a central reëntrant cone shaped cavity or socket within the same, said cavity or socket adapted to receive internally the central and correspondingly-shaped dependent engaging portion of a socket member, and the conoidal-shaped imperforate base of such socket adapted to serve externally as an anvil on which to upset or spread the tubular part of an attaching-eyelet.

7. In a spring-button or fastening device, the combination with a socket member, of a stud member, comprising a base-plate having an upwardly-projecting tubular extension at the center thereof having flaring upper ends, and a laterally-compressible stud secured to said base-plate and having radial slots and a reëntrant cavity therein forming on its under side an anvil which lies within the flaring upper ends of said extension, and an eyelet for securing said stud member in place, the same having a tubular extension thereon adapted to be forced against said anvil and spread out into contact with the flaring upper ends of the extension on said base-plate.

8. In a spring-button or fastening device, the combination with a socket member, of a stud member comprising a base-plate having an upwardly-projecting tubular extension thereon provided with a flaring upper end, and a stud part laterally compressible, secured to said base-plate and covering the same and having a central reëntrant cavity or socket and radial slots therein, the lower end of the material of which said cavity is formed, being imperforate and fitting in and surrounded by the flared upper end of said base-plate extension.

9. In a spring-button or fastening device, the combination with a stud member having a reëntrant cavity in the stud thereof provided with a closed lower end or imperforate bottom, of a socket member comprising a base-plate struck up to form a cavity or socket to receive said stud having its crown part further struck and folded to form diverging annular grooves, two annular cap-supporting ridges and a central dependent conical engaging portion adapted to fit within the cavity in said stud.

10. In a spring-button or fastening device, the combination with a stud member provided with a reëntrant central cavity therein having an imperforate base part, of a socket member comprising a base-plate and a crown-piece or cap secured to said base-plate, said base-plate having struck up thereon a central tubular cavity, the lower part of the annular walls of which stand at right angles to the base or flange of such plate and the upper part of such walls fashioned or folded to form a flaring annular groove for the reception of the upper part of a button receiving and attaching eyelet and as a support to the crown-piece, and the material forming the rest of the top of such cavity folded inward and upward to form an additional crown-supporting annular concentric rib and a depressed central cone forming an engaging portion which fits within the cavity in said stud member.

11. In a spring-button or fastening device, the combination with a stud member having a plurality of annularly-arranged looped or bowed spring-sections, the two concentric arms of which are in bridged connection at their top and connected at their bottoms, respectively, with the outer base-flange of such member and the lower portion of its conoidal-shaped and centrally-located anvil, of a socket member provided with means for pressing toward each other the concentric arms of the loops forming such spring-sections while the stud occupies its interlocking position in its socket member, thereby reinforcing the resilience which holds the stud therein.

12. In a spring-button or fastening device, the combination with a stud member having a reëntrant cavity with an imperforate base in the stud thereof, of a socket member, and of an eyelet for securing said socket member in place, said socket member comprising a base-plate having a cavity or socket therein for receiving said attaching-eyelet and said stud, and a crown or cap secured at its edges to said base-plate, the material of said base-plate from which the cavity or socket therein is formed being struck up and bent inwardly and outwardly to form a central dependent engaging portion and a plurality of annular concentric ribs or projections surrounding the same, one of which forms a groove in which the top of the attaching-eyelet is spread and clenched, and all as annular concentric supports for said crown or cap, and the central dependent engaging portion adapted to occupy the reëntrant cavity in said stud and assist in maintaining the stud in engaged or locked position in the socket member.

13. In a spring-button or fastening device, the combination with a stud member having a cavity therein, of a socket member comprising a base-plate, and a crown or cap, the said base-plate having a cavity therein provided with a dome having dependent from its inner center an engaging portion to fit within the cavity in said stud member, and having an annular diverging or angularly-arranged anvil-groove in its cavity concentric with such dependent portion, the said groove forming on its opposite side an annular rib or projection which serves as a support for said crown or cap, and an eyelet for securing said socket member in place, the same having a tubular extension thereon whose upper end is adapted to be forced into engagement with the walls of said annular groove and be thereby spread out into said groove.

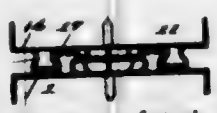
14. In a spring-button or fastening device, the combination with a stud member having a cavity therein, of a socket member comprising a base-plate and a crown or cap secured thereto, the said base-plate being struck up at its center to form a cavity having an inclined annular anvil-groove around the sides thereof and a dependent engaging portion central with said groove adapted to fit within the cavity in said stud member, the said groove forming on its opposite side an annular rib or projection which serves as a support for said crown or cap, and an eyelet for securing said socket member in place, the same having a base-flange, a central

tubular extension and an inwardly-extending bead between said flange and said extension, the upper end of said extension adapted to be forced into engagement with the walls of said anvil-groove and to be thereby spread out into said groove.

15. In a spring-button or fastening device, a stud member made from a disk of sheet metal struck up to form an annular projection or stud having a reëntrant cavity sunk in the center thereof, such cavity terminating in an imperforate base or bottom forming an anvil of conoidal shape, and a base-flange outside the stud, the said stud being radially slotted to form a plurality of looped spring-sections, said sections being integral with each other, with said flange and with the imperforate conoidal-shaped anvil forming the bottom of said cavity, the opposite ends of each of said sections leading respectively from said surrounding outside base-flange, and from the said centrally-located conoidal-shaped anvil.

16. In a spring-button or fastening device, an elongated stud member having an outer base-flange and an elongated stud projecting from its central part, said stud having an elongated reëntrant cavity centrally sunk in its top part giving to the stud an elongated annular hollow semitubular crown or ridge formation having rounded ends, and sides straight and parallel with each other, said rounded ends being divided by vertical slots into a plurality of curved radiating spring-sections, and the straight sides forming two straight parallel spring-sections, all of said sections connecting integrally at their base with the outer surrounding base-flange of the member and the inner imperforate base part of its reëntrant cavity, respectively; and a similarly-shaped socket member comprising a base-plate having an elongated cavity therein for receiving the similarly-shaped tubular part of an eyelet for securing said socket member in place and for receiving said elongated stud, and a crown or cap secured at its periphery to the corresponding part of the base-plate of such socket member, the material of said base-plate from which the cavity therein is formed being struck up and bent inwardly and outwardly to form a central elongated dependent engaging portion and a plurality of elongated annular concentric ribs or projections surrounding said engaging portion, one of which serves as an anvil on which the top of the attaching-eyelet is spread and clenched and all as elongated annular concentric supports for said crown or cap, the elongated central dependent engaging portion adapted to occupy the correspondingly-shaped reëntrant cavity in the stud and assist in securely maintaining the stud in engaged or locked position in said socket member.

691,165. FASTENING DEVICE. George W. McGill, Riverdale-on-the-Hudson, N. Y. Filed Mar. 11, 1901. Serial No. 50,709. (No model.)



Claim.—1. In the spring-button or fastening device herein described, an interlocking member provided with a series of two-armed and looped spring-sections radially arranged around its center in manner to form an annular spring-crown therein, the looped top of the spring-sections forming the broad partly-flat top part of the crown, and the two arms of such sections forming the two concentric or parallel walls of the crown, such walls converging from the broad top part of the crown downward to the flange and central base part of the member, respectively, and integrally connecting therewith, and being divided into said radially-arranged spring-sections by slots radially disposed and extending down through such annular crown and intersecting the flange and central base part of such member, as and for the purposes herein set forth.

2. In a spring-button or fastening device, the combination with a socket member made from sheet metal bent or struck up to form a projecting annular crown, a base-flange outside said crown, and a cavity or socket within the same, the said crown having the upper surface thereof partly flat and the two annular concentric walls thereof converging from such partly-flat upper surface inwardly toward their base and there integrally connected respectively with the bottom of such socket and the outer or base flange of the member, the flat base of said socket lying in the same plane with said base-flange, and the said crown being provided with slots producing spring-sections, and said slots being radially disposed and extending down and intersecting said base-flange and the base of said socket or cavity, of a stud member having a stud thereon adapted to fit within said socket and interlock therewith.

3. In a spring-button or fastening device, the combination with a socket member made from sheet metal bent or struck up to form a projecting annular crown, a base-flange outside said crown, and a cavity or socket within the same, the said crown being provided with slots producing spring-sections, and said slots being radially disposed and extending down and intersecting said base-flange and the base of said socket or cavity, and said crown having a partly-flat top occupying a plane parallel with that of the base-flange and socket-base and having sides or annular concentric walls which converge from said top toward their base and connect at their base respectively with said outer flange and the bottom of said socket, of a stud member having a stud thereon adapted to fit within said socket and interlock therewith.

4. In a spring-button or fastening device, the combination with a socket member, of a stud member made from sheet metal bent or struck up to form a projecting annular crown constituting a stud, a base-flange outside said crown and a cavity within the same having a connecting-web at its lower end constituting a bottom, the said crown having two separated annular concentric walls connected at their top by a flat part spanning the space between them and converging downward toward each other and provided with slots producing spring-sections, said slots being radially disposed and extending down and intersecting said base-flange and the base of said cavity, and said spring-sections connected integrally with said base-flange and the base of said socket or cavity respectively.

5. In a spring-button or fastening device, the combination with a socket member, of a stud member made from sheet metal bent or struck up to form an annular projecting crown constituting a stud, a base-flange outside said crown and a cavity within the same, the said crown being provided with slots producing spring-sections, said slots being radially disposed and extending down and intersecting said base-flange and the base of said cavity, and said crown having a partly-flat top occupying a plane parallel to that of the base-flange and socket-base with annular concentric separated walls or sides which converge from said top to the crown-base where they connect integrally with the inner and outer base parts of the member respectively.

6. In a spring-button or fastening device, a member consisting of a metal plate or disk having an annular groove sunk or spun in one surface of the same producing an annular ridge or crown on its opposite surface with a central cavity or socket within such ridge or crown and an outer flange encircling the same, said annular ridge or crown being depressed or flattened on its top in manner to expand such top to a width greater than the annular space dividing the outer and inner walls of such crown at their base and toward which said walls converge, the crown so formed being divided by a plurality of slots radially disposed therein into a plurality of correspondingly-disposed spring-sections, each of such spring-sections being adapted to oscillate above the disk on two separate fulcrums provided by such slots and connecting with said disk.

7. In a spring-button or fastening device, a member consisting of a metal plate or disk having an annular groove sunk or spun in one surface of the same producing an annular ridge or crown on its opposite surface with a central cavity or socket within such ridge or crown and an outer flange encircling the same, said annular ridge or crown being depressed or flattened on its top in manner to expand such top to a width greater than the annular space dividing the outer and inner walls of such crown at their base and toward which said walls converge, the crown so formed being divided by a plurality of slots radially disposed therein into a plurality of correspondingly-disposed spring-sections webbed integrally at the base of their outer and inner arms, respectively, to the outer flange and inner socket-base, respectively, of the member, adapting such spring-sections to oscillate laterally and vertically therein.

8. In a spring-button or fastening device, the combination with a socket member having a projecting annular crown thereon forming an open stud-receiving cavity or socket within the same, the upper surface of said crown being flat except at its outer and inner periphery or edges where it rounds downward, the two concentric separated annular walls of the crown converging from its upper surface inwardly toward their base and connected at their base, respectively, with the bottom of such stud-receiving socket and the surrounding outer flange of the member, the said crown having slots radially disposed therein producing a plurality of correspondingly-disposed loop spring-sections adapted to oscillate laterally and vertically, of a stud member having a stud thereon adapted to fit within said socket and interlock therewith.

9. In a spring-button or fastening device, the combination with a stud member consisting of a metal plate or disk having an annular groove sunk or spun in one surface of the same producing an annular ridge or crown on its opposite surface with a central cavity or socket within such ridge or crown and an outer flange encircling the same, said annular ridge or crown being flattened on its top in manner to expand such top to a width greater than the annular space dividing the outer and inner walls of such crown at their base and toward which said walls converge, the crown so formed being divided by a plurality of slots radially disposed therein into a plurality of correspondingly-disposed looped spring-sections webbed integrally at the base of their outer and inner arms, respectively, to the outer flange and inner socket-base, respectively, of the member and adapting such spring-sections to oscillate laterally and vertically, of a socket member having an engaging socket or collar adapted to spring over and encircle the spring-sections composing such crown and interlock therewith.

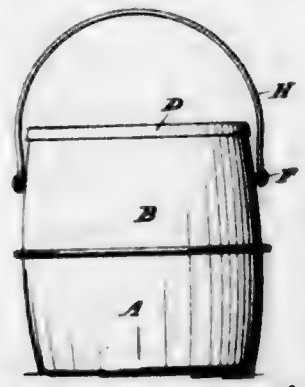
10. In a spring-button or fastening device, the combination with a socket member having a projecting annular double-walled crown thereon forming an open stud-receiving cavity or socket within the same, of a

stud member having a similar projecting annular double-walled crown thereon differentiated sufficient in diameter to form a stud adapted to fit within said socket and interlock therewith, the crown on each of said members being provided with slots radially disposed therein to produce a plurality of correspondingly-disposed looped spring-sections having flat tops and downward-converging sides which connect integrally with the central and outer base parts of the members respectively, and which oscillate laterally and vertically in manner to receive and hold by their resilience and the inner and outer overhanging surfaces of their upper parts, respectively, an engaging stud in the central cavity or socket between them and an engaging collar or socket sprung over and around them.

11. In a spring-button or fastening device, a metal disk struck up to produce within its periphery an annular projecting crown surrounding a central cavity or socket and an outside encircling flange, the central cavity having a connecting-web at its lower end forming a bottom and the crown having two annular concentric walls with an annulus or annular space between them, said space being spanned and connected above by a partly-flat top connecting with said walls, and said walls converging downward toward their base where they connect with the outside encircling flange and the base of the central cavity respectively, the crown thus formed being divided by vertical slots radiating from its center and continued down through the inner circumference of its encircling flange and the outer circumference of the base of its central socket completely dividing it into a plurality of spring members integral with its encircling flange and with the base or bottom of its central socket and adapting the entire crown to expand in passing over the head of an engaging stud and to contract in entering the mouth of an engaging socket.

12. In a spring-button or fastening device the combination with an elongated socket member, of a stud member of similar formation and suitable size, both members having a projecting elongated annular hollow ridge or crown struck on one of their surfaces, the unstruck central part of such surfaces forming an elongated cavity or socket within the circumference of such crowns, each crown being formed of two equidistant or parallel elongated walls spanned and connected by a partly-flat top, said walls converging downward toward their base where the outer wall connects with the elongated outer base-flange and the inner wall with the imperforate base of the central elongated cavity or socket, the crowns so formed, of one or both members, being divided at their rounded ends by slots into a plurality of curved spring end members and straight parallel side members adapting the entire crown to expand in passing over the head of an engaging stud and to contract in entering the mouth of an engaging socket whereby the engaging power of said spring members is increased and all tendency on the part of the socket and stud members to lateral or revolving movement while in locking relation with each other, prevented.

691,166. METALLIC KEG FOR WHITE LEAD OR OTHER HEAVY MATERIALS. EDWIN NORTON, New York, N. Y., assignor to American Can Company, New York, N. Y., a Corporation of New Jersey. Filed May 20, 1901. Serial No. 61,015. (No model.)



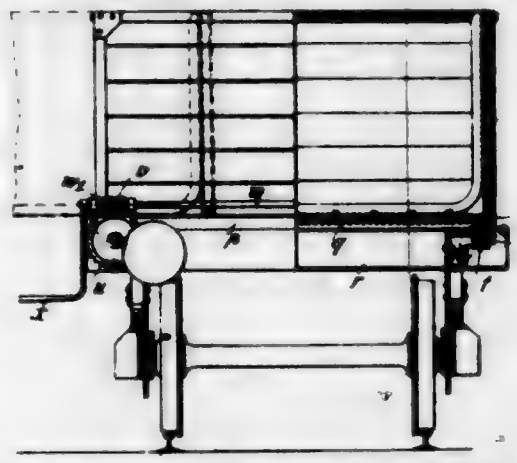
Claim.—1. The pressed steel or metal keg of barrel shape herein shown and described and comprising a body-section A, having integral bottom A' and outwardly-projecting, external flange *a* at its upper edge, a body-section B having outwardly-projecting, external flange *b* at its lower edge, crimped or folded over said flange *a* and an internal roll or flange *b'* at its upper edge, said flanges *a b* forming an external, outwardly-projecting strengthening-rib of three thicknesses at the middle portion of the barrel-shaped keg, and giving it a smooth interior surface, and the cover D having inner and outer flanges *d*, *d'*, embracing with a tight wedging fit both inside and out, the flange or roll at the upper edge of said section B of the body, substantially as specified.

2. A sheet-metal keg for white lead or other material comprising in combination, a lower body-section A having integral bottom head A', and provided with an outwardly-projecting interior flange *a* at its upper edge, a body-section B having at its lower edge an outer flange *b* crimped or folded over said flange *a* and rigidly uniting the two sections of the body and providing the same with a central strengthening-rib of three thicknesses at the middle portion thereof; said upper section B having an inwardly and downwardly projecting flange or roll at its upper edge, and the cover D having an upwardly-projecting inner flange *d* and an outwardly and downwardly projecting outer flange *d'* united with said flange *d* by a curved or rolled portion *d²* said cover having also a flat disk D' pressed within said inner flange *d* to strengthen and stiffen the same at the corner thereof and bracing said flange *d* below the lower edge of said flange *b'*, substantially as specified.

3. A steel or metal keg comprising two seamless bilged or barrel-shaped body-sections, having interfolded outwardly-projecting, external flanges at their meeting ends forming an external strengthening-rib at the middle of the barrel-shaped keg and giving it a smooth interior, the upper body-section having an interned flange at its upper edge, and a cover having a flange forming a tight wedging friction fit with the body, substantially as specified.

4. A steel or metal keg comprising two seamless bilged or barrel-shaped body-sections, having interfolded flanges at their meeting ends forming an external strengthening-rib at the middle of the barrel-shaped keg and giving it a smooth interior; the upper body-section having an interned flange at its upper edge, and a cover having a flange forming a tight wedging friction fit with the body, said cover having a reinforcing-disk forced within its flange, and bracing said flange of the cover below the lower edge of the interned flange on the upper body-section, substantially as specified.

691,167. CART OR CAR DISCHARGING DEVICE. WILHELM HOMBAR, Vienna, Austria-Hungary, assignor of part to Fritz Mayer, Vienna, Austria-Hungary, and Salomon Winter, Ungarisch Ostra, Austria-Hungary. Filed Sept. 28, 1900. Serial No. 731,998. (No model.)



Claim.—1. In a dumping-car, the combination with the car-frame of a car-body bottom rigidly connected with the said frame, a square frame formed of the four upright sides of the car-body, which frame is separated from the body-bottom, and a connection between the said car-body bottom and car-body frame, by which the frame is adapted to be laterally slid over the bottom and prevented from being moved in other directions, substantially as and for the purpose described.

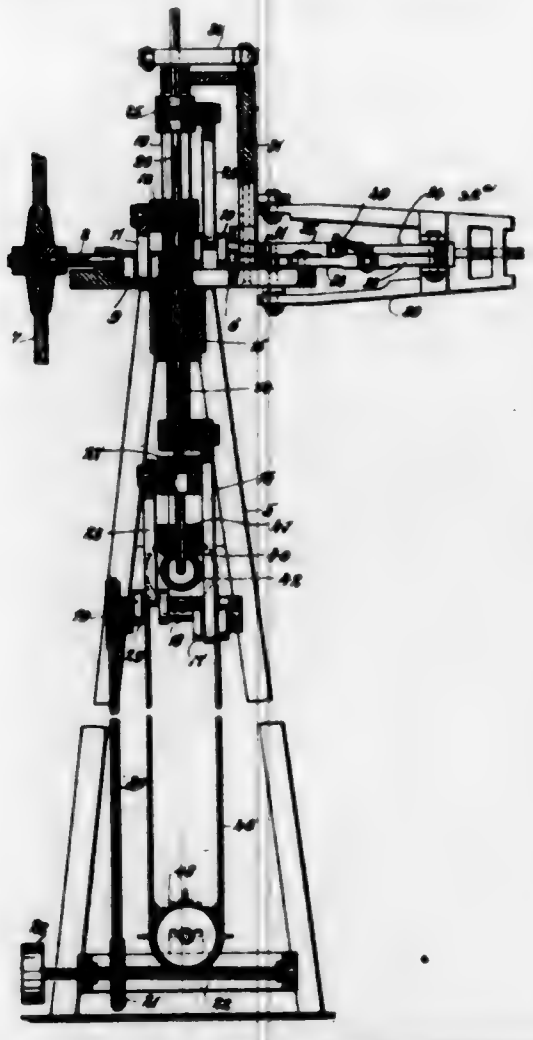
2. In a dumping-car, the combination with the car-frame of a car-body bottom rigidly connected with the said frame and provided with a number of transverse grooves, a square frame formed of the four upright sides of the car-body, which frame is separated from the body-bottom, and transverse bars secured to the under side of the car-body frame in such position as to project into the said grooves of the body-bottom, the said transverse bars and grooves being of such a form in cross-section as to admit of endwise displacement of the bars in the grooves, but to prevent the car-body frame from being lifted off the car-body bottom, substantially as and for the purpose described.

3. In a dump-car, the combination with the car-frame of a car-body bottom rigidly connected with the said frame, a square frame formed of the four upright sides of the car-body which frame is separated from the body-bottom, a connection between the said car-body bottom and car-body frame, adapting the frame to be laterally slid over the bottom and preventing it from being moved in other directions, and suitable mechanism for thrusting the upright body-frame in either lateral direction, substantially as and for the purpose described.

4. In a dumping-car, the combination with the car-frame of a car-body bottom rigidly connected with the said frame and provided with a number of transverse grooves narrowed at top, an upright car-body frame, separated from the said bottom, transverse racks secured to the under side of the car-body frame in such positions as to project into the said grooves and provided with lateral projections, revoluble shafts arranged on the outer surfaces of the longitudinal girders of the car-frame, pinions secured to the said shafts and meshing with the said racks, worm-wheels fastened to the ends of the shafts, which project beyond one end girder of the car-frame, a revoluble shaft carried by the said end girder, and worms se-

cured to the said shaft and engaing the worm-wheels, substantially as and for the purpose described.

691,168. WINDMILL-POWER. CARL OBERLANDER, Arastra, Colo. Filed Sept. 12, 1901. Serial No. 75,176. (No model.)



Claim.—1. In a windmill-power, a tower, a turn-table on the tower, a windmill-shaft mounted on the turn-table and having two cranks, a tubular operating-rod having connection with one of the cranks, a supplemental operating-rod extended through the tubular rod and having connection with the other crank, a double crank-shaft with which the lower ends of said rods connect, a vane-carrying frame mounted to swing, and connections between said frame and the supplemental rod, whereby the frame may be swung substantially as specified.

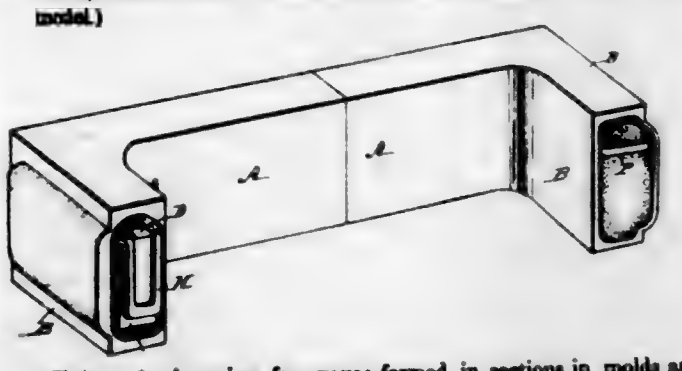
2. In a windmill-power, a tower, a turn-table on the tower, a wheel-shaft supported on the turn-table and having two cranks, operating-rods connecting with said cranks, one of said rods having a rotary motion, means operated from the base of the tower for causing said rotary motion, a vane-carrying frame mounted to swing relatively to the turn-table, and connection between said frame and the said rotary shaft, whereby the frame may be turned or deflected, substantially as specified.

3. In a windmill-power, a tower, a turn-table on the tower, a double crank-shaft mounted on the turn-table, a tubular operating-shaft movable through the turn-table, a link connection between said tubular shaft and one of the cranks of the crank-shaft, an auxiliary operating-rod movable through the tubular rod, a link connection between said auxiliary rod and the other crank of the crank-shaft, a crank-shaft supported in the tower below the turn table, connections between the operating-rods and the cranks of said last-named crank-shaft, a counter-shaft supported in the tower, and driving connections between the last-named crank-shaft and said counter-shaft, substantially as specified.

4. In a windmill-power, a tower, a wind-wheel shaft supported on the tower, an operating-rod having connection with said shaft, a vane-carrying frame mounted to swing horizontally with relation to the tower, a vertical rock-shaft, link connections between the upper end of said rock-shaft and the operating-rod, link connections between said rock-shaft and the vane-carrying frame, and link connections between said vane-carrying frame and the turn-table on the tower, substantially as specified.

5. In a windmill-power, a tower, a turn-table on the tower, a wind-wheel shaft supported on the turn-table, operating-rods having connection with said shaft, one rod being movable in the other, a vane-carrying frame mounted to swing on a horizontal plane, a vertical rock-shaft, an arm extended from the inner of said operating-rods and through which said rod is movable, link connections between said arm and the rock-shaft, link connections between said rock-shaft and the vane-carrying frame, link connections at the opposite side between said frame and the turn-table, a spring connecting the opposite links, a stop-finger carried by a link of one side, and an angular stop-arm attached to the rock-shaft, substantially as specified.

691,169. SECTIONAL COPING FOR GRAVES. EDWARD T. OWEN, Vanwert, Iowa. Filed Sept. 26, 1901. Serial No. 76,615. (No model.)

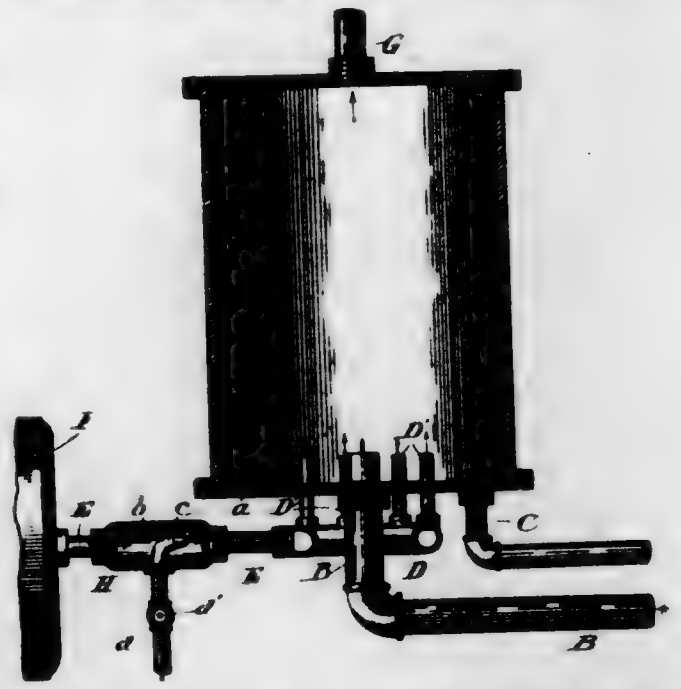


Claim.—1. A coping for graves formed in sections in molds and the end faces of each section extended at right angles from its bottom face and metal fastening devices fixed in the abutting ends of the sections in the manner set forth for the purposes stated.

2. In a coping for graves, a section having vertical faces at its ends, a metal hook fixed in one end and a metal eye in the other end, in combination with a mating section also having a metal hook in one end and a metal loop in the other end as required to detachably fasten the abutting ends together in the manner set forth for the purposes stated.

3. In a coping for graves, a hook formed from a single piece of plate metal cut and bent at right angles at one end to produce an arm, a central part cut loose from the other end and bent at right angles to produce an arm and the same end portion of the plate bent downward to produce a hook, in combination with the end of a section of coping, as shown and described for the purposes stated.

691,170. STEAM-CONDENSER. WILLARD E. PARDRIDGE, Detroit, Mich. Filed Aug. 17, 1901. Serial No. 72,425. (No model.)



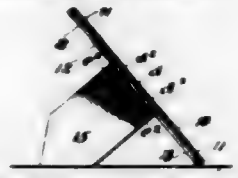
Claim.—1. In a condenser, the combination of a tank having in its upper end a vent and in its lower end an outlet, an exhaust-steam-conducting pipe leading into and extending above the base of the tank, and a compressed-air-supplying conduit having outlets leading into and extending above the base around and adjacent to the end of the steam-pipe.

2. In a condenser, the combination of a tank having in its upper end a vent and in its lower end an outlet, an exhaust-steam-conducting pipe leading into and extending above the base of the tank, a compressed-air-supplying conduit having outlets leading into and extending above the base around and adjacent to the end of the steam-pipe, and a cold-fluid injector interposed in said conduit.

691,171. SHARPENER FOR KNIVES OR SCISSORS. CHARLES A. PAYNE, St. Paul, Minn. Filed Oct. 23, 1901. Serial No. 79,619. (No model.)

Claim.—1. A sharpening device, comprising a cutter-plate having

laterally-projected spaced cutting-blades thereon, the side edges of which are parallel, a guide-plate having fingers adapted to be disposed opposite the spaces between the cutting-blades, said guide-fingers having their side edges sloped for a portion of their length and parallel with each other and with the side edges of the cutting-blades near the inner ends of the fingers, and means to secure the plates together



2. A sharpening device, comprising a cutter-plate having spaced cutter-blades arranged at a side edge thereof, the cutting edges of these blades being parallel with each other, a guide-plate having fingers along a side edge thereof which differ in taper edgewise toward their outer ends, said fingers being disposed opposite the space between the parallel edges of the cutting-blades, providing V-slots of different sizes between corresponding edges of the fingers and blades, and means for securing the plates together.

3. A sharpening device, comprising a cutter-plate of hard metal, having spaced cutting-blades arranged in sequence on each side edge of the cutter-plate, the side edges of each set of blades being parallel with each other, a guide-plate of soft metal having spaced fingers at each side thereof, said fingers being arranged to lie opposite the respective spaces between the pairs of cutting-blades, each finger having oppositely-sloped edges extending from the free end of the finger to a point near the base of said finger, from which point the edges are extended to the base of the finger in parallel planes, thus providing a V-slot and a crevice-like extension of said slot between the adjacent edges of each finger and a complementary cutter-blade, and means for securing the blades together.

4. A sharpening device, comprising a hardened plate, a soft-metal plate held on the hardened plate, a projected tongue having straight side edges and formed on the hardened plate, a recess at each side edge of the tongue, a sloping edge extended oppositely from each recess and forming part of the defining edge at the end of the hardened plate, a mating tongue on the soft-metal plate, and a slope at each side of said tongue.

5. In a device of the character described, the hard cutter-plate having cutting-blades at the side edges thereof, a guide-plate having fingers intervening the cutter-blades, said fingers having sloped edges and straight extensions from said sloped edges forming a V-slot and a narrow crevice between each adjacent edge of a finger and blade, means to secure the cutter-plate and guide-plate together, and means to support the sharpening device for service.

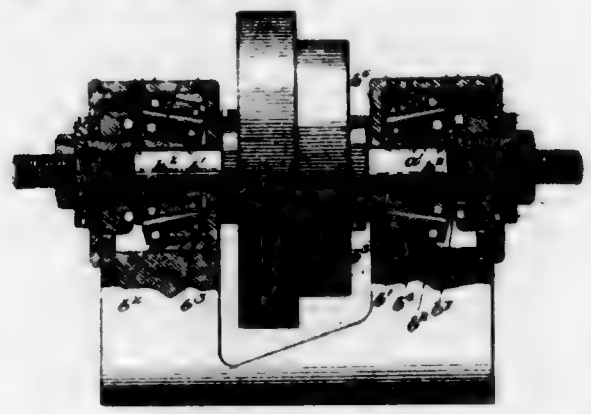
691,172. PENCIL-HOLDER. JOHN W. PEARSON, Tehuacana, Tex. Filed May 9, 1901. Serial No. 59,516. (No model.)



Claim.—1. A pencil-holder comprising a body having its ends perforated and bent to parallel relation and having an intermediate perforated partition dividing the body into a plurality of compartments, an elastic strip extending through said perforations and attached to said ends, and means for securing the holder to a garment.

2. A pencil-holder comprising a metallic strip bent upon itself to form a partition, and provided with perforations and having its ends bent to form in connection with the partition, a plurality of pencil-receiving compartments, said ends having perforations in alinement with those of the partition, an elastic strip extending through the perforations, and means for securing the holder to a garment.

691,173. ROLLER-BEARING. JULIUS A. PERKINS, Omaha, Nebr., assignor to Moffett Bearing Company, Council Bluffs, Iowa. Filed Jan. 6, 1900. Serial No. 531. (No model.)



Claim.—1. In an antifriction roller-bearing a shaft, suitable surrounding tracks presenting inclined faces, a plurality of tapering sleeves carried by said shaft, the surfaces of said sleeves being inclined one toward the other, a plurality of rigid traveling cages having each a series of non-rotatable supports, a series of conical bearing-rollers surrounding said supports, and antifriction means contacting with said supports and said cages and preventing the rubbing of said rollers against either said cage or supports.

2. In an antifriction roller-bearing, a shaft, suitable surrounding tracks presenting inclined faces, a plurality of tapering sleeves carried by said shaft and having their faces inclined toward the shaft, a plurality of rigid traveling cages having each a series of supports, a series of conical bearing-rollers surrounding said supports, and antifriction means sustaining the ends of said bearing-rollers and preventing the contact of said rollers with said cage or the roller-supports.

3. A shaft, surrounding tracks presenting inclined faces, means to sustain said tracks, tapering sleeves carried by the shaft, rigid traveling cages having each a series of non-rotatable supports, a series of conical bearing-rollers surrounding said supports and chambered at their ends, a series of balls located in said chambers and interposed between and preventing contact of said rollers with the walls of said cage and with said supports.

4. A shaft, tracks presenting inclined faces and surrounding said shaft, means to sustain said tracks, sleeves carried by the shaft and presenting tapering faces, rigid traveling cages having roller-supports, conical rollers surrounding said supports and interposed between said tracks and sleeves, and means at the larger end of said cage and contacting only therewith to prevent the cage from sliding away from the longitudinal center of said shaft.

5. In a roller-bearing of the class described, a shaft, a conical sleeve applied thereto, a rigid traveling cage provided with roller-supports, tapered bearing-rollers revolubly about said sleeve, a wearing-plate secured to the larger end of said traveling cage, and end-thrust means containing a series of balls running against said wearing-plate.

6. A shaft having oppositely-inclined tapering sleeves, a box, tracks therein presenting inclined faces, rigid traveling cages having bearing-rollers interposed between said tracks and the inclined sleeves, adjustable end-thrust means, and a series of balls interposed between the larger ends of said cages and said end-thrust means.

7. In a roller-bearing of the class described, a shaft, a plurality of conical sleeves applied thereto, and threaded externally; combined with end-thrust plates containing each a series of balls, and check-nuts to confine said end-thrust plates in position.

8. A shaft, a sleeve having a tapered face mounted thereon, a track surrounding said shaft and presenting an inclined face, a box to sustain and inclose said track, a traveling cage containing inclined spindles, a series of conical rollers interposed between said sleeve and track, antifriction means to prevent contact of said rollers with said cage and said spindles, a wearing-plate at the larger end of said cage, a collar mounted at one end of said sleeve and rotatable in the same direction as the cage but at a faster speed, and antifriction means interposed between said collar and said plate.

9. In a roller-bearing of the class described, a shaft, a plurality of conical sleeves applied thereto, a plurality of traveling cages containing bearing-rollers and surrounding said sleeves, a plurality of end-thrust means applied to said shaft and having antifriction means contacting only with the larger ends of said cages, and means to confine said end-thrust means in working position.

10. In an antifriction roller-bearing, a shaft, suitable surrounding tracks presenting inclined faces, a plurality of tapering sleeves carried by said shaft and having their faces inclined toward the shaft, a plurality of rigid traveling cages having each a series of supports, a series of conical bearing-rollers surrounding said supports, antifriction means sustaining the ends of said bearing-rollers and preventing the contact of said rollers with said cage or the roller-supports, and means to move the conical sleeves carried by the shaft longitudinally of the axis of said shaft.

11. In an antifriction roller-bearing, a shaft presenting an inclined surface, a traveling cage having a series of supports, and a series of conical bearing-rollers surrounding said supports, means carried by and traveling with said shaft and coöperating with the larger end of the cage to prevent the rollers and cage from climbing the incline of the surface of the shaft.

12. In an antifriction roller-bearing, a shaft presenting an inclined surface, a traveling cage having a series of supports, and a series of conical bearing-rollers surrounding said supports, means carried by and traveling with said shaft and coöperating with the larger end of the cage to prevent the rollers and cage from climbing the incline of the surface of the shaft, and antifriction means interposed between the means traveling with said shaft and the larger end of the cage to obviate wear of the cage.

13. The combination of a series of inclined rollers, inner and outer

bearing-cones for the same, means for spacing said rollers such as a cage, and a series of balls engaging and receiving the endwise pressure of said spacing means.

14. In an antifriction roller-bearing, a shaft, and a hub provided each with inclined surfaces, an interposed, loosely-sustained, traveling cage freely movable with relation to both said inclined surfaces and having a series of supports, a series of conical rollers contacting with said inclined surfaces, and holding means independent of said inclined surfaces and acting against said cage to prevent the same from being moved in a direction to enable said rollers to slide upwardly on the inclined surface of the shaft.

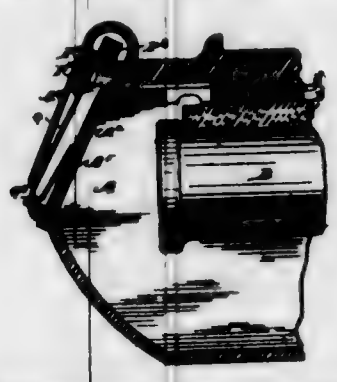
15. The combination of a series of inclined rollers, inner and outer bearing-cones against which said rollers contact, means for spacing said rollers, such as a cage, and a device adjustable longitudinally of said bearing-cones and contacting with said cage to determine the position of said cage and rollers, and prevent them from moving upwardly on said cones.

691,174. AXLE BOX. MORGAN A. PERRIGO, Wilkesbarre, Pa. Filed June 15, 1900. Serial No. 20,458. (No model.)



Claim.—The process for producing axle-boxes having hardened interior faces, which consists in first mixing pulverized sulfur and sand in the proper proportions; next reducing the resulting material to the proper consistency by the addition of a liquid binder, substantially as described; next, forming a core from the resulting mass; and finally, casting the box around and in contact with said core.

691,175. CAR AXLE-BOX. JOSEPH L. PETTIGREW, Oakland, Cal. Filed June 30, 1898. Serial No. 684,854. (No model.)



Claim.—1. The combination with an axle-box, of a lid hinged thereto, a spring acting on the lid to move the same in one direction, and a separate-piece holder for the spring to which the spring is attached.

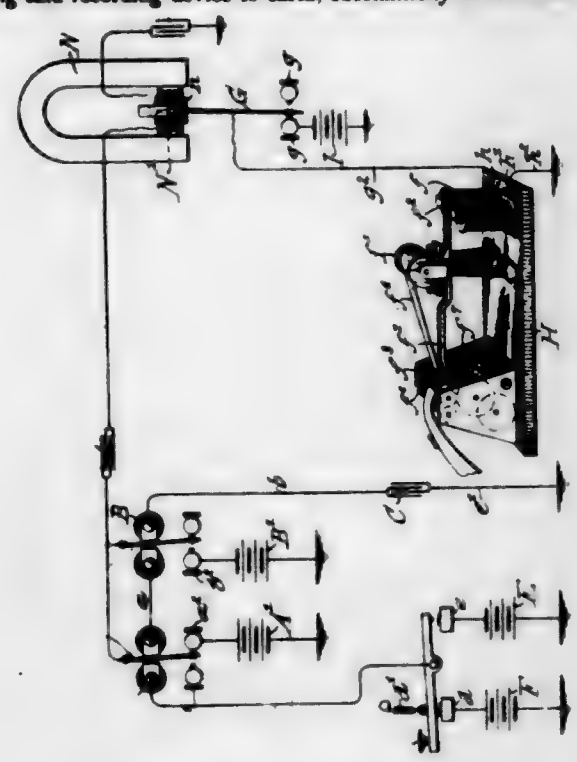
2. The combination with a car-axle box, of a lid, a hinge-bolt passing through lugs on the box and the lid, a detachable holder on said bolt, a spring detachably connected with said holder and bearing on the lid, and means for controlling the rotation of the hinge-bolt, substantially as described.

3. A car-axle box having a lid covering its front opening, a hinge-bolt made partly angular and passing through lugs on the box lid, a loose spring extending lengthwise across the lid's outer surface, a sheath for the spring, a holder engaging with the angular portion of the bolt and detachably engaging the spring at its upper end, said holder extending into the sheath, and means for controlling the rotation of the hinge-bolt, substantially as described.

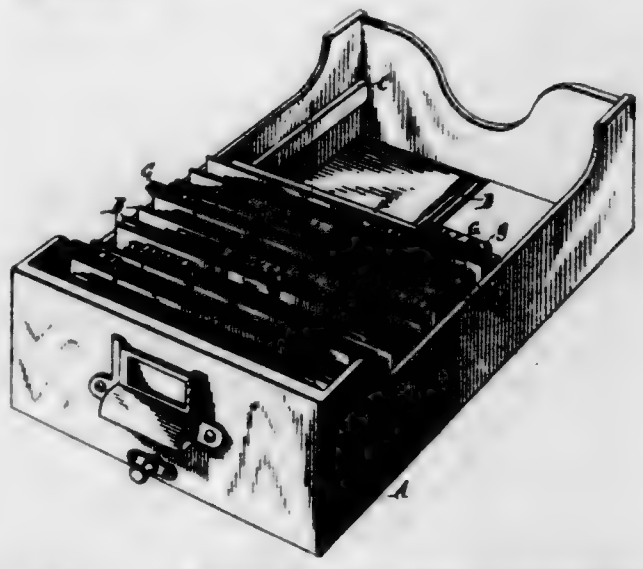
4. A car-axle box having a hinged lid, a spring bearing on the lid, and a detachable holder on the hinge-bolt for the spring, substantially as described.

691,176. ELECTRIC-TELEGRAPH APPARATUS. PIERRE PICARD, Paris, France. Filed Feb. 12, 1898. Serial No. 670,057. (No model.)

Claim.—An electric-telegraph apparatus, consisting of a transmitting-key, two contacts therefor, two independent batteries grounded at opposite poles and connected at their other poles one with each contact, two oppositely-polarized relays, a conductor connecting the coils of said relays, a conductor connecting said key with one of said relays, a condenser, a conductor connecting the other relay with the condenser, a conductor grounding said condenser, a main line connected with the armature of each relay, two independent batteries grounded at opposite poles and connected at their other poles one with each of the active contacts of said relays, a condenser in the main line at the transmitting end, a permanent magnet, a coil pivoted between the poles of said magnet and connected at one end with the main line, a condenser, a conductor connecting the opposite end of said coil with said condenser, a conductor connecting said condenser to earth, a contact-arm extending from said coil, contacts for said arm, a battery grounded at one pole and connected at the other pole with one of said contacts, a recording device, a conductor connecting said contact-arm with said recording device, and a conductor connecting said recording device to earth, substantially as set forth.



691,177. FILING DEVICE FOR BANK-CHECKS, &c. JAMES H. RAND, North Tonawanda, N. Y. Filed Oct. 14, 1901. Serial No. 78,530. (No model.)



Claim.—1. A file comprising a case, drawer or compartment, and a number of thin partitions arranged in the same and each provided at its upper edge with a projecting designation tab or block shorter than the partition and having its top face constructed of greater width than the partition, the tabs of adjoining partitions being arranged out of line with each other lengthwise of the case and each tab terminating short of the ends of adjacent tabs, whereby the tabs of empty or nearly empty pockets of the file can be brought practically in alinement crosswise of the case, substantially as set forth.

2. A file comprising a case, drawer or compartment, and a number of thin partitions arranged in said case and each provided with a designation tab or block of triangular cross-section, shorter than the partition and having its upper flat face arranged substantially at right angles to the partition and provided with a suitable designation, substantially as set forth.

3. A file comprising a case, drawer or compartment, and a number of thin partitions arranged in said case and each provided with a designation tab or block of triangular cross-section having its upper flat face arranged substantially at right angles to the partition, and fastened thereto by a strip extending over the top and sides of the block and having its ends secured to opposite sides of the partition, substantially as set forth.

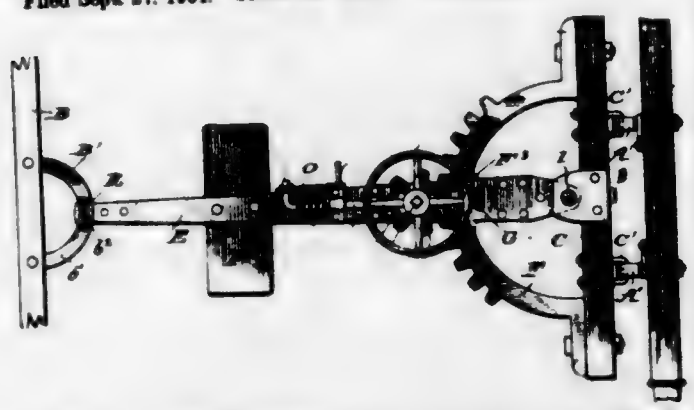
4. A partition for a filing device, provided at its upper edge with a block of triangular cross-section having its apex or narrow end arranged adjacent to the upper edge of the partition and its wide upper face arranged substantially at right angles to the partition and provided with a suitable designation, substantially as set forth.

691,178. BUTTON. ARTHUR A. RICHMOND, East Orange, N. J., assignor, by mesne assignments, to the Patent Button Company, Waterbury, Conn., a Corporation of Connecticut. Filed May 19, 1899. Serial No. 717,456. (No model.)



Claim.—A button composed of a top and back secured together at their outer edges forming a head in which is provided a recess, a hub secured to the back of said head, a clenching-cup consisting of a retaining-flange and a top, which top rests against the top of the button, and a holding-ring concavo-convex in cross-section, its outer edge being confined within the retaining-flange, said clenching-cup being confined between the top and back plates of the button and within said recess, substantially as described.

691,179. COUPLING-FRAME. SAMUEL C. ROCK, Quincy, Pa. Filed Sept. 27, 1901. Serial No. 76,787. (No model.)



Claim.—1. The coupling-frame herein described composed of the base-bar provided with means for connection with a threshing-machine and having on its front side the projecting toothed arc, the box fitted to the middle of the cross-bar and extending in advance thereof, the coupling-pole provided with a platform for the operator and composed of a body portion and upper and lower plates projecting from the rear end thereof and extending above and below the toothed arc and pivoted at their rear ends to forward extensions of the central box of the cross-bar, the brace-block arranged between said upper and lower bars in rear of the toothed arc, the gear-wheel between said bars in advance of the arc and meshing therewith, the shaft fixed in connection with said gear-wheel, the rack-wheel fixed to the shaft, the bolt for engaging said rack-wheel, the spring by which said bolt is held normally clear of the rack-wheel, the bell-crank lever for operating the bolt into engagement with the rack-wheel, and the hand-wheel on the shaft for operating the same, substantially as set forth.

2. A coupling-frame substantially as herein described, comprising the main cross-bar provided with means for connection with the machine, the toothed arc secured to said cross-bar and projecting at the front side thereof, the pole pivoted concentric with the toothed arc and arranged to swing along the same, and the gear-wheel carried by the pole and meshing with the toothed arc, substantially as set forth.

3. In a coupling-frame for use on threshers and the like, the combination of the base or cross-bar, and the toothed arc projecting on the front side thereof, of the pole comprising the body portion and the upper and lower bars projecting therefrom and extending above and below the toothed arc and pivoted at their front ends in connection with the cross-bar and concentric with the arc, and the gear-wheel operating between said upper and lower bars and meshed with the toothed arc, substantially as set forth.

4. A coupling-frame substantially as described, comprising the base or cross-bar, the toothed arc on the front side thereof, the coupling-pole extending past and movable along said arc and pivoted in connection with the cross-bar or base, and a gear-wheel carried by the pole and meshing with the toothed arc, substantially as set forth.

5. The combination in a coupling-frame of the cross-bar, the toothed arc fixed thereto, the pole swinging along the toothed arc, the gear-wheel carried by the pole and meshing with the toothed arc, the shaft for operating said gear-wheel, the bolt for locking the shaft, a spring for actuating the bolt in one direction, and the lever by which the bolt may be operated in the opposite direction, substantially as set forth.

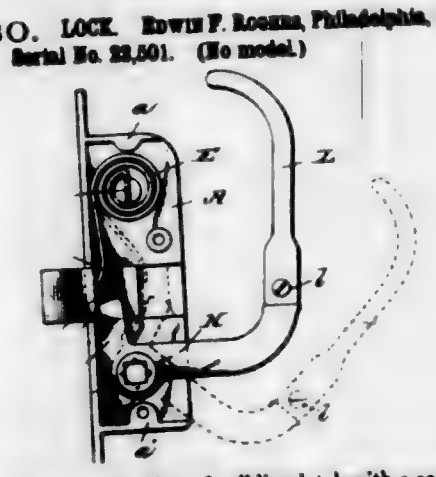
6. In a coupling-frame, the combination with the base or cross-bar, and the toothed arc secured thereto, of the coupling-pole comprising a body and upper and lower bars projecting rearwardly therefrom above and below the toothed arc and pivoted to the base, a filling-block between said upper and lower bars in rear of the arc, the truss below the pole and extending between the body of the pole and the bottom bar in rear of the arc, and the wheel journaled to the pole in advance of the arc and meshed therewith, substantially as set forth.

7. In a coupling-frame for use on threshers and the like, the combination of the toothed arc, the pole pivoted at its rear end concentric with said arc, and the gear-wheel journaled to the pole and meshing directly with the toothed arc, substantially as set forth.

8. The combination of the transversely-extending bar, a toothed arc on the front side thereof, the pole pivoted at its rear end concentric with the toothed arc, and the gear-wheel carried by the pole and meshed with the toothed arc, substantially as set forth.

9. The combination of the toothed arc provided on its rear side at its middle with a projecting portion perforated for the passage of the locking-pin, the pole extended past the arc and pivoted at its rear end, the locking-pin by which the pole may be locked to the central portion of the arc, and the gear-wheel carried by the pole in advance of the toothed arc and meshed directly therewith, substantially as set forth.

691,180. LOCK. EDWIN F. ROGERS, Philadelphia, Pa. Filed July 8, 1900. Serial No. 22,501. (No model.)



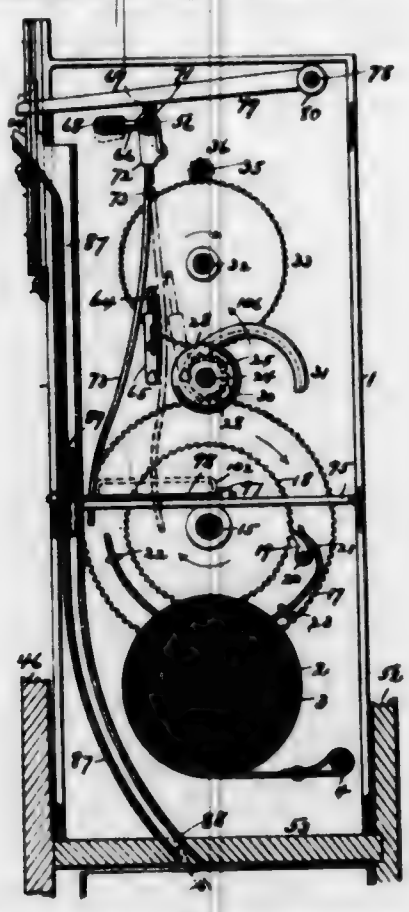
Claim.—The combination of a sliding latch with a casing, a spring secured to the casing above the latch one end of such spring engaging an opening in the upper side of said latch; a bell-crank lever pivoted independently at the opposite side of said casing, its short arm engaging with a recess in said latch for operating it, the other arm of said lever extending through the rear end of the casing; a separate operating-handle, detachably secured to the outer end of the lever for operating the latch from the inside of the door, and means for operating said bell-crank lever from the outside of the door, substantially as set forth.

691,181. BRAKE MECHANISM FOR COIN-CONTROLLED APPARATUS. GEORGE W. ROWE, Pawtucket, R. I., assignor of one-half to Walter H. Crowninshield and Charles H. Lawton, Pawtucket, R. I. Filed June 15, 1901. Serial No. 64,674. (No model.)

Claim.—1. In a brake mechanism for coin-controlled apparatus, the combination of a frame, a main shaft supported by said frame, a main-spring wound on said main shaft, means for winding said spring, an upper shaft supported by said frame, a train of gearing properly mounted and engaged, adapted to communicate rotary motion from the main shaft to said upper shaft, a balance-wheel fastened upon the second-named shaft, a third shaft supported in said frame, a brake-shoe mounted on said third shaft and extending over and in frictional contact with the periphery of said balance-wheel, means adapted to automatically lift said brake-shoe from the balance-wheel, a spiral spring on said third shaft adapted to press the brake-shoe against the periphery of the balance-wheel, a downwardly-extending rod connected with said brake mechanism and capable of an oscillating movement and adapted to increase the tension of said spiral spring, means of oscillating said rod for the purpose of increasing the tension of said spiral spring, a coin-chute, and a tilting detent-wire properly mounted and capable, when horizontal, of holding said rod in position and having a portion thereof extending into the coin-chute and so arranged as to be depressed by the weight of a coin moving by gravity down said coin-chute, substantially as specified.

2. In a brake mechanism for coin-controlled apparatus, the combination of a frame, a main shaft supported by said frame, a mainspring wound on said main shaft, means for winding said spring, a second shaft supported by said frame, a train of gearing properly mounted and engaged, adapted to communicate rotary motion from the main shaft to the second shaft, a balance-wheel upon said second shaft, a third shaft supported in said frame, a brake-shoe mounted on said third shaft and extending over

and in frictional contact with said balance-wheel, a weight or counterpoise adapted to automatically lift said brake-shoe from said balance-wheel, a spiral spring on said third shaft adapted to press said brake-shoe against the balance-wheel, a downwardly-extending oscillating rod mounted on the said third shaft and adapted to increase the tension of said spiral spring when oscillated in an outward direction, a fourth shaft supported in said frame and having a gear in mesh with a gear of the said train of gearing and also having a curved cam-arm provided with a peripheral groove and adapted thereby to receive said rod, a coin-chute, a tilting detent-wire properly mounted and capable, when horizontal, of holding said rod in position and having a portion thereof extending into the coin-chute and so arranged as to be depressed by the weight of a coin moving by gravity down said coin-chute, substantially as described.



3. In a brake mechanism for coin-controlled apparatus, the combination of a frame, a main shaft supported by said frame, a mainspring wound on said main shaft, means for winding said spring, a second shaft supported by said frame, a train of gearing properly mounted and engaged, adapted to communicate rotary motion from the main shaft to the second shaft, a balance-wheel upon said second shaft, a third shaft supported by said frame, a brake-shoe mounted on said third shaft and extending over and in frictional contact with said balance-wheel, a weight or counterpoise adapted to automatically lift said brake-shoe from said balance-wheel, a spiral spring on said third shaft and adapted to press the brake-shoe against the balance-wheel, a downwardly-extending oscillating rod mounted on said third shaft and adapted to increase the tension of said spiral spring, when oscillated in an outward direction, a fourth shaft supported by said frame and having a gear in mesh with a gear of the said train of gearing and also having a curved cam-arm provided with a peripheral groove and adapted thereby to receive said rod, a coin-chute, and means actuated by a coin moving in said chute by gravity and adapted to hold said rod at the limit of its outward oscillation, substantially as shown.

4. In a brake mechanism for coin-controlled apparatus, the combination of a frame, a main shaft supported by the frame, a mainspring wound on the main shaft, means for winding said spring, a second shaft supported by the frame, a train of gearing properly mounted and engaged and adapted to communicate rotary motion from said main shaft to the second shaft, a balance-wheel upon said second shaft, a third shaft supported by said frame, a brake-shoe mounted on said third shaft and extending over and in frictional contact with said balance-wheel a weight or counterpoise adapted to automatically lift said brake-shoe from said balance-wheel, a spiral spring on said third shaft adapted to press said brake-shoe against the balance-wheel, a downwardly-extending oscillating rod mounted on said third shaft and adapted to increase the tension of said spiral spring, when oscillated in an outward direction, a fourth shaft supported by said frame and having a gear in mesh with a gear of said train of gearing and also having two parallel disks mounted therein and each provided with an inwardly-directed arc-shaped flange, a brake-rod fastened at its upper end on said third shaft and having at its lower end a piece shaped like an inverted T with the cross-arm thereof adapted and arranged to enter between said disks through the unflanged portion thereof but capable of engagement with the flanged portion thereof, means adapted to impart an outward movement to said oscillating rod, a coin-chute, and a detent arranged to automatically hold said oscillating rod at the limit of its outward movement and to be tripped by a coin falling by gravity through said chutes, substantially as described.

5. In a brake mechanism for coin-controlled apparatus, the combination of a frame, a main shaft supported by said frame, a mainspring wound on said main shaft, means for winding said spring, a second shaft supported by said frame, a train of gearing properly supported and engaged, adapted to communicate rotary movement from the main shaft to the second shaft, a balance-wheel upon said second shaft, a third shaft supported by said frame, a brake-shoe mounted on said third shaft and extending over and in frictional contact with said balance-wheel, a weight or counterpoise adapted to automatically lift said brake-shoe from said balance-wheel, a spiral spring on said third shaft adapted to press said brake-shoe against the balance-wheel, a downwardly-extending oscillating rod mounted on said third shaft and adapted to increase the tension of said spiral spring when oscillated in an outward direction, a fourth shaft supported by said frame and having a gear in mesh with a gear of said train of gearing and also having a curved cam-arm provided with a peripheral groove and adapted thereby to receive said rod, a coin-chute, a tilting detent-wire properly mounted and capable when horizontal of holding said rod in position at the outward limit of its oscillation and having a portion thereof extending into the coin-chute and so arranged as to be depressed by the weight of a coin moving by gravity down said coin-chute, two parallel disks mounted on said fourth shaft and each provided with an inwardly-directed arc-shaped flange, and a brake-rod fastened at its upper end on said third shaft and having at its lower end a piece shaped like an inverted T with the cross-arm thereof adapted and arranged to enter between said disks through the unflanged portion thereof but capable of engagement with the flanged portion thereof, all arranged and operating substantially as and for the purpose specified.

6. In a brake mechanism for a coin-controlled apparatus, the combination of a mainspring, a train of gearing, a balance-wheel mounted on one of the shafts of said train of gearing, a brake-shaft properly supported and having fastened thereon a brake-shoe extending over and in frictional contact with the rim of said wheel, a brake-rod mounted and fastened at its upper end upon the brake-shaft, an arm mounted and fastened on the brake-shaft, a sleeve mounted and fastened on the brake-shaft, a rod bent at its two ends and extending from said sleeve to the upper end of the brake-rod, an oscillating rod loosely mounted on the brake-shaft and having a pin projecting from its upper end adapted as a stop-pin to limit the inward oscillation of said oscillating rod, a spiral spring surrounding the brake-shaft and having its ends bent, one of which ends is fastened in the head of the oscillating rod beneath said brake-shaft and the other of which ends is fastened in said arm, means adapted to move said oscillating rod in an outward direction and thereby to increase the tension of said spring, means adapted to detain said oscillating rod at the limit of its outward movement, a tripping device adapted to release the oscillating rod from said detaining means, and means adapted to confine said brake-rod from outward movement while the oscillating rod is moving outwardly but to disengage said brake-rod when the oscillating rod is detained as aforesaid, substantially as shown and for the purpose specified.

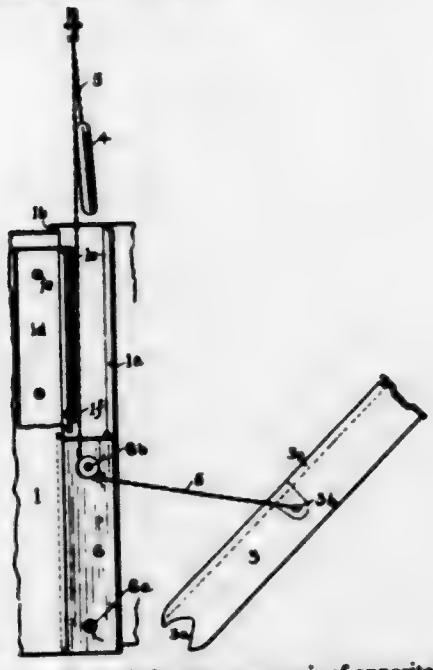
691,182. WINDOW. EDWARD A. SANDERS, Saginaw, Mich. Filed Mar. 5, 1901. Serial No. 49,869. (No model.)

Claim.—1. In combination with a window-frame and a sash mounted therein; a pair of slides vertically movable between the sides of the sash and the sides of the frame; inwardly-projecting pins secured to the lower ends of said slides; recesses in the lower ends of the side members of the sash adapted to engage said pins; a pulley rotatably mounted on each vertically-movable slide above the pins; a pair of sash-cords carrying counterbalance-weights and secured to the sides of the window-sash at points substantially midway the height of the sash; said cords extending vertically upward in the rear of the pulley-grooves when the sash is vertical, and adapted to pass under said pulleys and to draw up the counterbalance-weights when the sash is tilted out from the frame.

2. In combination with a window-frame and a sash mounted therein; a pair of slides vertically movable between the stops, the sides of the sash and the sides of the frame; inwardly-projecting pins secured to the lower ends of said slides; slots in the lower ends of the side members of the sash adapted to engage said pins and a pulley rotatably mounted on each vertically-movable slide above the pins, substantially as described and for the purpose set forth.

3. A window-sash having its sides composed of a sheet-metal strip of substantially U-shaped section, the sides of said strip being bent back upon themselves and having their inner edges curved inwardly to yieldingly hold the pane of glass, substantially as described.

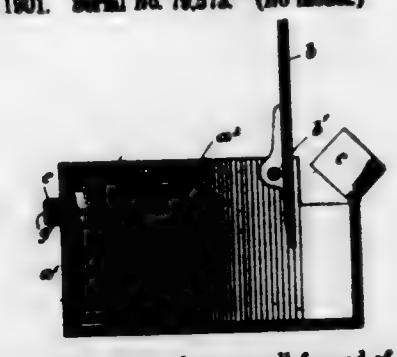
4. The lower member of a window-sash comprising a sheet of metal underneath the lower edge of the pane, the inner edge of said strip being flanged upwardly and having its upper end curved inwardly to form a bead to yieldingly hold the lower edge of the pane, and an inclined strip on the opposite side of the pane, all forming means whereby the lower edge of the pane is held yieldingly and condensation from the surface of the glass is carried underneath the edge of the pane and delivered outside the window, substantially as described.



5. In combination with a window-frame; a pair of oppositely-placed slides vertically movable between the stops of said frame; a tilting sash mounted between said slides and pivotally connected to them near its lower end; and a pulley mounted on each slide above the pivotal connection, substantially as described.

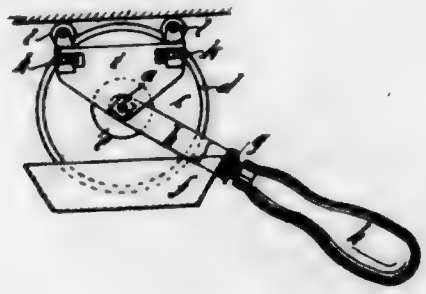
6. In a window, the combination with a tilting sash; of a pair of counterbalance-cords secured to said sash and carrying balance-weights at their outer ends; of a pair of pulleys mounted at the side of the casing and engaging said cords when the sash is tilted outwardly, but permitting the cord to pass freely back of said pulleys and not in contact with them when the sash is raised vertically.

691,188. MATCH-BOX. CASIMAR SCHARR, Superior, Nebr. Filed Oct. 22, 1901. Serial No. 79,573. (No model.)



Claim.—A box having its top wall formed of a lid mounted in opposite side walls of the box, to swing about a pivot intermediate the front and rear edges of the lid, and the rear wall of the box being formed of a rigid lower part and a hinged upper part, said upper part lying when in closed position in the plane of the lower part and swinging outward to open, the hinged part of the wall having a head arranged to bear under the adjacent edge of the lid to hold the same closed.

691,184. COLORING-TOOL. HEINRICH SCHICKLER, Wilmersdorf, near Berlin, Germany. Filed Aug. 17, 1901. Serial No. 72,429. (No model.)



Claim.—In an improved apparatus for the production of variously-colored plain or ornamental borders or friezes upon ceilings and walls the combination with a number of disks or rollers *c* provided at their circumference with a plain or pattern-producing covering of felt or other suitable paint-absorbing material, the said disks being mounted upon a common axis *a* and optionally adjustable in their distance apart by intermediate rings or collars *e*, of coloring-troughs *f*, interchangeably arranged under each disk and carried by the middle shank *g* of a frame-carrier and lastly of guide-rollers *k* and *l*, mounted upon a projected arm of the said axis, all operating substantially and for the purpose as described.

691,185. SNAP-HOOK. WILLIAM A. SCHLESCHER, Cleveland, Ohio. Filed June 14, 1898. Serial No. 683,414. (Model.)

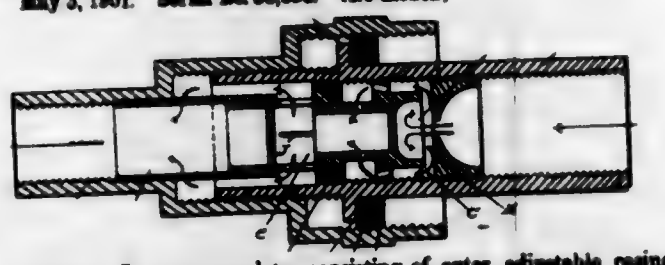


Claim.—1. A snap-hook having a shank provided with a chamber, a cross-bar within the chamber, a U-shaped spring having one leg beneath the cross-bar, and a lip projecting from the rear wall of the chamber and arranged to contact with the spring; substantially as described.

2. A snap-hook having a shank provided with a chamber, a cross-bar within the chamber, a U-shaped spring having one leg beneath the cross-bar, and upper and lower lips projecting forwardly from the rear wall of the chamber; substantially as described.

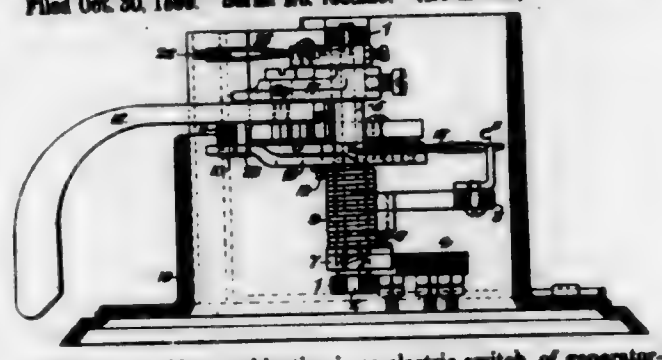
3. A snap-hook having its shank provided with a chamber having an open top and bottom, the rear end of the chamber being closed, and having thin lips cast integrally therewith and projecting forwardly, an integral cross-pin within the lower portion of the chamber, and a plain U-shaped spring having its lower leg held under the cross-bar and secured by the lips of the rear wall, which are bent inwardly into contact with its curved portion; substantially as described.

691,186. GAS-REGULATOR. FRED SCHICK, Brooklyn, N. Y. Filed May 3, 1901. Serial No. 58,658. (No model.)



Claim.—In a gas-regulator consisting of outer, adjustable casings, interior plugs forming a series of resistance-chambers in connection therewith, and ports connecting said chambers, a recessed, slotted plug in combination with a pipe to be operated, back and forth, by the outer, adjustable casing to which it is secured, substantially as set forth and shown.

691,187. SWITCH MECHANISM FOR ELECTRIC MOTORS. ADOLPH W. SCHRAMM, Philadelphia, Pa., assignor to the Electro Dental Manufacturing Company, Camden, N. J., a Corporation of New Jersey. Filed Oct. 30, 1899. Serial No. 735,220. (No model.)



Claim.—1. The combination in an electric switch, of generator-terminals, motor-field terminals, and armature-terminals, a circuit making and breaking switch, connections whereby the current is directed to the field-coils when the switch is closed, contacts connected to various subdivisions of a resistance permanently connected between the field-terminals, and a potential-selecting brush and connections whereby the potential at the armature is represented by the potential difference between the ends of one or more of the subdivisions of the resistance, substantially as specified.

2. The combination in an electric switch, of a pair of potential-selecting levers, means for maintaining them normally in neutral position, and an operating-lever moving in a plane parallel with that of the poten-

tial-selecting levers and having a portion interposed between said potential-selecting levers, whereby when moved in one direction, it will operate one lever and when moved in the other direction will operate the other lever, substantially as specified.

3. The combination in an electric switch, of a pair of potential-selecting levers, means for maintaining them normally in neutral position, an operating-lever having a portion interposed between said potential-selecting levers, whereby when moved in one direction it will operate one lever, and when moved in the other direction will operate the other lever, and a circuit making and breaking switch also controlled by said operating-lever, substantially as specified.

4. The combination in an electric switch, of a pair of potential-selecting levers, means for maintaining them normally in neutral position, an operating-lever having a portion interposed between said potential-selecting levers, whereby when moved in one direction it will operate one lever, and when moved in the other direction will operate the other lever, and means for maintaining said operating-lever in its various positions of adjustment, substantially as specified.

5. An electric switch in which are combined a pair of potential-selecting levers mounted so as to swing on a common axis, a coiled spring acting in one direction upon one of said levers and in the other direction on the other lever, a stop whereby said levers are maintained normally in neutral position, and an operating-lever having a portion for acting upon one of said potential-selecting levers to move it in one direction, and upon the other of said levers to move it in the opposite direction, substantially as specified.

6. An electric switch in which are combined a toothed bar, and a switch-lever having a pivotal mounting whereby an arm of said lever is caused to engage with the teeth of the bar when the lever is moved in one direction in respect to said teeth but swings clear of the teeth of the bar when the lever is moving in the opposite direction in respect thereto, substantially as specified.

7. In an electric switch, the combination of a duplex lever composed of two elements, the first having a primary fulcrum upon which both elements can swing as a unit, and the second element having a fulcrum upon the first on which it can swing independently, and a toothed segment engaging with an arm on said second element to maintain it in its different positions of adjustment, substantially as specified.

8. In an electric switch, the combination of a duplex lever composed of two elements, the first having a primary fulcrum upon which both elements can swing as a unit, and the second element having a fulcrum upon the first, on which it can swing independently, a toothed segment engaging with an arm of said second element to maintain it in its different positions of adjustment, and a spring acting on said second element to restore it to its primary position when its arm is freed from engagement with said teeth, substantially as specified.

9. In an electric switch, the combination of a duplex operating-lever composed of two elements, the first having a primary fulcrum upon which both can swing as a unit, and the second element having a fulcrum upon the first on which it can swing independently, a toothed retainer for an arm on said second element, and means for preventing back movement of the second element after it has been swung on its fulcrum independently of the first to free its arm from the control of said toothed retainer, substantially as specified.

10. In an electric switch, the combination of a duplex operating-lever composed of two elements, the first having a primary fulcrum upon which both can swing as a unit, and the second element having a fulcrum upon the first on which it can swing independently, a toothed retainer for said second element, and a frictional retarding device for the first element, substantially as specified.

11. An electric switch in which are combined a lever and a segment having teeth, said lever being provided with an arm constructed to be moved into engagement with the toothed segment for maintaining the lever in any desired position, mechanical means for returning the lever to an off position, and a stop-tooth placed to come in contact with said arm for arresting the motion thereof when the lever returns to its off position under the influence of said mechanical means, substantially as described.

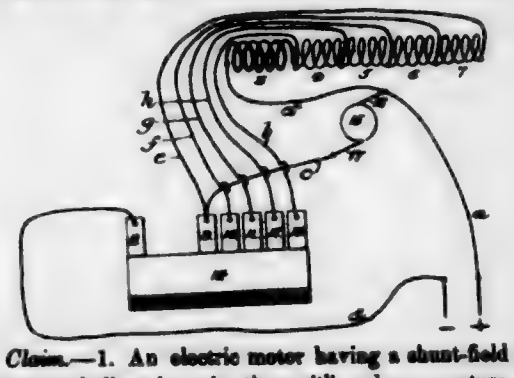
12. An electric switch in which are combined a lever having oppositely-extending arms, and a segment having teeth for engaging with each of said arms to retain the lever in its different positions of adjustment to right or left, and stop-teeth for arresting movement of either arm when the lever reaches a neutral position, substantially as specified.

13. An electric switch in which are combined motor-field terminals, connections for supplying current to said field, and the terminals of a resistance connected as a shunt to the field-circuit whereby said resistance receives current independent of the armature arising from self-induction in the field, substantially as specified.

14. The combination in an electric switch, of generator-terminals motor-field terminals and armature-terminals, a main circuit making and breaking switch controlling both field and armature, and a magnetic relay-switch controlling the field-circuit independently of the main switch and having its magnet in the armature-circuit, substantially as specified.

691,188. MEANS FOR REGULATING ELECTRIC MOTORS.

ADOLPH W. SCHRAMM, Philadelphia, Pa., assignor to the Electro Dental Manufacturing Company, Camden, N. J., a Corporation of New Jersey. Filed Oct. 30, 1899. Serial No. 735,220. (No model.)

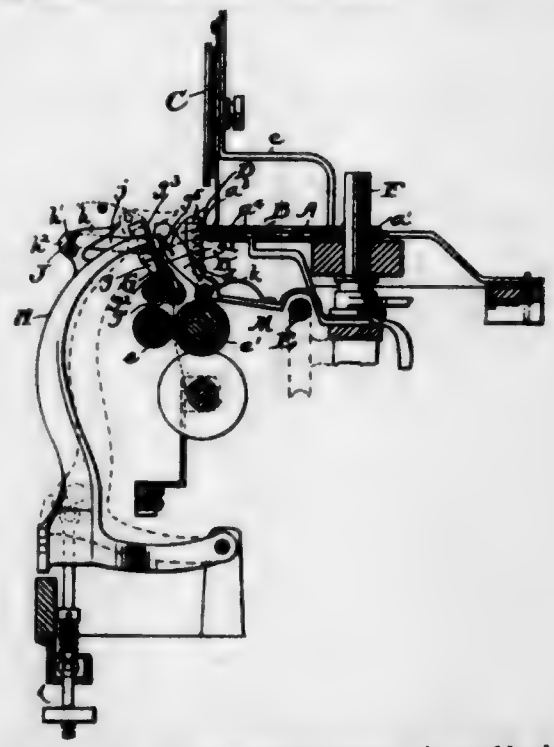


Claim.—1. An electric motor having a shunt-field with a number of reverse windings in series therewith and an armature with one brush connected to one terminal of the shunt-field and the other to the other terminal of said reverse windings, in combination with a switch having contacts connected to said windings, and a movable plate constructed to short-circuit two or more of said contacts, substantially as described.

2. An electric motor having a shunt-field with a number of reverse windings in series therewith and an armature with one brush connected to one terminal of the shunt-field and the other brush connected to the other terminal of said reverse windings, in combination with a switch having contacts connected to said windings, and a movable plate constructed to short-circuit said contacts when the switch is closed, with means for moving said plate off said contacts successively when it is desired to speed up the motor, substantially as described.

691,189. ALINEMENT MECHANISM FOR TYPE-WRITERS.

CHARLES SEARS, Cleveland, Ohio. Filed Sept. 20, 1899. Renewed July 18, 1901. Serial No. 68,838. (No model.)



Claim.—1. In a type-writing machine, the combination of a pivoted type-carrier having an arc-shaped rim with characters on its outer periphery, and a horizontal groove in its inner periphery, with a fixed finger adapted to engage in said groove, substantially as specified.

2. In a type-writing machine, a pivoted type-carrier having an arc-shaped rim having the characters on its outer periphery, and in its inner periphery a horizontal groove, a stationary finger which projects into said groove and a vertical notch crossing said groove, substantially as specified.

3. In a type-writing machine, the combination of a transversely-movable carriage, feed-rolls for the paper mounted on said carriage, and a swinging frame mounted on the carriage on an axis parallel with the feed-rolls, the impression-hammer, and mechanism connecting the hammer and swinging frame whereby the frame is moved by the hammer, substantially as specified.

4. In a type-writing machine, the combination of the transversely-movable carriage, and feed-rolls for the paper mounted thereon, with a swinging frame having two parallel plates between which the paper passes, the impression-hammer having an arm provided with a recess, two links pivotally connected with said swinging frame, and a rod connecting said two links and movable through the recess in the hammer-arm, substantially as specified.

5. In a type-writing machine, the combination of the carriage, feed-rolls for the paper mounted thereon, and a swinging frame consisting of a rock-shaft mounted in said carriage, arms secured to said rock-shaft, two parallel plates secured to said arms, and a strap secured to the arms above said plates, with the impression-hammer having its face behind said strap, and connections between said frame and hammer, substantially as specified.

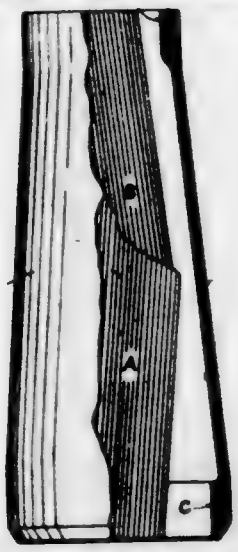
6. In a type-writing machine, the combination of a pivoted type-segment having characters on its outer periphery, a lever pivoted to the machine-frame, a shield for the characters on the type-segment adjacent to the impression-point, a flexible connection between said shield and lever, and means for rocking the lever to carry said shield into and away from its operative position, substantially as specified.

7. In a type-writing machine, the combination of an oscillating type-segment having characters on its outer periphery, the transversely-movable carriage, feed-rolls for the paper mounted thereon, a swinging frame also mounted on said carriage and having parallel plates between which the paper passes, with the impression-hammer, mechanism connecting said impression-hammer and frame, a lever-arm pivoted to the frame of the machine, a spring for holding said arm in engagement with said swinging frame, a shield, and a flexible connection between said shield and lever-arm, substantially as specified.

8. In a type-writing machine containing a pivoted type-carrier, the combination of a transversely-movable carriage, and feed-rollers for the paper mounted thereon, with a swinging frame mounted upon the carriage on an axis parallel with the feed-rollers, a spring-actuated impression-hammer, and mechanism connecting said hammer and swinging frame whereby the hammer moves the frame toward the type-wheel when the hammer is making its impression-stroke, substantially as specified.

9. In a type-writing machine containing a movable carriage upon which feed-rolls are mounted, the combination of a swinging frame which is pivoted at its lower edge on an axis which is parallel with the feed-rolls and has near its upper edge two plates between which the paper may pass, with a pivoted impression-hammer, and mechanism connecting said hammer and swinging frame, substantially as specified.

691,190. ROLLING PACKING-TUBE. ARCHIBALD SHARP, London, England. Filed Oct. 26, 1901. Serial No. 80,143. (Model.)



Claim.—1. A rolling packing-tube for pneumatic or hydraulic apparatus, consisting of india-rubber or other elastic material having embedded in it a plurality of series of parallel threads nearly parallel to the axis of the tube, one series crossing the adjacent series at an acute angle.

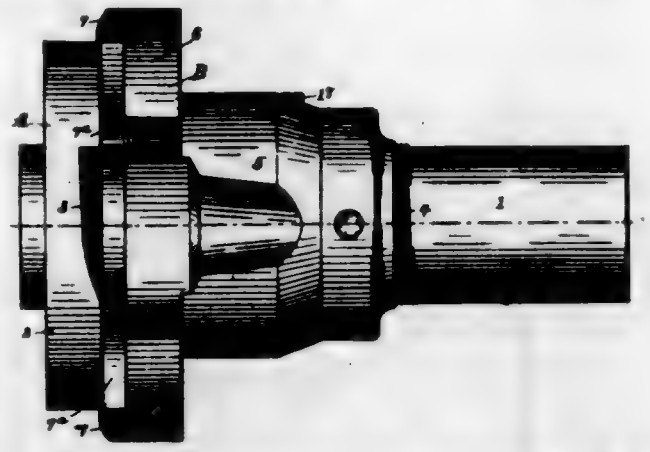
2. A rolling packing-tube for pneumatic or hydraulic apparatus, comprising a conical tube of elastic material reinforced by a series of parallel threads one series crossing the adjacent series at an acute angle, the ends of the tube being thickened, as set forth.

3. The combination with a plunger having a tapered portion, and a cylinder, of a rolling packing-tube having thickened ends, a thimble engaging one of the thickened ends of the tube, means engaging the other end, and a nut on the plunger and serving to press the adjacent thimble against the thickened end of the tube.

4. The combination with a cylinder and the distance-tubes therein, one of which has a tapered surface, of a plunger having a tapered surface, a rolling packing-tube having thickened ends, a thimble engaging one of said ends, and a nut on the plunger engaging said thimble, all substantially as shown and described.

691,191. EXPANSIBLE CUTTER-HEAD. ELMER S. SHIRK, Milton, Pa. Filed Nov. 8, 1901. Serial No. 81,622. (No model.)

Claim.—1. In an expansible cutter-head, a first section having a hub, exteriorly screw-threaded throughout a portion of its length, a second section having a hub slidingly mounted on said hub and having a ledge formed within the bore thereof a beveled spring-pawl mounted on said ledge, and adjusting-nut mounted on the said threaded portion of said hub and having a series of beveled notches therein located to be engaged by said pawl, and a series of balls mounted in a raceway formed in said adjusting-nut and said hub on said second section to couple them together, substantially as described.



2. In an expansible cutter-head, a first section having a hub exteriorly screw-threaded throughout a portion of its length, a second section having a hub slidingly mounted on said hub, and having a ledge and a groove formed in the interior of the bore, a spring-pawl mounted on said ledge, an adjusting-nut mounted on said threaded portion of said hub, and having a series of beveled notches therein located to be engaged by said pawl, and a groove located to coöperate with said groove in said hub to form a raceway, and a series of balls mounted in said raceway, substantially as described.

3. In an expansible cutter-head, a first section having a hub exteriorly screw-threaded throughout a portion of its length, a second section having a hub slidingly mounted on the hub of said first section, an adjusting-nut mounted on said threaded portion of said first section and bearing a series of beveled notches, means for coupling said second section and said adjusting-nut leaving the nut free to turn independent of said second section, and a pawl mounted on said second section and located to engage the said notches on said adjusting-nut to hold said nut against accidental displacement, substantially as described.

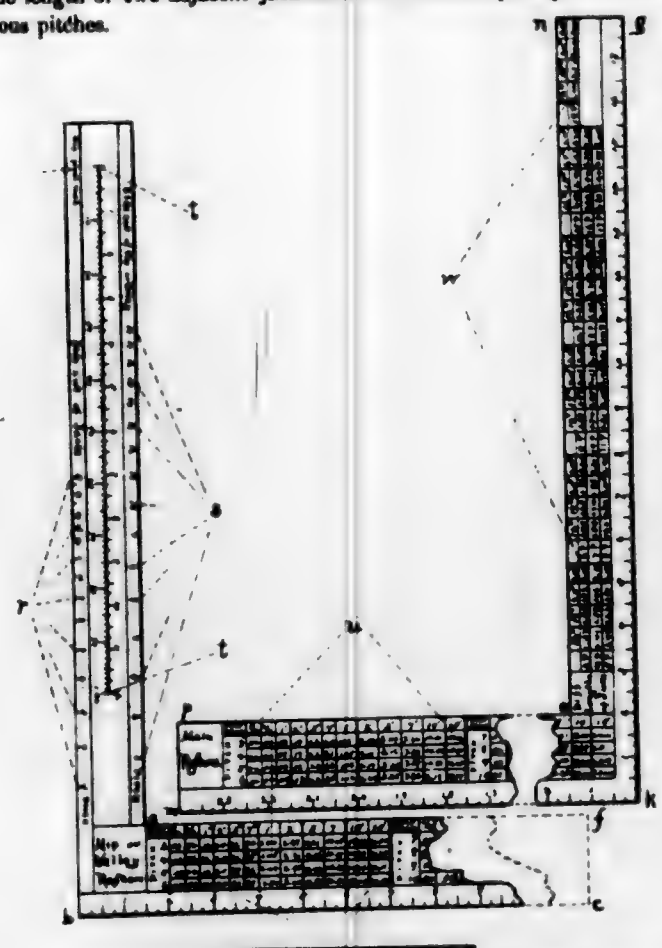
4. In an expansible cutter-head, a first section having a hub exteriorly screw-threaded throughout a portion of its length, a second section having a hub slidingly mounted on the hub of said first section and having a groove therein, an adjusting-nut mounted on the said threaded portion of said first section, and having a series of beveled notches and a groove therein, said groove being located to coöperate with the said groove in said second section to form a raceway, a series of balls mounted in said raceway, and a pawl mounted on said second section in position to engage the said notches in said adjusting-nut to hold it against accidental displacement, substantially as described.

691,192. CARPENTER'S SQUARE. HENRY SMITH and GEORGE H. LEMON, Englewood, N. J. Filed Feb. 20, 1901. Serial No. 48,068. (No model.)

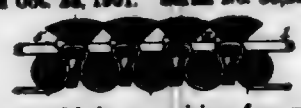
Claim.—1. As a new article of manufacture, a carpenter's square comprising two arms of unequal length perpendicular one to another, the outside edge of the long arm being graduated in inches, and the outside edge of the short arm so graduated and numbered that when the two marks on the respective arms which correspond to the pitch of the roof are placed on the same edge of a jack-rafter, the long arm indicates the angle of the side cut of the rafter; and the inside edge of the short arm so graduated and numbered that when the two marks on the respective arms which correspond to the pitch of the roof are placed upon the same edge of a hip or valley rafter, the long arm indicates the angle for the side cut of the rafter; and the long arm having upon its face a table which gives, for roofs of various pitches the proportional length of a hip or valley rafter for various numbers of inches and feet of span.

2. As a new article of manufacture, a carpenter's square comprising two arms of unequal length perpendicular one to the other, the outside edge of the long arm being graduated in inches, and the outside edge of the short arm so graduated and numbered that when the two marks on the respective arms which correspond to the pitch of the roof are placed on the same edge of a jack-rafter, the long arm indicates the angle of the side cut of the rafter; and the inside edge of the short arm so graduated and numbered that when the two marks on the respective arms which correspond to the pitch of the roof are placed upon the same edge of a hip or valley rafter, the long arm indicates the angle for the side cut of the rafter; and means upon the square for ascertaining for roofs of various

pitches the proportional length of a hip or valley rafter for various numbers of inches and feet of span, and means for ascertaining the difference in the length of two adjacent jack-rafters for various spacing in roofs of various pitches.

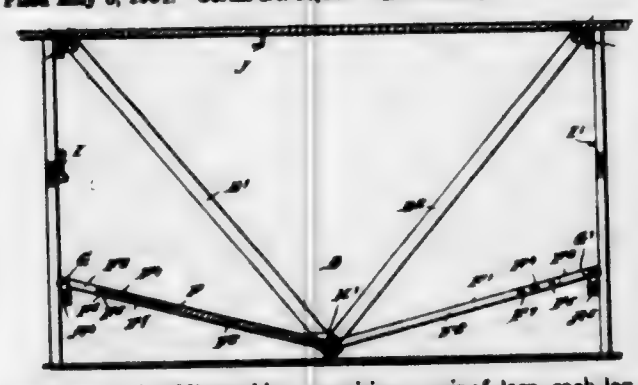


691,198. WOVEN PILE FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed Oct. 24, 1901. Serial No. 80,233. (No model.)



Claim.—A woven fabric comprising face weft-threads of chenille fur, reinforcing face weft-threads, each in a shed with one of the chenille weft-threads, heavy back weft-threads, separator warp-threads interposed between the face and back weft-threads, and binding warp-threads alternating with the separator warp-threads and tying together the face and back weft-threads, substantially as specified.

691,194. FOLDING TABLE. SIMON M. SNOOK, Scranton, Pa. Filed May 3, 1901. Serial No. 58,615. (No model.)



Claim.—1. A folding table, comprising a pair of legs, each leg being provided with a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, said reach being made in parts, a pivot for connecting the reach parts with each other at their lower ends, and braces pivoted to said cross-bars and to said reach parts at the pivot, each brace being made in sections pivotally connected with each other, as set forth.

2. A folding table, comprising a pair of legs, each leg being provided with a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, said reach being made in parts, a pivot for connecting the reach parts with each other at their lower ends, and braces pivoted to said cross-bars and to said reach parts at the pivot, each brace being made in sections pivotally connected with each other, the pivotal connection of the braces being arranged to open up on an upward pressure and to prevent the sections from opening downward when the table is extended, as set forth.

3. A folding table, comprising a pair of legs, each leg being provided with a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, said reach being made in parts, a pivot for connecting the reach parts with each other at their lower ends, and braces pivoted to said cross-bars and to said reach parts at the pivot, each brace being made in sections pivotally connected with each other, one of the sections having a stop-pin spaced from the section-pivot and adapted to engage a recess in the other section and hold the sections against downward opening when the table is extended, as set forth.

4. A folding table, comprising a pair of legs, each leg being provided with a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, said reach being made in parts, a pivot for connecting the reach parts with each other at their lower ends, and braces pivoted to said cross-bars and to said reach parts at the pivot, each brace being made in sections pivotally connected with each other, one of the sections carrying a stop-pin to engage recesses in the other section, the recesses being located at opposite sides of the pivot for the sections, as set forth.

5. A folding table, comprising a pair of legs, each leg having a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, the reach being made in parts each comprising two spaced bars, a pivot for connecting the reach parts with each other at their lower ends, braces connecting the legs with the pivot of the reach and formed in sections pivotally connected and feet on said reach parts at said pivot and forming spacing-blocks to permit the braces to pass between the bars of the reach parts when the table is folded, the said feet being adapted when the parts are folded to swing into position to support the table, as set forth.

6. A folding table, comprising a pair of legs, each leg having a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, the reach being made in parts, a pivot for connecting the reach parts with each other at their lower ends, feet on said reach parts at said pivots and extending outwardly in opposite directions from the reach parts, the feet being adapted when the parts are folded to swing into position to support the table, and a locking device for locking the legs together and holding the several parts in place to allow the device to rest on said feet, as set forth.

7. A folding table, comprising a pair of legs, each leg having a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, the reach being made in parts, a pivot for connecting the reach parts with each other at their lower ends, and feet on said reach parts at said pivot, said feet extending outwardly in opposite directions from the reach parts and adapted when the parts are folded to swing into position to support the table, as set forth.

8. A folding table, comprising a pair of crossed legs, each leg having a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, the reach being made in parts, a pivot for connecting the reach parts with each other at their lower ends, feet on said reach parts at said pivot, said feet extending outwardly in opposite directions from the reach parts and forming a support for the table when the latter is folded, and a table-top having a hook on the under side adapted to hook upon the joint between the crossing parts of one of said legs, the lower edge of the table-top when the hook engages the leg being in horizontal alinement with said feet, to firmly support and hold the folded device in a vertical position on a floor or other support, as set forth.

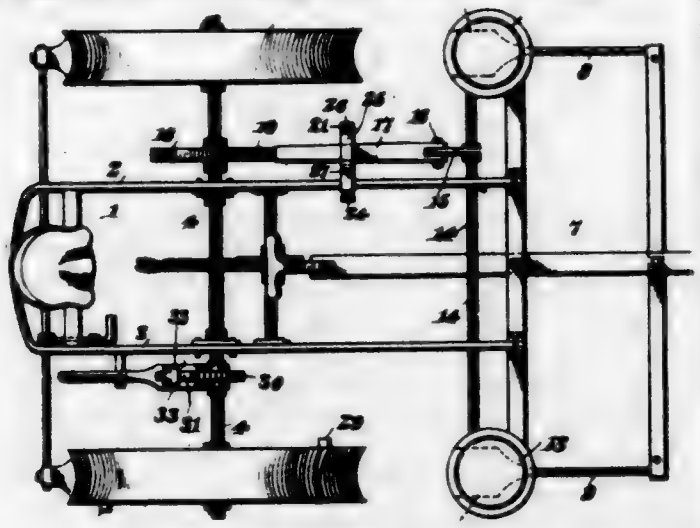
9. A folding table, comprising a pair of crossed legs, each leg being provided with a lower cross-bar, a reach pivotally connected at its ends to said legs at or near the top thereof, said reach being made in parts pivotally connected at their lower ends, feet on said reach parts at the pivot and adapted to swing into supporting position when the parts are folded, and braces pivoted to the said lower cross-bars and to the lower ends of the reach parts at the pivot, the braces being made in sections pivotally connected with each other, as set forth.

691,195. CORN-PLANTER. DAVID SOMERS, URAL SOMERS, and CURTIS POWERS, Ossian, Ind. Filed Aug. 21, 1901. Serial No. 72,842. (No model.)

Claim.—1. In a corn-planter, the combination with a frame, seed-boxes, dropper-tubes, and dropper mechanism, of a pivoted tappet-arm operatively related to the dropper mechanism, a cam operated by the forward movement of the planter to actuate the tappet-arm, an upwardly-opening bearing-bracket secured to the frame at a point intermediate of the ends of the tappet-arm, a movable gate mounted upon the bearing-bracket to confine the tappet-arm therein for actuation by the cam, and to support said arm in an inoperative position, and means for retaining the gate in its closed position.

2. In a corn-planter, the combination with a frame, an axle, carrying-wheels and a cam-wheel fixed on the axle, of seed-boxes, dropper-tubes and feed mechanism within said seed-boxes, an operating-shaft connected with the feed mechanism and provided with a laterally-disposed

rocker-arm, a tappet-arm connected to the rocker-arm and opposed to the cam-wheel, an upwardly-opening bearing-bracket secured to the frame at a point intermediate of the ends of the tappet-arm, a movable gate mounted upon the bearing-bracket to confine the tappet-arm therein for actuation by the cam, and to support said tappet-arm in an inoperative position, and means for retaining the gate in its closed position.



3. In a corn-planter, the combination with a frame, seedboxes and dropper-tubes carried thereby, dropper mechanism, a pivoted tappet-arm operatively related to the dropper mechanism, and a cam operated by the forward movement of the planter and in operative relation with the tappet-arm, of a bearing-bracket provided with a laterally-opening socket for the reception of a frame-bar, and with an upwardly-opening bearing for the reception of the tappet arm, means for securing the bracket to the frame-bar, and a pivoted gate mounted on the bracket and extended across the open side of the upwardly-opening bearing, whereby said gate may confine the tappet-arm in its operative position or sustain said arm in its inoperative position, as desired.

4. In a corn-planter, the combination with a frame, seedboxes and dropper-tubes carried thereby, dropper mechanism, a pivoted tappet-arm operatively related to the dropper mechanism, and a cam operated by the forward movement of the planter and in operative relation with the tappet-arm, of a bearing-bracket formed with a laterally-opening socket for the reception of a frame-bar and with an upwardly-opening bearing for the slidable support of the tappet-arm, a retaining device for securing the bracket to the frame-bar, a spacing-pin located within the bearing and designed to prevent undue sidewise movement of the tappet-arm, a pivoted gate carried by the bracket and closing the upwardly-opening bearing, and means for retaining the gate in its closed position.

691,196. TOBACCO-STEMMING MACHINE. CHARLES R. SPENCER, Baltimore, Md., and LOUIS P. WHITAKER, Washington, D. C., assignors to the Pneumatic Tobacco Stemmer Company, Washington, D. C., a Corporation of West Virginia. Filed Sept. 26, 1901. Serial No. 76,697. (No model.)

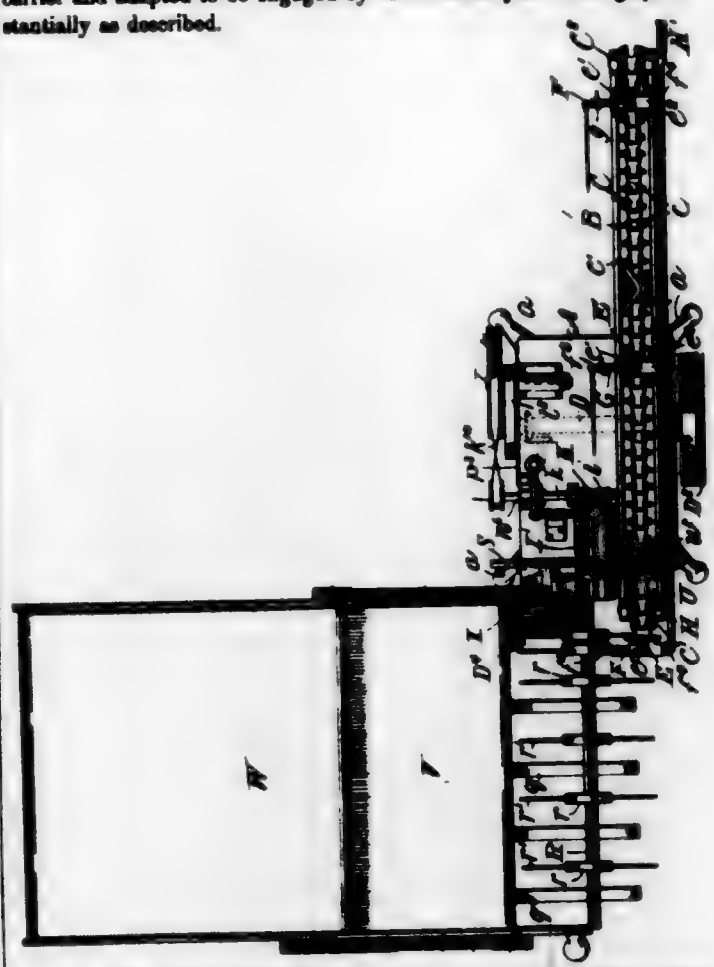
Claims.—1. The combination with the stemming-tube, and the rotating cutter, of an endless moving carrier, a series of normally open gripe carried thereby and arranged to travel over said cutter and stemming-tube, mechanism for closing said grips, and mechanism for opening said grips, substantially as described.

2. The combination with the stemming-tube, and the rotating cutter, of an endless moving carrier, a series of normally open gripe carried thereby and arranged to travel over said cutter and stemming-tube, mechanism for closing said grips, and mechanism for opening said grips, a nozzle located above said cutter, and means for supplying compressed air to said nozzle, substantially as described.

3. The combination with the stemming-tube, and the rotating cutter, of an endless moving carrier, a series of normally open grips carried thereby and arranged to travel over said cutter and stemming-tube, mechanism for closing said grips, and mechanism for opening said grips, means for creating a current of air through the stemming-tube, and a compressed-air jet arranged above said cutter and tube, substantially as described.

4. The combination with the stemming-tube, and the rotating cutter, of an endless moving carrier, a series of normally open grips carried thereby and arranged to travel over said cutter and stemming-tube, mechanism for closing said grips, and mechanism for opening said grips, means for creating a current of air through the stemming-tube, a compressed-air nozzle movably mounted above said cutter in line with the stemming-tube, and a spring for holding said nozzle in its normal position, substantially as described.

5. The combination with stemming devices, of an endless carrier, a series of revolubly-mounted grips carried thereby, each provided with a fixed and a movable jaw, means for rotating each of said grips independently with respect to said carrier, and a cam for each grip secured to said carrier and adapted to be engaged by the movable jaw of the grip, substantially as described.



6. The combination with stemming devices, of an endless carrier, a series of revolubly-mounted grips carried thereby, each provided with a fixed and a movable jaw, a spring holding said movable jaw normally open, means for independently rotating said grips with respect to the carrier to open and close the same, a cam carried by the carrier adjacent to each grip and arranged to be engaged by said movable jaw when the grip is rotated, to close said movable jaw, substantially as described.

7. The combination with stemming mechanisms, of an endless movable carrier, a series of grip members revolubly mounted therein each provided with a fixed jaw, a movable jaw pivoted to each of said grip members and provided with a spring to hold it normally open, a cam secured to the carrier adjacent to each grip, and arranged to engage the movable jaw thereof to close it, when the grip member is rotated, an arm secured to each grip member, and a stationary grip-closing cam located in the path of said arms, substantially as described.

8. The combination with stemming mechanisms, of an endless movable carrier, a series of grip members revolubly mounted therein, each provided with a fixed jaw, a movable jaw pivoted to each of said grip members and provided with a spring to hold it normally open, a cam secured to the carrier adjacent to each grip and arranged to engage the movable jaw thereof to close it, when the grip member is rotated, an arm secured to each grip member, a stationary grip-closing cam located in the path of said arms and adapted to rotate said grip members in one direction and a grip-opening cam arranged in the path of said arms and adapted to rotate said grip members in the opposite direction, substantially as described.

9. The combination with stemming devices, of an endless carrier, a series of revolubly-mounted grips carried thereby, each provided with a fixed and a movable jaw, means for rotating each of said grips independently, and a cam for each grip, arranged to engage the movable jaw thereof when the grip is rotated, and connected with the carrier by a spring connection whereby said cam can yield to accommodate stems of various thicknesses, substantially as described.

10. The combination with stemming devices, of a guide, an endless chain having a portion adapted to travel through said guide, grip-carrying blocks carried by said chain and provided with portions for engaging the said guide, grips mounted revolubly in said blocks, provided each with a fixed and a movable jaw, a cam secured to each block, in position to engage and close the movable jaw of its grip, when the grip is rotated, means for rotating said grips and means for driving said chain, substantially as described.

11. The combination with stemming devices, of a grooved guide, an endless chain composed of separable links, having a portion adapted to travel through said guide, a series of grip-blocks, each provided with a

link, forming part of said chain, and a part engaging said guide, a grip secured to each of said grip-blocks, means for opening and closing said grips and means for driving said chain, whereby said grip-blocks and grips may be inserted in said chain at any desired interval, substantially as described.

12. The combination with stemming devices, of an endless moving carrier, provided with a series of grips, means for opening and closing said grips, an auxiliary device for feeding leaves singly to said grips while they are in open position, operating mechanism therefor, and a part secured to said carrier, in a determined relation with each of said grips, for actuating said operating mechanism, substantially as described.

13. The combination with stemming devices, of an endless moving carrier, provided with a series of grips adjustably connected thereto, whereby they may be arranged at different intervals on said carrier, an auxiliary feeding device for feeding the leaves singly to said grips, means for opening and closing said grips, operating devices for said auxiliary feeding devices, and a part adjustably secured to said carrier, in a determined relation to each grip, for actuating said operating devices, substantially as described.

14. The combination with stemming devices, of a grooved guide, an endless chain composed of separable links, having a portion adapted to travel through said guide, a series of grip-blocks, each provided with a link, forming part of said chain, and a part engaging said guide, a grip secured to each of said grip-blocks, means for opening and closing said grips and means for driving said chain, whereby said grip-blocks and grips may be inserted in said chain at any desired interval, an auxiliary feeding device for said grips operating devices therefor and blocks provided with links forming part of the chain, with parts to engage said guide and having parts to engage and actuate the operating devices for the auxiliary feeding device, substantially as described.

15. In a stemming-machine, the combination with the stemming-tube and means for creating a current of air therethrough, of a rotary knife-shaft and a knife located thereon, adjacent to the stemming-tube and comprising a pair of hubs, provided with radial recesses, and a series of blades located in the recesses of both hubs, each blade being provided with a recess to receive the stems of the leaves, substantially as described.

16. In a stemming-machine, the combination with the stemming-tube and means for creating a current of air therethrough, of a rotary knife-shaft and a knife located thereon adjacent to the stemming-tube and comprising a pair of hubs, provided with radial recesses, and a series of blades located in the recesses of both hubs, each blade being provided with a U-shaped recess, to receive the stems of the leaves, substantially as described.

17. In a stemming-machine, the combination with the stemming-tube and means for creating a current of air therethrough, of a rotary knife located adjacent to the stemming-tube and provided with a series of radial blades, each provided with a U-shaped recess to receive the stems of the leaves, substantially as described.

18. The combination with stemming devices, of an endless carrier, provided with a series of grips, means for driving said carrier, means for opening and closing said grips, a hopper provided with devices for supporting the leaves, a revoluble reel, provided with projections for engaging said leaves and feeding them to the grips, and mechanism for imparting an intermittent movement to said reel, substantially as described.

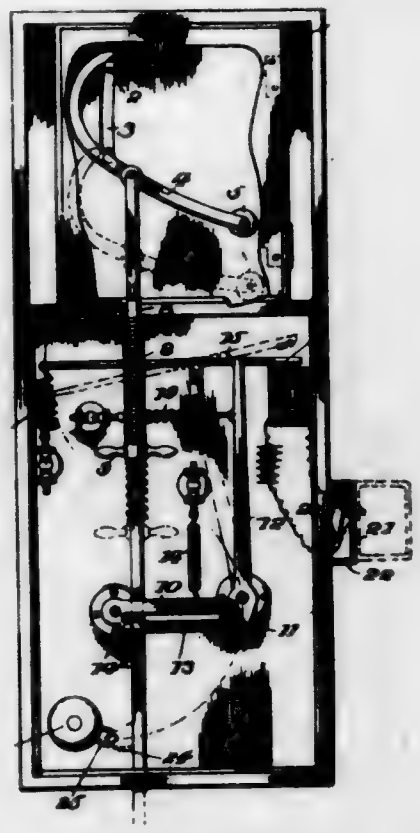
19. The combination with stemming devices, of an endless carrier provided with a series of grips, means for driving said carrier, means for opening and closing said grips, a hopper provided with devices for supporting the leaves, a revoluble reel, provided with projections for engaging said leaves and feeding them to the grips, and mechanism for imparting an intermittent movement to said reel, a slowly-moving feeding apron or conveyer, and a rapidly-moving apron or conveyer interposed between the slowly-moving conveyer and said hopper, substantially as described.

691,197. FIRE-ALARM APPLIANCE. DANIEL T. SPRING and ANDREW LOSH, Wheeling, W. Va. Filed Sept. 24, 1901. Serial No. 76,286. (No model.)

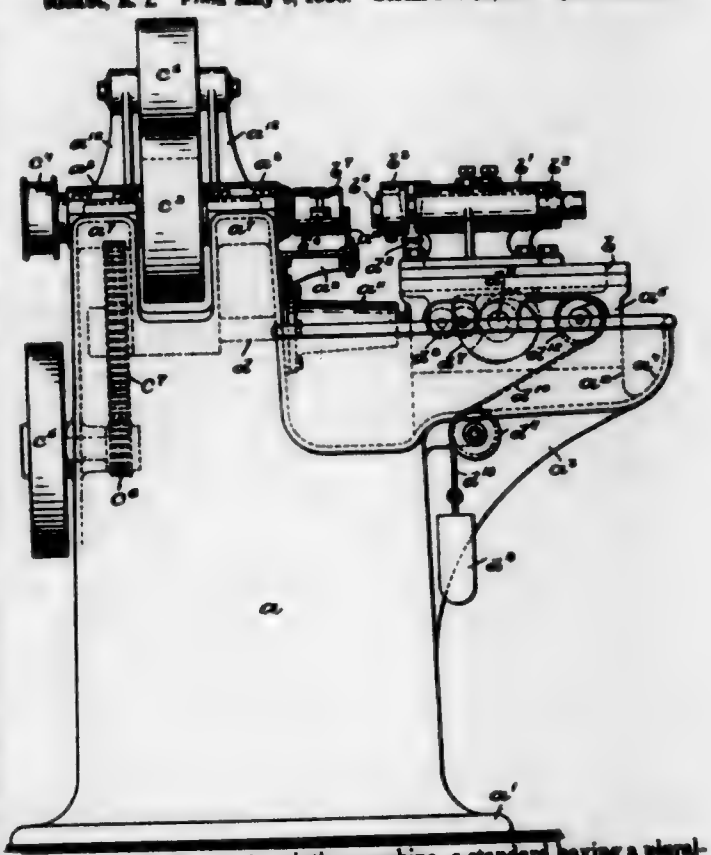
Claim.—1. In a fire-alarm system, and in combination with the alarm-box, a pull-bar, a trip-hook having pivotal connection with the pull-bar, and having an end normally extended in the path of the alarm-setting device, and actuating means for moving the pull-bar, a restraining mechanism for holding the pull-bar in a normal position against the action of its operating mechanism, and a releasing mechanism for the said pull-bar including an armature-lever and electromagnet, substantially as set forth.

2. In a fire-alarm system, and in combination with the alarm-box, a pull-bar having an end portion extended in the path of the door by means of which access is had to the alarm-box, said extended portion being jointed to be turned aside, connecting means between the pull-bar and the alarm-setting mechanism, means for holding the pull-bar in a normal position, a releasing mechanism for the pull-bar and including an armature-lever and the electromagnet, substantially as set forth.

3. In a fire-alarm system, and in combination with an alarm-box having a pull-pin, a pull-bar, restraining and releasing mechanisms cooperatively related thereto, and a trip-hook pivoted intermediate of its ends to the pull-bar and having its hooked end normally extended in the path of the aforesaid pull-pin, and having a roller at its opposite end to effect a release of the trip-hook from the pull-pin, substantially as set forth.



691,198. BOLT-POINTING MACHINE. JACOB STEPHANS, Pawtucket, R. I. Filed May 9, 1900. Serial No. 16,014. (No model.)



Claim.—1. In a bolt-pointing machine, a standard having a plurality of shaper-carrying spindles arranged thereon and longitudinally thereof, a shelf or table secured to one side of the standard and longitudinally thereof, a plurality of work-feeding devices arranged on the table, a pulley on each spindle-shaft, a single belt running on all the pulleys to rotate them, a single shaft arranged longitudinally of the shelf and operating the work-feeding devices, and operating mechanism connecting the shaft and one of the spindles, substantially as described.

2. In a bolt-pointing machine, a standard having a shelf or table arranged at one side and longitudinally thereof, a series of work-feeding devices arranged upon and longitudinally of the shelf, a shaft arranged longitudinally of the shelf and provided with a series of cams, said cams

adapted to operate the work-feeding devices, a second and driving shaft mounted on the standard at right angles to the cam-shaft, and means including a clutch for connecting the driving-shaft with the cam-shaft, substantially as described.

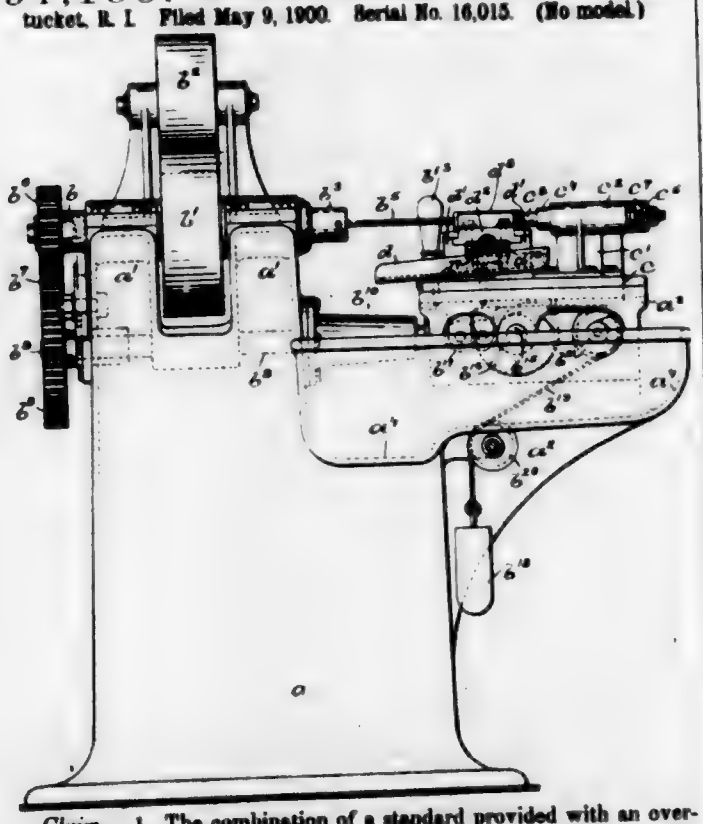
3. The combination of a rotary tool-carrier and a work-holder, the two said parts having relative adjustment toward and away from each other, the said tool-holder being adapted to receive the piece of work laterally so that it may be lowered therein into position for the tool to act upon it, and an independent support located between said parts for supporting the work from beneath, substantially as and for the purpose set forth.

4. In a bolt-pointing machine, a hollow, cast-metal standard having two pillow-blocks forming the support of two or more spindles, forwardly-projecting beds forming the supports for the blank-feeding devices, a trough extending along the two sides and the front of the forwardly-projecting beds, ways on the beds parallel to the spindles, reciprocating carriages on the ways, adjustable blank-supports on the carriages, means for rotating the spindles, a shaft extending longitudinally parallel with the spindles, mechanism connecting one of the spindles with the longitudinal shaft, a transversely-extending shaft, and cams on the transverse shaft for actuating the carriages, whereby the blanks are automatically fed to the cutter and withdrawn, as described.

5. In a bolt-pointing machine, in combination with two or more spindles, mechanism for rotating the spindles, and two or more work-supporting carriages sliding in ways parallel to the axis of the spindles, of a shaft supported in bearings parallel to the axis of the spindles, a clutch on the shaft, an operating-lever connected with the sliding part of the clutch, a bevel-gear on the clutch, a transverse shaft provided with a bevel-gear engaging with the bevel-gear on the clutch, cams on the transverse shaft for moving the carriages toward the spindles, and weights connected with straps to the carriages for moving the carriages back from the spindles, as described.

6. In a bolt-pointing machine, the combination with the spindles c c, placed side by side, the cutter-heads b^7 on the spindles, the shaper b^8, and the perforated block b^9 in the head, of the carriages b b, the standard b' on the carriages, the spindle b^3, the head b^2 on the spindle, the holder b^5 open on one side formed to receive the head of the bolt and hold it against rotation, a stud on the holder detachably secured in the head b^2, mechanism for rotating the spindles, and mechanism for reciprocating the carriages, as described.

691,199. NUT-TAPPING MACHINE. JACOB STEPHANS, Pawtucket, R. I. Filed May 9, 1900. Serial No. 16,015. (No model.)



Claim.—1. The combination of a standard provided with an overhanging support at the front thereof and a trough extending around three sides of the said overhanging front, a set of rotary tool-carrying spindles mounted side by side parallel to each other upon the standard and provided with means for driving the spindles in the same direction, a set of horizontally-reciprocating tables provided with guideways located upon said overhanging front and means for reciprocating said tables, a nut holder and guide arranged in stationary position over each of said tables, and a nut-pusher mounted upon each of said tables at the forward end thereof and adapted to enter said holder and guide to push the nut through the same in the direction of the tool-spindles, substantially as and for the purpose set forth.

2. In a nut-tapping machine, a horizontal rotatable tap-rod held against longitudinal movement, a horizontally-reciprocating carriage, a stock on the carriage, a spring-pressed piston mounted in the stock, a nut-pusher detachably secured in the piston, a separate nut-support detachably secured to the machine and having longitudinal grooves in which the nut and pusher may slide, means for rotating the tap-rod, and means for reciprocating the carriage, substantially as described.

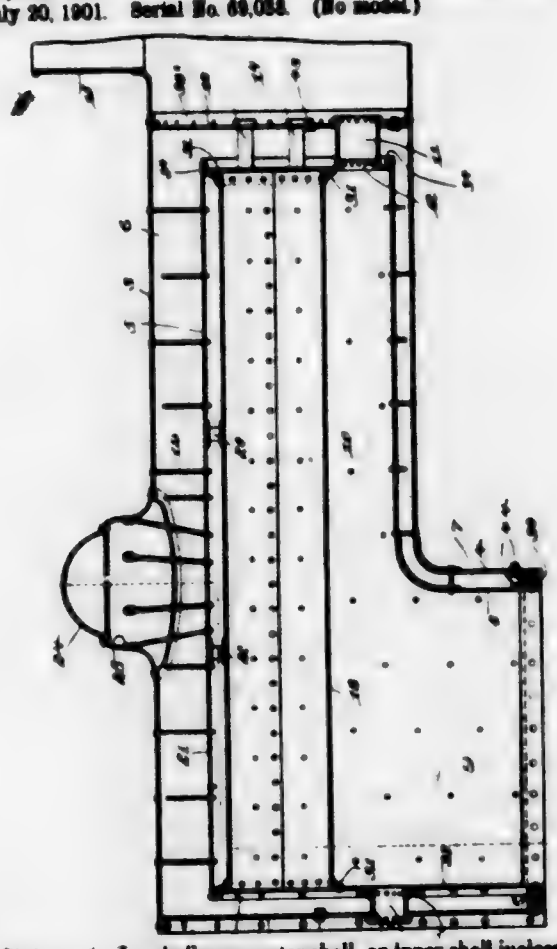
3. In a bolt-tapping machine, the combination with the standard, a head-stock on one end of the standard, a plurality of spindles placed parallel to each other journaled in the head-stock, tapping-rods on the spindles and a plurality of stationary nut-guides, of a plurality of reciprocating carriages, ways for the reciprocating carriages placed parallel to each other, spring-pressed pushers on the carriages, means for rotating the spindles, a central shaft, and a cam-shaft for operating the reciprocating carriages, whereby a number of nuts may be tapped simultaneously with screw-threads differing in pitch, as described.

4. In a nut-tapping machine, in combination, two or more spindles, tap-rods in the ends of the spindles, means, comprising a belt, for rotating all the spindles in the same direction, two or more carriages, a cam-shaft extending transversely under the carriages, actuating-cams on the cam-shaft, one for each carriage, mechanism intermediate the cam-shaft and one of the spindles, stocks on the carriages, cylinders in the stocks, and spring-pressed pistons in the cylinders, nut-pushers yieldingly supported by the pistons, and adjustable jaws for guiding the nut-blanks, as described.

5. In a nut-tapping machine, a combined holder and guide consisting of two carriages detachably mounted on the machine and adjustable toward and away from each other, a jaw adjustably mounted in each carriage, a longitudinal groove in each jaw into which a portion of the nut may enter and be held thereby against rotation, and an enlargement of the grooves at one end to permit insertion of the nut, substantially as described.

6. The combination of a rotary horizontal tool-carrying spindle and means for driving it, a horizontally-reciprocating table moving in a plane parallel with the axis of the spindle and means for actuating it, a tray fixed above and across the end of the reciprocating table nearest to the spindle and independently of the table, an adjustable work-holder and guide mounted upon said tray and in axial alinement with said spindle, and a spring-mounted work-pusher located upon the far end of said reciprocating table and adapted to project into said work-holder and guide to push upon the work, substantially as and for the purpose set forth.

691,200. BOILER. NATHAN P. STEVENS, Concord, N. H. Filed July 20, 1901. Serial No. 69,084. (No model.)



Claim.—1. In a boiler, an outer shell, an inner shell inclosed therein and spaced therefrom to form an annular water-chamber between said

shells, said inner shell containing a fire-box and comprising a combustion-chamber and a plurality of water-chambers extending longitudinally through the inner shell and connecting the water-spaces at the ends thereof, said chambers having a substantially elliptical cross-sectional area and being situated side by side in a single transverse row.

2. In a boiler, an outer shell, an inner shell inclosed therein and spaced therefrom to form an annular water-chamber, said inner shell comprising the combustion-chamber, stay-bolts uniting said shells, and a single transverse row of water-chambers extending longitudinally of the inner shell and connecting the water-spaces at the ends thereof, said chambers being substantially elliptical in cross-section and having their longer diameters substantially vertical.

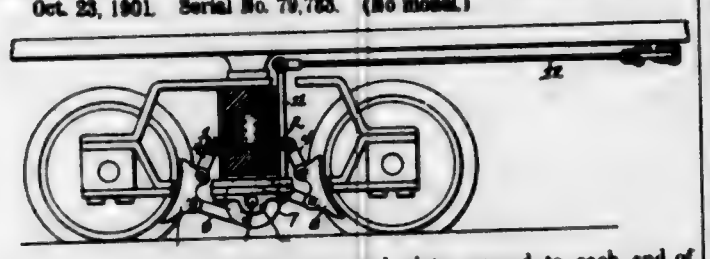
3. In a boiler, an outer shell, an inner shell inclosed therein and spaced therefrom to form an annular water-chamber between said shells, said inner shell containing a fire-box and constituting a combustion-chamber, and a plurality of tubular shells extending longitudinally through the inner shell and forming water-chambers which connect the water-spaces at the ends of said inner shell, said tubular shells having flanges on their ends which are riveted to the heads of said inner shell.

4. In a boiler, an outer shell, an inner shell inclosed therein and spaced therefrom to form an annular water-chamber between the shells, said inner shell constituting the combustion-chamber and the upper side thereof being flattened and forming a crown-sheet extending the length of the boiler whereby the heating-surface is increased, combined with a single transverse row of water-chambers extending longitudinally through the said inner shell and connecting the water-spaces at the ends thereof, said chambers being substantially elliptical in cross-section and having their longer diameters substantially vertical.

5. In a boiler, an outer shell, an inner shell inclosed therein and spaced therefrom to form an annular water-chamber between said shells, each of said shells having heads set into the ends thereof and provided with outturned flanges which are rivited to the shell, said inner shell constituting a combustion-chamber and having a plurality of elliptical water-tubes extending longitudinally thereof, said tubes having their longer diameters in a substantially vertical plane.

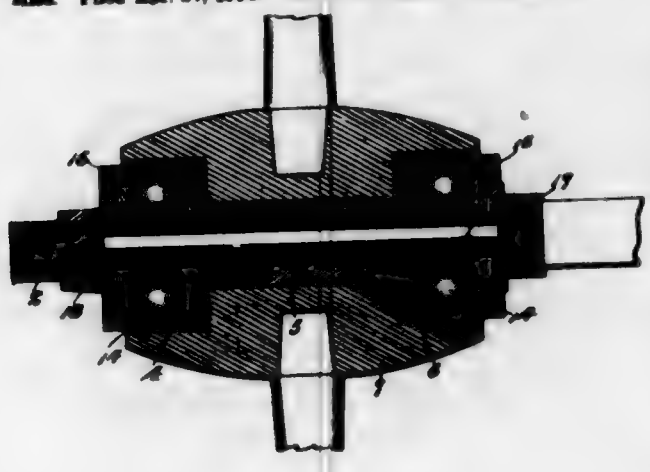
6. In a boiler, an outer shell, an inner shell inclosed therein and spaced therefrom to form an annular water-chamber between said shells, a single transverse row of tubular shells extending longitudinally through the inner shell and forming a plurality of enlarged water-chambers which connect the water-spaces at the ends of said inner shell, said shells each having its longer diameter substantially vertical.

691,201. CAR-BRAKE. HENRY S. STIER, St. Louis, Mo. Filed Oct. 23, 1901. Serial No. 79,783. (No model.)



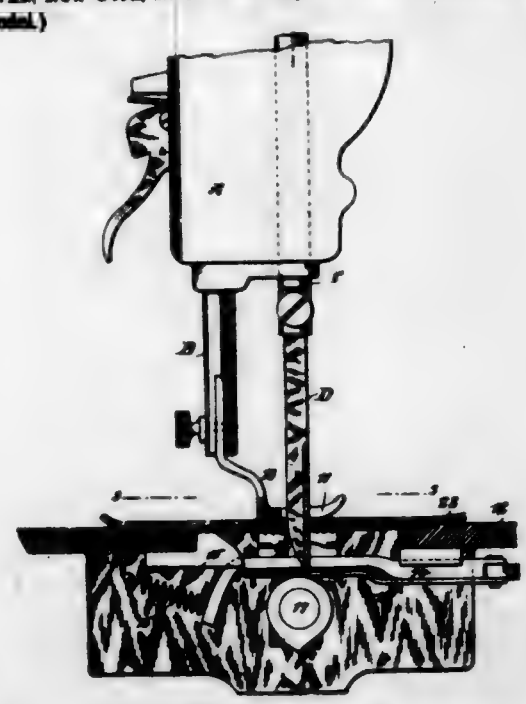
Claim.—In a car-brake a supported plate secured to each end of the lower bolster, links pivoted to said plates, brake-shoes connected to said links, a transverse rod supported by the lower bolster, a casting having recesses formed therein fixed to each end of said rod, rods 9 having their ends pivoted within said recesses connecting the casting to the brake-shoes, so that when the transverse rod is turned the brake-shoes will be applied to or removed from the wheels, and an operating-lever connected to the said transverse rod.

691,202. BALL-BEARING BOX. OTTO STUHLMAN, Fort Adams, Miss. Filed Apr. 27, 1901. Serial No. 57,756. (No model.)



Claim.—In combination with the spindle of the axle having threaded portions at its respective ends, of oppositely-arranged caps fitted to the said threaded portions, and having inwardly-projecting circular flanges, sleeves, having bores of larger diameter than the spindle, having annular collars screw-threaded on their perimeter and annular ball-bearing races, and extending under the overhanging flanges of the said caps, end rings having interior threads to engage the collars of said sleeves, ball-bearings between the sleeves, the caps and the rings, an intermediate sleeve interlocking with the other sleeves, a hub portion arranged thereon, to rotate with the sleeves, and a fastening-nut, substantially as described.

691,203. MACHINE FOR CUTTING PATTERNS. JAMES SULLIVAN, New York, N. Y. Filed Apr. 19, 1900. Serial No. 13,505. (No model.)



Claim.—1. A machine for cutting patterns, comprising a table provided with an opening, a vertically-reciprocating knife in said opening, a feed-plate at right angles to said knife, a reciprocating rod upon which said feed-plate is mounted, a heart-cam and a lever connected thereto for actuating said reciprocating rod in a longitudinal direction parallel with the table, a spring for actuating said rod in the opposite direction, and a heart-cam for actuating said feed-plate in a direction at right angles to the table.

2. A machine for cutting patterns, comprising a table provided with an opening, a vertically-reciprocating knife in said opening, a feed-plate at right angles to said knife, a reciprocating rod upon which said feed-plate is mounted, a heart-cam and a lever connected thereto for actuating said reciprocating rod in a longitudinal direction parallel with the table, a spring for actuating said rod in the opposite direction, a heart-cam for actuating said feed-plate in a direction at right angles to the table, a reciprocating plate located between said heart-cam and said reciprocating rod, and means for actuating said reciprocating plate longitudinally in either direction.

691,204. LENO-SELVAGE MOTION. HORACE H. SUTCLIFFE, Philadelphia, Pa. Filed Aug. 30, 1901. Serial No. 72,656. (No model.)

Claim.—1. The combination, with a grooved frame, of needles, a plate connecting said needles and of width less than the width of said groove, said plate being adapted to move vertically and laterally in said grooved frame.

2. The combination, with a grooved frame, of needles, a plate connecting said needles and of width less than the width of said groove, said plate being adapted to move vertically and laterally in the grooved frame and guides adapted to directly limit and guide the free ends of said needles in their lateral and vertical movement.

3. The combination, with a grooved frame, of needles, a plate connecting said needles and of width less than the width of said groove, said plate being adapted to move vertically and laterally in the grooved frame and guides adapted to directly limit and guide the free ends of said needles in their lateral and vertical movement, the inner faces of said guides being rounded.

4. The combination, with a grooved frame, of needles, a plate connecting said needles and of width less than the width of said groove, said plate being adapted to move vertically and laterally in the grooved frame, the tails of said needles being bent beyond the lower part of the said frame.

5. The combination, with a grooved frame, of needles, a plate con-

necting said needles and of width less than the width of said groove, said plate being adapted to move vertically and laterally in the grooved frame and guides adapted to limit and guide the free ends of said needles in their lateral and vertical movement, the tails of said needles being bent beyond the lower part of the said frame.



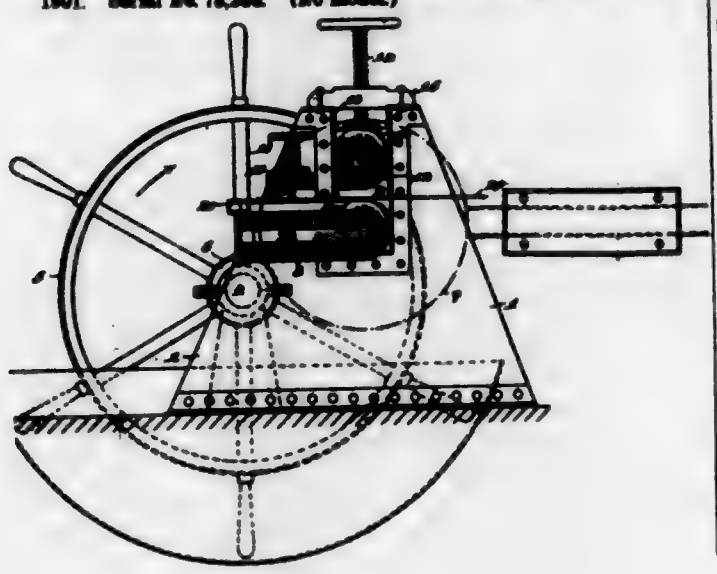
6. The combination, with a grooved frame, of needles, a plate connecting said needles and of width less than the width of said groove, said plate being adapted to move vertically and laterally in the grooved frame and guides adapted to limit and guide the free ends of said needles in their lateral and vertical movement, the inner faces of said guides being rounded, the tails of said needles being bent beyond the lower part of the said frame.

7. In a device of the character described, in combination with the needles connected together at one end, and means to move said needles vertically and laterally, of guides in line of movement of the vertical and lateral movement of and coacting with the free ends of the needles.

8. In a device of the character described, in combination with the needles, connected together at one end, and means to move said needles vertically and laterally, of guides in line of movement of the vertical and lateral movement of the free ends of said needles, the surface of said guides coacting with said needles being rounded.

9. In a device of the character described in combination with a tubular frame, of needles movable vertically and laterally in said tubular frame, the wall limiting the lateral movement of said needles and guiding the needles in their vertical movement.

691,205. MACHINE FOR BENDING SHEET-METAL PLATES. ADOLPH SWOBODA and HERMANN ROTHE, Berlin, Germany. Filed Oct. 11, 1901. Serial No. 78,286. (No model.)



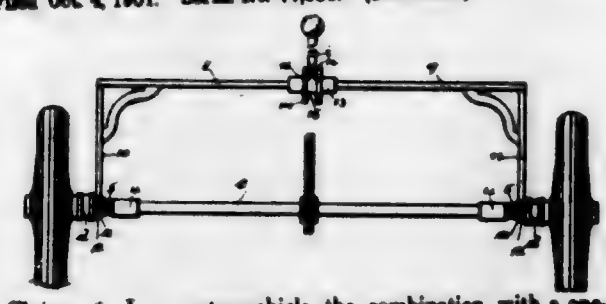
Claim.—1. In a metal-plate-bending machine, two longitudinally-curved rollers, and the pressing and work-holding bar.

2. In a metal-plate-bending machine, two longitudinally-curved rollers, one of said rollers being hollow to receive a cooling medium, and the pressing and work-holding bar.

3. In a metal-bending machine, the upper and lower curved rollers, gear connections between the rollers, adjustable bearings for the upper roller, and the adjustable pressure-bar.

4. A machine for bending metal plates in two directions, comprising two rollers, the shape of which corresponds to the radii of curvature it is desired to obtain, and a presser-bar serving to hold the plate whereupon the bending of the plate arranged between the two rollers is effected in the other direction upon the turning of said rollers with relation to each other, substantially as specified.

691,206. MOTOR-VEHICLE. GEROME F. TADINI, New York, N. Y. Filed Oct. 4, 1901. Serial No. 77,533. (No model.)



Claim.—1. In a motor-vehicle, the combination with a one-piece driving-axle and wheels therefor, of threaded cone-clutch connections between the said axle and the hubs of said wheels whereby in rounding curves the outer of said wheels will be freed by its increased velocity, substantially as specified.

2. In a motor-vehicle, the combination with a one-piece driving-axle and wheels therefor, of threaded cone-clutch connections between the said axle and the hubs of said wheels whereby in rounding curves the outer of said wheels will be freed by its increased velocity, substantially as specified.

3. In a motor-vehicle the combination with a one-piece driving-axle, of threaded cone-clutches on said axle, means permitting longitudinal movement and preventing the said clutches from turning on the said axle, wheels on the said axle the inner ends of the hubs of which are enlarged to receive and are adapted to be engaged by the said clutches, and means for determining the positions of the said clutches on the said axle, substantially as set forth.

4. In a motor-vehicle, the combination with a one-piece driving-axle, of threaded cone-clutches on said axle, means permitting longitudinal movement and preventing the said clutches from turning on the said axle, wheels on the axle, the inner ends of the hubs of which are enlarged to receive and are adapted to be engaged by the said clutches, and means for shifting and operating the clutches upon the freeing of the wheels, substantially as specified.

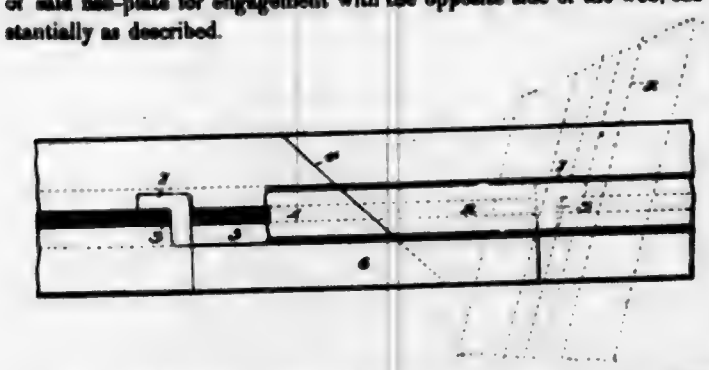
5. In a motor-vehicle, the combination with a one-piece driving-axle, of threaded cone-clutches on said axle, means permitting longitudinal movement and preventing the said clutches from turning on the said axle, wheels on the axle, the inner ends of the hubs of which are enlarged to receive and are adapted to be engaged by the said clutches, and means for keeping both wheels clutched, substantially as specified.

6. In a motor-vehicle, the combination with a one-piece driving-axle, of threaded cone-clutches on said axle, means permitting longitudinal movement and preventing the said clutches from turning on the said axle, wheels on the axle, the inner ends of the hubs of which are enlarged to receive and are adapted to be engaged by the said clutches, and means for freeing one wheel and clutching the other wheel, and also for keeping both wheels clutched at pleasure, substantially as specified.

7. In a motor-vehicle, the combination with a one-piece driving-axle, of threaded cone-clutches on said axle, means permitting longitudinal movement and preventing the said clutches from turning on the said axle, wheels on the axle, the inner ends of the hubs of which are enlarged to receive and are adapted to be engaged by the said clutches, a pivoted foot-lever, a toothed segment carried by said lever, bars connected to the said clutches the inner ends of the bars being provided with right and left hand threads respectively, a collar fitting over the said inner ends of the bars the said collar having a circumferentially-recessed flange, at the bottom of which are teeth meshing with those of the toothed segment, and means for operating the said lever whereby either of the wheels or both of the wheels may be locked at pleasure, substantially as set forth.

691,207. RAIL-JOINT. HERMAN THIESMANN, Pittsburg, Pa. Filed Oct. 26, 1901. Serial No. 80,022. (No model.)

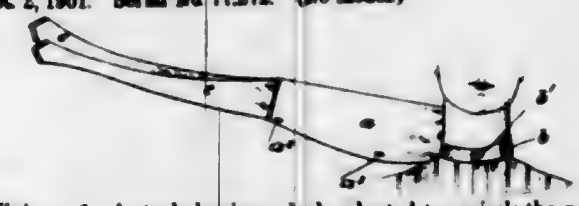
Claim.—1. A rail-joint which comprises a base-plate carrying a fish-plate engaging one side of the rail-web and an angular lug on each end of said fish-plate for engagement with the opposite side of the web, substantially as described.



2. A rail-joint comprising an integral fish-plate each end of which has an angular lug, said fish-plate engaging one side of the said rail-web and the said angular lugs each engaging the opposite side, substantially as described.

3. A rail-joint which comprises a single fish-plate carrying an angular lug on each end thereof, in combination with rails having openings formed therein for the reception of said lugs engaging one side of the rail-web, the fish-plate engaging the opposite side thereof, the rails having their ends cut at an angle whereby one rail may be swung at an angle to the other and the rails disengaged, substantially as described.

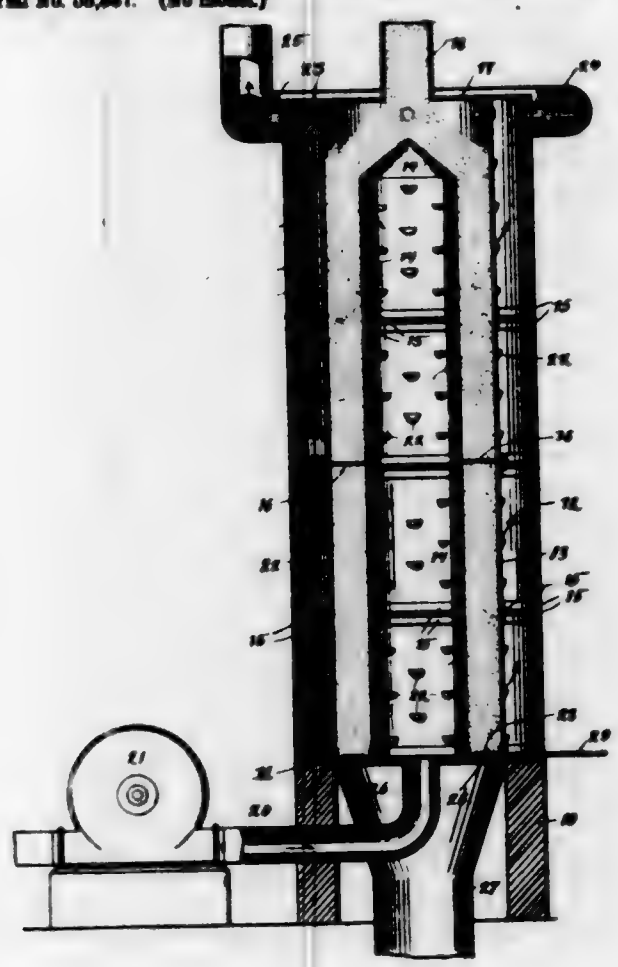
691,208. NECKWEAR. JERSEY A. TURNER, Norfolk, Va. Filed Oct. 2, 1901. Serial No. 77,272. (No model.)



Claim.—1. A stock, having a body adapted to encircle the neck, an extension at one end of the body, and two tie-ribbons at the other end of the body, said tie-ribbons being each capable of half encircling the neck and of being tied together.

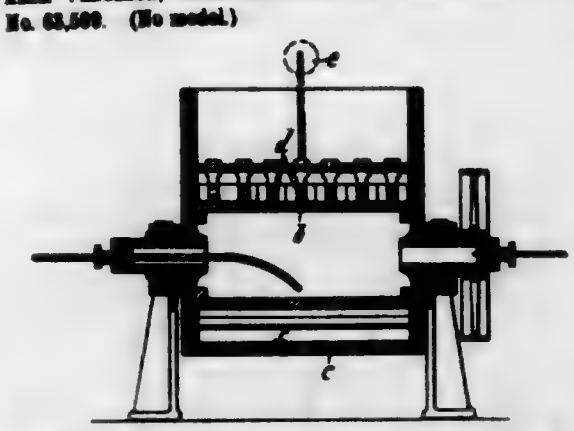
2. A stock, having a body capable of completely encircling the neck, an extension at one end, said extension being capable of half encircling the neck, and tie-ribbons fastened to the other end of the body.

691,209. APPARATUS FOR DRYING GRAIN. WILLIAM TWEEDALE and WILLIAM L. HARVEY, Chicago, Ill. Filed Mar. 29, 1901. Serial No. 53,287. (No model.)



Claim.—A drying apparatus comprising inner, intermediate and outer walls separated to form corresponding spaces and chambers, the inner and outer spaces or chambers being for hot air or the like while the intermediate space or chamber is for the reception of the material to be dried; said inner and intermediate walls being formed of sheet metal having plain opposing faces (i. e., without offsets) to permit a free passage of the material to be dried and having ports stamped from the body of the metal whereof said walls are formed, the offset metal forming said ports lying entirely upon the sides of said walls away from their opposing faces and the tops of said offset metal portions terminating at approximately the top lines of the openings in said walls.

691,210. APPARATUS FOR CONCENTRATING LIQUIDS. WILHELM VERDLETH, Darmstadt, Germany. Filed June 7, 1901. Serial No. 63,599. (No model.)



Claim.—1. In an apparatus for the concentration of liquids the combination with a liquid-containing receptacle, of a single hollow roller mounted therein, the said roller preserving the same diameter throughout its entire length and extending through the walls of the receptacle in such manner that the ends of the roller are in the same vertical plane with the outer face of the receptacle and forming a snug fit therewith, and means for heating the roller, the structure being such that the heating-surface of the roller will extend through the receptacle from end to end, substantially as set forth.

2. An apparatus for concentrating liquids, comprising a liquid-holding receptacle, discharging-doors in the bottom of said receptacle, a hollow rotating roller arranged in the center of the said receptacle, the ends of the said roller fitting closely in apertures formed in the end walls of the receptacle, and means for introducing a heating agency into the hollow roller, the structure being such that all the liquid in the receptacle will be brought into contact with the periphery of the roller only, substantially as described.

3. An apparatus for concentrating liquids, comprising a liquid-containing receptacle, having a semicylindrical bottom, discharging-doors in the said bottom, a single hollow heating-roller mounted with its axis concentric with the curved bottom portion of the liquid-receptacle, means for rotating said hollow roller, and means for scraping substances from the periphery thereof, substantially as described.

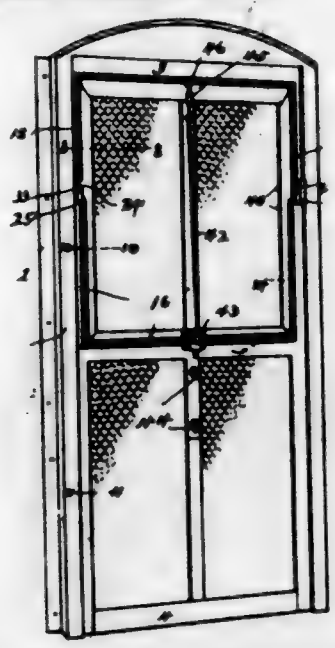
4. An apparatus for concentrating liquids consisting of a liquid-holding receptacle, a hollow heating-roller mounted to revolve within said receptacle, means for scraping the periphery of the roller, said means comprising a shaft journaled in the receptacle above the roller, a series of scrapers, each scraper being rigidly secured to the shaft at its upper end, a relatively long arm also secured to said shaft, a weight mounted on said arm, the construction and arrangement being such that the pressure of the scrapers on the roller is regulated by the said arm and weight.

691,211. FIREPROOF WINDOW. FRANK VOIGTMANN and SILAS H. POMEROY, Chicago, Ill. Filed Nov. 12, 1900. Serial No. 36,262. (No model.)

Claim.—1. In a window, the combination with a casing, of a sash pivotally mounted to oscillate upon a transverse axis, pivot-supports connected with the sash, inclined ways with which said pivot-supports are engaged, and a stop constituting a fulcrum upon which the sash is adapted to pivot while its pivot-supports proper are traversing said ways, whereby a pivotal movement is afforded for the sash of increased angular extent.

2. In a window, the combination with a casing, of a sash pivotally mounted therein to oscillate upon a transversely-extending axis, pivoted supports therefor having engagement with inclined ways or slots, and a stop located on that side of the window with relation to which the slots are inclined upwardly and inwardly and in a plane below the upper ends of said slots, whereby the sash is capable of bodily movement inwardly and outwardly and will be raised or lowered bodily when oscillated while engaged with said stop, as and for the purpose set forth.

3. In a window, the combination with a casing, of a sash pivotally mounted therein to oscillate upon a transversely-extending axis, pivot-supports therefor, inclined ways upon the casing with which said pivot-supports are operatively engaged, a stop located on that side of the window-casing relatively to which said ways are inclined upwardly and inwardly, said stop being located below said ways, and constituting a fulcrum upon which the sash is adapted to pivot when resting in engagement therewith, and a stop located at the end of one of said ways and adapted to positively limit the extent of pivotal movement of the sash.



4. In a window, the combination with a casing, of a sash pivotally mounted therein upon an axis extending transversely thereof and located intermediate its length, a weathering-seat against which said window is adapted to rest when closed, one portion of which is upon the casing and extends from points immediately below the pivots around the lower margin of the sash, and the other portion of which is upon the sash and extends from points immediately above the pivots around the upper margin of the sash, substantially as described.

5. In a window, the combination with a casing, of a sash pivotally mounted therein upon an axis extending transversely thereof and located intermediate the length of the sash, slotted supports with which the pivots of said sash have shifting engagement, and a weathering-seat against which the window is adapted to rest when closed, one portion of which is upon the casing and extends from points immediately below the pivots around the lower margin of the sash, and the other portion of which is upon the sash and extends from points immediately above the pivots around the upper margin of the sash, substantially as described.

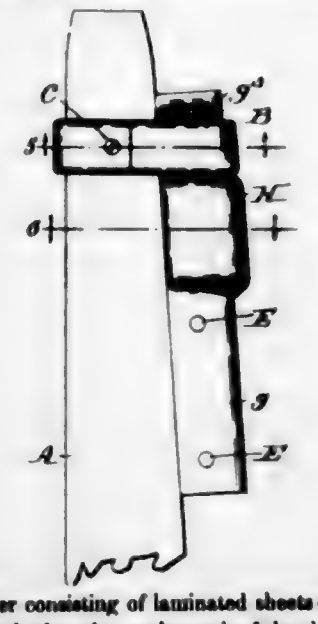
6. As a new article of manufacture, a pivot-socket adapted to be secured upon one member of the meeting faces of a window-sash and the frame wherein the latter is seated, said casting being provided with a pivot-slot extending transversely with relation to the window-opening and inclined from its inner end downwardly and outwardly and forming an elongated support over which a pivot, mounted upon the opposite member, is adapted to travel, and being provided at the upper side of its inner end with an opening adapted to permit the withdrawal of the pivot from engagement with said slot and with closed ends which positively arrest and limit the extent of movement of said pivot within the slot, substantially as described.

7. In a window of the character described, the combination of the window-frame, as 1, the sash, as 14, pivotally supported therein, the inclined pivot-slots with which the pivots of said sash are engaged at opposite sides of the casing, the weathering-strip, as 18, upon the frame and extending around the lower half of the sash-opening, the weathering-strip, as 15, upon the sash and extending around the upper half of the latter, and the destructible retaining device for holding the sash in open position, combined and operating substantially as set forth.

691,212. LOOM-PICKER. FRANK A. WARDWELL, Methuen, Mass. Filed Sept. 5, 1901. Serial No. 74,368. (No model.)

Claim.—1. A loom-picker, consisting of a series of laminated sheets D, D, arranged edgewise relative to the path of the shuttle, a U-shaped reinforcer-cushion F, arranged on said sheets, a molded inclosing shell G, within which said sheets and cushion are contained, and a molded rawhide or similar cushion-cover H, substantially as and for the purpose set forth.

2. A loom-picker, consisting of laminated sheets of suitable material adapted to be arranged edgewise to the path of the shuttle, a cushion engaging said sheets, and a casing for said sheets having a portion of each of its walls projecting out of the plane of the remaining portion thereof to form a seat to receive said cushion.

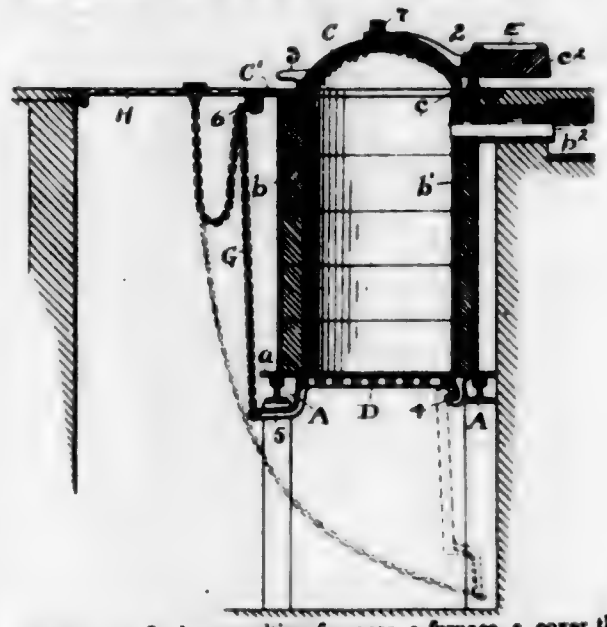


3. A loom-picker consisting of laminated sheets of suitable material adapted to be arranged edgewise to the path of the shuttle, a cushion engaging said sheets, and a casing for said sheets having a portion of each of its walls intermediate their ends projecting out of the plane of the remaining portion thereof to form a seat to receive said cushion.

4. A loom-picker, consisting of laminated sheets of suitable material adapted to be arranged edgewise to the path of the shuttle, a U-shaped reinforcer-cushion engaging one edge and the outer face of each of said sheets, and a casing for said sheets having a portion of each of its walls projecting out of the plane of the remaining portion thereof to form a seat to receive said cushion.

5. A loom-picker consisting of laminated sheets of suitable material adapted to be arranged edgewise to the path of the shuttle, a U-shaped reinforcer-cushion engaging one edge and the outer face of each of said sheets, and a casing for said sheets having a portion of each of its walls intermediate their ends projecting out of the plane of the remaining portion thereof to form a seat to receive said cushion.

691,213. BRASS-FOUNDER'S MELTING-FURNACE. ALBERT J. WEATHERHEAD and EDWARD H. WEATHERHEAD, Cleveland, Ohio. Filed June 11, 1901. Serial No. 64,070. (No model.)



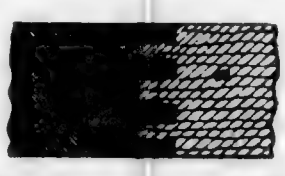
Claim.—1. In brass-melting furnaces, a furnace, a cover therefor, a counterweighted arm engaged with said cover and having a cavity on its under side near the edge of the cover, and a fixed post 2 entering said cavity and serving as a pivot-point for said arm and cover and on which they are laterally rotatable, substantially as described.

2. The furnace and the cover, in combination with a counterweighted arm attached to the cover, a vertical pivot-post 2 on the top of the furnace on which the cover rests and is adapted to be horizontally rotated, and a projection 3 on the front of the cover, substantially as described.

691,214. INLAYING OF WOOD. HENRY C. WEBB, Smethwick, England. Filed May 27, 1901. Serial No. 62,104. (No model.)

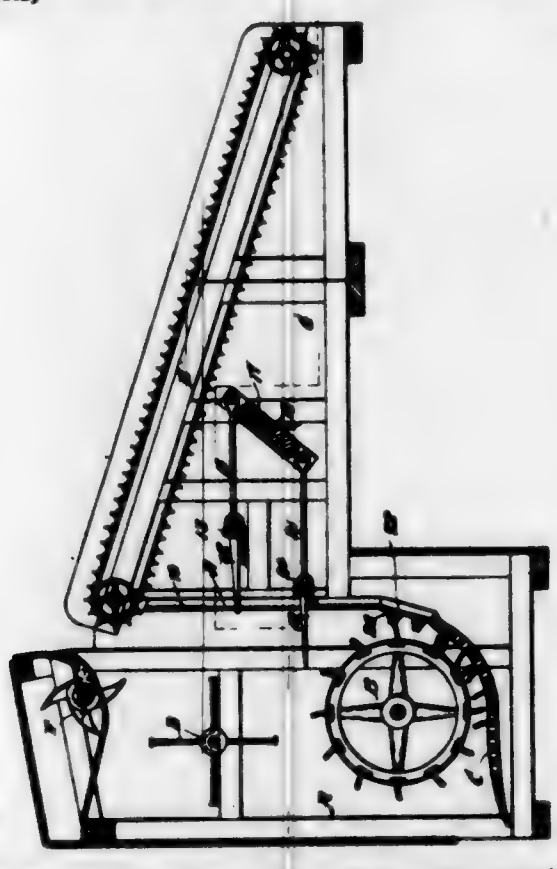
Claim.—1. As a new article of manufacture, an all-through inlaid wood tile or slab produced from two pieces of wood by compressing such

woods endwise of the grain so as to form them respectively with registering parts in relief and in intaglio, such parts having parallel sides or surfaces and being subsequently laid the one within the other and cut from the wood pieces so that the resultant tile or slab produced by them does not contain any of the compressed or crushed parts of the woods resulting from the formation of the said registering parts, substantially as set forth.



2. The combination with an all-through inlaid wood tile produced by compressing woods endwise of the grain as described, of a metal or similar attachment plate or grid connected to the side or face of the tile for forming a lock to the registering parts when they engage, and a key to the cement or other plastic substance upon which the tile is bedded.

691,215. FEED DEVICE FOR THRESHING-MACHINES. JOHN F. WELCH, Braman, Okla. Filed Apr. 9, 1901. Serial No. 55,027. (No model.)



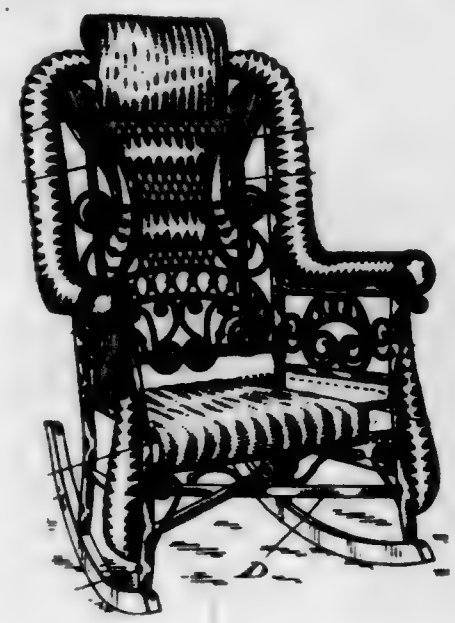
Claim.—1. In a feed device for threshing-machines, a series of fingers or feeding-forks, a head to which the feeding fingers or forks are secured, a horizontally-arranged crank-shaft having a crank-arm upon which the said head is mounted, a rocking arm mounted to swing in a vertical plane, a link connecting the said head at its center with the upper end of the rocking arm, a second and lower set of feeding fingers or forks, a head to which said second set of feeding-fingers are secured and a link connecting the said head at its center with the lower end of the rocking arm, whereby the sets of feeding fingers or forks act alternately.

2. In a feed device for threshing-machines, a cylinder, a concave, a feed-table or conveyer-belt, a crank-shaft mounted below the forward end of the feed-table, feed-fingers connected with the crank-shaft, a rocking arm mounted to swing in a vertical plane, a link connection between the said feed fingers or forks and the upper end of the rocking arm, a second and lower set of feed fingers or forks and a straight link connection between the lower set of forks or fingers and the lower end of the rocking arm, whereby the upper set of fingers have movement in the arc of a circle to and from the cylinder and the lower set have a horizontal movement, the sets of fingers acting alternately.

3. The combination, with the receiving portion of a threshing-machine, its concave and cylinder, its band-cutters and beaters, located above the cylinder, of a feed-table having its delivery end arranged opposite the band-cutters, a support therefor, a shield extending downward from the upper portion of the feed-table to a point opposite the cylinder and having vertical slots therein, a crank-shaft mounted in the support for the feed-table, feed-fingers connected with the crank-shaft and adapted to extend through the slots in the said shield, a rocking arm mounted to swing in a vertical plane, a link connection between the said feed fingers or forks and the upper end of the rocking arm, a second and lower set of feed fingers or forks which also have movement through the slots in the shield, and a straight link connection between the lower set of forks or fingers and the lower end of the rocking arm, whereby the upper set of fingers have movement in the arc of a circle while the lower set of fingers have a horizontal movement, and whereby one set of fingers act when the other set of fingers or feed-forks are withdrawn.

4. In a feed device for threshing-machines, a cylinder, a concave, beaters and band-cutters located above the cylinder, a frame attached to the receiving end of the threshing-machine, a feed-table or conveyer-belt supported by said frame and having its delivery end located opposite the band-cutters, a shield provided with slots and extending from the delivery end of the feed-table to the concave, knives secured to the lower part of said shield above the concave and extending toward the cylinder, an upper set of feeding-fingers extending through the slots in the shield and having movement in the arc of a circle and a lower set of feeding-fingers also extending through the slots in the shield and having a horizontal movement.

691,216. KNOCKDOWN WICKER CHAIR. CHRISTIAN WERTHNER, Toronto, Canada, assignor to the Gendron Manufacturing Company, Limited, Toronto, Canada. Filed Oct. 15, 1900. Serial No. 33,156 (No model.)



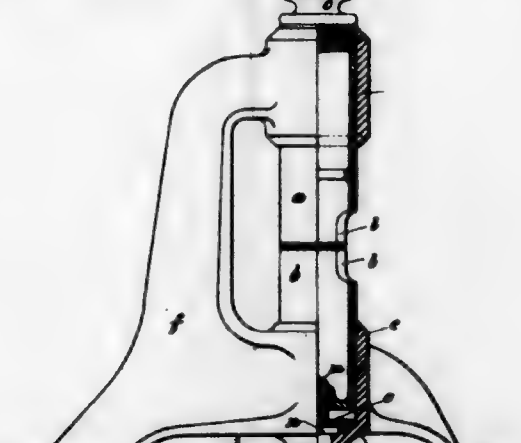
Claim.—1. In a knockdown wicker chair side sections comprising front and rear standards suitably connected and having holes upon their inner faces to receive the ends of cross-bars on the seat and back sections, combined with an unframed seat comprising front and rear cross-bars suitably connected, and a back panel and an independent supporting-frame for said back panel comprising cross-bars, the cross-bars of the seat and back sections being extended and detachably engaged in the holes in the adjacent faces of the standards of the side sections, substantially as shown and described.

2. In a chair, side sections comprising front and rear standards suitably connected, in combination with an unframed seat comprising front and rear cross-bars suitably connected; cross-braces below the seat; and a back panel and an independent supporting-frame therefor comprising cross-bars suitably connected, the standards of the side sections having holes formed therein to detachably receive the ends of the cross-bars of the seat, the cross braces and the cross-bars of the supporting-frame of the back panel, substantially as and for the purpose specified.

3. In a chair, side sections comprising front and rear standards suitably connected; and a seat detachably connected to the side sections in combination with a back panel comprising the wicker back proper and a supporting-frame comprising cross-bars and suitable connections, the rear standards of the side sections having holes formed therein to receive the ends of the cross-bars of the frame of the back panel, substantially as and for the purpose specified.

4. In a chair, side sections comprising front and rear standards suitably connected, in combination with a seat comprising front and rear cross-bars suitably connected; and a back panel, an independent supporting-frame upon which said panel is supported, said frame comprising cross-bars suitably connected, the standards of the side sections having holes formed therein to receive the ends of the cross-bars of the seat and cross-bars of said supporting-frame of the back panels by mortise-and-tenon connections, substantially as and for the purpose specified.

691,217. APPARATUS FOR DETERMINING AND MARKING FOCAL CENTER OF SPHERICAL LENSES. JAMES WEST, Dalston, England, assignor of two-thirds to Henry Joseph Wilberforce Raphael, Shepherds Bush, Middlesex county, England, and Hermann Lionel Ettinghausen, London, England. Filed May 20, 1901. Serial No. 61,135. (No model.)



Claim.—1. In a device of the character described the combination with a stand having tubular guides in line with each other, a tube mounted in one of said guides and means for adjusting the height of said tube with relation to the said stand; of a tube mounted to slide in the other guide, the said tubes having their adjacent ends open and accurately faced at right angles to their center lines, and a pointed plunger mounted to slide centrally in one of the said tubes; substantially as described.

2. In a device of the character described the combination with a stand having tubular guides in line with each other, a tube mounted in one of said guides and means for adjusting the height of said tube with relation to the said stand; of a tube mounted to slide in the other guide, the said tubes having their adjacent ends open and accurately faced at right angles to their center lines, a pointed plunger mounted to slide centrally in one of the said tubes, and a spring tending to hold said plunger away from the meeting end of the said tubes, substantially as described.

3. In a device of the character described the combination with a stand having tubular guides in line with each other, a tube mounted in one of said guides and means for adjusting the height of said tube with relation to the said stand; of a tube mounted to slide in the other guide, the said tubes having their adjacent ends open and accurately faced at right angles to their center lines, and having openings *l* in one side thereof, a pointed plunger mounted to slide centrally in one of the said tubes, and means for holding the said plunger away from the meeting ends of the said tubes; substantially as described.

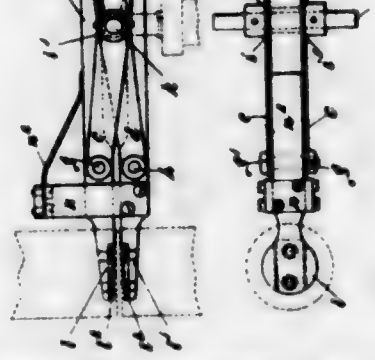
691,218. APPARATUS FOR ATTACHING HOLDING DEVICES TO LENSES WHILE SUCH LENSES ARE BEING SHAPED AND EDGED. JAMES WEST, Dalston, England, assignor of two-thirds to Henry Joseph Wilberforce Raphael, Shepherds Bush, Middlesex county, England, and Hermann Lionel Ettinghausen, London, England. Filed May 20, 1901. Serial No. 61,136. (No model.)

Claim.—1. The apparatus for attaching holding devices to lenses, consisting of tongs having parallel moving jaws connected by jointed bars, and pressed together by springs, and operated by pressure upon a finger-bar, strips dovetailed in cross-section upon the opposite faces of the jaws, to receive corresponding "dops" or lens-holders, and a transverse trunnion passing through the centers of the jointed bars where they cross each other, and adapted to fit accurately in bearings carried by a standard which receives the tongs, and which is itself arranged opposite to a suitable lens-centering device, substantially as described.

2. In tongs of the character described, the combination of the parallel bars *a*, *b*, connected by cross-links *c*, *d*, and *e*, *f*, jointed at *g*, *g'*, *h*, *h'*, and *i*, *i'*; pins *j*, *j'*, passing through slots j^2, j^2, in the bars *a*, *b*; trunnion *k*; jaws *l*, *l'*, provided with dovetail-shaped strips l^2, l^2, to receive dops to hold the lens, substantially as set forth and illustrated.

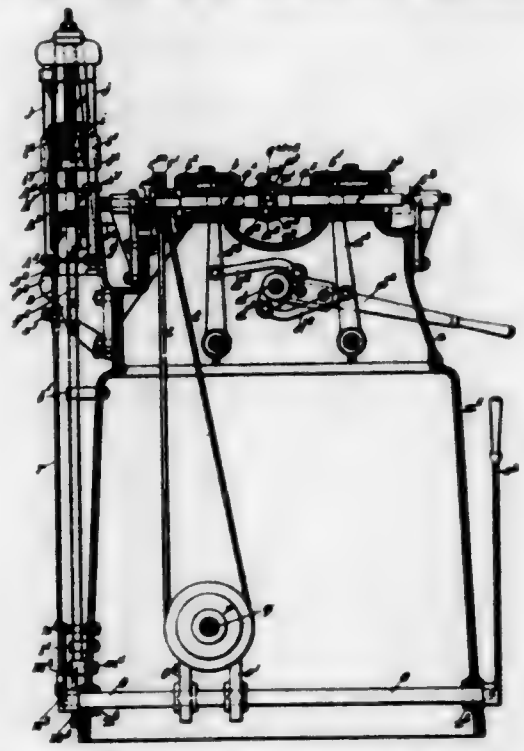
3. In tongs of the character described, the combination of the standard carrying adjustable forked bearings *a'* and a^2 to receive the trunnion *k* on the tongs and a guide *y* in which the bearings *a'*, a^2 can be conjointly elevated and depressed as desired, by the screw *t*, arm *u*, and graduated dial *v*, and fixed by the clip and bolt *w*, substantially as set forth and illustrated.

4. In tongs of the character described, the combination with a bar having a handle on one end, a nose on the other end, and guides secured to said bar between the nose and handle; of a second bar adapted to move in said guides and having a nose at one end and a finger at the other end, cross-links pivoted at one of their ends to the said bars and at their other ends pivoted to slide on said bars, the said cross-links being pivoted together at their centers, and having trunnions, substantially as described.



5. In tongs of the character described, the combination with a bar having a handle on one end, a nose on the other end, and guides secured to said bar between the nose and handle; of a second bar adapted to move in said guides and having a nose at one end and a finger at the other end, means on said noses for holding dops, cross-links pivoted at one of their ends to the said bars and at their other ends pivoted to slide on said bars, the said cross-links being pivoted together at their centers, and having trunnions, substantially as described.

691,219. MACHINE FOR FORMING AND FINISHING EDGES OF LENSES. JAMES WEST, Dalston, England, assignor of two-thirds to Henry Joseph Wilberforce Raphael, Shepherds Bush, Middlesex county, England, and Hermann Lionel Ettinghausen, London, England. Filed May 20, 1901. Serial No. 61,137. (No model.)



Claim.—1. In a device of the character described, a mold formed of two members, one member having a recess, and the other member having a flange adapted to enter said recess, the line formed by the meeting edges of the two members being oblique to a plane at right angles to the axis of the mold, substantially as described.

2. In a device of the character described, a mold formed of two members one member having a recess, and the other member having a flange adapted to enter said recess, the line formed by the meeting edges of the two members being oblique to a plane at right angles to the axis of the

mold, and means for clamping the two members together, substantially as described.

3. In combination with a mold in two halves, in which the grinding and beveling are done, a concentric spindle carrying the lenses and turning upon adjustable cone-bearings at its ends, the spindle being provided near one end with a pulley by which it is set in revolution, substantially as described and illustrated.

4. In a device of the character described, the combination of a spindle having transverse holes therethrough, through which the guides for the dops carrying the lenses pass, the said holes having interior ribs to prevent jamming, substantially as described.

5. The combination of the two parts a, a', of the grinding-mold, cylindrical slides b, b', guides b^2, b^3, in the box-casting z of the machine, shaft d, wrist-plate d', links d^2, forked levers d^3, whose forked ends fit upon the slides b, b', and lever-handles d^4, passing through slots z' in the casting z, substantially as described and illustrated.

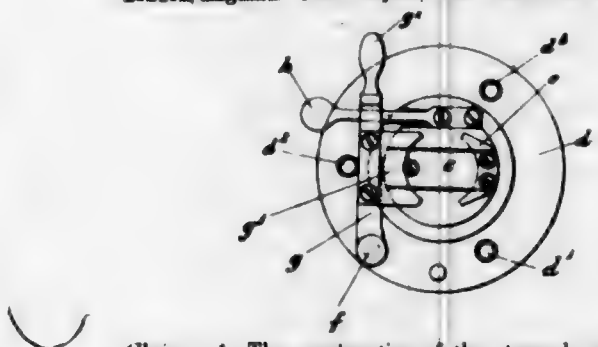
6. In combination with the grinding-mold a, a', slides b, b', guides b^2, b^3, in the box-casting z of the machine, the central spindle c turning on adjustable centers c^2, c^3 and the driving-pulley c', substantially as described and illustrated.

7. The spiral rib or scroll c^{20}, pin-wheel e, upon oblique shaft e' running in bearing e^2, spiral pinion e^3 upon shaft e', gearing with spiral spur-wheel f, upon bearing-screw f' turning in footstep f^2 and bearing f^1, guide-bars j, monkey i^5 moving upon guide-bars j, worm-wheels i, i', gearing with screw f', V-wheels i^7, i^8, brake-blocks i^9, i^6, turning upon pins i^{10}, i^{11}, in monkey i^5, wedge i^{12}, the brake-blocks i^6, i^9, upon the V-wheels i^7, i^8, trip-bar i^{13} pivoted at i^{14} to monkey i^5, and carrying the wedge i^{12}, screw-stand i^{15}, and spring i^{16} three-armed piece consisting of arm i^{21} and spring i^{17} arm i^{19} held by bell-crank arm i^{18} and arm i^{22} pivoted at i^{19} to monkey i^5, spring i^{20}, adjustable wiper j' and adjusting-screw j^1, lever-arm i^{23} forming part of bell-crank arm i^{18}, cross-heads k', k^2, united by guide-sleeves k^3, k^4, projecting lug k^5 on cross-head k^2, upright rod l and guides l', l^2, washer k^6, k^7, bell-crank lever m pivoted at m', claw-arm m^2, spring m^3, trip-arm n upon shaft o turning in bearings z^3, z^1, arm n', spring n^4, and spring disengaging-levers upon the shaft o, disengaging friction-clutches upon the driving-shaft q of the machine, all substantially as and for the purpose described and illustrated.

8. In combination with the shaft o, the lever-handle o^3 for throwing the friction-clutch p into gear, the rod r, bell-crank lever s pivoted at s' and having pawl s^2, and the arm i^{23} operated by pawl s^2, for bringing back the arm i^{18} under the claw i^{19} when the monkey i^5 has descended to its lowest position, substantially as described and illustrated.

9. In a device of the character described, the combination with a spindle having transverse holes therethrough dops having guides passing through said holes, and interior ribs in said holes to prevent jamming; of a mold formed in two members inclosing said spindle and means for clamping said members together, substantially as described.

691,220. **APPARATUS FOR CUTTING ELLIPTICAL OR OTHER SHAPED LENSES ACCURATELY IN RELATION TO THEIR FOCAL CENTER WHILE BEING CUT.** JAMES WEST, Dalston, England, assignor of two-thirds to Henry Joseph Wilberforce Raphael, Shepherds Bush, Middlesex county, England, and Hermann Lionel Ettinghausen, London, England. Filed May 20, 1901. Serial No. 61,138. (No model.)



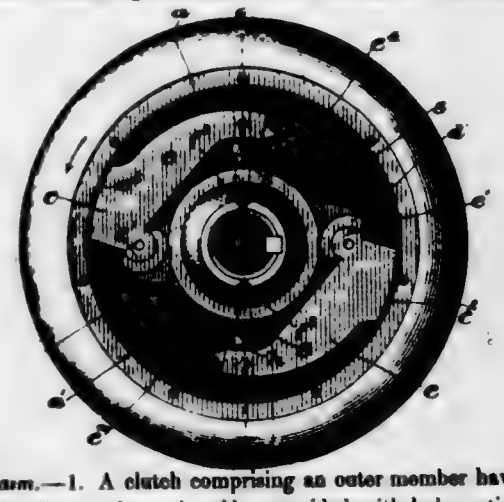
Claim.—1. The combination of the stepped support d, the dovetailed strip c fitting the corresponding transverse recesses in the "dops" a, a', fixed accurately to the sides of the lens b which is to be ground to shape, the fixed stop e having a concave edge fitting the edge of the dop, the opposite corresponding concave stop g', carried by the lever or handle g turning upon the stud f fixed in the support d, the spring-catch h, and the holes d', d^2, d^3, for fixing the support d upon an ellipsograph of any suitable kind, substantially as and for the purpose described and illustrated.

2. In a device of the character described, the combination with a stepped support and a dovetail strip on said support, of concave holders adapted to hold the dops secured to a lens, said dops engaging said dovetail strip, substantially as described.

3. In a device of the character described, the combination with a stepped support and a dovetail strip on said support, of a concave holder secured to said support, a second concave holder pivoted to said support, said holders being adapted to hold the dops secured to a lens, which dops engage said dovetail strip, and means for locking said pivoted holder, substantially as described.

4. In a device of the character described, the combination with a stepped support, a dovetail strip on said support, and holders also secured to said support, of dops adapted to be secured to a lens, said dops having dovetail grooves to fit said dovetail strip, and said dops being adapted to be held by said holders, substantially as described.

691,221. **FRICTION-CLUTCH.** CARL M. WERATON, Newton, Mass. Filed Aug. 17, 1901. Serial No. 72,358. (No model.)



Claim.—1. A clutch comprising an outer member having an internal friction-face, and annular sides provided with hub portions, said friction-face and sides constituting an oil-chamber which is closed to prevent the centrifugal escape of oil therefrom, an inner member including, first, a holder surrounded by said outer member, and constituting a bearing upon which the outer member is adapted to rotate, and secondly, levers fulcrumed at their inner ends on said holder and having relatively short friction-faces formed to engage said internal face, and means for exerting outward pressure on the outer ends of the levers to engage their friction-faces with the internal face of the outer member, said chamber being adapted to contain a body of oil which is distributed without waste over said friction-faces.

2. A clutch comprising an outer member having an internal friction-face, and annular sides provided with hub portions, said friction-face and sides constituting an oil-chamber which is closed to prevent the centrifugal escape of oil therefrom, an inner member including, first, a holder surrounded by said outer member, and constituting a bearing upon which the outer member is adapted to rotate, and secondly, levers fulcrumed at their inner ends on said holder and having relatively short friction-faces formed to engage said internal face, means for exerting outward pressure on the outer ends of the levers to engage their friction-faces with the internal face of the outer member, and means for maintaining an automatic circulation of oil from the chamber along the said bearing and from the bearing back to the chamber.

3. A clutch comprising an outer member having an internal friction-face, and annular sides provided with hub portions, said friction-face and sides constituting an oil-chamber which is closed to prevent the centrifugal escape of oil therefrom, an inner member including, first, a holder surrounded by said outer member, and constituting a bearing upon which the outer member is adapted to rotate, and secondly, levers fulcrumed at their inner ends on said holder and having relatively short friction-faces formed to engage said internal face, means for exerting outward pressure on the outer ends of the levers to engage their friction-faces with the internal face of the outer member, said chamber communicating with the said bearing, so that oil can pass from the chamber to and along the bearing, and inclined ducts extending from the bearing back to the chamber whereby oil may be returned from the bearing to the chamber.

4. A clutch comprising an outer member having an internal friction-face, and annular sides provided with hub portions, said friction-face and sides constituting an oil-chamber which is closed to prevent the centrifugal escape of oil therefrom, an inner member including, first, a holder surrounded by said outer member, and constituting a bearing upon which the outer member is adapted to rotate, and secondly, levers fulcrumed at their inner ends on said holder and having relatively short friction-faces formed to engage said internal face, means for exerting outward pressure on the outer ends of the levers to engage their friction-faces with the internal face of the outer member, said chamber communicating with the said bearing, so that oil can pass from the chamber to and along the bearing, and oil-circulating means comprising an annular end groove formed in the outer end of said hub portion and overhanging the outer end of the bearing, and inclined ducts extending from said groove to the interior of the oil-chamber.

5. A clutch comprising an outer member having an internal friction-face, an inner member including, first, a holder formed as a bearing on which the hub portion of the outer member is journaled, and secondly, levers fulcrumed on said holder and having friction-faces formed to engage said internal face, means for exerting outward pressure on said levers to engage their faces with the face of the outer member, the said outer member forming an oil-chamber surrounding the holder, and oil-circulating means comprising annular end grooves formed on the holder and in the hub portion of the outer member, and two series of inclined ducts, one series extending from the end grooves in the holder to the periphery of the holder, while the other series extends from the end groove of the hub portion to the interior of the said oil-chamber.

6. A clutch comprising an outer member having a friction-face, and annular side members provided with hub portions, an inner member including, first, a holder surrounded by said outer member and constituting a bearing upon which the outer member is adapted to rotate, said inner member having radial strut-guides and a longitudinally-extending seat-carrier guide, and secondly, levers fulcrumed at their inner ends on the holder and having friction-faces formed to engage said internal face, and lever-operating mechanism including a seat-carrier fitted to move longitudinally in said seat-carrier guide, and held thereby against lateral movement, said carrier having a plurality of independent seats coinciding with said strut-guides, struts interposed between said seats and the outer ends of the levers, said struts passing through the strut-guides, and means for moving the seats to cause the struts to actuate and release the levers.

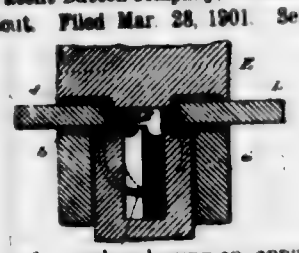
7. A clutch comprising an outer member having a friction-face and annular side members provided with hub portions, said friction-face and sides constituting an oil-chamber which is closed to prevent the centrifugal escape of oil, an inner member including, first, a holder surrounded by said outer member and constituting a bearing upon which the outer member is adapted to rotate, and secondly, levers fulcrumed at their inner ends on said holder and having friction-faces formed to engage said internal face, and adjustable seats or steps at their outer ends, and lever operating mechanism including sliding seats located within the holder and struts interposed between said seats and the adjustable seats or steps on the levers, the outer portion of said chamber having an opening arranged to permit access to said adjustable seats, and a detachable plug or closure for said opening whereby the chamber may be opened to permit adjustment of the adjustable seats without loss of oil therefrom.

8. A clutch comprising an outer member having a friction-face, and annular sides provided with hub portions one of which is adapted for attachment to a section of shafting while the other is internally enlarged, an inner member including, first, a holder surrounded by said outer member and by the internally-enlarged hub portion thereof, and constituting a bearing upon which said enlarged hub portion is adapted to rotate, and secondly, levers fulcrumed at their inner ends on the holder and having friction-faces formed to engage said internal face, and longitudinally-movable seats or steps supported and guided by said holder, struts interposed between said seats and the outer ends of the levers, and means for moving said seats, the said holder being internally formed to receive and rotate loosely upon another section of shafting which is held by the said outer member and holder in alinement with the first-mentioned section.

9. A clutch comprising an outer member having an internal friction-face, an inner member including, first, a holder surrounded by said outer member, and secondly, levers fulcrumed at their inner ends on the holder and having friction-faces formed to engage said internal face, a slide movable within the holder and having strut seats or steps, struts interposed between said seats and the levers, and a shipper-lever having a yoke engaged with a collar on said slide, and means for lubricating the contacting surfaces of the collar and yoke.

10. A friction-clutch comprising an outer member having an internal friction-face and a hub, an inner member including, first, a holder forming a bearing for said hub, and secondly, levers fulcrumed on the hub and having relatively short friction-faces at their inner ends adapted to engage the friction-face of the outer member, struts bearing on the outer ends of said levers and extending therefrom into the said holder, and strut-actuating means located within the holder.

691,222. FASTENER. FRANKLIN R. WHITE, Waterbury, Conn., assignor to the Patent Button Company, Waterbury, Conn., a Corporation of Connecticut. Filed Mar. 28, 1901. Serial No. 53,170. (No model.)



Claim.—1. A stud member having an annular base with spaced spring-arms, and a fastener having arms passed from below into the stud-base, and made to respectively brace the lower portion of the stud-arms and to be bent or clenched through between said stud-arms onto the stud-base, substantially as described.

2. A stud member having a base and resilient arms, with a dome or top all formed integral with one another, and a fastener comprising a base with prongs for engaging the stud likewise formed integral with one another, so that the entire device comprises no more than two pieces, substantially as described.

3. A spring stud or button slotted to form fingers or sections and provided with a base or flange, combined with a fastening-eyelet, the shank of which extends into said stud and is upset upon the flange thereof between the fingers or sections, substantially as described.

4. The ball member of a ball-and-socket fastener, consisting of two parts, namely, a spring stud or button and a fastening-eyelet, said stud consisting of an annular base or flange and sectional or radial fingers, said eyelet consisting of a flange and shank, the shank being adapted to be inserted within said stud and having portions thereof turned over on the flange of said eyelet between said fingers, substantially as described.

691,223. CHURN-SHIELD. ISAAC H. WHITELY and JOHN R. YOCUM, Hope, Ark. Filed Sept. 30, 1901. Serial No. 77,121. (No model.)



Claim.—1. A churn-shield forming a yielding cover for a churn-body to prevent the contents of the latter from splashing out and to exclude dust and insects from the same, said shield having an elastic top and bottom to engage respectively a dasher-stem and a churn-body, and being adapted to drop within the latter to permit a full stroke of the dasher, substantially as described.

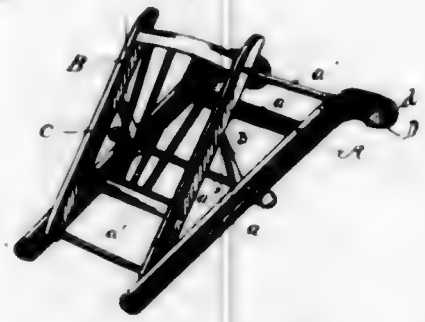
2. A churn-shield consisting of a tapered body portion having an elastic bottom adapted to be stretched over a churn-body, said tapered body portion being also adapted to drop within the latter to permit a full stroke of the dasher, and an elastic sleeve arranged at the top of the shield for engaging the stem of the dasher, substantially as described.

3. A churn-shield consisting of a tapered body portion having an aperture or vent and provided at the bottom with an elastic inwardly-extending contracted portion or flange for engaging the top of a churn-body, said tapered body portion being adapted to drop within the latter to permit a full stroke of the dasher, an elastic sleeve arranged at the top of the shield and adapted to engage the stem of the dasher, and means for closing the aperture or vent, substantially as described.

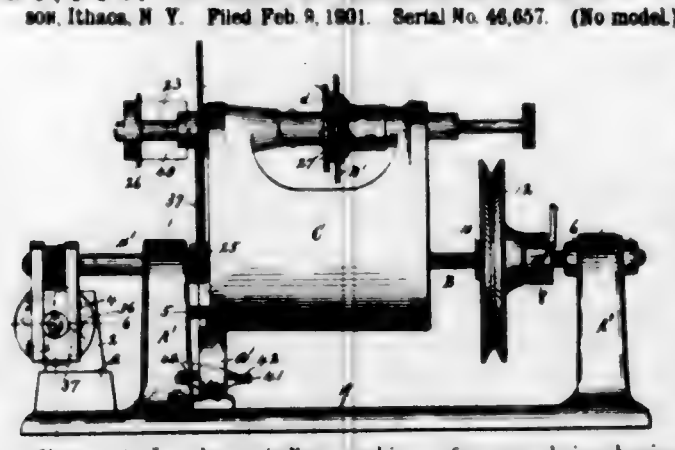
691,224. INVALID BED-REST. JOHN F. WILKINS, Norfolk, Va., assignor of one-half to John S. Land, Norfolk, Va. Filed June 8, 1901. Serial No. 63,718. (No model.)

Claim.—An invalid bed-rest, comprising the main or lower frame, having the side bars thereof curved downwardly at one end into hook portions arranged to fit over and behind the bolster or pillow, the vertically-adjustable rest-frame pivoted to the main frame, and means for supporting the rest-frame as adjusted, whereby removal of the bolster or pillow is rendered unnecessary, and a more secure adjustment against displacement is obtained for the main frame, substantially as specified.

691,224.



691,225. MACHINE FOR GRINDING LENSES. FRANK G. WILSON, Ithaca, N. Y. Filed Feb. 9, 1901. Serial No. 46,657. (No model.)



Claim.—1. In a lens-grinding machine, a former and sizer having a movable sizer-plate provided with a series of surfaces fixed to the plate and projecting unequal distances therefrom.

2. In a lens-grinding machine, a former and sizer having a revoluble sizer-plate provided with a series of surfaces of unequal projection for the purpose described.

3. In a lens-grinding machine, the combination with a revoluble lens-support having a lens-form, a contact plate, and an adjusting-screw for varying the position of the contact-plate relative to the axis of the former, said contact-plate having an independent movement for changing the point of contact with the periphery of the lens-form.

4. A lens-grinding machine comprising a revoluble lens-support having a lens-form, a contact-plate, and a revoluble sizer-plate having a series of surfaces of unequal projection for varying the position of the contact-plate with relation to the lens-form.

5. In a lens-grinding machine, the combination with a revoluble lens-support having a lens-form, of a rock-arm provided with a contact-face, means for varying the point of contact of said face with the lens-form, and an adjusting-screw for moving said arm for the purpose described.

6. A lens-grinding machine comprising a revoluble lens-support, a lens-form, a rock-arm having a contact-surface for engaging the lens-form, and means for rocking said arm for moving the contact-surface step by step toward or away from the axis of the lens-form.

7. A lens-grinding machine comprising a revoluble lens-support, a lens-form, a rock-arm having a contact-surface for engaging the lens-form, and a movable sizer-plate having unequally-projecting surfaces operating in conjunction with a shoulder for rocking said arm for the purpose described.

8. The combination with a rotary lens-support in a lens-grinding machine, of a lens-form revoluble with the support, a rock-arm provided with contact-surface and sizer-surfaces of unequal projection, and a stop-shoulder for engaging the sizer-surfaces for the purpose specified.

9. A lens-grinding machine comprising a revoluble lens-support having a lens-form, a contact-plate, a sizer-plate connected to the contact-plate and provided with a series of unequal projections, and a stop for engaging said projections.

10. A lens-grinding machine comprising a revoluble lens-support having a lens-form, a contact-plate, a sizer-plate connected to the contact-plate and provided with a series of unequal projections, and an adjustable stop for engaging said projections.

11. A lens-grinding machine comprising a revoluble lens-support having a lens-form, a rocking lever having one end provided with an adjustable contact-surface for engaging the lens-form at different points on its periphery, and an adjustable stop for engaging the opposite end of the lever for moving the contact-surface toward and away from the axis of the lens-form.

12. A lens-grinding machine comprising a revoluble lens-support having a lens-form, a rocking lever having one end provided with a contact-surface for engaging the lens-form, a movable sizer-plate mounted on the other end of the lever and provided with a series of surfaces of unequal projection, and a stop for engaging said surfaces.

13. A lens-grinding machine comprising a revoluble lens-support having a lens-form, a rocking lever having one end provided with a pivoted contact-plate for engaging the periphery of the lens-former at different points, and an adjusting-screw for controlling the position of the rock-lever.

14. A lens-grinding machine comprising a revoluble lens-support having a lens-form, a rocking lever having one end provided with an adjustable contact-plate for the lens-former, a revoluble sizer-plate mounted on the opposite end of the lever and provided with a series of surfaces of unequal projection, and an adjusting-screw for engaging said surfaces for the purpose described.

15. A lens-clamp for lens-grinding machines comprising a supporting-frame having a revolving face-plate, a second plate revolubly mounted on the frame, an adjusting-screw, and a conical-ended spindle interposed between the second plate and the screw for the purpose described.

16. A lens-clamp for lens-grinding machines comprising a supporting-frame having separated bearings, a revolving shaft journaled in one of the bearings and provided with a face-plate, a second plate journaled in the frame and movable toward and away from the former plate, an adjusting-screw, and a spindle mounted in the other bearing and provided with tapering ends engaged respectively with the adjacent faces of said second plate and screw for the purpose described.

17. A lens-grinding machine comprising a rocking support having a revoluble lens-clamp, and a projecting shoulder movable in planes above and beneath its axis of movement, and a spring for engaging opposite faces of said shoulder for the purpose specified.

18. In a lens-grinding machine, the combination with a frame, a revoluble shaft, a sleeve feathered on the shaft and movable lengthwise thereof, a carriage actuated by the sleeve and provided with a rotary lens-clamp actuated by the shaft, a fixed engaging member, and means carried by the sleeve and coacting with the fixed member for reciprocating the sleeve and carriage.

19. In a lens-grinding machine, the herein-described means of reciprocating the lens-carriage comprising a fixed member having an elongated slot, a revoluble shaft, a sleeve feathered on the shaft and connected to the carriage, gears mounted on the sleeve and rotated thereby, one of said gears being provided with a shoulder and engaged with the walls of the slot for the purpose set forth.

20. In a lens-grinding machine, the herein-described means for reciprocating the lens-carriage comprising a fixed member having an elongated slot, a revoluble shaft, a sleeve feathered on the shaft and connected to the carriage, a worm secured to the sleeve, a yoke mounted on the sleeve, a gear mounted on the yoke and meshing with said worm, said gear being provided with an eccentric shoulder movable in said slot for the purpose set forth.

21. The combination with a rotary lens clamp and form of a lens-grinding machine, of a centering device for the lens consisting of a plate having a stop-face and lateral inclined faces concentric with the axis of the stop-face for the purpose described.

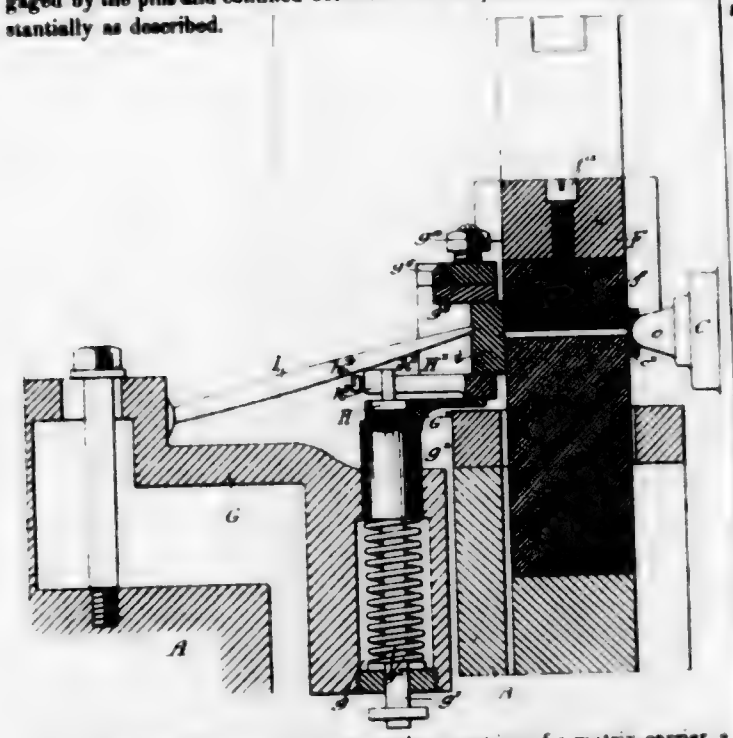
22. The combination with a rotary lens clamp and form of a lens-grinding machine, of a centering device for the lens consisting of a plate having an open-ended slot for receiving one of the revoluble members adjacent to the lens-clamp, said plate being formed with a series of inclined faces concentric with the axis of the plate for receiving and centering the lens when being inserted between the clamping members.

23. A lens-grinding machine, comprising a supporting-frame, a revoluble shaft provided with a loose pulley and a clutch for locking the pulley to the shaft, a carriage supported by the shaft and having reciprocal and oscillatory movements, a sleeve feathered on the shaft and connected to the carriage, a pinion and worm secured to the sleeve, a lens-clamp journaled on the carriage and provided with a lens-form, a contact-plate mounted on the frame for engaging the lens-form, a revoluble sizer-plate having surfaces of unequal projection coacting with a stop for controlling the position of the contact-plate relative to the lens-form, and a worm-gear meshing with the worm and provided with an eccentric shoulder operating in conjunction with a slotted bracket for effecting the reciprocal movement of the carriage.

691,226. MATRIX-CARRIER FOR TYPE-CASTING MACHINES. GEORGE H. ZIEGLER, Philadelphia, Pa., assignor to the American Type Founders' Company, Newark, N. J., a Corporation of New Jersey. Filed June 7, 1901. Serial No. 63,588. (No model.)

Claim.—1. In a type-casting machine, the combination of a matrix-carrier, a table yieldingly supported thereon, a yoke, a U-shaped plate on the table having means for adjusting its position in a horizontal plane upon said table, a matrix mounted on said plate and confined between it and the yoke, with means on the plate for preventing the matrix from turning, substantially as described.

2. In a type-casting machine the combination of a matrix-carrier having in it a recess, a table having a depending portion constructed to fit the recess in the carrier, a spring yieldingly supporting the table, a yoke, a U-shaped plate mounted on the table, pins projecting therefrom, and a matrix mounted on said U-shaped plate, the said matrix being engaged by the pins and confined between the said plate and the yoke, substantially as described.



3. The combination in a type-casting machine of a matrix-carrier, a table carrying projecting lugs mounted thereon, a spring yieldingly supporting the table, a U-shaped plate resting on the table and having projections extending back of the lugs, set-screws placed to adjust the position of the U-shaped plate, a yoke-frame, a matrix and a clamp-plate carried by said frame between which and the said U-shaped plate the matrix is held, substantially as described.

4. The combination in a type-casting machine, of a matrix-carrier, having in it recesses, a table having a depending portion and guide-bars constructed to fit said recesses in the carrier, the same also having a spring whereby it is yieldingly supported, a plate secured to the table having projecting lugs, a U-shaped plate mounted on the table, the same being provided with projections, set-screws through the projections placed to bear against the lugs on said plate, a matrix, and pins carried by the U-shaped plate engaging with said matrix, substantially as described.

5. The combination in a type-casting machine having a mold for type, of a matrix-carrier, a plate mounted thereon having projecting pins, and a matrix having holes to receive said pins in one of its faces at right angles to that against the mold, and means for retaining the matrix in position on the matrix-carrier, said means engaging a face of the matrix opposite to that against the mold, substantially as described.

6. The combination in a type-casting machine of a type-mold, a matrix-carrier, a plate mounted thereon having projecting pins, and a matrix forming one end of said mold and having holes to receive said pins and means for adjusting the distance of the pin-carrying plate from the type-mold, substantially as described.

691,227. **NON-REMOVABLE BUNG.** CONRAD ZWICKEL and LEO P. GRUNBAUM, Boise, Idaho; said Zwickel assignor to said Grunbaum. Filed July 30, 1901. Serial No. 70,268. (No model.)

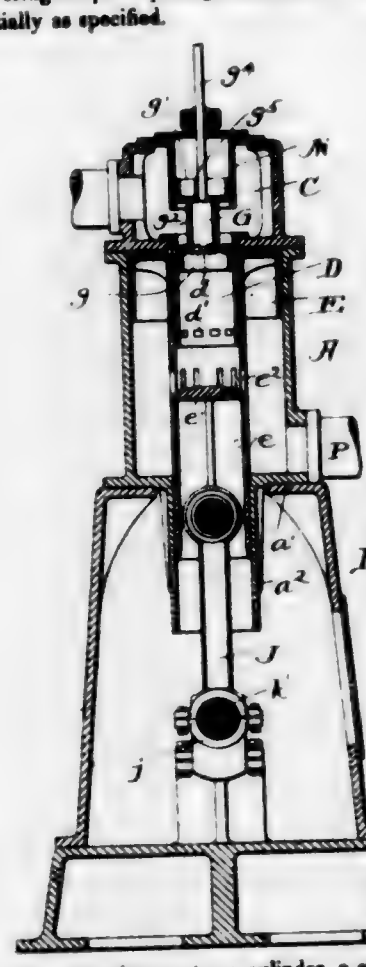


Claim.—1. A non-removable bung, comprising a cylindric body, a resilient coiled-wire locking device having looped ends that project oppositely beyond the lower end of the body, and means to secure the locking device on said end of the body so that the looped ends may be retracted against the spring of the coiled wire they are formed upon.

2. A non-removable bung, comprising a cylindric body, a locking device bent from a wire strand so as to provide two opposite looped members or dogs thereon, which are normally spring-pressed beyond the periphery of the bung, and staples adapted to hold the locking device secured upon the inner end of the bung-body.

691,228. **STEAM-ENGINE.** ROBERT T. ABELL, Cleveland, Ohio. Filed Mar. 30, 1901. Serial No. 53,654. (No model.)

Claim.—1. In a steam-engine, in combination, a steam-cylinder, a tubular valve-seat cylinder projecting into the steam-cylinder from one head thereof and having port-openings, a steam-chest which is connected with the steam-cylinder through said valve-seat cylinder, an annular piston, its annular stem, a valve movable in said valve-seat cylinder for covering and uncovering the port-openings therein, and valve-operating mechanism, substantially as specified.



2. In a steam-engine, a steam-cylinder, a steam-chest, a cylinder-head which separates the same from the steam-chest, a valve-seat cylinder D secured to said head and projecting into the steam-cylinder, a concentric cylinder M secured to the end of the steam-chest, a valve consisting of two annular heads which are fitted respectivaly to said two cylinders M and D, and a tubular connecting-stem, valve-operating mechanism, an annular piston, its annular stem, a guide-cylinder projecting downward from the lower head of the steam-cylinder and in which the piston-stem is guided, the cylinder D being provided with port-openings near its upper end which the valve is adapted to cover and uncover, and other port-openings near its other end which will be covered and uncovered by the piston, a crank-shaft and mechanism connecting same with the piston-stem, substantially as described.

3. In a steam-engine, in combination, a steam-cylinder, a tubular valve-seat cylinder projecting into the steam-cylinder from one head thereof and having port-openings, a steam-chest which is connected with the steam-cylinder through said valve-seat cylinder, an annular piston, its annular stem which has a transverse partition and, above said partition, an annular row of openings, a valve movable in said valve-seat cylinder for covering and uncovering the port-openings therein, and valve-operating mechanism, substantially as described.

691,229. **INDIVIDUAL TELEPHONE SWITCH AND LOCK-OUT MECHANISM FOR INTERCONNECTING LINES.** ALBERT E. ANDRI AND HERMANN HERRSTATT, San Francisco, Cal., assignors to the Automatic Interconnecting Telephone Company, San Francisco, Cal., a Corporation of California. Filed Apr. 19, 1900. Renewed May 1, 1901. Serial No. 58,363. (No model.)

Claim.—1. A switching mechanism for telephones comprising a plurality of stationary line-contacts, a movable contact adapted to be set in operative relation to a selected one of the line-contacts, a spring to return said movable contact to its normal position, a detent to hold the movable contact in position against the reactive force of the spring, and a locking device controlled by the telephone-hook and operating to prevent the movable contact from being moved off the selected line-contact after the receiver is removed from the hook.

2. In a switching mechanism for telephones, the combination with a plurality of line-contacts and a movable contact adapted to connect the subscriber's talking-circuit with a given line through the selected line-contact; of a locking device controlling the movable contact and itself actuated by the telephone-hook to lock the movable contact when the re-

ceiver is removed from the hook and to prevent the movable contact from being moved out of position until the receiver is replaced on its hook.



3. The combination, with a telephone switching mechanism having a plurality of stationary contacts and a movable contact; of a locking device adapted to lock the movable contact and prevent it from being moved in either direction after the receiver is removed from the telephone-hook, and to release the movable contact when the receiver is replaced.

4. In combination, a plurality of line-contacts, a movable contact connecting the subscriber's talking-circuit with a selected one of the line-contacts, a spring to restore the movable contact to position, a detent to hold the movable contact against the reactive force of the spring, a locking device operating when brought into action to prevent the movable contact from being moved off the line to which it has been switched and means controlled by the telephone-hook to throw the locking device into or out of operation by the act of taking down or of hanging up the receiver.

5. In combination, a local talking-circuit, a circuit-closer controlling the connection thereof with a common talking-line, means for holding out of action said circuit-closer, an electromagnet in circuit with a battery, means operated by said magnet to throw the circuit-closer into action, and a circuit-closer in the battery-circuit adapted to release the holding-out means of the circuit-closer in the talking-circuit by closing the battery-circuit through the magnet and through the common talking-line between two connected telephones.

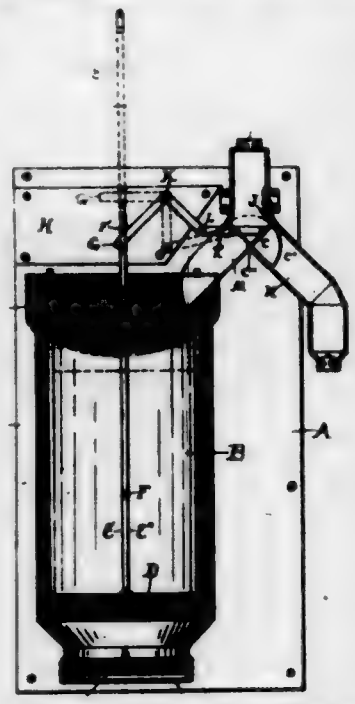
6. In a telephone system, the combination in and with a plurality of stations, of a common talking-line, a common ringing-circuit including a battery and a signal at each station, individual receiving and transmitting circuits connectible with the common talking-line through a circuit-closer and switching mechanism at the station, a lock-out device controlling said circuit-closer at each station and normally holding the same out of action, an electromagnet connected with the common ringing-circuit through the talking-line and adapted to be energized when the talking-line is closed between one station and the other through the switch and the ringing-circuit is closed at either station, and means whereby the magnets in both connected stations are caused when energized from either station to throw off the locking devices in both stations and release the circuit-closers in the talking-circuit.

7. In a lock-out mechanism for telephone systems the combination of a common talking-line, an individual receiving and transmitting instrument in a local circuit connectible through a switch and a "home contact" with a plurality of similar stations, a circuit-closing device in the local circuit, a locking device holding said circuit normally open, a battery and an electromagnet in circuit therewith through a circuit-closing key and with the common talking-line between the stations through the individual "home contact" of each station, means operated by the magnet when the circuit is closed between two connected stations to actuate the locking device and release the circuit-closer controlled by it, a catch holding the locking device in operative position when the battery is taken off the magnet, and means releasing the catch by the act of hanging up the receiver.

8. In a lock-out mechanism for telephone systems, a circuit-closing device at each station controlling the connection between the local receiving and transmitting circuit and a common talking-line, a switch adapted to give connection at each station with any selected station of the system, a locking-lever adapted to hold the circuit normally open, an electromagnet having connection with a common signaling-circuit including a battery by which all the stations comprising the system are interconnected, said magnet being adapted when energized to throw off the locking-lever, a push-button at each station for closing the battery from that station upon the magnet of a connected station through the switch of that station, a catch adapted to hold the locking-lever out of action, and a releasing device operative under the movements of the local switch to throw off the catch when the contact-arm of the switch is moved off the stationary contact.

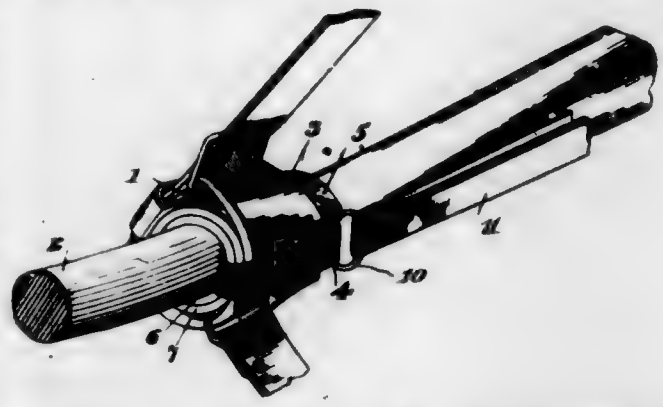
9. In combination, a plurality of stations, a common talking-line, a switching mechanism and circuit-closer at each station connecting the individual receiving and transmitting circuits thereof with any selected one of the other stations through the talking-line, a lock-out device normally holding said circuit-closer out of action, a signaling-circuit common to all the stations in which is included a battery and a circuit-closing device at each station, and electrically-operative means controlling the line-circuit closers and adapted to release the same at the stations connected through the common talking-line when the signaling-circuit is closed at either of the connected stations and to isolate the circuit-closers of all the remaining stations from the common talking-line when two connected stations are using the line.

691,280. AUTOMATIC CISTERN DEVICE. CHARLES H. ASLINE. Springfield, Mo. Filed May 18, 1901. Serial No. 60,831. (No model.)



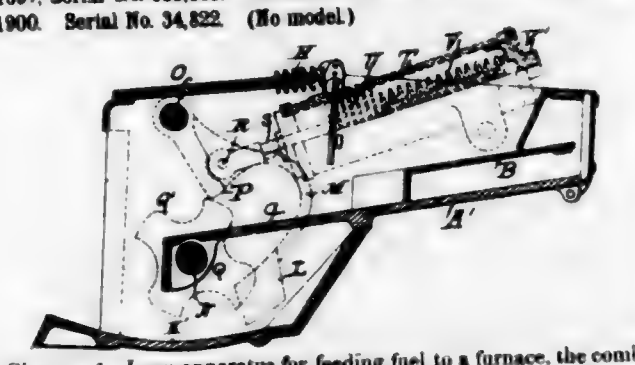
Claim.—In an automatic cistern device, the combination, a base board to be fastened to the wall of a building to which is secured a tank the upper open end of which is covered with a screen, the lower end being closed by a screw-cap a small drain-hole being provided near the latter, a loosely-mounted float adapted to travel up and down in said tank by the action of the water admitted and discharged therefrom, double rods carried endwise up and down by said float, said rods being connected by cross-bars F, F', the latter being arranged to operate a lever to control the action of the cut-off to control the entrance of the water to said tank or to be deflected into the cistern, substantially as shown.

691,281. SHAFT-TUG ATTACHMENT. ALEXANDER S. BAILEY. Crawford, Ga. Filed July 14, 1898. Renewed Nov. 27, 1901. Serial No. 83,941. (No model.)



Claim.—A device of the class described comprising a thill-tug designed to be arranged on the thill in the usual manner, a sleeve arranged within the thill-tug and composed of two split sections having their split portions located at different points, said sleeve being detachable, a short strap 4 extending through the sleeve and passing around the thill-tug at one side thereof, and a holdback-strap having a ring linked into the loop formed by the strap 4, whereby the latter is adapted to detachably connect the holdback-strap, the tug and the sleeve, substantially as and for the purpose described.

691,282. APPARATUS FOR SUPPLYING FUEL TO FURNACES. EDWARD BENNIS, Bolton, England. Original application filed Dec. 28, 1897, Serial No. 663,865. Divided and this application filed Oct. 29, 1900. Serial No. 34,822. (No model.)



Claim.—1. In an apparatus for feeding fuel to a furnace, the combination of a hopper; a feed-box located below said hopper and in communication therewith; a shelf *a* located within said feed-box; a feed-plate working on said shelf; a plate pivotally mounted in the upper portion of said box and extending down toward the feed-plate; a spring for normally holding said plate in a vertical position and permitting it to be moved forward by a charge of material; and a striker working in the lower portion of the feed-box beneath the shelf, substantially as and for the purpose described.

2. In an apparatus for feeding fuel to a furnace, the combination of a hopper; a feed-box located below the same and in communication therewith; a shelf *a* extending forwardly in said box; a feed-plate working on said shelf; a plate G pivotally mounted in the upper end of said box and extending downwardly toward the shelf; a spring connected to said plate and normally drawing the lower end of the same back toward the hopper; a stop to limit said rearward movement; and a striker mounted in the lower portion of the box, said striker serving to discharge and distribute the charge of material which passes to the lower portion of the box from off the shelf, substantially as and for the purpose described.

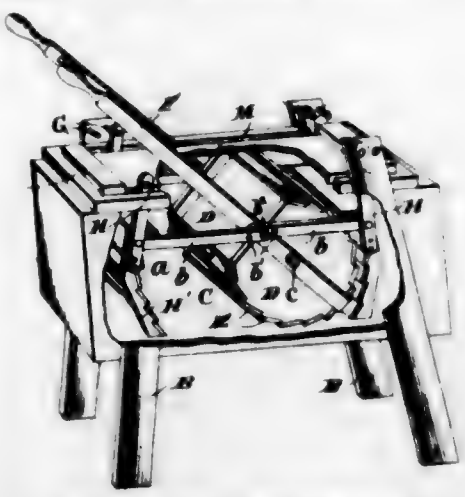
3. In an apparatus for supplying fuel to a furnace, the combination of a hopper; a feed-box located below the same and in communication therewith; a shelf *a* mounted within the feed-box; a feed-plate mounted on said shelf; a plate G pivotally mounted in the upper portion of the box and extending down toward the feed-plate; a spring connected to said plate and normally holding the same in a substantially vertical position; a striker working in the lower portion of the feed-box; an arm for supporting said striker, said arm being pivotally supported at a point in the upper portion of the feed-box; a cam working in connection with said striker-supporting arm and serving to force the same back; a cylinder pivotally mounted in rear of said striker-arm; a piston mounted within said cylinder and having its rod extended forwardly and pivotally connected to the striker-arm; and a spring V mounted within the cylinder intermediate the piston and the rear end of the cylinder.

4. In an apparatus for feeding fuel to a furnace, the combination of a hopper; a feed-box located below the same and in communication therewith; a shelf mounted within said feed-box; a feed-plate mounted on said shelf; a bell-crank lever C having one arm in operative relation with the feed-plate; a rotatable and adjustable cam D in operative connection with the outer end of the bell-crank lever; a lever E connected to said cam; means for shifting said lever and thereby shifting the cam; a plate G pivotally mounted in the upper portion of the box and extending down toward the feed-plate; a spring connected to said plate and normally holding the same in a substantially vertical position; a striker working in the lower portion of the feed-box below the shelf; an arm for supporting said striker, said arm being pivotally supported at a point adjacent to the upper portion of the feed-box; a cam working in conjunction with said striker-supporting arm and serving to force the same back; a cylinder pivotally mounted in rear of said striker-arm; a piston mounted within said cylinder and having its rod extended forwardly and pivotally connected to the striker-arm; and a spring V mounted within the cylinder intermediate the piston and the rear end of the cylinder.

691,283. WASHING-MACHINE. DAVID W. BOYER, Waterloo, Iowa. Filed Mar. 26, 1901. Serial No. 52,963. (No model.)

Claim.—1. A washing-machine comprising a receptacle, legs supporting said receptacle and extending above the top thereof, inwardly-extending pins carried by said upwardly-extending portions, a swinging scrubber at each end of said receptacle, upwardly-extending arms carried by the scrubbers and having horizontally-arranged openings adapted to receive said pins, an oscillating scrubber within the receptacle between the swinging scrubbers, bars connecting the oscillating scrubber and the swinging scrubbers, a cover carried by the receptacle and having longitudinally-arranged slots through which the scrubber-supporting arms pass, and operating-handles carried by the oscillating scrubber and extending out through said slots, substantially as described.

2. In a washing-machine, the combination with a receptacle, of an oscillating scrubber therein, a scrubbing-board at each side thereof, upwardly-extending spring-arms carried by the boards each having a horizontal transverse opening therein, a series of inwardly-projecting pins carried by the receptacle and adapted to enter the openings in the spring-arms, means for oscillating the scrubber and means carried by the scrubber for swinging the boards, substantially as described.



3. In a washing-machine, the combination with a receptacle, of an oscillating scrubber therein, a scrubbing-board at each side thereof, upwardly-extending spring-arms carried by the boards each having an opening therein, a series of inwardly-projecting horizontally-arranged pins carried by the receptacle, and adapted to enter the openings in the spring-arms, arms pivoted to said boards and horizontally adjustably secured to the scrubber and means for oscillating said scrubber, substantially as described.

4. In a washing-machine, the combination with a receptacle of an oscillating scrubber therein, swinging scrubbers adjacent each side thereof, means for independently horizontally adjustably connecting said scrubbers to the receptacle, bars connecting the swinging scrubbers to the oscillating scrubber, means for horizontally adjustably securing said bars to the oscillating scrubber, and means for oscillating said oscillating scrubber, substantially as described.

5. A washing-machine comprising a receptacle, legs supporting said receptacle and secured to the sides thereof and extending above the top thereof, said legs having their upper ends converging, an inwardly-extending horizontally-arranged series of pins carried by the upper ends of said legs, an oscillating scrubber centrally located in the receptacle, a swinging scrubber at each end of said receptacle and having upwardly-extending spring-arms provided with openings adapted to receive said pins, bars pivotally connected to the swinging scrubbers and having their inner ends provided with a series of horizontally-arranged transverse openings, and outwardly-extending pins carried by the oscillating scrubber and adapted to enter said openings in the said bars, substantially as described.

691,284. MACHINE FOR CUTTING, PUNCHING, AND SHAPING METAL. FAXON BOWEN, Peterboro, N. H. Filed Feb. 23, 1901. Serial No. 48,410. (No model.)

Claim.—1. In a machine of the class described, cutting mechanism, said cutting mechanism operating to cut a sheet of metal into lengths, the cuts extending transverse to the line of feed, means to bend the severed lengths transverse to the line of feed prior to their removal from the cutting-bed and means to feed the sheet to said cutting mechanism, the said sheet in its forward movement operating to force the shaped lengths of metal from the machine.

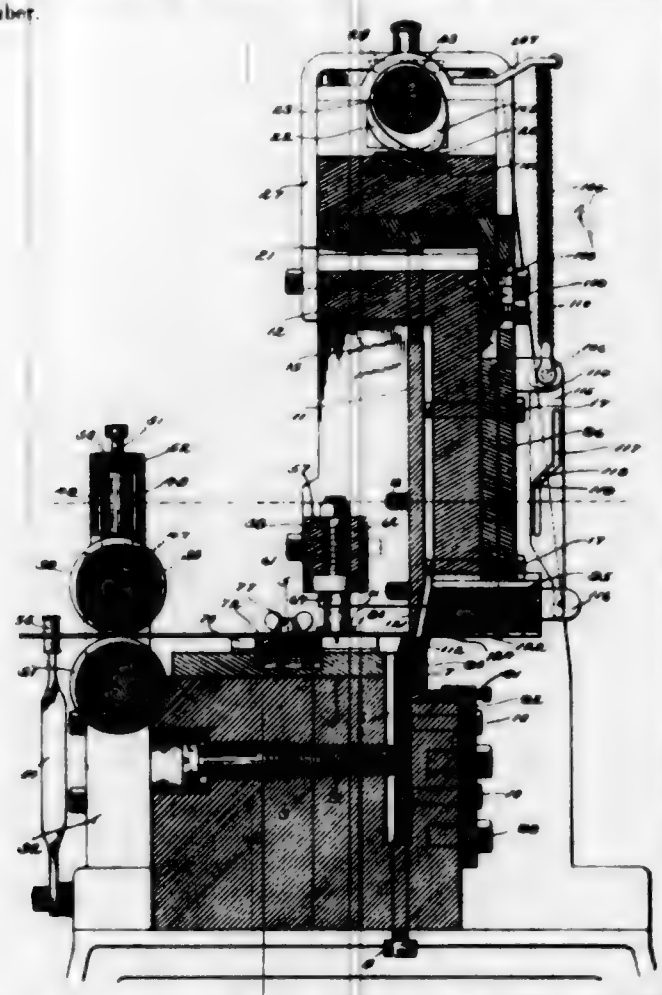
2. In a machine for cutting and shaping metal, cutting mechanism including fixed and movable knives, and means to shape the severed length of material prior to its removal from the cutting-bed, said means including coöperating die members, one of said die members being situated directly under the movable knife.

3. In a machine for cutting and shaping metal, a fixed and a movable knife, means to reciprocate the movable knife, a fixed die member in line with the movable knife, a coöperating movable die member, and means to move the same, the movable knife operating to hold the severed length of metal on the fixed die member until the movable die member is in operative position.

4. In a machine for cutting and shaping metal, a fixed and a movable knife, means to feed a sheet of metal to said knives, a fixed die member in line with the movable knife, a movable die member, and means to operate the same, the movable knife operating to hold the severed length of material on the fixed die member until the movable die member comes into operative position, the movable die member, as the knife is receding, shaping the metal between the same and the fixed die member.

5. In a machine for cutting and shaping metal, a fixed knife, and a

vertically-movable knife, means to feed a sheet of metal to said knives, a fixed die member directly beneath said movable knife, a movable coöperating die member, and means to move the same both vertically and horizontally, the movable knife in its lowest position operating to hold the severed lengths of metal on the fixed die member until the movable die member is in operative position, and as the movable knife is withdrawn the movable die member moving horizontally over the fixed die member.



6. In a machine of the class described, a fixed knife, and a vertically-movable knife, a fixed die member directly beneath the movable knife, a coöperating movable die member, a vertically-movable holder or support, said movable die member being slidingly attached to the lower end thereof, means to reciprocate said movable knife, and means to give the movable die member a movement transverse to the movement of the movable knife, whereby as the said movable knife is withdrawn the movable die member is brought into the position occupied thereby and coöperates with the fixed die member to shape the severed length.

7. In a machine of the class described, a fixed knife, a head-block carrying a movable knife, means to reciprocate the head-block, a fixed die member in line with the movable knife, a coöperating movable die member, a holder or support therefor slidingly sustained by the head-block, said movable die member being slidingly held by said support, the movable knife after cutting off a length of metal operating to hold the severed length on the fixed die member until the movable die member descends into operative position, and means to move the movable die member as the knife ascends into the position occupied by said knife.

8. In a machine for cutting and shaping metal shanks, a suitable frame, a fixed knife mounted in the bed thereof, a vertically-movable head-block, a knife adjustably mounted therein and coöperating with the fixed knife to cut lengths from a sheet of metal, a shaft supported in said frame above said head-block, cams on said shaft operating to reciprocate the head-block, a fixed die member supported on the bed of the frame directly underneath the movable knife, a coöperating movable die member, a support therefor slidingly sustained by said head-block, said movable die member being mounted on said support for movement transverse to the plane of the knives, and a cam on said shaft for reciprocating said support.

9. In a machine of the class described, cutting mechanism including fixed and movable knives operating to cut a sheet into lengths with the cuts extending transversely to the line of feed, a punch operating in unison with the movable knife, means to bend the severed lengths transverse to the line of feed prior to their removal from the cutting-bed, and means to feed the sheet to said cutting mechanism, the sheet in its forward movement operating to force the severed lengths from the machine.

10. In a machine of the class described, cutting mechanism, including a fixed and a movable knife, a punch operating in unison with the movable knife, and means to shape the severed length of material prior to its removal from the cutting-bed, said shaping means comprising a fixed die member in line with the movable knife, and a movable coöperating die member, the movable knife operating to hold the severed length of material on the fixed die member until the movable die member is brought into operative position.

11. In a machine of the class described, cutting mechanism including a fixed and a movable knife, means to intermittently feed a sheet of metal to said knives whereby lengths are severed from said sheet, an adjustable punch, means to operate the same in unison with the movable knife, an adjustable die coöperating with said punch, the punch and die being situated between the feeding mechanism and the knives, combined with coöperating die members to shape the severed lengths of metal, one of said die members being in the line of movement of the movable knife.

12. In a machine of the class described, a fixed knife, a reciprocating head-block, a movable knife carried thereby, means to intermittently feed a sheet of metal to said knives, said knives operating to cut the sheet on lines transverse to the line of feed, and a punch carried by said head-block between the feeding means and the movable knife, combined with means to bend the severed lengths of metal on lines parallel to the line of cut prior to the removal of said severed lengths from the cutting-bed the sheet in its forward movement operating to force the shaped lengths from the machine.

13. In a machine of the class described, a fixed knife, a reciprocating head-block, a movable knife carried thereby, means to intermittently feed a sheet of metal to said knives, a slotted bar supported on said head-block, and a punch adjustably mounted in said slot.

14. In a machine of the class described, a cutting-bed, a knife fixed therein, a reciprocating head-block, and guiding means therefor, a movable knife mounted in said head-block, a slotted bar rigidly secured to said head-block, and a punch-holder having a shank adjustably secured in said slot, and carrying a punch eccentric to said shank, whereby the punch may be adjusted both longitudinally and transversely of the bar.

15. In a machine of the class described, a cutting-bed, a knife fixed therein, a reciprocating head-block and guiding means therefor, a movable knife sustained by said head-block, a slotted bar parallel to the cutting-bed and rigidly secured to said head-block, a punch-holder having a concentric shank adjustably supported in said slot, and a punch eccentrically sustained in said punch-holder whereby the punch may be adjusted both longitudinally and transversely of said bar.

16. In a machine of the class described, a bed having a groove therein, a die extending across the groove and resting at its ends on the bed at either side of the groove, a die-holder in said groove and operating to clamp the die to the bed, combined with a punch coöperating with said die.

17. In a machine of the class described, a bed having a groove therein, a die-holder adjustable in said groove, a die adjustably carried by said die-holder and extending transverse to the groove, said die resting at its ends on the bed at opposite sides of the groove, combined with a punch coöperating with the said die

18. In a machine of the class described, a bed having a groove therein, a die-holder adjustably mounted in said groove, said die-holder having a dovetailed groove therein transverse to the grooves in the bed, a die adjustable in the groove in the holder and resting at its ends on the bed on opposite sides of the groove in the bed, and means to clamp the holder in the last-named groove.

19. In a machine of the class described, a bed, an adjustable die-holder seated in a groove therein, said die-holder having a transverse rib at one end resting on the bottom of the groove, a die extending transversely of the die-holder at the other end thereof and adjustably supported in a dovetailed groove therein, the ends of the die resting on the bed on opposite sides of the groove in said bed, and means to clamp the die-holder to the bed.

20. In a machine of the class described, a cutting-bed, fixed and movable knives, and punching mechanism including an adjustable die-holder seated in a groove transverse to the cutting-bed, and having a dovetail groove therein and extending lengthwise of said cutting-bed, a die fitted in said dovetail groove and resting at its ends upon the cutting-bed, means to clamp the die-holder to said bed, and means to operate the punch and movable knife in unison.

21. In a machine of the class described, a cutting-bed, fixed and movable knives, and punching mechanism including an adjustable die-holder seated in a groove in said bed, said die-holder having a transverse rib at one end resting on the bottom of the groove, a die extending transversely of the die-holder at the other end thereof, and adjustably supported in a dovetail groove therein, the ends of said die resting on the bed, and means to clamp the die-holder to the said bed.

22. In a machine of the class described, a fixed and a movable knife, means to operate the movable knife, and means to feed a sheet of metal to said knives, said means comprising a pair of fixed rolls and means to rotate the same, fixed bearings for one of said rolls, and removable bearings for the other of said rolls, said removable bearings being detachably secured to the fixed bearings.

23. In an apparatus of the class described, a fixed and a movable

knife, means to operate the movable knife, and means to feed the material to be cut to said knives, said feeding means including a pair of feed-rolls, fixed bearings for one of said rolls having a dovetail projection thereon, and removable bearings for the other roll having a groove to fit said projection.

24. In a machine of the class described, a fixed and a movable knife adapted to cut lengths from a sheet of metal, means to shape the severed lengths prior to their removal from the cutting-bed, and automatic means to feed the sheet of metal to said knives, the said sheet of metal in its forward movement operating to force the shaped length of metal from the shaping mechanism.

25. In a machine of the class described, a cutting-bed, a knife fixed therein, a movable knife, said knives being adapted to cut lengths from a sheet of metal, a pair of coöperating die members, one of said die members being adapted to receive the severed length of material from the knives, means to bring said die members together to shape the severed length between them, and feeding mechanism adapted to feed the sheet of metal forward and to force the shaped lengths from between the die members.

26. In a machine of the class described, a cutting-bed, a knife fixed therein, and a vertically-movable knife, said knives being adapted to cut lengths from a sheet of metal, a fixed die member adjacent the fixed knife, a movable die member, means to operate said movable die member, the fixed die member being adapted to receive the severed lengths of metal from the knives, and the movable die member when in its extreme position having a portion of its working face slightly above the cutting edge of the fixed knife whereby when the length of metal is shaped a portion thereof will project above said fixed knife, and means to feed the sheet of metal forward, the front edge of such sheet of metal during its forward movement engaging the projecting portion of the shaped length and forcing the same from between the die members.

27. In a machine of the class described, a fixed and a movable knife means to feed a sheet of metal to said knives, a fixed die member, a coöperating movable die member, the fixed die member being situated in line with the movable knife whereby the severed length of material falls upon said fixed die member, and the movable die member when in its lowest position having a portion of its shaping-face slightly above the cutting edge of the fixed knife, whereby the severed length of material when shaped by the dies has a portion thereof projecting slightly above the edge of the fixed knife, so that the sheet of metal as it is fed forward engages the same and forces it from between the die members.

28. In an apparatus of the class described, cutting mechanism including fixed and movable knives and means to feed the material to be severed to said knives, said feeding means including a pair of feed-rolls, bearing-blocks therefor, the bearing-block for one of said rolls having apertures larger than the journals of said roll, and having box-receiving openings transverse thereto, and boxes supporting said journals yieldingly mounted in said openings.

29. In an apparatus of the class described, cutting mechanism including fixed and movable knives and means to feed the material to be severed to said knives, said feeding means including a pair of feed-rolls, bearing-blocks therefor, the bearing-blocks for one of said rolls having vertical cylindrical boxes for the journals of the said roll, said boxes being mounted for vertical movement in said bearings, cylindrical casings fixedly mounted on said bearing-blocks, tension devices inclosed in said casings and resting on the said boxes, and means connected to the casings to apply tension thereto.

691,285. CABLEWAY. WILLIAM F. BROTHERS, Brooklyn, N. Y., assignor to the W. F. Brothers Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 30, 1901. Serial No. 53,598. (No model.)

Claim.—1. A cableway comprising a cable supported at each end by inclined sheers each held movably at the base so as to yield with variations of load upon the cable, a gravity-anchor being so suspended from each sheer upon the side opposite to the cable that the anchors may rest on the ground when the cable is under tension, substantially as set forth.

2. A cableway comprising a cable supported at each end by inclined sheers adapted to oscillate from the base with variations of load upon the cable, a gravity-anchor being so suspended from each sheer upon the side opposite to the cable that one anchor will rest on the ground while the other rises and falls, substantially as set forth.

3. A cableway comprising a cable supported at each end by inclined sheers held movably at the base so as to yield with variations of load upon the cable, a gravity-anchor being suspended from each sheer upon the side opposite to the cable, the anchors being so adjusted that when the load is at either end of the cable they will rest on the ground, substantially as set forth.

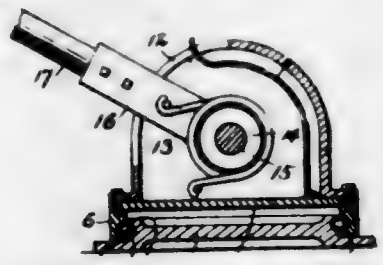
4. A cableway comprising a cable supported at each end by inclined sheers held movably at the base so as to yield with variations of load upon the cable, a gravity-anchor suspended from each sheer upon the side opposite to the cable, and supports intermediate the sheers adapted to hold up the cable, substantially as set forth.



5. A cableway comprising a cable supported at each end by inclined sheers held movably at the base so as to yield with variations of load upon the cable, a gravity-anchor suspended from each sheer upon the side opposite to the cable and adjustable supports intermediate the sheers adapted to hold up the cable, substantially as set forth.

6. A cableway comprising a cable supported at each end by inclined sheers held movably at the base so as to yield with variations of load upon the cable, a gravity-anchor suspended from each sheer upon the side opposite to the cable, supports intermediate the sheers adapted to hold up the cable and guy-lines adapted for holding the cable in a position other than in a straight line from sheer to sheer, substantially as set forth.

691,286. TROLLEY-POLE BASE. JOHN D. BUCKLEY and EDWARD H. PHINNEY, Brunswick, Me., assignors, by direct and mesne assignments, of part interest to John D. Buckley, John W. Chase, and George L. Chase, Brunswick, Me. Filed Apr. 22, 1901. Serial No. 56,965. (No model.)



Claim.—1. In a trolley-pole base, the combination with the base-plate having an annular flange provided with an annular groove, of a cap-plate provided with an annular downwardly-projecting flange having an annular groove coacting with the first-named groove to form a race, balls located in said race and locking the base-plate and cap-plate against displacement, a hood secured to the cap-plate and provided with a longitudinal slot, and a spring-actuated pole-socket consisting of a horizontally-disposed sleeve journaled in said hood and having an extension projecting through said slot, substantially as set forth.

2. In a trolley-pole base, the combination with the base-plate having an annular flange provided with an annular groove, of a cap-plate provided with an annular downwardly-projecting flange having an annular groove coacting with the first-named groove to form a race, balls located in said race and locking the base-plate and cap-plate against displacement, a hood secured to the cap-plate and provided with a longitudinal slot, a spring-actuated pole-socket consisting of a horizontally-disposed sleeve journaled in said hood and having an extension projecting through said slot, and a buffer-spring located in the path of movement of the vertical extension to serve as a buffer for the same.

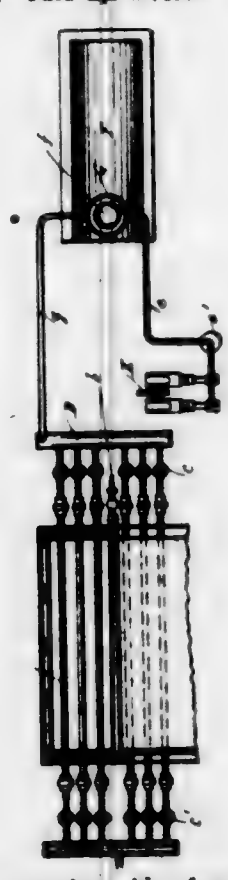
691,237. HANDSAW. WARREN C. BUELL, Indianapolis, Ind., assignor to E. C. Atkins & Company, Indianapolis, Ind., a Corporation of Indiana. Filed Oct. 16, 1899. Serial No. 733,767. (No model.)



Claim.—1. A handsaw having at one end only a handle parallel to and extending along the end edge of the blade and a looped handle extending diagonally back from said handle and from the back edge of the saw.

2. A handsaw handled at one end only having a hand-grip running along the end edge of the blade and adapted to be gripped parallel to such edge, and a loop-handle at an angle to said grip, at the back edge of the blade.

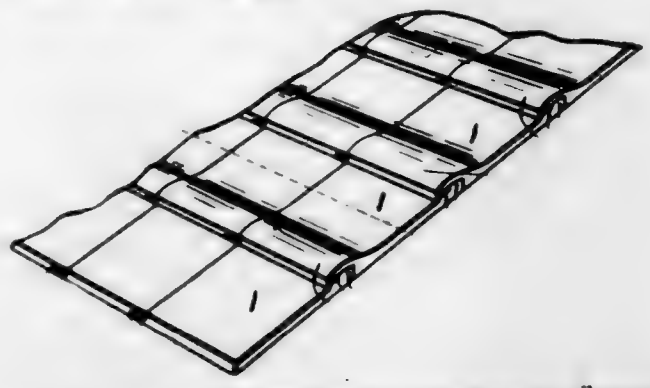
691,238. ICE-MACHINE. THOMAS H. BUTLER and ORMOND HAMMOND, Baltimore, Md. Filed Apr. 26, 1901. Serial No. 57,562. (No model.)



Claim.—1. The combination, with a freezing-tank, and a freezing-plate arranged in it; of a series of thawing-off pipes arranged in the tank adjacent to the said plate, a separate inlet and outlet valve for regulating the passage of air through each thawing-off pipe, an air-inlet manifold connecting the series of pipes, an air-compressor and intermediate pipes for forcing air into the said manifold, an air-heating drum arranged between the said compressor and manifold, and means for heating the air in its passage through the said drum, substantially as set forth.

2. The combination, with a freezing-tank, and a freezing-plate arranged in it; of a series of thawing-off pipes partially let into grooves in the sides and bottom of the said tank, and metal plates which bear on the projecting portions of the said pipes, substantially as set forth.

691,239. ROOFING-TILE. JOHN W. CARNES, Pieroe, Ohio, assignor of one-half to George Walker, Pieroe, Ohio. Filed Aug. 24, 1901. Serial No. 73,114. (No model.)



Claim.—1. As an improved article of manufacture, a tile provided with lateral flanges extended from the bottom surface and the top surface of the tile respectively, the flange extended from the bottom of the tile provided with a convexed upper face and the lateral flange extended from the top surface of the body provided with a concaved lower face, and a groove formed in the upper face of the flange extended from the bottom surface of the tile, substantially as and for the purpose specified.

2. As an improved article of manufacture, a tile provided with a plain-faced bottom, lateral flanges extended in opposite directions from the body of the tile, and flush with the top and bottom surfaces of the body respectively, a head formed at the upper end of the body, and a head formed upon the lower end of the body and provided with a concave bottom or lower face, and the flange extended from the top surface of the body provided with a concave bottom at the lower end, and a groove formed in the flange extended from the bottom surface of the tile, substantially as and for the purpose specified.

691,240. NEEDLE FOR SELF-BINDING HARVESTING-MACHINES. BAILEY C. CAUDRY and CHARLES F. DEPLANTY, Coffeyville, Kans.; said Deplanty assignor to said Caudry. Filed May 22, 1900. Serial No. 17,583. (No model.)



Claim.—1. In combination with a binder-needle for harvesting-machines, having a recess formed therein; a sectional box or bearing detachably secured within said recess; and a roller carried by said box.

2. In combination with a binder-needle for harvesting-machines, having a recess formed therein; a sectional box or bearing adapted to be secured within said recess; a roller carried by said box or bearing; and guards extending out around the roller at that portion where the twine does not come into contact or pass thereover.

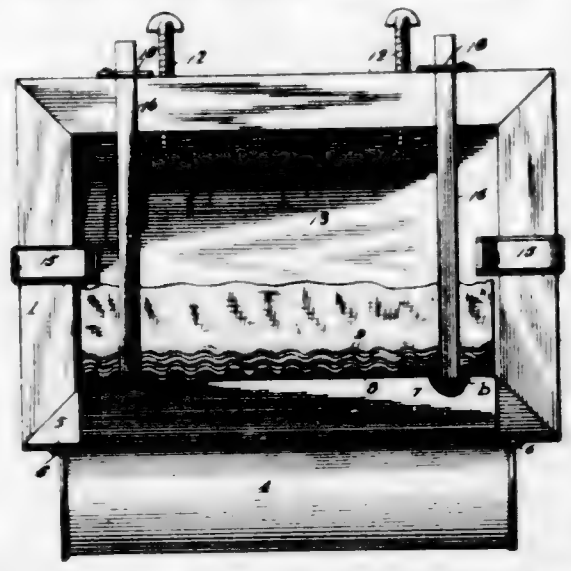
3. In combination with a binder-needle for harvesting-machines, having a recess formed therein; a two-part box or bearing detachably mounted within said recess; a roller interposed between the parts of said box; a pin extending through the roller and said box; and guards extending out from the box around a portion of the roller.

4. In combination with a binder-needle for harvesting-machines, provided with a recess therein; a two-part box or bearing adapted to be mounted within said recess; a roller carried by said box; guards extending out from the box around a portion of said roller; and a spring locking device for holding the box in its position within the recess.

5. In combination with a needle for binding-machines, provided with a recess near its outer end, and with a second recess at a point in rear thereof; a groove or channel extending between said recesses; removable boxes mounted in each of said recesses; a guide-roller carried by each of said boxes; and means for securing said boxes in position.

6. In a binder-needle for harvesting-machines, having a recess formed therein; a box or bearing detachably secured within said recess; and a guide-roller carried by said box.

691,241. PLAITING APPARATUS. ALDEN W. CHAMBERS, Nevada, Mo. Filed Apr. 20, 1901. Serial No. 56,768. (No model.)



Claim.—1. In a plaiting-board, a frame, one side of the frame having a slot extending therethrough horizontally and a receptacle attached to the frame having an opening aliming with the slot to receive the material therefrom.

2. In a plaiting-board, a frame, one side of which is provided with a slot, a receptacle having arms fitting in sockets in the frame, said receptacles having an opening in alinement with the slot of the frame, substantially as described.

3. In a plaiting-board, a frame one side of which is provided with a slot, a receptacle having arms fitting in sockets in the frame, said receptacle having an opening in alinement with the slot of the frame, a guard secured to the frame and extending over and closing the slot thereof.

4. In a plaiting-board, a suitable frame one side of which is provided with a slot, a guard fitting on the side of the frame, said guard having a corrugated depending portion, as and for the purpose described.

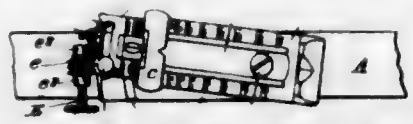
5. In a plaiting-board, a frame, a guard secured thereto having a corrugated depending portion and corrugated plaiting-strips adapted to coact with the depending portion of the guard, for plaiting and crimping as described, a clamping-bar having a metallic facing, binding-screws threaded in the frame and acting in conjunction therewith.

6. In a plaiting-board, a frame having a slot on one side, a guard secured thereto for guarding the slot, corrugated plaiting-strips adapted to coact with the guard, and means for clamping the parts.

7. A plaiting-board, a hollow frame having a hole in one side, a receptacle attached to the frame and adapted to receive the material from the frame.

8. In a plaiting-board, a frame having a slot in one side, a receptacle secured to the frame to receive the crimped material, a guard for the slot, plaiting-strips and means for binding the parts together.

691,242. SIGHT FOR FIREARMS. FREDERICK J. CHOLES, Pietermaritzburg, Natal. Filed Sept. 28, 1901. Serial No. 76,907. (No model.)



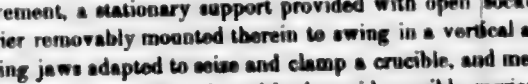
Claim.—1. An improved sight for rifles and the like, comprising a base on the rifle-barrel, a leaf-base pivoted thereto, the base and leaf-base being provided with curved engaging projections and grooves concentric with the pivot, substantially as described.

2. An improved sight for rifles and the like comprising a base secured to the barrel, a leaf-base pivoted thereto, the base and leaf-base being provided with curved grooves and projections concentric with the pivot, in combination with gearing to move said leaf-base and a means to lock the leaf-base in its adjusted position, substantially as described.

3. An improved sight for rifles and the like, comprising a base secured to the barrel, a leaf-base pivoted thereto and carrying a hinged sight-leaf, the base and leaf-base having curved dovetailed grooves and projections between the base and leaf-base concentric with the pivot and means for moving the leaf-base radially on its pivot, substantially as described.

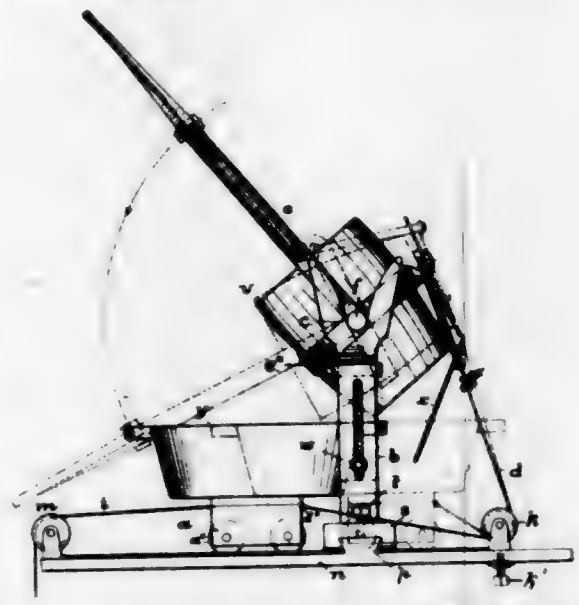
691,243. WRENCH-HANDLE. FRANK L. COES, Worcester, Mass., assignor to Loring Coes & Company, Incorporated, Worcester, Mass., a Corporation of Massachusetts. Filed Oct. 28, 1901. Serial No. 80,182. (No model.)

Claim.—1. The metal wrench-handle frame, comprising a collar portion with a circular rim, longitudinal edge filling-ribs inclosing a bar-receiving space that extends through the handle, and a web or webs integrally uniting said ribs along the bar-receiving space, said frame provided at the position of its greatest diameter, with opposite standing lips or flanges integrally formed upon both edges of the frame and adapted to receive the handle-plate flatwise inserted between them; in combination, with the wrench-bar shank extending through the handle, the attached handle-plates having end tenons and edge recesses corresponding with said lips, said handle-plate chambered for flatwise assemblage over said uniting-webs and seating on the frame, a cupped end or tip piece fixed on the bar-shank, and means securing the opposite handle-plates on the frame, all substantially as set forth.



2. In a wrench-handle, the combination with the metal handle-frame, comprising the edge filling-ribs united by side webs that extend longitudinally of the handle, and the wood scales or handle-plates chambered at their inner faces and seated upon the sides of said frame; of the standing lips or guard-flanges integrally formed upon and projecting from the opposite outer angles at both sides of said handle-frame, and embracing the edges of the handle-plates at a position intermediate to the ends thereof, for the purposes set forth.

691,244. APPARATUS FOR POURING METAL INTO MOLDS. JAMES V. COLEMAN, San Francisco, Cal. Filed June 5, 1900. Serial No. 19,176. (No model.)

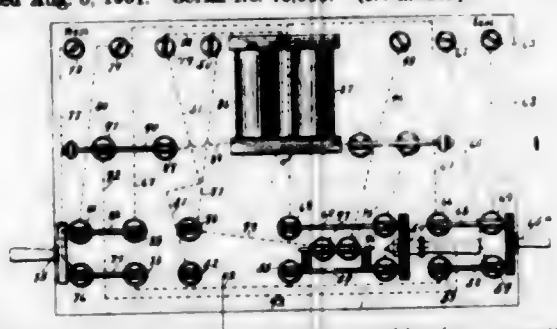


Claim.—1. In an apparatus for pouring metal into molds, a stationary base, a traveling mold-carrier mounted thereon having rectilinear movement, a stationary support provided with open sockets, a crucible-carrier removably mounted therein to swing in a vertical arc, said carrier having jaws adapted to seize and clamp a crucible, and means detachably connecting the mold-carrier with the said crucible-carrier, whereby the movements of the latter in its support produces progressive movement of the mold-carrier toward and under the crucible.

2. In an apparatus for pouring metal from a crucible into a mold, the combination of a stationary base, a traveling mold-carrier having rectilinear movement thereon, stationary supports, a tilting crucible-carrier removably mounted on said supports and consisting of hinged jaws adapted to seize and clamp a crucible and having journal portions on which it is adapted to swing in the supports, means detachably connecting the mold-carrier to the crucible-carrier whereby the movement of the latter in its support causes the mold-carrier to travel toward and under the crucible with a rate of movement proportionate to the tilting movement of the crucible as described, and means connected to the mold-carrier for returning the same to position in the reverse movement of the crucible.

3. The combination of the stationary frame having open sockets, a crucible-carrier having hinged jaws adapted to seize and clamp a crucible and having journals removably fitted to the sockets, a traveling mold-carrier movable longitudinally under the crucible-carrier, a cord connecting the mold-carrier to the crucible-carrier whereby the movements of the latter on its journals produces progressive movements of the mold-carrier under and with relation to the angular movement of the crucible as described, and a counterweight connected to the mold-carrier adapted to move the same in the opposite direction to the movement produced by the crucible-carrier.

691,245. TELEPHONE-CIRCUIT. WALTER K. COOK, Mason City, Iowa, assignor of one-fourth to Harry E. Soesbe, Mason City, Iowa. Filed Aug. 5, 1901. Serial No. 70,969. (No model.)



Claim.—1. In a telephone-circuit, in combination, a metallic circuit normally in service, a pair of telephone-terminals therein, a grounded line normally out of service, and means for disconnecting one of the telephone-terminals from the metallic circuit and connecting it with the grounded line.

2. In a telephone-circuit, in combination, a metallic return-circuit, a pair of telephone-terminals, a grounded line, means for connecting each of the telephone-terminals with one limb of the metallic circuit, and means for connecting one of such terminals with both limbs of the metallic circuit and the other with the grounded line.

3. In a telephone-circuit, in combination, a metallic circuit, telephone terminals therein, a grounded line, a switch incorporated in the metallic circuit and for cutting in when thrown, one terminal with the grounded line and the other terminal with one of the branches of the metallic circuit.

4. In a telephone-circuit, in combination, a metallic circuit, telephone-terminals therein, a grounded line, branches leading from one of the terminals, and a switch incorporated in the metallic circuit and for cutting in when thrown, one terminal with the grounded line and the branches from the other terminal with the branches of the metallic circuit.

5. In a telephone-circuit, in combination, a metallic circuit, telephone-terminals therein, a grounded line, a wire leading from one terminal, a resistance in the path of said wire, and a switch incorporated in the metallic circuit and for cutting in when thrown one terminal with the grounded line and the wire leading from the other terminal with one of the branches of the metallic circuit.

6. In a telephone-circuit, in combination, a metallic circuit, telephone-terminals therein, a grounded line, a wire leading from one terminal, a pair of bridged resistances in the path of the last-mentioned line, a branch wire running from each resistance, and a switch incorporated in the metallic circuit and for cutting in when thrown one terminal with the grounded line and each branch wire with one of the branches of the metallic circuit.

7. In a telephone-circuit, in combination, a metallic circuit, telephone-terminals therein, a wire leading from one of the terminals, a pair of resistances in bridge with the said wire, a branch leading from each resistance to a line-wire terminal, a cut-out in each of said branches, and a switch incorporated in the metallic circuit and for cutting out the metallic circuit and establishing a ground-circuit through the ground-wire and the branches connecting with the line-wire terminals.

8. In a telephone-circuit, in combination, a metallic circuit, a pair of telephone-terminals, a grounded line, and means for connecting one of the telephone-terminals alternately with one of the metallic-circuit branches and the grounded line, and the other alternately with one or both of the metallic-circuit branches.

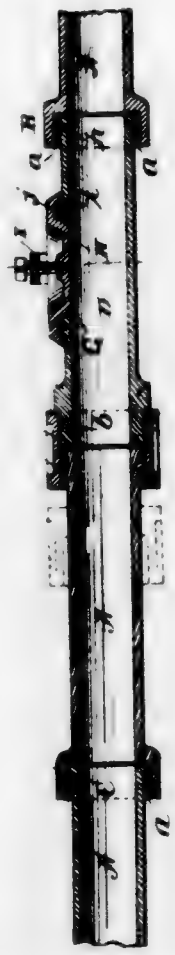
9. In a telephone-circuit, in combination, a metallic circuit normally in service, telephone-terminals therein, a grounded line normally out of service, means for connecting one of the telephone-terminals with the grounded line and for introducing a resistance between the other terminal and one of the branches of the metallic circuit.

10. In a telephone-circuit, in combination, a metallic circuit, telephone-terminals therein, a grounded line, branches leading from one of the terminals, a cut-out in each of said branches, and a switch incorporated in the metallic circuit for cutting in when thrown one terminal with the grounded line and each of the branches from the other terminal with one of the branches of the metallic circuit.

691,246. PIPE CONNECTION. ALONZO W. CRAM, Haverhill, Mass., assignor to William D. Cram, Haverhill, Mass. Filed Mar. 28, 1901. Serial No. 53,248. (No model.)

Claim.—1. A pipe connection comprising a pipe-section having at one end a screw-threaded portion, its opposite end adapted to enter the adjacent large end of another pipe connection, and a screw-hub adapted to be screwed upon the screw-threaded end of the section, the opposite end of the hub being open to receive the adjacent end of the succeeding pipe and constituting a calking-space, substantially as described.

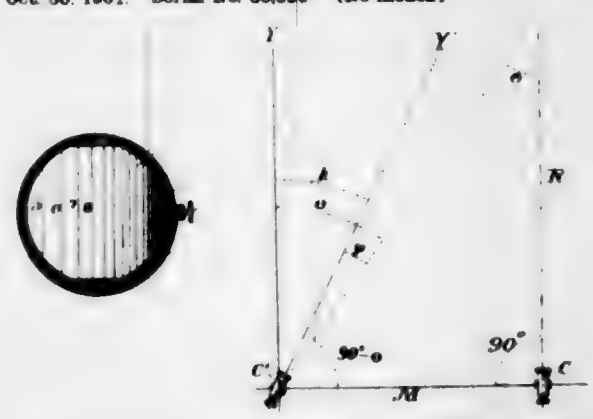
2. An improved pipe connection consisting of a pipe-section having one end adapted to coact with the adjacent end of another pipe-section, the opposite end of the section being screw-threaded, and a screw-hub having one end internally screw-threaded and of a size adapted to pass over the smaller end of the adjacent pipe-section, the opposite end of the hub being open and surrounding and constituting a calking-space between the interior of the hub and the exterior of the adjacent pipe-section, substantially as described.



3. An improved pipe connection consisting of a pipe-section having at one end an externally-screw-threaded boss, and a hub having an internally-screw-threaded end adapted to engage the screw-threaded boss, the opposite end of the hub being open and surrounding and constituting a calking-space between it and the adjacent end of the pipe-section, substantially as described.

4. An improved pipe connection consisting of a pipe-section having one end screw-threaded, a wrench-shoulder, and a hub having one end internally screw-threaded to receive the screw-threaded end of the pipe connection, its opposite end being open and surrounding and constituting a calking-space between it and the end of the adjacent pipe-section, the exterior of the hub provided with a plurality of wrench-shoulders, substantially as described.

691,247. RANGE-FINDER. CLELAND DAVIS, U. S. Navy. Filed Oct. 30, 1901. Serial No. 80,560. (No model.)



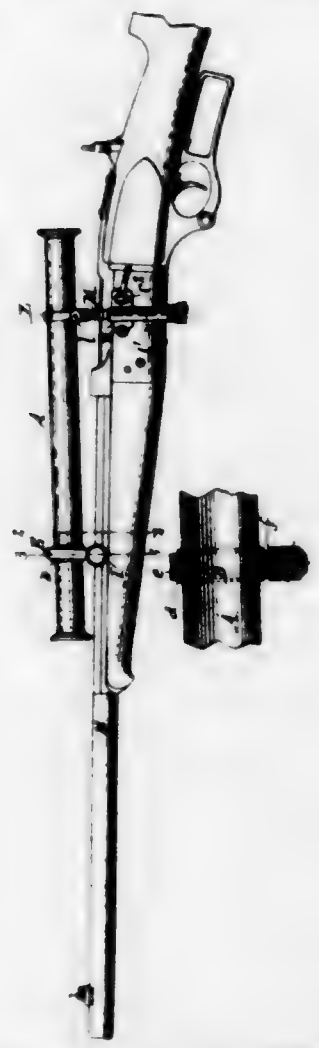
Claim.—1. In a range-finder, the combination with a telescope provided with a vertical cross-hair, of a second telescope located at a known horizontal distance from the first and having the vertical plane through its axis inclined toward the vertical plane through the axis of the first telescope, a rigid connection between the mounts of the two telescopes, and a transparent plate with vertical lines to indicate ranges ruled thereon in the focus of the second telescope, on which plate the image of the object is thrown, substantially as described.

2. In a range-finder, the combination with a telescope provided with cross-hairs, of a second telescope located at a known horizontal distance from the first and having the vertical plane through its axis inclined toward the vertical plane through the axis of the first telescope, means for adjusting the angle between the axes of the two telescopes, a rigid connection between the mounts of the telescopes, and a transparent plate with vertical lines representing ranges ruled thereon in the focus of the second telescope on which plate the image of the object is thrown, substantially as described.

3. In a range-finder, the combination with a telescope provided with a vertical cross-hair, of a second telescope located at a known horizontal distance from the first and having the vertical plane through its axis in adjustable relation to the vertical plane through the axis of the first telescope, a rigid connection between the mounts of the two telescopes, and a transparent plate with vertical lines indicating ranges ruled thereon in the focus of the second telescope, on which plate the image of the object is thrown, with means for moving said plate laterally, substantially as described.

4. In a range-finder, the combination with a telescope of large field provided with a vertical cross-hair, of a second telescope of smaller field and high magnifying power located at a known horizontal distance from the first and having the vertical plane through its axis in adjustable relation to the vertical plane through the axis of the first telescope, a rigid connection between the two mounts of the two telescopes, and a transparent plate with vertical lines indicating ranges ruled thereon in the focus of the second telescope, on which plate the image of the object is thrown, with means for moving said plate laterally, substantially as described.

691,248. TELESCOPE-MOUNTING FOR GUNS. HENRY L. DE ZEEW, Jr., Buffalo, N. Y., assignor to the Cataract Tool and Optical Company, Buffalo, N. Y. Filed May 28, 1900. Serial No. 18,152. (No model.)



Claim.—1. The combination of a gun-telescope, a spherical socket adapted to be mounted on a gun, and a spherical split ring arranged in said socket between the same and the telescope and supporting said telescope, substantially as set forth.

2. The combination of a gun-telescope, a front support, means for adjusting said support transversely, a universal connection between said telescope and said front support, a rear support capable of horizontal adjustment in a horizontal plane, and means for raising and lowering said rear support, substantially as set forth.

3. The combination with an adjusting device connecting the rear part of a telescope with a gun, of a split spherical ring which receives the front part of the telescope, and a carriage mounted on the front part of the gun and provided with a correspondingly-shaped socket which receives said ring, substantially as set forth.

4. The combination with a vertical adjusting device connecting the rear parts of a telescope with a gun, of a spherical ring adapted to receive the front part of the telescope, a carriage provided with a spherical socket which receives said ring, and a transverse adjusting device connecting said carriage with the front part of the gun, substantially as set forth.

5. The combination with a vertical adjusting device connecting the rear parts of a telescope with a gun, of a spherical ring which receives the front part of the telescope, a transversely-adjustable carriage provided with a correspondingly-shaped socket which receives said ring, a bracket which is secured to the front part of the gun and which is provided with a transverse way in which said carriage is guided, and a transverse adjusting-screw engaging with a screw-threaded opening in the bracket and provided with a collar which engages with a notch in the carriage, substantially as set forth.

6. The combination of a gun-telescope, a front support capable of lateral adjustment, means for adjusting the same laterally and a rear support mounted on a vertical pivot capable of turning horizontally, substantially as set forth.

7. The combination of a gun-telescope, a front support capable of lateral adjustment and having a spherical connection with the telescope and a rear support mounted on a vertical pivot capable of turning horizontally, substantially as set forth.

8. The combination of a gun-telescope, a front support having a movable connection with the telescope, a rear support mounted on a vertical pivot capable of turning horizontally, and an adjusting-screw for raising and lowering said rear support, substantially as set forth.

9. The combination of a gun-telescope, a front support having a movable connection with the telescope, a rear support mounted on a vertical pivot capable of turning horizontally, a pivot-socket which is supported on a transverse pivot, means for holding the pivot-socket in adjusted position, and means for raising and lowering said rear support, substantially as set forth.

10. The combination with a support movably connecting one end of a telescope with a gun, of an adjusting-shank connected with the opposite end of the telescope, a screw engaging with said shank, a supporting-plate provided with a bearing in which said screw is journaled, a pivot connecting one end of the supporting-plate with the gun, and a clamping-screw connecting the other end of said plate with the gun, substantially as set forth.

11. The combination with a support movably connecting one end of a telescope with a gun, of an adjusting-shank connected with the opposite end of the telescope, a guide-sleeve mounted on the gun and receiving said shank, a screw arranged in said sleeve and engaging with said shank, a head arranged on the screw and provided with a downwardly-facing shoulder, a retaining-cap secured to the guide-sleeve and engaging with the shoulder of the head, and a thumb-piece arranged on the head and bearing against the outer end of the retaining-cap, substantially as set forth.

691,249. TESTING-PAPER AND METHOD OF MAKING SAME. KARL DIETERICH, Heidenberg, Germany. Filed May 23, 1901. Serial No. 61,664. (No specimens.)

Claim.—1. A process of manufacturing testing-paper which is sensitive to two or more chemical substances by first providing the paper with narrow insulating stripe or coatings of a substance impervious and as far as possible indifferent to the chemicals to be tested, and thereafter applying the different testing substances in parallel, separated stripe on the paper, substantially as described.

2. A compound chemical-testing paper consisting of a sheet of paper having separated stripe of testing coloring or material thereon, separated by insulating-coatings on the paper, substantially as described.

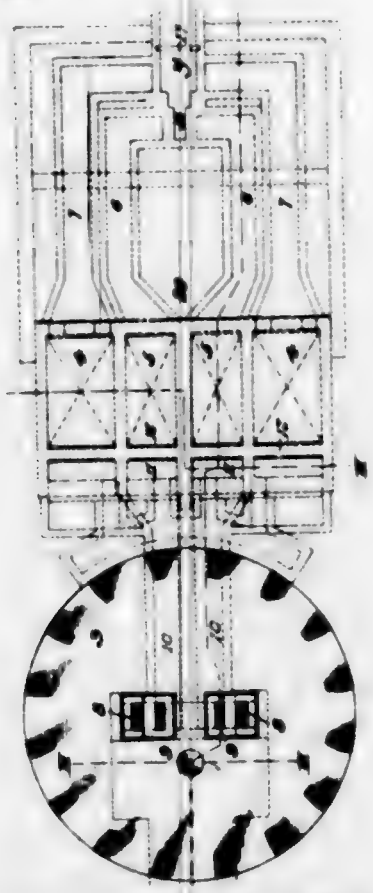
3. A compound chemical-testing paper consisting of a sheet of paper having separated stripe of testing coloring or material thereon, separated by insulating-coatings on the paper, the various stripe of testing material being sensitive to different chemical substances, substantially as described.

4. A compound chemical-testing paper consisting of a sheet of paper provided with adjacent but separated stripe of blue and red litmus coloring, separated by stripe impervious to acids and alkalies, substantially as described.

691,250. GLASS-POT FURNACE. HENRY L. DIXON, Pittsburg, Pa. Filed June 4, 1901. Serial No. 63,083. (No model.)

Claim.—1. A regenerative glass-pot furnace having two separated ports opening into the furnace-chamber, a line of pots surrounding said ports, regenerators having flues connected to the ports, and mechanism for reversing the direction of flow through the regenerators, ports, and furnace; substantially as described.

2. A regenerative glass-pot furnace having a plurality of ports opening into the furnace-chamber, a row of pots surrounding said ports, regenerators each having a flue leading to one of said ports and also arranged to be connected to an outlet-flue, and valve mechanism for reversing the flow of gases through said regenerators, ports and furnace; substantially as described.



3. A regenerative glass-pot furnace having four ports opening into the furnace-chamber, a row of pots surrounding the ports, four regenerators, each having a connection to one of said ports, and also a connection leading to a stack-flue, said regenerators being arranged in pairs and having suitable gas and air connections, and mechanism for reversing the flow through the pairs of regenerators, their connections at the furnace; substantially as described.

4. A regenerative glass-pot furnace having a plurality of ports opening into the furnace-chamber, a row of pots surrounding the ports, regenerators exterior to the furnace and each having connections to one of said ports, and mechanism for reversing the direction of the flow through said regenerators, ports and furnace; substantially as described.

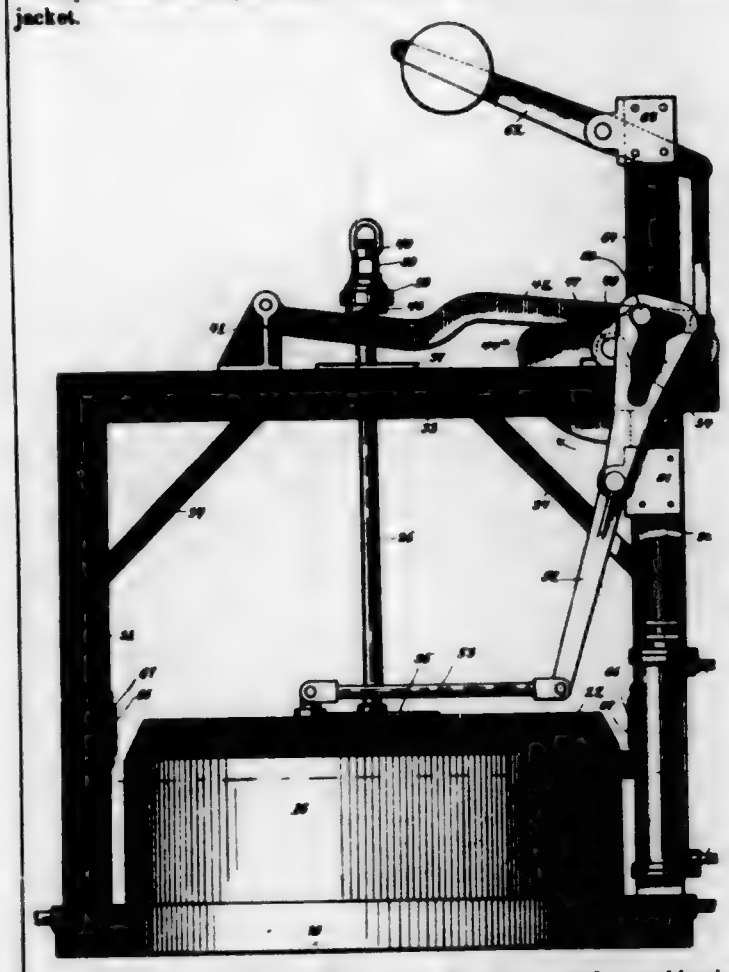
5. A regenerative pot-furnace having four ports opening into the furnace-chamber, a row of pots surrounding said ports, four regenerators external to the furnace, flues leading from the regenerators to the furnace-ports and arranged in pairs one above the other, and mechanism for reversing the direction of the flow through said regenerators, the ports, and furnace; substantially as described.

691,251. **REVERSING-VALVE FOR HEATING-FURNACES.**
JULIUS A. DYBLIE, Joliet, Ill. Filed Nov. 16, 1900. Serial No. 36,677. (No model.)

Claim.—1. The combination with inlet and outlet ports and a pair of flue-ports, all arranged in the same horizontal plane, of a movable valve mounted above said ports having a pair of chambers spaced apart from one another for alternately connecting said inlet and outlet ports with each of said flue-ports and a casing surrounding and spaced apart from said chambers and extending above the same to form a water-jacket.

2. In reversing-valves for regenerative furnaces, the combination with oppositely-arranged inlet and outlet ports and a pair of intermediate flue-ports, all located in the same horizontal plane, of a rotatable valve mounted above said ports having a pair of chambers for alternately connecting said inlet and outlet ports with each of said flue-ports, said chambers being spaced apart from one another, and each having side walls and a closed top and a cylindrical open-topped casing surrounding said chambers, extending above the tops thereof and spaced apart from said side walls to form a water-jacket.

3. In reversing-valves for regenerative furnaces, the combination with oppositely-arranged sector-shaped inlet and outlet ports and a pair of intermediate sector-shaped flue-ports, all located in the same horizontal plane, of a rotatable valve mounted above said ports having a pair of oppositely-disposed D-shaped chambers for alternately connecting said inlet and outlet ports with each of said flue-ports, said chambers being spaced apart from one another and each having side walls and a closed top and an open-top cylindrical casing surrounding said chambers, extending above the tops thereof and spaced apart from said side walls to form a water-jacket.



4. In reversing-valves for regenerative furnaces, the combination with oppositely-arranged inlet and outlet ports and a pair of intermediate flue-ports, all located in the same horizontal plane and with channels about said ports for containing sealing liquid, of a rotatable valve mounted above said ports having a pair of chambers for alternately connecting said inlet and outlet ports with each of said flue-ports, said chambers being spaced apart from one another and having their lower edges seated within said channels to be sealed by the liquid therein and a cylindrical casing surrounding and spaced apart from said chambers and extending above the same to form a water-jacket, the lower edge of said casing being extended below the lower edges of said chambers and into said channel, whereby it is sealed by the liquid therein as the valve reverses.

5. In a rotatable valve for regenerative furnaces, a bottom ring-frame having a cross-bar, a pair of oppositely-disposed D-shaped chambers spaced apart from one another, each having side walls and a closed top and secured at its lower end to the inner periphery of said ring-frame and to said cross-bar and an open-top cylindrical casing surrounding said chambers and extending above the tops thereof to form a water-jacket, said casing being secured at its lower end to the outer periphery of said ring-frame.

6. In a rotatable reversing-valve for regenerative furnaces, a bottom ring-frame, a pair of chambers spaced apart from one another and each having side walls and a closed top and secured at its lower end to said ring-frame, a cylindrical open-top casing surrounding said chambers, extending above the tops thereof and spaced apart from said side walls to form a water-jacket, a cross bar or bars extending across the top of said cylindrical casing and supporting-rods secured to said cross bar or bars and to the tops of said chambers.

7. In reversing-valves, the combination of a plate having ports, channels about said ports for containing a sealing liquid, a valve coöperating with said ports and adapted to be seated within said channels to be sealed by the liquid therein, a water-jacket surrounding said valve and an overflow-pipe leading from said valve-jacket, arranged to maintain cooling liquid therein at a predetermined level and discharging into said channel.

8. In reversing-valves for regenerative furnaces, the combination with inlet and outlet ports and a pair of flue-ports, all located in the same plane, of a valve mounted above said ports having a pair of chambers for alternately connecting said inlet and outlet ports with each of said flue-ports, a casing surrounding and spaced apart from said chambers and extending above the same to form a water-jacket and an overflow connected to said water-jacket for maintaining cooling liquid therein above the tops of said chambers.

9. In reversing-valves for regenerative furnaces, the combination with the oppositely-disposed inlet and outlet ports and the pair of inter-

mediate flue-ports, all located in the same plane, and with channels for containing sealing liquid about said ports, of a rotatable valve mounted above said ports with its lower edges extending within said channels, a supporting-rod fixed to the upper end of said valve, a bearing-block rotatably mounted upon the upper end of said rod, a pivoted lever engaging said bearing-block, a rotatable shaft having fixed thereto a sector-shaped cam operatively engaging said pivoted lever, a crank mounted on said shaft and connections between said crank and said valve whereby said valve may be raised, reversed and lowered by the rotation of said shaft in one direction.

10. In reversing-valves for regenerative furnaces, the combination with inlet and outlet ports and a pair of intermediate flue-ports, all located in the same plane, and with channels for containing sealing liquid about said ports, of a rotatable valve mounted above said ports with its lower edges extending within said channels, a rotatable shaft, means operated by said shaft for raising and lowering said valve, a crank-arm on said shaft and a pivoted lever connected to said valve and having a cam-slot engaging said crank for reversing said valve when in its raised position.

11. In reversing-valves, the combination with inlet, outlet and flue ports, of a movable valve therefor, a water seal for the lower edges of said valve, a rotatable shaft having a cam and a crank-pin, a horizontally-pivoted lever connected to said valve and cooperating with said cam, a vertically-pivoted lever connected to said valve and having a cam-slot cooperating with said crank-pin, whereby said valve may be raised, reversed and lowered, substantially as described.

12. In reversing-valves for regenerative furnaces, the combination with oppositely-arranged inlet and outlet-ports and a pair of intermediate flue-ports, all located in the same plane, of a valve mounted above said ports having chambers for alternately connecting said inlet and outlet ports with each of said flue-ports, a water seal about said ports for the lower edges of said valve, a rotatable shaft having a cam and a crank-pin, a pair of pivoted levers respectively arranged to be operated by said cam and said crank and connections between each of said levers and said valve, whereby the latter may be raised, reversed and lowered by the continuous rotation of said shaft in the same direction.

13. In reversing-valves for regenerative furnaces, the combination with inlet and outlet ports and a pair of intermediate flue-ports, all located in the same horizontal plane and with channels for containing sealing liquid about said ports, of a rotatable valve mounted above said ports with its lower edges extending within said channels, a shifter arranged to raise and lower said valve at the beginning and end respectively of its stroke, a second shifter arranged to reverse said valve, and a movable member connected to operate said shifters and having a pin-and-slot lost-motion connection with said second shifter, whereby the valve will be raised, reversed and lowered during a single stroke of said movable member in one direction.

14. In reversing-valves, the combination with inlet, outlet and flue ports, of a valve therefor, a water seal for the lower edges of said valve, means for raising, reversing and lowering said valve, stops for limiting the extent of its movement and catches for engaging said stops.

15. In reversing-valves, the combination with inlet, outlet and flue ports, of a valve therefor, a water seal for the lower edges of said valve, means for raising, reversing and lowering said valve, stops for limiting the extent of its movement, catches for engaging said stops and guards for said catches.

16. In reversing-valves, the combination with inlet, outlet and flue ports, of a valve therefor, a water seal for the lower edges of said valve, means for raising, rotating and lowering said valve, stops on said valve for limiting the extent of its rotation, pivoted catches for engaging said stops and pendulum guard-plates pivoted to said catches, whereby the catches will only engage said stops as the valve is rotated toward said catches in its raised position.

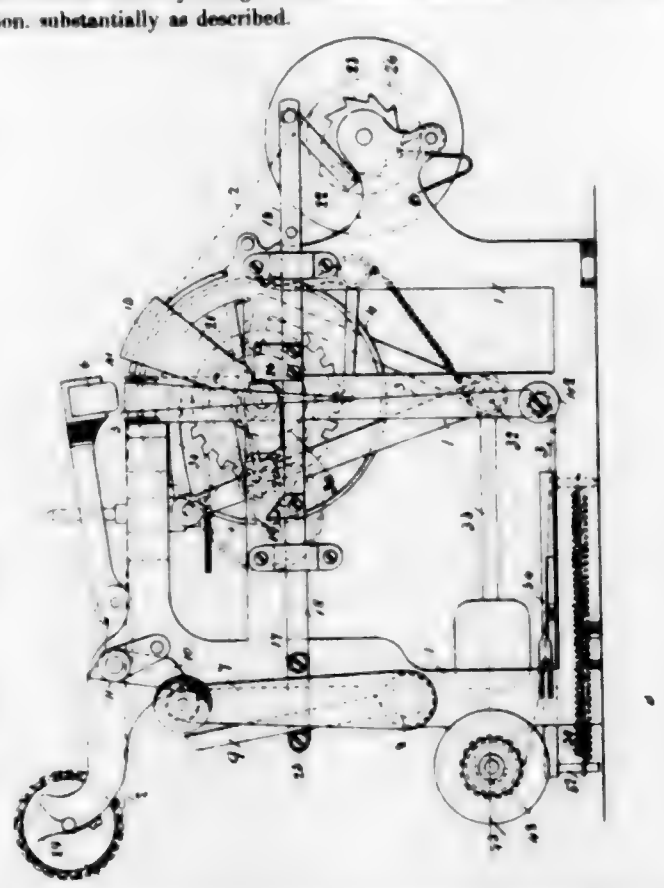
17. In reversing-valves for furnaces, the combination of air and gas inlet and outlet ports and flue-ports, of a pair of rotatable, water-sealed reversing-valves for alternately connecting said air and gas inlet ports and said outlet-ports with said flue-ports, a motor for raising, reversing and lowering each of said valves and a single controlling-valve for both of said motors.

18. In reversing-valves for furnaces, the combination with air and gas inlet and outlet ports and flue-ports, of a pair of reversing-valves for alternately connecting said air and gas inlet ports and said outlet-ports with said flue-ports, a pair of motor-cylinders for reversing said valves, a four-way valve, and pipes connecting each end of each of said cylinders with said four-way valve, whereby said cylinders may be simultaneously thrown into operation for reversing said air and gas valves

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691,252. WORKMAN'S TIME-RECORDER. HARRY DYSON, Lockwood, Huddersfield, England, assignor of three-fourths to Joseph Shaw Gaunt, Manchester, England. Filed June 25, 1901. Serial No. 66,030. (No model.)

Claim.—1. A workman's time-recording apparatus, comprising revolving type-wheels, a shaft therefor, a snail on the shaft, a locking-lever, levers 35 and 31 operated by the snail to release the locking-lever upon each revolution of the snail and to advance the before-locked type-wheel, a second lever 37 on the lever 35 freely pivoted thereto and having an incline resting on the shaft, a catch on the end of the lever adapted to engage the locking-lever when in a forward position, but adapted to be drawn off said catch by rising on its incline when moved in the other direction, substantially as described.



2. In a workman's time checking and recording apparatus, the combination with the revolving type-wheels of rocking-shaft 32, lever 35, loose working catch 34, square-notched wheel 36 connected to the boss of the hour type-wheel, of a second catch-lever 37, a lever 31, a snail on the minute-wheel to actuate it, said catch-lever 37 resting upon the shaft of the hour type-wheel and having an inclined plane 37* so situated that when the lever 31 and catch 37 are moved forward the latter falls and engages a locking device, consisting of a finger 39 and a square-nosed catch 40 to act on the teeth of the said wheel 36 to lock the type-wheels fast and to release them when the required change is to be made, substantially as described.

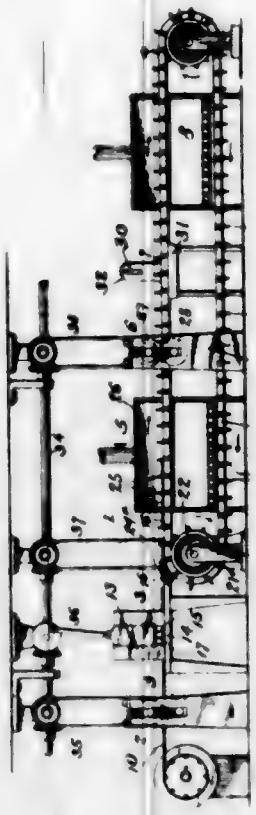
3. A workman's time checking and recording apparatus, comprising an operating-handle, a shaft therefor, an opening and a screen therefor, a paper-reel and a ratchet therefor, in combination with a sliding bar and means to operate it from the shaft of the operating-handle, said bar carrying means to operate the screen and also carrying means to operate the ratchet of the paper-reel, substantially as described.

4. A workman's time checking and recording apparatus comprising an operating-handle, a shaft therefor, an opening and a screen therefor, a paper-reel and a ratchet therefor, in combination with a sliding bar and means to operate it upon the movement of the handle-shaft, said bar carrying an inclined plane, to operate the said screen when moved in one direction, and a block to lock said screen against moving when in its normal position, and a pawl on the rod to operate the paper-reel ratchet, all substantially as described.

5. In a workman's time checking and recording apparatus, type-wheels, an impression-hammer and lever therefor, a tripping-lever 10, a handle and a shaft therefor, a lever 9 on the shaft and adapted to abut against the tripping-lever 10, when the handle is drawn forward and a spring adapted to return both the parts to their normal position upon the release of the handle, substantially as described.

6. A workman's time checking and recording apparatus comprising type-wheels, hammer, screen, paper-reel and ratchet therefor, a ribbon-feed and a ratchet and two ribbon-wheels therefor, a handle and shaft therefor, a trip mechanism for the hammer, an operating and locking device for the screen and pawl mechanisms to operate the ribbon and paper feed, all operated from the handle-shaft, in combination with a pivoted lever having forked ends through which the ribbon is adapted to pass, enlargements on the ribbon, of greater width than the forked ends, and a spring-operated clutch mechanism adapted to select either of the ribbon-wheels to turn with the ratchet, said spring mechanism in turn being controlled by the forked lever, substantially as described.

691,253. MACHINE FOR FORMING, SHAPING, HARDENING, AND TEMPERING METAL BLANKS. EDGAR R. FAY, New York, N. Y. Filed Apr. 10, 1901. Serial No. 55,152. (No model.)



Claim.—1. In an improved machine of the class described, means for feeding the stock, a punch for severing the blank units from the stock, said punch being provided with a projecting bed-plate, and an endless carrier which passes in one phase of its movement beneath said bed-plate whereby the blank units may be directly successively and positively fed to the same by the feed movement of the stock.

2. In an improved machine of the class described, means for feeding the stock, severation means for severing the blank units from the stock, an endless carrier onto which the blank units are successively and positively fed by the feed movement of the stock, and shaping means to which the blank units are advanced and from which the blank units are withdrawn by the endless carrier.

3. In an improved machine of the class described, shaping means, and means for advancing the work to and withdrawing the work from said shaping means consisting of an endless carrier which is operatively associated with said shaping means.

4. In a machine of the class described, means for feeding the stock, severation means for severing the blank units from the stock, an endless carrier onto which the blank units are fed by the feed movement of the stock, said endless carrier consisting of two spaced endless link belts, and shaping-rollers between which the blank units are fed by the link belts, said shaping-rollers being provided with spaced end bearings between which said link belts pass in the upper phase of their movement.

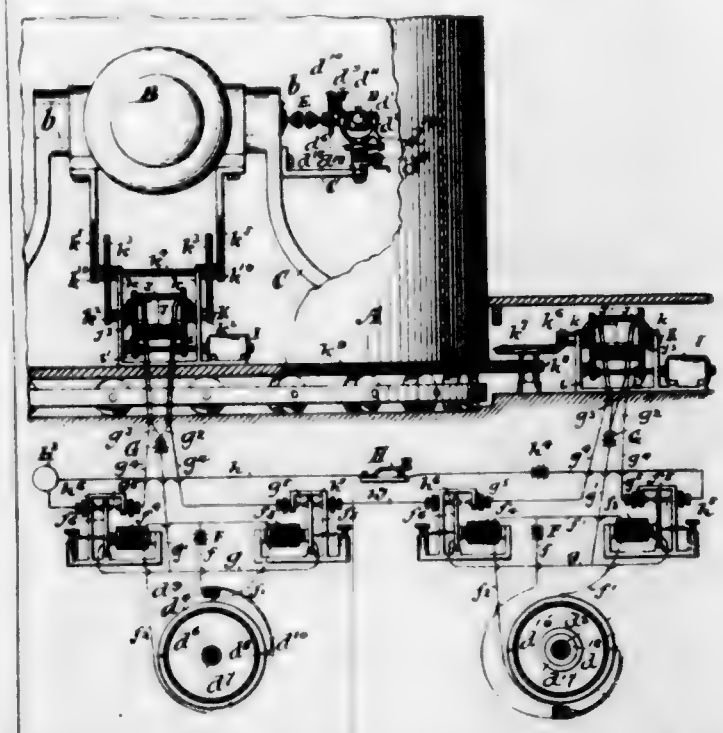
5. In a machine of the class described, means for feeding the stock, severation means for severing the blank units from the stock, an endless carrier onto which the blank units are fed by the feed movement of the stock, said endless carrier consisting of two spaced endless link belts, standards between which said link belts move, and shaping-rollers provided with end bearings which are journaled in said standards and between which the blank units are fed by the endless link belts, said link belts being accommodated in their movement between said end bearings and between the ends of said rollers and said standards.

6. In a machine of the class described, means for feeding the stock, severation means for severing the blank units from the stock, an endless carrier onto which the blank units are fed by the feed movement of the stock, said endless carrier consisting of two spaced endless link belts, a heating-furnace through the heating-chamber of which said link belts pass, and shaping-rollers between which the blank units are fed by said link belts, said shaping-rollers being provided with spaced bearings between which said link belts are accommodated in their movement.

7. In an improved machine of the class described, shaping-rollers, and means for advancing the work to and withdrawing the work from said shaping-rollers; said means consisting of an endless carrier the path of movement of which at one point cuts the plane in which lie the axes of said shaping-rollers, and intermediate of said axes.

8. In an improved machine of the class described, shaping-rollers provided with spaced end bearings, and an endless carrier whereby the work is advanced to and withdrawn from the shaping-rollers; said endless carrier consisting of spaced members which pass between the end bearings of said shaping-rollers.

691,254. MEANS FOR POSITIONING AND FIRING HEAVY ORDNANCE. THEODORE M. FOOTE, Brooklyn, N. Y., assignor to Edwin H. Brown, borough of Manhattan, New York, N. Y. Filed Jan. 12, 1899. Serial No. 701,898. (No model.)



Claim.—1. The combination of an ordnance-piece, an adjustable sighting means, a controller having one part connected and movable with the sighting means, and one part connected and movable with the ordnance-piece, said controller being adapted to positively open and close a circuit or circuits, a motor, electric devices for controlling the movement of the ordnance-piece, and a circuit or circuits for said electric devices in which the controller is included, whereby the adjustment of the sighting means actuates the controller and causes the operation of the electric devices to move the ordnance-piece to a firing position, such movement of the ordnance-piece continuing until the ordnance-piece has reached a firing position in case the sighting means shall have reached the object before the ordnance-piece.

2. The combination of an ordnance-piece, an adjustable sighting means, a controller having one part connected and movable with the sighting means, and one part connected and movable with the ordnance-piece, said controller being adapted to positively open and close a circuit or circuits, a motor, electric devices for controlling the movement of the ordnance-piece, a circuit or circuits for said electric devices in which the controller is included, a magnet included in said circuit or circuits, having a movable armature, and a firing-circuit in which said movable armature is included.

3. The combination of an ordnance-piece, an adjustable sighting means, a controller for positively opening and closing a circuit or circuits, said controller having a part connected and movable with the sighting means and a part connected and movable with the gun, and said last connection comprising telescopic portions and a universal joint, a motor, electric devices for controlling the movement of the ordnance-piece, and a circuit or circuits for said electric devices in which the controller is included, whereby the adjustment of the sighting means actuates the controller and causes the operation of the electric devices to move the ordnance-piece to a firing position, such movement of the ordnance-piece continuing until the ordnance-piece has reached a firing position in case the sighting means shall have reached the object before the ordnance-piece.

4. The combination with an ordnance-piece, mechanism and a motor for effecting its movement vertically, mechanism and a motor operating it for effecting its movement laterally, an electric device for controlling each mechanism, a governing-circuit for each of said devices, a two-part controller provided in each of said governing-circuits for positively opening and closing said circuits, one part of each controller being adapted to be moved with the ordnance-piece, and a telescope adapted to be adjusted vertically and laterally and to have the other part of each controller moved with it, substantially as described.

5. The combination with an ordnance-piece, mechanism and a motor for effecting its movement to position it for firing, an electric device for controlling said mechanism, a circuit for said electric device, a two-part controller in said circuit for positively opening and closing it, one part of

which is connected with the ordnance-piece so as to move in unison with it, and the other part of which is connected to a telescope so as to move in unison with it, an adjustable telescope, and means in connection with said controller for moving one part relatively to the other, substantially as described.

6. The combination with an ordnance-piece, mechanism and a motor for effecting its movement to position it for firing, an electric device for controlling said mechanism, a circuit for said electric device, which, when closed, permits the device to operate, and when open stops the same; a two-part controller in said circuit adapted to keep the circuit open when the parts thereof are in one position, one of said parts being connected with the ordnance-piece so as to move in unison with it, and the other part being connected with the telescope so as to move in unison with it, and a telescope, the adjustment of which causes the controller to be actuated to close the circuit, which circuit will remain closed until the part moving with the gun reaches a position relatively to the other part of the controller to have the circuit open, substantially as described.

7. The combination with an ordnance-piece, mechanism and a motor for effecting its movement to position it for firing, an electric device for controlling said mechanism, a circuit for said device, which, when closed, permits said device to operate, a controller in said circuit comprising two movable parts, insulation carried by one of said parts, against which the other part normally bears to have the circuit open, a connection between one of said parts and the ordnance-piece, and a connection between the other part and a telescope, and an adjustable telescope, the movement of which causes the part connected therewith to move to close the circuit and permit the electric device to effect the operation of the mechanism, whereby the part moving with the ordnance-piece will cause the insulation to come under the other part to again open the circuit, substantially as described.

8. The combination with an ordnance-piece, means in connection therewith for moving it into a firing position, an electrically-controlled device connected with said means for controlling the operation thereof, said device comprising two clutches, and each clutch comprising a part which carries operating-magnets and is loosely mounted on a power-shaft, a friction-pulley keyed to the power-shaft, and a friction-band for operatively connecting the loose part with the friction-pulley.

9. The combination with an ordnance-piece, means in connection therewith to move it into a firing position, an electrically-controlled device connected with said means for controlling the operation thereof, said device comprising two clutches, each of which comprises a loosely-mounted revolving part carrying electromagnets, a pulley adjacent to each part that is fast on a shaft, a band carried by each revolving part, loosely surrounding the pulley and adapted to be tightened when the magnets are energized, a circuit for said electromagnets, and means for opening and closing said circuit, substantially as described.

10. The combination with an ordnance-piece, a motor, mechanism operated by said motor for moving the ordnance-piece, an electric device connected with said mechanism for controlling the operation thereof in either of two opposite directions, a circuit and source of power for said electric device, a make-and-break device movable with the ordnance-piece and a telescope, and the adjustable telescope, whereby its adjustment will close the circuit and cause the mechanism to move the ordnance-piece to a firing position.

11. The combination with an ordnance-piece, mechanism and a motor for effecting its movement vertically, mechanism and a motor for effecting its movement laterally, an electric device for controlling each of said mechanisms, a governing-circuit for each of said devices, which, when closed, permits its device to operate, a controller having a plurality of parts for each of said circuits, each of said controllers having a part connected with the ordnance-piece so as to move in unison with it, and another part connected with a telescope so as to move with it, and an adjustable telescope, substantially as described.

12. The combination with an ordnance-piece, means in connection therewith for positioning it, an electric device having two reversely-revolving parts and two normally stationary parts comprised in said means, an electric circuit including magnets for operatively connecting each revolving part to a corresponding stationary part, a controller for each of said circuits, each of said controllers comprising a disk carrying insulation, and a contact-finger which rests normally on said insulation, and means for moving said contact-finger on either side of the insulation.

13. The combination with an ordnance-piece, means for positioning said ordnance-piece for firing, an electric device having two reversely-revolving parts and two normally stationary parts for controlling said means, an electric circuit for operatively connecting each revolving part to its corresponding stationary part, a controller in said circuit, said controller comprising two parts, one of which is a disk carrying insulation, and connected with the ordnance-piece to move in unison therewith, and the other of which is a contact-finger which rests normally on the insulation carried by the disk, and means for moving said contact-finger onto either side of the insulation according to which revolving part is to operate the positioning means.

14. In combination with an ordnance-piece, means in connection therewith for positioning it for firing, an electric device comprising two clutch parts for controlling said means, an electric circuit for each clutch part, a movable armature in each of said circuits, a third circuit comprising an electromagnet for each movable armature in said first-mentioned circuits, a controller comprising a disk carrying insulation, and a contact-finger normally resting on said insulation, and means for moving said contact-finger to either side of said insulation for closing the circuit through one or the other of said magnets, substantially as described.

15. In combination with an ordnance-piece, mechanism and a motor operating it for effecting its movement vertically, and mechanism and a motor for effecting its movement laterally, an electric device for controlling each of said mechanisms, comprising two clutch parts which operate in opposite directions, an electric circuit for each clutch part of each electric device, said circuits each comprising a movable armature, a third circuit for the two circuits of each clutch part, which comprises an electromagnet for each armature, a controller for each third circuit, comprising a disk carrying insulation, and a contact-finger and a firing-circuit for said ordnance-piece, said firing-circuit being completed through the armatures of all the magnets when the said armatures are not attracted by their respective electromagnets.

16. In combination with an ordnance-piece, means for positioning said ordnance-piece for firing, electric clutch devices for controlling said means, said clutch devices comprising two parts loosely mounted on a shaft and adapted to rotate in opposite directions, a pulley that is fastened in said shaft adjacent to each part, an electromagnet carried by each of said parts and each provided with an armature, means also carried by said parts and operated on the movement of the armature of the same part to cause the pulley adjacent to said part to turn with it, an electric circuit for each electromagnet, and means for opening and closing said circuits, substantially as described.

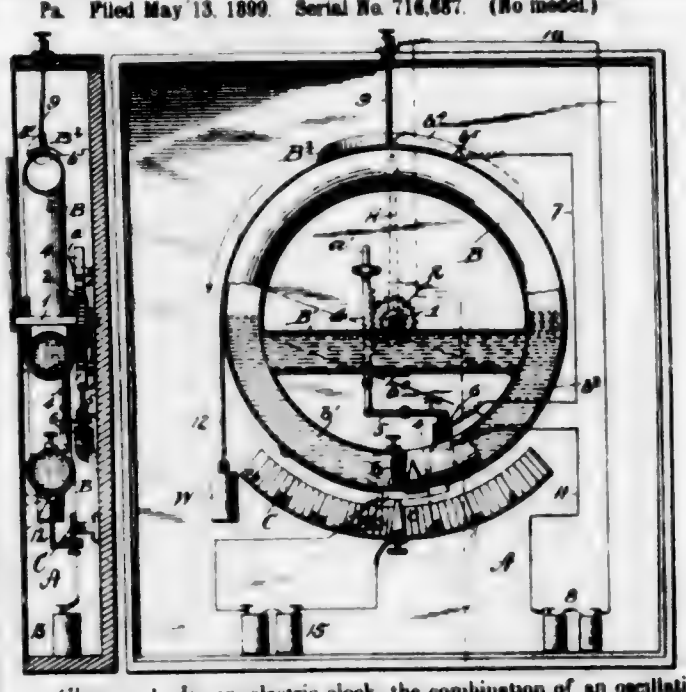
17. An apparatus for aiming guns, comprising a sighting means, a range-adjuster connected therewith and partaking of the movement thereof, a motor, and electric connections between the range-adjuster and the motor, whereby the motor causes the gun to automatically follow the movement of the range-adjuster, and sighting means, which automatically controls the movement of the gun.

691,255. **VETERINARY REMEDY.** RICHARD H. FOX, Manchester, Okla. Filed Oct. 25, 1901. Serial No. 79,947. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of pure air-slaked lime; common lampblack, common sulfur, and pure old-style indigo, substantially as described and for the purpose specified.

2. The herein-described composition of matter to be used for curing saddle or harness galls, and other wounds, bruises, sores, and injuries of horses and other animals, consisting of pure air-slaked lime, one pound; common lampblack, one ounce; common sulfur, one-half ounce, and pure old-style indigo, one-fourth ounce, substantially as described and for the purpose specified.

691,256. **ELECTRIC CLOCK.** WILLIS W. FRANTZ, Waynesboro, Pa. Filed May 13, 1899. Serial No. 716,687. (No model.)



Claim.—1. In an electric clock, the combination of an oscillating wheel divided by a valve at its bottom and connected by a passage above

said valve and containing fluid, an electric mechanism for oscillating said wheel in one direction, and means for operating it in the opposite direction by gravity against the weight of the fluid, which is permitted to flow through said valve, and the clock and indicating mechanism, substantially as set forth.

2. In an electric clock, the combination of the wheel containing liquid and mounted to oscillate on a shaft, said shaft, indicating-hands thereon, electrically-operated mechanism for operating said wheel in one direction, a weight for operating it in the other, a clutch mechanism connecting the chamber and the shaft to operate said shaft when said wheel is operated by said weight, and a valve in said wheel for regulating the flow of the liquid therein from one side to the other, substantially as set forth.

3. In an electric clock the combination of a pivoted annular chamber divided into sections, and having a passage extending from one side to the other above its lower portion, permitting the fluid to flow freely from one section to the other when the chamber is tilted in one direction; a gravity driving device for moving the said chamber in the reverse direction, and means for controlling the flow of fluid from one section to the other while the chamber is being moved in the reverse direction, thereby regulating the speed of the said chamber, substantially as set forth.

4. In an electric clock the combination, of a shaft, an annular hollow wheel, mounted thereon, a regulating-valve dividing the chamber into sections, a pipe or passage connecting the two sections and arranged above the said valve, and means for oscillating the said chamber, substantially as set forth.

5. In an electric clock the combination of an oscillating hollow wheel for fluid, divided into sections and provided with means for regulating the distribution of the fluid in the said sections; of an electromagnet, intermediate mechanism between the said electromagnet and chamber whereby the said chamber is tilted in one direction when the electromagnet is energized, and a circuit making and breaking device operated by the said chamber and controlling the current through said electromagnet, substantially as set forth.

6. In an electric clock, the combination, of a pivoted chamber for fluid divided into sections and provided with means for regulating the distribution of the fluid in the said sections; of an electromagnet and intermediate mechanism operating to tilt the said chamber in one direction; a weight for moving the said chamber in the reverse direction; and a circuit making and breaking device controlling the said electromagnet and operated by the said chamber, substantially as set forth.

7. In an electric clock, the combination, of an oscillating hollow wheel containing fluid and divided into sections, a regulating-valve between said sections, a shaft carrying the indicating-hands, a clutch connecting said wheel and shaft to operate together in one direction, a magnet and gear arranged to operate said wheel in one direction when said magnet is energized, an electric circuit, a circuit maker and breaker operated by said wheel, and gravity mechanism for operating said wheel when said circuit is broken, substantially as set forth.

8. The combination, of an oscillating chamber, a valve dividing it, electric mechanism for operating it in one direction, gravity mechanism for operating it in the other, and a circuit maker and breaker controlled thereby, substantially as set forth.

691,257. MANUFACTURE OF THREADS, &c., FROM CELLULOSE. MAX FREMERY and JOHANN URBAN, Oberbruch, Germany. Filed June 20, 1899. Serial No. 721,260. (No specimens.)

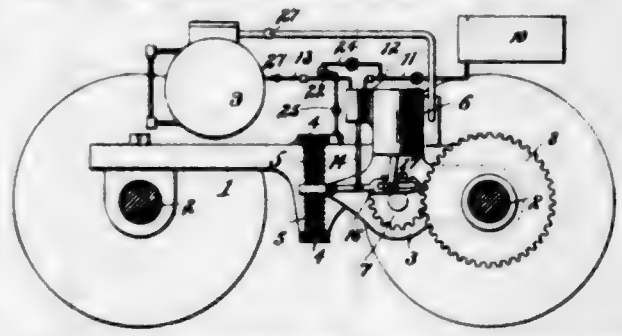
Claim.—As an improvement in the manufacture of threads obtained from dissolved cellulose, the herein-described process consisting in first obtaining threads, strips or other such products from the cellulose solutions, then winding up these cellulose products, while freshly produced, and then directly subjecting these cellulose products while wound up to the action of a low heat not exceeding about 40° centigrade, whereby the threads wound on spools or rollers are held in their natural tension, substantially as described.

691,258. SCREW-PROPELLED BOAT. HERMAN T. GAY, Baltimore, Md. Filed July 16, 1901. Serial No. 68,467. (No model.)



Claim.—A boat having an opening in its bottom, and a box situated under the said opening, combined with a propeller-shaft which enters the said box and is journaled therein, a spiral gear secured to the portion of the propeller-shaft which is within the said box, a bed-plate secured to the inner side of the boat-bottom and over the opening therein, a counter-shaft placed at a right angle with the propeller-shaft and having its ends journaled in bearings formed as parts of the said bed-plate, a spiral gear tight on the said counter-shaft, a sprocket-wheel tight on the said counter-shaft, a frame erected on the said bed-plate carrying a driving-shaft with a tight sprocket-wheel, a chain belt which connects the two sprocket-wheels, and means to rotate the main driving-shaft and its sprocket-wheel, substantially as, and for the purpose specified.

691,259. FEED-REGULATOR FOR MOTORS. WILLIAM R. GIBBS, Fanwood, N. J., assignor of one-half to Henry Berg, Orange Valley, N. J. Filed May 8, 1901. Serial No. 59,220. (No model.)



Claim.—1. The combination with a motive apparatus, comprising a motor movably supported so as to change its position under changes of load, and means for supplying operating fluid to same, of a feed-regulating device operated by the movements of the motor under changes of load to control the supply of fluid to the motive apparatus.

2. The combination with a steam motive apparatus comprising a boiler, a steam-motor, movably connected thereto and with its frame mounted so as to change its position on changes of load, and a pump supplying water to said boiler, of a feed-regulating device connected to the motor-frame and to a relatively fixed part and controlling the feed of water to the boiler in accordance with the load on the engine.

3. The combination with a motive apparatus comprising a motor operated by a fluid medium, of means controlling the supply of operating fluid to the motive apparatus, consisting of a dynamometric device responsive to the load on the motor and a feed-regulator for the fluid-supply controlled by said dynamometric device.

4. The combination with the steam-engine, boiler and feed-pump, of a dynamometric device responsive to the load on the engine and a feed-regulating device connected to said dynamometric device and controlling the feed of water to the boiler.

5. The combination with the steam-engine, boiler and a feed-pump operated by the engine, of a by-pass around the pump, a valve in such by-pass, and a dynamometric device responsive to the load on the engine and controlling said by-pass.

6. The combination with the boiler and a feed-pump, and a spring-supported engine whose frame is movable under changes of load, of a by-pass around the pump, including a valve and a controlling means for said valve responsive to movement of the engine-frame, substantially as and for the purpose set forth.

7. The combination with the boiler, feed-pump and the spring-supported motor whose frame is movable under changes of load, of a controlling device for the feed-pump responsive to movement of the motor-frame, substantially as and for the purpose set forth.

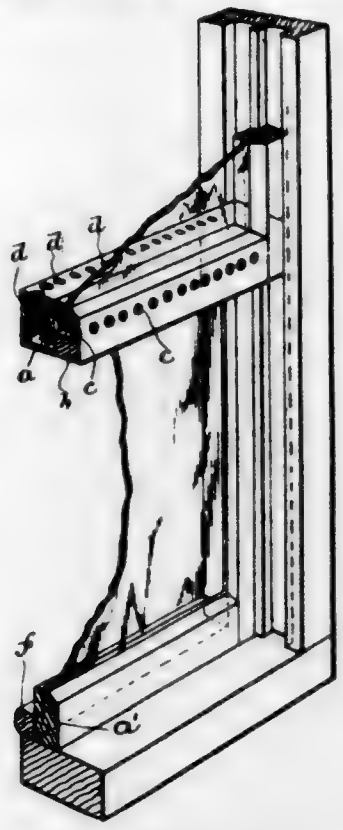
691,260. VENTILATING-WINDOW. ERNEST A. GIESKER, Boston, Mass. Filed May 16, 1901. Serial No. 60,441. (No model.)

Claim.—1. A ventilating-window comprising an inner and an outer sash relatively movable in parallel planes and having air-ducts in their meeting-rails, the ducts of the inner sash being out of connection with the ducts of the outer sash when both sashes are closed, and adapted to be brought into connection with the ducts of the outer sash by a movement of the inner sash.

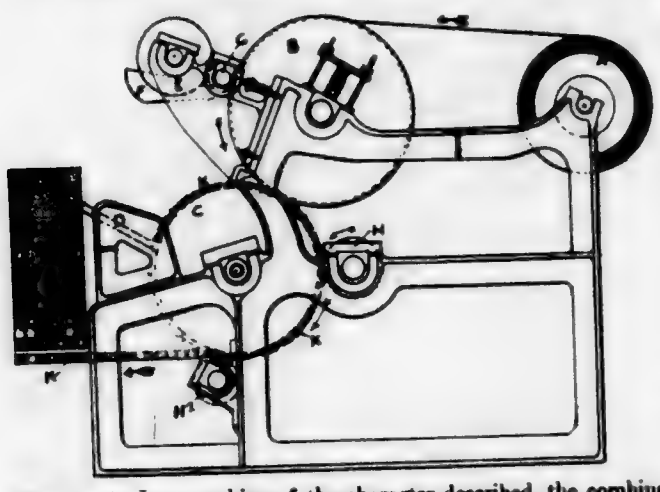
2. A ventilating-window comprising an inner and an outer sash relatively movable in parallel planes, the meeting-rail of the outer sash having transverse air-ducts extending from its outer to its inner side while the meeting-rail of the inner sash has air-ducts extending from its outer to its upper side, the ducts of the inner sash being out of connection with the ducts of the outer sash when both sashes are closed, and adapted to be brought into connection with the ducts of the outer sash by a movement of the inner sash.

3. A ventilating-window comprising an inner and an outer sash relatively movable in parallel planes and having air-ducts in their meeting-rails, the ducts of the inner sash being out of connection with the ducts of the outer sash when both sashes are closed, and adapted to be brought into connection with the ducts of the outer sash by a movement of the

inner sash, and a casing having a guard member which overlaps the end rail of the inner sash sufficiently to prevent the entrance of air when the inner sash is in position to connect the two series of ducts.



691,261. MACHINERY FOR THE MANUFACTURE OF COVERINGS FOR FLOORS OR LIKE SURFACES. WILLIAM F. GRAHAM, Gosforth, England. Filed July 26, 1901. Serial No. 69,331. (No model.)



Claim.—1. In a machine of the character described, the combination with a roller over which a fabric is adapted to pass, and a roller for spreading adhesive composition on said fabric, of a second roller around which the fabric is adapted to pass from the first roller, and means for feeding blocks or tesseræ upon the surface of the second roller between said roller and the fabric, substantially as described.

2. In a machine of the character described, the combination with a frame, a roller A mounted in said frame and adapted to carry a roll of fabric, a roller B also mounted in said frame over which the fabric is arranged to pass, and a roller for spreading adhesive composition on said fabric, of a roller C around which the fabric is adapted to pass from the roller B, and means for feeding blocks or tesseræ upon the surface of the roller C between said roller and said fabric, substantially as described.

3. In a machine of the character described, the combination with a roller over which a fabric is adapted to pass, and a roller for spreading adhesive composition upon said fabric; of a second roller around which the fabric is adapted to pass from the first roller, ribs on the second roller, and means for feeding blocks or tesseræ to the second roller and beneath said fabric, substantially as described.

4. In a machine of the character described, the combination with a roller over which a fabric is adapted to pass, and a roller for spreading adhesive composition upon said fabric, of a second roller around which the fabric is adapted to pass from the first roller, means for feeding blocks or tesseræ upon the second roller between said roller and the fabric, and a roller pressing said fabric against said blocks or tesseræ as they pass around the second roller, substantially as described.

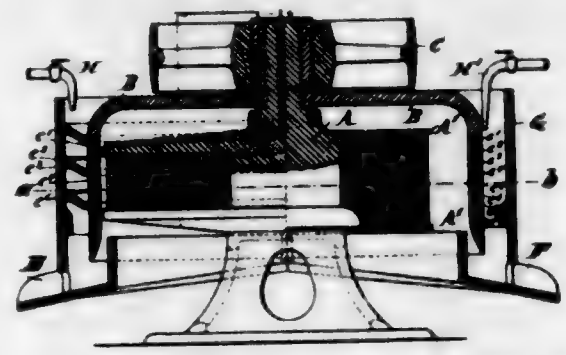
5. In a machine of the character described, the combination with a roller over which a fabric is adapted to pass, and a roller for spreading adhesive composition upon said fabric, of a second roller around which the fabric is adapted to pass from the first roller, ribs on the second roller, means for feeding blocks or tesseræ to the second roller between said fabric and the roller, and a roller for pressing said fabric against said blocks or tesseræ as they pass over the second roller, substantially as described.

6. In a machine of the character described, the combination with a roller, over which a fabric is adapted to pass, a trough containing adhesive composition and a roller for spreading said adhesive composition upon said fabric, of a second roller around which the fabric is adapted to pass from the first roller, means for feeding blocks or tesseræ upon the second roller between said roller and the fabric, and a roller pressing said fabric against said blocks or tesseræ as they pass around the second roller, substantially as described.

7. In a machine of the character described, the combination with a roller over which a fabric is adapted to pass, a trough containing adhesive composition, a roller E in said trough for feeding said composition and a roller G for spreading the composition on the fabric, of a second roller around which the fabric is adapted to pass from the first roller, means for feeding blocks or tesseræ upon the second roller between said roller and the fabric, and a roller pressing said fabric against said blocks or tesseræ as they pass around the second roller, substantially as described.

8. In a machine of the character described, the combination with a roller over which a fabric is adapted to pass, a trough containing adhesive composition, rollers for spreading said adhesive composition upon said fabric, of a second roller around which the fabric is arranged to pass from the first roller, ribs on the second roller, means for feeding blocks or tesseræ on the second roller between said ribs and between the surface of said roller and the fabric, and a roller for pressing said fabric against said blocks or tesseræ as they pass around the said roller, substantially as described.

691,262. MAGNETIC SEPARATOR. GUSTAF GRONDAL, Pithäranta, Russia. Filed Apr. 14, 1900. Serial No. 12,854. (No model.)



Claim.—1. A magnetic separator having a rotatable non-magnetic cap, magnetic lamellæ inserted in said cap, of increasing size from the point where the material first comes under their influence to the point where it leaves it, said lamellæ being magnetically insulated from each other, whereby a turning of the particles to be separated is accomplished due to the change of polarity upon leaving the edge of one lamella and taking up position with the next.

2. A magnetic separator having a rotatable cap of non-magnetic material, lamellæ of soft iron inserted in said cap, magnetically insulated from each other, a magnet within the cap, having poles so placed as to cause the magnetic lines of force to pass through all the lamellæ from one to the next, but more strongly in one portion of the cap than in another, said lamellæ being so disposed in the field as to cause their upper and lower sides to be of opposite polarity, and also opposite in polarity to the side of the next adjacent lamella, whereby a turning of the articles to be separated is effected.

3. A magnetic separator having a magnet with a vertical core, and substantially circular pole-pieces but cut away on one side, a cap of non-magnetizable material mounted to revolve around and envelop said core and magnet, lamellæ of magnetizable material inserted in said cap but magnetically insulated from each other, means for feeding water with the material to be separated, means for revolving the cap and means for spraying water on the material at the weakest magnetic point of the revolving cap, said water-feed and arrangement of lamellæ causing the particles to turn during revolution of the cap whereby non-magnetic materials pinned down by the magnetic ones become freed and can be carried off, substantially as described.

4. A magnetic separator characterized by the combination of the stationary electromagnet with a roller-shaped vertical core A, the flanges of which are cut away on one side, the rotatable bell-shaped cap B of magnetically indifferent material mounted concentrically to the axis of the core A, the lamellæ c' c^2 of soft iron set into the wall of the cap and

extending into it with increasing depth from above and downward, the feeding-channel D and the water-tubes H H', substantially as set forth.

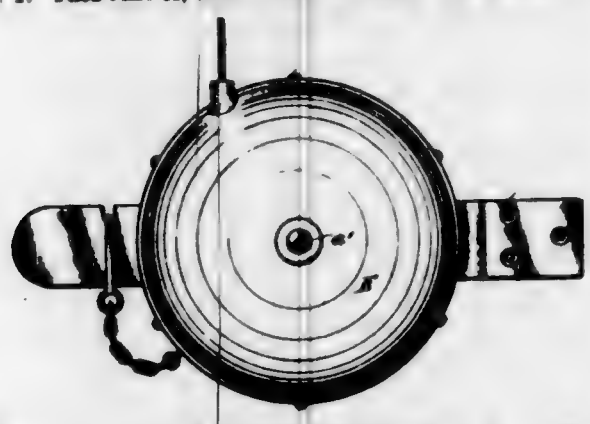
691,263. TROLLEY-TENDER. ALBERT W. HAM, Lansingburg, N. Y. Filed Apr. 8, 1901. Serial No. 54,777. (No model.)



Claims.—1. In a trolley-tender, the combination of a spring-actuated reel, a pivoted catch-lever mounted adjacent to the reel, having a weighted end with a hook thereon, and a light end normally in the path of catch-knockers, the catch-knockers, secured to the reel, whereby, when the reel is rotated at unusual speed the heavy end of the catch-lever is knocked to a position of engagement with a catch-knocker.

2. In a trolley-tender, the combination of a spring-actuated reel, a pivoted catch-lever mounted adjacent to the reel with one end provided with a hook and the other normally in the path of catch-knockers, the catch-knockers secured to the reel, and so spaced with relation to the length of the catch-lever that the same knocker which impels the catch into reel-stopping position is intercepted by the hook.

691,264. TROLLEY-TENDER. ALBERT W. HAM, Lansingburg, N. Y. Filed June 13, 1901. Serial No. 64,419. (No model.)



Claim.—1. In a trolley-tender, the combination of a spring-controlled reel, catch-pockets secured thereto, roller-catches in the pockets, and a shoulder whereby a roller-catch is arrested when the catch is centrifugally moved from its seat in the pocket.

2. In a trolley-tender, the combination of a spring-controlled reel, catch-pockets secured thereto, a cylindrical chamber wherein the pockets rotate, provided with an enlargement, roller-catches in the pockets, the said enlargement terminating in a shoulder whereby a roller-catch is arrested when the catch is centrifugally moved from its seat in the pocket.

3. In a trolley-tender, the combination of a spring-controlled reel, catch-pockets secured thereto, a cylindrical chamber wherein the pockets rotate, provided with an enlargement in one of its upper quadrants, roller-catches in the said pockets, the said enlargement terminating in a shoulder at or near the horizontal diameter of the cylindrical chamber, whereby a roller-catch is arrested when the catch is centrifugally moved from its seat in the pocket.

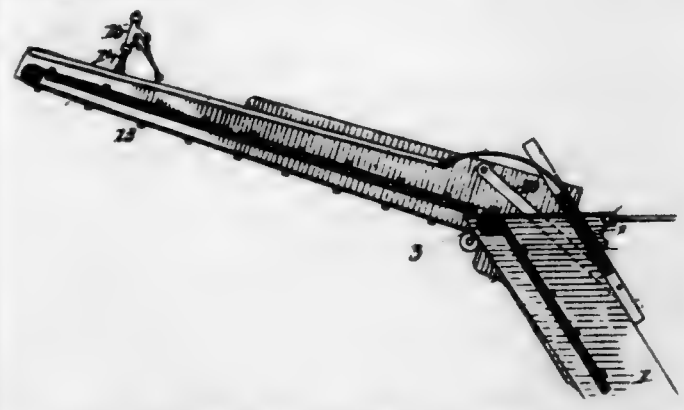
691,265. STRAW-STACKER. MARTIN KEUSEK, Springfield, Ill., assignor to Sattley Manufacturing Company, Springfield, Ill., a Corporation of Illinois. Filed Sept. 23, 1901. Serial No. 76,286. (No model.)

Claim.—1. The combination, with the carrier-belt of a straw-stacker of a straw-presser disposed lengthwise above the carrier-belt, said straw-presser being limited in its motion lengthwise of the belt and adapted to move to and from the belt throughout the entire length of the presser.

2. The combination, with the carrier-belt of a stacker of a straw-presser held against motion lengthwise of the stacker and floatable on the straw of the stacker throughout the entire length of the presser.

3. The combination with the carrier-belt of a stacker, of presser-bars disposed lengthwise above the carrier-belt and floatable on the straw carried by the belt.

4. In a straw-stacker, the combination of a lower section, a vertically-swingable section hinged to the upper end of the lower section, a slide-frame on the lower section, links connecting the upper section with the slide-frame so that the frame will rise as the upper section is lowered, a carrier-belt, and a floatable straw-presser in the upper section connected with the slide-frame.

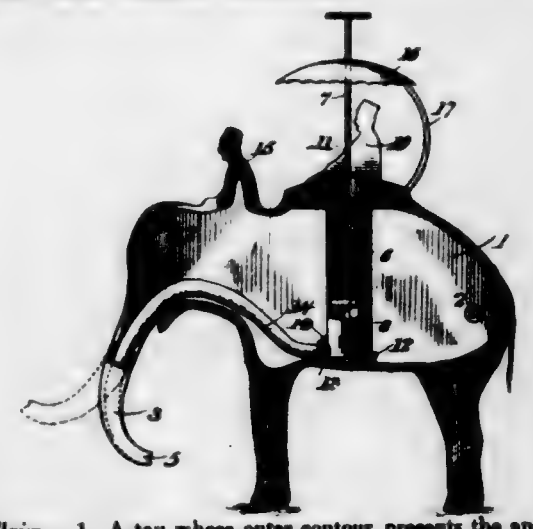


5. In a straw-stacker, the combination of a lower section, a vertically-swingable section hinged to the upper end of the lower section, a slide-frame on the lower section, links connecting the upper section with the slide-frame so that the frame will rise as the upper section is lowered, a carrier-belt, and a floatable straw-presser in the upper section elastically connected with the slide-frame.

6. In a straw-stacker, the combination of a lower section, a vertically-swingable section hinged to the upper end of the lower section, a slide-frame on the lower section, links connecting the upper section with the slide-frame so that the frame will rise as the upper section is lowered, a carrier-belt, floatable presser-bars above the belt in the upper section and elastic strips connecting the presser-bars with the slide-frame.

7. In a straw-stacker, the combination of a lower section, a vertically-swingable section hinged to the upper end of the lower section, a slide-frame on the lower section, links connecting the upper section with the slide-frame so that the frame will rise as the upper section is lowered, a carrier-belt, floatable presser-bars above the belt in the upper section, elastic strips connecting the presser-bars with the slide-frame and supports for the upper ends of the bars permitting a limited amount of free motion therein.

691,266. TOY. EDWARD HILL, New Boston, N. H. Filed Feb. 6, 1901. Serial No. 46,197. (No model.)



Claim.—1. A toy whose outer contour presents the appearance of an animal, a reservoir located within the animal, and hand-operated means extending from within said reservoir outside the toy for creating a vacuum within the reservoir by means of which water or other liquid may be drawn into the reservoir, the construction being such that a reversal of the operation producing the vacuum will cause said liquid to be forced out of the reservoir for causing the toy to appear as spouting water, substantially as described.

2. A toy whose outer contour presents the appearance of an animal, hand-operated means, operable from outside the animal, for drawing liquid within the toy and forcing the liquid from the toy in a stream or jet, said liquid passing out at the point of entry, substantially as described.

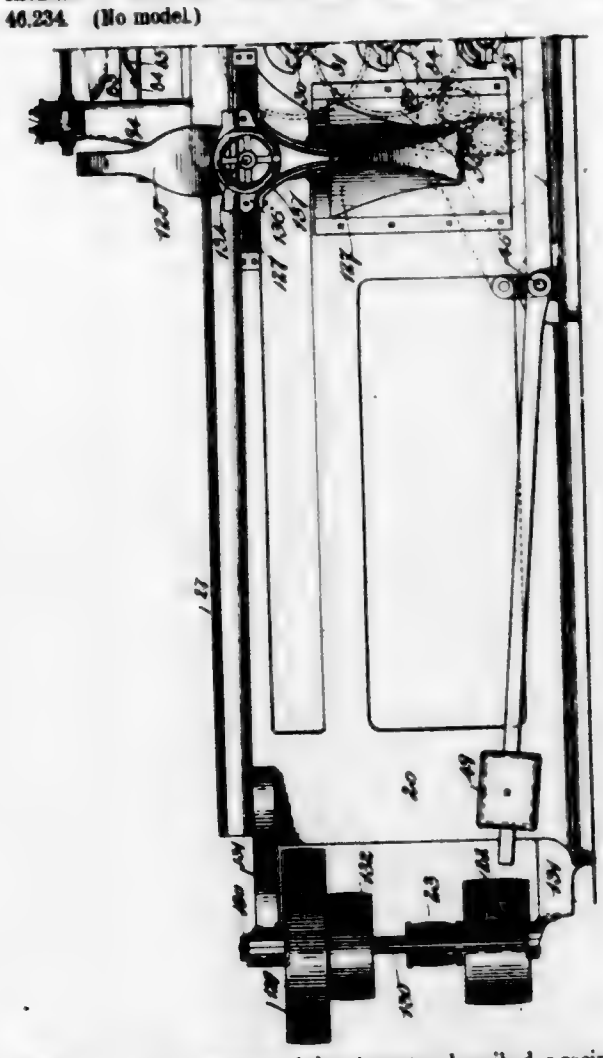
3. A toy, comprising in its construction a main body portion, means operable from outside the said body portion for drawing liquid into and spouting it out of said main body portion, and an adjustable member attached to said main body portion, whereby the direction of the spouted liquid may be changed at will, substantially as described.

4. A toy, comprising in its construction a main body portion whose outer contour has the appearance of an animal, one or more of the members of the animal being adjustably secured thereto, hand-operated means

for drawing liquid within the animal so as to charge it therewith, said means also being capable of forcing the water out of said main body portion when desired, and means connecting the operating means with the adjustable member whereby the spouted liquid may have its direction changed when desired, substantially as described.

5. A toy, comprising in its construction a main body portion having an outer contour of the appearance of an animal, representations of human figures carried by said main body portion, a canopy over one of said figures, a member adjustably secured to the main body portion, a pump within said main body portion, one of said figures forming the cap to said pump, and a flexible tube connecting said pump with said adjustable member, substantially as described.

691,267. MACHINE FOR JOINTING AND SIZING LUMBER. RICHARD S. HILL, Cambridge, Mass. Filed Feb. 6, 1901. Serial No. 46,234. (No model.)



Claims.—1. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, and mechanism connected to and operated by said reversing mechanism to throw said vertical rotary cutters horizotally toward and away from said carriage a predetermined distance, substantially as described for the purpose specified.

2. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, mechanism connected to and operated by said reversing mechanism to throw said vertical rotary cutters horizontally toward and away from said carriage a predetermined distance, and means to adjust said mechanism to vary said throw.

3. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, means for adjusting said cutters horizotally toward and away from said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, and mechanism connected to and operated by said reversing mechanism to throw said vertical rotary cutters horizontally toward and away from said carriage a predetermined distance.

4. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, means for adjusting said cutters horizontally toward and away from said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, mechanism connected to and operated by said reversing mechanism to throw said vertical rotary cutters horizontally toward and away from said carriage a predetermined distance, and means to adjust said mechanism to vary said throw.

5. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, two heads, upon each of which one of said cutters is arranged to rotate, said heads arranged to slide simultaneously in opposite directions in horizontal bearings, and mechanism connected to and operated by said reversing mechanism to move said heads and cutters horizontally a predetermined distance toward and away from said carriage, substantially as described for the purpose specified.

6. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, two heads, upon each of which one of said cutters is arranged to rotate, said heads arranged to slide simultaneously in opposite directions in horizontal bearings, mechanism connected to and operated by said reversing mechanism to move said heads and cutters horizontally a predetermined distance toward and away from said carriage, and means to adjust said mechanism to vary said throw, substantially as described for the purpose specified.

7. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, two heads upon each of which one of said cutters is arranged to rotate, said heads arranged to slide simultaneously in opposite directions in horizontal bearings, means for adjusting said heads horizontally toward and away from said carriage, and mechanism connected to and operated by said reversing mechanism to move said heads and cutters horizontally a predetermined distance toward and away from said carriage, substantially as described for the purpose specified.

8. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, two heads, upon each of which one of said cutters is arranged to rotate, said heads arranged to slide simultaneously in opposite directions in horizontal bearings, means for adjusting said heads horizontally toward and away from said carriage, mechanism connected to and operated by said reversing mechanism to move said heads and cutters horizontally a predetermined distance toward and away from said carriage, and means to adjust said mechanism to vary said throw, substantially as described for the purpose specified.

9. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located on each side of said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, two heads, upon each of which one of said cutters is arranged to rotate, said heads arranged to slide simultaneously in opposite directions in horizontal bearings, a treadle fast to a rock-shaft and operatively connected to said reversing mechanism, a rocker-arm and mechanism connecting said treadle and rocker-arm to move said heads and cutters a predetermined distance toward and away from said carriage.

10. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, two heads, upon each of which one of said cutters is arranged to rotate, a reversing mechanism for imparting a reciprocating movement to said carriage a treadle fast to a rock-shaft and operatively connected to said reversing mechanism, two rocker-arms, two rods, one end of each of said rods pivotally connected to one of said rocker-arms the other end fast to one of said heads, and a connection between said rocker-arms and treadle whereby the rocker-arms are rocked and said heads and cutters are thrown horizontally a predetermined distance toward and away from said carriage.

11. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, two heads, upon each of which one of said cutters is arranged to rotate, a reversing mechanism for imparting a reciprocating movement to said carriage, a treadle fast to a rock-shaft and operatively connected to said reversing mechanism, two rocker-arms, two rods, one end of each of said rods pivotally connected to one of said rocker-arms the other end fast to one of said heads, a connection between said rocker-arms and treadle whereby the rocker-arms are rocked and said heads and cutters are thrown horizontally a predetermined distance toward and away from said carriage, and means for adjusting the length of said connection, whereby the extent of said predetermined distance may be varied.

12. In a machine of the character described, a reciprocatory carriage, two vertical rotary cutters, one located at each side of said carriage, two heads, upon each of which one of said cutters is arranged to rotate, means for adjusting said heads toward and away from said carriage, a reversing mechanism for imparting a reciprocating movement to said carriage, a treadle fast to a rock-shaft and operatively connected to said reversing mechanism, two rocker-arms, two rods, one end of each of said rods pivotally connected to one of said rocker-arms the other end fast to one of said heads, and a connection between said rocker-arms and treadle

whereby the rocker-arms are rocked and said heads and cutters are thrown horizontally a predetermined distance toward and away from said carriage.

13. In a machine of the character described, a horizontal clamping-bar, a vertical screw-threaded shaft screwed into each end of said clamping-bar, a bevel-gear so connected to each of said vertical shafts as to allow said vertical shafts to slide lengthwise therein, a horizontal shaft, and bevel-gears fast to said horizontal shaft and meshing the bevel-gears on said vertical shafts, and mechanism to depress said clamping-bar against the action of said springs.

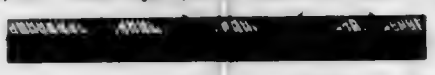
14. In a machine of the character described, a horizontal clamping-bar, a spring-supported hanger, and a vertical screw-threaded shaft screwed into each end of said clamping-bar connected to said hanger and arranged to rotate thereon, and mechanism to depress said clamping-bar against the action of said springs.

15. In a machine of the character described, a horizontal clamping-bar, a spring-supported hanger, a vertical screw-threaded shaft screwed into each end of said clamping-bar connected to said hanger and arranged to rotate thereon, mechanism to rotate said vertical shafts, and mechanism to depress said hanger against the action of said springs.

16. In a machine of the character described, a horizontal clamping-bar, a spring-supported hanger, a vertical screw-threaded shaft screwed into each end of said clamping-bar connected to said hanger and arranged to rotate thereon, a bevel-gear so connected to each of said vertical shafts as to allow said shafts to slide lengthwise in relation to said bevel-gears, a horizontal shaft, bevel-gears fast to said horizontal shaft and meshing the bevel-gears on said vertical shaft and mechanism to depress said hanger against the action of said springs.

17. In a machine of the character described, a horizontal clamping-bar, a hanger to which said clamping-bar is connected, springs supporting said hanger and clamping-bar, a friction-roll journaled on said hanger, a horizontal rocker-shaft, and an eccentric disk fast to said rocker-shaft and bearing against said friction-roll.

691,268. **ENAMELING METAL WARE.** WILLIAM JANKOWSKY, St. Louis, Mo. Filed Sept. 9, 1901. Serial No. 74,836. (No specimens.)



Claim.—1. As a new article of manufacture, a steel or iron article having a suitable priming coat, and an enamel coat covering the same and permeated by oxids emanating from the surface of the metal, substantially as set forth.

2. As a new article of manufacture, a steel or iron article having a suitable priming coat, and an enamel coat covering the same, the coats being mottled by oxids emanating from the surface of the metal, substantially as set forth.

3. As a new article of manufacture, a steel or iron article having a priming coat of a salt of exclusively an alkali metal and an enamel coat covering the same, substantially as set forth.

4. As a new article of manufacture, a steel or iron article having two coats mottled throughout their depth by oxids emanating from the surface of the metal, substantially as set forth.

5. As a new article of manufacture, a steel or iron article having a priming coat of a salt of exclusively an alkali metal decomposable by free acid, or by a primary salt containing such acid, and an enamel coat covering said priming coat, substantially as set forth.

6. As a new article of manufacture, a steel or iron article having a priming coat of the carbonate of an alkali metal, and an enamel coat covering the same, said coats being mottled, substantially as set forth.

7. As a new article of manufacture, a steel or iron article having a priming coat of carbonates of sodium and potassium and an enamel covering the same, said coats being mottled, substantially as set forth.

8. As a new article of manufacture, a steel or iron article having two coats of different composition permeated by metallic oxids emanating from the surface of the metal, substantially as set forth.

9. The process of enameling which consists in coating an article with a priming coat of the carbonate of an alkali metal, and applying thereto a coat of enamel containing a suitable percentage of a primary or acid salt capable of decomposing the priming film, substantially as set forth.

10. The process of enameling which consists in coating an article with a film of the carbonate of an alkali metal, and applying thereto a coating of enamel containing a solution of a primary salt combined with an acid capable of decomposing the film, substantially as set forth.

11. The process of enameling which consists in coating an article with a film of the carbonate of an alkali metal, and applying thereto a coating of enamel containing a solution of acid sulfate of an alkali metal, substantially as set forth.

12. The process of enameling which consists in coating an article with a priming coat of the carbonate of an alkali metal, and applying thereto a coat of enamel containing a suitable percentage of the acid sulfate of an alkali metal, substantially as set forth.

13. The process of enameling which consists in coating an article with a priming film, applying a coating of enamel thereto, and impregnating the latter with a primary or acid salt capable of decomposing the film, substantially as set forth.

14. The process of enameling which consists in coating an article with a priming coat of the carbonate of an alkali metal, and applying thereto a coat of enamel containing a suitable percentage of the acid sulfate of potash, substantially as set forth.

15. The process of enameling which consists in coating an article with a priming film, then applying thereto a coat of enamel containing a reagent capable of decomposing the priming film and attacking the metal surface of said article, substantially as set forth.

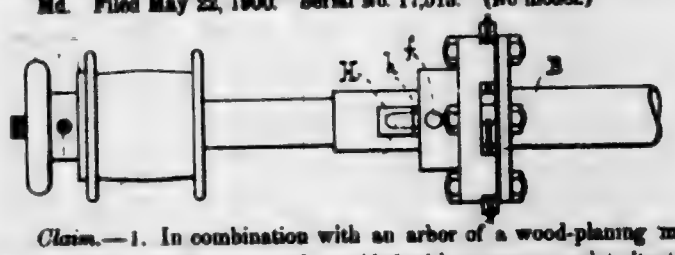
16. The process of enameling which consists in coating an article with a priming film, then applying thereto a coat of enamel containing a reagent capable of decomposing the priming film and forming metallic oxids with the metal surface of the article, which oxids serve to permeate both coats and mottle the surface of the enameled article, substantially as set forth.

17. As an article of manufacture, a steel or iron article having a priming coat of a salt of an alkali metal decomposable by free acid or a primary salt containing such acid, and an enamel coat containing such primary salt, covering said priming coat, substantially as set forth.

18. As an article of manufacture, a steel or iron article having a priming coat of a carbonate of an alkali metal, and an enamel coat containing as an ingredient a primary salt capable of decomposing said carbonate, covering said priming coat, substantially as set forth.

19. As an article of manufacture, a steel or iron article having a priming coat of a carbonate of an alkali metal, and an enamel coat containing as an ingredient a primary salt capable of decomposing said carbonate, covering said priming coat, said coats being mottled, substantially as set forth.

691,269. **CUTTER-HEAD.** GREENLEAF JOHNSON, Jr., Baltimore, Md. Filed May 22, 1900. Serial No. 17,513. (No model.)



Claim.—1. In combination with an arbor of a wood-planing machine, which is axially bored and provided with a transverse slot situated near the end of the bore, a cutter-head adapted to slide longitudinally of the said arbor, a stem loose in the bored portion of the arbor, having at its inner end a key which passes through the transverse slot in the arbor and enters the cutter-head, and at the outer end threaded, a nut on the threaded portion of the said stem, adapted to turn independently of the arbor, means to prevent longitudinal movement of the nut independently of the arbor, and a hand-wheel whereby the said nut may be turned to adjust the said cutter-head longitudinally of the arbor, substantially as specified.

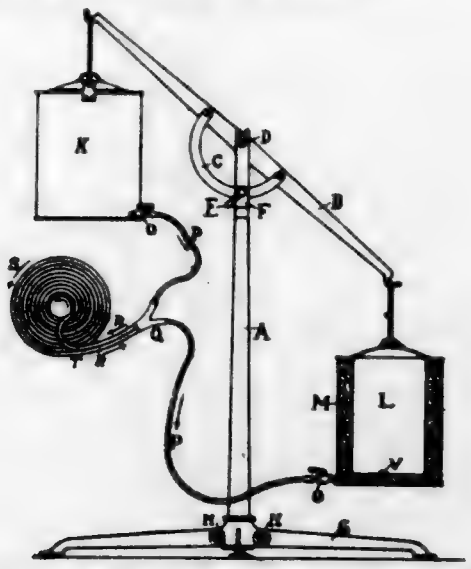
2. In combination with the arbor of wood-planing machine, which is axially bored and provided with a transverse slot situated near the end of the bore, a cutter-head adapted to slide longitudinally of the said arbor, a stem loose in the bored portion of the arbor having at its inner end a key which passes through the transverse slot in the arbor and enters the cutter-head, and at the outer end is threaded, a nut on the threaded portion of the said stem adapted to turn independently of the arbor, means to prevent longitudinal movement of the nut independently of the arbor, a hand-wheel whereby the said nut may be turned to adjust the said cutter-head longitudinally of the arbor, and plates attached to the cutter-head to cover the exposed portion of the transverse slot, substantially as specified.

691,270. **WATER-BANDAGE.** CHARLES H. JONES, Tempe, Ariz. Filed Oct. 14, 1901. Serial No. 78,657. (No model.)

Claim.—1. In a water-bandage and adjusting apparatus therefor, the combination of an upright supporting adjustably thereon a vertically-swinging beam, adapted to hold liquid-receptacles at each end of the beam, a flexible tube leading from one receptacle to a coil and thence to the other receptacle, substantially as described.

2. In a water-bandage and adjusting apparatus therefor, the combination of an upright, a base to support the same, a beam pivoted on the upright and adapted to swing vertically and be adjusted thereon, liquid-holding receptacles at each end of the beam, a flexible tube leading from one receptacle to a coil and thence to the other receptacle, substantially as described.

3. In a water-bandage and adjusting apparatus therefor, the combination of an upright, a base to support the same, a beam pivoted on the upright and adapted to swing vertically and be adjusted thereon, liquid-holding receptacles at each end of the beam, a flexible tube leading from one receptacle to a coil, the tubing of which is flat and thin on one side, and thence to the other, substantially as described.

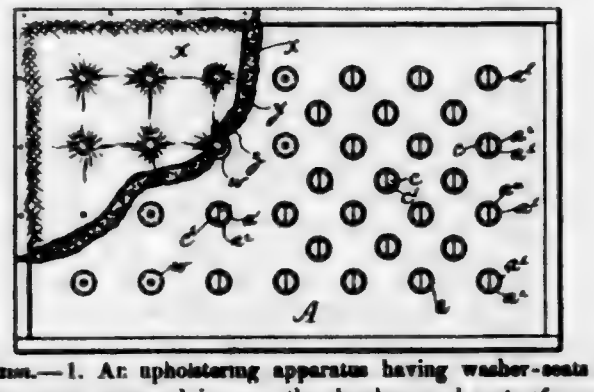


4. In a water-bandage and adjusting apparatus therefor, the combination of an upright, a base to support the same, a beam pivoted on the upright and adapted to swing vertically and be adjusted thereon, liquid-holding receptacles at each end of the beam, a flexible tube leading from one receptacle to a coil, the tubing of which is made flat and thin on one side, and thence from the coil to the other receptacle; the parts of the tubing where they leave the coil being rigidly attached thereto and adapted to leave it at the same place and be joined together for a short distance, substantially as described.

5. In a water-bandage and apparatus therefor, the combination of an upright, a base to support the same, a beam pivoted on the upright and adapted to swing vertically and be adjusted thereon, liquid-holding receptacles at each end of the beam, a flexible tube leading from one receptacle to a coil, the tubing of which is made flat and thin on one side, and thence from the coil to the other receptacle; the parts of the tubing where they leave the coil being rigidly attached thereto and adapted to leave it at the same place and to be there reinforced by thickening, to prevent kinking and to facilitate handling of the tube, substantially as described.

6. A coil of tubing adapted to be applied to the human body to reduce the temperature thereof by means of cold liquid flowing through the said coil; the tubing of said coil being flattened and thinned at the points where it comes in contact with the body, to present a larger cooling-surface and a thinner wall between the cooling liquid and the body, substantially as described.

691,271. TUFTING APPARATUS. SOLOMON KARPEN, Chicago, Ill., assignor to Alfred Pressbl, Chicago, Ill., acting for the Novelty Tufting Machine Co., Chicago, Ill. Filed Dec. 26, 1899. Serial No. 741,539. (No model.)

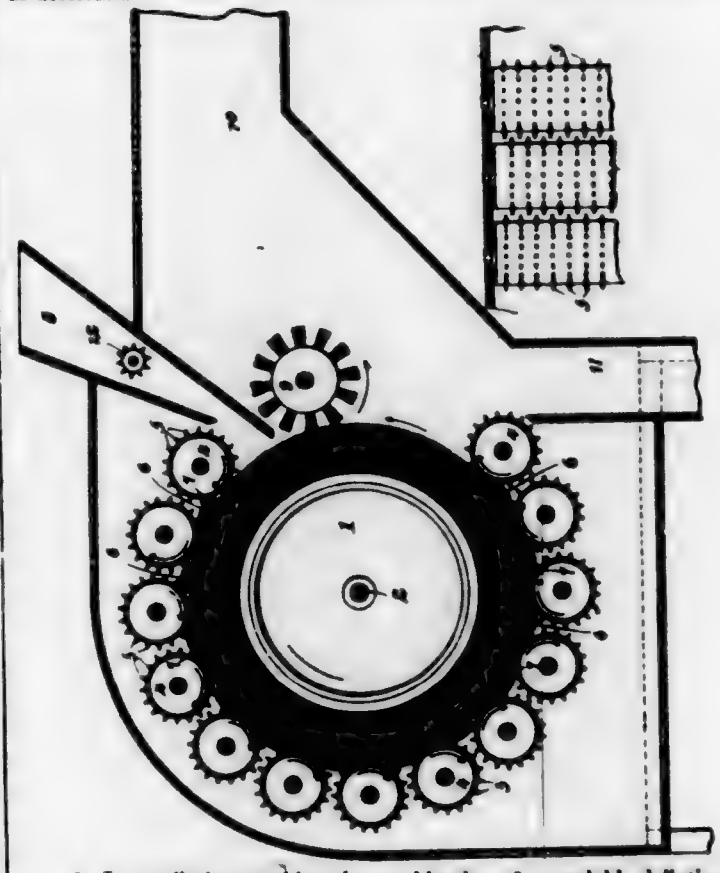


Claim.—1. An upholstering apparatus having washer-seats and clenching means arranged in rows, the clenchers and seats of an edge row being adjustable.

2. In an upholstering-machine, a mold having washer-seats and clenching means arranged in rows upon its body, a side rail having washer-seats and clenchers arranged therein, and means to position the rail at varying distances from the body-rows.

691,272. DELINTING-MACHINE. JOHN KASHMER, Florence, Ala. Filed June 7, 1900. Serial No. 19,437. (No model.)

Claim.—1. The combination of a casing having a feed-hopper, a discharge-flue for seeds and a discharge-opening for lint, a revoluble delinting-brush and a series of retaining-rollers, disposed concentrically on said brush, from the feed-hopper to the seed-discharge flue, and a cleaning-brush, coacting with the said delinting-brush, at a point opposite the lint-discharge opening and between the feed-hopper and seed-discharge flue, said delinting-brush and retaining-rollers coacting to delint the seeds, and convey the delinted seeds to the seed-flue, and said cleaning-brush and delinting-brush coacting to strip the lint from the latter and discharge the same pneumatically through the lint-discharge opening, substantially as described.



2. In a delinting-machine, the combination of a revoluble delinting-brush, a series of revoluble retaining peripherally-spurred rollers disposed around the same, said delinting-brush and retaining-rollers coacting, and the spurs of each of said rollers operating in planes disposed in the spaces between the spurs of the opposing rollers, and means to rotate said delinting-brush at high speed and said retaining-rollers at low speed, substantially as described.

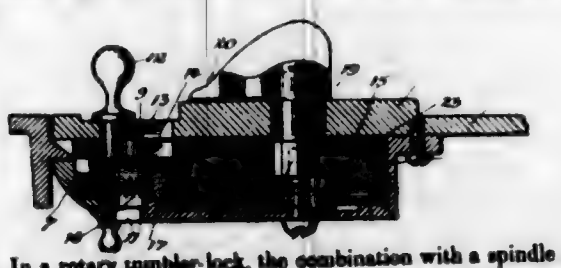
3. In a delinting-machine, the combination of the revoluble delinting-brush, the series of retaining-rollers coacting therewith and the retaining-bars disposed between the opposing sides of said retaining-rollers, and coacting with said delinting-brush, said retaining-bars having brushes coacting with said retaining-rollers, for the purpose set forth, substantially as described.

4. In a delinting-machine, the combination with a casing having a feed and a lint-discharge opposite each other, on one side of said casing, of a revoluble delinting-brush in said casing, on one side of said feed and lint-discharge, the motion of which brush is effective in moving seed-cotton in a direction at right angles to the axis of said brush, from said feed to said discharge, the seed-cotton moving with said brush through less than a complete revolution of the latter, and means coacting with said delinting-brush to dispose and retain seed-cotton on the surface of the latter and retard the passage of the seed from the feed to the point of discharge, said brush carrying the lint while the passage of the seed in process of being delinted is retarded, and means coacting with the brush and interposed between the feed and the lint-discharge, to strip the lint from the brush and prevent the passage of lint from said feed to said discharge otherwise than between said brush and said retaining and retarding means, substantially as described.

5. In a delinting-machine, the combination with a casing having a feed and a discharge, opposite each other, of a revoluble high-speed delinting-brush, the motion of which is effective in moving seed-cotton in a direction at right angles to its axis, from said feed to said discharge, the seed-cotton moving with said brush through less than a complete revolution of the latter, positively-driven low-speed retaining-rolls, disposed around said brush from the feed to the discharge, to retard the passage of the seed from the feed to the discharge, and means to strip the lint from the brush, substantially as described.

691,273. KEYLESS LOCK. CHARLES F. KELLER, Chicago, Ill. Filed Mar. 2, 1901. Serial No. 49,623. (No model.)

Claim.—1. In a rotary tumbler-lock, the combination with a bolt, of a rotary spindle, a disk fixed to said spindle and radially-movable tumblers surrounding said spindle and rotated thereby, substantially as described.



2. In a rotary tumbler-lock, the combination with a spindle thereof, of a rotatable disk rigidly fixed to the spindle, radially-movable tumblers adapted to be rotated by said spindle, and a casing surrounding said disk and tumblers and supporting the lower peripheries of the latter, substantially as described.

3. In a lock, the combination with a spindle, tumblers rotated thereby, a bolt, a spring for operating the latter in one direction, a rotatable index-plate, a pointer on said spindle registering with said index-plate, and means connecting the said index-plate with said bolt whereby the latter may be actuated by the former or independently thereof in a direction to compress the spring, substantially as described.

4. In a lock, the combination with a spindle, tumblers moved thereby, a movable index-plate, and a bolt actuated by or independently of said index-plate, substantially as described.

5. In a keyless lock, the combination with a bolt having a fence-section, tumblers, and a flexible device secured to said fence-section and operating laterally to the face of a tumbler to engage therewith for automatically disconcerting said tumblers, substantially as described.

6. In a keyless lock, the combination with a bolt having a fence-section, tumblers with which the fence-section coöperates, a suitable device operating laterally to the face of the tumblers for automatically disconcerting said tumblers, substantially as described.

7. In a lock, a suitable bolt, tumblers with which the same coöperates, a movable index-plate for operating the bolt, and a pointer passing through said index-plate for operating said tumblers, as and for the purpose described.

8. In a lock, a suitable bolt, tumblers with which the same coöperates, a rotatable index-plate for operating the bolt in one direction, a spring for actuating the bolt in the opposite direction, and a pointer passing through said index-plate for operating the tumblers, as and for the purpose described.

9. In a lock, a suitable index-plate, a pointer passing through the same and coöperating with suitable tumblers, a bolt composed of two sections coöperating with one another, a spring interposed between the casing of the lock and the free section of the bolt, a knob carried by the free section whereby the same may be operated independently of the inner section, and suitable means for actuating the latter section, as and for the purpose described.

10. In a keyless lock, the combination with a bolt, of a casing, a plurality of tumblers, a rotatable spindle the end of which passes through and rigidly engages one of said tumblers, the other of said tumblers being supported by said casing, and means for adjusting the relation between the spindle and the tumbler with which it rigidly engages to change the combination of the lock, substantially as set forth.

11. In a lock, the combination with a bolt, of a suitable casing, tumblers located therein, one of which is provided with a polygonal central opening, a suitable index-plate, a pointer adapted to register with the latter, a spindle forming a part of said pointer and having a polygonal-shaped portion that is adapted to be received by the correspondingly-shaped opening in one of the tumblers, a screw loosely passing through the casing and the other tumblers, which are supported by the casing, and into a screw-threaded hole in the inner end of the spindle, whereby said spindle may be adjusted in its relation to the tumbler with which it rigidly engages to change the combination of the lock, substantially as described.

12. In a keyless lock, the combination with suitable tumblers, of a bolt comprising a fence-section and a latch-section and a hook-shaped spring-arm fixed at one end to said fence-section and operating laterally to the face of the tumblers to engage with and displace one or more of said tumblers, substantially as described.

13. In a keyless lock, the combination with a bolt, of tumblers, a device for setting the tumblers, and a single movable member adapted to retract the bolt and to register with the device for setting the tumblers, substantially as described.

14. In a keyless lock, the combination with suitable tumblers, of a bolt comprising a fence-section and a latch-section, a hook-shaped spring-arm rigidly fixed to said fence-section, and adapted to engage a notch formed in the periphery of one of said tumblers, whereby the tumblers may be relatively moved and the combination disconcerted, substantially as described.

691,274. **SHAFT-COUPLING.** JULIAN KENNEDY, Pittsburg, Pa. Filed Nov. 2, 1901. Serial No. 80,898. (No model.)



Claim.—1. In a shaft-coupling, a coupling-box having four recesses, a shaft having a pair of oppositely-projecting lugs engaging two of said recesses, and a driving-spindle also having two oppositely-projecting lugs arranged to engage the other recesses of the box; substantially as described.

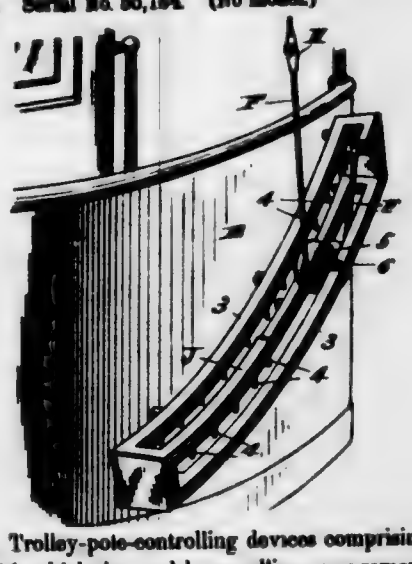
2. In a shaft-coupling, a neck or shaft having a pair of oppositely-projecting lugs with longitudinally-curved edges, a driving-shaft or spindle having a pair of similarly-shaped oppositely-projecting lugs, and a box having four recesses arranged to receive the lugs of the shaft at right angles to those of the driving-shaft or spindle; substantially as described.

3. In a shaft-coupling, a driving and a driven shaft, each having a pair of oppositely-projecting lugs, a coupling-box having recesses receiving the lugs at right angles to each other and arranged to be slid back upon one of said shafts, and a device for normally holding the box in position; substantially as described.

4. In a shaft-coupling, a driving and a driven shaft, each having a pair of oppositely-projecting lugs, a coupling-box having four recesses receiving the pairs of lugs at right angles to each other, and a latch device for holding the box in place; substantially as described.

5. A driving and a driven shaft, each having a pair of oppositely-projecting lugs with longitudinally-curved edges, one of said shafts having curved holding-lugs, a coupling-box having four recesses arranged to receive the lugs and shaft at right angles to each other, and a latch or holding device having curved surfaces engaging the holding-lugs to retain the box in place; substantially as described.

691,275. **TROLLEY-POLE-CONTROLLING DEVICE FOR CARS OR VEHICLES.** WASHINGTON H. KILBOURN, Greenfield, Mass. Filed Apr. 10, 1901. Serial No. 55,184. (No model.)



Claim.—1. Trolley-pole-controlling devices comprising the trolley-cord, a weight with which the cord has a rolling engagement, an inclined track over which said weight moves, actuated by the normal vertical movement of said cord, combined with means whereby a sudden lifting movement applied to said weight will arrest the latter, substantially as described.

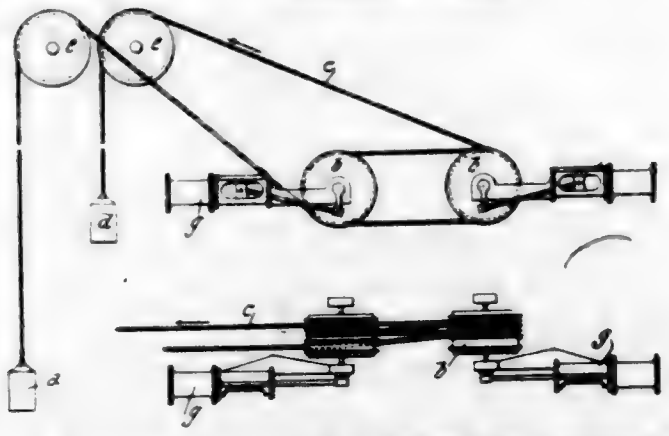
2. Trolley-pole-controlling devices comprising two parallel inclined tracks, a weight having trunnions thereon for supporting it on the tracks between the latter, a trolley-cord passing around a part of the weight concentric with said trunnions and having its free end attached to the car above said weight, combined with a toothed rack parallel with the tracks and located above them, adapted to be engaged by said trunnions when the weight is suddenly lifted, substantially as described

691,276. **ELEVATOR APPARATUS.** CARL KÖTTGEN, Charlottenburg, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Nov. 4, 1899. Serial No. 735,810. (No model.)

Claim.—1. In an elevator apparatus, the combination with a continuous operating-rope, of an elevator-car having fixed engagement with the rope, a plurality of sheaves for driving the rope and connected thereby in tandem, and prime movers, one for operating each driving-sheave, substantially as described.

2. In an elevator apparatus, the combination with a continuous op-

erating-rope, of an elevator car having fixed engagement with the rope, two sheaves for driving the rope and connected thereby in tandem, prime movers, one for operating each driving-sheave, and a third sheave *e*, about which said rope is also passed, substantially as described.



3. In an elevator apparatus, the combination with a continuous operating-rope, of an elevator-car having fixed engagement with the rope, two sheaves for driving the rope and connected thereby in tandem, prime movers, one for operating each driving-sheave, and a third sheave *e*, about which said rope is also passed, the said sheave *e* being diagonally disposed with relation to the aforesaid sheaves, substantially as described.

4. In an elevator apparatus, the combination with an operating-rope, of an elevator-car having fixed engagement with the rope, two sheaves for driving the rope and connected thereby in tandem, prime movers, one for operating each driving-sheave, the prime movers exerting driving force upon the rope in the same direction, a third sheave *e*, about which said rope is also passed, and a third prime mover for rotating the sheave *e*, substantially as described.

5. In an elevator apparatus, the combination with two sheaves, of a rope passing about the same to secure the necessary friction, a prime mover for driving each sheave, a third sheave *e* about which the said rope is also passed, the said sheave *e* being diagonally disposed with relation to the sheaves *b b*, and a third prime mover for rotating the sheave *e*, substantially as described.

691,277. POSTAGE-STAMP CARRIER AND APPLIER. JOHN H. LAMBERT, Berkeley, Cal. Filed Apr 27, 1901. Serial No. 57,782. (No model.)

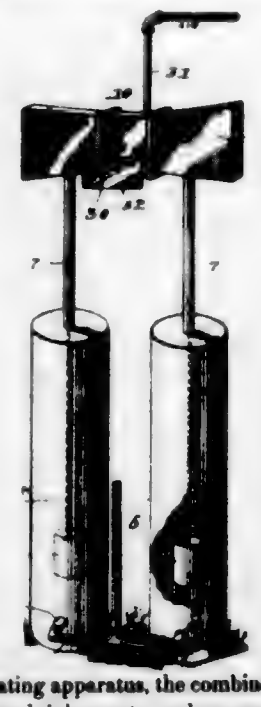


Claim.—1. A device for the purposes described, comprising a box open at the bottom, the bottom having inturned members, a plunger movable in the box and opposing the inturned members and means detachably mounted on the delivery end of the box for forcing the stamps off the said inturned members, for the purposes described.

2. A stamp holding and applying device consisting of a casing for holding the stamps, a plunger operating in the casing for ejecting the stamps, a spring for moving it outward, a hinged cover having a central aperture through which the rod of the plunger passes, said rod and cover being movable together, the lower end of the casing having hooks provided with inturned members for opposing the plunger, and a cap-plate adapted to be detachably fitted over the hook end of the casing, said cap-plate having ribs for engaging the block of stamps, and pressing said block off the hook ends of the casing, substantially as shown and for the purposes described.

691,278. COMPRESSED-AIR WATER-ELEVATOR. JOHN L. LATTA and JAMES A. MARTIN, Hickory, N. C. Filed Oct. 20, 1896. Renewed May 25, 1901. Serial No. 61,951. (No model.)

Claim.—1. In a liquid-elevating apparatus, the combination with liquid-chambers provided with valved inlet-ports, and a communicating liquid-conveyer, of valve mechanism including separate pressure-chambers, in communication, respectively, with the liquid-chambers, a rocking valve having inlet and exhaust ports in communication with said pressure-chambers, means controlled by the level of liquid in the liquid-chambers, for causing an initial movement of the valve, when the contents of the liquid-chamber have been partially discharged, and a counterbalancing device connected to and movable with the valve, and having a plurality of independently-movable weights for successive movement as the valve advances to different positions to continue the movement of the same, substantially as specified.



2. In a liquid-elevating apparatus, the combination with liquid-chambers provided with valved inlet-ports, and a communicating liquid-conveyer, of valve mechanism including separate pressure-chambers, in communication, respectively, with the liquid-chambers, a rocking valve having inlet and exhaust ports in communication with said pressure-chambers, means controlled by the level of liquid in the liquid-chambers, for causing an initial movement of the valve, when the contents of a liquid-chamber have been partially discharged, and a counterbalancing device connected and movable with the valve and having races arranged at different inclinations, and movable weights mounted in the races, said races being adapted for arrangement successively in inclined positions, to cause the readjustment of said movable weight, during the movement of the valve, substantially as specified.

3. In a liquid-elevating apparatus, the combination with liquid-chambers provided with valved inlet-ports, and a communicating liquid-conveyer, of valve mechanism including separate pressure-chambers, in communication, respectively, with the liquid-chambers, a rocking valve having inlet and exhaust ports in communication with said pressure-chambers, means controlled by the level of liquid in the liquid-chambers, for causing an initial movement of the valve, when the contents of a liquid-chamber have been partially discharged, and a counterbalancing device connected and movable with the valve, and having races convergent in one direction and containing movable weights, said races being adapted for successive inclination in a common direction to continue the initial movement of the valve, substantially as specified.

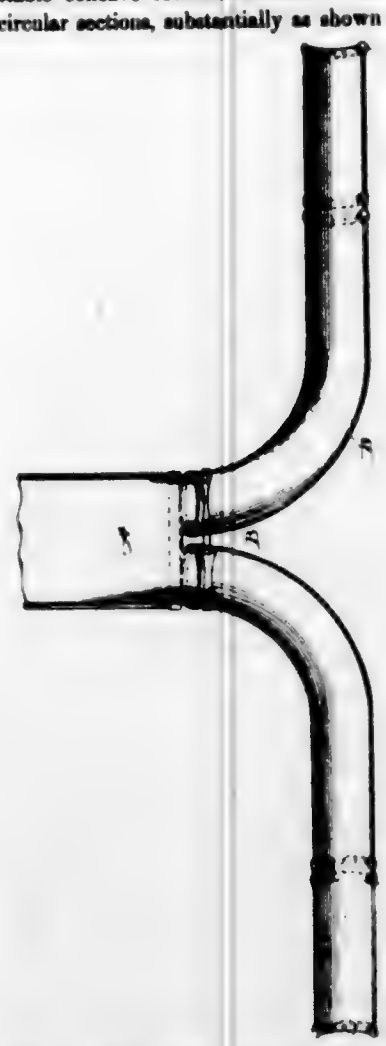
4 In a liquid-elevating apparatus, the combination with liquid-chambers provided with valved inlet-ports, and a communicating liquid-conveyer, of valve mechanism including separate pressure-chambers, in communication, respectively, with the liquid-chambers, a rocking valve having inlet and exhaust ports in communication with said pressure-chambers, means controlled by the level of liquid in the liquid-chambers, for causing an initial movement of the valve, when the contents of a liquid-chamber have been partially discharged, and a counterbalancing device consisting of a block carried by the valve-spindle and provided with inclined races and movable weights mounted in the races, said races being adapted for successive inclination in a common direction, to cause the readjustment of the weights and continue the initial movement of the valve, substantially as specified.

5. In a liquid-elevating apparatus, the combination with liquid-chambers provided with valved inlet-ports, and a communicating liquid-conveyer, of valve mechanism including separate pressure-chambers, in communication, respectively, with the liquid-chambers, a rocking valve having inlet and exhaust ports in communication with said pressure-chambers, means controlled by the level of liquid in the liquid-chambers, for causing an initial movement of the valve, when the contents of a liquid-chamber have been partially discharged, and a counterbalancing device having a block secured to the spindle of the valve and provided with convergent races, and movable ball-weights mounted in said races for successive movement in a common direction to continue the initial movement of the valve, substantially as specified.

691,279. CHUTE. CHARLES LAW, Pittston, Pa. Filed Apr. 29, 1901. Serial No. 57,943. (No model.)

Claim.—1. In a chute, a breech, two corresponding semicircular sections detachably secured in the said breech, the said sections flaring

in opposite directions, with their walls tapering to shallow concaved surfaces, and adjustable concave sections attached to the free ends of the respective semicircular sections, substantially as shown and described.



2. In a chute, a breech having two corresponding semicircular sections detachably secured therein, the said sections flaring in opposite directions with the edges of their respective walls tapering to a shallow concave surface, guides upon the said concave surface, adjustable sliding sections upon the said guides and braces upon the said sliding sections, substantially as shown and described.

3. In a chute, the combination of a breech, detachable concaved sections of manganese bronze or the like supported by said breech, the said sections flaring in opposite directions, and of similar sections adjustably connected to the free ends of the first-mentioned sections, substantially as shown and for the purpose set forth.

691,280. AUTOMATIC GAS-IGNITION DEVICE. PAUL LEHMANN, Berlin, Germany. Filed Sept. 5, 1901. Serial No. 74,574. (No model.)



Claim.—1. In an automatic gas-ignition device, the combination with an ignition-ball; of a carrier comprising a frame for holding said ball, a plate forming the bottom of said frame, and an eye for supporting said frame, substantially as described.

2. In an automatic gas-ignition device, the combination with a cross-bar; of a carrier suspended from said bar, and adjustable thereon, and an ignition-ball in said carrier, substantially as described.

3. In an automatic gas-ignition device, the combination with a cross-bar; of a carrier having an eye adjustable on said bar, and an ignition-ball in said carrier, substantially as described.

4. In an automatic gas-ignition device, the combination with a cross-bar; of a carrier adjustable on said bar, an ignition-ball in said carrier, and a handle on said carrier, substantially as described.

5. In an automatic gas-ignition device, the combination with a carrier comprising a frame, a plate forming the bottom of said frame and an eye for supporting said frame, and an ignition-ball in said frame; of a cross-bar passing through said eye and supporting said carrier, substantially as described.

6. In an automatic gas-ignition device, the combination with a cross-bar; of an ignition-ball, a carrier for the ignition-ball comprising a frame for holding said ball and an eye supporting said carrier adjustably on said bar, and a plate below said carrier, substantially as described.

7. In an automatic gas-ignition device, the combination with a cross-bar; of an ignition-ball, a carrier for the said ignition-ball, adjustable on said bar, and a plate below said carrier, substantially as described.

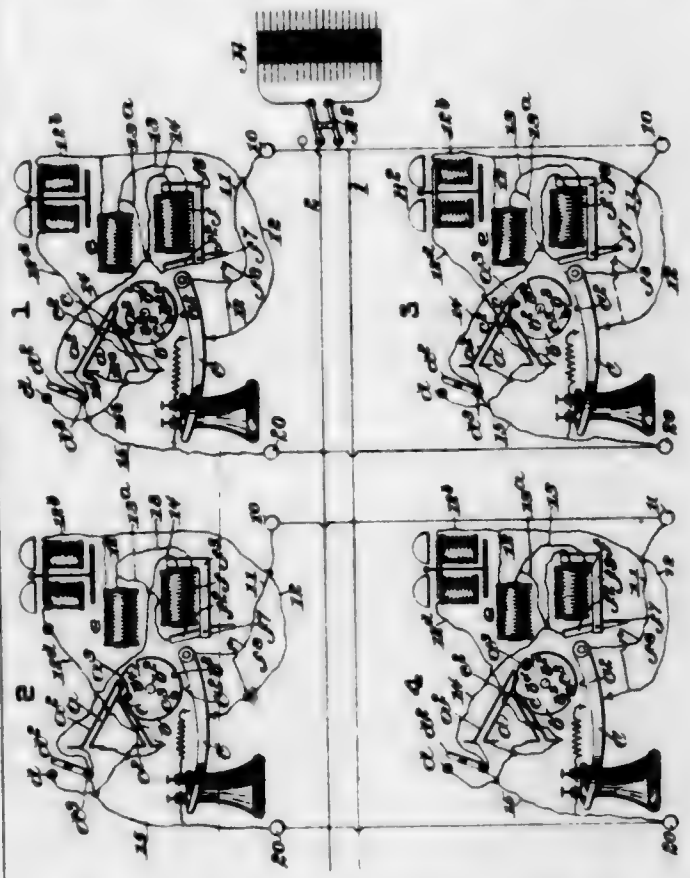
8. In an automatic gas-ignition device, the combination with a carrier comprising a frame and an eye, and an ignition-ball in said carrier; of a cross-bar passing through said eye and having means for retaining said carrier in any desired position thereon, substantially as described.

9. In an automatic gas-ignition device, the combination with a carrier comprising a frame and an eye, and an ignition-ball in said carrier; of a cross-bar passing through said eye and means for adjusting said bar, substantially as described.

10. In an automatic gas-ignition device, the combination with a carrier comprising a frame and an eye, and an ignition-ball in said carrier; of a cross-bar passing through said eye, and means for holding said bar on the top of a lamp-chimney, substantially as described.

11. In an automatic gas-ignition device, the combination with a carrier comprising a frame and an eye, and an ignition-ball in said carrier; of a cross-bar passing through said eye, means for holding said bar on the top of a lamp-chimney, and means for adjusting its position in relation thereto, substantially as described.

691,281. TELEPHONE SYSTEM. FRANK E. MAYBERRY, Medford, Mass., assignor, by direct and mesne assignments, of five-eighths to Watson M. Holmes, Hoosick Falls, N. Y., and George A. Lowry, Chicago, Ill. Filed Mar. 18, 1901. Serial No. 51,668. (No model.)



Claim.—1. In a signaling system, a device at each station for placing the instrument at said station in condition to receive signals; means for operating said device by current flowing in one direction; a second device for placing the instrument at said station in such condition that no signal can be received; means for operating said second device by current flowing in the opposite direction; a source of current; and means for sending impulses of current from said source to said devices in either direction.

2. In a selective signaling system for a number of stations, a device at each station for controlling the signaling instrument at said station; a multiple circuit for the several devices; a source of current; means for sending current from said source in either direction over said multiple circuit; means whereby current flowing in one direction will place one of the devices in condition to receive signals; and means whereby current flowing in the other direction will place all of the devices in such condition that no signal can be received.

3. In a selective signaling system, a common line connecting a number of stations with a central station; a signaling device at each station; means located at each station for placing the signaling device in abnormal condition in response to current flowing in one direction; means for restoring said signaling device to normal in response to current flowing in the opposite direction; and means located at the central station for sending impulses of current in either direction.

4. In a party-line telephone system, a central office; a telephone-controller located at each station on a given line; a device for signaling central office located at each station; and means located at central office for operating the telephone-controllers at the several stations on the line in response to the operation of the signaling device at any station on the same line.

5. In a party-line telephone system, a telephone-controller located at each station; a signaling device at each station; means for operating the several controllers in response to the operation of any signaling device on the same line; and a device for preventing said operating means from taking effect at the station which has originated the call.

6. In a party-line telephone system, normally open telephone and signaling circuits at each station; a manually-operating device at each station for closing the signaling-circuit; controlling devices at each station to prevent the closure of the telephone and signaling circuits by the subscriber; means located at central office and operated by a signaling-current from any station for operating the several controllers on the line over which said signaling-current comes in, the manually-operating device being arranged to coöperate with the controller at the station where it is located to prevent the effectual operation of said controller at that station only.

7. In a party-line telephone system, a central office; a signaling-circuit at each station on a given line; means under control of the subscriber at each station for controlling said circuit; a device at each station for placing said means temporarily beyond the control of the subscriber at said station; and means located at the central office for operating said device.

8. In a party-line telephone system, a locking-out device at each station to prevent the use of the instrument; means located at each station for operating said locking-out device; means for sending a signal from any station to central; automatic devices for operating the several locking-out devices along a line in response to a signal sent from any station on said line; and means for preventing the effectual operation of the locking-out device at the station where the call originated.

9. In a party-line telephone system, a controlling device at each station adapted to be operated and restored by impulses of current from a source of current located at central office; means for automatically sending an impulse of current from said source to the several stations on a calling-line in response to a signal sent in over said line; means for connecting said calling-line with the line called for; a controller or switch arranged to send impulses of current in one direction to the stations on the called line only, and to send an impulse of current in the opposite direction to the stations of both lines.

10. In a party-line telephone system, a controlling device for the circuits at each station adapted to be operated by impulses of current from central office; a source of current; a cord-circuit for connecting two lines; and means for connecting the terminals of said source respectively with the sleeve and tip-wires of the calling-plug only, as set forth.

11. In a party-line telephone system, a controlling device for the circuits at each station adapted to be operated by impulses of current in one direction and to be restored by impulses of current in the opposite direction; a source of current at central office; means for automatically connecting the terminals of said source with the main wires of a line in response to a signal coming in over said line; a cord-circuit; means for disconnecting said source from the main wires of the calling-line in response to the insertion of the answering-plug; a pole-changing switch for connecting the terminals of said source respectively with the wires of the cord-circuit; and means operating in response to the movement of the pole-changing switch in one direction for disconnecting the terminals of said source from the cord-wires leading to the answering-plug.

12. In a party-line telephone system, a controlling device for the circuits at each station, adapted to be operated by impulses of current in one direction and to be restored by impulses of current in the other direction; a source of current at central office; a cord-circuit provided with an answering-plug and a calling-plug; a normally open switch; means for operating said switch to connect the terminals of said source respectively with the sleeve and tip wires of the calling-plug only, for sending operating-impulses over the line to be called; and means for operating said switch to connect the terminals of said source respectively with the sleeve and tip wires of both plugs to send a restoring-impulse over both lines.

13. In a party-line telephone system, a signaling circuit at each station normally open; a traveling contact member to close said circuit; a source of current at central office to operate said contact member; and a separate source of current at central office for signaling.

14. In a signaling system, a device for placing the instrument at any of the stations on the system in condition to receive signals; means for operating said device by a current flowing over the line in one direction; a second device for placing the instruments in such condition that no signal can be received; means for operating said second device by a current flowing over the line in the opposite direction; a source of current; and means whereby said source of current can be connected with the line to send current in either direction.

15. In a telephone signaling system, a signal-controlling device at each instrument; an operating device therefor; a restoring device therefor, said operating and restoring devices being controlled respectively by coöperating magnetic members; and means for reversing the polarity of one magnetic member without reversing that of the other, whereby either of said devices may be operated at will.

16. In a telephone signaling system, a signal-controlling device at each station; an operating device therefor; a restoring device therefor, said operating and restoring devices being controlled respectively by electromagnets and their armatures, the said electromagnets being connected in series and provided respectively with polarized and non-polarized armatures; means for energizing said electromagnets by current flowing in either direction; and means for short-circuiting the electromagnet having the non-polarized armature in response to the attraction of the polarized armature, as set forth.

17. In a telephone signaling system, a signal-controlling device at each station; an operating device therefor consisting of an electromagnet and its armature; a restoring device consisting of a second electromagnet and its armature, one of said armatures being polarized and the other non-polarized; means for reversing the polarity of the electromagnet having the polarized armature; and means operating in response to the attraction of said polarized armature for preventing the electromagnet having the non-polarized armature from being energized.

18. In a telephone signaling system, a line-circuit common to a number of stations connected with a central office; a signaling-circuit bridged across the line at each station; a signal-controlling circuit also bridged across the line at each station; a signal-controlling device located in each signal-controlling circuit; means for operating said signal-controlling device by current flowing in one direction; means for restoring said signal-controlling device by current flowing in the opposite direction; a source of current for operating and restoring said signal-controlling devices; and a pole-changing switch for connecting either terminal of said source to either terminal of the main line, as set forth.

19. In a telephone signaling system, the combination with a plurality of signaling devices each of which is normally incapable of being operated from the central office; of a controller for each signaling device to place said device in condition to be operated, all of said controllers being bridged across the line and adapted to be operated by the same agency, but so arranged that when one signaling device is placed in condition to operate, the others cannot be operated; means for operating said controllers by current flowing in one direction over the line; means for restoring said controllers to normal condition by current flowing in the opposite direction over the line; a source of current for operating said controllers; and means for changing the direction of current over the line from said source, as set forth.

20. In a telephone signaling system, the combination with a plurality of signaling devices on a single line; of a controller for each signaling device, the normal condition of the several controllers being such as to prevent a signal from being sent from or received at any instrument; means normally under the control of the subscriber at each instrument for placing said instrument in condition to send in a signal; a locking device for said means beyond the control of the subscriber; means for operating all of said controllers by current sent in one direction over the line from central office, the controllers being so arranged that only one instrument can be placed by its controller in condition to receive a signal at any one time, and said central office operating means also operating the several locking devices; and means for restoring all the controllers to normal condition by current sent in the opposite direction over the line, as set forth.

21. In a telephone system for party-lines, a signal device and controller therefor at each station, the normal condition of which controller is such as to prevent a signal from being received at said station, and a telephone-controller at each station; the normal positions of said controllers at any one station differing from the normal positions thereof in any other; and means located at the central office, independent of the source of energy which operates the signals, for operating both controllers at every station, substantially as described.

22. In a telephone signaling system for party-lines, a signal-controller, the normal condition of which is such that no signal can be received, combined with means under control of the subscriber whereby a signal may be sent to central office, whereby central office may be signaled without producing signals at other stations on the line; a source of current at central office for operating said controller to place the station where it is located in condition to receive a signal; and an independent source of current for signaling, as set forth.

23. In a telephone system, the combination with a number of signaling devices on a single line; of a circuit-controller for the signaling-circuit at each signaling device; means for placing one only of said circuit-controllers in condition to render its signaling-circuit operative, said

means operating in response to a predetermined number of impulses of current flowing in one direction; means for placing all of said controllers in condition to render their respective signaling-circuits inoperative, said means operating in response to a single impulse of current in the opposite direction; an independent source of current for operating said controllers; and means for reversing the direction of current from said source when it is connected with the line, as set forth.

24. In a telephone system, the combination with a number of signaling devices on a single line; of means for producing impulses of current in either direction on the line; a circuit-controller at each signaling device; means for placing one only of said circuit-controllers in condition to render its signaling-circuit operative, said means operating in response to a predetermined number of impulses of current flowing in one direction; means for placing all of said controllers in condition to render their respective signaling-circuits inoperative, said means operating in response to an impulse of current in the opposite direction; and a manually-operative device at each station for rendering the signaling-circuit at said station operative preparatory to sending in a call, as set forth.

25. In a telephone signaling system, the combination with a number of signaling instruments on a single line; of means located at central office for producing impulses of current in either direction; a circuit-controller for closing the signaling-circuit at each instrument; means whereby each circuit-controller is adapted to close the circuit in response to a certain number of impulses of current in one direction from the central office differing from the number required to cause a circuit to be closed by any other circuit-controller; a telephone-controller at each station; means for operating said telephone-controller in response to the operation of the signal-controller; and a device for restoring all of said controllers to normal condition in response to an impulse of current sent in the opposite direction from the central office, as set forth.

26. In a telephone signaling system, the combination with a source of current whereby impulses can be sent in either direction over the signal-controlling-device circuit; of a circuit-controller for the signaling-circuit at each station on one line; means for moving a movable member or contact of the circuit-controller at each instrument a predetermined distance in response to an impulse of current from the central office, the contact members being so arranged that a certain number of impulses of current will close the circuit at one instrument but not at any other; a controller for the telephone-circuit at each station, said controller coacting with each signal-circuit controller to prevent closure of the telephone-circuit at all stations except the one in which the signaling-circuit is closed; and means for restoring the controllers at every station to normal condition in response to an impulse of current in the opposite direction, as set forth.

27. In a telephone signaling system, the combination with an electromagnet and its armature at each station; of a source of current at central office for energizing said electromagnet; a circuit-controller adapted to be operated by the movement of said armature; a spring for restoring said circuit-controller to normal; a retaining-pawl coöperating with the circuit-controller to resist the action of said spring; an electromagnet and armature to operate said pawl, said armature being polarized; and means for reversing the direction of the current from said source at central office, as set forth.

28. In a telephone signaling system, a normally open signaling-circuit at the subscriber's station; a circuit-closer adapted by a predetermined number of movements in one direction to close said signaling-circuit; said circuit-closer being mounted on a rotatable shaft provided with a ratchet-wheel; an operating-pawl coöperating with said ratchet-wheel; an electromagnet the armature of which is connected with said pawl; means whereby said armature is caused to effectively operate said pawl when said electromagnet is energized by current in one direction only; a retaining-pawl; a second electromagnet the armature of which is connected with said retaining-pawl; means whereby said second armature is caused to effectively operate said pawl when said second electromagnet is energized by current in the other direction only; and means located at the central office for energizing said electromagnets by current in either direction.

29. In a telephone signaling system, a signaling-circuit at each station which must be completed before a signal can be sent from or received at said station; a local operating device under the control of the subscriber at each station for completing said signaling-circuit; an electromagnetic system also adapted to complete said circuit when energized by current flowing in one direction; and to open said circuit when energized by current flowing in the opposite direction; a source of current for energizing said electromagnetic system; and means for sending impulses of current in either direction from said source, as set forth.

30. In a telephone signaling system, a signaling-circuit at each instrument which must be completed before a signal can be sent from or received at said instrument; a local operating device at each instrument for completing said signaling-circuit; an electromagnetic system also adapted to complete said circuit when energized by current flowing in one direction, and to open said circuit when energized by current flowing in the opposite direction; a source of current for energizing said electromagnetic system; means for sending impulses of current in either direction from said source; and means for preventing the operation of the local operating device at any instrument, said means being operated by the said electromagnetic system, as set forth.

31. In a telephone instrument, the combination with the gravity-hook; of a rotatable locking-disk, the periphery of which is so situated with relation to said hook as to prevent the same from being lifted; a notch in said disk; and means located at the instrument and adapted to be operated from the central office for causing said disk to rotate until said notch is in line with the said gravity-hook.

32. In a telephone instrument, the combination with the gravity-hook; of a rotatable locking-disk, the periphery of which is so situated with relation to said hook as to prevent the same from being lifted; a notch in said disk; means located at the instrument and adapted to be operated from the central office for causing said disk to rotate until said notch is in line with the said gravity-hook; and a restoring device for restoring said disk to its normal position.

33. In a telephone signaling system, the combination with the gravity-hook of each instrument on a single line; of a locking-disk coöperating with said gravity-hook and arranged to lock the same except when said disk is in a predetermined position; and means located at each instrument and adapted to be operated from the central office for operating all of said disks in unison, the disks being so arranged that only one at a time can be placed in unlocking position by said operating means, as set forth.

34. In a telephone signaling system, the combination with the gravity-hook of each instrument on a single line; of a locking-disk coöperating with said gravity-hook and arranged to lock the same except when said disk is in one or more predetermined positions; means located at the central office for operating all of said disks in unison, the disks being so arranged that only one at a time can be placed in unlocking position by said operating means; and means also located at each instrument and adapted to be operated from the central office for restoring all of said disks to normal position, as set forth.

35. In a telephone system, the combination with the gravity-hook; of a locking-disk coöperating with said gravity-hook at each station on the line and arranged to lock the said gravity-hook except when said disk is in a predetermined position; a normally open signaling-circuit; a circuit-closer carried by said disk and adapted to close said circuit only when said notch is in said predetermined position; and means located at each instrument and adapted to be operated from the central office for operating all of said disks in unison, the disks being so arranged that only one at a time can be placed in unlocking position.

36. In a telephone system, the combination with the gravity-hook; of a locking-disk coöperating with said gravity-hook at each station on the line and arranged to lock the said gravity-hook except when said disk is in a predetermined position; a normally open signaling-circuit; a circuit-closer carried by said disk and adapted to close said circuit only when said notch is in said predetermined position; means located at each instrument and adapted to be operated from the central office for operating all of said disks in unison, the disks being so arranged that only one at a time can be placed in unlocking position; and means also located at each instrument and adapted to be operated from central office for restoring all of said disks.

37. In a two-conductor telephone system, a normally open telephone-circuit and a normally open signaling-circuit at each instrument; means normally under control of the subscriber for closing both of said circuits; and a controller-circuit bridged across the line at the subscriber's station and a controlling device in said circuit adapted to be operated from central office for placing said subscriber's-circuit-closing means beyond the control of the subscriber.

38. In a telephone system, a normally open telephone-circuit at the subscriber's station; and a controlling-circuit bridged across the line at said station and a controlling device in said circuit adapted to be operated from central office for preventing the closure of said telephone-circuit.

39. In a signaling system, a central office and substation; a normally open signaling-circuit at said substation; a device at said substation adapted when in normal condition to close said signaling-circuit; and means located in a circuit bridged across the line at said substation and adapted to be operated from the central office for placing said device in abnormal condition to prevent the closure of said circuit.

40. In a telephone system for party-lines, a signal-sending circuit and a signal-receiving circuit at each station; a circuit-controller located at each instrument and means for operating said controller located at the central office, the said circuit-controller when in normal position closing a switch in the signal-sending circuit and leaving the signal-receiving circuit open; and a second normally open switch in the signal-sending circuit under control of the subscriber.

41. In a telephone system for party-lines, a normally open telephone-circuit at each station; means normally under the control of the subscriber

for closing said circuit; a device located at each station and adapted to be operated from central office for placing said means beyond the control of the subscriber; a visual indicator coöperating with said device, and means located at each station and adapted to be operated from central office for restoring the telephone-circuit at each station to normal condition, as set forth.

42. In a telephone system for party-lines, a signaling device at each station; a visual "busy" indicator at each station; and means located at the central office and operating in response to the operation of the signaling device for actuating the indicators at the other stations.

43. In a signaling system, a line-circuit; a central station provided with a source of electrical energy; a plurality of signaling-circuits in multiple with said line-circuit; a controller for each of said signaling-circuits; and an electromagnet to operate each of said controllers, the several electromagnets being connected in a multiple circuit supplied from said source of electrical energy.

44. In a signaling system, a line containing a plurality of stations; a signaling device at each station; an electrically-operated controller for each signaling device; a circuit for each controller bridged across the main conductors of the line; a central station; and a source of current at said central station to supply said circuit, as set forth.

45. In a signaling system for party-line telephones, the combination with the line conductors; of a signaling device at each station bridged across the line; a controller for each signaling device; and an independent circuit for each controller, said circuits being connected in multiple; and a source of current at central office for supplying said circuits.

46. In a party-line telephone system, a signaling-circuit and a telephone-circuit at each station; a controlling device for each of said circuits; and a controlling-device circuit at each station independent of the signaling-circuit and the telephone-circuit, each of the said three circuits being bridged across the line.

47. In a signaling system, a signal-controlling circuit; a central station provided with a source of electrical energy and means for connecting either terminal of said source with either terminal of said circuit; a plurality of signaling-circuits in multiple with said signal-controlling circuit; an electromagnetic system for each signaling-circuit, the said electromagnetic systems being connected in multiple with said signal-controlling circuit; armatures included in each of said electromagnetic systems; and means for operating the controllers by the movements of said armatures, the setting of said controllers depending upon the action of said armatures in response to impulses of current flowing in one direction from said source, and the restoring of said controllers depending upon the movements of said armatures in response to current flowing in the opposite direction from said source.

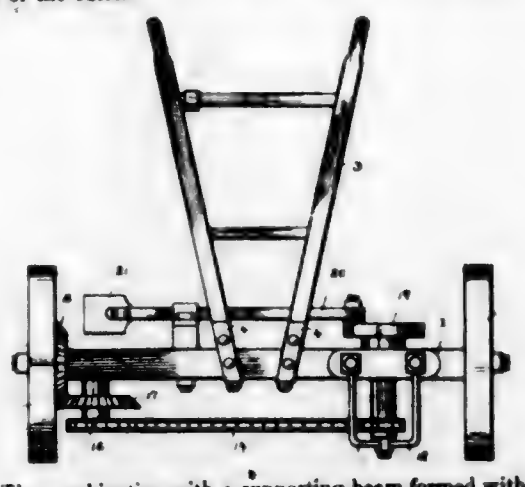
48. In a party-line telephone system, the combination with a telephone-circuit and a signaling-circuit each bridged across the line at each station; of controlling devices for said circuits; an electromagnetic system to operate the controlling device at each station, said electromagnetic systems being included in a multiple circuit adapted to receive current from central office; and means located at each station for breaking the telephone-circuit and closing a special circuit through said electromagnetic system and that part of the signaling-circuit which includes the bell-magnet coils, substantially as and for the purpose described.

49. In a party-line telephone system, the combination with a telephone-circuit bridged across the line at each station and adapted to be closed by the gravity-hook when the receiver is taken down, and a signaling-circuit also bridged across the line at each station; of means for controlling said circuits consisting in electromagnetic systems at the several stations, said electromagnetic systems being included in a multiple circuit supplied with current from central office under control of the operator at central; a special normally open circuit at each station including said electromagnetic system and the signaling-circuit in multiple with each other; and means independent of the gravity-hook for closing said special circuit and opening the telephone-circuit.

691,282. CHOPPER AND THINNER FOR PLANTS. ARTHUR H. MEADE, New Richmond, Mich. Filed May 11, 1901. Serial No. 59,848. (No model.)

Claim.—1. In a machine of the class described, the combination with a transversely-operating reciprocating cutter; of a shaft connected thereto and mounted in a bearing adjustably mounted upon the machine; means for actuating said shaft through the movement of the machine; and means for regulating the degree of pitch or throw of the cutter comprising a slotted guide, vertically adjustable on the beam, and having a loop or eye at its lower end.

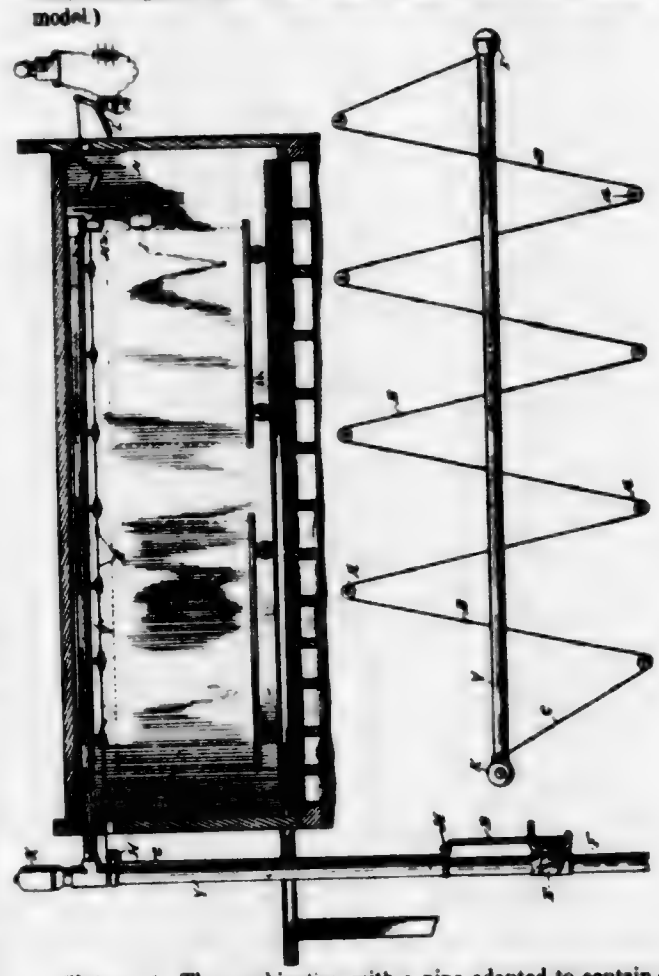
2. The combination with a supporting-beam, of an adjustable shaft arranged transversely thereof, a crank at the rear end of said shaft, a sprocket-wheel at the forward end thereof, a shaft arranged parallel to the adjustable shaft, a sprocket on said second shaft, a sprocket-chain connecting the two shafts, gearing for driving the shafts, a pitman carrying a cutter and connected to the crank, and means for adjusting said pitman to control the pitch of the cutter.



3. The combination with a supporting-beam formed with a longitudinal slot, of an adjustable shaft-bearing suspended below the beam by bolts extending through the slot, and a bearing-plate above the beam through which the bolts extend, a shaft within said bearing, a cutter operated by the shaft, driving-gear, and a sprocket-chain adapted to be tensioned by the adjustment of said bearing.

4. The combination with a longitudinally-slotted supporting-beam of a transversely-operating reciprocating cutter, an adjustable guide for regulating the pitch of the cutter, a shaft arranged transversely of the beam for operating the cutter, and means for supporting said shaft adjustably comprising a bearing below the beam, a bearing-plate above the beam, bolts connecting said bearing and plate, and a bracket supported by depending arms, secured by said bolts.

691,283. AUTOMATIC FIRE-EXTINGUISHER. HENRY K. MILNER, Birmingham, Ala. Filed June 12, 1901. Serial No. 64,287. (No model.)



Claim.—1. The combination with a pipe adapted to contain extinguishing fluid, a valve therein of such form and construction that it is opened by the fluid-pressure against it when not otherwise hindered, a pipe leading from the valve, and a perforated discharge-pipe leading from said last-named pipe, of a lever bearing normally against the valve, a flexible connection having fusible sections, said connection attached to the lever, and a weight on the connection remote from the lever for keeping the connection taut and for holding the valve closed until the connection is severed.

2. The combination with a pipe adapted to contain extinguishing fluid, a valve therein of such form and construction that it is opened by

the fluid-pressure against it when not otherwise hindered, a pipe leading from the valve, and a perforated discharge-pipe leading from said last-named pipe, of a lever bearing normally against the valve, a flexible connection having fusible sections, said connection attached to the lever, and a weight on the connection remote from the lever for keeping the connection taut and for holding the valve closed until the connection is severed, a bell, bell-circuit, terminals for said circuit, a pair of levers loosely connected together, one pivoted in position to engage the terminals, and a connection extending from the other lever to the weight.

3. The combination with a pipe adapted to contain extinguishing fluid, a valve therein of such form and construction that it is opened by the fluid-pressure against it when not otherwise hindered, a pipe leading from the valve, said pipe having a whistle therein adapted to be sounded when the valve is opened by the fluid which forces the valve open, and a perforated discharge pipe leading from said last-named pipe, of a lever bearing normally against the valve, a flexible connection having fusible sections, said connection attached to the lever, and a weight on the connection remote from the lever for keeping the connection taut and for holding the valve closed until the connection is severed.

691,284. **SHOE.** MICHAEL J. MOLONEY, Rochester, N. Y., assignor of one-half to James A. Moloney, Rochester, N. Y. Filed Aug. 24, 1901. Serial No. 73,163. (No model.)



Claim.—1. A turned-welt shoe comprising an insole, a welt and an upper both attached to the inner face of the insole, the welt located between the insole and the upper and having its outer edge projecting outward beyond the edge of the insole, and an outer sole attached to the projecting edge of the welt.

2. A turned-welt shoe comprising an insole having its edge tapered downwardly and outwardly, a welt and an upper seated against said tapered portion with the welt located between the insole and the upper, the outer edge of the welt projecting and having its lower face substantially in a plane with the outer face of the insole, and an outer sole attached to the projecting portion of the welt.

3. A turned-welt shoe comprising an insole, a welt and an upper both attached to the insole, the welt located between the insole and upper and having its outer edge projecting beyond the insole, and an outer sole attached to the welt.

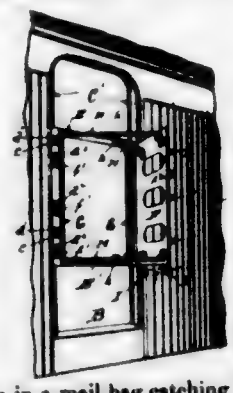
4. A turned-welt shoe comprising an insole, a welt and an upper, both attached to the insole, the welt located between the upper and insole and extending entirely around the lower edge of the upper including the heel portion and having its outer edge projecting beyond the insole entirely therearound, and an outer sole sewed to the welt entirely around the upper including the heel portion, thus producing a nailless shoe.

5. A turned-welt shoe adapted to have its insole, upper and welt connected wrong side out, the insole having a projecting flexible flange, the welt located between the upper and the flexible flange of the insole and having an outwardly-projecting portion when the parts are turned right side out, and an outer sole attached to said outwardly-projecting portion of the welt.

691,285. **MAIL-BAG CATCHING AND DELIVERING MECHANISM.** GEORGE R. MOORE, Erie, Pa. Filed Nov. 26, 1901. Serial No. 83,729. (No model.)

Claim.—1. The combination in a mail-bag catching and delivering mechanism, of a plate, detachable hinges at each side thereof adapted to connect it with the side of the car, and folding links extending from each side of the plate to the side of the car, substantially as and for the purpose set forth.

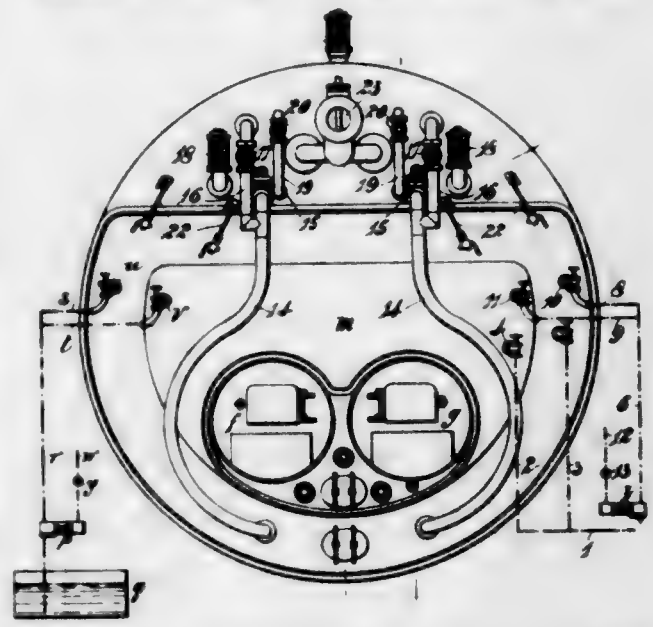
2. The combination in a mail-bag catching and delivering mechanism, of a frame adapted to be secured across a car-door, a plate on said frame, detachable hinges at each side of said plate adapted to connect it to the sides of the frame, and folding links pivoted to the inside of each side of said plate, and to the frame, substantially as and for the purpose set forth.



3. The combination in a mail-bag catching and delivering mechanism, of a frame adapted to extend across a car-door, hinges securing one side of the frame to the car-door frame, and detachable fastenings securing the opposite side of said frame to the car-door frame, a plate on said frame, hinge-eyes on each side of said plate, vertically-moving hinge-hooks in each side of said frame adapted to engage the hinge-eyes on either side of said plate as desired, folding links pivoted to the inside of each side of the plate and to the cross-bars of the frame, and hooks extending downward from each side of said plate, substantially as and for the purpose set forth.

4. The combination in a mail-bag catching and delivering mechanism of a frame adapted to be secured across a car door, a plate on said frame, detachable hinges at each side of said plate, adapted to connect it to the sides of said frame folding links pivoted to each side of the inside of said plate and to said frame, a hook extending downward from the bottom of each side of said plate for suspending mail-bags to be delivered, a crane for suspending mail-bags to be caught, and suitable mechanism for detaching mail-bags to be delivered from the hooks on said plate, substantially as and for the purpose set forth.

691,286. **STEAM-GENERATOR.** WILLIAM MORGANS, Chelsea, England. Filed June 21, 1901. Serial No. 65,481. (No model.)



Claim.—1. A steam-generator, comprising two or more steam-generating compartments one surrounding another and connected together in such a way that the pressure of the steam therein decreases from the inmost compartment to the outmost compartment.

2. A steam-generator comprising two or more steam-generating compartments one surrounding another, and means for feeding hot water to the inner from the outer of said compartments.

3. A steam-generator comprising a series of steam-generating compartments one surrounding another with the interiors of the compartments normally disconnected the one from the other and means whereby any excess of pressure in a surrounded compartment will be relieved by discharging steam or water therefrom into an outer compartment.

4. A steam-generator comprising two or more steam-generating compartments, one surrounding another, means for feeding hot water to the inner from the outer of said compartments, and means whereby any excess of pressure in a surrounded compartment will be relieved by discharging steam or water therefrom into an outer compartment, substantially as described for the purpose specified.

5. A steam-generator comprising more than two cylindrical boiler-shells of different diameters arranged one within another and forming an intermediate compartment or intermediate compartments, end plates to

which said shells are connected, and means for feeding hot water from an inner compartment to an outer compartment, substantially as described for the purpose specified.

6. A steam-generator comprising more than two cylindrical boiler-shells of different diameters arranged one within another and forming an intermediate compartment or intermediate compartments, end plates to which said shells are connected, means for feeding hot water from an outer to an inner compartment, and means whereby any excess of pressure in a surrounded compartment will be relieved by discharging fluid therefrom into an outer compartment, substantially as described for the purpose specified.

7. A steam-generator comprising steam-generating compartments one within another with the interiors of the compartments normally disconnected the one from the other, and means for supplying fluid from one compartment to another compartment.

8. A steam-generator comprising fluid-tight compartments one within another, and means for supplying fluid to each of the said compartments independently of the other compartment or compartments.

9. A steam-generator comprising fluid-tight compartments one within another, an inner one of the said compartments containing water and steam, and an outer one of the said compartments containing fluid at a pressure less than the said steam.

10. A steam-generator comprising fluid-tight compartments one within another, an inner one of the said compartments containing water and steam, and an outer one of the said compartments containing air at a pressure less than the said steam.

11. A steam-generator comprising compartments one surrounding another, means for supplying water to an inner one of the said compartments, means for supplying fluid to an outer one of the said compartments, and means for enabling fluid to pass automatically from an outer one to an inner one of the said compartments should the pressure in the said outer compartment exceed the pressure in the said inner compartment.

12. A steam-generator comprising compartments one surrounding another, means for supplying water to an inner one of the said compartments, means for supplying fluid to an outer one of the said compartments, means for enabling excess of pressure in the said inner compartment to be relieved automatically by the escape of fluid therefrom into the said outer compartment, means for enabling excess of pressure in the said outer compartment to be relieved automatically by the escape of steam or fluid therefrom into the said inner compartments, means for preventing the pressure in the said inner compartment from exceeding a definite amount and means for preventing the pressure in the said outer compartment from exceeding a definite amount.

13. A steam-generator comprising compartments one surrounding another, means for supplying water to each of the said compartments, means provided for each of the said compartments to enable excess of pressure therein to be relieved automatically by the escape of fluid therefrom into the other of the said compartments and means provided for each of the said compartments to prevent the pressure therein from exceeding a definite amount.

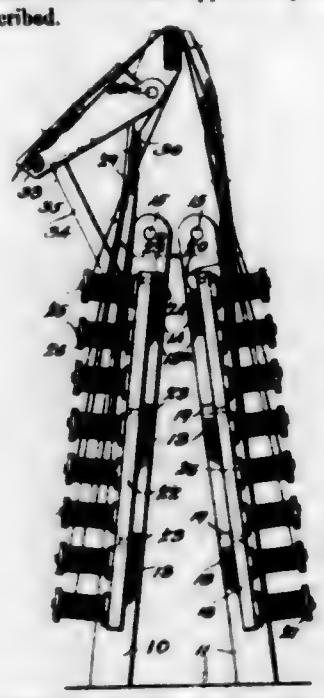
14. A steam-generator comprising compartments one surrounding another, means for supplying water to each of the said compartments independently of the other, means for supplying hot water from an outer one of the said compartments to an inner one of the said compartments, means provided for each of the said compartments to enable excess of pressure therein to be relieved automatically by the escape of fluid therefrom into the other of the said compartments, and means provided for each of the said compartments to prevent the pressures therein from exceeding definite relations to each other.

15. A steam-generator comprising compartments one surrounding another, an outer one of the said compartments containing steam at a lower pressure than the inner of the said compartments, and a chamber or water-back connected to the said outer compartment and forming, with the said inner compartment a combustion-chamber.

691,287. SPOOL-HOLDING FRAME. PHILANCY D. MORTON, Le moyne, Ohio. Filed Jan. 31, 1900. Serial No. 3,475. (No model.)

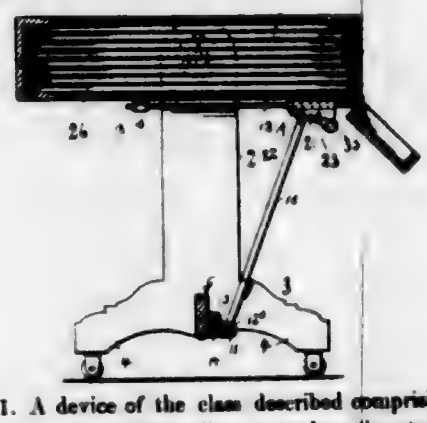
Claim.—1. In an apparatus for the purpose set forth, a spool-holding frame having upwardly and inwardly inclined oppositely-disposed sides, a plurality of warp-frames mounted on said sides, each warp-frame having a pair of side rails which converge toward one end of said frame and carrying a plurality of spindles arranged in alinement thereon, the rails being held in fixed relation to each other, a warp-support above said warp-frames and in a vertical plane between the same, front and rear lease-formers between the warp-frames and the warp-support, an adjustable frame connected to the spool-holding frame and projecting forwardly therefrom, and a lease-former supported by the adjustable frame.

2. In an apparatus for the purpose set forth, a spool-holding frame provided with two series of warp-frames arranged in reversely-inclined positions, and having downwardly-converged side rails, a warp-support above said frames and in a vertical plane between the same, front and rear lease-formers between the warp-frames and the warp-support, an adjustable frame connected to the spool-holding frame and projecting forwardly therefrom, and a lease-former supported by the adjustable frame, substantially as described.



3. In an apparatus for the purpose set forth, a spool-holding frame provided with warp-frames, a warp-support, lease-formers on said spool-holding frame between the warp-support and the warp-frames, an adjustable frame projecting from the spool-holding frame, a lease-former in said adjustable frame, and a roller supported by the adjustable frame beyond the lease-former thereon, substantially as described.

691,288. CASE FOR PLATS, MAPS, &c. CHARLES E. MCCLINTOCK, Albuquerque, N. Mex. Filed Apr. 5, 1901. Serial No. 54,528. (No model.)



Claim.—1. A device of the class described comprising a stand or support, a case or receptacle pivotally mounted on the stand or support and adapted to be rotated to arrange it in an upright or horizontal position, said case or receptacle being provided with a hinged lid arranged to drop below it when it is arranged in a horizontal position to form a table or desk, and means for holding the case or receptacle in either position, substantially as described.

2. A device of the class described comprising a stand, a case or receptacle pivotally mounted on the stand and adapted to be arranged in an upright or horizontal position, a brace hinged to the stand and slidingly connected with the case or receptacle, and means for locking the brace against movement to hold the case or receptacle in either position, substantially as described.

3. A device of the class described comprising a stand, a case or receptacle pivotally mounted on the stand and provided with a guide-rail, a brace hinged to the stand and slidingly connected with the guide-rail, and a catch for locking the slide against movement, substantially as described.

4. A device of the class described comprising a stand, a case or receptacle pivotally mounted on the stand and provided with a guide-rail, a slide arranged to move longitudinally of the guide-rail, a brace hinged to the stand and to the slide, and a catch mounted on the slide and arranged to engage the guide-rail to lock the case or receptacle against movement, substantially as described.

5. A device of the class described comprising a stand, a case or receptacle pivotally mounted on the stand, a guide-rail substantially T-shaped in cross-section secured to the case or receptacle, a plate provided with a T-shaped opening receiving the guide-rail and secured to the case

or receptacle, a slide having a T-shaped opening receiving the guide-rail, a brace pivoted to the stand and to the slide, and a catch mounted on the slide and arranged to engage the guide-rail, substantially as and for the purpose described.

6. A device of the class described comprising a stand, a case or receptacle pivotally mounted on the stand and provided with a guide-rail, a slide arranged to move longitudinally of the guide-rail, a brace hinged to the stand and to the slide, a catch pivotally mounted between its ends on the slide and provided with a lug arranged to engage the guide-rail, and a spring mounted on the slide and engaging the catch, to hold the lug in engagement with the guide-rails, substantially as described.

691,289. THREAD-CUTTER. CATHERINE P. McKIE, Newton, N. J. Filed Apr. 5, 1901. Serial No. 54,409. (No model.)



Claim.—A device adapted to cutting thread constructed from a single piece of sheet metal, the cutting edge or edges thereof formed in that part of the metal projecting upwardly and inwardly, a loop formed in and from the central part of the body, an attaching-pin secured thereto substantially as and for the purpose set forth and shown.

691,290. TANK FOR MEDICATING WATER. CHARLES W. PERKINS, St. Louis, Mo. Filed May 20, 1901. Serial No. 61,156. (No model.)



Claim.—1. In a device of the character described, a suitable tank, a water-basin above the same, plugs at the bottom of the basin, troughs located below the plugs, the bottoms of the troughs being perforated, a vertical division-wall at the base of the tank, means for supporting a suitable vapor-generating compound above said division-wall, inclined plates on each side of the faces of the vertical division-wall, located below the troughs, and a series of deflecting-plates between the inclined plates and the inner walls of the tank, substantially as set forth.

2. In a device of the character described, a suitable tank, a water-basin above the same, plugs at the bottom of the basin, troughs located below the plugs, the bottoms of the troughs being perforated, a vertical division-wall at the base of the tank, a platform on said division-wall for the support of a vapor-generating compound, inclined plates on each side of the longitudinal edges of the platform located below the troughs, and overlapping deflecting-plates between the inclined plates and the inner walls of the tank, the parts operating substantially as and for the purpose set forth.

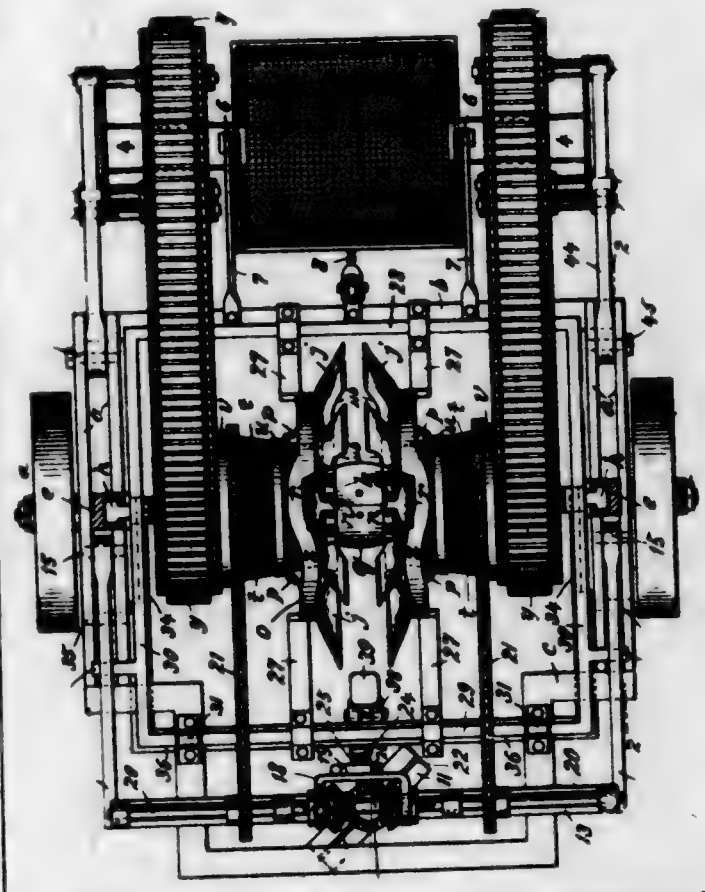
691,291. BOOT OR SHOE. CARL PETERS, Crefeld, Germany. Filed Mar. 7, 1900. Serial No. 7,694. (No model.)



Claim.—1. In a boot or shoe, the combination of the opposite flaps *a*, the internally-movable plate *g*, the straps *e* passing through openings in the side of the shoe and connecting said plate with these flaps; with a tongue *c* interposed between the flaps and the rear part of the shoe, and the pulling-strap *h* connected to the plate *g*.

2. In a self-closing boot or shoe, the combination of the opposite flaps *a*, the internally-movable plate *g*, the straps *e* passing through openings in the side of the shoe and connecting said plate with these flaps: with the pulling-strap *h* connected to the plate *g*.

691,292. ROOT-DIGGING MACHINE. EDWARD SANDSTROM, Wilmington, Del., assignor of one-third to Thomas G. Holland, Wilmington, Del. Filed Mar. 28, 1901. Serial No. 53,205. (No model.)



Claim.—1. The combination of two series of spoon-shaped spades set radially edge to edge in circles in parallel vertical planes respectively, with the points outward relatively to the centers of the circles, on a wheeled carrier which is adapted to be drawn along the ground and with the aid of the weight to which the spades are subject to force the spades into the ground on the sides of the rows of beets respectively, cams which close the spades on the beets when duly entered in the ground beside the beets to grip and carry the beets along the upward range of the spades, means to open the spades in the upper position and discharge the beets into the middle space between the spades, and means for receiving the beets in said middle space and separating them from the accompanying matters.

2. The combination of two series of spoon-shaped spades set radially edge to edge in circles in parallel vertical planes respectively, with the points outward relatively to the centers of the circles, on a wheeled carrier which is adapted to be drawn along the ground and with the aid of the weight to which the spades are subject to force the spades into the ground on the sides of the rows of beets respectively, cams which close the spades on the beets when duly entered in the ground beside them to grip and carry the beets along the upward range of the spades and means to open the spades in the upper position and discharge the beets into the middle space between the spades, said spades having the hinder side edges adapted for more closely confining the beets between them than the forward side edges.

3. The combination of two series of spoon-shaped spades set radially edge to edge in circles in parallel vertical planes respectively with the points outward relatively to the centers of the circles, on a wheeled carrier which is adapted to be drawn along the ground and with the aid of the weight to which the spades are subject to force the spades into the ground on the sides of the rows of beets respectively, cams which close the spades on the beets when duly entered in the ground beside the beets to grip and carry the beets along the upward range of the spades, means to open the spades in the upper position and discharge the beets into the middle space between the spades, rotary screens coincident with said middle space and means for directing the falling matters from the spades thereto for separating the same.

4. The combination of two series of spoon-shaped spades set radially edge to edge in circles in parallel vertical planes respectively with the points outward relatively to the centers of the circles, on a wheeled carrier which is adapted to be drawn along the ground and with the aid of the weight to which the spades are subject to force the spades into the ground on the sides of the rows of beets respectively, cams which close the spades on the beets when duly entered in the ground beside the beets to grip and carry the beets along the upward range of the spades, means to open the spades in the upper position and discharge the beets into the middle space between the spades, rotating screens coincident with the said middle space, means for directing the falling matters from the spades

thereto for separating the same and endless carriers receiving the beets from the screens and conducting them away to the rear of the machine.

5. The combination of two series of spoon-shaped spades set radially edge to edge in circles in parallel vertical planes respectively with the points outward relatively to the centers of the circles, on a wheeled carrier which is adapted to be drawn along the ground and with the aid of the weight to which the spades are subject to force the spades into the ground on the sides of the rows of beets respectively, cams which close the spades on the beets when duly entered in the ground beside them to grip and carry the beets along the upward range of the spades, means to open the spades in the upper position and discharge the beets into the middle space between the spades, rotatory screens coincident with said middle space, and means for directing the falling matters from the spades thereto for separating the same, said spades and screens and spade-actuating cams mounted concentrically with a shaft carried in bearings in vertical slideways of the wheeled carrier, and provided with means for raising said bearings and thereby raising the spades and screens for transportation above ground.

6. The combination of two series of spoon-shaped spades, set radially edge to edge in circles in parallel vertical planes respectively with the points outward relatively to the centers of the circles on a wheeled carrier which is adapted to be drawn along the ground and with the aid of the weight to which the spades are subject to force the spades into the ground on the sides of the rows of beets respectively, cams which close the spades on the beets when duly entered in the ground beside them to grip and carry the beets along the upward range of the spades, means to open the spades in the upper position and discharge the beets into the middle space between the spades, rotary screens coincident with the said middle space, means for directing the falling matters from the spades thereto for separating the same, endless carriers for receiving the beets from the screens and discharging them rearwardly out of the machine, said spades, cams, carriers and screens mounted concentrically with a shaft whose bearings are carried in vertical slideways of the wheeled carrier and provided with means for raising said bearings and thereby raising the spades, cams and screens for transportation above ground, said endless carriers arranged on the tail ends of the screens for reception of the beets therefrom, and for being operated thereby.

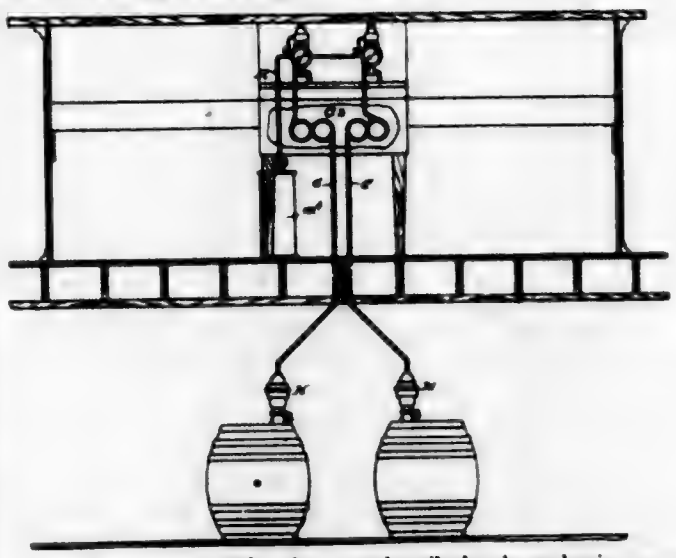
7. The combination of the digging-spades occupying the middle position in the wheeled carrier and arranged and adapted as described for raising and discharging the beets, a rotating screen on each side of the spades and coincident with the center space for receiving the beets, an endless carrier on each tail end of each screen for receiving the beets therefrom, guide-pulleys for each carrier extended rearwardly from the machine, an inwardly-discharging spout for receiving the beets from each carrier, and the dumping-basket suspended between the carrier for reception of the beets from both.

8. The combination of two series of spoon-shaped spades set radially edge to edge in circles in parallel vertical planes respectively with the points outward relatively to the centers of the circles, cams adapted to close the spades on the beets when duly entered in the ground beside them to grip and carry the beets along the upward range of the spades, means to open the spades in the upward position and discharge the beets into the middle space between the spades, a rotatory screen coincident with the center of each series of spades and outside thereof to receive the beets from the spades, a shaft whereon said spades and screens are mounted, said shaft mounted at its ends in vertically-shifting boxes on a wheeled carrier for the spades and screens, lever mechanism pivoted on the main frame of the wheeled carrier for so shifting said boxes, and a frame supporting the cams for closing the spades coincident with the spades and screens, said frame pivoted at one end to the main frame and resting intermediately of its ends on the vertically-shifting boxes for raising the cams in unison with the spades and screens.

9. The combination with the spade and screen carrying shaft and its lifting-levers, and the cam carrying and lifting frame operated by the bearing-boxes of said shaft and having studs 32, of the top-cutter-carrying frame pivoted on the side members of the main frame and resting on the studs of the cam-lifting frame, and thereby adapted to be raised through the instrumentality of the shaft-lifting levers.

691,293. APPARATUS FOR DISPENSING BEVERAGES. HERMAN SCHEPER, Chicago, Ill. Filed Feb. 20, 1901. Serial No. 48,105. (No model.)

Claim.—1. In an apparatus for dispensing beverages, a faucet having an air-channel and a liquid-channel therein, means for automatically regulating the admission of air to said air-channel from a suitable source of air-supply under pressure, an air-pressure gage communicating directly with said air-channel, a single pipe having formed therein a liquid-channel and an air-channel communicating respectively with like channels in the faucet, a bung having ways therein for air and liquid respectively and an adjustable device for coupling said bung and pipe, said device having an air-channel and a liquid-channel communicating respectively with like channels in the pipe, and bung, as set forth.



2. In apparatus of the character described, a bung having an air-channel and a liquid-channel therein, a back-pressure valve located in its air-channel, a conduit-pipe having formed therein two channels for air and liquids respectively, a coupling device having a central liquid-channel and an annular air-channel and an adjustable connection between the air-channel of the coupling and the air-channel of the bung, as set forth.

3. In apparatus of the character described, a faucet having therein air-chamber, air-channel and liquid-channel, means for regulating the admission of air under pressure to said chamber, an air-pressure gage secured to the faucet and communicating directly with its air-chamber, a conduit-pipe having formed therein air-channel and liquid-channel, a bung having air-channel and liquid-channel therein, and couplings for connecting said faucet, conduit-pipe and bung whereby their respective chambers will register with each other.

4. In an apparatus of the character described, a faucet comprising an air-chamber at its front end, means for regulating the admission of air to said chamber from a suitable source of supply under pressure, an air-channel leading from said chamber, an air-pressure gage secured to the front of the faucet and communicating with said air-chamber, a liquid-channel extending longitudinally and vertically through said faucet and separated from the said air-channel and air-chamber, and means for controlling the outflow of liquid from said liquid-channel substantially as set forth.

691,294. TOILET-PAPER PACKAGE. FRANK SCHILS, Milwaukee, Wis., assignor to Hugo Loewenbach, Milwaukee, Wis. Filed May 4, 1901. Serial No. 58,834. (No model.)



Claim.—1. A toilet-paper package, comprising a series of flatly-disposed, rectangular sheets of tissue-paper, said package being provided with notches in its longer side edges, adapted to partially subdivide the sheets into two rectangular portions having their longer side edges extending transversely of the package, substantially for the purpose set forth.

2. A toilet-paper package, comprising a series of flatly-disposed sheets of paper, and having notches in its side edges at or near its transverse median line, of such depth as to practically destroy the utility of the central portion of the sheets, except as a connection between the upper and lower portions, substantially for the purpose set forth.

691,295. EXERCISING APPARATUS. FRANKLIN SCHNEIDER, Cleveland, Ohio, assignor to the Whitely Exerciser Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 31, 1898. Serial No. 668,552. (No model.)



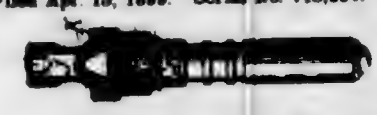
Claim.—1. An exercising apparatus consisting of two elastic or resilient cords adjustably connected together at or near their centers, the one suitably supported at or near its ends forming a base-cord, the other provided at its ends with operating-handles, and an adjustable connection between the two cords so that the point of connection may be varied for compounding the motion.

2. An exercising apparatus consisting of two elastic or resilient cords, one connected at or near its end to a suitable support, the other adjustably connected with the first cord so that the point of connection may be varied, an intermediately-connecting part provided with a friction-relieving device for one of the cords.

3. In an exercising apparatus, an elastic cord or element supported at or near its ends, forming a base-cord, a loop encircling said base-cord at any suitable point between the supports, and carrying a second cord, and an adjustable clamping device for clamping the two cords together in different relative positions.

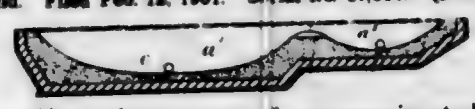
4. In an exercising apparatus, an elastic cord supported at or near one of its ends, the other end provided with a plurality of support and engaging devices for adjusting the tension, said cord forming a base-cord, a looped part encircling the cord at any suitable point between the supports, and a handled cord lying in a plane normally transverse to the base-cord, and held by the said loop.

691,296. TIRE-VALVE CAP. GEORGE H. F. SCHRADER, New York, N. Y. Filed Apr. 15, 1899. Serial No. 713,097. (No model.)



Claim.—In tire-valve caps, a cap having a body and a projecting tip of smaller diameter than said body and adapted to be inserted into the socket of a valve-shell, and having between said tip and body a tapering outer wall K, diverging from said tip toward said body and constituting a guiding-surface for centering said tip during its insertion into a socket.

691,297. OPEN-HEARTH STEEL PROCESS. JOHN L. SMITH and ROBERT BEDFORD, Jr., Eaglescliffe, England, assignors of one-third to the South Durham Steel and Iron Company, Limited, Stockton-on-Tees, England. Filed Feb. 12, 1901. Serial No. 47,067. (No specimens.)

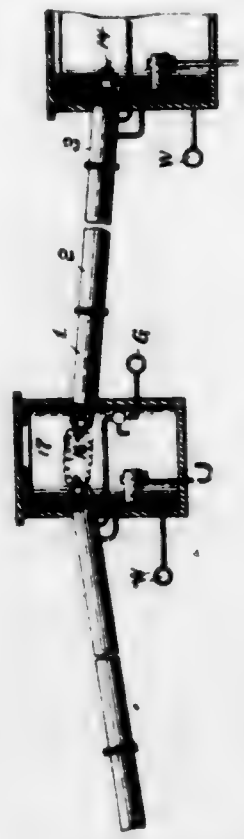


Claim.—The continuous process of manufacturing steel, which consists in preparing a bath of molten steel in an open-hearth furnace provided with compartments, drawing off from time to time steel from one of said compartments, charging the empty compartment with solid materials, heating the furnace, allowing an additional charge of molten metal to run into said furnace, making a bath which extends over all the compartments, and working the charge.

691,298. TRANSMITTING ELECTRIC CURRENTS. ALBERT A. R. STERNS, New York, N. Y. Filed Aug. 11, 1900. Serial No. 26,651. (No model.)

Claim.—1. In a system for transmitting electric currents, the combination with a series of pipe-sections, of heads for closing the same having means for dissipating and collecting the current, of means for exhausting the air from said pipe, and means for admitting vapor therein, all substantially as described.

2. In a system for transmitting electric current, the combination with a series of pipes, of hermetically-sealed heads inclosing each section, of a dissipator or collector fitted thereto, of a device to exhaust the air from said section, and another device for supplying vapor therein, all substantially as described.



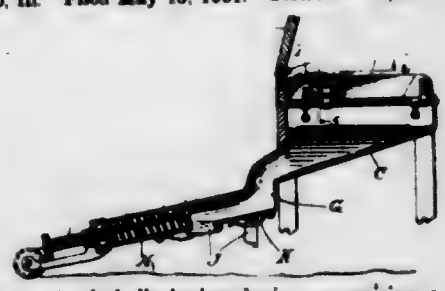
3. In a system for transmitting electric current, the combination with a series of sections having hermetically-sealed heads secured thereto, of a disk having one or more concentric rows of points, of an exhaust apparatus to automatically exhaust the air, and a vapor device arranged to supply the same at suitable intervals, all substantially as described.

4. In a system for transmitting electric current, the combination with a series of sections having hermetically-sealed heads, of disks within the sections having one or more rows of projections, of means for locking same in place, and an apparatus for making and supplying vaporous air to the section, all substantially as described.

5. In a system for transmitting electric current, the combination with pipe-line having insulated walls, of a hermetically-sealed insulated head, of means within said section for dissipating and collecting the electric current, of an apparatus for automatically exhausting the air from the pipe-section, and means for supplying vapor therefor, as a medium for the transmission of the electric current, all substantially as described.

6. In a system for transmitting electric current, the combination with the pipe-line, of the head 5, the disks 9, having dissipators 10 and 11, thereon, of a tank 18, to exhaust the air, of vapor-supplying means 38, all insulated and hermetically sealed to prevent the escape of the electric current, and means for transmitting the same, all substantially as described.

691,299. BALL-PLAYING DEVICE. JOSHUA S. STEVENS, Chicago, Ill. Filed May 15, 1901. Serial No. 60,301. (No model.)



Claim.—1. A ball-playing device, comprising a stop which stops the ball, a receiving device into which the ball is received, and a projecting device which forcibly projects the ball toward the player.

2. A ball-playing device, comprising a stop which stops the ball, a receiving device into which the ball is received, a projecting device which returns the ball to the player, and means within the reach of the player for setting said projecting device.

3. A ball-playing device, comprising a stop which stops the ball, a receiving device for the ball associated with said stop, a projecting device in proximity to the receiving device, and a releasing device associated with the projecting device and adapted to be actuated by the ball, so as to release the projecting device when the ball is in proximity thereto.

4. A ball-playing device, comprising a stop which stops the ball, an

indicating device which indicates the score made by the player, a receiving device for the ball, and an automatic projecting device for forcibly projecting the ball toward the player.

5. A ball-playing device, comprising a stop for stopping the ball, a receiving device into which the ball is received, and an adjustable projecting device for returning the ball to the player.

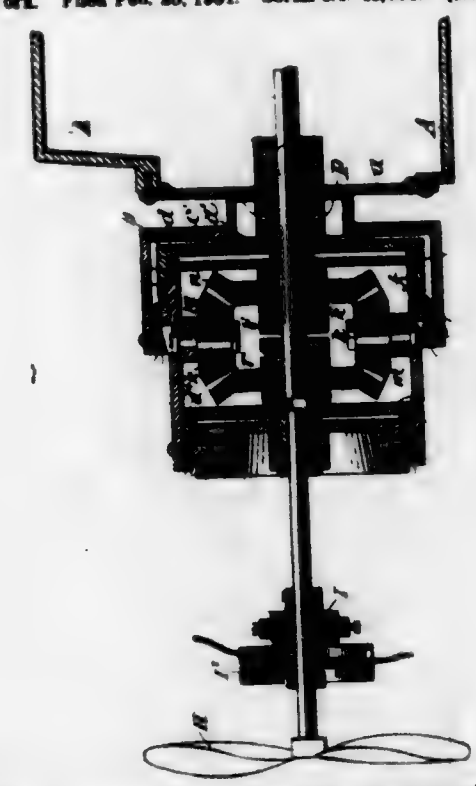
6. A ball-playing device, comprising an adjustable stop for stopping the ball, a receiving device into which the ball is received, and an adjustable projecting device for returning the ball to the player.

7. A ball-playing device, comprising a stop for stopping the ball, a projecting device for returning the ball to the player, a confining device therefor, a releasing part associated with the projecting device and adapted to be actuated by the ball, a receiving device for the ball, and means for conducting it therefrom to the projecting device.

8. A ball-playing device, comprising a stop for stopping the ball, a series of receptacles associated therewith and having movable bottoms, indicators associated with said receptacles and adapted to be actuated by the ball when it falls into said receptacles, a receiving device beneath the receptacles, a projecting device associated therewith and adapted to return the ball to the player.

9. A ball-playing device, comprising a stop for stopping the ball, a receiving device into which the ball is received, a spring for returning the ball to the player, a confining device for said spring connected with the receiving device, so that the ball may automatically roll into proximity to said spring, a releasing device for the spring actuated by the ball, and a resetting device controlled by the player for resetting said spring.

691,300. **REVERSING APPARATUS FOR PROPELLER-SHAFTS.** JOHN TITUS, TOWNSEND W. BURT, and DANIEL D. SMITH, Oyster Bay, N. Y., assignors to the Oyster Bay Engine Company, a Corporation of New York. Filed Feb. 26, 1901. Serial No. 48,761. (No model.)

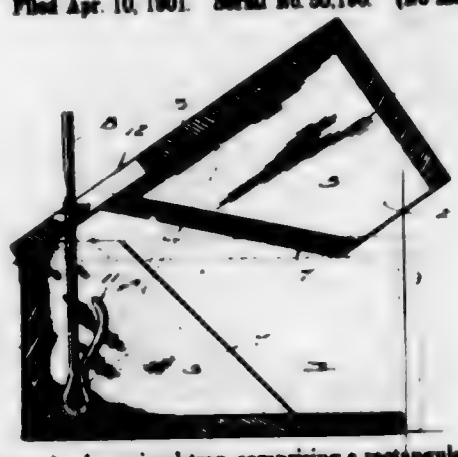


Claim.—1. The combination with a driving-shaft and a driven shaft arranged to be operated thereby, a sleeve fast on the driven shaft and extended loose over the end of the driving-shaft, a fixed tapering ring concentric with the driving-shaft, a tapering annulus fast to and revoluble with the driven shaft, a tapering rim revoluble with the driving-shaft, a drum concentric with the axis of the two shafts, loose or independently revoluble around the latter and slidable with reference thereto, and interposed between the tapering rim and the tapering annulus, said drum having tapering clutching-surfaces which coöperate with those of the fixed ring, the rim, and the annulus aforesaid, of bevel-pinions carried by the drum, a bevel-gear revoluble with the driving-shaft and gearing with the pinions at one side thereof, a bevel-gear revoluble with the driven shaft and gearing with the opposite side of the pinions and means for giving an inward longitudinal movement to the driven shaft, whereby by such inward movement of the driven shaft it is clutched direct to the driving-shaft to revolve therewith, and by an outward movement of the driven shaft the same is released from the driving-shaft and then clutched thereto through the gears and pinions and revolved in a direction opposite to that of the revolutions of the driving-shaft, substantially as herein set forth.

2. The combination with a driving-shaft and a driven shaft arranged to be operated thereby, a sleeve fast on the driven shaft and extended loose over the end of the driving-shaft, a fixed tapering ring concentric with the axis of the driving-shaft, a tapering annulus fast to and revoluble with the driven shaft, a tapering rim revoluble with and slidable upon the driving-shaft, a drum concentric with the axis of the two shafts, loose or independently revoluble around the latter, slidable with reference thereto, and interposed between the tapering rim and the tapering annulus said drum having tapering clutching-surfaces which coöperate with those of the fixed ring, the rim and the annulus aforesaid, and bevel-pinions carried by the drum, of a bevel-gear revoluble with the driving-shaft and gearing with the pinions at one side thereof, a bevel-gear revoluble with the driven shaft and gearing with the opposite side of the pinions, a screw on the driven shaft, a fixed nut for said screw, and means for turning the driven shaft to insure a longitudinal movement of the shaft by the operation of the screw and nut, substantially as herein set forth.

3. The combination with a driving-shaft, a journal box or bearing for said shaft and a driven shaft arranged to be operated by said shaft, a sleeve fast on the driven shaft and extended over the end of the driving-shaft, a fixed tapering ring concentric with the driving-shaft, a tapering annulus revoluble with the driven shaft, a tapering rim revoluble with the driving-shaft and slidable thereon, a drum concentric with the two shafts loose or independently revoluble around the latter and slidable with reference thereto and interposed between the tapering rim and the tapering annulus, said drum having tapering clutching-surfaces which coöperate with those of the fixed ring, the rim, and the annulus aforesaid, of bevel-pinions carried by the drum, a bevel-gear revoluble with the driving-shaft and gearing with the pinions at one side thereof, a bevel-gear revoluble with the driven shaft and gearing with the opposite side of the pinions, a screw on the driven shaft, a fixed nut for said screw, a winding-drum and rope for turning the driven shaft to give it longitudinal movement, and ball-bearings interposed between the hub of the tapering slidable rim and the journal box or bearing of the driving-shaft, substantially as herein set forth.

691,301. **ANIMAL-TRAP.** BERNEY L. THOMASTER, New York, N. Y. Filed Apr. 10, 1901. Serial No. 55,190. (No model.)



Claim.—1. An animal-trap comprising a rectangular box or casing formed of corresponding base and top sections hinged together; the upper section being provided in its body portion with a slot; a cross-bar bridging said slot; and a trip-rod pivoted at its lower end to the base-section formed with a bait-receiving portion, and having its upper end projecting through said slot and provided with a shoulder to engage said cross-bar.

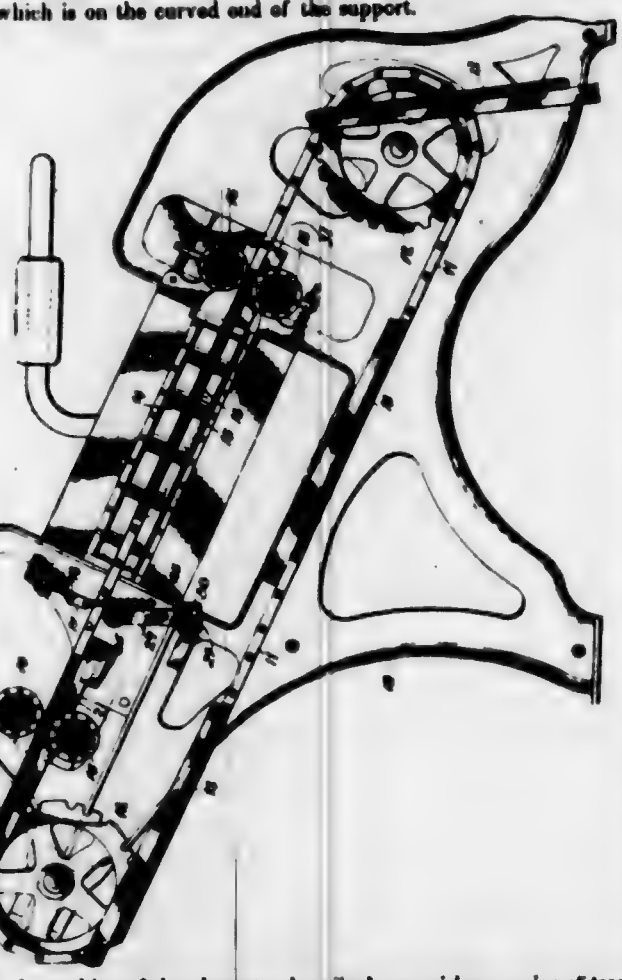
2. An animal-trap comprising a rectangular box or casing formed of corresponding base and top sections hinged together, the sides of the box being formed by wings on said sections which have diagonal beveled meeting edges; said top section being provided in its body portion with a slot; a cross-bar bridging said slot; and a trip-rod pivoted at its lower end to the base-section and formed with a bait-receiving portion and having its upper end projecting through said slot and provided with a shoulder to engage said cross-bar.

691,302. **LEATHER-WORKING MACHINE.** HARRIE A. BALLARD, Ashland, Mass., assignor to the Turner Tanning Machinery Company, Boston, Mass., a Corporation of West Virginia. Filed Sept. 16, 1901. Serial No. 75,552. (No model.)

Claim.—1. A machine of the character described, comprising a movable work-support and having two flat faces, whereby a skin or hide may be folded about the end of the support to lie against said flat faces, and means for uniformly treating the entire exposed area of said hide or skin, said means including members disposed in the path of the work-support to engage those portions of the hide or skin which are on said flat faces, and a supplemental member consisting of a series of ribs flexibly connected together for engaging the doubled portions of said hide or skin which lie on the end of the support.

2. A machine of the character described, comprising a work-support having approximately flat faces whereby a skin or hide may be doubled

over the end thereof to lie against said faces, working members for treating those portions of the hide or skin which lie against said faces, and a flexible member arranged to extend across the end of the work-support and having articulated ribs or edges for treating that portion of the hide or skin which is on the curved end of the support.



5. A machine of the character described comprising a series of traveling flat work-supports, each adapted to have a skin or hide stretched around its end, and a working member consisting of flexibly-connected ribs or edges disposed in the path of the work-supports adapted to successively engage and treat the skins on the ends of said supports.

4. A hide or skin treating machine having main working members, a supplemental working member provided with operative ribs or edges flexibly connected together, a flat work-support having an end over which the skin may be folded, and means for effecting the engagement of the end of said work-support with the said supplemental member.

5. A hide or skin treating machine having a flexible working member consisting of a series of loosely-hung chains, with ribs or edges projecting therefrom.

6. A hide or skin treating machine having main working members, a flexible working member with ribs or edges which break joint with each other, a flat work-support having an end over which the skin may be folded, and means for effecting the engagement of the end of said work-support with the said supplemental member.

7. A machine of the character described comprising a traveling work-support, working members disposed to permit the passage of said support between them, and a yielding working member hung loosely across the path of said work-support and adapted to yield to the action of said support whereby it is wiped around the end of said support.

8. A machine of the character described comprising a traveling work-support, working members disposed to permit the passage of said support between them, and a working member hung loosely across the path of said work-support and adapted to yield to the action of said support whereby it is dragged around the end of said support said flexible member consisting of a series of chains having ribs or edges.

9. A machine of the character described comprising a traveling support, a flexible working member hung loosely from a point above said support to project across the path thereof and having a free lower end, said member having parallel ribs or edges extending from side to side thereof.

10. A machine of the character described comprising a traveling support, a flexible working member hung loosely to intersect the path of movement of said support, whereby said member is engaged by the end of said support and gradually raised until it slides along the upper face thereof, and finally drops off the rear end thereof.

11. A machine of the character specified comprising a support having flat faces and an end, whereby a skin or hide may be doubled around said end to lie against said faces, and a working member adapted to extend around said end to engage and treat the skin thereon, and also to engage the skin on both faces of the said support, said support and said member being movable, one with respect to the other.

12. A machine of the character specified comprising a support having flat faces and an end, whereby a skin or hide may be doubled around said end to lie against said faces, and a working member adapted to extend around said end to engage and treat the skin thereon, and also to engage the skin on both faces of said support, said member having operative edges or ribs arranged substantially longitudinally of said end of said support, and means for moving said support and member, one relatively to the other in a path transverse to said ribs or edges.

13. A machine of the character specified comprising a support having flat faces and an end, whereby a skin or hide may be doubled around said end to lie against said faces, and a member having a series of flexibly-connected parallel ribs or edges, said member being arranged and located with respect to said support whereby when one is moved relatively to the other, the said ribs or edges will be engaged in succession by the end of the support.

14. A machine of the character specified, comprising a flexible working member, a pressure member, and a flat work-support whose end is adapted to engage the said flexible working member.

15. A machine of the character specified comprising a work-support, a flexible working member, hanging loosely in the path of said support, and means for causing said flexible member to exert pressure against the end of the support.

16. A machine of the character specified comprising a flat work-support about the end of which a skin or hide may be folded, a flexible working member, and means whereby said member is engaged with the hide or skin on the end of said support.

17. A machine of the character specified comprising a work-support, about the end of which a skin or hide may be folded, a flexible depending working member, adapted to be engaged by the end of said support, and means for engaging the loose end of said member, substantially as described

18. A machine of the character specified, comprising a work-support, a flexible member depending in the path of the said work-support, and means located below the travel or path of said support for pressing the loose end of said member against the work-support.

19. A machine of the character specified comprising a work-support, a flexible working member arranged to operate on the skin on the end of the support, and a weighted pressure member for said flexible member.

20. A machine of the character described comprising a traveling work-support having flat faces and an end, a dependent flexible member disposed in the path of said support for operating on that portion of the skin which lies on the end of the support, a pressure member for exerting pressure on the said flexible member, and means for holding said pressure member in inoperative position to permit the resetting of said flexible member.

21. A machine of the character described comprising a traveling work-support, having flat faces and an end, a dependent flexible member disposed in the path of said support for operating on that portion of the skin which lies on the end of the support, a pressure member located below the travel of said support and outside said flexible member, and means on said support for moving said pressure member to inoperative position to permit the resetting of the flexible member.

22. A machine of the character described comprising a traveling work-support, having flat faces and an end, a dependent flexible member disposed in the path of said support for operating on that portion of the skin which lies on the end of the support, a pressure member located below the travel of said support and outside said flexible member, and a cam on said support for holding said pressure member in an inoperative position to permit the resetting of said flexible member.

691,303. LEATHER-TREATING MACHINE. HARRIE A. BALLARD, Ashland, and WILLIAM A. COPELAND, Melrose, Mass., assignors to the Turner Tanning Machinery Company, Boston, Mass., a Corporation of West Virginia. Filed Sept. 16, 1901. Serial No. 75,553. (No model.)

Claim.—1. A machine of the character described comprising a work-support having approximately flat faces and an end whereby a skin or hide may be folded over said end to lie against said faces, one or more operating members movable longitudinally of the said end, for treating that portion of the hide or skin which lies upon the said end, and provisions whereby said members are operated.

2. A machine of the character described comprising a work-support having approximately flat faces and an end, whereby a hide or skin may be folded over the said end to lie against said faces, an operating member movable longitudinally of the said end to treat that portion of the skin or hide which lies thereon, and means for automatically actuating said member.

3. A machine of the character described comprising a work-support having approximately flat faces and an end, whereby a hide or skin may

be folded over the said end to lie against said faces, means for moving said support in a plane parallel with its faces, and means movable longitudinally of the end of said support for treating that portion of the skin or hide which lies upon the end of the support.



4. A machine of the character described, comprising a series of traveling flat supports, each adapted to have a skin or hide stretched around its end, a working member movable transversely of the path of movement of the supports for wiping or treating the skin or hide on the end of each support as it is presented thereto, and means whereby said member is operated.

5. A machine of the character described comprising a series of traveling flat supports each adapted to have a skin or hide stretched around its end, working members arranged to move in opposite directions across the path of movement of said supports to treat the skin or hide on the end of each support as it is presented thereto, and means for operating said members.

6. A machine of the character referred to comprising a traveling support, a working member lying in the path of the said support, and means for moving said member longitudinally of the end of said support to treat the skin thereon.

7. A machine of the character referred to comprising a traveling support, working members lying in the path of movement of said support and intermediate of its ends, means for moving said members in opposite directions to wipe the skin on the end of the support, and means whereby said members are moved with the support during their movement in opposite directions.

8. A machine of the character referred to, comprising a support adapted to have a skin folded about its end, a guide arranged transversely of the path of travel of the support, one or more members movably mounted on said guide to treat that portion of the skin or hide which lies on the end of the support, and means for moving said member or members.

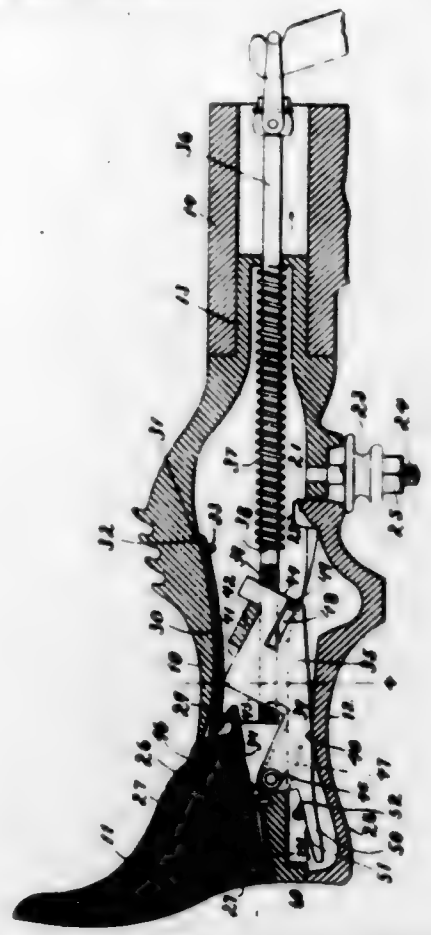
9. A machine of the character referred to comprising a support adapted to have a skin folded about its end, a guide, oppositely-acting members mounted on said support and movable longitudinally of the end of said support to treat that portion of the skin which lies upon the end of the support, and provisions whereby said members are moved as described.

10. A machine of the character referred to comprising a traveling support adapted to have a hide or skin folded around its end, a working member movable longitudinally of the end of said support for engaging and treating the skin on the end of the support, provisions for moving said member, and means for disengaging said member from said support when it has treated the skin.

11. A machine of the character referred to comprising a traveling support adapted to have a skin or hide folded around its end, a carrier movable in the direction of movement of the support and also movable longitudinally of the end thereof, a working member on said carrier, provisions whereby said member is actuated, and means for moving said carrier out of the path of movement of said support.

12. A machine of the character referred to comprising a traveling support adapted to have a skin or hide folded around its end, two working members to operate on that part of the skin folded around the end of the support, and means to first move these working members together longitudinally of the end of the support, and next move them in opposite directions one toward one side, the other toward the other side of the support.

691,304. TREE FOR BOOTS OR SHOES. HARRIE A. BALLARD, Ashland, Mass., assignor to the Copeland Boot and Shoe Treeing Company, Portland, Me., a Corporation of Maine. Filed Sept. 25, 1901. Serial No. 76,464. (No model.)



Claim.—1. A tree consisting of a body, a back, guards attached to one of said elements, and overlapping the other, said guards having their lower ends bent inward and lying in slots in the part to which they are attached.

2. A tree consisting of a body, a distensible back, guards attached to the body and overlapping the back, said guards having their ends bent laterally inward and then longitudinally, and said body having angular slots to receive said bent ends.

3. A tree consisting of a body, a distensible back, guards attached along their edges to the body, and provisions for securing the lower extremities of the guards to and within the said body.

4. A tree consisting of a body, a distensible back, a wedge located within the said body and bearing against said back, and means for moving said wedge at an inclination rearwardly and upwardly to distend said back.

5. A tree consisting of a body, a distensible back, a wedge inserted between said body and said back, and an actuating rod or spindle held against lateral movement and having a sliding connection with said wedge.

6. A tree consisting of a body, a distensible back, a wedge inserted between said body and said back, guides for permitting said wedge to move upward in a path inclined rearwardly to the median line of the body, and means for actuating said wedge.

7. A tree consisting of a body, a distensible back, a sliding wedge inserted between said body and said back, said wedge having a finger engaging a projection on the back, and means for moving said wedge.

8. A tree consisting of a body, a distensible back, a wedge inserted between said body and said back, said wedge having an edge as at 40 to engage the said back, and an edge as at 51 to engage a projection on said back, and means for moving said wedge.

9. A tree consisting of a body, a distensible back, a wedge inserted between said body and said back, and a movable rod for operating said wedge, said wedge having opposing operative edges, one of which bears against the back and the other of which bears against the body, the last-

mentioned edge being upwardly and rearwardly inclined relatively to the path of movement of said rod.

10. A tree consisting of a body, a distensible back, a wedge inserted between said body and said back, and means for moving said wedge bodily in a path inclined upwardly from front to rear of said body.

11. A tree consisting of a body, a distensible back, a wedge inserted between said body and said back, parallel guides for said wedge inclined relatively to the median line of said body, and means for actuating said wedge.

12. A tree consisting of a body, a distensible back, a wedge inserted between said body and said back, an actuating-rod having a slot to receive said wedge to move it longitudinally of said body, and guides for causing said wedge to move laterally whereby said back is distended by the lateral movement of said wedge in addition to the natural wedging action thereof.

13. A tree consisting of a body having a guide as at 42 and grooves or ways as at 46 parallel thereto; a back having an interior surface, and a projection as at 52; and an operative wedge having an edge 41 to engage the guide 42, projections to enter the grooves or ways 46, an edge to engage the projection 62, and an edge to engage the interior surface of the back.

14. A tree having one or more teeth or projections, and a stretcher for stretching the upper of the shoe upwardly and forwardly, said stretcher consisting of an extensible member provided with attaching devices at its ends and being adapted to be engaged at its middle with said teeth or projections.

15. A tree having one or more teeth or projections, and a stretcher for stretching the upper of the shoe upwardly and forwardly, said stretcher consisting of a flexible longitudinal extensible member adapted to be doubled over said projection and having means for attachment to the shoe-upper.

16. A tree having a series of teeth or projections, and a spring adapted to be doubled over one of said projections, and having provisions for attachment to the shoe-upper.

17. A stretcher for stretching the upper of a shoe forwardly and upwardly over a tree, consisting of an extensible member having means for attachment to the shoe-upper, said member being normally disconnected from the tree but having provisions for attachment to the tree at various points along the length thereof.

18. A tree having a movable foot, a body, and a movable back, with an angular line of division between the body and the back, the lower portion of said line being located relatively nearer the rear portion of the tree than the upper portion of said line.

19. A tree having a movable back, a body, and guards secured to the said body, the sides of said body at the shank of the sole being projected rearwardly, and said back having provisions to receive the said rearward projections.

20. A tree comprising a body having at or near the sole a rearward projection, a movable back formed to receive said projection, side guards secured to said body to overlap the back, and provisions for securing the lower ends of said guards to said projection.

21. A tree comprising a movable foot, a body, a movable back, and a longitudinally-movable spindle having provisions for separating the body and the back, the said body being provided with a rearwardly-extending projection at the shank, and the back being formed with a socket to receive the said projection.

691,805. TREE FOR BOOTS OR SHOES. HARRIE A. BALLARD, Ashland, and WILLIAM A. COPELAND, Melrose, Mass., assignors to Copeland Boot and Shoe Treeing Company, Portland, Me., a Corporation of Maine. Filed Oct. 10, 1901. Serial No. 78,194. (No model.)

Claim.—1. A tree having in combination, a laterally-expansible leg or body, a footpiece movable relatively thereto at an inclination to the median line of the leg to shorten the distance between the heel and toe of the tree and provisions whereby said footpiece expands said body.

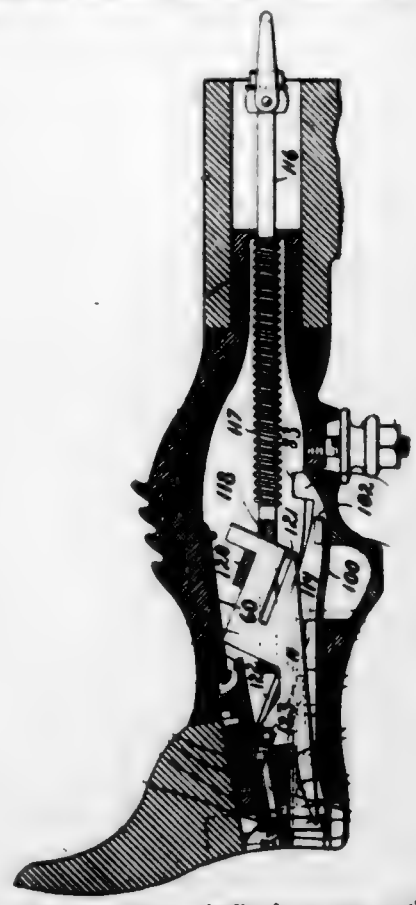
2. A tree having a leg, an inclined raceway in said leg, a footpiece movable in said raceway, expansible and collapsible side pieces expanded and collapsed by said footpiece, as said footpiece is moved toward and from operative position.

3. A tree having a leg, an inclined raceway in said leg, a footpiece movable in said raceway to vary the distance between the toe and heel of the tree, laterally-movable side pieces, and provisions whereby said side pieces are moved outward to expand the tree laterally coincidently with the movement of the footpiece to lengthen the distance between the toe and heel.

4. A tree having a leg with expansible and collapsible sides and means for positively expanding and collapsing said sides.

5. A tree having expansible and collapsible sides, and a footpiece having provisions for positively expanding and contracting said sides.

6. A tree having expansible and collapsible sides, a footpiece movable at an inclination to the longitudinal median line of the leg, and provisions whereby said footpiece positively expands and contracts said sides.



7. A tree having a leg, an inclined raceway on the leg, a footpiece sliding on said raceway, expansible and collapsible side pieces movable in planes parallel to the plane of movement of the footpiece, and provisions whereby said side pieces are operated by said footpiece.

8. A tree having a leg, an inclined raceway on the leg, a footpiece sliding on said raceway, expansible and collapsible side pieces movable laterally in planes parallel to the plane of movement of the footpiece, and provisions whereby said footpiece positively expands or contracts said side pieces

9. A tree having a leg, laterally-movable side pieces, and a footpiece movable into and out of operative position, said footpiece having inclined guides on its inner face, and said side pieces having members or projections for engaging said guides, whereby the movement of said footpiece to operative position moves said side pieces laterally.

10. A tree having a leg, laterally-movable side pieces, and a footpiece movable longitudinally of the leg into and out of operative position, said footpiece having converging slots in its face, and said side pieces having lugs or members located in said slots, whereby the movement of said footpiece to and from operative position positively moves said side pieces outward from or inward toward said leg.

11. A tree having a leg, a slide, a footpiece adapted to be attached to and detached from said slide, and provisions additional to said slide for attaching said footpiece to said leg to hold it against loose movement forwardly from said leg.

12. A tree having a footpiece, a leg cut away at its lower end to receive the footpiece and having a raceway, a slide movable in said raceway and having provisions for the attachment of the footpiece, said leg having a transverse groove in the cut-away portion, and said footpiece having a transverse tongue projecting longitudinally of its inner face to engage said groove, and thereby hold said footpiece against loose forward movement.

13. A tree having a leg with a raceway, a slide movable in said raceway, and a detachable footpiece having provisions whereby it is detachably locked against forward movement at separate points near its top and near its bottom to said slide.

14. A tree having a leg with a raceway, a slide movable in said raceway, and a detachable footpiece, said slide having a latch and a hook, each of which is adapted to engage and hold the footpiece, against movement longitudinal of the sole of said footpiece.

15. A tree having a leg with a raceway, a slide movable in said raceway, a footpiece having a slot in its end, two separated plates bridging said slot, and two hooked members each of which engages one of said plates and holds the footpiece against movement longitudinal of the sole thereof.

16. A tree having a leg with a raceway, a slide movable in said raceway, and a footpiece having two locking members, said slide having a hook to receive and engage one locking member, a notch to receive the

other locking member, and a latch to engage the last-mentioned locking member and hold it in said notch.

17. A tree-foot having at its top a plate with a locking-hook, and at or near its bottom a locking cross-plate.

18. A tree having a laterally-collapsible back.

19. A laterally-collapsible tree-back.

20. A tree having a laterally-collapsible leg and a laterally-collapsible back.

21. A tree having a laterally-expansible leg, a laterally-expansible back, and a tree-foot having provisions for laterally expanding said leg and back.

22. A tree having a laterally expansible and collapsible back, and means for expanding and contracting said back.

23. A tree having a laterally expansible and collapsible back, and means for positively expanding and contracting said back.

24. A tree having a laterally expansible and collapsible back, a tree-foot, and mechanism intervening between said tree-foot and said back by means of which the back is expanded by the movement of the foot.

25. A tree having a laterally expansible and collapsible back, detachably connected thereto.

26. A tree having a leg, a laterally expansible and collapsible back, and means for moving said back bodily away from said leg to expand the tree in lines longitudinal of the sole of the tree.

27. A tree having a leg, a laterally-expansible back, means for moving said back bodily with relation to said leg, and independent means for expanding said back laterally.

28. A tree having the portion of the leg which enters the shoe, collapsible from front to rear, and from side to side.

29. A tree having an inclined raceway, a tree-foot adapted to slide along said raceway to shorten the tree from toe to heel, and a laterally-collapsible back with provisions whereby the back is collapsed by the described movement of the tree-foot.

30. A tree having a back split longitudinally to provide two laterally-movable sections.

31. A tree-back consisting of a metallic structure having two connected sections adapted to be separated laterally.

32. A tree-back consisting of a metallic structure having a solid upper end, and two sections connected thereto and adapted to be laterally separated.

33. A tree-back consisting of a metallic structure having a solid upper end, two sections connected thereto and adapted to be laterally separated, and guards overlapping both sections to cover the space therebetween.

34. A tree having a leg with laterally-movable sides, and a laterally-expansible back having its movable sections connected to said sides of the leg.

35. A tree having a leg with laterally-movable side pieces, a back with laterally-movable sections, and side guards secured to the leg and side pieces and overlapping the back, said back-sections having portions fitting between the side guards and the side pieces.

36. A tree having a leg with laterally-movable side pieces, a back with laterally-movable sections, means for moving the back bodily away from the leg, and side guards secured to the leg and side pieces and overlapping the back, said back-sections having portions which fit slidingly between said side guards and said side pieces.

37. A flexible tree-back having a variable sinuous surface, which compensates for inequalities in shapes or sizes of boot or shoe tops.

38. A flexible laterally expansible and collapsible tree-back.

39. A tree having a flexible back with provisions whereby said back compensates for inequalities in shapes or sizes of boot or shoe tops.

40. A tree-back having articulated sections each of which is movable with respect to the other or others.

41. A tree-back having yielding articulated sections forming a yielding sinuous surface.

42. A tree-back having overlapping pivotal sections.

43. A tree-back having a plurality of sections, and a spring to which said sections are connected.

44. A tree-back having side strips, and a plurality of sections overlapping said strips.

45. A tree-back having an end and side strips connected thereto and a plurality of sections with their ends overlapping said side strips.

46. A tree-back comprising a plurality of U-shaped sections and blocks flexibly connecting said sections.

47. A tree-back comprising a body and a plurality of overlapping sections divided by lines transverse to said back, and means pivotally connecting said sections.

48. A tree-back comprising a plurality of U-shaped sections, a plurality of articulated blocks, and means connecting each section with a corresponding block.

49. A tree comprising a leg, a flexible back having a plurality of sections, a spring arranged interiorly of said sections, and means within said leg and bearing against said spring for bodily moving said back relatively to said leg.

50. A tree having a movable flexible back, a heel-piece pivoted to said back and provisions whereby said flexible back automatically conforms to the shape of the back of the shoe.

51. A tree-back having a flexible body portion and a movable heel-section.

52. A laterally-collapsible tree-back having a movable heel member.

53. A laterally-collapsible tree-back having a movable heel member formed in two separable parts.

54. A laterally-collapsible tree-back having an end member yieldingly connected thereto.

55. A laterally-collapsible tree-back having a solid upper end, side bars or strips, a heel member pivoted to said strips, and members inserted between the said upper end and the said heel member.

56. A laterally-collapsible tree-back having a loosely-movable heel-section and a plurality of articulated sections connected to said heel-section.

57. A tree having a leg with an inclined raceway, a foot movable along the said raceway to shorten the tree in the longitudinal lines of the sole, and a back having a collapsible heel-section to shorten the tree in the said lines, whereby the tree is collapsible in said lines by a movement of the foot and by a movement of the collapsible heel-section.

58. A tree having a laterally-collapsible back, said back having an independently-movable heel-section formed in two lateral collapsible parts.

59. A tree comprising a leg, a footpiece, a back, and an expanding device, said back consisting of side bars or strips, and connected members forming a flexible rear surface.

60. A tree comprising a leg, a footpiece, a back, and an expanding device, said back consisting of three or more flexibly-connected sections forming a variable sinuous operative surface which conforms to the shape of the boot or shoe.

61. A tree comprising a leg, a footpiece, a back, and an expanding device, said back consisting of a body portion and two or more spring-held sections flexibly connected together to conform to the contour or shape of the rear part of a shoe or boot.

62. A tree comprising a leg, a movable footpiece, and a back, said back having a pivoted heel member, and springs bearing against the interior and the exterior of said member.

63. A tree having a back provided with side bars, a heel member pivoted to said side bars, and a metallic strip on the rear of said back overlapping said member.

64. A tree having a back provided with side bars, a heel-section in pivotal relation to said bars, and having a socket, and a spring secured to the interior wall of said back and arranged in said socket.

65. An expansible tree having a leg provided with a rearward projection at the shank, a movable back provided with an independently-movable heel member, said heel member having provisions for the reception of said projection when said tree is collapsed, and means for expanding said tree.

66. A tree having a leg with laterally-movable side pieces, a back having a laterally-expansible heel member movable relatively thereto, and provisions whereby the lateral expansion of the said member is coincident with the outward movement of said side pieces.

67. A tree having a back provided with side bars and U-shaped sections overlapping said side bars and capable of independent movement with respect to each other to accommodate boot or shoe tops having varying contours at the back.

68. A tree having a back provided with a collapsible heel member, and with yielding means located above or beyond said member to accommodate shoe or boot tops of different sizes or contours.

69. A tree having a leg, a footpiece movable into and out of operative position, and a back having a heel member pivoted thereto in a plane substantially midway between the top and bottom of the footpiece when the footpiece is in operative position.

70. A tree having a leg, a footpiece movable into and out of operative position, and a back having a plurality of yielding members, the end member being pivoted to said back independently of the other member or members at a point midway between the planes of the top and the bottom of said footpiece when the latter is in operative position.

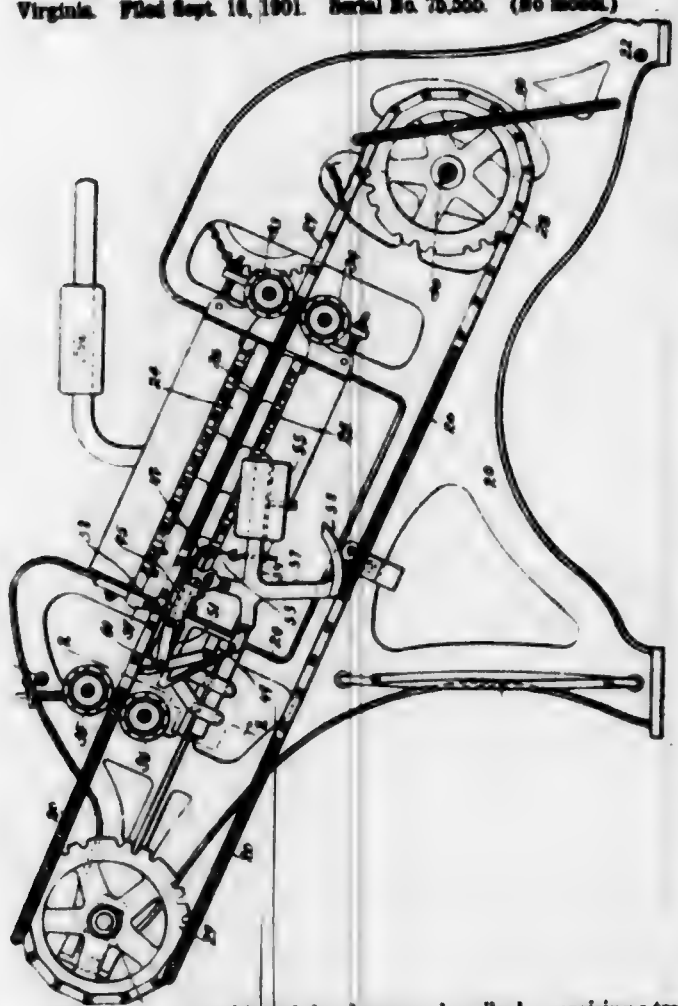
71. A tree having a back consisting of a body portion, and a plurality of yielding articulated sections extending from the heel end of said back to a point above the ankle.

72. A tree having a leg, a detachable footpiece, and a back, the top part of said tree being provided with a plurality of articulated sections, each of which is adapted to yield to compensate for variations in the top parts of boots or shoes.

73. A tree comprising a leg, a detachable footpiece, a back, and an expanding device, said tree having a top part consisting of two or more flexibly-connected yielding sections forming a variable sinuous operative

surface which compensates for variations in the contour or shape of the tops of boots and shoes.

691,806. LEATHER-WORKING MACHINE. ELMER E. CHASE, Boston, and WILLIAM B. TURNER, Melrose, Mass., assignors to the Turner Tanning Machinery Company, Boston, Mass., a Corporation of West Virginia. Filed Sept. 16, 1901. Serial No. 75,556. (No model.)



Claim.—1. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, a pressure device for said member, and guides for said pressure device whereby it is movable in a direction parallel to the path of movement of said support.

2. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, a pressure device for said member, and means for moving said pressure device in a direction parallel to the path of movement of said support.

3. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and pressure mechanism for said member including a plurality of toothed wheels.

4. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and consisting of a plurality of articulated ribs, and a pressure device consisting of a series of friction-wheels.

5. A machine of the character described, comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and consisting of a plurality of articulated ribs, and a pressure device consisting of a plurality of toothed friction-wheels.

6. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and a pressure mechanism coacting with said members and consisting of a plurality of toothed wheels, a shaft for said wheels, movable bearings in which said shaft is mounted, and means whereby said bearings are moved, substantially as described.

7. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and a pressure mechanism coacting with said members and consisting of toothed wheels for engaging said member, and provisions whereby said wheels are held bodily stationary during the initial engagement of the member and support, and are then bodily advanced with the support.

8. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and a pressure mechanism consisting of slides, a plurality of toothed rolls supported by said slides, and weights attached to said slides.

9. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and a pressure mechanism consisting of slides, a plurality of toothed rolls supported by said slides, weights attached to said slides, and means located in the path of the support and connected to said slides, whereby said slides are moved by said support against the stress of the weights.

10. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and pressure mechanism consisting of a stationary member and a rotatable member between which the working member is engaged.

11. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and pressure mechanism consisting of a stationary plate against which said working member rests, and a rotatable member for engaging said working member.

12. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and provisions against which said working member normally rests.

13. A machine of the character described, comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support and pressure mechanism consisting of a shaft having a plurality of independently-rotatable toothed wheels, and a friction device for each wheel.

14. A machine of the character described comprising a traveling support having flat faces and an end, a flexible working member in the path of said support for operating on the skin on the end of the support, and pressure mechanism controlled by said work-support, said mechanism including means to engage said member, a weight, and flexible connections between said means and said weight.

15. A machine of the character referred to comprising a plurality of traveling work-supports, a flexible working member arranged in operative relation to said work-supports for treating a portion of the skin on each support, a pressure mechanism, and means controlled by an inoperative work-support for holding said pressure mechanism in an inoperative position.

16. A machine of the character referred to comprising a plurality of traveling work-supports, a flexible working member arranged in operative relation to said work-supports for treating a portion of the skin on each support, a pressure mechanism including a plurality of toothed wheels, a weight for holding said wheels in a predetermined position, and an arm adapted to be acted upon by an inoperative work-support for holding said wheels in a different position to permit the resetting of the working member.

17. A machine of the character referred to comprising a plurality of traveling work-supports, a flexible working member arranged in operative relation to said work-support for treating a portion of the skin on each support, a pressure mechanism including a plurality of toothed wheels, a weight for holding said wheels in a predetermined position, and two arms connected to said wheels, one of said arms coacting with the operative work-support and the other with an inoperative work-support for regulating the operation of said wheels.

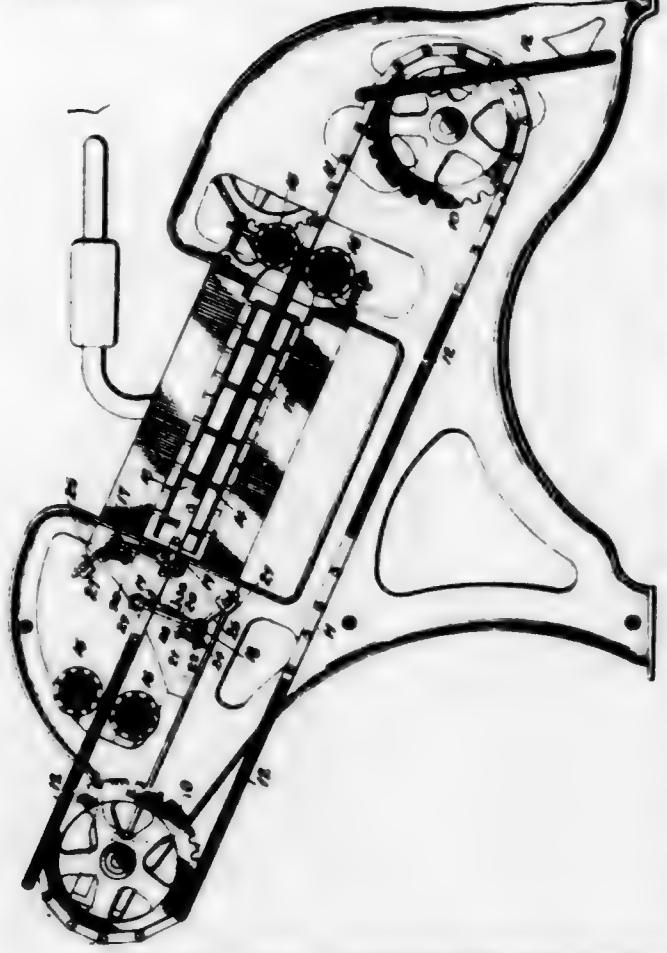
691,807. LEATHER-WORKING MACHINE. ELMER E. CHASE, Boston, and WILLIAM A. COPELAND, Melrose, Mass., assignors to the Turner Tanning Machinery Company, Boston, Mass., a Corporation of West Virginia. Filed Sept. 16, 1901. Serial No. 75,556. (No model.)

Claim.—1. A machine of the character described, comprising a flat support over the end of which a hide or skin may be folded to lie against the faces of the support, means for treating that portion of the skin which lies on the end of the support without shifting said skin, and for treating the portions of the skin lying on the flat sides of said support, and instrumentalities for making the said support and the said means relatively movable.

2. A machine of the character described comprising a work-support having two flat faces, whereby a skin or hide may be folded about the end of the support to lie against said flat faces, and means for uniformly treating the entire exposed area of said hide or skin, said means including members for engaging the doubled portion of said hide or skin which is on the end of the support, without shifting the skin.

3. A machine of the character described comprising a work-support having approximately-flat faces and an end whereby a skin or hide may

be doubled over the said end to lie against said faces, and one or more yielding members for treating that portion of the hide or skin which is on the end of the support.



4. A machine of the character described comprising a series of traveling flat work-supports, each adapted to have a skin or hide stretched around its end, and a working member disposed in the path of movement of said supports and consisting of a plurality of blades or edges adapted to engage and treat the skins on the ends of said supports.

5. A machine of the character described comprising a traveling work-support, and a yielding working member hung loosely across the path of said work-support and adapted to yield to the action of said support whereby it is wiped around the end of said support.

6. A machine of the character described comprising a traveling work-support, and a working member hung loosely across the path of said work-support and adapted to yield to the action of said support whereby it is dragged around the end of said support, said last-mentioned member consisting of a series of ribs or edges.

7. A machine of the character described comprising a traveling support, a working member hung loosely from a point above said support to project across the path thereof and having a free lower end, said member having parallel ribs or edges extending from side to side thereof.

8. A machine of the character described comprising a traveling support, working members hung one from a point at one side and the other from a point at the other side to intersect the path of movement of said support, whereby said members are engaged by the end of said support and gradually separated to act upon those portions of the skin which extend about said end of the support.

9. A machine of the character described comprising a traveling work-support, working members disposed to permit the passage of the support between them, and oppositely-disposed supplemental members arranged in the path of the work-support for engaging and treating the skin on the end of said support.

10. A machine of the character described comprising a traveling work-support, and two series of members arranged in the path of the work-support to be successively engaged by the end of the support to wipe the skin on the said end in opposite directions.

11. A machine of the character described comprising a traveling work-support, a shaft, and a plurality of independent working members supported by said shaft in the path of the work-support and adapted to engage and treat the skin or hide which is on the end of the said support.

12. A machine of the character referred to, comprising main working members, a flat work-support, adapted to pass between said members, a movable supplemental member for treating that portion of the skin which lies on the end of the support without shifting the skin, and means for resetting said supplemental member.

13. A machine of the character referred to, comprising a flat work-support, a movable member for treating that portion of the skin which lies on the end of the support without shifting the skin, and means for varying the working pressure of said member.

14. A machine of the character referred to, comprising a flat work-support, a movable member for treating that portion of the skin which lies on the end of the support without shifting the skin, and a weight for varying the working pressure of said member.

15. A machine of the character referred to, comprising main working members, a flat work-support, adapted to pass between said members, and a plurality of stickers or wipers for treating that portion of the hide or skin which lies upon the end of the support without shifting the skin.

16. A machine of the character referred to, comprising main working members, a flat work-support adapted to pass between said members, a supplemental member for treating that portion of the skin which lies on the end of the support, and means for preventing said supplemental member from engaging those portions of the skin which lie upon the faces of said support.

691,808. FASTENER FOR GLOVES, &c. WILLIAM P. DEVINE, South Boston, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Mar. 27, 1900. Serial No. 10,370. (No model.)



Claim.—1. In a garment-fastener, a ball member formed of two parts, one, the ball part having a neck and a cylindrical part of a diameter greater than the diameter of the neck to form an inner flange-holding receptacle, the other a cup-shaped part with an annular flange to fit within said receptacle with the imperforate material located between the flange and neck, the depressions of said receptacle and cup-shaped members extending in opposite directions from the material and therefore in opposition to each other, the cup-shaped member being imperforate and lying flush with the outer surface of the material.

2. In a garment-fastening, the ball member comprising a plate b', embracing a ball, neck, and inner flange-holding receptacle and a flanged and dish-shaped plate, the edges of the flange of which last plate are arranged in said receptacle and adapted to hold the fabric of the garment therein, the depressions in said receptacle and plate being arranged in opposition to each other, the rearwardly-extending center part of said flanged plate being imperforate and lying flush with the fabric, substantially as set forth.

691,809. PROSPECTOR'S PICK OR SIMILAR TOOL. FELIX S. GOLDSMITH, Denver, Colo. Filed Mar. 16, 1901. Serial No. 51,551. (No model.)



Claim.—1. In a tool of the class described, the combination of handle having a longitudinal opening, a rod passing through said opening, a tool-head hinged to one extremity of the rod, a fastening device

applied to the opposite extremity of the rod, and a brace swiveled adjacent the head and adapted to lock the latter against turning on its hinge when properly adjusted.

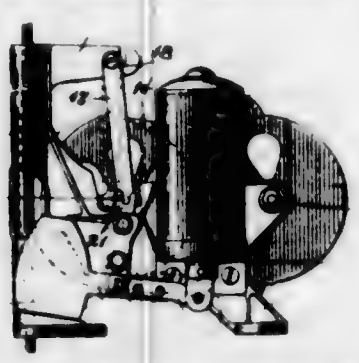
2. The combination of a handle having a longitudinal opening, a rod passing therethrough, a head pivoted to one extremity of the rod, a device movably mounted adjacent the head and adapted when in the plane of the head to lock the latter against turning on its pivot, said device being allowed to turn out of the plane of the head to permit the latter to fall to a position parallel or approximately parallel with the handle, and means connected with the extremity of the rod remote from the head for locking the assembled parts together.

3. The combination of a hollow handle, a rod passing therethrough and protruding at both extremities, a tool-head pivotally connected with one extremity of the rod, a brace swiveled on the rod and provided with arms arranged to engage the head on opposite sides of the pivot, and a nut applied to the extremity of the rod remote from the head for locking the parts together.

4. The combination of a hollow handle, a rod passing therethrough, a tool-head hinged to one extremity of the rod beyond the handle, a brace mounted on the rod between the head and the adjacent handle extremity, and adapted to engage the tool-head and lock it against turning on its hinge pin or pivot, the rod in the rear of the brace being formed polygonal in cross-section, and the adjacent handle extremity having a counterpart socket into which the said part of the rod fits, to lock the rod against turning in the handle, and a nut applied to the rod extremity remote from the head for holding the assembled parts in position.

5. The combination of a hollow handle, a rod passing therethrough and protruding at both ends, one extremity being threaded, a tool-head hinged or pivoted to one end of the rod, a brace swiveled on the rod adjacent the head and provided with two arms whose extremities engage recesses formed in the head on opposite sides of the pivot and in a plane at right angles to the axis of the pivot, the rod being formed polygonal in cross-section adjacent the brace, and the adjacent handle extremity having a counterpart socket in which the said polygonal part of the rod fits, and a nut applied to the threaded extremity of the rod remote from the head for holding the assembled parts in position.

691,310. ELEVATOR SAFETY APPLIANCE. GEORGE HAIL, Providence, R. I. Filed June 26, 1901. Serial No. 66,077. (No model.)



Claim.—1. An elevator safety appliance comprising in combination with the controller, oscillatory coacting cams, and actuating means for moving one of said cams to operable position in engagement with the controller, whereby the said cam will be moved to operative or locking position whenever the said controller is moved upward or downward.

2. An elevator safety appliance comprising in combination with the controller, engaging cams or eccentrics, one of which is laterally movable with relation to the other, and means for moving the movable eccentric into engagement with the controller, whereby the movement of the said controller in either direction will cause the locking of the said controller.

3. An elevator safety appliance comprising in combination with the controller, engaging cams or eccentrics, one of which is laterally movable with relation to the other, and means operated by the opening of the door for moving the movable eccentric into engagement with the controller whereby the movement of the said controller in either direction will cause the rotation of both said cams or eccentrics and the wedging of the movable cam or eccentric against the controller.

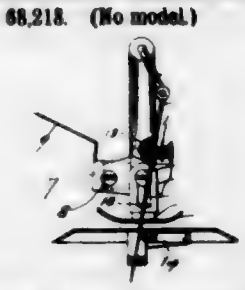
4. An elevator safety appliance comprising in combination with a controller, a locking mechanism including an abutment, an eccentric normally in an inoperative position and movable toward the said abutment, means operated upon the opening of the door for moving said eccentric into operable position into engagement with the controller, and means whereby the moving of the controller in either direction will wedge said eccentric against the said controller.

5. An elevator safety appliance comprising in combination with the controller, a locking mechanism including an abutment, a rotary lock movable toward and from said abutment, means operable by the opening of a door for moving said rotary lock to engage the controller, and rotary means for causing said rotary lock to wedge the controller against said abutment upon the moving of said controller in either direction.

6. An elevator safety appliance comprising toothed eccentrics, a swinging support for one of said eccentrics to move it bodily relatively to the other, and electromagnetic mechanism operated upon the opening of the door for moving said support to engage the eccentric with the controller.

7. An elevator safety appliance comprising in combination with a controller, a standard having an abutment for the controller, a swinging support, two engaging cams one of which is stationarily journaled upon the standards, and the other of which is journaled upon the said swinging support, a lever connected to said support, and an electromagnet energized by the opening of a door for moving said lever.

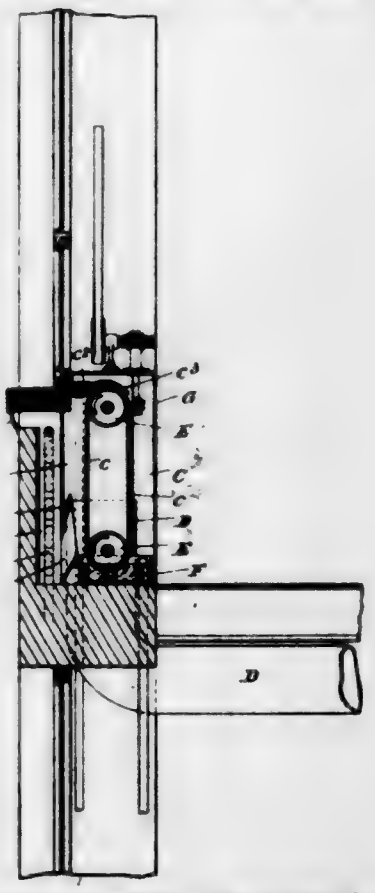
691,311. NEEDLE-FEED CHAIN-STITCH SEWING-MACHINE. HENRY J. HANCOCK, New York, N. Y., assignor to George T. Batchelor, South Orange, N. J., and Samuel Stenson, Seacliff, N. Y. Filed July 13, 1901. Serial No. 68,218. (No model.)



Claim.—1. A needle-feed for a chain-stitch sewing-machine, the same comprising a needle, a presser-foot pivoted to the frame of the machine and provided with a vertical standard, and a plate carried by said presser-foot and serving as a fulcrum for said needle, and provided with wings engaging said standard, as and for the purpose set forth.

2. The combination with a chain-stitch sewing-machine of a presser-foot pivoted to the frame of the machine and having an angular extension, the frame of the machine being provided with a socket back of said extension, and a compression-spring mounted in said socket, and engaging said extension, as and for the purpose set forth.

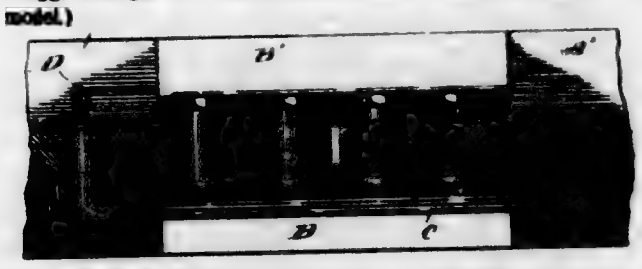
691,312. VENTILATING APPARATUS. JOHN A. HART, Blackburn, England. Filed Sept. 24, 1901. Serial No. 76,375. (No model.)



Claim.—Apparatus for ventilating with conditioned and moistened air, said apparatus comprising a chamber, upper and lower rollers carrying an endless band adapted to travel vertically in a given direction, a trough for the lower roller, a trough above the upper roller adapted to cause the band to be wet on that half which is traveling downwardly, an opening to the outside, heating-coils between the opening and the chamber, deflectors adapted to send the air upward against the half of the band traveling upwardly to assist in its movement and an opening from the interior of the chamber to the interior of the building through which the

air is drawn, thereby forcing a blast from the deflectors against the band, substantially as described.

691,313. BONDING-PIN AND METHOD OF MAKING SAME. CLARENCE A. HOLDRIDGE, Chicago Heights, Ill., assignor to David S. Wegg, Chicago, Ill. Filed Nov. 18, 1901. Serial No. 82,778. (No model.)



Claim.—1. A bonding-pin composed of a plurality of grooved tapered portions united by straps, substantially as described.

2. A bonding-pin composed of a plurality of tapered grooved portions connected at their smaller ends by integral straps, substantially as described.

3. A bonding-pin composed of semicircular grooved tapered portions united at either side of their smaller ends by integral straps, substantially as described.

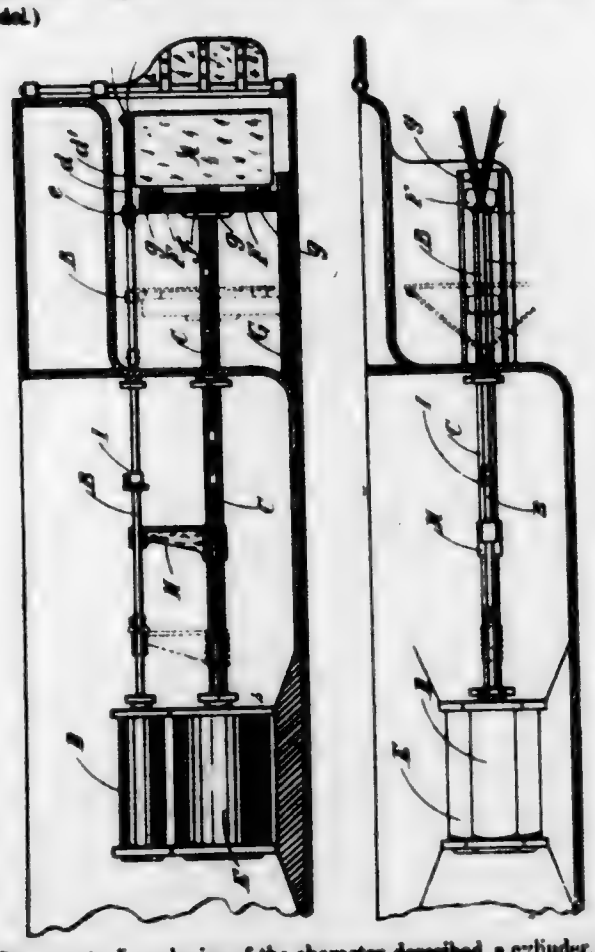
4. In a bonding-pin, the combination with two grooved tapered portions, of integral straps the ends of each of which are united to the smaller ends of the tapered portions of the pin, substantially as described.

5. The method of making a bonding-pin which consists in forming the same in two grooved alined portions, and then bending the portions together to form a hollow pin, substantially as described.

6. The method of constructing a bonding-pin which consists in rolling a blank, punching an opening through the central portion, forming a central longitudinal groove therein, and bending the portions of the blank together to form a hollow pin, substantially as described.

7. The method of making a bonding-pin which consists in rolling a tapered blank larger at each end than at the center, punching an opening through the reduced central portion, stamping the blank into semicircular portions having longitudinal grooves therein, and bending the semicircular portions together to form a hollow pin, substantially as described.

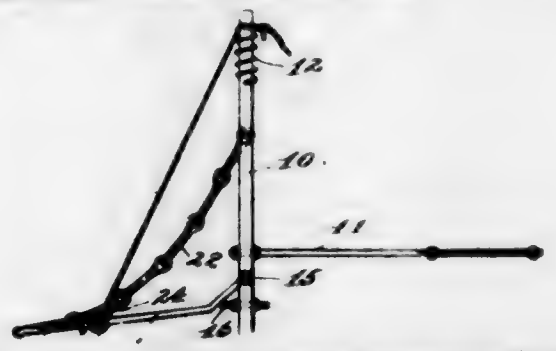
691,314. PROPULSION OF SHIPS. FREDERIC C. HOMER, Stoke-upon-Trent, England. Filed Oct. 16, 1901. Serial No. 78,864. (No model.)



Claim.—1. In a device of the character described, a cylinder, a piston-rod operated therefrom, a plunger mounted on the piston-rod, a pair of wings hinged to the plunger, a second cylinder independent in its operation of the first-named cylinder, a second piston-rod operated by the second-named cylinder and located above the first-named piston-rod parallel thereto and extending over the plunger, a pair of links pivoted to the second-named piston-rod, one link being pivoted to the outer end of each wing, an arm rigidly mounted on the first-named piston-rod and slidable on the other piston-rod, and a stop on the second-named piston-rod to be engaged by the arm.

2. In a device of the character described, a cylinder, a piston-rod operated therefrom, a plunger mounted on the piston-rod, a guide on which the plunger travels, a pair of wings hinged to the plunger, a second cylinder, a second piston-rod operated therefrom and located above and parallel to the first-named piston-rod with its end extending above the plunger, a pair of links pivoted to the end of the second-named piston-rod, each link being pivoted to the outer end of one of the wings, an arm rigidly mounted on the first-named piston-rod and slidable on the other piston-rod, and an adjustable stop on the second-named piston-rod with which the arm is adapted to engage.

691,315. CAR-FENDER. EDMOND W. JETER, Atlanta, Ga. Filed Apr. 27, 1901. Serial No. 57,673. (No model.)



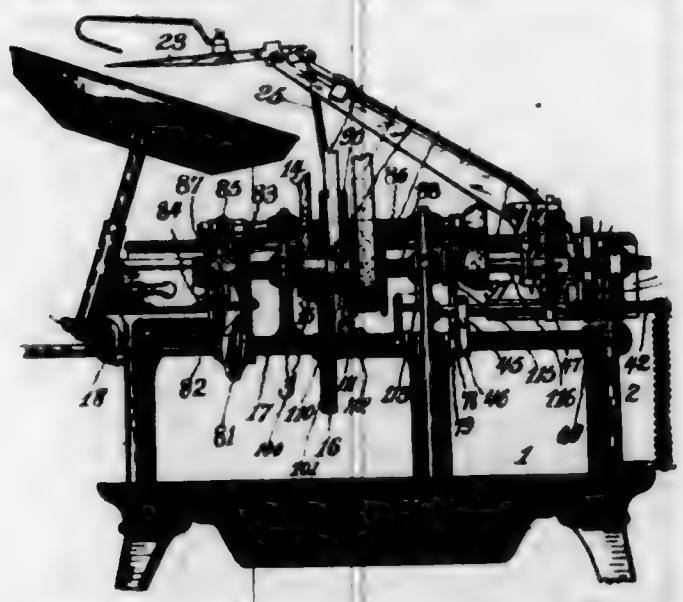
Claim.—1. In a car-fender, a vertical frame connected to the car-platform, a frame pivotally secured by its back edge to the lower end of said frame, a flexible apron connected by and suspended between its respective ends to said vertical frame near its upper end and said pivoted frame near its front edge and adjusting-screws set in the lower end of said vertical frame and bearing their ends on said pivoted frames.

2. In a car-fender, a pair of bars held in relation to each other by connecting cross-bars, one a short distance from their upper ends and another a short distance from their lower ends, a bar connecting each of said bars near its lower end with practical rigidity to the car-trucks and an elastic connection on the upper ends of said bars adapted to engage the dashboard of the car, and permit movement of the car vertically relative to said bars, a U-shaped frame pivotally secured to the lower cross-bar, a second and smaller U-shaped frame pivotally secured to the front edge of the aforesaid U-shaped frame and forming a foldable forward extension thereof, means for limiting the downward movement of the front edges of both U-shaped frames, and a flexible apron secured to and suspended between the front edge of the smaller U-shaped frame and the upper cross-bar frame.

3. In a car-fender, a pair of bars held in relation to each other by connecting cross-bars, one a short distance from their upper ends and another a short distance from their lower ends, a bar connecting each of said bars near its lower end with practical rigidity to the car-trucks and an elastic connection on the upper ends of said bars adapted to engage the dashboard of the car, and permit movement of the car vertically relative to said bars, a U-shaped frame consisting of side bars pivotally secured to the lower cross-bar, and a tie-bar secured between their free ends, the said ends extending beyond said tie-bar and being turned inwardly to form steps, a second and smaller U-shaped frame pivotally secured to the front edge of the aforesaid U-shaped frame and forming a foldable forward extension thereof, means for limiting the downward movement of the front edges of both U-shaped frames and a flexible apron secured to and suspended between the front edge of the smaller U-shaped frame and the upper cross-bar aforesaid.

4. In a car-fender, a pair of bars held in relation to each other by connecting cross-bars, one a short distance from their upper ends and another a short distance from their lower ends, a bar connecting each of said bars near its lower end with practical rigidity to the car-trucks and an elastic connection on the upper ends of said bars adapted to engage the dashboard of the car, and permit movement of the car vertically relative to said bars, a U-shaped frame pivotally secured to the lower cross-bar, a second and smaller U-shaped frame pivotally secured to the said tie-bar and projecting forwardly and lying on the inwardly-turned ends of said side bars of the aforesaid U-shaped frame and forming a foldable forward extension thereof, and a flexible apron secured to and suspended between the front edge of the smaller U-shaped frame and the upper cross-bar aforesaid and one or more flexible strands connected to and suspended in or even with the said apron between said upper cross-bar and the front bar of the said larger U-shaped frame.

691,816. **MACHINE FOR POINTING AND THREADING BOLTS.** CHARLES A. JOHNSON, Unionville, Conn., assignor to the Upson Nut Company, Unionville, Conn., a Joint-Stock Company of Connecticut. Filed Apr. 5, 1901. Serial No. 54,508. (No model.)



Claims.—1. In combination in a machine of the class specified, a hopper adapted to contain blanks, a carrier adapted to receive the blanks and subject them to a cutting-tool, means intermediate of the hopper and carrier adapted to pick up and transfer the blanks, and means for resiliently actuating the carrier at predetermined intervals.

2. In combination in a machine of the class specified including a hopper, blank-transferring mechanism and operating-spindles, of a carrier-plate adapted to receive the blanks, subject them to the action of the tools and eject them after the operation of said tools and means for ejecting blanks of improper length.

3. In combination in a machine of the class specified, cutter-spindles, a blank-retaining mechanism and a feeding and carrying mechanism arranged adjacent to the operating-spindles, and interconnected mechanism for adjusting and locking said last-named mechanisms relatively to the cutter-spindles.

4. In combination in a machine of the class specified, cutter-spindles and actuating mechanism therefor, a blank-retaining mechanism and a feeding and carrying mechanism arranged adjacent to the cutter-spindles, and connections between said last-named mechanisms whereby they may be adjusted relatively to each other and relatively to the cutter-spindles.

5. In combination in a machine of the class specified, work-spindles and operating mechanism therefor, a blank-retaining mechanism and feeding and carrying mechanism, and means intermediate of said mechanisms whereby they may be simultaneously adjusted for operation upon blanks of various sizes.

6. In combination in a machine of the class specified, a main frame, cutter-spindles movably mounted in said frame, a hopper adapted to receive blanks and means for actuating the hopper, said mechanism being adjustably secured to the main frame, and carrying and feeding mechanism adjustably mounted upon the main frame, adjusting connections intermediate of the hopper mechanism and carrier and feeding mechanism, and means for automatically transferring the blanks from the hopper to the feeding and carrying mechanisms.

7. In combination in a machine of the class specified, a cutter mechanism and means for actuating it, a hopper and actuating mechanism, a feeding and carrying mechanism and connections intermediate of said mechanisms whereby they may be adjusted with relation to the cutter mechanism without disturbing their adjustment relatively to each other.

8. In combination in a machine of the class specified, a hopper adapted to receive blanks, a feeding and carrying mechanism operatively mounted with relation to the hopper, a transferring mechanism intermediate of the hopper and feeding and carrying mechanism comprising a gravity-guide and an oscillatory picker adapted to pick up the blanks and pass them to the gravity-guide, and means borne upon the picker adapted to rest upon the blanks and prevent abnormal loading of the picker.

9. In combination in a machine of the class specified, a hopper and feeding and carrying mechanisms, means adapted to pick up blanks from the hopper, a guide adapted to receive said blanks, and mechanism for individually passing said blanks from the guide to the feeding and carrying mechanisms, said mechanism embodying means for preventing its operation whenever the machine is not running normally.

10. In combination with a hopper and feed-guide adapted to receive blanks picked up from the hopper, a feeding mechanism and a carrying mechanism, the latter adapted to receive blanks from the former and pass them into the line of action of a tool or tools, and means intermediate of the hopper and carrying mechanism adapted to feed blanks individually to the feeding mechanism, said means including mechanism adapted to prevent the feed except when the feeding mechanism and carrying mechanism are operating synchronously.

11. In combination with a hopper and feed-guide adapted to receive blanks picked up from the hopper, means for picking up and transferring blanks to the guide, feeding and carrying mechanism and a stop mechanism adapted for stopping, separating and individual feeding actions with relation to the blanks in the guide, and means for preventing the actuation of said stop mechanism except when the feeding and carrying mechanisms are performing their function and in normal operation.

12. In combination in a machine of the class specified, a hopper adapted to receive blanks, a feed mechanism adapted to receive and transfer the blanks, means for individually passing the blanks from the hopper to the feed mechanism, and resilient means for actuating the feed mechanism whereby said feed mechanism receives a blank only when it is actuated normally.

13. In combination in a machine of the class specified, a hopper adapted to receive blanks, a carrier-plate, a main cam-shaft, and a cam for actuating said feed mechanism through the medium of two relatively movable members provided with resilient connections, a stop mechanism, and means borne upon one of said relatively movable members whereby the stop mechanism is actuated only when both members move simultaneously.

14. In combination in a machine of the class specified, a hopper adapted to receive blanks, a feed mechanism adapted to feed said blanks, a stop mechanism intermediate of the hopper and feed mechanism adapted to pass blanks individually to the mechanism, said mechanism including a pair of stops, and an actuating mechanism therefor interconnected resiliently with the actuating mechanism of the feed mechanism whereby upon a normal action of said feed mechanism, the stop mechanism is actuated to pass a blank.

15. In combination in a feeding mechanism for bolt pointing and threading machines, a reciprocating feed-block, a rotary cam for actuating said block, an oscillatory mechanism including a cam-lever adapted to be actuated by the cam, connections intermediate of the feed-block and oscillatory member, and resilient connections intermediate of said connections and the cam-lever.

16. In combination in a machine of the class specified, a hopper adapted to receive blanks, means for picking up and transferring said blanks to a feed mechanism, resiliently-actuated feed mechanism for feeding the blanks, and a resiliently-actuated carrier-plate adapted to receive and carry the blanks forward from the feed mechanism.

17. In combination in a bolt pointing and threading machine, means for automatically picking up and transferring the blanks, a feed mechanism adapted to receive the blanks, a carrier-plate operatively mounted with relation to the feed mechanism and resiliently actuated in one direction.

18. In combination in a bolt pointing and threading machine, means for picking up and transferring the blanks, a feed mechanism and carrier-plate arranged adjacent to the feed mechanism, resilient means for moving said carrier-plate, indexing mechanism operatively arranged with relation to the carrier-plate and means for rejecting blanks of improper length from the carrier-plate.

19. In combination in a feeding and carrying mechanism for bolt pointing and threading machines, a feed-slide, a carrier-plate operatively mounted with relation to the feed-slide and provided with openings to receive blanks transferred by the feed mechanism, a pawl adapted to engage the blanks upon a reverse movement of the carrier-plate and means adjacent to said plate for preventing its forward movement with blanks of excessive length.

20. In combination in a bolt pointing and threading machine, means for automatically picking and transferring the blanks, a feed mechanism, a carrier-plate adapted to carry blanks of a predetermined length, means for supporting said blanks during the operation of the cutters, reciprocating cutters and a guide adapted for supporting and retaining actions with relation to blanks of improper length.

21. In combination in a machine of the class specified, a carrier-plate and means for introducing blanks to said plate, resilient connections for moving said plate in one direction, and means for reversing the movement of said plate unless it has been moved to an indexing position.

22. In combination in a bolt pointing and threading machine, a carrier-plate provided with a plurality of adjustable disks provided with peripheral notches, and means for adjusting and locking said disks.

23. In combination in a bolt pointing and threading machine, a carrier-plate provided with a plurality of disks having peripheral notches, means for adjusting and locking said disks and means adjacent to said carrier-plate for holding the blanks.

24. In combination in a bolt pointing and threading machine, a feed mechanism including a reciprocating feed-slide, a rock-shaft, a sleeve splined to said rock-shaft, a second sleeve operatively mounted with relation to the rock-shaft, a lever connecting said last-named sleeve and the feed-slide, and resilient connections intermediate of the two sleeves.

25. In combination in an automatic picking and transferring mech-

anism for bolt pointing and threading machines, an oscillatory picker, means borne upon said oscillatory picker adapted to rest upon the blanks and prevent overload of said picker, a constantly-rotating cam-shaft and connections intermediate of the cam-shaft and picker whereby the latter is moved at predetermined intervals.

26. In combination in a bolt pointing and threading machine, a hopper, means for feeding the blanks and holding them subject to operating-tools, means for ejecting blanks of improper size transferred from said hopper, means for transferring the blanks from the hopper, reciprocating cutters and their spindles and resilient actuating means for said cutters.

27. In combination in a bolt pointing and threading machine, a feeding and carrying mechanism adapted to receive and hold blanks for the operation of cutting-tools, reciprocating cutting-tools operatively mounted with relation to the carrying mechanism, means for actuating said tools resiliently and a stop-plate dependent upon the position of the carrier mechanism for permitting or stopping reciprocating movement of the tools.

28. In a bolt pointing and threading machine, a spindle adapted to receive a threading-die, resilient means for advancing said spindle, a knock-off lever and means for actuating said lever at a plurality of points during the longitudinal movement of the spindle.

29. In combination in a bolt pointing and threading machine including reciprocating cutters and a blank feeding and carrying mechanism, of an oscillatory support adapted to support the blanks during the forward movement of the cutters, and means for reciprocating said support upon a movement of the carrier-plate with its blanks.

30. In combination in a machine of the class specified, including automatic means for picking up and transferring blanks, resilient feeding and carrying mechanism, a reciprocating die-spindle, means coincident with said spindle for controlling the position of the cutters of the die, an actuating-lever for reciprocating the spindle and resilient connections intermediate of the die and actuating-lever.

31. In combination in a device of the class specified including a feeding mechanism and carrying mechanism adapted to feed and carry blanks, operating-tools adapted to operate upon the blanks during their rotation in the carrying mechanism, a hopper borne upon the end of a shaft and provided with a gear, a main driving-shaft, a gear borne upon and driven by said shaft and movable axially thereof, and connections intermediate of said last-named gear and the hopper-shaft whereby an adjustment of the hopper will move said gear maintaining its mesh with the gear upon the hopper-shaft.

32. In combination in an automatic picking and transferring mechanism for bolt pointing and threading machines, an oscillatory picker adapted to be swung at predetermined intervals, a cam-shaft and connections intermediate of the cam-shaft and picker whereby the latter is moved, means included in said connections for clearing the picker mechanism upon its downward movement, and a detent-finger arranged upon the picker and adapted to rest upon the blanks in advance of said picker.

33. In combination in a machine of the class specified, including means for picking up, transferring, feeding, and carrying blanks, and tools for operating upon the blanks, a rotary hopper arranged adjacent to the picking mechanism, a beveled gear borne upon the shaft of the hopper which shaft is provided with a bearing having an extension engaging a second beveled gear borne upon the main driving-shaft, whereby said last-named gear may be moved axially of its shaft whenever the hopper and appurtenant parts are moved toward or away from the picking mechanism.

34. In combination in a device of the class specified including automatic means for picking up, transferring, feeding and carrying blanks, tools adapted to operate upon said blanks, a rotary hopper mounted upon the end of a shaft, a driving-shaft, intermeshing gears borne upon the driving-shaft and hopper-shaft, and means whereby said hopper may be adjusted without disarranging the adjustment of the intermeshing gears.

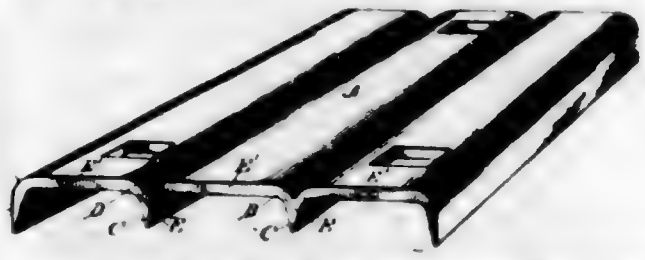
35. In combination in a machine of the class specified, a tool-spindle comprising a reciprocating and rotating mechanism, a cutting-tool borne upon the end of said spindle, an actuating-rod for said cutting-tool, and a ring normally concentric with said rod when the tool is in operating position and adapted upon its eccentric position to actuate said tool through its operating-rod.

36. In combination in a device of the class specified, a tool-spindle, means for reciprocating said spindle and means for rotating it, said spindle comprising a number of movable concentric members, a ring adapted to actuate the tool borne upon said spindle and normally concentric therewith, and connections intermediate of the ring and concentric members whereby upon a movement of the ring to an eccentric position, one or more of said members are moved.

37. In combination in a machine of the class specified, a main operating-shaft, a reciprocating tool-spindle and means for rotating said spindle, a cutting-tool borne on the end of the spindle, said spindle being composed of sections adapted to have a relative movement, said movement adapted to actuate the cutting-tool, and a normally concentric ring adapted upon displacement to cause a relative movement of the sections of the cutter-spindle whereby the cutting-tool is actuated.

38. In combination in a machine of the class specified, a carrier-plate comprising a rotary disk provided with depressed portions, notched-work carrying-plates arranged within said depressed portions, and adjusting and locking screws secured in the disk and adapted for adjusting and locking actions with relation to the notched-work carrying-disks.

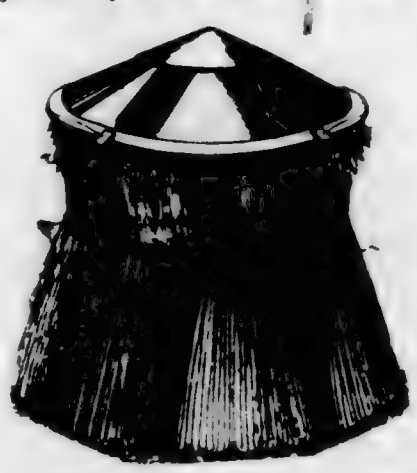
691,817. RAILWAY-TIE PLATE. WILLIS S. JONES, Chicago, Ill., assignor to David S. Wegg, Chicago, Ill. Filed July 12, 1899. Serial No. 723,540. (No model.)



Claim.—1. A railway-tie plate consisting of a plate having curved edges terminating in downwardly-extending tapered, tie-engaging flanges, parallel grooves in the upper face of the plate and tapered flanges in line with and below the grooves, their upper edges reinforcing or strengthening the metal walls of the grooves, substantially as described.

2. A railway-tie plate having curved edges terminating in downwardly-extending tapered tie-engaging flanges and provided on its upper side with one or more sand-grooves and on its under side with one or more tie-engaging flanges directly beneath the grooves, the metal comprising the walls of said grooves being thinner than the body of the plate, substantially as described.

691,818. COVER FOR GRAIN-SHOCKS, &c. VAN BUREN MARTIN, Hopkinsville, Ky., assignor of one-half to Thomas L. Metcalfe, Hopkinsville, Ky. Filed Apr. 30, 1901. Serial No. 58,179. (No model.)



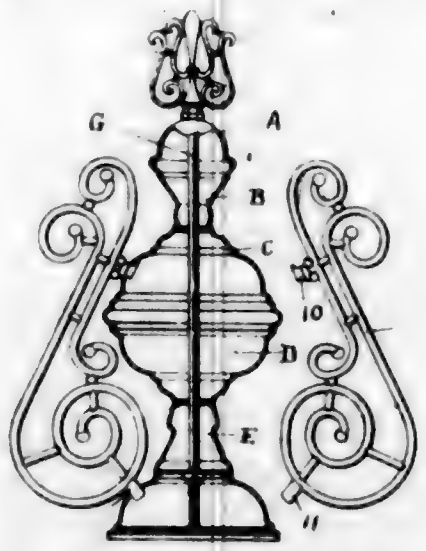
Claim.—1. In a cover of the class described, the combination with a sheathing tapering to an apex, of a protective binder secured to the edge of the sheathing and engaging the outer and inner faces of the same, eyes secured to the binder-strip against movement peripherally thereon and projecting beyond the edges of said strip, and fastening devices passing through the projecting portions of the eyes.

2. In a cover of the class described, the combination with a roof-sheathing, of a protective binder secured over the edge of the same and engaging both the exterior and interior faces of the sheathing, said binder being provided with eyes rigidly fixed with relation to the strip, and fastening devices secured in the eyes of the binder.

3. In a cover of the class described, the combination with a roof-sheathing, of a protective binder secured over the edge of the sheathing and engaging both the inner and outer faces thereof, said binder having eyes that terminate short of the inner edge of the same.

4. In a cover of the class described, the combination with a conical roof-sheathing made of a sheet having an overlapping joint extending from the apex to the edge thereof, a conical cap covering the apex and having an overlapping joint located out of alinement with the joint of the roof-sheathing, a reinforcing-cap fitting snugly within and secured to the inner face of the apex, said reinforcing-cap having an overlapping joint which is located out of alinement with the joint of the roof-sheathing, a protective binder secured over the edge of the roof-sheathing and engaging both the exterior and interior face thereof, said binder being provided with eyes rigidly fixed with relation to the strip, and fastening devices secured in the eyes of the binder.

691,319. STOVE-URN. AMBROSE T. MATTHEWS, Worcester, Mass., assignor to Matthews Manufacturing Co., Worcester, Mass., a Corporation of Massachusetts. Filed Oct. 29, 1901. Serial No. 80,436. (No model.)



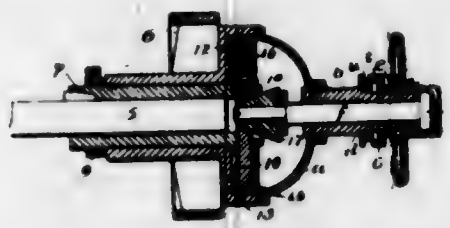
Claim.—1. In a cap-piece or ornamental urn for stoves, the combination of a body portion formed by separate sections or pieces, a central fastening rod or bolt, and handles having lugs fitting into sockets in the body portion and locked in place when the body-portion sections are drawn together by the fastening rod or bolt.

2. In a cap-piece or ornamental urn for stoves, the combination of a body portion formed by separate sections or pieces, a central fastening rod or bolt, and handles, each having one lug engaging a socket in one of the body-portion sections, and a second lug engaging a socket in another of the body-portion sections, so that when the sections are drawn together by the central rod or bolt said handles will be secured in place.

3. In a cap-piece or ornamental urn for stoves, the combination of a body portion formed by separate sections or pieces, a central fastening rod or bolt, and handles, each of which is provided with one key-shaped fastening-lug, and one straight fastening-lug, arranged to engage sockets in the body portion, so as to lock the handles in place when the body-portion sections are drawn together by the fastening rod or bolt.

4. In a cap-piece or ornamental urn for stoves, the combination of a body portion formed by separate sheet-metal sections, a central fastening rod or bolt, and handles, each of which is provided with a key-shaped locking-lug engaging a socket in one body-portion section, and a straight lug or projection engaging a socket in a separate body-portion section, so that said handles will be locked in place when the body-portion sections are drawn together by the central fastening rod or bolt.

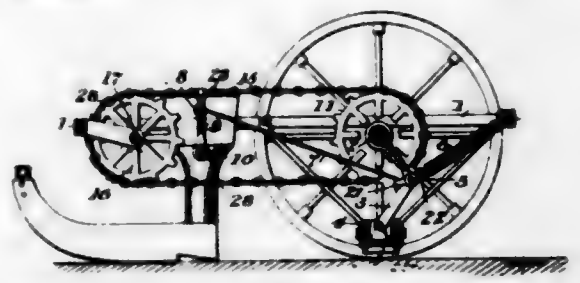
691,320. CLUTCH. HERMAN MOOR, Grove City, Pa., assignor to Henry B. McKinney, Fred K. Squier, William W. Van Eman, and C. W. Forrest, Grove City, Pa. Filed May 14, 1901. Serial No. 60,189. (No model.)



Claim.—1. The combination with a clutch having a revoluble element and radially-movable friction elements, of a wedge to operate said friction elements, a longitudinally-movable sleeve carried by said revoluble element and screwed thereto, a longitudinally-movable shaft in said sleeve and to which said wedge is attached, the latter being operated by said shaft, a cap on said sleeve and bearing on the outer end of said shaft, coacting cams to move said cap longitudinally on said sleeve and means to rotate said cap, substantially as described.

2. The combination with a clutch having a revoluble element and radially-movable friction elements of a longitudinally-movable sleeve screwed to and revoluble with said revoluble element, an endwise-movable shaft in said sleeve and movable outwardly thereby, a wedge carried on said shaft, said wedge engaging and operating said radially-movable friction elements, and a cap on said tubular sleeve, said cap having means for rotating it manually and engaging said endwise-movable shaft, coacting cams on said tubular shaft and a cap to move the latter longitudinally when partly rotated, and a centrifugal element revoluble with said cap and having lost motion thereon, substantially as described.

691,321. CORN-PLANTER. SAMUEL D. MCNAGHTEN, Wichita, Kans. Filed Feb. 9, 1900. Renewed Dec. 2, 1901. Serial No. 84,494. (No model.)



Claim.—1. In the herein-described corn-planter the combination of a sprocket-wheel sleeved on the axle 2, an idler sprocket-wheel journaled to the forward portion of the frame of said planter, a sprocket-chain connecting said sprocket-wheels, said chain having links with lugs on each edge, a forked lever keyed to the shaft 10 adapted to engage said lugs, a double lever with one end sleeved on said axle 2, a pressure-foot secured to the lower end of said double lever, a rod with one end secured to said double lever, an arm keyed to said shaft 10 to which is secured the other end of said rod, and a coil-spring secured at one end to the planter-frame 1 and the other end secured to said double lever.

2. In the herein-described corn-planter an automatic marking device consisting of a pressure-foot having a double lever for operating said pressure-foot, said double lever sleeved on the axle near one end inside the wheel, a sprocket-wheel sleeved on the axle, 2, adapted to be thrown out and in gear at will, an idler sprocket-wheel journaled to the forward end of the planter-frame, a sprocket-chain having links with lugs on either edge at a desired distance apart on said chain, said chain connecting said sprocket-wheels, a forked lever keyed to the shaft 10 adapted to engage said lugs on said chain, an arm keyed to said shaft 10, a rod connecting said arm and double lever, and a spring secured at one end to said double lever and the other end secured to said frame.

3. In the herein-described corn-planter, a corn-dropper device consisting of a sprocket-wheel sleeved on the axle, an idler-wheel journaled to the planter-frame, a sprocket-chain connecting said sprocket-wheels, levers keyed to the shaft 10 adapted to be actuated by said sprocket-chain, a pressure-foot, a double lever with one end sleeved on said axle, and the other end journaled to said pressure-foot, a rod with one end secured to said double lever, a forked lever keyed to said shaft 10 to which is secured the other end of said rod, and a coil-spring secured at one end to said planter-frame, and the other end secured to said double lever.

4. In the herein-described corn-planter a marking device consisting of a pressure-foot adapted to work vertically in a casing which is secured to the frame of the corn-planter, a double lever, with one end secured to said pressure-foot, and the other end sleeved on the axle, a sprocket-wheel sleeved on the axle 2, an idler sprocket-wheel journaled to the forward end of the planter-frame, a sprocket-chain, having links with lugs on either edge thereof connecting said sprocket-wheels, a forked lever keyed to the shaft 10 adapted to engage said lugs on said chain, an arm keyed to said shaft 10, a rod connecting said arm and double lever and a spring secured to said double lever and planter-frame.

691,322. GRAIN-DRILL. FRANK R. PACKHAM and GEORGE P. OATES, Springfield, Ohio, assignors to the Superior Drill Company, Springfield, Ohio, a Corporation of Ohio. Filed Nov. 20, 1900. Serial No. 37,184. (No model.)

Claim.—1. In a seeding-machine, a main frame, an auxiliary frame pivotally connected to said main frame, devices for lowering said main frame, and stop devices connected thereto for holding said auxiliary frame in proper adjustment with said main frame.

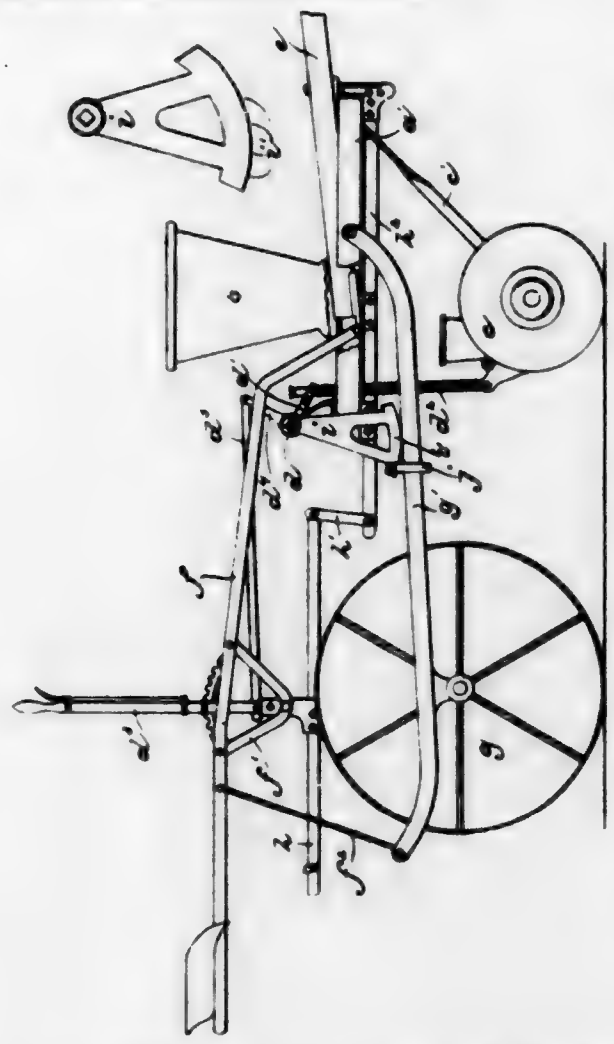
2. In a seeding-machine, a main frame, an auxiliary frame connected to said main frame, a lever for raising and lowering said main frame, and devices connected to said lever to adjust the relative positions of said frames and to automatically hold said main frame against oscillation, substantially as specified.

3. In a seeding-machine, a main frame, an auxiliary frame connected to said main frame, press-wheels supporting said auxiliary frame, means for raising and lowering said main frame, and stop devices connected to said means for automatically holding said main frame against oscillation.

4. In a seeding-machine, a main frame, an auxiliary frame pivotally connected to said main frame, press-wheels connected to said auxiliary frame, means for raising and lowering said main frame, and stop devices adapted to engage with said auxiliary frame and connected with said raising and lowering mechanism, for the purpose of automatically holding said main and auxiliary frames in the proper adjustment.

5. In a seeding-machine, a main frame, furrow-openers connected to said frame, press-wheels also connected to said frame, means for lifting said furrow-openers and devices, normally causing said press-wheels to

form a separate additional frame to prevent oscillation thereof, but further adapted to be moved from normal position by said means, for the purpose of lifting said furrow-openers out of the ground.



6. In a seeding-machine, a main frame, furrow-openers connected to said frame, press-wheels also connected to said frame, means for applying pressure to said furrow-openers, and devices operated by said means to cause said press-wheels to form a support for said frame to prevent oscillation thereof, substantially as specified.

7. In a seeding-machine, a main frame and a hopper mounted thereon, furrow-openers pivotally connected to said frame, means for applying pressure to said furrow-openers consisting in part of a rock-shaft mounted on said frame, press-wheels for said furrow-openers, bars for pivotally connecting said press-wheels to the main frame, and devices connected to the said rock-shaft adapted to be brought in proximity to said bars when the rock-shaft is rotated to apply pressure to the furrow-openers, said devices being adapted to engage said bars to prevent oscillation of the frame, substantially as specified.

8. In a seeding-machine, a main frame, furrow-openers pivotally connected thereto, a rock-shaft on said frame adapted to be operated by a lever, connections between said rock-shaft and said furrow-openers for lowering and raising the same, press-wheels for said furrow-openers, traction-bars pivotally connecting said press-wheels to said frame, and cam-shaped projections connected to said rock-shaft adapted to engage said traction-bars, substantially as specified.

9. In a seeding-machine, a main frame, furrow-openers connected thereto, press-wheels for said furrow-openers, bars pivotally connecting said wheels to said frame at a point forward the center thereof, lever-controlled devices on said frame for applying varying degrees of pressure to said furrow-openers, and means on said frame, connected with said devices, for engaging with said bars and thus limit the downward movement of said frame, substantially as specified.

10. In a seeding-machine, a main frame, press-wheels, traction-bars connecting said press-wheels to the said frame, a rock-shaft mounted on said frame, cam-shaped projections connected to said rock-shaft and adapted to engage said traction-bars, and a lever for operating said rock-shaft, substantially as specified.

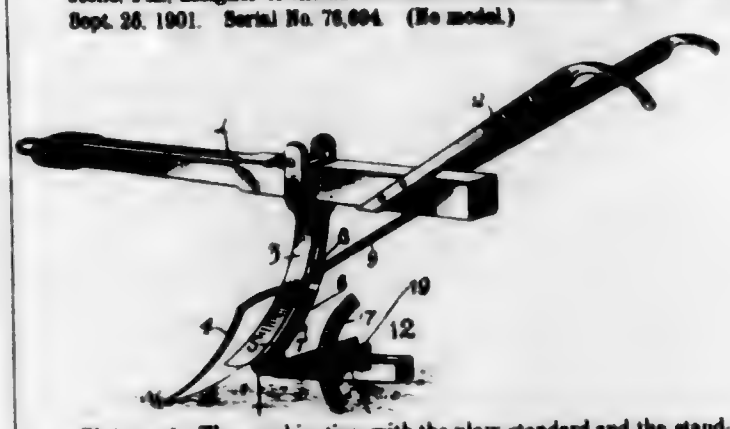
11. In a seeding-machine, furrow-opening devices, a main frame yieldingly supported thereon, press-wheels, side bars pivotally connecting said wheels to said frame at a point forward of its center, and devices on said frame to engage said bars in the rear of said pivoted connection to prevent the oscillation of said frame.

12. In a seeding-machine, furrow-opening devices provided with presser-springs, a main frame mounted on said springs, press-wheels for said furrow-opening devices, bars connecting said wheels to said frame, and means for limiting the downward movement of said frame by said bars, substantially as specified.

13. In a seeding-machine, a main frame, press-wheels, traction-bars connecting said press-wheels to said frame, loops or projections connected to said frame adapted to engage the under side of said traction-bars, substantially as and for the purpose specified.

14. In a seeding-machine, furrow-openers, a main frame supported thereon, press-wheels for said furrow-openers and traction-bars connecting said press-wheels to said frame, means for raising said furrow-openers and thus transfer the weight of said frame to said press-wheels, and means on said frame for engaging said bars to prevent oscillation of said frame, substantially as specified.

691,328. ADJUSTABLE PLOW-BAR. JAMES H. POWELL, Limestone, Fla., assignor of one-half to Robert Bell, Limestone, Fla. Filed Sept. 26, 1901. Serial No. 76,694. (No model.)



Claim.—1. The combination with the plow-standard and the standard-brace, of a plate formed with a vertical elongated slot through which the plow-bolt engages and is clamped, and said plate having a forked upper end to engage the brace-bar of the standard, a guide-bar formed with a slot and pivotally connected to the lower end of said plate, a guide-blade adjustably placed in said slot, and a set-screw to clamp the blade in set position.

2. The combination with the plow-standard and the standard-brace, of a plate formed with a vertically-elongated slot through which the plow-bolt passes and is clamped and formed with a forked upper end to engage the standard-brace and provided with a disk at its lower end having corrugations thereon, a guide-bar formed with a disk at its inner end having corrugations to engage the corrugations of the disk on the plate, and a curved slot extending vertically through the guide-bar, a curved guide-blade adjustably placed in the said curved slot, and means to clamp the guide blade in a set position.

691,324. PIGMENT AND THE PRODUCTION THEREOF FROM FERROUS LIQUORS. ALEXANDER S. RAMAGE, Cleveland, Ohio, assignor, by direct and mesne assignments, to Elmer A. Sperry, Cleveland, Ohio. Filed Sept. 10, 1900. Serial No. 29,477. (No specimens.)

Claim.—1. The process of preparing basic ferric hydrate from ferrous sulfate or chlorid liquors, which consists in blowing with air a mass brought to the condition described, and precipitating basic ferric sulfate or chlorid in the presence of a sufficient volume of water to hydrolize the basic sulfate or chlorid into the basic ferric hydrate.

2. The process of preparing basic ferric hydrate from ferrous-sulfate liquors, which consists in blowing with air a mass in a substantially neutralized condition and precipitating basic ferric sulfate in the presence of a sufficient volume of water to hydrolize the basic sulfate into the basic ferric hydrate.

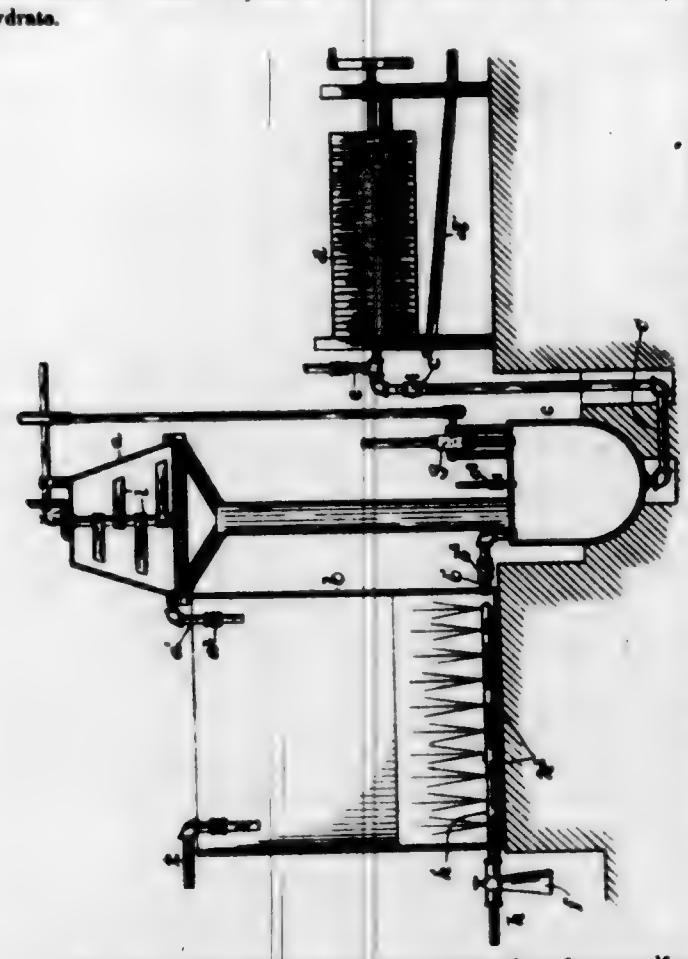
3. The process of preparing basic ferric hydrate from ferrous sulfate or chlorid liquors, which consists in blowing with air a mass in a substantially neutralized condition by a gradual addition of an alkali carbonate or an alkaline-earth carbonate, thus precipitating basic ferric sulfate or chlorid in the presence of a sufficient volume of water to hydrolize the basic ferric sulfate or chlorid into the basic ferric hydrate.

4. The process of preparing basic ferric hydrate from ferrous-sulfate liquors, which consists in blowing with air a mass in a substantially neutralized condition by a gradual addition of soda-ash, thus precipitating basic ferric sulfate in the presence of a sufficient volume of water to hydrolize the basic ferric sulfate into the basic ferric hydrate.

5. The process of preparing basic ferric hydrate from ferrous-sulfate liquors, which consists in blowing with air in the substantially neutralized condition described, by a gradual addition of soda-ash in aqueous solution, thus precipitating basic ferric sulfate in the presence of a sufficient volume of water to hydrolize the basic ferric sulfate into basic ferric hydrate.

6. The process of preparing basic ferric hydrate from ferrous-sulfate liquors which consists in blowing with air a heated mass in the condition described, thus precipitating basic ferric sulfate in the presence of a suffi-

cient volume of water to hydrolize the basic sulfate into the basic ferric hydrate.



7. The process of preparing basic ferric hydrate from ferrous-sulfate liquors, which consists in blowing with air and steam, a mass in the condition described, thus precipitating basic ferric sulfate in the presence of a sufficient volume of water to hydrolize the basic sulfate into the basic ferric hydrate.

8. The process of preparing basic ferric hydrate from ferrous-sulfate liquors, which consists in blowing with air a mass in the condition described, thus precipitating basic ferric sulfate in the presence of a sufficient volume of water to hydrolize the basic sulfate into the basic ferric hydrate, filtering and washing the hydrate.

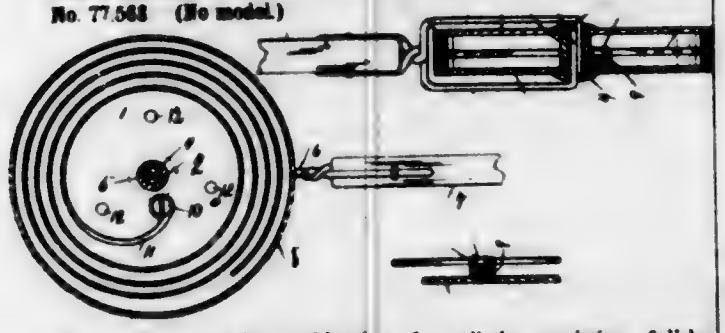
9. The process of preparing basic ferric hydrate from ferrous sulfate or chlorid liquors, which consists in blowing with air a mass brought to the condition described, thus precipitating basic ferric sulfate or chlorid in the presence of a sufficient volume of water to hydrolize the basic sulfate or chlorid into the basic ferric hydrate, filtering and washing the hydrate and drying the same.

10. As an article of manufacture, the light ferric hydrate, having the formula

$$Fe_2O_3Fe_2(OH)_6$$

the same being of a golden-yellow color, suitable for pigment, fine and velvety to the touch, absorbing more oil than standard French ocher, zinc-white or white lead, and also having more covering power than these pigments.

691,825. TOY. HUGH O. SAMMONS, Canton, Ohio, assignor of one-half to Thomas H. St. John, Canton, Ohio. Filed Oct. 4, 1901. Serial No. 77,563. (No model.)



Claim.—In a toy the combination of a cylinder consisting of disks spaced one from the other, and a head connected to the peripheries of the spaced disks, a thimble located between the spaced disks and the spaced disks connected to the opposite ends of the thimble, a handle having connected thereto twisted members, and the twisted members provided with right-angled portions spaced one from the other, and the right-angled portions located in the aperture of the thimble, and a spring or gong secured to a post fixed to one of the spaced disks, substantially as and for the purpose specified.

691,826. RAILWAY-TORPEDO. EDWARD A. SCHOOLEY, Pittsburg, Pa., assignor to Schooley-McClure Company, Saterville, Pa., a Copartnership. Filed Jan. 10, 1900. Serial No. 959. (No model.)



Claim.—1. A torpedo having a top piece and a bottom piece, one of said pieces having a flat continuous surface free from struck-up portions, and provided with a plurality of holes within its circumference, a metal strap extending through said holes, and an inner lining whose outer face contacts with the strap; substantially as described.

2. A torpedo having a top piece and a bottom piece, the bottom piece being flat and having all the parts lying in substantially the same plane, a pair of holes cut through the said bottom piece within its circumference, and a strap extending through the holes and having its bent portion lying within the case; substantially as described.

3. A torpedo having a top piece and a bottom piece, the bottom piece having its face lying in substantially the same plane, and provided with a plurality of holes, the inner edges of said holes being curved, a strap extending through the holes, and having a bent portion lying within the case, and an inner lining having its flat bottom resting upon the said inner part of the strap; substantially as described.

4. A torpedo having a top piece and a bottom piece, the bottom piece having all parts lying in substantially the same flat plane, the pieces being secured together by a reflex joint, the bottom piece having two holes struck therein in the flat face, and within its circumference, the metal strap extending through the holes and having a bent portion lying within the case, and a flanged lining having its bottom resting upon the inner bent portion of the strap; substantially as described.

691,827. STOCKING. JAMES SHELTON, Towanda, Pa., assignor of one-half to James Shelton, Jr., Towanda, Pa. Filed Apr. 18, 1901. Serial No. 56,443. (No model.)



Claim.—1. A stocking-blank having a shaped selvage-edged calf and ankle portion, tubular heel portion, and shaped selvage-edged foot portion, substantially as specified.

2. A stocking-blank having a tubular leg portion, shaped selvage-edged calf and ankle portion, tubular heel portion, and shaped selvage-edged foot portion, substantially as specified.

3. A stocking having a seamless heel portion, and a calf, ankle and foot portion composed of shaped selvage-edged webs having said selvage edges united, substantially as specified.

4. A stocking having a seamless tubular leg portion, and seamless heel portion, and a calf, ankle and foot portion composed of shaped selvage-edged webs having said selvage edges united, substantially as specified.

5. A stocking having a seamless heel portion, shaped calf, ankle and foot portions consisting of flat webs having their edges united, and a transverse toe-seam formed by uniting a course of stitches at the toe end of the web, substantially as specified.

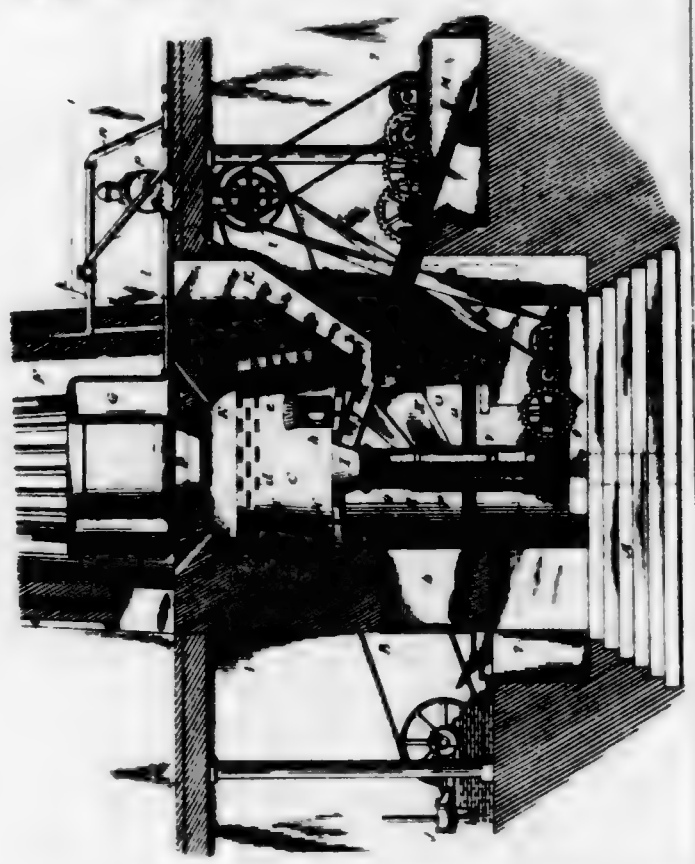
6. A stocking having a seamless tubular leg, a seamless heel portion, shaped calf, ankle and foot portions consisting of flat webs having their edges united, and a transverse toe-seam formed by uniting a course of stitches at the toe end of the web, substantially as specified.

7. A stocking having a seamless heel portion, calf, ankle and foot portions formed by shaped selvage-edged webs having their selvage edges united, and a transverse toe-seam formed by uniting a course of stitches at the toe end of the web, substantially as specified.

8. A stocking having a seamless tubular leg, a seamless heel portion, calf, ankle and foot portions formed by shaped selvage-edged webs having their selvage edges united, and a transverse toe-seam formed by uniting a course of stitches at the toe end of the web, substantially as specified.

691,328. COMBINED CREMATORY AND HEATING SYSTEM.

ISAAC D. SMEAD, Cincinnati, Ohio. Filed Feb. 21, 1901. Serial No. 48,284. (No model.)



Claim.—1. The combination of a combustion-chamber, a grate mounted therein; a chamber located beneath said grate; a trunk leading into said chamber; means for forcing out a charge of material from said chamber; and independent means for closing the opening of the trunk leading thereto.

2. In combination with a combustion-chamber, a grate mounted therein; a chamber located beneath said grate and opening into said chamber; means mounted within said chamber adapted and arranged to discharge a charge of material therefrom; independent means to close the mouth of the trunk; a second trunk leading into the chamber; and means for forcing a charge of material from said trunk into the chamber.

3. In combination with a combustion-chamber; a grate mounted therein; a chamber located beneath said grate and opening into the combustion-chamber; a trunk leading into said chamber; a plunger working in said chamber and adapted and arranged to discharge a charge of material from said chamber; and means working in conjunction with said plunger adapted to close the mouth of the trunk as the plunger moves upwardly to discharge the load.

4. In combination with a combustion-chamber, a grate mounted therein; a chamber located beneath said grate and opening into the combustion-chamber; a trunk opening into said chamber; a plunger mounted and working within said chamber; a sleeve or collar also mounted within said chamber; and means for elevating the collar and closing the opening of the trunk as the plunger is elevated to discharge the charge from the chamber.

5. In combination with a combustion-chamber, a grate mounted therein; a chamber mounted below said grate and opening into the combustion-chamber; a trunk opening into said chamber; a sleeve working in said chamber; a plunger working within said sleeve; means for elevating said plunger; and means carried by said plunger for carrying the sleeve upwardly to close the mouth of the trunk as said plunger discharges the charge of material from the chamber.

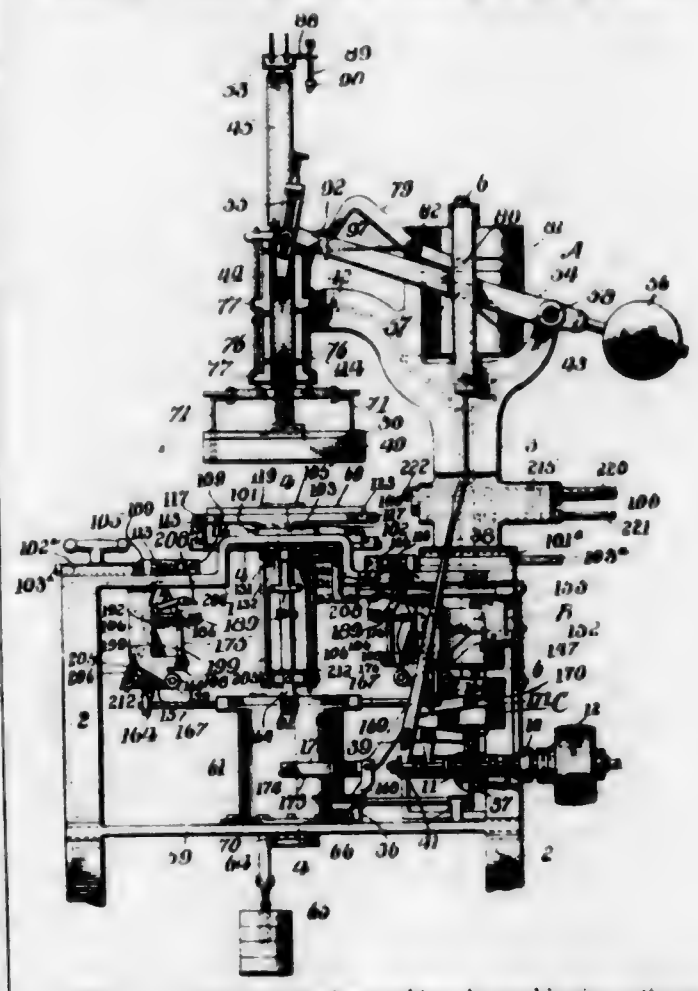
6. In combination with a combustion-chamber, a grate mounted therein; a chamber located beneath said grate and opening into the combustion-chamber; a trunk opening into said chamber; a sleeve working in said chamber; a plunger mounted within said sleeve; means for elevating said plunger; locking devices carried by said plunger adapted and arranged to act upon the sleeve; and means for tripping said locking devices when the sleeve has reached a position to close the mouth of the trunk.

7. In combination with a combustion-chamber; a grate mounted therein; a hopper I extending downwardly from said grate; a chamber N connected to said hopper; a trunk O opening into said chamber; a sleeve P mounted within said chamber; a plunger working within said sleeve; an arm extending downwardly from said plunger; means for raising and lowering said arm and the plunger; levers pivoted to said arm and arranged to bear upon the under face of the sleeve; and means for withdrawing said levers from beneath said sleeve when the sleeve has reached such position as to close the mouth of the trunk O.

8. In combination with a combustion-chamber; a grate mounted therein; a chamber located below said grate communicating with the combustion-chamber; a trunk O opening into said chamber; a sleeve P mounted within said chamber; a plunger mounted within said sleeve; a bar R extending downwardly from said plunger; means for raising and lowering said bar; levers S pivoted to the bar and adapted to engage the lower edge of the sleeve; levers T pivotally mounted upon the lower end of the bar; links U connecting said levers; and means for acting upon the levers T when the sleeve has been elevated to such position as to close the mouth of the trunk.

691,329. BOX-COVERING MACHINE.

PHILIP S. SMITH, Brooklyn, N. Y., assignor of three-fourths to Harry B. Smith, Brooklyn, N. Y., J. Stogdell Stokes, Moorestown, N. J., and Winfield Scott Smith, Pawtucket, R. I. Filed July 23, 1901. Serial No. 69,378. (No model.)



Claim.—1. In a box-covering machine, the combination with means for supporting the box to be covered, of covering devices, means for imparting a relative movement between said supporting means and covering devices, and means for moving the covering devices out of operative position during a part of said relative movement between the supporting means and covering devices.

2. In a box-covering machine, the combination with means for supporting the box to be covered, of covering devices, means for causing said box-supporting means to move back and forth between the covering devices, and means for moving the covering devices out of the path of movement of the box-support during one stroke of the latter.

3. In a box-covering machine, the combination with means for supporting the box to be covered, of covering-rollers for pressing the covering material to the sides and ends of the box, means for imparting a relative movement between said box-support and covering-rollers, and means for moving the covering-rollers out of operative position during a part of said relative movement between the supporting means and covering-rollers.

4. In a box-covering machine, the combination with a vertically-reciprocating plunger adapted to support and carry the box to be covered, of covering devices, means for causing said plunger to move back and forth between the covering devices, and means for moving the covering devices out of the path of movement of the plunger during the upstroke of the latter.

5. In a box-covering machine, the combination with a vertically-reciprocating plunger adapted to support and carry the box to be covered, of covering-rollers, means for causing said plunger to move back and forth between said covering-rollers, and means for moving the covering-rollers out of the path of movement of the plunger during the upstroke of the latter.

6. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of pivotally-mounted covering-rollers, means for causing the plunger to travel between said rollers, and means for tilting the rollers out of the path of movement of the plunger during one stroke of the latter.

7. In a box-covering machine, the combination with a vertically-reciprocating plunger adapted to support and carry the box to be covered, of upwardly-tilting covering-rollers, means for causing the plunger to travel between said rollers, and means for causing said rollers to move up and out of the path of movement of the plunger during the return stroke of the latter.

8. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of two pairs of covering devices, means for causing the plunger to move between said covering devices, and means for simultaneously moving all of said covering devices out of the path of movement of the plunger during the upstroke of the latter.

9. In a box-covering machine, the combination with movable covering devices for folding the covering material up against the sides and ends of a box, of angle-levers operatively connected to said covering devices, and means for rocking said angle-levers whereby said covering devices are moved out of operative position.

10. In a box-covering machine, the combination with movable covering-rollers for folding the covering material up against the sides and ends of a box, of angle-levers operatively connected to said covering devices, and means for rocking said angle-levers whereby said covering-rollers are moved out of operative position.

11. In a box-covering machine, the combination with tilting covering devices, of angle-levers operatively connected to said covering devices, and means for rocking said angle-levers to move the covering devices out of operative position.

12. In a box-covering machine, the combination with covering devices, of pivoted supports therefor, and means operatively connected to said pivoted supports whereby they are tilted to move the covering devices out of operative position.

13. In a box-covering machine, the combination with covering-rollers, of pivoted supports therefor, and means operatively connected to said supports whereby they are tilted to move the covering-rollers out of operative position.

14. In a box-covering machine, the combination with covering devices, of movable supports therefor, and means operatively connected to said supports and acting to move them together with the covering devices, out of operative position.

15. In a box-covering machine, the combination with covering devices, of movable supports therefor, angle-levers operatively connected to said movable supports, and means for rocking said angle-levers whereby the supports are moved and the covering devices shifted out of operative position.

16. In a box-covering machine, the combination with covering devices, of pivoted supports therefor, angle-levers operatively connected to said pivoted supports, and means for rocking said angle-levers whereby the supports are tilted and the covering devices moved out of operative position.

17. In a box-covering machine, the combination with covering-rollers, of pivoted supports therefor, angle-levers operatively connected to said supports, and means for rocking said angle-levers whereby the supports are tilted and the covering-rollers moved out of operative position.

18. In a box-covering machine, the combination with a forked bracket, of a rod journaled therein, blocks fixed to the opposite ends of said rod, a covering device supported by said blocks, and means for rocking said rod whereby the covering device is moved out of operative position.

19. In a box-covering machine, the combination with a forked bracket, of a rod journaled therein, blocks fixed to the opposite ends of said rod, a covering device yieldingly mounted in said blocks, and means for rocking said rod whereby the covering device is moved out of operative position.

20. In a box-covering machine, the combination with an adjustable bracket, of a rod journaled therein, blocks fixed to the opposite ends of said rod, a covering device supported by said blocks, and means for rocking said rod whereby the covering device is moved out of operative position.

21. In a box-covering machine, the combination with means for supporting and carrying the box to be covered, of covering devices coöperating with said box supporting and carrying means and operating to affix the covering material to the sides and ends of the box, said covering devices including the end-turn-in wings, and edge-tuck-in fingers, and a rising and falling frame operatively connected to said edge-tuck-in fingers.

22. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of covering devices coöperating with the plunger and including end-turn-in wings and edge-tuck-in devices, and a rising and falling frame operatively connected to said edge-tuck-in devices.

23. In a box-covering machine, the combination with means for tucking the covering material over the edge of the box, of a vertically-reciprocatory frame located below and operatively connected to said edge-tucking means, and means for reciprocating said frame to positively advance and retract said edge-tucking means.

24. In a box-covering machine, the combination with a plurality of devices for tucking the covering material over the sides and ends of a box, of a rising and falling frame located below and operatively connected to said edge-tucking devices and operating to move said devices simultaneously, and means for moving said rising and falling frame to positively advance and retract said edge-tucking devices.

25. In a box-covering machine, the combination with means for tucking the covering material over the edge of the box, of a vertically-reciprocating frame having radial arms operatively connected to said edge-tucking means, and means for reciprocating said frame to actuate the edge-tucking means.

26. In a box-covering machine, the combination with means for tucking the covering material over the edge of the box, of a vertically-reciprocating frame located below and having a plurality of radial arms operatively connected to said edge-tucking means, and means for reciprocating said frame vertically to positively advance and retract said edge-tucking means.

27. In a box-covering machine, the combination with means for affixing the covering material to the sides and ends of the box, of means for tucking the covering material over the edge of the box, means acting upon the outside of the box to hold the sides and ends thereof square during the operation of the edge-tuck-in means, and means for imparting a pressure to all sides of the box after the tuck-in means have acted.

28. In a box-covering machine, the combination with means for affixing the covering material to the sides and ends of a box, and means for imparting a pressure to all sides of the box on the outside thereof after the cover-affixing means have acted.

29. In a box-covering machine, the combination with means for affixing the covering material to the sides and ends of a box, means for imparting a pressure to all sides of the lower portion of the box during the operation of the cover-affixing means, means for folding in the covering material over the edge of the box, and means for imparting a second pressure to all sides of the upper part of the box to affix the folded-in portion of the covering material to the interior of the box.

30. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of means for affixing the covering material to the sides and ends of the box, means for tucking the covering material over the edge of the box, devices acting upon the outside of box to hold the sides and ends of the latter square during the operation of the tuck-in means, and mechanism for moving said holding devices to cause them to impart a pressure to the outside of the box.

31. In a box-covering machine, the combination with means for affixing the covering material to the sides and ends of the box, of means for tucking the covering material over the edge of the box, means acting upon the outside of the box to hold the sides and ends thereof square during the operation of the tuck-in means, and mechanism for moving said holding means away from the box after the tuck-in means have acted.

32. In a box-covering machine, the combination with means for affixing the covering material to the sides and ends of the box, of means for tucking the covering material over the edge of the box, and means movable to and from the path of movement of the box operating to impart a pressure to the outer sides of the box after the tuck-in means have acted.

33. In a box-covering machine, the combination with means for supporting the box to be covered, of covering devices, means for causing said box-supporting means to move back and forth between the covering de-

vices, means for moving the covering devices out of the path of movement of the box-support during one stroke of the latter, and means for returning said covering devices to their operative position.

34. In a box-covering machine, the combination with a vertically-reciprocating plunger adapted to support the box to be covered, of upwardly-tilting covering-rollers, means for causing the plunger to travel between said rollers, means for causing said rollers to move up and out of the path of movement of the plunger during the return stroke of the latter, and means for positively moving said rollers down into their operative position.

35. In a box-covering machine, the combination with covering-rollers, of pivoted supports therefor, means operatively connected to said supports whereby they are tilted to move the covering-rollers out of operative position, and springs arranged to return said covering-rollers to their operative position.

36. In a box-covering machine, the combination with an adjustable bracket, of a rod journaled therein, blocks fixed to the opposite ends of said rod, a covering-roller supported by said blocks, means for rocking said rod in one direction to move the covering-roller out of operative position, and a coiled spring for rocking said rod in the opposite direction to return the covering-roller to operative position.

37. In a box-covering machine, the combination with means for affixing the covering material to the sides and ends of the box, means for imparting a pressure to all sides of the box after the covering material has been affixed thereto, means for folding the edge of the covering material over the edge and down the inside of the box, and means for imparting a second and final pressure to the upper portion of all sides of the box after the covering material has been folded down into the interior thereof, for the purpose specified.

38. In a box-covering machine, the combination with movable covering devices for folding the covering material up against the sides and ends of the box, of angle-levers operatively connected to said covering devices, loops attached to said angle-levers, a rising and falling frame, laterally-projecting arms carried by said frame and loosely engaging said loops to rock said angle-levers and move the covering devices out of operative position, substantially as described.

39. In a box-covering machine, the combination with movable covering devices for folding the covering material up against the sides and ends of the box, of angle-levers operatively connected to said covering devices, loops adjustably attached to said angle-levers, a rising and falling frame, and laterally-projecting arms carried by said frame and loosely engaging said loops to rock said angle-levers and move the covering devices out of operative position, substantially as described.

40. In a box-covering machine, the combination with movable covering devices for folding the covering material up against the sides and ends of the box, of angle-levers operatively connected to said covering devices, loops provided with vertical slotted shanks, bolts carried by the angle-levers and passing through the slotted shanks of the loops, a rising and falling frame, and laterally-projecting arms carried by said frame and loosely engaging said loops to rock the angle-levers and move the covering devices out of operative position, substantially as described.

41. In a box-covering machine, the combination with movable covering devices for folding the covering material up against the sides and ends of the box, of angle-levers, links loosely connected to said angle-levers and pivotally connected to said covering devices, loops adjustably attached to said angle-levers, a rising and falling frame, and laterally-projecting arms carried by said frame and loosely engaging said loops to rock said angle-levers and move the covering devices out of operative position.

42. In a box-covering machine, the combination with movable covering devices for folding the covering material up against the sides and ends of the box, of angle-levers, links pivotally connected to the covering devices and loosely connected to the angle-levers by a pin-and-slot connection, and means for rocking the angle-levers to move the covering devices out of operative position.

43. In a box-covering machine, the combination with movable covering devices for folding the covering material up against the sides and ends of the box, of angle-levers, links pivotally connected to the covering devices and loosely connected to the angle-levers by a pin-and-slot connection, means for rocking the angle-levers to move the covering devices out of operative position, and springs for returning the covering devices to operative position.

44. In a box-covering machine, the combination with means for supporting the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the box-support between the covering devices, means for folding the covering material over the edges of the box after it has passed through the covering devices, means for imparting a pressure to all sides of the box during the operation of the edge-folding means, means for moving the covering devices out of operative position during the return movement of the box-support, and means for stripping the covered box from said support.

45. In a box-covering machine, the combination with means for supporting the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the box-support between the covering devices, means for folding the covering material over the edges of the box after it has passed through the covering devices, means for imparting a pressure to all sides of the box during the operation of the edge-folding means, and means for stripping the covered box from said support.

46. In a box-covering machine, the combination with means for supporting the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the box-support between the covering devices, means for folding the covering material over the edges of the box after it has passed through the covering devices, means for imparting a pressure to all sides of the box during the operation of the edge-folding means, means for folding down the covering material on the inside of the box, means for imparting a second pressure to all sides of the box after the folding-down means have acted, and stripper mechanism for stripping the covered box from the said support.

47. In a box-covering machine, the combination with means for supporting the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the box-support between the covering devices, means for folding the covering material over the edges of the box after it has passed through the covering devices, means for imparting a pressure to all sides of the box during the operation of the edge-folding means, means for folding down the covering material on the inside of the box, means for imparting a second pressure to all sides of the box after the folding-down means have acted, means for moving the covering devices out of operative position during the return movement of the box-support, and means for stripping the covered box from said support.

48. In a box-covering machine, the combination with means for supporting the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the box-support between the covering devices, means for folding the covering material over the edges of the box after it has passed through the covering devices, means for imparting a pressure to all sides of the box during the operation of the edge-folding means, means for folding down the covering material on the inside of the box, means for imparting a second pressure to all sides of the box after the folding-down means have acted, means for moving the covering device out of operative position during the return movement of the support, and means for returning the covering devices to operative position.

49. In a box-covering machine, the combination with a vertically-movable two-part plunger adapted to support the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the plungers between the covering devices, means for arresting the movement of the upper part of the plunger, means for tucking in the covering material between the two parts of the plunger and over the edge of the box, and means for forcing down the upper part of the plunger into the box to fold down the covering material into the inside of the box after the tuck-in devices have been retracted, substantially as described.

50. In a box-covering machine, the combination with a vertically-movable two-part plunger adapted to support the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the plunger between the covering devices, means for arresting the movement of the upper part of the plunger during the descent of the lower part of the plunger and box to separate the two parts of the plunger and lower the box from off the upper part of the plunger, means for tucking in the covering material between the two parts of the plunger and over the edge of the box, and means for arresting the movement of the lower part of the plunger and forcing down the upper part of the plunger into the box to fold down the covering material into the inside of the box after the tuck-in devices have been retracted.

51. In a box-covering machine, the combination with a vertically-movable two-part plunger adapted to support the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the plunger between the covering devices, means for arresting the movement of the upper part of the plunger during the descent of the lower part thereof to separate the two parts of the plunger and lower the box from off the upper part of the plunger, means for tucking in the covering material between the two parts of the plunger and over the edge of the box, means for imparting a pressure to all sides of the box during the operation of the tuck-in devices, means for forcing down the upper part of the plunger into the box to fold down the covering material into the inside of the box, and means for imparting a second pressure to all sides of the box after the covering material has been folded down therein.

52. In a box-covering machine, the combination with a vertically-movable two-part plunger adapted to support the box to be covered, of covering devices for affixing the covering material to the sides and ends

of the box, means for moving the plunger between the covering devices, means for separating the two parts of the plunger, means for tacking in the covering material between the two parts of the plunger, means for imparting a pressure to all sides of the box about the lower part of the plunger, means for forcing down the upper part of the plunger into the box to fold down the covering material into the inside of the box, and means for imparting a second pressure to all sides of the box about the upper part of the plunger.

53. In a box-covering machine, the combination with a vertically-movable two-part plunger adapted to support the box to be covered, of covering devices for affixing the covering material to the sides and ends of the box, means for moving the plunger between the covering devices, means for arresting the movement of the upper part of the plunger during the descent of the lower part thereof to separate the two parts of the plunger and to lower the box from off the upper part of the plunger, means for tacking in the covering material between the two parts of the plunger and over the edge of the box, means for imparting a pressure to all sides of the box about the lower part of the plunger during the operation of the tack-in devices, means for forcing down the upper part of the plunger into the box to fold down the covering material into the inside of the box, means for moving down both parts of the plunger to bring the upper part thereof between the pressing device, and means for imparting a second pressure on all sides of the box about the upper part of the plunger.

54. In a box-covering machine, the combination with a vertically-movable plunger adapted to support the box to be covered, of a vertically-yielding platen arranged beneath the plunger, covering devices for affixing the covering material to the sides and ends of the box, and means for moving the plunger down onto the platen at a relatively rapid rate of speed and for then moving the plunger and platen down between the covering devices at a slower rate of speed.

55. In a box-covering machine, the combination with a vertically-movable plunger adapted to support the box to be covered, of a vertically-yielding platen arranged beneath the plunger, covering devices for affixing the covering material to the sides and ends of the box, a pivoted lever connected with and arranged to reciprocate the plunger, a friction-roller carried by the lever, a cam provided with a cam-groove engaged by said friction-roller, said cam-groove having a double inclined portion, one portion being more abruptly inclined than the other, whereby the plunger is moved down onto the platen at a relatively rapid rate and then between the covering devices at a slower rate.

56. In a box-covering machine, the combination with a movable box-support and covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices each consisting of an arm provided with a loop or eye at one end, a flat bar attached intermediate its ends to the other end of the arm, a rocking lever for actuating said arm and means for oscillating said rocking lever, the loop or eye on the said arm being removably fitted over the free end of the rocking lever.

57. In a box-covering machine, the combination with a movable box-support and covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tacking in the covering material over the edge of the box, said tuck-in devices comprising arms each provided with a loop or eye at one end, flat bars attached to said arms, angle-levers on which said loops or eyes are removably fitted, and means for oscillating said angle-levers to simultaneously move said bars inward toward one another.

58. In a box-covering machine, the combination with a movable box-support and covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tacking in the covering material over the edge of the box, said tuck-in devices consisting of flat bars having attached arms provided with loops or eyes, rocking levers on which said loops or eyes are removably and adjustably fitted, means for holding the loops or eyes in their adjusted positions, and means for oscillating said rocking levers.

59. In a box-covering machine, the combination with a movable box support and covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tacking in the covering material over the edge of the box, said tuck-in devices consisting of flat bars having attached arms provided at their ends with angular loops or eyes, rocking levers angular in cross-section on which said loops or eyes are fitted, and means for oscillating said rocking levers.

60. In a box-covering machine, the combination with a reciprocating plunger adapted to support the box to be covered, of covering devices between which said plunger moves for affixing the covering material to the sides and ends of the box, and brushes arranged to engage the sides of the plunger and clean the latter.

61. In a box-covering machine, the combination with means for supporting and carrying the box to be covered, of covering devices between which said box-support moves for affixing the covering material to the sides and ends of the box, and brushes arranged to engage the sides of the box-support as the latter is retracted and clean the same.

62. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of covering devices between which the plunger moves to affix the covering material to the sides and ends of the box, and brushes constructed to engage the plunger as it is withdrawn from the box and clean its sides.

63. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of covering devices between which the plunger moves to affix the covering material to the sides and ends of the box, brushes adapted to engage the sides of the plunger to clean the latter, and means for moving said brushes into contact with the plunger as the latter is withdrawn from the box.

64. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of covering devices between which the plunger moves to affix the covering material to the sides and ends of the box, brushes adapted to engage the sides of the plunger to clean the latter, strippers arranged to engage the box and hold the latter stationary as the plunger is retracted to withdraw the plunger from the box and means for moving said brushes and strippers into operative position as the plunger approaches the end of its retractile movement.

65. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of covering devices between which the plunger moves to affix the covering material to the sides and ends of the box, brushes adapted to engage the sides of the plunger to clean the latter as it is withdrawn from the box, and strippers actuated by the brushes and arranged to engage the upper edge of the box and hold the latter as the plunger is withdrawn.

66. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of covering devices between which said plunger moves to affix the covering material to the sides and ends of the box, brushes arranged to engage the sides of the plunger to clean the latter as it is withdrawn from the box, and strippers carried by the brushes and arranged to engage the upper edge of the box and hold the latter stationary as the plunger is withdrawn.

67. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of covering devices between which said plunger moves to affix the covering material to the sides and ends of the box, brushes arranged to engage the sides of the plunger and clean the latter as it is withdrawn from the box, and laterally-adjustable strippers carried by the lower edges of the brushes and arranged to engage the edge of the box and hold the latter stationary as the plunger is withdrawn.

68. In a box-covering machine, the combination with a reciprocating plunger adapted to support and carry the box to be covered, of covering devices between which said plunger moves to affix the covering material to the sides and ends of the box, brushes arranged to engage the sides of the plunger and clean the latter as it is withdrawn from the box, and strippers consisting of metallic blades transversely slotted and adjustably secured to the lower edges of the backs of the brushes by screws passing through said slots.

69. In a box-covering machine, the combination with a movable support for supporting and carrying the box to be covered and covering devices for affixing the covering material to the sides and ends of the box, of cleaning devices arranged to engage the sides of the box-support and clean the latter as it is withdrawn from the box.

70. In a box-covering machine, the combination with a movable support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of cleaning devices arranged to engage the sides of the box-support and clean the latter, an oscillating lever, intermediate connections connecting said lever and cleaning devices, and means for oscillating said lever to cause the cleaning devices to engage the box-support as it is withdrawn from the box.

71. In a box-covering machine, the combination with a movable support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of cleaning devices arranged to engage the sides of the box-support and clean the latter, strippers carried by the cleaning devices and arranged to engage the edge of the box and hold it stationary as the box-support is withdrawn therefrom, an oscillating lever, intermediate connections connecting said lever and cleaning devices, and means for oscillating said lever to cause the cleaning devices to engage the sides of the box-support and the strippers to engage the box and hold the latter stationary as the box-support is withdrawn therefrom.

72. In a box-covering machine, the combination with a movable support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of cleaning devices arranged to engage the sides of the box-support and clean the latter, a pivoted lever, intermediate connections connecting said lever and cleaning devices, a friction-roller on the lever, and a cam en-

gaging said lever and operating to cause the cleaning devices to engage the sides of the box-support as the latter is withdrawn from the box.

73. In a box-covering machine, the combination with a movable support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of cleaning devices arranged to engage the sides of the box-support, strippers carried by the cleaning devices and arranged to engage the edge of the box, a pivoted lever, intermediate connections connecting said lever and cleaning devices, a friction-roller on the lever, and a cam engaging said friction-roller and operating to cause the cleaning devices to engage the sides of the box-support and the strippers to engage the edge of the box and hold the latter stationary as the box-support is withdrawn therefrom.

74. In a box-covering machine, the combination with a movable box-support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of cleaning devices arranged to engage and clean the sides of the box-support as the latter is withdrawn from the box, and means for adjusting said cleaning devices toward and from one another to operate on box supports of different sizes.

75. In a box-covering machine, the combination with a movable box-support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of cleaning devices arranged to engage and clean the sides of the box-support, strippers carried by said cleaning devices, means for causing said cleaning devices to engage the sides of the box-support and the strippers to engage the edge of the box and hold the latter stationary as the box-support is withdrawn therefrom, and means for simultaneously adjusting said cleaning devices and strippers respectively toward one another to operate on box-supports and boxes of different sizes.

76. In a box-covering machine, the combination with a movable box-support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of a movable yoke arranged above the box-support and provided with four laterally-projecting arms disposed at right angles to one another, cleaning devices adjustable on said arms toward and from one another to engage and clean the sides of different-sized box-supports, movable rods connected to and carrying said yoke, and an oscillating lever for reciprocating said rods to cause the cleaning devices to engage and clean the sides of the box-support as the latter is withdrawn from the box.

77. In a box-covering machine, the combination with a movable box-support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of a movable yoke arranged above the box-support and provided with four laterally-projecting arms disposed at right angles to one another, cleaning devices adjustable on said arms in the direction in which the box-support moves to enable said cleaning devices to engage and clean the sides of box-supports of different sizes, movable rods connected to and carrying said yoke, and an oscillating lever for reciprocating said rods to cause the cleaning devices to engage and clean the sides of the box-support as the latter is withdrawn from the box.

78. In a box-covering machine, the combination with a movable box-support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of a movable yoke arranged above the box-support and provided with four laterally-projecting arms disposed at right angles to one another, cleaning devices adjustable on said arms toward and from one another, strippers carried by said cleaning devices, movable rods connected to and carrying said yoke, and an oscillating lever for reciprocating said rods to cause the strippers to engage and hold the box stationary and the cleaning devices to engage and clean the sides of the box-support as the latter is withdrawn from the box.

79. In a box-covering machine, the combination with a movable box-support for supporting and carrying the box to be covered, and covering devices for affixing the covering material to the sides and ends of the box, of a movable yoke arranged above the box-support and provided with four laterally-projecting arms arranged at right angles to one another, cleaning devices adjustable on said arms toward and from one another and in the direction in which said box-support moves, strippers carried by said cleaning devices, movable rods connected to and carrying said yoke, and an oscillating lever for reciprocating said rods to cause the strippers to engage and hold the box stationary and the cleaning devices to engage and clean the sides of the box-support as the latter is withdrawn from the box.

80. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edges of the box, and presser-blocks arranged to simultaneously engage the sides and ends of the box and impart a yielding pressure thereto.

81. In a box-covering machine, the combination with a movable box-support and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged to simultaneously engage the sides and ends of the box and impart a yielding pressure thereto, edge-tuck-in devices for tucking in the covering material over the edges of the box, and means operating to first move the presser devices into contact with the box and while said presser devices are so held to actuate the edge-tuck-in devices.

82. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged to simultaneously engage the sides and ends of the box and impart a pressure thereto, rocking levers, edge-tuck-in devices carried on the free ends of said levers and operating to tuck in the covering material over the edges of the box, and yielding connections between said presser devices and rocking levers, whereby said levers first operate to move the presser devices into contact with the box and the yielding connections yield to permit the levers to actuate the tuck-in devices to tuck in the covering material while the box is under pressure.

83. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on all four sides of the path of movement of the box-support, means for simultaneously moving said presser devices toward each other to press the box on all sides, and means for retracting the presser devices.

84. In a box-covering machine, the combination with a movable box-support and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on all four sides of the path of movement of the box-support, rocking levers for simultaneously moving said presser devices toward each other to press the box on all sides, and springs arranged to retract the presser devices after the rocking levers have acted.

85. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on all four sides of the path of movement of the box-support, means for moving said presser devices toward each other to press the box on all sides, and means for retracting said presser devices and holding them in their retracted positions while the box is withdrawn from between them.

86. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on all four sides of the path of movement of the box-support, rocking levers for moving said presser devices toward each other to press the box on all sides, means for retracting the presser devices, and auxiliary means actuated by the reverse movement of the rocking levers for causing the presser devices to advance and impart a second pressure to the box.

87. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on all four sides of the path of movement of the box-support, rocking levers for moving said presser devices toward each other to press the box on all sides, springs for retracting the presser devices, and cam mechanism actuated by the reverse movement of the rocking levers for causing the presser devices to advance and impart a second pressure to the box.

88. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on all four sides of the path of movement of the box-support and each comprising a laterally-movable bar, a presser-block carried by said bar, and a rocking lever arranged to press the bar toward the side of the box.

89. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a laterally-movable bar, a presser-block carried by said bar, means for adjusting the presser-block on the bar, and a rocking lever arranged to press the bar toward the side of the box.

90. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a laterally-movable longitudinally-slotted bar, a presser-block fitted in the groove in said bar, adjusting-screws for projecting the presser-block from out of said groove, and a rocking lever arranged to press the bar toward the side of the box.

91. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a laterally-movable longitudinally-slotted bar, a presser-block fitted in the groove in

said bar and provided on its inner edge with a wear-plate, adjusting-screws carried by said bar and bearing against the wear-plate to project the presser-block from out said groove, and a rocking lever arranged to press the bar toward the side of the box.

92. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on the opposite sides of the path of movement of the box-support and each comprising a laterally-movable bar, a presser-block carried by said bar, an oscillating lever, and a yielding pushing device interposed between said bar and rocking lever whereby the latter operates to force the presser-block against the side of the box with a yielding pressure.

93. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on the opposite sides of the path of movement of the box-support and each comprising a laterally-movable bar, a presser-block carried by said bar, an oscillating lever, a yielding pushing device interposed between said bar and lever whereby the latter operates to force the presser-block against the side of the box with a yielding pressure, and springs arranged to retract the presser-block on the reverse movement of the rocking lever.

94. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on the opposite sides of the path of movement of the box-support and each comprising a laterally-movable bar, a presser-block carried by said bar, an oscillating lever, a yielding pushing device interposed between said bar and rocking lever, and an edge-tuck-in device carried by the free end of said lever, the arrangement being such that the rocking lever first operates to force the presser-block against the box and the pushing device then yields to permit the edge-tuck-in device to tuck the covering material over the edge of the box.

95. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on the opposite sides of the path of movement of the box-support and each comprising a laterally-movable bar, a presser-block carried by said bar, an oscillating lever, a yielding pushing device interposed between said bar and rocking lever, an edge-tuck-in device carried by the free end of the rocking lever and operating to tuck in the covering material over the edge of the box after the presser-block has been pressed thereagainst, and springs arranged to retract the presser-block on the reverse movement of the rocking lever.

96. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on the opposite sides of the path of movement of the box-support and each comprising a laterally-movable bar, a presser-block carried by the bar, an oscillating lever, a yielding pushing device interposed between said bar and a part of the rocking lever between its free end and its fulcrum, an edge-tuck-in device carried by the free end of the lever and operating to tuck in the covering material over the edge of the box, and means for oscillating the rocking lever whereby the latter first moves the presser-block against the side of the box and the pushing device then yields to permit the edge-tuck-in device to act.

97. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, a bolt arranged in a bearing on the bracket, a spring arranged behind said bolt, and a rocking lever arranged to compress said spring and force the bolt against the bar and thereby press the presser-block against the side of the box.

98. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, a bolt arranged in a bearing on the bracket, a spring arranged behind said bolt, a rocking lever arranged to compress said spring and force the bolt against the bar to press the presser-block against the side of the box, and an edge-tuck-in device carried by the free end of the rocking lever to tuck in the covering material over the edge of the box.

99. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, a bolt arranged in a bearing on the bracket, a spring arranged behind said bolt, a push-pin arranged in the bearing behind said spring, and a rocking lever arranged to engage the push-pin and compress the spring whereby the presser-block is forced against the side of the box with a yielding pressure.

100. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, a bolt arranged in a bearing on the bracket and provided with a rearwardly-projecting stem, a push-pin arranged in said bearing behind the bolt and provided at its inner end with a socket in which said stem is movably fitted, a coiled spring disposed about the stem between the bolt and push-pin, and a rocking lever arranged to engage the push-pin and compress the spring whereby the presser-block is forced against the side of the box with a yielding pressure.

101. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on the opposite sides of the path of movement of the box-support and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, a rocking lever, a yielding pushing device interposed between said bar and lever, an edge-tuck-in device arranged on the free end of the rocking lever, a cam projection on the rear edge of the said bar, a rocking cam disposed opposite the cam projection, and means for rocking the cam against the cam projection on the reverse movement of the rocking lever, whereby the rocking lever first operates to press the presser-block against the side of the box and then advances the edge-tuck-in device to tuck in the covering material over the edge of the box, and as the edge-tuck-in device is retracted by the reverse movement of the rocking lever the cam operates to advance the presser-block and impart a second pressure to the box.

102. In a box-covering machine the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, a rocking lever, a yielding pushing device interposed between said bar and lever, an edge-tuck-in device carried by the free end of the latter, a cam projection on the rear edge of the said bar, a rock-shaft disposed opposite the cam projection, a cam fixed on the rock-shaft in position to engage the cam projection and move the presser-block forward, means for retracting the presser-block, and means actuated by the reverse movement of the rocking lever for oscillating said rock-shaft to impart a second pressure to the box.

103. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged to press all sides of the box and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, a rocking lever, a yielding pushing device interposed between said bar and lever, an edge-tuck-in device carried by the free end of the lever, springs arranged to retract the presser-block on the reverse movement of the rocking lever, a cam projection on the rear edge of the said bar, a rock-shaft disposed opposite the cam projection, a cam fixed on the rock-shaft in position to engage the cam projection and move the presser-block forward, and means actuated by the reverse movement of the rocking lever for oscillating said rock-shaft to impart a second pressure to the box.

104. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged to press all sides of the box and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, an angle-lever, a yielding pushing device interposed between said bar and one end of the lever, an edge-tuck-in device fitted on the said end of the lever, a link connected to the other end of said lever, springs for retracting the presser-block on the reverse movement of the lever, a cam projection on the rear edge of the said bar, a rock-shaft journaled in the bracket opposite the cam projection, a cam fixed on the rock-shaft in position to engage the cam projection, and a crank-arm fixed on the rock-shaft and pivotally connected to the said link.

105. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket having rearwardly-projecting bracket-arms, rods longitudinally movable in said bracket and bracket-arms, a bar carried by the forward ends of said rods, a presser-block carried by the bar, a rocking lever arranged to force the bar forward to press the presser-block against the side of the box, and coiled springs disposed on the said rods and operating to retract the latter and the presser-block on the reverse movement of the rocking lever.

106. In a box-covering machine, the combination with a vertically-movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of stationary hangers arranged on all sides of the path of movement of the box-support, presser devices and edge-tuck-in devices supported by each of said hangers, and means for adjusting the hangers toward and from each other whereby the presser devices and edge-tuck-in devices are simultaneously adjusted to operate on boxes of different sizes.

107. In a box-covering machine, the combination with a vertically-movable box-support, of stationary hangers arranged on all sides of the path of movement of the box-support, covering devices for affixing the covering material to the sides and ends of the box, presser devices for imparting a pressure to all sides of the box, and edge-tuck-in devices for tucking in the covering material over the edge of the box, all of said devices being supported by the said hangers, and means for adjusting said hangers toward and from each other whereby the several said devices are simultaneously adjusted to operate upon boxes of different sizes.

108. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a shaft carried by said yoke, blocks fixed on the ends of said shaft, bearings carried by said blocks, and a covering-roller journaled in said bearings.

109. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a shaft carried by said yoke, blocks fixed on the ends of said shaft, yielding bearings carried by said blocks, and a covering-roller journaled in the yielding bearings.

110. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a shaft carried by said yoke, blocks fixed on the ends of the shaft and provided at their outer ends with perforated lugs, rods movably arranged in the perforated lugs and each provided at its inner end with a bearing, a covering-roller journaled in said bearing, and coiled springs disposed about said rods and operating to press the covering-roller toward the path of movement of the box-support.

111. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a shaft carried by said yoke, blocks fixed on the ends of the shaft, yielding bearings carried by said blocks, a covering-roller journaled in the bearings, and means for locking said blocks to the yoke to prevent the roller from tilting.

112. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a shaft carried by said yoke, blocks fixed on the ends of the shaft, yielding bearings carried by the blocks, a covering-roller journaled in the bearings, and sliding bolts movably fitted in the ends of the yoke and adapted to engage recesses in the blocks and prevent the covering-rollers from tilting.

113. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a rock-shaft journaled in the ends of the yoke, blocks fixed on the end of the shaft, yielding bearings carried by the blocks, a covering-roller journaled in said bearings, and means for rocking said shaft to tilt the roller up and away from the path of movement of the box-support.

114. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a rock-shaft journaled in the ends of the yoke, blocks fixed on the ends of the shaft, yielding bearings carried by the blocks, a covering-roller journaled in said bearings, means for positively rocking said shaft in one direction to tilt the roller up and away from the path of movement of the box-support, and independent means for rocking the shaft in the reverse direction to return the roller to operative position.

115. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a rock-shaft journaled in the ends of the yoke, blocks fixed on the ends of the shaft, yielding bearings carried by the blocks, a covering-roller journaled in the said bearings, means for positively rocking said shaft in one direction to tilt the roller up and away from the path of movement of the box-support, and a coiled spring disposed about the rock-shaft and operating to rock said shaft in a reverse direction to return the covering-roller to operative position.

116. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a stationary yoke, a rock-shaft journaled in the ends of the yoke, blocks fixed on the ends of the shaft, yielding bearings carried by the blocks, a covering-roller journaled in said bearings, a crank-arm on the rock-shaft, an oscillating lever, a link connecting one end of said lever to the crank-arm for rocking the rock-shaft in one direction to tilt the covering-roller up and out of operative position, and a spring for rocking said shaft in the opposite direction to return the covering-roller to operative position.

117. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, each of said covering devices comprising a support, a yoke carried by the support, a tilting covering-roller carried by the yoke, means for tilting the covering-roller up and out of operative position, means for returning it to operative position, and means for adjusting the support toward and from the path of movement of the box-support to accommodate the covering-roller to boxes of different sizes.

118. In a box-covering machine, the combination with a reciprocating box-support, of covering devices for affixing the covering material to the sides and ends of the box, a support for each covering device, and a guard-strip disposed over each covering device and hinged to the said support.

119. In a box-covering machine, the combination with a vertically-reciprocating box-support, of covering devices between which the box-support moves to affix the covering material to the sides and ends of the box, a yielding platen arranged in the path of movement of the box-support, and a strap and weight for holding said platen elevated and permit it to descend under the pressure of the box-support.

120. In a box-covering machine, the combination with a vertically-reciprocating box-support, of covering devices between which the box-support moves to affix the covering material to the sides and ends of the box, a yielding platen arranged in the path of movement of the box-support and comprising a vertically-movable standard carrying a flat plate at its upper end, a strap attached at one end to the lower portion of the standard and passing over an elevated pulley a weight attached to the other end of the strap and operating in connection with the strap to normally hold the platen elevated, and a stop on the standard arranged to engage a fixed support and limit the upward movement of the platen.

121. In a box-covering machine, the combination with a vertically-reciprocating box-support, of covering devices between which the box-support moves to affix the covering material to the sides and ends of the box, a yielding platen arranged in the path of movement of the box-support and comprising a vertically-movable standard carrying a flat plate at its upper end, a strap attached at one end to the lower portion of the standard and passing over an elevated pulley, a weight attached to the other end of the strap and operating in connection with the strap to normally hold the platen elevated, a disk fixed on the lower end of the standard, and a cushion carried by said disk and arranged to engage a fixture to limit and cushion the upward movement of the platen.

122. In a box-covering machine, the combination with a vertically-reciprocating box-support, of two sets of covering devices between which the box-support moves to affix the covering material to the sides and ends of the box, said sets of covering devices being arranged in different horizontal planes, and means arranged between said sets of covering devices in proximity to the path of movement of the box-support for engaging and supporting the end flaps of the covering material and guiding them into engagement with the covering devices.

123. In a box-covering machine, the combination with a vertically-reciprocating box-support, of two sets of covering devices between which the box-support moves to affix the covering material to the sides and ends of the box, said sets of covering devices being disposed in different horizontal planes, and horizontal guide-strips arranged between said sets of covering devices in proximity to the path of movement of the box-support for engaging and supporting the side edges of the covering material and guiding their lower sides into engagement with the covering devices.

124. In a box-covering machine, the combination with a vertically-reciprocating box-support, of two sets of covering devices between which the box-support moves to affix the covering material to the sides and ends of the box, said sets of covering devices being disposed in different horizontal planes, horizontal guide-strips arranged between said sets of covering devices for engaging and supporting the side edges of the covering material and guiding their lower sides into engagement with the covering devices, and means for adjusting said guide-strips toward and from the path of movement of the box-support to operate upon boxes of different sizes.

125. In a box-covering machine, the combination with a vertically-reciprocating box-support, and two sets of covering devices between which the box-support moves for successively affixing the covering material to the sides and ends of the box, of end-turn-in devices for turning in the ends of the side flaps of the covering material against the ends of the box, each of said end-turn-in devices comprising a laterally-movable bar, two

blocks mounted and longitudinally adjustable on said bar, vertically-adjustable wings or wipers carried by said bar, and means for moving the bars toward each other to cause the wings or wipers to fold the ends of the side flaps against the ends of the box.

126. In a box-covering machine, the combination with a vertically-reciprocating box support, and two sets of covering devices for successively affixing the covering material to the sides and ends of the box, of end-turn-in devices for turning in the ends of the side flaps of the covering material against the ends of the box, each of said end-turn-in devices comprising a laterally-movable bar, two blocks adjustably mounted on said bar, a rod mounted and transversely adjustable in each of said blocks, vertically-adjustable wings or wipers carried by the inner ends of said rods, and means for moving the bars toward one another to cause the wings or wipers to fold the ends of the side flaps against the ends of the box.

127. In a box-covering machine, the combination with a vertically-reciprocating box-support, and two sets of covering devices for successively affixing the covering material to the sides and ends of the box, of end-turn-in devices for turning in the ends of the side flaps of the covering material against the ends of the box, each of said end-turn-in devices comprising a laterally-movable bar, two blocks longitudinally adjustable on the bar, set-screws carried by the blocks for holding them in their adjusted positions, rods mounted in and adjustable transversely relative to said blocks, set-screws carried by the blocks for holding the rods in their adjusted positions, vertical wings or wipers carried by the inner ends of said rods, and means for moving the said bars toward one another to cause the wings or wipers to fold the ends of the side flaps against the ends of the box.

128. In a box-covering machine, the combination with a vertically-reciprocating box-support, and two sets of covering devices for successively affixing the covering material to the sides and ends of the box, of end-turn-in devices for turning in the ends of the side flaps of the covering material against the ends of the box, each of said end-turn-in devices comprising a laterally-movable bar, two blocks longitudinally adjustable on said bar, a rod longitudinally adjustable transversely in each of said blocks, a vertically-disposed approximately flat blade having a depending vertically-slotted extension adjustably mounted on the inner end of each of said rods by a set-screw carried by the rod and passing through said slotted extension, and means for moving the said bars toward each other to cause the blades to fold the ends of the side flaps against the ends of the box.

129. In a box-covering machine, the combination with a vertically-reciprocating box-support, and two sets of covering devices for successively affixing the covering material to the sides and ends of the box, of two pairs of end-turn-in devices for turning in the ends of the side flaps of the covering material against the ends of the box, means for adjusting said end-turn-in devices toward and from the path of movement of the box-support, means for adjusting said devices in the direction of movement of said support, means for moving said pairs of end-turn-in devices toward each other while the box is held stationary to turn in the ends of the flaps, and means for moving the box from between said end-turn-in devices while the latter are in engagement with the ends of the box.

130. In a box-covering machine, the combination with mechanism for affixing the covering material to the box, of an ejector arranged to automatically eject the box from the machine after the box has been covered, and means for throwing the ejecting mechanism out of operation at will.

131. In a box-covering machine, the combination with a reciprocating box-support, of a rotary shaft having a connection with said support for reciprocating the same, covering devices for affixing the covering material to the box, an ejector disposed to one side of the path of travel of the box-support and arranged to eject the box laterally from the machine after the covering devices have acted on the box, and means controlled by said rotary shaft for actuating said ejector.

132. In a box-covering machine, the combination with box-covering mechanism, of a rotary shaft constituting a part of the operating mechanism of the machine, and an ejector for ejecting the covered box, said ejector comprising an ejector-rod movable endwise in suitable bearings, a compressible spring for thrusting said rod against one side of the box, means operated by said rotary shaft for compressing said spring, means for holding the ejector-rod against the tension of the spring, and means for releasing the rod to permit the spring to thrust it against the box to eject the latter from the machine.

133. In a box-covering machine, the combination with the box-covering mechanism, of a rotary shaft, and an ejector for ejecting the covered box, said ejector comprising an ejector-rod movable endwise in suitable bearings, a compressible spring for forcing said rod against one side of the box, means operated by said shaft for compressing said spring, means for holding the ejector-rod against the tension of the spring, and means operating, after the covering mechanism has ceased to act, to release the ejector-rod and permit the spring to thrust said rod against the side of the box and eject the latter from the machine.

134. In a box-covering machine, the combination with box-covering mechanism, of a rotary shaft, and an ejector for ejecting the covered box, said ejector comprising an ejector-rod movable endwise in suitable bearings, a compressible spring for forcing said rod against one side of the box, means for holding the rod against the tension of the spring, operated by said shaft, operating, after the covering mechanism has ceased to act, to release the ejector-rod and permit the spring to thrust said rod against the side of the machine, and means for automatically restoring the parts of the ejector to their original position.

135. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the box from the machine after the covering mechanism has acted, said ejector comprising a frame, an ejector-rod lengthwise movable in said frame, a spring for thrusting said rod forward, means for placing said spring under tension, a trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a cam arranged to engage said trigger and release the ejector-rod, and means for automatically advancing said cam into engagement with the trigger to release the ejector-rod and permit the spring to thrust said rod forward and eject the box.

136. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in said frame, a spring for forcing said rod forward, a trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a cam arranged to engage said trigger and release the ejector-rod, and means arranged to first place the spring under tension and then move the cam into engagement with the trigger and release the ejector-rod after the covering devices have acted.

137. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a spring for thrusting said rod forward, a trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a cam arranged to engage the trigger and release the ejector-rod, means arranged to first place the spring under tension and then move the cam into engagement with the trigger and release the ejector-rod after the covering devices have acted, and means for adjusting the said projection longitudinally on the ejector-rod to vary the stroke of the latter.

138. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a spring for thrusting said rod forward, a trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a cam arranged to engage the trigger and release the ejector-rod, means constructed to first place the spring under tension and then move the cam into engagement with the trigger and release the ejector-rod after the covering devices have acted, and means for varying the tension of the spring to regulate the force with which the ejector-rod strikes the box.

139. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a spring for thrusting said rod forward, a trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a cam arranged to engage the trigger and release the ejector-rod, means constructed to first place the spring under tension and then move the cam into engagement with the trigger and release the ejector-rod after the covering devices have acted, and means for varying the length and force of the stroke of the ejector-rod.

140. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a collar adjustably fixed on the ejector-rod, a coiled spring disposed on the said rod in rear of the collar and bearing at one end against the latter, a trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a cam arranged to engage the trigger and release the ejector-rod, and means constructed to first place the spring under tension and then move the cam into engagement with the trigger and release the ejector-rod after the covering devices have acted.

141. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a spring for thrusting said rod forward, a pivoted trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a cam arranged to engage the tail of the trigger and swing the latter from in front of the said projection and release the ejector-rod, and means for first compressing the spring and then causing the cam to engage the trigger and release the ejector-rod after the covering mechanism has acted.

142. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a spring for thrusting said rod forward, a pivoted trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a reciprocating beveled cam arranged to engage the free end of the trigger and oscillate the latter about its pivot to rock the other end of the trigger from in front of the said projection and release the ejector-rod, and means for first compressing the spring and then causing the cam to oscillate the trigger and release the ejector-rod after the covering mechanism has acted.

143. In a box-covering machine, the combination with the box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a spring for thrusting said rod forward, a pivoted trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, means for normally holding the trigger in position to engage said projection, a cam arranged to engage the free end of the trigger and disengage the latter from said projection to release the ejector-rod, and means for first compressing the spring and then causing the cam to oscillate the trigger and release the ejector-rod after the covering mechanism has acted.

144. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a propelling-spring for thrusting the ejector-rod forward, a pivoted trigger arranged to engage a projection on the ejector-rod and hold the latter against the tension of the spring, a trigger-spring for holding one end of the trigger in position to engage the projection, a cam arranged to engage the free end of the trigger and disengage the latter from said projection and release the ejector-rod, and means for first compressing the propelling-spring and then causing the cam to oscillate the trigger and release the ejector-rod after the covering mechanism has acted.

145. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the box from the machine, said ejector comprising a frame, an ejector rod movable lengthwise in the frame, a coiled spring disposed on the ejector-rod in rear of a fixture on the latter, a movable support mounted in the frame, means carried by said support for compressing the spring, a pivoted trigger normally engaging a projection on the ejector-rod and holding the latter against the action of the spring, a cam fixed on the movable support and arranged to engage the free end of the trigger and disengage the latter from the projection and release the ejector-rod, and means for moving the said support and causing it to first compress the spring and then release the ejector-rod after the covering mechanism has acted.

146. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a coiled spring disposed on the ejector-rod in rear of the fixture on the latter, a rod longitudinally movable in the frame, an arm carried by said rod and arranged to engage and compress said spring, a pivoted trigger normally engaging a projection on the ejector-rod and holding the latter against the action of the spring, a cam fixed on the said rod and arranged to engage the free end of the trigger and disengage the latter from the projection and release the ejector-rod, and means for moving the said rod and causing the arm to first compress the spring and the cam to next disengage the trigger and release the ejector-rod after the covering mechanism has acted.

147. In a box-covering machine, the combination with box-covering mechanism, of an ejector for ejecting the covered box from the machine, said ejector comprising a frame, an ejector-rod movable lengthwise in the frame, a coiled spring disposed on the ejector-rod in rear of a fixture on the latter, a rod longitudinally movable in the frame, an arm carried by said rod and arranged to engage and compress said spring, a pivoted trigger normally engaging a projection on the ejector-rod and holding the latter against the action of the spring, a cam fixed on the said rod and arranged to engage the free end of the trigger and disengage the latter from the projection and release the ejector-rod, means for moving said rod to cause the arm to first compress the spring and the cam to next disengage the trigger from the projection and release the ejector-rod after the covering mechanism has acted, and an extensible spring attached to one end with said rod and at its other end to the rear end of the frame, said spring operating to return the parts to their normal position after the box has been ejected.

148. In a box-covering machine, the combination with box-covering mechanism and a rotary driving-shaft for actuating the same, of an ejector for ejecting the covered box from the machine, said ejector comprising a lengthwise-movable ejector-rod, a coiled spring disposed on the ejector-rod in rear of a fixture on the latter, a movable support, means carried by said support for compressing the spring, a pivoted trigger normally engaging a projection on the ejector-rod and holding the latter against the action of the spring, a cam fixed on the support and arranged to engage the free end of the trigger and disengage the latter from the projection and release the ejector-rod, and an arm fixed on the said driving-shaft and arranged to engage a projection on the movable support to move the latter and first compress the spring and next release the ejector-rod after the box-covering mechanism has acted.

149. In a box-covering machine, the combination with box-covering mechanism, and a rotary driving-shaft for actuating the same, of an ejector for ejecting the covered box from the machine, said ejector comprising a lengthwise-movable ejector-rod, a coiled spring disposed on the ejector-rod in rear of a fixture on the latter, a movable support, means carried by said support for compressing the spring, a pivoted trigger normally engaging a projection on the ejector-rod and holding the latter against the action of the spring, a cam fixed on the support and arranged to engage the free end of the trigger and disengage the latter from the projection and release the ejector-rod, and an arm fixed on the said driving-shaft and provided with an extension adapted to engage a projection on the movable support to move the latter and first compress the spring and next release the ejector-rod, and means whereby said extension may be adjusted to miss the projection on the movable support and render the ejector inoperative.

150. In a box-covering machine, the combination with box-covering mechanism, and a rotary driving-shaft for actuating the same, of an ejector for ejecting the covered box from the machine, said ejector comprising a lengthwise-movable ejector-rod, a coiled spring disposed on the ejector-rod in rear of a fixture on the latter, a movable support, means carried by said support for compressing the spring, a pivoted trigger normally engaging a projection on the ejector-rod and holding the latter against the action of the spring, a cam fixed on the support and arranged to engage the free end of the trigger and disengage the latter from the projection and release the ejector-rod, and an arm fixed on the said driving-shaft and provided at its end with a pivoted extension adapted to be turned in one direction at an angle to said arm and held in alinement with said arm when turned in the opposite direction, said extension being adapted to engage a projection on the movable support to actuate the ejector and to be turned to one side so as to miss said projection and render the ejector inoperative.

151. In a box-covering machine, the combination with covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edge of the box, a reciprocating two-part plunger adapted to support and carry the box to be covered, said parts of the plunger being superposed one upon the other, means for moving said plunger parts between the covering devices in unison, means for arresting the movement of the upper part of the plunger to move the box from the said part, means for actuating the tuck-in devices while the two parts of the plunger are separated, and means for forcing down the upper part of the plunger into the box to affix the tucked-in portion of the covering material to the inside of the box.

152. In a box-covering machine, the combination with covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edge of the box, a reciprocating two-part plunger adapted to support and carry the box, said parts of the plunger being superposed one upon the other, means for moving said plunger parts in unison between the covering devices, means for arresting the movement of the upper part of the plunger while the lower part continues its movement to withdraw the box from off the upper part of the plunger, means for actuating the tuck-in devices while the two parts of the plunger are separated, and means for forcing down the upper part of the plunger into the box and onto the lower part to affix the tucked-in portion of the covering material to the inside of the box.

153. In a box-covering machine, the combination with covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edge of the box, a reciprocating two-part plunger adapted to support and carry the box, said parts of the plunger being superposed one upon the other, means for moving the plunger parts in unison between the covering devices, a rod fixed to the upper part of the plunger and carrying an arm, a projection adapted to be engaged by said arm and arrest the movement of the upper part of the plunger to withdraw the box therefrom, means for actuating the tuck-in devices while the two parts of the plunger are separated, means for lowering said projection to permit the upper part of the plunger to enter the box, and means for positively forcing said upper part of the plunger into the box after the edge-tuck-in devices have acted.

154. In a box-covering machine, the combination with covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edge of the box, a reciprocating two-part plunger adapted to support and carry the box, said parts of the plunger being superposed one upon the other, means for moving the plunger parts in unison between the covering devices, a rod fixed to the upper part of the plunger and carrying an arm, a rocking lever carrying a projection adapted to be engaged by said arm

and arrest the movement of the upper part of the plunger to withdraw the box therefrom, means for actuating the tuck-in devices while the two parts of the plunger are separated, means for rocking said arm to lower the projection, and means for positively forcing the upper part of the plunger down into the box after the tuck-in devices have acted.

155. In a box-covering machine, the combination with covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edge of the box, a reciprocating two-part plunger adapted to support and carry the box, said parts of the plunger being superposed one upon the other, means for moving the plunger parts in unison between the covering devices, a rod fixed to the upper part of the plunger, a cam carried by said rod, a rocking lever, a projection on the end of said lever adapted to be engaged by said arm and arrest the movement of the upper part of the plunger to withdraw the box therefrom, a latch carried by said lever and arranged to engage the upper part of the cam, and means for moving said lever downward to permit the cam to descend and to cause the latch to move the cam downward and force the upper part of the plunger into the box.

156. In a box-covering machine, the combination with covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edge of the box, a reciprocating two-part plunger adapted to support and carry the box, said parts of the plunger being superposed one upon the other, means for moving the plunger parts in unison between the covering devices, a rod fixed to the upper part of the plunger, a wedge-shaped cam carried by said rod, a rocking lever, a projection on the end of the lever adapted to be engaged by said arm and arrest the movement of the upper part of the plunger to withdraw the box therefrom, a yielding latch carried by the lever and arranged to be thrust to one side by the cam when the latter descends to engage the projection, means for thrusting said latch into engagement with the top of the cam, and means for moving down said lever to force down the latter and thrust the upper part of the plunger into the box.

157. In a box-covering machine, the combination with covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edge of the box, a reciprocating two-part plunger adapted to support and carry the box, said parts of the plunger being superposed one upon the other, means for moving the plunger parts in unison between the covering devices a rod fixed to the upper part of the plunger, a wedge-shaped cam carried by said rod, a rocking lever, a projection on the end of the lever adapted to be engaged by said cam and arrest the movement of the upper part of the plunger to withdraw the box therefrom, a pivoted latch carried by the lever and arranged to be thrust to one side by the cam in the descent of the latter to engage the projection, means for moving said latch into engagement with the top of the cam, and means for moving down said lever to permit the cam to descend and to force down the latter and thrust the upper part of the plunger into the box.

158. In a box-covering machine, the combination with covering devices for affixing the covering material to the sides and ends of the box, of edge-tuck-in devices for tucking in the covering material over the edge of the box, a reciprocating two-part plunger adapted to support and carry the box, said parts of the plunger being superposed one upon the other, means for moving the plunger parts in unison between the covering devices, a rod fixed to the upper part of the plunger, a wedge-shaped cam carried by said rod, a rocking lever, a projection on the end of the lever adapted to be engaged by said cam and arrest the movement of the upper part of the plunger to withdraw the box therefrom, a pivoted latch carried by the lever, a spring-actuated beveled bolt carried by said latch and arranged to be thrust to one side by the cam in the descent of the latter to engage the projection, and operating to engage the top of the cam after the latter has passed said bolt, a spring for normally maintaining the latch in position, and means for moving down said lever to permit the cam to descend and to force down the latter and thrust the upper part of the plunger into the box.

159. In a box-covering machine, the combination with a movable box-support and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged to simultaneously engage the sides and ends of the box and impart a pressure thereto, edge-tuck-in devices for tucking in the covering material over the edges of the box, and means operating to move the presser devices into contact with the box and while said presser devices are so held to actuate the edge-tuck-in devices.

160. In a box-covering machine, the combination with a movable box-support and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support, and rocking levers for simultaneously moving said presser devices toward each other to press the box on opposite sides.

161. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support, means for moving said presser devices toward each other to press the box on opposite sides, means for retracting the presser devices, and auxiliary means actuated by the reverse movement of the means that actuate the presser devices for causing the latter to advance and impart a second pressure to the box.

162. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support, means for moving said presser devices toward each other to press the box on opposite sides, means for retracting the presser devices, and cam mechanism actuated by the reverse movement of the means that actuate the presser devices for causing the latter to advance and impart a second pressure to the box.

163. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the sides and ends of the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a laterally-movable bar, a presser-block carried by said bar, and means acting to press the bar toward the side of the box.

164. In a box-machine, the combination with means for supporting and carrying the box, of presser devices arranged on opposite sides of the path of movement of the box supporting and carrying means, means for moving the box-support between the presser devices and for stopping the same when it reaches such position, and means for actuating the presser devices to cause them to act on the outer sides of the box and impart a pressure thereto.

165. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by said bar, a rocking lever, an edge-tuck-in device, a cam projection on the rear edge of said bar, a rocking cam disposed opposite the cam projection, and means for rocking the cam against the cam projection on the reverse movement of the rocking lever, whereby the latter operates to move the presser-block against the side of the box and advance the edge-tuck-in device to tuck the covering material over the edge of the box.

166. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket, a laterally-movable bar supported by said bracket, a presser-block carried by the bar, a cam projection on the rear edge of the bar, a rock-shaft disposed opposite the cam projection, a cam fixed on said rock-shaft in position to engage the cam projection and move the presser-block forward, means for retracting the presser-block, and means for actuating said presser-block a second time, before the box-support is moved away from the presser-block to impart a second pressure to the box.

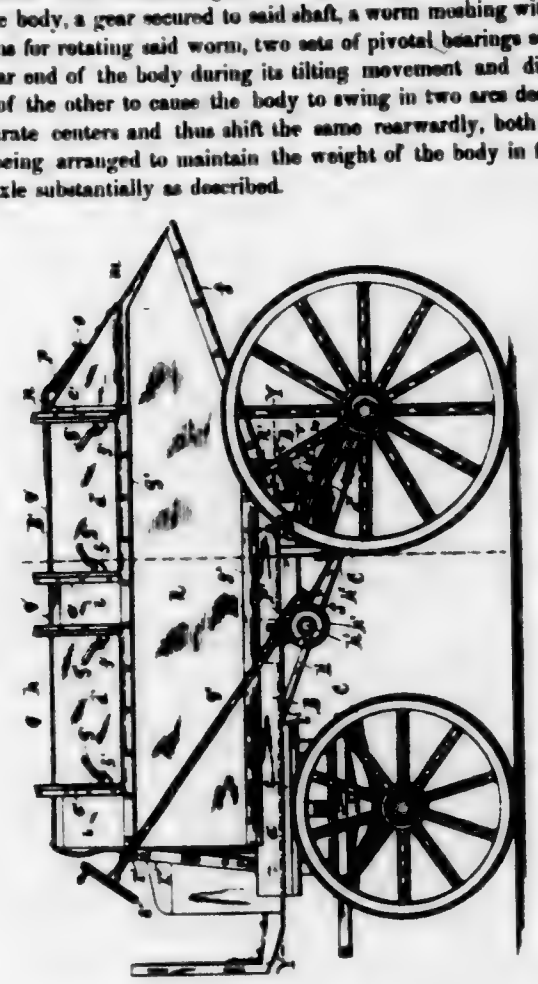
167. In a box-covering machine, the combination with a movable box-support, and covering devices for affixing the covering material to the box, of presser devices arranged on opposite sides of the path of movement of the box-support and each comprising a stationary bracket, rods longitudinally movable in said bracket, a bar carried by the forward ends of said rods, a presser-block carried by the bar, and means acting to force the bar forward to press the presser-block against the side of the box.

691,830. DUMPING-WAGON. DAVID S. WATSON, Canastota, N. Y., assignor to Watson Wagon Company, Canastota, N. Y., a Corporation of New York. Filed May 16, 1901. Serial No. 60,473. (No model.)

Claim.—1. In a dumping-wagon, the combination with the running-gear, comprising a supporting-frame, of a body normally lying upon said running-gear, means for tilting said body rearwardly, two sets of pivotal bearings sustaining the rear end of the body during its tilting movement and disposed one back of the other to cause the body to swing in two arcs described from two separate centers and thus shift the same rearwardly, both sets of bearings being arranged to maintain the weight of said body in front of the rear axle, substantially as described.

2. In a dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body normally lying upon said supporting-frame, a transverse shaft journaled on said supporting-frame, pivotally-connected levers transmitting rearwardly-tilting movement from said shaft to the body, a gear secured to said shaft, a worm meshing with said gear, means for rotating said worm, pivotal bearings sustaining the rear end of the body during its tilting movement and disposed to swing the body out of contact with the supporting-frame and shift the same rearwardly substantially as described.

3. In a dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body normally lying upon said supporting-frame, a transverse shaft journaled on said supporting-frame, pivotally-connected levers transmitting rearwardly-tilting movement from said shaft to the body, a gear secured to said shaft, a worm meshing with said gear, means for rotating said worm, two sets of pivotal bearings sustaining the rear end of the body during its tilting movement and disposed one back of the other to cause the body to swing in two arcs described from separate centers and thus shift the same rearwardly, both sets of bearings being arranged to maintain the weight of the body in front of the rear axle substantially as described.



4. In a dumping-wagon, the combination with the running-gear and body supported thereon, of a suitably-journaled transverse shaft, means for transmitting rearwardly-tilting movement from said shaft to the body, a gear secured to said shaft, a worm meshing with said gear, a shaft secured to said worm and extending forwardly therefrom, a hand-wheel for turning the latter shaft, and two sets of pivotal bearings sustaining the rear end of the body during its tilting movement and disposed to cause said body to swing rearwardly in two arcs described from two centers to shift the same rearwardly out of contact with the running-gear and also maintain the weight of the body in front of the rear axle substantially as described.

5. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body provided with a frame on its bottom by which it normally rests upon said supporting-frame, a transverse shaft journaled on said supporting frame, two sets of levers pivoted together end to end, one set pivotally connected to the body-frame, and the other set rigidly connected to said shaft, a gear secured to the shaft, a worm meshing with said gear, a shaft or rod secured to said worm and provided with means for turning the same, whereby a rearwardly-tilting movement is imparted to said body, a primary set of pivotal bearings sustaining the rear end of the body during its initial tilting movement, and a secondary set of pivotal bearings disposed back of the primary set to relieve the same to sustain said rear end during the remainder of the tilting movement and simultaneously shift the body rearwardly substantially as set forth.

6. In the herein-described dumping-wagon, the combination with running-gear comprising a supporting-frame, of a body normally resting upon said frame, means for tilting said body rearwardly, a pair of brackets rigidly secured to the rear end of said frame and each provided with two bearings disposed one back of the other, a pair of depending arms rigidly secured to the rear end of the body and primarily seated on the forward bearings to support said rear end during the initial tilting movement of the body, and secondarily seated on the rear bearings to support said rear end during the remainder of the tilting movement and simultaneously shift said body rearwardly substantially as set forth.

7. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame provided with a rear cross-bar, of a body normally resting upon said frame, a transverse shaft journaled on the under side of the frame, a gear secured to said shaft, a worm meshing with said gear, means for rotating the worm, levers connecting said shaft and body whereby said body is tilted rearwardly, a pair of brackets rigidly secured to the aforesaid cross-bar and each formed with a primary bearing and a secondary bearing disposed one back of the other, a pair of depending arms rigidly secured to the body and each formed with two pivots disposed to be seated successively on the respective bearings, whereby the rear end of the body is sustained during its tilting movement and simultaneously shifted rearwardly substantially as set forth.

8. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a body normally resting upon said supporting-frame, means for tilting said body rearwardly, a pair of brackets rigidly secured to the rear end of said frame and each formed with an upwardly and rearwardly extending segmental slot, the lower ends of which slots constitute a primary bearing, and each bracket formed with a secondary bearing disposed back of and below the primary bearing, and a pair of depending arms rigidly secured to the rear end of the body and each formed with two pivots arranged one back of the other, the forward pivots disposed in said slots and seated on the primary bearings to sustain said rear end during the initial tilting movement of the body, and the rear pivots adapted to be seated on the secondary bearings to relieve the primary bearings and sustain the rear end of the body during the remainder of the tilting movement and simultaneously shift the body rearwardly substantially as set forth.

9. In the herein-described dumping-wagon, the combination with the running-gear, of a body normally resting thereon, mechanism for tilting said body rearwardly, a pair of brackets suitably secured to the rear portion of the running-gear and each comprising two like integral plates disposed side by side, said plates provided with segmental slots forming primary bearings, and with secondary bearings disposed back of and below the primary bearings, a pair of depending arms rigidly secured to the rear end of the body and disposed between the plates of the respective brackets, said arms being formed with a pair of pivots disposed in said slots and seated on said primary bearings to sustain the rear end of the body during its initial tilting movement, and formed with a second pair of pivots disposed back of the first-mentioned pivots and adapted to be seated on the secondary bearings to relieve the primary bearings to sustain said rear end during the remainder of the tilting movement and simultaneously shift the body rearwardly substantially as set forth.

10. In the herein-described dumping-wagon, the combination with a suitably-mounted supporting-frame disposed flatwise and comprising longitudinal side bars, L shape in cross-section and a rear transverse bar secured to said side bars, of a body normally resting upon the horizontal portions of said side bars and provided on each side with a longitudinal guard projecting over the side bars for the purpose set forth, pivotal connections between the rear end of the body and supporting-frame, and means for tilting said body rearwardly.

11. In the herein-described dumping-wagon, the combination with the rearwardly-tilting body provided with a discharge-opening at its rear end, of a door over said opening and hinged above the same, means connecting the door to a stationary part of the wagon, whereby the tilting of the said body causes said means to draw the door to its open position substantially as set forth.

12. In the herein-described dumping-wagon, the combination with the running-gear comprising a supporting-frame, of a metallic body normally resting upon said supporting-frame and formed at its rear end with a chute having a discharge-opening, a hinged door over said opening and provided with a pivoted arm, pivotal connections between said body and rear end of the supporting-frame, mechanism for tilting said body rearwardly, and a rope or chain extending lengthwise over the body and fastened at its forward end to a suitable stationary part on the running-gear and at its rear end to the pivoted arm on said door, whereby the tilting movement of said body causes the door to be swung automatically from the aforesaid opening substantially as set forth.

13. The herein-described metallic wagon-body comprising a bottom formed with a horizontal main portion and a forwardly-inclined rear end portion, the latter constituting a chute, vertical sides and front, said sides formed with openings and having the rear end portions of their top edges inclined rearwardly, doors pivoted to the lower edges of said openings the cover formed with a central longitudinal portion and outwardly-inclined side portions, openings in said inclined side portions, sliding doors over said openings, and a door pivoted to the rear end of the central longitudinal portion of the cover and lying upon the top edges of said sides and inclined from its pivot to the rear end of the chute substantially as set forth.

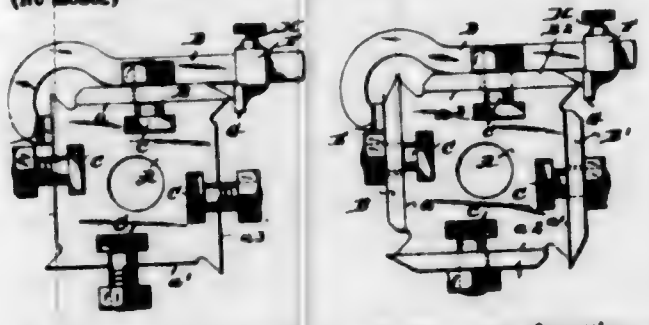
14. The combination with the metallic wagon-body provided with a stationary cover, said cover being formed with a central longitudinal portion and outwardly-inclined side portions, the latter provided with openings, of a pair of inclined parallel guides secured to said side portion at opposite sides of each opening, doors sliding in said guides, and suitable cams pivoted to said doors and adapted to engage the said guides to sustain the doors in open position substantially as set forth.

15. The herein-described wagon-body formed with vertical sides having openings and provided with a stationary cover formed with outwardly-inclined side portions having openings in range with the first-

mentioned openings, sliding doors over said cover-openings and provided with suitable locking devices, hinged doors over the side openings and adapted to swing downward, and means to lock the latter doors in their closed position substantially as set forth.

16. In the herein-described metallic wagon-body, the combination with the vertical side provided with an opening extending through its upper edge and a door hinged below the opening, of a lock comprising a pair of parallel vertical angle-bars secured to the side at opposite ends of the opening and each provided with an eye, a disk or lever pivoted to said door, guides secured to said door, and a pair of oppositely-moving longitudinal rods sliding in said guides and pivotally connected at one end to opposite sides of said disk and having their other ends adapted to enter said eyes, and a handle depending from said disk by which to turn the same, substantially as set forth.

691,831. GAGE FOR SETTING CUTTER-HEADS. SOLOMON F. WING, Philadelphia, Pa., assignor to H. B. Smith Machine Company, a Corporation of New Jersey. Filed Apr. 26, 1901. Serial No. 57,413. (No model.)

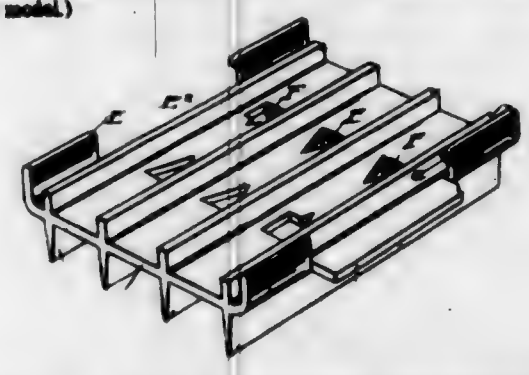


Claim.—1. As a new article of manufacture, a gage for setting cutter-head knives, consisting of a shank having a straight portion adapted to engage the flat face of the knife and projecting in front of the edge thereof and having a curved or bent rear portion the end of which is adapted to engage the flat side of the cylinder adjacent to the side supporting the knife, and an adjustable sliding head upon the shank having a knife-edge-engaging block adapted to engage the end of the knife.

2. As a new article of manufacture, a gage for setting cutter-head knives consisting of a shank having a straight front and central portion, and a rear portion curved or bent and terminating in a bearing-block adapted to engage one of the flat sides of the cutter-head cylinder, and an adjustable head longitudinally slidable upon the straight portion of the shank having a knife-edge-engaging block, and means for locking the head in its adjusted position.

3. As a new article of manufacture, a gage for setting cutter-head knives consisting of a shank having its rear portion curved or bent and terminating in a flat bearing-block adapted to engage one of the flat sides of the cutter-head cylinder and a straight front portion extending at right angles to the face of said block, and an adjustable head longitudinally slidable upon the straight portion of the shank having a knife-edge-engaging block, and means for locking the head in its adjusted position.

691,832. RAILWAY-TIE PLATE. BENJAMIN WOLHAUPTER, Chicago, Ill. Filed May 3, 1897. Renewed Nov. 9, 1901. Serial No. 81,789. (No model.)



Claim.—1. A railway-tie plate provided on its upper side with one or more flanges on which the rail may rest or by which it is directly sustained and on the under side with one or more tie-engaging flanges extending parallel with the upper flanges and directly beneath the latter, substantially as described.

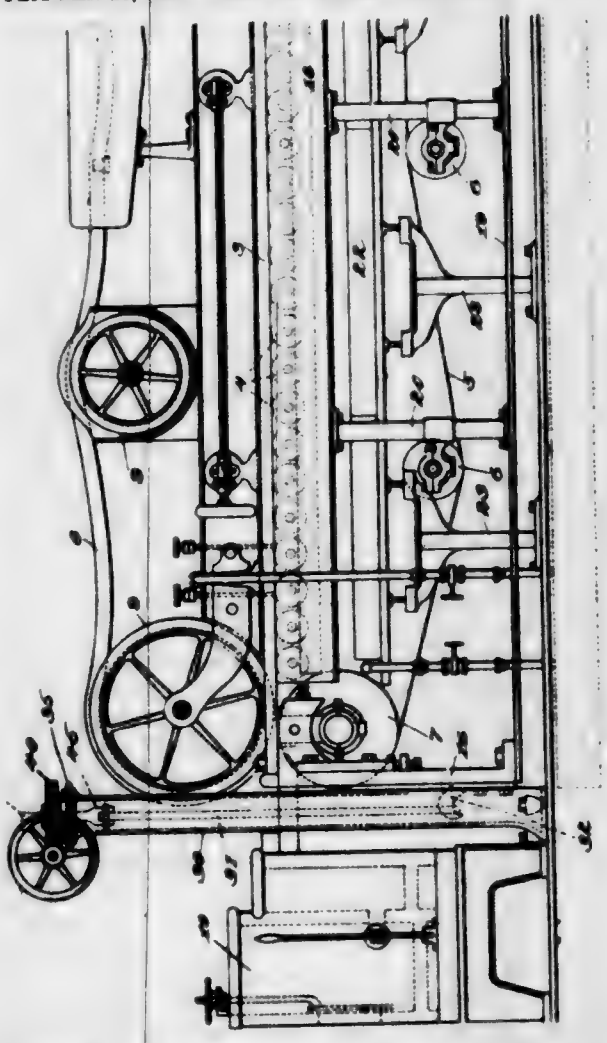
2. A railway-tie plate provided on its upper side with one or more flanges on which the rail may rest and by which it is directly sustained and on the under side with one or more tie-engaging flanges extending parallel with the upper flanges and directly beneath the latter and sharpened to permit them to readily enter the tie, substantially as described.

3. A railway-tie plate provided on its upper side with one or more flanges on which the rail may rest and by which it is directly sustained, on the under side with one or more sharpened tie-engaging flanges extending parallel with the upper flanges and directly beneath the latter, and on the upper side with an additional flange or flanges extending above the plane of the rail-sustaining flanges and adapted to receive the lateral thrust of the rail, substantially as described.

4. A railway-tie plate provided on its upper side with one or more flanges on which the rail may rest and by which it is directly sustained, on the under side with one or more tie-engaging flanges extending parallel with the upper flanges and directly beneath the latter, and on the upper side with an additional flange or flanges extending above the plane of the rail-sustaining flanges and adapted to receive the lateral thrust of the rail, said flange or flanges provided with one or more projections adapted to project over the rail-base, substantially as described.

5. A railway-tie plate provided on its upper side with one or more flanges on which the rail may rest and by which it is directly sustained, on the under side with one or more tie-engaging flanges extending parallel with the upper flanges and directly beneath the latter, and on the upper side, with an additional flange or flanges extending above the plane of the rail-sustaining flange and adapted to receive the lateral thrust of the rail, said plate also provided with one or more teeth turned down from the metal composing the body of the plate, substantially as described.

691,833. PAPER-MAKING MACHINE. CHARLES E. BARRETT and JOHN E. HORNE, Lawrence, Mass., assignors to the J. E. Horne & Sons Company, Lawrence, Mass., a Corporation of Massachusetts. Filed June 26, 1901. Serial No. 66,324. (No model.)



Claim.—1. In a paper-making machine, a shake-frame, a support situated above the shake-frame, a plurality of suspenders hung from the said support and secured to the shake-frame at its breast-roll end, and means to simultaneously adjust said suspenders vertically, said adjusting means being situated above the shake-frame.

2. In a paper-making machine, a shake-frame, a plurality of posts or supports at the breast-roll end thereof and extending above the frame, suspenders connected at their lower ends to the breast-roll end of the said shake-frame and at their upper ends to said supports, and means for simultaneously adjusting the suspenders in a vertical direction.

3. In a paper-making machine, a shake-frame, a post or support at each side of said shake-frame and at the breast-roll end thereof, said posts extending above the frame, a suspender hung from the top of each of said posts, said suspenders being connected at the lower ends to the shake-frame, and means for simultaneously raising or lowering said suspenders.

4. In a paper-making machine, a shake-frame, a making-wire thereon, hollow posts at the breast-roll end of said shake-frame and extending above the same, suspenders hung from the top of said posts and inclosed

therein, said suspenders being connected at their lower ends to the shake-frame, and means to simultaneously raise or lower the suspenders.

5. In a paper-making machine, a shake-frame, a making-wire thereon, hollow posts at the front end of said shake-frame and extending above the same, suspenders hung from the top of said posts and inclosed therein, and connected at their lower ends to the shake-frame

6. In a paper-making machine, a shake-frame, hollow supports at the front end thereof, suspenders inclosed in said supports and connected to the shake-frame at their lower ends, and means to adjustably hang said suspenders from the supports above the shake-frame.

7. In a paper-making machine, a shake-frame, hollow posts at the front end thereof, suspenders inclosed in said posts, said suspenders being connected at their lower end to the front end of the shake-frame, a worm-gear at the upper end of each post, said gears having a screw-threaded engagement with the suspenders, and means to turn said gears in unison whereby the front end of the shake-frame may be vertically adjusted.

8. In a paper-making machine, a shake-frame, a fixed support for the rear end thereof, hollow posts at the front thereof, a worm-wheel supported on each of said posts to turn about a vertical axis, a hanger passing axially through each of said worm-wheels and having a screw-threaded engagement therewith, a worm meshing with said worm-wheels and operating to turn the same in unison, and suspenders pivotally connected at their upper ends to said hangers and at their lower ends to the shake-frame.

9. In a paper-making machine, a shake-frame, having longitudinally-extended beams forming stiffening members, shake-rails separate from the said beams and supported thereon, lower cords stretching the length of the shake-frame, and struts between said lower cords and beams.

10. In a paper-making machine, a shake-frame, having longitudinally-extending I-beams on either side thereof, shake-rails on said I-beams, a breast-roll frame at the front end of the shake-rails, and to which the shake-rails are connected, lower cords connecting the lower end of said breast-roll frame and the rear end of the I-beam, struts between the I-beams and lower cords, whereby the shake-frame is trussed, and means to suspend the front end of said shake-frame from an overhead support for vertical adjustment.

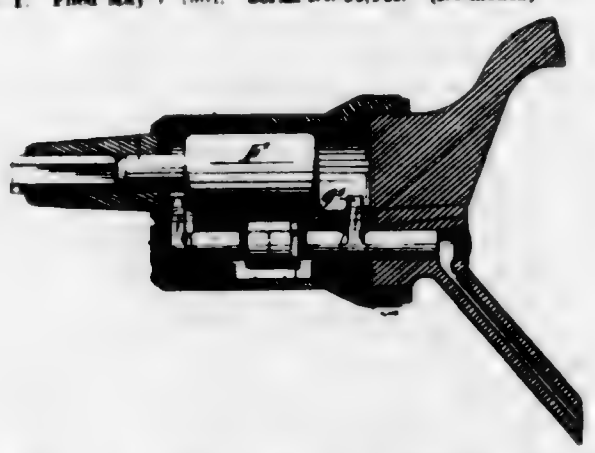
11. In a paper-making machine, a trussed shake-frame having longitudinally-extending I-beams, shake-rails supported thereon, lower cords connected at their end to the ends of the shake-rails, struts between said lower cords and I-beams, means to suspend the front end of the shake-frame from an overhead support, and a stationary save-all independent from said shake-frame.

12. In a paper-making machine, a shake-frame pivotally supported at its rear end on a fixed support, overhead supports for the front end of said shake-frame, and means to suspend said front end from said supports, said shake-frame comprising longitudinally-extending I-beams, shake-rails thereon, lower cords connecting the ends of the shake-rails, and struts between said lower cords and I-beams.

13. In a paper-making machine, a trussed shake-frame comprising in its structure longitudinally-extending stiffening members on either side thereof, and shake-rails supported on said stiffening members, said shake-rails being separate from but rigidly secured to the stiffening members.

14. In a paper-making machine, a trussed shake-frame, comprising in its structure longitudinally-extending stiffening members on either side thereof, shake-rails supported on said stiffening members, said shake-rails being separate from but rigidly secured to the stiffening members, and brackets carried by the stiffening members for supporting the table-rolls.

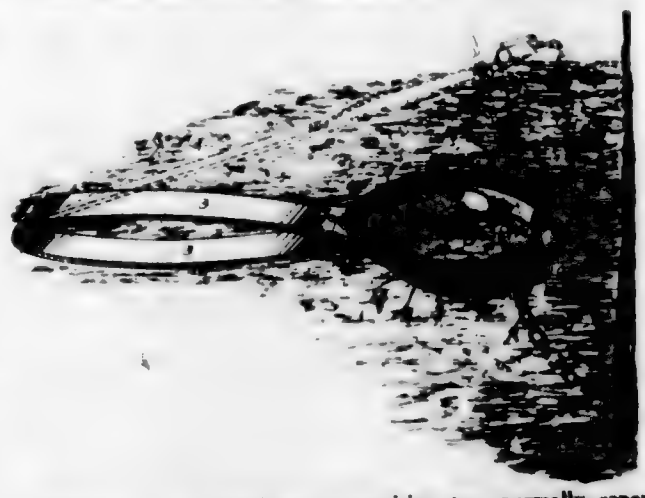
691,334. PNEUMATIC CUTTING-TOOL. JOHN W. BIRKENSTOCK, New York, N. Y., assignor, by direct and mesne assignments, to the Empire Pneumatic Tool Company of the State of New York, New York, N. Y. Filed May 7, 1901. Serial No. 59,140. (No model.)



Claim.—1. A pneumatic cutting-tool, consisting of a cylinder, a recessed handle suitably attached to said cylinder, a valve for admitting air under pressure, a lever for operating said valve and located in the recess of said handle, a piston in the cylinder, provided with a hammer for actuating the tool, a tubular slide-valve provided with lugs projecting into the path of the piston, ports for supplying compressed air alternately to each end of the cylinder, and suitable outlet-ports, substantially as set forth.

2. A pneumatic cutting-tool, consisting of a cylinder, a box-shaped handle suitably applied to one end of the cylinder, a supply-channel in said handle, a controlling-valve, means for operating the said valve for admitting or shutting off the compressed air, a piston in said cylinder provided with a hammer, a fixed sleeve for guiding the tool, a tubular slide-valve provided with lugs engaged by said piston, ports in said slide-valve communicating with said supply-channel for admitting air into the ends of the cylinder, means for adjusting the tubular slide-valve, and outlet-ports in the cylinder, substantially as set forth.

691,335. ANIMAL-TRAP. KNUT W. CARLBERG, East Millcreek, Utah. Filed June 13, 1901. Serial No. 64,461. (No model.)



Claim.—1. An animal-trap comprising two normally separated spring jaw members adapted to be held interlocked when brought together, one member carrying a locking device and the other a catching means, and means upon the catching means to lock it around the limb of the animal.

2. An animal-trap comprising two jaw members connected by a spring and held normally separated by said spring, a locking-trigger mounted on the lower member and provided with a notch, a lug upon the upper member adapted to engage the notch in the locking-trigger and hold the jaws together, a chain carried by the upper member and provided with a gripping device, the free end of the chain adapted to be engaged alternately upon the upper and lower members, and a lock-holder secured to the upper member in which the gripping device rests when the trap is set, substantially as described.

3. In an animal-trap, the combination of two normally separated spring jaw members adapted to be locked when brought together, of a chain, the free end of which is adapted to be secured to a permanent fastening means and the other end formed into a loop, a groove formed in the upper face of the upper member in which the loop is adapted to rest, of a gripping device carried by one end of the chain, a lock-holder upon the upper jaw member in which the gripping device is adapted to rest, and means upon the two members for drawing the chain through the gripping device to grasp the limb of the animal

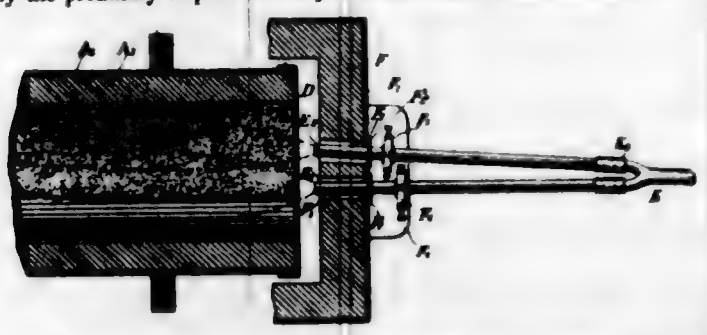
4. In an animal-trap, the combination of two jaw members connected by a U-shaped flat spring, of a locking-trigger mounted upon the lower member and adapted to engage the upper member when the jaws are brought together, a dished or grooved concaved face formed in the upper member, of a chain formed into a loop and which loop is adapted to rest in the concaved face, hooks projecting from both the upper and lower members over which the free end of the chain passes, and a gripping device upon the chain, substantially as described.

691,336. PROCESS OF FEEDING FINE FUEL. ROLLA C. CARPENTER, Ithaca, N. Y., assignor to Atlas Portland Cement Company, a Corporation of Pennsylvania. Filed Aug. 7, 1901. Serial No. 71,172. (No specimens.)

Claim.—1. The process of feeding fine fuel into a rotary cement-furnace which consists in producing jets of air and fine fuel and in directing such jets into said furnace to assume an eccentric position in said furnace to produce a hot zone in said furnace by the eccentric position and by the proximity of such jets to the walls of said furnace.

2. The process of feeding fine fuel into a rotary cement-furnace which consists in producing jets of air and fine fuel and in directing such jets into said furnace to cause part of such jets to assume a position in prox-

imity to the walls of said furnace to produce a hot zone in said furnace by the proximity of part of such jets to the walls of said furnace.



3. The process of feeding fine fuel into a rotary cement-furnace which consists in producing jets of air and fine fuel, in directing such jets into said furnace and in inclining part of such jets toward the walls of said furnace to produce a slight impingement thereupon.

4. The process of feeding fine fuel to a rotary cylindrical cement-furnace which consists in producing uniform jets of air and fine fuel and in directing such jets into the rotary furnace at an inclination to produce a hot zone in said furnace by the inclination of said jets toward the walls of said furnace.

5. The process of feeding fine fuel into a rotary cement-furnace which consists in producing jets of fine fuel, in feeding such jets into said furnace substantially parallel to the axis thereof and in simultaneously inclining part of such jets toward the material in said furnace to maintain a hot zone in said furnace.

6. The process of feeding fine fuel into a rotary cylindrical cement-furnace which consists in producing jets of air and fine fuel, in directing such jets into said furnace and in inclining part of such jets toward the walls of said furnace.

7. The process of feeding fine fuel into a cylindrical cement-furnace which consists in producing uniform low-pressure jets of air and fine fuel, in directing one of such jets into said furnace substantially parallel to the axis thereof and in inclining another of such jets toward the walls of said furnace.

8. The process of feeding fine fuel into a rotary cylindrical cement-furnace which consists in producing a jet of air and fine fuel and in directing such jet into said furnace to assume a position in proximity to the walls of said furnace to produce a hot zone in said furnace by the proximity of such jet to the walls of said furnace.

9. The process of feeding fine fuel into a cylindrical cement-furnace which consists in producing a jet of air and fine fuel and in directing such jet into said furnace to incline toward the walls of said furnace to produce a hot zone in said furnace by the proximity of such jet to the walls of said furnace.

10. The process of feeding fine fuel into a rotary cylindrical cement-furnace which consists in producing a jet of air and fine fuel and in directing such jet into said furnace toward the material in said furnace to slightly impinge upon the material treated in said furnace to maintain a hot zone in said furnace.

11. The process of feeding fine fuel into a rotary cement-furnace which consists in producing a jet of fine fuel and in directing such jet into said furnace toward the material in said furnace to slightly impinge upon the material treated in said furnace to maintain a hot zone in said furnace.

12. The process of feeding fine fuel into a cement-furnace which consists in producing a jet of fine fuel and in directing such jet into said furnace to assume a position in proximity to the walls of said furnace to produce a hot zone in said furnace by the proximity of such jet to the walls of said furnace.

13. The process of feeding fine fuel into a rotary cement-furnace which consists in producing jets of fine fuel and in directing such jets into said furnace to assume a position in proximity to the walls of said furnace to produce a hot zone in said furnace by the proximity of such jets to the walls of said furnace.

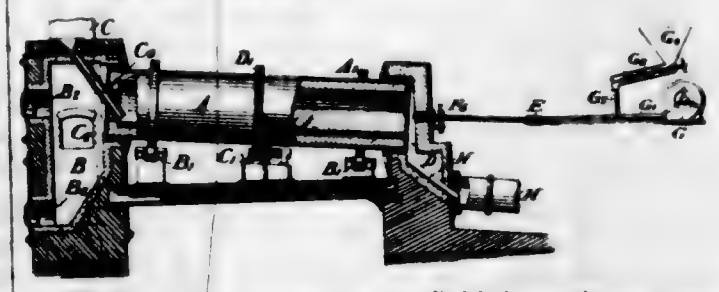
14. The process of feeding fine fuel into a rotary cement-furnace which consists in producing jets of fine fuel and in directing such jets into said furnace to assume an eccentric position in said furnace to produce a hot zone in said furnace by the eccentric position of such jets in said furnace.

15. The process of feeding fine fuel into a rotary cement-furnace which consists in producing jets of air and fine fuel and in directing such jets into said furnace to assume an eccentric position in said furnace to produce a hot zone in said furnace by the eccentric position of such jets in the hot zone of said furnace.

16. The process of feeding fine fuel into a rotary cement-furnace which consists in producing jets of fine fuel and in directing such jets into said furnace to cause the eccentric position of part of such jets near one end of the furnace to produce a hot zone in said furnace.

17. The process of feeding fine fuel into a rotary cement-furnace which consists in producing a jet of fine fuel, in feeding such jet into said furnace to cause such jet to assume an eccentric position with relation to the walls of the furnace to produce a hot zone in said furnace.

691,337. APPARATUS FOR FEEDING FINE FUEL. ROLLA C. CARPENTER, Ithaca, N. Y., assignor to Atlas Portland Cement Company, a Corporation of Pennsylvania. Original application filed Aug. 7, 1901. Serial No. 71,172. Divided and this application filed Oct. 21, 1901. Serial No. 79,319. (No model.)



Claim.—1. In a cement-furnace, a cylindrical rotary furnace, a combustion-chamber communicating with the mouth of said furnace, means for producing a low-pressure jet of fine fuel and adjustable means for directing such jet substantially parallel to the axis of said furnace, means for producing a second low-pressure jet of fine fuel and adjustable means to incline said second jet within said furnace toward the walls thereof at a point adjacent the mouth of said furnace to create a hot zone near the mouth of said furnace.

2. In a cement-furnace, a cylindrical rotary furnace, means for producing a low-pressure uniform jet of fine fuel and for directing a jet of such fuel into the furnace substantially parallel to the axis thereof, means for producing a second jet of fine fuel and adjustable means to direct said second jet of such fuel toward the material treated in such furnace at a point near the mouth of the furnace to slightly impinge upon such material to maintain a hot zone near the mouth of such furnace.

3. In a cement-furnace, a cylindrical rotary furnace, a vertical chamber communicating with the upper end of said furnace to receive the products of combustion, a combustion-chamber communicating with the mouth of said furnace, means to supply heated air to said combustion-chamber, means to produce a uniform jet of air and fine fuel and adjustable means to direct such jet toward the side of said furnace and the material treated in said furnace to maintain a hot zone at such part of the furnace.

4. In a cement-furnace, a rotary cylindrical furnace, a chamber communicating with the upper end of the said furnace to receive the products of combustion, a combustion-chamber communicating with the mouth of said furnace, means to admit air to said combustion-chamber, means to produce a uniform low-pressure jet of air and fine fuel and adjustable means to direct said jet into said furnace into proximity with the walls of said furnace to produce a hot zone in said furnace by the proximity of such jet to the walls of said furnace.

5. In a cement-furnace, a rotary furnace, means to form jets of fine fuel, adjustable means to direct such jets into said furnace at an inclination to maintain a proper combustion of such jets and to maintain a hot zone near the mouth of said furnace by the slight inclination of such jets toward the inner walls of said furnace.

6. In a cement-furnace, a rotary furnace, means to produce a jet of fine fuel and means to direct said jet of material into said furnace toward the walls of said furnace near the mouth of the same to maintain a hot zone near the mouth of said furnace.

7. In a cement-furnace, a rotary furnace, means to produce a jet of fine fuel and means to direct said jet of material into said furnace toward the walls of said furnace near the mouth of the same to maintain a hot zone near the mouth of said furnace.

8. In a cement-furnace, a rotary furnace, means to form jets of air and fine fuel, means to direct such jets into the mouth of said furnace and means to incline part of such jets toward the walls of said furnace to produce a hot zone therein.

9. In a cement-furnace, a rotary furnace, means to produce jets of air and fine fuel within said furnace and means to incline part of such jets toward the walls of said furnace to produce a hot zone in said furnace.

10. In a cement-furnace, a rotary furnace, means to produce low-pressure jets of air and fine fuel within said furnace and means to incline part of such jets toward the walls of said furnace to produce a hot zone in said furnace.

11. In a cement-furnace, a cylindrical rotary furnace, means for producing jets of air and fine fuel, means for directing part of such jets substantially parallel to the axis of said furnace and means for inclining part of such jets toward the walls of said furnace.

12. In a cement-furnace, a cylindrical rotary furnace, means to form

jets of air and fine fuel and means to direct such jets into the mouth of said furnace to cause part of such jets to assume a position in proximity to the walls of said furnace to produce a hot zone therein by the proximity of such jets to the walls of said furnace.

13. In a cement-furnace, a cylindrical furnace, means to form jets of air and fine fuel and means to direct such jets into the mouth of said furnace to cause such jets to assume a position in proximity to the walls of said furnace to produce a hot zone therein by proximity of such jets to the walls of said furnace.

14. In a cement-furnace, a cylindrical furnace, means to produce jets of air and fine fuel and means to direct such jets into the mouth of said furnace to cause the eccentric position of part of such jets in said furnace to produce a hot zone therein by the eccentric position of such jets in said furnace.

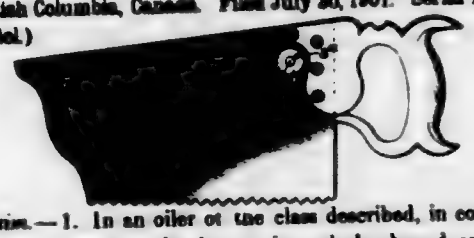
15. In a cement-furnace, a cylindrical furnace, means to produce a jet of fine fuel and means to direct such jet into the mouth of said furnace to cause such jet to assume an eccentric position in said furnace and to slightly impinge upon the material fed through said furnace to produce a hot zone in said furnace.

16. In a cement-furnace, a rotary furnace, means to form jets of fine fuel and means to direct such jets into the mouth of said furnace to cause such jets to assume an eccentric position with respect to the walls of said furnace.

17. In a cement-furnace, a rotary furnace, means to produce jets of fine fuel, and means to direct such jets into said furnace to cause part of such jets to assume an eccentric position with respect to the walls of said furnace to produce a hot zone in said furnace by the eccentric position of part of such jets with respect to the walls of said furnace.

18. In a cement-furnace, an elongated cylindrical furnace, means to produce a jet of fine fuel and means to direct such jet into said furnace to cause such jet to assume an eccentric position with respect to the walls of said furnace, to produce a hot zone in said furnace by the eccentric position of such jet with respect to the walls of said furnace.

691,338. **SAW-OILER.** WILLIAM G. CLEMENTS, Vancouver, Canada, assignor of one-half to Matthew Joseph Sheedy, Vancouver, British Columbia, Canada. Filed July 30, 1901. Serial No. 69,094. (No model.)



Claim.—1. In an oiler of the class described, in combination with the blade of a handsaw having an irregularly-shaped aperture through the blade, adjacent to the handle; two cup-shaped members, the edges of which joint on the saw-blade around the aperture, one on each side of the blade; the feed-aperture in each joint; the screw or bolt passing through the aperture and holding the cup members together and on the blade, and means whereby oil may be supplied to the chambers thus formed, substantially as described.

2. In an oiler as described, the combination of two cup-shaped members bolted together on each side of the blade of a saw, adjacent to the handle; the feed-aperture in the edge joint; the oil-hole in one of the members; and the spring-controlled valve to close the oil-hole, substantially as described.

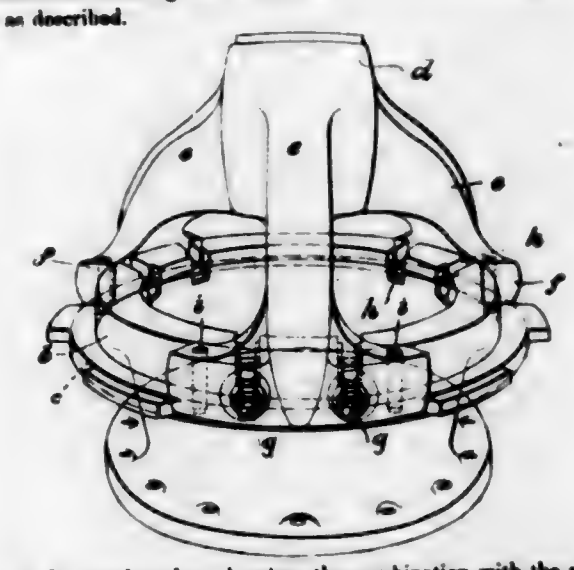
3. In an oiler for lubricating a handsaw, the combination with the blade of the same having a hole through it adjacent to the handle, and the cup-shaped members bolted together with their edges surrounding the hole; the oil-hole in one of the cup-shaped pieces; the valve from the inside to close such; the horseshoe-shaped piece to which the valve is attached by the pin entering the oil-hole; the hinge at the double end of the horseshoe-shaped piece and the helical spring holding the valve closed until pressed open with the spout of the oil-can.

4. In a handsaw-oiling device, the combination with the blade having an aperture 5 adjacent to the handle; the cupped members 2 and 3; the screw 4 securing the same together against the blade; the joint-rings 6 having a feed-aperture 6^a; the oil-hole 3^a; the valve 7 on the pin 8^a attached to the hinged member 8, and the spring 10 adapted to hold the valve closed from within until pressed open by the spout of the oil-can, all substantially as specified

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691,339. **ROCK OR ORE BREAKER.** ALBERT J. GATES and THOMAS W. CAPEN, Chicago, Ill., assignors, by mesne assignments, to Allis-Chalmers Company, Chicago, Ill., a Corporation of Illinois. Filed May 28, 1900. Serial No. 18,240. (No model.)

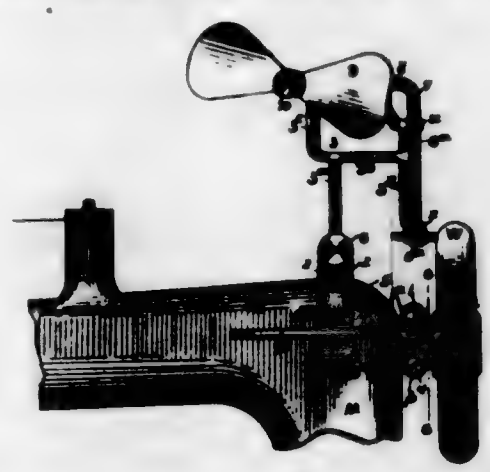
Claim.—1. In a rock and ore breaker, the combination with the crushing-chamber wall of a shoulder upon the wall of the crushing-chamber, a spider comprising a heavy cast stationary hub and heavy T-shaped arms integral therewith which extend independently outward beyond the rim of the crushing-chamber and are seated upon the shoulder thereon, and means for fastening the ends of the arms firmly in position, substantially as described.



2. In a rock and ore breaker, the combination with the rim of the crushing-chamber of a shoulder upon the rim, a spider comprising a heavy cast stationary hub and heavy arms integral therewith which extend independently outward beyond and are seated upon the shoulder of the crushing-chamber and seated upon the shoulder thereon, and means for firmly fastening the ends of the arms in position, substantially as described.

3. In a rock and ore breaker, the combination with the crushing-chamber wall of a shoulder upon the wall of the crushing-chamber, a spider comprising a heavy cast stationary hub and heavy arms integral therewith which extend independently outward to the wall of the crushing-chamber and downward to the shoulder thereon and are seated within the recess formed by the shoulder and crushing-chamber wall, and means for attaching the ends of the arms firmly to the shoulder and wall of the crushing-chamber, substantially as described.

691,340. **FAN ATTACHMENT FOR SEWING-MACHINES.** GEO. GEER, Richmond, Va., assignor of one-half to Charles E. Book, Richmond, Va. Filed Oct. 11, 1901. Serial No. 78,377. (No model.)



Claim.—1. In an attachment of the character stated, the combination with the machine-gooseneck and the balance-wheel; of a carrier-frame supported on the gooseneck, said frame having adjustment lengthwise of the gooseneck, and to swing in a horizontal plane at an angle to said gooseneck, a rotary fan and fan-shaft mounted on the carrier, said shaft having a gear to engage the balance-wheel of the machine, substantially as shown and for the purposes described.

2. A fan attachment, comprising a clamp having a slotted arm adapted to project in a longitudinal plane with the sewing-machine head, when attached thereto, a standard having a socket adjustably mounted on the aforesaid slotted arm, a fan-carrier frame, having a pendent shank vertically and rotatably adjustable on the standard, the fan-shaft, and the means connected with said shaft, and adapted to engage the balance-wheel of the machine, for the purposes described.

3. The combination with a sewing-machine head, and its balance-wheel; of a rotary fan supported on the machine-head to rock in a horizontal plane to bring the fan-shaft at a desired angle to the head, a support for the fan, said support including means for holding the fan at different elevations, said rotary fan including a fan-shaft and a friction-disk on the shaft for engaging the balance-wheel, all being arranged substantially as shown and for the purposes described.

4. The combination with the yoke-clamp 1, having a horizontal slotted

arm 1ˣ, and the support 2, longitudinally adjustable on the arm 1ˣ, said support having an apertured head 2ˣ; of the frame 3 having a pendent rod 3ˣ, to engage the apertured head 2ˣ, said frame having shaft-bearings, the fan-shaft and fan, said shaft having a friction-disk to engage the balance-wheel, all being arranged substantially as shown and described.

5. The combination with a clamping member adapted to be secured to the machine-head adjacent its balance-wheel; of a carrier-frame, said frame including a pendent shank rotatably and vertically adjustable on the clamping member, and having vertical bearings and horizontal bearings, a drive-shaft formed of a horizontal portion journaled in the vertical bearings, a vertical portion, journaled in the horizontal bearings, and a flexible section joining the two shaft portions, a friction-disk on the vertical shaft portion, and a fan on the horizontal shaft portion, all being arranged substantially as shown and for the purposes described.

6. As a new article of manufacture, a fan attachment for sewing-machines, comprising in combination, an inverted-U-shaped clamping member 1, having a horizontal slotted arm 1ˣ, the support 2, having a clamping-socket 2ˣ, at the upper end, and clamping devices for adjustably securing its lower end on the slotted arm 1ˣ, the frame 3, said frame consisting of a horizontal member 3ᵃ, having a vertical extension 3ˣ, at one end, a bifurcated vertical extension, and a pendent portion 3ᵈ, at the other end, the bifurcated extension and portion 3ᵈ, having shaft-bearings *y z* and *z*, the member 3ˣ having a bearing 3ˣ, the fan, the shaft-sections 6ˣ and 6ᵇ, and the flexible joint 7, said frame 3, also having a pendent shank 3ˣ, all being arranged substantially as shown and for the purposes described.

7. In a fan attachment for sewing-machines, a clamp member comprising a yoke-piece adapted to freely seat over the hub or box of the fly-wheel shaft, with its ends extended to project below the said box or hub, and opposing clamp-screws on said ends, for engaging the hub or box at points below the horizontal axis thereof, said yoke having a member that forms a support for the fan holding and driving mechanism, substantially as shown and described.

691,341. LIFE-PRESERVER. CHARLES GORE, San Francisco, Cal. Filed Apr. 17, 1901. Serial No. 56,310. (No model.)



Claim.—1. A life-preserver comprising an inflatable collar adapted to fit around the neck of the person; means for attaching the ends of the collar; inflatable armpit pads or bags connected with the collar by a harness or cords and means for inflating the armpit-pads independent of the collar-bag, substantially as described.

2. A life-preserver comprising an inflatable collar adapted to fit and be fastened around the neck; means for inflating the collar; armpit-pads connected with the collar by cords or harness; a tube connecting the armpit-pads and means for inflating the armpit-pads, substantially as described.

691,342. PROCESS OF EXTRACTING COTTON-SEED OIL. EDWIN L. JOHNSON, Memphis, Tenn. Filed Sept. 16, 1895. Renewed June 25, 1901. Serial No. 65,962. (No specimens.)

Claim.—1. In the method of manufacturing cotton-oil which consists in adding to cotton-seed kernels cotton-seed bran in substantially the proportions specified, mixing the two together, and pressing and forming the cake, substantially as described.

2. The method of manufacturing cotton-oil which consists in adding to cotton-seed kernels cotton-seed bran in substantially the proportions specified, mixing these together; and forming and pressing the cake, substantially as described.

3. The method of manufacturing cotton-oil which consists in cooking the cotton-seed kernels, and then mixing therewith cotton-seed bran and forming and pressing the cake while it is still hot, substantially as described.

4. The method of manufacturing cotton-seed oil which consists in mixing with a mass of the kernels about ten per cent. by weight of cotton-seed bran and forming and pressing the cake, substantially as described.

5. The method of manufacturing cotton-seed oil which consists in cooking the kernels, mixing with the mass of kernels about ten per cent. of cotton-seed bran and forming and pressing the cake, substantially as described.

DESIGNS.

35,578. SOUVENIR-SPOON. JULIUS A. OSWALD, Crawfordsville, Ind. Filed Nov. 25, 1901. Serial No. 83,658. Term of patent 7 years.



Claim.—The design for a spoon, substantially as shown and described.

35,574. HANDLE FOR BUTTON-HOOKS OR SIMILAR ARTICLES. FERDINAND THIELER, Brooklyn, N. Y. Filed Nov. 22, 1901. Serial No. 83,362. Term of patent 3½ years.



Claim.—The design for a handle for button-hooks or similar articles, substantially as herein shown and described.

35,575. MIRROR-FRAME. HENRY J. HERBERT, Detroit, Mich., assignor to United States Chemico Wood Company, Detroit, Mich., a Corporation of Michigan. Filed Dec. 16, 1901. Serial No. 86,162. Term of patent 7 years.



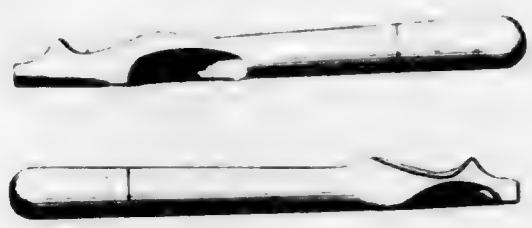
Claim.—The design for a mirror-frame, as herein shown and described.

35,576. BRUSH BACK AND HANDLE. HENRY J. HERBERT, Detroit, Mich., assignor to United States Chemico Wood Company, Detroit, Mich., a Corporation of Michigan. Filed Dec. 16, 1901. Serial No. 86,161. Term of patent 7 years.



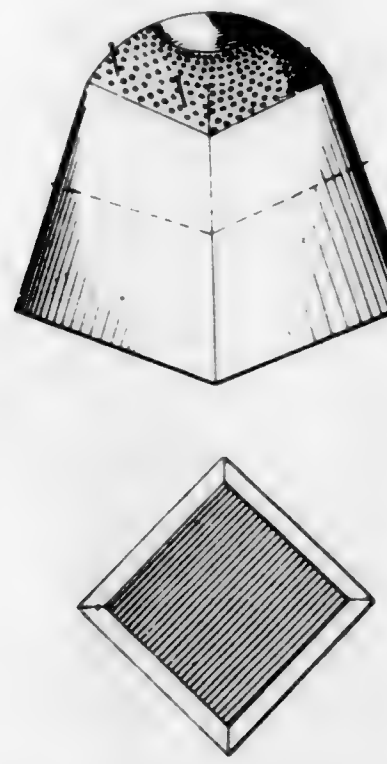
Claim.—The design for a brush back and handle as herein shown and described.

35,577. PENHOLDER. NELS JACOBSON, Ribiake, Wis. Filed Nov. 16, 1901. Serial No. 82,602. Term of patent 7 years.



Claim.—The design for a penholder, as herein shown and described.

35,578. PINCUSHION. GARRETT BROWN, Denver, Colo. Filed Dec. 18, 1901. Serial No. 86,426. Term of patent 7 years.



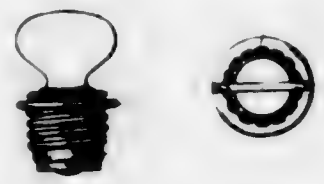
Claim.—The design for a pincushion as herein shown and described.

35,579. LADY'S SKIRT. CAROLINE C. ONDRAK, New York, N. Y. Filed Dec. 16, 1901. Serial No. 86,165. Term of patent 3½ years.



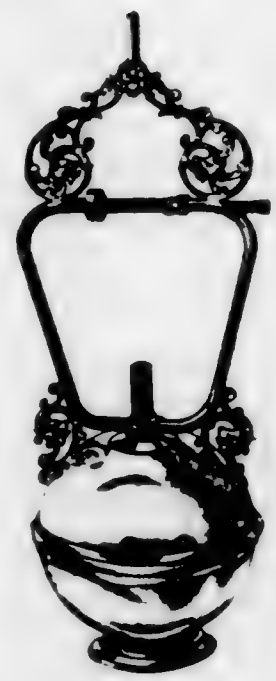
Claim.—The design for a lady's skirt, as herein shown and described.

35,580. HOT-WATER-BAG CLOSURE. CHRISTIAN WILLIAM MEISSNER, Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y., a Corporation of New Jersey. Filed Oct. 11, 1901. Serial No. 78,389. Term of patent 14 years.



Claim.—The design for a hot-water-bag closure substantially as herein shown and described.

35,581. LAMP-FIXTURE. WILLIAM HAWES, Chicago, Ill. Filed Sept. 16, 1901. Serial No. 75,625. Term of patent 3½ years.



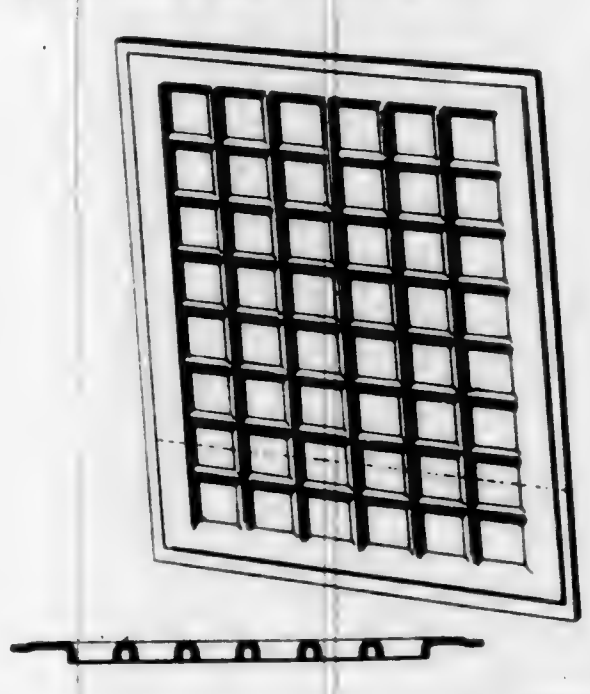
Claim.—The design for a lamp-fixture, substantially as herein shown and described.

85,582. STOVE-DOOR. JOSEPH P. OBERBACKER, Louisville, Ky. Filed Dec. 18, 1901. Serial No. 86,443. Term of patent 14 years.



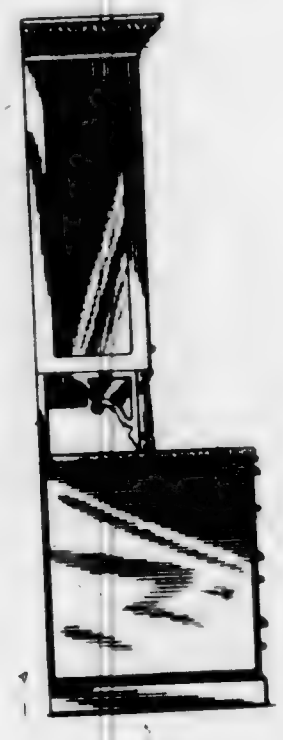
Claim.—The design for a stove-door, substantially as herein shown and described.

85,583. TOP PLATE FOR REGISTERS, VENTILATORS, OR SIMILAR ARTICLES. HOWARD S. HART, New Britain, Conn. Filed Nov. 23, 1901. Serial No. 83,485. Term of patent 14 years.

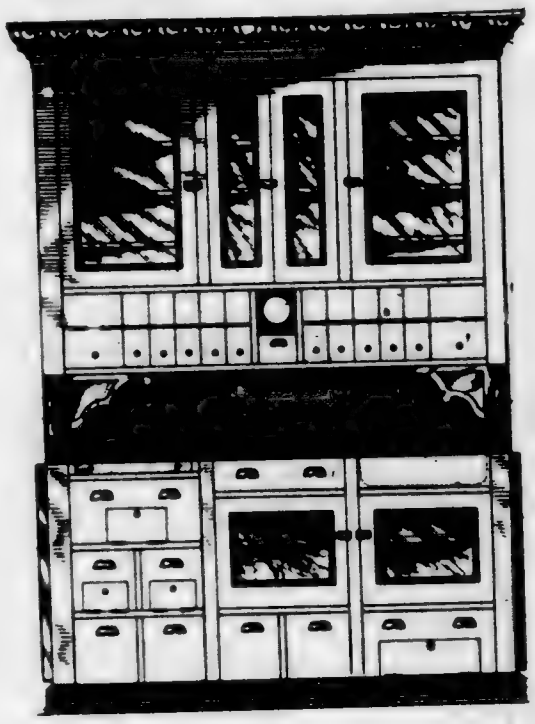


Claim.—The design for a top plate for registers, ventilators or similar articles substantially as herein shown and described.

85,584. KITCHEN-CABINET. JOSEPHINE A. REID, Muscogee, Ind. Ter. Filed Dec. 10, 1901. Serial No. 85,416. Term of patent 3½ years.



85,584.



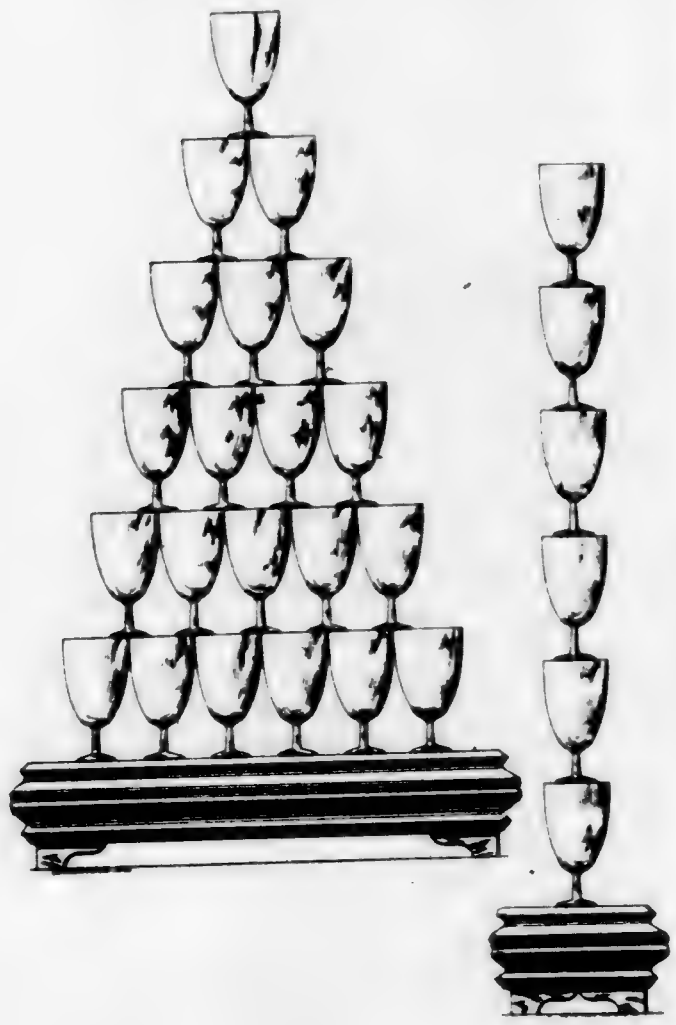
Claim.—The design for a kitchen-cabinet, as herein shown and described.

85,585. NEWSPAPER-HOLDER. GEORGE ORRSHAW, West Philadelphia, Pa. Filed Nov. 30, 1901. Serial No. 84,272. Term of patent 7 years.



Claim.—The design for a newspaper-holder, as herein shown and described.

35,586. SIDEBOARD ORNAMENT. FRANK M. BOBBERLIN and DAVID PIKE, Newark, N. J. Filed July 19, 1901. Serial No. 68,936. Term of patent 3½ years.



Claim.—The design for a "sideboard ornament," as herein shown and described

35,587. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, Philadelphia, Pa., copartners trading as John Bromley & Sons. Filed Dec. 17, 1901. Serial No. 86,313. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and described.

35,588. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, Philadelphia, Pa., copartners trading as John Bromley & Sons. Filed Dec. 17, 1901. Serial No. 86,314. Term of patent 3½ years.



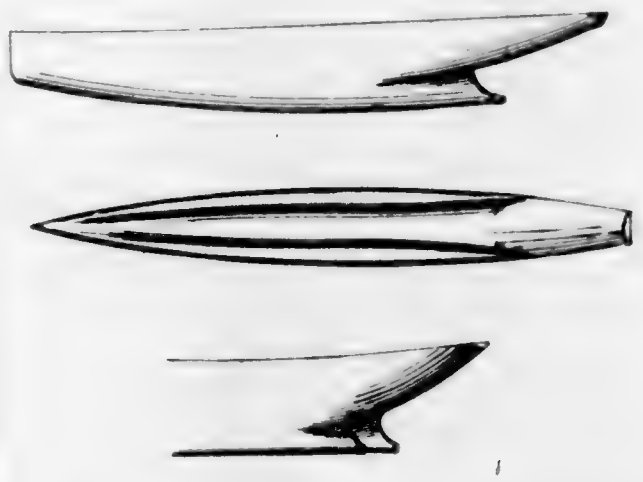
Claim.—The design for a rug substantially as shown and described.

35,589. AXLE-CENTER AND FIFTH-WHEEL PLATE. HUBBARD F. WEEKS, Freehold, N. J. Filed Oct. 14, 1901. Serial No. 78,662. Term of patent 14 years.



Claim.—The design for an axle-center and fifth-wheel plate, as shown, and with the characteristic features described.

35,590. VESSEL'S HULL. CARL J. H. FLINDT, Brooklyn, N. Y., assignor of two-thirds to James P. Farrell, Jr., and Edmund McMurray, Brooklyn, N. Y. Filed Oct. 15, 1901. Serial No. 78,753. Term of patent 14 years.



Claim.—The design for a vessel's hull, substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 14, 1902.

37,632. DOLLS. HAMBURGER & Co., New York, N. Y. Filed Nov. 30, 1901.

OLD GLORY

Essential feature.—The words "OLD GLORY." Used since September 1, 1900.

37,633. SPECTACLES AND EYEGLASSES. AMERICAN OPTICAL Co., Southbridge, Mass. Filed Dec. 12, 1901.

ALUMNICOID

Essential feature.—The word "ALUMNICOID." Used since December 9, 1901.

37,634. CERTAIN NAMED FUR NECKWEAR. LOUIS BAER, New York, N. Y. Filed Apr. 19, 1901.

REVERSO

Essential feature.—The word "REVERSO." Used since April 15, 1901.

37,635. HOSIERY. PILLING & MADELEY, Philadelphia, Pa. Filed Nov. 26, 1901.

Pilling & Madeley

Essential feature.—The signature "PILLING & MADELEY." Used since April, 1890.

37,636. BOOTS AND SHOES. JOSEPH JAMES GAGUIN, New York, N. Y. Filed May 16, 1901.

Freedom

Essential feature.—The word "FREEDOM." Used since April 1, 1901.

37,637. ENAMELED LEATHER. CHARLES B. RATHBUN, Nutley, N. J. Filed Dec. 11, 1901.

PYROX

Essential feature.—The word "PYROX." Used since October 1899.

37,638. TEXTILE FABRICS. THE EDDYSTONE MANUFACTURING COMPANY. Philadelphia, Pa. Filed Dec. 11, 1901.

Wm. Simpson & Sons

Essential feature.—The facsimile signature "WM. SIMPSON & SONS." Used since February, 1886.

37,639. CERTAIN NAMED COVERING MATERIAL. ASBESTOS MANUFACTURING Co. Philadelphia, Pa. Filed Nov. 23, 1901.

MARINE

Essential feature.—The word "MARINE." Used since October 1, 1900.

37,640. CIGARETTE-PAPERS. MAISON PIERRE BARDOU JOS, Perpignan, France. Filed Jan. 30, 1901.



Essential feature.—Two intersecting yellow bands having at the intersection a red seal bearing the facsimile signature "JN BARDOU." Used since 1856.

37,641. CERTAIN NAMED MEDICINE. WILLIAM C. ALPERS, New York, N. Y. Filed Nov. 8, 1901.

TRIACOL

Essential feature.—The word "TRIACOL." Used since November 1, 1900.

37,642. REMEDIES FOR COUGHS AND COLDS. WILLIAM BOYCE THOMPSON, Butte, Mont. Filed Aug. 12, 1899.

KNOCK OUT

Essential feature.—The words "KNOCK OUT." Used since August 7, 1899.

87,648. CIGARS. SAMUEL L. JOHNS, Hollidaysburg, Pa. Filed Sept. 6, 1901.



Essential feature.—The pictorial representation of a raven and the words "THE RAVEN." Used since 1894.

87,644. FLOUR. BELL, BELL, & Co., Ogdensburg, N. Y. Filed July 22, 1901.



Essential feature.—The words "WISE KING" and a pictorial representation of a king. Used since October, 1896.

87,645. CONDENSED MILK OR MILK-PRESERVE. ARTHUR SAUER, Ewingsberg, Germany. Filed Sept. 26, 1901.

Ramogen

Essential feature.—The word "RAMOGEN." Used since July 31, 1900.

87,646. CORN-STARCH, LAUNDRY-STARCH, AND MILL-STARCH. ARCHER STARCH Co., Chicago, Ill. Filed Oct. 26, 1901.

LIBERTY



Essential feature.—The word "LIBERTY" and the representation of a human head. Used since September 1, 1900.

87,647. CERTAIN NAMED TOILET ARTICLES AND PREPARATIONS. ROSE MONTAGUE HOLLAND, London, England. Filed Oct. 28, 1901.



Essential feature.—The facsimile signature "ROSE MONTAGUE HOLLAND." Used since May 29, 1900.

87,648. SOAP. BELL & BOGART SOAP Co., New York, N. Y. Filed Dec. 7, 1901.



Essential feature.—The words "KING COLE'S" and a pictorial representation of King Cole. Used since June 1, 1901.

87,649. PAINTS AND ENAMELS. PHOENIX PAINT AND VARNISH COMPANY, Philadelphia, Pa. Filed May 8, 1901.

MARBLEITE

Essential feature.—The word "MARBLEITE." Used since January, 1900.

87,650. CERTAIN NAMED SPORTING GOODS. THE DRAPER & MAYNARD COMPANY, Plymouth, N. H. Filed Nov. 16, 1901.



Essential feature.—The representation of a dog standing upon a diamond-shaped figure and the letters "D & M." Used since October 1, 1900.

87,651. FRUIT-PRESSES. HEISS FRUIT PRESS Co., New York, N. Y. Filed Nov. 19, 1901.



Essential feature.—A circle and the transverse representation of an open fruit-press, with its spread arms projecting beyond the circle. Used since September 25, 1901

87,652. CERTAIN NAMED SHOWER AND BATHING APPARATUS. EDWARD MELCHERS, Toledo, Ohio. Filed Dec. 11, 1901.



Essential feature.—The representation of a nude figure in a bath-tub, supporting a shower-yoke upon the shoulders. Used since November, 1900.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C

LABELS

REGISTERED JANUARY 14, 1902.

8,891.—*Title:* "CORONATION VIOLET." (For Perfume.) CASWELL, MASSEY & COMPANY, New York, N. Y. Filed November 22, 1901.

8,892.—*Title:* "OX HEART." (For Candy.) DAVID D. LONG, Oswego, N. Y. Filed December 16, 1901.

8,893.—*Title:* "CREAM SYRUP." (For Syrup.) CALIFORNIA MERCANTILE CO., Oakland, Cal. Filed December 14, 1901.

8,894.—*Title:* "SUPERBA." (For Blueberries.) MILLIKEN, TOMLINSON CO., Portland, Me. Filed December 14, 1901.

8,895.—*Title:* "DEVONSHIRE RELISH." (For Table-Sauce.) LESLIE M. ROBERTS, New York, N. Y. Filed December 17, 1901.

8,896.—*Title:* "WORLD'S FAIR BREAD." (For Bread.) HEYDT BAKERY COMPANY, St. Louis, Mo. Filed November 23, 1901.

8,897.—*Title:* "HEART FOOD." (For a Breakfast Product.) THE EDWIN KOCH CO., Saginaw, Mich. Filed December 13, 1901.

8,898.—*Title:* "TIGER ROLLED WHITE OATS." (For Rolled Oats.) MORRIS OATMEAL CO., Morris, Ill. Filed December 14, 1901.

8,899.—*Title:* "JUAN DE FUCA." (For Cigars.) SANCHEZ, RODRIGUEZ & CO., Seattle, Wash. Filed December 17, 1901.

8,900.—*Title:* "REVIVOR BITTERS." (For Bitters.) WALTER MOISE & CO., Omaha, Nebr. Filed December 17, 1901.

8,901.—*Title:* "FORMO DYSPEPSIA TABLETS." (For Dyspepsia-Tablets.) LINCOLN CHEMICAL CO., Milwaukee, Wis. Filed December 18, 1901.

8,902.—*Title:* "FARRAR'S HYGIENIC PROTECTIVE POWDER." (For a Protective Powder.) B. RUPPE, Albuquerque, N. Mex. Ter. Filed November 23, 1901.

8,903.—*Title:* "KHASAN'S ROACHYNEE." (For an Insect-Powder.) NAUM KHASAN, New York, N. Y. Filed December 18, 1901.

PRINTS

REGISTERED JANUARY 14, 1902.

446.—*Title:* "NAPOLEON BACK, NO. 606, CONGRESS PLAYING CARDS." (For Playing-Cards.) THE UNITED STATES PLAYING CARD CO., Cincinnati, Ohio. Filed December 14, 1901.

447.—*Title:* "MARTHA WASHINGTON BACK, NO. 606, CONGRESS PLAYING CARDS." (For Playing-Cards.) THE UNITED STATES PLAYING CARD CO., Cincinnati, Ohio. Filed December 14, 1901.

448.—*Title:* "JOSEPHINE BACK, NO. 606, CONGRESS PLAYING CARDS." (For Playing-Cards.) THE UNITED STATES PLAYING CARD CO., Cincinnati, Ohio. Filed December 14, 1901.

449.—*Title:* "HASN'T SCRATCHED YET." (For a Cleaning Material.) KETTERLINUS LITHO. M'F'G CO., Philadelphia, Pa. Filed December 11, 1901.

450.—*Title:* "AMERICAN GARMENT CLEANING COMPANY." (For Cleaned Garments.) ALEXANDER DURAND, Bay City, Mich. Filed December 5, 1901.

451.—*Title:* "I DO LOVE A DOMESTIC." (For Sewing-Machines.) M. C. JAMESON, St. Louis, Mo. Filed December 13, 1901.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

DENTON AND DENTON v. RIKER.

Decided November 30, 1901.

APPEAL—FAVORABLE DECISION—SUPERVISORY AUTHORITY OF THE COMMISSIONER.

No appeal from a favorable decision on the question of patentability will be entertained, and the matter will not be taken up under the supervisory authority of the Commissioner, except in a clear case.

ON petition.

DEVICES FOR MOUNTING ENTOMOLOGICAL SPECIMENS.

Patent to William D. Denton and Robert W. Denton granted December 18, 1900, No. 664,132. Application of Clarence B. Riker filed February 15, 1900, No. 5,251.

Mr. A. V. Cushman for Denton and Denton.

Mr. R. W. Barkley for Riker.

ALLEN, *Commissioner:*

This is a petition that the Commissioner under the supervisory power vested in him as head of the Patent Office may review the decision of the Primary Examiner in holding that the issues of the above-entitled interference are patentable.

It appears from the record that a motion to dissolve the interference was heard by the Examiner on the ground, among others, that the issues are not patentable to either party. In support of this ground of the motion numerous patents were cited by the moving party, and it was alleged that the state of the art as disclosed by these patents was such as to negative any idea of patentability of the issues. Upon due consideration the motion was denied by the Examiner, who held that the issues were patentable.

It is well settled that a decision by the Examiner holding the claims to be patentable will not be reviewed upon petition to the Commissioner. To entertain such a petition would be in effect to review the Examiner's decision in a case where there is no direct appeal. (*Manny* v. *Easley* v. *Greenwood, Jr.*, 48 O. G., 538; *Goss* v. *Scott*, 96 O. G., 842.)

It is well settled, further, that the Commissioner may, whenever in his opinion equity and good practice demand it, review the decisions of lower tribunals. As was stated in *Goss* v. *Scott*, *supra*, however—

> this discretionary power of the Commissioner should be exercised, only in exceptional cases, and then only to correct some palpable error which is clear and evident on its face. There should be no mooted question as to the patentability or non-patentability of the claims. * * * The error should be so clear as to be apparent to all.

There appears to be no such error in this case as would warrant the exercise of this supervisory power. The references which, it is urged, anticipate the claims forming the issue were considered by the Examiner on the motion to dissolve, and it appears that the patentability of these claims in view of the prior art was carefully considered in the *ex parte* treatment of the Riker application, and they were held to be patentable as the result of such consideration.

There being no such error clear and palpable as would warrant a review of the Examiner's action, it follows that such a review must be refused.

The petition is denied.

EX PARTE SORENSON.

Decided November 30, 1901.

FINAL REJECTION—REOPENING CASE TO EXPLAIN REFERENCES.

A case will not be reopened after final rejection for the purpose of further explanation of the references where there was nothing about the applicant's prior communications to indicate that such explanation was necessary.

ON petition.

COMPRESSED-AIR PUMP.

Application of Christian Sorenson filed March 15, 1900, No. 8,773.

Messrs. C. A. Snow & Co. for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to enter in the above-entitled case an amendment presented on August 25, 1900.

It appears that in his fourth action in the case, dated July 12, 1900, the Examiner finally rejected the claims for the reasons before given. The same claims had been rejected on June 18, 1900, and without amending them and without indicating that he did not understand the Examiner's position or the references and without asking for a further explanation the applicant presented an argument on the merits of the case on July 3, 1900. It was in response to this argument that the claims were finally rejected.

The petitioner now contends that the final rejection was not in order, since the Examiner had not explained the references with that particularity which the practice requires. If the applicant did not understand the references or was of the opin-

ion that the Examiner had not explained his position in regard to them so fully that it could be understood, he should have raised that question and requested an explanation at the time that he filed his argument of July 2. He did not do so, however, and there is nothing about that argument to indicate that the applicant did not understand the references or the Examiner's position.

No new light has been thrown on the matter since the date of the final rejection, and the petitioner's subsequent action in raising the question of the sufficiency of the explanation seems to have been for the purpose of obtaining the right to present further amendments rather than because of any misunderstanding of the references or of the Examiner's position.

The petitioner's action did not call for a further explanation, and therefore the Examiner was justified in finally rejecting the claims.

The petition is denied.

MILLS v. TORRANCE.

Decided January 3, 1902.

1. PRELIMINARY STATEMENT—NOTICE OF INTENTION TO AMEND—TESTIMONY TAKEN.

Where a party discovers an alleged mistake in his preliminary statement and thereafter permits his opponent to take and file his testimony without any notice of an intention to amend, *Held* that he will not thereafter be permitted to amend by carrying his dates back of those originally alleged.

2. SAME—AMENDMENT—RIGHTS OF OPPOSING PARTY.

The question as to the truth or falsity of the allegations in a proposed amendment to a preliminary statement is not controlling upon the question whether the amendment shall be permitted. The rights of the opposing party to the interference must be considered.

APPEAL on motion.

REFINING-ENGINES.

Application of Melvin A. Mills filed April 23, 1901. Patent granted Charles E. Torrance November 27, 1900, No 662,746.

Messrs. L. Deane & Son for Mills.

Messrs. Munn & Co. for Torrance.

ALLEN, *Commissioner:*

This is an appeal by Mills from the decision of the Examiner of Interferences granting the motion of Torrance to amend his preliminary statement.

The original preliminary statement now on file alleges, among other things—

that he first made a sketch illustrating said invention on or about the 1st day of September, 1897, as near as deponent can at present fix the time. That he first disclosed his said invention to another person on or about the 1st day of April, 1898, as near as deponent can at present fix the time.

It is sought to amend said statement to read as follows:

That he first made rough sketches, illustrating said invention, between the 27th and 29th days of June 1897, and that work was commenced on finished drawings about September 1st, 1897, as near as deponent can at present fix the time. That he first disclosed his said invention to another person between the 27th and 29th days of June, 1897.

The decision of the Examiner of Interferences was based on facts alleged by Torrance and others in affidavits filed by them in support of said motion.

The Examiner of Interferences in granting the motion has referred solely to the case made out by Torrance and does not appear to have considered the effect on the rights of Mills.

This is not a case where—

the testimony of neither party has been taken, or if it has been taken, where the other party will not be injured, save as the true state of facts may be injurious, and the opponent would not be misled nor the expenses of the proceeding increased. (*Whitney* v. *Gibson*, 86 O. G., 1963.)

The testimony of Mills has not only been taken, but it was filed in the Patent Office before this motion was brought.

It is clear that the injury to Mills is not limited to the fact that a true state of facts may be established. Mills may be obliged to take new testimony, due to the fact that when his testimony-in-chief was taken he had the right to expect that Torrance was limited to his allegation of disclosures to others "about the 1st day of April, 1898."

Mills, the junior party, took his testimony-in-chief in Boston, Mass., commencing on July 15, 1901, and concluding on July 18, 1901.

In the affidavits filed by Torrance in support of the motion is the following statement:

That deponent (Torrance) is informed that on July 2nd, 1901, E. D. Jones & Sons Co., of Pittsfield, Mass., the assignee of the U. S. Letters Patent No. 662,745, granted deponent, covering the invention in interference, wrote said Wagg to ascertain what he knew concerning the invention in interference with a view to calling him as a witness in deponent's behalf, he (said Wagg) having seen finished drawings of said invention in the spring of 1898. That said Wagg wrote under date of July 6, or nearly a month after the preliminary statements were filed, that he remembered that deponent talked of mounting the pulley of a Jordan engine on a quill as early as June, 1897. That E. D. Jones & Sons Co., wrote Munn & Co., of New York city, on July 8th, 1901, saying they had a witness to a disclosure by Torrance in 1897. That Munn & Co., called the attention of E. D. Jones & Sons Co., to the fact that the disclosure referred to in their letter was earlier than the date of disclosure set up in deponent's preliminary statement. That on July 12th, said letter from Wagg to E. D. Jones & Sons Co., was sent to Munn & Co.

That on July 13th, 1901, said E. D. Jones & Sons Co., telephoned by long-distance telephone to deponent at Northampton, calling his attention to the error and requesting him to communicate with Munn & Co., counsel having charge of the case, that deponent immediately put himself in communication with said counsel and had several interviews with him in regard to said error in his preliminary statement.

It is therefore seen, according to Torrance's sworn statement, that this new state of affairs was known to him and to his attorneys prior to the date set for the testimony-in-chief of Mills to be taken.

With these facts well known Torrance and his attorneys permitted Mills to take his testimony-in-chief without even intimating to him that it was their intention to file a motion to amend the preliminary statement. No notice of the intention of Torrance to amend his preliminary statement was served on Mills before his testimony was taken and filed in the Patent Office.

In *Washburn* v. *Hadfield* (57 O. G., 1719) Commissioner Simonds held that when the junior party has taken his testimony the other party cannot be permitted to amend his preliminary statement by the addition of facts which were presumably within his knowledge at the time when the statement was originally filed. Though there is nothing certain in this case to show that Torrance was not in possession of the facts relating to his disclosure to others in June, 1897, his reasons for not so alleging in the original preliminary statement might be accepted if no testimony had been taken by Mills. However this may be, the fact is that not only has Mills taken his testimony, but Torrance was in possession of the new facts *before* the date on which

said testimony was taken. The same principle is therefore present in this case as was present in the case of *Washburn* v. *Hadfield*, *supra*.

As was stated in the decision of *Franklin* v. *Morton* v. *Cooley*, (96 O. G., 2063:)

After a party to an interference, relying upon his opponent's statement, has taken his proofs the inability of the Commissioner to impose terms upon the other party for the expense of taking supplementary proofs should operate against permitting an amendment which might render such supplementary proofs necessary. (*Washburn* v. *Hadfield*, 89 O. G., 468.)

A consideration of all the facts of this case makes it apparent, for the seasons above stated, that this motion should not be granted. In view of these facts if the new matter can now be introduced by Torrance in his preliminary statement, as remarked in *Washburn* v. *Hadfield*, *supra*—

the rule requiring preliminary statements might as well be abrogated and this, irrespective of the question whether the new averment be true or false.

The decision of the Examiner of Interferences is reversed.

WESTON v. JEWELL.

Decided January 4, 1902.

1. INTERFERENCE—APPLICANT AGAINST PATENTEE—BAR TO APPLICANT'S RIGHTS—DISSOLUTION.

An interference between an applicant and a patentee is instituted merely to determine whether a patent shall be granted to the applicant, and when the Office discovers some bar to the grant of a patent to him not involving the question of priority of invention it should dissolve the interference without deciding priority.

2. SAME—SAME—PUBLIC USE—PRIORITY A MOOT QUESTION.

Where an applicant is in interference with a patentee and the testimony shows that his invention had been in public use for more than two years before his application and he admits that he does not desire or expect a patent, *Held* that the question of priority of invention is a moot question which will not be decided.

APPEAL from Examiners-in-Chief.

ELECTRICAL MEASURING INSTRUMENT.

Application of Edward Weston filed November 27, 1899, No. 738,376. Patent granted to Edward W. Jewell August 29, 1899, No. 704,460.

Mr. C. J. Kintner and *Mr. Marcellus Bailey* for Weston.

Messrs. Barton & Brown for Jewell.

ALLEN, *Commissioner:*

This is an appeal by Weston from the decision of the Examiners-in-Chief affirming the decision of the Examiner of Interferences awarding priority of invention to Jewell upon the following issue:

3. In an electrical measuring instrument, the combination, with the rotating member thereof, of an index-needle actuated by said rotating member, a casing for the instrument, a portion having a scale marked thereon on which said needle is adapted to indicate the measurements of the instrument, said scale portion being adjustable from without the casing with respect to said needle and independently of the instrument to correct erroneous indications of the needle.

4. In an electrical measuring instrument, the combination, with the rotatable member thereof, of an index-needle actuated thereby, and a dial having a scale marked thereon on which said index-needle is adapted to indicate the measurements of the instrument, said dial being rotatable with relation to the needle and independently of the instrument, the axis of rotation of said dial being substantially coincident with the axis of rotation of the rotatable member.

Weston's claim to priority rests upon the contention that a device made and used in 1895 and which is illustrated in Exhibits 6 and 8ª embodied the invention of the issue. The lower tribunals were of the opinion that it did not, and therefore decided in favor of Jewell.

Jewell is a patentee, and since this Office has no jurisdiction over patents after they are granted the only justification for this interference is to determine whether or not Weston is entitled to a patent. At the outset of his oral argument of the case counsel admitted that he did not desire or expect an allowance of a patent to Weston. The explanation for this statement is found in Weston's record, wherein it appears from the admission of Weston and the testimony of others that the device relied upon in proof of priority had been in public use for more than two years before the date of Weston's application.

Weston says:

I can say that such an instrument was built and put in operation in the laboratory of the Weston Electrical Instrument Company about May, 1895, and has been in constant use as a standard ever since that time. * * *

It is true that the features of the instrument described in the issue and forming the subject-matter of the claims of my present application for patent have been in use for a number of years, and that I was fully aware of this state of affairs at the time of my application for the patent was filed. * * * My application for patent was filed with the express intention of bringing about an interference between Mr. Jewell and myself, and the drawings shown in the Jewell patent were taken and embodied almost exactly in my application for the purpose of insuring an interference. I had no desire to obtain a patent embodying the features of the several issues here in dispute, and so stated this to Mr. Kintner, but I did desire a full opportunity, while the proofs were still in existence, and the witnesses all alive to establish priority of invention of all the several devices embodied in and covered by the issues, as defined in this case, and I deemed this necessary, in view of the menace to our business arising from the existence of the Patent No. 681,871. * * * I have stated the exact facts as to what we did, and the Patent Office authorities must determine whether it was public use or whether it was such offering for sale as constituted a legal barrier to the issue of patent. I have no desire to obtain a patent, but merely wish to protect the interest of the company I am identified with, and to get on record the exact facts at this time.

The witness Benecke says:

Such an instrument has been built by the Weston Electrical Instrument Company, and has been assembled on May 3rd, 1895. The instrument is marked B voltmeter No. 333. This instrument has been used from the day it was completed as a reference standard instrument in the standard room of the Weston Electrical Instrument Company, and is still used to-day for the same purpose.

If the instrument referred to embodies the invention of the issue, Weston is not entitled to a patent because of the two years' public use, and if it does not he is not entitled to a patent, because he has failed to overcome Jewell's patent. For the purpose of determining Weston's rights it must be assumed that the instrument does embody the issue, since it is so alleged by him, and it is upon that allegation that his claim to priority rests. He cannot be heard to deny it upon the question of public use while asserting it upon the question of priority.

It being apparent that Weston is not entitled to a patent because of two years' public use of his alleged invention, the question of priority of invention raised by the interference is a moot question. This Office is not concerned with the validity of Jewell's patent, but merely with the question whether a patent shall be granted to Weston. Once that is settled this Office must refuse to pass upon the moot question whether he was prior in point of time to some other party. (*Hopkinson* v. *Hunter*, 74 O. G., 658; C. D., 1896, 1.)

For the reasons stated above the interference is dissolved without a judgment of priority.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

WHITSON *et al.* *v.* THE COLUMBIA PHONOGRAPH COMPANY.

Decided November 5, 1901.

1. PHONOGRAPHS—INJUNCTION PENDENTE LITE.

Since it appears that the complainant acquired from the owners of the patents the exclusive right to deal in phonographs in this district, *Held* that an injunction *pendente lite* was properly granted restraining the defendants from dealing in phonograph supplies.

2. ASSIGNMENT OF PATENT RIGHTS—ASSIGNOR INSOLVENT—RIGHTS OF ASSIGNEE.

Where the company owning certain patents granted to the complainant the exclusive right to use the invention in this district for a certain number of years, *Held* that the fact that the company is now insolvent and has gone out of business does not affect or limit the exclusive right given to the complainant.

3. SAME—PURCHASER WITH NOTICE—INFRINGEMENT.

After rights under a patent have been granted any person who gets control of the patent with knowledge or notice, actual or constructive, must be assumed to have taken subject to such rights and is disqualified from infringing those rights.

Mr. Howard W. Hayes for the appellants.

Mr. Philip Mauro for the appellee.

MORRIS, *J.*:

This is an appeal from an interlocutory order of the Supreme Court of the District of Columbia, whereby, in a suit in equity instituted by the appellee as complainant against the appellants and a corporation of the State of New Jersey known as the "National Phonograph Company," as defendants, an injunction *pendente lite* was allowed to restrain said defendants from selling or dealing in phonographs or phonograph supplies in the District of Columbia.

From the record, which consists only of the bill of complaint, the exhibits thereto, some affidavits in support of the bill, and affidavits on behalf of the appellants, it appears that the Columbia Phonograph Company, a corporation under the laws of the State of West Virginia, but having its general office and doing business in this District, was organized for the purpose of exploiting and placing upon the market the talking-machine known as the "graphophone," protected by Letters Patent of the United States issued in the year 1886 to Bell and Tainter; and that the National Phonograph Company, above mentioned, was organized in the State of New Jersey, and under the laws of that State, for the purpose of exploiting and placing upon the market a similar talking-machine known as the "phonograph," the invention of Thomas A. Edison, to whom Letters Patent of the United States for it and for its improvements were issued in the year 1888 and subsequent years. The two inventions, although patentably different, were of the same general character and subserved the same purpose, the reproduction of the sounds of the human voice; and, as was natural, litigation followed between their respective owners. Ultimately, however, an agreement was reached between them; and it is the alleged violation of that agreement that has given rise to the present suit.

The facts that led up to this controversy, so far as they can be gathered from the record before us and are necessary to be here stated, are these.

For the purpose of bringing the inventions of Mr. Edison into use two companies were organized in the State of New Jersey, the place of his residence, one designated as the "Edison Phonograph Company," which by contract with Edison became the owner of the patents and was entitled to become the owner of any other inventions in the same line that might be made by him, and the other designated as the "Edison Phonograph Works," which acquired from Edison the exclusive right of manufacturing the phonographs. Edison was the owner of all but a comparatively small fraction of the stock of the Edison Phonograph Company; and he also controlled the other company, the Edison Phonograph Works. Being so situated, he entered into a contract on June 28, 1888, with one Jesse H. Lippincott of New York, whereby he agreed to sell to Lippincott, and Lippincott agreed to buy from Edison the entire capital stock of the Edison Phonograph Company, except one hundred and fifty shares, which had already been transferred by Edison to another person, but for the repurchase of which there was provision made in the contract, so as to give Lippincott the entire and absolute ownership. The consideration for the transfer was the payment by Lippincott to Edison of the sum of $500,000, in four several instalments of different amounts, all within the same year 1888, and the organization by Lippincott of a new company or corporation to be designated as the "American Phonograph Company," whose business it should be to exploit the phonograph and to introduce it into commercial use. And provision was made for the execution of contracts between such company, when organized, on the one hand, and Edison and the Edison Phonograph Works, on the other hand.

Before August 1, 1888, the contemplated company was organized by Lippincott, also in the State of New Jersey, although under a slightly different name, the North American Phonograph Company; and on the said last-mentioned day Edison entered into the contract with it and with Lippincott required by the preceding agreement. Lippincott, it seems, had acquired control also of the graphophone; and by the agreement of August 1, 1888, it was provided that Lippincott and the North American Phonograph Company, of which he became president, should do their utmost to introduce into commercial use both the phonograph and the graphophone impartially; that the two instruments should be kept separate; that Edison would assign to the company any improvement upon the phonograph that might be made by him at any time within fifteen years thereafter; and that the field of operations of the company should comprise the United States and Canada, but not any other countries. And it was added that the contract was based on the assumption that the agreement of

June 28, 1888, between Edison and Lippincott had been or would be carried out.

With these agreements in force, the North American Phonograph Company, now owning or controlling both the phonograph and the graphophone, entered into a contract on January 15, A. D. 1889, with Edward D. Easton, of this city and District, whereby it was provided that, in consideration of the payment of $25,000 and other valuable considerations by Easton, this latter should, for the term of five years thereafter, have the exclusive right to lease the phonograph and the graphophone, and their respective appurtenances, and to let the same to others, for the whole territory comprised within the States of Delaware, Maryland, and the District of Columbia; that the company should not grant to others or itself exercise any similar rights during such term within said territory; that the phonographs and graphophones to be dealt in should remain the property of the company, and should only be rented to and by Eaton at certain specified rates; that if, by January 1, 1890, or at any time thereafter, the system of merely leasing instruments to the public should be found by the North American Graphophone Company to be unsatisfactory, it might require Easton to give to the public the option of either leasing or purchasing them at stipulated prices; and that, within six months after the date of the agreement, Easton should organize a company under the laws of the State of West Virginia, with a capital stock of $125,000, to which his interest under the contract should be assigned, and which should perform the contract. It was further provided by this contract that the company so to be organized should, immediately upon its organization, deposit with a trust company in New York, for delivery to the North Americam Phonograph Company, or to Jesse H. Lippincott, trustee, five thousand shares of its capital stock, full paid, of the par value of $25,000; and that upon such deposit, the license and privilege granted to Easton and to inure to the benefit of the company to be organized by him, should be extended to March 26, 1903, and for such further time as might be authorized.

In pursuance of this contract, Easton organized the Columbia Phonograph Company, the complainant in the suit, and the appellee before us; and the North American Phonograph Company thereupon entered into contract directly with it, and confirmed to it its agreement with Easton, and the exclusive rights and privileges conceded to him. It is understood that the deposit of stock required to be made by the Columbia Phonograph Company was duly made, and that the extension of its exclusive right and privilege under the contract thereupon became effective until March 28, 1903.

In the summer of 1894, after the extended term had been entered upon, the North American Phonograph Company became insolvent; its affairs went into the hands of a receiver; and its assets were disposed of under direction of the court of chancery in New Jersey. Whether the company itself was formally dissolved, does not appear; but presumably it is defunct.

The National Phonograph Company, a corporation organized under the laws of New Jersey, and having its principal place of business at Orange, in that State, is alleged in the bill of complaint to be the "successor of the North American Phonograph Company in the phonograph business," and to be "bound by the contracts and agreements of the latter;" and it is alleged also in the bill that "it is the sole and exclusive selling agent for all phonographs and phonograph supplies manufactured in accordance with the said Edison phonograph inventions and under the said Edison phonograph patents," and that it "does not sell its said phonographs outright, but in connection with a license agreement under which it retains a certain control of the same." On the other hand, it is averred by an officer of this company, who makes an affidavit in this case on behalf of Whitson Brothers, that the company, which was incorporated on January 26, 1896, and which purchased some of the assets of the North American Phonograph Company, but not, as it claims, any rights of the North American Phonograph Company in the contracts made by that company with Easton and the Columbia Phonograph Company, is not the successor of the North American Phonograph Company, and is engaged in the business of selling phonographs and graphophones under license from the Edison Phonograph Company and the American Graphophone Company respectively. In this affidavit it is further stated that the National Phonograph Company has sold phonographic goods to the Columbia Phonograph Company, as well as to Whitson Brothers, and others. And the Whitson Brothers, the appellants here, in an affidavit filed by one of them, admit that they are dealers in phonographs and phonographic supplies in this District, and that their purchases are made from the National Phonograph Company at Orange, in New Jersey, whence their goods are shipped to this city by the company. From the affidavits on behalf of the defendants it also appears that the Columbia Phonograph Company has practically ceased to deal in phonographs, and confines itself to the traffic in graphophones and materials connected therewith; and the inference is that the controversy is the outcome of rivalry and antagonism between the owners of the rival patents.

In this condition of things the Columbia Phonograph Company, on April 22, 1901, filed its bill in equity in the Supreme Court of the District against the appellants John E. Whitson and Walter J. Whitson, and the National Phonograph Company, as defendants, for an injunction to restrain them, and each of them, and their agents, "from directly or indirectly using or causing to be used, or selling or causing to be sold, or letting or causing to be leased, or offering or causing to be offered for sale or to let within the States of Maryland and Delaware and within the District of Columbia any phonograph or phonograph supplies." Only the Whitsons were served with process: the National

Phonograph Company was not served, and has not entered an appearance in the cause; but one of the affidavits filed on behalf of the Whitsons was made by the assistant general manager of the company, who fully and clearly states in it the position of the company in the controversy.

Upon the filing of the bill of complaint, which was supported by affidavits, motion was made for an injunction *pendente lite;* and the motion was opposed on behalf of the Whitsons, who filed affidavits in opposition thereto. The court below, however, upon consideration of the motion, granted the injunction *pendente lite;* and from its order of allowance of the injunction the present appeal has been prosecuted by the Whitsons.

It may be added that this is not the first occasion on which the Columbia Phonograph Company has deemed its rights in this District under the contract with the North American Phonograph Company to have been violated, and has had recourse to legal proceedings to restrain such violation. In 1893, as appears from the record, while the North American Phonograph Company was yet in active existence, one Tewksbury and one Spencer, claiming to act under the authority of that company, undertook to procure the manufacture of sound-records within the District of Columbia in disregard of the rights of the Columbia Phonograph Company, and were restrained by injunction from so doing.

Section 4898 of the Revised Statutes of the United States, being section 36 of the patent act of July 8, 1870, provides that—

> every patent or any interest therein shall be assignable in law by an instrument in writing; and the patentee or his assigns or legal representatives may in like manner grant and convey an exclusive right under his patent to the whole or any specified part of the United States.

And it adds:

> An assignment, grant, or conveyance shall be void as against any subsequent purchaser or mortgagee for a valuable consideration, without notice, unless it is recorded in the Patent Office within three months after the date thereof.

Under this provision of the statute, the North American Phonograph Company, which at the time had full and complete control over the Edison phonograph patents, gave to the appellee, the Columbia Phonograph Company, for a term of years which has not yet expired, the exclusive right to deal in phonographs and phonograph supplies in this District, as well as in the States of Maryland and Delaware; and, if its contract in the premises for that purpose be not in itself invalid, there is no good reason shown why it should not be regarded as yet in force and effect. It can make no difference in this regard that the North American Phonograph Company became insolvent, and is extinct or moribund, or has passed into innocuous desuetude, and that its assets have gone into other hands. Nor is it of any consequence whether the National Phonograph Company is, or is not, to be regarded as the successor in law, if such it can be, of the North American Phonograph Company. Any person, natural or artificial, into whose hands, after the execution of the contract between the North American Company and the Columbia Company, the control of the Edison patents came, with knowledge or notice, actual or constructive, of the existence of such contract and of the rights of the Columbia, must be assumed to have taken subject to such rights, and to be disqualified from infringing in any manner the exclusive license given to the Columbia Company. If this were not so, it is very plain that rights granted under a patent might be destroyed with impunity against the will of the owner of the right by the mere transfer of the patent.

This proposition does not seem to be seriously, if at all, controverted on behalf of the appellants. The burden of their argument appears to be, either that the bill of complaint is defective in its allegations, or that the contract between the North American Phonograph Company and the Columbia Phonograph Company is invalid in itself as seeking to impress upon a chattel or personal property a qualified ownership inconsistent with the freedom of transfer and the rights of possession. But we fail to see the force of this proposition. The bill of complaint, it is true, might have been more definite and specific. This, if need be, can easily be cured by amendment. And with reference to the objection that the contract between the North American Company and the Columbia Company involves a violation of public policy in seeking to restrain the freedom of sale and transfer of a patented article, we fail to see why the renting of a phonograph may not be as proper in contemplation of law as the renting of a piano or of any other article of furniture.

The contract between the North American Company and the Columbia Company may be defective and insufficient; but it would scarcely be proper so to hold at this hearing, when the real parties in interest might not be bound by the decision, and the cause has not been fully developed by testimony.

The suggestion that the appellee does not itself perform the contract in question, and sells only graphophones, and not phonographs, thereby discriminating against the latter, is, of course, no answer to an application for an injunction *pendente lite.* The suggestion, if well founded, may well be availed of in a cross-bill, or other proceeding, either to enforce or to vacate the contract.

As the case now stands, we see no reason to disturb the discretionary power exercised by the equity court in awarding an injunction *pendente lite* and thereby maintaining the existing status of things. And in the absence of answer on the part of the defendants, and in the absence also of testimony which might materially enlighten the case, we do not deem it expedient to go at all into its merits. It is sufficient for us now to say that, in our opinion, the appellant, as complainant in the court below, has stated a cause which entitles it to a temporary injunction; and that therefore there was no error in the action of the court which awarded such injunction.

The order allowing the injunction *pendente lite* will be affirmed, with costs; and the cause will be remanded for further proceedings therein according to law. And it is so ordered.

Patents Nos. 691,343 to 691,785.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 98.—No. 3. TUESDAY, JANUARY 21, 1902. Price—$5 per year.

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Labels	15—No.	3,904 to No. 3,918, inclusive.
Prints	4—No.	452 to No. 455, inclusive.
Reissues	9—No.	11,961 to No. 11,969, inclusive.
Total issue	447	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	----	Nevada	2	----
Arizona Territory	2	----	New Hampshire	----	----
Arkansas	1	----	New Jersey	14	----
California	14	1	New Mexico Territ'y	----	----
Colorado	5	----	New York	70	6
Connecticut	8	1	North Carolina	2	----
Delaware	2	----	North Dakota	2	----
District of Columbia	7	----	Ohio	18	5
Florida	2	----	Oklahoma Territ'y	----	----
Georgia	----	----	Oregon	1	----
Hawaii Territory	----	----	Pennsylvania	44	8
Idaho	----	----	Porto Rico	----	----
Illinois	28	3	Rhode Island	9	----
Indian Territory	----	----	South Carolina	----	----
Indiana	10	----	South Dakota	2	----
Iowa	4	1	Tennessee	1	----
Kansas	2	----	Texas	13	1
Kentucky	1	1	Utah	1	----
Louisiana	2	----	Vermont	1	----
Maine	1	----	Virginia	2	----
Maryland	2	2	Washington	----	----
Massachusetts	28	6	West Virginia	----	----
Michigan	14	3	Wisconsin	15	----
Minnesota	6	1	Wyoming	----	----
Mississippi	----	----	U. S. Navy	----	----
Missouri	9	----			
Montana	1	----	Total to citizens of the United States	346	34
Nebraska	1	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	----	----	Mexico	----	----
Austria-Hungary	3	----	Netherlands	1	----
Barbadoes	----	----	Newfoundland	----	----
Belgium	----	----	New South Wales	----	----
Bermuda	----	----	New Zealand	1	----
Brazil	----	----	Norway	1	----
Canada	7	----	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile	----	----	Russia	2	----
China	----	----	Scotland	1	----
Colombia	----	----	South African Republic	----	----
Cuba	----	----	South Australia	1	----
Denmark	----	----	Spain	----	----
Egypt	----	----	Sweden	1	----
England	19	1	Switzerland	2	----
France	6	----	Turkey in Asia	----	----
Germany	17	1	Victoria	----	----
Guatemala	----	----	Western Australia	----	----
Haiti	----	----			
India	----	----	Total to citizens of foreign countries	66	2
Ireland	1	----			
Italy	----	----			

Attorneys.

Department of the Interior,
Office of the Secretary,
Washington, D. C., January 10, 1902.

Sir: The Secretary of the Interior has ordered that William D. Kreamer, of Arkansas City, Kans., be not recognised after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Oaths of Applicants in Foreign Countries.

It is hereby directed that oaths accompanying applications for patents made within the following-named foreign countries must be taken before a minister, chargé d'affaires, consul, or commercial agent holding commission under the Government of the United States:

Austria-Hungary.
Argentine Republic.
Belgium.
Brazil.
Costa Rica.
Denmark.
Haiti.
Honduras.
Italy.
Mexico.
Netherlands.
Norway.
Peru.
Portugal.
Russia.
San Salvador.
Servia.
Sweden.
Switzerland.

Applications filed in this Office presenting oaths not executed in compliance with this order will be treated as incomplete.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 14, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
	In arrears—Under one month.			
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Dec. 23	Jan. 2	300
317	XXXIII. *Designs, †Trade-Marks. ‡Labels and Prints, Optics, and Photography.	Dec. 23	Dec. 31	59
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Dec. 23	Dec. 31	148
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 17	Jan. 2	146
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Dec. 17	Dec. 31	130
253	X. Carriages and Wagons	Dec. 16	Jan. 3	106
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Dec. 16	Jan. 2	129
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Dec. 16	Jan. 2	127
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Dec. 16	Jan. 2	225
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Dec. 16	Jan. 2	195
218	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Dec. 16	Dec. 31	175
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Dec. 16	Dec. 31	165
253	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 16	Dec. 31	139
102	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Dec. 16	Dec. 30	184
129	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Dec. 16	Dec. 26	151
125	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Dec. 16	Dec. 18	204
246	I. Tillage, etc., and Fences	Dec. 16	Dec. 13	188
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Dec. 1	Dec. 16	160
138	XXIX. Wood-Working Machines, Coopering and Roofing.	Dec. 14	Jan. 2	138
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Dec. 14	Jan. 2	145
231	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Dec. 14	Jan. 2	272
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Dec. 14	Dec. 31	168
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 14	Dec. 30	229
	Between one and two months.			
155	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 13	Dec. 31	184

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended.	
80	IV. Civil Engineering, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Dec. 11	Dec. 19	263
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Dec. 11	Dec. 16	308
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Dec. 9	Dec. 6	134
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Dec. 6	Dec. 4	427
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 2	Dec. 18	202
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Nov. 23	Nov. 9	318
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Nov. 18	Nov. 23	293
	Between two and three months.			
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Nov. 13	Nov. 15	396
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 11	Nov. 27	403
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Nov. 11	Nov. 11	475
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Nov. 9	Nov. 2	403
248	XVIII. Steam-Engineering, etc	Nov. 7	Nov. 9	441

Total number of applications awaiting action.....8,192

Under one month.			
*Designs	Dec. 16	Dec. 30	162
‡Labels and Prints	Jan. 14	Jan. 13	3
Between one and two months.			
†Trade-Marks	Dec. 9	Dec. 21	128

Payment of Patent Fees.

RULE 207. All payments of money required for Office fees must be made in specie, Treasury notes, national-bank notes, certificates of deposit, post-office money-orders, or certified checks. Money-orders and checks should be made payable to the "Commissioner of Patents." Payment may also be made to the Treasurer, or to any of the assistant treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor. *This receipt or certificate of deposit shall, in case of payment of final fees, be deposited in the mail for transmission to the Patent Office, within six months from the allowance of the application.* Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered. In no case should money be sent with models.

RULE 206. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week

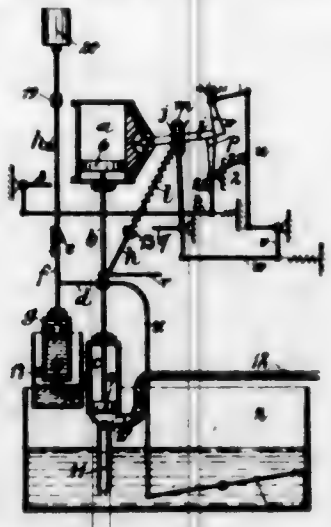
Withdrawal of Applications from Issue Files.

After the notice of allowance of an application is given, the case will not be withdrawn from issue on account of any mistake or change of purpose of the applicant or of his attorney, nor for the purpose of enabling the inventor to procure a foreign patent, nor in any other case, without the approval of the Commissioner.

PATENTS

GRANTED JANUARY 21, 1902.

691,343. **STEAM-PUMP.** ARTHUR ABENDROTH, Berlin, Germany. Filed Mar. 23, 1901. Serial No. 52,552. (No model.)



Claim.—1. In a steam-pump, the combination with a steam-cylinder, provided with suitably-located steam-ports, its piston and piston-rod; of a force-pump, the plunger thereof directly connected to said piston-rod, a discoidal rotating valve controlling the aforesaid ports, resilient means connected to the piston-rod for moving said valve, and a cataract-pump operated to govern the time of throw of said valve, substantially as described.

2. In a steam-pump, the combination with a steam-cylinder provided with suitably-located steam-ports, its piston and piston-rod; of a force-pump, the plunger thereof directly connected to the steam piston-rod, a discoidal rotating valve, resilient means connecting the piston-rod and valve to operate the latter, a cataract-pump plunger lifted by said steam-pump and organized to control the time of throw of said valve during the descent of said cataract-pump plunger, substantially as described.

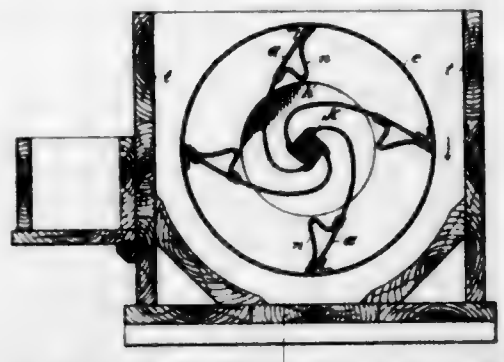
3. In a steam-pump, the combination with a steam-cylinder provided with suitably-located steam-ports, its piston and piston-rod; of a suction-pump, the plunger thereof directly connected to the piston-rod, tappets carried by said rod, a rotary valve, a valve-rod, a pair of tappets arranged to limit the motion of said valve-rod, a cataract-pump arranged to move one of said pair of tappets out of the path of said rod, and a tappet on the piston-rod arranged to move the other of said pair of tappets, substantially as described.

4. The combination with the power-cylinder of a steam-engine, its piston and piston-rod, a pump-plunger operated thereby, a discoidal rotating valve controlling the admission of steam to and its exhaust from said cylinder, and means for operating said valve; of a cataract-pump, its plunger, and mechanism operated by the movements of said plunger to hold the valve in its cut-off position for a predetermined time after each stroke of the piston, for the purpose set forth.

5. The combination with the power-cylinder of a steam-engine, its piston and piston-rod, a pump-plunger operated thereby, a discoidal rotating valve controlling the admission of steam to and its exhaust from said cylinder, and means for operating said valve; of a cataract pump, its plunger, whose movement in one direction is controlled by the piston-rod, and mechanism operated by the movements of said plunger to hold the valve in its cut-off position for a predetermined time after each stroke of the piston, for the purpose set forth.

691,344. **MACHINE FOR CATCHING SPLINTERS, &c.** ALBERT ABERG, Podgora, Austria-Hungary. Filed Sept. 29, 1899. Serial No. 732,106. (No model.)

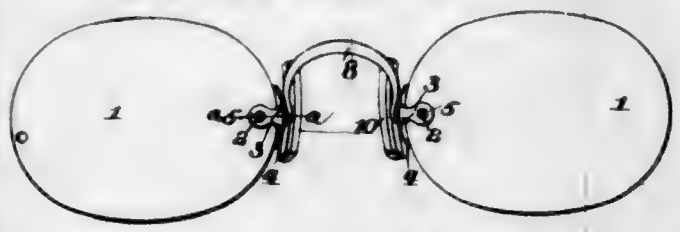
Claim.—1. Paper and like pulp purifying apparatus, comprising a rotatory straining-cylinder provided with bent blades extending from the inner surface of the cylinder to the central shaft, said blades being provided with nose-shaped projections *n* extending from end to end of the blades, substantially as set forth.



2. In apparatus of the kind described, a rotatory straining-cylinder, a series of bent blades extending from the central shaft of said cylinder to the inner surface thereof, and provided with nose-shaped projections extending from end to end of the blades, and also having orifices, substantially as described.

3. In apparatus of the kind described, a rotatory straining-cylinder, a series of bent blades extending from the central shaft of said cylinder to the inner surface thereof, and provided with nose-shaped projections extending from end to end of the blades and orifices in said blades, and projections over said orifices, substantially as described.

691,845. **EYEGLASSES.** LEO F. ADT, Troy, N. Y. Filed June 24, 1901. Serial No. 65,727. (No model.)



Claim.—1. In eyeglasses, the combination of the lenses, cups at the edge thereof and a bridge having its central portion extending forward of the lens and having its ends extended laterally in rear of and substantially parallel with the lenses and the screws passing through the ends of the bridge, the clips and the lenses, for securing the parts together, the portion of the bridge ends extending laterally of the lenses being free for adjustment.

2. In eyeglasses, the combination with the lenses having the perforations near the inner edges, the clips, the bridge having the laterally-extending ends in rear of the lenses and the screws passing through the lenses and clips and securing the latter to the bridge, the portion of the bridge extending laterally of the lenses being free for adjustment.

3. In eyeglasses, the combination with the lenses having the perforations near the inner edges, the clips, the bridge having the central portion extending forward of the lenses, and the ends extending laterally over the rear thereof and engaging the clips to prevent movement independently thereof and the securing-screws passing through the lenses and clips and engaging the ends of the bridge to secure the parts, the portion of the bridge extending laterally of the lenses being free for adjustment.

4. In eyeglasses, the combination with the lenses having the perforations near their edges, and the clips having the ears, of the bridge having the laterally-extending ends arranged between the ears, and the screws passing through the lenses, and the ends of the bridge and engaging the clips.

5. In eyeglasses, the combination with the lenses having the perforations near their edges, the clips and the nose-guards, of the bridge hav-

ing the laterally-extended ends arranged on the same side of the lenses as the nose-guards and engaging the latter, and the securing devices passing laterally through the lenses, clips, nose-guards and the ends of the bridge.

6. In eyeglasses, the combination with the lenses having the perforations near their edges and the clips having the ears thereon, of the bridge having the laterally-extending ends, arranged between the ears on the clips, the nose-guards having the shanks between the ears on the clips and the securing devices each passing through the lenses, clips, shanks and the ends of the bridge.

7. In eyeglasses, the combination of a lens, a bridge having its end extending over and in a plane parallel with the face of the lens, a separate nose-guard having a shank in contact with the bridge end on one face of the lens, and a single fastening device passing laterally through the lens, guard-shank, and bridge end.

8. In eyeglasses, the combination of a lens, a bridge-piece having its central portion arranged forward of the lens and the end extending over the rear face of the lens and substantially parallel therewith, a nose-guard having a shank substantially parallel with the face of the lens and on the same side thereof as the bridge end and a single fastening device extending through the bridge end, guard-shank and the lens for securing the parts together.

9. In eyeglasses, the combination with the lenses and the clips at the edge thereof, of a bridge separate from the clips having the central portion extending forwardly of the lenses and the laterally-extending ends located in rear of the lenses and means for securing the parts together, the portion of the bridge extending laterally of the lenses being free for adjustment.

10. In eyeglasses, the combination with the lenses, of a bridge connecting the lenses having its central portion extending forwardly of the rear faces of the lenses and the laterally-extending ends located upon and secured to the rear sides of the lenses, the portion of the bridge near the ends lying close to the edges of the lenses, and nose-guards located in rear of the lenses and connected to the latter and to the bridge.

11. In eyeglasses the combination with the lenses, and the nose-guards located in rear of the latter, of the bridge-piece having the central portion extending forwardly of the lenses, and the laterally-extending ends secured to the nose-guards and located in rear of the front faces of the lenses, the portion of the bridge extending laterally of the lenses being free for adjustment.

12. In eyeglasses, the combination with the perforated lenses having the clips extending from the edges of the lenses to the perforations therein, of the bridge having the ends extending over the lenses and engaging the clips to prevent lateral movement thereon, the guards separate from the clips but adapted to engage therewith and the separate fastening devices extending through the lenses, clips, guards and bridge ends to secure the parts.

691,846. PIPE-COUPLING. ALEXANDER BARR, Partickhill, Scotland. Filed Oct. 9, 1900. Serial No. 32,506. (No model.)

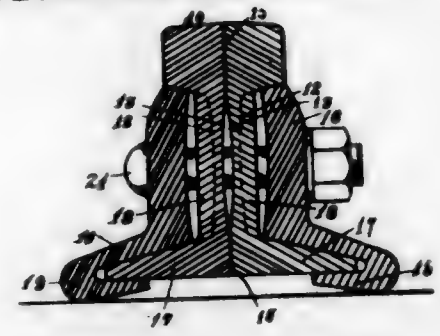


Claim.—In a pipe-coupling the combination with a pipe having an increased outside diameter at one end, the gland having a decreasing interior the smallest diameter of which is greater than the greatest outside diameter of the pipe whereby the gland may be slipped over the end of said pipe, a rubber packing secured around and over the end of the pipe thereby preventing the gland from passing over the end of the pipe, in combination with another pipe having a flange on its end, a gland secured around the second-named pipe and clamping-bolts connecting the two glands.

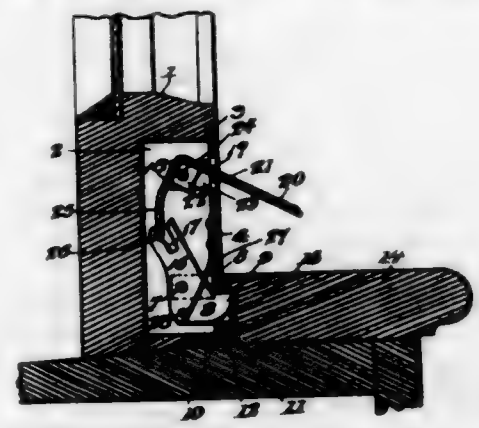
691,847. RAILROAD-RAIL JOINT. CALVIN R. BENTLEY, Jamestown, N. Y. Filed May 22, 1901. Serial No. 61,425. (No model.)

Claim.—1. A railroad-rail joint, having the treads and bases of the rail ends cut in half and lapped lengthwise for a suitable distance and the end of each half having an angular joint, the entire web of each rail turned aside to support each half of the lap, said lapped webs made concave on their inner sides to give an arched support to the tread, suitable fish-plates and bolts therefor, substantially as shown and described.

2. A railroad-rail joint, having the tread 10 and base 17 cut lengthwise and lapped as shown, the ends 22 of the laps cut at an angle, the webs 11 of each rail end turned aside as at 14 14 and given a larger curve 13 on the inner side, fish-plates 16 having extension 19, bolts 21, substantially as shown and for the purpose specified.



691,848. SASH LOCK AND LIFT. THOMAS BERGSTEN, St. Croix Falls, Wis. Filed July 10, 1901. Serial No. 67,731. (No model.)



Claim.—1. In a combined sash lock and lifter, the combination with the sill provided with a keeper, and the sash with a chamber or mortise, of a supporting-plate closing the chamber and provided with a slot to register with the keeper when the sash is lowered, an L-shaped latch pivoted to the plate within the chamber and having a short arm forming a locking-toe movable in said slot, and a long arm having its end bifurcated and a recess at its upper end, an L-shaped lever pivoted to the plate and having one of its arms projecting and forming a finger-piece and its other arm fitted within the slot of the bifurcation and coöperating therewith and with the recess, said arm being curved and slotted to allow the long arm of the latch to move inwardly beyond the center when said latch is retracted and to conform to the retracted position of the said latch-arm, and means for normally holding the parts retracted.

2. The combination with the sill provided with a keeper, and the sash, of an L-shaped latch pivoted to the sash and having its short arm forming a locking-toe to engage said keeper and its upper arm bifurcated, one of the legs of the bifurcation having a recess, an L-shaped lever having one arm a finger-piece and its other arm fitting and moving within the slot of the bifurcation and adapted to rest in said recess to hold the latch projected, a lug on said latch, and a spring bearing against said lug to retract the latch when the arm of the lever is withdrawn from said recess.

691,849. DERRICK. CHARLES A. BILLS, St. Joe Station, Ind. Filed Oct. 10, 1901. Serial No. 78,260. (No model.)

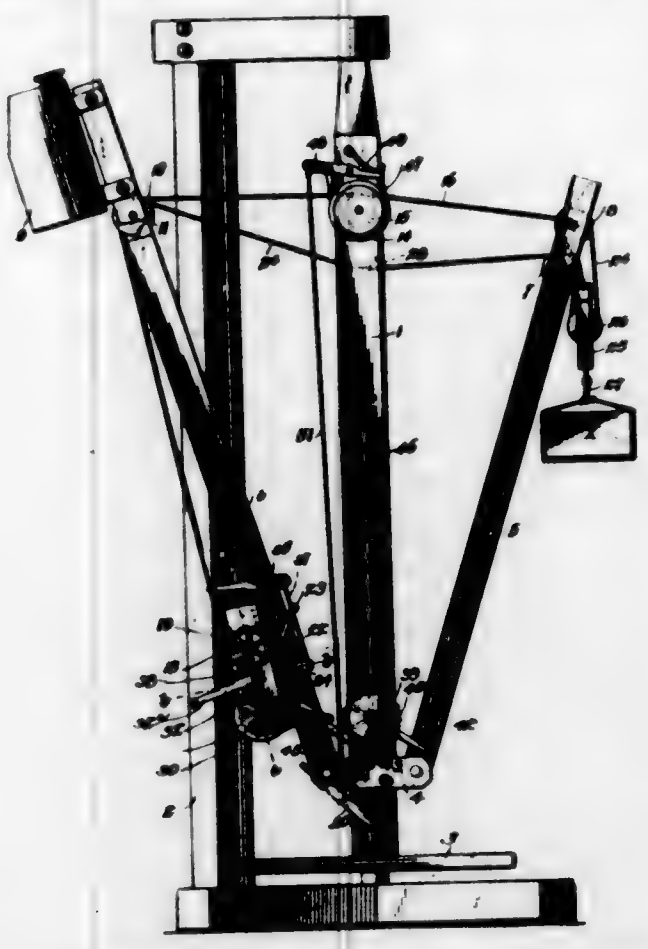
Claim.—1. In a derrick, the combination of a hoisting-boom, a counterpoise-boom, a drum supported at an elevated fixed point, a rope connecting said booms and partly coiled on said drum, and means to rotate the latter, and thereby simultaneously operate said booms, substantially as described.

2. In a derrick, the combination of a hoisting-boom, a counterpoise-boom, a rope connecting them, means to vary the length of said rope between said booms, to adjust the latter to any desired angle, and means to operate said booms simultaneously, substantially as described.

3. In a derrick, the combination of a mast, a hoisting-boom and counterpoise-boom carried by and on opposite sides of said mast, a hoisting-rope connecting said booms and engaging an operating element with which the mast is provided, means to vary the length of said hoisting-rope, between the said booms, to adjust the latter, a lowering-tackle carried by the hoisting-boom and means carried by the counterpoise-boom to operate said lowering-tackle, substantially as described.

4. In a derrick, the combination of a mast, a hoisting-boom and counterpoise-boom carried thereby and on opposite sides of said mast, a hoisting-rope connecting the said booms, a winch carried by the counterpoise-

boom to pay out and take in said hoisting-rope and thereby adjust said booms, a lowering-tackle carried by the hoisting-boom, a lowering-winch carried by the counterpoise-boom to which said lowering-tackle is connected, gears on the said winches, respectively, and a shiftable shaft having a power element and a pinion, the latter being adapted to be shifted by said shaft into engagement with either of said winch-gears at will, substantially as described.



5. In a derrick, the combination of a mast having a hoisting-drum, means to operate the same, and a brake therefor, a hoisting-boom and counterpoise-boom carried by said mast on opposite sides thereof, a hoisting-rope connecting said booms and engaged by said hoisting-drum, a winch carried by said counterpoise-boom to adjust said hoisting-rope, a lowering-tackle carried by said hoisting-boom, and a winch carried by said counterpoise-boom to operate said lowering-tackle, substantially as described.

6. In a derrick, the combination of a mast, an elevated hoisting-drum, carried by the mast, a power element, connected to said hoisting-drum, means to lock the latter against rotation, a hoisting-boom, a counterpoise-boom, said booms being carried by the mast, and disposed on opposite sides thereof, a hoisting-rope, connecting said booms and operated by said hoisting-drum, a lowering-tackle, carried by said hoisting-boom, winches carried by said counterpoise-boom, for said hoisting-rope and lowering-tackle, respectively, means to lock said winches against rotation, and a shiftable power element, to operate either of said winches at will, substantially as described.

691,850. TUBE-WELDING APPARATUS. THOMAS J. BRAY, JR., Pittsburg, Pa., assignor of one-half to United Engineering and Foundry Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed May 22, 1901. Serial No. 61,397. (No model.)

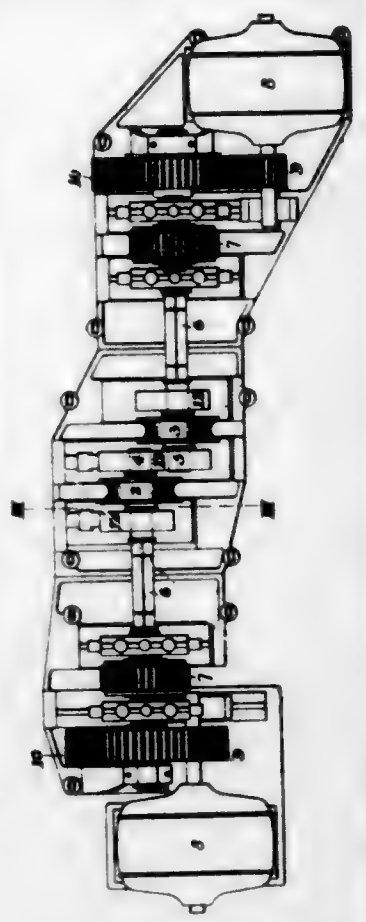
Claim.—1. The combination with a lap welding-furnace, of two sets of welding-rolls located in front of the same, said sets being arranged in staggered relation; substantially as described.

2. In tube-welding apparatus, two pairs of welding-rolls with their longitudinal axes in different vertical planes, the adjacent bearings of the rolls being substantially in line; substantially as described.

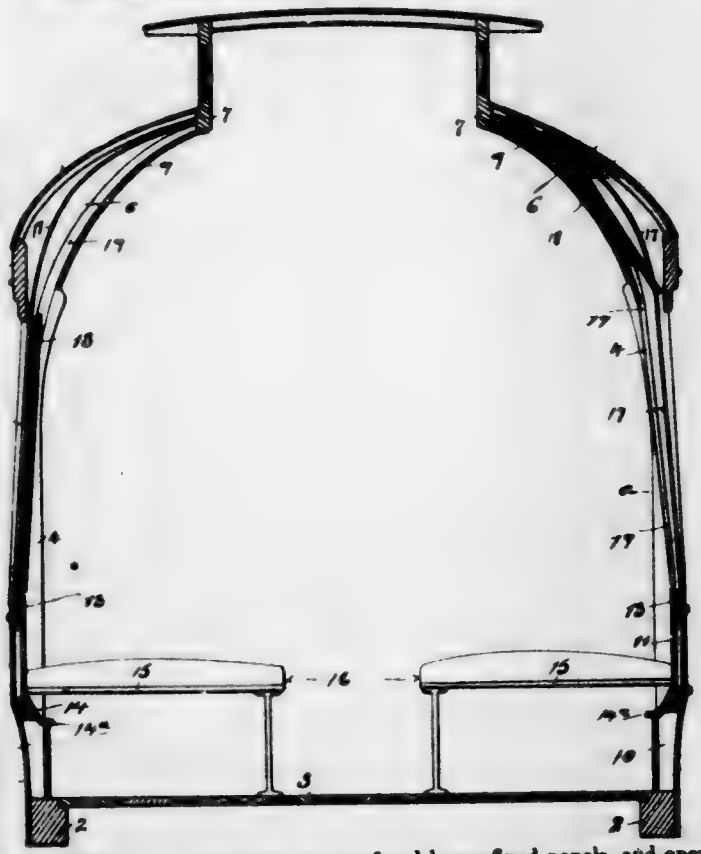
3. In skelp-welding apparatus, the combination with the welding-furnace, of two pairs of welding-rolls arranged in front of the central portion of the furnace, and in staggered relation to each other, and separate driving connections for the rolls, extending in opposite directions from them; substantially as described.

4. In skelp-welding apparatus, the combination with a lap welding-furnace, of two sets of welding-rolls located in front of the same, said sets being arranged in staggered relation to each other, and housings containing said sets of rolls, the rolls being adjustable therein to bring the groove of each set of rolls into proper position independently of the other set; substantially as described.

691,850.



691,851. CONVERTIBLE CAR. JOHN A. BRILL, Philadelphia, Pa. Filed Feb. 1, 1901. Serial No. 45,548. (No model.)



Claim.—1. A car having a roof and lower fixed panels, and openings in its sides above said fixed panels, posts to longitudinally define said openings above the fixed panels, seats located between said posts, panels movable on the posts to close said openings, and means connected with the roof for receiving and storing the said movable panels.

2. A car having side openings defined longitudinally by spaced posts, fixed paneling of less depth than the posts extending between the lower ends of the posts to close the lower car side, seats located between the posts and abutted against the said paneling, panels movable between the posts and above the fixed panel to open or close the car side, and storage-spaces formed in the roof to receive and store the movable panels.

3. A car having side openings and a roof, upright posts to longitudinally define said openings, transverse seats located between said posts, movable panels to close said openings, and means for storing said panels in the roof.

4. A car having side openings and a storage-space in the roof, upright posts to longitudinally define said openings, transverse seats located between said posts, movable panels to close said openings, and a guiding means for said panels connected with said posts whereby the same may be lifted and stored in the space in the roof.

5. A car having side openings and a storage-space between the roof and the ceiling and head-lining, upright posts to longitudinally define said openings, seats located between the posts, movable panels to close said openings, a guiding means for said panels connected with said posts, whereby they may be lifted and stored in the space between the head-lining and roof.

6. A car having side openings and a laterally-expanded storage-space in the roof, upright posts to longitudinally define said openings, transverse seats located between the posts, means to close said openings, said means including several sash-panels hinged together, and a guiding means for said sash connected with the said posts and leading to the roof-space whereby the panels may be lifted and stored in the roof-space.

7. A car having side openings and a storage-space in the roof, upright posts to longitudinally define said openings, transverse seats located between the posts, means to close said openings comprising a jointed or two-part panel, and guides on the posts leading to the roof-space whereby the said jointed panel may be raised and stored therein.

8. A car having side openings and a storage-space in the roof, upright posts to longitudinally define the openings, and having grooves in their opposing faces, transverse seats located between the posts, movable panels to close the openings and guided by said grooves whereby they may be raised and stored in the space within the roof.

9. In a car having side openings, a roof provided with a storage-space, upright posts to longitudinally define said side openings and having grooves in their opposing faces or sides, transverse seats located between said posts, means to close said openings comprising jointed or two-part sash-panels, guided by said grooves, whereby they may be lifted and stored within the roof-space.

10. A car having side openings, a roof having a storage-space therein, upright posts to longitudinally define said openings, a double row of transverse seats located between said posts, an aisle between the rows, means to close said openings including sash-panels adapted to be stored in the roof-space, and curtains for said openings.

11. A car having side openings and inclined storage-spaces in the roof between the roof-boards and ceiling or head-lining, upright posts to longitudinally define the openings, and having grooves on their opposing faces or sides, said openings leading into the storage-spaces, movable panels guided by said grooves to fill the openings and comprising more than one section to enable them to readily pass from the openings into and out of the inclined storage-spaces, and to be stored therein, and transverse seats located with ends between the posts whereby the outside dimensions of the car can be much reduced, and the seat length and aisle-space preserved.

12. A car having a roof and openings in its sides, seats, and stationary panels extending from a point above the seats to the car-floor and defining the lower limits of said openings, posts to longitudinally define said openings, the seats being located between the posts and abutting against the stationary paneling, movable paneling to close said openings, and means connected with the roof for storing said panels.

13. In a car having side openings and a roof, upright posts to longitudinally define said openings, seats, and stationary panels extending from a point above the seats to the floor and defining the lower limits of said openings, said seats being transversely located between said posts and abutting against the stationary paneling, and movable panels to close said openings, and means for storing said panels in the roof.

14. A car having side openings and a storage space in the roof, seats, and upright posts to longitudinally define said openings, stationary panels extending from a point above the seats to the flooring and defining the lower limits of said openings, said seats being transversely located between said posts and abutting against the stationary paneling, movable panels to close said openings, and a guiding means for said panels connected with said posts, whereby same may be lifted and stored in the space in the roof.

15. In a car having side openings and a storage-space between the roof and the ceiling or head-lining, seats, and upright posts to longitudinally define said openings, stationary panels extending from a point above the seats to the flooring and defining the lower limits of said openings, and being located between the posts and abutting against the stationary paneling, movable panels to close said openings, and guiding means for said panels connected with said posts whereby they may be lifted and stored in the space between the head-lining and the roof.

16. A car having side openings and storage-spaces in the roof, seats and upright posts to longitudinally define said openings, stationary panels extending from a point above the seats to the flooring, and defining the lower limits of said openings, said seats being transversely located between the posts and abutting against the stationary paneling, means to close said openings, said means including a sash-panel and a guiding means for said sash-panel connected with the said posts and leading to the roof space, whereby the panels may be lifted and stored in the roof.

17. A car having side openings and a storage-space in the roof, seats, and upright posts to define said openings, stationary panels extending from a point above the seats to the floor and defining the lower limits of said openings, said seats being transversely located between the posts and abutting against the stationary paneling, means to close said openings comprising a jointed or two-part panel, and guides on the posts leading to the roof-space, whereby the said jointed panels may be raised and stored therein.

18. A car having side openings, and a storage-space in the roof, seats and upright posts to longitudinally define said openings, and having grooves in their opposing faces, said seats being transversely located between the posts and abutting against the stationary paneling, movable panels to close the openings and guided by said grooves, whereby they may be raised and stored in the space within the roof.

19. In a car having side openings, a roof provided with a storage-space, seats, and upright posts to longitudinally define said openings, and having grooves in their opposing faces or sides, said seats being transversely located between said posts and abutting against the stationary paneling, means to close said openings comprising jointed or two-part sash-panels guided by said grooves whereby they may be lifted and stored within the roof-space.

20. In a car having side openings, a roof having a storage-space therein, seats, and upright posts to longitudinally define said openings, stationary panels extending from a point above the seats to the flooring and defining the lower limits of said openings, said seats comprising a double row and transversely located between the posts and abutting against the stationary paneling, an aisle between the rows, means to close said openings, including sash-panels adapted to be stored in the roof-space, and curtains for said openings.

21. In a car having side openings, an inclined storage-space in the roof between the roof-boards and ceiling or head lining, seats, and upright posts to longitudinally define said openings, having grooves on their opposing faces or sides, said openings leading into the storage-spaces, stationary panels extending from a point above the seats to the floor and defining the lower limits of said openings, movable panels guided by said grooves to fill the openings, and comprising more than one section to enable them to readily pass from the openings into and out of the inclined storage-spaces, and to be stored therein, said seats being transversely located with ends between the posts and abutting against the stationary paneling, whereby the outside dimensions of the car can be much reduced and the seat length and aisle-space preserved.

22. In a semiconvertible car having side openings and a roof storage-space, upright posts to define said openings and having grooves on their opposing sides or faces, stationary panels forming the lower part of the sides of the car, removable panels forming the upper part and guided by the grooves in said posts and adapted to be stored in the roof, and transverse seats located between the said posts abutting the stationary panels, whereby a self-contained and narrower car structure having a comparatively large seating capacity is obtained.

23. In a semiconvertible car having side openings and a roof storage-space, upright posts to define said openings, transverse seats located between said posts, stationary panels forming the lower part of the sides of the car, removable panels to fill said openings and adapted to be stored in the roof-space.

24. In a semiconvertible car having side openings and a roof storage-space, upright posts to define said openings, transverse seats located between said posts, stationary panels forming the lower part of the car side and removable panels, each consisting of one or more sections adapted to fill said openings and to be stored in the roof.

25. In a semiconvertible car having side openings and a roof storage-space, upright posts to define said openings, transverse seats located between said posts, stationary panels forming the lower part of the car side and removable sash-panels to fill said openings adapted to be stored in the ceiling.

26. In a semiconvertible car having side openings, and a roof storage-space, upright posts to define said openings, transverse seats located between said posts, stationary panels forming the lower part of the car side, and removable sash-panels of two or more sections to fill said openings and to be stored in the roof.

27. In a semiconvertible car having side openings and roof storage-spaces, upright posts leading to said spaces and defining said openings and having grooves in their opposing faces, transverse seats located between said posts, stationary panels forming the lower part of the sides of the car, and removable panels for said openings guided by said grooves into the roof storage-spaces.

28. In a semiconvertible car having side openings and roof storage-

spaces, upright posts leading to said spaces and defining said openings and having grooves in their opposing faces, transverse seats located between the posts, stationary panels forming the lower part of the car to the belt-rail, removable sash-panels to fill said openings, and guided by said grooves, the said panels being constructed to be stored in the roof-space.

29. In a semiconvertible car having side openings forming window-spaces, a roof having a storage-space, therein between the roof-boards and head lining or ceiling, upright posts defining the side openings, and posts extending into the said roof-spaces, stationary panels forming the lower part of the car sides, transverse seats between the posts and close to the stationary panels, removable panels to close said openings, and guiding means connecting with said posts to direct the same to the roof storage-space when it is desired to open the sides of the car.

30. In a car having side openings, a roof having a storage-space therein, posts to define the said openings, stationary panels for the lower part of the sides of the car, a double row of transverse seats of the usual lengths between said posts, an aisle of the usual width between the rows, removable panels to fill said openings above the stationary panels, and guiding means connected with the posts for the said panels whereby they may be stored in the roof of the car.

31. The combination in a semiconvertible car having side openings, a roof provided with laterally-expanded storage-spaces, posts to define said openings and having grooves leading into and lying within the storage-spaces, of stationary panels defining the lower part of said openings, and movable panels for closing said openings comprising a plurality of flexibly-connected sections adapted to be moved in the grooves to the roof-spaces, and stored therein in a space shorter than their length.

32. The combination in a semiconvertible car having side openings, a roof provided with laterally-expanded storage-spaces, posts to define said openings, stationary panels forming the lower part of the sides of the car, of movable panels comprising a plurality of flexibly-connected and bodily-movable sections forming the upper part of the paneling and adapted to fill said openings, and guiding means connected with the said posts and entering and lying within said spaces, whereby the said upper panels may be pushed up into and stored within the space within the roof.

33. The combination in a semiconvertible car having side openings, a roof having laterally-expanded storage-spaces, posts to define said openings, and stationary panels to form the lower part of the sides of the car, transverse seats having their ends located between the posts and against the stationary paneling, of movable panels comprising a plurality of sections for closing said openings, guides in said posts for the said sectional panels, said guides entering the storage-spaces whereby the same may be pushed up into and stored within the said roof storage-space.

34. In a semiconvertible car having side openings, a roof having storage-spaces therein, posts to define said openings, stationary panels forming the base portion of the sides of the car, sash-panels between the posts to fill the said openings, and guides on the posts to direct the said sash-panels into the space within the roof when they are raised.

35. In a semiconvertible car having side openings, a roof having storage-spaces therein, posts to define said openings, stationary panels forming the base portions of the sides of the car, sash-panels to fill said openings and consisting of more than one section for more convenient storage purposes, and guides on the posts for said sash-panels, whereby they can be pushed up into the roof-space.

36. In a semiconvertible car having side openings, a roof having storage-spaces therein between the ceiling or head lining and roof-boards, posts to define said openings and having inclined extensions entering the said spaces, stationary panels for the lower parts of the car sides, sectional sash-panels to fill said openings and adapted to be pushed up into said inclined roof-space, and guiding means for the panels connected with the said posts and extensions thereof.

37. In a car having openings, posts to longitudinally define the openings, roof-pockets or storage-spaces formed above the posts, independent sets of grooves formed in the posts extended into and lying within said spaces or pockets, panels movable in one set of the grooves in said posts to close said openings, and bodily movable and flexible curtains for said openings movable in the inner side of the grooves, both the panels and curtains being adapted to travel bodily in the direction of their length in the grooves along the posts into and out of said pockets.

38. In a car having side openings and a roof storage-space, roof-pockets or storage-spaces, grooved posts to define the openings, stationary base-panels, movable sash-panels, and flexible curtains comprising a series of slats secured together and adapted to be pulled down to the base-panel, or to be pushed up into the storage-space within the roof, the sash-panels being likewise adapted.

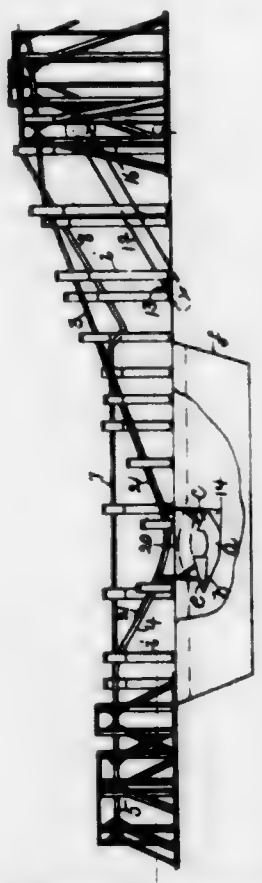
39. The combination, in a semiconvertible car, of the lower panel having the rail 13, posts extending up to the roof-section, pockets or spaces in the roof-section, separate grooves formed in each of the posts extending from said rail into and within said pockets, an articulated curtain bodily movable in the inner grooves, and a panel having a plurality of parts flexibly connected movable in the outer of the grooves, whereby either the curtain or panel may be lowered to said rail or bodily stored in the pockets.

691,852. **BEDSTEAD-BRACE.** IKE W CAMPBELL, Mexia, Tex. Filed June 29, 1901. Serial No. 66,586. (No model.)



Claim.—A bedstead-brace comprising a pair of longitudinally-arranged brace-wires connected to the head and foot boards and side rails, and the transversely-arranged coupling-bar having hooks at its opposite ends and a series of notches intermediate its ends, substantially as described.

691,853. **SUBMARINE BOAT.** LEWIS A. CARPENTER and SAMUEL MAHONY, Revere, Mass. Filed Apr. 6, 1901. Serial No. 54,662. (No model.)



Claim.—1. The combination with a body of liquid, of an elevated railway extended across said body of liquid and provided with inclined portions extending in opposite directions, one of said inclined portions having a pitch sufficient to cause a boat provided with an opening at its top and suspended from said railway to pass through said body of liquid at a velocity sufficient to prevent the said liquid entering the boat, said open boat, means for suspending the same from said railway a distance sufficient to cause it to pass beneath the surface of said body of liquid, and means on the boat to deflect the portion of the liquid above the boat backward and over the open portion of said boat, substantially as and for the purpose specified.

2. The combination with a body of liquid, of a boat or carrier having an open portion and provided with means for forming a wave above the same, and means to cause the said boat or carrier to pass beneath the surface of the said body of liquid and out thereof, at a speed or velocity sufficient to prevent the liquid from entering the open portion thereof, substantially as described.

3. The combination with a tank open at its top and containing a body of liquid, of a boat having an open portion and adapted to enter said tank and pass beneath the surface of said body of liquid, means on the front end of said boat for forming a wave above the boat as the latter passes through the body of liquid, and means to cause the said boat to pass beneath the surface of the body of liquid at a velocity sufficient to prevent the liquid above the boat from entering the open portion thereof, substantially as described.

4. The combination with a tank open at its top and containing a body of liquid, of an elevated railway extended across and above said tank, a boat having an open portion and suspended from said railway, means on the front end of said boat for forming a wave above the boat, and means for causing said boat to pass through said body of liquid below its surface

at a velocity sufficient to prevent the liquid above the open portion of the boat from entering into the boat, substantially as described.

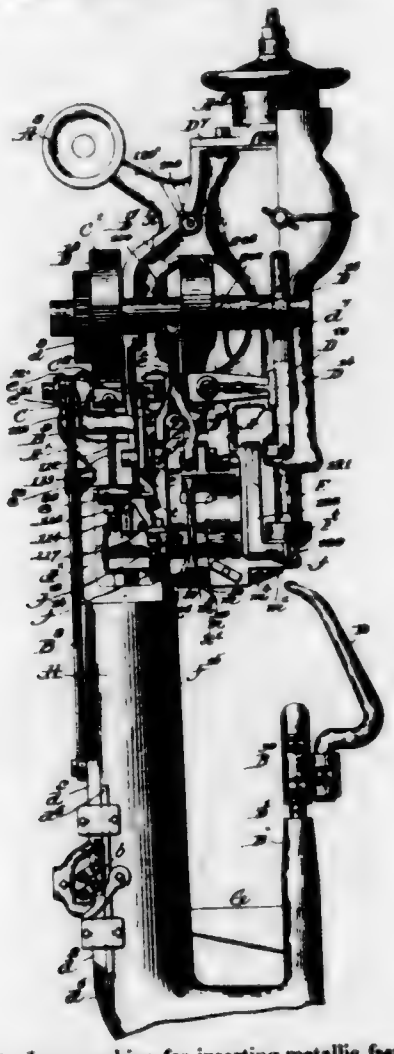
5. A boat of the character described, comprising an open body portion and a substantially conical or tapering bow, provided with a shield or deflector extended upward above and beyond the sides of the said body portion, substantially as described.

6. A boat of the character described, comprising an open body portion and a substantially conical or tapering bow, provided with a shield or deflector extended upward above and beyond the sides of the said body portion, and a substantially conical or tapering stern, substantially as described.

691,354. MACHINE FOR INSERTING METALLIC FASTENINGS.

LOUIS A. CASGRAIN, Winchester, Mass., assignor, by mesne assignments, to the United Shoe Machinery Company, a Corporation of New Jersey.

Filed Feb. 15, 1898. Serial No. 670,337. (No model.)



Claim.—1. In a machine for inserting metallic fastenings, mechanism for feeding fastening material; a continuously-operating actuator therefor; and manually-controlled, automatically-operated means to remove the feeding mechanism from the control of its moving actuator whenever desired.

2. In a machine for inserting metallic fastenings, mechanism for feeding fastening material; a continuously-operating actuator therefor; a horn; a continuously-operating actuator for the horn, and means intermediate said horn and its actuator to depress the horn for feeding the stock; and means to remove the feeding mechanism and horn-depressing mechanism from the control of their actuators to thereby render said feeding mechanism inoperative and put the horn in its lowered position for the removal and application of work.

3. A machine for inserting metallic fastenings comprising mechanism for severing fastenings from fastening material, a continuously-moving actuator therefor, and means to remove said severing mechanism from the control of said actuator during repeated operations of the machine.

4. In a machine for inserting metallic fastenings, a continuously-operating actuator; a horn; horn-depressing mechanism operated by said actuator to depress the horn for feeding the stock; and means to remove the horn-depressing mechanism from the control of its actuator to lock the horn in lowered position for the removal or application of work.

5. In a machine for inserting metallic fastenings, a cam, a lever actuated thereby and forming part of wire feeding mechanism, and means under the control of the operator and adapted to be operated automatically to remove said lever entirely from the influence of its actuating-cam leaving the cam in operation with the feeding mechanism entirely at rest.

6. In a machine for inserting metallic fastenings, a cam, a lever actuated thereby, said lever forming part of wire-feeding mechanism; means to determine the extent of movement of said lever by its actuating-cam according to variations in thickness of stock being operated upon; and means under the control of the operator to automatically remove said lever entirely from the influence of its actuating-cam leaving the cam in operation with the feeding mechanism entirely at rest.

7. In a machine for inserting metallic fastenings, mechanism for severing fastenings from fastening material, a continuously-operating actuator to operate said mechanism, a horn, horn-depressing mechanism, a continuously-operating actuator to actuate the same to depress the horn during feeding of the stock; and means under the control of the operator to suspend the action of the said severing mechanism and to lock the horn in its lowered position for the removal of the work, said actuator continuing in motion.

8. A wire-carrying spindle provided with a movable contact-piece; combined with a stop against which said contact-piece may strike to prevent the rotation of the spindle.

9. In a machine of the class described, wire-cutting mechanism; a lever having a movable projection or finger; a cam to move said lever; connections between said lever and said cutting mechanism; and a switch under the control of the operator to turn said projection into its inoperative position with relation to said cam to suspend the operation of the cutting mechanism while the cam continues to operate.

10. In a machine for inserting metallic fastenings formed from continuous wire, wire-feeding mechanism and an actuator therefor, means to remove the wire-feeding mechanism from the control of its actuator and means to put the wire-feeding mechanism again under the control of its actuator at a time to insure the formation of a fastening of proper length.

11. In a machine for inserting metallic fastenings, a rotating spindle, wire-feeding mechanism, means actuated by said spindle to operate said wire-feeding mechanism, means to render inoperative said wire-feeding mechanism while the spindle continues to operate, and means to start again said wire-feeding mechanism at a time to insure the formation of a fastening of proper length.

12. In a machine for inserting metallic fastenings, a rotating spindle, wire-cutting mechanism, means actuated by said spindle to operate said wire-cutting mechanism, and means to render inoperative said wire-cutting mechanism while the spindle continues to operate.

13. In a machine for inserting metallic fastenings, a horn, a rotating spindle, mechanism actuated by said spindle to lower the horn periodically to allow the work to be fed, and means to render inoperative said mechanism while the spindle continues to operate.

14. In a machine for inserting metallic fastenings, a rotating spindle, a reel on said spindle, a pin to hold said reel in position, and means to prevent the rotation of said spindle when the pin is in an improper position.

15. In a machine for inserting metallic fastenings, a horn, a driving-shaft, and means under the control of the workman operated automatically by said driving-shaft to lower the horn and leave it in lowered position without stopping the driving-shaft.

16. In a machine for inserting metallic fastenings, a horn, a rotating wire-carrying spindle, and means deriving their movement from said spindle to effect the lowering of the horn and maintain it in lowered position without stopping the spindle.

17. In a machine for inserting metallic fastenings, mechanism for feeding fastening material, mechanism for severing fastenings from said fastening material, and means under the control of the operator to render inoperative said feeding mechanism and severing mechanism while other parts of the machine continue in operation.

18. In a machine for inserting metallic fastenings, mechanism for feeding fastening material, mechanism for severing fastenings from said fastening material, horn-depressing mechanism, and means to render inoperative the feeding and severing mechanisms and to lock the horn in lowered position while other parts of the machine continue in operation.

19. In a machine for inserting metallic fastenings formed from wire, wire-feeding mechanism, horn-depressing mechanism, and a device having attached means to suspend the operation of said wire-feeding mechanism and depress and lock the horn in its lowered position, and means to control the operation of said device whereby it may be actuated to suspend the operation of the wire-feeding mechanism and lower and lock the horn at a predetermined point in the cycle of operations of the machine.

20. In a machine for inserting metallic fastenings formed from wire, wire-feeding mechanism, horn-depressing mechanism, a continuously-moving actuator for said mechanism, a device to control the operation of said wire-feeding mechanism and horn-depressing mechanism, means to actuate said device to suspend the operation of the wire-feeding mechanism and lower and lock the horn at a predetermined point in the cycle of operations of the machine, and means to actuate said device to start the wire-feeding mechanism and raise the horn at a predetermined time in the cycle of operations of the machine.

21. In a machine for inserting metallic fastenings, a horn, a driving-shaft, means under the control of the workman operated automatically by said shaft to lower the horn, and a locking device to engage said horn-lowering means and lock the horn in lowered position for the removal of work while the said driving-shaft continues to rotate.

22. In a machine for inserting metallic fastenings formed from wire, means to caliper the stock automatically, said means including a horn, wire-feeding mechanism to feed the wire automatically a varying distance to correspond with the thickness of the stock, a device coöperating with said wire-feeding mechanism and with said stock-calipering mechanism to suspend the action of the wire-feeding mechanism and lock it in inoperative position and to lock a member of the calipering means in its position for the removal of the stock from the horn while the main shaft of the machine continues to rotate.

23. In a machine for inserting metallic fastenings formed from wire, means to automatically caliper the stock, said means including a horn, wire-feeding mechanism to feed the wire automatically a varying distance to correspond with the thickness of the stock, a device coöperating with said wire-feeding mechanism and with said stock-calipering mechanism to suspend the action of the wire-feeding mechanism and lock it in inoperative position and to lock a member of the calipering means in its position for the removal of the stock from the horn while the main shaft of the machine continues to rotate, and means to release both the feeding mechanism and the calipering means permitting the feeding mechanism and said calipering means to become again operative at a predetermined time in the cycle of operations of the machine to thereby insure that the first fastening formed shall be of the full length required for the thickness of the stock.

24. A horn, a lever, connections between the horn and lever, a cam to move said lever positively to lower the horn for feeding, means acting normally to raise the horn to clamp the stock after feeding, and a device under the control of the operator and arranged to be operated without stopping the cam to cause said lever to lower the horn farther than for feeding to thereby enable the work to be removed from the horn.

25. A horn, a lever, connections between the horn and lever, a cam to move said lever positively in one direction to lower the horn for feeding, means acting normally to raise the horn to clamp the stock after feeding, and a device under the control of the operator and arranged to be operated without stopping the cam to remove the lever from the control of its actuating-cam lower the horn farther than for feeding, and leave the horn in lowered position during repeated operations of the cam.

26. A rotating wire-carrying spindle having a split extension, a surrounding sleeve having an incline, and an inclined ring secured to the lower end of said sleeve; combined with a series of grippers having their journals supported by said ring and acted upon by said incline, said grippers entering the spaces in the split extension.

27. In a machine of the class described, a wire-carrying spindle, a sleeve having an incline, combined with a series of feeding-rollers, means connected with said spindle to sustain said rollers, said incline causing said rollers to engage and feed the wire.

28. In a machine of the class described, a spindle having a split extension, a sleeve surrounding said spindle and provided with an inclined wall and an inclined ring, and a series of feed-rollers having integral journals supported between said inclined wall and ring, and means to move said sleeve vertically on said spindle, said sleeve when depressed causing its inclined wall acting through said journals to force the peripheries of the said feed-rollers against the wire to grasp and feed the wire.

29. In a machine of the class described, wire-feeding mechanism, a device coacting therewith to suspend the operation of said feeding mechanism, a manually-controlled regulator to determine the time of action of said device, and a locking device to hold said regulator in its operative position.

30. In a machine of the class described, a horn, horn-depressing mechanism, a device coacting therewith to depress the horn and lock the same in its depressed position, a manually-controlled regulator to determine the time at which the horn is to be depressed and locked, and a locking device to hold said regulator in its operative position.

31. In a machine of the class described, the lever f^7 having a heel, a treadle for elevating said lever, and a plunger for locking said lever in its elevated position.

32. In a machine of the class described, a notched plunger, a suitable guide for it, and the switch having a projection to enter said notch, combined with a spring for moving said plunger in one direction, the switch moving it in the opposite direction.

33. In a machine of the class described, the lever having a heel and adapted to be lifted by a treadle, a plunger to lock said lever in its elevated position, means to withdraw said plunger at a defined point in the cycle of operations of the machine after the foot of the operator has been released from the treadle, and a device to depress the lever after the withdrawal of the plunger.

34. A cam, and means to actuate the cam, a stock-support, a mechanism, connection between the mechanism and the stock-support, and means to move the mechanism into position to be forced by the cam to operate the connection to move the stock-support, and means to move the mechanism out of said position.

35. In a machine of the class described, a wire-carrying spindle, a sleeve on said spindle, said sleeve having an inclined interior surface, and said sleeve and said spindle being movable one with relation to the other, wire-feed rolls having journals adapted to contact with said inclined surface, and means to change the relative positions of said spindle and said sleeve whereby said feed-rolls are caused to grip and feed the wire.

36. In a machine for inserting metallic fastenings formed from continuous wire, wire-feeding mechanism, an actuator therefor, means to remove said wire-feeding mechanism from the control of its actuator, means to put the wire-feeding mechanism again under the control of its actuator at a time to insure the formation of a fastening of proper length, and means to insure at least one complete operation of the machine.

37. In a machine of the class described, a continuously-rotating spindle, wire-feeding mechanism, wire-cutting mechanism, means for actuating the same, means to suspend the operation of said feeding mechanism and wire-cutting mechanism while the spindle continues in operation, and means under the control of the operator to start said wire-feeding and wire-cutting mechanism into operation at a predetermined time in the cycle of operation of the machine.

38. In a machine for inserting metallic fastenings, a continuously-rotating wire-carrying spindle, wire-feeding mechanism, wire-cutting mechanism, horn-depressing mechanism, means for actuating the said mechanisms, and means to suspend the operation of said wire-feeding mechanism, wire-cutting mechanism, and horn-depressing mechanism while the rotation of said spindle is continued, and means under the control of the operator to start said wire-feeding, wire-cutting, and horn-depressing mechanisms at a predetermined time in the cycle of operations of the machine.

39. Mechanism for feeding fastening material, a continuously-moving actuator, a stop to hold said feeding mechanism in its inoperative position, and an automatically-operated device under the control of the operator to withdraw said stop and release said feeding mechanism permitting it to be put immediately under the control of its actuator.

40. In a machine for inserting metallic fastenings, a horn, stock-feeding means, mechanism to depress the horn while the feeding means is operative, and means under the control of the operator to put automatically said horn-depressing mechanism in inoperative position and lower the horn for the removal of the work without stopping the machine.

41. In a machine for inserting metallic fastenings, a driving-shaft, a horn, and means under the control of the operator and operated by said driving-shaft to lower the horn automatically and hold it in lowered position without stopping the driving-shaft.

42. In a machine for inserting fastenings, mechanism for feeding fastening material, an actuator therefor, and means, including a yielding medium, arranged to be operated without stopping said actuator for suspending the operation of said feeding mechanism while the actuator continues in operation.

43. In a machine for inserting fastenings, mechanism for feeding fastening material, an actuator therefor, and spring-actuated means arranged to be operated without stopping the said actuator for suspending the operation of said feeding mechanism while the actuator continues in operation.

44. In a machine for inserting fastenings, a work-support, means for inserting fastenings, actuating mechanism therefor, and means for suspending the insertion of fastenings and for depressing the work-support and leaving it in lowered position while said actuating mechanism continues in operation.

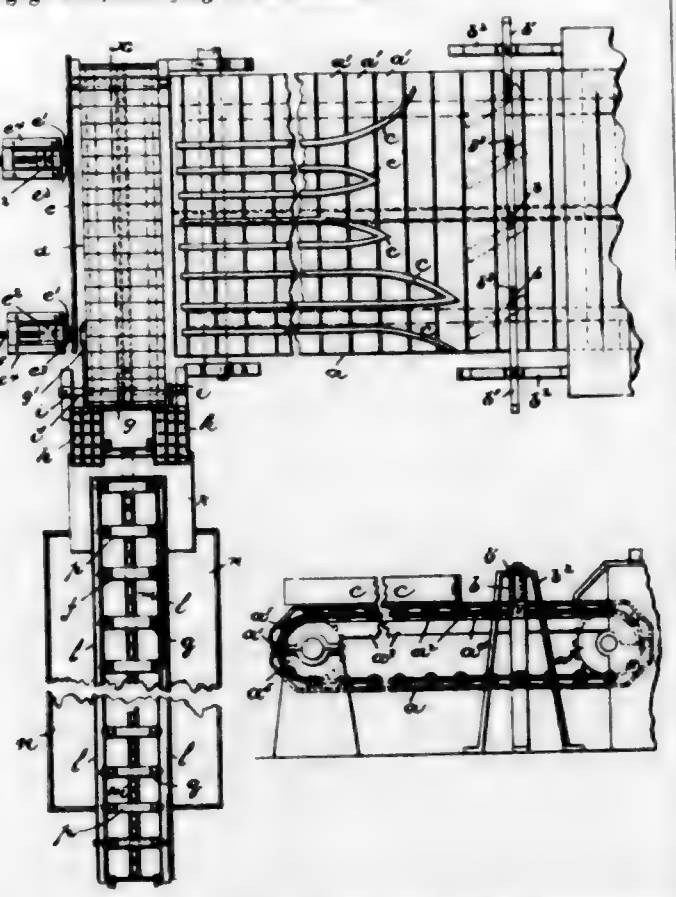
45. In a machine for inserting fastenings, a work-support, means for inserting fastenings, actuating mechanism therefor, means for suspending the insertion of fastenings and for depressing the work-support and leaving it in lowered position while said actuating mechanism continues in operation, and means for raising the work-support when fastenings are to be inserted.

46. In a machine for inserting fastenings, a driving-shaft, a work-support, mechanism for feeding fastening material, and means under the control of the operator to suspend the operation of said feeding mechanism, lower the work-support and leave the work-support in lowered position while the driving-shaft continues in operation.

691,855. APPARATUS FOR COOLING FISH-PLATES IN THE PROCESS OF MANUFACTURE. RICHARD B. CHARLTON, Milwaukee, Wis., assignor to the Continuous Rail Joint Company of America, a Corporation of New Jersey. Filed Dec. 15, 1900. Serial No. 39,964. (No model.)

Claim.—1. In an apparatus for cooling fish-plates or the like, the combination with a cooling-tank, of rails *l*, extending through the tank and forming a slideway on which the fish-plates may lie transversely, and

a belt adapted to travel longitudinally of said slideway and having dogs to engage fish-plates lying on the slideway.



2. In an apparatus for cooling fish-plates or the like, the combination with a cooling-tank, of rails *l*, extending through said tank and providing at their upper surface a slideway for fish-plates to lie across, a belt adapted to travel longitudinally of said rails, cross-pieces on said belt engaging a lower surface of the rails and held below the level of the slideway and dogs on said cross-pieces projecting upward to engage fish-plates on the slideway.

3. In an apparatus for cooling fish-plates, the combination with a cooling-tank, of rails *l*, extending through the tank and providing at their upper surfaces a slideway for transversely-disposed fish-plates and having their facing sides longitudinally grooved, a belt adapted to travel longitudinally of said rails, cross-pieces attached to said belt with wheels at the ends working in said grooves, and dogs on said cross-pieces extending above the slideway.

4. In an apparatus for cooling fish-plates, the combination with a bath or tank, of a slideway extending through said tank and being adapted to directly support a fish-plate at points at or near its opposite ends and hold the same always horizontal, and means for sliding the fish-plates along said slideway.

5. In an apparatus for cooling fish-plates, the combination with a bath or tank, of two rails extending through the said bath or tank and adapted to support a fish-plate from below at two points near its ends, whereby the exterior surface of the fish-plate is freely exposed to the bath, and means for sliding fish-plates along said rails in position substantially at right angles thereto.

6. The combination of the tank *n*, having sprocket-wheels *o*, arranged at each end, an endless conveyer running over said sprocket-wheels and through the tank and returning beneath the tank and being adapted to carry fish-plates or the like through the tank, an incline *k*, above the conveyer, and means for feeding fish-plates down said incline in transverse positions with respect to the conveyer, substantially as set forth.

7. The combination with a conveyer *a*, adapted to receive fish-plates lying end to end in a transverse line across the conveyer, of turning-pins *b*, arranged vertically above the conveyer, and guides *c*, beyond said pins, whereby the fish-plates are each turned at right angles to its former position, substantially as set forth.

8. The combination with a conveyer *a*, adapted to receive a fish-plate or the like lying transversely across the conveyer, of a vertical pin *b*, above the conveyer independent thereof, and adapted to engage the fish-plate intermediate of its center and one of its ends as the same is carried forward by the conveyer, substantially as set forth.

9. The combination with a conveyer *a*, adapted to transport a transverse series of parallel fish-plates or the like lying longitudinally of the conveyer, of a second conveyer *d*, moving at right angles to the direction of movement of the first-mentioned conveyer and having its side closely contiguous to the end of said first-mentioned conveyer, whereby the fish-plates are deposited by the first conveyer directly upon the second conveyer as a longitudinal series of fish-plates each disposed transversely of the said second conveyer.

10. The combination with a broad conveyer *a*, adapted to transport transverse series of longitudinally-disposed fish-plates or the like, of a narrow conveyer *d*, moving at right angles to the direction of movement of the broad conveyer, and having one of its sides closely contiguous to an end of the broad conveyer, the fish-plates being deposited by the first-mentioned conveyer directly upon the second in transverse position, and an elastically-supported adjustable stop-bar at the opposite side of the narrow conveyer from the delivery end of the broad conveyer, substantially as set forth.

11. The combination with a conveyer *d*, adapted to carry fish-plates or the like, lying transversely of its direction of movement, of a tilting table hinged at the end of said conveyer and onto which each fish-plate falls, said tilting table having at each side tripping means which must be engaged by the opposite ends of the fish-plate to cause a tipping of the table, substantially as set forth.

12. The combination with a conveyer, of a tilting table adapted to receive fish-plates or the like from said conveyer and drop them in a position at right angles to the direction of movement of the conveyer, said tilting table being pivoted on horizontal bearings and adapted to fall under the weight of a fish-plate, and said table having at its opposite sides independent retaining means which must be simultaneously engaged by the opposite ends of a fish-plate to release the table, substantially as set forth.

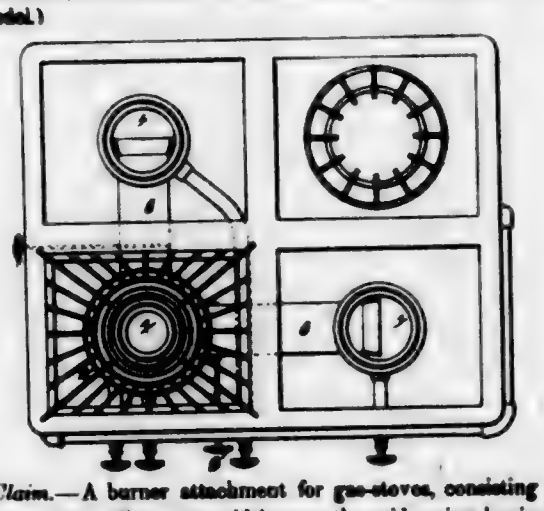
13. The combination with a conveyer, of a tilting table adapted to turn on a horizontal axis under the weight of a fish-plate or the like and having a counterbalance normally holding it in position, said table having a plurality of independent pawls engaging fixed stops to lock the table in normal position, and trip-plates each connected to a pawl and adapted to release the same when depressed by a fish-plate, substantially as set forth.

14. The herein-described tilting table for dropping fish-plates or the like in a predetermined position, having a pivoted body portion adapted to tip under the weight of a fish-plate, and said body portion having separate and independent catches locking it in elevated position and adapted to be released only by simultaneous engagement by different parts of the fish-plates, substantially as set forth.

15. A tilting table for dropping fish-plates or the like in a given position, having a pivoted body portion, and independent pawls on said body portion engaging fixed stops to lock the table against tipping, said pawls being adapted to be simultaneously engaged by opposite end portions of the fish-plate before the table will be free to tip under the weight of the fish-plate, substantially as set forth.

16. In a tilting table, the combination of a body portion, tripping-plates hinged on said body portion and having pawls adapted to normally engage fixed stops and lock the table in elevated position, springs holding said tripping-plates with their pawls in locking position, and a counterbalance adapted to restore the table to elevated position after discharging its contents, substantially as set forth.

691,856. BURNER ATTACHMENT FOR GAS-STOVES. ARTHUR H. COOMBS, St. Louis, Mo. Filed July 15, 1901. Serial No. 68,290. (No model.)

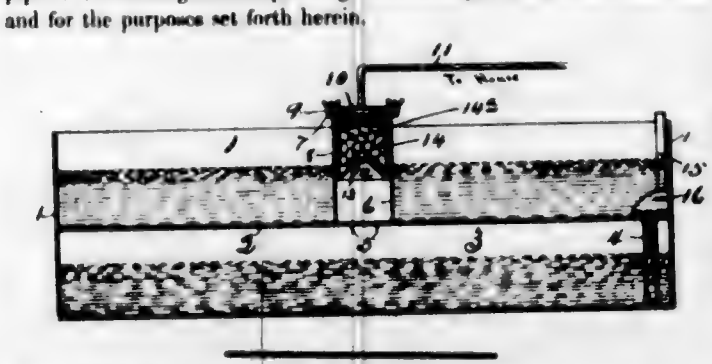


Claim.—A burner attachment for gas-stoves, consisting of a main burner, a casing adjacent to said burner, the said casing having a conical bottom provided with an opening, a slide for closing said opening, a number of secondary burners, pipes leading from said casing to the secondary burners, and dampers located in said pipes for controlling the passage of the heat therethrough, substantially as specified.

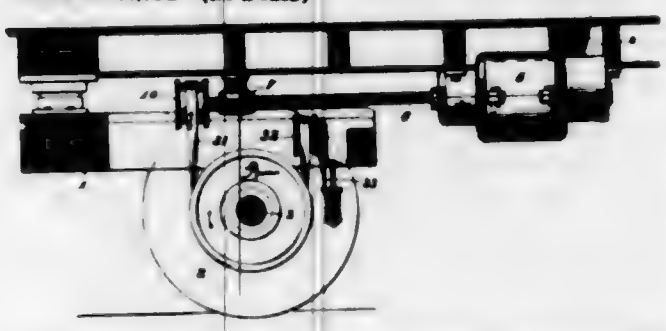
691,857. ACETYLENE-GAS GENERATOR. WILLIAM W. COSINE, Linden, Cal. Filed Mar. 26, 1901. Serial No. 53,903. (No model.)

Claim.—In an acetylene-gas generator the combination of the wa-

ter vessel and gas-chamber located above and below each other respectively, the connecting-pipe 4 extending into said gas-chamber, the hood 16 provided with the pipe 15, the series of pipes 17 arranged at different heights, and each provided with a stop-cock 21, inserted into the side of the said gas-chamber, each pipe being provided with the safety-valve 23, a series of can-covers 18 rigidly attached to each of the said pipes 17 and having the slots 20 arranged therein, the cans 19 suitably attached to the covers 18 and the dams 22 arranged beneath the inner ends of the pipes 17, all arranged and operating substantially as shown and described and for the purposes set forth herein.



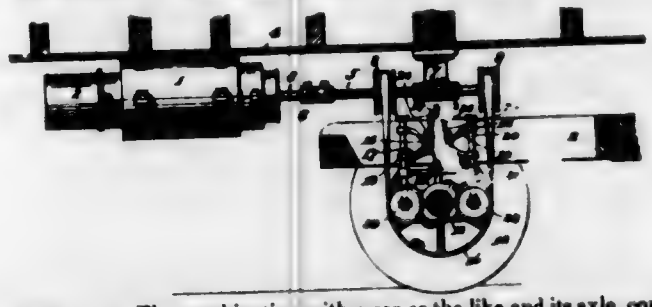
691,358. MEANS FOR DRIVING DYNAMOS FROM CAR-AXLES. JOHN L. CREVELING, New York, N. Y. Filed Aug. 30, 1900. Serial No. 28,524. (No model.)



Claim.—1. The combination with a generator, of the type described, comprising an armature and its shaft, a storage battery and translating device in electrical communication one with the other, of a revoluble axle and means operatively connecting said axle with the armature-shaft, said means being adapted to communicate motion to the armature-shaft in one direction irrespective of the direction in which the axle moves, and to run free of the axle when the armature-shaft is independently rotated.

2. The combination with a generator, of the type described, comprising an armature and its shaft, a storage battery and translating device in electrical communication one with the other, of a revoluble axle, a pulley fixed to the armature-shaft, a pair of loose pulleys upon the axle, means for engaging said pulleys with the axle through their rotation in opposite directions, respectively, an idler, and a belt working around the pulley on the armature-shaft and the idler, across the peripheries of the pulleys upon the axle, all cooperative, substantially for the purpose specified.

691,359. MEANS FOR DRIVING GENERATORS PLACED UPON CARS BY POWER TAKEN FROM THE CARS. JOHN L. CREVELING, New York, N. Y. Filed May 10, 1901. Serial No. 59,604. (No model.)



Claim.—1. The combination with a car or the like and its axle, constituting a driving-shaft, and a pulley on the axle, of a driven shaft, as of a generator, a pair of pulleys on said shaft adapted to run, respectively, in one direction, loose thereon, and in the opposite direction fast thereto, a belt upon said pulleys, and means for always presenting the taut side of the belt between the driving-pulley and the driven pulley.

2. The combination with a car and its axle, constituting a driving-shaft, and a pulley thereon, of a driven shaft, as of a generator, a pair of pulleys on said shaft adapted, respectively, to run, in one direction loose and in the other direction fixed thereto, an idler-pulley carried by the car and having its face extending below the axle, and a belt operatively uniting the several pulleys and idler.

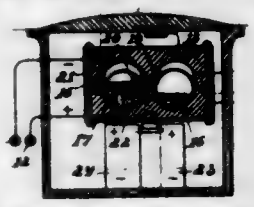
3. The combination with a car and its axle, constituting a driving-shaft, and a pulley thereon, of a driven shaft, as of a generator, a pair of pulleys thereon adapted to run, respectively, in one direction loose upon the shaft, and in the other direction fast thereto, a spring-actuated idler-pulley carried by the car and having its face extending below the axle, and a belt operatively uniting the several pulleys and idler.

4. The combination with a car and its axle, constituting a driving-shaft, and a pulley thereon, of a driven shaft, as of a generator, a pair of pulleys thereon adapted to run, respectively, in one direction loose upon the shaft, and in the other direction fast thereto, a spring-actuated idler-pulley carried by the car and having its face extending below the axle, a belt operatively uniting the several pulleys and idler, and means for controlling the tension of the actuating-spring.

5. The combination with a car and its axle, constituting a driving-shaft, and a pulley thereon, of a driven shaft, as of a generator, a pair of pulleys thereon adapted to run, respectively, in one direction loose upon the shaft, and in the other direction fast thereto, arms provided with apertures, rods working in said apertures, a cross-piece uniting the rods, a spring exerting tension against the cross-piece, a pair of idlers upon the rods upon opposite sides of the axle, and a belt bent about the several pulleys and the idlers.

6. The combination of a car and its axle, constituting a driving-shaft, a driven shaft and pulleys thereon, an idler, and a belt bent around the several pulleys and idler, the pulleys on the driven shaft comprising a web and hub, a sleeve, secured to the shaft upon which the hub is revolubly mounted, a flange provided with a shoulder and extension upon the sleeve, a cam-ring provided with a plurality of spiral wedge-shaped cavities secured to the pulley about the shoulder, and balls mounted in the cavities, respectively, substantially as and for the purpose specified.

691,360. ELECTRIC TRACTION. BAPTISTIN CRUVELLIER, Marseilles, France. Filed Sept. 8, 1900. Serial No. 29,356. (No model.)



Claim.—1. In an electric traction system, a contact-box provided with a closed chamber or cavity and an active electric-circuit closer movable in said chamber or cavity and comprising a hollow sphere of conducting non-magnetic material, and loose magnetizable material inclosed in said sphere.

2. In a system of electric traction, a circuit-closer, comprising a hollow body formed of a conductive but non-magnetizable substance, and magnetizable material loosely arranged within said hollow body.

3. In a system of electric traction, a contact-box provided with a series of closed cavities or chambers, a series of movable circuit-closers arranged within the chambers, each consisting of a hollow shell of conductive and non-magnetizable material, the interior of the shells being differentially filled with loose magnetizable material, in combination with magnets of differential energy located below the shells and adapted to return the shells to their inactive position.

4. In a system of electric traction, a vehicle provided on its under surface with brushes to collect the current, a contact-box having surface contacts over which the brushes travel, a plurality of magnetized bars of varying strength arranged below the vehicle and above the brushes, and a series of circuit-closers movable in the contact-box, each circuit-closer, comprising a hollow sphere of conductive and non-magnetic material, said spheres having in their interior varying quantities of magnetic material corresponding to the varying strength of the magnetized bars of the vehicle.

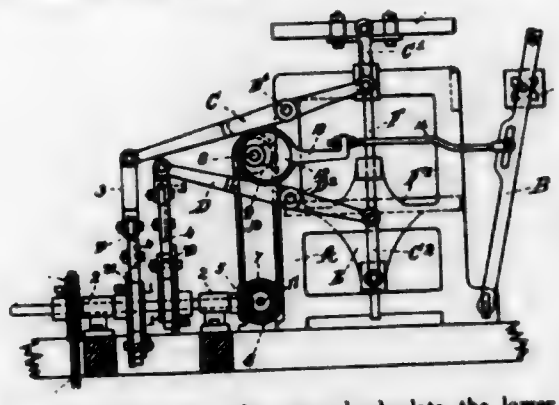
691,361. MARKING-PIN. LINFORD J. DAVIS, Battlecreek, Mich. Filed Dec. 31, 1900. Serial No. 41,708. (No model.)



Claim.—A laundry marking-tag comprising a safety-pin having a back bar with an outwardly-struck seat at an intermediate point, and a flat metal plate tag to receive an identifying character having a bendable tongue at one side edge arranged around said seat, said tongue having a free swinging movement to avoid offering a rigid tearing projection to clothing that may be adjacent thereto.

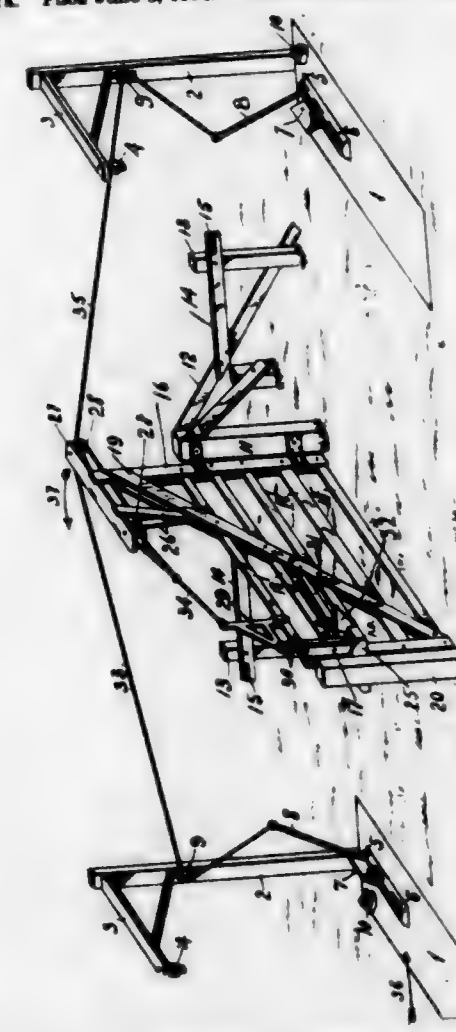
691,362. DRIVING MECHANISM FOR JACQUARD-MACHINES. JOHN DEAN, Paterson, N. J., assignor of one-half to John P. Kerr, Paterson, N. J. Filed July 3, 1899. Serial No. 722,690. (No model.)

Claim.—1. In a jacquard-machine, the combination with the main frame of the machine of the driving-shaft 16 mounted in bearings at right angles with the front of the jacquard-machine, the shaft 8, the shaft 17, both of said shafts running parallel with the front of the machine, the batten B, cylinder G, the eccentrics 12, driven by the shaft 8, the rod 14 connecting the batten B with the eccentric-strap 13, the intermeshing miter gear-wheels 5 and 6 secured to an end of shafts 16 and 17 respectively, the sprocket-wheels 7 and 9 and sprocket-chain 10 connecting the same, constructed substantially as set forth.



2. In a jacquard-machine, the upper hook-plate, the lower hook-plate, and two bifurcated levers, the arms of which are pivotally secured to the frame of the machine, in combination with a driving-shaft, located at right angles to the front of the machine, eccentrics and eccentric-plates located directly on said shaft and revolving independently on the same, said eccentric-plates being provided with a slot for adjusting the same, eccentric-straps provided with adjusting-slots, links pivotally secured to the outer ends of said lever-arms, adjusting-plates connecting said links and said eccentric-straps, rods connecting pivotally the upper hook-plate and the arms of the upper bifurcated lever, rods pivotally connecting the lower hook-plate and the arms of the lower bifurcated lever, the carriage E secured to the lower hook-plate and guide-rods secured to the upper hook-plate, and adapted to rise and fall therewith, and to slide vertically through the arms of the carriage E, in openings provided therein, substantially as set forth.

691,363. AUTOMATIC ROAD-GATE. JAMES E. DE LAMAR, Delark, Ark. Filed June 8, 1901. Serial No. 63,735. (No model.)

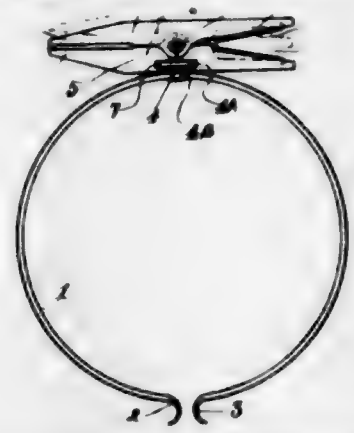


Claim.—1. The combination of a swinging gate adapted to be opened and shut by cords attached to suitable mechanism; aprons, one on each side of the gate secured over part of the roadway and provided with slots; cylinders journaled immediately under said slots and protruding slightly above the same; cone-shaped coil-springs, one secured on the upper face of each apron; pedals, one rigidly secured to each cylinder, said pedals adapted to be pressed inwardly to the ground, or outwardly onto the said coil-springs; levers, one rigidly secured to each cylinder, their free ends moving up and down with the pedals; posts, one rising from the outer end of each apron; pulleys secured to the inner faces of said posts; cords secured to the free ends of said levers, passing over said pulleys, thence around and crossing between rollers secured in a frame on the upper end and rear part of the gate, thence secured to mechanism adapted to raise the gate-latch and catches, substantially as shown and described and for the purposes set forth.

2. The combination of a swinging gate adapted to be opened and shut by cords attached to suitable mechanism; aprons, one on each side of the gate, secured over part of the roadway and provided with slots; cylinders journaled immediately under said slots and protruding slightly above the same; cone-shaped coil-springs, one secured on the upper face of each apron; pedals, one rigidly secured to each cylinder, said pedals adapted to be pressed inwardly to the ground, or outwardly onto the said coil-springs; levers, one rigidly secured to each cylinder, their free ends moving up and down with the pedals; posts, one rising from the outer end of each apron; pulleys, secured to the inner faces of said posts; cords, secured to the free ends of said levers, passing over said pulleys, thence around and crossing between rollers secured in a frame on the upper end and rear part of the gate, thence secured to a rod pivoted to a right-angle triangular lever, pivoted to the gate; said lever adapted to operate a latch provided with cross-catches, substantially as shown and described and for the purposes set forth.

3. The combination of a swinging gate adapted to be opened and shut by cords attached to suitable mechanism; aprons, one on each side of the gate, secured over part of the roadway and provided with slots; cylinders journaled immediately under said slots and protruding slightly above the same; cone-shaped coil-springs, one secured on the upper face of each apron; pedals, one rigidly secured to each cylinder, said pedals adapted to be pressed inwardly to the ground, or outwardly onto the said coil-springs; levers, one rigidly secured to each cylinder, their free ends moving up and down with the pedals; posts, one rising from the outer end of each apron; pulleys secured to the inner faces of said posts; cords secured to the free ends of said levers, passing over said pulleys, thence around and crossing between rollers secured in a frame on the upper end and rear part of the gate, thence secured to a rod pivoted to a right-angle triangular lever pivoted to the gate; said lever adapted to operate a latch provided with cross-catches, adapted to catch in side catches and said latch adapted to catch in the keeper, secured to the latch-post, substantially as shown and described and for the purposes set forth.

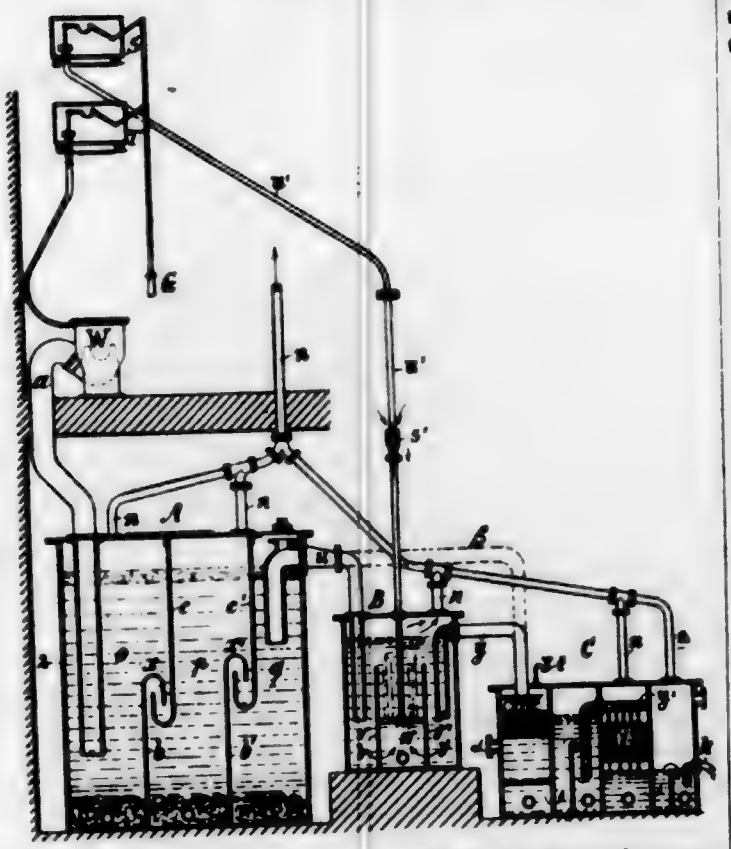
691,864. WORK-HOLDER. NELSIRE P. DENCKLA, Denver, Colo. Filed Mar. 14, 1901. Serial No. 51,147. (No model.)



Claim.—1. In a sewing-work-holding device, the combination of the spring-ring having a wedge-shaped button at the central portion of its circumference with a pair of vise-jaws pivotally secured together having a spring arranged at one of their ends to hold their opposite jaws together by its resilient tension and having the opposing surfaces of said jaws corrugated and a tapering T-shaped recess in the bottom of the lower jaw arranged to slide over said button at its widest side and to fit tight upon it at its central portion, substantially as described.

2. In a sewing-work-holding device, the combination of the spring-steel, open-ended supporting-ring having a wedge-shaped and T-shaped fastening-button comprising the thin, flat head having wedge-shaped or tapering sides, with the lower clamping-jaw containing a T-shaped slot adapted to slide on said button sidewise and fit tightly but removably on its end and to rest on said ring, the upper clamping-jaw pivotally attached to said lower jaw and the spring arranged to hold the upper and lower jaws normally together, substantially as described.

691,865. APPARATUS FOR CLARIFYING FECAL MATTER. FRIEDRICH W. DITTLER, Berlin, Germany. Filed Sept. 26, 1901. Serial No. 76,676. (No model.)

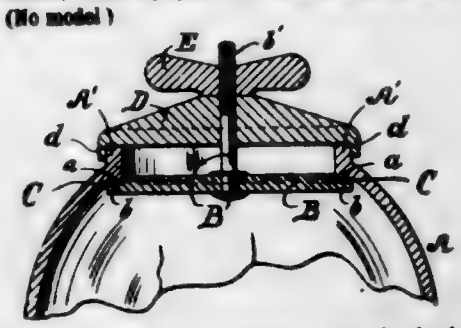


Claim.—1. A clarifying apparatus for fecal matter and sewage, characterized by the clarifying-tank being divided into three or more chambers *o p q* by means of two or more upright partitions *b b'* in which one or more vertical partitions *c c'* dependent from the cover are immersed in such a way that, in conjunction with the vertical partitions *b* facing them, the upper parts of which *x* like their own are suitably bent, they form a kind of siphon, in consequence of which the separated heavier matter as well as the floating substances remain at rest in the first chamber from which air is excluded in order to decompose by fermentation, so that the overflow of the sewage clarified by this decomposition only takes place from the middle of the tank through a pipe *u*, substantially as described and for the purpose set forth.

2. A clarifying apparatus for fecal matter and sewage, characterized by the clarifying-tank being divided by two or more vertical walls *b b'* into three or more chambers *o p q* in which one or more vertical walls dependent from the cover are immersed in such a way that they form a kind of siphon with the other walls *b b'* standing opposite them the upper part of which walls, like that of their own is suitably bent *x x'* in consequence of which arrangement the heavier matter separated out and also the floating substances remain at rest in the first chamber from which air is excluded in order to decompose by fermentation, so that the discharge of the sewage clarified by this decomposition only takes place from the middle of the tank through the pipe *u*, which pipe *u* leads by a pipe *s* to a tank C with filter-boxes *e* and *i*, which pipe *s* opens over a coke filter *e* to which a receptacle *t* conveys sterilizing and disinfecting oily liquids, said tank having baffle-plates *g* and *g'* for forcing the liquid to pass upward and between said baffle-plates, a dry filter-chest *i* with a handle *y'*, the liquid flowing off the latter over the baffle-plate *g'* through the apparatus escaping by means of an outlet *k*, substantially as described and for the purpose set forth.

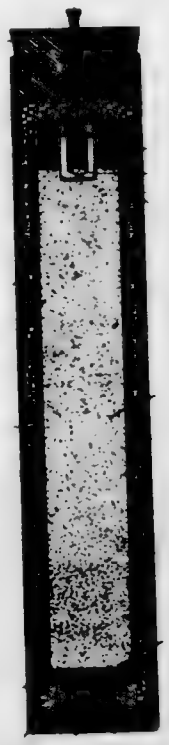
3. A clarifying apparatus for fecal matter and sewage, characterized by the clarifying-tank being divided by means of two or more vertical walls *b b'* into three or more chambers *o p q* in which one or more vertical walls dependent from the cover are immersed in such a way as to form a kind of siphon between their lower edges and the upper edges of the walls *b b'* facing them, the parts *x x'* in question being suitably bent round, as a consequence of which the heavier matters separated out as well as the floating substances are caused to remain at rest within the first chamber from which air is excluded in order to decompose by fermentation, the discharge of the sewage clarified by this decomposition only taking place from the middle of the tank through a pipe *u*, which leads by a pipe *s* to a tank C with filter-boxes *e* and *i* said pipe *s* opening above a coke filter *e* to which a receptacle *t* conveys sterilizing and disinfecting oily fluids, while said tank is provided with baffle tongues or plates for causing the liquid to pass upward, and a dry-filter box *i* with an inlet *y'* inserted between, while the liquid flowing off the latter over the baffle-plates *g'* through the apparatus can pass away through an outlet *k*, in which apparatus the pipe *u* leads first into a tank B having two upright partitions *v v'* perforated near the bottom, through an air-supply pipe *v'* having tubular distributing devices, the openings of which are upwardly directed in order to produce an upward flow of the liquid, the liquid being conveyed to the outside of these two walls, while also outside these two walls *v v'* a discharge-pipe *y* connects with the said tank C substantially as described and for the purpose set forth.

691,866. FRUIT-JAR AND COVER. JOHN A. DONALD and HERBERT L. BUSSEY, South Ryegate, Vt. Filed May 11, 1901. Serial No. 59,786. (No model.)



Claim.—In a fruit-jar, the combination with the jar-body A, having an elliptical neck A', integral therewith, and the shoulder *a*, formed in said body at the intersection of said neck and body; of the disk B, formed with the shoulder *b*, adapted to press upon the shoulder *a*; and the upwardly extending spindle B', the gasket C, adapted to be interposed between said shoulders; the cap D, formed with the lip *d*, adapted to fit over said elliptical neck; and the thumb-nut E, engaging the screw *b'*, on said spindle, and together with said spindle, disk, gasket and cap closing the mouth of said jar, all substantially as and for the purpose set forth.

691,867. SAFETY BLASTING-CARTRIDGE. THOMAS F. DURHAM, Philadelphia, Pa. Filed Oct. 15, 1901. Serial No. 78,683. (No model.)



Claim.—1. In a safety blasting-cartridge, a receptacle adapted to contain a fire-extinguishing agent, a cartridge within said receptacle, and means for exploding the cartridge in combination with bands secured around the cartridge, protuberances formed upon the bands at intervals for the purpose of holding the cartridge at a distance from the outer receptacle and allowing for the free circulation of the fire-extinguishing agent therebetween, a block secured in the lower end of the outer receptacle upon which the cartridge rests, substantially as and for the purpose specified.

2. In a safety blasting-cartridge of the character described, an outer receptacle composed of a pasteboard tube, a plug closing the lower end of said tube, a block secured to the inner face of said plug, said tube, plug and block coated with waterproofing solution, an inner receptacle adapted to contain the explosive agent, said inner receptacle composed of a pasteboard tube, a pasteboard plug closing the lower end of the same, said tube and plug coated with waterproofing solution, a band of cord or rope secured around the inner receptacle near the top and bottom of the same, said cord or rope knotted at frequent intervals, a fire-extinguishing agent adapted to be contained in the outer receptacle, substantially as and for the purpose specified.

3. In a blasting-cartridge of the character described, an outer receptacle composed of a pasteboard tube, a plug of pasteboard inserted in the lower end of the tube, the lower edges of the tube being bent underneath the plug to hold the same in place, a block secured to the inner surface of the center of the plug, said tube, plug and block being coated with a waterproofing solution, an inner receptacle adapted to contain the explosive, said receptacle consisting of a pasteboard tube, a plug closing the lower end of the tube, the lower edges of the tube being turned underneath the plug, said tube and plug being coated with a waterproofing solution, bands secured around the inner receptacle near the top and bottom, protuberances formed upon said bands at intervals for the purpose of holding the two receptacles apart, fire-extinguishing agent adapted to be contained in the outer receptacle, plugs closing the inner receptacle and the outer receptacle and means for exploding the cartridge, substantially as and for the purpose specified.

4. In combination with a cartridge of the character described, bands secured around the inner receptacle, said bands consisting of cardboard, openings formed through the cardboard to allow for the free circulation of the fire-extinguishing agent said cardboard bands being coated with a waterproofing solution, substantially as described.

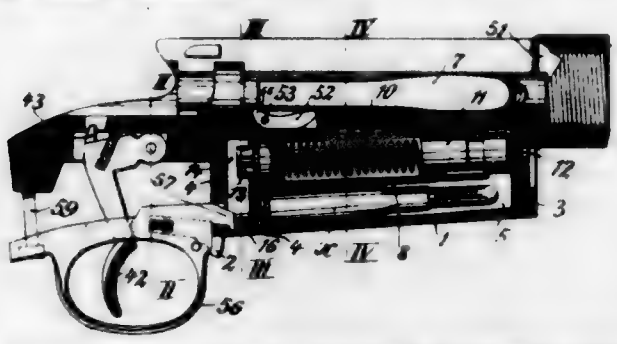
5. In combination with a cartridge of the character described, a plug for closing the lower end of the outer receptacle, said plug consisting of a disk of cardboard having a protuberance extending upward in the center, upon which protuberance the inner receptacle is adapted to rest, the edges of the outer receptacle being turned underneath the disk for the purpose of holding the same in place, as specified.

691,368. CLOTHES-RACK. SAMUEL EAST, Harbor Beach, Mich. Filed Mar. 23, 1901. Serial No. 52,587. (No model.)



Claim.—The combination with diverging bars adapted to be secured to a wall or like support, of keepers secured thereto in horizontally-alined parallel pairs, a plurality of bails of varying size pivotally supported by said keepers one above another, stops projecting from said bails to maintain them in horizontal position, and a catch pivotally secured to one of said bars and adapted to secure one or more of the bails in raised position.

691,369. MAGAZINE-RIFLE. TERJE A. FIDJELAND, Fostvedt, Iveland pr Christiansand S., Norway. Filed Apr. 19, 1901. Serial No. 56,621. (No model.)

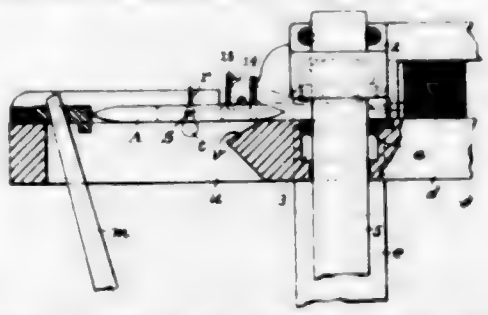


Claim.—1. In a magazine-rifle as set forth the magazine consisting of the circular magazine-chamber 5 the one side of which corresponds with the breech through an opening 7 and the other side of which has a spring-influenced cover 6 for filling of the cartridges *x*, and which chamber 5 in its central part has a hollow cylinder 8 which in the longitudinal direction is springingly supported and in the rotary direction is spring-influenced, and which cylinder 8 has a tangential wing 9 that serves as cartridge-feeder.

2. In a magazine-rifle the combination with the frame having integral single and double depending walls forming the end walls of the magazine, of a semicylindrical cover forming the bottom of the magazine, a tongue-and-groove connection between said cover and one of the end walls, and a spring-catch engaging the opposite end of the cover for holding it removably in place, substantially as described.

3. In a magazine-rifle, the combination with the magazine of a cylinder 8 therein, a sliding piece 11 in the end of said cylinder having a pivot engaging the end wall of the magazine, a spring exerting tension on said sliding piece, said cylinder at its opposite end being journaled in the other end wall of the magazine, a cog-wheel carried by said cylinder, a rocking toothed segment engaging said cog-wheel, a spring exerting tension on said segment and tending through the gearing to rotate said cylinder, a cover for closing the filling-opening to the magazine, means whereby the opening of the cover swings said segment against the tension of the spring, and a feeding-wing carried by said cylinder and operating under the action of the spring and segment to feed the cartridges when the cover is closed, substantially as described.

691,370. LOOM. WILLIAM FISCHER, Jr., Paterson, N. J. Filed Sept. 12, 1901. Serial No. 75,148. (No model.)



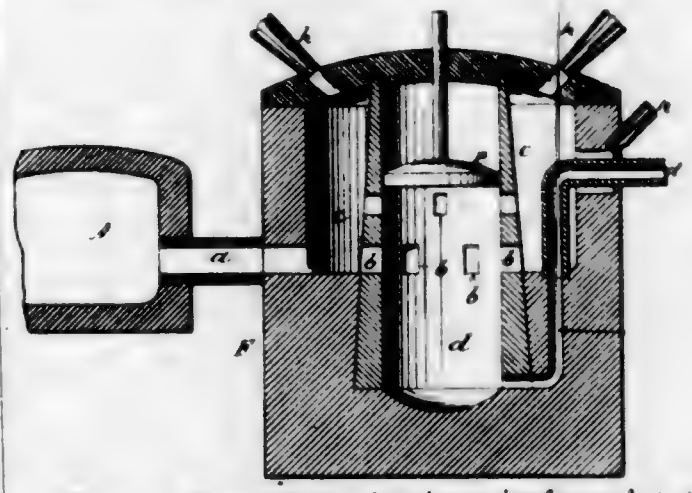
Claim.—1. In a loom, the combination of warp-controlling means, a weft-supply, a batten, a shuttle arranged on said batten, the weft-thread being adapted to extend across the path of the shuttle on the batten, a movable weft-catch pivoted in said shuttle, and means for moving said catch to engage and disengage the weft as the shuttle moves across the batten, substantially as described.

2. In a loom, the combination of warp-controlling means, a weft-supply, a batten, a shuttle arranged on said batten, the weft-thread being adapted to extend across the path of the shuttle on the batten, a weft-catch pivoted in said shuttle and projecting from the same, and means for oscillating said catch as the shuttle moves across the batten, substantially as described.

3. In a loom, the combination of warp-controlling means, a batten, a shuttle arranged on said batten, said batten having a recess in, and the weft-thread being adapted to extend across, the path of movement of said shuttle on the batten, and a weft-catch pivoted in said shuttle and normally held vertical projecting above and below the shuttle, the upper end of said catch being adapted to engage the thread and the lower end being adapted to engage the batten to depress said upper end, substantially as described.

4. A loom-shuttle consisting of a body portion in combination with a catch pivoted in said shuttle and adapted to project out of the same at both ends, one end of said catch being adapted to engage the weft-thread and the other a part of the loom so as to depress said catch, substantially as described.

691,371. APPARATUS FOR DELIVERING MELTED GLASS. CHARLES W. FOSTER, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,391. (No model.)



Claim.—1. The combination of a primary glass-furnace A, a supplementary furnace F, connected with the primary furnace A, by a conduit *a*, means for heating said supplementary furnace, a discharge-chamber *d*, in said supplementary furnace having one or more inlets for the melted glass, a discharge-passage *d'*, opening into the lower part of the discharge-chamber *d*, and extending above the plane of inlet thereto, and a plunger P, in said discharge-chamber *d*, supported laterally by the walls thereof and capable of depression below the plane of inlet for the purpose of positively ejecting the glass from the lower portion of the discharge-chamber, substantially as set forth.

2. The combination of a primary glass-furnace A, a supplementary furnace F, connected with the primary furnace by a conduit *a*, means for heating said supplementary furnace F, an annular chamber *c*, in the sup-

plementary furnace F, into which the conduit *a*, opens, a central discharge-chamber *d*, in the supplementary furnace F, having ports *b*, *b*, connecting it with the annular chamber *c*, a discharge-passage *d'*, opening into the lower part of the discharge-chamber *d*, and extending above the level of the inlet-ports *b*, *b*, and a plunger P, in said discharge-chamber *d*, supported laterally by the walls thereof and capable of depression below said inlet-ports *b*, *b*, for the purpose of positively ejecting the glass from the lower portion of the discharge-chamber, substantially as set forth.

691,372. COMBINED MATCH-BOX AND CIGAR-CUTTER. FREDERICK H. GROTHE, Burlington, Iowa. Filed June 1, 1901. Serial No. 62,773. (No model.)

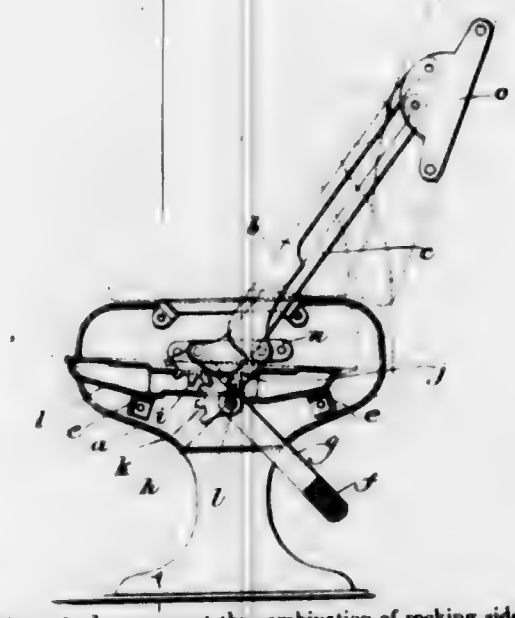


Claim.—1. A combined match-box and cigar-cutter comprising a box provided with inwardly-projecting ribs and having a hinged cover, said cover carrying a pair of cutting-blades, said blades having fastening-lugs adapted to engage ribs upon the box and the spring for holding the said lugs in such engagement, substantially as described.

2. A combined match-box and cigar-cutter comprising a box provided with inwardly-projecting ribs and having a hinged cover, said cover carrying a pair of oppositely-disposed cutting-blades, said blades having depending lugs adapted to engage ribs upon the box and lock the cover and the spring arranged within the cover and between the said depending lugs, substantially as described.

3. A device of the kind described comprising a box having inwardly-projecting ribs adjacent to its upper end, a cover hinged to the box and having a slot at its upper end, the oppositely disposed cutting-blades working in the said slot, the depending lugs connected to the said blades, the lower ends of the said lugs being notched and adapted to engage the ribs upon the box, the coil-spring arranged within the cover and between the depending lugs, said lugs having pins or studs for holding the spring in place, substantially as shown and described.

691,373. CAR-SEAT. HENRY S. HALE, Philadelphia, Pa. Filed Feb. 23, 1901. Serial No. 48,443. (No model.)



Claim.—1. In a car-seat the combination of rocking side arms pivoted at their lower ends, toothed segments carried by the lower ends of said side arms, a rocking foot-rest structure, and toothed segments carried by said foot-rest structure and directly engaging the toothed segments of the side arms, whereby the rocking of the side arms on their pivots will effect the rocking of the foot-rest structure.

2. In a car-seat, the combination of rocking side arms each consisting of two members independently pivoted at their lower ends, a seat-back pivoted to the upper ends of said members, a toothed segment carried by the lower end of one of the members of each side arm, a rocking foot-rest structure, and toothed segments carried by said foot-rest structure and directly engaging the toothed segments of the side arm members.

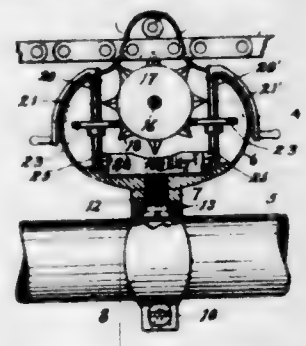
3. In a car-seat, the foot-rest-shifting mechanism consisting of a rocking side arm pivoted at its lower end and carrying a toothed segment *i*, and a rocking foot-rest structure carrying a toothed segment *k* directly engaging said segment *i*.

4. In a car-seat, the foot-rest-shifting mechanism consisting of a rocking side arm pivoted at the lower end and carrying a toothed segment *i*, a rock-shaft, a toothed segment *k* carried by the rock-shaft and directly engaging said segment *i*, and a foot-rest carried by said rock-shaft.

5. In a car-seat, the combination of seat-cushion frames and their guides, the side arms each consisting of two members pivoted at their lower ends, one of the members of each side arm being provided with a toothed segment, a rocking foot-rest structure, toothed segments carried by said rocking foot-rest structure, and directly engaging the toothed segments on the members of the side arms, a connection between the other member of each side arm and the seat-cushion frames, and a seat-back pivoted to the upper ends of the members of the side arms, whereby the seat-cushion frames are shifted and the foot-rest structure is rocked simultaneously with the shifting and reversal of the seat-back.

6. In a car-seat, the combination of seat-cushion frames, guides upon which said seat-cushion frames are supported and guided in their movements, a rocking foot-rest structure, rocking side arms, each consisting of two members independently pivoted at their lower ends, a seat-back pivoted to the upper ends of the members of said side arms, and power-transmitting connections between one member of each side arm and the seat-cushion frames and between the other member of each side arm and the foot-rest structure, whereby the seat-cushion frames are shifted by one of the members of the side arms and the foot-rest structure is rocked simultaneously therewith by the other member of said side arms with the shifting and reversal of the seat-back.

691,374. BICYCLE-LOCK. OSWALD H. HANSEN, Milwaukee, Wis. Filed Sept. 23, 1901. Serial No. 76,156. (No model.)



Claim.—1. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a normally rotatable wheel in said casing and provided with projecting teeth engaged by the teeth of the sprocket-chain of the bicycle, and means for locking said wheel so as to prevent rotation thereof.

2. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a wheel rotatable in said casing and provided with projecting teeth adapted to be engaged by the teeth of the sprocket-chain of the bicycle, an upright shaft in the casing, a disk mounted on the shaft, said disk provided with a recess extending inwardly from the periphery thereof, and means for rocking the shaft so as to bring the recess of the disk into and out of alinement with the teeth of the wheel.

3. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a wheel rotatable in said casing and provided with projecting teeth adapted to be engaged by the teeth of the sprocket-chain of the bicycle, an upright shaft in the casing, a disk mounted on said shaft and having a recess extending inwardly from the peripher thereof, means for rocking the shaft so as to bring the recess of the disk into and out of alinement with the teeth of the wheel, and means for holding the shaft against turning when the recess of the disk is in alinement with the teeth of the wheel.

4. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a wheel rotatable in said casing and provided with projecting teeth adapted to be engaged by the teeth of the sprocket-chain of the bicycle, an upright shaft in the casing, the upper end of said shaft extending through the casing and provided with a crank-handle exterior of said casing, and a disk mounted on the shaft, said disk provided with a recess

extending inwardly from the periphery thereof, the said recess of the disk, when the disk is rotated by the upright shaft to a certain position in one direction, adapted to be brought into alinement with the teeth of the wheel, and said recess of the disk, when the disk is rotated by the upright shaft to a certain position in the opposite direction, adapted to be brought out of alinement with the teeth of the wheel.

5. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, said casing provided exteriorly with a graduated scale, a wheel rotatable in the casing and provided with projecting teeth adapted to be engaged by the teeth of the sprocket-chain of the bicycle, an upright shaft in the casing, the upper end of said shaft extending through the casing and provided with a crank-handle exterior of the casing, said crank-handle adapted to work over the graduated scale of the casing, and a disk mounted on the shaft and provided with a recess extending inwardly from the periphery thereof, the said recess adapted, when the disk is rotated by the upright shaft to a certain indicated scale position in one direction, to be brought into alinement with the teeth of the wheel, and said recess of the disk adapted when said disk is rotated by the upright shaft to a certain indicated scale position in the opposite direction, to be brought out of alinement with the teeth of the wheel.

6. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a normally rotatable wheel in said casing and provided with projecting teeth adapted to be engaged by the teeth of the sprocket-chain of the bicycle, upright shafts in the casing, disks mounted on said shafts, each disk provided with a recess extending from the periphery thereof inwardly, and means for rocking said shafts so as to bring the recesses of the disks into and out of alinement with the teeth of the wheel.

7. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a normally rotatable wheel in said casing, and provided with projecting teeth adapted to be engaged by the teeth of the sprocket-chain of the bicycle, upright shafts in the casing, disks mounted on said shafts, each disk provided with a recess extending from the periphery thereof inwardly, and means for imparting variable rocking motions to said shafts, said variable rocking motions in one direction turning the shafts the required distances to bring the recesses of the disks into alinement with the teeth of the wheel, and the variable rocking motions in the opposite direction bringing the recesses of the disks out of alinement with the teeth of the wheel.

8. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, said casing provided exteriorly with graduated scales, a normally rotatable wheel in the casing and provided with projecting teeth adapted to be engaged by the teeth of the sprocket-chain of the bicycle, upright shafts in the casing, said shafts having their upper ends extending through the casing, crank-arms or handles connected to said upper ends of the shafts and working over the graduated scales, disks mounted on the upright shafts, each disk provided with a recess extending inwardly from the periphery thereof, the recesses of said disks, when the disks are turned to a certain extent by the upright shafts as indicated by the graduated scales, adapted to be brought into and out of alinement with the teeth of the wheel, in accordance with the direction of the turning of said disks.

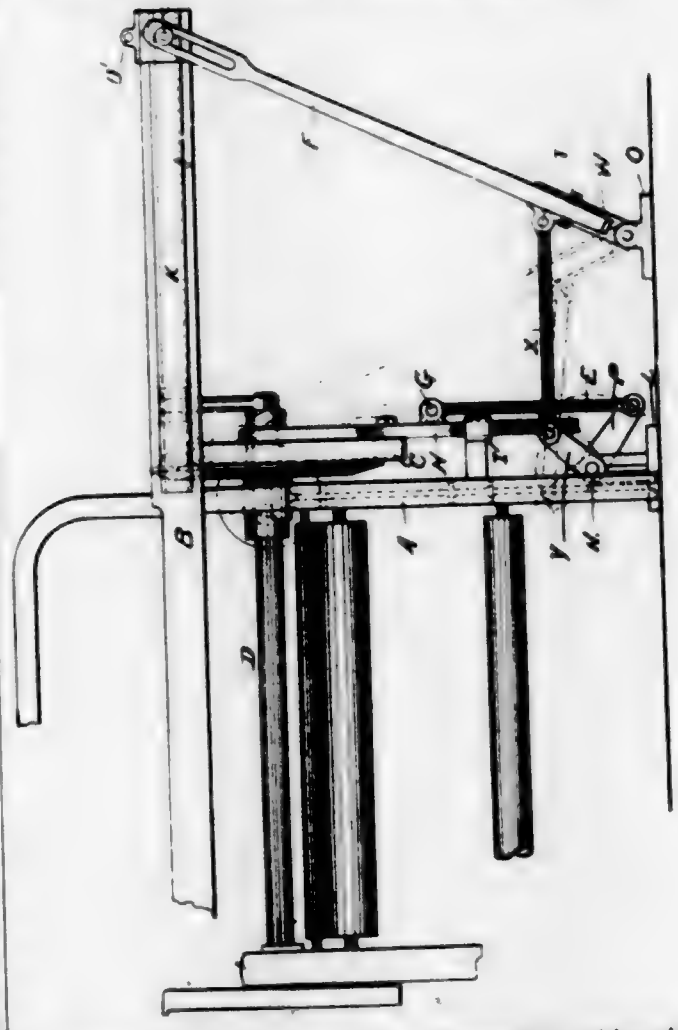
9. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a wheel rotatable in said casing and provided with projecting teeth adapted to be engaged by the sprocket-chain of the bicycle, an upright shaft in the casing, said shaft provided with a projecting lug, a disk mounted on the shaft and having a recess extending inwardly from its periphery, means for rocking said shaft so as to bring the recess of the disk into and out of alinement with the teeth of the wheel, a pivoted plate in the casing, and means for turning said plate to and from an upright position, the end of the plate, when said plate is turned to an upright position, and when the upright shaft is turned to a position to bring the recess of the disk in alinement with the teeth of the wheel, adapted to engage against the lug of the upright shaft and thereby hold the disk in adjusted position.

10. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a wheel rotatable in said casing and provided with projecting teeth adapted to be engaged by the sprocket-chain of the bicycle, an upright shaft in the casing, said shaft provided with a projecting lug, a disk mounted on the shaft and having a recess extending inwardly from its periphery, means for rocking the shaft so as to bring the recess of the disk into and out of alinement with the teeth of the wheel, a pivoted plate in the casing, and a pull-rod secured to said plate and extending outwardly therefrom through the casing, said rod when manipulated adapted to turn the plate to and from an upright position, the end of the plate, when said plate is turned to an upright position, and when the upright shaft is turned to a position to bring the recess of the disk into alinement with the teeth of the wheel, adapted to engage against the lug of the upright shaft and thereby hold the disk in adjusted position.

11. In a bicycle-lock, the combination of a casing secured to the frame of a bicycle, a wheel rotatable in the casing and provided with projecting teeth adapted to be engaged by the sprocket-chain of the bicycle, upright shafts in the casing, each of said shafts provided with a projecting lug, a disk mounted on each upright shaft, each disk having a recess extending inwardly from its periphery, means for rocking said shafts so as to bring the recesses of the disks into and out of alinement with the teeth of the wheel, a pivoted plate in the casing, and means for turning said plate to and from an upright position, the ends of the plate, when said plate is turned to an upright position, and when the upright shafts are turned to a position to bring the recesses of the disks into alinement with the teeth of the wheel, adapted to engage against the lugs of the upright shafts and thereby hold the disks in adjusted position.

12. In a bicycle-lock, the combination of a clamp adapted to be clamped to one of the tubes of the bicycle-frame, a threaded stem extending upwardly from the clamp, a casing provided with a depending threaded portion which the threaded stem of the clamp is adapted to engage, a normally rotatable wheel in the casing, and provided with projecting teeth adapted to be engaged by the teeth of the sprocket-chain of the bicycle, and means for locking said wheel so as to prevent rotation thereof.

691,375. **WEFT-MOTION FOR HAIRCLOTH-LOOMS.** WILLIAM W. HARRISON and JOHN HOLT, Pawtucket, R. I., assignors of one-third to Charles E. Pervear, Pawtucket, R. I. Filed Jan. 17, 1900. Renewed June 13, 1901. Serial No. 64,476. (No model.)



Claim.—In a haircloth-loom the combination of a picker-stick a nipper-bar connected thereon, a shoe pivoted in a step fast on the floor to hold the picker-stick, a pin passing through sides of said shoe and the picker-stick to allow the stick to move with the lay, a main shaft, a double cam fast thereon, a vertically-sliding plate with a friction-roll operated by said cam, and means for operating said picker-stick by said plate and friction-roll, substantially as described.

691,376. **FRUIT-PICKING SACK.** ELAM HARTER, Arlington Station, Cal., assignor of one-half to Virgil O. Harter, Arlington Station, Cal. Filed Mar. 26, 1901. Serial No. 53,206. (No model.)

Claim.—1. A device of the class described comprising a sack open at the top and bottom, a frame having upright separable sides connected with the bottom of the sack at opposite sides thereof and arranged to swing to and from each other to close the bottom of the sack and to permit the same to open and operating mechanism connecting the sides of the frame and adapted to hold the same closed, substantially as described.

2. A device of the class described comprising a flexible sack open

at the top and bottom, and a frame secured to the sack at the top thereof and adapted to hold the latter open and provided with upright sides hinged at their tops and connected at their bottoms with the sack at opposite sides of the bottom thereof and arranged to swing to and from each other to close the bottom of the sack and to permit the same to open, substantially as described.



3. A device of the class described comprising a sack open at the top and bottom, a frame composed of a top portion holding the mouth of the sack open, and sides hinged at their tops to the top portion and connected with the sack at opposite sides thereof and adapted to swing to and from each other to close the sack and to permit the same to open, and operating mechanism connected with and adapted to close the sides, substantially as described.

4. A device of the class described comprising a sack, a frame composed of a top portion holding the mouth of the sack open, and the exterior sides hinged to the top portion of the frame and secured to the sack at the bottom thereof, and operating mechanism connected with the hinged sides, substantially as described.

5. A device of the class described comprising a sack, a frame composed of a top portion secured to the sack at the mouth thereof, and sides hinged to the top portion of the frame and secured to the sack at the bottom thereof and adapted to permit the same to open and close, and an operating-cord connected with the sides of the frame and extending upward to the top portion, and having means for engaging the same, substantially as described.

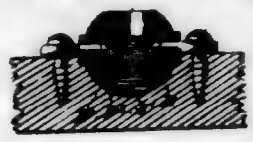
6. A device of the class described comprising a sack, a frame composed of a top portion arranged at the mouth of the sack, and sides hinged to the top portion of the frame and connected with the bottom of the sack and provided with eyes, an operating-cord passing through the eyes of one side of the frame and secured to the eyes of the other side and extending to the top of the frame and secured to the same, and a hook loosely mounted on the upper portion of the operating-cord and adapted to engage the top of the frame to hold the cord taut, substantially as described.

7. A device of the class described comprising a sack provided at its bottom with projecting strips having eyelets in their outer portions, a frame comprising a top portion, and approximately U-shaped sides hinged to the top portion of the frame and having their transverse portions arranged between the said strips, laces rove through the eyelets and securing the sides of the frame to the bottom of the sack, and operating mechanism connected with the sides of the frame, substantially as described.

8. A device of the class described comprising a sack, a frame composed of a rectangular top portion secured to the mouth of the sack, the approximately U-shaped sides hinged to the top portion and secured to the bottom of the sack, and bails connected with the top portion, means for holding the sides in their closed position, and a strap or band secured to the bails, substantially as and for the purpose described.

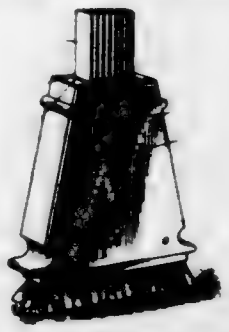
9. A device of the class described comprising a sack, a frame composed of a top portion located at the mouth of the sack, and sides hinged to the top portion of the frame and provided with side and bottom eyes, and the operating-cord having the branches 14 and 14ª passing through the eyes of the inner side of the frame and secured to the eyes of the outer side of the frame, substantially as described.

691,377. HANDLE-FASTENER. LEOPOLD HERRMAN, New York, N. Y. Filed Oct. 3, 1901. Serial No. 77,383. (No model.)



Claim.—The combination of the body, pivots provided with flat portions engaging the body, securing devices for pressing said flat portions against the body, a holder provided with sockets for engaging said pivots and with a transversely-disposed through-aperture screw-threaded, at least partly, and a handle screwing into the aperture of the holder.

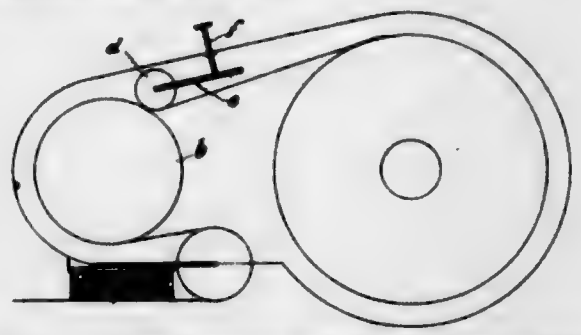
691,378. COMB-CLEANER. HUGO HEIN, Galveston, Tex. Filed May 18, 1901. Serial No. 60,892. (No model.)



Claim.—1. A comb-cleaner comprising a recessed case, a block located in said case, the cleaning-blades attached to said block, the slotted face-plate for retaining the block within the case, and a pin attached to the block and projecting through the slotted face-plate, substantially as described.

2. As an improved article of manufacture, a recessed case having brush fibers located at one end, a block located in the recess, a series of cleaning-blades secured in the said block, a slotted face-plate adapted to hold the block within the recess of the case, and a pin attached to the block and projecting through the slotted face-plate whereby the said block can be moved within the recess for the purpose of projecting or withdrawing the cleaning-blades, substantially as described.

691,379. DEVICE FOR MOISTENING AND APPLYING GUMMED PAPER. ADOLF HOFFMANN, Constance, Germany. Filed Sept. 5, 1901. Serial No. 74,406. (No model.)



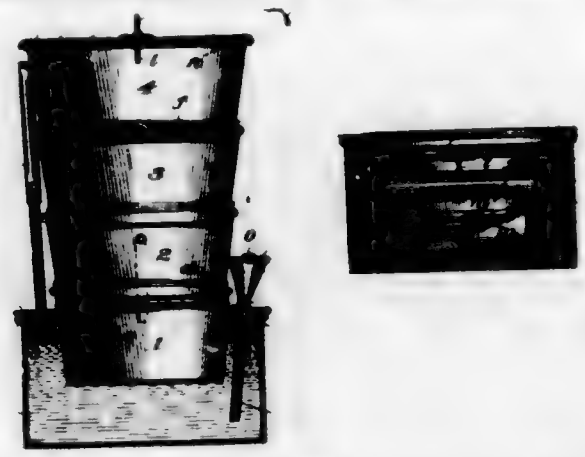
Claim.—A device for moistening and applying gummed paper comprising a sheet-metal casing, a damping-roller over which the gummed or adhesive strip passes, a roller placed under the action of a spring and pressing the strip against the damping-roller, and a brush below which said strip is conducted for winding and pasting the same around the body covered with soft paper or gauze, substantially as set forth.

691,380. STEAM-COOKER. ATES R. HOWER, Logan, Utah. Filed Apr. 15, 1901. Serial No. 55,909. (No model.)

Claim.—1. A steam cooking apparatus comprising a series of different-sized superposed cooking vessels detachable from each other, and a reversible cover provided with a series of concentric rim-receiving grooves near its edge, one or more of the grooves being formed in each side or face of the cover, for the purpose set forth.

2. A cooking apparatus, consisting of a water-section, a series of removable steam-sections superposed thereon and separable from each other, each of said sections being smaller than the one next above it and the top or larger section being smaller than the water-section, and means for removably supporting the lower, smaller section within the water-section, whereby the steam-sections may be nested within each other in reverse order and the sections thus nested inclosed within the water-section, for the purpose set forth.

3. In combination with a water-section and a removable supporting-ring fitted therein, of a series of cooking-sections superposed and made separable, the lower section being supported within said ring and the sections above supported one within the other, all of said sections being tapered downward and each section being larger than the one next below it, and means for conveying steam to the various cooking-sections.

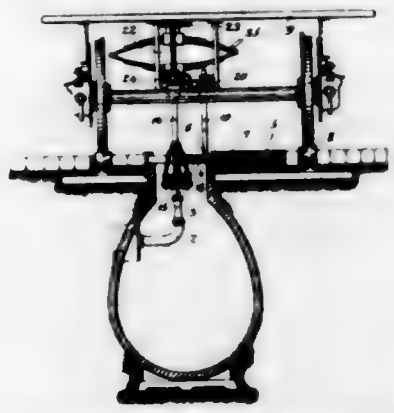


4. In combination with a water vessel, and a series of superposed cooking-sections, of steam-pipes entering the water vessel through steam-openings and communicating with the various cooking-sections and made detachable independently, and means for automatically closing the steam-openings when said pipes are removed from the water-section.

5. In a steam cooking apparatus, the combination of a water-section, and a series of superposed steam-sections resting thereon and being separately detachable and each provided with an opening near its top, and a series of external detachable pipes connecting the steam-spaces of the respective steam-sections, the upper ends of said pipes being provided with elbows which are inserted in said openings in the respective steam-sections, the longer ones of said pipes being each constructed of telescoping sections.

6. In a steam cooking apparatus, the combination of a water-section and a steam-section superposed thereon, a steam-pipe connecting the water-section to said steam-section, the lower end of said pipe entering said water-section and being beveled at its lower end, and an automatic valve in the interior of the water-section bearing normally against the beveled end of said pipe and adapted to close the pipe in the water-section when the pipe is withdrawn.

691,381. SUBTERRANEAN CURRENT TRANSMISSION FOR ELECTRIC TRAMWAYS OR RAILWAYS. APOLLINARIS HERRICEK, Bingerbrück, Germany. Filed Sept. 12, 1899. Serial No. 730,238. (No model.)



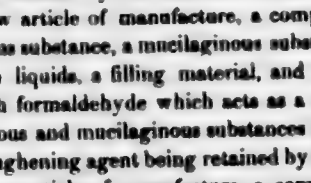
Claim.—1. In an electric railway, an underground conduit provided with a series of independent sliding normally closed covers, provided on the surface with a groove 6 extending obliquely and longitudinally substantially as and for the purposes described.

2. In an electric railway, an underground conduit provided with a series of independent sliding normally closed covers, provided on the surface with grooves 6 6 extending obliquely and longitudinally and oppositely arranged, substantially as and for the purposes described.

3. In an electric railway, an underground conduit provided with a series of independent sliding normally closed covers, provided on the surface with a groove 6 extending obliquely and longitudinally, a traveling vehicle, a collector carried thereby and extending into the conduit through the opened covers, and a cover-opener carried by said vehicle and engaging the groove 6 of successive covers, substantially as and for the purposes described.

4. In an electric railway, an underground conduit provided with a series of independent sliding normally closed covers, provided on the surface with a groove 6 extending obliquely and longitudinally, a traveling vehicle, a collector carried thereby and extending into the conduit through the opened covers, a cover-opener carried by said vehicle and engaging the groove 6 of successive covers, and a brush 13 extending in said groove in advance of the cover-opener, substantially as and for the purposes described.

691,382. JAR OR BOTTLE CLOSURE. HENRY A. HUEBEL, Jr., Philadelphia, Pa., assignor to Perfection Jar Closure Company, Philadelphia, Pa., and Camden, N. J., a Corporation of New Jersey. Filed Jan. 17, 1901. Serial No. 43,639. (No model.)



Claim.—As a new article of manufacture, a closure for jars or bottles comprising a covering or closing member, a shaped lining for said member, and an insoluble coating compound for the lining, said lining being provided with an annular groove whereby a thicker layer of the coating may be disposed adjacent to the edge of the jar or bottle than is spread over the main surface of the lining, said coating possessing the property of becoming resilient in the presence of moisture and forming a fluid-tight joint between the jar or bottle and the covering or closing member.

691,383. COMPOSITION OF MATTER. HENRY A. HUEBEL, Jr., Philadelphia, Pa., assignor to Perfection Jar Closure Company, Philadelphia, Pa., and Camden, N. J., a Corporation of New Jersey. Filed Jan. 17, 1901. Serial No. 43,640. (No specimens.)

Claim.—1. As a new article of manufacture, a composition of matter comprising a glutinous substance, a mucilaginous substance, both of which are soluble in certain liquids, and a filling material in combination with a coagulant which serves to render the glutinous and mucilaginous substances insoluble, the filling material being retained by the insoluble compound.

2. As a new article of manufacture, a composition of matter comprising a glutinous substance, a mucilaginous substance, both of which are soluble in certain liquids, and a filling material in combination with formaldehyde which acts as a coagulant and serves to render the glutinous and mucilaginous substances insoluble, the filling material being retained by the insoluble compound.

3. As a new article of manufacture, a composition of matter comprising a glutinous substance, a mucilaginous substance, both of which are soluble in certain liquids, a filling material, and a toughening agent, in combination with a coagulant which serves to render the glutinous and mucilaginous substances insoluble, the filling material and the toughening agent being retained by the insoluble compound.

4. As a new article of manufacture, a composition of matter comprising a glutinous substance, a mucilaginous substance, both of which are soluble in certain liquids, a filling material, and a toughening agent, in combination with formaldehyde which acts as a coagulant and serves to render the glutinous and mucilaginous substances insoluble, the filling material and the toughening agent being retained by the insoluble compound.

5. As a new article of manufacture, a composition of matter comprising a glutinous substance, a mucilaginous substance, both of which are soluble in suitable acid solutions, and a filling material, in combination with a coagulant which serves to render the glutinous and mucilaginous substances insoluble in the acid solutions, the filling material being retained by the insoluble compound.

6. As a new article of manufacture, a composition of matter comprising a glutinous substance, a mucilaginous substance, both of which are soluble in suitable acid solutions, and a filling material, in combination with formaldehyde which acts as a coagulant and serves to render the glutinous and mucilaginous substances insoluble in the acid solutions, the filling material being retained by the insoluble compound.

7. As a new article of manufacture, a composition of matter comprising a glutinous substance, a mucilaginous substance, both of which are soluble in suitable acid solutions, a filling material, and a toughening agent, in combination with a coagulant which serves to render the glutinous and mucilaginous substances insoluble in the acid solutions, the filling material and the toughening agent being retained by the insoluble compound.

8. As a new article of manufacture, a composition of matter comprising a glutinous substance, a mucilaginous substance, both of which are soluble in suitable acid solutions, a filling material, and a toughening agent, in combination with formaldehyde which acts as a coagulant and serves to render the glutinous and mucilaginous substances insoluble in the acid solutions, the filling material and the toughening agent being retained by the insoluble compound.

9. As a new article of manufacture, an insoluble and infusible com-

pound having a glutinous and mucilaginous base, with a filling material combined therewith, such compound possessing the property of becoming resilient or rubber-like in the presence of moisture.

10. As a new article of manufacture, an insoluble and infusible compound having a glutinous and mucilaginous base, with a filling material and a toughening agent combined therewith, such compound possessing the property of becoming resilient or rubber-like in the presence of moisture.

11. As a new article of manufacture, a composition of matter comprising gluten and gelatin combined with an acid solution, and a coagulant which serves to render the gelatin and gluten insoluble.

12. As a new article of manufacture, a composition of matter comprising gluten and gelatin combined with an acid solution, and formaldehyde, the latter acting as a coagulant and serving also to render the gluten and gelatin insoluble.

13. As a new article of manufacture, a composition of matter composed of gluten, gelatin, a coagulant which serves to render the gluten and gelatin insoluble, and a filling material retained by the insoluble compound.

14. As a new article of manufacture, a composition of matter composed of gluten, gelatin, a coagulant which serves to render the gluten and gelatin insoluble, a filling material and a toughening agent, said filling material and toughening agent being retained by the insoluble compound.

15. As a new article of manufacture, a composition of matter comprising an acid solution, gluten, gelatin, a toughening agent, an earthy filler, water, and a coagulant, in about the proportions named.

16. As a new article of manufacture, a composition of matter comprising an acid solution, gluten, gelatin, a toughening agent, an earthy filler, water and formaldehyde, in about the proportions named.

17. As a new article of manufacture, a composition of matter comprising an acid solution, gluten, gelatin, glucose, an earthy filler, water and a coagulant, in about the proportions named.

18. As a new article of manufacture, a composition of matter comprising an acid solution, gluten, gelatin, glucose, an earthy filler, water and formaldehyde, in about the proportions named.

19. As a new article of manufacture, a composition of matter comprising acetic acid, gluten, gelatin, glucose, an earthy filler, water and a coagulant, in about the proportions named.

20. As a new article of manufacture, a composition of matter comprising acetic acid, gluten, gelatin, glucose, kaolin, water and formaldehyde, in about the proportions named.

21. As a new article of manufacture, a composition of matter comprising acetic acid, gluten, gelatin, glucose, kaolin, water, formaldehyde and a deodorizing medium, in about the proportions named.

22. As a new article of manufacture, a composition of matter comprising acetic acid, gluten, gelatin, glucose, kaolin, water, formaldehyde, and oil of wintergreen, in about the proportions named.

23. The process of preparing the composition of matter described herein, said process consisting in mixing the soluble ingredients in an acid solution and water, and then adding a coagulant which serves to render the compound insoluble during coagulation and subsequent drying.

24. The process of preparing the composition of matter described herein, said process consisting in mixing the soluble ingredients in an acid solution and water and then adding to the mixture formaldehyde, the latter serving as a coagulant and rendering the compound insoluble during coagulation and subsequent drying.

25. The process of preparing the composition of matter described herein, said process consisting in mixing the soluble ingredients in a suitable liquid in the presence of heat, and then adding a coagulant which serves to render the compound insoluble during coagulation and subsequent drying.

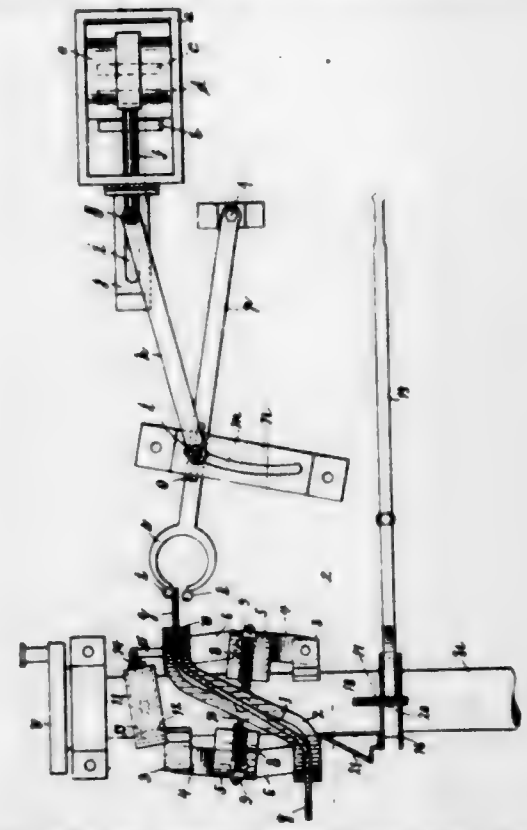
26. The process of preparing the composition of matter described herein, said process consisting in mixing the soluble ingredients in a suitable liquid in the presence of heat, and then adding formaldehyde to the compound, the formaldehyde acting as a coagulant and rendering the compound insoluble during coagulation and subsequent drying.

27. The process of preparing the composition of matter described herein, said process consisting in mixing the soluble ingredients in an acid solution and water in the presence of heat, and then adding a coagulant which serves to render the compound insoluble during coagulation and subsequent drying.

28. The process of preparing the composition of matter described herein, said process consisting in mixing the soluble ingredients in an acid solution and water in the presence of heat, and then adding formaldehyde to the compound, the formaldehyde acting as a coagulant and rendering the compound insoluble during coagulation and subsequent drying.

691,884. VALVE-GEAR FOR ENGINES. OSWALD JACKSON, Carrollton, Ill. Filed Jan. 26, 1901. Serial No. 44,795. (No model.)

Claims.—1. In a valve-gear, the combination of a valve-casing, a valve therein for regulating the channels or ports leading to and from the cylinder, a valve-rod extending from the valve, a connecting-rod pivoted to the valve-rod, a plate provided with an elongated slot, a crank-shaft, a lever actuated by the crank-shaft, said lever being pivoted at one end, and a bolt extending through the slot of the plate and connected to a medial point of the lever and to the end of the connecting-rod.



2. In a valve-gear, the combination of a valve-casing, a valve therein for regulating the channels or ports leading to and from the cylinder, a valve-rod extending from the valve, a connecting-rod pivoted to the valve-rod, a plate provided with a curved, elongated slot, a crank-shaft, a lever actuated by the crank-shaft, said lever being pivoted at one end and provided at a medial point with an elongated slot, and a bolt connected to the end of the connecting-rod and passing through the curved slot of the plate and through the slot of the lever and held against withdrawal from said slot of the lever.

3. In a valve-gear, the combination of a valve-casing, having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted at an obliquity upon the crank-shaft, a pivoted lever provided at one end with a fork, the arms of said fork engaging opposite faces of the cam, whereby the lever is caused to be turned on its pivot as the cam is revolved, a connection between the lever and the valve, and governor mechanism adapted to act on the cam in order to throw said cam to a more or less oblique position dependent upon the speed of the engine, and thereby regulate the throw of the valve.

4. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted at an obliquity upon the crank-shaft, a pivoted lever provided at one end with a fork, the arms of said fork carrying antifriction-rollers which engage the opposite faces of the cam, whereby the lever is caused to be turned on its pivot as the cam is revolved, a connection between the lever and the valve, and governor mechanism adapted to act on the cam in order to throw said cam to a more or less oblique position dependent upon the speed of the engine, and thereby regulate the throw of the valve.

5. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted upon the crank-shaft in such manner as to be turned to a more or less oblique position, mechanism between the cam and the valve-rod and adapted to be actuated by the cam as said cam is revolved to thereby cause the actuation of the valve, and governor mechanism adapted to act on the cam and automatically throw said cam to a more or less oblique position dependent upon the speed of the engine, and thereby automatically regulate the throw of the valve.

6. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted upon said shaft in such a manner as to be turned to a more or less oblique position, said cam provided with two portions which are concentric with the axis of the crank-shaft but a distance removed from each other in the direction of the length of the shaft, and with two connecting portions disposed in planes oblique to the axis of the shaft, mechanism between the cam and the valve and adapted

to be acted upon by said portions of the cam as the cam is revolved to thereby cause an actuation of the valve, and governor mechanism adapted to act on the cam in order to throw said cam to a more or less oblique position dependent upon the speed of the engine, and thereby regulate the throw of the valve.

7. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted upon the crank-shaft in such a manner as to be turned to a more or less oblique position, said cam provided with two portions which are concentric to the axis of the crank-shaft but a distance removed from each other in the direction of the length of the said shaft, and with two connecting portions disposed in planes oblique to the axis of the shaft, a lever provided with a forked end, the arms of said fork adapted to be acted upon by the said portions of the cam as the cam is revolved, connections between said lever and the valve, and governor mechanism adapted to act on the cam in order to throw said cam to a more or less oblique position dependent upon the speed of the engine, and thereby regulate the throw of the valve.

8. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted thereon in such a manner as to be turned to a more or less oblique position, a governor-arm pivotally connected to the crank-shaft, a governor-weight at the end of said arm, a link pivotally connected at one end to the weight and at its opposite end to the cam, and mechanism between the cam and the valve and adapted to be actuated by the cam as said cam is revolved to thereby cause the actuation of the valve.

9. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted thereon in such a manner as to be turned to a more or less oblique position, governor-arms pivotally connected to the crank-shaft, governor-weights at the ends of the governor-arms, links, each pivotally connected at one end to a governor-weight and at its opposite end to the cam, and mechanism between the cam and the valve, and adapted to be actuated by the cam as said cam is revolved to thereby cause the actuation of the valve.

10. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted thereon in such a manner as to be turned to a more or less oblique position, a governor-arm pivotally connected to the crank-shaft, a spring-tensioned governor-weight at the end of the governor-arm, a link pivotally connected at one end to the governor-weight but at its opposite end to the cam, and mechanism between the cam and the valve and adapted to be actuated by the cam as said cam is revolved, and thereby cause the actuation of the valve.

11. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted thereon in such a manner as to be turned to a more or less oblique position, a governor-arm pivotally connected to the crank-shaft, a spring-tensioned governor-weight at the end of the governor-arm, means for adjusting the spring tension, a link pivotally connected at one end to the governor-weight and at its opposite end to the cam, and mechanism between the cam and the valve, and adapted to be actuated by the cam as said cam revolves to thereby cause the actuation of the valve.

12. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted thereon in such a manner as to be turned to a more or less oblique position as the speed of the rotation of the shaft changes, mechanism between the cam and the valve and adapted to be actuated by the cam as the cam revolves, to thereby cause the actuation of the valve, a cushion-pot pivoted to the crank-shaft and adapted to contain a resisting agent, a piston in the pot and provided with an aperture, a piston-rod extending from the pot, and a connection between said rod and the cam.

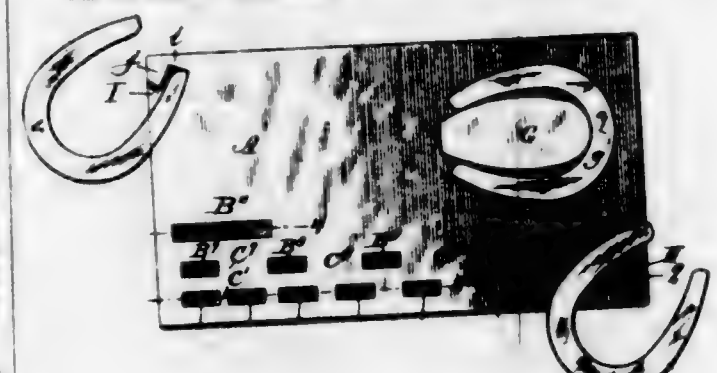
13. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted thereon in such a manner as to be turned to a more or less oblique position as the speed of rotation of the shaft changes, mechanism between the cam and the valve and adapted to be actuated by the cam as said cam revolves and thereby cause the actuation of the valve, cushion-pots pivoted to the shaft and adapted to contain a resisting agent, pistons in the pots, each provided with an aperture, piston-rods extending from the pots, and a connection between each piston-rod and the cam.

14. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted thereon in such a manner as to be turned to a more or less oblique position, mechanism between the cam and the valve and adapted to be operated by the cam as said cam is revolved, and thereby cause the actuation of the valve, and mechanism under the manual control of the operator, and constructed when operated to cause the cam to be turned to a more or less oblique position.

15. In a valve-gear, the combination of a valve-casing having a valve therein for regulating the channels or ports leading to and from the cylinder, a crank-shaft, a cam mounted thereon in such a manner as to be turned to a more or less oblique position, mechanism between the cam and the valve and adapted to be operated by the cam as said cam is revolved, and thereby cause the actuation of the valve, a slidable collar on the shaft, said collar provided with a projection adapted to act on the cam, and means for causing a sliding movement of the collar to thereby cause the projection thereof to throw the cam to a more or less oblique position.

16. In a valve-gear, the combination of a valve-casing, a valve therein for regulating the channels or ports leading to and from the cylinder, a valve-rod extending from the valve, a connecting-rod pivoted to the valve-rod, a pivoted plate provided with an elongated slot, mechanism for turning said plate on its pivot and holding it in adjusted position, a crank-shaft, a lever actuated by the crank-shaft, and a connection between the lever and the connecting-rod, said connection adapted to ride in the slot of the plate.

691,385. **DEVICE FOR ALTERING THE SHAPE OF HORSE-SHOES.** STEPHEN JANUS, San Carlos, Ariz. Filed Dec. 11, 1900. Serial No. 39,468. (No model.)



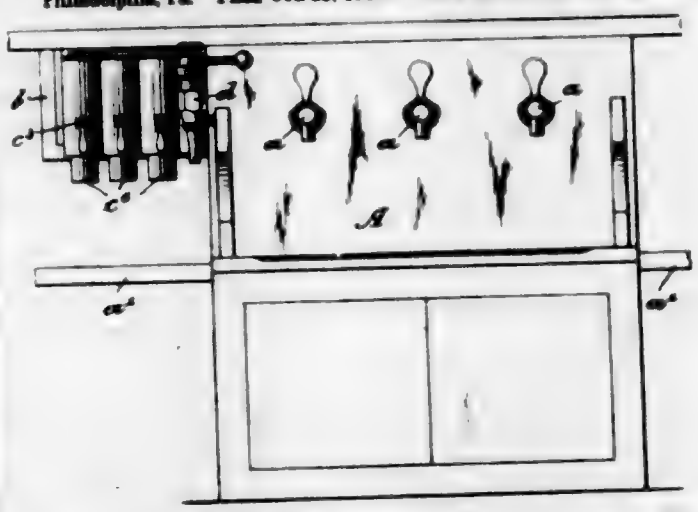
Claim.—1. A light block of metal for the purpose described having in its face a series of sets of depressions of differing dimensions whereby horseshoes of varying sizes can be expanded or contracted.

2. A light block of metal for the purpose described having in its face a series of sets of depressions of differing dimensions and having a recess or recesses adapted to receive one limb of the shoe whereby horseshoes of varying sizes can be expanded or contracted.

3. A device for altering the shape of horseshoes comprising a metallic plate provided with a row or rows of associated projections and depressions upon which horseshoes of varying sizes can be expanded or contracted, and an unobstructed flat surface adapted to sustain a shoe to be flattened.

4. A device for altering the shape of horseshoes comprising a metallic plate provided with a row or rows of associated projections and depressions along the front edge, a raised former at one end of the remaining surface of the plate and an unobstructed flat surface upon which a shoe can be flattened.

691,386. **BAR-FIXTURE WITH SODA-WATER-DISPENSING APPARATUS PROVIDED WITH SYRUP-CANS.** JOHN C. JOHNSON, Philadelphia, Pa. Filed Oct. 25, 1901. Serial No. 79,907. (No model.)



Claim.—1. The combination, with a bar-fixture provided with a cooling-chamber or ice-chest, of a bracket extension connected with said fixture and having an opening leading to said chamber or chest for cool-

ing the interior thereof, a can adapted to be mounted in said bracket extension and to be horizontally withdrawn therefrom, means for detachably engaging said can in said bracket extension, means for permitting of the filling of the can without removal thereof, and means for withdrawing in regulated or measured quantity syrup or other liquid from said can as required, substantially as and for the purposes described.

2. The combination, with a bar-fixture provided with a cooling-chamber or ice-chest, of a bracket extension connected therewith and having means connected with said cooling-chamber or ice-chest for cooling the interior of said bracket extension, a series of cans detachably secured in said bracket extension and adapted to be horizontally withdrawn therefrom, said cans projecting beyond the plane of said fixture and face of said bracket extension, means for permitting of the filling of the series of cans without separate removal thereof, and means for permitting of a regulated or measured quantity of syrup or other liquid from said cans being independently withdrawn as required, substantially as and for the purposes described.

3. The combination, with a bar-fixture provided with a cooling-chamber or ice-chest, of a bracket extension connected therewith and having means leading from said cooling chamber or chest to the interior of said bracket extension for cooling the interior of the same, a can adapted to be mounted in said bracket extension and to be horizontally withdrawn therefrom, a recess formed in the bottom of said bracket extension with an opening in proximity thereto, and said can provided with a lock-pin or spur adapted to engage said opening, and means for withdrawing in regulated or measured quantity the syrup or other liquid from said can, as required, substantially as and for the purposes described.

4. The combination, with a bar-fixture provided with a cooling-chamber or ice-chest, of a bracket extension connected therewith and having an opening leading to said chamber or chest for cooling the interior thereof, a can adapted to be mounted in said bracket extension and projecting beyond the plane of said fixture and face of said bracket extension and to be horizontally withdrawn therefrom, means for permitting of the filling of said can without removal thereof, and means for permitting of a regulated discharge of the contents of the can, as required, substantially as and for the purposes described.

5. The combination, with a bar-fixture provided with a cooling-chamber or ice-chest, of a bracket extension connected therewith and having an opening leading to said chamber or chest for cooling the interior thereof, a series of cans mounted in said bracket extension and adapted to be horizontally withdrawn therefrom, means for permitting of the filling of said cans without necessarily removing the same, means for permitting of a regulated discharge of the contents of the can independently, as required, and a soda-water-dispensing apparatus located also in said bracket extension and connected with a source of supply in the cooling-chamber of said fixture substantially as and for the purposes described.

6. The combination, with a bar-fixture provided with a cooling-chamber or ice-chest, of a bracket extension connected therewith and having an opening leading to the interior of said fixture for cooling the interior thereof, a can adapted to be mounted in said bracket extension and projecting beyond the plane of said fixture and said can adapted to be horizontally withdrawn therefrom, means for permitting of the filling of said can without removal thereof, means for permitting of a regulated discharge of the contents of the can, as required, and a soda-water-dispensing apparatus located alongside said can in said bracket extension and connected with a source of supply in the interior of said fixture, substantially as and for the purposes described.

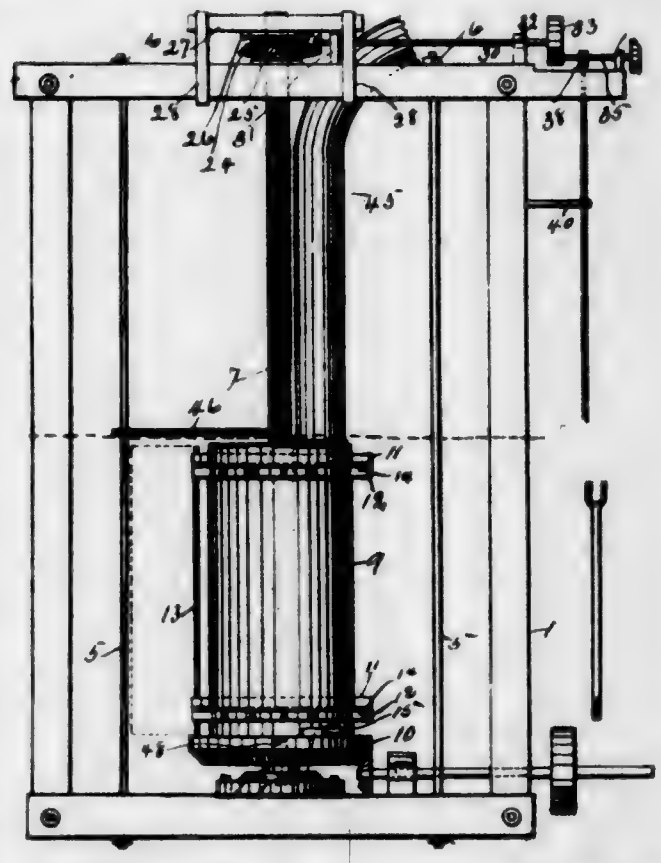
691,887. BALING-PRESS. ISAAC VAN ZANDT JONES, Kolin, Tex. Filed May 5, 1899. Serial No. 715,870. (No model.)

Claim.—1. A baling-press comprising a rotating platform, a cylinder mounted on and rotating with said platform, a presser-feeder operating in said cylinder, means for permitting said presser-feeder to retreat from said platform as said presser-feeder feeds cotton in said cylinder, means for feeding cotton to said presser-feeder, and means for rotating said platform.

2. A baling-press comprising a rotating platform, a cylinder mounted on and rotating with said platform, a presser-feeder operating in said cylinder, means for permitting said presser-feeder to recede from said platform, means for feeding cotton to said presser-feeder, means for controlling the receding motion of said presser-feeder as the cotton accumulates between said platform and said presser-feeder, and means for rotating said platform.

3. A baling-press for making cylindrical bales comprising a rotating platform or base, a cylinder attached to and rotating with said base, a presser-feeder adapted to feed cotton therethrough in a spiral layer in said cylinder on said platform, means for permitting said presser-feeder to recede from the accumulating cotton, means for controlling the receding motion of said presser-feeder, and means for rotating said platform.

4. In a baling-press provided with means for receiving and containing cotton during the formation of a bale; a presser-feeder adapted to feed cotton therethrough and press the same in a spiral layer to the forming bale, means for permitting said presser-feeder to recede as the bale increases in size and means for controlling the receding motion of said presser-feeder.



5. A baling-press for making cylindrical bales provided with a cylinder and a rotating platform carrying said cylinder, a presser-feeder adapted to feed cotton therethrough, means for permitting said presser-feeder to recede from the forming bale, whereby the rotation of said platform and cylinder will cause the cotton to be received in a continuous spiral layer until a complete bale is formed, and means for controlling the receding motion of said presser-feeder.

6. In a baling-press for making cylindrical bales of cotton, a presser-feeder consisting of an upright screw having a base for pressing on the cotton, said base having a spiral opening therethrough for directing the cotton thereunder, means for retaining and rotating the cotton until a complete bale is formed, and means for controlling the receding and approaching motion of said presser-feeder.

7. In a baling-press provided with a cylinder and a platform carrying said cylinder for making cylindrical bales of cotton; a presser-feeder consisting of an upright screw having a base for pressing on cotton, said base having a spiral opening therethrough for directing cotton thereunder, a nut mounted on said screw for controlling the approaching and receding motion of said presser-feeder, and means for rotating said platform.

8. In a baling-press for making cylindrical bales of cotton, a platform or base and a cylinder carried by said platform adapted to receive and contain cotton during the formation of a bale, a presser-feeder operating in said cylinder consisting of a screw having a base for pressing on the cotton, said base having a spiral groove therethrough for directing cotton thereunder, means for rotating said platform, the rotation of said platform causing the cotton to be drawn through said groove and folded in a continuous spiral layer until a bale is complete, said presser-feeder receding as the cotton accumulates, and means for controlling the receding motion of said presser-feeder.

9. In a baling-press provided with a cylinder for making cylindrical bales of cotton, a presser-feeder consisting of a screw having a base and a spiral opening therethrough, a rotating platform carrying said cylinder, and a rotating nut for resisting the receding motion of said presser-feeder.

10. In a baling-press provided with a cylinder for making cylindrical bales of cotton, a presser-feeder consisting of an upright screw having a base and a spiral opening therethrough, a rotating platform carrying said cylinder and inclosing said presser-feeder, and means for resisting the upward motion of said presser-feeder.

11. In a baling-press provided with a cylinder for making cylindrical bales provided with a suitable frame, a presser-feeder consisting of an upright screw having a base for pressing on the cotton, said base having a spiral opening for directing the cotton under the base, and a chute for feeding cotton to said presser-feeder, said chute being telescopic and having the telescoping section attached to said presser-feeder.

12. In a baling-press provided with a cylinder for making cylin-

drical bales of cotton, means for feeding and pressing cotton consisting of an upright screw having a base, a spiral opening therethrough, and means for drawing the cotton through said opening and folding it in spiral layers until a complete bale is formed.

13. A baling-press having an upright screw, a base integral with said screw and provided with a spiral opening therethrough, a rotating platform mounted under said base, means for resisting the upward motion of said screw, means for rotating said platform, and provisions in the under side of said base whereby binding-wires may be secured on the bale when completed and while under pressure.

14. A baling-press having an upright screw, a base integral with said screw and provided with a spiral opening therethrough, means for controlling the receding motion of said screw, a rotating platform mounted under said base, and provisions whereby binding-wires may be secured on the bale consisting of grooves cut in said platform in which the wires are placed before commencing the bale and removable keys mounted in the under side of said base to be removed when the bale is completed for the insertion of said wires.

15. A baling-press having a screw, a base integral therewith, a spiral opening in said base, a telescopic chute attached to said base adjacent to said opening, a rotating platform against which cotton is pressed by said base, a cylinder mounted on said platform and surrounding said base, means for resisting the receding motion of said base and screw, and means for rotating said platform.

16. A baling-press having a screw provided with a base integral therewith and having a spiral opening therethrough, means for feeding cotton to said opening, a rotating platform against which cotton is to be pressed by said base, a cylinder mounted on said platform and surrounding said base, means for resisting the receding motion of said screw and base, and means for rotating said platform.

17. In a baling-press provided with a cylinder for making cylindrical bales of cotton, a presser-feeder consisting of a screw having a base adapted to feed cotton in spiral layers to form the bale and to press the same into compact form while feeding the same to the incomplete bale and a guide for preventing the rotation of said presser-feeder in its upward and downward moton.

18. In a baling-press for making cylindrical bales of cotton, a presser-feeder consisting of a screw having a base and having a spiral opening therethrough, a rotating platform against which cotton is to be pressed by said base, a cylinder, means for regulating the receding and approaching motion of said presser-feeder, and a guide to prevent the rotation of said presser-feeder in its receding and approaching motion.

19. In a baling-press for making cylindrical bales of cotton, a presser-feeder consisting of a screw having a base and having a spiral opening therethrough, a rotating platform against which cotton is pressed by said base, a cylinder, and means for regulating the receding and approaching motion of said presser-feeder consisting of a nut threaded to mesh with said screw, beveled gearing for rotating said nut and means for changing the direction of rotation of said nut.

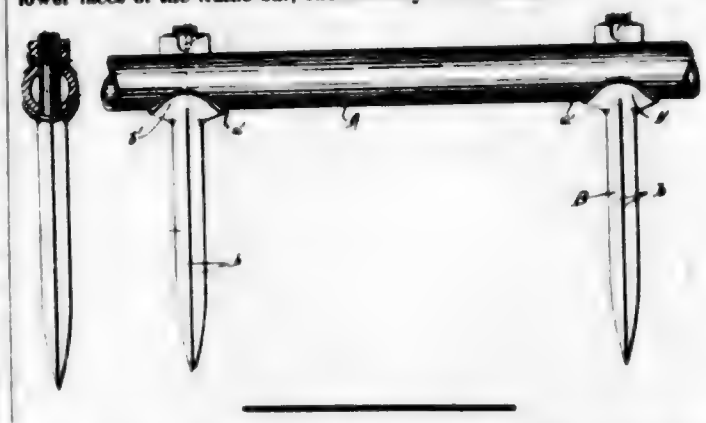
20. In a baling-press for making cylindrical bales of cotton provided with a suitable frame, a screw having a base and a spiral opening through the base, means for feeding cotton to said opening, a platform against which cotton is pressed by said base, means for rotating said platform, a cylinder mounted on said platform and surrounding said base, a nut for regulating the receding and approaching motions of said screw, a yoke for securing said nut to said frame, and means for operating said nut.

21. A baling-press comprising a rotating platform, a presser-feeder having an opening, or openings therethrough adapted to feed and press cotton on said platform, means for permitting said presser-feeder to recede from said platform, means for feeding cotton to said presser-feeder through said opening or openings, means for controlling the receding motion of said presser-feeder as the cotton accumulates between said platform and said presser-feeder, and means for rotating said platform.

22. A baling-press for making cylindrical bales provided with a rotating platform, a presser-feeder adapted to feed cotton to said platform, means for permitting said presser-feeder to recede from the forming bale, whereby the rotation of said platform will cause the cotton to be received in a continuous layer until a complete bale is formed, and means for controlling the receding motion of said presser-feeder.

691,388. SPIKE-TOOTH HARROW. THOMAS D. JONES, Syracuse, N. Y. Filed Aug. 12, 1901. Serial No. 71,700. (No model.)

Claim.—In a spike-tooth harrow, the combination of a frame-bar having diverging normally lower faces; with a spike-tooth having its upper portion provided with an attaching end passed through the frame-bar, said upper portion being also provided with an integral shoulder extending laterally, forwardly and rearwardly beyond the underlying portion of the spike-tooth, the forward and rearward parts of the shoulder being extended upwardly toward their outer edges and said shoulder being engaged with and substantially closely fitting the diverging normally lower faces of the frame-bar, substantially as set forth.



691,389. EGG-OPENER. WILLIAM A. KENDRICK, Yalesville, Conn., assignor of one-half to Charles Madeira, Yalesville, Conn. Filed May 6, 1901. Serial No. 58,921. (No model.)



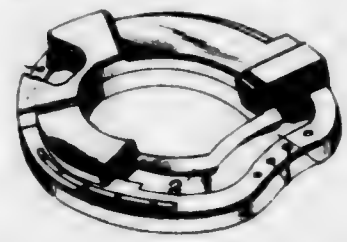
Claim.—1. An egg-opener consisting of two cup-shaped members hinged together and formed of thin flexible elastic material permitting the sides to be pressed inwardly and adapted to assume their normal shape when the pressure is relieved, and provided with spring puncturing-blades to fracture an egg-shell, substantially as described.

2. An egg-opener consisting of two cup-shaped members formed each of flexible elastic material provided with puncturing-blades, substantially as described.

3. An egg-opener consisting of two cup-shaped members provided with spring puncturing-blades, one of said blades being double-pointed, the points being spaced apart to permit a portion of an egg-shell to lie between and back of said points, substantially as described.

4. An egg-opener consisting of two cup-shaped members formed of flexible elastic material and provided with puncturing-blades one of which is double-pointed, substantially as described.

691,390. HORSESHOE. THOMAS F. KENNEY, La Crosse, Wis., assignor of one-half to Herman C. Scharpf and Frank G. Roth, La Crosse, Wis. Filed May 11, 1901. Serial No. 59,835. (No model.)

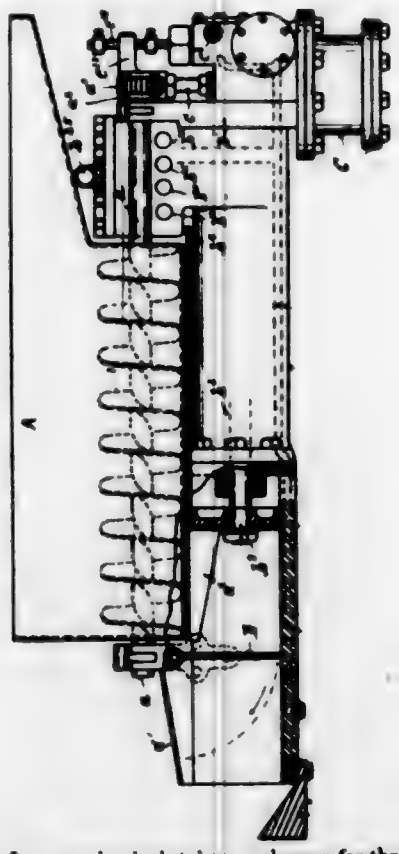


Claim.—1. A horseshoe having a depression or groove in its lower or tread side forming inner and outer walls, the outer wall being widened intermediate of the ends of the side members of the shoe and provided with the usual nail-openings and crease, the walls of the depression being undercut, and a cushion or soft tread applied to the lower side of the shoe and having an anchoring-rib filling the depression or groove thereof and having the outer edge of its side members cut away opposite the widened outer wall of the shoe so as to clear the nail-openings and crease and having the heel and toe portions thickened to provide calks, substantially as set forth.

2. A horseshoe provided with a heel-bar and having a groove or depression in the tread side throughout the extent of the shoe and heel-bar and having the walls of the depression undercut and having the intermediate portion of the outer wall widened and formed with nail-openings and creases, and a cushion or soft tread covering the lower side and heel-bar of the shoe and having an anchoring-rib filling the depression thereof, said cushion being cut away or reduced in width opposite the widened portions of the outer wall of the shoe to expose the nail-openings and creases and having its heel and toe portions thickened to provide calks, substantially as specified.

3. A horseshoe having a groove or depression in its tread side and extending throughout the extent of the shoe and having headed studs within said groove and having a series of openings in the part of the shoe exterior to said groove, and a cushion or soft tread fitted to the lower side of the shoe and filling the openings and groove thereof and embracing the shank portions of the headed studs, substantially as set forth.

691,891. MECHANICAL STOKER. JOHN W. KINCAID, Covington, Ky. Filed Jan. 28, 1901. Serial No. 44,974. (No model.)



Claim.—1. In a mechanical stoker, a plunger for throwing fuel into a furnace, an engine for reciprocating the plunger, means for automatically varying the speeds of the forward strokes of the plunger, and means for regulating the speed of the forward strokes of the plunger independently of each other, substantially as shown and described.

2. In a mechanical stoker a plunger for throwing fuel into a furnace an engine for reciprocating the plunger, means for automatically varying the speeds of the forward strokes of the plunger, and means for regulating the speed of the forward strokes of the plunger independently of each other without stopping the running of the machine.

3. In a mechanical stoker a plunger for throwing fuel into a furnace, a steam-engine for reciprocating the plunger, a valve-chamber, a series of ports in the chamber leading into a common channel from which steam is admitted to the engine for the forward stroke of the plunger, independent valves for each of said ports except one, a single port for admitting steam to the engine to retract the plunger, an exhaust-port, a valve for putting the said one of the series of ports and said single port alternately into communication with the exhaust and the single port into communication with the live steam to retract the plunger after each forward stroke, and means for actuating each of said valves, substantially as shown and described.

4. In a mechanical stoker a plunger for throwing fuel into a furnace, a steam-engine for reciprocating the plunger, a valve-chamber, a series of ports in the chamber, a common channel from which steam is admitted to the engine for the forward stroke, channels leading from said ports into said common channel, choke-plugs seated in each of said channels for varying their size, independent valves for each of said ports except one, a single port for admitting steam to the engine to retract the plunger, an exhaust-port, a valve for putting the said one of the series of ports and said single port alternately into communication with the exhaust and the single port into communication with the live steam to retract the plunger after each forward stroke, and means for actuating each of said valves, substantially as shown and described.

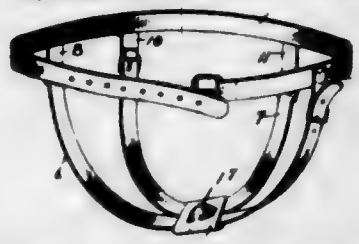
5. In a mechanical stoker a reciprocating plunger for throwing fuel into a furnace, a steam-cylinder, a thick piston reciprocating in the cylinder, means for connecting the plunger and the piston, a valve-chamber, a main channel leading from the chamber into the cylinder at a distance from the end slightly less than the thickness of the piston, and a reduced channel running backward from the main channel into the end of the cylinder, whereby the return stroke of the piston is cushioned, substantially as shown and described.

6. In a mechanical stoker a reciprocating plunger for throwing fuel into a furnace, a steam-cylinder, a thick piston reciprocating in the cylinder, means for connecting the plunger and the piston, a valve-chamber, a main channel leading from the chamber into the cylinder at a distance from the end slightly less than the thickness of the piston, a reduced channel running backward from the main channel into the end of the cylinder, and a choke-plug for regulating the size of the reduced channel whereby the return stroke of the piston is cushioned as much as may be desired, substantially as shown and described.

7. In a mechanical stoker the combination of a reciprocating plunger for throwing fuel into a furnace, a steam-engine for reciprocating the plunger, means for automatically varying the speeds of the forward strokes of the plunger, means for varying the ratio of the forward stroke and of the return stroke of the plunger independently of the forward stroke, substantially as shown and described.

8. In a mechanical stoker the combination of a reciprocating plunger for feeding fuel into a furnace, an engine for reciprocating the plunger, a rotating conveyer for feeding the fuel forward to fall in front of the retracted plunger, means for rotating the conveyer, a valve-chamber for the main engine, reciprocating valves in the chamber for admitting and exhausting steam to and from the main engine, and cams mounted upon the conveyer-shaft for reciprocating the valves, substantially as shown and described.

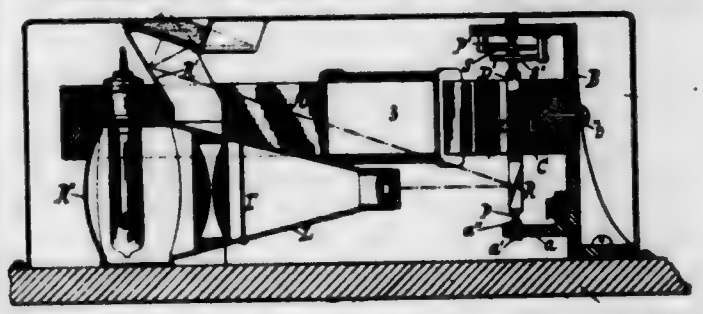
691,892. PILE-TRUSS. CHARLES W. LANGRIDGE, Wyaconda, Mo. Filed Feb. 4, 1901. Serial No. 46,010. (No model.)



Claim.—1. A truss comprising a belt, straps connected with the belt, an elastic sleeve inclosing the central portions of the straps and having an opening in the upper side thereof, and an elastic sheet hermetically sealed over the opening at the inner side thereof and having its edges secured against the straps and the inner face of the sleeve and hermetically sealed to form an air-tight pocket, whereby when air is admitted under pressure, the sheet will be projected above and through the sleeve.

2. A truss comprising a belt, straps connected to the belt and having their central portions disposed side by side and in close relation, a sleeve encircling the central portions of the straps and consisting of a sheet of elastic material passed around the central portions of the straps and having its ends overlapped against the under sides of the straps to reinforce the thickness of the sleeve, said sleeve having an opening in its upper side communicating with the interspace between the straps, and a sheet of elastic secured to the straps and sleeve against the inner face of the sleeve and covering the opening, the edges of said sheet being secured to form an air-holding chamber between it and the under side of the sleeve, whereby when the chamber is inflated, the inner sheet will be forced through the opening of the sleeve.

691,898. ELECTRICAL MEASURING INSTRUMENT. FREDRICK A. LA ROCHE, New York, N. Y., assignor of one-half to Charles D. Cooke, Paterson, N. J. Filed Apr. 20, 1901. Serial No. 56,731. (No model.)



Claim.—1. A movable system for an electrical measuring instrument, adapted to rotate in a magnetic field upon pivots, when energized by an electrical current, consisting of a magnetic brake, a restrainer, an energizing-coil, conducting-bearings for the pivots, and an indicator for observing the angular movement of the said system; substantially as described.

2. In an electrical measuring instrument, a pivotally-movable system, consisting of a coil having its terminals adapted to be electrically connected with a source of electrical energy and a short-circuited conductor carried by and embracing the said coil, of lower electrical resistance than the resistance of the said coil, and pivots, carried by the said con-

ductor and the coil secured thereon, disposed as an axis of rotation for the said system; substantially as described.

3. In an electrical measuring instrument, a pivotally-movable system having a motor-circuit and a retarding-circuit disposed therein and conductors for the said circuits, and an axially-disposed pivot, carried by each of the said conductors, electrically connected with the terminals of the said motor-circuit and the electrical source; substantially as described.

4. A movable system for an electrical measuring instrument, consisting of an outer and an inner hoop of conducting material, the said inner hoop comprising an electrical circuit having terminals of a higher electrical resistance than said outer hoop, a pivot secured to the said inner hoop, axially, a perforation in the said outer hoop through which said pivot is passed, a second pivot secured to the said outer hoop and in the same axial line as that of the first said pivot, said pivots being connected with the said terminals of the said circuit; substantially as described.

5. A movable coil for an electrical measuring instrument, having pivoted terminals, upon which the said coil swings to conduct a portion of the electrical current to be measured to the terminals of the said coil, retracting-springs, to restrain the said coil against the action of the said electrical current, being also electrically connected with the terminals of said coil, whereby the remainder of the said current to be measured is conducted to the said coil by the said retracting-springs; substantially as described.

6. A pivoted coil for an electrical measuring instrument, having retracting-springs electrically connected with the terminals of the said coil and the source of current to be measured, said retracting-springs being differentially wound and situated within inductive relation to each other, whereby their mutual embracing magnetic lines of force will neutralize their mutual induction effects, bearings for the pivoted coil, also electrically connected with the current to be measured and with the terminals of the said coil through the pivots, whereby the current to be measured is led into the said coil through both the said pivots and the said retracting-springs; substantially as described.

7. In an electrical measuring instrument having a magnetic field of force, wherein a movable coil is adapted to swing, a damping device consisting of an outer hoop of conducting material carried by the coil, a pivot secured to the said hoop and a diametrically oppositely located pivot secured to the said coil, whereby, upon the said coil being energized in the said field of force, the said coil, together with the said hoop, will be set into motion and the said hoop, upon cutting magnetic lines of force in the said field, will restrain the action of the said movable coil by dynamic induction; substantially as described.

8. In an electrical measuring instrument, a pivotally movable system, having a motor-circuit and a retarding-circuit disposed thereon, and an axially disposed pivot carried by each of the said circuits, electrically connected with the terminals of the said motor-circuit and the electrical source, said system having a reflector axially secured and adapted to move with the said system; substantially as described.

9. In an electrical measuring instrument, a pivotally-movable system having a moter-circuit and a retarding-circuit disposed thereon and an axially-disposed pivot carried by each of the said circuits, each of the said pivots being disposed in the same axial line and as an axis of rotation of the said system, a reflector carried by the said system and inclined at an angle to the said axis of rotation; substantially as described.

10. In an electrical measuring instrument, a pivotally-movable system, adapted to be energized by an electrical current, comprising a hoop of conducting material, pivots diametrically oppositely arranged in relation to the said hoop as an axis of rotation for the said system, a restraining device, carried by the said system, and an optical indicator for the said system, adapted to indicate the position of the said system by reflection; substantially as described.

11. In an electrical measuring instrument, a pivotally-movable system, adapted to be energized by an electrical current, comprising a hoop of conducting material, pivots diametrically oppositely arranged in relation to the said hoop as an axis of rotation for the said system, and a restraining device, carried by the said system and an inclined mirror, carried by the said system, adapted to indicate the angular movement of the said system by reflection; substantially as described.

12. In an electrical measuring instrument, a pivotally-movable system, adapted to be energized by an electrical current, comprising a hoop of conducting material, pivots diametrically oppositely arranged in relation to the said hoop as an axis of rotation for the said system, a spring-retractor to restrain the movement of the said system against the action of the said electrical current, an optical indicator for the said system, whereby the angular movement of the said system is observed by reflected light; substantially as described.

13. In an electrical measuring instrument, a pivotally-movable system, adapted to be energized by an electrical current, comprising a hoop of conducting material, having independent electrical circuits, pivots diametrically oppositely arranged in relation to the said hoop as an axis of rotation for the said system, said pivots having an electrical connection with the said circuits and the said electrical current, a spring-retractor to restrain the movement of the said system against the action of the said electrical energizing-current, and an optical indicator for the said system, whereby the angular movement of the said system is observed by reflected light; substantially as described.

14. In an electrical measuring instrument, a pivotally-movable system, adapted to be energized by an electrical current, comprising a hoop of conducting material, having two independent electrical circuits, pivots diametrically oppositely arranged in relation to the said hoop as an axis of rotation for the said system and as terminals of one of the said circuits, said terminal pivots having an electrical connection with the said electrical energizing-current, a spring-retractor to restrain the movement of the said system against the action of the said electrical energizing-current, and an optical indicator for the said system, whereby the angular movement of the said system is observed by reflected light; substantially as described.

15. A pivotally-supported rotary movable coil for an electrical measuring instrument, adapted to be energized by an electrical current, consisting of a hoop of conducting material subdivided into two electrical circuits, one of the said circuits being short-circuited and of low electrical resistance, the other said circuit being of a higher electrical resistance and having its terminals electrically secured to the said pivots, a spring-retractor electrically connected with the source of the said electrical energy, whereby the latter is in part led into the said high-resistance coil, bearings for the pivots also electrically connected with the said source, whereby the electrical current is led in through both the said pivots and bearings and the said spring-retractor, into the said high-resistance coil, and an optical indicator for the said coil, whereby the angular movement of the same is observed by reflected light; substantially as described.

16. In an electrical measuring instrument, having a magnetic field of force, wherein a pivotally-movable system, consisting of a damping device, comprising an outer hoop of conducting material and an inner energizing-coil, is adapted to swing upon being energized by an electrical current, and an inclined mirror carried by the said outer hoop for indicating, by reflected light, the angular movement of the said system, and a screen to receive the reflected light from the said inclined mirror; substantially as described.

17. An electrical measuring instrument having a magnet, a pivotally-movable system, arranged so as to swing in the magnetic field of the said magnet, and an optical indicator for the said system, comprising a projecting device, a reflector carried by the said pivotally-movable system and a translucent scale arranged in an arc, radial to the axis of the said system and in a plane lying at an angle to the said axis, whereby light from the said projecting device is projected onto the said reflector and thence reflected onto the said translucent scale, so as to indicate the angular movement of the said system; substantially as described.

18. An electrical measuring instrument, having a magnet, a pivotally-movable system arranged so as to swing in the magnetic field of the said magnet, an optical indicator for the said system, comprising a projecting lantern, a translucent screen with a scale arranged in an arc, radial to the axis of said pivotally-movable system and in a plane lying at an angle to the said axis, a reflector carried by the said movable system for receiving the incident rays of light from the said projecting-lantern and reflecting the same upon the said screen, and an optical index in the path of the said incident rays, adapted to be focused on the said screen by reflection from the said reflector, thereby indicating the angular movement of the said system by the registration of the said optical index with the said scale; substantially as described.

19. An electrical measuring instrument, consisting of a magnet, a pivotally-movable system arranged so as to swing in the magnetic field of the said magnet, an optical indicator for the said system, consisting of a projecting-lantern, a translucent screen having a scale thereon, an inclined reflector carried by the said pivotally-movable system, an optical index, consisting of a cross-line situated in the path of the luminous rays of the said lantern, said lantern being adapted to project an image of the said cross-line and luminous rays upon the said screen by reflection from the said reflector, whereby the said cross-line will divide the luminous plane projected on the said screen, as aforesaid, whereby the angular movement of the said system is indicated by the registration of the said optical index with the aforesaid scale; substantially as described.

20. In an electrical measuring instrument a pivotally-movable coil adapted to swing in a comparatively uniform and constant magnetic field of force, against the force of a restraining device, the coil being adapted to be energized by an electrical current, whereby the value of one dimension of the electrical energy to be measured is computed by the angular swing of the said coil in the said magnetic field of force, and a magnetic reaction-coil, adapted to vary the field intensity of the field of force for the said pivotally-movable coil, whereby, upon energizing the aforesaid magnetic reaction-coil by the energy, or a portion thereof, to be computed, the said pivotally-movable coil will be adapted to swing as aforesaid, in a magnetic field of force of different intensity, whereby the value of two di-

mensions of the electrical energy to be measured is computed; substantially as described.

21. In an electrical measuring instrument, a pivotally-movable coil adapted to swing in a comparatively uniform and constant magnetic field of force, against the force of a restraining device, the coil being adapted to be energized by an electrical current, whereby the value of one dimension of the electrical energy to be measured is computed by the angular swing of the said coil in the said magnetic field of force, and an adjustable reaction-coil, adapted to vary the field intensity of the field of force for the said pivotally-movable coil, whereby, upon energizing the aforesaid adjustable reaction-coil by the energy, or a portion thereof, to be computed, the said pivotally-movable coil will be adapted to swing, as aforesaid, in a magnetic field of force of different intensity, whereby the value of two dimensions of the electrical energy to be measured is computed; substantially as described.

22. In an electrical measuring instrument wherein a field-magnet is employed to maintain a constant magnetic field of force, a helix for the said magnet adapted, when energized, to vary the field intensity of the said magnet; substantially as described.

23. In an electrical measuring instrument wherein a field-magnet is employed to maintain a constant magnetic field of force, a helix for the said magnet adapted, when energized, to vary the field intensity of the said magnet, and means for varying the strength of the current for energizing the said helix; substantially as described.

24. In an electrical measuring instrument wherein a field-magnet is employed to maintain a constant magnetic field of force, a helix for the said magnet adapted, when energized, to vary the field intensity of the said magnet, and a variable resistance for the said helix, whereby the strength of the energizing-current may be varied at will; substantially as described.

25. A standardizing device for an electrical measuring instrument having a field-magnet, consisting of electrical windings upon the said field-magnet, and a rheostat for the said windings in series therewith; substantially as described.

26. A standardizing-coil for the field-magnet of an electrical measuring instrument having a constant field-magnet and field-magnets of variable intensity, and a rheostat for the said standardizing-coil; substantially as described.

27. An electrical measuring instrument having a permanent field-magnet and electromagnets for varying the magnetic intensity of the said permanent field-magnet, and a magnetizing-coil wound upon the said permanent field-magnet; substantially as described.

28. In an electrical measuring instrument wherein a permanent magnet is employed to furnish a uniform and constant magnetic field of force, an adjustable reaction-coil inductively disposed with respect to the said permanent magnet, for varying the magnetic intensity of the said permanent magnet; substantially as described.

29. In an electrical measuring instrument wherein a permanent magnet is employed to furnish a uniform and constant field of force for the movable system of the said instrument, an adjustable reaction-coil inductively disposed with respect to the said permanent magnet for varying the magnetic intensity of the said permanent magnet, and a standardizing-coil wound upon the said permanent magnet, for readjusting the strength of the magnetic field of the said permanent magnet; substantially as described.

30. In an electrical measuring instrument, a field-magnet having a standardizing-coil wound thereon, and means for uninterruptedly and gradually applying the energizing-current and discontinuing the same; substantially as described.

31. An electrical measuring instrument, adapted to measure the electrical energy in terms of watts, consisting of a pivotally-movable coil, a permanent magnetic field therefor, and a stationary coil for varying the field intensity of the said permanent magnetic field; substantially as described.

32. A wattmeter, consisting of a permanent magnet, a pivotally-movable coil, comprising a single electrical circuit, adapted to swing between the poles of the said permanent magnet, a retracting device for restraining the action of the said coil, and means for varying the magnetic intensity of the said permanent magnet; substantially as described.

33. In an electrical measuring instrument having a fixed field-of-force coil, a pivotally-movable coil and reaction-springs for the said movable coil, an index for denoting the angular movement of the said coil, comprising a translucent scale arranged in an arc, radial to the axis of the said coil and in a plane lying at an angle to the said axis, and a luminous indicator, coöperating with the said coil, adapted to illuminate the indices of the said scale correspondingly to the angular movement of the said coil; substantially as described.

34. In an electrical measuring instrument wherein a coil, energized by a suitable electrical current, is adapted to swing in the magnetic field of a magnet, an optical system adapted to indicate the angular movement of the said coil, comprising a projecting-lantern, a reflector moving with the said coil, located in and inclined to the optical axis of the said projecting-lantern, a stationary reflector adapted to receive and reflect the rays from the said movable inclined reflector, and a translucent indexed screen with a scale arranged in an arc, radial to the axis of the said coil, and in a plane lying at an angle to the said axis for the reception of the rays from the said stationary reflector; substantially as described.

35. In an electrical measuring instrument having a permanent magnet and a pivoted coil adapted to swing in the magnetic field thereof, an optical system, lying within the linear limits of the said magnet, for indicating the angular movement of the said coil, the said system consisting of a projecting-lantern, a reflector, moving with the said coil, located in and inclined to the optical axis of the said lantern, a stationary inclined reflector for receiving the rays from said movable reflector, and a translucent indexed screen for receiving the rays from the said stationary reflector, the said indexed screen having its scale arranged in an arc, radial to the axis of the said coil, and in a plane lying at an angle to the said axis; substantially as described.

691,894. **ELECTRIC CUT-OUT.** HENRY B. LEFFERT, New Britain Conn. Filed Apr. 16, 1901. Serial No. 56,094. (No model.)



Claim.—1. In a cut-out, in combination with the base having electrical contacts, a cap having electrical contacts, and means independent of the contacts for securing the cap and base together and including interengaging parts secured to the cap and base and one of which has an opening for the passage of line-wires.

2. In a cut-out in combination with the base having electrical contacts, a cap having electrical contacts, and means for securing the base and cap together and including a socket-piece and plug adapted to interengage and one of which has an opening for the passage of line-wires.

3. In a cut-out, in combination with the base having electrical contacts, a cap having electrical contacts, a socket-piece located on the base, and a plug having an opening for wires and engaging the threaded socket in the base whereby the base and cap are held together.

4. In a cut-out, in combination with the base having electrical contacts, a cap having electrical contacts, a socket piece located on one of said parts and having a shoulder, a plug adapted to engage the threaded opening in the socket and to clamp the wires against said shoulder, said socket-piece and plug holding the cap and base together.

5. In a cut-out, in combination with the base having electrical contacts, a cap having electrical contacts, a socket-piece located on one of said parts, an opening through the sides of the socket-piece for the reception of wires, and a plug arranged to engage the threaded opening in the socket-piece to hold the base and cap together.

6. In a cut-out, in combination with the base having electrical contacts, a cap having electrical contacts, a socket-piece located on the base and having slots on diametrically opposite sides, and a plug having a central opening for the reception of lamp-wires and arranged to engage the threaded opening in the socket-piece.

7. In an electric cut-out, in combination with the base having contacts, a cap having contacts, a socket-piece located on the base and having slots oppositely arranged for the reception of lamp-wires, a plug extending through the cap and having a central opening for the lamp-wires, a shoulder to engage the cap, and a threaded part to engage the threaded opening in the socket-piece whereby the cap and base are held together.

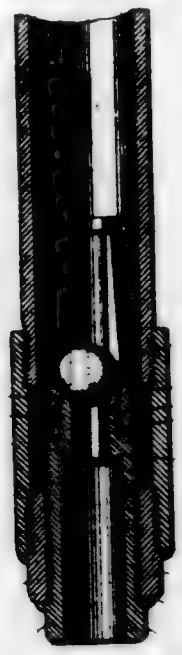
8. In a cut-out, in combination with the base having electrical contacts, a cap having electrical contacts, wires passing through the cap and extending in opposite directions, a socket-piece on one of said parts, a plug having a central opening for the lamp-wires on the opposite part, said plug and socket-piece being adapted to engage each other to hold the base and cap together.

9. In an electrical cut-out, in combination with a base having contacts, a cap having contacts, a socket-piece located on the base, a plug located on the cap and having an opening for the reception of lamp-wires, said plug and socket being adapted to engage each other by a rotary movement of one of said parts whereby the cap and base are held together.

691,895. **WATER-OUTLET FOR STEAM-LINES.** JOHN F. LOGUE and JOHN K. GANO, Griffith, Ohio. Filed May 11, 1901. Serial No. 59,869. (No model.)

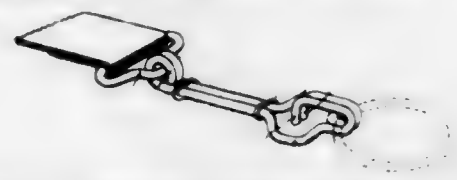
Claim.—A device of the kind described comprising in combination a coupling-sleeve, internally threaded, the internally and externally threaded housing having a polygonal-shaped outer end, the externally-threaded base member having a polygonal-shaped outer end, the inner end being

reduced and threaded and formed with a seat at its end, a sleeve screwed upon the reduced end of the base member, the wire cage attached to the sleeve and the ball-valve contained therein and adapted to seat upon the seat end of the base member, substantially as described.



691,396. SNAP-HOOK. ALBERT K. LOVELL, New York, N. Y.

Filed May 9, 1901. Serial No. 59,405. (No model.)



Claim.—1. A safety hook or shackle consisting of two longitudinal hooks, formed substantially as described, and adapted for rotary motion in relation to each other.

2. In a safety-hook, the parallel connected shanks, the hook or hooks at their forward ends, and the intermediate bent portions surrounding the ends of the hooks when the parts are in operative positions.

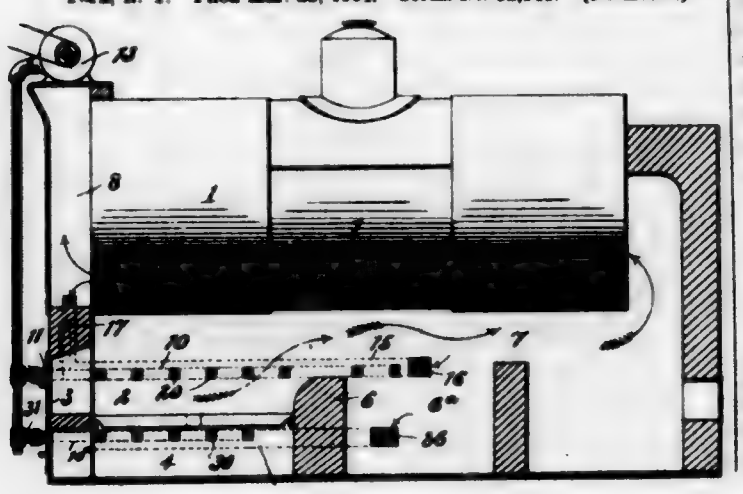
3. In a safety-hook, the two parallel rotary shanks, having their forward ends provided with hooks and intermediate bends, and their rear ends provided with eyes in combination with a shackle passing through said eyes.

691,397. COMPOSITION OF MATTER FOR CEMENT. JAMES D. MACDONELL, Littleriver, Fla. Filed Oct. 21, 1901. Serial No. 79,377. (No specimens.)

Claim.—1. The herein-described composition of matter, consisting of water, carbolic acid, nitro muriatic acid, nitric acid, crushed calcareous rock, sulfate of calcium, and cement of any manufacture, substantially as described, and for the purpose described.

2. The herein-described composition of matter, for the manufacture of cement, consisting of three barrels of crushed calcareous rock, one barrel of sulfate of calcium, one barrel cement, (any manufacture,) four ounces of nitric acid, four ounces of nitro muriatic acid, one quart of crude carbolic acid, and ten gallons of water, substantially as described.

691,398. STEAM-BOILER FURNACE. THOMAS G. MACY, New York, N. Y. Filed Mar. 23, 1901. Serial No. 52,513. (No model.)

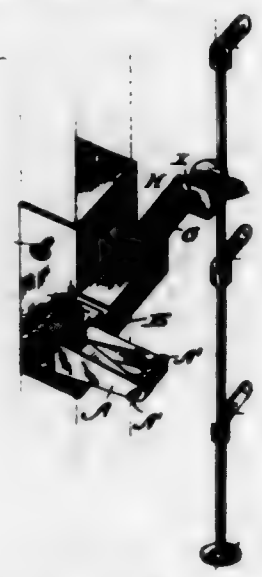


Claim.—1. The combination of a furnace comprising a bridge-wall, a fire-box, a combustion-chamber, side walls, having gas-conduits, and intakes to the gas-conduits at the combustion-chamber in rear of the bridge-wall, air-conduits located in the gas-conduits, and series of transverse injectors formed with outer tubes fitting in openings in the side walls of the furnace with inner tubes extending across the gas-conduits and partly through the outer tubes leaving commingling-spaces at their outer ends with contracted inner ends fitting in openings in the air-conduits, and with webs supporting the inner tubes in the outer tubes, a blower and pipes connecting the blower with the air-conduits.

2. The combination of a furnace comprising a bridge-wall, a fire-box, a combustion-chamber, side walls having gas-conduits and intakes to the gas-conduits at the combustion-chamber in rear of the bridge-wall, air-conduits located in the gas-conduits, and series of transverse injectors connected with the air-conduits, a boiler having smoke-flues, a smoke-chamber at the forward end of the boiler, vertical smoke-pipes connecting the smoke-chamber with the gas-conduits, a blower and pipes connecting the blower with the air-conduits.

3. The combination of a furnace comprising a bridge-wall, a fire-box, a combustion-chamber, side walls having upper and lower gas-conduits and upper and lower intakes at the combustion-chamber, in rear of the bridge-wall, air-conduits located in the gas-conduits, and series of transverse injectors connected with the air-conduits, a boiler having smoke-flues, a smoke-chamber at the forward end of the boiler, vertical smoke-pipes connecting the smoke-chamber with the upper gas-conduits, a blower and pipes connecting the blower with the upper and lower air-conduits.

691,399. SAW-GUIDE. JOHN W. MANKINS, Bowling Green, Ind. Filed May 25, 1901. Serial No. 61,884. (No model.)



Claim.—1. A saw-guide comprising a head having a laterally-projecting arm working in a suitable boxing or housing, means for moving the said arm within the said boxing or housing, and a guide-plate attached to the head, parallel with the arm and bearing upon the exterior of the boxing or housing, substantially as described.

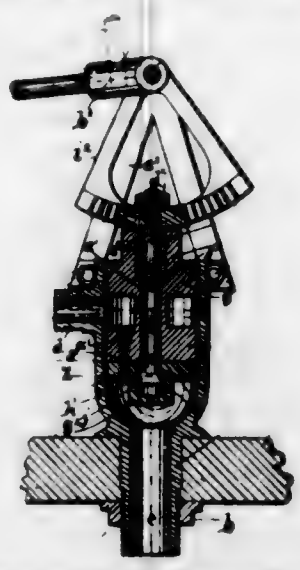
2. A saw-guide comprising a head having the guide-pins a laterally-projecting arm integral with the head, a housing or boxing within which the arm works, said arm having a threaded bore, screw-shaft working in said bore and having a bevel-gear at its end, and the operating-shaft having a bevel-gear adapted to mesh with the gear upon the screw-shaft, substantially as described.

3. A saw-guide comprising a head provided with guide-pins, said head having a laterally-projecting arm, and a parallel guide-plate, a clamp-plate having a boxing or housing in which the arm works, and upon which the guide-plate bears, said arm having a threaded bore, a screw-shaft journaled in the bracket-arm attached to the clamp-plate, said screw-shaft working in the threaded bore of the arm, a bevel-gear mounted upon the end of the screw-shaft, and the operating-shaft having a bevel-gear adapted to mesh with the gear upon the screw-shaft, substantially as described.

691,400. VALVE. ARTHUR H. MARSCHNER, Memphis, N. Y., assignor to the Syracuse Faucet and Valve Company, Syracuse, N. Y., a Corporation of New York. Filed Apr. 8, 1901. Serial No. 54,818. (No model.)

Claim.—1. The combination of an internally-screw-threaded casing provided with an inlet and an outlet, a screw-threaded plug secured removably in said casing and formed with a central annular chamber communicating with said outlet, and with a vertical or longitudinal passage extending from its inner end to said chamber, a disk valve seated on said

inner end of the plug and provided with a port adapted to register with the said passage and communicating with the aforesaid inlet, said valve formed with a central opening and with a pair of radial slots extending from said opening in opposite directions, and formed with a pair of recesses in its inner face disposed at right angles to said slots also extending from said opening, a revoluble stem passing longitudinally through said plug and formed at its inner end with a pair of lugs extending at right angles to the stem in opposite directions therefrom, said lugs being adapted to pass through said slots and to engage the said recesses to lock said stem to the valve, a spring drawing said stem outward to hold the valve to its seat, and means to actuate said stem substantially as described.



2. The combination of an internally-screw-threaded casing formed at one end with an inlet and at one side with an outlet, a screw-threaded plug removably secured in said casing and provided with a central annular chamber communicating with the outlet and with a longitudinal passage extending from its inner end to said chamber, a valve seated on the inner end of the plug and provided with a port adapted to register with said passage and communicating with the aforesaid inlet, a revoluble stem passing longitudinally through the plug and detachably connected to the valve, a bevel-pinion secured to the outer end of the stem, a segmental gear meshing with said pinion, and suitably journaled on the casing, and means for actuating said segmental gear to oscillate said stem substantially as described.

3. The combination of an internally-screw-threaded casing formed at one end with an inlet and at one side with an outlet, a plug composed of a screw-threaded outer end portion and a screw-threaded inner end portion by which it is secured removably in said casing and formed with a central chamber communicating with the outlet, and with a longitudinal outwardly-flaring passage extending from the inner end of the plug to said chamber, a disk valve seated on the inner end of the plug and provided with a port adapted to register with said passage and communicating with the inlet, and formed with recesses, a revoluble stem passing longitudinally through the plug and formed with lugs on its inner end engaging said recesses, whereby it is detachably connected to the valve and screw-threaded on its outer end portion, the plug formed in its outer end with a central socket through which said stem passes, a bevel-pinion secured to said screw-threaded end of the stem and out of contact with the plug, a coiled spring disposed in said socket and surrounding the stem and bearing against the inner face of the pinion to hold the aforesaid lugs in engagement with the recesses and to hold the valve to its seat, and a suitably-actuated segmental gear supported on the casing and meshing with said pinion to impart oscillating motion to said stem which transmits like motion to the valve substantially as described.

4. The combination with a valve comprising a casing provided with an inlet and an outlet, a plug secured removably in said casing and formed with a central chamber communicating with said outlet and with a longitudinal passage extending from the inner end of the plug to said chamber, a valve seated on said end of the plug and provided with a port adapted to register with said passage and communicating with the aforesaid inlet, and a stem passing longitudinally through the plug and detachably connected at its inner end to the valve, of a bevel-pinion secured to the outer end of said stem, a pair of brackets mounted on the casing, a quadrant journaled on said brackets and provided with a segmental gear meshing with said pinion, and means actuating said quadrant substantially as described.

5. The combination with a valve comprising a casing provided with an inlet and an outlet, a plug secured removably in said casing and formed with a central chamber communicating with said outlet, and with a longitudinal passage extending from the inner end of the plug to said chamber, a valve seated on said end of the plug and provided with a port adapted to register with said passage, a stem extending longitudinally through the plug and detachably connected at its inner end to the valve, of a bevel-pinion secured to the outer end of said stem, a pair of brackets mounted on the casing, a quadrant journaled on said brackets and formed with a segmental gear meshing with said pinion, and a float actuating said quadrant to impart oscillatory movement to the aforesaid valve substantially as described.

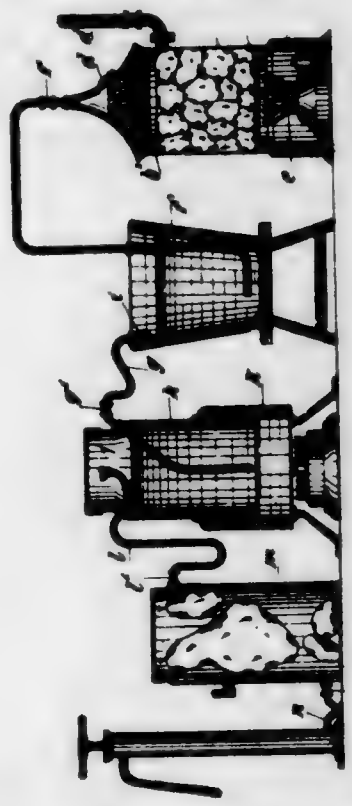
691,401. COOLING SAFE OR CHAMBER. RUDOLPH MEHR, Adelaide, South Australia. Filed Jan. 3, 1900. Serial No. 265. (No model.)



Claim.—1. In a cooling-chamber, a movable wall comprising an endless belt of flexible material, upper and lower rollers over which said belt passes, means for simultaneously raising and lowering both rollers and the belt, a trough containing liquid into which said belt dips when lowered, and actuating mechanism for moving said belt, said actuating mechanism being automatically disengaged and engaged by the raising and lowering of the rollers, substantially as described.

2. In a cooling-chamber, three movable walls forming three sides and a movable door, each of the three sides comprising an endless belt of flexible material, upper and lower rollers over which said belt passes, a trough containing liquid into which said belt dips continuously and actuating mechanism for moving all said three side belts continuously and the movable door comprising an endless belt of flexible material, upper and lower rollers over which said belt passes, means for simultaneously raising and lowering both rollers and the belt, a trough containing liquid into which said belt dips when lowered and actuating mechanism for moving said belt and the three side belts together simultaneously and continuously except for the space of time during which the door-belt is raised and the door open, the three side belts and the door-belt being so fitted and constructed that with the stationary top and bottom they form a practically air-tight chamber, substantially as herein described and as illustrated by the drawings.

691,402. METHOD OF PRESERVING ORGANIC SUBSTANCES. ALEXANDER MÉSZÁROS, Székesfejérvár, Austria-Hungary. Filed Sept. 28, 1901. Serial No. 55,974. (No specimens.)



Claim.—1. A method of preserving organic bodies consisting in exposing the latter to the influence of the products of dry distillation of onions and alcoholic and salt vapors.

2. The herein-described method of preserving organic bodies which consists in placing the material to be preserved in a receptacle, forcing the products of dry distillation of onions through a salt solution and body of alcohol, and then passing such products through said receptacle.

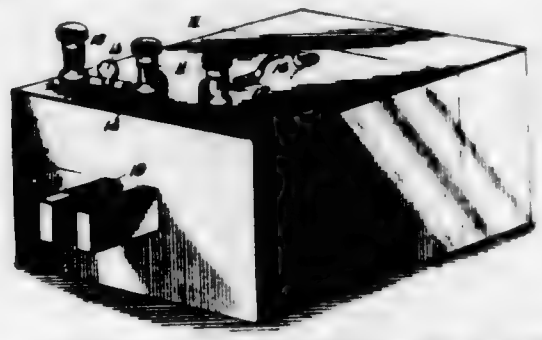
3. The herein-described method of preserving organic bodies which consists in exposing the material to be preserved to the combined action of the products of dry distillation of onions and alcoholic vapor.

691,403. CARTRIDGE-BELT. ARTHUR MEYER, Geneva, Switzerland. Filed June 21, 1901. Serial No. 65,534. (No model.)



Claim.—The improved cartridge-belt, comprising two detachable halves, buckles for connecting the free ends of said halves, eyes provided on said buckles, safety-pins adapted to be attached to the garment and provided with hooks for the reception of said eyes, a suitable buttonhole between the ends of each belt-half, safety-pins adapted to be attached to the garment and provided with buttons for the reception of said buttonholes and a safety-pin pivotally connected to each buckle, substantially as and for the purpose set forth.

691,404. PORTABLE ELECTRIC WELDING-MACHINE. HENRY R. MEYERS, Butte, Mont. Filed Mar. 14, 1901. Serial No. 51,102. (No model.)



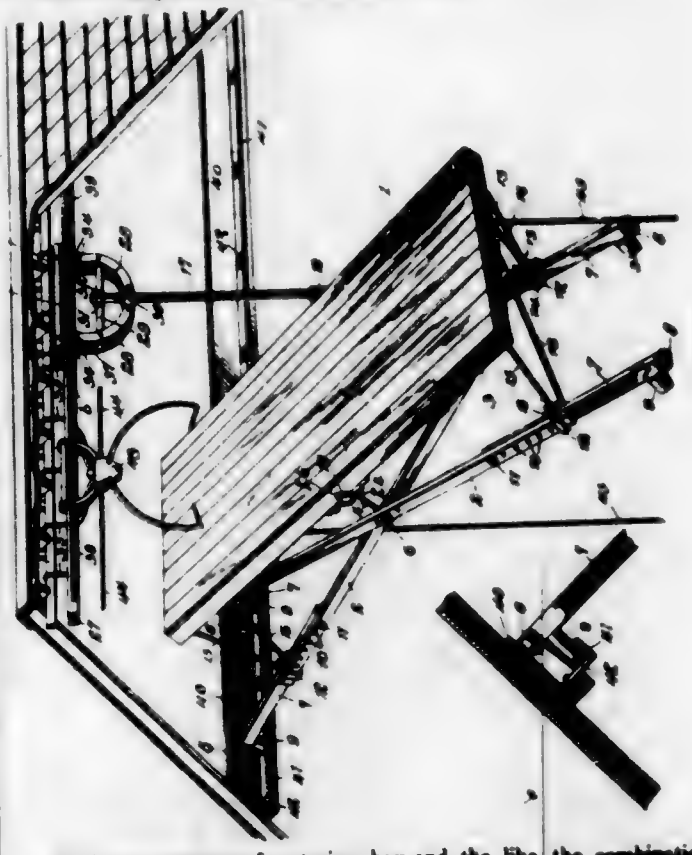
Claim.—1. An electric welding-machine, comprising a suitable casing, a laminated block fitting snugly therein and provided with openings, a primary coil fitting in said openings, a pair of binding-posts secured to the casing and connected to the terminals of the primary coil, a circuit-terminal also connected to one of said binding-posts, a third binding-post upon the casing connected to the other terminal of said circuit, a switch for throwing the same in and out of circuit with the binding-post of the pair not connected to said circuit-terminal, and a secondary coil also fitting in the openings of the block and surrounding the primary coil, and having its terminals projecting through one side of the casing, substantially as described.

2. An electric welding-machine, comprising a suitable casing, a laminated block fitting snugly therein and provided with openings, a primary coil fitting in said openings, a pair of binding-posts secured to the casing and connected to the terminals of the primary coil, a circuit-terminal also connected to one of said binding-posts, a third binding-post upon the casing connected to the other terminal of said circuit, a switch for throwing the same in and out of circuit with the binding-post of the pair not connected to said circuit-terminal, a secondary coil also fitting in the openings of the block and surrounding the primary coil, and having its terminals projecting through one side of the casing, and a handle secured to the casing for convenience in carrying the machine, substantially as described.

691,405. HAY-DISTRIBUTER. NICHOLAS C. MILLER, Dodgeville, Wis. Filed Sept. 16, 1901. Serial No. 75,495. (No model.)

Claim.—1. In an apparatus for storing hay and the like, the combination of an upper track, lower tracks disposed at opposite sides of the upper track, and a normally inclined distributer hung from and traveling upon the upper track, and constructed to tilt vertically upon an intermediate axis, the opposite ends of the distributer being adapted for slidable engagement with the respective lower tracks.

2. In an apparatus for storing hay and the like, the combination with opposite tracks, of a normally inclined distributer located between the tracks and mounted to tilt vertically in opposite directions upon an intermediate support, the opposite ends of the distributer being constructed for slidable engagement with the respective tracks.



3. In an apparatus for storing hay and the like, the combination with a track, of a hanger mounted to slide thereon, and a vertically-tilting distributer having an intermediate axis which is carried by the hanger.

4. In an apparatus for storing hay and the like, the combination with a track, of a hanger mounted to travel thereon and provided with a substantially horizontal arm, and a vertically-tilting distributer mounted intermediate of its ends upon the arm.

5. In an apparatus for storing hay and the like, the combination with a track, of a hanger mounted to travel thereon, a vertically-adjustable substantially horizontal arm carried by the hanger, and a vertically-tilting distributer mounted intermediate of its ends upon the arm.

6. In an apparatus for storing hay and the like, the combination with a track, of a carrier mounted to travel thereon, a laterally-projected arm carried by the hanger and adjustable to swing about the same, and a vertically-inclined distributer carried by the arm.

7. In an apparatus for storing hay and the like, the combination with a track, of a hanger mounted to slide thereon, a standard swiveled upon the hanger, and a vertically-inclined distributer carried by the swiveled standard.

8. In an apparatus for storing hay and the like, the combination with a vertically-inclined laterally-slidable distributer, of a pair of tracks located adjacent to the upper end of the distributer and mounted to travel upon one of the tracks, and one or more laterally-projecting rollers mounted to travel upon the other track, and both sets of rollers being located between the opposite tracks to prevent endwise movement in opposite directions of the distributer.

9. In an apparatus for storing hay and the like into barns, the combination with a vertically-inclined laterally-slidable distributer, of a track mounted longitudinally of and inclined with one side of the roof of the barn, a second track located below and in front of the first-mentioned track, one or more rollers carried by the upper end of the distributer and mounted to travel upon the first-mentioned track, and one or more laterally-projected rollers to travel upon the upper side of the lower track, both sets of rollers being located between the two tracks.

10. In an apparatus for storing hay and the like, the combination with opposite tracks, of a vertically-tilting distributer mounted upon an intermediate axis, and provided with opposite pairs of crossed leg-standards, the outer ends of corresponding standards being projected beyond the adjacent end of the distributer and constructed for slidable engagement with the adjacent track.

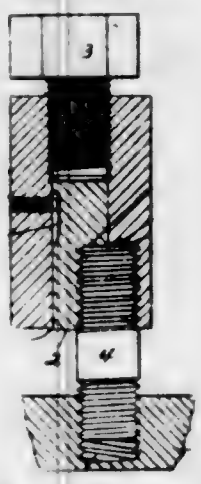
11. In an apparatus for storing hay and the like, the combination with opposite tracks, of a traveling distributer located between the tracks and mounted to tilt vertically in opposite directions upon an intermediate axis, and provided with opposite pairs of crossed leg-standards, each of which has an outer endwise-adjustable section, the outer ends of corresponding sections being constructed for detachable slidable engagement with the adjacent track.

12. In an apparatus of the character described, the combination with an elevated track, and a hay-carrier mounted thereon, of a traveling distributer located below the track and having a hanger traveling upon said track and forming a stop to limit the movement of the hay-carrier.

13. In an apparatus of the character described, the combination with an elevated track, and a hay-carrier traveling thereon, of a distributer located below the track, and a hanger rising from one side of the distributer and mounted to travel upon the track, said hanger also forming a stop to limit the movement of the hay-carrier.

14. In an apparatus of the character described, the combination with an elevated track, and a hay-carrier traveling thereon, of a distributer located below the track, and a hanger rising from one side of the distributer and provided with wheels mounted upon the track, and also having bumpers projecting in opposite directions beyond the wheels and constructed to form stops for engagement by the hay-carrier to limit the movement thereof.

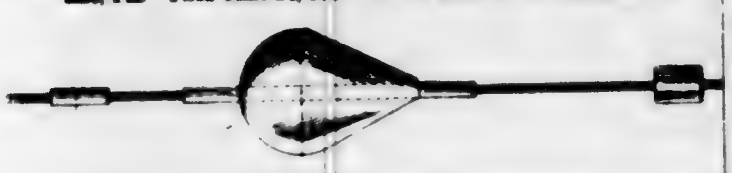
691,406. **STUD SETTING AND EXTRACTING TOOL.** LEWIS H. MORGAN, Plainfield, N. J. Filed Jan. 23, 1901. Serial No. 45,067. (No model.)



Claim.—1. A body having a rigidly-carried internally-screw-threaded portion, and a longitudinally-movable internally-screw-threaded portion, said screw-threaded portions being adapted to coact to mesh with a stud, and means carried by the body to actuate said movable screw-threaded portion longitudinally of the body independently of said rigidly-carried screw-threaded portion, substantially as described.

2. A body having a rigidly-carried internally-screw-threaded portion and a longitudinally-movable internally-screw-threaded portion, said screw-threaded portions being adapted to coact to mesh with a stud, and a jam-screw carried by the body in line with and adapted to actuate said movable internally-screw-threaded portion, substantially as described.

691,407. **FISHING-FLOAT.** ADOLPHUS H. PACETTY, St. Augustine, Fla. Filed June 24, 1901. Serial No. 65,894. (No model.)



Claim.—1. In a fishing-tackle, a float having a tube therethrough, a line run through the tube of the float and a stop on the line for limiting the movement of the line through the tube.

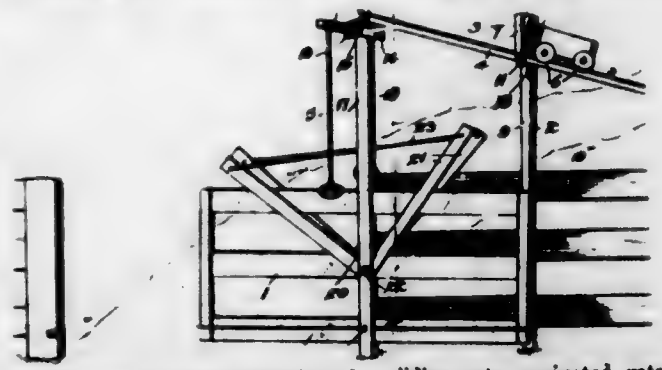
2. In a fishing-tackle, a float and in combination a line free to move through the float and means on the line for engaging the float.

691,408. **THREAD-GUIDING ATTACHMENT FOR SEWING-MACHINES.** CHARLES REINHOLD, New York, N. Y., assignor of one-half to Henry Müller, New York, N. Y. Filed Apr. 6 1901. Serial No. 54,635. (No model.)



Claim.—A thread-guiding attachment for sewing-machines, consisting of a bracket suitably attached to the arm of the sewing-machine, a spindle, said bracket being provided with a horizontal socket for receiving said spindle, a spring locking device arranged on the bracket, said spindle being constructed with a recess receiving said locking device and having a longitudinal groove, a flat spring fixed in said groove so as to form means for retaining the spool friction-tight on the spindle, a rotary thread-guide applied to the outer end of the spindle, said thread-guide being provided with a thread-eye at each of its outer ends and also at its center, and a washer interposed between the thread-guide and the spool, substantially as set forth.

691,409. **GATE.** ANDREW J. RUSSELL and WILLIAM H. RUSSELL, Auburn, Ind. Filed Oct. 7, 1901. Serial No. 77,874. (No model.)



Claim.—1. The combination of a sliding gate, a pivoted gate-receiving track provided with arms arranged at an angle to each other and alternately engaged by the gate to bring them to a horizontal position, and means for sliding the gate, substantially as described.

2. The combination of a suitable support, a sliding gate provided at opposite sides with rollers or wheels, the pivoted gate-receiving tracks having arms arranged at an angle to each other and alternately engaged by the rollers or wheels, said gate-receiving tracks being provided with braces connecting the arms, guides receiving the braces and limiting the movement of the gate-receiving tracks, and means for actuating the gate, substantially as described.

3. The combination of a sliding gate, a reversible tilting track, a weight mounted on the track, a sliding gate loosely connected with the weight and actuated by the same, whereby the said gate is opened and closed, said weight being permitted vertical movement independently of the gate, and means for operating the track, substantially as described.

4. The combination of a sliding gate, a tilting track, operating mechanism connected with the tilting track for changing the inclination of the same, and a carriage mounted on the track and connected with the gate and capable of vertical movement independently of the gate, substantially as described.

5. The combination of a sliding gate, an oscillatory gate-receiving track having arms arranged at an angle and actuated by the gate, a tilting track, a gate-operating carriage running upon the tilting track, and operating mechanism for changing the inclination of the tilting track, substantially as described.

6. The combination of a support, a sliding gate, oscillating angular gate-receiving tracks mounted on the support and actuated by the gate, an upright provided with a bracket having a depending arm, a tilting track pivoted to the arm and supported by the bracket, a carriage movably connected with the gate and arranged to run on the tilting track, and operating-levers fulcrumed on the support and connected with the tilting track, substantially as described.

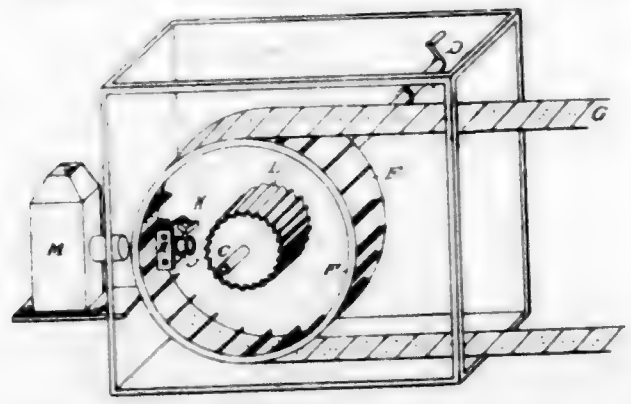
691,410. **TOASTER.** BESSIE K. SCHUBERTS, Pittsburg, Pa. Filed May 11, 1901. Serial No. 59,855. (No model.)



Claim.—1. A toaster comprising a handle, shanks or rod portions, and the rectangular-shaped frames attached to the said shanks, the end members of one frame having depressions or recesses and the side members of the opposing frame having similar depressions or recesses, and the cross-wires extending across the frames, said cross-wires being located in the depressions, the ends of said wires being coiled around the members of the frame at that point and projected beyond the said frame at a right angle to the plane of the frame, thereby providing side and end guards, substantially as described.

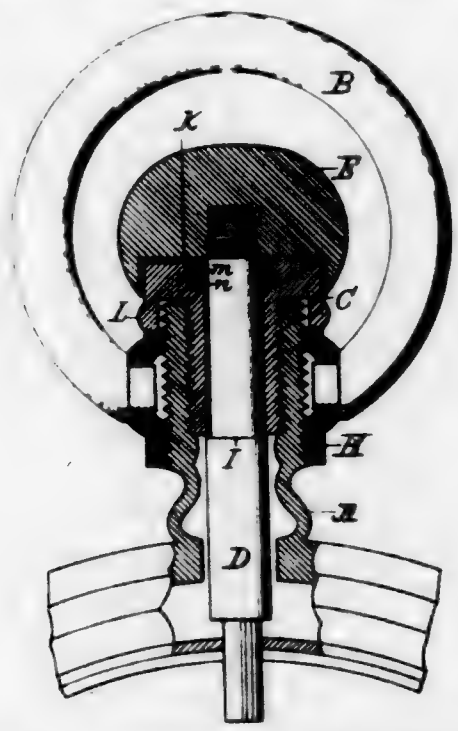
2. A toaster comprising in combination a handle, the shanks attached to the said handle, a rectangular-shaped frame, arranged at the opposite end of each shank, one frame having wire extending from side to side, the other frame having wire extending from end to end, the ends of each wire being bent toward the opposing frame, thereby providing side and end guards, and a ring sliding upon the shanks to hold the frames together, substantially as set forth.

691,411. CINEMATOGRAPH. HUBERT SCHMIDT and WILHELM HARNISCH, Berlin, Germany. Filed July 24, 1900. Serial No. 24,733. (No model.)



Claim.—In apparatus for producing stationary pictures the combination of a drum-like carrier for the picture layers, a rim or circle of mirrors arranged concentrically within the drum and means for rotating the drum-like carrier and the mirrors at the same angular velocity, an objective arranged between the picture-layer carrier and the rim or circle of mirrors substantially midway between the picture-layer carrier and the axis of rotation of the drum which carries the mirror-circle.

691,412. WATCHCASE-PENDANT. MICHAEL SPORLEDER, Colorado City, Colo. Filed July 20, 1900. Serial No. 24,340. (No model.)



Claim.—1. The combination with a pendant having an interior and an exterior thread, of a stem, a collar-nut secured on said exterior thread, a pendant-bow attached thereto, and a controlling-nut secured on said interior thread for holding said stem from accidental movement, substantially as described.

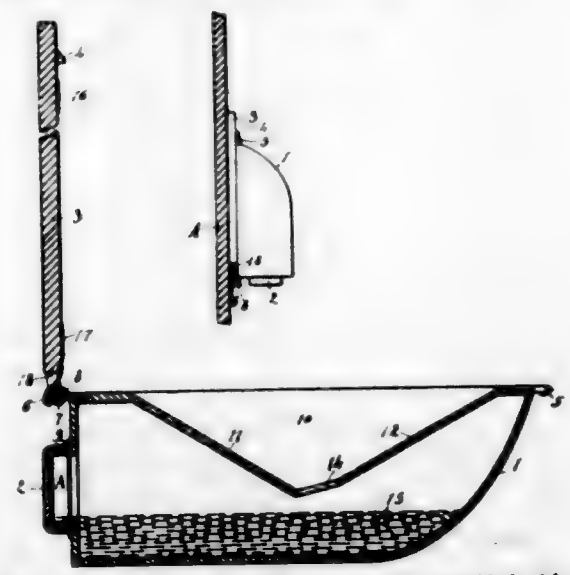
2. The combination with a tubular pendant having a screw-threaded portion, a stem adapted to be operated therein, a nut engaging said screw-threaded portion adapted to overhang and abut directly against the end thereof, the upper part of the nut being adjacent the stem, and a crown secured to the stem and surrounding the upper end of the nut, substantially as described.

3. The combination with a tubular pendant having a screw-threaded portion, a stem adapted to be operated therein, a nut engaging said screw-threaded portion adapted to overhang and abut directly against the end thereof, the upper part of the nut being adjacent the stem, a crown secured to and surrounding the upper end of the nut, a seat in the upper inner portion of the nut, packing in said seat, and a clamping device for compressing said packing in said seat, substantially as described.

691,413. PACKING COMPOUND FOR HOGS, &c. JOHN M. STOKES, San Antonio, Tex. Filed Nov. 13, 1901. Serial No. 82,098. (No specimens.)

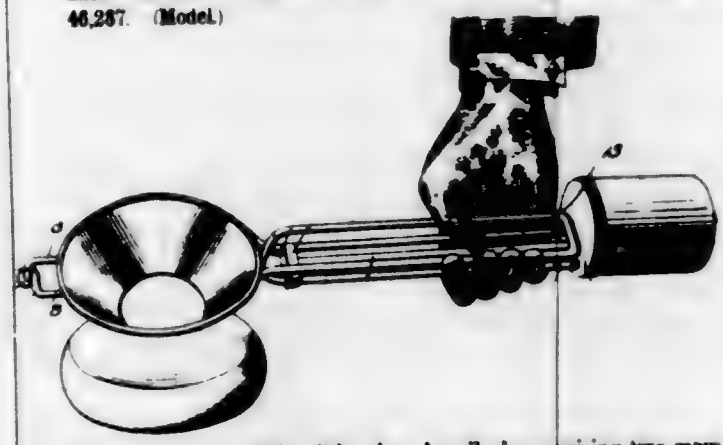
Claim.—A packing compound comprising powdered clay, chalk and lime, in substantially the proportions named.

691,414. CUSPIDOR. OTTO L. SUHR, Sioux Falls, S. D. Filed May 23, 1900. Serial No. 17,674. (No model.)



Claim.—The combination with a receptacle 1, provided with a downwardly-extending perforated shield, and having a threaded boss, of a cap closing said threaded boss, of the projecting hook 8 secured to said receptacle at one end, the spring-catch 5 secured to one end of said receptacle, the panel 3, the bar 7 secured to the lower end of said panel, said bar being adapted to be engaged by said hook 8, and the nosing 4 adapted to be engaged by said spring-catch, all arranged substantially as and for the purpose set forth.

691,415. CUSPIDOR HOLDER AND CLEANER. LOUIS TESSIER and JOSEPH TESSIER, Fitchburg, Mass. Filed Feb. 7, 1901. Serial No. 46,287. (Model.)



Claim.—1. An article of the class described comprising two members having the bowed portions and the straight arms, each member consisting of a single rod or wire and said arms being connected loosely together by interlocking eyes, whereby the members may be adjusted to reverse positions, or in parallel relation, to serve as a means for carrying a cuspidor and as a clamp for a mop, respectively, substantially as described.

2. An article of the class described comprising two members, each having a bowed portion, a straight arm, and a cranked arm, and said cranked arms of the members loosely connected together, and a fastener on one member and in position for engagement by the other member in either of two positions which the members may occupy relatively to the other, as set forth.

3. An article of the class described comprising members loosely connected together, a brush, an adjustable stem having the brush attached thereto and slidably fitted to one member, and means for inclosing said brush, substantially as described.

4. An article of the class described comprising the members attached together, a stem provided with a cross-head, and a brush attached to the stem, said brush and stem adapted to be projected into operative position beyond the members, substantially as described.

5. An article of the class described comprising members, a rod or stem having slidable connection with one member, a brush connected to the stem, and means for retaining said brush in its adjusted position, substantially as described.

691,416. MATERIAL OF CONSTRUCTION. EDWIN THACHER, New York, N. Y. Filed May 9, 1901. Serial No. 59,620. (No model.)

Claim.—1. A metal bar, for use as a core for embedding in concrete, flattened and laterally extended at intervals without material alteration of its cross-sectional area, substantially as described.

2. A metal bar for use as a core for embedding in concrete, flattened and laterally extended at intervals in different longitudinal planes, without material alteration of its cross-sectional area, substantially as described.



3. A metal bar, for use as a core for embedding in concrete, flattened and laterally extended at intervals without material alteration of its cross-sectional area, the longitudinal plane of each flattened portion being at an angle to that of the adjacent flattening in either direction of the bar, substantially as described.

4. A compound bar or unit of construction consisting of a metal bar, flattened and laterally extended at intervals without material alteration of its cross-sectional area, embedded in an envelop of concrete, substantially as described.

5. A compound bar or unit of construction consisting of a metal bar having portions at intervals of its length flattened in different longitudinal planes, without material alteration of its cross-sectional area, embedded in an envelop of concrete, substantially as described.

691,417. PILE FOR WHARVES, &c. EDWIN THACHER, New York, N. Y. Filed June 24, 1901. Serial No. 65,730. (No model.)



Claim.—1. A pile having a body of concrete provided with a plurality of longitudinal metallic bars embedded therein and with a plurality of shorter metallic bars also embedded therein near the head of the pile and a head provided with an encircling metallic band.

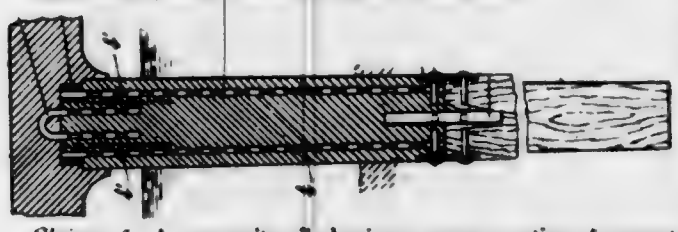
2. A pile having a body of concrete provided with a plurality of longitudinal metallic bars embedded therein and with a plurality of shorter metallic bars also embedded therein near the head of the pile, one of the longer bars being made hollow and affording a conduit through the pile and a head provided with an encircling metallic band.

3. A pile having a body of concrete provided with a plurality of longitudinal metallic bars embedded therein and with a plurality of shorter metallic bars also embedded therein near the head of the pile and provided with a projecting ring-bolt at the head.

4. A pile having a body of concrete provided with a plurality of longitudinal metallic bars embedded therein and with a plurality of shorter metallic bars also embedded therein near the head of the pile in combination with a separable elastic cushion or head adapted to receive the impact of the driving force applied to the pile.

5. A pile having a body of concrete provided with a plurality of longitudinal metallic bars embedded therein and with a plurality of shorter metallic bars also embedded therein near the head of the pile and provided on one of its sides with a longitudinal tongue and on its opposite side with a longitudinal groove greater in area of cross-section than the tongue.

691,418. COMPOSITE PILE. EDWIN THACHER, New York, N. Y. Filed June 24, 1901. Serial No. 65,731. (No model.)



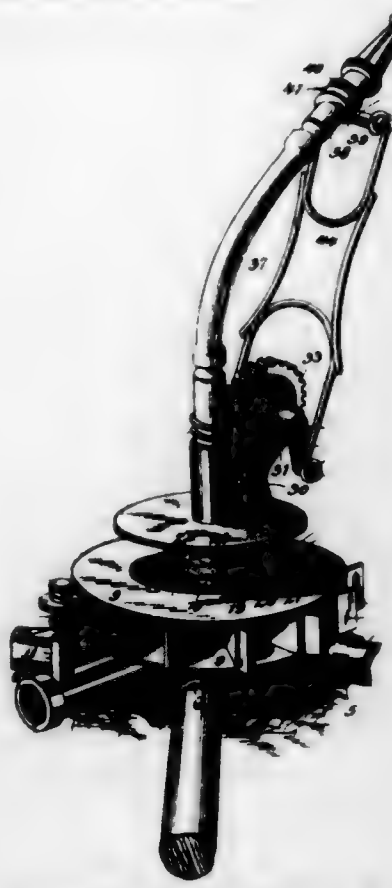
Claim.—1. A composite pile having an upper portion of concrete in which are embedded a plurality of longitudinal metallic bars, a lower portion of wood and means for splicing the two parts together.

2. A composite pile having an upper portion of concrete in which are embedded a plurality of longitudinal bars and a plurality of shorter supplementary bars near the head and having a lower portion of wood and suitable means for splicing the two parts together.

3. A composite pile having an upper portion of concrete in which are embedded a plurality of longitudinal bars and a lower portion of wood, the two bars spliced together by means of a ring encircling both parts and dowels or pins connecting the said ring to both parts.

691,419. LAWN-SPRINKLER. ADDISON VANDERVOORT, Belleville, Canada. Filed Mar. 8, 1901. Serial No. 50,360. (No model.)

Claim.—1. In a lawn-sprinkler, the combination with a supporting-base, of a tubular standard, a rotatable nozzle resiliently connected with the standard, and a water-motor wheel journaled around the standard and operatively connected with the nozzle.



2. In a lawn-sprinkler, the combination with a supporting-base, of a tubular standard, a water-motor wheel journaled around the standard, a nozzle flexibly connected to the standard, and gearing actuated by the motor-wheel for swinging and deflecting the nozzle.

3. In a lawn-sprinkler, the combination with a supporting-base, of a tubular standard rising therefrom and provided at the bottom with a supply-elbow, a discharge-nozzle flexibly connected to the tubular standard, and a water-motor wheel journaled around the standard and geared to the nozzle for automatically deflecting said nozzle.

4. In a lawn-sprinkler, the combination with a supporting-base, of a tubular standard, a water-motor wheel surrounding the standard, a disk journaled on the standard and geared to the motor-wheel, a nozzle flexibly connected to the standard, and gearing connecting said disk with the nozzle for swinging and deflecting the latter.

5. In a lawn-sprinkler, the combination with a supporting-base, of a tubular standard, a water-motor wheel provided with a central sleeve loosely surrounding the standard, a disk journaled on the standard and geared to the motor-wheel sleeve, a nozzle flexibly connected to the standard, and gearing connecting said disk with the nozzle for swinging and deflecting the latter.

6. In a lawn-sprinkler, the combination with a supporting-base, and a tubular standard thereon, of a water-motor wheel surrounding the standard, a superimposed disk driven by the motor-wheel, a nozzle flexibly connected to the standard, and a gear-wheel driven by the standard and having a crank-and-pitman connection with the nozzle.

7. In a lawn-sprinkler, the combination with a supporting-base, and a tubular standard thereon, of a water-motor wheel surrounding the standard, a superimposed disk driven by the motor-wheel, a nozzle flexibly connected to the standard, a worm fast on the standard, and a worm-wheel driven thereby and having a crank-and-pitman connection with the nozzle.

8. In a lawn-sprinkler, the combination with a supporting-base and a tubular standard thereon, of a water-motor wheel surrounding the standard, a superimposed disk driven by the motor-wheel, a tubular standard extension, a nozzle flexibly connected to said extension, a driving-worm on the extension, and a worm-wheel driven thereby and having a crank-and-pitman connection with the nozzle.

9. In a lawn-sprinkler, the combination with a supporting-base, and a tubular standard thereon, of a water-motor wheel surrounding the standard, a standard extension consisting of a hollow plug removably held in the upper end of the standard, a nozzle flexibly connected to said extension, and gearing interposed between the nozzle and motor-wheel for swinging and deflecting the nozzle.

10. In a lawn-sprinkler, the combination with a supporting-base, and a tubular standard thereon, of a water-motor wheel surrounding the standard, a superimposed disk provided with a crown-gear operatively connected with and driven by the motor-wheel, a nozzle flexibly connected to the standard, and a gear-wheel driven by the standard and having a crank-and-pitman connection with the nozzle.

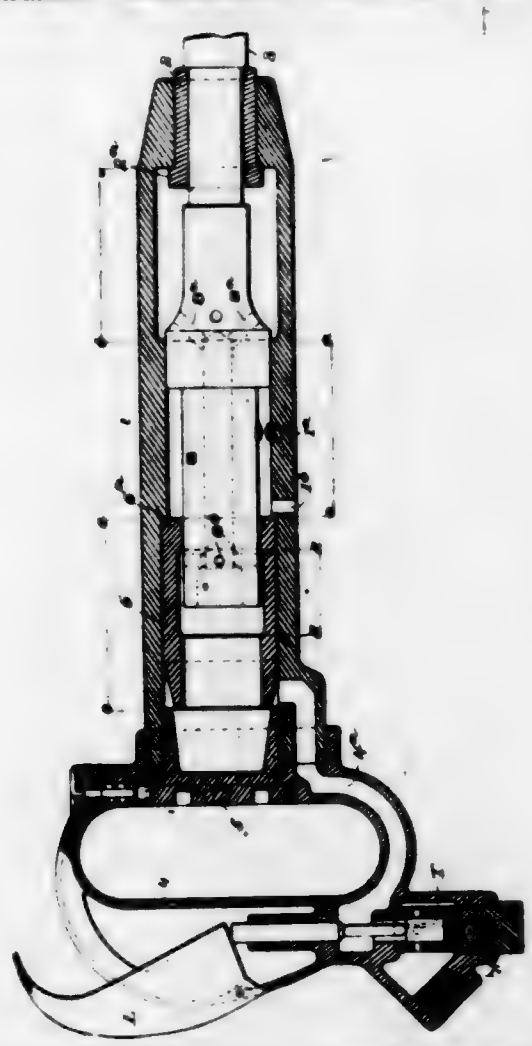
11. In a lawn-sprinkler, the combination with a supporting-base, of a tubular standard, a water-motor wheel journaled around the standard, a nozzle flexibly connected to the standard, a gear-wheel actuated by the motor-wheel, a pitman operatively connected with said wheel, and a swiveled collar on the nozzle provided with a cross-head to which said pitman is connected.

12. In a lawn-sprinkler, the combination with a supporting-base, and a tubular standard mounted thereon and provided with a supply-elbow, of a water-motor wheel journaled around said standard, a nozzle flexibly connected to the standard, gearing between the motor-wheel and nozzle for deflecting and swinging the latter, and means for directing a propelling-stream against the motor-wheel, said means comprising a nipple connected with and receiving its supply from the supply-elbow, a tube adjustably mounted in said nipple and provided with a discharge-opening, a threaded cap for partially closing said opening, and means to facilitate the turning of said tube and cap, for the purpose specified.

13. In a lawn-sprinkler, a supporting-base provided with radially and horizontally disposed sockets, in combination with brace-arms detachably inserted in said sockets.

14. In a lawn-sprinkler, a supporting-base in the form of a flat disk provided with peripheral notches, and overlying and underlying arcuate straps crossing the notches and forming sockets for the reception of brace-arms.

691,420. MOTOR-FLUID-OPERATED TOOL. HENRY H. VAUGHAN, Chicago, Ill., assignor to Ridgely and Johnson Tool Company, a Corporation of Illinois. Filed Mar. 19, 1901. Serial No. 51,823. (No model.)



Claim.—1. In a constant-pressure motive-fluid-operated tool, the combination with a suitable cylinder having an exhaust-port for that end of the cylinder which contains the greater head of the piston, of a differential piston having through-ports which are radially disposed at or adjacent to its lesser head, and means for maintaining constant pressure of the motive fluid on the lesser head of the piston in the direction of the tool, substantially as and for the purposes specified.

2. In a constant-pressure motive-fluid-operated tool, the combination of a cylinder and a differential piston, the cylinder having an exhaust-port for that end which receives the greater head of the piston and a clearance space or recess in its walls at that end of the cylinder which receives the lesser head of the piston, means for maintaining constant pressure upon the lesser head of the piston in the direction of the tool, and a piston provided with a through port or passage radially disposed at the lesser head of said piston or at the receiving end of said passage, substantially as and for the purposes specified.

3. In a constant-pressure motive-fluid-operated tool, the combination with a suitable cylinder having an exhaust-port for that end of the cylinder which contains the greater head of the piston, of a differential piston having through-ports which open on its circumference at or adjacent to the smaller end or lesser head, and means for maintaining constant pressure of the motive fluid on the lesser head of the piston in the direction of the tool, substantially as and for the purposes specified.

4. In a constant-pressure motive-fluid-operated tool, the combination of a cylinder and a differential piston, the cylinder having an exhaust-port for that end which receives the greater head of the piston and a clearance space or recess in its walls at that end of the cylinder which receives the lesser head of the piston, means for maintaining constant pressure on the lesser head of the piston in the direction of the tool, and a piston provided with a through port or passage which opens on its circumference at or adjacent to the lesser head of said piston, substantially as and for the purposes specified.

5. In a constant-pressure motive-fluid-operated tool, the combination with a suitable cylinder, of a differential piston closed at its ends and provided with through-ports which open on its circumference adjacent to its heads, said cylinder having an exhaust-port for the end of the cylinder which contains the greater head of the piston, and means for maintaining constant pressure on the lesser head of the piston in the direction of the tool, substantially as and for the purposes specified.

691,421. PIGMENT. CORNELIUS D. VREELAND, Chicago Heights, Ill. Filed Aug. 14, 1900. Serial No. 26,294. (No specimens.)

Claim.—1. As a new article of manufacture, a paint consisting of the sludge resulting from the production of sulfate of alumina from bauxite, dried and containing sulfate of barium in the intimate state of admixture produced by neutralizing the sulfuric acid of the sludge with oxid of barium, as set forth.

2. As a new article of manufacture a paint composed of sludge resulting from the production of sulfate of alumina from bauxite by the acid process, neutralized by oxid of barium, dried and reduced to a substantially uniform degree of fineness, and ground in oil, as set forth.

3. The process of producing a novel paint material which consists in neutralizing with barium oxid the acid sludge derived from the production of sulfate of alumina from bauxite by the acid process and drying the resultant product, as set forth.

691,422. PIGMENT AND PAINT COMPOSITION. CORNELIUS D. VREELAND, Chicago Heights, Ill. Filed Aug. 14, 1900. Renewed Dec. 12, 1901. Serial No. 85,606. (No specimens.)

Claim.—1. As a new article of manufacture, the herein-described dry, neutral, pulverulent or powdered product obtained from the sludge resulting from the production of sulfate of alumina by the acid process, as set forth.

2. As a new article of manufacture a paint composed of dried neutral sludge derived from the production of sulfate of alumina by the acid process, ground in oil, substantially as herein set forth.

691,423. PIGMENT. CORNELIUS D. VREELAND, Upper Montclair, N. J. Filed Aug. 14, 1900. Serial No. 26,296. (No specimens.)

Claim.—1. As a new article of manufacture a paint composed of dried sludge derived from the production of sulfate of alumina from bauxite by the acid process and which has been neutralized by the addition of lime, combined with oxid of zinc and the two together ground with oil, as set forth.

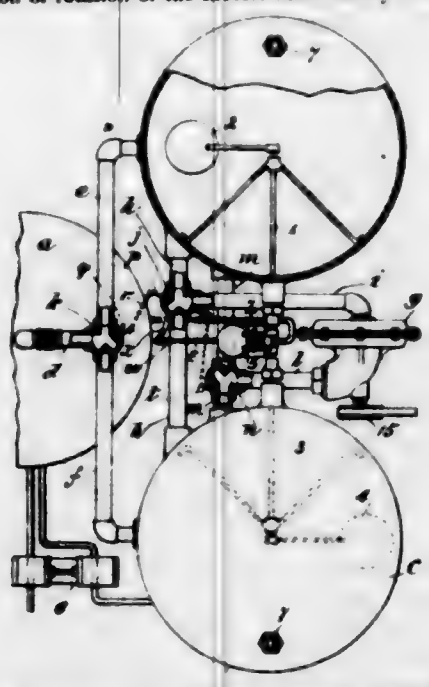
2. The process of making a novel paint which consists in neutralizing with milk of lime the acid sludge which results from the manufacture of sulfate of alumina from bauxite by the acid process, combining oxid of zinc with the thus-neutralized sludge, drying the material, and grinding the same with oil, as set forth.

691,424. MOTOR. FREDERIC E. WELLS, Greenfield, Mass. Filed Jan. 25, 1901. Serial No. 44,671. (No model.)

Claim.—1. The combination with a steam-boiler, of two closed tanks for receiving water, a water-actuated motor between said tanks, a pipe from the boiler to each tank, pipes from the latter to the motor, valves in said steam-pipes, and in the pipes leading from the tanks to the motor, means operated by the movement of the water in the tanks for automatically operating said valves, whereby the steam-pressure is shifted from one tank to the other, and the flow of water from one tank to the other is reversed without reversing the direction of its movement through the motor, substantially as described.

2. The combination with two closed tanks adapted to receive a liquid, of a pressure-generator, a pipe therefrom having branches extending to and connected with said tanks, a motor, pipe connections from each

tank to said motor, valves in said pipe connections, and a valve in the pipe from the generator, located at the junction of the branches thereof; connections between said valves and means actuated by the movement of water in said tanks to operate said valves, whereby pressure from the generator may be shifted from one of said tanks to the other, and the flow of water between said tanks simultaneously reversed, without changing the direction of rotation of the motor, substantially as described.



3. The combination of a pressure-generator, of two closed tanks for receiving a liquid, a motor, pipe connections from one of said tanks to the other, and from each of them to said motor, a pipe from said generator having branches extending to each tank, a valve in the generator-pipe at the junction of its branches thereof, valves in the connections between the tanks, and connections between said valves; a pressure-actuated piston connected with one of said valves, and means connected with the valve of said piston and operated by the movement of water in said tanks to simultaneously effect the operation of the valves in said pipe connection, substantially as described.

691,425. PORTABLE CABLE-ANCHOR FENCE. ALLEN L. WEST, Cuba, Ohio. Filed Sept. 11, 1901. Serial No. 75,051. (No model.)



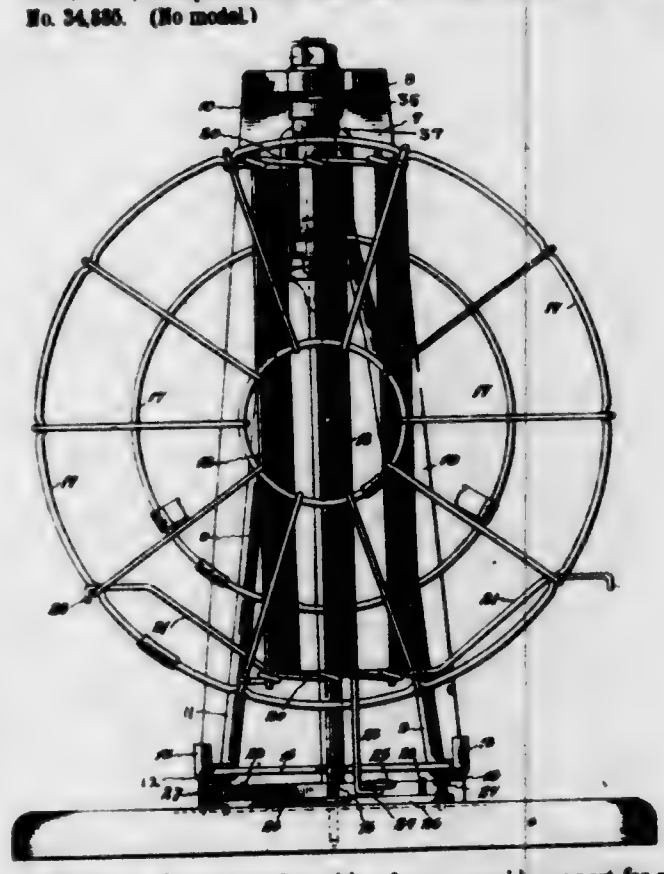
Claim.—1. In a portable fence, the combination of the cable stretched between anchor-posts at remote distances apart, diagonally-disposed braces arranged at intervals along the line of the fence having hook-like upper ends embracing the cable, means for confining the cable in said hooks, means for firmly securing the lower ends of said braces to the ground, and a series of panels of fence arranged along the line of the cable with their upper portions detachably secured thereto and their lower portions resting upon the ground, substantially as described.

2. In a portable fence, the combination with remotely-separated anchor-posts, of a cable connecting the same, diagonally-disposed braces at intervals along one side of the fence having their upper portions detachably secured to said cable and their lower portions firmly but detachably secured to the ground, and a series of fence-panels arranged along the line of the cable with their upper portions detachably secured thereto and their lower portions resting on the ground, whereby said panels are sustained against both lateral and upward strains without throwing their weight on the cable, while the several parts are rendered easily detachable for removal of the fence from place to place.

3. In a portable fence, the combination with the cable, stretched between anchor-posts firmly secured at a suitable distance apart, of a series of panels of fencing material having uprights projecting above and below the horizontal plane of longitudinally-disposed stripe or boards secured to said uprights; the upper projections of said uprights being tied to said cable and the lower projections thereof resting upon the ground, and a series of anchor-braces having their upper ends tied to said cable between adjacent uprights at the ends of adjacent panels and their lower ends firmly secured to the ground.

4. In a portable fence, the anchor-posts and cable stretched between the same and a series of detachable fence-panels arranged along the line of said cable with their upper portions detachably secured thereto and their lower portions resting on the ground, in combination with a series of braces having inclined recesses at their upper ends in which said cable is fitted, means for tying the cable in said recesses, and means for firmly securing the lower ends of said braces to the ground, whereby the fence-panels are firmly but detachably secured in place and sustained against lateral and upward strains without weight on the cable.

691,426. FAN. THOMAS R. WEYANT, Brooklyn, N. Y., assignor, by direct and mesne assignments, to Standard Fan Company, New York, N. Y., a Corporation of New York. Filed Oct. 30, 1900. Serial No. 34,885. (No model.)



Claim.—1. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support in the path of the currents of air from the fan, and means for automatically moving said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

2. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support in front of said fan, and means for automatically moving said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of

air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

3. In combination with a fan, a pivoted support for said fan, a movable blade or vane carried by said support in the path of the currents of air from the fan, and means for automatically moving said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to rotate alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

4. In combination with a fan, a movable support for said fan, a rotatable blade or vane carried by said support in the path of the currents of air from the fan, and means for automatically turning said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

5. In combination with a fan, a pivoted support for said fan, a rotatable blade or vane carried by said support in the path of the currents of air from the fan, and means for automatically turning said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

6. In combination with a fan, a movable support for said fan, a movable series of blades or vanes carried by said support in the path of the currents of air from the fan, and means for automatically moving said blades into different planes at a certain point or points in the course of their movement, whereby opposite sides of said blades will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blades.

7. In combination with a fan, a movable support for said fan, a movable series of parallel blades or vanes carried by said support in the path of the currents of air from the fan, and means for automatically moving said blades into different planes at a certain point or points in the course of their movement, whereby opposite sides of said blades will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blades.

8. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support in the path of the currents of air from the fan, an arm extending from said blade, and an obstruction or obstructions situated in the course of movement of said arm for automatically moving it and said blade into a different plane, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

9. In combination with a fan, a movable support for said fan, a movable series of parallel blades or vanes carried by said support in the path of the currents of air from the fan and connected by a tie having means for limiting its movement and that of the blades in either direction, and means for automatically moving said blades into different planes at a certain point or points in the course of their movement, whereby opposite sides of said blades will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blades.

10. In combination with a fan, a movable support for said fan, a movable series of blades or vanes carried by said support in the path of the current of air from the fan and connected by a tie having means for limiting the rotatable movement of the blades in either direction, and means for automatically turning said blades at a certain point or points in the course of their movement, whereby opposite sides of said blades will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blades.

11. In combination with a fan, a movable support for said fan, a movable series of blades or vanes carried by said support in the path of the currents of air from the fan, and connected by a tie, an arm extending from said blades and an obstruction or obstructions situated in the course of movement of said arm for automatically moving it the tie and blades in different planes when the arm strikes the obstruction or obstructions, whereby opposite sides of said blades will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blades.

12. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support, an adjustable stop for automatically moving said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

13. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support and provided with an extension, an adjustable stop for automatically moving said blade into a different plane when said extension strikes said stop, whereby opposite sides of said blade will be respectively presented to and struck by the current of air from said fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

14. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support in the path of the current of air from the fan, a pivotal arm provided with means for automatically moving said blade into a different plane at a certain point or points in the course of its movement, all as and for the purposes set forth.

15. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support in the path of the current of air from the fan, two pivotal arms provided with means for automatically moving said blade into a different plane at a certain point or points in the course of its movement, all as and for the purposes set forth.

16. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support in the path of the current of air from the fan, two arms having a common pivot, whereby they may be drawn together or separated from each other and provided with upward projections for automatically moving said blade into a different plane at a certain point or points in the course of its movement, all as and for the purposes set forth.

17. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support in the path of the current of air from the fan, two pivotal arms provided with means for automatically moving said blade into a different plane at a certain point or points in the course of its movement and said arms having means for adjusting and locking them anywhere in the course of their movement, all as and for the purposes set forth.

18. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support in the path of the current of air from the fan, and means for automatically moving said blade or vane into a different plane at a certain point or points in the course of its movement, and means for limiting the course of said movement of the blade, all as and for the purposes set forth.

19. In combination with a fan, a movable support for said fan, a series of blades or vanes carried by said support in the path of the current of air from the fan, and connected by a tie having means for limiting its movement and that of the blades in either direction, means for automatically moving said blades into different planes at a certain point or points in the course of their movement, all as and for the purposes set forth.

20. In combination with a fan, a movable support for said fan, a blade or vane fulcrumed to an extension of said fan-support, and in front of said fan, and means for automatically moving said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blades will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blades.

21. In combination with the support for a fan, a frame pivotally suspended so as to permit free horizontal rotation, and said frame sustaining said support, and a pin situated opposite and in the same line as the pivot of said support and loosely entering a hole in the same, all as and for the purposes set forth.

22. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support, the arm 23, 24 extending from said blade, a wheel loosely pivoted to the part 24, and an obstruction or obstructions situated in the course of movement of said wheel, for automatically moving it, the arm and blade into a different plane when said wheel strikes the obstruction or obstructions, whereby opposite sides of said blades will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blades.

23. In combination with a fan, a movable support for said fan, a

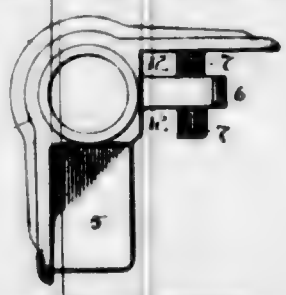
movable blade or vane carried by said support, a pivotal arm having a pin extending from the same, and the support for said arm having a series of holes in which the pin is adapted to engage, whereby the position of said arm may be adjusted, and means on said arm for moving said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blades will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to move alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blades.

24. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support, two pivotal arms each having a pin extending from the same and the support for said arms having a series of holes in which said pins are adapted to engage, whereby the position of said arms may be adjusted, and means on said arms for moving said blade into a different plane at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to rotate alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

25. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support, a pivotal arm having a pin loosely passing through a hole in said arm and extending from the same, and the support for said arm having a series of holes in which the pin is adapted to engage, whereby the position on said arm may be adjusted, and means on said arm for moving said blade into different planes at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to rotate alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

26. In combination with a fan, a movable support for said fan, a movable blade or vane carried by said support, two pivotal arms each having a pin loosely passing through a hole in said arm and extending from the same, and a support for said arms having a series of holes in which said pins are adapted to engage, whereby the position of said arms may be adjusted, and means on said arm for moving said blade into different planes at a certain point or points in the course of its movement, whereby opposite sides of said blade will be respectively presented to and struck by the currents of air from the fan, thereby causing the fan and its support to rotate alternately in opposite directions, and also whereby said currents of air are caused to be deflected from the sides of the blade.

691,427. HOOK AND LOCK FOR IRON BEDSTEADS. GEORGE WILLIAMS, Cleveland, Ohio. Filed Mar. 14, 1901. Serial No. 51,053. (No model.)



Claim.—1. As a new article of manufacture, a lock for bedsteads constructed to be secured upon a bedstead-post and having vertically-disposed wings at right angles to each other and a perpendicular flange with flat sides parallel to one of said wings and at the side thereof and oppositely-arranged pins on the sides of said flange, substantially as described.

2. In bedsteads, a corner-piece having a flange standing out therefrom with parallel vertical sides and oppositely-arranged pins on its sides, in combination with an engaging member having a pair of hooks to fasten on said pins on the sides of said flange, said hooks having abutting portions on their outer edges to bear directly against said corner-piece, substantially as described.

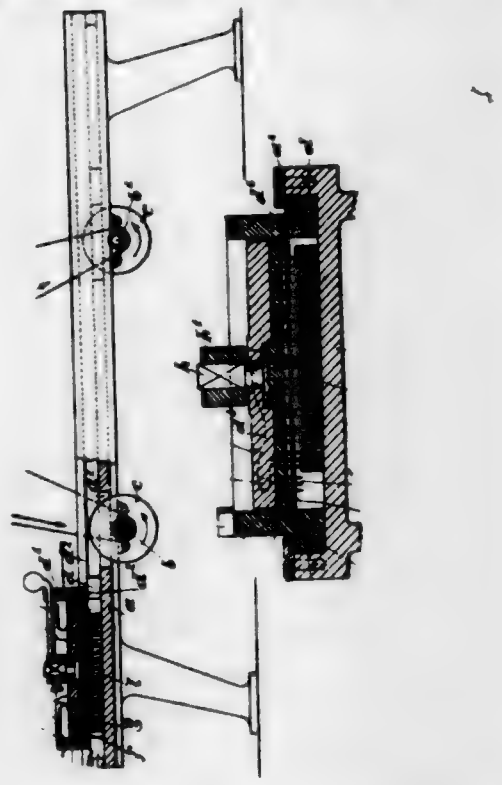
3. The lock having a vertical flange at one side with opposite horizontal pins on the sides of the flange, in combination with a pair of hooks engaged over said pins and bearing against said locks at their outer edges, a brace integral with and beneath said hooks and bearing against said lock beneath the hooks and in the same plane therewith, substantially as described.

4. The lock substantially as described having a body portion to sleeve on a bed-post, wings at right angles to each other vertically, and a vertically-disposed flange with sides parallel to one of said wings and having pins horizontally on its opposite sides, substantially as described.

5. As a new article of manufacture, a reversible hook member for side rails of a bedstead having two pairs of oppositely-arranged hooks, the hooks in each pair being parallel to each other with an even space between them and the said pairs of hooks having their points projecting toward each other and spaced apart, whereby said member is made reversible and is adapted to hook upon the opposite member and brace itself in position, substantially as described.

6. A reversible hook member for side rails of bedsteads having oppositely-arranged hooks in pairs separated at their points and having their front edges on the same plane and constructed on their inner edges to make a wedging engagement, in combination with a post-lock having a flat-sided flange with opposite pins adapted to be gripped by one of said sets of hooks and to have the opposite set bear at their outer edges against said lock below said pins, substantially as described.

691,428. WOOD-CUTTING MACHINE. EMIL WUHRMANN, Zurich, Switzerland. Filed June 3, 1901. Serial No. 62,903. (No model.)



Claim.—1. In a machine for cutting prismatic blocks in combination, a table, circular saws mounted thereon, a slide traversing said table, and means within said slide for rotating the wood block from which the prismatic blocks are cut.

2. In a machine for cutting prismatic blocks in combination, a table, circular saws mounted thereon, a slide traversing said table, and means within said slide for rotating the wood block from which the prismatic blocks are cut consisting of a plate provided with pins on its under face.

3. In a machine for cutting prismatic blocks in combination, a table, circular saws mounted thereon, a slide traversing said table, a cover within said slide capable of downward movement, and a plate mounted within said cover, so as to be capable of independent rotation, said plate being provided with pins on its under face.

4. In a machine for cutting prismatic blocks in combination, a table, circular saws mounted thereon, a slide traversing said table, a cover having pins thereon for entry within curved slots in the boss of the slide, said slots permitting a downward movement, and then a slight upward movement on turning the cover in one direction, a plate mounted within said cover, so as to be capable of independent rotation, said plate being provided with pins on its under face.

5. In a machine for cutting prismatic blocks in combination, a table, circular saws mounted thereon, a slide traversing said table, means within said slide for rotating the wood block from which the prismatic blocks are cut consisting of a plate provided with pins on its under face, and a perforated disk to carry the extremities of said pins, said disk being capable of rotation but vertically fixed.

691,429. GAS-GOVERNOR. JOHN ZANDER, Mortonpark, Ill. Filed Apr. 11, 1901. Serial No. 55,385. (No model.)

Claim.—1. In a gas-governor, the combination of a float-disk located and operating in a chamber, with a space around its peripheral edge varying in width from the rise and fall of the float in the chamber, and a valve controlling a passage leading to the chamber and having a relation to the disk to close the passage with the rise of the float-disk and open the passage with the fall of the float-disk coincidingly with the wid-

ening and lessening of the space around the peripheral edge of the float-disk, substantially as described.



2. In a gas-governor, the combination of a chamber having a downwardly-tapered wall, a float-disk located and operating in the chamber and having a diameter to leave a space between its peripheral edge and the wall of the chamber increased and decreased by the rise and fall of the float-disk in the chamber, and a valve controlling the inlet of gas and carried by the float-disk, substantially as described.

3. In a gas-governor, the combination of a chamber having a downwardly-tapered wall, a float-disk located and operating in the chamber and having a diameter to leave a space between its peripheral edge and the wall of the chamber, increased and decreased by the rise and fall of the float-disk in the chamber, a valve controlling the admission of gas into the chamber carried by the float-disk and a plug having its discharge end entered into the chamber and having a passage closed and opened by the controlling-valve with the rise and fall of the float-disk, substantially as described.

4. In a gas-governor, the combination of a chamber having a downwardly-tapered wall, a float-disk located and operating in the chamber and having a diameter to leave a space between its peripheral edge and the wall of the chamber, increased and decreased by the rise and fall of the float-disk in the chamber, a valve controlling the admission of gas into the chamber having a tapered face and carried by the float-disk, a plug having its discharge end entered into the chamber and having a passage of a diameter corresponding to the largest diameter of the valve and closed and opened by the controlling-valve with the rise and fall of the float-disk, substantially as described.

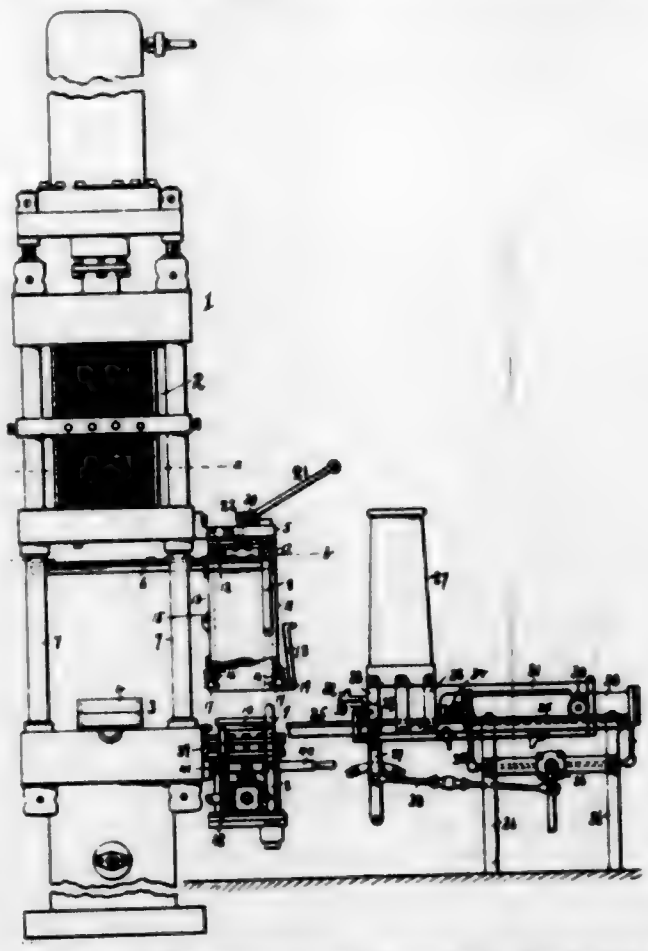
5. In a gas-governor, the combination of a stem, a shell or casing on the stem, a cover for the shell or casing, a chamber in the shell or casing closed by the cover, a float-disk located and operating in the chamber and having a diameter to leave a space between its peripheral edge and the wall of the chamber, increased and decreased by the rise and fall of the float-disk in the chamber, a valve controlling the admission of gas into the chamber having a tapered face and carried by the float-disk, and a plug having its discharge end entered into the chamber and having a passage of a diameter corresponding to the largest diameter of the valve, closed and opened by the controlling-valve with the rise and fall of the float-disk, substantially as described.

6. In a gas-governor, the combination of a stem, a shell or casing on the stem, a cover for the shell or casing, a chamber in the shell or casing closed by the cover, a float-disk located and operating in the chamber and having a diameter to leave a space between its peripheral edge and the wall of the chamber, increased and decreased by the rise and fall of the float-disk in the chamber, a valve controlling the admission of gas into the chamber having a tapered face and carried by the float-disk, a plug having its discharge end entered into the chamber and having a passage of a diameter corresponding to the largest diameter of the valve, closed and opened by the co..rolling-valve with the rise and fall of the float-disk, and a burner tube and tip attached to the cap or cover and communicating with the float-disk chamber, substantially as described.

7. In a gas-governor, the combination of a chamber having a downwardly-tapered wall, a float-disk located and operated in the chamber and having a diameter to leave a space between its peripheral edge and the wall of the chamber increased and decreased by the rise and fall of the float-disk in the chamber, a controlling-valve carried by the float-disk, and an adjustable plug having its discharge end entered into the chamber and having a passage closed and opened by the controlling-valve with the rise and fall of the float-disk, substantially as described.

8. In a gas-governor, the combination of a chamber having a downwardly-tapered wall, a float-disk located and operating in the chamber and having a diameter to leave a space between its peripheral edge and the wall of the chamber, increased and decreased by the rise and fall of the float-disk in the chamber, a controlling-valve having a tapered face and carried by the float-disk, and an adjustable plug entered into the chamber and adapted to be raised and lowered therein and having a passage of a diameter corresponding to the largest diameter of the valve and closed and opened by the controlling-valve with the rise and fall of the float-disk, substantially as described.

691,480. PRESS FOR OLEAGINOUS SUBSTANCES. George W. Zoder and William P. Hayes, Boyce, La. Filed May 31, 1901. Serial No. 61,257. (No model.)



Claim.—1. The combination of a press-box, a charging-box movable to and from the same, so that said charging-box may be disposed in line with an opening in said press-box, a follower adapted to be run through said charging-box toward said press-box, when said charging-box is thus disposed, to force a charge from said charging-box into said press-box, a hopper, and means to convey material therefrom to said charging-box, when the latter is out of line with the opening in said press-box, substantially as described.

2. The combination of a press-box, a charging-box movable to and from the same, so that said charging-box may be disposed in line with an opening in said press-box, a follower adapted to be run through said charging-box toward said press-box, when said charging-box is thus disposed to force a charge from said charging-box into said press-box, a hopper, a measuring-box adapted to be charged from said hopper, means to run said measuring-box from said hopper to a position in line with an opening in said charging-box, and a pressure mechanism having a follower adapted to move the charge from said measuring-box to said charging-box, substantially as described.

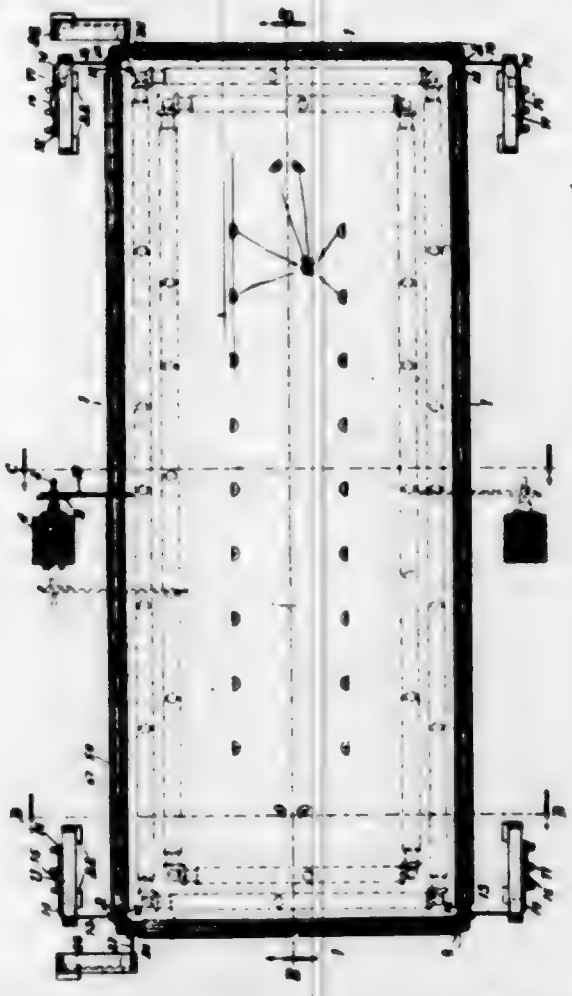
3. The combination of a press-box, a charging-box movable to and from the same, so that said charging-box may be disposed in line with an opening in said press-box, a follower adapted to be run through said charging-box toward said press-box, when said charging-box is thus disposed, to force a charge from said charging-box into said press-box, a hopper, a measuring-box adapted to be charged from said hopper, means to run said measuring-box from said hopper to a position in line with an opening in said charging-box, a pressure mechanism having a follower adapted to move the charge from said measuring-box to said charging-box, and means to connect said measuring-box to said charging-box, to move the latter from said press-box, substantially as described.

4. The combination of a press-box, a charging-box adapted to be run to and from said press-box, and disposed in line with an opening in the latter, and a pressure mechanism having a follower adapted to be run through said charging-box toward said press-box, when said charging-box is thus disposed, and said charging-box having one of its sides adapted to be opened and closed, and being thereby adapted to clear said follower and run outward from said press-box, a hopper, and means to convey material therefrom to said charging-box, substantially as described.

5. The combination of a press-box, a traveling charging-box, for the purpose set forth, a pressure mechanism having a follower adapted to be run through said charging-box, toward said press-box, a hopper, a traveling measuring-box adapted to be alternately disposed in line with said hopper and said charging-box to convey material from said hopper to said charging-box, when the latter is run out from said press-box, and a pressure mechanism having a follower adapted to run through said measur-

ing-box to said charging-box, for the purpose set forth, substantially as described.

691,431. APPARATUS FOR DISPLAYING SAMPLES OF CARPET, &c. FRANKLIN AMES, Chicago, Ill. Filed Feb. 18, 1901. Serial No. 47,748. (No model.)



Claim.—1. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination with the roller, adapted to have a plurality of samples hung therefrom side by side, of means for rotating said roller to simultaneously display or roll up all of said samples, as may be desired, and counterbalance mechanism attached to said roller to balance the weight of said samples in all stages of the winding thereof, substantially as and for the purpose described.

2. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination with the roller having the groove therein, means in said groove for detachably securing a plurality of samples side by side to the roller, of means for rotating said roller to simultaneously display or roll up all of said samples, as may be desired, and a counterbalance mechanism at each end of said roller adapted to be raised as the samples are lowered to balance the weight of said samples in all positions of said samples, and vice versa.

3. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination of a plurality of horizontal rollers journaled in the same plane, each roller being at an angle to the adjacent rollers and adapted to have a plurality of samples hung therefrom side by side, with bevel-gear connections between said adjacent rollers, counterbalance mechanism for said rollers to balance the weight of said samples in all positions thereof, and means for rotating said rollers simultaneously to simultaneously display or roll up all of said samples; substantially as described.

4. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination of a plurality of horizontal rollers journaled in the same horizontal plane, each roller being at an angle to the adjacent rollers and adapted to have a plurality of samples hung therefrom side by side, with bevel-gear connections between said adjacent rollers, means for rotating said rollers simultaneously to simultaneously display or roll up all of said samples, and a counterweight mechanism consisting of the winding-drum secured adjacent to one of said bevel gear-wheels, a rope wound on said winding-drum, and a variable weight attached to the rope, substantially as described.

5. In an apparatus of the class described, the combination with the roller, of a movable support therefor consisting of the horizontal rod 55, the T-shaped socket 53 adjustable thereon, the annulus embracing the roller and having the socket thereon, and the screw-threaded connecting-piece 46 between said sockets.

6. In an apparatus of the class described, the combination with a roller, of a movable and adjustable support therefor consisting of the horizontal rods 55 and 61 having the T-shaped sockets 53 and 60 adjustable thereon, the ring having a rigid socket thereon and the connecting-piece and another socket pivoted thereto, and the connecting-pieces 46 and 59 coöperating with said sockets and having the right and left hand screw-threads on their ends, substantially as and for the purpose described.

7. In an apparatus of the class described, the combination with a plurality of parallel rollers, of a plurality of horizontal rods 55 suspended above said rollers, and the vertically, longitudinally and laterally adjustable supports, the mechanism for adjusting the supports laterally consisting of the yoke 52 engaging the supports, the hook 70 engaging an adjusting-rod 55 and the adjustable connecting-piece 59 between said yoke and hook, substantially as and for the purpose described.

8. In an apparatus for the purpose described, the combination with the roller adapted to have a plurality of samples hung therefrom, of means for rotating said roller to display or roll up said samples as may be desired, and an adjustable stop mechanism for limiting the extent of rotation given to the roller.

9. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination with the roller adapted to have a plurality of samples hung therefrom side by side, of means for rotating said roller to simultaneously display or roll up said samples as may be desired, counterbalance mechanism attached to said roller to balance the weight of said samples in all positions thereof, and stop mechanism connected to said counterbalance mechanism for limiting the unwinding movement of the roller.

10. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination with the roller adapted to have a plurality of samples hung therefrom side by side, of means for rotating said roller to simultaneously display or roll up said samples, as may be desired, counterbalance mechanism attached to said roller to balance the weight of said samples in all positions thereof, and stop mechanism connected to said roller to limit its movement for winding up said samples.

11. In an apparatus for the purpose described, the combination with the roller adapted to have a plurality of samples hung therefrom, of means for rotating said roller to display or roll up said samples, as may be desired, and combined counterbalance and stop mechanism attached to said roller to balance the weight of said samples and limit the movement of said roller in displaying the samples consisting of the winding-drum secured to the roller, the cord adapted to be wound on said drum, and the varying weight attached to the end of the cord, a stop on said cord, and an eye through which said cord passes and with which the stop contacts.

12. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination with the roller adapted to have samples hung therefrom side by side, of means for rotating said roller to simultaneously display or roll up said samples, as may be desired, and counterbalance mechanism attached to said roller to balance the weight of said samples and consisting of a winding-drum, a cord to be wound on said drum, a chain attached to the other end of the cord and the support for said chain from which it is raised when the roller is rotated to lower the samples.

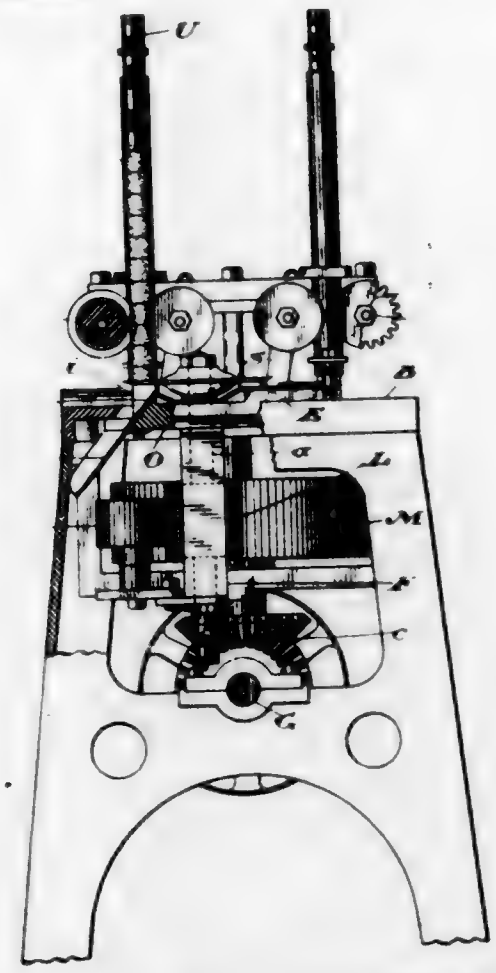
13. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination with the roller adapted to have a plurality of samples hung therefrom side by side, of a plurality of supports therefor, the intermediate ones of which can be moved longitudinally of said roller, and means for rotating said roller to simultaneously display or roll up all of said samples as may be desired.

14. In an apparatus for simultaneously displaying a plurality of samples for comparison, the combination with the roller adapted to have a plurality of samples hung therefrom side by side, of a plurality of supports therefor, one or more of the intermediate supports being movable longitudinally of said supports and consisting of the interior ring snugly fitting on said roller, an exterior ring surrounding the interior ring and antifriction-roller devices interposed between said rings, and means for rotating said rollers to simultaneously display or roll up all of said samples as may be desired.

691,432. MACHINE FOR CUTTING CORK DISKS. ROBERT S. ANDERSON, Toronto, Canada. Filed Aug. 14, 1901. Serial No. 72,034. (No model.)

Claim.—1. In a machine for cutting cork disks a vertical tube adapted to receive corks and partly cut away at each side near its lower end; spindles journaled on the frame of the machine; two grooved rollers rigidly connected to the said spindles, and adapted to engage opposite sides of the corks through the cut-away parts of the tube; two meshing gear-wheels rigidly connected to the said spindles; a ratchet-wheel secured to one of the spindles; a lever suitably pivoted; a pawl pivoted on the said lever and adapted to engage the said ratchet-wheel; a slide movable on the frame of the machine; a horizontal circular knife journaled in the

said slide substantially in line with the lower ends of the said tubes; means for reciprocating the said slide and rotating the knife to slice disks from the cork fed out of the lower end of the said tube; and means for oscillating the said lever in time with the moving of the said slide, substantially as described.



2. In a machine for cutting cork disks two vertical tubes set at opposite sides of the machine, each tube being adapted to receive corks and partly cut away at each side near its lower end; spindles journaled on the frame of the machine; grooved rollers rigidly connected to the said spindles and adapted to engage the opposite sides of corks through the cut-away parts of the tubes; gearing connecting the spindles of the two rollers of each tube; a ratchet-wheel connected to each of the inner spindles; suitably-journaled levers each carrying a pawl engaging one of the said ratchet-wheels; a link connecting the lower ends of the said levers; a movable slide; a horizontal circular knife journaled in the said slide substantially in line with the lower ends of the said tubes; means for rotating the knife and reciprocating the said slide to slice disks alternately from corks fed out of the lower end of each tube; and means for oscillating the aforesaid link in time with the moving of the said slide, substantially as described.

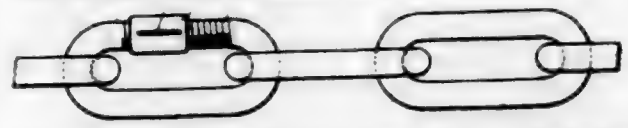
3. In a machine for cutting cork disks a vertical tube and means for feeding corks down the said tube, in combination with a slide movable on the frame of the machine; a horizontal circular knife journaled in the said slide substantially in line with the lower end of the said tube; means for reciprocating the said slide and rotating the knife to slice disks from the cork fed out of the lower end of the said tube; an upward extension of the said slide reaching just below the lower end of the said tube, an opening being formed through the upper extension of the slide below the knife, substantially as described.

4. In a machine for cutting cork disks a vertical tube and means for feeding corks down the said tube, in combination with a slide movable on the frame of the machine; a horizontal circular knife journaled in the said slide substantially in line with the lower end of the said tube; means for reciprocating the said slide and rotating the knife to slice disks from the cork fed out of the lower end of the said tube; an upward extension of the slide reaching just below the lower end of the said tube, an opening being formed through the upward extension of the slide below the knife; and a stripper connected to the slide located so as to engage the inner edges and sides of the disk being cut to steady it and effect its discharge through the said opening, substantially as described.

5. In a machine for cutting cork disks two vertical tubes set at opposite sides of the machine, and means for feeding corks down the said tubes, in combination with a slide movable on the frame of the machine; a horizontal circular knife journaled in the said slide between and substantially in line with the lower ends of the said tubes; means for rotating the knife and reciprocating the said slide to slice disks alternately from corks fed out of the lower end of each tube; an upward extension of the slide reaching just below the lower ends of the said tubes; openings being formed in the upward extension of the slide below the knife at opposite sides, substantially as described.

6. In a machine for cutting cork disks two vertical tubes set at opposite sides of the machine, and means for feeding corks down the said tubes, in combination with a slide movable on the frame of the machine; a horizontal circular knife journaled in the said slide between and substantially in line with the lower ends of the said tubes; means for rotating the knife and reciprocating the said slide to slice disks alternately from corks fed out of the lower end of each tube; an upward extension of the slide reaching just below the lower ends of the said tubes, openings being formed in the upward extension of the slide below the knife at opposite sides; and strippers connected to the slide located so as to engage the inner edges and sides of the disks being cut to steady them and effect their discharge through the said openings, substantially as described.

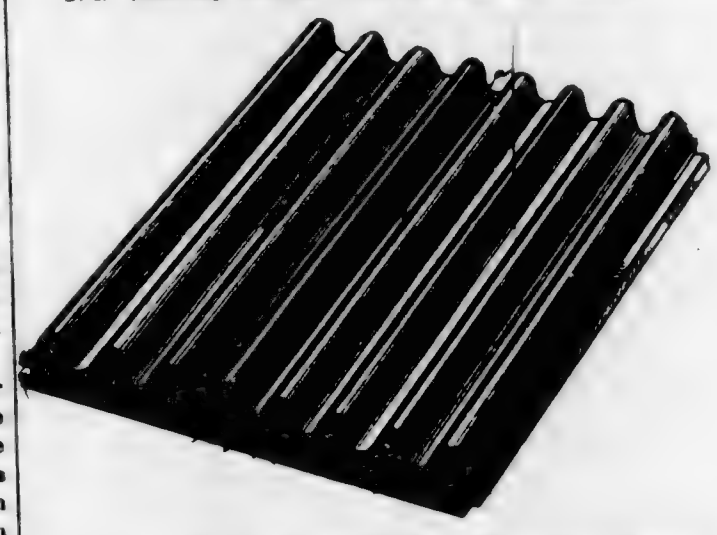
691,438. DETACHABLE LINK. WILLIAM H. BAKER, Detroit, Mich., assignor of one-half to Charles F. Tunstead, Oxford, Mich. Filed Apr. 29, 1901. Serial No. 57,920. (No model.)



Claim.—1. A detachable link, comprising an integral body formed of a loop, whose ends are separated to form a fixed opening for the insertion of a link, or links, therein, said end portions being straight and standing in axillar alinement, threads upon the straight portion of said terminals, a sleeve threaded upon one of said terminals and adapted to screw therefrom onto the other terminal so as to close the opening in the link.

2. A detachable link, comprising an integral body having an opening therethrough and straight rigid end portions opposite said opening one of the end portions being longer than the other and both of said end portions being threaded, a threaded sleeve on the longer of said end portions adapted to screw therefrom onto the opposite threaded end portion to close the opening in the link and tie the end portions of the link together.

691,484. FLOOR-COVERING. MORRIS BARNETT, Washington, D. C. Filed July 11, 1901. Serial No. 67,880. (No model.)



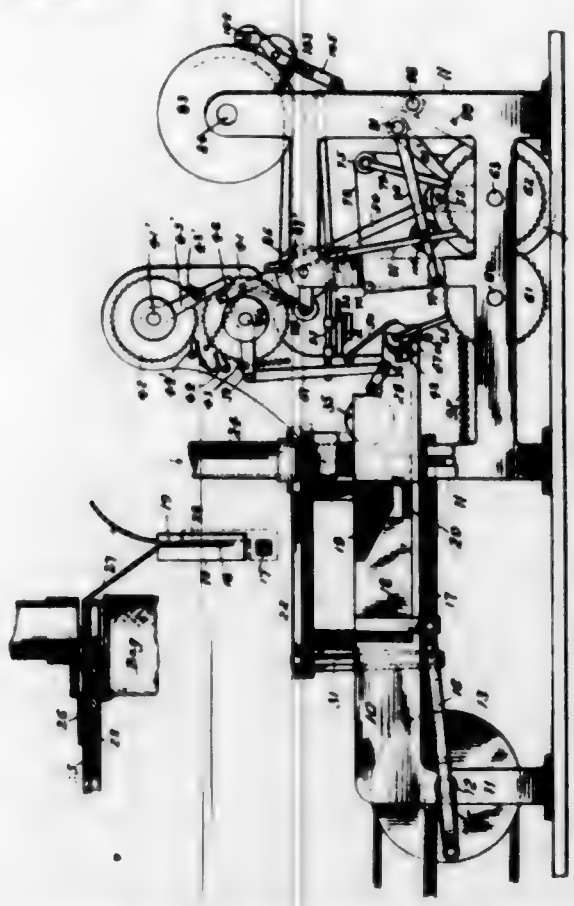
Claim.—A floor made of tongue-and-grooved boards, the upper surface of said boards having alternate ribs and grooves running longitudinally of the same, and such ribs and grooves being convex and concave respectively to present a series of ogee curves in cross-section, thus avoiding any angles or crevices in which matter might lodge and whereby the said floor may be easily kept clean.

691,485. COIN COUNTING, REGISTERING, AND WRAPPING MACHINE. CHARLES S. BATCHELOR, Brooklyn, N. Y. Filed Oct. 7, 1901. Serial No. 77,535. (No model.)

Claim.—1. In a machine of the character described, the combination of means for advancing the coins separately, means for registering each coin advanced, and a wrapping mechanism normally inoperative and set in operation by the registering devices.

2. In a machine of the character described, the combination of a receptacle for the coins, means for advancing the coins separately, means actuated by each advancing coin for registering the number of coins advanced, a normally inoperative wrapping mechanism, and connections between the same and the registering devices.

3. In a machine of the character described, the combination of a receptacle for the coins, a coin guide or channel, means for feeding the coins separately thereto, a push-bar for advancing the coins along the guide or channel, means actuated by each advancing coin for registering the number of coins advanced, means for operating the push-bar, and a wrapping mechanism set in operation by the registering devices during the registering of a final coin.



4. In a machine of the character described, the combination of coin-feeding devices, coin-registering devices, and a normally inoperative coin-wrapper set in operation by the registering devices.

5. In a machine of the character described, the combination of a feeding mechanism; a registering mechanism; bundling devices; and a normally inoperative wrapping mechanism set in operation by the registering mechanism during the register of a final coin of the bundle.

6. In a machine of the character described, the combination of a tube in which the coins are placed, a support for the tube, upon which the coins successively drop, a slide for ejecting single coins, a chute into which said ejected coin passes, a longitudinal guide or channel connecting with the chute, a push-bar for advancing the coin along the guide or channel, means for registering the coin as it passes through the guide or channel, and means for operating the push-bar.

7. In a machine of the character described, the combination of a tube in which the coins are placed, a slide controlling the discharge end of the tube, a spring-pressed link connected with the slide, a shaft, having an arm to bear upon the link, a reciprocating slide mechanism, and a second arm on the shaft in the path of the reciprocating mechanism, for rocking the shaft and actuating the first-named slide.

8. In a machine of the character described, the combination of means for advancing coins separately, means for registering the passage of each coin, means for assembling the coins in a bunch, a wrapping mechanism normally inoperative and set in motion by the registering mechanism, and means for transferring the bunch of coins thereto.

9. In a machine of the character described, the combination of means for supplying coins separately, a guide or channel for the coins, a push-bar to reciprocate in the guide and advance the coins separately, a registering mechanism and a connection therefrom, and a pivoted lever having one end in the path of the coin whereby the lever is actuated and the passage of each coin is registered.

10. In a machine of the character described, the combination of means for supplying coins separately, a guide or channel for the coins, a reciprocating push-bar operating in the guide or channel, for advancing the coins separately, a lever pivotally mounted and having its free end in the path of the advancing coin, independent shafts with registering-wheels, arms projecting from the shafts, a pin or stud on one wheel adapted to engage the arm on the shaft of the other wheel whereby the latter wheel makes a partial revolution at the completion of a revolution of the first-named wheel, and a link connecting the arm of the first-named wheel with said lever.

11. In a machine of the character described, the combination of means for supplying coins separately, a guide or channel for the coins, having such width relative to a true coin that a bent coin will lodge in the entrance to the guide or channel, and means for dislodging such bent coin and delivering it outside of the machine.

12. In a machine of the character described, the combination of means for supplying coins separately, a guide or channel for the coins, having such width relative to a true coin that a bent coin will lodge in the entrance to the guide or channel, and a reciprocating push-bar operating in the guide or channel and having an inclined surface adapted to engage and dislodge a stuck coin.

13. In a machine of the character described, the combination with means for supplying coins, means for advancing the coins separately and means for registering the passage of each coin, of coin-assembling devices including a spring-pressed slide-bar arranged at right angles to the forward movement of the coins, and having an end plate, means for maintaining the coins in line transversely, and a lever pivotally secured between its ends and having one end disposed in the path of the advancing coin whereby said lever is rocked about its pivotal center, and its opposite end pushes the previously-assembled coins transversely to provide space for the reception of the advancing coin.

14. In a machine of the character described, the combination with means for supplying coins, means for advancing the coins separately, means for registering the advance of each coin, and means for assembling a predetermined number of coins, of a wrapping mechanism having a constantly-rotating member, a clutch mechanism between the said member and the registering mechanism whereby the registering of the final coin of the predetermined number actuates the clutch and connects the wrapping mechanism with the constantly-rotating member, and means for transferring the bunch of assembled coins to the wrapping devices.

15. In a machine of the character described, the combination with coin supplying, registering and assembling devices, of a wrapping mechanism including a paper supply and means for severing the paper into lengths, a shaft and means for supplying power thereto, an endless traveling belt having a portion disposed in line with the assembled coins, means for clamping the bunch of coins, means for transferring the bunch of coins to the aforesaid portion of belt, means permitting the belt to slacken and form an inclosing pocket for the bunch of coins, and means for releasing the clamps from the bunch to enable the bunch to be rolled and the paper wrapper applied.

16. In a machine of the character described, the combination with coin supplying, registering and assembling devices, of means for wrapping the bunch of coins including a shaft and a constantly-rotating member loose thereon, and carrying a ratchet-wheel, a disk fast on the shaft and carrying a pawl, a pivotally-mounted lever having a pin to trip said pawl and throw the disk into and out of connection with the power, said lever having a portion to be actuated by the registering devices during the completion of the register of a final coin, an endless belt disposed in the path of the bunch of coins, means for transferring the bunch of coins to said belt, means for feeding a strip of paper in front of the belt, means permitting the belt to slacken to receive the bunch of coins and form a pocket therefor, a paper-cutting mechanism, and means for applying adhesive material to the severed strip of paper.

17. In a machine of the character described, the combination with coin supplying, registering and assembling devices, of an intermittently-operating wrapping mechanism including an endless belt having a portion disposed in the path of assembled coins, means for transferring the bunch of assembled coins to said belt including a rocking frame and pivotally-mounted jaws carried thereby and adapted to frictionally hold the coins together during the transfer of the bunch to the belt, means for spreading the jaws to cause them to release the bunch of coins after the latter has been deposited in the belt and means for returning the coin-carrying devices to normal position.

18. In a machine of the character described, the combination with coin supplying, registering and assembling devices, of a wrapping mechanism including a shaft having a fixed member, a member loose on the shaft and constantly rotated by the power, means for clutching said constantly-rotating member with said fixed member and thereby operating the shaft, a second shaft, intermeshing gears on said shafts, a frame fulcrumed upon one of said shafts and pivotally-carried levers or jaws in opposite ends of said frame, said jaws having adjustable contact-points adapted to engage the opposite ends of the bunch of coins, a rod extending from said fulcrumed frame, a cam on one of said shafts for operating said rod thereby rocking said frame and transferring the bunch of coins, a belt disposed in the path of the bunch of coins, direction-rollers for the belt and arms carrying said rollers one of said arms being loosely mounted on one of said shafts and a cam on said last-named shaft for positively raising another direction-roller whereby the belt is slackened to receive the bunch of coins carried by the fulcrumed frame, paper-feeding mechanism for feeding a strip of paper over the face of the belt, paper-cutting devices, and a cam on one of said shafts for actuating the same.

19. In a machine of the character described, the combination with

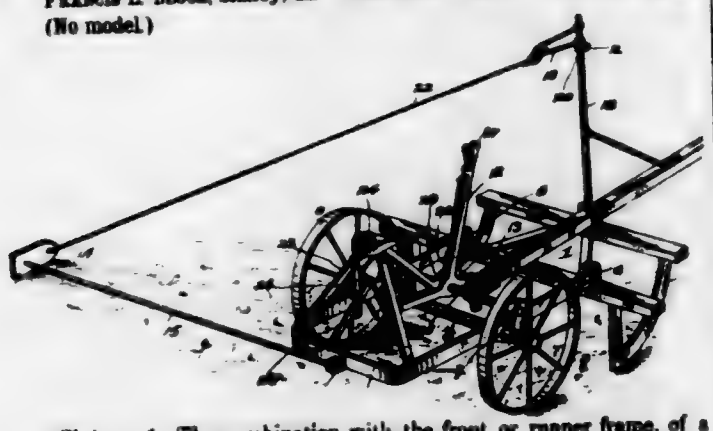
coin supplying, registering, and assembling devices, of a wrapping mechanism including an intermittently-operating paper-supply, a belt and direction-pulleys therefor, arms carrying said pulleys one of said arms loosely mounted, a shaft for the other arm said arm carrying a flanged crossing-roller, a second arm on the shaft of the last-named arm, parallel shafts and intermeshing gears thereon, one of said last-named shafts provided with cams, one of which raises one of the direction-rollers and the other actuates the paper-cutting devices, a swinging frame mounted loosely upon the other of the parallel shafts and provided with means for grasping the opposite ends of the bunch of coins said frame having an extended arm, a cam engaging said last-named arm and swinging said frame to transfer the bunch of coins to the belt, connections between said frame and the paper-feed for actuating the latter, and means for releasing the bunch of coins and allowing the frame to return to a normal position.

20. In a machine of the character described, the combination with coin supplying, registering and assembling devices, of an intermittently-operating wrapping mechanism including a belt and direction-pulleys therefor said belt having a portion disposed in line with the bunch of coins, a paper feeding and cutting mechanism, said paper hanging loosely in front of said belt, means for causing the belt to slacken and form an inclosing pocket for the bunch of coins and the paper strip, means for releasing the bunch of coins to enable the belt to rotate the same and apply the wrapper and means for returning the parts to normal position to discharge the wrapped package.

21. In a machine of the character described, the combination of a coin-supply, a guide or channel for the coin, a reciprocating push-bar for advancing the coins separately along the guide or channel, a lever in the path of the coins and a registering-wheel operated by said lever to register the passage of each coin, a disk on the shaft of said wheel and provided with a lug, a wrapping mechanism having a constantly-rotating member on the main shaft thereof, a ratchet-wheel fast to said member, a disk fixed to said shaft, and carrying a spring-pressed pawl, normally out of engagement with said ratchet-wheel, a fulcrumed lever having one end to be engaged by the lug on the said first-named disk when the last coin of a predetermined number is being registered, a pin carried by the other end of said lever, and adapted to release said pawl to establish connection between the power and the main shaft of the wrapping mechanism.

22. A coin counting and wrapping machine including the following, in combination: a coin-supply; a coin-guide; means for advancing the coins separately along said guide; means for registering the advance of each coin; means for assembling the coins in bunches; an intermittently-operating wrapping mechanism and means for applying a flexible wrapper to the bunch of coins; and a transfer mechanism for automatically transferring the bunch of coins to the wrapping mechanism.

691,436. **ROW-MARKER FOR AGRICULTURAL MACHINES.** FRANCIS L. BLOCK, Sidney, Ill. Filed Nov. 4, 1901. Serial No. 81,085. (No model.)

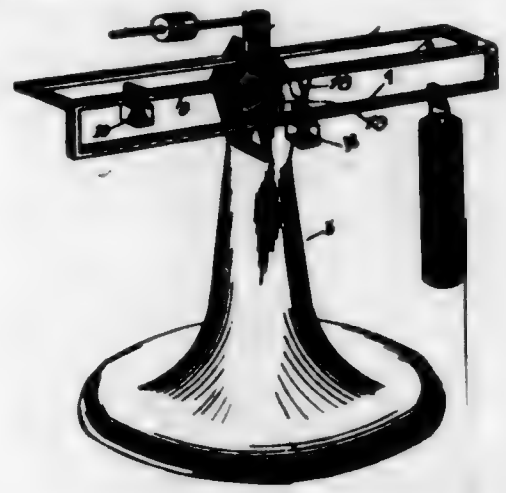


Claim.—1. The combination with the front or runner frame, of a wheel or rear frame hinged thereto, a pivoted lever one end of which is connected to the front or runner frame, a marker swiveled to the wheel-frame, a pivoted link, a lever pivoted to said link and having one end loosely connected with the rear end of the first-named lever and its other end loosely connected with the marker, substantially as set forth.

2. The combination with the front or runner frame, of a rear or wheel frame hinged thereto, a pivoted lever one end of which is connected to the front or runner frame, a marker swiveled to the wheel-frame, a pivoted link, a lever pivoted to said link and having one end loosely connected with the rear end of the first-named lever and its other end loosely connected with the marker, an anchor-post secured to the front or runner frame, a vertically-adjustable swiveled arm carried by said post, and a flexible connection between the swiveled arm and the shoe of the marker, substantially as set forth.

691,487. **SPECIFIC-GRAVITY SCALE.** ROBERT J. BOSUS, Honeygrove, Tex. Filed Feb. 27, 1901. Serial No. 49,103. (No model.)

Claim.—A specific-gravity weighing apparatus comprising a pivoted beam, a receptacle for attachment to the beam and having graduations marked thereon, a scale on the beam corresponding to the graduations of the receptacle, a weight for the scale adapted to balance a body of water in the receptacle when placed on the point of its scale corresponding to the graduation at which the water stands in the receptacle, a counterbalance for the dead-weight of the receptacle, a second scale on the beam extending at both sides of the pivot of the beam, and a weight for the second scale adapted to balance the difference between the weight of a body contained in the receptacle and an equal bulk of water as indicated by the position of the first weight.



691,438. **WEIGHING-MACHINE.** WILLIAM P. BROTHERS, Brooklyn, N. Y., assignor to the W. P. Brothers Company, a Corporation. Filed Apr. 9, 1901. Serial No. 54,968. (No model.)



Claim.—1. A weighing-machine comprising a suspended cable attached at one end to a fixed support and at the other end to an oscillating sheer provided with means for counterbalancing the strain of the cable, and means operated by the oscillating sheer for indicating the weight of the load on the cable.

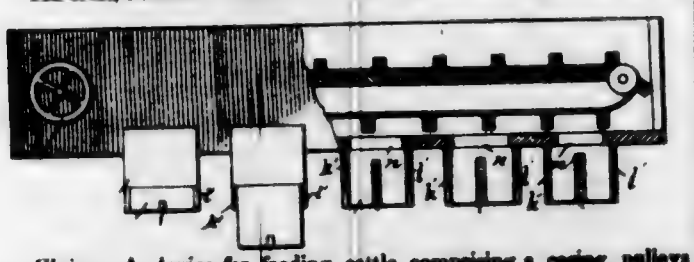
2. A weighing-machine comprising a suspended cable attached at one end to a fixed support and at the other end to an oscillating sheer provided with means for counterbalancing the strain of the cable and means operated by the oscillating sheer for indicating the weight of the load on the cable as the load passes a predetermined point.

3. A weighing-machine comprising a suspended cable attached at one end to a fixed support and at the other end to an oscillating sheer

provided with means for counterbalancing the strain of the cable and means moved by the oscillating sheer for operating a suitable device for indicating the weight of the load on the cable.

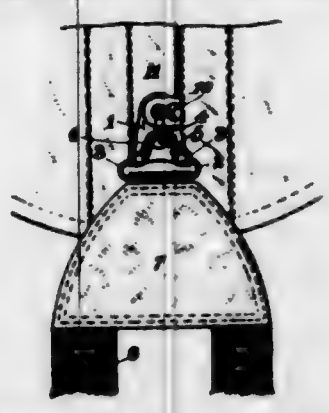
4. A weighing-machine comprising a suspended cable attached at one end to a fixed support and at the other end to an oscillating support provided with means for counterbalancing the strain of the cable, a wheel mounted on the oscillating support a cord passing around said wheel one end being secured to a fixed support and the other sustaining a weight and means operated by the wheel for indicating the weight of the load on the cable.

691,489. FEED-DISTRIBUTER. WILLIAM B. CAMPBELL, Campbell-Croft, Canada. Filed Oct. 12, 1900. Serial No. 32,837. (No model.)



Claim.—A device for feeding cattle comprising a casing, pulleys mounted transversely of the casing, an endless conveyer encircling the pulleys, openings in the base of the casing, hoppers secured to the base of the casing, beneath the openings, means for rotating the conveyer, a number of notches on one side of each hopper, a bottom hinged to each hopper and a catch secured to each bottom to operate in connection with the notches for varying the capacity of the hoppers.

691,440. HOSE-SUPPORTER. JAMES B. CAROLIN, Newark, N. J. Filed Nov. 6, 1901. Serial No. 81,514. (No model.)



Claim.—1. A hose-supporter device capable of being attached to the stud of a corset-clasp, the same comprising an upper portion and a lower portion hinged together, the upper portion having therein a pear-shaped vertically-disposed slot having an enlarged end at the bottom, while the lower portion is provided with an extension which normally projects beyond said enlarged end, substantially as set forth.

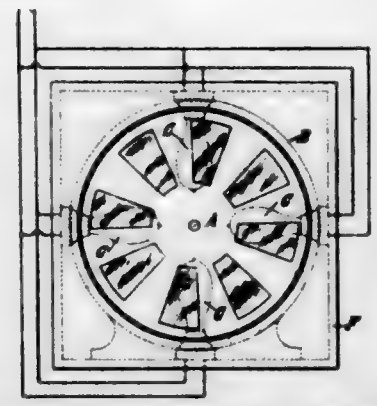
2. In a hose-supporter device capable of attachment to the stud of a corset-clasp, the combination of an upper portion having therein a vertically-disposed pear-shaped slot with the enlarged end at the bottom thereof, a lower portion hinged to the upper portion and having an extension which normally projects upwardly in substantial parallelism with the upper portion and beyond the enlarged end of said slot, and the stocking-engaging members suspended from said lower portion, substantially as set forth.

3. In a hose-supporter device capable of attachment to the stud of a corset-clasp, the combination of the upper portion having therein a vertically-disposed pear-shaped slot with the enlarged end at the bottom thereof, the stock of said portion containing said enlarged end being bulged outwardly, the lower portion hinged to the upper portion and provided with an extension which normally projects upwardly beyond said enlarged end of the slot, and the stocking-engaging members suspended from said lower portion, substantially as set forth.

691,441. APPARATUS FOR DETERMINING THE FREQUENCY OF ALTERNATING CURRENTS. HUGH S. CARR, Lawrence, Kans. Filed July 12, 1901. Serial No. 67,962. (No model.)

Claim.—1. An apparatus for determining at any instant the frequency of an alternating current, comprising in combination, a stroboscopic disk, a motor for rotating the same, and means for regulating the speed of the motor, a speed-indicator therefor and one or more lamps adapted to be connected with the alternating-current circuit and so located with respect to the disk that the fluctuating illumination will produce a stroboscopic effect, as set forth.

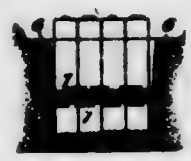
2. An apparatus for determining at any instant the frequency of an alternating current, comprising in combination, an electromagnetic motor, a stroboscopic disk mounted directly on the shaft of said motor, one or more electric lamps adapted to be operated by connection with the alternating circuit, and means for varying and for indicating the speed of the motor, as set forth.



3. An apparatus for determining at any instant the frequency of an alternating current, comprising in combination, a box or case, an electromagnetic motor therein, a disk composed of alternate sectors of transparent and opaque materials and mounted directly upon the motor-shaft, one or more electric lamps adapted to be operated by connection with the alternating-current circuit and placed back of the disk within the case, and means for varying and for indicating the speed of the motor, as set forth.

4. An apparatus for determining at any instant the frequency of an alternating current, comprising in combination an electromagnetic motor adapted to be operated by connection with the alternating-current circuit, a disk composed of alternate sectors of translucent and opaque materials mounted directly on the shaft of said motor, one or more electric lamps adapted to receive current from the alternating-current circuit and placed back of said disk, a speed-indicator connected with the motor-shaft and means for varying the speed of the motor, as set forth.

691,442. APPARATUS FOR MARKING CASTINGS. JOHN J. CARROLL, Cleveland, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed July 3, 1901. Serial No. 67,416. (No model.)



Claim.—1. In combination with a mold, a type box or case set therein, and removable types adapted to be set in the box or case with their ends flush with the mold-cavity, and having designating characters formed on their inner ends; substantially as described.

2. In combination with a mold, a type box or case set therein, with its inner end flush with the mold-cavity, and removable types adapted to be set in the box or case and having designating characters formed on their inner ends; said types being made of core-sand; substantially as described.

691,448. SUCTION-VALVE. OLIVER H. CASTLE, Indianapolis, Ind. Filed Jan. 4, 1901. Serial No. 41,822. (No model.)

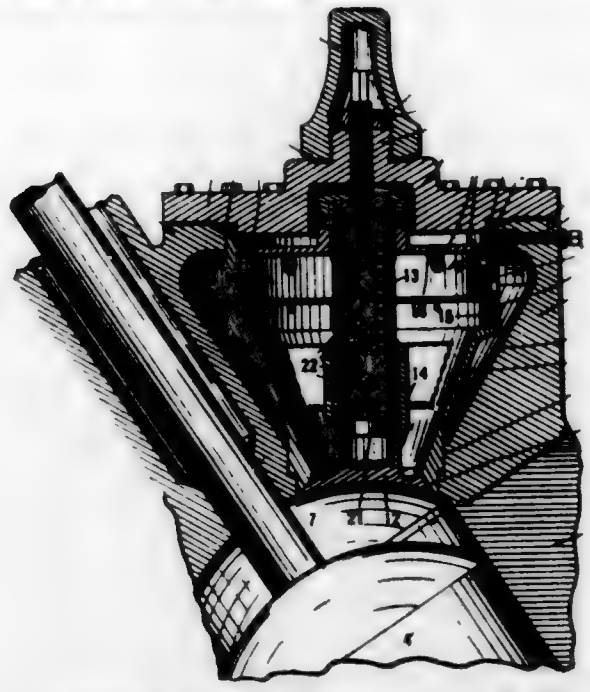
Claim.—1. A suction-valve structure, consisting of a casing, a valve mounted therein, a piston of greater area than the valve carried thereby and fitting in the casing, a supply-inlet leading into the casing between the piston and valve, and a supply-inlet leading into the casing beyond the piston.

2. A suction-valve structure, consisting of a casing, a valve mounted therein, a piston of greater area than the valve carried thereby and fitting into the casing, means for yieldingly holding said valve closed, a supply-inlet leading into the casing between the piston and valve, and a supply-inlet leading into the casing beyond the piston.

3. A suction-valve structure, consisting of a casing, a valve mounted therein, a piston of greater area than the valve, carried thereby and fitting in the casing, a supply-inlet leading into the casing between the piston and valve, means carried by said piston for normally closing said inlet, means for yieldingly holding the valve closed, and a supply-inlet leading into the casing beyond the piston.

4. A suction-valve structure, consisting of a supply-chamber, a shell mounted therein, a valve-seat formed at the inner end of said shell, a cylinder of greater diameter than the valve-seat formed in the outer end of said shell, a valve arranged to coöperate with the seat, a piston mounted

in the cylinder and carried by the valve, a supply-inlet leading from the chamber into the shell between the valve and piston, and a supply-inlet leading into the cylinder beyond the piston.



5. A suction-valve structure, consisting of a supply-chamber, a shell mounted therein, a valve-seat formed at the inner end of said shell, a cylinder of greater diameter than the valve-seat formed in the outer end of the shell, a valve arranged to coöperate with said seat, a piston mounted in the cylinder and carried by said valve, a supply-inlet leading from the chamber into the shell between the valve and piston, means carried by the piston for normally closing the supply-inlet, and a supply-inlet leading into the cylinder from beyond the piston.

6. A suction-valve structure consisting of a chamber, a shell mounted therein, a valve-seat formed at the inner end of said shell, a cylinder of greater diameter than the valve-seat formed in the outer end of said shell, a valve arranged to coöperate with the valve-seat, a piston carried by the valve and fitting in said cylinder, the supply-inlet leading into the cylinder beyond the piston, a head closing the outer end of the shell, a bolt adjustably mounted in said head and extending into said shell, a spring mounted between said bolt and valve so as to normally close the valve, and a cap covering the outer end of said bolt.

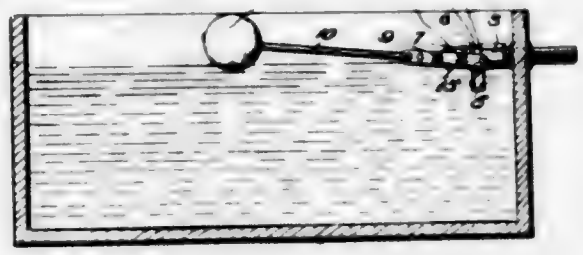
7. A suction-valve structure consisting of a chamber, a shell mounted therein, a valve-seat formed at the inner end of said shell, a cylinder of greater diameter than the valve-seat formed in the outer end of said shell, a valve arranged to coöperate with the valve-seat, a piston mounted in said cylinder and secured to the valve, a supply-inlet leading into said cylinder, means carried by the piston for normally closing said supply-inlet, smaller inlets leading into said shell upon each side of the piston, and means for yieldingly holding the valve to its seat.

8. A suction-valve structure consisting of a chamber, a shell mounted therein, a valve-seat formed at the inner end of said shell, a cylinder of greater diameter than the valve-seat formed in the outer end of said shell, a valve arranged to coöperate with the valve-seat, a hollow stem carried by said valve, a piston mounted in said cylinder and secured to said stem, a supply-inlet leading into the shell between the valve and piston, a passage leading from the chamber into the outer end of the cylinder, means carried by the piston for normally closing said inlet, a head closing the cylinder end of the shell, a bolt adjustably mounted in said head and extending into the hollow valve-stem, and a spring for normally closing the valve mounted between said bolt and valve-stem.

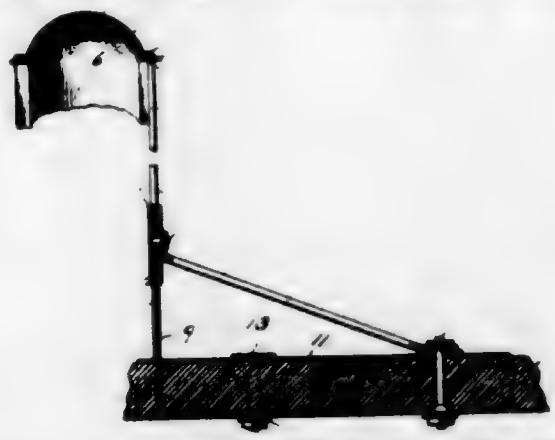
9. A suction-valve structure consisting of a chamber, a shell mounted therein, a valve-seat formed at the inner end of said shell, a cylinder of greater diameter than the valve-seat formed in the outer end of said shell, a valve arranged to coöperate with the valve-seat, a hollow stem carried by said valve, a piston mounted in said cylinder and carried by said stem, a supply-inlet leading into the shell between the valve and piston, a passage leading from the chamber into the outer end of the cylinder, means carried by the piston for normally closing said inlet, a head closing the cylinder end of the shell, a bolt adjustably mounted in said head and extending into the hollow valve-stem, a spring for normally closing the valve mounted between said bolt and valve-stem, and a cap covering the outer end of said bolt.

691,444. FLOAT-VALVE. CHARLES C. CHEEL, Orafino, Nebr. Filed Aug. 29, 1900. Serial No. 28,447. (No model.)

Claim.—In a float-valve, the combination with a valve-body adapted to be secured to a supply-pipe, of a swinging valve, connected to said body and carrying a block with an inclined front face, a forked lever pivoted at the free ends of its branches to opposite sides of said valve-body, a float connected to the stem of said lever, a roller mounted in said branches in position to engage the inclined face of the block, and a chain connecting said lever and block, as and for the purpose described.



691,445. MUD-GUARD FOR VEHICLES. THOMAS COCHRANE, Buffalo, N. Y. Filed Sept. 7, 1901. Serial No. 74,680. (No model.)



Claim.—1. A mud-guard for vehicle-wheels, comprising a fixed member and an adjustable member, radial rods for supporting the fixed member upon the vehicle-axle, and securing means for said rods consisting of clamping-plates formed with seats for the inner ends of the rods.

2. A mud-guard for vehicle-wheels, comprising a fixed member conforming to the circular form of the wheel, and an adjustable member guided on the fixed member, clamping-plates supported upon the vehicle-axle and formed with registering radial grooves, radial rods having their inner ends supported in said grooves, and brackets at the outer ends of said rods upon which the fixed member of the guard is supported.

3. A mud-guard for vehicle-wheels, comprising a fixed member conforming to the circular form of the wheel, and an adjustable member guided on the fixed member, clamping-plates supported upon the vehicle-axle and formed with registering radial grooves, radial rods having their inner ends supported in said grooves and bent to project through openings in one of said plates, and brackets at the outer ends of said rods upon which the fixed member of the guard is supported.

4. A mud-guard for vehicle-wheels, comprising a fixed member and an adjustable member, the edges of the fixed member being bent to form grooves while the edges of the movable member are flanged to fit said grooves, radial rods for supporting the fixed member upon the vehicle-axle, clamping-plates to which the inner ends of said rods are secured and means for securing and bracing said plates to the axle.

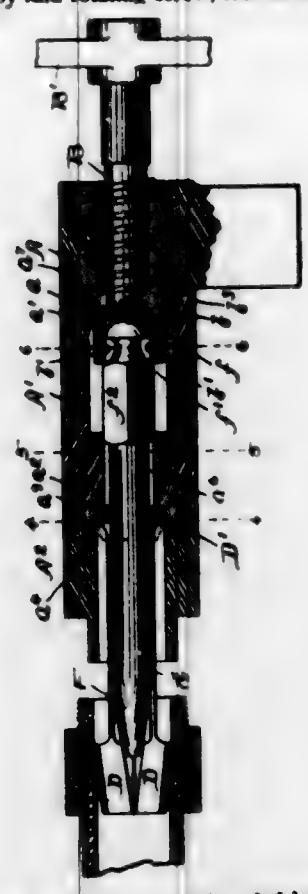
5. The combination with a mud-guard for vehicle-wheels, comprising a fixed member and an adjustable member, of radially-disposed rod-supporting said fixed member, clamping-plates for securing the inner ends of said rods, a boxing projecting from one of said plates, means for securing said boxing to the axle, and means for securing the plates together detachably.

6. The combination with a mud-guard comprising a fixed member and an adjustable member, of radially-disposed rods semicircular brackets attached to the outer ends of said rods, means for securing said brackets to the fixed member of the guard, a securing device for the inner ends of the rods comprising radially-grooved plates, and means for securing said plates together and to the vehicle-axle.

691,446. HOSE-THIMBLE EXPANDER. HARRY W. COLBY, Chicago, Ill., assignor to the Automatic Racking Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 3, 1900. Serial No. 35,348. (No model.)

Claim.—1. The hose-thimble expander comprising in combination a screw-threaded holder, an operating-screw turning therein, expander-jaws having integral spring-shanks and head, a non-rotatable expander or wedge coupled to said operating-screw, and extensions or sleeves on the holder between which the head of said expander-jaws is clamped, substantially as specified.

2. The combination with a screw-threaded holder and rotating screw, of expander-jaws having integral spring-shanks and head, means for holding said jaws against longitudinal movement, and a non-rotatable expander or wedge operated by said rotating screw, substantially as specified.

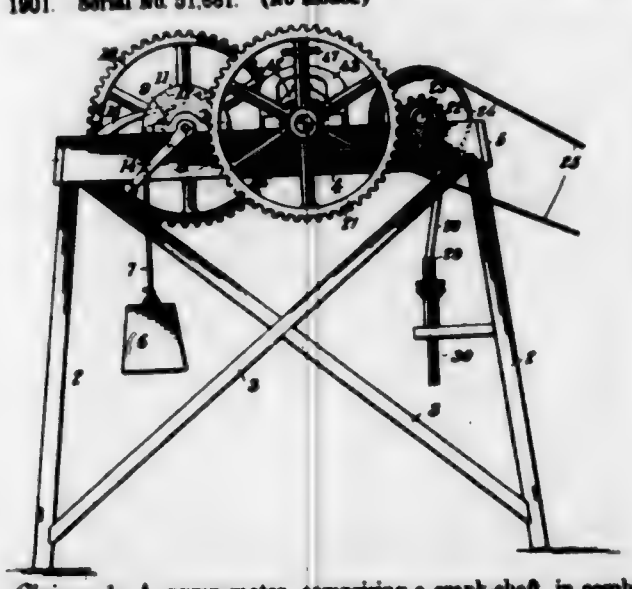


3. The combination with a screw-threaded holder, of an operating-screw, expander-jaws, means for holding the jaws against longitudinal movement, and a non-rotating expander or wedge, substantially as specified.

4. The combination with holder-sleeves A' A^2 screw-threaded together, of expander-jaws having integral spring-shanks d and head D', clamped between said sleeves A' A^2, substantially as specified.

5. The combination with holder-sleeves A' A^2 screw-threaded together, of expander-jaws having integral spring-shanks d and head D', clamped between said sleeves A' A^2, and a non-rotatable wedge or expander F, substantially as specified.

691,447. PUMP-MOTOR. Orones W. Cook, Monroe City, Ind., assignor of one-half to John H. Myer, Vincennes, Ind. Filed Mar. 18, 1901. Serial No. 51,681. (No model.)



Claim.—1. A pump-motor, comprising a crank-shaft, in combination with a pump-plunger, and a longitudinally-extensible pitman connecting the crank-shaft and plunger, said pitman comprising a channeled member provided with a longitudinal slot and oppositely-arranged inturned flanges, and a flanged strap member folded to form an eye and to bring the terminal portions thereof side by side, an intervening web on one of the terminal portions, and a clamping-bolt adjustable in said slot and by which the pitman members are relatively adjusted and clamped together.

2. A pump-motor, comprising a stand, a windlass thereon, a weight suspended by a cable wound upon the windlass, a crank-shaft having a pitman connection with the pump-plunger, a counter-shaft geared to the windlass-shaft and crank-shaft, and a cylinder fast on the counter-shaft, in combination with a guide-frame with parallel side portions embracing the cylinder, a brake-shoe provided with oppositely-located notches to engage the side portions of the guide-frame, a feed-screw for said brake-shoe, and means for throwing the counter-shaft out of gear with the windlass-shaft.

691,448. SHAFT-COUPLING. Julius J. Cowell, Woodsport, N. Y. Filed Apr. 24, 1901. Serial No. 57,232. (No model.)

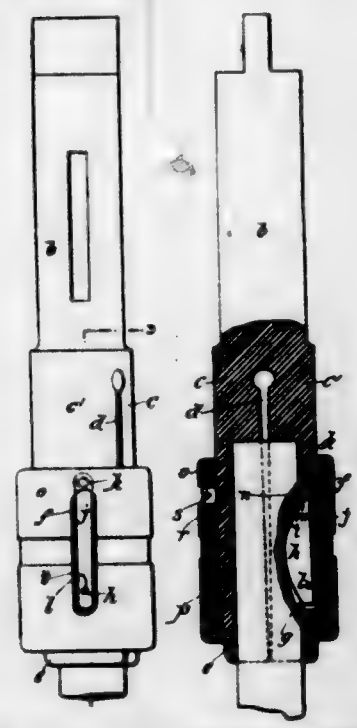


Claim.—1. A shaft-coupling comprising an outer shell and hub, and a pair of spoke-arms uniting the hub to the shell, said hub being provided with lengthwise slots for forming jaws, the shell and hub being provided with separated bearing-faces arranged diametrically opposite to each of the spoke-arms and tapering screws engaged with said bearing-faces for the purpose described.

2. A shaft-coupling comprising a shell having fixed shaft-engaging jaw and independently-movable jaws springing from the shell and separated from each other in a radial line opposite the center of a fixed jaw, said shell and movable jaws being provided with threaded bearing-faces, and tapering screws engaged with said bearing-faces for the purpose described.

3. A shaft-coupling comprising a shell, a fixed jaw having its opposite ends united to the shell and its intermediate portion separated from the shell and adapted to engage the shaft, movable jaws springing from the shell in opposite directions from the junction of the fixed jaw with the shell, said shell and free ends of the movable jaws being formed with threaded bearing-faces, and tapering screws engaged with said threaded bearings.

691,449. DRILL-CHUCK. James A. Craig, Springfield, Ill., assignor to John Lumsden, Montreal, Canada. Filed Aug. 27, 1900. Serial No. 28,255. (No model.)



Claim.—1. In a chuck, a sleeve for receiving the shank of the bit, a resilient key carried by said sleeve longitudinally thereof and engaging said bit to retain same against displacement; a sleeve fitting over and movable longitudinally of said first-mentioned sleeve and having a slot longitudinally thereof to accommodate said resilient key in its movement out of engagement with the bit and also having a transverse diagonal slot cut therethrough, said diagonal slot being of a length greater than the width of said longitudinal slot and less than the diameter of the resilient sleeve, a rigid pin carried by the inner sleeve and projecting into said diagonal slot, substantially as described and for the purpose set forth.

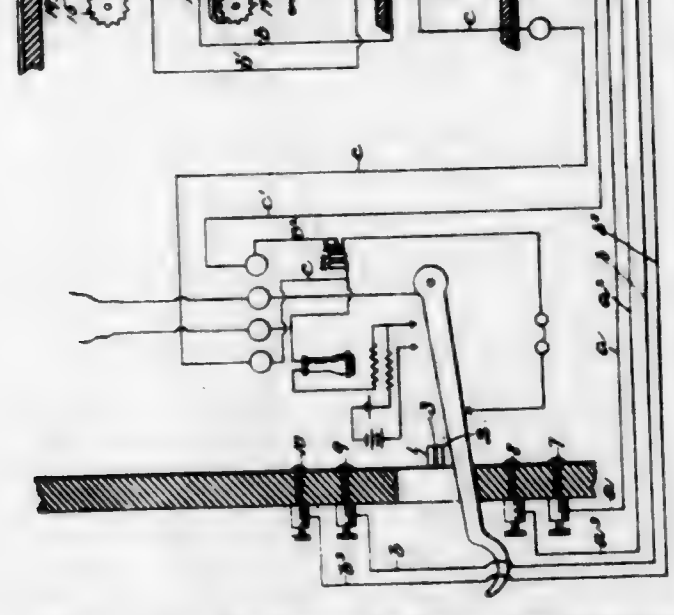
2. The combination with a chuck-sleeve longitudinally slotted, and having a resilient key carried by and projecting into said sleeve said key having a rounded shoulder near the end thereof adjacent to its fulcrum,

of a bit having a slot with a concave inner wall registering with said key, and means for locking said key against movement when the chuck is driven, substantially as described and for the purpose set forth.

3. In combination with a chuck-sleeve longitudinally slotted; a key *h* carried in said slot and having a convex side *i* with a rounded shoulder *m* near the end thereof adjacent to the point at which it is connected to the sleeve, a flat spring *j* secured at one end to the chuck near one end of said key and at its other end to the opposite end of said key; a sleeve rotatably mounted upon said chuck-sleeve and slotted to accommodate said key in its outward movement and a bit having a slot with concave inner wall to register with said key, substantially as described and for the purpose set forth.

4. A chuck comprising a shank portion having formed in one therewith a slotted resilient sleeve with tapered lower end; a sleeve *o* taking over said resilient sleeve and having the lower end of its interior diminished by converging in a plane corresponding to that of the taper of the end of the resilient sleeve, said latter sleeve being diagonally slotted; a rigid pin carried by said resilient sleeve and taking into said diagonal slot, a key *h* carried in said latter slot and having a convex side *i* with bulging shoulder *m*, a flat spring *j'* secured at one end to the resilient sleeve near one end of said key and at its other end to the opposite end of said key; a bow-spring *j'* secured at one end at the point of connection of said flat spring and extending over and bearing upon said flat spring; and a bit having a slot with concave inner wall to register with said key, substantially as described and for the purpose set forth.

691,450. **RECORDING SYSTEM.** ROBERT DAVIS and WILLIAM H. DAVIS, Washington, D. C., and DANIEL C. WOODBURY, Hoboken, N. J. Filed Feb. 16, 1901. Serial No. 47,600. (No model.)



Claim.—1. In a system for recording the operation of apparatus, a recording device which in its normal condition is automatically actuated by each operation of the said apparatus, and means beyond the control of the local operator for placing the recording device in an abnormal condition and thereby preventing its actuation upon an operation of the said apparatus.

2. In a system for recording the operation of apparatus, a recording device normally restrained from operation, means automatically acting, when the apparatus is in its normal condition, to remove the restraint and permit the recording device to perform its function upon each operation of the said apparatus, and means beyond the control of the local operator for placing the removing means in an abnormal condition and thereby preventing its actuation upon an operation of the said apparatus.

3. In a system for recording the operation of apparatus, a recording device brought into operation by electrical energy in a local circuit, and means beyond the control of the local operator for interrupting the local circuit.

4. In a measured-service signaling system, a signaling device, a signal-recording device, an independent source of energy for actuating said recording device, means automatically actuated by the operation of the signaling device to control the energy from the independent source, and means actuated by the energy which transmits a distant signal to prevent the operation of said energy-controlling means.

5. In a measured-service signaling system, a recording device, means actuated entirely by current in an independent local circuit for operating said recording device, a signal-circuit, and means in the signal-circuit for interrupting the local circuit.

6. In a recording system, a recording device and means for effecting the operation thereof, said operating means including means for moving a member of the recording device, means for returning said member to its initial position, and means including an electromagnetically-actuated time lag for actuating said returning means.

7. The combination with a call-recording device for signaling systems, of electromagnetically-actuated means for producing a time lag in the operation of said call-recording device.

8. The combination with a call-recording device for signaling systems, of electromagnetically-actuated means for producing a regulable time lag in the operation of said recording device.

9. In a measured-service telephone system, a recording device controlled by the operation of the subscriber's telephone, and electromagnetically-actuated means for producing a time lag in the operation of said recording device.

10. In a measured-service telephone system, a recording device controlled by the operation of the subscriber's telephone, and adjustable electromagnetically-actuated means for producing a time lag in the operation of said recording device.

11. In a measured-service telephone system, a recording device located at the subscriber's station and automatically actuated by the operation of the subscriber's telephone, and means under the control of the operator at the central station for preventing the operation of the recording device.

12. In a measured-service magneto-call telephone system, a recording device normally actuated by the operation of the subscriber's telephone, means for preventing the operation of the recording device, said means being actuated by current flowing in a shunt around the armature of the subscriber's magneto-machine, and means for automatically breaking the shunt when the handle of the magneto-machine is turned.

13. In a measured-service signaling system, normally inert signaling apparatus including a movable part for placing said apparatus in condition for signaling, a recording device actuated by said movable part, and means controlled by a further movement of said movable part to restore said recording device to its initial position.

14. In a measured-service signaling system, a signaling apparatus including a movable part, contacts in the path of movement of said part, a circuit completed by the closing of said contacts to actuate a recording device, additional contacts also in the path of movement of said movable part, and a circuit completed by the closure of said additional contacts to restore the recording device to its initial position.

15. In a measured-service telephone system, a recording device actuated by the movement of a receiver-arm in one direction, means actuated by the movement of the receiver-arm in the opposite direction to restore the recording device to its initial position, and means beyond the control of the operator to prevent the actuation of the recording device by the movement of the receiver-arm.

16. In a measured-service signaling system, a recording device and means to effect the actuation thereof, said means including an electromagnet capable of being energized by current in a local circuit to further the operation of said recording device, and also capable of being energized by a current from the line to prevent the operation of said recording device.

17. In a measured-service signaling system, a recording device and means to effect the operation thereof, said means including an electromagnet which when energized by current in one circuit acts directly upon the recording device, and when energized by current in a second circuit acts to interrupt the first-named circuit.

18. In a measured-service signaling system, a recording device and means to effect the operation thereof, said means including an electromagnet having two windings, one winding in a local circuit which energizes the magnet to move a part of the recording device, and the other winding included in the line-circuit and energizing the magnet to break a second local circuit containing a magnet which also acts to move a part of the recording device.

19. In a measured-service telephone system, an electrically-actuated call-recording device, contacts closed by the movement of a receiver-arm in one direction, a circuit completed by the closure of said contacts to actuate the recording device, an electromagnet for interrupting said circuit, said electromagnet being connected to line, contacts closed by the movement of the receiver-arm in the other direction, a circuit completed by the closure of said second contacts, said circuit including an electromagnet, a circuit containing contacts closed by said electromagnet, said circuit in-

cluding means for returning the recording device to its initial position, and adjustable means for retarding the circuit-closing movement of the second electromagnet.

20. In a measured-service telephone system, an electrically-actuated call-recording device, contacts closed by the movement of the receiver-arm in one direction, a circuit completed by the closure of said contacts to actuate the recording device, contacts closed by the movement of the receiver-arm in the other direction, a circuit completed by the closure of said second contacts, said circuit including an electromagnet, a circuit containing contacts closed by said electromagnet, said circuit including means for returning the recording device to its initial position, and means for retarding the circuit-closing movement of the electromagnet.

21. In a measured-service telephone system, a recording device operated by a magnet in a local circuit, contacts to complete said local circuit closed by the movement of the receiver-arm which places the telephone in condition for use, an electromagnet in a second local circuit for restoring the recording device to its initial position, contacts to complete said second circuit and closed by the movement of the receiver-arm which puts the telephone out of condition for use, and a relay operated by current from the line to open the first local circuit and prevent the operation of the recording device when a subscriber answers a call.

22. In a measured-service signaling system, a signaling device including a movable part, a recording device, means controlled by the movement of said movable part in one direction to actuate said recording device to perform part of the movements necessary to its complete operation, means actuated by a movement of said movable part in a reverse direction to cause the recording device to complete its operation after a predetermined lapse of time, and means actuated by a movement of said movable part in the initial direction during said lapse of time to prevent the operation of the means which would normally cause said recording device to complete its movement after said lapse of time.

23. In a measured-service signaling system, a signaling device including a movable part, an electrically-controlled recording device, a circuit therefor, and contacts in said circuit so arranged as to be closed by said movable part during its movement from one position to another, and to be opened when the movable part is at rest in either position.

24. In a measured-service telephone system, a telephone, an electrically-controlled recording device and a circuit therefor, and contacts in said controlling-circuit so arranged as to be closed by the movement of the receiver-arm from one position to another and to be open when the receiver-arm is at rest in either position.

25. In a measured-service telephone system, a telephone, an electrically-controlled recording device and circuits therefor, contacts in one of said controlling-circuits so arranged as to be closed by the receiver-arm during its movement which connects the receiver to line, and contacts in another of said controlling-circuits so arranged as to be closed by the receiver-arm during its movement which disconnects the receiver from line, both of said sets of contacts being so arranged as to be open when the receiver-arm is at rest in either position.

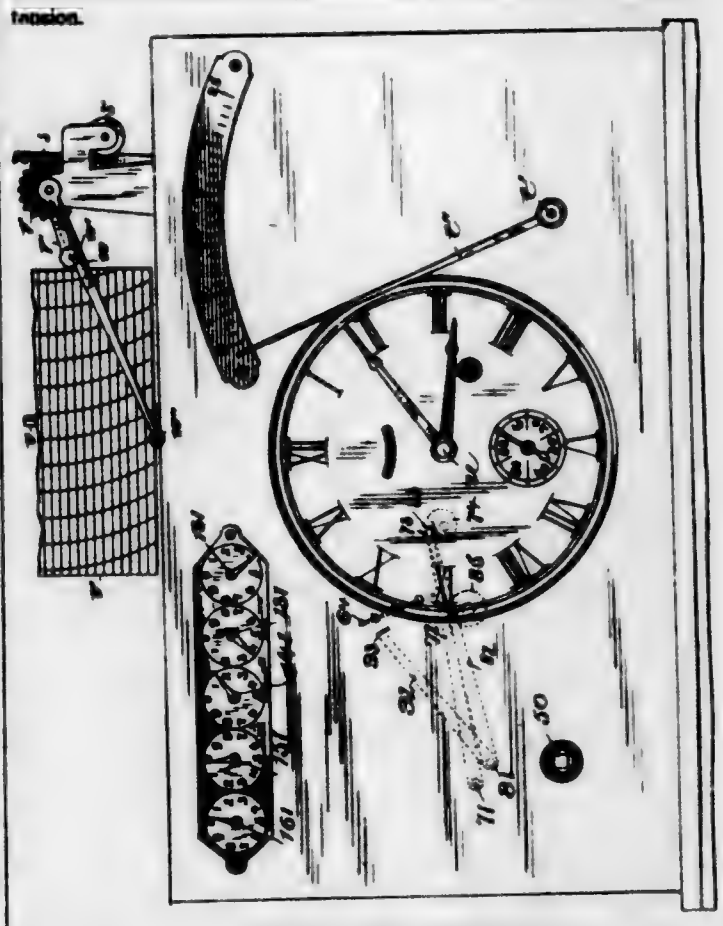
691,451. APPARATUS FOR INDICATING, RECORDING, AND INTEGRATING THE SPEED OF VESSELS. CHARLES H. DELABOY, New York, N. Y., assignor to Delaboy Safety Log Company, a Corporation of New York. Filed June 22, 1901. Serial No. 65,643. (No model.)

Claim.—1. In an apparatus for ascertaining the speed of vessels by the tension produced by a log, the combination of a lever-arm, a spring against which it acts, a line or cable for applying the tension to said lever-arm, indicating mechanism connected to said lever-arm to indicate the rate of speed, and a means for reducing the movement or displacement of the indicating mechanism to correspond substantially to the square root of the applied tension.

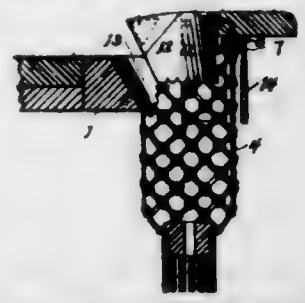
2. In an apparatus for ascertaining the speed of vessels by the tension of a log, the combination of a lever-arm, means consisting of a line or cable connected with said lever-arm for applying tension thereto, a marking instrument connected to be adjusted by the said lever, means actuated by time mechanism for receiving the recording-mark made by the said marking instrument, and means reacting against the tension to regulate the movement of the marking instrument to correspond to approximately the square root of the applied tension.

3. In an apparatus for ascertaining the speed of vessels by the tension of a log, a lever-arm acting against a spring, means for applying tension to the said lever-arm, indicating needles or counters for showing the distance traveled by the vessel and provided with actuating connections that are regularly operated by time-controlled mechanism, the said actuating connections being adjusted and controlled by mechanism connected and actuated by the said lever to actuate the said needles or counters at a rate proportional to the rate of speed whereby said needles or counters integrate the product of the speed multiplied by the time and show the distance traveled, substantially as set forth.

4. As an improvement in tension-actuated apparatus for logging vessels and in combination with tension-actuated logging mechanism having a spring against which the tension acts, a means for regulating the movements of the mechanism to approximately the square root of the applied tension.



691,452. POOL-BILLIARD TABLE. WILLIAM L. DETHLOFF, Milwaukee, Wis. Filed Apr. 20, 1901. Serial No. 56,671. (No model.)



Claim.—1. In combination in a billiard-table, a frame, a bed, a marginal wood rail cut away to form a pocket-opening, a network pocket, a pocket-supporter consisting of a metal bent member below the rail and away from the pocket and guarded by the rail projecting inwardly over it, and means securing the pocket-supporter to the frame.

2. In combination in a billiard-table, a frame, a bed, a marginal wood rail cut away to form a pocket-opening, a network pocket, a pocket-supporter consisting of a metal bent member below the rail and away from the pocket and guarded by the rail projecting inwardly over it, and holding members secured to the frame and holding the pocket-supporting member.

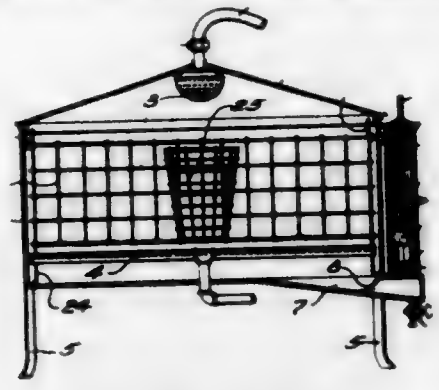
3. In a billiard-table, a wood marginal rail cut away in curved form in its inner edge to form a pocket-aperture, a flat rubber strip secured to said curved edge forming a ball-cushion, and a leather lining inserted and secured in place between said rubber strip and said rail and turned over and covering the front of said rubber strip.

691,458. DISH-WASHER. ALEX DERKUM, Chicago, Ill. Filed June 7, 1901. Serial No. 63,576. (No model.)

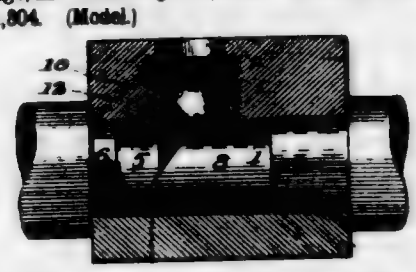
Claim.—1. A dish-washer comprising a tank having a trough-shaped extension 7 projecting from the bottom of the tank beyond one of the side walls with an outlet at its lower outer end and a valve at its upper outer end, a pump secured to the outside of said tank above the projecting part of said extension and adapted to draw water through said valve, a distributing-nozzle in the upper part of said tank and a distributing-nozzle in the lower part of said tank, each communicating with said pump above said valve, a removable cover supporting said upper nozzle, and means in said tank for removably supporting the dishes between said nozzles.

2. A dish-washer comprising a tank having a trough-shaped extension 7 projecting from the bottom of the tank beyond one of the side walls

with an outlet at its lower outer end and a valve at its upper outer end, a pump secured to the outside of said tank above the projecting part of said extension and adapted to draw water through said valve, a distributing-nozzle in the upper part of said tank and a distributing-nozzle in the lower part of said tank, each communicating with said pump above said valve, said pump having at its upper part an overflow-port communicating with said tank, a removable cover supporting said upper nozzle, and means in said tank for removably supporting the dishes between said nozzles



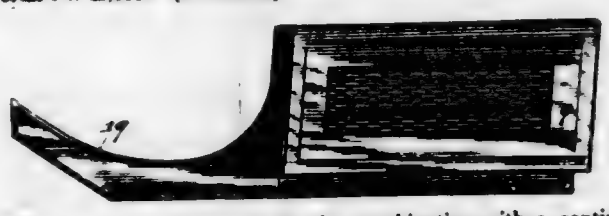
691,454. MANUFACTURE OF PIPE-FITTINGS. CHARLES A. DIRR, Chicago, Ill. Filed Sept. 19, 1900. Renewed May 24, 1901. Serial No. 61,804. (Model.)



Claim.—1. The herein-described method of manufacturing wrought-metal pipe-fittings, which consists in forming in the side of a tubular blank a hollow lateral enlargement, and during such formation of the enlargement upsetting the blank endwise to afford the amount of metal necessary to form such lateral enlargement of the required thickness, substantially as set forth.

2. The herein-described method of manufacturing wrought-metal pipe-fittings, which consists, in forming on the side of a tubular blank a lateral enlargement and simultaneously upsetting the tubular blank endwise to afford the amount of metal necessary to form such lateral enlargement of the required thickness, forming a perforation in the crown of such enlargement, and finally spreading the said enlargement into the form of a lateral neck upon the main body of the fitting, substantially as set forth.

691,455. METALLIC BODY FOR VEHICLES. HENRY F. EASTMAN, Cleveland, Ohio, assignor to the Eastman Metallic Body Company, Cleveland, Ohio, a Corporation of West Virginia. Filed Jan. 11, 1901. Serial No. 42,883. (No model.)



Claim.—1. In a vehicle-body, the combination with a continuous metallic base-frame, of a metallic body portion detachably secured thereto.

2. In a vehicle-body, the combination with a continuous metallic base-frame, forming the lower lateral and rear edges of such body, of a metallic body portion detachably secured thereto.

3. In a vehicle-body, the combination with a continuous integral metallic three-sided base-frame forming the lower lateral and rear edges of said body, of a metallic body portion detachably secured thereto.

4. A separable metallic frame for an automobile-body, comprising in combination, a main lower angle-bar frame, a body-frame of angle-bar material, three-sided, and detachably secured to the lower frame, and forward metal panels detachably secured to said lower frame and body-frame, substantially as described.

5. An automobile-body comprising a lower frame, composed of a single bent angle-bar extending from front to rear, a brace for said frame, a three-sided body-frame composed of integral angle-bar material, and detachably secured to said lower frame, in combination with sheet-metal panels detachably secured in the openings in said body-frame, substantially as described.

6. An automobile-body comprising in combination, a lower integral metal frame extending from front to rear, a detachable three-sided metal frame for the body portion, detachable insulating and incombustible panels in said body-frame, and detachable metal forward side panels, constructed substantially as and in the manner set forth.

7. A lower frame for an automobile-body composed of an integral three-sided metallic angle-bar, in combination with a three-sided body-frame, composed of integral angle-bar material, angle-plates arranged to detachably secure said frames together, studs secured to the body-frame, sheet-metal panels, and insulating and incombustible linings therefor through which said studs pass, and nuts upon said studs, substantially as described.

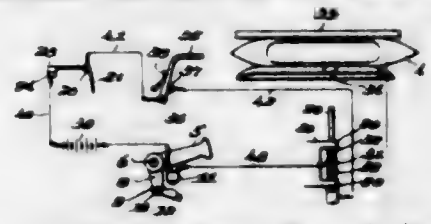
8. In combination, an integral three-sided angle-bar bottom frame, and a body-frame composed of integral angle-bar material, with means for detachably connecting the frames together, substantially as described.

9. A forward side panel for a metallic vehicle-body, consisting of a plate flanged on its inner edges, and provided with bosses on its inner and lower face, substantially as described.

10. An integral metallic base-frame for a vehicle-body, in combination with a metallic integral body-frame, detachably secured thereto.

11. The combination with a metallic body-frame, of a detachable metallic top panel, the said panel being separated into two parts, hinged together, substantially as and for the purpose described.

691,456. FILLING-REPLENISHING LOOM. JOHN C. EDWARDS, Brookline, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed May 22, 1901. Serial No. 61,336. (No model.)



Claim.—1. In a loom, filling-replenishing mechanism, means, including an electromagnet, to determine the time of operation of said mechanism, and means operative upon failure of the filling to change the condition of the electromagnet, and thereby effect, through the first-mentioned means, the actuation of the filling-replenishing mechanism.

2. In a loom, filling-replenishing mechanism, means, including an electric circuit and a controller governed thereby to determine the time of operation of said mechanism, and means operative upon failure of the filling to change the condition of the current in the circuit and render the controller operative to effect, through said first-mentioned means, the actuation of the filling-replenishing mechanism.

3. In a loom, filling-replenishing mechanism, means, including an electric circuit, to determine the time of operation of said mechanism, and a circuit-changer to govern the condition of the circuit, operative by or through failure of the filling laid in the shed to change the condition of the circuit, and through the first-mentioned means to effect the actuation of the filling-replenishing mechanism.

4. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including an electric circuit, and a filling-detector circuit changer in electrical connection with said circuit and adapted to periodically detect the presence or failure of the filling in the shed, the said circuit-changer effecting a change in the circuit upon detection of filling failure and thereby effecting the actuation of the filling-replenishing mechanism, when the shuttle is properly positioned.

5. In a loom provided with filling-replenishing mechanism, means to determine the time of operation thereof, said means comprehending an electric circuit and an electromagnet included therein, and a circuit-changing filling-detector to govern the condition of the circuit, detection of failure of filling in the shed effecting, through the circuit, a change in the condition of the electromagnet and thereby causing the actuation of the filling-replenishing mechanism, when the shuttle is properly boxed.

6. In a loom, filling-replenishing mechanism, means to determine the time of operation thereof, including an electric circuit, a circuit-changer operative upon failure of the filling in the shed to change the condition of the circuit, and means controlled by the shuttle to render such change in the circuit effective to cause the operation of the filling-replenishing mechanism when the shuttle is in proper position for filling-replenishing.

7. In a loom, filling-replenishing mechanism, means to determine the time of operation thereof, including an electric circuit, a plurality of circuit-changers one of which is operated by or through failure of the filling in the shed and the other by the shuttle when in position for replenishing of filling, and a shuttle adapted to contain a supply of filling, a change in the condition of the circuit by the operation of both of said circuit-changers effecting, through such change, the actuation of the filling-replenishing mechanism.

8. In a loom, filling-replenishing mechanism located at one side there-

of, means to determine the time of its operation, including an electric circuit and a controller governed thereby, the lay, a shuttle adapted to contain a supply of filling, means operative upon failure of the filling in the shed to change the condition of the circuit and render the controller operative, and a detector to intermittingly coöperate with the shuttle when at the end of the lay adjacent the filling-replenishing mechanism, and permit the operation of said mechanism at such time only.

9. In a loom provided with mechanism to effect a change of filling, means to determine the time of operation thereof, including an electrically-governed controller, a shuttle adapted to contain a supply of filling, and means operative upon failure of the filling in the shed, to short-circuit said controller and effect the actuation of the filling-changing mechanism when the shuttle is in proper position for a change to be made.

10. In a loom provided with filling-replenishing mechanism, means to determine the time of its operation, including an electric circuit containing an electromagnet, a shuttle-detector to detect the proper position of the shuttle for filling-replenishing, a shuttle adapted to contain a supply of filling, and a circuit-changer, operative upon failure of the filling in the shed, to vary the current in the circuit and change the condition of the electromagnet when the shuttle is in proper position, to effect the actuation of the filling-replenishing mechanism.

11. In a loom provided with filling-replenishing mechanism, means to determine the time of its operation, including an electric circuit containing an electromagnet, the lay, a shuttle adapted to contain a supply of filling, a feeler to detect improper boxing of the shuttle, a detector to coöperate with the latter when in position for filling-replenishing, and means to change the condition of the circuit upon failure of filling in the shed, to thereby render the electromagnet effective, when the shuttle is properly boxed and coöperating with the detector, to cause the actuation of the filling-replenishing mechanism.

12. In a loom provided with filling-replenishing mechanism, electromechanical means operative by or through detection of failure of the filling laid in the shed to effect the actuation of the filling-replenishing mechanism.

13. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a closed electric circuit, a filling-detector to detect the presence or failure of the filling in the shed, and means operative upon detection of such failure of filling to vary the current in the closed circuit and thereby effect the actuation of the filling-replenishing mechanism, when the shuttle is properly boxed.

14. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a closed electric circuit, a filling-detector to detect the presence or failure of the filling in the shed, and means operative upon detection of such failure of filling to decrease the current in said circuit and thereby effect the actuation of the filling-replenishing mechanism, when the shuttle is in proper position therefor.

15. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a closed electric circuit, and a normally open shunt of less resistance in electrical connection therewith, and means operative upon failure of the filling in the shed to close the shunt and deflect current from the closed circuit, to render the latter operative to effect the actuation of the filling-replenishing mechanism.

16. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including a closed electric circuit, and a normally open shunt of less resistance in electrical connection therewith, means operative upon failure of the filling in the shed to close the shunt and deflect current from the closed circuit, to render the latter operative to effect the actuation of the filling-replenishing mechanism, and a device controlled by the shuttle to prevent such actuation unless the shuttle is in a predetermined position.

17. In a loom, a closed electric circuit containing an electromagnet, a shuttle adapted to contain a supply of filling, and means to short-circuit the said electromagnet upon failure of the filling in the shed, when the shuttle is properly positioned.

18. In a loom provided with filling-replenishing mechanism, electromechanical means to determine the time of its operation, including a closed electric circuit containing a normally active electromagnetic controller, and a filling-detector operative upon detection of failure of filling in the shed to short-circuit said controller and render the same inactive.

19. In a loom provided with filling-replenishing mechanism, electromechanical means to determine the time of its operation, including a dog, an electromagnetic controller to govern the position thereof, an electric circuit including said controller, the lay provided with a hunter, and means operative by or through failure of the filling in the shed to render said controller operative to effect the positioning of the dog in the path of the hunter.

20. In a loom provided with filling-replenishing mechanism, means to determine the time of operation thereof, including an electric circuit containing an electromagnet, the lay, a shuttle adapted to contain a supply of filling, a filling-detector to determine presence or absence of filling in the shed, a shuttle-detector to coöperate with the shuttle on alternate picks, and means controlled by said detectors to effect the actuation of the filling-replenishing mechanism by or through said electromagnet when presence of the shuttle is detected by one, and failure of filling in the shed is detected by the other, of said detectors on the same pick.

21. In a loom, a shuttle adapted to contain a supply of filling, a closed electric circuit containing a normally energized electromagnet, means operative upon failure of filling in the shed to divert current and thereby deënergize the electromagnet, and mechanism operated by or through such deënergization to effect a change of filling, when the shuttle is properly boxed.

22. In a loom, the lay, a shuttle adapted to contain a supply of filling, an electric circuit containing an electromagnet, a filling-detector to feel the filling in the shed, a shuttle-detector to coöperate with the shuttle on alternate picks, a circuit-changer controlled by each detector, coöperation of the shuttle with one, and detection by the other detector of failure of the filling in the shed, on the same pick, operating through the circuit-changers to change through the circuit, the condition of the electromagnet, and mechanism operated by or through such a change in the condition of the electromagnet to effect a change of filling.

23. In a loom, filling-replenishing mechanism, means to determine the time of its operation, including an electric circuit and a controller governed thereby, a shuttle adapted to contain a supply of filling, and a plurality of circuit-changers controlled respectively by the filling and the position of the shuttle, said circuit-changers acting to change the condition of the circuit and render the controller operative to effect the actuation of the replenishing mechanism upon failure of the filling when the shuttle is positioned for filling-replenishing.

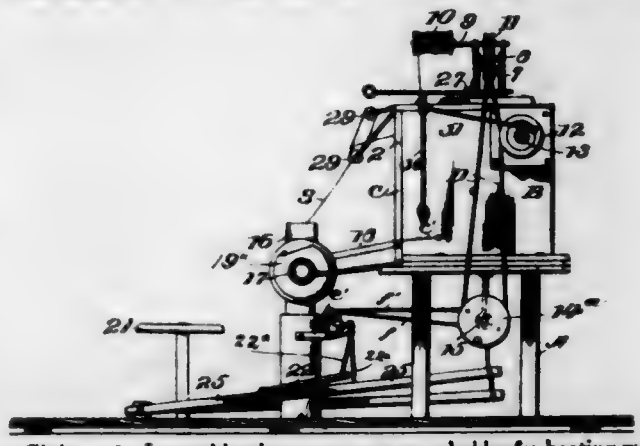
24. In a loom, a shuttle adapted to contain a supply of filling, filling-replenishing mechanism, means, including an electric circuit and a controller governed thereby, to effect the operation of said mechanism, and means operative upon detection of filling failure to change the condition of the current in the circuit and render the controller operative, through said first-mentioned means, to effect actuation of the filling-replenishing mechanism on the pick in which filling failure is detected.

25. In a loom, a shuttle adapted to contain a supply of filling, filling-replenishing mechanism, means, including an electric circuit, to effect the operation of said mechanism, a plurality of controlling circuit-changers, operated contemporaneously on alternate picks, upon detection of filling failure and by the shuttle when in position for filling-replenishing, respectively, to change the condition of the circuit, and effect replenishing on the pick in which filling failure is detected.

26. In a loom, a shuttle adapted to contain a supply of filling, filling-replenishing mechanism, means, including an electric circuit, to effect the operation of said mechanism, a circuit-changer operative upon failure of the filling when laid in one direction, a second circuit-changer operated upon the same pick by or through the shuttle when in position for filling-replenishment, and electric connections between the said circuit and the circuit-changers, whereby the condition of the circuit is changed and filling-replenishing effected on the pick in which filling failure is detected.

27. In a loom, a shuttle adapted to contain a supply of filling, a detector to detect presence or absence of filling laid by the shuttle, mechanism, including an electric circuit and a controller governed thereby, to provide the shuttle with a fresh supply of filling, and means operative upon detecting action of the detector to change the condition of the circuit and through the controller effect the actuation of said mechanism on the pick in which failure of filling is detected.

691,457. HOT-AIR SILK-REELING MACHINE. JOHN P. EVERTS, San Diego, Cal. Filed Apr. 26, 1901. Serial No. 57,577. (No model.)



Claim.—1. In combination, a cocoon pan or holder for heating water in the same, a pair of rollers serving to guide the strands from the cocoons, a heated closed drying-chamber provided with apertures or holes through which the said strands are led, a reel within said chamber and around and from which the strands pass to said apertures or holes to the outer air, and a spool-winding device, all substantially as set forth.

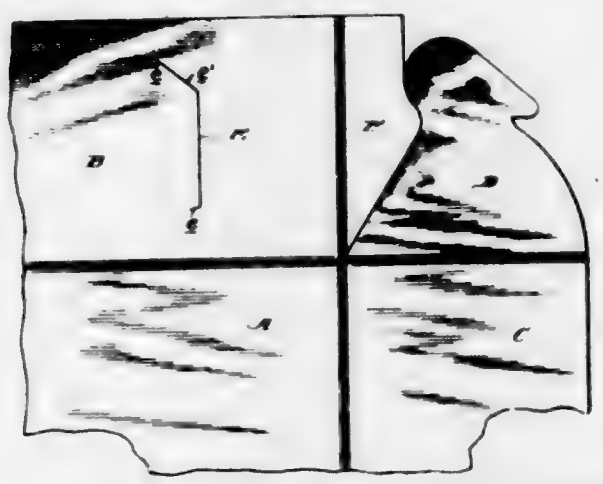
2. The heating apparatus having in combination, the basin for the cocoons, a hot-air chamber 17, a box provided with a drying-chamber, hot-air-delivering pipes 18 from said hot-air chamber to the drying-chambers of the box, and means provided as set forth for heating said delivering-pipes.

3. A hot-air silk-machine, comprising in combination a heater for heating the wet cocoons, a series of heated drying-chambers each connected by a tube from the heater, means for guiding the strands from the cocoons into said chambers, a spool-winding apparatus, a set of foot-treadles for operating the winding apparatus, and an endless cord D, and system of pulleys connecting the treadles with the winding apparatus, all substantially as set forth.

4. In combination with the heater, the series of heated drying-chambers, the tubes from the heater to said chambers, means for guiding the strands from the cocoons into said chambers, a set of foot-treadles, the set of auxiliary treadles, and the winding apparatus.

5. A hot-air silk-machine, comprising a cocoon-heating pan, guide-pulleys for the strands from the pan, a drying-chamber, a reel in said chamber to dry the strands, a spool, the spool-spindle 9, and the means described for raising out of action or for lowering into action said spindle.

691,458. **FOLDING BOX.** JEFFREY T. FERRIS, Anderson, Ind., assignor to the J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill., a Corporation of Indiana. Filed Sept. 26, 1899. Serial No. 731,714. (No model.)



Claim.—1. A box comprising a bottom portion, sides B and C bent upwardly therefrom, one of said sides having a slit E located at a distance from the corner of the box and the other of which sides has a tongue D engaging the slit E, said tongue being bent at right angles to its side, and a flap F on the side provided with the slit, said flap being bent at right angles to its side and overlying the inner surface of the other side, the junction-line between said flap F and its side being continuous from end to end; substantially as described.

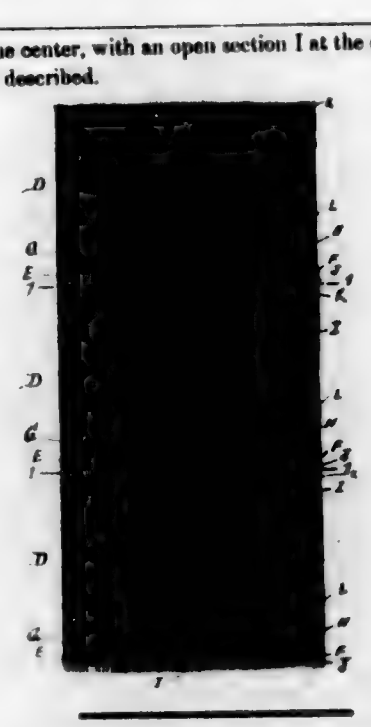
2. A box comprising a bottom portion A, sides B and C bent upwardly therefrom, the side B having a slit E located at a distance from the corner of the box, and the side C having a projecting tongue D bent at right angles thereto, the ends of said tongue engaging said slit E, and a flap F on the end of the side B extending the whole length of said side and bent at right angles thereto, said flap overlapping the side C, the junction-line between the flap and side B being continuous from end to end; substantially as described.

3. A box-blank having the bottom A, sides B and C, the side B having a slit E located at a distance from the corner of the box when folded and provided at its ends with the incisions *e*, a tongue D on side C to engage said slit when the blank is folded, and a flap F on the side B; substantially as described.

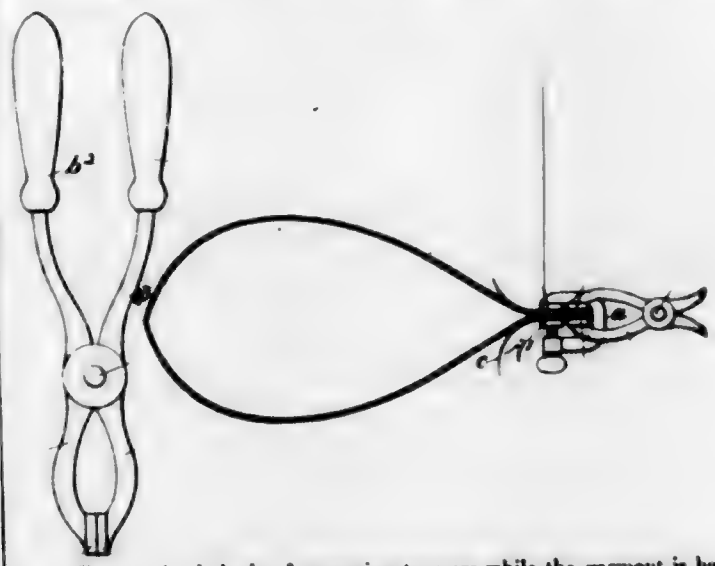
4. A box-blank having a bottom portion A, end portions B and C, the portion B being provided with a slit E, having an inclined portion *e'* and incisions *e*, *e*, at its ends, and a locking-tongue D on the portion C adapted when the blank is folded to catch behind the side B at a point adjacent to the inclined portion of the slit E; substantially as described.

691,459. **WOVEN FABRIC FOR BROOM-COVERS.** WILLIAM B. PITTS, Oakdale, Mass., assignor to the West Boylston Manufacturing Company, Easthampton, Mass., a Corporation of Massachusetts. Filed Feb. 17, 1898. Serial No. 670,608. (No specimens.)

Claim.—The within-described fabric for broom-covers, consisting of a fabric tubular in the direction of its length, and divided into sections D, D, by spaces, or gaps, J in the weft, said fabric having reinforcing weft-threads K and L on each side of the spaces J and united on one side of said spaces J by being woven together at E and F from each edge of the fabric toward the center, with an open section I at the center of the fabric substantially as described.



691,460. **DEVICE FOR CREASING TROUSERS.** WALTER W. FULTON, Chicago, Ill. Filed May 28, 1900. Serial No. 18,237. (No model.)



Claim.—1. A device for creasing trousers while the garment is being worn, comprising a creaser having oppositely-arranged flat-irons suitably connected for relative adjustment, and a suitable clamp for pinching and holding the cloth in condition to permit the application of said creaser, the said irons being arranged to oppose each other at opposite sides of the fold of cloth protruding from said clamp, substantially as described.

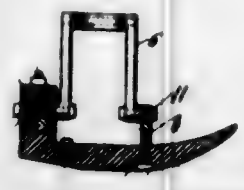
2. A device for creasing trousers while the garment is being worn, comprising a creaser having flat-irons connected for relative adjustment and adapted to be heated and applied to a fold in the cloth, and a clamp adapted to hold the cloth in condition to permit the application of said creaser, the jaws of said clamp being of a length to establish the desired length of fold or crease line in the trousers-leg, and the said irons being arranged to oppose each other at opposite sides of the fold of cloth protruding from the said clamp, substantially as described.

3. A device for creasing trousers while the garment is being worn, comprising a creaser having a pair of oblong and oppositely-arranged flat-irons connected for relative adjustment and adapted to be heated and applied to a fold in the cloth of the garment, and a clamp having a pair of oblong jaws formed by a pair of bars adapted to establish the desired length of fold in the trousers-leg and to hold the cloth in condition to permit the application of said creaser, the said oblong flat-irons opposing each other at opposite sides of the fold of cloth protruding from the said clamp, substantially as described.

691,461. **CUTTING APPARATUS FOR MOWERS OR REAPERS.** WILLIAM M. GOODREND, Reed City, Mich. Filed Aug. 8, 1901. Serial No. 71,383. (No model.)

Claim.—1. In a cutting apparatus for mowers and reapers, the combination with the finger-bar shoe and the coupling-bar, of a post swiveled to the shoe and pivotally connected to the coupling-bar, a box slidably connected to the shoe and pivotally connected to the coupling-bar, and means for adjusting the rear end of the shoe laterally with respect to the box, substantially as set forth.

2. In a cutting apparatus for mowers and reapers, the combination with the coupling-bar and the finger-bar shoe, of a stud swiveled to the toe of the shoe and pivotally connected to the coupling-bar, studs projecting upwardly from the heel of the shoe and spaced apart, a box connected to said shoe between said studs and pivotally connected to the coupling-bar, and means for adjusting the rear end of the shoe laterally with respect to the box, and a cap-plate secured to said studs, substantially as set forth.

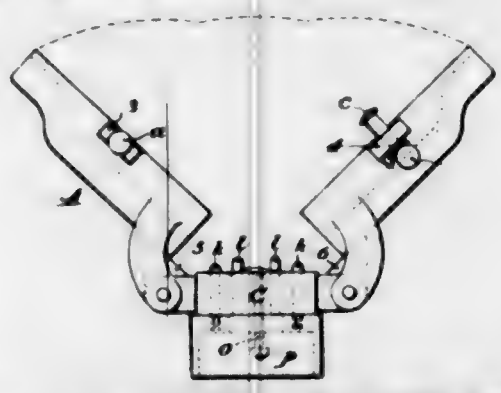


691,462. COMPOSITION FOR STIFFENING FABRICS. JAMES D. GRABER, Boyertown, Pa., assignor of one-fourth to Elwood L. Hallman, Norristown, Pa. Filed April 6, 1901. Serial No. 54,337. (No specimens.)

Claim.—1. A composition for stiffening fabrics consisting of a solution of alcohol, lac, ricinoleïn and borate of soda, combined substantially in the proportions herein described.

2. A composition for stiffening fabrics consisting of a solution of alcohol, lac, a non-drying oil and borate of soda, substantially as described.

691,463. FINISHING-MOLD FOR MAKING GLASS BOTTLES. LUDWIG GROTE, London, England, assignor to Grote Bottle Machine Company, Jersey City, N. J., a Corporation of New Jersey. Filed May 25, 1901. Serial No. 61,906. (No model.)



Claim.—1. An improved finishing-mold, for making glass bottles, composed of a longitudinally-bisected body-molding portion, a vertically-movable bottom-molding part, having vertical holes therethrough, hinges uniting the body and bottom parts having horizontal axes parallel with the plane of the longitudinal joints of the mold, means for manipulating said body parts and fastening the mold, a base beneath said bottom part, vertical pins supported by said base, occupying said holes in the bottom part, and projecting above the latter in the open mold, to contact with the lower ends of said body parts, means for limiting the separation of said body parts, and means for limiting the separation of said bottom part and base.

2. The combination, in a finishing-mold for making glass bottles, of a pair of body parts forming a longitudinally-bisected body portion, a vertically-movable bottom part, hinges connecting said body and bottom parts having horizontal axes parallel with the plane of the longitudinal joints of the mold, means for manipulating said body parts and fastening the mold, a base beneath said bottom part, and upwardly-projecting pins supported by said base and contacting with the lower ends of said body parts.

3. The combination, in a finishing-mold for making glass bottles, of a pair of body parts forming a longitudinally-bisected body portion, a vertically-movable bottom part, hinges connecting said body and bottom parts having horizontal axes parallel with the plane of the longitudinal joints of the mold, means for manipulating said body parts and fastening the mold, a base beneath said bottom part, and vertical pins supported by said base, and contacting with the lower ends of said body parts.

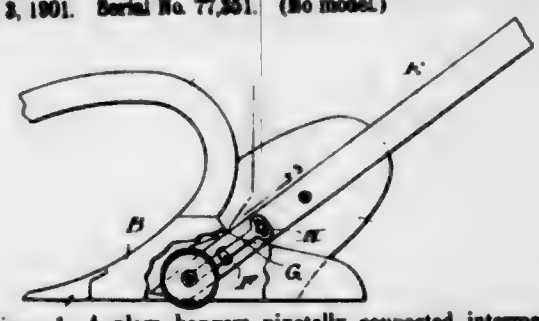
4. The combination, in a finishing-mold for making glass bottles, of a pair of body parts forming a longitudinally-bisected body portion, a vertically-movable bottom part having vertical holes therethrough, hinges connecting said body and bottom parts having horizontal axes parallel with the plane of the longitudinal joints of the mold, means for manipulating said body parts and fastening the mold, a base beneath said bottom part and vertical guide-pins, attached to said base, occupying said holes in the bottom part, and projecting above the latter in the open mold, to contact with the lower ends of said body parts.

5. The combination, in a finishing-mold for making glass bottles, of a pair of body parts forming a longitudinally-bisected body portion, a vertically-movable bottom part having holes therethrough, hinges connecting said body and bottom parts having horizontal axes parallel with the plane of the longitudinal joints of the mold, means for manipulating said body parts and fastening the mold, a base beneath said bottom part, upwardly-projecting pins supported by said base, occupying said holes in the bottom part and projecting to different heights above the latter in the open mold, to contact with the lower ends of said body parts.

6. The combination, in a finishing-mold for making glass bottles, of a pair of body parts forming a longitudinally-bisected body portion, a vertically-movable bottom part having vertical holes therethrough, hinges connecting said body and bottom parts having horizontal axes parallel with the plane of the longitudinal joints of the mold, means for manipulating said body parts and fastening the mold, a base beneath said bottom part, vertical guide-pins, attached to said base, occupying holes in said bottom part and projecting above the latter near the hinges in the open mold, and loose pins, occupying holes in said bottom part farther from the hinges and projecting above said bottom part to a greater height in the open mold, to contact with the lower ends of said body parts.

7. The combination, in a finishing-mold for making glass bottles, of a pair of body parts forming a longitudinally-bisected body portion, a vertically-movable bottom part having vertical holes therethrough, hinges connecting said body and bottom parts having horizontal axes parallel with the plane of the longitudinal joints of the mold, means for manipulating said body parts and fastening the mold, located at one side of said body portion, and devices for causing said body parts to draw said bottom part upward when the mold is closed to equalize tightening the joints of the mold, said devices comprising vertical pins occupying said holes in the bottom part and projecting above the latter in the open mold to contact with the lower ends of said bottom parts, substantially as hereinbefore specified.

691,464. PLOW. RUDOLPH HERRLING, Greenbush, Wis. Filed Oct. 3, 1901. Serial No. 77,351. (No model.)

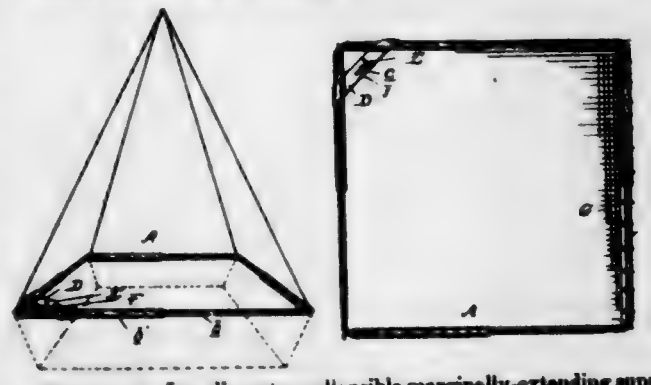


Claim.—1. A plow, hangers pivotally connected intermediate of their ends to the plow-handles, set-bolts extending through upper curved slots of the hangers into said handles, and a traction-wheel journaled in the lower ends of said hangers.

2. A plow, hangers in pivotally-adjustable connection with the plow-handles, a traction-wheel journaled in the lower ends of the hangers, and a wheel-scraper on one of said hangers.

3. A plow, hangers in connection with the plow-handles, a traction-wheel journaled in the lower ends of the hangers, a wheel-scraper on one of the hangers, and a wheel-housing on one of said handles.

691,465. DIP-NET. SYLVESTER W. HIGGINS, Detroit, Mich. Filed Apr. 8, 1901. Serial No. 54,915. (No model.)



Claim.—1. In a dip-net, a collapsible marginally-extending supporting-frame and means for locking said frame from collapsing.

2. In a dip-net, a collapsible marginally-extending supporting-frame comprising side sections flexibly connected at their adjacent ends and means for locking a pair of said sections in fixed relation to prevent collapsing of the frame.

3. In a dip-net, a collapsible marginal frame comprising a plurality of telescopic side sections flexibly connected at their adjacent ends and means for locking a pair of said sections in fixed relation to prevent the collapsing of the frame.

4. In a dip-net, a collapsible marginally-extending frame comprising a plurality of side sections flexibly connected at their adjacent ends and a lock for locking said sections from collapsing comprising a brace extending diagonally across the corner of adjacent sections and having a clamping engagement therewith.

5. In a dip-net, a collapsible marginally-extending frame comprising a plurality of rods having eyes formed at opposite ends thereof, flexible ties connecting said eyes of adjacent rods and a clamp extending diagonally across the corner.

6. In a dip-net, a collapsible marginally-extending supporting-frame comprising a plurality of side sections flexibly connected to each other at adjacent ends and a lock for preventing the collapsing of said frame comprising a diagonal brace formed of two clamping-bars the ends of which are adapted to embrace said side sections on opposite sides thereof and a central portion of said brace being provided with registering slots and a key for locking said brace-bars together adapted to fit said registering slots and having a reduced portion for turning therein substantially as and for the purpose described.

7. A dip-net comprising a net having a cord forming a margin or selvage therefor and a series of loops connected to said cord in combination with a collapsible frame comprising a plurality of telescopic side bars adapted to engage with said loops and flexibly connected to each other.

8. A dip-net comprising a marginal frame formed of a telescopic section, and a cord connecting the opposite ends of the engaging sections adapted to limit the elongation thereof to prevent disengagement, and said cord also serving as a means for securing the net to the frame.

691,466. **FIREPROOF FLOOR.** OLAF HOFF, New York, N. Y. Filed Aug. 19, 1901. Serial No. 72,461. (No model.)

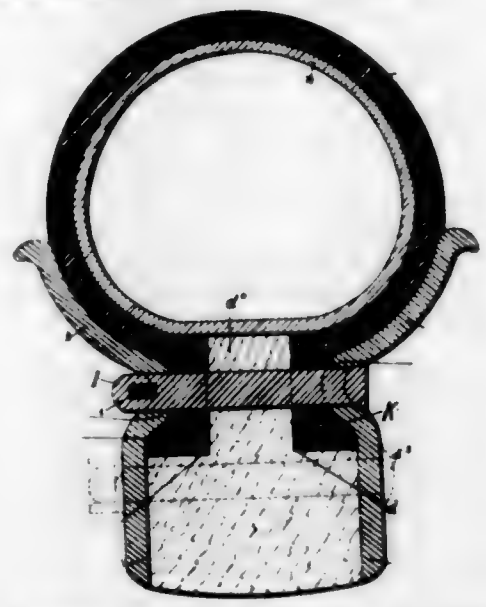


Claim.—1. The combination with a series of beams, of a plurality of wires arranged in pairs embracing the beams at a right angle thereto, which wires are drawn together and secured at points in the vicinity of said beams to form trusses adjacent to said beams, the intermediate portions of said wires being extended parallel, and a body or sheet of concrete embedding the said beams and wires, substantially as described.

2. The combination with a series of beams, of transverse wires arranged in pairs embracing the beams in planes at a right angle thereto, tightening-links slidable on said wires to stretch the same and draw together the intermediate portions thereof and form trusses adjacent to said beams, and a sheet or body of concrete embedding the said beams, wires and tightening-links, substantially as described.

691,467. **VEHICLE-WHEEL AND TIRE.** CHARLES HOWELLS, New York, N. Y. Filed May 19, 1899. Serial No. 717,394. (No model.)

Claim.—1. The combination with a felly, of a tire comprising a casing having reinforced edges said edges flaring inwardly, plates adapted to the sides of said felly and detachable therefrom, said plates comprising the inner portion adjacent to the felly, a contracted medial or central portion and the outer portion flaring outwardly and adapted for the reception and support of the tire, bolts passing through said plates and the felly and means for securing said reinforced tire-casing edges.



2. In combination with a suitable rim, a tire comprising a casing having reinforced edges adapted to be secured to said rim by bolts passing transversely through the rim and the edges of the casing, and an inner air-tube within the casing having a reinforced covering of fabric and a web of the fabric extending between the edges of the casing.

3. In combination with a felly, laterally-detachable metallic side plates and bolts for securing them to the sides of the felly, said plates or flanges having contracted central portions and outwardly-flaring edges to sustain the tire and a tire-casing having reinforced edges adapted to fit between the contracted portions of the side flanges and to rest upon the felly and additional bolts passing through the contracted portions of the side flanges and the edges of the tire-casing.

4. In a wheel, the combination with a felly, of metallic side flanges bolted rigidly to said felly and formed with outwardly-flaring portions forming a seat for the tire, a tire having an outer casing formed with edges adapted to fit between the central portion of the flanges, an inner tube having a covering of fabric, the edges whereof are formed into a web extending therefrom and between the edges of the casing, and auxiliary bolts extending through the flanges, the edges of the casing and the web of the inner tube to hold them all in position.

5. The combination with a felly, of metallic flanges adapted to be secured one at each side thereof, said flanges being formed with centrally-contracted and laterally-extending outer portions, a tire having a casing formed with edges adapted to be secured between the central contracted portions of the flanges and to rest upon the felly, bolts for securing the lower portions of the flanges to the felly, and auxiliary bolts passing through the contracted portions of the flanges and the edges of the casing independent of the bolts connecting the flanges with the felly.

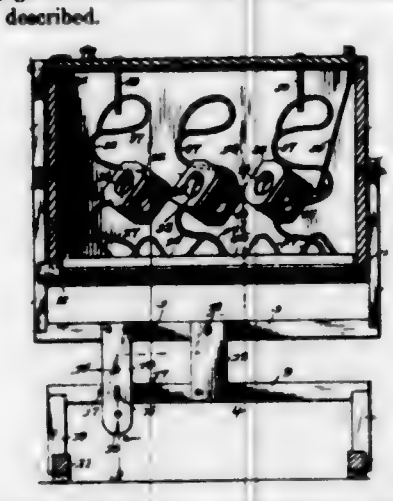
6. The combination with the felly of a wheel, of metallic flanges one on each side thereof, said flanges formed with their lower portions adapted to fit against the sides of the felly and having a contracted middle portion and outwardly-flaring outer portions, a tire having a casing formed with reinforced edges adapted to fit between the contracted middle portions of the flanges and to rest upon the felly, the wider portion of said tire being supported by the outwardly-extending flanges, bolts passing through the lower portions of the flanges and through the felly securely connecting the same, and auxiliary bolts passing through the contracted portions of the flanges and the edges of the casing between them.

691,468. **WASHING-MACHINE.** DAVID W. HUGHES, Vandalia, and WILLIAM T. S. BARNES, Jackson, Mo. Filed Mar. 12, 1901. Serial No. 50,819. (No model.)

Claim.—1. A washing-machine comprising a stand provided with legs, an oscillatory frame pivotally mounted on the stand and provided with upwardly-extending arms, means for rigidly connecting the frame with the stand, and a washing-machine body pivotally mounted between the arms of the frame and having its pivots arranged at right angles to the pivot of the frame, substantially as described.

2. A washing-machine comprising a stand provided with upwardly-extending arms, an oscillatory frame pivotally mounted between the arms of the stand and provided with depending arms, means for rigidly securing the depending arms to the stand, a washing-machine body pivotally mounted within the frame and having its pivots arranged at right angles to the pivot of the frame, and means for operating the washing-machine body, substantially as described.

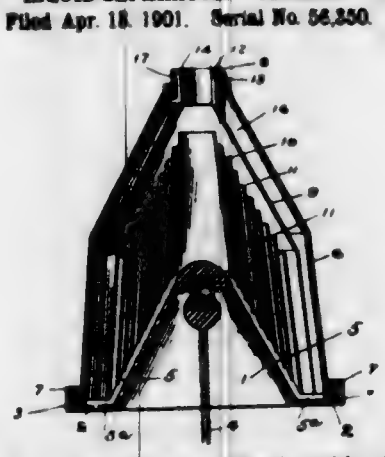
3. In a washing-machine, the combination of a stand, an oscillating body, and an agitator comprising a square bar pivoted at one of its angles within the body, at the bottom thereof and having its lower flat faces arranged to engage the said bottom, and the loops extending from the bar, substantially as described.



4. In a washing-machine, the combination of a stand, a frame pivotally mounted on the stand, a washing-machine body pivotally mounted in the frame and arranged to swing at right angles to the same, whereby it is capable of lateral and longitudinal oscillations, and an agitator comprising a horizontal series of cubical blocks provided with openings, a rod passing through the blocks and disposed diagonally of the same, and flexible connections suspending the rod within the body, whereby the agitator is capable of swinging longitudinally and transversely, substantially as described.

5. In a washing-machine, the combination of a body capable of oscillating, the side cushions comprising bottom bars detachably secured within the body and the upwardly-extending springs, and means to limit the inward movement of the springs, substantially as described.

691,469. LIQUID-SEPARATOR. CHRISTEN J. JEPPESEN, Centerburg, Ohio. Filed Apr. 18, 1901. Serial No. 56,350. (No model.)



Claim.—1. In a separator, the combination with a base comprising a central conical portion 1, a laterally-extending flange 2, said cone being provided at intervals with projecting ribs, of outer and inner casings 6 and 9, the latter having a neck portion 8 and a plurality of slightly-flaring cylinders arranged one within the other upon the ribs of said cone, substantially as specified.

2. In a separator, the combination with a base comprising a central conical portion 1, and a laterally-extending flange 2, said cone being provided at intervals with projecting ribs, of outer and inner casings 6 and 9, the latter having a neck portion 8 provided with vertical milk and cream channels 12 and 14 in its inner wall, said channel 14 communicating with the space between the outer and inner casings 6 and 9 and a plurality of slightly-flaring cylinders arranged one within the other upon the ribs of said cone, substantially as specified.

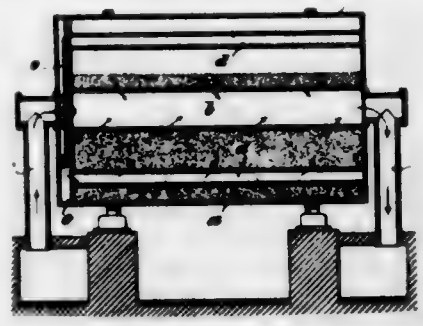
3. In a separator, the combination with a base comprising a central ribbed conical portion 1, a laterally-extending flange 2 having an upturned and internally-threaded outer portion, of external and internal casings rising from said base-flange, the latter having an outlet-neck and the former having a flanged base, cylinders arranged one within the other upon said cone and an angular locking-ring 7 adapted to be screwed into connection with the upturned outer portion of said cone base-flange, substantially as specified.

691,470. METHOD OF MAKING ALUMINIUM HYDRATE. HARRY W. JORDAN, Syracuse, N. Y., assignor to the Pittsburgh Reduction Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed July 10, 1901. Serial No. 67,792. (No specimens.)

Claim.—1. The method herein described of making aluminium hydrate, which consists in preheating CO_2 gas to a temperature above 200° Fahrenheit and bringing it into contact with the aluminate solution, substantially as described.

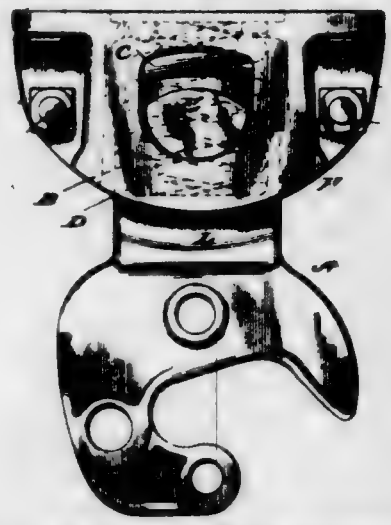
2. The method herein described of making aluminium hydrate, which consists in preheating CO_2 gas to a temperature above the normal boiling-point of the aluminate solution to be treated, and bringing the gas into contact with such solution, substantially as described.

691,471. MALT-DRUM. FRIEDRICH KNÜTTEL, Charlottenburg, near Berlin, Germany. Filed Oct. 11, 1901. Serial No. 78,386. (No model.)



Claim.—A revolving drum for malting and drying grain comprising an outer shell, a central perforated tube closed at one end of the drum, perforated ventilating-tubes closed at the opposite end of the drum and communicating with the air-chamber and means for supplying the ventilating-tubes with moist or heated air, the perforations of the ventilating-tubes increasing in number in proportion to their distance from the central tube, essentially as and for the purpose described.

691,472. COMBINED PILOT COUPLING AND BUFFER. WILLIAM H. LEWIS and CHARLES A. SELBY, Roanoke, Va. Filed Mar. 14, 1901. Serial No. 51,111. (No model.)



Claim.—1. A pilot coupler and buffer consisting of a coupler, having integral with the hollow shank thereof, vertical trunnions, a receiving and supporting socket adapted to be secured to the buffing-beam of a locomotive or end sill of a car, and formed with vertical openings or sockets to receive the trunnions of the coupler, and buffing-springs located centrally within the hollow shank and interposed between the coupler-head and buffer-beam or car-sill, substantially as and for the purpose set forth.

2. The coupler having a shank recessed centrally to receive buffing-springs and provided with integral, vertical trunnions to engage with suitable slots in the socket or casing, a casing adapted to be secured to the buffer-beam of a locomotive or end sill of a car, and provided with slots to receive the trunnions of the coupler-shank, and buffer-springs arranged within the recess of the coupler-shank, and between the base thereof and the buffer-beam or end sill, substantially as and for the purpose set forth.

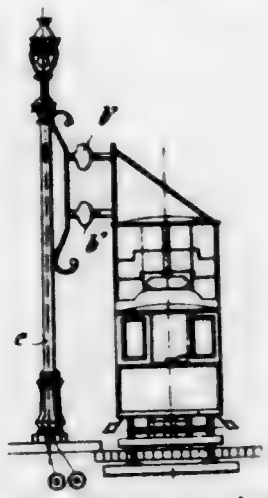
3. The combination of a longitudinally-movable coupler and shank made integral and having also a laterally-vibrative movement, buffer-springs located within a central recess in the shank to resist longitudinal movements, vertical trunnions on the shank, lugs or faces on the coupler, and a socket or casing provided with vertical elongated openings to receive the trunnions of the shank, and with shoulders or projections to constitute contacts for the lugs or faces on the coupler, substantially as and for the purposes hereinbefore set forth.

4. An integral coupler and shank, the latter formed with a central longitudinal recess for buffing-springs and with vertical trunnions having curved front and rear faces, a socket or casing adapted to receive the shank of the coupler and the buffing-springs and formed with vertical slots hav-

ing curved front and rear terminals, substantially as and for the purposes hereinbefore set forth.

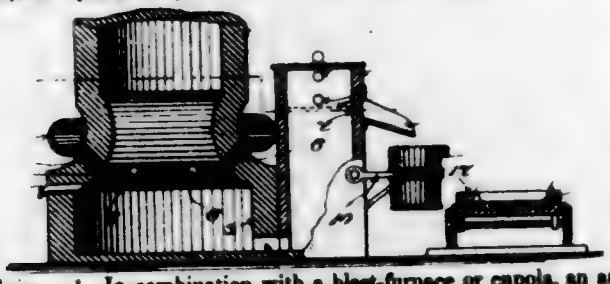
5. A coupler-head and recessed or hollow shank adapted to receive centrally-located buffing-springs, and formed with external trunnions adapted to be seated or located within slots or pockets formed in a containing and supporting socket or casing, substantially as and for the purpose set forth.

691,473. ELECTRIC-TRACTION SYSTEM. CLAUDE M. J. (dit CLAUDIUS) LIEB, Lyons, France. Filed Jan. 26, 1901. Serial No. 44,872. (No model.)



Claim.—In an electric-traction system, a charging-circuit, a contact or contacts at a station connected in said circuit, a vehicle, electric accumulators on said vehicle, a contact or contacts on said vehicle in position to engage the charging-circuit contact or contacts upon the arrival of the vehicle at the station, a motor on the car, and a controller on the car adapted to be operated by the motorman to control the circuit connections between the contact or contacts on the car, the accumulators and the motor, said controller having contacts arranged to direct the charging-circuit through the motor when the controller is moved to its starting position.

691,474. APPARATUS FOR CONTROLLING IRON IN BLAST-FURNACES. LUTHER LINCOLN, Boston, Mass., assignor of one-half to Charles S. Gooding, Boston, Mass. Filed July 25, 1899. Serial No. 725,031. (No model.)



Claim.—1. In combination with a blast-furnace or cupola, an auxiliary reservoir or chamber for the molten metal connected with the hearth of the furnace or cupola by a continuous passage and having a discharge-outlet at an elevation higher than the bottom of the hearth, a twyer-pipe and twyers leading to the furnace, and a valved pipe leading from the twyer-pipe into the upper part of said reservoir or chamber, substantially as described.

2. In combination with a blast-furnace or cupola, an auxiliary reservoir or chamber for the molten metal connected with the hearth of the furnace or cupola by a continuous passage and having a discharge-outlet at an elevation higher than the bottom of the hearth, a compressed-air chamber and a valved pipe leading therefrom into said auxiliary reservoir or chamber at the upper part thereof, substantially as described.

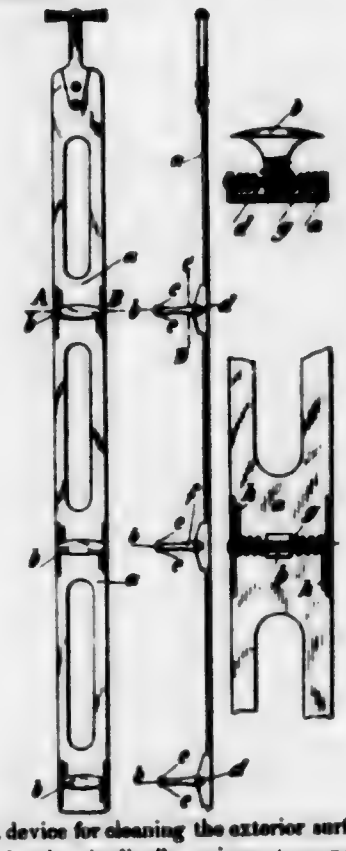
3. In combination with a blast-furnace or cupola, an auxiliary reservoir or chamber for the molten metal connected with the hearth of the furnace by a continuous passage and having a discharge-outlet at an elevation higher than the bottom of the hearth, an exhaust-chamber and a valved pipe leading therefrom into the upper part of the auxiliary reservoir or chamber, substantially as described.

4. In combination with a blast-furnace or cupola, an auxiliary reservoir or chamber for the molten metal connected with the hearth of the furnace by a continuous passage and having a discharge-outlet at an elevation higher than the bottom of the hearth, a twyer-pipe and twyers leading to the furnace, a valved pipe leading from the twyer-pipe to the upper part of said auxiliary reservoir or chamber, a compressed-air chamber and a valved pipe leading therefrom into the upper part of said auxiliary reservoir or chamber, substantially as described.

5. In combination with a blast-furnace or cupola, twyers connected therewith, an auxiliary reservoir, a continuous passage for the molten metal leading from the hearth to said reservoir, a slag-outlet leading from the hearth without connecting with the reservoir, said reservoir rising higher than said slag-outlet, and an elevated discharge-outlet for the metal from the reservoir, substantially as described.

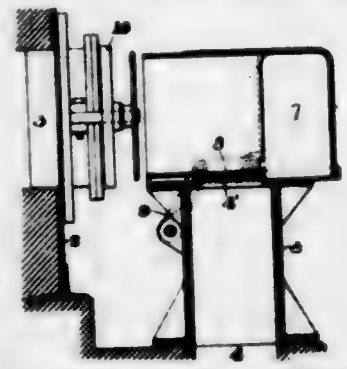
6. In combination with a blast-furnace or cupola having a slag-outlet leading directly from the hearth of the furnace or cupola, an auxiliary reservoir or chamber, a continuous passage for the molten metal between the hearth of the furnace and the auxiliary reservoir or chamber, a discharge-outlet for the metal from the auxiliary reservoir or chamber at an elevation higher than the slag-outlet from the hearth, and means by which a forced blast is introduced into the furnace or cupola above the molten metal, substantially as described.

691,475. IMPLEMENT FOR CLEANING BOILER-TUBES, &c. WILHELM LOMBARDO, Budapest, Austria-Hungary, assignor to Josef Biscio, Budapest, Austria-Hungary. Filed Apr. 11, 1901. Serial No. 55,345. (No model.)



Claim.—In a device for cleaning the exterior surface of boiler-tubes, the combination of a longitudinally-reciprocatory power-transmitter, a scraper-arm, a pin extending loosely through a passage in the scraper-arm and having its ends secured in lugs or flanges extending outwardly from one face of the power-transmitter, and a spring extending through a passage in said scraper-arm and having its ends coiled about said pin and bearing against the power-transmitter on opposite sides of the scraper-arm.

691,476. CHIMNEY-VALVE FOR HOT-BLAST STOVES. THOMAS MORRISON, Braddock, Pa. Filed Jan. 15, 1901. Serial No. 43,358. (No model.)

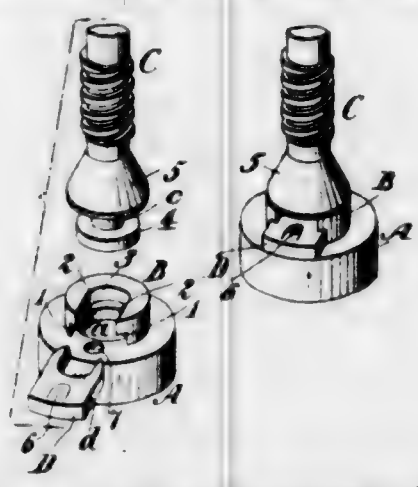


Claim.—1. A hot-blast stove having an outlet-port, a chimney-flue, an elevated box 5 connected with the chimney-flue, and a hollow chimney-valve adapted to fit the outlet-port of the stove and mounted on the said box, said valve being movable on the box to and from the outlet-port, and having a portion which in its motion covers and uncovers respectively the opening of said box; substantially as described.

2. A hot-blast stove having a plurality of outlet-openings, chimney-flues adjacent thereto, and hollow chimney-valves adapted to fit said outlet-ports and to be moved toward and from the same, and having portions

which in such motion cover and uncover respectively the ports of the chimney-flues, said outlet-ports being situate at different parts of the periphery of the stove and being adapted thereby to distribute and equalize the draft on the stove; substantially as described.

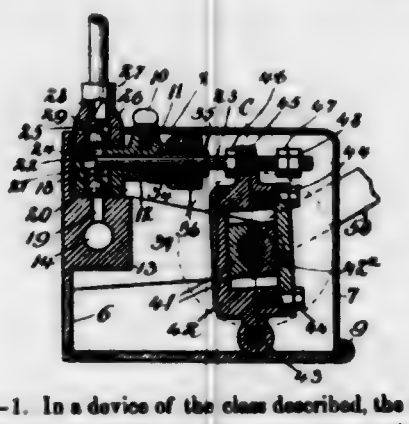
691,477. VALVE DEVICE. ANDREW J. MURPHY, New York N. Y. Filed May 29, 1901. Serial No. 62,337. (No model.)



Claim.—1. As a valve device, the combination, with a screw-stem having a conical collar, an annular groove and an annular flange on its lower end, of a valve having a circular recess in its upper surface to fit the said annular flange and a cylindrical extension having a slot leading through the base thereof and a recess in the top wall thereof, and a key within said slot and having a bifurcated end part engaging the said annular groove of the valve-stem whereby the valve may rotate on the stem, but lateral or vertical movement of the parts relatively with each other is prevented, substantially as shown and described.

2. As a valve device, the combination, with the screw-stem having the conical collar, annular groove and flange on its inner end, of the disk valve having the recess *a* and the concavity 7, in its upper surface and the cylindrical extension B, formed integral therewith and having a slot extended through its base and a recess through its head, and a malleable metal key embodying a plate having a bifurcated inner end to engage the said annular groove of the stem and a tongue to engage the said concavity 7, substantially as shown and described.

691,478. LUBRICATING-PUMP. JOHN F. MCCANNA, Chicago, Ill., assignor to the John F. McCanna Company, Chicago, Ill., a Corporation of Illinois. Original application filed Jan. 6, 1900, Serial No. 545. Divided and this application filed May 28, 1900. Serial No. 18,064. (No model.)



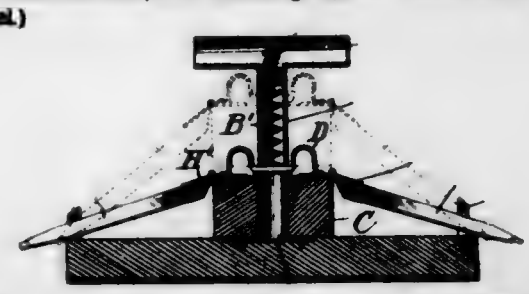
Claim.—1. In a device of the class described, the combination with the supply-pipe, of the discharge-pipe, pump connections between said pipes comprising the channel 14 with either end of which the supply-pipe is adapted to be connected, a piston-barrel and a piston therein and means for reciprocating said piston, passages leading from said channel 14 to the discharge-pipe through said piston-barrel, and valves located in said passages on either side of the piston-barrel, substantially as and for the purpose described.

2. In a device of the class described, the combination of the casing having the block 13 therein having the channel 14 extending therethrough, and the passage 19 leading from said channel to the edge of the block, with the piece 12 having the valve-aperture 18 therein and the piston-barrel 22, and the ears 30, and the member 26 connected to the discharge-pipe and having the valve-aperture 25 therein, the ears 31 thereon, and the bolts 32 and the nuts 33 adapted to rigidly connect said members, substantially as and for the purpose described.

3. In a device of the class described, the combination of the shaft 37 and means for rotating the same, with the yoke pivotally mounted adjacent thereto, and having the rectangular aperture therein through which said shaft passes, the blocks 41 surrounding an eccentric portion of said shaft and confined in said aperture, and the piston connected to said yoke, substantially as and for the purpose described.

4. In a device of the class described, the combination of the shaft 37 and means for rotating the same, with the yoke pivotally mounted adjacent thereto, and having the rectangular aperture therein through which said shaft passes, the blocks 41 surrounding an eccentric portion of said shaft and confined in said aperture, and the piston connected to said yoke, the connections between said piston and said yoke comprising the screw-threaded end of the piston having the nuts thereon to form adjustable abutments for said yoke, substantially as and for the purpose described.

691,479. FOLLOWER FOR PACKING SAUER-KRAUT, &c. IRA I. NEWFIELD, Austin, Tex. Filed Aug. 29, 1901. Serial No. 73,735. (No model.)



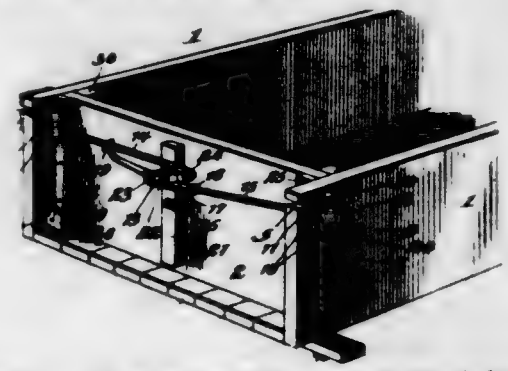
Claim.—1. A follower for packing in barrels, comprising a packing-plate, a hollow tube rising centrally therefrom, a block loosely mounted about said tube, arms pivoted to said block, having spiked ends, handle secured to said loosely-mounted block, and spring adapted to hold said block against the packing-plate, as set forth.

2. In combination with the packing board or plate having a central tube rising therefrom, a loosely-mounted block over said tube, a handle fastened to said block and passing through slots in said tube, arms pivoted to the block and having spurs at their ends, as set forth.

3. In combination with the packing plate or board, a central hollow tube having diametrically opposite longitudinal slots therein, a block loosely mounted about said tube, a handle-iron bent to form loops passing through said slots and fastened at their ends to said loosely-mounted block, the arms hinged to the loosely-mounted block and having spikes at their ends, as set forth.

4. In combination with a packing plate or board, a central tube fastened thereto and having longitudinal slots diametrically opposite each other with an offset in each slot near its upper end, a block loosely mounted on said tube, a handle-iron comprising a bar bent to form loops in which the fingers of the operator are adapted to engage, said handle-iron passing through said slots, and fastened at its ends to the loosely-mounted block, and a cross-piece fastened to the upper end of said tube, as set forth.

691,480. END-GATE FASTENER. WALTER B. NICHOLS, EDWARD A. NICHOLS, and FRANK X. SCHAD, Gainesville, Tex. Filed June 19, 1901. Serial No. 65,186. (No model.)



Claim.—1. In an end-gate fastener, a vehicle-body having its side-boards provided with downwardly-curved open-ended slots, the inner ends of the slots being on a plane lower than their outer ends, in combination with an end-gate carrying arms for engaging the slots, and resting in the inner ends thereof, and locking means for the arms.

2. In an end-gate fastener, a vehicle-body having its side-boards provided with open-ended slots, in combination with an end-gate carrying a pivoted cleat, a locking-lever carried by the cleat, and arms carried by the lever, one of the arms being lengthwise adjustable with relation to the other.

3. In an end-gate, the combination with the side-boards provided with open-ended slots, the inner ends of the slots being in a plane lower than their outer ends, of straps having their lower ends secured to the sill-beam of the body and their upper portions provided with slots registering with those of the side-boards, and a fastener engaging within the slots.

4. The combination with a vehicle-body having its side-boards provided with curved slots, a cleat provided with an outwardly-curved upper extremity and arranged at the bottom of the vehicle-body on each side, an end-gate adapted to be engaged back of the cleats, and a fastener carried by the end-gate and received within the curved slots of the side-boards.

5. The combination of a vehicle-body, with an end-gate, a pivoted cleat mounted upon the end-gate, and the fastening device for the end-gate mounted upon the pivoted cleat and engaging the body.

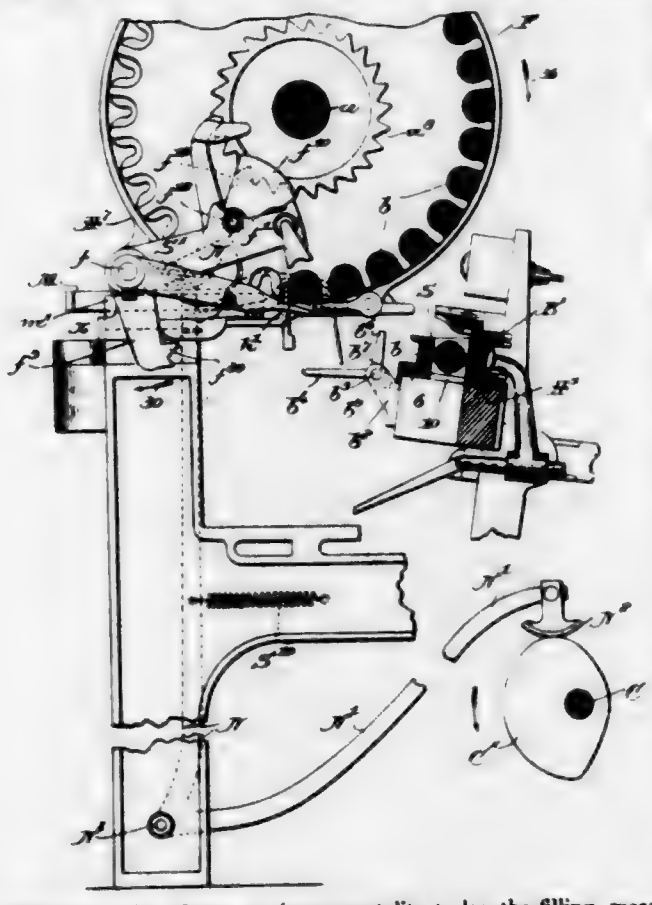
6. The combination with an end-gate, of a pivoted lever having a bifurcated head, an arm pivoted at one extremity of and working within the bifurcated portion, a socket pivoted at the other extremity of and also working within the bifurcated portion, and an arm carrying an adjusting-nut engaging the socket.

7. In an end-gate fastener, the combination with the side-boards provided with open-ended slots, of straps having their lower ends secured in the sill-beam of the body, the upper portions of the straps being flattened and provided with slots registering with those in the side-boards, the terminals of the slots in the straps being countersunk, in combination with an end-gate having arms provided with heads for engaging the countersinks in the straps, and locking means for the arms.

8. In an end-gate fastener, the combination with the wagon-body provided with the single long cleat at each side, of short cleats spaced from the long cleats and coöperating therewith, said short cleats being provided with an outwardly-curved upper extremity, for the purpose substantially as described.

9. The combination of side-boards having open-ended curved slots, straps having their lower ends secured to the sill-beam of the vehicle-body, the upper portion of the straps being flattened and provided with curved slots registering with those of the side-boards, cleats having outwardly-curved upper extremities arranged at the bottom of the vehicle-body, an end-gate engaging behind the cleats, and a fastener carried by the end-gate and received at its ends within the curved slots formed in the side-boards and straps.

691,481. **FILLING-REPLENISHING LOOM.** JONAS NORTHROP, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed July 9, 1901. Serial No. 67,436. (No model.)



Claim.—1. In a loom, an instrumentality to lay the filling, means to detect non-continuity of the latter, and mechanism the actuation of which is effected by or through said means, to automatically provide said instrumentality with a fresh supply of filling on the pick on which non-continuity of filling is detected.

2. In a loom, an instrumentality to lay the filling, means independent thereof to detect non-continuity of filling when laid, and mechanism to automatically provide such instrumentality with a fresh supply of filling, said mechanism being controlled and its actuation effected, by or through the detecting means, to supply filling on the pick in which the filling is laid non-continuously.

3. In a loom, an instrumentality to lay the filling, means to detect non-continuity of the latter on alternate picks, and mechanism actuated by or through detecting action of said means, to automatically provide said instrumentality with a fresh supply of filling on the same pick as that on which non-continuity of filling is detected.

4. In a loom, an instrumentality to lay the filling, means to periodically detect and indicate non-continuity of the latter, and mechanism in operative condition on corresponding periods, to provide said instrumentality with a fresh supply of filling, said mechanism being controlled and its actuation effected by or through the detecting means upon the detection of non-continuity of the filling.

5. In a loom, a shuttle adapted to contain a supply of filling, a detector to indicate non-continuity of the filling laid by the shuttle, and mechanism actuated by or through indicating action of the detector to automatically provide the shuttle with a fresh supply of filling on that pick on which non-continuity of filling is detected.

6. In a loom, an instrumentality to lay the filling, mechanism, located at one side of the loom, to automatically provide said instrumentality with a fresh supply of filling, and a detector at the same side of the loom, to indicate non-continuity of filling laid, indicating action of the detector when the filling is laid toward said mechanism operating to effect the actuation of the latter on the same pick.

7. In a loom, a shuttle to contain a supply of filling, mechanism located at one side of the loom to automatically provide the shuttle with a fresh supply of filling, and a detector at the same side of the loom, to indicate filling failure, indicatory action of said detector on the pick of the shuttle toward said mechanism effecting the actuation of the latter to change the shuttle-filling on the indicated pick.

8. In a loom, a shuttle adapted to contain a supply of filling, a detector independent of the shuttle to indicate filling failure, and mechanism controlled and actuated by or through indicating action of said detector to automatically provide the shuttle with a fresh supply of filling on the indicated pick.

9. In a loom, the lay, an instrumentality to lay the filling, mechanism to provide said instrumentality with a fresh supply of filling, normally inoperative actuating means for said mechanism, movable with the lay, and a detector to indicate non-continuity of filling when laid, the actuating means being controlled and rendered operative by or through indicating action of the detector, to effect operation of the said mechanism on the forward beat of the lay immediately succeeding the indicated non-continuous pick of filling.

10. In a loom, the lay, a shuttle adapted to contain a supply of filling-replenishing mechanism, normally inoperative actuating means therefor, movable with the lay, and a detector to indicate failure of filling when laid, said actuating means being controlled and rendered operative by or through indicating action of the detector on alternate picks, to effect the actuation of the replenishing mechanism, through the movement of the lay, on the same pick.

11. In a loom, the lay, a shuttle adapted to contain a supply of filling, filling-replenishing mechanism, normally inoperative actuating means therefor, and a detector to operatively indicate filling failure on each pick toward said replenishing mechanism, the actuating means being controlled and rendered operative by or through such operative indication of the detector to actuate the said replenishing mechanism on the same pick.

12. In a loom, the lay, a shuttle adapted to contain a supply of filling, filling-replenishing mechanism, a normally inoperative actuating-bunter therefor on the lay, and a detector independent of the shuttle to indicate failure of filling, the bunter being moved into operative position by or through operative indication of filling failure by the detector, to actuate the said replenishing mechanism on the forward beat of the lay immediately succeeding such indication.

13. In a loom provided with filling-replenishing mechanism, an instrumentality to lay the filling, a detector to detect and indicate non-continuity of the filling when laid, and means to periodically move the detector into operative position, said mechanism being controlled and its actuation effected by or through indicating action of said detector, due to non-continuity of filling laid, when said detector is in operative position to provide the said instrumentality with fresh filling.

14. In a loom provided with filling-replenishing mechanism, an actuating-bunter therefor mounted on the lay, the lay, a shuttle adapted to contain a supply of filling, a detector to indicate failure of the filling, means to move it into operative position on alternate picks, and devices controlled by indicating action of the detector to effect coöperation of the bunter and the replenishing mechanism and thereby provide the shuttle with a fresh supply of filling on the indicated pick.

15. In a loom provided with filling-replenishing mechanism, a normally inoperative actuating-bunter therefor on the lay, the lay, a detector to detect filling failure, and a positioning device for the bunter, controlled by said detector, detection of filling failure by the latter operating to effect coöperation of the positioning device and bunter, to effect through the

latter the actuation of the replenishing mechanism to provide the shuttle with a fresh supply of filling.

16. In a loom provided with filling-replenishing mechanism, an actuating-bunter therefor on the lay, the lay, a shuttle to contain a supply of filling, a detector to indicate non-continuity of the filling when laid, means governed by the detector to effect coöperation of the bunter and the replenishing mechanism upon detection of filling failure, and a shuttle-feeler to prevent such coöperation if the shuttle is improperly boxed when the filling failure is detected.

17. In a loom, a shuttle adapted to contain a supply of filling, a detector to indicate non-continuity of the filling laid by the shuttle, mechanism actuated by or through indicating action of the detector to automatically provide the shuttle with a fresh supply of filling on the detected pick, and means to prevent such actuation if the shuttle is improperly boxed on such pick.

18. In a loom provided with filling-replenishing mechanism, an actuating-bunter therefor on the lay, the lay, a shuttle to contain a supply of filling, a detector to indicate non-continuity of the filling when laid, a slide on which the detector is fulcrumed, means mounted on the slide and governed by the detector to effect coöperation of the bunter upon detection of filling failure, and means to move the slide, and thereby the detector, into operative position on each pick toward the replenishing mechanism, to thereby permit detecting operation of the said detector only on such pick.

19. In a loom provided with filling-replenishing mechanism, an actuating-bunter therefor on the lay, the lay, a shuttle to contain a supply of filling, a detector to indicate non-continuity of the filling when laid, a slide on which the detector is fulcrumed, means mounted on the slide and governed by the detector to effect coöperation of the bunter upon detection of filling failure, said means including a shuttle-feeler, to render the means inoperative if the shuttle is improperly boxed, and means to move the slide to place the detector in position to detect filling failure on each pick toward the replenishing mechanism.

20. In a loom, the lay, a pivotally-mounted and normally inoperative bunter thereon, a shuttle adapted to contain a supply of filling, filling-replenishing mechanism at one side of the loom, a filling-detector, a slide on which it is mounted, a positioning device for the bunter, also mounted on the slide and controlled by the detector, and means to move the slide to operatively position the detector on each shot of the shuttle toward the replenishing mechanism, indication by the detector of filling failure on such pick operating through the positioning device to effect coöperation of the bunter and replenishing mechanism as the lay beats up on the indicated pick.

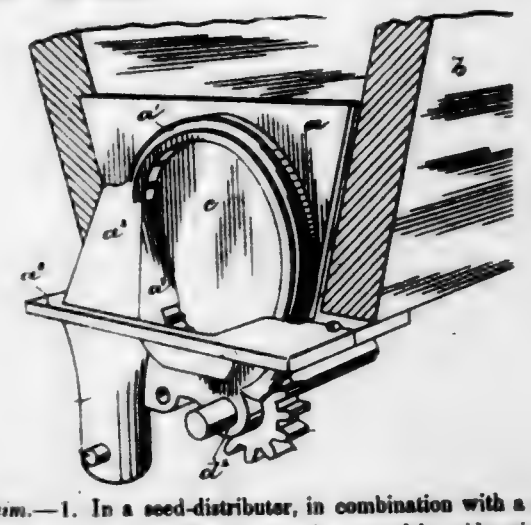
691,482. HAILLESS HORSESHOE. ELMER OGBIN, Camden, N. J. Filed June 11, 1901. Serial No. 64,078. (No model.)



Claim.—1. In a horseshoe of the character described, a connecting-bar adapted to form the toe of the shoe, two side members pivoted to each end of the connecting-bar, spring-clamps extending upward and slightly inward from the connecting-bar and the side members, extensions formed with the side members and extending inward toward one another inside of the connecting-bar, a link adapted to connect the ends of these two projections together, and means for drawing said link toward the connecting-bar, substantially as and for the purpose set forth.

2. In a horseshoe of the character described, a connecting-bar adapted to form the toe of the shoe, side members pivoted to each end of the connecting-bar, spring-clamps extending upward and slightly inward from the connecting-bar and the side pieces, extensions formed with and extending inward toward one another from the side pieces, a link adapted to connect the ends of these two projections together, a screw the end of which is threaded through the link, a hole formed through the connecting-bar through which the screw is adapted to pass before being threaded through the link, a shoulder formed in the connecting-bar against which the head of the screw is adapted to abut, guide-pins secured to the connecting-bar and projecting inward, holes formed through the link through which the guide-pins are adapted to protrude, and a plate formed with the connecting-bar and adapted to extend rearward and lie beneath the link, substantially as described and for the purpose specified.

691,483. DISTRIBUTER FOR GRAIN-DRILLS. CHARLES R. PATRIC, Springfield, Ohio, assignor to the Superior Drill Company, Springfield, Ohio, a Corporation of Ohio. Filed May 6, 1901. Serial No. 58,891. (No model.)



Claim.—1. In a seed-distributer, in combination with a seed-hopper, an outer casing, a distributing-wheel mounted in said casing having a carrying-flange, and a central web with a laterally-extending trunnion from one side of said web, a housing forming part of said casing and projecting over a portion of said flange to form a measuring-channel, and means for driving said wheel from its periphery whereby said wheel is entirely exposed to the grain at one side except where covered by said housing, substantially as specified.

2. In a seed-distributer, a carrying-wheel having a carrying-flange, a casing in which said wheel is mounted having an annular flange the inner periphery of which is adjacent to the carrying-flange on said wheel, a housing forming a part of said casing and projecting over a portion of the carrying-flange to form a measuring-channel, said casing being otherwise open at the side to leave the entire carrying-flange exposed except where it passes through said housing and to permit the grain to move laterally into the carrying-wheel, substantially as specified.

3. In a seed-distributer, in combination with a seed-hopper, a casing having an annular chamber, a wheel, the periphery of which fits into said chamber, having a central web and oppositely-extending carrying-flanges, a central support on one side of said wheel only, and a housing, a portion of which extends over a portion of the respective flanges to form measuring-channels, as described, and means for driving said wheel from its periphery whereby the entire carrying portion of said flanges may be exposed to the grain, substantially as specified.

4. The combination with a hopper, of a casing extending into the hopper having an annular chamber in which is mounted a distributer-wheel having a laterally-extending carrying-flange, a housing also in said hopper through which said flange is adapted to pass to form a measuring-channel and lateral discharge as described, means for driving said carrying-wheel from its periphery whereby the entire exposed portion of the carrying-flange is located within the hopper, substantially as specified.

5. In a distributer, in combination with a seed-hopper, a casing having an annular chamber, a distributer-wheel having a solid central web and oppositely-extending lateral flanges, the periphery of which is mounted in said annular chamber, a housing extending on each side of said casing and forming a discharge-chamber which communicates with said annular chamber, said housing being provided with an inwardly-extending portion which extends over the carrying-flange and forms a measuring-channel, said casing being otherwise open at the sides to leave the entire carrying-flanges exposed except where they pass through said housing, substantially as specified.

6. The combination with the casing and distributer mounted therein, said casing being located in the bottom of a hopper, a distributer-wheel in said casing, the periphery of which is protected by said casing, and a housing forming a discharge-chamber also extended into said hopper, and a closed conduit connected with said housing, and means for driving said distributer from the periphery, substantially as specified.

7. In a seed-distributer and in combination with the seed-hopper, an outer casing, a distributer-wheel having a central web and a laterally-extending flange, said wheel being supported wholly from one side so as to leave the opposite side and its carrying-flange exposed and within said hopper, a housing formed in said casing and having one side extending over a portion of said carrying-flange, and means for driving said distributer from its periphery, substantially as specified.

8. The combination with a seed-hopper, of a distributer formed of a casing having an annular chamber and a distributer-wheel located in said casing with its periphery extending into said chamber, a measuring-channel formed by a portion of said casing and the carrying-flange of said distributer-wheel, means for driving said wheel from its periphery, and shields extending from the top of said casing at an angle toward the bottom of

said hopper and thus forming inclined chutes to direct the seed from said hopper to one side only of said distributing-wheels, said shields being adapted to form the bottom of said hopper, substantially as specified.

9. The combination with the seed-hopper, of the distributers extending entirely into said hopper, reversible shields adapted to rest at one end on top of said casing and at the other on a projecting flange near the bottom thereof, said shields being adapted to form the bottom of said hopper and direct the grain into one side only of said distributers, substantially as specified.

10. The combination with a seed-hopper, of a distributer-wheel located at the bottom of said hopper having a solid central web and peripheral oppositely-extending carrying-flanges, said flanges being protected by an annular casing having a discharge-opening and an inwardly-projecting arm upon one side thereof to support said wheel, whereby said web apd the carrying portions of said flanges are exposed to the grain except where they pass said arm and discharge, and means for driving said wheel, substantially as specified.

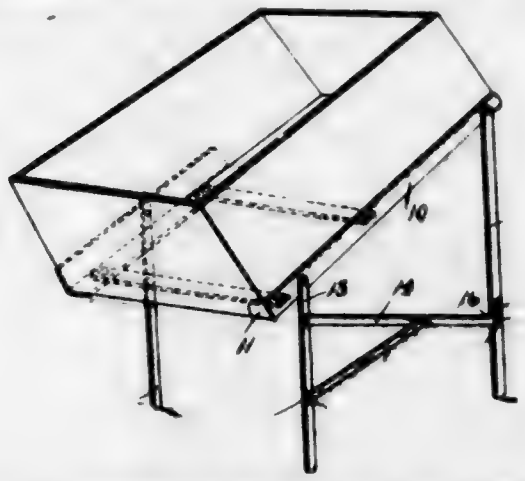
11. In a seed-distributer, an outer casing having an annular chamber, a carrying-wheel having a carrying-flange mounted in said annular chamber with the edge of said flange adjacent to and protected by the edge of said annular chamber, a housing forming part of said casing and projecting over a portion of the flange to form a measuring-channel, said casing being otherwise open at the side to leave the entire carrying-flange exposed except where it passes through said housing, and means for driving said wheel, substantially as specified.

12. The combination with a seed-hopper and a series of distributer-wheels with their casings, as described, and a shaft, of pinions slidingly mounted on said shaft to drive said wheels, and stops to hold each of said pinions independent of the others in and out of engagement, substantially as and for the purpose specified.

13. The combination with a seed-hopper and a series of distributer-wheels with their casings, as described, and a shaft, of pinions slidingly mounted on said shaft to drive said wheels, and stops pivoted to said casings to swing transversely to said shaft adjacent to said pinions to hold each of said pinions independent of the others in and out of engagement, substantially as and for the purpose specified.

14. The combination with a seed-hopper, and a series of distributing-wheels therein, provided with peripheral driving-teeth, of a driving-shaft, pinions mounted on said shaft to engage the teeth of said distributing-wheels, and means for throwing said pinions in and out of gear with the teeth of said distributing-wheels independently of each other, substantially as specified.

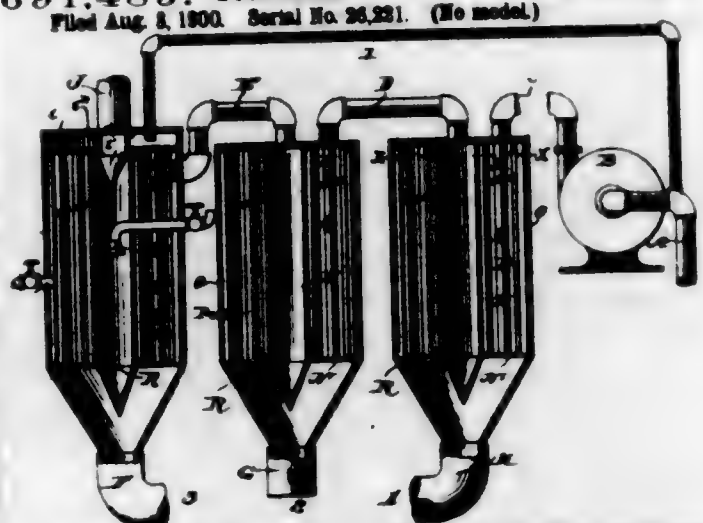
691,484. ADJUSTABLE DISPLAY-RACK. CLARENCE E. PERRIN, Des Moines, Iowa. Filed July 24, 1901. Serial No. 69,600. (No model.)



Claim.—1. An improved adjustable display-rack, comprising in combination a side piece substantially L-shaped in cross-section and having an integral end piece at right angles thereto, supporting-legs pivoted to the outer surface of said side piece, a second side piece of shorter length than the first and also substantially L-shaped in cross-section, cross-bars pivoted to the under surfaces of the side pieces and a supporting-leg on the latter-mentioned side piece, for the purposes stated.

2. An improved adjustable display-rack, comprising in combination a side piece substantially L-shaped in cross-section and having an integral end piece at right angles to the side piece, flat bars pivoted to the under surface of the side piece, a second side piece shorter than the first also substantially L-shaped in cross-section and having said bars pivoted thereto, a supporting-leg pivoted to the outer surface of the longer side piece, a pin and a gravity-lock on said leg and the shorter leg pivoted to the other end portion of the outer surface of the longer side piece and having a pin thereon, a brace pivoted to the shorter leg and having a hook in its end to engage the said pin and a notch to receive the said gravity-lock, a brace-rod pivoted to the first-mentioned brace and having a hook in its free end to engage said pin in the shorter leg, a lock having a longitudinal slot therein and a bolt passed through the short side piece and through the slot in said leg and a winged nut in said bolt to engage the leg for the purposes stated.

691,485. DUST-COLLECTOR. OTTO FORBUSH, St. Louis, Mo. Filed Aug. 8, 1900. Serial No. 26,231. (No model.)



Claim.—1. A dust-collector consisting of a blast-fan, two annular chambers arranged one within the other closed at their upper and lower ends, the inner chamber having an outlet in its upper wall and the outer chamber having its bottom wall extended below the bottom wall of the inner chamber and provided with an outlet, said chambers communicating with each other near their lower ends, a communication between the blast-fan and the outer chamber at the upper end of the latter and at a point opposite to the communication between said chamber and the inner chamber, a spiral flange arranged in said outer chamber in close proximity to said communication with the fan, vertically-arranged inclined flanges on the inner wall of the outer chamber and the outer wall of the inner chamber, and a diaphragm closing the lower end of the outer chamber and formed with openings beneath the lower ends of said flanges, substantially as described.

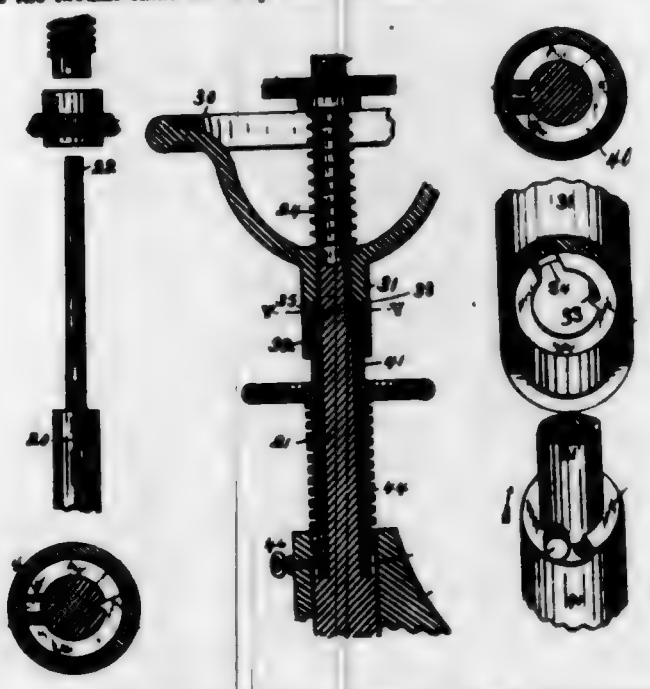
2. A dust-collector comprising a blast-fan, two annular chambers arranged one within the other and communicating with each other near their lower ends, the inner chamber having an outlet at its upper end, a communication between the fan and the outer chamber at the upper end of the latter, a spiral flange in said outer chamber having its upper end in proximity to said communication, an annular chamber at the upper end of and closing the outer chamber and communicating with the inner chamber and having an outlet in line with the outlet of said chamber, a deflector arranged in the inner chamber below the outlet therein, and a pipe establishing communication between said upper chamber and the fan, substantially as described.

3. A dust-collector system consisting of a series of collectors, each comprising two annular chambers arranged one within the other, said chambers communicating with each other at their lower ends, the outer chamber having a funnel-shaped bottom wall provided with an outlet, a blast-fan, a communication between said fan and the outer chamber of the first collector at the upper end thereof, a communication between the inner chamber of each of the collectors and the outer chamber of the adjacent collector excepting the last collector of the series, a chamber at the upper end of said last collector communicating with the inner chamber thereof and provided with an outlet in line with the communication with said inner chamber, a deflector in the inner chamber below its communication with the upper chamber, a pipe leading from the upper chamber to the blast-fan, vertical flanges on the inner walls of the outer chambers and the outer walls of the inner chambers, and diaphragms closing the lower ends of the outer chambers and having openings beneath the lower ends of said vertical flanges, substantially as described.

691,486. DRILL. WILLIAM M. POTTER, Syracuse, N. Y., assignor to E. C. Stearns & Co., Syracuse, N. Y. Filed May 31, 1900. Serial No. 17,423. (No model.)

Claim.—1. In combination in a drill, a supporting-frame, a rotating chuck-shaft suitably supported thereon having a chuck for the tool at its lower end and an upwardly-extending rod at its upper, means for rotating said shaft, a tubular shaft strung on said rod supported in the arm of the frame, a hub arranged above said tubular shaft and rotatably connected to the chuck-shaft, means for supporting the weight of the chuck-shaft on said hub, the lower end of said hub and the upper end of the tubular shaft being formed with cam-surfaces, which engage and force said tubular shaft down to feed the chuck-shaft and tool when said hub is rotated.

2. In combination in a drill, a suitable supporting-frame, a standard for the work carried thereon, a chuck-shaft rotatably supported in the frame having a chuck for the tool at its lower end and an upwardly-extending rod at its upper, means for rotating said shaft, a hub strung on said rod and connected to rotate therewith, a spring engaging with the upper surface of said hub to support the chuck-shaft thereon, a tubular shaft also strung on said rod between the chuck-shaft and the hub and formed with a thread fitting a corresponding thread in the arm of the frame, a roller interposed between the upper surface of said tubular shaft and the tubular surface of the hub to engage with a cam-surface formed on one, and force the tubular shaft down by frictional contact.



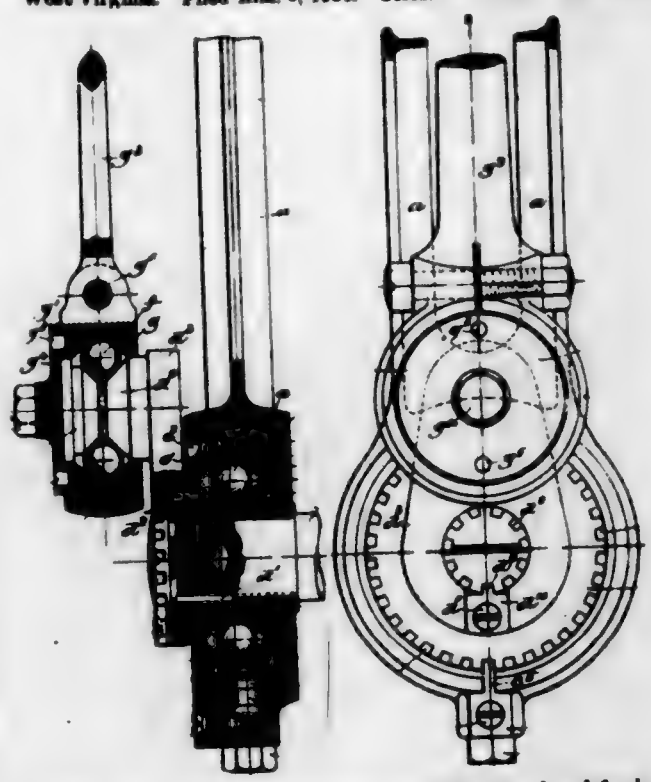
3. In combination in a drill, a suitable supporting-frame, a standard for the work carried thereon, a rotating sleeve and pinion suitably supported thereon, a crank and gear rotatably supported thereon and engaging with said pinion, a chuck-shaft having a chuck on its lower end and an upwardly-extending rod on its upper, connected to rotate therewith said sleeve, a hub strung on said rod and connected to rotate therewith, a nut on the upper end of said rod and a spring strung thereon between said nut and hub, a tubular shaft also strung on said rod formed with an exterior thread fitting a thread in the frame and with cam-surface on its upper end, and an antifriction-roller arranged between the lower surface of the hub and the cam-surface to engage with the latter and frictionally turn the tubular hub downwardly to feed the tool

4. In combination in a drill, a suitable supporting-frame, a standard carried thereon for the work, a sleeve and integral pinion rotatably supported thereon, a crank and gear journaled on the frame and engaging with said pinion, a chuck-shaft carrying the chuck for the tool on its lower, and an upwardly-extending rod on its upper end fitted to slide within said sleeve and connected to rotate therewith by feather and spline, a hub strung on said rod and connected to rotate therewith by the feather and corresponding spline, a nut fitted to the upper end of said rod, a spiral spring strung on said rod between said nut and hub to elastically support the weight of said chuck-shaft and chuck on said hub, a tubular shaft strung on said rod between the chuck-shaft and hub formed on its exterior with a thread fitted to a corresponding thread in the frame, said hub being formed with a notch on its lower surface and an antifriction-roller fitted to said notch and adapted to engage with a cam-surface on the upper end of said tubular shaft, gradually to rotate the tubular shaft and feed the chuck-shaft and tool, when turned in one direction.

5. In a drill, the combination with the frame and the tool, of the tool-support, means supported on the frame for rotating the tool and tool-support, a threaded shank fitting a corresponding thread in the frame and engaging with the tool-support, a hub connected to rotate with the tool-support, an operating-roller retained in position by said hub and adapted to engage when rotated in one direction with the inclined portion of a cam-surface on the threaded shank, and when rotated in the other direction with the vertical portion of said cam-surface on the threaded shank.

6. In a drill, the combination with the frame and the tool of the tool-support, an upwardly-extending rod on said support, means for rotating the tool-support and said rod, a hollow shank fitting said rod and externally threaded to fit a thread in the frame, said hollow shank being formed on it upper end with an inclined cam-surface having a vertical portion, a hub connected to rotate with the tool-support and having a notch on its lower end, an operating-roller arranged in said notch and engaging with said cam-surface, and a spring arranged between the nut on the rod and the upper end of the hub.

691,487. ROLLER-BEARING FOR CRANK-SHAFTS OR THE LIKE. GEORGE H. REYNOLDS, Mansfield Depot, Conn., assignor to the "Locomobile" Company of America, New York, N. Y., a Corporation of West Virginia. Filed Aug. 8, 1901. Serial No. 71,296. (No model.)



Claim.—1. A ball-bearing comprising axially-fixed and freely axially movable bearing members, a receiver for the latter of said members and freely axially movable therewith and balls arranged between said members.

2. A ball-bearing comprising a rotatable, circumferentially-grooved member, a series of balls arranged in said groove, an opposed multipart bearing member coöperating with said balls, one of the parts of said opposed bearing member being adjustable toward and from the other part thereof, said opposed bearing member having a free, axial movement relative to said rotatable member.

3. A ball-bearing comprising a rotatable circumferentially-grooved member, an opposed multipart bearing member, with balls arranged between the same and said grooved rotatable member, the parts of said multipart bearing member being adjustable one relative to another, and a freely axially movable receiver for said multipart bearing member.

4. A ball-bearing comprising a rotatable, circumferentially-grooved member, an opposed multipart bearing member, a freely axially movable receiver for said multipart bearing member in which the parts of the latter are adjustable one relative to the other, and means to retain the parts of such multipart-bearing member in adjusted position without interfering with the free axial movement thereof with said receiver.

5. A ball-bearing comprising a rotatable, circumferentially-grooved member, balls arranged in the said groove, an axially-movable receiver, a multipart bearing member arranged therein, one of the parts of said member having threaded engagement with said receiver, and means to retain the parts of said multipart member in adjusted position in said receiver.

6. A ball-bearing comprising a rotatable, circumferentially-grooved member, balls arranged in the groove of said member, a flanged receiver, a multipart bearing arranged within said receiver, one of the parts of said bearing being seated against the flange of said receiver, the other part of said bearing having threaded engagement with said receiver.

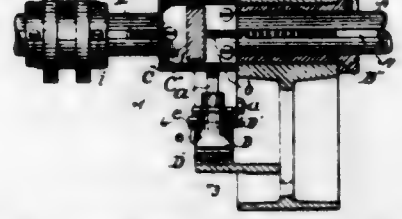
7. A ball-bearing comprising a recessed frame or support, a freely axially movable receiver therein, bearing-rings contained in said receiver and adjustable one toward the other, a rotatable, circumferentially-grooved member, and balls arranged between the same and said bearing-rings.

8. A ball-bearing comprising a recessed support or frame, a freely axially movable receiver arranged therein, bearing-rings contained in said receiver, one of said rings being in threaded engagement with said receiver, and locking means on the said frame or support to retain said threaded ring in adjusted position, a circumferentially-grooved rotatable member, and balls arranged between the same and said bearing-rings.

9. A recessed frame member or support, a freely axially movable receiver therein, bearing-rings in said receiver and adjustable one relative to the other, a bearing member in the form of a crank opposed to said bearing-rings with balls interposed between the latter and said crank, a rotatable shaft for said crank and from which the latter is endwise removable, a screw confining said crank upon said shaft, and means to lock said screw against rotation whereby said crank, receiver bearing-rings and balls may be removed from said shaft and from said frame member.

10. A ball-bearing comprising a rotatable member, a series of balls arranged in contact therewith, an opposed multipart bearing member cooperating with said balls, said opposed bearing member and said rotatable member having free axial movement one relative to the other, one of the parts of said opposed bearing member being also adjustable toward and from the other part thereof.

691,488. FRICTION-CLUTCH. CORNEIL RIDDERHOF, Grand Rapids, Mich., assignor to Wilmarth & Morman Co., Grand Rapids, Mich. Filed Mar. 13, 1901. Serial No. 50,915. (No model.)



Claim.—1. The combination with the shaft A containing the longitudinal groove A′; a rack E in said groove with suitable means as collar G to actuate the same; the sleeve B″ secured to said shaft; the pulley B revolubly mounted on said sleeve, the said pulley having a secondary rim B′ projecting to one side thereof; a hub secured to said shaft by suitable set-screws or equivalent means and having arms C′; friction-shoes D, D, pivoted at F, F, to said arms C′; said shoes D, having inwardly-projecting sockets D′, D′, at the ends thereof; a sleeve b', b', with pinion b at the center, adapted to be engaged by the rack E, supported in a suitable transverse bearing in hub C; the sleeve b', b', being internally screw-threaded, one end right-handed and the other left-handed; screws a, a, corresponding to the ends of said sleeve; disks a', a', on said screws a for adjusting the same; and locking-pins e, extending through ears on the sides of the sockets D′ to engage said disks a', to hold them in adjustment and prevent their rotation, and a spring H drawing the shoes D, D, toward each other, all coacting substantially as described for the purpose specified.

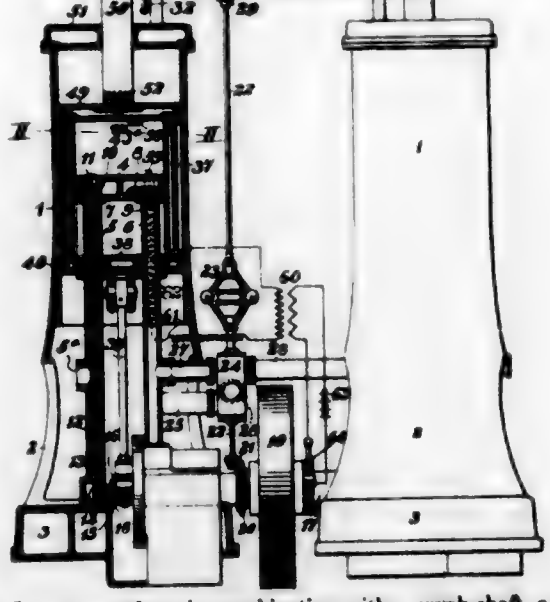
2. The combination with the shaft A containing the longitudinal groove A′; a rack E in said groove with suitable means as collar G to actuate the same; the sleeve B″ secured to said shaft; the pulley B revolubly mounted on said sleeve the said pulley having the secondary rim B′ projecting to one side thereof; a hub C secured to said shaft by suitable set-screws or equivalent means and having arms C′; friction-shoes D, D, pivoted at F, F, to said arms C′; the said shoes D, having inwardly-projecting sockets D′, D′, at the ends thereof; a sleeve B′ B′ with pinion b at the center adapted to be engaged by the rack E, supported in a suitable transverse bearing in hub C; the sleeve b', b', being internally screw-threaded, one end right-handed and the other left-handed; screws a, a, corresponding to the ends of said sleeve; disks a', a', on said screws a for adjusting the same; and locking-pins e, extending through ears on the sides of the sockets D′ to engage said disks a', to hold them in adjustment and prevent their rotation, all coacting substantially as described, for the purpose specified.

3. In a friction-clutch, the combination of a suitable shaft; a pulley with a rim; a hub secured to said shaft, having projecting arms; friction-shoes pivoted to said arms; a spring drawing the same normally inward; inwardly-projecting sockets at the outer ends of said shoes; a sleeve with a pinion thereon supported in a transverse bearing in the hub; oppositely-threaded screws at each end of said sleeve, the ends of which engage in the said sockets; a rack in a longitudinal seat in said shaft arranged to engage the said pinion and means of reciprocating the same to actuate it, coacting for the purpose specified.

4. In a friction-clutch, the combination of the shaft; the hub thereon carrying suitable friction-shoes; springs for holding said shoes normally inward; a rack and pinion supported by said hub; right and left hand screws actuated by said pinion; disks a' adapted to receive suitable locking-pins on said screws for adjusting the same, and means for locking said disks in position, coacting for the purpose specified.

691,489. GAS-ENGINE. CYRUS ROBINSON, Edgewood Park, Pa., assignor to the Westinghouse Machine Company, a Corporation of Pennsylvania. Filed Sept. 20, 1900. Serial No. 30,637. (No model.)

Claim.—1. A gas-engine having a reciprocating cylinder, in combination with a stationary piston located in said cylinder, a stationary cylinder in which said reciprocating cylinder operates, means for admitting a gaseous mixture between the piston and one head of the reciprocating cylinder to be compressed, means for transferring the compressed mixture to the space between the piston and the other head of said cylinder to be exploded.



2. In a gas-engine, the combination with a crank-shaft, a plurality of reciprocating cylinders connected thereto, of stationary cylinders in which said reciprocating cylinders operate, stationary pistons fitting within said reciprocating cylinders, means for admitting a gaseous mixture between the piston and one head of the reciprocating cylinder to be compressed, means for transferring the compressed mixture to the space between the piston and the other head of the cylinder to be exploded, and means for withdrawing the products of combustion after said explosion takes place.

3. In a gas-engine, the combination with a stationary piston and a reciprocating cylinder surrounding the same, of means for admitting an explosive mixture to the space between the piston and one end of the reciprocating cylinder and means for exhausting the products of combustion through the piston and the other end of said cylinder.

4. In a gas-engine, the combination with a stationary cylinder and a stationary piston, of a reciprocating cylinder which incloses said piston and is inclosed by said stationary cylinder, suitable inlet and exhaust air-valves in the stationary cylinder, suitable inlet and exhaust valves in the reciprocating cylinder and operating means for both sets of valves whereby air is compressed between the reciprocating cylinder and the stationary cylinder and whereby an explosive mixture is compressed between one end of the piston and the reciprocating cylinder and is transferred to the space between the other end of the piston and the other end of the reciprocating cylinder to be exploded.

5. In a gas-engine, the combination with a stationary cylinder having air inlet and exhaust valves, of a stationary piston and a reciprocating cylinder provided with gas inlet and exhaust valves and operated by explosions between one end and the piston to compress air in the stationary cylinder and to compress gas between the piston and its other end.

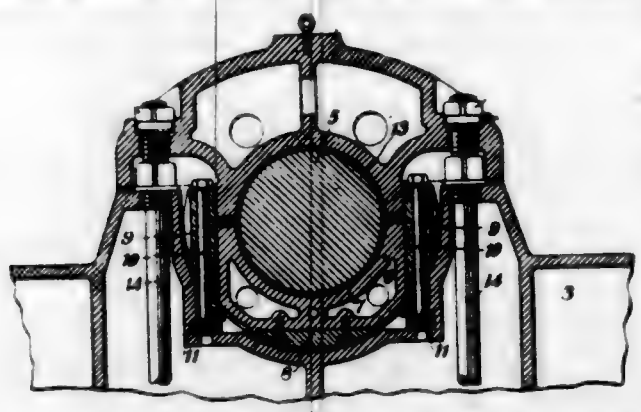
6. In a gas-engine, the combination with a vertical stationary cylinder having an air-chamber in its upper end, of a stationary piston within said stationary cylinder, and a reciprocating cylinder surrounding said piston and adapted to receive an explosive mixture below the piston and provided with means for transferring said mixture, when compressed, to the space above the piston, the explosion of said mixture serving to effect compression of air above the reciprocating cylinder and of the explosive mixture below the piston.

691,490. ENGINE-BEARING AND ADJUSTING MEANS THEREFOR. CYRUS ROBINSON, Edgewood Park, Pa., assignor to the Westinghouse Machine Company, a Corporation of Pennsylvania. Filed May 20, 1901. Serial No. 61,104. (No model.)

Claim.—1. In an engine, the combination with a bed-plate and a shaft, of a plurality of bearing-boxes for the shaft each of which comprises a plurality of removable parts which are fastened to the bed-plate and a plurality of parts which are fastened together independently of the bed-plate, and means whereby one of the last-named parts may be adjusted to effect proper alinement of the bearings.

2. In an engine, the combination with a bed-plate having a plurality of sections clamped together, of a plurality of bearing-boxes, each of which comprises a cap bolted to the bed-plate, two side pieces also bolted to the bed-plate and a bottom piece consisting of two parts and resting upon but not fastened to the bed-plate.

3. In an engine, the combination with a bed-plate and a shaft, of a plurality of bearing-boxes each of which comprises removable parts bolted to the bed-plate and a rotatable part resting upon but not fastened to the bed-plate and means for turning the last-named part about the shaft.



4. In an engine, the combination with a bed-plate and a shaft, of a plurality of bearing-boxes for the shaft each comprising a plurality of removable parts fastened to the bed-plate, a rotatable part made in two sections and means for turning said part about the shaft to admit of the separation of said sections and the insertion of adjusting means between them.

5. The combination with an engine bed-plate and a shaft, of a plurality of bearing-boxes for the shaft each comprising a plurality of removable parts fastened to the bed-plate, a rotatable part made in two separate sections and removable gearing for rotating said rotatable part until one of its sections is clear of the bed-plate.

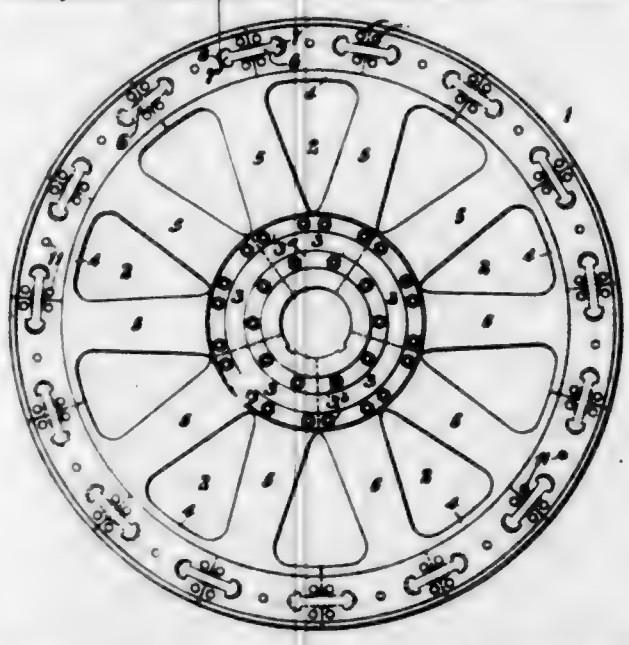
6. A bearing-box for an engine-shaft comprising a cap and a multiple-part bottom portion, the main section of which has a bottom piece that is adjustable in the plane of the shaft-axis only, and means for clamping said piece in its adjusted position.

7. A bearing-box for an engine-shaft comprising a cap and a multiple-part bottom portion, the side sections of which are provided with means for removably fastening them to the engine bed-plate and the main section of which has an adjustable bottom piece.

8. A bearing-box for an engine-shaft comprising a cap and a multiple-part bottom portion, the side sections of which are provided with means for removably fastening them to the bed-plate, and the main section of which has an adjustable bottom piece, in combination with means for rotating the main section to permit adjustment of its bottom piece.

9. The combination with an engine bed-plate comprising a plurality of sections, of a shaft and bearing-boxes therefor each of which comprises a removable cap and a multiple-part base the side sections of which are removably fastened to the bed-plate and the main section of which has an adjustable bottom piece.

691,491. **FLY-WHEEL.** CYRUS ROBINSON, Edgewood Park, Pa., assignor to the Westinghouse Machine Company, a Corporation of Pennsylvania. Filed May 20, 1901. Serial No. 61,105. (No model.)



Claim.—1. A fly-wheel comprising a plurality of segments each of which consists of a hub-section, one or more arms or spokes and a rim-section, the meeting ends of the latter having sockets, in combination with headed wrought-iron links shrunk into position in said sockets, supplemental rim-sections arranged to break joints with the main rim-sections and having sockets in their meeting ends, headed links shrunk into position in said sockets and means for clamping all of the superimposed rim-sections together.

2. A fly-wheel comprising a plurality of segments each of which consists of a hub-section, one or more arms or spokes and a rim-section formed as a single integral member, in combination with means for locking the rim-sections together to resist centrifugal force, supplemental rim-sections arranged to break joints with the main rim-sections, means for locking the supplemental sections together to resist centrifugal force and means for fastening the superimposed sections together to resist rotary forces.

3. A fly-wheel comprising a plurality of segments each of which consists of a hub-section, one or more arms or spokes and a rim-section formed as a single integral member and the ends of the rim-sections being provided with sockets, in combination with links having heads located in said sockets, laterally-disposed supplemental rim-sections arranged to break joints with the main rim-sections and having sockets, links having heads located in said sockets and means for fastening the main and supplemental rim-sections together, substantially as described.

4. A fly-wheel for engine-shafts comprising a plurality of segments, each of which consists of a hub-section, one or more arms or spokes and a rim-section formed as a single integral member and the ends of the rim-sections being provided with sockets, in combination with links shrunk into position in said sockets, supplemental rim-sections arranged to break joints with the main rim-sections and having sockets, headed links shrunk into position in said sockets and means for fastening all of the superimposed rim-sections together.

5. A fly-wheel comprising a plurality of cast-metal segments each of which consists of a hub-section, one or more spokes and a rim-section, supplemental rim-sections arranged to break joints with the main rim-sections, wrought-metal links for connecting the sections of each rim together and rivets for fastening the main and supplemental rims together.

6. A fly-wheel comprising a plurality of segments each of which consists of a hub-section, one or more spokes and a rim-section and constitutes a single casting, supplemental rim-sections, said main and supplemental rim-sections being provided with sockets at their meeting ends, wrought-metal links shrunk into said sockets and means for fastening all of the rims together, substantially as described.

691,492. **PULLEY-BLOCK.** JAMES B. ROBEY, Lynn, Mass. Filed Oct. 4, 1901. Serial No. 77,567. (No model.)



Claim.—1. A pulley-block comprising a sheave, a shell for the same, a detachable shackle, and means for connecting the shell and shackle at different angles as desired and thereby supporting the same in either of a plurality of positions relatively to the sheave, substantially as described.

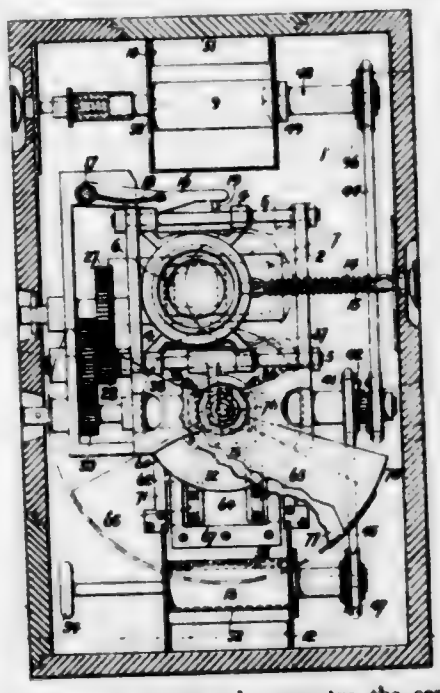
2. A pulley-block comprising a sheave, a shell for the same, a detachable shackle, a pin carried by the latter, and a connection between the shell and shackle, provided with a plurality of openings at angles to each other each of which openings is adapted to receive the shackle, whereby the latter may be supported in either of a plurality of positions relatively to the sheave, substantially as described.

3. A pulley-block comprising a sheave, a shell for the same, a shackle, a pin carried thereby, and a connection between the shell and shackle provided with a plurality of openings at angles to each other, each of which openings is adapted to receive the pin of the shackle whereby the same may be supported in either of a plurality of positions relatively to the sheave, substantially as described.

4. A pulley-block comprising a sheave, a shell for the same, a shackle, a pin carried thereby, a hanger pivoted to the shell and provided with a plurality of openings at angles to each other, each of which openings is adapted to receive the pin of said shackle whereby the same may be sup-

ported in either of a plurality of positions relatively to the sheave, substantially as described.

691,493. CINEMATOGRAPHIC APPARATUS. AUGUSTUS ROSENBERG, London, England. Filed Apr. 9, 1901. Serial No. 55,033. (No model.)



Claim.—1. In a cinematograph apparatus, the combination with cam-operated film propelment and retaining claw mechanism, and with a revolving shutter for the lens, of a driving-shaft, driving gear-wheels loose on the driving-shaft, intermediate gear-wheels respectively revolving as one with the cam for operating the propelment and retaining claw mechanism and with the shutter, and with which intermediate gear-wheels said driving gear-wheels are constantly in gear, and a double clutch rotated by said shaft and adapted to be engaged with one or the other of the said driving gear-wheels, for putting the one or other of said wheels into driving connection with said shaft, the rotation of the parts being such that the direction of motion of the cam and shutter will be reversed by the change of engagement of the clutch without reversal of motion of the clutch itself, substantially as described.

2. In a cinematograph apparatus, the combination with cam-operated film-propelment claw mechanism, and with a revolving shutter for the lens, of a driving-shaft, reversing-clutch and gear-wheel mechanism rotated by said shaft and adapted to cause the cam and shutter to be rotated and to cause the direction of rotation of the cam and of the shutter to be concurrently reversed by the change of engagement of the clutch, a lens-tube movable in the transverse direction of the film, a spring for so moving the lens, means whereby the lens-tube is connected to the reversing-clutch so that the two move together, means for retaining the lens-tube and clutch in the position in which they are set, and means for releasing the lens-tube and clutch at a given moment so as to permit the spring to move the lens-tube and clutch for the purpose of simultaneously changing the direction of propelment of the film, the direction of rotation of the shutter and the relative position of the film and lens-tube, as specified.

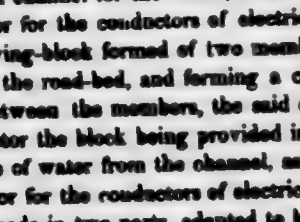
3. In a cinematograph apparatus, the combination with a laterally-movable lens-tube, a spring for moving it, a retaining-latch, a spring-pressed sliding trigger-lever for operating said latch, means of retaining the trigger out of operative position through the agency of the film, and a film having an aperture in it adapted to permit the trigger to come into operative engagement with the film so as to cause the trigger to be rocked by the traveling motion of the film and to disengage the latch from the lens-tube, as specified.

4. In a cinematograph apparatus, the combination with cam-operated film-propelment mechanism and with film-letting-off and film-taking-up spools, of friction-gear and oppositely-acting pawl mechanism connecting the spindles of the spools with a common pinion turning with one of two gear-wheels, both constantly in gear with an intermediate wheel on the cam-spindle of the film-propelment mechanism, a reversing-clutch driven always in one direction from a first-motion shaft and adapted to be engaged with one or other of said gear-wheels so as without change of its own direction of motion, to cause that of the mechanism driven by it to be reversed, and by thus reversing the movement of the common pinion to cause the one or the other pawl mechanism and consequently the one or the other spool to be driven by said pinion for the purpose of winding up the film while the other spool runs free, as described.

5. In a cinematograph apparatus, the combination with cam-operated film-propelment mechanism, a lens-tube movable in the lateral direction of the film, a spring for moving it, a reversing-clutch shifted by the lens-tube, film letting-off and taking-up spools, friction-gear and oppositely-acting pawl mechanisms connecting the spool-spindles with a common pinion, mechanism driven by the reversing-clutch whereby the said pinion and the film-propelment mechanism are driven in the one or other direction according to the position of the lens-tube and reversing-clutch, from a shaft constantly rotated in the same direction, substantially as specified.

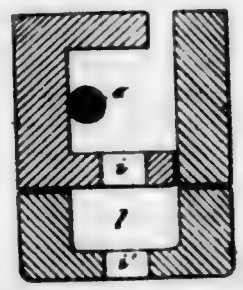
6. In a cinematograph apparatus, the combination with the usual film-propelling claws having a feed-motion as described, of a pair of film-retaining claws, and a cam for causing them to be projected into or withdrawn from engagement with the holes in the film, the operation of said claws being so coördinated with that of the feed-claws that the film will be thereby held stationary in the intervals of intermittent feed.

691,494. HORIZONTAL SWING. CHARLES A. SCHIEDLER, Jr., West Hoboken, N. J. Filed Apr. 5, 1901. Serial No. 54,434. (No model.)



Claim.—In a horizontal swing, a flanged cap adapted to fit upon the upper end of a support and provided with a pin projecting from its upper face, and a hub mounted to turn on the pin and to the upper face of which radial arms are adapted to be rigidly secured, said hub being formed with horizontal ball-raceways at the upper and lower portions of the opening through which the pin passes and with an annular ball-raceway on its under side, as set forth.

691,495. INSULATING-CONDUIT FOR CONDUCTORS OF ELECTRIC TRAMWAYS. PAUL C. SEGUY, Paris, France. Filed Mar. 5, 1901. Serial No. 49,763. (No model.)



Claim.—1. An insulator for the conductors of electric tramways, comprising a block of insulating material having a channel formed therein for the conductor, the block being provided with means for the escape of water from the channel, and a block arranged below the insulating-block and forming a channel for the water, substantially as described.

2. An insulator for the conductors of electric tramways, consisting of an insulating paving-block formed of two members, adapted to be set into the surface of the road-bed, and forming a channel opening at the top of the block between the members, the said channel being adapted to receive a conductor the block being provided in its bottom with apertures for the escape of water from the channel, as set forth.

3. An insulator for the conductors of electric tramways, comprising insulating-blocks made in two parts, adapted to be set in the surface of the road-bed and having a channel formed between the parts and opening at the top of the blocks, the channel being adapted to receive the conductor, the bottom of said channel being formed with apertures for the escape of water, and blocks arranged below the said insulating-blocks and forming a continuous channel for the water, the latter blocks having apertures in the bottom, substantially as described.

4. An insulator for the conductors of electric tramways, comprising insulating-blocks adapted to be set into the surface of the road-bed and having a channel formed therein for the conductor, the said blocks being provided with openings in the bottom, and a water-conductor below the blocks, and having openings in its bottom, substantially as described.

5. An insulator for the conductors of electric tramways, comprising insulating-blocks adapted to be set into the surface of the road-bed and having a channel formed therein, said channel opening at the top of the blocks, the said blocks being provided with apertures in the bottom, and trough-shaped blocks arranged below the said insulating-blocks and form-

ing a continuous water-channel, the said trough-shaped blocks having drainage-openings, substantially as described.

6. An insulator for the conductors of electric tramways, comprising the insulating material having a channel for the conductor opening at the top of the insulating material, the bottom of the channel having apertures formed therein, and a water-conducting passage beneath the bottom of the channel and having drainage-openings, as set forth.

691,496. WHIFFLETREE CONNECTION. ALFRED H. SHUEL, Edgar Mills, Canada. Filed Mar. 11, 1901. Serial No. 50,649. (No model.)



Claim.—1. In a device of the character described, the combination with a whiffletree having a recess formed therein, of a U-shaped guide in fixed relation thereto, an apertured plate sleeved on said guide free to have a limited movement thereon, a projection formed on said plate, a spring fitting in said recess and sleeved on said projection and adapted to hold said plate in its distended position, and a clevis pivotally mounted in said plate and adapted to encircle the whiffletree.

2. The combination of a whiffletree, having a recess formed therein, a U-shaped guide carried by said tree, a plate adapted to have a limited movement on said guide, and a spring interposed between said plate and tree and fitting in said boring to hold said plate normally out of contact with the tree for the purpose specified.

3. In a device of the character described, the combination of a whiffletree formed with a boring *d'*, the U-shaped guide *a* carried by said tree, the apertured plate *b* sleeved on said guide free to have a limited movement thereon, the spring *f* interposed between said plate and tree, and the clevis *h* pivotally secured to said plate, substantially as and for the purpose described.

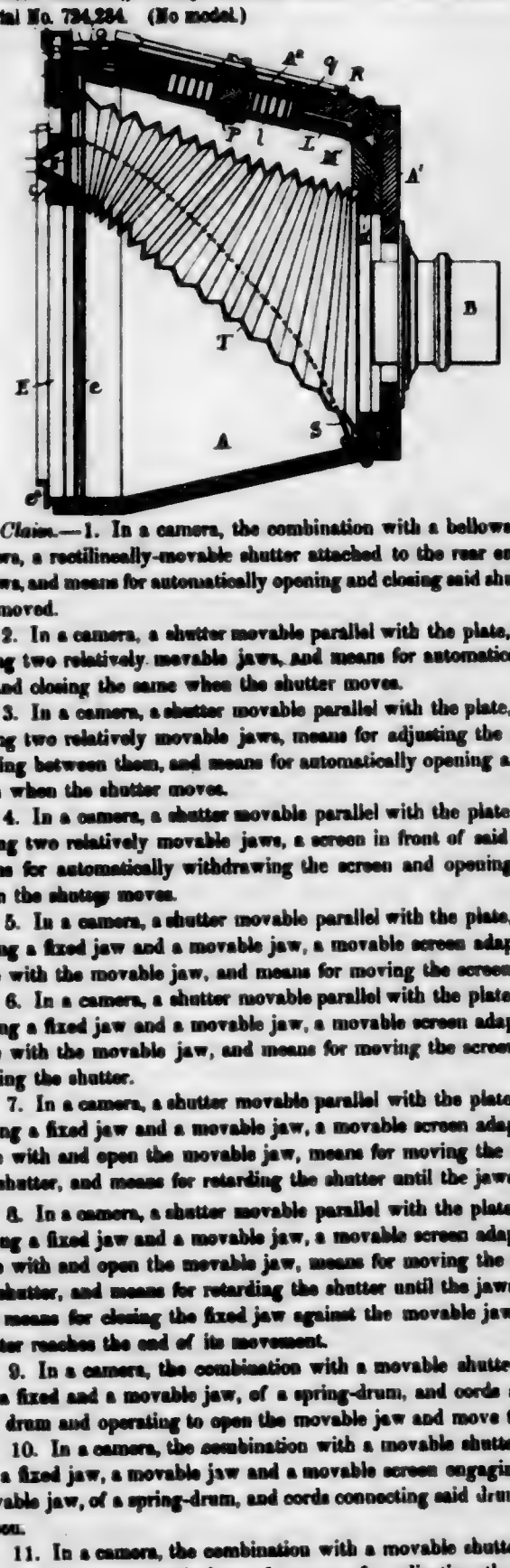
4. In a device of the character described, the combination of a whiffletree, formed with a boring, guides carried by said tree, a plate sleeved on said guides free to have a limited movement thereon, a pin carried by said plate, and a spring fitting in said boring and sleeved on said pin adapted to normally hold said plate away from said tree and a clevis pivoted in said plate.

5. In a doubletree, the combination of a pair of guides carried by the opposite ends thereof, spring-backed plates at the rear side of said doubletree mounted on said guides and free to have a limited movement thereon, and clevises encircling said doubletree, one at each end thereof, pivotally mounted in said plates.

6. The combination of a whiffletree, having a boring *d'* and guides adjacent thereto, a plate *b* mounted on said guides free to have a limited movement thereon, the pin *d* formed on said plate, and the spring *f* having its opposite ends fitting on said pin and in said boring respectively, a clevis pivotally mounted in said plate and stops to limit the lateral movement of said clevis.

7. The combination of a whiffletree, having the boring *d'* and guides adjacent thereto, a plate mounted on said guides free to have a limited movement thereon, the pin *d* formed on said plate, and a spring *f* having its opposite ends fitting on said pin and in said boring respectively, a clevis carried by said plate, and a plate *c* in the bottom of said boring.

691,497. PHOTOGRAPHIC SHUTTER. JEAN G. SIEGRIST, (called GUIDO SIEGRIST,) Neuilly-sur-Seine, France. Filed July 18, 1899. Serial No. 724,284. (No model.)



Claim.—1. In a camera, the combination with a bellows-box, of a bellows, a rectilinearly-movable shutter attached to the rear end of said bellows, and means for automatically opening and closing said shutter when it is moved.

2. In a camera, a shutter movable parallel with the plate, and comprising two relatively movable jaws, and means for automatically opening and closing the same when the shutter moves.

3. In a camera, a shutter movable parallel with the plate, and comprising two relatively movable jaws, means for adjusting the amount of opening between them, and means for automatically opening and closing them when the shutter moves.

4. In a camera, a shutter movable parallel with the plate, and comprising two relatively movable jaws, a screen in front of said jaws, and means for automatically withdrawing the screen and opening the jaws when the shutter moves.

5. In a camera, a shutter movable parallel with the plate, and comprising a fixed jaw and a movable jaw, a movable screen adapted to engage with the movable jaw, and means for moving the screen.

6. In a camera, a shutter movable parallel with the plate, and comprising a fixed jaw and a movable jaw, a movable screen adapted to engage with the movable jaw, and means for moving the screen, and also moving the shutter.

7. In a camera, a shutter movable parallel with the plate, and comprising a fixed jaw and a movable jaw, a movable screen adapted to engage with and open the movable jaw, means for moving the screen and the shutter, and means for retarding the shutter until the jaws are open.

8. In a camera, a shutter movable parallel with the plate, and comprising a fixed jaw and a movable jaw, a movable screen adapted to engage with and open the movable jaw, means for moving the screen and the shutter, and means for retarding the shutter until the jaws are open, and means for closing the fixed jaw against the movable jaw when the shutter reaches the end of its movement.

9. In a camera, the combination with a movable shutter, comprising a fixed and a movable jaw, of a spring-drum, and cords attached to said drum and operating to open the movable jaw and move the shutter.

10. In a camera, the combination with a movable shutter, comprising a fixed jaw, a movable jaw and a movable screen engaging with the movable jaw, of a spring-drum, and cords connecting said drum with said screen.

11. In a camera, the combination with a movable shutter, comprising a fixed and a movable jaw, of a screw for adjusting the amount of opening of said jaws, and a rotatable socketed hub with which said screw engages when the shutter is at one end of its movement.

12. In a camera, the combination with a movable shutter, comprising a fixed and a movable jaw, of a screw for adjusting the amount of opening of said jaws, and a rotatable socketed hub with which said screw engages when the shutter is at one end of its movement, a handle on said hub, and an index adjacent to said handle.

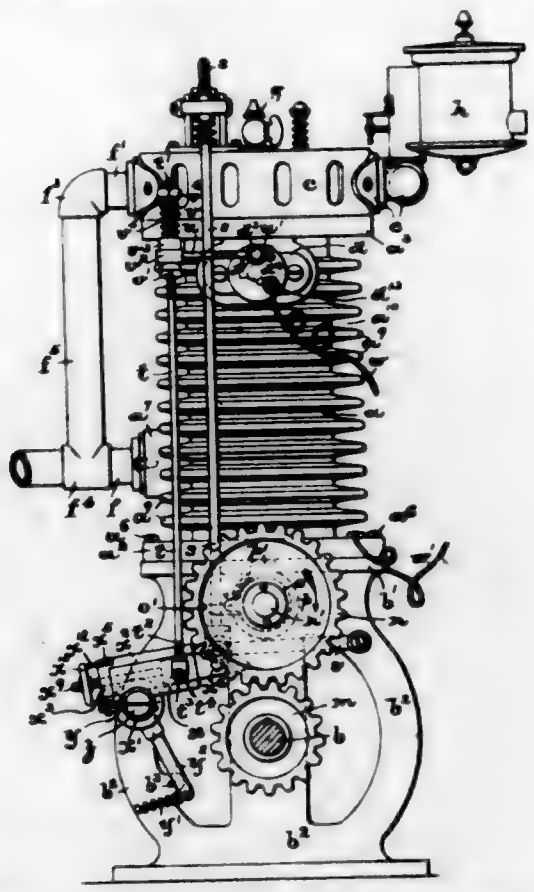
13. In a camera, the combination with a movable shutter, comprising a fixed and a movable jaw, of a screw for adjusting the amount of opening of said jaws, and a rotatable socketed hub with which said screw engages when the shutter is at one end of its movement, a handle on said hub and a toothed annulus with which said handle engages at every revolution.

14. In a camera, the combination with a shutter movable in a focal plane, of a magazine movable in a direction parallel with said plane, and catches on the shutter located in the path of said magazine and adapted to be engaged thereby, whereby said shutter will be set by said magazine when the latter is moved into position for exposing a plate.

15. In a camera, the combination with a spring-actuated shutter movable in a focal plane, of a magazine movable in a direction parallel with said plane, spring-catches on the shutter lying in the path of said magazine and adapted to be engaged thereby, whereby said shutter will be set by said magazine when the latter is moved into position for exposing a plate, and means for disengaging said catches from the magazine in order to permit the spring to actuate said shutter.

16. In a camera, the combination with a movable shutter, comprising two relatively movable jaws, and a movable screen, of a spring-drum connected with said screen, spring-hooks pivoted on the screen, and a magazine adapted to engage with said hooks and set the shutter when moved into place.

691,498. ELECTRIC IGNITING DEVICE FOR EXPLOSIVE-ENGINES. JAMES M. SMITH, Newark, N. J., assignor to Jesse Walrath, Racine, Wis. Filed Dec. 21, 1899. Serial No. 741,087. (No model.)



Claim.—1. In an explosive-engine, the combination with the igniter mechanism, of a pivoted arm having its movable end operatively connected with said igniter mechanism, an igniter-operating cam, an adjustable part having a sliding engagement with said arm, adapted to engage said cam; and means for securing said part at different longitudinal positions on said arm, substantially as and for the purposes set forth.

2. In an explosive-gas engine, the combination, with a cylinder, crank-shaft, and piston, of a bearing device in one side of the cylinder, having tubular openings, a fixed or stationary igniting-stem in one of said openings, but insulated from said bearing, an oscillatory igniting-stem in the other of said openings in said bearing, contact-pieces connected with said stems, and means connected with said oscillatory igniting-stem for producing a rock motion of the same, consisting, essentially, of an arm or lever *u* having one end attached to the free end of said oscillatory stem, a downwardly-extending rod or link *t*, with which the opposite end of said arm or lever *u* is operatively connected, an oscillatory casing to which the lower end of said rod or link *t* is attached, a spring-actuated lift-dog slidably arranged in said casing having a portion extending therefrom, and means operated from the crank-shaft and engaging with said lift-dog for actuating said oscillatory igniting-stem, substantially as and for the purposes set forth.

3. In an explosive-gas engine, the combination, with a cylinder, crank-shaft, and piston, of a bearing device in one side of the cylinder, having tubular openings, a fixed or stationary igniting-stem in one of said openings, but insulated from said bearing, an oscillatory igniting-stem in the other of said openings in said bearing, contact-pieces connected with said stems, and means connected with said oscillatory igniting-stem for producing a rock motion of the same, consisting, essentially, of an arm or lever *u* having one end attached to the free end of said oscillatory stem, a downwardly-extending rod or link *t*, with which the opposite end of said arm or lever *u* is operatively connected, an oscillatory casing to which the lower end of said rod or link *t* is attached, a spring-actuated lift-dog slidably arranged in said casing having a portion extending therefrom, and means operated from the crank-shaft and engaging with said lift-dog for actuating said oscillatory igniting-stem, consisting of a collar *o* and a spring-dog connected with said collar, substantially as and for the purposes set forth.

4. In an explosive-gas engine, the combination, with a cylinder, crank-shaft, and piston, of a bearing device in one side of the cylinder, having tubular openings, a fixed or stationary igniting-stem in one of said openings, but insulated from said bearing, an oscillatory igniting-stem in the other of said openings in said bearing, contact-pieces connected with said stems, and means connected with said oscillatory igniting-stem for producing a rock motion of the same, consisting, essentially, of an arm or lever *u* having one end attached to the free end of said oscillatory stem, a downwardly-extending rod or link *t*, with which the opposite end of said arm or lever *u* is operatively connected, an oscillatory casing to which the lower end of said rod or link *t* is attached, a spring-actuated lift-dog slidably arranged in said casing having a portion extending therefrom, and means operated from the crank-shaft and engaging with said lift-dog for actuating said oscillatory igniting-stem, consisting, of a set of gears operated from the crank-shaft, a collar *o* on the hub of one of said gears, and a spring-dog connected with said collar, substantially as and for the purposes set forth.

5. In an explosive-gas engine, the combination, with a frame or support, a cylinder, crank-shaft, and piston, of a box or casing *x* pivotally connected with said frame or support, a lift-dog slidably arranged in said box or casing, having one end extending therefrom, a lifting means arranged to be brought in operative engagement with the free end of said lift-dog, an igniting or sparking device connected with said cylinder, and an operative connecting means between said igniting or sparking device and said box or casing *x*, substantially as and for the purposes set forth.

6. In an explosive-gas engine, the combination, with a frame or support, a cylinder, crank-shaft, and piston, of a box or casing *x* pivotally connected with said frame or support, a lift-dog slidably arranged in said box or casing, having one end extending therefrom, a lifting means arranged to be brought in operative engagement with the free end of said lift-dog, an igniting or sparking device connected with said cylinder, consisting, essentially of a bearing device in one side of the cylinder, having tubular openings, a fixed or stationary igniting-stem in one of said openings, but insulated from said bearing, an oscillatory igniting-stem in the other of said openings in said bearing, contact-pieces connected with said stems and means connected with said oscillatory igniting-stem for producing a rock motion of the same, consisting, essentially, of an arm *u* having one end attached to the free end of said oscillatory stem, a downwardly-extending rod or link *t*, with which the opposite end of said arm or lever *u* is operatively connected, and said rod or link *t* having its lower end pivotally connected with said box or casing *x*, substantially as and for the purposes set forth.

7. In an explosive-gas engine, the combination, with a frame or support, a cylinder, crank-shaft, and piston, of a box or casing *x* pivotally connected with said frame or support, a lift-dog slidably arranged in said box or casing, having a lifting end extending therefrom, a lifting means arranged to be brought in operative engagement with the said lifting end of said lift-dog, a screw-threaded rod connected with said dog extending from the opposite end of said box or casing *x*, a finger-piece on said rod and an adjusting pin or stem on said finger-piece for varying the degree of extension of said lift-dog from said box or casing, an igniting or sparking device connected with said cylinder, and an operative connecting means between said igniting or sparking device and said box or casing *x*, substantially as and for the purposes set forth.

8. In an explosive-gas engine, the combination, with a frame or support, a cylinder, crank-shaft, and piston, of a box or casing *x* pivotally connected with said frame or support, a lift-dog slidably arranged in said box or casing, having a lifting end extending therefrom, a lifting means arranged to be brought in operative engagement with the said lifting end of said lift-dog, a screw-threaded rod connected with said dog extending from the opposite end of said box or casing *x*, a finger-piece on said rod and an adjusting pin or stem on said finger-piece for varying the degree of extension of said lift-dog from said box or casing, an igniting or sparking device connected with said cylinder, consisting, essentially, of a bearing device in one side of the cylinder, having tubular openings, a fixed or stationary igniting-stem in one of said openings, but insulated from said bearing, an oscillatory igniting-stem in the other of said openings in said bearing, contact-pieces connected with said stems, and means connected with said oscillatory igniting-stem for producing a rock motion of the same, consisting, essentially, of an arm *u* having one end attached to the free end of said oscillating stem, a downwardly-extending rod or link *t*, with which the opposite end of said arm or lever *u* is operatively connected, and said rod or link *t* having its lower end pivotally connected with said box or casing *x*, substantially as and for the purposes set forth.

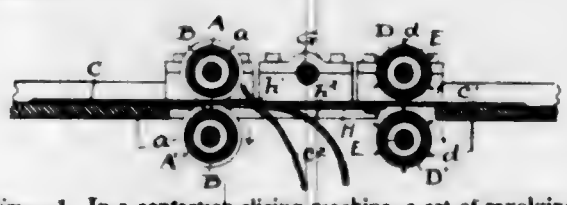
9. In an explosive-gas engine, the combination, with igniting or sparking means, and a connecting arm or lever *u*, of a rod or link *t* hav-

ing a screw end t', a sleeve v on said screw end, provided with an enlargement v' forming a support for a ring-shaped end of said arm or lever u, a nut v^4 on the upper end of said sleeve, and a collar v^3 on said sleeve, above the ring-shaped end of said arm or lever u, and a spring encircling said sleeve v between said nut and collar on said sleeve, substantially as and for the purposes set forth.

10. In an explosive-gas engine, the combination, with igniting or sparking means, and a connecting arm or lever, u, of a rod or link t having a screw end t', a sleeve v on said screw end, provided with an enlargement v' forming a support for a ring-shaped end of said arm or lever u, a nut v^4 on the upper end of said sleeve, a collar v^3 on said sleeve, above the ring-shaped end of said arm or lever u, a spring encircling said sleeve v between said nut and collar on said sleeve, and a box or casing x with which the lower end of said rod or link t is pivotally connected, a lift-dog slidably arranged in said box or casing, having a lifting end extending therefrom, and a lift means arranged to be brought in operative engagement with the said lifting end of said lift-dog, substantially as and for the purposes set forth.

11. In an explosive-gas engine, the combination, with igniting or sparking means, and a connecting arm or lever, u, of a rod or link t having a screw end t', a sleeve v on said screw end, provided with an enlargement v' forming a support for a ring-shaped end of said arm or lever u, a nut v^4 on the upper end of said sleeve, a collar v^3 on said sleeve, above the ring-shaped end of said arm or lever u, a spring encircling said sleeve v between said nut and collar on said sleeve, and a box or casing x with which the lever end of said rod or link t is pivotally connected, a lift-dog slidably arranged in said box or casing, having a lifting end extending therefrom, and a lift means arranged to be brought in operative engagement with the said lifting end of said lift-dog, a screw-threaded rod connected with said dog extending from the opposite end of said box or casing x, a finger-piece on said rod, and an adjusting pin or stem on said finger-piece for varying the degree of extension of said lift-dog from said box or casing x, substantially as and for the purposes set forth.

691,499. MACHINE FOR CUTTING CONFECTIONERIES. RICHARD SHEDDEN, Cleveland, Ohio. Filed Sept. 26, 1901. Serial No. 76,642. (No model.)



Claim.—1. In a confection-slicing machine, a set of revolving cutters to slice the confection lengthwise and a set of revolving cutters to cut the slices transversely, in combination with a plate between said rolls having slots for the first set of slicing-cutters and downward deflectors formed on the edges of said plate to carry down the outside side slices of the confection, said deflectors having one end turned upward from said plate and the other downward, substantially as described.

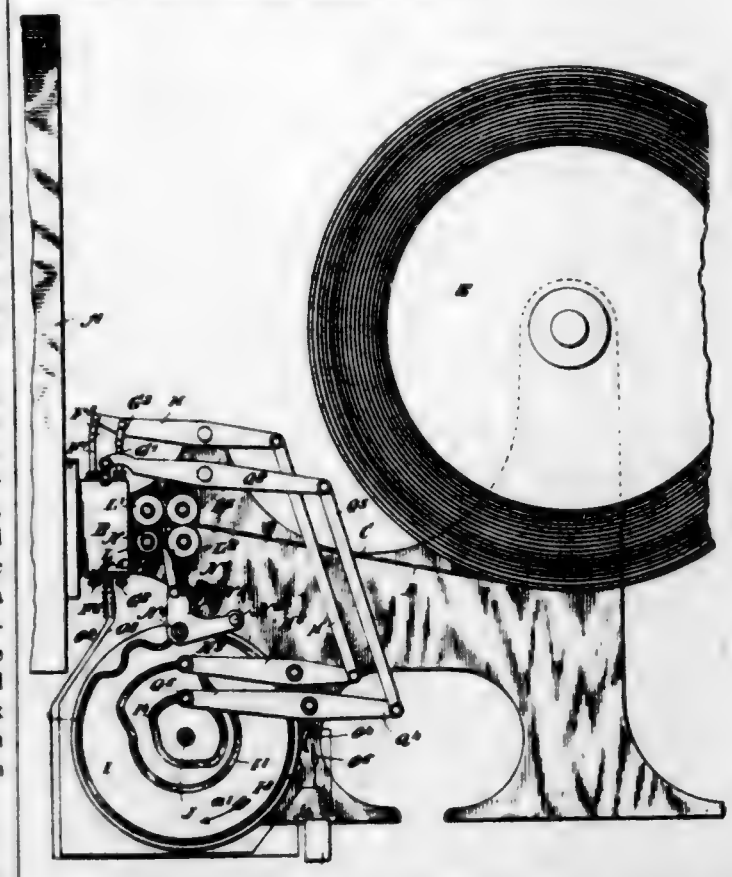
2. In a machine for slicing sheets of confections into strips, a set of revolving cutters to divide the sheet in strips lengthwise, in combination with a plate having slots h entered by said cutters and deflectors h' cut from the edges of said plate and having their ends bent in opposite directions and adapted to carry the edge strips of the confection downward, said plate having its front portion extending laterally as far as said deflectors, whereby an opening is formed in front of each deflector behind said front portion to enable the strips to pass down, substantially as described.

691,500. GENERATING MOTIVE POWER. RUDOLPH STEBER-SEN, Brooklyn, N. Y., assignor of two-thirds to Carl J. Lundman and Charles F. Nerlin, Brooklyn, N. Y. Filed Mar. 15, 1901. Serial No. 51,329. (No model.)

Claim.—1. A generator, comprising an explosion-chamber, a pressure-storage chamber connected with the explosion-chamber, a feed device for feeding a web carrying explosive charges into said explosion-chamber, and cut-off valves for alternately connecting the explosion-chamber with the storage-chamber and the explosion-chamber with the outside, for introducing the charges, one of the valves serving as a knife to sever the web, as set forth.

2. A generator, comprising an explosion-chamber having a port in one side, a feeding device for feeding a web carrying explosive charges into said explosion-chamber, a cut-off valve controlling the said port and serving also as a knife to sever the web, and an igniting device for igniting the charges when the explosion-chamber is closed to the outside, as set forth.

3. A generator, comprising an explosion-chamber having a port in one side, a feeding device for feeding a web carrying explosive charges into said explosion-chamber, an apertured cut-off valve controlling said port and also serving as a knife to sever the web, an igniting device for igniting the charges when the explosion-chamber is closed to the outside, and a storage-chamber connected with said explosion-chamber at the time the latter is cut off from the outside, as set forth.



4. A generator, comprising an explosion-chamber, a pressure-storage chamber connected with the explosion-chamber, a feeding device for feeding a web carrying explosive charges into said explosion-chamber, cut-off valves for alternately connecting the explosion-chamber with the storage-chamber and the explosion-chamber with the outside, one of the valves being apertured and through which the web passes, the said valve also serving as a knife to sever the web carrying the charges, and means, substantially as described, for actuating said feed device and said cut-off valves in unison, as set forth.

5. A generator, comprising an explosion-chamber, a pressure-storage chamber connected with the explosion-chamber, a feed device for successively feeding explosive charges into said explosion-chamber, cut-off valves for alternately connecting the explosion-chamber with the storage-chamber and the explosion-chamber with the outside, the valve controlling the port communicating with the outer air being apertured and through which aperture the charges pass said valve serving as a knife to sever the web carrying the charges, an igniting device for igniting the charges in the explosion-chamber when the latter is closed to the outside and is connected with said storage-chamber, and means for actuating said cut-off valves, said feed device and said igniting device, as set forth.

6. A generator, comprising an explosion-chamber, a pressure-storage chamber connected with the explosion-chamber, a feed device for successively feeding explosive charges into said explosion-chamber, cut-off valves for alternately connecting the explosion-chamber with the storage-chamber and the explosion-chamber with the outside, for introducing the charges, the valve through which the charges are introduced also serving as a knife to sever the web carrying the charges, and means for automatically stopping said feed device and said cut-off valves when the pressure in the storage-chamber increases beyond the normal pressure, as set forth.

7. In a generator, the combination with a storage-chamber, and an explosion-chamber having a port leading to the storage-chamber and a port leading out through one side thereof, of a feeding device for feeding an explosive charge into the chamber through the port in its side, valves for alternately closing and opening the ports of the explosion-chamber, an igniting device for igniting the charge, and means for forcing the products of combustion from the explosion-chamber into the storage-chamber, as set forth.

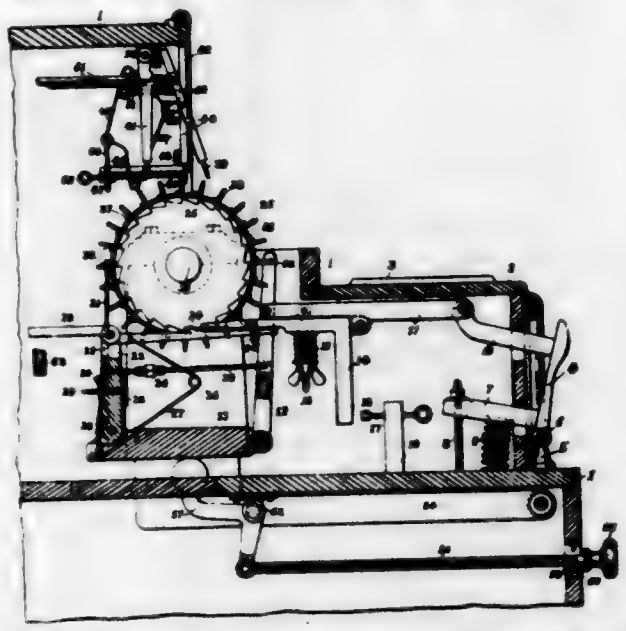
8. In a generator, the combination with a storage-chamber, and an explosion-chamber having two ports, one leading into the storage-chamber, of valves controlling the said ports, one valve being apertured to admit the charges and also serving as a knife to sever the web carrying the charges, a pivoted lever, links connecting the valve-stems with said lever, one in rear of the other, a cam, and means for operating the lever from the cam, as set forth.

9. In a generator, the combination with a storage-chamber, and an

explosion-chamber having two ports, one leading into the storage-chamber, of sliding valves controlling said ports, a driven shaft, means for operating the valves from said shaft, feed-rollers opposite one of the ports of the explosion-chamber, means for operating the rollers from the said shaft, a plunger mounted in the explosion-chamber, and means for operating the plunger from the said shaft, as set forth.

10. In a generator the combination with a storage-chamber, an explosion-chamber connected with the storage-chamber, a feed device for feeding an explosive charge into the explosion-chamber, valves for alternately connecting the explosion-chamber with the storage-chamber and with the outside, a shaft, and means for operating the valves and feed device from said shaft, of a driving-pulley on said shaft, and having a clutch connection therewith, and a safety-valve on the storage-chamber and serving to throw the clutch members out of mesh when the pressure in the chamber exceeds the normal, as set forth.

691,501. ORGAN. CHRISTIAN STOLLWERK, Aix-la-Chapelle, Germany. Filed Dec. 28, 1900. Serial No. 41,430. (No model.)



Claim.—1. In an organ the combination with a keyboard of a thumb-board, a drum, links and levers for rotating said drum, a ratchet and pins for preventing chance motion of said drum, reversible tappets on said drum, means for operating the organ-registers through contact with said tappets comprising contact-pins on oblong boards pivotally suspended engaging said tappets when turned one way and hooked levers engaging them when turned the other way, and a rod and bell-crank to raise and lower the drum and the mechanism connected therewith.

2. In an organ the combination with a keyboard of a thumb-board pivotally connected with the organ-housing, a spring or springs to return said thumb-board to its original position, a vertically-movable base, a rod and bell-crank to cause said vertical motion of the base, a forked lever pivotally connected with said base, a link between said forked lever and the thumb-board, a bent lever pivotally attached to said link and held thereto by means of an eyebolt and spring, a post with an adjusting-screw to limit the motion of said bent lever, bearings on said base, a drum mounted in said bearings, a ratchet-wheel on said drum and pins upon the periphery of said drum contacting periodically with a cross-pin in said forked lever to limit partial revolution of said drum.

3. In an organ the combination with a keyboard of a thumb-board pivotally connected with the organ-housing, a vertically-movable base, a rod and a bell-crank to cause said vertical motion of the base, a forked lever pivotally attached to said base, a link between said forked lever and said thumb-board, a bent lever pivotally attached to said link, bearings on said base, a drum journaled therein, a ratchet on the end of said drum, a double-armed lever having a tooth, the end of said bent lever and said tooth engaging said ratchet, posts attached to said base, a slotted lever between said posts, said double-armed lever being mounted in said slotted lever, another forked lever journaled in the spurs of said posts, an adjustable rod between said forked levers, a leaf-spring attached to said base, an adjusting-screw in said slotted lever bearing against a fixed plate on said posts, and a spring for said double-armed lever.

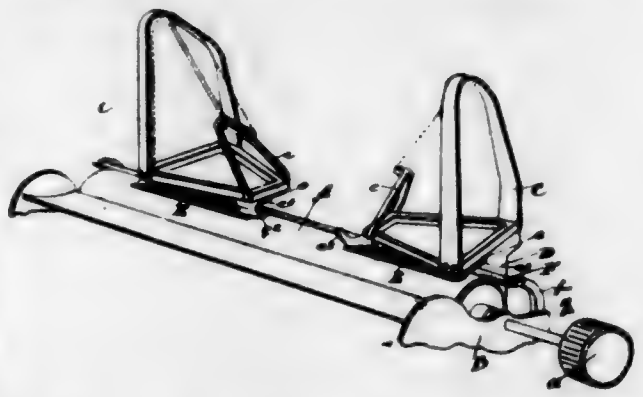
4. In an organ the combination with a keyboard of a thumb-board, a movable base, a forked lever pivotally attached to said base, a link between said forked lever and said thumb-board, a bent lever on said link, an adjustable contact for said bent lever, a spring or springs to return said thumb-board to its original position, another forked lever journaled in the spurs of the posts on the base, a slotted lever between said posts, a double-armed lever carried by said slotted lever, bearings on said base, a drum journaled in said bearings, a ratchet on said drum, pins on the drum alternately in contact with said forked levers, reversible tappets on said drum in contact with a pin in one position and in contact with a bend when in the other position, lathe upon the circumference of said drum, pivotally-suspended oblong boards, a contact-pin on each of said oblong boards, a hinged bar for each oblong board, a hook on the free end of each of said hinged bars, springs holding said boards alternately in a vertical or in a tilted position, rod connections between said oblong boards and registers, springs to retain said tappets when set, a rod and a bell-crank to raise and lower said base, and a fixed contact for the outer arm of said double-armed lever having a tooth.

691,502. COCK FOR GAS-FIXTURES. JAMES D. STURGIS, Chicago, Ill. Filed June 1, 1901. Serial No. 62,719. (No model.)

Claim.—1. In a gas-controlling cock, a longitudinally-bored body having a transverse coniform orifice therein which intersects the bore, a shoulder at the larger end of the coniform orifice, a coniform plug held to turn in the coniform orifice, and having a transverse passage therein that may be alined with the bore, and an eccentric projection on the plug that may be rotatably adjusted, said projection contacting with the shoulder when the plug is turned in one direction, to prevent complete closure of the transverse passage, and by rotatable adjustment define the degree of opening thus provided.

2. In a gas-controlling cock of the character described, the body having a longitudinal bore therein and a transverse orifice intersecting the bore, a plug held to turn in the orifice and having a transverse gas-passage adapted to be alined with the bore of the body, two projections on the body at one end of the transverse orifice therein, a pin on the plug adapted to contact with one of the projections when the plug is turned sufficiently to close the gas-passage in the plug, and an eccentrically-headed pin on the plug adapted by rotatable adjustment to define a graduated opening in the plug when said head contacts with the other projection on the body.

691,503. PAPER-GUIDE FOR TYPE-WRITERS. ALBERT SWINBURNE, Montreal, Canada. Filed Apr. 2, 1901. Serial No. 54,059. (No model.)



Claim.—1. In a paper-guide for type-writers, the combination with the platen and the type-bar frames located above the same separated centrally, of a plate intermediate of the platen and type-bar frames and attached to or forming part of the bottom of each frame and provided with an inwardly-extending lip as and for the purpose specified.

2. In a paper-guide for type-writers, the combination with platen and the type-bar frames separated centrally, of a plate attached to or forming part of the bottom of each frame and provided with an inwardly-extending lip and curved in cross-section, so as to hold the paper down as and for the purpose specified.

3. In a paper-guide for type-writers, the combination with the platen and the type-bar frames separated centrally, of a plate curved in cross-section and provided with an inwardly-extending upturned lip and having suitable lugs whereby it is fastened to the bottom of each type-bar frame as and for the purpose specified.

4. In a paper-guide for type-writers, the combination with the platen suitably journaled in the carriage, of the type-bar frames above the platen having inwardly-extending portions between the type-bar frames and platen designed to extend over the paper and hold it down as it passes laterally underneath the same as and for the purpose specified.

691,504. FENCE. DOCK L. M. TITSWORTH, Rosenberg, Tex. Filed May 2, 1900. Serial No. 15,252. (No model.)

Claim.—1. An integral bracing member consisting of a frame and

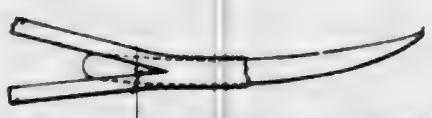
a pair of guys proceeding therefrom is a plane at right angles thereto, whereby the bracing member may be sunk into a cross-shaped trench, substantially as and for the purpose specified.



2. An integral bracing member made of a single piece of wire, consisting of a frame and a pair of guys proceeding therefrom in a plane at right angles thereto, whereby the bracing member may be sunk into a cross-shaped trench, substantially as and for the purpose specified.

3. A bracing member made of a piece of wire to form a frame with opposite indentations and cross-strands, the ends of the wire projecting from the indentations in a plane at right angles to the frame, substantially as set forth.

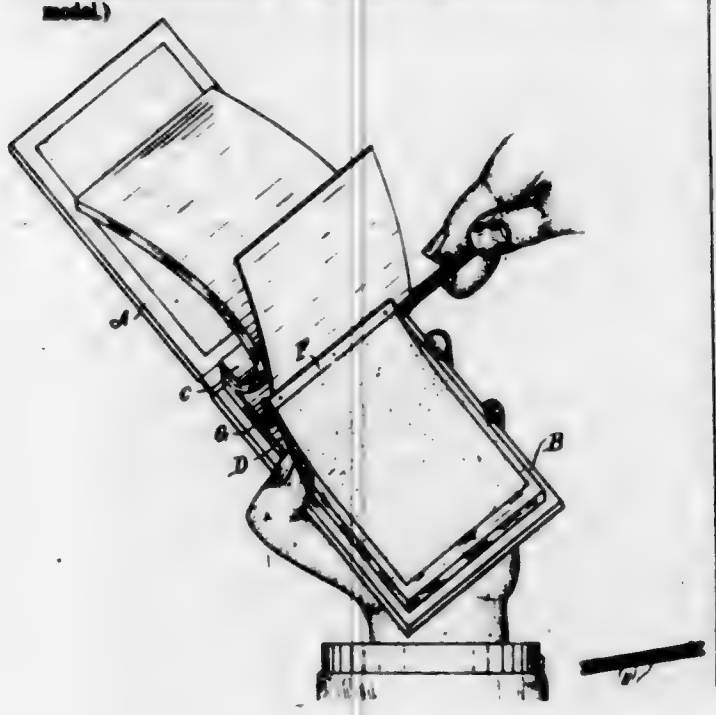
691,505. PROCESS OF UTILIZING THE INTESTINES OF HOGS. PETER F. TURNER, Chicago, Ill. Filed Aug. 23, 1901. Serial No. 73,545. (No specimens.)



Claim.—1. The process of producing instrument-strings from the intestines of hogs, which consists in taking the uncleaned intestines of hogs and splitting them into strips of relatively large cross-section by drawing the intestines, by unequal tensions applied to the several strips, against the cutting device, drawing them by a yielding tension under cleaning-knives, cleaning and scraping them by hand, immersing the strips in a soda solution to soften and toughen them and continuing the treatment so as to rid them of their tendency to stretch, cutting them in proper lengths and sorting them, and then taking a relatively small number of strips or strands in proportion to the cross-section of the string to be made, and twisting or spinning them together, then stretching, drying and finishing, substantially as described.

2. The process of manufacturing instrument-strings from the intestines of hogs, which consists in forming from the intestines of a hog a series of relatively thick or heavy strips, forming them into properly-shaped strings or strands and spinning or twisting them together so as to form an instrument-string of a series of relatively heavy strands, said string having fewer strands in proportion to its cross-section than is the case with strings made from the intestines of other animals.

691,506. CARBON COPYING-BOOK. ALBERT R. TURK and BELA G. MERRILL, Chicago, Ill. Filed Feb. 3, 1900. Serial No. 3,786. (No model.)



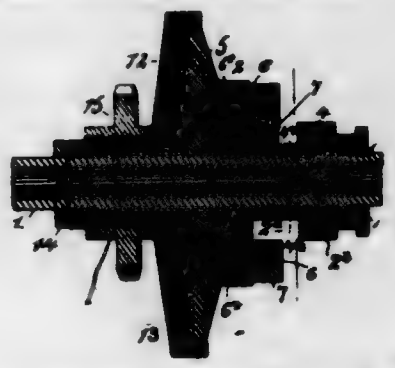
Claim.—1. In a manifolding-book, the combination of a cover; a pad or block of memorandum-leaves, bound at one end; a support mounted on the cover, said support comprising a single side bar pivotally secured to the cover at one end, with the other end projecting from said pivot along one side of the memorandum-block toward the bound end of the memorandum-block, and free to oscillate on said pivot perpendicularly to the plane of the cover; a carrying end bar rigidly secured to the side bar in a position to project across the memorandum-leaves, near their bound end, and supporting a carbon-sheet, whereby such sheet may be freely lifted by the pressure of the thumb or finger on the side bar, while the other side is left open for an uninterrupted passage of a finger or pencil, in manipulating the copy-sheet, and adjusting it under the carbon-sheet without removing the latter from the book.

2. The combination with a book-cover; of a bar pivotally secured thereto; and a strip of resilient material secured at one end to the bar and doubled upon itself, with its free end formed into a hook adapted to engage said bar, said strip being dented inwardly at intervals to form points adapted to engage the carbon-sheet, and said points being arranged in sets of three, with the intermediate point opposing the other two of each set.

3. In a manifolding-book, the combination of a cover; a pad or block of memorandum-leaves; a support mounted on the cover, substantially midway of the ends thereof, said support comprising a single side bar pivotally secured to the cover at one end, with the other end projecting toward the bound end of the memorandum-block, and free to oscillate perpendicularly to the plane of the cover; a carrying end bar rigidly secured to the side bar in a position to project across the memorandum-block near its bound end, and arranged to support the carbon-sheet, whereby the sheet may be freely lifted by the pressure of the thumb or finger on the bar, at one side of the cover, while the other side is left open for an uninterrupted passage of a finger or pencil in manipulating the copy-sheet, and adjusting it under the carbon-sheet, without removing the latter from the book.

4. In a manifolding-book, the combination of a cover, a pad or block of memorandum blanks or papers; a carrier or support mounted on the cover substantially midway of the ends thereof, said carrier or support comprising a single side bar, a pivoting end bar for attachment to the cover, and a carrying end bar for attachment thereto of the carbon-sheet, leaving an open side for a free and uninterrupted access to the carbon-sheet in entering and withdrawing the same for use; and a carbon-sheet detachably connected to the carrying end bar.

691,507. FRICTION-CLUTCH. COLCORD UPTON, Beverly, Mass., assignor to the Upton Machine Company, a Corporation of New York. Filed Mar. 9, 1901. Serial No. 50,508. (No model.)



Claim.—1. In a friction-clutch, the combination of a driving part, a driven part, a disk connected therewith, a disk to frictionally connect with the first-mentioned disk and having lateral movement, a support rigidly connected with one of said parts, a screw having right and left threads meshing in corresponding threads in the laterally-movable friction-disk and in said support, and means for operating said screw for frictionally connecting the driving and driven parts, said disks having substantially parallel radially-extending coacting faces, substantially as described.

2. The combination of a shaft, a support rigidly connected therewith, a disk movable independently of the shaft, a screw having right and left threads rotatively connecting said support and disk, means for operating said screw, a friction-disk movable independently of the shaft, and means to limit the lateral movement of said disk when the first-mentioned disk is pressed toward the latter, substantially as described.

3. The combination of a shaft, a support rigidly connected therewith, a friction-disk movable independently along the shaft, a screw rotatively connecting said support and disk and having right and left threads meshing respectively in corresponding threads in said support and disk, a second friction-disk to coact with the first-mentioned disk and mounted to rotate freely upon said shaft, and means to limit the movement of said disk along said shaft, substantially as described.

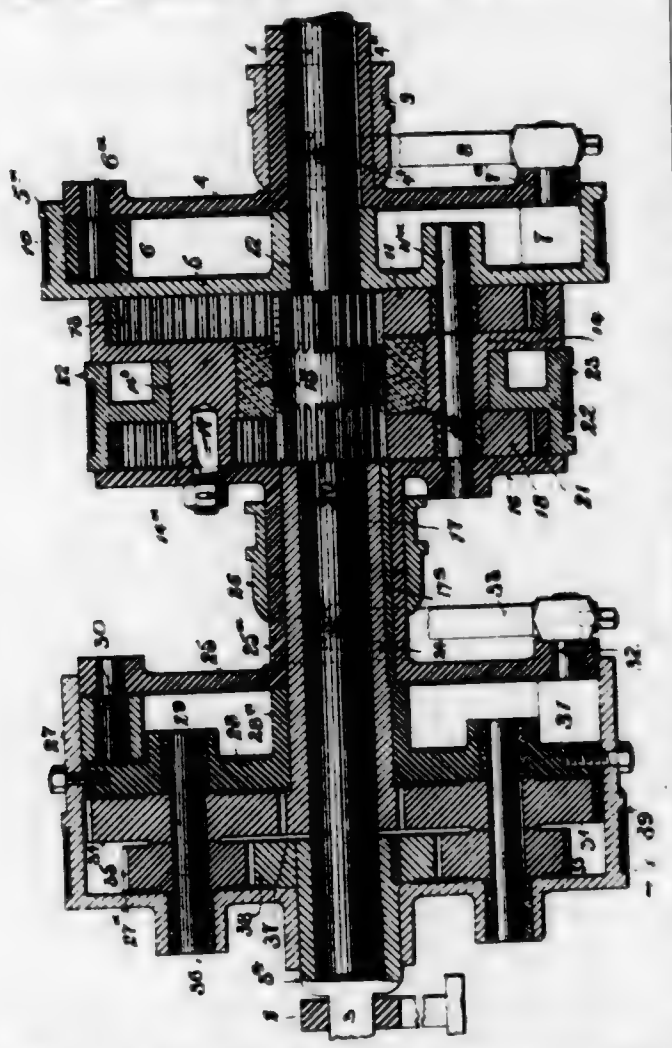
4. The combination of a shaft, a support rigidly connected there-

with, a friction-disk movable independently along said shaft, a screw rotatively connecting said support and disk, a second friction-disk mounted to rotate freely upon said shaft and provided with an annular flange encircling the first-mentioned disk, and means to limit the movement of the second-mentioned disk along the shaft, substantially as described.

5. The combination of a shaft having a support, a friction-disk movable independently along said shaft, a screw connecting said support and disk to move the latter along the shaft and to rotate one by the other, an arm connected with said screw, a sleeve to operate said arm, a spring to move the free end of the arm toward the shaft, a second friction-disk supported by and rotative independently of the shaft, and means for limiting the movement of said disk along the shaft, substantially as described.

6. The combination of a shaft, a support secured thereto and provided with an opening, a sleeve mounted to slide longitudinally of said shaft and provided with a projection adapted to enter said opening, a friction-disk movable along said shaft, a screw connecting said support with said disk, an arm connected with said screw and adapted to be operated by said sleeve, a second friction-disk rotative independently of the shaft, and means to limit movement of said disk along the shaft, substantially as described.

91,508. VARIABLE-SPEED GEARING. COLCORD UPTON, Beverly, Mass., assignor to Upton Machine Company, a Corporation of New York. Filed Oct. 29, 1901. Serial No. 80,415. (No model.)



Claim.—1. A gearing of the character described comprising a driving part, a rotative member, means for operating the latter by the former at the same speed and at different speeds, a driven part, means for operating the latter at the same speed as said member, and means for operating the driven part at speeds different from the speed of said member, substantially as described.

2. A gearing of the character described comprising a driving part, a rotative member, means for operating the latter by the former in the same direction as the driving part and at varying speeds, means for rotating said member in a direction reverse to the direction of rotation of the driving part, a driven part, means for rotating the latter at the same speed as said member in either direction, and means for rotating the driven part by said member at a speed different from the latter, substantially as described.

3. The combination of a driving part, a driven part, two sets of gearing interposed between said parts, means associated with each set of gearing for locking the driving part in connection with the driven part to rotate them at the same speed, and means associated with each set of gearing for causing the driven part to be operated by the action of either set of gearing, substantially as described.

4. The combination of a driving part, two sets of gearing, a driven part, means for locking the driving part in connection with the driven part to rotate the latter at the same speed as the former, means for operating the driven part through one set of gearing while the driving part is locked to the other set of gearing, means for locking the driven part to one set of gearing while operating the driven part through the other set of gearing, and means for operating the driven part through both sets of gearing operating simultaneously, substantially as described.

5. The combination of a driving part, gearing to be operated thereby, a driven part, gearing interposed between the latter and the first-mentioned gearing, means for locking the driven part in connection with the first-mentioned gearing, and means for limiting bodily rotation of part of the first-mentioned gearing for operating the driven part at a speed different from that produced by the first-mentioned gearing, substantially as described.

6. The combination of a driving part, a rotative member, gearing for operating the same by the driving part, a gear connected with said member, a driven part, gearing for operating the driven part by said gear, means for limiting bodily rotation of part of said gearing, and means for locking said member in connection with the driven part, substantially as described.

7. The combination of a driving part, a rotative member, means for rotating the same by the driving part at different speeds and in the same direction as the latter, means for rotating said member in a direction reverse to the direction of rotation of the driving part, a driven part, gearing interposed between the latter and said member, means for locking the driven part in connection with said member to operate the former at the same speed as said member, and means for limiting bodily rotation of part of said gearing for rotating the driven part at a speed different from the speed of rotation of said member, substantially as described.

8. The combination of a driving part, a rotative member, means for rotating the same by the driving part at different speeds and in the same direction as the latter, means for rotating said member in a direction reverse to the direction of rotation of the driving part, a driven part, a gear connected with said member, gearing interposed between said gear and the driven part, means for locking the driven part in connection with said member, and means for causing said gearing to operate the driven part, substantially as described.

9. The combination of a driving part, a rotative member, means for rotating the same by the driving part at different speeds and in the same direction as the latter, means for rotating said member in a direction reverse to the direction of rotation of the driving part, a driven part, a gear connected with said member, a gear connected with the driven part, a rotative support carrying pinions meshing with said gears, means for limiting rotation of said support, and means for locking said support in connection with said member, substantially as described.

10. The combination of a driving part, a rotative member, means for rotating the same by the driving part at different speeds and in the same direction as the latter, means for rotating said member in a direction reverse to the direction of rotation of the driving part, a driven part, a gear connected with said member, a rotative support, a pair of pinions carried thereby and in mesh with said gears, means to limit rotation of said support, friction devices rigidly connected with said member and adapted to lock said member to said support, and means for operating said friction devices, substantially as described.

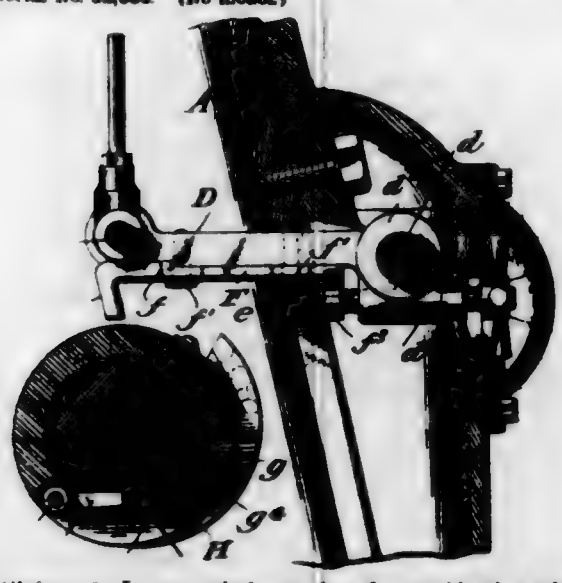
11. The combination of a shaft, a drum, friction devices for connecting said shaft and drum, a gear carried by said shaft, a pinion carried by said drum, a rack in mesh with said pinion, a rotative member connected with said rack, a pinion connected with said member, a gear carried by the shaft in mesh with said pinion, a loose rack in mesh with said pinion, means for limiting rotation of said drum and said loose rack, a driven part, gearing interposed between said driven part and said member, and means for locking said driven part in connection with said member, substantially as described.

12. The combination of a shaft, a drum, friction devices for connecting said shaft and drum, a gear carried by said shaft, a pinion carried by said drum, a rack in mesh with said pinion, a rotative member connected with said rack, a pinion connected with said member, a gear carried by the shaft in mesh with said pinion, a loose rack in mesh with said pinion, means for limiting rotation of said drum and said loose rack, a driven part, gearing interposed between said driven part and said member, means for locking said driven part in connection with said member, and means for limiting rotation of part of said gearing, substantially as described.

13. The combination of a shaft, a drum, friction devices for connecting said shaft and drum, a gear carried by said shaft, a pinion carried by said drum in mesh with said gear, a rack in mesh with said pinion, a rotative member connected with said rack, a pinion connected with said member, a gear carried by the shaft in mesh with said pinion, a loose rack, a gear connected with said member, a driven part, a gear connected therewith, pinions in mesh with said gears, a rotative support for said

pinions, means to limit rotation of said support, and means for locking said support in connection with said member, substantially as described.

691,509. IGNITER-CONTROLLING MECHANISM FOR EXPLOSIVE-ENGINES. JESSE WALRATH, Racine, Wis. Filed Oct. 12, 1900. Serial No. 32,880. (No model.)



Claim.—1. In an explosive-engine, the combination with the igniter-operating rod, of a pivoted arm having its movable end connected to said rod, an igniter-operating cam, an adjustable controlling-bar having a sliding engagement with said arm, and provided with a projection for engaging said cam, and devices for securing said bar rigidly to said arm, substantially as described.

2. In an explosive-engine, the combination with the igniter-operating rod, of an arm pivoted to the engine-frame, and having its movable end connected to said rod, an igniter-operating cam, a longitudinally-adjustable controlling-bar having a sliding engagement with said arm, provided with longitudinal slots, and having a projection for engaging said cam, an adjusting-screw on said arm, engaging said controlling-arm, and screws extending through said slots and engaging the said pivoted arm, substantially as described.

3. In an explosive-engine, the combination with the igniter mechanism, of a pivoted arm provided with a threaded sleeve, and having its movable end operatively connected with said igniter mechanism, an igniter-operating cam, an adjustable controlling-bar having a longitudinal sliding engagement with said arm and provided with a projection to engage said arm, and with a yoke, an adjusting-screw engaging said threaded sleeve and having an annularly-grooved portion engaging said yoke, and a set-nut upon said screw, substantially as described.

4. In an explosive-engine, the combination with an igniter-operating rod, a pivoted arm having its movable end connected to said rod, a movable controlling-bar connected to said arm and provided with a cam-engaging part, an adjusting-screw for said bar, a cam-shaft, an igniter-cam on said shaft and a pawl-and-ratchet mechanism connecting said cam and shaft, substantially as described.

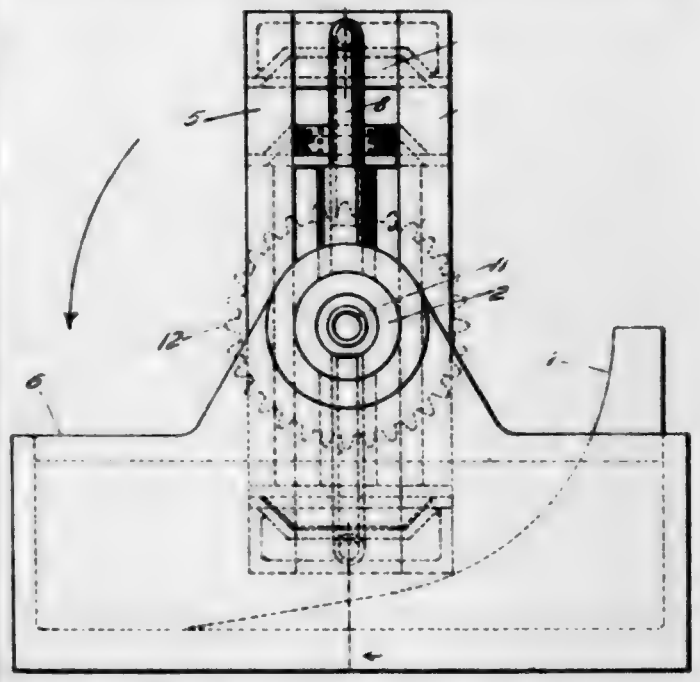
691,510. PULP-MOLDING MACHINE. GEORGE E. WARD, New York, N. Y., assignor, by mesne assignments, to Lucius G. Fisher, New York, N. Y. Filed July 26, 1901. Serial No. 69,770. (No model.)

Claim.—1. In a machine for forming articles from pulp in combination, a vertically-rotating mold formed of a plurality of faces adapted to travel (when not moving relatively to each other) in substantially parallel paths and form said article between them, means to supply suitable pulp to said mold, and means to press said mold-faces together at a point farther on in the travel of said mold, to form said article.

2. In a machine for forming articles from pulp in combination, a rotating mold formed of a plurality of faces adapted to travel (when not moving relatively to each other) in substantially parallel paths and form said article between them, means to supply suitable wood-pulp to said mold, and means to press said mold-faces together at a point farther on in the travel of said mold, to form said article.

3. In a machine for forming articles from pulp in combination, a rotating mold formed of a plurality of faces adapted to travel (when not moving relatively to each other) in substantially parallel paths and form said article between them, means to supply suitable pulp to said mold, and means to press said mold-faces together at a point farther on in the travel of and without stopping said mold, to form said article.

4. In a machine for forming articles from pulp in combination, a rotating mold formed of a plurality of faces adapted to travel (when not moving relatively to each other) in substantially parallel paths and form said articles between them, means to supply suitable pulp to said mold, and means to press said mold-faces together at a point farther on in the travel of said mold and during the motion of said mold, to form said article.



5. In a machine for forming articles from pulp in combination, a rotating mold formed of a plurality of nesting faces adapted to travel (when not moving relatively to each other) in substantially parallel paths and form said article between them, means to supply suitable pulp to said mold, and means to press said mold-faces together at a point farther on in the travel of said mold and during the motion of said mold, to form said article.

6. In a machine for forming articles from pulp in combination, a rotating mold formed of a plurality of faces adapted to travel (when not moving relatively to each other) in substantially parallel paths and form said article between them, means to supply suitable pulp to said mold, and means to press said mold-faces together at a point farther on in the travel of said mold, to form said article.

7. In a machine for forming articles from pulp in combination, a traveling mold formed of a plurality of faces adapted to form said article between them, a pulp-vat into which said mold dips, and means to press said mold-faces together at a point farther on in the travel of said mold, to form said article.

8. In a machine for forming articles from pulp in combination, a traveling mold formed of a plurality of faces adapted to form said article between them, a vat of wood-pulp into which said mold dips, and means to press said mold-faces together at a point farther on in the travel of said mold, to form said article.

9. In a machine for forming articles from pulp in combination, a traveling mold formed of a plurality of faces adapted to form said article between them, one of said faces being perforated, means to supply suitable pulp to said mold, means to press said mold-faces together at a point farther on in the travel of said mold, to form said article, and a suction device to apply suction to said perforated face of said mold to draw moisture from said pulp.

10. In a machine for forming articles from pulp in combination, a vertically-rotating carrier bearing a mold formed of a pair of nesting faces adapted to form said article between them, means to supply suitable pulp to said mold, means to rotate said carrier, and a device to press said mold-faces together at a point farther on in the travel of said mold and during the motion of said mold, to form said article.

11. In a machine for forming articles from pulp in combination, a traveling mold formed of a pair of faces adapted to form said article between them, both of said faces being perforated, means to supply suitable pulp to said mold, means to press said mold-faces together at a point farther on in the travel of said mold, to form said article, and a suction device to apply suction to said perforated faces of said mold to draw moisture from said pulp.

12. In a machine for forming articles from pulp in combination, a traveling mold formed of a plurality of faces adapted to form said article between them, one of said faces being perforated, means to supply suitable pulp to said mold, means to press said mold-faces together at a point farther on in the travel of said mold to form said article, and a device to force air through said perforated face to loosen said article from said face.

13. In a machine for forming articles from pulp in combination, a plurality of traveling molds, each of the same being composed of mold-faces adapted to form an article between them, one of the faces of each mold being movable toward and away from the other face, means to supply suitable pulp to said molds, means to press the faces of said molds to-

gether to form the article, and a connection between a movable face in each mold to open one mold as the other mold closes.

14. In a machine for forming articles from pulp in combination, a shaft, a rotating carrier thereon bearing a plurality of mold-faces adapted to form an article between them, means to supply suitable pulp to said mold, and means to apply pressure toward said shaft to one of said faces to press said faces together and form said article.

15. In a machine for forming articles from pulp in combination, a shaft, a rotating carrier thereon bearing a plurality of mold-faces adapted to form an article between them, means to supply suitable pulp to said mold, and means to apply pressure toward said shaft to one of said faces to press said faces together at a point farther on in the travel of said carrier to form said article.

16. In a machine for forming articles from pulp in combination, a vertically-rotating carrier bearing a plurality of molds, each of said molds having a relatively stationary mold-face and a relatively movable face nesting therewith, said relatively movable faces being connected together whereby one mold opens as the other closes, a pulp-vat into which said molds dip to receive a layer of pulp between the faces thereof, and means located farther on in the rotation of said molds to successively press the faces of each mold together to form the article.

17. In a machine for forming articles from pulp in combination, a vertically-rotating carrier bearing a plurality of molds, each of said molds having a relatively stationary mold-face and a relatively movable face nesting therewith, said relatively movable faces being connected together whereby one mold opens as the other closes, means to supply a layer of pulp between the faces thereof, and means located farther on in the rotation of said molds to successively press the faces of each mold together to form the article.

18. In a machine for forming articles from pulp in combination, a shaft, a carrier thereon bearing a plurality of molds, each of said molds being composed of a pair of perforated nesting mold-faces movable relatively toward each other, said movable faces being connected whereby one mold opens as the other closes, a pulp-vat into which said molds dip to receive a layer of pulp, a cam to successively press said molds together, at a point farther on in the rotation of said carrier, to form said article.

19. In a machine for forming articles from a suitable pulp in combination, a traveling mold formed of a plurality of mold-faces adapted to form said article between them, means to supply suitable pulp to said mold, a pressure device adapted to press said mold-faces together at a point farther on in the travel of said mold, and means to remove said article from said mold.

20. In a machine for forming articles from a suitable pulp in combination, a traveling mold formed of a plurality of mold-faces adapted to form said article between them, means to supply suitable pulp to said mold, a pressure device adapted to press said mold-faces together at a point farther on in the travel of and without stopping said mold, and means to remove said article from said mold.

21. In a machine for forming articles from a suitable pulp in combination, a traveling mold formed of a plurality of mold-faces adapted to form said articles between them, means to supply suitable pulp to said mold, a pressure device adapted to press said mold-faces together at a point farther on in the travel of said mold, and means to remove said article from said mold by a draft of air.

22. In a machine for forming articles from a suitable pulp in combination, a traveling mold formed of a plurality of mold-faces adapted to form said article between them, one of said faces being perforated, means to supply suitable pulp to said mold, a pressure device adapted to press said mold-faces together at a point farther on in the travel of said mold, and means to remove said article from said mold by a draft of air through said perforated mold-face.

23. In a machine for forming articles from pulp in combination, a rotating shaft, means to rotate the same, a mold carried on said shaft and having a plurality of nesting mold-faces connected with said shaft and including a perforated mold-face, and a connection between said perforated mold-face and said shaft whereby a draft of air may be passed through the same.

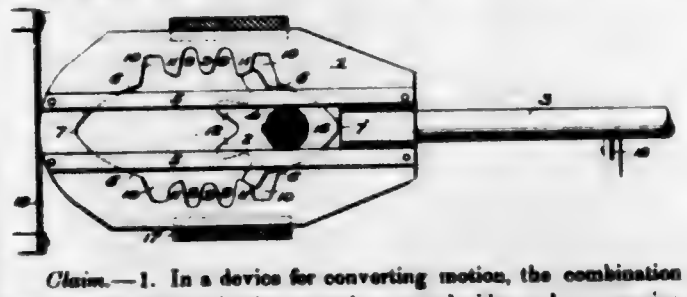
24. In a machine for forming articles from pulp in combination, a rotating shaft, means to rotate the same, a mold carried on said shaft and having a perforated mold-face, and a connection between said perforated mold-face and said shaft whereby a draft of air may be passed through the same in either direction.

25. In a machine for forming articles from pulp in combination, a rotating shaft, means to rotate the same, a mold carried on said shaft and having a perforated mold-face, and a connection between said perforated mold-face and said shaft whereby a draft of air may be passed through the same to loosen said article located on said face.

26. In a machine for forming articles from pulp in combination, a rotating shaft, means to rotate the same, a mold carried on said shaft and having a perforated mold-face, and a connection between said perforated mold-face and said shaft whereby a draft of air may be forced through the same to loosen said article located on said face.

27. In a machine for forming articles from pulp in combination, a traveling mold formed of a plurality of faces adapted to form said article between them, a pulp-vat into which one of said mold-faces dips to receive a layer of pulp, and means to press said mold-faces together at a point farther on in the travel of said mold, to form said article.

691,511. MECHANICAL MOVEMENT FOR CONVERTING MOTION. JOHN T. WATTS, Crookston, Minn. Filed Oct. 24, 1901. Serial No. 79,535. (No model.)



Claim.—1. In a device for converting motion, the combination of a reciprocating frame having opposite cogged sides and an opening of elliptical form bounding the ends of the cogs and terminating at each end in an untoothed elliptical recess, with a revoluble cogged sector the cogs whereof are adapted to engage the opposite cogged sides, and having an elliptical projection adapted to engage the elliptical end recesses of the frame-opening for operation in the way described.

2. In a device for converting motion, the combination of a revoluble cogged sector having its intermediate cogs 12 of greater projection from the center of the sector than the end cogs and having an elliptical projection, and reciprocating frame having an elliptical opening the opposite cogged sides whereof are adapted to engage the elongated cogs of the sector, said frame-opening terminating in elliptical recesses adapted to engage the elliptical projection of the cogged sector, for operation in the way stated.

691,512. PUMP. GEORGE E. WHITNEY, Boston, Mass., assignor to Whitney Motor Wagon Company, Kittery, Me., a Corporation of Maine. Filed Apr. 29, 1901. Serial No. 57,918. (No model.)



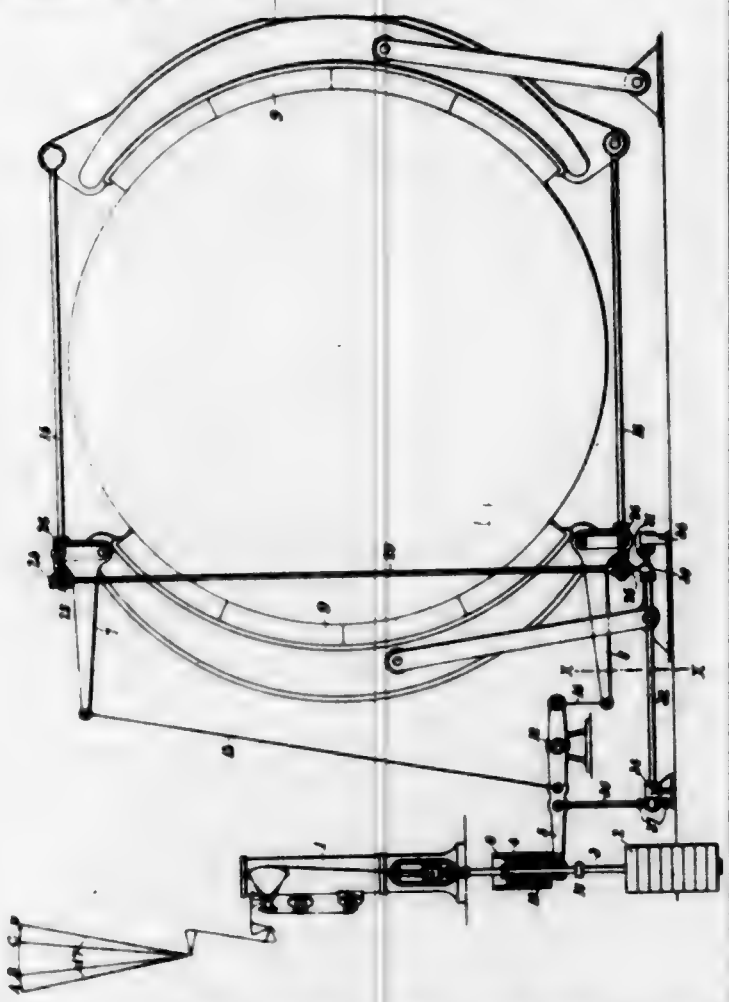
Claim.—1. The herein-described pump comprising a cylinder having an inlet-passage in one of its ends, and a ball-valve therefor contained substantially wholly in said cylinder, a plunger cup-shaped at its end to receive closely the said ball-valve when the latter is seated, an outlet-passage leading laterally from said cylinder at its delivery end and provided with an outwardly-directed valve-seat formed in the wall of said cylinder, a ball-valve therefor in and controlling said outlet-passage, said ball-valve when seated being substantially tangent to the inner circumference of said cylinder whereby substantially all clearance is eliminated at the end of a plunger-stroke.

2. The herein-described pump comprising a one-piece body, bored longitudinally to provide a pump-cylinder having an inlet-passage in one of its ends and a ball-valve therefor contained substantially wholly in said cylinder, a laterally-extended portion on said body, bored to provide an outlet-passage for and at the end of said cylinder, an outwardly-directed valve-seat formed in the wall of said cylinder and a spring-supported ball-valve therefor in and controlling said outlet-passage, said valve when seated being substantially tangent to the inner circumference of said cylinder, and a plunger cup-shaped at its end to receive closely the said inlet ball-valve when the latter is seated, whereby substantially all clearance is eliminated at the end of a plunger-stroke.

691,518. FRICTION-BRAKE. FRANK L. WHITMORE, Belvedere, England. Filed July 26, 1901. Serial No. 69,862. (No model.)

Claim.—1. In a brake, the combination with a source of power for operating same, and the brake-block, of a lever and parts connected there-

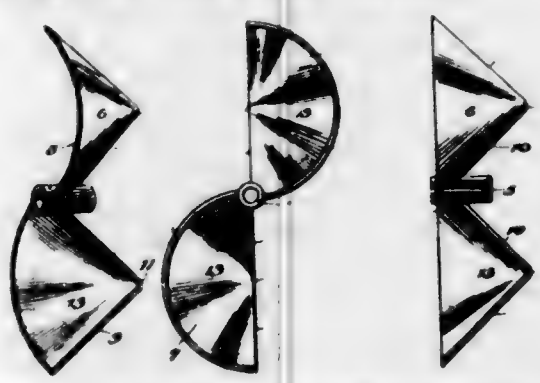
with and with said block, a rod operated by the source of power and passing freely through such lever, a fixed part on said rod, a spring interposed between such fixed part and the lever so that the rod is moved first under spring-pressure and a distance-piece surrounding said rod, and against which the fixed part carried by same abuts after a certain point of compression of the spring has been reached so that the lever will be moved positively by the operating means.



2. In a brake, the combination with the brake-block and a lever for applying same, of a rod attached to the brake-block at one end, means for holding the rod at the other end, a screwed end to such rod, a nut into which such screwed end is inserted, a ratchet-wheel for traversing said screwed end in such nut, a pawl for operating such ratchet and means controlled by the brake-lever for moving such pawl only after an excessive movement of the brake-lever.

3. In a brake, the combination with the brake-block and a lever for applying same, of means for compensating for wear of the block by moving same nearer to the surface it is acting upon, a lever through which such compensating means are operated, a rod connected to the brake-lever and passing freely through the lever operating the compensating means and a stop on such rod whereby it is brought into action only after an excessive movement of the brake-lever.

691,514. PROPELLER. WILLIAM O. WHITNEY, Glens Falls, N. Y. Filed Jan. 9, 1901. Serial No. 42,670. (No model.)



Claim.—1. A propeller consisting of a hub, and blades each of which has the form of a cone-section, the adjacent edges of said blades being secured to the face of the hub along spiral lines.

2. A propeller consisting of a hub and blades having the form of cone-sections, the adjacent edges of said blades being secured to the hub along spiral lines to present the front edges of said blades in a common plane.

3. A propeller consisting of a hub and blades having the form of cone-sections and each defined by a curved base edge and by angularly-related inner and outer front edges, the inner front edges of said blades being secured to the face of the hub along spiral lines to present their outer front edges in planes disposed radially to the hub.

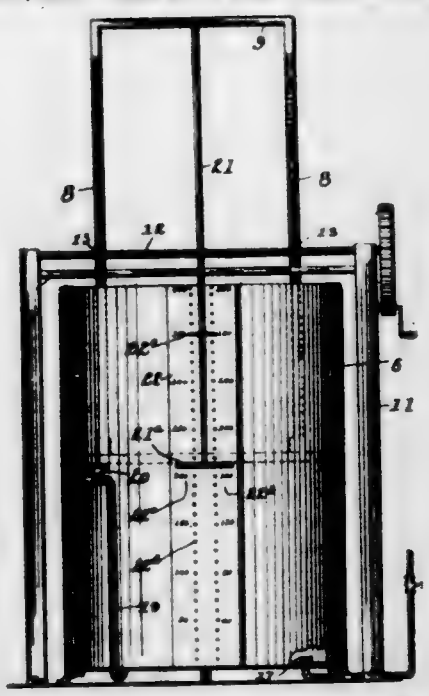
4. A propeller consisting of a hub and blades having the form of cone-sections, the adjacent corners only of the blades being secured to the hub along lines having an angular relation to the axis of the hub.

5. A propeller consisting of a hub and blades having the form of cone-sections, said blades being attached at their inner corners to the hub and having their axes parallel therewith.

6. A propeller consisting of a hub, and semiconical blades disposed at diametrically opposite sides of the hub and secured to the face thereof along spiral lines, the axes of the semiconical blades being in substantial parallelism with the hub.

7. A propeller consisting of a hub and blades, each of which has the form of a cone-section, one edge of each blade being secured to the face of the hub along a line having an angular relation to the axis of said hub.

691,515. MEASURING TANK AND PUMP. FRANK L. WIEBURG, Lindstrom, Minn. Filed Oct. 7, 1901. Serial No. 77,854. (No model.)



Claim.—In a combined measuring tank and pump, in combination, a tank forming a pump-cylinder, a piston therein, inlet and discharge pipes communicating therewith, a primary scale, a secondary scale related thereto and to the capacity of the pump, a stop for the piston adjustable according to the primary scale, and which indicates such adjustment on the secondary scale.

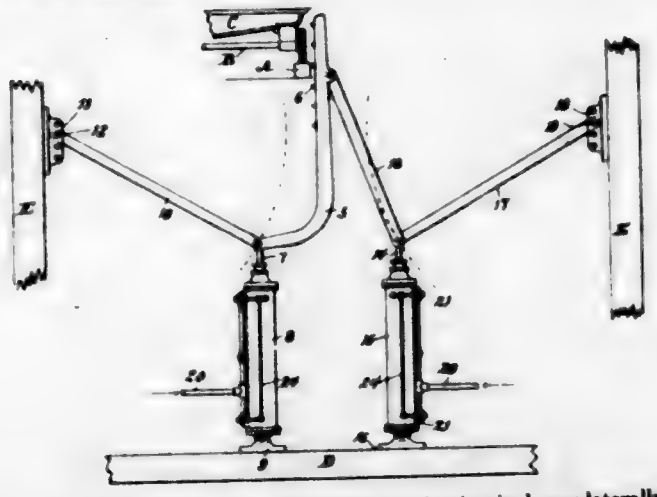
691,516. WATCHMAKER'S TOOL. JOSEPH A. WIEDEMANN, Eldorado, Kans. Filed Oct. 7, 1901. Serial No. 77,881. (No model.)



Claim.—The combination with a fulcrum-plate the under side of which is flat and smooth and is adapted to rest upon the dial of a watch, said plate having struck up from it parallel tongues connected by a cross-pin arranged a slight distance below the upper ends of said tongues, of a watch-hand-removing tool provided with a claw, said tool when in use adapted to fulcrum upon said pin and be prevented from slipping off the ends thereof above the extreme upper ends of said tongues, substantially as set forth.

691,517. LOG-TURNER. THEODORE S. WILKIN, Milwaukee, Wis. Filed May 25, 1901. Serial No. 61,853. (No model.)

Claim.—1. A log-turner, comprising an upright toothed bar extending laterally at its lower end, an oscillating cylinder provided with a reciprocable piston to which the toothed bar is connected at one side of its upright extension, a link connected to the toothed bar at its articulation with the piston-stem and extending laterally therefrom and connected to a fixed support, an auxiliary bar connected to the toothed bar at or near its upper end and opposite the teeth thereon and to the stem of a piston, another oscillating cylinder in which said last-mentioned piston and stem are oscillatable, and another link connected to said auxiliary bar at its articulation with the piston-stem and extending laterally therefrom and pivoted to a fixed support.

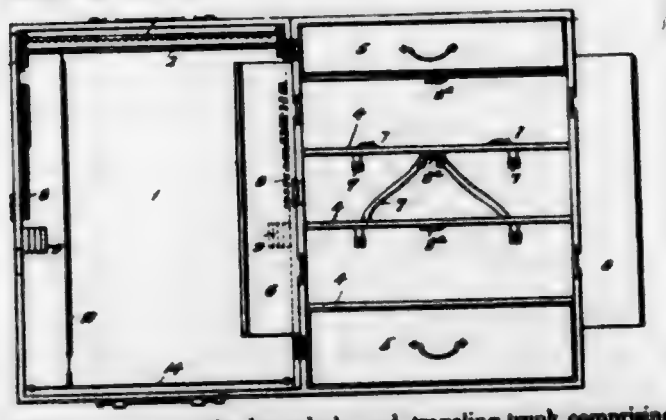


2. In a log-turner, an upright toothed bar having its lower laterally-extending extremity connected to a piston-stem, a laterally-extending link connected to the toothed bar and to a fixed support, an auxiliary bar connected to the toothed bar and to a piston-stem, oscillating cylinders in which said piston-stems and their pistons oscillate, and means connected to the auxiliary bar at its articulation with the piston-stem supporting it laterally.

3. In a log-turner, an upright toothed bar extending laterally at its lower end, an auxiliary bar pivoted to the toothed bar at or near its upper end, oscillating cylinders having pistons with stems to which said bars are respectively pivoted, laterally-extending links pivoted respectively to the lower extremities of said bars and controlling their movements laterally, and means for introducing an actuating medium into and exhausting it from the cylinders.

4. A log-turner, comprising an upright toothed bar extending laterally at its lower end, an oscillating cylinder provided with a reciprocable piston to which the toothed bar is attached at one side of its upright extension, a link pivoted to the toothed bar at its articulation with the piston-stem and extending laterally therefrom and pivoted to a fixed support, an auxiliary bar pivoted to the toothed bar near its upper end and opposite the teeth thereon and to the stem of a piston, another oscillating cylinder in which said last-mentioned piston and stem are reciprocable, another link pivoted to said auxiliary bar at its articulation with the piston-stem and extending laterally therefrom and pivoted to a fixed support, and means for adjusting said laterally-extending links vertically.

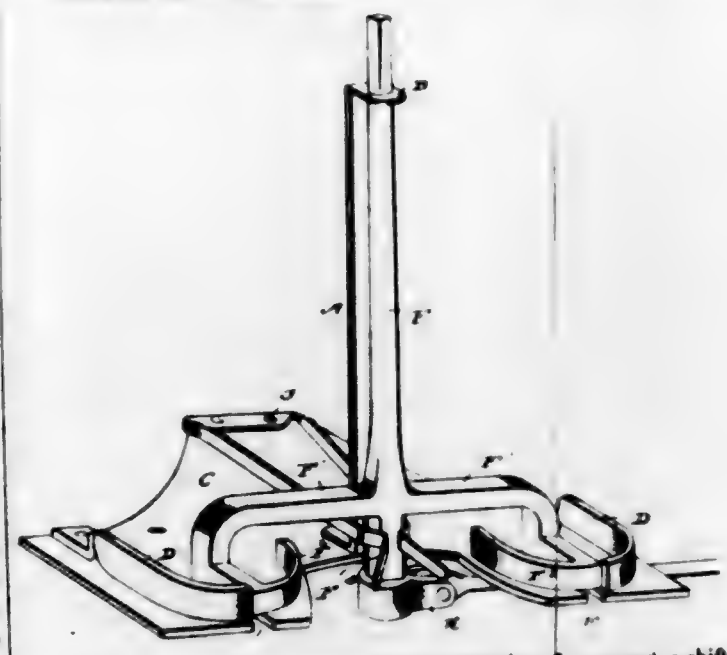
691,518. COMBINED WARDROBE AND TRAVELING-TRUNK. EMILIE WOLFFGANG, Berlin, Germany. Filed Aug. 12, 1901. Serial No. 71,785. (No model.)



Claim.—1. A combined wardrobe and traveling-trunk comprising in combination a main part constituting a hanging-compartment and a lid part constituting a cupboard-compartment, clothes-holders in said hanging-compartment, consisting of frames and provided with means for holding the clothes thereon, a slotted cross-bar for supporting said holders, a comb-like or serrated bar adapted to enter said slotted cross-bar for securing the holders in position, means for locking said serrated bar in its upper or lower position, shelves and drawers in said cupboard-compartment, means for securing articles on said shelves, and doors for closing both shelves and drawers, substantially as described.

2. A combined wardrobe and traveling-trunk comprising in combination a main part constituting a hanging-compartment and a lid part constituting a cupboard-compartment, clothes-holders in said hanging-compartment, consisting of frames and having bands or straps provided with fasteners for securing the clothes on said holders, a slotted cross-bar for supporting said holders, a comb-like or serrated bar adapted to enter said slotted cross-bar for securing the holders in position, means for locking said serrated bar in its upper or lower position, shelves and drawers in said cupboard-compartment, straps or bands for securing articles on said shelves and doors for closing both shelves and drawers, substantially as described.

691,519. STEERING-GEAR FOR AUTOMOBILES. JOSEPH BARSALEAUX and ROSWELL C. HALL, Sandyhill, N. Y. Filed Mar. 29, 1901. Serial No. 53,457. (No model.)



Claim.—1. In a steering-gear, the combination of a support, a shifting lever mounted upon said support having angular extension, and devices for holding and limiting the movement of said lever.

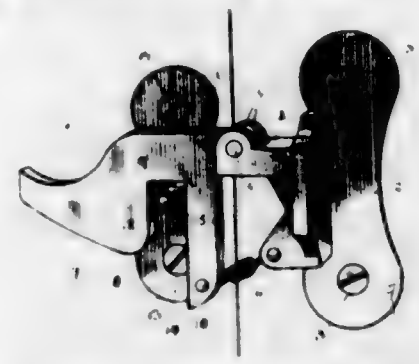
2. In a steering-gear, the combination of a support, a lever having a central extension adapted to be engaged to hold the lever in a straight line, and having arms adapted to be retained when shifted to either right or left.

3. In a steering-gear, the combination of a lever having a central extension, shifting devices connected to said extension, a spring for holding the lever by engaging said extension.

4. In a steering-gear, the combination of a support, a lever mounted and guided upon said support, two radial arms on said lever having each a two-part journal, a plate having bearings for said journal, and a spring for holding the lever when the vehicle is traveling on a straight line.

5. In a steering-gear, the combination with a plate having bearings, a lever having two-part journals to engage said bearings and means for holding the lever from detachment and rattling.

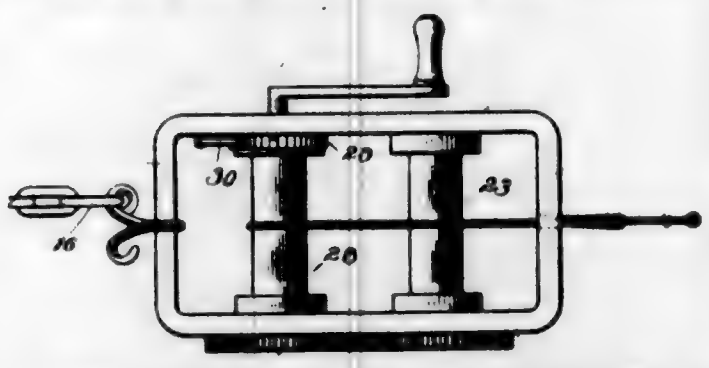
691,520. LATCH. GEORGE R. HALLARD, Philadelphia, Pa. Filed Apr. 24, 1901. Serial No. 57,214. (No model.)



Claim.—A latch, comprising a plate, adapted to be secured to the face of a door, formed with an outwardly-projecting vertical flange and a horizontally-projecting arm formed with bearing ears or lugs, a latch, pivotally supported between said lugs to one side of and above the locking-recess, formed with a head having an inclined under edge, a locking-recess and a vertical depending arm at the rear of the latch extending below the plane of the nose of the latch, and a retractile spring having one

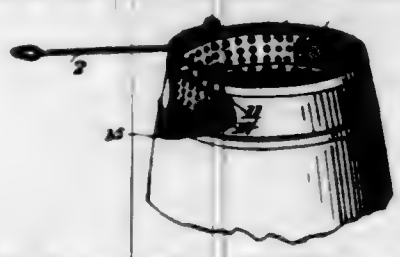
end secured to the lower end of the depending arm and the other end secured to the said plate, combined with a plate adapted to be secured to the other door, and formed with an outwardly-projecting pin, and an antifriction-roller on the pin to engage in the recess of the latch.

691,521. **WIRE-STRETCHER.** LOUIS J. SANDMEIER, Plato, Minn. Filed June 13, 1901. Serial No. 64,385. (No model.)



Claim.—A wire-stretcher comprising a frame including sides and end pieces, one of the end pieces having an opening therethrough and the other end piece having a reduced portion forming a web, an iron engaged around the web and having terminal hooks, an attaching-chain engaged with one of the hooks and adapted for engagement with the other hook, shafts rotating in the sides of the frame and having drums fixed thereto within the inclosure of the frame, a cable attached to one of the drums and passed around the other drum and through the guide-opening of the frame, intermeshing gearing at the ends of the shafts, a ratchet-wheel upon one of the shafts and within the frame, and means for rotating the shaft.

691,522. **ASH-SIFTER.** MARTHA E. BARBOUR, Scranton, Pa. Filed Apr. 20, 1901. Serial No. 56,698. (No model.)



Claim.—1. The combination with a sifting-pan having a suitable handle, of a support pivotally secured to the under side of said pan, said support comprising two radially-extending arms having hooked ends adapted to extend over the upper edges of an ash-receiver, and a rod connected to said hooked ends and overlying the handle.

2. The combination with a sifting-pan having a suitable handle, of a support pivotally secured to the under side of said pan, said support comprising two radially-extending arms having hooked ends adapted to extend over the upper edges of an ash-receiver, and a brace connected to said support at or near its pivotal point and adapted to engage the inner wall of the receiver.

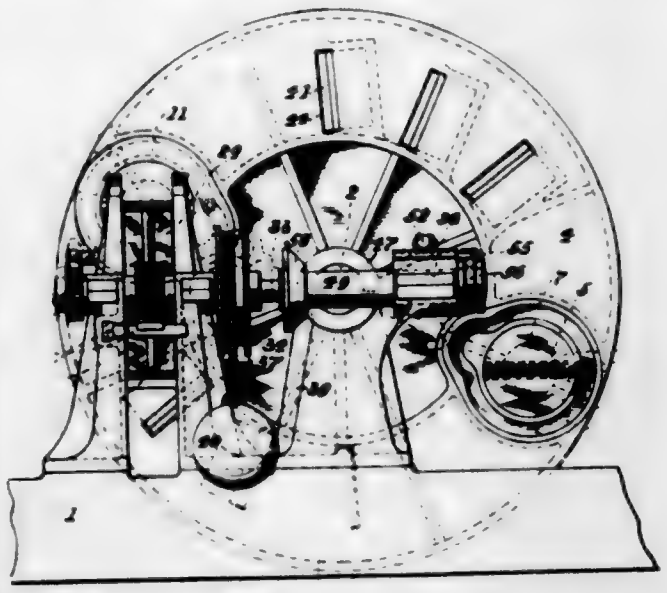
3. The combination with a sifting-pan having a suitable handle, of a support pivotally secured to the under side of said pan, said support comprising two radially extending arms having hooked ends adapted to extend over the upper edges of an ash-receiver, a brace connected to said support and adapted to engage the inner wall of the receiver, and a rod connected to said hooked ends and overlying the handle.

4. The combination with a sifting-pan having a stud projecting from its under side, of a support comprising a rod bent around said stud to form a collar and having two radial arms provided with hooked ends adapted to rest upon the edges of an ash-receiver, and a brace one end of which is secured to said arms adjacent to the collar, the opposite end of the brace being adapted to engage the inner wall of the ash-receiver.

5. The combination with an ash-sifter, of a support pivotally secured to the under side of said sifter, said support comprising two arms extending radially beneath the sifter and having upwardly-offset portions adapted to support and guide the edge of the sifter and hooked ends adapted to engage the edges of an ash-receiver, and a brace secured to said support and adapted to engage the inner wall of the receiver.

691,528. **MACHINE FOR MAKING EXCELSIOR.** JAMES R. BATE, Baltimore, Md. Filed Oct. 26, 1901. Serial No. 80,027. (No model.)

Claim.—1. In a machine for making excelsior, the combination with a rotary disk, of a shaft adapted to rotate in the said disk carrying scoring-blades, a gear-wheel secured to the said shaft, a fixed or stationary gear-wheel situated centrally of the rotary disk, and an idle gear-wheel in mesh with the other gear-wheels, whereby the scoring-knives are made to perform a single rotation for each rotation of the said disk, substantially as, and for the purpose specified.

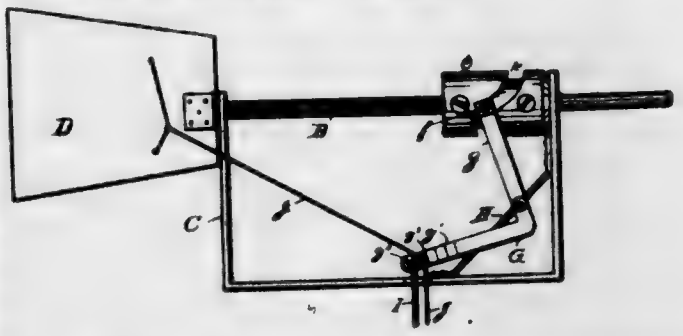


2. In a machine for making excelsior, the combination with a rotary disk carrying slicing-knives, of a shaft adapted to rotate in the said disk and provided with a plate having a sliding bar with scoring-knives and a gear-wheel, means to reciprocate the said sliding bar, a fixed or stationary gear-wheel situated centrally of the said rotary disk, and an idle gear-wheel in mesh with the other gear-wheels, whereby the scoring-knives are made to perform a complete rotation for each rotation of the said disk and also to be carried vertically through a log placed in their path, substantially as, and for the purpose specified.

3. In a machine for making excelsior, the combination with a rotary disk carrying slicing-knives, of a shaft adapted to rotate in the said disk provided with a plate having therein a transverse slot, a bar with scoring-knives adapted to slide longitudinally of the said slot, a roller projecting from the said sliding bar, a cam which surrounds the said plate with which the said roller is in contact, a gear-wheel attached to and having a movement in common with the said plate, a fixed or stationary gear-wheel situated centrally of the said rotary disk, and an idle gear-wheel in mesh with the other wheels, substantially as, and for the purpose specified.

4. In a machine for making excelsior, the combination with a rotary disk carrying slicing-knives, of a shaft adapted to rotate in the said disk provided with a plate having therein a transverse slot, a bar furnished with scoring devices adapted to slide longitudinally of the said slot and having a projecting roller, a cam which surrounds the said shaft and plate with which the said roller is in contact, a gear-wheel having a movement in common with the said plate, a fixed or stationary gear-wheel situated centrally of the said rotary disk, and an idle gear-wheel in mesh with the other wheels, whereby the scoring-knives are made to retain a horizontal position and pass vertically through a log placed in their path, substantially as, and for the purpose specified.

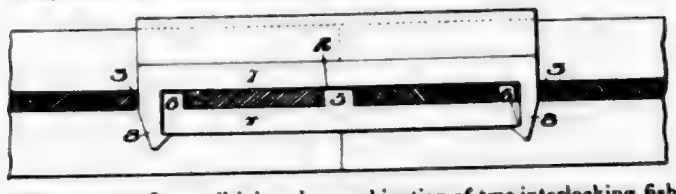
691,524. **WINDMILL.** WILLIE G. BIRD, Oxford, Tex. Filed June 12, 1901. Serial No. 64,261. (No model.)



Claim.—1. The combination with a wind-wheel and its frame, a shaft rotated by it and a vane pivoted to said frame at the opposite end of shaft, of the circular block E fast on shaft and having the irregular slot *e*, the wrist-pin F and the crank-lever G, the latter being fulcrumed at or near its angle's vertex to the frame-brace H for the purpose set forth.

2. In a windmill, the vane D hinged to the frame and combined with the crank-lever G and a cord I passing through a hole g^3 thereof; whereby the wheel may be simultaneously thrown from the wind and a stop-brake applied in the manner described.

691,525. RAIL-JOINT. SHERMAN BLAIR, McKeesport, Pa. Filed May 23, 1901. Serial No. 61,540. (No model.)



Claim.—1. In a rail-joint, the combination of two interlocking fish-plates, one of said fish-plates carrying projections on each end and extending through the web of the rail, the other of said fish-plates carrying a pair of hooked portions one on each end extending through the web of the rail and engaging the outer face of said first-named fish-plate, substantially as described.

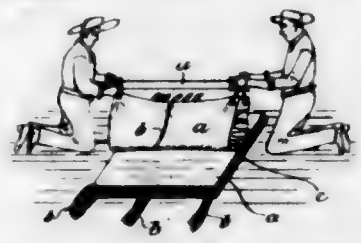
2. In a rail-joint, the combination of two interlocking fish-plates, upper and lower engaging faces on said fish-plates, projections made integral with one of said fish-plates extending through the web of the rails, hooked portions made integral with other of said fish-plates extending through the web of the rail and engaging the outer face of the said first-named fish-plate, substantially as described.

3. In a rail-joint, the combination of two interlocking fish-plates, one of said fish-plates carrying projections extending through the web of the rail, and the other interlocking fish-plate carrying hooked portions extending through the web of the rail and engaging the outer face of the first-named fish-plate, all parts being arranged and operating substantially as described.

4. In a rail-joint, a fish-plate, upper and lower beveled engaging faces thereon, projections made integral with said fish-plate extending through the web of the rail, a second fish-plate, a base secured thereto, upper and lower beveled engaging faces thereon, hooked portions made integral with said fish-plate extending through the web of the rail and engaging the outer face of the first-named fish-plate, substantially as described.

5. In a rail-joint, the combination of a base-plate, a fish-plate made integral therewith, upper and lower engaging faces on said fish-plate, hooked portions carried by said fish-plate on each end thereof, a second fish-plate, upper and lower engaging faces thereon, projections carried by said fish-plate, the said hooked portions adapted to engage the outer face of said second-named fish-plate, substantially as described.

691,526. DEVICE FOR TRANSPORTING BANANAS, &c. RICHARD R. BLANDY, Kensington, England. Filed Apr. 15, 1901. Serial No. 55,961. (No model.)



Claim.—For use in transporting bananas and other fresh fruit, a sheet furnished at its opposite edges with two or more sets of lanyards or tiers, in combination with a pole or bar provided with collars and adapted for being passed beneath the tied lanyards for the purpose of supporting the sheet-borne fruit while in course of transportation.

691,527. HAY-RACK. FRANK E. BRIGHT, Lapel, Ind. Filed Sept. 28, 1901. Serial No. 76,870. (No model.)

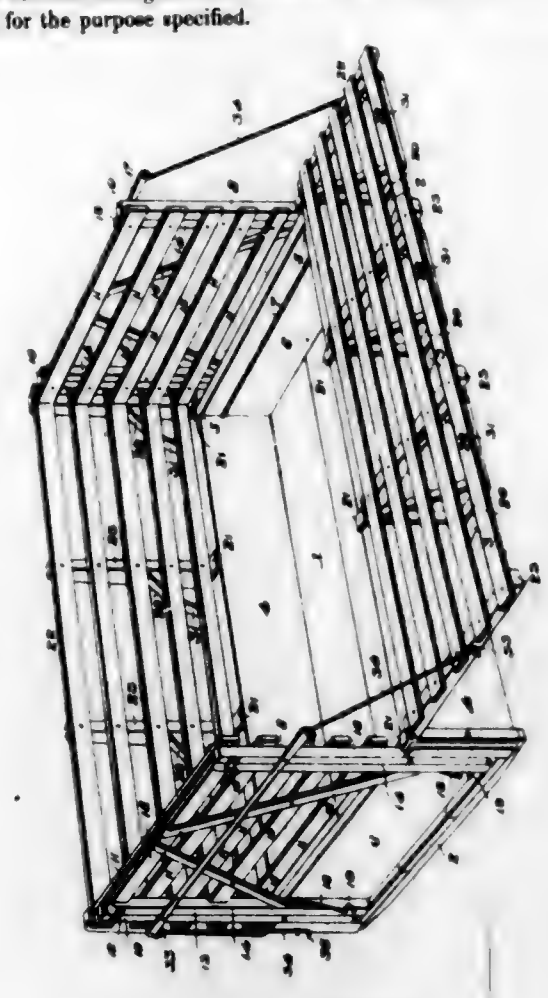
Claim.—1. In a hay-rack, the combination with a removable end section, and a supplemental end piece movable thereon, of a cross-bar on said section, and automatic catches pivotally mounted on the supplemental end piece to engage said cross-bar, as set forth.

2. The combination with the bottom and sides having guide-grooves, of an end section movable in said grooves, guides on the end section, a cross-bar on said section, a supplemental end piece movable on said section, and pivoted hooked catches pivoted on the end piece to engage said cross-bar, as set forth.

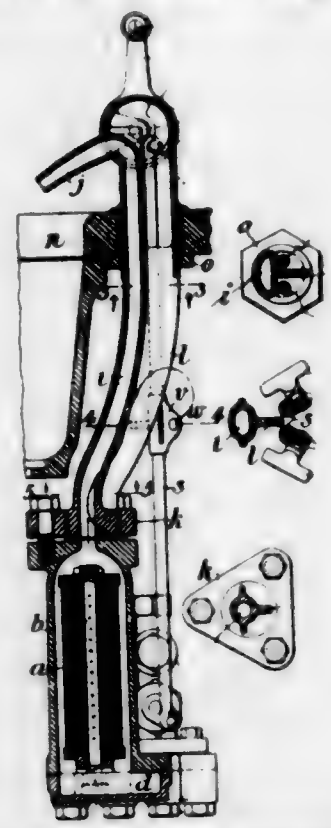
3. In a hay-rack, the combination with the sides, of pivoted sides and toggle-levers connected therewith, end pieces, cross-bars connected to the end pieces and hooked catches connected to the cross-bars and engaging the hinged sides, as set forth.

4. In a hay-rack, the combination with the sides, of movable sides hinged thereto, and toggle-levers pivotally connected with the movable sides and arranged to serve as locks therefor, end pieces, and hooked catches connected to the end pieces and engaging the sides, as set forth.

5. In a hay-rack, the combination with the bottom and the fixed sides, of the transverse timbers with their ends extended beyond the sides of the bottom, the movable sides pivoted at their lower edges, the castings secured to the extended ends of the said timbers and to the fixed sides, and toggle-levers pivotally connected to the movable sides and to the outer ends of the said castings and to each other and serving as automatic locks, as and for the purpose specified.



691,528. STEAM WATER-HEATER. MICHAEL M. BROPHY, London, England. Filed Mar. 21, 1901. Serial No. 52,196. (No model.)

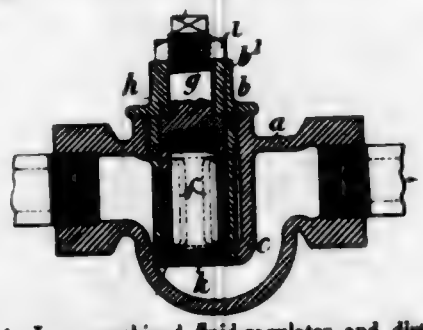


Claim.—1. In apparatus for supplying hot and cold water, the combination with a chamber, a steam-heater located therein, said chamber being provided with separate steam and water inlets, and a separate valve controlling each of said inlets, of a head located at a distance from said chamber provided with a discharge-spout and a cylindrical portion adjacent thereto, a single pipe connecting said spout with the said chamber, two crank-disks mounted in said cylindrical portion of the head, each provided with an operating-lever and a rod connecting each crank-disk with one of said controlling-valves, substantially as described.

2. In apparatus for supplying hot and cold water, the combination

with a chamber, a steam-heater located therein, said chamber being provided with separate steam and water inlets, and a separate valve controlling each of said inlets, of a head located at a distance from said chamber provided with a discharge-spout and a cylindrical portion adjacent thereto, a single pipe connecting said spout with the said chamber, two crank-disks mounted in said cylindrical portion of the head each provided with an operating-lever, and a longitudinally-adjustable rod connecting each crank-disk with one of said controlling-valves, substantially as described.

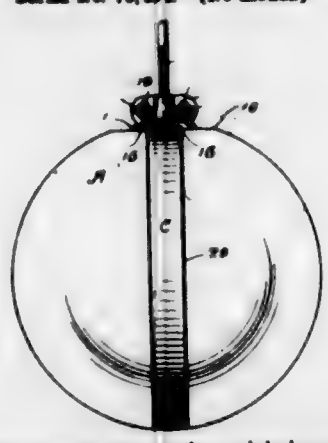
691,529. FILTERING AND REGULATING DEVICE. MICHAEL M. BROPHY, London, England. Filed Sept. 12, 1901. Serial No. 75,190. (No model.)



Claim.—1. In a combined fluid-regulator and dirt-separator, the combination with the casing, of a removable sleeve adapted to be rigidly secured therein, and provided with apertures, a hollow plug rotatably mounted in said sleeve, provided with apertures adapted to register with those of said sleeve and having a part extending outside of the casing to permit said plug to be turned in said sleeve, a screen located in said plug, and devices for locking said plug in its adjusted position with respect to said sleeve, whereby said sleeve can be removed with said plug for cleaning, without disturbing the adjustment of said plug, substantially as described.

2. In a combined fluid-regulator and dirt-separator, the combination with the casing provided with a partition having an aperture therein, of a removable casing adapted to be rigidly secured in said casing and having one end engaging the aperture in said partition, said sleeve being provided with apertures, a hollow plug rotatably mounted in said sleeve, and having a stem extending outside the casing, said plug being provided with apertures adapted to register with those of the sleeve, a cylindrical screen located within said plug, adjacent to the apertures therein, and a jam-nut on said stem for locking the plug and sleeve with respect to each other, whereby the sleeve can be removed, with the plug for cleaning without affecting the adjustment of said parts, substantially as described.

691,530. GLASS FLOAT. JOHN M. BURR, Norwalk, Conn. Filed Sept. 24, 1901. Serial No. 76,494. (No model.)



Claim.—1. The combination with a globular glass float having a retaining device, of a relatively wide flat strap held against slipping by said retaining device, a lever, and a clamp attached to said lever and connecting the ends of the strap.

2. The combination with a globular glass float having a flattened side 10 and a circumferential groove extending from one edge of the flattened portion around the float to the other edge of said flattened portion, of a flat inclosing strap in said groove, and a clamp resting against and extending across said flattened portion and connecting the ends of the strap.

3. The combination with a globular glass float having a retaining device and a lever, of an inclosing strap having hooked ends and adapted to be held against slipping by the retaining device and a two-part clamp comprising members provided with slots for engagement by the hooks and means for drawing the members toward each other to lock the strap to the float and the float to the lever.

4. The combination with a globular glass float having a retaining device and a flattened side, and a lever by which the float is carried, of an inclosing strap having hooked ends and adapted to be held against slipping by the retaining device and a two-part clamp comprising members provided with sockets in their under sides to receive the strap, slots for engagement by the hooks and bolts whereby the members are drawn toward each other to lock the strap to the float and the float to the lever

691,531. STEEL CONSTRUCTION. HARRY C. CLARK, Belleview, Pa. Filed July 12, 1901. Serial No. 68,012. (No model.)



Claim.—1. In a steel, or iron construction, the combination of beams, a clamp consisting of a clamp portion, a bolt passing through said clamp portion, the end of said bolt engaging the other side of said beams, said clamp having an opening and a bar arranged in said opening.

2. In steel or iron construction, the combination with beams, of a clamp secured to one side of said beam, said clamp having a portion thereof bent upon itself upon which said beam rests, a bolt secured to said clamp with its other end engaging the other side of said beam, the said clamp having an opening formed therein, and a bar arranged in said opening, substantially as described.

3. In a steel, or iron construction, the combination of beams, clamps arranged to one side of said beams having an upwardly-extending portion with an opening formed in said upwardly-extending portion, bars arranged therein, an inwardly-extending flange arranged on said clamp, a bolt extending through said clamp engaging the other side of said beams, and a nut secured to said bolt, substantially as described.

4. In steel or iron construction, the combination with beams, of a clamp secured to one side thereof, said clamp having its ends bent inwardly and being doubled upon itself at an intermediate point, the said beam engaging said doubled portion and one of said ends, a bolt engaging said clamp and said beam, the said clamp having an opening formed therein extending to the other of said inwardly-bent ends, and a bar carried by said end, substantially as described.

5. In steel or iron construction, the combination with beams, of a clamp secured to one side thereof, said clamp having an inwardly-bent end and a portion bent over upon itself between which end and bent-over portion said beam is secured, a bolt secured to said clamp and engaging the other side of said beam, said clamp having a downwardly-extending portion, and a bar carried by said downwardly-extending portion, substantially as described.

6. In steel or iron construction, a clamp having inwardly-extending ends and an intermediate portion of itself doubled to form an inwardly-extending portion between which and one of said ends a beam is secured, the said clamp having a vertical and a horizontal opening formed therein, and a bar carried by said other end of the clamp, substantially as described.

7. In steel or iron construction, a clamp which has a portion bent over upon itself and an inwardly-extending end between which end and bent-over portion a beam is adapted to be secured, the said clamp further having a downwardly-extending apertured portion, and a bar carried by said downwardly-extending portion, substantially as described.

8. In steel or iron construction, the combination with a beam, of a clamp comprising inwardly-extending ends and a portion bent over upon itself suitably secured to said beam, and a bar carried by one of said ends, substantially as described.

9. In steel or iron construction, the combination with a beam, of a clamp arranged on one side of said beam, a bolt engaging said clamp and extending parallel with the base of said beam and its end engaging the other side thereof, a base made integral with said clamp, and a bar carried by said base, substantially as described.

691,532. WHEEL ATTACHMENT FOR CHILDREN'S HIGH CHAIRS. ISAAC M. CLARK, Lompoc, Cal. Filed May 8, 1901. Serial No. 59,237. (No model.)

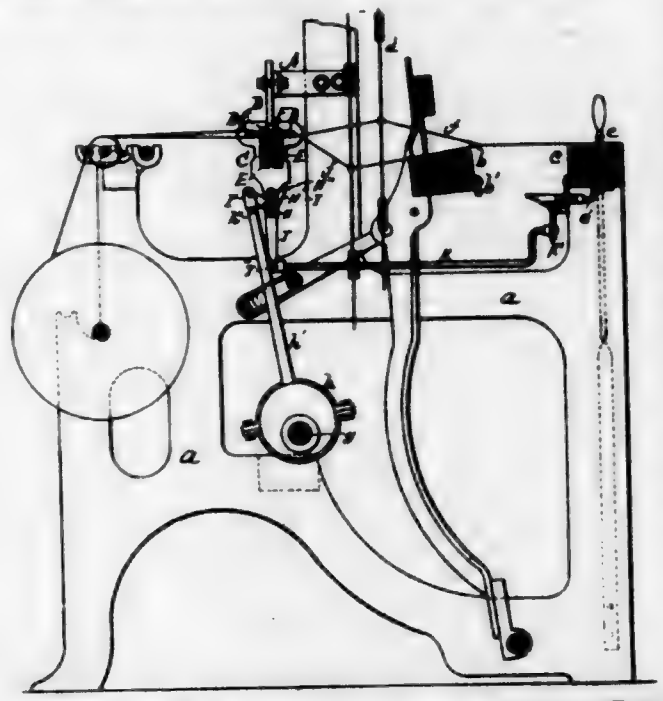
Claim.—1. An attachable wheel for a chair-leg, comprising a U-shaped bracket-frame having resilient side walls, a wheel held to rotate between the ends of the bracket-frame, and a clamping-bolt adapted to compress the side walls of the bracket-frame upon a chair-leg whereon said frame is mounted.

2. An attachable wheel for a chair-leg, comprising a bracket-frame formed of a three-cornered plate-metal blank, bent intermediately to provide two spaced side walls and a curved intervening web, a caster-wheel journaled between the opposite sides of the bracket-frame, a transverse stay-bar having its ends secured in the sides of the bracket-frame near

the wheel, and a transverse clamping-bolt having a head and nut, that respectively bear upon the side walls of the bracket-frame, said nut by adjustment being adapted to clamp the bolt-head on the bracket-frame and compress the sides of said frame against a chair-leg upon which the bracket-frame is mounted.



691,588. WARP STOP-MOTION FOR LOOMS. JOHN V. CUNNIFF and EDWARD CUNNIFF, New Bedford, Mass., assignors to American Mechanical Warp Stop Company, Pawtucket, R. I., a Corporation of Rhode Island. Filed Oct. 23, 1901. Serial No. 80,184. (No model.)

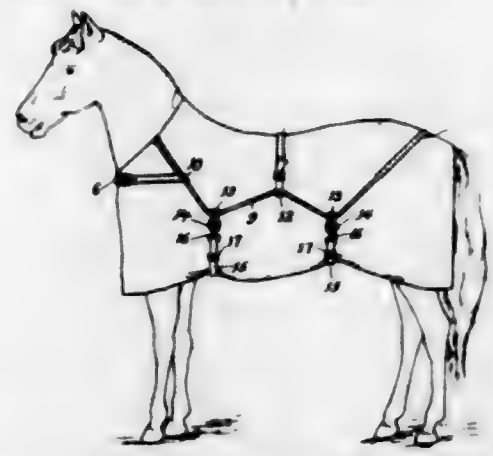


Claim.—1. In a warp stop-motion for looms, detectors as F supported by the warp and hanging freely therefrom; bars supported by the loom-frame and extending through the detectors; a horizontal shaft supported by the frame under the detectors and said bars; an oscillator comprising the bar H'' and arms H' rigid on the shaft and extending up therefrom under the rows of detectors; the normally stationary deflector consisting essentially of the arms I loose on the shaft and connecting-bar I' supported by said arms and extending up from the shaft under the rows of detectors; and a shipping mechanism connected with the deflector, whereby the breakage of a warp-thread causes a detector to drop freely between the deflector and oscillator, and thus constitute a direct contact with both and connection between them, and whereby solely by such direct intermediate connection the oscillator imparts movement to the deflector and the deflector operates the mechanism connected with the shipper.

2. In a warp stop-motion for looms, detectors supported by and hanging freely vertically from the warp-threads; the rocker-shaft supported by the frame under the detectors; an oscillator comprising a bar connected rigidly with the rocker-shaft and extending up therefrom under the rows of detectors; and a deflector connected with the shipping mechanism and comprising a bar loosely connected with the rocker-shaft and extending up therefrom under the rows of detectors; whereby the dropping of a detector between the oscillator and the deflector causes the oscillator by the movement of the rocker-shaft to act directly on the detector, and the detector to act directly on the deflector and solely by such action to operate the shipping mechanism.

3. In a warp stop-motion for looms, the detectors F supported by and hanging freely from the warp-threads; the bars E supported by the frame and extending through said warp-threads; the rocker-shaft H supported by the frame directly under the detectors; the oscillator H', H'' rigid on the shaft and extending up therefrom under the rows of detectors; the deflector I, I' loose on the shaft and extending up therefrom under the rows of detectors; the shipping mechanism consisting of the arm J pivotally connected with the deflector, the rod K pivoted to the arm J, the lever L pivotally connecting the rod K with the breast-beam, the lifting-dog N rigidly secured to the lever L, and the slotted dagger P pivotally secured to the breast-beam; and mechanism for rocking the shaft H, all substantially as set forth.

691,584. BLANKET. JAMES H. DAILEY, Milwaukee, Wis. Filed Aug. 9, 1901. Serial No. 71,436. (No model.)



Claim.—1. A blanket for horses, and other animals, consisting of a main covering portion, side cord members extending lengthwise of the covering and at desired distances apart, and loose throughout the greater portion of their lengths, and girth-bands slidingly fitted to one side member, and adapted to slidingly engage the other side member.

2. A blanket for horses, and other animals, consisting of a main covering portion, side cord members extending lengthwise of the covering and at desired distances apart, and loose throughout the greater portion of their lengths, loops through which said side members of the cord freely pass, and girth-bands slidingly fitted to one side member of the cord, and adapted to slidingly engage the other side member of said cord.

3. A blanket for horses, and other animals, consisting of a main covering portion, side cord members extending lengthwise of the covering, and at desired distances apart, and loose throughout the greater portion of their lengths, a top strap passing across a medial portion of the covering and provided at opposite ends with loops through which the side members of the cord freely pass, and girth-bands slidingly fitted to one side member, and adapted to slidingly engage the other side member.

4. A blanket for horses, and other animals, consisting of a main covering portion, side cord members extending lengthwise of the covering and at desired distances apart, and loose throughout the greater portion of their lengths, an adjustable top strap passing across a medial portion of the covering, and provided at opposite ends with loops through which the side members of the cord freely pass, and girth-bands slidingly fitted to one side member, and adapted to slidingly engage the other side member.

5. A blanket for horses, and other animals, consisting of a main covering portion, side cord members extending lengthwise of the covering and at desired distances apart, and loose throughout the greater portion of their lengths, and adjustable girth-bands slidingly fitted to one side member, and adapted to slidingly engage the other side member

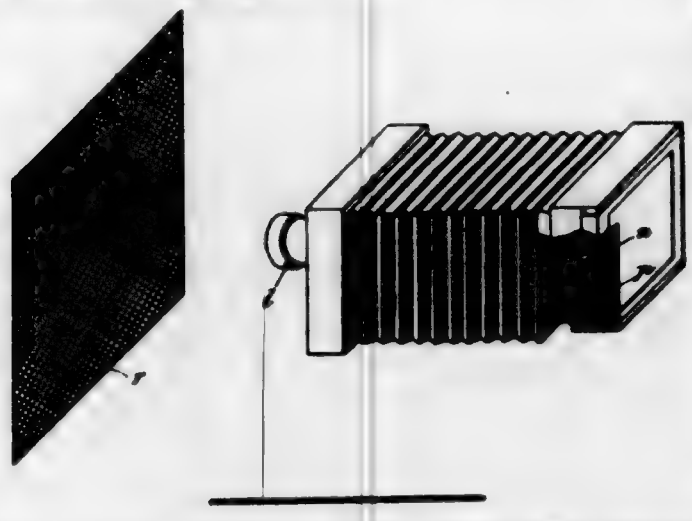
6. A blanket for horses, and other animals, consisting of a main covering portion, a cord extending partly across the rear portion of the covering, and thence forwardly in two loose side members, the ends of said side members being secured to the covering at the forward portion thereof, and girth-bands slidingly fitted to one side member, and adapted to slidingly engage the other side member.

7. A blanket for horses, and other animals, consisting of a main covering portion, a cord extending slidingly partly across the rear portion thereof, and thence forwardly in two loose side members, the ends of said loose side members being secured to the covering at the forward portion of said covering, and girth-bands slidingly fitted to one side member and adapted to slidingly engage the other side member.

691,585. PROCESS OF MANUFACTURING AUTOTYPE-PLATES. ERICH EHLERMANN, Dresden-Altstadt, Germany. Filed Oct. 27, 1900. Serial No. 34,565. (No specimens.)

Claim.—The process for manufacturing autotype-plates which con-

sists in first preparing a transparent photographic picture of the object the reproduction of which is to be effected, placing said picture upon a suitable sensitive plate and preferably face to face with the same, then inserting both plates in a photographic camera, and placing a suitably-reticulated plate in front of the lens of said camera and finally exposing said suitably-reticulated plate to light and photographing the same upon the sensitive plate within the camera and through the said lens and through the previously-taken photographic picture.



691,536. WEIGHING-MACHINE. CHARLES O. ERICSON, Helmetta, N. J. Filed June 7, 1901. Serial No. 63,538. (No model.)

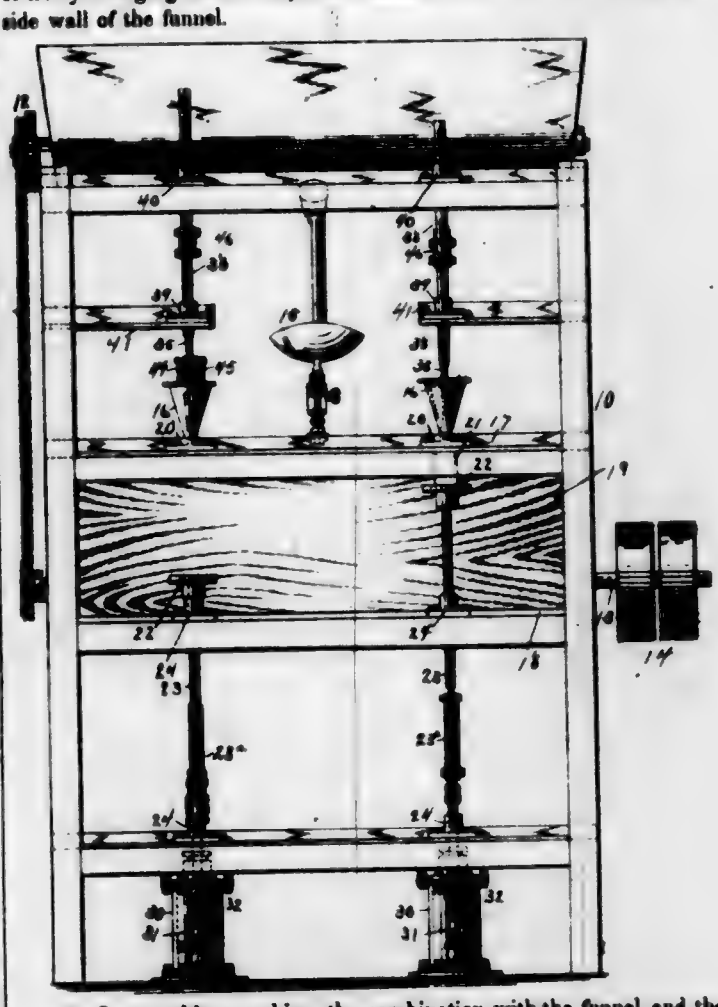


Claim.—1. A machine of the kind described, comprising a trough-like hopper having a discharge-opening in the bottom, a normally closed door for the discharge-opening, a tilting arm connected to the door so that when moved in one direction it will open the door, a weighing-scale having its pan arranged beneath the discharge-opening, a tilting liquid-containing controller pivotally supported between the scale and the hopper, means by which one end of the controller may engage the tilting arm and open the door, and a rod pivotally connecting the opposite end of the controller with the scale-beam by which arrangement the descent of the scale-pan causes the controller to be tilted and permits the door to close, and the ascent of the scale-pan moves the controller so as to open the door.

2. An apparatus of the kind described, comprising a trough-like hopper having a discharge-opening in the bottom, a swinging counterbalanced door to normally close the said opening, a depending curved arm connected to the door so that when raised it will open the door, a scale arranged with its pan beneath the discharge-opening of the hopper, a tilting controller between the hopper and scale, said controller having at one end means for striking the curved arm to open the door, and a rod connecting the opposite end of the controller to the scale-beam.

691,537. PACKING-MACHINE. CHARLES O. ERICSON, Helmetta, N. J. Filed July 25, 1901. Serial No. 69,626. (No model.)

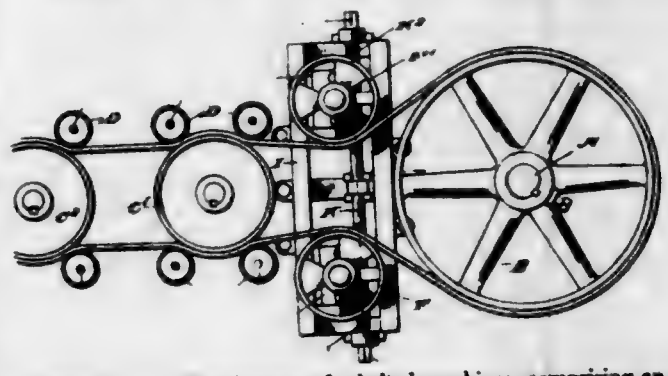
Claim.—1. In a machine of the kind described, the combination with the funnel and the reciprocating hammer which moves through the funnel, of a scraper carried by the hammer, said scraper comprising a series of freely-swinging blades adapted to contact at their free ends with the side wall of the funnel.



2. In a packing-machine, the combination with the funnel and the hammer reciprocating through the funnel, of the scraper comprising a ring attached to the hammer, and a series of freely-swinging blades hanging from the ring so that their free ends may engage the funnel-wall.

3. In a machine of the kind described, the combination with the funnel and the hammer which reciprocates through it, of the scraper carried by the hammer, said scraper comprising a series of freely-swinging blades of different lengths, the ends of the blades being adapted to engage the funnel-wall.

691,538. DRIVING-GEAR FOR BELTED MACHINES. FRANK FRIERIO, Whitehaven, Pa., assignor of one-half to Peter Magagna, Freeland, Pa. Filed Dec. 7, 1900. Serial No. 39,025. (No model.)



Claim.—1. A driving-gear for belted machines, comprising an upright driven shaft having a pulley, an endless belt passing over said pulley, spindle-pulleys in oppositely-arranged pairs at the outer face of the runs of said belt, idler-pulleys engaging both runs of the belt and each holding the belt in contact with two oppositely-arranged pairs of spindle-pulleys, and means for adjusting and tightening the belt, as set forth.

2. A driving-gear for belted machines, comprising an upright driven shaft having a pulley, an endless belt passing over said pulley, spindle-pulleys arranged at the outer faces of the runs of said belt, a row of idler-pulleys engaging both runs of the belt and holding the belt in contact with the spindle-pulleys, and a pair of belt adjusting and tightening pulleys engaging the outer faces of the runs of the belt between the driven-shaft pulley and the first idler in the row of idlers, as set forth.

3. A driving-gear for belted machines, comprising an upright driven shaft having a pulley, an endless belt passing over said pulley, a row of idlers over which passes the endless belt, spindle-pulleys in contact with

the belt at said idlers, a pair of belt adjusting and tightening pulleys engaging the outer faces of the runs of the belt between the driven-shaft pulley and the first idler in the row of idlers, and means for simultaneously moving the belt adjusting and tightening pulleys toward or from each other, as set forth.

4. A belt adjusting and tightening device, comprising a fixed guideway, slides movable in said guideway, and each having a vertical guideway formed therein, bearings for tightening-pulleys carried by said slides, nuts held in the vertical guideways in the said slides, and means for moving the said nuts longitudinally to carry the slides toward or from each other, as set forth.

5. A belt adjusting and tightening device, comprising a fixed guideway, slides movable longitudinally in said guideway, tightening-pulleys having vertically-arranged spindles journaled in bearings carried at the upper face of said slides, nuts held in vertical guideways in the said slides, and a longitudinally-extending screw-rod engaging the said nuts, as set forth.

6. A belt adjusting and tightening device, comprising a fixed guideway, slides movable in said guideway, bearings carried by said slides for the tightening-pulleys, nuts mounted to move vertically in said slides but held against turning therein, and a screw-rod mounted to turn in bearings carried by said guideway, the screw-rod having right and left hand threaded portions screwing in said nuts, as set forth.

691,589. WATER-JOINT. MATTHIAS GARVEY, Crownpoint, N. Y. Filed Apr. 23, 1900. Serial No. 13,915. (No model.)



Claim.—1. A water-joint, comprising a thimble, a water-pipe passed therethrough, the thimble having a counterbore therein to form a cavity, a cap screwed into the cavity, a packing carried fast on the water-pipe and situated within the cavity, and ball-bearings placed between the packing and the cap.

2. A water-joint, comprising a thimble, a water-pipe passed therein-into, the thimble having a cavity into which the water-pipe extends, and a packing carried by the water-pipe and seated in the cavity, to pack the interior walls thereof.

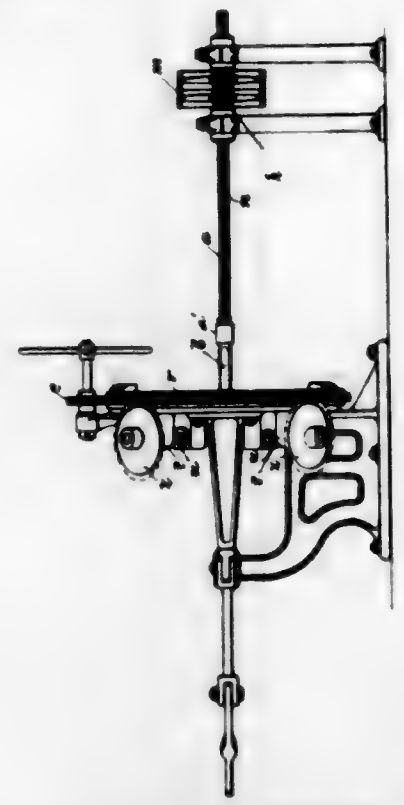
3. A water-joint, comprising a thimble with a bore and counterbore, a water-pipe passed through the bore of the thimble, and a packing carried by the water-pipe and situated in the counterbore of the thimble, the packing comprising a cup and rings or the like, the members being fastened to the water-pipe and having the cup sandwiched between them.

4. A water-joint, comprising a thimble with a bore and counterbore, a water-pipe passed through the thimble, a packing carried by the water-pipe and seated in the counterbore of the thimble, a cap fitted in the outer portion of the counterbore, and antifriction-bearing devices interposed between the cap and the packing, to transmit to the packing the pressure of the cap.

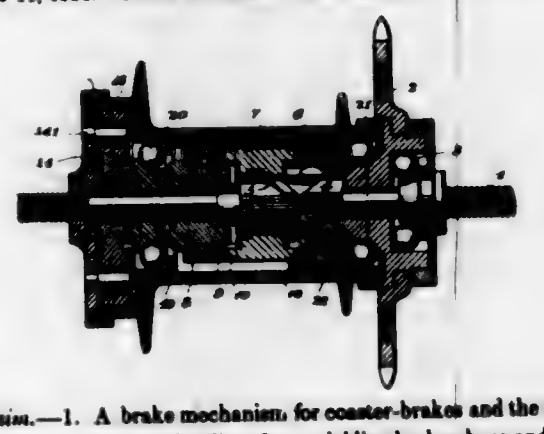
5. A water-joint, having a thimble with a reduced extension serving to receive the tubular drill-rod, and the thimble having an annular groove formed in the shoulder at the base of the extension, and a packing-gasket set into said groove and engaged by the end of the tubular drill-rod to pack the same, the width of the packing-gasket being equal to the thickness of the material forming the drill-rod so that the end of the drill-rod engages no part other than the packing-gasket.

691,540. APPARATUS FOR ROLLING SOLID OR HOLLOW BODIES. JOSEF GIESHOLDT, Duesseldorf, Germany. Filed Jan. 9, 1900. Serial No. 312. (No model.)

Claim.—In a rolling-mill, the combination of an axially movable and rotatable spindle having a squared socket adapted to hold the blank, with a second spindle arranged opposite the socket and in alinement with the first spindle, and with a series of radially-adjustable drawing-rollers, substantially as specified.



691,541. COASTER-BRAKE. CHARLES GLOVER, New Britain, Conn., assignor to P. & F. Corbin, a Corporation of Connecticut. Filed June 11, 1901. Serial No. 64,097. (No model.)



Claim.—1. A brake mechanism for coaster-brakes and the like, said mechanism comprising a plurality of non-yielding brake-shoes and a brake-actuating device and means between the ends of said shoes and said brake-actuating device to impart to said shoes an outward movement, and means to couple said brake-actuating device with the motive power therefor.

2. A brake mechanism for coaster-brakes and the like comprising a wheel-hub, a plurality of non-yielding brake-shoes, a portion of the hub overstanding said shoes, a brake-actuating device and means between the ends of the shoes and said brake-actuating device to impart to said shoes an outward and parallel movement, and means to couple said brake-actuating device with the motive power therefor.

3. A brake mechanism for coaster-brakes, comprising, a wheel-hub, an axle, a brake-shoe, a brake-actuator, means of connection between said brake-actuator and said brake-shoe whereby the movement of the former may be transmitted to the latter, said means of connection also acting as a stop to check the rearward movement of said actuator.

4. A brake mechanism for coaster-brakes and the like comprising a plurality of brake-shoes, and means to operate each of said shoes by pressing against each end thereof, said means coacting with the driving mechanism and a clutch therefor.

5. A brake mechanism comprising a plurality of independent brake-shoes, a plurality of cams, each adapted to operate upon the adjacent ends of two brake-shoes whereby said brake-shoes may be moved bodily outward, and means to operate said cams.

6. A brake mechanism comprising a plurality of independent brake-shoes, a plurality of double-acting cams, each adapted to operate upon the adjacent ends of two brake-shoes whereby said brake-shoes may be moved bodily outward, and means to operate said cams.

7. A brake mechanism comprising a plurality of independent brake-shoes, means for guiding said brake-shoes, double-acting cams, each adapted to operate upon the adjacent ends of a plurality of brake-shoes where-

by said brake-shoes may be moved bodily outward, and means to operate said cams.

8. A brake mechanism comprising a plurality of brake-shoes, pins for guiding and resisting the turning moment of said brake-shoes, double-acting cams, each adapted to operate upon the adjacent ends of two brake-shoes whereby said brake-shoes may be moved bodily outward, and means to operate said cams.

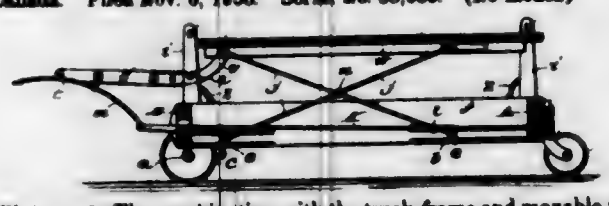
9. A brake mechanism comprising a plurality of brake-shoes, springs for holding said brake-shoes in their non-operative positions, double-acting cams, each adapted to operate upon the adjacent ends of the brake-shoes whereby said brake-shoes may be moved bodily outward, and means to operate said cams.

10. In a coaster-brake, a shaft, a pair of brake-shoes, a cam between the adjacent ends of said brake-shoes, a shouldered extension on said cam, said shaft acting as a stop therefor, and means to operate said cam.

11. A brake mechanism for coaster-brakes comprising, a wheel-hub, an axle, a brake-shoe, a cam, an arm projecting from said cam said arm having a long side and a short side, a brake-actuator comprising a sleeve with a recess in the side thereof adapted to receive the end of said brake-arm, and a recess in the end of said brake-arm to allow the same to partially clear the axle.

12. A brake mechanism for coaster-brakes and the like, comprising a wheel-hub, an axle, a brake-shoe and means for controlling said brake-shoe, said means having a lever-arm projecting therefrom, said lever-arm having a long side and short side, the said axle being located in the path of movement of the long side of the said arm to act as a check therefor and means for moving said lever-arm to operate said brake-shoe.

691,542. **BAGGAGE-TRUCK.** COUNCIL T. GODARD, Petitcodiac, Canada. Filed Nov. 6, 1900. Serial No. 35,689. (No model.)



Claim.—1. The combination with the truck-frame and movable platform of the two cross-frames and means for operating the cross-frames to elevate the platform substantially as described.

2. The combination of a truck-frame and movable platform of the two cross-frames, the pivoted handle-bars *s*, *s*, and cross-bar *t*, substantially as described.

3. The combination with the truck-frame and movable platform of the two cross-frames, means for operating the cross-frame and the retaining-bar, substantially as described.

4. The combination with the truck-frame and movable platform of the two cross-levers, means for operating the cross-levers, the retaining-bar, and the trip *m*, substantially as described.

691,543. **NECKTIE-HOLDER.** ZALAL GUNIK, New York, N. Y. Filed Oct. 25, 1901. Serial No. 79,949. (No model.)



Claim.—1. In connection with a necktie-shield, a clip for engaging with a button and consisting of a single length of wire formed with a hook portion to pass into the shield, lateral shoulders at the upper portion for engaging against the rear side of the shield, the downwardly-extended jaws and the crossed portions for engaging against the rear side of the shield, substantially as specified.

2. In connection with a necktie-shield, a button-engaging clip consisting of a single length of wire bent to form jaw portions, and a portion for fastening the same at the upper end to the shield, the ends of the jaw portions being bent out laterally in opposite directions, thence forward and thence across the back of the shield and through the shield, substantially as specified.

3. A necktie-holder, comprising a shield, a button-engaging clip on the rear side of said shield, and a metal loop on the front of the shield, the said loop being secured in place by the said clip, substantially as specified.

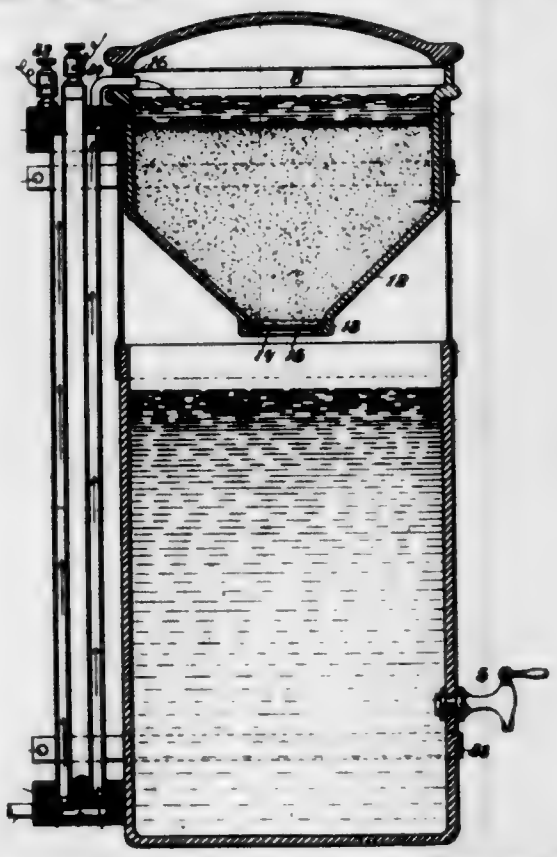
4. The combination with a necktie-shield, of a necktie-holding device consisting of a plate bent to form a loop and having its edges provided with socket members, the socket members of one edge interlocking with the socket members of the other edge, a fastening-wire passing through said sockets and a button-engaging device securing said holding device to the shield, substantially as specified.

691,544. **PASSE-PARTOUT.** THEODORE K. HASTINGS, Brooklyn, N. Y., assignor to Hastings and Miller, New York, N. Y., a Firm. Filed Aug. 24, 1901. Serial No. 73,119. (No model.)

Claim.—1. As a new article of manufacture, a passe-partout comprising a glass, a mat with a picture-opening, a backing-card with an opening larger than the opening in the mat, an edge-binding connecting said parts together, a card adapted to fit within the opening in the backing-card and upon which the picture to be exhibited may be pasted, and a paper sheet secured along one edge to the backing-card and adapted to be pasted down upon the backing-card after the insertion of the picture, substantially as set forth.

2. As a new article of manufacture, a passe-partout comprising a glass, a mat with a picture-opening, a backing-card with an opening larger than the opening in the mat, an edge-binding connecting said parts together, a card adapted to fit within the opening in the backing-card and upon which the picture to be exhibited may be pasted, and a paper backing-sheet secured along one edge to the backing-card and having adhesive material upon its free under edges and adapted to be pasted down upon the backing-card after the insertion of the picture, substantially as set forth.

691,545. **PORTABLE WATER PURIFIER AND FILTER.** CHAS. R. HOLLAND, New York, N. Y., assignor to the Electric Purifying Company, a Corporation of New Jersey. Filed Jan. 9, 1901. Serial No. 42,591. (No model.)



Claim.—1. The combination of an outer metallic tube, having a head at its upper end and a base at its lower end, a smaller metallic tube concentrically arranged within the outer tube, closed at its lower end within the base-piece, a water-inlet in the base between the two tubes, and a discharge-opening in the head, the upper end of the inner tube projecting through the headpiece, and each tube having a binding-post attached thereto, as set forth.

2. The combination of an outer aluminium tube having an insulated head at its upper end, said head having a discharge-opening and a binding-post in contact with said outer tube, an insulated base at the lower end of said outer tube having a supply-tube and inlets, and an inner tube also of conducting material socketed in the insulated base and passing through the upper insulated head and provided with a binding-post, as set forth.

3. The combination of an outer tubular electrode having a head of insulating material and a base of insulating material, a tubular electrode within also secured to said head and base, said insulated base having a water-inlet and ducts leading to the space between said tubes, and the in-

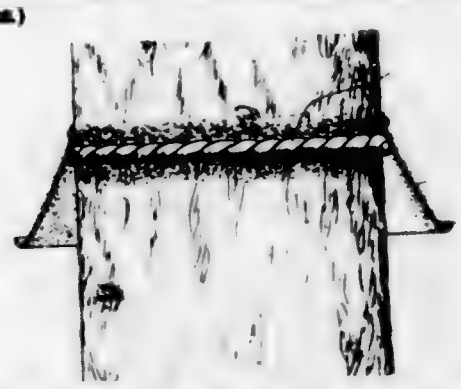
sulated head having a water-discharge orifice, and a binding-post in contact with the outer tube, and a binding-post attached to said inner tube, as set forth.

4. The combination of a water-purifying apparatus, comprising an outer tubular and an inner metallic electrode, provided with a base and a head of insulating material, and means for receiving and discharging water in the base and head, and a pipe in the head adapted to conduct water from the purifying to the filtering apparatus, as set forth.

5. The combination of a water-purifying apparatus, comprising an outer and inner tube of aluminium forming electrodes in an electric circuit, having a base and a head of insulating material, a filter secured alongside, means for conducting water upwardly between said tubes, and a discharge-tube communicating between the head and filter to convey the purified water from the purifier to said filter, as set forth.

6. A water-purifier comprising an outer metallic tube and an inner concentrically-arranged metallic tube forming electrodes in an electric circuit, said outer tube having a base of insulating material provided with a water-supply pipe and a head of insulating material provided with a discharge-tube at the other end, and means whereby said purifying apparatus may be removably attached to a water-filter, in combination with said filter, and with a tube communicating between the purifier and filter, as set forth.

691,546. METHOD OF PROTECTING TREES. THOMAS J. HUBBELL, Watsonville, Cal., assignor to Drusilla Hubbell and William H. Ames, Watsonville, Cal. Filed Apr. 8, 1901. Serial No. 54,555. (No specimens.)



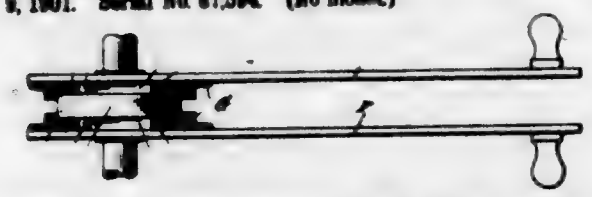
Claim.—The method herein described of protecting a tree consisting in applying a plastic substance to the trunk to form an even surface; then placing a soft annulus about the trunk proximate to said coated surface; and then placing a flexible strip about the trunk and securing the upper edge just above said annulus, said strip having its surfaces coated with a viscous or glutinous substance.

691,547. WAGON-BRAKE. JOHN H. JENNER, Leavenworth, Ind. Filed July 22, 1901. Serial No. 69,229. (No model.)



Claim.—In a vehicle-brake, the combination with a rear axle, wheels and bounds of a vehicle, of a brake-beam mounted to swing upon said bounds, a rock-shaft mounted upon the beam and provided with cranks at its ends, a connection between one of the cranks and the rear axle, operating mechanism connected with the other crank, and a latch for connecting the rock-shaft with the beam to hold said shaft against independent rotatable movement, substantially as described.

691,548. CLUTCH. CHRISTIAN JOHNSON, Elgin, Ill. Filed July 9, 1901. Serial No. 67,594. (No model.)

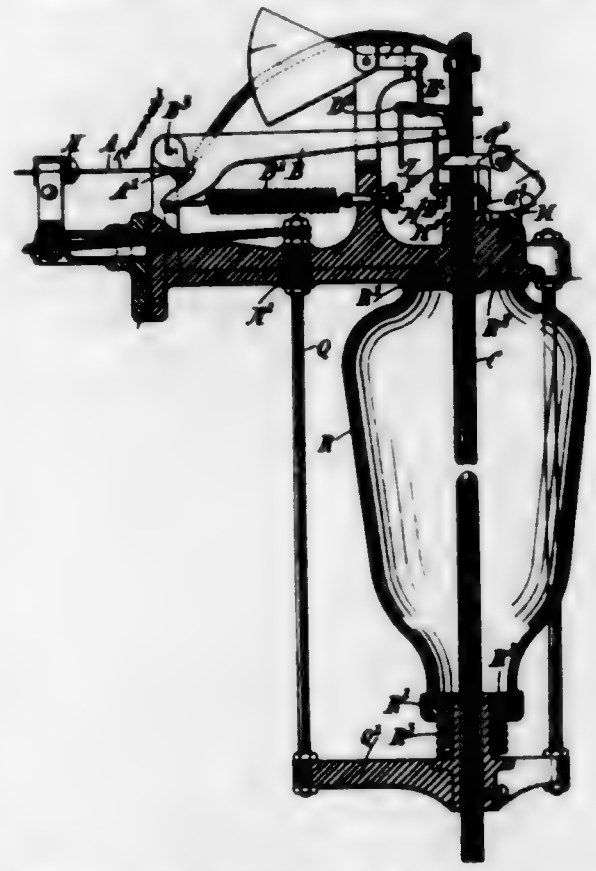


Claim.—1. A clutch comprising a shaft, a circular member rigidly attached to the shaft and having at its periphery laterally-projecting rims extending outwardly to a greater diameter than the body part, a disk arranged loosely on the shaft and located within the plane of the laterally-projecting rim of the rigid member, said disk having a runway on its edge containing a ball or roller and a spring, said movable member having also an attached part overlapping and inclosing the outward projection of the peripheral rim to lock the swiveling parts together against lateral separation substantially as described.

2. A clutch comprising a shaft, a circular member rigidly attached to said shaft and having secured to its periphery a marginal rim extending beyond the periphery of said circular member, a loose disk arranged within the plane of said rim and having on its outer edge a runway with a ball or roller and a spring behind it, a handle attached to said disk, and clips attached to the handles and extending over and around the projecting rims to hold the swiveling parts together substantially as and for the purpose described.

3. A clutch comprising a central shaft, a wheel rigidly attached thereto and having on each side at its periphery an attached rim projecting laterally from the wheel and also projecting beyond the periphery of the wheel, two disks loosely turning on the shaft and lying in the plane of said rims on opposite sides of the wheel, said disks having on their edges runways with balls or rollers in them and springs behind the balls, handles attached to the two disks and clips attached to the inside of the handles and overlapping the projecting edges of the wheel-rims, substantially as and for the purpose described.

691,549. ELECTRIC-ARC LAMP. SAMUEL H. JOHNSON, Stratford, England. Filed July 29, 1901. Serial No. 70,128. (No model.)



Claim.—1. In an arc-lamp the combination of means controlled by the current for regulating the carbons, a main slip-clutch on the movable carbon, a rest for disengaging the main clutch at the minimum limit of its range, a second slip-clutch encircling the movable carbon and means for tilting and tripping said clutch and allowing it only a limited motion.

2. In an arc-lamp the combination of a pivoted lever the movement of which is controlled by the current, a main slip-clutch on the movable carbon having a non-rigid connection with the lever, a rest for disengaging the main clutch at the minimum limit of its range, a second slip-clutch encircling the movable carbon and means for tilting and tripping said clutch and allowing it only a limited motion.

3. In an arc-lamp the combination of a pivoted lever the movement of which is controlled by the current, a main slip-clutch on the movable carbon having a non-rigid connection with the lever, a rest for tripping the main clutch at the minimum limit of its range, a second slip-clutch encircling the movable carbon, means for tilting and tripping said clutch and allowing it only a limited motion and means for moving the second clutch on the movable carbon when the lever is at the maximum limit of its range.

4. In an arc-lamp the combination of a pivoted lever the movement of which is controlled by the current, a main slip-clutch on the movable carbon having a non-rigid connection with the lever, a rest for tripping

the main clutch at the minimum limit of its range, a second slip-clutch encircling the movable carbon, means for tilting and tripping said clutch and allowing it only a limited motion, means for moving the second clutch on the movable carbon when the lever is at the maximum limit of its range and means for tripping the second clutch as the lever falls to the minimum limit of its range when the current is cut off.

5. In an arc-lamp the combination of a pivoted lever the movement of which is controlled by the current, a main slip-clutch on the movable carbon having a non-rigid connection with the lever, a rest for tripping the main clutch at the minimum limit of its range, a second slip-clutch encircling the movable carbon, means for tilting and tripping said clutch and allowing it only a limited motion, means for moving the second clutch on the movable carbon when the lever is at the maximum limit of its range, means for tripping the second clutch as the lever falls to the minimum limit of its range when the current is cut off and a pivoted tripping-lever adapted to engage the main clutch when the carbons exceed their normal working distance apart and adapted to be put out of action by the lever when the current is cut off.

6. In an arc-lamp the combination of a pivoted lever the movement of which is controlled by the current, a main slip-clutch on the upper carbon having a non-rigid connection with the lever, a rest for tripping the main clutch at its lowest position and a pivoted tripping-lever adapted to engage the main clutch when the carbons exceed their normal working distance apart and adapted to be put out of action by the lever when the current is cut off.

7. In an arc-lamp the combination of a thermo-expansive strip forming a part of the circuit, a pivoted lever connected to one end of said strip, a spring adapted to raise the lever when the strip expands, a main slip-clutch on the upper carbon connected to the lever, a rest on which the main clutch trips when at its lowest position, a second slip-clutch encircling the carbon above the main clutch and normally tilted by a counterweighted pivoted lever and stops to limit the motion of the said lever.

8. In an arc-lamp the combination of a thermo-expansive strip forming a part of the circuit, a pivoted lever connected to one end of said strip, a spring adapted to raise the lever when the strip expands, a main slip-clutch on the upper carbon connected to the lever by a non-rigid link, a rest on which the main clutch trips when at its lowest position, a second slip-clutch encircling the carbon above the main clutch and normally tilted by a counterweighted pivoted lever and stops to limit the motion of said lever.

9. In an arc-lamp the combination of a thermo-expansive strip forming a part of the circuit, a pivoted lever connected to one end of said strip, a spring adapted to raise the lever when the strip expands, a main slip-clutch on the upper carbon connected to the lever by a non-rigid link, a rest on which the main clutch trips when at its lowest position, a second slip-clutch encircling the carbon above the main clutch and normally tilted by a counterweighted pivoted lever, stops to limit the motion of said lever and a projection on the second clutch engaging with the spring-controlled lever when in its highest position so as to trip the second clutch.

10. In an arc-lamp the combination of a thermo-expansive strip forming a part of the circuit, a pivoted lever connected to one end of said strip, a spring adapted to raise the lever when the strip expands, a main slip-clutch on the upper carbon connected to the lever by a non-rigid link, a rest on which the main clutch trips when at its lowest position, a second slip-clutch encircling the carbon above the main clutch and normally tilted by a counterweighted pivoted lever, stops to limit the motion of said lever, a projection on the second clutch engaging with the spring-controlled lever when in its highest position so as to trip the second clutch and a link on the tailpiece of the second clutch engaging with a spring-controlled lever when the current is cut off so as to trip the second clutch.

11. In an arc-lamp the combination of a thermo-expansive strip forming a part of the circuit a pivoted lever connected to one end of said strip, a spring adapted to raise the lever when the strip expands, a main slip-clutch on the upper carbon connected to the lever by a non-rigid link, a rest on which the main clutch trips when at its lowest position, a second slip-clutch encircling the carbon above the main clutch and normally tilted by a counterweighted pivoted lever, stops to limit the motion of said lever, a projection on the second clutch engaging with the spring-controlled lever when in its highest position so as to trip the second clutch, a link on the tailpiece of the second clutch engaging with the spring-controlled lever when the current is cut off so as to trip the second clutch, a pivoted tripping-lever having a projection adapted to engage the main clutch when the carbons exceed their normal working distance apart and a finger on the tripping-lever engaging with the spring-controlled lever when the current is cut off to put the tripping-lever out of action.

12. In an arc-lamp the combination of a thermo-expansive strip forming a part of the circuit, a pivoted lever connected to one end of said strip, a spring adapted to raise the lever when the strip expands, a main slip-clutch on the upper carbon connected to the lever by a non-rigid link, a rest on which the main clutch trips when at its lowest position, a pivoted tripping-lever having a projection adapted to engage the main clutch when the carbons exceed their normal working distance apart and a finger on the tripping-lever engaging with the spring-controlled lever when the current is cut off to put the tripping-lever out of action.

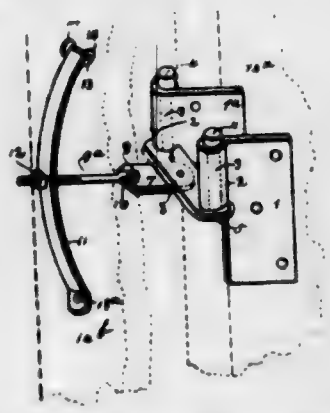
691,550. MOUNT FOR DIATORIC TEETH. HENRY M. JUSTI, Philadelphia, Pa., assignor to H. D. Justi & Son, Philadelphia, Pa., a Firm. Filed May 7, 1901. Serial No. 59,086. (No model.)

Claim.—1. An artificial tooth having therein, a vertical recess, and cross-openings in the side wall thereof, in combination with a loop having expansible legs which partly occupy said recess and project partly outside of the same and are provided on their inner ends with lips which removably occupy said openings.

2. An artificial tooth having a recess and cross-openings in the side walls thereof communicating therewith, a loop having expansible legs partly occupying said recess and projecting partly exterior thereof, lips on the inner ends of said legs adapted to occupy said cross-openings, and a piece of pliable and penetrable material into which the exterior projecting portion of said loop is adapted to be stuck.

3. An artificial tooth having a recess, and a cross-opening in the side wall communicating with said recess, a removable leg partly occupying said recess and partly projecting exterior thereof, a lip on said leg removably occupying said cross-opening, and a piece of pliable and penetrable material into which the exterior portion of said leg is stuck and on which the body of the tooth rests.

691,551. SPRING-HINGE. MICHAEL A. D. KINCAID, Dallas, Tex. Filed Jan. 14, 1901. Serial No. 43,243. (No model.)



Claim.—1. A spring fixed at its lower end to the inner face of a door-jamb and having its upper end free to slide up and down thereon, in combination with the door member of a swing-hinge and intermediate devices pivotally connecting the middle of the said spring to the said door member.

2. A bearing-plate provided with curved indentations and attached to the outer face of a door-jamb in combination with a door member of a hinge having curved parts to fit into such indentations, a spring attached to the inner face of the door-jamb at one end and having the other end free and provided with antifriction-rollers to slide up and down thereon and devices pivotally connecting the said spring with the said door member substantially as set forth.

3. The door member of a hinge provided with curved bearing-surfaces at each of its rear corners and in the rear space between them, in combination with a bearing-plate having curved surfaces arranged to fit the bearing-surfaces aforesaid, a spring attached to the inner face of the door-jamb and adjustable connections between said spring and said door member whereby the opening of the door in either direction will put the spring under predetermined tension substantially as set forth.

4. A spring-hinge comprising the plates 1 and 1^a provided with thimbles carrying pins and adapted to be secured to the sides of the door, a horizontal plate 6 rigid with said pins and extending across the inner edge of the door, a bearing-plate outwardly presenting curved recesses adapted to seat said thimbles and the curved rear edge of plate 6, in combination with a curved spring 11 adapted to be rigidly secured at one end to the inner face of a door-jamb and to bear at its free end on the said jamb, rollers mounted on the said free end and means for operatively connecting the said spring with the door member of the hinge, consisting of the plate 7 pivotally secured to the under side of the said plate 6 and the tension-rod 9^a pivotally secured to plate 7 adjustably secured to the central portion of the said spring substantially as set forth.

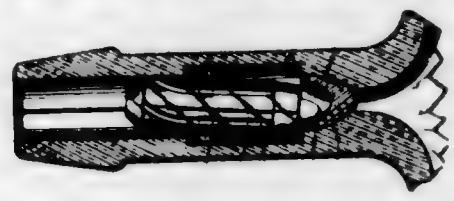
691,552. WRENCH. WILLIAM H. LANDOR, Palmyra, Wis. Filed Nov. 14, 1900. Serial No. 36,444. (No model.)

Claim.—1. In a wrench, an operating-handle; a shank provided with a ratchet and a stationary jaw cast integrally, in combination with a malleable slidable jaw, formed V-shaped and secured in place by compressing its diverging arms together around said shank; means for securing said diverging arms together, when compressed around said shank; and means for supporting the pawl from said slidable jaw in contact with said ratchet, as set forth.



2. In a wrench, an operating-handle, a shank provided with a ratchet and a stationary jaw cast integrally, in combination with a malleable slidable jaw formed V-shaped, preparatory to being placed upon said shank, and secured in place thereon by compressing its diverging arms together around said shank; a pivotal pin or rivet securing said diverging arms together when compressed around said shank; and a pawl, supported at one end by said pivotal pin or rivet, from said slidable jaw, and adapted to bear at its opposite end in said ratchet, all substantially as and for the purpose specified.

691,553. NON-REFILLABLE BOTTLE. WILLIAM C. LEAK, San Antonio, Tex., assignor of one-half to Otto Graff and Albert Head, San Antonio, Tex. Filed Apr. 3, 1901. Serial No. 54,147. (No model.)



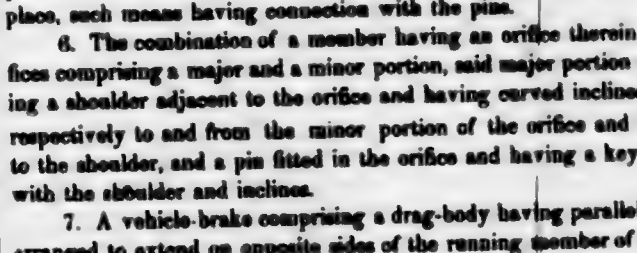
Claim.—1. The combination with a bottle having a concave seat in the lower part of its neck and an annular cavity in the neck above the seat, of a concavo-convex check adapted to lie in said seat to close the same, the check being movable upward to open, a plunger mounted in the neck above the check, a stud carried on the plunger and lying in said annular cavity to retain the plunger and allow it a limited movement toward and from the check, and also a sidewise movement, and a projection carried by the plunger and extending into the concave portion of the check, for the purpose specified.

2. The combination with a bottle having an annular concavity in the neck thereof, of a check arranged in the neck, a plunger working with the check, and laterally-projected studs carried by the plunger and fitting in the concavity in the neck, said studs being formed of resilient material capable of being compressed into the plunger as the plunger is moved into position.

3. The combination, with a bottle having a cavity in the neck thereof, of a check arranged in the neck, a plunger working with the check, and a laterally-projected stud carried by the plunger and fitted in the cavity of the neck, said stud being yieldingly mounted so as to be capable of moving into the plunger as the plunger is passed through the contracted portion of the neck.

691,554. VEHICLE-DRAG. MARTIN LEATHERMAN, Garden City, Minn. Filed May 11, 1901. Serial No. 59,798. (No model.)

Claim.—1. A vehicle-brake comprising a drag-body having a portion to lie under the running member of the vehicle, and provided with a drag-plate carried by said drag-body, and arranged laterally to the running member of the vehicle whereby the drag-plate may extend alongside the running member of the vehicle, substantially as set forth.



2. A vehicle-brake comprising a drag-body having side members to extend on opposite sides of the running member of the vehicle, and a rear cross-bar to extend beneath the running member of the vehicle and having means for connecting the front ends of the side portions of the drag-body above the running member of the vehicle whereby the drag-body will have portions extending alongside the member of the vehicle and beneath the same at the rear end of the drag-body, and the connecting device extending over the running member of the vehicle at the front end of the drag-body, substantially as set forth.

3. A vehicle-brake comprising the drag-body having parallel side portions adapted to straddle a part of a running member of a vehicle and separated by an intermediate opening, means connecting the parallel side portions at their opposite ends, and a drag-plate held at its front and in the intermediate opening of the drag-body at a point between the front and rear connections of the side portions of such body substantially as set forth.

4. A vehicle-brake, comprising a drag-body having parallel plates and a cross portion or abutment at the rear ends of said plates, means for holding the drag-body in position, and a drag-plate pivotally connected between the parallel plates of the drag-body and extended thence beneath the cross portion or abutment and arranged to engage the ground.

5. A vehicle-brake, comprising a drag-body having parallel side portions capable of straddling a part of a running member of a vehicle, whereby their front ends may extend above the lower portion of the running member, a pin removably engaged with one end of the drag-body and extending between the side members thereof and above the lower portion of the running member, and means for holding the drag-body in place, such means having connection with the pins.

6. The combination of a member having an orifice therein, the orifices comprising a major and a minor portion, said major portion also having a shoulder adjacent to the orifice and having curved inclines leading respectively to and from the minor portion of the orifice and from and to the shoulder, and a pin fitted in the orifice and having a key working with the shoulder and inclines.

7. A vehicle-brake comprising a drag-body having parallel portions arranged to extend on opposite sides of the running member of a vehicle and having said side members slotted longitudinally, and drag-plates held at their front ends in the slots of the said side members, and ranging on opposite sides of the running member of the vehicle, substantially as set forth.

8. A vehicle-brake comprising the drag-body having the side members spaced apart and a rear connecting portion between the rear ends of the side members whereby the side members may extend on opposite sides of and the connecting member extend below the running member of the vehicle, means for connecting the front ends of the side members and the separate drag-plates carried by the side members and ranging on opposite sides of the running member of the vehicle, substantially as set forth.

9. In a vehicle-brake, a drag-body having side members provided with longitudinal slots and a cross-bar connecting the rear ends of said member and arranged to underlie the running member of the vehicle, the slots of the side members being closed at their rear ends by cross portions, and the separate drag-plates secured at their front ends within the slots of their respective members and extending beneath the closed or cross portion at the rear ends of said slots, substantially as set forth.

10. In a vehicle-brake of the class described, a drag-body provided with means by which it may be secured to the running member of the vehicle, and drag-plates secured at their forward ends adjustably to the drag-body at the opposite sides thereof whereby the drag-plates will lie on opposite sides of the running member of the vehicle, substantially as set forth.

11. A vehicle-brake having a body portion arranged for application to the running member of the vehicle and provided at its rear end with a portion to underlie the rim of the said running member and at its front end with means to overlie such rim of the running member of the vehicle, substantially as set forth.

12. A vehicle-brake comprising the drag-body having a rear connecting portion arranged to underlie the running member of the vehicle and side portions extending forwardly from the opposite ends of the rear

connecting-bar and arranged to lap on opposite sides of the rim of the running member and to project at their front ends above the said rim and means connecting the side members at their front ends, such means extending above the rim of the running member, and separate drag-plates carried by the opposite side members and extending beneath the drag-body at the rear end of the latter, substantially as set forth.

691,555. HAIR-FASTENER. JOHN LEICK, Verona, N. J. Filed Feb. 14, 1900. Serial No. 5,185. (No model.)



Claim.—A hair-pin constructed of a single piece of metal provided at one end with a hair-confining loop, the legs of the pin being provided intermediate of their ends with inward-extending bends or offsets constituting combined stops and hair-clamps, and the legs adjacent to the said loop being bent to form stops or abutments to limit the inward insertion of the pin, substantially as and for the purpose specified.

691,556. ROCK-DRILL. HERMAN LEINEWEBER, Chicago, Ill., assignor to L and L Pneumatic Tool Company, a Corporation of Illinois. Filed May 27, 1901. Serial No. 62,120. (No model.)



Claim.—1. In a rock-drill, the combination with a drill-holder of a fluid-pressure-actuated hammering device on the drill-holder, and a fluid-pressure-actuated rotary motor on the drill-holder operating to turn and advance it.

2. In a rock-drill, the combination of a drill-holding shaft, a fluid-pressure-actuated drill-hammering device on the shaft, a fluid-pressure-actuated rotary motor on the shaft operating to turn it, a feed-screw upon the shaft, and relatively stationary feed-screw-engaging means for advancing the rotary shaft.

3. In a rock-drill, the combination of a drill-holding shaft, a fluid-pressure-actuated drill-hammering device on the shaft, a fluid-pressure-actuated rotary motor on the shaft operating to turn it, a feed-screw upon the shaft, a friction-clutch between the feed-screw and shaft, and relatively stationary feed-screw-engaging means for advancing the rotating feed-screw and shaft.

4. In a rock-drill, the combination of a shaft, a drill-holding casing on the forward end of the shaft, fluid-pressure-actuated drill-hammering mechanism in said casing, a fluid-pressure-actuated shaft-turning rotary motor on the rear end portion of the shaft, and shaft-advancing feed-screw mechanism between the said casing and motor.

5. In a rock-drill, the combination of a shaft, a drill-holding casing on the forward end of the shaft, fluid-pressure-actuated drill-hammering mechanism in said casing, a fluid-pressure-actuated shaft-turning rotary motor on the rear end portion of the shaft, shaft-advancing feed-screw mechanism between the said casing and motor, and a fluid-pressure-supply passage extending longitudinally through the shaft to said casing.

6. In a rock-drill, the combination with a support of a drill-holding shaft, a fluid-pressure-actuated drill-hammering device on the forward end of the shaft, a casing on the opposite end portion of the shaft slidingly mounted on said support, a fluid-pressure-actuated shaft-turning rotary motor in said casing, and shaft engaging and releasing feed mechanism for advancing the rotating shaft.

7. In a rock-drill, the combination with a drill-holding shaft of a shaft-turning rotary motor comprising a peripherally-grooved wheel fixed to the shaft, a relatively stationary chamber having a cylindrical bearing-wall about the wheel, cams interposed in said wall and extending into the groove of said wheel, motive-fluid inlet and outlet ports at opposite ends of said cams, and radially-sliding wings in said wheel movable in sliding contact with said bearing-wall and cams, substantially as described.

8. In a drilling device, the combination of a drill-holder, fluid-pressure-actuated drill-hammering mechanism thereon, separate fluid-pressure-actuated rotating mechanism for the drill-holder, and means for throwing the hammering mechanism into and out of action, whereby the drill may be operated by the rotating mechanism alone, substantially as described.

9. In a drilling device, the combination of a drill-holder, fluid-pressure-actuated drill-hammering mechanism thereon, separate fluid-pressure-actuated rotating and feeding mechanism for the drill-holder, and means for throwing the hammering mechanism into and out of action, whereby the drill may be operated by the rotating and feeding mechanism alone, substantially as described.

10. In a drilling device, the combination of a drill-holder, fluid-pressure-actuated drill-hammering mechanism thereon, separate fluid-pressure-actuated rotating mechanism for the drill-holder, fluid-pressure-actuated feeding means for the drill-holder, and separate fluid-pressure-controlling means for the hammering and rotating mechanisms whereby they may be caused to operate together, or either may be thrown out of operation independently of the other.

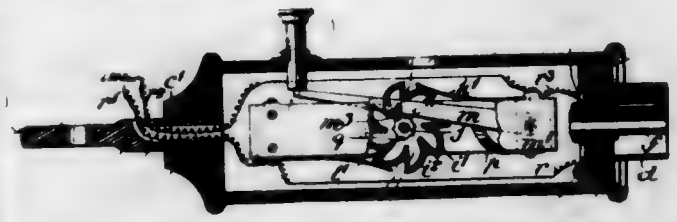
11. In a drilling device, the combination of a drill-holder, fluid-pressure-actuated drill-hammering mechanism thereon, separate fluid-pressure-actuated rotating mechanism for the drill-holder, fluid-pressure-actuated feeding means for the drill-holder, and separate controlling means for the hammering, rotating and feeding mechanisms, whereby either may be thrown out of operation, substantially as and for the purpose set forth.

12. In a rock-drill, the combination with a drill-holding shaft of a shaft-turning rotary motor comprising a peripherally-grooved wheel fixed to the shaft, a relatively stationary chamber having a cylindrical bearing-wall about the wheel, removable and replaceable cam-blocks interposed in said wall and extending into the groove of said wheel, motive-fluid inlet and outlet ports in the cam-blocks and radially-sliding wings in said wheel movable in sliding contact with said bearing-wall and cam-blocks, substantially as described.

13. In a rock-drill, the combination with a support of a drill-holding shaft, a fluid-pressure-actuated drill-hammering device on the forward end of the shaft, a casing on the opposite end portion of the shaft slidingly mounted on said support, a fluid-pressure-actuated shaft-turning rotary motor in said casing, a feed-screw upon the shaft, a friction-clutch between said shaft and feed-screw, and feed-screw-engaging means on the support for advancing the rotating feed-screw and shaft.

14. In a rock-drill, the combination with a support of a drill-holding shaft, a fluid-pressure-actuated drill-hammering device on the forward end of the shaft, a casing on the opposite end portion of the shaft slidingly mounted on said support, a fluid-pressure-actuated shaft-turning rotary motor in said casing, a feed-screw upon the shaft, a friction-clutch between said shaft and feed-screw, and an adjustable feed-screw engaging and releasing sectional nut on the support for advancing the rotating feed-screw and shaft, substantially as described.

691,557. HANDLE FOR MAKING AND BREAKING CIRCUITS. ROBERT E. LEVY, New York, N. Y. Filed Nov. 14, 1901. Serial No. 82,188. (No model.)



Claim.—1. A handle for making and breaking contact comprising a casing for receiving the grasp of the hand, a rotary wheel mounted

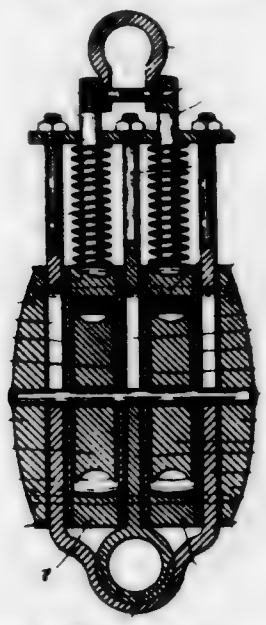
within the casing and having its periphery separated alternately into conducting and non-conducting sections, sets of contact-pieces located in position to simultaneously engage either the conducting-sections or non-conducting sections on the wheel, means for connecting the motor and feed-wires with the contact-pieces and means under the control of the hand while grasping the handle for moving the said wheel step by step, substantially as set forth.

2. A handle for making and breaking electric circuits comprising a suitable casing for receiving the grasp of the hand, a rotary wheel mounted within the casing and having its periphery separated into alternate conducting and non-conducting sections, sets of contact-pieces arranged to simultaneously engage either conducting-sections or non-conducting sections, a ratchet-pinion mounted to rotate with the wheel, a spring-actuated lever mounted within the casing, a pawl carried by the lever in position to engage the ratchet-wheel and a plunger extending through the wall of the handle-casing into engagement with said lever, the said plunger being under the control of the hand of the operator while grasping the handle, substantially as set forth.

3. A handle for making and breaking electric circuits, comprising a suitable casing for receiving the grasp of the operator's hand and provided with a peep-hole therethrough, a rotary wheel mounted within the casing and having its periphery separated into conducting and non-conducting sections, the said sections being provided with symbols arranged to come opposite the peep-hole in the casing to indicate current on and off, sets of contact-pieces engaged with the periphery of said wheel, a plunger mounted in the wall of said casing and means under the control of the plunger for operating the said wheel to make and break the circuit, at pleasure, substantially as set forth.

4. A handle for making and breaking electric circuits, comprising a suitable casing for receiving the grasp of the hand of the operator, a supporting-frame independent of said casing and adapted to be inserted in and removed from the casing, a circuit making and breaking wheel mounted in said frame, a lever for operating said wheel mounted in said frame, contact-pieces secured to said frame and engaged with the said wheel and a plunger mounted in the handle-casing in position to engage the lever for operating the said wheel, substantially as set forth.

691,558. BLOCK. PETER J. MACDONALD, Noank, Conn. Filed Feb. 14, 1901. Serial No. 47,240. (No model.)



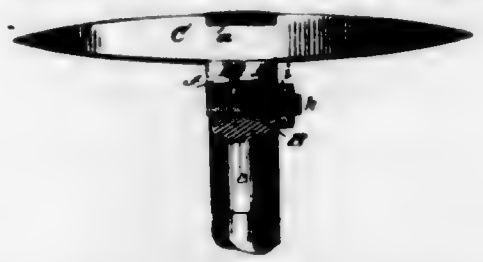
Claim.—1. A block, comprising a shell, a sheave mounted therein, straps formed with slots loosely receiving the pin of the sheave, the straps being slidably fitted in the shell, and a spring bearing between the straps and the shell, for the purpose specified.

2. A block, having a shell, a sheave mounted therein, straps having sliding connection with the sheave, a cross-plate extending between the straps, a rod in connection with the shell of the block, the rod sliding in the cross-plate, and a spring bearing between the cross-plate and the shell, of the block.

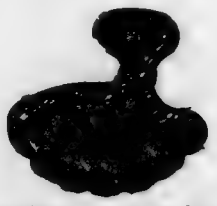
3. A block, having a shell, a sheave mounted therein, straps movable relatively to the shell and sheave and projecting past each end of the shell, and a spring acting between the straps and the shell, for the purpose specified.

691,559. PICK, &c. LEWIS MATHIAS and EDWARD L. RAY, Haynes, Iowa. Filed Oct. 7, 1901. Serial No. 77,764. (No model.)

Claim.—In a pick or other like tool, a suitable head having an opening through which the tool proper is seated, inclined shoulders and a recessed guide forming an extension to the opening, and a wedge-shaped key-block adapted to fit the opening in the head and having a depending tongue to engage the recessed guide of the opening, said key-block having a screw shank and nut, substantially as and for the purpose set forth.

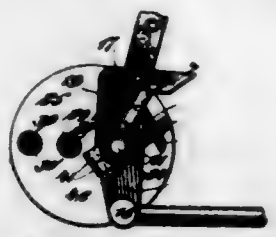


691,560. HORSE-COLLAR. FRIEDRICH MAUSSNER, Philadelphia, Pa., assignor to American Interlaced Horse Collar Company, a Corporation of New Jersey. Filed Aug. 16, 1899. Serial No. 727,434. (No model.)



Claim.—An animal-collar comprising fore and after wales provided with a casing, the latter being cut away upon the rear portion thereof, and a pad having its side portions held by the edges of said casing, and stays which are connected with said edges, passed through said casing and secured to the walls of the after-wales.

691,561. IGNITER FOR EXPLOSIVE-ENGINES. JOHN T. METCALFE, Quincy, Pa. Filed July 26, 1901. Serial No. 69,712. (No model.)



Claim.—1. An igniter for explosive-engines, comprising an electric circuit provided with separable contacts for producing sparks, a rocking shaft for actuating one of said contacts, a lug rigidly mounted upon said rocking shaft and provided with an anvil-face, a spring-driven hammer loosely mounted upon said rocking shaft and free to strike said anvil-face, a rocking lever loosely journaled on said rocking shaft, a catch mounted upon said rocking lever for engaging said hammer, and a movable arm for releasing said catch.

2. An igniter for explosive-engines, comprising an electric circuit provided with separable contacts for producing sparks, a rocking shaft for actuating one of said contacts, a lug rigidly mounted upon said rocking shaft and provided with an anvil-face, a spring-driven hammer loosely mounted upon said rocking shaft and free to strike said anvil-face, a rocking lever loosely journaled on said rocking shaft, a catch mounted upon said rocking lever for engaging said hammer, a movable arm for releasing said catch, and a pivotally-mounted hand-lever provided with a boss for controlling said arm.

3. An igniter for explosive-engines, comprising an electric circuit provided with separable contacts for producing sparks, a rocking shaft for actuating one of said contacts, a lug provided with an anvil-face and with spring members for engaging a rocking shaft, a spring-driven hammer for striking said lug, a catch for periodically engaging said hammer, means for periodically actuating said catch, a movable arm for disengaging said catch from said hammer, and an adjusting-lever mounted upon a pivotal support and provided with a boss disposed eccentrically to the said pivotal support for the purpose of controlling the disengagement of said catch from said hammer.

691,562. TOOL-HANDLE. JOHN MUELLER, Lisbon, N. D. Filed June 6, 1901. Serial No. 63,349. (No model.)

Claim.—1. The combination with a handle having a tapered end grooved and notched for the reception of the shank of a fork, or other implement; a shank adapted to fit said groove, and provided with a catch adapted to engage in said notch; and a thimble adapted to fit the tapered end of the handle, and provided with a bar adapted to register and engage with a wedging pressure upon the exposed surface of the shank, whereby the parts may be securely bound together.

2. The combination with a handle; of a shank adapted to be adjusted thereto; and a thimble provided with a wedge-bar adapted to forcibly engage the shank and bind the latter rigidly to the handle.



3. The combination with a handle having a notch; of a shank adapted to be adjusted thereto, and provided with a catch adapted to engage in a notch in the handle; a thimble provided with a wedge-bar, adapted to forcibly engage the shank and bind the latter rigidly to the handle.

4. The combination with a handle; of a ferrule adapted to be adjusted thereto, and provided with a groove in one side and a notch therein; a shank adapted to fit the groove, and having a catch engaging in said notch; a thimble adapted to fit said ferrule, and provided with a wedge-bar, located for longitudinal engagement with the shank.

5. The combination of a handle, provided with a tapered ferrule having a V-shaped channel extending inwardly from one end, and terminating in a shallow groove, together with a notch of greater depth than the groove; a shank formed to fit the channel and groove, and provided with a catch adapted to engage in said notch; a thimble adapted to be adjusted to the tapered end of the ferrule, and provided with a wedge-bar arranged for forcible longitudinal engagement with the shank.

6. The combination with a handle, having a tapered end and a groove in one side of the tapered portion; a notched ferrule inclosing the end of the handle and conforming substantially to the contour of the groove; a shank formed to fit the groove and provided with a catch adapted to engage in a notch in the ferrule; and a thimble adapted to fit said ferrule and provided with a wedge-bar, adapted to engage the exposed surface of the shank.

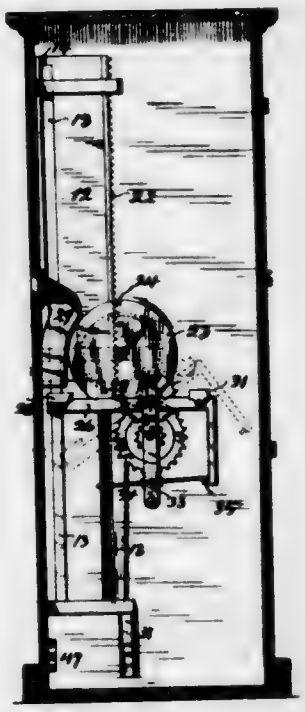
691,563. LAMP-SOCKET FOR INCANDESCENT ELECTRIC LAMPS. ANDREW MCKENZIE, Providence, R. I., assignor of two-thirds to Joseph M. Mann and Ellis C. Beusard, Jr., Providence, R. I. Filed Apr. 29, 1901. Serial No. 58,039. (No model.)



Claim.—In a lamp of the character described, the combination of the lamp-socket and a lamp-base, the one provided with a spring-detent having a toe and the other with a slot to receive said toe and lock the base to the socket, and the one provided with a recess and the other with a coacting stud adapted to be brought into engagement with one of the end walls of the recess when the base is turned in one direction, thus forming a stop and preventing the end wall of said slot engaging the toe and injuring the same, said detent being released by the rotation of the lamp-base with respect to the lamp-socket, substantially as described.

691,564. COIN-CONTROLLED VENDING APPARATUS. SAMUEL NEWMAN and MORRIS BORSODI, Cincinnati, Ohio, assignors to the Auto Construction Co., Cincinnati, Ohio. Filed Jan. 28, 1901. Serial No. 44,791. (No model.)

Claim.—1. In an automatic vending apparatus, the combination of an outer case, a frame 12 behind the front thereof, free to move in a vertical direction and provided with two columns, side by side, of compartments, one above the other, said compartments all open toward the front, the partitions or shelves horizontally dividing them from each other, being arranged at alternate heights and pivotally connected at their rear ends, supports to hold them in a horizontal position, but permitting them to yield upward, an opening in the front of the case equal to the height of a compartment and of a width extending across the front thereof, means to normally hold this frame in a position behind this opening, whereby always one compartment is fully behind the same, and of the other compartment in the other column the lower half only, mechanism operating when released to permit the frame to drop a distance sufficient to bring the compartment previously only half behind the opening now fully in such position and of the other compartment in the adjoining column only the lower half, and stops projecting into the path of the front edges of the shelves and raising them successively to prevent access to the compartments above them and releasing the raised shelf on the next drop of the frame to permit such access, the operation being such that while one shelf in one column is thus held back and tilted, the other shelf in the adjoining column is simultaneously released, and rendered accessible.



2. In an automatic vending apparatus, the combination of an outer case, a window 17 in its front, an opening 15 below the same, a frame 12 behind these two and provided with horizontal partitions, forming compartments between them, one above the other and open toward the front, the open side being equal in area to opening 15 so that the contents of all of said compartments are visible through window 17 and one compartment becomes at the same time accessible through opening 15, said frame capable of movement in a vertical direction behind window 17 and opening 15 and free to drop, a rack 22 on this frame, a pinion in engagement therewith, a shaft on which this pinion is mounted, a notched disk 23 on this shaft, a lever 26 having a pin 25 normally in engagement with one of these notches, thereby preventing rotation of disk 23, but releasing the same when one of its ends is depressed, thereby permitting the disk and its shaft to rotate as impelled by the weight of frame 12 while descending, a speed-controlling gear-train operatively connected to the pinion-shaft, a fan driven thereby and a stop supported on lever 26 and projecting into the path of said fan permitting rotation of the same only at such times when the other end of said lever is depressed.

691,565. ART OF ROLLING METAL INGOTS INTO THIN PLATES OR SHEETS. EDWIN NORTON, New York, N. Y., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 1, 1901. Serial No. 66,659. (No specimens.)



Claim.—1. The process or method of rolling iron or steel ingots into finished product thin sheets or plates of definite lengths and widths, suitable for tin-plate, consisting in first rolling the ingot into a long, wide billet-bar, then shearing such wide billet-bar into billets or bars whose length corresponds to one of the dimensions of the singles or of the finished product to be produced, then rolling such wide billets or bars in the cross direction from the first rolling into a long, thin "singles-plate," then

shearing the "singles-plate" into "singles," then matching, reheating and rolling the "singles" successively in packs of "twos" "fours" and "eights" in the cross direction from the last preceding rolling, substantially as specified.

2. The process or method of rolling iron or steel ingots into finished product thin sheets or plates of definite lengths and widths suitable for tin-plate, consisting in rolling the ingot, shearing it while hot into pieces corresponding in length to the length of the singles or of the finished product, cross-rolling such pieces into a long thin "singles-plate" without reheating, and then shearing the same into "singles" and matching, reheating and rolling in packs, substantially as specified.

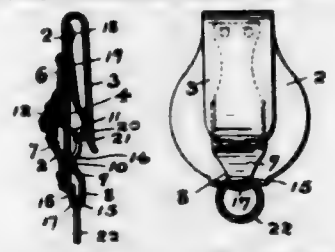
3. The process herein described, consisting in the following successive steps, first rolling the ingot into a wide billet-bar; second, shearing it into wide billets or bars whose length corresponds to that of the "singles" or of the finished product; third, cross-rolling these wide billets or pieces in the direction of their width without reheating; fourth, continuing the rolling without reheating until the same is reduced to a long, wide "singles-plate;" fifth, shearing the "singles-plate" into "singles;" sixth, matching, reheating and rolling in pairs or packs of two; seventh, folding or doubling the pair, reheating and rolling in packs of four; and, eighth, doubling, reheating and rolling in packs of eight, substantially as specified.

4. The process herein described, consisting in the following successive steps: first, rolling the ingot into a wide billet-bar whose width corresponds to the width of the "singles" or of the finished product to be produced; second, shearing it into wide billets or bars whose length corresponds to that of the "singles" or of the finished product; third, cross-rolling these wide billets or pieces in the direction of their width without reheating; fourth, continuing the rolling without reheating until the same is reduced to a long, wide "singles-plate;" fifth, shearing the "singles-plate" into "singles;" sixth, matching, reheating and rolling in pairs or packs of two; seventh, folding or doubling the pair, reheating and rolling in packs of four; and, eighth, doubling, reheating and rolling in packs of eight, substantially as specified.

5. The process of rolling iron or steel ingots into thin sheets or plates of definite lengths and widths, consisting in first rolling the ingot in opposite directions by passing it back and forth between rolls into a billet-bar, then shearing it while hot into billets or bars corresponding in length to the length of the "singles" or of the finished product, then cross-rolling such billets or bars in opposite directions by passing them back and forth between reversing rolls in the direction of their width, without reheating, and further rolling the same continuously into a long, thin "singles-plate" without reheating, and then shearing into "singles" and matching, reheating and rolling in packs, substantially as specified.

6. The process or method of rolling iron or steel ingots into sheets or plates, consisting in first rolling the ingots, then shearing, then cross-rolling without reheating, then shearing into "singles" and then reheating and rolling in packs in the cross direction from the last preceding rolling, substantially as specified.

691,566. CHATELAINE-CATCH. JOHN E. OETTER, Newark, N. J. Filed Oct. 30, 1901. Serial No. 80,491. (No model.)



Claim.—1. In a safety-catch for the support of chatelaine-bags and other articles, the combination, with a slotted main body, and a chambered face-plate, the said main body being provided with a suspension-hook, of means slidably arranged against the back of said main body, having a portion extending into and through said slot in the main body and arranged in the chambered face-plate for sliding and holding engagement with the marginal edge portions of said slot, and means coöperating with said sliding means for causing a clamping action of the several parts with the belt, or the like, substantially as and for the purposes set forth.

2. In a safety-catch for the support of chatelaine-bags and other articles, the combination, with a slotted main body, and a chambered face-plate, the said main body being provided with a suspension-hook, of means slidably arranged against the back of said main body, having a portion extending into and through said slot in the main body and arranged in the chambered face-plate for sliding and holding engagement with the marginal edge portions of said slot, and a spring secured to said main body and coöperating with said sliding means for causing a clamping action of the said suspension-hook and said spring with the belt, or the like, substantially as and for the purposes set forth.

3. In a safety-catch for the support of chatelaine-bags and other articles, the combination, with a slotted main body, and a chambered face-plate, the said main body being provided with a main suspension-hook, of a slide-plate on the back of said main body, a secondary suspension-hook on said slide-plate, an arm on said slide-plate extending into and through said slot in the main body and arranged in the chambered face-plate, oppositely-extending lugs on said arm in sliding and holding engagement with the marginal edge portions of said slot, and means coöperating with said slide-plate for causing a clamping action of the several parts with the belt, or the like, substantially as and for the purposes set forth.

4. In a safety-catch for the support of chatelaine-bags and other articles, the combination, with a slotted main body, and a chambered face-plate, the said main body being provided with a main suspension-hook, of a slide-plate on the back of said main body, a secondary suspension-hook on said slide-plate, an arm on said slide-plate extending into and through said slot in the main body and arranged in the chambered face-plate, oppositely-extending lugs on said arm in sliding and holding engagement with the marginal edge portions of said slot, and a spring secured to said main body and coöperating with said slide-plate for causing a clamping action of the said main suspension-hook and said spring with the belt, or the like, substantially as and for the purposes set forth.

5. In a safety-catch for the support of chatelaine-bags and other articles, the combination, with a slotted main body, and a chambered face-plate, the said main body being provided with a main suspension-hook, of a slide-plate on the back of said main body, said slide-plate comprising, a bearing 10 and a curved member 11, a secondary suspension-hook at the lower end of said slide-plate, an arm on the upper end of said slide-plate extending into and through the slot in the main body, and into the chambered face-plate, oppositely-extending lugs on said arm in sliding and holding engagement with the marginal edge portions of said slot, and means coöperating with said slide-plate for causing a clamping action of the several parts with the belt, or the like, substantially as and for the purposes set forth.

6. In a safety-catch for the support of chatelaine-bags and other articles, the combination, with a slotted main body, and a chambered face-plate, the said main body being provided with a main suspension-hook, of a slide-plate on the back of said main body, said slide-plate comprising, a bearing 10 and a curved member 11, a secondary suspension-hook at the lower end of said slide-plate, an arm on the upper end of said slide-plate extending into and through the slot in the main body, and into the chambered face plate, oppositely-extending lugs on said arm in sliding and holding engagement with the marginal edge portions of said slot, and a spring secured to said main body and coöperating with said slide-plate for causing a clamping action of the said main suspension-hook and said spring with the belt, or the like, substantially as and for the purposes set forth.

7. In a safety-catch for the support of chatelaine-bags and other articles, the combination, with a slotted main body, and a chambered face-plate, the said main body being provided with a main suspension-hook, of a slide-plate on the back of said main body, the said slide-plate comprising, a bearing 10 and a curved member 11, a secondary suspension-hook at the lower end of said slide-plate, an arm on the upper end of said slide-plate extending into and through the slot in the main body, and into the chambered face-plate, oppositely-extending lugs on said arm in sliding and holding engagement with the marginal edge portions of said slot, the said slide-plate being provided in its curved member 11 with a slot, a spring secured to said main body coöperating with said slide-plate for causing a clamping action of the said main suspension-hook and the spring with the belt, or the like, and a tent or projection on said spring extending into the slot of said member 11, substantially as and for the purposes set forth.

691,567. FOLDING-GUIDE FOR SEWING-MACHINES. JAMES L. PATTERSON, Chicago, Ill., assignor to Union Special Sewing Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Mar. 5, 1901. Serial No. 49,722. (No model.)



Claim.—1. The herein-described folding-guide, having means for attachment to a sewing-machine, and including a guide for one piece of fabric, a guide for a binding-strip having its walls formed at its forward end to embrace the edge of said piece of fabric, and a hem-folder for a second piece of fabric, the various guides being superposed and secured together; substantially as described.

2. The herein-described folding-guide, having means for attachment

to a sewing-machine, and including a guide for the lower piece of fabric, a guide for the binding-strip having its walls formed at its forward end to embrace the edge of said lower piece of fabric, and a hem-folder for an upper piece of fabric located above and secured to the binding-strip guide; substantially as described.

3. The herein-described folding-guide, comprising an upper hem-folder, a vertically-curved and tapering binding-strip guide to which the hem-folder is secured adjacent the forward end, and a plain part upon which a lower fabric is adapted to rest, the inner wall of the binding-strip guide forming a guide for the edge of said lower fabric, the parts being so constructed and arranged that a fold is turned in the upper fabric and the edge of the lower fabric is bound, both top and bottom by the binding-strip; substantially as described.

4. In combination with a sewing-machine adapted to make two independent rows of stitches, a folding-guide arranged in front of the stitch-forming mechanism, comprising a guide for a piece of fabric, a binding-strip guide at its forward end extending partially around said guide for the fabric, and a hem-folder for folding and guiding another piece of fabric, with means for securing the latter with its inner folding edge facing one of the inner folding edges of the binding-strip, whereby as the material is fed to the stitch-forming mechanism one line of stitches passes through one fabric, its fold and the other fabric, and the other row of stitches passes through the first fabric beyond its fold, the other piece of fabric and both folds of the binding-strip; substantially as described.

5. As a new article of manufacture, a folding-guide having a base-piece adapted for attachment to the cloth-plate of a sewing-machine, a hem-folder, a binding-strip guide below the hem-folder to which the same is secured, the inner wall of the binding-strip guide forming a guide for the edge of a lower piece of fabric, and the forward end of the binding-strip guide being curved to embrace between its upper and lower edges the edge of the lower piece of fabric; substantially as described.

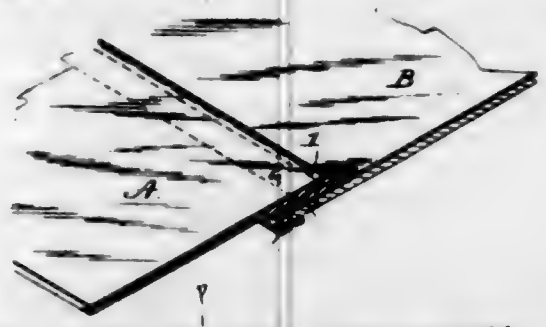
6. The herein-described folding-guide, comprising a base-piece adapted for attachment to a sewing-machine, a guide for a lower piece of fabric, a guide for a binding-strip, having its walls formed at its forward end to embrace the edge of said lower piece of fabric, and a hem-folder for an upper piece of fabric arranged above the binding-strip guide and secured thereto, and a guide for the binding-strip extending transversely of the feed; substantially as described.

7. The herein-described folding-guide, comprising a guide, for a lower piece of fabric, a binding-strip guide extending above the same, and at its forward end extending partially around the lower guiding-recess, and a hem-folder secured to the binding-strip guide, and having its inner folding edge adjacent the upper inner folding edge of the binding-strip guide, whereby in the passage of goods through the device the inwardly-turned hem fold on the upper piece of fabric will face the upper inwardly-turned edge of the binding-strip; substantially as described.

8. The herein-described folding-guide, comprising a guide for a piece of fabric, a binding-strip guide at its forward end extending partially around said guide for the fabric, and a hem-folder for folding and guiding another piece of fabric, with means for securing it with its inner folding edge facing one of the inner folding edges of the binding-strip guide; substantially as described.

9. The herein-described folding-guide having means for attachment to a sewing-machine and including a guide for one piece of fabric, a guide for a binding-strip having its walls formed at its forward end to embrace the edge of said piece of fabric, and a hem-folder for a second piece of fabric having the inner edge of its folding and guiding recess facing one of the inner folding edges of the binding-strip guide; substantially as described.

691,568. SEAM FOR SEWED ARTICLES. JAMES L. PATTERSON, Chicago, Ill., assignor to Union Special Sewing Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Mar. 5, 1901. Serial No. 49,723. (No model.)



Claim.—1. The herein-described seam for sewed articles, comprising upper and lower lapped fabrics, one having an inwardly-turned hem fold and the other having a binding-strip folded around its edge, one edge of the binding-strip facing the inner edge of the hem fold, and means for securing the parts together; substantially as described.

2. The herein-described seam for sewed articles, comprising upper and lower lapped fabrics, one having an inwardly-turned hem fold, and the other having a binding-strip folded around its edge, one edge of the binding-strip facing the inner edge of the hem fold, and rows of stitching one of which rows of stitches passes through one fabric, its hem fold and the other fabric, and the other of which passes through both fabrics and both edges of the binding-strip; substantially as described.

3. The herein-described seam for sewed articles, comprising upper and lower lapped fabrics, one having an inwardly-turned hem fold, and the other having a binding-strip folded around its edge, said binding-strip having on each edge an inwardly-turned hem fold, one edge of the binding-strip facing the inner edge of the hem fold, and rows of stitching, one of which rows of stitching passes through one fabric, its hem fold, and the other fabric, and the other of which passes through both fabrics and both hem folds of the binding-strip; substantially as described.

691,569. FAUCET AND VALVE. EDWARD A. POHLMAN, New York, N. Y. Filed May 16, 1901. Serial No. 60,468. (No model.)



Claim.—1. In a faucet and valve, a barrel or casing, a removable, conical, apertured valve-seat located within the barrel or casing, a valve having a conical chamber adapted to fit to the conical seat, the said valve having also a tubular stem communicating with said conical chamber, which tubular stem provides an air-cushion and prevents concussion or water-hammering, as described.

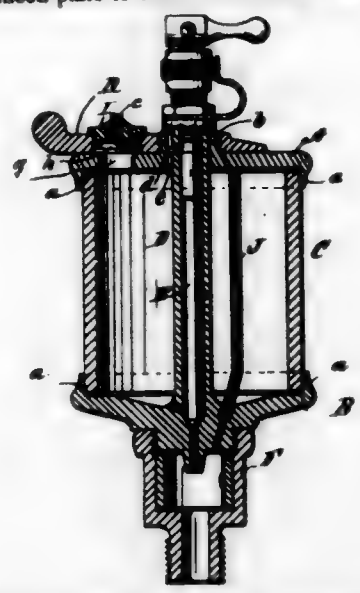
2. In a faucet and valve, a barrel or casing provided with a chamber at its upper portion and a nozzle in communication with the bottom portion of said chamber, a bonnet closing the upper portion of the chamber, a valve-seat comprising a hollow shank removably connected with the interior of the casing or barrel just below the chamber therein, and an apertured conical head which extends into the said chamber, the valve having a conical opening in its bottom portion, adapted to receive the conical head of the valve-seat, and a spring-controlled stem for the said valve, which stem has an interior chamber connecting with the conical opening in the valve, the said chamber constituting an air-cushion and serving to prevent concussion or water-hammering, as described.

3. In a faucet and valve, the combination, with a barrel or casing having a chamber therein at its upper portion, a nozzle connecting with the said chamber at its bottom, and a bonnet closing the upper end of the said chamber, which bonnet is provided with a central aperture and a depression in its upper surface around said aperture, of a removable valve-seat, comprising a hollow shank having a screw connection with the casing or barrel at a point below the chamber therein and an apertured head of conical shape, which head extends within said chamber and has bearing upon the bottom wall thereof, a spring-controlled valve located within said chamber, having a conical opening which receives the conical section of the valve-seat, a valve-stem for the valve, which passes through the opening in said bonnet, the valve-stem being hollow and the hollow portion connected with the conical opening in the bottom of the valve, and a lever pivoted to the upper portion of said stem, capable of having bearing upon the upper marginal portion of said bonnet, for the purpose set forth.

691,570. LUBRICATOR. HENRY RITTER, Cincinnati, Ohio, assignor to the Lunkenheimer Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Mar. 30, 1901. Serial No. 53,702. (No model.)

Claim.—1. In a lubricator and in combination; a cup; a top cap therefor having a filling-hole; a escutcheon-plate; a cam-pivot on which said plate is mounted and on which it swings freely with a rising-and-falling movement; and a valve carried by said escutcheon-plate and adapt-

ed to be brought over and forced down upon the filling-hole by the movements of the scutcheon-plate to close and seal said filling-hole.

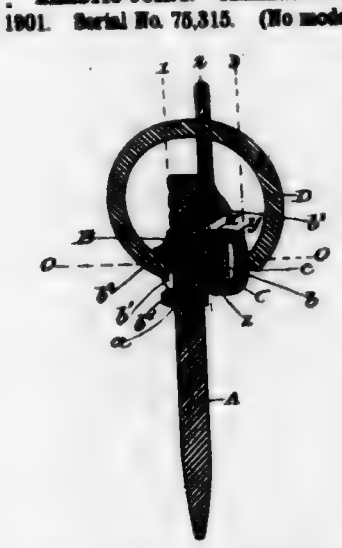


2. In a lubricator and in combination; a cup; a top cap therefor having a filling-hole; a scutcheon-plate; a cam-pivot on which said plate is mounted and on which it swings freely with a rising-and-falling movement; a valve carried by said scutcheon-plate and adapted to be brought over and forced down upon the filling-hole by the movements of the scutcheon-plate to close and seal said filling-hole, and means for adjusting said valve vertically relative to said scutcheon-plate.

3. In a lubricator of the character described, the combination of the top cap provided with a filling-hole, a swinging scutcheon with a cam-pivot thereon, and an adjustable and removable valve carried by said scutcheon to tightly seal said filling-hole, and a removable screw-cap for holding said valve in place.

4. In a lubricator of the character described the combination of the cap A provided with filling-hole G, the swinging scutcheon H thereon, the valve A carried in a threaded bore through said scutcheon and adapted to cover and uncover said filling-hole, a screw-cap I secured in the threaded bore of the scutcheon, and the set-screw *c* passed through said screw-cap and bearing upon the top of the valve, substantially as described.

691,571. ELASTIC JOINT. CHARLES LA DOW, Albany, N. Y. Filed Sept. 13, 1901. Serial No. 75,315. (No model.)



Claim.—1. A joint comprising two parts fulcrumed across each other, each part having a seat for a spring, and a circular spring having portions engaging with said seats and adapted to "lock" them at opposite sides of said fulcrum.

2. A joint comprising a support, a saddle suitably mounted thereon, and a spring having an end adapted to "bite" into the support and also adapted to support the saddle relatively to the support.

3. A joint comprising a support having an open seam, a saddle mounted in the seam, a rod supported by the saddle, and a spring embracing and holding them together in operative relation by its resiliency.

4. A joint comprising a support, a saddle adapted to rock on the support transversely thereto, and a spring hinged relatively to the support and self-gripping said parts together.

5. A joint comprising a support, a perforated saddle, a rod adjustable lengthwise in said perforation, and a spring self-gripping said parts together.

6. A joint comprising a support, a rod and a saddle therefor interlocking with said support, a seat in said saddle, a spring fulcrumed therein and fulcrumed by its other end to the beam, and a retainer for the spring carried by the saddle.

7. A joint comprising a channeled support, a saddle adapted to rock relatively thereto, a rod mounted in the saddle, and a spring, in combination with a projection from the saddle interlocking with the support to prevent "rebound" of the saddle relatively to the beam when returned to its normal position by the spring.

8. In a joint in combination with tongue-and-grooved parts an expansible spring embracing between its ends and holding together under self-reducing spring tension said parts.

9. In a joint a support, a saddle mounted loosely thereon, a rod carried by the saddle, and a spring for binding the saddle to the support, in combination with a double stop coöperating with the support and saddle to limit the rocking of the saddle in opposite directions relatively to the support.

10. A joint comprising a suppors, a saddle locked loosely thereto in one position by its configuration and having a projection thereon adapted to lock it to the support in another position, and a spring embracing said parts and holding them in contact.

11. A joint comprising a support, a spring mounted thereon, a saddle having an opening therein adapted to receive a rod and also having a notch therein adapted to receive an end of a spring, and a ledge between said openings.

12. A joint comprising a saddle, a support therefor, and an embracing-spring supporting the saddle crosswise relatively to said support and self-maintainable thereon by pressure of the spring.

13. A joint comprising imperforate rod A, perforated saddle B holding said rod, imperforate support C supporting said saddle, and spring D self-gripping the parts together.

14. A joint comprising a support, a saddle thereon, a rod carried by the saddle, and a spring embracing the support and the rod between and by cornered portions of the spring.

15. A joint comprising a support, a saddle rocking on a projection of the support as its center of motion, a spring engaging with the support and saddle and adapted to press them together in combination with means adapted to stop the rocking movement of the saddle at a predetermined limit relatively to the support.

16. A joint comprising a support, a saddle interlocking therewith, a rod carried by the saddle, and a spring operatively engaging and holding the parts to each other and covering an end of said rod.

17. In a joint a support having a proportionately large channel on one side and a relatively small channel on an opposite side thereof, in combination with a spring attached in one of said channels and also holding a rod-carrying saddle in operative position on the support.

18. In a joint a saddle adapted to rock on a support therefor said support and a rod carried by the saddle, in combination with a spring seated on the support and adapted to maintain the free end of the rod at two predetermined angles relative to said support.

19. A joint comprising a channeled support, a saddle adapted to rock on a limb of the support, a notch L, in the saddle adapted to interlock with said limb, and a spring embracing the support and saddle.

20. A joint comprising a saddle, a support therefor interlocked therewith at their bearing against each other, and a spring embracing the support and saddle and surrounded between its ends by the saddle.

21. A joint comprising a support, a saddle carried thereby rigidly in one direction transversely thereto and flexibly thereto in the opposite direction, and a spring which self-gripe the saddle to the support.

22. A joint comprising a saddle-support, a rod-carrying saddle loosely engaging with said support, and a spring self-gripping said parts together.

23. In a joint a support for a saddle, a saddle mounted thereon, a rod carried by the saddle, and a spring self-gripping said parts together, the spring having rocking movement on an integral end thereof and in line with its spring action.

24. In a joint a spring self-gripped to a saddle-carrying support and to a saddle thereon, and a rod carried by the saddle, a portion of one end of the spring being maintained out of contact with the part gripped by the spring.

25. In a joint a spring self-gripped by its end to a support therefor and to a rod-carrying saddle mounted on said support, the spring having one of its ends constructed at an angle relatively to its body portion.

26. In a joint a spring self-gripped by one of its ends to a support and retained by its other end by a saddle on the support, in combination with a rod held from endwise movement relatively to the saddle by the saddle end of the spring "biting" into said rod.

27. A joint comprising an operative mechanical structure consisting of an expansible spring self-gripped on and with two parts of said joint which are thereby loosely hinged into each other, one part thereof being adapted to rock relatively to the other and one end of the spring being pivotally held on the stationary part and the other end traveling in concert with said rocking part.

28. A joint comprising a circular expansible spring having an open-

ing therein, and two parts of said joint having a tongue-and-grooved metal bearing rocking against each other at a point within the circle formed by the metal of the spring which assembles and self-grips said parts together.

29. A joint comprising a circular expansible spring having an opening therein, and two metal parts of said joint arranged between the ends of the spring, and a rod gripped at a corner thereof by the spring and thereby held in and relatively to one of said metal parts.

30. A joint comprising two metal parts and a spring connecting itself and said parts together at four fulcrum-bearings two of which have configuration adapted to interlock together.

31. A joint comprising two metal parts interlocked together transversely relatively to each other, each having at a side thereof a seat for a spring, in combination with an expansible spring fitting into said seats.

32. In a joint a rod-carrying saddle rocking within limits on a projection of a support for the saddle and "nipping" simultaneously with opposing portions of said support at a predetermined stage of said rocking movement, in combination with a spring engaging with the saddle and support.

33. A joint comprising a rod-carrying saddle laterally adjustable on a support therefor, and a circular spring self-gripping the parts together.

34. In a joint, a rod-carrying saddle, laterally adjustable on a support, said support and a circular spring self-gripping the parts together at a fulcrum-bearing located within the circle of the spring, one end thereof being adjustable relatively to said fulcrum-bearing.

35. A joint comprising a saddle, a three-sided support therefor, two of said sides abutting against the saddle, and a spring self-gripped to the saddle and to the third side of said support.

36. A joint comprising a rod-carrying saddle and a support therefor said parts having interlocking wedge portions, in combination with a spring pressing the inclined surfaces of said wedge portions into close contact.

37. A joint comprising a rod-carrying saddle and a channel-support therefor, the saddle having bracing lateral bearing portions between it and the support, and a spring self-gripping said lateral bearing portions into contact with the support.

38. In a joint a rod-carrying saddle, a support therefor having at one side thereof an interlocking hinge connection with the saddle and having an opposite side thereof inclined relatively to the saddle, in combination with a projection on the saddle which may "nip" with said inclined surface as the saddle is being rocked on its hinge.

39. A joint comprising a rod-carrying saddle having a projection from one side thereof at a right angle thereto, a support for the saddle having a channel with right-angled interior walls adapted to impinge on the saddle projection located between said walls, and a circular spring having an end thereof engaging with the channel-support and its other end engaging with the saddle.

40. A joint comprising a rod-carrying saddle located between the limbs of a channeled support and adapted to rock on one of said limbs, and a spring engaging the saddle at a point relatively between the limbs of the channel and also engaging the support at a point relatively between the limbs thereof but on the side opposite to the saddle, in combination with a projection from the saddle adapted to impinge upon the exterior of said support at a point between the saddle-hinge and the spring's engagement with said support.

41. A joint comprising a saddle-carrying support, a saddle thereon, a cornered rod maintained by the saddle diamondwise relatively to the support, and a spring self-gripping the parts together.

42. A joint comprising a support having one exterior side thereof rounded and the opposite side thereof constituting a flat bearing, a rod-carrying saddle abutting against said flat bearing, and a spring self-gripping said parts together.

43. In a joint a rod-carrying saddle, a support therefor, and a circular spring having an end thereof loosely seated in the saddle and its other end engaging a seat therefor on the support, said spring adapted to be rocked on its seated end and expanded simultaneously with said rocking movement until its free end engages with a seat therefor on the support.

44. A joint comprising a rod-carrying saddle, a support therefor, and a circular spring having an end seated in the saddle and its other end seated on the support, in combination with retainer b^3 and projection b^4.

45. A joint comprising two separate metal parts placed in abutting interlocking contact with each other, and a self-gripping spring embracing within said circle the said abutting portions, the metal of the spring "biting" into the metal of said parts.

46. A joint comprising a rod-carrying saddle and a support therefor locked loosely thereto so that the saddle may rock transversely relatively to its support in one direction only, and a self-gripping spring holding said parts in normal working position under spring tension and adapted to follow the rocking movement of the saddle past its center of motion and then to hold the saddle out of normal position under spring tension.

47. A joint comprising a rod-carrying slotted saddle adapted to rock relatively to a support therefor, in combination with said support and a spring in the slot adapted to rock on an end thereof and self-gripping the saddle and support into direct contact with each other.

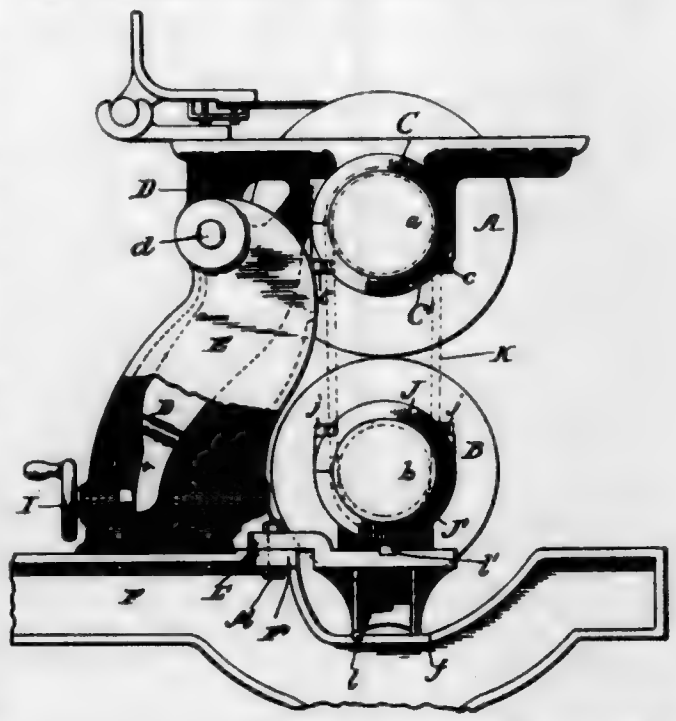
48. A joint comprising two interlocking parts one held from movement and the other having relative movement assembled and maintained under spring tension in direct contact with each other by a self-gripping spring abutting against opposing portions of said parts.

49. A joint comprising a rod-carrying saddle adapted to rock on a support therefor, said support and a self-gripping spring uniting said parts and having one end thereof fulcrumed to the support and its other end adapted to follow the rocking movement of the saddle.

50. In a joint a rod-carrying saddle, a support therefor having an exterior surface adapted to turn in a bearing therefor adjacent to the saddle, and a spring self-gripping the saddle and support together.

51. A joint comprising a support having two limbs and a member held transversely relatively to said limbs by a spring.

691,572. PAPER-MAKING MACHINE. ALONZO ALDRICH, Beloit, Wis. Filed Apr. 3, 1901. Serial No. 54,150. (No model.)



Claim.—1. In a paper-making machine, the combination with the frame thereof and one of the rolls, of a box in which the journal of said roll is mounted, means for lifting the roll, means for causing the box to be carried by the journal as the roll is lifted, a swinging support for the box, separable therefrom, and a vertical pivot upon which said support is mounted so as to be capable of swinging in a horizontal plane, substantially as described.

2. In a paper-making machine, the combination with the frame thereof and one of the rolls, of a box in which the journal of said roll is mounted, means for lifting the roll, means for causing the box to be carried by the journal as the roll is lifted, a swinging support for the box separable therefrom, a vertical pivot upon which said support is mounted to swing, and means for preventing the endwise movement of the roll when the swinging support is in place, substantially as described.

3. In a paper-making machine, the combination with the frame thereof and one of the rolls, of a box in which the journal of said roll is mounted, said journal having shoulders engaging the box and preventing endwise movement of the roll, means for lifting the end of the roll opposite said journal, a box in which the journal at the latter end of the roll is mounted, means for causing the latter box to be carried as the roll is lifted, a swinging support for the latter box separable therefrom, and a vertical pivot upon which said support is mounted, substantially as described.

4. In a paper-making machine, the combination with the frame thereof and one of the rolls, of a box in which the journal of said roll is mounted, said box comprising a lower section, an upper section or cap, and means securing said sections together, so that they will be carried by the journal as the roll is lifted, means for lifting the roll, a swinging support for the box separable therefrom, and a vertical pivot upon which said support is mounted to swing, substantially as described.

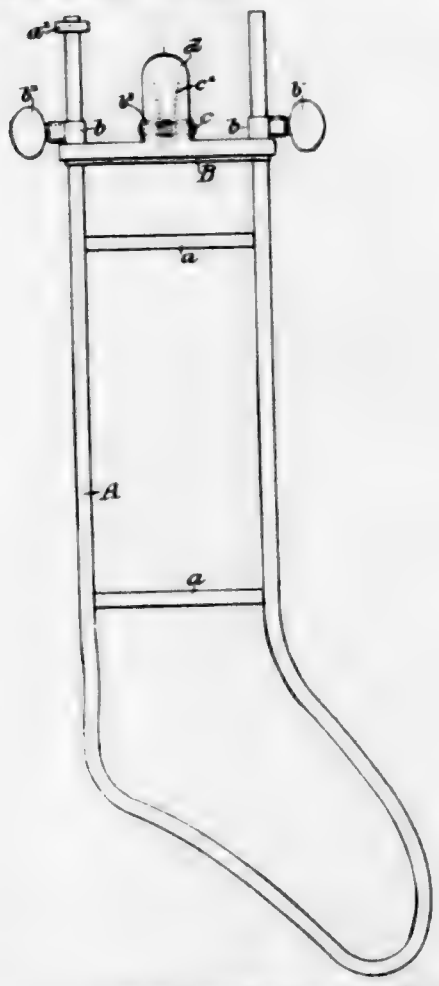
5. In a paper-making machine, the combination with the frame thereof and one of the rolls, of a box in which the journal of said roll is mounted, means for lifting the roll, means for causing the box to be carried by the journal as the roll is lifted, a swinging support for the box separable therefrom, said support and box having engaging features for

preventing the box from slipping upon the support, and a vertical pivot upon which the support is mounted to swing, substantially as described.

6. In a paper-making machine, the combination with the frame thereof and one of the rolls, of a box in which the journal of said roll is mounted, means for lifting the roll, means for causing the box to be carried by the journal as the roll is lifted, a swinging support for the box separable therefrom, a vertical pivot upon which said support is mounted to swing in a horizontal plane, and a stop for limiting the movement of the support as it is being swung into operative position, substantially as described.

7. In a paper-making machine, the combination with the frame F thereof and a pair of rolls, of means for supporting the upper roll, said means including a standard E rising from the frame F, a box in which the lower roll is journaled, said box being located in the vertical plane of the standard E and frame F, a swinging support for the box separable therefrom, the frame having a depressed portion upon which said support is adapted to bear, said support having an offset-arm L' lying out of the plane of the standard E', and a vertical pivot upon which said arm is mounted to swing, substantially as described.

691,578. GARMENT-STRETCHER. WILLIAM D. ASHWORTH, Philadelphia, Pa., assignor to the Philadelphia Textile Machinery Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Sept. 5, 1901. Serial No. 74,402. (No model.)



Claim.—1. In a device for stretching garments, the combination of a frame, a movable piece extending between the members of said frame and sliding thereon, said piece carrying means for positively clamping the garment to be stretched to said piece, and means for clamping said piece to the members of the frame and thereby retaining it in any desired position, substantially as described.

2. In a device for stretching garments, the combination of a frame, a movable piece extending between the members of said frame and constructed to slide thereon, said piece carrying means for positively clamping a garment to both sides of said piece, with means whereby said piece may be clamped to the members of the frame upon which it slides and means for limiting the motion of said piece upon the frame, substantially as described.

3. In a device for stretching garments, the combination of a frame, a movable piece constructed to slide thereon, jaws on said piece constructed to grasp the garment stretched on the frame, and means for clamping the said piece to the frame in any desired position, substantially as described.

4. In a device for stretching garments, the combination of a frame, a movable piece constructed to slide thereon, jaws pivoted to said piece, a spring acting on the jaws with means for clamping the piece in any desired position, substantially as described.

5. In a device for stretching garments, the combination of a frame, a cross-piece sliding thereon and carrying jaws pivoted to itself, the surface of said piece being constructed to coact with the jaws to firmly hold a piece of material engaged thereby, with means for retaining the cross-piece in any desired position upon the frame, substantially as described.

6. The combination in a device for stretching garments, of a frame, cross-bars sliding thereon, one of said bars carrying jaws, the other having means for retaining it in any desired position on the frame and being provided with a recess into which the said jaws are constructed to enter, substantially as described.

7. The combination in a device for stretching garments of a braced frame provided with cross-bars constructed to slide on the frame, jaws and a spring normally acting to keep said jaws in their closed position on one of said bars, the other bar carrying clamped screws and having in it a slot constructed to receive the jaws, substantially as described.

691,574. ELASTIC TIRE. JOSEPH BAIER and EMILY CLARK, London, England. Filed Aug. 22, 1901. Serial No. 72,859. (No model.)



Claim.—1. An elastic tire comprising a cover of flexible material, a number of arched metal springs arranged within said cover, transverse springs connecting the sides of said arched springs, connections between adjacent arched springs, and a circumferential wire to which said arched springs are connected, substantially as described.

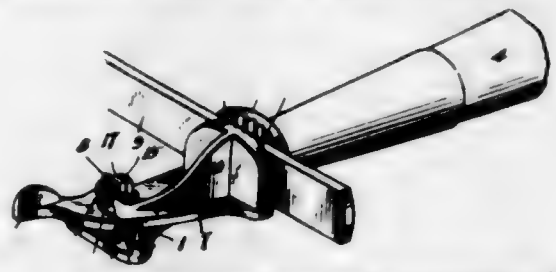
2. In an elastic tire, a series of arched metal springs each consisting of two or more flattened spirals of wire united edge to edge, transverse springs connecting the sides of said arched springs, connections between adjacent arched springs, and a circumferentially-extending spiral wire to which said arched springs are connected, substantially as described.

3. The combination, in an elastic tire, of an arched spring consisting of spiral coils of hard-metal wire flattened and joined together edge to edge by wire, and springs connecting the sides of said first-named spring at uniform intervals, substantially as described.

4. In a tire, an elastic unit consisting of spiral coils of hard-metal wire flattened and joined together edge to edge by wire, said coils being bent into the form of an arch and having their ends connected together at an angle, and a transverse spring of india-rubber connecting the opposite sides of said arch, substantially as described.

5. An elastic tire comprising a series of arched metal springs, transverse springs connecting the sides of said arched springs, connections between adjacent arched springs, a circumferentially-extending spiral spring to which said arched springs are connected, fabric inclosing said springs, a cover of elastic material, a wheel-rim, and means for securing said cover to said wheel-rim, substantially as described.

691,575. TRACE-FASTENER. LEWIS C. BALDNER, Shirleysburg, Pa. Filed May 31, 1901. Serial No. 62,609. (No model.)



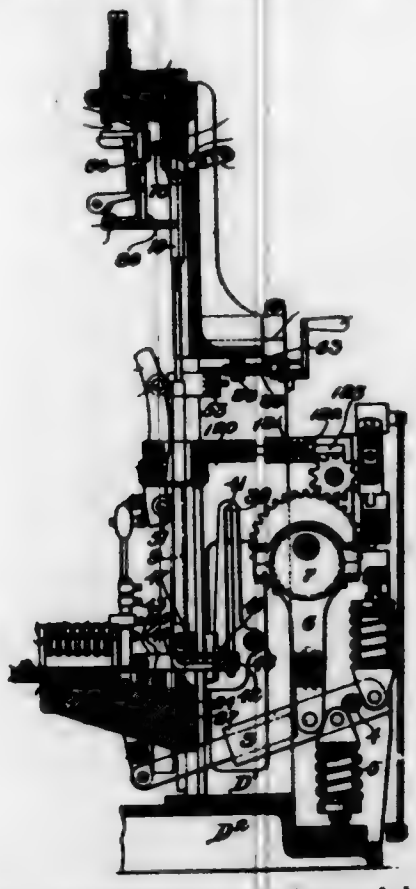
Claim.—1. A device of the class described comprising a horizontal plate provided with means for connecting it to a whiffletree and having an upright fixed jaw at its inner end, a lever located beyond the jaw and pivoted between its ends to the outer portion of the plate and provided at its inner end with a jaw coöperating with that of the plate, the outer end of the lever being extended beyond the plate to form a handle, and a spring for holding the jaw of the lever in engagement with a trace, substantially as described.

2. A device of the class described comprising a plate provided at its inner end with a vertical jaw, a lever fulcrumed between its ends on the plate and provided at its inner end with a jaw and having a handle portion at its outer end, said lever being provided at its inner arm with a lug, and a spring mounted on the pivot of the lever and engaging the lug of the latter and connected with the plate, substantially as described.

3. A device of the class described comprising a plate provided at its inner portion with a jaw and having a projection at its outer portion, a clamping-lever pivoted to the plate and provided at its inner portion

with a jaw, and having a lug, and a spring mounted on the pivot of the lever, and engaging the lug and provided with an eye receiving the projection, substantially as described.

691,576. MACHINE FOR TREEING BOOTS OR SHOES. HARRIS A. BALLARD, Ashland, Mass., assignor to the Copeland Boot and Shoe Treeing Company, Portland, Me., a Corporation of Maine. Filed Jan. 11, 1900. Serial No. 1,041. (No model.)



Claim.—1. In a machine for treeing boots and shoes the combination of a tool-carrier; a lever for reciprocating it; and a spring arranged to oppose the movement of the lever in one direction and to assist its movement in the opposite direction.

2. In a machine for treeing boots and shoes the combination of a carrier; means for reciprocating it; a movable tool-block on said carrier; and means for automatically shifting the tool-block on the carrier when the carrier is near the limit of its movement away from the shoe.

3. In a machine for treeing boots and shoes the combination of a carrier; means for reciprocating it; a movable tool-block on said carrier; a ratchet and its connections for automatically shifting the tool-block on the carrier; and a pawl which that ratchet engages when the carrier nears the outer end of its stroke.

4. In a machine for treeing boots and shoes the combination of a carrier; means for reciprocating it; a movable tool-block on the carrier; means for automatically shifting the tool-block on the carrier; means normally locking the tool-block to the carrier; and means operated automatically to free the tool-block when the latter is to be shifted on the carrier.

5. In a machine for treeing boots and shoes the combination of a carrier; means for reciprocating it; a slide movable on the carrier; a tool mounted on the slide adapted to fit itself to the shape of the back of the shoe; and means for moving the slide and tool carried thereby lengthwise of the back of the shoe while the tool is in engagement with, and to cause the tool to operate upon, the back of the shoe.

6. In a machine for treeing boots and shoes the combination of a carrier; means for reciprocating it; tools on said carrier for operating upon the sides of a shoe; a slide mounted on said carrier; a tool on said slide for operating upon the back of a shoe; and means for reciprocating the slide on the carrier lengthwise of the back of the shoe to cause the tool to operate upon and lengthwise of the back of the shoe.

7. In a machine for treeing boots and shoes the combination of a carrier; a slide movable on the carrier; a flexible strap mounted on the slide adapted to fit itself to the shape of the back of the shoe; and means for moving the slide and the strap lengthwise of the back of a shoe, while the strap is in engagement therewith.

8. In a boot-treeing machine in combination two guides for the tools each pivoted near one end to the frame of the machine, and near the other end to a bracket on slides and ways on the frame of the machine, and means for moving the bracket and its slides to adjust both tool-guides.

9. In a machine for treeing boots and shoes the combination of a carrier; means for reciprocating it, two fore-part tools mounted on the carrier; a spring-supported flexible strap rendering through each of the fore-part tools; to engage and operate upon the fore part of the shoe in connection with the operation of the fore-part tools.

10. In a machine for treeing boots and shoes the combination of a carrier; means for reciprocating it; a tool-holder mounted to turn on an axis on the carrier; means for automatically moving said holder step by step on its axis first in one direction and then in the opposite direction while the machine is in operation; a supplementary tool-holder pivotally connected to the first-mentioned tool-holder at a point located at one side of the axis of the first-mentioned tool-holder, and pivotally connected with the carrier at a point upon the opposite side of the axis of the first-mentioned tool-holder; and a flexible strap on the supplementary tool-holder for operating upon the end and top of the toe of a shoe.

11. In a machine for treeing boots and shoes the combination of a frame; a carrier mounted on the frame; means for reciprocating the carrier; a tool-holder mounted to turn on an axis on the carrier; operating means for the tool-holder mounted on the carrier; and means on the frame for actuating the tool-holder-operating means whereby the tool-holder is automatically moved on its axis step by step, first in one direction and then in the opposite direction, while the machine is in operation.

12. In a machine for treeing boots and shoes the combination of a revolving turret for holding the trees; its support; latch 97 and bolt 98 on said support; their springs 99 and 101; a lever 103 supporting those springs; and a lever 100 connected with the latch and bolt, arranged to operate substantially as described.

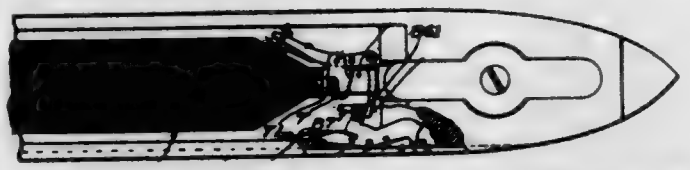
13. The combination of a turret provided with tree-holding sockets; a lever pivotally mounted on the turret with one end arranged to engage the expanding rod of a tree, and provided with a socket in its other end; an arm fast on the turret extending through the socket; a roll in the socket for locking the lever to the arm; and means for moving the roll in the socket to free the lever.

14. The combination of a turret provided with tree-holding sockets; a lever pivotally mounted on the turret with one end arranged to engage the expanding rod of a tree, and provided with a socket in its other end; an arm fast on the turret extending through the socket; a roll in the socket for locking the lever to the arm; means for normally holding the roll in position to engage the lever and arm to rigidly connect said parts; and means for moving the roll in the socket to free the lever.

15. In a machine for treeing boots and shoes the combination of an annular heel-rest and a hollow support on which the annular rest is mounted to turn.

16. In a machine for treeing boots and shoes a main frame in two parts; means for adjusting the parts relatively; a sliding tool-carrier in ways on one part of the main frame; a second sliding tool-carrier in ways in the other part of the main frame; and means for reciprocating both tool-carriers.

691,577. LOOM-SHUTTLE. HENRY BARDSLEY, Providence, R. I., assignor to Crompton & Knowles Loom Works, Providence, R. I., a Corporation of Rhode Island. Filed Sept. 25, 1901. Serial No. 76,460. (No model.)



Claim.—1. In a loom-shuttle, in combination, a movable follower acting against the exterior of the wound yarn-load carried by the shuttle and provided with a detent, and a trip adapted in its normal position to control the action of outside instrumentalities, and held by such detent in an abnormal position until its release is permitted by depletion of the said yarn-load to the predetermined extent, substantially as described.

2. In a loom-shuttle, in combination, the receiver for a wound yarn-load, a follower movably mounted on said receiver, acting against the exterior of the said yarn-load and provided with a detent, and a trip adapted in its normal position to control the action of outside instrumentalities, and held by such detent in an abnormal position until its release is permitted by depletion of the said yarn-load to the predetermined extent, substantially as described.

3. In a loom-shuttle, in combination, the shuttle-spindle, a follower acting against the exterior of the yarn-load applied to the shuttle-spindle, pivoted on said shuttle-spindle, and provided with a detent, and a trip adapted in its normal position to control the action of outside instrumentalities, and held by such detent in an abnormal position until its release is permitted by depletion of the said yarn-load to the predetermined extent, substantially as described.

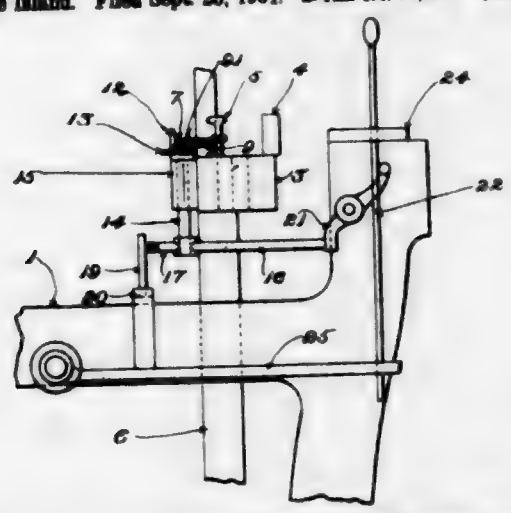
4. In a loom-shuttle, in combination, a movable follower provided with an adjustable contact acting against the exterior of the wound yarn-load carried by the shuttle, and provided also with a detent, and a trip

adapted in its normal position to control the action of outside instrumentalities, and held by such detent in an abnormal position until its release is permitted by depletion of the said yarn-load to the predetermined extent, substantially as described.

5. In a loom-shuttle, in combination, the shuttle-spindle, the follower carried by said spindle and provided with an adjustable contact to bear against the exterior of the yarn-load upon the shuttle-spindle, and also with a detent, and the trip engaged by said detent to control the action of outside instrumentalities, substantially as described.

6. In a loom-shuttle, in combination, the shuttle-body, the shuttle-spindle, the follower moving in unison with said spindle, having also an independent indicating movement, and provided with a detent, and the trip mounted upon the shuttle-body and engaged by said detent, one of the interengaging parts having the curved wing against which the other acts, to occasion automatic reëngagement of the detent and trip as the spindle is lowered into position in the shuttle-body, substantially as described.

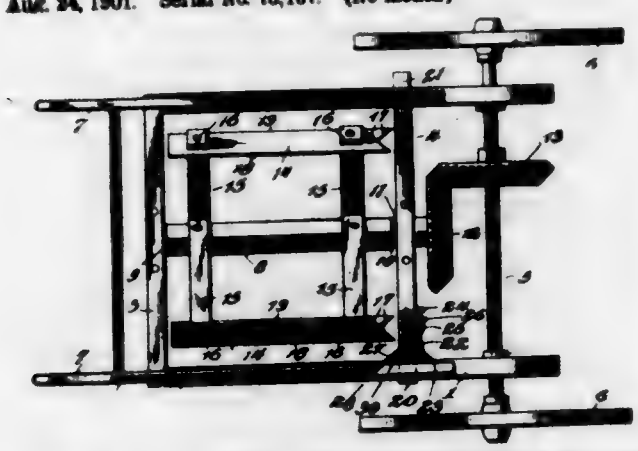
691,578. LOOM. HENRY BARDSLEY, Providence, R. I., assignor to Crompton & Knowles Loom Works, Providence, R. I., a Corporation of Rhode Island. Filed Sept. 25, 1901. Serial No. 76,461. (No model.)



Claim.—1. In a loom, in combination, the lay, the spring-actuated trip 7 mounted thereon and adapted to be operated in practice by a coacting trip carried by the loom-shuttle, the vertical rock-shaft carried by the lay and provided on its upper end with the horizontally-extending detent-arm engaging with the rear end of said trip first mentioned, a dagger or bunter on the lower end of said rock-shaft, a resetting-arm on said rock-shaft, a spring to cause said dagger or bunter to assume its operative position, shipper devices operated by the advance of said dagger or bunter with the lay when in its operative position, and a resetting-cam coöperating with said resetting-arm.

2. In a loom, in combination, the lay, the spring-actuated trip 7 mounted thereon and adapted to be operated in practice by a coacting trip carried by the loom-shuttle, the vertical rock-shaft carried by the lay and provided on its upper end with the horizontally-extending detent-arm engaging with the rear end of said trip first mentioned, a dagger or bunter on the lower end of said rock-shaft, a resetting-arm on said rock-shaft, a spring to cause said dagger or bunter to assume its operative position, the lever 21 operated by the advance of said dagger or bunter with the lay when in its operative position, the shipper operated by said lever, and a resetting-cam coöperating with said resetting-arm.

691,579. BELT-BLOCKER. WILLIAM W. BARTLETT, Wheeler, Mich., assignor of one-half to Frank Lamphier, Wheeler, Mich. Filed Aug. 24, 1901. Serial No. 73,157. (No model.)



Claim.—1. In a machine of the character described, the combination with a wheeled frame, of a rotatable cutting apparatus mounted thereon and in operative relation with the supporting-wheels of the frame, an endwise-shiftable frame-bar supporting one end of the cutting apparatus, and means to shift said bar and throw the cutting apparatus out of gear.

2. In a machine of the character described, the combination with a wheeled frame, of a rotatable cutting apparatus mounted thereon and in operative relation to the supporting-wheels of the frame, an endwise-shiftable frame-bar supporting one end of the cutting apparatus, locking means for holding said bar at one limit with the cutting apparatus in gear with the supporting-wheels, an unlocking device for said means, and a spring to shift the movable frame-bar when the latter is unlocked.

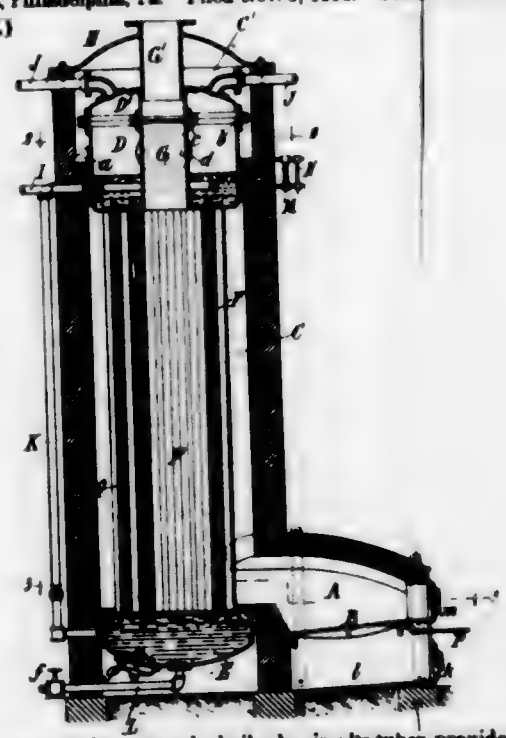
3. In a machine of the character described, the combination with a wheeled frame, of a rotatable cutting apparatus in operative relation to the wheels of the frame, an endwise-shiftable frame-bar carrying one end of the cutting apparatus, a latch mounted upon the frame and constructed for engagement with the shiftable bar to hold the latter at one limit, means for unlocking the latch, and a spring for shifting the movable frame-bar when the latter is unlocked.

4. In a machine of the character described, the combination with a wheel-supported frame, of a rotatable cutting apparatus in operative relation to the supporting-wheels of the frame, an endwise-shiftable cross-bar having opposite tenons slidably mounted in openings formed in the respective side bars of the frame, a latch pivotally mounted upon one of the side bars of the frame, a keeper carried by the cross-bar and constructed for engagement by the latch, a spring to normally hold the latch in engagement with the keeper, means for unlocking the latch, and a helical spring having one end connected to the said side bar of the frame and its opposite end connected to the shiftable cross-bar, said spring being normally under tension to shift the cross-bar when the latch is unlocked.

5. In a machine of the character described, the combination with a frame, consisting of opposite side bars and a rear cross-bar, of a transverse shaft mounted in the front ends of the side bars, supporting-wheels carried by the shaft, an intermediate endwise-movable cross-bar supported upon the side bars and located between the shaft and the rear end bar, a rotatable cutter journaled between the opposite cross-bars and having its forward journal projected beyond the intermediate cross-bar, intermeshed beveled gears upon the shaft and the projected journal, a latch pivoted upon one of the side bars and constructed for engagement with the shiftable cross-bar to hold the gears in mesh, means for releasing the latch, and a helical spring connected at opposite ends to the shiftable bar and the adjacent side bar of the frame to shift the cross-bar when the latch is unlocked.

6. In a machine of the character described, the combination with a wheeled frame, of an endwise-shiftable cross-bar carried by the frame, a longitudinally-disposed rotatable shaft having one end mounted upon the shiftable cross-bar and in operative relation to the supporting-wheels, means for shifting the cross-bar to throw the shaft out of gear, a plurality of laterally-projected arms carried by the shaft, and cutting-knives carried by the outer ends of respective arms and having their forward ends beveled rearwardly from the cutting edges thereof.

691,580. STEAM-BOILER. FRANCIS G. BATES and FRANK H. BATES, Philadelphia, Pa. Filed Nov. 9, 1896. Serial No. 611,457. (No model.)



Claim.—1. A water-tube boiler having its tubes provided with heat-absorbent cores arranged within them and means for holding the cores separated from the tubes so as to leave an annular space between the

tube and core for circulation of water, such cores constructed as tubes inclosing a heat-absorbent material.

2. A water-tube boiler having its tubes provided with heat-absorbent cores within them, said cores constructed as a sealed metal tube with a filling of heat-retaining mortar.

3. In a boiler, a vertical water-tube combined with a concentric core-tube within it, having a centering spider at its bottom engaging the inner surface of the water-tube, and having at its top a suspending-spider having arms overlying and projecting within the water-tube to support and center the core-tube, all adapted to permit the core to be drawn out upwardly.

4. An upright tubular boiler comprising an annular steam-drum D, a mud-drum E, and intervening tubes F F, an upright chamber inclosing the tubes, a furnace communicating with the bottom of said chamber, a flue through said annular drum, and a downflow-pipe K exterior to said chamber leading from the steam-drum below the water-level to the mud-drum.

5. A boiler comprising a steam-drum D, mud-drum E, and intervening upright water-tubes F F, the steam-drum constructed with a concentric flue G within it, and formed in two parts divided horizontally, and provided with flanges *b c* for uniting them, and with a manhole *d* for giving access to the interior of the steam-drum.

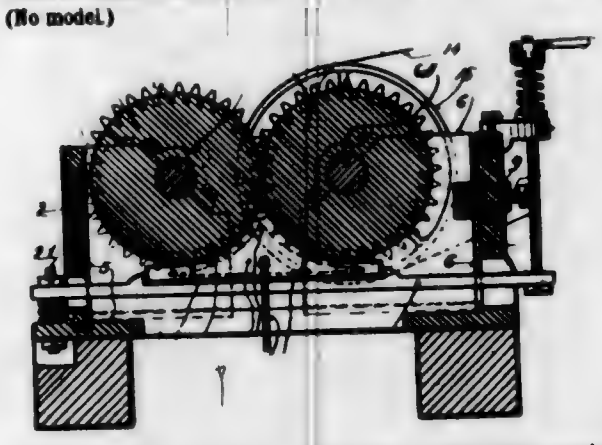
6. In a steam-boiler, the combination of an upright chamber C communicating at its lower portion with a furnace A, a steam-drum D supported upon the wall of said chamber, water-tubes F F, and mud-drum E, suspended from said steam-drum, cap H covering the top of said wall and forming a chamber C′ inclosing the upper portion of the steam-drum, and flues G and G′ formed respectively through said steam-drum and chamber C′.

691,581. DENTAL FLOSS-HOLDER. AUGUSTE BAUMEISTER, Hagenau, Germany. Filed June 20, 1901. Serial No. 65,220. (No model.)



Claim.—In a device of the character described, the combination with a handle, of an enlarged head carried by the upper end thereof having a flat engaging face parallel with the handle with a central aperture formed therein and with a series of cone-shaped recesses extending in a semicircle partially surrounding said central aperture, a hook carried by said handle below said head, a U-shaped fork portion comprising two arms, an enlarged head having a flat engaging face corresponding with said flat engaging face to the handle, said face being centrally apertured, a cone-shaped peg carried by said engaging face of the fork to register in one of said cone-shaped recesses formed in the opposite engaging face of the handle, a thumb-screw secured in the central openings of said heads, the said two arms of the fork portion having their outer extremities slotted, the uppermost of said slotted extremities of the arms being bent upwardly and then backwardly, a hook secured to the under side of the lower arm, the said upwardly-bent slotted end of the arm being adapted to receive the knotted end of the thread, which thread is then passed through the slotted extremity of the other arm, drawn taut, wrapped around the hook carried by the arm and secured to the hook carried by the handle all parts being arranged and operating substantially as described and for the purpose set forth.

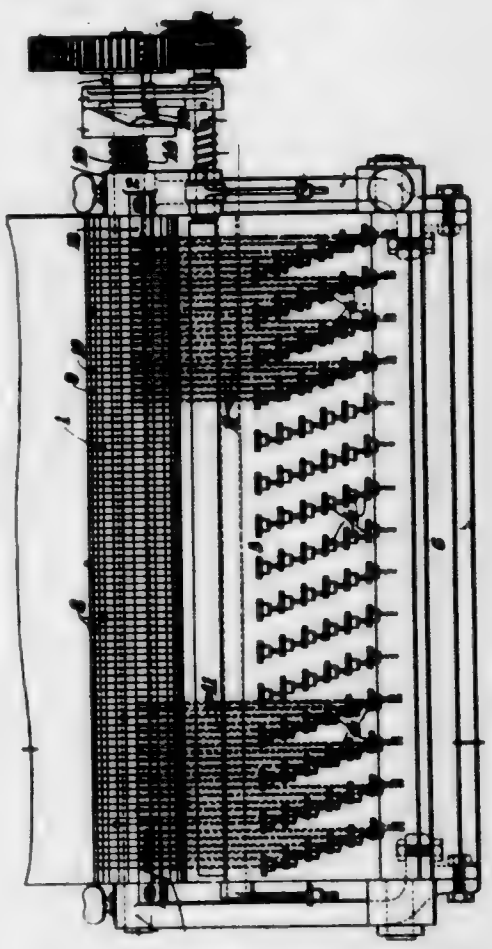
691,582. ORE CRUSHING AND PULVERIZING MACHINERY. ARON M. BEAR, Denver, Colo. Filed Apr. 19, 1900. Serial No. 13,512. (No model.)



Claim.—1. In a combined crushing and pulverizing machine the combination of the supporting-base, a fixed shaft on said base, a movable shaft mounted on said base, rock and ore crushing rolls operated on said shafts in alinement with one another and in rolling relation to one another, an adjustable, resilient buffer arranged to hold one roll in a predetermined, yielding and resilient relation to the other roll, with a grinding-block arranged to extend between said rolls and to engage their peripheral surfaces, the supporting-bar, the spring between one end of said bar and said base, an adjustable bolt passing through said spring and arranged to secure said bar to said base, a removable bracket secured to said base, a vertical adjusting-rod extending from the free end of said support through said bracket, a spring around said rod and resting in said bracket, and a wrench-nut threaded on said rod and arranged to bear on said spring, substantially as described.

2. The combination with a suitable base and crushing-rolls, of a grinding-block located below said rolls and arranged to coöperate with the rolls to perform the pulverizing function, a bar for supporting the block, a spring between one end of said bar and the base, an adjustable bolt passing through said spring and arranged to secure said bar to the base, a removable bracket secured to said base, a vertical adjusting-rod extending from the free end of said supporting-bar through said bracket, a spring around said rod and resting on said bracket, and a wrench-nut threaded on said rod and arranged to bear on said spring.

691,583. COMPOSING MECHANISM OF TYPE-SETTING OR LINOTYPE MACHINES. ALFRED BEAN, Guildford, England, assignor to the Mergenthaler Linotype Company, a Corporation of New York. Filed June 29, 1901. Serial No. 66,490. (No model.)



Claim.—1. In combination with the escapements of a composing mechanism, finger-keys for actuating them individually, and a power-driven mechanism under the control of the operator for actuating predetermined escapements in a predetermined order.

2. In a composing mechanism, the combination of a series of escapements and a barrel with fixed pins in operative connection with the escapements, whereby successive rotations of the barrel are caused to automatically operate a number of escapements repeatedly in a predetermined order of succession.

3. In a composing mechanism, the combination with the escapements, of a pinned barrel in operative connection therewith, a continuously-rotating driver for rotating the barrel, a clutch for positively connecting the barrel and driver and for disengaging them, a key-lever for allowing the positive connection and a cam for effecting the disengagement when the barrel has completed each rotation, substantially as set forth.

4. In a composing mechanism, the combination with the escapements, of a pinned barrel in operative connection therewith, a continuously-rotating driver for turning the barrel, a clutch for positively connecting the barrel and driver, and for disengaging them, abutments on the driver and clutch, a key-lever and lever-arm for allowing the engagement of the abutments, and a cam in operative connection with the lever-

arm for effecting the disengagement of the abutments, substantially as set forth.

5. In a composing mechanism, the combination with the escapements, of a pin-barrel in operative connection therewith and seatings throughout the barrel and of greater number than the pins for securing interchangeability of the said pins, substantially as set forth.

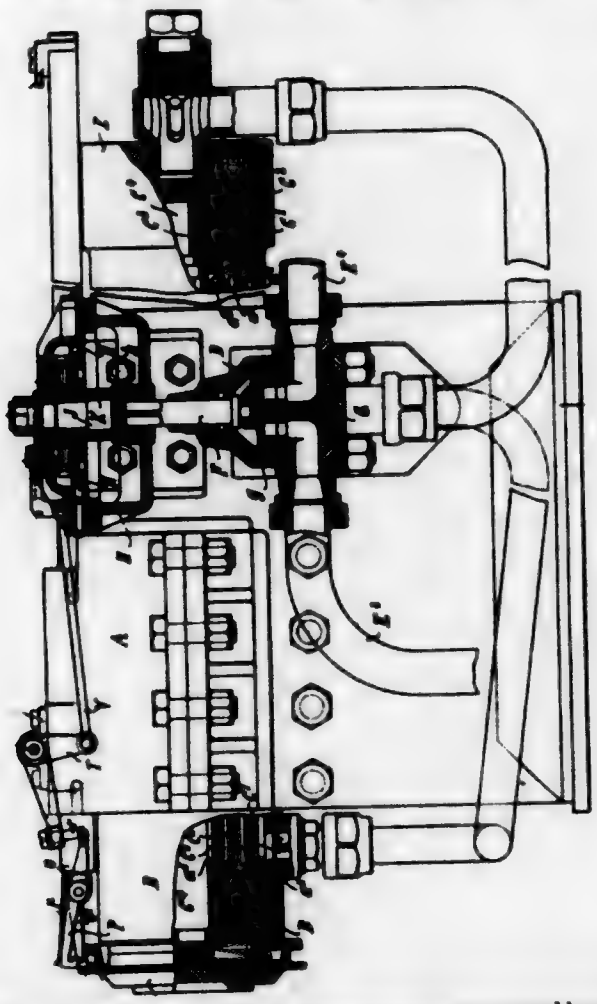
6. In a composing mechanism, the combination with a rotating barrel having holes with tributary slots, of detachable headed pins for the said slots, substantially as set forth.

7. In combination with a linotype or analogous machine having the usual series of finger-keys, a mechanism to select certain matrices in a predetermined order, and manually-controllable driving connections between the linotype-machine and said mechanism.

8. In combination with a linotype-machine having the usual complement of finger-keys, mechanism for repeatedly actuating selected keys in a predetermined order, connections for driving said mechanism from the linotype-machine, and means under the control of the operator for throwing said connections into and out of action.

9. In combination with a linotype-machine, a power-driven mechanism for releasing certain matrices in a predetermined order, means for automatically throwing said mechanism out of action after each operation, and means under the control of the operator for throwing it into action at will.

691,584. AMMUNITION CONVEYER OR RAMMER FOR GUNS. JULIUS BECKER, Essen, Germany, assignor to Fried. Krupp, Essen, Germany. Filed July 18, 1901. Serial No. 68,736. (No model.)



Claim.—1. In an ammunition conveyer or rammer operated by fluid-pressure, the combination of a rammer, a throttling-valve incorporated in one of the conduits leading to the rammer-cylinder, an operating mechanism in connection with said valve adapted to actuate the latter for alternately retarding the stroke of the rammer, and a stop automatically thrown into action by said mechanism for limiting the length of outward movement of the rammer on alternate strokes, whereby the charging of the cartouche is effected at less velocity and shorter stroke than that of the projectile, substantially as described.

2. In an ammunition conveyer or rammer operated by fluid-pressure, the combination of a rammer, a throttling-valve incorporated in one of the conduits leading to the rammer-cylinder, and an operating mechanism for said valve comprising a cam-disk, a ratchet-movement in operative connection with said cam-disk, a starting-lever adapted to turn the cam-disk through the medium of the ratchet-movement, and a sliding stop on the starting-lever adapted to be displaced by the cam-disk during one stroke of the starting-lever, so that on the subsequent stroke the stop engages and partially closes the throttle-valve so as to cause a retardation of the movement of said rammer, substantially as described.

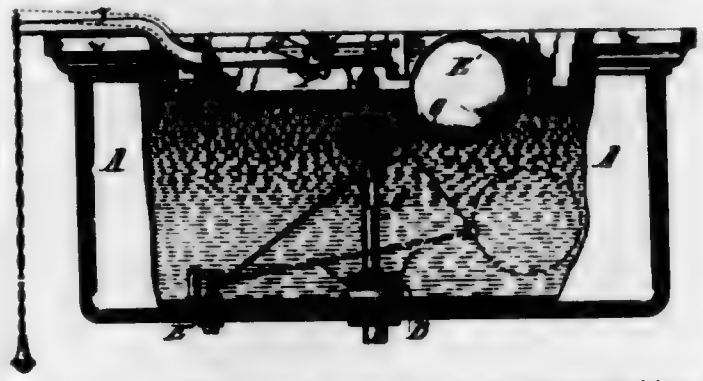
3. In an ammunition conveyer or rammer operated by fluid-pressure, the combination of a rammer, a throttling-valve incorporated in one of the conduits leading to the rammer-cylinder, and an operating mechanism for said valve comprising a cam-disk, a ratchet-movement in operative connection with said cam-disk, a starting-lever adapted to turn the cam-disk through the medium of the ratchet-movement, a sliding rod with limited stroke and adapted to be coupled with the rammer-head and means for automatically coupling said rod with the rammer-head so that the rod prevents complete outward movement of the rammer, substantially as described.

4. In an ammunition conveyer or rammer operated by fluid-pressure the combination of a rammer, a throttling-valve incorporated in one of the conduits leading to the rammer-cylinder, and an operating mechanism for said valve comprising a cam-disk, a ratchet-movement in operative connection with said cam-disk, a starting-lever adapted to turn the cam-disk through the medium of the ratchet-movement, a sliding rod with limited stroke and adapted to be coupled with the rammer-head, a second cam-disk and means for positively turning the second disk by the first disk, a lever system adapted to be displaced by the second cam-disk and to act upon the coupling device of the sliding rod, so that, the second disk having been turned through a certain angle, said rod is coupled with the rammer-head and prevents complete outward movement of the rammer, substantially as described.

5. In an ammunition conveyer or rammer operated by fluid-pressure, the combination of a rammer, a throttling-valve incorporated in one of the conduits leading to the rammer-cylinder, an operating mechanism in connection with said valve adapted to actuate the latter for alternately retarding the stroke of the rammer, and a running-out rod provided with a stop adapted, when the rod is engaged by the rammer-head, to contact with the starting-lever for returning the same to its normal position and thereby prevent further outward movement of the rammer, substantially as described.

6. In an ammunition conveyer or rammer operated by fluid-pressure, the combination of a rammer, a throttling-valve incorporated in one of the conduits leading to the rammer-cylinder, an operating mechanism in connection with said valve adapted to actuate the latter for alternately retarding the stroke of the rammer; and a starting-lever; said operating mechanism comprising a ratchet-movement adapted to be thrown out of action at will for the purpose of repeating either movement of the rammer, substantially as described.

691,585. TANK. GEORGE BECKING, Chattanooga, Tenn. Filed May 2, 1901. Serial No. 58,430. (No model.)



Claim.—1. The improved apparatus herein described comprising the tank, the flushing-valve, a float, the operating-lever connected with the flushing-valve for operating the same, a latch comprising a plate pivoted at its upper end and provided with a slot having an upper and a lower seat adapted to support the operating-lever and provided with a projecting arm connected with the float, and the pin or projection from the operating-lever entering the slot of the latch-plate and arranged to be supported on the seats thereof substantially as set forth.

2. In an apparatus substantially as described, the combination of the tank, the flushing-valve, means for opening said valve, and a latch acting upon the valve-operating means and having upper and lower seats arranged to hold such operating means in two adjustments whereby the valve may be held open for the main flushing operation, and subsequently be held open to a lesser degree to secure the afterfill, substantially as set forth.

3. The combination of the tank, the flushing-valve, the lever connected with the flushing-valve and provided with a pin or projection, and a latch pivoted at its upper end, extended adjacent to the lever and provided with a slot arranged to receive the pin on said lever and having upper and lower seats for such pin substantially as set forth.

4. In an apparatus substantially as described, the combination of the tank, the flushing-valve, the operating-lever, the latch having upper and lower seats arranged to support said lever in different positions, and means for releasing the latch from the lever, substantially as set forth.

5. The combination in an apparatus substantially as described of the tank, the operating-lever, a latch having upper and lower seats to engage with the lever for supporting it in different positions, and a float arranged to operate said latch whereby to cause it to release the lever from its upper position substantially as set forth.

6. The combination of the flushing-valve, the operating-lever connected therewith, the projection on the lever to enter the slot in the latch-plate, the latch having a plate pivoted at its upper end and provided with a slot having upper and lower seats for the projection on the operating-lever, the arm adjustably connected with said plate, and a float connected with said arm whereby to operate the latch substantially as set forth.

7. The combination in an apparatus substantially as described of the tank, the valve, a lever for operating the valve, a latch alongside said lever and provided with means operating upon the lever for supporting it in two positions, and means for operating said latch substantially as set forth.

8. The combination substantially as described, of the lever having a lateral pin, the latch pivoted at its upper end and provided with a slot having shoulders forming upper and lower seats for the pin of the lever and provided at its lower end with an arm, the float connected with said arm and arranged to operate the latch, the valve and the tank substantially as set forth.

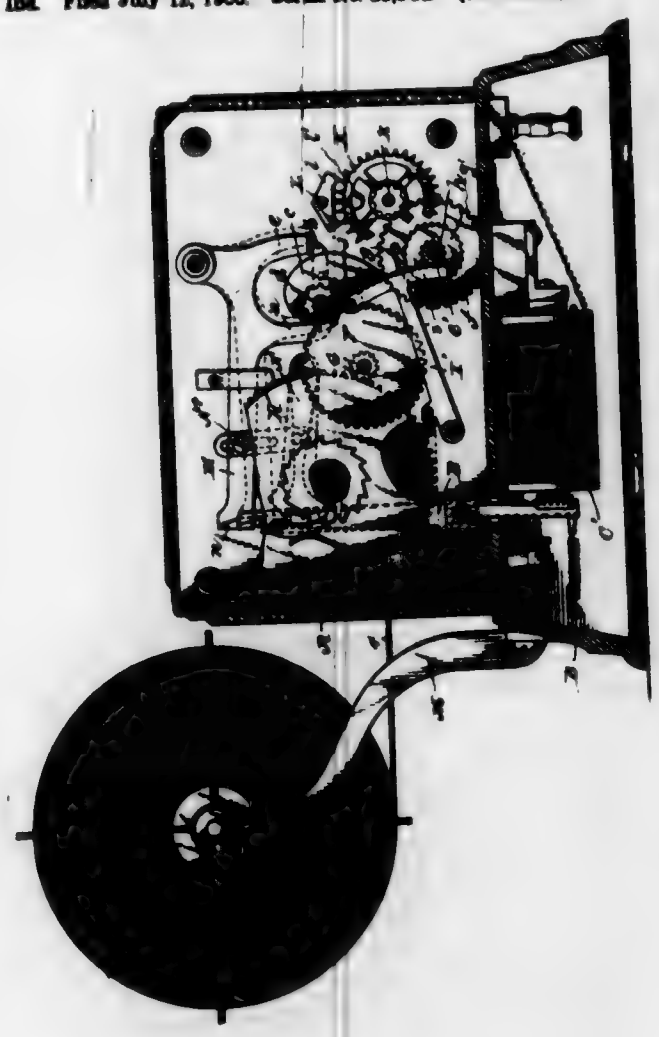
9. In an apparatus substantially as described the combination of the tank, the flushing-valve, a moving part or projection in connection with the valve, a latch-plate provided with a slot having upper and lower shoulders forming seats for the said projection whereby the latch may support the valve in two positions, and means for releasing the latch substantially as set forth.

691,586. RAILROAD-TIE. JACOB H. BENDER, Campbelltown, Pa. Filed July 5, 1901. Serial No. 67,186. (No model.)



Claim.—A cross-tie comprising a body portion provided at its ends with sockets having vertical outer end walls and provided with inclined or undercut inner end walls forming recesses, and the removable blocks having tapered inner ends to fit the inner end walls of the sockets and provided with vertical faces at their outer ends and cut away at the bottom of the latter to permit the blocks to be introduced into the sockets, substantially as described.

691,587. PUNCHING-REGISTER. CHARLES BERRY, New Albany, Ind. Filed July 12, 1900. Serial No. 23,344. (No model.)



Claim.—1. In a device of the character described, having the hollow base, the vertical punchings-tube, communicating with the interior of said base, the guide and supporting block secured to the casing, the punch operating through said block, and the removable die-plate secured to said block, and in part resting upon the upper termination of said punchings-tube, substantially as specified.

2. In a device of the character described, having the hollow base, the vertical punchings-tube communicating with the interior of said base, the supporting-studs upon the casing, the removable guide and supporting-block having seats for said studs, and secured to said casing by a screw, the punch operating through said block, and the removable die-plate, secured to said block, and in part resting upon the upper termination of said punchings-tube, substantially as specified.

3. In a device of the character described, the supporting-studs of the casing, the removable guide and supporting-block, having the seats engaging said studs, and secured to the casing by a screw, the punch operating through said block, the removable die-plate secured to said block, the reciprocatory punch working in said block, and having the head provided with a slot, the operating-shaft having the eccentric provided with the flange covering in said slot at the rear, and the removable face-plate covering in said slot at the front, substantially as specified.

4. In a register of the class described, the combination with a registering device having a mainspring and gear driven thereby for operating the registering device, a lock for said gear-train, a trip device for controlling such lock, an electromagnet and its armature-lever for controlling such trip device, paper-feeding devices, and means in connection with said trip device and armature-lever, whereby such trip device is released only upon reverse movement of the armature-lever, of positively-acting means for returning the armature-lever to normal position after operation, substantially as specified.

5. In a register of the class described, the combination with a registering device having a mainspring, and gear driven thereby for operating the registering device, a lock for said gear-train, a trip device for controlling said lock, an electromagnet and its armature-lever for controlling said trip device, and paper-feeding devices, of means acting in connection with the trip device to latch the armature-lever in normal position against movement under the action of its spring, and to positively return the armature-lever to normal position after operation, means for releasing said first-named means upon movement of the armature-lever under the influence of the signal-current impulse, and means in connection with the trip device and armature-lever to release such trip device only upon reverse movement of the armature-lever, substantially as specified.

6. In a register of the class described, the combination with a registering device having a mainspring and gear driven thereby for operating the registering device, a lock for said gear-train, a trip device for controlling such lock, an electromagnet and its armature-lever for controlling such trip device, such lever having a lateral stud, and paper-feeding devices, of a pivoted latch-lever having a beveled end acting against said stud to return the armature-lever to normal position after operation, and to latch it in such position, substantially as specified.

7. In a register of the class described, the combination of a registering device, a mainspring and gear-train for operating the registering device, a lock for said train, a trip-lever for controlling the operation of said lock, an electromagnet, an armature, and an armature-lever for controlling the operation of said trip-lever, a spring for returning said armature and armature-lever to normal position after operation, means connected with said trip-lever for limiting the movement of said armature-lever under the action of its spring, and for locking said armature-lever in normal position supporting the trip-lever against movement under the action of its spring, means for releasing said first-named means upon movement of the armature-lever under the influence of the signal-current impulse, and means in connection with the trip device and armature-lever to release such trip device only upon reverse movement of the armature-lever, paper-feeding devices, and means for operating the same through the action of said gear-train when released, substantially as specified.

8. In a register of the class described, the combination of a registering device, a mainspring and gear-train for operating the registering device, a lock for said train, a trip-lever for controlling the operation of said lock, an electromagnet, an armature, and an armature-lever for controlling the operation of said trip-lever, said armature-lever having a lug, a spring for returning said armature and armature-lever to normal position after operation, a pivoted arm having a connection with said trip-lever, and operating in connection with the lug of said armature-lever to limit the movement thereof under the action of its spring, and to lock said armature-lever in normal position against movement under the action of its spring, paper-feeding devices, and means for operating the same through the action of said gear-train when released, substantially as specified.

9. In a register of the class described, the combination of a registering device, a mainspring and gear-train for operating the same, a lock for said train, a trip-lever for controlling the operation of said lock, an

electromagnet, an armature and an armature-lever for controlling the operation of said trip-lever, said armature-lever having a lug projecting laterally thereof, means for returning said armature and armature-lever to normal position after operation, a pivoted arm having a beveled end portion terminating at its lower extremity in an inwardly-offset shoulder, said arm having a link connection with said trip-lever, paper-feeding devices, and means for operating the same through the action of said gear-train when released, substantially as specified.

10. In a register of the character described, the combination of a registering device, a mainspring and gear-train for operating the same, a lock for said train, a trip-lever for controlling the operation of said lock, and having a laterally-projecting lug at its free end portion, an electromagnet, an armature and an armature-lever for controlling the operation of said trip-lever, said armature-lever having a lateral notch at its upper or free extremity, a spring for returning said armature and armature-lever to normal position after operation, means connected with said trip-lever for limiting the movement of said armature-lever under the action of its spring, and for locking said armature-lever in normal position supporting the trip-lever and against movement under the action of its spring, paper-feeding devices, and means for operating the same through the action of said gear-train when released, substantially as specified.

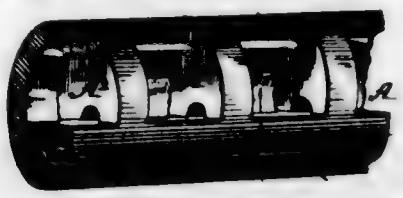
691,588. CARD FOR STEAM-ENGINE INDICATORS. CHARLES B. BOSWORTH, Somerville, Mass., assignor to Star Brass Manufacturing Company, Boston, Mass., a Corporation of Massachusetts. Filed Aug. 3, 1901. Serial No. 70,777. (No model.)



Claim.—1. The steam-engine-indicator card herein described, the same being provided with means which determine in advance of the application the portion of the card which envelops the cylinder and the portion which extends from the cylinder after its application, as and for the purposes set forth.

2. A steam-engine-indicator card having marked thereon the lines of demarcation b^3, b^4 which determine in advance of its application the portion of the card which envelops the cylinder upon application, and the portions which extend from the cylinder and by which the said card may be held as and for the purposes set forth.

691,589. TIRE. MARY E. BROOKE, Denver, Colo. Filed Nov. 16, 1901. Serial No. 82,580. (No model.)



Claim.—1. The improved tire herein described consisting of the core composed of the longitudinal tread or rib and the disks or lugs projecting from the inner side of the tread or rib, said tread or rib and lugs being curved in cross-section, and the casing fitted on the said core and having its inner lining projected into the spaces between the disks or lugs and between the opposite edges of the tread or rib whereby the core will be locked from movement longitudinally or rotatably in the casing and the disks or lugs will be separately and independently braced throughout their edges by the projecting portions of the casing substantially as set forth.

2. A cushion-tire consisting of a core having transverse disks or lugs spaced apart and a casing fitting on said core and having its inner lining pressed partially into the spaces between said disks or lugs whereby the lining will overlap the edges of the lugs and will brace the same and hold them from displacement substantially as set forth.

3. A core for cushion-tires composed of the integral longitudinal tread or rib and the spaced-apart disks or lugs, the disks or lugs being projected from the inner edge of the tread and extending parallel to each other and at a right angle to the direction of tread and the outer edge of the tread and of the disks being curved correspondingly substantially as and for the purposes set forth.

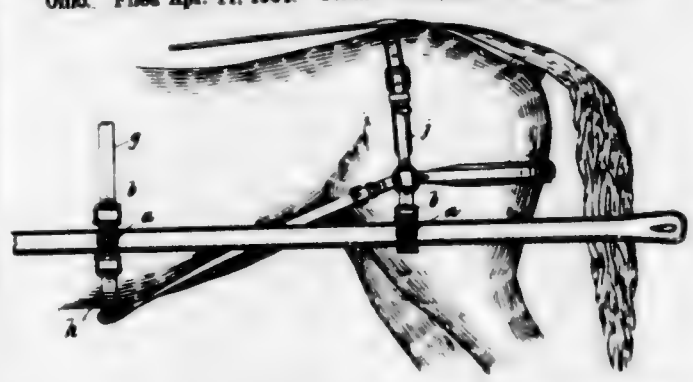
4. A core for a cushion-tire composed of rubber and consisting of the longitudinal tread or rib and the spaced-apart disks or lugs projected from the inner side of the rib and lying in parallel planes and in planes at a right angle to the direction of length of the tread or rib and formed on their outer edges to conform to the bore of the tire substantially as set forth.

5. A core for a cushion-tire consisting of the longitudinal tread or rib and a series of disks integral with and projecting from the inner side of the tread or rib and provided near their edges diametrically opposite the tread or rib with openings which are curved at their sides adjacent to the edges of the disks correspondingly thereto and are flat or square at their opposite edges substantially as set forth.

6. A tire composed of a core having longitudinal tread or rib and provided on the inner side thereof with the projected disks or lugs and having said lugs provided near their edges diametrically opposite the tread with openings which are flat on the side next the rib and are rounded on the opposite side, the casing fitted upon the core and having its inner side or lining provided with projecting portions which overlap the edges of the tread and disks and prevent any lateral or longitudinal displacement of the core-tread or disks, and the tie-bar passed through the opening in the disks and being rounded on one side and flattened on its opposite side and arranged with its flattened side next to the tread or rib of the core substantially as set forth.

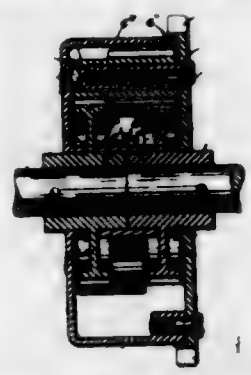
7. A cushion-tire consisting of a core composed of the longitudinal tread or rib and the spaced-apart lugs or disks on the inner side thereof, and the casing applied to said core and having an inner lining which projects between the disks and overlaps the opposite edges of the rib or tread substantially as set forth.

691,590. TRACE-SUPPORT. HENRY BROOKS, South Brooklyn, Ohio. Filed Apr. 11, 1901. Serial No. 55,423. (No model.)



Claim.—In a trace-support, the combination with the angular front and back plates *c*, *d*, adapted to embrace and tightly fit upon the trace, the plates having top and bottom hinge connections thus being adapted to be opened for receiving the trace or to admit of its adjustment therein, a removable screw-bolt *e* forming a part of one of said hinge connections and serving to secure the plates tightly upon the trace in their closed position, a loop *b'* pivotally secured to the device by the bolt and a stud *f* provided within the interior of the plates, adapted to enter the body of the trace and assist in securing the device in position thereon, substantially as set forth.

691,591. GEARING. ALEXANDER T. BROWN, Syracuse, N. Y. Filed Jan. 2, 1901. Serial No. 41,817. (No model.)



Claim.—1. In a differential gear, the combination of two alined shafts arranged end to end, two spur-gears disposed side by side and fixed respectively to the shafts, said spur-gears having their inner side faces provided with projecting hubs, a sleeve interposed between the main bodies of the spur-gears and closely fitting said hubs, a hollow power-transmitting member disconnected from the sleeve and arranged concentric with the shafts and the sleeve and formed with opposite side walls at

the outer sides of the peripheral faces of the spur-gears, and a pair of pinions interposed between the sleeve and the peripheral wall of the hollow power-transmitting member and having their ends supported by the side walls of the power-transmitting member and their axes disposed substantially parallel with the axes of the shafts, said pinions being engaged with each other and respectively engaged with the spur-gears, substantially as and for the purpose described.

2. In a differential gear, the combination of two alined driven shafts arranged end to end, two spur-gears disposed side by side and fixed respectively to the shafts, said spur-gears having their inner and outer side faces provided with projecting hubs, the end faces of the inner hubs being engaged with each other, a sleeve closely fitting the inner hubs of the spur-gears and having its end edges engaged with inner side faces of the main bodies of the spur-gears, a hollow power-transmitting member for driving both shafts, said member being disconnected from the sleeve and arranged concentric with the shafts and the sleeve and formed with opposite side walls loosely mounted on the outer hubs of the spur-gears, and a pair of pinions interposed between the sleeve and the peripheral wall of the hollow power-transmitting member and having their ends supported by the side walls of the power-transmitting member and their axes disposed substantially parallel with the axes of the shafts, said pinions being engaged with each other and respectively engaged with the spur-gears, substantially as and for the purpose described.

3. In a differential gear, the combination of two alined driven shafts arranged end to end, two spur-gears disposed side by side and fixed respectively to the shafts, said spur-gears having their outer side faces provided with projecting hubs, a hollow power-transmitting member for driving both shafts, said member being arranged concentric with the shafts and formed with opposite side walls loosely mounted on said hubs of the spur-gears, and having their inner faces provided with inwardly-extending hubs loosely mounted on said hubs of the spur-gears and engaged with outer side faces of the main bodies of the spur-gears, and a pair of pinions having their ends supported by the side walls of the power-transmitting member and their axes disposed substantially parallel with the axes of the shafts, said pinions being engaged with each other and respectively engaged with the spur-gears, substantially as and for the purpose specified.

4. In a differential gear, the combination of two alined shafts arranged end to end, two spur-gears disposed side by side and fixed respectively to the shafts, said spur-gears having their inner side faces provided with projecting hubs, a sleeve interposed between the main bodies of the spur-gears and closely fitting said hubs, a hollow power-transmitting member disconnected from the sleeve and arranged concentric with the shafts and the sleeve, said power-transmitting member being formed with opposite side walls at the outer sides of the peripheral faces of the spur-gears having their inner faces provided with inwardly-extending hubs engaged with outer side faces of the spur-gears, and a pair of pinions interposed between the sleeve and the peripheral wall of the hollow power-transmitting member and having their ends supported by the side walls of the power-transmitting member and their axes disposed substantially parallel with the axes of the shafts, said pinions being engaged with each other and respectively engaged with the spur-gears, substantially as and for the purpose specified.

5. In a differential gear, the combination of two alined driven shafts arranged end to end, two spur-gears disposed side by side and fixed respectively to the shafts, said spur-gears having their inner and outer side faces provided with projecting hubs, a sleeve closely fitting the inner hubs of the spur-gears and having its end edges engaged with inner side faces of the main bodies of the spur-gears, a hollow power-transmitting member for driving both shafts, said member being disconnected from the sleeve, arranged concentric with the shafts and the sleeve and formed with opposite side walls loosely mounted on the outer hubs of the spur-gears and having their inner faces provided with inwardly-extending hubs loosely mounted on said outer hubs of the spur-gears and engaged with outer side faces of the main bodies of the spur-gears, and a pair of pinions interposed between the sleeve and the peripheral wall of the hollow power-transmitting member and having their ends supported by the side walls of the power-transmitting member and their axes disposed substantially parallel with the axes of the shafts, said pinions being engaged with each other and respectively engaged with the spur-gears, substantially as and for the purpose set forth.

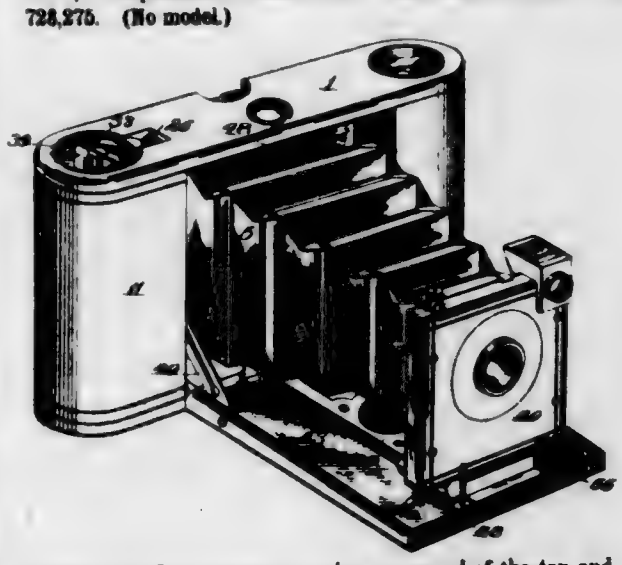
6. In a differential gear, the combination of two alined shafts arranged end to end, two spur-gears disposed side by side and fixed respectively to the shafts, a hollow power-transmitting member arranged concentric with the shafts and formed with a peripheral wall and opposite side walls disposed at the outer sides of the peripheral faces of the spur-gears, one of the side walls being separable from the corresponding end of the peripheral wall and being formed with a toothed periphery and a flange projecting from its inner face and lapped upon the contiguous portion of the periphery of said peripheral wall, and a pair of pinions having their ends supported by the side walls of the power-transmitting member and their axes disposed substantially parallel with the axes of the shafts, said pinions being engaged with each other and respectively engaged with the spur-gears, substantially as and for the purpose described.

7. In a differential gear, the combination of two alined shafts arranged end to end, two spur-gears disposed side by side and fixed respectively to the shafts, a hollow power-transmitting member arranged concentric with the shafts and formed with a peripheral wall and opposite side walls disposed at the outer sides of the peripheral faces of the spur-gears, the peripheral wall being fixed at one end to one of the side walls, and the opposite side wall being separable from the other end of the peripheral wall, and being formed with a toothed periphery and a flange projecting from its inner face and lapped upon the contiguous portion of the periphery of said peripheral wall, and a pair of pinions having their ends supported by the side walls of the power-transmitting member and their axes disposed substantially parallel with the axes of the shafts, said pinions being engaged with each other and respectively engaged with the spur-gears, substantially as and for the purpose described.

8. In a differential gear, the combination of two alined shafts arranged end to end, two spur-gears disposed side by side and fixed respectively to the shafts, a hollow power-transmitting member arranged concentric with the shafts and formed with a peripheral wall and opposite side walls disposed at the outer sides of the peripheral faces of the spur-gears, one of the side walls being formed with openings extending through its inner and outer faces, the peripheral wall being fixed at one end to said side wall and having its internal face formed with inwardly-projecting extensions, and the opposite side wall being separable from the other end of the peripheral wall and provided with a toothed periphery, openings extending through its inner and outer faces and a flange projecting from its inner face and lapped upon the contiguous portion of the periphery of said peripheral wall, a pair of spindles disposed substantially parallel with the axes of the shafts and having corresponding extremities fixed in the openings in one of the side walls of the power-transmitting member and their other extremities detachably arranged in the openings in the opposite side wall of said member, pinions mounted on the spindles and projecting between said extensions and engaged with each other and respectively engaged with the spur-gears, and means for securing the separable side wall to said extensions independently of the spindles, substantially as and for the purpose specified.

9. In a differential gear, the combination of two alined shafts, a hollow power-transmitting member arranged concentric with the shafts and having openings in opposite walls, two spur-gears mounted respectively on the shafts within the hollow power-transmitting member and having their adjacent sides provided with hubs and annular faces at the bases of the hubs, said gears having their outer sides provided with hubs projecting through said openings beyond the outer faces of said walls of the power-transmitting member, a sleeve engaging the peripheries of the hubs and having its end edges engaged with the annular faces, fastening members engaged with the shafts and the projecting ends of the hubs on the outer sides of the spur-gears, and a pair of pinions having their opposite ends supported by said walls of the power-transmitting member and their axes disposed substantially parallel with the axes of the shafts, said pinions being engaged with each other and respectively engaged with the spur-gears, substantially as and for the purpose set forth.

691,592. PHOTOGRAPHIC CAMERA. FRANK A. BROWNELL, Rochester, N. Y., assignor to the Eastman Kodak Company, Rochester, N. Y., a Corporation of New York. Filed Aug. 24, 1899. Serial No 728,275. (No model.)



Claim.—1. In a camera, a casing composed of the top and bottom plates, the integral metal plate bent to form the spool-chambers at the sides and extending toward the rear and having the central opening, the portion in front of the opening forming with the top and bottom plates a

central chamber for the bellows, a door hinged to the bottom plate and having a way thereon, and a removable back plate forming a light-tight joint with the rear edges of the top and bottom and the bent metal plates to inclose the film-chambers and the film-passage between them, in combination with the bellows attached to the edges of the central opening in the metal plate, a lens-board and the carriage on which it is mounted movable upon the ways on the door into and out of the central chamber.

2. In a camera-casing, the combination with the top and bottom plates, the single metal plate bent to form the film-chambers at the sides extending toward the rear at the center and provided with the central opening, the sides of the film-chambers and the top and bottom plates forming a central chamber for the bellows, of a bellows connected to the edges of the central aperture in the metal plate and adapted to fold into the central chamber, and a lens-support and lens at the forward end of the bellows.

3. In a camera, the combination with the camera-casing embodying the top and bottom plates having the grooves on their rear sides, the single metal plate having the central aperture near the rear of the casing and extending forward and then rearwardly to form the spool-chambers and having the recesses at the rear edges, of the removable cover-plate provided with the flanges at the edges adapted to enter the recesses in the top and bottom plates and in the ends of the bent metal plates to form a light-tight joint, and catches for securing said cover-plate in position.

4. In a camera, the combination with the casing having the film-chambers at the ends, and a passage between them, of the removable cover-plate adapted to cover the film-chambers and passage between them, having the spring-catches on opposite sides and arranged intermediate the film-chambers engaging the casing and adapted to be grasped and disengaged and the plate removed by the thumb and finger of the operator's hand.

5. In a film-holder, and as a means for holding and centering film-spools, the combination with the sleeve having the cam-slot in its side, of the revolubie and longitudinally-movable stud for engaging the spool, having the projection engaging the cam-slot, and the head, of the friction-spring engaging the stud-head and preventing its rotation to disengage the stud from the spool.

6. In a film-holder, and as a means for holding and centering film-spools, the combination with the sleeve having the cam-slot, of the rotatable and longitudinally-movable stud having the pin engaging in the cam-slot, and the head having the recess in its under side, the friction-spring engaging the recess in the pin-head and preventing accidental movement to disengage the stud from the spool.

7. In a film-holder, the combination with a spool-chamber, and movable spool-centering devices therein, of a flexible band connected to the chamber at one end on one side of the spool and having a free end on the other side of the spool adapted to be grasped to move the spool laterally from the chamber, when disengaged from the centering devices.

8. In a film-holder, the combination with a film-spool chamber and a cover or closure therefor, a spool centering and rotating stud movable longitudinally into and out of engagement with a spool in the chamber, of a catch located within and inclosed by the casing for engaging and preventing longitudinal movement of the stud and capable of disengagement only when the cover is removed.

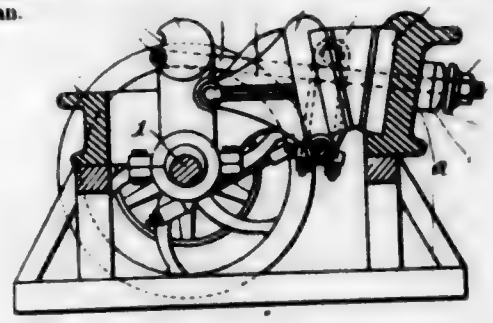
9. The combination with the casing having a film-spool chamber, and a cover therefor, of the longitudinally-movable and rotatable stud 29 having the operating-handle, and the collar 34, the movable catch 35 cooperating with the collar and adapted to be covered by the cover, when in place, thereby preventing the disengagement of the stud and spool.

10. In a camera having a spool-chamber, the combination with the plate 26 having the downwardly-extending end guided in the casing, and the spring for moving the plate, the spool-centering stud having the irregular-shaped head rotatable in the plate and having the handle, means for preventing the backward movement of the stud, of a spool-centering stud arranged at the opposite end of the spool-chamber.

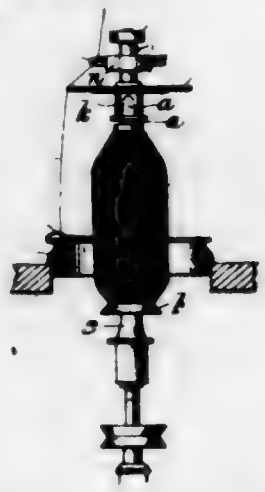
11. In a photographic-roll-holding device, the combination with a spool-winding stud or arbor having the handle, the irregular head and the disk 31 thereon, of a plate 322 having the tapering slots therein, the rollers in the slots, and the springs operating upon the rollers for forcing them into the narrow portions of the slots, thereby preventing backward rotation of the winding-key.

691,598. CRUSHING-MACHINE. MORTON G. BUSWELL, Chicago, Ill., assignor to Frederick C. Austin, Chicago, Ill. Filed May 5, 1899. Serial No. 715,714. (No model.)

Claim.—A crushing-machine comprising a rotary driving-shaft provided with an eccentric; a pitman arranged upon and extending upwardly from the eccentric, and actuated thereby; a vibratory crushing-jaw arranged forward of the pitman and supported by swinging links pivotally connected at their lower ends with the lower portion of the movable crushing-jaw, and having their upper ends pivotally supported upon the body-frame of the machine; a stationary crushing-jaw arranged opposite to and forward of the movable crushing-jaw and backed by the forward stationary part of the body-frame of the machine; a couple of vibratory tension-rods arranged as connections between the pitman and the stationary part of the body-frame and connected with the latter to swing about an axis forward of the movable jaw; means for adjusting the length of each rod between said axis and the connection of the rod with the pitman; means for permitting the connection between the vibratory tension-rods and pitman to be adjusted toward and away from the axis of the driving-shaft; and a power-transmitting arm arranged between the movable jaw and the pitman and connecting with the latter at a point between the axis of the driving-shaft and the point of connection between the tension-rods and the pitman.



691,594. TENSION-REGULATOR FOR SPINNING OR TWISTING MACHINES. ARTHUR C. BUTLER, Wollaston, Mass. Filed Feb. 15, 1901. Serial No. 47,430. (No model.)



Claim.—1. An attachment for spinning or twisting frames, comprising a shaft provided with means for attaching it to a revoluble body, and a governor or regulator, through which the yarn is passed to the bobbin, mounted upon said shaft loosely and capable of up-and-down movement on said shaft as the latter revolves, substantially as described.

2. An attachment for spinning or twisting frames, comprising a shaft, a split sleeve by which said shaft is applicable to a revoluble body, and a governor or regulator, through which the yarn is passed to the bobbin, mounted upon said shaft loosely and capable of an up-and-down movement on said shaft as the latter revolves, substantially as described.

3. An attachment for spinning or twisting frames, comprising a disk, and a shaft rising therefrom and provided with means for attachment to a revoluble body, and a governor or regulator, through which the yarn is passed to the bobbin, mounted upon said shaft loosely and capable of an up-and-down movement on said shaft as the latter revolves, substantially as described.

4. An attachment for spinning or twisting frames, comprising a disk, a shaft rising therefrom and provided with means of application to a revoluble body, and a governor or regulator, through which the yarn is passed to the bobbin, mounted upon said shaft loosely between the disk and a stop on said shaft, and capable of an up-and-down movement on said shaft as the latter revolves, substantially as described.

5. An attachment for spinning or twisting frames, comprising a shaft provided with means by which it is capable of direct application to a revoluble body so as to revolve therewith, and a yarn-tension governor or regulator mounted upon said shaft loosely, rotatable therewith and capable of an up-and-down movement upon it.

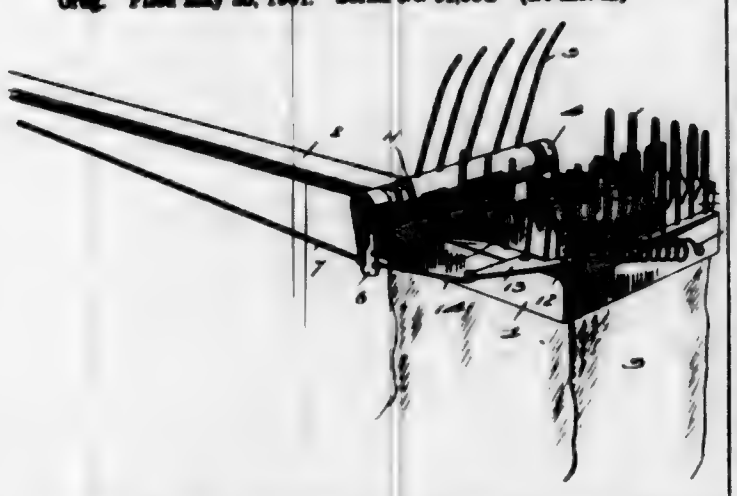
8. In a spinning or twisting frame, the combination of a rotatable disk, a hollow split sleeve projecting from the under side of said disk, an axle or shaft extending from the upper side of said disk, and a rotatable governor or regulator loosely mounted upon said shaft and adapted to rise and fall thereupon under strain of the yarn.

7. In a spinning or twisting frame, the combination of a rotatable disk, a hollow split sleeve projecting from the under side of said disk, an

axle or shaft extending from the upper side of said disk, and a rotatable governor or regulator loosely mounted upon said shaft and adapted to rise and fall thereupon under strain of the yarn and provided with a yarn clip or guide.

8. In a spinning or twisting frame, the combination of a rotatable disk, a hollow split sleeve projecting from the under side of said disk, an axle or shaft extending from the upper side of said disk, a rotatable governor or regulator loosely mounted and adapted to rise and fall thereupon under strain of the yarn and provided with a yarn clip or guide, and a detachable collar arranged upon the upper end of said axle or shaft to confine the said governor upon its shaft.

691,595. FRUIT-GATHERER. JAMES D. CARTER, Baker City, Oreg. Filed May 25, 1901. Serial No. 61,904. (No model.)



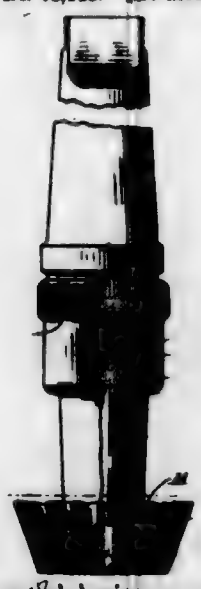
Claim.—1. The combination with a frame; of prongs extending from the sides thereof, cutter-bars slidably mounted on the sides, and means for operating the bars in unison.

2. The combination with a frame; of slotted prongs extending from the sides thereof, cutter-bars slidably mounted in the slots, a rod for operating the bars in unison, and means for returning the parts to normal position.

3. The combination with a frame, of a roller journaled on one side thereof, prongs extending therefrom, prongs extending from the frame, a cutter-bar slidably mounted upon the frame, and means for swinging the roller-prongs downward and operating the cutter-bar in unison.

4. The combination with a frame, of a roller journaled on one side thereof, prongs extending therefrom, prongs extending from the frame, cutter-bars slidably mounted upon the frame, an arm to the roller, a rod connecting said arm and one of the bars, a bell-crank lever upon the frame, rods connecting the ends of the lever to the roller-arm and a cutter-bar respectively, a spring secured to the lever and frame, and means for swinging the roller-arm.

691,596. ROTARY TOOL. FRED D. CHAMBERS, Washington, D. C., assignor of one-fourth to Frank S. Beatty, Washington, D. C. Filed Oct. 9, 1901. Serial No. 78,113. (No model.)



Claim.—1. A rotary tool, having a central bore adapted to fit the non-circular end of an arbor and provided with an interrupted flange in combination with an arbor, a sleeve carried by the arbor, having at its lower end an interrupted flange adapted to engage the flange of the tool and means for securing the sleeve to the arbor; substantially as described.

2. A rotary tool, having a central bore adapted to fit the non-circular end of an arbor and provided with an interrupted flange in combination with an arbor formed in the rear face of the tool, a sleeve carried by the arbor having at its lower end an outwardly-turned interrupted flange adapted to engage the flange of the tool and means for securing the sleeve to the arbor; substantially as described.

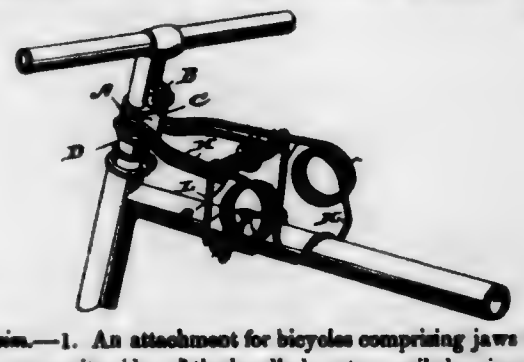
3. A rotary tool having a central bore adapted to fit the non-circular end of an arbor and provided with an interrupted flange, in combination with an arbor, a sleeve carried by the arbor having at its lower end an interrupted flange adapted to engage the flange of the tool, a stop carried by the sleeve and means for securing the sleeve to the arbor; substantially as described.

4. A rotary tool having a central bore adapted to fit the non-circular end of an arbor and provided with an interrupted flange, in combination with an arbor having a tapered portion above its non-circular end, a tapered sleeve carried by the arbor having at its lower end an interrupted flange adapted to engage the flange of the tool, and means for securing the sleeve to the arbor; substantially as described.

5. A rotary tool having a central bore adapted to fit the non-circular end of an arbor, and provided with an interrupted flange in combination with an arbor, a sleeve carried by the arbor having at its lower end an interrupted flange adapted to engage the flange of the tool and having a flange at its upper end, of a second sleeve having a flange adapted to engage the upper flange of the first sleeve and engaging screw-threads on the arbor; substantially as described.

6. A rotary tool having a central bore adapted to fit the non-circular end of an arbor, and provided with an interrupted flange, in combination with an arbor having a tapered portion above the non-circular end, a tapered sleeve carried by the arbor, having at its lower end an interrupted flange adapted to engage the flange of the tool and having a flange at its upper end, of a second sleeve having a flange adapted to engage the upper flange of the first sleeve and engaging screw-threads on the arbor; substantially as described.

691,597. BICYCLE ATTACHMENT. ANDREW P. CHRISTIANSEN, Gardnerville, Nev. Filed Mar. 2, 1901. Serial No. 53,060. (No model.)



Claim.—1. An attachment for bicycles comprising jaws adapted to engage on opposite sides of the handle-bar stem, coiled springs connected at their outer ends to the said jaws, stems upon which said springs are positioned, said stems having headed outer ends and oppositely-threaded inner ends, an adjusting-nut receiving the threaded ends of the stems, and means for attaching the device to the frame of a bicycle, substantially as described.

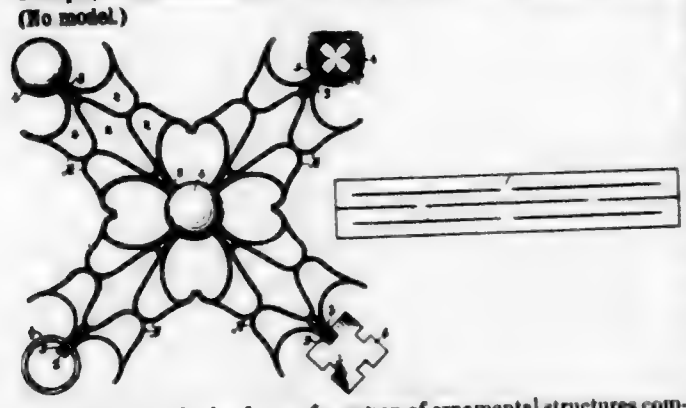
2. An attachment for bicycles comprising a pair of spring-jaws to engage on opposite sides of the handle-bar stem, said jaws formed of a single piece of wire having convolutions formed at their inner ends, and provided at said inner ends with a connecting portion having a spring-loop to embrace the bar of the bicycle-frame, and having downwardly-extending arms intermediately of their ends, the ends of which are screw-threaded, a separable clasp to be positioned upon the bar of the bicycle-frame having the sections thereof formed with perforated ears through which the threaded ends of the arms extend, nuts upon said threaded ends, springs connecting the jaws at the upper ends of said arms, and means for adjusting said springs, substantially as described.

3. An attachment for bicycles comprising a pair of yieldable jaws arranged to engage opposite sides of the handle-bar stem, a connection for uniting the jaws, having a loop to engage the framing of the bicycle, said arms depending from the jaws constituting a means whereby the attachment can be secured to the framework of a bicycle, substantially as described.

4. An attachment for bicycles comprising a pair of yieldable jaws arranged to engage opposite sides of the handle-bar stem, a connection for uniting the jaws, having a loop to engage the framing of the bicycle, and arms depending from the jaws constituting a means whereby the attachment can be secured to the framework of a bicycle, the whole being made of wire in one piece, substantially as described.

5. An attachment for bicycles comprising a pair of jaws arranged to engage opposite sides of the handle-bar stem, convolutions at the rear of the jaws, a transverse member uniting the convolutions having a loop, said loop and convolutions serving to unite the jaws and arms depending from the jaws, the whole being made of wire, substantially as described.

691,598. DEVICE FOR FORMING ORNAMENTAL STRUCTURES. LOUIS R. CHRISTOPHERSON, Stockton, Cal., assignor of one-half to M. M. Gillespie, San Francisco, Cal. Filed May 6, 1901. Serial No. 58,869. (No model.)



Claim.—1. A device for the formation of ornamental structures comprising a strip of flexible material slit longitudinally and having the sides stretched transversely of the strip, and means independent of said strip for uniting the transverse sides formed by the slits.

2. A device for the manufacture of ornamental structures including a flexible strip having parallel lines of cuts and with the cuts in each line opposite the spaces between the cuts of adjacent lines, said strip having the sides stretched transversely to the line of cuts, and unions independent of the strip and uniting the transverse sides thereof.

3. A device for the formation of ornamental structures including a series of flexible strips having longitudinal slits, said strips having their sides stretched transversely, and unions or connections to which the sides of the strips are secured to insure a permanent form of the completed structure.

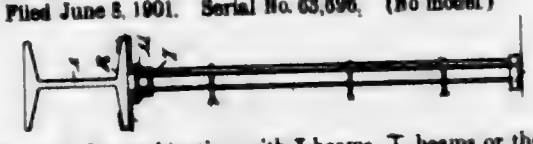
4. A device for the formation of ornamental structures consisting of a series of flexible strips with longitudinal openings or spaces, the spaces in each line being opposite the connected portions of the next adjacent lines and the side portions of the strips being stretched or opened transversely of the lines, and means connecting the sides of said strips in series and multiple.

5. A device consisting of parallel strips having longitudinal lines of separation, the sides of the strips being transversely stretched to form open spaces each standing opposite the connections between the next adjacent lines, and the sides folded, and connections having openings or slots into which the folded sides of the strips are inserted and secured.

6. A device for the formation of ornamental structures consisting of strips with parallel longitudinal slits the central portion of each slit standing opposite the closed portion or connection of the adjacent lines of slits, said strips having the sides stretched transversely to form open spaces and the sides of the strips folded upon themselves, uniting devices having holes or slots into which said folded portions are inserted, and means for securing the folds therein.

7. Flexible strips having lines of slits, said strips having their sides expanded transversely, and unions or connections by which the sides of said strips are connected, and the forms or ornamentation shaped and determined.

691,599. STEEL CONSTRUCTION. HARRY C. CLARK, Bellevue, Pa. Filed June 8, 1901. Serial No. 63,696. (No model.)



Claim.—1. In combination with I-beams, T-beams or the like, an apertured hanger, channel-bars or angle-irons extending through said apertured hanger, said hanger being clamped to the said I-beams, T-beams or the like, a bolt extending through both sides of said hanger above said channel-bars or angle-irons and parallel with said I-beams, T-beams or the like, an apertured yoke engaging the other end of said channel-bars or angle-irons, outwardly-extending flanges made integral with said yoke and adapted to engage the floor, ceiling or the like, and means for securing said flanges to the floor, ceiling or the like, substantially as described.

2. In steel, iron or wood construction, the combination with I-beams, T-beams or the like, a hanger formed of three pieces adapted to clamp said I or T beams, a channel-bar extending into said hanger directly below said I or T beams, and a yoke to receive the lower end of said channel-bar or angle-iron, substantially as described.

3. In combination with I-beams, and T-beams or the like, an apertured hanger clamped thereto, angle-irons or channel-bars secured in said apertured hanger, a bolt passing through said hanger between the under face of said I-beams, T-beams or the like and the upper end of said angle-irons or channel-bars, and a yoke carrying flanges engaging the other end of said channel-bars or angle-irons, the said flanges secured to the floor or ceiling, substantially as described.

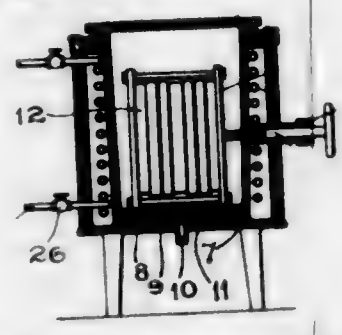
4. In steel, iron or wood construction, the combination of a hanger formed in three parts, and means to secure said parts together, of an I-beam attached to said hanger, a channel-bar or angle-iron secured in said hanger, and a yoke to receive the other end of said channel-bar or angle-iron, all parts being arranged and operating substantially as shown and described.

5. In steel, iron or wood construction, the combination with I or T beams or the like, and channel-bars, angle-irons or the like, of a hanger comprising three parts, one of said parts being apertured and adapted to receive the channel-bars and angle-irons, the other of said parts adapted to be secured to each side of said first-named part and adapted to engage said I or T beams, and means secured to the lower end of said channel-bars or angle-irons, for holding the same in position, substantially as described.

6. In steel, iron or wood construction, the combination with channel-bars, angle-irons or the like, of I or T beams or the like, a hanger formed in three parts, said parts adapted to secure said beams to the channel-bars, angle-irons or the like, means secured above said channel-bars, or angle irons for securing said hanger together, and an apertured yoke secured to the lower end of said channel-bars, angle-irons or the like, substantially as described.

7. In steel, iron or wood construction, the combination with I-beams, T-beams or the like, of a hanger formed of pieces adapted to clamp said I or T beams, a channel-bar extending into said hanger, means for clamping said hanger to said I or T beams and said channel-bar, and an apertured yoke engaging the other end of said channel-bar and suitably secured to the floor or ceiling, substantially as described.

691,600. MANUFACTURE OF ELECTRICAL CONDENSERS. JESSE COATES, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Jan. 2, 1901. Renewed Aug. 9, 1901. Serial No. 71,533. (No model.)



Claim.—1. The method of impregnating an absorbent body, which consists in drying the same, removing gaseous bodies confined in the body, filling the body with molten insulating material through the action of capillary attraction, then cooling the body in such a manner that insulating fluid at its edges is the last to solidify.

2. The method of treating an absorbent body which consists in filling it with molten insulating material and then cooling the same so that the insulating fluid at the edges of the body is the last to solidify.

3. The method of treating an absorbent body which consists in filling it with molten insulating material, cooling the same so that the insulating fluid at the edges of the body is the last to solidify, and applying pressure to the body as the cooling progresses.

4. The method of treating an absorbent body which consists in submerging the body in molten insulating material and then cooling the mass by first abstracting heat from its interior.

5. The method of treating an absorbent body which consists in filling the body with molten insulating material through the action of capillary attraction, and then cooling the body so that fluid in contact with its exposed surface is the last to solidify.

6. The method of removing gaseous bodies or vapors from a condenser or other absorbent body which consists in maintaining a more or less perfect vacuum about the same and from time to time compressing the condenser or other body and then discontinuing the compression.

7. The method of treating condensers which consists in assembling them in a bunch, filling them with molten insulating material by the action of capillary attraction, and cooling by abstracting heat chiefly from the interior of the bunch.

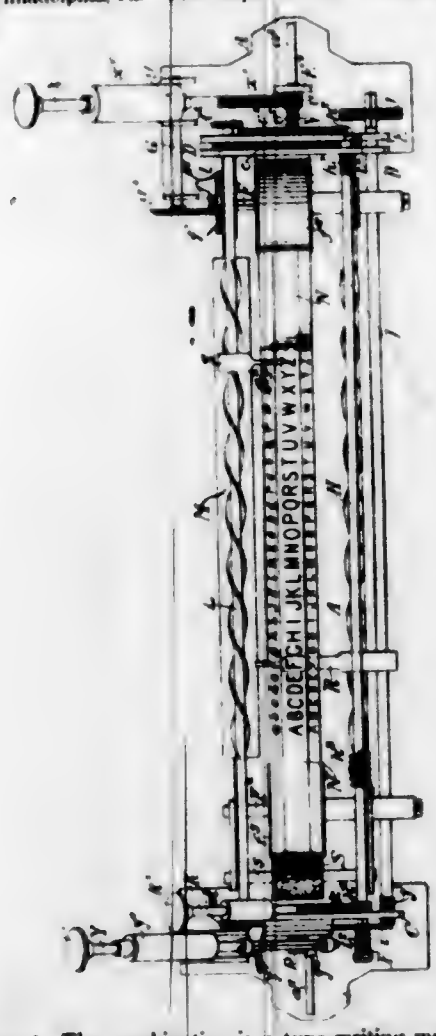
8. The method of treating condensers which consists in assembling them in a bunch, submerging them in molten insulating fluid, and then cooling the bunch from its interior so that insulating fluid about the bunch is the last to solidify.

9. The method of treating condensers which consists in assembling them in a bunch, submerging them in molten insulating fluid while in vacuum, and then cooling the bunch from its interior so that insulating fluid about the bunch is the last to solidify.

10. The method of treating condensers which consists in assembling

them in a bunch, submerging them in molten insulating fluid and cooling the bunch from its interior and from its bottom.

691,601. TYPE-WRITER. THOMAS CORRENTINO and FRANK PALOMBO, Philadelphia, Pa. Filed Sept. 21, 1901. Serial No. 76,030. (No model.)



Claim.—1. The combination in a type-writing machine, of a supporting-frame, a band carrying type, a striker constructed to cause type on the band to make an impression on a sheet of material, with means for moving the type-carrying band in a substantially horizontal plane between said sheet and the striker, means for moving the striker forward in a line substantially parallel to the line of motion of the type-band and means for operating the striker, substantially as described.

2. The combination in a type-writing machine, of a supporting-frame, a type-carrying band, a striker constructed to cause type on the band to make an impression on a sheet of material, means for moving said band longitudinally in a substantially horizontal plane, and means for moving it laterally, with mechanism for operating the striker, and means for moving the striker forward in a line substantially parallel to the line of motion of the type-band after each stroke, substantially as described.

3. The combination in a type-writing machine, of a frame, a striker movable thereon, an endless band carrying type, extending in a horizontal plane between the striker and a sheet of material to be printed, means for moving the striker forward after each character printed, means for moving the type-carrying band parallel to said sheet of material to change the character under the striker, and a pointer constructed to indicate upon said band the character under the striker, with means for causing said striker to hit the type-carrying band, substantially as described.

4. The combination in a type-writing machine, of a frame, an endless band carrying type supported by said frame, a set of characters on the band similar to the type, a striker, mechanism constructed to cause said striker to press the type on the band against a sheet of material to be printed upon, and a pointer, with mechanism constructed to cause said pointer to indicate upon the set of characters on the said type-band the letter or character of type simultaneously under the striker, substantially as described.

5. In a type-writing machine, the combination of a frame, a striker and a type-carrying band, means for moving said band in a substantially horizontal plane between the striker and a sheet of material to be printed upon, a pointer constructed to indicate upon the band the type under the striker, means for causing the striker to press the type under it against the material to be printed and means for moving forward the striker after it has struck the band, substantially as described.

6. The combination in a type-writing machine, of a frame, a type-carrying band, a striker constructed to press a character on the band against a piece of material to be printed upon, means for moving the band longitudinally, a shaft carrying a device constructed to engage the end of the striker and to afterward release it as said shaft is revolved, with means for moving forward the striker after it has been engaged by the device on said shaft, substantially as described.

7. The combination of a frame, a striker and a pointer geared together so as to move in unison, a type-carrying band having on it two sets of similar characters, means for moving the band relatively to the pointer and to the striker, the characters being disposed on said band so that the pointer indicates the type under the striker, with means for moving the striker and pointer after each character printed by the striker, substantially as described.

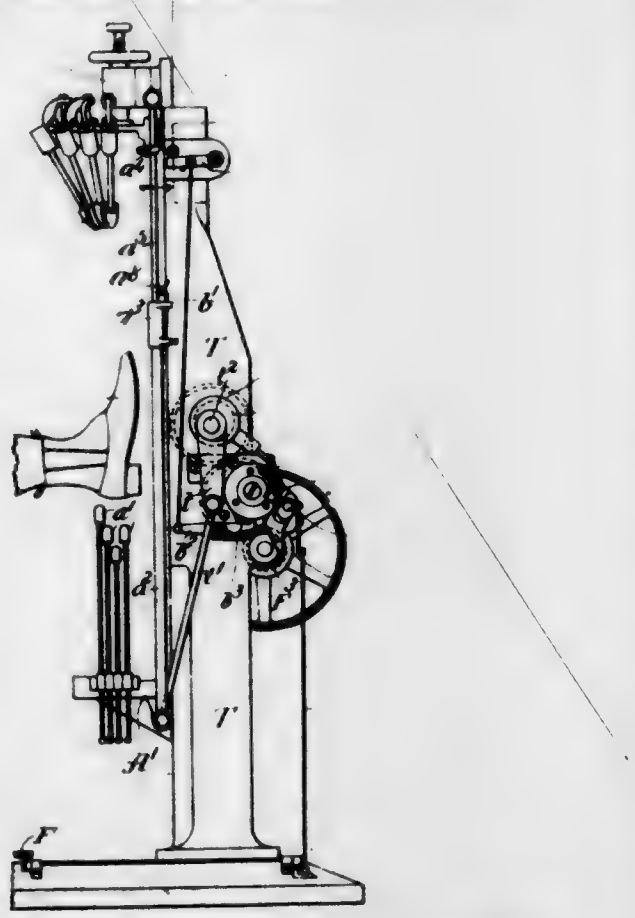
8. In a type-writing machine the combination of a frame, a band carrying different styles of type, a striker for pressing the type against a sheet of material to be printed upon, means for operating the striker, means for moving the type-carrying band longitudinally, means for moving it laterally whereby any of the styles of type upon the band are brought under the striker and means for simultaneously moving forward both the striker and the pointer after each operation of the striker, substantially as described.

9. The combination in a type-writing machine, of a frame, a band carrying type having also on it a printed set of characters corresponding to the said type, said band being mounted on rollers, threaded shafts carrying a pointer and a striker respectively, the pointer being placed to indicate the printed character corresponding to the type simultaneously under the striker, with means for revolving the rollers and for turning the said threaded shafts, substantially as described.

10. In a type-writing machine, the combination of a frame, a threaded shaft and a paddle-shaft mounted thereon, rollers journaled on said frame, a type-carrying band supported on said rollers, a striker adapted to be moved horizontally by the threaded shafts, said striker being constructed to be engaged by the paddle-shaft and made to press against the type-band when said shaft is turned, with a device for turning the paddle-shaft and the screw-shafts and a second device for moving the type-band, substantially as described.

11. The combination of a frame, two screw-shafts mounted in bearings thereon, a band carrying type, rollers supporting the same, a striker and a pointer constructed to be moved by the screw-shafts, reciprocable plungers mounted on the frame, gearing connecting the screw-shafts with one of said plungers and means for operating the striker connected to another of the plungers, substantially as described.

691,602. MACHINE FOR TREEING BOOTS OR SHOES. WILLIAM A. COPELAND, Malden, and GOODHUE JONES and HARRIE A. BALLARD, South Framingham, Mass., assignors to the Copeland Boot and Shoe Treeing Company, Portland, Me., a Corporation of Maine. Filed May 24, 1898. Serial No. 681,583. (No model.)



Claim.—1. In a treeing-machine the combination of two carriers; means to reciprocate them as one; and means to stop the second and

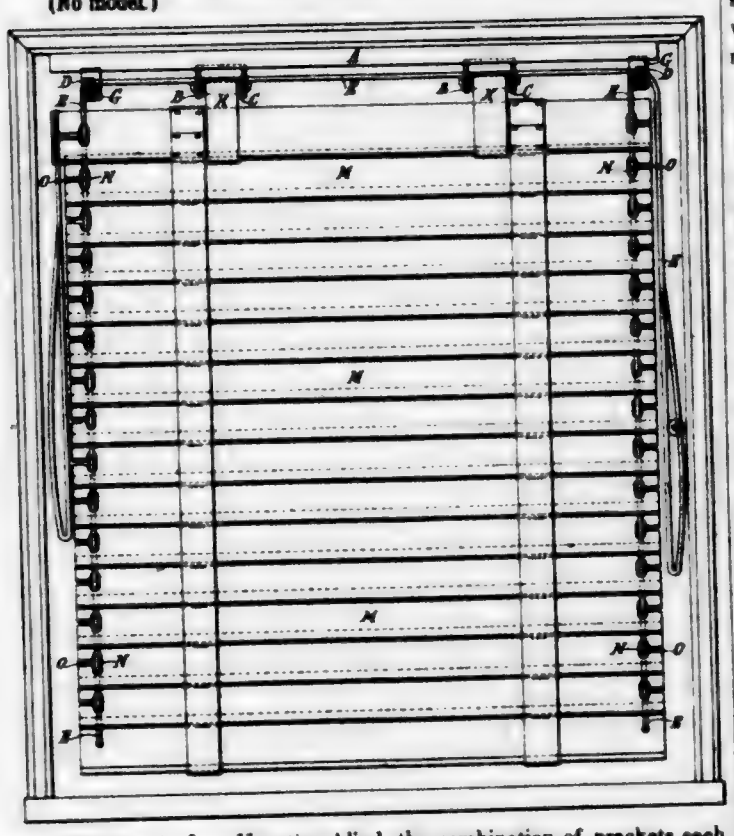
move the first away from the second, and then stop the first, all substantially as described.

2. In a treeing-machine the combination of two carriers; means to reciprocate the first carrier; means to free the second carrier and leave it under control of the first when they are to reciprocate together; and means to lock the second carrier in place when it is to be disconnected from the first carrier; all substantially as described.

3. In a treeing-machine the combination of two carriers; means to reciprocate the first; a yielding catch to connect the first carrier with the second; and means to lock the second carrier in place, when the second carrier is to be stopped; the catch yielding as the first carrier is moved away from the second; all substantially as described.

4. In a treeing-machine the combination of two carriers; means to reciprocate them as one and automatic mechanism which disconnects them after a predetermined number of reciprocations, separates them, and stops them at the predetermined distance apart, all substantially as described.

691,603. VENETIAN OR LIKE BLIND. ROBERT G. COVENEY, county of Surrey, England. Filed June 10, 1901. Serial No. 63,923. (No model.)



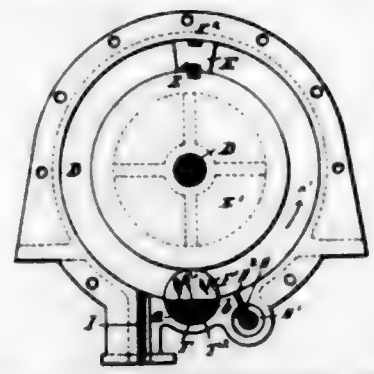
Claim.—1. In a Venetian blind, the combination of brackets each provided with a plurality of depending parallel arms having inverted-L-shaped slots in transverse alinement, the horizontal portions of the slots being open and said open ends facing the forward side of the blind, rollers having necks removably fitted in said slots and normally rotative in the vertical positions thereof, tapes suspended from the rollers, laths carried by the tapes, other brackets between which said first-mentioned brackets are located and having depending arms provided with inverted-L-shaped slots in alinement with each other, the horizontal portions of the slots in the respective last-mentioned brackets being open and the open ends facing in opposite directions and outwardly and said last-mentioned brackets being disposed transversely to the other brackets, rollers having necks carried in the vertical portions of the slots of said last-mentioned brackets, and elevating cords for the last-mentioned rollers.

2. In a Venetian blind, a lath having a transverse slot therein formed near each end and straight longitudinal slots extending from the ends of the lath substantially midway thereof and extending substantially to the centers of the respective transverse slots.

691,604. ROTARY ENGINE. CHARLES CROOK, Jr., Brooklyn, N. Y., assignor to Luther S. Bush, New York, N. Y. Filed Oct. 16, 1900. Serial No. 33,197. (No model.)

Claim.—1. In a rotary engine, the combination with a base, having ledges, of cylinder-shells having lugs projecting beyond the peripheries of the shells and resting on said ledges, said ledges being entirely outside of the outer periphery of the shells, substantially as herein shown and described.

2. In a rotary engine, the combination with a base having ledges, of cylinder-shells resting vertically on said ledges and movable laterally toward and from each other on said ledges, lugs on said shells which lugs extend beyond the periphery of the shells and rest upon said ledges, a piston between the shells, a main shaft on which the piston is secured and a standard on said base on which standard the main shaft is mounted, substantially as herein shown and described.



3. In a rotary engine, the combination with a cylinder and a rotary piston therein, of a recessed cylindrical abutment, mounted to rotate axially in the cylinder and in the outer cylinder-wall, a pinion on one end of said abutment, a segment-rack engaging said pinion and mounted to swing on the engine main shaft, a cam on the main shaft, a pivoted lever engaged by said cam and a link connecting the swinging segment-rack with said pivoted lever, substantially as herein shown and described.

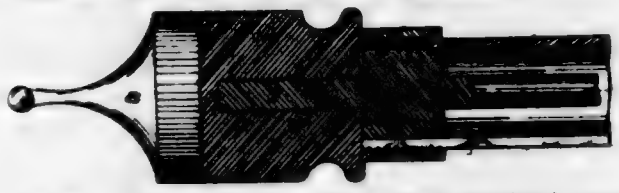
4. In a rotary engine, the combination with a cylinder and a rotary piston therein, of a main shaft carrying the piston, a recessed cylindrical abutment mounted parallel with the main shaft in the cylinder and a recess in the outer wall of the cylinder, means for turning said abutment axially to and fro from the main shaft and two longitudinal packing-strips in said abutment and separated a distance less than the length of the arc of the recess in the outer wall, in which the abutment rotates, substantially as herein shown and described.

5. In a rotary engine the combination with a cylinder and a rotary piston therein, of a recessed cylindrical abutment, mounted to rotate axially parallel with the axis of the rotary piston in the cylinder and a recess in the outer cylinder-wall said abutment having a steam-duct the ends of which are in the periphery of the abutment, and which can register with steam-ducts in the cylinder-wall and an adjustable valve on the cylinder-wall for controlling the steam-ducts in the cylinder-wall and extending over an exhaust-port between said steam-ports, substantially as herein shown and described.

6. In a rotary engine the combination with a cylinder and a rotary piston therein, of a steam-chest on said cylinder, an adjustable valve in said chest, a duct extending from the steam-chest to an exhaust-channel in the cylinder-wall, a recessed cylindrical abutment mounted to rotate parallel with the piston-axis in a recess in the outer cylinder-wall and in the cylinder, said abutment having a steam-duct, the ends of which are in the periphery of the abutment, steam-ducts extending from the recess in which the abutment rotates to the steam-chest, such ducts as well as the exhaust-duct located between the steam-ducts being controlled by the valve in the steam-chest, substantially as herein shown and described.

7. In a rotary engine the combination with a cylinder and a rotary piston therein, of a steam-chest on said cylinder, an adjustable valve in said chest, a duct extending from the steam-chest to an exhaust-channel in the cylinder-wall, a recessed cylindrical abutment mounted to rotate parallel with the piston-axis in a recess in the outer cylinder-wall and in the cylinder, said abutment having a steam-duct, the ends of which are in the periphery of the abutment, steam-ducts extending from the recess in which the abutment rotates to the steam-chest and a duct extending from the steam-chest to the cylinder, such ducts as well as the exhaust-duct being controlled by the valve in the steam-chest, substantially as herein shown and described.

691,605. CURTAIN-POLE. ANNA M. H. CULP, Dravosburg, Pa. Filed Oct. 31, 1901. Serial No. 80,692. (No model.)



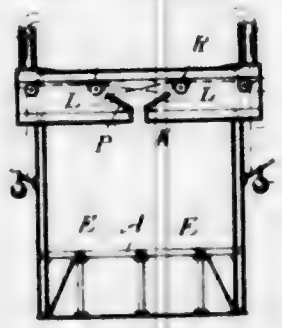
Claim.—1. In combination with a hollow cylindrical curtain-pole slotted throughout its length along the underneath side, of a curtain-supporting rod having integral cylindrical bushings or bosses formed thereon to fit the bore of the pole, integral extensions carried by said bushings or bosses to receive the knobs, and sleeves threaded on the pole to bind the latter on the bushings, substantially as described.

2. In combination with a hollow curtain-pole slotted throughout its length along the underneath side, a curtain-supporting rod having integral bushings or bosses adapted to fit the interior of the curtain-pole and

having integral extensions to receive the curtain-knobs, and binding-sleeves mounted on the ends of the pole, substantially as described.

3. In combination with a hollow pole slotted from end to end along its underneath face and exteriorly threaded at its ends, a curtain-supporting rod having bushings or bosses to fit the interior of the pole, extensions carried by the rod to receive curtain-knobs, and sleeves threaded upon the pole to bind the latter on the bushings or bosses, substantially as described.

691,606. DRY-KILN. JOHN J. CURRAN, Chicago, Ill. Filed Nov. 27, 1901. Serial No. 83,907. (No model.)



Claim.—1. A drying-kiln, comprising a drying-chamber, an exhaust-compartment, positioned above the drying-chamber, and having a communicating passage-way therewith, hinged and counterbalanced doors, coverings, for said doors, of absorbent material, which are adapted to absorb moisture and cause the doors to open communication between the drying-chamber and the exhaust-compartment, said doors being adapted to close, as the quantity of moisture in the compartment decreases, and evaporates from said covering, as set forth.

2. In a drying-kiln, a drying-chamber, an exhaust-compartment with a communicating passage-way leading to said chamber, hinged and counterbalanced doors, coverings, for said doors, of an absorbent material, adapted to absorb moisture coming from the drying-chamber, and causing the doors to be automatically opened, and automatically-operated ventilators in the roof of said exhaust-compartment, as set forth.

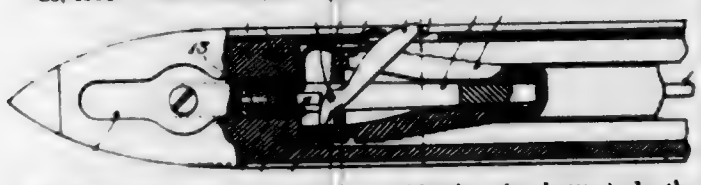
3. A drying-kiln, comprising a drying-chamber, an exhaust-compartment, having a passage-way communicating with the drying-chamber, hinged and counterbalanced doors, coverings of absorbent material on the adjacent faces of said doors, which coverings are adapted to absorb moisture from the drying-chamber, whereby the doors will automatically open, as set forth.

4. In a drying-kiln, a heating-chamber, an exhaust-compartment, a communicating passage-way between same and said drying-chamber, hinged and counterbalanced doors, coverings of absorbent material for said doors, the opposite sides of said exhaust-compartment extending beyond the side walls of the drying-chamber, and automatically-operating ventilators passing through the roof of the exhaust-compartment, adjacent to the opposite sides thereof, as set forth.

5. In a drying-kiln, a drying-chamber, an exhaust-compartment above the drying-chamber and a passage-way communicating therewith, hinged and counterbalanced doors on the opposite edges of said passage-way, the free longitudinal edges of said doors adapted to swing against the ceiling of the exhaust-compartment, to normally close communication between the drying-chamber and the exhaust-compartment, and coverings of absorbent material for the doors, for absorbing moisture, whereby the doors may be automatically opened, and closed as the moisture evaporates from said covering, and automatic ventilators in the roof of the condensing-compartment, as set forth.

6. A drying-kiln, having a drying-chamber, an exhaust-compartment having a communicating passage-way with the drying-chamber, hinged doors on opposite sides of said passage-way, absorbent coverings for the adjacent faces of said doors, pulleys mounted within the exhaust-compartment, pivoted arms on the wall of the drying-chamber, weighted members carried by said arms, and chain connections between the free longitudinal edges of said doors and said pivoted arms, as set forth.

691,607. LOOM-SHUTTLE. EDWARD W. DAVENPORT and HENRY BARDSLEY, Providence, R. I., assignors to Crompton & Knowles Loom Works, Providence, R. I., a Corporation of Rhode Island. Filed Sept. 25, 1901. Serial No. 76,462. (No model.)



Claim.—1. In a loom-shuttle, in combination, the shuttle-body, the shuttle-spindle, the feeler pivotally connected to the shuttle-spindle and adapted to be confined in an abnormal position by a yarn-load exterior to the shuttle-spindle, and the spring-actuated plunger by which said feeler is operated.

2. In a loom-shuttle, in combination, the shuttle-body, the slotted shuttle-spindle, the feeler pivotally mounted in the slot of the shuttle-spindle and adapted to be confined in an abnormal position by a yarn-load exterior to the shuttle-spindle, and the spring-actuated presser by which said feeler is operated, movable longitudinally of the shuttle-spindle.

3. In a loom-shuttle, in combination, the shuttle-body, the shuttle-spindle having a longitudinal passage, the feeler pivotally connected to the shuttle-spindle and adapted to be confined in an abnormal position by a yarn-load exterior to the shuttle-spindle, and the spring-actuated plunger contained in said longitudinal passage and operating said feeler.

4. In a loom-shuttle, in combination, the shuttle-body, the shuttle-spindle, the slotted bobbin, the feeler pivotally connected to the shuttle-spindle and working in the slot of the bobbin, and the spring-actuated presser by which said feeler is operated, movable longitudinally of the shuttle-spindle.

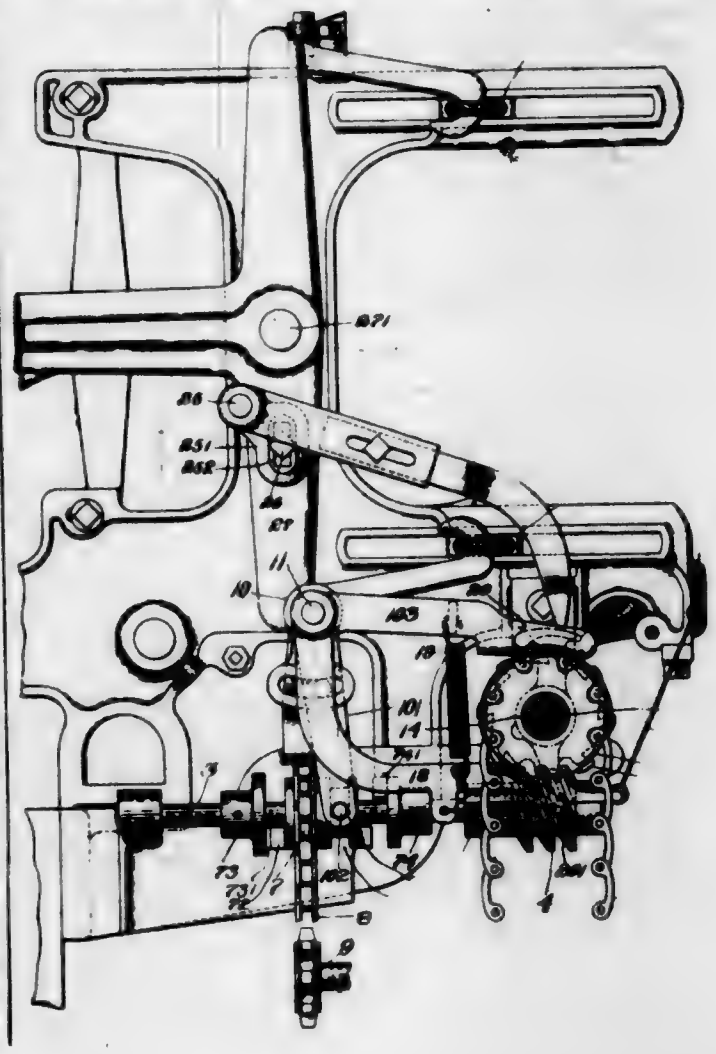
5. In a loom-shuttle, in combination, the shuttle-body, the shuttle-spindle having a longitudinal passage, the feeler pivotally connected to the shuttle-spindle and working in the slot of the bobbin, and the spring-actuated plunger contained in said longitudinal passage and operating said feeler.

6. In a loom-shuttle, in combination, the shuttle-body, the slotted shuttle-spindle, the slotted bobbin, the feeler pivoted in the slot of the spindle and working in the slot of the bobbin, and the spring-actuated presser by which said feeler is operated, movable longitudinally of the shuttle-spindle.

7. In a loom-shuttle, in combination, the shuttle-body, the shuttle-spindle, the spring-actuated feeler pivoted to the shuttle-spindle and adapted to be confined in an abnormal position by a yarn-load exterior to the shuttle-spindle, and the closing-cam whereby said feeler is moved into line with the shuttle-spindle as the latter is elevated.

8. In a loom-shuttle, in combination, the shuttle-body, the shuttle-spindle, the feeler pivoted to the shuttle-spindle and adapted to be confined in an abnormal position by a yarn-load exterior to the shuttle-spindle, the spring-actuated presser or plunger acting against said feeler, and the closing-cam whereby said feeler is moved into line with the shuttle-spindle as the latter is elevated.

691,608. PATTERN MECHANISM FOR LOOMS. EDWARD W. DAVENPORT and HENRY BARDSLEY, Providence, R. I., assignors to Crompton & Knowles Loom Works, Providence, R. I., a Corporation of Rhode Island. Filed Sept. 25, 1901. Serial No. 76,463. (No model.)



Claim.—1. In pattern mechanism for looms, in combination, a pattern-cylinder, a worm-drive therefor having a clutch in its operative train, a second pattern-cylinder, a shipper or shifter for said clutch controlled by the indicators of said second pattern-cylinder, pawl-and-ratchet devices for operating said second pattern-cylinder, and a pawl-shield under operative control of the indicators of the pattern-cylinder first mentioned, substantially as described.

2. In pattern mechanism for loom-dobbies, in combination, a pattern-cylinder, a worm-wheel in connection therewith, a worm engaging said worm-wheel, a worm-shaft provided with a clutch, a second pattern-cylinder, a shipper or shifter for said clutch controlled by the indicators of said pattern-cylinder, a ratchet connected with said second pattern-cylinder, a pawl to actuate said ratchet, the lifter-actuating rocker having said pawl connected therewith, the pawl-shield, and a pattern-finger operated by the indicators of the pattern-cylinder first mentioned and connected with said pawl-shield, to control the position of the latter, substantially as described.

3. In a two-weave motion for double-index dobbies, in combination, the two lifters, actuating means for the same, the pattern-chain, a worm-drive for operating said pattern-chain, and controlling means for said worm-drive to effect a reversal of the time relations of the advance of the respective bars of the said pattern-chain with reference to the movements of the respective lifters or knives, substantially as described.

4. In a two-weave motion for double-index dobbies, in combination, the two lifters, actuating means for the same, the pattern-chain, a worm-drive for operating said pattern-chain, and controlling means for said worm-drive to cause a dwell of the pattern-chain for one pick in order to effect the change from one pattern to the other, substantially as described.

5. In a two-weave motion for double-index dobbies, in combination the two lifters, actuating means for the same, the pattern-chain, a worm-drive for operating said pattern-chain, and controlling means for said worm-drive operating to occasion a change in the timing of the movements of the pattern-cylinder relative to the movements of the respective lifters or knives corresponding with the interval between two picks of the loom, substantially as described.

6. In a two-weave motion for double-index dobbies, in combination, the two lifters, actuating means for the same, the pattern-chain, operating means for said pattern-chain including a clutch having two sets of interacting clutch projections arranged to act with a difference of timing corresponding with the interval between two picks of the loom, and controlling means to occasion the operation of said clutch, substantially as described.

7. In a two-weave motion for double-index dobbies, in combination, the two lifters, means for actuating the same, the pattern-chain, operating means for said pattern-chain including a clutch having two sets of interacting clutch projections arranged to act with a difference of timing corresponding with the interval between two picks of the loom, and master pattern devices in operative control of the said clutch, substantially as described.

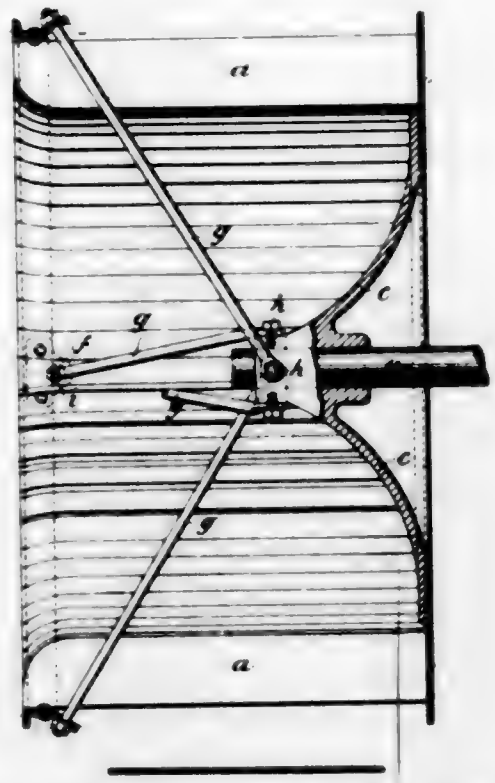
8. In a two-weave motion for double-index dobbies, in combination, the two lifters, means for actuating the same, the pattern-chain, operating means for said pattern-chain including a clutch having two sets of interacting clutch projections arranged to act with a difference of timing corresponding with the interval between two picks of the loom, a shipper or shifter for said clutch, and master pattern devices for operating the said shipper or shifter, substantially as described.

691,609. ROTARY FAN OR PUMP. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Mar. 31, 1899. Serial No. 710,919. (No model.)

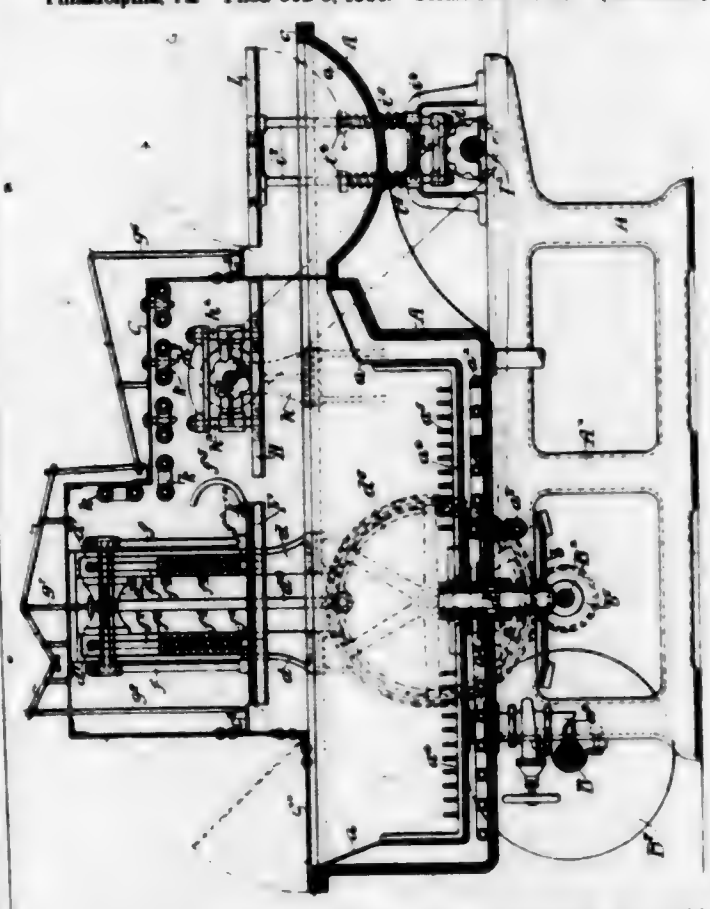
Claim.—1. A centrifugal fan or pump the rotary member of which comprises essentially numerous thin blades arranged in drum form, so as to inclose within them an intake-chamber into which the fluid operated on is taken axially, and from which it is discharged circumferentially, a shaft, and a series of stays connected from said shaft to said series of blades, said stays being arranged tangentially to said shaft, with their inner ends in advance of their outer ends, whereby they serve to communicate the propulsive stress directly from the shaft to the series of blades.

2. A centrifugal fan or pump the rotary member of which comprises essentially numerous thin blades arranged in drum form, so as to inclose within them an intake-chamber into which the fluid operated on is taken axially, and from which it is discharged circumferentially, a central hub or boss by which the rotary member is mounted on its axial shaft, having a connection with one end of the series of blades, and a series of stays connected from said boss to said annular support, said stays being arranged tangentially to said boss with their inner ends in advance of their outer ends, whereby they serve to communicate the propulsive stress directly from the boss to the annular support.

3. A centrifugal fan or pump comprising numerous thin blades arranged in drum form, with a central hub or boss connected to one end of the series of blades for supporting them upon a shaft, and an annular support for the opposite end of said series of blades, attaching-studs on said boss, and a series of tangential stays connected from said attaching-studs on said boss to said annular support, and nuts for adjusting the strain on said stays.



691,610. CHOCOLATE-COATING MACHINE. JASPER L. DERR, Philadelphia, Pa. Filed Oct. 3, 1901. Serial No. 77,473. (No model.)



Claim.—1. In a machine of the character described, the combination of a kettle, means for heating the same, a carrier for supporting a tray of objects to be coated, a casing inclosing said carrier thereby forming a chamber of which the kettle is a part, with means for causing the carrier to descend into the kettle at will, substantially as described.

2. In a machine of the character described, the combination of a kettle, means for heating the same, a carrier for supporting a tray of objects to be coated, a casing inclosing said carrier thereby forming a chamber of which the kettle is a part, means for heating the interior of the casing other than the means for heating the kettle, with means for reciprocating the said carrier in a vertical plane at will and thereby causing it to enter said kettle, substantially as described.

3. In a chocolate coating machine, the combination of a kettle, means for heating the same, a carrier supported over the kettle for carrying a tray containing objects to be coated, a device for removing surplus material from said objects after they have been coated, a casing inclosing the

carrier and the said device, the same forming a chamber of which the kettle is a part, and means for reciprocating the carrier so that it enters the kettle and means for operating the device for removing surplus material from the objects coated, substantially as described.

4. In a machine of the character described, the combination of a kettle, a closed casing over the same, a carrier over the kettle within the casing, with means for reciprocating it at will so that it enters the kettle, doors on the said casing for the admission of trays containing objects to be coated, and means for automatically opening said doors when the carrier is at the upper part of its path of movement, substantially as described.

5. In a machine of the character described, the combination of a kettle, a closed casing over the same, a carrier over the kettle within the casing, with means for reciprocating it at will so that it enters the kettle, doors on the said casing for the admission of trays containing objects to be coated, and means operated by the carrier-reciprocating mechanism for automatically opening said doors as the carrier approaches the upper portion of its path of movement, substantially as described.

6. In a machine of the character described, the combination of a frame, a kettle, a carrier over the same, means for reciprocating the carrier and for causing it to enter said kettle, means for retaining objects in position on a tray placed on said carrier when the whole is lowered into the kettle, said carrier being constructed to contact with a fixed portion of the frame and to be stopped thereby before it reaches the top of its stroke, said reciprocating means with the retaining means being constructed to continue moving after the carrier has come to rest, substantially as described.

7. In a machine of the character described, the combination of a kettle, standards on opposite sides of the same, a frame constructed to be reciprocated in a vertical plane on said standards, a plate rigidly attached to the frame and a carrier resiliently held thereto, with means for causing the plate to move down upon a tray on said carrier and for moving the whole into the kettle, said plate being raised from the carrier after the latter has ceased moving, substantially as described.

8. In a machine of the character described, the combination of a kettle, a casing attached to and over the same forming a chamber of which the kettle is a part, a carrier constructed to hold a tray containing objects to be coated, means for moving said carrier into the kettle, a second carrier, means for vibrating said second carrier, both of the carriers being within the said casing, and doors in the casing opposite to the carriers, with means for automatically opening and closing said doors, substantially as described.

9. In a machine of the character described, the combination of a kettle, a casing attached to and over the same forming a chamber of which the kettle is a part, a carrier constructed to hold a tray containing objects to be coated, means for moving said carrier into the kettle, a second carrier, means for vibrating said second carrier, both of the carriers being within the said casing, a third carrier revolubly supported outside of the casing, means for vibrating the same, said third carrier being placed to receive a tray as it is delivered from the second carrier, substantially as described.

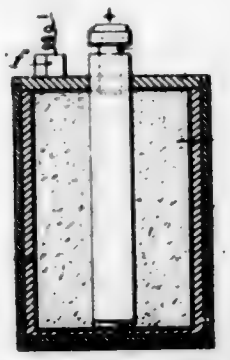
10. In a machine of the character described, the combination of a kettle, a casing surrounding the same, heating means within the space between the kettle and said casing, a second casing extending above the kettle forming a chamber of which the interior of the kettle is a part, heating means in the upper portion of the second casing, two carriers within the said chamber, means for reciprocating one of the same so that it may be made to enter the kettle at the will of the operator, and means for vibrating the second carrier, substantially as described.

11. In a machine of the character described, the combination of a kettle, a carrier for carrying trays of articles to be dipped, supported over said kettle, a second carrier at the same level as the first carrier, means for lowering said first carrier into the kettle and then returning it to its original position, and means on said carrier for moving a projecting tray fully upon the second carrier as the first carrier is lowered into the kettle, substantially as described.

12. In a machine of the character described, the combination of a kettle, a carrier for carrying trays of articles to be dipped, supported over said kettle, a second carrier at the same level as the first carrier, means for lowering said first carrier into the kettle and then returning it to its original position, a device constructed to engage a tray projecting over the edge of the second carrier and move it fully upon said carrier both as the first carrier is raised and lowered, substantially as described.

13. In a machine of the character described, the combination of a kettle, a carrier for supporting trays of articles to be dipped held over said kettle, a second carrier at the same level as the first carrier, means for lowering said first carrier into the kettle and then returning it to its original position, and pieces fixed to the first carrier projecting toward the second carrier constructed to engage a tray projecting over the edge of the second carrier and move it fully upon said carrier as the first carrier is raised or lowered, substantially as described.

691,611. ELECTRIC BATTERY. ALBERT DE DION and GEORGES BOUTON, Puteaux, France. Filed Feb. 6, 1901. Serial No. 46,258. (No model.)

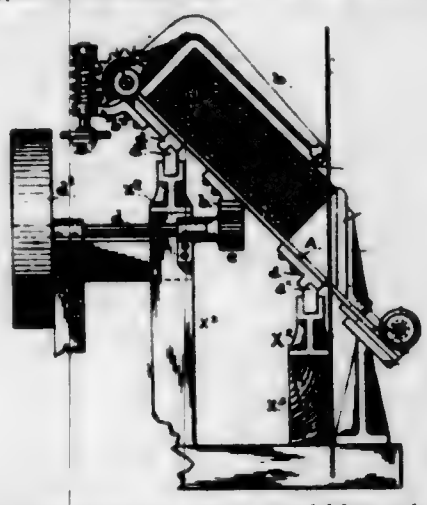


Claim.—1. In a storage battery, a positive electrode consisting of a metallic vessel adapted to contain an exciting fluid, a negative electrode consisting of a metallic strip embedded in a compressed block of oxid of copper, and a piece of copper gauze inclosing said compressed block, said block and gauze adapted to conform to the inner face of said vessel and fit snugly within the same.

2. In a storage battery, a positive electrode consisting of a metallic vessel and adapted to contain an exciting fluid, a positive electrode consisting of a metallic strip embedded in a compressed block of oxid of copper, a piece of copper gauze inclosing said compressed block, said block and gauze adapted to conform to the inner face of said vessel and fit snugly within the same, and means for hermetically sealing said vessel.

3. In a storage battery, a depolarizing-body consisting of a strip of copper embedded in a compressed block of pure oxid of copper and covered by a piece of copper gauze.

691,612. MACHINE FOR CUTTING MATERIAL INTO STRIPS FOR THE MANUFACTURE OF PISTON-PACKING. HENRY DOSS, Virginia City, Nev. Filed July 21, 1897. Serial No. 645,460. (No model.)



Claim.—In a machine for cutting material into strips, the combination with a traveling table adapted to feed and present the material to the cutting mechanism, of means for clamping the material on the table comprising a rock-shaft supported in bearings on the table, arms fast on the rock-shaft extending over the table above the material and provided with clamping-blades on their ends and means for turning the rock-shaft to raise and lower the arms.

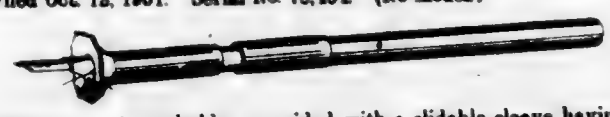
691,613. COOLER FOR LIQUIDS. PETER J. DOYLE, Stamford, Conn. Filed Jan. 21, 1901. Serial No. 44,161. (No model.)



Claim.—A liquid-cooler comprising a cylindrical receptacle weighted at its lower end and provided at its upper end with a removable closure; in combination with a supplemental removable bottom consisting of a disk

of greater diameter than the receptacle on which the receptacle rests, and a collar secured to the disk concentric therewith and forming in connection with the disk a socket to receive the lower end of the receptacle, the disk serving as the bottom of the socket.

691,614. PENHOLDER. SHILOH W. DURHAM, San Jose, Cal. Filed Oct. 12, 1901. Serial No. 78,484. (No model.)



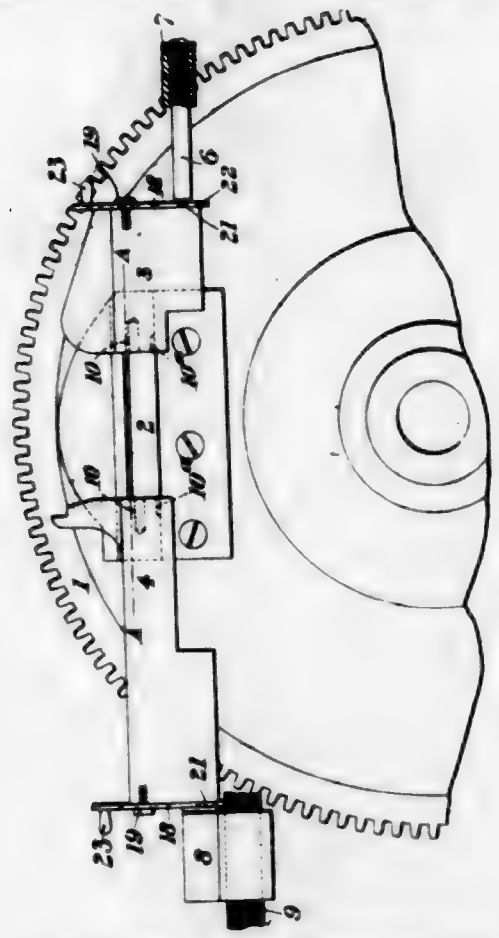
Claim.—1. A penholder provided with a slidable sleeve having a guard or shield and adapted to be moved inward on the penholder, and an adjustable device mounted on the penholder at the inner end of the sleeve arranged to be engaged by the same to limit the inward movement of the sleeve and adapted to prevent the pen from being dipped too far into the ink, substantially as described.

2. A penholder provided with a slidable spring-actuated sleeve having a guard or shield, and an adjustable sleeve or band arranged on the penholder and forming a stop for limiting the inward movement of the slidable sleeve, substantially as described.

3. A penholder provided with a slidable sleeve having a guard or shield and provided with an exterior depression or groove forming an interior rib, an exterior ring arranged on the sleeve and interlocked with the groove or depression, and a spring located within the sleeve and engaging the rib, substantially as described.

4. The combination of a penholder, a slidable sleeve arranged on the penholder, a spring mounted on the penholder and engaging the slidable sleeve, a guard or shield carried by the slidable sleeve, an adjustable sleeve arranged on the penholder, and stops limiting the outward movement of the slidable sleeve and the inward movement of the adjustable sleeve, substantially as described.

691,615. MEANS FOR PRODUCING FUDGE OR LATE-NEWS LINOTYPES. RICHARD C. ELLIOTT and CHARLES HOLLIWELL, Broadheath, England, assignors to the Mergenthaler Linotype Company, New York, N. Y. Filed July 23, 1901. Serial No. 69,353. (No model.)



Claim.—1. In a linotype-machine, the combination of the matrix-confining jaws, removable quads insertible between the jaws and matrices and having projections to enter the ends of the mold, a stop device for adjusting the jaws at a distance equal to the thickness of the quads; whereby the parts are adapted to coöperate with a mold for producing type-high matrices of uniform length, or with a mold for producing fudge-linotypes, longer at the base than at the printing edge.

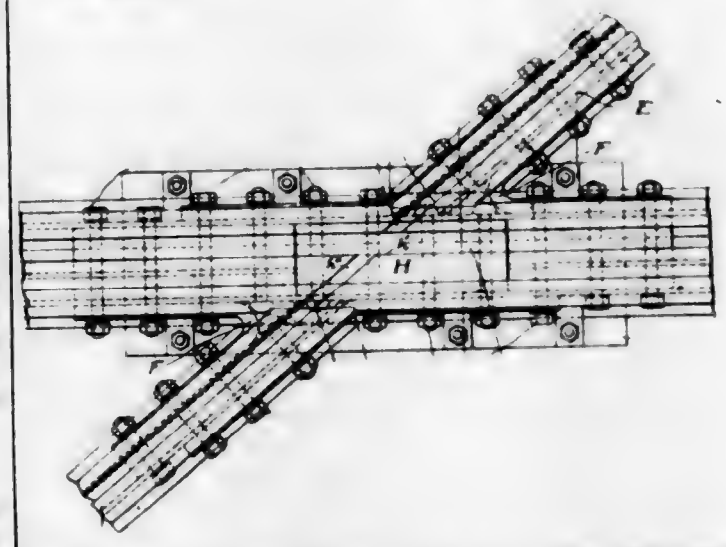
2. In a linotype-machine, the combination of a mold having cavities 15 at the ends, matrix-confining jaws, and removable quads having projections to enter the cavities 15.

3. In a linotype-machine, having interchangeable molds 2 and 16, substantially as described, removable quads having projections to enter the ends of the last-named mold, and movable stops, adjustable between the jaws and their support, whereby the distance between the jaws may be varied as the use or non-use of the quads may demand.

4. In a linotype-machine, the adjustable matrix-confining jaws, in combination with the attachable and detachable quads 13, having projections to enter the ends of the mold.

5. In a linotype-machine, the combination of a slotted mold, having a cavity 15 extending laterally from the slot, and a quad or matrix having a projection adapted to enter said cavity.

691,616. RAILWAY-TRACK STRUCTURE. EDWARD B. ENTWISLE, Johnstown, Pa., assignor to the Lorain Steel Company, a Corporation of Pennsylvania. Filed June 26, 1901. Serial No. 66,062. (No model.)



Claim.—1. In a track structure of the class described, the combination of the main and crossing track-rails, of a central, solid hardened body to which the rails are removably secured and which replaces a cut-away portion of the main track-rail, said body having its surface formed with flangeways for both the main and the intersecting tracks and forming a wheel-bearing surface for both tracks across the intersection.

2. In a track structure of the class described, the combination with the main rail having a removable section, the guard-rail having the inner side of its head also removed for a corresponding distance, the brace-rail and the rails of the intersecting track, of a solid hardened body seated between the brace and guard rails and replacing the cut-away and removed portions of the main and guard rails, said body having flangeways for both the main and intersecting tracks.

3. In a track structure of the class described, the combination with the main rail having a section of its length removed, and the guard-rail having the inner side of its head also removed, of the hardened central body replacing the removed portions of said rails and having flangeways formed therein, together with bolts extending through the said body, and rails binding them together.

4. In a track structure of the class described, the combination with the main rail, the guard-rail, the brace-rail, and the rails of the intersecting track fitted and secured to said guard and brace rails, the latter having flangeways across their heads, of a central body of hardened material seated between the guard and brace rails and forming a section of the main rail and also the inner portion of the head of the guard-rail, together with through-bolts uniting said body to the main guard and brace rails.

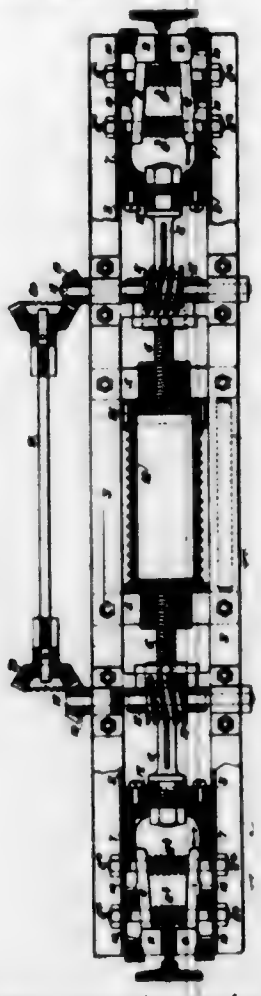
5. In a track structure of the class described, the combination with the main rail having a section thereof removed for its full depth, the guard-rail having the inner side of its head also removed for a corresponding distance, and a brace-rail, of the body H of hardened material filling the space formed by the removed portions of the main and guard rails and replacing said portions, said body having flangeways therein for both the main and the intersecting tracks.

691,617. BRAKING MECHANISM FOR ELEVATOR-CARS. OSCAR M. FRITSCH, Philadelphia, Pa. Filed July 8, 1901. Serial No. 67,515. (No model.)

Claim.—1. The combination in braking mechanism for elevator-cars, of the brake-operating wedges, screw-bolts connected thereto, a controller-drum having nuts engaging said screw-bolts, and means whereby the bolts can be turned independently of the drum, substantially as specified.

2. The combination in braking mechanism for elevator-cars, of the brake-operating wedges, screw-bolts connected thereto, a controller-drum

having nuts for engaging with said screw-bolts, gear-wheels confined longitudinally to bearings on the fixed frame and having splined connection with the screw-bolts, and means for simultaneously operating said gear-wheels, substantially as specified.

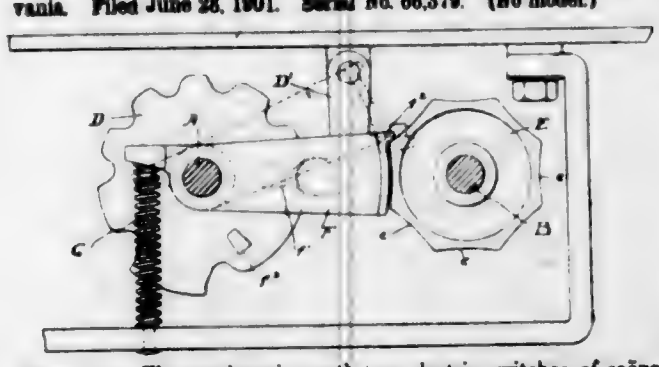


3. The combination of the brake-actuating wedge of an elevator-car, and that element of the braking mechanism upon which it acts, said parts being so formed that the wedge will have a quick initial action and a slower and more powerful following action, substantially as specified.

4. The combination of the brake-operating drum of an elevator-car, with a brake-rope guide mounted so as to be free to move in a direction parallel with the axis of the drum, and a spring for moving said guide so as to cause it to press together the convolutions of the rope wound on the drum, substantially as specified.

5. The combination of the brake-operating drum of an elevator-car, with a bar engaging one of the flanges of said drum, and a sliding brake-rope guide mounted on said bar, and a spring acting on said guide to move it toward that flange of the drum which is engaged by the bar, substantially as specified.

691,618. LOCKING DEVICE FOR MOTOR-REVERSING SWITCHES. FRANK W. GARRETT and ERNEST W. STULL, Johnstown, Pa., assignors to the Lorain Steel Company, a Corporation of Pennsylvania. Filed June 28, 1901. Serial No. 66,379. (No model.)



Claim.—1. The combination with two electric switches, of coöperating locking members carried thereby, one of said members being fixed with relation to its carrying-switch, and the other member having a limited movement in one direction independently of its carrying-switch, and a similar movement in the opposite direction with the said switch.

2. The combination with two electric switches, of coöperating locking members carried thereby, and arranged to lock one of said switches except at such times as the other is at a predetermined position, a spring tending to hold the said members in locking relations, and means carried by one of said switches for terminating such relations at a certain point in the movement of the last-named switch.

3. In a motor-controller, the combination with a motor-reversing switch, and a locking-plate carried thereby and fixed thereto, of a motor-regulating switch, and an arm loosely carried thereby and arranged to have a locking engagement with the said plate in all the operative positions of the reversing-switch, and means for moving said arm out of said engagement when the regulating-switch is moved to a predetermined position.

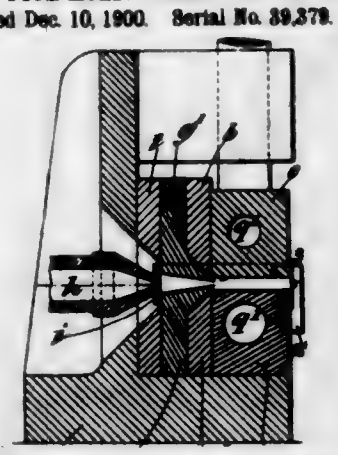
4. In a motor-controller, the combination with a motor-regulating and a motor-reversing switch, of a locking plate or disk fixed to the reversing-switch, an arm loosely sleeved about the shaft of the regulating-switch and adapted to a locking engagement with said plate or disk, a spring acting to move said arm to its locking position, and means on the regulating-switch for moving the arm out of its locking position at a certain point in the movement of the regulating-switch.

5. In a motor-controller, the combination with a motor-regulating and a motor-reversing switch, of a locking member fixed to the reversing-switch and having as many locking positions as the switch has running positions, an arm loosely sleeved about the shaft of the reversing-switch and arranged to engage the said locking member in all its positions to prevent movement of said reversing-switch, means on the regulating-switch arranged to engage said arm and move it out of locking position at a certain point in the movement of the regulating-switch, and a spring for returning said arm to locking position.

6. In a motor-controller, the combination of a motor-regulating and a motor-reversing switch, of a locking plate or disk rigidly secured to the reversing-switch and having a plurality of concavities in its peripheral edge, a swinging arm having an end portion shaped to engage any one of said concavities, means on the regulating-switch arranged to engage said arm and move it out of its locking position, and a spring for actuating said arm in the opposite direction.

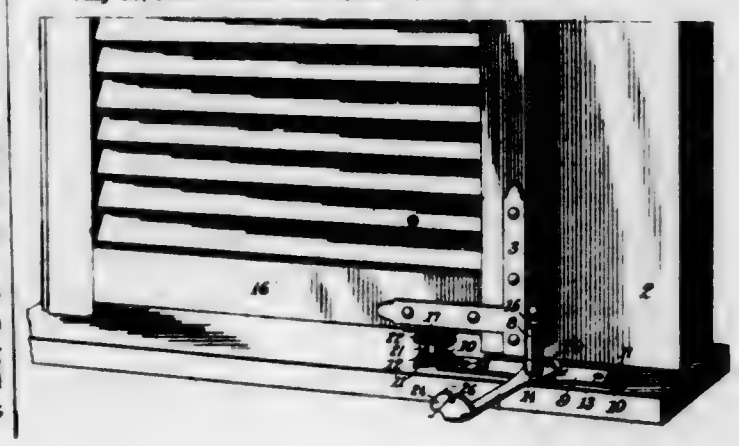
7. In a motor-controller, the combination with a motor-regulating and a motor-reversing switch, of the plate or disk fixed to the reversing-switch and having a plurality of arcuate concavities in its peripheral edge, the arm sleeved on the shaft of the regulating-switch and formed with a convex end adapted to lie within or partially within the said concavities, a spring acting upon said arm to hold it in operative position, and a lug or projection carried by the regulating-switch and arranged to engage said arm to move it away from its operative position.

691,619. TYPE-MOLD. HENRY J. S. GILBERT-STRINGER, London England. Filed Dec. 10, 1900. Serial No. 39,379. (No model.)



Claim.—In a type-casting mold, the combination with stationary core-pieces projecting into the foot of the mold, of a movable and adjustable body-plunger shaped in cross-section to correspond to the shape of the said core-pieces, said body-plunger being constructed and arranged to first determine the set width of the type and to subsequently extrude the cast type from the mold, substantially as described.

691,620. HINGE. JAMES C. GILLESPIE, Waltham, Mass. Filed July 16, 1901. Serial No. 68,536. (No model.)



Claim.—1. A lock-hinge comprising a stationary member and a movable member, the movable member being pivotally connected to the central portion of the stationary member, notched lugs on the stationary member at opposite sides of the connection between the hinge members, and a spring-catch connected with the blind and embodying a spring-tongue, a terminal catch or lip, and oppositely-projecting wings forming finger-pieces, substantially as described.

2. As an article of manufacture, a hinge member comprising a stationary base, oppositely-located lugs thereon, an arm provided with a lug, and adjustably connected to the base, and means for fastening said arm at any desired point of adjustment, substantially as described.

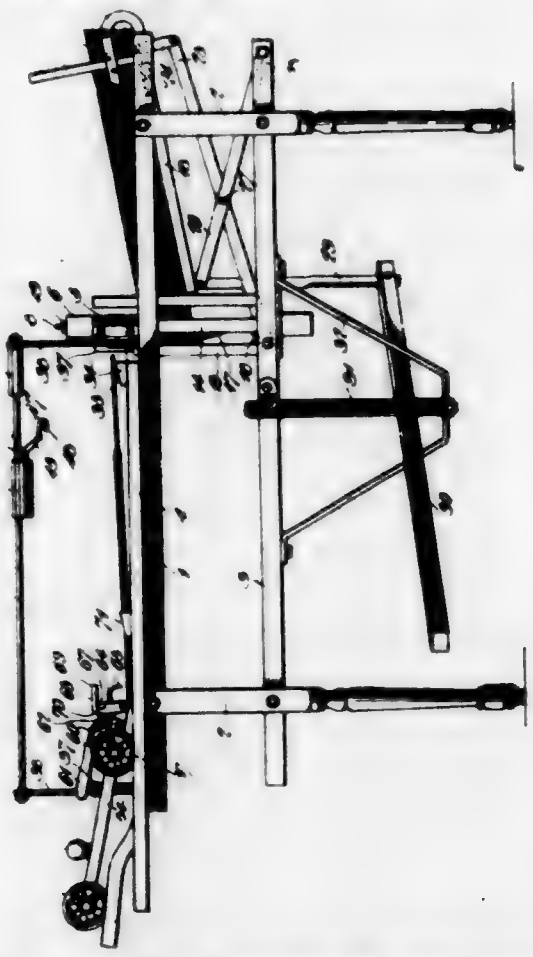
3. A hinge member comprising a base-plate, notched lugs at opposite ends thereof, an adjustable arm pivotally connected with the base-plate and also provided with a notched lug, and a clamping device for preventing relative movement between the base-plate and adjustable arm, substantially as described.

4. A hinge member comprising a stationary base-plate, notched lugs at opposite ends thereof, an arm provided with a notched lug and detachably and pivotally connected with the base-plate, and means for clamping said arm when adjusted, substantially as described.

5. The combination with a blind or the like, of a lock-hinge comprising a blind member, a stationary member having oppositely-located notched lugs, an arm adjustable to different angles with respect to the stationary member and comprising a notched lug, and a spring-catch connected with the blind, said catch embodying a spring-tongue, a terminal catch or lip, and oppositely-projecting wings forming finger-pieces, substantially as described.

6. The combination with a blind or the like, of upper and lower hinges therefor, the upper hinge comprising a blind member having a knuckle, and a stationary member having a fixed pendent pintle, the lower hinge comprising a blind member provided with a knuckle, a stationary member having a pintle-socket underlying the knuckle of the lower hinge member, and a removable pintle passing downward through the knuckle of the lower hinge into the socket of the stationary member, substantially as described.

691,621. MACHINE FOR WEAVING BASKET-BLANKS. ROLAND GODDARD and WILLIAM F. GODDARD, Orwell, Ohio. Filed Apr. 6, 1901. Serial No. 54,746. (No model.)



Claim.—1. In a machine for weaving basket-blanks of the class set forth, the combination of means for elevating and catching a set of slats, means for disposing the slats in position for braiding or weaving, and means for alternately depressing the longitudinal slats for insertion of cross-slats and placement of the latter in close relation.

2. In a machine for weaving basket-blanks of the class set forth, the combination of means for elevating and catching a set of slats, means for disposing the slats in position for weaving, depressible holders for the slats, and means for alternately depressing the longitudinal slats for insertion of cross-slats and placement of the latter in close relation.

3. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating distinct sets of slats from a charge of the same, means for disposing the slats in position for weaving, and means for alternately depressing the longitudinal slats for insertion of cross-slats and placement of the latter in close relation.

4. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating distinct sets of slats from a charge of the same, means for drawing the distinct sets of slats away from the charge and longitudinally disposing the slats for weaving, and means for alternately depressing the slats of each set and for properly locating and placing the cross-slats.

5. In a braiding or weaving machine of the class set forth, the combination of pointed means for separating slats into distinct sets, and means for arranging the said sets of slats longitudinally and alternately depressing the slats of each set to provide openings for the insertion and interweave of cross-slats.

6. In a braiding or weaving machine of the class set forth, the combination of pointed means for separating slats into distinct sets, and means for holding and alternately depressing the individual slats of said sets for reception of cross-slats.

7. In a machine for weaving basket-blanks of the class set forth, the combination of pointed means for separating slats into distinct sets, a series of pointed devices to engage and longitudinally dispose said sets, and means for disposing the said sets for reception of cross-slats.

8. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating slats into distinct sets, devices for longitudinally moving and holding said sets, and a depressing and beating-up device for alternately depressing the said sets of slats and placing the cross-slats therebetween.

9. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating slats into sets, devices for longitudinally drawing and holding said sets, and a laterally and longitudinally movable attachment for alternately depressing the said sets of slats and placing the cross-slats therebetween.

10. In a machine for weaving basket-blanks of the class set forth the combination of means for separating slats into sets, devices for longitudinally drawing and holding said slats, a laterally and longitudinally movable attachment for alternately depressing the said sets of slats and placing the cross-slats therebetween, and a movable support for said attachment to clear the latter from the machine-bed when not in use.

11. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating slats into distinct sets, a carriage having a series of pointed devices automatically operating, after release, to engage the slats and move them into position for receiving cross-slats, and means for alternately disposing the said slats moved by the carriage for receiving the cross-slats.

12. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating slats into distinct sets, a carriage having a series of pointed devices for engaging the sets of slats and disposing them longitudinally, and means comprising teeth with hooked terminals for alternately depressing the longitudinally-disposed slats for receiving and placing cross-slats.

13. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating slats into distinct sets, a carriage having a series of pointed devices for engaging the sets of slats and disposing them longitudinally, and eccentrically-mounted slidable means for causing the slats to be alternately spaced apart to receive cross-slats and place the latter.

14. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating slats into sets, means for engaging the sets of slats and disposing them to receive cross-slats, and eccentrically-mounted slidable means for causing the slats to be alternately spaced apart to receive cross-slats and place the latter.

15. In a machine for weaving basket-blanks of the class set forth, the combination of means for separating slats into sets, a carriage having a series of resilient pointed devices to engage said slats and dispose the latter in position to receive cross-slats, a series of depressible holders for supporting said slats, and means for alternately depressing the slats moved by the carriage to receive cross-slats and place the latter.

16. In a machine for weaving basket-blanks of the class set forth, the combination of a frame, a depressible and elevatable slat-supporting bed at one end of the frame, catch devices against which the forward extremities of the slats are moved, means for disposing the slats on the frame to receive cross-slats, and means for spacing the slats on the frame apart to receive the cross-slats and for placing the latter.

17. In a machine for weaving basket-blanks of the class set forth, the combination of a frame, a depressible and elevatable slat-supporting bed at one end of the frame having clutch devices at its front end for regulating the depth of depression thereof, means for engaging and holding

the rear extremities of the slats in sets, and means for arranging the slats on the frame to receive cross-slats and place the latter.

18. In a machine for weaving basket-blanks of the class set forth, the combination of a frame, catch devices arranged in transverse alinement in operative relation to the frame, partition-bars separating the catch devices and depending below the latter, a depressible and elevatable bed for holding the slats which are arranged thereon in stacks with the rear extremities of the stacks between the said bars, whereby the slats will be accurately fed to the catch devices to divide them into sets, and means for arranging the slats on the frame to receive cross-slats and place the latter.

19. In a machine for weaving basket-blanks of the class set forth, the combination of a frame, a depressible and elevatable slat-supporting bed at one end of the frame, catch devices for separating the slats into sets, means for separating the rear extremities of the slats into stacks, and means for arranging the slats on the frame to receive cross-slats and place the latter.

20. In a machine for weaving basket-blanks of the class set forth, the combination of a frame, a vertically-movable slat-supporting bed at one end of the frame, means for separating the slats into sets, means for holding the rear extremities of the slats in stacks, and independent means for arranging the slats on the frame and to alternately depress the slats to receive cross-slats and place the latter.

21. A machine for weaving basket-blanks of the class set forth having a slat-supporting means which is vertically movable, means for separating the rear extremities of the slates into stacks, and yielding pointed means for separating the slats from the stacks into distinct sets.

22. A machine for weaving basket-blanks of the class set forth having a slat-supporting means which is vertically movable, slat-catch devices comprising spring-actuated rods each carrying a lower pair of points, and means for releasing the slats from the said points and disposing them in position for receiving cross-slats.

23. A machine for weaving basket-blanks having a frame, a vertically-movable slat-supporting bed at one end of the frame having levers connected to the under side thereof and to the frame, a treadle connected to the bed and projecting outwardly at one side of the frame, forwardly-curved arms connected to the front end of the frame on opposite sides, clutch-loops movably attached to said arms, angle-bars secured to the bed and having upwardly-projecting portions movably mounted in the said clutch-loops, means for separating the slats into sets, and means for disposing the slats on the frame for receiving cross-slats.

24. A machine for weaving basket-blanks of the class set forth comprising means for bringing slats up into position and holding them in sets, a carriage having a slotted keeper at its front end, a fulcrum-bar carrying a series of spring-fingers projecting through said keeper and having front pointed ends to engage the sets of slats, means for locking the fingers elevated, and means for regularly disposing cross-slats in the slats held by the fingers.

25. In a machine for weaving basket-blanks of the class set forth, means for disposing slats in engaging position in distinct sets, means for arranging the sets of slats in place for receiving cross-slats therebetween, and a rock-frame having a straight side on which a slat depressing and beating-up device is pivotally and slidingly mounted and comprising a swiveled rake-like device.

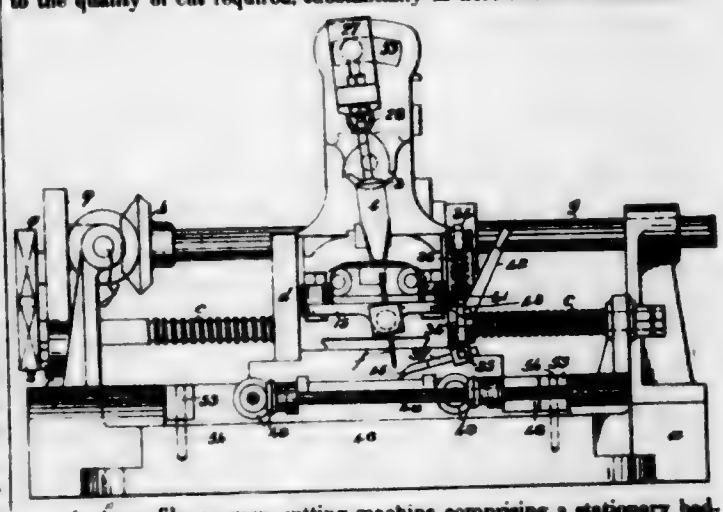
26. In a machine for weaving basket-blanks of the class set forth, comprising a frame, means for disposing slats in separate sets, means for arranging the sets of slats longitudinally on the frame, a rock-frame pivotally supported at one side of the frame and having a straight side bar, a grip eccentrically pivoted and free to longitudinally slide on said side bar, and a rake-like device swiveled to said grip.

691,622. **FILE OR RASP CUTTING MACHINE.** JOHN GREEN, Warrington, England. Filed Sept. 9, 1901. Serial No. 74,837. (No model.)

Claim.—1. In a file or rasp cutting machine comprising in combination, a stationary bed-plate, a blank-support or anvil thereon and a traveling carriage bearing the tool and hammer, means for traveling said carriage at variable predetermined speeds consisting of a leading-screw and a power-shaft both mounted on the bed-plate, and differential gearing comprising a worm-shaft and worm-wheel, the former driven through bevel-gear by the power-shaft and the latter driving the leading-screw through a set of three change-wheels, substantially as hereinbefore described.

2. In a file or rasp cutting machine comprising in combination, a stationary bed-plate, a blank-support or anvil thereon, and a traveling carriage for bearing the tool and hammer, means for reciprocating the tool, consisting of a tool-holder mounted in a cross-head sliding in guides in the carriage, a horizontal slide in contact with an inclined plane or wedge on the cross-head and with a cam on a shaft mounted in the carriage and driven from the main or power shaft substantially as hereinbefore described.

3. In a file or rasp cutting machine comprising a stationary bed-plate, a blank-support or anvil thereon and a traveling carriage bearing the tool and hammer, a tool-holder consisting of a slotted block fitted with trunnions and set-screws and pivoted within a carrier clamped in a yoke bolted to a cross-head, both the yoke and cross-head being slotted to allow the former to be adjusted and set to a suitable angle according to the quality of cut required, substantially as hereinbefore described.



4. In a file or rasp cutting machine comprising a stationary bed-plate, a blank-support or anvil thereon and a traveling carriage bearing the tool and hammer, means for adjusting the lift of the tool consisting of a tool-holder secured to a cross-head sliding in guides in the traveling carriage, an inclined plane or wedge mounted in guides in said cross-head, an adjusting-wedge in contact with a pin on the upper edge of the inclined plane and set to the required position by a screw, a horizontal slide in contact with the inclined plane, guide-rods and springs for the slide, and a cam in contact with the slide and carried by a shaft driven from the main power-shaft substantially as hereinbefore described.

5. In a file or rasp cutting machine comprising in combination a stationary bed-plate, a blank-support or anvil thereon and a traveling carriage bearing the tool and hammer, means for operating the hammer, consisting of a cross-head sliding in guides in the traveling carriage above the tool-holder and connected to the hammer-haft by a link or bridle and a cam in contact with a roller on the cross-head and carried by a shaft mounted in the carriage and driven by the main driving-shaft of the machine through bevel and spur gear substantially as hereinbefore described.

6. In a file or rasp cutting machine comprising in combination a stationary bed-plate, a blank-support or anvil thereon and a traveling carriage bearing the tool and hammer, means for adjusting the blow of the hammer and regulating the same according to the tapering thickness of the file-blank, consisting of a spring coiled about the hammer pivot-pin and having one end pressed on the hammer-haft and the other on an abutment, a sleeve screwed through said abutment against a collar on a rod passing through said sleeve and extended downwardly, and a roller on the end of said rod in contact with a templet corresponding to the taper of the file and placed in a groove in the bed-plate of the machine substantially as described.

7. In a file or rasp cutting machine comprising in combination a stationary bed-plate, a blank-support or anvil thereon, and a traveling carriage bearing the tool and hammer, means for firmly holding the blank upon its bed, consisting of a blade-like presser with cylindrical shank fitting a correspondingly-recessed socket, a vertical rod carrying said socket, a compression-spring and adjusting-nut thereon and a hand-lever engaging with a pin on said rod for the purpose of freeing the blank when required substantially as described.

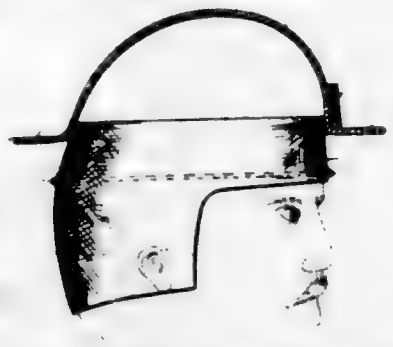
8. In a file or rasp cutting machine comprising in combination a stationary bed-plate, a blank-support or anvil thereon and a traveling carriage bearing the tool and hammer, means for raising the tool from the blank and at the same time releasing the blank after stopping the carriage, consisting of a clutch-box on said carriage, a lever for operating same, a push-rod having one end pressed by the lever and the other in contact with a horizontal slide pressing against an inclined plane or wedge on the cross-head carrying the tool-holder and a pin on the cross-head engaging with a pin on a vertical rod carrying the presser, substantially as hereinbefore described.

9. In a file or rasp cutting machine comprising in combination a stationary bed-plate, a blank-support or anvil thereon and a traveling carriage bearing the tool and hammer, means for raising the tool, consisting of a hand-lever pivoted on the traveling carriage, a pin thereon in contact with a pin on the cross-head carrying the tool-holder and a third pin in contact with the cross-head pin and carried by a vertical rod carrying the presser substantially as hereinbefore described.

10. In a file or rasp cutting machine comprising in combination a stationary bed-plate, a blank-support or anvil thereon and a traveling carriage bearing the tool and hammer, means for holding the blank-bed in

any required position, consisting of two parallel bars having their ends loosely pinned in two slotted blocks pivoted on pins on the anvil and secured by set-screws, and two shifting-screws geared by bevel-wheels to a single hand-operating spindle substantially as hereinbefore described.

691,623. MINER'S HAT. ALFRED HARRIS, Calumet, Mich. Filed Apr. 6, 1901. Serial No. 54,692. (No model.)



Claim.—A hat of the kind described, having a depending flap of rubber or other material, a supplemental flap of soft rubber and an encircling wire band arranged at the juncture of the main and supplemental flaps, substantially as shown and described.

691,624. HAT-FASTENER. ESTHER HART, Dunedin, New Zealand. Filed Jan. 21, 1901. Serial No. 44,045. (No model.)



Claim.—A fastener comprising a hair-pin constructed with prongs, one of said prongs being formed with a longitudinal slot providing a pair of parallel guide-bars, a ring slidable on one of the guide-bars, a guide-bar adapted to be secured to a hat, a ring connected loosely with the guide-bar of the hat and a chain connecting the rings.

691,625. MEANS FOR PROPELLING CARS, &c. EUGENE HAYWARD, Chicago, Ill., assignor of two-thirds to John T. Lueder and John B. Morris, Chicago, Ill. Filed Feb. 28, 1901. Serial No. 49,191. (No model.)

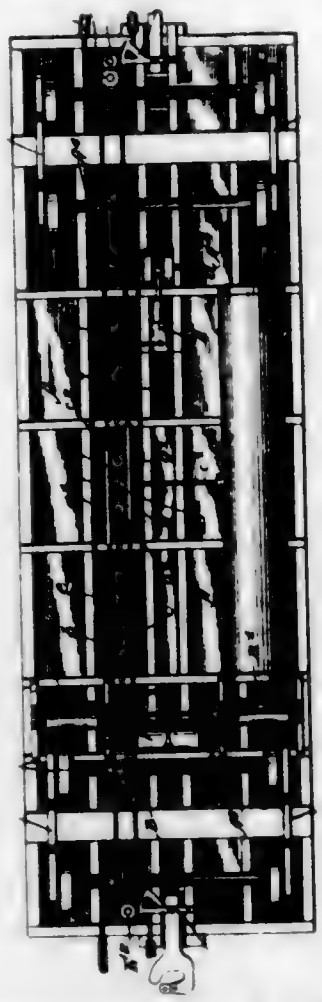
Claim.—1. The combination with a car and its trucks of, an air-compressor operated from one of the truck-axles, a tank adapted to receive the air under pressure therefrom, a motor communicating with the tank and means operated by compression on the draw-head for actuating the compressor and means actuated by pulling strain upon the draw-head for actuating the motor.

2. In a device of the class described, a car, an air-compressor operated thereby, a pressure-tank to receive the air therefrom, a motor in operative connection with the compressor and adapted to propel the car and means operated by pulling strain on the draw-head acting to open the communication between the tank and motor.

3. In a device of the class described, a compressor, a tank to receive the air therefrom, a motor operatively engaging a car-axle and driven by the compressed air from said tank and valves in the connection between said compressor and tank and said tank and motor whereby when the motion of the car is retarded the compressor operates to fill the tank, and automatic means for opening the connection between the tank and the motor when pulling strain is brought upon the draw-head.

4. The combination with a car, of an air-compressor operated from a car-axle, a tank adapted to receive the air therefrom under pressure, a motor connected with said tank and rotatively engaging one of the car-axles, and means whereby compressing strain on the draw-head of the car acts to start the compressor and pulling strain thereon to permit the flow of air from the tank to the motor, substantially as described.

5. The combination with a car, its trucks and draw-head, of a compressor operated from a car-axle, a tank to receive the compressed air therefrom, a motor pneumatically connected with said tank and rotatively engaging a car-axle, valves in said pneumatic connection, segment-gears pivoted on the draw-head, and acting to operate the valves in the connection between said compressor and tank and tank and motor whereby compressing strain on said draw-head causes the air to be compressed in said tank and pulling strain thereon permits the same to flow to the motor, substantially as described.



6. In a device of the class described, the combination with a car, its draw-heads and trucks, of a compressor driven from one of the car-axles, a motor acting to rotate a car-axle, a tank adapted to receive the compressed air from the compressor and to deliver the same to the motor, pneumatic connections between said compressor tank and motor, valves therein each closure thereof being provided externally with a geared wheel and a rack-bar engaging on opposite sides thereof, means operated from the draw-heads for actuating said valves, to start and stop the compressor and motor.

691,626. WRITING-MACHINE. EDWARD B. HESS, Brooklyn, and JOSEPH M. STOUGHTON, Yonkers, N. Y., assignors to Mechanical Improvements Company, New York, N. Y., a Corporation of New York. Filed July 19, 1901. Serial No. 68,975. (No model.)

Claim.—1. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless unitary band carrier adapted to travel at the same time in contact with the central and side portions of the cylindrical surface.

2. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless unitary band carrier adapted to travel at the same time in contact with the central and side portions of the cylindrical surface, and means for throwing the carrier out of operative engagement with the platen.

3. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless unitary band carrier adapted to travel at the same time in contact with the central and side portions of the cylindrical surface, and means for throwing the carrier out of operative engagement with the platen and locking it in such position.

4. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact therewith in the same direction and positively driven at the same surface speed, whereby sheets fed between the platen and carrier are carried around the platen toward the printing-point by the conjoint action of the surfaces of the platen and carrier between which the sheets travel.

5. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact with the central and side portions of the cylindrical surface and positively driven at the same surface speed.

6. In a writing-machine, the combination with a cylindrical rotatable platen, of a unitary endless band carrier arranged centrally of the platen

and adapted to run in contact therewith, and means for driving the carrier at the same surface speed as that of the platen.



7. In a writing-machine, the combination with a cylindrical rotatable platen, of a unitary endless band carrier of a width approximately equal to the length of the printing-surface of the platen and adapted to run in contact therewith, and means for driving the carrier at the same surface speed as that of the platen.

8. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact therewith in the same direction and positively driven at the same surface speed whereby sheets fed between the platen and carrier are carried around the platen toward the printing-point by the conjoint action of the surfaces of the platen and carrier between which the sheets travel, and means for throwing the carrier out of operative relation with the platen.

9. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact therewith and positively driven at the same surface speed, and means for throwing the carrier out of operative relation with the platen and locking it in such position.

10. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven endless-band carrier traveling in contact with and in the same direction as the surface of the platen, whereby sheets fed between the platen and carrier are carried around the platen toward the printing-point by the conjoint action of the surfaces of the platen and carrier between which the sheets travel.

11. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven endless-band carrier traveling in contact with the central and side portions of the cylindrical surface.

12. In a writing-machine, the combination with a rotatable cylindrical platen, of a unitary positively-driven endless-band carrier traveling in contact with the surface of the platen and of a width approximately equal to the length of the printing-surface thereof.

13. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven endless-band carrier traveling in contact with and in the same direction as the surface of the platen, whereby sheets fed between the platen and carrier are carried around the platen toward the printing-point by the conjoint action of the surfaces of the platen and carrier between which the sheets travel, and means for throwing the carrier out of operative relation to the platen.

14. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven endless-band carrier traveling in contact with the central and side portions of the cylindrical surface and means for throwing the carrier out of operative relation to the platen.

15. In a writing-machine, the combination with a rotatable cylindrical platen, of a unitary positively-driven endless-band carrier traveling in contact with the surface of the platen and of a width approximately equal to the length of the printing-surface thereof and means for throwing the carrier out of operative relation to the platen.

16. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact with the surface thereof, a roll for said carrier mounted a suitable distance from the platen at the entry or feed point and a second roll for the carrier adjacent the printing-point urged yieldingly toward the platen, and pressing the carrier against it

17. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact with the surface thereof, a roll for said carrier mounted a suitable distance from the platen at the entry or feed point, a second roll for the carrier adjacent the printing-point urged yieldingly toward the platen and pressing the carrier against it and means for moving the second-named roll away from the platen.

18. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact with the surface thereof, a roll for said carrier mounted a suitable distance from the platen at the entry or feed point, a second roll for the carrier adjacent the printing-point pressed yieldingly toward or against the platen and means for moving the second-named roll away from the platen and locking it.

19. In a writing-machine, the combination of a rotatable cylindrical platen, a roll mounted adjacent thereto at the feed side, a gear rotating with the platen and engaging a pinion on said roll, a second roll, in front of the first one (i. e., toward the printing-point) and an endless-band carrier traveling around the rolls and in contact with the surface of the platen.

20. In a writing-machine, the combination of a rotatable cylindrical platen, a roll mounted adjacent thereto at the feed side, a gear rotating with the platen and engaging a pinion on said roll, a second roll, in front of the first one, an endless-band carrier traveling around the rolls and in contact with the surface of the platen, and means for moving the second-named roll away from the platen to move the endless carrier out of cooperative relation thereto.

21. In a writing-machine, the combination of a rotatable cylindrical platen, a roll mounted adjacent thereto at the feed side, a gear rotating with the platen and engaging a pinion on said roll, a second roll, in front of the first one, an endless-band carrier traveling around the rolls and in contact with the surface of the platen, and means for moving the second-named roll away from the platen and locking it in such removed position.

22. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless band-carrier running in contact with the central and side portions of the cylindrical surface, and guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet from the endless carrier.

23. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven endless-band carrier running in contact with the surface of the platen, and guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet from the endless carrier.

24. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven endless-band carrier running in contact with the central and side portions of the cylindrical surface, and endless-band guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet from the endless carrier.

25. In a writing-machine, the combination with a rotatable platen of an endless-band carrier positively driven at the same surface speed as that of the platen and running in contact with the surface thereof, and endless-band guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet from the endless carrier.

26. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier coöperating with the surface thereof, endless-band guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet or sheets from the endless carrier, and means for moving the endless carrier and guides out of operative relation to the platen.

27. In a writing-machine, the combination with a rotatable cylindrical platen of an endless-band carrier positively driven at the same surface speed as that of the platen and coöperating with the surface thereof, endless-band guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet or sheets from the endless carrier, and means for moving the endless carrier and guides out of operative relation to the platen.

28. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier coöperating with the surface thereof, endless-band guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet or sheets from the endless carrier, and means for simultaneously moving the endless carrier and guides out of operative relation to the platen.

29. In a writing-machine, the combination with a rotatable cylindrical platen of an endless-band carrier positively driven at the same surface speed as that of the platen and coöperating with the surface thereof.

endless-band guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet or sheets from the endless carrier, and means for simultaneously moving the endless carrier and guides out of operative relation to the platen.

30. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier coöperating with the surface thereof, endless-band guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet or sheets from the endless carrier, and means for simultaneously moving the endless carrier and guides out of operative relation to the platen and locking them in such position.

31. In a writing-machine, the combination with a rotatable cylindrical platen of an endless-band carrier positively driven at the same surface speed as that of the platen and coöperating with the surface thereof, endless-band guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet or sheets from the endless carrier, and means for simultaneously moving the endless carrier and guides out of operative relation to the platen and locking them in such position.

32. In a writing-machine, the combination of a rotatable cylindrical platen, a roll mounted adjacent the feed side thereof and at such distance therefrom as to afford the desired entrance, a second roll, in front of the first one, normally urged yieldingly against the platen, an endless-band carrier traveling about said roll, rolls arranged adjacent said second-named roll and normally urged yieldingly against the platen, corresponding rolls located at the delivery-point and mounted suitably adjacent the platen, endless guide and delivery bands traveling around the second-named sets of rolls in coöperative relation to the surface of the platen, and means for adjusting the endless guide and delivery bands and their rolls longitudinally of the platen.

33. In a writing-machine, the combination of a rotatable cylindrical platen, a roll mounted adjacent the feed side thereof and at such distance therefrom as to afford the desired entrance, a second roll, in front of the first one, normally urged yieldingly against the platen, an endless-band carrier traveling about said roll, means for positively driving the endless-band carrier, rolls arranged adjacent said second-named roll and normally urged yieldingly against the platen, corresponding rolls located at the delivery-point and mounted suitably adjacent the platen, endless guide and delivery bands traveling around the second-named sets of rolls in coöperative relation to the surface of the platen and means for adjusting the endless guide and delivery bands and their rolls longitudinally of the platen.

34. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier adapted to run in contact with the surface of the platen, and endless-band guides, also coöperating with the surface of the platen, and adjustable longitudinally thereof.

35. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact with the surface of the cylinder, endless-band guides adjustable longitudinally of the platen, and means for moving the carrier and guides out of operative relation to the platen.

36. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven endless-band carrier running in contact with the surface of the cylinder, endless-band guides adjustable longitudinally of the platen, and means for moving the carrier and guides out of operative relation to the platen.

37. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier running in contact with the central part of the platen-surface at the feed side thereof, and guides adjustable longitudinally of the platen and coacting with the side of the platen where the printing occurs.

38. In a writing-machine, the combination with a rotatable cylindrical platen, of a coöperating endless-band carrier running in contact with the feed side thereof, and guides located at the side of the platen where the printing occurs and adapted to receive a fed sheet from the endless carrier.

39. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven coöperating endless-band carrier running in contact with the feed side thereof, and endless-band guides located at the side of the platen where the printing occurs and adapted to receive a fed sheet from the endless carrier.

40. In a writing-machine, the combination with a rotatable cylindrical platen, of a positively-driven endless-band carrier running in contact with the platen at one side of the line of print and on the feed side of the platen, and longitudinally-adjustable guides located on the side of the platen where the printing occurs and adapted to receive the sheet from the endless carrier.

41. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier positively driven coöperating therewith and located at one side of the line of print and on the feed side of the platen, and longitudinally-adjustable guides located on the side of the platen where the printing occurs and adapted to receive the sheet from the endless carrier.

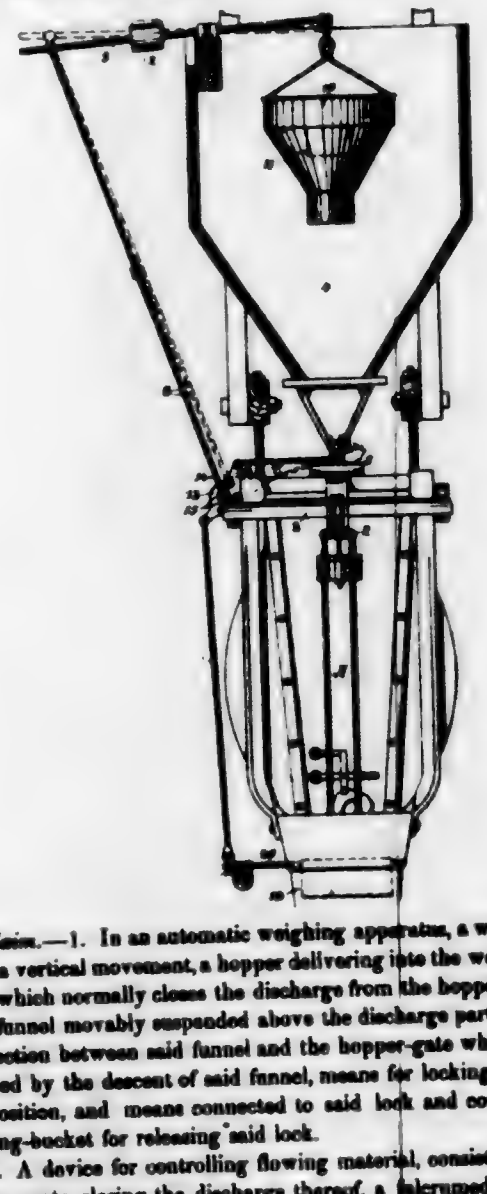
42. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier positively driven coöperating therewith and located at one side of the line of print and on the feed side of the platen, longitudinally-adjustable guides located on the side of the platen where the printing occurs and adapted to receive the sheet from the endless carrier, and means for throwing the carrier out of operative relation to the platen.

43. In a writing-machine, the combination with a rotatable cylindrical platen, of an endless-band carrier coöperating with the surface thereof, guides coöperating with the platen, adjustable longitudinally thereof, and adapted to receive the sheet from the endless carrier, and means for simultaneously moving the endless carrier and guides out of operative relation to the platen.

691,627. AUTOMATIC FEED-REGULATING APPARATUS.

GEORGE HOEFNER, San Francisco, Cal., assignor to the Union Scale and Manufacturing Company, Sacramento, Cal., a Corporation of California.

Filed Nov. 6, 1900. Serial No. 36,671. (No model.)



Claim.—1. In an automatic weighing apparatus, a weighing-bucket having a vertical movement, a hopper delivering into the weighing-bucket, a gate which normally closes the discharge from the hopper, an open-bottomed funnel movably suspended above the discharge part of the hopper, a connection between said funnel and the hopper-gate whereby said gate is opened by the descent of said funnel, means for locking said gate in its open position, and means connected to said lock and controlled by the weighing-bucket for releasing said lock.

2. A device for controlling flowing material, consisting of a hopper having a gate closing the discharge thereof, a fulcrumed lever, connections by which said gate is opened or closed, a lever fulcrumed with relation to the upper part of the hopper, with one end projecting above it, an open-bottomed funnel suspended from said lever and discharging within the hopper, a connection between the outer end of said lever and the gate-controlling lever, a weight adjustable upon the funnel-supporting lever, and means for preventing or avoiding the pressure upon the downward movement of the funnel.

3. A device for controlling the supply of flowing material consisting of a hopper, a gate movable to open or close the discharge of said hopper, a fulcrumed lever-plate having one arm connected with the gate, a second lever fulcrumed with relation to the hopper, an open-bottomed funnel suspended from the end of the lever within the hopper, an inverted cup fixed centrally within the cone of the funnel, a weight adjustable upon the lever and connections between its outer arm and the gate-controlling-lever plate.

4. A device for controlling the flow of material, consisting of a hopper, an open-bottomed funnel, a fulcrumed lever by which said funnel is suspended to discharge within the hopper, a fulcrumed plate, one arm of which is connected with the outer arm of the funnel-supporting lever, and the other with the hopper-gate, whereby the depression of the funnel and movement of the lever act to open the gate and allow the material to be

discharged from the hopper, and means for preventing or avoiding pressure of material.

5. In an automatic weighing apparatus, a weighing-bucket, a hopper delivering into the weighing-bucket, a gate which normally closes the discharge from the hopper, an open-bottomed funnel movably suspended above the discharge part of the hopper, a connection between said funnel and the hopper-gate whereby said gate is opened by the descent of said funnel, means for locking said gate in its open position, and means connected to said lock and operated by the discharge of material from the weighing-bucket for releasing said lock.

6. A device for controlling the flow of material, consisting of a hopper, an open-bottomed funnel, a fulcrumed lever by which said funnel is suspended to discharge within the hopper, a fulcrumed plate, one arm of which is connected with the outer arm of the funnel-supporting lever, and the other with the hopper-gate, whereby the depression of the funnel and movement of the lever act to open the gate, and a latch by which the gate is held open until the contents of the hopper are discharged.

7. A feeding apparatus comprising a hopper having a discharge-gate, an open funnel movably supported so as to receive material and deliver it to said hopper, and having a connection to said gate, and means carried by said funnel for preventing or avoiding pressure upon the downward movement of the funnel and thereby permitting the weight of the material in the funnel to cause it to sink.

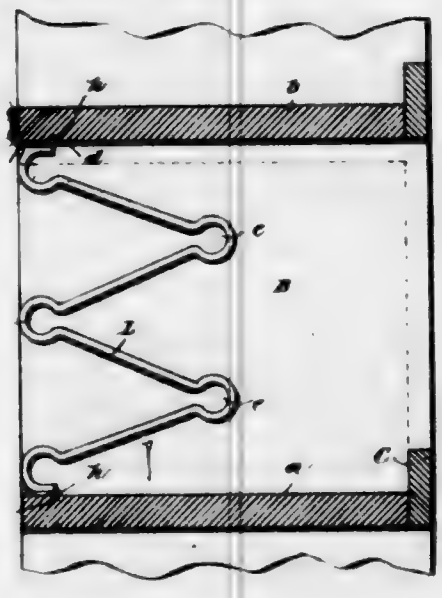
8. A device for controlling the flow of material consisting of a hopper, a fulcrumed lever, one arm projecting into the hopper, an open-bottomed funnel suspended from the inner arm of the lever, a gate by which the bottom of the hopper is normally closed until the hopper is filled up to the point when the additional weight in the funnel causes the latter to sink, connections between the funnel-supporting lever and the hopper-gate whereby the latter is opened by the sinking of the funnel, a latch by which the gate is retained in its open position until the hopper has discharged its contents, and means for disengaging the latch, and allowing the parts to return to their normal position, consisting of a tilting plate located in the path of a subsequent discharge of material, a rocker-arm actuated by said plate and connection between said arm and the latch.

9. The combination in an automatic weighing-machine of a scale-beam, a bucket suspended therefrom, a supply-hopper delivering into the bucket, a gate which normally closes the discharge from the hopper, a fulcrumed lever located with relation to the hopper, an open-bottomed funnel suspended from one arm of the lever within the hopper, connections between said lever and the hopper-gate whereby the latter is opened by the tilting of the lever, a latch by which the gate is retained in its open position while the flow continues into the weighing-bucket, a tilting plate located so as to be tilted by the discharge from the weighing-bucket, and connections between said plate and the hopper-gate latch whereby the latter is released and the hopper-gate allowed to close.

10. The combination of a hopper and a controlling-gate therefor, a fulcrumed lever and means whereby it is connected with the gate, a funnel suspended from said lever and an inverted cup fixed centrally within the cone of the funnel.

11. The combination of a hopper, a gate controlling the discharge of said hopper, a fulcrumed weighted lever and means whereby it is connected with the gate, an open-bottom funnel suspended from the end of the lever within the hopper, and an inverted cup fixed centrally within the cone of the funnel.

691,628. FILE-CASE. JACOB A. HOFFMAN and WILBER R. MAGIE, Paulding, Ohio; said Magie assignor to said Hoffman. Filed Aug. 13, 1901. Serial No. 71,972. (No model.)



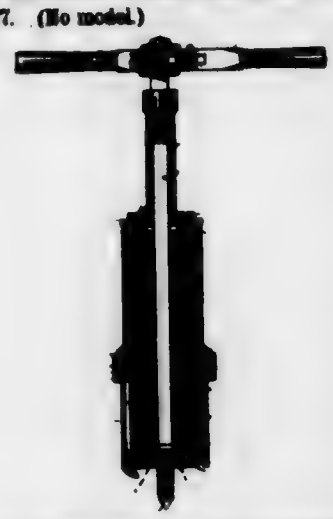
Claim.—1. In a file case or holder, the combination of walls arranged a suitable distance apart and forming a compartment, and an adjustable partition formed of spring material and having the alternate, oppositely-directed loops; the said partition being interposed between the walls, and adapted to bind against the same and thereby secure itself against casual movement or displacement.

2. In a file case or holder, the combination of lower and upper walls having longitudinal grooves in their contiguous sides, and an adjustable partition interposed between the walls; the said partition being formed of spring-wire, and having the superposed, oppositely-directed loops, and also having tongues at its ends seated in the grooves of the walls.

3. In a file case or holder, the combination of lower and upper walls having longitudinal grooves in their contiguous sides adjacent to their forward edges, and an adjustable partition interposed between the walls; the said partition being formed of spring-wire, and having the superposed, oppositely-directed loops, and tongues at its opposite ends seated in the grooves of the walls, and also having a holder at one end for the reception of an index-card.

4. In the file case or holder described, the combination of lower and upper walls having longitudinal grooves in their contiguous sides adjacent to their forward edges, and an adjustable partition interposed between the walls; the said partition being formed of spring-wire bent into superposed, oppositely-directed loops, and having the strip at one end provided with a tongue disposed in the groove in one wall, and also having the strip at its opposite end provided with a tongue disposed in the groove of the other wall, and also provided with the angularly-disposed portion, and the flange and rest thereon for the reception of an index-card.

691,629. BORING APPARATUS. FRANK HOLBROOK, Lynn, Mass., assignor to New England Fire Supply Company, a copartnership composed of himself and Robert R. Bass, Lynn, Mass. Filed Dec. 14, 1900. Serial No. 39,887. (No model.)



Claim.—1. In a boring apparatus, the combination with a worm suitably secured thereto, of a cutter carried independently of the worm, and adjustable means for actuating either the worm or the cutter independently of one another.

2. A boring apparatus comprising a worm, a cutter carried independently of the worm, adjustable means for actuating either the worm or the cutter independently and means for feeding the cutter to or from the work independently of the worm.

3. A machine of the character indicated comprising a worm, a member carrying the worm, a cutter, a member for carrying the cutter, this latter member separately movable, a handle and connections for interlocking it with each of the members at different times.

4. A machine of the character described comprising a member, a worm carried by the member, and engaging the work, a cutter, a second member carrying the cutter, the members independently movable of one another, means for feeding the cutter to the work independently of the worm and a single means operated by the workman for engaging either member to operate it independently of the other.

5. A machine of the character indicated comprising a work-engaging device, a member carrying the device, a cutter, a member carrying the cutter, the latter member operative independently of the first-named member, a single means for engaging either of the members and means for feeding the cutter-carrying member to or from the work.

6. A machine of the character indicated comprising a worm and worm-carrying member, a cutter and a member for carrying the cutter, the members operative independently of one another, a single means for engaging either member alone and a screw-threaded connection between the two members whereby the cutter is fed progressively to the work independently of the worm which remains stationary.

7. A machine of the character indicated comprising a worm and worm-carrying member to be moved for engaging the work, a cutter and

cutter-carrying member to be moved independently of the worm-carrying member, for cutting the work, a revoluble shaft supported in the worm-carrying member, connections for interlocking the shaft with either of the members and means for rotating the shaft.

8. A machine of the character indicated comprising worm and worm-carrying members for engaging the work, cutter and cutter-carrying member, the latter operative independently of the worm and worm-carrying member for cutting the work, a single means for actuating the members independently of one another and means whereby to feed the cutters progressively to the work.

9. A machine of the character indicated comprising a worm, and worm-carrying member for engaging the work, a cutter and cutter-carrying member for cutting the work, the members being in screw-threaded connection and telescoping one into the other, and a single means for engaging and operating either member independently of the other.

10. A machine of the character indicated comprising a worm and worm-carrying member, for engaging the work, a cutter and cutter-carrying member for cutting the work, the cutter member operative independently of the worm-carrying member, a single means for actuating either member independently of the other and means for varying the circumference of cut described by the cutter.

11. In a boring apparatus, the combination with two telescopic members, one of which carries a worm and the other of which carries a cutter, one member being entirely receivable in the other, of an independent screw for rigidly and removably fastening the worm to the worm-carrying member, and means for rigidly and removably fastening the cutter to the cutter-carrying member, the members operative independently of each other and means for feeding the cutter to the work progressively.

12. In a boring apparatus, the combination with two telescopic members, one of which carries a worm and the other of which carries a cutter, of means for rigidly and removably securing the worm to the worm-carrying member, the cutter having a beveled face, a pin detachably securing the cutter to the cutter-carrying member, and a collar on the cutter-carrying member having a beveled face which engages the oppositely-beveled face of the cutter to clamp it rigidly in place.

13. In a boring apparatus, the combination with two members, one member carrying a cutter and the other member carrying a work-engaging device, the cutter and work-engaging device each detachably secured to their respective members, a shaft revolubly secured to one of the members, a sleeve movable endwise on the shaft, and means on each member engaged by the sleeve whereby either member may be operated independently of the other.

14. In a boring apparatus, the combination with two members, one of which carries a cutter and the other of which carries a worm secured thereto, of a shaft revolubly secured to the worm-carrying member, a sleeve capable of endwise movement on the shaft, means on the members engaged by the sleeve at different times whereby either member may be operated independently of the other, straps on one of the members whereby to removably secure the sleeve rigidly in place, and a handle on the shaft, the handle provided with a ratchet for continuously or intermittently revolving the shaft.

15. In a boring apparatus, the combination with two members, actuated independently of one another, of a shaft, a head formed on one end of the shaft and a recessed collar fitting over the head of the shaft and secured to one of the members whereby the shaft is removably and rotatively held to the member.

16. In a boring apparatus, the combination with a worm suitably secured thereto, of a cutter carried independently of the worm, and a single means for actuating either the worm or the cutter independently of one another.

17. A boring-machine comprising a plurality of members, one of which is telescopically received and contained in the other, and a single operating means which engages either member independently of the other for actuating them.

18. A boring-machine comprising two members, one of which is telescopically received and contained within the other, one member carrying a worm by which the device may be held to the material to be operated upon, the other member carrying a cutter member, and a single operating means connected to the machine and adapted to actuate either member independently of the other.

691,680. BREAST-STRAP SLIDE. THOS. HUBERDEAU, Larimore, N. D. Filed Sept. 27, 1901. Serial No. 76,768. (No model.)



Claim.—In a breast-strap slide, a hook having swivel connection with the frame and having its shank widened and slotted and having a depression at its outer side near the hook end in communication with the said slot, a mooring having an end portion reduced and pivoted within the slot of the shank and widened portion and having its outer edge about flush with the outer side of the bill and its inner edge bearing against the inner side of the said shank, a spring located in the said slot and having its intermediate portion offset, one end being seated in the said depression and the other end bearing against the reduced end of the mooring, the offset portion of the spring being thickened and apertured, and a pin passed through the aperture of the spring and connecting it with the shank of the hook, substantially as set forth.

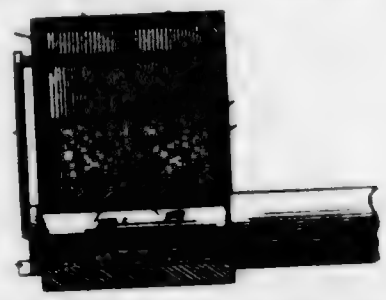
691,681. SPIRIT-LEVEL. JOSEPH H. JACKSON, Pittsburg, Pa. Filed Apr. 25, 1900. Serial No. 14,327. (No model.)



Claim.—1. In a device of the character described, the combination of a pair of hangers, one of which is adjustable, and each of which carries integral means for attaching to a line, a tube having integral apertured lugs extending beyond each end, means extending through said lugs and engaging the hangers for securing the tube thereto, said tube carrying the spirit-tube and having integral tongues at its ends which project upwardly and engage with the hangers, as and for the purpose shown and described.

2. In a spirit-level, the combination, with the hangers 2, 3, the latter of which is in two adjustable sections and each of which carries integral means for securing the hangers to a line, of the tube 9 provided centrally of its upper face with a sight-opening, said tube having an integral apertured lug at each end, the lugs extending beyond the tube, and means extending through said lugs for securing the tube to the hangers, the said tube carrying the spirit-tube and having at each end an upwardly-extending tongue, said tongues engaging in slots provided therefor in the hangers, substantially as shown and described.

691,682. LUBRICATOR. THOMAS S. JAMES, Shenandoah, Pa. Filed July 6, 1901. Serial No. 67,319. (No model.)



Claim.—1. The combination with the axle or shaft and the journal box or bearing, said box or bearing having an opening in the top thereof, of an oil box or receptacle having an opening in the bottom thereof adapted to register with the opening in the top of the journal box or bearing, the rock-shaft and lever, the wheel and chain, the plug carried by the chain, and adapted to fit the opening in the bottom of the oil box or receptacle, and the tappet-lug arranged upon the end of the axle or shaft, substantially as described.

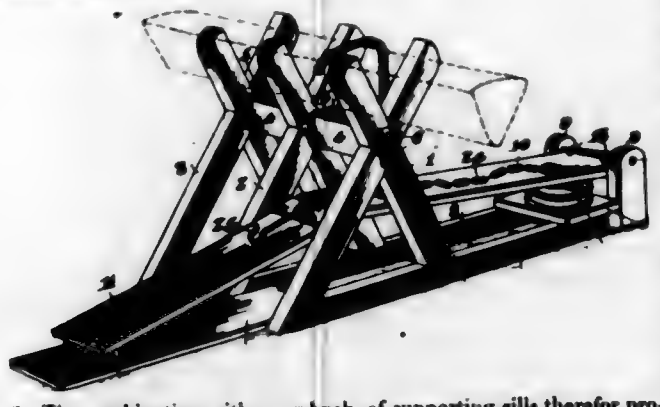
2. The combination with the axle or shaft, of the journal box or bearing made in two sections, the upper section having an opening produced therein, an oil box or receptacle arranged upon the upper section of the journal box or bearing and having an opening in the bottom thereof adapted to register with the opening in the top of the journal box or bearing, the plug adapted to open and close the said opening, the chain attached to the plug, the wheel around which the chain passes, the rock-shaft upon which the wheel is mounted, the rocking lever and the tappet, and the guide-rollers and brackets, all arranged and adapted to operate substantially as described.

691,683. SAWBUCK. MELVIN JINGER and CLARENCE W STANTON, Cohocton, N. Y. Filed Oct. 31, 1901. Serial No. 80,709. (No model.)

Claim.—1. The combination with a sawbuck, of a spring-treadle formed in pivotally-connected sections, one of the latter having a fixed terminal pivotal support, the outer free end of the other treadle-section being normally inclined downwardly and free to slide, and log-holding means carried by the treadle.

2. The combination with a sawbuck, having a rear extension, of an intermediately-jointed spring-supported treadle having one end pivotally connected to the extension and its opposite end inclined downwardly and

free to slide during the swinging movement of the treadle, and log-holding means carried by the treadle.



3. The combination with a sawbuck, of supporting-sills therefor projected in rear thereof, a spring-supported treadle having an intermediate pivotal joint and pivotally supported at its rear end upon the sills, the front end of the treadle being free to slide under the swinging movement of the treadle, and log-holding means carried by the treadle.

4. The combination with a sawbuck, of supporting-sills therefor projected in rear thereof, a pair of posts rising from the rear end of the sills, a platform in front of the posts, a treadle comprising front and rear sections which are pivotally connected, the outer end of the rear section being pivotally connected between the posts, and the outer end of the front section being free to slide during the swinging movement of the treadle, an elevating-spring interposed between the platform and the rear treadle-section, and log-holding means carried by the treadle.

5. The combination with a sawbuck, of a flexibly-jointed treadle, a pivotal support for one end of the treadle, an antifriction-roller carried by the opposite free end of the treadle, a plate carried by the buck and disposed for the support of the antifriction-roller, and log-holding means carried by the treadle.

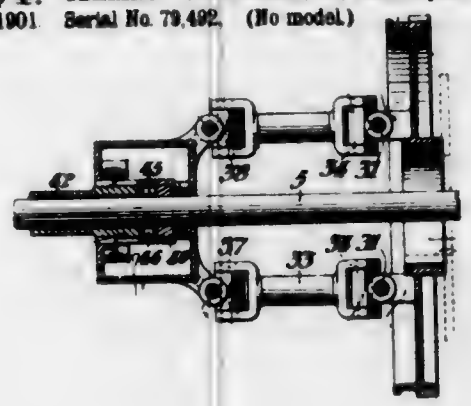
6. The combination with a sawbuck, of a flexibly-jointed treadle, a pivotal support for one end of the treadle, an antifriction-roller carried by the opposite free end of the treadle, a vertically-swinging plate pivotally connected with the sawbuck and disposed beneath the free end of the treadle in normal supporting engagement with the antifriction-roller, and log-holding means carried by the treadle.

7. The combination with a sawbuck having a lateral extension, of a treadle pivoted thereto and comprising pivotally-connected sections projected between the leg-standards of the buck, the outer treadle-section being capable of being folded upwardly between said leg-standards, and also provided at its outer end with an antifriction supporting-roller, and a plate pivoted between the leg-standards and adapted to rest upon the ground for the support of the roller, said plate also being capable of being folded upwardly and inwardly between the leg-standards, and log-holding means carried by the treadle.

8. The combination with a sawbuck, of supporting-sills therefor projected at one side of the buck, posts rising from the rear end of the sills, a treadle lying between and projected at opposite sides of the leg-standards of the buck, the treadle being provided with an intermediate hinged joint, the rear end of the treadle being pivotally supported between the posts, a spring interposed between the sills and the rear portion of the treadle, an antifriction-roller carried by the under side of the outer portion of the treadle, a plate pivoted between the standards and adapted to rest upon the ground for the support of the antifriction-roller, and log-holding means carried by the rear portion of the treadle.

9. A sawbuck, comprising opposite pairs of crossed leg-standards, a cross-bar extending between the pairs of standards at the points of crossing thereof, the top and bottom edges of the cross-bar being provided with grooves, and tie-bolts piercing the opposite pairs of leg-standards and lying in the respective grooves.

691,634. GEARING. Lewis Jones, Jr., Philadelphia, Pa. Filed Oct. 22, 1901. Serial No. 79,492. (No model.)



Claim.—1. In gearing of the class described, the combination with a driving element; of a driven element; a resilient medium connecting said elements in normally concentric relation, but permitting relative gyration of their axes; a link intermediate of said elements; and pivotal joints operatively connecting said elements by said link, whereby continuous rotary motion may be transmitted from one to the other irrespective of the relative gyration of their axes, substantially as set forth.

2. In gearing of the class described, the combination with a driving element; of a driven element; means operatively connecting said elements in normally concentric relation, whereby continuous rotary motion may be transmitted from one to the other, irrespective of the relative gyration of their axes; two gears in concentric relation with said driven element; and means operatively connecting said driven element with said two gears, whereby the latter may be rotated contemporaneously and independently, substantially as set forth.

3. In gearing of the class described, the combination with a driving element provided with a central opening; of a shaft extending through said opening, and arranged to gyrate therein; a driven element mounted upon said shaft in concentric relation therewith; a link intermediate of said driving and driven elements; and universal joints operatively connecting said elements by said link, whereby rotary motion may be transmitted from one to the other irrespective of the relative gyration of their axes, substantially as set forth.

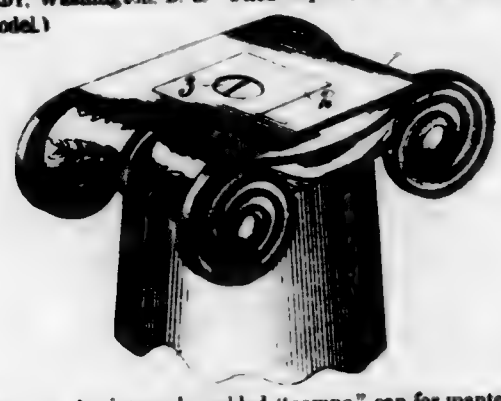
4. In gearing of the class described, the combination with a driving-gear provided with a central opening; of a shaft extending through said opening and arranged to gyrate therein; a gear-casing mounted to rotate independently of said shaft in concentric relation therewith; means operatively connecting said driving-gear and said gear-casing, whereby continuous rotary motion may be transmitted from one to the other irrespective of the relative gyration of their axes; a sleeve mounted to rotate independently of said shaft in concentric relation therewith; two gears, respectively fixed to said shaft and to said sleeve, in concentric relation with said gear-casing; and, means operatively connecting said gear-casing with said two gears; whereby the latter may be rotated contemporaneously and independently, substantially as set forth.

5. In gearing of the class described, the combination with a driving-gear provided with a central opening; of a shaft extending through said opening and arranged to gyrate therein; a gear-casing mounted to rotate independently of said shaft in concentric relation therewith; means operatively connecting said driving-gear and said gear-casing, whereby continuous rotary motion may be transmitted from one to the other irrespective of the relative gyration of their axes; a sleeve mounted to rotate independently of said shaft in concentric relation therewith; two gears, respectively fixed to said shaft and to said sleeve, in concentric relation with said gear-casing; a planetary gear mounted in said gear-casing, in engagement with said shaft-gear; a second planetary gear mounted in said gear-casing, in engagement with the first planetary gear and with said sleeve-gear; whereby rotary motion may be transmitted contemporaneously and independently from said gear-casing to said shaft and said sleeve, substantially as set forth.

6. In gearing of the class described, the combination with a driving-gear provided with a central opening; of a shaft extending through said opening, and arranged to gyrate therein; a resilient medium connecting said driving-gear and shaft in normally concentric relation but permitting relative gyration of their axes; a gear-casing mounted to rotate independently of said shaft in concentric relation therewith; means operatively connecting said driving-gear and said gear-casing, whereby continuous rotary motion may be transmitted from one to the other irrespective of the relative gyration of their axes; a sleeve mounted to rotate independently of said shaft in concentric relation therewith; two gears respectively fixed to said shaft and to said sleeve in concentric relation with said gear-casing; and a pair of planetary gears, mounted in said gear-casing, in engagement with each other and in respective engagement with said shaft-gear and with said sleeve-gear, whereby said shaft and sleeve gears may be rotated contemporaneously and independently, substantially as set forth.

7. In gearing of the class described, the combination with a driving-gear provided with a central opening; of a shaft extending through said opening, and arranged to gyrate therein; a resilient medium connecting said driving-gear and shaft in normally concentric relation but permitting relative gyration of their axes; a gear-casing mounted to rotate independently of said shaft in concentric relation therewith; a link operatively connecting said driving-gear and said gear-casing by pivotal joints, whereby continuous rotary motion may be transmitted from one to the other irrespective of the relative gyration of their axes; a sleeve mounted to rotate independently of said shaft in concentric relation therewith; two gears respectively fixed to said shaft and to said sleeve in concentric relation with said gear-casing; and a pair of planetary gears, mounted in said gear-casing, in engagement with each other and in respective engagement with said shaft-gear and with said sleeve-gear, whereby said shaft and sleeve gears may be rotated contemporaneously and independently, substantially as set forth.

691,635. COMPO CAP FOR MANTEL-COLUMNS. EDGAR S. KENNEDY, Washington, D. C. Filed Sept. 3, 1901. Serial No. 74,248. (No model.)

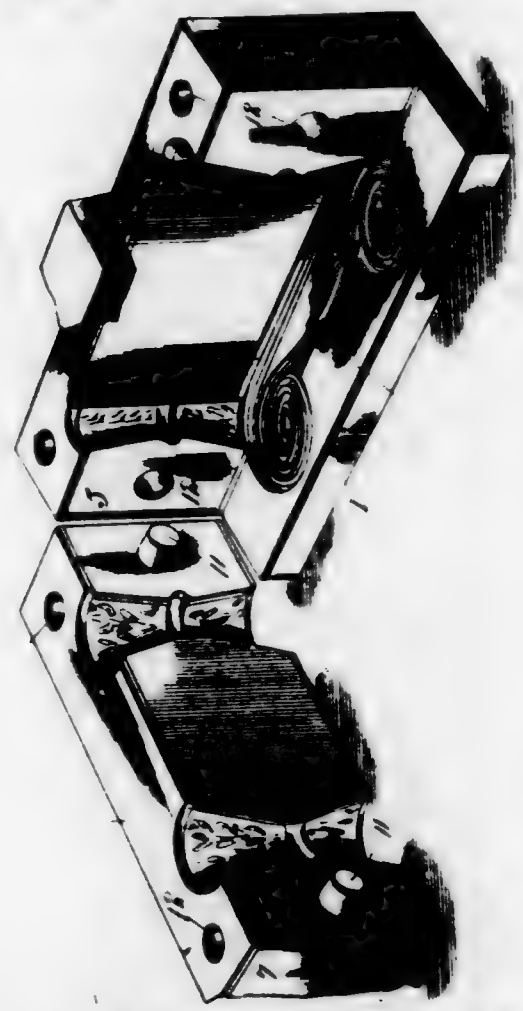


Claim.—1. An integral, molded "compo" cap for mantel-columns, combined with means embedded in the body of the cap for securing it to the column.

2. An integral, molded "compo" cap for mantel-columns, said cap having a block of wood or similar material embedded therein.

3. An integral, molded "compo" cap for mantel-columns, said cap having a block of wood or similar material embedded therein and means attaching the block to the column.

691,636. MOLD FOR COMPO CAPS FOR MANTEL-COLUMNS. EDGAR S. KENNEDY, Washington, D. C. Filed Sept. 3, 1901. Serial No. 74,249. (No model.)



Claim.—1. A sectional mold the material of which has all its surfaces except the molding-surface inclosed in a box or casing.

2. A sectional mold formed in plastic material and having all its surfaces except the molding-surface inclosed in a box or casing.

3. A mold the substance forming which is inclosed in metal or other suitable material extending to the edges of the mold and conforming to the peripheral outline thereof, whereby the mold is protected from injury and is enabled to withstand high pressure.

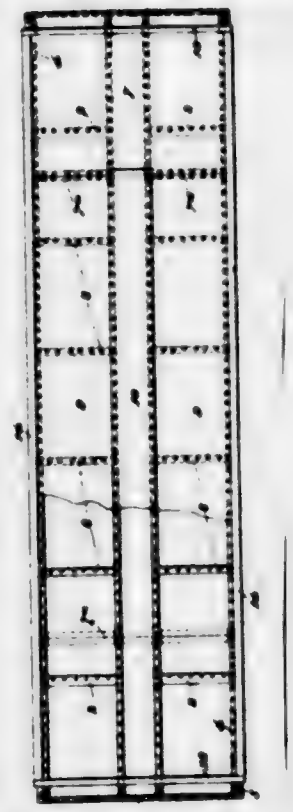
4. A mold for "compo" caps for mantel and other columns, said mold having a plurality of sectional molds each inclosed in a box or casing which has an opening or openings thereinto exactly similar in peripheral outline to the peripheral outline of that portion of the said cap to which said sectional mold corresponds.

5. A mold for "compo" caps for mantel and other columns, having a section thereof inclosed in a box or casing through which there is an opening exactly similar in peripheral outline to the peripheral outline of that portion of the cap to which said section corresponds.

6. A sectional mold for making "compo" caps for mantel and other columns each section of which consists of a box or casing having an opening through a wall or walls thereof which opening is exactly similar in peripheral outline to the peripheral outline of that portion of the cap to which the given section corresponds.

7. A sectional mold entirely inclosed by a protecting box or casing except for an opening similar in peripheral outline to that section of the molded object to which said sectional mold corresponds.

691,637. LOW-SIDE GONDOLA CAR. GEORGE I. KING, Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo., a Corporation of New Jersey. Filed June 12, 1901. Serial No. 64,344. (No model.)



Claim.—1. In a car, the combination with end and side sills, of center sills, body-bolsters, floor-plates, serving as cover-plates for the center sill and body-bolsters, and reinforcing-plates for the body-bolsters, said plates being arranged under the floor-plates, and above the bolsters, substantially as described.

2. In a car, the combination with center and end sills, of Z-shaped side sills, floor-beams extending from the side to the center sills, floor-plates riveted to the top flanges of said parts, and side walls in the form of plate-girder webs which are secured to the vertical webs of the side sills, substantially as described.

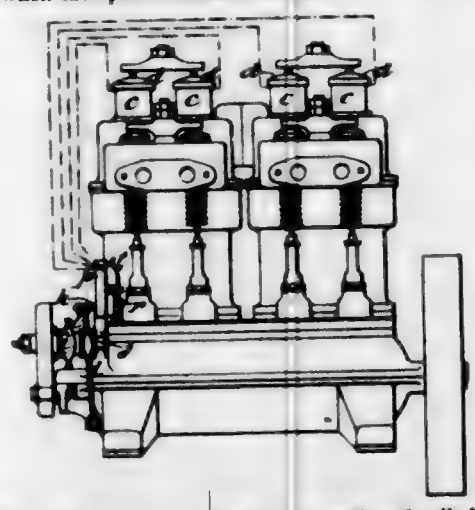
3. In a car, the combination with center and end sills, of Z-shaped side sills, body-bolsters, floor-sheets riveted to the top flanges of said parts and forming cover-plates for the body-bolsters and center sill, end walls, and side walls, said side walls being provided with compression-flanges along their upper edges and being secured to the vertical webs of the side sills, which serve as tension-flanges, said side walls in conjunction with said flanges acting as plate-girders and assisting in carrying the load, substantially as described.

4. In a car, the combination with end, center, and side sills, said side sills being Z-shaped with their bottom flanges presented outwardly and their top flanges presented inwardly, body-bolsters, floor-beams intermediate the body-bolsters and attached to the center and side sills, end floor-sheets 7, side floor-sheets 9, and a center floor-sheet 10, substantially as described.

5. In a car, the combination with end, center, and side sills, said side sills being Z-shaped with their bottom flanges presented outwardly and their top flanges presented inwardly, body-bolsters, floor-beams intermediate the body-bolsters and attached to the center and side sills, end floor-sheets 7, side floor-sheets 9, a center floor-sheet 10, end walls, and side walls riveted to the vertical webs of the side sills, and being provided with angles at their upper edges, said side walls serving in conjunction with the angles and side sills as plate-girders to carry a portion of the load, substantially as described.

691,688. ELECTROMAGNETIC REGULATOR FOR ADMISSION VALVES OF HYDROCARBON-MOTORS. ARTHUR C. KREBS, Paris, France, assignor to Ste. Anc. des Anciens Établissement Panhard et Levassor, Paris, France. Filed Oct. 29, 1900. Serial No. 34,757. (No model.)

Claim.—1. The combination in a motor of an automatic suction admission-valve, an electromagnet adapted when energized to hold said valve closed, an electric circuit passing through said electromagnet, and a governor driven by the motor and controlling said circuit to hold said valve closed and thereby stop the supply of combustible to the cylinder, thus retarding the movement of the motor, throwing the cylinder out of action so long as the speed is too great, and permitting it to come again into action when the speed becomes normal.



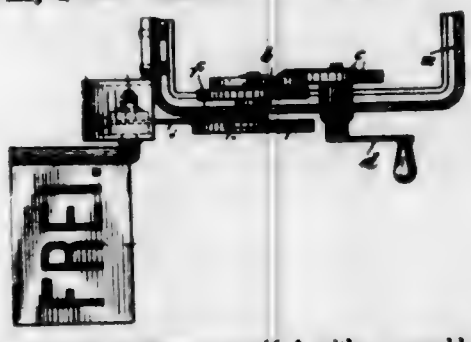
2. The combination in a motor of a plurality of cylinders, automatic suction admission-valves therefor, electromagnets adapted when energized to hold said valves closed, electric circuits passing through said electromagnets, and a governor driven by the motor and controlling said circuits to hold said valves successively closed as the speed of the motor rises, so as to stop the supply of combustible to the corresponding cylinders, thus retarding the movement of the motor, throwing the cylinders successively out of action so long as the speed is too great, and permitting them to come again into action when the speed becomes normal.

3. The combination in a motor of a plurality of cylinders, a valve for each of said cylinders, an electric circuit controlling each of said valves, a governor driven by the motor, and a contact operated by said governor to close said valve-controlling circuits in succession as the speed of the motor rises.

4. The combination in a motor of a plurality of cylinders, a valve for each of said cylinders, an electromagnet controlling each of said valves, a governor driven by the motor, a terminal operated by said governor and connected to a source of electricity, and separate terminals connected to said electromagnets, said separate terminals being arranged so that said governor-operated terminal makes contact with them successively as the speed of the motor rises.

5. The combination in a motor of a plurality of cylinders, a valve for each of said cylinders, an electromagnet controlling each of said valves, a governor driven by the motor, a terminal operated by said governor and connected to a source of electricity, and separate terminals connected to said electromagnets, said separate terminals being arranged so that said governor-operated terminal makes contact with them successively as the speed of the motor rises, and means for adjusting said magnet-terminals toward or from said governor-operated terminal.

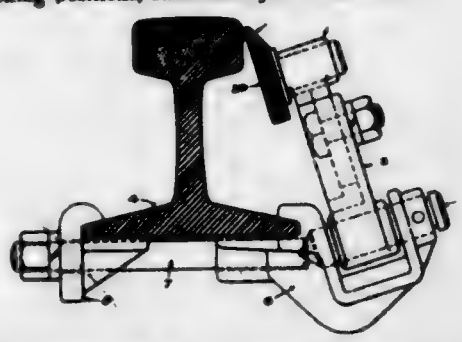
691,639. **FARE-INDICATOR.** OTTO KUNTZEN, Berlin, Germany. Filed May 4, 1901. Serial No. 58,779. (No model.)



Claim.—A fare-indicator provided with a movable flag, a cam-grooved disk for actuating the flag positively in both directions, and an intermittent feed mechanism for actuating the cam-grooved disk each time one of the price or rate indications is set.

691,640. **DETECTOR-BAR CLIP AND LINK.** WILLIAM H. B. LAVARACK, Troy, N. Y. Filed May 23, 1901. Serial No. 61,558. (No model.)

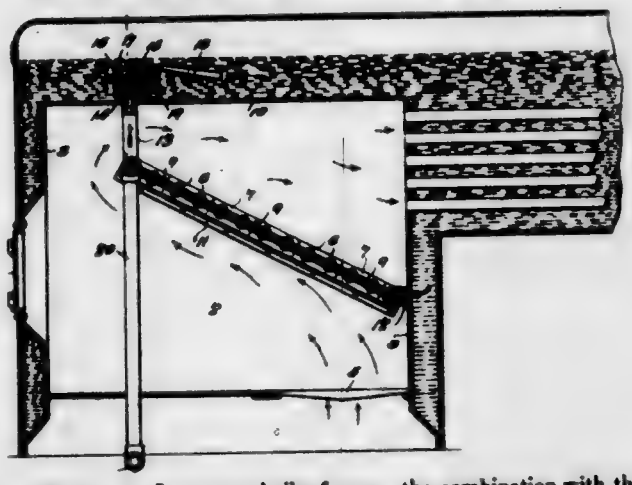
Claim.—1. In a detector-bar clip and link, the combination with a serrated or toothed support; and means for securing the support to a rail-way-rail; of an adjustable detector-bar link having a serrated or toothed wall adapted to interlock in differing positions with the serrated or toothed wall of the support; and means for securing the serrated parts in differing interlooking positions, substantially as described.



2. The combination with a channeled support having a serrated channel-wall; of an adjustable link having a serrated wall adapted to fit the channel in the support, with such serrated walls interlocking with each other; and means for securing the link and support in differing interlocking positions, substantially as described.

3. The combination with a channeled support having one of its channel-walls serrated and its wall opposite the serrated wall beveled to flare outwardly; of an adjustable link having a serrated wall on one side and a beveled wall on its side opposite the serrated wall, and adapted to fit the serrated and beveled channel in the support with the beveled walls in engagement, and the serrated walls interlocking, with each other; and means for securing the link and support in differing interlocking positions, substantially as described.

691,641. **STEAM-BOILER FURNACE.** JOHN J. LE DUC, Kerns, Minn. Filed July 5, 1901. Serial No. 67,204. (No model.)



Claim.—1. In a steam-boiler furnace, the combination with the fire-box, of a hollow baffle-plate located within the fire-box and in communication at opposite ends with the water-space surrounding the fire-box, a check-valve for one end of the baffle-plate, and a blow-off for said plate.

2. In a steam boiler furnace, the combination with the fire-box, of a hollow baffle-plate located within the fire-box and in communication with the water-space at the back of the fire-box and also with the space above the crown-sheet, a normally open check-valve controlling the communication between the hollow plate and the space above the crown-sheet, and a blow-off for the hollow plate.

3. In a steam-boiler furnace, the combination with the fire-box, of a hollow baffle-plate inclined upwardly and forwardly from the back of the fire-box, the lower end of the plate being in communication with the water-space at the back of the fire-box, and the upper end of the plate being in communication with the water-space above the crown-sheet, a normally open check-valve controlling the latter communication and located within the space above the crown-sheet, and a valve-controlled blow-off pipe connected to the upper end of the hollow plate and projected exteriorly of the fire-box.

4. The combination with a fire-box having a water-space surrounding the same, of a hollow baffle-plate located within the fire-box, and having opposite communicating passages with the water space at the back of the fire-box and above the crown-sheet, respectively, the latter passage having a valve-seat located above the crown-sheet, a cage fitted thereto, a vertically-movable valve mounted within the cage and having an upwardly-projected stem, a weighted lever fulcrumed intermediate of its ends and connected to the valve to normally hold it open, and a blow-off for the hollow baffle-plate.

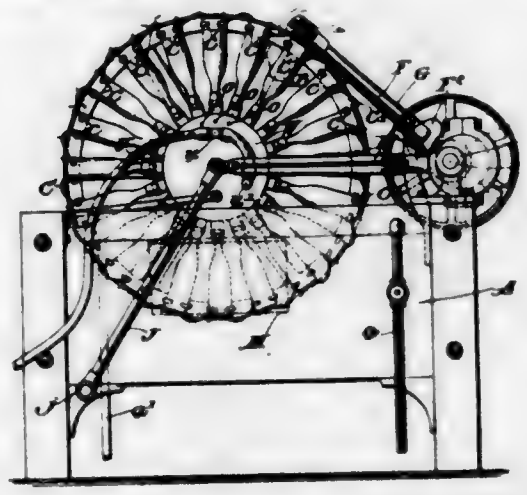
5. In a water-tube baffle-plate for fire-boxes, a plurality of tube-sections, couplings for corresponding ends of adjacent tube-sections, opposite inlet and outlet couplings, and opposite flanged supports, the first-mentioned couplings being constructed to lie upon the respective supports.

6. In a water-tube baffle-plate for fire-boxes, a plurality of substantially parallel tube-sections, terminal couplings for the corresponding ends of adjacent sections, and opposite flanged supporting-bars, the couplings being constructed to lie upon the flanged portions of the respective bars for the support of the tubes.

7. A hollow baffle-plate for fire-boxes, comprising a plurality of substantially parallel water-tubes, terminal couplings for the corresponding ends of adjacent tubes, and filling-bars having their opposite sides conforming to the contour of said tubes and snugly fitting the spaces between the tubes, the whole forming an imperforate baffle-plate having the upper and lower portions of the tubes exposed to the action of heat.

8. The combination with a fire-box having a water-space surrounding the same, of opposite flanges provided upon the inner walls of the fire-box and inclined upwardly and forwardly from the back thereof, a plurality of substantially parallel tube-sections extending transversely between the flanges, terminal couplings connecting corresponding ends of adjacent tube-sections and constructed to lie upon the flanges the adjacent couplings being abutted to space the tubes, filling-bars fitted snugly between adjacent tubes, a pipe connection between the lowermost tube and the water-space at the back of the fire-box, an upstanding discharge-pipe rising from the uppermost pipe and piercing the crown-sheet, a normally open check-valve at the upper end of the discharge-pipe and above the crown-sheet, and a blow-off pipe leading from the uppermost tube.

691,642. BOTTLE-WASHING MACHINE. STEPHAN LIPPERT and CHARLES W. HOTTMAN, Philadelphia, Pa. Filed June 26, 1901. Serial No. 66,083. (No model.)



Claim.—1. A bottle-washing machine comprising a tank, a circular frame or support mounted thereon and adapted to hold a series of bottles, means for rotating said support, a central hub turning with said support and having openings to receive the open ends of the bottles, said hub being also provided with a water-supply pipe and a discharge-orifice, means as shown to impart a reciprocating or rocking motion to said support, and said hub and means controlled by the rotation of the support, and hub to admit and discharge water to the hub and bottles substantially as specified.

2. A bottle-washing machine comprising a rotatable frame or support, having a central hub provided with a series of nozzles and a series of peripheral supports for holding bottles, means as shown for imparting a rotary motion to said frame, means as shown for imparting a rocking motion to said frame, a tank partially inclosing said frame and having water-supply and water-discharge pipes and means as shown connected to the hub for admitting water to and from the bottles substantially as specified.

3. A bottle-washing machine comprising a tank, a rotatable disk or frame and a driving-shaft, means as a train of gearing interposed between the driving-shaft and frame for imparting to the frame a rotary motion and means as a crank or eccentric for imparting a rocking motion to the frame, substantially as specified.

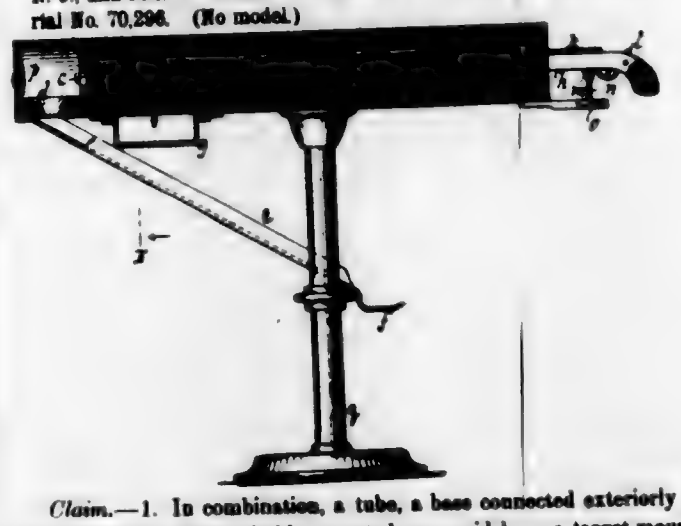
4. A bottle-washing machine comprising a tank provided with water supply and discharge pipes, a main driving-shaft, and a bottle-carrying disk or support, means as gearing interposed between the driving-shaft and said support for rotating the latter and means interposed between the driving-shaft and frame for reciprocating the latter, a hub provided with bottle-nozzles and with a water-supply pipe and discharge-orifices and means controlled by the rotation of the frame to admit and discharge water to the hub and bottles.

5. A bottle-washing machine comprising a tank, provided with water inlet and discharge pipes, a rotatable frame or support for holding bottles journaled in said tank, a driving-shaft and connections for rotating said frame, connections between the driving-shaft and frame for rocking the frame, a hub having nozzles to receive the bottles and provided as shown with water supply and discharge passages, and valves controlled by the rotation of said frame or support to regulate the flow of water to and from the nozzles and bottles.

6. A bottle-washing machine comprising in combination with a tank provided with a rotating and rocking frame or support for bottles which frame is provided with a hub having water supply and discharge mechanism, a stationary brush arranged within the tank and adapted to impinge upon the bottles carried by the frame as the same is rotated, substantially as specified.

7. A bottle-washing machine comprising a tank having water supply and discharge pipes, a circular frame or support having a hub mounted upon a shaft and a series of spring-clips for securing a series of bottles, a driving-shaft, an intermediate shaft having at one end a worm engaging a worm-wheel on the frame and at the other a bevel-gear engaging a similar gear on the driving-shaft, a hinged supporting-frame pivoted at the lower ends to the tank and the upper ends to the shaft supporting the circular frame, means for regulating a supply of water to and from the hub and an eccentric and connections for imparting a rocking motion to the circular frame, substantially as specified.

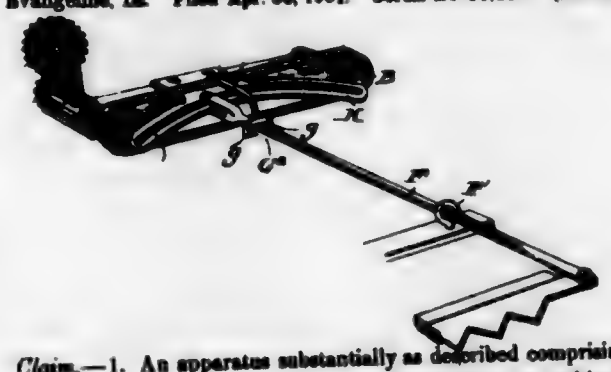
691,643. SHOOTING-GALLERY. WILLIAM F. LOSS, Summit, N. J., and JOHN F. BLAKE, New York, N. Y. Filed July 30, 1901. Serial No. 70,296. (No model.)



Claim.—1. In combination, a tube, a base connected exteriorly to one end thereof, a pistol suitably mounted upon said base, a target mounted in the said tube at the opposite end to that of the pistol, a receptacle at the front of the target arranged below the tube and communicating therewith, a funnel mounted within the tube at the rear of the target, a chute connected at one end to the tube and communicating with said funnel, a receiver connected to the chute, and a standard for supporting the said tube and free end of the chute.

2. In combination, a tube, a base connected exteriorly to one end thereof, a pistol, means for swivelly and pivotally connecting the pistol to the base, a target mounted in the said tube at the opposite end to that of the pistol, a receptacle at the front end of the target arranged below the tube and communicating therewith, a funnel mounted within the tube at the rear of the target, a chute connected at one end to the tube and communicating with said funnel, a receiver connected to the chute, and a standard for supporting the said tube and free end of the chute.

691,644. MECHANICAL MOVEMENT. EDWARD A. MAIDOUET, Evangeline, La. Filed Apr. 30, 1901. Serial No. 58,112. (No model.)



Claim.—1. An apparatus substantially as described comprising the sprocket belt or chain, its supporting and driving wheels, a rocking lever arranged at one end to operate in a plane between the runs of the belt, and a bar held to the belt and deflected thence inwardly and engaged with the lever whereby to operate the same by the movement of the belt, substantially as set forth.

2. In an apparatus substantially as described, the combination of a belt, the rocking lever movable longitudinally, and a slotted plate holding one end of the lever and causing it to reciprocate in a straight line, by its

guide forcing the lever to have a straight-line movement at its other end, and the bar projecting from the belt and deflected inwardly with its inner end engaged with the lever substantially as set forth and permitting its course around the sprocket-wheels.

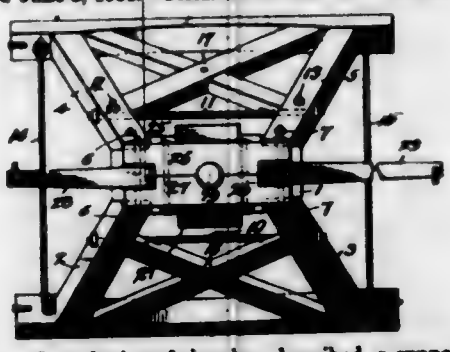
3. The combination of the belt and its supporting and operating devices, the guide-plate extending between the runs of the belt and having a curved guide-slot, the rocking lever having a sliding fulcrum and provided at its swinging end with means engaging in the slot of the guide-plate, and the bar connected at one end to the belt and engaged at its other end with the lever substantially as set forth.

4. The combination substantially as described, of the sprocket-belt, the sprocket-wheels supporting the same, the rocking lever arranged to swing back and forth between the runs of the belt and between its supporting-sprockets, and the bar secured at one end to the sprocket-belt and provided at its other end with a box or loop embracing the lever F substantially as set forth.

5. The improved apparatus herein described, consisting of the sprocket-belt, the pinions supporting the same, the curved guide-plate extending between the runs of the belt and in a line with the axes of the pinions, the lever having a sliding fulcrum and engaged at its swinging end with the curved guide-plate, and the bar secured at one end to the sprocket-belt and deflected inwardly toward its opposite end and provided at such end with a box or loop embracing the lever, all arranged and adapted for use, substantially as set forth.

6. An apparatus substantially as described, comprising the belt, its supporting and driving devices, a lever pivoted outside the space between the runs of the said belt, and arranged at one end to swing back and forth in the plane of the space between the runs of the belt, and devices between the belt and the lever, whereby the movement of the belt will operate to swing the pivoted lever back and forth, substantially as set forth.

691,645. STUMP-PULLER. MATHEW W. MASENBURE, Wedowee, Ala. Filed June 5, 1901. Serial No. 63,301. (No model.)



Claim.—1. In a device of the class described, a supporting-framework having a central aperture in its upper part and concaved around said aperture, a screw projecting through said aperture, a nut engaging said screw and with a convex surface engaging said concave surface in said framework, two blocks having recesses embracing said nut, and means for clamping said blocks upon said nut, and power-sweeps pivotally connected with said blocks, substantially as shown and described.

2. In a device of the class described, a supporting-framework having a head timber, a transverse block embracing said head and with a central enlarged aperture and having a concaved upper surface around said aperture, a screw projecting through said aperture, a nut engaging said screw and with a convex surface engaging said concave surface, a socketed head-block clamped upon the nut, and sweeps pivotally connected with the block, substantially as shown and described.

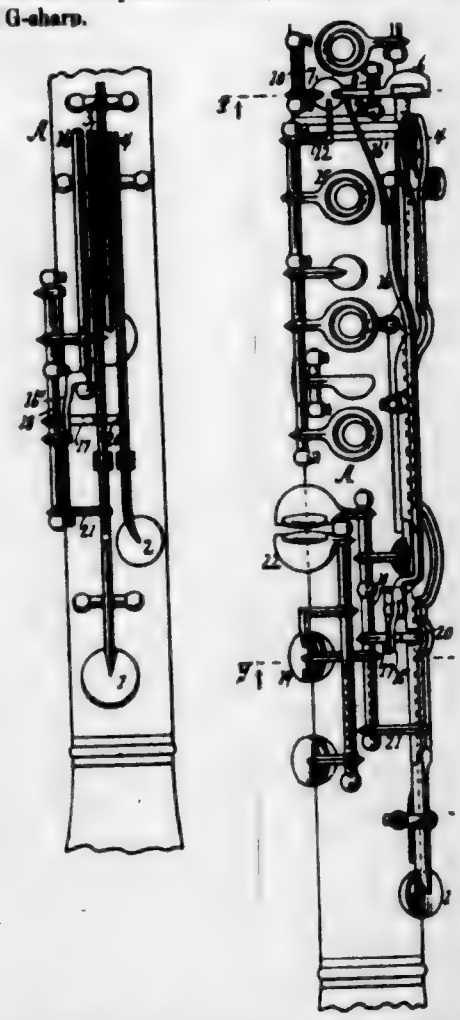
691,646. CLARINET. WILLIAM MEISEL, New York, N. Y. Filed Aug. 7, 1901. Serial No. 71,217. (No model.)

Claim.—1. A clarinet having a rock-shaft actuated by the key of C-natural and made to engage the finger-piece of the key G-sharp substantially as described.

2. In a clarinet, the combination with the keys C-natural, G-sharp, B-natural and C-sharp respectively and their finger-pieces, of a connection between the finger-pieces of C-natural and G-sharp clear of the finger-pieces of B-natural and C-sharp, substantially as herein shown and described.

3. A clarinet having a G-sharp key, a finger-piece therefor, a ring F-sharp provided with a trilling-arm for said key G-sharp, a rock-shaft for freeing or lifting the finger-piece of G-sharp, and keys B-natural and C-sharp made to actuate said shaft substantially as described.

4. In a clarinet, a G-sharp key, a finger-piece therefor, a rock-shaft 16, a lifter carried by one end of the rock-shaft and adapted to engage and actuate the finger-piece of the G-sharp key, an arm carried by the other end of said rock-shaft, a key of B-natural, a finger-piece therefor, a key of C-sharp, a rock-shaft 18, means carried by the rock-shaft and engaging with the key of C-sharp for actuating said rock-shaft when said key of C-sharp is operated and thereby cause the actuation of the finger-piece of G-sharp, and means carried by the rock-shaft 18 and engaging with the key of B-natural and adapted to actuate the rock-shaft 16 when the key of B-natural is operated, causing thereby the actuation of the finger-piece of G-sharp.

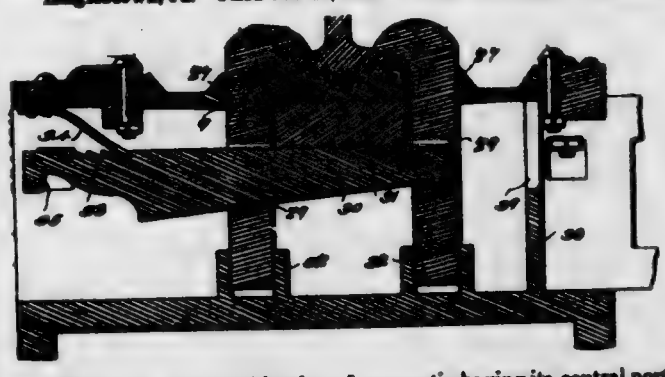


5. In a clarinet, keys of G-sharp and C-natural, separate finger-pieces for the said keys of G-sharp and C-natural, a rock-shaft engaging with and actuated by the finger-piece of C-natural, and a lifting-arm carried by said rock-shaft and engaging with and adapted to actuate the finger-piece of the key of G-sharp when the said rock-shaft is actuated by the finger-piece of C-natural.

6. In a clarinet, keys of G-sharp and C-natural, finger-pieces therefor, a rock-shaft actuated by the finger-piece of C-natural, and a lifting-arm carried by said rock-shaft for actuating the finger-piece of G-sharp when the rock-shaft is actuated by the finger-piece of C-natural.

7. A clarinet having keys G-sharp and C-natural, finger-pieces for said keys, and a rock-shaft actuated by said key of C-natural and provided with a lifting-arm for the finger-piece of the key G-sharp substantially as described.

691,647. METALLIC RAILWAY-TIE. WILLIAM H. MEISER, Linglestown, Pa. Filed Oct. 10, 1901. Serial No. 78,262. (No model.)



Claim.—1. The combination of a cross-tie having its central portion open at the top, bottom, and sides, said cross-tie being composed of sides provided with central openings, bottom sections connecting the sides and spaced apart to form the central bottom opening, transverse walls arranged at the inner ends of the bottom sections, and rail-supports arranged at the top of the cross-tie, substantially as described.

2. The combination of a cross-tie, a rail-supporting plate secured at its ends to the top of the cross-tie and provided with a central resilient portion arranged to receive a rail and adapted to permit the same to yield and means for securing the rail, substantially as described.

3. The combination of a cross-tie, a rail-supporting plate arranged at the top of the cross-tie and secured at its ends to the same, said plate being provided at opposite sides of its center with reduced portions forming a resilient central portion, and means for securing the rails, substantially as described.

4. The combination of a cross-tie, inner and outer clamps interlocked with the sides of the cross-tie and secured to the same, and a resilient rail-supporting plate engaged by the clamps and adapted to receive a rail, substantially as described.

5. The combination of a cross-tie provided at its sides with recesses, the inner and outer clamps interlocked with the recesses and provided with jaws, means for securing the clamps to the cross-tie, a plate having its edges arranged between the jaws of the clamps, said plate being adapted to receive a rail, and means for securing the rail to the plate, substantially as described.

6. The combination of a cross-tie, the inner and outer clamps interlocked with the sides of the cross-tie and provided with upper and lower jaws, the resilient rail-supporting plate engaged by the jaws, fastening devices passing through the jaws and engaging the plate, and means for securing a rail to the plate, substantially as described.

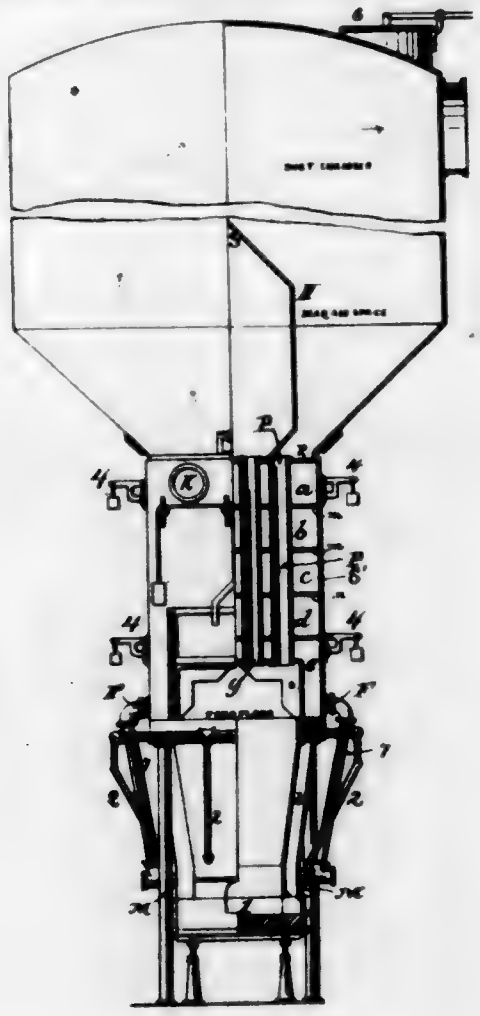
7. The combination of a cross-tie provided at its bottom with sockets, a resilient rail-supporting plate mounted on the cross-tie, clamps securing the rail to the plate and extending downward to the sockets and terminating short of the bottom thereof, whereby the sockets are adapted to support the clamps against lateral movement without interfering with the cushioning action of the rail-supporting plate, substantially as described.

8. The combination of a cross-tie a rail-supporting plate mounted on the cross-tie, rail-clamps passing through the plate, a wedge engaging the clamps, and a pawl for holding the wedge in such engagement, substantially as described.

9. The combination of a cross-tie, rail-clamps depending from the top of the cross-tie, a wedge interlocked with the clamps and provided with a series of teeth, and a resilient pawl engaging the teeth and locking the wedge against outward movement, substantially as described.

10. The combination of a cross-tie, a plate arranged at the top of the cross-tie and provided with openings, said plate being also provided with a depending portion or lug 31, rail-clamps extending through the openings, and a wedge engaging the depending portion or lug 31 of the plate and the clamps and provided with a shoulder, substantially as and for the purpose described.

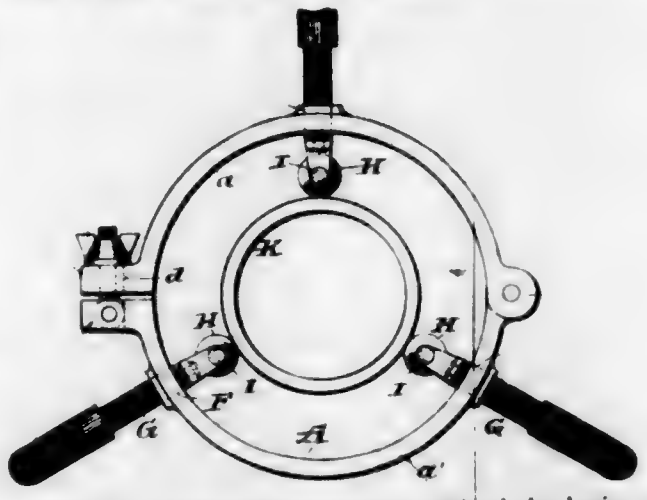
691,648. COPPER-SMELTING FURNACE. GEORGE MITCHELL, Los Angeles, Cal. Filed Aug. 4, 1900. Serial No. 25,922. (No model.)



Claim.—1. In a smelting-furnace, the combination with the crucible, a feed-floor, and a metal chamber or section located above the feed-floor of the furnace, of a series of transversely-arranged partitions forming a zigzag or serpentine passage for the air-blast, an air-blast inlet communicating with the upper end of such air-passage, air-pipes communicating at one end with the lower portion of the air passage or chamber, and their opposite ends with a series of twyers, and a series of vertical flues extending from the furnace upwardly through said partitions and air chambers or passages, substantially as set forth.

2. In a smelting-furnace, the combination with the crucible having a feed-floor and a feed-opening above the same and a metal chamber mounted on the feed-floor, of a series of horizontal metal partitions arranged to form a zigzag air-passage within said chamber, a series of vertically-arranged metal flues extending from the feed-opening upwardly through the metal chamber and through the several folds of the zigzag air-passage, an air-inlet communicating with the upper end of said air-passage, and pipes for conveying the heated air to the twyers, substantially as set forth.

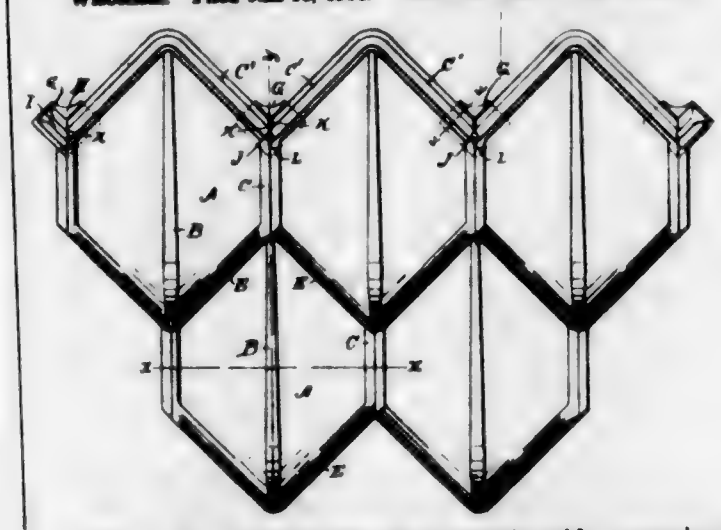
691,649. PIPE-CUTTER. GEORGE MITCHELL, Naco, Ariz. Filed Sept. 16, 1901. Serial No. 75,545. (No model.)



Claim.—1. A pipe-cutter comprising a sectional ring having a series of radial, threaded holes, a series of threaded operating-rods passing through said holes, and a cutter swiveled to the inner end of each rod, said rods serving to center a pipe within the ring, to rotate the ring around the pipe and to feed the cutters during the operation of severing a pipe.

2. A pipe-cutter comprising a ring made in two parts hinged together and provided with a clamp or lock for securing said sections together, said ring having a series of three or more radial threaded holes, threaded rods passing through said holes and carrying swiveled cutters at their inner ends and handles at their outer ends, said rods being arranged radially so as to center a pipe within the ring.

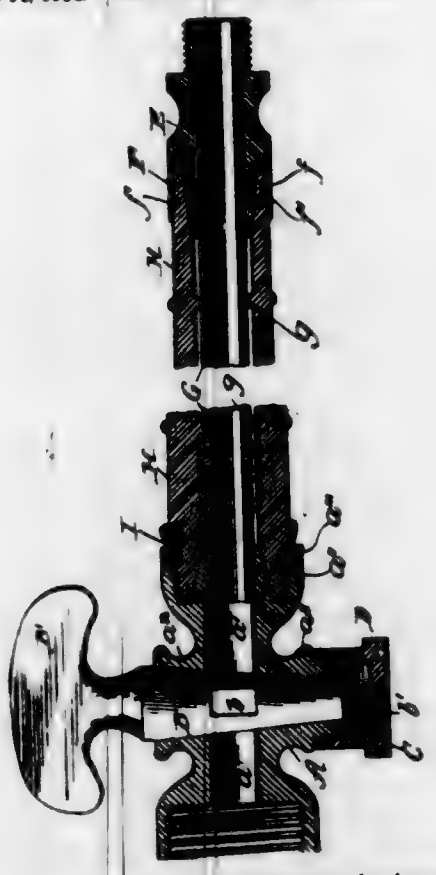
691,650. ROOFING-TILE. NICHOLAS MOSSHAMER, Milwaukee, Wis., assignor to Enameled Steel Roofing Company, a Corporation of Wisconsin. Filed Jan. 18, 1901. Serial No. 43,669. (No model.)



Claim.—In a metallic roofing, the combination with a succession of courses of metallic hexagonal roofing-tiles, having inversely-shaped interior and exterior surfaces, and provided with concavo-convex marginal edges, adapted to be overlapped and interlocked together; of angular sheet-metal fastening-pieces interposed between the tiles and their support, said fastening-pieces being located at the upper end of the overlapping flanges of the two next adjacent tiles in the respective courses; and

the concavo-convex surfaces of the angular V-shaped elevations of said fastening-pieces being adapted to conform in shape to, and engage in, the concave surfaces of the angular top flanges of the two adjacent tiles above them; together with a fastening-nail inserted centrally through said fastening-pieces, the head of which is adapted to engage the contiguous edges of the two adjacent tiles in the respective courses, all substantially as and for the purpose specified.

691,651. SPRAYER. ROLAND MORRILL, Benton Harbor, Mich. Filed June 14, 1901. Serial No. 64,571. (No model.)



Claim.—1. An extension-nozzle for sprayers having a liquid-tube, a pair of fittings, one secured to each end of said tube, a sheathing surrounding the tube and extending from one of said fittings to the other, and means for non-rotatively securing the ends of the sheathing to the fittings, respectively, substantially as described.

2. An extension-nozzle for sprayers having a liquid-tube, a pair of fittings secured to the ends of said tube, a sheathing surrounding the tube and extending from one to the other of said fittings, and a ductile ring or collar secured to one of said fittings and having a portion deflected inward and in contact with the sheathing, substantially as described.

3. An extension-nozzle for sprayers having a liquid-tube, a pair of fittings secured to the ends of said tube, a sheathing surrounding the tube and extending from one to the other of said fittings, and an annular collar secured to one of said fittings and having its margin spun or crimped inward into engagement with the sheathing, substantially as described.

4. An extension-nozzle for sprayers having a liquid-tube, a pair of fittings connected with the ends of said tube, one of said fittings having a tapering nipple and a flange surrounding said nipple, a sheathing surrounding the tube and extending from one to the other of said fittings, one end of said sheathing being fitted over the nipple, and means carried by the flange and engaging the sheathing for holding it in place, substantially as described.

5. An extension-nozzle for sprayers having a liquid-tube, a pair of fittings connected with the ends of said tube, one of said fittings having a tapering nipple and a flange surrounding said nipple, a sheathing surrounding the tube and extending from one to the other of said fittings, one end of said sheathing being fitted over the nipple, and a ring or collar of ductile material secured to the flange and having a portion spun or crimped inward into engagement with the sheathing, substantially as described.

6. An extension-nozzle for sprayers having a liquid-tube, a pair of fittings secured to the ends of said tube, each of said fittings having a tapering nipple, a sheathing surrounding the tube and extending from one to the other of said fittings, the ends of said sheathing being fitted over the tapering nipple aforesaid, and rings or collars of ductile material secured to the fittings and having portions deflected inward into engagement with the sheathing for holding it, substantially as described.

7. An extension-nozzle for sprayers having a liquid-tube G, a fitting A having a bore into which one end of the tube is inserted and having a tapering nipple surrounding the tube, and an annular flange surrounding the nipple, having between them an annular recess, means for securing the tube in place in the bore of the fitting, a sheathing surrounding the tube and having one end fitted over the nipple, and an annular ring or collar of ductile material secured to the flange and having a portion spun or crimped inward in engagement with the fitting, substantially as described.

8. An extension-nozzle for sprayers having a liquid-tube G, fittings A and F having bores into which projects means for securing the tube to the fittings, and a sheathing surrounding the tube and extending from one to the other of the fittings each of said fittings having a tapering nipple surrounding the tube, the ends of the sheathing being fitted over said nipples, and rings of ductile material secured to the fittings, and having portions deflected inward into engagement with the sheathing, substantially as described.

691,652. PUMP. ROLAND MORRILL, Benton Harbor, Mich. Filed June 24, 1901. Serial No. 65,799. (No model.)



Claim.—1. In a pump of the class described, the combination of a cylinder, a hollow base open at the bottom and having an opening opposite the lower end of said cylinder, a removable hollow valve-casing closing the bottom of the base and having a hollow, unvalved portion extending upward to the opening aforesaid and in direct communication with the bottom of said cylinder, said valve-casing being provided with an induction-port opening directly into it and an eduction-port opening into the hollow base, valves for controlling said ports, and a second cylinder, one of said cylinders being an air-cylinder and the other a plunger-cylinder, substantially as described.

2. In a pump of the class described, the combination of a cylinder, a hollow base open at the bottom and having an opening opposite the lower end of said cylinder, a removable hollow valve-casing formed in one piece and closing the bottom of the base, the interior of said valve-casing being in direct open communication with said cylinder, said valve-casing having a valved port communicating with the hollow base and a valved induction-port opening directly into it, a removable valve-seat surrounding said induction-port, and a second cylinder, one of said cylinders being an air-cylinder and the other a plunger-cylinder, substantially as described.

3. The combination of an air-chamber, a plunger-cylinder, a hollow base, open at bottom and having an opening opposite the lower end of the plunger-cylinder, and a hollow valve-casing closing the bottom of the base and having a hollow portion extending upward and communicating with the bottom of the plunger-cylinder through the opening aforesaid, said casing having also induction and eduction ports, the latter opening into the hollow base, and valves for controlling said ports, substantially as set forth.

4. The combination of an air-chamber, a plunger-cylinder, a hollow base having an opening opposite the bottom of the plunger-cylinder, and having a cylindrical portion extending downward in axial alinement with said opening, a hollow valve-casing located within the base and closing said cylindrical portion of the base, said casing having a hollow portion extending into the opening aforesaid at the bottom of the plunger-cylinder, and having also induction and eduction ports, the latter opening into the hollow base, and valves for controlling said ports, substantially as described.

5. The combination of an air-chamber, a plunger-cylinder, a hollow base, open at bottom and having an opening opposite the lower end of the plunger-cylinder, a hollow valve-casing located within the hollow base and closing the bottom thereof, said casing having a contracted portion extending upward and communicating with the bottom of the plunger-cylinder, said casing having also induction and eduction ports, the latter opening into the hollow base, and valves for controlling said ports, substantially as described.

6. The combination of an air-chamber, a plunger-cylinder, a hollow base, open at bottom and having an opening opposite the lower end of the plunger-cylinder, a hollow valve-casing closing the bottom of the base and having an inclined ceiling, provided with an eduction-port, opening into the hollow base, a contracted portion joining the ceiling at one side of said port and projecting upward, said contracted portion being deflected inward and communicating at its upper end with the interior of the plun-

ger-cylinder through the opening aforesaid, said casing having also an induction-port, and valves for controlling said ports, substantially as described.

7. The combination of an air-chamber, a plunger-cylinder, a hollow base, having an opening opposite the lower end of the plunger-cylinder, and having a cylindrical portion projecting downward and in axial alinement with said opening, a valve-casing closing the bottom of the base and having a cylindrical lower portion located within the base, an inclined ceiling having an eduction-port opening into the base, a contracted portion joining the ceiling at one side of the center, whence it projects upward, said contracted portion being deflected inward and terminating at top in a cylindrical portion, in axial alinement with its cylindrical lower portion, and entering the opening aforesaid at the bottom of the plunger-cylinder, said casing having also an induction-port, and valves for controlling said ports, substantially as described.

8. The combination of an air-chamber, a plunger-cylinder, a hollow base in open communication with the bottom of the air-chamber, said base having a threaded opening opposite the bottom of the plunger-cylinder, and having also a cylindrical portion in axial alinement with the threaded opening aforesaid, and open at bottom, a hollow valve-casing located within the cylindrical portion of the hollow base and closing it at bottom, said valve-casing having also a portion projecting upward, and having threaded engagement with the threaded opening aforesaid, said valve-casing having also induction and eduction ports, and valves for controlling said ports, substantially as described.

9. The combination with the induction-valve, of a stem projecting downward, means for guiding said stem, a wire-gauze diaphragm arranged below the travel of said stem, and projections engaging said diaphragm for holding it in place, substantially as described.

691,653. GLOVE-FASTENER. WILLIAM R. MURPHY, New York, N. Y. Filed Aug. 9, 1901. Serial No. 71,514. (No model.)



Claim.—1. A member of a glove-fastener comprising in its construction a clamping member provided with raised points or tongues of metal struck from the body portion of said clamping member at a point between the center and outer edge thereof, and an eyelet adapted to be secured in position by said raised points, substantially as described.

2. A socket member of a glove-fastener comprising a clamping member or cap formed with a central depressed portion, raised points or tongues of metal of angular shape struck from the body portion of said cap at a point between the center and outer edge thereof, and an eyelet adapted to receive the head of a stud and be secured in position by the said raised points, substantially as described.

3. A socket member of a glove-fastener comprising a clamping member or cap having a downwardly and inwardly turned flange, raised points or tongues of metal formed on said flange at a point midway between the center and outer edge thereof, and an eyelet adapted to receive the head of a stud and be secured in position by the said raised points, substantially as described.

4. A member of a glove-fastener comprising in its construction a clamping member provided with downwardly and inwardly inclined raised points or tongues of metal, struck from the material of the said member at a point midway between the center and outer edge thereof, and an eyelet adapted to be secured in position by said clamping member, substantially as described.

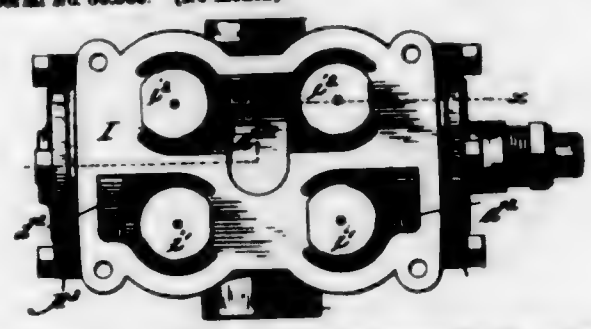
5. A socket member of a glove-fastener comprising in its construction a clamping member or cap having raised points or tongues of metal, struck from the body portion thereof at a point between the center and outer edge of said member or cap, and an eyelet adapted to receive the head of a stud, the construction being such that the eyelet will enter the apertures formed between the raised points and the body portion of said cap and be secured therein, when the eyelet and clamping member or cap are forced together, substantially as described.

6. In the socket member of a glove-fastener, the combination with an eyelet adapted to receive the head of a stud, of a clamping member or cap formed with a central depressed portion, raised points or tongues of metal of angular shape formed on said cap at a point between the center and outer edge thereof, the construction being such that the depressed portion of the cap will guide the eyelet into the spaces formed between the raised points and the body portion of the member or cap, when the eyelet and clamping member are forced together, substantially as described.

7. In the socket member of a glove-fastener, the combination with an eyelet adapted to receive the head of a stud, of a clamping member or cap having a downwardly and inwardly turned flange, raised points or tongues of metal struck from the body portion of said flange at a point between the outer edge and center thereof, the construction being such that the flange will guide the eyelet into the spaces formed between the raised points and the body portion of said flange and secure it therein, when the eyelet and clamping member are forced together, substantially as described.

8. A socket member of a glove-fastener comprising in its construction a clamping member or cap provided with raised points or tongues of metal struck from the body portion of said clamping member at a point between the center and outer edge thereof, said points inclining downwardly and inwardly, and an eyelet adapted to receive the head of a stud and be secured in position by the said raised points, substantially as described.

691,654. FORCE-PUMP. PHILIP A. MYERS, Ashland, Ohio, assignor to F. E. Myers & Bro., Ashland, Ohio. Filed Sept. 30, 1900. Serial No. 30,589. (No model.)

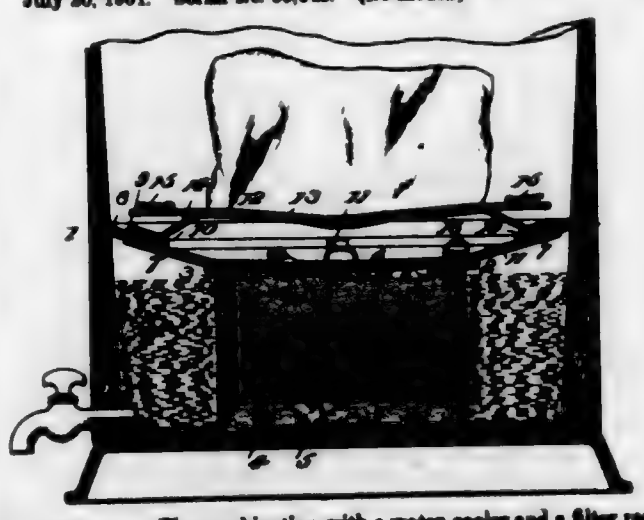


Claim.—1. In a force-pump, a single horizontally-disposed cylinder having a piston therein, said cylinder having a thickened upper wall with a flat face, a cap having integral webs coacting with said flat face to form a double and two single valve-chambers, an inlet-port formed in the side of said cylinder and having branch ports leading to said single valve-chambers, valves controlling said ports, passages in the body of the cylinder leading from said single chambers to opposite ends of the cylinder, ports in the body of the cylinder leading from the ends of the cylinder to the double chamber with valves controlling said ports, and a water-outlet from said double chamber, substantially as described.

2. In a force-pump, a single horizontally-disposed cylinder having a piston therein, said cylinder having a flat upper face, a cap having integral webs coacting with said flat upper face to form a double and two single valve-chambers, branch ports in the body of said cylinder leading to said single valve-chambers, valves controlling said ports, an inlet-port for supplying water to said branch ports, passages in the body of the cylinder leading from said single chambers to opposite ends of the cylinder, ports in the body of said cylinder leading from the ends of the cylinder to the double chamber, and a water-outlet from said double chamber, substantially as described.

3. In a force-pump, a single horizontally-disposed cylinder having a piston therein, said cylinder having an upper wall with a flat face, a cap having integral webs coacting with said flat face to form a double and two single valve-chambers, an inlet-port formed in said cylinder and having branch ports leading to said single valve-chambers, valves controlling said ports, passages in the body of the cylinder leading from said single chambers to opposite ends of the cylinder, ports in the body of the cylinder leading from the ends of the cylinder to the double chamber with valves controlling said ports, a compressed-air chamber carried by said cap having its interior in communication with said double chamber, and a water-outlet from said double chamber, substantially as described.

691,655. WATER-COOLER. THOMAS F. MCEVILLY, Wilmington, Del., assignor of one-half to John F. Malloy, Wilmington, Del. Filed July 20, 1901. Serial No. 69,040. (No model.)



Claim.—1. The combination with a water-cooler and a filter removably located therein, comprising a central chamber having an upper in-

let and lower outlet, and forming between itself and the cooler a surrounding water-chamber, such filter having an upwardly-flared flange, and a gasket for bearing against the wall of the cooler, of an ice-holder located above the filter consisting of a foraminous plate, and springs secured to the under side of such plate having free ends forming legs or supports resting upon the filter, said foraminous plate being supported above the upper openings of the filter, substantially as set forth.

2. The combination with a water-cooler, of a filter removably located therein forming a surrounding water-space between itself and the body of the cooler, a foraminous cover for the filter, an upwardly-flared flange extending from the filter around the cover, a gasket secured to such flange for forming a water-tight engagement with the body of the cooler, a plate on said gasket, a spring-held ice-holder mounted on said plate and above the cover of the filter and having central perforations, the inlet to the filter being at the top thereof and the outlet at its bottom, such outlet opening into the surrounding water-space, as set forth.

3. The combination with a water-cooler, of a filter removably located therein forming a surrounding water-space between itself and the body of the cooler, a foraminous cover for the filter, an upwardly-flared flange extending from the filter at or near the top thereof, a gasket secured to such flange for forming a water-tight engagement with the body of the cooler, a plate on said gasket having a flanged portion formed with openings, for the purpose stated, and an ice-holder above the filter, the inlet to the latter being at the top, and the outlet at the bottom, such outlet opening into the surrounding water-space, as set forth.

691,656. BELT-HOLDER AND SKIRT-SUPPORT. THOMAS F. MCEVILLY, Wilmington, Del., assignor of one-half to John F. Malloy, Wilmington, Del. Filed Oct. 15, 1901. Serial No. 78,745. (No model.)



Claim.—1. The combination with a pin designed to be secured to a shirt-waist and skirt-band within the belt, of an attachment for holding the lower portion of the skirt raised out of its normal position, such attachment being so constructed and secured to the pin that it may be moved back of the belt and out of view when not in use, as set forth.

2. The combination with a pin designed to be secured to a shirt-waist and skirt-band within the belt, and a belt-holder secured to such pin, of an attachment for holding the lower portion of the skirt raised, such attachment being secured to the pin and having guides whereby it may be moved longitudinally, as and for the purpose set forth.

3. The combination with a pin designed to be secured to a shirt-waist and skirt-band within the belt, of a belt-holding hook loosely secured to such pin, and a skirt-holding loop also loosely secured to such pin, as set forth.

4. The combination with a pin designed to be secured to a shirt-waist and skirt-band within the belt, of a skirt-supporting attachment comprising a loop having guides through which a portion of such pin extends, such loop at the centers of the guides being crimped, as and for the purpose stated.

5. The combination with a pin having one of its bars bent at its center, of a hook for engaging the belt, such hook being pivotally secured to such bar at the bent portion thereof, a loop also loosely secured to such bent portion capable of being moved longitudinally, and means secured to a skirt for engaging such loop, as set forth.

691,657. PRINTER'S GALLEY. MICHAEL J. MCHUGH, Providence, R. I. Filed Oct. 21, 1901. Serial No. 79,236. (No model.)

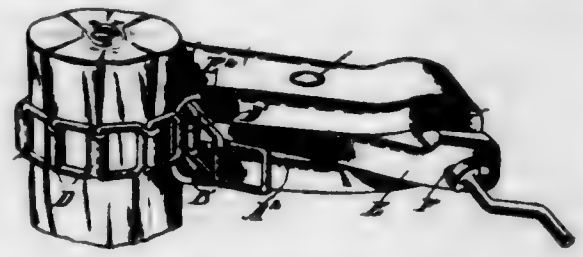
Claim.—1. A printer's galley, having a locking-bar pivotally secured to the galley and a rocking cam-bar also pivotally secured to the galley, as described.



2. A printer's galley, a locking-bar having a cushioned strip of metal on its inner upper face, and an undercut surface on its lower inner face, said locking-bar being pivotally connected with the galley, as described.

3. In a printer's galley, the combination with the bed *a*, the side wall *b*, and the end walls *b' b'*, of the pivoted locking-bar *c*, the rock-shaft *d*, the cams *d' d'*, the lever d^2 and the thrust-block *e*, whereby the lock-bar may be released or locked, as described.

691,658. POST-SECURING DEVICE. WILLIAM NEWMAN, Alexandria, S. D. Filed July 3, 1901. Serial No. 67,054. (No model.)



Claim.—1. The herein-described device for use on posts, consisting of the chain, the body portion having a base-plate to fit against the post, and an outwardly-projecting arm provided near its outer end with a threaded opening and slotted between its ends to provide a pivot for the lever, the chain being secured at one end to the base-plate of the said body and arranged to be passed at its other end over the said base-plate, the lever pivoted between its ends in the slot of the arm and having its inner end arranged to engage one of the links of the chain, the screw journaled to the outer end of the lever and screwed in the threaded opening of the arm, and the spring bearing between said lever and arm, substantially as set forth.

2. A device for use on posts, comprising a chain to pass around the post and a tightening and holding device comprising a body portion having a base-plate to which one end of the chain is secured, and an arm, and a lever pivoted to the arm and operating upon the chain to tighten the same upon the post and means for operating the lever, substantially as set forth.

3. A device for use on posts, consisting of the body portion having a base-plate, the chain secured at one end to the body portion and passed at its other end over the base-plate, and the operating device movable over the base-plate and engaged with the chain, substantially as set forth.

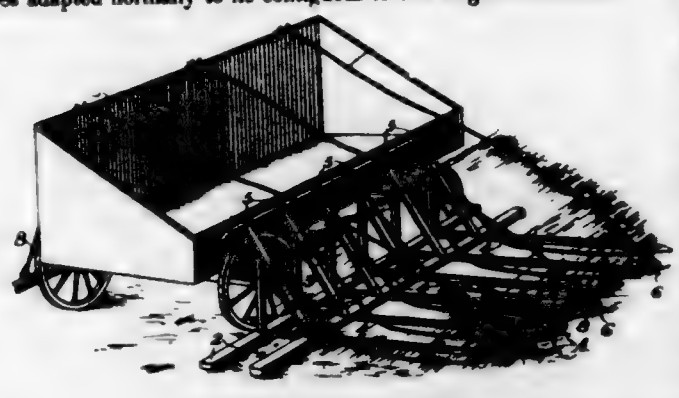
4. The combination in a device for use on posts, of the chain, the body portion to which one end of the chain is secured, said body having a base-plate and an outwardly-projecting arm provided near its outer end with a bearing for the screw-shaft and slotted between its ends for the lever, the lever pivoted between its ends to the said arm and arranged at its inner end to engage the chain, and a screw operating between the outer ends of the lever and arm of the body, substantially as set forth.

691,659. HAY-LOADING APPARATUS. ELLIS H. NICHOLSON, Santa Maria, Cal. Filed June 26, 1901. Serial No. 66,107. (No model.)

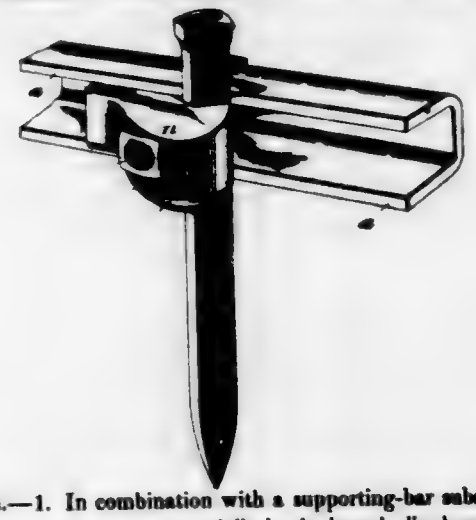
Claim.—1. A means for loading hay upon wagons, consisting in the combination of a rake having a horizontal portion and an upwardly-projecting rear portion, ropes fastened to the top of said rear portion and detachably secured to the forward end of said horizontal portion, said rake adapted to be moved along the ground to gather a load upon said horizontal portion and means by which the detachable ends of said ropes may be carried upward and rearward to lift the load from the rake upon the wagon.

2. A device for loading hay, grain and the like, consisting of a rake, with the horizontal fingers A, the upwardly-extending inclined back portion B, ropes having one end fastened to the top of said back portion, and

their other end detachably connected with the points of said fingers, said ropes adapted normally to lie contiguous to said fingers and back.



691,660. **FASTENING FOR HARROW-TEETH.** STALEY D. POOLE, Moline, Ill., assignor to Deere & Company, Moline, Ill., a Corporation of Illinois. Filed July 25, 1901. Serial No. 69,662. (No model.)



Claim.—1. In combination with a supporting-bar substantially U-shaped in cross-section, a substantially hook-shaped clip having its shank constructed to abut against and partially enter between the edges of the bar and its hook confining a tooth between the same and said edges, and a fastening device located between the hook and shank for securing and holding the parts together.

2. In a fastening device for harrow-teeth, the combination with a supporting-bar substantially U-shaped in cross-section, of a detachable clip abutting against the edges of the bar and formed with a recess on its inner face, and a tooth clamped between said edges of the bar and the walls of said recess, substantially as described.

3. In a fastening for harrow-teeth, the combination with a supporting-bar substantially U-shaped in cross-section, of a detachable clip constructed to abut against the edges of the bar and having an angular recess in its inner face, and a tooth of angular cross-section clamped between said edges of the bar and the sides of said recess, substantially as described.

4. In a fastening device for harrow-teeth, the combination with a semitubular bar provided with a bolt-hole, of a clip having a similar hole between its ends and formed with a recess on its inner face, a bolt passing through said holes and secured by suitable means, and a tooth clamped between the edges of the bar and the walls of said recess with the shank of the hook abutting against the edges of the bar at one side of the fastening-bolt and the tooth at the other side thereof, substantially as described.

5. In a fastening device for harrow-teeth, the combination with a bar, of a detachable clip formed with a recess on its inner face, and a tooth clamped between the bar and the walls of said recess, said clip being also constructed to abut against the edges of the bar and formed on its outer face with strengthening-webs extending longitudinally thereof, substantially as described.

6. In a fastening device for harrow-teeth, the combination with a bar provided with a bolt-hole, of a clip having a similar hole and formed with an angular recess on its inner face, a bolt passing through said holes and secured by a nut, said clip being recessed on its outer face to receive the head of the bolt and prevent the latter from turning, and also formed with strengthening-webs, and a tooth of angular cross-section clamped between the bar and the walls of said recess, substantially as described.

7. In a fastening device for harrow-teeth, the combination with a semitubular bar provided with a bolt-hole, of a hook-shaped clip having a similar hole and formed with a recess on its inner face, a bolt passing through said holes and suitably secured to hold the shank of the clip against the edges of the bar with a portion between said edges, said clip being constructed on its outer face to receive the head of the bolt and prevent the latter from turning, and a tooth clamped between the bar and the walls of said recess, substantially as described.

8. In a fastening device for harrow-teeth, the combination with a semitubular bar, of a detachable clip partially received by said support and formed with a recess on its inner face, and a tooth clamped between the straight edges of the bar and the walls of said recess, substantially as described.

9. In a fastening device for harrow-teeth, the combination with a semitubular support, of a detachable clip partially received by said support for a portion of its length, and formed with an angular recess on its inner face, and a tooth of angular cross-section clamped between the straight edges of the support and the walls of said recess, substantially as described.

10. In a fastening device for harrow-teeth, the combination with a semitubular support, of a detachable clip partially received by said support for a portion of its length, and formed with a recess on its inner face, and a tooth clamped between the straight edges of the support and the walls of said recess, said clip having shoulders abutting against said edges of the support, substantially as and for the purpose described.

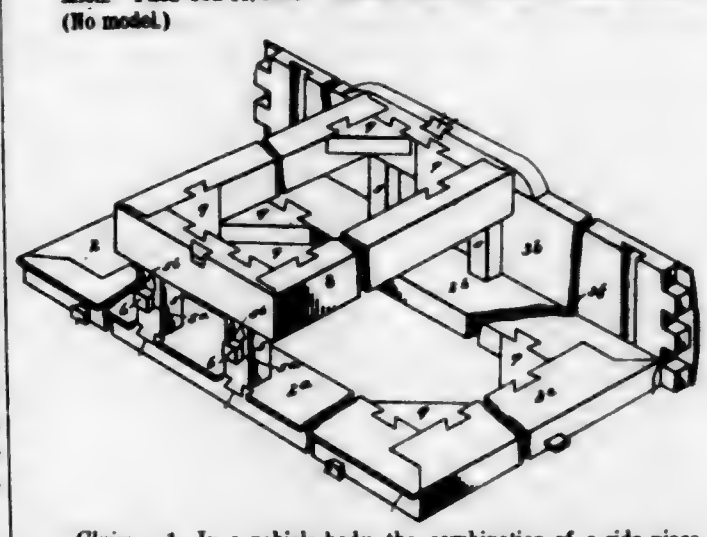
11. In a fastening device for harrow-teeth, the combination with a semitubular support, of a detachable clip partially received by said support and formed with a recess on its inner face, and a tooth clamped between the straight edges of the support and the walls of said recess, said clip being also formed with flanges abutting against said edges of the support, substantially as described.

12. In a fastening device for harrow-teeth, the combination with a semitubular support, of a detachable clip formed with flanges entering between the upper and lower sides of the support and having a recess on its inner face, and a tooth clamped between the straight edges of said support and the walls of the recess, said clip being formed on its upper and lower surfaces with flanges abutting against said straight edges of the support, substantially as described.

13. In a fastening device for harrow-teeth, the combination with a semitubular support provided with a bolt-hole, of a clip formed with a similar hole and having a recess, on its inner face, a bolt passing through said holes and secured by a nut, said clip also having flanges entering between the upper and lower sides of the support, and additional flanges abutting against the straight edges of said support, and a tooth clamped between said straight edges and the walls of said recess, substantially as described.

14. A fastening device for harrow-teeth consisting of a substantially hook-shaped clip having its shank constructed to partially enter between and abut against the edges of a two-edged supporting-bar, and a bolt between its hook and shank for drawing the latter against said edges and confining a tooth between said hook and bar.

691,661. **VEHICLE-BOX.** LOUIS PRIEST, Flint, Mich., assignor to Truman W. Whitney, St. Louis, Mo., and Charles H. Morse, Flint, Mich. Filed Oct. 18, 1900. Renewed Dec. 5, 1901. Serial No. 84,787. (No model.)



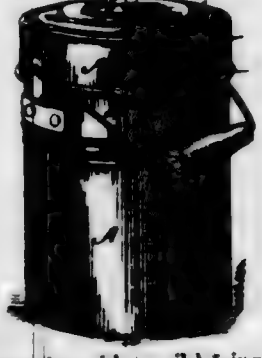
Claim.—1. In a vehicle-body, the combination of a side piece of the frame provided with a mortise extending inward from its upper outer edge, a seat-post having a mortise-block formed on its lower end, said block being adapted to slide laterally into said mortise, and a side piece of the box arranged to be secured to said side piece of the frame and to prevent said seat-post from being withdrawn from the mortise substantially as described.

2. In a vehicle-body, the combination of a side piece of the frame having a laterally-extending lug, and provided with a mortise extending inward from its upper outer edge, a seat-post having a mortise-block formed at its lower end, said block being adapted to slide laterally into said mortise, said seat-post having a mortise formed therein and a side piece of the box provided with a groove adapted to engage said lug, and a mortise formed in said side piece of the box, a mortise-block adapted to enter said mortises in the seat-post and side pieces of the box to bind the same

together, and means for securing said side pieces together to prevent relative lateral movement, substantially as described.

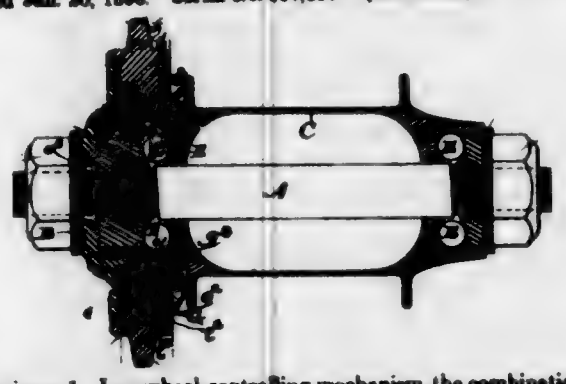
3. In a vehicle-body, the combination of a side piece of the frame having a laterally-extending tongue 2ª, and a mortise extending inward from its lower outer edge, a seat-post rising from said side piece, a side piece of the seat-frame secured at the top of said seat-post, and provided with a mortise extending inward from its upper outer edge, a side piece of the box having a groove adapted to engage the tongue upon the side piece of the frame, a mortise adjacent to the mortise in the side piece of the frame, and a second mortise adjacent to the mortise in the side piece of the seat-frame, a mortise-block adapted to enter the mortises in the side pieces of the frame and box and a second mortise-block adapted to enter the mortises in the side pieces of the seat-frame and vehicle-box, substantially as and for the purpose described.

691,662. LUNCH-PAIL. PETER QUARELLI, Danville, Ill. Filed July 6, 1901. Serial No. 67,327. (No model.)



Claim.—The combination with a pail having a beaded upper edge, circumferential beads or corrugations adjacent to the said upper edge, the lower bead or corrugation being larger and projecting farther outwardly than the upper bead or corrugation, of the receptacle adapted to fit into the body of the pail and having a beaded upper edge, and a circumferential bead or corrugation adjacent to the said upper edge, said bead or corrugation being adapted to rest upon the beaded edge of the pail, a top having a depending flange adapted to fit over the receptacle, said flange being of such depth that its lower edge will extend beyond the lower corrugation upon the pail, and a packing-ring essentially semicircular in cross-section, said packing-ring being arranged between the corrugations upon the exterior of the pail, its curved surface outwardly, the depending flange of the collar being adapted to contact with said packing-ring, substantially as set forth.

691,663. WHEEL-CONTROLLING MECHANISM. THOMAS GUIFE, Milford, Mass., assignor of one-half to James H. Northrop, Tustin, Cal. Filed Jan. 20, 1898. Serial No. 667,193. (No model.)



Claim.—1. In a wheel-controlling mechanism, the combination with wheel driving and braking mechanisms, the braking mechanism comprising a brake member mounted on a fixed support, and arranged to have a limited rotation thereon, of a common rotating actuating device for the wheel-driving mechanism and the brake mechanism, normally disconnected therefrom, clutch devices controlled by the direction of rotation of the actuating device arranged to connect said device with either the wheel-driving mechanism or the brake member, to rotate the wheel, or to impart a limited rotation to the brake member on its fixed support, and complementary actuating-surfaces between the brake member and its support, to actuate the brake member to cause it to retard the wheel when the limited rotation is imparted thereto, substantially as described.

2. In a wheel-controlling mechanism, the combination with a wheel and its hub, of a brake member mounted on a fixed support and arranged to have a limited rotation with relation to its support, a common rotating actuating device for said wheel and brake member normally disconnected therefrom, clutch devices controlled by the direction of rotation of the actuating device to directly connect said device with either the hub of the wheel or the brake member, and complementary actuating-surfaces between the brake member and its support, arranged to actuate the brake member to cause it to retard the rotation of the wheel when the actuating device is turned in one direction, substantially as described.

3. In a wheel-controlling mechanism, the combination with a fixed support, of a brake member normally inactive and arranged to have a limited rotation with reference to said support, an actuating device normally disconnected from said brake member arranged to have a free rotation relative to said brake member in one direction, means to automatically connect the brake member and its actuating device for simultaneous rotation when the actuating device is rotated in an opposite direction, and complementary actuating-surfaces between the brake member and its support arranged to cause said brake member to engage a friction-surface to stop the wheel when so rotated, substantially as described.

4. In a wheel-controlling mechanism, the combination with a stationary disk and brake member normally sustained without rotation, of a friction-surface on the wheel, normally disconnected means for imparting a relative rotation to said disk and brake member, and lugs and inclined surfaces on said disk and brake member arranged to cause said brake member to engage said friction-surface on the wheel upon the relative rotation of said disk and brake member in one direction, substantially as described.

5. In a wheel-controlling mechanism, the combination with the wheel and its driving mechanism, of a brake member normally disconnected therefrom and normally held from rotation therewith, a clutch to connect said brake member with the wheel-driving mechanism, and means to move said brake member laterally to engage a friction-surface on the wheel, substantially as described.

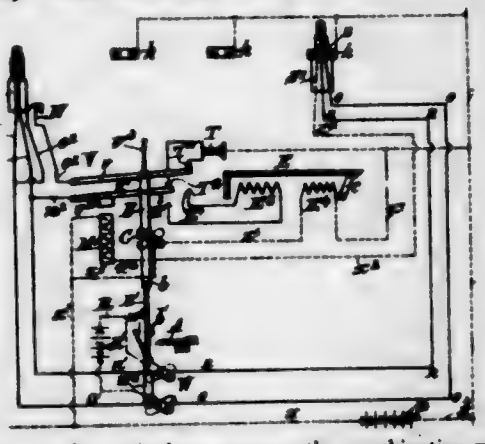
6. In a wheel-controlling mechanism, the combination with wheel-driving mechanism, of braking mechanism including a laterally-movable brake member and means to move it laterally, and a common actuating device for said mechanisms normally disconnected therefrom, substantially as described.

7. In a wheel-controlling mechanism, the combination with wheel driving and braking mechanisms, said braking mechanism comprising a braking-surface on the hub of the wheel and a laterally-movable brake member normally held from rotation and arranged to engage said braking-surface, of a common actuating device for said driving and braking mechanisms, substantially as described.

8. In a wheel-controlling mechanism, the combination with wheel driving and braking mechanisms mounted and acting upon the hub of the wheel, said braking mechanism comprising a braking-surface on the hub of the wheel, a brake member arranged to be moved laterally into engagement therewith, and means for moving the brake member laterally, of a common actuating device for said mechanisms normally disconnected therefrom, and clutch devices controlled by the direction of rotation of the actuating device to connect said device with either the driving mechanism or the braking mechanism, substantially as described.

9. In a wheel-controlling mechanism, the combination with a fixed support, of driving and braking mechanisms, said braking mechanism comprising a braking-surface on the hub of the wheel, a brake member mounted on the fixed support and arranged to have lateral movement thereon to engage said braking-surface, and means for moving the brake member laterally, and a common actuating device for said mechanisms, substantially as described.

691,664. TELEPHONE SYSTEM. GEORG RITTER, Stuttgart, Germany. Filed Nov. 2, 1900. Serial No. 35,271. (No model.)



Claim.—1. In a telephone system, the combination with the substation-jacks, a pair of plugs, their connecting-conductors, and a central-station telephone, of connections between the said telephone and the connecting-conductors, a clearing-out annunciator, circuit-changing means operated by the insertion of the connecting-plug in a jack and arranged when operated to substitute the clearing-out annunciator for the central station in the talking-circuit, a source of calling-current, call-circuit-closing mechanism for connecting said source with the substation-line to be called, a connecting device between the circuit-changing means and the said call-circuit-closing mechanism, whereby the latter is actuated by the former, releasing mechanism for releasing the said call-circuit-closing mechanism

from the control of said connecting device, and means for returning the call-circuit-closing mechanism to its initial position.

2. In a telephone system, the combination, with the substation-jacks, a pair of plugs, their connecting-conductors, and a central-station telephone, a holder for the answering-plug when not in use, means operated by the removal of the answering-plug from its holder for connecting the central-station telephone with the calling-line, a clearing-out annunciator, circuit-changing means operated by the insertion of the connecting-plug in a jack for substituting the clearing-out annunciator for the central-station telephone in the talking-circuit, a source of calling-current, call-circuit closing mechanism for connecting said source with the substation-line to be called, a connecting device between the circuit-changing means and the said call-circuit-closing mechanism whereby the latter is actuated by the former, releasing mechanism for releasing the said call-circuit-closing mechanism from the control of said connecting device, and means for returning the call-circuit-closing mechanism to its initial position.

3. In a telephone system, the combination with the substation-jacks connected to the respective substation-lines, jack-sockets for said jacks and a pair of plugs, comprising an answering-plug and a connecting-plug, the latter having a conductive portion to engage the jack-socket when inserted therein, of a pair of delay-action circuit-changers, connecting-conductors from said delay-action circuit-changers to the terminals of the two plugs, a source of calling-current, a local circuit in which said source is inclosed, said circuit having its terminals connected to the delay-action circuit-changers, a central-station telephone, an electric self-restoring clearing-out drop a pair of branch conductors from the connector-conductors of the answering-plug, a main circuit-changer for interchangeably connecting the central-station telephone and the main coil of the clearing-out drop to the branch conductors of the answering-plug, a holder to receive the answering-plug when not in use, a switch in one of the branch conductors, said switch being arranged to be held open when the answering-plug is in the holder, an electromagnet for operating the main circuit-changer, a local circuit-changer-circuit in which are included the coils of the said electromagnet, the sockets of the jacks and conductive portion of the connecting-plug, means for energizing said circuit, a branch from said local circuit-changer-circuit, in parallel with the coils of the electromagnet, and including the restoring-coils of the clearing-out drop, a circuit-closer included in the said branch conductor and arranged to be operated by the main circuit-changer, and a connecting device between the main circuit-changer and the delay-action circuit-changers, whereby the latter are set in action by the former,

4. In a telephone system, the combination with the substation-jacks, a pair of plugs, their connecting-conductors, a central-station telephone, connections between said central-station telephone and the connecting-conductors, and a clearing-out annunciator, of a main circuit-changer arranged to interchange the central-station telephone and the clearing-out annunciator in the talking-circuit, a source of calling-current, means operated by the insertion of the connecting-plug in a jack for operating the main circuit-changer and switching the source of calling-current onto the line with which the terminals of the connecting-plug are connected, and means actuated by the called subscriber for cutting off the source of calling-current from said line.

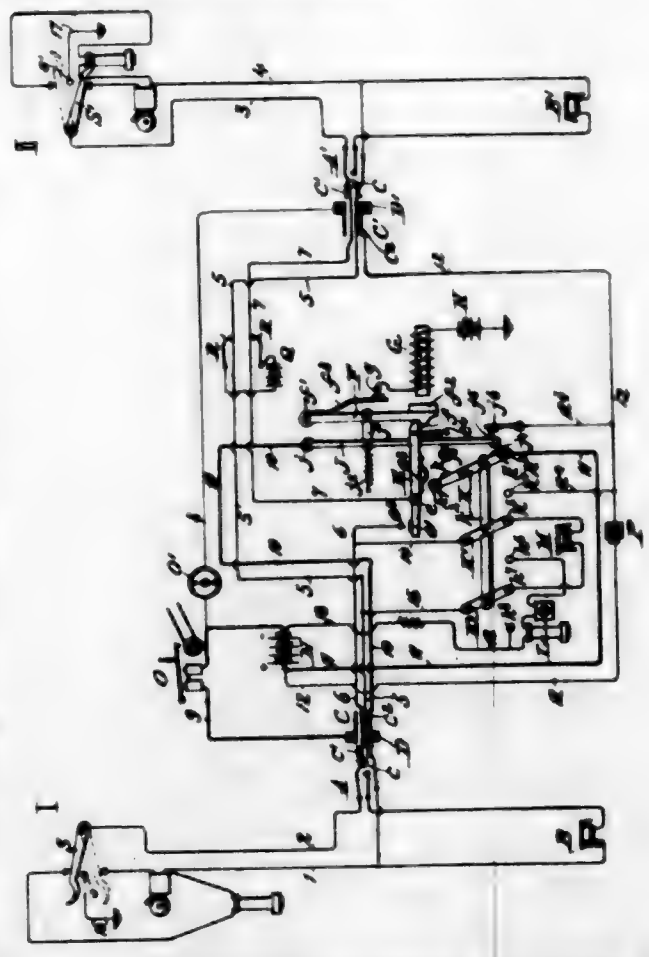
691,665. TELEPHONE SYSTEM. GEORG RITTER, Stuttgart, Germany. Original application filed Aug. 16, 1898, Serial No. 688,683. Divided and this application filed July 18, 1901. Serial No. 68,312. (No model.)

Claim.—1. In a telephone system, the combination with a plurality of substation-conductors, and connector-conductors for completing the connections between said substation-conductors, whereby a talking-circuit is completed, of a branch circuit leading from said talking-circuit, means for closing the same, a register-circuit, and means operated by the closing of the branch circuit and arranged to close the register-circuit.

2. In a telephone system, the combination with a plurality of substation-conductors and connector-conductors for completing the connection between said substation-conductors, whereby a talking-circuit is completed, of a branch circuit leading from said talking-circuit, means at the called substation for closing the branch circuit, a register-circuit and means operated by the closing of the branch circuit and arranged to close the register-circuit.

3. In a telephone system, the combination with a plurality of substation-conductors and connector-conductors for completing the connection between said substation-conductors, whereby a talking-circuit is completed, of a branch circuit leading from said talking-circuit, a register-circuit, electromagnetic means included in the branch circuit and arranged to close the register-circuit, and means for closing said branch circuit.

4. In a telephone system, the combination with a plurality of substation-conductors and connector-conductors for completing the connection between said substation-conductors whereby a talking-circuit is completed, of a branch circuit leading from one of the said connector-conductors, means at the called substation for closing the branch circuit, a register-circuit, and electromagnetic means located in the branch circuit and arranged to close the register-circuit.



5. In a telephone system, the combination with a plurality of substation-conductors and connector-conductors for completing the connection between said substation-conductors, whereby a talking-circuit is completed, of a grounded branch circuit leading from the talking-circuit, a register-circuit, electromagnetic means in said branch circuit arranged to close the register-circuit, and means at the called substation for grounding one of the substation-conductors, whereby the branch circuit is closed.

6. In a telephone system, the combination with a plurality of substation-conductors and connector-conductors for completing the connection between said substation-conductors, whereby a talking-circuit is completed, of a register-circuit, a grounded branch circuit leading from one of the connector-conductors, an electromagnetic circuit-closer having its coils included in said branch circuit and arranged to close the register-circuit, and means at the called substation for closing said branch circuit.

7. In a telephone system, the combination with a plurality of substation-conductors and connector-conductors for completing the connection between said substation-conductors, whereby a talking-circuit is completed, of a register-circuit, a grounded branch conductor connected to one of the connector-conductors, an electromagnetic circuit-closer having its coils included in the said grounded branch conductor, said circuit-closer being arranged to close the register-circuit, a grounded branch conductor at the called substation, and means for closing said substation branch onto the substation-line.

8. In a telephone system, the combination with a plurality of substation-conductors and connector-conductors for completing the connection between said substation-conductors, whereby a talking-circuit is completed, of a register-circuit, a branch circuit leading from said talking-circuit, means operated by the closure of said branch circuit and arranged to close the register-circuit, and a telephone hook-lever at the called station arranged to momentarily close the branch circuit when moving upward.

9. In a telephone system, the combination with a plurality of substation-conductors, jacks associated therewith, of a register-circuit normally open at the jacks and at another point, plugs and connector-conductors arranged to enter the respective jacks, one of said plugs being arranged to close the register-circuit at the jack into which it is inserted, and one of said connector-conductors being interrupted, of a branch circuit leading from the interrupted connector-conductor, electromagnetic means included in the branch circuit and arranged to close both the register-circuit at the second point where it is open and the interrupted connector-conductor, and means for closing the branch circuit.

10. In a telephone system, the combination, with the substation-lines, the jacks associated therewith, the plugs for insertions in said jacks and the plug connector-conductors, one of which is interrupted, of a switch

device arranged to close said interruption of the said connector-conductor, a register-circuit open at the jacks and at another point and arranged to be closed at the jack by the insertion of one of said plugs therein, means for closing the register circuit at the other point, said means being held open by the switch device when the latter is in its open position, retaining mechanism for holding said switch-lever in its open position, and means operated by a called substation for releasing said retaining mechanism, whereby the switch-lever closes its connector-conductor and the means for closing the register-circuit is released to close the same.

11. In a telephone system, the combination, with a plurality of substation-conductors, and connector-conductors for completing the connection between said substation-conductors, whereby a talking-circuit is completed, of a branch circuit leading from the said talking-circuit and normally open at the central station and at one of the substations, a register-circuit, means for closing the register-circuit, said means being operated by the closing of the branch circuit, means operated at the central station in making connections between substations for closing the opening at that place in the branch circuit, and means operated by the subscriber at the called station for closing the branch circuit at that point.

12. In a telephone system, the combination, with a plurality of substation-conductors, and connector-conductors for completing the connections between said substation-conductors, one of said connector-conductors being interrupted, of a register-circuit open at two points, means operated in making connections at the central station for closing the register-circuit at one of said points, and means operated by the called subscriber for closing the interrupted connector-conductor and for closing the register-circuit at the other point where it is open.

13. In a telephone system, the combination, with a plurality of substation-conductors, and connector-conductors for completing the connections between said substation-conductors, whereby a talking-circuit is completed, of a branch circuit, a register-circuit, means at the central station for closing the branch circuit onto the talking-circuit, means at the called substation also for closing the branch circuit onto the talking-circuit, and mechanism operated by the closing, at the called substation, of the branch circuit onto the talking-circuit for closing the register-circuit and again opening the branch circuit.

14. In a telephone system, the combination with a jack, a register-circuit open at the jack and at a second point, a register included in said circuit, a plug insertible in the jack and arranged to close the register-circuit at that point, a talking-circuit including the plug and jack, and a switch arranged to close the talking-circuit and the register-circuit at the second point, of mechanism for holding the said switch open, an electromagnet arranged to release the switch from said holding mechanism, means operated in completing the connection between substations for engaging the switch with its holding mechanism, and means included in the talking-circuit for actuating the electromagnet to release the switch, whereby the talking-circuit and the register-circuits are closed.

15. In a telephone-exchange, the combination with a register device, a register-circuit including the register device and the corresponding jacks, of the exchange-plugs provided with means included in the register-circuit for insertion into the respective jacks, whereby the register-circuit is closed at the jacks, a testing-circuit in parallel with the register-circuit, a condenser included in said testing-circuit, means for energizing both circuits, and means for opening and closing the register and testing circuits alternately.

16. In a telephone-exchange, the combination with a register device, a register-circuit including the register device and the corresponding jacks, of the exchange-plugs provided with means included in the register-circuit for insertion into the respective jacks, whereby the register-circuit is closed at the jacks, a testing-circuit in parallel with the register-circuit, a resistance included in said testing-circuit, means for energizing both circuits, and means for opening and closing the register and testing circuits alternately.

691,666. DIE. ARTHUR ROGERS, Barnesville, Ohio. Filed July 23, 1901. Serial No. 69,625. (No model.)



Claim.—1. In a die for forming hollow-back shovels, &c., the combination of the lower die; with the upper weighted die hinged to the lower die at its rear edge, and a grip for holding the blank during stamping thereof.

2. In a die for forming hollow-back shovels, &c., the combination of the lower die; with the upper die hinged to the lower die at its rear edge, a handle for raising said die substantially as described, and a grip for holding the blank during stamping thereof.

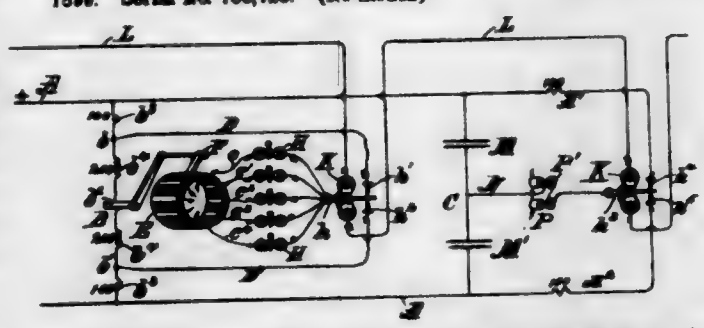
3. In a die for forming hollow-back shovels, the combination of the lower die provided with protuberance *a*, hollow *a'*, and lugs a^2; with the upper weighted die having recess *c* rib or projection *c'* and lugs c^2 and the rod transfixing said lugs and hinging the dies together, substantially as described.

4. In a die, the combination of the lower die provided with protuberance *a*, hollow *a'*, and lugs a^2; with the upper die having recess, *c*, rib or projection *c'*, and lugs c^2, the rod transfixing said lugs, and hinging the dies together, and the grip-lever pivoted between said lugs, substantially as described.

5. In a die for forming hollow-back shovels, &c., the combination of the lower die; with the upper weighted die hinged to the lower die at its rear edge, and a grip for holding the blank during the stamping thereof, and the blank adjusting or setting plate, all substantially as and for the purpose described.

6. In a die, the combination of the lower die provided with protuberance *a*, hollow *a'*, and lugs a^2; with the upper die having recess *c*, rib or projection *c'* and lugs c^2, the rod transfixing said lugs, and hinging the dies together, the grip-lever pivoted between said lugs, and the blank adjusting or setting plate all substantially as and for the purpose set forth.

691,667. SYNCHRONOUS TELEGRAPH SYSTEM. HENRY A. ROWLAND, Baltimore, Md., assignor to the Rowland Telegraphic Company, Baltimore, Md., a Corporation of New Jersey. Filed Feb. 24, 1899. Serial No. 706,729. (No model.)



Claim.—1. The combination with a synchronizing device, of a plurality of condensers, said condensers being connected in circuit with said synchronizing device, and means for causing said condensers to alternately discharge through said synchronizing device for regulating the motion of the same, substantially as described.

2. The combination with a synchronizing device, of a condenser, said condenser being connected in circuit with said synchronizing device, and means for causing said condenser to alternately charge and discharge through said synchronizing device for regulating the motion of the same, substantially as described.

3. The combination with a synchronizing device, of a plurality of condensers, said condensers being connected in circuit with said synchronizing device, proper resistances in said condenser-circuits, and means for causing said condensers to alternately discharge through said synchronizing device for regulating the motion of the same, substantially as described.

4. The combination with a synchronizing device, of two condensers, said condensers being connected in circuit with said synchronizing device and means for causing one of said condensers to discharge through said synchronizing device while the other of said condensers is charging and vice versa whereby said synchronizing device is regulated, substantially as described.

5. The combination with a synchronizing device, of two condensers, said condensers being connected in circuit with said synchronizing device, proper resistances in each of the condenser-circuits and means for causing one of said condensers to discharge through said synchronizing device while the other of said condensers is charging and vice versa whereby said synchronizing device is regulated, substantially as described.

6. The combination with a synchronizing device, of a condenser connected in circuit with said synchronizing device, a relay, a conductor carrying an alternating current and traversing said railway whereby the said condenser is caused to discharge through said synchronizing device, substantially as described.

7. The combination with a synchronizing device, of a plurality of condensers connected in circuit with said synchronizing device, a relay, a conductor carrying an alternating current and traversing said relay whereby the said condensers are caused to alternately discharge through said synchronizing device, substantially as described.

8. The combination with a main-line circuit carrying an alternating electric current, of a main local circuit having a direct electromotive force impressed upon it, a relay having its contacts connected in said main local circuit, condensers in a shunt-circuit, a circuit passing from said shunt-circuit at a point intermediate between said condensers to said relay-tongue and a synchronizing device traversed by the current of the last-named circuit, substantially as described.

9. The combination with a main-line wire carrying an alternating electric current, a relay operated by said current, a local circuit carrying a direct current and connected to each of the contacts of said relay, a shunt-circuit connected across said local circuit, condensers connected in said shunt-circuit and a circuit extending from said shunt-circuit at a point intermediate between said condensers to said relay-tongue, substantially as described.

10. The combination with a main-line wire carrying an alternating electric current, a relay operated by said current, a local circuit carrying a direct current and connected to each of the contacts of said relay, a condenser connected to one side of said local circuit and to the tongue of said relay, substantially as described.

11. The combination with a conductor carrying an alternating electric current, a relay operated by said alternating current, a local circuit supplied with a direct current, and connected to the contacts of said relay by a proper resistance, condensers connected in shunt with said main local circuit, a conductor connected to the condenser-circuit intermediate between said condensers and connected to said relay-tongue, substantially as described.

12. The combination with two condensers, of a relay having one of its contacts in each condenser-circuit, a conductor connected to the tongue of said relay and to the condenser-circuit intermediate between said condensers, a conductor carrying an alternating current and traversing said relay whereby the said condensers are caused to alternately discharge through the conductor connected to said relay-tongue, substantially as described.

13. The combination with a main-line circuit carrying an alternating electric current, of a main local circuit carrying a direct current, a relay having its contacts connected in said main local circuit, each through a proper resistance, a shunt-circuit connected across said main local circuit, condensers in said shunt-circuit, a circuit passing from said shunt-circuit at a point intermediate between said condensers to said relay-tongue and a synchronizing device traversed by the current of the last-named circuit, substantially as described.

14. In a system of synchronous telegraphy the combination with a main-line circuit carrying an alternating electric current, of a main local circuit carrying a direct current, a relay having its contacts connected in said main local circuit, a shunt-circuit connected across said main local circuit, properly-adjusted resistances in said shunt-circuit, a circuit passing from said shunt-circuit at a point intermediate between said resistances to said relay-tongue and a sunflower and trailer device with its segment-circuits traversed by the current in the last-named circuit, substantially as described.

15. The combination with a conductor carrying an alternating electric current, a relay operated by said alternating current, a local circuit supplied with a direct current and connected to the contacts of said relay by a proper resistance, properly-adjusted resistances connected across said main local circuit, a conductor connected between said resistances and connected to said relay-tongue, substantially as described.

16. In a system of telegraphy, the combination with a conductor carrying an alternating electric current, of a relay operated by said alternating current, a main local circuit carrying a direct current, a shunt-circuit connected across said main local circuit, a branch circuit connected to said shunt-circuit and passing through the contacts of said relay, a sunflower and trailer device having its segment-circuits connected to the tongue of said relay and its trailer connected to said shunt-circuit, substantially as described.

17. In a system of telegraphy, the combination with a conductor carrying an alternating electric current, of a relay operated by said alternating current, a main local circuit carrying a direct current, a shunt-circuit connected through proper resistances across said main local circuit, a branch circuit connected to said shunt-circuit and passing through the contacts of said relay, a sunflower and trailer device having its segment-circuits connected to the tongue of said relay and its trailer connected to said shunt-circuit, substantially as described.

18. In a system of telegraphy, the combination with a conductor carrying an alternating electric current, of a relay operated by said alternating current, a main local circuit carrying a direct current, a shunt-circuit connected through proper resistances across said main local circuit, a branch circuit connected to said shunt-circuit and passing through the contacts of said relay, a sunflower and trailer device having its segment-circuits connected to the tongue of said relay and its trailer connected to said shunt-circuit and a plurality of selecting-relays connected in said segment-circuit, substantially as described.

19. A damper consisting of two revolving parts one of which is freely moving and connected to the other by viscous damping, substantially as described.

20. The combination with a shaft, the speed of which is to be maintained approximately uniform, of a device for damping the oscillatory vibrations in the motion of said shaft, said device comprising a member mounted to rotate with said shaft, and a second member having inertia and capable of movement relative to said shaft, and damping means connecting the said members.

21. The combination with a source of power, of a synchronizing device driven thereby, a revolving body connected to said synchronizing device and a second revolving body freely moving and connected to the first by means of viscous damping, substantially as described.

22. The combination with a source of power, of a synchronizing device driven thereby, and regulated by an alternating electric current, a revolving body connected to said synchronizing device and a second revolving body freely moving and connected to the first by means of viscous damping, substantially as described.

23. The combination with a synchronous motor, of means for damping oscillatory variations in the speed of the motor-shaft, said means comprising a body mounted to rotate with said shaft and a second body having inertia and capable of movement relative to the first body, and damping means connecting the two bodies.

24. The combination with a source of power, of a synchronizing device driven thereby and regulated by an alternating electric current, a revolving body connected to said synchronizing device and a second revolving body connected to the first by means of viscous damping, substantially as described.

25. The combination with a sunflower and trailer device of a motor operating said device, a synchronizing device driven by said motor and regulated by an alternating electric current, a revolving body connected to said synchronizing device and a second revolving body connected to the first through viscous damping, substantially as described.

26. A damper having a driven revolving body, a freely-moving revoluble receptacle inclosing said revolving body, and a liquid inclosed in said receptacle and surrounding the first revolving body whereby motion is transmitted to the receptacle and the vibration of both the revolving body and receptacle are damped, substantially as described.

27. In a damper the combination with a driven disk, of a freely-moving revoluble receptacle inclosing said disk, a viscous damping fluid carried by said receptacle and inclosing said disk whereby motion is transmitted to said receptacle from said disk and the vibration of both is damped, substantially as described.

28. In a polarized relay the combination with two relay-tongues mounted upon independent oscillating supports, an exciting-coil surrounding said supports which form the core thereof and independent contacts for each tongue, substantially as described.

29. In a polarized relay the combination with an exciting-coil, of a hollow iron core passing through said coil, a second core passing longitudinally through said hollow core, said cores being revolvable about their longitudinal axes independent of each other, a tongue mounted on the hollow core and a tongue mounted on the second core, independent contacts for each of said tongues, substantially as described.

30. The combination with a synchronizing device, of a condenser connected in circuit with said synchronizing device, a relay, a conductor carrying a periodically-varying electric current and traversing said relay whereby the said condenser is caused to discharge through said synchronizing device, substantially as described.

31. The combination with a synchronizing device, of a plurality of condensers connected in circuit with said synchronizing device, a relay, a conductor carrying a periodically-varying electric current and traversing said relay whereby the said condensers are caused to alternately discharge through said synchronizing device, substantially as described.

32. The combination with a main-line circuit carrying an electric current which periodically varies in intensity, of a main local circuit having a direct electromotive force impressed upon it, a relay having its contacts connected in said main local circuit, a shunt-circuit connected across said main local circuit, condensers in said shunt-circuit, a circuit passing from said shunt-circuit at a point intermediate between said condensers to said relay-tongue and a synchronizing device traversed by the current of the last-named circuit, substantially as described.

33. The combination with a main-line wire carrying a periodically-varying electric current, a relay operated by said current, a local circuit carrying a direct current and connected to each of the contacts of said relay, a shunt-circuit connected across said local circuit, condensers connected in said shunt-circuit and a circuit extending from said shunt-circuit at a point intermediate between said condensers to said relay-tongue, substantially as described.

34. The combination with a main-line wire carrying a periodically-varying electric current, a relay operated by said current, a local circuit carrying a direct current and connected to each of the contacts of said relay, a condenser connected to one side of said local circuit and to the tongue of said relay, substantially as described.

35. The combination with a conductor carrying a periodically-varying electric current, a relay operated by said current, a local circuit supplied with a direct current, and connected to the contacts of said relay

by a proper resistance, condensers connected in shunt with said main local circuit, a conductor connected to the condenser-circuit intermediate between said condensers and connected to said relay-tongue, substantially as described.

36. The combination with two condensers, of a relay having one of its contacts in each condenser-circuit, a conductor connected to the tongue of said relay and to the condenser-circuit intermediate between said condensers, a conductor carrying a periodically-varying electric current and traversing said relay whereby the said condensers are caused to alternately discharge through the conductor connected to said relay-tongue, substantially as described.

37. The combination with a main-line circuit carrying a periodically-varying electric current, of a main local circuit carrying a direct current, a relay having its contacts connected in said main local circuit, each through a proper resistance, a shunt-circuit connected across said main local circuit, condensers in said shunt-circuit, a circuit passing from said shunt-circuit at a point intermediate between said condensers to said relay-tongue and a synchronizing device traversed by the current of the last-named circuit, substantially as described.

38. In a system of synchronous telegraphy, the combination with a main-line circuit carrying a periodically-varying electric current, of a main local circuit carrying a direct current, a relay having its contacts connected in said main local circuit, a shunt-circuit connected across said main local circuit, properly-adjusted resistances in said shunt-circuit, a circuit passing from said shunt-circuit at a point intermediate between said resistances to said relay-tongue and a sunflower and trailer device with its segment-circuits traversed by the current in the last-named circuit, substantially as described.

39. The combination with a conductor carrying a periodically-varying electric current, of a local circuit connected to a source of direct current, properly-adjusted resistances connected across the local circuit, contacts located in said local circuit, a conductor connected to a point between said resistances, and means operated by the periodically-varying current for completing the circuit from said conductor to first one and then the other of said contacts.

40. In a system of telegraphy, the combination with a conductor carrying a periodically-varying electric current, of a relay operated by said current, a main local circuit carrying a direct current, a shunt-circuit connected across said main local circuit, a branch circuit connected to said shunt-circuit and passing through the contacts of said relay, a sunflower and trailer device having its segment-circuits connected to the tongue of said relay and its trailer connected to said shunt-circuit, substantially as described.

41. In a system of telegraphy, the combination with a conductor carrying a periodically-varying electric current, of a relay operated by said current, a main local circuit carrying a direct current, a shunt-circuit connected through proper resistances across said main local circuit, a branch circuit connected to said shunt-circuit and passing through the contacts of said relay, a sunflower and trailer device having its segment-circuits connected to the tongue of said relay and its trailer connected to said shunt-circuit, substantially as described.

42. In a system of telegraphy, the combination with a conductor carrying a periodically-varying electric current, of a relay operated by said current, a main local circuit carrying a direct current, a shunt-circuit connected through proper resistances across said main local circuit, a branch circuit connected to said shunt-circuit and passing through the contacts of said relay, a sunflower and trailer device having its segment-circuits connected to the tongue of said relay and its trailer connected to said shunt-circuit and a plurality of selecting relays connected in said segment-circuit, substantially as described.

43. The combination with a synchronizing device of a damping device acting to damp the oscillatory variations thereof from a steady motion, substantially as described.

44. The combination with a continuously-moving synchronizing device, of a damping device acting to damp the oscillatory variations thereof from a steady motion, substantially as described.

45. The combination with a revolving mechanism the speed of which is to be maintained uniform, of a damper acting to damp any oscillatory variations from the uniform motion and comprising a plurality of freely-moving members connected by viscous damping, substantially as described.

46. The combination with a revolving mechanism the speed of which is to be maintained uniform, of a damper acting to damp any oscillatory variations from the uniform motion and comprising a plurality of revolving parts, some of said parts being tightly secured to their support and the others loosely fitted thereon, the said tightly and loosely fitted parts being connected through the medium of viscous damping, substantially as described.

47. The combination with an electric motor and a synchronizing device having a steady motion, of a damping device acting to damp the oscillatory variations from said steady motion, substantially as described.

48. The combination with a synchronizing device, of a direct-current electric motor driving said synchronizing device and having a steady motion, and a damper acting to damp the oscillatory variations from said steady motion, substantially as described.

49. The combination with a synchronizing device having a steady motion and whose speed is regulated by a periodically-varying electric current, of a damper acting to damp the oscillatory variations from said steady motion, substantially as described.

50. The combination of a damper, substantially as described, with an electrically-regulated direct-current motor and an alternating-current dynamo acting to synchronize said motor, substantially as described.

51. A telegraph-line, in combination with a local circuit and a source of direct current connected thereto, of means for varying the current periodically in a part of the local circuit, said means comprising a condenser and relay, substantially as described.

52. A telegraph-line, in combination with a local circuit and a source of direct current connected thereto, of means for varying the current periodically in a part of the local circuit, said means comprising condensers and a relay, substantially as described.

53. A telegraph-line carrying an alternating electric current, in combination with a local circuit and a source of direct current connected thereto, of means for varying the current periodically in a part of the local circuit, said means comprising a condenser and relay, substantially as described.

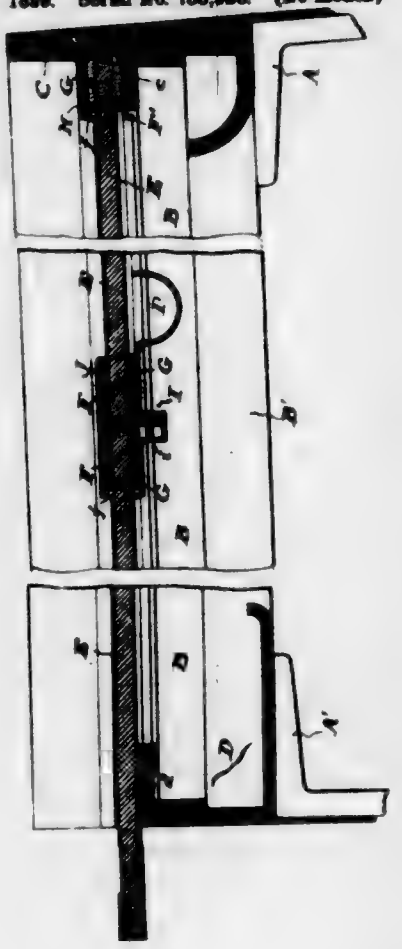
54. A telegraph-line carrying an alternating electric current, in combination with a local circuit and a source of direct current connected thereto, of means for varying the current periodically in a part of the local circuit, said means comprising condensers and a relay, substantially as described.

55. A telegraph-line carrying a periodically-varying electric current, a vibrating contact-maker operated by the said current, a local circuit connected to the contacts of said contact-maker, and a condenser connected to one side of said local circuit and to said contact-maker, substantially as described.

56. A telegraph-line carrying a periodically-varying electric current, a local circuit having contacts located therein, a conductor vibrated between said contacts, condensers connected across the local circuit, and the vibrating conductor connected between the condensers whereby electricity from the condensers only may traverse said conductor, substantially as described.

57. A telegraph-line carrying a periodically-varying electric current, a local circuit having contacts located therein, an electric conductor vibrated between said contacts, condensers connected across the said local circuit, and the vibrating conductor connected between the condensers whereby electricity from the condensers only may traverse the said conductor and a synchronizing device regulated by the charging and discharging of said condensers, substantially as described.

691,668. SKYLIGHT. CHARLES RUFF, Philadelphia, Pa. Filed Nov 6, 1899. Serial No. 735,920. (No model.)



Claim.—1. The combination with an independent glass plate of a skylight, of a strip, fixed upon the margin of said plate, and projecting above the upper surface thereof, in water-tight relation therewith, a drip-flange upon said strip, depending from the lower surface of said plate, and a cap member J, secured beneath said strip and having a free edge projecting beyond the margin of said plate, substantially as set forth.

2. The combination with a skylight-frame, of a glass plate mounted to vibrate loosely in said frame, a strip independent of said frame, fixed upon the margin of said plate, in water-tight relation therewith, and a cap member secured beneath said strip, and having its free edge projecting beyond the margin of said plate, substantially as set forth.

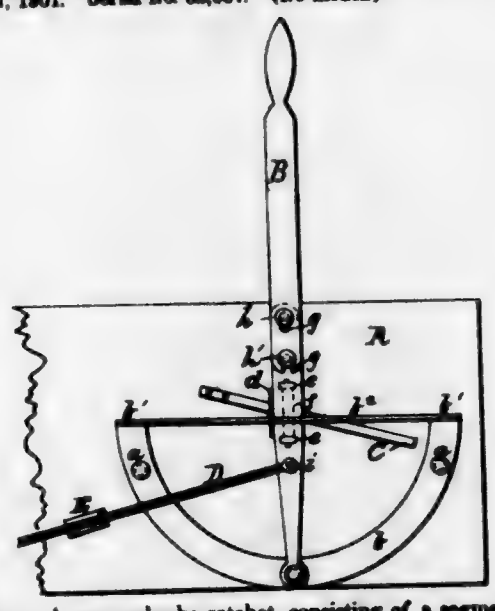
691,669. SNAP-HOOK. HARRY SEXTON, New York, N. Y. Filed Mar. 31, 1900. Serial No. 10,898. (No model.)



Claim.—1. A snap-hook formed from a single piece of wire bent intermediate of the ends thereof to form a loop, one end being bent upon itself and the doubled portion being formed into a hook, the end of the short arm composing said hook being bent around the long arm thereof intermediate of the ends of said long arm, the other end of said wire being formed into a tongue adapted to engage said hook, as and for the purpose set forth.

2. A snap-hook formed from a single piece of wire bent intermediate of the ends thereof to form an attaching-loop, one end of said wire being carried outwardly at right angles to the loop and bent upon itself and the doubled portion being formed into a hook, the end of the short arm composing said hook being bent around the long arm thereof intermediate of the ends of said long arm, the other end of said wire being carried underneath the said long arm, and being bent upward substantially in contact therewith, and being carried outward to form a spring-tongue adapted to engage said hook, as and for the purpose set forth.

691,670. WAGON-BRAKE RATCHET. JACK J. SHIPLEY, Pilotgrove, Tex., assignor of one-half to E. J. Cowart, Pilotgrove, Tex. Filed May 27, 1901. Serial No. 62,007. (No model.)

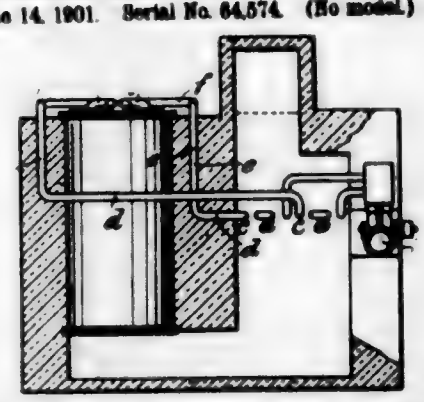


Claim.—A wagon-brake ratchet consisting of a segmental section with lateral projecting ends carrying a horizontal ratchet-bar, a brake-lever pivoted to said section and provided with a ratchet-dog adapted to engage the teeth in ratchet-bar, a roller attached to the inner side of said lever, a spring bearing against the said roller for holding the said ratchet-dog on said lever in engagement with the ratchet-teeth, the upper section of brake-lever provided with slots adapting it when slightly raised to be folded in either direction substantially as and for the purpose set forth.

691,671. PROCESS OF CLEANING BEER VATS AND PIPES. SVEN A. SJOO and REINHOLD V. TORNELL, Stockholm, Sweden. Filed Dec. 10, 1900. Serial No. 39,434. (No specimens.)

Claim.—The herein-described process for cleaning the walls of vats or pipes in breweries to dissolve and remove deposits therefrom and disinfect the vats and pipes, said process consisting in subjecting the walls of said vats or pipes to the action of a solution composed of about one part of alkaline hypochlorite with about a half to one part of alkaline hydrate, substantially as specified.

691,672. DRAFT APPARATUS FOR FURNACES OF STEAM-BOILERS OR THE LIKE. JAMES W. STOCK, Nottingham, England. Filed June 14, 1901. Serial No. 64,574. (No model.)



Claim.—1. A steam-boiler and its furnace combined with a pipe for supplying air to said furnace and including two abutting sections, the abutting faces being beveled and one of said sections being connected with the door of said furnace.

2. A steam-boiler and its furnace combined with a pipe for supplying atmospheric air to said furnace, the pipe being arranged to be heated by the gaseous products of combustion during their passage to the chimney, and including two separable sections having abutting beveled faces one of which is located in the flue, near to the uptake and leads to the front of the furnace, and the other of which is connected with the door of said furnace.

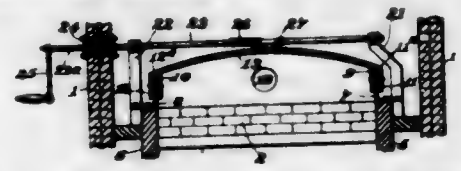
691,673. RIBBON-HOLDER. ALBERT F. STOCKTON, Chillicothe, Mo. Filed June 22, 1901. Serial No. 65,686. (No model.)



Claim.—1. A ribbon-holder comprising a band of transparent elastic material, said band being essentially circular in form and provided with spring metallic bindings, substantially as set forth.

2. A ribbon-holder comprising a band of transparent elastic material having spring metallic bindings at each edge, the band and bindings being curved essentially in the form of a circle and having overlapping ends, substantially as set forth.

691,674. BAKER'S-OVEN-FURNACE HOOD. FRANK E. THOMAS, Battlecreek, Mich. Filed Apr. 10, 1901. Serial No. 55,189. (No model.)



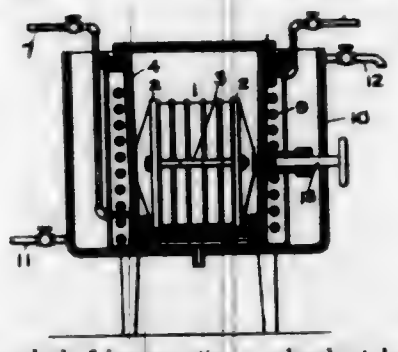
Claim.—1. In a baker's-oven-furnace hood, the combination of the rails 7 and 8 and means for supporting them at the sides of the furnace, a hood adapted to cover the open top of the furnace and having downwardly-extending double flanges at the sides forming recesses between the flanges, wheels held revolubly in the said recesses whereby the hood is movably carried upon the rails, the said rails being adapted to project upwardly into the recesses formed by the flanges thus preventing escape of smoke from the sides of the furnace, mechanism arranged to operate the hood, and a smoke-pipe opening into the furnace below the hood, substantially as described.

2. In a baker's-oven-furnace hood, the combination of the rails and means for supporting them at the sides of the furnace, a hood adapted to cover the open top of the furnace and having downwardly-extending double flanges at the sides forming recesses between them, wheels held revoluble in the said recesses whereby the hood is movably carried upon the rails, a transverse shaft and devices for rotating it, cables secured to the said hood and arranged to be coiled alternately on the shaft, and a smoke-pipe opening into the furnace, substantially as described.

691,675. MANUFACTURE OF ELECTRICAL CONDENSERS. ELIHU THOMSON, Swampscott, Mass., assignor to General Electric Company, a Corporation of New York. Filed Jan. 2, 1901. Serial No. 41,236. (No model.)

Claim.—1. The method of impregnating an absorbent body which

consists in subjecting it to a more or less perfect vacuum and while thus in vacuum causing it to absorb insulating fluid through partial submersion therein.



2. The method of impregnating an absorbent body which consists in first drying it, then partially submerging it in molten insulating material so as to allow an absorption of the same by capillary attraction, and afterward cooling the body thus impregnated.

3. The method of impregnating an absorbent body which consists in partially submerging it in a body of molten insulating material and allowing the unsubmerged portion of the body to take up the molten material by capillary attraction, then totally submerging the body, and allowing the mass to solidify.

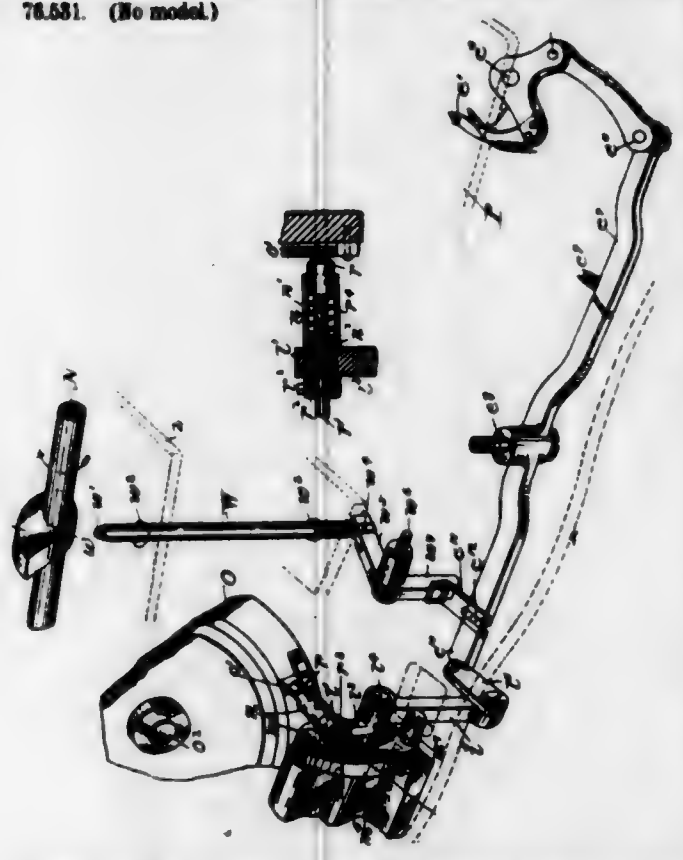
4. The method of treating an absorbent body which consists in filling it with molten insulating material, cooling the same, and applying a gradually-increased pressure as the cooling progresses.

5. The method of treating an absorbent body which consists in filling it with molten insulating material through the action of capillary attraction, cooling the mass, and applying positive mechanical pressure as the cooling progresses.

6. The method of impregnating an absorbent body which consists in partially submerging it in insulating fluid, then allowing the fluid to be absorbed by capillary attraction, then totally submerging the body.

7. The method of impregnating condensers which consists in baking the condensers so as to thoroughly dry the same, maintaining a partial vacuum about the condenser to remove gaseous bodies confined in the substance of the condenser, partially submerging the condenser in a body of molten insulating material and allowing the unsubmerged portion of the condenser to take up the insulating fluid through capillary attraction, then totally submerging the condenser, cooling the same slowly and applying pressure as the cooling progresses.

691,676. THREAD-CUTTER FOR SEWING-MACHINES. ROBERT W. THOMSON, Lynn, Mass., assignor, by mesne assignments, to Philadelphia Barring Machine Company, Camden, N. J., a Corporation of New Jersey. Filed Oct. 15, 1900. Renewed Sept. 25, 1901. Serial No. 76,531. (No model.)



Claim.—1. In a sewing-machine of the character indicated, wherein a stop-motion and thread-cutting mechanism are associated, the combination of a thread-cutting knife, situated in close proximity to the needle-path through the throat-plate and movable across said needle-path, a cutter-retractor operatively connected with the cutter and so timed with relation to the vibrations of the needle-bar that the cutting-knife is positively automatically retracted upon starting the machine, and withdrawn from the needle-path before the needle descends through the throat-plate.

2. In a sewing-machine of the character indicated, wherein a stop-motion and thread-cutting mechanism are associated, the combination with a thread-cutter situated in close proximity to the needle-path through the throat-plate and movable across said needle-path, of a cutter-actuator consisting of a positively-driven train of mechanism of which one part is an elastic member, connections between the actuator and the cutter, a cutter-retractor, connections therewith to the cutter, mechanism connected with the driving-shaft of the machine whereby, upon starting the machine, the cutter and its connections are positively moved by the retractor in a direction opposite to that effected by the actuator, the elastic member of the actuator serving to cushion the said retractile movement.

3. In a sewing-machine of the character indicated, wherein a stop-motion and thread-cutting mechanism are associated, the combination of a cam secured to the needle-shaft, cutter-retracting mechanism connected at one end with the cutter mechanism and at the other end in operative conjunction with the cam, so that the cam operates on the retracting mechanism when the cutter and its connections are in cutting position.

4. In a sewing-machine of the character indicated, wherein a stop-motion and thread-cutting mechanism are associated, the combination of cutter-actuating devices and cutter-retracting mechanism connected with the cutter, a cam secured to the machine-shaft, the cam and cutter-retracting mechanism being so proportioned and disposed that the cutter-retracting mechanism is advanced into operative conjunction with the cam when the cutter-actuating devices act to operate the cutter, and is withdrawn from said operative conjunction when the cutter-actuating devices are idle and the cutter retracted.

5. In a sewing-machine of the character indicated, wherein a stop-motion and thread-cutting mechanism are associated, the combination of a cutter-actuator provided with an elastic contact member, connections between the actuator and the cutter, a cutter-lever, a cutter-retractor comprising a retractor-lever in contact with the cutter-lever and connected with an operating-rod, a cam on the machine-shaft, the cam and rod so proportioned and disposed as to make contact with each other when the machine is started and the cutter is in the position determined by the operation of the actuator.

6. In a sewing-machine of the character indicated, the combination with a thread-cutting device, of means for actuating the same to cut the thread, and positively-actuated means independent thereof and acting automatically to insure the return of said thread-cutting device to initial or inoperative position before the beginning of the succeeding stitch.

7. In a sewing-machine of the character indicated, the combination with stitch-forming devices including a reciprocating needle, and a thread-cutting device with means for actuating it, of means independent of said actuating means whereby said thread-cutting device is positively prevented from remaining in cutting position when the needle descends below the work-plate.

8. In a sewing-machine of the character indicated, the combination with the stitch-forming mechanism, and a thread-cutter with means for positively actuating it, of a spring for retracting said cutter, and positively-actuated means for insuring the retraction of said cutter before a predetermined stage of the operation of the stitch-forming mechanism.

9. In a sewing-machine of the character indicated, the combination with stitch-forming mechanism including a reciprocation needle, a thread-cutting knife or cutter movable transversely of the line of reciprocation of said needle, and means for positively actuating said cutter while the needle is elevated above the work-plate, of means for positively insuring the retraction of the cutter before the succeeding descent of the needle.

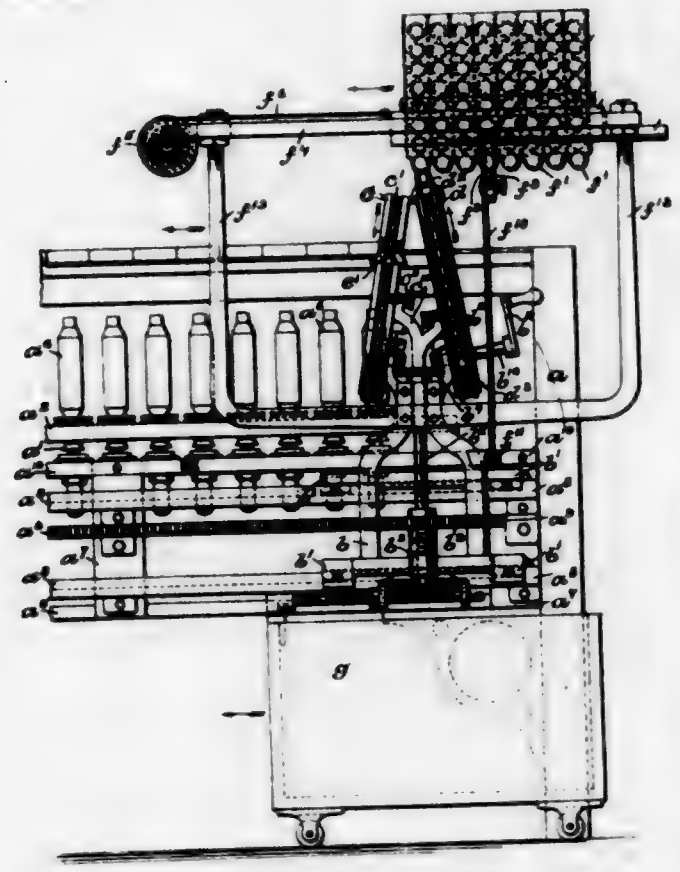
10. In a sewing-machine of the character indicated, the combination with stitch-forming mechanism including a reciprocating needle-bar and needle and means for actuating the same, of a thread-cutter and means for actuating it to sever the thread while the needle is elevated above the work-plate, and means connected directly with the needle-bar-actuating devices but independently of the needle-bar for positively insuring the retraction of the thread-cutter while the needle is still elevated above the work-plate.

11. In a sewing-machine of the character indicated, wherein a stop-motion and thread-cutting mechanism are associated, the combination with the thread-cutter arranged and adapted to operate across the line of reciprocation of the needle, of a cutter-retractor operatively connected with the cutting mechanism, and means whereby the retractor is positively automatically actuated upon starting the machine.

691,677. DOFFING-MACHINE FOR RING-SPINNING FRAMES. JOSEPH E. TICHON and HENRY S. FOSTER, New Bedford, Mass. Filed Sept. 12, 1901. Serial No. 75,151. (No model.)

Claim.—1. A doffing-machine for ring-spinning frames having the

bobbin-removing mechanism, means for moving the supplying mechanism oblique to the axis of the spindle, and the bobbin-supplying mechanism constructed to move obliqne to the axis of the spindle of the machine, as described.



2. In a doffing-machine for ring-spinning frames, a bobbin-removing device operated to move oblique to the vertical axis of the spindles of the spinning-frame, and means for operating the bobbin-removing device oblique to the vertical axis of the spindle, as described.

3. A doffing-machine for ring-spinning frames having a bobbin-supplying mechanism provided with a bobbin-carrier moving in a plane oblique to the axis of the spindle, and means for moving the bobbin-carrier, as described.

4. In a doffing-machine for spinning-frames, the combination of the following instrumentalities: a bobbin-magazine, a bobbin-supplying mechanism, a bobbin-removing mechanism, a structure forming the support of the magazine, the bobbin-removing and the bobbin-supplying mechanism, ways parallel with the spindles of the spinning-frame forming the support of the machine, mechanism operating the bobbin-supplying and the bobbin-removing mechanism, and means for moving the doffing-machine along the front of a spinning-machine, as described.

5. In combination with a spinning-machine, a doffing-machine having a magazine for the empty spindles, a bobbin-supplying mechanism comprising a bobbin-clamp, a bobbin-removing mechanism having a clamp moving in a plane oblique to the axis of rotation of the spindle from which the bobbin is removed, and a receptacle for the completed bobbin, as described.

6. In a doffing-machine for spinning-frames, a bobbin-removing mechanism comprising a frame, a slot extending along the peripheral edges around the frame, an endless chain, grooves, connected with the peripheral slot, for the chain, a link in the chain extending through the slot, clamping-arms pivoted on the link, heels on the clamping-arms bearing on the frame, and cam-faces on the frame, in combination with mechanism for operating the chain, as described.

7. In a doffing-machine for spinning-frames, a bobbin-supplying mechanism comprising a frame, a vertical and a horizontal edge of the frame, a slot extending along the peripheral edges around the frame, an endless chain, grooves for the chain connected with the peripheral slot, a link on the chain extending through the peripheral slot, clamping-arms pivoted on the link, heels on the clamping-arms, and cam-faces on the frame, in combination with mechanism for operating the chain, as described.

8. In a doffing-machine for spinning-frames, a bobbin-magazine having a concave part of the bottom, forming the support of the lowest bobbin, open on one end and along the path of the bobbin, to facilitate the removal of the bobbin from the magazine, as described.

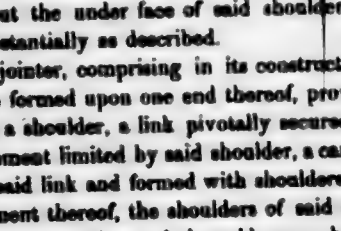
9. In a doffing-machine for spinning-frames, a bobbin-magazine divided into a series of compartments and having a bottom support for part of a bobbin only, as described.

10. In a doffing-machine for spinning-frames, the combination with the bobbin-supplying mechanism and a bobbin-magazine divided into a series of compartments and having a bobbin-support for part of a bobbin only, of means for moving the magazine automatically to place the compartments successively into the path of the bobbin-carrier, as described.

11. In a doffing-machine for spinning-frames, the combination with the magazine divided into a series of compartments, of a slide forming the support of the magazine, ways supporting the slide, means for moving the slide, when a compartment of the magazine is emptied, to bring the next compartment into the position formerly occupied by the emptied compartment, and means for locking the magazine in each position, as described.

12. The combination with a spinning-frame, a rack on the same extending along the frame in front of the spindles, and ways on the spinning-frame, of a doffing-machine supported on the ways, a bobbin-removing and a bobbin-supplying mechanism, bobbin-carriers on the same moving in paths oblique to the vertical axis of the spindles, a bobbin-magazine, a receptacle for the completed bobbin, and mechanism connected with the rack on the spinning-machine operating the doffing-machine, as described.

691,678. **PIPE-JOINTER.** CLEOPHAS VANDALL, Eveleth, Minn. Filed Aug. 12, 1901. Serial No. 71,832. (No model.)



Claim.—1. A pipe-jointer, comprising in its construction a flexible strip, a rack carried by one end thereof, a link carried by the opposite end thereof, means pivotally secured to the free end of said link, adapted to engage said rack for moving the ends of said strip toward each other, and a plate carried by one end of the said strip at one side thereof and adapted to extend beyond the other end of said strip for serving as a dam for guiding joining material poured between the ends of said strip, substantially as described.

2. A pipe-jointer, comprising in its construction a strip of flexible material, a member extending longitudinally thereof and secured thereto, an eye formed in said member, a link carried by said eye, a cam carried by the free end of said link, a segmental rack formed upon the face of said cam, a weighted handle carried by the said cam, a rack formed upon said strip at the opposite end to that carrying the eye member adapted to be engaged by the rack of said cam, whereby operation of said weighted handle is adapted to cause the ends of said strip to approach each other, and means for guiding joining material passed between the said ends, substantially as described.

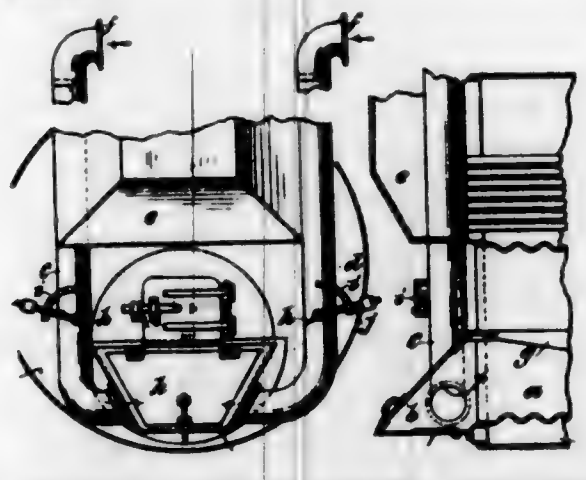
3. In a pipe-jointer, the combination with the shouldered end of a pipe of a strip of material adapted to encircle the end of a joint of pipe inserted within said shouldered portion, a link pivotally carried by one end of the said strip, a rack carried by the opposite end thereof, a segmental rack pivotally carried by the free end of said link and adapted to engage the said first-mentioned rack and when swung on its pivot is designed to cause the ends of said strip to approach each other, and a plate carried by one end of said strip and adapted to extend beyond the other end thereof for forming a dam against the escape of joining material passed between the ends of said strip, the said strip fitting snugly against said shoulder, whereby the shoulder is adapted to form a dam on the opposite face of said strip to that carrying the plate, thereby directing said joining material about the under face of said shoulder for producing a hermetical seal, substantially as described.

4. A pipe-jointer, comprising in its construction a strip of flexible material, an eye formed upon one end thereof, provided with a cut-away portion forming a shoulder, a link pivotally secured within said eye and having its movement limited by said shoulder, a cam pivotally carried by the free end of said link and formed with shouldered portions adapted to limit the movement thereof, the shoulders of said cam being of substantially the same depth as those of the said eye, whereby the arm of said link upon the shouldered face of the eye and cam is designed to move in the vertical plane of the inner face of said strip, means carried by said cam adapted to engage the free end of said strip for causing the ends thereof to approach each other, and means for directing the flow of molten metal between the said ends, substantially as described.

691,679. **APPARATUS FOR SUPPLYING AIR TO STEAM-GENERATOR FURNACES.** CORNELIUS VOET, Harlem, Netherlands. Filed Apr. 9, 1901. Serial No. 55,074. (No model.)

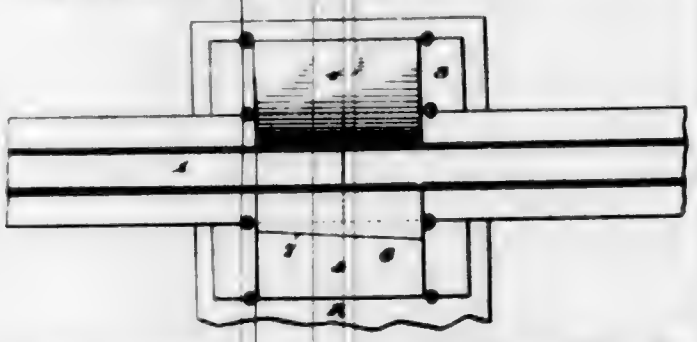
Claim.—1. A blast device for steam-boilers comprising upwardly-extending air-collecting pipes provided with movable heads and valves,

a chamber *b* communicating with said pipes and with the space below the furnace-grate, and upper and lower doors upon said chamber, substantially as described.



2. A blast device for steam-boilers including a furnace having an ash-pit, a chamber communicating with said ash-pit and having an obliquely-disposed upper wall, a plurality of air-supply pipes leading into opposite sides of said chamber, dampers in said pipes, rotary heads for the latter, and a smoke-box through which one of said pipes passes.

691,680. **RAIL-JOINT.** WILLIAM J. WARD, Pittsburg, Pa. Filed Sept. 26, 1901. Serial No. 76,898. (No model.)



Claim.—A rail-joint which comprises a base-plate carrying an integral fish-plate on one side thereof extending upwardly and engaging the rail head and web, a raised shoulder formed integral with the other side of said base-plate, the inner face of said shoulder being flat and upwardly inclined and extending at an angle to the first-named fish-plate, a removable fish-plate having its inner face and bottom engaging the rail base, web, and under face of the rail-head, the said fish-plate having a flat downwardly-inclined outer engaging face which is angularly disposed and adapted to engage said inclined shoulder, said base-plate having apertures formed therein, and spikes engaging the ends of said raised shoulder and removable fish-plate and passing through said apertures, and spikes engaging the outer edges of said base-plate only, substantially as described.

691,681. **ASEPTIC PREPARATION FROM PANCREAS AND PROCESS OF PRODUCING SAME.** WILHELM WEBER, Stolberg II, Germany, assignor to Chemische Fabrik Rhenania, Aachen, Germany. Filed Aug. 23, 1900. Serial No. 28,236. (Specimens.)

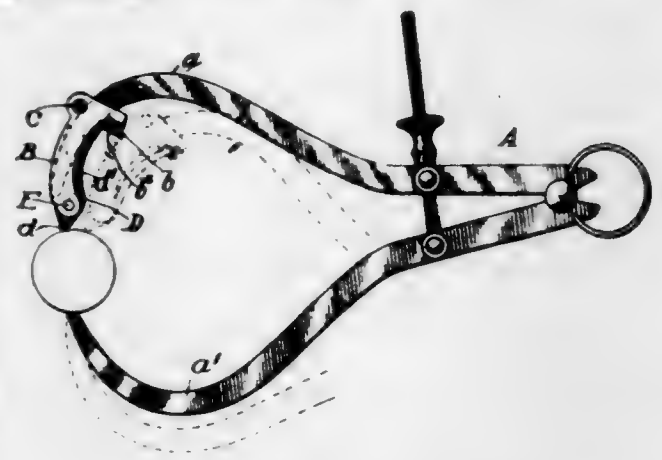
Claim.—1. A process for obtaining an aseptic preparation from pancreas consisting in first making an aqueous solution containing pancreatin, feebly alkaline, then adding to this solution a salt of an organic acid sparingly soluble in water, then adding enough of a strong acid to produce a precipitate and finally washing this precipitate, substantially as described.

2 A composition of matter consisting of pancreatin, chemically combined with an organic acid sparingly soluble in water, and characterized by being insoluble in water, soluble in alkalies and aseptic.

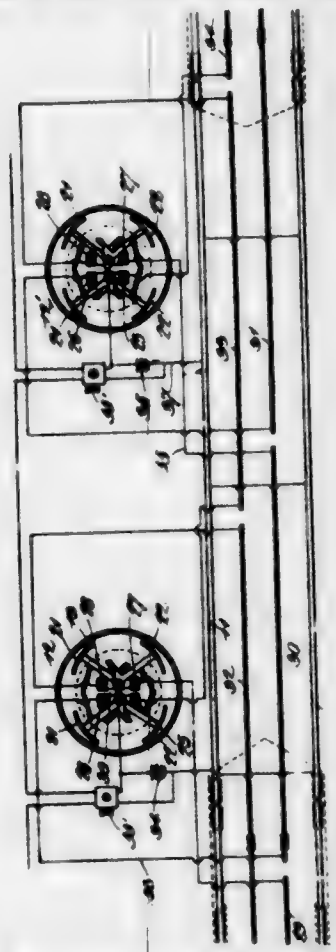
691,682. **CALIPERS.** FRED WEINAR, Chicago, Ill., assignor of two-thirds to T. D. Hewitt, Freeport, Ill., and S. A. French, Chicago, Ill. Filed May 2, 1901. Serial No. 58,436. (No model.)

Claim.—1. The combination, in a pair of calipers, and with one of the contact-points thereof, of an extension supported thereon freely and independently movable by the application of force, but otherwise tending to remain in position with respect thereto, said extension being provided with means for accurately determining the extent of its movement independent of the caliper-point; substantially as described.

2. The combination with a caliper-point, of an extension secured thereto, having a graduated portion, and a pivoted lever with a shorter arm projecting beyond the caliper point and adapted to act as a continuation thereof, and a longer arm extending to said graduation, and movable over the same to indicate the extent of independent movement of the lever, said lever moving with sufficient frictional resistance to remain in any of its positions until force is applied to move it therefrom, substantially as described.



691,688. **AUTOMATIC ELECTRIC SIGNAL.** FREDERICK E. WEINEL, Apollo, Pa., assignor of one-half to Warren E. Raub, Apollo, Pa. Filed Mar. 26, 1901. Serial No. 52,981. (No model.)



Claim.—1. The combination with a locomotive and the link mechanism thereof, of rock-levers each having a contact-roller for engagement with a contact-rail, a counter-shaft, connections between the counter-shaft and rock-levers for moving the rollers into operative positions alternately, and connections between the counter-shaft and the link mechanism for oscillating the counter-shaft.

2. In a signaling system of the class described, the combination with the track-rails, and adjacent electromechanically-operated signaling mechanism forming a signaling station or section, of a battery situated at each station, electric circuits in which the battery, trackway and signaling mechanisms are included, means operable from a vehicle for closing said circuit, and a telephone situated at each station and having its primary energizing-circuit in communication with the battery, the secondary or line circuits of the telephones of each station in the system being connected in series.

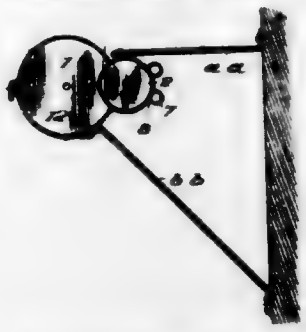
3. A signal mechanism comprising in combination, a lamp-casing having transparent sides, a lamp within the casing, a pair of curved colored glasses arranged within the casing and movable to positions in line with the transparent sides thereof, a lever for each of said glasses, a spindle on which said levers are mounted, an armature carried by or forming part of each lever, an electromagnet for operating each armature, and an independent electric circuit for each of said magnets.

4. A signal mechanism comprising in combination, two concentrically-arranged cylinders forming a lamp-casing, a lamp, lenses arranged in alining openings in both of the cylinders, curved glasses situated within the annular chamber formed between the two cylinders, levers pivoted upon a common spindle and arranged to carry said glasses, an armature secured to or forming a part of each of said levers, and an electromagnet for operating each armature.

5. A signal mechanism comprising in combination, a pair of concentrically-arranged cylinders forming a lamp-casing, lenses arranged in alining openings in both of the cylinders, a lamp within the inner cylinder, a shaft or spindle provided in the center of the casing, below the inner cylinder, a series of levers pivoted on said shaft or spindle, an armature on each of said levers, an electromagnet for the operation of each armature, and a curved glass supported by the outer end of each arm at a point within the annular chamber formed by the two cylinders, said glasses being movable into and out of alinement with the lenses of the casing.

6. The combination with a locomotive and a link mechanism, of a pair of rock-levers 42, 43, having at their lower ends contact-rollers for engagement with contact-rails between the main track-rails, a shaft 44 to which rock-levers are pivoted, a shaft 45 connected to or forming part of the link mechanism of the locomotive, cranks 52 and 53 secured to said shaft, and links 54 55 connecting the outer ends of said cranks to the upper ends of the rock-levers 42 and 43, substantially as specified.

691,684. DRAPERY-HANGER. CHARLES Y. WHITER, Steubenville, Ohio. Filed Dec. 2, 1901. Serial No. 84,396. (No model.)



Claim.—1. Means for hanging curtains and like draperies, the same comprising corresponding pole members adapted to interlock at their longitudinal edges or sides, spring-clips for clamping the pole members and conforming approximately to the outline thereof, and brackets, each formed of two parts, the upper part comprising an arm, a seat for the rear pole member, and an extension forming a part of the seat for the front pole member, and the lower strip comprising a brace and a curved portion forming with the extension of the upper strip a seat for the front member of the pole, substantially as set forth.

2. In a hanger for curtains and like draperies, and in combination with interlocking pole members, a bracket formed of an upper and a lower strip, the upper strip comprising an arm, a curved seat for the rear pole member, an extension forming a part of the seat for the front pole member and having a fold intermediate of its ends with the folded portions secured, and the lower strip comprising a brace and a curved portion forming the remainder of the seat for the front pole member, the extension of the upper strip overlapping the curved portion of the lower strip and secured thereto, substantially as specified.

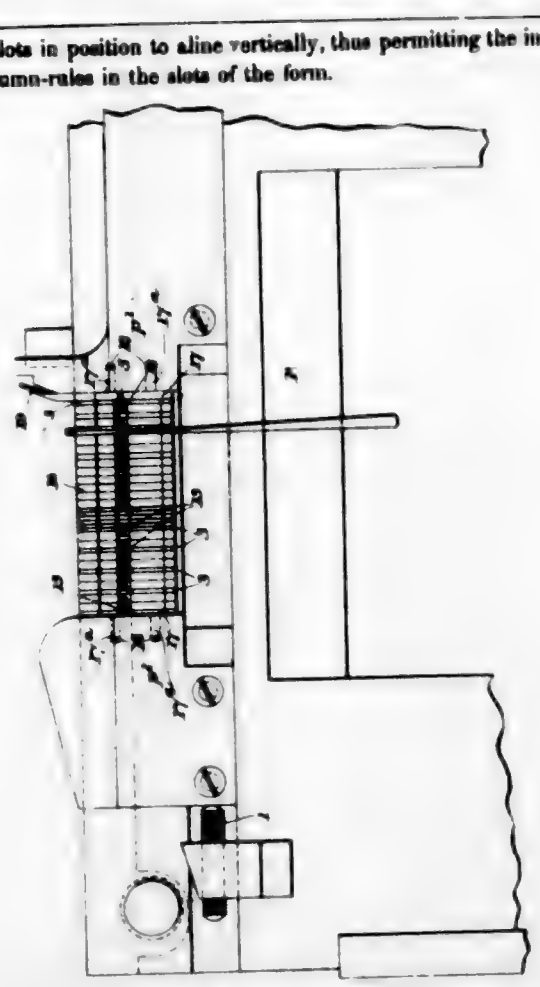
691,685. LINOTYPE-MACHINE. MATTHEW H. WHITTAKER, Salford, England, assignor to the Mergenthaler Linotype Company, New York, N. Y. Filed Sept. 23, 1901. Serial No. 76,223. (No model.)

Claim.—1. A matrix for a linotype-machine having a non-compressible metallic body with a solid projection adapted to enter the front of the slotted mold to produce a transverse slot of definite form and size in the printing edge of the linotype.

2. In a linotype-machine, and in combination with a slotted mold wherein the linotypes are formed, an incompressible matrix adapted to fit against the mold, and provided with a solid projection adapted to enter the front of the mold whereby it is adapted to produce in the printing edge of the slug or linotype a transverse slot of definite form.

3. In a linotype-machine, the combination of a slotted mold wherein the linotypes are formed, a series of coöperating matrices having female characters therein, and other matrices having solid projections adapted to extend beyond the faces of the first-named matrices and into the mold whereby they are adapted to form cavities of definite form at definite points in the linotypes.

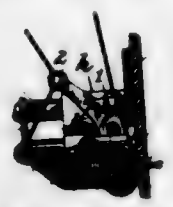
4. In a linotype-machine and in combination with a mold, a series of figure-matrices of uniform thickness in combination with a series of matrices having slot-producing projections, substantially as described, whereby figure-printing linotypes may be produced in succession with their figures and slots in position to aline vertically, thus permitting the introduction of column-rules in the slots of the form.



5. In a linotype-machine, the combination of a matrix-confining jaw and a matrix adapted to interlock therewith, and provided with a projection to enter the mold.

6. A matrix for a linotype having a projection to enter the mold and a laterally-inclined upper end 19, substantially as described.

691,686. SPLICING MECHANISM FOR KNITTING-MACHINES. FRANK WILCOMB, Norristown, Pa. Filed Apr. 24, 1901. Serial No. 57,301. (No model.)



Claim.—1. In combination in a splicing device for knitting-machines, clamping means for the splicing-thread, a thread-bending surface between the same and the needles whereby the splicing-thread is bent on its way to the needles to be broken between said surface and the needles by the pull from the latter, and means for moving the main thread into and out of contact with the loose end of the splicing-thread lying on said surface, substantially as described.

2. In combination in a splicing device for knitting-machines, a main thread-eye for guiding both the splicing and main threads to the needles, clamping means for the splicing-thread, a thread-bending surface for the splicing-thread between the clamping means and the main thread-eye over which surface the splicing-thread is bent, and means for moving the main thread into contact with the splicing-thread, substantially as described.

3. In combination in a splicing device for knitting-machines, a main thread-eye for guiding both the splicing and main threads to the needles, clamping means for the splicing-thread, a curved bearing-surface for the splicing-thread between the clamping means and the main thread-eye over which surface the splicing-thread is bent, and means for moving the main thread into contact with the splicing-thread, substantially as described.

4. In combination in a splicing device for knitting-machines, clamping means for the splicing-thread, a bearing-surface over which the splicing-thread is bent between the clamping means and the needles, and guiding means for the main thread, said main thread being also bent over said surface and in contact with the splicing-thread when the latter is being fed to the needles, said guiding means being movable to move the main thread toward and from said surface, substantially as described.

5. In combination, clamping means for the splicing-thread, a thread-eye for guiding both the main and splicing threads to the needles, a sup-

porting-surface between the clamping means and the thread-eye curving downwardly from the clamp and under the path of the splicing-thread extending to the said thread-eye said splicing-thread being bent or curved by contact with said surface, and resting with its loose end on said curved surface when broken out of work, substantially as described.

6. In combination in splicing mechanism for knitting-machines, clamping means, means for providing a curved path for one of the threads between the clamping means and the needles over which path the thread passes on its way to the needles and upon which the loose end of the splicing-thread rests and means for bringing the two threads together on said curved path and for separating said threads leaving one on said curved path, substantially as described.

7. In combination in a splicing attachment for knitting-machines, a clamping-arm for the splicing-thread having thereon between the clamping-point and the position of the needles a pathway for the said thread upon which it rests, and means for causing the main and splicing threads to engage each other on said pathway, substantially as described.

8. In combination in splicing mechanism for knitting-machines, a movable clamping member for the splicing-thread having thereon a pathway on which the splicing-thread rests between the clamping-point and the position of the needles whereby upon movement of the said member the way will be exposed for threading and means for bringing the splicing and main threads together on said way and for separating them, substantially as described.

9. In combination in a splicing mechanism for knitting-machines, means for moving the main yarn into contact with the splicing-yarn, said means being arranged on one side of the attachment and the clamp for the splicing-thread arranged on the other side of the attachment with the pathway for the thread between the clamping-faces exposed laterally, substantially as described.

10. In combination in a splicing mechanism for knitting-machines, the sliding block through the operation of which the threads are moved together or separated, a clamp for the splicing-thread arranged laterally in respect to the said block, and means for operating the block, substantially as described.

11. In combination, the guide-eye for the threads, a vertically-movable clamping member having a pathway thereon between the clamping-point and the guide-eye to direct the thread to the guide-eye and means for causing the main and splicing threads to engage and disengage on said pathway, substantially as described.

12. In combination, the guide-eye for the threads, a vertically-movable clamping member having a pathway upon which a loose end of the splicing-thread bears when broken and means for moving the main thread to engage and disengage the splicing-thread, said pathway being located between the clamping-point and the guide-eye and the engagement and disengagement of the threads taking place on said pathway, substantially as described.

13. In combination, the clamp, the bearing-surface between the clamping-point and the needles over which the splicing-thread passes on its way to the needles and means moving over a curved path for laying the main thread on the splicing-thread held on said bearing, substantially as described.

14. In combination, the bearing-surface for the splicing-thread, means for holding the said thread thereon with its end loose, and a sweep-arm pivotally supported for laying the main thread on said bearing-surface, substantially as described.

15. In combination, a clamp, the curved bearing-surface for the splicing-thread between the clamping-point and the needles and the pivoted sweep for laying the main thread on the splicing-thread held on said surface with means for operating the sweep, substantially as described

16. In combination, the bearing-surface for the splicing-thread, the pivoted sweep for the main thread to lay it on the splicing-thread, and a reciprocating block with operating means therefor, said block being connected with the sweep, substantially as described.

17. In combination, the bearing-surface over which the splicing-thread passes, a reciprocating block and a sweep interposed between said block and said bearing-surface and operated by the block, said sweep controlling the main thread, substantially as described.

18. In combination in a splicing attachment for knitting-machines, a vertically-movable clamping member, a fixed clamping member above the movable member, the main guide-eye, the said clamping members being exposed at one side of the attachment with the course for the thread exposed laterally and means for controlling the main thread, said fixed clamping member being slotted for the passage of the main thread, substantially as described.

19. In combination, the movable clamping member, the sweep-arm for the main thread, and a sliding block for operating said sweep-arm and clamping member, substantially as described.

20. In combination, the clamping means for the splicing-thread, a sweep-arm for controlling the main thread, said sweep-arm being adapted also to draw slack in the splicing-thread, substantially as described.

21. In combination, a bearing-surface for the splicing-thread for bending it from a straight line and means for bringing the main and splicing threads together and gradually increasing the length of contact between them on said surface, said contact being that of wrapping the main thread about said surface, substantially as described.

22. In combination, the reciprocating block, a clamping-arm arranged laterally thereof, an interposed sweep, operated from the block and the said clamp also being operated from the said block, substantially as described.

23. In combination, the clamping means for the splicing-thread, a spring for pressing the clamping parts together, means for automatically opening the clamping parts against the spring-pressure and means whereby the spring-pressure may be temporarily withdrawn so that the clamping parts may remain separated, substantially as described.

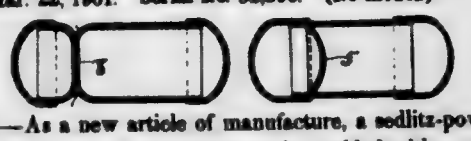
24. In combination in a splicing mechanism for knitting-machines, clamping means for the clamping members and adjustable spring-pressed means for holding the clamp either open or closed, substantially as described.

25 In combination in a splicing device for knitting-machines, a main thread-eye for guiding both the splicing and main threads to the needles, clamping means for the splicing-thread, a curved bearing-surface for the splicing-thread between the clamping means and the main thread-eye over which surface the splicing-thread is bent and upon which the loose end of the splicing-thread rests and means for bringing the main and splicing threads together on said surface and for separating them from each other, substantially as described.

26. In combination with the clamp for the splicing-thread, an adjustable spring-pressed plunger for holding the clamp either open or closed, substantially as described.

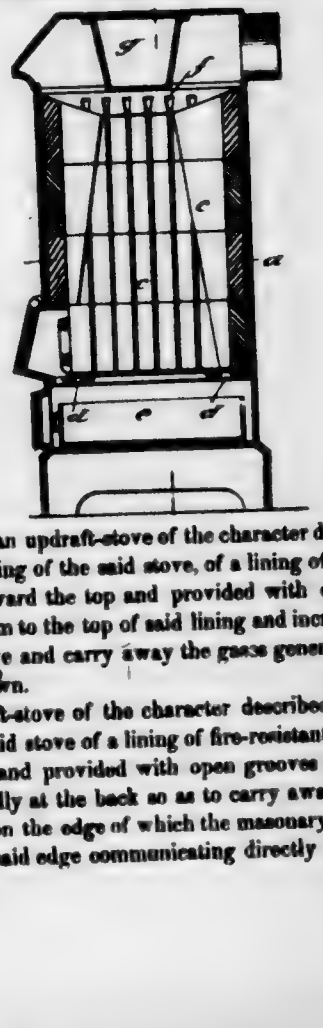
27. In combination with the pivoted clamp for the splicing-thread, a clamping-arm having the two notches and a swinging spring-pressed plunger for engaging either one or the other for holding the clamping-arm closed or open, substantially as described.

691,687. CAPSULE. ROBERT B. WILSON, Woodhaven, N. Y. Filed Mar. 22, 1901. Serial No. 52,390. (No model.)



Claim.—As a new article of manufacture, a sedlitz-powder capsule of non-corrosive material, comprising a tube molded with an integral partition removed a short distance from one end so as to form two compartments, one larger than the other, and a cap on each end of said tube, each cap made in a single piece of non-corrosive material and coöperating with the tube to form extensions of the compartments therein.

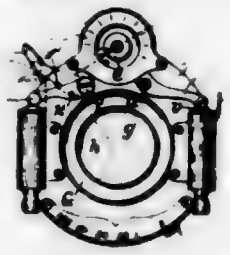
691,688. STOVE. ROBERT WIETER, Hanover, Germany. Filed Apr. 24, 1901. Serial No. 57,246. (No model.)



Claim.—1. In an updraft-stove of the character described, the combination with the casing of the said stove, of a lining of fire-resistant material, converging toward the top and provided with open grooves, and rising from the bottom to the top of said lining and increasing in depth as they ascend to receive and carry away the gases generated, substantially as described and shown.

2. In an updraft-stove of the character described, the combination with the casing of said stove of a lining of fire-resistant material converging toward the top and provided with open grooves rising obliquely at the front and vertically at the back so as to carry away the gases generated, and a grate upon the edge of which the masonary of the lining rests, having apertures in said edge communicating directly with the back part of said grooves.

691,689. PHOTOGRAPHIC SHUTTER. ANDREW WOLLENSAK, Rochester, N. Y. Filed Sept. 14, 1900. Serial No. 30,043. (Model.)



Claims.—1. A photographic shutter adapted to make graded exposures, having a controlling-body with separable independent differently-formed superimposed operating-faces movable as a single body and adapted to be shifted in a series of positions to control the mechanism to give any one of the exposures, with means for operating the exposure mechanism, as set forth.

2. A photographic shutter adapted to make any one of a series of regular graded exposures from brief duration to instantaneous, comprising a controlling-body having superimposed independent differently-formed operating-faces movable as a single body that can be shifted to any one of a series of positions, with means for operating the exposure mechanism, as set forth.

3. A photographic shutter adapted to make any one of a series of quick graded exposures from brief duration to instantaneous having a separable controlling part for the mechanism composed of various differently-formed superimposed operating-cam surfaces adapted to be moved as a single unit upon a common center to be shifted to different positions, one for each of the exposures of the series, with means for operating the exposure mechanism, as set forth.

4. A photographic shutter adapted to make graded exposures, consisting, in combination with the exposure mechanism, of retarding mechanism for the exposure mechanism, and a shiftable controlling-piece for the retarding mechanism embodying differently-formed superimposed cams to effect any one of the graded exposures, means for moving said cams as a single body, and means for operating the exposure mechanism, as set forth.

5. A photographic shutter adapted to make a series of quick exposures graded from brief duration to instantaneous, and bulb and time exposures, having a controlling-piece of superimposed cams adapted to be moved on a common center to any one of a series of positions for controlling the mechanism to give the graded exposures, or to either of two other positions to give bulb or time exposures, substantially as shown and described.

6. A photographic shutter adapted to make a series of exposures regularly graded as to duration, having in combination with the exposure mechanism a retarding mechanism composed of superimposed bodies having various differently-formed operating-faces, means for causing said faces to be moved as a single body and a shiftable controller for the retarding mechanism whereby any of the exposures of the series may be made, and means for operating the exposure mechanism, substantially as shown and described.

7. A photographic shutter for making graded exposures, having a holding-body and exposure mechanism therein, in combination with retarding mechanism comprising a lever and a separable movable part with uneven operating-face to engage said lever, and constructed to form independently acting cam-surfaces superimposed one upon the other on a common center, with means to operate the exposure mechanism, substantially as described.

8. A photographic shutter for making graded exposures, having a hollow body, and exposure mechanism therein, a controlling-body consisting of differently-formed superimposed cams moving as a unit to control said mechanism in combination with retarding mechanism comprising a lever, and a movable cam to engage said lever, with means for operating the exposure mechanism, substantially as described.

9. A photographic shutter adapted to make graded exposures, having a holding body and exposure mechanism therein, a controlling-body consisting of differently-formed superimposed cams moving as a unit to control said mechanism in combination with a lever, and a movable cam to engage one end of the lever, and an air-valve connected with the opposite end of the lever, and means to operate the exposure mechanism, substantially as shown and described.

10. A photographic shutter adapted to make graded exposures, having a holding-body and exposure mechanism therein, in combination with a lever having branches, cams to engage the branches of the lever, and means to set the cams, and for operating the exposure mechanism, and an air-valve actuated by said lever, substantially as and for the purpose specified.

11. In combination with the exposure mechanism of a photographic shutter adapted to make graded exposures, a retarding mechanism for the exposure mechanism, and a shiftable controller for the retarding mechanism whereby the duration of the exposure may be determined, and a shiftable guard for limiting the action of the retarding mechanism, substantially as and for the purpose set forth.

12. In combination with the exposure mechanism of a photographic shutter adapted to make graded exposures, a retarding mechanism comprising a lever, for the exposure mechanism, cams adapted to move together as a unit for engaging different parts of the lever, and means for operating the exposure mechanism, substantially as shown and for the purpose set forth.

13. The main lever of the exposure mechanism of a photographic shutter adapted to make graded exposures, a cam-lever, and an intermediate lever connecting the main lever and the cam-lever, in combination with an air-valve connected with the cam-lever, and a cam for controlling the cam-lever, substantially as and for the purpose specified.

14. A photographic shutter adapted to make graded, bulb and time exposures, provided with a movable body having various differently-formed superimposed operating-faces to act as a unit on a common center for controlling the mechanism to effect the different exposures, with means to set said body and means for operating the exposure mechanism, substantially as specified.

15. A photographic shutter adapted to make graded, bulb and time exposures, having a movable body consisting of various independent differently-formed superimposed cams joined and moving as a unit on a common center for controlling the mechanism to effect the various exposures, with means to set said body and means for operating the exposure mechanism, substantially as shown and described.

16. A photographic shutter adapted to make graded, bulb and time exposures, having a movable body with various independent differently-formed superimposed operating-cams movable on a common center for controlling the mechanism to effect the different exposures, with means to set said body and means for operating the exposure mechanism, said operating-faces each acting independently, substantially as shown and described.

17. A photographic shutter adapted to make graded, time and bulb exposures, having a body adapted to take different positions for the graded exposures and other positions for the bulb and time exposures, said body having differently-formed operating-faces, two acting as a pair, in each of said positions for graded exposures for controlling the mechanism therefor while the other face remains neutral in said positions, with means to adjust said body and for operating the exposure mechanism, substantially as specified.

18. A photographic shutter adapted to make graded, bulb and time exposures, having a body adapted to take different positions for the graded exposures and other positions for the bulb and the time exposures, said body having differently-formed operating-faces, two acting as a pair, for controlling the mechanism for the graded exposures, the other, third, face being neutral, said third face acting to control successively the mechanism for the bulb and the time exposures while said pair of faces is inactive, substantially as and for the purpose specified.

19. A photographic shutter adapted to make bulb and time exposures, having a main lever and detents therefor to act successively in the same direction to catch the lever, a stop to hold the catches out of action, and a controlling-cam for the stop, with means to move the catches into action and for operating the exposure mechanism, substantially as specified.

20. A photographic shutter adapted to make exposures of different duration, having a main lever, and an operating-lever for the exposure mechanism, a pair of catches for the main lever controlled by the operating-lever, with means for controlling the operating-lever and for operating the exposure mechanism, substantially as and for the purpose set forth.

21. A photographic shutter adapted to make exposures of different durations, having a main lever, and an operating-lever for the exposure mechanism, a primary catch for the main lever, and a secondary catch for the main lever adapted to control the primary catch, the operating-lever engaging the secondary catch, with means for moving the operating-lever, substantially as and for the purpose set forth.

22. A photographic shutter adapted to make exposures of different kinds as to duration, having a main lever, a primary and a secondary catch for the main lever, an operating-lever for the exposure mechanism adapted to control the secondary catch, and an actuator for the operating-lever and the primary catch, substantially as shown and described.

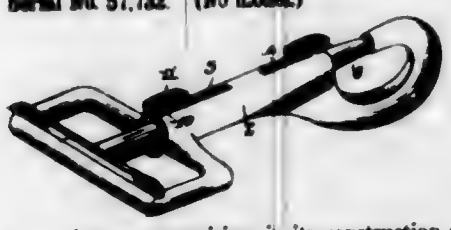
23. A photographic shutter adapted to make instantaneous and longer exposures, having a main lever, a primary and secondary catch for the main lever, an operating-lever for the exposure mechanism adapted to control the secondary catch, and an actuator for the operating-lever, said actuator and the secondary catch jointly acting to control the primary catch, substantially as and for the purpose specified.

24. In a shutter of the character described, a setting device, and the

rim of the aperture of the shutter constructed to serve as an axis independent of the shutter movement itself.

25. In a shutter of the character described a controlling-body composed of a plurality of separate independent superimposed cams mounted upon a common center and means for uniting the same to cause them to move in unison at predetermined periods.

691,690. SNAP. HIRAM A. WEBB, Austin, Tex. Filed Apr. 27, 1901. Serial No. 57,732. (No model.)



Claim.—1. A snap comprising in its construction a barrel, a hook carried thereby, means for closing said hook, an entirely inclosed eye formed upon said barrel, and a member slidable within said eye and adapted to clamp a strap between said member and one of the walls of the eye, substantially as described.

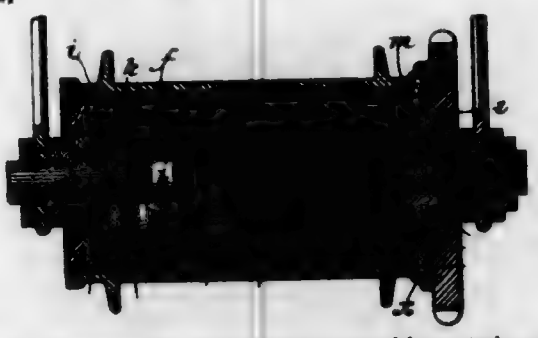
2. In a snap the combination with a barrel carrying an eye at one end, of means for clamping a strap passed through said eye, comprising a spring-pressed bolt within said barrel and a transverse strip carried by the outer end of said bolt, substantially as described.

3. In a snap, the combination with a barrel carrying an eye at one end, of means for clamping a strap passed through said eye, comprising a bolt longitudinally slidable within said barrel and a transverse strip carried by the outer end of said bolt, the ends of said strip being bifurcated and adapted to fit about the end pieces of the said eye, the said eye end pieces thereby forming guideways for the bifurcated ends of the said transverse strip, substantially as described.

4. In a snap, the combination with a barrel carrying an eye at one end, of means for clamping a strap passed through said eye, comprising a spring-pressed bolt longitudinally slidable within said barrel, means for operating said bolt, and a transverse strip carried by the outer end of said bolt and provided with a roughened surface adapted to engage and clamp a strap passed through said eye, substantially as described.

5. A snap, comprising a barrel having its walls slotted, a hook formed at one end of said barrel, a bolt adapted to close said hook moving within said barrel, means passed through a slot in the walls of said barrel for operating said bolt, an eye formed at the opposite end of said barrel, a bolt operating in the eye end of said barrel, means for operating said last-mentioned bolt passed through a slot in the walls of said barrel, means on the outer end of said last-mentioned bolt for gripping an article passed through said eye, and a spring interposed between said bolts for normally holding the same in extended positions, substantially as described.

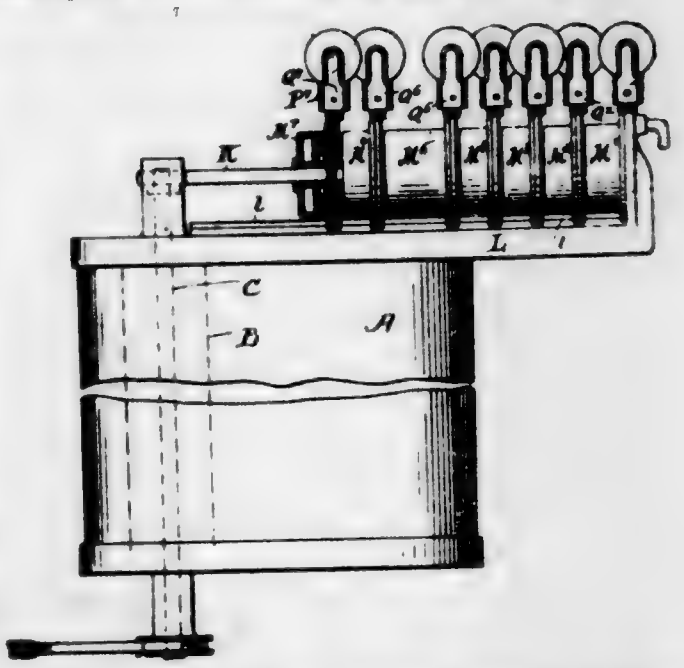
691,691. COASTER-BRAKE FOR BICYCLES. ADOLPHUS F. WYMAN, New Bedford, Mass. Filed May 13, 1901. Serial No. 60,099. (No model.)



Claim.—A coaster-brake for a bicycle, comprising a stationary shaft, having ball-cones integral therewith; a cylinder or shell, surrounding said cones and adapted to revolve thereon by ball-bearings; a sprocket, integral with or secured to said cylinder; a shell or hub, surrounding said cylinder, adapted to revolve on ball-bearings between cones, one of which is integral with the sprocket, and the other secured to the stationary shaft; a spiral spring, surrounding said cylinder, having one end secured to the sprocket, a clutch, whose free movement is in a forward direction, secured to said shaft, and the opposite end of said spring, secured to said clutch, said spring being normally in frictional contact with the interior of said hub, and adapted to be wound to a smaller spiral, by the action of back-pedaling, substantially as shown, and described.

691,692. CONTROLLING SYSTEM. THOMAS VON SWINDERSKI, Preston, England. Filed July 8, 1901. Serial No. 67,418. (No model.)

Claim.—1. The combination of a main controller, a series of pneumatic mechanisms one for each active position, and electric means for controlling said series of mechanisms, substantially as described.



2. A plurality of pneumatic mechanisms connected in series whereby the effect of each mechanism is added onto that of the preceding mechanism, and a controller connected with said mechanisms and adapted to be actuated thereby, substantially as described.

3. The combination of a plurality of pneumatic mechanisms connected in series whereby the effect of each mechanism is added onto that of the preceding, means for controlling the admission and exit of air from said mechanisms, a controller connected with said mechanisms and adapted to be moved consecutively from position to position thereby, and a spring operating to return said controller when air-pressure is released, substantially as described.

4. The combination of a main controller, a series of pneumatic mechanisms each connected to move said controller from one stopping position to the next, said mechanisms aggregating their movement to move the controller past several stopping positions, and a master-controller for governing said pneumatic mechanisms, substantially as described.

5. The combination of a series of pneumatic mechanisms each adapted to move bodily the remainder of the series on one side thereof and a controller connected with the last mechanism of the series whereby the sum of all the strokes of the different mechanisms move the controller to the last position while any intermediate position thereof is caused by the sum of all the strokes of the mechanisms between such intermediate position and the off position, substantially as described.

6. The combination of a controller, a series of independently-movable mechanisms connected in series with each other, mechanism connecting the last of the series with the controller, each of said series moving bodily the remainder of the series which are on that side toward which said connection with the controller is made, whereby the movements of the individuals of said series aggregate to move the controller through consecutive positions, and a master-controller for governing said movable mechanisms, substantially as described.

7. The combination of a series of pneumatic mechanisms each adapted to move bodily the remainder of the series and a controller connected with the last mechanism of the series whereby the sum of all the strokes of the different mechanisms move the controller to the last position while any intermediate position thereof is caused by the sum of all the strokes of the mechanisms between such intermediate position and the off position, a master-controller having a position for each of said mechanisms, and magneto-electric mechanism controlled thereby for governing said pneumatic mechanisms, substantially as described.

8. The combination of a controller, a series of pneumatic mechanisms for operating the same, each mechanism having a cylinder and plunger, the plunger of one cylinder being connected to the adjacent cylinder and the final plunger being connected with the controller, and means for governing the air admitted to said cylinders, substantially as described.

9. The combination of a series of independently-movable pneumatic mechanisms, each mechanism including a cylinder and a piston, the piston of one cylinder being connected to the cylinder adjacent, there being passages adapted to admit operating fluid onto the rear sides of said pistons, substantially as described.

10. The combination of a series of independently-movable pneumatic mechanisms, each mechanism including a cylinder and a piston, the piston of one cylinder being connected to the cylinder adjacent, there being passage-ways adapted to admit operating fluid onto the rear sides of said pistons, and an electric controller connected to the piston of the final cyl

inder, and means for admitting air to the different cylinders successively, substantially as described.

11. The combination of a main controller, a series of pneumatic mechanisms adapted individually to move the same each one position, said mechanisms being connected to convey aggregate movements, magnets for governing the individual mechanisms, and a master-controller connected with said magnets and in the first position actuating the first magnet, in the second position the first and second magnets, the third position the first, second and third magnets, and so on, substantially as described.

12. The combination of a series of cylinders, pistons therein, the piston of one cylinder being connected with the body of the next cylinder, there being air-passages leading to and from each cylinder, a valve or valves for controlling said passages, a series of magnets for controlling said valves, and a master-controller connected to operate in the first position the first magnet, in the second position the first and second magnets, in the third position the first, second and third magnets, and so on, substantially as described.

13. The combination of a series of independently-movable pneumatic mechanisms, each mechanism including a cylinder and a piston, the piston of one cylinder being connected to the cylinder adjacent, there being passage-ways adapted to admit operating fluid onto the rear sides of said pistons, and a rotatable controller-barrel, a gear-wheel connected therewith, and a rack meshing with said gear and connected to the last piston in the series, and means for controlling the admission of air to said cylinders successively, substantially as described.

14. The combination of a series of independently-movable pneumatic mechanisms each mechanism including a cylinder and a piston, the piston of one cylinder being connected to the cylinder adjacent, there being passage-ways adapted to admit operating fluid onto the rear side of said pistons, a movable controller, a connection between the final piston in the series and such controller for moving it consecutively from one active position to the next, a spring tending to return said controller, and means for controlling the admission of air to said cylinders successively, substantially as described.

15. The combination of a series of cylinders, pistons therein, each piston being connected by a hollow piston-rod with the adjacent cylinder, a passage-way carried by the adjacent cylinder leading from said hollow piston-rod, a passage-way leading also to the interior of said adjacent cylinder, a valve adapted to couple said two passage-ways or maintain them disconnected, and electric means for operating said valve, substantially as described.

16. The combination of a series of cylinders, pistons therein, each piston being connected by a hollow piston-rod with the adjacent cylinder, a passage-way in the wall of the adjacent cylinder leading from said hollow piston-rod, a passage-way in said wall leading also to the interior of said adjacent cylinder, there being an admission-passage between two passage-ways, and there being an exit-passage from that passage-way which leads to the interior of the cylinder, and valve mechanism for alternately opening or closing said admission and exit passages, substantially as described.

17. The combination of a series of cylinders having pistons therein, the piston in one cylinder being connected to the body of the adjacent cylinder whereby each piston when it moves will bodily shift all of the cylinders at the forward side thereof, means for admitting air onto the rear side of the pistons and for releasing said air, magnets for operating such means, a controller, and a connection between the same and the forward piston, substantially as described.

18. The combination of a series of cylinders having pistons therein, the piston in one cylinder being connected to the body of the adjacent cylinder whereby each piston when it moves will bodily shift all of the cylinders at the forward side thereof, means for admitting air onto the rear side of the pistons and for releasing said air, a controller, and a connection between the same and the forward piston, the first or rearward cylinder being stationary and the others all movable along a suitable guideway, substantially as described.

19. The combination of a main controller, a series of pneumatic mechanisms, each adapted to move individually and shift bodily the mechanism at the forward side thereof, a connection between the extreme forward mechanism and the controller, whereby the controller is moved through consecutive positions, each movable pneumatic mechanism receiving its operating-air through a connection with the preceding mechanism, substantially as described.

20. The combination of a series of cylinders having pistons therein, the piston in one cylinder being connected to the body of the adjacent cylinder whereby each piston when it moves will bodily shift all of the cylinders at the forward side thereof, the rearmost cylinder being stationary and the others movable, means for admitting air onto the rear side of the pistons and for releasing said air, each of said movable cylinders receiving its air through the preceding cylinder, a controller, and a connection between the same and forward piston substantially as described.

21. The combination of a series of cylinders, pistons therein, the piston of one cylinder being connected with the body of the next cylinder by a hollow piston-rod, an air-passage through the body of each cylinder from the piston-rod connected therewith, and another air-passage leading to the interior of the cylinder and discharging on the rear side of the piston therein, and an air passage-way from such rear side to the interior of the piston-rod which is in that cylinder, and a valved passage-way adapted to couple together said two passages, substantially as described.

22. The combination of a series of cylinders, pistons therein, the piston of one cylinder being connected with the body of the next cylinder by a hollow piston-rod, an air-passage through the body of each cylinder from the piston-rod connected therewith, and another air-passage leading to the interior of the cylinder and discharging on the rear side of the piston therein, an air passage-way from such rear side to the interior of the piston-rod which is in that cylinder, valves governing a passage-way adapted to couple together said two passage-ways, a series of magnets for controlling said valves, and a master-controller connected to operate in the first position the first magnet, in the second position the first and second magnets, and so on, substantially as described.

23. The combination of a main electric controller, a plurality of operating mechanisms connected in series whereby the movement of each mechanism is added onto the movement of an adjacent one, said mechanisms being connected with the main controller to operate it, a series of individual magnets for governing the movements of said mechanisms, said magnets being adapted to be connected in series on a shunt from the main circuit of the main controller, means for neutralizing any of said magnets, a master-controller, and suitable electric connections whereby in the first active position all of said magnets are in circuit but all except the first are neutralized, in the second position all except the first two neutralized, and so on, substantially as described.

24. The combination of a plurality of mechanisms connected in series whereby the movement of each mechanism is added onto the movement of an adjacent one, a series of individual magnets for governing the movement of said mechanisms, means for neutralizing any of said magnets, a master-controller which in the first active position connects in all of said magnets but neutralizes the effect of all except the first thereof, in the second position neutralizes the effect of all except the first two, and so on, substantially as described.

25. A plurality of mechanisms connected in series whereby the movement of each mechanism is added onto the movement of an adjacent one, a series of individual magnets for governing the movements of the mechanisms, means for neutralizing any of said magnets, a master-controller which in the first active position connects in all of said magnets but neutralizes the effect of all except the first thereof, in the second position neutralizes the effect of all except the first two, and so on, combined with a main controller connected with said mechanisms and having stopping positions the distance between which is proportional to the individual throw of the mechanisms, substantially as described.

26. A series of magnets wound with two coils, a master-controller, and such connections between the controller and said coils that said controller throughout all active positions directs the current in series through all of one set of coils, and in series through various of the other set of coils in the opposite direction around the magnet, said controller in its different positions cutting out successively these last-mentioned coils, combined with a series of mechanisms whose movements aggregate and which are governed by said magnets, substantially as described.

27. The combination of a series of magnets wound with two coils, a master-controller, such connections between the controller and said coils that said controller throughout all active positions directs the current in series through all of one set of coils, and in series through various other sets of coils in the opposite direction around the magnet, said controller in its different positions cutting out successively these last-mentioned coils and thus actively energizing an increasing number of coils of the other set, the difference between the number of the two sets of coils which are inserted at any position being equal to the number of that position, and a main controller connected to move from position to position for each magnet actively energized, substantially as described.

28. The combination of a series of pneumatic mechanisms each adapted to move the adjacent mechanism and thereby continuously separate themselves and communicate an aggregate movement, a valve for governing each mechanism of the series, a magnet for controlling each valve, all of said magnets except the first having a double winding, and a master-controller for governing said magnets adapted in the first position to direct the current through all of one set of windings and through the additional windings in opposite direction thus neutralizing all magnets except the first, and then in successive positions successively cutting out said neutralizing-winding thereby energizing a continuously-increasing number of said magnets, substantially as described.

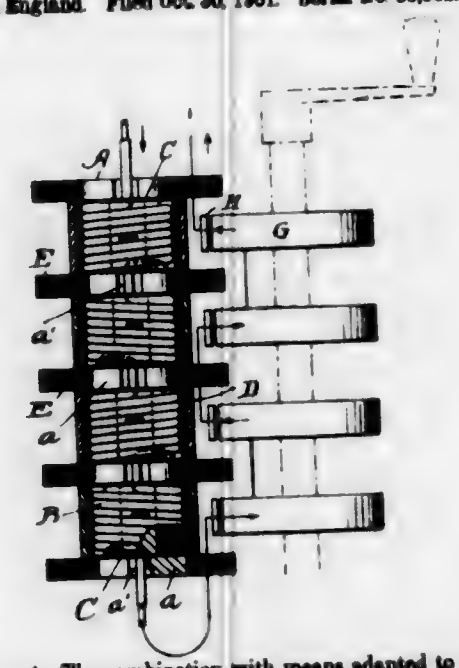
29. The combination of a controller, a series of mechanisms each

adapted to move the controller from one notch to the next, and the aggregate movement of said mechanisms acting to move the controller corresponding distances, electromagnets, each adapted to govern one of said mechanisms, said magnets having a coil connected in series and all except the first having an additional coil in the opposite direction also connected in series, and a master-controller adapted to direct current through all of said coils in series and then consecutively cut out said additional coils, substantially as described.

30. The combination with a controller, a plurality of mechanisms connected therewith and successively connected in series, each mechanism being adapted to move the controller one notch and the movements of the mechanisms aggregating to move it through several notches, a series of electromagnets for controlling said mechanisms, each of said magnets being wound by a direct coil, and all but the first by a relatively reversed coil in addition, and a master-controller adapted in each active position to direct current through all of said direct coils in series, and the first position through all of said reversed coils also and then in successive positions to continuously cut out the reversed coils, substantially as described.

31. In a controller, in combination, a series of pneumatic cylinders, pistons of one cylinder connected with the cylinder adjacent whereby each piston may move all the cylinders, valves for controlling the inlet and outlet of air of each cylinder, magnets for controlling said valves, each of said magnets except the first being wound in two directions, and a master-controller connected to direct current in each position through all of the coils which every magnet has, and also to direct current in series through those coils which the first magnet has not and in successive positions to successively cut out these latter coils, substantially as described.

691,693. SPARK-INTERRUPTER. THORSTEN VON ZWIEDENECK, Preston, England. Filed Oct. 30, 1901. Serial No. 80,503. (No model.)



Claim.—1. The combination with means adapted to cause an electric spark of a blow-out device consisting of a coil surrounded by an exposed non-magnetic conducting-sleeve adapted to stand within the sweep of the arc of such spark.

2. A blow-out device consisting of a coil of insulated wire surrounded by a sleeve of non-magnetic metal.

3. The combination with engageable and separable contacts adapted to establish an electric spark, of a blow-out device located in the sweep of the spark, and adapted to blow out the spark by giving it a tendency to encircle the blow-out device.

4. A blow-out device consisting of a coil of insulated conductor, a pair of insulations projecting laterally adjacent to the opposite ends of the coil, and a sleeve of non-magnetic conducting material surrounding the coil, between such insulations.

5. A blow-out device composed of a series of units each unit having a coil surrounded by a metallic sleeve and there being laterally-projecting insulations between the units separating the sleeves.

6. In a blow-out device, in combination, a core having an annular recess about it, a coil occupying such recess, the core thus making confining-heads for the coils, lateral projections of insulation, adjacent to each head of the coil, and a non-magnetic metallic sleeve surrounding the coil between such insulations.

7. A blow-out device consisting of a magnetic core, an insulated coil surrounding the same, an exposed metal shield surrounding the coil, the same adapted to be located within the sweep of the arc to be blown out.

8. A blow-out device having a magnetic core, with annular pockets around it, coils of electric conductor occupying said pockets, said coils winding in the opposite direction in successive pockets, and metal sleeves surrounding the coils and insulated from each other and from the core.

9. In a magnetic blow-out device, the combination of a magnetic core, having a series of annular recesses about it, a series of coils of electric conductor in the recesses of said core, the coils being connected but winding in opposite directions in successive pockets, the core forming the heads between such successive pockets, an insulating-sleeve surrounding the coils and core and engaging such heads, and separated metal sleeves one for each coil surrounding insulating-sleeve.

10. In a magnetic blow-out device, the combination of a central core, having annular pockets about it, the core forming heads between the pockets, coils occupying such pockets, successive coils winding in opposite directions, openings through the heads of the core by which said coils are connected together, a tube surrounding said core and coils, insulating projecting rings surrounding the head, and metallic non-magnetic sleeves surrounding the tube between the rings.

11. A blow-out device composed of a series of units each unit having a coil surrounded by an exterior metallic sleeve and there being laterally-projecting insulations between the units separating the sleeves, combined with a controller having contact-fingers and segments whose engaging lines are adjacent to said sleeves and between the consecutive insulations, whereby the spark may go from the fingers and segments to said sleeve.

691,694. DENTAL PLIERS. ADOLPH ADERER, JULIUS ADERER, and HUGO ADERER, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,279. (No model.)



Claim.—1. A pair of pliers having two forming-jaws, one of which is sharply bent for clearance and in such manner that it meets the other jaw at a point inside its extremity and at a pronounced angle thereto, said jaw having a rounded end and said first-named jaw having a substantially flat under surface complementary to said rounded end, substantially as described.

2. A pair of pliers having two forming-jaws one of which is sharply bent for clearance and in such manner that it meets the other jaw at a point inside its extremity and at a pronounced angle thereto, said jaw having two rounded ends, and said first-named jaw having two substantially flat under surfaces inclining toward each other, said surfaces being complementary to the rounded ends, substantially as described.

691,695. CASE FOR DENTAL INSTRUMENTS. ADOLPH ADERER, JULIUS ADERER, and HUGO ADERER, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,280. (No model.)



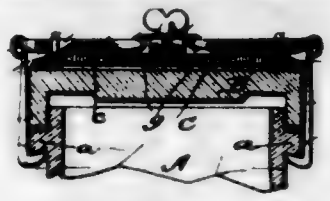
Claim.—1. In a case for dental instruments, the combination with a box or case, of means for holding the dental punches, and a draw-plate having openings extending therethrough adapted for the swaging of tooth-crowns by manipulation of the punches therewith, said draw-plate being held in the case above the bottom thereof whereby a clear space is left beneath the draw-plate to facilitate the manipulation and withdrawal of the punches when they are used.

2. In a case for dental instruments, the combination with a box or case open at one of its sides, of means for holding the dental punches in the rear of the case, and a draw-plate having openings extending there-

through adapted for the swaging of tooth-crowns by manipulation of the punches therewith, said draw-plate being held on the case above the bottom thereof adjacent the open side of the case, whereby a clear space is left beneath the draw-plate to facilitate the manipulation and withdrawal of the punches when they are used.

3. In a case for dental instruments, the combination with a box or case having its front side open, a partition extending transversely across the box and dividing it into front and rear compartments, of a draw-plate held by the sides of the box adjacent the open front and constituting the top of the front compartment, said draw-plate having openings extending therethrough adapted for the swaging of tooth-crowns by manipulation of punches therewith, a rack located in the rear compartment and having means for holding the dental punches and die-plate, and a cover or lid hinged to the case and having a side hinged to itself which is adapted to close the open front side of the box when the lid is down.

691,696. **JAR-CLOSURE.** ROBERT H. AUSTIN, San Francisco, Cal. Filed May 16, 1901. Serial No. 60,567. (No model.)



Claim.—1. A jar-closure comprising a base-section having arms diverging from the center thereof, levers pivotally held upon the said arms, clamping-sections having their lower or foot portions arranged for engagement with the flange of a jar, a clamping-plate connected to the inner ends of the said lever, and a screw connecting said plate to the base, substantially as shown and described.

2. A jar-closure comprising a base-section having arms diverging from the center thereof, and having the outer ends beveled upon the upper side, pins formed integral with the said arms, levers provided with apertures for engagement with said pins and having their extreme ends also provided with apertures, clamping members connected to the outer ends of said levers, a clamping-plate for engagement with the inner ends of said levers, and means for adjustably connecting said clamping-plate and base, substantially as shown and described.

3. In a jar-closure, the combination of a base-section having arms diverging from the center thereof, the outer ends of the said arms being beveled upon the upper side, retaining-pins formed on the said arms and having their upper ends bent at right angles to the body of said pins, levers having apertures for engagement with said pins, clamping-sections loosely held upon the outer ends of said levers and having the upper surface of their foot portions beveled, a clamping-plate connected to the inner ends of said levers, and means for connecting said plate and base-section, substantially as shown and described.

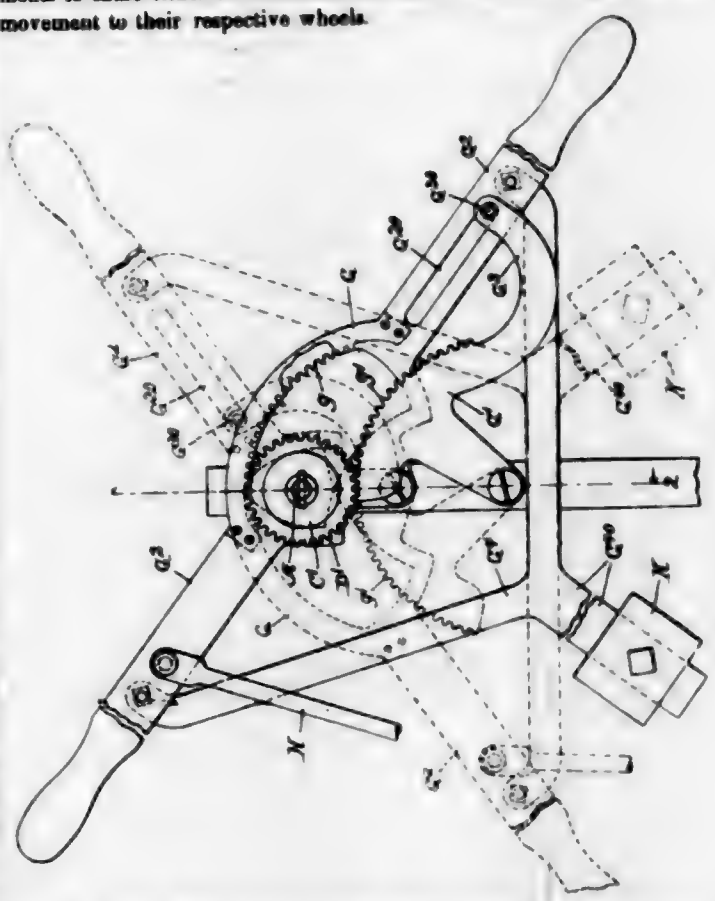
691,697. **MECHANISM FOR CONVERTING MOTION.** JAMES H. BAKER, Chicago, Ill. Filed Aug. 15, 1900. Renewed Apr. 4, 1901. Serial No. 54,319. (No model.)

Claim.—1. A mechanism for converting motion, comprising two gear-wheels, a shaft and two clutches thereon, of which one member of each is rigid with the shaft and the other member is free to revolve about the shaft and is rigid with one of the gear-wheels; two levers, having their fulcrums both at the same side of the axis of the shaft and at different distances therefrom, the lever having the nearer fulcrum having rigid with it an internal gear-segment meshing with one of the gear-wheels, and the lever having the more remote fulcrum having rigid with it an external gear-segment meshing with the other gear; and connections between the two levers by which the oscillation of one about its fulcrum communicates oscillation to the other in the same direction, about its fulcrum.

2. In a mechanism for converting motion, in combination with the two clutches—their respective gears—connected levers having gear-segments operating said gears respectively; one of said levers having a weight which causes its center of gravity to be below the fulcrum, whereby it tends to return the levers to the middle point of their respective paths of oscillation.

3. In a mechanism for converting motion, in combination with the two clutches—their respective gears—connected levers having gear-segments operating said gears respectively; one of said levers having a weight which causes its center of gravity to be below the fulcrum, whereby it tends to return the levers to the middle point of their respective paths of oscillation; said weight being adjustable vertically on the lever to adapt the natural time of oscillation of the lever as a pendulum to the speed which it is desired to have the lever communicate to the gears.

4. A mechanism for converting motion, comprising two wheels, a shaft and two clutches thereon, of which one member of each is rigid with the shaft and the other member is free to revolve about the shaft and is rigid with one of the wheels; two segments fulcrumed at different points but at their respective centers, and means whereby they act upon the wheels respectively to rotate the same; and connections between such segments to cause either one to actuate the other in direction to give reverse movement to their respective wheels.



5. A mechanism for converting motion, comprising two wheels; a shaft and two clutches thereon, of which one member of each is rigid with the shaft and the other member is free to revolve about the shaft and is rigid with one of the wheels; two segments fulcrumed at different points at their respective centers, acting upon the wheels respectively at opposite sides of the shaft to rotate said wheels; and connections between said segments to cause either one to actuate the other to give reverse rotary movement to their respective wheels.

6. A mechanism for converting motion, comprising two wheels; a shaft and two clutches thereon, of which one member of each is rigid with the shaft and the other member is free to revolve about the shaft and is rigid with one of the wheels; two segments of equal radius, fulcrumed at different points at their respective centers, and acting upon the wheels respectively to rotate the same, and connections between such segments to cause either one to actuate the other in direction to give reverse movement to their respective wheels.

7. A mechanism for converting motion, comprising two wheels; a shaft and two clutches thereon, of which one member of each is rigid with the shaft and the other member is free to revolve about the shaft and is rigid with one of the wheels; two segments of equal radius, fulcrumed at different points but at their respective centers and acting on the wheels respectively at opposite sides of the shaft, and connections between such segments to cause either one to actuate the other in direction to give reverse rotary movement to their respective wheels.

691,698. **VAGINAL SYRINGE.** RICHARD H. EDDY and JOSEPH R. JOHNSTON, Providence, R. I. Filed May 31, 1901. Serial No. 62,477. (No model.)



Claim.—1. A vaginal syringe A, consisting of the compressible rubber bulb member *b* and the removably-attached tube member *a*, open at each end; said tube having its wall or shell provided with a longitudinally-extending helical groove *c*, whereby the flow of fluid in its passage through the tube is given a correspondingly helical form, substantially as hereinbefore described and for the purpose set forth.

2. A syringe-tube, substantially as hereinbefore described, the same being open at each end and having its wall provided with a longitudinally-extending helical groove and a correspondingly-shaped rib alternating with said groove, and having one end of the tube adapted to be attached to a flexible tube or bulb, substantially as described and for the purpose set forth

691,699. SIDE BEARING FOR RAILWAY-CARS. FRANCIS K. FARNETT, St. Louis, Mo., assignor, by mesne assignments, to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed July 8, 1901. Serial No. 67,421. (No model.)



Claim.—1. In a side bearing for railway-cars, the combination with the lower bearing on the truck-bolster, and a loosely-suspended top bearing which, in operation, is practically immovable in its seat; substantially as described.

2. In a side bearing for railway-cars, the combination of a lower bearing on a truck-bolster, and a self-adjustable top bearing which universally engages the bottom bearing in the movement of said bearings toward each other, before the load is applied; substantially as described.

3. In a side bearing for railway-cars the combination with the lower bearing loosely suspended from the truck-bolster, of a top bearing on the body-transom, and a ball-and-socket connection between said top bearing and the body-transom whereby, said top bearing is self-adjustable, and uniformly bears upon the bottom bearing in the movement of said bearings toward each other, before the load is applied; substantially as described.

4. In a side bearing for railway-cars, the combination with the lower bearing on the truck-bolster, of a top bearing on the body-transom, said top bearing comprising a universally-movable bearing plate or block free to move before the load is applied, and a seat for coöperating with said bearing plate or block said seat affording a rigid connection between the bearing-plate and transom when the load is applied; substantially as described.

5. The herein-described member of a side bearing for railway-cars, the same comprising a concaved seat, a movable bearing-plate provided with a convexed portion coöperating with said seat, and means for loosely suspending said bearing-plate in position, whereby, it is free to move in all directions before the load is applied.

6. The herein-described member of a side bearing for railway-cars, the same comprising an apertured concaved seat, a bearing-plate provided with a convexed portion coöperating with said seat, a shank extending from the bearing-plate and passing through the aperture in the concaved seat, and means for limiting the movement of the bearing-plate in its seat; substantially as described.

7. The herein-described member of a side bearing for railway-cars, the same comprising the combination, with a plate provided with an embossed apertured seat, the said plate also having recesses on each side of said seat, a bearing plate or block coöperating with said seat and having lugs on each side thereof, received in the aforesaid recesses, a shank extending from the bearing plate or block through the aperture in the seat, and means on the end of said shank for engaging the inner face of the embossment for supporting the bearing plate or block in position; substantially as described.

8. The combination with the plate C, having flanges *c*, an embossment *c'*, and aperture *c''* in said embossment, and recesses *c'''*, of a bearing plate or block having a convexed face, *d*, passing through the aperture in said embossment, a nut on the upper end of said shank, and lugs *d'''*, which are received by the recesses *c'''*; substantially as described.

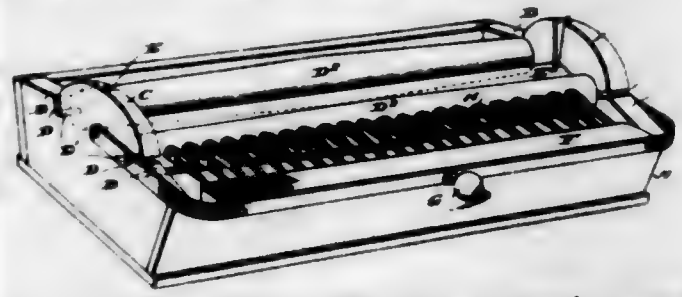
9. The combination with the concaved seat formed with an aperture, of a bearing-plate provided with a shank of smaller diameter than the aperture in said seat, said shank passing through said aperture, and means on the upper end of the shank for engaging the inner face of the seat, whereby, the bearing-plate is suspended in position, and a clearance left therebetween and the aperture; substantially as described.

691,700. PASTING-MACHINE. ALBION W. FOSTER, Millbridge, Me., assignor of one-half to Jasper Wyman, Millbridge, Me. Filed Oct. 31, 1901. Serial No. 80,610. (No model.)

Claim.—1. A pasting-machine, consisting of a box or trough, a centrally-arranged paste-supplying roller, a pair of guide-rollers one on each side of the supply-roller, and a reversible brush.

2. A pasting-machine, consisting of the box or trough, a paste-supplying roller and guide and presser rollers removably mounted in said box or trough.

3. A pasting-machine consisting of the box or trough, pasting and guide or presser rolls mounted in the trough, a brush-carrying frame hinged to the box and reversible, and a brush carried by said frame.



4. A pasting-machine, consisting of a box or trough, a centrally disposed paste-supplying roller mounted therein, guide or presser roller arranged on each side of and out of contact with the supply-roller, a brush-frame swung to the box and a brush carried by the frame.

691,701. HOOK AND EYE. FRANCIS H. GORRELL, Newton, Iowa. Filed May 18, 1900. Serial No. 17,104. (No model.)



Claim.—1. A hook member of a hook-and-eye fastening formed with a forwardly-projecting extension-arm, a lateral projection on and forming an acute angle with the extremity of the arm, the extremity 14 of the lateral projection being bent inwardly and parallel with the body of said lateral projection, the extension-arm lying alongside and outside the hook proper and extending beyond the eye-retaining end thereof a distance at least equal to the length of the hook proper and the lateral projection extending entirely across the forward end of the hook proper and spaced apart from and in front of the eye-retaining end thereof.

2. A hook member of a hook-and-eye fastening made of a single length of wire and comprising a spring 10^a, which spring terminates in an eye 10^c and joins integrally to one side member 10^d of a hook, said side member 10^d of the hook joining integrally with a mating side member 10^e of a hook and inclosing the spring, the mating side member 10^e of the hook terminating in an eye 10^f adjacent the eye 10^c and an extension-arm projecting from the eye 10^f and extending alongside that side of the hook member 10^e opposite the spring to and beyond the terminal of said spring, the extension forming no part of the spring proper but being curved outwardly or diverged from the hook and extending beyond the hook proper a distance approximately equal to the entire length of said hook, and a lateral projection on the extremity of the extension-arm, which lateral projection is bent at an angle to the extension-arm and extends entirely across the outer end of the hook and spaced apart therefrom, whereby the extension-arm serves to stiffen the hem or edge of a garment and at the same time prevent torsional movement of the hook member.

691,702. ROTARY CUTTER OR PINKING MACHINE. THOMAS F. HAGERTY, San Francisco, Cal. Filed Nov. 12, 1900. Renewed June 22, 1901. Serial No. 65,646. (No model.)



Claim.—1. In a pinking-machine, the combination of a frame, a cutter-shaft carried in the frame, an eccentric bearing mounted in the frame below the cutter-shaft, a driving-shaft mounted in the said bearing and geared with said cutter-shaft, and a rotary anvil mounted upon said driving-shaft below said cutter.

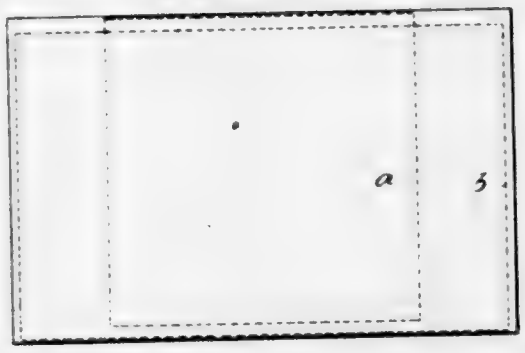
2. In a pinking-machine, the combination of a frame, mounted upon a base, a shaft carrying a rotary cutter mounted in the upper portion thereof, an eccentric bearing or sleeve, a driving-shaft mounted in said bearing below said cutter-shaft and geared with the same, a rotary anvil mounted upon the driving-shaft, and means to hold the eccentric bearing at its proper adjustment.

3. In a pinking-machine, the combination of a frame, an upper bearing formed in said frame, a cutter-shaft mounted in the bearing, a gear carried upon one end of the shaft, a rotary cutter carried upon the other end, an eccentric bearing mounted in the frame, a driving-shaft journaled in said bearing and geared with said gear of the cutter-shaft, a rotary anvil mounted upon said driving-shaft directly below the rotary cutter, and a table mounted upon the frame between the cutter and the anvil.

4. In combination with a pinking-machine, a cutter-shaft, a driving-shaft, an eccentric sleeve or bearing carrying said driving-shaft, a crank and gear formed integral with each other and mounted upon the driving-shaft, and a rotary anvil mounted below the cutter-shaft upon the driving-shaft.

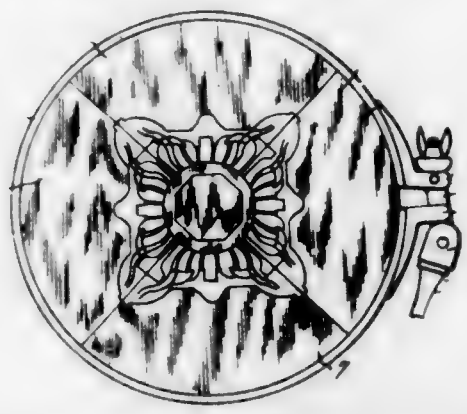
5. In combination, a pinking-machine consisting of the base having a broad front and a narrow rear portion, a right-angled arm depending from said base and carrying a clamping-screw, a vertical frame formed integral with said base, a pair of bearings formed in the upper part of the frame, and a pair of openings formed in the lower part, a cutter-shaft having a gear and the cutter mounted in the upper bearings, a sleeve provided with a channel the full length thereof eccentrically mounted in the pair of openings of the frame, and a driving-shaft mounted in and carried by said sleeve having an anvil mounted upon one end and a crank and a gear upon the other end.

691,703. ADVERTISING DEVICE. ARTHUR C. HOCKEPEPP, Birmingham, England. Filed Sept. 3, 1901. Serial No. 74,211. (No model.)



Claim.—An advertising device consisting of a carrier-card having a pair of openings near the top edge thereof, a card provided with a pair of openings near the bottom edge thereof, and an elastic means extending through the openings of the cards for suitably connecting them together.

691,704. PROCESS OF FORMING COMPO CAPS FOR COLUMNS. EDGAR S. KENNEDY, Washington, D. C. Filed Apr. 6, 1901. Serial No. 54,652. (No specimens.)

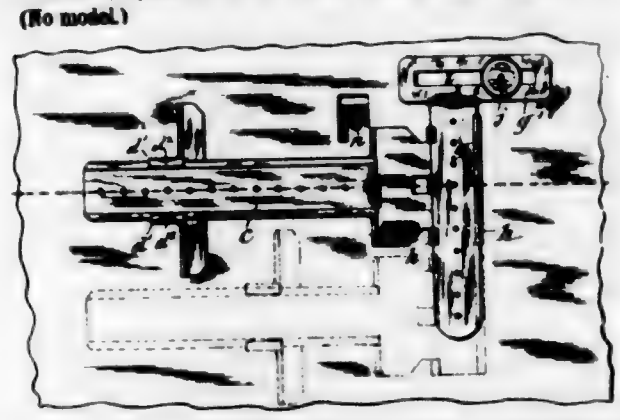


Claim.—1. The process of forming molded "compo" caps for columns which consists in carving the face of a symmetrical portion of a cap, taking a number of molds of such carved portion in plastic material, assembling said molds so as to form a complete symmetrical mold for a cap, and then forcing plastic material into said mold under pressure.

2. The process of forming molded "compo" caps for columns, which consists in embedding a symmetrical portion of the cap to be molded under pressure in plastic material to form a mold of such portion, repeating the operation as many times as the cap has similar portions, assembling the molds thus formed into a complete symmetrical mold and forcing plastic material thereinto, and afterward removing the cap therefrom.

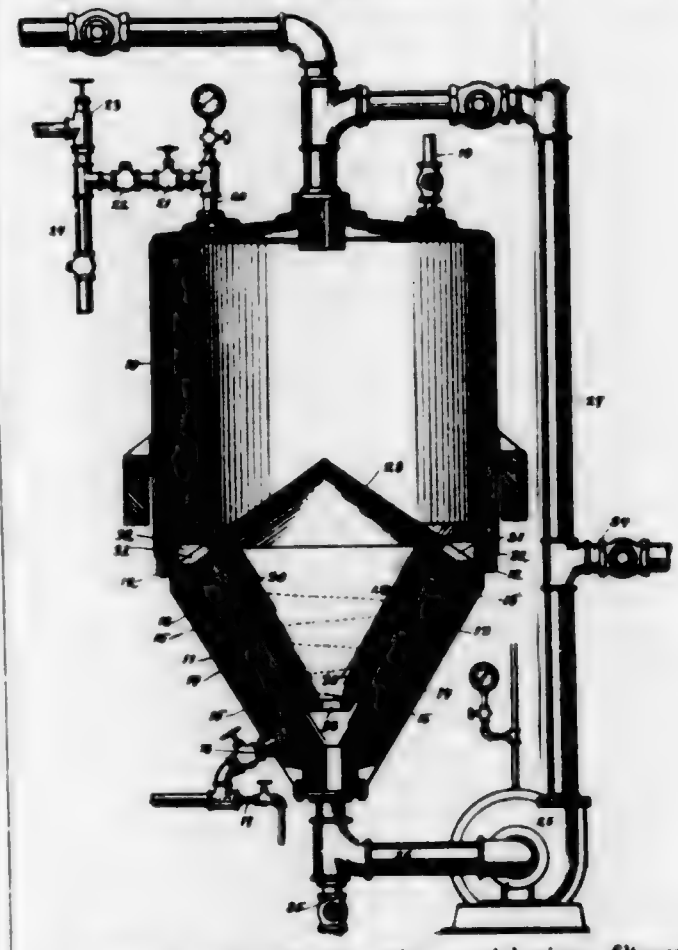
3. The process of forming molded "compo" caps for mantel and other columns which consists in forming a plurality of sectional molds exactly similar in outline, assembing said sectional molds into a complete mold, filling said mold with "compo" material in a plastic condition, and subjecting this latter to pressure.

691,705. TUCKING-GUIDE FOR SEWING-MACHINES. CHAS. H. LEWIS, Syracuse, N. Y. Filed Feb. 15, 1901. Serial No. 47,401. (No model.)



Claim.—The combination with the attaching-arm, of the stay-plate formed with a guide provided with lips embracing the edges of said arm and adjustably clamped thereon, a gaging-shoulder formed on said plate, a tongue extending from said shoulder, a shoe adjustably sustained on said tongue by jaws on the shoe engaging the edges of the tongue and by a spur on one engaging an indentation in the other of said parts and a gaging-shoulder projecting from said shoe substantially as set forth and shown.

691,706. METALLURGICAL FILTER. FREDERIC H. LOSS, Chicago, Ill., assignor to Ross J. Beatty, trustee, Muncie, Ind. Filed Oct. 18, 1900. Serial No. 33,419. (No model.)



Claim.—1. The combination with a vessel having a filter-septum and an outlet-port for the filtrate beyond such septum, of suitable means for establishing a circulation of the vessel contents and a baffle parallel to and adjacent said septum to intimately direct such circulation over the surface thereof.

2. The combination with a vessel having a filter-septum and an outlet-port for the filtrate beyond such septum, of suitable means for establishing an end-to-end circulation of the vessel contents above said septum, and a baffle interposed between the ends of the vessel parallel to and adjacent said septum, whereby the contents are forced into intimate contact with the filter-septum.

3. The combination with a vessel having a filter-septum and an outlet-port for the filtrate beyond such septum, of suitable means for establishing an end-to-end circulation of the vessel contents above said septum, and a spiral baffle interposed between the ends of the vessel and arranged adjacent said filter-septum to intimately direct such circulation over the surface thereof.

4. The combination with a vessel having a filter-septum and an outlet-port for the filtrate beyond such septum, of suitable means for estab-

lishing an end-to-end circulation of the vessel contents above said septum, and a baffle-plate having a projecting spiral flange interposed between the ends of said vessel and resting on said filter-septum to intimately direct such circulation over the surface thereof.

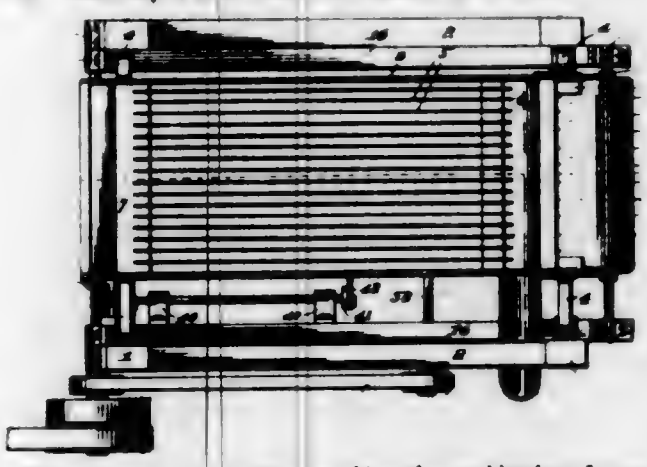
5. The combination of a vessel having a conical filter-septum and an outlet-port for the filtrate beyond such septum, of means for establishing an end-to-end circulation of the vessel contents above said septum, and a conical baffle-plate having a projecting spiral flange interposed between the ends of the vessel and resting on said conical filter-septum to intimately direct such circulation over the surface thereof.

6. The combination with a vessel having a filter-septum and an outlet-port for the filtrate beyond such septum, of suitable means for establishing an end-to-end circulation of the vessel contents above said septum, a spreader and a spiral baffle successively interposed between the ends of said vessel to intimately direct such circulation over the surface of said filter-septum.

7. The combination of a vessel having a conical filter-septum and an outlet-port for the filtrate beyond such septum, of means for establishing an end-to-end circulation of the vessel contents above said septum, a conical spreader and an oppositely-facing conical baffle-plate having a projecting spiral flange successively interposed between the ends of the vessel and arranged adjacent said conical filter septum to intimately direct such circulation over the surface thereof.

8. The combination with a closed vessel having a filter-septum and an outlet-port for the filtrate beyond such septum, of suitable means for establishing a circulation of the vessel contents under pressure above said septum, and an ejector-nozzle connected with said outlet-port.

691,707. CORN-SILKING MACHINE. JOHN H. MAGEE, Carthage, Mo. Filed July 2, 1900. Serial No. 22,286. (No model.)



Claim.—1. In a corn-silking machine, the combination of a screen composed of a frame, and screen-wires one end of each of which is formed with a curved return-bend projecting beyond said frame, from which collected silk is discharged, a discharge-spout carried by said frame beneath the return-bends of said wires, and an endless-belt comb located beneath said screen to receive material falling through said screen and subject said material to a further cleaning, whereby the corn is freed from all silk and pieces of cob by successive treatments in one passage through the machine.

2. In a machine of the character described, the combination of a screen, the pivotally-mounted side bars, rollers journaled to said side bars, an endless-belt comb arranged to travel on said rollers, and a sectional stretcher-frame arranged between said rollers and connected thereto, substantially as described.

3. In a machine of the character described, the combination of a screen, the pivotally-mounted side bars, rollers journaled to said side bars, an endless-belt comb arranged to travel on said rollers, a sectional frame and adjustable arms carried by said frame and having connection with the spindles of said rollers, substantially as described.

4. In a machine of the character described, the combination of an endless comb, a frame upon which said comb is mounted, rollers carried by said frame, and guard-strips carried by said frame, said guard-strips being provided with bases fixed to the frame and having overhanging wings that project over the edges of said comb, substantially as described.

5. In a machine of the character described, the combination of a screen, a housing beneath said screen, an endless-belt comb arranged beneath said housing, and having an adjustable lower end, and guards pivotally connected to said housing above said comb, and having the lower end thereof adjustably connected to said housing, substantially as described.

691,708. ROADWAY. FREDERICK A. MALETTE, Geneva, N. Y., assignor of one-half to Edward Seybolt, Geneva, N. Y. Filed Nov. 27, 1901. Serial No. 83,927. (No model.)

Claim.—1. A roadway comprising a foundation, a layer of broken stone of varying sizes thereon forming the wearing-surface of the roadway, the fragments of stone being individually coated with bituminous material, which forms a bond between the fragments when the latter are subjected to pressure, and an antislipping filler of stone-dust, stone-screenings or the like partially filling the voids between the fragments and forming chocks which prevent the turning or rolling of the fragments under pressure.



2. A roadway comprising a foundation, a layer of broken stone of varying sizes thereon forming the wearing-surface of the roadway, the fragments of the stone being individually coated with bituminous material which forms a bond between the fragments when the latter are subjected to pressure, and an antislipping filler of stone-dust, stone-screenings or the like treated with bituminous material and partially filling the voids between the fragments, said filler acting as a chock to prevent the turning or rolling of the fragments under pressure.

3. A roadway comprising a foundation, a layer of broken stone of varying sizes thereon, the fragments of stone being individually coated with bituminous material which forms a bond between the fragments when the latter are subjected to pressure, a filler of stone-dust, stone-screenings or the like partially filling the voids between the fragments and acting as a chock to prevent the turning or rolling of the fragments under pressure, and a surface coat or top-dressing of tarred screenings or sand covering the protruding tops of the fragments and filling the spaces between such tops.

691,709. GLOVE-FASTENER. WILLIAM B. MURPHY, New York, N. Y., assignor to Lucius N. Littauer, New York, N. Y. Filed June 22, 1901. Serial No. 65,621. (No model.)



Claim.—1. A member of a glove-fastener comprising in its construction an eyelet, and a barrel provided with a flange having raised points or tongues of metal formed thereon at a point between the center and outer edge thereof, the said raised points being adapted to secure the said eyelet in position, substantially as described.

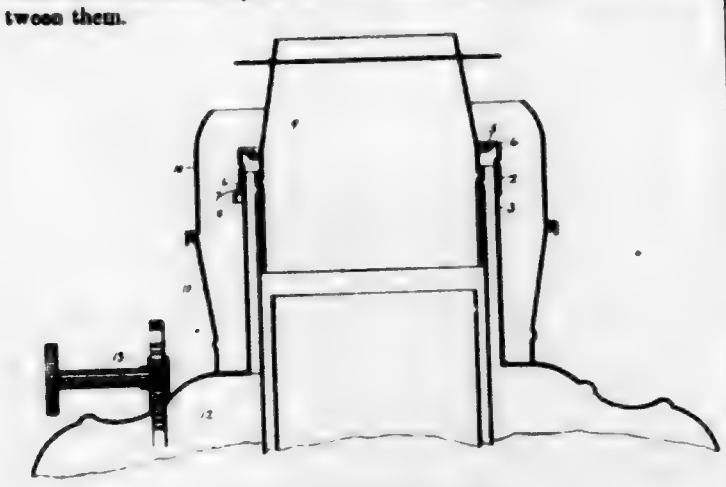
2. In the socket member of a fastener for gloves or other articles, the combination with an eyelet having a flange at its lower end, of a barrel adapted to receive the head of a stud and provided with a flange having raised points or tongues of metal thereon at a point between the center and outer edge thereof said raised points being adapted to secure the said eyelet in position, and a cap having turned-over edges adapted to clamp on said flange of the barrel, substantially as described.

3. A socket for glove-fasteners comprising in its construction a barrel adapted to receive the head of a stud and formed with a flange at its upper end, raised points or tongues of metal struck from the metal of said flange at a point between the center and outer edge thereof, and an eyelet, the construction being such that the eyelet will be secured in position between the raised points and the body portion of the said flange, substantially as described.

4. A socket for glove-fasteners comprising in its construction a stud-receiving member or barrel formed with a flange at its upper end, points or tongues stamped from the metal of the said flange at a point between the center and outer edge thereof, and an eyelet, the construction being such that by the depression of the raised points, apertures will be left in the body portion of the said flange into which the eyelet will enter when the eyelet and barrel are forced together, substantially as described.

691,710. WICK-STOP FOR LAMP OR OIL-HEATER BURNERS. WILLIAM A. PENFIELD, Meriden, Conn., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn., a Corporation. Filed May 4, 1901. Serial No. 58,762. (No model.)

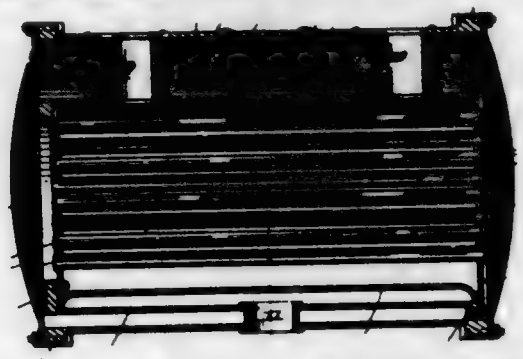
Claim.—In a lamp or oil-heater burner, the combination with the inner and outer wick-tubes thereof, the same having their upper ends located in the same horizontal plane, of an independently-formed removable wick-stop collar adapted to be set over the upper end of the said outer wick-tube and provided with an inwardly-turned flange, the edge of which is cut to form a series of tooth which limit the upward movement of the wick and expose the same sufficiently to permit it to burn between them.



691,711. ARTIFICIAL GRANITE. McKENZIE ARNS, Glade Spring, Va., assignor to M. B. McKinney, Glade Spring, Va. Filed Apr. 19, 1901. Serial No. 56,647. (No specimens.)

Claim.—An artificial granite formed by mixing, as stated, the following ingredients, to wit: five pounds borax, twenty-five pounds pulverized charcoal, ten pounds black lead (plumbago), one hundred pounds salt (chlorid sodium), two hundred pounds cleaned or washed sand (silex or silica), five pounds rosin, one hundred pounds of pulverized baryta and one hundred and ninety-nine thousand one hundred and fifty-five pounds more or less, of slag incorporated with the above-specified quantities of said ingredients to form a total of one hundred tons, of the composition, a little more or a little less.

691,712. BOILER. GEORGE B. BLAKE and CARROLL M. BELL, Greencastle, Ind., assignors to Greencastle Automobile Company, Greencastle, Ind. Filed Feb. 11, 1901. Serial No. 46,912. (No model.)



Claim.—1. In a boiler the combination of an inner shell and an outer shell completely inclosing the inner shell to form an intervening water-chamber extending around and across the ends of the inner shell, said shells having alined openings, collars connecting the openings to permit the passage of heat through the water-chamber to and from the inner shell, and a burner-plate within the inner shell between the lower side thereof and one of said openings.

2. A boiler comprising an inner shell and an outer shell and a burner-plate within the inner shell, said shells having a flue passed therethrough to supply fuel to the burner-plate and an additional flue therethrough to convey products of combustion from the inner shell.

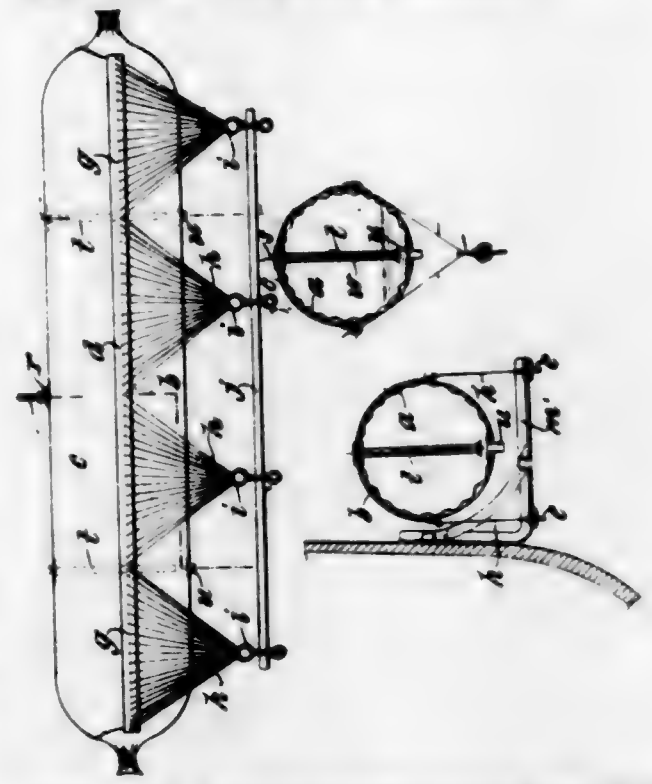
3. A boiler comprising an inner shell having water-tubes passed therethrough, and an outer shell inclosing the inner shell and with which the tubes communicate, a burner-plate within the inner shell and disposed to supply heat to the tubes, and flues passed into and out of the inner shell through the outer shell for conveying fuel to the burner-plate and for carrying off products of combustion.

4. In a boiler, the combination of an outer shell and an inner shell separated by a continuous water-chamber, tubes connecting the ends of the inner shell and communicating with the water-chamber, a perforated burner-plate within the lower portion of the inner shell and below the tubes, a flue leading to the inner shell below the burner-plate, and flues leading from the inner shell above the tubes.

5. A boiler including a shell having an inwardly-directed flange at one end and an outwardly-directed flange at the opposite end, a flue-sheet disposed against the inner face of the inner flange, a flue-sheet disposed against the outer face of the outer flange, tubes connecting the sheets, and means for holding the sheets against the flanges.

6. A boiler comprising a shell having water-tubes disposed therein, and provided with flues leading to the exterior of the tubes, and a perforated burner-plate disposed between the tubes and a flue at the bottom thereof.

691,718. APPARATUS FOR RAISING SUNKEN SHIPS. MATIEU BOURKADOVSKY, Libau, and ALEKANDER DE KOWANKO, St. Petersburg, Russia, assignors of one-third to August Potocki, Warsaw, Russia. Filed Oct. 11, 1901. Serial No. 78,362. (No model.)



Claim.—1. In an apparatus for raising sunken objects, an inflatable receptacle provided with suitable inlets and outlets, tubes depending into said receptacle from said outlets, and means for adjusting said tubes.

2. In an apparatus for raising sunken objects, an inflatable receptacle provided with a suitable inlet and outlets, tubes depending into said receptacle from said outlets, means for adjusting said tubes, a supporting-cover, means for reinforcing the edges of said cover, a series of ropes connected to the cover, and means connected with the ropes for facilitating the handling and adjustment of the apparatus.

3. In an apparatus for raising sunken objects, an inflatable receptacle provided with suitable inlet and outlets, tubes depending into said receptacle from said outlets, means for adjusting said tubes, a supporting-cover mounted upon the receptacle, and means connected with the supporting-cover for attaching the apparatus to the object to be raised.

4. In an apparatus for raising sunken objects, a receptacle provided with suitable inlet and outlets, flexible tubes depending into said receptacle from said outlets, and means for adjusting said tubes.

5. In an apparatus for raising sunken objects, a receptacle adapted to be inflated and provided with a suitable inlet, adjustable outlet-tubes depending into said receptacle, a cover mounted upon the receptacle, and means connected with the cover for attaching the apparatus to the object to be raised.

6. In an apparatus for raising sunken objects, a receptacle adapted to be inflated and provided with a suitable inlet, an envelop for the said receptacle, a cover mounted upon the envelop and provided with reinforced edges, adjustable outlet-tubes depending into said receptacle, and means connected with the cover for connecting the apparatus to the object to be raised.

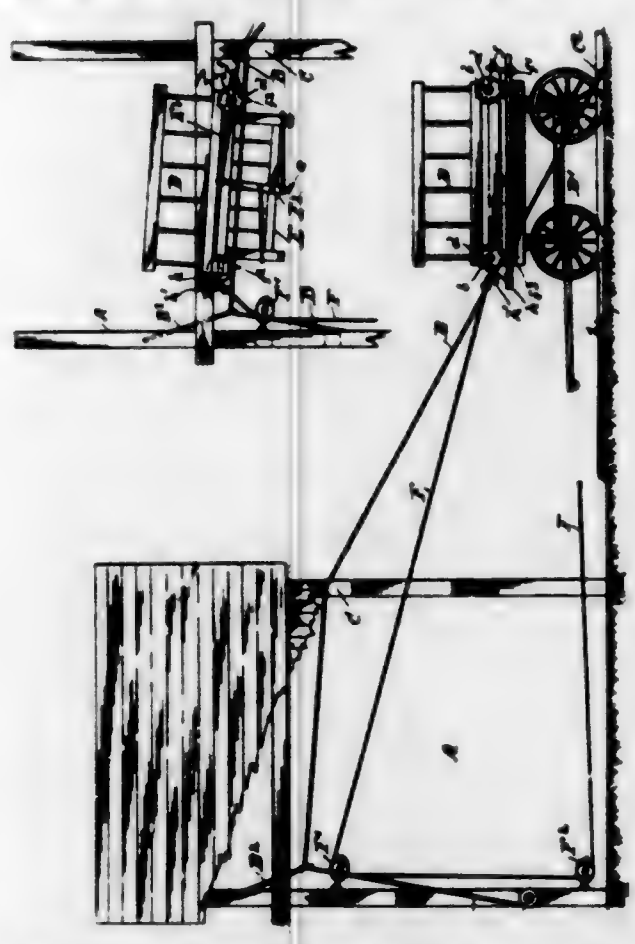
7. In an apparatus for raising sunken objects, an inflatable inner receptacle, an outer envelop for limiting the expansion of the receptacle, a supporting-cover, ropes attached to the edges of said cover, and a spar connected with the ropes to facilitate the handling and adjustment of the apparatus.

8. In an apparatus for raising sunken objects, a receptacle provided with outlet-openings, and flexible air-outlet tubes depending from said outlets for determining the quantity of air contained in the apparatus and consequently its lifting power and enabling an automatic adjustment of the pressures to be obtained with a uniform displacement of the water.

9. In an apparatus of the character described, a receptacle, a cover therefor, means connected with the cover for attaching the apparatus to the object to be raised, and means connected to the receptacle for determining the quantity of air contained in the apparatus and consequently

its lifting power, and enabling an automatic adjustment of the pressures to be obtained for a uniform displacement of the water.

691,714. HAY-LOADING APPARATUS. FRANK S. CHURCH, Sierra Valley, Cal., assignor of one-half to Linus Dolley, Sierra Valley, Cal. Filed Apr. 19, 1901. Serial No. 56,552. (No model.)



Claim.—1. The combination with the barn, of the cable-trackway comprising the oppositely-disposed cables B, B', running at an incline into the same near the top thereof, means for supporting the cables within the barn, and means at the rear of the barn for independently tensioning the cables, and of means whereby a loaded hay-rack is propelled up said inclined trackway and into the barn.

2. The combination with a barn, of a cable-trackway arranged within the top of the barn and extending therefrom to the ground at an inclination, devices whereby the tension of the trackway is regulated, a hay-rack, grooved wheels secured to the rack and which work over the trackway, the hinged-section bottom for the rack, devices for locking and releasing the hinged sections, and means whereby the loaded rack is propelled up the said inclined trackway and into the barn.

691,715. SCALE AND GAGE FOR PRINTERS' USE. JOSEPH L. DODD, Camden, N. J., assignor of one-half to Ulysse C. McKee, Camden, N. J. Filed June 4, 1901. Serial No. 63,091. (No model.)

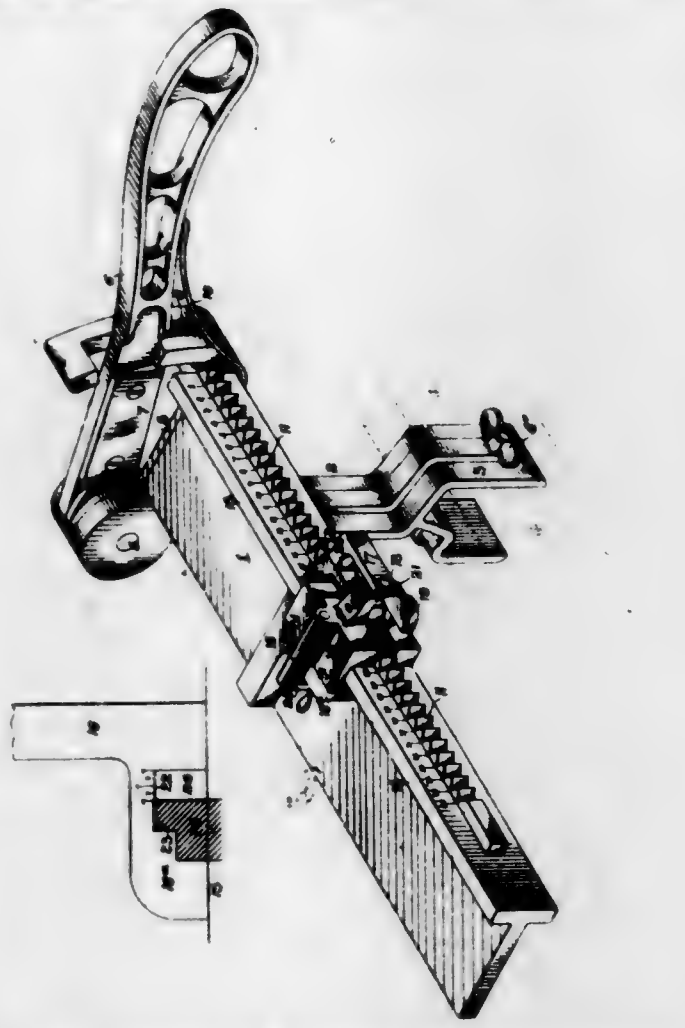
Claim.—1. The combination of a frame or bed for printers' use, a rack carried thereby, an adjustable stop carried by said frame, securing devices carried with said stop and adapted to engage the rack, and means for adjusting said stop independently of the rack.

2. The combination of the frame or bed for printers' use, a rack carried by the same, a movable slide-frame carried by said bed, engaging means carried by said frame whereby it may be held to the bed, a stop carried by the frame and held therewith, and means for adjusting said stop with respect to the movable frame.

3. The combination of the frame or bed for printers' use, a rack carried thereby, a movable frame carried by the bed, a pawl carried by said frame and adapted to engage the rack and hold said movable frame in a predetermined position, an adjustable stop or knee-piece carried by said movable frame, means for adjusting said stop with respect to the movable frame, and means for locking the movable frame and the movable stop in their adjusted positions, substantially as described.

4. The combination in a lead-cutter, having the bed-frame carrying a fixed knife, and a pivoted knife adapted to coact therewith, of an adjustable stop for determining the length of the lead to be cut, a movable slide-frame carrying said adjustable stop, a rack carried by the bed-frame and serving to control the position of the movable frame, and a finer rack arranged between said movable frame and the adjustable stop whereby said stop may be adjusted with respect to the movable frame.

5. The combination in a lead-cutter, of the bed-frame carrying a fixed knife and a pivoted knife adapted to coact therewith, of an adjustable stop for determining the length of the lead to be cut, a movable frame carried by the bed-frame and serving also to move the adjustable stop, a rack carried by the bed-frame, a pawl carried by the movable frame and adapted to said rack whereby the position of the movable frame may be controlled, and a finer rack arranged between the movable frame and the adjustable stop whereby said adjustable stop is permitted movement with respect to the movable frame, and means carried by the latter for locking said stop in its adjusted position, substantially as described.



6. The combination of the frame or bed for printers' use, a rack carried by the same, a slide-piece adapted to the frame and carrying a gaging member, a pawl pivoted to the slide-piece and adapted to engage the rack, and a pivoted catch also carried by the slide-piece and adapted to look the pawl in place.

7. The combination of the frame or bed for printers' use, a rack carried by the same, a slide-piece adapted to the frame and having a portion spanning the rack, a pawl pivoted to the slide-piece and engaging the rack, and a pivoted catch for holding said pawl in place, said members having beveled engaging faces whereby the pawl will be securely held in place against the rack.

8. In a gaging device for printers' use, a bed or frame carrying a rack divided into "pica" measurements, a slide-frame carried by the frame and having means to engage said rack, and a knee-piece controlled by the slide and carrying a "point" rack coacting with said slide.

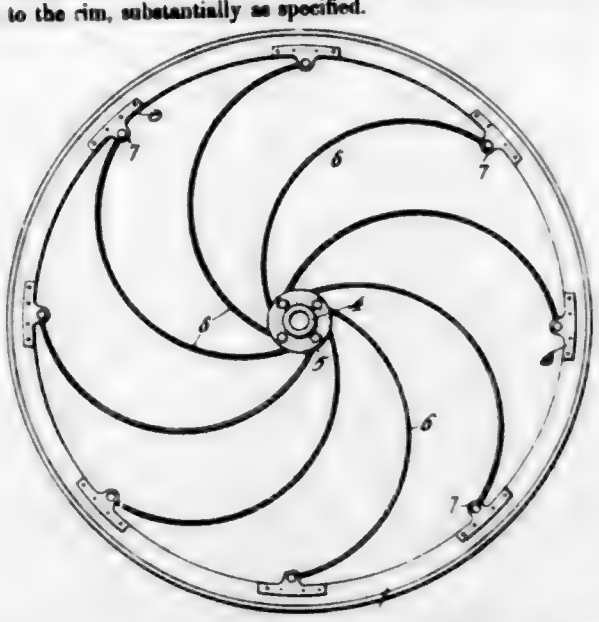
691,716. CAR-SEAL. WILLARD D. DORRIUS, Washington, D. C. Filed May 22, 1899. Renewed July 6, 1901. Serial No. 67,379. (No model.)



Claim.—A seal made in one piece, composed of an upper embossed and strengthened portion A, a neck C with folded wings adapted to be straightened out and to constitute a lower body portion B, and a shackle-wire E having eyes D adapted to surround the neck C, substantially as described.

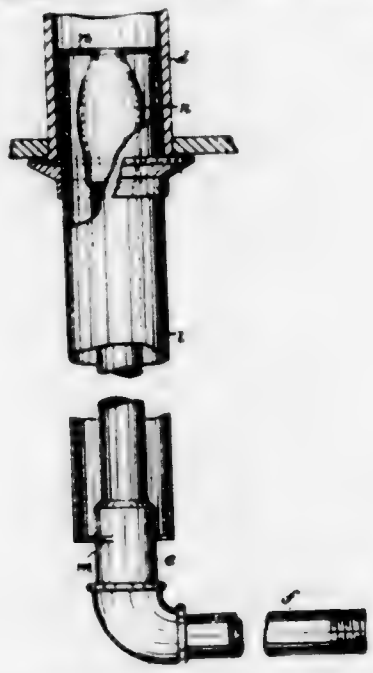
691,717. WHEEL. SAMUEL FURNIDGE, St. Louis, Mo., assignor to the Furnidge Spring Wheel Company, Pierre, S. D., a Corporation of South Dakota. Filed Jan. 17, 1901. Serial No. 43,500. (No model.)

Claim.—1. The improved wheel, having a rim consisting of the wooden felly 1, metallic tire 2 and the side plates 3, one on each side of the felly, an integral elongated hub having two flanges 5 near each end and extending beyond the surface of the hub to form deep grooves or recesses, and the flat bow-spring spokes 6 having their inner ends attached to the hub within the grooves or recesses formed by the said flanges 5 and their outer ends attached to the rim, the adjacent spokes being attached to opposite ends of the hub to prevent it from moving laterally relative to the rim, substantially as specified.



2. The improved wheel, consisting of an inflexible rim, an elongated integral hub having two flanges near each end extending beyond the surface of the hub to form grooves, flat laterally-inflexible bow-spring spokes having their inner ends attached to the hub between the flanges and extending between the flanges tangentially to the body of the hub, the inner ends of the adjacent spokes being attached to different ends of the hub to prevent it from moving laterally relative to the rim, and the outer ends of the spokes being pivotally connected to the rim.

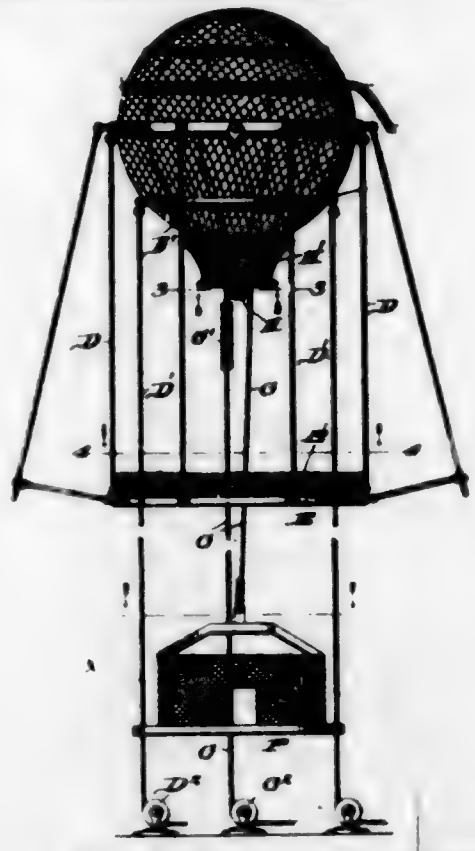
691,718. **FLUE-CLEANER.** CHARLES S. GOODFELLOW, Lowell, Mass. Filed May 22, 1901. Serial No. 61,373. (No model.)



Claim.—1. In a boiler tube or flue cleaning apparatus, the combination of a tubular structure adapted to be introduced at one end into the tube to be cleaned and to be connected at its other end with a source of steam, an air-conducting sleeve inclosing and carried by said tubular structure and open at the end thereof adjacent the discharge end of said tubular structure, a spider formed integral with the open end of said sleeve and fitted onto the discharge end of said tubular structure, and another spider spacing the other end of said sleeve and said tubular structure, substantially as described.

2. In a boiler tube or flue cleaning apparatus, the combination of a tubular structure adapted to be introduced at one end into the tube to be cleaned and to be connected at its other end with a source of steam, a nozzle on said first-named end of the tubular structure, an air-conducting sleeve inclosing said nozzle and open at both ends, and spiral ribs interposed between said nozzle and the sleeve, substantially as described.

691,719. **BALLOON-OBSERVATORY.** JOSEPH GRETH, New York, N. Y., assignor of one-half to John L. Adams, New York, N. Y. Filed June 8, 1901. Serial No. 63,754. (No model.)



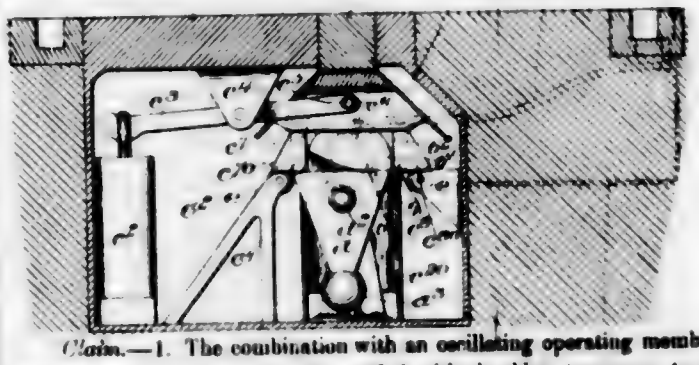
Claim.—1. The combination with a balloon or buoyant body anchored in a suitable manner, of a platform or gallery suspended therefrom, an elevator-car movable to and from the said platform or gallery, and means for moving the said platform-car up and down, as set forth.

2. The combination with a balloon anchored by suitable ropes or cables, of a platform or gallery suspended from the said balloon, the elevator car movable to or from the said platform, the elevating-ropes for said elevator-car being connected to the balloon, substantially as shown and described.

3. The combination with a balloon having a band surrounding the same, of the guy ropes or cables extending from said band to the earth, and depending rods, the circular platform or gallery suspended by the said rods, the guide-cables from the balloon, the elevator-car movable upon the said guide-cables, and means for raising and lowering the elevator-car, substantially as described.

4. The combination with a balloon constructed as described, of the band surrounding the same, the guy ropes or cables extending from the band to the earth, the circular platform or gallery suspended from the balloon, the guide-cables extending from the balloon and connected to a winding mechanism at the operating-station, the elevator-car and elevating-ropes, said elevating-ropes being connected to a winding mechanism at the operating-station, all arranged and adapted to operate substantially as shown and described.

691,720. **RAILWAY-SWITCH.** GEORGE E. HAYNES, Chelsea, Mass., assignor of one-half to William McCarthy, Boston, Mass. Filed Jan. 5, 1901. Serial No. 42,217. (No model.)



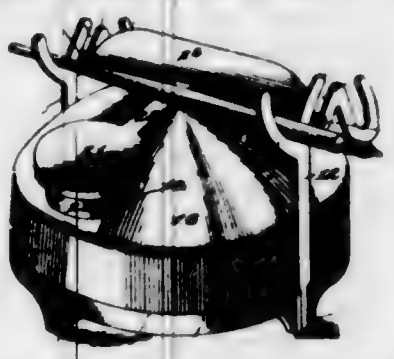
Claim.—1. The combination with an oscillating operating member connected with the switch and provided with shoulders transverse to its axis; of an intermediate member pivotally connected with said oscillating member below the axis thereof and having a portion adapted to engage said shoulders alternately; and a depressible actuating device having engaging members, one at each side of the axis of the oscillating member and adapted alternately to engage the intermediate member according to the position thereof, as set forth.

2. The combination with the initial actuating member provided with two engaging portions; of an operating member connected with the switch; an intermediate member connected with said operating member and adapted to cooperate with one or the other of said two engaging portions; and means whereby the movement of the operating member causes the intermediate member to move from the path of one of said engaging portions into the path of the other.

3. The combination with the oscillating operating device connected with the switch; of engaging portions of said operating device; an intermediate member pivoted eccentrically upon said operating device and having lost motion between said engaging portions; and an actuating member having two engaging projections, one at each side of the axis of said operating device, the intermediate member lying in the path of one or the other of said projections according to the position of the switch.

4. The combination with the initial actuating device adapted to be operated from the car and provided with automatic restoring means and two pivotally-supported engaging projections; of an oscillating operating device for the switch located between said engaging projections and provided with shoulders at an angle to each other; and an intermediate member pivotally supported upon said oscillating device and having a normally horizontal upper portion, adapted to bear against one or the other of said shoulders in accordance with the position of the oscillating member, the said upper portion correspondingly projecting into the path of one or the other of said engaging projections, substantially as and for the purpose described.

691,721. **INKSTAND.** JAMES L. KENSTETTER, Bradford, Pa., assignor of one-half to F. W. Winger and F. W. Wagner, Bradford, Pa. Filed May 24, 1901. Serial No. 61,753. (No model.)



Claim.—1. The combination with a pen-rack comprising a base-ring, standards located at diametrically opposite points of the ring, each of said standards being provided with spaced keeper-prongs and an intermediate separator-prong having a longitudinally-disposed slot which is open at its upper end, an ink-receptacle seated in the base-ring and provided with a dip-opening, a cover for the dip-opening having oppositely-disposed pintles detachably mounted in the slots of the intermediate separator-prongs and counterweighted so as to be normally held away from the dip-opening, said cover projecting across the space between the prongs of the respective standards and arranged to be engaged and moved over the dip-opening by a penholder placed between said prongs.

2. An ink-receptacle having a dip-opening, a dip-regulating device located in said opening, and stop means carried by the regulating device, said stop means being movable to different positions and arranged to be engaged when in such different positions by different portions of a pen inserted in the dip-opening to limit the depth of movement of the same.

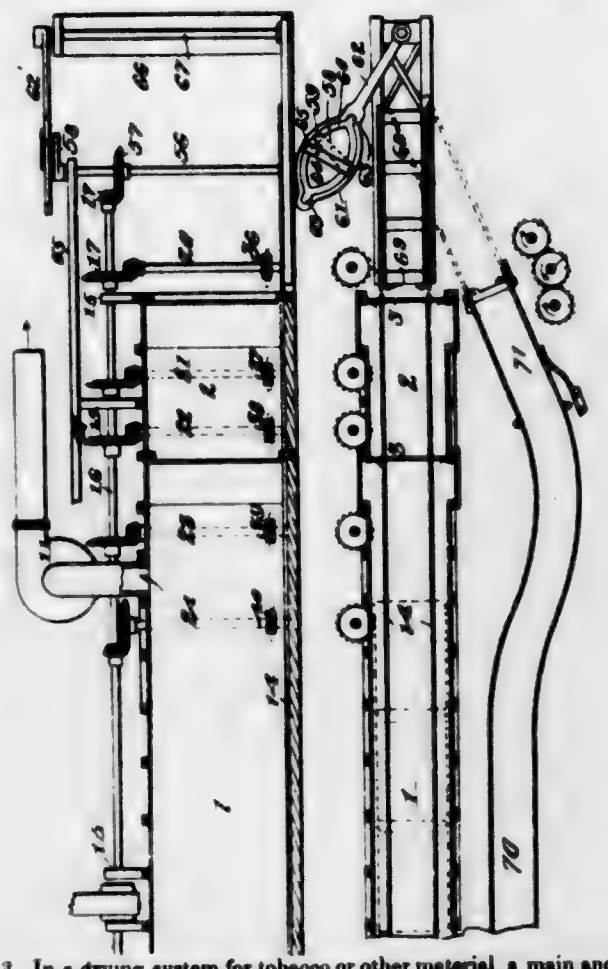
3. An ink-receptacle having a dip-opening, a dip-regulating tube rotatably mounted within the dip-opening and carrying oppositely-disposed stop-shoulders which are movable to different positions and are arranged to be engaged when in such different positions by different portions of a pen inserted in the dip-opening to limit the depth of movement of the same.

4. An ink-receptacle having a dip-opening, a dip-regulating tube rotatably mounted in the opening and carrying oppositely-disposed converging stop-wings, the lower ends of which are spaced apart.

691,722. **TOBACCO-DRYING SYSTEM.** WHITLEY R. MARTIN, Winston, N. C., assignor of one-half to Salem Iron Works, Salem, N. C., a Corporation of North Carolina. Filed July 17, 1900. Serial No. 23,960. (No model.)

Claim.—1. In a drying system for tobacco or other material, the combination with a drying, cooling and ordering room provided with a main track extending therethrough, of an auxiliary track arranged at one side thereof, a switch-section at each end of said main track, a series of cars moving upon the said track and carrying the material to be operated upon, means for operating said switch-rail sections, and means for propelling the said cars at different rates of speed at different points within said drying, cooling and ordering rooms.

2. In a drying system for tobacco or other material, the combination with a drying, cooling and ordering room and a main track extending therethrough, of an auxiliary track arranged at one side thereof, a series of cars moving upon the said tracks and carrying the material to be operated upon, means for transferring said cars from the main to the auxiliary track, and means for propelling said cars at different rates of speed at different points within said drying, cooling and ordering rooms.



3. In a drying system for tobacco or other material, a main and auxiliary track, a series of cars adapted to be propelled over the said tracks and provided on each side thereof with a toothed rack, means engaging in the said racks and adapted to propel the said cars at different rates of speed at different points of their travel, and means for transferring the said cars from one track to the other.

4. In a drying system for tobacco or other material, the combination with a main and auxiliary track, of a series of cars operating upon the said tracks and provided in each side thereof with a toothed rack, and means engaging in the said racks for propelling the said cars at different rates of speed at different points of their travel.

5. In a drying system for tobacco or other material, the combination with a main and auxiliary track, of a series of cars operating upon the said tracks and provided on each side thereof with a toothed rack, means engaging in the said racks for propelling the said cars at different rates of speed at different points of their travel, and means for transferring the said cars from one track to the other.

6. In a system for drying tobacco or other material, a main track arranged in a drying, cooling and ordering room, an auxiliary track, a series of cars operating upon the said track, a switch-section arranged at each end of said track for transferring said cars from one track to the other, operating means for propelling said cars and varying the speed thereof at different points of their travel, and operating means for the said switch-section.

7. In a system for drying tobacco or other material, the combination with a drying, cooling and ordering room, of a main track extending through the said rooms, an auxiliary track arranged at one side of the said rooms, a series of vertically-extending shafts arranged at the opposite side of the said rooms, a suitable gear carried by each of the said shafts, operating means for the said shafts, a series of cars operating upon the said tracks and adapted to be propelled by the said gears, and means for transferring the said cars from one track to the other.

8. In a system for drying tobacco or other material, the combination with a drying, cooling and ordering room, of a main track extending through the said rooms, an auxiliary track arranged at one side of the said rooms, a series of vertically-extending shafts arranged at the opposite side of the said rooms, a suitable gear carried by each of the said shafts, operating means for the said shafts, a series of cars operating upon the said tracks and adapted to be propelled by the said gears, a switch-rail section arranged at each end of said tracks and adapted to transfer

the cars from one track to the other, and means for operating said switch-rail sections.

9. In a system for drying tobacco or other material, the combination with a suitable drying, cooling and ordering room, of a main track extending through the said rooms, an auxiliary track arranged at one side of the said rooms, a series of vertically-extending shafts arranged at the opposite side of said rooms, a suitable gear carried by each of the said shafts and adapted to operate within the said rooms, a drive-shaft, connections between said drive and vertically-extending shafts for operating the latter, a series of cars operating upon the said tracks and adapted to be propelled by the said gears, and means for transferring the said cars from one track to the other.

10. In a system for drying tobacco or other material, the combination with a suitable drying, cooling and ordering room, of a main track extending through the said rooms, an auxiliary track arranged at one side of the said rooms, a series of vertically-extending shafts arranged at the opposite side of said rooms, a suitable gear carried by each of the said shafts and adapted to operate within the said rooms, a drive-shaft, connections between said drive and vertically-extending shafts for operating the latter, a series of cars operating upon the said tracks and adapted to be propelled by the said gears, a switch-rail section arranged at each end of said tracks for transferring said cars from one track to the other, and suitable connections between said drive-shaft and switch-rail sections for operation of the latter.

11. In a system for drying tobacco or other material, the combination with a suitable drying, cooling and ordering room, of a main track extending through the said rooms, an auxiliary track arranged at one side of the said rooms, a series of vertically-extending shafts arranged at the opposite side of said rooms, a suitable gear carried by each of the said shafts and adapted to operate within the said rooms, a drive-shaft, connections between said drive and vertically-extending shafts for operating the latter, a series of cars operating upon the said tracks and adapted to be propelled by the said gears, a switch-rail section arranged at each end of said tracks for transferring said cars from one track to the other, a rock-shaft connected to each of the said sections, and connections between the said drive and rock shafts for operating the latter.

12. In a system for drying tobacco or other material, the combination with a suitable drying, cooling and ordering room, of a main track extending through the said rooms, an auxiliary track arranged at one side of the said rooms, a series of vertically-extending shafts arranged at the opposite side of said rooms, a suitable gear carried by each of the said shafts and adapted to operate within the said rooms, a drive-shaft, connections between said drive and vertically-extending shafts for operating the latter, a series of cars operating upon the said tracks and adapted to be propelled by the said gears, a switch-rail section arranged at each end of said tracks for transferring said cars from one track to the other, a rock-shaft connected to each of the said sections, a lever connected to each of the said rock-shafts for operating the same, and connections between said drive-shaft and said lever for operating the latter.

13. In a system for drying tobacco or other material, the combination with a suitable drying, cooling and ordering room, of a main track extending through the said rooms, an auxiliary track arranged at one side of the said rooms, a series of vertically-extending shafts arranged at the opposite side of the said rooms, a suitable gear carried by each of the said shafts and adapted to operate within the said rooms, a drive-shaft, connections between said drive and vertically-extending shafts for operating the latter, a series of cars operating upon the said tracks and adapted to be propelled by the said gears, a switch-rail section arranged at each end of said tracks for transferring said cars from one track to the other, a rock-shaft connected to each of the said sections, a lever connected to each of the said rock-shafts for operating the same, a pin engaging in said lever for operating the same, an arm connected to said pin, and connections between said arm and said drive-shaft for operating the former.

14. In a drying system for tobacco or other material, a main and auxiliary track, a series of cars operating thereon and provided on each side thereof with a toothed rack, means engaging in said racks for propelling said cars at different rates of speed at different points within said drying, cooling and ordering rooms, a switch-rail section arranged at each end of said tracks and adapted to transfer the cars from one track to the other, a lever suitably connected to each of the sections for operating the same and provided with an elliptical-shaped opening, a drive-shaft, and connections between said drive-shaft and said elliptical-shaped opening for operating said lever.

15. In a drying system for tobacco or other material, the combination with suitable drying, cooling and ordering rooms having vestibules connected thereto with suitable doors, of a main track, an auxiliary track, a series of cars operating upon the said tracks, operating means for the said cars, a spring-actuated yielding section arranged at one end of said auxiliary track, a switch-rail section 68 arranged at each end of the said tracks, and operating means for the switch-rail sections 68.

16. In a drying system for tobacco or other material the combination with suitable drying, cooling and ordering rooms having vestibules connected thereto with suitable doors, of a main track, an auxiliary track, a series of cars operating upon the said tracks, operating means for propelling said cars and varying the speed thereof at different points of their travel, a spring-actuated yielding section arranged at one end of said auxiliary track, a switch-rail section 68 arranged at each end of the said tracks, and means connected to said operating means for said cars and operating simultaneously therewith for operating said switch-rail sections 68.

17. In a drying system for tobacco or other material, the combination with a drying, cooling and ordering room and a main track extending therethrough, of an auxiliary track arranged at one side thereof, a series of continuously-moving cars upon the said tracks, and means for propelling said cars at different rates of speed at different points during their travel.

18. In a drying system for tobacco or other material the combination with a drying, cooling and ordering room and a main and auxiliary track, of a series of continuously-moving cars upon the said tracks, means for propelling said cars at different rates of speed at different points during their travel, and means for transferring said cars from the main to the auxiliary track.

19. In a drying system for tobacco or other material, the combination with a drying, cooling and ordering room and a main and auxiliary track, of a series of continuously forwardly moving cars upon the said track, means engaging the said cars for propelling the same at different rates of speed at different points during their travel and means for transferring said cars from one track to the other.

20. In a drying system for tobacco or other material, the combination with a drying, cooling and ordering room and a main and auxiliary track, of a series of continuously forwardly moving cars upon the said tracks, and means engaging the said cars for propelling the same at different rates of speed at different points during their travel without the stopping thereof.

21. In a system for drying tobacco, the combination with a drying, cooling and ordering room, each provided with suitable doors, of a main and auxiliary track, a series of cars operating upon said track and provided on each side thereof with a toothed rack and a suitable offset at the forward end for opening said doors, and means engaging in said racks for propelling said cars at different rates of speed at different points of their travel.

22. In a system for drying tobacco, the combination with a drying, cooling and ordering room, each provided with suitable doors, of a main and auxiliary track, a series of cars operating upon said tracks and provided on each side thereof with a toothed rack and an offset at the forward end thereof for opening said doors, means engaging in said rack for propelling said cars, and means for transferring the said cars from one track to the other.

23. In a system for drying tobacco, a series of cars and means located at intervals throughout the drying, cooling and ordering rooms for propelling said cars at different rates of speed at different points of their travel.

24. In a system for drying tobacco, a series of continuously-moving cars operating upon a main and auxiliary track, means for transferring said cars from one track to the other, and means located at intervals throughout the drying, cooling and ordering rooms and engaging said cars for propelling the same and varying the speed thereof at different points of their travel.

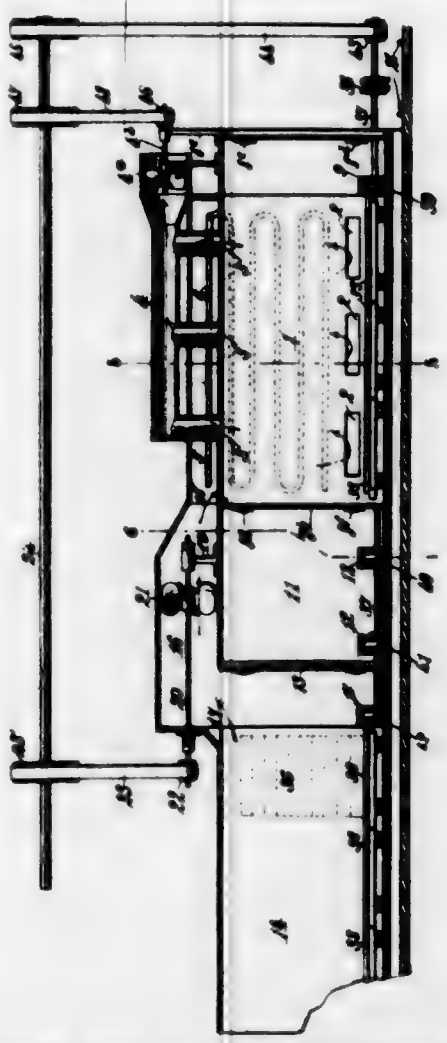
691,723. TOBACCO DRYING AND COOLING SYSTEM. WHITLEY E. MARTIN, Salem, N. C., assignor of one-half to Salem Iron Works, Salem, N. C., a Corporation of North Carolina. Filed Apr. 10, 1901. Serial No. 55,196. (No model.)

Claim.—1. In a plant for drying and cooling tobacco or other substances, drying and cooling tunnels, a main track extending therethrough, auxiliary tracks, cars traveling on said tracks, a traveling cage for transferring the cars from the auxiliary to the main track and forming a closure for one end of the drying-tunnel when the cars are passed therein from the cage, and means for transferring the cars from the main to the auxiliary tracks.

2. In a plant for drying and cooling tobacco or other substances, drying and cooling tunnels, a main track extending therethrough, auxiliary tracks, cars traveling on said tracks, a traveling cage for transferring the cars from the auxiliary to the main track and forming a closure for one end of the drying-tunnel when the cars are passed therein from the cage, means for transferring the cars from the main to the auxiliary tracks, and means engaging said cars for propelling the same upon the main track.

3. In a plant for drying and cooling tobacco or other substances, a drying-tunnel, a cooling-tunnel, a main track extending through said tunnels, cars traveling upon said track, means engaging with said cars for propelling the same, and a traveling cage for transferring said cars to said

track and forming a closure for one end of the drying-tunnel when the cars are passed therein from the cage.



4. In a plant for drying and cooling tobacco or other substance, a drying-tunnel having hot-air inlets in its side, outlets in its top and surrounded at its top and sides by a heating-chamber, a cooling-tunnel, a track extending through said tunnels, cars traveling upon said track, means for propelling said cars, means for transferring the cars to said track, and means for transferring the cars from said track.

5. In a plant for drying and cooling tobacco, or other substance, cooling and drying tunnels, cars traveling therethrough, a traveling cage for transferring the cars to the drying-tunnel and forming a closure for one end of the drying-tunnel when the cars are passed therein from the cage, and a truck for transferring the cars from the cooling-tunnel.

6. In a plant for drying and cooling tobacco, or other substance, a drying-tunnel surrounded at its top and sides by a heating-chamber and provided in its side with air-inlets and at its top with outlets, a cooling-tunnel communicating with said heating-chamber, cars traveling through said tunnels, a traveling cage for transferring the cars to said drying-tunnel, and a truck for transferring the cars from said cooling-room.

7. In a plant for drying and cooling tobacco, or other substance, cooling and drying tunnels, cars traveling therethrough upon a suitable track, means for propelling said cars, a traveling cage for transferring the cars to said track and forming a closure for said drying-tunnel when the cars are transferred therein from the cage, and a truck for transferring the cars from said track.

8. In a plant for drying and cooling tobacco, or other substances, cooling and drying tunnels, a drive-shaft arranged at one side thereof, worm-screws carried by said shaft, cars traveling through said tunnels upon a suitable track and propelled by said worm-screws, a traveling cage for transferring the cars to said track, and a truck for transferring the cars from said track.

9. In a plant for drying and cooling tobacco or other substances, a drying-tunnel surrounded at its top and sides by a heating-chamber and having air inlets and outlets, a series of heating-pipes arranged in said chamber, a cooling-tunnel in communication with said chamber, cars traveling through said tunnels upon a suitable track, means for propelling said cars, a traveling means for transferring the cars to said track, and a truck for transferring the cars from said track.

10. In a plant for drying and cooling tobacco, or other substances, a drying-tunnel surrounded at its top and sides by a heating-chamber and provided with air inlets and outlets, a discharge-pipe connected to said outlets, a series of heating-pipes arranged in said chamber, a cooling-tunnel, a conduit establishing communication between said cooling-tunnel and chamber, cars traveling through said tunnels upon a suitable track, means for propelling said cars, a traveling means for transferring the cars to said track, and means for transferring the cars from said track.

11. In a plant for drying and cooling tobacco or other substance, a drying-tunnel surrounded at its top and sides by a heating-chamber, heating-pipes arranged in the latter, a cooling-tunnel, a conduit for establishing communication between said cooling-tunnel and chamber, a vestibule interposed between said tunnels and having its top forming the bottom of the conduit, a suction means mounted upon the top of said vestibule within the conduit, cars traveling through said vestibule and tunnels upon a suitable track, and means for propelling said cars.

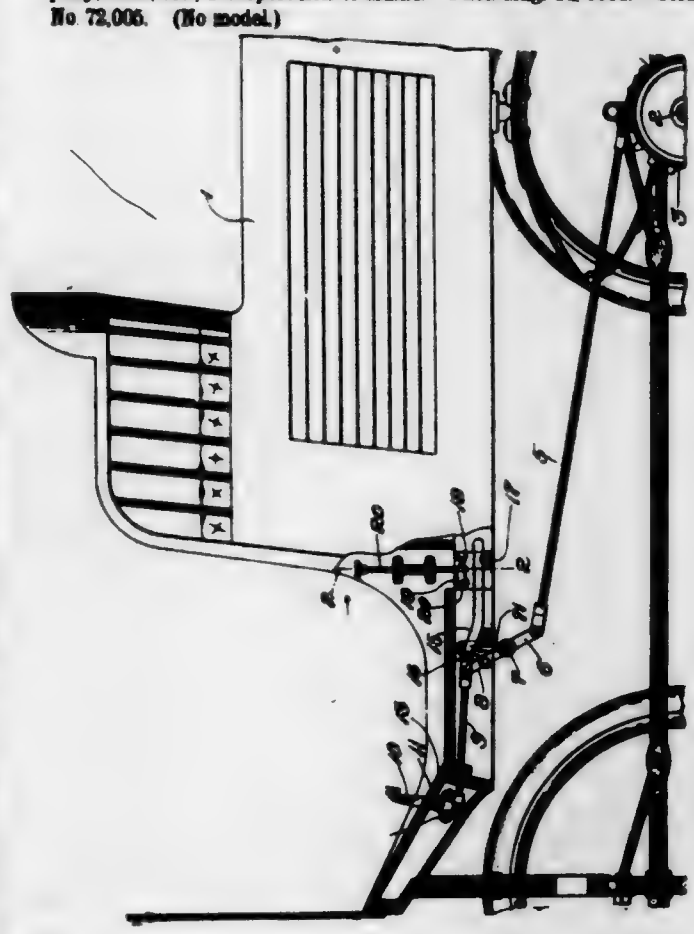
12. In a plant for drying and cooling tobacco, or other substances, a drying-tunnel partly surrounded by a heating-chamber, a cooling-tunnel in communication with said chamber, a vestibule interposed between said tunnels, cars traveling through said vestibule and tunnels upon a suitable track, and means engaging the said cars for suitably propelling the same.

13. In a plant for drying and cooling tobacco, or other substances, a drying-tunnel partly surrounded by a heating-chamber, heating-pipes arranged in said chamber, a cooling-tunnel in communication with said chamber, a vestibule interposed between said tunnels, a suction-fan mounted upon said vestibule, cars traveling through said tunnels on a suitable track, means engaging said cars for propelling the same, and means for transferring the cars to said track.

14. In a plant for drying and cooling tobacco, or other substances, a drying-tunnel partly surrounded by a heating-chamber and provided with air inlets and outlets, a discharge-pipe above said drying-tunnel and in communication with said outlets and the atmosphere, heating-pipes arranged within said chamber, doors at each end of said tunnel, a cooling-tunnel in communication with said chamber, and a vestibule interposed between said tunnels.

15. In a plant for drying and cooling tobacco, or other substances, drying and cooling tunnels, a vestibule interposed between the same, cars containing the material to be dried and cooled traveling through said tunnels and vestibule, operating means projecting in said tunnels and vestibule and engaging the cars for propelling the same, a traveling cage for transferring the cars containing the material to be dried and cooled and provided with an open end, a front and a pair of side walls, one of said side walls having an opening to permit of the operating means for the cars to project therethrough, so that the cars within the cage can be propelled therefrom into the drying-tunnel, said cage adapted to transfer the cars to the drying-tunnel and further adapted to aline with the entrance of the said tunnel to form a closure therefor for preventing the escape of hot air from the said tunnel when the cars are transferred by the operating means from the cage to the drying-tunnel, substantially as shown and described.

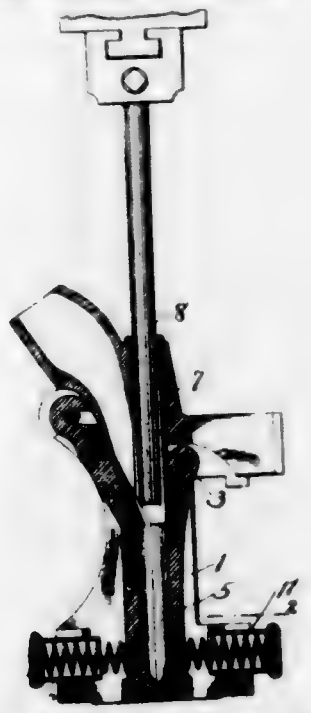
691,724. **BRAKE MECHANISM FOR MOTOR-VEHICLES.** WILLIAM B. MASON, Boston, Mass., assignor to the Mason Regulator Company, Saco, Me., a Corporation of Maine. Filed Aug. 14, 1901. Serial No. 72,005. (No model.)



Claim.—1. In a self-propelled or motor vehicle, in combination, the brake mechanism, a lock to hold the brake in action after having been applied, a lock-disengager, and a catch to hold said disengager after it has been operated to place said lock out of operative relations with the brake mechanism.

2. In a self-propelled or motor vehicle in combination, the brake mechanism, the rack-bar, the detent engaging therewith to lock the brake in action after the same has been applied, the controller for said detent, and means to retain said controller in place after it has been operated to render said lock inoperative.

691,725. **NAIL-CHUCK.** JOHN A. MILLIKEN, Flushing, N. Y., assignor to Emma Doig, executrix of William S. Doig, deceased. Filed June 13, 1901. Serial No. 64,473. (No model.)



Claim.—1. In a nail-chuck the combination of movable nail-guiding jaws, spring means for holding the jaws up to their work, adjusting means for the spring means, the said adjusting means and spring means being removable from the chuck without disturbing the adjustment of the adjusting means whereby spring-pressure on the nail-guiding jaws may be relieved without disturbing the adjustment.

2. In a nail-chuck the combination of the nail-guiding jaws with one or more spring-holding members provided with spring-adjusting means, said spring-holding member or members being removable from the chuck without disturbing the adjustment.

3. In a nail-chuck the combination of nail-guiding jaws with one or more tubular spring-holding members provided with an adjusting means for adjusting spring tension and a removable connection intervening between the said tubular member or members whereby the said tubular member or members may be removed without disturbing the adjustment of the adjusting means.

4. A nail-chuck provided with a removable jaw under spring tension and a removable spring carrier or carriers whereby the spring-carrier and jaw may be removed to permit the extraction of a defective nail.

5. In a nail-chuck the combination of the nail-guiding jaws and a removable spring carrier or carriers provided with adjusting means whereby the spring carrier or carriers may be removed from the chuck without disturbing the adjustment of the spring tension.

6. In a nail-chuck the combination of nail-guiding jaws and one or more removable spring-carriers with a spring-adjusting means, carried by the carrier and wholly independent of the removable connection between the carrier and the chuck whereby the spring-pressure on the jaws may be relieved to remove a defective nail without disturbing the adjustment of the spring-pressure.

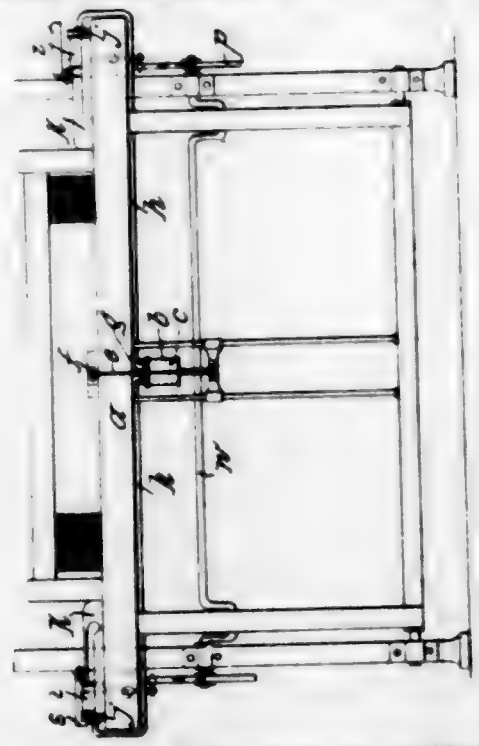
7. In a nail-chuck the combination of nail-guiding jaws and a plurality of tubular spring-carriers, each removably connected with the nail-chuck and provided with spring-adjusting means.

8. In a nail-chuck the combination of nail-guiding jaws with springs bearing thereon; and one or more spring-carriers removably seated in holes in the body of the nail-chuck.

9. In a nail-chuck the combination of nail-guiding jaws and a plurality of springs and spring-carriers removably connected to the chuck-body by pin-and-slot connections.

10. The combination of a laterally-apertured nail-chuck having slots leading to the apertures, nail-guiding jaws and a plurality of spring-carriers, each having adjusting means and a pin or lug for removably engaging the slots of the apertures.

691,726. **PNEUMATIC PICKER FOR LOOMS.** JOSEF VON MIESIEWSKI, Petrikau, Russia, assignor of one-half to Theofil von Mohl, Wyszki, Russia. Filed Oct. 21, 1899. Serial No. 734,394. (No model.)



Claim.—1. A pneumatic picker for looms, comprising a batten, a cylinder thereon at each end of the shuttle-race, said cylinders having their proximate ends open, a picking-piston in each cylinder, an air-forcing device, means for operating the same and compressed-air inlet-pipes connecting the cylinders with the forcing device; in combination with a valve operating to close and open the said pipes, and valve-actuating mechanism for each cylinder controlled by the shuttle and organized to open the compressed-air pipes when said shuttle enters or is about to enter one of the cylinders, for the purpose set forth.

2. A pneumatic picker for looms, comprising a batten, a cylinder thereon at each end of the shuttle-race, said cylinders having their proximate ends open, a picking-piston in each cylinder, an air-forcing device, means for operating the same, and pipes connecting the picking-cylinders with the forcing device; in combination with a valve operating to close and open each pipe, valve-actuating mechanism, and a timing device controlled by the shuttle and timing the operation of said mechanism to admit compressed air to the cylinders when said shuttle enters or is about to enter a picking-cylinder, for the purpose set forth.

3. A pneumatic picker for looms, comprising a batten, a cylinder thereon at each end of the shuttle-race, said cylinders having their proximate ends open and closed ends normally vented to the atmosphere, a picking-piston in each cylinder, an air-forcing device, pipes connecting said device to the cylinders at their closed ends; in combination with valves operating to close the vents and open the admission of air from said pipes to the cylinders, valve-actuating mechanism and means operated by the shuttle to transmit motion from the valve-actuating mechanism to the valve, for the purpose set forth.

4. A pneumatic picker for looms, comprising a batten, a cylinder thereon at each end of the shuttle-race, said cylinders having their proximate ends open, a picking-piston in each cylinder, the latter having inlet-ports and exhaust-ports of comparatively small area, a valve-casing on each cylinder having corresponding inlet and exhaust ports, and a compressed-air connection between the inlet-ports of the valve-casings and the air-forcing device; in combination with a valve in each casing and mechanism controlled by the shuttle and organized to operate the valves to admit compressed air to the cylinders when said shuttle enters or is about to enter one of the cylinders, for the purpose set forth.

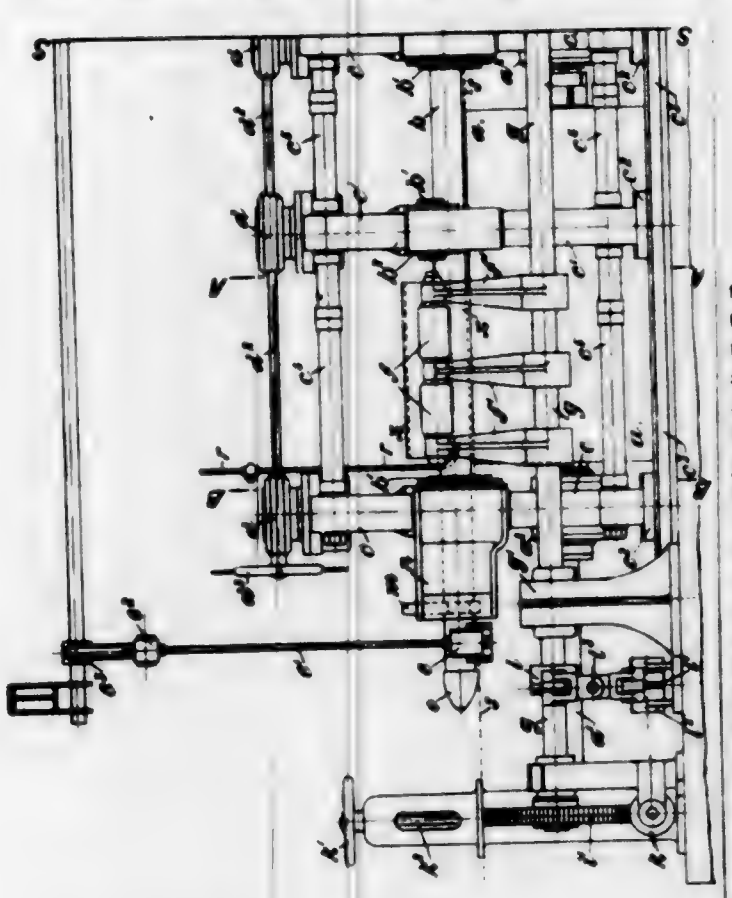
5. A pneumatic picker for looms, comprising a batten, a cylinder thereon at each end of the shuttle-race, said cylinders having their proximate ends open, a picker-piston in each cylinder, an air-forcing device mounted on and operated by the movements of the batten, a compressed-air connection between the forcing device and the cylinders, and means controlling the admission of compressed air to and its exhaust from said cylinders, said means controlled by the shuttle as it enters or is about to enter the cylinder, for the purpose set forth.

6. The combination with the picker-cylinders, the shuttle-race, the spring-actuated valve *j*, the crank-shaft *w* carrying cams *p*, and the valve-

actuating levers *r* acted on by said cams; of the feelers *q* having an arm projecting into the path of the shuttle, and an arm *s*, adapted to swing into the path of the levers *r* and valve *j* when the shuttle impinges upon the feeler-arm in its path and thereby tilts said feeler, for the purpose set forth.

7. The combination with the picker-cylinders, the shuttle-race, the spring-actuated valve *j*, the crank-shaft *w* carrying cams *p*, and the valve-actuating levers *r* acted on by said cams; of the feelers *q* having an arm projecting into the path of the shuttle, and an arm *s*, adapted to swing into the path of the levers *r* and valve *j* when the shuttle impinges upon the feeler-arm in its path and thereby tilts said feeler, and means for returning the feeler into a normal position, for the purpose set forth.

691,727. MANUFACTURE OF SEAMLESS AND WELDLESS TUBES OR HOLLOW BODIES. BALFOUR F. MCTEAR, Rainhill, England. Filed Aug. 15, 1901. Serial No. 72,091. (No model.)

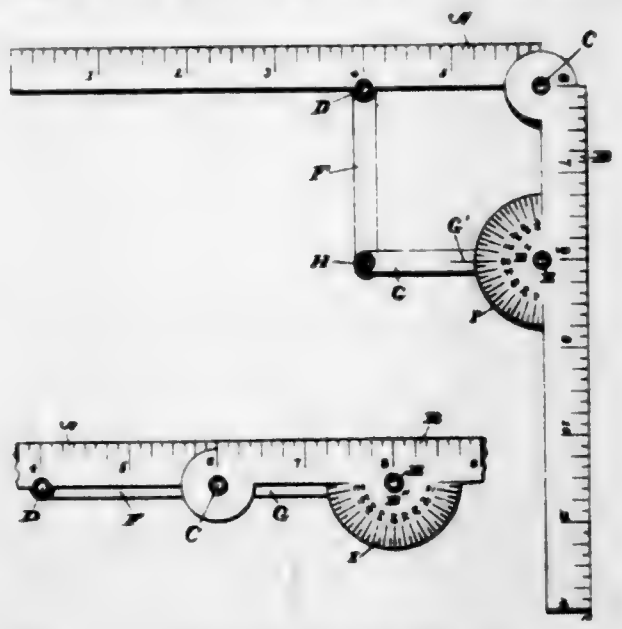


Claim.—1. In the manufacture of hollow metal cylinders, the process consisting in rolling said cylinders circumferentially at a high rate of revolution, internally and externally, while in a glowing hot state, increasing thereby their diameter and reducing the thickness of metal, and continuing to roll and revolve the cylinder in the same manner without reducing its thickness or increasing its diameter, and subjecting the surfaces thereof to the action of water poured onto it, and the continued rolling, until it has become black and its surfaces planished; substantially as set forth.

2. In the manufacture of hollow metal cylinders, the process consisting in scraping the interior surface of the cylinder longitudinally while in a glowing hot state, by passing a suitable scraper through its bore longitudinally; then rolling said cylinder circumferentially at a high rate of revolution, internally and externally, while in a glowing hot state, and increasing thereby their diameter and reducing the thickness of metal; and continuing to roll and revolve the cylinder in the same manner without reducing its thickness or increasing its diameter, and subjecting the surface thereof to the action of water poured onto it, and the continued rolling, until it has become black and its surfaces planished; substantially as described.

3. In the manufacture of hollow metal cylinders, the process consisting in rolling said cylinders circumferentially at a high rate of revolution, internally and externally, while in a glowing hot state, increasing thereby their diameter and reducing the thickness of metal, and simultaneously directing a fluid jet longitudinally onto and along the bottom of the interior of, and through the cylinder, from one end to the other, and continuing to roll and revolve the cylinder in the same manner without reducing its thickness or increasing its diameter, and subjecting the surfaces thereof to the action of water poured onto it, and the continued rolling, until it has become black and its surfaces planished; substantially as set forth.

691,728. BEVEL. NAPOLEON B. NORFOLK, San Francisco, Cal., assignor of two-thirds to Robert Marsh and Gibson Howard, Los Angeles, Cal. Filed Apr. 2, 1901. Serial No. 54,101. (No model.)



Claim.—1. A bevel and miter finder, comprising two legs pivoted together at one end; bars of equal length pivoted to each other and to the legs, respectively, at such distance from the pivot joining the legs that the distance from the center of any one pivot-joint to the center of an adjoining joint is equal to the distance between the centers of any other adjacent joints, a semicircular projecting part on one of the legs, having the center of the base of said projection coincident with the center of the joint uniting the bar to said leg and on a line with the line which connects the center of said joint, and the center of the joint connecting the legs.

2. A bevel and miter finder, comprising two legs pivoted together at one end by a joint having an opening through the center thereof, one of said legs having a semicircular projection on the back provided with a scale on the face and adjacent to the periphery; said leg also having, on the front edge, a downwardly-projecting flange; a bar pivotally attached to said leg, on a line parallel with the front edge of the leg which passes through the center of the joint joining the legs at a point in the center of the base of said semicircular part and having an indicating-mark adapted to register with the semicircular scale as the bar is rotated on the pivot; a second bar pivoted to said bar and to the other leg by pivotal joints at such points that the distance between the centers of the adjacent joints are equal to the distance between the centers of any other adjacent joints, the joint uniting the two bars having an opening through the center thereof.

3. The herein-described bevel and miter finder, comprising legs A and B pivoted together at one end at C, leg B having the downwardly projecting flange B′ and the semicircular projection B″; bar F pivoted to leg A at D and to bar G at H, and bar H pivoted to bar B at E, substantially as described herein.

691,729. SWEAT-PAD FOR HORSE-COLLARS. WILLIAM H. OSNER, St. Louis, Mo. Filed May 15, 1901. Serial No. 60,395. (No model.)



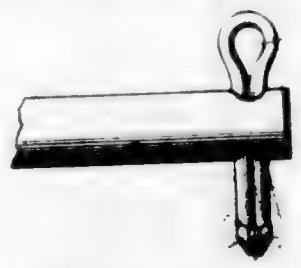
Claim.—A sweat-pad casing having a continuous opening at or near its edge through which to insert or remove a suitable filling, said opening being adapted to be closed by an overlapping fold secured by a fastening-thread, and a plurality of longitudinal rows of slack stitching or quilting connecting the sides of the casing and loosely fastened to provide a uniform bearing and form transverse lines across the body of the pad to position and hold in place the filling material, substantially as described.

691,780. COTTER-PIN. RIDGWAY S. PICKERING, Sharonhill, Pa. Filed Apr. 29, 1901. Serial No. 58,036. (No model.)

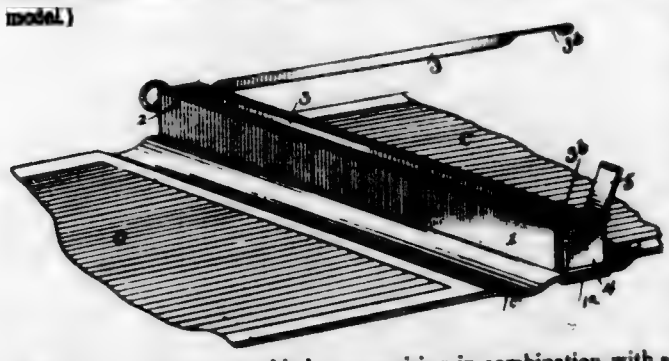
Claim.—1. As a new article of manufacture, a cotter-pin comprising a strip of metal having flat and rounded sides, the said strip being bent on itself to form a loop with the flat portions contacting, the ends of the pin on the rounded side being beveled, the said beveled portions of the rounded side intersecting, the said flat side being also beveled from opposite edges intersecting centrally its width, substantially as described.

2. In a cotter-pin, a strip of metal having flat and rounded sides,

said pin having its ends provided with intersecting beveled surfaces on the flat and rounded surfaces, substantially as described.



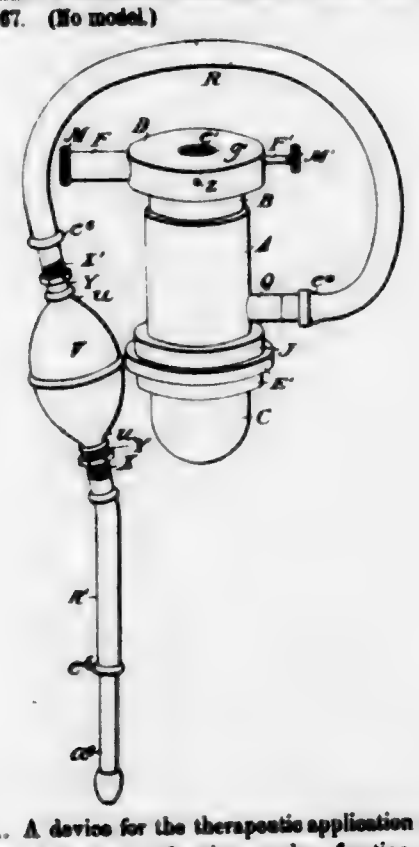
691,731. DETACHABLE BOOK-COVER. GUSTAV A. ROEDDE, Vancouver, Canada. Filed Mar. 11, 1901. Serial No. 50,669. (No model.)



Claim.—1. A temporary binder, comprising in combination with a book-cover, a U-shaped casing extended lengthwise of the foldable part of the cover, said casing having extensions 1^a, at the opposite ends adapted to clamp over the edges of the cover, locking-bars, pivotally mounted in the upper edge of one end of the U-shaped casing to swing in a vertical plane, a lock 4 in the opposite end of the casing, said lock including a flat bearing-surface, and a hinged keeper adapted to close down over said flat bearing-surface, the locking-bars having their free ends flattened to flatwise engage the said flat surface of the lock, all being arranged substantially as shown and for the purposes described.

2. A temporary binder, comprising in combination, with a book-cover, a U-shaped casing extended longitudinally on the foldable part of the cover, locking-bars pivotally mounted on one end of the casing to swing upward in a vertical plane, a lock device in the other end of the casing for securing the free ends of the locking-bars to their closed position, said casing having bendable extensions at the ends adapted to clamp over the outer edges of the cover, whereby to hold the casing from separating accidentally from the cover, all being arranged substantially as shown and for the purposes described.

691,782. DEVICE FOR THERAPEUTIC APPLICATION OF SMOKE. PHILIP J. SCHREIBER, Toledo, Ohio. Filed May 27, 1901. Serial No. 62,167. (No model.)



Claim.—1. A device for the therapeutic application of smoke, consisting of receiver A having perforation *a* and perforation *d* which is provided with screw-thread *e*; tap Q provided with perforation O and having screw-thread c^3 and thread c^4 on its opposite ends; plug T^2; inlet-tube R provided with thimble or screw-thread c^5 and screw-thread *x*; rubber bulb or bag V; inlet-valve *u* and exit-valve *u'* with their essential connections with bulb; exit-tube R' provided on one end with hollow stud or connective link c^5 and on the other end with thread *x* and catheter, nozzle, pipe, bulb or needle a^3, said parts being combined substantially as described.

2. A device for the therapeutic application of smoke, consisting of receiver A having perforation *a* and perforation *d* which is provided with screw-thread *e*, and having shank *b'* provided with thread *c'*, and stem b^2; tank C provided with extending flange J, female-thread *k* and stem b^4; tap Q provided with perforation O, and screw-thread c^3, and thread c^4 on its opposite ends; inlet-tube R provided with thimble or thread c^5 and thread *x*; rubber bag or bulb V; inlet-valve *u* and exit-valve *u'* with essential connections on their respective ends and having threads Y Y'; exit-tube R provided on one end with hollow stud or connective link c^5 and on the other with thread *x* and catheter, nozzle, pipe, bulb or needle a^3, said parts being combined substantially as described.

3. A device for the therapeutic application of smoke, consisting of receiver A provided with perforation *a* and perforation *d* which is provided with screw-thread *e*, and shank *b'* provided with thread *c'*, and stem b^2, and has neck *b* which is provided with thread *c*; cap B having groove *f*, perforation *g*, and hollow A provided with screw-thread I', air-vents 1, 2, 3, 4 in wall of cap; slide G to extinguish combustion and close draft; and perforated slide G' for regulation of draft; tank C provided with thread *k* and stem b^4, and having flange J; acid-proof vessel L'; tap Q provided with perforation O and screw-thread c^3 and thread c^4 on opposite ends; inlet-tube R provided with thimble or thread c^5 and thread *x*; rubber bag or bulb V; inlet-valve *u* and exit-valve *u'* with essential connections on their respective ends and having threads Y, Y'; exit-tube R' provided on one end with hollow stud or connective link c^5 and on the other with thread *x* and catheter, nozzle, pipe, bulb or needle a^3, said parts being combined substantially as described.

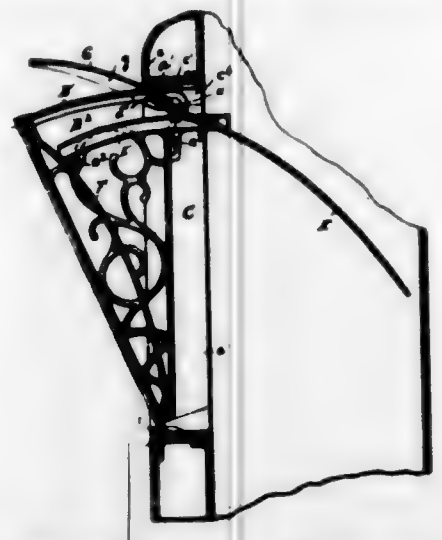
4. A device for the therapeutic application of smoke, consisting of receiver A provided with perforation *a* and perforation *d*, which is provided with screw-thread *e*, and shank *b'* which is provided with thread *c'*, and stem b^2, and has neck *b* which is provided with thread *c*, cap B having groove *f*, perforation *g*, hollow A, provided with screw-thread I', air-vents 1, 2, 3, 4 in wall of cap, perforation Z; slide G for the closure of draft; screw N; tube *r*; nut *q*; thread *s* on *r*; and perforated slide G' for regulating draft, shank F'; and cap-nut M'; cover D having perforation *g'* which is provided with screw-thread *e'*, perforation *m'* having screw-thread I^2; perforation *m* and perforation *z'*; casing F provided with thread c^5 and perforation H; tank C provided with flange J thread K and thread c^3 and shank b^4, vessel L'; tap Q with perforation O and screw-threads c^3 and c^4 on opposite ends; cap-nut T; and exit-tube R' with thread *x* and catheter, nozzle, pipe, bulb or needle a^3; floor-flange E provided with thread K', stem E' and holes *n*, *n'*, said parts being combined substantially as described.

5. A device for the therapeutic application of smoke, consisting of receiver A provided with perforation *a* and perforation *d*, which is provided with screw-thread *e* and shank *b'* which is provided with thread *c'* and stem b^2 and has neck *b*, which is provided with thread *c*; cap B having groove *f*, perforation *g*, hollow A provided with screw-thread I', air-vents 1, 2, 3, 4 in wall of cap; and perforation *z*; slide G and screw N; tube *r*; nut *q*; thread *s* on *r*, cap-nut M; perforated slide G', shank F'; cap-nut M'; cover D having perforation *g'* which is provided with screw-thread *e'*; perforation *m'* provided with screw-thread I^2, perforation *z'*, casing F provided with thread c^5 and perforation H; tank C provided with flange J, thread *k* and thread c^3 and having shank b^4; vessel L'; tap Q its perforation O and screw-threads c^3 and c^4 on opposite ends; inlet-tube R provided with thimble or thread c^5 and thread *x*; rubber bag or bulb V; inlet-valve *u* and exit-valve *u'* with essential connections on their respective ends to bulb and having threads Y, Y'; exit-tube R' provided on one end with hollow stud c^5 and the other end with thread *x* and catheter, nozzle, pipe, bulb or needle a^3; floor-flange E provided with thread K', stem E', holes *n*, *n*; screws or bolts n^2 and n^3, said parts being combined substantially as described.

691,733. HOT-AIR REGISTER. LUTHER D. SMITH, Detroit, Mich., assignor to Ideal Register Co., Detroit, Mich., a Corporation. Filed Oct. 17, 1900. Serial No. 33,326. (No model.)

Claim.—1. In a register, the combination of a fixed perforated frame forming a register opening into an air-flue, a swinging framework pivoted at one edge to the fixed framework and adapted at its opposite edge to swing outwardly from a flush position in said fixed framework to an angular position with reference thereto, a flap-valve pivotally hinged at one edge adapted to come in contact with the swinging frame and close

the opening from the air-shaft, means for partially rotating the valve from the closed position to an open position and connecting said swinging framework with said valve whereby the actuation of the swinging framework will actuate the valve to open and close the opening, substantially as described.



2. In a register, the combination of a perforated swinging frame adapted to fit the aperture leading from an air-flue and pivotally located therein and adapted to swing outwardly from a flush position to an angular position with reference thereto, a flap-valve pivotally located in the rear of said swinging frame and pivoted at its upper edge, and adapted to close the opening from the air-flue when in contact with said swinging frame, said valve being actuated by said swinging frame rearwardly to open the air-passage, substantially as described.

3. In a register, the combination of a fixed frame, a pivoted perforated frame located therein and adapted to swing, a pivoted flap-valve located in the rear of said pivoted frame, adjustable means connecting the swinging frame and the valve whereby the opening of the valve can be regulated, substantially as described.

4. In a register, the combination of a perpendicular air-flue with an aperture therein, and a pivoted frame located in said aperture, said frame having a perforate curved top frame on the radius of a circle of which the pivotal point is the center and perforated segments rigidly attached at the ends of said top frame, a swinging frame, a swinging valve located in the rear of said frame, means connecting said swinging valve to said frame whereby the opening of said frame proportionately opens said valve, a swinging imperforate cover for said top or subframe, means connecting said swinging cover with said swinging frame whereby said cover is lifted to uncover said subframe and expose the perforations therein, said flap-valve and said cover forming a deflecting plane for deflecting the air into and away from the wall of the room above said register, substantially as described.

5. In a register, the combination of a casing-frame, a swinging frame pivoted at its lower edge to the casing-frame, a valve pivoted at its upper edge, and arranged to swing in a direction opposite to that of the pivoted swinging frame, and means connecting the pivoted swinging frame and the valve, whereby the one actuates the other, substantially as described.

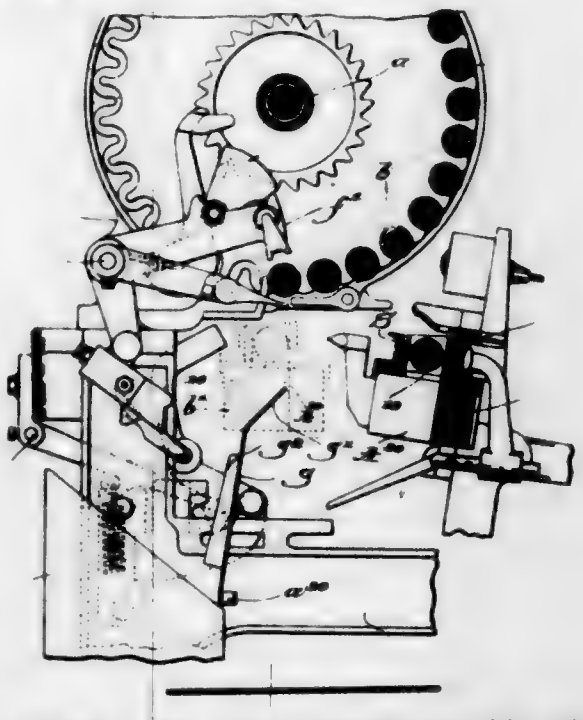
6. In a hot-air register, the combination of an air-flue provided with an aperture leading therefrom, a hollow frame casing said aperture and provided with a series of perforations leading through the walls into the hollow of said frame, a swinging frame pivotally mounted in the opening of said hollow frame and arranged to close the perforations, substantially as described.

7. In a register, in combination with a frame incasing a flue-orifice, a pivoted valve arranged to swing across a flue-passage, a deflector adapted to be drawn forward from the flue, and to swing upward with respect to the flue-orifice, an open-work frame pivoted to the casing-frame and arranged to swing out from the flue-passage, and connecting means whereby the several swinging parts act simultaneously, substantially as described.

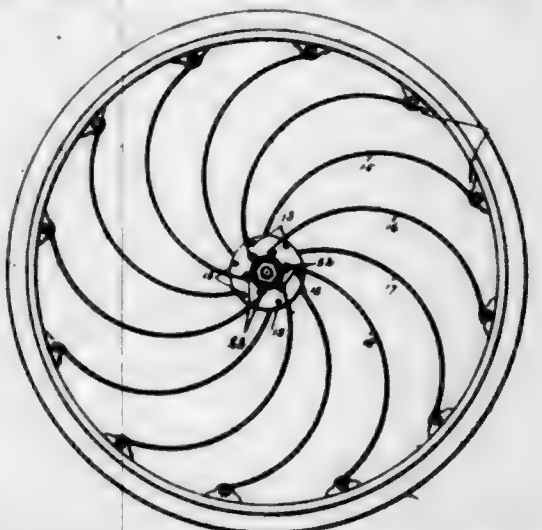
691,784. FILLING-REPLENISHING LOOM. NEIL WARD, Lonsdale, R. I., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed July 20, 1901. Serial No. 70,260. (No model.)

Claim.—1. In a loom, a lay, a shuttle-box having an opening in its bottom for the discharge of a filling-carrier, the front side of the lay being cut away beneath the opening, and a fixedly-mounted chute independent of the lay, and having its upper end rearwardly inclined to form a resilient lip to enter the cut-away portion of the lay beneath the opening in the shuttle-box, and to closely approach the back wall of the cut-away portion when the lay beats up, to receive and conduct a discharged filling-carrier away from the shuttle-box.

2. In a loom, a lay, a shuttle-box thereon having an opening in its bottom, the lay being cut away beneath the opening, a shuttle open at top and bottom, and adapted to contain a filling-carrier, means to automatically insert a filling-carrier into the shuttle and to discharge the one then in the shuttle through the bottom of the latter and the opening in the shuttle-box, and a fixed chute or guide independent of the lay and having a lip adapted to extend beneath the said opening in the shuttle-box and into the cut-away portion of the lay, when a filling-carrier is discharged therethrough, the edge of the lip being closely adjacent the back wall of such cut-away portion at the time of discharge.



691,785. HUB. JOHN C. WORKING, Denver, Colo., assignor, by mesne assignments, to the Furnidge Spring Wheel Company, Pierre, S. D. Filed Apr. 29, 1901. Serial No. 57,947. (No model.)



Claim.—1. A hub adapted to receive spokes at points adjacent to its ends, having on its periphery raised portions formed integral therewith containing grooves for the reception of the spokes, caps to hold the spokes in said grooves, and caps 25 for retaining said caps in place, substantially as described.

2. The combination of main hub portion having flanges, grooves in said flanges, spokes fitting therein, caps to retain said spokes in said grooves, and screw-threaded caps to hold said first-mentioned caps in position, substantially as described.

3. A hub comprising a central core, having grooves in the ends thereof extending from the periphery a suitable distance toward the center thereof, with holes at the inner ends of the same, adapted to receive and contain flat resilient spokes, having eyes formed on their inner ends adapted to fit in said holes.

4. A hub comprising a central core having raised portions on its periphery adjacent to its ends, grooves in said raised portions adapted to receive and contain flat resilient spokes, said grooves terminating in holes adapted to receive and contain eyes formed on the ends of said spokes.

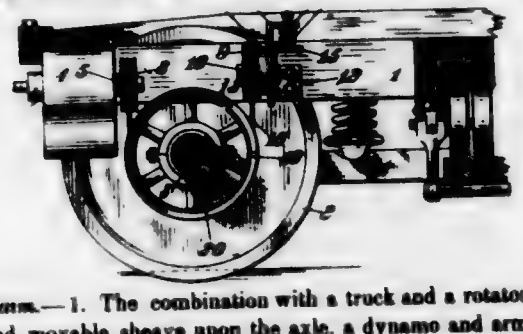
5. A hub comprising a central core, grooves in said hub adjacent to its ends adapted to receive and contain flat spokes, and a flange or cap having a notched or recessed rim 14, adapted to overlap a part of said central core, and in said recesses to afford bearing-surface for said spokes.

6. A hub comprising a central core having grooves therein adapted to receive and contain resilient spokes having eyes on the inner ends thereof

fitting into holes at the inner ends of said grooves and bolts passing through said eyes and into the main hub portion.

REISSUES.

11,961 MEANS FOR DRIVING DYNAMOS FROM CAR-AXLES. JOHN L. CREVELING, New York, N.Y., assignor to The Safety Car Heating and Lighting Company, a Corporation of New Jersey. Filed Sept. 23, 1901. Serial No. 76,320. Original No. 637,766, dated Nov. 28, 1899.



Claims.—1. The combination with a truck and a rotatory axle, of a fixed and movable sheave upon the axle, a dynamo and armature-shaft, a fixed sheave upon the armature-shaft, an idler pivotally supported so as to leave a clear space between it and the said fixed sheave, and an endless belt passing from the armature-sheave to the idler against the axle-sheave, and in operative contact with each sheave substantially as set forth.

2. The combination with a truck and rotatory axle, of a fixed and a movable sheave upon the axle, a dynamo whose armature-shaft is disposed endwise of the truck, a fixed sheave upon the armature-shaft, a stud-supported idler, and an endless belt passing from the armature-sheave to the idler against the axle-sheaves, and in operative contact with each sheave, substantially as set forth.

3. The combination with a truck and rotatory axle, of a fixed and movable sheave upon the axle, a dynamo whose armature-shaft is provided with a fixed sheave located upon one side of the axle-sheave, a spring-actuated idler pivotally supported upon one side only, and an endless belt passing from the armature-shaft to the idler against the axle-sheaves, and in operative contact with each sheave, substantially as set forth.

4. The combination of a truck and a rotating member deriving its rotary motion from the movement of the truck, a suitably-supported dynamo traveling with the truck and a single belt transmitting power from the rotating member to the armature-shaft and an idler coöperating with the said belt all arranged so that an endless belt may be directly applied to the apparatus without the necessity of opening or splicing the belt, to effect such application.

5. The combination of a dynamo, a rotating member deriving its movement of rotation from the motion of the car, an idler supported at one side only and a single belt for imparting motion from the rotating member to the dynamo-shaft and the idler.

6. The combination of a truck, a rotary driving-gear deriving its motion of rotation from the movement of the truck, a pulley driving a dynamo, a single endless belt engaging the driving means and pulley, and an additional belt-engaging means so mounted and arranged that the endless belt may be passed thereover and engaged with the pulley and driving-gear in position for operation.

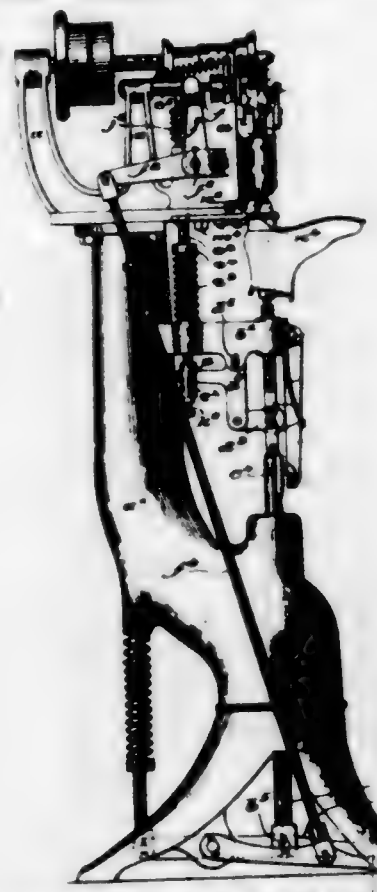
7. The combination of a truck, a rotating member driven by the movement of the truck and comprising in its structure a plurality of pulleys, a dynamo, a pulley adapted to drive the said dynamo and an idler, the dynamo-driving pulley being unsupported at one side and the idler being also unsupported at one side whereby a single endless driving-belt may be passed around the four pulleys without the necessity of splicing the belt.

8. The combination of a truck, a dynamo supported to travel with the truck, a shaft receiving its rotary motion by the movement of the truck, a pulley receiving motion from the said shaft and driving the dynamo and means whereby a single, endless driving-belt may be placed about the shaft and around the pulley.

9. In a driving-gear for dynamos, the combination of a shaft having a plurality of pulleys in driving relation therewith, a plurality of separate pulleys supported from one side only of each pulley, and a single endless belt engaging with each of the pulleys.

11,962. NAILING-MACHINE. EDWIN T. FREEMAN, Boston, Mass., assignor to the United Shoe Machinery Company, Paterson, N. J., a Corporation of New Jersey. Filed Apr. 14, 1900. Serial No. 12,948. Original No. 618,062, dated Jan. 24, 1899.

Claims.—1. A machine for inserting metallic fastenings comprising mechanism for inserting fastenings, an awl and awl-bar, an actuator therefor, and means for stopping the operation of the awl without stopping said actuator during repeated operations of the machine.



2. In a nailing-machine, a stock-support, a rotating cam, a connection between said stock-support and said cam, said cam periodically operating said connection to move the stock-support, and means also causing said cam to move said stock-support independently of the periodical movement thereof.

3. In a nailing-machine, a block, a perforation in the block, and means to give the block a reciprocating movement, a bell-crank lever extending into said perforation and thereby given a reciprocating movement by the block, and means to adjust the extent of the movement of the lever, a stock-support, connection between the bell-crank lever and the stock-support, whereby the stock-support is moved.

4. In a nailing-machine, in combination, an awl, and a jointed bar carrying said awl, and means to give one part of said bar a sidewise movement and to give another part of the bar a sidewise movement independent of said movement of the first part.

5. In a nailing-machine, in combination, a rotating cam, an awl-bar, said awl-bar being capable of movement into and out of engagement with the cam, means to move the awl-bar into contact with the cam, and mechanism to move the awl-bar out of contact with the cam and hold it out of such contact during repeated operations of the machine.

6. An awl, means to move the awl sidewise, an actuator, connection between said actuator and the awl, a treadle, and connection between the treadle and said actuator, said actuator being governed by the operation of the treadle to change the extent of operative movement of the awl.

7. A raceway, a groove in the raceway to permit nails formed in a comb-shaped strip to be conveyed therein, a cutter, means to move the cutter between the shanks of adjacent nails of said nail-strip in said groove, means for thereafter moving said cutter and thereby moving said nail-strip, and a reciprocating driver, said driver coöperating with said cutter and severing the nails from said strip.

8. A raceway, a reciprocating driver, means to move the raceway under the driver and away from the driver, said raceway containing a groove adapted to convey a nail-strip, a cutter, means for moving said cutter between adjacent nails of the nail-strip, means to operate the cutter and thereby move the nail-strip, said driver coöperating with the cutter in severing nails and thereafter driving the nails.

9. In a nailing-machine, a raceway, a cutter, and means to operate the cutter to move a strip in the raceway, and other means to move the strip toward and against the cutter thereby forcing the cutter to sever nails from the strip.

10. In a nailing-machine, an awl-bar, a raceway, a nail-moving mechanism, and means to move the awl-bar, said means including means to move the raceway and actuate said nail-moving mechanism.

11. In a nailing-machine, in combination, an awl, and means to carry said awl, a raceway, a device adapted to move nails in said raceway, a lever in contact with and operating said means, raceway and device, for the purpose set forth.

12. In a nailing-machine, in combination, an awl, and means to carry said awl, a raceway, a device, means to operate said device to move nails in said raceway, and the latter means also arranged to move the first means sidewise, for the purpose set forth.

13. In a nailing-machine, in combination, a raceway, an awl, and means to move said raceway and awl sidewise, and means to automatically change the extent of the sidewise movements of said raceway and awl.

14. In a nailing-machine, in combination, a raceway, an awl, and means to move said raceway and awl sidewise, and means to change the extent of the sidewise movements of said raceway, and the latter means also arranged to change the extent of the sidewise movement of said awl.

15. In a nailing-machine, in combination, a raceway, an awl, means to move said raceway and awl, a treadle, mechanism between said treadle and raceway for changing the extent of movement of the awl.

16. In a nailing-machine, a stock-support, an awl, means to move the awl, a cam for moving said stock-support, and connection between the cam and the awl for changing the movement of the awl.

17. In a nailng-machine, a stock-support, a cam for moving said stock-support, an awl, means including said cam for changing the movement of the awl, a raceway, and means including said cam for governing the movement of the raceway.

18. In a nailing-machine, a stock-support, a cam for moving the stock-support, a raceway, means for moving the raceway, and means including said cam for governing the movement of the raceway.

19. A machine for inserting metallic fastenings comprising a driver, actuating mechanism therefor, an awl, a continuously-operating actuator therefor and means to remove said awl from the control of said actuator during repeated operations of the machine.

20. In a nailing-machine, a driver, an awl-bar, means to present fastenings to be driven by said driver, means to render said awl-bar inoperative, and means to prevent the presentation of fastenings to be driven.

21. In a nailing-machine, a raceway, an awl-bar, a driver, means to move said raceway periodically under the driver, and means to prevent such movement without stopping the machine.

22. In a nailing-machine, a raceway, an awl-bar, a driver, means to move said raceway periodically under the driver, means to prevent such movement without stopping the machine, and means to cause said movement again to take place.

23. In a nailing-machine, a stock-support, an awl, a continuously-moving actuator for said stock-support and awl, and means to depress said stock-support, leave it at rest for the removal of the stock and suspend the operation of the awl while its actuator continues in motion.

24. In a machine of the class described, mechanism for inserting fastenings, an awl, an actuator for causing the awl to enter the work, and means arranged to be operated without stopping said actuator for suspending the operation of the awl during repeated operations of said actuator.

25. In a machine of the class described, mechanism for inserting fastenings, an awl, an actuator therefor, mechanism operated by said actuator for causing said awl to enter the work, and means arranged to be operated without stopping said actuator for removing said mechanism from the control of said actuator during repeated operations of said actuator.

26. In a machine of the class described, an awl, means for feeding fastening material, mechanism for actuating the awl and the feeding means, an actuator for operating said mechanism, and means for suspending the operations of the awl and the feeding means while said actuator continues in operation.

27. In a machine for inserting fastenings, an awl, an actuator, mechanism operated by said actuator for causing the awl to enter the stock and for causing the awl to feed the stock, and means for controlling the operation of said mechanism whereby the entering and feeding operations of the awl may be suspended while said actuator continues in operation.

28. In a machine of the class described, mechanism for inserting fastenings, an awl, an actuator therefor, mechanism operated by said actuator for causing said awl to enter the work, means for removing said mechanism from the control of said actuator, and means including a yielding medium arranged to be operated while said actuator is in operation for causing said awl to be returned to the control of its actuator.

29. In a machine of the class described, mechanism for inserting fastenings, an awl, an actuator therefor, means for removing the awl from the control of its actuator, and spring-actuated means arranged to be operated while said actuator is in operation for restoring said awl to the control of the actuator.

30. In a machine for inserting fastenings, an awl, means for feeding fastening material, mechanism for actuating the awl and the feeding means, an actuator for operating said mechanism, means for suspending the operations of the awl and the feeding means while said actuator continues in operation, and means including a yielding medium, arranged to be operated while the actuator is in operation for restoring the awl and the feeding means to the control of the actuator.

31. In a machine for inserting fastenings, a work-support, an awl, an actuator for said awl, and mechanism under the control of the operator for suspending the operation of the awl and for lowering the work support and leaving it in lowered position while said awl-actuator continues in operation.

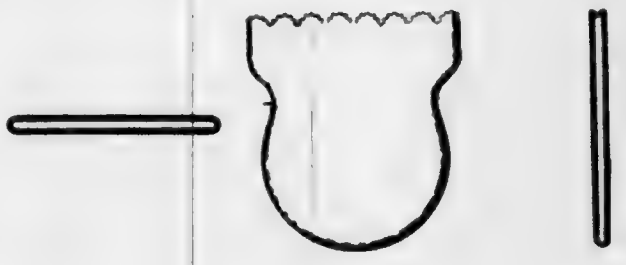
32. In a machine for inserting fastenings, a work-support, an awl, an actuator for said awl, mechanism under the control of the operator for suspending the operation of the awl and for lowering the work-support and leaving it in lowered position while said awl-actuator continues in operation, and means for raising the work-support when the awl is again operated.

33. In a machine for inserting fastenings, a work-support, an awl, an actuator for said awl, a driver, mechanism for actuating the driver, and mechanism under the control of the operator for suspending the operation of the awl and for lowering the work-support and leaving it in lowered position while said awl-actuator and the driver continue in operation.

34. In a machine for inserting fastenings, a work-support, an awl, an actuator for said awl, a driver, mechanism for actuating the driver, mechanism under the control of the operator for suspending the operation of the awl and for lowering the work-support and leaving it in lowered position while said awl-actuator and the driver continue in operation, and means for raising the work-support when the awl is again operated.

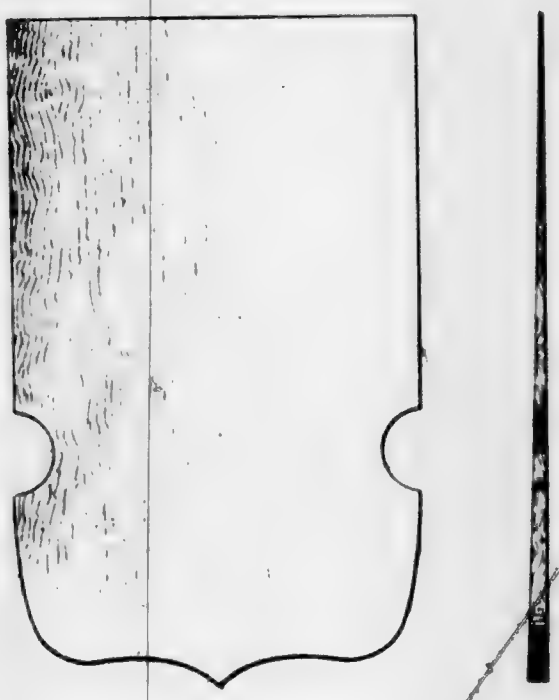
DESIGNS.

35,591. WATCH-BAG. CHARLES C. DRUEDING, Philadelphia, Pa. Filed May 14, 1901. Serial No. 60,344. Term of patent 14 years.



Claim.—The design for a watch-bag, substantially as herein shown and described.

35,592. SHINGLE. GEORGE F. MURDOCK, Wellsville, Ohio. Filed Dec. 6, 1901. Serial No. 84,972. Term of patent 7 years.



Claim.—The design for the shingle herein shown and described.

35,593. PILLOW-TOP. CHARLES E. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,787. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

35,594. PILLOW-TOP. CHARLES E. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,788. Term of patent 3½ years.



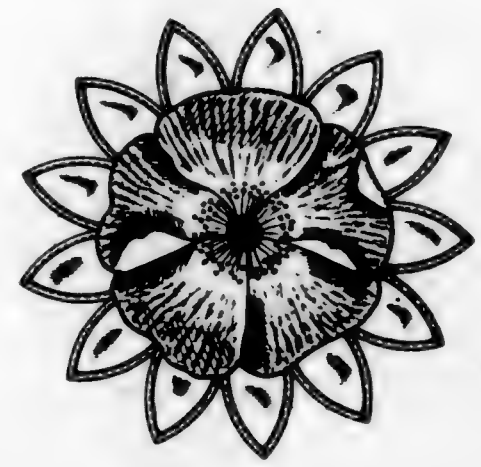
Claim.—The design for a pillow-top, substantially as herein shown and described.

35,595. PILLOW-TOP. CHARLES E. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,789. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

35,596. PILLOW-TOP. CHARLES E. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,790. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

35,597. PILLOW-TOP. CHARLES E. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,791. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

35,598. PILLOW-TOP. CHARLES E. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,792. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

85,599. PILLOW-TOP. CHARLES R. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,793. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

85,600. PILLOW-TOP. CHARLES R. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,794. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

85,601. PILLOW-TOP. CHARLES R. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,795. Term of patent 3½ years.



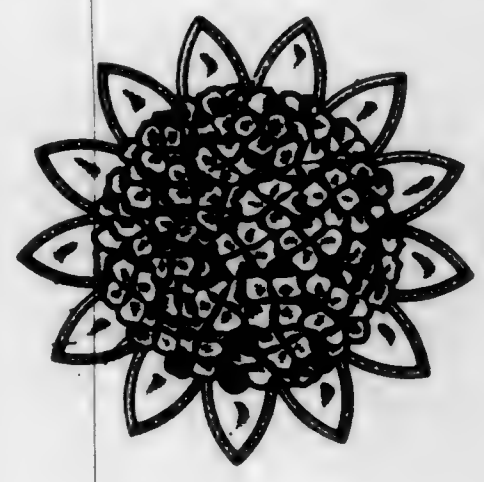
Claim.—The design for a pillow-top, substantially as herein shown and described.

85,602. PILLOW-TOP. CHARLES R. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,796. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

85,603. PILLOW-TOP. CHARLES R. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,797. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

85,604. PILLOW-TOP. CHARLES R. BENTLEY, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,798. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

85,605. PILLOW-TOP. CHARLES R. BENTLEY, New York, N. Y.
Filed Nov. 18, 1901. Serial No. 82,799. Term of patent 3½ years.



Claim.—The design for a pillow-top, substantially as herein shown and described.

85,606. PILLOW-FACING. CHARLES R. BENTLEY, New York, N. Y.
Filed Nov. 18, 1901. Serial No. 82,800. Term of patent 3½ years.



Claim.—The design for a pillow-facing, substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 21, 1902.

87,653. CERTAIN NAMED MILLINERY GOODS. GAGE BROTHERS & COMPANY, Chicago, Ill. Filed Dec. 9, 1901.



Essential feature.—The combination of the letters "G" and "B" and the words "& Co." Used since September 1, 1901.

87,654. COATS, TROUSERS, AND WAISTCOATS. THE STANDARD CLOTHING Co., Boston, Mass. Filed Nov. 22, 1901.



Essential feature.—The words "TRU BLU" and the representation of an Indian's head. Used since November 1, 1901.

87,655. OVERSHIRTS. OPPENHEIM, OBERNDORF & Co., Baltimore, Md. Filed Nov. 15, 1901.



Essential feature.—The word "BULL" or the representation of the head of a bull. Used since November, 1900.

87,656. UNDERWEAR. INGERSOLL KNITTING MILLS, Philadelphia, Pa. Filed Nov. 11, 1901.



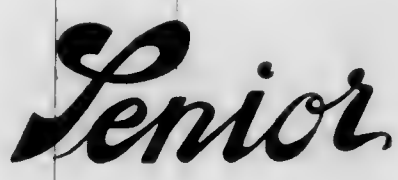
Essential feature.—An Indian-head displayed upon an arrow-head. Used since September 25, 1901.

87,657. COTTON-FLANNELS. WM. H. WISNER & Co., New York, N. Y. Filed Nov. 26, 1901.



Essential feature.—The representation of a shield or escutcheon, two swords crossed thereon, and a device resembling a balance or scale. Used since October 4, 1898.

87,658. SHOES. FELIX E. MESTROT, Galveston, Tex. Filed June 10, 1901.



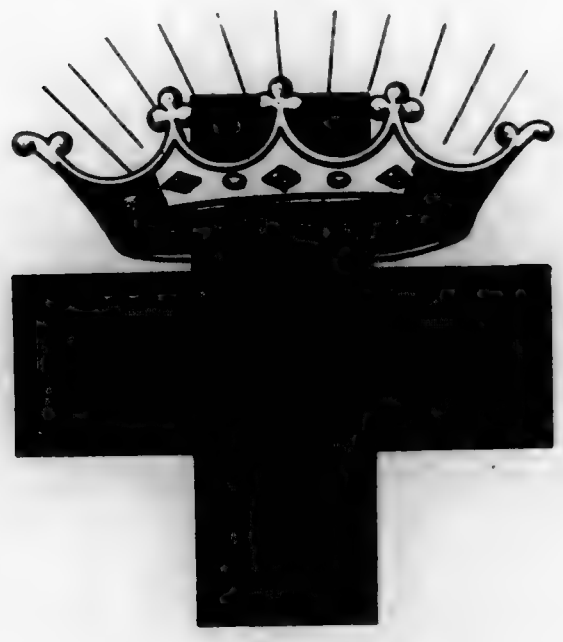
Essential feature.—The word "SENIOR." Used since October 1, 1900.

87,659. SHOES FOR MEN, WOMEN, AND CHILDREN. THOMAS E. GREAGER, New York, N. Y. Filed Dec. 10, 1901.



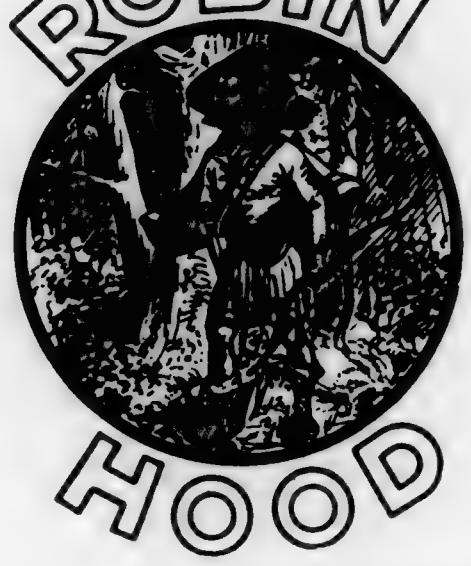
Essential feature.—The words "SMART SET" and a representation of same in a peculiar and individual style of script accompanied with a dash beneath. Used since November 1, 1901.

87,660. BEEF EXTRACTS. LIEBIG EXTRACT COMPANY, New York, N. Y. Filed Dec. 7, 1901.



Essential feature.—The representation of a Greek cross having one arm projecting through a crown and a series of lines radiating from said crown. Used since November 22, 1901.

87,661. FLOUR. WILLIAM S. HILLS CO., Boston, Mass. Filed Oct. 16, 1901.



Essential feature.—The words "ROBIN HOOD" and the representation of an archer. Used since July 1, 1901.

87,662. SOAP AND CERTAIN NAMED TOILET PREPARATIONS. ALBERT F. WOOD, Detroit, Mich. Filed Mar. 15, 1901.

SATIN

Essential feature.—The word "SATIN." Used since July, 1885.

87,663. LINIMENT, SALVE, AND OINTMENT. THE GREEN DRUG COMPANY OF BALTIMORE CITY, Baltimore, Md. Filed Dec. 3, 1901.

87,668



Essential feature.—The representation of an old man assuming a standing position, wearing a robe and a cap, and holding a bottle in one hand and having the other hand resting upon a table. Used since November 20, 1901.

87,664. QUINATE OF LITHIUM. VEREINIGTE CHININFABRIKEN, ZIMMER & CO., GES. MIT BESCHRÄNKTER HAFTUNG, Frankfort-on-the-Main, Germany. Filed Oct. 22, 1901.

Urosin

Essential feature.—The word "UROSIN." Used since May 1, 1899.

87,665. SYRINGES. TYER RUBBER CO., Andover, Mass. Filed Sept. 27, 1901.

HOMESTEAD

Essential feature.—The word "HOMESTEAD." Used since August 1, 1896.

87,666. MEDICATORS, INHALERS, RESPIRATORS, AND SIMILAR SURGICAL APPLIANCES. ELMORE J. WEBER, Ashland, Ohio. Filed Dec. 13, 1901.

Corona

Essential feature.—The word "CORONA." Used since March 22, 1901.

87,667. METALLIC FASTENERS. PARKER RUSSELL COMPANY, New York, N. Y. Filed Nov. 23, 1901.



Essential feature.—The representation of garment-fastener parts, a black diamond, a field of a globe and clouds, and a child pointing to the fastener parts. Used since October 1, 1900.

87,668. HACKSAWS AND BUTCHER-SAWS. GREENFIELD-PRATT COMPANY, Greenfield, Mass. Filed June 28, 1901.



Essential feature.—The letter "G" inclosed in a circle. Used since January, 1901.

87,669. WASHING-MACHINES. VOSS BROTHERS MANUFACTURING COMPANY, Davenport, Iowa. Filed Nov. 14, 1901.

OCEAN WAVE

Essential feature.—The words "OCEAN WAVE." Used since March 1, 1901.

LABELS

REGISTERED JANUARY 21, 1902.

8,904.—*Title:* "KEYSTONE MAID." (For Cigars.) H. Sommer, Quakertown, Pa. Filed December 23, 1901.

8,905.—*Title:* "LA VITALIA." (For Cigars.) H. Sommer, Quakertown, Pa. Filed December 27, 1901.

8,906.—*Title:* "HYGEIA FLOUR." (For Flour.) Michigan Milling Co., Ann Arbor, Mich. Filed December 26, 1901.

8,907.—*Title:* "TOASTED MANNA." (For Food Product.) Lambert Good Food & Machinery Co., Ltd., Marshall, Mich. Filed December 26, 1901.

8,908.—*Title:* "NATURE'S BREAKFAST FOOD." (For a Wheat Food.) Nature's Breakfast Food Co., Minneapolis, Minn. Filed December 24, 1901.

8,909.—*Title:* "NAPOLEON FRENCH LIMBURGER." (For Limburger Cheese.) Liebenthal Bros. & Co., Cleveland, Ohio. Filed December 19, 1901.

8,910.—*Title:* "LIFEBUOY SOAP." (For Soap.) Lever Brothers, Limited, Port Sunlight, England. Filed December 23, 1901.

8,911.—*Title:* "PACIFIC OIL COMPOUND." (For an Oil Compound.) S. A. Dennis, Los Angeles, Cal. Filed December 21, 1901.

8,912.—*Title:* "EAGLE INDIA INK." (For Ink.) Schwencke, Kirk & Co., New York, N. Y. Filed December 21, 1901.

8,913.—*Title:* "SOPURA DENTIFRICE." (For Tooth-Powder.) Sopura Co., Boston, Mass. Filed December 20, 1901.

8,914.—*Title:* "ANTI-WHOOP." (For a Medicine.) Frank C. Titzell, Chicago, Ill. Filed December 26, 1901.

8,915.—*Title:* "ACETON." (For a Medicine.) Aceton Medical Co., Mystic, Conn. Filed December 26, 1901.

8,916.—*Title:* "DR. LING'S LEMON COUGH REMEDY." (For a Medicine.) Patton Bros., Catlettsburg, Ky. Filed December 23, 1901.

8,917.—*Title:* "DERMICURE." (For a Medicine.) George B. Holden, Haverhill, Mass. Filed December 18, 1901.

8,918.—*Title:* "BUTTER NUT BREAD." (For Bread.) Schulze Baking Co., Chicago, Ill. Filed December 21, 1901.

PRINTS

REGISTERED JANUARY 21, 1902.

452.—*Title:* "THE MINUET BACK NO. 606 CONGRESS PLAYING CARDS." (For Playing-Cards.) The United States Playing Card Co., Cincinnati, Ohio. Filed December 19, 1901.

453.—*Title:* "THE HUNT BACK NO. 606 CONGRESS PLAYING CARDS." (For Playing-Cards.) The United States Playing Card Co., Cincinnati, Ohio. Filed December 19, 1901.

454.—*Title:* "VESTIBULE LIMITED." (For Playing-Cards.) The New York Consolidated Card Co., New York, N. Y. Filed December 20, 1901.

455.—*Title:* "THE HAWAIIAN SOUVENIR PLAYING CARDS." (For Playing-Cards.) The United States Playing Card Co., Cincinnati, Ohio. Filed December 27, 1901.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE KINTNER.

Decided December 23, 1901.

1. DIVISION—BLOCK SYSTEM FOR RAILWAYS—AUXILIARY COMBINATION FOR SIDING AND DRAWBRIDGE—DEPENDENT INVENTIONS.

Where an applicant claims the combination of certain signals, switching devices, and safety-circuits with a current-feeder and sectional rails to prevent collisions upon the main line and also combinations to be used in connection with it to prevent collisions upon a siding and drawbridge casualties, *Held* that the combinations mutually contribute to produce a single result and that division should not be required.

2. SAME—SAME—ELECTRICALLY-OPERATED GATE—INDEPENDENT INVENTION.

Held that an electrically-operated railway-gate for a grade crossing is an independent invention from a general block system the object of which is to prevent collisions and that since the devices have acquired a distinct status in art and manufacture division was properly required.

3. SAME—SAME—SEMAPHORE—INDEPENDENT MANUFACTURE.

Semaphores have acquired a distinct place in the arts and manufacture and have been made an independent subject of invention, and therefore a semaphore should not be claimed in the same application with a railway block system, although it is specially designed for use in that system.

ON petition.

ELECTRIC RAILWAYS.

Application of Charles J. Kintner filed September 25, 1901, No. 76,564.

Mr. C. J. Kintner pro se.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner holding that the above-entitled application should be divided on the ground that the application as now presented includes five separate and distinct inventions.

The invention relates, broadly, to a block system for electric railways. The system is so organized and arranged that when certain end-to-end signals, switching devices, and safety-circuits are brought into combination with the current-feeder and sectional rails means are provided in said system for preventing end-to-end collisions, collisions at a siding, and accidents from the opposite ends of a drawbridge.

The application contains twenty-five claims. The Examiner has grouped them as follows: claims 1 to 7 together with claims 17 and 18. The function of the invention covered by claims 1 to 7 is to energize the sectional third rail where a car may be and to cut out the sectional third rails immediately in front and rear thereof and to operate the proper signals.

With regard to claims 17 and 18 the Examiner correctly states that they—

> cover the feeder, the sectional third rail, signals, etc., and the *test-circuits* for indicating whether or not the signals are in operative condition—

and gives as his opinion that—

> inasmuch as "it is common to include test-circuits for telephone systems and lighting systems in the same case with claims for other parts of such systems, it is thought that these claims may be included in the same case with the first group of claims."

Claims 8 to 10, inclusive, are held by the Examiner to cover a separate and independent invention from that covered in the other claims in the case, for the reason that these claims cover an electric-railway system which includes a *siding*, which system, so states the Examiner—

> would be useful when used with said siding, but absolutely useless as applied to the ordinary sections included as a part of the first group of claims.

Upon the same reasoning claims 11 to 14, inclusive, are held by the Examiner to cover a separate and independent invention from those covered in the other groups of claims in that the electric-railway system covered by said claims 11 to 14 includes a *drawbridge* in combination with the signals and special circuit connections. The limitation contained in these claims is stated by the Examiner to render the invention useless if applied to the ordinary block-sections covered in the first group of claims or the siding covered in the second group.

Claims 15 and 16 are drawn to cover a specially-constructed and electrically-operated grade-crossing gate. Claims 19 to 25, inclusive, are drawn to cover the semaphore used as a signal in this particular system.

Claims 1 to 14, inclusive, and claims 17 and 18, though drawn to cover "several distinct inventions," are held to cover inventions so "dependent upon each other" that they "mutually contribute to produce a single result," and therefore may under the provisions of Rule 41 be claimed in one application.

This single result is the construction of a complete railway block system with the end in view of preventing accidents to the cars by collisions and drawbridge casualties in the operation of that complete system. The "siding" is in effect a part of the trackage of the system, and the drawbridge is in fact a portion of the main trackage. The por-

tions of the invention relating to the siding and drawbridge have not assumed a separate and distinct place in the arts. They are not so recognized by inventors and manufacturers and by the Office in its scheme of classification, as is the case with the various parts which go to make up a complete printing-press, which has been referred to by the Examiner in his statement.

The whole scheme of the invention defined in the claims above mentioned is to so construct a block system in connection with an electric railway and to so control the cars in use on said railway as to prevent accidents to them by collision with each other or to prevent the loss or destruction of the cars by reason of a break in the trackage due to an open drawbridge or misplaced switch.

The inventions covered, respectively, by the groups of claims 15 and 16 and claims 19 and 25, inclusive, are held, however, to be independent from the invention covered in the remaining claims.

Claims 15 and 16 cover an electrically-operated railway-gate for a grade crossing. Such gates have obtained a distinct status in the arts. These gates form a distinct class of invention from the railway system alongside of which they are placed. This is so, even though the power to operate the gate is derived from the power which propels the cars along the system. The grade-crossing gates here disclosed and claimed have a distinct place in the arts and manufactures. That this fact is recognized by the inventors and manufacturers is evidenced by the large number of inventions in this particular field which have been patented. The Office recognized the fact in establishing in class 39, Fences, the subclass of Gates. This subclass is further divided into Gates, railway, one of which is further divided into nine subclasses, of which one is "Electric," the full title being Fences, gates, railway, electric.

The particular gate invented by the petitioner and covered by claims 15 and 16 could be used as well with any third-rail electric railway as the one invented by this petitioner and covered in the claims which precede them.

The gates are operated, it is true, by means of the connections made by the car in its operation over the line. These gates could, however, be as well operated if they were placed alongside of any other line at the various grade crossings. The presence or absence of the gates does not in any way affect the operation of the block system. They are merely means extraneous to the railway system for preventing certain objects which are wholly separate from the main invention and in no way controlled by the operation of the same from blocking the line of track. The gates in no way prevent the cars from colliding with each other either in front or rear, nor do they cause the cars to stop by reason of their operation.

Claims 19 to 25 cover a semaphore *per se*. Though it may be specially adapted for use with the particular railway system disclosed in this application, the fact is not changed that these semaphores *per se* have a distinct place in the arts and manufactures and are separately classified in this Office and so recognized as an independent subject-matter of invention. They do not so coact with the other inventions disclosed in this case as to mutually contribute with them to produce a single result in the sense defined in Rule 42.

It is held, therefore, that claims 1 to 14, inclusive, together with claims 17 and 18, may be presented in a single application.

Claims 15 and 16 cover an independent invention from the claims just mentioned and should be prosecuted, if at all, in a separate application. This is also true, and the same ruling is made, with respect to claims 19 to 25, inclusive.

The petition is granted to the extent indicated.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

THE UNITED STATES REPAIR AND GUARANTY COMPANY *v.* THE ASSYRIAN ASPHALT COMPANY.

Decided January 6, 1902.

1. PATENTS—PROCESS OF REPAIRING ASPHALT PAVEMENTS—ANTICIPATION.

Claim 1 of Patent No. 501,537, granted to Amos Perkins on July 18, 1893, for a method of repairing asphalt pavements, *Held* invalid because of anticipation by a French patent to Paul Crochet and certain publications.

2. SAME—SAME—NOVELTY IN THE MEANS.

A process of repairing asphalt pavements, the essential feature of which consists in applying heat to the edges of the excavation, so as to soften the material and make a bond with the new material, *Held* unpatentable in view of publications describing this process, although the patentee uses a new means for heating and applies it to a different kind of asphalt.

3. CONSTRUCTION OF CLAIMS—CANCELLATION OF CLAIMS IN PATENT OFFICE.

Where an application for a patent contains one process claim including the use of "heat" as one step and a second claim including "a blast of heat" and the applicant cancels and abandons the second claim upon the objection that the claims were substantially the same, *Held* that the patentee cannot insist that the first claim covering the use of heat broadly is limited to a blast of heat.

4. SAME—COURTS CANNOT ENLARGE OR RESTRICT CLAIMS—MISTAKE IN DRAWING CLAIMS.

It is not within the rightful power of the courts to enlarge or restrict the scope of patents which by mistake were issued in terms too narrow or too broad to cover the invention however manifest the fact and extent of the mistake may be shown to have been.

ON writ of certiorari to the United States Circuit Court of Appeals for the Seventh Circuit.

Mr. Lysander Hill for the petitioner.

No counsel for the respondent.

Mr. Justice MCKENNA delivered the opinion of the Court.

This suit was originally brought for the infringements of three Letters Patent issued to the petitioner as assignee of Amos Perkins. The patents were respectively numbered 501,537, 542,849 and 560,599, and were dated respectively 18th July, 1893, 9th July, 1895 and the 19th of May, 1896. The first, 501,537, was for an improved "Method of repairing asphalt pavements;" the other numbers were for

"Improvement in apparatus for repairing asphalt pavements."

The bill contained the usual allegations of invention and infringement, and prayed an injunction.

The answer admitted the issue of the patents, but denied that Perkins was the original and first inventor of the subject-matter or that the improvements therein disclosed constituted new and useful inventions within the meaning of the patent laws, or that said improvements were not known or used in this country, or had not been patented or described in any printed publication in this or in foreign countries before the alleged invention thereof by Perkins.

The petitioner dismissed the bill as to patent No. 542,349. Upon the hearing the circuit court sustained the apparatus patent No. 560,599, finding that the Assyrian Asphalt Company had infringed upon that apparatus, and ordered an injunction and a reference for an accounting. The method patent No. 501,537 was adjudged invalid, and the court said:

From the evidence in this suit regarding the prior state of the art, and the argument before me, I find that the term "asphalt" is not limited in its meaning to the Trinidad deposit, or the so-called "American mixture," but includes as well the bituminous paving material used in France and elsewhere, comprising natural rock asphalt and compositions of bitumen and lime or sand particles, and that the claims of the Perkins method patent are so broad with reference to the application of heat to the repair of asphalt pavements, that they are anticipated by the Crochet patent, and are invalid.

The petitioner took an appeal to the court of appeals, and that court affirmed the judgment of the circuit court. The case was then brought here by a certiorari.

The proceedings here are only concerned with the method patent No. 501,537. The Letters Patent describe the invention as follows:

My invention is designed to produce a method whereby the repairing of asphalt pavements may be quickly and cheaply accomplished and a neater-appearing pavement be obtained after repairing than has heretofore been the case.

Heretofore in the repairing it has been customary to dig out with a pick or other instrument the surface material around the spot to be repaired, sometimes applying heat to the spot to soften the material so that it may be more easily removed. When the material has been removed the depression thus made is thoroughly cleaned and given a coat or dressing of tar. New material in a heated state has then been placed in the depression and been ironed down and smoothed off in the usual manner of finishing, the tar acting as a solder to hold the new material in place. When completed, however, the line or joint between the old hardened material and the new material has been plainly discernible and more often there has been more or less of a ridge. Again this new block of material, by reason of frost or from other causes, is frequently torn loose from its soldered connection with the old material, thus necessitating new repairs. In practicing my invention, however, I subject the spot to be repaired and the surrounding edges to such a degree of heat that the surface asphalt, not only the exact spot to be repaired but the surrounding portion, to a greater or less degree, is reduced to the soft pliable state in which it is originally laid. With a rake or other suitable instrument it is then agitated and mixed with enough new material to fill up the spot to be repaired. It is then subjected to the usual finishing operation of ironing and burnishing. The heating of the surface may be accomplished in various ways and by means of various forms of apparatus, and while I have herein shown but one form for accomplishing the result, yet I would have it understood that I do not limit myself to any particular form of apparatus for carrying out my invention.

The apparatus described consists of a suitable tank mounted on a wheel for carrying gasolene. The tank is connected with a series of horizontal pipes which carry a series of burners, and "project a flame downward against the pavement."

In carrying out the invention A represents a suitable tank for carrying gasolene mounted on the wheeled frame B and connected by the pipe C with a series of horizontal pipes, D. These pipes D carry a series of burners, E, which pass through a hood or shield, F, and project a flame downward against the pavement. Pressure is then obtained upon the gasolene to force it to the burners and to produce a blast by means of an air-pump, G, mounted upon the tank.

The Letters Patent further say:

The apparatus is also provided with a handle, H, whereby the operator may readily move it to the desired spot. Now as would be seen by turning on as many of the burners as are desired, a strong blast of heat is projected against the surface of the asphalt and readily melts it. As explained above, when it is desired to repair a spot the apparatus is moved adjacent thereto with the burners directly above the spot. These soon reduce the surface asphalt, both at the spot and at the surrounding edges, to a pliable state, the strong blast causing not only the immediate surface, but the particles deep down, to be melted and yet not burned. With a rake or other suitable instrument the operator then agitates or stirs up the softened material, and by adding new material of substantially the same degree of softness the spot or depression to be repaired is filled up and subjected to the usual smoothing and finishing operation as in the case of a new pavement. This, as will be seen, is done without the use of the tar for the purpose of uniting the parts or sections of material, and is done without any distinct dividing-line between the old and new material. In fact, there is no dividing-line, because the new material has been mixed with and becomes a part of the old material. As stated above, while heating the spot to be repaired the surrounding edges or portions must be heated to a greater or less degree, and the new material is worked into these edges as well as in the spot to be repaired, so that when hardened it is practically impossible to tell where the pavement has been repaired.

What I claim is—

1. The method of repairing asphalt pavements, which consists in subjecting the spot to be repaired to heat, adding new material and smoothing and burnishing it, substantially as described.

2. The method of repairing asphalt pavements, which consists in subjecting the spot to be repaired to heat until the material is softened, agitating it and mixing with it new material, and finally smoothing and burnishing it, substantially as described.

Infringement is only asserted of the first claim, and, considering the language of the claim and of the specifications, it seems impossible to escape the conclusion that the invention claimed is for the application of heat to the spot to be repaired. And the patentee did not confine himself to the particular apparatus he described. That, he said, was "one form of accomplishing the result." He would have it understood, he said, that he did not confine himself "to any particular form of apparatus for carrying out" his invention, and the independence of his method from any form of apparatus is brought out by contrast of what had been done and what he proposed to do as an improvement. What had been done was to take out with a pick or other instrument the surface material around the spot to be repaired, sometimes applying heat to the spot to soften the material, so that it might more easily be removed. And the new method he proposed was to subject the spot to be repaired and surrounding edges to such a degree of heat that the surface asphalt, not only the exact spot to be repaired, but the surrounding material, to a greater or less degree, will be reduced to the soft, pliable state in which it was originally laid. Here we have the comparison of the two methods. The old was to take out the surface material around the spot to be repaired, sometimes applying heat to soften such material. The new method was to apply heat, not only to the exact spot to be repaired, but the surrounding edges. What, then, was the advantage of the new method? The patent tells us. In the old method the depression made by the removal of material was "thoroughly cleaned and given a coat or dressing of tar." The tar acted as a solder, but the joint between the old and the new material was discernible, and often a ridge was formed, and the adhesion of the materials yielded to frost and other causes. The new method dispenses with the tar and its consequences. It sub-

stituted the melting of the surrounding edges, producing a union and coalescing of the old and new material, making a better-appearing and more lasting repair. If the method and effect of the patent be different from this, we are unable to discern it from the patent or from the testimony. Indeed, there is no other difference established by the testimony. One of the expert witnesses of the petitioner testified as follows:

It is further evident that in such use of defendants' device and in the repair of pavements in part by the use of said device by defendants, the use of tar or any other cement or "solder" is obviated, that the union between the patch of new material and the old pavement is direct, immediate and complete without the intervention of an interposed body of tar or like material, and that the joint need, therefore, present none of the disadvantages, objections or defects in respect either of appearance or of effectiveness, which distinguished the old tar joint and which are obviated by the method here in controversy.

* * * * * * *

There are three steps or process elements enumerated in this claim, to-wit: first, "subjecting the spot to be repaired to heat;" second, "adding new material;" and third, "smoothing and burnishing." These are all performed in the same order by the defendants. The separate steps, are, moreover, essentially the same in kind in defendants' practice, as set forth in the patent. The heat is applied to the spot to be repaired with a flame-blast. The new material added is the same in condition and character; it is not tar or any part tar, but is solely the asphalt composition like that of the old pavement, and in the soft condition and heated state in which said composition is and was originally applied. The smoothing and burnishing is the same step in both cases, being the old and familiar operation performed by means of heated metal tamping and smoothing irons long before used in leveling and smoothing original asphalt-pavement surfaces.

And he further testified:

It appears to me to be a feature of the patented method, or a characteristic of the steps of applying the new material, that the new material is placed into direct contact with the old, as if the claim read "adding new material in direct contact with the old material and smoothing and burnishing it."

In other words, the mixing of the old and new material around the edges of the excavation and "adding of new material in direct contact with the old material, smoothing and burnishing it," is the essence of the invention, and so unqualifiedly is this true that a witness of petitioner testified that if the heat which was applied not only melted, but burned the immediate surface and as well "the particles deep down," and the material thus burned raked away clean before new material was applied, the method of the patent would be followed.

As thus described, was there anything in the art which preceded the Perkins method and took from it the claim of originality and invention? The circuit court and the circuit court of appeals found that a patent issued to Paul Crochet, June 11, 1880, in France, had that effect, and we concur in the finding. The process described in the Crochet patent is for the "Preparation and recharging of compressed-asphalt roadways." The following is the specification of the patent:

When it was designed to repair or recharge a roadway in asphalt with the means which are now at command, the operator generally delimits with a pick the part which is to be replaced and takes therefrom the asphalt; but it is rare that this operation has not for consequence the starting of the adjacent portions which are sound, swelling them up in such wise that at the end of a little while it is necessary to repair them in their turn.

To avoid this I have designed a process for repairing and recharging asphalt roads which suppresses such inconveniences. It consists in reheating the part to be mended by means of a movable furnace which the operator shifts about at the surface of the roadway until such portion decrepitates and becomes friable. The upper part of the layer of asphalt and that which has been damaged are taken off by means of an iron scraper armed with small teeth, which perform the office of a rake; said scraper in raising the material forms at the same time upon the part remaining numerous strise which render the surface wrinkled and augment the adherence of the additional overthickness which constitutes the recharge.

The repeated passage of the movable furnace thereon has equally for its effect to vaporize the water and the humidity which are found in the asphalt pavement at the portion to be repaired or recharged.

After this preparatory operation, the workman spreads a convenient depth of asphalt in powder-like state and stamps it by the ordinary means; because of the softening of the subjacent layer, said layer solders itself perfectly to the new coat, and forms with it a thickness without break in continuity. Such repair and such recharging do not at all impair the neighboring portions.

It is clearly evident, besides, that the same work of recharging can be done over the whole surface of a street instead of being done in spots, and that it is independent of the depth of the asphalt layer.

The heating apparatus which I have arranged for thus effecting the softening the surface of the asphalt roadways is represented on the drawing annexed, in longitudinal and transverse sections, Figs. 1 and 2. It is composed of a box-body the sides A, A, B, B, of which are perforated throughout, and the bottom C, whereof is formed a grating, below which there is a metal plate, D, to radiate the heat over the surface of the asphalt. Said plate D is movable to allow for the withdrawal of cinders. The box is mounted upon the wheels E, the axes *a* whereof are adjustable upon supports *a*, the elevation of which in guides *b* can be varied to augment or diminish the distance of the box to the roadway. A handle, F, serves to maneuver the car over the pavement. This system, especially applicable for streets of compressed asphalt, can be equally employed to repair and recharge streets of bitumen.

Resume:

I claim as my invention my system for reparation and recharge of asphalt roadways, presenting as distinctive characteristics the points following:

1st. The softening of the upper surface of the asphalt layer at the part to be repaired, and the removal of such upper surface by means of a toothed scraper which striates the part remaining.

2d. Recharging, by the addition upon the surface thus softened, of an asphalt layer of convenient thickness, which is stamped by the usual means.

3d. The movable furnace which I have combined to such end, according to the conditions described and represented.

The similarity, if not identity, of the patents is manifest, and it would seem unnecessary to enlarge upon their resemblance. They are both methods of repairing asphalt roadways; they both apply heat to the spot to be repaired; the old material is removed in the Crochet patent; in the Perkins patent it is reduced to the state in which it was originally laid, then agitated and mixed with new material. But this agitation and mixing of old and new material is not necessary to the method. It may be advisable to do or not to do, a witness testified. But further, the Perkins patent calls for a heating of the surrounding edges of the spot to be repaired, to make continuity between the spot repaired and the surrounding pavement. The Crochet patent has not this detail in words, but it is clearly implied. Describing the prior art, the Crochet patent says:

* * * The operator generally delimits with a pick the part which is to be replaced and takes therefrom the asphalt; but it is rare that this operation has not for consequence the starting of the adjacent portions which are sound, swelling them up in such wise that at the end of a little while it is necessary to repair them in their turn.

His method, he says, "suppresses such inconveniences," and the repeated passing of the heating apparatus over the pavement has the effect that the new coat forms with the old—

a thickness without break in continuity, and it does not at all impair the neighboring portions.

Surely, considering the method of this patent alone, it did not require the exercise of invention to pass to or conceive the Perkins method. Besides, that conception had the aid of other publications. In some of them the application of heat is mentioned as necessary in the original construction of asphalt pavements and also in their repair. In a work entitled *Asphalt, its Origin, its Preparation and its Application*, by Leon Malo, published in Paris in 1888, the repair of pavements after excavations and deteriorations was described.

In making excavations two precautions were recommended, and the second consisted, the author said—

in heating the edge rims of the asphalted bed which limit (*i. e.*, define) the whole trench before pouring in the hot powder destined to repair the part lacking.

And again, as to deteriorations:

The wheels of vehicles encounter the disintegrated parts, digging there a hole which—if it be not promptly repaired—finishes by deepening itself as far as the beton. The sole remedy for this evil is to remove all the bad part and replace it by new asphalt, taking care therein to heat the edges of the sound portion so as to obtain a perfect soldering, as we have explained a little farther back.

The counsel claim, however, that the Perkins "method is characterized by a new and useful way of applying heat to the pavement, to wit, by sending a flame-blast into direct contact with the pavement surface," and that the Crochet patent had no suggestion of that, and besides the Crochet process applied to *compressed-asphalt roadways*, which was a different asphalt roadway than that to which the Perkins method was intended to apply. And upon the difference in the asphalt, counsel has dwelt long and interestingly, but the argument finally comes to a dependence upon the fact that the compressed asphalt of the Crochet patent disintegrates and crumbles, and if overheated becomes as inert as sand; whereas the asphalt of the Perkins patent melts under the action of heat and has—

a peculiar property or "susceptibility," namely, that when its surface is subjected constantly to a lively heat, the exposed material automatically covers itself with a thin, protecting-shield, and merely melts and softens beneath that shield.

The answer to the contentions is that given by the circuit court of appeals; the patent does not support them. Before the time of either patent the world knew that heat disintegrated some things and melted others, and we cannot concede invention to the thought that that might be true of different kinds of asphalt. Indeed, even in the face of the grave testimony contained in this record given by unquestionably expert men, we find it also difficult to concede that it was an exertion of invention to apply heat to the edges of an excavation to make a bond between the old and the new material. To devise an instrument to do that well and quickly might be invention, and that Perkins achieved by his apparatus patent. To allow him more under the facts of this record would be to give him a monopoly of the machine and of that which the machine can do. And this is an answer to the contention based upon the peculiar property of American asphalt to interpose a shield against a blasting heat to protect itself from destruction, a virtue in American asphalt, no doubt. If it is a virtue resulting from a peculiar application of heat, there is nothing in the record to show that Perkins was aware of it. He certainly did not reveal it in the specifications of his patent nor describe it as part of his method. His apparatus, it is true, is provided with burners by which blasts of heat may be projected against the pavement. But his method is independent of his apparatus. He says in his patent:

The heating of the surface may be accomplished in various ways and by means of various forms of apparatus, and while I have herein shown but one form for accomplishing the result, yet I would have it understood that I do not limit myself to any particular form of apparatus for carrying out my invention.

And what is claimed is, as we have seen, "the subjecting the spot to be repaired to heat."

In further answer to the contention we may quote the circuit court of appeals as follows:

Another objection to the proposed limitation of the claim by making it read "a blast of heat," or "a strong blast of heat," in lieu of the unqualified word "heat," is in the fact that the third claim, which contained the additional words, was withdrawn by the patentee upon a ruling or declaration of the Patent Office that the first and third claims were the same in substance and could not both be permitted to remain in the case. That was not merely a casual expression of opinion by an Examiner, but was in effect a requirement that one or the other of the claims be withdrawn, and no reason is perceived for not applying the ordinary rule. Having voluntarily abandoned the claim for a method limited to the use of "a blast of heat," the patentee or his assignee may not now insist that a broad claim, containing no suggestion of such intention, shall nevertheless be subjected by construction to the same restriction. This point, in view of the reservation already considered, is unimportant and might be passed, but it is to be observed that if the third claim was withdrawn by mistake, a correction should have been sought in the Patent Office, either by a surrender and reissue, or possibly by a new application. It is not within the rightful power of the courts to enlarge or restrict the scope of patents which by mistake were issued in terms too narrow or too broad to cover the invention, however manifest the fact and extent of the mistake may be shown to have been.

Decree affirmed.

Court of Appeals of the District of Columbia.

SHARER *v.* MCHENRY.

Decided December 4, 1901.

1. INTERFERENCE—BURDEN OF PROOF—APPLICANT AGAINST PATENTEE.

There is no tendency toward laxity in the application of the rule that a conclusive weight of evidence is necessary to establish priority on the part of an applicant to overcome a regular and formal patent granted to his opponent.

2. SAME—TESTIMONY—UNCORROBORATED STATEMENTS OF INVENTOR.

The uncorroborated testimony of a party as to conception, the making of drawings, and an actual construction of the invention before his rival's invention cannot be accepted, although it may appear plausible.

Mr. J. Walter Douglass for the appellant.

Messrs. Alexander & Dowell for the appellee.

SHEPARD, *J.*:

This is an appeal from the decision of the Commissioner of Patents in an interference proceeding involving the invention of an improvement in drying-kilns.

The issue reads as follows:

1. In a drying-kiln, the combination of the drying-chamber, the furnace for heating the same, an air-inlet at one end of said chamber, an uptake at the receiving end thereof, and smoke-flues exterior to the drying-chamber for conducting smoke to the said uptake; with a valve for establishing direct communication between the upper part of said drying-chamber and said uptake, and valved smoke-flues for establishing communication between the bottom part of said drying-chamber, and said uptake, said valved outlets for the vapors from the drying-chamber, being located at the end of the chamber opposite the air-inlet, and being adapted to be used alternately, substantially as described.

2. In a drying-kiln, the combination of the drying-chamber, a furnace for heating the same at one end thereof, heating-passages beside the furnace; an uptake at the opposite end of the chamber and a smoke-flue under the drying-chamber for conducting smoke to said uptake, a valved opening in the top of the drying-chamber, near the inlet end thereof for establishing direct communication between the upper part of said drying-chamber, and said uptake, and a valved flue for establishing communication between the bottom part of said drying-chamber, and said uptake, said valved outlets for the vapors from the drying-chamber being adapted to be used alternately, substantially as described.

3. In a drying-kiln, the combination of the drying-chamber, an uptake at one end thereof, a furnace under the other end thereof, and smoke-flues under the floor of the drying-chamber for conducting the products of combustion from the furnace to the uptake; with a metallic plate forming part of the top of said flue and of the floor of the drying-chamber and located near the primary outlet of the furnace, so as to be subjected to the most

intense heat therefrom, for the purpose and substantially as described.

4. In a drying-kiln, the combination of the drying-chamber, an uptake at the receiving end thereof, a furnace under the discharge end thereof, and smoke-flues under the floor of the drying-chamber for conducting the products of combustion from the furnace to the uptake; with air-heating passages in the walls of the furnace, communicating with the interior of the chamber, and a metallic plate forming part of the top of said flue and of the floor of the drying-chamber and located near the primary outlet of the furnace so as to be subjected to the most intense heat therefrom, said air-heating passages opening into said drying-chamber at opposite ends of said metallic plate, for the purpose and substantially as described.

5. In a drying-kiln, the combination of the drying-chamber, the uptake at the receiving end thereof, the vertical parallel smoke-flue and vapor-flue communicating with said uptake above the top of the drying-chamber, a valved opening in the top of the drying-chamber near the receiving end thereof directly communicating with said uptake and an opening in the floor of said chamber near the receiving end thereof, communicating with the lower end of said vapor-flue, and a valve in said vapor-flue, said valved opening and said vapor-flue to be used alternately, for the purpose and substantially as described.

6. In a drying-kiln, the combination of the drying-chamber, a furnace under the discharge end of the chamber, air-heating passage in the walls of the furnace, communicating with said drying-chamber through openings in the floor thereof, a smoke-flue underlying the floor of the drying-chamber for conducting the products of combustion from the furnaces to the smoke-flue at the discharge end of the drying-chamber, and a metallic plate forming part of the top of said horizontal smoke-flue and of the floor of the drying-chamber and located near the furnace, for the purpose and substantially as described.

7. In a drying-kiln, the combination of the drying-chamber, the uptake at the receiving end thereof, the vertical smoke-flue and vertical vapor-flue communicating with said uptake, a valved opening in the top of the drying-chamber near the receiving end thereof, directly communicating with said uptake, and an opening in the floor of said chamber near the receiving end thereof, communicating with said vapor-flue, and a valve in said vapor-flue, with a furnace under the discharge end of the chamber, air-heating passages in the walls of the furnace, communicating with said drying-chamber through openings in the floor thereof, a smoke-flue underlying the floor of the drying-chamber for conducting the products of combustion from the furnace to the vertical smoke-flue, and a metallic plate forming part of the top of said horizontal smoke-flue and of the floor of the drying-chamber and located near the air-inlets, for the purpose and substantially as described.

The appellee, McHenry, holds a patent for the invention issued July 18, 1899, upon an application filed October 5, 1898.

The appellant, Sharer, filed his application August 2, 1899, and at the same time requested a prompt declaration of interference with McHenry. This application contains a counterpart of the specifications, claims and drawings of the McHenry patent, and the claims are substantially those embodied in the issue.

Each party testified on his own behalf, at considerable length, and it is upon this evidence, in connection with letters that confessedly passed, and others claimed to have passed, between them, that the determination of the case chiefly depends.

Sharer was a patentee and contractor for the erection of drying-kilns, used principally in brick-making, and McHenry was a practical brick-layer who entered Sharer's employ, first in 1892, and was engaged, from time to time, in constructing kilns for him, or superintending their construction.

Each party claims a conception of the invention of the issue, long antedating his application for a patent—Sharer in 1896, and McHenry in 1894; and their evidence on these points, as well as in respect of reduction to practice, is not certain and satisfactory.

Sharer's contention is, that McHenry obtained the invention from his disclosures and used sketches and descriptions furnished by him (Sharer) as the foundation of his (McHenry's) application, and the model of his drawings.

The Examiner of Interferences rendered a decision in favor of Sharer, which was reversed by the Examiners-in-Chief. Their decision was affirmed on final appeal to the Commissioner.

In the first two of these different decisions, the evidence is reviewed at length and fairly with clear statements of the conclusions therefrom. The points were briefly summed up by the Commissioner whose view coincided with that of the Examiners-in-Chief.

Upon a careful consideration of the entire record, our own conclusion is that the testimony, on behalf of Sharer, is not sufficient to overcome the burden of proof imposed upon him by the condition of McHenry's possession of a regularly-issued patent when his application was made.

This rule in respect of the conclusive weight of evidence necessary to overcome the priority of invention evidenced by a regular and formal patent, has been long established and our observation of its operation in general has had no tendency to incline us toward laxity in its application.

We see no good reason for reviewing the evidence now, as that has been fully and fairly done in the decisions of the Patent Office tribunals that form a part of the record. It may be added that there are some points of weakness in McHenry's case that tend to raise a doubt whether he was the original inventor, particularly of the combinations set out in counts 1, 2 and 5 of the issue, and that justify the limitation of his claims, in respect of date, to the filing of his application.

On the other hand, there is nothing tending to show the conception by Sharer of the iron plates in the floor of the drier specifically included in counts 3, 4, 6 and 7.

And again, notwithstanding the apparent plausibility and good faith of some of Sharer's claims of conception, drawings and embodiment in actual construction, before his rival's entry in the Patent Office, as testified to by himself, he lacks the corroboration that is made essential by another established principle of the patent law. (*Mergenthaler* v. *Scudder*, 11 App. D. C., 264, 278, and cases cited at p. 279.)

The objections to the decision of the Examiner of Interferences in favor of Sharer, would seem chiefly to be, that he overlooked the foregoing principle, as well as failed to enforce, with necessary strictness, the rule requiring proof beyond a reasonable doubt to overcome the patent of his adversary.

Having found no error in the decision of the Commissioner, it will be affirmed, and this decision with the proceedings in this court will be certified to the Commissioner of Patents as the law requires. It is so ordered.

Patents Nos. 691,786 to 692,223.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 98.—No. 4. TUESDAY, JANUARY 28, 1902. Price—$5 per year.

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Total issue	584		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	4	.....	Nevada	1	.....
Arizona Territory	1	.....	New Hampshire	2	.....
Arkansas	.....	.....	New Jersey	23	4
California	14	2	New Mexico Territ'y	.....	.....
Colorado	5	.....	New York	96	20
Connecticut	16	2	North Carolina	3	.....
Delaware	.....	.....	North Dakota	.....	.....
District of Columbia	5	.....	Ohio	44	3
Florida	1	.....	Oklahoma Territ'y	1	.....
Georgia	1	1	Oregon	3	.....
Hawaii Territory	1	.....	Pennsylvania	51	2
Idaho	1	.....	Porto Rico	.....	.....
Illinois	35	4	Rhode Island	4	.....
Indian Territory	.....	.....	South Carolina	.....	.....
Indiana	16	2	South Dakota	4	.....
Iowa	12	.....	Tennessee	2	1
Kansas	4	.....	Texas	3	.....
Kentucky	4	1	Utah	.....	.....
Louisiana	1	1	Vermont	2	.....
Maine	3	1	Virginia	6	.....
Maryland	5	.....	Washington	7	.....
Massachusetts	50	4	West Virginia	1	.....
Michigan	9	1	Wisconsin	10	1
Minnesota	4	1	Wyoming	.....	.....
Mississippi	3	.....	U. S. Navy	1	.....
Missouri	11	3			
Montana	2	.....	Total to citizens of the United States	469	55
Nebraska	7	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	.....	.....	Mexico	.....	.....
Austria-Hungary	1	.....	Netherlands	.....	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	.....	.....	New South Wales	1	.....
Bermuda	.....	.....	New Zealand	.....	.....
Brazil	.....	.....	Norway	1	.....
Canada	6	.....	Queensland	1	.....
Cape Colony	.....	.....	Roumania	.....	.....
Chile	.....	.....	Russia	.....	.....
China	.....	.....	Scotland	4	.....
Colombia	.....	.....	South African Republic	.....	.....
Cuba	.....	.....	South Australia	.....	.....
Denmark	.....	.....	Spain	.....	.....
Egypt	.....	.....	Sweden	2	.....
England	16	.....	Switzerland	3	.....
France	7	.....	Turkey in Asia	.....	.....
Germany	17	.....	Victoria	.....	.....
Guatemala	.....	.....	Western Australia	.....	.....
Haiti	.....	.....			
India	.....	.....	Total to citizens of foreign countries	58	.....
Ireland	.....	.....			
Italy	.....	.....			

Attorneys.

Department of the Interior,
Office of the Secretary,
Washington, D. C., January 17, 1902.

Sir: The Secretary of the Interior has ordered that Harrison S. Vaughn, of Denver, Colo., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Department of the Interior,
Office of the Secretary,
Washington, D. C., January 23, 1902.

Sir: The Secretary of the Interior has ordered that Frederick T. R. Gruett, of Newark, N. J., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk

The Commissioner of Patents

Close of Weekly Issue of Patents.

The weekly issue of patents will close on Thursday, and the patents of that issue will bear date as of the third Tuesday thereafter.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 21, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Jan. 2	Jan. 8	58
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Dec. 30	Jan. 8	200
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Dec. 27	Jan. 7	135
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Dec. 26	Jan. 9	212
57	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Dec. 24	Jan. 7	149
253	X. Carriages and Wagons	Dec. 23	Jan. 10	97
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Dec. 23	Jan. 9	151
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 23	Jan. 8	188
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Dec. 23	Jan. 8	219
251	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Dec. 23	Jan. 8	241
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Dec. 23	Jan. 7	157
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Dec. 23	Jan. 7	140
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Dec. 23	Jan. 7	240
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 23	Jan. 7	163
109	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Dec. 23	Jan. 6	216
125	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Dec. 23	Dec. 28	319
80	IV. Civil Engineering, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Dec. 23	Dec. 26	225
246	I. Tillage, etc., and Fences	Dec. 23	Dec. 23	200
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Dec. 23	Dec. 16	144
133	XXIX. Wood-Working Machines, Coopering and Roofing.	Dec. 22	Jan. 7	134
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 21	Jan. 9	230
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Dec. 21	Jan. 4	309
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Dec. 21	Dec. 6	147
	Between one and two months.			
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Dec. 20	Jan. 7	185

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 18	Jan. 7	207
213	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Dec 18	Dec. 28	198
123	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Dec. 16	Jan. 2	157
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Dec. 16	Dec. 21	414
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 2	Dec. 30	219
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Nov. 25	Dec. 3	299
93	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Nov. 25	Nov. 9	330
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Nov. 23	Nov. 30	371
	Between two and three months.			
245	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Nov. 20	Nov. 20	458
190	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 16	Dec. 10	394
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Nov. 15	Dec. 2	500
248	XVIII. Steam-Engineering, etc	Nov. 15	Nov. 20	429

Total number of applications awaiting action.....8,380

Under one month.			
*Designs	Dec. 30	Jan. 3	190
†Trade-Marks	Dec. 30	Jan. 4	192
‡Labels and Prints	Jan. 16	Jan. 20	9

Complete Applications.

It is hereby ordered that applications shall not be given serial numbers as complete applications and forwarded to the examining divisions for examination (1) when the petition has not been signed by the inventor; (2) when the specification and claims have not been signed by the inventor and the signature attested by two witnesses; (sec. 4888, Rev. Stats.;) (3) when the drawing has not been signed by the inventor or his attorney in fact and the signature attested by two witnesses; (sec. 4889, Rev. Stats.;) and (4) when the oath to the application does not fill the requirements of sections 4897 and 4898, Revised Statutes.

The requirements of section 4896, Revised Statutes, respecting the right of executor or administrator to make application for a patent for the invention of a deceased person must also be observed before the application will be considered as complete and forwarded for examination. The legal requirements in cases where the application is made by a foreign administrator are stated in *ex parte Ransome*, (C. D., 1870, 143.)

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This order, so far as applicable, relates to applications for the registration of trade marks, labels, and prints, which must in all respects comply with the requirements of the statutes.

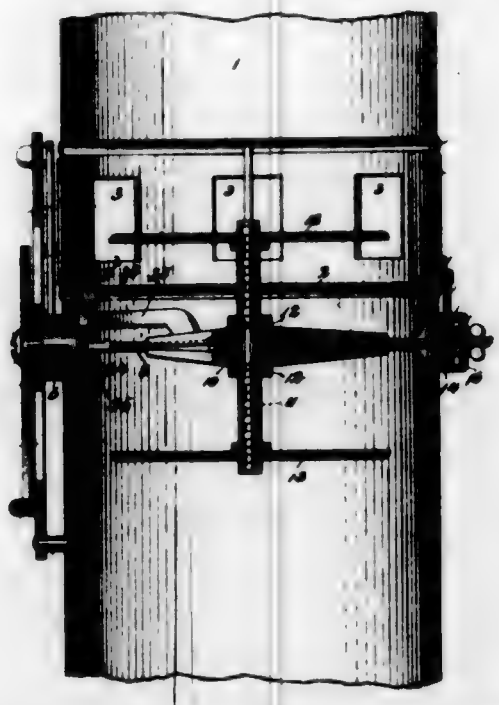
Patents to Assignees.

RULE 301. In every case where it is desired that the patents shall issue to an assignee the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 36.) The date of the record is the date of the receipt of the assignment at the Office.

PATENTS

GRANTED JANUARY 28, 1902.

691,736. **DAMPER.** JOHN W. ANDERSON, Lancaster, Pa. Filed Feb. 2, 1900. Serial No. 3,706. (No model.)



Claim.—1. The combination with a damper frame or ring, provided with radial register-openings; of registers axially swiveled in different planes at opposite sides of the said frame or ring, and provided with radiating leaves each of which is of an area equal to about one-half of each of said register-openings.

2. The combination with a damper frame or ring, provided with radial register-openings; of registers axially swiveled in different planes at opposite sides of said frame or ring, and provided with radiating leaves each of which is of an area equal to about one-half of each of said register-openings; and means for moving said registers in opposite directions.

3. The combination with a stovepipe section; and a damper frame or ring journaled rotatably therein and provided with segmental radiating register-openings; swiveled at opposite sides of the ring and in different planes and registers having radiating segmental leaves for said openings and located at opposite sides of said frame or ring, the leaves of said registers being of less area than that of the said openings; and means for rotating the said damper frame or ring and rotating the registers in opposite directions.

4. The combination with a stovepipe-section; and a damper frame or ring journaled rotatably therein and provided with radiating register-openings; of opposite registers located in different planes at opposite sides of the said frame or ring, and provided with leaves for the openings of less area than the same and with oppositely-disposed rack-arms arranged in different planes; a pinion gearing with the said arms located between the same and carried by the journal of the frame or ring; and means for rotating the same.

5. The combination with a stovepipe-section; and a damper frame or ring journaled rotatably therein and provided with radiating register-openings; of registers located in different planes and at opposite sides of the said frame or ring, and provided with radiating leaves for said openings and of less area than the same, and with oppositely-disposed rack-arms; a pinion arranged intermediate and gearing with the said arms and carried by the journal of the damper-frame; means for rotating the damper-frame as a whole; and independent means for rotating said pinion.

6. The combination with a stovepipe-section; and a damper frame or ring journaled rotatably therein, and provided with radiating register-openings; of registers located in different planes and rotatably mounted at opposite sides of the said damper frame or ring and having radiating leaves of less area than that of the openings; oppositely-disposed rack bars or arms carried by the registers; a pinion arranged intermediate of and gearing at opposite sides with the same, and supported by the journal of the damper-frame; a keeper supported by said journal and loosely engaging the arms or bars; and means for operating the damper frame or ring; and means for rotating the said pinion.

7. The combination with a stovepipe-section; a damper frame or ring having radiating register-openings and a hollow journal located therein; and an operating-lever mounted on the outer end of said hollow journal; of registers arranged in different planes and rotatably mounted at opposite sides of and carried by the damper-frame, and provided with radiating leaves of less area than the openings in said frame or ring; oppositely-disposed rack-arms extending from said registers; a shaft journaled in the hollow journal; a pinion at the inner end of the shaft arranged intermediate of and engaging the rack-bars; an indicating hand at the outer end of the shaft; and a dial over which said hand is adapted to move.

8. The combination with a stovepipe-section; a damper frame or ring having register-openings, and a hollow journal located therein, the outer end of said journal being externally grooved; an operating-lever therefor, the same being provided with a hub having ribs to interlock removably with said grooves of the journal; a stationary dial fitted over the outer end of the journal and serving to retain the said operating-lever thereon; a shaft loosely mounted in the journal and extending beyond the ends thereof; an indicating-hand on the outer end of the shaft adapted to move over the said dial; a pinion on the inner end of the shaft and adapted to move therewith; and a U-shaped guide carried by the shaft; of registers pivotally mounted at opposite sides of the damper ring or frame, and provided with leaves of less diameter than the register-openings; and rack-arms extending in opposite directions from the said registers, engaged by the said pinion and passing between the same and the said guide.

9. The combination with a pipe-section provided with cold-air openings; and a slide for closing the same; of a rotatable damper at a point below the openings; a toothed segment loosely mounted on one of the axes of said damper and adapted to rotate therewith; a rack-bar carried by the slide; a spring for normally pressing the segment out of alinement and engagement with the teeth of the rack-bar; and means for preserving such engagement against the tension of said spring.

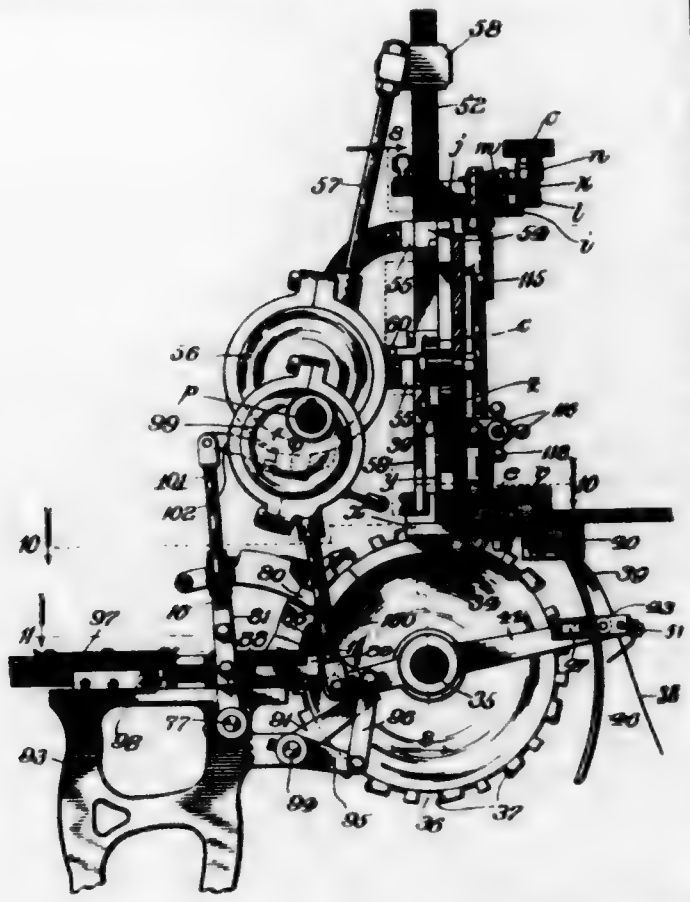
10. The combination with a pipe-section, provided with cold-air openings; and a slide for the same; of a damper rotatably mounted in the section below the openings; means for operating the damper; a rack-bar carried by the slide; a toothed segment for engaging the same carried by one of the journals of the damper; and a yielding connection between said toothed segment and said damper whereby the former may be thrown into and out of engagement with the rack-bar.

11. The combination with a pipe-section having a series of cold-air openings; and a slide for the same; of a damper journaled in the section below the openings; means for rotating the damper; means carried by the damper-journal for operating the slide; and a yielding connection between said slide-operating means and said damper whereby the former may be thrown into and out of operation.

691,787. **CARAMEL CUTTING AND WRAPPING MACHINE.** HARRY Y. ARMSTRONG, Elgin, Ill. Filed May 31, 1901. Serial No. 63,595. (No model.)

Claim.—1. In a machine of the class described, the combination of a rotatable head provided with a series of holders on its peripheral surface, means for feeding a strip of paper adjacent to one of the holders, a pair of feed-wheels for feeding a strip of candy material into the machine, means for cutting the material into cubes of the desired size, means for feeding a strip of paper into the machine between the cut cube of candy and the holders, means for forcing the cut cube of candy with the paper into one of the holders, means for cutting the paper, and means for wrapping the paper around the material, substantially as described.

2. In a machine of the class described, the combination of a rotatable head provided with a series of holders in its peripheral surface, means for feeding a strip of paper adjacent to one of the holders, a pair of indented feed-wheels for feeding a strip of candy material into the machine and adjacent to the holders, a parallel-movable cutter arranged to cut the strip of candy into cubes, means for feeding a strip of paper into the machine between the cut cube of candy and the holder, means for forcing a cut cube of candy with the paper into one of the holders, means for cutting the paper, and means for wrapping the paper around the candy material to complete the package, substantially as described.



face and arranged to rotate in a vertical plane, a supporting-shaft upon which it is mounted, means for imparting a step-by-step rotation to such shaft, means for feeding a strip of candy material into the machine, means for cutting such candy strip into cubes, paper-feeding mechanism vibratingly mounted on the supporting-shaft for feeding a strip of paper into the machine between the cut cube and one of the holding-pockets, means for forcing the cut cube of candy and the strip of paper into one of the holder-pockets which partially folds the paper, a vibratable flexible lever mounted adjacent to the periphery of the rotatable head to perform the next folding operation, a lever pivoted to the frame of the machine provided with a finger for making the next folding operation, means for detachably holding this lever in fixed position to permit it to be vibrated for cleaning purposes, a second vibratable lever pivoted to the frame of the machine and provided with a pair of pivoted fingers for performing the next folding operation and a pair of fixed fingers for performing the succeeding folding operation, means for moving the pivoted fingers out of engagement with the package during the succeeding folding operation and holding them in such position until its vibratable carrying-lever is moved to its initial position, a pair of side plates secured to the first-named fixed lever and spanning the peripheral edges of the rotatable head for performing the next folding operations, a pair of pivoted levers secured to the frame of the machine and provided with upwardly-projecting horns at their inner ends and at the bottom of the holder-pockets for performing the final folding operations, and a pair of vibrating ejecting-levers pivoted to the frame of the machine moving between the ends of the last-named folding-levers to eject the completed package, substantially as described.

12. In a machine of the class described, the combination of a rotatable head provided with a series of holding-pockets in its peripheral surface, a supporting-shaft for rotating such head in a vertical plane, means for feeding a strip of candy into the machine, means for cutting the strip of candy into cubes, a supporting-block forming a paper channel or guide arranged intermediate the periphery of the rotatable head and the candy-feeding mechanism for guiding a strip of paper into position between the cut cube of candy and one of the holding-pockets, a vibratable feed-lever loosely mounted upon the supporting-shaft and provided with gripping mechanism at its outer end to grip the paper during its forward motion and feed it along the paper-channel and release it during its rearward motion to prevent its withdrawal from the machine, means for forcing the cut cube of candy with the end of a strip of paper into one of the holding-pockets, mechanism for wrapping the paper around the candy while it is in the head, and means for ejecting the completed package, substantially as described.

13. In a machine of the class described, the combination of a rotatable head provided with a series of holding-pockets in its peripheral surface, a supporting-shaft upon which it is mounted for rotating it in a vertical plane, a main shaft, intermeshing gear mechanism engaged with both shafts for imparting a step-by-step rotation to the supporting-shaft and its rotatable head, means for feeding a strip of candy into the machine above the rotatable head, means for cutting the strip of candy into cubes, a paper-guide arranged intermediate the rotatable head and the candy-feeding mechanism for guiding a strip of paper into position between the holding-pocket and the cut cube of candy, a bell-crank lever provided with a finger for gripping the paper on the paper-guide to prevent its withdrawal, a depending arm on such bell-crank lever, a vibratable paper-feeding lever loosely mounted on the supporting-shaft and provided with a pinching mechanism at its outer end for gripping the depending arm on the bell-crank lever to raise and lower it during the vibrations of the feeding-lever, gripping mechanism on the outer end of such paper-feeding lever for gripping the paper during the forward or upper movement of the paper-feeding lever to move the paper forward and release it during its retreating movement to prevent the withdrawal of the paper, means for forcing the cut tube of candy with the end of the strip of paper into engagement with one of the holding-pockets to perform the first folding means for performing the remaining folding or wrapping of the paper around a cube of candy while it is in engagement with the head, and means for ejecting the completed package, substantially as described.

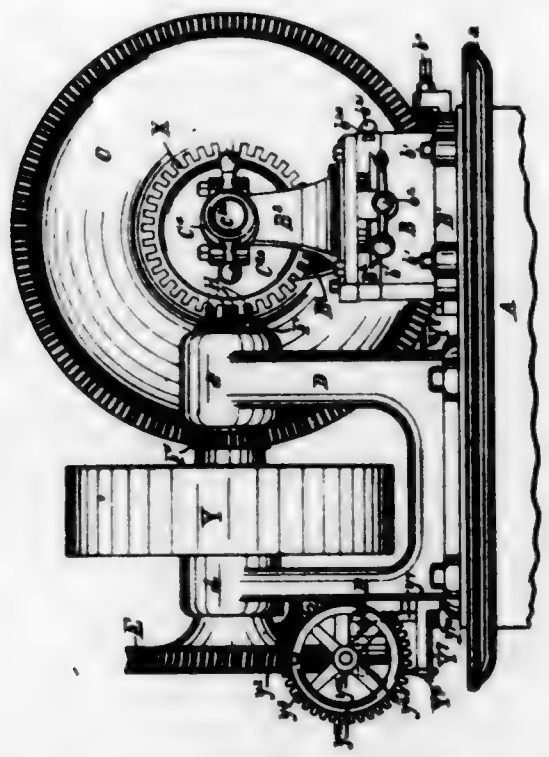
14. In a machine of the class described, the combination of a rotatable head provided with a series of holding-pockets in its peripheral surface, a supporting-shaft upon which it is mounted, means for imparting a step-by-step rotation to the supporting-shaft and rotatable head, means for feeding a strip of candy into the machine, means for cutting the strip of candy into cubes, a paper-guide arranged intermediate the periphery of the rotatable head and the feeding mechanism, a bell-crank lever provided with a pinching-finger arranged adjacent to the paper-guide for gripping the paper at the proper time and preventing its withdrawal from engagement with the machine but permitting it to be fed inwardly, a depending arm on such bell-crank lever, a vibratable paper-feeding lever loosely mounted on the supporting-shaft, a rock-shaft at its outer end provided with a lever carrying two pinching-rolls, one rotatably fixed on such lever and the other rotatably and slidingly mounted thereon engaging the depending arm on the bell-crank lever during both vibrations of the paper-feeding lever and moving it with its rock-shaft a short distance of the movement of such feeding-lever and then rolling over such depending arm during the remaining movement, the engagement of such pinching-rolls and depending arm acting to swing the pinching-lever independently during the vibratory movements of the feeding-lever, a pinching-finger on the pinching-lever rock-shaft arranged to be operated by the movements thereof and grasp and release the strip of paper to feed it forward at the proper times, means for feeding the cut cube of candy and the end of the strip of paper into engagement with one of the holding-pockets, means for cutting off the strip of paper, means for wrapping the paper around the cut cube of caramel while it is in the holder to form the package, and means for ejecting the completed package from its engagement with the holder, substantially as described.

15. In a machine of the class described, the combination of a vertically-rotatable head provided with a series of pockets in its peripheral surface, a supporting-shaft upon which such head is mounted, a main driving-shaft, intermeshing gear mechanism on such shafts to impart a step-by-step rotation to the supporting-shaft and head, a pair of indented feed-rolls arranged to rotate in a horizontal plane and feed a strip of candy into the machine adjacent to the holding-pockets of the rotatable head, stop mechanism for limiting their inward movement, a pair of vertically-arranged shafts for operating such candy-feeding rolls, a pair of intermeshing gears on such shafts to rotate the same, a ratchet secured to one of such intermeshing gears, a pawl-lever vibratingly mounted adjacent to such ratchet and provided with a pawl engaging with the ratchet to rotate it in a forward step-by-step manner, a vibratable intermediate lever secured to the frame of the machine, a connecting-link securing such intermediate lever with the vibratable pawl-lever, a cam on the main shaft engaging such intermediate lever to impart to it the desired vibrations, means for cutting the candy strip into cubes, means for feeding a strip of paper into the machine between the rotatable holder and the cut cube of candy, a vertically-movable plunger arranged to contact the cube of candy and force it and the end of the strip of paper into engagement with one of the holding-pockets to perform the first folding, means for cutting off the strip of paper, means for completing the folding of the paper around the cube of candy during the step-by-step rotation of the holding-head, means for ejecting the completed package from engagement with the head, and mechanism on the main shaft engaging the vertically-movable plunger to give it its proper reciprocating motions, substantially as described.

16. In a machine of the class described, the combination of a rotatable holder provided with a series of pockets in its peripheral surface, a supporting-shaft upon which it is mounted to rotate it in a vertical plane, a main driving-shaft, intermeshing gear mechanism on such shafts for imparting a step-by-step rotation to the supporting-shaft and its head, means for feeding a strip of candy into the machine, a parallel-movable cutter-bar provided with a cutting-blade for cutting the strip of candy into cubes, link mechanism securing such parallel-moving bar to the frame of the machine to permit of the proper movements of the bar, a guiding-rod pivotally secured to such cutter-bar and slidingly mounted in a block on the frame of the machine, a helical tension-spring surrounding such guiding-rod and interposed between it and the block to take up and absorb the unnecessary vibrations of the cutter-bar, cam mechanism on the main shaft for operating the parallel-movable bar, means for feeding a strip of paper into the machine, means for forcing the cut cube of candy with the paper into the machine, means for cutting the paper, means for wrapping the paper around the cut cube of candy, and means for ejecting the completed package from its engagement with the head, substantially as described.

17. In a machine of the class described, the combination of a rotatable head provided with a series of holding-pockets in its peripheral surface and arranged to rotate in a vertical plane, a supporting-shaft upon which it is mounted, a main shaft having gear engagement with the supporting-shaft for imparting a step-by-step rotation thereto, means for feeding a strip of candy into the machine, means for cutting the strip of candy into cubes, means for feeding a strip of paper into the machine between one of the holding-pockets in the rotatable head and the cut cube of candy, means for forcing the cut cube of candy with the end of a strip of paper into engagement with one of the holding-pockets, means for cutting off the strip of paper, comprising a fixed blade, a slidable block to which it is secured, a pivotal blade between which and the fixed blade the paper is grasped and cut, spring mechanism for operating the pivotal blade and furnishing power to perform the cutting, a pivoted dog for holding the pivoted blade in its potential position, means for moving the sliding block backwardly and forwardly to release the pivoted dog and permit the cutting operations and force the pivoted dog into engagement with the pivotal blade to return it to its initial or potential position, means for folding the paper around the candy cube, and means for ejecting the completed package from its engagement with the rotatable head, substantially as described.

691,788. GEAR-CUTTER. EDWARD G. ASHLEY, Rochester, N. Y., assignor, by mesne assignments, to Sager Gear Company. Filed Mar. 21, 1898. Serial No. 674,659. (No model.)



Claim.—1. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of rotary milling-cutters carried by said cutter-head and having their axes of rotation eccentric to the axis of rotation of the cutter-head, means for driving the cutters at cutting speed, means for rotating the cutter-head, and driving mechanism for simultaneously rotating the chuck and the cutter-head with uniform ratio of velocity.

2. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of like rotary milling-cutters carried by said cutter-head and having their axes of rotation equidistant from the axis of rotation of the cutter-head, means for driving the cutters at cutting speed, means for rotating the cutter-head, and driving mechanism for simultaneously rotating the chuck and the cutter-head with uniform ratio of velocity.

3. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of like rotary milling-cutters carried by the cutter-head and having their axes of rotation eccentric to the axis of rotation of the cutter-head, adjusting devices for moving the chuck to and from the cutters, means for driving the cutters at cutting speed, means for rotating the cutter-head, and driving mechanism for simultaneously rotating the chuck and the cutter-head with uniform ratio of velocity.

4. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of like rotary milling-cutters carried by said cutter-head and having their axes of rotation eccentric to the axis of rotation of the cutter-head, means for driving the cutter at cutting speed, means for rotating the cutter-head, a single driving means for driving the cutter and for rotating the cutter-head, and driving mechanism for rotating the chuck with uniform ratio of velocity as to the cutter-head.

5. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of like rotary milling-cutters carried by said cutter-head and having their axes of rotation eccentric to the axis of rotation of the cutter-head, means for driving the cutters at cutting speed, means for rotating the cutter-head, driving mechanism for simultaneously rotating the chuck and the cutter-head with uniform ratio of velocity, mechanism for locking the driving mechanism for the chuck at a definite position in the rotation of the chuck, and coöperating devices for disconnecting the action of the devices for rotating the cutter-head and for rotating the chuck.

6. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of like rotary milling-cutters carried by said cutter-head and having their axes of rotation eccentric to the axis of rotation of the cutter-head, means for driving the cutters at cutting-speed, means for rotating the cutter-head, driving mechanism for simultaneously rotating the chuck and the cutter-head with uniform ratio of velocity, and devices for locking said driving mechanism at a definite position in the rotation of the chuck.

7. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of like rotary milling-cutters carried by said cutter-head and having their axes of rotation parallel to each other and eccentric to the axis of rotation of the cutter-head, means for driving the cutters at cutting speed, means for rotating the cutter-head, driving mechanism for rotating the chuck with a constant velocity ratio as to the cutter-head, and angularly-adjustable bearings for said chuck and for said cutter-head whereby the chuck and cutter-head operate at an angle to each other and in such position that the cutters cut teeth transversely upon a blank in the chuck.

8. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of parallel rotary milling-cutters carried by said cutter-head and having their axes of rotation eccentric to the axis of rotation of the cutter-head, said cutters being rotatable independently of said cutter-head, a driving-pulley, means for rotating the cutter-head from the driving-pulley at one speed, means for rotating each milling-cutter from the driving-pulley at another speed, and driving mechanism for rotating the chuck with uniform ratio of velocity as to the cutter-head.

9. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of parallel rotary milling-cutters carried by said cutter-head and having their axes of rotation eccentric to the axis of rotation of the cutter-head, said cutters being rotatable independently of said cutter-head, a driving-pulley, means for rotating the cutter-head from the driving-pulley at one speed, means for rotating each milling-cutter from the driving-pulley at another speed, driving mechanism for rotating the chuck with uniform ratio of velocity as to the cutter-head, and automatic devices for stopping and locking the chuck at a definite position in the rotation of the chuck.

10. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of parallel rotary milling-cutters carried by said cutter-head and having their axes of rotation eccentric to the axis of rotation of the cutter-head, a driving-pulley, means comprising a worm-gearing for rotating the cutter-head from the driving-pulley at one speed, means for rotating each milling-cutter from the driving-pulley at another speed, means for rotating the chuck with uniform ratio of velocity as to the cutter-head, a clutch for connecting and disconnecting the worm-gearing from the action of the driving-pulley, and devices coöperating with said clutch for locking the chuck at a definite position in its rotation.

11. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, one or more milling-cutters carried by said cutter-head, each having its axis of rotation eccentric to the axis of rotation of the cutter-head, mechanism for automatically feeding said chuck by rotation upon its axis and by positive connection with the cutter-head whereby to cut a series of teeth upon a blank held by said chuck, mechanism for driving said cutters at cutting speed, and mechanism for driving said cutter-head and said chuck simultaneously with uniform ratio of velocity.

12. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, one or more milling-cutters carried by said cutter-head, each having its axis of rotation eccentric to the axis of rotation of the cutter-head, mechanism for automatically feeding said chuck by rotation upon its axis and by positive connection with the cutter-head whereby to cut a series of teeth upon a blank held by said chuck, mechanism for driving said cutters at cutting speed, mechanism for driving said cutter-head and said chuck simultaneously with uniform ratio of velocity, and mechanism for adjusting said chuck toward and from the cutters in a line transverse to the axis of the cutter-head.

13. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, one or more milling-cutters carried by said cutter-head, each having its axis of rotation eccentric to the axis of rotation of the cutter-head, mechanism for automatically feeding said chuck by rotation upon its axis and by positive connection with the cutter-head, whereby to cut a series of teeth upon a blank held by said chuck, mechanism for driving said cutters at cutting speed, mechanism for driving said cutter-head and said chuck simultaneously with uniform ratio of velocity, mechanism for adjusting said chuck toward and from the cutters in a line transverse to the axis of the cutter-head, and stops for determining the extent of movement of said means for adjusting the chuck.

14. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, one or more milling-cutters carried by said cutter-head, each having its axis of rotation eccentric to the axis of rotation of the cutter-head, mechanism for automatically feeding said chuck by rotation upon its axis and by positive connection with the cutter-head, whereby to cut a series of teeth upon a blank held by said chuck, mechanism for driving said cutters at cutting speed, and mechanism for driving said cutter-head and said chuck simultaneously with uniform ratio of velocity, said chuck being carried by cross-slides having adjustable stops for determining the limits of its movement.

15. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, one or more milling-cutters carried by said cutter-head each having its axis of rotation eccentric to the axis of rotation of the cutter-head, mechanism for automatically feeding said chuck by rotation upon its axis and by positive connection with the cutter-head, whereby to cut a series of teeth upon a blank held by said chuck, mechanism for driving said cutters at cutting speed, mechanism for driving said cutter-head and said chuck simultane-

ously with uniform ratio of velocity, and mechanism for locking the chuck at a definite position in the rotation thereof.

16. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, one or more milling-cutters carried by said cutter-head, each having its axis of rotation eccentric to the axis of rotation of the cutter-head, mechanism for automatically feeding said chuck by rotation upon its axis and by positive connection with the cutter-head, whereby to cut a series of teeth upon a blank held by said chuck, mechanism for driving said cutters at cutting speed, mechanism for driving said cutter-head and said chuck simultaneously with uniform ratio of velocity, mechanism for locking the chuck at a definite position in the rotation thereof, and coöperating devices for disconnecting the action of the devices for driving the cutter-head and the chuck.

17. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a rotary milling-cutter carried by said cutter-head and having its axis of rotation eccentric to that of the cutter-head, means for driving the cutter at cutting speed, means for rotating the cutter-head and the chuck simultaneously with uniform ratio of velocity, whereby the cutter moves in a circular path toward and from the chuck while the chuck revolves upon its axis.

18. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a rotary milling-cutter carried by said cutter-head and having its axis of rotation eccentric to that of the cutter-head, means for driving the cutter at cutting speed, mechanism for rotating the cutter-head and the chuck simultaneously with uniform ratio of velocity by positive connection between the chuck and the cutter-head, whereby the cutter moves in a circular path toward and from the chuck while the chuck is revolving upon its axis.

19. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a rotary milling-cutter carried by said cutter-head and having its axis of rotation eccentric to that of the cutter-head and parallel thereto, means for driving the cutter at cutting speed, and mechanism for driving the cutter-head and said chuck simultaneously with uniform ratio of velocity, whereby the cutter moves in a circular path toward and from the chuck while the chuck revolves upon its axis.

20. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a rotary milling-cutter carried by said cutter-head having its axis of rotation eccentric to that of the cutter-head and parallel thereto, means for driving the cutter at cutting speed, and mechanism for driving said cutter-head and said chuck simultaneously with uniform ratio of velocity by positive connection between the chuck and the cutter-head, whereby the cutter moves in a circular path toward and from the chuck while the chuck revolves upon its axis.

21. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a rotary milling-cutter carried by said cutter-head and having its axis of rotation eccentric to that of the cutter-head, means for driving the cutter at cutting speed, means for rotating the cutter-head and the chuck simultaneously with uniform ratio of velocity, whereby the cutter moves in a circular path toward and from the chuck while the chuck revolves upon its axis, and automatic devices for locking said chuck at a definite position in its rotation.

22. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a rotary milling-cutter carried by said cutter-head and having its axis of rotation eccentric to that of the cutter-head, means for driving the cutter at cutting speed, mechanism for rotating the cutter-head and the chuck simultaneously with uniform ratio of velocity by positive connection between the chuck and the cutter-head, whereby the cutter moves in a circular path toward and from the chuck while the chuck revolves upon its axis, and automatic devices for locking said chuck at a definite position in its rotation.

23. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a rotary milling-cutter carried by said cutter-head and having its axis of rotation eccentric to that of the cutter-head, means for driving the cutter at cutting speed, mechanism for rotating the cutter-head and the chuck simultaneously with uniform ratio of velocity by positive connection between the chuck and the cutter-head, whereby the cutter moves in a circular path toward and from the chuck while the chuck revolves upon its axis, automatic devices for locking said chuck at a definite position in its rotation, and coöperating devices for disconnecting the action of the mechanism for rotating the cutter-head and the chuck.

24. In a gear-cutter, the combination of a rotary cutter-head containing a rotary cutter-mandrel eccentric to the axis of the cutter-head, said mandrel having a pinion thereon, a driving-pulley having an internal gear meshing with said pinion, mechanism for driving said cutter-head from said pulley, a rotary chuck, and gearing for driving said chuck from said cutter head.

25. In a gear-cutter, the combination of a rotary cutter-head containing a rotary cutter-mandrel having its axis eccentric to that of the cutter-head, said mandrel having a pinion thereon, a driving-pulley having an internal gear meshing with said pinion, mechanism for driving said cutter-head from said pulley, a rotary chuck, gearing for driving said chuck from said cutter-head, and automatic mechanism for disconnecting the mechanism for driving the cutter-head at a definite position in the rotation of the chuck.

26. In a gear-cutter, the combination of a rotary cutter-head containing a rotary cutter-mandrel having its axis eccentric to that of the cutter-head, said mandrel having a pinion thereon, a driving-pulley having an internal gear meshing with said pinion, mechanism for driving said cutter-head from said pulley, a rotary chuck, gearing for driving said chuck from said cutter-head, automatic mechanism for disconnecting the mechanism for driving the cutter-head at a definite position in the rotation of the chuck, and coöperating mechanism for locking the chuck at said definite position in its rotation.

27. In a gear-cutter, the combination of a rotary cuttter-head containing a series of parallel rotary cutter-mandrels, each mandrel having a pinion thereon, a driving-pulley having an internal gear meshing with said pinions, an external gear upon said driving-pulley, a train of gearing from said external gear to said cutter-head, a rotary chuck, and gearing for driving said chuck from said cutter-head.

28. In a gear-cutter, the combination of a rotary cutter-head containing a series of parallel rotary cutter-mandrels, each mandrel having a pinion thereon, a driving-pulley having an internal gear meshing with said pinions, an external gear upon said driving-pulley, a train of gearing from said external gear to said cutter-head, a rotary chuck, gearing for driving said chuck from said cutter-head, means for connecting and disconnecting said train of gearing, and automatic means for locking the chuck at a definite position in its rotation.

29. In a gear-cutter, the combination of a rotary cutter-head containing a series of parallel rotary cutter-mandrels, each mandrel having a pinion thereon, a driving-pulley having an internal gear meshing with said pinions, an external gear upon said driving-pulley, a train of gearing from said external gear to said cutter-head, a rotary chuck, gearing for driving said chuck from said cutter-head, automatic means for locking the chuck at a definite position in its rotation, and means operating simultaneously with said automatic locking means for disconnecting the action of the driving mechanism from said cutter-head and from said chuck.

30. In a gear-cutter, the combination of a rotary cutter-head containing a series of parallel rotary cutter-mandrels, each mandrel having a pinion thereon, a driving-pulley having an internal gear meshing with said pinions, an external gear upon said driving-pulley, a train of gearing from said external gear to said cutter-head, a rotary chuck, gearing for driving the chuck from said cutter-head, automatic means for locking the chuck at a definite position in its rotation, and means operated by said locking means for disconnecting the action of the driving-pulley from said cutter-head and from said chuck.

31. In a gear-cutter, the combination of a rotary chuck, a cutter-head F containing one or more rotary cutter-mandrels G, each mandrel having a chuck H′ for a cutter and a pinion g' whose teeth protrude through the surface of the cutter-head, a worm-wheel E fastened to said cutter-head, a driving-pulley Y having an internal gear Y^{w} meshing with the pinions of said cutter-mandrels and an external gear y, a worm y^{11} meshing with the worm-wheel E for driving the cutter-head, a worm-shaft y^{4}, a pair of clutch members y^{20}, y^{10} on said worm-shaft y^{4}, a train of gearing from said external gear to one of said clutch members, and driving mechanism for said clutch actuated from said cutter-head.

32. In a gear-cutter, the combination of a rotary chuck, a cutter-head F, fitting in a bearing-box d and containing one or more rotary cutter-mandrels G, each mandrel having a chuck H′ for a cutter and a pinion g' whose teeth protrude through the surface of the cutter-head, a worm-wheel E fastened to said cutter-head having an extended hub e fitting on one end of said cutter and in a bearing-box d', a driving-pulley Y having a hub portion y^{9} fitting upon said extended hub e and within a portion of said box d', an internal gear Y^{w} on said pulley Y meshing with said pinions g, an external gear y upon said driving-pulley, a worm y^{11} meshing with said worm-wheel E, a worm-shaft y^{4}, a pair of clutch members y^{20}, y^{10} on said worm-shaft, a train of gearing from said external gear to one of said clutch members and driving mechanism for said chuck actuated from said cutter-head.

33. The combination of a rotary cutter-head, a series of independently-rotatable cutter-mandrels carried by said head, means for driving said cutter-head and said cutter-mandrels, a chuck device consisting of the clamping-plates C^{10}, C^{20}, the shafts C' C^{2} rotatable in suitable bearings and each carrying one of said clamping-plates, a clamping-rod C^{3} having a collar c^{30} passing through the shaft C^{2} and adapted to be screwed into

the shaft C', whereby to move the plate C^{20} and to clamp a blank between said chuck-plates, a gear-wheel C upon said shaft C', and a gear-wheel F' upon said cutter-head for meshing with said gear-wheel C.

34. The combination of a rotary cutter-head, one or more rotatable cutter-mandrels carried by said cutter-head, a gear-wheel on said cutter-head, a driving-pulley having gearing for rotating said cutter-mandrels, a train of gearing from said pulley to said cutter-head, a chuck device comprising a gear-wheel C for gearing with said gear-wheel on the cutter-head, a socket c^{10} in said gear-wheel C, a spring-bolt C^9 adapted to enter said socket and to lock said gear-wheel and the chuck at a definite position in the rotation of the latter, a rotary circular plate C^8, and having one or more peripheral slots c^6, a pin c^{20} upon the bolt C^9 adapted to enter the slot c^6 when, in the revolution of the plate C^8, the slot registers with the position of the pin, and means for rotating said plate C^8 by said gear-wheel C.

35. In a gear-cutter, a cutting mechanism comprising a series of rotary milling-cutters corresponding in number and diameter with the pins of a pin-gear with which the completed gear-wheel is intended to engage, bearings for said cutters placed at the same radial and circumferential distances apart as said pins, and means for revolving said cutters on their individual and common axes.

36. In a gear-cutter, a series of rotary milling-cutters operatively mounted to correspond with the pins of a pin-gear, a chuck, means for progressively presenting a blank held by said chuck to the successive action of said cutters, and means for rotating the series of cutters and blank relatively to each other at the relative speeds of the members of the completed gearing.

37. In a gear-cutter, a circularly-arranged series of rotary milling-cutters, means for rotating said series on its axis, independent means for revolving said cutters, each on its own axis, at cutting speed, a rotary chuck, means for feeding a blank held by said chuck to the successive action of said cutters, and means for rotating the blank and series of cutters at the relative speeds of the members of the completed gearing.

38. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing surrounding said cutter-head, a cutter-holder set non-concentrically to the axis of the cutter-head and having bearings within the cutter-head, mechanism for operating said cutter-holder, and a single driving mechanism for driving the chuck and the cutter-head simultaneously with uniform ratio of velocity.

39. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing surrounding said cutter-head, a series of cutter-holders each set non-concentrically to the axis of the cutter-head and having bearings within the cutter-head, mechanism for operating said cutter-holders, and a single driving mechanism for driving the chuck and the cutter-head simultaneously with uniform ratio of velocity.

40. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing surrounding said cutter-head, a series of cutter-holders having bearings within the cutter-head, mechanism for operating said cutter-holders and a single driving mechanism for driving the chuck and the cutter-head simultaneously with uniform ratio of velocity.

41. In a gear-cutter, a chuck adapted to turn about an axis and provided with a toothed gear, a cutter-head adapted to turn about an axis and having a toothed gear meshing with the gear of the chuck, a bearing surrounding said cutter-head, a cutter-holder set non-concentrically to the axis of the cutter-head and having bearings within the cutter-head, mechanism for operating said cutter-holder, and a single driving mechanism for driving the chuck and the cutter-head simultaneously with uniform ratio of velocity.

42. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, a cutter-holder within said cutter-head and passing through the same within the bearing, means for producing a cutting movement of the cutter, and means for turning the cutter-head and the chuck simultaneously with uniform ratio of velocity.

43. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, means within said cutter-head for holding a plurality of cutters, said means passing through the cutter-head within the bearing, means for producing cutting movement of the cutters, and means for turning the cutter-head and the chuck with uniform ratio of velocity.

44. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, a cutter-holder within said cutter-head and passing through the same within the bearing, means for producing a cutting movement of the cutter, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, and a single driving mechanism for said intermeshing gears.

45. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, means within said cutter-head for holding a plurality of cutters, said means passing through the cutter-head within the bearing, means for producing cutting movement of the cutters, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, and a single driving mechanism for said intermeshing gears.

46. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, a cutter-holder within said cutter-head and passing through the same within the bearing, means for producing cutting movement of the cutter, and means for turning the cutter-head and the chuck simultaneously with uniform ratio of velocity, comprising a worm mechanism for actuating the same.

47. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, means within said cutter-head for holding a plurality of cutters, said means passing through the cutter-head within the bearing, means for producing cutting movement of the cutters, and means for turning the cutter-head and the chuck with uniform ratio of velocity, comprising a worm mechanism for actuating the same.

48. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, a cutter-holder within said cutter-head and passing through the same within the bearing, means for producing cutting movement of the cutter, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, and a single driving mechanism for said intermeshing gears, comprising a worm mechanism for actuating the same.

49. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, means within said cutter-head for holding a plurality of cutters, said means passing through the cutter-head within the bearing, means for producing cutting movement of the cutters, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, and a single driving mechanism for said intermeshing gears, comprising a worm mechanism for actuating the same.

50. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, a driving-wheel having an internal gear, a pinion attached to said cutter and meshing with said internal gear, and means for turning the cutter-head and the chuck simultaneously with uniform ratio of velocity.

51. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, a driving-wheel having an internal gear, a pinion attached to said cutter and meshing with said internal gear, a toothed gear attached to said chuck a toothed gear attached to said cutter-head and meshing with the gear of the chuck, and means for driving said intermeshing gearing.

52. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, a driving-wheel having an internal gear, a pinion attached to said cutter and meshing with said internal gear, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, and a worm driving mechanism for actuating said intermeshing gear.

53. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, a cutter-holder within said cutter-head and passing through the same within the bearing, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously with uniform ratio of velocity, and means for automatically stopping the action of the driving mechanism.

54. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, means within said cutter-head for holding a plurality of cutters, said means passing through the cutter-head within the bearing, means for producing cutting movement of the cutters, means for turning the cutter-head and the chuck with uniform ratio of velocity, and means for automatically stopping the action of the driving mechanism.

55. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, a cutter-holder within said cutter-head and passing through the same within the bearing, means for producing cutting movement of the cutter, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, a single driving mechanism for said intermeshing gears, and means for automatically stopping the action of the driving mechanism.

56. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, means within said cutter-head for holding a plurality of cutters, said means passing through the cutter-head within the bearing, means for producing

cutting movement of the cutters, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, a single driving mechanism for said intermeshing gears, and means for automatically stopping the action of the driving mechanism.

57. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, a cutter-holder within said cutter-head and passing through the same within the bearing, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously with uniform ratio of velocity, comprising a worm mechanism for actuating the same, and means for automatically stopping the action of the driving mechanism.

58. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, means within said cutter-head for holding a plurality of cutters, said means passing through the cutter-head within the bearing, means for producing cutting movement of the cutters, means for turning the cutter-head and the chuck with uniform ratio of velocity, comprising a worm mechanism for actuating the same, and means for automatically stopping the action of the driving mechanism.

59. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, a cutter-holder within said cutter-head and passing through the same within the bearing, means for producing cutting movement of the cutter, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, a single driving mechanism for said intermeshing gears, comprising a worm mechanism for actuating the same, and means for automatically stopping the action of the driving mechanism.

60. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a bearing for said cutter-head, means within said cutter-head for holding a plurality of cutters, said means passing through the cutter-head within the bearing, means for producing cutting movement of the cutters, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, a single driving mechanism for said intermeshing gears, comprising a worm mechanism for actuating the same, and means for automatically stopping the action of the driving mechanism.

61. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, a driving-wheel having an internal gear, a pinion attached to said cutter and meshing with said internal gear, means for turning the cutter-head and the chuck simultaneously with uniform ratio of velocity, and means for automatically stopping the action of the driving mechanism.

62. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, a driving-wheel having an internal gear, a pinion attached to said cutter and meshing with the said internal gear, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck, means for driving said intermeshing gearing, and means for automatically stopping the action of the driving mechanism.

63. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, a driving-wheel having an internal gear, a pinion attached to said cutter and meshing with said internal gear, a toothed gear attached to said chuck, a toothed gear attached to said cutter-head and meshing with the gear of the chuck worm driving mechanism for actuating said intermeshing gear, and means for automatically stopping the action of the worm driving mechanism.

64. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck and the cutter-head to and from each other.

65. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck and the cutter-head to and from each other in the plane of the axes of both of them.

66. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck and the cutter-head to and from each other by a movement in the plane of the axis of one of them.

67. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter-head, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck and the cutter-head to and from each other by an axial movement of one of them.

68. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck and the cutter-head by axial and transverse movement of one of them.

69. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set an an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck and the cutter-head to and from each other by universal movement in a single plane.

70. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck axially to and from the cutter-head.

71. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck to and from the cutter-head in a plane passing through the axes of both the chuck and the cutter-head.

72. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head, and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, and means for moving the chuck axially and transversely to and from the cutter-head.

73. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, means for moving the chuck and the cutter-head to and from each other, and automatic means for stopping the action of the driving mechanism.

74. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, means for moving the chuck and the cutter-head to and from each other in the plane of the axis of both of them, and automatic means for stopping the action of the driving mechanism.

75. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, means for moving the chuck and the cutter-head to and from each other by a movement in the plane of the axis of one of them, and automatic means for stopping the action of the driving mechanism.

76. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter-head, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, means for moving the chuck and the cutter-head to and from each other by an axial movement of one

of them, and automatic means for stopping the action of the driving mechanism.

77. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, means for moving the chuck and the cutter-head by axial and transverse movement of one of them, and automatic means for stopping the action of the driving mechanism.

78. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, means for moving the chuck and the cutter-head to and from each other by universal movement in a single plane, and automatic means for stopping the action of the driving mechanism.

79. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chucks simultaneously at predetermined ratio of velocity, means for moving the chuck axially to and from the cutter-head, and automatic means for stopping the action of the driving mechanism.

80. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously at predetermined ratio of velocity, means for moving the chuck to and from the cutter-head in a plane passing through the axes of both the chuck and the cutter-head, and automatic means for stopping the action of the driving mechanism.

81. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, the said two axes being set at an angle to each other, a cutter carried by said cutter-head and set non-concentrically to the axis thereof, means for producing cutting movement of the cutter, means for turning the cutter-head and the chuck simultaneously a predetermined ratio of velocity, means for moving the chuck axially and transversely to and from the cutter-head, and automatic means for stopping the action of the driving mechanism.

82. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a gear attached to said chuck, a gear attached to said cutter-head and intermeshing with the gear attached to the chuck, a belt-wheel carrying an internal gear, a cutter carried by said cutter-head, a pinion for driving said cutter and intermeshing with said internal gear, and means for driving said intermeshing gearing.

83. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a gear attached to said chuck, a gear attached to said cutter-head and intermeshing with the gear attached to the chuck, a belt-wheel carrying an internal gear, a cutter carried by said cutter-head, a pinion for driving said cutter and intermeshing with said internal gear, and worm driving mechanism for operating said intermeshing gearing.

84. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a gear attached to said chuck, a gear attached to said cutter-head and intermeshing with the gear attached to the chuck, a belt-wheel carrying an internal gear, a cutter carried by said cutter-head, a pinion for driving said cutter and intermeshing with said internal gear, means for driving said intermeshing gearing, and means for automatically stopping the action of the driving mechanism.

85. In a gear-cutter, a chuck adapted to turn about an axis, a cutter-head adapted to turn about an axis, a gear attached to said chuck, a gear attached to said cutter-head and intermeshing with the gear attached to the chuck, a belt-wheel carrying an internal gear, a cutter carried by said cutter-head, a pinion for driving said cutter and intermeshing with said internal gear, worm driving mechanism for operating said intermeshing gearing, and means for automatically stopping the worm driving mechanism.

86. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a cutter carried by said cutter-head and set eccentrically to the axis thereof, means for producing cutting movement of the cutter, means for rotating the cutter-head and the chuck simultaneously at predetermined ratio of velocity, whereby the cutter moves in a circular path toward and from the chuck, while the chuck revolves upon its axis.

87. In a cutter-head, a cutting mechanism comprising a series of cutters corresponding in number and diameter with the pins of a pin-gear, with which the gear-wheel to be cut is intended to engage, means for supporting said cutters at the same radial and circumferential distances apart as said pins, means for producing cutting movement of said cutters, and means for revolving the set of cutters on a common axis.

88. In a gear-cutter, a series of cutters operatively mounted to correspond with the pins of a pin-gear, a chuck, means for progressively presenting a blank held by said chuck to the successive action of said cutters, means for producing cutting movement of said cutters, and means for rotating the series of cutters and the chuck relatively to each other at the relative speeds of the members of the completed gearing.

89. In a gear-cutter, a circularly-arranged series of cutters, means for rotating said series on its axis, independent means for producing cutting movement of said cutters, a rotary chuck, means for feeding a blank held by said chuck to the successive action of said cutters, and means for rotating the chuck and the series of cutters at the relative speeds of the members of the completed gearing.

90. In a gear-cutter, a circularly-arranged series of cutters, means for producing cutting movement of said cutters, a chuck, means for feeding a blank held by said chuck to the action of said cutters and means for producing relative rotation as between the chuck and the series of cutters at the relative speeds of the members of the completed gearing.

91. In a gear-cutter, a circularly-arranged series of cutters, means for producing cutting movement of said cutters, a chuck, means for feeding a blank held by said chuck to the action of said cutters, means for producing relative rotation as between the chuck and the series of cutters at the relative speeds of the members of the completed gearing, and mechanism for automatically stopping the action of the means for producing the said relative rotation.

92. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a cutter carried by said cutter-head and set eccentrically to the axis thereof, means for producing cutting movement of the cutter, means for rotating the cutter-head and the chuck simultaneously at predetermined ratio of velocity, whereby the cutter moves in a circular path toward and from the chuck, while the chuck revolves upon its axis, and means for moving the chuck and the cutter-head to and from each other.

93. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of cutters carried by said cutter-head and set eccentrically to the axis of rotation of the cutter-head, means for producing cutting movement of the cutters, means for rotating the cutter-head, driving mechanism for simultaneously rotating the chuck and cutter-head at predetermined ratio of velocity, and means for moving the chuck and the cutter-head to and from each other.

94. In a gear-cutter, a cutting mechanism comprising a series of cutters corresponding in number and diameter with the pins of a pin-gear with which the gear-wheel to be cut is intended to engage, means for supporting said cutters at the same radial and circumferential distances apart as said pins, means for producing cutting movement of said cutters, means for revolving the set of cutters on a common axis, and means for moving the chuck and the cutter-head to and from each other.

95. In a gear-cutter, a series of cutters operatively mounted to correspond with the pins of a pin-gear, a chuck, means for progressively presenting a blank held by said chuck to the successive action of said cutters, means for producing cutting movement of said cutters, means for rotating the series of cutters and the chuck relatively to each other at the relative speeds of the members of the completed gearing, and means for moving the chuck and the cutter-head to and from each other.

96. In a gear-cutter, a cutter-head, a cutter set non-concentrically to the axis of the cutter-head, a chuck, means for progressively presenting a blank held by said chuck to the successive actions of said cutter, means for rotating the cutter-head and the chuck relatively to each other at the relative speeds of the members of the completed gearing, and means for moving the chuck and the cutter-head to and from each other.

97. In a gear-cutter, a circularly-arranged series of cutters, means for rotating said series on its axis, independent means for producing cutting movement of said cutters, a rotary chuck, means for feeding a blank held by said chuck to the successive action of said cutters, means for rotating the chuck and the series of cutters at the relative speeds of the members of the completed gearing, and means for moving the chuck and the cutter-head to and from each other.

98. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head having its axis of rotation at an angle to that of the chuck, a rotary milling-cutter carried by said cutter-head and having its axis of rotation eccentric to that of the cutter-head, means for driving the cutter at cutting speed, means for rotating the cutter-head and the chuck simultaneously at predetermined ratio of velocity, whereby the cutter moves in a circular path toward and from the chuck while the chuck revolves upon its axis, and means for moving the chuck and the cutter-head to and from each other.

99. In a gear-cutter, the combination of a rotary chuck, a rotary cutter-head, a series of rotary milling-cutters carried by said cutter-head

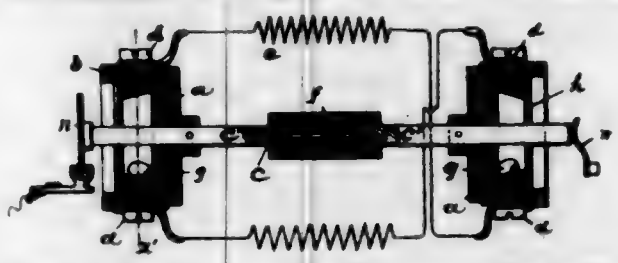
and having their axes of rotation eccentric to the axis of rotation of the cutter-head, means for driving the cutters at cutting speed, means for rotating the cutter-head, driving mechanism for simultaneously rotating the chuck and the cutter-head at predetermined ratio of velocity, and means for moving the chuck and the cutter-head to and from each other.

100. In a gear-cutter, a cutting mechanism comprising a series of rotary milling-cutters corresponding in number and diameter with the pins of a pin-gear with which the completed gear-wheel is intended to engage, bearings for said cutters placed at the same radial and circumferential distances apart as said pins, means for revolving said cutters on their individual and common axes, and means for moving the chuck and the cutter-head to and from each other.

101. In a gear-cutter, a series of rotary milling-cutters operatively mounted to correspond with the pins of a pin-gear, means for progressively presenting a blank held by said chuck to the successive action of said cutters, means for rotating the series of cutters and blank relatively to each other at the relative speeds of the members of the completed gearing, and means for moving the chuck and the cutter-head to and from each other.

102. In a gear-cutter, a circularly-arranged series of rotary milling-cutters, means for rotating said series on its axis, independent means for revolving said cutters, each on its own axis, at cutting speed, a rotary chuck, means for feeding a blank held by said chuck to the successive action of said cutters, means for rotating the blank and series of cutters at the relative speeds of the members of the completed gearing, and means for moving the chuck and the cutter-head to and from each other.

691,739. ELECTRICAL COMMUTATOR. EMILE RATAULT, Geneva, Switzerland. Filed Aug. 9, 1900. Serial No. 26,346. (No model.)



Claim.—1. In a commutator or collector for electrical purposes, a free-rolling body held in relation to the movable contact-making parts of the commutator in a determined position simply by gravity in such a manner that it will automatically roll upon itself and successively enter in electrical contact with the said parts as they move along, substantially as set forth.

2. In a commutator or collector for electrical purposes, a free-rolling contact-making body maintained in a determined position by gravity in such a manner that it will automatically and successively insert the different armature-windings in the electrical circuit in the same manner as do brushes usually employed for this purpose, substantially as set forth.

3. In a commutator or collector for electrical purposes, a movable contact-making globule of mercury maintained in a determined position in the commutator by gravity, a circular chamber in the commutator or collector to receive said globule of mercury which, upon rotation of the commutator, rolls and thus automatically and successively enters into electrical contact with the different members of the armature-windings, substantially as set forth.

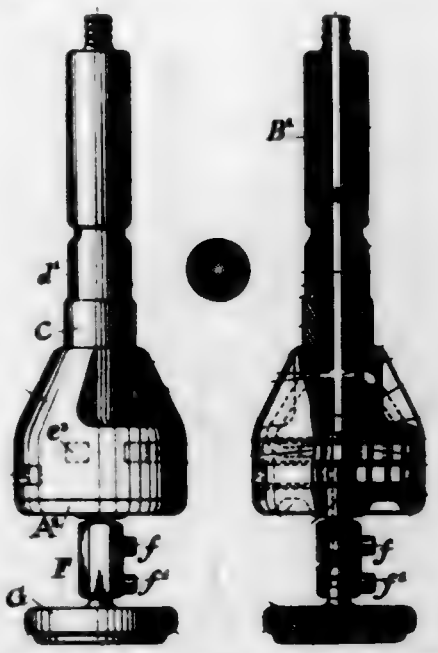
4. In a commutator or collector for electrical purposes, several free-rolling contact-making bodies maintained in a determined position by gravity in such a manner that they will automatically and successively insert the different armature-windings in the electrical circuit in the same way as do brushes, substantially as set forth.

5. In a commutator, the combination with the shaft *c*, having a cup-like appendage movable therewith and comprising a conductive part, a non-conductive part having conductive contacts *d*, and a free-rolling part held within the cup-like part and adapted to electrically connect the contacts *d*, and the first-mentioned conductive part, substantially as set forth.

6. In a commutator, the combination with the shaft, *c*, having a conductive flange and a non-conductive annular part having contacts on its inner sides, of a fluid-conductor contained within said annular part and adapted to electrically connect said contacts and flange, substantially as set forth.

691,740. PNEUMATIC POLISHING-TOOL. JOHN W. BIRKENSTOCK, New York, N. Y., assignor, by direct and mesne assignments, to the Empire Pneumatic Tool Company, New York, N. Y. Filed Feb. 25, 1901. Serial No. 48,777. (No model.)

Claim.—1. A pneumatic grinding and polishing tool, consisting of a tubular spindle for the compressed air, a casing attached to the lower end of said spindle, a paddle-wheel in said casing, having a shaft journaled at the lower end of said spindle, air-supply channels in the spindle and casing for supplying air to diametrically opposite sides of the paddle-wheel, outlet-ports in the casing adjacent to the supply-channels, reversing means for supplying air to one or the other of said supply-channels, and a polishing or grinding tool attached to the lower end of the shaft of the paddle-wheel, so that the spindle-shaft and tool are alined, substantially as set forth.



2. A pneumatic grinding and polishing tool, consisting of a tubular spindle, a casing attached to the lower end of said spindle, a paddle-wheel in said casing, the shaft of which is supported in bearings of the casing, a grinding or polishing tool attached to the lower end of the paddle-wheel shaft, supply-channels connecting the center bore of the spindle with the interior, outlet-ports at opposite sides of the casing, a reversing mechanism interposed between the upper end of the casing and the spindle so as to supply air under pressure to one or the other supply-channels, and means for locking the reversing mechanism in register with either one of the supply-channels, substantially as set forth.

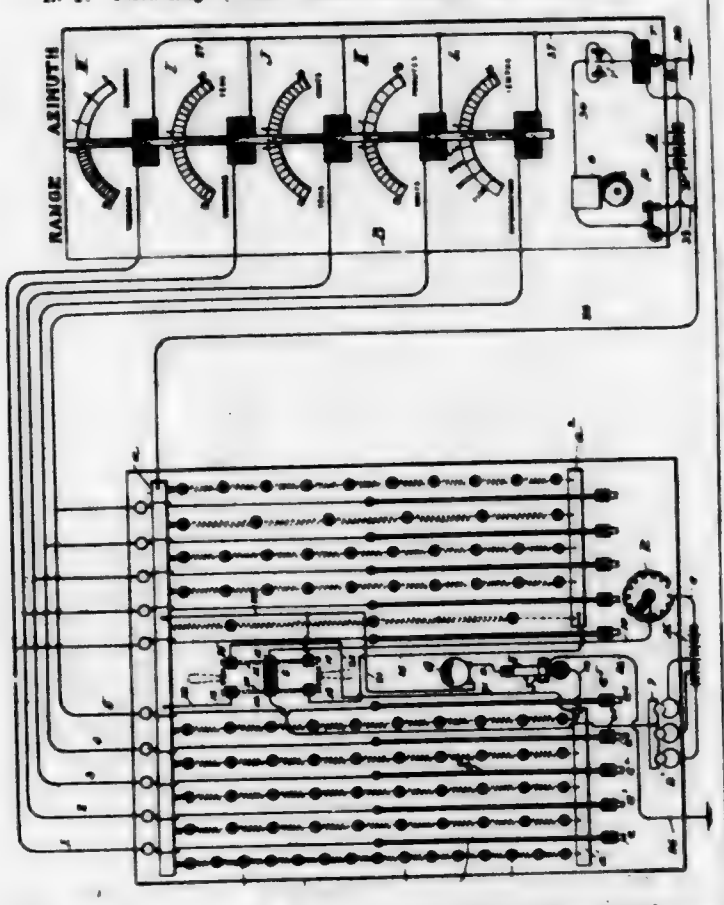
691,741. COMBINED HARROW, CULTIVATOR, AND PLOW. AUSTIN L. BLACKWELL, Leakesville, Miss. Filed June 5, 1901. Serial No. 63,255. (No model.)



Claim.—A farm implement of the class described comprising a frame including a central beam and outside beams mutually connected at their forward ends and diverging rearwardly, a tie-rod connecting the rear end

portions of the beams, handles bolted to the outside beams, braces bolted to the handles and to the rear ends of the outside beams and braces for the standards; the standards being disposed one in front of a handle and having its brace connected to the bolt of the handle, one on the central beam between the handles and having its brace connected to the tie-rod and one behind the second handle and having its brace connected to the bolt of the brace of that handle behind which the standard is disposed.

691,742. RANGE-INDICATOR. ALEXIS LE BLANC, New York, N. Y. Filed May 4, 1901. Serial No. 58,751. (No model.)



Claim.—1. A signaling apparatus consisting of a source of electromotive force, two sets of resistances connected across the terminals of said source, each set consisting of a plurality of variable resistances, a plurality of galvanometers each of which is in a shunt around one resistance in each set of resistances, each galvanometer being adapted to indicate to the right and left of zero on its scale, means for varying the amount of said resistances between the terminals of each shunt, and a switch adapted to first close the shunts around all of one set of resistances, then to open said shunts and close the shunts around all of the other set of resistances to thereby first cause all of said galvanometers to indicate on one side of zero on their scales and then to indicate on the other side.

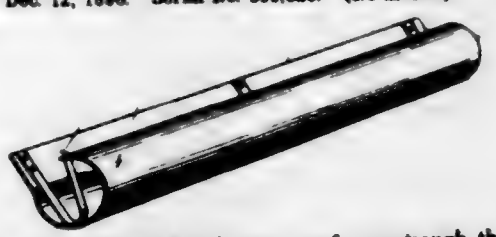
2. A signaling system consisting of a source of electromotive force, a galvanometer located at the transmitting-station, a switch whereby said galvanometer is normally grounded, but is adapted to be put into circuit with said source of electromotive force, resistances connected across the terminals of said source of electromotive force, a receiving-galvanometer in a shunt around said resistances, means for varying the amount of resistance between the terminals of said shunt, a relay connected in circuit with said receiving-galvanometer, a local-alarm circuit controlled by said relay and means whereby said local-alarm circuit can be opened and another circuit closed which includes the galvanometer at the transmitting-station.

691,743. METALLIC GARMENT-BUTTON. GEORGE J. CAPEWELL, Hartford, Conn. Filed Apr. 2, 1901. Serial No. 54,081. (No model.)



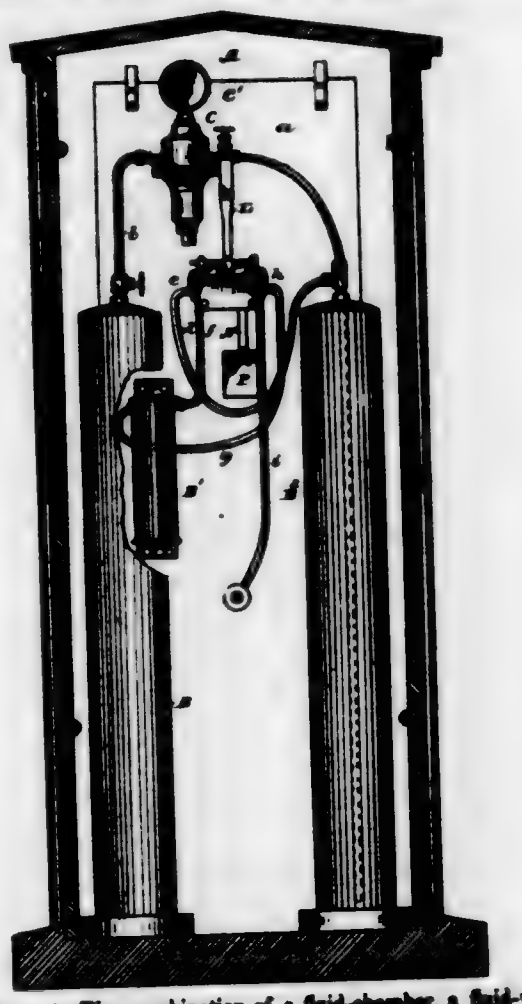
Claim.—A button, consisting of a head with a tubular shank, and a fastener with a stem having a circular base substantially the same in diameter as the interior diameter of the shank and tapering uniformly on two sides from the head to the point which is adapted to engage the inner end of the opening in the shank, and extending on the two sides substantially at right angles thereto, the same diameter as the interior diameter of the shank for more than one-half the distance from the head to the point and then tapering sharply to the point so that the portion of the stem that enters the shank in one plane is substantially the same as the interior diameter of the shank-opening while in a plane at right angles thereto the portion of the stem that enters the shank is considerably less than the interior diameter of the shank, whereby the stem that is expanded in the shank will bind more forcibly against the walls of the opening in one plane than against the walls of the opening in a plane at right angles thereto, substantially as specified.

691,744. EAVES-TROUGH. JOHN C. CARR, Burlington, Ind. Filed Dec. 12, 1898. Serial No. 699,020. (No model.)



Claim.—In a bird, leaf and snow proof eaves-trough, the combination of a main body constructed with a cross-section in the form of a partial circle having one end extending therefrom at a tangent, and adapted to engage said eaves, a holder constructed in a U form having a hook at one end arranged to engage in an eye formed in one edge of said trough and having the other end extending and terminating with perforations arranged to register with similar perforations in the edge of the tangent portion of said trough, and means for securing said holder and trough in position upon the eaves, substantially as described.

691,745. TIRE-INFLATER. JOSEPH H. CHAMP, Cleveland, Ohio. Filed July 16, 1900. Serial No. 23,705. (No model.)



Claim.—1. The combination of a fluid-chamber, a fluid-way providing fluid communication between a fluid-supply source and said chamber and having a valve which controls said communication, a tire-feed device, a fluid-way providing fluid communication between said chamber and said tire-feed device and having a valve which controls said communication, each of said valves having a stem, two levers adapted respectively to engage said two valve-stems, a movable member having cam mechanism adapted to engage said levers, substantially as set forth.

2. The combination of a fluid-chamber, a fluid-way providing fluid communication between a fluid-supply source and said chamber and having a valve which controls said communication, a tire-feed device, a fluid-way providing fluid communication between said chamber and said tire-feed device and having a valve which controls said communication, each of said valves having a stem, two levers adapted respectively to engage

said two valve-stems, a slide-bar having cam mechanism adapted to engage said levers, a rock-shaft, engaging mechanism between said shaft and said slide-bar, substantially as set forth.

3. The combination of a fluid-chamber, a fluid-way providing fluid communication between a fluid-supply source and said chamber and having a valve which controls said communication, a tire-feed device, a fluid-way providing fluid communication between said chamber and said tire-feed device and having a valve which controls said communication, each of said two valves having a spring-pressed stem, a rock-shaft having an arm, a slide-bar having means for engaging said arm and also having two cams, two pivotal levers adapted to engage said cams respectively and also said spring-pressed valve-stems respectively, substantially as set forth.

4. The combination of two fluid-chambers, a fluid-way providing fluid communication between said two chambers and having a valve which controls said communication, a fluid-way providing fluid communication between one of said chambers and a point of fluid-delivery and having a valve which controls said communication, each of said valves having a stem, two levers adapted respectively to engage said two valve-stems, a movable member having cam mechanism adapted to engage said levers, substantially as set forth.

5. The combination of two fluid-chambers, a fluid-way providing fluid communication between said two chambers and having a valve which controls said communication, a fluid-way providing fluid communication between one of said chambers and a point of fluid-delivery and having a valve which controls said communication, each of said valves having a stem, two levers adapted respectively to engage said two valve-stems, a slide-bar having cam mechanism adapted to engage said levers, a rock-shaft, engaging means between said shaft and said bar, substantially as set forth.

6. The combination of two fluid-chambers, a fluid-way providing fluid communication between said two chambers and having a valve which controls said communication, a fluid-way providing fluid communication between one of said chambers and a point of fluid-delivery and having a valve which controls said communication, each of said two valves having a spring-pressed stem, a rock-shaft having an arm, a slide-bar having means for engaging said arm and also having two cams, two pivotal levers adapted to engage said cams respectively and also said spring-pressed valve-stems respectively, substantially as set forth.

7. The combination of a fluid-storage chamber, a fluid-measure chamber, a fluid-way providing fluid communication between said two chambers and having a valve which controls said communication, a tire-feed device, a fluid-way providing fluid communication between said fluid-measure chamber and said tire-feed device and having a valve which controls said communication, each of said valves having a stem, two levers adapted respectively to engage said two valve-stems, a movable member having cam mechanism adapted to engage said levers, substantially as set forth.

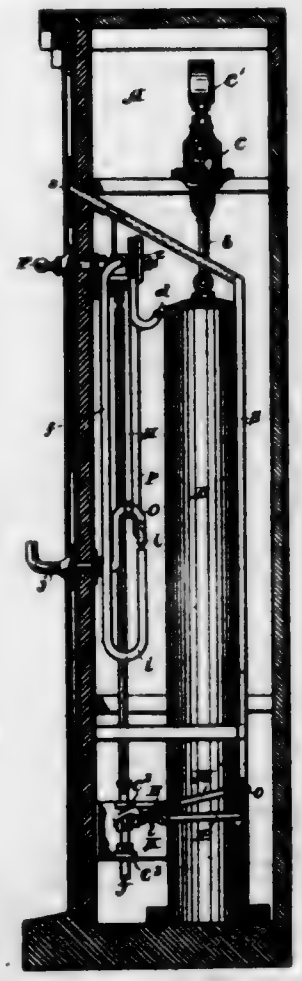
8. The combination of a fluid-storage chamber, a fluid-measure chamber, a fluid-way providing fluid communication between said two chambers and having a valve which controls said communication, a tire-feed device, a fluid-way providing fluid communication between said fluid-measure chamber and said tire-feed device and having a valve which controls said communication, each of said valves having a stem, two levers adapted respectively to engage said two valve-stems, a slide-bar having cam mechanism adapted to engage said levers, a rock-shaft, engaging means between said shaft and said bar, substantially as set forth.

9. The combination of a fluid-storage chamber, a fluid-measure chamber, a fluid-way providing fluid communication between said two chambers and having a valve which controls said communication, a tire-feed device, a fluid-way providing fluid communication between said fluid-measure chamber and said tire-feed device and having a valve which controls said communication, each of said two valves having a spring-pressed stem, a rock-shaft having an arm, a slide-bar having means for engaging said arm and also having two cams, two pivotal levers adapted to engage said cams respectively and also said spring-pressed valve-stems respectively, substantially as set forth.

691,746. COIN-CONTROLLED APPARATUS. JOSEPH H. CHAMP, Cleveland, Ohio. Filed Sept. 25, 1900. Serial No. 31,094. (No model.)

Claim.—1. The combination of a vertically-sliding rack-bar, having a lug, a vertically-swinging dog adapted to engage with said lug, a vertically-swinging trip having a lug adapted to engage with said dog, a vertically-swinging pawl adapted to engage with said rack-bar and said trip, a vertically-swinging bell-crank whose horizontal arm carries a coin-plate and whose depending arm carries a hook adapted to engage a lug on said trip, substantially as set forth.

2. The combination of a vertically-sliding rack-bar, a vertically-swinging bell-crank pawl adapted to engage said rack-bar, a vertically-swinging trip adapted to engage said bell-crank pawl, a vertically-swinging bell-crank hook adapted to engage said trip and carrying a coin-plate, substantially as set forth.



3. The combination of a vertically-movable rack-bar having a lug, a vertically-swinging dog adapted to be engaged by said lug as said bar moves upwardly, a vertically-swinging trip adapted to be engaged by said dog, a vertically-swinging pawl adapted to engage with said rack-bar and said trip, a vertically-swinging bell-crank having a depending hook adapted to be engaged by said trip and carrying a substantially horizontal coin-plate, substantially as set forth.

4. The combination of a longitudinally-sliding rack-bar having a horizontal lug, a vertically-swinging dog having two arms projecting in opposite directions from its pivotal point, a vertically-swinging trip adapted to engage one of said two arms while the other arm engages said horizontal lug on said vertically-sliding rack-bar, a vertically-swinging pawl adapted to engage said rack-bar and said trip, a vertically-swinging bell-crank carrying a coin-plate and having a hook adapted to engage a lug on said trip, substantially as set forth.

5. The combination of a vertically-sliding rack-bar, a vertically-swinging bell-crank pawl having its lower arm adapted to engage with the teeth of said rack-bar, a vertically-swinging trip adapted to have its one arm engage with the horizontal arm of said bell-crank pawl, a vertically-swinging bell-crank whose depending arm is adapted to engage with the remaining arm of said trip and whose horizontal arm carries a coin-plate, substantially as set forth.

6. The combination of a vertically-sliding rack-bar having a horizontal lug, a vertically-swinging dog having two arms respectively projecting in substantially opposite directions, one of said arms adapted to be engaged by said lug in the upward movement of said rack-bar, a vertically-swinging trip adapted to have one arm engage with said remaining arm of said dog, a vertically-swinging bell-crank having a depending hook adapted to engage with the horizontal lug on the remaining arm of said trip, the remaining arm of said bell-crank carrying a coin-plate, substantially as set forth.

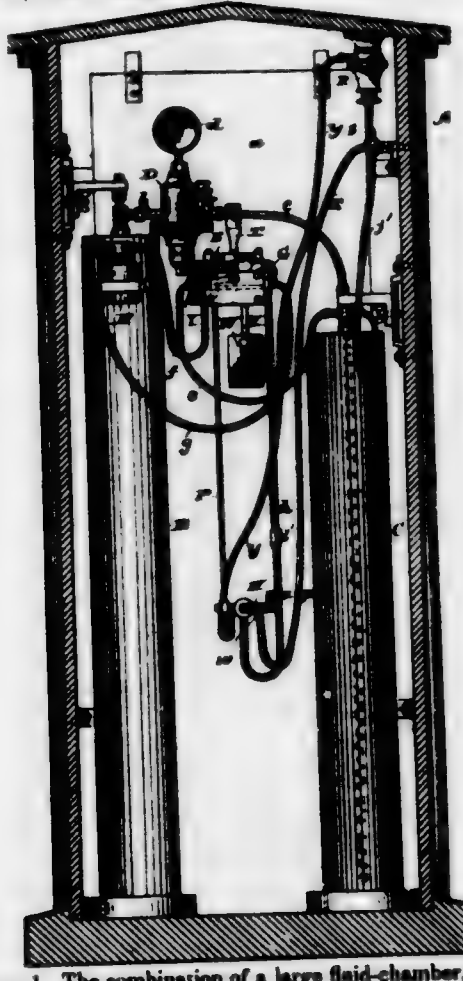
7. The combination of a vertically-sliding rack-bar, a vertically-swinging bell-crank whose depending arm is adapted to engage with said rack-bar and whose horizontal arm is provided with a cam, a vertically-swinging trip having a cam adapted to engage with said pawl-cam, and also having a horizontal lug, a vertically-swinging bell-crank whose horizontal arm carries a coin-plate and whose depending arm carries a hook adapted to engage with said horizontal lug on said trip, substantially as set forth.

8. The combination of vertically-swinging bell-crank N having substantially horizontal coin-plate O and depending hook d' and horizontally pivoted at a point between said plate and hook, vertically-swinging trip P located in a vertical plane adjacent to the vertical plane of said bell-crank and horizontally pivoted at a point nearer to the end portion that is

farthest from said bell-crank, the long arm of said trip having horizontal lug e' located in the same vertical plane with said hook d', the short arm of said trip P having cam g' projecting from its end farthest from the pivotal point of the trip, vertically-swinging bell-crank pawl R having cam f', said cams f' and g' being located in the same vertical plane and adapted to engage each other, depending rack-bar J adapted to have vertical sliding movement and with which said pawl R is adapted to engage, substantially as set forth.

9. The combination of vertically-swinging bell-crank N having substantially horizontal coin-plate O and depending hook d' and horizontally pivoted at a point between said plate and hook, vertically-swinging trip P located in a vertical plane adjacent to the vertical plane of said bell-crank and horizontally pivoted at a point nearer to the end portion that is farthest from said bell-crank, the long arm of said trip having horizontal lug e' located in the same vertical plane with said hook d', the short arm of said trip P having cam g' projecting upwardly from its end farthest from the pivotal point of the trip and also provided with horizontal lug l', vertically-swinging bell-crank pawl R having cam f', vertically-swinging dog Q having arms j'' and k' substantially parallel and projecting in opposite directions, such dog being horizontally pivoted at a point between said two arms, depending rack-bar J adapted to have vertical sliding movement and provided with horizontal lug i', said bell-crank pawl R being in substantially the same vertical plane with said rack-bar J and adapted to engage therewith, said cams f' and g' being located in the same vertical plane and adapted to engage with each other, said lug l' and said arm j'' being located in the same vertical plane and adapted to engage with each other, said arm k' and lug i' being located in the same vertical plane and adapted to engage with each other, substantially as set forth.

691,747. TIRE-INFLATER. JOSEPH H. CHAMP, Cleveland, Ohio. Filed Dec. 7, 1900. Serial No. 39,053. (No model.)



Claim.—1. The combination of a large fluid-chamber, a small fluid-chamber, a third chamber and a movable member therein, a tire-feed device, two fluid-ways, one of said ways providing fluid communication between said small chamber and said third chamber and having a valve which controls said communication, the other one of said ways providing fluid communication between said large chamber and said tire-feed device and having a valve which controls said communication, a mechanical connection between the latter valve and said movable member in said third chamber, substantially as set forth.

2. The combination of a large fluid-chamber, a small fluid-chamber, a tire-feed device, a fluid-way providing fluid communication between said large chamber and said tire-feed device and having a valve which controls said communication, a diaphragm mechanically connected with said valve, a chamber within which said diaphragm is located, a fluid-way providing fluid communication between said small fluid-chamber and said diaphragm-chamber and having a valve which controls said communication, substantially as set forth.

3. The combination of a large fluid-chamber, a small fluid-chamber, a third chamber and a movable member therein, a tire-feed device, three fluid-ways, one of said ways providing fluid communication between said large and small chambers and having a valve which controls said communication, another one of said ways providing fluid communication between said small chamber and said third chamber and having a valve which controls said communication, the remaining one of said ways providing fluid communication between said large chamber and said tire-feed device and having a valve which controls said communication, a mechanical connection between the latter valve and said movable member in said third chamber, substantially as set forth.

4. The combination of a large fluid-chamber, a small fluid-chamber, a tire-feed device, a fluid-way providing fluid communication between said large chamber and said tire-feed device and having a valve which controls said communication, a movable member mechanically connected with said valve, a chamber within which said movable member is located, a fluid-way providing fluid communication between said small fluid-chamber and said tire-feed device and said movable-member chamber and having a valve which controls said communication as between said small fluid-chamber on the one hand and said tire-feed device and said movable-member chamber on the other hand, substantially as set forth.

5. The combination of a large fluid-chamber, a small fluid-chamber, a third chamber and a diaphragm therein, a tire-feed device, four fluid-ways, one of said ways providing fluid communication between said large and small chambers and having a valve which controls said communication, a second one of said ways providing fluid communication between said small chamber and said tire-feed device and having a valve which controls said communication, a third one of said ways providing communication between said tire-feed device and said diaphragm-chamber, a fourth one of said ways providing fluid communication between said large chamber and said tire-feed device and having a valve which controls said communication, a mechanical connection between the latter valve and said diaphragm, substantially as set forth.

6. The combination of a fluid-chamber, a movable tire-feed device a fluid-way providing fluid communication between said chamber and said movable tire-feed device and having a valve which controls said communication, a movable member mechanically connected with said valve, a chamber within which said movable member is located, a fluid-way providing fluid communication between said movable-member chamber and a source of fluid-supply and having a valve which controls said communication, mechanism connecting said movable tire-feed device and said last-named valve whereby movement of said tire-feed device operates said last-named valve, substantially as set forth.

7. The combination of a large fluid-chamber, a small fluid-chamber, a fluid-way which provides fluid communication between said chambers and has a valve which controls said communication, a movable tire-feed device, a fluid-way which provides fluid communication between said small chamber and said movable tire-feed device and has a valve, mechanism connecting said movable tire-feed device and said two valves, said members constructed substantially as set forth whereby movement of said tire-feed device operates said valves, substantially as set forth.

8. The combination of a large fluid-chamber, a small fluid-chamber, a third chamber and a movable member therein, a movable tire-feed device, two fluid-ways, one of said ways providing fluid communication between said small chamber and said third chamber and having a valve which controls said communication, the other one of said ways providing fluid communication between said large chamber and said movable tire-feed device and having a valve which controls said communication, a mechanical connection between the latter valve and said movable member in said third chamber, mechanism connecting said movable tire-feed device and said valve which controls fluid communication between said small chamber and said third chamber whereby movement of said tire-feed device operates said last-named valve, substantially as set forth.

9. The combination of a large fluid-chamber, a small fluid-chamber, a movable tire-feed device, a fluid-way providing fluid communication between said large chamber and said movable tire-feed device and having a valve which controls said communication, a diaphragm mechanically connected with said valve, a chamber within which said diaphragm is located, a fluid-way providing fluid communication between said small fluid-chamber and said diaphragm-chamber and having a valve which controls said communication, mechanism connecting said movable tire-feed device and said last-named valve whereby movement of said tire-feed device operates said last-named valve, substantially as set forth.

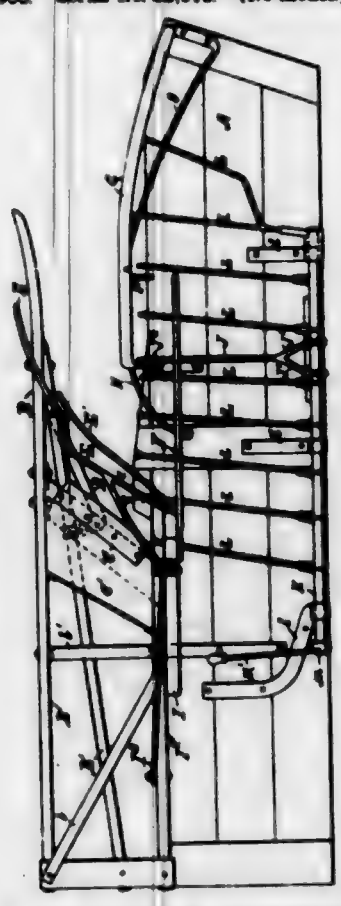
10. The combination of a large fluid-chamber, a small fluid-chamber, a movable tire-feed device, a fluid-way providing fluid communication between said large chamber and said movable tire-feed device and having a valve which controls said communication, a movable member mechanically connected with said valve, a chamber within which said movable member is located, a fluid-way providing fluid communication be-

tween said small fluid-chamber and said tire-feed device and said movable-member chamber and having a valve which controls said communication as between said small fluid-chamber on the one hand and said tire-feed device and said movable-member chamber on the other hand, mechanism connecting said movable tire-feed device and said last-named valve whereby movement of said tire-feed device operates said last-named valve, substantially as set forth.

11. The combination of a large fluid-chamber, a small fluid-chamber, a third chamber and a movable member therein, a movable tire-feed device, three fluid-ways, one of said ways providing fluid communication between said large and small chambers and having a valve which controls said communication, another one of said ways providing fluid communication between said small chamber and said third chamber and having a valve which controls said communication, the remaining one of said ways providing fluid communication between said large chamber and said tire-feed device and having a valve which controls said communication, a mechanical connection between the latter valve and said movable member in said third chamber, mechanism connecting said movable tire-feed device and said valve which controls fluid communication between said large and small chambers whereby movement of said tire-feed device operates said last-named valve, substantially as set forth.

12. The combination of a large fluid-chamber, a small fluid-chamber, a third chamber and a movable member therein, a movable tire-feed device, four fluid-ways, one of said ways providing fluid communication between said large and small chambers and having a valve which controls said communication, a second one of said ways providing fluid communication between said small chamber and said movable tire-feed device and having a valve which controls said communication, a third one of said ways providing communication between said movable tire-feed device and said third chamber, a fourth one of said ways providing fluid communication between said large chamber and said tire-feed device and having a valve which controls said communication, a mechanical connection between the latter valve and said movable member in said third chamber, mechanism connecting said movable tire-feed device and said two first-named valves whereby movement of said tire-feed device operates said two first-named valves, substantially as set forth.

691,748. CORN-HARVESTER. CHARLES COLAHAN, Chicago, Ill. Filed Oct. 13, 1900. Serial No. 33,013. (No model.)



Claim.—1. In a corn-harvester the combination of a stalk-receptacle lying parallel with the row of corn, the outwardly-extending stalk-gathering rod E, the forwardly-inclined adjustable post I, the guiding stop-rod F, the rods E, F, being supported by the post I and the inclined post I being pivoted at I' to the platform-bar I^3 and the rod I^3 holding the post for various positions of adjustment, substantially as shown and described.

2. In a corn-harvester the combination with the knife C and stalk-receptacle of the horizontal stalk-supporting bar J extending the entire width of the platform forward of the knife, and the outwardly and upwardly extending butt-guiding rod H secured at its lower end centrally to the platform at some distance from the corn-passage and intermediate between the knife and the cross-bar J, to direct and guide the lower ends of the stalks inwardly to the center of the platform, and prevent obstruction of the knife, substantially as shown and described.

3. In a platform corn-harvester, the combination of the stalk-guiding rods with the bundle-receptacle and the transverse stalk-supporting bar J near the bottom of the receptacle, its upper surface being straight and also parallel with and extending the entire width of the platform, and the butt-guiding rod H, operating substantially as shown and described.

4. In combination with the knife C, and the stalk-guiding arms B B', the adjustable elbow-shaped guide-finger D pivoted to the arm B' at its front end, at a point forward of the knife, and extending beneath the same rearwardly below the cutting edge of the knife and provided with means of adjustment to admit the entire or partial opening of the throatway, substantially as shown and described.

5. In a corn-harvester a stalk-supporting platform A, combined with the horizontal transverse, raised, central stalk-supporting bar J extending the entire width of the platform and supporting the stalks above the bundle-carrier, the actuating-shaft of the bundle-carrier secured at the outer side of the platform at a point near to and above the stubble of the former cut row of corn, its actuating-lever M' attached at the rear of the shaft within reach of the driver for raising the stalks from the supporting-finger J and discharging the bundle outwardly over the stubble substantially as shown and described.

6. In a corn-harvester the tilting bundle-receptacle and the horizontal transverse raised central stalk-supporting bar J upon which the incoming stalks pivotally adjust themselves parallel with the length of the bundle, combined with the guiding-rod G, the outwardly and upwardly inclined guiding-rod H, secured centrally to the platform operating substantially as shown and described.

691,749. ART OF MAKING DOUGH FOR BREAD. WILLIAM S. CORBY and CHARLES I. CORBY, Washington, D. C. Filed June 6, 1899. Serial No. 719,589. (No specimens.)

Claim.—1. In the art of making dough for fermented or leavened bread, the herein-described process, which consists in first mixing dough ingredients to form them into a moist dough mass, then allowing the mass to stand and be lightened by the action of the yeast or other ferment, and then drawing out, sheeting, and shredding the dough, substantially as set forth.

2. In the art of making dough for fermented or leavened bread, the herein-described process, which consists in making a sponge, permitting this to rise under the action of the ferment, then taking such sponge and the other ingredients to make the complete dough, and thoroughly mixing and aerating them, and drawing out, sheeting, and shredding the dough and then allowing this mass of dough to rise under the action of the ferment, substantially as set forth.

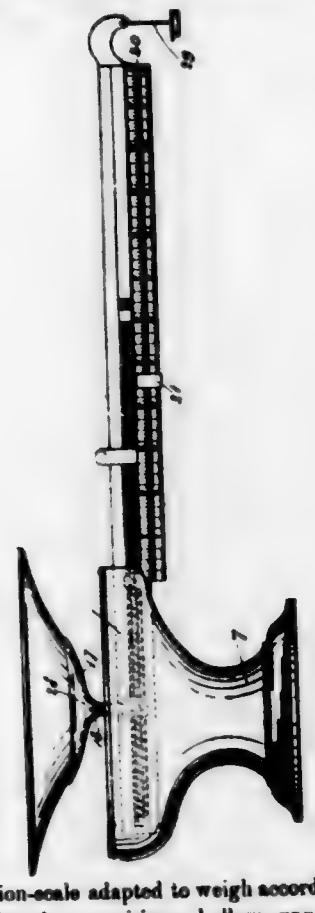
691,750. SCALE. JOSEPH S. CORTELYOU, New York, N. Y. Filed May 6, 1901. Serial No. 58,896. (No model.)

Claim.—1. A scale comprising a circular hollow support, a scale-bar pivoted in one side thereof and projecting therefrom, a longitudinally-arranged screw mounted in said bar and the ends of which are provided with opposite threads, a slide mounted on said bar within said support and through which one end of said screw passes, said slide being threaded to correspond with said screw, and a counterbalance-weight mounted on the outer end of said bar and through which the other end of said screw passes, said slide and said weight being adapted to move toward and from the pivotal support of said bar according to the direction in which the screw is turned, and said slide being provided with a supplemental support which passes upwardly through the top of the main support, said top of the main support being also provided with a longitudinal slot over and parallel with the scale-bar, substantially as shown and described.

2. A scale comprising a hollow support, provided with a slot in the top thereof, a scale-bar pivoted in said support at one side thereof and projecting therefrom, and extending thereinto parallel with said slot, said scale-bar being provided with a longitudinal slot, and a screw placed therein, a supplemental support mounted on the bar within the main support and through which said screw passes, a counterbalance-weight mounted on the outer end of the bar and through which said screw passes, said screw being provided at its opposite ends with opposite threads, and said supplemental support and said counterbalance-weight being correspondingly threaded, and said scale-bar being provided on its opposite sides with a plurality of scales according to separate systems, substantially as shown and described.

3. A scale comprising a hollow support, provided with a slot in the top thereof, a scale-bar pivoted in said support at one side thereof and projecting therefrom, and extending thereinto parallel with said slot, said

scale-bar being provided with a longitudinal slot and a screw placed therein, a supplemental support mounted on the bar within the main support and through which said screw passes, a counterbalance-weight mounted on the outer end of the bar and through which said screw passes, said screw being provided at its opposite ends with opposite threads, and said supplemental support and said counterbalance-weight being correspondingly threaded, and said scale-bar being provided on its opposite sides with a plurality of scales according to the separate systems, and the top plate of the main support being provided on the opposite side of the slot therein with index marks which correspond with the separate systems on the scale-bar, substantially as shown and described.



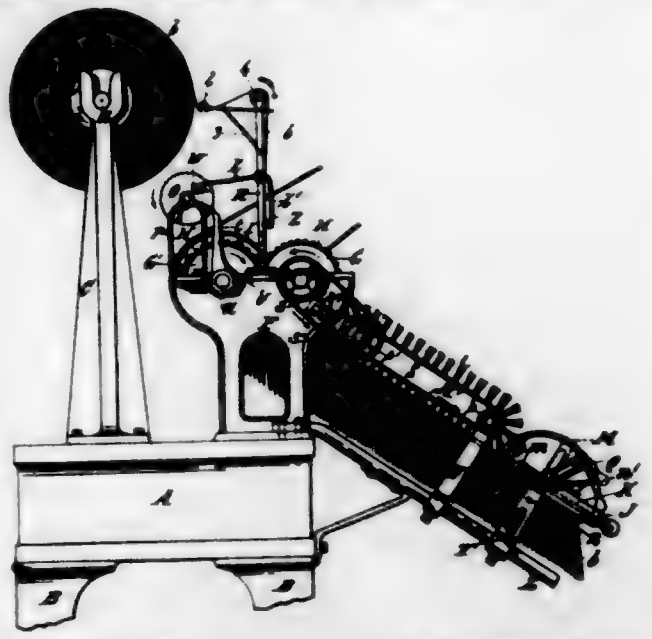
4. A combination-scale adapted to weigh according to different systems of weights, said scale comprising a hollow support provided with a diametrical slot in the top thereof, a scale-bar pivoted in said support at one side thereof below the top thereof and projecting therefrom and thereinto parallel with said slot, a screw mounted in said scale-bar, a slide mounted on said scale-bar within said support and through which said screw passes, a counterbalance-weight mounted on the outer end of the scale-bar and through which said screw passes, the opposite ends of said screw being provided with opposite threads, and said slide and said counterbalance-weight being similarly threaded, said scale-bar being also provided with a plurality of scales according to different systems of weights, and the top plate of the support being provided at the opposite sides of the slot therein with index-marks according to each of said systems, said slide being also provided with a support which passes upwardly through the slot in the top of the main support, the opposite sides of which are provided with an index-mark, and said scale-bar being also provided with a sliding weight which operates as a pointer for each of the scales thereon substantially as shown and described.

5. An apparatus of the class described, comprising a support, having a diametrical slot in the top thereof, a scale-bar pivoted at one side of said support and projecting therefrom and extending thereinto parallel with and beneath said slot, said bar being provided with a longitudinal slot and a screw mounted therein and provided at its opposite ends with opposite threads, a support mounted on one end of said screw and a counterbalance-weight mounted on the other end, said support and said weight being threaded to correspond with the ends of said screw on which they are mounted, said scale-bar being also provided with a plurality of scales according to different systems, substantially as shown and described.

691,751. PAPER-FOLDING MACHINE. HENRY H. CUMMINGS, Malden, Mass., assignor to the National Fibre Board Company, a Corporation of Maine. Filed Sept. 5, 1901. Serial No. 74,360. (No model.)

Claim.—1. In a machine of the character described, the combination with a pair of rolls provided with appliances for folding a continuous strip of paper in alternate directions and perforating the same near each alternate fold, of a needle-rod, adapted to enter the said perforations and receive the folds of paper thrust upon it by the action of said rolls, arranged and to operate substantially as set forth.

2. In a machine of the character described, the combination with a pair of folding and perforating rolls such as herein shown, of a needle-rod adapted to receive the folded paper thereon and two holders for said needle-rod, either one of which may be disconnected from it while the other holds it, substantially as and for the purpose described.



3. In a machine of the character described the following elements: a pair of rolls arranged with appliances for folding and perforating a continuous strip of paper, a needle-rod adapted to receive such paper by the perforations therein, and means for automatically carrying said folds of paper along said rod and away from said rolls substantially as specified.

4. In a machine of the character described, the combination of a pair of folding and perforating rolls, a needle-rod adapted to receive the paper by the perforations therein and means for automatically marking the sheets at regular intervals substantially as herein set forth.

5. The combination of the folding and perforating rolls G G', the needle H' arranged to receive the folds of paper from said rolls, the needle-holder J and the supplementary holder M, all arranged and to operate substantially as shown and described.

6. The combination of the folding and perforating rolls G G', the needle H', adapted to receive the folds of paper from said rolls and the apron S, provided with wires or bristles as shown, and means for moving said apron parallel with said needle substantially as and for the purpose specified.

691,752. HATCH-COVER. WINFIELD W. DAWLEY, Geneva, Ohio. Filed Sept. 23, 1900. Serial No. 31,414. (No model.)



Claim.—The combination with a decked vessel having a hatch and a hatch-coaming therefor, of a hatch-cover extending over and beyond the hatch-coaming, angle-irons fastened to the under side of the cover and having outwardly-extending horizontal members lying snugly against the cover and vertical members extending downward inside of the hatch-coaming, a packing-gasket secured to the under side of the horizontal member of the angle-iron and bearing on the hatch-coaming, transversely-projecting arms fastened to the hatch-cover and extending beyond the same and provided at their ends with trunnions, and stanchions fastened to the deck and having bearings therein for the reception of the trunnions.

691,758. HANDPIECE FOR DENTAL ENGINES. FREDERICK W. DEAR, Des Moines, Iowa. Filed Jan. 5, 1901. Serial No. 42,268. (No model.)

Claim.—1. In a handpiece for dental engines, the combination with the rear shell having a cone-shaped bearing in its forward end, a detachable cable-coupling fitted in its rear end and a reverse-shaped cone-bearing adjustably fitted in said coupling; of a spindle having a cone-shaped journal at each end and mounted in said bearings, a flexible shaft coupled

thereto and a tool-chuck detachably connected therewith substantially as shown and specified.



2. In a handpiece for dental engines the combination with the rear shell having a cone-shaped bearing in its forward and a detachable cable-coupling fitted in its rear end, and a reversed cone-shaped bearing therein of a spindle having a cone-shaped journal at each end and adapted to be seated in said bearings a flexible shaft coupled thereto a forward shell detachably fitted into the forward end of said rear shell and a tool-chuck rotatably mounted in said forward shell, and a clutch connecting said chuck and spindle substantially as shown and described.

3. In a dental handpiece, the combination with the driving-shaft G, the hollow driven shaft B having cross-pin A' and connected to said driving-shaft; of the chuck-carrying spindle K, a slip-joint comprising in construction a forked clutch N, the ends whereof are flared and pointed, whereby it is adapted to enter the hollow drive-shaft and be seated astride the cross-pin therein, and means for operatively connecting said clutch with the chuck-carrying spindle, substantially as shown and described.

4. In a dental handpiece the combination with the shell H having mounted thereon the slide J and mounted therein the slide I connected with slide J and provided with the annular groove as shown; the chuck-carrying shell K operatively mounted in shell H, and slotted in its side adjacent slide I, the chuck L arranged in said shell K and provided with the lever P fulcrumed thereto and arranged with its end protruding the side slot of shell K and terminating within the annular groove of slide I, and with eccentric portions impinging bearings of the interior of shell K, and adapted to be actuated so its eccentric portions will act to force the nose of chuck L hard into shell K, or release such force by actuating the connected slides J and I, substantially as described.

5. In the herein-described handpiece for dental engines, the combination of the spindle B; the clutch N; the tool-chuck L K bearing K and shank K'' thereof, substantially as set forth.

6. In the herein-described handpiece for dental engines the combination with the shell H; the connected slides J and I, the latter slide being provided with the annular flanges as described, the chuck-shell K provided with the journal K' and shank K'', of the chuck L provided with the adjustable collars Q and the lever P fulcrumed to said chuck, substantially as and for the purpose specified.

691,754. SEWING-MACHINE HEMMER. ALBERT H. DEVOE, Chicago, Ill., assignor of one-half to A. H. Simon, Jefferson county, Ky. Filed Sept. 19, 1896. Serial No. 691,307. (No model.)

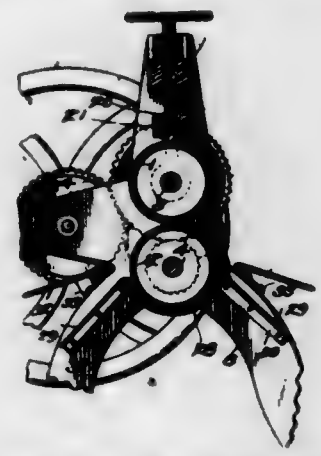
Claim.—1. The presser-foot, provided with the scroll, combined with the spring, attached to said foot and having at its free end the presser part, provided with the rigid tongue.

2. A hemmer presser-foot provided with a turning-scroll and with a presser part or member yieldingly mounted relative to said foot and, rearward of said yieldingly-mounted presser part or member, a tongue which of itself is rigid but which is yieldingly mounted, said tongue extending within and coöperating with said scroll.



3. In a hemmer, a foot having a throat upon the under side thereof in combination with a spring-plate having branching arms, one of said arms supporting a longitudinal bar in the form of an extension from the abutment upon one side of said throat, and a scroll affixed to one of said arms and a tongue affixed to the other of said arms located axially within the scroll and an extension from said arm extending from the opposite throat-abutment parallel to the said longitudinal bar, to hold the hem of the material between them while being folded, substantially as described.

691,755. IRONING-MACHINE. WILLIAM H. DUNN and DELO MCCURDY, Waco, Tex. Filed Oct. 5, 1901. Serial No. 77,715. (No model.)



Claim.—1. A machine of the class described comprising a frame, having an opening at one end and provided with the opposite slotted arms and having a connecting top portion provided with guide-openings, upper and lower rolls, vertically-disposed rods located between the sides of the frame at the inner faces of the slotted arms and carrying the upper roll and having their upper ends arranged in the guide-openings, the journals of the upper roll being extended beyond the rods into the slots of the said arms, a spring connected with the rods, means for adjusting the spring, and operating mechanism, substantially as described.

2. A machine of the class described comprising a frame, upper and lower rolls, the lower roll being adapted to be heated, supports arranged at opposite sides of the lower roll, and the metallic shield located beneath the supports and adapted to prevent the heating device from injuring the clothes, and consisting of the central curved portion arranged close to and conforming to the configuration of the lower roll, and the side portions extending beyond the inner edges of the supports, substantially as described.

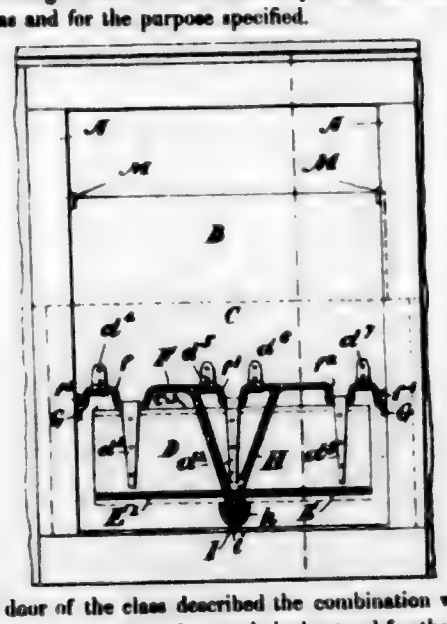
691,756. DOOR FOR GRAIN-CARS. JOHN FLEMER, Parry Sound, Canada. Filed May 13, 1901. Serial No. 60,105. (No model.)

Claim.—1. In a door of the class described, the combination with the body thereof, of an auxiliary door set in an opening in said door-body, the upper and lower edges of said opening and said auxiliary door being beveled with an upward and outward slant, and means for locking and unlocking said auxiliary door, as and for the purpose specified.

2. In a door of the class described, the combination with the body thereof, of an auxiliary door set in an opening in said door-body, the upper and lower edges of said opening and said auxiliary door being beveled with an upward and outward slant, and a crank-hinge connection between said auxiliary door and said door-body and means for locking and unlocking said auxiliary door, substantially as and for the purpose specified.

3. In a door of the class described, the combination with the body thereof, of an auxiliary door set in an opening in said door-body, the upper and lower edges of said opening and said auxiliary door being beveled with an upward and outward slant, and a crank-hinge formed of a rod

bent to form cranks and straight portions, said straight portions being journaled in bearings attached to the door-body, and the cranks being journaled in bearings attached to the auxiliary door, and means for locking said door as and for the purpose specified.



4. In a door of the class described the combination with the door-jambs, the body, the auxiliary door and the bent rod for the crank-hinge, of cranks formed at the extremities of said bent rods, and stops secured to the jambs of the door, said cranks being adapted to engage with said stops as and for the purpose specified.

5. In a door of the class described, the combination with the body thereof, of an auxiliary door set in an opening in said door-body, and a rod bent to form cranks and straight portions alternately, and bearings attached to the door-body in which said straight portions are journaled, and bearings attached to the auxiliary door in which said cranks are journaled, and a substantially V-shaped lever rigidly connected at its upper ends to said rod, and means for locking the lower end of said lever to said body portion as and for the purpose specified.

6. The combination with the body of the door and the auxiliary door set in and hinged to said body of an enlarged lower portion of the body, vertical strengthening-battens attached to the inside of said body, one in proximity to each side thereof, and one in the center thereof, the lower ends of the side battens being sunk in the enlarged lower portion of the body, and a center batten being sprung out and attached at its lower end to said enlarged portions of the body as and for the purpose specified.

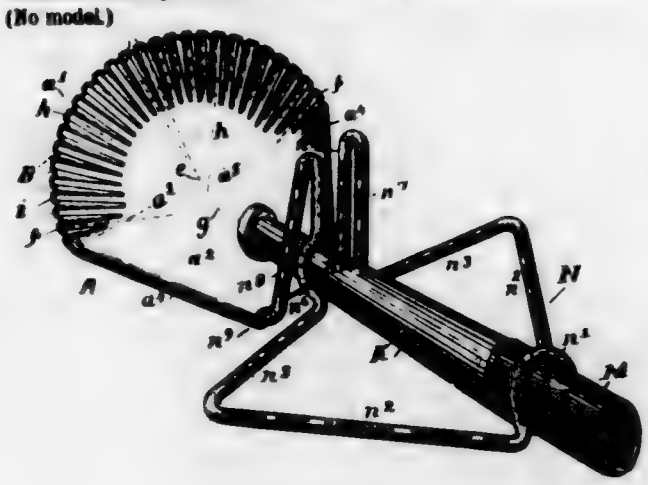
691,757. LEAF-HINGE. WILLIAM M. GAMBLE, Chicago, Ill. Filed Apr. 29, 1901. Serial No. 57,940. (No model.)



Claim.—1. As a new article of manufacture, a leaf-hinge comprising two strips of fabric, each coated on one side with adhesive material and united at their contiguous edges by means of threads extending from one to the other, said contiguous edges being separated by a distinct space across which the threads extend to form the hinge, as set forth.

2. As a new article of manufacture, a leaf-hinge consisting of two strips of adhesive sheet material arranged in parallel relation and at a sufficient distance apart to provide an open intervening space and united by means of a series of thread-stitches of uniform length extending across said space.

691,758. SPRINKLING ATTACHMENT FOR HOSE-NOZZLES. GEORGE L. GAY, Spokane, Wash. Filed Mar. 16, 1901. Serial No. 51,472. (No model.)



Claim.—1. As a new article of manufacture a sprinkling attachment for hose-nozzles, comprising a flat segmental plate having a row of ridges around its edge raised or embossed above the level of the surface of the plate, and forming intervening troughs or waterways having the cross-sectional area of their outer ends substantially equal to that of their inner ends, substantially as and for the purpose specified.

2. As a new article of manufacture a sprinkling attachment for hose-nozzles comprising a flat segmental plate having a row of ridges around its edge raised or embossed above the level of the surface of the plate, with their sides converging inwardly and forming parallel-sided grooves or channels intervening between the ridges and extending above the plane of the plate, substantially as and for the purpose specified.

3. As a new article of manufacture a sprinkling attachment for hose-nozzles comprising a flat segmental plate having a row of wedge-shaped ridges B around its edge raised or embossed above the plane of the surface of the plate, with their sides converging toward the central part of the plate and having the substantially parallel sided grooves or channels i intervening between the ridges and above the plane of the plate, in combination with a deflecting part adapted for attachment to a hose-nozzle, substantially as and for the purpose specified.

4. In sprinkling attachments for hose-nozzles the combination of a distributing-plate and a holder attached thereto comprising a wire bent to form a central loop or saddle adapted to fit upon the hose or its nozzle, side limbs branching outward from the loop and returning inwardly to form a base, upright limbs in continuation of the side limbs adapted to span the end of the nozzle, one of which is provided with a bend forming a receiving-notch for the nozzle, return-limbs in continuation of said upright portions projecting downward to or below said notch, and terminal limbs in continuation of said return-limbs secured to the deflecting-plate, substantially as and for the purpose specified.

5. In a sprinkling attachment for hose-nozzles the combination of a distributing-plate and a holder attached thereto, comprising a wire bent to form a central loop adapted to saddle upon the hose or its nozzle, side limbs branching outward from the loop and returning inwardly to form a base, upright limbs in continuation of the side limbs adapted to span the ends of the nozzle, one of which is provided with a bend forming a receiving-notch for the nozzle, return-limbs in continuation of said upright portions projecting downward below the cross-plane of the notch, and terminal limbs in continuation of said return-limbs extending at an angle with the plane of the hose-nozzle and having the lateral edges of the deflecting-plate wrapped over and upon the same, substantially as and for the purpose specified.

6. In a sprinkling attachment for hose-nozzles the combination of a distributing-plate and a holder attached thereto comprising a wire bent to form the central hose-fitting loop or saddle n', the diverging horizontal limbs n^2, the inwardly-extending limbs n^3, the upright limbs n^4 n^5, the downward return-limbs n^7 n^8 and the outwardly and upwardly branching terminal limbs n^9 having the lateral edges of the deflecting-plate folded around and wrapped upon them, substantially in the manner and for the purposes specified.

891,759. COUPLING FOR ROLLING-MILL SHAFTS. JEROME R. GEORGE and VICTOR E. EDWARDS, Worcester, Mass., assignors to the Morgan Construction Company, Worcester, Mass., a Corporation of Massachusetts. Filed June 11, 1900. Serial No. 19,847. (No model.)



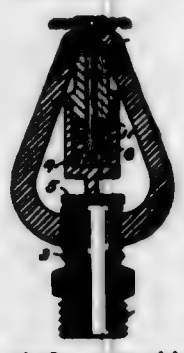
Claim.—1. In a shaft-coupling, the combination with the opposing ends of the shafts, of sleeves attached to said shaft ends and provided with internal, longitudinal grooves and a coupling-bar provided at each of its ends with teeth, or ribs, adapted to engage the walls of said grooves, said bar being capable of longitudinal movement in one of said sleeves to allow its being withdrawn from the opposite sleeve and means for holding said coupling-bar from longitudinal movement in said sleeves, substantially as described.

2. In a shaft-coupling, the combination with shafts having opposing ends in alinement, of collars attached to said shaft ends and provided with internal, longitudinal grooves to receive the ribbed ends of a coupling-bar and a coupling-bar provided with ribs, or teeth, at its ends to engage the internally-grooved sleeves, the grooves in each of said sleeves being a multiple of the teeth, or ribs, on the corresponding ends of said coupling-bar, substantially as described.

3. The combination with a rotating shaft A, of a sleeve C attached

to said shaft and overlapping its end and having longitudinal interior grooves, a shaft B, in alinement with said shaft A, a sleeve E attached to said shaft B and having a flange E', a flanged sleeve F detachably attached to the flange of said sleeve E and having longitudinal interior grooves, of a coupling-bar G provided at its opposite ends with ribs, or teeth, engaging the walls of said grooves in said sleeves C and F, substantially as described.

691,760. AUTOMATIC FIRE-EXTINGUISHER. FREDERICK GRINNELL, New Bedford, Mass., assignor to the General Fire Extinguishing Company, New York, N. Y., a Corporation of New York. Filed Jan. 16 1900. Serial No. 1,622. (No model.)



Claim.—1. An automatic fire-extinguisher having a valve, a strut between said valve and a fixed abutment, and heat-controlled means carried by said strut for forcing the end of said strut out of engagement with said abutment.

2. An automatic fire-extinguisher having a frame, a valve, a strut between said valve and a fixed abutment, a plunger carried by said strut and arranged to engage said frame and dislodge said strut, and heat-controlled means for operating said plunger.

3. An automatic fire-extinguisher having a frame, a valve, a strut between said valve and a fixed abutment, a chamber in said strut, an expansion material in said chamber, a plunger extending into said chamber and arranged to engage said frame and dislodge said strut.

4. An automatic fire-extinguisher having a frame, a valve, a strut between said valve and a fixed abutment, a plunger mounted in said strut, an incline on the end of the plunger arranged to act against said frame, and heat-controlled means for operating said plunger.

5. An automatic fire-extinguisher having a frame, a valve, a strut between said valve and a fixed abutment, a plunger mounted in said strut, an incline on said frame arranged to be engaged by the end of said plunger, and heat-controlled means for operating said plunger.

6. An automatic fire-extinguisher having a frame, a valve, a strut 6 between said valve and a fixed abutment 7, a chamber 9 in said strut, an expansion material in said chamber, a plunger 8 extending into said chamber, an incline 12 on the end of said plunger, and an incline 13 on said frame engaged by said incline 12.

7. An automatic fire-extinguisher having a frame, a spherical valve, a strut integral therewith and engaging a fixed abutment, a plunger carried by said strut and arranged to engage said frame and dislodge said strut, and heat-controlled means for operating said plunger.

8. A strut for an automatic fire-extinguisher having a chamber, an expansion material therein, and a plunger extending into said chamber.

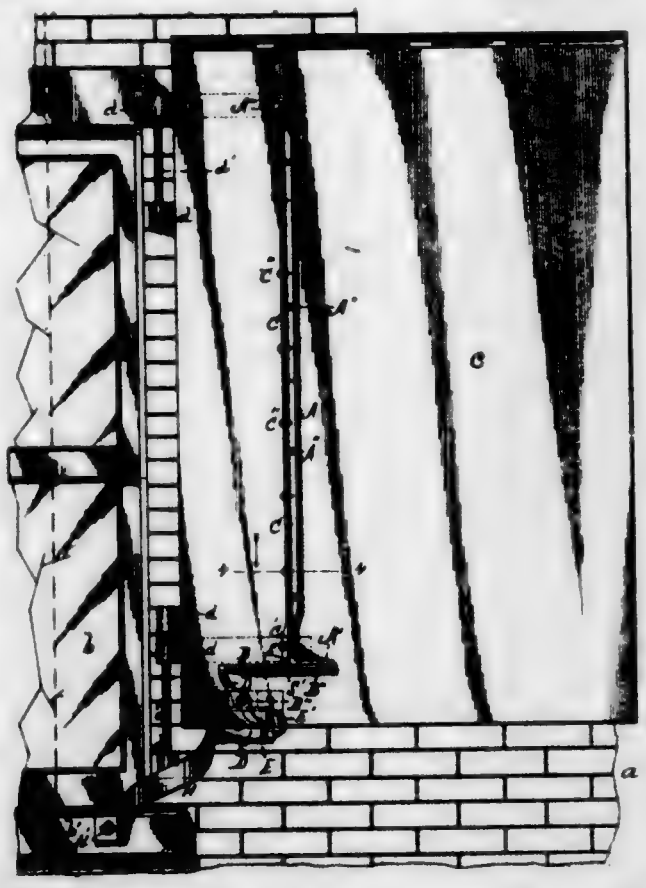
9. A strut for an automatic fire-extinguisher having a chamber 9, a plug 10 closing said chamber, an expansion material in said chamber, and a plunger 8 extending through said plug 10.

691,761. FIREPROOF SHUTTER. JOHN R. GUILD, Worcester, Mass. Filed May 1, 1901. Serial No. 58,268. (No model.)

Claim.—1. In an attachment of the character described for fireproof shutters, an inclined track supported by the building; a fireproof shutter hinged to the building and locked in an open position; a bar formed of a material which is particularly expansible by the action of heat, supported by the shutter; and mechanism adapted to be operated by the expansion of the bar whereby the shutter is released and allowed to swing into a closed position by sliding down the inclined track, substantially as described.

2. In an attachment of the character described for fireproof shutters, an inclined track supported by the building; a fireproof shutter hinged to the building in a raised position and locked in an open position; a bar formed of material which is particularly expansible by the action of heat, supported by the shutter; and mechanism adapted to be operated by the expansion of the bar whereby the shutter is released and allowed to drop upon the inclined track and swung into a closed position by sliding down said track, substantially as set forth.

3. In an attachment of the character described for fireproof shutters, an inclined spiral track supported by a building; a fireproof shutter hinged to the building in a raised position; a bar supported by the shutter and formed of a material which is particularly expansible by the action of heat; mechanism for supporting said shutter in such raised position; mechanism intermediate of the supporting mechanism and the expansible bar whereby the application of heat to said bar releases the supporting mechanism and allows the shutter to drop; and suitable antifriction means whereby the shutter when it drops onto the track is facilitated in sliding down said track and swinging into a closed position, substantially as described.



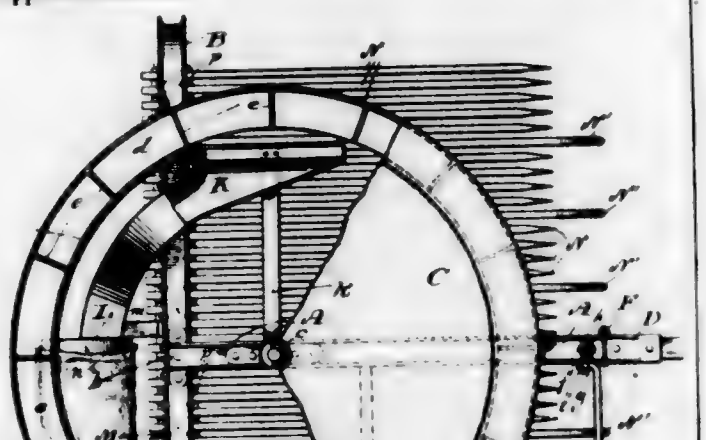
4. In an attachment of the character described for fireproof shutters, an inclined track supported by the building; a fireproof shutter hinged to the building; a bar A supported by the shutter; the relatively expansible bar C supported by the bar A in a manner to allow downward movement to the bar C; the bar B secured to the bar A and extending therefrom across the lower end of the bar C; the catch E, E' hinged to the building; the pawl D hinged to the shutter and normally in engagement at its opposite ends with the bar B and the catch, said catch and pawl holding the shutter normally in a raised position; and the inclined spiral track H secured to the building, whereby the expansion of the bar C by the application of heat disengages the parts B, D, E, E' aforesaid and allows the shutter to drop upon said track, substantially as set forth.

5. In an attachment of the character described for fireproof shutters, an inclined track supported by the building; a fireproof shutter hinged to the building; the bar A supported by the shutter; the relatively expansible bar C supported by the bar A in a manner to allow downward movement to the bar C, said bar C being formed on the inner side of the lower end of its foot C' with the beveled surface S; the bar B secured to the bar A and extending therefrom across the lower end of the bar C, said bar B being formed with the recess S' directly under the space formed by said beveled portion S; the catch E, E' hinged to the building; the pawl D hinged to the shutter and normally in engagement at its opposite ends with the bar B and the catch, said catch and pawl holding the shutter normally in a raised position; and the inclined spiral track H secured to the building, whereby the expansion of the bar C by the application of heat disengages the parts B, D, E, E' aforesaid and allows the shutter to drop upon said track, substantially as described.

691,762. COTTON-HARVESTER. PETER P. HARRIL, Beaverdam Wis., and PETER F. HARRIL, Shreveport, La. Filed Aug. 1, 1901. Serial No. 70,452. (No model.)

Claim.—1. A cotton-harvester having wheels provided with pockets circumferentially thereof open toward the hubs, rails horizontally parallel central of the machine in the direction of its draft, hoppers arranged to discharge into the pocket-spaces of the wheels under said hubs, spouts arranged to have their upper ends over the wheel-hubs, under said pocket-spaces, rear shields concentric with said wheels inside the same between the hoppers and upper ends of the spouts, means for holding open bags in suspension under said spouts, and forwardly-converging fingers in series connected to vertical rear portions of the machine-frame above the aforesaid rails.

2. A cotton-harvester having wheels provided with pockets circumferentially thereof open toward the hubs, rails horizontally parallel central of the machine in the direction of its draft, hoppers arranged to discharge into the pocket-spaces of the wheels under said hubs, spouts arranged to have their upper ends over the wheel-hubs under said pocket-spaces, shields concentric with said wheels inside the same between the hoppers and upper ends of the spouts, means for holding open bags in suspension under said spouts, forwardly-converging pointed fingers in series connected to vertical rear portions of the machine-frame above the aforesaid rails, and other forwardly-converging but longer fingers also connected to said vertical portions of the machine-frame at greater intervals apart than those aforesaid and having their forward ends outwardly curved in opposite directions.



3. A cotton-harvester having the cross-bars of thills in adjustable connection with its frame and provided with wheels having pockets circumferentially thereof open toward the hubs, rails horizontally parallel central of the machine in the direction of its draft, hoppers arranged to discharge into the pocket-spaces of the wheels under said hubs, spouts arranged to have their upper ends over the wheel-hubs under said pocket-spaces, rear shields concentric with said wheels inside the same between the hoppers and upper ends of the spouts, means for holding open bags in suspension under said spouts, and forwardly-converging fingers in series connected to vertical rear portions of the machine-frame above the aforesaid rails.

4. A cotton-harvester having a frame comprising horizontal beams and a vertical bow in connection with the beams, spindles in union with said beams, wheels on the spindles provided with circumferential pockets open toward the hubs, rails horizontally parallel central of the machine in the direction of its draft, hoppers arranged to discharge into the pocket-spaces of the wheels under said hubs, spouts arranged to have their upper ends over the wheel-hubs under said pocket-spaces, rear shields concentric with said wheels inside the same between the hoppers and upper ends of the spouts, means for holding bags open in suspension under said spouts, and forwardly-converging fingers clamped at their rear ends against inner vertical portions of the aforesaid bow above the aforesaid rails.

691,768. DENTAL INSTRUMENT. WILLIAM R. HARPER, Chicago, Ill. Filed Mar. 26, 1900. Serial No. 10,249. (No model.)



Claim.—As a new article of manufacture, a dental instrument which comprises a handle having its one end bent upwardly and provided with an enlarged head having a socket formed therein, said socket having plain walls with the upper wall thereof angularly disposed with relation to the handle and a plugger having a shank held in said socket by frictional contact with its one end abutting against said upper wall of the socket whereby the lines of force wher the tool is in use are exerted upon said end of the plugger-shank and the upper wall of the socket and distributed along the said upwardly-bent end, substantially as described.

691,764. MECHANICAL STOKER. THEODORE H. HARRISON, Middletown, Ohio. Filed Oct. 31, 1901. Serial No. 79,338. (No model.)

Claim.—1. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a circular tube disposed concentric with the floor of the stoker-basin and extending longitudinally therefrom below the fire-room floor and to a point distant from the front of the furnace, a longitudinal opening in the top of said tube at its end farthest from the furnace, a coal-bin provided with a slope-board and a check-board at the opposite ends of said longitudinal opening, a feed-screw disposed within said tube and extending continuously through the same and lengthwise of said longitudinal opening therein and lengthwise into the stoker-basin, and mechanism for rotating said feed-screw.



2. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a circular tube disposed concentric with the floor of the stoker-basin and extending longitudinally therefrom below the fire-room floor and to a point distant from the front of the furnace, a longitudinal opening in the top of said tube at its end farthest from the furnace, a coal-bin provided with a slope-board and a check-board at the opposite ends of said longitudinal opening, a feed-screw disposed within said tube and extending continuously through the same and lengthwise of said longitudinal opening therein and lengthwise into the stoker-basin the end of said screw being tapered at said longitudinal opening so as to be smaller at the end of said opening farthest from the furnace, and mechanism for rotating said screw.

3. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a circular tube disposed concentric with the floor of the stoker-basin and extending longitudinally therefrom below the fire-room floor and to a point distant from the front of the furnace, a longitudinal opening in the top of said tube at its end farthest from the furnace, a coal-bin provided with a slope-board and a check-board at the opposite ends of said longitudinal opening, a feed-screw disposed within said tube and extending continuously through the same and lengthwise of said longitudinal opening therein and lengthwise into the stoker-basin, gearing disposed below said slope-board and connected with said screw, and mechanism for giving rotary motion to said gearing and screw.

4. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a semicircular trough extending endwise from said stoker-basin below the fire-room floor and forming a prolongation of the semicircular floor of the basin to a point distantly in front of the furnace, a coal-bin disposed over the end of said trough distant from the furnace so as to leave a clear space between said coal-bin and the front of the furnace, sectional cover-work for said trough at the portions thereof between the coal-bin and the furnace-front, said trough and cover-work producing a circular tube extending between the bin and stoker-basin, a feed-screw

disposed within the trough and extending the length thereof and endwise into the stoker-basin, and mechanism for rotating said feed-screw.

5. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a semicircular trough extending lengthwise from said stoker-basin below the fire-room floor and forming a prolongation of the semicircular floor of the basin to a point distantly in front of the furnace, a coal-bin disposed over the end of said trough distant from the furnace so as to leave a clear space between said coal-bin and the front of the furnace, a sectional semicircular trough-cover secured to said trough and covering the same between the coal-bin and the furnace-front, section floor-plates disposed over said trough-cover, a feed-screw disposed within said trough and extending the length of the same and endwise into the stoker-basin, and mechanism for giving rotation to said screw.

6. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a semicircular trough extending lengthwise from said stoker-basin below the fire-room floor and forming a prolongation of the semicircular floor of the basin to a point distantly in front of the furnace, a coal-bin disposed over the end of said trough distant from the furnace so as to leave a clear space between said coal-bin and the front of the furnace, a sectional semicircular trough-cover secured to said trough and covering the same between the coal-bin and the furnace-front, section floor-plates disposed over said trough-cover, a continuous feed-screw formed of sections with tenon-and-socket joints and disposed within said trough and extending the length of the same and endwise into the stoker-basin, and mechanism for giving rotation to said feed-screw.

7. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a circular tube disposed concentric with the floor of the stoker-basin and extending longitudinally therefrom below the fire-room floor and to a point distant from the front of the furnace, a longitudinal opening in the top of said tube at its end farthest from the furnace, a wall parallel with the furnace-front across the end of said tube and having an opening above the level of the fire-room floor, a slope-board extending from said wall below said opening therein to the nearer end of said longitudinal opening in the tube, a check-board across the end of said longitudinal opening farthest from said wall, a continuous feed-screw disposed within said tube and extending the length of said longitudinal opening and projecting endwise into the stoker-basin, and mechanism for giving rotation to said screw.

8. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a circular tube disposed concentric with the floor of the stoker-basin and extending longitudinally therefrom below the fire-room floor and to a point distant from the front of the furnace, a longitudinal opening in the top of said tube at its end farthest from the furnace, a wall parallel with the furnace-front across the end of said tube and having an opening above the level of the fire-room floor, a slope-board extending from said wall below said opening therein to the nearer end of said longitudinal opening in the tube, a check-board across the end of said longitudinal opening farthest from said wall, a continuous feed-screw disposed within said tube and extending the length of said longitudinal opening and projecting endwise into the stoker-basin, gearing disposed below said slope-board and within said wall and connected with said screw, and mechanism for driving said gearing and screw.

9. In a stoker, the combination, substantially as set forth, of a furnace, a rectangular stoker-basin disposed therein with its rim at the grate-level and having a semicircular floor disposed below the level of the fire-room floor, a circular tube disposed concentric with the floor of the stoker-basin and extending longitudinally therefrom below the fire-room floor and to a point distant from the front of the furnace, a longitudinal opening in the top of said tube at its end farthest from the furnace, a wall parallel with the furnace-front across the end of said tube and having an opening above the level of the fire-room floor, a slope-board extending from said wall below said opening therein to the nearer end of said longitudinal opening in the tube, a check-board across the end of said longitudinal opening farthest from said wall, a continuous feed-screw disposed within said tube and extending the length of said longitudinal opening and projecting endwise into the stoker-basin, gearing disposed below said slope-board and within said wall and connected with said screw, mechanism for driving said gearing and screw, and a pit in the fire-room floor between said wall and gearing.

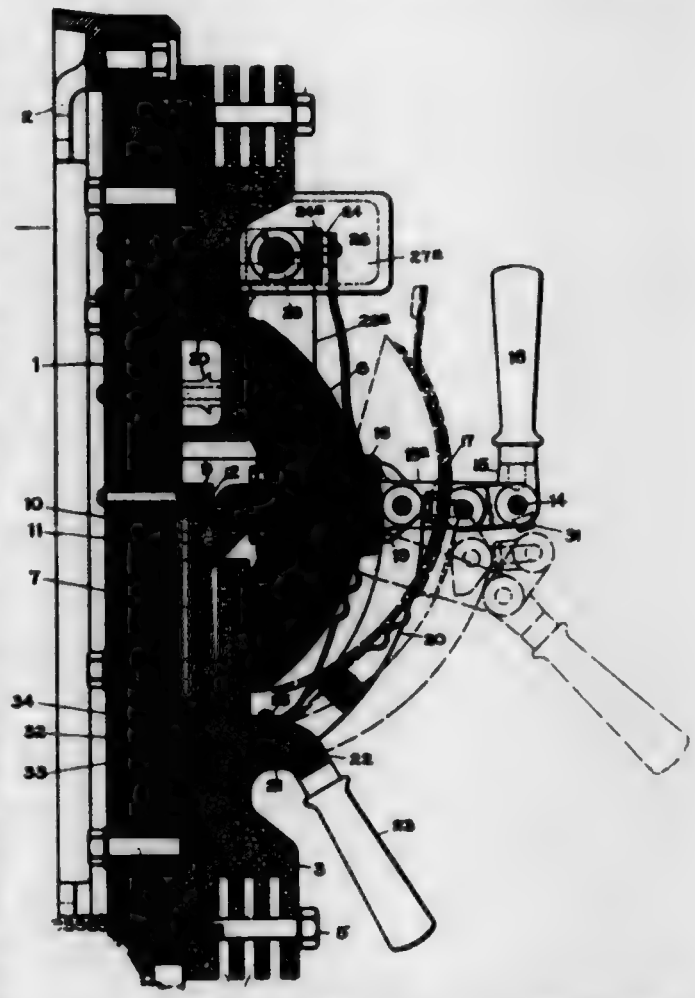
691,765. BOLT. ANDREW HAYES, Dunkirk Bridge, N. Y. Filed May 9, 1901. Serial No. 59,415. (No model.)

Claim.—1. The combination, with a bolt having a T-shaped projection at one end the head of which does not project beyond the periphery of the bolt; of a locking-collar provided with a hole which is slidable over the said projection and the end portion of the bolt, said collar having also shoulders at one end of the said hole which form an oblong slot for the head of the said projection to pass through, and sockets in the said shoulders for receiving the said head; and a spring which holds the said head in engagement with the said sockets, substantially as set forth.



2. The combination, with a bolt provided with a T-shaped projection at one end; of a conical spring-case encircling the bolt and having an internal flange at its smaller end; a conical locking-collar which projects into the said spring-case, said collar being provided with a hole which is slidable over the end portion of the bolt, shoulders which strike the end of the bolt, an oblong slot for the head of the said projection to pass through, and sockets above the said shoulders for receiving the said head: and a spring interposed between the said flange of the spring-case and the smaller end of the said collar, substantially as set forth.

691,766. ELECTRIC SWITCH. EDWARD M. HEWLETT, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Jan. 12, 1900. Serial No. 1,173. (No model.)



Claim.—1. An electric switch comprising a movable switch member, a plurality of terminals adapted to be connected thereto, a circuit-closing contact movable outwardly in a plane away from the terminals, to permit the switch to be shifted laterally into coöperative relation to any desired contact, and a toggle for cramping the contacts into intimate engagement.

2. An electric switch comprising a rotary member movable in the plane parallel to the base, a plurality of terminals adapted to be engaged thereby, insulating-barriers between the terminals, a contact carried by the rotary member movable to and from the base to clear the barriers and a toggle for cramping the contacts in firm engagement.

3. An electric switch comprising a movable member journaled for movement in the plane parallel to the base and in continuous connection with one circuit-terminal, an arm mounted on the movable member and movable away from the base, a bridge for the terminals carried by said arm, a link between the arm and the movable member, and a toggle to cramp the bridge and effect a good contact.

4. In an electric switch, a plurality of terminals, a rotary switch member permanently connected with one of the same and adapted to effect connection with any of the others, a pivoted bridging-contact carried thereby to effect such connection, a switch-operating handle, a toggle connected to the bridging-contact, a handle to cramp the same, and a link connecting the rotary member and the cramping-handle.

5. In an electric switch, the combination of a plurality of terminals, a switch-arm 7 journaled in one of them, a fixed guide engaging the end of the arm, a toggle and operating-handle pivoted to the arm, a bridge-contact, and a pivoted arm provided with a handle carrying the contact and connected to the toggle.

6. In an electric switch, a plurality of terminals, a switch-arm, journaled in one of them for movement in a plane parallel to the base, a bridge-contact movable away from the base, a shunt-contact to prevent arcing at the bridge, and a branch connection between the terminal and the switch-arm to divert the current to the shunt-contact from traversing the joint.

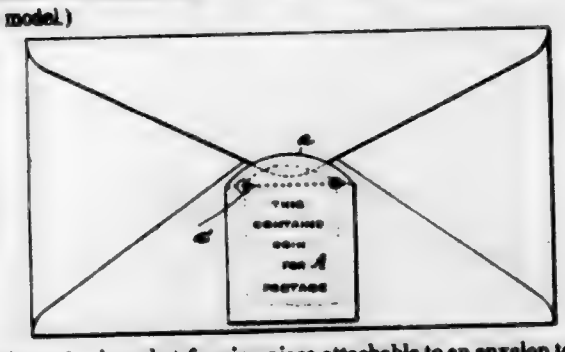
7. The combination in a switch of a circuit-terminal, a rotary switch-arm, an operating-handle therefor, a bridging-contact carried thereby, and a plurality of metal laminæ between the arm and the fixed terminal, said laminæ bearing face on between the arm and the terminal and effecting a good rotary contact to divert current from the joint and provide a yielding connection.

8. In an electric switch, a base, a rotary arm carrying a bridge-contact pivoted for movement away from the base, a fixed guide 9 for the end of the arm to brace the same when cramped and a toggle connected to the end of the arm to cramp the bridge-contact.

9. In an electric switch, a rotary arm carrying a bridge-contact pivoted for movement away from the base, a fixed guide for the end of the arm, a toggle connected to the arm to cramp the bridge-contact, a plurality of terminals, and stops for the arm when in position to close the circuit at the several terminals.

10. In an electric switch, the combination of a rotary switch-arm journaled in a terminal, a plurality of coöperating terminals, a bridge-contact, a pivoted arm 20 carrying the same, links 13 13^a, a toggle between the arm and the links, and a handle to operate the toggle.

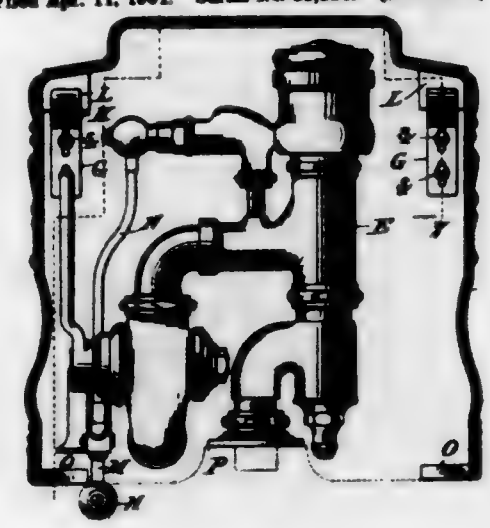
691,767. **POCKET ATTACHMENT FOR ENVELOPS.** GEORGE P. HERNDON, Washington, D. C. Filed Oct. 30, 1901. Serial No. 80,509. (No model.)



Claim.—1. A pocket-forming piece attachable to an envelop to form a pocket outside of the envelop proper and having a sealing-flap designed to overlap the sealing-flap of the envelop, as set forth.

2. A pocket-forming piece independent of and attachable to an envelop to form a pocket outside of the envelop proper and having a sealing-flap and a line of perforations providing for the ready separation of a portion to gain access to the pocket and having the end perforations of the series abnormally enlarged, as set forth.

691,768. **WATER-CLOSET.** WINFIELD R. HINSDALE, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,396. (No model.)



Claim.—1. A removable cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet constructed of a single piece of material of hood-like form, open at its rear, and provided with concealed means located wholly within the cover for suspending it from the wall in the rear of a closet, substantially as described.

2. A cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet constructed of a single piece of hood-like form, open at its rear, and provided with concealed means for removably sustaining it independent of the closet, substantially as described.

3. A cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet; in combination with means for removably sustaining it in close proximity to the closet and independent thereof, said means being wholly concealed within the cover, substantially as described.

4. A cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet consisting of a single piece of hood-like form, provided with integral means for removably engaging a sustaining device located wholly within the cover; in combination with sustaining-brackets therefor secured to the wall, the arrangement being such that when the cover is in position all of the sustaining parts are wholly concealed, substantially as described.

5. An earthenware cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet, open at its rear and having strengthening-flanges at its lower end, said cover being so constructed as to fit with its open side against a wall and its lower end directly over the rear of the closet; in combination with means for removably sustaining it against the wall, said means being wholly concealed, substantially as described.

6. An earthenware cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet, open at its rear and having concealed means for removably engaging a support in the rear of the closet; and having a flexible bumper for the lid of the closet, the arrangement being such that the cover may be lifted bodily off its supporting means, substantially as described.

7. An earthenware cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet, open at its rear and having concealed integral means for removably engaging a support; in combination with supporting-brackets adjustably secured to the wall in the rear of the closet and in such manner that the cover may be removably supported thereon, substantially as described.

8. An earthenware cover for the valve-controlling mechanism of a water-closet, open at its rear and having laterally-extending flanges O, O at its bottom and concealed inclined sustaining-shoulders L, L, substantially as described.

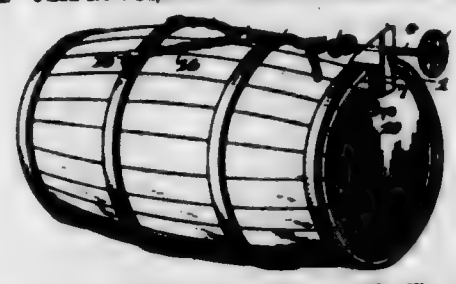
9. A cover for the valve-controlling mechanism of a water-closet made of one integral piece of earthenware having concealed inclined sustaining-shoulders L, L, laterally-extending strengthening-flanges O, O and a flexible bumper for the lid of the closet, substantially as described.

10. An earthenware cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet having concealed integral means of support, said cover being wholly without perforations or holes, substantially as described.

11. An earthenware cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet, provided with sustaining means integral therewith and located wholly within the interior thereof, said sustaining means being integral with the cover, substantially as described.

12. A cover for the top, front and adjacent sides of the valve-controlling mechanism of a water-closet made of a single piece of earthenware having concealed means wholly within its interior surface for supporting or sustaining it, substantially as described.

691,769. **HOOP-TIGHTENING DEVICE.** CASPAR HUBBEL, Johnstown, Pa. Filed Nov. 14, 1901. Serial No. 82,946. (No model.)



Claim.—1. A hoop-tightener for casks and the like, comprising a clamp or bracket constructed for application to one end of a cask, and carrying means for forcing a hoop into snug engagement with the enlarged intermediate portion of a cask.

2. A hoop-tightener for casks and the like, comprising a clamp or bracket constructed for application to one end of a cask, and means car-

ried by the bracket for engagement with a hoop to draw the same toward the bracket.

3. A hoop-tightener for casks and the like, comprising a clamp or bracket constructed for application to one end of a cask, means for connection with a hoop, and a tension device carried by the bracket and connected to the hoop-engaging means.

4. A hoop-tightener for casks and the like, comprising a clamp or bracket constructed for application to one end of a cask, hoop-engaging means, and a tension-screw carried by the clamp or bracket and connected to the hoop-engaging means.

5. A hoop-tightening device for casks and the like, comprising a clamp or bracket constructed for application to one end of a cask, a tension-screw carried by the clamp or bracket, a pair of hoop-engaging hooks, and a swiveled connection between the hooks and the tension-screw.

6. A hoop-tightening device for casks and the like, comprising a clamp or bracket which is constructed for application to a barrel or cask, a tension-screw carried by the clamp or bracket, a swiveled hook carried at the inner end of the tension-screw, and a chain having one of its links detachably connected to the hook and provided at its outer end with a hoop-engaging hook.

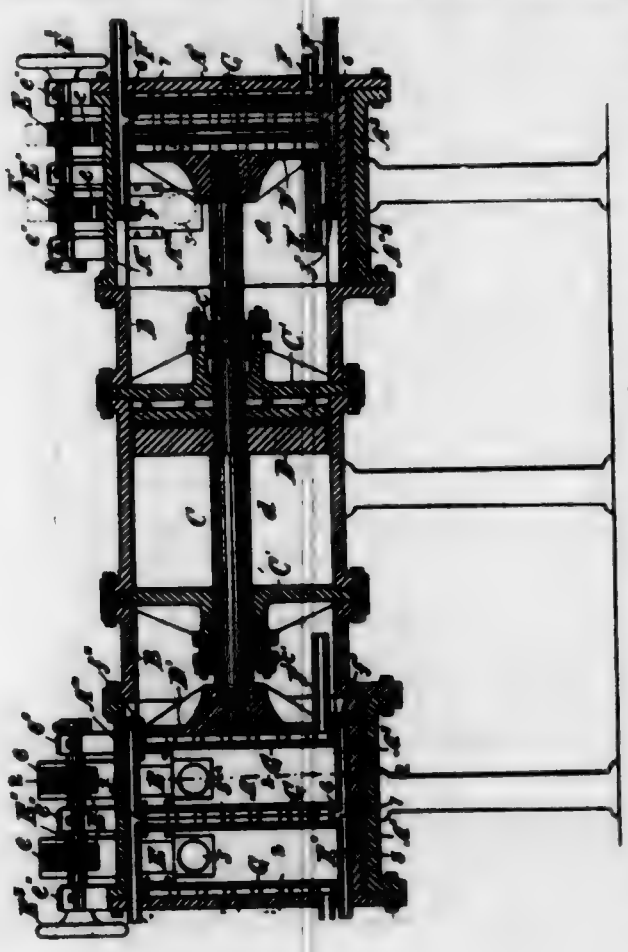
7. A hoop-tightening device for casks and the like, comprising a clamp or bracket constructed for application to one end of a cask, a tension-screw carried by the bracket, a hook swiveled upon the inner end of the tension-screw, a chain having one of its links detachably engaged with the hook, branch chains connected to the outer end of the main chain, and hoop-engaging hooks carried by the branch chains.

8. A hoop-tightening device for casks and the like, comprising a clamp or bracket having a U-shaped clip and a set-screw piercing one side of the clip, a tension device carried by the bracket, and hoop-engaging means connected to the tension device.

9. A hoop-tightening device for casks and the like, comprising a bracket having a U-shaped clip, and a set-screw piercing one side of the clip and provided with a handle-bar which is slidable endwise through an opening in the set-screw, a tension device carried by the bracket, and hoop-engaging means connected to the tension device.

10. In a hoop-tightening device for casks and the like, the combination of a bracket comprising a U-shaped clip having a lateral extension, a set-screw piercing that side of the clip which is opposite the extension, and provided with a handle which is slidable endwise through an opening in the set-screw, a tension-screw piercing the extension of the bracket and provided upon its outer end with an operating device, a hook swiveled upon the inner end of the tension-screw, a chain having one of its links detachably engaged with the hook, and a pair of hoop-engaging hooks connected to the outer end of the chain.

691,770. WOOD-PULP PRESS. JOSEPH S. HOSKIN, Chesley's Corners, Canada. Filed July 3, 1901. Serial No. 67,059. (No model.)



Claim.—1. In a machine for forming pulp into sheets, the combination of a double-headed cylinder with double-ended piston-rod having piston within said cylinder, a skeleton extension of said cylinder beyond each head, a press-chamber secured to each of said extensions, said chambers rectangular in cross-section and open at the inner ends facing the cylinder-head, a plunger secured to each end of the piston-rod within said chambers, strainers within each chamber dividing it longitudinally into transverse spaces and an inlet-port to each space in the side of the chamber provided with connecting-nozzle at the outside, substantially as set forth.

2. In a machine for forming pulp into sheets, the combination of a double-headed cylinder having a stuffing-box in each head, a piston-rod passing through both stuffing-boxes, a piston within said cylinder secured upon said piston-rod, a plunger or piston secured to each end of said piston-rod fitting a press-chamber, a press-chamber of rectangular cross-section opposite each end of said cylinder immovably secured relatively to the cylinder and in which said plungers have a sliding movement in unison with the actuating-piston in the cylinder, means of dividing said chambers into transverse spaces by sliding strainer-partitions and means of admitting fluid pulp into said spaces intermittently, substantially as set forth.

3. In a press-chamber of a machine for forming pulp into sheets, the combination of a head, side, top and bottom plates forming part of a chamber of rectangular cross-section a plate hinged between the bottom edge of the side plate and the bottom a little distance above the latter and forming the working bottom of the chamber, means for raising said plate at the front, a front plate hinged to the head of the chamber and provided with a fastening and having flanges overlapping the top plate and hinged bottom and a piston or plunger adapted to slide in said chamber, substantially as set forth.

4. In a press-chamber of a machine for forming pulp into sheets, the combination of a head, side, top and bottom plates forming part of a chamber of rectangular cross-section, a hinged bottom within said chamber a little above the fixed bottom plate, said hinged bottom and top plate having longitudinal grooves, means of raising said hinged bottom, a drain-pipe of rectangular cross-section sliding in each groove flush with the surface of the plate and passing through the head, a fixed drain-pipe secured in the fixed head near the bottom of the chamber, a plunger or piston adapted to slide in said chamber, a drain-pipe secured within said plunger near the bottom of the chamber, said drain-pipe communicating with the interior of the chamber, a hinged front plate or door having flanges overlapping the top plate and hinged bottom, and ports in the side plate of said chamber fitted with slide-valves flush with the surface of said plate, substantially as set forth.

5. In a press-chamber of a machine for forming pulp into sheets, the combination of a head, side, top and bottom plates forming part of a chamber of rectangular cross-section a hinged bottom within said chamber a little above the fixed bottom plate, means of raising said hinged bottom, a hinged front plate or door having flanges overlapping the top plate and hinged bottom, said side plate having inlet-ports with valve-faces, slide-valves covering said ports flush with the surface of the plate, means of raising and depressing said valves and a piston or plunger adapted to slide in said chamber, substantially as set forth.

6. In a press-chamber of a machine for forming pulp into sheets, the combination of a head, side, top and bottom plates forming part of a chamber of rectangular cross-section, a hinged front plate or door, means of securing said front or door, said side plate having inlet-ports with valve-faces, slide-valves covering said ports flush with the surface of the plate, racks on the parts of said valves projecting above the top plate, pinions gearing into said racks, a shaft carrying said pinions journaled into bearings secured to said chamber-casing and a hand-wheel secured upon said shaft, substantially as set forth.

7. In a press-chamber of a machine for forming pulp into sheets, the combination of a head, side, top and bottom plates forming part of a chamber of rectangular cross-section open at one end, a hinged bottom within said chamber a little above the fixed bottom having longitudinal groove, means of raising said hinged bottom, said top plate having a groove similar to the one on the hinged bottom, a front or door hinged to the head and provided with means of securing it and having flanges overlapping the edges of the top plate and hinged bottom, rectangular drainage-pipes sliding in the grooves of the top and bottom and passing through the head, a fixed drain-pipe in the head near the bottom of the chamber, a piston or plunger adapted to slide in said chamber, a drain-pipe secured in said plunger near the bottom of the chamber, valve-faced ports in the side plate, a slide-valve covering each port flush with the inner surface of the plate and projecting through the top and means of raising and depressing said valve, substantially as set forth.

8. In a machine for forming pulp into sheets, the combination with a press-chamber of rectangular cross-section having longitudinal grooves in the top and bottom and provided with hinged front and with inlet-ports in the side plate covered with slide-valves flush with the inner sur-

face of said plate, of a drain-pipe sliding in each of said grooves and passing through the head, a fixed drain-pipe in said head, a piston or plunger adapted to slide in said chamber, a drain-pipe secured in said plunger and strainers forming vertical partitions and linings within said chamber, substantially as set forth.

9. In a machine for forming pulp into sheets, the combination with a press-chamber of rectangular cross-section having longitudinal grooves in the top and bottom and provided with hinged front and with inlet-ports in the side plate covered with slide-valves flush with the inner surface of said plate, of a drain-pipe sliding in each of said grooves and passing through the head, a fixed drain-pipe in said head, a piston or plunger adapted to slide in said chamber, a drain-pipe secured in said plunger, a series of perforated strainer-plates having on one side rim-flanges and supporting projections level therewith, setbacks in said rim-flanges at top and bottom, each having a shouldered notch and a perforation within said notch, a raised shouldered part on each of the sliding drain-pipes fitting into said notches and a perforation in said raised part corresponding to the perforation in the notched flange of the strainer-plate, a sheet of cloth, felt or wire covering the plain surface of each of said perforated plates, and a frame secured into rabbets of said strainer-plate and holding said sheet in position, substantially as set forth.

10. In a strainer of a machine for forming pulp into sheets, the combination of a perforated plate having a rabbet in its face around the edges, rim-flanges on one side of said plate, supporting projections on the cavity side of the plate level with said rim-flanges, a setback in the top and bottom rim-flange having a shouldered notch and perforation within said notch communicating with the cavity of the plate, a sheet of cloth, felt or wire covering the plain face of the plate and a frame fitting flush into the rabbeted face and secured therein and holding said covering, substantially as set forth.

11. The combination of a pair of perforated strainer-plates provided with rim-flanges and registering supporting projections level with said flanges and having setbacks in two opposite rim-flanges with shouldered notches and perforations within said notches, said plates faced with their cavity sides inward and connected by screws, a covering-sheet of cloth, felt or wire on the outer face of each plate, a frame fitting flush into a rabbet near the edges of the plate and secured therein and holding said covering in position, substantially as set forth.

12. The combination of a pair of perforated strainer-plates provided with rim-flanges and registering supporting projections level with said flanges and having setbacks in two opposite rim edges and shouldered notches and perforations within said notches, said plates placed in contact and connected with their cavity sides inward and their rim-flanges supporting projections meeting, a covering-sheet of cloth, felt or wire on the outer face of each plate, a frame fitting flush into a rabbet near the edges of the plate and secured therein and holding said covering, a pipe of rectangular cross-section placed transversely on each notched edge of the connected plates, a raised shouldered and perforated portion on each pipe fitting into the notches of the connected plates between the projecting portions of the cover-frame, substantially as set forth.

13. The combination of a pair of perforated strainer-plates provided with rim-flanges and registering supporting projections level with said flanges and having setbacks in two opposite edges with shouldered notches and perforations within said notches, said plates placed in contact and connected with their cavity sides inward and their rim-flanges and supporting projections meeting, a covering-sheet of cloth, felt or wire on the outer face of each plate, a frame fitting flush into a rabbet near the edges of the plate and secured therein and holding said covering, a pipe of rectangular cross-section placed transversely on each notched edge of the connected plates, a raised shouldered and perforated portion on each pipe fitting into the notches of the connected plates between the portions of the cover-frames adjacent to the notches, a lug at the end of each pipe, a chamber having a cross-section corresponding to the edges of the connected plates and having a groove in the top and bottom in which said pipes fit and slide flush with the surface, said lugs on said pipes projecting above the surface, a plunger fitting and sliding in said chamber between the raised portions of the pipes and the lugs at the ends and engaging said lugs when moving in one direction, substantially as set forth.

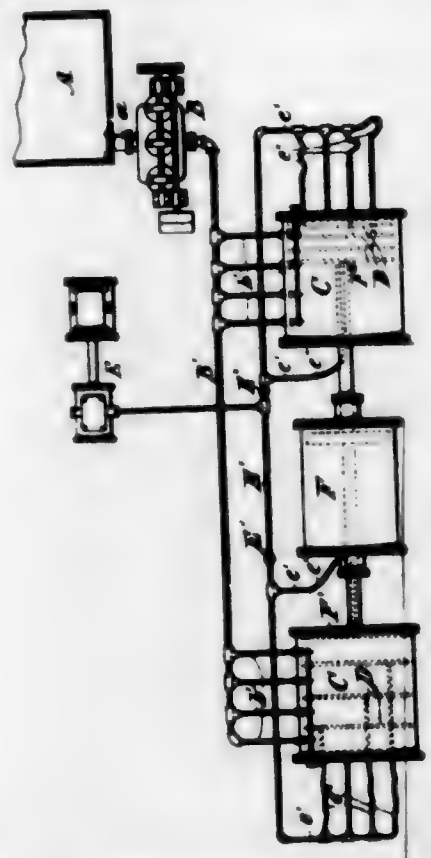
14. In a pulp-press, a central strainer, combined with a drainage-pipe applied thereto, and the chamber-casing having a recess formed to receive the pipe, so that it will be flush with the side of the casing, substantially as set forth.

15. In a pulp-press, a chamber-casing, having a recess formed in it, combined with a drainage-pipe placed in the recess, a central strainer secured to the pipe which pipe has its outer end projecting beyond the end of the casing, and a lug formed upon its inner end, and a plunger which strikes against the lug to return the strainer to position, substantially as set forth

16. In a pulp press, a casing provided with a strainer at its outer end, and a plunger provided with a drainage-plate, combined with a central strainer which is movable back and forth in the case, and which has secured to it a drain-pipe which is movable back and forth in the casing with the central strainer, the pipe being provided with means for returning the strainer to position, substantially as set forth.

17. In a pulp-press, the combination with the casing of a false bottom hinged to the lower edge of one of the sides of the press, of a cam pivoted to the stationary bottom the said cam being provided to hold the false bottom at its highest throw, and adapted to be slightly lowered to loosen the compressed sheet of pulp, of the lateral swinging door having lips substantially as set forth.

691,771. PROCESS OF FORMING WOOD-PULP INTO SHEETS. JOSEPH S. HUGHES, Chesley's Corners, Canada. Filed July 3, 1901. Serial No. 67,060. (No specimens.)



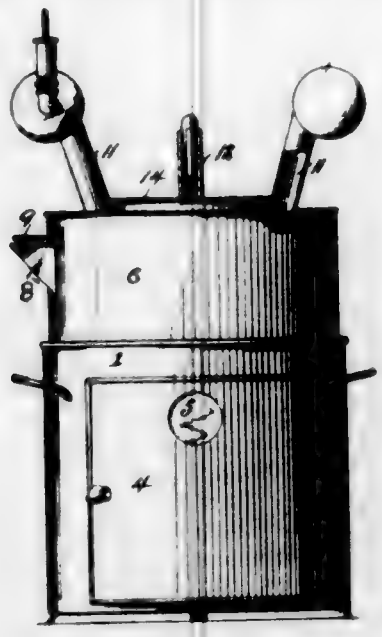
Claim.—1. A method or process of converting fluid wood-pulp into dry or semidry pulp for storage and shipment, consisting in forming the fluid pulp into dry or semidry cakes or sheets of convenient shape for storage or shipment by forcing the fluid pulp under pressure simultaneously into a series of confined spaces the edge dimensions of which coincide with the size of the sheet to be formed, forcing part of the water through the walls of the confining-spaces by the pressure on the fluid pulp during the filling of said spaces, extracting another part of the water by suction simultaneously with the filling, stopping the admission of fluid pulp when the spaces are filled and extracting the remaining extractable water by pressure on the side walls of the confining-spaces while continuing the draining by suction, substantially as set forth.

2. A method or process of forming fluid wood-pulp into dry or semidry cakes or sheets of convenient shape for storage or shipment, by forcing the fluid pulp under pressure simultaneously into a series of confined spaces the edge dimensions of which coincide with the size of the sheet to be formed and which series forms one of a pair used alternately, forcing part of the water through the walls of the confining-spaces by the pressure on the fluid pulp during the filling of said spaces, extracting another part of the water by suction simultaneously with the filling, stopping the admission of fluid pulp when the spaces are filled and extracting the remaining extractable water by pressure on the side walls of the confining-spaces while continuing the draining by suction, and releasing and emptying one set of spaces while the other is under final pressure, substantially as set forth.

691,772. VAPORIZER. FRITZ JACOBSEN, Brooklyn, N. Y. Filed Apr. 15, 1901. Serial No. 55,943. (No model.)

Claim.—In a portable vaporizer apparatus for medicine, the combination of a combustion-chamber, a water-chamber above the combustion-chamber having a depressed portion in the top thereof, said depressed portion having a fluid-tight connection with the water-chamber, a sealed condenser above and separate from the water-chamber, a pipe connection between the condenser and the water-chamber, a thermometer-tube projecting into the water-chamber and a safety-valve, the whole apparatus being fluid-tight whereby steam is prevented from escaping into the room.

691,772.



691,773. FLUE FOR CONDUCTING FUMES. CHARLES M. JOHNSON, Bennett, Pa. Filed Mar. 29, 1901. Serial No. 53,396. (No model.)



Claim.—A stove-hood, comprising in combination with the flue, a thimble passing through the wall therein, a regulating-plate over said thimble, a hood secured to said flue, and provided with an upwardly and forwardly extending open-ended neck, a damper secured to the bottom of said neck portion of the hood, a spring secured at one end to said damper, its other end fixed to the wall of the hood, a pivoted lever mounted on the hood, link connection between said lever and damper, and a curved rack-bar passing through an aperture in the lever, as set forth.

691,774. ATTACHMENT FOR VEHICLE-SHAFTS. DAVID J. JOHNS, Olathe, Kans. Filed June 21, 1901. Serial No. 65,443. (No model.)

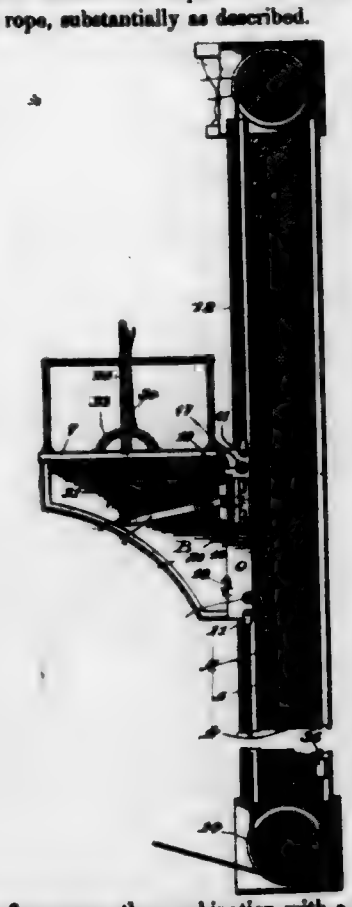


Claim.—In combination with a pair of shafts, of an attachment therefor, comprising a pair of tapering ferrules provided each with a slot or opening and secured rigidly to the ends of the shafts, a spring-plate having its inner end secured to the interior face of each ferrule, a lug or catch carried upon the upper face of the plate near the free end, said lug or catch protruding through and guided by the slot, and a bow having formed integral with each of its ends a ferrule or cap provided with a slot to correspond with the slot of the other ferrules and adapted to allow the lug to enter the slot to hold the bow upon the ends of the shaft.

691,775. FIRE-ESCAPE. THOMAS G. JOYCE, Scranton, Pa. Filed June 26, 1901. Serial No. 66,400. (No model.)

Claim.—1. In a fire-escape the combination with a building-wall, of a pair of guideways vertically arranged upon the outside of the wall, a platform having brackets movable within the guideways, sheaves arranged at the top and bottom of the wall adjacent to each guideway, connections between the sheaves of both guideways whereby said sheaves move in unison, and an endless rope in each guideway attached to the bracket and extending around said sheaves and along the inner side of the wall.

2. In a fire-escape, the combination with a building-wall, of a pair of guideways vertically arranged upon the outside of the wall, a platform having brackets movable within the guideways, sheaves arranged at the top and bottom of the wall adjacent to each guideway, connections between the sheaves of both guideways whereby said sheaves move in unison, an endless rope in each guideway attached to the bracket and extending around said sheaves and along the inner side of the wall, a brake for regulating the descent of said platform, and a hoisting-rope connected to the endless rope, substantially as described.



3. In a fire-escape, the combination with a building-wall, of a pair of guideways vertically arranged upon the outside of the wall, a platform having brackets movable within the guideways, sheaves arranged at the top and bottom of the wall adjacent to each guideway, an endless rope in each guideway attached to the bracket and extending around said sheaves and along the inner side of the wall, brake-shoes adapted to bear against each of said guideways, and a lever upon the platform for operating said brake-shoes.

4. In a fire-escape, the combination with a building-wall, of a pair of guideways vertically arranged upon the outside of the wall, a platform having brackets movable within the guideways, sheaves arranged at the top and bottom of the wall adjacent to each guideway, an endless rope in each guideway attached to the bracket and extending around said sheaves and along the inner side of the wall, the sheaves of both guideways being connected so as to move in unison.

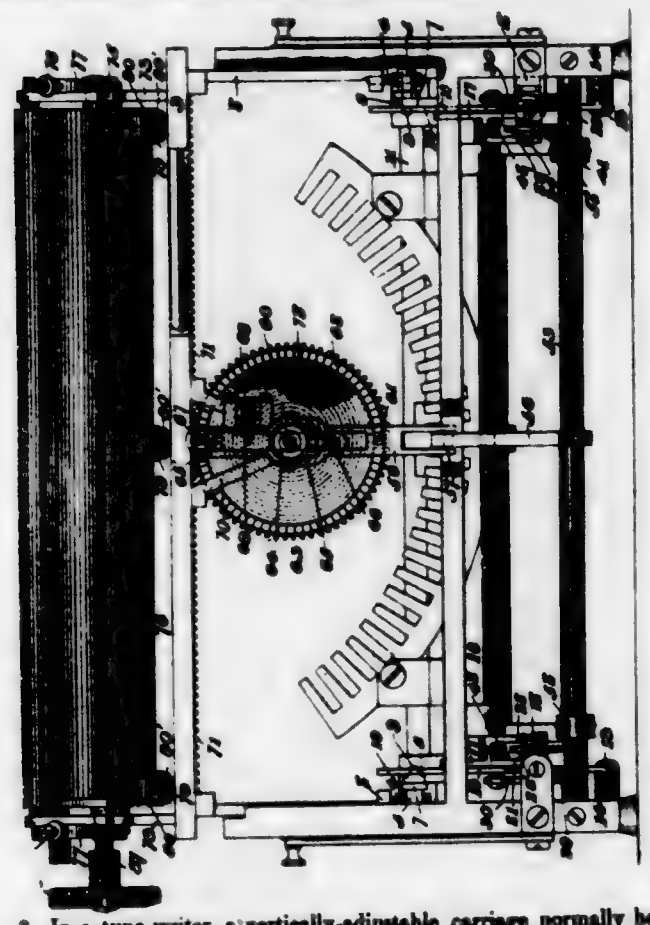
5. In a fire-escape, the combination with a building-wall, of a pair of guideways vertically arranged upon the outside of the wall, a platform having brackets movable within the guideway, sheaves arranged at the top and bottom of the wall adjacent to each guideway, an endless rope in each guideway attached to the bracket and extending around said sheaves and along the inner side of the wall, and guideways for said ropes upon the inside of the wall, said inner and outer guideways being connected together by rods passing through the wall.

6. In a fire-escape, the combination with a building-wall, of a pair of tubular slotted guideways vertically arranged upon the outside of the wall, a platform having brackets movable within the guideways, tubular guideways upon the inner side of the wall, sheaves at the top and bottom of the wall, gearing connecting the sheaves at the top of the wall, endless ropes attached to the brackets and extending around the sheaves through the inner and outer guideways, brake-shoes adapted to bear upon the slotted guideways, a lever for operating said shoes, and a hoisting-rope connected to the endless rope at the inner side of the wall.

691,776. TYPE-WRITING MACHINE. WILLIAM J. KAUFFMAN, Canton, Ohio, assignor to the Kauffman Typewriter Company, a Corporation of Ohio. Filed June 1, 1899. Renewed Apr. 12, 1901. Serial No. 55,571. (No model.)

Claim.—1. In a type-writer, a vertically-adjustable carriage carrying a platen and normally held in intermediate position, lever mechanism arranged to lift the carriage to a higher position, and also lower it to a lower position, and automatic locking mechanism arranged to secure the carriage in the higher and lower positions; substantially as described.

2. In a type-writer, a vertically-adjustable carriage normally held in intermediate position, lever mechanism arranged to lift it to a higher position, other lever mechanism arranged to move it to a lower position, automatic mechanism arranged to lock the carriage in both higher and lower positions, and a spring or similar device arranged to return it to the normal intermediate position; substantially as described.



3. In a type-writer, a vertically-adjustable carriage normally held in intermediate position, lever mechanisms arranged to raise and lower it from the normal position, locking mechanism arranged to hold it in any adjusted position, and mechanism for returning it to its normal position when released; substantially as described.

4. In a type-writer, a vertically-adjustable carriage normally held in the ordinary position by locking mechanism, directly engaging the carriage mechanism, and lever mechanism arranged to first unlock the carriage and then to adjust it to a different vertical position; substantially as described.

5. In a type-writer, a vertically-adjustable carriage having end supports, swinging arms arranged to engage and lock the supports in adjusted position, a swinging lever engaging one of the arms, a key-lever connected to said lever, and lifting-arms connected to and actuated by the key-lever; substantially as described.

6. In a type-writer, a vertically-adjustable carriage, having swinging locking-arms arranged to hold it in adjusted position, lever mechanism arranged to move the carriage vertically, a key-lever connected to the lever mechanism, and a device carried upon the key-lever and arranged to actuate the locking-arms; substantially as described.

7. In a type-writer, a vertically-adjustable carriage, mechanism arranged to move the carriage vertically, a key-lever connected to said mechanism, locking mechanism arranged to hold the carriage in adjusted position, and a movable member upon the key-lever arranged to actuate the locking mechanism; substantially as described.

8. In a type-writer, a vertically-adjustable carriage, mechanism for locking the same in adjusted position, lever mechanism arranged to raise and lower the carriage and connected to a key-lever, and a slide upon the lever connected to the locking mechanism and having a cam connection arranged to actuate the locking mechanism; substantially as described.

9. In a type-writer, a vertically-adjustable carriage having locking mechanism arranged to hold it in adjusted position, a key-lever having a slide arranged to actuate the locking mechanism, a cam device arranged to move the slide as the key-lever is depressed, and lever mechanism arranged to be actuated by the slide after its first movement and arranged to vertically adjust the carriage; substantially as described.

10. In a type-writer, a vertically-adjustable carriage, a rock-shaft having arms arranged to raise and lower the carriage, locking mechanism arranged to hold the carriage in adjusted position, and lever mechanism arranged to actuate the locking mechanism and the rock-shaft, one of said lever mechanisms being arranged to release the locking mechanism and allow it to hold the carriage in adjusted position; substantially as described.

11. In a type-writer, a vertically-adjustable carriage normally held in intermediate position, lever mechanism arranged to raise and lower it, locking mechanism for holding it in adjusted position, a key-lever arranged to lift the carriage, a key-lever arranged to lower it, and other similar key-levers having connections arranged to release the locking mechanism and allow it to hold the carriage in adjusted position; substantially as described.

12. In a type-writer, a vertically-adjustable carriage, spring-pressed arms arranged to lock the carriage in adjusted positions, a key having lever connections arranged to move the carriage vertically and a connecting element between the key-lever and the locking-arm; substantially as described.

13. In a type-writer, a carriage having a rack, a pinion engaging the rack, and having a face-ratchet, a dog engaging the ratchet, and carried on a tilting lever-arm pivoted to the pinion-shaft, an actuating connection between the tilting arm and the universal bar, and a second laterally-tilting arm independent of the other arm, and having a spring-pawl engaging the ratchet; substantially as described.

14. In a type-writer, a carriage having a rack, a pinion engaging the rack, and supported in bearings secured to the carriage-bed, a ratchet-wheel upon the pinion, a pivoted arm arranged to swing in a plane at right angles to that of the ratchet, and having a dog engaging the ratchet, an actuating connection between said arm and the universal bar, and another arm arranged to tilt sidewise independently of the first arm, and having a spring-pressed pawl engaging the ratchet; substantially as described.

15. In a type-writer, a carriage having a rack, a pinion engaging the rack and supported in bearings secured to the carriage-bed, an integral ratchet-wheel upon the face of the pinion, a vertically-extending lever with a yoke pivoted to the pinion-shaft, and having at its lower end a loose connection to the universal bar, a dog upon the lever engaging the ratchet, and another independently-swinging arm movable in a plane at an angle to that of the lever, and having a spring-pressed pawl engaging the ratchet, substantially as described.

16. In a type-writer, a carriage having a rack, a pinion engaging the rack and having a ratchet, a swinging lever having a loose connection with a swinging arm connected to and actuated by the universal bar, escapement mechanism on the lever engaging the ratchet, and mechanism for raising and lowering the carriage; substantially as described.

17. In a type-writer, a platen having two holding-rollers pressing thereon, said rollers being mounted in slotted bearings, and a single leaf-spring bearing upon a trunnion projecting from each roller; substantially as described.

18. In line-spacing mechanism, a plate at the end of the platen having a circular series of holes, a button loosely mounted upon the platen-trunnion and having a connection therewith, and a loose gravity-pawl carried by the button and arranged to engage the holes in the platen-plate; substantially as described.

19. In line-spacing mechanism, a plate having a circular series of holes, a button or wheel carried upon the platen-trunnion and having cam connection therewith, a spring between the trunnion and the button arranged to force the button outwardly, a loose gravity-pawl carried upon the button arranged to engage the holes, and stops for the pawl; substantially as described.

20. In line-spacing mechanism, an end plate upon the platen having a circular series of holes, a rotary button having a loose pawl arranged to engage the holes, and stops for the pawl; substantially as described.

21. In line-spacing mechanism, a platen having an end plate provided with a circular series of holes, a button having a sleeve loosely surrounding the platen-trunnion and provided with a cam-slot engaging a pin on the trunnion and a gravity-pawl secured to a loose collar on the button-sleeve and arranged to engage the holes; substantially as described.

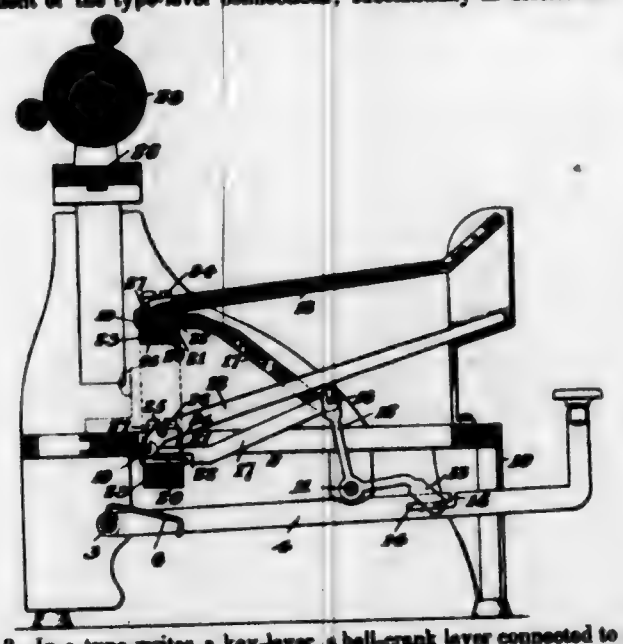
22. In line-spacing mechanism, a platen-plate having a circular series of holes, a rotary button having a loose pawl arranged to engage the holes, and an adjustable stop having a projection to engage the pawl; substantially as described.

23. In a type-writer, a vertically-adjustable carriage carrying a platen and normally held in intermediate position by locking mechanism, lever mechanism arranged to unlock and move the carriage to a different vertical position, and lever mechanism arranged to unlock the carriage, move it to a different vertical position and automatically lock it in such new position substantially as described.

691,777. TYPE-WRITING MACHINE. WILLIAM J. KAUFFMAN, Canton, Ohio, assignor to the Kauffman Typewriter Company, a Corporation of Ohio. Filed June 15, 1900. Renewed June 24, 1901. Serial No. 66,382. (No model.)

Claim.—1. In a type-writer, a series of parallel vertically-swinging key-levers, a series of parallel vertically-swinging bell-crank levers connected therewith, swinging type-levers, and links connecting the bell-

cranks and the type-levers, said links having sliding guide connections independent of the type-lever connections; substantially as described.



2. In a type-writer, a key-lever, a bell-crank lever connected to and actuated by said key-lever, a swinging type-lever having a link connecting it to the bell-crank, the link having a vertical open-topped slot receiving a cross-pin on the type-lever, and guide connections for the link; substantially as described.

3. In a type-writer, a swinging type-lever having a pivotal connection with a link, a guide engaging the link, and arranged to prevent its swinging while actuating the type-lever, and a key-lever connected to the link; substantially as described.

4. In a type-writer, a bell-crank lever connected to and actuated by a key-lever, and a type-lever having a link connection with the bell-crank, the link having a stationary guide engaging it, and arranged to prevent its swinging while actuating the type-lever; substantially as described.

5. In a type-writer, a swinging type-lever having a loose pin-and-slot connection with a link, means for actuating the link, and a stationary pin engaging a slot in the link and guiding its movement; substantially as described.

6. In a type-writer, a series of key-levers, a shaft having springs engaging the key-levers, and mechanism for rocking the shaft into different adjusted positions; substantially as described.

7. In a type-writer, a series of key-levers pivoted to a common shaft, springs secured to the shaft and engaging the levers, and mechanism for rocking the shaft and holding it in adjusted position; substantially as described.

8. In a type-writer, a series of key-levers having at their ends open slots inclosing a common shaft upon which they swing, and holders secured to the shaft and holding the key-levers in place; substantially as described.

9. In a type-writer, a swinging key-lever having an open-ended slot therein, a bell-crank lever pivoted at its elbow above the key-lever, and having a downwardly-bent arm with a projecting pin engaging a slot in the key-lever, and a type-lever having a pivotal link pivotally connected with the other upwardly-projecting arm of the bell-crank; substantially as described.

10. In a type-writer, a key-lever, a bell-crank having a sliding pin-and-slot connection therewith, a type-lever, and a link connecting the key-lever and type-lever, and having at each end a slot with an open top engaging a pin in the bell-crank and also in the key-lever; substantially as described.

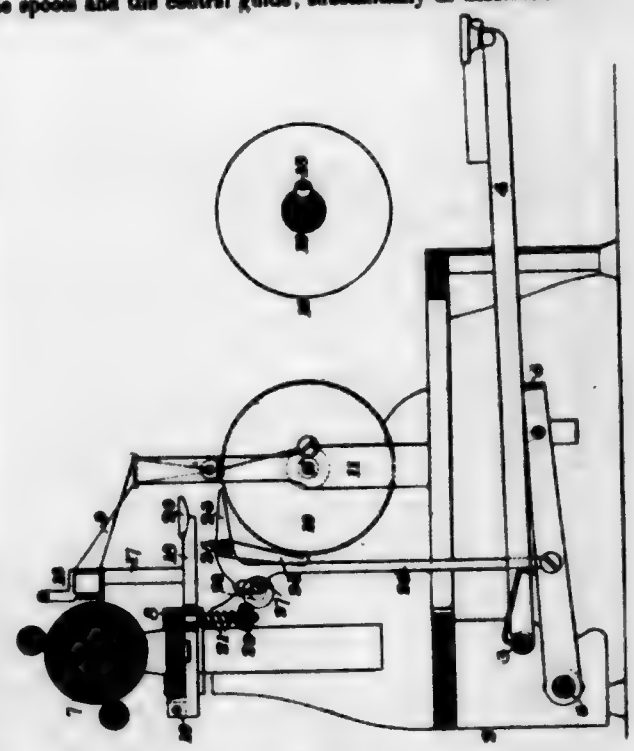
11. In a type-writer, a support having projecting lugs between which the type-levers swing, each lever being carried on a short shaft having reduced end portions projecting into the two adjacent lugs, and a pin driven in endwise within each lug arranged to secure the ends of two shafts therein; substantially as described.

12. In a type-writer, a support having projecting lugs between which the type-levers swing, short shafts having reduced ends lying in slots in the lugs and carrying the levers, and wedge-pins arranged to be driven through the lugs and secure the ends of two adjacent shafts therein; substantially as described.

13. A type-writer having a longitudinal shaft at its rear, provided with peripheral grooves and a series of key-levers having slotted ends engaging the grooved portions of said shaft; substantially as described.

691,778. RIBBON-FEED MECHANISM FOR TYPE-WRITERS. WILLIAM J. KAUFFMAN, Canton, Ohio, assignor to the Kauffman Type-writer Company, a Corporation of Ohio. Filed June 14, 1900. Renewed Sept. 30, 1901. Serial No. 76,954. (No model.)

Claim.—1. A type-writer having a pair of spools supported on either side of the machine and in planes substantially parallel with the key-levers, a central ribbon-guide supported upon a lever hinged to the carriage-bed and having a finger-rest, and intermediate guides for the ribbon between the spools and the central guide; substantially as described.



2. A type-writer having a central ribbon-guide carried upon oppositely-inclined arms, a pair of levers hinged to the carriage-bed and supporting the arms, and springs holding the levers normally in elevated position, said levers having finger-rests; substantially as described.

3. A type-writer having a central ribbon-guide provided with supporting-arms secured to two levers pivoted to the carriage-track, springs arranged to normally hold the levers in elevated position with the guide hiding the character, and finger-rests on the levers for depressing the guide, substantially as described.

4. A type-writer having a pair of spools, a ribbon extending between them, a pair of vertically-moving bars connected with the universal bar, each such vertical bar having two pawls pivoted on the same axis and engaging the ratchet-teeth of the spools, and mechanism for disengaging either pawl connection, substantially as described.

5. A type-writer having a ribbon-spool provided with ratchet-teeth, a vertical bar connected to the universal bar, two pawls pivoted upon the same pin secured to the vertical bar and mechanism for removing the vertical bar away from the spool to disengage the pawl mechanism, substantially as described.

6. A type-writer having a ribbon-spool provided with ratchet-teeth, a vertical bar connected to the universal bar, two pawls pivoted to the vertical bar on the same axis, limiting-stops for the pawls, and mechanism for moving the vertical bar to disengage the pawls, substantially as described.

7. A type-writer having a vertical bar pivoted to the universal bar, a crank-pin extending through a slot in the vertical bar and arranged to swing it toward or away from the spool, and pawls pivoted to the vertical bar and engaging the ratchet-teeth of the spool, substantially as described.

8. In a type-writer, a ribbon-spool having a recessed shaft or hub and an eccentric pin arranged to turn and clamp the ribbon within the recess, substantially as described.

9. In a type-writer, a pair of spools, a ribbon extending between the spools and through an intermediate guide, the vertical bars connected to the universal bar and having pawl-and-ratchet connection with the spool, and rotary adjustable shafts having pins entering slots in the vertical bars and arranged to throw either bar into inoperative position; substantially as described.

691,779. CARRIER OR HOLDER FOR PHONOGRAPH OR GRAPHOPHONE RECORD-CYLINDERS. CHARLES J. KETTNER, New York, N. Y. Filed Feb. 14, 1896. Serial No. 579,178. (No model.)

Claim.—1. A carrier or holder for phonograph or graphophone records, consisting of a tube provided with a soft flexible lining having a nap on its inner surface, and permanently secured to the inner wall of said tube.

2. A carrier or holder for phonograph or graphophone records, consisting of a rigid tube open at both ends and provided with a soft flexible

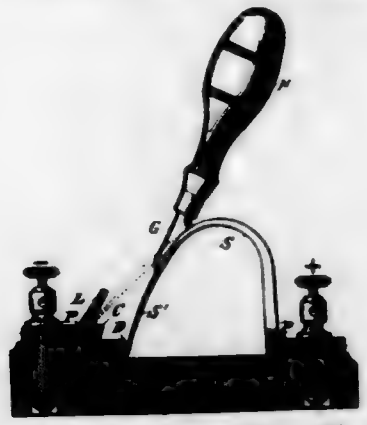
lining having a nap on its inner surface and permanently secured to the inner wall of said tube, and provided also with means for closing one or both ends of said tube.



3. A carrier or holder for phonograph or graphophone records consisting of a rigid tube open at both ends and provided with a soft flexible lining having a nap on its inner surface and permanently secured to the inner wall thereof, substantially as described.

4. A carrier or holder for phonograph or graphophone records consisting of a rigid tube open at both ends and provided with a lining of canton-flannel permanently secured to its inner wall, the nap-surface thereof being so located as to protect the record, substantially as described.

691,780. ELECTRICAL SWITCH. CHARLES J. KINTNER, New York, N. Y. Filed Oct. 29, 1900. Serial No. 34,766. (No model.)



Claim.—1. An electric switch consisting of fixed and movable conducting-terminals, the movable terminal being in the nature of a spring so arranged, when the circuit is closed, that the free end thereof bears endwise against the fixed terminal, thus causing the spring to be bent or buckled under pressure, and in such manner that when it is forced away from the fixed terminal it will leave the same with a sudden or snap action, substantially as described.

2. An electric switch consisting of fixed and movable conducting-terminals, the movable terminal being in the nature of a spring yieldingly secured at one end only to a base or support, while the free end thereof is adapted to contact with the fixed terminal secured to the same base or support, the arrangement being such that when the circuit is closed the free end of the movable terminal bears endwise against the fixed terminal and causes the spring to assume a bent or buckled shape, substantially as described.

3. A snap-switch consisting of fixed and movable conducting-terminals secured to a supporting-base, the movable terminal being in the nature of a spring operatively connected with two push-pins extending through the face of the base, the fixed terminal being secured in the path of the free end of the movable terminal in such manner that when the circuit is closed the movable terminal is caused to assume a bent or buckled shape, owing to the endwise pressure between it and the fixed terminal, substantially as described.

4. An electric switch consisting of fixed and movable conducting-terminals secured to a base or support, the movable terminal being in the nature of a spring adjustable in the direction of its length and adapted, when the circuit is closed, to bear endwise against the fixed terminal in such manner as to give to the spring a bent or buckled shape, substantially as described.

891,781. MECHANISM FOR AUTOMATICALLY OPERATING RAILWAY-SWITCHES. CHARLES J. KINTNER, New York, N. Y. Filed Dec. 24, 1900. Serial No. 40,987. (No model.)

Claim.—1. A railway-switch operatively connected to switch-operating mechanism; in combination with switch-controlling mechanism carried by a car, said controlling mechanism being supported in a guiding-sleeve adapted to prevent it from rotating and provided with means at its lower end adapted to assume different relative positions to the switch-operating mechanism; together with locking means for locking it in its upper or inoperative position, the arrangement being such that when the locking means is released the switch-controlling mechanism falls into operative position, substantially as described.



2. Means for automatically throwing a switch, consisting of a controlling-pin having its lower or operative end so constructed that it will, when released, assume different radial positions; in combination with a guiding-sleeve so constructed as to prevent the pin from rotating when located in its lower or operative position; together with locking means adapted to hold said pin normally in its upper or inoperative position, the arrangement being such that when the pin is released it will fall by its own weight to its lower or operative position, substantially as described.

3. Switch-controlling mechanism carried by a car, consisting of a reversible pin sustained in a guiding-sleeve rigidly secured to the car; in combination with locking mechanism adapted to lock the pin in its upper or inoperative position; said pin and its guiding-sleeve being so constructed as to prevent the former from rotating when in its lower or operative position and adapted to fall by its own weight when released, substantially as described.

4. A car provided with two or more guiding-sleeves located at different points; in combination with a switch-controlling pin adapted to be used in either of said guiding-sleeves, said pin and guiding-sleeves being so constructed relatively as to prevent rotation of the former when in its lower or operative position; together with locking mechanism adapted to lock the pin in its upper or inoperative position, substantially as described.

5. A railway-switch operatively connected with operating mechanism adapted to give to the switch gradual and continuous movement as a car approaches it; in combination with controlling mechanism therefor consisting of a pin supported in a guiding-sleeve carried by the car, said pin and sleeve being relatively so constructed that the former is prevented from rotating when in its lower or operative position; together with means for locking the pin out of operative relation with the switch-operating mechanism, the arrangement being such that when the pin is released it will fall by its own weight into working position, substantially as described.

6. Switch-controlling mechanism consisting of a rectangular guiding-sleeve carried by a car and a rectangular-shaped pin adapted to assume different positions therein when rotated and seated, the lower or operative end of the pin being adapted to assume relatively different positions with relation to the switches over or by which it passes, substantially as described.

7. Railway-switch-controlling mechanism consisting of a guiding-sleeve the interior surface of which is cylindrical in cross-section at its upper end and rectangular in cross-section at a lower point; in combination with a pin the lower or operative end of which is so constructed as to assume relatively different operative positions with relation to the switches over or by which it passes, the arrangement being such that when the

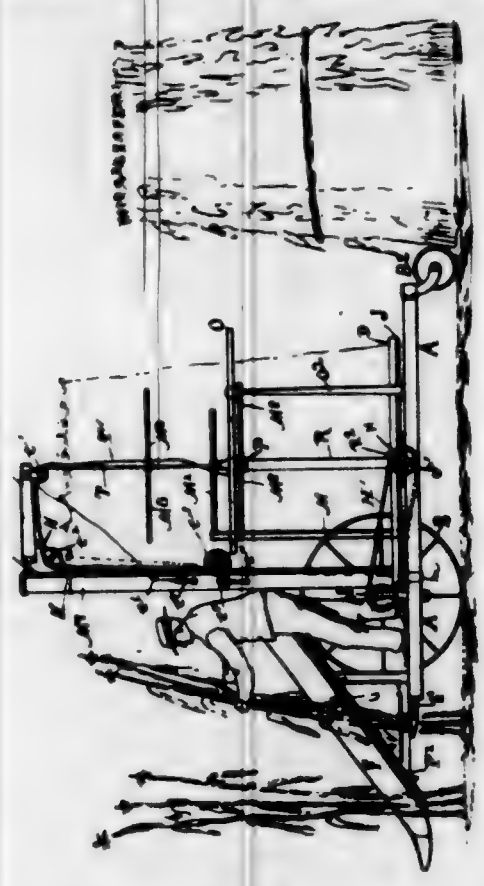
pin is lifted and rotated a partial revolution it will be held, when released, by the sleeve in its inoperative position, and when lifted and rotated still further in either direction and released it will fall by its own weight to operative position, substantially as described.

8. A railway-switch operatively connected with mechanism for moving it in opposite directions; in combination with controlling mechanism therefor carried by a car; together with locking and releasing means for regulating the movements of the controlling mechanism and stationary means for automatically restoring the controlling mechanism to its normal or locked position after each switch has been operated, substantially as described.

9. A railway-switch operatively connected with mechanism for moving it in opposite directions; in combination with controlling mechanism therefor, in the nature of a pin supported in a guiding-sleeve carried by a car and adapted to fall by its own weight, when released; together with locking and releasing means adapted to hold the pin in its upper or inoperative position and stationary means located in the road-bed adapted to automatically restore the controlling mechanism to its normal position after each switch has been operated, substantially as described.

10. Switch-controlling mechanism carried by a car consisting of a guiding-sleeve and a switch-controlling pin carried thereby, said sleeve and pin being so constructed relatively that when the former is lifted to its extreme height and rotated a partial revolution and then released, it will be held normally permanently out of operation; together with locking means so related to the sleeve and pin that when the latter is rotated a further definite distance in either direction and lowered, it will be locked and may be released at pleasure and allowed to fall by its own weight into operative position and will be locked, when so released, against rotation in either direction, substantially as described.

691,782. CORN-HARVESTER. ALVIE V. KISER, West Liberty, Ohio. Filed Mar. 11, 1901. Serial No. 50,756. (No model.)

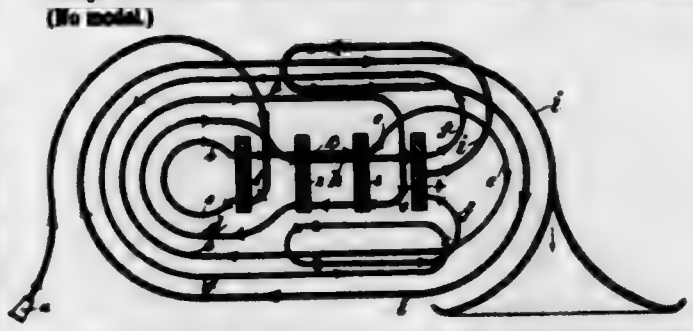


Claim.—1. In a corn-harvester, the combination with a rotary platform, of a post arranged centrally thereon and hinged thereto; means for locking and releasing the post; a separable ring upon the upper end of the post; means for connecting and disconnecting the ring-sections; and hoisting devices for elevating said ring with the sheck.

2. In a corn-harvester, the combination with a stationary platform, and a rotary platform thereon, of a curved rail supported above the rotary platform; a post hinged to the rotary platform, a separable ring on said post carrying radial arms; means for locking and releasing the ring-sections; elevating devices connected to said ring, and a coil-spring supported horizontally above the rotary platform.

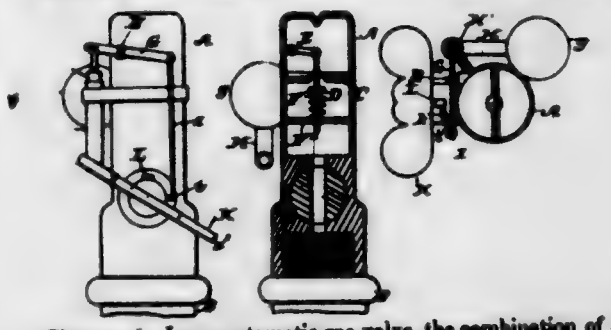
3. In a corn-harvester, the combination with a rotary platform of a post hinged thereon; a sliding bolt for locking said post in upright position, a separable ring on said post; an oscillating locking-rod connecting the ring-sections, a pull-cord for turning said rod; arms projecting radially from said ring, and hoisting devices connected to said ring.

691,788. WIND INSTRUMENT. JENS P. KOCH, Hamburg, Germany. Filed Nov. 27, 1899. Renewed Dec. 17, 1901. Serial No. 86,238. (No model.)



Claim.—A wind instrument provided with valve-chambers, loops of tubing beginning and ending in said chambers, and through which the air-circuit normally leads, and valves in said chambers adapted to cut the loops out of the air-circuit to thereby raise the tone, in combination with another valve-chamber, a loop of tubing beginning and ending in the chamber and normally out of the air-circuit and a valve in said chamber adapted to cut said loop into the air-circuit to thereby lower the tone, whereby by the use of the several valves in combination, the various tones can be produced without the use of tuning-slides.

691,784. AUTOMATIC GAS-VALVE. CHARLES KOSHALEK, Johnstown, Pa. Filed June 17, 1901. Serial No. 64,896. (No model.)



Claim.—1. In an automatic gas-valve, the combination of a burner, a valve within the same and normally closed by a spring, a piston connected to said valve and adapted to open the same against the pressure of said spring, a tube in which said piston works, an expansive material in said tube and means whereby said valve is opened and held open until the expansion of the material in the tube will operate the piston and maintain said valve open so long as the gas is ignited, substantially as described.

2. In an automatic gas-valve, the combination with the burner, a valve therein, and a spring bearing on said valve to normally close the same, of a rock-shaft journaled in the burner and connected with the valve, a lever on said rock-shaft, a tube containing an expansive material, a piston in said tube attached to said lever and actuated by the expansive material, a rod depending from said lever and having a hook at its lower end, a turn-key having a spiral groove in its side and a lug at the end of said groove to engage the said hook.

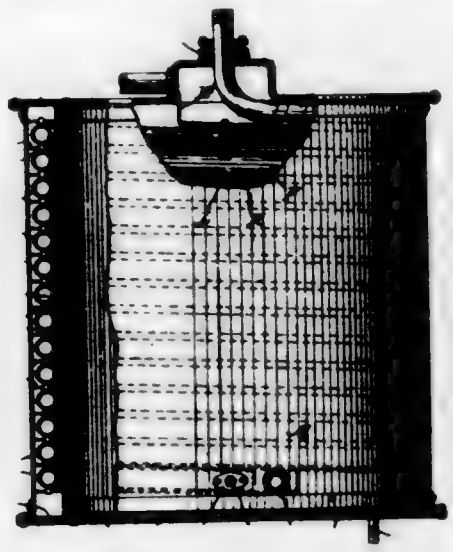
3. In an automatic gas-valve, the combination with a valve arranged within the burner and means for manually opening said valve, of means for causing the valve to close comprising a piston, connections between the piston and the said valve, a vessel in which said piston works, arranged within the heating sphere of the flame, an expansive and contractive material in said vessel controlling the movement of the piston, and a spring to cause the piston to follow the contractions of said material substantially as described.

691,785. DRAFT-EQUALIZER. GUSTAVE A. F. LANUDDE, Jr., Eureka Junction, Wash. Filed May 11, 1901. Serial No. 59,754. (No model.)



Claim.—In a draft-equalizer the combination with a slotted tongue having plates upon its upper and lower faces and provided with slots alining with the slots of the tongue, of a lever pivoted in the slot and projecting above and below the tongue, said lever having clevises connecting with its upper and lower ends and adapted for adjustment longitudinally thereof, a ring upon the under side of the forward end of the tongue, a chain connected with the lower clevis and passed through the ring and adapted for connection of a doubletree therewith, a doubletree connected with the upper clevis, and plugs adapted for engagement with the slot of the tongue at opposite sides of the lever to hold the latter against pivotal movement.

691,786. COOLING COIL AND TANK. JOHN LEVET, Chicago, Ill. Filed Apr. 1, 1901. Serial No. 53,838. (No model.)



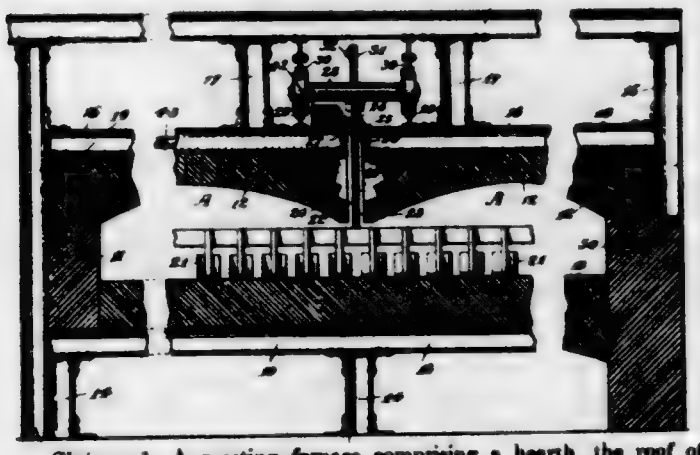
Claim.—1. In a cooling device the combination of an annular chamber with a continuous spiral passage therein, and a second spiral passage inclosing the first passage in the annulus, and suitable terminals for both passages, said second spiral passage composed in part of the walls of the annulus and in part of pieces interposed between and supported on the coils of the first spiral passage.

2. In a cooling device the combination of an annular chamber with a continuous spiral passage therein, and a second spiral passage inclosing the first passage in the annulus, and suitable terminals for both passages, said second spiral passage composed in part of the walls of the annulus and in part of segmental pieces interposed between the coils of the first spiral passage.

3. In a cooling device the combination of an annular chamber with a continuous spiral passage therein, and a second spiral passage inclosing the first passage in the annulus, and suitable terminals for both passages, said second spiral passage composed in part of the walls of the annulus and in part of pieces interposed between the coils of the first spiral passage, and projections interposed between such pieces and coils to keep them slightly separated.

4. In a cooling device the combination of a tank with an outer annular sheath, and two spiral passage-ways, one continuous throughout its length, the other containing the first-mentioned spiral passage-ways, and formed of separable pieces, combined with the walls of the sheath.

691,787. ROASTING-FURNACE. WILLIAM A. LORENZ, Hartford, Conn., assignor to Lanyon Zinc Company, St. Louis, Mo., a Corporation of New Jersey. Filed July 8, 1901. Serial No. 67,333. (No model.)



Claim.—1. A roasting-furnace comprising a hearth, the roof of which is formed of sections which are separated from each other by a slot disposed longitudinally of said roof, and the adjacent portions of which are substantially in alinement with said slot and are nearer to the floor of the hearth than the contrat portion of said sections.

2. The combination with a hearth having two arches disposed longitudinally of the roof thereof; a longitudinal opening through the roof between the said arches and adjacent to their inner lower edges; a stirrer mechanism having an arm projecting through said opening; and means for moving said stirrer longitudinally through said hearth.

3. The combination, with a roasting-furnace comprising a hearth the roof of which has a continuous longitudinal slot disposed lengthwise of the hearth; of means for forcing air through said slot into the hearth.

4. The combination, with a roasting-furnace comprising a hearth the roof of which has a longitudinal slot; of a longitudinally-disposed air-conduit adjacent to the slot for forcing air into said slot; and means for normally closing said slot.

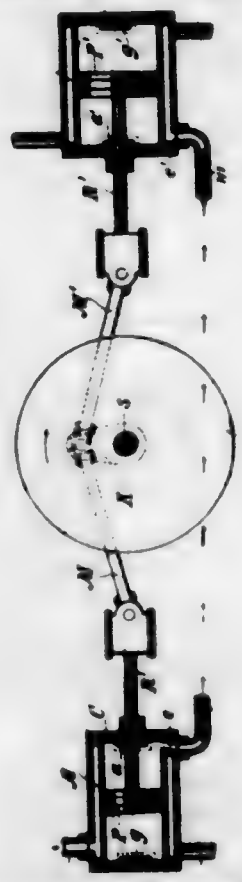
5. The combination, with a roasting-furnace comprising a hearth, the roof of which is provided with a longitudinal slot; of a stirrer mechanism having an arm projecting through said slot; means for moving said stirrer mechanism longitudinally of the hearth; means for normally closing said slot, and operable to permit the passage of the stirrer-arm through said slot; and an air-conduit disposed in parallelism with the slot for forcing air thereinto.

6. An ore-roasting furnace comprising a roof formed of a plurality of sections which are separated from each other by an opening extending longitudinally of said roof; a supporting member disposed above each of the roof-sections; means for independently supporting each of said roof-sections from said member; a girder for sustaining the supporting member near the ends thereof; a stirrer mechanism having an arm projecting through said opening into the hearth; and means for moving said mechanism longitudinally of the hearth.

7. A roasting-furnace comprising a roof made in sections separated from each other by a longitudinal slot; cross-beams disposed above said sections; thrust members secured to said cross-beams and for supporting the roof-section; girders extending laterally across the furnace; means for supporting the sectional cross-beams from the girders; a stirrer mechanism having an arm projecting through said slot into the hearth; and means for moving said mechanism longitudinally of the hearth.

8. An ore-roasting furnace comprising a roof composed of a plurality of arches which are separated from each other by a slot extending longitudinally of the furnace; I-beams disposed above each of said sections; thrust members secured to said beams, for independently supporting each of said sections from said beams; girders extending laterally of the furnace; means for supporting the I-beams from the girders; means for supporting the girders near the ends thereof; a stirrer mechanism having an arm projecting through said slot into the hearth; and means for moving said mechanism longitudinally of the hearth.

691,788. COMBINED AIR AND EXPLOSIVE ENGINE. ROBERT LUNDELL, New York, N. Y., assignor of one-half to Charles J. Kintner, New York, N. Y. Filed Mar. 29, 1900. Serial No. 10,694. (No model.)



Claim.—1. A compound engine having a high-pressure and a low-pressure cylinder and pistons located therein, said cylinders being provided with gas-ports for admitting an explosive gas against the full free faces of the pistons and additional ports for admitting a gas under pressure against the other faces thereof, the cylinders being so interconnected that the gas under pressure as it leaves one of them is admitted at lower pressure as it enters the other, substantially as described.

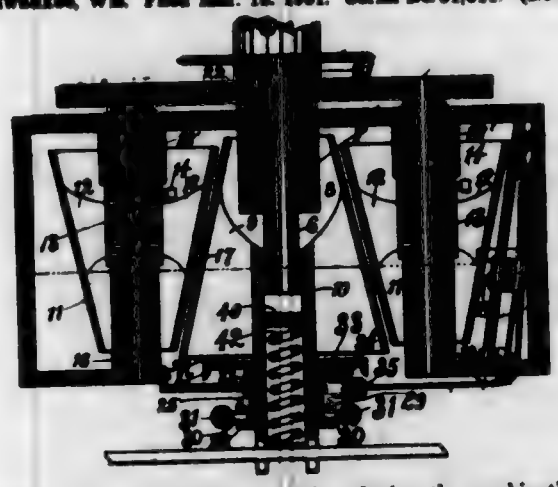
2. A compound gas and air engine having two cylinders and interconnected pistons therefor, said cylinders being each provided with a surrounding air-chamber for maintaining a free circulation of air around them so as to produce a cooling effect thereon; together with supply pipes and ports for admitting an explosive gas against the full free faces of the pis-

tons and additional ports for admitting air under pressure against the other faces thereof, a connecting-pipe being located between the cylinders for exhausting the air from one cylinder and admitting it to the other, substantially as described.

3. A compound engine having a high and a low pressure cylinder and a piston located in each, said cylinders being each provided with a gas-port for admitting an explosive gas against the full free face of each piston and each provided also with an additional port for admitting a gas under pressure against the opposite face of each piston; in combination with pipes, valves and connections adapted to be operatively connected with a source of gas-supply, both of said pistons being operatively connected to a common driving-shaft and the arrangement such that gas under pressure, as it leaves one of the cylinders, is admitted at a lower pressure as it enters the other, substantially as described.

4. A compound engine having a high and low pressure cylinder, the latter being of greater diameter than the former and a piston located in each, said pistons being operatively connected with a common driving-shaft; in combination with an air-chamber surrounding each cylinder, said air-chambers and cylinders being so interconnected that an explosive gas is adapted to act alternately upon the free faces of the pistons, and air under pressure from a direct source of supply upon the other face of the smaller piston, the exhaust-air from the smaller cylinder being adapted to act upon the opposite face of the low-pressure piston, the arrangement being such that the explosive effect of the gases tends to expand the air acting under pressure, and, on the contrary, the cooling effect of the air tends to reduce the temperature set up by the successive explosions, substantially as described.

691,789. POWER-TRANSMITTING DEVICE. ROBERT B. MANN, Milwaukee, Wis. Filed Mar. 18, 1901. Serial No. 51,611. (No model.)



Claim.—1. In a power-transmitting device, the combination of a driving-shaft, a sun and planet gearing, the sun-gearing adapted for transmitting motion to machinery to be operated, and a continuously-operating variable-speed-transmitting mechanism between the driving-shaft and the sun and planet gearing, one element of said continuously-operating variable-speed-transmitting mechanism, together with its axis, adapted to revolve about a central axis.

2. In a power-transmitting device, the combination of a driving-shaft, a frame, a sun-gearing, one of the two latter parts being rotatable with the driving-shaft, a planet-gearing meshing with the sun-gearing, a shaft carried by the frame and having the planet-gearing fast thereon, and a continuously-operating variable-speed-transmitting mechanism between the driving-shaft and the sun and planet gearing, one element of said continuously-operating variable-speed-transmitting mechanism revolving about the same axis as the planet-gearing.

3. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a non-rotatable cone unconnected to but arranged within the frame, a series of reversed cones rotatably mounted in the frame, gear-wheels mounted on the axes of said rotatable cones, and in mesh with the first-referred-to gear-wheel, and means for rotating the rotatable cones from the non-rotatable cone at variable speeds.

4. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a non-rotatable cone unconnected to but arranged within the frame, a reversed cone rotatably mounted in the frame, a gear-wheel mounted on the axis of the reversed cone, and in mesh with the other gear-wheel, a belt engaging the several cones, and means for shifting the position of said belt upon the cones so as to impart variable speeds to the rotatable cone.

5. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a non-rotatable cone unconnected to but arranged within the frame, a reversed cone rotatably mounted in the frame and close to but not in contact with the non-rotatable cone, a gear-wheel mounted on the axis of the reversed cone and in mesh with the other gear-wheel, a belt surrounding the non-rotatable cone and located in the space between said non-rotatable cone and the rotatable cone, whereby the several cones frictionally engage the belt, and means for shifting the position of the belt so as to impart variable speeds to the rotatable cone.

6. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a non-rotatable cone unconnected to but arranged within the frame, a reversed cone rotatably mounted in the frame, a gear-wheel mounted on the axis of the reversed cone and in mesh with the other gear-wheel, means for rotating the rotatable cone from the non-rotatable cone, and means for longitudinally adjusting the non-rotatable cone.

7. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a non-rotatable cone unconnected to but arranged within the frame, a reversed cone rotatably mounted in the frame, a gear-wheel mounted on the axis of the reversed cone and in mesh with the other gear-wheel, a belt engaging the several cones, a slidable pulley around which said belt passes, and means for sliding the pulley.

8. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a non-rotatable cone unconnected to but arranged within the frame, a reversed cone rotatably mounted in the frame, a gear-wheel mounted on the axis of the reversed cone and in mesh with the other gear-wheel, a belt engaging the several cones, a pulley adapted to be engaged by the strands of the belt, a rod on which the pulley is slidably mounted, brake-controlled pulleys, the brake mechanism adapted to permit said pulleys to run either loose or fast, a guide-pulley, and a rope or cable connected at one end to the slidable pulley, thence extended to and around one of the brake-controlled pulleys, thence around the guide-pulley, thence around the other brake-controlled pulley, and thence extended for connection at its other end to the slidable pulley.

9. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a non-rotatable cone unconnected to but arranged within the frame, a reversed cone rotatably mounted in the frame, a gear-wheel mounted on the axis of the reversed cone and in mesh with the other gear-wheel, a belt engaging the several cones, a pulley adapted to be engaged by the strands of the belt, a rod on which the pulley is slidably mounted, brake-controlled pulleys, the brake mechanism adapted to permit said pulleys to run either loose or fast, a spring-tensioned guide-pulley, and a rope or cable connected at one end to the slidable pulley, thence extended to and around one of the brake-controlled pulleys, thence around the spring-tensioned guide-pulley, thence around the other brake-controlled pulley, and thence extended for connection at its other end to the slidable pulley.

10. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a normally non-rotatable cone unconnected to but arranged within the frame, a reversed cone rotatably mounted in the frame, a gear-wheel mounted on the axis of the reversed cone and in mesh with the other gear-wheel, means for rotating the rotatable cone from the normally non-rotatable cone at variable speeds, and means for permitting the normally non-rotatable cone to rotate.

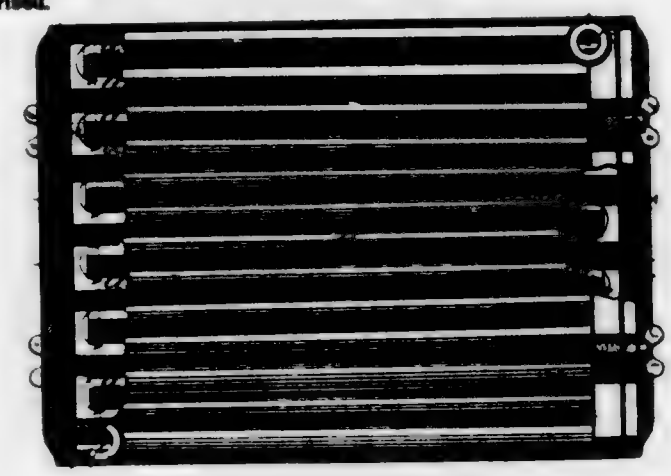
11. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a normally non-rotatable cone unconnected to but arranged within the frame, the axis of said cone provided with a cam-surface, a reversed cone rotatably mounted in the frame, a gear-wheel mounted on the axis of the reversed cone and in mesh with the other gear-wheel, means for rotating the rotatable cone from the normally non-rotatable cone at variable speeds, a pivoted lever carrying a cam-surface, the lever being normally held in position to throw its cam-surface into engagement with the cam-surface of the axis of the normally non-rotatable cone, and means for releasing the lever so as to adapt the same to be turned on its pivot and thereby throw its cam out of engagement with the cam of the axis of the normally non-rotatable cone.

12. In a power-transmitting device, the combination of a driving-shaft, a frame, a gear-wheel, one of the two latter parts being rotatable with the shaft, a non-rotatable cone unconnected to but arranged within the frame, a reversed cone rotatably mounted in the frame, a gear-wheel mounted on the axis of the reversed cone and in mesh with the other gear-wheel, and means for rotating the rotatable cone from the non-rotatable cone at variable speeds.

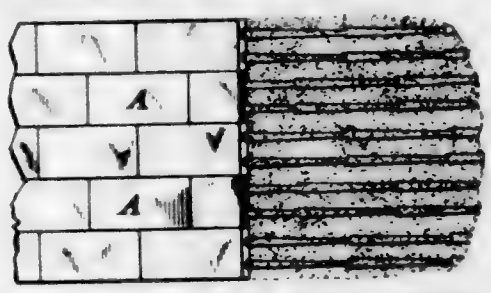
691,790. LIQUID-COOLING DEVICE. BENJAMIN W. MASON, St. Louis, Mo., assignor of one-tenth to James M. Sutherland, St. Louis, Mo. Filed Jan. 26, 1901. Serial No. 44,514. (No model.)

Claim.—In a device of the character described, the combination

with the body portion in the form of a casting A having a plurality of parallel cylindrical passages *a* arranged in a plane and extending through said body portion, said passages communicating with each other by having their division-walls stopped short of the extreme edge at alternate ends, perforated nipples which communicate with each of the outermost passages *a*, said nipples being arranged on the upper side of the casting and at diagonally opposite corners thereof, heads arranged on each end of said body portion for closing the ends of the passages *a*, and means for separately securing said heads to said body portion; substantially as described.



691,791. TILE-FACED SURFACE AND THE METHOD OF CONSTRUCTING SAME. WILLIAM P. MEEKER, Newark, N. J. Filed Apr. 17, 1901. Serial No. 56,194. (No model.)

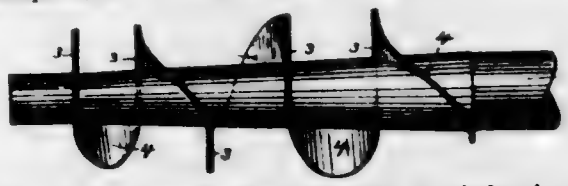


Claim.—1. The above-described method of constructing a tile-faced surface, consisting of applying the tile upon plastic cement, interposed between it and the backing, to one side of the position which it is ultimately to occupy, and then sliding the tile laterally into position, substantially as described.

2. In a tile-faced surface, the combination, with a backing, of a layer of cement, provided upon its outer surface with integral flanges, formed of continuous, flaring dovetailed members, and presenting indented undercut edges, and facing-tile, provided upon their backs with flaring dovetailed grooves open at both ends, interlocked with the flanges on said cement, substantially as described.

3. In a tile-faced surface, the combination, with a backing, of a layer of cement, provided upon its outer surface with integral flanges, formed of continuous, flaring dovetailed members each of the same length as an applied tile, and presenting indented undercut edges, and facing-tile, provided upon their backs with flaring dovetailed grooves open at both ends, interlocked with the flanges on said cement, substantially as described.

691,792. SCREW-PROPELLER. FRANK C. METZ, Allegheny, Pa. Filed Apr. 10, 1901. Serial No. 55,194. (No model.)

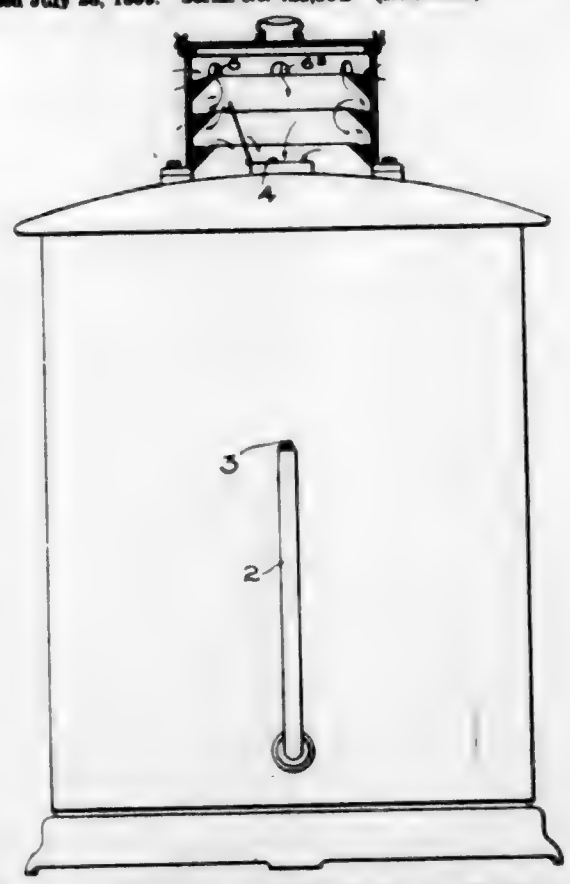


Claim.—1. In a propeller, the combination of a shaft and a blade thereon, said blade having a portion or portions of its working face in a plane approximately at right angles to the axis of the shaft and another portion or portions thereof at an angle thereto.

2. In a propeller, the combination of a shaft and a blade thereon, said blade extending spirally about the shaft and changing its course at each one-third of the circumference of the shaft.

3. In a propeller, the combination of a shaft and a blade thereon, said blade changing its course at each one-third of the circumference of the shaft, alternate ones of said portions being in a plane substantially at right angles to the axis of the shaft and the others being arranged at approximately an angle of forty-five degrees thereto.

691,798. INSULATION. WALTER S. MOODY, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed July 23, 1899. Serial No. 725,264. (No model.)

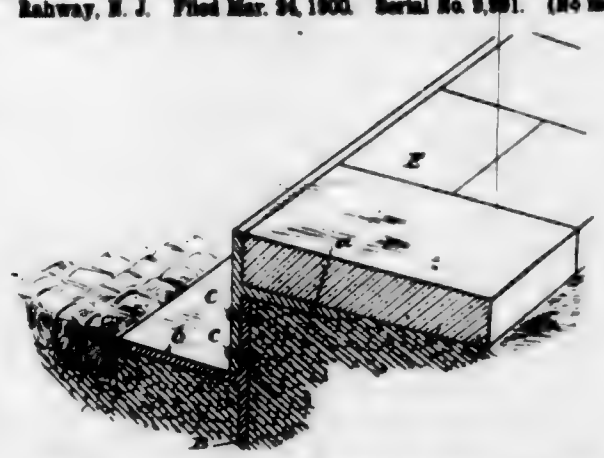


Claim.—1. An electric translating device housed within a casing and insulated by oil freed from watery impurities, in combination with a drying material in juxtaposition to its openings to the atmosphere to prevent entrance of moisture.

2. In an electric transformer, the combination with a casing for a fluid, of means for allowing the entrance of air through a drying material.

3. An electric translating apparatus, a body of oil in which said apparatus is immersed, a casing for the oil and apparatus, said casing being provided with vents to permit free expansion when the apparatus becomes heated, and a dehydrating agent in the vents to prevent the entrance of moist air into the casing.

691,794. COMBINED CURB AND GUTTER. STEPHEN B. MEEKS, Rahway, N. J. Filed Mar. 24, 1900. Serial No. 9,991. (No model.)

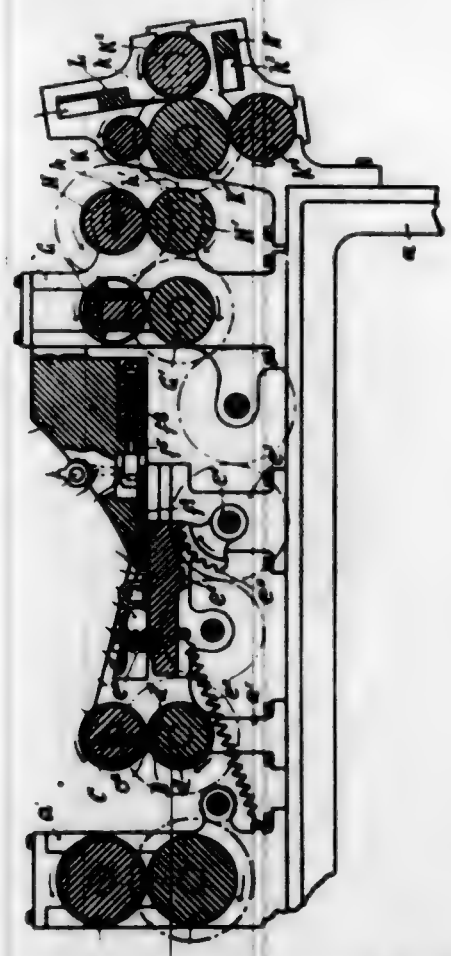


Claim.—A combined curb and gutter comprising a pair of plates secured together and adapted to be set vertically, one plate having on one side an outwardly-extending web to form a gutter or support for a gutter, and the other plate having on the opposite side below the upper edge an outwardly-extending web, the portion of the plate extending above its web serving with the web to form a seat for the abutting edge of a pavement, substantially as described.

691,795. PAPER-BAG MACHINE. GEORGE C. NELSON, Cincinnati, Ohio. Filed Sept. 4, 1901. Serial No. 74,286. (No model.)

Claim.—1. In a machine for forming square-bottomed bags from bellows-sided tubes, the combination of a reciprocating carriage means for feeding the tube upon the carriage, a plate upon the carriage to descend upon the tube at a distance from its end, fingers upon the carriage to rest upon the lower plate of the bellows between said plate and the end of the tube, a rigid nose to enter the end of the tube to turn its upper part back

as the carriage advances to form the laps and the triangular folds, substantially as shown and described.



2. In a machine for forming square-bottomed bags from bellows-sided tubes, the combination of a reciprocating carriage means for feeding the tube upon the carriage, a plate upon the carriage to descend upon the tube at a distance from its end, fingers upon the carriage to rest upon the lower plaits of the bellows between said plate and the end of the tube, a rigid nose to enter the end of the tube, arms pivoted to the end of the nose upon its under side, means for retracting the arms when the nose enters the end of the tube, and means for spreading them to assist in forming the triangular folds and laps, and in retracting them as the tube passes onward beneath the nose, substantially as shown and described.

3. In a machine for forming square-bottomed bags from bellows-sided tubes the combination of rigid side bars having ways formed therein, a reciprocating carriage sliding in said ways, pins mounted upon the carriage a plate upon the pins, fingers mounted upon the sides of the carriage, plates upon the side bars having both inclined slots into which the ends of the plate upon the carriage project to carry it down upon the tube and inward projections to abut against the fingers to carry them over the lower plaits of the bellows, a nose fixed upon the side bars centrally over the carriage to enter the end of the tube and turn the upper side thereof back over the plate and fingers to form therein the triangular folds and laps, substantially as shown and described.

4. In a machine for forming square-bottomed bags from bellows-sided tubes the combination of rigid side bars having ways formed therein, a reciprocating carriage sliding in said ways, pins mounted upon the carriage, a plate upon the pins, fingers mounted upon the sides of the carriage, plates upon the side bars having both inclined slots into which the ends of the plate upon the carriage project to carry it down upon the tube and inward projections to abut against the fingers to carry them over the lower plaits of the bellows, a nose fixed upon the side bars centrally over the carriage, arms pivoted upon the under side of the nose, a lever fulcrumed in the nose for spreading the arms, and an arm upon the carriage for contacting the lever to actuate it to spread the arms after the nose has entered the end of the tube to assist in forming the triangular folds and laps therein, substantially as shown and described.

691,796. RADIATOR ATTACHMENT. GEORGE W. KEITH, Chicago, Ill., assignor of two-thirds to Robert L. Gifford and Everett W. Brooks, Chicago, Ill. Filed July 11, 1901. Serial No. 67,551. (No model.)

Claim.—1. In a radiator attachment, the combination of a valve-casing provided with an inlet and with an outlet-nozzle, and a float-valve guided by said casing, the said valve and outlet-nozzle having coacting surfaces correspondingly formed, the arrangement of the nozzle relative to the valve being such that the valve when in its lowest position is normally tilted providing between it and the nozzle a restricted opening, said opening being formed by the tilting of the valve, substantially as described.

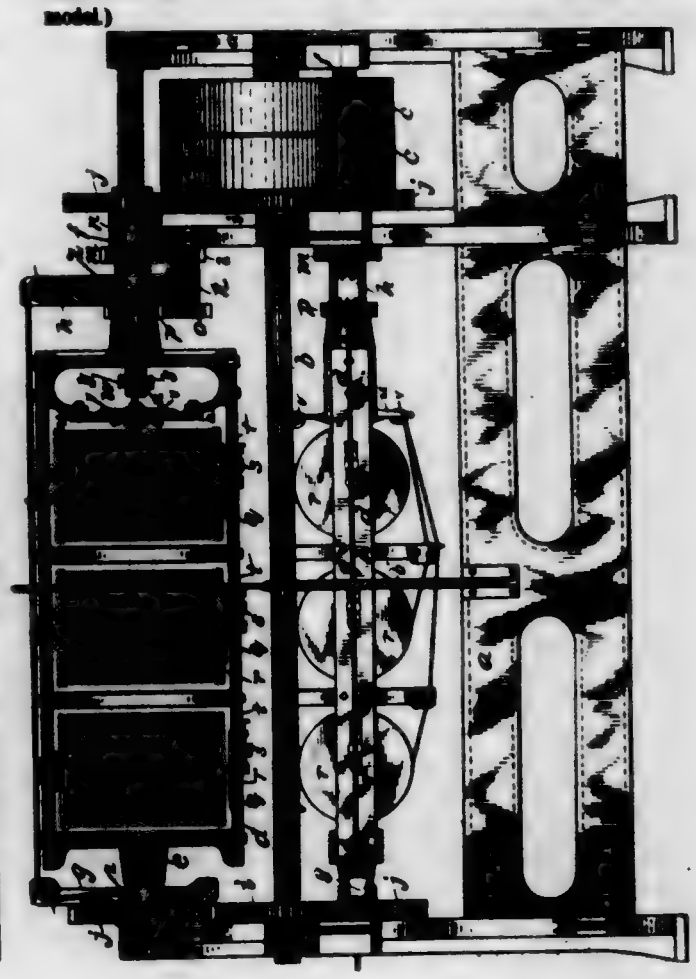


2. In a radiator attachment, the combination of a valve-casing provided with a water-inlet and with an outlet-nozzle, said nozzle formed with a substantially plane upper surface, and a float-valve guided by said casing and formed with a substantially plane lower surface, the arrangement of the nozzle relative to the valve being such that the valve when in its lowest position, is normally tilted, providing between it and the nozzle a restricted opening, said opening being formed by the tilting of the valve, substantially as described.

3. In a radiator attachment, the combination of a valve-casing provided with a water-inlet and with an eccentrically-disposed outlet-nozzle, and a float-valve guided by said casing and normally supported on said eccentrically-disposed nozzle, the arrangement of the nozzle relative to the valve being such that the valve, when in its lowest position, is normally tilted providing between it and the nozzle a restricted opening, said opening being formed by the tilting of the valve, substantially as described.

4. In a radiator attachment, the combination of a valve-casing provided with a water-inlet and with an eccentrically-disposed outlet-nozzle, a chamber surrounding the outlet-nozzle, and a valve normally supported on said outlet-nozzle and guided by said casing, the arrangement of the nozzle relative to the valve being such that the valve when in its lowest position is normally tilted providing between it and the nozzle a restricted opening, said opening being formed by the tilting of the valve, substantially as described.

691,797. MACHINE FOR MAKING ROPES. THOMAS W. HORNAR, Boston, Mass. Filed Mar. 16, 1901. Serial No. 335,136. (No model.)



Claim.—1. The combination, with a plurality of spools and their supporting and carrying frame, of a guide for the yarns or cords drawn from the spools, consisting of a frame or head *u* connected with the spool-frame, pairs of pulleys, (one pair for each of said yarns or cords) supported in the frame *u*, one pulley of each pair being arranged at a distance from the center of its frame, and the other pulley of each pair being centrally arranged in its frame at an angle to the first-mentioned pulley of each pair.

2. The combination, with a plurality of spools and their supporting and carrying frame, of a guide for the yarns or cords drawn from the spools, consisting of a frame or head *u* connected with the spool-frame, pairs of pulleys, (one pair for each of said yarns or cords) supported in the frame *u*, one pulley of each pair being arranged at a distance from the center of its frame, and the other pulley of each pair being centrally arranged in its frame at an angle to the first-mentioned pulley of each pair and a former *w* located substantially opposite the center of the frame *u*.

3. A guide for yarns or cords in a rope-making machine consisting of a frame or head *u*, pairs of pulleys (one for each yarn or cord) supported in the said frame, one pulley of each pair being arranged at a distance from the center of the frame, and the other pulley of each pair being centrally arranged in the frame at an angle to the first-mentioned pulley of each pair.

4. The combination, with the rotary spool-carrying frame or flier, of a guide for the yarns or cords and a laying-head or former at one end of and within the flier, the latter being provided with a hollow shaft beyond the inner end of which the yarn-guide and former are located as described, and the rotary disks *g h*, having hollow shafts or hubs, and located beyond the ends of the flier and provided with the pulleys *z z* and *a' e'* arranged and operating substantially as shown and described, and gearing for operating the flier and disks.

5. A pull-down consisting of a revolving frame, a stationary worm around which the frame revolves, said worm being arranged to extend on a line concentric with the axis of rotation of the frame; a worm-gear *e'* carried by the frame, engaging said worm, and revolvable around the same; a rotary capstan *m'*, and operative gearing connecting the same with the worm-gear; a capstan *p'* arranged to bear upon the capstan *m'* with a yielding pressure, as described; and operative gearing intermediate of the capstans *m'* and *p'*

6. The combination with the take-up spool and flier, of the spring-pressed levers *l'''* supported by the flier and provided with rollers *m'''* which extend inside of the flanges of the take-up spool, and an alarm adapted to be operated by the said levers when the rollers are pressed outward, as set forth.

691,798. MACHINE FOR MAKING CORDS OR ROPES. THOMAS W. HORMAN, Boston, Mass. Filed Nov. 16, 1891. Serial No. 411,989 (No model.)

Claim.—1. The rotatable bobbin or spool having its barrel longitudinally grooved, and having a radial groove in its head or disk, a relatively stationary gong, a relatively stationarily mounted gong-striking device, and an angular spring-lever secured at its end to the barrel of the bobbin and extending along the groove in the same, and having an end extending up in a radial direction in the groove in the head or disk and adapted to impinge upon the gong-striking device to operate it, substantially as set forth.

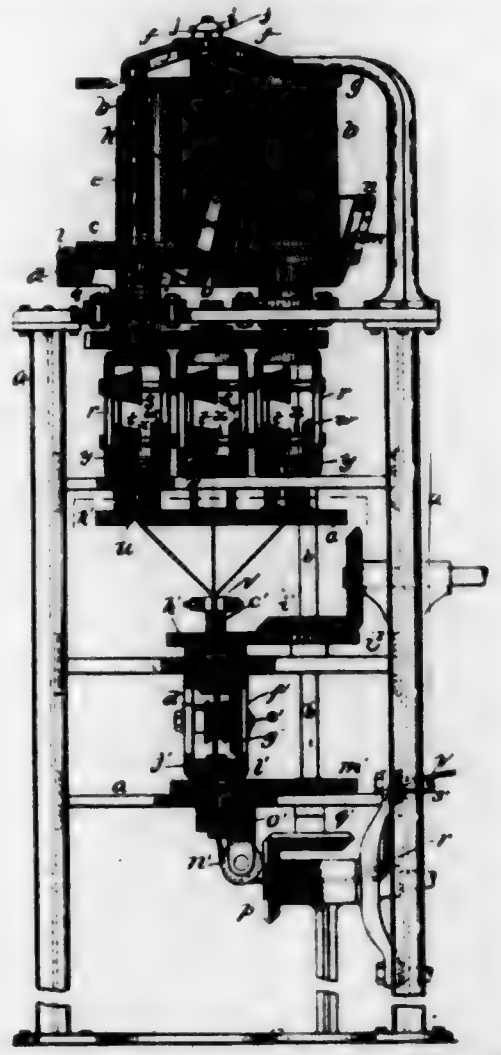
2. The combination with the relatively stationary gong and the relatively stationarily mounted gong-striking device, of a rotatable drum having a disk with a radial groove, and an angular spring lever secured at one end to the barrel and having a bent end lying in the radial groove and adapted to operate the gong-striking device, substantially as and for the purposes set forth.

3. The revolvable bobbin or spool, a base or support *d* therefor, and a tubular shaft *q* relatively to which said bobbin may revolve, in combination with an upwardly-extending arm *m* rigid with said base and shaft, a guide-pulley *n* on the upper end of said arm, a guide-pulley *o* in the base below the lower end of said arm, and a third guide-pulley *p* arranged below the bobbin so that the axis of the tubular shaft is substantially tangential to its periphery, as set forth.

4. A revolvable base or support, a bobbin or spool revolvable relatively thereto, and a tubular shaft *q*, rigid with the base or support, in combination with an arm, *m*, having a pulley *n* on its upper end, and a pulley *o* below its lower end, and a pulley *p* having bearings rigid with the shaft, and having one side of its periphery in line with the opening in the said tubular shaft.

5. The combination, with the bobbin and its base or support and hub *d* connected therewith of the capstan-flier *r* provided with a tubular journal-shaft *q* extending into said hub, a pulley *p* journaled in the latter, and a pulley *o*, supported in the lower part of the base near the edge thereof, as set forth.

6. A rope pull-down, comprising in its construction a pulley or hub a^2 having a groove affording a guide or bearing for the rope, longitudinally-movable bolts b^2 in the said hub for engaging and being disengaged from the rope, a cam for moving the said bolts into engagement with and gripping the rope, and springs for moving them in the opposite direction combined with the flier-shaft and its sleeve upon which the said pulley is located.



7. A rope pull-down comprising in its construction a pulley or hub a^2 provided with a groove d^2 for the passage and guiding of the rope, longitudinally-movable bolts b^2 supported in the hub, a hub or collar e^2 provided with a cam-face h^2 for acting upon the bolts to cause them to engage and grip the rope, and springs i^2 for moving the bolts in the opposite direction, combined with the flier-shaft and its sleeve upon which the said pulley is located.

8. A rope pull-down comprising in its construction a pulley or hub a^2 provided with a groove d^2 for the passage and guiding of the rope, longitudinally-movable bolts b^2 supported in the hub, a hub or collar e^2 provided with a cam-face h^2 for acting upon the bolts to cause them to engage and grip the rope, and springs i^2 for moving the bolts in the opposite direction, means for holding the cam-face of the said hub e^2 against the bolts by a yielding pressure, as described.

9. A rope pull-down comprising in its construction a pulley or hub a^2 provided with a groove d^2, for the passage and guiding of the rope, longitudinally-movable bolts b^2 supported in the hub and having concaved ends and squared heads, as described, a hub e^2 provided with a cam-face h^2 and a wall j^2 at the side thereof, for acting upon the heads of the bolts to move the latter into engagement with the rope, and springs for moving them in the opposite direction, as set forth.

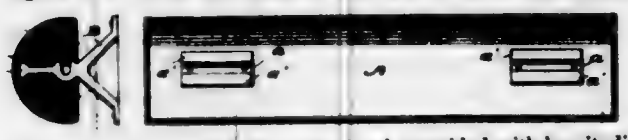
10. A rope pull-down, comprising in its construction a grooved pulley or hub a^2 affording a guide or bearing for the rope, longitudinally-movable bolts in the said hub for engaging and being disengaged from the rope, a cam for moving the said bolts into engagement with the rope, and springs for moving them in the opposite direction, the said bolts being provided with squared heads and concaved ends, combined with the flier-shaft and its sleeve upon which the said pulley is located.

11. A collapsible spool having the barrel b^4 and surrounding segments d^4 and provided on its ends with the spring-cleats y^3, as set forth.

12. A collapsible spool, combined with rings f^4 adapted to be placed on the ends of the barrel, for attachment of the bundling-cords x^3, and said spool having means for maintaining the bundling-cords in place where attached.

13. The combination, with the flier and its shaft, gear s^3 thereon, the worm-shaft, gear u^3 thereon meshing with the gear s^3 and differing in size therefrom, the spool-shaft, gear o^3 thereon, the traveler and its shaft, gear q^3 on the traveler-shaft, differing in size from gear o^3, as set forth.

691,799. CURTAIN-FIXTURE. CHARLES A. CRENSHAW, Washington, D. C. Filed Apr. 23, 1901. Serial No. 57,132. (No model.)

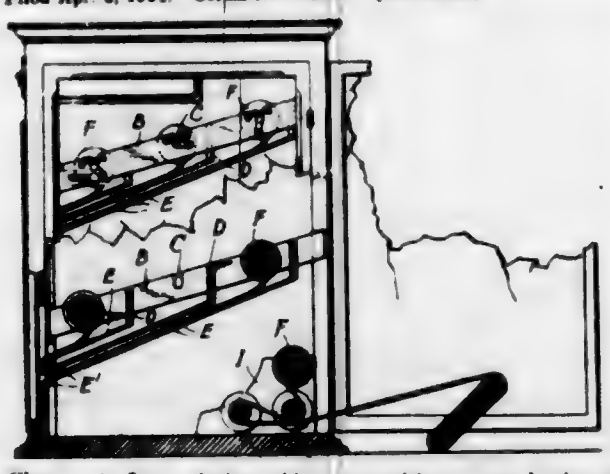


Claim.—1. In a curtain-fixture, a hood, provided with longitudina holding-tracks, and brackets having lugs adapted to engage in said tracks, substantially as specified.

2. In a curtain-fixture, a hood composed of a single member and provided interiorly, with tracks, brackets adapted to engage in said tracks and whereby said hood may be adjusted to different-sized windows, substantially as specified.

3. In a new article of manufacture, a hood composed of one member, and provided interiorly with holding-tracks, and brackets having lugs adapted to engage in said tracks, substantially as specified.

691,800. DISPLAY-CABINET. ALBERT M. OWENS, Soldier, Kans. Filed Apr. 6, 1901. Serial No. 54,596. (No model.)

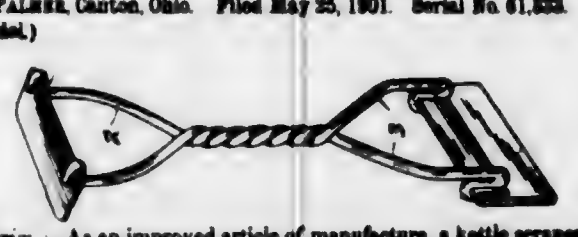


Claim.—1. In a display-cabinet comprising a case having glass sides, strips adapted to carry rollers, and secured to the sides of the cabinet in oblique parallel series, cross-pieces attached to the front corners of the cabinet, braces secured to and extending between the strips in each parallel series, and slats secured to the under side of each of the braces, extending and secured to the cross-pieces, substantially as described.

2. In a display-cabinet comprising a glass casing, strips secured to the sides of the cabinet in oblique parallel series, journals formed in the strips, rollers mounted in the journals, braces secured between the parallel strips and extending below the lower edge thereof, slats secured to the braces and extending under each series of rollers to the front of the cabinet, said slats being oblique to the base of the cabinet, and parallel to each other, substantially as described.

3. A display-cabinet comprising a case, strips adapted to carry rollers secured to the sides of the cabinet in oblique parallel series, cross-pieces extending across the front of the cabinet, partitions dividing the strips into compartments, and means secured to the under side of each partition and its respective cross-piece to guide the material from its roller.

691,801. KETTLE OR DISH SCRAPER OR CLEANER. WESLEY S. PALMER, Canton, Ohio. Filed May 25, 1901. Serial No. 61,833. (No model.)

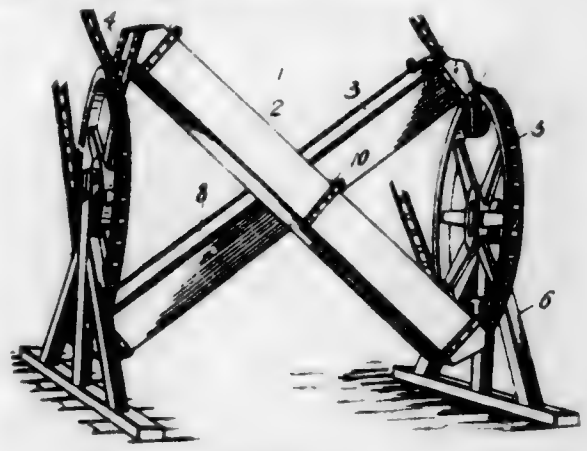


Claim.—As an improved article of manufacture, a kettle scraper and cleaner consisting of the twisted handle 1 having diverging arms at the opposite ends of the handle, the outer ends of the diverging arms 2 provided with folded portions and a scraper connected to said folded portions, the arms 3 provided with bent portions said bent portions spaced from each other and a binding-strip connected to said bent portions, and an elastic block fitted in the binding-strip, substantially as and for the purpose specified.

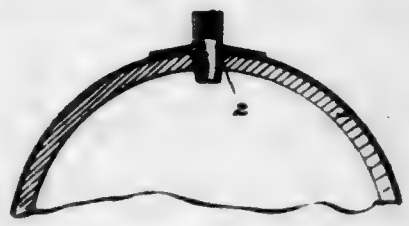
691,802. TUMBLING-BOX. WILLIAM F. PATTON, Toledo, Ohio. Filed July 13, 1901. Serial No. 68,220. (No model.)

Claim.—1. In a tumbling-box, the combination of a box composed of sections crossed to form an X-shaped rotating box or frame, sprocket-wheels to which said box-sections are connected and means for communicating motion to said sprocket-wheels, substantially as described.

2. In a tumbling-box, the combination of sprocket-wheels, means for communicating motion thereto, a tumbling-box composed of sections crossed to form a rotating box-frame, brackets connecting the ends of said sections to the sprocket-wheels, removable covers for the box-sections, and means for holding said covers closed and connecting the box-sections to each other, substantially as described.



691,808. PROCESS OF FORMING FLOATS FOR STEAM OR WATER TRAPS. WILLIAM F. PATTON, Toledo, Ohio. Filed Apr. 25, 1901. Serial No. 57,391. (No specimens.)



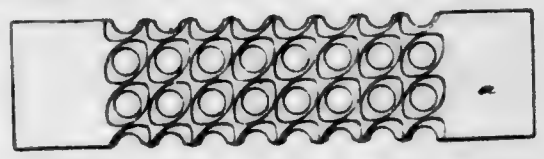
Claim.—1. The process of forming hollow, seamless metallic spheres, which consists in the following steps: the subjecting of a hollow paraffin sphere having a metallic nipple inserted therein, to a coating of plumbago, iron by hydrogen, and sulfate of copper, and then electro copper-plating to the desired thickness, substantially as described.

2. The process of forming hollow metallic spheres, which consists in the following steps: the formation of a base consisting of a hollow paraffin sphere having a metallic nipple inserted therein, and then electroplating the paraffin sphere to the desired thickness to form a surrounding shell joined to said nipple, substantially as described.

3. The process of forming hollow metallic spheres, which consists in the following steps: forming a hollow paraffin sphere having an opening, inserting a flanged metallic nipple in said opening with the flange upon the exterior of the sphere, and then electroplating the paraffin sphere and nipple to form a shell surrounding the sphere and joined to the wall and flange of the nipple, substantially as described.

4. The process of forming hollow metallic spheres which consists in the following steps: forming a hollow paraffin sphere having an opening, inserting a flanged metallic nipple in said opening with the flange upon the exterior of the sphere, subjecting the sphere to a coating of plumbago, iron by hydrogen, and sulfate of copper, and then electroplating to the desired depth, forming a shell surrounding the sphere and joined to said nipple, substantially as described.

691,804. INDENTED AND PERFORATED MATERIAL. HOWARD PARKER, Bellows Falls, Vt. Filed Mar. 29, 1901. Serial No. 53,585. (No model.)

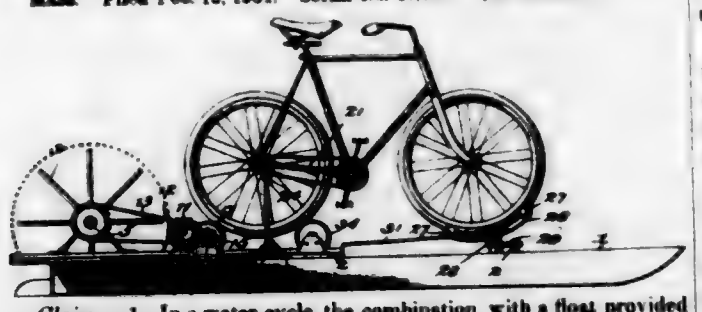


Claim.—1. Material having in its surface a series of neighboring indentations having bottoms curved from end to end with round holes in the indentations reaching through to the opposite side of the material.

2. Material having in its surface a series of neighboring indentations having bottoms curved from end to end, approximately pointed at two opposite ends in surface outline, and with holes in the indentations reaching through to the opposite side of the material.

3. Material having in its surface a series of neighboring indentations having bottoms curved from end to end, approximately pointed at two opposite ends in surface outline, one row of indentations lapping the next row and with holes in the indentations reaching through to the opposite side of the material.

691,805. WATER-CYCLE. SYLVESTER R. PERRY, Worcester Mass. Filed Feb. 16, 1901. Serial No. 47,656. (No model.)



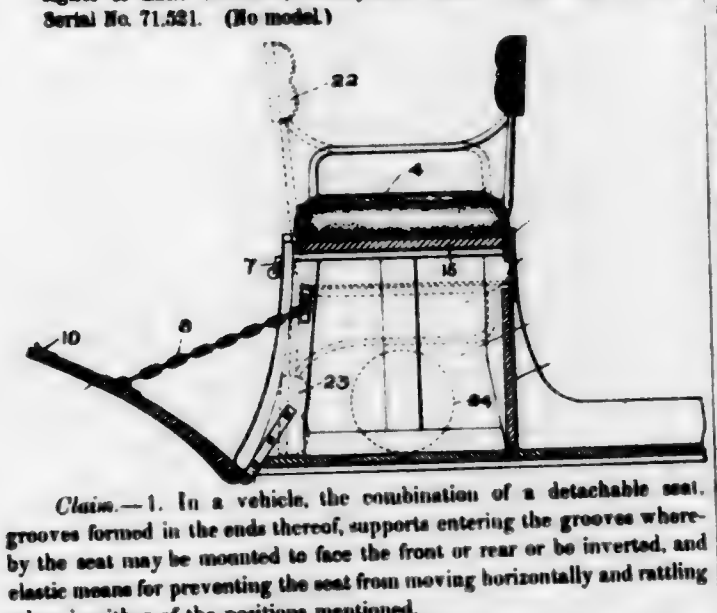
Claim.—1. In a water-cycle, the combination, with a float provided with a paddle-wheel, of a friction-pulley for operating the wheel, two standards adjacent to the pulley, the lower end of each of which is screw-threaded and provided with nuts and the upper end is slotted, a brace for each standard, the upper end of which is provided with a hooked clamp and an eccentric-lever for causing the clamp to engage with the frame of a bicycle, substantially as described.

2. In a water-cycle, the combination, with a float, of a shaft journaled at the rear end thereof, two disks upon the shaft, rods between said disks, arms on said disks, paddles secured to said arms, clamps rigidly secured to the shaft and engaging with said rods, a friction-pulley, operating mechanism between said pulley and said shaft, and means for securing a bicycle in engagement with said pulley, substantially as described.

3. In a water-cycle, the combination, with a float, of a shaft journaled at the rear end thereof, two disks mounted thereon at a distance from each other, radially-arranged arms secured to the disks, paddles secured to the rear edges of said arms, a friction-pulley and intermediate gearing device for operating said shaft and paddles, and means adjustable independently of and over said pulley for securing a bicycle in engagement with said pulley, substantially as described.

4. In a water-cycle, the combination, with two floats, each of which is provided with a rudder and two connected yokes, of cross-bars for holding said floats at a distance from each other, one of which is provided with a cradle, side arms extending from said cradle to a point over the floats, rods from each end of said arms to said yokes, a paddle-wheel at the rear of said floats provided with means for operating the same, and means for supporting a bicycle in said cradle and in position to operate the paddle-wheel, substantially as described.

691,806. VEHICLE-SEAT. OTTO F. PERSSON, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed Aug. 9, 1901. Serial No. 71,521. (No model.)



Claim.—1. In a vehicle, the combination of a detachable seat, grooves formed in the ends thereof, supports entering the grooves whereby the seat may be mounted to face the front or rear or be inverted, and elastic means for preventing the seat from moving horizontally and rattling when in either of the positions mentioned.

2. In a vehicle, the combination of a detachable seat, a board having similar grooved and parallel ends, corresponding and similar supports for the board arranged to enter the grooves, which supports are situated on opposite sides of the vehicle-body so that the seat may be arranged to face the front or rear or be inverted, and springs arranged to press on the board for preventing the seat from moving horizontally when occupying either of its positions.

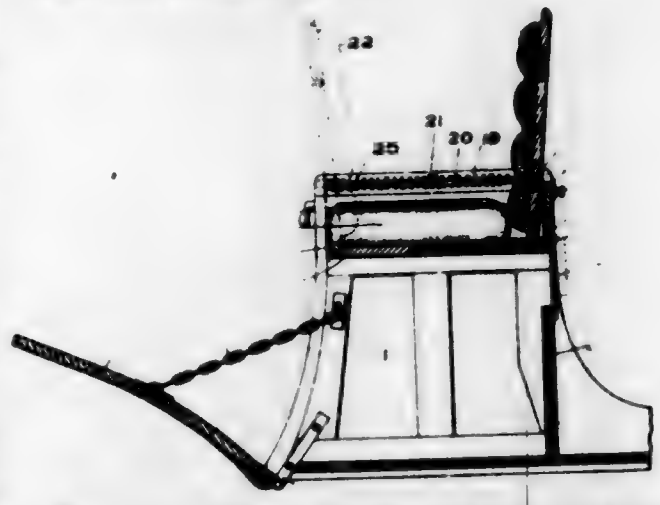
3. In a vehicle, the combination of a detachable seat-board having parallel ends, so that it may be reversed as to position, supports therefor, located on opposite sides of the body, a pivoted footboard, and lugs on the footboard which engage with the seat-board to hold it in position when the former is in the raised or normal position.

4. In a vehicle, the combination of a body, a detachable seat-board having parallel ends whereby it may be reversed as to position or inverted, supports for the board mounted on opposite sides of the body, a stop against which the seat abuts, a pivoted footboard, lugs carried thereby which engage with the seat, and means for holding the footboard in the raised position.

5. In a vehicle, the combination of a detachable seat-board having parallel ends, whereby it may be reversed as to position, grooved metallic corner-pieces secured thereto, metal end pieces forming continuations of the grooves, supports which fit into the grooves, and elastic means for holding the board in position.

6. In a vehicle, the combination of a detachable seat having parallel ends whereby it may be inverted as to position, a slotted plate which acts as a stop for the seat, and slotted lugs secured to the under side of the seat, and arranged to face the slotted plate when the seat is inverted, so that straps may be passed through the slots for securing baggage.

691,807. SEAT FOR AUTOMOBILES. OTTO F. PERSSON, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed Aug. 9, 1901. Serial No. 71,522. (No model.)



Claim.—1. In a seat, the combination of a base, metal plates secured to opposite sides of the base, a support for the base, a detachable and reversible back, grooved plates mounted on the back and arranged to engage with the plates, back-supporting pieces each containing a closed-end slot, and a double set of projections on the back which enter the slots and are supported at the ends thereof.

2. In a seat, the combination of a base, support therefor, a reversible back, back-supporting pieces each containing a closed-end slot having an opening located intermediate the ends, a double set of projections on the back which work in the slot and are arranged to pass through the opening and be seated in either end of the slots, whereby the back may be retained in a substantially vertical or horizontal position, means for securing the back at a point below said projections, and a pair of hinged boards which engage with the back when it is in a horizontal position.

3. In a vehicle, the combination of a seat, support therefor, slotted plates mounted on the supports which slots are closed at the ends, and are provided with an opening intermediate the ends, a movable back piece, and a double set of projections on the back piece which enter the slots in such manner that the back piece may be held in a position to face the front or rear, or be retained in a position parallel to the seat.

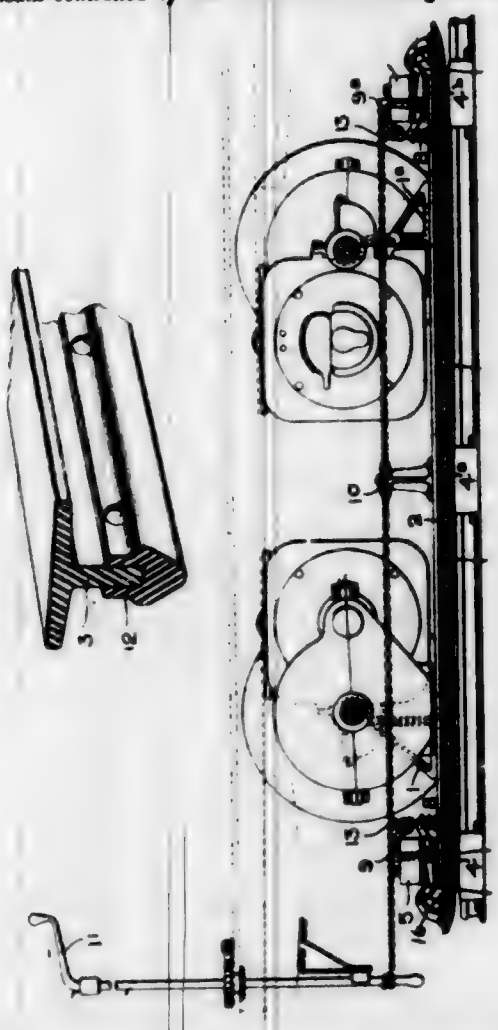
4. In a vehicle, the combination of a seat, a support therefor, slotted plates mounted on the supports which slots are closed at the ends, and are provided with an opening intermediate the ends, a movable back piece, means on the back piece which pass through the opening and enter the slots in such manner that the back piece may be arranged to face the front or rear, or be retained in a position parallel with the seat, and plates on the seat which engage with the back piece when it is in an upright position to hold the same in place.

5. In a vehicle, the combination of a seat, a support therefor, plates having closed-end slots mounted on the supports, a movable back piece which has slotted portions at the top and bottom, projections mounted on the back that enter the slots in the plates, and plates mounted on the seat which enter the slots in the back piece and hold it in place.

691,808. COLLECTOR FOR SURFACE-CONTACT RAILWAYS. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed June 13, 1899. Serial No. 720,290. (No model.)

Claim.—1. The combination with an electric vehicle, of a collector pivotally suspended therefrom to bear by gravity upon the conductor and yield to slight irregularities in the elevation of the latter, springs independent of the collector-pivots for controlling such movements and means controlled by the motorman for pivotally elevating said collector entirely above the conductor.

2. The combination with an electric vehicle, of a rigid collector-rail or skate therefor, levers mounted on the car, each pivoted to one end of the collector-rail, whereby the latter is pivotally suspended to bear by gravity upon the conductor and yield to slight irregularities in the elevation of the latter, springs independent of the collector-pivots for controlling such movements, a bar or lever pivotally mounted on the car between the ends of the collector-rail, connections between the bar and the levers, and means controlled by the motorman for moving the bar on its pivot.



3. The combination with an electric vehicle, of a collector therefor, supporting-levers 6, 7 pivoted to the car near the ends of the collector, each lever being pivoted at one end to the collector and having yielding connection therewith at its other end, levers formed rigid with the supporting-levers, an equalizing-bar pivoted to the car between the ends of the collector, connections between the levers and the bar, and an operating connection with the bar.

4. The combination with an electric vehicle, of a rigid collector-rail or skate therefor, spring-pressed levers, additional levers from which said collector-rail is pivotally suspended, for moving the collector on its pivots, an equalizing-bar, connections between the additional levers and the bar, and an operating connection with the bar.

5. The combination with an electric vehicle, of a rigid collector-rail or skate therefor, pivotally suspended at its ends therefrom, levers carried by the car for moving the collector on its pivots, an equalizing-bar pivoted to the car between the ends of the collector, connections between the bar and the levers, a handle controlled by the operator, and a connection between the bar and the handle.

6. A collector for surface-contact railways, comprising a T-rail having flanges for the attachment of supporting means, and a wearing-shoe removably socketed with the rail.

7. A collector for surface-contact railways, comprising a rail having a longitudinal rib and a wearing-shoe removably connected therewith.

8. A collector for surface-contact railways, comprising a rail having a longitudinal rib and a grooved steel wearing-shoe inclosing the edge of the rib and bolted thereto.

9. A car-collector, which comprises a T-rail provided with flanges for the attachment of supporting means, and with a longitudinal rib; and a separate grooved wearing-shoe, the rib being removably secured in the groove in said shoe.

10. A car-collector, which comprises a T-rail provided with flanges for the attachment of supporting means, and with a longitudinal rib; and a separate removable wearing-shoe, the rib and shoe being partially inclosed the one by the other, and bolts or the like for attaching one to the other, which bolts pass through both at the point of partial inclosure.

11. A car-collector, which comprises a T-rail provided with flanges for the attachment of supporting means, and a removable wearing-shoe, each part having projections which make a fit with corresponding projections of the other.

12. A collector, which comprises a flanged T-rail having a depending projection, and a wearing-shoe removably secured to the projection.

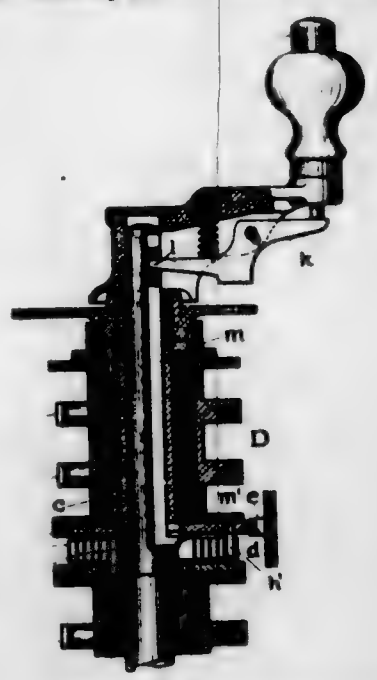
13. A collector comprising a flanged T-rail, a removable wearing-shoe arranged alongside a depending projection of the rail and projecting below the same, and bolts passing transversely through the lower part of the projection and the upper part of the shoe.

14. The combination with an electric vehicle, of a rigid collector-rail or skate pivotally suspended at both ends from said vehicle, to bear by gravity upon the conductor and yield to slight irregularities with the elevation of the latter, springs independent of the collector-pivots for controlling such movements, and means controlled by the motorman for elevating said collector on its pivots entirely above the conductor.

15. The combination with an electric vehicle, of a rigid collector-rail or skate, two levers pivotally mounted intermediate their ends on the car at opposite ends of the collector, each lever being pivoted at one of its ends to the collector, a spring interposed between the collector and the other end of each lever, and means controlled by the motorman for simultaneously lifting the pivoted ends of both levers.

16. The combination with an electric vehicle, of a rigid collector-rail or skate, two levers mounted intermediate their ends on the car at opposite ends of the collector-rail, each lever being pivoted to the collector-rail at its end which is nearer the end of the collector, a spring interposed between the other end of the lever and the collector-rail, an equalizing-bar pivoted on the car intermediate said levers, operating connections from the suspending-pivots of the levers to the respective ends of the equalizing-bar, and means controlled by the motorman for moving said bar on its pivot.

691,809. ELECTRIC CONTROLLER. WILLIAM B. POTTER, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 19, 1900. Serial No. 24,147. (No model.)



Claim.—1. In combination in a controller, a rotatable shaft, movable contacts mounted to rotate freely thereon, fixed contacts adapted to engage therewith, means tending to maintain said movable contacts out of engagement with their corresponding fixed contacts, and means for operatively connecting said movable contacts to the controller-shaft.

2. In combination, in a controller, a cylinder mounted on the controller-shaft and provided with contacts adapted to open the power-circuit, means tending to maintain said cylinder in its open-circuit position, means for causing said cylinder to move with the controller-shaft, and means operating under predetermined conditions to release said cylinder.

3. In combination in a controller, a sleeve upon the controller-shaft, a spring connection between said sleeve and said shaft, and means for holding the said sleeve in a definite position on said shaft against the force of the spring.

4. In combination in a controller, a sleeve upon the controller-shaft, a stop limiting the movement of said sleeve, a spring connection between said sleeve and said shaft, means for locking the sleeve to the shaft, and means operating under predetermined conditions for unlocking the sleeve.

5. In combination in a controller, a main cylinder, an auxiliary cylinder, a spring connection between them, means for locking said cylinders together with the spring under tension and means for disengaging said locking means.

6. In combination in a controller, a sleeve on the controller-shaft, a spring connection between said sleeve and said shaft, means for locking said sleeve to the said shaft, and means operating under predetermined conditions for disengaging said locking means.

7. In combination, in a controller, a spring-actuated sleeve mounted on the controller-shaft, and an electromagnetically-actuated device for locking said sleeve to said shaft.

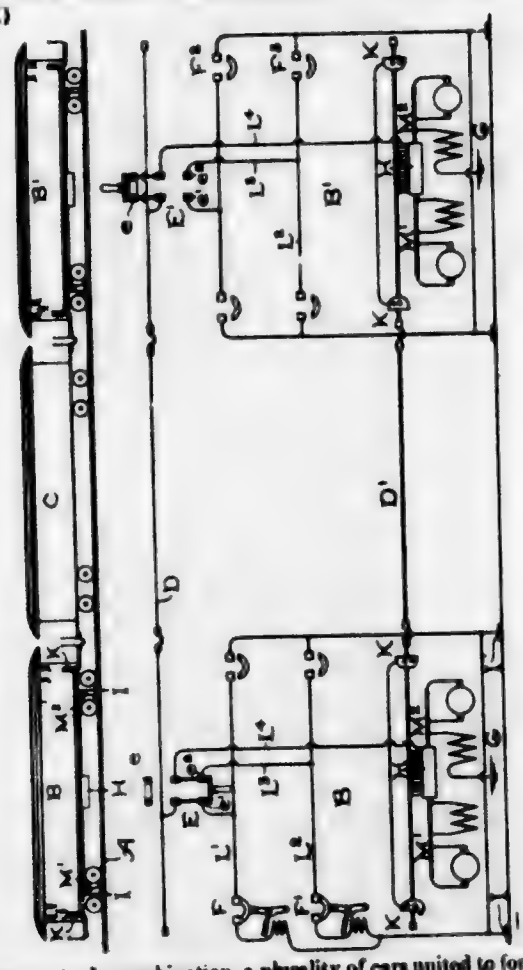
8. In combination, in a controller, a spring-actuated sleeve mounted on the controller-shaft, an electromagnet having an armature adapted to lock said sleeve to said shaft, and means for adjusting said electromagnet to actuate said armature when the current supplied to the winding of said magnet reaches a predetermined limit.

9. In combination in a controller, an auxiliary cylinder provided with circuit-breaking contacts, mounted on the controller-shaft, means tending to maintain said cylinder to the shaft, and means controlled by the current flowing through said contacts for disengaging said locking means.

10. In combination in a controller, an auxiliary cylinder mounted on the controller-shaft, a spring connection between said cylinder and said shaft, means for locking said cylinder to said shaft, and means controlled by the current supplied to said controller for disengaging said locking means.

11. In combination in a controller, a spring-actuated sleeve on the controller-shaft, and means for locking said sleeve to said shaft, said locking means being so arranged that it can be operated to lock the sleeve to the shaft only in the off position of the controller.

691,810. ELECTRIC-RAILWAY SYSTEM. WILLIAM B. POTTER, Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Sept. 29, 1899. Serial No. 731,049. (No model.)



Claims.—1. In combination, a plurality of cars united to form a train, motors on some of said cars, motor-controllers on the several motor-cars, collecting devices at each end of the train, and switching devices and circuit connections constructed and arranged to connect the source of supply to the motor-controllers on the several cars through the collecting devices at either end of the train.

2. In combination, a plurality of cars united to form a train, motors on some of said cars, a motor-controller on each of the motor-cars, collecting devices at each end of the train, and means for connecting the several motor equipments, each through its own controller to the source of supply through the collecting devices at either end of the train.

3. In combination in a train system, a motor-car at each end of the train, collecting devices at each end of the train, a single motor-controller on each of the motor-cars, and means for connecting all the motor-controllers on the train to the collecting devices at either end.

4. In combination in a train system, a motor-car at each end of the train, collecting devices at each end of the train, electromagnetically-actuated switches constructed and arranged to close circuits from the collecting devices at either end of the several motor equipments, and means located at each end of the train for controlling the operation of said switches.

5. In combination in a train system, a motor-car at each end of the train, collecting devices at each end of the train, a train-conductor extending throughout the train, and a switch on each of the motor-cars having one of its members connected to said train-conductor and another member connected to one of the motor equipments, said switches being constructed and arranged to close separate circuits from the collecting devices at either end of the train to the several motor equipments.

6. In combination in a train system, a motor-car at each end of the train, collecting devices at each end of the train, a single motor-controller on each of the motor-cars, means for closing separate circuits from the collecting devices at either end to the several motor equipments, and a cut-out device in each of said circuits.

7. The combination with a train of cars, of electric motors on some of the cars, a single motor-controller on each motor-car, collecting devices at the end of the train, separate circuits between the collecting devices and the several motor-controllers on the train, and a cut-out device in each of said circuits.

8. The combination with a train of cars, of electric motors on some of the cars, a single motor-controller on each motor-car, collecting devices at the end of the train, separate circuits between the collecting devices and the several motor-controllers on the train, and an automatic cut-out device in each of said circuits.

9. In combination, a plurality of cars united to form a train, motors on some of said cars, a motor-controller on each of the motor cars, and circuit-breaking devices on the leading car for separately controlling the circuit connections between the source and the several motor-controllers.

10. In combination, a plurality of cars united to form a train, motors on some of said cars, a motor-controller on each of the motor-cars, separate circuits leading from the collecting devices to the several motor-controllers on the train, and circuit-breakers, located on the leading car, included in said separate circuits.

11. The combination with a train of cars, of electric motors on some of the cars, a single motor-controller on each motor-car, separate circuits through the several motor-controllers, and means located at the point of control of the train for opening one of said circuits without affecting the others.

12. The combination with a train of cars, of electric motors on some of the cars, a single motor-controller on each motor-car, separate circuits through the several motor-controllers, and means under the control of the operator on the leading car for opening one of said circuits without affecting the others.

13. The combination with a train of cars, of electric motors on said cars, a single motor-controller on each motor-car, separate circuits through the several motor-controllers on the train, and means located at the point of control of the train for opening said motor-circuits.

14. In combination, a plurality of cars united to form a train, motors on some of said cars, a motor-controller on each of the motor-cars, a master-controller on the leading car, and means on the leading car for separately controlling the circuit connections between the source and the several motor equipments.

15. In combination, a plurality of cars united to form a train, motors on some of said cars, a motor-controller on each of the motor-cars, a master-controller located at any desired point on the train, and means adjacent to said master-controller for separately controlling the circuit connections between the source and the several motor equipments.

16. In combination, a plurality of cars united to form a train, motors on some of said cars, a motor-controller on each motor-car, collecting devices at the end of the train, connections from said collecting devices to each of said motor-controllers, and a master-controller system for operating said motor-controllers.

17. In combination, a plurality of cars united to form a train, a motor-car at each end of the train, collecting devices at each end of the train, a motor-controller on each motor-car, means for closing separate circuits from the collecting devices at either end to the several motor equipments, and a master-controller system for operating the motor-controllers.

18. The combination with two or more motor-cars in a train, of electric motors and collecting devices on each motor-car, a single motor-controller on each motor-car, suitable circuit connections, and switches on the motor-cars constructed and arranged to connect all the motor equipments, each through its own controller to the collecting devices of any car.

19. The combination with two or more motor-cars in a train, of electric motors and collecting devices on each motor-car, switches on the motor-cars for connecting all the motor equipments to the collecting devices of any car, suitable circuit connections therefor, and a control system for simultaneously operating all of said switches from any desired point on the train.

20. The combination with motor-cars in a train, of electric motors and collecting devices on each motor-car, a switch on each car, all the switches being constructed and arranged to be operated to connect all the motor equipments to the collecting devices of any car, and circuit-breakers on each car arranged to be included in circuit with the several motor equipments.

21. The combination with motor-cars in a train, of collecting devices on each motor-car, motors on each motor-car, means whereby current may be supplied to said motors through the collecting devices on any motor-car, and circuit-breakers for each motor-circuit on each motor-car.

691,811. **PRUNING-SHEARS.** CHAS. W. REED and JOHN HAKEL, Hood River, Oreg. Filed June 28, 1901. Serial No. 66,410. (No model.)



Claim.—1. In combination with pivoted handle-bars, coöperating blades having loose connection with the respective handle-bars and extending about at a right angle thereto, and an automatically-extensible brace between the handle-bars and blades, substantially as set forth.

2. In combination with pivoted handle-bars, coöperating blades having loose connection with the respective handle-bars and extending about at a right angle thereto, and a brace interposed between the handle-bars and blades and having a spring portion in its length to admit of the brace automatically lengthening and shortening, substantially as set forth.

3. In combination with pivoted handle-bars, coöperating blades having loose connection with the respective handle-bars and extending about at a right angle thereto, a brace interposed between the handle-bars and blades and having a spring portion in its length in the form of an arch or curve, and a stay spanning the open side of the arch and having rigid connection at one end with the brace at one side of the arch and having slidable connection at its opposite end with the brace upon the opposite side of the arch, substantially as set forth.

4. In combination with pivoted handle-bars, coöperating blades having loose connection with the respective handle-bars and extending about at a right angle thereto, and a brace between the handle-bars and blades and connected thereto by the respective pivot-fastenings, substantially as set forth.

5. In combination, pivoted handle-bars, blades pivoted intermediate of their ends, and means connecting the shanks of the blades with the ends of the handle-bars by swivel-joints, substantially as set forth.

6. In combination with handle-bars pivoted at a point between their ends, and coöperating blades pivoted intermediate of their ends, of sleeves secured to the handle-bars and having openings in line therewith, other sleeves arranged at a right angle to the first-mentioned sleeves and having stems journaled therein, and connections between the coöperating blades and the lowermost sleeves and journaled in the latter, substantially as set forth.

7. In combination with pivoted handle-bars and coöperating blades having loose connection with the respective handle-bars extending about at a right angle thereto, a brace interposed between the handle-bars and blades, and a frame secured at its upper end to one of the handle-bars and at its lower end to the brace and adapted to prevent lateral movement of the brace and blades, substantially as set forth.

8. In combination with pivotal handle-bars and coöperating blades having loose connection with the respective handle-bars and extending about at a right angle thereto, an extensible brace interposed between the handle-bars and blades, and a frame secured at one end to a handle-bar and at its opposite end to the brace and having a hinge-joint intermediate of its ends, said frame staying the brace laterally and preventing sidewise movement of the blades, substantially as set forth.

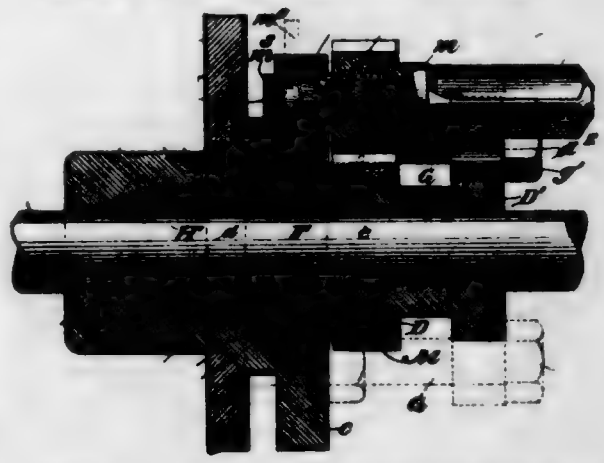
691,812. **METHOD OF FIREPROOFING WOOD.** KARL RÖCKER, Zernsdorf, Germany. Filed June 25, 1900. Serial No. 21,468. (No specimens.)

Claim.—1. The process of impregnating wood, paper, fabric, and the like, which consists in evacuating the pores of the material to be impregnated, applying to said material the herein-described solution of magnesium ammonium sulfate ($(NH_4)_2SO_4.MgSO_4.6H_2O + H_2O$.) at a temperature of about 60° centigrade, then raising the temperature of the said metallic-ammonium-sulfate solution to about the boiling temperature of water, permitting the metallic-ammonium-sulfate solution to affect the material for a suitable time, according to the quality of the material being treated, and finally forcing the metallic-ammonium-sulfate-solution into the pores of the material under treatment, by heavy pressure.

2. The process of impregnating wood, paper, fabrics, and the like, which consists in heating a solution of magnesium ammonium sulfate to a temperature of about 60° centigrade, supplying it to the previously-evacuated material to be treated, raising the temperature of the magnesium-ammonium-sulfate solution to about the boiling temperature of water, continuing its application to the material from three to twenty-four hours according to the quality of the material being treated, and then subjecting the liquid, together with the wood, and at the same temperature, to a heavy pressure, producing a thorough penetration of the liquid into the material under treatment.

3. The process of impregnating wood, paper, fabrics, and the like, which consists in heating a solution of boracic acid and ammonium magnesium sulfate, to a temperature of about 60° centigrade, supplying said solution to the previously-evacuated material, then raising the solution to about boiling temperature of water, permitting the same to operate on the material to be treated from three to twenty-four hours, according to the quality of the said material, and then subjecting the solution, together with the material, while at the same temperature, to a heavy pressure, and producing a thorough penetration of the solution into the pores of the material under treatment.

691,813. **PACKING DEVICE FOR PISTON-RODS.** THOMAS G. SAXTON, Lexington, Ky., assignor to Jason R. Barr, Lexington, Ky. Filed May 27, 1901. Serial No. 62,115. (No model.)



Claim.—1. A packing device for piston and valve rods, comprising a stuffing-box, a packing around the rod within the box, a gland or follower, a gear connection between said stuffing-box and gland, and means intermediate the gear connection and the stuffing-box for locking said connection against movement, substantially as described.

2. A packing device for piston and valve rods, comprising a stuffing-box, a packing around the rod within the box, a gland or follower having a rigid gear at the outer part thereof, a pinion engaging said gear and having an operating shaft or spindle, and means intermediate the pinion and the stuffing-box to prevent turning of said pinion, substantially as described.

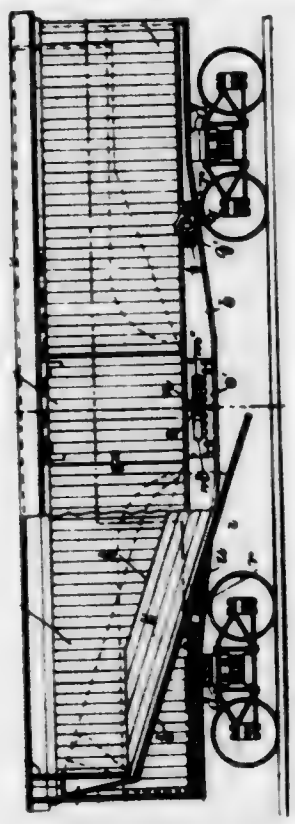
3. A packing device for piston and valve rods, comprising a stuffing-box, a packing around the rod within the box, a gland or follower having a rigid gear at the outer part thereof, a pinion engaging said gear and having a shaft adapted at one end to receive a wrench, and means intermediate the other end of said shaft and the stuffing-box to prevent turning of said pinion, substantially as described.

4. In combination with the rod, the stuffing-box, the gland, and means for mounting and securing said parts together, a combined supplementary gland and packing-receptacle having a sleeve working in said stuffing-box, packing on the rod between the end of said sleeve and the

inner end of the stuffing-box, and independent adjusting devices for said supplementary gland comprising a rigid gear-wheel, and an operating-pinion having a grooved shaft engaged by a locking device, substantially as described.

5. The combination of the stuffing-box provided with the flange having the hole or opening therein, the rod, a packing around the rod in the stuffing-box, a gland or follower having a rigid gear at the outer part thereof, a pinion engaging said gear and having a shaft adapted at one end to receive a wrench, and provided at or near its other end with an annular groove, said grooved end working or turning in the opening in the flange of the stuffing-box, and a locking pin passing through said flange at the edge thereof and entering said groove.

691,814. DUMPING-CAR. JOHN D. SHANAHAN, Buffalo, N. Y. Filed Oct. 7, 1901. Serial No. 77,808. (No model.)



Claim.—1. In a dumping-car the combination of an open center frame, tilting floor-sections having meeting ends rabbeted to interlock, and a beam on which said meeting ends rest, said beam being bodily movable in opposite directions to free the said ends alternately, substantially as and for the purpose described.

2. In a dumping-car the combination of an open center frame, tilting floor-sections having meeting ends rabbeted to interlock and mortised and tenoned, and a beam on which said meeting ends rest, said beam being bodily movable in opposite directions to free the said ends alternately, substantially as and for the purpose described.

3. In a dumping-car the combination of an open center frame, tilting floor-sections having meeting ends, a beam on which said meeting ends rest, said beam being movable in either direction to free the said ends, and means for locking the beam in a central position, said means arranged to be guarded by the car-door when closed.

4. In a dumping-car the combination of an open center frame; tilting floor-sections therein having meeting ends; a beam on which said ends rest, said beam being movable in either direction to free the said ends; a side door; and a locking-piece to engage the beam in its central position, said locking-piece being located on the inner side of the car-door, substantially as and for the purpose described.

5. In a dumping-car having side doors, the combination of the car-body, a lining extending along the sides thereof from the door-posts to the ends and from the roof part way to the floor-level, and tilting floor-sections having sides which extend behind said lining.

6. In a dumping-car having side doors, the combination of the car-body, a lining extending along the sides thereof from the ends to the door-posts and from the roof part way to the floor-level for a distance from the ends, thence deepening so that the lower edges slant to the floor; and tilting floor-sections having sides which extend behind said lining.

7. In a dumping-car, the combination of the car-body, a lining therein having portions extending across the ends of the car from the roof part way to the floor-level; and tilting floor-sections having sides which extend behind the lining and hinged ends occupying the spaces between the ends of the car and the lining, substantially as described.

8. In a dumping-car, the combination of the car-body, a lining therein having portions extending across the ends of the car from the roof part way to the floor-level; and tilting floor-sections having sides which extend behind the lining and hinged ends occupying the spaces between the ends of the car and the lining, said hinged ends having wings overlapping the sides of the tilting sections.

9. In a dumping-car, the combination of the car-body, a lining therein having portions extending across the ends of the car from the roof part way to the floor-level; and tilting floor-sections having sides which extend behind the lining and hinged ends occupying the spaces between the ends of the car and the lining, said hinged ends having top cross-pieces closing said spaces, substantially as described.

10. In a dumping-car, the combination of the car-body, a lining therein having portions extending across the ends of the car from the roof part way to the floor-level; and tilting floor-sections having sides which extend behind the lining and hinged ends occupying the spaces between the ends of the car and the lining, said hinged ends having wings overlapping the sides of the tilting sections and top cross-pieces closing said spaces.

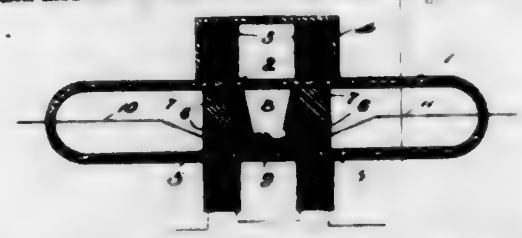
11. In a dumping-car the combination of an open-center frame, tilting floor-sections having meeting ends, and a sliding beam on which said meeting ends rest, said beam being movable in either direction to free the said ends and engage with the frame sides to constitute a central brace therefor, substantially as and for the purpose described.

12. In a dumping-car the combination of an open-center frame comprising side beams or sills slotted longitudinally at the middle, tilting-floor-sections having meeting ends, and a sliding beam on which said meeting ends rest, said beam engaging the slots in the sills and straddling the latter, substantially as and for the purpose described.

13. In a dumping-car the combination of an open-center frame, tilting floor-sections having meeting ends, and a sliding beam on which said meeting ends rest, said beam being movable in either direction to free the said ends, and having upstanding flanges engaging the side edges of the latter, substantially as and for the purpose described.

14. In a dumping-car the combination of an open-center frame comprising side beams or sills with longitudinal slideways and top slots; tilting floor-sections in the frame having meeting ends; a beam on which said meeting ends rest, said beam engaging the slideways of the sills; and pivoted locking-pieces occupying the top slots of the sills and adapted to engage the sliding beam in its central position.

691,815. COHERER. HARRY SHOEMAKER, Philadelphia, Pa., assignor of one-half to Gustave P. Gehring, Philadelphia, Pa. Original application filed Feb. 1, 1901, Serial No. 45,587. Divided and this application filed Oct. 16, 1901. Serial No. 78,873. (No model.)



Claim.—1. A coherer, comprising a non-conducting tube, a pair of metallic plates located therein, a pair of magnetic cores also located therein, sheets of insulation between said plates and cores, a pocket formed in the tube between the adjacent ends of the sheets of insulation and plates, and metallic particles located in said pocket.

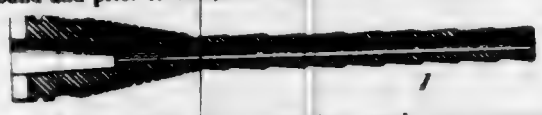
2. A coherer and decoherer, comprising a tube, solenoids surrounding the tube, a pair of metallic plates located therein, a pair of magnetic cores also located therein, sheets of insulation between said plates and cores, a pocket formed in the tube between the adjacent ends of the sheets of insulation and plates, and metallic particles located in said pocket.

3. A coherer comprising a non-conducting tube, a pair of metallic plates located therein, a pair of magnetic cores located therein, insulation between the plates and cores, metallic particles located between the adjacent ends of the plates, and conductor-wires entering the tube from the ends and connected to the plates.

691,816. FILLING-CARRIER FOR LOOMS. HARRY W. SMITH, North Grafton, Mass. Original application filed Nov. 8, 1898, Serial No. 695,880. Divided and this application filed Aug. 22, 1901. Serial No. 73,081. (No model.)

Claim.—1. A filling-carrier provided with detecting means and having a distinctive initial wind of filling on said carrier to one side of the detecting means, the filling being thereafter wound upon the carrier to cover said detecting means and permit the filling to be delivered from the end of the carrier whereby the detecting means may be uncovered as the filling is being unwound and prior to complete exhaustion of the filling.

2. A filling-carrier provided with a metallic band and having a distinctive initial wind of filling on said carrier to one side of the metallic band, the filling being thereafter wound upon the carrier to cover said metallic band and permit the filling to be delivered from the end of the carrier whereby the metallic band may be uncovered as the filling is being unwound and prior to complete exhaustion thereof.



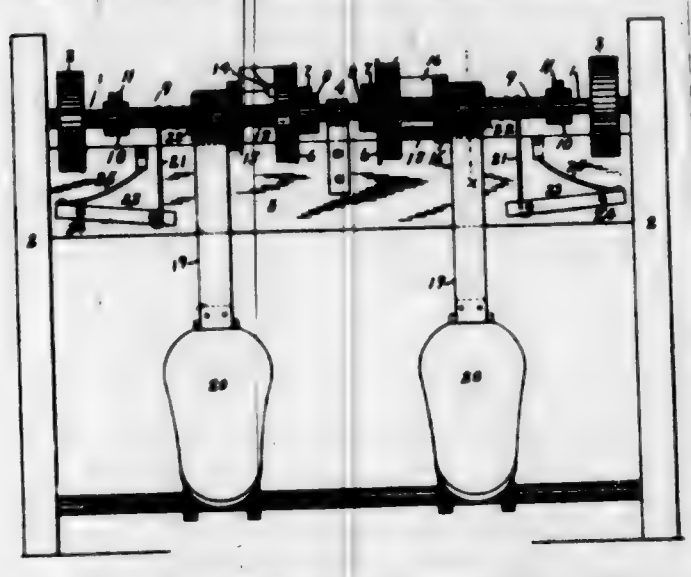
3. A bobbin provided with a detecting member and a groove, and having the filling initially wound to fill said groove and thereafter wound to cover said detecting member, whereby in unwinding the filling the detecting member will be uncovered before the initial windings are unwound from the groove.

4. A filling-carrier provided with detecting means and having a distinctive initial wind of filling on said carrier to one side of the detecting means, the filling being thereafter wound upon the carrier in conical layers to cover said detecting means and to permit the filling to be delivered from the end of the carrier whereby the detecting means may be uncovered as the filling is being unwound and prior to complete exhaustion thereof.

5. A filling-carrier provided with a conical base and detecting means secured to said base and having a distinctive initial wind of filling on said carrier to one side of the detecting means, the filling being thereafter wound upon the carrier to cover said detecting means and permit the filling to be delivered from the end of the carrier whereby the detecting means may be uncovered as the filling is being unwound and prior to complete exhaustion thereof.

6. A bobbin provided with a groove and a metallic detector member, the groove containing a quantity of filling to constitute waste, the detector member being overlaid with filling which may be unwound therefrom prior to the complete unwinding of the filling from said groove.

691,817. **FRICTION-CLUTCH.** JOHN A. SMITH, Baltimore, Md., assignor to Smith Lyrophone Company, a Corporation of West Virginia. Filed Apr. 22, 1901. Serial No. 56,838. (No model.)



Claim.—1. In a friction-clutch, the combination with a shaft, of a disk rigidly secured to the shaft; a friction-disk loosely mounted on the shaft; a drum loosely mounted on said shaft; means to limit the lateral movement of the drum on the shaft; a toggle-pin connecting the drum and friction-disk; and means to revolve the said drum, substantially as and for the purpose described.

2. In a friction-clutch, the combination with a shaft, of a disk rigidly secured to the shaft; a friction-disk loosely mounted on the shaft; a drum loosely mounted on said shaft; means to limit the lateral movement of the drum on the shaft; a toggle-pin connecting the drum and friction-disk; means to revolve the said drum in one direction; and means to cause the said drum to return to its normal position, substantially as and for the purpose described.

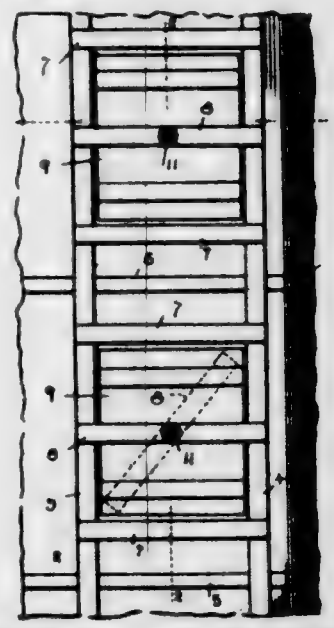
3. In a friction-clutch, the combination with a shaft, of a disk rigidly secured to the shaft; a sleeve loosely mounted on the said shaft; means to limit the lateral movement of the sleeve on the shaft; a friction-disk loosely mounted on the said sleeve; a drum secured to said sleeve; a toggle-pin connecting the said drum and friction-disk; and means to revolve the said drum, substantially as and for the purpose described.

4. In a friction-clutch, the combination with a shaft, of a disk rigidly secured to the shaft; a sleeve loosely mounted on the said shaft; means to limit the lateral movement of the sleeve on the shaft; a friction-disk loosely mounted on said sleeve; a drum secured to said sleeve; a toggle-pin connecting the said drum and friction-disk; means to revolve the drum a predetermined distance in one direction; and means to return the said drum to its normal position, substantially as and for the purpose described.

5. In a friction-clutch, the combination with a shaft, of a disk rigidly secured to the said shaft; a sleeve loosely mounted on the said shaft; means to limit the lateral movement of the sleeve on the shaft; a friction-disk loosely mounted on the said sleeve and having a lug on one side; a drum secured to the said sleeve and carrying a buffer; a toggle-pin connecting the said drum and friction-disk; means to revolve the drum in one direction a predetermined distance; and means to return the said drum to its normal position, substantially as and for the purpose described.

6. In a friction-clutch, the combination with a shaft, of a disk rigidly secured thereto; a sleeve loosely mounted on the shaft; means to limit the lateral movement of the sleeve on the shaft; a friction-disk loosely mounted on said sleeve; a drum secured to said sleeve; a toggle-pin connecting the said drum and friction-disk; a buffer carried by said drum; a belt secured to the said drum for revolving the latter a predetermined distance; and a strap to return the drum to its normal position, substantially as and for the purpose described.

691,818. **SILO.** JOSEPH W. SMITH, Westminster, Md. Filed May 25, 1901. Serial No. 61,220. (No model.)



Claim.—1. The combination with a silo provided with a vertically-arranged series of openings, of parallel vertical strips at the sides of said openings, a series of parallel transverse strips having their ends secured in recesses formed in said vertical strips, inwardly-opening doors for closing said openings, and means for locking said doors comprising a bolt extending through the door, a movable bar pivotally secured upon the outer end of said bolt, and fitting the recesses formed in said vertical strips, and a nut for holding the door in close engagement with the walls of said openings, said transverse strips and bars serving as ladder-rounds.

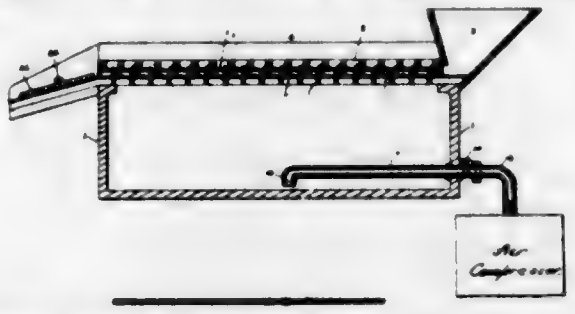
2. The combination with a silo formed with a vertically-arranged series of openings having their side walls rabbeted and their upper and lower walls beveled, of parallel vertical strips secured adjacent to the sides of said openings, a plurality of transverse strips having their ends secured within recesses formed in said vertical strips, inwardly-opening doors rabbeted and beveled to fit the walls of the openings, a locking-bar pivotally secured to the outer side of each door, and having their ends fitted in the recesses formed in the vertical strips, and means for clamping said doors in position comprising a bolt extending centrally through said door and locking-bar, and a nut on the outer threaded end of the bolt, said transverse strips, and said bars when clamped to the vertical strips, serving as ladder-rounds.

691,819. **ORE-SEPARATOR.** JAY J. SNYDER, Xenia, Ohio. Filed Mar. 5, 1901. Serial No. 49,782. (No model.)

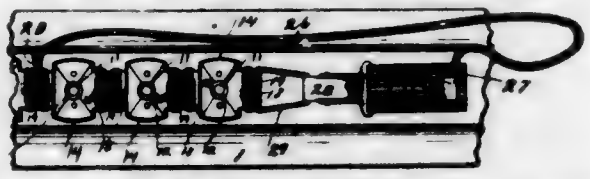
Claim.—1. In an ore-separator, an inclosed chamber, a grating or support across the top of said chamber, a perforated bed or covering thereon, diagonally-arranged strips above the bed or covering, a second series of strips arranged diagonally above the first-mentioned series and in a contrary direction thereto, and leaving an air-space between the two series and means for causing air-pressure in the chamber and up through the bed and strip, substantially as described.

2. In an ore-separator, a chamber in communicatoin with a source of

pressure, a supporting-frame across the top of the chamber, a perforated bed or covering on said frame, a series of diagonally-arranged strips above the covering, and a second series of oppositely-arranged strips above the first leaving a horizontal channel between the lower strips extending from side to side throughout the length and width of the frame, while the upper strips extend throughout the width of the upper half of the frame and only partially of the width of the lower half, substantially as described.



691,820. ELECTROMEDICAL BELT. SAMUEL J. SPALDING, Canton, Ohio, assignor of one-third to Isaac N. Willard, Syracuse, N. Y. Filed Aug. 23, 1899. Serial No. 728,165. (No model.)



Claim.—1. In an electric galvanic belt, the casing or covering 1 having connected thereto a series of batteries consisting of the convexo-concave plates 9 and 10, non-metallic jackets located between the plates, pads located within the jackets, and between the plates and electrodes, substantially as and for the purpose specified.

2. In an electric galvanic belt a casing or covering provided with a series of cells hinged together, an electrode consisting of the perforated convexo-concave plate, a plate connected to said convexo-concave plate, and an absorbent pad located back of the electrode, and between the plates, substantially as and for the purpose specified.

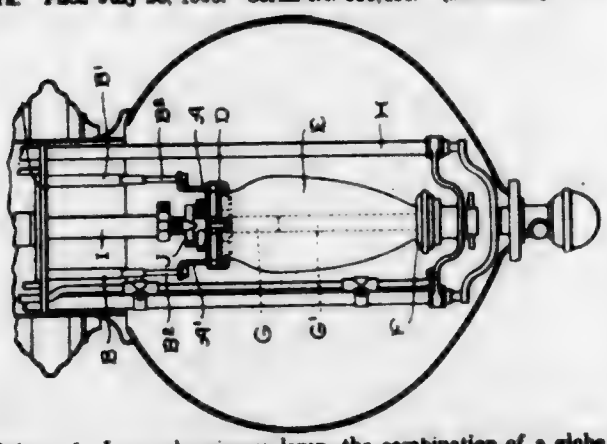
3. The combination of plates 9 and 10, a non-metallic thimble located through one or both of the plates, the pin 13 extended through the thimble, the jacket 14 located between the cell-plates and surrounding the absorbent pad, substantially as and for the purpose specified.

4. The combination of the jacket 14 formed of insulating material and provided with notches and located upon opposite sides, and edges of said jacket, the plates 9 and 10 provided with hooked edges, the open coiled hinge or connection 19 and the plug 20, substantially as and for the purpose specified.

5. In an electric galvanic belt, a covering having connected thereto a series of batteries, the open coiled hinge or connection 19 located between the batteries, and the twisted plug 20, substantially as and for the purpose specified.

6. The combination of a belt, a jacket or housing formed of insulating material, an absorbent pad located within the jacket, plates 9 and 10 connected together and located upon opposite sides of the absorbent pad and the jacket, substantially as and for the purpose specified.

691,821. ELECTRIC-ARC LAMP. HENRY C. SPENNEY, Lynn, Mass., assignor to the General Electric Company, a Corporation of New York. Filed July 20, 1898. Serial No. 686,411. (No model.)



Claim.—1. In an electric-arc lamp, the combination of a globe or cylinder which incloses the carbons, a cap which rests on the top of the cylinder and prevents the free entrance of air into the cylinder, and a cage or support for the cap which is normally out of use, but which retains the cap at or near its normal position when the cylinder is removed.

2. In an electric-arc lamp, the combination of a globe or cylinder which incloses the carbons, a cylinder which surrounds the carbons, a cap supported by the cylinder during the normal operation of the lamp, a cage or support normally idle, in which the cap is loosely mounted, but so arranged that it will prevent the cap from falling when the cylinder is removed, and means for suspending the cage or support from a fixed part of the lamp.

3. In an electric-arc lamp, the combination of a cylinder which surrounds the carbons, a cap which rests on the top of the cylinder, a cage surrounding the cap and preventing it from falling, the said cage being provided with downwardly-extending lugs which support the cap at more than one point.

4. In an electric-arc lamp, the combination of a cylinder which incloses the arc, a cap arranged to rest on the cylinder and be supported thereby under normal conditions, a cage for retaining the cap within the lamp when the cylinder has been removed, the said cage being provided on its under side with means for supporting the cap at three points.

5. As an article of manufacture, a support or cage for a cylinder-cap, comprising a metal body having lugs for securing it to the lamp-frame, hooked lugs for gripping the cap, and a detachable support permitting the removal of the cap.

6. In an arc-lamp, the combination of a cylinder, a cap therefor, a support for the cap, and downwardly-extending lugs on the support, which retain the cap in place when the cylinder is removed.

7. In an inclosed arc-lamp, the combination of a combined support for the cap of the inclosing globe and floor for a clutch, with means for limiting the downward movement of the support, so arranged that freedom of adjustment for the cap is permitted.

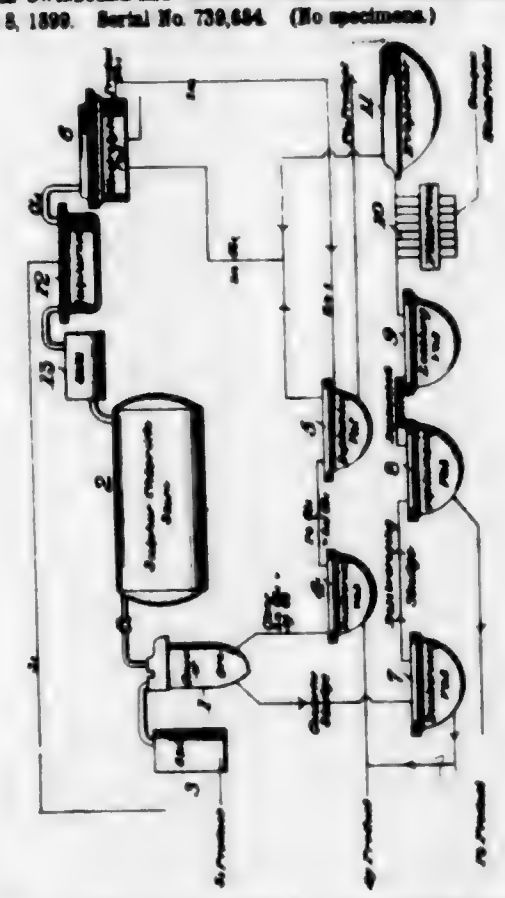
8. In an arc-lamp, the combination of a combined cap-support and floor for a clutch, means for maintaining it at a fixed distance from the lamp mechanism, and means for permitting the support to have practically a universal motion for the purpose of adjustment.

9. In an arc-lamp, the combination of a combined cap-support and floor for a clutch, a screw-threaded support for holding the cap-support in place, an upwardly-extending lug forming the support through which the screw-threaded support extends, and means permitting the cap to adjust itself, but preventing it from falling out of the lamp.

10. As an article of manufacture, a support for a cylinder-cap, comprising a flat metal plate having a pair of upwardly-extending supporting-lugs, and a pair of downwardly-extending lugs for retaining the cap.

11. As an article of manufacture, a cylinder-cap, comprising two parallel flat cylindrical flanges one of less diameter than the other connected by a hub, one of the flanges being provided with an extension for supporting the cap.

691,822. EXTRACTION OF METALS FROM SULFID ORES BY TREATMENT WITH CHLORID OF SULFUR, AND ELECTROLYSIS. JAMES SWINBURNE and EDGAR A. ASHCROFT, London, England. Filed Dec. 8, 1899. Serial No. 739,684. (No specimens.)



Claim.—1. The herein-described process consisting in treating sulfid ores in the dry way at a high temperature with chlorid of sulfur S_2Cl_2

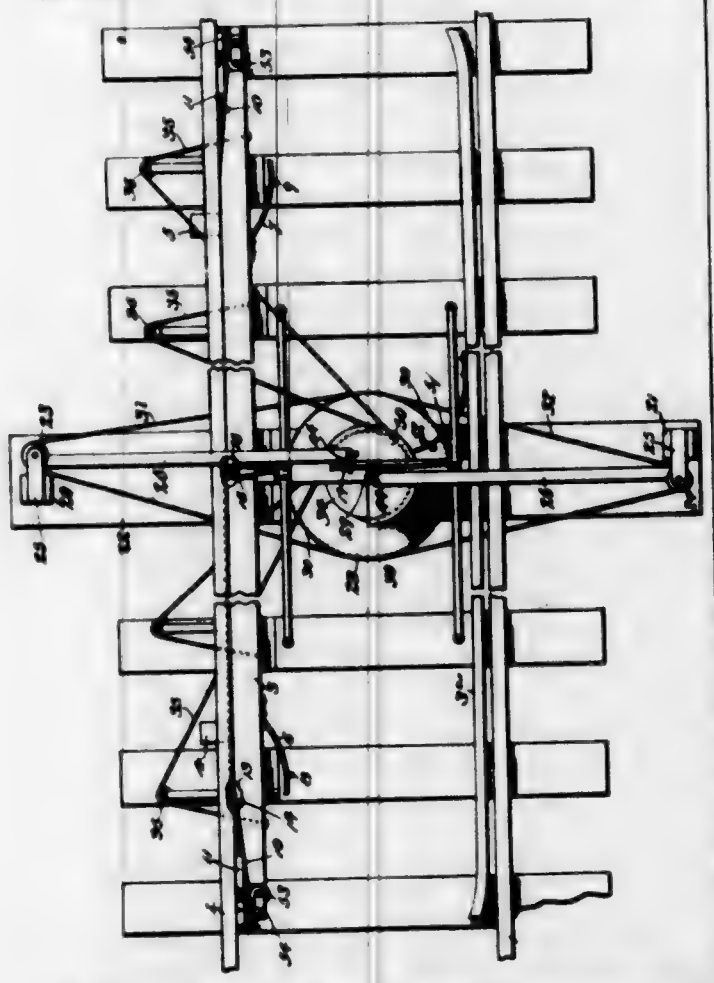
to form chlorid of the metal or metals and free sulfur substantially as described.

2. The herein-described process consisting in treating metallic sulfids in a bath of fused haloid salt with chlorid of sulfur S_yCl, substantially as described.

3. The herein-described process consisting in treating sulfid ores in a fused haloid salt with chlorid of sulfur and producing sulfur and chlorid, electrolyzing the chlorid thereby producing chlorin and metal and combining the chlorin with some of the sulfur from the treatment of the sulfid ore and using the so-regenerated sulfur chlorid for treating more ore and so on.

4. The process herein described consisting in electrolyzing a metallic chlorid, thereby producing chlorin, combining sulfur with said chlorin and producing chlorid of sulfur, and then treating heated sulfid ore with said chlorid of sulfur, and producing therefrom chlorid of metal in the ore, and free sulfur.

691,823. RAILWAY-GATE. GEORGE S. SUBLIN and WILLIAM D. SUBLIN, Wilmington, N. C. Filed Mar. 28, 1901. Serial No. 52,970. (No model.)

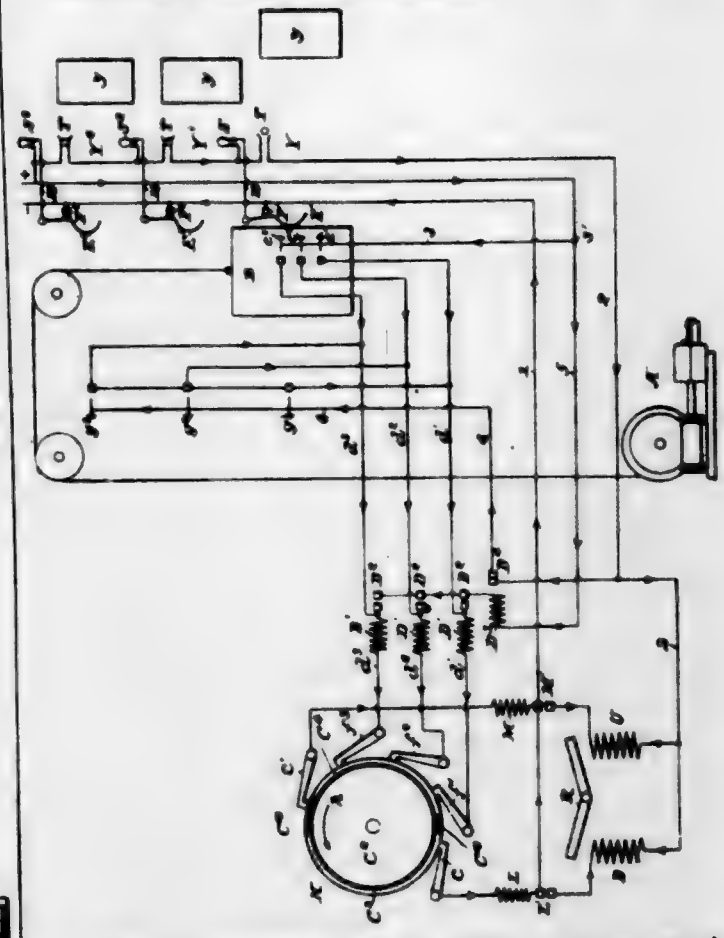


Claim.—1. The combination with a railway-track; of gates extending across the rails thereof, and means for opening said gates comprising a movable rail arranged adjacent to the inner side of one of the track-rails and adapted to be moved by the contact therewith of the flange of a car-wheel; connections between said movable rail and the gates; latches or fastening devices carried by the gates; a bolt for engaging said latches; and means for moving said bolt consisting of a track device arranged between the movable rail and the adjacent rail of the track, and connections between said track device and bolt.

2. The combination with a railway-track, of swinging gates adapted to extend across the track; an oscillating disk, pivotally supported between the rails; cables connecting said disk with the gate-posts; a movable rail arranged adjacent to one of the track-rails; connections between said movable rail and said disk; latches carried by the gate; a movable bolt for securing said latches; a spring arranged between the movable rail and the adjacent track-rail; and a connection between said spring and bolt.

3. The combination with oscillating gate-posts; of gates secured thereto; pulleys on said posts; a disk pivotally supported between the rails; cords secured to said disk and passing around the pulleys on the gate-posts; a yoke spanning said disk and recessed to receive a movable bolt; a track device for operating said bolt; a connection between said track device and bolt; a movable rail arranged adjacent to the inner side of one of the track-rails; connections between said movable rail and the disk; and spring-latches carried by the gates and adapted to be engaged by said bolt.

691,824. CONTROLLING APPARATUS FOR ELEVATORS OR HOISTS. AUGUST SUNDH, Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Sept. 6, 1901. Serial No. 74,555. (No model.)



Claim.—1. In an apparatus for controlling elevators or hoists, the combination with a motor, of means for controlling its operation from a station after the operation of a controlling device on the car, substantially as described.

2. In an apparatus for controlling elevators or hoists, the combination with a motor, of means for starting the motor from a station after the operation of a controlling device on the car, substantially as described.

3. The combination with a motor, car, and stations, of controlling devices connected to the car and stations, and means for controlling the motor by the operation of a door at a station after the operation of a controlling device on the car, substantially as described.

4. The combination with a motor, car, and stations, of controlling devices connected to the car and stations, and means for starting the motor by the closure of a door at a station after the operation of a switch on the car, substantially as described.

5. The combination with a motor, car, and stations, of controlling devices connected to car and station switches, and means for operating the motor from a station-switch, after the operation of a car-switch, substantially as described.

6. The combination with a motor, car, and stations, of controlling devices connected to the car and stations, and means for operating the motor from a station after a controlling device on the car has been operated, substantially as described.

7. In an apparatus for controlling elevators or hoists, the combination with a car and its operating-motor, of push buttons on the car corresponding to the several floors or stations, controlling-circuits and connections between the push-buttons and motor for controlling the operation of the motor, and means for energizing part of the controlling-circuits by the operation of a car push-button without starting the motor, substantially as described.

8. In an apparatus for controlling elevators or hoists, the combination with a car, operating-motor, starting and floor-controlling devices, of push-buttons on the car corresponding to the several floors or stations, controlling-circuits and connections between the push-buttons and controlling devices, and means for completing a circuit from the car through the floor-controlling device, while maintaining the starting devices deenergized until a door-switch is operated, substantially as described.

9. In an apparatus for controlling elevators or hoists, the combination with a car, operating-motor, starting and floor-controlling devices, of push-buttons on the car corresponding to the several floors or stations, controlling-circuits and connections between the push-buttons and controlling devices, and means for energizing a circuit from the car, including a floor-controlling device, while maintaining the starting devices deener-

gised until a controlling device at a station is operated, substantially as described.

10. In an apparatus for controlling elevators or hoists, the combination with a car and its operating-motor, of controlling devices on the car corresponding to the several floors or stations, circuits and connections between said controlling devices and motor for controlling the operation of the motor, and means for energizing part of the controlling-circuits by the operation of a controlling device on the car without starting the motor, substantially as described.

11. The combination with a motor, car and stations, of push-buttons on the car, circuits including the push-buttons and a floor-controller, connections between the floor-controller and starting-relays, said connections being controlled by magnets in the floor-controller circuits, and door-contacts at the stations controlling the operation of the relays, substantially as described.

12. In an elevator or hoist, the combination with a motor, car, and stations, of a floor-controller and motor-operating relays, circuits connecting the car and stations with the floor-controller and relays, means for controlling the floor-controlling circuits from the car, and means for controlling the relay-circuits from the stations, substantially as described.

13. In an elevator or hoist controlling apparatus, the combination with a motor, car, and stations, of devices on the car controlling circuits including a floor-controller, electrically-controlled connections between the floor-controller and motor-operating relays, and devices at the stations controlling circuits including the relays, substantially as described.

14. In an apparatus for controlling elevators or hoists, the combination with a motor, car, and stations, of devices on the car controlling circuits including a floor-controller and adapted to be operated in advance of devices at the stations controlling circuits including the motor-operating relays, substantially as described.

15. In an apparatus for controlling elevators or hoists, the combination with a motor, car, and stations, of controlling circuits and devices for the motor, and controlling means connected to the car for determining its destination adapted to be operated in advance of controlling means connected to the stations, for starting the car, substantially as described.

16. In an elevator or hoist, the combination with a motor, car, and stations, of means connected to the car for determining the travel of the car in advance of its operation, and means connected to the stations for operating the car after its limit of travel has been determined, substantially as described.

17. In an apparatus for controlling elevators or hoists, the combination with a motor, car, and stations, of a floor-controller, means on the car controlling circuits including the floor-controller to determine the limit of travel of the car, motor-operating relays, and means at the stations for controlling the relays to start the car after its limit of travel has been determined, substantially as described.

18. In a dumb-waiter adapted to be operated from the floors or stations, the combination with a cage and operating-motor, of push-buttons on the cage for determining its destination, controlling-circuits and connections between the push-buttons and the motor, and means at the stations for starting the motor after the destination of the cage has been determined, substantially as described.

19. In a dumb-waiter, the combination with a motor, car, and stations, of means for predetermining the limit of travel of the cage from the cage, adapted to be operated in advance of means for starting the cage from a station by the operation of door-contacts, substantially as described.

20. In a dumb-waiter, the combination with a motor, car, and stations, of means for predetermining the limit of travel of the cage from the cage, adapted to be operated in advance of means for starting the cage from the stations by the operation of door-contacts, and other means at the stations for operating the cage, substantially as described.

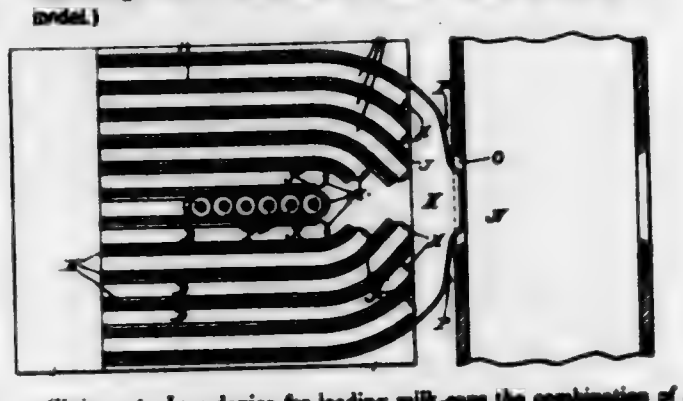
21. In a dumb-waiter, the combination with a motor, car, and stations, of means for predetermining the limit of travel of the cage from the cage, adapted to be operated in advance of means for starting the cage from the stations by the operation of door-contacts, and other means at the stations for operating the cage after it has reached its destination, substantially as described.

22. In a dumb-waiter, the combination with a motor, car, and stations, of means for predetermining the limit of travel of the cage from the cage, adapted to be operated in advance of means for starting the cage from the stations by the operation of door-contacts, and push-buttons at the stations for operating the cage after it has reached its destination, substantially as described.

23. In a dumb-waiter, the combination with a motor, car, and stations, of means for predetermining the limit of travel of the cage from the cage, means for starting the cage from the stations by the operation of door-contacts, and signaling means for giving notice when the cage approaches a station, substantially as described.

24. In a dumb-waiter, the combination with a motor, car, and stations, of means for predetermining the limit of travel of the cage from the cage, means for starting it from the stations after its limit of travel has been determined, other means at the stations for controlling the cage, and means for preventing interference between said other controlling means and the means for limiting the travel of the cage, substantially as described.

691,825. MILK-CAN-LOADING DEVICE. FRED H. THOMSON, Mukwonago, Wis. Filed June 17, 1901. Serial No. 64,830. (No model.)



Claim.—1. In a device for loading milk-cans the combination of a suitable supporting-platform with a series of inclined chutes formed each of inverted-T beams and provided with inwardly inclined or curved ends where necessary so as to cause all of said chutes to discharge toward the line of the middle chute, a stop at the end of each chute and a hinged platform adapted, when in its vertical position, to serve as the stop below all the chutes and when depressed to serve as a continuation of the inclined platform below the chutes.

2. In a device for loading milk-cans into railway-cars the combination of a series of inclined chutes, with an open inclined platform at the lower end thereof, said chutes opening onto said platform so as to discharge the cans toward the middle thereof, each chute having a free discharge-opening, and a movable part of said platform which bridges the distance between the fixed portion and the car.

3. In a device for loading milk-cans the combination of a series of chutes along which the cans move toward the car, some of said chutes having inwardly-turned ends, and an open platform-space below and about the ends of said chutes, so that each can freely discharge upon the same and stops one for each chute to hold the cans in the same.

4. In a device for loading milk-cans the combination of a series of chutes along which the cans move toward the car, some of said chutes having inwardly-turned ends, and an open platform-space below and about the ends of said chutes, so that each can freely discharge upon the same, and a movable platform portion adapted to bridge the space between the fixed platform of the car and when turned into its vertical position to serve as a stop for the chutes.

5. In a device for loading milk-cans the combination of a series of inclined chutes each adapted to hold a row of cans, with inwardly-turned lower ends for certain chutes, and an inclined platform having an outer guard so that each of said chutes has a free delivery-way for its cans to the middle line of said chutes.

6. In a device for loading milk-cans the combination of a series of inclined chutes each adapted to hold a row of cans, with inwardly-turned lower ends for certain chutes, and an inclined platform having an outer guard so that each of said chutes has a free delivery-way for its cans to the middle line of said chutes, the lower portion of said platform being hinged.

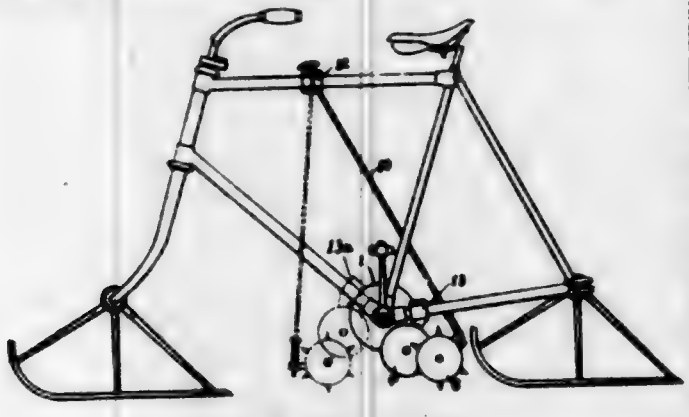
7. In a device for loading milk-cans the combination of a series of inclined chutes each adapted to hold a row of cans, with inwardly-turned lower ends for certain chutes, and an inclined platform having an outer guard so that each of said chutes has a free delivery-way for its cans to the middle line of said chutes, and a separate stop for the discharge end of each chute.

8. In a device for loading milk-cans the combination of a series of inclined chutes each adapted to hold a row of cans, with inwardly-turned lower ends for certain chutes, and an inclined platform having an outer guard so that each of said chutes has a free delivery-way for its cans to the middle line of said chutes, and a separate stop for the discharge end of each chute, and the lower portion of said platform hinged.

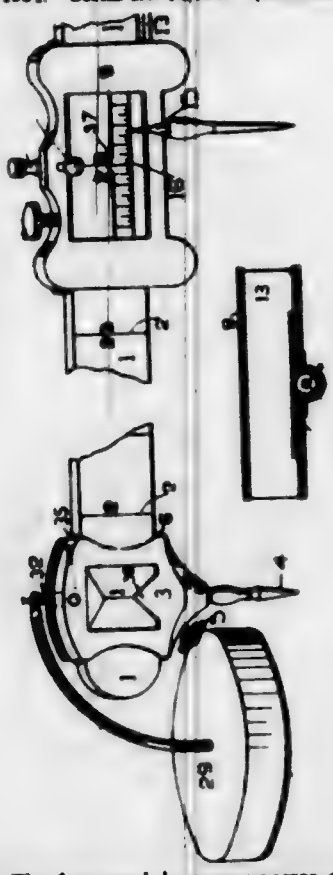
691,826. WINTER-VELOCIPEDE. BENJAMIN C. TREVELLE, Bay City, Mich. Filed June 21, 1901. Serial No. 65,417. (No model.)

Claim.—In a velocipede the combination with a gear-wheel rigidly mounted on the crank-shaft; of a pair of sockets secured to the frame, one in front and one in the rear of the crank-hanger; a bracket removably secured to either of said sockets interchangeably; a vertically-movable arm pivoted to the lower end of said bracket; a train of gears carried by said bracket and arm, the first gear of said train being mounted

at the pivotal junction of the bracket and arm, and meshing with the crank-shaft wheel, and the last gear of said train being mounted at the outer end of the arm and operating a spiked driving-wheel; an upwardly-extending adjusting-rod yieldingly fixed at its lower end to the end of said vertically-movable arm, and secured at its upper end to the velocipede-frame, substantially as described and for the purpose set forth.



691,827. BEAM-COMPASSES. THOMAS TUCKER, San Francisco, Cal. Filed June 17, 1901. Serial No. 64,956. (No model.)



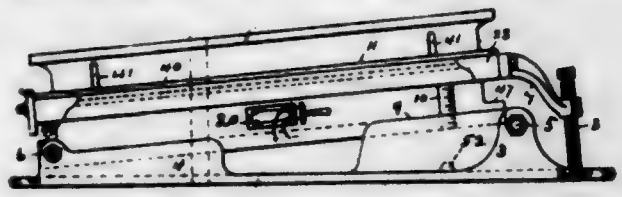
Claim.—1. The improved beam-compasses comprising a stick, an inner or pivotal trammel-point secured thereon, an upwardly-extending arm supported by the stick, a heavy base, and a bent arm extending from said base and engaging the aforesaid arm to serve as an independent support for the pivotal end of the trammel-points, substantially as described.

2. The improved beam-compasses comprising a stick, a carrier mounted on the stick, an inner or pivotal trammel-point carried by said carrier, an arm pivotally mounted on the carrier, a spring for holding said arm in either an upright or horizontal position, a heavy base, and a bent arm extending from said base and adapted to engage the aforesaid arm to form an independent support for the pivotal end of the trammel-points, substantially as described.

3. An improved beam-compass, comprising a graduated stick, a carrier movably mounted on said stick, a scale on said carrier, said scale having a pointer arranged to register with the graduations on the stick, a slide sliding in said carrier, a point carried by said slide, a pointer carried by said slide and moving over said scale, a rack on said slide, a vertical shaft provided at its upper end with a milled head to drive the same and having on its lower end a pinion to engage said rack, substantially as described.

4. An improved beam-compass comprising a carrier, a scribing-point carried by said carrier, and a pencil-holder removably secured on said scribing-point; said pencil-holder comprising a tube attached to fit around the scribing-point, means for clamping said tube in position on the scribing-point, curved plates extending from said tube, and independent means for drawing said plates together to clamp a pencil therebetween, substantially as described.

691,828. MAGNETIC CHUCK. OAKLEY S. WALKER, Worcester, Mass. Filed Jan. 10, 1900. Serial No. 999. (No model.)



Claim.—1. In a magnetic chuck the combination with a box or shell containing a central core forming a part of said box or shell and provided with an intervening space between the outer walls of said box or shell and the central core for a coil of wire, a coil of wire contained in said space and forming part of an electric circuit, and a removable cover made in separate magnetic parts with intervening spaces between said parts, one of said parts being magnetically connected with said central core and the other with the outer walls of said box or shell, substantially as described.

2. In a magnetic chuck, the combination of a box, or shell, having a central core, a cover removably attached thereto and consisting of a plate attached to the outer walls of said box, or shell, and provided with a central opening, a tie-bar uniting the opposite sides of said plate and dividing said central opening and plates inserted in said central opening on opposite sides of said tie-bar and attached to said core with an intervening gap, or space, between the plates attached to the core and the plate attached to the walls of said box, substantially as described.

3. In a magnetic chuck, the combination with a box, or shell, having a central core and a removable cover comprising a plate attached to the walls of said box, or shell, and provided with a central opening, two or more plates attached to said core and held in said central opening, said plates having interlocking teeth separated by an intervening gap, or space, substantially as described.

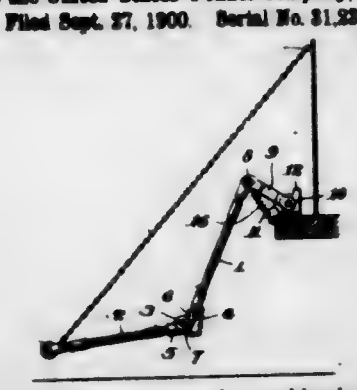
4. In a magnetic chuck, the combination with a box, or shell, having a central core, of a tie-plate attached to said central core and projecting upon opposite sides of said core, laterally-projecting teeth integral with said tie-plate, a plate attached to the outer walls of the box, or shell, and a series of teeth integral with said plate, said teeth projecting over the edges of said tie-plate and alternating with said tie-plate teeth, substantially as described.

5. In a magnetic chuck, comprising a box, or shell, having a central core, a plate attached to said central core and projecting longitudinally beyond the end of said core, and a pair of teeth supported by the projecting end of said plate and extending laterally in opposite directions, substantially as described.

6. In a magnetic chuck, the combination of a box, or shell, having a central core, a cover consisting of a plate magnetically connected with said box, or shell, and provided with an opening and a series of inwardly-projecting teeth having rectangular ends, a plate magnetically connected with said central core and provided with a central longitudinal rib and a series of laterally-projecting teeth provided with rectangular ends and interlocking with said inwardly-projecting teeth, with an intervening non-magnetic space between said interlocking teeth, that at the sides of the teeth being at right angles to said central rib and that at the ends of the teeth being parallel therewith, substantially as described.

7. In a magnetic chuck, the combination of a box, or shell, containing a chamber for a coil of wire, a coil of wire held in said chamber and forming part of an electric circuit and a central core forming a part of said box, or shell, and having a central opening communicating with said coil-chamber, substantially as described.

691,829. CAR-FENDER. WILLIAM P. WEBB, Camden, N. J., assignor to the United States Fender Company, a Corporation of New Jersey. Filed Sept. 27, 1900. Serial No. 31,238. (No model.)



Claim.—1. In a car-fender, the combination of a car-body, a fender proper, levers pivotally connected to the car-body and extending forwardly from their point of connection therewith, and pivotally connected to the fender proper, flexible means for suspending the fender proper in-

terposed directly between said fender proper and the car-body, and other means for limiting the downward movement of the levers and normally supporting the same in position.

2. In combination with a fender, a connecting member pivotally secured at one end to the vehicle and at the other end to the fender, with stops to limit the pivotal movement of said connecting member in either direction, substantially as and for the purpose described.

3. In combination with a fender having flexible means for supporting its forward part, a connecting member pivotally secured at one end to the vehicle and at the other end to the rear of the fender, with stops to limit the pivotal movement of said connecting member in either direction, substantially as and for the purpose described.

4. In combination with a fender, a connecting member pivotally secured at one end to the vehicle and at the other end to the fender with stops to limit the pivotal movement of said connecting member in either direction and spring means for assisting the return of the fender to normal position, substantially as described.

5. In a fender composed of two members, the forward member normally approximately parallel with the ground the rear member normally inclined from the vertical position, said two members adjustably connected together with respect to the angle between them, the rear member connected at its upper end by link connection with the car, and yielding means coöperating with the link connection, for normally supporting the forward member above the ground but adapted when the front end encounters an obstacle to permit said front end to descend to the ground, substantially as described.

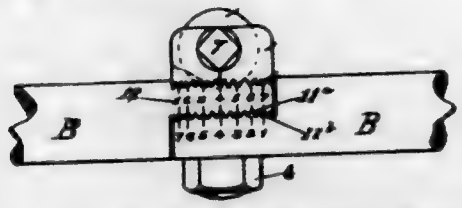
6. In a fender composed of two members, the forward one normally approximately parallel with the ground and the other normally inclined, adjustably connected together with respect to the angle between the two, the inclined member connected at its upper end by link-joint connection with the car, and the forward member supported by a chain from the framework of the car normally above the surface of the ground, but adapted when the front end encounters an obstacle to permit said front end to descend to the ground, substantially as described.

7. A fender composed of two members, the one normally inclined slightly from the horizontal and the other slightly inclined from the vertical position, means for adjustably securing said two members together at the required angle, flexible means for supporting the front end of the forward member and double pivot or link means for supporting the upper end of the rear member to permit the upward movement of the rear member upon the forward member encountering an obstruction so that the front end of said forward member may be depressed thereby, substantially as described.

8. In a fender the combination of two members pivoted together, the forward member slightly inclined from the horizontal position the rear member slightly inclined from the vertical position, adjustable means for locking the said two members at any required angle or permitting the one to fold upon the other, links for securing the rear member to the car so disposed as to permit the upward movement of said rear member when the forward member encounters an obstruction, so that the front end of the forward member may be pushed back and depressed thereby, substantially as described.

9. In a fender the combination of two members pivoted together, the forward member slightly inclined from the horizontal position the rear member slightly inclined from the vertical position, adjustable means for locking the said two members at any required angle, or permitting the one to fold upon the other, links for securing the rear member to the car so disposed as to permit the upward movement of said rear member when the forward member encounters an obstruction, so that the front end of the forward member may be pushed back and depressed thereby, and spring means for returning the fender to normal position after the front edge has passed the obstruction, substantially as described.

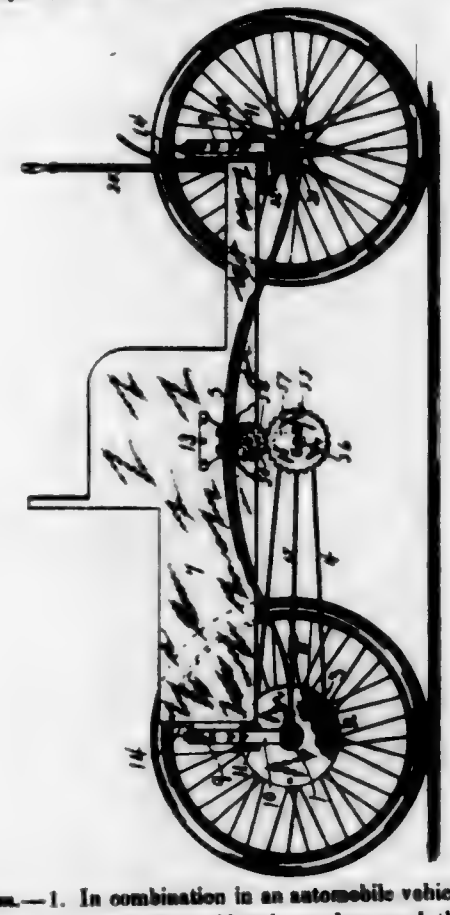
691,830. BICYCLE HANDLE-BAR. WILLIAM H. WHITELY and WILLIAM H. WHITELY, Jr., Springfield, Ohio. Filed Jan. 24, 1900. Serial No. 2,563. (No model.)



Claim.—1. In a vertically-adjustable divided handle-bar construction, a handle-bar post having integral therewith a head, two vertically-adjustable handle-bars pivoted thereon on a common center, corrugations on the face of said head around said pivot-center for one of the bars, corresponding corrugations on one of said bars to engage the head-corrugations and means for clamping said bars and head together, a clamping-rod passing through an orifice common to both head and post independent of said bars and wholly to one side thereof and engaging a clamping device located at the lower end of said post whereby said post may be vertically adjusted within the steering-fork tube for the purpose shown and described.

2. In an adjustable handle-bar construction, the combination of a handle-bar post having thereon an indicating-mark for a fixed guide for two handle-bars pivoted on said post, two independently-adjustable handle-bars pivoted as described each bar having a series of independent and corresponding marks thereon so arranged that upon the swinging of both bars upon the post to a position in which like marks on each bar will be in line with the guide-mark on the post they will be parallel in their vertical height, and means for positively locking and clamping said bars and post together at any desired height of vertical adjustment.

691,881. VEHICLE-FRAME. JOHN WILKINSON, Syracuse, N. Y. Filed Apr. 2, 1900. Serial No. 11,080. (No model.)



Claim.—1. In combination in an automobile vehicle, a tubular rear axle, side springs connecting said axles and secured thereto near their ends, a sectional driving-axle arranged in said tubular axle and having its ends extending outwardly beyond the ends thereof, collars on said driving-axle ends adjacent to the ends of the tubular axle, ball-bearings on the ends of the tubular axle for the wheels, the wheels fitted thereto, keys fitted to corresponding keyways in the ends of the driving-axle and in the hubs to connect the wheels to the driving-axle, and a screw-cap fitted to the threaded end of said driving-axle to cover the parts and force the hub against the collar, substantially as described and shown.

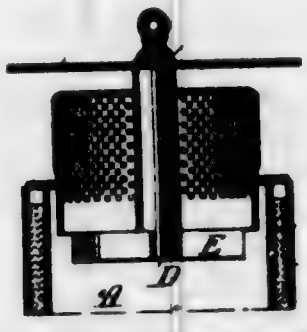
2. In combination in an automobile vehicle, a front axle, a tubular rear axle, side springs connecting said axles and secured thereto near their ends, a sectional driving-axle arranged in said tubular axle and having its ends extending outwardly beyond the ends thereof, ball-bearings on the ends of said tubular axle, wheels and hubs fitted to said bearings, the cup of the inner ball-bearing of each wheel threaded to be secured to the inner end of the hub, a cap fitted to the tubular axle and threaded also to engage with the inner end of the hub, and means for securing the hub and wheel to the end of the driving-axle, substantially as described and shown.

3. In combination in an automobile vehicle, a front axle, a sectional tubular rear axle connected to the front axle by side springs, a sectional driving-axle arranged within said tubular axle, its sections connected by a compensating gear, a sprocket on said driving-axle, a motor-shaft supported on the vehicle-frame parallel to said axles, gears on the ends of said motor-shaft, hangers free to swing and supported concentrically with the ends of the motor-shaft, a counter-shaft tube carried on the lower ends of said hangers parallel to said motor-shaft and axles, a sectional counter-shaft sustained in said tube, gears on the ends of said counter-shaft in mesh with said motor-shaft gears, a sprocket on the counter-shaft in alinement with the rear-axle sprocket and a compensating gear connecting the counter-shaft sections, corresponding disk-plates and bolts for

connecting the sections respectively of the tubular rear axle and of the counter-shaft tube, a central strut secured to the disk-plate bolts of the tubular axle and of the counter-shaft tube and a driving-chain connecting the sprockets.

4. In combination in an automobile vehicle, a front axle, a sectional tubular rear axle connected to the front axle by side springs, a sectional driving-axle arranged within said tubular axle, its sections connected by a compensating gear, a sprocket on said driving-axle, a motor-shaft supported on the vehicle-frame parallel to said axles, gears on the ends of said motor-shaft, hangers free to swing and supported concentrically with the ends of the motor-shaft, a counter-shaft tube carried on the lower ends of said hangers parallel to said motor-shaft and axles, a sectional counter-shaft sustained in said tube, gears on the ends of said counter-shaft in mesh with said motor-shaft gears, a sprocket on the counter-shaft in alinement with the rear-axle sprocket and a compensating gear connecting the counter-shaft sections, corresponding disk-plates and bolts for connecting the sections respectively of the tubular rear axle and of the counter-shaft tube, corresponding ears on the ends of said counter-shaft and of said tubular axle, struts provided with turnbuckles secured to said ears on each side, a central strut secured to the disk-plate bolts of the tubular axle and of the counter-shaft tube and a driving-chain connecting the sprockets.

691,832. OIL-LAMP BURNER. FRANK T. WILLIAMS, Meriden, Conn., assignor to Edward Miller & Company, Meriden, Conn., a Corporation of Connecticut. Filed Feb. 14, 1901. Serial No. 47,291. (No model.)



Claim.—1. In a central-draft burner in combination, means forming a wick-passage, a vertically-movable ring located over said wick-passage, a perforated cone projecting above said ring, and an independent spreader-plate located above said cone.

2. In a central-draft burner, the combination of an inner and an outer wick-tube, a spreader-plate stationary with relation thereto, a perforated cone movable with relation to said spreader-plate and said tube, a vertically-movable ring located over said wick-tubes, said ring carrying said cone, and a space left between said cone and the inner wick-tube forming an air-passage to the inner side of said wick.

3. In a lamp, the combination, wick-tubes, a vertically-movable wick-protecting ring, a spreader occupying a fixed relation to said wick-tubes and located above the wick-protecting ring, a perforated cone intermediate of said spreader and said ring and arranged to check the upward movement of said ring.

4. The combination, wick-tubes, a stationary spreader, a vertically movable wick-protecting ring and a perforated cone movable with said ring and intermediate of said ring and spreader, and passages for permitting the escape of gas generated at the inner side of said wick.

5. In a central-draft burner, the combination, wick-tubes, a vertically-movable wick-protecting ring supporting a perforated cone, the perforations in said cone extending below the plane of said ring, and a flame-spreader independent of said ring and cone and located above the same.

6. In a burner the combination, of an inner and an outer wick-tube forming a wick-space between them, of a perforated cone movable vertically and having an air-passage formed between it and said inner wick-tube, a wick-protecting ring movable by said wick, said ring supporting said perforated cone, with a plate forming a spreader and a stop for said cone and ring to limit the upward excursion of said parts.

7. The combination, wick-tubes, a stationary spreader, a vertically-movable wick-protecting ring adapted to rest upon the upper end of a wick and a perforated cone intermediate of said ring and spreader, and passages for permitting the escape of gas generated at the inner side of said wick, and an air-passage leading from the space within the central tube to the inner side of the wick and below said ring.

8. The combination, wick-tubes, a stationary spreader, a vertically-movable wick-protecting ring and a perforated cone movable with said ring and intermediate of said ring and spreader, and passages for permitting the escape of gas generated at the inner side of said wick, and an annular air-passage between said lower end of said cone and the inner side of the inner wick-tube leading to the inner side of the wick below said ring.

9. In a burner in combination, an inner and an outer wick-tube forming a wick-space between them, a vertically-movable wick-protecting ring located above said wick-tubes and over the wick-space, a perforated cone carried by said wick-protecting ring and movable therewith, a gas-passage between that portion of the ring which is adapted to rest upon the wick and the said cone, and a stationary spreader-plate fixed in the path of movement of said cone to act as a stop therefor.

691,833. ROASTER AND TRUSSER. WILLIAM C. WILLIAMSON, Chicago, Ill. Filed Mar. 22, 1901. Serial No. 53,171. (No model.)



Claim.—1. A roaster and trusser comprising a series of suitably-connected transversely-extending horizontal portions, having legs for holding said horizontal portions away from the pan, and bendable uprights upon the ends of the horizontal portions adapted to be brought into the proper position to hold the parts of the roast in proper relation with each other; substantially as described.

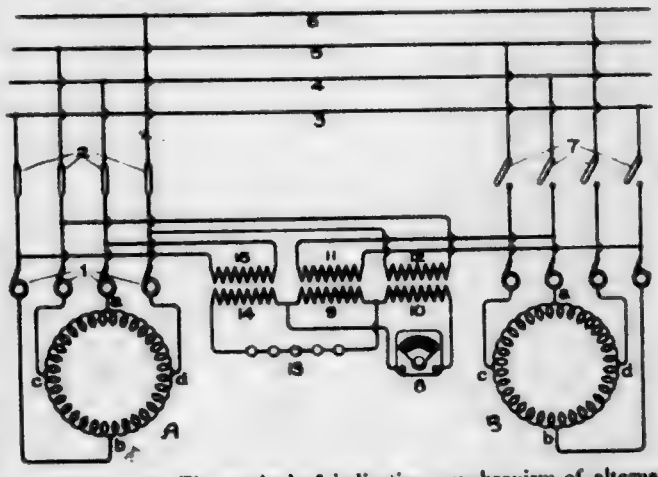
2. A roaster and trusser comprising a series of wires and connections between the same, said wires having substantially horizontal laterally-extending portions, downturned portions at the extremities thereof, adapted to act as legs, and uprights extending from said downturned portions adapted to embrace the roast; substantially as described.

3. In a roaster, the combination with a middle connecting-bar, of a series of wires fastened thereto at their middle portions, extending substantially horizontally on opposite sides of the same, downturned at the ends of the horizontal portions to provide legs, and turned back upon themselves to provide lateral uprights upon the opposite sides; substantially as described.

4. A longitudinally-adjustable roaster and trusser comprising two separate members divided transversely, each member having a series of lateral parts, B, connected together and provided with horizontal supporting portions, downwardly-extending legs and lateral embracing uprights; substantially as described.

5. In a roaster and trusser, the combination with the connecting-bar, A, of the laterally-extending supporting-wires, B, B', B^2, clenched therein having horizontal supporting portions, legs to raise said supporting portions from the pan, and opposite uprights, the uprights of the wire, B, being less widely separated than those of the wire, B^2; substantially as described.

691,834. METHOD OF SYNCHRONIZING ALTERNATORS. JONATHAN E. WOODBRIDGE, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 30, 1900. Serial No. 25,263. (No specimens.)



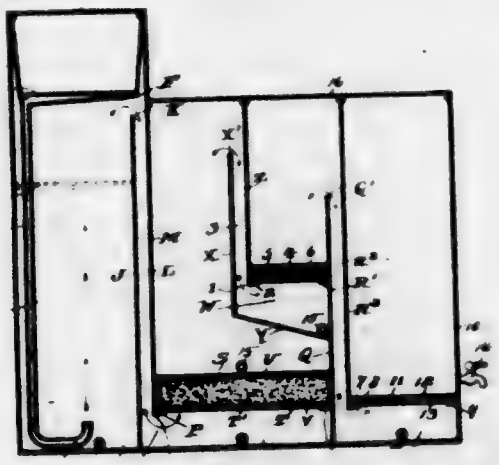
Claim.—1. The method of indicating synchronism of alternating-current machines, which consists in comparing an electromotive force derived inductively from one phase of one of the machines with an electromotive force derived inductively from a different phase of another machine.

2. The method of indicating synchronism of alternating-current machines which consists in acting upon an indicating device by electromotive forces derived inductively from said machines and normally out of phase with each other when said machines are in synchronism.

3. The method of indicating synchronism of alternating-current machines, which consists in acting upon an indicating instrument by two normally phase-displaced electromotive forces one of which is derived inductively from one of the machines and the other from another machine.

4. The method of indicating synchronism of alternating-current machines, which consists in combining an electromotive force derived inductively from one phase of one of the machines with an electromotive force derived inductively from a different phase of another machine and indicating variations in the resultant electromotive force.

691,835. OIL-FILTER. HORACE B. WYMAN, Leominster, Mass., assignor to the Oil Saving Manufacturing Company, Portland, Me., a Corporation of Maine. Filed Jan. 28, 1901. Serial No. 45,126. (No model.)



Claim.—1. An oil-filter comprising a compartment having a water filter, a compartment having a filter of pulverized glass and a filter of felt, a compartment having a filter of felt, and means of communication between said compartments, substantially as shown and described.

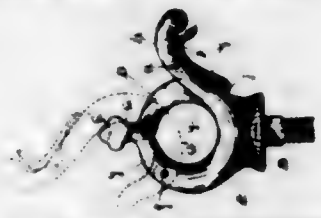
2. An oil-filter comprising a compartment having an oil-receiver with an inclined bottom, a pipe extending downward from said bottom having its lower end turned upward, a compartment provided with a filter and having a compartment therein with a filter, a compartment provided with a filter, and channels for communication between said compartments, substantially as shown and described.

3. An oil-filter comprising a series of compartments, each provided with a filtering medium, one of said compartments provided with a compartment therein having an inclined bottom and a filter, and channels for communication between said compartments, substantially as shown and described.

4. An oil-filter provided with a compartment having water therein, and provided with an oil-receiver having a pipe for feeding said oil to the bottom of said compartment, a compartment provided with a filter, and having a smaller compartment therein provided with a filter, a compartment provided with means for drawing off the purified oil, and channels whereby communication is had between said compartments, substantially as shown and described.

5. An oil-filter provided with a compartment having brine therein and an oil-receiver having a pipe for feeding the oil to the bottom of said compartment, a compartment provided with a filtering medium of fine grit, and having a smaller compartment therein provided with a filtering medium and a compartment provided with a filtering medium and means for drawing off the purified oil, and channels whereby communication is had between said compartments, substantially as shown and described.

691,836. CHECKREIN-HOOK. GORDON W. BESOLE, Ypsilanti, Mich. Filed Jan. 31, 1901. Serial No. 45,405. (No model.)



Claim.—1. In a checkrein-hook of the character described, the combination of the headed screw-bolt B, having the slots *e* formed in its head, and the part A formed with front and rear standards C D, and with lugs *d* adapted to engage the slots *e* of the bolt, the two parts being united by upsetting the lugs *d* after they have passed through the slots *e* as specified.

2. In a checkrein-hook of the character described, the combination of the headed screw-bolt B, having slots *e* formed in opposite sides of its head, which slots are countersunk upon their under side, and the part A formed with a front standard C and a rear standard D, said part being stamped out of sheet metal with lugs *d* having protuberances *d'* for uniting the parts together to form the hook-post, substantially as described.

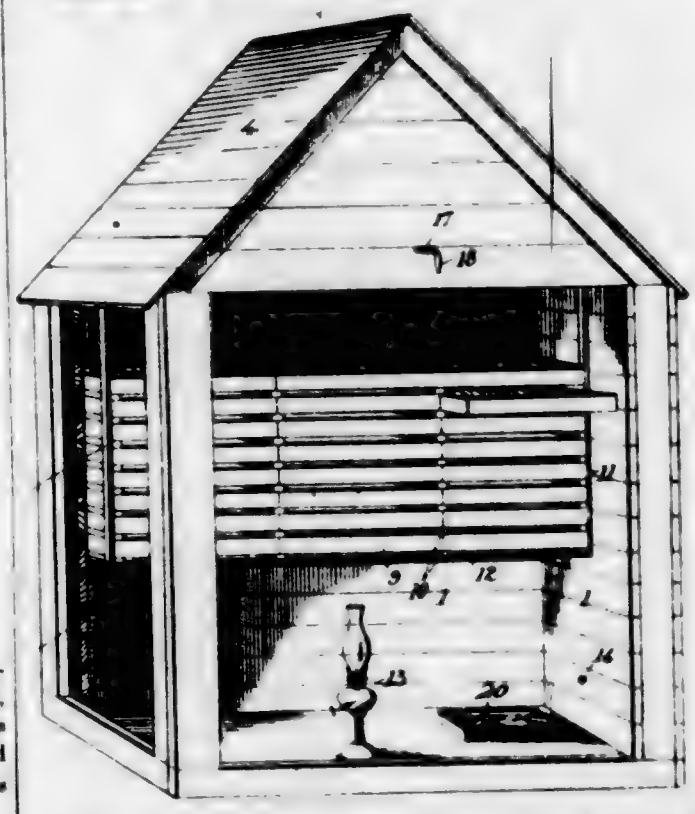
3. In a checkrein-hook of the character described, a hook-post composed of the part A forming the hook-post proper, and a base formed of a common large-headed screw-bolt B, said bolt formed with slots *e* in its head, and the part A with the projecting lugs *d* engaging into said slots, the two parts being united by upsetting the lugs *d* after they have passed through the slots *e* as specified.

4. In a checkrein-hook, the combination of a ring-shaped hook-post A, having front and rear standards C D, forming between them the eye *a*, and the opening *b* leading into it, a hook-shaped retaining-lever E pivotally secured upon the front standard, and having a slot to receive the hook-post, and move thereon to open and close the eye in said hook-post, said retaining-lever being of tubular cross-section, constructed in halves secured together and having marginal portions of each half cut away to form the slot in the retaining-lever.

5. In a checkrein-hook, the combination of a ring-shaped post A, having front and rear standards C, D, forming between them the eye *a* and the opening *b* leading into the top of the eye, a hook-shaped retaining-lever E pivotally secured upon the front standard and slotted intermediate between its ends, to receive the hook-post and move thereon, one end of said slot acting as a stop to limit the movement of the lever, said lever forming a short arm adapted to close the eye of the hook-post, and a long arm adapted to fold upon the hook-post and projecting rearwardly beyond the same, and a locking-latch carried by the rear end of said arm and adapted to engage in a notch on the rear side of the hook-post to lock the retaining-lever in its closed position.

6. In a checkrein-hook, the combination of a ring-shaped hook-post A, having an opening *b* in the front, near the top leading into the eye of the hook-post, and separating the same into a front standard C and a rear standard D, the latter provided with an upward extension or tongue *c*, a hook-shaped retaining-lever pivotally secured upon the top of the front standard, and vertically slotted to receive the hook-post, and move thereon to open and close the eye of the hook-post, said lever having a short arm *g* slotted at its free end and adapted in the closed position of the lever to close the eye of the hook-post and embrace the tongue *c*, of the rear standard and a long arm adapted in the closed position of the lever to fold upon the front standard and lower portion of the hook-post, and project with its free end rearwardly beyond the same, and a locking-latch F pivotally secured to said free end on the under side thereof, said locking-latch having a finger-piece at its outer end and extending beneath the rear end of the retaining-lever and a hook *j* at its inner end adapted to ride upon the rear face of the hook-post, said rear face having a notch *l* for said hook to engage into to lock the retaining-lever in its closed position.

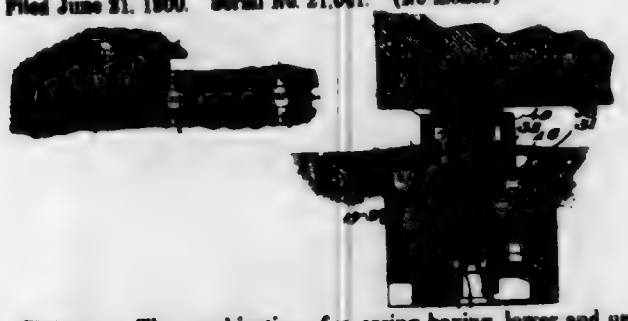
691,887. INCUBATOR. VIRGIL S. BELL, Hayesville, Iowa. Filed Mar. 28, 1901. Serial No. 53,314. (No model.)



Claim.—An incubator comprising a housing, a double-walled lower compartment provided with a double ceiling, said housing being also provided with an upper compartment having single walls and provided

with cracks or apertures forming escape openings for hot air, whereby the said upper compartment is adapted to confine partially the escaping hot air and cause the same to escape slowly to prevent the lower compartment from becoming chilled too quickly, a packing of heat-non-conducting material arranged at the walls and ceiling, egg-trays located in the lower compartment, a heat-generating device located below the trays, a short hot-air escape extending through the ceiling and permitting the hot air to pass from the lower compartment and terminating therein, a valve located at the upper end of the hot-air escape and provided with a thermostat to open it automatically, and a damper located in the hot-air escape at a point between the ceiling and the said valve and provided with means for operating it from the exterior to enable the escape of air to be cut off when the upper valve is open, substantially as and for the purpose described.

691,888. SPRING-HINGE. MARTIN C. BERSTED, Chicago, Ill. Filed June 21, 1900. Serial No. 21,041. (No model.)



Claim.—1. The combination of a casing having lower and upper stops, a spindle pivoted in the casing, a flange having upper and lower lugs and secured to the spindle, a lower collar fitting around the spindle having an upper lug so arranged as to be engaged by the lower lug of the flange, and a lower lug so arranged as to engage with the lower stop of the casing, a sleeve fitting around the spindle above the flange thereof having a lower lug so arranged as to be engaged by the upper lug of the flange, and an upper lug so arranged as to engage with the upper stop of the casing, an upper collar fitting around the sleeve and connected therewith, a coil-spring surrounding the spindle and having one end secured to the lower collar and its other end secured to the upper collar, and a barrel slightly reduced at its mid-length, fitted between the collars and located between the spindle and the spring for sustaining the latter.

2. The combination of a casing having lower and upper stops, a spindle pivoted in the casing, having longitudinal keyways, a flange composed of two disks, each having a lug struck up from the edge thereof, arranged back to back and formed with key-lugs bent into the keyways, a lower collar fitting around the spindle having an upper lug so arranged as to be engaged by the lower lug of the flange, and a lower lug so arranged as to engage with the lower stop of the casing, a sleeve fitting around the spindle above the flange thereof having a lower lug so arranged as to be engaged by the upper lug of the flange, and an upper lug so arranged as to engage with the upper stop of the casing, an upper collar fitting around the sleeve connected therewith, and a coil-spring surrounding the spindle having one end secured to the lower collar and its other end secured to the upper collar.

3. The combination of a casing having lower and upper stops, a spindle pivoted in the casing, a flange having upper and lower lugs and secured to the spindle, a lower collar fitting around the spindle, having a lateral flange provided with an upper lug so arranged as to be engaged by the lower lug of the spindle-flange, and a lower lug so arranged as to engage with the lower stop of the casing, a sleeve formed with vertical openings and fitting around the spindle, above the spindle-flange and having a lower lug so arranged as to be engaged by the upper lug of the spindle-flange, and an upper lug so arranged as to engage with the upper stop of the casing, an upper collar, fitting around the sleeve, having a lateral flange, and series of teeth on its upper end, a ring having a series of teeth meshing with the teeth on the upper collar, pins connecting the ring with the vertical openings in the sleeve, and a coil-spring surrounding the spindle having one end secured to the lower collar and its other end secured to the upper collar.

4. A sleeve-blank formed integral with a lower tongue, with openings in its upper edge, a tongue severed from one end of the blank to provide an opening and a tongue at the other end of the blank adapted to close the end opening.

5. A sleeve formed integral from a blank, with a lower outwardly-projecting tongue, an upper outwardly-projecting tongue providing an opening and a tongue closing the opening over the upper tongue.

6. The combination of a door and its frame of a pivot-hinge comprising in its construction a plate formed with an integral pivot-pin having an annular ball-groove and adapted to be secured to the upper edge of the door, a plate formed with an integral cup into which the pivot-pin projects, and adapted to be seated in a socket in the under side of the lintel of the door-frame, antifriction-balls located in said annular groove a cap overlapping said cup, and means for securing the cap to the pivot-pin, substantially as described.

691,889. MEANS FOR TRANSPORTING INCANDESCENT MANTLES. JOHN F. BERDOW, Davenport, Iowa, assignor to the Iowa Mantle Manufacturing Company, a Corporation of Iowa. Filed June 4, 1901. Serial No. 63,061. (No model.)



Claim.—1. Means for transporting incandescent mantles comprising a casing having a centrally-placed post at its bottom, a mantle-support engaging said post and centering the mantle at its lower end, and centering means carried by the upper end of said mantle-support, said centering means bearing against the inner wall of the casing and serving to center the mantle at the upper end of said casing.

2. Means for transporting incandescent mantles comprising a casing having a centrally-placed post at its bottom, a mantle-carrier engaging said post and centering said mantle at its lower end, and a central mantle-support rising from said mantle-carrier and provided with integral arms extending at right angles thereto, to center the mantle at the upper end of the casing.

3. Means for transporting incandescent mantles comprising a casing having a centrally-placed post at its bottom, a mantle-carrier engaging said post and centering said mantle at its lower end and a central support rising from said mantle-carrier and provided with integral arms extending at right angles thereto to center the mantle at the upper end of the casing, said arms being crossed upon each other to form a closed loop within which the transverse mantle-supporting cord is held.

4. A shipping-case for incandescent mantles comprising a body portion, end caps therefor, and a mantle-post at one end of the case made of a strip of material bent upon itself so as to form a supporting-base and a central bent-up mantle-receiving portion to receive and center the lower end of the mantle.

5. A shipping-case for incandescent mantles formed of a cylindrical tube, removable end caps therefor, and a mantle-supporting post at one end of said tube, having a base and an upright portion, said post being held between the end of the tube and the end cap.

6. A shipping-case for incandescent mantles formed of a cylindrical tube, removable end caps therefor, and a mantle-supporting post formed of a strip of material bent upon itself so as to provide a base and a bent-up central portion, the ends of said base being pinched and held between the end of the tube and the removable cap.

7. A centring-post for shipping-cases for tubular articles formed of a strip of cardboard bent up into a ⊓-shaped projection and having its ends extending laterally from said projection, said ends being doubled under to form a supporting-base for the post.

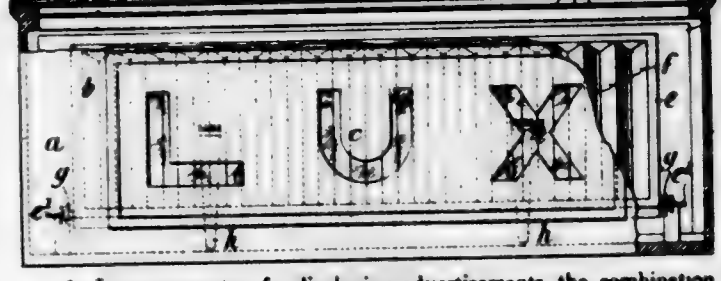
8. A shipping-case for incandescent mantles formed of a cylindrical tube, removable end caps therefor, and a mantle-supporting post formed of a strip of cardboard bent into a central ⊓-shaped projection, and having its ends extending laterally from said projection and doubled under to form a supporting-base for the post, said laterally-projecting ends being pinched and held between the end of the cylindrical tube and the removable end cap.

691,840. APPARATUS FOR DISPLAYING ADVERTISEMENTS. HOWARD W. CHENERY, London, England. Filed Sept. 3, 1901. Serial No. 74,142. (No model.)

Claim.—1. In an apparatus for displaying advertisements, the combination with a casing of an advertisement provided with transparent portions, a reflecting device located in rear of and at an angle to said advertisement and provided with a plurality of mirrors arranged in a zigzag line, and a transparent multicolored plate above said reflecting-plate, adapted to transmit light thereto, substantially as described.

2. In an apparatus for displaying advertisements, the combination with a casing of an advertisement provided with transparent portions, a

reflecting device located in rear of and at an angle to said advertisement and provided with a plurality of mirrors arranged in a zigzag line, a movable transparent multicolored plate arranged to transmit light to said reflecting-plate, and means for keeping said multicolored plate in motion, substantially as described.



3. In an apparatus for displaying advertisements, the combination with a casing of an advertisement provided with transparent portions, a reflecting device located in rear of and at an angle to said advertisement and provided with a plurality of mirrors arranged in a zigzag line, a transparent multicolored plate arranged to transmit light to said reflecting-plate, said plate being movable toward and from said reflecting-plate, and springs supporting said multicolored plate, substantially as described.

4. In an apparatus for displaying advertisements, the combination with a casing, of an advertisement provided with transparent portions, a reflecting device located in rear of and at an angle to said advertisement and provided with a plurality of mirrors arranged in a zigzag line, a transparent multicolored plate arranged to transmit light to said reflecting-plate and a muffling-plate interposed between said reflecting-plate and said advertisement, substantially as described.

5. In an apparatus for displaying advertisements, the combination with a casing of an advertisement provided with transparent portions, a reflecting-plate pivoted in said casing, and provided with a series of mirrors arranged in a zigzag line, devices for adjusting said pivoted reflecting-plate with respect to the advertisement, and a transparent multicolored plate arranged to transmit light upon said reflecting-plate, substantially as described.

691,841. TOOTH FOR THRESHING-MACHINES. GEORGE F. CONNER, Port Huron, Mich. Filed Feb. 14, 1899. Serial No. 705,471. (No model.)



Claim.—1. The combination with a threshing-cylinder bar having a hole therein, of a tooth comprising a threshing portion and a shank or holding portion located in the hole which shank portion is of less diameter intermediate the ends than at its opposite ends, and a wedge between the shank and one side of the hole and extending longitudinally of the shank, substantially as described.

2. The combination with a threshing-cylinder bar having a hole therein, of a tooth having a shank or holding portion one side of which shank is longitudinally concaved and the opposite side of which shank is straight, and a wedge between the straight side of the shank and one side of the hole, substantially as described.

3. The combination with a threshing-cylinder bar having a hole therein one side of which is transversely concaved, of a tooth having a shank or holding portion located in the hole which shank is of less diameter intermediate the ends than at its opposite ends, one side of said shank being transversely convexed, and a wedge between the opposite straight side of the shank and one side of the hole, substantially as described.

4. The combination with a threshing-cylinder bar, having a hole therein, one side of which is longitudinally concaved and also transversely concaved, of a tooth having a shank or holding portion in said hole, one side of said shank being longitudinally concaved and transversely convexed, and a wedge between the opposite straight side of the shank and one side of the hole, substantially as described.

5. A tooth for threshing-machines provided with a threshing portion and a shank or holding portion, which shank portion has a substantially straight side and an opposite side longitudinally inbent or concaved intermediate its ends and transversely convexed, substantially as described.

6. A tooth for a threshing-machine cylinder consisting of a blade portion, and a shank portion curved inwardly from the blade to at or near its opposite end and convexed in cross-section on its rear edge, substantially as described.

7. The combination with the threshing-cylinder bar having an opening therein formed with a curved concaved wall and an opposite straight wall, of a tooth having the rear edge of its shank fashioned to fit the curved wall of the opening, and curved outward longitudinally and a wedge interposed directly between the front edge of the tooth-shank and the straight wall of the opening, substantially as described.

8. A tooth for threshing-machines consisting of a blade portion and a shank portion which latter portion has one edge recessed inwardly from at or near its opposite ends to form oppositely-disposed wedge-like portions and the shank having a substantially straight edge opposite the recessed edge, substantially as described.

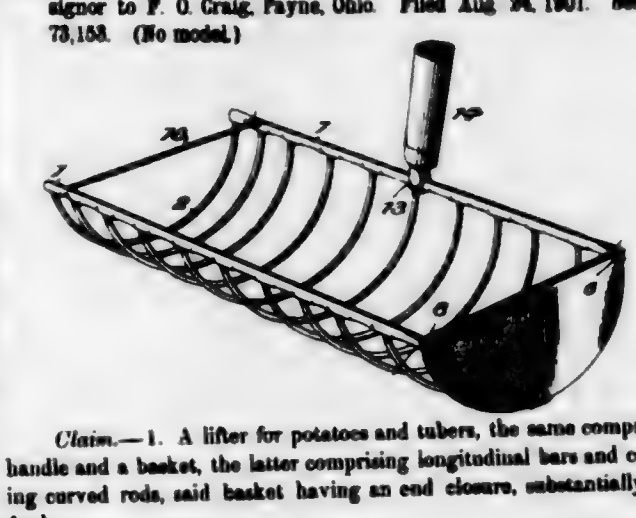
691,842. VEHICLE-SEAT. JAMES B. CONNOR, Boyce, Miss. Filed July 11, 1901. Serial No. 67,866. (No model.)



Claim.—1. In combination with a seat and a back having arms pivoted to the seat and adapted when folded to embrace the ends of the seat, slotted braces spaced from the ends of the seat and having the arms of the back arranged to come between them and the ends of the seat when the said back is folded, fastenings connecting opposite ends of the braces with, respectively, the arms and seat, and spacing-pieces slipped upon the fastenings applied to the seat, substantially as set forth.

2. In combination with a seat and a folding back, headed fastenings applied to the seat and arms or side pieces of the back, and braces, each consisting of a single length of wire doubled upon itself to form spaced portions which are twisted near one end to form an eye in which is fitted the headed fastening applied to the seat, the headed fastening applied to the back operating in the space formed between the folded parts of the wire, substantially as set forth.

691,843. POTATO-LIFTER. JOHN T. CRAIG, Raymond, S. D., assignor to F. O. Craig, Payne, Ohio. Filed Aug. 24, 1901. Serial No. 73,153. (No model.)



Claim.—1. A lifter for potatoes and tubers, the same comprising a handle and a basket, the latter comprising longitudinal bars and connecting curved rods, said basket having an end closure, substantially as set forth.

2. In a lifter for tubers, longitudinal bars formed of strips folded intermediate of their longitudinal edges and curved rods having their ends widened and clamped between the folded portions of the bars, substantially as set forth.

3. In a lifter, curved rods having their ends flattened laterally and longitudinal bars having folded portions pressed together to clamp the flattened ends of the curved rods, substantially as set forth.

4. In a lifter of the character described, and in combination with the basket comprising curved rods, and longitudinal bars, the latter having spaced portions provided with slots, a tie-rod for connecting the longitudinal bars having T-heads at its ends to be pressed through the aforesaid slots of the bars and turned to sit crosswise thereof, substantially as set forth.

5. In a lifter, and in combination with the longitudinal bars and connecting curved rods, the said bars having spaced portions formed with slots and having the parts intermediate of the ends of the slots deflected to form channels, a tie-rod having T-heads to be passed through the aforesaid slots of the longitudinal bars and turned to lie in the said channels to prevent casual displacement of the tie-rod, substantially as set forth.

6. In a lifter of the character described, and in combination with the basket comprising longitudinal bars and connecting curved rods, a tang consisting of a folded strip embracing the side of a longitudinal bar and having an opening in its forward end for the passage therethrough of one of the said curved rods, substantially as set forth.

7. In a lifter of the character described, longitudinal bars composed of folded portions and having a series of tongues at one end, curved rods having their end portions clamped between the folded parts of the said bars, and a plate closing one end of the lifter and having slots to receive a tongue of the bars which is clenched upon the plate, the remaining tongues being bent upon the plate to hold it in place, substantially as set forth.

8. In a lifter of the character described, and in combination with the longitudinal bars having tongues at one end, and connecting curved rods, an end plate having a tongue bent around the adjacent curved rod and having slots in its end portions to receive a tongue of the longitudinal bars which is bent to secure the plate, the remaining tongues being likewise bent, substantially as set forth.

691,844. **BINDER.** HARRY E. DADE, Mount Vernon, N. Y. Filed Oct. 20, 1898. Serial No. 734,208. (No model.)



Claim.—1. In a binder, the combination of upper and lower strips, sheet-engaging posts, of which at least one is removable, extending between the strips, a follower arranged between said strips, and means carried by the removable post forcing the follower toward one of the strips.

2. In a binder, the combination of upper and lower strips, sheet-engaging posts, of which at least one is removable, extending between the strips, sheets provided with open and closed apertures engaged by the posts, a follower arranged between said strips, and means carried by the removable post for holding the follower against the sheets.

3. In a binder the combination of upper and lower strips; posts extending between the strips; a follower arranged between the strips; and a coiled spring mounted on one of said posts for yieldingly forcing the follower toward one of the strips, said post having a seat for said spring.

4. In a binder, the combination of upper and lower strips, sheet-engaging posts, one of which at least is removable, sheets provided with open and closed apertures engaged by the posts, a follower arranged between said strips, means carried by the removable posts for holding the follower against the sheets, and means for locking the removable post in place.

5. In a binder, the combination of upper and lower strips, sheet-engaging posts of which at least one is removable extending between the strips, a freely-moving follower arranged between said strips, and a coiled spring mounted on a removable post for yieldingly forcing the follower toward one of the strips.

6. In a binder, the combination of upper and lower strips, sheet-engaging posts of which one at least is removable extending between the strips, a freely-moving follower arranged between said strips and having apertures to receive said posts, and a coiled spring mounted on a removable post for yieldingly forcing the follower toward one of the strips.

7. In an expansible binder, the combination of upper and lower strips adapted and arranged to move up and down to and from each other, sheet-engaging posts, one of which at least is removable, extending between the strips, sheets provided with open and closed apertures engaged by the posts, a freely-moving follower arranged between said strips, and means carried by the removable post for holding the follower downward toward the lower strip, and means for locking the strips together at any desired point of separation.

8. In an expansible binder, the combination of upper and lower strips adapted and arranged to move up and down to and from each other, sheet-engaging posts of which at least one is removable extending between the strips, a freely-moving follower arranged between said strips, and a coiled spring mounted on a removable post for yieldingly forcing the follower toward one of the strips, and means for locking the strips together at any desired point of separation.

9. In an expansible binder, the combination of upper and lower strips adapted and arranged to move up and down to and from each other, sheet-engaging posts of which one at least is removable extending between the strips, a freely-moving follower arranged between said strips and having apertures to receive said posts, and a coiled spring mounted on a removable post for yieldingly forcing the follower toward one of the strips, and means for locking the strips together at any desired point of separation.

10. In a binder, the combination of upper and lower strips, a removable sheet-engaging post and permanent sheet-engaging posts extending between said strips, a freely-moving follower arranged between the strips and having a hole to receive the removable post, and a coiled spring mounted on the removable post, for yieldingly forcing the follower toward one of the strips.

11. In an expansible binder, the combination of upper and lower strips movable up and down to and from each other, a removable extensible sheet-engaging post and permanent sheet-engaging posts extending between said strips, a freely-moving follower arranged between said strips and having a hole to receive the removable post, and a coiled spring mounted on the removable post for yieldingly forcing the follower toward one of the strips.

12. In an expansible binder, the combination of upper and lower strips; sheet-engaging posts extending between the strips; a lock for locking the strips together at any desired point of their separation comprising a casing having a slideway and secured to one strip, a toothed arm secured to the other strip and fitting and working in said slideway, and a key-actuated spring-pawl secured to the casing to engage the toothed arm; and an extensible removable post 32 secured to a piece 40 carrying a toothed arm 44; and a key-actuated spring-pawl adapted to engage the toothed arm 44.

13. In an expansible binder, the combination of upper and lower strips; sheet-engaging posts extending between the strips; a lock for locking the strips together at any desired point of their separation comprising a casing 25 secured to one strip and having slide ways 24 and 46, a toothed arm 23 secured to the other strip and fitting in the slideway 24, the pawl 26 to engage the arm 23, the removable cover 30 of the casing, the projections 28 and 29 on the arm 23 and cover 30 respectively; the removable extensible spring-post 32 secured to the piece 40; the toothed arm 44 fitting in the slideway 46 in the casing 25 and secured to the piece 40; the key-actuated spring-pawl 47 to engage the toothed arm 44, the pawls 26 and 47 being arranged on either side of the keyhole 27 with their heads upward.

14. In an expansible binder, the combination of upper and lower strips 1 and 2; fixed posts extending between the strips; an extensible, removable spring-post comprising the member 34 having the projection 42, the member 35 having the projection 43, the internal coiled spring 36, a fixed plug at one end of the post and a removable screw-plug at the other end to hold the spring in place.

15. In a binder, the combination of upper and lower strips, a removable sheet-engaging post and permanent sheet-engaging posts extending between the said strips, sheets provided with open and closed apertures secured on said posts between the strips, a freely-moving follower between the strips and having a closed hole to receive the removable post, and a coiled spring mounted on the removable post, for yieldingly forcing the follower toward one of the strips.

16. In a binder, the combination of upper and lower strips, sheet-engaging posts, of which at least one is removable, extending between the strips, provided with open and closed apertures, sheets engaged by the posts, non-sheet-engaging spring-posts extending between the strips, a follower arranged between said strips, and means carried by the removable post for holding the follower against the sheets.

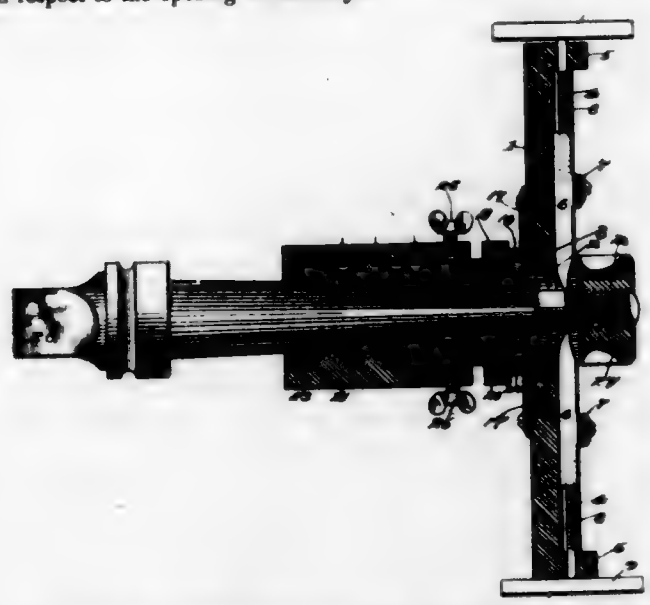
691,845. **AXLE-SPINDLE CUTTER.** SYLVESTER DAVIS, Hawarden, Iowa. Filed Apr. 2, 1901. Serial No. 54,075. (No model.)

Claim.—1. A cutting implement of the character described, comprising a rotatable body having an opening for the reception of the part to be cut, one or more knives in operative relation with respect to the outer end of the opening, a guide-sleeve alined with the opening and swiveled to the back of the body, and rings or washers of equal external diameters and unequal internal diameters, said washers being removably seated in the opposite ends of the sleeve.

2. A cutting implement of the character described, having a central opening in the body thereof for the reception of the part to be cut, a guide-sleeve alined with the opening and swiveled to the body, the opposite ends of the sleeve having terminal internal marginal seats of greater diameters than the normal internal diameter of the sleeve, and interchangeable washers removably fitted in the respective seats, said washers being of the same external diameter and of different internal diameters.

3. A cutting implement of the character described, having an opening for the reception of the part to be cut, a guide-sleeve alined with the opening and swiveled to the body of the device, and interchangeable washers of different internal diameters removably fitted in the opposite ends of the guide-sleeve.

4. A screw-threading implement of the character described, having an opening for the reception of the part to be threaded, and a groove in its outer face and diametrically intersecting the opening, and a nut-holding socket having opposite terminal tongues or projections slidably fitted in the groove, the opening of the socket being disposed concentrically with respect to the opening in the body.



5. A screw-threading implement of the character described, having an opening for the reception of the part to be cut, and a dovetailed groove formed in the outer face of the body and intersecting diametrically the opening, and a nut-holding socket having a dovetailed projection removably fitted in the dovetailed groove.

6. A screw-threading implement of the character described, having an opening formed in the body thereof for the reception of the part to be cut, and also provided with a groove intersecting the opening diametrically and projected at opposite sides thereof, a cross-bar extending across the outer side of one end portion of the groove, a nut-holding socket having opposite terminal projections removably fitted in the groove, the inner projection taking under the cross-bar, and an operating-handle having its stem removably fitted in one end of the groove with its terminal taking under the adjacent portion of the cross-bar.

7. An implement of the character described, comprising a substantially T-shaped body having an opening at the intersection of the arm portions, the opposite arm portions having corresponding grooves intersecting the opening, and there being a groove at substantially right angles to the former grooves and intersecting the opening and also extending through the third arm portion, opposite endwise-slidable cutting-knives mounted in the grooves of the respective opposite arms, screw-threaded adjusting-stems for the respective knives, and having hand-wheels, a removable nut-holding socket having opposite terminal projections fitted in the respective end portions of the groove that extends through the third arm portion, the intermediate portion of the socket spanning the opening in the body, a telescopic guide-sleeve at the back of the body and alined with the opening thereof, the inner section being swiveled to the body, set-screws for adjustably interlocking the telescopic sections, other set-screws for engagement with the part to be cut, and interchangeable washers removably fitted in the opposite ends of the telescopic sleeve, and of different internal diameters.

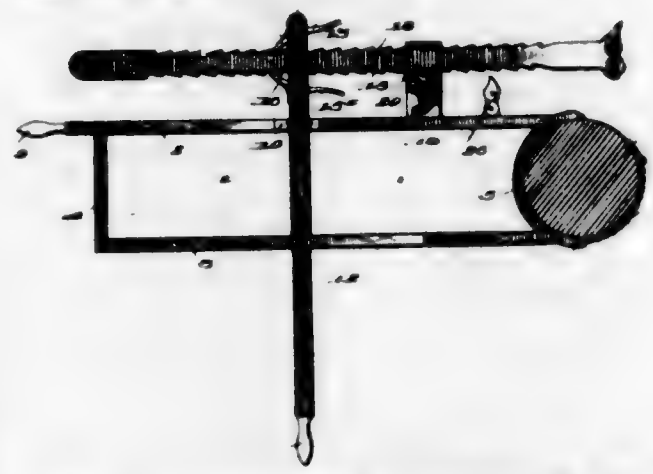
691,846. HARVESTER. EZRA DOHERTY, Frederick, S. D. Filed June 3, 1901. Serial No. 63,004. (No model.)



Claim.—1. In a harvester, the combination with a frame, of a cutter, a tubular grain-receiver on the frame having a wide forward end disposed above the cutter and terminating at its rear end in a lateral discharge-spout, and a fan in the wide end of the tubular receiver in advance of the cutter.

2. In a harvester, the combination with a supporting-frame, of a tubular grain-receiver supported on the frame, widest at its forward end and tapering slightly upward to and provided with a contracted discharge end which projects to one side of the frame, a cutter in the inlet end of the receiver, a fan-chamber in front of the cutter, a fan in said chamber and means for operating the fan to discharge a blast of air against the cutter and through the receiver.

691,847. WIRE-STRETCHER. SAM H. DUNLAP, Kurten, Tex. Filed Feb. 19, 1901. Serial No. 47,944. (No model.)



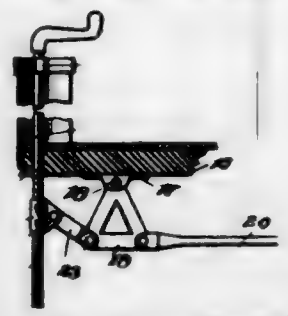
Claim.—1. In a wire-stretcher, the combination with a frame; of an operating-lever pivoted to the frame and having a slot at one end, oppositely-arranged pawls in the slot, a ratchet-bar extending through the slot and engaged by the said pawls, means for holding the wire to the ratchet-bar and a pivoted leaf adapted to hold the pawls out of engagement with the ratchet-bars.

2. In a wire-stretcher, the combination with a frame, of an operating-lever having a slot at one end thereof, oppositely-arranged pawls in the slot, a ratchet-bar extending through the slot and engaged by the said pawls, wire-gripping means at one end of the ratchet-bar, laterally-projecting ears on the operating-lever, and a leaf pivoted in the ears and having studs projecting thereon, said leaf being adapted to be turned over so that the studs will engage the pawls of the lever to hold the same from engagement with the ratchet-bar.

3. A wire-stretcher, comprising a frame formed with end and side bars, one of the end bars being formed to engage a standard, wire-gripping means on one of the side bars, longitudinal slots in the side bars registering with each other, an operating-lever pivoted within the slot of one of the side bars and extending through and working within the slot of the other side bar, a slot at one end of the lever, pawls arranged within the slot, a ratchet-bar extending through the slot and engaged by the pawls and having wire-gripping means thereon, and a bracket on one of the side bars having a pawl thereon adapted to engage the ratchet-bar to prevent the backward return thereof.

4. A wire-stretcher, comprising a frame, having an end portion adapted to engage a standard, a lever pivoted on the frame, having a slot in one end thereof, upper and lower oppositely-arranged pawls within the slot, a stretcher-bar extending through the slot, said bar being provided on its upper and lower surfaces with ratchet-teeth adapted to be engaged by the said pawls, wire-gripping means on the stretcher-bar, and on the frame, and a bracket on the frame having a pawl thereon adapted to engage the teeth on the stretcher-bar to prevent the backward return thereof.

691,848. BRAKE. JAMES D. EDWARDS, St. Louis, Mo. Filed Nov. 20, 1901. Serial No. 83,008. (No model.)

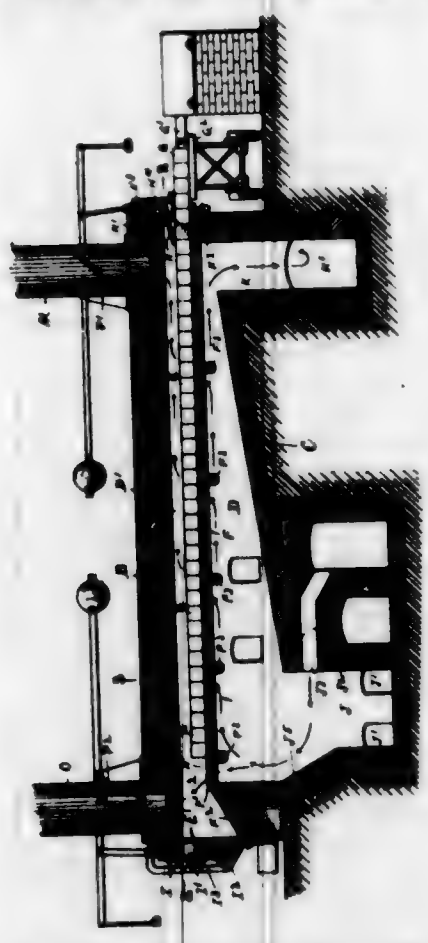


Claim.—1. In a brake mechanism, the combination with a brake-shaft having bearings constructed and arranged to hold it against longitudinal movement, and having a handle above its upper bearings and having its lower end threaded, of a nut engaged with the threaded portion of the shaft, a triangular lever pivotally mounted at its apex, a link pivoted to the nut and having pivotal connection with the adjacent base-angle of the lever, a brake-beam having shoes, and connections between the brake lever and beam, the arc of movement of the corner of the lever to which the link is attached, intersecting the path of the pivot of the nut.

2. The combination with a wheeled vehicle, of a brake-beam having shoes in operative relation to the wheels, a plate upon the under side of the vehicle having spaced ears, a triangular lever having its apex pivoted between the ears, a connecting-rod pivoted to the rear base-angle of the lever, a link pivoted to the forward base-angle of the lever, a verti-

cal shaft having a crank at its upper end and having its lower end threaded, and a nut upon the threaded portion of the shaft and having pivotal connection with the link, the curvature of the arc of movement of the forward base-angle of the lever intersecting the path of the pivot of the nut.

691,849. FURNACE FOR HEATING INGOTS. VICTOR E. EDWARDS and PAUL B. MORGAN, Worcester, Mass., assignors to the Morgan Construction Company, Worcester, Mass., a Corporation of Massachusetts. Filed June 17, 1897. Serial No. 641,191. (No model.)



Claim.—1. In a furnace for heating ingots, provided with an opening adapted to receive an ingot broadside, an outer door by which said opening is closed and a series of inner swinging doors arranged in a row across said opening within said outer door and adapted to be opened by the advancing side of the ingot, substantially as described.

2. The combination with a furnace for heating ingots provided with an opening adapted to receive an ingot broadside, of a series of doors arranged in a row across said opening whereby said opening is closed in sections and a sliding door sliding outside said sectional door, substantially as described.

3. The combination with a furnace for heating ingots provided with an opening adapted to receive an ingot broadside, of a series of swinging doors, hinged to the end wall of the furnace and adapted to be raised by the forward movement of the ingot and a sliding door outside said swinging doors, said sliding door having a recess to receive said swinging doors, substantially as described.

4. The combination with the heating-chamber, of a series of transverse water-pipes supported at their ends by the side walls of the furnace, and a pair of longitudinal water-pipes resting on said transverse water-pipes, forming a track for the ingots between the upper and lower sections of the heating-chamber, said transverse and longitudinal pipes having spaces between them for the movement of heated gases from the lower to the upper sections of the heating-chamber, substantially as described.

5. The combination with the heating-chamber, of a series of transverse water-pipes supported by the side walls of the furnace, and provided with spaces between them, a pair of longitudinal water-pipes resting on said transverse water-pipes and forming a track for the ingots, an opening for the admission of fuel below said track near one end of the heating-chamber, and an opening for the escape of the products of combustion below said track and near the opposite end of the heating-chamber, substantially as described.

6. The combination with the heating-chamber having an opening at one end for the admission of ingots and an opening at the opposite end for the delivery of ingots, of a pit at the delivery end of said chamber, fuel-ports opening into said pit, below the bed of the chamber and a door below said fuel-ports for the removal of slag, substantially as described.

7. The combination with the heating-chamber having an opening at one end for the admission of ingots, and an opening at the opposite end for the delivery of ingots, an opening at the delivery end of the chamber for the admission of gaseous fuel, a downward escape-flue at the charging end, an upward escape-flue at the delivery end, and means for regulating the openings in said escape-flues, substantially as described.

8. The combination with the heating-chamber having an opening at one end for the admission of ingots, and an opening at its opposite end for the delivery of ingots, of a fuel-opening at the delivery end of the chamber, a downward escape-flue at the charging end of the chamber, upward escape-flues at the opposite ends of the heating-chamber, means for regulating the openings in said flues, and a track raised above the bed of the chamber, substantially as described.

9. The combination with a heating-chamber having a delivery-opening for the discharge of heated billets, of a sliding door arranged to close the upper part of said opening, and a swinging door arranged to close the lower part of said opening, said swinging door being hinged to said sliding door, substantially as described.

10. In a furnace for heating ingots, the combination with a chamber having a delivery-opening for delivering an ingot broadside from said chamber of a sliding door arranged to close the upper portion of said opening and a swinging door hinged to said sliding door and adapted to be swung by gravity in order to close the lower portion of said opening, substantially as described.

11. The combination with the heating-chamber having a delivery-opening at one end, of a sliding door, arranged to close the upper part of said opening, and a hinged door arranged to close the lower part of said opening, said sliding door having a series of openings, substantially as described.

12. The combination with the heating-chamber, of a series of pipes by which the ingots are supported in said chamber, said pipes consisting of an outer cylindrical pipe and an inner cylindrical pipe having a water circulation therein, said outer pipes being supported by the walls of the furnace, and being free to expand independently of the expansion of said inner pipes, substantially as described.

13. In a continuous heating-furnace, the combination of hollow billet-supports extending from the front end of the furnace toward the rear end thereof, hollow bearings for the billet-supports arranged transversely of the furnace, and means for supplying the billet-supports and bearings with a cooling fluid, substantially as described.

691,850. EYELET. ROBERT L. ELLERY, Portsmouth, N. H., assignor to Morley Button Manufacturing Company, Boston, Mass., a Corporation of Maine. Filed May 6, 1901. Serial No. 58,897. (No model.)



Claim.—1. A one-piece metallic rolled-rim eyelet having on the exterior of the rim and outside of the barrel a coating of japan, the lower inside of the barrel and the inside of the rim being left bare of japan.

2. A one-piece metallic eyelet, having a rim and a barrel, japanned on the rim and the outside of the barrel, the inside of the barrel being left bare of japan.

3. A one-piece metallic eyelet, having a rim and a barrel, a thick coating of japan on the rim and outside of the barrel, and nowhere else on the eyelet.

691,851. ELECTRIC-ARC LAMP. HARRY ETHERIDGE, McKeesport, Pa. Filed Sept. 28, 1901. Serial No. 76,535. (No model.)

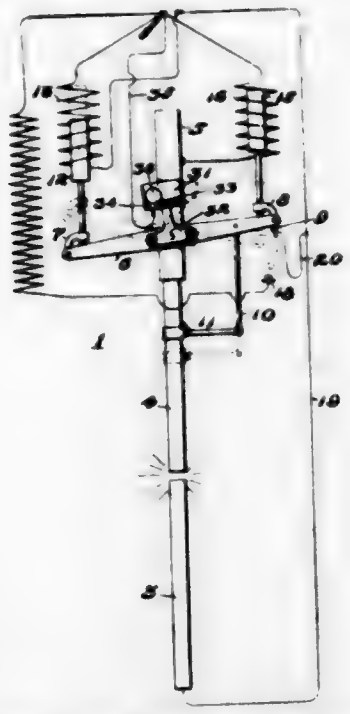
Claim.—1. In an arc lamp, the combination with the seal, or gas-check for closure of the inner-globe top, of means provided therein adapted to both automatically aline with the carbon and laterally adjust itself to permit the carbon to freely operate therethrough.

2. In an arc-lamp, the combination with the seal, or gas-check for closure of the inner-globe top, of means therein whereby said seal may assume a horizontal or inclined position to permit the carbon to freely operate therethrough, and means permitting said seal to laterally adjust itself to such positions.

3. In an arc-lamp, the combination with the seal, or gas-check for closure of the inner-globe top, of a sleeve carried by said seal to engage over the carbon, and means permitting said seal to assume a horizontal or inclined position without effecting the free operation of the carbon through said sleeve.

4. In an arc-lamp, the combination with the seal, or gas-check for closure of the inner-globe top, of a sleeve carried by said seal to engage over the carbon, and means permitting said seal to assume a horizontal

or inclined position, and adjust itself laterally on said globe without effecting the free operation of the carbon through said sleeve.



5. In an arc-lamp, the combination with the seal, or gas-check for closure of the inner-globe top, of a sleeve carried by said seal to engage over the carbon, means permitting said seal to assume a horizontal or inclined position without effecting the free operation of the carbon through said sleeve, and a gas-exhaust port in said seal.

6. In an arc-lamp, the combination with the seal, or gas-check for closure of the inner-globe top, of a sleeve carried by said seal to engage over the carbon, means permitting said seal to assume a horizontal or inclined position and adjust itself laterally on said globe without effecting the free operation of the carbon through said sleeve, and a gas-exhaust port in said seal.

7. In an arc-lamp, the combination with the seal, or gas-check for closure of the inner-globe top, of means therein whereby said seal may assume a horizontal or inclined position, and permit the carbon to freely operate therethrough, and means of conducting the gas from said globe through said seal.

8. In an arc-lamp, the combination with the seal, or gas-check for closure of the inner-globe top, of means therein whereby said seal may assume a horizontal or inclined position, and adjust itself laterally on said globe-top and permit the carbon to freely operate therethrough, and means of conducting the gas from said globe through said seal.

9. In an arc-lamp, a seal, or gas-check for closure of the inner-globe top, comprising a plate having an opening therethrough, an apertured disk resting upon said plate, over the opening thereof, and a shouldered carbon-guide sleeve engaging in said disk-aperture.

10. In an arc-lamp, a seal, or gas-check for closure of the inner-globe top, comprising a plate having an opening therethrough, an apertured disk resting upon said plate over the opening thereof, a shouldered carbon-guide sleeve engaging in said disk-aperture, and a gas-port in said plate.

11. In an arc-lamp, a seal, or gas-check for closure of the inner-globe top, comprising a plate having an opening therethrough, a concaved apertured disk resting upon said plate over the opening thereof, and a carbon-guide sleeve having a convexed shoulder thereon to engage in the aperture of said disk.

12. In an arc-lamp, a seal, or gas-check for closure of the inner-globe top, comprising a plate having an opening therethrough, a concaved apertured disk resting upon said plate over the opening thereof, a carbon-guide sleeve having a convexed shoulder thereon to engage in the aperture of said disk, and a gas-port in said plate.

13. In an arc-lamp, the combination of a branch circuit in shunt relation with the series coil, and in series relation with the arc, adapted to deprive and restore the energy of said coil.

14. In an arc-lamp, the combination of a branch circuit in shunt relation with the series coil, and in series relation with the arc, means in said circuit operated by the clutch mechanism to automatically close and open the same to deprive and restore the energy of said coil.

15. In an arc-lamp, the combination of a branch circuit in shunt relation with the series coil, and in series relation with the arc, and having contacts therein carried by the rocker-lever, and a circuit make and break device arranged to automatically operate with said contacts to deprive and restore energy to said coil.

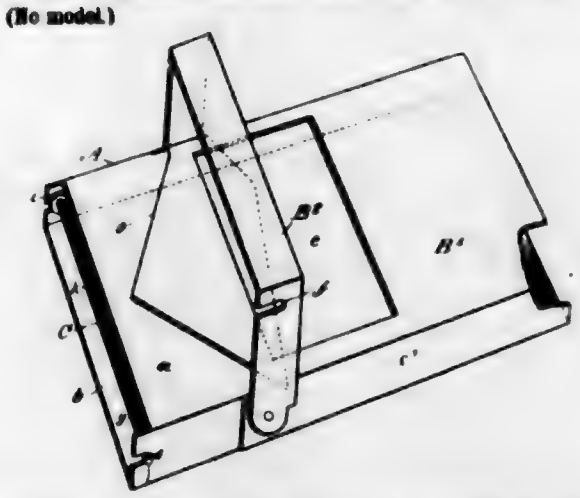
16. In an arc-lamp, the combination of a branch circuit in shunt relation with the series coil, and in series relation with the arc, means in said circuit operated by the rocking lever of the clutch mechanism whereby said circuit is automatically closed and opened to deprive and restore energy to said coil.

17. In an arc-lamp, the combination of a branch circuit in shunt relation with the series coil and in series relation with the arc, and having contacts therein which are carried by the rocker-lever, and a circuit make and break device carried by said lever to automatically operate on said contacts to deprive and restore energy to said coil.

18. In an arc-lamp, the combination of a branch circuit in shunt relation with the series coil, and in series relation with the arc, means for automatically closing and opening said circuit to prevent a long arc when the feed-spool becomes inoperative.

19. In an arc-lamp, the combination of a branch circuit in shunt relation with the series coil, and in series relation with the arc, contact members carried by the rocker-arm and in said circuit, and a gravitating circuit make and break device adapted to automatically engage said members and close said circuit when said coil becomes inoperative.

691,852. AUTOGRAPHIC REGISTERING APPARATUS. JAMES S. FERGUSON, Minneapolis, Minn. Filed Jan. 11, 1901. Serial No. 42,947. (No model.)



Claim.—1. In an automatic registering apparatus, the combination of an inner case having an open end, horizontal slots in the vertical side walls thereof; a longitudinally-slotted storage-roller horizontally journaled therein; an outer case or cover for the said inner case; said outer case embodying a fixed portion, and a movable portion pivotally affixed thereto, said fixed portion being fashioned with an aperture therein, whereby a portion of the blank paper incased by, and folded over the said inner case, is exposed for transcriptions and the vertical slots in the said movable portion adapted to receive the journaled ends of the said roller and to hold them in place in the said horizontal slots of the said inner case, substantially as shown and for the purposes specified.

2. In an automatic registering apparatus, the combination of an inner case adapted to receive a manifolded paper packet, and to provide a platen therefor; an outer case adapted to cover the said inner case; the said outer case embodying a fixed portion adapted to hold the transferring-sheets of paper in place, and a movable portion adapted to serve as a lid which may be raised when removing the detachable manuscript; a cutting edge on the said fixed portion; and a longitudinally-slotted roller, horizontally journaled in the said inner case and secured in place by the lid of the said outer case, substantially as shown and for the purposes specified.

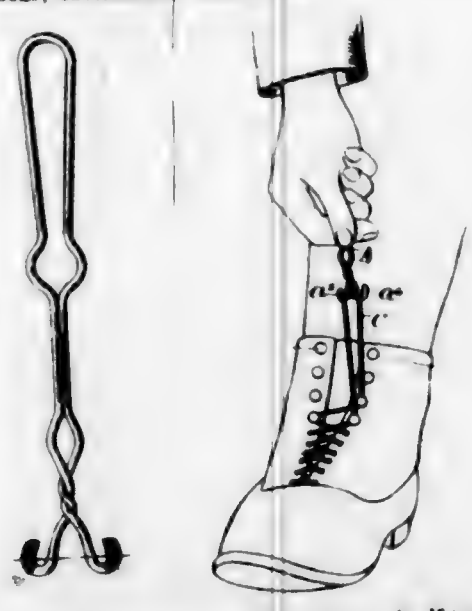
3. In an automatic registering apparatus, the combination of the inner case having an open end; horizontal slots in the vertical side walls thereof; a longitudinally-slotted storage-roller horizontally journaled therein; an outer case or cover for the said inner case; an aperture therein, whereby a portion of the blank paper, incased by and folded over the said inner case is exposed for transcriptions; vertical slots in the vertical walls thereof, adapted to register with the horizontal slots of the said inner case and to hold the said roller in place therein; and a cutting edge for detaching the transcribed strips of paper, substantially as shown and for the purposes specified.

691,853. SHOE-LACER. WILLIAM FRICK, Chicago, Ill. Filed May 6, 1901. Serial No. 58,898. (No model.)

Claim.—1. A shoe-lacer consisting of a handle and a shank extending therefrom and provided at its free end and upon opposite sides thereof, with two short, upwardly-open hooks.

2. A shoe-lacer consisting of a handle portion, a shank portion forming an extension from the handle, and two branches in approximately the same plane, diverging downwardly from the shank portion and each bent back upon itself to form a short, upwardly-open hook.

3. A shoe-lacer comprising a suitable handle and a pair of diverging prongs having comparatively thin ends, turned outward and backward in the form of hooks; substantially as described.



4. A shoe-lacer composed of a wire bent upon itself to form a handle, two parts twisted together beyond the handle and the end portions flattened and bent back upon themselves to form hooks; substantially as described.

691,854. HEAD-REST. WILLIAM H. GREER and HARRY HARRIS, Greeley, Nebr. Filed Apr. 20, 1901. Serial No. 56,760. (No model.)

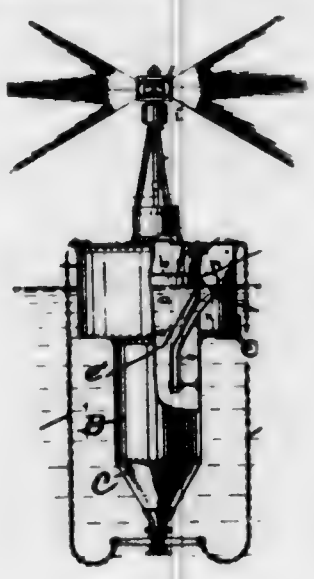


Claim.—1. In a head-rest, a frame provided with parallel arms, forming spindles, and a connecting-piece capable of yielding so as to press the spindles apart, rollers mounted on said spindles, and an endless band supported by the rollers and held under tension by the spring action of the aforesaid frame due to compression of the spindles by the said band, substantially as set forth.

2. In a head-rest, a frame comprising parallel spindles, a connecting-piece, and intermediate loops joining the connecting-piece with the respective spindles, rollers mounted upon the said spindles, and an endless band supported by the rollers, substantially as set forth.

3. In a head-rest, a frame formed of a rod or bar of spring metal and comprising parallel spindles, an arched connecting-piece, and intermediate loops, rollers mounted upon said spindles, and an endless band upon said rollers, substantially as set forth.

691,855. ACETYLENE-GAS GENERATOR. KARL G. GUSTAFSON, Stockholm, Sweden. Filed Nov. 9, 1900. Serial No. 35,965. (No model.)



Claim.—1. A lighting-buoy consisting of a hollow casing, means provided on said casing for floating the same at a substantially definite water-level, a grate for holding calcium carbid within said casing, the said grate being supported at a point above the normal water-level in the casing and gas-consuming means provided on said casing for burning the gas produced, substantially as described.

2. A lighting-buoy consisting of a hollow casing, means provided on said casing for floating the same at a substantially definite water-level, comprising an air-chamber, a grate for holding calcium carbid within said casing, the said grate being supported at a point above the normal water-level in the casing and gas-consuming means provided on said casing for burning the gas produced, substantially as described.

691,856. AXLE-WRENCH. GEORGE P. HALL, Brookings, S. D. Filed Nov. 8, 1901. Serial No. 81,601. (No model.)



Claim.—An axle-wrench consisting of a bowed spring formed of a single strip of metal and having parallel portions, transversely-arranged parallel jaws secured to said parallel portions, and spring-lips forming continuations of said parallel portions and extending at an acute angle to the parallel portions and to the jaws, substantially as and for the purpose set forth.

691,857. DETACHABLE HEEL FOR BOOTS OR SHOES. MADE L. HARRIS, East Oakland, Cal. Filed June 13, 1901. Serial No. 64,411. (No model.)



Claim.—A detachable heel for boots and shoes consisting of a top plate fitted and fastened in a concavity formed in the sole of the heel, a detachable shell in the form of a heel, said shell being closed at top by said plate, a detachable base-plate closing the bottom of the shell, lugs projecting upward from the base-plate into the interior of the shell, lugs projecting downward from the top plate into the interior of the shell and arranged in line with the first-named lugs, a screw or bolt passed through the breast of the heel and lugs and securing the aforementioned parts together, bolts or screws passing vertically through the base-plate and adjustable to form an even bearing-surface, and a lift closing the joint between the shell and base-plate and secured in position by the latter-named bolts or screws, substantially as set forth.

691,858. CELLAR-PIPE FOR EXTINGUISHING FIRES. MILTON H. HART, Brooklyn, N. Y. Filed Dec. 15, 1900. Serial No. 40,095. (No model.)

Claim.—1. In a cellar-pipe for extinguishing fires, the combination of two sections connected by means of a hinge and catch so that the two may occupy substantially parallel positions for transportation or positions at an angle for use.

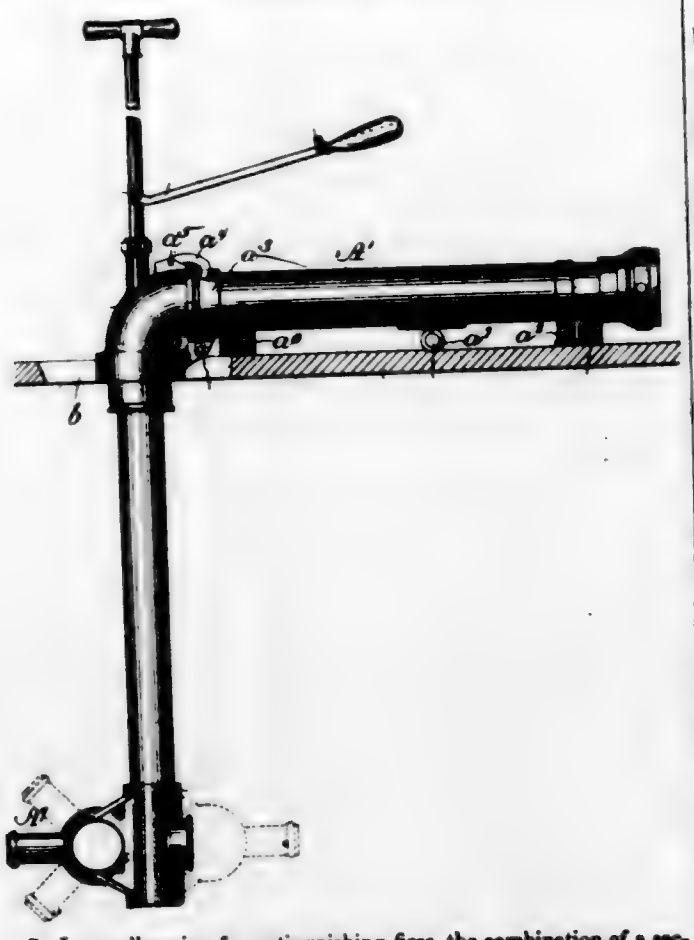
2. In a cellar-pipe for extinguishing fires, the combination of feet or rests provided with sockets or seats for supporting the cellar-pipe, a foot-rod detachably connected to the cellar-pipe and adapted to fit in said sockets or seats.

3. In a cellar-pipe for extinguishing fires the combination of feet or rests provided with sockets or seats for supporting the cellar-pipe, a foot-rod detachably connected to the cellar-pipe and adapted to fit in said sockets or seats, one of said seats being provided with a spring-actuated disk or bearing.

4. In a cellar-pipe for extinguishing fires, the combination with a section adapted to extend into a cellar, of a discharge-nozzle at the end thereof and of means for discharging water close to the top of the said section.

5. In a cellar-pipe for extinguishing fires, the combination with a section adapted to extend into a cellar of means comprising a deflecting-flange such as a^{10} for discharging water close to the top of the said section.

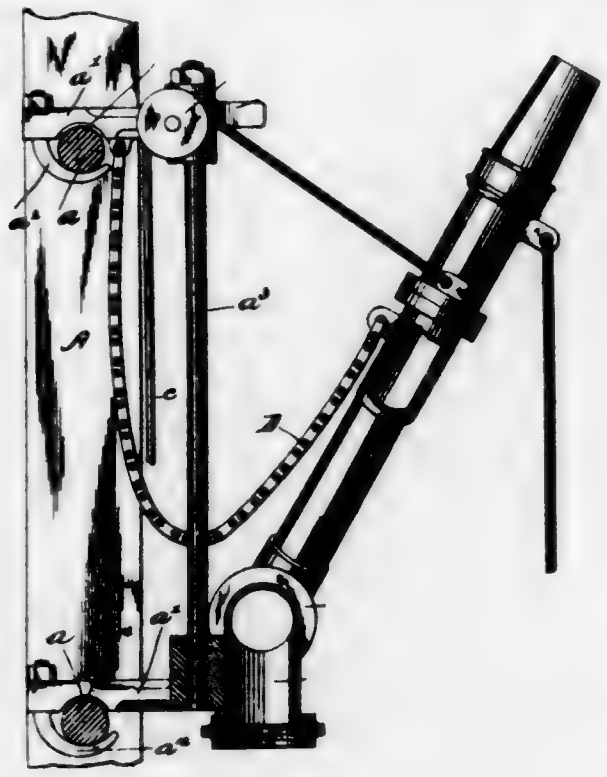
6. In a cellar-pipe for extinguishing fires, the combination of a rotatable section for extending into the cellar with a rod interlocked therewith and inside of the same, and extending upwardly wholly beyond the cellar-pipe so that it may be manipulated from above.



7. In a cellar-pipe for extinguishing fires, the combination of a section adapted to extend into a cellar, a nozzle fitted thereto so as to be capable of swinging up and down, and a rod passing through the said section of the cellar-pipe and connected with the said nozzle, and passing out of the cellar-pipe where it may be moved longitudinally from above to swing the nozzle.

8. In a cellar-pipe for extinguishing fires, the combination of a section adapted to extend into a cellar and capable of being rotated in a complete circle, means for rotating it, a nozzle fitted to said section so as to be capable of swinging up and down, and a rod passing through the said section of the cellar-pipe and connected with said nozzle and passing out of the cellar-pipe where it may be moved longitudinally from above to swing the nozzle.

691,859. **FIRE-EXTINGUISHING APPARATUS.** MILTON H. HART, Brooklyn, N. Y. Filed Feb. 25, 1901. Serial No. 48,654. (No model.)



Claim.—1. In a fire-extinguishing apparatus, the combination of a pair of brackets suitably connected together, means for securing said brackets to a ladder, a coupling carried by one of said brackets to which a hose may be connected, and a nozzle having a swiveling connection with said coupling.

2. In a fire-extinguishing apparatus, the combination of a pair of brackets suitably connected together, means for securing said brackets to a ladder, a coupling carried by said brackets, a nozzle having a swiveling connection with said coupling, and means for moving said nozzle about its connection.

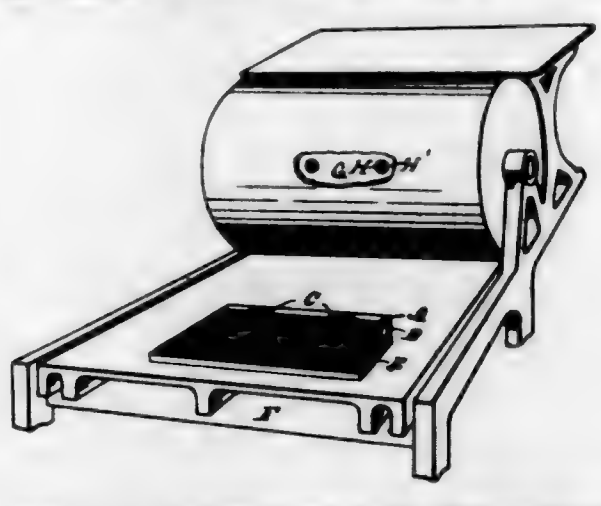
3. In a fire-extinguishing apparatus the combination of a pair of brackets suitably connected together, means for securing said brackets to a ladder, a coupling carried by said brackets to which a hose is adapted to be connected, a nozzle having a swiveling connection with said coupling, means for moving said nozzle about its connection, and a device for limiting the movement of a nozzle in one direction.

4. In a fire-extinguishing apparatus, the combination of a pair of brackets, one of which is provided with a forked portion, and a nozzle having a swiveling connection to said brackets and adapted when in one position to fit in said forked projection.

5. In a fire-extinguishing apparatus, the combination of a support adapted to be secured to a ladder, a coupling carried by said support to which a hose may be connected, and having curved ends, a nozzle having branch passages extending acutely from the nozzle, each of which passages terminates in a curved end, and a suitable swiveling connection between said curved ends of the nozzle and curved ends of the coupling.

6. In a fire-extinguishing apparatus, the combination of a pair of brackets each of which is secured to a rung of a ladder, a rod extending between said brackets, a coupling carried by one of said brackets, a nozzle having a swiveling connection with said coupling, and means for moving said nozzle about its connection.

691,860. **PERFORATING ATTACHMENT FOR PRINTING-PRESSES.** ARCHIE O. HAYES and EDWARD C. HEMPHILL, Los Angeles, Cal. Filed Nov. 14, 1900. Serial No. 36,596. (No model.)



Claim.—1. A perforating attachment for printing-presses, comprising a magazine with a longitudinal opening therein, to hold the punched waste paper disks, adapted to be fastened in the chase; a slot in said magazine along the top to permit the passage therethrough of the threaded shank of the punch; a threaded nut in the magazine to receive and engage the shank of the punch, and to securely hold the punch in any desired position; legs on said nut arranged to rest on the bottom of said opening and rigidly support the punch while being operated; a disk in place on the tympan-sheet and arranged thereon to register with the punch.

2. In a device for perforating paper, while printing is being done on the paper, the perforating-punch C adjustably mounted on a disk receiving and holding chamber immediately under said punches, and connecting directly with the openings therein, and a disk receiving and holding chamber.

3. In a printing-press provided with a magazine having hollow punches, the herein-described disks H, mounted on tympan-sheet and having a central portion to crowd the center of the waste disk farther into the punch than the edges thereof, substantially as and for the uses herein described.

4. In a printing-press, having a perforating attachment, the herein-described punch C, having a hollow central opening therethrough, in combination with the disk H on the tympan-sheet of the press, and so disposed thereon as to register with the punch on the type-form when the press is being operated; the said disk having a central projecting portion to crowd the center of the waste paper disk farther into the opening in the punch than the edges.

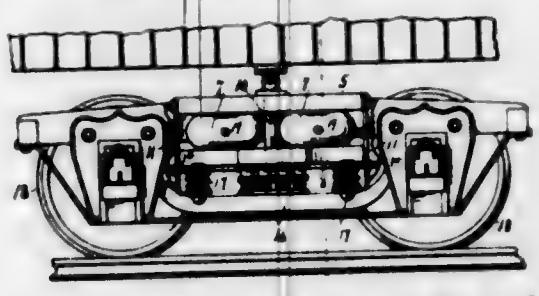
5. In a printing-press, the herein-described magazine provided with an opening to receive and hold the waste paper disks cut from the paper, adapted to be fastened in the chase; hollow dies movable along said opening; and a plurality of disks on the tympan-sheet adapted to register with the dies on the type-form, when the press is being operated, substantially as shown and described.

691,861. KNIFE. EDWARD HEMPTON, Greatfalls, Mont. Filed Nov. 8, 1901. Serial No. 81,603. (No model.)



Claim.—In an implement of the character described, the combination with the frame having arms the under sides of which are beveled and provided with transverse serrations, said arms being provided with longitudinal slots, of a gage-plate secured to said arms, a blade having lips and screw-threaded studs, the former to engage the serrations and the latter to project through the longitudinal apertures, and thumb-nuts for adjustably connecting the plate to the arms, substantially as set forth.

691,862. PNEUMATIC CAR-SPRING. PAUL HERPOLSHEIMER, Seward, Nebr. Filed Mar. 28, 1901. Serial No. 53,279. (No model.)



Claim.—1. In a car-truck, the combination with spaced bolster-plates of sustaining-springs disposed between the plates and lying flat thereon, each spring consisting of an endless hermetically-sealed tube, brace-plates secured to the front and rear edges of the upper bolster-plate and having slots in their lower ends, and bolts passing through the slots and into the front and rear edges of the under bolster-plate, substantially as described.

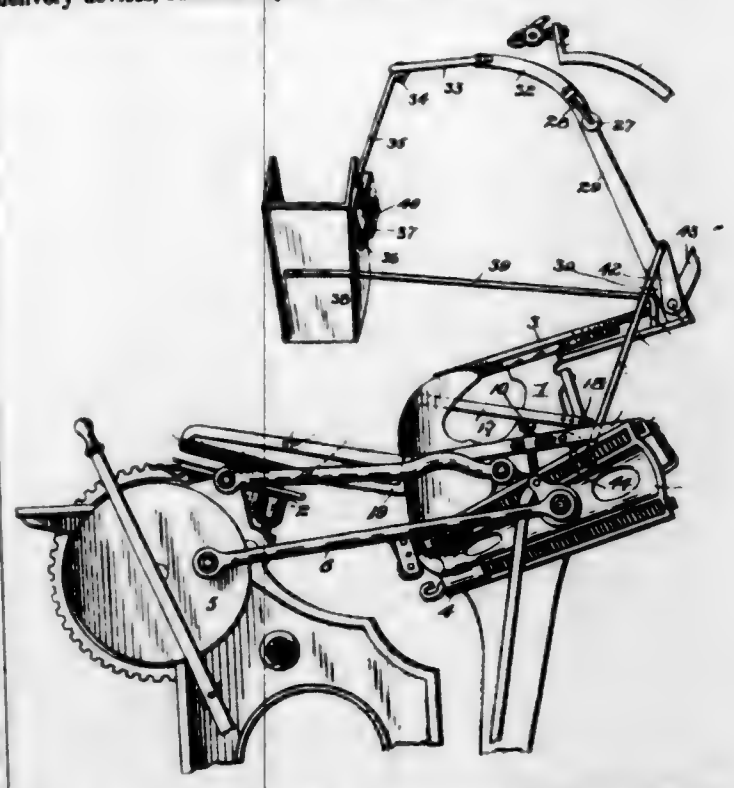
2. The combination with a car-truck provided with the usual frame-springs of spaced bolster-plates, the under one of which rests upon the springs, pneumatic cushions interposed between the two bolster-plates and occupying a horizontal plane, and brace-plates connecting the front and rear edges of the two bolster-plates and constructed to permit yielding action thereof, and to limit their range of motion, substantially as described.

691,863. TINTING AND DELIVERY ATTACHMENT FOR PRINTING-PRESSES. ALEXANDER J. HOOD, Muscoda, Wis. Filed Aug. 8, 1901. Serial No. 71,384. (No model.)

Claim.—1. The combination with a bed-and-platen printing-press wherein the bed is adapted to carry a form for printing a color; of a printing device adapted to come in contact with a sheet upon the platen for printing a different color, and means for bringing said printing device into position for printing the sheet upon the platen when said platen is away from the bed, substantially as described.

2. The combination with a bed-and-platen press wherein the bed is adapted to carry a form for printing a color; of a printing device adapted to come in contact with a sheet upon the platen for printing a different color, and means actuated by the running-gear of the press for moving the printing device toward and from the platen and bringing said device into contact with the sheet when the platen is away from the bed, substantially as set forth.

3. The combination with a bed-and-platen printing-press wherein the bed is adapted to carry a form for printing a color; of a printing device movable toward and from the platen for printing the sheet upon the platen a different color when said platen is away from the bed, a delivery device for removing the printed sheet from between the bed and platen, and means for automatically and alternately operating said printing and delivery devices, substantially in the manner specified.



4. The combination with a bed-and-platen printing-press wherein the bed is adapted to carry a form for printing a color; of a printing device movable toward and from the platen for printing the sheet upon the platen a different color when said platen is away from the bed, a delivery device for removing the printed sheet from between the bed and platen, and means controlled by the running-gear of the press for automatically and alternately operating said printing and delivery devices, substantially as described.

5. The combination, with a printing-press, of a printing device for printing a primary color on a sheet resting on the platen, and means connecting between said printing device and the roller-carrying arms of the press for automatically moving said printing device toward and from the platen, substantially as described.

6. The combination, with a printing-press, of a support movable with the roller-carrying arms of the press, a printing device for printing a primary color on a sheet resting on the platen, operating means between said printing device and the support whereby the former is operated, a delivery device for removing the printed sheets from the platen, and connections between the two devices for alternately and automatically operating the same, substantially as described.

7. The combination with a bed-and-platen printing-press wherein the bed is adapted to carry a form for printing a color; of a printing device movable toward and from the platen for printing the sheet thereon a different color when the platen is at rest and prior to the movement of the platen toward the bed to print a second color, and means for operating said printing device, substantially as specified.

8. The combination with a bed-and-platen printing-press wherein the bed is adapted to carry a form for printing one color; of a printing device movable toward and from the platen for printing the sheet thereon a different color, a delivery device for removing the printed sheets from the platen, and means for automatically and alternately operating said printing and delivery devices from the inking-roller carriers of the press, substantially as and for the purpose set forth.

9. The combination, with a printing-press, of a support movable with the roller-carrying arms of the press, a support fixed to the bed of the press, an oscillating link connected to said supports, and an oscillating printing-block carried by said link for printing a primary color upon a sheet resting upon the press-platen, substantially as described.

10. The combination with a bed-and-platen printing-press wherein the bed is adapted to carry a form for printing one color; of a printing device movable toward and from the platen for printing the sheet thereon a different color, said printing device being brought into operative position while the platen is away from the bed, a delivery device for removing the printed sheets from the platen at its time of separation from the bed, means for operating one of the above-named devices from the running-gear of the press, and a connection between the two devices for alternately bringing the same into operation, substantially as described.

11. The combination, with a printing-press, a support movable with the roller-carrying arms of the press, a second support fixed to the bed of the press, an oscillating link connected with said support, an oscillating printing-block carried by the link, a delivery device for removing the

printed sheets from the platen, and connections between one of the aforesaid supports and the delivery device for operating said delivery device automatically and alternately with the printing-block, substantially as described.

12. The combination, with a printing-press, of a support movable with the roller-carrying arms of the press, a second support fixed to the bed of the press, an oscillating link carried by said support, a printing-block carried by the link, a rock-shaft operated by the first-named support, and a delivery device operated by said rock-shaft alternately with the printing-block for removing the printed sheets from the platen, substantially as described.

13. The combination with a printing-press of the bed-and-platen type and wherein the bed is adapted to carry a form for printing one color; of a delivery-chute, a printing device movable toward and from the platen for printing a sheet thereon a different color while said platen is away from the bed, a delivery device for removing the printed sheets from the platen and transferring them to the chute, a gripper carried by said delivery device, means for automatically opening and closing the gripper to grasp and release the printed sheets, and means for automatically and alternately operating the said printing and delivery devices, substantially as set forth.

14. The combination with a bed-and-platen printing-press wherein the bed is adapted to carry a form for printing one color; of an oscillating printing device, means for oscillating said printing device and moving it toward and from the platen for printing a sheet thereon a different color, a delivery device for removing the printed sheets from the platen, and connections between said devices and the running-gear of the press for automatically and alternately operating said devices, substantially as specified.

15. The combination with a bed-and-platen printing-press wherein the bed is adapted to carry a form for printing a color; of a printing device adapted to print a sheet resting upon the platen a different color while the platen is at rest and before it moves toward the form to print the second color, a carrier for said printing device movable in an arcuate path over the bed and toward and from said platen, and mechanism operated by the running-gear of the press for throwing the printing device into and out of operation, substantially as set forth.

691,864. BICYCLE LUGGAGE-CARRIER. ALFRED G. JACKSON, Brisbane, Queensland. Filed Apr. 22, 1901. Serial No. 56,841. (No model.)

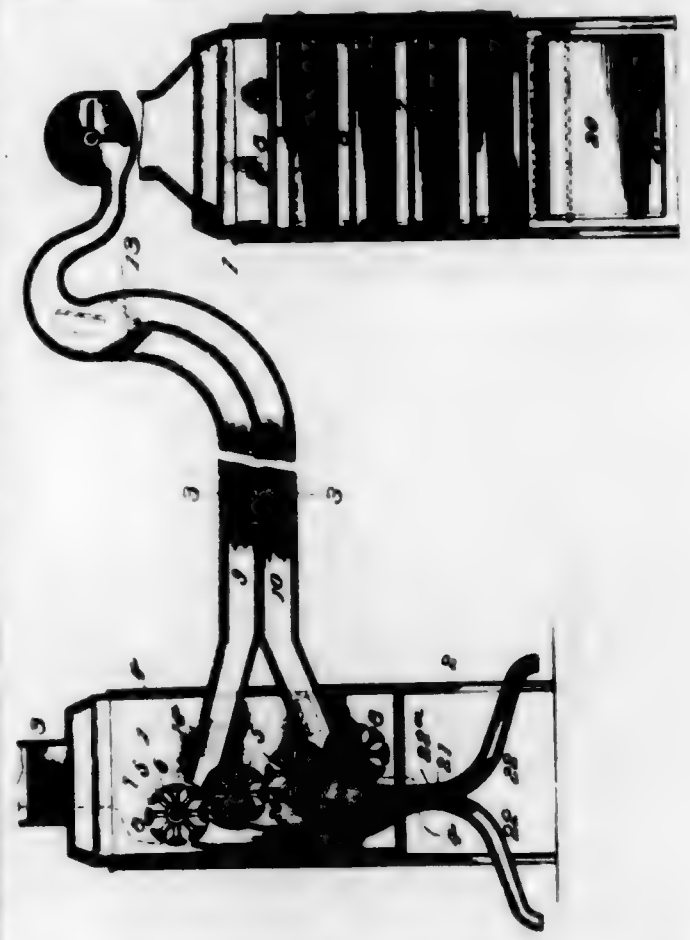


Claim.—1. A device of this character comprising an attaching-clamp, a spring-band having one end pivotally connected to the clamp and the other end opposite the connection but free, a link surrounding the free and pivoted ends of the band, and means carried by the link for forcing the free end into close proximity to the pivoted end substantially as described.

2. A device of this character consisting of an attaching-clamp, a spring-band having one end pivotally connected to said clamp, and the other end opposite the connection but free, a link loosely surrounding the free and pivoted ends of the band, and an eccentric chock carried by the link to force the free end of the band toward the pivoted end.

691,865. MACHINE FOR HANDLING LINT-COTTON. PETER KOLB, Fort Deposit, Ala. Filed Aug. 1, 1901. Serial No. 70,548. (No model.)

Claim.—1. An apparatus of the class described comprising gins, troughs, means for connecting each gin with either or both troughs, two sets of condensers independently connected with the respective troughs, and means for forcing lint from the gins through the troughs to the condensers, substantially as described.



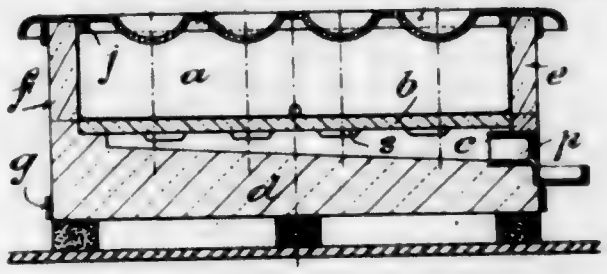
2. An apparatus of the class described comprising gins, two troughs, a tube connecting each gin with both troughs, a valve in each tube, open condensers independently connected with the respective troughs, chutes arranged adjacent the condensers, and means for forcing draft through the troughs, substantially as described.

3. An apparatus of the class described comprising troughs, means for blowing lint through the troughs, open condensers at the terminals of the troughs, chutes in proximity to the condensers, said chutes meeting and then branching out from each other, a valve located at the junction of the chutes, a casing surrounding the condensers, and an exit-flue leading from the casing, substantially as described.

4. An apparatus of the class described comprising gins, two troughs which merge into one, a valve at the junction of the two troughs, means for delivering a blast of air to the troughs, a tube connecting each gin with both troughs, a valve in the tube for either connecting one or both troughs with a gin, condensers, and means coöperating therewith for separating the dust and foreign matter from the lint, substantially as described.

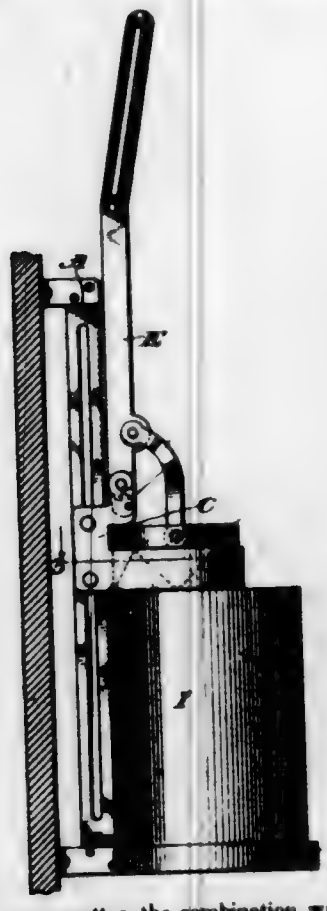
5. An apparatus of the class described comprising gins, two troughs, a series of tubes leading from the two troughs to the gins, valves in the tubes for placing either or both troughs in communication with respective gins, means for forcing a blast of air through the troughs, a valve to direct the draft to either or both troughs, two sets of open condensers at the terminals of the troughs, chutes leading from each set of condensers, a valve arranged to direct lint coming from the troughs to either a single chute or maintaining the separation of the same, a casing surrounding the condensers, and an exit-flue communicating with the casing, substantially as described.

691,866. LIQUID-HEATING FURNACE. DAVID LAIRD, Perth, Scotland. Filed Sept. 24, 1901. Serial No. 76,329. (No model.)



Claim.—In a furnace of the class described, the combination with the inclined bottom and walls, of a fire-clay crown above said bottom and encircled by said walls, a water bath or receptacle seated on said crown, a suitable cover for said receptacle, and an oil-burner discharging into the space between said bottom and crown, substantially as described.

691,867. CAN-OPENER. PRESTON R. LAW, Wilmette, Ill., assignor of one-half to Albert P. Whitford, Wilmette, Ill., and Jacques de Tarnowsky, Chicago, Ill. Filed Aug. 7, 1901. Serial No. 71,216. (No model.)



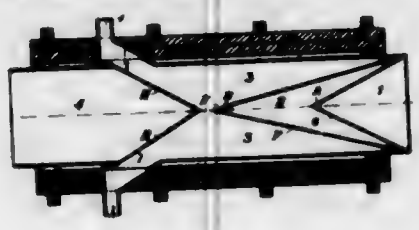
Claim.—1. In a can-cutter, the combination with a support, of a slide mounted thereon, a knife-guide carried by said slide, knife-reciprocating means carried by said slide, means upon said slide for engaging said support so as to automatically lock said knife-guide against a can in contact therewith, and means automatically operated by the upward movement of said knife-reciprocating means for unlocking said device, substantially as described.

2. In a can-cutter, the combination with a support, of a slide mounted thereon, a knife-guide carried by said slide, a knife mounted to reciprocate within said knife-guide, a knife-reciprocating means mounted upon said slide, means carried by said slide for automatically locking the slide against movement in one direction whenever said knife-reciprocating means is operated to reciprocate said knife in the direction to cut a can, and means operated by the reverse movement of said knife-reciprocating means for automatically unlocking said slide, substantially as described.

3. In a can-cutter, the combination with a vertically-disposed rack-bar, of a slide mounted thereon and guided thereby, a knife-guide carried by said slide, a knife mounted so as to reciprocate within said knife-guide, means mounted upon said slide for reciprocating said knife, a dog so mounted upon said slide as to automatically lock the same against movement in an upward direction, and means operated by the upward movement of said knife-reciprocating means for automatically releasing said dog from said rack-bar, substantially as described.

4. In a can-cutter, the combination with a vertically-disposed rack-bar, of a slide mounted upon and guided thereby, a knife-guide carried by said slide, a knife mounted to be reciprocated within said guide, a dog mounted upon said slide so as to normally engage the teeth of said rack-bar and lock said slide against movement in an upward direction, a lever pivoted to said slide and operatively connected with said knife, a shoulder upon said dog and a corresponding shoulder upon said lever, all so arranged that, when said lever is moved in an upward direction, the shoulder on said lever will abut against the shoulder on said dog so as to automatically disengage said dog from said rack-bar, substantially as described.

691,868. GRAVIMETRIC ORE-ROASTER. JAMES A. ODDIE, Philadelphia, Pa., assignor of one-third to Charles H. Cornell, Valentine, Nebr. Filed May 7, 1900. Serial No. 15,673. (No model.)



Claim.—1. The combination with a furnace, an inclined, freely-swinging roasting-plate, located therein, means for swinging said roasting-plate toward its higher end, and abutments for suddenly checking its movement in the other direction, of a separating-plate separated from and superimposed upon said roasting-plate, and provided with a diagonal bridge, an outlet for said concentrates, and an outlet for the gangue, leading away from said concentrating-plate substantially as described.

2. The combination with a furnace, of an inclined freely-swinging roasting-plate situated therein, means for supporting said plate and swinging links connecting the supports and plate, a separating-plate, superimposed upon and separated from said roasting-plate, and provided with a diagonal bridge, and an outlet for the concentrates near the lowest part of said bridge, and leading to said roasting-plate, and an outlet for the gangue leading away from the concentrating-plate, and means for jarring said swinging roasting-plate; substantially as described.

3. The combination with the furnace having an inclined flue therein, of a roasting-plate located in said flue, a separating-plate superimposed upon and separated from said roasting-plate and provided with a diagonal bridge and an outlet for the concentrates, means for suspending and jarring said plates, and an outlet for the gangue leading from the concentrating-plate; substantially as described.

4. The combination of a furnace, a roasting-plate located therein, a concentrating-plate superimposed upon and separated from said roasting-plate and provided with a V-shaped bridge, and with an outlet for the concentrates near the apex of the V leading to the roasting-plate, an outlet for the gangue leading away from said concentrating-plate, and means for moving said ore along said plates; substantially as described.

5. The combination with a furnace having an inclined flue, of an inclined, swinging, roasting-plate and provided with means for supporting and swinging same, situated in said flue and provided with a superimposed concentrating-plate separated from said roasting-plate provided with inclined bridges and outlets for the concentrates leading from the lower part of said bridges to the roasting-plate, ports in the side of said furnace and outlets for the gangue leading from said concentrating-plate to said ports; substantially as described.

6. The combination with a furnace of an inclined, freely-swinging, roasting-plate situated in said furnace, provided with a superimposed concentrating-plate secured to and moving with said roasting-plate but separated therefrom, a V-shaped bridge upon said concentrating-plate, an outlet, near the lower part of said V leading through the concentrating-plate to the roasting-plate, means for swinging the said plates toward the higher end of the plates, and abutments placed to stop suddenly the swing of the plates in the other direction; substantially as described.

7. In a gravimetric ore separator and roaster, a roasting-plate, and separating and concentrating plate superimposed above said roasting-plate, and joined together with it into one structure, but there being an interval of separation between the two plates, a diagonal bridge upon the concentrating-plate, an outlet for the concentrates from the concentrating-plate upon the roasting-plate, and an outlet for the gangue leading away from the concentrating-plate; substantially as described.

8. The combination with a furnace, of a swinging plate extending through the same, a series of plates secured to said plate and spaced slightly above the same, each plate being provided with an inclined bridge, toward the lower end of which bridge is an opening from the upper to the lower plate, means for jarring the swinging structure, and an outlet for the gangue from said superimposed plates substantially as described.

691,869. APPARATUS FOR FORMING COMMUTATORS. ALBANY P. PETCH, London, England. Filed Aug. 8, 1901. Serial No. 71,406. (No model.)



Claim.—1. An apparatus for forming electrical commutators, comprising among its members three or more radially-disposed pressure-cylinders, rams located therein and adapted to travel toward a common center, curved die-blocks upon the inner ends of said rams adapted to form substantially a complete ring around the commutator, the adjacent edges of said die-blocks being disposed angularly to the sections of the commutator, substantially as described.

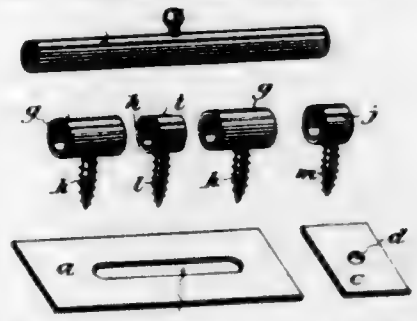
2. An apparatus for forming electrical commutators, comprising among its members three or more radially-disposed pressure-cylinders, rams located therein and adapted to travel toward a common center, die-blocks upon the inner ends of said rams adapted to form substantially a complete ring around the commutator and an adjustable clamping-ring adapted to be clamped around the commutator while it is held by said rams and die-plates, substantially as described.

3. An apparatus for forming electrical commutators, comprising among its members, three or more radially-disposed pressure-cylinders, rams located therein and adapted to travel toward a common center, die-blocks upon the inner ends of said rams adapted to form substantially a complete ring around the commutator, said rams being recessed in rear of said die-blocks and a temporary clamping-ring located in said recesses and provided with adjusting devices for clamping it upon said die-blocks while they are held by said rams, substantially as described.

4 In apparatus for forming electrical commutators, the combination with a hinged frame, a plurality of radially-disposed fluid-pressure cylinders supported by said frame, rams or pistons in said cylinders and die-blocks for said rams, adapted to substantially surround the commutator whereby said frame may be swung upon its hinge to enable both ends of the commutator to be examined, substantially as described.

5. In an apparatus for forming electrical commutators, the combination with bearing-supports provided with a hollow trunnion, of a circular frame or ring hinged to said supports and provided with a plurality of fluid-pressure cylinders, operatively connected with said hollow trunnions, rams or pistons in said cylinders, die-blocks connected with said rams, a supporting-table for receiving the parts of the commutators and means for raising and lowering said table, substantially as described.

691,870. DOOR-BOLT. FREDERICK PILLING, Washington, D. C. Filed Oct. 8, 1901. Serial No. 77,995. (No model.)

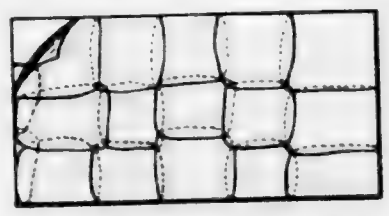


Claim.—1. A self-fastening bolt, comprising a bolt proper, a bolt-plate, a keeper-plate, bearings for the bolt, and an eye for the keeper, the several bearings and the eye being provided with permanent screw-points by means of which the respective plates and the bearings and eye are secured in position, substantially as described.

2. A door-bolt, in which the bearings for the bolt are made with integral attaching screw-points, substantially as described.

3. A door-bolt, comprising a bolt proper, and a series of tubes provided with permanent attaching screw-points, and constituting bearings and keeper for the bolt, substantially as described.

691,871. INSULATING AND PACKING MATERIAL AND PROCESS OF MANUFACTURING SAME. MAX RAPHAEL and LEOPOLD ELIAS, Breslau, Germany. Filed Oct. 11, 1900. Serial No. 32,723. (No specimens.)



Claim.—1. An insulating material consisting of a layer of mica formed of small pieces of mica arranged scale-like upon each other and a separate layer of asbestos, said layers being directly connected with each other, substantially as described.

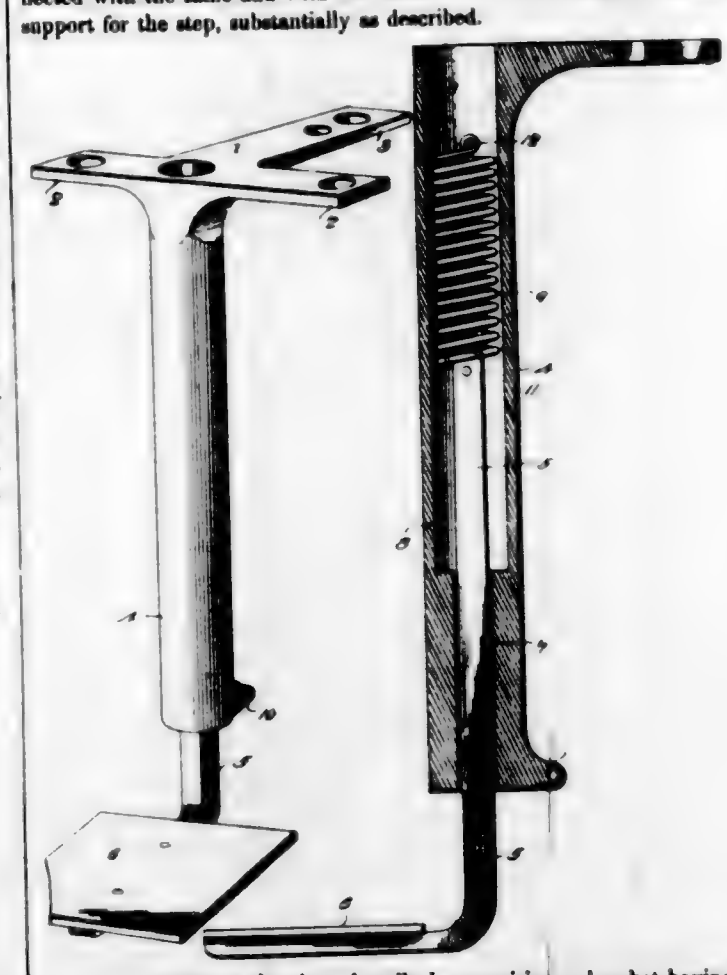
2. An insulating material consisting of independent layers of mica and asbestos attached together, the said mica being in the form of small flakes or scales, and the asbestos being pressed into contact therewith.

3. The herein-described process of making insulating material consisting in applying moisture free from adhesive to an asbestos layer and pressing flakes or scales of mica into contact therewith, substantially as described.

4. The process of producing an insulating packing material composed of asbestos and mica, consisting in moistening the asbestos with water and pressing the mica and asbestos together, substantially as described.

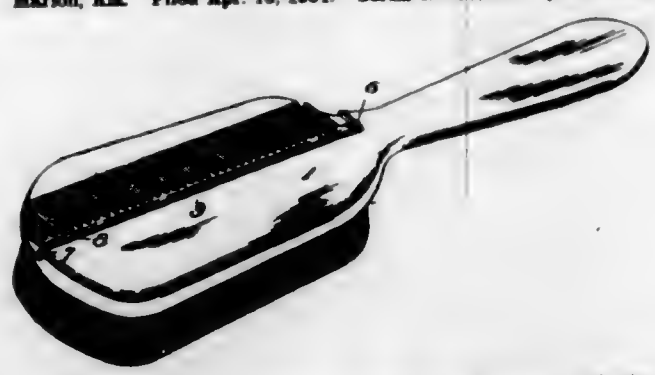
691,872. BUGGY-STEP. JOHN G. REREOFF, Paducah, Ky. Filed Oct. 16, 1901. Serial No. 78,877. (No model.)

Claim.—1. A device of the class described comprising a bracket having a depending tubular casing forming a guide and housing, a step having a shank or bar extending into the tubular casing and slidable thereon, and a spring housed within the upper portion of the casing and connected with the same and with the shank or bar and forming a yielding support for the step, substantially as described.



2. A device of the class described comprising a bracket having a depending tubular casing provided at its lower portion with a polygonal guide-opening and having an upper enlarged opening or bore, a spring housed within the upper enlarged opening or bore and connected with the bracket, and a step having a stem extending through the guide-opening and conforming to the configuration of the same to prevent the step from turning and secured to the lower end of the spring and supported by the latter, substantially as described.

691,873. COMBINED COMB AND BRUSH. ELI T. ROBINSON, Marion, Ala. Filed Apr. 18, 1901. Serial No. 56,437. (No model.)



Claim.—1. A brush having a depression or pocket in the top or outer side of its back, and a comb pivoted about in line with its back at one edge of the said pocket or depression so as to fold therein or to be turned outward about at a right angle to the brush-back, substantially as set forth.

2. A brush having a depression or seat in the outer or top side of its back, bearings at the ends of the depressions, and a comb slidably fitted in the said bearings, and having terminal journals pivoted to the back of the brush so as to fold snugly in the said depression and detachable by a longitudinal movement, substantially as set forth.

3. A brush having a depression or seat in the outer or top side of its back and provided with bearings at opposite ends of the said seat about in line with an edge or longitudinal wall thereof, a comb having terminal journals to make contact with the aforesaid bearings, and a spring for exerting a longitudinal pressure upon the comb to hold the pivotal connections in engagement and adapted to be compressed when it is required to remove the comb or place it in position, substantially as set forth.

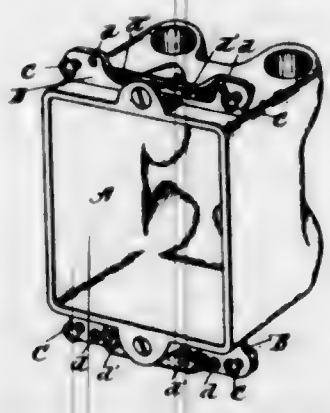
4. In combination, a brush having a longitudinal seat or depression in the outer side of its back and having bearings at the ends of the depression about in line with an edge or longitudinal wall thereof, a spring

located within one of the said bearings, a comb adapted to fold in the aforesaid depression or seat, and a reinforcement applied to the back of the comb and extended to provide journals for pivotal engagement with the aforesaid bearings, one of the journals having a shoulder or stop to receive the end thrust of the spring by means of which the comb is held in position, said comb being detachable by a longitudinal movement, substantially as set forth.

5. In combination with a brush and a folding comb, a catch having a journal forming an axis for the comb to turn about and having a pin spaced from the axis to engage with the comb and hold it positively in either a folded or an unfolded position, substantially as set forth.

6. In combination with a brush and a folding comb having an opening in line with its axis and other openings a distance from the axial opening, a spring-actuated catch having a journal to enter the axial opening of the comb and having a stop-pin of less length than the journal and adapted to enter either one of the said openings concentric with the axial opening to hold the comb either folded or extended, substantially as set forth.

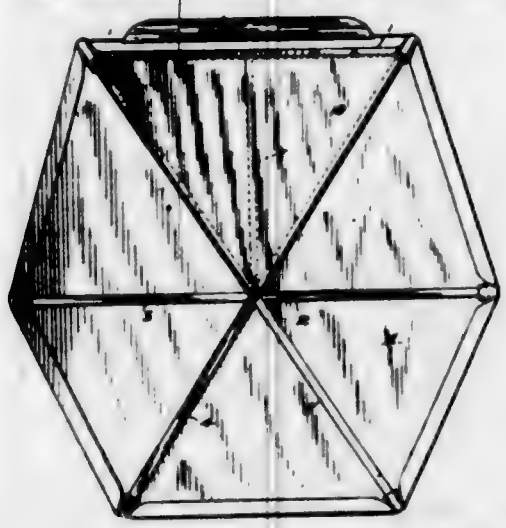
691,874. SWITCH, OUTLET, OR RECEPTACLE BOX. MINER ROBINSON, Newton, Mass. Filed Nov. 21, 1901. Serial No. 83,182. (No model.)



Claim.—1. A switch, receptacle or outlet box having ears or lugs, provided with leveling-screws and attaching-screws for securing the box directly to the lath or other woodwork entirely independent of the plaster.

2. A switch, receptacle or outlet box having the ears or lugs B substantially as described, provided with leveling-screws C and attaching-holes *d'* drilled on an angle in combination with the screws D substantially as and for the purposes described.

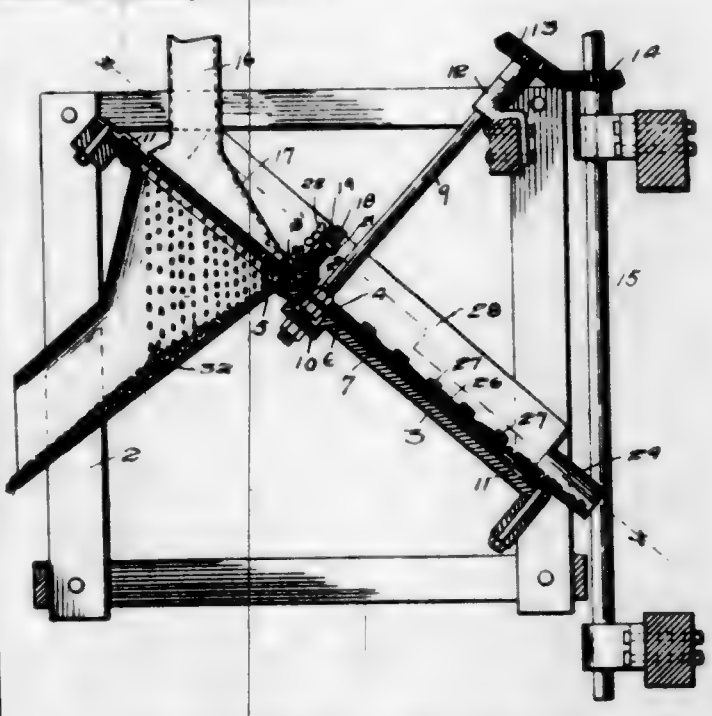
691,875. MUSICAL KITE. HENRY R. SAUNDERS, New Rochelle, N. Y. Filed Oct. 31, 1901. Serial No. 80,621. (No model.)



Claim.—A kite comprising a body portion, a frame, a curved headpiece giving the head portion of the frame a concavo-convex form, a vibrating device stretched across the concavity of the frame, and a strip secured to the frame and corresponding to the shape of said concavo-convex portion, so as to form a deflector to throw the currents of air against the vibrating device, substantially as described.

691,876. SEPARATOR. CHARLES H. SCOTT, Minneapolis, Minn. Filed Nov. 13, 1899. Renewed June 22, 1901. Serial No. 65,572. (No model.)

Claim.—1. A separator, comprising a stationary inflexible plate or member, a movable member resting on said inflexible member and having a close sliding contact or joint therewith, said movable member being provided with a series of perforations forming with said inflexible member a series of pockets wherein the fine material falls and is carried over said fixed member and a separation of the fine and coarse material effected, substantially as described.



2. A separator, comprising a stationary inflexible member having a discharge-opening, a revolving member operating upon said inflexible member and forming a close joint therewith, said revolving member being provided with a series of perforations forming with said fixed member a series of pockets wherein the fine material is caught and carried over said stationary member to the discharge-opening therein, while the coarse material slides over said pockets and is discharged over the edge of said revolving member, substantially as described.

3. A grain-separator, comprising an inclined stationary member of inflexible material, provided with a discharge-opening in its up side, a movable member also inclined and resting upon and operating over said stationary member and forming a close joint therewith, said movable member being provided with a series of perforations forming with said stationary member a series of pockets adapted to receive the short grains deposited upon said movable member and carry them over said stationary member to said discharge-opening, while the longer grains, when lying flat, being too long to enter said pockets will slide over the down side of said movable member, substantially as described.

4. A separator, comprising a frame, a fixed inflexible plate or backing mounted therein and having an inclined surface provided with a hole or opening in its up side, a perforated disk resting upon said plate, the perforations and said fixed plate forming a series of pockets, means for revolving said disk over said fixed plate, a feed-hopper provided on one side of said disk, a discharge-spout at the lower side of said disk to receive the coarse material and a second discharge-spout provided beneath the opening in said plate to receive the fine material from said pockets, substantially as described.

5. In a machine of the class described, the combination, with a frame, of a fixed inflexible plate mounted therein said plate being inclined and having a central shaft-opening and a larger opening near its circumference but otherwise imperforate, a perforated disk concentric with said plate, a shaft whereon said disk is mounted, means for driving said shaft, said disk resting upon and its perforations forming with said plate a series of pockets wherein the fine material falls and is carried around to said larger opening while the coarser material slides down over said disk to its discharge-opening, substantially as described.

6. In a machine of the class described, the combination, with a fixed inflexible backing-plate or base, arranged at an incline and having a hole or opening in its up side, of a disk provided with a series of perforations resting upon said fixed plate, means for revolving said disk, a feed-hopper provided on the down side of said disk, a scraper provided near said hopper to retard the material falling upon said disk, a discharge-spout for the coarse material provided on the lower side of said disk, and a second discharge-spout beneath the opening in said plate, substantially as described.

7. In a machine of the class described, the combination, with a fixed inflexible plate or base arranged at an incline and having an opening in its up side through which the wheat is discharged, of a disk provided with a series of perforations resting upon said plate, a shaft whereon said disk is mounted, means for revolving said shaft, means for holding said disk in contact with the surface of said plate while permitting it to revolve

freely over the same, said plate and the perforations in said disk forming a series of pockets of sufficient size to receive a grain of wheat but too small to allow an oat-grain to fall therein when lying flat, a feed-hopper provided on the down side of said disk and an oat-discharge opening provided near the lower side of said disk, substantially as described.

8. In a machine of the class described, the combination, with an inflexible base and a revolving perforated disk resting thereon, of a feed-hopper and a flexible feed-retarding device provided near said hopper, substantially as described.

9. In a machine of the class described, the combination, with an inflexible base and a perforated revolving disk arranged upon the same, of means for holding the edges of said disk down upon said plate, and adjustable pressure devices provided at intervals on the surface of said disk, for the purpose specified.

10. In a machine of the class described, the combination, with a fixed inclined plate or backing, and a revolving perforated disk resting upon the same, of clamps or guides provided at the edges of said disk, pressure-rolls provided on the surface of said disk and yielding shoes carried by said pressure-rolls and bearing upon said disk, for the purpose specified.

11. In a machine of the class described, the combination, with a fixed inclined plate and a perforated disk resting thereon, means for revolving said disk, said plate and the perforations in said disk forming pockets, a feed-hopper arranged on the down side of said disk, an adjustable scraper device and an apron provided on the down side of said disk below said scraper device, for the purpose specified.

12. In a machine of the class described, the combination, with an inclined inflexible plate or backing having a discharge-opening in its up side, of a perforated disk resting upon said plate, the perforations and said inclined plate forming a series of pockets to receive the wheat-kernels, means for revolving said disk, means for holding the same in engagement with said plate, a guard or casing provided on the lower side of said plate, a feed-hopper, a discharge-opening for the oat-grains provided in said guard, and a deflector resting upon said disk to guide the oat-grains to their discharge-opening while the wheat-grains are carried in said pockets to the upper side of said plate and discharged through the opening therein, substantially as described.

13. In a machine of the class described, the combination, with a fixed inflexible plate or backing arranged on an incline and having a discharge-opening in its up side, of a perforated disk also inclined and resting upon said plate, the perforations and said plate forming a series of pockets to receive the small grains, means for revolving said disk, a feed-hopper through which the material to be separated is fed upon said disk, the small grains falling into said pockets to be carried around to said discharge-opening, and the large grains sliding down over said disk to a discharge-opening at the lower side thereof, substantially as described.

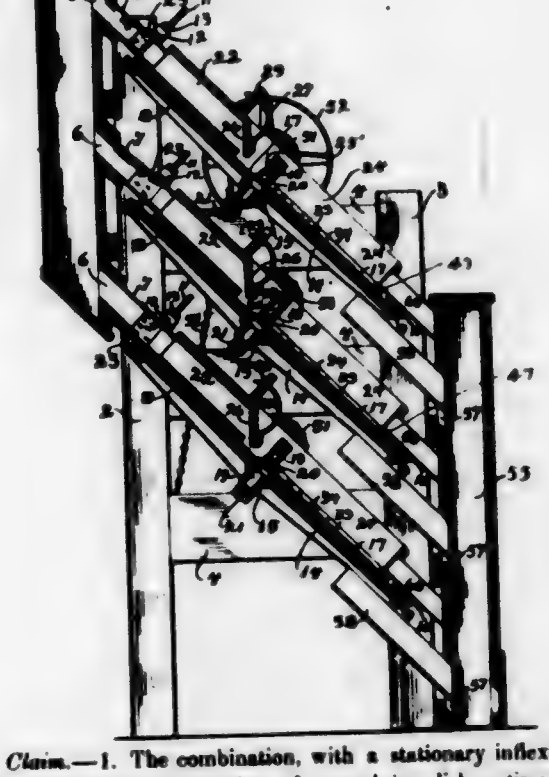
14. In a machine of the class described, the combination with an inflexible plate or backing having a discharge-opening, of a perforated disk resting upon said plate, the perforations and said plate forming a series of pockets to receive the short kernels of grain, such as wheat, means for revolving said disk, a feed-hopper through which the grain to be separated is deposited upon said disk, means for retarding and holding the grain flat thereon as it leaves said hopper, the long kernels, such as oats, being discharged over one side of said disk, while the short kernels are carried around in said pockets to said discharge-opening, substantially as described.

15. In a grain-separator, the combination, with a stationary inflexible plate or member arranged at an incline and having a discharge-opening, of a movable plate or member operating upon said stationary member and forming a close joint therewith, a feed-retarding device thereon, said movable member being provided with a series of perforations forming pockets adapted to receive the short kernels of grain, such as wheat, and carry them over said stationary member and discharge them through the opening therein, and said pockets being too small to receive the longer kernels of grain, such as oats, when lying flat, whereby they will slide over said pockets and be discharged on the down side of said movable member, substantially as described.

16. In a machine of the class described, the combination, with a stationary inflexible plate arranged at an incline and having a flat uniform surface and provided with a radial opening in its up side, of a revolving disk resting upon said plate and forming a close grain and dirt tight joint therewith, said disk being provided with a series of perforations forming with said plate a series of pockets adapted to receive the short kernels of grain, such as wheat, but too small to receive the longer kernels, such as oats, when lying flat, whereby when mixed grains of different sizes are deposited upon the down side of said revolving disk the short kernels will fall into said pockets and be carried therein around to the discharge-opening in said stationary plate and the long kernels will slide over said pockets to a discharge therefor near the lower side of said disk, substantially as described.

17. In a machine of the class described, the combination, with a stationary inflexible backing-plate or base arranged at an incline, of a revolving disk supported on said base and having a series of perforations to receive the shorter kernels of grain, a feed-hopper and means provided near said hopper and adapted to bear upon said disk and retard the grain and hold the longer kernels flat thereon, for the purpose specified.

691,877. SEPARATOR. CHARLES H. SCOTT, Minneapolis, Minn. Filed Aug. 20, 1901. Serial No. 72,658. (No model.)



Claim.—1. The combination, with a stationary inflexible plate or member arranged at an incline, of a revolving disk resting thereon and having a close grain and dirt tight joint therewith, said disk having a series of perforations forming with said plate a series of little pockets wherein the fine material falls and is carried over said plate, and means for adjusting said plate and disk to vary their pitch or inclination.

2. The combination, with a series of inclined plates, of disks resting thereon, means for revolving said disks simultaneously, each of said disks having a series of perforations forming with their plates a series of pockets, hoppers provided above said disks, and a spout common to all of said hoppers and having suitable connections respectively therewith substantially as described.

3. The combination, with a stationary inflexible plate arranged at an incline, of a revolving disk resting thereon and forming a close joint therewith, said disk having a series of perforations forming with said plate a series of little pockets, a hopper having an imperforate bottom provided over said disk, and an adjustable gate device provided on said hopper and adapted to deliver the grain therefrom in a thin sheet upon said disk.

4. The combination, with a suitable frame, of a series of inclined backing-plates pivotally supported on one side therein, means for vertically adjusting the opposite side of said plates to vary their pitch or inclination, revolving disks resting upon said plates, said disks having a series of perforations forming with said plates little pockets or receptacles, and suitable hoppers wherefrom the grain is discharged in a thin sheet upon said disks, substantially as described.

5. The combination, with an inclined plate, of a revolving disk thereon, said disk having a series of perforations forming with said plate a series of pockets, a stud centrally connecting said plate and disk, a gear-ring provided near the circumference of said disk, and a driven pinion meshing with said ring, whereby said disk is revolved, substantially as described.

6. The combination, with an inclined backing-plate having a discharge hole or opening in its up side, of a disk centrally mounted on said plate and forming a close grain and dirt tight joint therewith, said disk having a series of perforations forming a series of pockets with said plate, a hopper provided above the down side of said disk wherefrom the grain is delivered in a thin sheet, a gear-ring secured to said disk near its circumference, and means for driving said ring.

7. The combination, with a series of inclined backing-plates arranged one above the other and suitably spaced in their up sides and provided with discharge-openings, of perforated disks resting upon said plates and forming close joints therewith, the perforations in said disks forming pockets with said plates wherein the short kernels of grain fall, hoppers pro-

vided above said disks, gear-rings near the circumference of said disks, means for driving said rings and disks, spouts near the down side of said disks to receive the longer grains, and pans provided beneath said discharge-openings to receive the shorter grains that fall from said pockets, substantially as described.

8. The combination, with an inclined backing-plate having a discharge-opening in its up side, of a disk resting upon said plate and having a series of perforations forming pockets therewith, means for revolving said disk, and a brush device provided above said disk and discharge-opening, substantially as described and for the purpose specified.

9. The combination, with an inclined backing-plate having a discharge-opening in its up side, of a disk resting upon said plate and forming a close grain-tight joint therewith, said disk having a series of perforations forming pockets with said plate, means for revolving said disk, and a revolving brush provided above said discharge-opening and disk and driven by frictional contact with the latter, substantially as described and for the purpose specified.

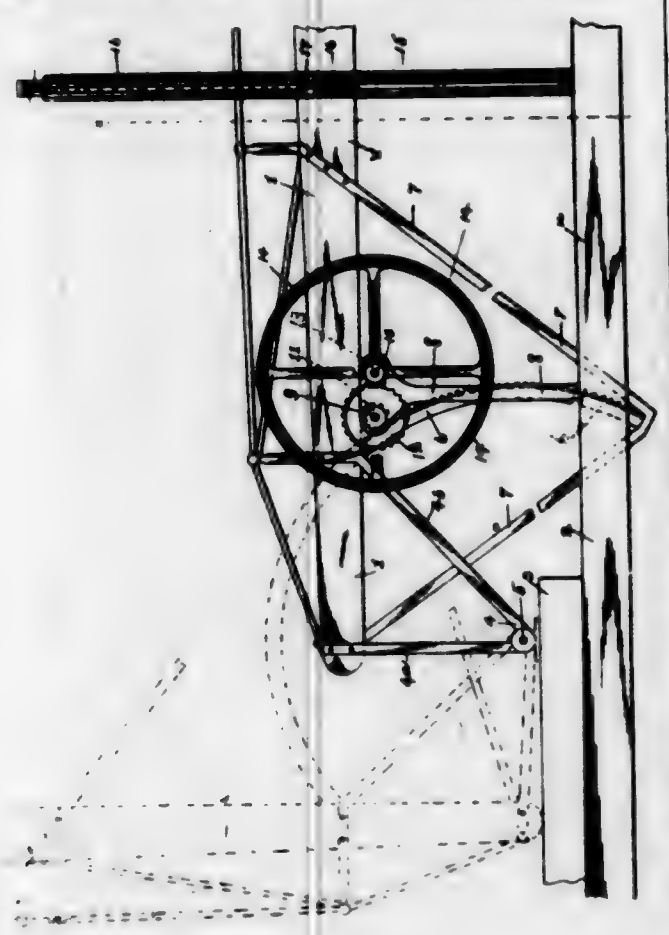
10. The combination, with an inclined backing-plate having a discharge-opening in its up side, of a revolving disk mounted on said plate and having a series of perforations forming pockets therewith, means for revolving said disk, and plates provided on the up side and having their lower edges in gravity-hold contact therewith, substantially as described and for the purpose specified.

11. The combination, with an inclined backing-plate having a discharge-opening in its up side, of a disk resting on said plate and having a series of holes or perforations forming pockets therewith, means for revolving said disk, means for delivering grain in a thin sheet on the down side thereof, scraper-plates provided on the up side of said disk and having their edges in gravity-hold contact therewith, and a revolving brush provided above said discharge-opening and disk and driven by frictional contact with the latter, substantially as described.

12. A separator, comprising an inclined normally stationary plate of inflexible material having a flat surface, in combination with a perforated disk movable over said plate and having a close joint therewith, the perforations in said disk forming with said plate a series of little pockets wherein the fine material falls and is carried over said stationary plate, means provided near the outer edge of said disk for driving the same, and means for adjusting said plate and disk to alter their pitch or inclination.

13. A separator, comprising an inclined normally stationary plate of inflexible material having a flat surface, in combination with a perforated disk revoluble over said plate and having a close joint therewith, the perforations in said disk forming with said plate a series of little pockets, means for delivering the material in a thin sheet upon the down side of said disk and a circumferential driving means for said disk.

691,878. AERIAL LADDER. FREDERIC S. SEAGRAVE, Columbus, Ohio. Filed Nov. 30, 1900. Serial No. 38,122. (No model.)



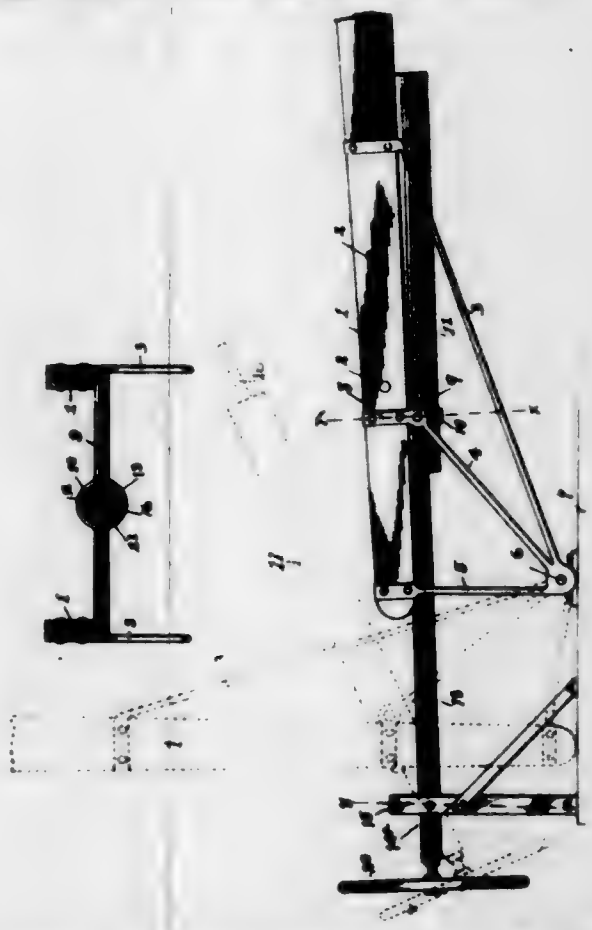
Claim.—1. In an aerial ladder, the combination with a ladder-body having a pivotal connection with a truck, of springs supported on the truck and forming a yielding support for said ladder and exerting a lifting influence thereon and disposed out of vertical line with the pivot of said ladder, substantially as specified.

2. In an aerial ladder, the combination with a ladder-body having its rear or lower end pivotally connected with a truck, of vertically-arranged springs on opposite sides of said ladder, plungers bearing upon said springs and a yoke-frame depending from said plungers, said yoke-frame embracing said ladder, substantially as specified.

3. The combination with a truck and a pivoted ladder thereon, of springs mounted on the truck out of vertical alinement with the pivot of the ladder and held under compression by the weight of the ladder and arranged to aid the ladder in its elevation and forming a yielding support therefor, as set forth.

4. The combination with a truck and a pivoted ladder thereon, of springs mounted on the truck and held under compression when the ladder is down and arranged at a distance from the pivot of the ladder to assist in the raising of the ladder and to form a yielding support therefor, and means inclosing said springs, as and for the purpose specified.

691,879. AERIAL LADDER. FREDERIC S. SEAGRAVE, Columbus, Ohio. Filed June 7, 1901. Serial No. 63,505. (No model.)



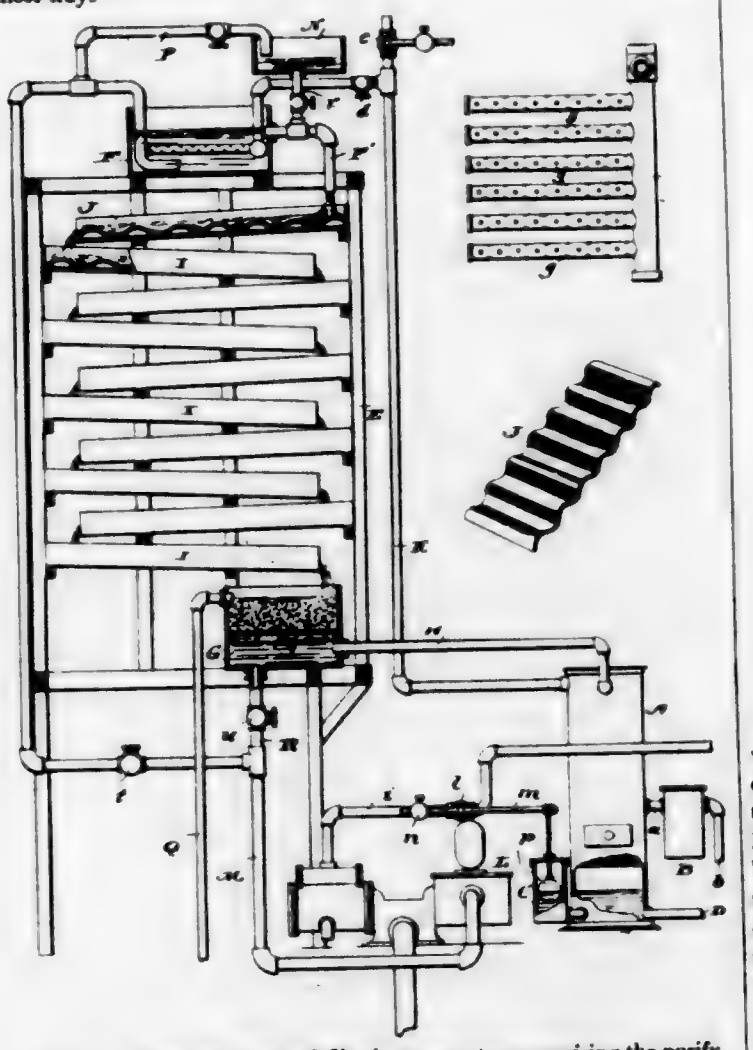
Claim.—1. In an aerial ladder, the combination with a ladder having its rear portion fulcrumed and a casing or frame 11 having an internally-threaded nut or sleeve, of a screw entering said casing and engaging the threads of said sleeve, a spring within the casing and loosely surrounding said screw, said spring adapted to exert a raising pressure on the ladder, substantially as specified.

2. In an aerial ladder, the combination with a ladder fulcrumed at its rear end, of a frame or casing 11 pivotally connected therewith, a threaded sleeve or nut in said casing, a tubular body 13 extending within said casing and surrounding said sleeve, a spring interposed between the flanged outer end of said tube and the inner end of the casing, said tube having a pivotal support in its rear portion and a screw extending through said tube and engaging the threads of said sleeve or nut, substantially as specified.

691,880. WATER-PURIFIER. CHARLES H. SNYDER, Lansing, Mich. Filed June 25, 1901. Serial No. 66,008. (No model.)

Claim.—1. A water purifying and filtering apparatus comprising the purifying and filtering device adapted to be connected with a source of steam-supply, a condensing-tank connected with the purifying and filtering device so as to receive steam therefrom, a vertical series of trays disposed below the condensing-tank and arranged so that each will receive from the tray above it, a pipe for conveying water from the condensing-tank to the uppermost tray, a tank arranged to receive water from the

lowermost tray, and connected with the purifying and filtering device, a pump adapted to be connected with a source of steam-supply and also with a source of water-supply and having its discharge connected with the condensing-tank, a coagulant-tank disposed above the condensing-tank, a valved pipe connected with the discharge of the pump and leading to the coagulant-tank, and a valved pipe connecting the coagulant-tank and the pipe intermediate of the condensing-tank and the uppermost tray.

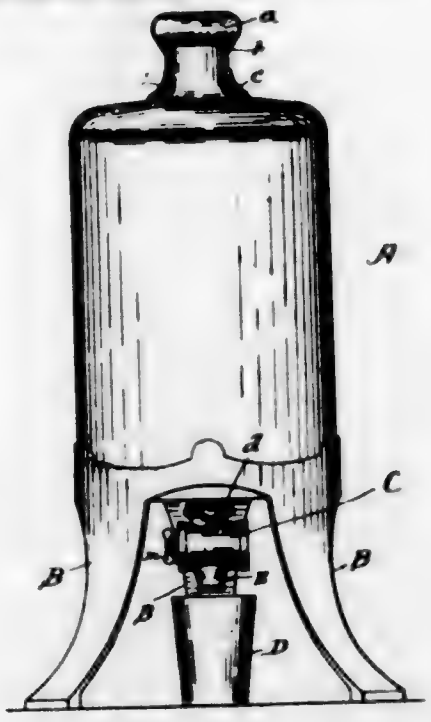


2. A water purifying and filtering apparatus comprising the purifying and filtering device adapted to be connected with a source of steam-supply, a plurality of trays arranged one above the other and alternately inclined in opposite directions so that each will discharge into the next lower trays, removable corrugated plates normally arranged in the trays, a tank disposed below the lowermost tray and connected with the purifying and filtering device, and having a discharge-pipe, a condensing-tank disposed above the uppermost tray and arranged to discharge therein, a conduit intermediate of the purifying and filtering device and the condensing-tank for conveying steam from the former to the latter, a pump adapted to be connected with a source of steam-supply and also with a source of water-supply, a pipe leading from the discharge of the pump to the condensing-tank, and a branch pipe connecting said pipe and the lower tank and provided with a valve.

3. A water purifying and filtering apparatus comprising the purifying and filtering device having a port for connection with a source of steam-supply, and a pure-water chamber provided with a discharge, an oil-extractor intermediate of the filtering and purifying device and the source of steam-supply, a condensing-tank connected with the purifying and filtering device so as to receive steam therefrom, a vertical series of trays intermediate of the condensing-tank and said purifying and filtering device for conveying water and enabling the same to give off its gases and become aerated, means in the trays for removing sediment from the water, a pump adapted to be connected with a source of water-supply and having its discharge connected with the condensing-tank, a pipe provided with a valve and adapted to supply the pump with steam, a chamber C connected with the pure-water chamber of the purifying and filtering device, and a float arranged in said chamber C and connected with the valve in the steam-supply pipe of the pump.

691,881. REGISTERING-FAUCET FOR SYRUP-BOTTLES. FRANCIS E. THOMPSON and FREEMAN H. YOUNG, Boston, Mass., assignors to Moxie Nerve Food Company of New England, Boston, Mass., a Corporation of Maine. Filed Aug. 3, 1900. Serial No. 25,846. (No model.)

Claim.—1. A liquid-containing receptacle provided with a discharge in combination with a measuring-cock in said discharge; a registering mechanism fitted to be actuated by the rotations of the cock-spindle in one direction; a cap inclosing said mechanism; a click for locking the cock-spindle against movement in one direction; and a stop limiting the movement of said registering mechanism, whereby when a determined number of discharges have been made by said cock it will be locked against movement in either direction and the interior of the receptacle be inaccessible until the cock is released.



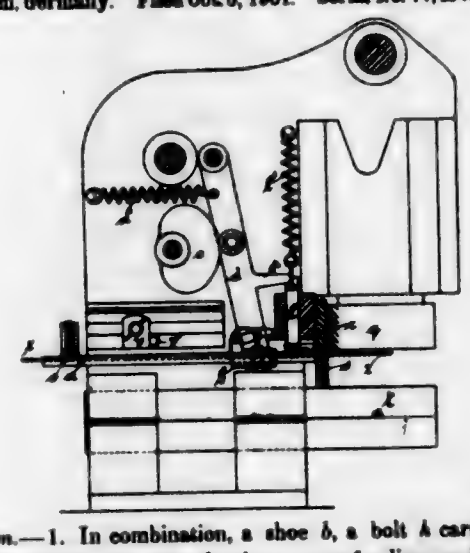
2. The bottle, A, provided with the discharge, 25, in combination with a support for said bottle; the measuring-cock, C, attached to said discharge; a ratchet on the cock-spindle; a click engaging said ratchet; the lock-cap, *p*, forming a chamber with the cock-casing; a series of registering-wheels disposed within said chamber and adapted to be actuated by movements of the cock-spindle in one direction; and a stop limiting the movements of said wheels whereby when a determined number of discharges have been made by said cock it will be locked against movement in either direction.

691,882. CHEMICAL ROOFING MATERIAL. JAMES M. WRIGHT, Bloomington, Ind., assignor to Horace Blakely, Indianapolis, Ind., and Jefferson M. Wright, Bloomington, Ind. Filed Oct. 18, 1901. Serial No. 79,165. (No specimens.)

Claim.—1. The herein-described composition of matter, consisting of coal-tar, lime, sal-soda, gum-acacia, oxid of zinc, litharge, and gypsum, substantially as described and for the purposes specified.

2. The herein-described composition of matter for preparing building material, consisting of coal-tar one gallon, slaked lime two ounces, sal-soda one-half ounce, gum-acacia one-fourth ounce, oxid of zinc one-fourth ounce, litharge five ounces and gypsum six to eight ounces, substantially as described.

691,883. CUTTING-MACHINE. OTTO ZOCKER, Loschwitz, near Dresden, Germany. Filed Oct. 3, 1901. Serial No. 77,467. (No model.)



Claim.—1. In combination, a shoe *b*, a bolt *h* carried thereby, a swinging lever *d* for operating the shoe, means for disengaging the bolt before the completion of the forward movement of the shoe, a second bolt arranged to be engaged by the swinging lever after the first bolt is disen-

gaged from the strip, said second bolt having knife-edged teeth s' to enter the recesses in the strip to adjust the same, substantially as described.

2. In a machine for automatically cutting off predetermined lengths of sheet-metal strips, in combination, a shearing device, a registering device, a feeding device, an oscillating arm adapted to operate the feeding and registering devices, a cam operated by the shearing mechanism adapted to oscillate the said arm on the forward oscillation, a yielding resistance against which the said arm operates adapted to make the arm oscillate on the return stroke, and an adjustable abutment against which the said arm can abut to regulate its stroke, substantially as described.

3. In a machine for automatically cutting off predetermined lengths of sheet-metal strips an oscillating arm, a feeding-forward device operated by said arm, a lever carried by the feeding-forward device adapted to operate the said device, and an inclined surface fixedly mounted on the frame of the machine adapted to coact with and operate the feeding-device lever in combination with a registering device slidingly mounted in the framework of the machine, means for drawing back the registering device to normal position and an inclined surface on the said oscillating arm situated obliquely to the radial path of the arm adapted to operate the registering device, substantially as described.

691,884. ADJUSTABLE COUPLING FOR SEWING-MACHINE OR OTHER ROUND BELTS. DYTOS H. ABBEY, Kansas City, Mo. Filed May 9, 1901. Serial No. 59,365. (No model.)



Claim.—1. In a device of the character described, an internally-threaded tubular member to be screwed upon the end of the belt and provided with a knife or blade to engage and pare off the end of the belt.

2. In a device of the character described, an internally-threaded member to be screwed upon the belt and a knife projecting radially thereof and arranged at an angle approximating that of said threaded surface.

3. In a device of the character described, an internally-threaded member to screw upon the end of the belt and provided at its rear end with a loop, and provided also forward of said loop with an inwardly-projecting knife having its sharp edge presented toward the end of the belt.

4. In a device of the character described the combination of a belt, and a coupling comprising a pair of members mounted on the ends of the belt and detachably connected together, one of said members being screwed upon the end of the belt and provided with a knife or blade to pare off the end of the belt as said member is screwed thereon.

5. In a device of the character described, the combination of a belt, and a coupling consisting of a pair of members mounted on the ends of the belt, one of said members being screwed upon the belt and provided with an inwardly-projecting knife to pare off the end of the belt as said member is screwed thereon, one of said members being provided with a hook and the other with a loop detachably engaging the hook, substantially as described.

6. In a device of the character described, the combination of a belt, and a coupling consisting of a pair of members mounted on the ends of the belt and detachably connected together, one of said members being internally threaded and having its front end beveled to flare as at 7, and provided with an inwardly-projecting knife to pare off the end of the belt as said member advances thereon, substantially as described.

691,885. ADJUSTABLE COUPLING FOR SEWING-MACHINE OR OTHER ROUND BELTS. DYTOS H. ABBEY, Kansas City, Mo. Filed Oct. 22, 1901. Serial No. 79,558. (No model.)



Claim.—1. In a device of the character described, a screw member provided with a blade or auger to engage and pare off the end of the belt, a second member or sleeve secured upon the opposite end of the belt, and a swivel connection between said members so as to permit the screw member to turn independent of that engaged with the opposite end of the belt.

2. In a device of the character described, a pair of sleeves or members mounted on the ends of the belt and interlocked together, one member being provided with internal threads to enable it to screw upon the belt, and with a side hole, and with an internal spiral blade or auger having its groove registering at its discharge end with said hole, substantially as described.

3. In a device of the character described, an internally-threaded sleeve screwed upon the belt, and provided with a side hole, a second sleeve secured upon the opposite end of the belt, a hook and loop interlocked together, one being swiveled to the last-named sleeve, and the other secured in the first-named sleeve and provided at its inner end with a spiral blade or auger having the outer end of its groove registering with said hole, substantially as described.

691,886. STREET-LAMP. FERDINAND A. R. ADAM, Southport, Conn. Filed Mar. 8, 1901. Serial No. 50,336. (No model.)



Claim.—1. In a lamp, the combination with the font thereof, of a regulator for the wick extending through the top of the font and provided with a pan upon which the wick is adapted to rest, said regulator being also provided with a series of notches, a resilient arm arranged in proximity to the regulator and adapted to engage said notches for holding the regulator at predetermined heights within the font, and means for holding said arm out of engagement with said notches.

2. In a lamp, the combination with the font thereof, of a regulator for the wick extending through the top of the font and provided with a pan upon which the wick is adapted to rest, said regulator being also provided with a series of notches, a resilient arm arranged in proximity to the regulator and adapted to engage said notches for holding the regulator at predetermined heights within the font, and means for preventing vertical movement of said resilient arm when the latter is engaged with the regulator.

3. In a lamp, the combination with the font thereof, of a regulator for the wick extending through the top of the font and provided with a pan upon which the wick is adapted to rest, said regulator being also provided with a series of notches, a resilient arm arranged in proximity to the regulator and adapted to engage said notches for holding the regulator at predetermined heights within the font, means for holding said arm out of engagement with said notches, and means for preventing vertical movement of said resilient arm when the latter is engaged with the regulator.

4. In a lamp, the combination with the font thereof, of a regulator for the wick extending through the top of the font and provided with a pan upon which the wick is adapted to rest, said regulator being also provided with a series of notches, a resilient arm arranged in proximity to the regulator and adapted to engage said notches for holding the regulator at predetermined heights within the font, and a T-shaped guard for preventing vertical movement of said resilient arm when the latter is engaged with the regulator.

5. In a lamp, the combination with the font thereof, of a regulator for the wick extending through the top of the font and provided with a pan upon which the wick is adapted to rest, said regulator being also provided at opposite sides with spaced notches, the notches at one side being spaced at greater intervals than the notches at the other side, resilient arms arranged in proximity to the regulator and adapted to engage the notches of the regulator for holding the latter at predetermined heights within the font, and means for holding said arms out of engagement with said notches.

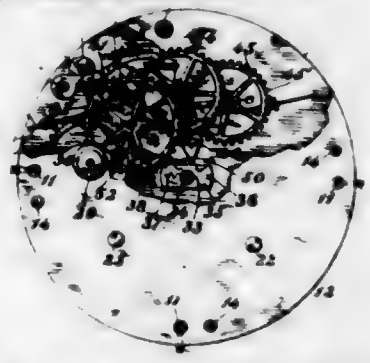
6. In a lamp, the combination with the font thereof, of a regulator for the wick extending through the top of the font and provided with a pan upon which the wick is adapted to rest, said regulator being also provided at opposite sides with spaced notches, the notches at one side being spaced at greater intervals than the notches at the other side, resilient arms arranged in proximity to the regulator and adapted to engage the notches of the regulator for holding the latter at predetermined heights within the font, and stops extending upwardly from the font for holding said arms out of engagement with said notches.

7. In a lamp, the combination with the font thereof, of a regulator for the wick extending through the top of the font and provided with a pan upon which the wick is adapted to rest, said regulator being also provided at opposite sides with spaced notches, the notches at one side being spaced at greater intervals than the notches at the other side, resilient arms arranged in proximity to the regulator and adapted to engage the notches of the regulator for holding the latter at predetermined heights within the font, means for holding said arms out of engagement with said notches, and means for preventing vertical movement of said resilient arms when the latter are engaged with the regulator.

8. In a lamp, the combination with the font thereof, of a regulator for the wick extending through the top of the font and provided with a pan upon which the wick is adapted to rest, said regulator being also provided at opposite sides with spaced notches, the notches at one side be-

ing spaced at greater intervals than the notches at the other side, resilient arms arranged in proximity to the regulator and adapted to engage the notches of the regulator for holding the latter at predetermined heights within the font, means for holding said arms out of engagement with said notches, and a T-shaped guard for preventing vertical movement of said resilient arms when the latter are engaged with the regulator.

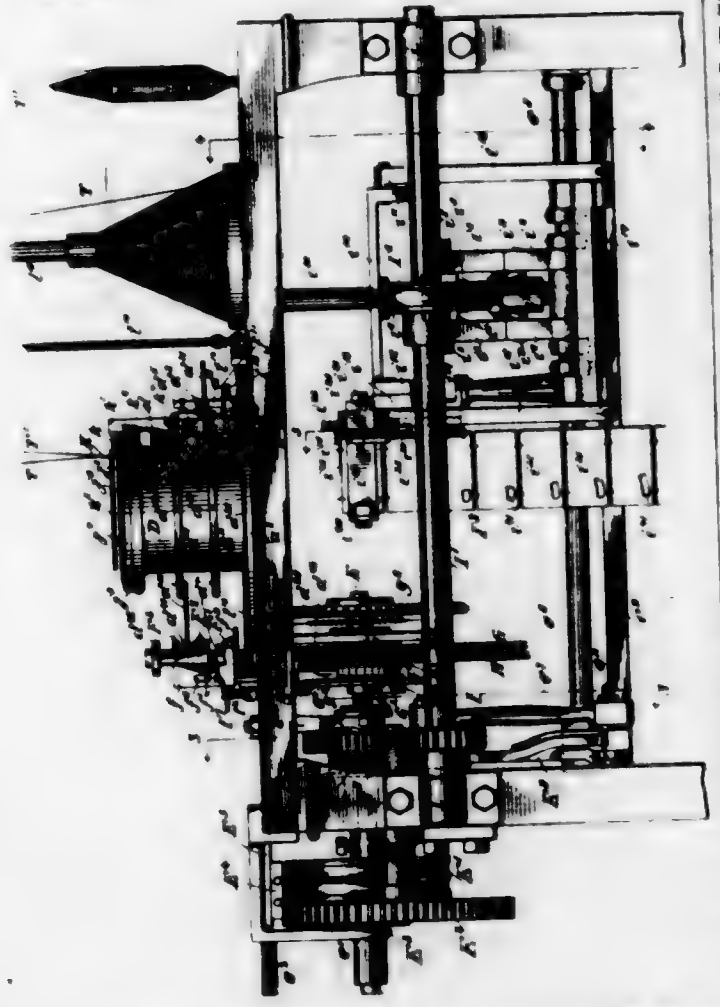
691,887. CLOCK. GEORGE W. ADAMS, Stoughton, Mass. Filed June 27, 1901. Serial No. 66,294. (No model.)



Claim.—1. In a clock, the combination of a striking mechanism and means for controlling said mechanism, comprising a warn-lever arbor a warn-lever thereon and a lifting-lever also on said warn-lever arbor, one of said levers being fast on said arbor and the other being frictionally connected therewith.

2. In a clock, the combination of a striking mechanism and means for controlling said mechanism, comprising a warn-lever arbor a warn-lever fixed to said arbor for engaging the striking mechanism and a lifting-lever frictionally connected with said arbor.

691,888. KNITTING-MACHINE. CHARLES J. APPLETON, Long Island City, N. Y., assignor, by mesne assignments, to John J. Shaw, trustee, Mamaroneck, N. Y. Filed Mar 15, 1897. Serial No. 627,468. (No model.)



Claim.—1. In a knitting-machine having a mechanism for operating the needles, the combination of means for rendering said mechanism inoperative, and an auxiliary needle-operating means, comprising a jacquard mechanism, the jacquard-cards adapted to actuate needles when the usual needle-operating mechanism is not operating, whereby such needles are caused to knit.

2. In a knitting-machine, the combination of two sets of needles, knitting-cams for operating the needles of the two sets, and a jacquard mechanism for actuating the needles of one set when the said knitting-cams are not operating.

3. In a circular-knitting machine the combination of two sets of vertical needles, knitting-cams for operating both sets, means for rendering said cams inoperative, a jacquard mechanism for elevating needles of one set, a lowering-cam, and means for retaining the needles of the one set in their elevated position until acted upon by said lowering-cam.

4. A knitting-machine having needles and means for operating them, in combination with a jacquard mechanism for actuating needles and means for operating the jacquard mechanism when the first-named needle-operating means is inoperative.

5. In a circular-knitting machine, the combination of two sets of vertical needles, rotating cams for operating both sets, means to render said cams inoperative relatively to the needles, and pattern-cards for actuating needles of one set to effect widening or narrowing.

6. In a circular-knitting machine the combination of two sets of needles of different lengths, a mechanism for operating both sets, a device for rendering said mechanism inoperative, and a jacquard mechanism for actuating the set of longer needles while the other set is not operating.

7. In a circular-knitting machine the combination of a long set of needles and a short set, rotating cams for operating both sets, a device for rendering the cams inoperative, means for controlling said device, and a jacquard mechanism, also controlled by the said means, and adapted to contact directly with the longer set of needles to operate such needles while the other set is inoperative.

8. In a circular-knitting machine, the combination of two sets of needles, a cam adjustable into and out of position for operating needles, and a jacquard mechanism for actuating needles of one set, the said jacquard mechanism thrown into and out of operation alternately with the said cam.

9. In a circular-knitting machine the combination of a needle-cylinder, two sets of needles arranged in said cylinder, one set having tails projecting beyond the needle-cylinder, cams for operating said needles adapted to be moved into and out of operative position relatively to the needles, means for effecting the said movements of said cams, jacquard-cards adapted to engage the projecting tails of needles of the one set to actuate such needles, and a jacquard mechanism for operating said cards.

10. In a circular-knitting machine, the combination of a needle-cylinder, two sets of needles fitted to said cylinder, one set being of greater length so that the tails thereof may project beyond the needle-cylinder, suitable cam mechanism having cams for operating the needles of both sets, means for actuating said mechanism, means for moving a cam or cams into operative or inoperative positions, so that the needles of neither set may be operated by such cams, and a jacquard mechanism for engaging directly the projecting tails of a part or all of said long needles to operate such needles, the said jacquard mechanism being thrown into operation automatically, when the said needle-operating cams are moved into inoperative positions.

11. In a circular-knitting machine the combination of two sets of needles one set being of extra length, a cam mechanism for each set comprising needle-operating cams, a means for moving both mechanisms into inoperative or operative positions, a jacquard mechanism for elevating needles of the longer set when said cam mechanisms are in inoperative positions, and cams for cooperating with said jacquard mechanism by lowering such needles.

12. In a circular-knitting machine the combination of a needle-cylinder, two sets of vertical needles arranged therein, one set having tails projecting beyond the needle-cylinder, a cam-cylinder, cams carried by the cam-cylinder for operating said needles, means for moving cams into and out of operative positions relatively to said needles, whereby neither set may be operated by such cams, a jacquard mechanism for engaging the projecting tails of the one set of needles to actuate such needles, cams carried by the cam-cylinder for cooperating with said jacquard mechanism, means for rotating said cam-cylinder, means for oscillating the cam-cylinder, said rotating means being in operation when the first-named cams are in operative positions, and said oscillating means and the jacquard mechanism being in operation when the said cams are in inoperative positions.

13. In a circular-knitting machine the combination of a needle-cylinder, two sets of vertical needles fitted thereto, a cam-cylinder fitted to rotate or oscillate concentrically with the needle-cylinder cams carried by said cam-cylinder and fitted to be moved into and out of operative positions relatively to the needles, means for rotating the cam-cylinder, means for oscillating it, a step-by-step pattern device for controlling said cam-cylinder rotating and oscillating means, so that either thereof may be caused to actuate the cam-cylinder, means controlled by said pattern device adapted to move said cams into operative positions when the cam-cylinder is being rotated, and into inoperative positions when the cam-cylinder is being oscillated, and means other than said cams including pattern-cards for actuating needles of one set when the cam-cylinder is being oscillated for effecting widening in the knitted fabric.

14. In a circular-knitting machine the combination of a needle-cylinder provided with means for oscillating it and means for rotating it, a part fitted to move toward and from the cylinder, means operated by the moving of said part for shifting the power from the cam-cylinder-oscillating means to the cam-cylinder-rotating means and vice versa, the said part adapted to be moved to and from the cam-cylinder through engagement with a projection upon the cylinder, in connection with a spring, a pattern-chain for controlling the engagement of the said part and said projection, whereby the pattern of said chain controls the rotation or oscillation of the cam-cylinder, and mechanism controlled by the said pattern-chain for rendering one set of needles inoperative when the cam-cylinder-oscillating means is operating.

15. In a circular-knitting machine the combination of a needle-cylinder provided with means for oscillating it and means for rotating it, a part fitted to move toward and from the cylinder, means operated by the moving of said part for shifting the power from the cam-cylinder-oscillating means to the cam-cylinder-rotating means and vice versa, the said part adapted to be moved to and from the cam-cylinder through engagement with a projection upon the cylinder, in connection with a spring, a pattern-chain for controlling the engagement of the said part and said projection, whereby the pattern of said chain controls the rotation or oscillation of the cam-cylinder, mechanism controlled by the said pattern-chain for rendering one set of needles inoperative when the cam-cylinder-oscillating means is operating, and jacquard mechanism for effecting knitting operations of the remaining needles when the one set is thrown out of operation.

16. In a circular-knitting machine the combination of two sets of needles, a jacquard mechanism for engaging one set, means for driving the jacquard mechanism, a reciprocating part, as *f*, for controlling said driving means, pin *f'* and a pattern-chain operating pin *f'* to control said reciprocating part, substantially as specified.

17. In a circular-knitting machine, the combination of a needle-cylinder, two sets of vertical needles fitted thereto, the needles of one set having tails which project beyond the said cylinder, a cam-cylinder adapted at some times to be rotated about said needle-cylinder, and at other times oscillated about it, movable cams carried by said cam-cylinder for operating needles, a mechanism for rotating the cam-cylinder, mechanism for oscillating it, a source of power for actuating said mechanisms, a device for shifting the power from one to the other of said mechanisms, a pattern-chain for controlling said device, means controlled by said pattern-chain for shifting cams carried by the cam-cylinder into an operative position when the cylinder is being rotated, and to an inoperative position when the cylinder is being oscillated, a jacquard mechanism operated from the said cam-cylinder-oscillating mechanism and adapted to contact with the tails of needles projecting beyond said needle-cylinder to elevate such needles to knit, and cams for lowering the needles that are elevated by the jacquard mechanism.

18. In a circular-knitting machine, the combination of two sets of needles, rotating cams for operating the two sets of needles, means for moving said cams so as to render both sets of needles inoperative, a movable tappet-block carrying a tappet for operating the cam-actuating means, a jacquard mechanism operating directly on the shanks of one set of needles, and driving mechanism for the jacquard mechanism, said driving mechanism being controlled by the movement of the tappet-block, substantially as specified.

19. In a circular-knitting machine the combination of two sets of needles, cams for operating the two sets of needles, and means for rotating or oscillating the cams, means for moving said cams so as to render both sets of needles inoperative, a tappet-block supported so as to be movable, and adapted to engage said last-named means, a jacquard mechanism contacting directly with the tails of one set of needles, driving mechanism for the jacquard mechanism, said driving mechanism being controlled by the movement of the tappet-block, and a device adapted to move with the cams and serving to impart movement to said tappet-block.

20. In a circular-knitting machine, the combination of a needle-cylinder having vertical needles arranged therein, a cam-cylinder having cams for operating said needles and adapted at some times to be rotated about said needle-cylinder, and at other times to be oscillated about it, means for rotating said cam-cylinder, means for oscillating it, a suitable power for actuating both the said means, a slide for shifting the power from one means to the other, a projection carried by the cam-cylinder for actuating said slide, a corresponding part carried by the slide adapted to be moved by said projection when the former is in the path of revolution of the latter, a device for effecting a relative change of position between the said projection and the said part, means for actuating said device to cause the engagement of the said parts at suitable intervals in the knitting operation, means for retaining the slide when it is moved by said projection, means for releasing the slide at suitable intervals in the knitting operation, and means for moving back the said slide, substantially as specified.

21. In a circular-knitting machine the combination of a needle-cylinder having vertical needles arranged therein, a cam-cylinder rotatably mounted without the needle-cylinder, a needle-operating cam carried by the cam-cylinder, the said cam fitted to shift into and out of operative position, a ring surrounding the cam-cylinder, and provided with oppositely-arranged pivots, constructed to be rotated with the cam-cylinder, means intermediate the said ring and said cam whereby the ring may effect the shifting of said cam, and a part for actuating said ring at suitable times in the knitting operation.

22. In a circular-knitting machine the combination of a needle-cylinder, needles carried by said cylinder, a jacquard mechanism having means for operating it for raising said needles, a cam adapted to be oscillated about said needles for lowering said needles, the said cam being adjustable, and means for varying the position of said cam, whereby the length of stitch may be varied to any desired length between the shortest and longest extremes, substantially as described.

23. In a circular-knitting machine the combination of needle-operating cams movable in the direction of the length of the needles, a cam D^8 for shifting the needle-operating cams, a lever d^{34} for operating said cam D^8, a cam projection d^{41} upon a rod, adapted to engage said lever d^{34}, to vary the position of the needle-cam, a second projection upon said rod, means adapted to be engaged by said second projection for returning the lever d^{34} to an initial position, and a pattern-chain for varying the position of said projections relatively to said lever d^{34}, substantially as specified.

24. In a circular-knitting machine, the combination of two sets of needles, means for throwing one of them out of operation, a yarn-guide adapted to be vertically adjusted for operation with the other set of needles, and means for adjusting said yarn-guide simultaneously with the throwing out of one set of needles, substantially as specified.

25. In a knitting-machine a set of needles operated normally from knitting-cams, said cams, a jacquard mechanism for operating needles when the said cams are not operating, means for changing the needle-operating means, and a yarn-guide automatically adjusted relatively to the needles, when the needle-operating means is changed, substantially as specified.

26. In a circular-knitting machine the combination of two sets of needles, means for rendering one set inoperative, a jacquard mechanism for coöperating with the other set, and a yarn-guide adjusted when the jacquard mechanism is adjusted simultaneously with throwing out the first-named set of needles.

27. In a knitting-machine the combination of needles having lugs near their lower ends, jacquard-cards for coacting with the needles and having openings which at the end are notched or narrowed to prevent the loop from being thrown off the latch of the needles, at certain times, and means for operating the jacquard-cards, substantially as specified.

28. The combination with knitting-needles, of a jacquard-card adapted to coact with needles, and having openings which are notched or narrowed at certain places, whereby the corresponding needles may pass through such narrowed places only as far as the shoulder of the needles, so that the loops may be prevented from passing off the latches of such needles, substantially as specified.

29. In a knitting-machine, the combination with a series of knitting-needles, of needle-operating means comprising jacquard mechanism, and a means included in said jacquard mechanism for causing two loops to be formed on a suitable needle, said means adapted to partly actuate said needle, whereby the loop thereon may not pass off the latch of such needle, so that such loop and the next succeeding loop will simultaneously occupy said needle.

30. In a knitting-machine, the combination of knitting-needles arranged in series, a jacquard or pattern mechanism to operate a set of needles variable in number and having pattern-cards adapted to effect the operation of the first or last needle of the variable set in such manner that such needle may receive a thread without casting off the previously-formed loop and in the succeeding operation cast off the two loops together.

31. In a knitting-machine, the combination of knitting-needles, jacquard-cards, jacquard mechanism, the needles adapted to coact with said jacquard-cards, portions of a jacquard-card being open, the corresponding needles remaining idle, other portions adapted to actuate needles, and a portion adapted to partly actuate a needle, whereby a double loop may be formed on such needle.

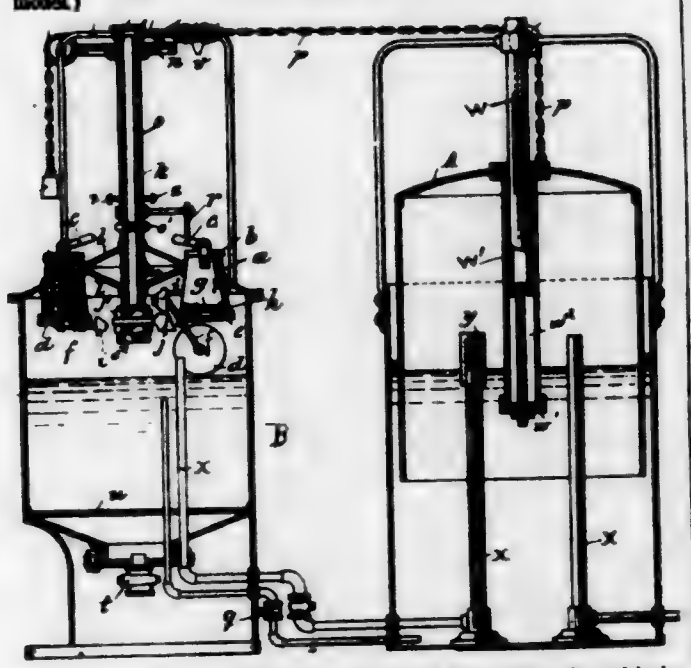
691,889. WOVEN PILE CARPET. WALTER REHAN, Philadelphia, Pa., assignor to John Dobson and James Dobson, Philadelphia, Pa., copartners trading as John and James Dobson. Filed May 22, 1901. Serial No. 61,446. (No model.)

Claim.—A pile carpet comprising printed pile warp-threads, body and binder warp-threads and weft-threads, the said pile warp-threads be-

ing arranged in sets side by side with sets of body warp-threads between the same weft-threads and binder warp-threads and appearing on the back of the fabric to reproduce thereon the face-pattern of the fabric both in design and color.



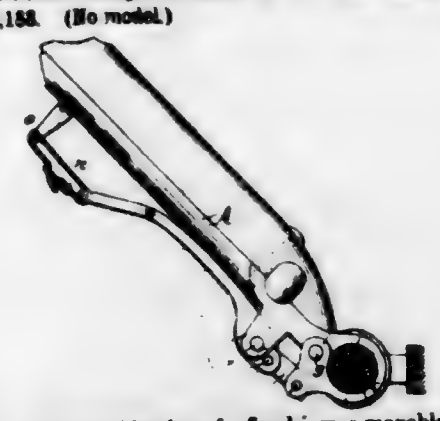
691,890. ACETYLENE-GAS GENERATOR. EDVARD BJÖRKLUD, Christiania, Norway. Filed Oct. 10, 1899. Serial No. 733,217. (No model.)



Claim.—1. In an acetylene-gas apparatus, the combination with the generator, of carbid-chambers arranged in the upper part thereof, weighted flaps closing said carbid-chambers, a gasometer having a movable bell, an arm adapted to raise the weights to open the flaps, and means operated by the movement of the bell for operating said arm, substantially as described.

2. In an acetylene-gas generator, the combination with the generator and gasometer, of a series of carbid-chambers carried by said generator, weighted flaps closing the bottoms of said chambers, covers for said chambers, a rotary arm operated from the gasometer-bell for operating said weighted flaps, eccentric levers for operating the covers, and a retaining-arm moving in unison with the flap-operating arm and serving to maintain the cover in a closed position when the flap is opened, substantially as described.

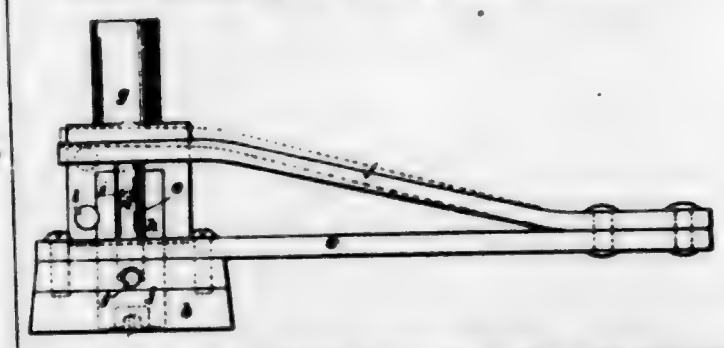
691,891. THILL-COUPLING. WALTER L. BOOMAN, Buffalo, N. Y., assignor to James B. Baynes, Buffalo, N. Y. Filed Oct. 23, 1901. Serial No. 80,158. (No model.)



Claim.—1. The combination of a fixed jaw, a movable jaw pivoted at its front end and arranged on the under side of the fixed jaw, an operating-lever having its fulcrum arranged near the pivoted end of the movable jaw and having a long front arm projecting forwardly from the fulcrum and a short rear arm projecting rearwardly therefrom, and a rigid link connecting the short rear arm of the lever with the movable jaw, substantially as set forth.

2. The combination of a thill-iron, a fixed jaw formed at the rear end thereof, a movable jaw pivoted at its front end to the under side of the thill-iron, an operating-lever having a long front arm and a short rear arm and pivoted to the under side of the thill-iron near the pivoted end of the movable jaw, and a rigid link connecting the short rear arm of the lever with the movable jaw, the long front arm of the lever being arranged to bear against the thill-iron when the rear arm of the lever and the link have passed the dead-center and the movable jaw is closed, substantially as set forth.

691,892. WIRE-CUTTING DIE. RICHARD A. BRIHL, Bridgeport, Conn. Filed Sept. 11, 1901. Serial No. 75,099. (No model.)



Claim.—1. In a wire-blank-cutting device the combination with suitable dies having a hole for the wire to be fed therein, of a punch-plate adapted to operate in a suitable recess at a right angle to the wire-opening before mentioned, a friction-pin mounted in the die adapted to engage the wire, a spring to engage the pin and normally hold it against the wire, means carried by the punch to engage the spring and raise it from the pin.

2. A wire-blank-cutting device comprising suitable closed dies with a rectangular opening therethrough, a reciprocating cutter fitted in said opening, having a transverse semicircular recess in its lower edge, means to firmly hold the wire during the cutting operation and a lug contained on the punch-holder for automatically releasing the pressure on the wire with the upward movement of the punch.

3. In a wire-feeding device the combination with a punch carrying a cutter, of dies to receive said cutter, a stripper in the bottom of said dies and in line with the cutter and having a beveled end to engage a blank and deflect it sidewise as it is fed thereagainst in the cutting movement.

4. A wire-cutting-off die having a wire-channel opening into a punch-plate passage with two opposite parallel smoothed sides, adapted to force against both ends of a wire blank during its removal from the wire rod, and to confine its length to the limit of the thickness of the punch-plate.

5. A wire-cutting die containing a wire-channel leading to an aperture with parallel sides adjustable to various thicknesses of punch-plates and arranged to closely confine the thickness of a blank to the size of the punch-plate by flattening and smoothing the blank ends during the cutting-off process.

6. A wire-cutting die with a punch-aperture adjustable in the direction of the wire-supply, a wire-channel leading into and a punch-plate fitting said aperture, the latter containing parallel polished surfaces for forcing the end surfaces of the wire blanks during the cutting-off operation, squaring and smoothing the forced end portions and for accurately sizing the length thereof.

7. In a device for cutting thin blanks from a wire rod, a two-part die forming an adjustable aperture with parallel sides for the passage of a punch-plate, a wire-channel opening into one of these sides, in combination with means to firmly hold the wire rod in its advanced position during the cutting operation.

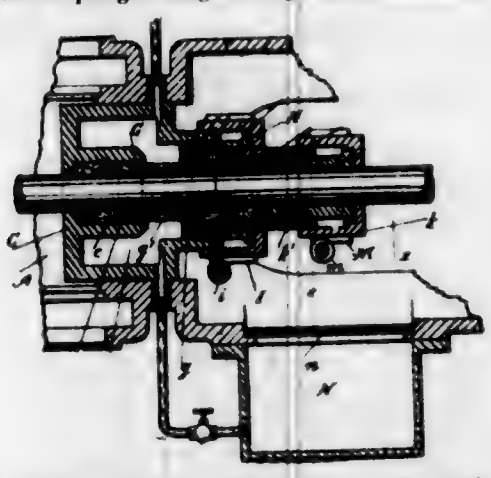
8. An adjustable wire-cutting die consisting of a wire-holding portion and a wire-stop portion, both parts forming a close-fitting aperture for the punch-plate, said aperture having opposite parallel polished blank-forcing surfaces in combination with a friction-pin in the wire-channel, means to force such pin against the wire during the cutting operation and mechanism to remove the pressure from said pin during the feeding of the wire rod.

9. A wire-cutting die, having in the lower part of one of its punch-passage sides an inclined surface, arranged to engage the wire blank during the downward movement and to force it out of the punch-recess and from the wire-channel.

691,893. ROD-PACKING. THOMAS H. BUTLER and ORMOND HARROD, Baltimore, Md. Filed Apr. 26, 1901. Serial No. 57,551. (No model.)

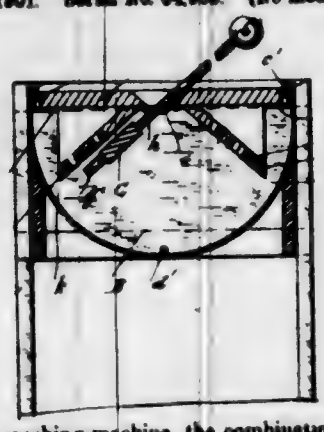
Claim.—1. The combination, with a cylinder-cover provided with a stuffing-box, an oil-supply chamber, and a guide arranged in front of the said oil-chamber and of greater diameter than the said stuffing-box; of a plunger slidable in the said guide and provided with an oil-chamber sliding within and constantly communicating with the aforesaid oil-supply chamber, said plunger having also a follower at its rear end for the said stuffing-box, and a stuffing-box at its front end; a rod which slides in the

two said stuffing-boxes and the oil-chamber of the plunger; and means for keeping the said plunger oil-tight in its guide, substantially as set forth.



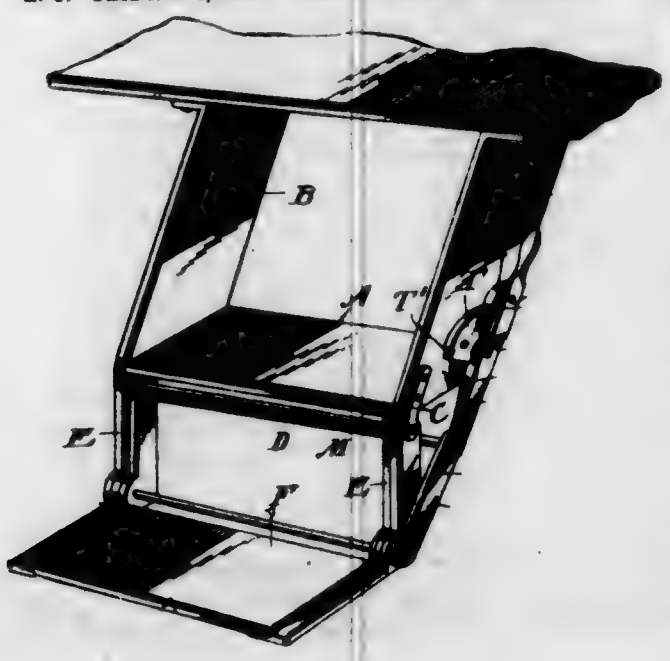
2. The combination, with a cylinder-cover provided with a stuffing-box, an oil-supply chamber, and a guide arranged in front of the said oil-chamber and of greater diameter than the said stuffing-box; of a plunger slidable in the said guide and provided with an oil-chamber sliding within and constantly communicating with the aforesaid oil-supply chamber, said plunger having also a follower at its rear end for the said stuffing-box, and a stuffing-box at its front end: a stuffing-box around the said plunger in the said guide; a single means for adjusting the packing material in the last said stuffing-box and for moving the plunger longitudinally; and a rod which slides in the said stuffing-box of the cylinder-cover and in the stuffing-box and oil-chamber of the said plunger, substantially as set forth.

691,894. WASHING-MACHINE. CHARLES A. COFFIN, Allen, Nebr. Filed June 18, 1901. Serial No. 64,969. (No model.)



Claim.—In a washing-machine, the combination, with a stationary tub provided with a lid, and inclined presser-boards secured to the lid and provided with holes, open water-passages being formed between the said presser-boards and the tub; of an agitator pivoted to the said lid between the said presser-boards and provided with a handle for rocking it back and forth, substantially as set forth.

691,895. FOLDING CAR-STEP. ARTHUR D. COOK, Ballston Spa, N. Y. Filed Nov. 1, 1901. Serial No. 80,808. (No model.)



Claim.—A folding step for cars, comprising in combination with the fixed step, the angle-plate C, the strips E pivotally mounted thereon, each strip E having a recess along its outer edge, the rod F mounted in the lower ends of said strips, the folding step H having end pieces pivotally mounted on said rod F, the tread of said folding step H being slightly above the strips G, at the end thereof, and adapted when folded, to enter the recessed portions of said strips E, the lever L pivoted to the side pieces of the fixed step, a pawl R pivoted to said lever, a segment T fastened to the side pieces of the step, and having two notches at its opposite ends, adapted to be engaged by one or the other ends of said pawl to hold the step either extended or closed, the link P pivotally connecting the end of said lever with the rod F, said links and levers P being cut away or recessed, as shown, whereby they will not interfere with each other in the folding of the step, substantially as shown and described.

691,896. TABULATING-SCALE FOR TYPE-WRITERS. CHARLES L. DAHLBERG, Des Moines, Iowa. Filed Dec. 31, 1900. Serial No. 41,560. (No model.)



Claim.—A tabulating-scale for type-writers, made of a single piece of plate metal, comprising a flat, oblong body portion having an inclined flange at one of its edges, a notch near the end of the flange, ciphers on the flange, and an integral right-angled extension at one end, terminating in a clasp adapted for fastening the scale to the frame of the machine, as shown and described, for the purposes stated.

691,897. WHIFFLETREE CONSTRUCTION. CHARLES E. DUPONT and ALFRED SILLS, Manchester, N. H. Filed Mar. 15, 1901. Serial No. 51,340. (No model.)



Claim.—1. A whiffletree comprising a series of plates secured against separation at the ends and center and against movement in the opposite direction at points intermediate the center and ends.

2. A whiffletree comprising a series of plates secured against a separating movement at the ends and center respectively by the trace-hooks and the attaching-eye, and secured against movement in the opposite direction at points intermediate the center and ends.

3. A whiffletree comprising a series of plates secured against a separating movement at the ends and center, said plates being of equal width and arranged in the same horizontal plane, said plates being secured against a movement in the opposite direction at points intermediate the center and ends.

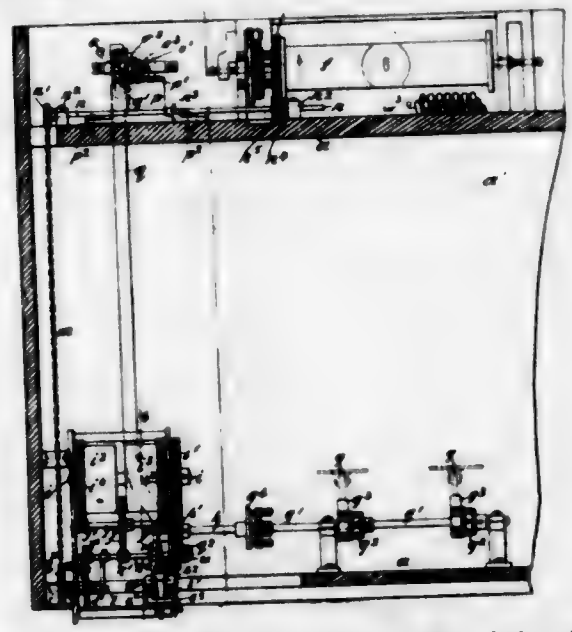
4. A whiffletree comprising a series of plates secured against a separating movement at the ends and center respectively by the trace-hooks and the attaching-eye, and posts or supports, having reduced ends fitting

within the front and rear plates, said posts serving to prevent a movement in the opposite direction.

5. A whiffletree comprising a plate having its end portions bent at right angles thereto and then bent inwardly; a second plate bent angularly and fitted to the forward face of said inwardly-bent portions of the first plate; a third plate located between said first and second plates and having contact with the ends of the first plate and the center of the second plate; trace-hooks passing through the ends of each of said plates; an attaching-eye passing through the centers of said plates, said hooks and eye preventing a separating movement of the plates; and posts or supports, having reduced ends, fitted in said first and second plates and passing through said third plate, said posts serving to prevent movement of said plates in the opposite direction.

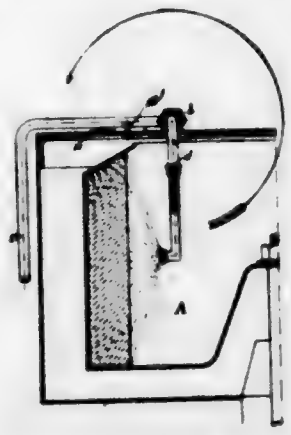
6. A whiffletree comprising a series of plates secured against a separating movement at the ends and center respectively by the trace-hooks and the attaching-eye and secured against movement in the opposite direction intermediate the center and the ends; and a spring or springs, carried by the attaching-eye and extending across the hooked ends of the trace-hooks, whereby the passage-way leading into said hooks will be normally closed.

691,898. MUSIC-ROLLER-ACTUATING MECHANISM. FREDERICK ENGELHARDT, St. Johnsville, N. Y., assignor of one-half to Alfred P. Roth, New York, N. Y. Filed Dec. 20, 1900. Serial No. 40,493. (No model.)



Claim.—The combination of a pedal-lever with a shaft embraced by said lever and constituting a fulcrum for the same, a clutch between the lever and shaft, a spring tensioned by the shaft, a pair of rollers, a second sliding shaft adapted to be coupled to either of said rollers, and means for operatively connecting said second shaft to the spring, substantially as specified.

691,899. MACHINE FOR WASHING SUGAR. LUDWIG FUCHS, Lundenburg, Austria-Hungary. Filed June 7, 1899. Serial No. 719,694. (No model.)



Claim.—1. The combination with the basket of a centrifugal machine, of a claircs feed-pipe and a spray-pipe connected therewith to revolve on a horizontal axis and to be turned into and out of said basket, a valve-chamber in the connection between the two pipes, a valve-seat therein, and a valve arranged to be moved off its seat by the pressure of the liquid in the claircs feed-pipe and to be moved to its seat by the spray-pipe when turned out of said basket, substantially as set forth.

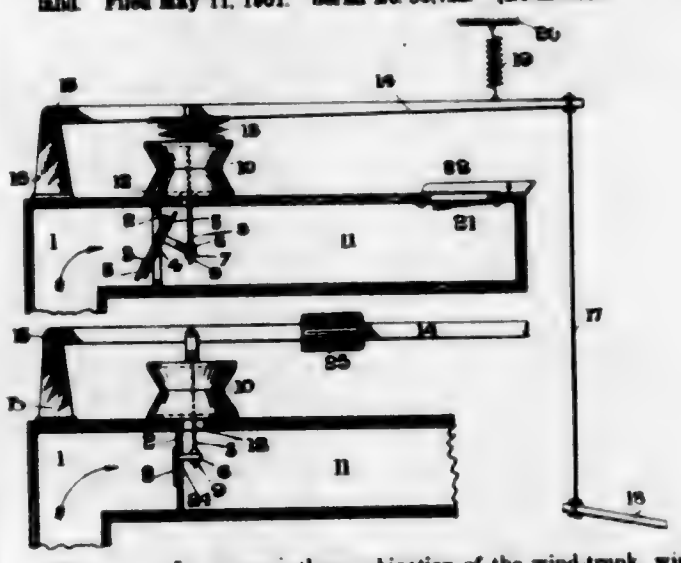
2. The combination with the feed-pipe *c* and spray-pipe *d* provided with an external screw-thread, of the union *b* provided with a corresponding internal screw-thread, a coupling coupling union *b* to pipe *d* so as to enable the latter to turn freely, a valve-seat plug *b'* screwed into the opposite end of union *b* and coupled to feed-pipe *c* so as to adapt the latter to turn freely and the cone-valve *v*, substantially as and for the purpose set forth.

3. The combination with the basket of a centrifugal machine, of a claircs feed-pipe extending over the top of said basket beyond its inner wall, a spray-pipe connected with said feed-pipe to revolve about a horizontal axis, and to swing into and out of the basket, said spray-pipe of such a length as to bring its spraying-nozzle about midway of the inner vertical wall of the basket, said spraying-nozzle organized to distribute the claircs over the full length of the inner wall of said basket, and a valve in the connection of the two pipes adapted to be unseated by pressure in the feed-pipe and to be positively seated by the spray-pipe when turned out of the basket, substantially as set forth.

4. The combination in a machine such as described with the spray-pipe *d*, a sleeve fitted in the outlet thereof, a directing-cone fitted fluid-tight in said sleeve, and a spiral groove between the pipe and sleeve; of a cap secured to said outlet of pipe *d*, said cap having a conical recess in its outer and inner faces concentric with the directing-cone and in communication with each other, and a chamber between said cone and cap in communication with the aforesaid spiral groove.

5. The combination with the basket of a centrifugal machine, of a claircs feed-pipe extending over the top thereof beyond its inner wall and adjustable toward and from the latter, a spray-pipe connected with the inner end of said feed-pipe to be swung into and out of said basket, a valve-seat in said connection and a cut-off valve adapted to be moved from its seat by pressure on the claircs-pipe and to its seat by the spray-pipe when swung out of the basket, for the purpose set forth.

691,900. APPARATUS FOR CONTROLLING THE WIND SUPPLY AND PRESSURE IN ORGANS. JAMES R. C. GALE, Sutton, England. Filed May 11, 1901. Serial No. 59,722. (No model.)



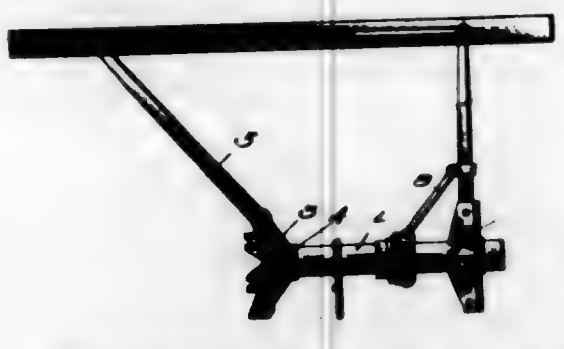
Claim.—1. In an organ the combination of the wind-trunk, wind-chest and diaphragm separating them with a valve attached to the said diaphragm and controlling the flow of wind through the same, bellows supplied with wind from said wind-chest, a device connecting the bellows with the valve, a spring controlling the said bellows and hand-operated means for varying the tension of said spring at will substantially as set forth.

2. In an organ the combination of the wind-trunk and wind-chest with the intervening diaphragm 2 provided with an aperture, the flanged valve 3 pivoted at 4 in the said aperture, the tap-wire 8 and bellows 10 operating the said valve, the spring 13 mounted on the bellows and controlling the same, the lever 14 resting on said spring, the spring 19 supporting the said lever and hand-operated means for varying the tension of the spring 13 and the action of the bellows on the valve substantially as set forth.

691,901. FOLDING BINDER-REEL. HAROLD W. GLADCOCK, Rensselaer, Mo. Filed July 2, 1901. Serial No. 66,530. (No model.)

Claim.—1. In a binder-reel, the combination of a hub having spoke-sockets, spokes pivoted in said sockets, a blade, one end of which is pivoted to one of the spokes, and the other end of which has a pin-and-slot connection with the opposite spoke, a slidable collar mounted upon the hub, a brace pivotally connecting the collar to one of said spokes, and means for locking said collar in longitudinal adjustment upon said hub to hold the blade distended or in operative position, substantially as set forth.

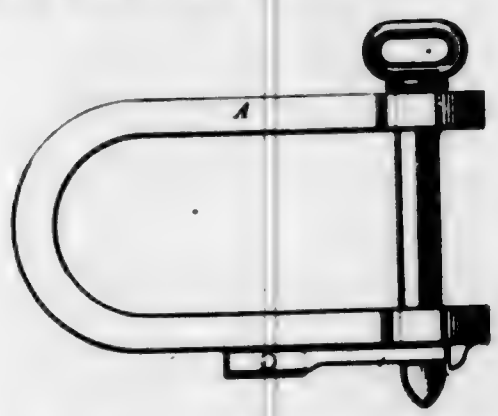
2. In a binder-reel, the combination of a hub having spoke-sockets, spokes pivoted in said sockets, a blade, one end of which is pivoted to one of the spokes, and the other end of which has a pin-and-slot connection with the opposite spoke, a slidable collar mounted upon the hub, a brace pivotally connecting the collar to one of said spokes, and means for locking the blade in closed position, substantially as set forth.



3. In a binder-reel, the combination of a hub having spoke-sockets, spokes pivoted in said sockets, a blade, one end of which is pivoted to one of the spokes, and the other end of which has a pin-and-slot connection with the opposite spoke, a slidable collar mounted upon the hub, a brace pivotally connecting the collar to one of said spokes, means for locking said collar in longitudinal adjustment upon said hub to hold the blade distended or in operative position, and means for locking the blade in closed position, substantially as set forth.

4. In a binder-reel, the combination of a hub having spoke-sockets, spokes pivoted in said sockets, a blade, one end of which is pivoted to one of the spokes and the other end of which has a pin-and-slot connection with the opposite spoke, collars slidably mounted on said hub, a set-screw for locking said collars in longitudinal adjustment with said hub, a brace pivotally connecting one of said collars to one of the spokes, and a lap-ring adapted to coact with said brace and hold the blade in closed position, substantially as set forth.

691,902. CLEVIS. BENJAMIN GOTTER, Scranton, Iowa. Filed May 13, 1901. Serial No. 59,973. (No model.)



Claim.—The combination with the clevis having its arms provided at their free ends with openings and with an integral lug, a pin passed through said openings and having at one end a kerf, a spring-arm secured at one end to said lug and set edgewise with relation thereto, the free end of said spring-arm being adapted to traverse the opening in the arm to which it is secured, and an integral depending shield on the free end of said arm lying in front of the free end of the spring-arm opposite the kerf in said pin, all substantially as shown and described.

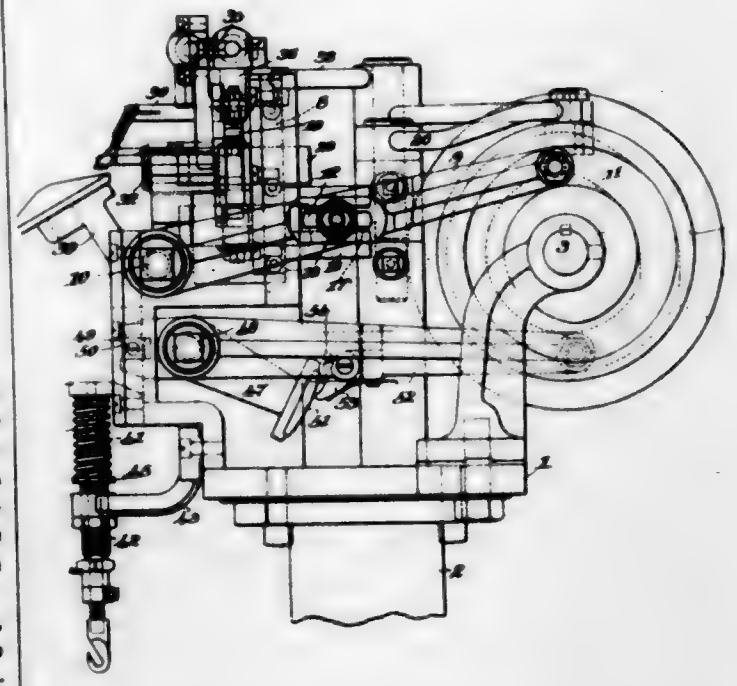
691,903. STITCH-SEPARATING MACHINE. JOHN R. HADAWAY, Brockton, Mass. Filed Mar. 18, 1901. Serial No. 51,782. (No model.)

Claim.—1. A stitch-separating machine, having, in combination, a work-support, an indenting-tool, means for actuating the tool to indent the stitch intervals, and means independent of the work for oscillating the tool while in a stitch interval about an axis in proximity to the working end of the tool to widen the indentation, substantially as described.

2. A stitch-separating machine, having, in combination, a work-support, an indenting-tool, means for actuating the tool to indent the stitch intervals and means for oscillating the tool while in a stitch interval and under indenting pressure about an axis in proximity to the working end of the tool to widen the indentation, substantially as described.

3. A stitch-separating machine, having, in combination, an indenting-tool, means for imparting to the tool a movement oblique to the line of the seam to bring the tool into contact with the work, and a further movement to indent the work, substantially as described.

4. A stitch-separating machine, having, in combination, an indenting-tool, means for imparting to the tool a movement oblique to the line of the seam to bring the tool into contact with the work, and a movement perpendicular to the seam to indent the work, substantially as described.



5. A stitch-separating machine, having, in combination, a work-support, an indenting-tool, means for actuating the tool to indent the work, means for oscillating the tool while in engagement with the work and independent means for actuating the tool to feed the work, substantially as described.

6. A stitch-separating machine, having, in combination, an indenting-tool, a work-support arranged to allow the work to move under the action of the tool, means for imparting to the tool a positive movement oblique to the line of the seam to locate the tool in a stitch interval, and a further positive movement to indent the stitch interval, substantially as described.

7. A stitch-separating machine, having, in combination, an indenting-tool, a work-support arranged to allow the work to move under the action of the tool, means for imparting to the tool a positive movement oblique to the line of the seam to locate the tool in a stitch interval, and a further positive movement to indent the stitch interval, means for oscillating the tool while under indenting pressure and means to actuate the tool to feed the work, substantially as described.

8. A stitch-separating machine, having, in combination, an indenting-tool, means for imparting to the tool a movement oblique to the line of the seam to bring the tool into contact with the work, and a further movement to indent the work, and means for oscillating the tool while under indenting pressure, substantially as described.

9. A stitch-separating machine, having, in combination, an indenting-tool, means for imparting to the tool a movement oblique to the line of the seam to bring the tool into contact with the work and a further movement to indent the work, and means for actuating the tool to feed the work, substantially as described.

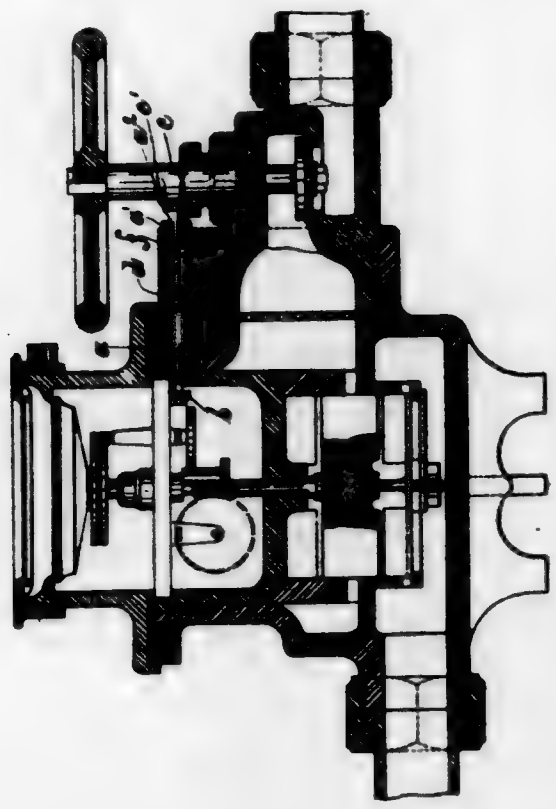
10. A stitch-separating machine, having, in combination, a work-support, an indenting-tool, means for actuating the tool to indent the stitch intervals, means for oscillating the tool while in a stitch interval and under indenting pressure to widen the indentation, and means for moving the tool bodily to feed the work, substantially as described.

11. A stitch-separating machine, having, in combination, a tool movable along a path oblique to the line of the seam to bring the tool in contact with the work and means for relatively moving the tool and work to locate the tool in the intervals between the stitches whether the stitches are of uniform or varying length and to indent the stitch intervals, substantially as described.

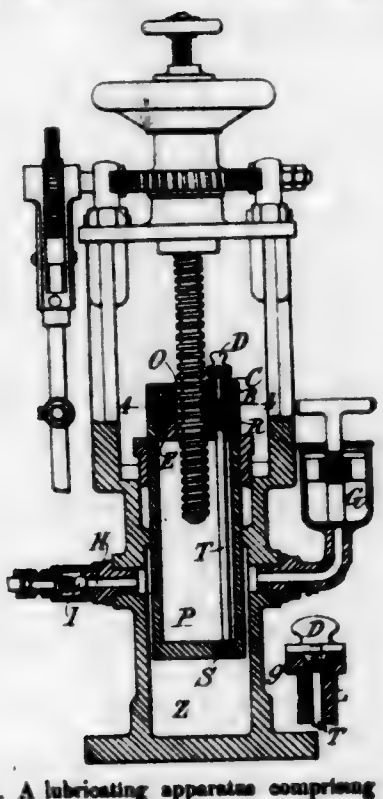
691,904. WATER-METER. DAVID V. HALLENBERG, Stockholm, Sweden. Filed Aug. 29, 1896. Serial No. 603,105. (No model.)

Claim.—The combination with a water-meter, of a rod running through the wall of the meter, a small valve fastened to the end of said rod and adapted to normally close a small air-passage in said wall, a projecting cam on the ordinary inlet-valve of the meter adapted to actuate the said bar so as to open the said air-valve when the said inlet-valve is closed, substantially as set forth.

691,904.



691,905. LUBRICATING APPARATUS. HENRY HARELLE, Paris, France. Filed Oct. 7, 1901. Serial No. 77,818. (No model.)

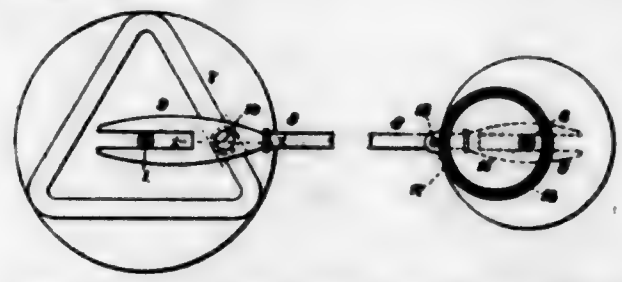


Claim.—1. A lubricating apparatus comprising in combination a cylinder, a hollow forcing-piston in said cylinder, a valve adapted to open communication between said cylinder and said hollow piston, a spring holding said valve normally closed, whereby in case the pressure beneath the piston becomes excessive the valve may rise from its seat and admit oil inside the piston, and means for adjusting the pressure of said spring.

2. A lubricating apparatus comprising in combination a cylinder, a hollow forcing-piston in said cylinder, a valve adapted to open communication between said cylinder and said hollow piston, and a spring holding said valve normally closed, whereby in case the pressure beneath the piston becomes excessive the valve may rise from its seat and admit oil inside the piston.

3. A lubricating apparatus comprising in combination a cylinder, a hollow forcing-piston in said cylinder, a valve adapted to open communication between said cylinder and said hollow piston, a spring holding said valve normally closed, whereby in case the pressure beneath the piston becomes excessive the valve may rise from its seat and admit oil inside the piston, and means for lifting said valve in order to discharge the lubricant contained in the piston.

691,906. BICYCLE PROPULSION. WILLIAM T. JOHNSON, Brooklyn, N. Y. Filed Dec. 29, 1897. Renewed June 23, 1900. Serial No. 21,379. (No model.)

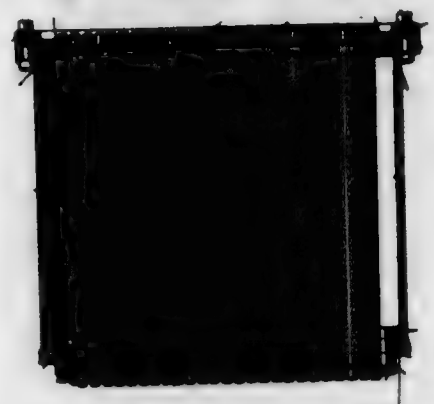


Claim.—1. In a bicycle, a cam fixed upon the crank-shaft, and an eccentric fixed upon the driven-wheel axle, in combination with a rod arranged to reciprocate in a fixed line, said rod being connected with the cam at one end, and bearing a pivoted eccentric-ring at the other, substantially as shown and described.

2. In a bicycle, a cam fixed upon the crank-shaft, and an eccentric fixed upon the driven-wheel axle, in combination with a rod arranged to reciprocate in a fixed line, said rod having fixed bearings which embrace the crank-shaft and driven-wheel axle, and being connected with the cam at one end, and with a pivoted eccentric at the other, substantially as shown and described.

3. In a bicycle, the combination with a driving-rod arranged to be reciprocated in a direct line by the rotation of the crank-shaft, of an eccentric strap or ring pivoted thereto, and engaging an eccentric upon the driven-wheel axle, substantially as shown and described.

691,907. STEAM-BOILER. RUSSELL A. KEELER and ROLLIN D. FILBER, Chicago, Ill. Filed May 9, 1901. Serial No. 58,497. (No model.)



Claim.—1. In a steam-boiler of the flue and tubular type, a shell, a head detachably fitted to one end of the shell, interlocking shoulders between said head and shell, a second head for closing the opposite end of the shell, tubes interposed between the heads and serving as stays to limit the inward movement thereof, and fastenings for securing the last-mentioned head to the shell and clamping the parts, substantially as set forth.

2. A flue and tubular boiler comprising a shell, a head detachably fitted to an end of the shell, interlocking shoulders between said head and shell, a second head fitted to the opposite end of the shell, tubes having detachable connection at their ends with the said heads and serving as stays to limit their inward movement, and fastenings for securing the second head to the shell and clamping the parts, substantially as set forth.

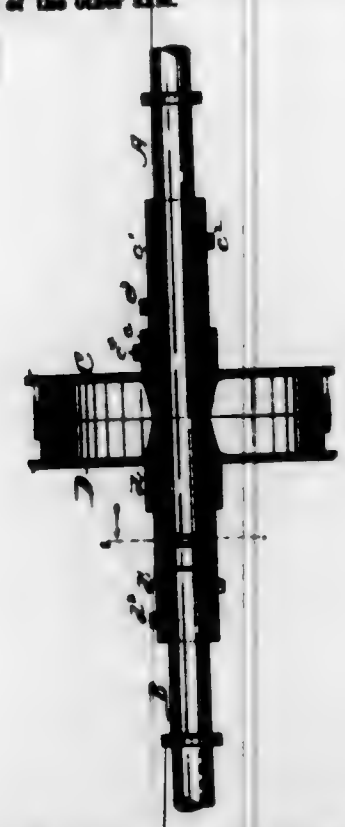
3. A boiler comprising a shell having an inner shoulder at one end, a head having a rim formed with an outer shoulder and removably fitted within the shell and held in place by engagement of the aforesaid shoulders, a second head fitted to the opposite end of the shell, tubes interposed between the heads and serving as stays, and means for securing the second head to the shell and clamping the parts, substantially as set forth.

4. A boiler comprising a shell having an inner shoulder at one end and an outer flange at the opposite end, a head having a rim formed with an outer shoulder and removable through the flanged end of the shell and held therein by engagement of the aforesaid shoulders, a second head having an outer thickened portion, tubes interposed between the two heads and constituting stays, and bolts fitted in corresponding openings in the outer flange of the shell and the thickened edge portion of the said second head to secure the latter in place and clamp the parts, substantially as specified.

691,908. AXLE FOR AUTOMOBILES OR OTHER POWER-VEHICLES. DAVID M. LITTLE, Salem, Mass. Filed Apr. 3, 1901. Serial No. 54,173. (No model.)

Claim.—1. A compound power-axle composed of two axles each

adapted to rotate independently of the other, and a pulley comprising two abutting sections, each section being mounted upon one of said axles, whereby power applied to either pulley-section will cause its axle to rotate independently of the other axle.



2. A compound power-axle composed of two axles each abutting against, and adapted to rotate independently of, the other, and a pulley comprising two sections, each section being mounted upon and adapted to rotate with one of said axles, as described.

3. A compound power-axle composed of two axles each adapted to rotate independently of the other, one axle having a section of a pulley fast thereon and a section of a pulley loose thereon, said loose section of said pulley being connected to the other axle of said compound power-axle, as described.

4. A compound power-axle composed of two axles A, B, each adapted to rotate independently of the other, in combination with a pulley composed of two sections, one section being fast upon one of said axles A, the end of said axle A projecting through it and extending beyond it, the other section being attached to the end of the axle B and projecting beyond it and forming a socket to receive the end of said axle A, and means for holding the ends of said axles together and allowing each to turn independently of the other, as and for the purposes described.

5. A compound power-axle comprising two independently-rotatable axles, in combination with a pulley made in two sections, each section being provided with a sleeve extending laterally therefrom, each sleeve being attached to one of said axles to rotate therewith, and one of said axles being attached to the sleeve on the opposing axle in the manner described, whereby it may rotate independently thereof but be prevented from endwise movement thereon, as set forth.

6. A compound axle composed of two abutting axles held from endwise movement each being adapted to turn independently of the other, a pulley comprising two sections, one section being mounted upon each of said axles, said pulley-sections abutting, in combination with a single belt adapted to slide sidewise on said pulley, and adapted to transmit power from a suitable source, as and for the purposes set forth.

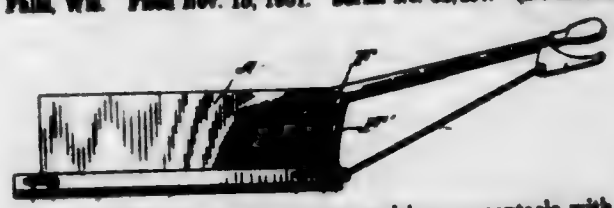
7. A compound axle comprising two abutting axles held from endwise movement, each being adapted to turn independently of the other, and a pulley comprising two sections, each mounted upon one of said axles, said pulley-sections abutting, in combination with a single belt adapted to communicate motion from a suitable source of power to both of said sections or to either section, as described.

8. A compound axle comprising two abutting axles held from endwise movement, each being adapted to turn independently of the other, and each carrying a section of a pulley, said pulley-sections abutting, in combination with a belt narrower than the width of said pulley, and adapted to slide sidewise thereon to communicate motion from a suitable source of power to either or both sections thereof, as set forth.

9. A compound axle comprising two abutting axles held from endwise movement, each being adapted to turn independently of the other, and means whereby the retarding of the movement of one axle will cause an increase of power to be applied thereto, said means consisting of a sectional pulley composed of two sections, one section being fast upon each axle, and a belt, adapted to slide laterally on said pulley, and onto the retarded section thereof and communicate power thereto from a suitable source, as and for the purposes set forth.

10. A compound axle comprising two abutting axles held from endwise movement, each being adapted to rotate independently of the other, and means whereby one or both of said axles may be maintained at a constant speed of rotation, said means comprising a sectional pulley, one section of which is fast upon one of said axles and the other section upon the other axle, and a belt slidable laterally upon said pulley and adapted to transmit power from a suitable source, whereby when both axles are turned against the same resistance said belt will engage both sections of said pulley, but when resistance is applied to one of said axles, said belt will slide laterally upon the section of the pulley carried by the axle to which resistance is applied, as set forth.

691,909. INSECT-DESTROYER. DAVID J. MANNING, Chippewa Falls, Wis. Filed Nov. 15, 1901. Serial No. 82,467. (No model.)



Claim.—1. An insect-destroyer comprising a receptacle with open bottom, a reciprocating sieve held over the lower open end thereof, a handle secured to the receptacle, a spring normally holding one end of said sieve against the end of the receptacle, and connections between the sieve and handle for pulling the sieve longitudinally under the tension of said spring, as set forth.

2. An insect-destroyer, comprising a receptacle with handles secured thereto, the lower end of the receptacle being open, a flanged sieve longer than the receptacle and fitting over the lower portion of the receptacle, means for holding the sieve thereto and allowing for a reciprocating movement of the sieve, a spring secured to the receptacle and having one end bearing against the end of said sieve, a cord or rod secured to the spring-engaging end of the sieve, a lever pivoted to one of said handles and to which lever the end of said cord or rod is connected, as set forth.

3. An insect-destroyer, comprising a receptacle with open bottom, a flanged sieve longer than the receptacle and fitted to have a reciprocating movement over the bottom thereof, pins secured to the opposite sides of the receptacle, and passing through elongated slots in the flanges of the sieve, and means for reciprocating the sieve, as set forth.

4. In combination with the receptacle having compartments and open bottom, the zigzag members positioned in said compartments near the lower end thereof, the reciprocating sieve held over the lower portion of the receptacle, and means for moving the sieve, as set forth.

691,910. HEEL FOR BOOTS OR SHOES. THOMAS H. MAYO, Melrose Highlands, Mass. Filed May 4, 1900. Serial No. 15,488. (Model.)



Claim.—1. A heel presenting a rim composed of a series of layers, and a filling also composed of a series of layers, each layer of the filling being of the same thickness as the abutting or corresponding layer of the rim, and one of the layers of the filling being larger and projecting beyond the adjacent layers of the filling, the projecting portion of said larger layer being overlapped by adjacent layers of the rim, whereby the filling and rim are interlocked together.

2. A heel presenting a rim composed of a series of layers, and a filling composed of layers abutting those of the rim, the adjacent layers of the filling being of different sizes whereby the layers of the filling are interlocked with those of the rim.

3. A heel composed of a rim extending around the sides and back thereof and formed of layers of material, and a filling for the center of the heel, said filling coming flush with the front edge of the rim and forming therewith the front of the heel, said filling being formed of layers of material, one of said layers being larger and projecting beyond the adjacent layers, the projecting portion of each layer overlapping the adjacent layers of the rim.

4. A heel composed of a series of layers, each layer comprising a rim-section and a center or filling section, the rim and filling sections of

the adjacent layers being of different widths whereby the inner edge of the rim-section of one layer is overlapped by the outer edge of the filling-section of the adjacent layer.

5. A heel for boots or shoes comprising a series of lifts or layers, each lift being composed of a rim-section and a filling or center section, the rim-section of each lift closely embracing and surrounding the filling-section on all sides except at the breast of the heel, and the filling-sections of the adjacent lifts or layers being of different sizes, whereby the inner edge of the rim-section of one lift or layer is overlapped by the outer edge of the filling-section of the next adjacent lift or layer, and the overlapping portions of the center and rim sections are in the body of the heel, and appear only at the breast thereof.

6. A heel comprising a series of lifts or layers each lift composed of a center or filling section and a rim-section of uniform width closely embracing the center section and extending around the sides and back of the heel, the rim-sections of adjacent lifts being of different widths, whereby the inner edge of the rim-section of one lift is overlapped by the outer edge of the filling-section of the next adjacent lift and the overlapping portions of the rim and filling sections appear only at the breast of the heel.

7. A heel composed of three or more lifts or layers each lift comprising a filling-section and a U-shaped rim-section of uniform width closely embracing and surrounding the sides and back of the rim-section, the filling and rim sections of each lift coming flush with each other at the breast of the heel, and the rim-sections of alternate lifts being of the same width and being wider than the rim-sections of the other lifts, whereby the inner edges of alternate rim-sections are overlapped by the outer edges of alternate filling-sections.

691,911. CONVEYING APPARATUS. THOMAS S. MILLER, South Orange, N. J. Filed June 9, 1900. Serial No. 19,671. (No model.)



Claim.—1. In combination, a pulling-boat, a pulled boat, a pull-rope, a transit-rope, a load-support moved thereby, a rope-drum connected with each end of said transit-rope, and an independent motor for actuating each of said drums.

2. In combination, a pulling-boat, a pulled boat, a pull-rope, a transit-rope, a load-support moved thereby, an actuator of said transit-rope, a tension device acting upon said transit-rope, a supplemental supporting-rope and a tension device acting upon said supplemental supporting-rope.

3. In combination, a pulling-boat, a pulled boat, a pull-rope, a transit-rope extending from one boat to the other and back again, a load-carriage running upon one branch of said transit-rope and moved by the other branch thereof, an actuator of said transit-rope, a tension device acting upon said transit-rope, a supplemental supporting-rope and a tension device acting upon said supporting-rope.

4. In combination, a pulling-boat, a pulled boat, a pull-rope, a transit-rope, a load-support moved thereby, a rope-drum connected with each end of said transit-rope, independently-controllable means for actuating each of said rope-drums, a supplemental supporting-rope and a tension device acting upon said supplemental supporting-rope.

5. In combination, a pulling-boat, a pulled boat, a pull-rope, a transit-rope, a load-support moved thereby, a rope-drum connected with each end of said transit-rope, independently-controllable means for actuating each of said rope-drums, a supplemental supporting-rope and a sea-anchor connected with said supporting-rope.

6. In combination, a pulling-boat, a pulled boat, a tow-line connecting the two boats, a trackway-cable extending from the pulling-boat over and to the rear of the pulled boat, guiding-supports for the trackway-cable upon the pulled boat, a sea-anchor on the rear of the trackway-cable, and means for transferring loads between the boats upon the trackway-cable.

7. In combination, a pulling-boat, a pulled boat, a tow-line connecting the two boats, a trackway-cable extending from the pulling-boat over and to the rear of the pulled boat, guiding-supports for the trackway-cable upon the pulled boat, a sea-anchor secured to the trackway-cable behind the pulled boat, a yielding connection of the trackway-cable with the pulling-boat, and means for transferring loads between the two boats over said trackway-cable.

8. In combination, a pulling-boat, a pulled boat, a tow-line connecting the boat, a trackway-cable extending from the pulling-boat over and to the rear of the pulled boat, guiding-supports for said cable upon the pulled boat, a sea-anchor upon said cable astern of the pulled boat, a carrier adapted to travel upon the trackway-cable between the boats, a traversing-cable connected with said carrier, and actuators for said traversing-cable.

9. The combination with a ropeway, a load-carrier and means for moving said carrier lengthwise of said ropeway, of a conveying-tube leading to the ropeway, and a load-conveyer movable in said tube and adapted to present the load to the load-carrier.

10. The combination with a ropeway, a load-carrier and means for moving the load-carrier lengthwise of said ropeway, of a conveying-tube leading to the ropeway and having a load exit-opening adjacent the ropeway, and a load-conveyer movable in said tube and adapted to present the load to the load-carrier.

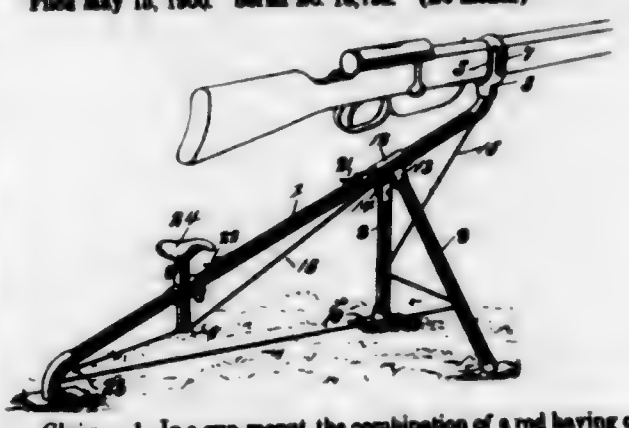
11. The combination with a ropeway, a load-carrier and means for moving the load-carrier lengthwise of said ropeway, of a conveying-tube leading to and inclosing one end of the ropeway and having an opening permitting the passage of the carrier and its load, and a load-conveyer in said tube adapted to present the loads to the carrier.

12. In combination a ropeway having a carrier and means for traversing the carrier thereon, a hoisting-tube leading up to the ropeway and having an exit-opening beneath the ropeway, and a load-hoist operating within said tube and adapted to present the load to the ropeway-carrier.

13. In combination a ropeway having a carrier and means for traversing the carrier thereon, a hoisting-tube leading up to the ropeway and having an exit-opening beneath the ropeway, a load-hoist operating within said tube and adapted to present the load to the ropeway-carrier, and swinging sectors partly closing the exit-opening in the tube and adapted to properly guide the load-carrier upon its entrance therein.

14. In combination a ropeway having a carrier and means for traversing the carrier thereon, a hoisting-tube leading up to the ropeway and having an exit-opening beneath the ropeway, a load-hoist operating within said tube and adapted to present the load to the ropeway-carrier, said hoist having a load-receiving hook extending toward the carrier in its approach, and the load-carrier having an oppositely-extending hook adapted to engage and remove the load from the hoisting device.

691,912. GUN-MOUNT. SAMUEL E. MCCLEAN, Cleveland, Ohio. Filed May 15, 1900. Serial No. 16,792. (No model.)



Claim.—1. In a gun-mount, the combination of a rod having one end resting on the ground and the other end provided with swiveled trunnion-bearings, diverging legs jointed to said rod between its ends, a spring supported by said rod, and a flexible connection between said spring and legs.

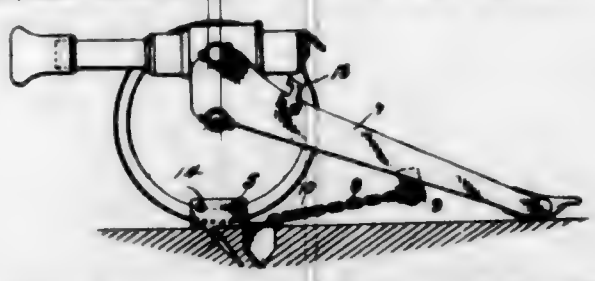
2. In a gun-mount, the combination of a tripod whose three legs are jointed together, a swiveled gun-support on the prolonged end of one of said legs, and a tension device tending to hold said legs folded together.

3. In a gun-mount, the combination of a tripod whose legs are jointed to each other, a swiveled gun rest or seat on the prolonged end of one of said legs, a spring supported by one of said legs and a flexible connection between said spring and the other legs.

4. In a gun-mount, the combination of a tripod whose legs are jointed to each other, a gun rest or seat on the prolonged upper end of one of said legs, a spring within one of the legs, a flexible connection between the spring and the other legs whereby the tendency of the spring is to fold the legs of the tripod together, and means locking the spring against action when the tripod is extended.

5. In a gun-mount, the combination of a tripod whose legs are jointed together, a gun rest or seat supported by said tripod, a spring within one of the legs of the tripod and bearing against an abutment, a piston also bearing against said spring, and a wire or cord attached to said spring and extending therefrom to the other two legs of the tripod.

691,918. RECOIL-CHECK FOR GUNS. SAMUEL E. MCCLEAN, Cleveland, Ohio. Filed May 15, 1900. Serial No. 16,793. (No model.)



Claim.—1. The combination of a pair of shoes arranged on opposite sides of the gun and provided with spades, the carriage resting upon and supported by the shoes, and a connection between the shoes and carriage.

2. The combination of a pair of shoes arranged on opposite sides of the gun and provided with means for engaging the earth or gun-platform, with a gun-carriage resting upon said shoes and means connecting the shoes to the carriage at a point to the rear of the shoes.

3. The combination with a pair of shoes arranged on opposite sides of the gun and provided with means for engaging the earth or gun-platform, with a gun-carriage resting upon said shoes, and elastic connections between said shoes and the gun-carriage.

4. The combination with a pair of shoes arranged on opposite sides of the gun and provided with means for engaging the earth or gun-platform, of a gun-carriage resting upon said shoes, and a connection between said shoes and extending around a bearing on the gun-carriage to the rear of the shoes.

5. The combination of a pair of shoes arranged on opposite sides of the gun and provided with means engaging the ground or gun-platform, with a carriage resting upon said shoes and means holding the carriage in contact with the shoes when the gun is fired.

6. The combination of a pair of shoes provided with means engaging the ground or gun-platform, and a carriage resting upon said shoes, a pulley on the trail of the carriage, and a flexible connection between the shoes and passing around the pulley.

7. The combination of a pair of shoes arranged on opposite sides of the gun and provided with means engaging the ground or gun-platform, a carriage resting on said shoes and a rigid connection between said shoes, said connection being also provided with means engaging the ground or gun-platform.

8. In a device of the character described, a shoe composed of a plate having a downward projection to engage the ground or gun-platform and upwardly-projecting side flanges.

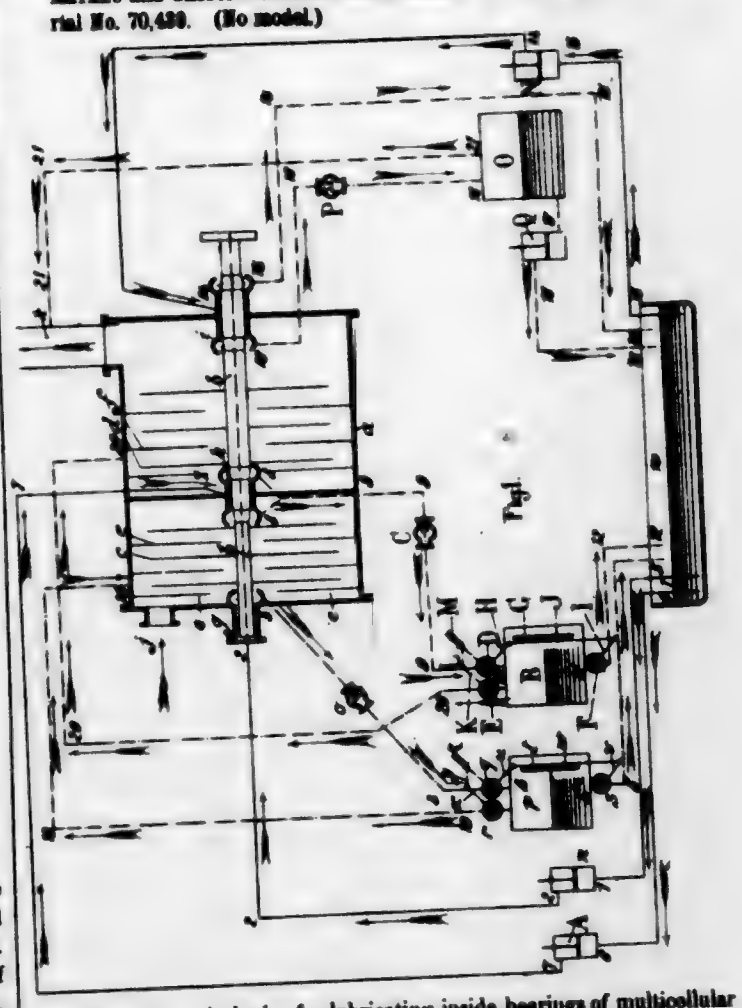
9. In a device of the character described, a shoe comprising a plate having a spade extending transversely across the same and a spade arranged obliquely to said transverse spade.

10. In a device of the character described, a shoe having upwardly-projecting side flanges with reversely-curved interior faces.

11. The combination of a pair of shoes having downwardly-projecting spades and upwardly-projecting side flanges, with a gun-carriage having its wheels resting on said shoes and a connection extending from each shoe to the trail of the carriage and attached to said trail at or below the longitudinal center thereof.

12. The combination of a pair of shoes having downwardly-projecting transverse and oblique spades and upwardly-projecting side flanges with reversely-curved interior faces, with a gun-carriage whose wheels rest in said shoes between said flanges, a pulley on the trail of the carriage at or below the longitudinal center thereof, and a connection extending between the shoes and passing over the pulley.

691,914. LUBRICATING STEAM-TURBINES, &c. ADOLPHE C. R. RATEAU and GASTON SAUTTER, Paris, France. Filed Aug. 1, 1901. Serial No. 70,489. (No model.)

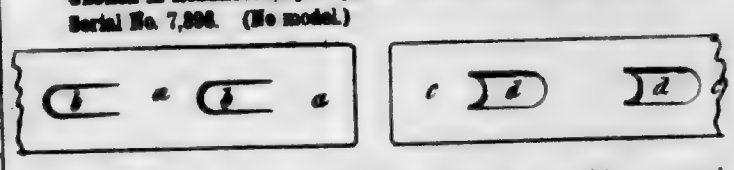


Claim.—1. A device for lubricating inside bearings of multicellular steam-turbines or the like, said bearings being severally under varying pressures of steam, said device consisting of means for forcing oil under a pressure greater than the pressure upon the bearing supplied with oil, a reservoir, pipe connections leading from the bearing to said reservoir, and a pipe connecting said reservoir with a cell of the turbine in which the steam-pressure is less than the pressure upon the bearing to which the oil is forced, whereby the oil is discharged into the reservoir from the bearing and is prevented from entering the turbine.

2. A device for lubricating the bearing at the outlet or condenser end of a multicellular steam-turbine, said bearing having one face exposed to atmospheric pressure and the other face to a pressure in the condenser less than atmospheric pressure, said device consisting of means for forcing oil to the bearing under a pressure greater than atmospheric pressure, a pipe connection leading from the inner face of the bearing, a reservoir, means for maintaining said reservoir under a pressure less than atmospheric pressure into which said pipe connection discharges, a second pipe connection leading from the outer end of the bearing and a second reservoir under normal atmospheric pressure into which said second pipe connection discharges.

3. A device for lubricating a series of inside bearings of a multicellular steam-turbine, said bearings being subjected severally to different steam-pressures within the turbine, said device consisting of means for forcing oil to that bearing in series upon which the pressure is greatest and under a pressure greater than said greatest pressure, oil-pipes connecting the bearings in series to permit the oil supplied to the first bearing to circulate through all the bearings successively from the bearing under highest to the bearing under lowest pressure, a pipe connection leading from the bearing under lowest pressure, a reservoir into which said pipe connection discharges, and means for maintaining said reservoir under a pressure less than the pressure upon the last bearing in series.

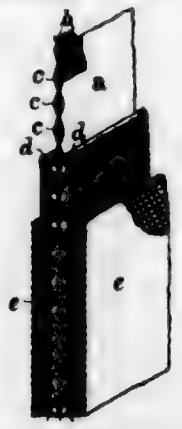
691,915. FASTENING FOR HOOP-IRONS WITH WHICH BALES CONTAINING WOOL OR OTHER SOFT PRODUCE ARE SECURED. GEORGE R. ROBERTSON, Sydney, New South Wales. Filed Mar. 8, 1900. Serial No. 7,898. (No model.)



Claim.—The herein-described bale-fastening comprising a metal hoop or strap having openings at one end provided with concave and

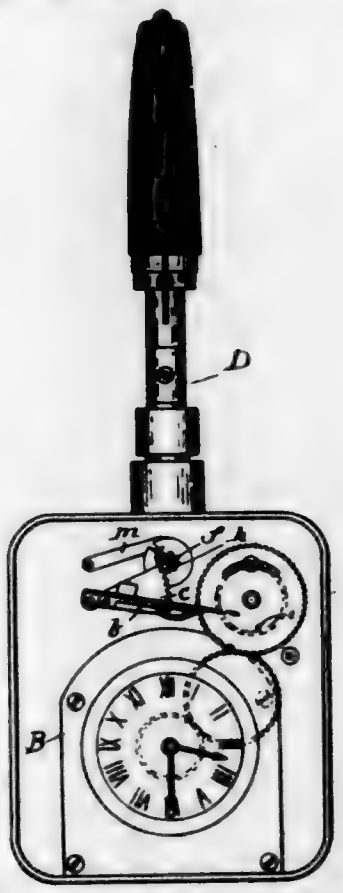
convex ends, and inwardly-extending tongues upon the opposite end adapted to engage said openings.

691,916. CARD-CLOTHING. LOUIS C. SCHNEIDER, Mittweida, Germany. Filed July 22, 1901. Serial No. 68,271. (No model.)



Claim.—A card-clothing consisting of an inner layer or woven fabric of strong linen warps with widely-separated fine weft-threads, of two layers cemented to the sides of the first-mentioned layer, said layers having the warps exposed on their inner sides, whereas their outer sides are of felted nature, and of two or more outer layers covering the three first-mentioned layers.

691,917. AUTOMATIC LIGHTER OR EXTINGUISHER FOR GAS-LAMPS. NATHANIEL H. SHAW, Boston, Mass. Filed Nov. 16, 1900. Serial No. 36,707. (No model.)



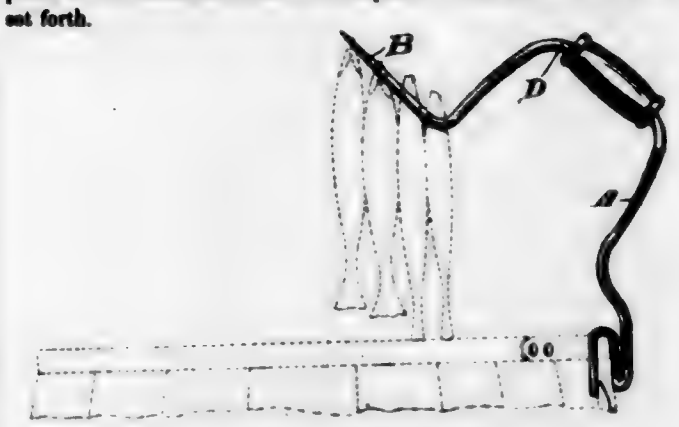
Claim.—1. In a device of the class described a gas-supply tube in combination with a crank-actuated valve having a hollow stem, and a pilot-valve in said stem operated by movements of said main valve.

2. In a device of the character described the supply-tube, 20; the crank actuated hollow valve, 30; seating thereon; the rod, 39, sliding in said valve and having a valve-head, for closing the hollow stem of said valve, 30, when moved to open the supply, 20, substantially as specified.

3. In a device of the class described the crank-actuated block, 27, provided with port, 32, in combination with the adjustable needle, 33, registering with said port and acting as a valve therewith as said block is moved whereby the gas-flow in said port may be regulated.

691,918. DEVICE FOR HANDLING, DRAINING, AND DISPLAYING FISH. EPHRAIM H. SNYDER, Hagerstown, Md. Filed July 16, 1901. Serial No. 68,594. (No model.)

Claim.—A device for holding fish, &c., comprising a rod A bent upon itself to form a hook at one end thereof and adapted to engage over the edge of a receptacle, a handle and curved portion of the rod on which said handle is mounted, the other end of the rod being pointed and disposed at an inclination over the receptacle to which the rod is held, as set forth.



691,919. SEMISMOKELESS POWDER. PETER C. STUBB, Seymour, Iowa. Filed Nov. 26, 1900. Renewed Nov. 26, 1901. Serial No. 83,629. (No specimens.)

Claim.—An explosive powder composed of prussiate potassium, chlorate potassium, cornmeal and wood sawdust, in the manner set forth for the purposes stated.

691,920. THRESHER-TANK. BENJAMIN R. STOVER, Middlebury, Ind. Filed Oct. 12, 1901. Serial No. 78,491. (No model.)



Claim.—1. In a thresher-tank, the combination of a tank-body having an approximately semicylindrical bottom, and truss-supports thereafter adapted to be secured to a wagon-truck and comprising a base-frame of approximately rectangular form, uprights arranged at the corners of the frame and inverted arcuate carriers secured at their ends to the uprights and connected between their ends to the base-frame and conforming to the configuration of the bottom of the tank-body, substantially as described.

2. In a thresher-tank, the combination of a tank-body having upper overhanging side flanges and truss-supports for said body adapted to be secured to a wagon-truck and comprising a base-frame with corner-uprights and front and rear inverted arcuate carriers having the upper terminals bearing against and secured to the said flanges.

691,921. EXPANSION-BOLT. SETH WHEELER, Albany, N. Y. Filed Mar. 30, 1901. Serial No. 53,663. (No model.)



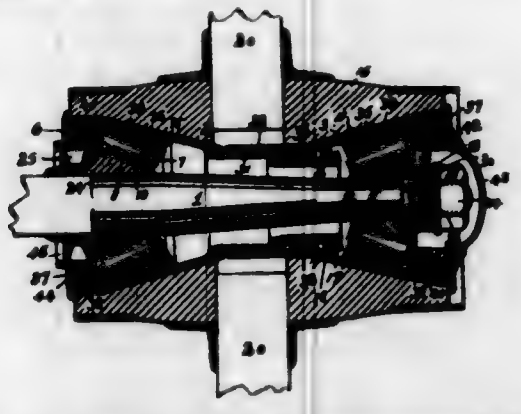
Claim.—1. The combination with a bolt, of a sleeve formed in one piece and having a single longitudinal cut from end to end through the wall thereof, said sleeve surrounding said bolt; together with an expanding device contained wholly within the said sleeve, and coacting with same to produce a concentric expansion, substantially uniform throughout the length thereof.

2. The combination with a bolt, of a sleeve formed in one piece and having a single longitudinal cut from end to end through the wall thereof, said sleeve surrounding said bolt; together with an expanding device engaging the longitudinal edges of the cut in the sleeve, for expanding the sleeve concentrically, and substantially uniformly, throughout its length.

3. The combination with a bolt, of a sleeve formed in one piece and having a single longitudinal cut from end to end through the wall thereof, an edge of said cut being inclined relatively to the longitudinal axis of the sleeve, said sleeve surrounding said bolt; together with an expanding device working on the bolt and engaged with said inclined edge, whereby the sleeve is expanded concentrically, and substantially uniformly, throughout its length.

4. The combination of a bolt having oppositely-threaded portions, a split sleeve surrounding the bolt and split from end to end, and having a plurality of inclined portions in the longitudinal edges of the sleeve, and a pair of expanding devices working on said screw-threaded portions of the bolt and engaging with said inclined portions, whereby the bolt is expanded concentrically.

691,922. ROLLER-BEARING. WILLIAM H. WHITELY and WILLIAM H. WHITELY, Jr., Springfield, Ohio. Filed Nov. 11, 1899. Serial No. 736,666. (No model.)



Claim.—1. In a roller-bearing the combination of a series of inclined rollers, an opposing series of inclined rollers, corresponding inner and outer bearing-cones for said rollers, an axle carrying said inner bearing-cones, and means for adjusting one of the inner bearing-cones consisting of an adjusting-nut screwing on the axle and engaging the adjustable cone, a clamping-nut which may be screwed toward and from said adjustable nut, and a non-rotative washer clamped between said nuts and interlocking with the adjusting-nut and with the axle.

2. The combination of the axle, the two-part casing surrounding the same, and a tubular bolt surrounding the axle and engaging the parts of the casing, the threaded end of the bolt being slitted and expanded.

3. The combination of the axle, the two-part casing surrounding the same with its parts telescoping on each other, and a tubular bolt surrounding the axle and engaging the parts of the casing.

4. The combination of an axle, a casing surrounding the same, outer bearing-rings in said casing, inner bearing-rings on the axle, two sets of rollers interposed between said inner and outer rings, rings 37 controlling said rollers relative to their bearing-rings, non-rotary washers 40 at the outer sides of the rings 37, and means for securing said washers screwed into the outer ends of the casing.

5. The combination of the rollers 4, the bearing rings or cones 8, 9, 35, 35, the two-part casing, the tubular bolt 16, the hub having spoke-seats extending to points within the circle of the ends of said casing, means for holding said rollers apart from each other, a ball-bearing for said holding means, the rings 37, the non-rotary washers 40, clamping-nuts for the latter, and means for adjusting the cone 9.

6. In an antifriction-bearing the combination, with inner and outer bearing-rings, and antifriction devices interposed between the same, of a two-part casing the parts of which telescope on each other by smooth bearing-surfaces, and means for drawing said parts longitudinally together.

7. In an antifriction-bearing the combination, with inner and outer bearing-rings and interposed antifriction devices of a two-part casing the parts of which telescope on each other by smooth bearing-surfaces, and a tubular bolt engaging said parts and adapted to draw them together.

8. In an antifriction-bearing the combination, with inner and outer bearing-rings and interposed antifriction devices, of a two-part casing one part having the tube 31 provided with the thread 36 and the other having the tube 32 adapted to slide on the tube 31 and provided with a shoulder 18, and a tubular bolt engaging said shoulder and thread.

9. The combination of the tapered rollers 4, the spacing-collars 6 and 7, the pivot-pins 5, the balls against which one of said collars is adapted to run, means for confining said balls, inner and outer bearing-rings for said rollers, and an axle and casing carrying said bearing-rings.

10. The combination of the casing and axle, an interposed roller-bearing comprising rollers and a containing-cage, and an end abutment for said cage comprising a ring 37 screwing into said casing, a non-rotary washer 40, and a clamping-nut for the latter.

11. The combination of a series of inclined rollers, inner and outer bearing-cones for the same, a ring at the end of said rollers, and a series of balls engaging said ring and limiting the endwise movement of said rollers relative to their cones.

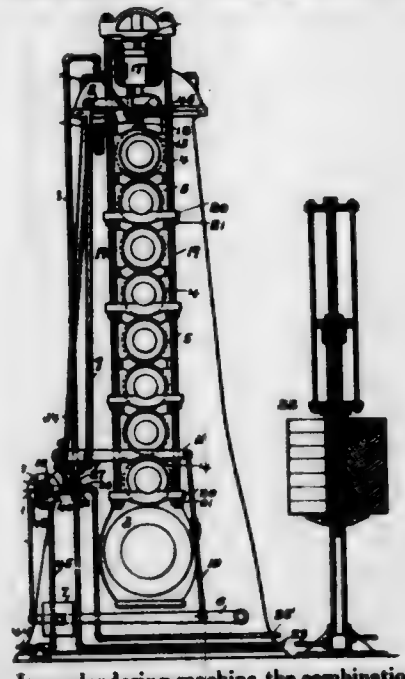
12. In a roller-bearing the combination of two series of rollers, corresponding inner and outer bearing-rings for said rollers, a casing or hub carrying said outer rings, an axle carrying said inner rings, one of said inner rings being longitudinally movable on the axle, and means for adjusting said movable ring consisting of an adjusting-nut screwing on the axle and engaging said adjustable ring, a clamping-nut which may be screwed toward and from said adjusting-nut, and a non-rotative washer clamped between said nuts and interlocking with the adjusting-nut and with the axle.

13. In a roller-bearing the combination of two series of rollers, inner and outer bearing-rings for said rollers, a two-part casing carrying said outer bearing-rings and having its parts telescoping on each other, means for drawing the parts of the casing in straight lines toward each other, an axle carrying said inner bearing-rings, one of the rings being longitudinally movable, and means for adjusting the movable ring consisting of an adjusting-nut, a clamping-nut and an interlocking washer clamped between said nuts.

14. The combination of a series of rollers, inner and outer bearing-rings for the same, means for spacing said rollers, such as a cage, and a series of balls within the chamber occupied by said rollers and receiving the endwise pressure of the rollers.

15. In an antifriction-bearing the combination of a series of rollers, inner and outer bearing rings or parts for the same, inner and outer bearing members carrying said rings or parts, and a series of antifriction devices such as balls interposed between said rollers and one of said bearing members and limiting the end movement of said rollers.

691,923. CALENDERING-MACHINE. MYRON J. WHITLOCK, Austin, Conn. Filed May 27, 1901. Serial No. 61,997. (No model.)



Claim.—1. In a calendering-machine, the combination with a power device for forcing the rolls together, of a line of connections between said power device and the rolls, and mechanical means for interrupting said line of connections, substantially as described.

2. In a calendering-machine, the combination with a power device for forcing the rolls together, of a line of connections between said power device and the rolls, means for rendering said power device inoperative, and mechanical means for interrupting said line of connections, substantially as described.

3. In a calendering-machine, the combination with a power device for forcing the rolls together, of a line of connections between the power device and the rolls, means for separating the rolls, and mechanical means for interrupting the line of connections when the rolls are to be separated, substantially as described.

4. In a calendering-machine, the combination with a power device for forcing the rolls together, of a line of connections between the power device and the rolls, means for rendering said power device inoperative, means for separating the rolls, and mechanical means for interrupting the line of connections when the rolls are to be separated, substantially as described.

5. In a calendering-machine, the combination with a power device for forcing the rolls together, of a line of connections between the power device and the rolls, means for rendering said power device inoperative, mechanical means for interrupting the line of connections, and a single operating device for both sets of means, substantially as described.

6. In a calendering-machine, the combination with a power device for forcing the rolls together, of a line of connections between the power device and the rolls, means for rendering said power device inoperative, means for separating the rolls, mechanical means for interrupting the line of connections when the rolls are to be separated, and a single operating device for the means for rendering the power device inoperative and the mechanical means, substantially as described.

7. In a calendering-machine, the combination with a power device for forcing the rolls together, of a line of connections between the power device and the rolls, means for rendering said power device inoperative, means for separating the rolls, mechanical means for interrupting the line of connections when the rolls are to be separated, and a single operating device for said three sets of means, substantially as described.

8. In a calendering-machine, the combination with weights for forcing the rolls together, means for transmitting the power developed by the weights to the rolls, said means including links, levers, and blocks between said levers and the roll-bearings, means for raising the weights, and mechanical means for shifting the blocks, substantially as described.

9. In a calendering-machine, the combination with weights for forcing the rolls together, means for transmitting the power developed by the weights to the rolls, said means including links, levers and blocks between said levers and the roll-bearings, means for raising the weights, mechanical means for shifting the blocks, and a single operating device for operating the weight-raising means and the block-shifting means, substantially as described.

10. In a calendering-machine, the combination with a power device for forcing the rolls together, of levers connected therewith, blocks hinged to the levers and bearing on the roll-bearings, a shifting device for the blocks, said device including suitable chains, and springs for returning the blocks to operative position, substantially as described.

11. In a calendering-machine, the combination with a pair of levers, of weights connected thereto, a second pair of levers, connections between the two pairs of levers, blocks interposed between said second pair of levers and the roll-bearings, an operating device, connections from said device to the weight-levers, and connections from said device to the blocks, whereby the operating device renders the weight-levers inoperative and shifts the blocks, substantially as described.

12. In a calendering-machine, the combination with means for separating the rolls, of a pair of levers, weights connected thereto, a second pair of levers, connections between the two pairs of levers, blocks interposed between said second pair of levers and the roll-bearings, an operating device, connections from said device to the weight-levers, and connections from said device to the blocks, whereby the operating device renders the weight-levers inoperative and shifts the blocks, substantially as described.

13. In a calendering-machine, the combination with means for separating the rolls, of a pair of levers, weights connected thereto, a second pair of levers, connections between the two pairs of levers, a block interposed between said second pair of levers and the roll-bearings, an operating device, connections from said device to the weight-levers, connections from said device to the blocks, whereby the operating device renders the weight-levers inoperative and shifts the blocks, and means for returning the blocks, substantially as described.

14. In a calendering-machine, the combination with means for separating the rolls of a pair of levers, weights connected thereto, a second pair of levers, blocks interposed between said second pair of levers and the roll-bearings, an operating device, connections from the operating device to the weight-levers, connections from said device to the blocks, and means controlled by the operating device for throwing the roll-separating means into operation, whereby the operating device renders the weight-levers inoperative, shifts the blocks and throws the roll-separating means into operation, substantially as described.

15. In a calendering-machine, the combination with means for separating the rolls, of a power device for forcing the rolls together, connections between said device and the rolls, an operating device, connections between the operating device and the power device, and means controlled by the operating device for throwing the separating means into operation, substantially as described.

16. In a calendering-machine, the combination with a lever, of a weight connected thereto, suitable connections whereby the weight forces the rolls together, a piston, connections from the piston to the rolls whereby the piston separates the rolls, a liquid-containing chamber in which the piston moves, an operating device, connections from the operating device to the weight-levers, and means controlled by the operating device for permitting the liquid to enter and escape from the chamber, substantially as described.

17. In a calendering-machine, the combination with a pair of levers, of weights connected with said levers, a second pair of levers, connections between the two pairs of levers, blocks between the second pair of levers and the roll-bearings, a shaft extending across the machine, connections between said shaft and the weight-levers, and connections between the blocks and the shaft, whereby the movement of the shaft raises the weight-levers and shifts the blocks, substantially as described.

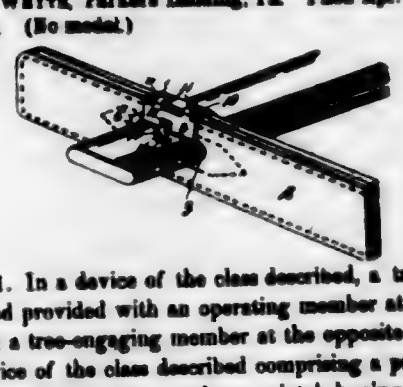
18. In a calendering-machine, the combination with a pair of levers, of weights connected thereto, a second pair of levers, connections between the two pairs of levers, blocks interposed between the second pair of levers and the roll-bearings, a shaft extending across the machine, connections between the weight-levers and the shaft, connections between the blocks and the shaft, roll-separating means, and means controlled by the shaft for throwing the roll-separating means into and out of operation, whereby the movement of the shaft renders the weight-levers inoperative, shifts the blocks and throws the roll-separating means into and out of operation, substantially as described.

19. In a calendering-machine, the combination with a pair of levers, of weights connected thereto, means whereby said levers force the rolls together, pistons, connections from the pistons to the roll-bearings, liquid-containing chambers in which the pistons operate, a pipe connected to the chambers, a valve in said pipe, a shaft extending across the machine, operating connections between the shaft and the weight-levers, and means operated by the shaft for opening and closing the valve, substantially as described.

20. In a calendering-machine, the combination with a pair of levers, of weights connected thereto, a second pair of levers, connections between the two pairs of levers, blocks between the second pair of levers and the roll-bearings, means for separating the rolls, a shaft extending across the machine, a pair of drums on the shaft, chains connecting each of said drums with the weight-levers, a pair of arms loosely mounted on the shaft, chains connecting the arms and the blocks, a pair of arms mounted on the shaft and arranged to operate the loosely-mounted arms, and operating connections between the shaft and the loosely-mounted arms, substantially as described.

21. In a calendering-machine, the combination with a pair of levers, of weights connected thereto, a second pair of levers, connections between the two pairs of levers, blocks between the second pair of levers and the roll-bearings, pistons connected to the roll-bearings, liquid-containing chambers in which the pistons operate, a suitable pipe for permitting liquid to enter and escape from the chambers, a valve in the pipe, a shaft extending across the machine, a pair of drums on the shaft, chains connecting each of said drums with the weight-levers, a pair of arms loosely mounted on the shaft, chains connecting the arms and the blocks, a pair of arms mounted on the shaft and arranged to operate the loosely-mounted arms, and operating connections between the arms and the shaft and between the valve and the shaft, the arrangement being such that when the shaft is rotated the weight-levers are first rendered inoperative, the blocks shifted and the valve in the pipe opened, substantially as described.

691,924. COMBINED TRACE HOLDER AND PROTECTOR. JAMES M. WEITZ, Parkers Landing, Pa. Filed Apr. 10, 1901. Serial No. 55,140. (No model.)



Claim.—1. In a device of the class described, a tree-latch carried by the trace and provided with an operating member at one side of the trace, and with a tree-engaging member at the opposite side.

2. A device of the class described comprising a protecting-sheathing fitting the eye of the trace, and a tree-latch having a shank portion held between said sheathing and an edge of the trace-eye.

3. A device of the class described comprising a bearing-support carried by the trace at the eye thereof, and a tree-latch sustained by said support and disposed crosswise of the trace-eye, said latch consisting of a shank having an operating member at one side of the trace and a tree-engaging member at the opposite side.

4. A device of the class described comprising a support carried by the trace, and a rotatable tree-latch held in position by said support and disposed crosswise of the trace-eye, said latch having an operating member at one side of the trace, and a tree-engaging member at the opposite side.

5. A device of the class described, comprising a protective sheathing formed of a blank having a curved stem fitting within one end of the trace-eye, and also having cheek-pieces facing opposite sides of the trace and united over one edge thereof.

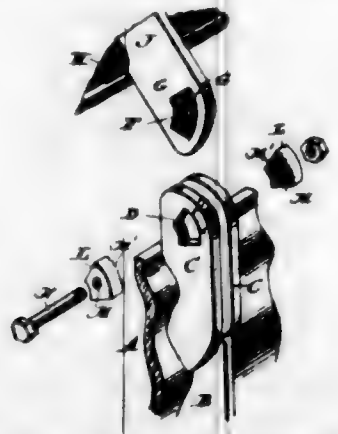
6. In a device of the class described, a bearing-support carried by the trace at the eye thereof, a tree-latch consisting of a turning shank sustained by the bearing-support and arranged crosswise of the trace-eye, said shank being provided at one end with a tree-engaging hook, and at its other end with a finger-lever, and a holding-spring housed within said bearing-support and engaging said shank.

691,925. MATRIX. JOSEF L. WEITZ, Hamburg, Germany. Filed Dec. 21, 1899. Serial No. 741,184. (No model.)

Claim.—A matrix for stereotype-printing consisting of a plurality of sheets of absorbent blotting-paper united by a paste composed of starch, potato-meal, dextrine, glycerin, gelatin and water in substantially the proportions specified.

691,926. METALLIC CULVERT. CLARENCE WOLCOTT and PATRICK MA GIRL, Bloomington, Ill. Filed June 7, 1901. Serial No. 63,626. (No model.)

Claim.—1. In a culvert, the combination of a series of sections; integrally-formed ribs or arms extending from each section and overlapping the adjacent section; and adjustable means for locking said overlapping arms together.



2. In a culvert, the combination of a series of sections; integrally-formed ribs or arms extending out from each section and overlapping the adjacent section and its arm; and an adjustable locking means carried by one arm for locking the two overlapping arms together.

3. In a culvert, the combination of a series of sections; integrally-formed ribs or arms extending out from each section and overlapping the adjacent section and its arms; an adjustable locking device carried by one arm to engage the other arm, said device being movable in a direction at right angles to the axis of the arm; and means for maintaining the device in position.

4. In a culvert, the combination of a series of sections; integrally-formed ribs or arms extending out therefrom and overlapping the adjacent section and its arms; a block mounted in an opening in one of said arms; teeth formed upon the block, to engage similar teeth formed upon the adjacent arm; and a bolt for holding the parts in engagement.

5. In a culvert, the combination of a series of sections; integrally-formed ribs or arms extending out therefrom and overlapping the arms of the adjacent sections; a polygonal block mounted in an opening of similar contour formed in one arm; teeth formed upon said block and the opposing face of the adjacent arm; and a bolt passing through said block and a curved slot or opening formed in said adjacent arm.

6. In a culvert, the combination of a series of sections; integrally-formed arms extending out therefrom and overlapping the adjacent sections, one arm on each side of each section being bifurcated and embracing a single arm on the adjacent section; a pair of polygonal blocks mounted in openings of similar contour formed in said bifurcated arms, said blocks being provided with teeth upon their inner faces, to engage teeth formed upon the side faces of the single arm; and a bolt passing through said blocks and a curved slot formed in said single member.

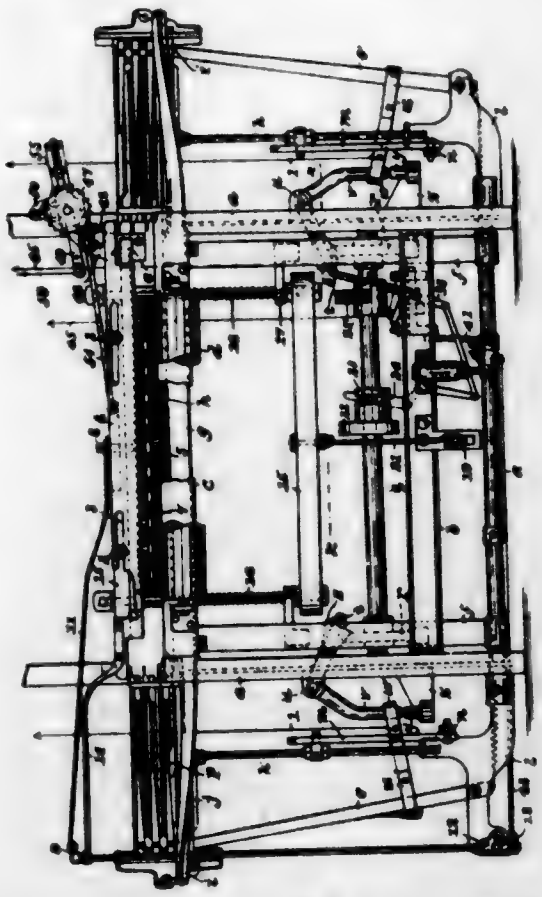
691,927. SWIVEL-LOOM. ROBERT ATHERTON, Paterson, N. J. Filed July 27, 1901. Serial No. 69,911. (No model.)

Claim.—1. In a loom, the combination, with the frame, of a picker-stick and an oscillatory arm arranged in said frame, said picker-stick being adapted to be vibrated from said oscillatory arm, a strap connected to the picker-stick and having a loop receiving the free end of said arm, a strap-holding device arranged at one of the limits of motion of said arm, and means for shifting said strap from said arm to the receiving device and vice versa, substantially as described.

2. In a loom, the combination, with the frame, of a rotary shaft journaled in said frame, swivel-shuttles, a supporting structure for said shuttles movable vertically of the warp, operative connecting means between said shaft and the shuttles, operative connecting means between said shaft and said supporting structure, each of said connecting means comprising members disconnective from each other, and a train of levers constituting a common controlling means for said members, substantially as described.

3. In a loom, the combination, with the frame, of a rotary shaft journaled in said frame, swivel-shuttles, a supporting structure for said shuttles movable vertically of the warp, gearing, the members of said gearing being disconnective from each other and one of them being mounted on said shaft, operative connecting means between the other member of said gearing and the shuttles, a cam mounted on said shaft, a lever, said cam and the lever being disconnective from each other, operative connecting means between said lever and said supporting structure, and a train of levers constituting a common controlling means for making and breaking the connection between the members of said gearing and between said cam and lever, substantially as described.

4. In a loom, the combination, with the frame, of a rotary shaft journaled in said frame, swivel-shuttles, a supporting structure for said shuttles movable vertically of the warp, a cam keyed on said shaft, a segment arranged on said shaft, a lever adapted to be engaged by said cam and fulcrumed in said frame, a shiftable pinion adapted to be engaged by said segment, operative connecting means between said lever and the supporting structure, operative connecting means between said pinion and the shuttles, and a train of levers controlling, in common, the cam and the pinion, substantially as described.



5. In a loom, the combination, with the frame, of a rotary shaft journaled in said frame, swivel-shuttles, a supporting structure for said shuttles movable vertically and laterally of the warp, operative connecting means between said shaft and the shuttles, operative connecting means between said shaft and said supporting structure, each of said connecting means comprising members disconnective from each other, a train of levers constituting a common controlling means for said members, and means for shifting laterally said supporting structure, substantially as described.

6. In a loom, the combination, with the main frame, of swivel-shuttles, a supporting structure for said shuttles movable laterally of the warp, a vertically-movable frame arranged on said main frame and carrying said supporting structure, said supporting structure having a slot-and-pin connection with said movable frame, means for raising and lowering said frame to pass the shuttles vertically through the warp, means for reciprocating the shuttles in said structure, and means for moving said structure and the shuttles carried thereby bodily laterally, substantially as described.

7. In a loom, the combination, with the frame, of swivel-shuttles, a supporting structure for said shuttles movable vertically and also laterally of the warp, means for raising and lowering said structure to pass the shuttles vertically through the warp, means for reciprocating the shuttles in said structure, a flexible rock-shaft controlling said shuttle-reciprocating means and a rigid connection between said rock-shaft and said structure, substantially as described.

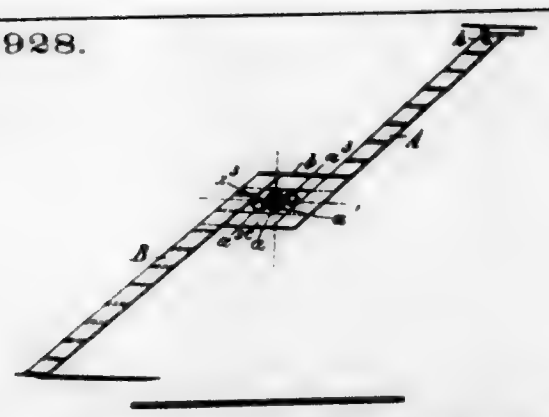
8. In a loom, the combination, with the frame, of swivel-shuttles, a supporting structure for said shuttles movable vertically and also laterally of the warp, means for raising and lowering said structure to pass the shuttles vertically through the warp, means for reciprocating the shuttles in said structure, a pinion journaled in said frame, a plate carried by said pinion and adjustable radially thereof, a rod connecting said plate and said structure, and means for rotating said pinion, substantially as described.

691,928. FIRE-ESCAPE. HEINRICH BERGEIM, Oberhausen, Germany. Filed Aug. 13, 1900. Serial No. 26,674. (No model.)

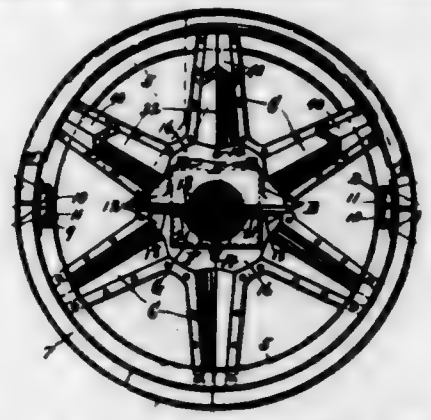
Claim.—1. A fire-escape composed of a pair of overlapping ladders, a pair of connecting-arms to form a parallelogram, a bearing within said parallelogram, and a pivot received by the bearing, substantially as specified.

2. A fire-escape composed of a pair of overlapping ladders, a pair of connecting-arms to form a parallelogram, a bearing having projections that extend into diagonal corners of said parallelogram, and a pivot received by the bearing, substantially as specified.

691,928.



691,929. SHEET-METAL PULLEY. CHARLES H. BICALEY, Oneida, N. Y. Filed Nov. 14, 1900. Serial No. 36,434. (No model.)



Claim.—1. In a pulley, a hub comprising outer and inner shells formed of sheet metal and each provided with shaft and set-screw openings, a nut interposed between the shells and having its threaded aperture alined with the latter openings, and a set-screw movable in said latter openings and engaged with the nut.

2. In a pulley, a hub comprising outer and inner shells formed of sheet metal and each provided with shaft and set-screw openings, a nut engaging the adjacent faces of the shells, and a set-screw movable in the latter openings and engaged with said nut.

3. In a pulley, a sheet-metal hub comprising oppositely-arranged concavo-convex sections split axially and provided with a shaft-opening, each section having a set-screw opening, a hollow shell surrounding the shaft-opening and provided with a set-screw opening, nuts between the hub and shell, and set-screws movable in the openings therefor and engaged with the nuts.

4. A pulley comprising a sheet-metal hub terminating at its opposite ends in inturned flanges, an inner shell having its opposite ends encircling the flanges, said hub and shell being formed with apertures, a nut between the hub and shell, and a set-screw engaging the nut.

5. In a pulley, the combination of a hub divided perpendicular to its axis and a yoke within the hub for reinforcing said hub.

6. In a pulley, the combination of a hub formed of sections arranged end to end and having alined shaft-openings and yokes within the sections at opposite sides of the shaft for reinforcing the hub.

7. In a pulley, the combination of an axially-split hub and oppositely-arranged yokes within the hub-section for the purpose of reinforcing said section.

8. In a pulley, the combination of a hub split substantially perpendicular to its axis and formed of sheet metal and having a shaft-opening, a yoke within each section and extended on opposite sides of the axis of the hub.

9. In a pulley, the combination of opposite truncated conical hub-sections arranged base to base and formed of sheet metal and oppositely-arranged yokes within each section for the purpose described.

10. In a pulley, the combination of a lenticular sheet-metal hub split axially and substantially perpendicular to its axis for forming semiconical sections, and a yoke within each section for the purpose described.

11. A pulley comprising a sheet-metal hub split axially and having a shaft-opening, each section being provided with apertures at opposite sides of the shaft-opening, and a yoke within each section and provided with apertures alined with the former apertures, and clamping-bolts passed through said apertures for the purpose described.

12. The combination with the rim and spokes of a pulley of a sheet-metal hub having shaft and set-screw openings, a yoke within the hub and provided with an opening alined with the set-screw opening, a nut arranged within the yoke-opening, and a set-screw engaged with the nut.

13. In a pulley, a hub comprising outer and inner shells formed of sheet metal and each provided with shaft and set-screw openings, a yoke between said shells, a nut engaged with the yoke and a set-screw engaged with the nut.

14. The combination with the hub and spokes of a pulley, of a sheet-metal rim consisting of inner and outer sections having their marginal edges interlocked with each other, the outer sections being corrugated transversely for the purpose described.

15. The combination with the hub and spokes of a pulley, of an axially-split rim and clamping means consisting of clips in the form of loops secured to the rim-sections at opposite sides of the meeting edges, portions of one of the clips of one section being lapped upon the end of the adjacent section for the purpose described, and bolts passed through the loops of the clips for detachably clamping the sections together.

16. The herein-described clamp for split pulleys comprising a bolt and nut, oppositely-arranged clips having adjacent interlocking shoulders and lengthwise apertures for the bolt, one of these clips having an engaged face extending beyond one end of its aperture for engaging the bolt-head or nut and preventing its rotation.

17. The combination with sections of a split pulley, of an apertured lug secured to one section, and a second lug secured to the other section and consisting of a sheet-metal plate bent in the form of a loop and having a portion thereof cut away for forming a bearing-face for engaging the bolt-head or nut and preventing its rotation and a bolt for drawing the lugs together.

18. The herein-described clamp for uniting the meeting edges of split-rim pulleys, said clamp consisting of a clamping-bolt and oppositely-arranged sheet-metal plates, each bent in the form of a loop and having their bases adapted to be secured to the rim-sections, one of said plates having one end of its intermediate portion cut away for forming a bearing-face engaging the bolt-head or nut and preventing its rotation.

19. In a pulley, a hub formed of sheet-metal sections each section having a concavo-convex central portion and radiating arms formed concavo-convex in cross-section, said arms being integral with the central portion, the concaved faces of the arms being alined with each other and merging with the concavities of said central portion of the hub.

20. A pulley comprising a sheet-metal hub split axially and having a shaft-opening, each section having inturned flanges at their meeting edges and formed with apertures in their peripheral walls and said flanges, a yoke within each section, and clamping-bolts passed through the yoke and apertures of the hub for the purpose described.

21. The combination with the hub and spokes of a pulley, of a sheet-metal rim consisting of inner and outer sections, each being split axially, one rim-section being movable one upon the other for breaking joints with each other and means for securing the rim-sections together.

22. The combination with the hub and spokes of a pulley, of an axially-split rim formed of sheet metal, and semi-annular sections inclosing the circumferential marginal edges of the rim, and movable circumferentially thereon.

23. The combination with the hub and spokes of a pulley, of an axially-split rim formed of sheet metal, and semi-annular tubes having circumferential slots receiving the circumferential marginal edges of the rim, said tubes being movable circumferentially on said edges.

24. The combination with the hub and spokes of a pulley, of an axially-split rim formed of sheet metal, and semi-annular sections inclosing the circumferential marginal edges of the rim, the meeting edges of the sections being arranged to break joints with the meeting edges of the rim-sections.

25. The combination with the hub and spokes of a pulley, of an axially-split sheet-metal rim, each section being provided with circumferential marginal shoulders, and semi-annular tubes slotted circumferentially and interlocking with the shoulders.

26. In a pulley, an axially-split rim formed of sheet metal, a clamping-plate secured to each of the sections in proximity to their meeting edges, one of the plates of one of the sections being extended beyond the meeting edges and lapped upon the other section for the purpose described and means for drawing said plates together.

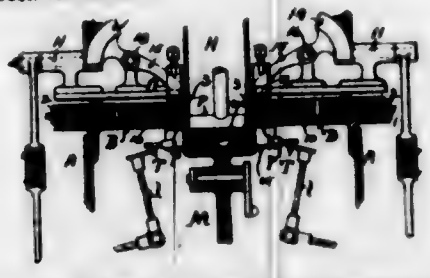
27. The herein-described clamp for securing the meeting edges of split pulleys together, said clamp comprising two sheet-metal plates having base-flanges and intermediate loops the loop of one of the plates being of less length than its base for forming a lengthwise bearing-face for the purpose described, and means adapted to be passed through the loops for forcing the plates lengthwise of each other.

691,930. MECHANISM FOR PACKING GRANULAR MATERIAL. EDWARD L. BRAGY, Brooklyn, N. Y. Filed May 7, 1901. Serial No. 59,117. (No model.)

Claim.—1. The herein-described mechanism for packaging granular material in wrappers, consisting of means for feeding reinforcing ends to an open wrapper, means for feeding the material to the wrapper between the reinforcing ends and means for folding the wrapper to inclose the material and the reinforcing ends, substantially as described.

2. The herein-described mechanism for packaging granular material, consisting of a mold-wheel having a recess, a card-box, a selector adapted

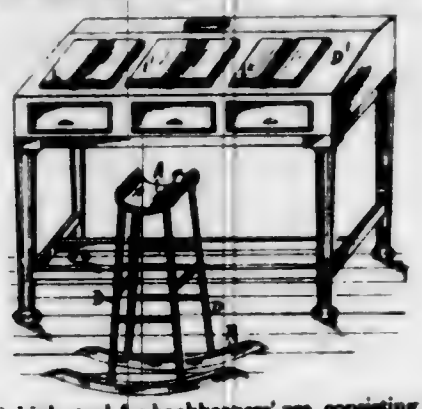
to select cards from the box and feed them to the wrapper in the recess, means for feeding material to the wrapper, and operating mechanism timed to act on the selector to place the cards in the wrapper before the material has been fed thereto.



3. The herein-described mechanism for packaging granular material, consisting of a rotating mold-wheel having recesses and means for feeding material to the wrapper in each recess and means for folding the wrapper in combination with means for feeding reinforcing ends to the open wrapper before the folding of the latter about the material.

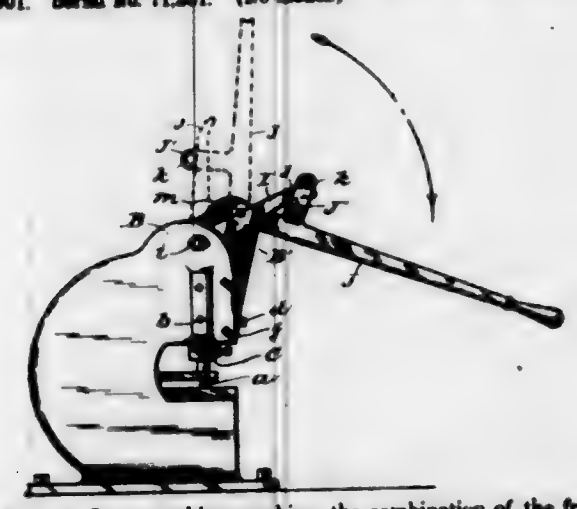
4. The herein-described machine for packaging granular material, consisting of a rotating mold-wheel having recesses, a plunger to press the material into the wrapper in each recess, plungers to hold the material at the edges of the recess, and means to fold the wrapper, in combination with means for supplying reinforcing end pieces in front of said plungers at the edges of the recess.

691,931. BOOKKEEPER'S STOOL. SIMPSON S. BRYAN, Brooklyn, N. Y. Filed Feb. 15, 1901. Serial No. 47,476. (No model.)



Claim.—A high stool for bookkeepers' use, consisting of a seat, legs on which said seat is fixedly mounted and transverse rockers parallel to the front edge of the seat, on which said legs are mounted whereby, when the stool is rocked sidewise in front of a desk, the occupant of the stool can rock himself into position in front of any one of a number of books on the desk, substantially as described.

691,932. COLD-IRON PUNCH. JAMES C. BUNNELL, Sheridan, Ind., assignor of one-half to Howard H. Newby, Sheridan, Ind. Filed Aug. 8, 1901. Serial No. 71,251. (No model.)



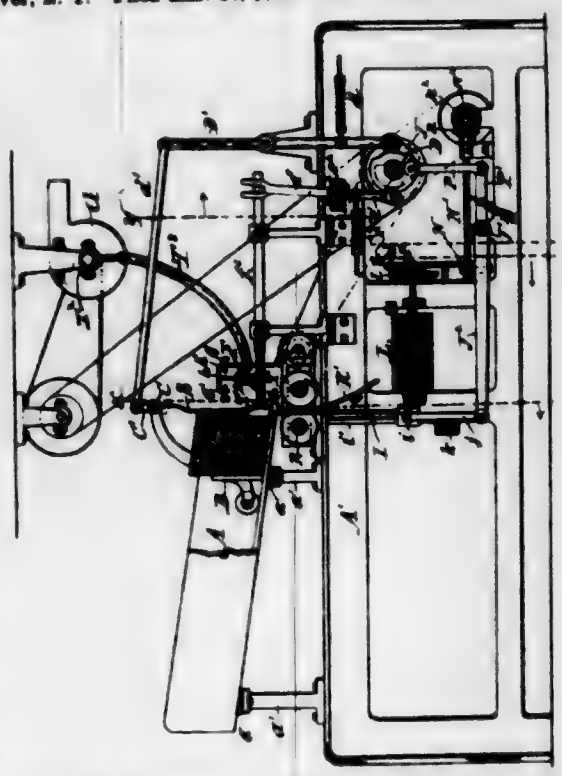
Claim.—1. In a punching-machine, the combination of the frame, the frame-head comprising the two plates of which one extends above the other and also forwardly toward the front of the machine, the punch-head, the pitman, the eccentric axle-pin in said frame-head, the eccentric on said axle-pin, the main eccentric-lever having the convex portion at the upper side thereof, the supplemental lever pivoted to the more elevated one of said head-plates, and the offset yoke attached rigidly to said supplemental lever and engaging said main eccentric-lever, as set forth.

2. In a punching-machine, the combination of the frame, the frame-head comprising the two plates, the block secured between said two plates, the punch-head, the adjusting-screws in said block, the adjusting-screws in said frame-head, the gibs, the punch, the eccentric, the pitman, and the main eccentric-lever, all constructed and arranged as set forth.

3. In a punching-machine, the combination of the frame, the head composed of the longer and the shorter plates, the main lever pivoted to the shorter plate, the eccentric, the pitman, the punch-head, the supplemental lever pivoted to said longer plate, the offset yoke attached rigidly to said supplemental lever, and the roller in said yoke, said main lever extending into said yoke, substantially as set forth.

4. In a punching-machine, the combination of the frame, the frame-head composed of the two plates extending forwardly and one extending upwardly and forwardly from the other, the block between said plates, the punch-head between said plates and said frame and said block, the eccentric pivoted between said plates, the pitman, the main lever, the supplemental lever, the offset yoke, the roller in said yoke, and the convex end portion on said main lever extending into said yoke, as shown and described.

691,933. COLLATING-MACHINE. TALBOT C. DEXTER, Pearl River, N. Y. Filed Mar. 27, 1901. Serial No. 53,048. (No model.)



Claim.—1. In combination with the signature-hopper and signature-gatherer, means for yieldingly sustaining the signatures in the hopper, means for primarily separating the bottom portion of the front signature from the next succeeding signature, a reciprocating secondary separator entering between the upper portions of said signatures to complete the separation preparatory to the delivery of the front signature to the gatherer.

2. In combination with the signature-hopper and signature-gatherer, an oscillating detent pressing the upper portion of the front signature toward the hopper, means for primarily separating the bottom portion of the front signature from the succeeding signature in the hopper, a secondary separator entering between the upper portions of said signatures to complete the separation, and means for conveying the separated signature to the gatherer.

3. In combination with the signature-hopper and signature-gatherer, a movable detent pressing the upper portion of the front signature toward the hopper, mechanism actuating said detent, means for separating the lower portion of the front signature from the succeeding signature in the hopper and a secondary separator entering between the said signatures from the bottom to the upper portions thereof and completing the separation preparatory to the delivery of said front signature to the gatherer.

4. In combination with the signature-hopper and signature-gatherer, a detent yieldingly sustaining the upper portion of the front signature in the hopper, means for primarily separating the bottom portion of said signature from the succeeding signature, a secondary separator entering between said signatures from the bottom to the upper portions thereof to complete the separation, mechanism imparting reciprocating motion to said secondary separator, means for liberating the separated front signature, and means for delivering said signature to the gatherer.

5. In combination with the signature-hopper, an oscillating detent intermittently sustaining the front signature in the hopper, mechanism actuating said detent, means for primarily separating the bottom portion of the front signature from the succeeding signature in the hopper, a sec-

ondary separator entering between the upper portions of said signatures to complete the separation, mechanism operating said secondary separator, means for liberating the front signature, gripping-rollers disposed to receive between them the liberated signature, and a gatherer disposed to receive the signature from said rollers as set forth.

6. In combination with the signature-hopper, a detent yieldingly sustaining the front signature in said hopper, means for primarily separating the bottom portion of the front signature from the succeeding signature, a vertically-movable bar disposed transversely beneath the delivery ends of the hoppers, fingers projecting upward from said bar, mechanism moving said bar to thrust said fingers between the aforesaid primarily-separated signatures, means for liberating the front signature, and a gatherer disposed to receive the liberated signature.

7. In combination with the signature-hopper, a detent yieldingly confining the signatures in the hopper, a tube supported movably to and from the front of the hopper and provided with an open mouth facing the front signature, means for intermittently exhausting the air from said tube to cause the signature to adhere to the tube in its retreat from the hopper, a secondary separator entering between the upper portions of the front signature and succeeding signature to complete the separation, means for admitting air into the tube to liberate the signature, and a gatherer disposed to receive the liberated signature as set forth.

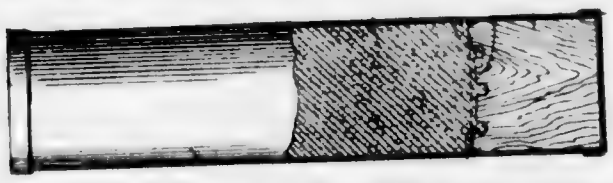
8. In combination with the signature-hopper, an oscillatory detent intermittently pressing the upper part of the front signature toward the hopper, mechanism operating said detent, a rectilinearly-reciprocating suction-tube disposed in range with the hopper beneath the aforesaid detent, mechanism forcing said suction-tube to periodically impact the front signature and withdraw the lower portion thereof from the hopper, a reciprocating separator entering between said signature and succeeding signature in the hopper, means for liberating the signature from the suction-tube, gripping-rollers receiving the liberated signature, and a gatherer disposed to receive the signature from said rollers as set forth.

9. In combination with a series of signature-hoppers disposed side by side in a row, a rock-shaft extending across the said row above the front thereof, pendent fingers attached to said shaft and terminating with bearings for pressing the upper portions of the front signatures toward the hoppers, mechanism actuating said rock-shaft, reciprocating suction-tubes movable to impact the lower portions of the front signatures in the hoppers and withdraw said portions from said hopper, mechanisms actuating said tubes, vertically-reciprocating separators entering between the two front signatures in the respective hoppers, mechanisms operating said separators, means for liberating the signatures from the suction-tubes, gripping-rollers disposed to receive the liberated signatures, a longitudinally-movable gatherer under said rollers, and mechanism imparting intermittent motion to said gatherer as set forth.

691,934. PRODUCTION OF SOLID MATERIALS FROM TAR, &c. CLEMENS DÖRR, Germersheim, Germany. Filed July 20, 1899. Serial No. 724,557. (No specimens.)

Claim.—In the manufacture of artificial stone the process consisting in: adding a quantity of filling material equal to from four to ten times the quantity of tar to liquid tar at a temperature from the normal to 150° centigrade; heating the mixture, under continuous stirring, to a temperature between 160° and 190° centigrade until from seven to ten per cent. of the original raw tar has been distilled away, and the mixture is dry to the touch, and then molding the mixture.

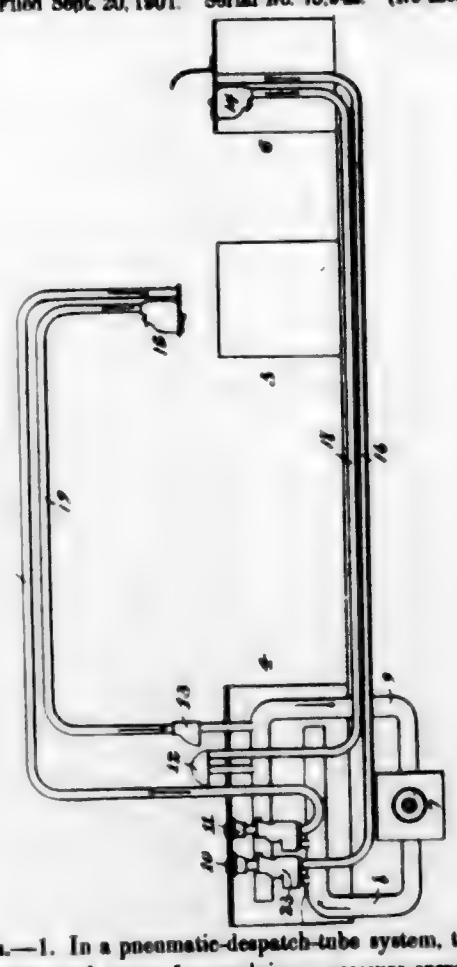
691,935. BAR DRESSING. ANDREW L. EATON, New York, N. Y. Filed May 21, 1901. Serial No. 61,245. (No model.)



Claim.—1. The combination with a paper tube or receptacle containing a solidified lubricant or dressing for various substances, of a block inserted and secured firmly in the end thereof so as to serve as a handle, and having indentations on the face thereof, the tube being adapted to be cut or torn off from time to time to expose more or less of the interior dressing or lubricant for use.

2. The combination with a tube containing a solidified dressing, lubricant or similar substance, of a block inserted and secured firmly in the end thereof, said block having peripheral beveled groove and serving to reinforce the strength of the tube as well as to enable a part of it to serve as a handle, the said tube being of such material, as paper, that it can be cut off piece by piece to permit access to the lubricant within, substantially as described.

691,936. PNEUMATIC-DESPATCH-TUBE SYSTEM. EDMOND A. FORDYCE, Chicago, Ill., assignor to Arthur S. Temple, trustee, Boston Mass. Filed Sept. 20, 1901. Serial No. 75,942. (No model.)



Claim.—1. In a pneumatic-despatch-tube system, the combination with a line-tube and means for supplying a pressure-current thereto, of a sending-terminal connected with said line-tube, a valve in said terminal controlling the admission of motive current to said line-tube, valve-opening mechanism adapted to be tripped by the carrier in its passage through the terminal, and a pressure-controlled locking device for the valve-opening mechanism which automatically locks the valve open while the carrier is in transit and permits the valve to close upon the discharge of the carrier, substantially as described.

2. In a pneumatic-despatch-tube system, the combination with a line-tube and means for supplying a pressure-current thereto, of a sending terminal connected with said line-tube and through which the current is admitted to the latter, a valve in said terminal normally held closed by the pressure and controlling the admission of motive current to said line-tube, valve-opening mechanism adapted to be tripped by a carrier passing through the terminal, and a pressure-controlled locking device for the valve-opening mechanism, said locking device being rendered effective through the admission of pressure to the line-tube, and being thrown out of action to permit the closing of the valve on the intermission of the pressure resulting from the discharge of the carrier, substantially as described.

3. In a pneumatic-despatch-tube system, the combination with a line-tube, a sending-terminal connected therewith, and means for supplying a pressure-current to the tube through said terminal of a valve in said terminal normally held closed by the pressure and controlling the passage of the motive current, a valve-opening mechanism adapted to be actuated by a carrier passing through the terminal, and a spring-actuated pressure-controlled locking device for the valve-opening mechanism which automatically effects the locking of the valve-opening mechanism upon the introduction of pressure to the tube in rear of a carrier, maintains the valve-opening mechanism thus locked during the carrier's transit, and on the discharge of the carrier and the consequent interruption of the pressure releases the valve-opening mechanism and permits the valve to close, as set forth.

4. In a pneumatic-despatch-tube system, the combination with a line-tube and means for producing a suction-current therethrough, of a carrier-sending terminal at one end of said tube, and mechanism contained within the terminal and actuated by the carrier upon its introduction serving to lock the terminal open for the ingress of air in rear of the carrier during the latter's transit, and means responsive to variations in the suction effect serving to release said locking mechanism and thus to automatically close the terminal upon the carrier's discharge, substantially as described.

5. In a pneumatic-despatch-tube system, the combination with a line-tube extending between the cashier's station and an outlying salesman's station and means located at one end of said tube for producing a

suction-current therethrough, of a carrier-sending terminal at the other end of said tube, and mechanism contained within the terminal and actuated by the carrier upon its introduction thereto, said mechanism serving to open the terminal to the atmosphere and lock it open during the transit of the carrier, and means responsive to variations in the suction effect serving to release said locking mechanism and thus to automatically close said terminal upon the discharge of the carrier, substantially as described.

6. In a pneumatic-despatch-tube system, the combination with a line-tube connecting a cashier's station with an outlying salesman's station and means located at one end of said tube for producing a suction-current therethrough, of a carrier-sending terminal at the other end of said tube, said terminal being provided with a valve for admitting the carrier and another valve for admitting air in rear of the carrier, and mechanism located within the terminal and actuated by the carrier serving to open the air-valve upon the introduction of the carrier and lock the same open until the carrier is discharged, substantially as described.

7. In a pneumatic-despatch-tube system, the combination with a line-tube connecting a cashier's and salesman's station and means located at one end of said tube for producing a suction-current therethrough, of a carrier-sending terminal at the other end of said tube, said terminal having carrier and air admission valves both of which are normally closed, a pusher-arm on the carrier-admission valve adapted to engage and open the air-admission valve simultaneously with the opening of the carrier-admission valve, a stop-bar engaging the air-valve and actuated through a limited distance by each opening of the carrier-valve, and an escapement mechanism operated by pulsations of the current produced by the discharge of the carriers and controlling the movement of the stop-bar in a direction to permit the air-valve to close, substantially as described.

8. In a pneumatic-despatch-tube system, the combination with a line tube connecting a cashier's and a salesman's station and a suction-blower located at one end thereof, of a carrier-sending terminal at the other end of said tube, said terminal having carrier and air admission valves which are normally closed when the line is inactive, a pusher-arm on the carrier-valve adapted to engage and open the air-valve, a longitudinally-movable stop-bar adapted to control the closing of the air-valve, means carried by said pusher-arm for giving the stop-bar a step-by-step movement in one direction upon the introduction of successive carriers, and an escapement mechanism controlled by pulsations of the current resulting from the discharge of the suction-carriers and serving to govern the step-by-step movement of the stop-bar to permit the air-valve to close upon the discharge of the last carrier of the series, substantially as described.

9. A combined pressure and suction pneumatic-despatch-tube system, comprising in combination line-tubes extending between a cashier's and a salesman's station, an air-forcing device interposed in said line-tubes and adapted to impel carriers therethrough by a pressure-current in one direction and a suction-current in the other, a pressure sending-terminal at one station and a suction sending-terminal at the other and devices within said terminals each of which is automatically actuated by a carrier on its introduction to admit the motive current to its respective line-tube during the transit of the carrier and cut it out upon the discharge of the carrier, substantially as described.

10. A combined pressure and suction pneumatic-despatch-tube system, comprising in combination line-tubes extending between a cashier's and a salesman's station, a blower interposed in said line-tubes and serving to impel carriers therethrough by a pressure-current in one direction and a suction-current in the other, a pressure sending-terminal at one station which is normally closed to the propelling-current, a vacuum sending-terminal at the other station which is normally closed to the atmosphere, and current-admitting devices within said terminals respectively which are actuated by the carriers upon their introduction, said devices serving to maintain their respective line-tubes operative while the carriers are in transit, and render the same inoperative upon the discharge of the carrier, substantially as described.

11. A combined pressure and suction despatch-tube system, comprising in combination line-tubes extending between a cashier's and a salesman's station, a blower at the cashier's station connected to one of said tubes on its pressure side and to the other on its suction side, a pressure sending-terminal at the cashier's station normally closed to the motive current, a suction sending-terminal at the salesman's station normally closed to the atmosphere, and current-controlled devices in said terminals respectively which are positively actuated by the first of the series of carriers introduced to render the tubes operative and which upon the discharge of the last carrier automatically render their respective line-tubes inoperative through the decrease in current tension thereby produced, substantially as described.

691,937. UPHOLSTERY APPARATUS. ALFRED FERRONI, Chicago, Ill. Filed Nov. 2, 1899. Serial No. 736,349. (No model.)

Claim.—1. As an article of manufacture, an upholsterer's anvil, comprising a circular base, and rim, the latter being adapted to support a washer, and a central upwardly-disposed conical projection, the said base between the rim and projection being concaved.



2. As an article of manufacture, an upholsterer's anvil, the same comprising a circular base, a surrounding rim adapted to receive, support and embrace a washer at a point above the base, and a central upwardly-disposed conical projection.

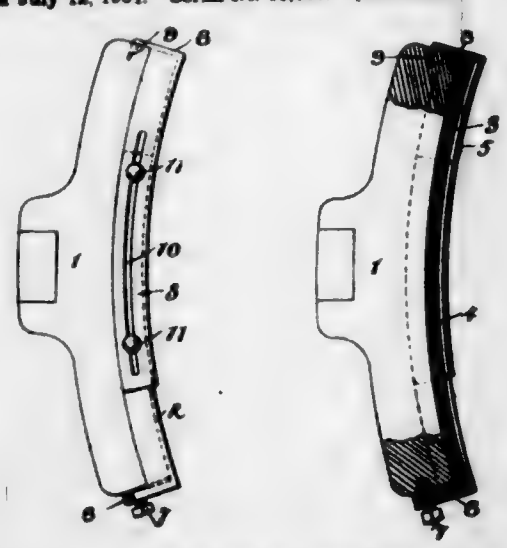
3. As an article of manufacture, an upholsterer's anvil, the same comprising a circular base, a surrounding rim adapted to receive, embrace and support a washer at a point above the base, a conical head rising from the center of the base, and the latter being concaved between said head and rim.

4. As an article of manufacture, an upholsterer's anvil, the same comprising a circular base provided with a central perforation and with a surrounding upwardly-disposed rim, and a screw depending through the perforation and at its upper end above the base provided with a conical head.

5. As an article of manufacture, an upholsterer's anvil, the same comprising a circular base, a surrounding rim, and an annular concaved intermediate portion, said base being provided with a central perforation, a screw depending through said perforation and a deflecting head at the upper end of said screw.

6. As an article of manufacture, an upholsterer's anvil, the same comprising a circular base, a surrounding rim, an intermediate annular concaved portion, and a central deflecting head.

691,938. BRAKE-SHOE. CHARLES J. GULDEN, Belt, Mont. Filed July 12, 1901. Serial No. 68,086. (No model.)



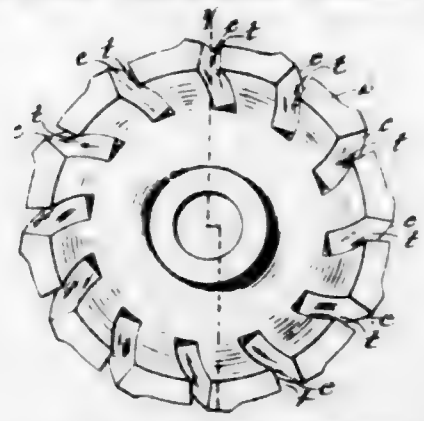
Claim.—1. In a brake-hood the combination of the longitudinal flanged plates 2 and 3, the transverse end plates 6 and 8 integral therewith, the said end plates provided with means for securing the hood to the brake-block, substantially as described.

2. In a brake-hood consisting of two telescoping sections, adapted to be adjusted to different-sized brake-blocks, for securing the leather strip 12 thereto, a depending projection adapted to be driven into the upper end of the block, the lower end provided with a set-screw for securing the hood to the block, substantially as described.

3. In a brake-hood, the flanged plate 3, provided with elongated grooves 10, the end plate 8, having a depending projection 9, the flanged sides 2, connected by the end plate 6, and provided with apertures, the rivets 11, passing through the apertures in the plate 2 and the grooves 10, the said rivets adapted to be tightened for locking the two sections of the hood in any desired position, substantially as described.

4. In a brake-hood, the telescoping flanged plates 2 and 3, secured to the brake-block 1 by the depending projection 9 and the upwardly-extending set-screw 7, end plates 8 and 9 integral with the said plates, the grooves 10, the rivets 11 passing through apertures in the plates 2 and the grooves 10 of the plates 3, their headed portion adapted to engage the outer surface of the plates 3, the said rivets adapted to be fastened for securing the sections of the hood when adjusted to different-sized brake-blocks, substantially as described.

691,939. ROTARY CUTTER. HENRY A. HANSUM, Canenovia, N. Y. Filed Mar. 27, 1901. Serial No. 53,043. (No model.)



Claim.—1. As an improved article of manufacture, an annular cutter consisting of a drop-forged wheel of steel formed with a peripheral rim beveled to one side of the wheel and having on the exterior of said rim correspondingly-disposed diagonal ribs and sloping faces on corresponding sides of said ribs, and slots extending transversely through the rim at said sloping faces and through the greater peripheral edge thereof to form cutting edges directly on said sloping faces as set forth.

2. The improved cutter consisting of a drop-forged wheel of steel formed with a peripheral rim beveled to one side of the wheel and having on the exterior of said rim corresponding diagonal ribs and sloping faces on corresponding sides of said ribs, and slots milled through the rim at said sloping faces and extending through the greater periphery of the rim and at acute angles to the portions of the rim adjacent to one side of each rib to form integral cutting edges thereat as set forth and shown.

691,940. STOPPER FOR INCLINED GAS-RETORTS. ARTHUR F. P. HAYMAN, Berlin, Germany. Filed Nov. 15, 1901. Serial No. 82,378. (No model.)



Claim.—1. A stopper for inclined gas-retorts comprising a plate suited to the transverse area of the retort, bars adjacent to the face of the plate and having their ends bent over and embracing its opposite edges, also bent centrally, prolonged and joined at the outer ends to form a handle-bar, substantially as described.

2. A stopper for inclined gas-retorts comprising a plate, a handle-bar and intersecting arms connecting therewith and having their four ends bent over and embracing the opposite edges of said plate, substantially as described.

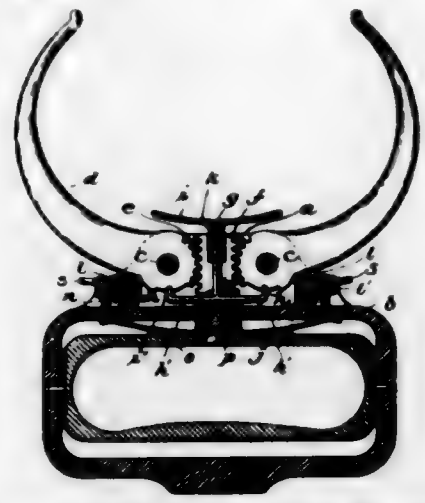
3. A stopper for inclined gas-retorts comprising a plate, a handle-bar having lateral arms bent at their ends to embrace the edges of the plate and a transverse bridge-piece engaging with said bar and bent at its ends to embrace the edges of the plate, substantially as described.

691,941. HANDCUFF. FRANK A. HEADSON, Lafayette, Ind. Filed May 23, 1901. Serial No. 61,546. (No model.)

Claim.—1. In a handcuff of the class described, the combination of two relatively movable jaws, a frame portion upon which the jaws are pivotally mounted, means for opening the jaws, means for locking them in their open position, means for automatically closing the jaws, and locking mechanism arranged in contact with the pivoted end of each jaw for locking it in its closed position, substantially as described.

2. In a handcuff of the class described, the combination of a pair of relatively movable jaws, a frame portion upon which the jaws are pivotally mounted, and gear-and-rack mechanism for operating the jaws, substantially as described.

3. In a handcuff of the class described, the combination of a pair of relatively movable jaws, a frame portion upon which the jaws are pivotally mounted, gear-and-rack mechanism for opening and closing the jaws, and means for automatically locking them in their closed position, substantially as described.



4. In a handcuff of the class described, the combination of a pair of relatively movable jaws, a frame portion upon which the jaws are pivotally mounted, means for opening the jaws, means for locking them in their open position, means for closing the jaws, and a dog for each jaw arranged in contact with the pivoted end thereof for automatically locking it in its closed position, substantially as described.

5. In a handcuff of the class described, the combination of a frame portion, a pair of jaws pivotally mounted on such frame portion and having pinion-teeth upon the ends thereof, a tumbler arranged between the toothed ends of the jaws provided with rack-teeth which mesh with the pinion-teeth upon the jaws, a trigger portion movably mounted in the tumbler for locking the jaws in their open position, spring mechanism for closing the jaws, and means for locking the jaws in their closed position, substantially as described.

6. In a handcuff of the class described, the combination with a frame and handle portion, a pair of movable jaws pivotally mounted thereon, trigger mechanism for holding the jaws in their open position, spring mechanism for automatically closing the jaws when released from the trigger, and locking mechanism arranged in contact with the pivoted ends of the jaws for automatically locking them in their closed position, substantially as described.

7. In a handcuff of the class described, the combination of a frame and handle portion, a pair of jaws pivotally mounted thereon and provided with gear-teeth upon their respective pivoted ends, a trigger for holding the jaws in their open position, a tumbler slidingly mounted between and engaging the teeth on the pivotal jaws for operating the jaws, a handle secured to the tumbler and slidingly mounted within the main handle, dogs for holding the jaws in their closed position and arranged to be operated to release such jaws, spring mechanism for holding the trigger in locking position, and spring mechanism for holding the tumbler under tension, substantially as described.

691,942. DUPLEX LOCKING MECHANISM FOR SAFES OR VAULTS. HENRY D. HIBBARD, Plainfield, N. J., assignor to the Hibbard-Rodman Ely Safe Company, New York, N. Y., a Corporation of New York. Filed July 27, 1901. Serial No. 69,899. (No model.)

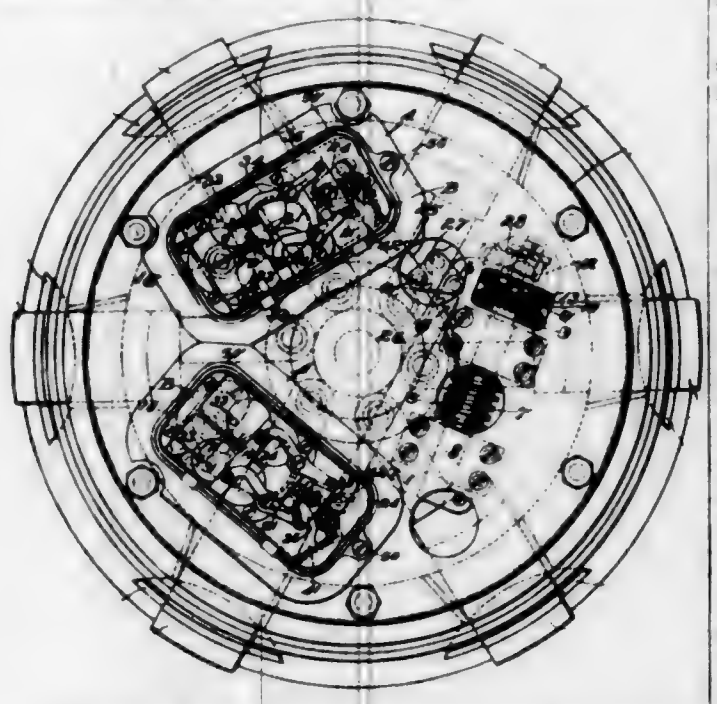
Claim.—1. A lock mechanism comprising a time-lock and a combination-lock each inclosed within a separate casing, one in front of the other and operatively connected, one casing supporting the other and one secured to the other and readily detachable therefrom together with its lock mechanism without disarranging any part of the mechanism of either lock.

2. A lock mechanism comprising a time-lock and a combination-lock each inclosed within a separate casing, one in front of the other and operatively connected, said casings having means for locking them together to permit the ready detachment of one from the other without dismantling any part of the mechanism of either lock from the part of such lock with which it coöperates.

3. A lock mechanism comprising a pair of locks, each inclosed within a separate casing, one of said casings having detachable connection with the other casing; and means coöperating with a part of the lock mechanism of one of said locks to prevent the separation of said casings except when one of said mechanisms is properly manipulated to bring a part thereof into a predetermined position.

4. A lock mechanism comprising a pair of complete lock mechanisms each inclosed within a separate casing, one in front of the other, one casing having detachable connection with the other casing and the bottom of one casing constituting the top of the other casing.

5. A lock mechanism comprising a time-lock and a combination-lock, each inclosed within a separate casing, a part of the casing of one of said locks projecting into the casing of the other lock.



6. A lock mechanism comprising a combination-lock and a time-lock, each inclosed within a separate casing, a part of the casing of the time-lock projecting into the casing of the combination-lock.

7. A lock mechanism comprising a pair of locks, each inclosed within a separate casing, a part of the casing of one of said locks projecting into the casing of the other lock, said casings being removably locked together.

8. A lock mechanism comprising a combination-lock and a time-lock, each inclosed within a casing, one projecting into the other, and having a pin-and-slot connection.

9. A lock mechanism comprising a combination-lock and a time-lock, each inclosed within a casing, one casing projecting into the other and shiftable within the same and having its bottom constituting the top of the other casing, and one of said casings having detachable connection with the other casing.

10. A lock mechanism comprising a combination-lock inclosed within a casing and a time-lock inclosed within a casing, the bottom of one casing constituting the top of the other casing, and one of said casings having a flange resting on the other casing, and also having means coöperating with means carried by the other casing for detachably locking said casings.

11. A lock mechanism comprising a combination-lock having tumblers provided with notches; a casing therefor; time-lock mechanism; a casing therefor; and means for locking said casings together, one of said casings having means in position to register with the notches in said tumblers whereby when said notches are in register with said means the casings can be separated.

12. A lock mechanism comprising a combination-lock having tumblers provided with notches; a casing therefor; time-lock mechanism; a casing therefor; and means comprising a pin-and-slot connection for locking said casings together, one of said casings having a part thereof in position to register with the notches in said tumblers whereby when said notches are in register with said part the casings can be separated.

13. A lock mechanism comprising a pair of mechanisms, one of said mechanisms having one or more tumblers each having a notch, means connected with the other of said mechanisms and adapted to register with said notch or notches whereby when in register therewith one of said mechanisms can be shifted thereby to detach it from the other; and means for preventing the detachment of said mechanisms except by the shifting movement of one relative to the other.

14. A lock mechanism comprising a pair of mechanisms, one having one or more devices each provided with a notch, and one of said mechanisms having means connected therewith and adapted to register with said notch or notches, whereby when in register therewith one mechanism can be detached from the other, and means for maintaining said mechanisms in a coöperative position.

15. A lock mechanism comprising a pair of lock mechanisms mounted in juxtaposition with their mechanisms operatively connected and readily detachable, without tampering with the mechanism of either lock, when one mechanism is manipulated to bring a part thereof into a predetermined position.

16. A lock mechanism comprising a pair of lock mechanisms, one comprising a time-lock and the other a combination-lock, mounted in juxtaposition with their mechanisms operatively connected and readily detachable, without dismantling any part of the mechanism of either lock from the part of such lock with which it coöperates, when one mechanism is manipulated to bring a part thereof into a predetermined position.

17. The combination of a pair of detachably-connected lock mechanisms; and means for preventing the separation of said lock mechanisms until the proper setting of a part of one of said mechanisms.

18. A lock mechanism comprising a pair of locks mounted in juxtaposition and detachably connected, the working parts of one lock being in front of the working parts of the other.

19. A lock mechanism comprising a combination-lock and a time-lock mounted in juxtaposition and connected, the working parts of one lock being in front of the working parts of the other.

20. A lock mechanism comprising a combination-lock and a time-lock, each inclosed within a casing mounted one in front of the other, and operatively connected, said mechanisms being detachably connected through the medium of said casings.

21. A lock mechanism comprising a combination-lock having a bolt, and one or more time-locks detachably connected thereto and having a part controlling said bolt, said locks being detachable only after the proper setting of part of one of said locks.

22. A lock mechanism comprising a combination-lock having a bolt and a fence, and one or more time-locks located in juxtaposition to and detachably connected with said combination-lock and having a part controlling said bolt by engaging and dogging the fence of said combination-lock.

23. A lock mechanism comprising a combination-lock having a bolt, and one or more time-locks mounted in juxtaposition to said combination-lock, the working parts of one lock being located in front of the working parts of the other, and said time lock or locks having means for controlling the bolt of said combination-lock.

24. A lock mechanism comprising a combination-lock having a shiftable member, and one or more time-locks mounted in juxtaposition to said combination-lock, the working parts of one being located in front of the working parts of the other, said time lock or locks having means for dogging said shiftable member.

25. A lock mechanism comprising a combination lock having a shiftable member, a time-lock located in juxtaposition thereto, one in front of the other, and detachable therefrom, said time-lock having a member for controlling the effectiveness of said shiftable member.

26. The combination with boltwork, of a pair of combination-locks for controlling the working of the bolts, each having a bolt and a fence; time-lock mechanism located in juxtaposition to and detachably connected with each combination-lock, one time-lock mechanism dogging the bolt of one combination-lock and the other dogging the fence of the other combination-lock.

27. The combination with boltwork, of a pair of combination-locks for controlling the working of the bolts; time-lock mechanism located in juxtaposition to and detachably connected with each combination-lock, one time-lock mechanism dogging a part of one combination-lock and the other a part of the other combination-lock.

28. The combination with a pair of detachably-connected locks, one a combination-lock, of means for preventing the separation of said locks until the combination-lock is set in a predetermined manner.

29. A lock mechanism comprising a time-lock and a combination-lock, said time-lock embodying a spindle carrying a locking member, and said combination-lock embodying a shiftable member working in a plane parallel to the plane of said locking member.

30. The combination with boltwork for safes or vaults, of lock mechanism for controlling the operation thereof, and comprising a combination-lock and one or more time-locks located in juxtaposition to and detachable from said combination-lock after a part thereof is properly set, said combination-lock having a part controlled by said time lock or locks and connected with means for controlling the boltwork.

31. The combination with boltwork for safes or vaults, of lock mechanism for controlling the operation thereof, and comprising a combination-lock and one or more time-locks located in juxtaposition to and detachably connected with said combination-lock, said combination-lock having a part controlled by the time lock or locks and connected with clutch mechanism for controlling the boltwork.

32. The combination with boltwork for safes or vaults, of worm-gearing for controlling the movement thereof; clutch mechanism in connection with said gearing; a pair of lock mechanisms, each comprising a combination-lock having a shiftable member, and a pair of time-locks having means for controlling the operation of said member, each of said combination-locks being connected with said clutch mechanism.

33. The combination with boltwork for safes or vaults, of worm-gearing for actuating said boltwork; means for controlling the operation of said gearing; a pair of combination-locks in operative connection with

said controlling means; and one or more time-locks detachably connected to each combination-lock for controlling the same.

34. The combination with boltwork, of worm-gearing for actuating said boltwork; means for controlling the operation of said gearing; a combination-lock in operative connection with said controlling means; and one or more time-locks detachably connected with said combination-lock for controlling the same.

35. The combination with boltwork for safes or vaults, of lock mechanism for controlling the operation thereof, and comprising a combination-lock, and one or more time-locks located in juxtaposition to and in front or rear thereof, and detachably connected with said combination-lock, and having means controlling the effectiveness of said combination lock.

36. A lock mechanism comprising a pair of locks operatively connected, each of a different formation and inclosed within a separate casing, and one readily detatchable from the other, without interfering with the pivotal connections of either of such mechanisms, after one of said mechanisms has been manipulated to bring a part thereof into a predetermined position.

37. A lock mechanism comprising a pair of detachably-connected locks, one having a bolt and a fence and the other having a part controlling the working of said bolt by dogging the fence thereof, said locks being detachable only after the proper setting of a part of one of said locks.

38. The combination with a pair of locks, of a lock mechanism detachably connected with and located in front or rear of each of such locks and controlling a part thereof.

39. The combination with a pair of locks, of a lock mechanism detachably connected with such locks and controlling differently-formed parts thereof, such detachability depending upon the proper manipulation of a part of said lock mechanism.

40. A lock mechanism comprising a pair of locks, one having a working part provided with a notch or recess and the other having connected therewith means in position to register with said notch, whereby when in register therewith said locks can be detached one from the other; and means for preventing the separation of said locks when said parts are out of register.

41. A lock mechanism comprising a pair of locks detachably connected and having coöperating means effective when in register to permit the separation of said locks; and means for preventing the separation of said locks except when said means register.

42. A pair of casings for the reception of lock mechanisms detachably connected by a bayonet-joint connection.

43. A pair of casings for the reception of lock mechanisms, one having a part projecting into the other and forming the top thereof and detachably connected thereto.

44. A pair of casings for the reception of lock mechanisms, one having a part projecting into the other and forming the top thereof and detachably connected thereto by a pin-and-slot connection.

45. A lock mechanism comprising a pair of locks a casing for each of said locks; means for detachably securing said casings together; and means for preventing the separation of such casings and including a part carried by one of said casings and coöperating with a part of the lock mechanism carried by the other of said casings.

46. The combination with a pair of combination-locks, one having a bolt and the other a fence, and time-lock mechanisms located in juxtaposition to and detachably connected with each combination-lock, one time-lock mechanism dogging the bolt of one combination-lock and the other dogging the fence of the other combination-lock.

47. The combination with a pair of combination-locks, of time-lock mechanism located in juxtaposition to and detachably connected with said combination-locks and controlling differently-formed parts of said combination-locks.

48. A lock mechanism comprising a pair of casings, one carrying a combination-lock and the other a time-lock, said time-lock including a spindle projecting into the casing of the combination-lock and carrying a locking member effective to engage a part of the combination-lock.

49. A lock mechanism comprising a pair of casings, one carrying a combination-lock and the other a time-lock, said time-lock including a spindle projecting into the casing of said combination-lock and carrying a locking member comprising a hook effective to engage a part of the combination-lock.

50. A lock mechanism comprising a time-lock and a combination-lock, one mounted upon the other, said time-lock including a spindle carrying a locking member comprising a hook, and said combination-lock including a bolt having a projection adapted to be engaged by said hook.

51. A lock mechanism, comprising a pair of detachably-connected locks, one having a bolt and a fence and the other having a part effective to engage and prevent the movement of one of said devices.

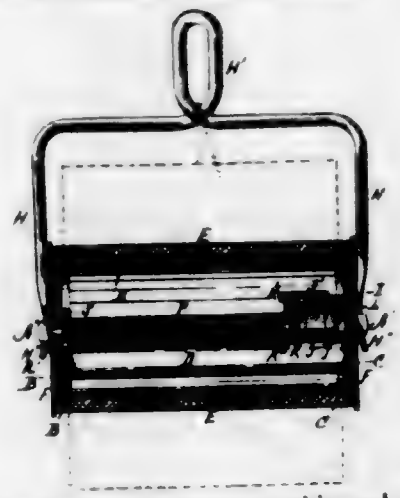
52. A lock mechanism, comprising a pair of detachably-connected locks, one a combination-lock having a bolt and a fence, and the other having a part effective to prevent the movement of one of said devices, and means for preventing the separation of said locks until the combination-lock is set in a predetermined manner.

53. The combination with a casing containing a combination-lock mechanism, of a separate casing containing time-lock mechanism, said casings interlocking, and one provided with means which, unless the combination is set in a predetermined position, prevents the separation of said casings.

54. The combination with a casing containing a combination-lock mechanism, of a separate casing containing time-lock mechanism, said casings interlocking, and one provided with means which, unless the combination is set in a predetermined position, prevents the separation of said casings, and means adapted to prevent the working of a part of said combination-lock mechanism.

55. The combination with a casing containing a combination-lock mechanism, of a casing containing time-lock mechanism, the two casings having interlocking means, and the time-lock casing having means coöperating with means located in the other casing to prevent the separation of the said casings.

691,943. TWINE-REEL. JAMES H. HOLBROOK, Boston, Mass. Filed Nov. 5, 1901. Serial No. 81,247. (No model.)



Claim.—1. In a twine-reel, a frame comprising end plates and connecting-bars for supporting a bobbin of twine; a spindle having bearings in said end plates; a plurality of dogs each comprising a sleeve or hub and a T-shaped projection, the hub of the dog next the end plate being loose on the spindle, the hub of the innermost dog being fast on the spindle, and the hub of any intermediate dog being loose on the spindle; an engaging projection extending inward from said end plate into the path of rotation of the T-shaped projection on the dog next the end plate; a spring on the spindle having its opposite ends secured to said spindle and one of the end plates respectively; and a supporting-frame rigidly secured to the opposite ends of the spindle, substantially as described.

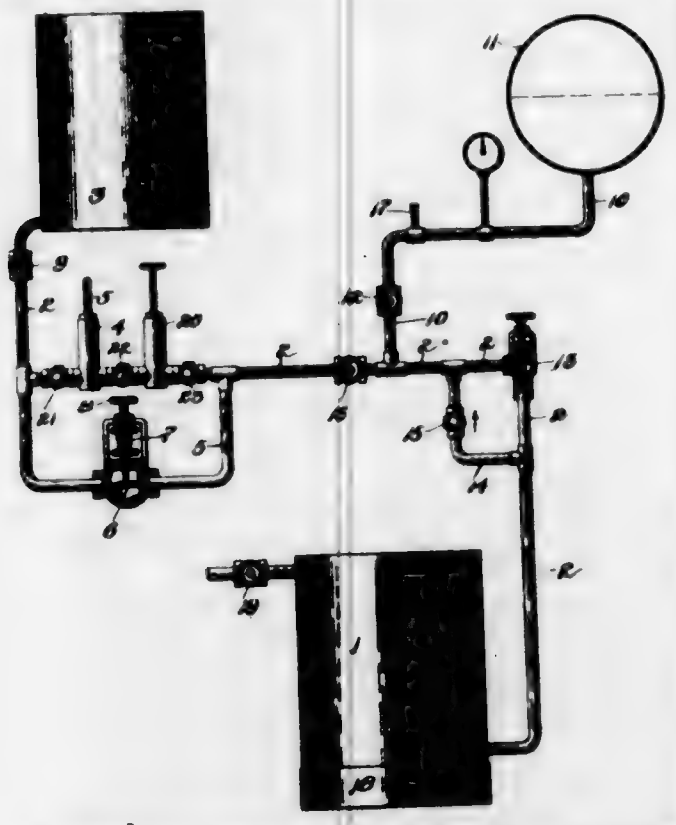
2. In a twine-reel, a frame comprising end plates and spring connecting-bars for supporting a bobbin of twine, each said spring connecting-bar being curved outward centrally to hold the bobbin frictionally; a spindle having bearings in said end plates; a plurality of dogs each comprising a sleeve or hub and a T-shaped projection, the hub of the dog next the end plate being loose on the spindle, the hub of the innermost dog being fast on the spindle, and the hub of any intermediate dog being loose on the spindle; an engaging projection extending inward from said end plate into the path of rotation of the T-shaped projection on the dog next the end plate; a spring on the spindle having its opposite ends secured to said spindle and one of the end plates respectively; and a supporting-frame rigidly secured to the opposite ends of the spindle, substantially as set forth.

3. In a twine-reel, the frame comprising the end plates B, C and the spring connecting-bars D; the spindle A having its bearings in said end plates; the dog consisting of the hub I and T-shaped projection I' loose on the spindle next the end plate C; the pin L extending inward from the end plate C into the path of rotation of the dog; the dog consisting of the hub K and projection K' fast on the spindle; a similar dog loose on the spindle between said dogs; the spring P surrounding the spindle and having its opposite ends secured to the spindle and the end plate D respectively; and the supporting-frame consisting of the central loop H', main portion H, and spring ends H'' rigidly secured to the opposite ends of the spindle, substantially as described.

691,944. FLUID-VAPORIZING SYSTEM. RALPH O. HOOD, Danvers, Mass., assignor to Simplex Motor Vehicle Company, Danvers, Mass., a Corporation of Maine. Filed Feb. 28, 1901. Serial No. 49,260. (No model.)

Claim.—1. In a fluid-vaporizing system, in combination, a vaporizer,

a fluid-reservoir, a pipe connecting the vaporizer and reservoir, a feed-pump in said pipe, a restricting-valve in said pipe between the pump and vaporizer, a by-pass around said valve, a check-valve in said by-pass, and means connected with said pipe between said pump and said by-pass for automatically relieving the vaporizer of excess of pressure.



2. In a fluid-vaporizing system, in combination, a vaporizer, a fluid-reservoir, a pipe connecting the vaporizer and reservoir, a feed-pump in said pipe, automatic means to stop the supply of fluid to the vaporizer when a predetermined pressure exists in the latter, a restricting-valve in said pipe between the pump and vaporizer, a by-pass around said valve, a check-valve in said by-pass, and means connected with said pipe between said pump and said by-pass for automatically relieving the vaporizer of excess of pressure.

3. In a fluid-vaporizing system, in combination, a vaporizer, a fluid-reservoir, a feed-pipe connecting the vaporizer and reservoir, a feed-pump in said pipe, automatic means to stop the supply of fluid to the generator when a predetermined pressure exists in the latter, an auxiliary reservoir containing fluid under pressure, and a pipe connecting the auxiliary reservoir with the feed-pipe at a point between the vaporizer and pump and a valve located in said connecting-pipe intermediate the auxiliary reservoir and the feed-pipe.

4. In a fluid-vaporizing system, in combination, generator 1, water-supply tank 3, pipe 2 connecting generator 1 and tank 3, pump 4 in pipe 2, by-pass 5 around pump 4, valve 6 in by-pass 5, valve 13 in pipe 2, by-pass 14 around valve 13, and check-valve 15 in by-pass 14.

5. In a fluid-vaporizing system, in combination, generator 1, water-supply tank 3, pipe 2 connecting generator 1 and tank 3, pump 4, in pipe 2, by-pass 5 around pump 4, valve 6 in by-pass 5, auxiliary water-supply tank 11, and pipe 10 connecting tank 11 with pipe 2 and provided with valve 12.

6. In a fluid-vaporizing system, in combination, generator 1, water-supply tank 3, pipe 2 connecting generator 1 and tank 3, pump 4 in pipe 2, by-pass 5 around pump 4, valve 6 in by-pass 5, valve 13 in pipe 2, by-pass 14 around valve 13, check-valve 15 in by-pass 14, auxiliary water-supply tank 11, and pipe 10 connecting tank 11 with pipe 2.

7. In a fluid-vaporizing system, in combination, a vaporizer, a feed-pipe connecting therewith, a restricting-valve in said feed-pipe, a by-pass around said valve, and a check-valve in said by-pass.

8. In a fluid-vaporizing system, in combination, a vaporizer, a feed-pipe connecting therewith, a reservoir containing fluid under pressure, a restricting-valve in said feed-pipe between said vaporizer and said reservoir, a by-pass around said valve, and a check-valve in said by-pass.

691,945. FRAME FOR MOTOR-VEHICLES. RALPH O. HOOD, Danvers, Mass., assignor to Simplex Motor Vehicle Company, Danvers, Mass., a Corporation of Maine. Filed Feb. 23, 1901. Serial No. 49,286. (No model.)

Claim.—1. The improved frame for motor-vehicles, &c., comprising essentially, the front portion adapted to have connected therewith the front wheels of the vehicle and composed of upper and lower members and connecting-pieces, the perches connected with the connecting-pieces of said front portion adjacent the middle of the latter and at opposite sides of said middle by joints permitting transverse swiveling movement, whereby vertical flexibility is secured and the frame is braced horizontally, and the cross-bar connecting the said perches adjacent their rear ends, substantially as described.



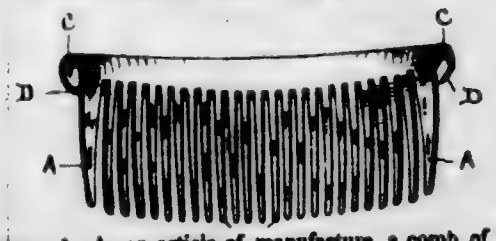
2. The improved frame for motor-vehicles, &c., comprising, essentially, the front portion adapted to have connected therewith the front wheels of the vehicle and composed of upper and lower members and connecting-pieces, the perches connected with connecting-pieces of the said front portion adjacent the middle of the latter and at opposite sides of the said middle by joints permitting transverse swiveling movement, whereby flexibility vertically is secured and the frame is braced horizontally, the rear ends of the perches having connected therewith bearings for the rear axle, and the cross-bar connecting the said perches adjacent their rear ends, substantially as described.

3. The improved frame for motor-vehicles, &c., comprising the front portion composed of upper and lower members and connecting-pieces, and the perches converging toward their forward extremities and pivotally connected at the latter with said connecting-pieces adjacent the middle of the said front portion, substantially as described.

4. The improved frame for motor-vehicles, &c., comprising the front portion composed of upper and lower members and the intermediate and end cross-pieces connecting the said members, the perches connected at their forward extremities by horizontal pivots with the said intermediate cross-pieces, the cross-bar connecting the rear extremities of the said perches, and the blocks applied to the said rear extremities, substantially as described.

5. The improved frame for motor-vehicles, &c., comprising the front portion composed of upper and lower members united by intermediate and end cross-pieces, wheel-supporting means applied to the end cross-pieces, the perches connected at their forward extremities with the middle portions of the intermediate cross-pieces, having the upwardly-inclined intermediate portions, and also having the blocks hung from their rear extremities, and the cross-bar connecting the said rear extremities, substantially as described.

691,946. COMB. EDWARD B. KINSMAN, Leominster, Mass. Filed Nov. 2, 1901. Serial No. 80,865. (No model.)

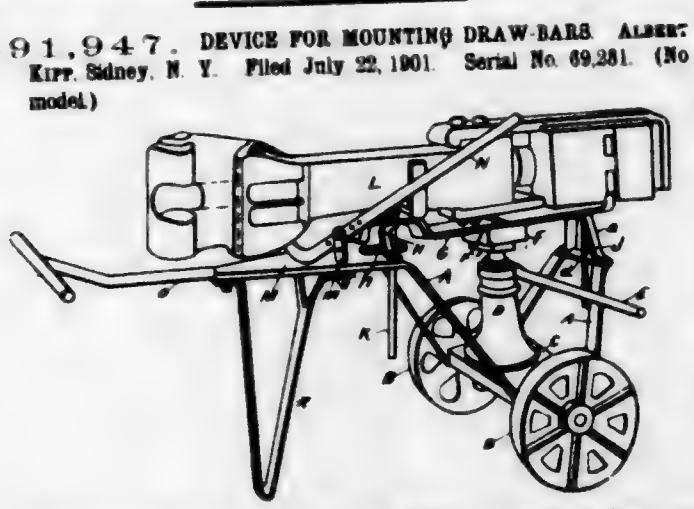


Claim.—1. As an article of manufacture, a comb of the class described, comprising a body portion slotted to form teeth along one edge and having a tubular roll at its opposite edge, the free end of the roll approaching the body portion of the comb at a point intermediate the ends

of the teeth, so as to coöperate therewith in gripping or locking the comb in place in the hair.

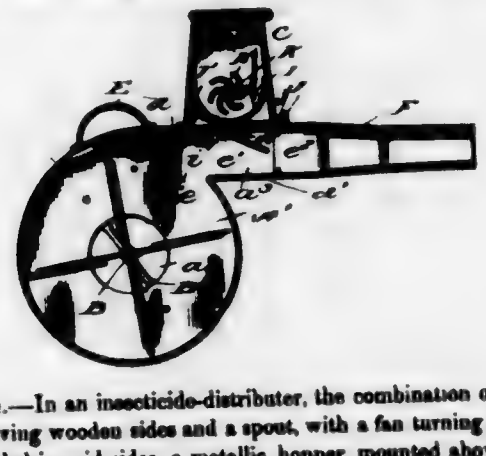
2. As an article of manufacture, a comb of the class described, comprising a curved body portion A slotted to form comb-teeth B along one edge, and bent back along its opposite edge to form a substantially tubular roll C, the free edge of which is sharpened, as at D, and stands substantially perpendicular to the face of the comb on a line intermediate the ends of the teeth.

691,947. DEVICE FOR MOUNTING DRAW-BARS. ALBERT KIPP, Sidney, N. Y. Filed July 22, 1901. Serial No. 69,281. (No model.)



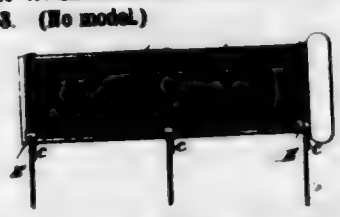
Claim.—A device for carrying and placing a coupler under a car; consisting of a pair of wheels; a frame mounted thereon; a jack mounted on said frame; a table adapted to be raised and lowered by said screw-jack; said table provided at each end with a bolt, a bracket and plate at each end of said table secured to said frame, through which said bolts pass, respectively, substantially as described.

691,948. INSECTICIDE-DISTRIBUTER. ALFRED S. LEE, Richmond, Va. Filed May 20, 1901. Serial No. 61,117. (No model.)



Claim.—In an insecticide-distributer, the combination of a metallic fan-case having wooden sides and a spout, with a fan turning in said case and journaled in said sides, a metallic hopper mounted above the point of junction of the said spout and case and flaring downward, a concave, slotted, metallic bottom from said hopper, discharging into the beginning of the said spout, a deflecting-plate attached to the top of said spout and extending forward under an opening therein below the slot in said bottom, a rotary stirrer arranged in the said hopper above the said slot and provided with alternately-arranged staggered and oppositely-inclined fingers, bent forward in the direction of rotation, and operating-gearing connecting the shafts of the fan and stirrer, substantially as set forth.

691,949. SUPPORT FOR ELECTRIC CONDUCTORS AND RESISTANCES. HARRY W. LEONARD, New York, N. Y. Filed Jan. 10, 1901. Serial No. 42,753. (No model.)



Claim.—1. As a new article of manufacture, a metallic conductor arranged upon a support of mineral insulating material, said conductor being secured to the support by means of a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

2. As a new article of manufacture, a metallic conductor arranged upon a support of mineral insulating material and provided with one or more terminals or leads, said conductor being secured to the support by means of a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

3. As a new article of manufacture, a metallic conductor arranged upon a support of mineral insulating material and having one or more terminals or leads in electrical connection therewith and secured to the support, said conductor being secured to the support by a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

4. As a new article of manufacture, a metallic conductor arranged upon a support of mineral insulating material and having one or more terminals or leads in electrical connection therewith and secured to the support, said conductor being secured to the support by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

5. As a new article of manufacture, the combination of a metallic conductor arranged upon a support of mineral insulating material, one or more terminals or leads, a metal plate for maintaining electrical connection between the conductor and each lead, and a vitreous glazing by means of which the conductor is secured to the support, said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

6. As a new article of manufacture, a metallic conductor arranged upon a support of mineral insulating material and having one or more terminals or leads connected therewith and secured by metal plates, said conductor being secured to the support by means of a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

7. As a new article of manufacture, a metallic conductor arranged upon a support of mineral insulating material and having one or more terminals or leads connected therewith and secured by metal plates, said conductor and metal plates being secured to the support by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

8. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a support of mineral insulating material, said conductor being secured to the support by means of a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

9. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a support of mineral insulating material and having one or more terminals or leads in electrical connection therewith and secured to the support, said conductor being secured to the support by a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

10. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a support of mineral insulating material and having one or more terminals or leads in electrical connection therewith and secured to the support, said conductor being secured to the support by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

11. As a new article of manufacture, the combination of a metallic conductor of very small cross-section arranged upon a support of mineral insulating material, one or more terminals or leads, a metal plate for maintaining electrical connection between the conductor and each lead, and a vitreous glazing by means of which the conductor is secured to the support, said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

12. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a support of mineral insulating material and having one or more terminals or leads connected therewith and secured by metal plates, said conductor and metal plates being secured to the support by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the

conductor to become so loose on the support as to materially change its position thereon.

13. As a new article of manufacture, a metallic conductor arranged upon a tubular support of mineral insulating material, said conductor being secured to the support by means of a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

14. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a tubular support of mineral insulating material, said conductor being secured to the support by means of a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

15. As a new article of manufacture, a metallic conductor arranged upon a tubular support of mineral insulating material and having one or more terminals or leads in electrical connection therewith and secured to the support, said conductor being secured to the support by a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

16. As a new article of manufacture, a metallic conductor arranged upon a tubular support of mineral insulating material and having one or more terminals or leads in electrical connection therewith and secured to the support, said conductor being secured to the support by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

17. As a new article of manufacture, the combination of a metallic conductor arranged upon a tubular support of mineral insulating material, one or more terminals or leads, a metal plate for maintaining electrical connection between the conductor and each lead, and a vitreous glazing by means of which the conductor is secured to the support, said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

18. As a new article of manufacture, a metallic conductor arranged upon a tubular support of mineral insulating material and having one or more terminals or leads connected therewith and secured by metal plates, said conductor and metal plates being secured to the support by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

19. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a tubular support of mineral insulating material and having one or more terminals or leads in electrical connection therewith and secured to the support, said conductor being secured to the support by a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

20. As a new article of manufacture, the combination of a metallic conductor of very small cross-section arranged upon a tubular support of mineral insulating material, one or more terminals or leads, a metal plate for maintaining electrical connection between the conductor and each lead, and a vitreous glazing by means of which the conductor is secured to the support, said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

21. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a tubular support of mineral insulating material and having one or more terminals or leads connected therewith and secured by metal plates, said conductor and metal plates being secured to the support by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the support causes the conductor to become so loose on the support as to materially change its position thereon.

22. As a new article of manufacture, a metallic conductor arranged upon a pottery tube, said conductor being secured to said tube by means of a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the tube causes the conductor to become so loose on the tube as to materially change its position thereon.

23. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a pottery tube, said conductor being secured to the tube by means of a vitreous glaze having a fusing-point so low that it melts before the difference between the expansion of the conductor and the tube causes the conductor to become so loose on the tube as to materially change its position thereon.

24. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a pottery tube and having one or more terminals or leads in electrical connection therewith and secured to the tube, said conductor being secured to the tube by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the tube causes the conductor to become so loose on the tube as to materially change its position thereon.

25. As a new article of manufacture, a metallic conductor of very small cross-section arranged upon a pottery tube and having one or more terminals or leads connected therewith and secured by metal plates, said conductor and metal plates being secured to the tube by a vitreous glaze which covers the connection with the leads, and said glazing having a fusing-point so low that it melts before the difference between the expansion of the conductor and the tube causes the conductor to become so loose on the tube as to materially change its position thereon.

26. As a new article of manufacture, a conductor arranged upon a support of mineral insulating material, terminals or leads in electrical connection with each end of the conductor and securing the ends of the conductor in position, one or more intermediate terminals or leads in electrical connection with the conductor and dividing it into steps or sections, and said conductor being secured to the support by a vitreous glaze of low fusing-point.

27. As a new article of manufacture, a conductor arranged upon a tubular support of mineral insulating material, terminals or leads in electrical connection with each end of the conductor and securing the ends of the conductor in position, one or more intermediate terminals or leads dividing the conductor into steps or sections, said intermediate terminals or leads being bent around the conductor in electrical contact therewith, and said conductor being secured to the support by a vitreous glaze of low fusing-point.

28. The combination with a rheostat having a resistance arranged in steps or sections for regulating the current, of one or more high resistances adapted to be inserted in the circuit to greatly reduce the current, said resistances being composed of fine wire carried by a support made of mineral insulating material and having the conductor attached by a vitreous glaze of low fusing-point.

29. The combination with a rheostat having a reflexed wire resistance arranged in steps or sections enameled to a support, of one or more high resistances adapted to be inserted in the circuit to greatly reduce the current, said resistances being composed of fine wire carried by a support made of mineral insulating material and having the conductor attached by a vitreous glaze of low fusing-point.

30. A support of mineral insulating material, a conductor carried thereby, one or more lead-wires for said conductor, a small folded metal plate for each lead-wire, between the folds of which the conductor and lead-wire are placed or clamped, and a vitreous glaze of low fusing-point attaching said conductor, leads and plate to the support.

31. A support of mineral insulating material, a conductor carried thereby, one or more lead-wires for said conductor bent around the support and secured by twisting the ends together, a small folded metal plate for each lead-wire, between the folds of which the conductor and lead-wire are placed or clamped, and a vitreous glaze of low fusing-point attaching said conductor, leads and plate to the support.

32. A pottery tube, a conductor carried thereby, one or more lead-wires for said conductor, a small folded metal plate for each lead-wire, between the folds of which the conductor and lead-wire are placed or clamped, and a vitreous glaze of low fusing-point attaching said conductor, leads and plate to the support.

33. A pottery tube, a conductor carried thereby, one or more lead-wires for said conductor bent around the support and secured by twisting the ends together, a small folded metal plate for each lead-wire, between the folds of which the conductor and lead-wire are placed or clamped, and a vitreous glaze of low fusing-point attaching said conductor, leads and plate to the support.

691,950. COIN CARD OR MAILER. LEE R. LINDLEY, Anderson, Ind. Filed Jan. 18, 1900. Serial No. 1,947. (No model.)

Claim.—1. A blank for a coin card or mailer, consisting of a creased card having one member thereof scored and slit into one large portion of approximately the conformation of an isosceles triangle, and two small portions each of approximately the conformation of a right-angle triangle, such small portions being again scored each into two smaller portions or halves, each of approximately the conformation of an isosceles triangle, substantially as specified.

2. A creased coin card or mailer having a corner portion thereof bent to form a V-shaped pocket of double-card thickness throughout upon the inner side thereof, and single-card thickness throughout upon the opposite side thereof, substantially as specified.

3. A creased coin card or mailer, having opposite corner portions thereof bent over toward each other to form adjacent V-shaped pockets, having a double-card thickness throughout upon the inner side thereof, and a single-card thickness throughout upon the opposite side thereof, and having pocket-securing extensions adapted to be glued to the edge of the card near the crease thereof, substantially as specified.

4. A creased coin-card, having opposite corner portions thereof bent over toward each other to form adjacent V-shaped pockets, means for securing each said pocket independently to the card proper, said card having a tapering lateral termination of single-card thickness, substantially as specified.

691,951. **WATER AND GREASE PROOF PAPER.** ARTHUR D. LITTLE, Brookline, Mass., assignor to Cellulose Products Company, Wilmington, Del., a Corporation of Delaware. Filed May 27, 1901. Serial No. 62,141. (No specimens.)

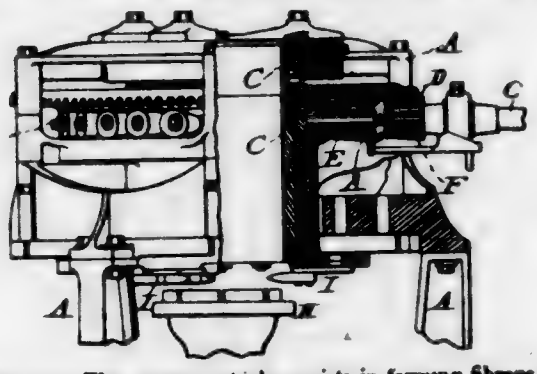
Claim.—As a new article of manufacture, paper filled on one side with waterproofing material, and faced on the other side with recovered cellulose, substantially as described.

691,952. **WAXED PAPER.** ARTHUR D. LITTLE, Brookline, Mass., assignor to Cellulose Products Company, Wilmington, Del., a Corporation of Delaware. Filed May 27, 1901. Serial No. 62,143. (No specimens.)

Claim.—1. As a new article of manufacture paper having a coat or face composed of recovered cellulose and paraffin, substantially as described.

2. A mixture for coating paper consisting of an emulsion of paraffin and viscose, substantially as described.

691,953. **PROCESS OF FORMING BALES OF FIBROUS OR OTHER MATERIALS.** GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass., a Corporation of West Virginia. Filed Jan. 10, 1900. Serial No. 974. (No specimens.)



Claim.—1. The process which consists in forming fibrous or other material into practically continuous sheets or layers, and separately expressing the air from each thin sheet or layer and simultaneously applying thereto a high degree of heat, and finally superposing such compressed sheets or layers upon each other under compression.

2. The process which consists in forming green fibrous material into practically continuous thin sheets or layers and expressing the air separately from each sheet or layer, and simultaneously therewith subjecting such sheet or layer to a high degree of heat to sterilize the same, and superposing such compressed sterilized sheets or layers upon each other under compression, and finally securing the package formed by the superposed sheets or layers while still under compression to seal the same against admission of air, as and for the purpose set forth.

3. A process of forming bales of fibrous material, which consists in forming the material into layers and highly compressing each individual layer so as to express the air from the particles thereof, and to flatten the same and simultaneously applying heat to such individually highly compressed and flattened layer to sterilize the same, and finally superposing said layers under compression upon each other and securing the same, as and for the purpose set forth.

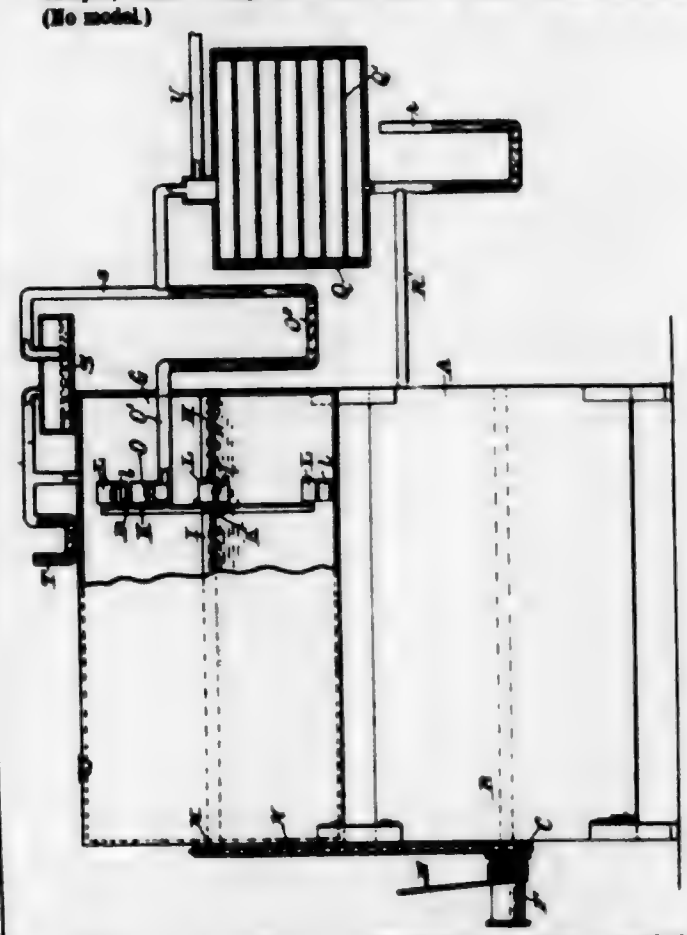
691,954. **BALE OF HAY OR OTHER MATERIAL.** GEORGE A. LOWRY, Chicago, Ill., assignor to the Planters Compress Company, Boston, Mass., a Corporation of West Virginia. Filed Jan. 10, 1900. Serial No. 975. (No model.)



Claim.—1. As a new article of manufacture, a package of fibrous food material composed of a continuous, compressed series of superposed, highly-compressed and sterilized layers, and of a means for retaining the layers in the compressed condition and relation, as and for the purpose set forth.

2. As a new article of manufacture, a package of green fibrous material composed of a series of highly-compressed superposed layers, having the natural juices in the fibers thereof cooked and thereby sterilized and securing devices for retaining the package in a compressed condition and thus sealing the same; substantially as and for the purpose set forth.

691,955. **CARBURETER.** FRANK L. MARTINETTE, Chico, Cal., assignor of one-half to H. W. Camper, H. W. Heath, and Harry H. Camper, Butte county, Cal. Filed May 11, 1901. Serial No. 59,768. (No model.)



Claim.—1. In a carbureter, coacting oil and air feeds, a liquid-check valve to vent the chamber containing the oil-feed, in combination with a carbureting-chamber containing a plurality of horizontal partitions of fibrous material, substantially as shown and described.

2. In a carbureter, the combination of an air-pump cylinder, an oil-feed cylinder, a carbureting-chamber, pipes for conveying air and oil to said chamber, a fluid-sealed vent-valve, and a fluid blow-off for said oil-feed cylinder, substantially as shown and described.

3. In a carbureter, the combination of an air-pump cylinder, an oil-feed cylinder, said cylinders being vertically disposed; shafts connected to the oil-feed and air-pump, means for connecting said shafts and to revolve

them in a predetermined relative speed, and a fluid-check valve to vent said oil-feed cylinder, substantially as shown and described.

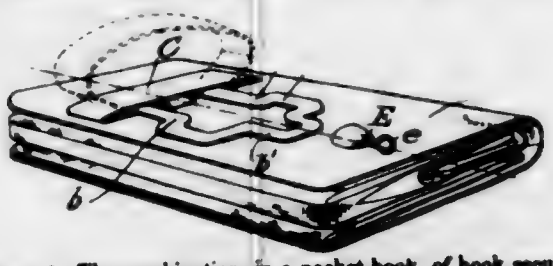
4. In a carbureter, the combination of an oil-feed cylinder, an air-pump cylinder, said cylinders vertically disposed, a carbureting-chamber separated from said cylinders, pipes to connect said cylinders with the carbureting-chamber, a trap in the oil-feed pipe, a fluid-check valve to vent said oil-feed cylinder connected to said oil-feed pipe, and a blow-off for said oil-feed cylinder, substantially as shown and described.

5. In a carbureter, the combination of two vertically-disposed cylinders, one for supplying oil, the other air, a carbureting-chamber, means for regulating the amount of oil to the amount of air supplied to said chamber and a fluid-sealed check-valve to vent said oil-feed cylinder, substantially as shown and described.

3. In a carbureter, the combination of a carbureting-chamber, an oil-feed cylinder and an air-pump, a pipe connecting the bottom of the carbureting-chamber with said air-pump, a pipe connecting the top of said carbureting-chamber with said oil-feed cylinder, said pipe containing a trap and also connected to a fluid-sealed vent-valve for said oil-feed chamber, a funnel connected to the oil-feed pipe, said oil-feed comprising a series of radial arms mounted on a shaft, cups on the end of each arm having weighted bottoms, means for upsetting said cups and means for rotating said shaft at a determinable speed as compared to the speed of the air-pump, substantially as shown and described.

7. In a carbureter, the combination of two vertically-disposed cylinders, one an oil-feed, the other an air-feed, a carbureting-chamber, pipes to connect said chamber with the oil and air feed cylinders, said oil-feed consisting of a plurality of radial arms mounted on a horizontal shaft, cups pivotally mounted at the ends of said radial arms, said cups being funnel-shaped and having their bottoms weighted, a funnel to receive the oil from said cups, said funnel being fixed to the end of said oil-feed pipe, and a fluid-sealed check-valve to vent said oil-feed cylinder, substantially as shown and described.

691,956. PROTECTOR FOR POCKET-BOOKS. ABRAM J. MARTIN, New York, N. Y. Filed Mar. 2, 1901. Serial No. 49,544. (No model.)



Claim.—1. The combination, in a pocket-book, of hook secured to one end thereof and having an inwardly-turned end, with a cord having a button and eye thereon, the eye adapted for engagement with said hook, substantially as shown and described.

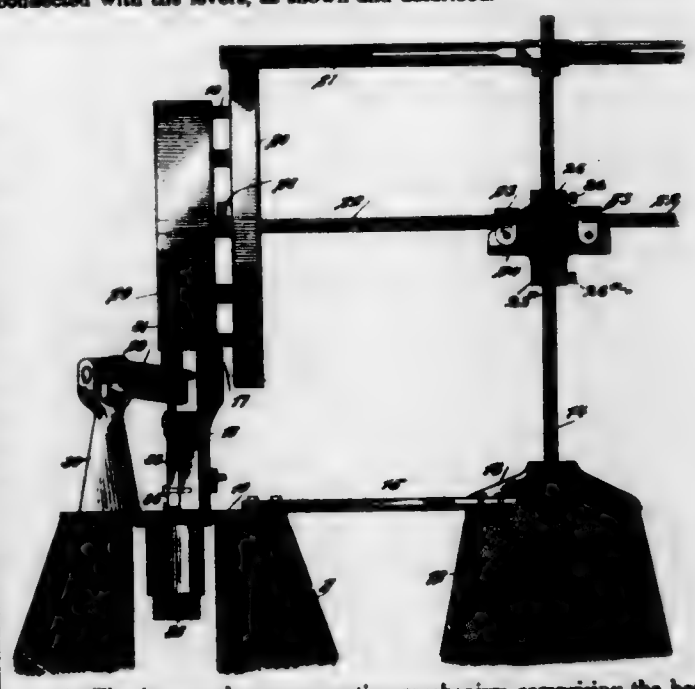
2. The combination with a pocket-book, having an eyeleted hole therethrough and a cord passing through said hole and normally contained within the pocket-book, a stop on the inner end of said cord and a button having a peripherally-extended eye and a spring-metal shank, of a hook secured to one end of the pocket-book and having an inwardly-turned end normally covered by the back of the pocket-book, substantially as shown and described.

3. As an attachment for pocket-books, a combined handkerchief-holder and finger-ring embodying a spring-metal loop having its ends fastened to the outside surface of the cover of the book and a resilient ring normally folded over on and lying flat against the back of the book within the said loop and adapted to be placed in position at right angles thereto, substantially as shown and described.

691,957. PUMP-OPERATING MECHANISM. JACOB S. MILLER, Muncie, Ind., assignor of three-fifths to Jacob A. Meeks, Robert M. Ball, William H. Moreland, Orlando J. Lotz, and William H. Hickman, Muncie, Ind. Filed May 5, 1900. Serial No. 15,636. (No model.)

Claim.—1. The improved pump-operating mechanism comprising a horizontal fixed track, a shaft set vertical and central to the track, a series of levers pivoted alongside the track exterior thereto, a series of pairs of wheels having axes that are connected with the central shaft, one of each pair of said wheels running upon the fixed track and also upon the said levers, and a rotating motor-wheel arranged horizontal and adapted to bear upon the inner wheels of each of said pairs, substantially as shown and described.

2. The improved pump-operating mechanism comprising a horizontal fixed track, a vertical shaft set central to the track, a series of actuating-levers pivoted alongside the track exterior thereto, a series of pairs of wheels held on axes connected with said shaft, the inner larger wheel of each pair being arranged to run free on the inner side of the track, and the outer one to run thereon and also upon the adjacent levers, the horizontal motor-wheel arranged concentrically upon the vertical shaft and engaging the inner wheels of each of the aforesaid pairs, and a series of cylinders corresponding to the said levers, and having pistons which are connected with the levers, as shown and described.



3. The improved pump-operating mechanism comprising the horizontal fixed track having a polygonal outer side, a series of levers (each) pivoted adjacent and parallel to one of the straight sides of said track, the free end of each being adjacent to the body of the next lever in advance of it, a series of pairs of wheels having horizontal axes and a central shaft to which the latter are connected, the inner wheel of each pair being adapted to run free within the fixed track and the outer one to run upon the levers, the arrangement being as described, whereby said wheels pass immediately from one lever onto another, a horizontal motor-wheel that engages the inner wheels of the several pairs, and cylinders and pistons corresponding to the series of levers, as shown and described.

4. The improved pump-operating mechanism comprising a horizontal fixed track, a vertical shaft set central to the track, a series of actuating-levers pivoted alongside the track exterior thereto, a series of pairs of wheels held on axes connected with said shaft, the inner larger wheel of each pair being arranged to run free on the inner side of the track, and the outer one to run thereon and also upon the adjacent levers, the series of short returning-levers 38, pivoted beneath the actuating-levers, and having spring-encircled rods pivoted to their ends and engaging the two adjacent actuating-levers, and a horizontal motor-wheel which engages the inner wheels of the several pairs, as shown and described.

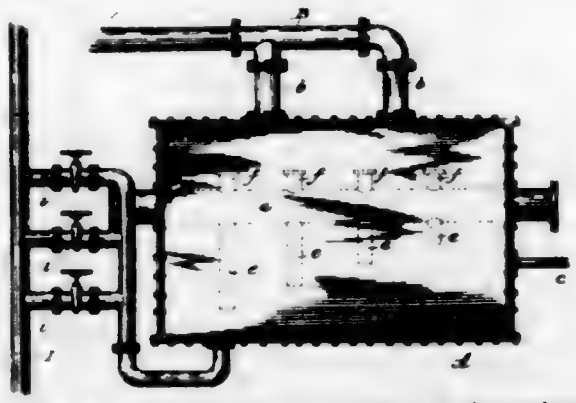
5. The improved pump-operating mechanism comprising the horizontal fixed track having a polygonal outer side a series of levers (each) pivoted adjacent and parallel to one of the straight sides of said track, the free end of each being adjacent to the body of the next lever in advance of it, said levers being provided with rear arms or extensions 29^a, and a series of counterbalance-weights adapted to slide thereon, a series of pairs of wheels having horizontal axes and a central shaft to which the latter are connected, the inner wheel of each pair being adapted to run free within the fixed track and the outer one to run upon the levers, the arrangement being as described, whereby said wheels pass immediately from one lever onto another, a horizontal motor-wheel that engages the inner wheels of the several pairs, and cylinders and pistons corresponding to the series of levers, as shown and described.

6. The improved pump-operating mechanism comprising a horizontal fixed track, a shaft central thereto, a series of levers pivoted outside of but adjacent to the track, a series of cylinders and pistons, the latter connected with the levers, a series of pairs of wheels running on said track and levers, and having axes extended inward radial with said vertical shaft, a vertically-adjustable collar on the latter, and a motor-wheel engaging the inner wheel of each of said pairs, as shown and described.

691,958. GAS-SEPARATOR FOR DIGESTERS. CHARLES W. MILLS, Rumford Falls, Me. Filed Aug. 22, 1901. Serial No. 73,047. (No model.)

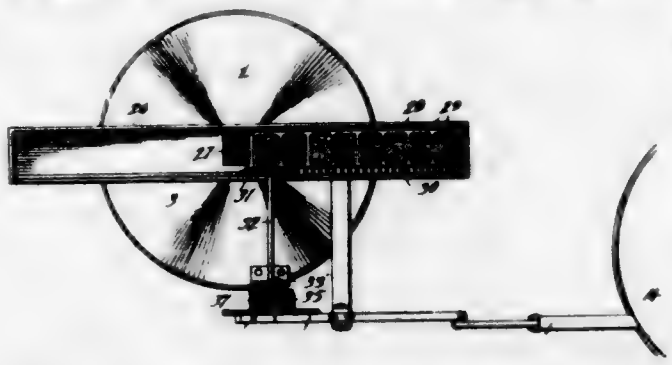
Claim.—1. In an apparatus for separating and cooling gas, the combination, of a closed tank having a gas-outlet pipe leading from its upper end, a horizontal gas-inlet pipe extending through the tank, and branch pipes extending from the top and bottom of said inlet-pipe the depending branch pipes entering a body of water; together with water inlet and discharge pipes, substantially as shown and described.

2. In an apparatus for separating and cooling gas, the combination, of a closed tank having a gas-outlet pipe extending from the top of the same, a horizontal pipe extending through the tank, discharge-openings in the top of said horizontal pipe, and branch pipes of different lengths depending from the bottom of said horizontal pipe, together with water inlet and discharge pipes, substantially as shown and for the purpose set forth.



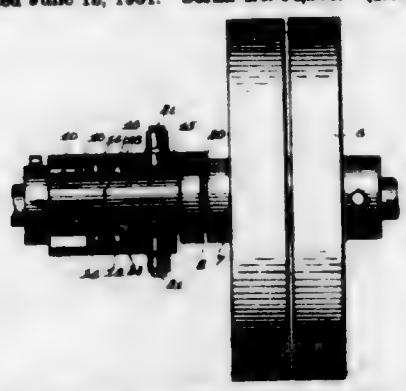
3. In an apparatus for separating and cooling gas, the combination, of a closed tank having a gas-outlet, a horizontal inlet-pipe extending through the tank, discharge-openings in the top of the inlet-pipe, and branch pipes depending from the bottom of said inlet-pipe, the branch pipes being of different lengths; together with a water-inlet pipe, a discharge-pipe, and valved branch pipes at different heights connected to the discharge-pipe, substantially as shown and for the purpose set forth.

691,959. ACETYLENE-GAS GENERATOR. ALFRED MYERS, Dryden, N. Y. Filed Apr. 26, 1900. Serial No. 14,449. (No model.)



Claim.—In combination with an acetylene-gas generator, an inclosing case, a carbid-magazine movable longitudinally in said inclosing case and having compartments adapted to successively register with a discharge-opening in the bottom of said case, said magazine having a rack, an operating-shaft having a pinion engaging said rack and provided further with an escapement-wheel and a drum, a weighted cord attached to and wound upon said drum, an anchor or detent engaging said escapement-wheel and having an outwardly-extending arm, a vertically-movable gas-holder having an arm projecting therefrom, and a spring-supported tappet, hinged to and extending outward from the end of said arm, said tappet engaging the outward-extended arm of the said anchor or detent to trip said anchor or detent on the descent of the gas-holder, thereby allowing carbid to be fed to the generator, and adapted to yield and clear said arm of said anchor or detent on the ascent of the gas-holder, substantially as described.

691,960. SHIPPER MECHANISM. JOHN MCCAFFREY, Lawrence, Mass. Filed June 12, 1901. Serial No. 64,276. (No model.)



Claim.—1. A shipper comprising a fixed member having lateral extensions and a cam, a movable member having lateral extensions and a cam working against the cam of the fixed member, and means in engagement with extensions for causing the partial rotation of the movable member.

2. A shipper comprising a thrust member adapted to be fixed and having a cam, a member adapted to be movably mounted in relation to the fixed member and having a cam working on that of the fixed member, and a shipper-sleeve movably mounted on said members and furnished with means for causing the partial rotation of the movable member.

3. A shipper comprising a fixed member having a cam end, and a movable member having a cam working on said end, a shipper-sleeve movably mounted on said members, connections between the sleeve and the fixed member whereby the sleeve is caused to rotate under a reciprocative movement, and connections between said sleeve and the movable member whereby rotative motion may be imparted from the sleeve to said member.

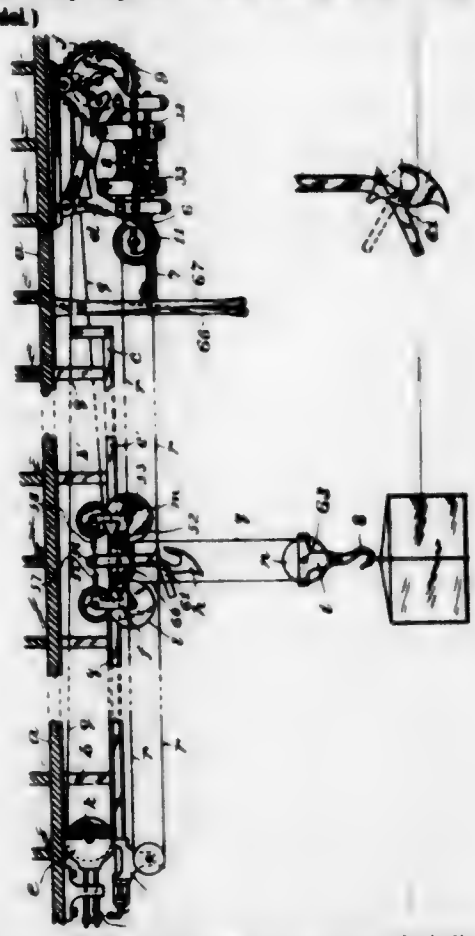
4. The combination with the collars 10 furnished with lateral projections as 13 and having the cams as 12, and the collar 15 furnished with projections as 17 and having cams as 16 working on the cams 12, of the shipper-sleeve 19 having the channels 22 and 23 with the inclined connection having the cams 24 and 25.

691,961. ALARM-BELL. AUGUST G. NELSON, Bradford, Pa. Filed Oct. 31, 1900. Serial No. 35,004. (No model.)



Claim.—The combination with a base-plate, a frame composed of two triangular plates held at a predetermined distance apart and between which the gearing is disposed and by which it is supported, and a shaft held in said frame, of a spring wound on the shaft with one end secured to the frame, a toothed wheel, a toothed wheel meshing therewith, an escapement, a rotatable bell revolved by said mechanism operated by said toothed wheels, a hammer operated by the escapement, and a fusible connection between the base-plate and the bell for holding the latter against action until the fusible connection is destroyed, all substantially as shown and described.

691,962. LIFTING AND CONVEYING APPARATUS. CHARLES F. NICKEY, Clay City, Ind. Filed June 29, 1901. Serial No. 66,457. (No model.)



Claim.—1. Lifting and conveying apparatus including a carriage, a lifting-cable, a safety carrying member having an opening therein, a lifting-sheave frame, a guard mounted movably at the front of the opening of the carrying member, means whereby the guard may normally be prevented from closing the opening, a member attached to the sheave-frame adapted to engage the guard and push the same across the open-

ing of the hook, and a power-machine operatively connected with the lifting-cable.

2. Lifting and conveying apparatus including two track-rails, a carriage supported by and between the rails, a carrying-cable, a lifting-cable, a pair of safety carrying-hooks pivoted to the carriage and having each a guard adapted to close the openings of the hooks, a sheave-frame carried by the lifting-cable and having projections adapted to enter the safety carrying-hooks, and means whereby the sheave-frame may be elevated and the projections thereof automatically transferred into the safety carrying-hooks.

3. Lifting and conveying apparatus including a track, a carriage mounted upon the track, a lifting-cable, a safety carrying-hook pivoted to the carriage, a guard adapted to close the opening of the hook, a sheave-frame carried by the lifting-cable and having a member adapted to enter the opening of the hook and also adapted to operate the guard so as to close the opening.

4. Lifting and conveying apparatus including two track-rails, a carriage mounted upon the rails, a lifting-cable, a carrying-hook pivoted to the carriage and having a guard adapted to close the opening of the hook, a sheave-frame carried by the lifting-cable and having a member adapted to enter the carrying-hook, means whereby when the member may have been elevated from the hook the guard will be operated and close the hook, a cushion for the safety carrying-hook, and means coacting with the lifting-cable whereby the sheave-frame may be elevated and the member thereof automatically transferred into the hook.

5. Lifting and conveying apparatus including a track, a carriage mounted on the track, a pair of sheaves mounted on the carriage, a lifting-hook sheave, a tail-sheave, a safety carrying-hook pivoted in the carriage and having a hook-guard movable across the opening of the hook, a member attached to the lifting-hook sheave and adapted to operate the guard and cause the same to close the hook-opening, a lifting-cable extending over the tail-sheave and the pair of carriage-sheaves and under the lifting-hook sheave, a carrying-cable, and a cushion operating against the safety carrying-hook whereby to absorb the thrusts thereon when operating the carriage with a load suspended in the carrying-hook.

6. Lifting and conveying apparatus including two track-rails, a carriage mounted upon and between the rails, a pair of safety carrying-hooks pivoted at the sides of the carriage, a yoke connecting the pair of hooks, cushion-springs connected with the pair of hooks, guards for closing the openings of the hooks, a lifting-hook sheave-frame operating at times between the pair of hooks and having projecting members adapted to enter the hooks and also operating the guards so as to close the openings of the hooks, and means whereby the guards may be automatically operated to withdraw from the openings of the hooks.

7. In lifting and carrying apparatus, the combination of a frame, two pairs of friction-clutch pulleys mounted in the frame, two belts operating the two pairs of pulleys, a lifting-drum operatively connected with one pair of the pulleys, a cable-driving pulley operatively connected with the other pair of the pulleys, means whereby to operate the clutching members of the pulleys, a pair of track-rails, a carriage mounted upon and between the track-rails, a lifting-hook and sheave therefor, a pair of sheaves mounted in the carriage, a tail-sheave at the ends of the track-rails, a lifting-cable extending over the tail-sheave and the pair of sheaves and under the lifting-hook sheave and attached to the lifting-drum, a carrying-cable connected with the carriage and running over the cable-driving pulley a spreading-sheave for the carrying-cable, safety carrying-hooks pivoted to the carriage, guards at the openings of the carrying-hooks, cushions for the carrying-hooks, and members attached to the lifting-hook sheave-frame adapted to enter the carrying-hooks and to also engage the guards at either upper or lower sides thereof.

8. In lifting and carrying apparatus, the combination of a power-machine comprising a base, a pair of frames attached to the base, a lifting-drum, and means whereby to operate the drum in either rotative direction, a carriage operated by the power-machine, a lifting-cable attached to the drum and operating in connection with the carriage, a lifting device connected with the lifting-cable, a safety carrying member supported directly by the carriage whereby to carry a load independently of the lifting-cable, the lifting device being adapted to form connection with the safety carrying member, a screw-threaded shaft driven in unison with the lifting-drum, a collar having screw-threads on said shaft and having an arm provided with an aperture, an adjustable stop member for the collar, a pull-bar having a stud extending through said aperture and operatively connected with means whereby the motion of the machine may be reversed and then stopped when engagement is effected between the lifting device and the safety carrying member.

9. In lifting and conveying apparatus, the combination of a lifting-drum, a track, a carriage, a pair of sheaves mounted in the carriage, a lifting-hook sheave, a spreading-sheave at the end of the track, a lifting-cable secured to the lifting-drum and having two strands extending from the same side of the drum together, the cable extending over the carriage-sheaves, the spreading-sheave and under the hook-sheave continuously from and back to the drum; a safety carrying member attached to the carriage, a member attached to the lifting-hook sheave and adapted to engage the safety carrying member, a friction-clutch pulley operating the lifting-cable, and automatically-operated means whereby, when the member attached to the hook-sheave has been detached from the safety carrying member, the lifting-hook sheave will be automatically stopped in its ascent and its motion reversed and the sheave caused to descend.

10. In lifting and conveying apparatus, the combination of a power-machine comprising a base, frames attached to the base, a drum-shaft having screw-threads, a lifting-drum secured to said shaft, a rotative lifting-shaft having oppositely-moving loose pulleys, clutches for said pulleys having clutch-arms, a shifting sleeve on said lifting-shaft having a groove to be engaged by said arms of one of said clutches, a shifting rod, an arm attached to the shifting rod and engaging said sleeve, gear-wheels operatively connecting the said drum and said lifting-shaft, springs normally holding said shifting rod in mid-position, a threaded collar mounted on said threads of said drum-shaft and having an arm provided with an aperture, a stop member for said collar whereby the same may be locked to its supporting-shaft, a pull-bar having a stud extending through said aperture and having connection with one of said springs on said shifting rod whereby said shifting collar may be automatically operated, a track, a carriage, a lifting-cable, a carrying-cable, and means whereby to operate the carrying-cable.

11. In lifting and conveying apparatus, the combination of a power-machine, a lifting-drum, a lifting-cable, a lifting member operated by the lifting-cable, a carriage, a yoke pivoted to the carriage and having safety carrying-hooks attached thereto, guards and guides for said hooks, a balance-spring for said hooks, a carrying-cable, means whereby the carrying-cable may be operated, means whereby to operate the lifting-drum and the lifting-cable, an automatic mechanism operated by the power-machine and coacting with the safety carrying-hooks, whereby a load raised by the lifting member may be transferred to the safety carrying-hooks.

12. In lifting and conveying apparatus, the combination of a power-machine, a lifting-drum, a lifting-cable, a track, a carriage, a safety carrying-hook attached to the carriage, a lifting member operated by the lifting-cable, a carrying-cable, means whereby the carrying-cable may be operated, a lifting driving-shaft operatively connected with the lifting-drum, a pair of friction-clutch pulleys having each a pivoted operating-arm mounted on the driving-shaft, a shifting sleeve mounted on the driving-shaft having oppositely-disposed conical ends in one of which is a groove or depression to receive the end of one of said pivoted operating-arms, a spring-pressed shifting bar, a shifting arm in connection with the shifting bar and the shifting sleeve, a pull-bar in connection with the shifting bar, means operated in unison with the lifting-drum whereby when the lifting member may be in proximity to the safety carrying-hook, the pull-bar may be automatically operated and cause one conical end of said sleeve to be disengaged from one of said operating-arms and the opposite one of said conical ends to be engaged with an opposing one of said operating-arms and then released therefrom, whereby the lifting member may be automatically connected to the safety carrying-hook.

13. In lifting and conveying apparatus, the combination of the plurality of parallel shafts, the frames for the shafts, the pair of pulleys on each of said shafts, the clutches for the pulleys, the shifting sleeves for the clutches, the belts driven in opposite directions one of which drives a pulley on each of said shafts in a series and the other one of which drives a pulley on each of said shafts in another series, two of said pulleys on one of said shafts being arranged to deflect the belts from their courses so as to increase the contact with the intermediate pulleys, the lifting-drum, the drum-shaft, the gear-wheels connecting the drum-shaft with one of said parallel shafts, the carrying-cable pulley, the shaft for the said pulley driven by another one of said parallel shafts, the lifting-cable attached to said drum, the carrying-cable extending about said cable-pulley, the carriage having the safety carrying-hooks, the tail-stock having the cushion-springs, the sheave in said tail-stock and spreading said lifting-cable, the lifting-hook carried by said cable, the bracket attached to said carriage and to said carrying-cable, and the tail-stock having the adjusting-screw for said carrying-cable.

14. In lifting and conveying apparatus, the combination of a frame, a power-machine mechanism supported by the frame, a plurality of series of hangers, a track-rail supported by each series of hangers between the two series thereof, a carriage supported by and between said rails, guide-pulleys supported above and independently of said carriage, safety carrying-hooks pivoted to said carriage and having the guards adapted to close the openings thereof, the lifting-hook having the sheave-frame connected therewith provided with the projecting axle adapted to enter said carrying-hooks, the lifting-cable running over said guide-pulleys and op-

erating to lift said axle into engagement with said carrying-hooks, the carrying-cable connected to said carriage, and means for actuating said cables.

15. In lifting and conveying apparatus, the track composed of parallel rails spread apart, the carriage, the flanged wheels on the rails supporting the carriage between said rails, a yoke pivoted to said carriage and spring-pressed to a mid-position and provided with the carrying-hooks having the operative guards, the sheaves at either side of said yoke, the lifting-hook, the sheave having the projecting axle, and the lifting-cable whereby said axle may be placed in said carrying-hooks, in combination with the power-machine having the reversible lifting-drum connected with said lifting-cable, and interlocking mechanism operated by the power-machine whereby said lifting-cable may be automatically stopped when said axle is deposited in said carrying-hooks.

16. In lifting and conveying apparatus, the track, the carriage, the power-machine having the carrying-cable pulley, the adjustable tail-pulley, the bracket secured to the carriage and extending from the side thereof, the carrying-cable having its two ends attached to said bracket and extending over said carrying-cable pulley and said tail-pulley, and the lifting-cable operating in connection with said carriage, in combination with a power-machine whereby to operate said cables.

17. In lifting and conveying apparatus, the track, the carriage, the lifting-cable, means whereby to operate the lifting-cable, the lifting-sheave supported by the lifting-cable, the tail-stock and the spreading-sheave for said cable, the pair of sheaves supported by the carriage and engaged by said cable, the pair of separated safety carrying-hooks attached to the carriage, and the frame connected with said lifting-sheave and entering between the pair of carrying-hooks and provided with the extended axle extending beyond said hooks laterally and engaged thereby.

18. In lifting and conveying apparatus, the power-machine frames, the parallel transversely-disposed shafts mounted in said frames, the lifting-drum on one of said shafts, the gear-wheel operatively connected with said drum, means for driving said gear-wheel in either rotative direction, the clutching mechanism, the pull-bar operatively connected with said clutching mechanism and automatically operated by means connected with said shaft, the conveying-cable pulley on the other one of said shafts, means for actuating said pulley, the conveying-cable, the lifting-cable, and the lifting-hook, in combination with a carriage having means whereby to receive the lifting-hook and relieve the lifting-cable of the load thereon.

19. In lifting and conveying apparatus, the track, the carriage, the lifting-cable, the power-machine, the lifting-hook frame having the lateral projections, the pair of carrying-hooks pivoted to the carriage, and the guards having the arms pivoted to said carrying-hooks.

20. In lifting and conveying apparatus, a lifting-drum shaft, a lifting-drum, a lifting driving-shaft, gear-wheels connecting the drum-shaft and the driving-shaft, reversible means whereby the driving-shaft may be actuated, a screw operated in unison with the drum-shaft and having an adjustable stop thereon, a collar mounted movably on the screw and having an apertured arm, a spring-pressed shifting bar connected with the reversible means, a pull-bar connected with the apertured arm and also with the shifting bar, a track, a carriage, and a lifting-cable.

21. In lifting and conveying apparatus, a driving-shaft, a pair of opposing friction-clutch pulleys having pivoted operating-arms, a shifting sleeve having conical ends one of which is provided with an annular groove engaged by one of said operating-arms, a shifting bar connected with said sleeve, a pull-bar connected with said shifting bar, a movable arm operatively connected with and actuating said pull-bar, a lifting-drum a lifting-cable, a track, a carriage, and a lifting-hook.

22. In lifting and conveying apparatus, a track, a carriage, a yoke pivoted to the carriage and having a pair of spread carrying-hooks attached thereto, a lifting-sheave, a lifting-sheave frame entering between the pair of carrying-hooks and having projections extending laterally beyond the said hooks and adapted to be received and supported thereby, a movable guard for said hooks adapted to close the openings to said hooks when said projections are elevated above the guards and permitting the projections to enter the hooks when below said guards.

23. In lifting and conveying apparatus, a track, a carriage, a lifting-cable, a lifting-hook, and a safety carrying-hook provided with a pivoted guard-arm having a guard adapted to close the opening to the hook and normally withdrawn therefrom, and a member connected with the lifting-hook whereby the upper part of the guard may be engaged and operated to close said opening, said member being adapted to enter said opening below the said guard.

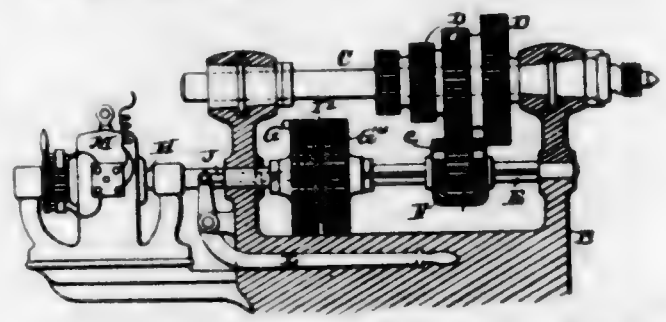
24. In lifting and conveying apparatus, a drum-shaft, a lifting-drum, a screw-thread on the drum-shaft, an adjustable stop on the drum-shaft, a collar mounted on the screw-thread and having an arm attached thereto, means for driving the drum-shaft, a pull-bar operated by said arm, members connected with the pull-bar and also with the means for driving the drum-shaft, whereby the drum may be automatically stopped; a track, a carriage, and a lifting-cable.

25. In lifting and conveying apparatus, a rotative shaft, two friction-clutch pulleys having pivoted operating-arms, a shifting sleeve having conical ends engaged by said arms one of said ends having a groove in the surface thereof engaged by one or more of said arms, a shifting bar mounted in bearings and operatively connected with said shifting sleeve, a pair of opposing springs normally holding said shifting bar in mid-position, a pull-bar engaging one of said springs whereby said bar may be elastically operated, automatic means whereby said pull-bar may be actuated, a lifting-drum, and a lifting-cable.

26. In lifting and conveying apparatus, the power-machine frame, the pulley 33, the pulley 47 having its axis in a plane higher than the plane of the axis of the pulley 33, the pulley 49 having its axis in a plane higher than the plane of the pulley 47, and the belt extending from the side of the machine-frame partially about the pulley 33 and thence partially about the pulley 47 and thence partially about the pulley 49, whereby the pulleys 33 and 49 may be driven in opposite directions by one belt moving in either direction, the clutching mechanism, the lifting-drum, and the lifting-cable.

27. In lifting and conveying apparatus, the combination of the machine-frame, the friction-clutch pulleys, the driving-shafts, the lifting-drum, the carrying-cable pulleys, the track, the carriage having the safety carrying-hook, the lifting-cable, the lifting-sheave frame adapted to be supported by the carrying-hook, the shifting bar having the slot in the end thereof, the arm having the pin engaging said slot, the hand-lever operatively connected to said arm, the springs engaging said shifting bar, the pull-bar engaging one of said springs, the arm engaging said pull-bar and automatically operated in unison with the lifting-drum, and the carrying-cable.

691,968. **SPEED CHANGING AND REVERSING MECHANISM.** WENDELL P. MORTON, Torrington, Conn. Filed Nov. 3, 1900. Serial No. 35,410. (No model.)



Claim.—1. The combination with a live-spindle and driving-shaft, of speed-changing gearing for varying the speed of rotation of the spindle, said gearing comprising a cone of gears and a tumbler-gear adapted to be thrown into and out of engagement with any one of the said gears of the cone.

2. The combination with a live-spindle, and tumbler-shaft, of speed-changing gearing for varying the speed of rotation of the spindle, consisting of a cone of gears and a tumbler-gear adapted to be thrown into and out of mesh with any one of the gears of the cone, the cone of gears and tumbler-gear being mounted on said spindle and tumbler-shaft.

3. The combination with a lathe-spindle and driving-shaft, of speed-changing gearing for varying the speed of rotation of the spindle, said gearing comprising a cone of gears, and a tumbler-gear adapted to be thrown into and out of engagement with any one of the gears of the cone, and reversing-gear located between the speed-changing gearing and the mechanism through which power is transmitted to the driving-gear.

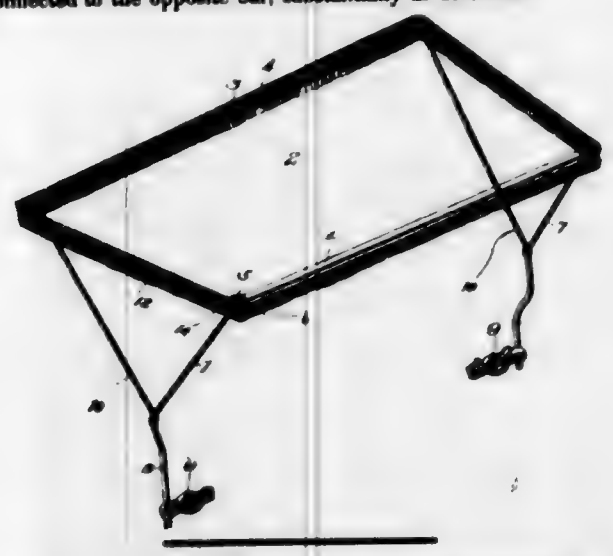
4. The combination with a live-spindle carrying a step or cone gear, of a tumbler-shaft, a tumbler-gear actuated thereby, means for shifting the tumbler-gear, a driving-shaft, and reversing mechanism located between the speed-changing gearing and the mechanism through which power is transmitted to the driving-gearing.

5. The combination with a live-spindle carrying a step or cone gear, of a tumbler-shaft, a tumbler-gear actuated thereby, means for shifting the tumbler-gear, and reversing mechanism carried by the tumbler-shaft.

691,964. **CANOPY FOR TRICYCLES, &c.** BARNEY J. OLDING, St. Henry, Ohio. Filed Aug. 28, 1901. Serial No. 73,618. (No model.)

Claim.—1. In a canopy, the combination of opposite frame-bars having a flexible covering secured thereto and provided near their extremities with eyes, inclined main and auxiliary supporting-rods having their upper ends movably attached to the eyes respectively of said frame-bars and converging toward their lower extremities, the auxiliary supporting-rods having their lower ends pivotally connected to the main supporting-rods, and the main supporting-rods being extended downward beyond said pivotal points to form uprights adapted to receive securing devices, and spreader-rods movably attached at one end to the eyes of one frame-bar and having terminal hooks for removable engagement with the eyes of the other frame-bar.

2. In a canopy of the class set forth, the combination of frame-bars having a canopy-covering secured thereto, folding supporting devices movably attached to the said frame-bars and inclined inwardly and downwardly, the one set of supporting devices being pivotally attached to the other and the latter from the points of attachment of one set thereof being continued rigidly downward so that one set of supporting devices will be of continuous construction from their upper to their lower extremities, and a pair of spreader-rods movably attached to one bar and removably connected to the opposite bar, substantially as described.



691,965. COMBINED DUST-PAN AND BROOM-HOLDER. JOHN H. ORAMEY, Bolton Landing, N. Y. Filed Sept. 26, 1901. Serial No. 76,623. (No model.)



Claim.—1. As an improved article of manufacture, a combined dust-pan and broom-holder comprising a receptacle and a combined handle and suspension device adjustably secured thereto and adapted to be projected beyond either the front or rear edge thereof.

2. As an improved article of manufacture, a combined dust-pan and broom-holder comprising a receptacle and a combined handle and suspension device slidably mounted thereon and adapted to be projected beyond either the front or rear edge thereof.

3. As an improved article of manufacture, a combined dust-pan and broom-holder comprising a receptacle and a sliding member mounted thereon having one end formed to constitute a suspension device and its opposite end formed to constitute a hand-grasp.

4. As an improved article of manufacture, a combined dust-pan and broom-holder, comprising a receptacle, guideways on the back of the receptacle and a sliding member in the said ways, arranged to be projected beyond the front edge of the receptacle to provide a suspension device or beyond the rear edge of said receptacle to provide a handle.

5. As an improved article of manufacture, a combined dust-pan and broom-holder, comprising a receptacle, parallel guideways on the receptacle and a sliding member comprising parallel side arms to slide in the said guideways and provided at one end with a suspension-loop and at the other end with a handle.

6. As an improved article of manufacture, a combined dust-pan and broom-holder, comprising a receptacle, a strip extending longitudinally of the said receptacle and having its edges formed to provide parallel guideways and a sliding member movable in the said guideways and arranged to be projected beyond the front edge of the said receptacle to provide a suspension device or beyond the rear edge thereof to provide a handle.

7. As an improved article of manufacture, a combined dust-pan and broom-holder comprising a receptacle formed from a substantially rectangular blank having its sides bent to form broom-retaining members, and a combined handle and suspension device slidably mounted on the said receptacle and adapted to be extended over either the front or rear edge thereof.

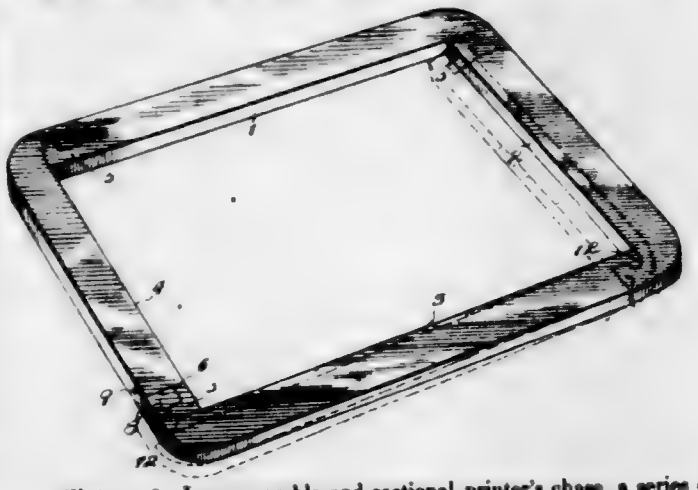
8. As an improved article of manufacture, a combined dust-pan and broom-holder, comprising a receptacle formed from a blank having its sides bent to form broom-retaining members parallel to the body of the receptacle, and tapering from the front to the rear edge thereof, the rear portion of said receptacle being open for the withdrawal of the broom, and a combined handle and suspension device slidably mounted on the said receptacle and adapted to be extended over the front or rear edge thereof.

691,966. PROCESS OF EXTRACTING ZEIN. THOMAS B. OSBORNE, New Haven, Conn., and ROBERT W. CORNELISON, Bloomfield, N. J. Filed May 23, 1900. Serial No. 17,756. (Specimens.)

Claim.—1. The process of producing a concentrated solution of the water-soluble compound of zein and alkali, which consists in treating the raw or uncooked residue left after the manufacture of corn-starch, with a dilute aqueous alkaline solution; separating said solution from the insoluble residue left after such treatment; precipitating the zein from said solution; and treating the precipitate with a comparatively concentrated alkaline solution, substantially as and for the purpose described.

2. The process of extracting zein, which consists in treating the raw or uncooked residue left after the manufacture of starch from Indian meal, with a dilute aqueous alkaline solution; separating the alkaline solution from the insoluble residue left after such treatment; precipitating the proteids from said solution; and extracting the precipitate with a solvent of zein, substantially as and for the purpose described.

691,967. SEPARABLE OR SECTIONAL PRINTER'S CHASE. WILLIAM H. PADGETT, Jr., New Albany, Ind. Filed May 21, 1901. Serial No. 61,258. (No model.)



Claim.—1. In a separable and sectional printer's chase, a series of flat bars, each respectively having at opposite ends in alternation a lug projecting at right angles to the length of the bar and a recess between said lug and the body of the bar, and a projection at right angles to the body of the bar with an inwardly-extending terminal lug at right angles to said projection and longitudinally parallel with the adjacent portion of the inner edge of the bar to form a cavity between said projection and lug thereof and body of the bar, the first-named lug and recess separably interlocking with the projection, lug and cavity at the end of an adjacent bar, whereby a series of frames may be produced having a graduated size, the lengths of the end members of one set of said frames corresponding in length to the side members of the remaining sets of said frames, whereby members of frames of various sizes may be constructed with the same bars by interchanging the bars.

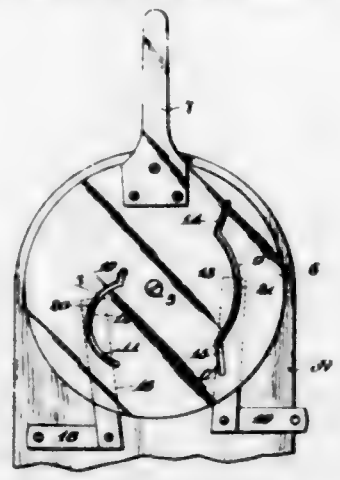
2. In a separable and sectional printer's chase, a series of bars, each having a lug at one end and a recess between said lug and the body of the bar, a projection at right angles to the body of each bar at the opposite end and with a lug extending inwardly from each of said projections and parallel to the body of the bar and forming a cavity between said projection and lug and the body of the bar, said lugs being formed with corresponding concave and convex faces, whereby four bars thus formed may be interlocked at their adjacent ends to form a rectangular frame inseparable when pressure is exerted from within, and immovable laterally, substantially as described.

691,968. CONTROLLING DEVICE. WILLIAM H. PAINE, Providence, R. I. Filed Mar. 20, 1901. Serial No. 52,100. (No model.)

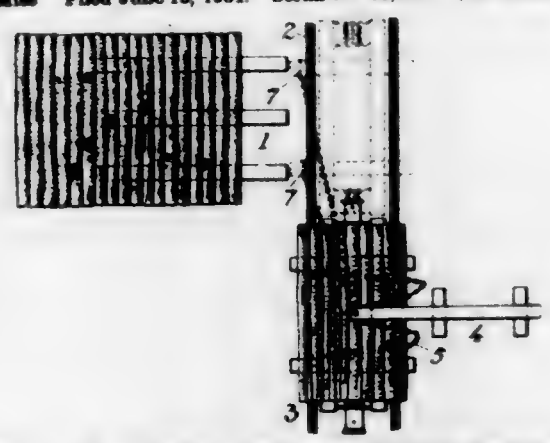
Claim.—1. A controller comprising a movable member having a power-control way or guide consisting of end actuating portions and an intermediate dwell portion, and a direction-control way or guide having an actuating portion corresponding to the dwell of the power-control way and end dwells corresponding to the end actuating portions of the power-control way, a power-lever movably mounted and having means engaged with the power-control way, and a direction-lever movably mounted and having means engaged with the direction-control way.

2. The combination with the plate 5 pivotally mounted and having the handle 7, the slot 8 having the end dwells 10 and 11 and the intermediate actuating portion, and the slot 9 having the end actuating portions 14 and 15 and the intermediate dwell, of the direction-control lever

16 pivotally mounted and having the pin 20 engaged with the slot 8, and the power-control lever pivotally mounted and having the pin 21 engaged with the slot 9, as and for the purpose described.



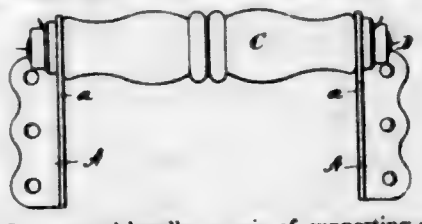
691,969. UNLOADING APPARATUS. MULFORD PARKER, Ellisville, Miss. Filed June 18, 1901. Serial No. 65,060. (No model.)



Claim.—1. In combination with a moving element adapted to carry a load, an unloading element attached to said moving element, disposed under the load thereon and also connected to a fixed point, whereby the motion of the moving element in straightening and tightening the flexible unloading element will cause the latter to uplift and topple the load from said moving element, substantially as described.

2. The combination of a trackway, a car movable thereon and adapted to carry a load, a skidway on one side of the trackway, a fixed point, over the trackway and under which the car runs, said fixed point being at a suitable distance to one side of said skidway, and a flexible unloading element, as a chain, connected to said fixed point, passed under the load on the car and attached to said car, the length of said chain being such that the motion of the car, after passing under the fixed point, in approaching said skidway, will straighten and tighten said chain, and cause the latter to uplift and topple the load from said car onto said skidway, substantially as described.

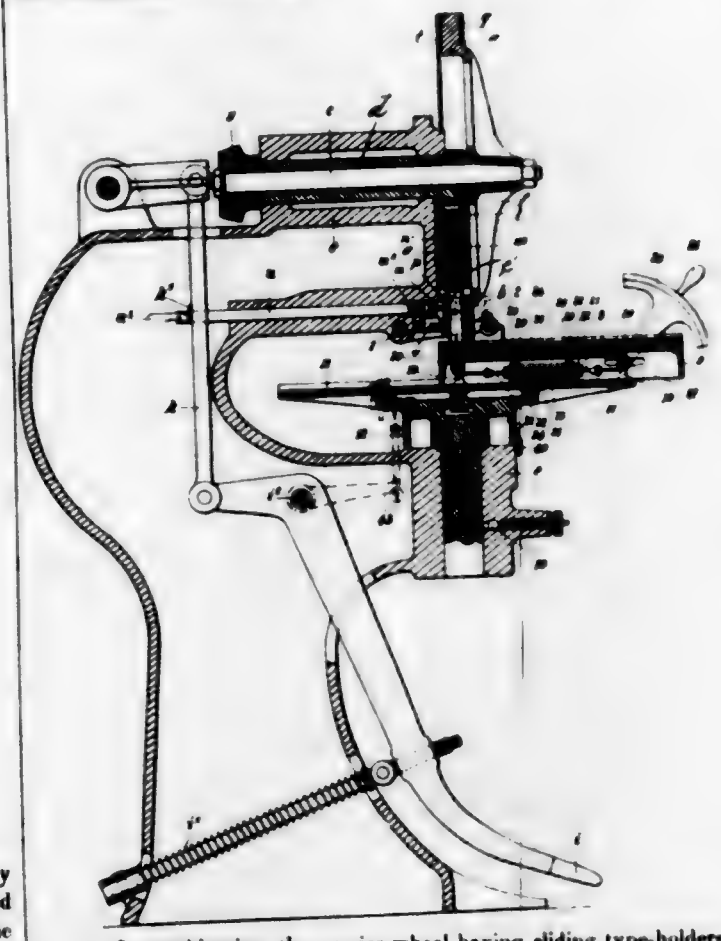
691,970. VESSEL-HANDLE. ALBERT R. PRITCHARD, Rochester, N. Y. Filed Apr. 27, 1901. Serial No. 57,698. (No model.)



Claim.—In a vessel-handle, a pair of supporting-arms, each arm having a perforation and a flange extending from the edge of the perforation, a cap fitting around said flange and having an interior contour continuous with the interior of the flange, a hand-grasp having a shoulder adapted to fit against the inner side of each arm adjacent to said flanged perforation and ends fitting in the cavities produced by the flanges and caps, and a rod passing through the hand-grasp and the caps and fastened to said caps, substantially as described.

691,971. APPARATUS FOR IMPRESSING STEREOTYPE-MATRICES WITH MUSICAL NOTES OR OTHER CHARACTERS. ANDRÉ RÉVEILLÉ, Paris, France, assignor to Société Française du "Musicographe Reveillé," (Société Anonyme,) Paris, France. Filed May 10, 1901. Serial No. 59,649. (No model.)

Claim.—1. An apparatus for impressing stereotype-matrices comprising independently-movable type-holders *b*, hammers *m* for operating the type-holders, a pedal, a segment operated thereby, a pinion *g* and cam *f* operated by the segment, said cam and pinion being on a sleeve *d*, a wheel *a* carried by the said sleeve, spring-pins *y* with which the wheel is provided, a series of pawls *x* on the wheel, push-pins *y* to lock said pawls to the wheels, a spring-bolt *u* adapted to engage and hold the carrier and means for operating the said bolt from the pawls on the carrier, substantially as described.



2. In combination, the carrier-wheel having sliding type-holders *b* therein and sliding hammers, means for operating the hammers, a series of pawls on the carrier-wheel, push-pins controlling the pawls, a bolt arranged to be released by the pawls, said bolt having means for moving the push-pins back to inoperative position, substantially as described.

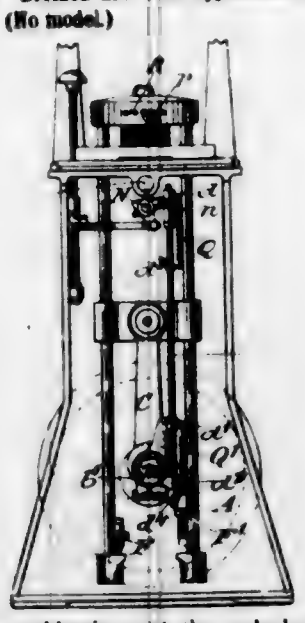
3. In an apparatus for impressing stereotype-matrices, a series of movable carriers 8, 9 and 11, a revolving table 12 carrying said carriers 8, 9 and 11, type-holders and hammers for operating the type-holders, substantially as described.

691,972. KNOCKDOWN PAPER BOX. IDA H. RICE, Chicago, Ill., assignor to F. W. Rueckheim & Brother, Chicago, Ill., a Copartnership. Filed July 29, 1901. Serial No. 70,065. (No model.)



Claim.—A knockdown, open-topped paper-box, formed of a single L-shaped blank having straight, unbroken edges and comprising a strip A rectangular in outline and creased transversely at regular intervals to form the rectangular sides *b*, *c* and *d* intermediate the rectangular end side *a* and the end gummed tab *e*, by which latter the ends of the strip are permanently secured together, and the integral flap B, rectangular in outline and extending at right angles to the strip A from the lower edge of the end side *a*, creased transversely to form the bottom portion *f* and the end wings *g* and *h* and adapted to snugly fit between the sides when opened out and to be held in position solely by the frictional bearing of the end wings against opposite sides to form a raised bottom, substantially as described.

691,973. MACHINE FOR PUNCHING JACQUARD-CARDS. VERNON ROYLE, Paterson, N. J. Original application filed Nov. 13, 1899. Serial No. 736,835. Divided and this application filed Dec. 4, 1900. Serial No. 38,624. (No model.)



Claim.—1. The combination with the rock-shaft for operating the escapement and the drive-shaft, of an operating-rod connecting the drive-shaft and rock-shaft, and means for connecting the operating-rod yieldingly with the drive and rock shafts whereby the drive-shaft may be operated while the escapement remains at rest whatever the position of the escapement, substantially as set forth.

2. The combination with the rock-shaft for operating the escapement and the drive-shaft, of an operating-rod connecting the drive-shaft and rock-shaft, and yielding connections between the said operating-rod and the rock-shaft and the operating-rod and drive-shaft, whereby the said operating-rod may be reciprocated while the rock-shaft remains at rest at any point in its movement, substantially as set forth.

3. The combination with the rock-shaft for operating the escapement and the drive-shaft, of bearings connected with the rock-shaft and drive-shaft, an operating-rod having a free longitudinal movement in said bearings and springs fixed at one end to the rod and at the opposite ends to the said bearings whereby the rod is permitted a longitudinal movement under spring tension relative to its bearings, substantially as set forth.

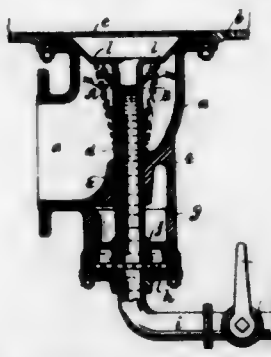
691,974. FOUNTAIN-PEN. WILLIAM W. SANFORD, East Orange, N. J., assignor of one-half to Frederick D. Bennett, Freehold, N. J. Filed Apr. 26, 1901. Serial No. 57,623. (No model.)



Claim.—1. In a feed-bar for fountain-pens the combination with a reservoir of a slot 7 through the upper part of the feed-bar a part of said slot being freely open to the interior of the reservoir, a groove 9 extending from the upper end of said slot 7 to the upper end of said feed-bar and from the lower end of said slot 7 nearly but not quite to the lower end of said feed-bar, and capillary grooves 12 in the bottom of said groove 9, substantially as described.

2. The combination in a feed-bar for fountain-pens of a reduced part 6 near the upper end of said feed-bar, a slot 7 for the ink through said part 6 and having an inclined wall 8, a groove 9 from said inclined wall 8 nearly but not quite to the lower end of said feed-bar, and capillary grooves 12 in the bottom of said groove 9, substantially as described.

691,975. PAPER-PULP-DISCHARGE VALVE. HEINRICH SCHAAF, Neustadt-on-the-Hardt, Germany, assignor to Robert Dietrich, Merseburg-on-the-Saale, Germany. Filed Mar. 15, 1900. Serial No. 8,717. (No model.)

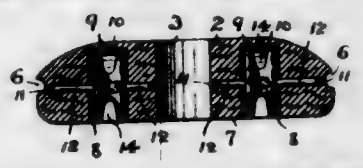


Claim.—1. The combination of a curved valve-body substantially as specified, with a hollow perforated valve-cone, and a tubular perforated valve-spindle, all arranged, and substantially as and for the purpose set forth.

2. In a paper-pulp-discharging valve, the combination with a curved valve-body substantially as specified, a pressure-chamber in said body, and a piston reciprocating in said chamber, of a hollow perforated valve-cone, a tubular perforated valve-spindle connected thereto and connected with said piston, and working therewith, and means for supplying the same with water under pressure, all substantially as and for the purpose set forth.

3. In a paper-pulp-discharging valve, the combination with a curved valve-body substantially as specified, a pressure-chamber in said body, and a piston reciprocating in said chamber, of a tubular valve-spindle passing through said piston, and the bottom of said chamber, a ring upon said spindle, a hollow perforated valve-cone loosely mounted on said spindle, and resting on said ring, water-conduits to supply said valve with water under pressure, and stop-cocks in said conduit to regulate and control the flow of said water, all substantially as and for the purpose set forth.

691,976. TRUCK FOR MASTS OR FLAGSTAFFS. SIMON H. MEIB, Jersey City, N. J., assignor to Seib Bros., Jersey City, N. J. Filed June 19, 1901. Serial No. 65,148. (No model.)



Claim.—1. A truck for masts or flagstaffs, consisting, essentially, of a body, having a recess in its under surface, said recess being closed at the top by an integral part of the said body, and said recess being provided with a curved surface 9, and a sheave in said recess, the annular circular edge of which is in close proximity to said curved surface 9, and said curved surface 9 conforming with the said circular edge of said sheave, substantially as and for the purposes set forth.

2. A truck for masts or flagstaffs, consisting, essentially, of a body 2, having a recess in its under surface, said recess being closed at the top by an integral part of the said body, and said recess being provided with a curved surface 9, said body 2 being also provided with a laterally-extending duct, 11, a pin 12 in said duct, said pin extending directly across the said recess, and a grooved wheel or sheave rotatably arranged upon said pin, substantially as and for the purposes set forth.

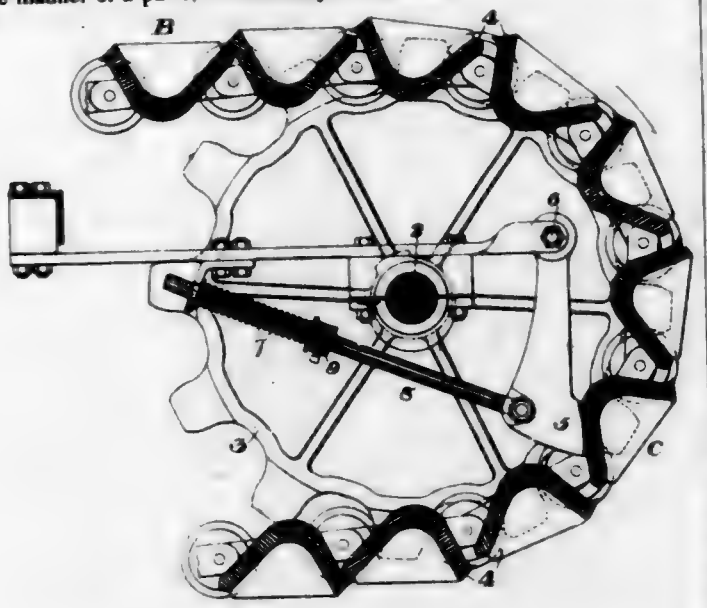
3. The combination, with a mast, of a truck secured thereon, said truck having an entirely-closed upper surface, all in one integral piece, and a recess or chamber in its under surface, said chamber being provided with a curved surface 9, and a grooved wheel or sheave rotatably arranged in the said recess or chamber, substantially as and for the purposes set forth.

691,977. MEANS FOR EJECTING METAL PIGS FROM THEIR MOLDS. EDWIN E. SLICK, Braddock, Pa. Filed Nov. 23, 1898. Serial No. 697,261. (No model.)

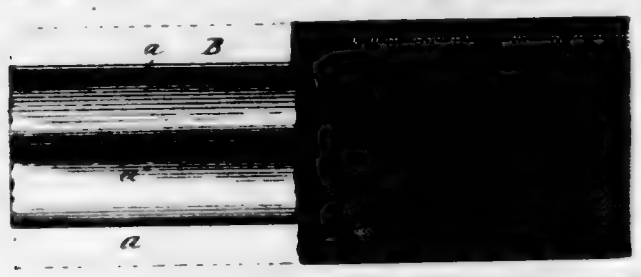
Claim.—1. Apparatus for ejecting pigs from their molds, comprising in combination with a traveling series of molds, a knocker arranged to strike the rear sides of the molds, the said knocker constructed and arranged to bear against the series of molds and be moved backwardly thereby, and having means adapted to urge the knocker forward as it is cleared by each passing mold; substantially as described.

2. Apparatus for ejecting pigs from their molds, comprising in combination with a traveling series of molds, a knocker arranged to strike the rear sides of the molds, said knocker being suspended, and having a de-

pending head adapted to engage the molds and to be actuated thereby in the manner of a pawl; substantially as described.



691,978. CONDENSER OR EXHAUST TUBE FOR STEAM-ENGINES. ARTHUR P. SMITH and HIMSDALE SMITH, Springfield, Mass. Filed June 14, 1900. Serial No. 20,260. (No model.)



Claim.—In an exhaust tube or conduit for an engine or motor, the combination with the central sheet-metal hollow star-shaped tube-body B, of the several strips of wire-gauze bent into cross-sectional loops, with their marginal portions convergent and arranged within the reëntrant spaces between the radiating member of the sheet-metal body and secured in contact on the external surfaces of said members, substantially as described.

691,979. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Nov. 8, 1898. Serial No. 695,880. (No model.)



Claim.—1. The combination with a loom-shuttle body and a weft-bobbin carried therein, of a pair of yielding blades supported by the shuttle-body and arranged to bear against the bobbin on opposite sides thereof, whereby said blades are separated by the weft as the bobbin is inserted in the shuttle, said blades forming the terminals of an electric circuit, and a common contact-piece carried by the bobbin and arranged to be uncovered by the withdrawal of the weft from the bobbin, substantially as described.

2. The combination with a loom-shuttle body and a bobbin carried therein, of a pair of yielding blades arranged to press against the bobbin on opposite sides thereof, whereby said blades are separated by the weft as the bobbin is inserted in the shuttle, said blades forming the terminals of an electric circuit, and a metallic band extending circumferentially around said bobbin near one end of the surface covered by the weft and arranged to electrically connect said blades as the weft is withdrawn from said band, substantially as described.

3. The combination with a loom shuttle-body and a bobbin carried therein, of a pair of yielding blades arranged to press against the bobbin and on opposite sides, whereby said blades are separated by the weft as the bobbin is inserted in the shuttle, contact-strips on said shuttle-body electrically connected with said blades, contact-brushes forming the terminals of an electric circuit and overhanging into the path of said contact-strips as the shuttle moves into the shuttle-box, means for electrically connecting said blades as the weft is withdrawn from the bobbin, substantially as described.

4. In an electric-circuit closer for looms, the combination with a loom shuttle-body, of a pair of metallic contact-strips placed on the top side of the shuttle-body, and a pair of yielding blades, or metallic strips, forming contact-brushes supported by the lathe with their free ends overhanging the path of the shuttle and arranged to press against said contact-strips and exert a downward pressure on the shuttle against the race-plate, or top of the lathe, and means for connecting said contact-brushes with the poles of a battery, or other source of an electric current, whereby the contact-strips of the shuttle are electrically connected with said contact-brushes by the flight of the shuttle across the lathe, substantially as described.

5. The combination with a loom shuttle-body and a bobbin carried therein, of a pair of contact-strips arranged on the top of the shuttle-body and projecting above the surface of the shuttle body to be rubbed by the warp in the operation of weaving, contact-brushes forming the terminals of an electric circuit and extending into the path of said contact-strips and means controlled by the weft on the bobbin for electrically connecting said strips, substantially as described.

6. In an electric-circuit closer for looms, the combination with a shuttle-body having a bobbin-chamber and a bobbin held therein, of a narrow metallic band surrounding the bobbin near the end of its weft-supporting surface and lying in a plane at right angles to the axis of the bobbin, said bobbin having a distinctive initial wind of weft or filling to one side of said metallic band and the weft or filling being thereafter wound upon the carrier to cover said band and to permit the weft or filling to be delivered from the end of the bobbin and to uncover the said band prior to complete exhaustion of the weft or filling, a yielding blade between the bobbin and the vertical side wall of the bobbin-chamber and means for holding said blade normally in contact with the weft on said bobbin, substantially as described.

7. In an electric-circuit closer for looms, the combination with a lathe, a shuttle-box, a shuttle-body, having a bobbin-chamber and a bobbin carried in said chamber, of contact-brushes carried by said lathe and overhanging said shuttle-box in the path of the shuttle, contact-strips attached to the top of the shuttle-body and arranged to be brought into contact with said contact-brushes as the shuttle moves into the shuttle-box, yielding blades electrically connected with said contact-strips and extending downward into said bobbin-chamber and on opposite sides of said bobbin and an electrical conducting-surface on said bobbin in the plane of said yielding blades, substantially as described.

8. In an electric-circuit closer for looms, the combination with a lathe, a shuttle-box, a shuttle-body having a bobbin-chamber and a bobbin contained therein, of electrical contact-strips carried by the shuttle-body, contact-brushes carried by the lathe and extending into the path of said shuttle-strips, curved yielding blades attached at one end to said shuttle-strips and extending into the bobbin-chamber with their free ends entering holes in the body of the shuttle, and an electrical conducting-surface on said bobbin in the plane of said yielding blades, substantially as described.

9. In an electric-circuit closer for looms, a shuttle-body having two contact-plates arranged to be brought into contact with the warp as the shuttle passes through the shed, means for bringing said plates into an electric circuit as the shuttle enters the shuttle-box, movable members electrically connected with said contact-plates and arranged to press against the weft, and means for electrically connecting said movable members as the weft is removed, substantially as described.

10. The combination with a loom shuttle-body and a bobbin carried therein, of a pair of contact-strips on the outer surface of the shuttle-body, a pair of contact-brushes forming the terminals of an electric circuit, yielding blades electrically connected with said contact-strips and arranged to press against the weft on opposite sides of the bobbin, whereby said blades are separated by the weft as the bobbin is inserted, and a metallic band on said bobbin in the plane of the contact of said blades and arranged to be covered by the weft and uncovered as the weft is withdrawn in the operation of weaving, substantially as described.

11. The combination with a loom shuttle-body and a bobbin carried therein, of a pair of contact-strips carried by the shuttle-body, a yielding contact-blade electrically connected with one of said contact-strips and normally held in the path of the bobbin, and adapted to be crowded to one side by the bobbin as it is inserted in the shuttle-body, and a circumferential band near one end of the weft-supporting surface of the bobbin, said bobbin having a distinctive initial wind of weft or filling to one side of said band, the weft or filling being thereafter wound upon the bobbin to cover said band and permit the weft or filling to be delivered from the end of the bobbin and to uncover the band prior to complete exhaustion and means for electrically connecting said band with the other of said contact-strips, substantially as described.

12. In an electric-circuit closer for looms, the combination of a shuttle body having a bobbin-chamber, a pair of fixed brushes forming the terminals of an electric circuit, a pair of contacting strips carried by the shuttle and arranged to be periodically brought into contact with said brushes, yielding blades electrically connected to said strips and normally held in the path of the bobbin as it is inserted in said bobbin-chamber, and a circuit-closer carried near the end of the weft-supporting surface

and opposite the delivery end of the bobbin and in the plane of said yielding blades, whereby it is brought into contact with said blades as the weft is removed, substantially as described.

13. In an electric-circuit closer for looms, the combination of a shuttle-body, a weft-carrier or bobbin provided with detecting means and having a distinctive initial wind of filling thereon to one side of the detecting means, the filling being thereafter wound upon the carrier or bobbin to cover said detecting means and permit the filling to be delivered from the end of the carrier or bobbin and uncover the detecting means prior to complete exhaustion of the filling, and a feeler arranged to engage the detecting means when the weft has been removed to uncover the same.

14. In a circuit-closer for looms for controlling the operation of auxiliary mechanism, a shuttle-body, a weft or filling carrier adapted to be supported therein and provided with detecting means, said weft or filling carrier having a distinct initial wind of weft or filling thereon to one side of the detecting means, the weft or filling being thereafter wound upon the carrier to cover said detecting means and permit the weft or filling to be delivered from the end of the carrier and uncover the detecting means prior to complete exhaustion of the weft or filling and a feeler device carried by the shuttle and adapted to engage the detecting means when the weft or filling has been unwound to uncover the detecting means.

15. In a circuit-closer for looms for controlling auxiliary mechanism, a shuttle-body, a filling-carrier or bobbin adapted to be supported therein, and provided with a contact or detecting member constituting a circuit-closing device normally covered by the filling during the weaving operation, feeler devices in electric circuit adapted to contact with the detecting member and close the circuit upon exhaustion of the filling to a predetermined amount.

16. In an electric-circuit closer for looms, the combination of a shuttle-body provided with a weft-carrier or bobbin supporting means and contact-strips, a weft-carrier or bobbin having a metallic contact part, and yielding fingers arranged one on each side of the shuttle-body with the weft-carrier or bobbin between them.

17. In an electric-circuit closer for looms, the combination of a shuttle-body provided with contact-strips and weft-carrier or bobbin supporting means, a weft-carrier or bobbin having a metallic contact part on a portion only of its weft-supporting surface, and yielding feelers arranged in the shuttle-body and maintained in separated relation by the weft and adapted to move toward each other as the weft approaches exhaustion to thereby contact with the metallic contact part on the weft-carrier or bobbin.

18. In an electric-circuit closer for looms, the combination of a shuttle-body provided with a weft-carrier or bobbin supporting means, a weft-carrier or bobbin provided with detecting means and having a distinctive initial wind of weft or filling thereon to one side of the said detecting means, the weft or filling being thereafter wound upon the carrier or bobbin to cover said detecting means and permit the weft or filling to be delivered from the end of the carrier or bobbin and to uncover the detecting means prior to complete exhaustion of the filling, and yielding fingers arranged at each side of the carrier or bobbin to engage the detecting means when it has become uncovered by the withdrawal of weft or filling.

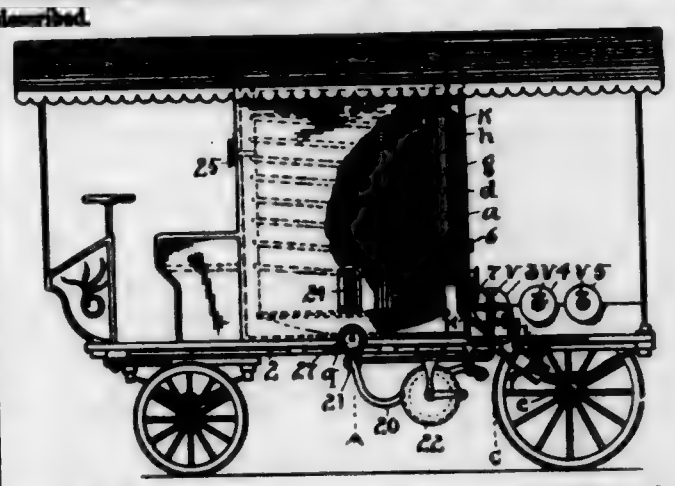
19. In an electric-circuit closer for looms, the combination of a shuttle-body with means for supporting a weft-carrier or bobbin therein, a weft-carrier or bobbin provided with a metallic band and having a distinctive initial wind of weft or filling to one side of said band, the weft or filling being thereafter wound upon the carrier to cover said metallic band and permit the weft or filling to be delivered from the end of the carrier or bobbin and uncover the metallic band prior to complete exhaustion of the weft or filling, and yielding feelers carried by the shuttle to contact with said metallic band when the same has become uncovered.

20. In an electric-circuit closer for looms for controlling the operation of auxiliary mechanism, the combination of a shuttle-body, a weft or filling carrier adapted to be supported thereby and provided with a detecting means, said weft-carrier or bobbin having a distinctive initial wind of weft or filling to one side of said detecting means, the weft or filling being thereafter wound upon the weft-carrier or bobbin to cover said detecting means and permit the weft or filling to be delivered from the end of the carrier or bobbin and uncover the detecting means prior to complete exhaustion of the filling, and devices coöperating with said detecting means when the same has become uncovered by the withdrawal of the weft or filling, to cause the operation of the auxiliary mechanism.

691,980. TANK-WAGON FOR DELIVERING FERMENTED LIQUIDS. VIBERIS SPIETSCHKA, Louisville, Ohio. Filed Apr. 27, 1901. Serial No. 57,699. (No model.)

Claim.—1. In the delivery of fermented liquids under pressure, a suitable vehicle and a delivery-tank thereon, a carbonic-acid tank and pipe connection from said acid-tank to the top of the delivery-tank, a refrigerating-coil about the delivery-tank to cool the same, and a pump connected with said coil to enforce circulation, substantially as described.

2. A tank-wagon for delivering liquids under pressure comprising a transportation and delivery tank set upright on the wagon, a casing about the tank, a refrigerating-coil spirally about said tank within said casing, and a carbonic-acid tank with which the said coil is united and a pump to create enforced circulation of acid through said coil, substantially as described.



3. In the delivery of fermented liquids, a suitable vehicle and a delivery-tank having a closed chamber about the same, in combination with a tank containing a cooling medium and a coil open thereto and extending around the delivery-tank, and a pump connected with said coil to produce circulation therein, substantially as described.

4. A suitable vehicle, in combination with a liquid-delivery tank thereon, a cover for the liquid movable up and down in the tank, an upright through said cover to prevent tilting by the rolling of the liquid, means to maintain an artificial fluid-pressure over said cover, and flexible means for raising the cover, substantially as described.

5. The wagon and the tank set endwise thereon, a movable liquid-cover in said tank having a central sleeve and a central upright on which the said sleeve is guided and the cover held firmly in the same position horizontally to prevent rolling or pitching of the liquid, and float-valve in the said cover, substantially as described.

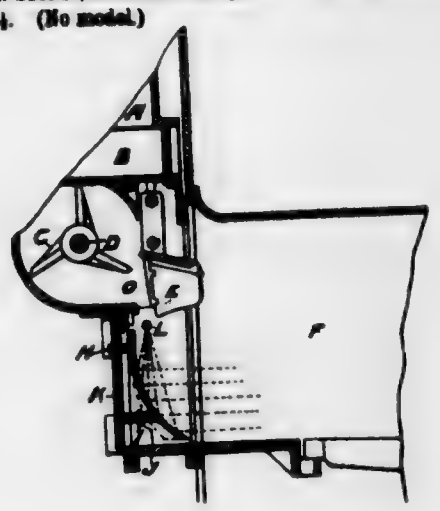
6. A tank-wagon and a delivery-tank thereon and a cooling-casing surrounding said tank, a carbonic-acid tank, a refrigerating-coil between the delivery-tank and its casing open to said carbonic-acid tank, a return-pipe from said coil and a suction-pump connected with said pipe and having an outlet open to the said carbonic-acid tank, whereby a circulation of gas is enforced through said coil, substantially as described.

7. The wagon and a delivery-tank and a carbonic-acid tank on said wagon, in combination with a cooling-coil about the delivery-tank and a pump operating between one end of said coil and said acid-tank, whereby a circulation is established through said coil, substantially as described.

8. In delivery-wagons for liquids under pressure, an upright tank of uniform cross-section between its ends, a cover adapted to float on the liquid therein and having flexible packing about its edge next to the side of the tank, an upright guide on which said cover is adapted to slide and is held from pitching by the rolling of the liquid, automatically-closing valves in said cover, and means to raise and suspend the cover in the tank, substantially as described.

9. In delivery-wagons for liquid beverages, a delivery-tank and delivery-hose connected with the bottom thereof, in combination with a carbonic-acid tank and pipe connections therefrom to the said hose, whereby carbonic acid can be forced through the hose after using to cleanse them, substantially as described.

691,981. FUEL-FEEDING ATTACHMENT FOR FURNACES. WILLIAM G. STORER, Blackburn, England. Filed Feb. 19, 1901. Serial No. 47,980. (No model.)



Claim.—In a steam-boiler or like furnace, a mechanical stoker adapted to throw fuel into the furnace, a deflector adjustably mounted at an angle at the front of the furnace below the fuel-inlet, and a steam or air pipe, having perforations, located below the fuel-inlet and above the deflector and the said pipe adapted to direct air or steam under pressure toward the face of the said deflector, as and for the purposes set forth.

691,982. SUSPENSION-BRIDGE. NELSON H. STURGIS, Guthrie, Okla. Filed Dec. 27, 1900. Serial No. 41,251. (No model.)



Claim.—1. In a suspension-bridge, the combination with the columns and anchored main cables, of hanger-rods fast to the main cables, needle-beams connected to and supported by the hanger-rods, floor-cables located below the needle-beams and connected at their opposite ends to the columns, and a floor structure carried by the needle-beams.

2. In a suspension-bridge, the combination with the columns and anchored main cables, of needle-beams, hanger-rods connecting the needle-beams and main cables, side trusses extending diagonally between the upper ends of the hanger-rods and the ends of the needle-beams, floor-cables supported at their opposite ends by the columns and connected to the needle-beams, and a floor structure carried by the needle-beams.

3. In a suspension-bridge, the combination with columns and anchored main cables, of floor-cables supported exclusively by the columns, needle-beams supported by the floor-cables, vertical hanger-rods depending from the main cable and connected to the needle-beams, diagonal trusses extending between the ends of the needle-beams and the upper ends of the hanger-rods, and diagonal trusses adjustably connected at their opposite ends to the opposite ends of adjacent needle-beams.

4. In a suspension-bridge, the combination with columns and anchored main cables, of floor-cables connected at their opposite ends to the bases of the columns, needle-beams supported at their opposite ends by the floor-cables, hanger-rods connected to the needle-beams and to the main cable, trusses connected to said needle-beams and to the upper ends of the hanger-rods, and side cables connected at their opposite ends to the columns at points above the floor-cables.

5. In a suspension-bridge, the combination with columns and main cables passing over said columns and anchored beyond the opposite ends of the bridge, of hook-bolts passed through the columns adjacent to their bases, floor-cables connected to their opposite ends to said hook-bolts, other hook-bolts passed through the columns above the floor-cables, side cables connected at their opposite ends to said last-named hook-bolts, needle-beams supported by the floor-cables, hanger-rods connected to the main cables and to the ends of the needle-beams, diagonal trusses connecting the opposite ends of adjacent needle-beams, and other diagonal trusses connecting the needle-beams to the upper ends of hanger-rods located at opposite sides thereof.

6. In a suspension-bridge, the combination with columns provided with cap-pieces, of cable-rests extending in opposite directions from said columns, and suspension-cables anchored at their opposite ends and passed between the rests and cap-pieces.

7. In a suspension-bridge, the combination with columns provided with grooved cable-rests, of anchored suspension-cables passed over the rests, caps supported at the upper ends of the columns and provided with extensions disposed above the rests, and means for connecting the cap extensions and rests to clamp the cable therebetween.

8. In a suspension-bridge, the combination with the columns and anchor-abutments, of anchor-casings located within the anchor-abutments, anchors within said casings and projecting therefrom, and suspension-cables connected to said anchors above the abutments and passing over the columns.

9. In a suspension-bridge, the combination with columns and anchor-abutments, of an anchor detained by each anchor-abutment and comprising an anchor rod and stem extending laterally therefrom, and suspension-cables passed over the columns and connected to the stems of the anchors.

10. In a suspension-bridge, the combination with columns, cables and anchor-abutments, of anchors each comprising an anchor-rod provided with a laterally-disposed stem connected to a cable, and a tie-rod extending between the upper ends of the anchor rod and stem.

11. In a suspension-bridge, the combination with columns, cables and anchor-abutments, of anchor-casings within the abutments, anchors within said casings and comprising, respectively, an anchor-rod, a laterally-disposed anchor-stem connected to the anchor-rod at a point intermediate of its ends, the upper ends of the stem and rod being extended beyond the casing, and an adjustable rod connected at its opposite ends to the upper ends of the stem and anchor-rod, respectively.

12. An anchor for bridges comprising an anchor rod and stem, a casing inclosing said anchor, and a protective filling, as for instance, hydraulic cement inclosing the anchor and stem within the casing.

13. In a suspension-bridge, the combination with a cable, of a saddle-clamp carried thereby and provided with a depression, and a hanger-rod engaging said depression.

14. In a suspension-bridge, the combination with columns, cables, hanger-rods, needle-beams and flooring, of hanger-rod sockets disposed at the opposite ends of the needle-beams for the reception of the hanger-rods, and needle-beam extensions disposed beyond said sockets.

15. In a suspension-bridge, the combination with supporting means, of needle-beams provided with the needle-beam extensions and with hanger-rod sockets disposed intermediate of the beams and extensions.

16. The combination with a needle-beam, of a needle-beam extension formed with a hanger-rod socket and secured to the end of the needle-beam.

17. In a bridge, the combination with suspension-cables, hanger-rods pendent therefrom, and needle-beams carried by the hanger-rods, of diagonal trusses supported by and extending from the upper ends of the hanger-rods and passed laterally through the needle-beams.

18. In a suspension-bridge, the combination with cables, and needle-beams provided with terminal vertically-disposed hanger-rod sockets, of hanger-rods engaging the sockets and secured at their upper ends to the cables, diagonal braces passed laterally through the opposite ends of adjacent needle-beams, and other diagonal braces likewise passed transversely through the needle-beams and secured at their upper ends to the upper extremities of the hanger-rods.

19. A needle-beam provided with an extension, said extension being composed of a pair of connected plates offset to form a socket and secured to the opposite sides of the needle-beam.

20. A needle-beam provided with an extension formed at one end with a hanger-rod socket and at its opposite end with a socket designed for the reception of a railing-standard.

691,988. BOOKBINDING. JOHN F. SWARBEY, Jersey City, N. J. Filed May 20, 1901. Serial No. 61,177. (No model.)



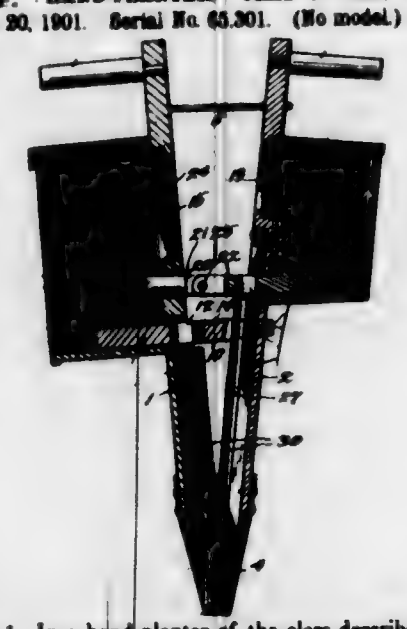
Claim.—1. The combination with a section composed of a series of sheets centrally folded, of a binding-strip applied to the back portion of a fold of said sheets, a series of eyes carried by and projected through the central portion of the said binding-strip and the folds of the sheets,

and a wire rod removably inserted longitudinally through the said eyes, and located against the outer surface of the fold of the front sheet of the series.

2. The combination with a section composed of a series of sheets centrally folded, and the folds arranged in close relation to form a hinge, of a centrally-bent binding-strip arranged closely against the back of the said hinge, a series of eyes carried by one of said parts, and projected through the center of both of the same and exposed at one side of the other part, and a wire rod removably inserted longitudinally in said eyes.

3. The combination with a section composed of a series of sheets, centrally bent to provide a hinge fold, of a centrally-bent binding-strip, a wire strand having a continuous construction and provided with a series of eyes in plane at right angles thereto and arranged at regular intervals apart, the said wire being placed against the fold or bent portion of the binding-strip and the eyes inserted through the latter, and the hinge fold of the sheets, and a wire rod removably inserted longitudinally in said eyes.

691,984. HAND-PLANTER. JESSE V. TEEL, Whitesville, Ky. Filed June 20, 1901. Serial No. 65,301. (No model.)

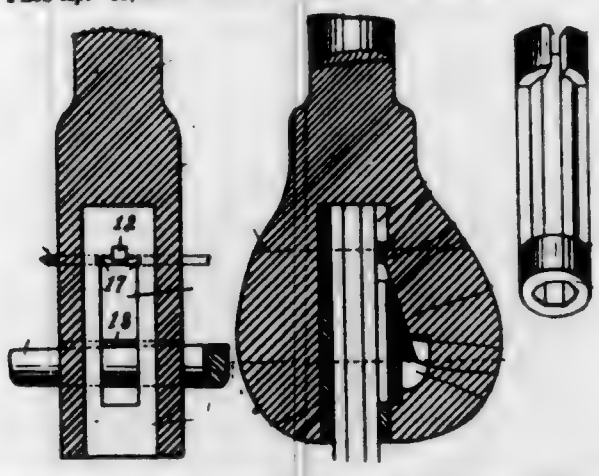


Claim.—1. In a hand-planter of the class described, the combination of the members 1, 2, the jaw-plates 3 attached to the lower ends thereof and the side plates 4 forming the pivotal connections between said members, said side plates bearing on the ends of said jaw-plates and covering the space between them when said jaw-plates are open, substantially as described.

2. In a hand-planter, of the class described, the combination of the pivotally-connected members, a hopper on one of said members having discharge-openings and a slide connected to the other member to reciprocate under said discharge-openings, said slide comprising a head having a stud 25 projecting through an opening in one of the members and detachably secured in said opening, and the members 22 pivotally connected to said detachable head, substantially as described.

3. In a hand-planter of the class described, having the pivotally-connected members, means carried and operated thereby to discharge seeds and fertilizer, one of said members having the fertilizer-duct on its inner side, and the other member having a pair of seed-ducts spaced apart and opposite said fertilizer-duct, whereby the fertilizer will be deposited in the hills between the seeds, substantially as described.

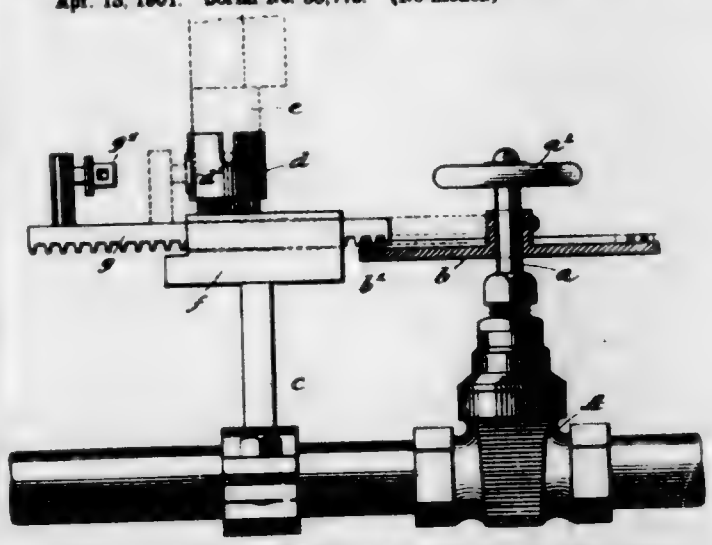
691,985. ROCK-DRILL CHUCK. WILLIAM TERRY, Oakland, Cal. Filed Apr. 12, 1901. Serial No. 55,577. (No model.)



Claim.—1. The combination of a chuck having an axial socket or cavity for the drill-bit, said socket having a downward extension with a surface sloping upward rearwardly, a shell or sleeve fitting in the socket, and provided with means for guiding the same into position, a block in the lower part of the socket and having a rear upwardly-sloping lower surface to slide on the sloping surface of the extension and act as a wedge, said chuck being also apertured transversely through said extension the block having a shoulder extending into said aperture, and a wedge or key in said transverse aperture engaging said shoulder to shift said block rearwardly and thereby clamp the drill-bit, substantially as described.

2. The combination of a chuck having an axial socket or cavity for the drill-bit, said socket having a downward extension with a surface sloping upward rearwardly, a shell or sleeve fitting in the socket, a block in the lower part of the socket and having a rear upwardly-sloping lower surface to slide on the sloping surface of the extension and act as a wedge, said chuck being also apertured transversely through said extension the block having a shoulder extending into said aperture, and a wedge or key in said transverse aperture engaging said shoulder to shift said block rearwardly and thereby clamp the drill-bit, the chuck being also apertured transversely in the rear of the rear end of the block whereby a suitable pointed instrument may be inserted to remove or loosen the same; substantially as described.

691,986. VALVE-LOCK. LEOPOLD TOBACK, Union Hill, N. J., assignor to Water Overflow Preventive Company of New York. Filed Apr. 13, 1901. Serial No. 55,775. (No model.)

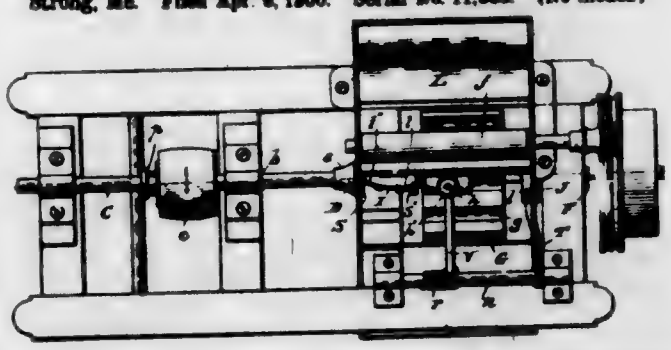


Claim.—1. The combination of a valve and its rotary stem, of a stationary lock-holder mounted adjacent thereto, a lock adapted to be deposited in or upon said holder, and a reciprocating keeper adapted to be brought into engagement with the holder and the lock automatically by the rotary movement of the stem.

2. The combination of a valve and its controlling rotary stem, of a stationary lock-holder mounted adjacent thereto, a lock adapted to be deposited in or upon said holder, a keeper having a radial motion with respect to the stem, which is imparted thereto when the stem rotates, said keeper being adapted to engage with the holder and the lock when at the end of one of its movements.

3. The combination of a valve and its controlling rotary stem, of a stationary lock-holder mounted adjacent thereto, a lock adapted to be deposited in or upon said holder, a screw rotated by said stem, a rack in engagement with said screw and adapted to be reciprocated thereby, and a keeper carried by said rack and adapted to be brought into engagement with the holder and the lock when the valve has been brought to its closed position.

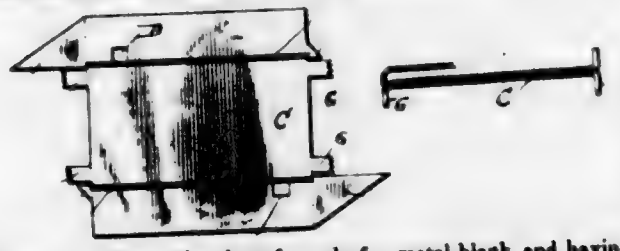
691,987. MACHINE FOR MAKING SKEWERS. AMOS T. TRUE, Strong, Me. Filed Apr. 6, 1900. Serial No. 11,863. (No model.)



Claim.—In a machine for making skewers, the combination with the transversely-grooved feed-wheel, the rotary reciprocating shaft carrying the cutter-head in alinement with the grooved portion of said wheel, said head having a recess therein, and a bit in said recess having a cutting

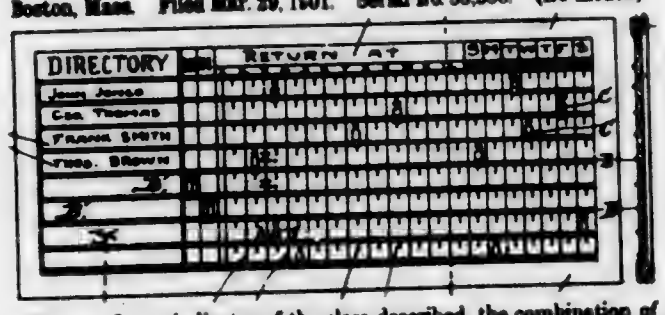
edge curved from the point toward the base of the pointed portion of the skewer, means for intermittently rotating said feed-wheel, and means for clamping the skewer in position to be acted upon by said head, of means for reciprocating said cutter-shaft, consisting of the driving-shaft having a crank-arm, and a bell-crank lever connected, one arm thereof with said crank-arm, and the other arm thereof with said shaft, whereby during the latter portion of the inward movement of said shaft, when the bit is cutting more and more across the grain of the skewer to form a pointed portion having curved elements, the movement of such shaft is gradually checked, and vice versa during the first portion of the outward movement of said shaft, substantially as specified.

691,988. RAILROAD-TIE PLATE. ROBERT L. UNDERWOOD and ISAAC C. BUTTERFIELD, Fostoria, Ohio, assignors, by direct and mesne assignments, to Ross R. Crocker and Frank J. Sibley, Fostoria, Ohio. Filed June 3, 1901. Serial No. 62,925. (No model.)



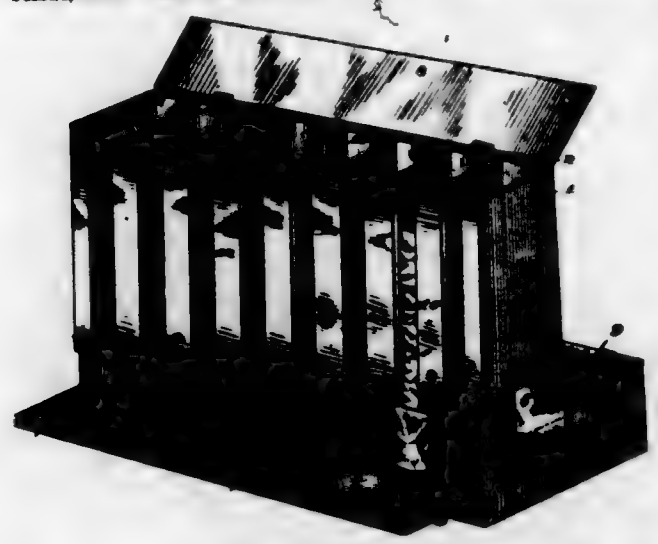
Claim.—A railroad-tie plate formed of a metal blank and having spike-openings, longitudinal ridges one near each edge, oppositely-disposed flaps to cover the spike-heads, longitudinally-extending barbed lips to enter the tie, and lugs extending from the body portion of the plate adjacent to said lips at the ends opposite the said flaps, all substantially as shown and described.

691,989. REGISTERING DIRECTORY OR INDICATOR FOR OFFICES. ELMER WALKER, River Point, R. I., and FRANK R. WALKER, Boston, Mass. Filed Mar. 29, 1901. Serial No. 53,536. (No model.)



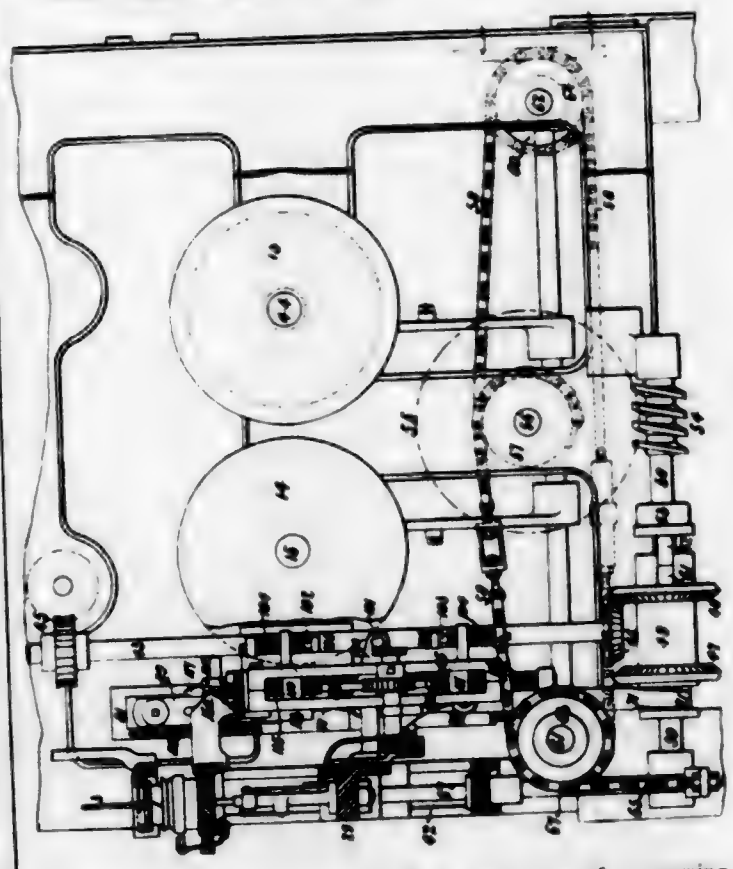
Claim.—In an indicator of the class described, the combination of a chart having imprinted upon its face the words, numerals, and letters, arranged in a horizontal line at the top portion thereof, with lines extending vertically therefrom, as shown and described; a series of rods secured and arranged horizontally upon said chart, each of said rods provided with inwardly-inclined faces; a name-card adapted to be inserted between said rods and held in position by the inclined faces thereof; with indicating-arms supported by said rods and adapted to be moved to any vertical line on said chart, substantially as shown and for the purpose specified.

691,990. CARTON SPICE-CABINET. ALFRED H. WARREN, Toledo, Ohio. Filed Jan. 2, 1901. Serial No. 42,002. (No model.)



Claim.—A cabinet for containing and delivering cartons, comprising a vertical housing and a rearwardly-projecting horizontal housing, said housings having compartments formed in them which are open at the top, hinged covers for closing both of the said housings, the compartments of the horizontal housing opening into the lower ends of the compartments in the vertical housing, and the vertical housings having outlet-openings at their lower ends, a series of ejectors arranged in the compartments of the horizontal housing, a rod for pulling each ejector forwardly into the lower end of the vertical compartments, and springs connecting the ejectors with the rear wall of the horizontal housing for automatically returning the ejectors in the said housing after a carton has been forced out of one of the vertical compartments, substantially as described.

691,991. COP-BUILDING MECHANISM FOR SPINNING AND DOUBLING MACHINERY. THOMAS WATSON, Bridge of Weir, Scotland, assignor to Ernest Symington Coats, Paisley, Scotland. Filed Apr. 12, 1901. Serial No. 55,514. (No model.)



Claim.—1. The combination of the movable part of a reversing-gear of a cop-building mechanism and a frame therefor with a change-lever pivoted to the frame and acting on said movable part, a bell-crank lever pivoted to the frame and acting on said change-lever, the building-rail carrying stops to act on the bell-crank lever, a spring-operated pusher to be first acted on by and then to throw the bell-crank lever and a locking-bolt carried by the pusher to lock the change-lever at the ends of its movements.

2. The combination of the movable part of a reversing-gear of a cop-building mechanism and a frame therefor with a change-lever pivoted to the frame and acting on said movable part, said change-lever having a tappet, a bell-crank lever pivoted to the frame and acting on the tappet and having a V-shaped end, the building-rail carrying stops to act on the bell-crank lever, a spring-operated pusher to be first acted on by and then to throw the bell-crank lever and a locking-bolt carried by the pusher to engage the tappet, as and for the purpose described.

3. The combination of the movable part of a reversing-gear of a cop-building mechanism and a frame therefor with a change-lever pivoted to the frame and acting on said movable part, said change-lever having upper and lower tappets, a bell-crank lever pivoted to the frame and having slots in which said tappets work, the building-rail carrying stops to act on the bell-crank lever, a spring-operated pusher to be first acted on by and then to throw the bell-crank lever and means to lock the change-lever at the ends of its movements.

4. The combination of the movable part of a reversing-gear of a cop-building mechanism and a frame therefor with a change-lever pivoted to the frame and acting on said movable part, a bell-crank lever pivoted to the frame and adapted to act on the change-lever to throw it, said bell-crank lever having a V-shaped end, the building-rail carrying stops to act on the bell-crank lever, a spring-operated V-shaped pusher to cooperate with the V-shaped end of the bell-crank and means to lock the change-lever at the ends of its movements, substantially as described.

5. The combination of the movable part of a reversing-gear of a cop-building mechanism and a frame therefor with a change-lever piv-

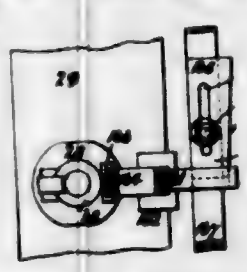
oted to the frame and acting on said movable part, a bell-crank lever pivoted to the frame and acting on the change-lever, the building-rail carrying stops to act on the bell-crank lever, a spring-actuated pusher to be first acted on by, and then to throw the bell-crank lever, and a spring-actuated catch to engage the end of the change-lever, as and for the purpose described.

6. The combination of the movable part of a reversing-gear of a cop-building mechanism and a frame therefor with a change-lever pivoted to the frame and acting on said movable part, a bell-crank lever pivoted to the frame and acting on said change-lever, the building-rail carrying stops to actuate the bell-crank lever, a spring-operated pusher to be first acted on by, and then to throw, the bell-crank lever, means to lock the change-lever at the end of its movements and means for automatically adjusting the stops on the building-rail, as the winding proceeds, all substantially as described.

7. The combination of the movable part of a reversing-gear of a cop-building mechanism and a frame therefor with a change-lever pivoted to the frame and acting on said movable part, a bell-crank lever pivoted to the frame and acting on said change-lever, the building-rail carrying cushion-stops to actuate the bell-crank lever and a spring-operated pusher to be first acted on by, and then to throw the bell-crank lever, all substantially as described.

8. The combination of the building-rail, its actuating mechanism and reversing-gear of a cop-building mechanism and a main frame therefor with a lever controlling the reversing-gear, stops on the building-rail to act on said lever and means for automatically adjusting said stops as the winding proceeds, said means comprising a frame on the rail, guides for the stops, a screw-threaded spindle acting on the stops, a ratchet-wheel on said spindle, a tappet-lever carrying a pawl to act on said ratchet and a cam-piece on the main frame to act on said tappet, substantially as described.

691,992. DRAG DEVICE FOR SPINNING MACHINERY. THOMAS WATSON, Bridge of Weir, Scotland, assignor to Ernest Symington Coats, Paisley, Scotland. Original application filed Apr. 12, 1901, Serial No. 56,514. Divided and this application filed July 17, 1901. Serial No. 68,667. (No model.)



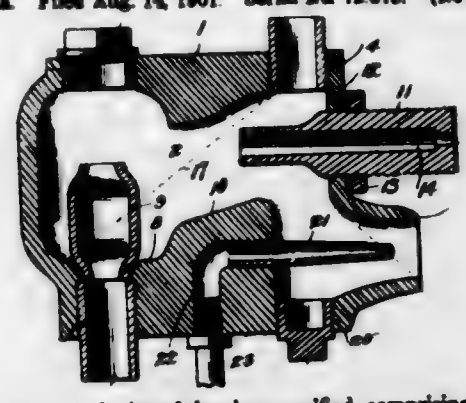
Claim.—1. An improved drag or brake device for spinning and doubling machinery, comprising a building-rail, a two-armed lever centered at the back of the rail, spindle-bolsters and spindles on the rail, the end of the upper arm of the lever being adapted to bear on the spindle, in combination with a spring-controlled brake-rod having an adjustable wedge-piece and guides for the rod carried by the rail, said wedge-piece being adapted to bear against the lower arm of the lever, substantially as described.

2. An improved drag or brake device for spinning and doubling machinery, comprising a building-rail, a two-armed lever centered at the back of the rail spindle-bolsters and spindles on the rail, the end of the upper arm of the lever being adapted to bear on the spindle, in combination with a spring-controlled brake-rod having an adjustable wedge-piece, and guides for the rod carried by the rail, said wedge-piece being adapted to bear against the lower arm of the lever, a toothed rack adapted to slide in said guide and abut against the inner end of the brake-rod, a pinion engaging the rack, a shaft for the pinion, a worm-wheel on the shaft, a vertical spindle, a worm thereon engaging said worm-wheel, a ratchet-wheel and pawl to operate the vertical spindle, and a frame carrying such mechanism carried by the building-rail, substantially as described.

3. An improved drag or brake device for spinning and doubling machinery, comprising a building-rail, a two-armed lever centered at the back of the rail, spindle-bolsters and spindles on the rail, the end of the upper arm of the lever being adapted to bear on the spindle, in combination with a spring-controlled brake-rod having an adjustable wedge-piece, and guides for the rod carried by the rail, said wedge-piece being adapted to bear against the lower arm of the lever, a two-armed lever to act on the brake-rod, a cross-shaft, and a rod from the cross-shaft to operate said lever, as and for the purpose described.

4. An improved drag or brake device for spinning and doubling machinery, comprising a building-rail, a two-armed brake-lever thereon, a spring-controlled brake-rod, a wedge-piece thereon, a rack to operate the rod, suitable gearing to operate the rack, and a ratchet to operate said gearing in connection with a cross-shaft and means for operating the wedge-piece from the cross-shaft, substantially as described.

691,993. TRACK-SANDING DEVICE. JOHN H. WATTERS, Anniston, Ala. Filed Aug. 14, 1901. Serial No. 72,075. (No model.)



Claim.—1. A device of the class specified, comprising a box or casing having sand inlet and outlet openings, and an air-nozzle having a contracted neck and an enlarged discharge-opening.

2. A device of the class specified, comprising a box or casing having sand inlet and outlet openings, and an air-nozzle having at its discharge end an elongated expansion-chamber.

3. A device of the class specified, comprising a box or casing having sand inlet and outlet openings, and an air-nozzle adjustable longitudinally within said box or casing to reduce or increase the volume of sand exposed to its action.

4. A device of the class specified, comprising a box or casing having at its top two openings for feed-pipe connections, and a bottom discharge-opening in vertical alinement with one of said openings, said bottom opening being arranged within the angle of rest of sand entering through the top opening with which it is not in alinement, a removable discharge-tube removably seated at the mouth of the discharge-opening, and an air-nozzle arranged within the box or casing in a plane above the mouth of said discharge-tube.

5. A device of the class specified, comprising a box or casing having an inlet-opening and a lower discharge-opening, a reversible double-ended tube having its opposite ends contracted in similar manner and adapted to a seat in the mouth of the discharge-opening, whereby either end of the tube may be seated without alteration in the height of the inlet-mouth of the tube.

6. A device of the class specified, comprising a box or casing having inlet and discharge openings, a removable tube seated in the mouth of the discharge-opening, and an air-nozzle carried by the casing and adjustable from and toward said tube.

7. A device of the class specified, comprising a box or casing having inlet and discharge openings, a removable tube seated in the mouth of the discharge-opening, an air-nozzle carried by the casing at a point above the inlet end of said tube and adjustable from and toward said tube, and means for locking said nozzle in adjusted position.

8. A device of the class specified, comprising a box or casing having an inlet-opening, a discharge-opening arranged in the bottom of the same, a second horizontally-arranged discharge-opening, and an air jet or nozzle arranged concentrically of said horizontally-disposed opening.

9. A device of the class specified, comprising a box or casing having at its top two openings for feed-pipe connections, and a bottom discharge-opening in vertical alinement with one of the upper openings, a horizontally-disposed discharge-opening arranged in one of the vertical walls of the box or casing and an air-nozzle arranged concentric of the horizontal opening.

10. A device of the class specified, comprising a box or casing having an inlet-opening, and an ejector discharge-opening, an air-nozzle arranged concentrically of the ejector-openings and a removable plug adapted to an opening in the casing at the rear of the ejector discharge-opening.

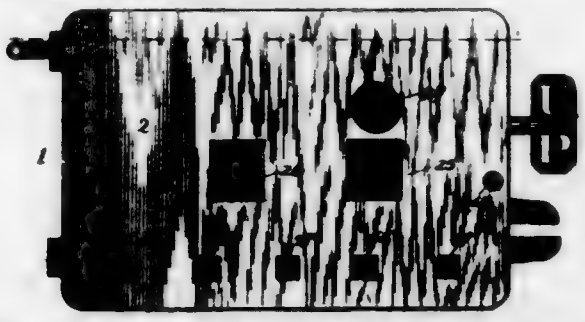
691,994. WELL-SCREEN. FRANK I. WEBBER, Oxford, Nebr., assignor of three-fourths to John W. Trammel, George H. Christ, and Neal A. Pettygrove, Oxford, Nebr. Filed July 11, 1901. Serial No. 67,922. (No model.)



Claim.—1. A well-screen consisting of a tube having intermediately of its ends longitudinal ribs and slots between the ribs, a V-shaped groove extending spirally through the outer surface of the ribs, and a triangular-shaped wire conforming to and seated in the groove with its outer surface flush with the unslotted portion of the tube, and the coils of the wire spaced apart and providing inwardly-flared orifices.

2. A well-screen consisting of a tube having screw-threaded ends and intermediately thereof longitudinal reinforced ribs and slots between the ribs, a V-shaped groove extending spirally through the outer surface of the ribs, and a triangular-shaped wire conforming to and seated in the groove with its outer surface flush with the tube ends, and the coils of the wire spaced apart and providing inwardly-flared orifices.

691,995. **FARE-REGISTER.** VALENTIN WEBER, Princeville, Ill. Filed Aug. 10, 1899. Serial No. 726,753. (No model.)



Claim.—1. In a fare-register, the combination of a pull-bar; a dial and ratchet-wheel rigid with the dial; a pivotally-mounted pawl carried by the pull-bar and adapted to normally operate said ratchet-wheel; a pivotally-mounted lever having one of its ends arranged in engagement with the ratchet-wheel, the face of said lever which engages with the teeth of the ratchet-wheel being doubly notched or recessed, to prevent a retrograde movement of said wheel, said lever having its opposite end in position to move said pawl on its pivot when said lever is rocked on its pivot to be released from its engagement from said wheel; and means for moving said lever on its pivot, substantially as described.

2. In a fare-register, the combination of a pull-bar; a dial and ratchet-wheel rigid with the dial; a pivotally-mounted pawl carried by the pull-bar and adapted to normally operate said ratchet-wheel, said pawl having an angularly-extending heel; a pivotally-mounted two-arm lever, having the face of one of its ends provided with two notches or recesses to engage the teeth of said ratchet-wheel and prevent a retrograde movement thereof, and having its opposite end weighted and lying in a position to move said pawl on its pivot by contact with said heel, when said lever is rocked on its pivot to release said ratchet-wheel, and a device for moving said lever on its pivot, substantially as described.

3. In a fare-register, the combination of a units-dial and a tens-dial suitably connected together; a ratchet-wheel rigid with the units-dial; an operating pull-bar, having a pivotally-mounted pawl adapted to operate said ratchet-wheel; a lever arranged normally in engagement with said ratchet-wheel to prevent a retrograde movement, said lever having a pivotal movement to carry it to a position to move said pawl on its pivot, whereby said ratchet-wheel will be simultaneously freed from the action of said pawl and said lever; a trip-dial, a shaft carrying a thumb-key and adapted to operate said trip-dial; and a plate carried by the shaft and arranged to move said lever on its pivot to release said ratchet-wheel, when said shaft is turned to operate the trip-dial and during an intermediate portion of its limit of movement, substantially as described.

4. In a fare-register, the combination with indicating mechanism; registering mechanism operatively connected therewith and driven thereby in one direction; and a pawl and ratchet for imparting a positive step-by-step movement to said indicating mechanism; of a locking-lever mounted to coact with the primary wheel of said indicating mechanism to prevent a retrograde movement thereof, said lever having a movement to disengage said pawl and ratchet; and a device for temporarily releasing said locking-lever and disengaging said pawl and ratchet to allow of a resetting of the indicating mechanism, said resetting being possible only during the operation of said device, substantially as described.

5. In a fare-register, the combination with indicating mechanism; and a pawl and ratchet for imparting a positive step-by-step movement thereto; of a lever for holding said ratchet against retrograde movement, said lever having a movement to disengage said pawl and ratchet; and a rotating thumb-key movable in one direction within a predetermined distance, said key positively moving and holding said lever and pawl to and in an inoperative position, at an intermediate portion of its limit of movement, whereby said indicating mechanism may be reset, but only when said thumb-key is in its intermediate position, substantially as described.

6. In a fare-register, the combination with a units-dial and a tens-dial suitably connected together, means for operating and locking said dials against reverse movement, devices for temporarily releasing the operating and locking means to permit the dials to be returned to their original position at "0," a spring-controlled lever rigid with the tens-dial and a notched plate rigid with the units-dial and adapted to be engaged by said lever to limit the reverse movement of the dials, substantially as described.

7. In a fare-register, a case provided with a removable front, one side wall of said case having slots therein, lugs on the front arranged to engage said slots, a bolt rigid with the front and extending through an opening in the back of the case, and a wedge and seal for the end of said bolt, substantially as and for the purpose described.

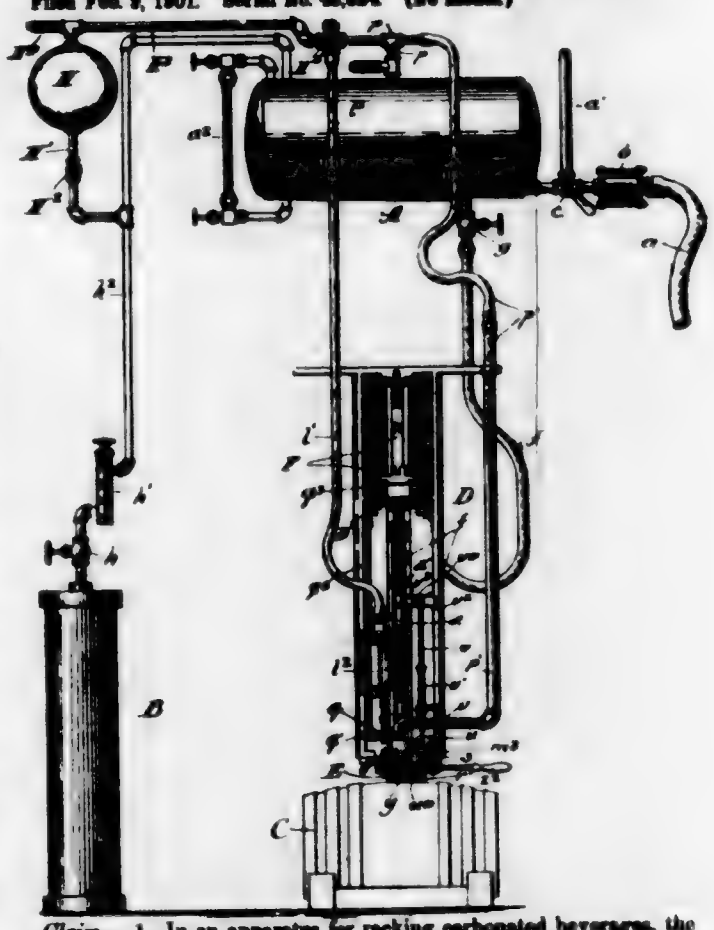
691,996. **EYEGLASS-FRAME.** FRANK WEIDENFELD, Richmond, Va. Filed June 12, 1901. Serial No. 64,301. (No model.)



Claim.—1. The combination with the post of an eyeglass and the nosepiece-arm and spring-terminal intimately connected thereto, of a stud-screw having diametrically-opposed slots in the head thereof, and a washer interposed between the head of the screw and terminal of the post and provided with oppositely-disposed outstanding lips which engage the said slots, said lips being located within the body of the washer inwardly from the periphery of the latter.

2. The combination with the post of an eyeglass and the nosepiece-arm and spring-terminal intimately connected thereto, of a stud-screw having diametrically-opposed slots in the head thereof, and a washer interposed between the head of the screw and the terminal of the post and provided with projecting portions which engage the said slots, the opposite portions of the washer being bent over the sides of the post.

691,997. **APPARATUS FOR RACKING CARBONATED BEVERAGES.** HENRY A. WHITE, Chicago, Ill., assignor to the Pfaudler Vacuum Fermentation Company, Rochester, N.Y., a Corporation of New York. Filed Feb. 9, 1901. Serial No. 46,624. (No model.)



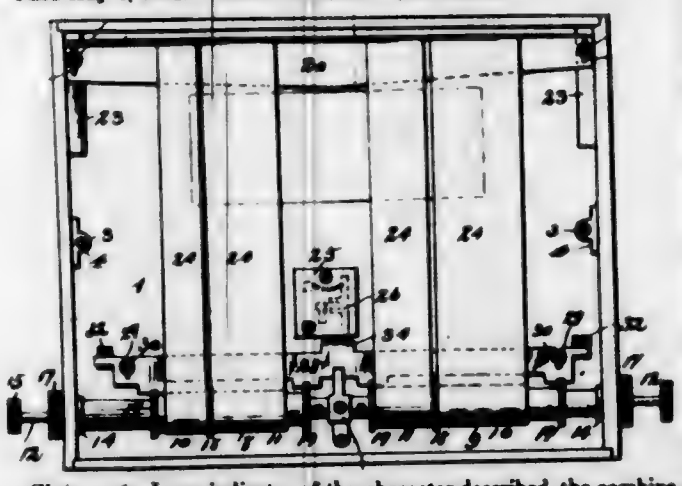
Claim.—1. In an apparatus for racking carbonated beverages, the combination of a beverage-supply tank above the receiving vessel or package, a filling-head, a filling-tube movable through the filling-head into the package said filling-tube communicating with the tank, an aeriform fluid-pressure supplier communicating with the tank, a valved vent-pipe extending from the filling-head, means maintaining a counter-pressure in the vent-pipe approximating the pressure in the tank, a glass section in the vent pipe, a separate primary discharge-supplying conduit communicating with the fluid-pressure supplier and extending to the filling-head below the glass section, and a valve in said separate primary conduit adapted to be automatically operated in advance of the movement of the filling-tube in the manner and for the purpose substantially as set forth.

2. In an apparatus for racking carbonated beverages, the combination with a beverage-supply tank at a level higher than the receiving vessel, filling-head for sealing the receiving vessel around the bung-hole, and a filling-tube, communicating with the beverage-supply tank, and movable through the filling-head into and out of the receiving vessel, of an aeriform fluid-pressure supplier communicating with the beverage-supply tank, a vent-pipe extending from the filling-head, a cut-off valve in the vent-pipe close to the filling-head, a glass section in the vent-pipe above the said valve, means maintaining a counter-pressure in the vent-pipe approximating the pressure in the beverage-supply tank, a separate primary-charge-supplying conduit communicating with the fluid-pressure supplier and extending to the filling-head below the said vent-pipe valve, a cut-off valve in the said primary-charge conduit, and means actuated from moving parts of the machine for closing the vent-pipe valve when the filling-tube is withdrawn from the receiving vessel, whereby the surplus overflow will be held in the vent-pipe and discharged into the next succeeding receiving vessel, substantially as set forth.

3. In an apparatus for racking carbonated beverages, the combination of a beverage-supply tank at a level higher than that of the receiving vessel, aeriform fluid-pressure-supplying means communicating with the said supply-tank, means for sealing the receiving vessel, a valved liquid-conduit leading from the supply-tank and adapted to be inserted into the interior of the sealed receiving vessel, bung-driving mechanism, a valved aeriform fluid-pressure conduit communicating with the receiving vessel and operative to supply the same with pressure equaling that in the supply-tank before the racking operation begins, a separate vent-conduit controllably connecting the upper portions of the supply-tank and receiving vessel, to maintain an equilibrium of pressure between the two during the filling operation and for discharging the surplus overflow into the next succeeding receiving vessel, a cut-off valve in the lower end portion of the vent-conduit, and means for closing the said valve actuated by movement of the bung-driving mechanism, substantially as set forth.

4. In an apparatus for racking carbonated beverages, the combination of a beverage-supply tank above the package to be filled, a filling-head, a filling-tube movable through the filling-head into the package and connected with the tank, aeriform fluid-pressure means communicating with the upper part of the tank, a primary charge-conduit communicating with the pressure means and leading into the filling-head, a valve for said conduit opened in the sealing movement of the filling-head in advance of the movement of the filling-tube, and a separate vent-conduit leading from the filling-head.

691,998. INDICATOR. ROBERT A. WOOD, Pridemore, Va. Filed May 6, 1901. Serial No. 58,831. (No model.)

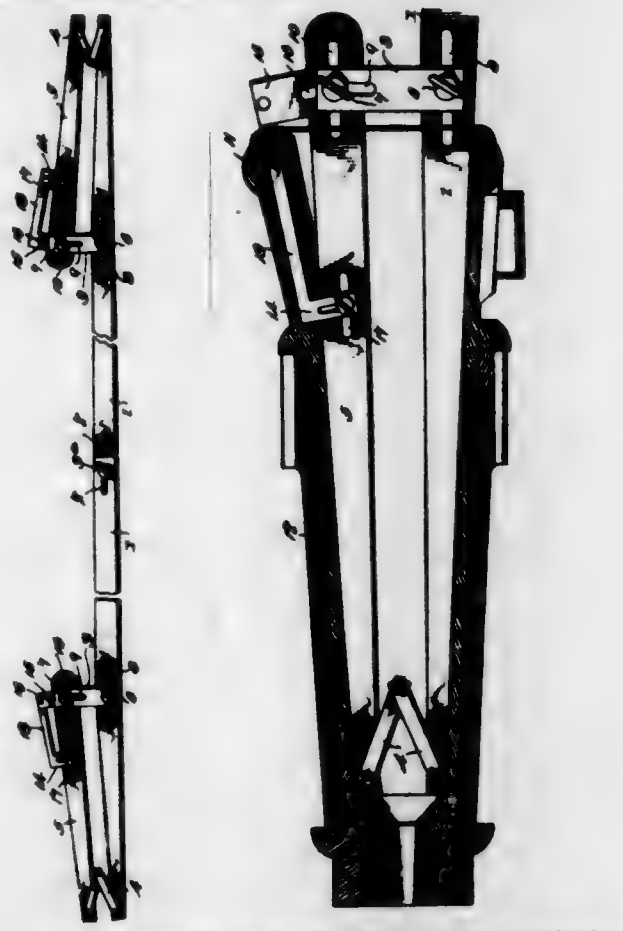


Claim.—1. In an indicator of the character described, the combination with a casing having a vision-opening, of a suitably-inscribed ribbon adapted to be displayed through said opening, a roll for moving said ribbon across the opening, means for operating said roll from without the casing, a toothed wheel secured to said roll, a lock-bar mounted within said casing, and a lock mounted within said casing and operated from without, said lock-bar being in the path of movement of the bolt of said lock whereby when said bolt is shot, the lock-bar will be forced into the toothed wheel to lock said wheel and its roll against movement, and a spring for retracting said lock-bar from engagement with the toothed wheel, substantially as set forth.

2. In an indicator of the character described, the combination with a casing having vision-openings, of a shaft journaled in said casing and having its end projecting outwardly therefrom, a set of rolls mounted on said shaft, one fixed to said shaft and the other loose thereon, the loose roll having an extension projecting on the outside of the casing, a bar secured in the casing near its upper end, suitably-inscribed ribbons or tapes to engage said bar and said rolls and adapted to be displayed through the vision-openings in the casing, toothed wheels secured to said rolls, a lock located within said casing, and a spring-actuated lock-bar arranged in the path of movement of the bolt of said lock whereby when said bolt is shot the lock-bar will be engaged with the toothed wheels to prevent the rotation of the rolls, and when said bolt is retracted the lock-bar will be retracted to release said rolls to permit of their rotation, substantially as set forth.

3. In an indicator of the character described, the combination with a casing having vision-openings, of a shaft journaled in said casing and having its end projecting outwardly therefrom, a set of rolls mounted on said shaft, one fixed to said shaft and the other loose thereon, the loose roll having an extension projecting on the outside of the casing, a vertically-adjustable bar secured in the casing near its upper end, suitably-inscribed ribbons or tapes to engage said bar and said rolls and adapted to be displayed through the vision-openings in the casing, toothed wheels secured to said rolls, a lock located within said casing, and a spring-actuated lock-bar arranged in the path of movement of the bolt of said lock, whereby when said bolt is shot, the lock-bar will be engaged with the toothed wheels to prevent the rotation of the rolls, and when said bolt is retracted, the lock-bar will be retracted to release said rolls to permit of their rotation, substantially as set forth.

691,999. AXLE-GAGE. WILLIAM ARGLE, Milford, Pa. Filed July 17, 1901. Serial No. 68,647. (No model.)



Claim.—1. An axle-gage comprising the long gage-bars detachably connected at their inner ends, and the short gage-bars located at the outer portions of the long gage-bars and adjustably connected with the same and adapted to be moved bodily to and from the long gage-bars, the long and short gage-bars being adapted to be introduced into an axle-skein, substantially as and for the purpose described.

2. An axle-gage comprising the long gage-bars adjustably and detachably connected at their inner ends, the short gage-bars located at the outer portions of the long gage-bars, and the inner and outer links arranged at the ends of the short gage-bars and adjustably connecting the same with the long gage-bars, substantially as described.

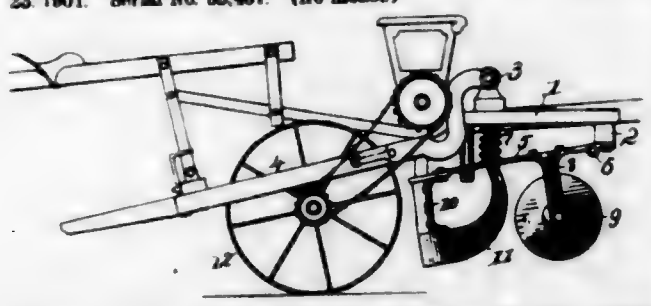
3. An axle-gage comprising a pair of gage-bars adjustably connected with each other and adapted to be introduced into an axle-skein and to fit against the opposite sides thereof, and a supplemental gage-bar mounted on one of the said gage-bars and adapted to fit in the enlarged portion of an axle-skein, substantially as described.

4. An axle-gage comprising a pair of gage-bars adjustably connected together and adapted to be introduced into an axle skein, and a supplemental gage-bar provided with arms adjustably secured to one of the said gage-bars, substantially as described.

5. An axle-gage comprising the long gage-bars adjustably connected at their inner ends, the short gage-bars, the inner links adjustably connecting the inner ends of the short gage-bars with the long gage-bars, the outer links arranged at an angle to each other and connecting the outer ends of the short gage-bars with the long gage-bars, and the supplemental

gage-bars mounted on the short gage-bars and provided at their ends with arms, substantially as described.

692,000. FURROW-OPENER FOR PLANTERS. JOHN L. ASHURST, Havana, Ill., assignor to Lewis B. Ashurst, Kilbourne, Ill. Filed Nov. 23, 1901. Serial No. 83,467. (No model.)

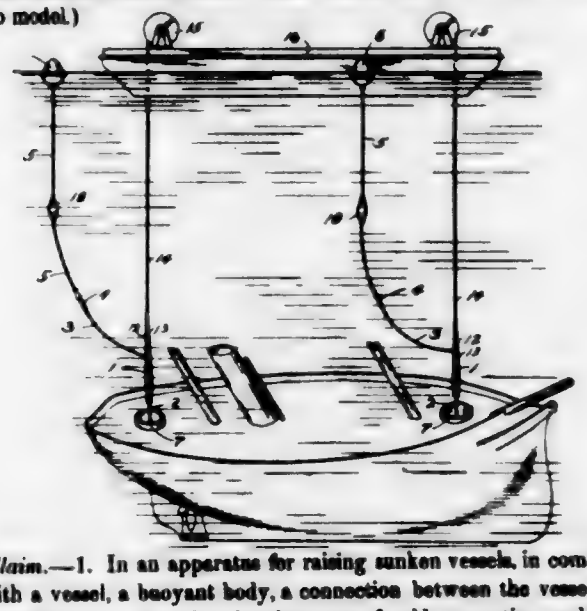


Claim.—1. In a furrow-former for drills and the like, the combination of a draft-bar hinged at its front end to permit vertical swing, a shank attached to the rear end of the draft-bar, a runner on the shank connecting at its front end with the draft-bar, and a rolling cutter journaled in a hanger attached to the draft-bar in front of the runner.

2. In a furrow-former for drills and the like, the combination of a draft-bar hinged at its front end to permit vertical swing, a shank attached to the rear of the draft-bar, a runner on the shank connecting at its front end with the draft-bar, and a rolling cutter journaled in front of the runner on a pivot carried by the draft-bar and extending at right angles with the travel of the runner; the cutter being in line with the edge of the runner, substantially as described.

3. In a grain-drill, or the like, the combination of a front frame, a draft-bar hinged at its front end to the front of the front frame and extended back of the center of weight of the front frame, a shank secured to the rear end of the draft-bar, a runner on the shank connecting at its front end with the draft-bar, and a rolling cutter journaled in front of the center of weight of the front frame in bearings attached to the draft-bar.

692,001. APPARATUS FOR RAISING SUNKEN VESSELS. JOHN BARKER, Seattle, Wash. Filed Mar. 5, 1901. Serial No. 49,916. (No model.)

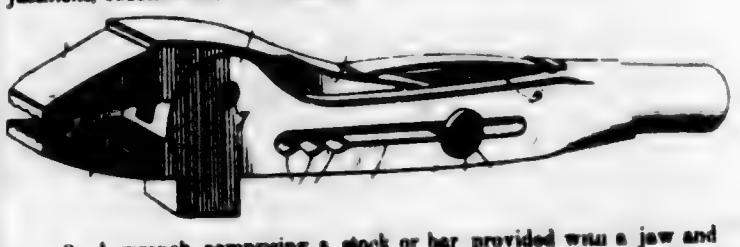


Claim.—1. In an apparatus for raising sunken vessels, in combination with a vessel, a buoyant body, a connection between the vessel and the buoyant body, a draw-bar forming part of said connection and having a plurality of annular projections, a grapnel comprising two or more sections embracing the connection and slidable thereon, said grapnel being provided with a number of annular grooves on its interior to fit the projections of the draw-bar, and a hoisting-rope connecting the several sections of the grapnel together and adapted to press them tightly against the draw-bar causing the annular grooves of the grapnel to engage the projections of the draw-bar when the hoisting-rope is tightened.

2. In a device of the character described, a draw-bar provided with a plurality of annular tapering projections, in combination with a grapnel comprising two or more sections embracing the draw-bar and slidable thereover, each of said sections of the grapnel being provided with a series of grooves forming inclined teeth therebetween to fit between the projections of the draw-bar, and a hoisting-rope connecting the sections of the grapnel together by having loops each passing through one of the sections and embracing another section.

692,002. WRENCH. ROBERT B. BLACKBURN, Mayfield, Ky. Filed Sept. 26, 1901. Serial No. 76,667. (No model.)

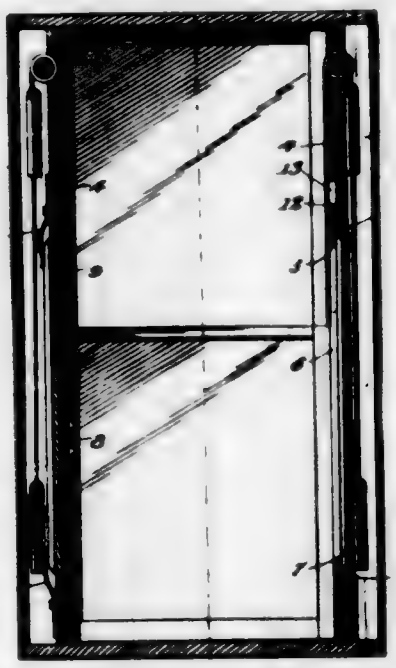
Claim.—1. A wrench comprising a stock or bar provided with a jaw, a pivoted jaw mounted on the stock or bar and having a shank extending inward longitudinally of the stock or bar and adapted to swing transversely thereof, a slide loosely mounted on the stock or bar and arranged at and engaging the inner face of the said shank, and a spring mounted on the stock or bar and engaging the outer face of the shank and holding the latter against the slide and retaining the slide in its adjustment, substantially as described.



2. A wrench comprising a stock or bar provided with a jaw and having a longitudinal opening, said stock or bar being also provided at opposite sides of the opening with slots, a pivoted jaw mounted on the stock or bar and having an inwardly-extending shank arranged to swing inward and outward in the said opening, the slide loosely arranged in the said slots and engaging the inner face of the shank of the pivoted jaw, and a spring engaging the shank and holding the same in contact with the slide and maintaining the latter in its adjusted position, substantially as described.

3. A wrench comprising a stock or bar having a jaw and provided with a longitudinal opening, said stock or bar being also provided at opposite sides of the opening with slots and having notches therein to form seats, a pivoted jaw mounted on the stock or bar and having a shank extending into the said opening, and the slide extending through the slots and arranged to engage the shank and adapted to fit in the said seat, substantially as described.

692,003. WINDOW-FRAME. FLOYD N. BOYCE, Battlecreek, Mich. Filed May 25, 1901. Serial No. 61,902. (No model.)



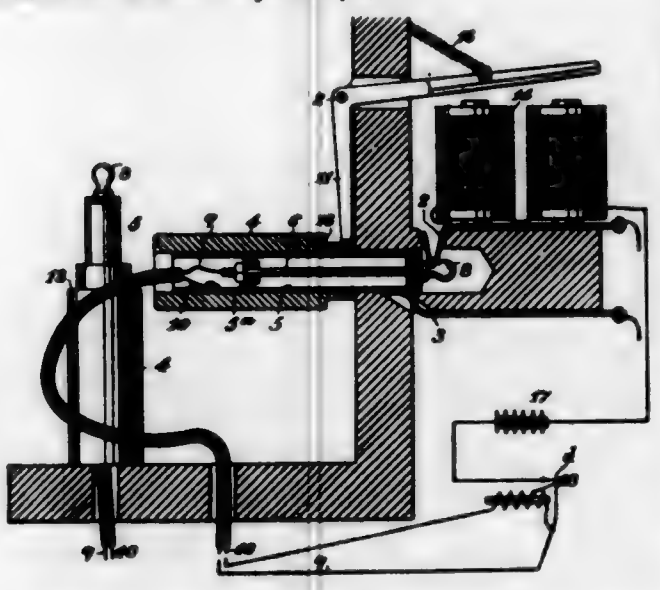
Claim.—1. A window-frame comprising a sash-stile having a longitudinal slot, a removable strip fitting in the slot and having flanges located on the inside of the stile, and lower and upper vertically-arranged short springs secured at their inner ends to the inner side of the slotted stile at a distance from the ends of the slot and having their outer ends overlapping the ends of the strip while permitting the endwise movement of the strip therein.

2. A window-frame comprising a stile having a longitudinal strip-slot and a bolt-slot in alinement with the strip-slot, a removable strip fitting in the strip-slot and having flanges located on the inside of the stile, a lower spring secured at its inner end to the inner side of the stile, and having its outer end overlapping the lower end of the strip, a bolt adapted to slide in the bolt-slot, and an upper spring secured by its inner end to the inside of the stile by means of a bolt and its outer end overlapping the upper end of the strip

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692,004. SELF-EJECTING PLUG FOR TELEPHONE-SWITCHBOARDS. CHARLES F. BUTTS, San Francisco, Cal., assignor to Paul C. F. Butts, San Francisco, Cal. Filed Apr. 20, 1901. Serial No. 56,128. (No model.)

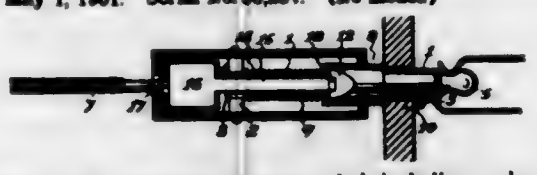
Claim.—1. The combination in a telephone-switchboard, its sockets, and plugs adapted to be inserted therein, of a device for ejecting the plug, consisting of a lever, one end of which engages the plug, an armature carried by other end, and an electromagnet which acts thereon when energized and moves the lever to eject the plug.



2. The combination in a telephone-switchboard, having sockets and plugs slidable therein, and contacts controlled by said plugs through which circuits are completed when the plugs are introduced, of levers, one arm of each of which engages a plug, and electromagnets by which the other arm is moved whereby the plugs are ejected by the energizing of the electromagnets.

3. The combination with a telephone-switchboard, its sockets, and plugs adapted to be inserted therein, of a plug-ejecting device consisting of a lever, one end of which engages the plug, an armature carried by the other end, an electromagnet by which the armature is attracted, and the lever moved, and connections between said magnet, a common battery and a relay whereby the magnet is energized and the plug ejected when the receiver is hung up.

692,005. **AUTOMATIC ELECTRIC SWITCH.** CHARLES F. BUTTE, San Francisco, Cal., assignor to Paul C. F. Butte, San Francisco, Cal. Filed May 1, 1901. Serial No. 58,257. (No model.)



Claim.—1. An automatic electric switch including a plug having spring-pressed circuit making and breaking devices, a latching mechanism therefor carried thereby, a socket into which the head of the plug is inserted whereby the spring is compressed and the latch engaged simultaneously, means completing an electrical circuit when the plug is inserted, and means for disengaging the latch.

2. An automatic electric switch comprising a plug, having spring-pressed circuit making and breaking devices, a retaining-latch therefor carried thereby, electrical connections, and a socket into which the plug is inserted whereby an electrical circuit is completed, the spring compressed and the latch engaged simultaneously, and an electrically-actuated device for disengaging the latch, said device carried by the plug.

3. An automatic electric switch consisting of a stem with a contact-making head, a tube concentric with and insulated therefrom, and a base by which they are carried, a sleeve slidable on the tube and a spring acting to normally force it forward, a latch by which the sleeve is engaged when retracted, and an electromagnet carried by the switch and acting when energized to release the latch.

4. An automatic electric switch including a plug having a stem with a contact-making head, a socket into which said head is inserted, electrical contacts, a spring encircling said stem and acting to disengage the head, and compressed when the head is inserted, a latch by which the spring is retained under tension, and an electromagnet by which the latch is disengaged, said latch and magnet carried by the plug.

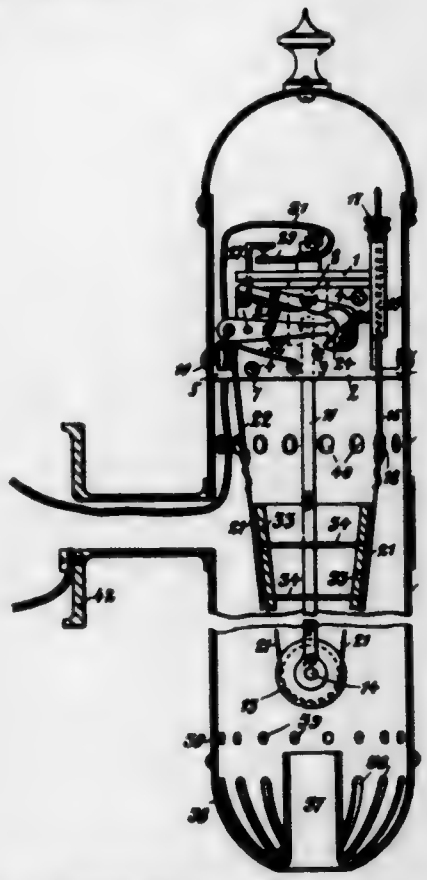
692,006. **BRICK-MOLD.** JONATHAN CRAGEN, Cincinnati, Ohio. Filed July 18, 1901. Serial No. 68,707. (No model.)

Claim.—1. A mold for brick or other articles formed of side pieces extended parallel and spaced apart, transverse parts extended between the side pieces to form a chamber between said transverse parts and side pieces and a bottom plate held in fixed relation with respect to said side pieces and transverse parts and extended entirely across the bottom of said chamber to close the same, one wall of said chamber being alined with the edge of said bottom plate and being formed of a part the lower edge of which is arranged above the plane of said bottom plate to produce beneath said part an opening having communication with said chamber and adapted for the admission of air thereto, substantially as set forth.



2. A mold for brick and other articles having its interior provided with a partition dividing it into two chambers and having a fixed bottom provided with an opening alined with, and of a width equal to the thickness of the partition, substantially as set forth.

692,007. **GAS-DETECTOR.** OSCAR FREYHAHN and CHARLES TOLMAN, Brooklyn, N. Y., assignors to American Equipment Company, New York, N. Y., a Corporation of New York. Filed Apr. 15, 1901. Serial No. 55,897. (No model.)



Claim.—1. The combination with an automatic circuit-closing device of a connecting device, sensitive to the action of heat, for holding the contact-pieces apart, and of a piece or pieces of porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

2. The combination with the movable contact-piece of an automatic circuit-closing device of a connecting device, sensitive to the action of heat; said connecting device being attached to the movable contact-piece and holding it away from the other contact-piece, and of a piece or pieces of porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

3. The combination with an automatic circuit-closing device, comprising a stationary and a movable contact-piece, of a connecting device, sensitive to the action of heat, attached to the movable contact-piece and holding it away from the other, and of a piece or pieces of porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

4. The combination with mechanism, actuating a signaling device and a spring-actuated lever for starting or releasing the mechanism, of a connecting device, sensitive to the action of heat, attached to the lever

and holding it against the action of the spring, and of a piece or pieces of porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

5. A gas-detecting device comprising an electric battery, an electrical signaling device, a frame, a stationary and a movable contact-piece, mounted in the frame, electrical conduits connecting the battery, the signaling device and the contact-pieces, mechanism acting upon the movable contact-piece, a connecting device, sensitive to the action of heat, attached to the movable contact-piece and holding it away from the stationary contact-piece, and a piece or pieces of porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

6. A gas-detecting device comprising an electric battery, an electrical signaling device, a frame, a stationary and a movable contact-piece, mounted in the frame, electrical conduits connecting the battery, the signaling device and the contact-pieces, mechanism acting upon the movable contact-piece, a connecting device, sensitive to the action of heat, connected to the movable contact-piece and holding it away from the stationary contact-piece, and a piece or pieces of porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

7. The combination with an automatic circuit-closing device of a combustible connecting device for holding the contact-pieces apart, and of a piece or pieces of porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

8. The combination with mechanism actuating a signaling device and a spring-actuated lever for starting or releasing the mechanism, of a combustible connecting device attached to the lever and holding it against the action of the spring, and of a piece or pieces of porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

9. A gas-detecting device, comprising an electric battery, an electrical signaling device, a frame, a stationary and a movable contact-piece, mounted in the frame, electrical conduits connecting the battery, the signaling device and the contact-pieces, mechanism acting upon the movable contact-piece, a combustible connecting device attached to the movable contact-piece and holding it away from the stationary contact-piece, and a piece or pieces of porous substance, affixed in proximity to the connecting device said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

10. The combination with an automatic circuit-closing device of a combustible connecting device for holding the contact-pieces apart, said connecting device being treated as herein described, whereby it is rendered sensitive to the action of smoke, the smoke causing it to elongate, and of a piece or pieces of a porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

11. A combined smoke and gas detecting device comprising an electric battery, an electric signaling device, a frame, a stationary and a movable contact-piece, mounted in the frame, electric conduits connecting the battery, the signaling device and the contact-pieces, mechanism acting upon the movable contact-piece and forcing it in contact with the stationary contact-piece; a combustible connecting device connected to the movable contact-piece, and holding it away from the stationary contact-piece; said connecting device being treated as herein described, whereby it is rendered sensitive to the action of smoke, the smoke causing it to elongate; and a piece or pieces of a porous substance, affixed in proximity to the connecting device; said porous substance being treated with chemical composition as herein described and thereby rendered productive of heat when exposed to the action of gas.

692,008. SEPARATING PROCESS FOR ORES. OSCAR FRÖLICH, Charlottenburg, MAX HUTH, Halensee, and ARTHUR EDELMANN, Charlottenburg, Germany, assignors to Siemens & Halske Aktiengesellschaft, Berlin, Germany. Filed Sept. 5, 1901. Serial No. 74,334. (No specimens.)

Claim.—1. In the art of separating metals from ores containing iron among a plurality of metals existing therein in a combined form, the process which consists in heating the ore to a temperature below the decomposition temperature of the sulfate of the metal to be sulfated, but above the decomposing temperature of the sulfate of any other metal existing in the ore and then passing over it a gas mixture containing sulfur dioxid and oxygen.

2. In the art of separating metals from ores containing iron among a plurality of metals existing therein in a combined form, the process which consists in heating the ore to a temperature below the decomposition temperature of the sulfate of the metal to be sulfated but above the decomposing temperature of the sulfate of any other metal existing in the ore, and then passing over it a heated mixture of sulfur dioxid and air.

3. In the art of separating metals from ores containing iron and other metals existing therein in a combined form, the process which consists in heating the ore to a temperature below the decomposition temperature of the sulfate of the metal to be sulfated, but above the decomposing temperature of the sulfates of the other metals, then passing over it a gas mixture containing sulfur dioxid and oxygen, then separating the resultant sulfate and repeating the above steps for each of the other metals susceptible of sulfation.

4. In the art of separating metals from ores containing iron and other metals existing therein in a combined form, the process which consists in heating the ore to a temperature below the decomposition temperature of the sulfate of the metal to be sulfated, but above the decomposing temperature of the sulfates of the other metals, then passing over it a heated gas mixture containing sulfur dioxid and air, then leaching the ore with water and repeating the above steps for another of the metals and so on.

5. In the art of separating metals from ores of the character hereinbefore described, the process which consists in heating the ore to a temperature below the decomposing temperature of the sulfate of the metal to be sulfated, but above the decomposing temperature of any other metal existing in the ore and then passing over it a heated and dry mixture of sulfur dioxid and air.

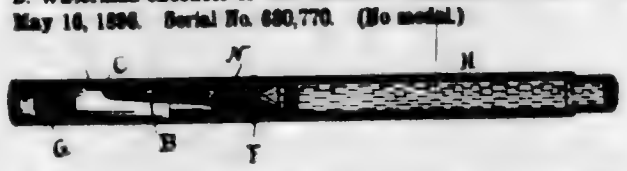
6. In the art of separating metals from ores of the character hereinbefore described, the process which consists in heating the ore to a temperature below the decomposing temperature of the sulfate of the metal to be sulfated, but above the decomposing temperature of any other metal existing in the ore and then passing over it a heated and dry mixture of sulfur dioxid and air, then separating the resultant sulfate and repeating the above step for another of the metals and so on.

7. In the art of separating metals from ores of the character hereinbefore described, the process which consists in heating the ore to a temperature below the decomposing temperature of the sulfate of the metal to be sulfated, but above the decomposing temperature of any other metal existing in the ore and then passing over it a heated and dry mixture of sulfur dioxid and air, then separating the resultant sulfate and repeating the above steps for another of the metals and so on, then leaching the ore with water and repeating the above steps for another of the metals and so on.

8. In the art of separating metals from ores of the character hereinbefore set forth, the process which consists in heating the ore to a temperature between 500° to 1,000° centrigrade, and passing over it a heated mixture containing sulfur dioxid and oxygen.

9. In the art of separating metals from ores of the character hereinbefore specified, the process which consists in heating the ore to a temperature between 500° and 1,000° centrigrade, and passing over it a heated and dried mixture of sulfur dioxid and air.

692,009. SAFETY FOUNTAIN-PEN. FREDERICK GILBERT, Seymour, Conn., assignor to Lewis E. Waterman, Brooklyn, N. Y.; Frank D. Waterman executor of said Lewis E. Waterman, deceased. Filed May 16, 1896. Serial No. 690,770. (No model.)



Claim.—1. In safety fountain-pens, a cap provided at its closed end with a safety screw-plug adapted to fit and close the open end of the reservoir hermetically and the reservoir in combination.

2. In safety fountain-pens, a cap provided at its closed end with a safety screw-plug adapted to fit and close the open end of the reservoir hermetically, in combination with the reservoir, and also provided with a secondary cap adapted to fit and cover the safety screw-plug in or on the closed end of the cap and also adapted to fit, cover and hermetically close the inner end of the nozzle.

3. In safety fountain-pens, a cap C provided with a safety screw-plug G in combination with the barrel or reservoir.

4. In safety fountain-pens, a cap C provided with a screw safety-plug G and with the screw safety secondary cap P in combination with the barrel or reservoir.

5. In safety fountain-pens, a cap C provided with a screw safety-plug G and with the screw safety secondary cap P in combination with the screw nozzle N and with the barrel or reservoir H.

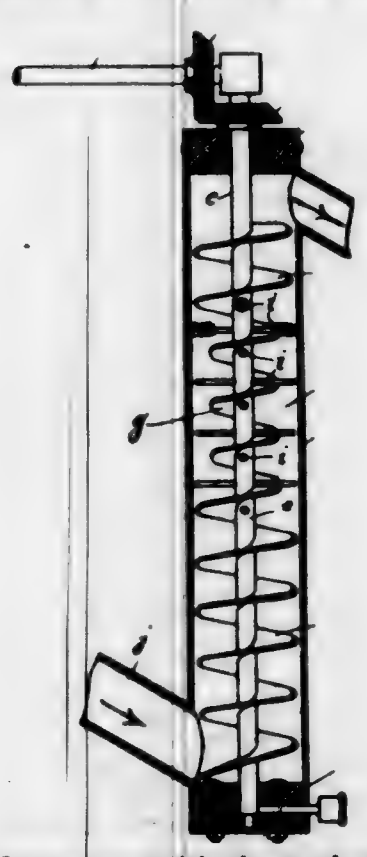
692,010. KID-GLOVE CLEANER AND PROCESS OF MAKING SAME. HERMAN GOTTSCHALK, Chicago, Ill. Filed Oct. 3, 1901. Serial No. 77,422. (No specimens.)



Claim.—1. The process herein described for producing a cleaner for kid gloves, which consists in kneading plastic-rubber composition together with yeast which is thus diffused through the mass, boiling in water to effect aeration, rolling in sheets, vulcanizing in the condition of rubber sponge, and soaking in benzin until the mass is thoroughly impregnated therewith.

2. The kid-glove cleaner herein described, consisting of a body *a*, of a rubber sponge impregnated with benzin or the like, and a backing *b* of solid rubber.

692,011. BARLEY-BEARDER AND CEREAL-POLISHER. MARTIN HANSEN, Livermore, Cal. Filed Sept. 9, 1901. Serial No. 74,724. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a tube, a shaft therein, an auger on said shaft fitting closely within the tube in the lower portion thereof, said auger being reduced in size on an upper or further portion thereof, and rubbing devices extending from said shaft in said upper or further portion, substantially as described.

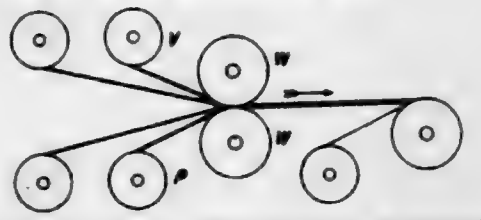
2. In an apparatus of the character described, the combination of a tube, a shaft revolving therein, an auger on said shaft fitting closely within the lower portion of the tube and reduced in size in an upper portion, and rubbing devices mounted on said shaft in said upper portion, substantially as described.

3. In an apparatus of the character described, the combination of a tube, a shaft rotating therein, an auger mounted on said shaft and fitting closely within said tube in the ends thereof, and being reduced in a mediate portion thereof, and rubbing devices extending from said shaft in said mediate portion, substantially as described.

692,012. COVERING ELECTRIC CONDUCTORS WITH INSULATING MATERIAL. GEORGE E. HEYL-DIA, Manchester, England. Filed Dec. 17, 1900. Serial No. 40,122. (No specimens.)

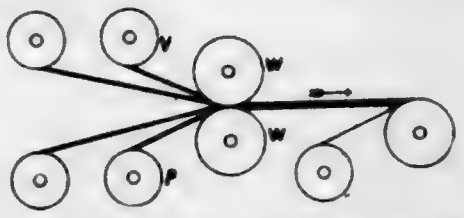
Claim.—1. The herein-described method of covering electric cables, conductors, or wires with insulating material which consists in combining pure rubber and another insulating material such as vulcanized rubber into a single composite material of which one side consists of pure rubber, and in applying the same to the conductor with the pure-rubber side turned toward the wire substantially as hereinbefore set forth.

2. The herein-described method of covering electric cables, conductors, or wires, with insulating material, which consists in taking some insulating material such as vulcanized rubber in sheet or strip form, applying to it a coating of pure rubber, and finally applying the composite material to the conductor with the pure-rubber side turned toward the wire, substantially as and for the purpose set forth.



3. The herein-described method of covering electric cables, conductors, or wires, with insulating material, which consists in separately calendering pure rubber and another insulating material such as vulcanized rubber into separate sheets or strips, then passing the two materials between warm rollers to make them adhere one to the other and to draw out the air from between them, and finally applying the composite material to the conductor with the pure-rubber side turned toward the wire, substantially as hereinbefore set forth.

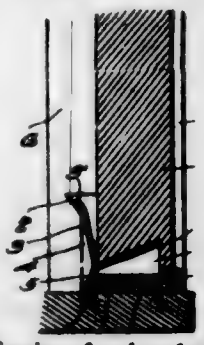
692,013. INSULATING COVERING MATERIAL FOR ELECTRIC CABLES, CONDUCTORS, &c. GEORGE E. HEYL-DIA, Manchester, England. Original application filed Dec. 17, 1900, Serial No. 40,122. Divided and this application filed Nov. 1, 1901. Serial No. 80,752. (No specimens.)



Claim.—1. As an improved article of manufacture, an insulating material for electric conductors having its inner face, which is to be applied to the conductor, composed of a sheet of unvulcanized rubber and its outer face composed of another insulating material, these two substances being united integrally to form a single composite sheet or strip, substantially as set forth.

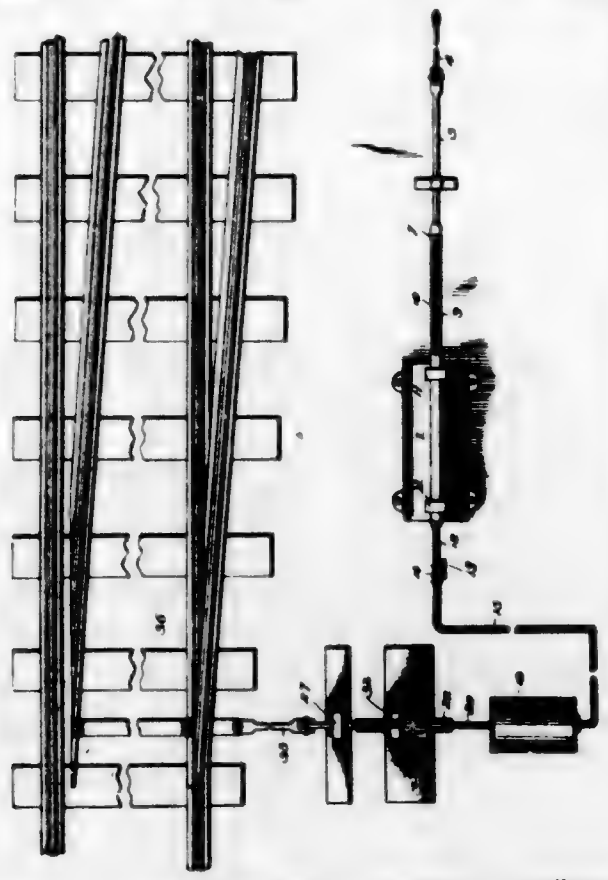
2. As an improved article of manufacture, an insulating material for electric conductors consisting of a flat sheet of substantially uniform thickness having its inner face, which is to be applied to the conductor, composed of a sheet of unvulcanized rubber, and its outer face composed of vulcanized rubber, these two substances being united integrally to form a single sheet, substantially as set forth.

692,014. WEATHER-STRIP. PARES D. JONES, Loveland, Iowa. Filed June 29, 1897. Serial No. 642,670. (No model.)



Claim.—The combination of a door-frame having one of its beads recessed to provide a vertical shoulder 4 and having a notch 2, at the top thereof forming a tapering portion at its bottom, the threshold-strip provided at its inner edge with an upwardly-projecting rib, a hinged strip or plate angular in cross-section, and conforming to the configuration of the front portion of the threshold-strip, and arranged to fit against the same, and the substantially straight arm extending upward from the front portion of the hinged plate or strip, adjacent to the recessed portion of the bead and having its upper end curved toward the notch 2 and adapted to project into the same and abut against the tapering portion at the bottom thereof, said arm being arranged at an inclination when the door is closed, and having its upper portion bearing against the tapering portion of the bead and its lower portion engaged by the door and spaced from the door and the bead, whereby it is adapted to be flexed by the former to cause the strip or plate to be held tightly against the lower edge of the door, by the natural resiliency of the metal, substantially as described.

692,015. PNEUMATIC SWITCH AND SIGNAL. JOHN W. KEENEY, Coalburg, W. Va. Filed Dec. 31, 1900. Serial No. 41,651. (No model.)



Claim.—1. The combination with a compressor; of a bellows, a pipe connection between said compressor and bellows, a strip connected to the bellows, and formed with a double inclined lug, a forked bar adapted to receive the strip and formed with notches, said strip being movable a short distance independently of the bar, a switch connected to the bar, and a pivotally-supported locking-bar adapted to engage the notches in said bar and the lug of the strip.

2. The combination with a compressor; of a bellows, a pipe connection between said compressor and bellows, a strip secured to the bellows, an extension to said strip, a slidable forked bar having notches in its upper edge adapted to receive the strip, said strip being movable a short distance independently of the forked bar, a switch connected to the bar, a pivotally-supported locking-plate, having recesses therein, either one of which is adapted to receive the extension of the strip, and a stud to said locking-bar adapted to engage a notch in the forked bar.

3. In a pneumatic railway-switch, the combination with an air-cylinder, a bellows, and piston in the cylinder, of a pipe connecting the bellows and the cylinder, a valve in the pipe, a valve-rod slidingly mounted on the cylinder, having a slot shorter than the stroke of the piston, and connected to the valve-stem, an arm on the piston-rod with its free end slidingly arranged in said slot, means to reciprocate the piston, and switch-operating mechanism between the bellows and the switch, substantially as set forth.

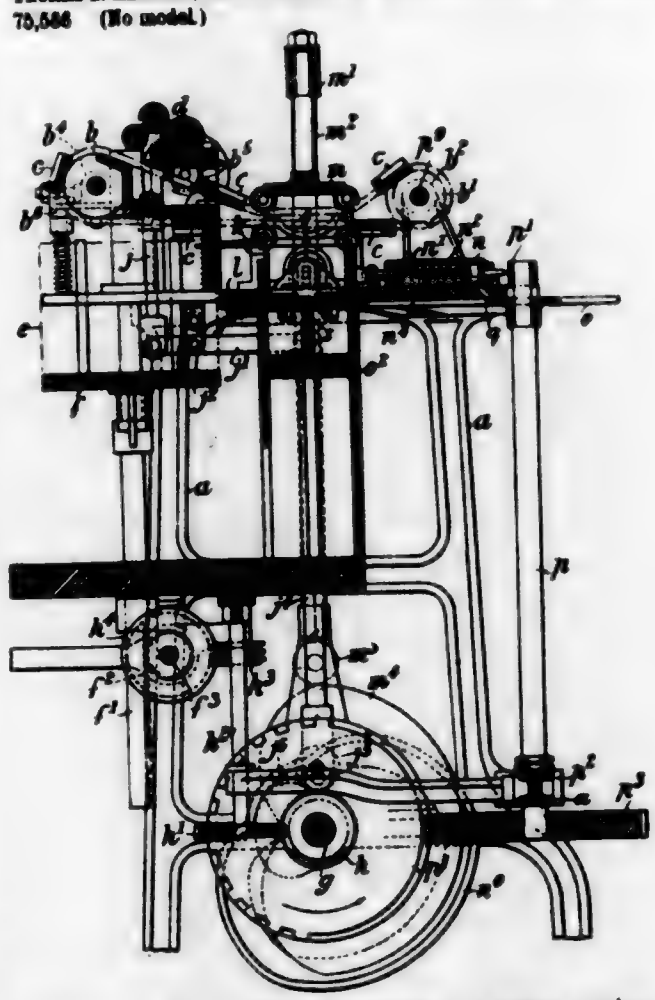
4. The combination with a cylinder; of a piston therein, means for operating the piston, a bellows, a pipe connecting the cylinder and bellows, a valve within the pipe, a slotted slide connected to the valve, an arm connected to the piston and engaging the slot and adapted to operate the slide to open the valve just before the piston reaches the limits of its movements, and a switch connected to the bellows.

5. The combination with a cylinder; of a piston therein, means for operating the piston, a bellows, a pipe connecting the bellows and cylinder, a valve within the pipe, a slotted slide connected to the valve, an arm connected to the piston and adapted to engage the ends of the slot, to operate the slide and open the valve when the piston reaches the limits of its movements, a strip connected to the bellows, formed with a wedge-shaped extension thereto, a forked bar adapted to receive the strip and having slots therein, and having studs engaging the slots, a switch connected to said bar, a pivotally-supported locking-bar having recesses therein either of which is adapted to receive the wedge-shaped extension, and a stud adapted to engage a recess in the forked bar and lock the same against movement.

6. In an apparatus of the character described, the combination with a cylinder; of a piston therein, means for operating the piston, a bellows, a pipe connecting the bellows and cylinder, a valve within the pipe, a slotted slide connected to the valve, and an arm connected to the piston and adapted to engage the said slide and move it to open the valve when said piston reaches the limits of its movements.

7. In an apparatus of the character described, the combination with a compressor; of a bellows, a pipe connecting said compressor and bellows, a switch secured to, and adapted to move with, the bellows, a standard, a semaphore-arm pivoted thereto, a cylinder, a piston therein, a rod connecting said piston and arm and a pipe connecting the cylinder and the pipe of the bellows.

692,016. MACHINE FOR GUMMING AND FOLDING ENVELOPS. THOMAS R. KENDELL, London, England. Filed Sept. 16, 1901. Serial No. 75,586. (No model.)



Claim.—1. In a machine for gumming and folding envelops, the combination with an endless band, supporting-rollers therefor, a series of gummers secured to said band, a blank-supporting table, located below said band, and devices for raising and lowering one of said supporting-rollers to press the gummers upon the blanks and driving mechanism for said band; substantially as described.

2. In a machine for gumming and folding envelops, the combination with an endless band, supporting-rollers therefor, a vertically-movable plate carrying the bearings for one of said rollers, a blank-supporting table below said plate, a series of gummers secured to said band and adapted to travel between said plate and the topmost blank, mechanism for applying adhesive material to said gummers, mechanism for depressing said plate into contact with the gummer beneath the same to force it down upon the topmost blank and mechanism for driving said band, substantially as described.

3. In a machine for gumming and folding envelops, the combination with the folding-box having hinged sides, of a series of fluid-pressure cylinders provided with pistons connected to said hinged sides, certain of said pistons being provided with retracting-springs of different strengths and means for supplying fluid under pressure to said pistons to fold said hinged sides in sequence, substantially as described.

4. In a machine for gumming and folding envelops, the combination with the folding-box provided with hinged sides, of fluid-pressure cylinders provided with pistons connected to said hinged sides and means for supplying fluid under pressure to said cylinders, substantially as described.

5. In a machine for gumming and folding envelops, the combination with the folding-box provided with hinged sides, of fluid-pressure cylinders provided with pistons connected to said hinged sides, retracting-springs for said pistons and means for supplying fluid under pressure to said cylinders, substantially as described.

6. In a machine for gumming and folding envelops, the combination with the folding-box provided with hinged sides, of fluid-pressure cylinders provided with pistons connected to said hinged sides, liners adjustably secured to the inner faces of said sides, and means for supplying fluid under pressure to said cylinders, substantially as described.

7. In a machine for gumming and folding envelops, the combination

with the folding-box having an open bottom and hinged folding sides, of a horizontal plate arranged below said box and provided with a solid portion adapted to form the bottom of said folding-box and an aperture adapted to register with said folding-box to permit the folded envelop to pass through said plate and means for moving said plate, substantially as described.

8. In a machine for folding envelops, the combination with the folding-box having an open bottom and hinged folding sides, of a rotary horizontal disk arranged below said folding-box, provided with solid portions at intervals adapted to form the bottom of the folding-box, and with apertures between said solid portions to allow the folded envelops to pass through said disk, and means for intermittently rotating said disk, substantially as described.

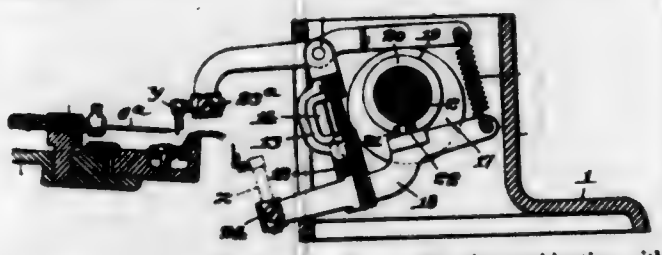
9. In a machine for folding envelops, the combination with the folding-box having an open bottom and hinged folding sides, of a rotary horizontal disk arranged below said folding-box provided with solid portions at intervals adapted to form the bottom of the folding-box, and with apertures between said solid portions to allow the folded envelops to pass through said disk, projections on the lower side of said disk beneath the solid portions thereof having inclined portions to engage and depress the folded envelop, substantially as described.

10. In a machine for folding envelops, the combination with the folding-box having an open bottom and hinged folding sides, of a rotary horizontal disk arranged below said folding-box provided with solid portions at intervals adapted to form the bottom of the folding-box, and with apertures between said solid portions to allow the folded envelops to pass through said disk, said folding-box being provided with downwardly-extending projections engaging grooves in solid portions of said disk to prevent the folded envelop from passing between the disk and the folding-box, substantially as described.

11. In a machine for folding envelops, the combination with the folding-box having an open bottom and hinged folding sides, of a rotary horizontal disk arranged below said folding-box provided with solid portions at intervals adapted to form the bottom of the folding-box, and with apertures between said solid portions to allow the folded envelops to pass through said disk, a receptacle for the folded envelops below said disk and in line with the folding-box, said receptacle having a vertically-movable bottom and movable retaining-clip for holding folded envelops in said receptacle, substantially as described.

12. In a machine for folding envelops, the combination with the folding-box having an open bottom and hinged folding sides, of a rotary horizontal disk arranged below said folding-box provided with solid portions at intervals adapted to form the bottom of the folding-box, and with apertures between said solid portions to allow the folded envelops to pass through said disk, a receptacle for the folded envelops below said disk and in line with said folding-box, said receptacle being provided with a downwardly-yielding bottom, downwardly-extending projections below the solid portions of said disk having inclined portions for forcing the folded envelops into said receptacle and movable retaining-clips for preventing the folded envelops from moving upward in said receptacle, substantially as described.

692,017. MACHINE FOR SEWING LOOPED FABRICS. GEORGE KEYSER, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,371. (No model.)



Claim.—1. In a machine of the class recited, the combination with the impaling-pins and their support, of the needle, operating means therefor, a pair of levers one arranged above and the other below said pins, and each constructed to receive a looper-hook to coöperate with the needle, looper-hooks for said levers and means to actuate said levers.

2. In a machine of the class recited, the combination with the impaling-pins and their support, of the needle, operating means therefor, a pair of levers one arranged above and the other below said pins, and each constructed to receive a looper-hook to coöperate with the needle, looper-hooks for said levers, a shaft, and cam mechanism thereon coacting with said levers to actuate their hook-carrying portions.

3. In a machine of the class recited, the combination with the impaling-pins and their support, of the needle, operating means therefor, a pair of levers one arranged above and the other below said pins, and each constructed to receive a looper-hook to coöperate with the needle, looper-hooks for said levers, a shaft, a disk thereon upon which rests the upper lever, an eccentric on said shaft provided with a peripheral camway, said eccentric and camway being engaged with the lower lever, means to maintain said levers in normal position, a rock-frame, and pivot-supports thereon for said levers

4. In a machine of the class recited, the combination with the impaling-pins and their support, of the needle, operating means therefor, a lever extending above said pins, and constructed to receive a looper-hook, a looper-hook for said lever, a shaft, a disk thereon upon which said lever rests, an eccentric on said shaft provided with a peripheral camway, a lower lever engaged by said eccentric and camway, means to maintain said latter lever in engagement with the eccentric and the upper lever in engagement with the disk, a rock-frame, and the pivot-supports thereon for the upper and lower levers.

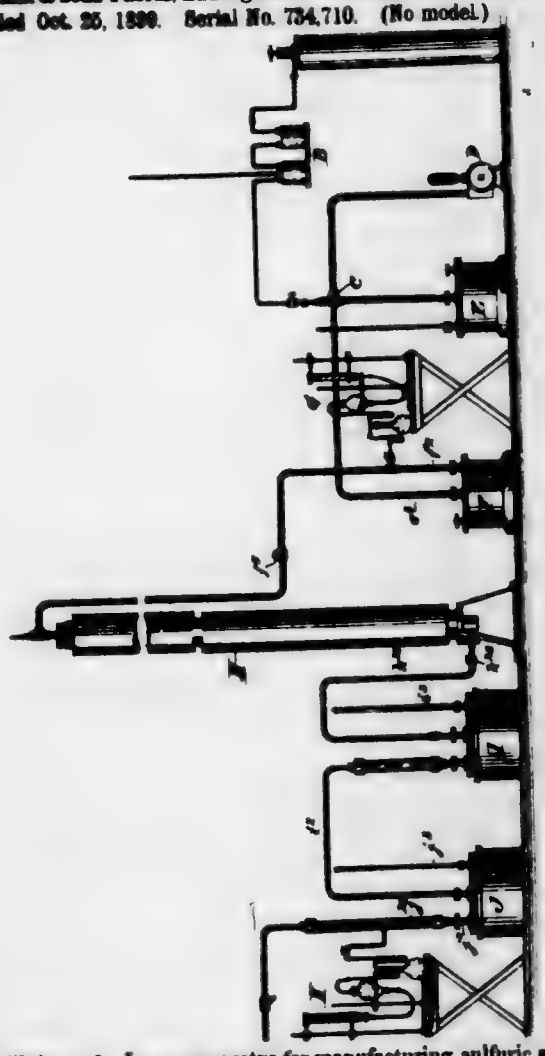
5. In a machine of the class recited, the combination with the impaling-pins and their support, of the needle, operating means therefor, a lever extending below said pins and constructed to receive a looper-hook to coöperate with the needle, a looper-hook for said lever, a rock-frame to which said lever is pivoted, a shaft, an eccentric thereon provided with a camway, said eccentric and camway being engaged with the lever, and means to maintain said lever in normal position.

6. In a machine of the class recited, the combination with the impaling-pins, their support, the needle and operating means therefor, of a device movable between the adjacent pins and in the path of the needle so as to direct the thread above the said pins during the retraction of the needle and means for operating said device.

7. In a machine of the class recited, the combination with the impaling-pins, their support, the needle and operating means therefor, of bits movable between adjacent pins and in the path of the needle so as to direct the thread above said pins during the retraction of the needle, a vertically-reciprocative stem carrying said bits, and means for reciprocating said stem.

8. In a machine of the class recited, the combination with the impaling-pins, their support, the needle and operating means therefor, of bits movable between adjacent pins and in the path of the needle so as to direct the thread above said pins during the retraction of the needle, a vertically-reciprocative stem carrying said bits, a lever connected with said stem, a shaft, and an eccentric thereon connected with said lever.

692,018. APPARATUS FOR MAKING SULFURIC ANHYDRID. RUDOLF KNIETSCH, Ludwigshafen, Germany, assignor to the Badische Anilin & Soda Fabrik, Ludwigshafen, Germany, a Corporation of Baden. Filed Oct. 25, 1899. Serial No. 734,710. (No model.)



Claim.—1. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder whereby a cooling medium is held in heat-extracting proximity

to said contact material, means for regulating the cooling capacity of said cooling medium, an apparatus whereby the gases to be treated are purified, an apparatus whereby the percentage of sulfur dioxid in the gases to be treated may be determined, an apparatus whereby the sulfuric anhydrid may be absorbed from the gases after leaving the contact material and an apparatus whereby the percentage of sulfur dioxid in the gases passing beyond said absorbing apparatus may be determined.

2. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder whereby a cooling medium is held in heat-extracting proximity to said contact material, means for regulating the cooling capacity of said cooling medium, an apparatus whereby the percentage of sulfur dioxid in the gas-supply may be determined, a thermometer in the path of said gas-supply to the contact material, a thermometer in the path of the gases leaving said contact material and an apparatus for determining the percentage of sulfur dioxid in the waste gases.

3. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder whereby a cooling medium is held in heat-extracting proximity to said contact material, means for regulating the cooling capacity of said cooling medium, a thermometer in the path of the gas-supply on its way to the contact material, a thermometer in the path of the sulfuric anhydrid on its way from the contact material, an apparatus whereby the sulfuric anhydrid may be absorbed from the gases after leaving the contact material and an apparatus whereby the percentage of sulfur dioxid in the gases passing beyond said absorbing apparatus may be determined.

4. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder whereby a cooling medium is held in heat-extracting proximity to said contact material, means for regulating the cooling capacity of said cooling medium; said combination being provided with an observation-opening through which the color of said contact-material receptacle due to the temperature therein may be observed.

5. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder whereby a cooling medium is held in heat-extracting proximity to said contact material, means for regulating the cooling capacity of said cooling medium, a contact-material holder consisting of a series of diaphragms which are supported independently of the contact material.

6. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder whereby a cooling medium is held in heat-extracting proximity to said contact material, means for regulating the cooling capacity of said cooling medium consisting of means whereby both the volume and temperature of the cooling medium are regulated, and means whereby the richness of said gases in sulfur dioxid may be regulated.

7. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder whereby a cooling medium is held in heat-extracting proximity to said contact material, means for regulating the cooling capacity of said cooling medium and means whereby both the rate of flow of the gases through the contact-material receptacle and the richness of said gases in sulfur dioxid may be regulated.

8. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder whereby a cooling medium is held in heat-extracting proximity to said contact material, means for regulating the cooling capacity of said cooling medium, and means whereby the richness of said gases in sulfur dioxid may be regulated.

9. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a contact-material receptacle consisting of wrought-iron pipe A', a contact-material supporter therein, a holder whereby a cooling medium is conducted in contact with the outside of said wrought-iron pipe and means whereby the cooling capacity of said cooling medium is regulated.

10. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a receptacle for the contact material, a holder for a cooling medium surrounding said receptacle having top and bottom ports and means for closing said ports.

11. In an apparatus for the manufacture of sulfuric anhydrid, in combination, the chamber A', contact material occupying the egress portion of said chamber, the inclosure A^3 surrounding said chamber and provided with ports at the top, bottom and middle.

12. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, a chamber A', contact material occupying the egress portion thereof, an inclosure A^3 surrounding said chamber, insulating material surrounding said inclosure and ports extending through said inclosure; said insulating material being omitted over said ports.

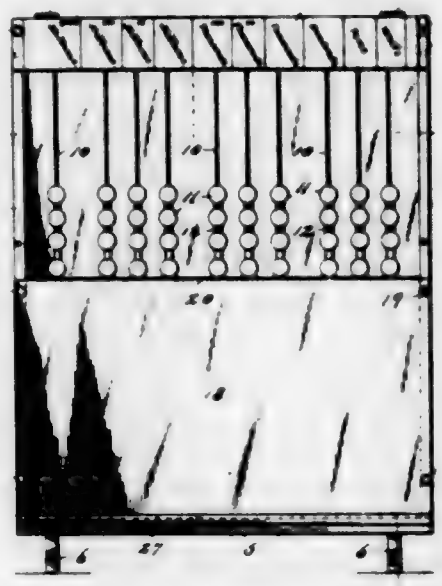
13. In an apparatus for manufacturing sulfuric anhydrid by the contact process, in combination, the chamber A', the contact material occupying one end thereof, the inclosure A^3, the burners A^{17} and A^{19} and the ports A^{11}, A^{13}, and A^{16}.

14. In an apparatus for the manufacture of sulfuric anhydrid by the contact process, in combination, the chamber A', the contact material, the receiving-chamber A^{12} at the exit end thereof, the burner A^{18}, the inclosure A^3, the burners A^{17} and A^{19}, and the ports A^{14}, A^{15} and A^{16}.

15. In an apparatus for the manufacture of sulfuric anhydrid by the contact process, in combination, the chamber A', the series of contact-material supports A^{20} therein, the inclosure A^3, the ports through said inclosure near the top and bottom of said series of contact-material supports and means whereby said ports may be regulated.

16. In an apparatus for the manufacture of sulfuric anhydrid by the contact process, in combination, the chamber A', the inclosure A^3, the intermediate chamber A^{20}, the passage f^7 leading into said chamber, A^{20}, ports A^{21} leading into said chamber A', the valve f^8 whereby said passage f^7 is controlled, ports leading into and out of said inclosure A^3, and means whereby said ports are controlled.

692,019. **EDUCATIONAL APPLIANCE.** CHARLES KOLMORN, Savannah, Ga. Filed June 29, 1901. Serial No. 66,568. (No model.)



Claim.—1. In a calculator, the combination with a frame, of a series of movable bands, and a series of counters carried by and movable with the bands, and clustered in groups of variable number.

2. In a calculator, the combination with a frame, and a board covering a portion thereof, of counters arranged in vertical series and adapted to be moved behind the board, and a flexible divider extending across all of the series of counters, said divider being attached to the board and adapted to contact with the counters as the latter are moved.

3. In a calculator, the combination with a frame, and a board covering a portion thereof, of series of counters movable up and down behind the board, and a flexible divider extending across all of the series of counters, said divider being attached to the board and slitted transversely to form yielding tabs or tongues which operate in contact with the movable counters.

4. In a calculator, the combination with a frame, and a board covering a portion thereof, of a series of flexible bands running over guides adjacent to the top and bottom of the frame, counters carried by said bands, and weights associated with the bands for counterbalancing the counters.

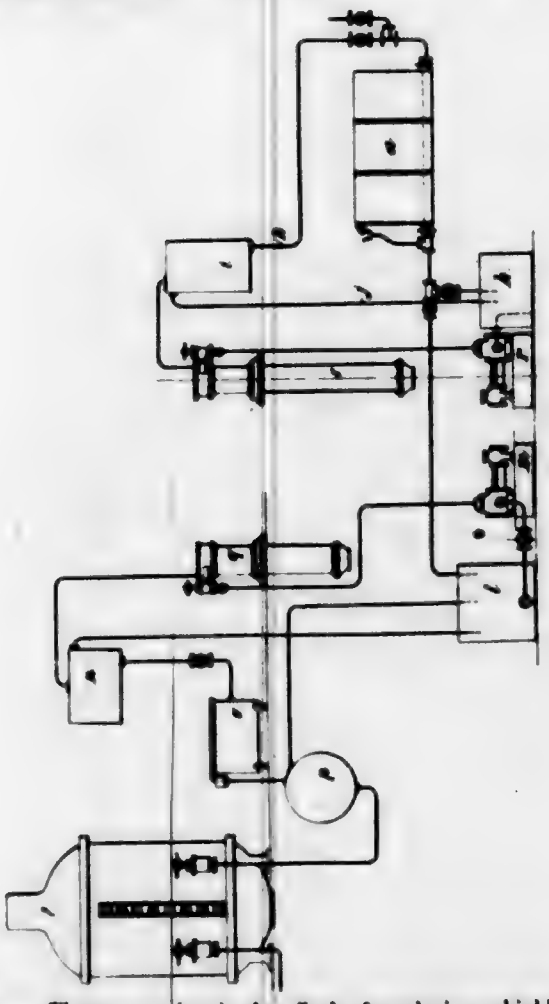
5. In a calculator, the combination with a frame, and a series of movable counters mounted therein, of a reversible board mounted on the frame and having designated thereon the denominations which the several series of counters represent.

6. In a calculator, the combination with a frame, a series of flexible bands, and counters mounted on and movable with the bands, of a blackboard covering a portion of the frame, a reversible units-board covering another portion of the frame, and means whereby the said boards may be interchanged or substituted one for the other.

7. In a calculator, the combination with a frame, of a series of flexible bands running over upper and lower sets of guides, counters on said bands and movable therewith, springs connecting the extremities of the bands, and counterbalance-weights of tubular form embracing the springs, substantially as described.

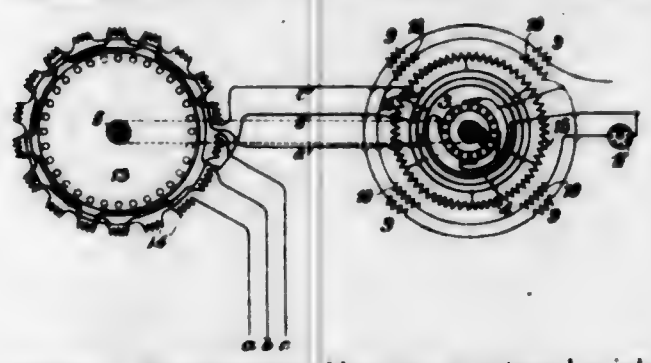
8. In a calculator, the combination with a frame, and a board covering a portion thereof, of a series of flexible bands carrying counters and extending over upper and lower guides and having their extremities connected, and a screen interposed between the front and back runs of the bands, substantially as described.

692,020. PROCESS OF DISSOLVING LOW-GRADE SUGAR. MAURICE LAMBERT, Toury, France. Filed Nov. 10, 1900. Serial No. 36,017. (No specimens.)



Claim.—The process herein described of producing a highly-concentrated sugar-syrup, which consists in passing through a mass of second sugar a quantity of fresh sugar solution, in heated condition, whereby a portion of said second sugar is melted and dissolved in said sugar solution, reheating the syrup thus produced, passing the same again through the second sugar, and continuously circulating said syrup and reheating the same at each pass, through the second sugar, until said syrup attains the desired degree of concentration, substantially as set forth.

692,021. REGULATION OF ROTARY-CONVERTER ELECTROMOTIVE FORCE. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to the Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Apr. 17, 1901. Serial No. 56,231. (No model.)



Claim.—1. The combination with a rotary converter and an induction-motor having a greater number of poles than the converter, of mechanical connections between the rotatable members of said machines and means for supplying alternating currents to the said machines in series.

2. The combination with a rotary converter and an induction-motor, having as many independent primary windings as there are phases of current and arranged to produce a number of magnetic poles that exceeds the number of rotary-converter magnetic poles, of mechanical connections between the rotatable members of said machines and means for connecting the primary windings of the motor in series with the armature-windings of the rotary converter.

3. The combination with a rotary converter and an induction-motor, having a plurality of independent primary windings, the latter being connected and arranged to produce magnetic poles that exceed in number those of the converter, of mechanical connections between the armature of the converter and the secondary member of the motor and means for supplying polyphase alternating currents to the primary windings of the motor and armature-windings of the rotary converter in series.

4. The combination with a rotary converter, having a compound-wound field-magnet of a given number of poles, of an induction-motor, having its secondary member mechanically connected to the armature of the rotary converter, and provided with a plurality of primary windings which are connected and arranged to produce magnetic poles that exceed in number those of the rotary converter, said motor primary windings and rotary-converter armature-windings being connected in series and supplied with polyphase alternating currents.

5. The combination with a rotary converter having a given number of poles, of an induction-motor mechanically connected thereto and having a greater number of poles, and means for connecting the armature-windings of the converter and the primary windings of the motor in series with each other.

6. The combination with a rotary converter and an induction-motor having their rotatable members mechanically connected together and means for supplying polyphase currents to the primary member of the motor and to the armature of the converter in series so as to produce magnetic poles in the motor, the number of which exceeds the number of magnetic poles in the converter.

7. The combination with a rotary converter having a given number of poles and an induction-motor having a greater number of poles and having a primary winding that is provided with twice as many leads as it has polyphase circuits, of mechanical connections between the rotatable members of the two machines and electrical connections between one-half of said leads and the converter-armature.

8. The combination with a rotary converter and an induction-motor, of means for connecting the primary windings of the motor and the armature-windings of the converter in series and mechanical connections between the secondary member of the motor and the armature of the converter, the relation between the windings and mechanical connections being such as to insure rotation of the secondary member of the motor at other than synchronous speed.

9. The combination with a polyphase induction-motor and a rotary converter having their rotatable members mechanically connected together, of means for connecting the primary windings of the motor and the armature-windings of the converter in series, the relation between the windings and mechanical connections being such that the motor operates at other than synchronous speed.

692,022. WINDING FOR ELECTRICAL MACHINES. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed June 26, 1901. Serial No. 66,148. (No model.)



Claim.—1. In an electrical machine, a slotted core having short outer bars and long inner bars and double strap end connectors, the strap ends being separated and fastened to both sides of the bar ends and those which are fastened to the short bars being both located at one side of the long bars.

2. In an electrical machine, a slotted core having a short and a long bar in each slot, the ends of which are spaced apart, and double strap end connectors the ends of which embrace the ends of the bars but are located at one side of the bars to which they are not connected.

3. In an electrical machine, a slotted core having a short and a long bar in each slot, the ends of which are spaced apart, and double strap end connectors, the ends of which embrace the bar ends and are riveted together in proximity thereto, the straps for each short bar being both located at one side of the long bar that is in the same slot.

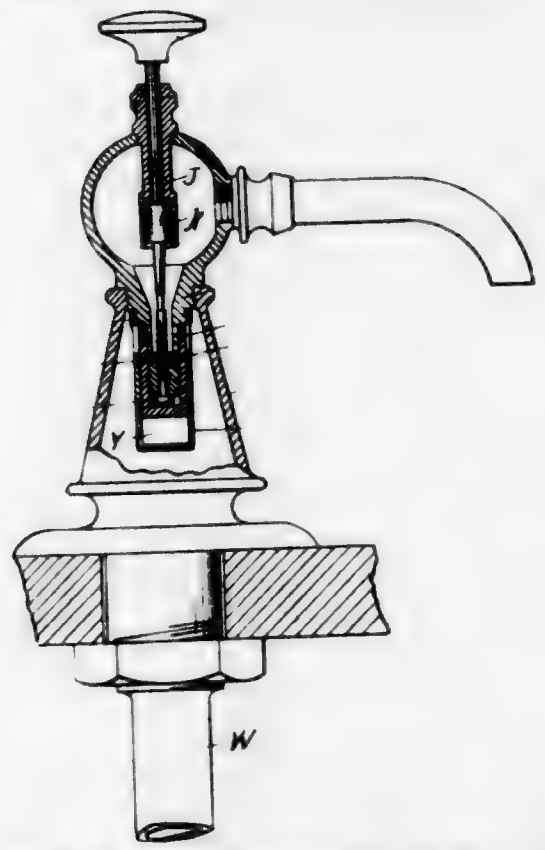
692,028. PRINTER'S QUOIN. WILLIAM H. LYSCHARD, Council Bluffs, Iowa. Filed Mar. 14, 1901. Serial No. 51,113. (No model.)

Claim.—1. The combination with two loosely-connected counterpart quoin members, each member being provided with a plurality of wedge-faces, each wedge-face being provided with an extending rib, of a wedge complementary to said wedge-faces and provided with racks upon opposite edges, and a groove to receive said ribs, as and for the purpose set forth.



2. The combination with two counterpart quoin members, of terminal pins uniting said quoin members, said quoin members being cut away to provide a seating adjacent said pins, each quoin member being provided with a plurality of wedge-faces, a rack-edged wedge complementary to and sliding between said quoin members, a pinion-headed operating-lever, and a hook secured to the pinion-head of said lever, and adapted to engage said terminal pins, while said head engages said rack-edged wedge, all arranged substantially as and for the purpose set forth.

692,024. SELF-CLOSING FAUCET. JOHN W. LYON, Providence, R. I. Filed Sept. 7, 1901. Serial No. 74,657. (No model.)



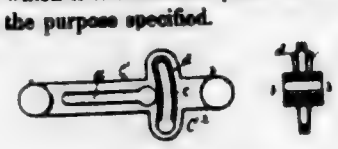
Claim.—1. In a faucet, the combination of an upper and a lower chamber, a cylindrical extension of said upper chamber down into the lower chamber, a small chamber made in the upper end of said extension, and having holes in the sides thereof, a cylinder closed at its lower end fitted to slide on said extension and having a valve on its upper end, a valve-seat around the top of said extension, an outer cylinder inclosing the sliding cylinder with a valve, and having its lower end closed and provided with openings in its side at its top, and means for depressing the valve, substantially as described.

2. In a faucet the combination of an upper and lower chamber, a cylindrical extension of the upper chamber down into the lower chamber, a small chamber in the upper end of said extension, having holes in the sides of said small chamber, narrow slots extending upward from said holes, an outer cylinder inclosing said extension and having openings at its top and its lower end closed, a valve fitted to slide freely on said extension and in said outer cylinder, and means for operating said valve, substantially as described.

3. In a faucet the combination of an upper and a lower chamber, a cylindrical extension of the upper chamber down into the lower chamber, a pin fitted to slide freely in a hole in said extension, a head on the lower end of the pin, a flat side on said pin, openings in the side of said small chamber, an outer cylinder inclosing said extension and having openings at its top and its lower end closed, a valve fitted to slide freely on said extension and in said outer cylinder, and means for operating said valve, substantially as described.

692,025. STORM-SASH FASTENER. CALEB MAULDIN, Minneapolis, Minn. Filed Aug. 17, 1901. Serial No. 72,437. (No model.)

Claim.—As an article of manufacture, the herein-shown storm-sash fastener, embodying a shaft portion, lugs of unequal lengths extending laterally therefrom, and a longitudinally-extending opening in the said shaft portion, said opening being adapted to receive the shaft portion of the wood-screw with which it is secured in place on the casing, substantially as shown and for the purpose specified.



692,026. CIGAR-HOLDER. LOUIS MULLER, Chicago, Ill. Filed July 22, 1901. Serial No. 69,234. (No model.)



Claim.—1. A cigar-holder comprising two pivotally-connected spring-pressed members one of which is provided with a hollow spur adapted to pierce a cigar inserted between the members, and a suitable mouthpiece communicating with said spur, said spur being provided with an aperture whose axis is transverse to the holder-axis.

2. A cigar-holder comprising a longitudinally-bored stem closed at its outer end, a hollow spur extending laterally from said stem provided with inlet-openings whose axes are transverse to the stem-axis, and means on the stem for centering and holding a cigar impaled on said spur.

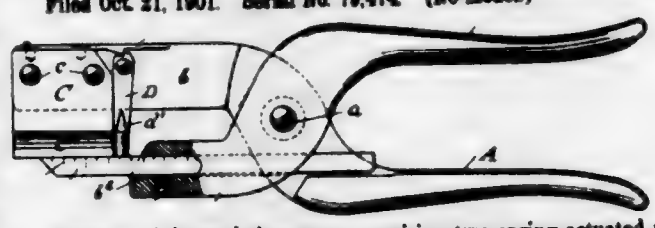
3. A cigar-holder comprising a longitudinally-bored main stem closed at its outer end and provided with a suitable mouthpiece, a hollow wedge-shaped spur extending laterally from said stem, whose entering edge lies in the plane of the stem-axis, inlet-openings in said spur, and means on the stem for centering and holding a cigar impaled on said spur.

4. A cigar-holder comprising a longitudinally-bored main stem closed at its outer end and provided with a suitable mouthpiece, a hollow spur extending laterally from said stem, an aperture in said spur whose axis is in a plane transverse to the stem-axis, and means on the stem for centering and holding a cigar impaled on said spur.

5. A cigar-holder comprising a longitudinally-bored main stem closed at its outer end and provided with a suitable mouthpiece, a hollow spur extending laterally from said stem, whose entering edge lies in the plane of the stem-axis, an aperture in said spur whose axis is in a plane transverse to the stem-axis, and a spring-pressed member pivotally mounted on said stem for centering and holding a cigar impaled on said spur.

6. A cigar-holder comprising a longitudinally-bored main stem, closed at its outer end and provided with a suitable mouthpiece, a hollow spur comprising a tube extending transversely through said stem and communicating with the bore thereof, the upper end of said tube being closed and wedge-shaped and its entering edge lying in the plane of the stem an aperture in the spur whose axis is in a plane transverse to the stem-axis, the lower end of said tube being closed by a nicotin-trap, and a spring-pressed plate pivotally mounted on said stem for centering and holding a cigar impaled on said spur.

692,027. BUTTONHOLE-CUTTER. PETER OLSEN, Decatur, Ill. Filed Oct. 21, 1901. Serial No. 79,474. (No model.)



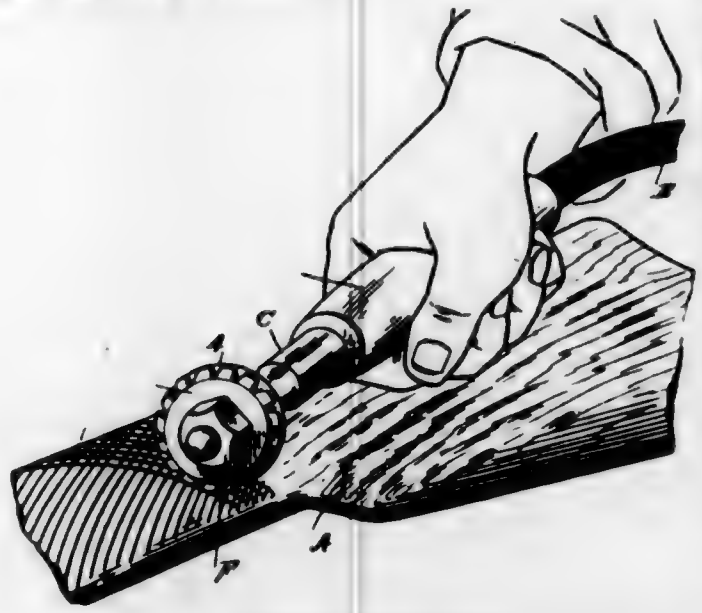
Claim.—A buttonhole-cutter comprising two spring-actuated members pivotally secured together, and each having a clamping-jaw, a cutter or knife on one of said jaws, a spring-actuated punch movably secured on the jaw of the cutter, and a gage-piece adjustably secured on the other jaw of the spring-actuated members, substantially as described.

692,028. SURFACE-CHECKING DEVICE. THOMAS C. PAGE, Chicopee Falls, Mass. Filed Aug. 14, 1901. Serial No. 71,983. (No model.)

Claim.—1. A surface-checking device comprising a rotatable shaft, means for movably supporting said shaft and for rotating the same, a groove-cutter, and a cutter-guide carried on said shaft, and means for varying the separation of said guide and cutter, whereby fine or coarse checking is produced by the same tool, substantially as described.

2. A device for checking the surface of objects, comprising a rotatable shaft, means for holding said shaft by the hand, while rotating, a guide on

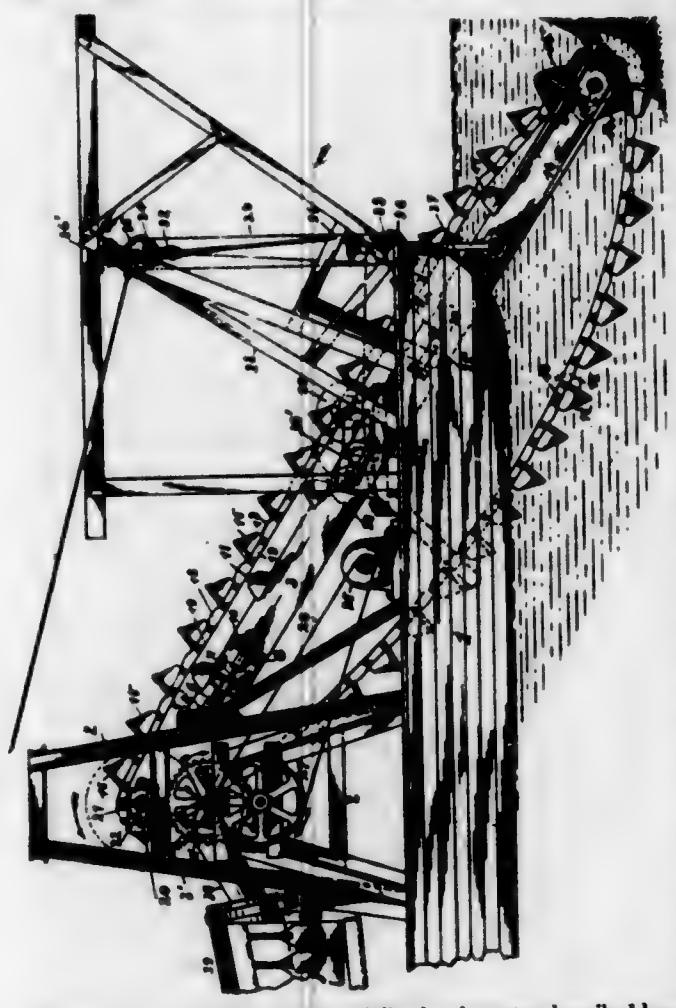
said shaft engaging a check-groove while moved over said surface, and a groove-cutter on said shaft whose line of movement is controlled by said guide, substantially as described.



692,029. FABRIC. JOSEPH PHILIPPE, HYACINTHE LEBEL, and RAOUL GRIMOIN SANSON, Paris, France. Filed Aug. 6, 1901. Serial No. 71,100. (No specimens.)

Claim.—A new fabric, consisting of a woven or other fabric with a layer of thin sheet cork attached thereto and a covering of wool, cotton, or like flock or floss on said sheet-cork, substantially as described.

692,080. EXCAVATING MECHANISM FOR DREDGERS. ROBERT H. POSTLETHWAITE, San Francisco, Cal., assignor to Risdon Iron and Locomotive Works, San Francisco, Cal., a Corporation of California. Filed Mar. 18, 1901. Serial No. 51,646. (No model.)



Claim.—1. A tumbler of substantially the character described having a series of reinforced fingers projecting radially from the respective ends thereof.

2. A tumbler of substantially the character described having a series of radially-projecting fingers at the respective ends thereof, and removable face-plates for said fingers.

3. In a dredge for the described purpose, the combination with the fixed supporting-frame, of the ladder pivoted directly thereto, the tumbler working within the supporting-frame, means for imparting rotation to said tumbler, the roll or drum working in bearings at the lower end of the ladder, the endless carrier working over said roll or drum and tumbler, excavating-buckets secured to and carried by the endless carrier, the reinforced guard-plates rigidly secured to the lower end of the side pieces of the ladder, and means whereby the ladder may be raised and lowered.

4. The combination with the ladder for the endless carrier, of the fixed supporting-frame to which the ladder is directly pivoted, means whereby the ladder is raised and lowered, and reinforced independent guard-plates secured to and projecting upwardly from the side pieces of lower end of the ladder, said guard-plates serving to provide against lateral movement of the endless carrier as carried over the drum or roll working within the lower end of the ladder.

5. The combination with the supporting-frame, of the tumbler working in bearings therein, a ladder, a roll or drum working within the lower end of said ladder, means for raising and lowering the ladder, a carrier working over said roll or drum and the tumbler, and means for adjusting the tension of the carrier comprising rods 7 pivoted to the supporting-frame, and devices for adjustably connecting said rods to the ladder, substantially as described.

6. The combination with the supporting-frame, of the ladder pivoted thereto, the tumbler working in bearings of the supporting-frame, means for driving the tumbler, the endless carrier working over said tumbler and a roll or drum working in bearings at the lower end of the ladder, and a series of fingers projecting from the tumbler and between which the endless carrier works as carried over the tumbler, each finger being provided with a removable wearing or face plate.

7. The combination with the tumbler, of the corner-plates removably attached thereto, a series of fingers projecting from the said tumblers, and a removable wearing or face place secured to each projecting finger.

8. The combination with the supporting-frame, of the ladder pivoted thereto, the tumbler working within bearings of the supporting-frame, means for imparting rotation to the tumbler, the roll or drum working in bearings at the lower end of the ladder, the endless carrier working over the roll or drum and tumbler, the excavating-buckets secured to and carried by the endless carrier, a series of fingers projecting from the tumbler and between which the endless carrier works, of devices for imparting longitudinal movement to the supporting-ladder so as to regulate the tension of the endless carrier, the guard-plates attached to the lower end of the side pieces of the ladder, and means whereby the supporting-ladder is raised and lowered.

9. A ladder of the character described having the oppositely-arranged guard-plates 14′ provided with the braces 16 disposed longitudinally of the ladder.

10. A ladder of the character described having the oppositely-arranged guard-plates 14′ provided with the braces 16 disposed longitudinally of the ladder and the brace 17 disposed crosswise thereof.

11. A ladder of the character described having adjacent its lower end relatively short upwardly-extending wear-plates arranged at opposite points on the ladder, and means exterior to said plates for reinforcing the same, substantially as described.

12. In a machine of the character described, a support, a ladder, a drum at the outer end of the ladder, a tumbler on the support, a carrier working over said drum and tumbler, and an adjustable pivotal connection between the support and ladder located at a point intermediate of the drum and tumbler, substantially as described.

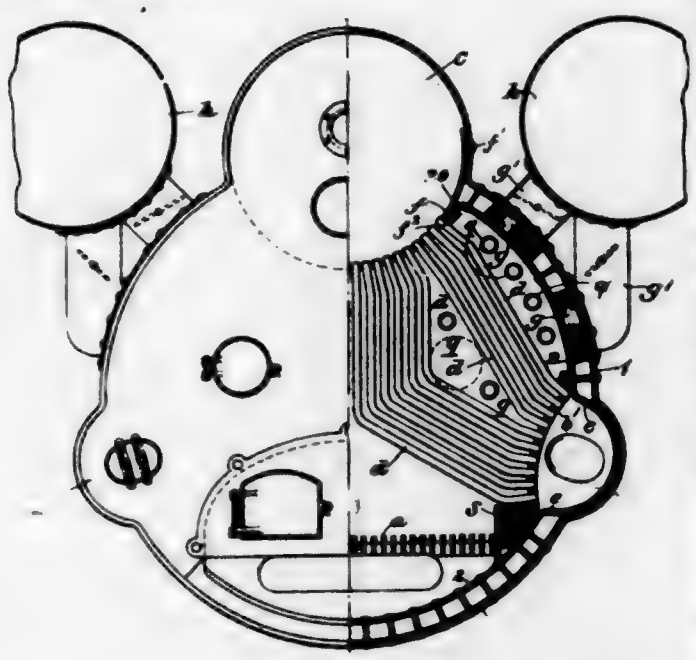
13. In a machine of the character described, a support, a ladder, a drum at the outer end of the ladder, a tumbler on the support, a carrier working over said drum and tumbler, a connection between the carrier and support located at a point away from the tumbler intermediate of the same and the drum, and means for longitudinally adjusting said ladder, substantially as described.

692,031. STEAM-GENERATOR. GARRETT H. REBUTAR, San Francisco, Cal., assignor of one-half to R. B. Lincoln, Waltham, Mass. Filed July 16, 1901. Serial No. 68,507. (No model.)

Claim.—1. A steam-generator comprising a grate, an external boiler portion formed as a casing inclosing a fire-space over the grate, the sides of the external boiler portion being widened to form water-drums extending longitudinally of the boiler, and an internal water-tube boiler composed of tubes extending inwardly and upwardly from said water-drums to the steam-space of the external boiler portion, the tubes being within said fire-space.

2. A steam-generator comprising a grate, an external boiler portion formed as a casing inclosing a fire-space over the grate, the steam-space of the external boiler portion being widened to form a longitudinally-extending steam-drum, and an internal water-tube boiler portion composed of tubes extending inwardly and upwardly from opposite sides of the

grate and communicating at their lower ends with the water-space of the external boiler portion and at their upper ends with said steam-drum, the tubes being within the said fire-space.



3. A steam-generator comprising a grate, an external boiler portion formed as a casing inclosing a fire-space over the grate, the sides of the external boiler portion being widened to form longitudinally-extending water-drums, while the upper central steam-space of the external boiler portion is widened to form a longitudinally-extending steam-drum, and inclined tubes connected at their lower ends with the water-drums and at their upper ends with the steam-drum, the said tubes constituting an internal water-tube boiler portion located within the fire-space.

4. A steam-generator comprising an external boiler portion formed as a casing inclosing a fire-space and having its sides widened to form water-drums, the inner sides of said drums being of crowning form, and inclined tubes inserted at their lower ends in said crowning inner sides and connecting said water-drums with the steam-space of the external boiler portion, the tubes constituting an internal water-tube boiler portion located in said fire-space.

5. A steam-generator comprising an external boiler portion formed as a casing inclosing a fire-space and having its walls curved outwardly and nested together along its lower sides to form the outer walls of water-drums, and crowning tube-sheets affixed to the inner wall of the external boiler portion and forming the inner walls of said water-drums, and inclined tubes inserted at their lower ends in said tube-sheets and connecting said drums with the steam-space of the external boiler portion, the tubes being within the fire-space.

6. A steam-generator comprising an external boiler portion formed as a casing inclosing a fire-space and having its outer wall curved outwardly to form the outer wall of a longitudinally-extending steam-drum, and its inner wall curved inwardly to form the inner wall of said steam-drum, and inclined tubes inserted at their upper ends in the inner wall of the steam-drum and connecting said steam-drum with the water-space of the external boiler portion.

7. A steam-generator comprising an external boiler portion formed as a casing inclosing a fire-space and having its outer wall curved outwardly to form the outer wall of a longitudinally-extending steam-drum, the inner wall of the external boiler portion being composed in part of a tube-sheet forming the inner wall of said steam-drum, the edges of said tube-sheet being attached to the outer walls of the external boiler portion, and inclined tubes inserted at their upper ends in the said tube-sheet and connecting the steam-drum with the water-space of the external boiler portion.

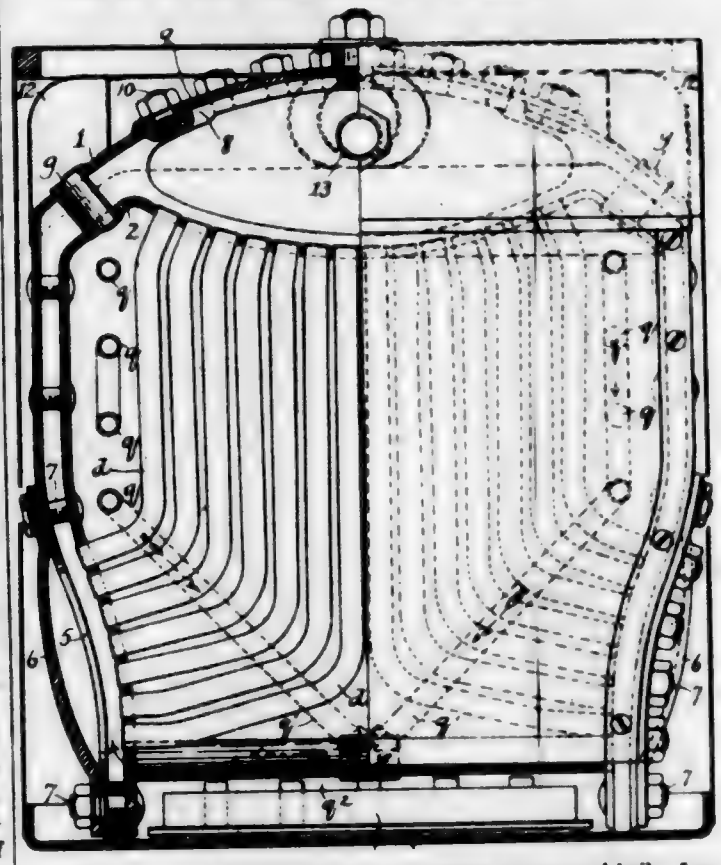
8. A steam-generator comprising a grate, an external boiler portion formed as a casing inclosing a fire-space over the grate, said portion having outlets for the products of combustion, and an internal water-tube boiler portion composed of inclined tubes extending inwardly and upwardly from opposite sides of the grate and communicating at their lower ends with the side water-spaces of the external boiler portion and at their upper ends with the steam-space thereof, said tubes being interposed between the grate and the said outlets, whereby the products of combustion are caused to pass between the tubes on their way to said outlets.

9. A steam-generator comprising a grate, an outer jacket-shaped steam-generating portion inclosing a fire-space over the grate, an inner water-tube portion located within said space, and longitudinal water-tubes extending from the front to the rear ends of the jacket portion substantially at right angles with the tubes of the water-tube portion, said longitudinal tubes being located between the inner tubes of said water-tube portion and the jacket portion.

10. A steam-generator comprising an external boiler portion formed as a casing inclosing a fire-space and having its sides widened to form water-drums of crowning form at their inner sides, the said external portion being extended below said drums to form a water-leg which acts as a truss or girder to prevent the spreading or distortion of said drums, and inclined tubes inserted at their lower ends in said crowning inner sides and connecting said water-drums with the steam-space of the external boiler portion.

11. A steam-generator comprising a grate, an external boiler portion formed as a casing inclosing a fire-space over the grate, said portion having outlets for the products of combustion, an internal water-tube boiler portion composed of inclined tubes extending inwardly and upwardly from opposite sides of the grate and communicating at their lower ends with the side water-spaces of the external boiler portion and at their upper ends with the steam-space thereof, said tubes being interposed between the grate and the said outlets, whereby the products of combustion are caused to pass between the tubes on their way to said outlets, and baffle-plates closing the spaces between the ends of the external boiler portion and the ends of the water-tube portion.

692,082. **STEAM-GENERATOR.** GARRETT H. REBUTAN, San Francisco, Cal., assignor of one-half to R. B. Lincoln, Waltham, Mass. Filed Oct. 19, 1901. Serial No. 79,243. (No model.)



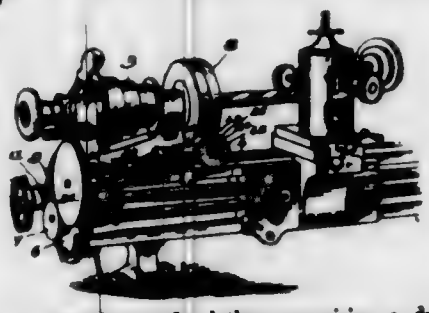
Claim.—1. A steam-generator comprising an external boiler forming the sides and top of a casing inclosing a fire-space, the top and the lower side portions of the inner wall of said boiler being perforated to form tube-sheets, the top tube-sheet constituting the inner wall of a steam-drum while the side tube-sheets form the inner walls of two water-drums, bent tubes formed to extend inwardly from said water-drums into the fire-space and upwardly to the steam-drum, said tubes being engaged at their ends with the said tube-sheets and constituting an internal water-tube boiler, the side and top portions of the outer wall of the external boiler being provided with openings formed to afford access to said tube-sheets, and covers fitting said openings and detachably secured to said outer walls, said covers forming the outer sides of said water and steam drums and by their detachability enabling access to be had to both the upper and the lower ends of the tubes.

2. A steam-generator comprising an external boiler forming the sides and top of a casing inclosing a fire-space, the top and the lower side portions of the inner wall of said boiler being curved inwardly into the fire-space and perforated to form tube-sheets, the top tube-sheet constituting the inner wall of a steam-drum while the side tube-sheets form the inner walls of two water-drums, bent tubes formed to extend inwardly from said water-drums into the fire-space and upwardly to the steam-drum, said tubes being engaged at their ends with the said tube-sheets and constituting an internal water-tube boiler, the side and top portions of the outer wall of the external boiler being provided with openings formed to afford access to said tube-sheets, and covers fitting said openings and detachably

secured to said outer walls, said covers being curved outwardly and forming the outer sides of said water and steam drums, the inward curvature of the said tube-sheets and the outward curvature of said covers increasing the capacity and strength of the water and steam drums.

3. A steam-generator comprising an external boiler formed as a casing inclosing a fire-space and having outer and inner walls, an internal water-tube boiler composed of tubes secured at their lower ends to the lower portions of the said inner wall and at their upper ends to the upper portion of the inner wall, and water-conducting pipes located between the external boiler and the tubes of the internal boiler, said pipes being connected in series, each series communicating at one end with a source of feed-water supply, and at the other end with the external boiler.

692,088. LATHE ATTACHMENT FOR CUTTING SPIRALS. EDWARD RIVETT, Boston, Mass. Filed Mar. 29, 1901. Serial No. 53,520. (No model.)



Claim.—1. An attachment for lathes comprising a driving member, a casing supported thereby, and means inclosed in the casing to drive said driving member, the driving-face of said driving member being exposed through the casing whereby the work may be operatively connected thereto.

2. An attachment for lathes comprising a rotary driving member having oppositely-disposed hubs, one of said hubs constituting a driving-face, a casing supported on said hubs to leave said driving-face exposed, and means supported by the casing to rotate said driving member.

3. An attachment for lathes comprising a work-driving member adapted to be screwed on the live-spindle of a lathe, and having gear-teeth on its periphery, a casing supported by said driving member, the driving-face of said driving member being exposed through the casing, a gear in said casing and meshing with the gear-teeth on the driving member, and means for operating said gear.

4. An attachment for lathes, comprising a driving member having gear-teeth on its periphery, and adapted to be screwed on the live-spindle of the lathe, a casing supported by the driving member and inclosing the periphery thereof, to leave the driving-face of said driving member exposed, a worm journaled in said casing and meshing with the gear-teeth on the driving member, and driving connections for rotating said worm, said driving connections including two members normally locked together, and means for adjusting one of said members relatively to the other.

5. An attachment for lathes comprising a driving member adapted to be screwed on the live-spindle of a lathe, said driving member having worm-teeth on its periphery, a casing supported by said driving member and surrounding the periphery thereof to leave the driving-face of said driving member exposed, a worm in said casing, and detachable driving connections between said worm and gearing for the lead-screw of the lathe, said driving connections including two members normally locked together, and means for adjusting one of said members relatively to the other.

6. An attachment for lathes comprising a work-driving member, adapted to be screwed on the live-spindle of a lathe, and having gear-teeth on its periphery, a stationary casing supported by said driving member, to leave the driving-face of the latter exposed, a gear in said casing and meshing with said gear-teeth, and driving connections between said gear and the gearing for the lead-screw of the lathe, said driving connections including two members normally locked together, and means for adjusting one of said members relatively to the other, whereby the relation between the lead-screw and the driving member may be adjusted.

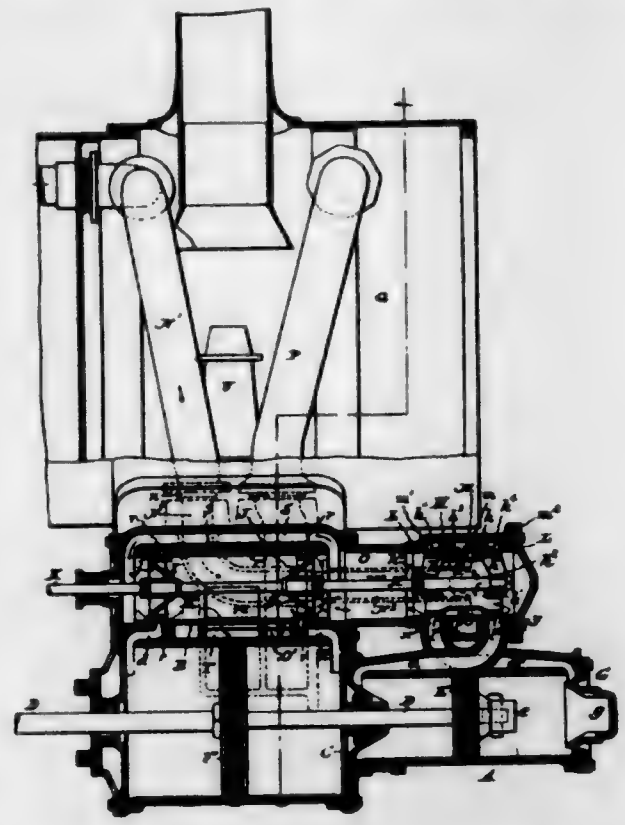
7. An attachment for lathes, comprising a work-driving member adapted to be screwed upon the live-spindle of a lathe, said driving member having worm-teeth on its periphery, a housing or casing inclosing and supported by said driving member, a worm-shaft supported entirely in said housing and carrying a worm engaging said worm-teeth, an index-pawl fast on the said worm-shaft, an index-wheel loose thereon and coöperating with the index-pawl, and means connected with the gearing for the lead-screw for rotating said index-wheel.

8. An attachment for lathes comprising a work-driving member adapted to be screwed on the live-spindle of a lathe, said driving member having gear-teeth on its periphery, a casing supported on said driving member, a worm-shaft supported entirely in the casing and having a worm thereon meshing with the teeth on the driving member, a gear loose on said worm-shaft and an index-wheel rigid with said gear, an index-pawl fast on the shaft and coöperating with the index-wheel, and driving connections in operative relation with the last-named gear and adapted to be driven from the gearing of the lead-screw of the lathe.

9. An attachment for lathes comprising a work-driving member adapted to be screwed on the live-spindle of a lathe, said driving member having hubs thereon, and worm-teeth on its periphery, a stationary casing supported on the hubs of the driving member and inclosing the periphery thereof, the ends of the hubs projecting through the casing, a worm in said casing, and detachable driving connections between the worm and the gearing for the lead-screw of the lathe.

10. An attachment for lathes comprising a driving member adapted to be screwed to the live-spindle of the lathe, said driving member having worm-teeth on its periphery and hubs on opposite sides thereof, a casing inclosing said driving member and supported on the hubs thereof, a worm-shaft in said casing having a worm thereon meshing with the worm-teeth on the driving member, a bevel-gear loose on said worm-shaft and having an index-wheel secured thereto, an index-pawl fast to said worm-shaft coöperating with the index-wheel, and means independent of the cone-pulley of the lathe to drive said bevel-gear.

692,084. COMPOUND STEAM-ENGINE. JAMES R. SAGUE, Schenectady, N. Y. Filed May 10, 1901. Serial No. 59,614. (No model.)



Claim.—1. The combination of a high-pressure cylinder, a low-pressure cylinder, pistons for the two cylinders connected to the same rod, valves for the two cylinders connected to the same valve-rod, crossed passages leading to opposite ends of the high-pressure cylinder, a passage extending around the outside of the valve of the low-pressure cylinder to opposite ends of said valve, and ports and passages for admitting and exhausting steam past the high-pressure valve, and ports and passages for admitting and exhausting steam past the low-pressure valve.

2. The combination of the high and low pressure cylinders, their pistons, the piston-rod connecting them, a valve for the high-pressure cylinder having a central peripheral steam-admission recess, and a hollow interior open at opposite ends, a low-pressure valve consisting of two closed pistons arranged a distance apart and secured to the valve-rod with an exhaust-space between them, a passage arranged outside the low-pressure valve and leading from the space between the valve of the high-pressure cylinder and the adjacent piston of the low-pressure valve to the space outside the opposite piston, and ports and passages for the admission and exhaust of steam past the valves.

3. The combination of a low-pressure cylinder, its valve, a passage in the valve-casing connecting the space on one side of the valve with the space on the opposite side of the valve for conducting receiver-steam, a chamber for exhaust-steam within the valve and an air-space between the chamber within the valve and the passage for conducting receiver-steam.

4. The combination of the high and low pressure cylinders, their

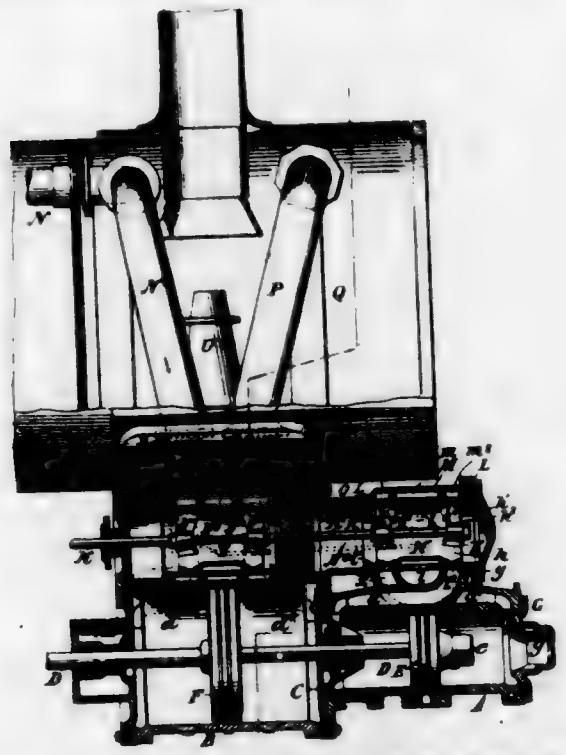
pistons, the piston-rod, the valves for the two cylinders, the valve-rod to which they are connected, a receiver-space between the valves of the two cylinders, a bushing within which the high-pressure valve reciprocates, provided with three annular series of openings, a bushing provided near opposite ends with annular series of openings past which the pistons of the low-pressure valve reciprocate, and with openings between the pistons, a passage outside the bushing of the high-pressure valve, for conducting live steam to the valve, crossed passages leading to opposite ends of the high-pressure cylinder, passages leading to opposite ends of the low-pressure cylinder and communicating with the annular series of openings at the opposite ends of the bushing, and exhaust-passages communicating with the openings in the bushing of the low-pressure cylinder between the pistons of the low-pressure valve.

5. The combination of the high and low pressure cylinders and their valves on one side of the locomotive, the receiver-space between the valves, corresponding parts on the opposite side of the locomotive and a receiver-pipe uniting the receiver-space between the valves on one side of the locomotive with the corresponding receiver-space on the opposite side thereof.

6. The combination with the high and low pressure cylinders and their valves on one side of the locomotive, and the high and low pressure cylinders and their valves on the opposite side of the locomotive, of a receiver-pipe connecting them, into which steam exhausted from the high-pressure cylinders passes, and exhaust-passages connected with the low-pressure cylinders through which both low-pressure cylinders exhaust.

7. The combination of the high and low pressure cylinders and their valves on one side of the locomotive, a receiver-space between said valves, similar cylinders, valves and receiver-space on the opposite side of the locomotive, a receiver-pipe connecting the receiver-space between the valves on one side of the locomotive with the receiver-space between the valves on the opposite side of the locomotive, and passages through which the low-pressure cylinders on both sides of the locomotive exhaust.

692,035. COMPOUND STEAM-ENGINE. JAMES E. SAGUE, Schenectady, N. Y. Original application filed May 10, 1901, Serial No. 59,614. Divided and this application filed June 15, 1901. Serial No. 64,725. (No model.)



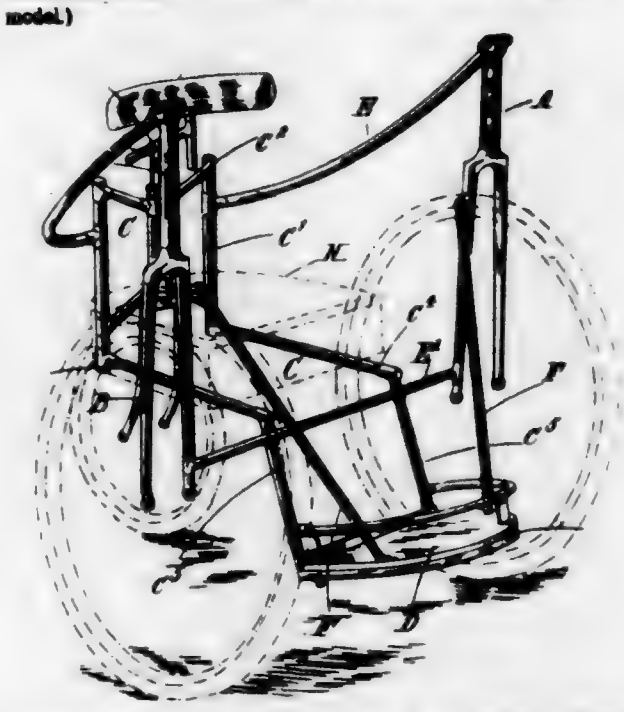
Claim.—1. The combination of the high and low pressure cylinders, their pistons, a piston-rod connecting them, valves for the high and low pressure cylinders of the same form and dimensions connected to move to the same extent at each reciprocation and each having a hollow interior open at opposite ends, and each having a single peripheral recess on opposite sides of which are arranged packing-rings, one of said valves being arranged to deliver steam through its peripheral recess to crossed passages in one of the cylinders, while the other of said valves receives exhaust-steam into its peripheral recess.

2. The combination of the high and low pressure cylinders, their pistons and piston-rod, a valve-chest for the high and low pressure valves, provided with a receiver-space between the valves of the same form and dimensions, two valves connected by a valve-rod and moving in the same direction at each stroke, each of said valves consisting of a hollow body or shell open at opposite ends for the free passage of steam endwise through it, and each having a single annular recess extending around its periphery and packed annular surfaces on opposite sides of the annular recess, steam admission and exhaust passages for the high and low pressure cylinders, those for one cylinder being crossed, one of said valves admitting steam by way of its annular recess to the crossed passages and exhausting past its opposite edges, while the other valve admits past its opposite edges and exhausts by way of its annular recess.

3. The combination of the high and low pressure cylinders, their pistons, a piston-rod connecting them, a valve for the high-pressure cylinder, having an annular peripheral steam-admission recess and a hollow interior open at opposite ends, a low-pressure valve of the same form and dimensions as the high-pressure valve and having an annular peripheral steam-exhaust recess, and a hollow interior open at opposite ends, crossed passages for admitting live steam to the opposite ends of the high-pressure cylinder which receive steam from the annular recess of the high-pressure valve, and exhaust past the opposite ends of said valve, and uncrossed passages leading to opposite ends of the low-pressure cylinders which receive steam past the opposite ends of the low-pressure valve and exhaust into the annular peripheral recess of the valve.

4. The combination of the high and low pressure cylinders, their pistons, a piston-rod connecting them, the valves for the high and low pressure cylinders of the same form and dimensions connected to move to the same extent at each reciprocation, and each having a hollow interior open at opposite ends, and each having a single peripheral recess with packing-rings on opposite sides of the recess, the central recess of the high-pressure valve being arranged to receive live steam and to deliver it to crossed passages leading to opposite ends of the high-pressure cylinder, while the exhaust from the high-pressure cylinder is past the opposite ends of the valve, and the low-pressure valve being arranged to admit steam past its opposite ends and to receive exhaust-steam into the annular recess on its periphery.

692,036. HAND-PROPELLED CHAIR. NORTON A. SAWYER, Lowestoft, England. Filed Sept. 23, 1901. Serial No. 76,190. (No model.)



Claim.—1. In a hand-propelled chair the combination of three upright members arranged parallel to each other in an approximately vertical plane common to all the members, cross members connecting the upright members, two approximately horizontal members extending from the lower ends of the two outside upright members, a seat upon these members, downwardly-directed extensions at the free ends of the horizontal members, a footboard secured to these extensions, upwardly and outwardly curved members secured one to each of the outside upright members, a wheel-support secured at the free end of each outwardly-curved member, a road-wheel mounted in each support, a brace connecting the lower ends of the two supports driving-gear mounted at the upper end of each support and connected with the road-wheel of each support and a steering-wheel mounted at the opposite end of the chair to the side-wheel supports as set forth.

2. In a hand-propelled chair the combination of three upright members arranged parallel to each other in an approximately vertical plane common to all the members, cross members connecting the upright members, two approximately horizontal members extending from the lower ends of the two outside upright members, a seat upon these members, downwardly-directed extensions at the free ends of the horizontal members, a footboard secured to these extensions, upwardly and outwardly curved members secured one to each of the outside upright members, a

wheel-support secured at the free end of each outwardly-curved member, a road-wheel mounted in each support, a brace connecting the lower ends of the two supports, and also connected to the downwardly-directed extensions of the horizontal members, driving-gear mounted at the upper end of each support and connected with the road-wheel of each support and a steering-wheel mounted at the opposite end of the chair to the side-wheel supports as set forth.

3. In a hand-propelled chair the combination of three upright members arranged parallel to each other in an approximately vertical plane common to all the members, cross members connecting the upright members, two approximately horizontal members extending from the lower ends of the two outside upright members, a seat upon these members, downwardly-directed extensions at the free ends of the horizontal members, a footboard secured to these extensions, upwardly and outwardly curved members secured one to each of the outside upright members, a wheel-support secured at the free end of each outwardly-curved member, a road-wheel mounted in each support, a brace connecting the lower ends of the two supports, ties connecting the supports and the footboard, driving-gear mounted at the upper end of each support and connected with the road-wheel of each support and a steering-wheel mounted at the opposite end of the chair to the side-wheel supports as set forth.

692,037. **HEATER FOR CURLING-TONGS &c.** WILLIAM H. STIMPSON, Boston, Mass. Filed Oct. 11, 1901. Serial No. 78,285. (No model.)



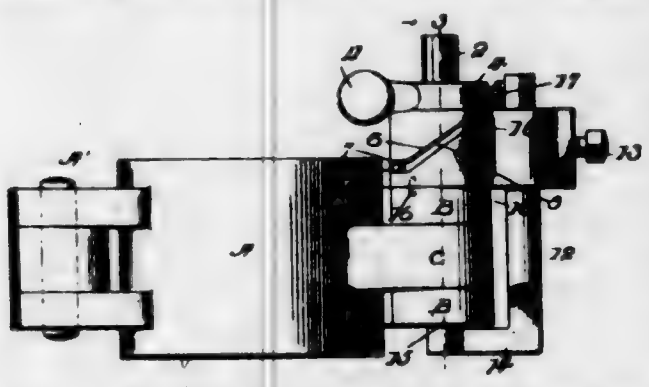
Claim.—1. In a device of the class described, a semicylindrical burner having inclosed ends, a foraminous cover for the burner, mounted on one of the ends thereof, absorbent material within the burner, a concentric semicylindrical supporting-stand, and axial journals secured to the ends of the burner and rotatably mounted in the ends of the stand, one of the journals being extended to form an operating-handle, whereby the burner may be rotated to bring the foraminous cover into the plane of the top of the stand, or to conceal said cover within the stand.

2. In a device of the class described, a semicylindrical burner having closed ends and adapted to contain absorbent material, a foraminous cover for the burner, a concentric semicylindrical stand, axial connections between it and the burner, whereby the latter may be rotated to expose or conceal the foraminous cover, and means to stop rotative movement of the burner when turned into operative position.

3. In a device of the class described, a semicylindrical burner having closed ends and adapted to contain absorbent material, a foraminous cover for the burner, a concentric semicylindrical stand, supporting-feet for and to maintain the stand with its open top uppermost, axial connections between the ends of the burner and stand, an operating-handle for the burner, to turn it into operative or inoperative position, and means to limit rotative movement of the burner in either direction.

4. In a device of the class described, a semicylindrical burner having closed ends and adapted to contain absorbent material, a foraminous cover for the burner, a concentric semicylindrical stand, external supports on the stand to sustain the same with its open top uppermost, axial connections between the ends of the burner and stand, one of said connections being longitudinally extended to form a handle, and means to stop rotative movement of the burner with its foraminous cover in parallelism with the open top of the stand.

692,038. **LOCKING DEVICE FOR GLASS-MOLDS.** ALBERT STRUB, Beaverfalls, Pa. Filed June 6, 1901. Serial No. 63,425. (No model.)



Claim.—1. The combination with a glass-mold, of a key for locking and holding the mold-sections together, means for supporting and holding the key, means for directing the movements of the key, and means for adjusting the key relative to the parts which support and hold it, substantially as set forth.

2. The combination with a glass-mold having two sections hinged together, of a key for locking and holding the parts of the mold together, means for supporting and holding the key, means arranged to impart to the key a movement in the direction of its length to bring it into locking position, and the means for connecting the key supporting and holding parts with one section of the mold, the last said means being arranged parallel with the axis of the hinge of the mold, substantially as set forth.

3. The combination with a glass-mold having two sections hinged together, of a key or pin for locking the mold-sections in closed relations, the said key being parallel with the axis of the hinge of the mold, a support in which the key is mounted, means which impart to the key both longitudinal and rotary movements in order to bring it into locking relations and means for uniting the key-support with one section of the mold, having parts which are parallel to the axis of the hinge and engage with the said mold-section, substantially as set forth.

4. The combination with a glass-mold having hinged parts, of a key or eccentric pin for locking the parts of the mold, a holder or support in which the key is arranged, and interengaging parts between the key and holder comprising a slot and a projection adapted to move therein, the slot being formed with an inclined portion, a lower horizontal portion and an upper rest or seat, substantially as set forth.

5. The combination with a glass-mold having hinged parts, of a key for uniting and holding the parts together, a support or holder in which the key is mounted, means for securing the said holder to one part of the mold, and means for adjusting the said holder so as to fit molds of different sizes and constructions, substantially as set forth.

6. The combination with a mold having two parts hinged together, one of the parts being formed with the lugs, B, B, of a key for locking the parts of the molds, a holder in which the key is mounted, and means for uniting the said holder with the lugs B, B, substantially as set forth.

7. The combination with a glass-mold having hinged parts, one of the parts being provided with the lugs B, B, of a key for locking the parts together, a holder in which the key is mounted arranged to be connected to one of the lugs, and a stem or support for the holder arranged to engage with the other lug B, the holder in which the key is mounted being adjustable upon the said stem or support, substantially as set forth.

8. The combination with a glass-mold having hinged parts, of a key for locking the parts in closed relation, a carrier for the key, a support in which the carrier is movable, and means for directing the movements of the carrier to bring the key into locking position, substantially as set forth.

9. The combination with a glass-mold having hinged parts, of a key for locking the parts in closed relations, a carrier in which the key is mounted, means for adjusting the key longitudinally relative to the carrier, and a support or holder in which the carrier is mounted, substantially as set forth.

10. The combination with a glass-mold having hinged parts, of a key for locking the parts, a carrier in which the key is mounted, means for adjusting the key longitudinally within its carrier, a support or holder in which the carrier is mounted and in which it is movable to bring the key into locking position, and means for securing the said support or holder to one of the parts of the mold, substantially as set forth.

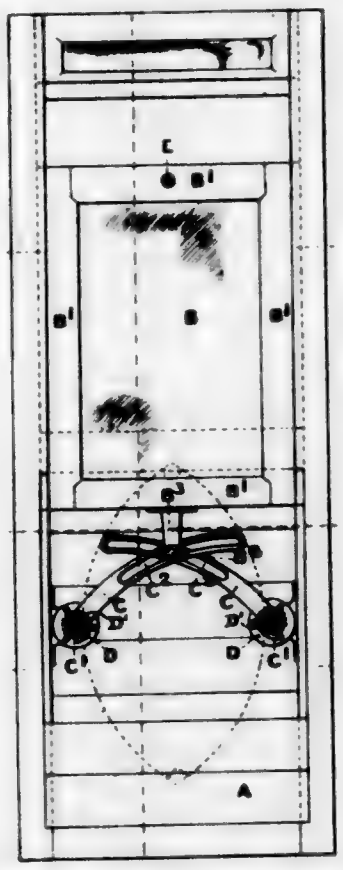
11. The combination with a glass-mold having hinged parts, one of which is provided with lugs B, B, of a key for locking the parts, a carrier in which the key is mounted, a support or holder in which the carrier is mounted and wherein it is longitudinally movable, arranged to be connected with one of the lugs B, means for adjusting the key longitudinally relative to its carrier, a standard arranged to engage with the other lug B, and upon which the said holder or support is supported, and means for securing the said holder or support to the standard in the different positions to which it may be adjusted.

12. The combination with a glass-mold formed of two parts hinged to each other, one part having the lugs B, B, and the other part the lug C, of the standard 12 adapted to engage with one of the lugs B, a support or holder 5 adjustable upon the standard 12 and adapted to engage with the other lug B, the said support being provided with a slot 6, a carrier 8 mounted in the support or holder 5 and provided with a projection 7 adapted to enter the said slot 6, a key or eccentric pin 2 supported by the said carrier and arranged to engage with the lug C of the mold, and means for adjusting the key relative to its carrier and securing it after adjustment, substantially as set forth.

692,039. **WINDOW, PANEL, OR OTHER SLIDING FRAME.** JAMES THORPE, Sheffield, England. Filed July 13, 1901. Serial No. 68,245. (No model.)

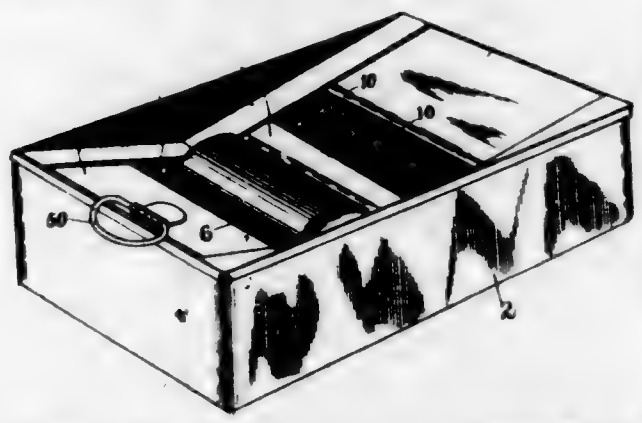
Claim.—1. The combination of a support, a sliding frame therein, two levers pivoted at one end to the support at opposite sides, an operative connection between the frame and the other end of the levers and springs acting on the levers for the purpose set forth.

2. The combination of a support, a sliding frame, therein, two slotted levers pivoted to the support, a pin on the frame engaging the slots in the levers and springs acting on the levers for the purpose set forth.



3. The combination of a support, a sliding window therein, two spindles on the support, a slotted lever on each spindle, a pin on the window engaging the slots in the levers and a coiled spring acting on each of the spindles to operate the levers substantially as set forth.

692,040. COLOR-HOLDER. SAMUEL A. WHITE, Boston, Mass. Filed Feb. 4, 1901. Serial No. 45,830. (No model.)

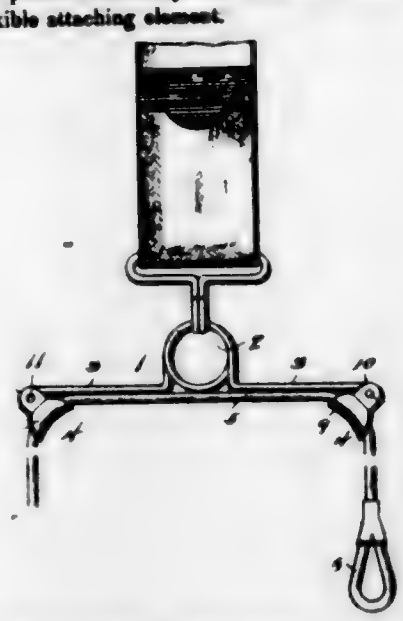


Claim.—A dressing-dish for boots and shoes, comprising an elongated dish formed with internal supporting-ledges at its ends below the upper edges, a removable diaphragm adapted to be supported by said ledges and inclined downwardly from each end toward the center, said diaphragm being cut away to form an opening at its lower portion and having depending flanges for the journals of a roller and having a second opening separated from the roller-opening by a plate, a roller in the lower opening and extending across the dish and journaled in said flanges, and clearing-bars extending across the second or higher opening in the diaphragm.

692,041. SPRING ATTACHMENT FOR ARTICLES OF WEAR, &c. PAUL R. WIRT, Bloomsburg, Pa. Filed Aug. 29, 1901. Serial No. 73,665. (No model.)

Claim.—1. A spring attachment of the class described, comprising a spring-wire body having a spring-coil and oppositely-projecting yielding side arms extended from the terminals of the coil, at opposite sides thereof, and normally lying substantially in alinement, antifriction-guides located at the outer terminals of the side arms, and an attaching element arranged to exert a direct cross stress or pull between the guides upon the terminals of the side arms, the portion of said element between the guides being approximately coextensive in length with the body in its normal extended condition.

2. A spring attachment of the class described, comprising a spring-wire body having oppositely-extending yielding side arms, self-adjusting antifriction-guides carried by said arms and having an independent movement within the plane of the body in a direction toward and from each other, and a flexible attaching element.

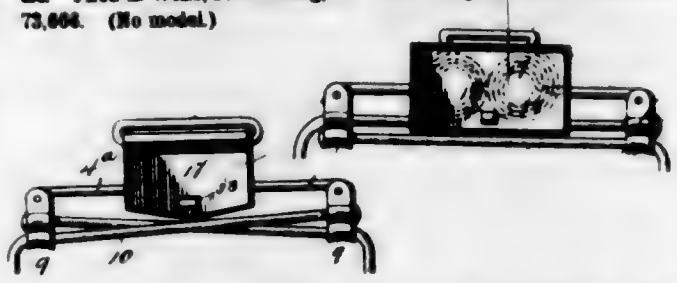


3. A spring attachment of the class described comprising a spring-wire body having oppositely-extending yielding side arms, self-adjusting guides pivotally carried by the terminals of said arms and having axes disposed transversely thereto, and a flexible attaching element.

4. A spring attachment of the class described comprising a spring-wire body having oppositely-extending yielding side arms, self-adjusting pendent guides pivotally suspended from the terminals of said arms and having their axes disposed transversely of the latter whereby the guides will turn or swing within the longitudinal plane of the body in the direction of stress or pull, and the attaching element.

5. A spring attachment of the class described, comprising a spring-wire body having oppositely-extending side arms, pivot-washers fitted to the terminals of the side arms, pendent self-adjusting guides consisting of metallic blanks bent to provide guiding-sleeves and oppositely-arranged attaching-ears, pivots connecting said attaching-ears with the pivot-washers, and the attaching element.

692,042. SPRING ATTACHMENT FOR ARTICLES OF WEAR, &c. PAUL R. WIRT, Bloomsburg, Pa. Filed Aug. 29, 1901. Serial No. 73,666. (No model.)



Claim.—1. An attachment of the class described comprising a body having a plurality of spring-coils, oppositely-projected yielding side arms extending outwardly in opposite directions from said coils and carrying terminal antifriction-guides, said side arms normally being substantially in alinement, and the attaching element having its portion between the guides approximately coextensive in length with the body in its normal extended condition.

2. An attachment of the class described comprising a spring-wire body having a plurality of spring-coils, yielding side arms extended in opposite directions from said coils and normally being substantially in alinement, said side arms carrying terminal antifriction-guides, and the body being further provided with attaching means for connecting the same with the suspender or the like, and the flexible attaching element.

3. An attachment of the class described comprising a spring-wire body having yielding side arms each provided with an individual spring-coil consisting of spiral convolutions within the same plane, the said side arms extending in opposite directions and normally being substantially in alinement, guides at the terminals of said arms, and the attaching element extending across the space between the guides.

4. An attachment of the class described comprising a spring-wire body having a pair of separate spring-coils each consisting of a series of spirally-arranged diminishing convolutions within the same plane, yielding oppositely-projecting side arms extended from the terminals of said coils and normally being substantially in alinement, and terminal guides carried by the side arms for the attaching element.

5. In an attachment of the class described, the combination of a spring-wire body having a spring-coil, and yielding side arms extended from the coil, and a protective guard fitted to the body flatwise with reference to the coil portion thereof and constructed to permit of free play of the side arms and the projection of the latter outwardly from opposite sides of the guard.

6. In an attachment of the class described, the combination with the spring-wire body having a coil, and yielding side arms extended from the coil and carrying the attaching element and a protective housing comprising oppositely-arranged cheek-pieces fastened upon the body and fitting respectively over opposite sides of the coil to retain the latter in a flat position under stress, said cheek-pieces having a fastening or interlocking connection.

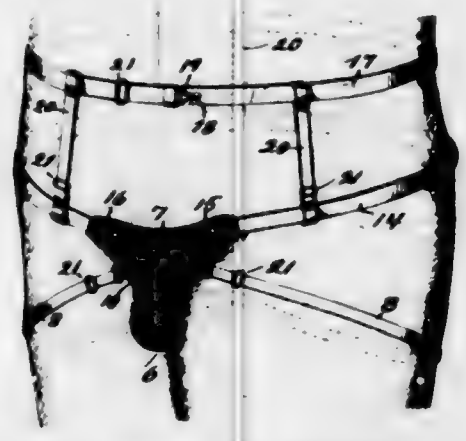
7. An attachment of the class described, comprising a spring-wire body having oppositely-extending yielding side arms carrying antifriction-guides at their terminals, and oppositely-reeved attaching elements, each having a loose running engagement with one guide and a fast connection at one end with a stress-point contiguous to the terminal of the opposite spring-arm, the portions of the elements between the opposite guides being disposed in separate working planes to maintain a non-crossing relation.

8. An attachment of the class described, comprising a spring-wire body having oppositely-extending yielding side arms carrying antifriction-guides at their terminals, and oppositely-reeved attaching elements, each having a loose running engagement with one guide and a fast connection at one end with a stress-point contiguous to the terminal of the opposite spring-arm, the portions of the attaching elements between the opposite guides being arranged in parallel relation.

9. A spring attachment of the class described, comprising a spring-wire body having oppositely-extending yielding side arms carrying pendent guides at their terminals, and oppositely-reeved attaching elements each having a loose running engagement with one guide and a fast connection at one end with the opposite guide, the portions of the attaching elements between the opposite guides being disposed in separate working planes to maintain a non-crossing relation.

10. An attachment of the class described, comprising a spring-wire body having oppositely-extending side arms, antifriction-guides pendent from the terminals of said side arms, and each of which guides is provided with a guiding-sleeve and a holding member or socket contiguous thereto, and oppositely-reeved attaching elements each having a running engagement through the guiding-sleeve of one guide and provided at one end with a headed sleeve or the like having a fast engagement with the holding member or socket of the opposite guide.

692,043. SUSPENSORY. JOEL U. ADAMS, Cincinnati, Ohio. Filed Aug. 23, 1901. Serial No. 73,536. (No model.)

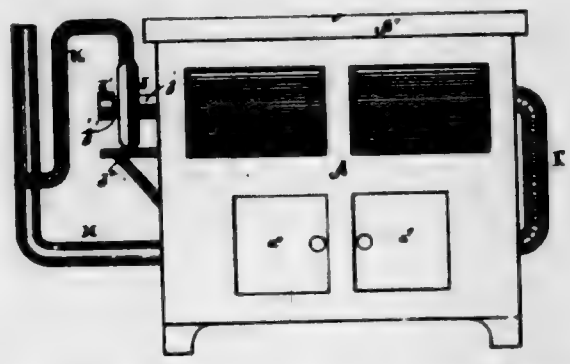


Claim.—1. In a suspensory, the combination of a rearwardly-extended supporting member 6, having a gusset 13, fastening-bands to hold it in position above, leg-bands 8, a leather angle 11 whereby they are connected to each other at an angle and a hook-and-eye fastening device, the complementary parts of which are attached one to gusset 13 and the other to angle 11, whereby the joined leg-bands are attached to the extended rear end of the suspensory.

2. In a suspensory, the combination of the supporting member 6, a shield 7 above it to the lower edge of which it is attached, two buttons 9 and 15 near each of the lateral edges of the shield and one below the other, leg-bands 8 attached, each with one of their ends to the rear part of the supporting member and having fastening-loops 10 at their free ends adapted to engage each the lower button 9 on each side of shield 7 and a hip-band 14 having at each of its ends fastening-loops 16, adapted to engage each one of the upper buttons 15 on each side of the shield, the engagement of the ends of these bands to shield 7 being in each case such that this latter may be entirely disconnected from each band.

3. In a suspensory, the combination of the supporting member 6, a shield 7 above it to the lower edge of which it is attached, leg-bands 8 each connected at one of its ends to the rear part of the supporting member, fastening devices to attach the other free end of each of these bands to shield 7, of the complementary parts of these fastening devices one being attached to the free end of each of these bands 8 and the other to shield 7, one near the lower part of each lateral edge thereof, a hip-band 14, and fastening devices for it, of the complementary parts of which one is attached to each end of this band and the others to shield 7 and near the upper part of each lateral edge and above the other fastening devices on said shield first mentioned, a belt or waistband 17 and straps 20 connecting it with hip-band 14, the connection at each end of these straps being by means of a loop through which bands 14 and 17 respectively pass.

692,044. COOLING OR REFRIGERATING APPARATUS. GIACOMO ALLEGRETTI, Chicago, Ill. Filed May 20, 1901. Serial No. 61,054. (No model.)



Claim.—1. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment, both chambers being arranged for the reception of the materials to be cooled, an induction opening or passage for air into the lower chamber or compartment and means for initially cooling it therein, a pipe or tube for educting the air from the lower chamber or compartment and inducting the cooled air into the upper chamber or compartment, means for finally cooling it therein and means for educting the cooled air from the upper chamber or compartment, substantially as described.

2. In a cooling or refrigerating apparatus, the combination of a box having its interior divided by a division-wall into upper and lower compartments in communication with one another, the chambers providing cooling-spaces within their interior, an induction opening or passage for air into the lower chamber or compartment for allowing air to enter and freely circulate therein, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, and means for inducting the air into the lower chamber or compartment and withdrawing the cooled air from the upper chamber or compartment and means for giving the air an initial cooling in the lower chamber or compartment and a final cooling in the upper chamber or compartment, substantially as described.

3. In a cooling or refrigerating apparatus, the combination of a box having its interior divided by a division-wall provided with hinged doors into upper and lower compartments in communication with one another, an induction opening or passage for air into the lower chamber or compartment allowing the air to enter and freely circulate therein, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, receptacles in the upper chamber or compartment for containing ice, and means for inducting the air into the lower chamber or compartment and withdrawing the cooled air from the upper chamber or compartment, substantially as described.

4. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment, and a lower chamber or compartment providing space for the reception of materials to be cooled, an induction opening or passage for air into the lower chamber or compartment allowing the air to enter and freely circulate therein, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper

chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, receptacles in the upper chamber or compartment for containing ice through which the induction-passage is carried, each receptacle having a perforated bottom, a trough or receiver beneath the receptacles into which the water from the melting ice discharges, and means for inducting air into the lower chamber or compartment and initially cooling it therein, and means for withdrawing the cooled air from the upper chamber or compartment, substantially as described.

5. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment, an induction opening or passage for the air into the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, receptacles in the upper chamber or compartment for containing ice arranged to leave a cooling-space within its interior each receptacle having a perforated bottom, a trough or receiver beneath the receptacles into which the water from the melting ice is discharged, holes or openings in one section of the trough for escaping the water from the trough, a receptacle for the escaped water in the lower chamber or compartment, and means for inducting air into the lower chamber or compartment and allowing it to circulate around the water-receptacle and for withdrawing the cooled air from the upper chamber or compartment, substantially as described.

6. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment, an induction opening or passage for air into the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, receptacles in the upper chamber or compartment for containing ice, each receptacle having a perforated bottom, a trough or receiver beneath the receptacles into which the water from the melting ice discharges, holes or openings in one section of the trough or receiver for escaping the water from the trough or receiver, a receptacle for the escaped water into the lower chamber or compartment, a chamber in which the water-receptacle is located and into which the air-induction opening or passage enters for the air to strike on the water-receptacle, and means for inducting the air into the lower chamber or compartment and withdrawing the cooled air from the upper chamber or compartment, substantially as described.

7. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment providing a cooling-space for the storage of materials, an induction opening or passage for allowing air to enter into the storage-space in the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for allowing air to enter into the storage-space in the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, and an exhaust-fan connected with the eduction opening or passage of the upper chamber or compartment for inducting air into the lower chamber or compartment and withdrawing the cooled air from the upper chamber or compartment, substantially as described.

8. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment, both chambers providing space for the storage of materials to be cooled, an induction opening or passage for air into the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the storage-space of the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, an exhaust-fan connected with the eduction opening or passage of the upper chamber or compartment for inducting air into the lower chamber or compartment and withdrawing the cooled air from the upper chamber or compartment, and a discharge-pipe leading from the fan, substantially as described.

9. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment, both chambers providing space for the storage of materials to be cooled, an induction opening or passage for air into the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, an exhaust-fan connected with the eduction opening or passage of the upper chamber or compartment and inducting air into the lower chamber or compartment and withdrawing the cooled air from the upper chamber or compartment, a discharge-pipe leading from the fan, and a series of blast-pipes connected with the discharge-pipe, substantially as described.

10. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment providing space for the storage of materials to be cooled, an induction opening or passage for air into the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, a pipe or tube connecting the eduction of the lower chamber or compartment and the induction of the upper chamber or compartment, an eduction opening or passage for the cooled air from the upper chamber or compartment, an exhaust-fan connected with the eduction opening or passage of the upper chamber or compartment and inducting air into the lower chamber or compartment and withdrawing the cooled air from the upper chamber or compartment, a discharge-pipe leading from the fan, a series of blast-pipes connected with the discharge-pipe, and a series of pans or trays for containing the articles or goods to be cooled, one pan or tray for each blast-pipe, for projecting a cooled blast over the contents of the pan or tray, substantially as described.

11. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment providing space for the storage of materials to be cooled, an induction opening or passage for air into the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, the eduction from the lower chamber or compartment and the induction into the upper chamber or compartment being connected one to the other, an eduction opening or passage for the cooled air from the upper chamber or compartment, an exhaust-fan connected with the eduction opening or passage of the upper chamber or compartment, and receptacles in the upper chamber or compartment surrounding the storage-space for containing a cooling medium and through which the induction and eduction passages will be, substantially as described.

12. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment, both chambers providing space for the storage of materials to be cooled, an induction opening or passage for air into the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, the eduction from the lower chamber or compartment and the induction into the upper chamber or compartment being connected one to the other, an eduction opening or passage for the cooled air from the upper chamber or compartment, an exhaust-fan connected with the eduction opening or passage of the upper chamber or compartment, receptacles in the upper chamber or compartment for containing cooling medium through which the induction and eduction passages will be, and a passage in the partition or floor between the two chambers or compartments, substantially as described.

13. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment, an induction opening or passage for air into the lower chamber or compartment, an eduction opening or passage for the air from the lower chamber or compartment, an induction opening or passage for the air into the upper chamber or compartment, the eduction from the lower chamber or compartment and the induction into the upper chamber or compartment being connected one to the other, an eduction opening or passage for the cooled air from the upper chamber or compartment, an exhaust-fan connected with the eduction opening or passage of the upper chamber or compartment, receptacles in the upper chamber or compartment for containing a cooling medium, a passage in the partition or floor between the two chambers or compartments, and a series of flaps for the passage for regulating the opening between the two chambers or compartments, substantially as described

14. In a cooling or refrigerating apparatus, the combination of a box having its interior divided into an upper chamber or compartment and a lower chamber or compartment, both chambers providing space for the storage of materials to be cooled, receptacles for containing ice in the

upper chamber or compartment, a receptacle for the water from the melting ice in the lower chamber or compartment, an eduction opening or passage for air into the lower chamber or compartment, projecting the air against the water-receptacle, an escape-opening for the air from the chamber of the water-receptacle into the lower chamber or compartment and a connection between the lower chamber or compartment and the upper chamber or compartment furnishing a circulation for the air from the lower storage-space of the chamber or compartment through the ice-receptacle and into the upper storage-space of the chamber or compartment, substantially as described.

692,045. CAN OR BOTTLE OPENER. BYRON R. BACON, South Orange, N. J. Filed Sept. 24, 1901. Serial No. 76,400. (No model.)



Claim.—1. A can and bottle opener comprising a plate provided with a blade and a hook, with a common fulcrum arranged between them, substantially as set forth.

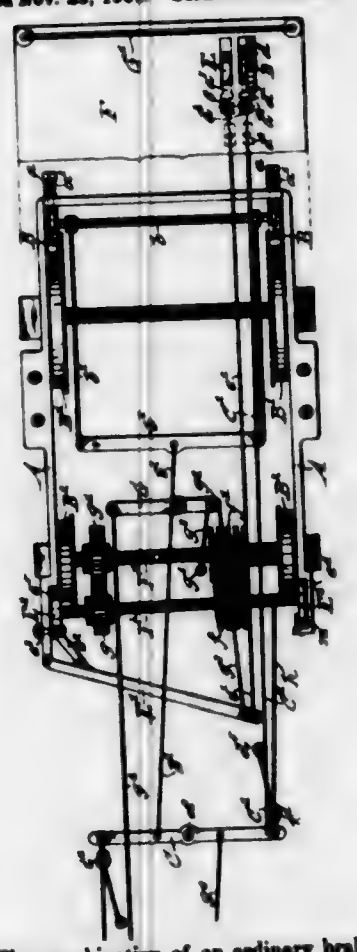
2. A can and bottle opener comprising a plate provided with a blade and a hook, a lip bent away from and then across the plane of the plate and knife, and acting as a fulcrum to the blade and hook, substantially as set forth.

3. A can and bottle opener, comprising a plate provided with a blade and a hook, a common fulcrum between them and a tongue below said hook substantially as set forth.

4. A can and bottle opener, comprising a plate provided with a blade and a hook, a fulcrum common to them arranged between them, the end of the fulcrum being provided with a cutting edge, substantially as set forth.

5. A can and bottle opener, comprising a plate provided with a blade and a hook, a fulcrum common to them arranged between them, a tongue below the hook, the end of the fulcrum being provided with a cutting edge, substantially as set forth.

692,046. BRAKE FOR STREET-CARS. RICHARD BISCHOFF, New York, N. Y. Filed Nov. 29, 1901. Serial No. 84,029. (No model.)

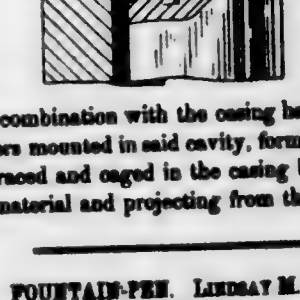


Claim.—1. The combination of an ordinary brake mechanism applied to one pair of truck-wheels, an auxiliary or emergency brake mechanism applied to the second pair of truck-wheels, actuating mechanism for the auxiliary brake mechanism, and actuating mechanism connecting said auxiliary mechanism with the ordinary brake mechanism so as to call both ordinary and auxiliary brake mechanisms simultaneously into action, substantially as set forth.

2. The combination of brake-shoes, actuating mechanism for the same, and an auxiliary or emergency brake, consisting of an auxiliary shaft adjacent the second pair of truck-wheels, actuating lever mechanism for moving said auxiliary shaft, gear-wheels on the auxiliary and truck-wheel shafts, friction-gears on said shafts, and means for connecting said auxiliary shaft with the actuating mechanism of the brake-shoes so as to call the same into action simultaneously with the emergency brake mechanism, substantially as set forth.

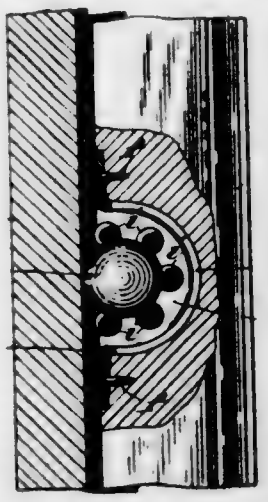
3. In a brake for cars, the combination, with the shaft of one pair of truck-wheels, of an auxiliary shaft, spring-cushioned blocks for supporting said auxiliary shaft, lever mechanism actuating the same, intermeshing gear-wheels secured to the truck-wheel and auxiliary shafts, intermeshing friction-gears secured to the said shafts, and lever mechanism for actuating the auxiliary brake mechanism from the platform of the car, substantially as set forth.

692,047. SASH-FASTENER. ENOS A. BROWNE, Newburgh, N. Y. Filed June 14, 1901. Serial No. 64,488. (No model.)



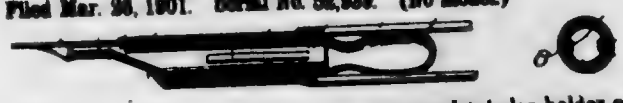
Claim.—In a sash-fastener or lock, the combination with the member to be mounted on the meeting-rail of the upper sash and provided with an inclined face and a bolt-socket therein, of the member to be secured to the meeting-rail of the lower sash, said member having a keeper to take over the other member front and back and provided with a spring-bolt to engage the socket in the latter, a base upon which the bolt-carrying member is slidably mounted, and a set-screw driven through the side of said base and adapted to secure said sliding member in either of its two positions, substantially as set forth.

692,048. SASH-SUPPORTER. ENOS A. BROWNE, Newburgh, N. Y. Filed June 14, 1901. Serial No. 64,489. (No model.)



Claim.—The combination with the casing having in it a ball-cavity, of the concave rollers mounted in said cavity, forming a curved track, and the ball-roller embraced and caged in the casing by said rollers, said ball being of yielding material and projecting from the casing.

692,049. FOUNTAIN-PEN. LINDSAY M. BRYAN, Cincinnati, Ohio. Filed Mar. 28, 1901. Serial No. 53,939. (No model.)



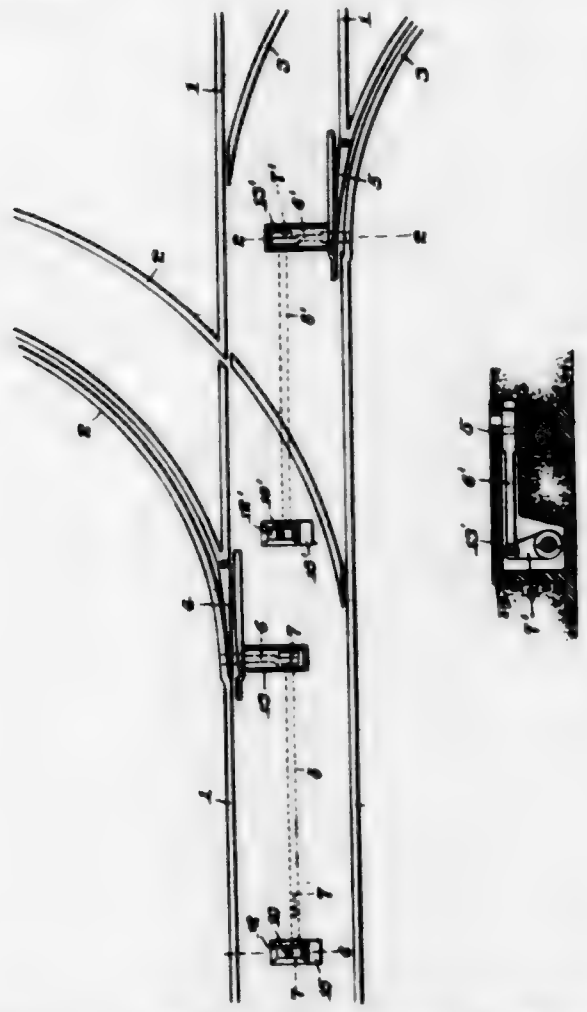
Claim.—1. In a fountain-pen, an elongated tubular holder constituting the handle and carrying at one end a fixed pen-point, said holder being provided at an intermediate point between the ends with cut-away side portions forming an open housing, a separate interior reservoir housed inside of the tubular holder, said interior reservoir being provided at one end with a feeder extension projecting out of the lower end of the holder and underlying the pen-point, means for causing a slidable and non-rotative engagement between the reservoir and the holder and a compression-bulb fitted to the opposite end of the interior reservoir and lying inside of said open housing and exposed therein at both sides of the holder.

2. In a fountain-pen, a tubular holder carrying the pen-point, a lon-

gitudinally-adjustable reservoir-tube arranged in the holder, said tube carrying a feeder at one end and a compression device at its other end, and means for causing a slidable and non-rotative engagement between the tube and the holder.

3. In a fountain-pen, a tubular holder constituting the handle, and carrying at one end a fixed pen-point, said holder being provided at or contiguous to the holding-point for the fingers with cut-away side portions forming an open housing, a separate interior reservoir-tube housed inside of the lower portion of the tubular holder, means for causing a slidable and non-rotative engagement between the reservoir-tube and the holder, said reservoir-tube being provided at one end with a feeder extension projecting out of the lower end of the holder and having a longitudinal duct underlying the pen-point and a compression-bulb fitted to the opposite end of the reservoir-tube and lying entirely inside of said open housing and exposed therein at both sides of the holder.

692,050. AUTOMATIC SWITCH-CONTROLLER. WILLIAM A. H. DORLAND, Philadelphia, Pa. Filed July 26, 1901. Serial No. 69,735. (No model.)



Claim.—1. In combination in an automatic switch-controlling mechanism, means for actuating the switch consisting of a movable block, a lever-arm actuated by said block, a shaft actuated by said lever-arm, a switch-point and means such as the lever-arms 6′ and 7′ connecting said shaft and switch-point, whereby a displacement of said block actuates said switch-point, and means for displacing said block consisting of a block-adjuster carried beneath the car, adapted to be raised or lowered and rotated horizontally substantially as described.

2. In combination in an automatic switch-controlling mechanism, a switch-actuating mechanism consisting of a laterally-displaceable block adapted to actuate the switch-point by means of a claw, a lever-arm, a shaft, a short lever-arm and a switch-point arm, and a block-actuating mechanism consisting of a vertical hollow rock-shaft, a three-arm member rotated thereby, a block-adjuster mounted therein, a pin integral with one end of said block-adjuster and engaged by said three-arm member, a shaft horizontally rotatable by said three-arm member, a spring-actuated arm integral with said shaft, a claw-lever controlling said block-adjuster and adapted to be elevated by said spring-actuated arm, and means for rotating said hollow rock-shaft, substantially as described.

3. In combination in an automatic switch-controlling mechanism, means for actuating the switch consisting of a movable block, a switch-point, a shaft, a lever-arm attached to said shaft and actuated by said block, an arm carrying said switch-point and a lever-arm attached to said shaft and actuating said switch-point arm, and means for displacing said block consisting of a block-adjuster carried beneath the car-body and provided with a stem and a pin, a hollow rock-shaft in which said stem is adapted to be raised or lowered, a cam-lever actuated by said hollow rock-shaft and engaging the pin of said block-adjuster, a claw-lever mounted upon and integral with the shaft 88 and controlling the vertical position of said block-adjuster, the shaft 44, means such as the arms 47 and 48, rods 50 and 51 and wing 49 for rotating the shaft 44, a lever-arm integral with said shaft 44 and a spring actuating said lever-arm, said spring and lever-arm being adapted to elevate said claw-lever substantially as described.

4. In combination in an automatic switch-controlling mechanism, a laterally-movable block, a switch-point, connecting means between said block and switch-point, consisting of a claw, a lever-arm, a shaft, a short lever-arm and a switch-point arm, a block-adjuster furnished with a stem and pin, a hollow rock-shaft wherein said block-adjuster stem is mounted, a three-arm member actuated by said hollow rock-shaft, the middle arm of said member engaging the block-adjuster pin, the shaft 44 with its lever-arm 59, said shaft being adapted to be rotated in one direction by said three-arm member and in the opposite direction by a spring attached to said lever-arm 59 and a claw-lever integral with the shaft 88 and engaging the block-adjuster 36, substantially as described.

5. In combination in an automatic switch-controlling mechanism, a movable block, a switch-point, connecting actuating means between said block and switch-point, consisting of a claw, a lever-arm, a shaft, a short lever-arm and a switch-point arm, a block-adjuster furnished with a stem and pin, a hollow rock-shaft wherein said block-adjuster stem is mounted, a three-arm member actuated by said hollow rock-shaft, one arm of said member engaging the block-adjuster pin, the shaft 44 furnished with a lever-arm 59, said shaft being adapted to be rotated in one direction by said three-arm member, a spring attached to said lever-arm, 59 and adapted to rotate said shaft 44 in the opposite direction, a claw-lever engaging the block-adjuster 36 and adapted to be elevated by said lever-arm 59, the shaft 88 integral with said claw-lever, a brake-rod and means for actuating said hollow rock-shaft by the rotation of said brake-rod, substantially as described.

6. In combination in an automatic switch-controlling mechanism, a movable block, a switch-point, connecting actuating means between said block and switch-point, consisting of a lever-arm, a shaft, a short lever-arm and a switch-point arm, a block-adjuster furnished with a stem and pin, a hollow rock-shaft wherein said block-adjuster stem is mounted, a three-arm member actuated by said hollow rock-shaft and engaging said block-adjuster pin, the shaft 44 carrying the lever-arm 59, said shaft being adapted to be rotated downward by said three-arm member, means such as the spring 43 for elevating said lever-arm 59, a claw-lever engaging the block-adjuster and adapted to be elevated by said lever-arm 59, the shaft 88, a latch and trigger actuated by said three-arm member, a catch mounted upon the shaft 44 and adapted to be engaged by said latch, a brake-rod and means for actuating said hollow rock-shaft by the movement of said brake-rod, substantially as described.

7. In combination in a block-actuating mechanism, a block-adjuster, a hollow rock-shaft wherein said block-adjuster is mounted, a three-arm member actuated by said hollow rock-shaft and engaging said block-adjuster by means of a projection integral with the latter, the shaft 44 carrying a lever-arm, connecting means between said three-arm member and said shaft 44 whereby the latter may be rotated by the former, a spring adapted to raise said lever-arm, a claw-lever integral with the shaft 88 and engaging the block-adjuster, adapted to be elevated by said spring and lever-arm, and means for causing a semirotation of said hollow rock-shaft, substantially as described.

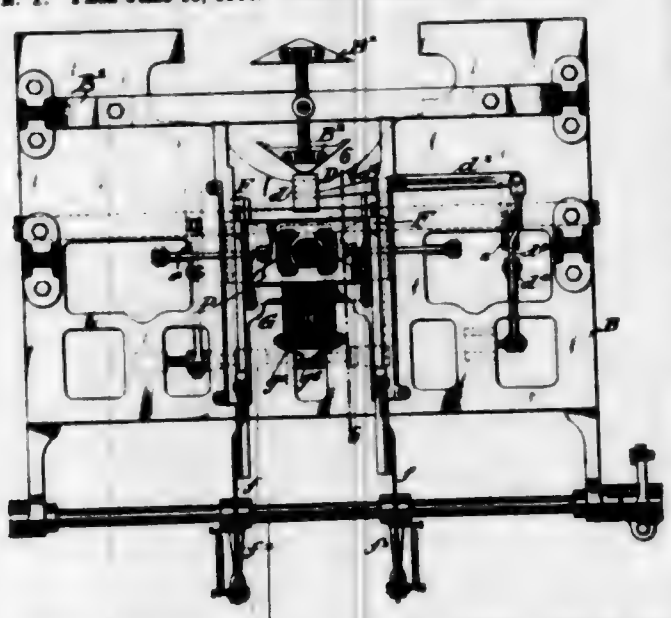
8. In combination in a block-actuating mechanism a hollow rock-shaft, a block-adjuster mounted therein adapted to rise and fall and to rotate upon its axis, a three-arm member actuated by said hollow rock-shaft and engaging said block-adjuster by means of a projection integral with the latter, the shaft 44 carrying a lever-arm, connecting means such as the rods 50 and 51 and wing 49 whereby the shaft 44 may be rotated by said three-arm member, a spring adapted to raise said lever-arm, a claw-lever integral with the shaft 88 and adapted to raise or lower said block-adjuster through the action of said spring and lever-arm, a brake-rod and means such as the lever-arms 29, 32 and 31 for actuating said hollow rock-shaft thereby, substantially as described.

9. In combination in a block-actuating mechanism, a hollow rock-shaft, a block-adjuster mounted therein adapted to rise and fall and to rotate horizontally, a three-arm member actuated by said hollow rock-shaft and engaging said block-adjuster, the shaft 44 carrying a lever-arm, connecting means such as the rods 50 and 51 and wing 49 whereby the shaft 44 may be rotated by said three-arm member, a spring, a claw-lever engaged by said lever-arm and governing the rise and fall of said block-adjuster, the shaft 88 actuated by said claw-lever, a brake-rod and means such as the lever-arms 29, 32 and 31 for actuating said hollow rock-shaft thereby, substantially as described.

10. In combination, a hollow rock-shaft a block-adjuster mounted therein and having a vertical and horizontal adjustment, a three-arm mem-

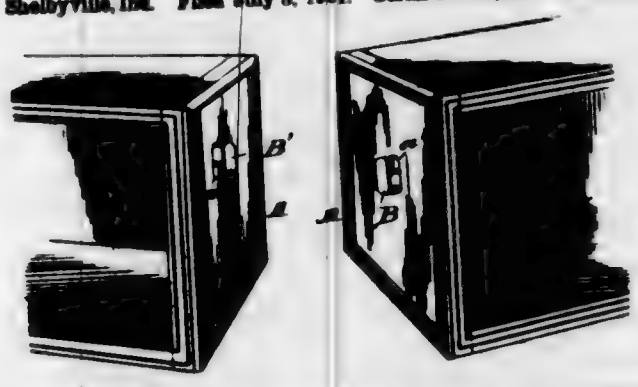
ber actuated by said hollow rock-shaft and engaging said block-adjuster, the shaft 44 carrying a lever-arm, connecting means such as the rods 50 and 51 and wing 49 whereby the shaft 44 may be rotated by said three-arm member, a spring, a claw-lever engaged by said lever-arm, and governing the rise and fall of said block-adjuster, the shaft 88 actuated by said claw-lever, a shoe mounted on and actuated by said shaft, a latch and trigger adapted to be actuated by said three-arm member, a catch integral with the shaft 44 and adapted to be engaged by said latch, a brake-rod and means such as the lever-arms 29, 32 and 31 for actuating said hollow rock-shaft thereby, substantially as described.

692,051. ENVELOP-MACHINE. EDWARD ERNOLD, New York, N. Y. Filed June 19, 1900. Serial No. 20,311. (No model.)



Claim.—The combination, in an envelop-machine, with the gumming devices and creasing-box, of blank-carrying fingers, means for reciprocating said fingers in a straight line between the gumming devices and creasing-box, a horizontal arm pivoted to the machine at one side of said fingers and adapted to swing in a horizontal plane between said devices and box, an inclined bracket at the outer end of said arm, a convex guide-shovel mounted on said bracket in line with the gumming devices and creasing-box, a pivot-link connected with the outer end of said arm, an elbow-lever connected with said pivot-link, a cam-shaft, a cam on the same, and a connecting-rod connected with said elbow-lever and engaging said cam.

692,052. LOCK OR CLUTCH FOR SECTIONAL CASES. FRANK L. FOERSTER, Shelbyville, Ind., assignor of one-half to Jacob A. Conrey, Shelbyville, Ind. Filed July 3, 1901. Serial No. 66,901. (No model.)



Claim.—1. In a device for connecting the ends of two cases together, the combination of two similarly-constructed clutch-sections which when placed one in engagement with the other will interlock, one of the clutch-sections being connected to the end of one case and the other to another case, key-ended bolts having threads thereon the bolts being attached to the inner sides of the cases to engage threaded sockets in the clutch-section, whereby when the bolts are turned they will project or retract the clutches.

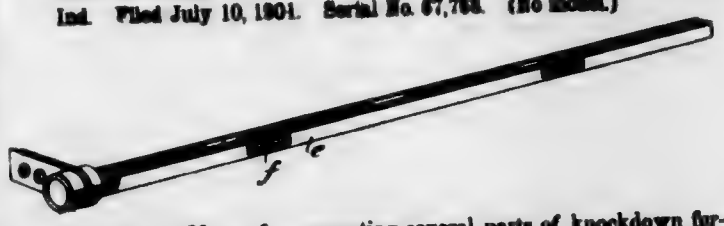
2. In combination with a plurality of cases, the ends of each case having openings, and adjacent to each openings recesses, of clutch-sections having threaded sockets which enter the openings and projecting portions which are adapted to lie in the recesses, a bridge-piece attached to the inner side of each case to span the opening therein, and threaded bolts which are held against longitudinal movement by engagement with the bridge-pieces, the threaded portions of the bolts engaging threaded sockets in the clutch-sections, substantially as shown.

3. A case for books or other articles comprising a plurality of sections, each section having end pieces with projecting marginal moldings, openings through the end pieces and recesses in the outer faces of the end pieces which are adjacent to said openings, clutch-sections shaped to correspond with the shape of the openings and recesses, the parts which correspond as to shape with the recesses being adapted to be placed in engagement one with the other when projected beyond the recesses, and bolts with threaded ends attached to the inner sides of the end pieces of the cases, bridge-pieces also attached to the inner sides of the end pieces of the cases to hold the bolts against longitudinal movement, the threaded ends of the bolts engaging the clutch-sections, substantially as shown.

4. In a sectional book or other case, the combination with the ends of sections having apertures which are out of line one with the other, of male and female clutch-sections shaped to fit within the apertures, bolts attached to the inner sides of the end sections, bridge-pieces which span the aperture and hold the bolts against longitudinal movement said bolts also engaging the clutch-sections, substantially as shown.

5. The combination with sections of a case for books or other articles having apertures through and recesses in the end pieces of such cases, of male and female clutch-sections each having internally-threaded sockets and projecting portions which interlock when projected beyond the plane of the ends of the cases, bridge-pieces which span the apertures through the end pieces of the cases, and bolts having circumferential flanges which engage the bridge-pieces, the bolts also engaging the threaded sockets of the clutch-sections, substantially as shown.

692,053. JOINT FOR KNOCKDOWN OR SEPARABLE FURNITURE. FRANK L. FOERSTER, Shelbyville, Ind., assignor of one-half to Jacob A. Conrey, Mary Conrey, and Albert H. Hildreth, Shelbyville, Ind. Filed July 10, 1901. Serial No. 67,768. (No model.)

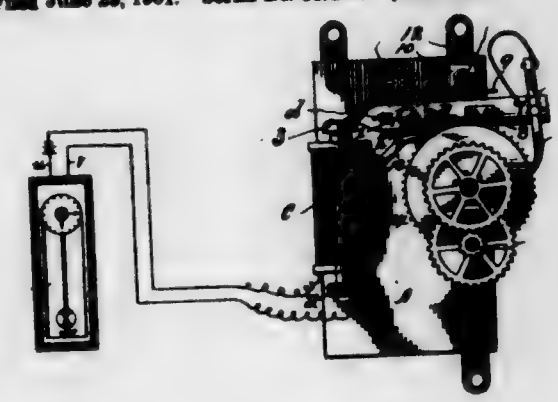


Claim.—1. Means for connecting several parts of knockdown furniture, consisting of a part which has near one of its edges a longitudinal aperture, two or more of the walls adjacent to the aperture having openings, a latch having a threaded end portion, the latch being housed in the aperture, a nut which engages the threaded portion of the latch and is held against displacement, parts for engagement with the herein-before-mentioned part, said parts having hooks which are adapted to be placed in the path of the latch so as to be engaged thereby, substantially as shown.

2. A joint for connecting several parts of furniture, one of the parts having an aperture in which is housed a latch-bar, said latch-bar having through different faces a plurality of catch portions, threads on one end of the latch-bar, a nut which engages the threads and moves the latch-bar lengthwise when turned, openings or recesses through the walls of the aperture in which the latch-bar is housed, the parts or members which are adapted to be attached to the first-mentiond part having attached thereto projecting hooks of such length as to pass through the recesses in the walls of the aperture in which is housed the latch-bar and engage said latch-bar, substantially as shown and for the purpose set forth.

3. Means for connecting several parts of furniture one to the other, consisting of a many-sided latch-bar housed within one of the parts to be longitudinally movable with respect to said part, the latch-bar having catches for hooks in several of its faces, the other parts of the furniture having hooks with beveled faces for engagement with the catches of the latch-bar, so that the several parts will be drawn one toward the other and held positively in locked engagement by the latch-bar.

692,054. ELECTRIC CLOCK. FRED FRICK, Waynesboro, Pa. Filed June 29, 1901. Serial No. 66,497. (No model.)



Claim.—1. In an electric clock, the combination, of the arbor, the dial-train, the magnet, a pivoted arm bearing upon one end of the armature and upon the other a pawl adapted to engage with a toothed wheel forming part of the dial-train, said lever being formed in two parts secured together to be adjusted to extend in different planes, whereby the direction in which they extend in relation to each other may be varied, substantially as set forth.

2. In an electric clock, the combination, of the arbor, the dial-train, the magnet, the two-part pivoted lever bearing upon one end the armature adjacent to the magnet, and upon the other end a pawl engaging a toothed wheel of the dial-train, both parts of said pivoted lever being mounted on a single pivot and adjustably secured together at a distance from said pivot, and a spring connected with said lever to operate oppositely to said magnet, substantially as set forth.

3. In an electric clock, the combination, of the arbor, the dial-train, the magnet, the two-part pivoted lever, the armature on one end of said lever adjacent to said magnet, the pawl on the opposite end of said lever engaging with a toothed wheel of the dial-train, a stop on said lever adapted to fall into engagement with a gear of said dial-train and limit its movement, the two parts of said lever being mounted on the same pivot and adjustably secured to each other at a point distant from said pivot, whereby they may be adjusted to vary the planes in which said two parts shall extend, substantially as set forth.

4. In an electric clock, the combination, of the arbor, the dial-train, the magnet, the two-part pivoted lever, both parts being mounted on the same pivot or shaft to be turned independently and adjustably secured together at a point distant from said pivot, the armature on one end of said lever adjacent to the magnet, the pawl on the opposite end engaging with a toothed wheel of the dial-train, a stop on said lever also adapted to fall into engagement with said toothed wheel and limit its movement forward, a detent for holding it from backward movement, and a spring connected with said lever to operate oppositely to the magnet, substantially as set forth.

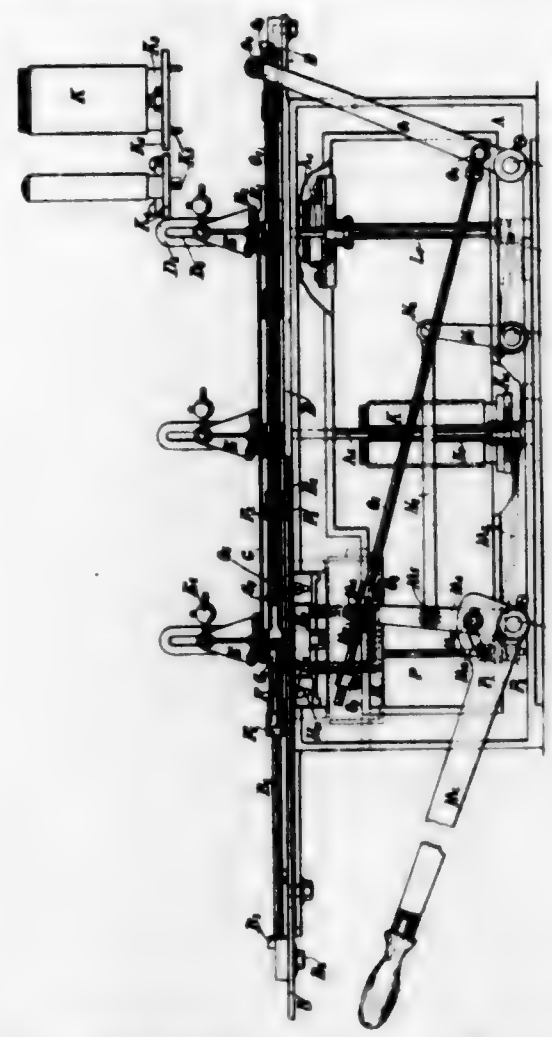
5. In an electric clock, the combination, of the train of operating gear including a toothed wheel, the magnet, means for closing and breaking the circuit through said magnet, a pivoted lever adjacent to said toothed wheel, an armature on one end of said lever adjacent to said magnet, a pawl pivoted on the opposite end and engaging with the teeth of said wheel, a spring for holding said pawl into engagement, a spring for forcing said arm oppositely to the action of the armature, and a stop also mounted on said arm and adapted to fall in front of a tooth of said wheel, as it is moved forward, and limit its movement to one cog or tooth, substantially as set forth.

692,055. LABELING-MACHINE. EBENEZER H. GILFILLAN and EDDY T. MCKAIG, Chicago, Ill., assignors to New York Labeling Machine Company, a Corporation of New York. Filed July 26, 1901. Serial No. 69,753. (No model.)

Claim.—1. In a labeling-machine, a runway composed of lower guiding members, one of said members being laterally adjustable to vary the width of said runway, a spring-pressed guide on the inner edge of one of said guiding members, movable retainers mounted above said runway at stations along the same to engage articles fed along the runway and to hold them in contact with the lower guiding members, a reciprocating feeder, a feeder-guide on which said feeder reciprocates mounted adjacent said runway, a series of feeding-pawls and a series of holding-pawls mounted on said feeder, label-applying devices mounted beneath said runway at said stations, means to actuate said label-applying devices and to operate said reciprocating feeder to intermittently feed forward a series of articles along said runway and to apply labels to such articles at said stations.

2. In a labeling-machine, a runway comprising lower guiding members, one of said members having a spring-pressed guide mounted on its inner edge, movable retainers mounted above said runway at stations along the same, a reciprocating feeder, a feeder-guide mounted adjacent said runway and adjustable longitudinally thereof to adjust the extent of movement of said feeder, a series of feeding-pawls and a series of holding-pawls mounted on said feeder, label-applying devices mounted below said runway at the stations along the same and means to operate said label-applying devices, said reciprocating feeder and said holding-pawls thereon to intermittently and positively feed forward a series of articles along said runway and to apply labels to said articles while at said stations.

3. In a labeling-machine, a runway comprising a guiding member provided with a spring-pressed guide on its inner face, movable retainers mounted adjacent said runway at stations along the same, a reciprocating feeder, a feeder-guide mounted adjacent said runway, a series of feeding-pawls and a series of positively-actuated holding-pawls mounted on said feeder, label-applying devices mounted adjacent said runway at said stations on the opposite side of said runway from said retainers and means to actuate said label-applying devices and said feeder to positively and intermittently feed a series of articles along said runway and to apply labels to such articles while at such stations.



4. In a labeling-machine, a runway, movable retainers mounted adjacent said runway at stations along the same, a reciprocating feeder, a guide for said feeder adjacent said runway, a series of feeding-pawls and a series of holding-pawls mounted on said feeder, label-applying devices mounted adjacent said runway at said stations to coöperate with said retainers and means to actuate said label-applying devices and said reciprocating feeder to intermittently feed a series of articles along said runway and to apply labels to said articles while at said stations.

5. In a labeling-machine, a runway, movable retainers mounted adjacent said runway at stations along the same, a feeder to intermittently feed a series of articles from station to station along said runway, label-applying devices mounted adjacent said runway at the stations along the same to coöperate with said retainers and means to operate said label-applying devices and said feeder.

6. In a labeling-machine, a runway, freely-movable retainers mounted adjacent said runway at stations along the same, a feeder to intermittently and positively move a series of articles from station to station along said runway, label-applying devices mounted at said stations to coöperate with said retainers and means to operate said label-applying devices and said feeder.

7. In a labeling-machine, a runway, freely-movable automatically-operating retainers mounted adjacent said runway at stations along the same to hold a series of articles in position at said stations, a feeder to intermittently feed a series of articles from station to station along said runway, and label-applying devices mounted adjacent said runway to coöperate with said retainers.

8. In a labeling-machine, a runway, automatically-operating pivoted retainers mounted adjacent said runway at stations along the same to hold a series of articles in position at said stations, a feeder to intermittently move a series of articles from station to station along said runway and label-applying devices mounted at said stations along said runway to coöperate with said retainers.

9. In a labeling-machine, a runway, pivoted wedging-retainers mounted adjacent said runway at stations along the same to hold a series of articles in position at said stations, a feeder to move a series of articles from station to station along said runway, and label-applying devices mounted adjacent said stations to coöperate with said retainers to apply labels to articles at said stations.

10. In a labeling-machine, a runway, pivoted wedging spring-actuated retainers, mounted adjacent said runway at stations along the same to hold a series of articles in position at said stations, a feeder to move a series of articles from station to station along said runway and label-ap-

plying devices mounted adjacent said runway to apply labels to said articles at said stations.

11. In a labeling-machine, a runway, a series of labeling devices mounted at stations along said runway to intermittently operate in connection with the same, a series of automatically-operating retainers mounted adjacent said runway at said stations, and a feeder to intermittently feed forward a series of articles from station to station along said runway into engagement with said retainers.

12. In a labeling-machine, a runway, a series of labeling devices mounted at stations along said runway to intermittently operate in connection with said runway, a series of pivoted wedging automatic retainers mounted to coöperate with said runway at said stations and a feeder to intermittently feed a series of articles from station to station along said runway into contact with said retainers.

13. In a labeling-machine, a runway, an intermittently-operating labeling device mounted to coöperate with said runway, a pivoted automatic retainer having an eccentric working face mounted adjacent said runway near said labeling device and a feeder to intermittently feed articles along said runway into contact with said retainer.

14. In a labeling-machine, a runway, an intermittently-operating labeling device mounted adjacent said runway, an automatic wedging-retainer mounted adjacent said labeling device to clamp an article upon said runway and a feeder to intermittently feed articles along said runway into contact with said retainer.

15. In a labeling-machine, a runway, an intermittently-operating labeling device mounted below said runway, a freely-movable retainer having an eccentric working face pivoted above said labeling device to clamp articles upon said runway and a feeder to intermittently feed articles along said runway into contact with said retainer.

16. In a labeling-machine, a runway, a retainer having an eccentric working face of yieldable material pivoted so as to be freely movable above said runway and an intermittently-operating feeder to feed articles along said runway into contact with said retainer to clamp said articles upon said runway by said retainer.

17. In a labeling-machine, a runway, a retainer having an eccentric working face pivoted so as to be freely movable above said runway and a feeder to intermittently feed articles along said runway into contact with said retainer to clamp said articles upon said runway by said retainer.

18. In a labeling-machine, a runway, a freely-movable retainer mounted adjacent said runway and a feeder to intermittently feed articles along said runway into contact with said retainer to clamp said articles to said runway by said retainer.

19. In a labeling-machine, a runway, an automatic wedging-retainer mounted to coöperate with said runway and a feeder to intermittently feed articles along said runway into contact with said retainer to clamp said articles to said runway by said retainer.

20. In a labeling-machine, a runway, a freely-movable pivoted wedging-retainer mounted adjacent said runway, a spring connected to said retainer to move the same about its pivot, means to adjust the intensity of action of said spring and a feeder to intermittently feed articles along said runway into contact with said retainer to clamp said articles to said runway by said retainer.

21. In a labeling-machine, a runway, an automatic pivoted retainer adjacent said runway, an adjustable weight on said retainer, an adjustable spring connected to said retainer to adjust the quickness and intensity of action of said retainer and a feeder to intermittently feed articles along said runway into contact with said retainer to clamp said articles to said runway by said retainer.

22. In a labeling-machine, a runway, a freely-movable pivoted retainer mounted above said runway, a labeling device mounted below said retainer to operate upon articles on said runway through an opening in the same and a feeder to move articles along said runway to engage said retainer and to cause said articles to be automatically clamped by said retainer upon said runway and to be released from said retainer.

23. In a labeling-machine, a runway, a freely-movable retainer pivoted above said runway to automatically clamp articles upon said runway, a labeling device mounted below said retainer to operate upon articles clamped upon said runway by said retainer and a feeder to move articles under said retainer and to remove said articles from said retainer.

24. In a labeling-machine, a runway, a freely-movable wedging-retainer mounted above said runway to automatically clamp articles to said runway and a feeder to intermittently move articles along said runway to said retainer and to remove said articles from said retainer.

25. In a labeling-machine, a runway, a reciprocating feeder, a feeder-guide mounted adjacent said runway, a series of pivoted feeding-pawls mounted on said feeder, a connector adjustably mounted on said feeder, a series of pivoted holding-pawls mounted on said connector to readily adjust the position of each of said holding-pawls with respect to its coöperating feeding-pawls and means to operate said holding-pawls.

26. In a labeling-machine, a reciprocating feeder, a series of feeding-pawls mounted on said feeder, a connector adjustably mounted on said feeder, a series of holding-pawls mounted on said connector to readily adjust the distance between each one of said holding-pawls and its coöperating feeding-pawl and means to operate said holding-pawls.

27. In a labeling-machine, a reciprocating feeder, a series of spring-pressed feeding-pawls mounted on said feeder, a connector adjustably mounted on said feeder and a series of positively-actuated holding-pawls mounted on said connector to readily adjust the distance of each of said holding-pawls with respect to its coöperating feeding-pawl.

28. In a labeling-machine, a runway having an open top, a reciprocating feeder, a guide for said feeder, mounted at one side of said runway, and a series of movable retainers mounted above said runway at stations along the same to hold a series of articles upon said runway at said stations.

29. In a labeling-machine, a runway having an open top, a reciprocating feeder mounted at one side of said runway, a series of pivoted retainers mounted above said runway at stations along the same to hold a series of articles in contact with said runway and a series of label-applying devices below said runway at said stations.

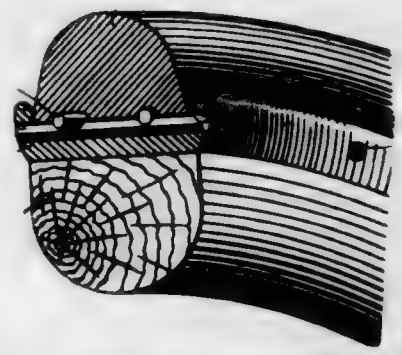
30. In a labeling-machine, a runway, a series of freely-movable retainers pivoted above said runway at stations along the same to automatically clamp a series of articles to said runway at said stations and a feeder to engage a series of articles to feed said articles simultaneously from station to station along said runway.

31. In a labeling-machine, a runway, a series of freely-movable retainers pivoted above said runway at stations along the same, the lower faces of said retainers being eccentric with respect to said pivots, and a reciprocating feeder to simultaneously engage a series of articles and to feed said articles from station to station along said runway to engage said retainers and to be automatically clamped upon said runway at said stations by said retainers.

32. In a labeling-machine, a runway, a freely-movable retainer mounted above said runway, a labeling device mounted below said retainer to coöperate with said runway, a reciprocating feeder to feed articles along said runway to said retainer to be automatically clamped by said retainer upon said runway and means connected with said feeder to operate said labeling device while an article is clamped to said runway by said retainer.

33. In a labeling machine, a runway, a wedging-retainer pivoted above said runway, a labeling device mounted below said retainer, a feeder to feed articles along said runway to move said retainer and be thereby clamped upon said runway and means to actuate said feeder and said labeling device.

692,056. RUBBER TIRE. ALVARO S. KROTZ, Springfield, Ohio, assignor to Consolidated Rubber Tire Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 29, 1901. Serial No. 58,027. (No model.)



Claim.—1. In a rubber tire for vehicle-wheels, the combination with the channel, the tire and independent retaining-wires, of bars extending transversely at intervals through said tire and channel and partially intersecting said wires; substantially as and for the purpose specified.

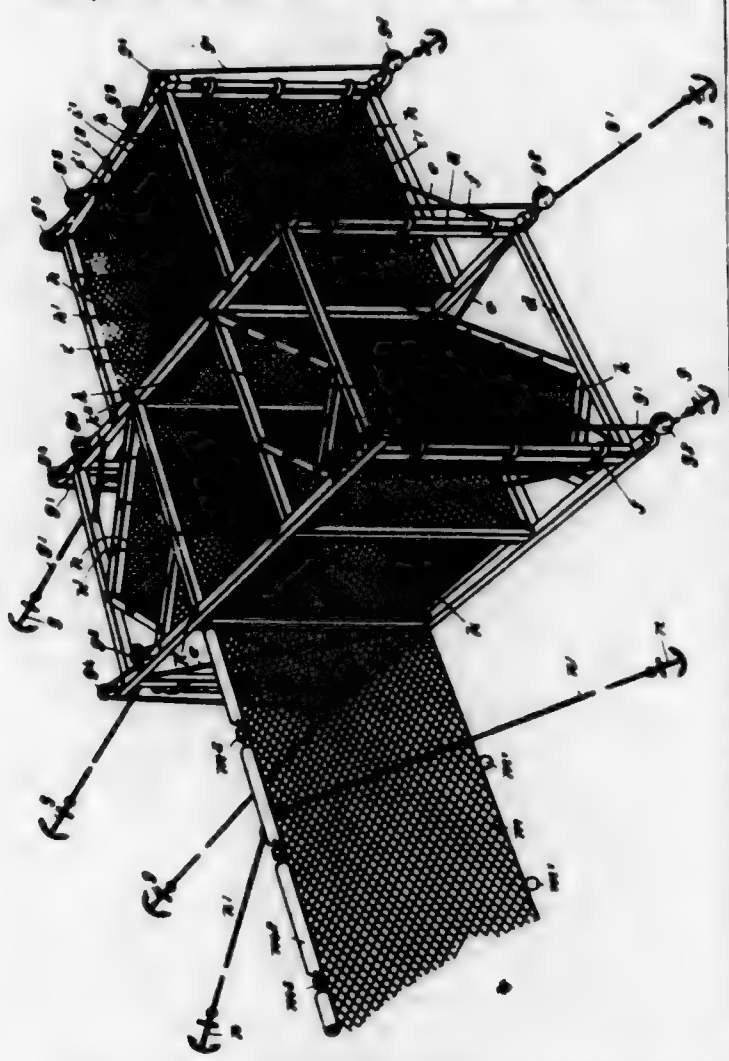
2. In a rubber tire for vehicle-wheels, the combination with the channel, the tire and independent retaining-wires, of bars extending transversely at intervals through said tire and channel, and partially intersecting said wires; said bars being beveled at one end and having notches in one side thereof to engage said wires when said bars are driven in place, substantially as specified

3. In a rubber tire for vehicle-wheels, the combination with the channel, the tire and independent retaining-wires, of bars extending transversely at intervals through said tire and channel and intersecting the under side of said wires; said bars being beveled at one end and having notches in the upper side thereof to correspond with and receive said wires when said bars are driven in place, substantially as specified.

4. In a rubber-tire machine, the combination with the channel, the tire and independent retaining-wires, of bars extending transversely at intervals through the base of said tire and the flanges of said channel and contacting the seat in said channel and intersecting the under side of said

wires; said bars being beveled at one end and having notches in the upper side thereof to correspond with and receive said wires when said bars are driven in place, substantially as specified.

692,057. FISH-TRAP. EPHRAIM W. LIVERMORE, New Whatcom, Wash. Filed May 3, 1901. Serial No. 58,621. (No model.)



Claim.—1. A fish-trap having a block at its lower portion, and a winding device at its upper portion, the block serving to have the anchor-cable engaged therewith and passed upward to the winding device.

2. The combination with a floating fish-trap, of guide devices at the lower portion thereof, an anchor-rope run through the guide devices and passed upward to the top of the trap, and a winding device at the top of the trap for the anchor-rope.

3. In a fish-trap, the combination of a rigid buoyant frame, netting held by the frame to constitute the walls and passages of the trap, and means for anchoring the trap in a body of water, said means comprising anchor-cables joined to the lower portion of the frame, for the purpose specified.

4. In a fish-trap, the combination of a rigid buoyant frame, netting carried by the frame to form the walls and passages of the trap, guide devices at the bottom of the frame, winding devices at the top of the frame and carrying means comprising cables rove through the guide devices and passed upward to the winding devices.

692,058. STOPPER FOR BOTTLES. JACOB A. MOLLER, Jr., Brooklyn, N. Y. Filed Apr. 17, 1901. Serial No. 56,221. (No model.)



Claim.—1. A bottle-stopper, consisting of a cap or ferrule having an opening in its top, an apertured ball or sphere held to turn in said cap or ferrule, the said ball being provided with inclined recesses in opposite side faces, and a bail extending through openings in the sides of the cap or ferrule and provided with feet arranged at an angle to the side members, the said feet being adapted to enter the recesses in the ball or sphere as set forth.

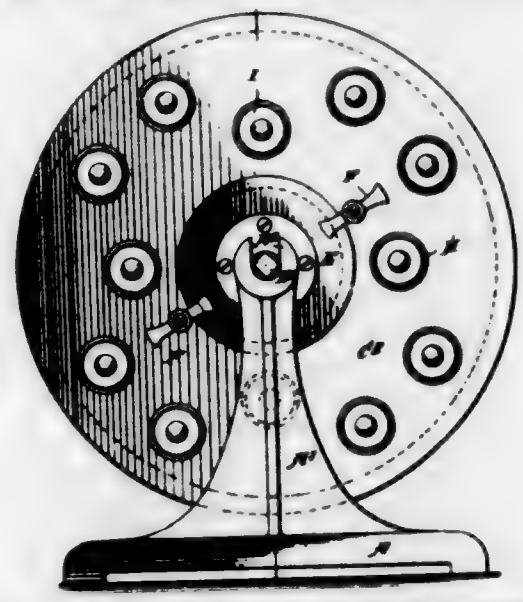
2. A bottle stopper, consisting of a cap or ferrule having an opening in its upper face, said cap or ferrule being arranged for adjustable connection with the neck of a bottle, an apertured ball or sphere held to turn in the cap or ferrule, a surface of the said ball or sphere extending through the opening at the upper portion of the cap or ferrule, the said ball or sphere being provided with inclined recesses in opposite side faces, and a bail comprising a body-section, foot-sections extending at an angle to the body-section and adapted to engage the recesses in the ball or sphere, and horizontal sections connecting the foot-sections with the body-section and passing through openings in the sides of the ferrule or cap, substantially as specified.

3. In a bottle-stopper, a cap or ferrule adapted for adjustable connection with the neck of a bottle, the said cap or ferrule having an opening in its top, an apertured ball or sphere held to turn in said cap or ferrule, and having inclined recesses in opposite side faces, a washer located in the cap or ferrule and adapted to be pressed on by said ball or sphere, and a bail extending through openings in the sides of the cap or ferrule and having feet arranged at an angle to the side members of the bail, and adapted to engage said recesses in the ball or sphere, as set forth.

4. In a bottle-stopper, a cap or ferrule arranged to screw on the neck of a bottle and having an opening in its top, a washer located at the upper portion of said cap or ferrule and provided with an opening therein, a washer located in the lower part of the cap or ferrule and adapted to rest on the upper edge of the mouth of the bottle-neck, the said washer having a central opening, a ball or sphere held to turn in said cap or ferrule and provided with an opening or bore extending through the same, the said ball or sphere being adapted to press on both of the said washers when the cap or ferrule is screwed down on the neck of the bottle and to extend through the opening in the cap or ferrule, and means connected with the ball or sphere for turning the same, substantially as described.

5. In bottle-stoppers, a cap or ferrule having an opening in its upper face, a washer located at the upper portion of said cap or ferrule and provided with an opening therein, a ball or sphere located within the cap or ferrule and held to turn therein, the said ball or sphere being provided with an opening extending through from side to side, the said ball or sphere being likewise provided with diagonal recesses in opposite side faces and the ball or sphere being so placed in the cap or ferrule that one portion of the ball or sphere will engage with the washer and will extend out through the opening in said cap or ferrule, and a bail which is passed through the said cap or ferrule, the bail being provided with a foot at an angle to each side member, which feet are arranged to enter the recesses in the ball or sphere, as set forth.

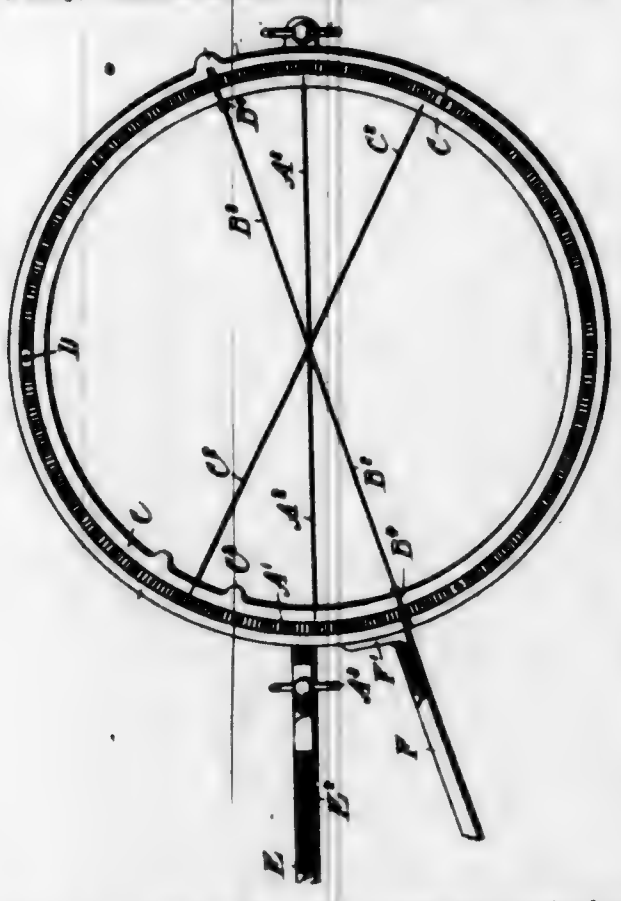
692,059. ICE-CREAM FREEZER. EDWARD P. MORSE, Birmingham, Ala. Filed Apr. 18, 1901. Serial No. 56,405. (No model.)



Claim.—1. A freezer for ice-cream and the like comprising a support with two bearings, a receptacle provided with two heads one of which has a central opening, while the other has a central journal, arranged in one of said bearings, a cover for closing said central opening, a journal projecting from said cover in alinement with the other journal and adapted to be received in the other bearing, means for locking the cover to the receptacle, and a series of cups projecting from the receptacle at that end which has the said cover at the head portion surrounding the cover, said cups extending lengthwise of the axis about which the receptacle is mounted to turn.

2. A freezer for ice-cream and the like, comprising a support provided with two bearings, a receptacle provided with two heads one of which has a central opening and the other a central journal, a cover for said opening provided with a central journal, fastenings for securing said cover to said receptacle and a plurality of cups engaging both heads of said receptacle and individually removable therefrom.

692,060. NAVIGATING-PROTRACTOR. CHARLES M. MCCORMICK, U. S. Navy. Filed Oct. 21, 1901. Serial No. 79,290. (No model.)



Claim.—1. A protractor comprising a stationary base-ring having an indicating-strand across its diameter, a plurality of relatively movable concentric rings, and an indicating-strand carried by and extending across the diameter of each of said movable rings and adapted to cross the strand of the base-ring at its mid-length; substantially as specified.

2. A protractor comprising a graduated base-ring, a movable concentric ring mounted thereon, and an indicating-strand carried by and extending diametrically across each ring in different horizontal planes to each other; substantially as specified.

3. A protractor comprising a graduated base-ring, movable concentric rings upon opposite sides of said base-ring, and indicating means extending diametrically across each ring; substantially as specified.

4. A protractor comprising a graduated base-ring, movable concentric rings upon opposite sides of said base-ring, indicating means extending diametrically across each ring, and a hanger for said indicating means extending from the outer ring over the inner ring; substantially as specified.

5. A protractor comprising a graduated base-ring, movable concentric rings upon opposite sides of said base-ring, indicating means extending diametrically across each ring, and a securing-block having projections to engage each of said movable rings; substantially as specified.

6. A protractor comprising a plurality of relatively movable concentric rings, an indicating-strand extending diametrically across each of said rings, and an extension-arm removably secured to one of said rings; substantially as specified.

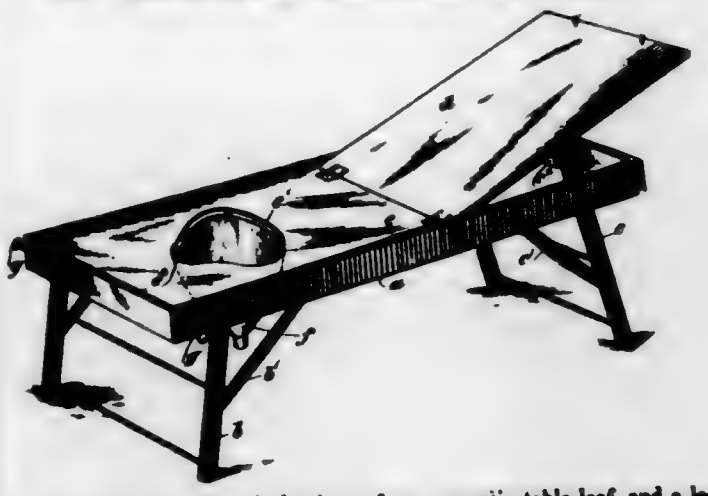
7. A protractor comprising a base having a graduated ring thereon, a movable concentric ring mounted upon said base, cords or wires extending diametrically of each ring, an extension from said base-plate, an extension-arm overlapping saidex tension, and a securing-handle passed through said arm and extension; substantially as specified.

8. In a protractor a base-plate having a centrally-disposed graduated ring thereon, an indicating-wire extending diametrically of said ring, concentric movable rings upon opposite sides of said graduated ring, diametric wires carried by each of said movable rings, and means carried by said graduated ring for holding the movable rings against vertical movement; substantially as specified.

9. In a protractor, a base-plate having a centrally-disposed graduated ring thereon, an indicating-wire extending diametrically of said ring, concentric movable rings upon opposite sides of said graduated ring, diametric wires carried by each of said movable rings, means carried by said graduated ring for holding the movable rings against vertical movement, and hangers carried by the outer movable ring and extending over the other rings to support the indicating-wire from said outer ring; substantially as specified.

10. A protractor comprising a plurality of relatively movable concentric rings, indicating means extending diametrically of each of said rings, and a separable extension-arm having a contact-face curved upon the radius of the outer face of said rings; substantially as specified.

692,061. DOUCHE-BENCH. THOMAS F. MCCULLOUGH, Memphis, Tenn. Filed Oct. 22, 1901. Serial No. 79,572. (No model.)



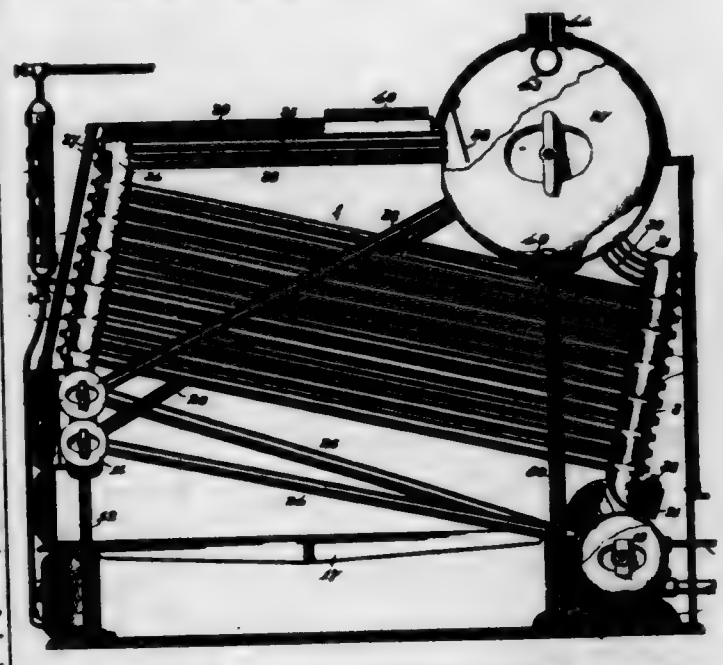
Claim.—1. A bench, having a frame, an adjustable leaf, and a leg intermediately pivoted on the frame and arranged when in operative position to engage one end with the leaf to hold it raised.

2. A bench, having a frame, an adjustable leaf, a leg intermediately pivoted on the frame and arranged when in operative position to engage one end with the leaf to hold it raised, and a hinged extension on said end of the leg, for the purpose specified.

3. The combination of a frame, a foot-rest movably mounted thereon, a leaf mounted to swing on the frame, and a member carried by the leaf to engage and hold the foot-rest.

4. The combination of a frame, a casing thereon, a carrier slidable in the casing, a foot-rest held by the carrier, a leaf arranged to swing on the frame, and a member carried by the leaf and engaging the carrier to hold the same immovable.

692,062. STEAM-BOILER. JOSEPH H. MCDONALD, New York, and GEORGE G. WORTHINGTON, Brooklyn, N. Y. Filed Dec. 21, 1900. Serial No. 40,657. (No model.)



Claim.—1. The combination with a steam-drum and system of water-tubes connecting therewith, of a furnace in operative communication with the tubes, and a feed-water circulatory system connecting at both ends with the steam-drum through the furnace, below its water-line.

2. The combination with a feed-water receptacle and steam-drum, of intermediate series of water-tubes communicating with the steam-drum, means of communication with the steam-drum, water-tubes, and feed-water receptacle, and members of a feed-water circulatory system establishing operative communication between the feed-water system and the furnace.

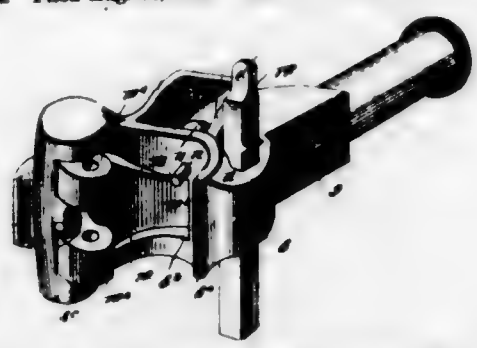
3. The combination with intercommunicating feed-water receptacle, water-tubes, headers, and steam-drum, of a plurality of evaporating-drums communicating at opposite ends, respectively, with the feed-water receptacle and the steam-drum.

4. In a boiler, the combination of its water-tubes, arranged in circular series to constitute a series of combustion-chambers throughout the boiler.

5. In a boiler the combination of its water-tubes arranged in circular series, the several members of each series being separated from each other by comparatively narrow distances, thereby constituting a series of well-defined combustion-chambers throughout the boiler.

6. In a boiler, the combination of its water-tubes arranged in circular series, and cleaning-apertures located concentrically with the ends of said series, respectively.

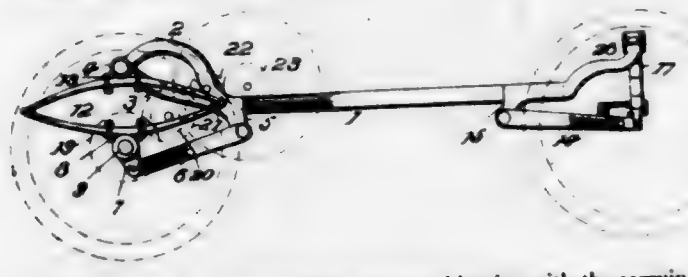
692,063. CAR-COUPLING. CHARLES A. MCKERAHAN, Wilmerding, Pa. Filed Aug. 24, 1901. Serial No. 73,123. (No model.)



Claim.—1. In a car-coupling, the combination with a draw-head having a chamber open at the front, of a knuckle-block having substantially L shape, a pivot-bolt, a locking-key slidable in the draw-head at one side of the chamber, a flange having a curved slot and extending rearward on the key, a rearwardly-projected shoulder on the key above said flange, a pin on the inner end of the knuckle-block loosely engaging the curved slot in the flange, and a pusher-rod slidable in the draw-head so as to project at the front, said rod being adapted to loosely engage the shoulder on the key, and hold it raised, but releasing said key when pushed rearwardly by impact of another draw-head.

2. In a car-coupling, the combination with a chambered draw-head, an L-shaped knuckle-block pivoted in the chamber, and a rocking pin extended from the tailpiece of the knuckle-block, of a weighty key vertically slidable in an aperture in the draw-head at one side of the chamber, said key having a lug on its rear side, a flange extended rearward at the side of the key nearest to the tailpiece, a curved slot in said flange and in the key-body, the rocking pin on the tailpiece loosely engaging said slot, a pusher-rod slidable in a forwardly and downwardly inclined passage at the top of the draw-head, and a rest-pin laterally extended from the pusher-rod to receive the lug on the key for its support, the pusher-rod extending at the front of the draw-head, when the key is raised and its lug rests on the pin.

692,064. MOTOR-VEHICLE. JOHN F. MCNUTT, Cincinnati, Ohio. Filed July 3, 1901. Serial No. 67,049. (No model.)



Claim.—1. In a motor-vehicle, the combination with the carrying-wheels, their axles, and the springs, of the longitudinal side bars, forward and rearwardly extended brace-bars secured each at one end to one of the side bars and at its other end having a pivot connection with one of the axles, said side bars being connected to said springs in vertical line with the connections between the brace-bars and axles, substantially as set forth.

2. In a motor-vehicle, the combination with the carrying-wheels, their axles, and the springs mounted above the latter, of the frame having longitudinal side bars, forward and rearwardly extended brace-bars secured to said side bars, connections between said brace-bars, the axles and the springs, and connections between said side bars and the springs, substantially as set forth.

3. In a motor-vehicle, the combination with the carrying-wheels, their axles, and the springs mounted above the latter, of the longitudinal side bars having forward and rearward extensions connected at their ends to said springs, forward and rearwardly extended brace-bars secured to said side bars, and connections between said brace-bars, the axles and the springs in vertical line with the connections between the side bars and the springs, substantially as set forth.

4. In a motor-vehicle, the combination with the carrying-wheels, their axles, the two rear springs and the front spring mounted above the latter, of the side bars, a cross rod or tube secured to said side bars and to the two rear springs, a second cross rod or tube between said side bars, said latter cross rod and the side bars being connected to the front spring, substantially as set forth.

5. In a motor-vehicle, the combination with the carrying-wheels, their axles, and the rear springs, of the side bars having rearwardly-extended arms, connections between said arms and the rear springs, rearwardly-extended brace-bars secured to said side bars, and means pivotally connecting said brace-bars to said springs in line with the connection of the rearwardly-extended arms, substantially as set forth.

6. In a motor-vehicle, the combination with the carrying-wheels, their axles, and the rear springs, of the side bars having rearwardly-extended arms, a cross-rod to which said arms are secured, means connecting said cross-rod to said springs, rearwardly-extended brace-bars secured to said side bars, and bearings for the rear axle having depending arms to which said brace-bars are pivotally connected, substantially as set forth.

7. In a motor-vehicle, the combination with the carrying-wheels, their axles, the two rear springs and the front spring, of the side bars having rearwardly-extended arms, a cross-rod to which such arms are secured, said cross-rod being attached to said rear springs, the rearwardly-extended brace-bars secured to said side bars, bearings for said rear axle having depending arms to which said brace-bars are pivoted, and connections between said side bars, the front spring and the front axle, substantially as set forth.

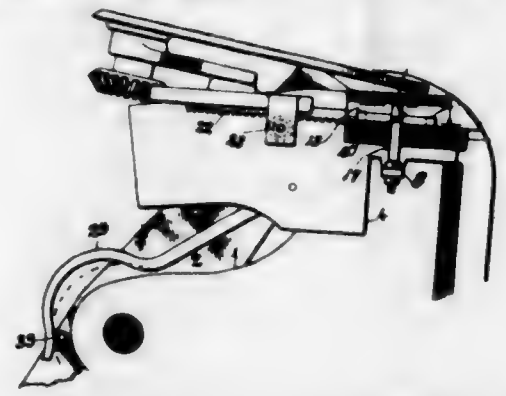
8. In a motor-vehicle, the combination with the carrying-wheels, their axles, and the front and rear springs, of the side bars having forward extensions secured to said front spring, forwardly-extended brace-bars secured to said side bars and the front axle and the front spring, and means connecting said side bars to said rear springs and to the rear axle, substantially as set forth.

9. In a motor-vehicle, the combination with the carrying-wheels, their axles, the rear springs, and the front spring, of the side bars having rearwardly-extended arms, a cross-rod secured to such arms and to said rear springs, rearwardly-extended brace-bars secured to said side bars, bearings for the rear axles having depending arms to which said brace-bars are pivoted, said side bars at their forward ends being secured directly to said front spring, a forward cross-rod, forwardly-extended brace-bars secured to said latter cross-rod and at their free ends to the front axle and the front spring, substantially as set forth.

10. In a motor-vehicle, the combination with the rear carrying-wheels, their axle, and the bearing-blocks therefor having depending arms, of the side bars having rearwardly-extended brace-bars pivoted to said depending arms, the equalizing gear-wheel on such axle adjacent to one of said bearing-blocks, the transmission-train and gearing between the latter and said equalizing gear-wheel, substantially as set forth.

11. In a motor-vehicle, the combination with the carrying-wheels, their axles, and the springs, of the longitudinal side bars, means connecting such side bars to the springs and to the axles, the equalizing spur gear-wheel on the rear axle adjacent to the point of connection of one of the side bars, the transmission-train having the shaft of the transmission gear-wheel thereof substantially parallel with said axle, the operating spur gear-pinion meshing with the equalizing spur gear-wheel and having its shaft paralleling said axle, and the flexible shaft connecting the shafts of the spur gear-pinion and the driven gear-wheel, substantially as set forth.

692,065. PRINTING-PRESS ATTACHMENT. ROBERT HAUHART. New York, N. Y. Filed Oct. 18, 1901. Serial No. 79,167. (No model.)



Claim.—1. An inking attachment for a printing-press, comprising a font having an opening at one end for the discharge of ink, a follower for operating in the font, and means actuated by a movement of the press for operating said follower, the font being arranged to discharge ink onto an inking-roller passing over the same, substantially as specified.

2. An inking attachment for a printing-press, comprising an ink-font having an inclined forward end provided with an outlet for ink, a follower arranged in the font, a plunger for removably engaging with said follower, and means actuated by a movement of the press for moving said follower, substantially as specified.

3. An inking attachment for a printing-press, comprising a font having an outlet-opening at one end, a plate attached to the printing-press

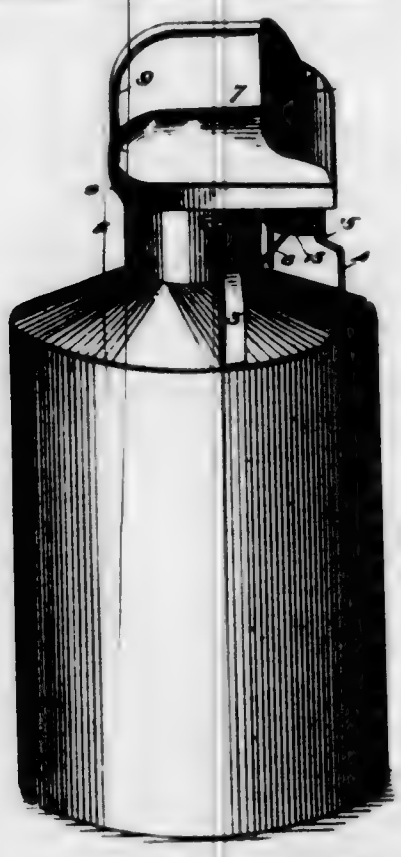
frame, removable connections between said font and the plate comprising an arm mounted on the plate, a clamping connection between said arm and the font, a follower in the font, and means actuated by a movement of the press for moving said follower, substantially as specified.

4. An inking attachment for a printing-press, comprising an ink-font having a discharge-opening at its forward end, a follower operating in the font, a plunger removably engaging with said follower, a rack extended outward from the plunger, a ratchet-wheel, a lever loosely mounted on the shaft of said ratchet-wheel and adapted to be operated by a movement of the printing-press, a dog carried by said lever for engaging with the ratchet-wheel, and gear connections between said ratchet-wheel and said rack, substantially as specified.

5. An inking attachment for a printing-press, comprising an ink-font having an outlet at its forward end, a follower operating in the font, a plunger removably engaging with the follower, a rack extended outward from the plunger, a pinion engaging with said rack, a gear-wheel on the shaft of said pinion, a ratchet-wheel, gear connections between said ratchet-wheel and said gear-wheel, a lever loosely mounted on the shaft of the ratchet-wheel, a part carried by a moving part of the press for engaging with said lever to operate it, a dog carried by the lever for engaging with the ratchet-wheel, and a back-stop dog engaging with the ratchet-wheel, substantially as specified.

6. An inking attachment for a printing-press, comprising a font having an outlet at its forward end, a follower operating in said font, a rack for forcing said follower forward, a ratchet-wheel, gear connections between said ratchet-wheel and the rack, a lever mounted to swing on the shaft of the ratchet-wheel, means for adjusting the throw of said lever, a device carried by a movable part of the press for actuating said lever in one direction, a dog carried by the lever for engaging with the ratchet-wheel, and means for shifting said dog out of operative connection with the ratchet-wheel, substantially as specified.

692,066. MILK-CAN. CHARLES J. HORDIN, Rice Lake, Wis. Filed Oct. 14, 1901. Serial No. 78,617. (No model.)



Claim.—1. A reversible milk-can cover, having a shield at one end and a collar at the other, adapted to be interchangeably engaged with the milk-can top, said collar having a space formed between it and the cover to permit of the aeration of the milk, substantially as set forth.

2. The combination with a milk-can having a neck portion and provided with a support having stop-shoulders, of a cover provided with a collar adapted to fit within the neck and also to fit over said support and rest upon said shoulders, and a shield secured to said cover at the opposite end thereof and adapted to fit within said neck and also to fit around said support and engage the stop-shoulders thereof, substantially as set forth.

3. The combination with a milk-can having a neck portion and provided with a support having stop-shoulders, of a cover provided with a collar adapted to fit within the neck and also to fit over said support and rest upon said shoulders, said collar being spaced from said cover to provide means for ventilating or aerating the milk, and a shield secured to said cover at the opposite end thereof and adapted to fit within said neck and also to fit around said support and engage the stop-shoulders thereof, substantially as set forth.

692,067. PORTABLE BURIAL-VAULT. GEORGE B. OKEY, Indianapolis, Ind. Filed Sept. 20, 1901. Serial No. 75,672. (No model.)



Claim.—1. In a portable burial-vault and in combination, a metallic closure open at one end an open frame riveted to the inner walls at said open end and having a right-angled inward-standing continuous rib or flange provided with slots, and with plate-spring catches the free ends whereof overlap the ends of said slots, and a metallic end door formed with an inward-standing continuous rib or flange abutting the inward rib or flange of the open frame forming thereby a space between the inner wall of the open frame and the flange of the head or door, and ratchet-arms fixed to the door-flange registering with the slots in the open frame adapted to engage the ends of the plate-springs when the door head flange is driven against the open frame.

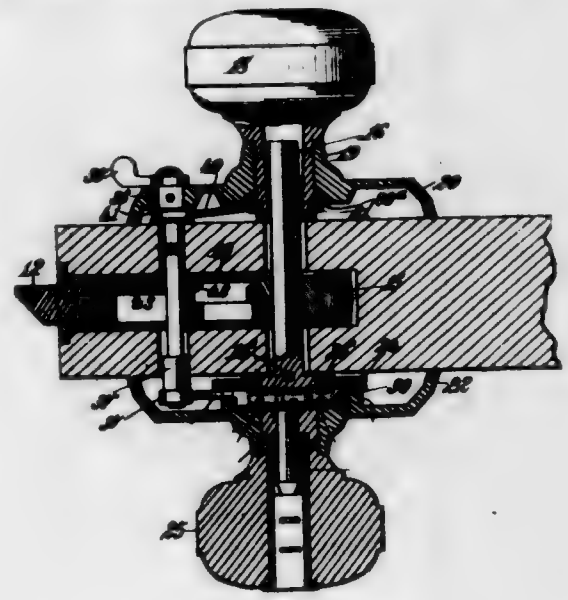
2. In a portable burial-vault and in combination a metallic closure open at one end, an open frame riveted to the inner walls of said open end and having a continuous inward-standing rib or flange 4, a metallic door formed with an inward flange or rib and abutting the open-frame flange or rib whereby a space 11 is formed between the inner wall of the open frame and the flange of the door or head, a continuous seal filling for said space, and means whereby the flange or rib of the door is locked to the flange or rib of the inner open frame.

3. In a portable burial-vault and in combination a metallic closure open at one end, an open frame riveted within said open end, a metallic door for closing said open end, means on the open frame and means on the inner wall of the door whereby a continuous space is formed around the inner wall of the door, an aperture in the metallic closure and an aperture in the open frame both apertures registering with the surrounding space, a cement sealing within said space and means whereby the head is secured to the open frame.

4. In a portable burial-vault and in combination a metallic closure open at one end, a flanged open frame forming an abutment within said open end, a door having flanges on its inner wall the said flanges abutting in the closed position of the door and forming thereby a sealing-space in communication with an aperture in the closure-wall, means fixed to said flanges whereby the door is fastened to the abutment-frame and a cement sealing in the space formed by the said flanges.

5. The herein-described portable burial-vault consisting of a metallic closure having an end door, means for fastening and means for sealing the door, the inner closure-walls having a coating of rubberoid, and the outer closure-walls inclosed by a wall of cement having an aperture for introducing the cement sealing for the fastened door.

692,068. COMBINED LOCK AND LATCH. MARCUS C. PATRICK, Seattle, Wash., assignor to James F. Howie, Seattle, Wash. Filed June 4, 1901. Serial No. 62,152. (No model.)



Claim.—1. In a device of the class described, a casing, a bolt in said casing, having a shoulder, a spindle extending through the casing, provided with a radial arm for engaging said shoulder, said arm serving to lock said bolt against retraction, a knob, a spindle for the knob, and means for coupling the knob and the last-mentioned spindle, operable by the first-mentioned spindle.

2. In a device of the class described, a casing, a bolt in said casing, a spindle and a knob, coupling means for said spindle and knob, a second spindle, and independent devices connected with said second spindle, one serving to lock the bolt against retraction and the other to actuate said coupling means.

3. In a device of the class specified, a casing, a bolt in said casing having a shoulder, a spindle extending through the casing provided with an arm for engaging the shoulder to deadlock the bolt, said spindle having a square shoulder, and a spring the free end of which is adapted to engage said shoulder.

4. In a device of the class described, a casing, a bolt in the casing having an elongated slot, and a shoulder, a spindle extending through said casing and slot, and provided with a thumb-piece and a square shoulder having grooves in its square faces, a spring fastened at one end, the other end being free and arranged to enter one of said grooves, a boss rotative with said spindle, inside the casing, and an arm on said boss arranged to engage said shoulder.

5. In a device of the class specified, a spindle, a knob, a locking-pin carried by the spindle, a fixed member having a seat for said pin, a device for operating said locking-pin; and a manually-operable member having a cam for engaging said locking-pin-operating device.

6. In a device of the class specified, a spindle, a knob, a locking-pin carried by the spindle, a fixed member having a seat for said pin, a yoke-shaped slide for operating said pin, and a manually-operable member having a cam for actuating said slide.

7. In a device of the class specified, a bolt, a spindle, a knob on said spindle, a locking-pin carried by said spindle, a locking-pin-operating device, and a spindle having means for controlling the bolt and means for actuating said locking-pin-operating device.

8. In a device of the class specified, a spindle, a knob, a locking-pin carried by the spindle, a locking-pin-operating device, and a manually-governed spindle having a cam adjustably connected thereto, said cam being arranged to actuate said locking-pin-operating device.

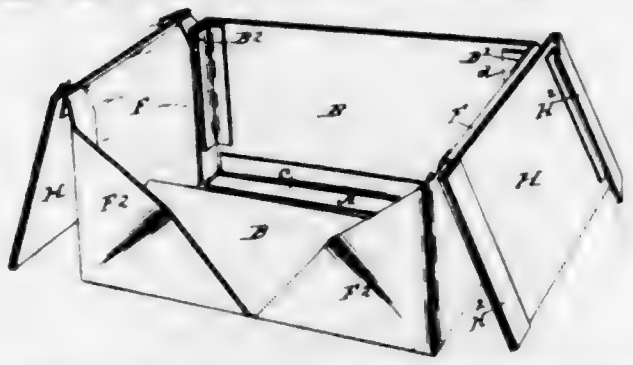
9. In a device of the class specified, a bolt, a spindle, a knob on the spindle, a locking-pin carried by the spindle, a slidable yoke-shaped member for operating said pin, a locking-bolt, a spindle having means for controlling the bolt, and a cam fitted onto the spindle and arranged to actuate said yoke-shaped slide.

692,069. **EYEGLASSES.** LUTHER M. PHILLIPS, Altoona, Pa., assignor of one-half to W. F. Sellers, Altoona, Pa. Filed Mar. 12, 1901. Serial No. 50,813. (No model.)



Claim.—The combination with the eyeglass-frame, the nose-spring and the posts holding the nose-spring, of brackets secured to the posts, and flexible nose-guards composed of segments of spiral springs having free ends and secured to the brackets intermediate their ends and having flattened surfaces to engage the inclines of the nose.

692,070. **FOLDABLE BOX.** CHARLES B. PROCTOR, Indianola, Iowa. Filed Jan. 21, 1901. Serial No. 43,992. (No model.)



Claim.—1. In a foldable box, a flat bottom, sides hinged to the parallel side edges of the bottom to fold inward, flexible ends hinged to the ends of the bottom and also to the side edges of the bottom to extend over the sides to fold inward over the sides and bottom and auxiliary ends hinged to the tops of said flexible ends, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a foldable box, a flat bottom, mating sides having hinged extensions at their ends, flexible strips of sheet material fixed to the edges of the bottom and the lower edges of the sides, flexible ends having extensions to overlie the sides hinged to the ends and sides of the bottom and auxiliary ends being hinged extensions of the flexible ends, arranged and combined to operate in the manner set forth for the purposes stated.

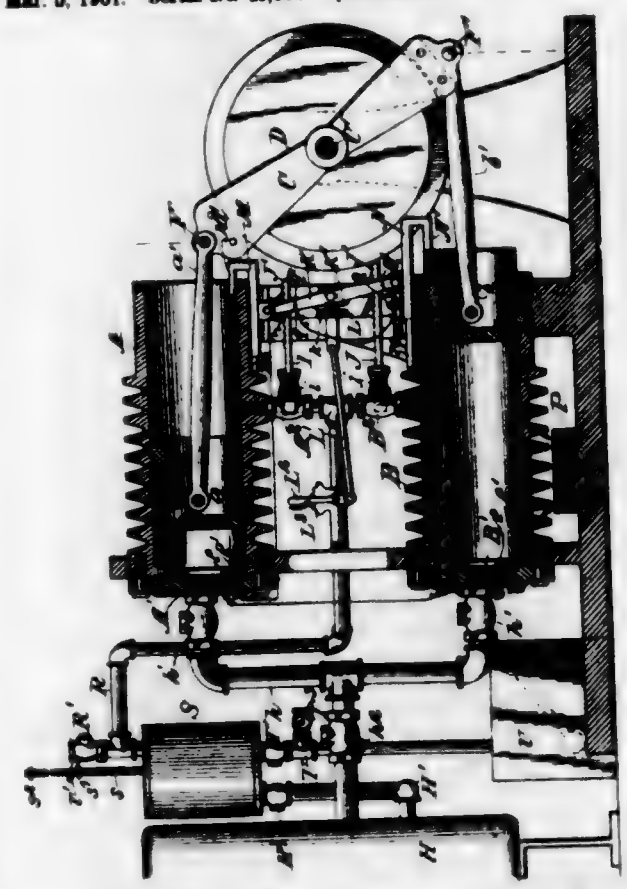
3. A foldable box comprising a flat bottom, mating sides hinged to the parallel edges of the bottom, flexible ends having extensions at their sides adapted to overlie the stiff sides hinged to the bottom and the side edges of the bottom, auxiliary ends hinged to the tops of the flexible ends and a removable cover, arranged and combined to operate in the manner set forth for the purposes stated.

4. In a foldable paper box, a stiff bottom, a flexible end fixed to the end of the bottom and provided with extensions at its free parallel sides and said extensions fixed to the parallel sides of the bottom to extend loosely over the rigid sides hinged to the rigid bottom and adapted to be folded into a parallel plane with the rigid bottom and rigid hinged sides, as shown and described for the purposes stated.

5. In a foldable paper box, a four-sided rigid bottom, flexible ends fixed to the ends of the rigid bottom, auxiliary stiff end pieces fixed to the tops of the flexible ends, lateral extensions at the parallel sides of the flexible ends and said extensions fixed to the end portions of the parallel sides of the rigid bottom to fold between the parallel rigid hinged sides and said stiff end pieces, arranged and combined as shown and described for the purposes stated.

6. In a foldable paper box, stiff sides and a stiff bottom hinged together at the parallel edges of the bottom and flexible ends fixed to the ends of the bottom and provided with extensions at their sides and the extensions fixed to the parallel sides of the end portions of the bottom and rigid ends fixed to the top edges of the flexible ends and provided with extensions at their parallel sides for reinforcing the corners of the box, arranged and combined, for the purposes stated.

692,071. **EXPLOSIVE-ENGINE.** WILLIAM J. PUSH, Davenport, Iowa, assignor of one-half to Thomas R. Levis, Rochester, N. Y. Filed Mar. 5, 1901. Serial No. 49,865. (No model.)



Claim.—1. The combination in an engine, of an oscillating lever and means for imparting motion therefrom to a rotating shaft; with a pair of cylinders, and pistons therein connected to opposite ends of said lever.

2. In an engine, the combination of a pair of cylinders, pistons therein, a main shaft, an oscillating lever mounted on said shaft connected at its ends to the opposite pistons, and clutch mechanism for transmitting continuous motion to said shaft from said lever, substantially as described.

3. In an engine, the combination of a main shaft, an oscillating lever, a pair of oppositely-rotating disks on the shaft beside the lever, clutches for locking said lever alternately to the opposite disks, and gearing for transmitting motion from both said disks to drive the shaft in one direction.

4. In an engine, the combination of a pair of cylinders, pistons therein, a main shaft, oppositely-rotating disks geared to said shaft, an oscillating lever mounted on said shaft, connected at its ends to the opposite pistons, and clutches on said lever adapted to engage the respective disks, substantially as described.

5. In an engine, the combination of a pair of cylinders, main shaft, an oscillating lever mounted on the shaft connected at its opposite ends to the pistons in the respective cylinders, a pair of oppositely-rotating disks on the shaft beside the lever, clutches for locking the opposite ends of said lever alternately to the opposite disks, and gearing for transmitting motion from both said disks to the shaft in one direction, substantially as described.

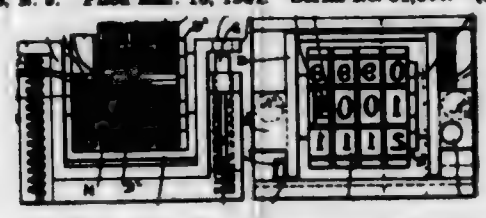
6. In an engine, the combination of a main shaft, an oscillating lever, a pair of oppositely-rotating disks on the shaft beside the lever, clutches on the opposite ends of said lever respectively adapted to engage one of said disks, and gearing for converting the opposite rotations of the disks into continuous rotation of the main shaft.

7. In an engine, the combination of a main shaft, an oscillating lever, a pair of oppositely-movable disks on the shaft beside the lever, clutches on the opposite ends of said lever respectively adapted to engage one of said disks, and gearing for converting the opposite rotations of the disks into continuous rotation of the main shaft; with a pair cylinders, pistons therein and pitmen connecting the respective pistons to opposite ends of said lever, substantially as described.

8. The combination of the oscillating lever, and means for operating same, the oppositely-rotatable disks beside the lever one fast and one loose on a common shaft, clutches for locking opposite ends of said lever to the respective disks during opposite movements of the lever, and a train of gearing for converting the rotary movement of the loose disk into the desired rotation of the shaft, substantially as described.

9. In a gas-engine, the combination of a pair of similarly-facing open-ended cylinders, pistons therein, a main shaft, an oscillating lever thereon connected to the pistons, clutch mechanisms for converting the oscillatory motion of the lever into rotary motion of the shaft; slides adapted to be contacted by the pistons, an oscillating valve-actuating lever connecting the slides, and exhaust-valve mechanisms operated by said valve-actuating lever, substantially as described.

692,072. **NUMBERING-MACHINE.** JAMES H. REINHARDT, East Orange, N. J. Filed Mar. 18, 1901. Serial No. 51,677. (No model.)



Claim.—1. The combination of a numbering-wheel provided with a movable cipher, a shaft for said wheel, a cipher-controller adapted to move along the shaft, and means for locking the cipher to the controller, substantially as described.

2. The combination of a numbering-wheel provided with a movable cipher, a shaft for the wheel, a cipher-controller adapted to move along the shaft, and interlocking parts provided on the cipher and the controller respectively for locking the cipher, substantially as described.

3. The combination of a numbering-wheel provided with a movable cipher, a shaft for the wheel, the cipher having a projection at its lower part, and a movable controller adapted to slide along the shaft and provided with a projection to interlock with the projection on the cipher, substantially as described.

4. The combination of a numbering-wheel provided with a movable cipher, said cipher having a projection at its lower part, a shaft for said wheel, said shaft having a groove, and a controller movable in said groove and provided with a projection to interlock with the projection on the cipher, substantially as described.

5. The combination of a numbering-wheel provided with a movable cipher having a projection at its lower part, and a shaft for said wheel provided with a groove having one side cut away, with a controller located in said groove and provided with a projection to engage the projection on the cipher, the projection on the cipher being adapted to pass laterally through the cut-away part of the groove, when the wheel is rotated to unlock the cipher from the controller, substantially as described.

6. The combination of a numbering-wheel provided with a movable cipher, said cipher having a projection at its lower part, and a shaft for said wheel having a groove one side of which is cut away, with a controller located in said groove and provided with a projection to engage the projection on the cipher, the outer surface of said projection being substantially a continuation of the periphery of the shaft to enable the cipher to rest upon the controller, said projection serving to lock the cipher in the inner position, substantially as described.

7. The combination of a main frame and a stripper, with an independent frame, a pair of arms or levers one of which is connected to the stripper and the other to the independent frame, and means for enabling said arms to coact with each other to operate the stripper by the movement of the independent frame, substantially as described.

8. The combination of a main frame and a stripper adapted to move toward a printed surface, with an independent frame, a pair of arms or levers one of which is connected with the stripper and the other with the independent frame, said arms or levers each having a nose or projection to act one upon the other, one being adapted to slip past the other when moving in one direction and to operate the corresponding arm or lever when moving in the opposite direction to actuate the stripper, substantially as described.

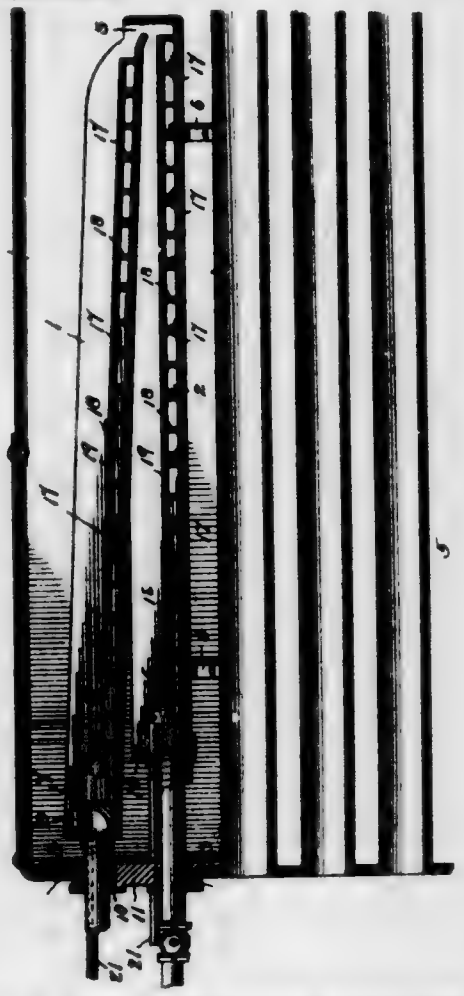
9. The combination of a main frame provided with a stripper adapted to move toward a printed surface, with an independent frame, a pair of arms or levers, one being connected with the stripper and the other with the independent frame, said arms or levers each having a nose or projection and one of said arms or levers having an end that is adapted to act upon the opposite arm or lever beyond its pivot, substantially as described.

10. The combination of a main frame, an independent frame having numbering-wheels, a swinging frame supported by the independent frame, means for operating the numbering-wheels by the swinging frame, a movable arm supported by the main frame, and connections between said arm and the swinging frame for oscillating the latter by the reciprocations of the independent frame, substantially as described.

11. The combination of a main frame, an independent frame having numbering-wheels, a swinging frame carried by the independent frame, means for operating the numbering-wheels by the swinging frame, an arm pivotally supported by the main frame, said arm and swinging frame being provided with coacting members for oscillating the swinging frame during the reciprocations of the independent frame, substantially as described.

12. The combination of a main frame, an independent frame provided with numbering-wheels, a swinging frame carried by the independent frame, means for causing the swinging frame to operate the numbering-wheels, an arm movably carried by the main frame, and a projection carried by the swinging frame eccentric to the axis of said frame and adapted to coact with a corresponding member of said arm to oscillate the swinging frame by the reciprocations of the independent frame, substantially as described.

692,078. **BOILER FEEDING AND CLEANING ATTACHMENT.** CHRISTIAN REISER, Lake Charles, La. Filed July 24, 1901. Serial No. 69,522. (No model.)



Claim.—1. A boiler attachment of the class described, comprising a pair of upper and lower feeding-pans in communication with each other

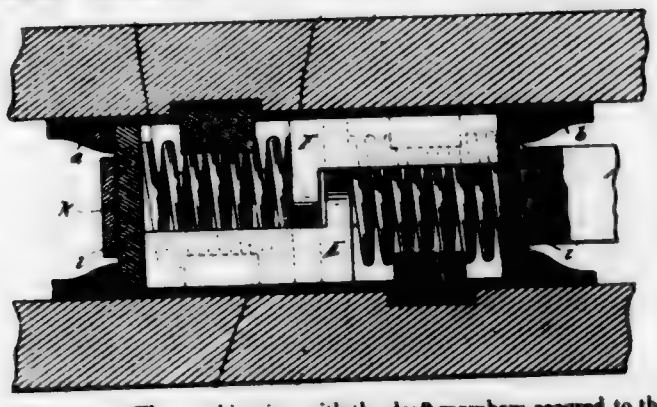
and inclined in opposite directions, the upper pan being provided with an inlet-valve casing having an upwardly-opening check-valve, and the lower of said pans being provided at its lower end with a blow-out hole and above the plane of said hole with an overflow-opening, a feed-water-pipe connection with the said inlet-valve casing, and a blow-out-pipe connection with said blow-out hole.

2. A boiler attachment of the class described, having a feeding-pan for the feed-water provided with a succession of upstanding fixed dam-plates projecting from the bottom thereof, and a cleaning device having pendent members working in the spaces between said dams.

3. In a boiler attachment of the class described, a pan for the feed-water provided at the bottom thereof with a series of spaced upstanding short flat dam-plates, a reciprocating frame arranged within the frame and having a series of depending flat blades working within the intervals between the dam projections, and exterior operating means for said frame.

4. In a boiler attachment of the class described, the combination of the boiler having in one end a manhole fitted with a detachable manhead, a pair of oppositely-inclined communicating feeding-pans supported within the steam-space in line with said manhole, a feed-water pipe extended through the manhead and connected with the upper pan, a blow-out pipe also extending through the same manhead and connected with the lower pan, and reciprocatory cleaning devices arranged within both pans and having exterior operating-stems also extending through the said manhead.

692,074. **DRAFT-RIGGING FOR RAILWAY-CARS.** DELMAR C. Ross, Detroit, Mich., assignor of one-half to William D. Thompson and Stewart D. Anderson, Detroit, Mich. Filed July 22, 1901. Serial No. 69,243. (No model.)



Claim.—1. The combination with the draft members secured to the car-sills, of interlocking followers having a sliding engagement with the draft members, said followers being held from abutting one against the other, and springs carried by the followers.

2. The combination with the draft members adapted to be secured to the car-sills, of a plurality of axially-arranged spring-supporting followers having a sliding engagement with the draft members, said followers interlocking and being held from abutting one against another upon their outward movement, and springs arranged within the followers.

3. The combination with the draft members adapted to be secured to the car-sills, of two interlocking and axially-arranged spring-supporting followers having a sliding engagement with the draft members, springs within the followers, and fixed stops upon said draft members against which the inner and outer ends of each follower are adapted to strike upon the compression of its springs.

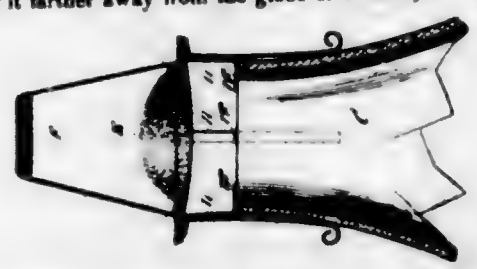
4. The combination with the draft members adapted to be secured to the car-sills, of carrier-bars detachably secured to the draft members, a plurality of interlocking and spring-supporting followers mounted and adapted to travel upon the carrier-bars, springs carried by the followers and stops rigidly secured to the carrier-bars and detachable with the latter, said stops limiting the inward movement of the followers.

5. The combination with the draft members adapted to be secured to the car-sills, of carrier-bars detachably secured to the draft members, a plurality of followers mounted and adapted to travel upon the carrier-bars, springs for the followers adapted to be compressed upon the movement of the latter in either direction, and stops secured to the carrier-bars and detachable with the latter, the stops limiting the inward movement of the followers.

692,075. **DEVICE FOR SMOKELESSLY HEATING INSECT-POWDER.** JOHN C. SEARLE, Hilea Kau, Hawaii. Filed July 11, 1901. Serial No. 67,856. (No model.)

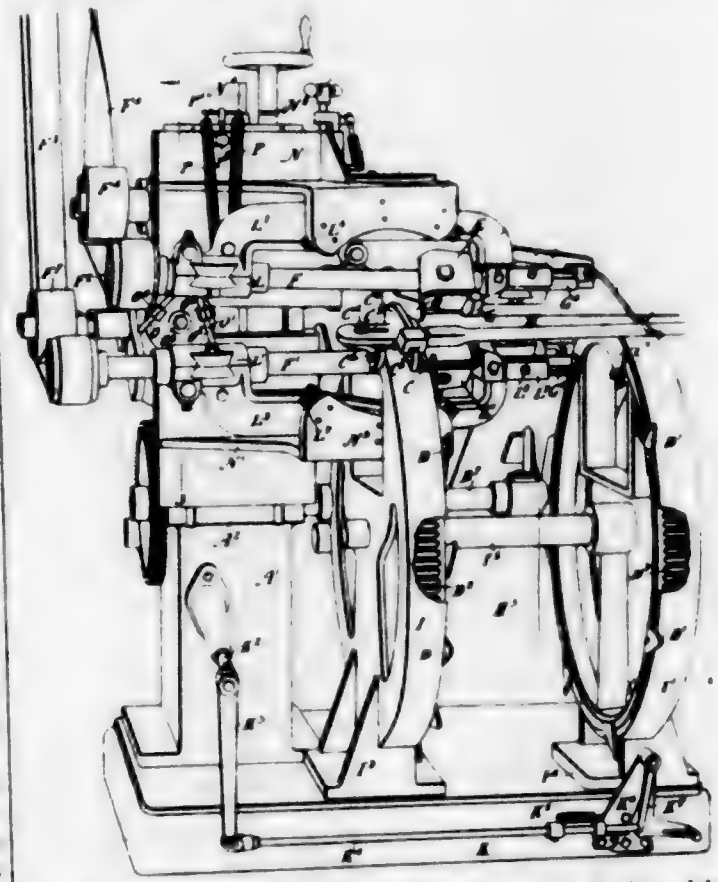
Claim.—1. A device for smokelessly heating insect-powder, comprising a web for holding the powder, said web being substantially circular in outline and composed of wire meshes fine enough to prevent the passage of said powder through the same, and means for holding said web in form and for securing the same upon a lamp-fixture.

2. A device for smokelessly treating insect-powder, which consists of a reticulated tray, legs attached to the said tray, which legs are pliable and are in two sections, a long and a short section, the said legs being adapted for engagement with the chimney of a lamp or the globe of a gas or electric fixture, the legs being adjustable to bring the tray closer to or carry it farther away from the globe or chimney as required.



3. A device for smokelessly treating powder, which consists of a reticulated tray, having legs of a pliable material, each of the said legs comprising two members, a long and a short member, and a handle connected with the upper portion of the tray, the legs extending downward from said tray, for the purposes set forth.

692,076. **SPOKE-THROATING MACHINE.** CHARLES SEYMOUR, Defiance, Ohio, assignor to The Defiance Machine Works, Defiance, Ohio, a Corporation of Ohio. Filed May 17, 1901. Serial No. 60,719. (No model.)



Claim.—1. A spoke-throating machine having a pair of revoluble and oscillating cutter-heads, and a rotary spoke-feeding device for feeding a spoke to the cutter-heads and imparting at the same time a horizontally-swinging motion to the spoke, as set forth.

2. A spoke-throating machine having a pair of revoluble cutter-heads mounted to oscillate in a vertical plane extending through the axes of the cutter-heads, and a rotary spoke-feeding device for bringing the throat portion of a spoke to and between the cutter-heads, said feeding device having means for moving the spokes in a horizontal plane and for turning the spokes in said plane while the cutter-heads act on the throat portion to form the throat, as set forth.

3. A spoke-throating machine having a pair of revoluble cutter-heads mounted to oscillate in a vertical plane extending through the axes of the cutter-heads, a rotary spoke-feeding device for bringing the throat portion of a spoke to and between the cutter-heads, said feeding device having means for moving the spokes in a horizontal plane and for turning the spokes in said plane while the cutter-heads act on the throat portion and form the throat, and means for controlling the oscillating movement of the cutter-heads by the barrel of the spoke under treatment at the time, as set forth.

4. A spoke-throating machine having a pair of revoluble and oscillating cutter-heads, and a two-part rotary feeding device for feeding the spokes to the cutter-heads, one part of the feeding device moving at a greater rate of speed than the other, so as to impart a horizontally-swinging motion to the spoke, as set forth.

5. A spoke-throating machine having a pair of cutter-heads mounted to turn and to oscillate simultaneously toward or from each other and in a plane extending through the axes of the cutter-heads, a two-part rotary feed device for feeding the spokes, one part of the feeding device moving faster than the other and cam-shoes carried by said cutter-heads and adapted to be engaged by the barrel of a spoke as the latter is fed forward, the front and rear of the cam-shoes being differently shaped to give different thicknesses to the sides of the throat, as set forth.

6. A spoke-throating machine having a pair of revolubie cutter-heads mounted to oscillate, a rotary feed device for feeding a spoke between the cutter-heads and at the same time imparting a horizontally-swinging motion to the spoke, and cam-shoes carried by the cutter-heads and adapted to be engaged by the barrel of the spoke as the latter is fed forward to oscillate the cutter-heads as set forth.

7. A spoke-throating machine having fixed guides, a spring-rod for temporarily holding one end of a spoke, revolubie cutter-heads mounted to oscillate, a rotary feed device for feeding a spoke between the cutters and at the same time imparting a swinging motion to the spoke, and cam-shoes carried by the cutter-heads and adapted to be engaged by the barrel of the spoke as the latter is fed forward, as set forth.

8. A spoke-throating machine, having fixed lower guides, upper yielding guides for engaging the spoke, revolubie cutter-heads mounted to oscillate, rotary feed-arms for feeding the spoke between the cutter-heads and at the same time imparting a horizontally-swinging motion to the spoke, and cam-shoes carried by the cutter-heads and adapted to be engaged by the barrel of the spoke as the latter is fed forward to oscillate the cutter-heads, as set forth.

9. A spoke-throating machine having a spoke-feeding device, comprising fixed guides, and reels having arms for engaging the spoke at or near the ends and for pushing the spoke over said guides, the reel engaging the outer end of the spoke being arranged to travel at a higher rate of speed than the other reel and to impart a swinging motion to the spoke, as set forth.

10. A spoke-throating machine having a spoke-feeding device, comprising fixed guides, an inner reel and an outer reel, each of the reels having arms for engaging a spoke and pushing the same over the guides, and a gearing for rotating the outer reel at a higher rate of speed than the inner reel, to cause the arms of the outer reel to impart a swinging motion to the spoke while passing over said guides, as set forth.

11. A spoke-throating machine having a spoke-feeding device, comprising fixed guides, an inner reel, an outer reel, each of the reels having a gear-wheel and arms extending from the gear-wheel, and separate gearings for said gear-wheels, to rotate the outer reel at a higher rate of speed than the inner reel, as set forth.

12. A spoke-throating machine having a spoke-feeding device, comprising fixed guides, an inner reel, an outer reel, each of the reels having a gear-wheel and arms extending from the gear-wheel, separate gearings for said gear-wheels, to rotate the outer reel at a higher rate of speed than the inner reel, and hoods extending over said gear-wheels and having bearings for the same, as set forth.

13. A spoke-throating machine having a spoke-feeding device, comprising fixed guides, an inner reel, an outer reel, each of the reels having a gear-wheel and arms extending from the gear-wheel, separate gearings for said gear-wheels, to rotate the outer reel at a higher rate of speed than the inner reel, and hoods extending over said gear-wheels and having bearings for the same, said hoods adjustably supporting said guides, as set forth.

14. A spoke-throating machine having a pair of cutter-heads, revolubie spindles on which the cutter-heads are secured, hangers for the spindles to turn in, segmental guideways in which the said hangers are mounted to slide, to oscillate the cutter-heads in unison, and an equalizing device for connecting said hangers with each other, the equalizing device consisting of a disk mounted to turn and links pivotally connecting the hangers with said disk, to cause the hangers to oscillate simultaneously toward and from each other, as set forth.

15. A spoke-throating machine having a pair of cutter-heads, revolubie spindles on which the cutter-heads are secured, hangers for the spindles to turn in, segmental guideways in which the said hangers are mounted to slide, to oscillate the cutter heads in unison, an equalizing connection between the inner ends of the hangers, cam-shoes on the outer ends of the hangers and adapted to be engaged by the barrel of the spoke, and a spring connected with the inner end of one of the hangers, as set forth.

16. A spoke-throating machine having a pair of cutter-heads mounted to turn and to oscillate, fixed lower inner and outer guides having their middle portions disposed horizontally at the cutter-heads and the ends extending downwardly and outwardly in opposite directions, and a fast-rotating reel, and a slow-rotating reel, the reels having arms for moving the spokes over said guides, as set forth.

17. A spoke-throating machine having a pair of cutter-heads mounted to turn and to oscillate, fixed lower inner and outer guides having their middle portions disposed horizontally at the cutter-heads and the ends extending downwardly and outwardly in opposite directions, a fast-rotating reel, a slow-rotating reel, the reels having arms for moving the spokes over said guides, an upper inner guide, and means for adjusting the same vertically toward or from the lower inner guide, as set forth.

18. A spoke-throating machine having a pair of cutter-heads mounted to turn and to oscillate, fixed lower inner and outer guides having their middle portions disposed horizontally at the cutter-heads and the ends extending downwardly and outwardly in opposite directions, a fast-rotating reel, a slow-rotating reel, the reels having arms for moving the spokes over said guides, an upper inner guide above said lower inner guide, a rod carrying the upper inner guide, and an adjustable bearing in which the rod is held adjustably, as set forth.

19. A spoke-throating machine having a pair of cutter-heads mounted to turn and to oscillate, fixed lower inner and outer guides having their middle portions disposed horizontally at the cutter-heads and the ends extending downwardly and outwardly in opposite directions, a fast-rotating reel, a slow-rotating reel, the reels having arms for moving the spokes over said guides, and a stop adjustably held on said lower inner guide, as set forth.

20. A spoke-throating machine having a pair of cutter-heads mounted to turn and to oscillate, fixed lower inner and outer guides having their middle portions disposed horizontally at the cutter-heads and the ends extending downwardly and outwardly in opposite directions, a fast-rotating reel, a slow-rotating reel, the reels having arms for moving the spokes over said guides, and means for adjusting said lower inner guide sidewise relatively to the cutter-heads, for different spokes, as set forth.

21. A spoke-throating machine having a pair of cutter-heads mounted to turn and to oscillate, fixed lower inner and outer guides having their middle portions disposed horizontally at the cutter-heads and the ends extending downwardly and outwardly in opposite directions, a fast-rotating reel, a slow-rotating reel, the reels having arms for moving the spokes over said guides, an adjustable upper inner guide, and an adjustable upper outer flexible guide, as set forth.

22. A spoke-throating machine having a pair of cutter-heads mounted to turn and to oscillate simultaneously toward or from each other and in a plane extending through the axes of the cutter-heads, cam-shoes adapted to be engaged by the barrel of the spoke, to control the oscillating motion of the cutter-heads, and an equalizing device for causing the cutter-heads to positively oscillate in unison toward and from each other, as set forth.

23. A spoke-throating machine having a cam-shoe, an arm on which the shoe is mounted to slide transversely, means for adjusting the shoe transversely, and side arms on which the shoe-carrying arm is held vertically adjustable, as set forth.

24. A throating-machine having a cutter-head, an oscillating hanger having bearings for the cutter-head spindle, side arms held longitudinally adjustable on said oscillating hanger, an arm vertically adjustable on said side arms, and a cap-shoe held transversely adjustable on said arm, as set forth.

25. A throating-machine having a lower outer guide, an upper outer guide over said lower guide, and consisting of a flexible rod with a catch at its free end, a socket in which the rod is adjustably secured, and means for supporting said socket, the means being adjustable to move the free end of the rod up or down relatively to the outer guide, as set forth.

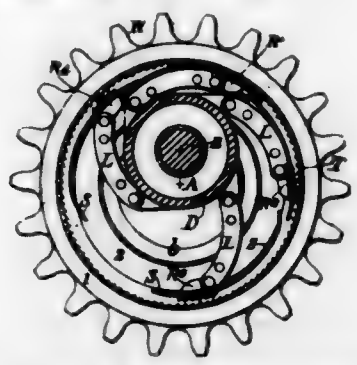
26. A throating-machine having a lower outer guide, an upper guide over said lower guide, and consisting of a flexible rod with a catch at the free end, a socket in which the rod is adjustably secured, and means for supporting said socket, the means being adjustable to move the free end of the rod up or down relatively to the outer guide, said means consisting of a lever in which the socket is held adjustably, and set-screws engaging the lever for adjusting the same, as set forth.

27. In a spoke-throating machine, the combination with a saddle, and a segmental guideway carried by the saddle, of a hanger having a segmental cross-head intermediate of its ends, said cross-head being fitted to slide in the said guideway, a revolubie cutter-head having its spindle mounted in the hanger, and a spring connecting the cross-head with the saddle, as set forth.

28. In a spoke-throating machine, the combination with adjustable saddles, and a segmental guideway carried by each saddle, of hangers each having a segmental cross-head intermediate of its ends, said cross-head sliding in the guideways, revolubie cutter-heads having their spindles mounted in the said hangers, an equalizing device connecting the hangers, and a spring connecting one of the hangers with one of the saddles, as set forth.

29. In a spoke-throating machine, the combination with saddles, sliding hangers carried by the saddles, and cutter-heads mounted in the hangers, of an equalizing device consisting of links having one end connected to the hangers, a disk mounted to turn, and pivots mounted to turn in the disk and to which the other ends of the links are secured, as set forth.

692,077. CONTINUOUSLY-VARIABLE-SPEED GEAR. ARCHIBALD SHARP, London, England. Filed July 9, 1901. Serial No. 67,627. (No model.)



Claim.—1. A variable-speed mechanism for a cycle for transmitting rotary motion between two parallel shafts one of which is movably mounted with relation to the other, comprising such shafts, a ratchet drive-ring concentric with one of the said shafts, a wheel concentric with the other of the said shafts, a number of equal drive-links each jointed at one end to the said drive-ring, a number of toothed drive-shoes jointed to the other ends of the said drive-links and each engaging with the aforesaid wheel by means of a free wheel-driving clutch, means for varying the distance between said shafts, and springs projecting substantially parallel with said shoes and in front and rear thereof.

2. A variable-speed mechanism for a cycle for transmitting rotary motion between two parallel axes, consisting of a drive-ring concentric with one of the said axes, a wheel concentric with the other of the said axes, a number of equal drive-links each jointed at one end to the said drive-ring, a number of drive-shoes jointed to the other ends of the said drive-links and each engaging with the aforesaid wheel by means of a free wheel-driving clutch, and springs extending in the general direction of travel of said shoes and projecting in front and rear of each shoe, and means for varying at will the distance between the said parallel axes.

3. A variable-speed gear for a cycle, consisting of a driving-wheel hub running on ball-bearings on a spindle rigidly fastened between the fork ends, a drive-ring fastened to the hub of the driving-wheel, a sprocket-wheel mounted on a ball-bearing the axis of which can be moved away from the axis of the hub-spindle, a number of equal drive-links each jointed at one end to the said drive-ring, a number of drive-shoes jointed to the other ends of the said drive-links and each engaging with the said sprocket-wheel by means of a free wheel-driving clutch, a holding-clutch on the hub-spindle for clamping the said sprocket-wheel ball-bearing in any desired position, a cam on the hub-spindle for applying pressure to or releasing the said holding-clutch, a pair of springs and wires for operating the said cam and for shifting the axis of the sprocket-wheel, and operating handles or levers under the control of the rider; substantially as described.

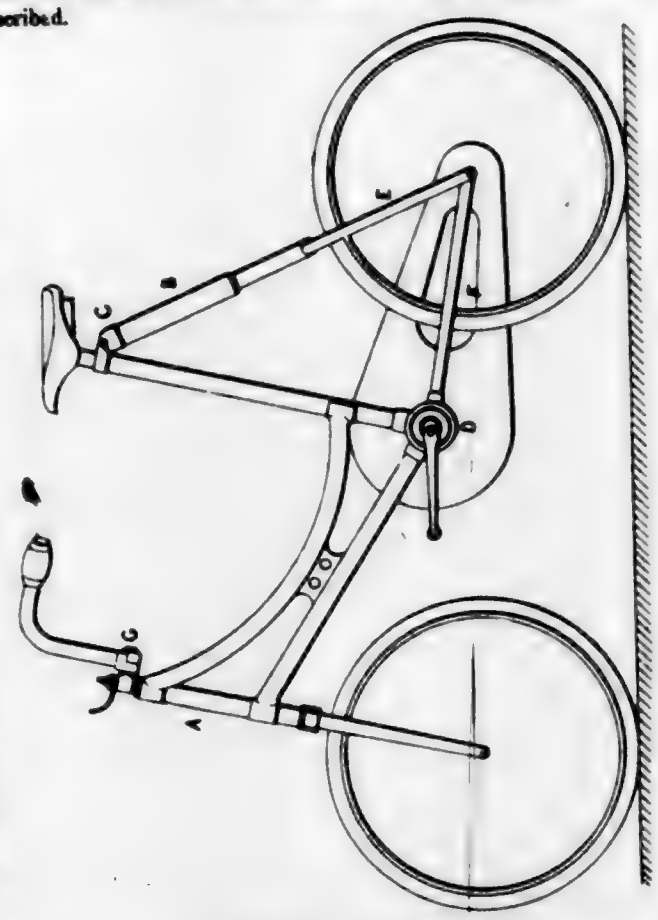
4. The combination with a variable-speed mechanism for a bicycle actuated by varying the position of one part of the mechanism, of a spring which tends to force the said part into one extreme position, an operating-handle and transmission-gear by which the said part can be forced into the other extreme or any intermediate position against the action of the said spring, a holding-clutch for keeping the said part in any desired position, a second spring which always tends to force the said holding-clutch into action, and an operating-lever and transmission-gear by which the said holding-clutch can be brought out of action.

692,078. CYCLE. ARCHIBALD SHARP, London, England. Filed Oct. 26, 1901. Serial No. 80,142. (No model.)

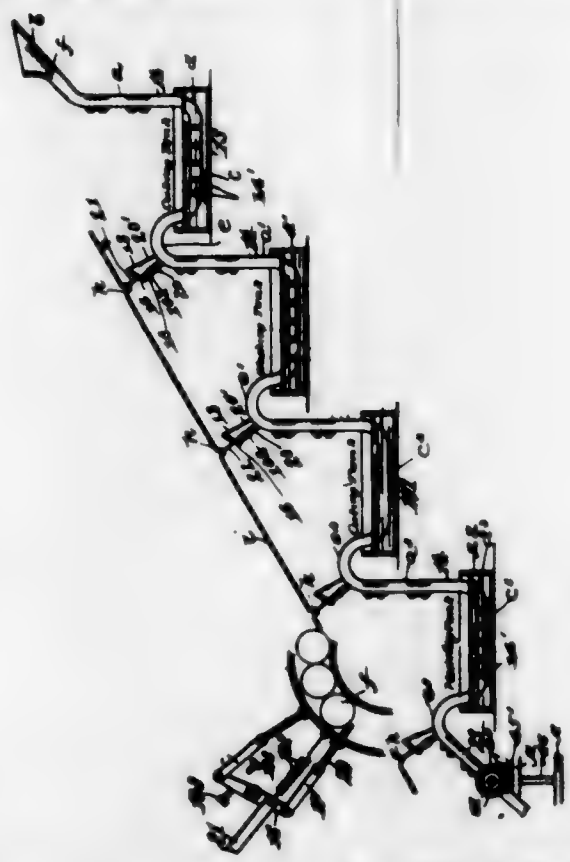
Claim.—1. The combination with the center tube and the steering-tube movable one within the other, of a distance-tube fitting loosely within the steering-tube, means connected to the upper end of said distance-tube and embracing the center tube, an air-tight rolling packing-mitten interposed between the distance-tube and the center tube, means securing one end of the said mitten securely to the distance-tube, and means securing the other end of said mitten to the center tube, all substantially as shown and described.

2. The combination with the steering-tube and the center tube, relatively movable one within the other, of the distance-tube fitted loosely within the steering-tube, the bearing-piece secured to the distance tube, the ring secured to the upper end of the said distance-tube, and the air-tight rolling packing-mitten interposed between said bearing-piece and ring and having one end secured fixedly to the distance-tube and the other end to the center tube, as set forth.

3. The combination with the steering-tube and the center tube relatively movable one within the other, of means allowing the steering-tube freedom of movement up and down relatively to the center tube yet permitting of the transmitting of motion to the steering-tube, a piston on the center tube and engaging said means, a bearing-piece adapted to engage said means to limit the movement of the tube, a distance-tube fitted to slide freely within the steering-tube, a ring carried by the upper end of the distance-tube, and an air-tight rolling packing-mitten disposed about the center tube with one end fixedly connected therewith and the other end fastened to said distance-tube, all substantially as shown and described.



692,079. CAN-PAINTING MACHINE. ALBERT T. SHORTLEY and DAVID O. THOMPSON, Sioux City, Iowa. Filed June 24, 1901. Serial No. 65,822. (No model.)



Claim.—1. In a machine of the class specified, a shaft, a can-holding device on said shaft, having jaws, a can-carrier, means for advancing the can-carrier toward the can-holding device, means for pushing the can from the can-carrier and between said jaws, means for successively closing and opening the jaws, means for rotating said shaft, and means for ejecting the can from the jaws.

2. In a machine of the class specified, a shaft, a can-holding device on said shaft, having jaws, a can-carrier, means for advancing the can-carrier toward the can-holding device, means for pushing the can from

the can-carrier and between said jaws, means for successively closing and opening the jaws, means for rotating said shaft, and means for ejecting the can from the jaws, combined with means for coating the can with paint, and means for carrying the can from the paint-coating means to the can-carrier.

3. In a machine of the class specified, a shaft, a can-holding device on said shaft, having jaws, a can-carrier, means for advancing the can-carrier toward the can-holding device, means for pushing the can from the can-carrier and between said jaws, means for successively closing and opening the jaws, means for rotating said shaft, and means for ejecting the can from the jaws, combined with means for coating the can with paint, means for carrying the can from the paint-coating means to the can-carrier, and means to catch the paint from the can while it is held by said can-holding device.

4. In a machine of the class specified, a can-holding device, means for painting a can and supplying it to the can-holding device, means for rotating the can-holding device, and means for ejecting the can from said can-holding device.

5. In a machine of the class specified, a can-holding device, means for painting a can and supplying it to the can-holding device, means for rotating the can-holding device, and means to catch paint from said can while held by the can-holding device

6. In a machine of the class specified, a can-holding device, means for painting a can and supplying it to the can-holding device, means for rotating the can-holding device, and a shield surrounding said can-holding device, having a discharge-orifice.

7. In a machine of the class specified, a can-holding device, a can-carrier, means for advancing the can-carrier, means for moving the can off the can-carrier and supplying it to the can-holding device, means for rotating said can-holding device, means for ejecting the can from said can-holding device, means for applying paint to the can, means for conducting the can from the paint-applying means to the can-carrier, and means for catching paint given off by the can while held by said can-holding device.

8. In a machine of the class described, a can-holding device, means for rotating said can-holding device, a can-carrier, means for advancing the can-carrier, means for moving the can off the can-carrier and supplying it to the can-holding device, and means for ejecting the can from said can-holding device.

9. In a machine of the class described, a can-holding device, means for rotating said can-holding device, a can-carrier, means for advancing the can-carrier, and means supported by the can-carrier for moving the can off the same and supplying it to the can-holding device,

10. In a machine of the class specified, a supply-chute for cans, a can-carrier for receiving the cans from said chute, means for advancing the can-carrier, a can-holding device, means for ejecting a can from the can-carrier and supplying it to the can-holding device, means for rotating said can-holding device, means for ejecting the can from said can-holding device, and means operative with the can-carrier for controlling the discharge of cans from said chute.

11. In a machine of the class specified, a chute, a can-carrier consisting of a vertical portion having two horizontal and oppositely-disposed extensions the lower of which serves to support the can and the upper arresting the descent of the cans when said can-carrier is advanced, means for advancing the can-carrier, a can-holding device, means for ejecting the cans from the can-carrier and for supplying them to the can-holding device, means for rotating said can-holding device, and means for ejecting the cans from said can-holding device.

12. In a machine of the class specified, a can-holding device, means for rotating the same at a high rate of speed, paint-applying means for the can, a can-carrier, a chute to conduct the can from the paint-applying means to the can-carrier, means for advancing the can-carrier, means for ejecting the can from the can-carrier and supplying it to the can-holding device, means for ejecting the can from the can-holding device, means for arresting the movement of the cans in said chute when the can-carrier is advanced, and means to catch the paint from the can held by said can-holding device.

13. In a machine of the class described, a shaft carrying a can-holding device and hollow and also slotted, means for rotating said shaft, a can-ejecting plunger in said shaft, a sleeve slidable on said shaft, and a pin or pins passing through the slots in said shaft and uniting the sleeve and plunger

14. In a machine of the class described, a can-holding device, a can-carrier, means to rotate said can-holding device, means to advance the can-carrier, and two plungers one operative to push the can from the can-carrier to the can-holding device and the other for ejecting the can from said can-holder.

15. In a machine of the class described, a hollow shaft provided with a can-holding device, means for rotating said shaft, a can-carrier, means to advance said can-carrier, and two plungers one supported by the can-carrier and serving to push the can from said can-carrier to the can-holding device and the other being located in said shaft and being operative to force the can from said can-holding device.

16. In a machine of the class specified, a rotary can-holding device, a paint-holding tank, means for carrying a can into and out of said tank and for then supplying it to the can-holding device, means for rotating said can-holding device at a high rate of speed whereby excessive paint is thrown off the can by centrifugal action, and means for catching the paint given off by said can while held by the can-holding device.

17. In a machine of the class described, a chute, a can-carrier in said chute, means for advancing the can-carrier, a tube on the can-carrier, and a plunger in said tube operated to force the cans from said can-carrier.

18. In a machine of the class specified, a can-holding device, a chute, a can-carrier in said chute, means for operating the can-carrier, means upon the can-carrier for forcing a can therefrom and supplying it to the can-holding device, means for rotating said can-holding device, and means for subsequently ejecting the can from the can-holding device.

19. In a machine of the class specified, a can-holding device, a chute, a can-carrier, means for operating the can-carrier, means upon the can-carrier for forcing a can therefrom and supplying it to the can-holding device, means for subsequently ejecting the can from the can-holding device, means for rotating said can-holding device, and means for applying paint to the can before it reaches the can-holding device.

20. In a machine of the class specified, a chute, a can-carrier including a vertical body having oppositely-disposed horizontal sections at its top and bottom, respectively, the lower one serving to sustain a can and the upper acting as a valve for said chute when the can-carrier is advanced, a tube extending from said vertical body the bore of which registers with a hole in said body, a plunger in said tube, and means for moving the plunger forward to cause it to pass through said hole.

21. In a machine of the class described, a can-carrier having a tube, a plunger in said tube for forcing a can from said can-carrier, provided with a head, a coiled spring in said tube surrounding the plunger, and bearing against the head thereof and one wall of the bore of said tube, a rock-arm, passing through a slot in said tube and a pin uniting said rock-arm with the plunger.

22. In a machine of the class described, a can-carrier having a tube, a plunger in said tube for forcing a can from said can-carrier, provided with a head, a coiled spring in said tube surrounding the plunger and bearing against the head thereof and one wall of the bore of said tube, a rock-arm, passing through a slot in said tube, a pin uniting said rock-arm with the plunger, a cam, means for rotating said cam, and operative connections between said cam and rock-arm.

23. In a machine of the class specified, a tank, a chute for containing cans, leading into and out of the tank, a can-carrier arranged to receive cans from said chute, means for operating the can-carrier, a can-holding device, means for forcing a can from the can-carrier and supplying it to the can holding device, means for rotating said can-holding device and means for ejecting the can from said can-holding device.

24. In a machine of the class specified, a tank, a chute for containing cans, leading into and out of the tank, a can-carrier arranged to receive cans from said chute, means for operating the can-carrier, a can-holding device, means for forcing a can from the can-carrier and supplying it to the can-holding device, means for rotating said can-holding device, and means for controlling the movement of the can along said chute.

25. In a machine of the class specified, a can-holding device, a can-carrier, means for operating the can-carrier, means for forcing a can from the can-carrier and supplying it to the can-holding device, means for operating said can-holding device to first cause it to hold a can and second to release said can, means for ejecting the can from the can-holding device, means for rotating said can-holding device, and means for applying paint to the can.

26. In a machine of the class described, a shaft having a hollow slotted portion, means for rotating said shaft, a clutch-body fixed to the shaft, levers pivoted on said body, provided with jaws, a clutch-collar slidable on and keyed to said shaft having a wedge face to engage said arms, a plunger in said shaft, a sleeve on said shaft, a rock-arm for shifting said sleeve, a pin extending through the slot in said shaft and uniting the plunger and sleeve, a second rock-arm for shifting said clutch-collar, a can-carrier, a third rock-arm connected to the can-carrier, a second shaft operatively connected with said other shaft, and carrying a series of cams, and operative connections between said cams and rock-arms.

692,080. FOOT-REST. FREDERICK G. SHEDLEY, New York, N. Y. Filed July 25, 1901. Serial No. 69,716. (No model.)

Claim.—1. A device of the character described comprising a heel-plate, a sole-plate, a shoulder to form a front bearing for the heel and a lateral support for the shoe consisting of a longitudinal depression having a raised central rib against which the bottom of the sole near the edge may rest when the shoe is tilted.

2. A device of the character described comprising a heel-plate, a sole-plate, a shoulder to form a front bearing for the heel and a support to prevent lateral movement of the shoe when tilted, said heel-plate and sole-plate being provided with lugs whereby the rest may be attached to a rest already in use by bending the lugs around the foot-rest.



692,081. LAMP-BURNER. GEORGE A. SMITH, Alberni, Canada. Filed Oct. 5, 1900. Serial No. 32,175. (No model.)



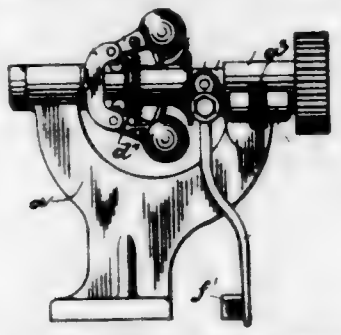
Claim.—1. In a lamp-burner; an attachment to coöperate therewith, consisting of a flat bar adapted to rest upon the top of the wick, and to move vertically therewith, said bar having its opposite ends extended to form guide members adapted to engage with the burner-hood, and stop portions on the burner-hood for limiting the upward movement of the bar, as specified.

2. The combination with the burner-hood, having vertical slots B'; of a bar adapted to rest on the wick, said bar having extensions adapted to project through the slots B', for the purposes described.

3. The combination with the burner-hood, having vertical slots B'; of a bar adapted to rest upon the wick, said bar having pendent portions to project down over the ends of the wick, and laterally-projecting members to extend through the slots B', said members having inturned ends, for the purposes specified.

4. An attachment for lamp-burners of the character described, comprising in combination, a burner-hood, said burner-hood having vertical guides, a bar adapted to rest upon the top of the wick, said bar having an opening, and provided with pendent portions 1*, and outwardly-extending guide portions 2, said guide portions 2 being adapted to engage the vertical guides on the burner-hood, substantially as shown and for the purposes described.

692,082. GOVERNOR FOR GAS-ENGINES. ANDREW SONANDER, Springfield, Ohio, assignor to the Foos Gas Engine Company, Springfield, Ohio, a Corporation of Ohio. Filed Feb. 19, 1901. Serial No. 47,969. (No model.)



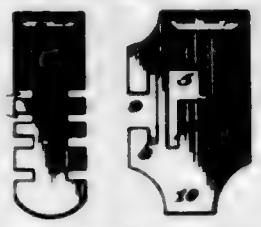
Claim.—1. In a centrifugal governor, the combination with a shaft, a yoke attached to said shaft, a movable sleeve and a spring housed therein to hold said sleeve in normal position, of balls having arms pivoted to said yoke, independent of but adapted to engage and move said sleeve against the action of said spring, substantially as specified.

2. In a centrifugal governor, a bifurcated frame, a shaft journaled in said frame, having a reduced portion, forming a shoulder thereon, a movable sleeve bearing on the reduced portion of said shaft and having a recess therein bearing on the larger portion of said shaft, a spring in said recess bearing against the shoulder of said shaft, a yoke attached to said shaft, balls having arms pivoted to said yoke and adapted to bear against one end of said sleeve and a pivoted lever adapted to contact with and be moved by said sleeve, substantially as specified.

3. In a gas-engine, the combination with a centrifugal governor having a bifurcated frame, a shaft journaled in said frame having a reduced portion forming a shoulder thereon, a movable sleeve bearing on the reduced portion of said shaft and having a recess therein bearing on the larger portion of said shaft, a spring in said recess bearing against the shoulder of said shaft to hold said sleeve in its normal position, a yoke attached to said shaft, balls having arms pivoted to said yoke and adapted to bear against one end of said sleeve to move the same in one direction, of a supply-valve, an intermediate movable member of the operating mechanism for said valve, a spring to hold said movable member in its normal position, and a pivoted lever, one end of which contacts with one end of and is moved by said sleeve when said sleeve is operated by said balls, the other end of said lever contacting with said movable member, whereby said movable member is thrown in and out of engagement with said operating mechanism, substantially as specified.

4. In a gas-engine, the combination with the movable member of a centrifugal governor a supply-valve and an intermediate movable member of the operating mechanism for the supply-valve, of a pivoted lever, the respective ends of which contact said movable members and an adjustable pivot for said lever to regulate the speed of said engine and take up the wear in the operating parts, substantially as specified.

692,083. TRAVELER'S LOCK. HENRY SPEAR, Richmond, Va. Filed Apr. 1, 1901. Serial No. 53,870. (No model.)



Claim.—A door-securer comprising a flat member adapted to be placed between the edge of the door and the jamb, said member being provided with a flange at one end to enter the door-jamb, and with oppositely-placed transverse notches in its two edges, and a second member provided with an elongated slot of a width and length just sufficient to admit the first member endwise, enlarged in rectangular form at one end and provided with a notch in one corner of said enlargement, substantially as described.

692,084. BOW-FACING OAR. GEORGE F. SPRAGUE, Gettysburg, Pa., assignor of one-half to S. H. Gates, Port Jervis, N. Y. Filed July 30, 1901. Serial No. 70,278. (No model.)



Claim.—1. In a bow-facing oar, the combination of a coupling-base, holders pivotally mounted thereon and intergeared, one of said holders and said coupling-base being provided with alined communicating segmental grooves, and a stop in said grooves, and movable longitudinally therein, substantially as described.

2. An oar-lock having bearing-standards and a gravity-lock pivoted near its upper end on one of said standards, in combination with an oar having an axially-movable pivot adapted to engage said bearing-standards, the upper portion of said gravity-lock being adapted to engage said pivot, to lock the latter against longitudinal movement in said bearing-

standards, and the lower end of said gravity-lock having a notch on one side to engage the gunwale, substantially as described.

3. In a bow-facing oar, the combination of a coupling-base, a pair of holders thereon having intermeshed gear-segments and each having a tubular socket, oar-sections with their inner ends fitted in said tubular sockets, a link connecting the said holders together, and bolts connecting the holders to the coupling-base and forming the pivots of the holders, said bolts extending through the holders, oar-sections, and the end portions of the link, and thereby connecting the link to and securing the oar-sections in the holders, substantially as described.

692,085. **ELECTRIC SIGNAL MECHANISM FOR OVERHEAD-TROLLEY SYSTEMS.** WESLEY R. STRARNS, Portland, Oreg. Filed Sept. 14, 1901. Serial No. 75,407. (No model.)



Claim.—1. An electric signal apparatus for the purposes described, comprising a separate line-wire connected with the feeder or trolley wire, normally out of electrical circuit therewith, a device for cutting in the circuit, controlled by the passing trolley, a separate device for cutting out the circuit, operating in harmony with the cut-in devices governed by the passing trolley, the cut-in devices including trolley-engaged levers and electromechanical means for automatically returning said levers to their normal position, set in operation by the deënergization of the cut-in devices, as set forth.

2. In an electric signaling apparatus as described a line or signal wire connected to the trolley-wire and to a return, signals in said wire, a cut-in device at one end and a cut-out device at the other end, said devices having levers adapted to be set by the trolley, a separate or reserved circuit for maintaining the signal at the cut-out end, normally energized from the trolley-wire and a switch mechanism for cutting out said circuit governed by the action of the cut-in and cut-out devices substantially as shown and described.

3. In a signaling apparatus of the character described; a line having signals thereon fed from the trolley or main feeder, means for cutting the current at one end, a separate means for cutting out the current from one part of the signal-line and for sustaining the current in the other part of the said line for the purposes specified.

4. An electric signaling apparatus having a main trolley-wire, lateral signals on said lines, and set by the energization thereof; of trolley-engaged devices for cutting in the current to the lines said devices including independent but cooperatively-held switch mechanisms, for maintaining the "block" or signals behind and in front of the passing car substantially as shown and described.

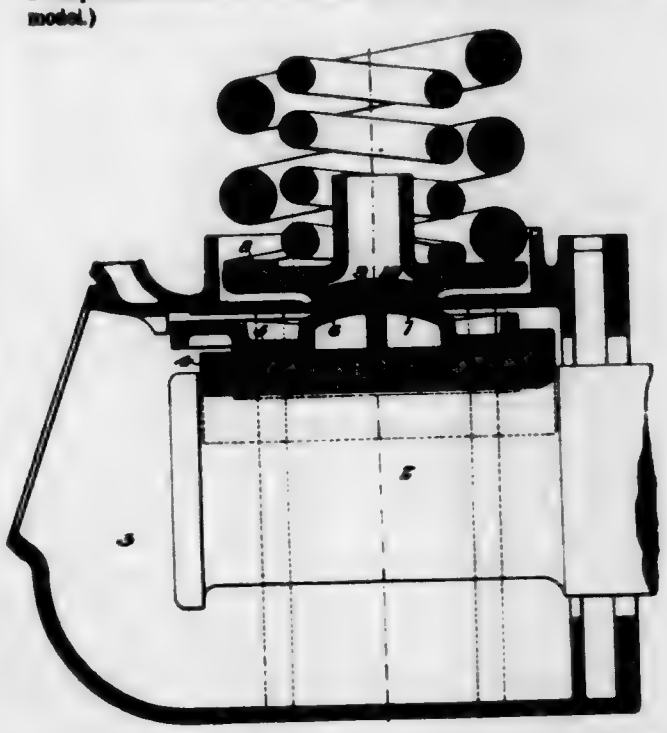
5. In a trolley-controlled electric signal apparatus of the character described the combination with the signal-line wire; of a box mounted over the wire, said box having binding-posts for connecting with the feeder-wire, a current-controlling switch mechanism, a base or plate carrying said mechanism said plate including contacts for engaging the binding-posts, and means for detachably supporting said plate with the mechanism thereon within the box for the purpose described.

6. The combination with the housing D open at the bottom, one side being removable and binding-posts supported on the other side; of current-controlling devices, a base-plate for sustaining said devices said plate being detachably supported on the stationary side of the housing, said devices including spring-plate contacts for engaging the binding-posts, and a trolley-engaged lever hung pendently through the open bottom of the housing as specified.

7. In an electric signaling apparatus; current-controlling devices, said devices including a box open at the bottom, switch mechanism sustained within the box and including a pendent trolley-engaging member; a metal band extended over the top and end of the box and connected there to said band having a threaded socket in the top, and apertured footpieces and means for connecting the footpieces with the trolley-wire substantially as described.

8. In an electric signaling apparatus of the character described; a signal-line taking current from the trolley-wire, and a trolley-operated means for shunting the current into said line; in combination with a cut-out mechanism comprising a switch normally closed, a trolley-engaged lever for operating said switch; a supplemental trolley-wire in said circuit, a magnet forming a part of the cut-out mechanism in said circuit, a double and alternately-acting armature-lever coöperating with the magnet, a supplemental switch in said circuit normally open and automatically released by the action of the armature-lever when its coacting magnet is energized and moved to close in the supplemental circuit to maintain the signal substantially as described.

692,086. **CAR-AXLE BOX.** JOHN W. STEPHENSON, Toledo, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed Aug. 20, 1900. Serial No. 27,385. (No model.)



Claim.—1. The combination of a journal-box, a wedge, one of which parts has a projection bearing upon the other and constituting a universal rocking bearing, and a journal-brass; substantially as described.

2. The combination of a journal-box, a wedge, one of which parts has a ball-shaped projection bearing upon the other and constituting a universal rocking bearing, and a journal-brass; substantially as described.

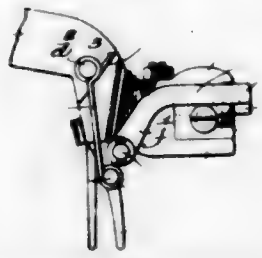
3. In combination with a journal-box, a spring-seat having an upwardly-extending projection adapted to fit within the coil of a spring, and having a universal rocking bearing on the box; substantially as described.

692,087. **LOOM-TEMPLE.** EDWARD S. STIMPSON, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 7, 1901. Serial No. 77,853. (No model.)

Claim.—1. A loom-temple having a blade and provided with a coöperating sliding thread-cutter, actuated by a moving part of the loom, and a protector operatively connected with and to retract the sliding cutter under abnormal conditions.

2. In a loom, a temple provided with a thread-parter, actuating means therefor operated by a moving part of the loom, and means operated by the shuttle when improperly positioned, to effect movement of

and thereby prevent the thread-parter from accidentally engaging the shuttle.



3. A loom-temple provided with a relatively movable thread-parter having a heel and a normally exposed blade, means to engage the heel and actuate the parter, and a protector carried by the temple and adjacent the exposed portion of the thread-parter, and operatively connected with the heel, to move the latter and retract the blade when said protector is engaged by an improperly-positioned shuttle.

4. In a loom, a temple provided with a thread-parter including a spring-controlled sliding member having a hooked end to engage the thread, means to actuate the parter in opposition to its spring, and a protector operatively connected with the said sliding member and having its free end adjacent the hooked end thereof, impact of the protector with an improperly-positioned shuttle operating to retract the said hooked member and prevent injury to the shuttle or said member.

5. A loom-temple provided with a blade and a coöperating, spring-controlled sliding cutter having a hooked end to engage the thread, means to effect coöperation of the blade and cutter by retraction of the latter, to part the thread, and a protector pivotally connected with the cutter and having its free end adjacent the hooked end thereof, to retract the cutter by or through engagement of the protector with an improperly-positioned shuttle.

692,088. CORN-HUSKER. WILLIAM H. STONER, Rockford, Nebr., assignor of one-half to Lemuel R. King, Filley, Nebr. Filed May 21, 1901. Serial No. 61,276. (No model.)



Claim.—1. A corn-husking implement, comprising a forearm-plate of a length to extend from the inner bend of the elbow to the wrist and having a wrist-strap at one end, an upper-arm strap at the opposite end, and a husking-hook at the wrist end of the plate.

2. A corn-husking implement, comprising a forearm-plate, having its rear end provided with opposite terminal projections, an arm-embracing strap connected at intermediate points to the projections, a wrist-embracing strap at the opposite end of the plate, and a husking-hook at the wrist end of the plate.

3. A corn-husking implement, comprising a forearm-plate, which is bowed laterally to fit the forearm, and has its rear end provided with a substantially semicircular bifurcation providing opposite terminal projections, the front end of the plate being convexly rounded, a husking-hook upon the convex side of the forward end of the plate, a wrist-embracing strap projected at the concave side of the plate, and an upper-arm-embracing strap connected to the rear projections and at the concave side of the plate.

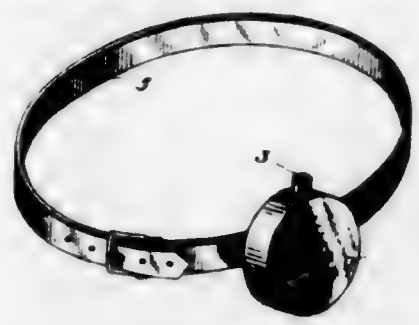
4. A corn-husking implement, comprising a forearm-plate, having a wrist-embracing strap, a husking-hook, and a pair of arm-embracing straps connected at intermediate points to the opposite corners of the rear end of the plate, the corresponding ends of the straps being provided with buckles.

5. A corn-husking implement, comprising a plate constructed to fit the inner side of the forearm of an operator from the wrist to the elbow thereof and its rear end to accommodate the inner side of the upper arm, there being opposite terminal wrist and upper-arm connections, and a husking-hook upon the outer side of the plate.

6. A corn-husking implement, comprising a forearm-plate, a block applied to the forward end portion thereof and upon the outer side, a husking-hook having its shank secured to the block, with its bill projected at opposite sides of the shank and lying against the plate, the nose of the bill being upon the outer side of the shank, a wrist-embracing strap, and an upper-arm-embracing strap.

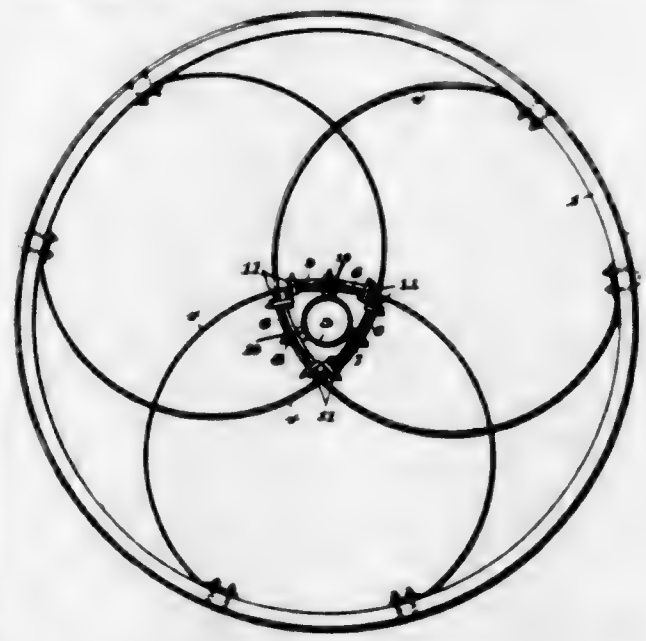
7. A corn-husking implement, comprising a forearm-plate, a husking-hook carried thereby, a wrist connection at the forward end of the plate, and an upper-arm connection pivoted or hinged to the opposite rear end of the plate.

692,089. OIL-CAN. JOSEPH SWIEBER, Diamond, Ind. Filed June 20, 1901. Serial No. 65,276. (No model.)



Claim.—As a new article of manufacture, a miner's oil-can provided with a pivot-pin and a belt-loop to which the can is pivotally connected, and a securing-belt adapted to be threaded through the loop, all substantially as and for the purpose described.

692,090. VEHICLE-WHEEL. GEORGE S. TURNER, Beaverhills, Pa. Filed July 3, 1901. Serial No. 67,018. (No model.)

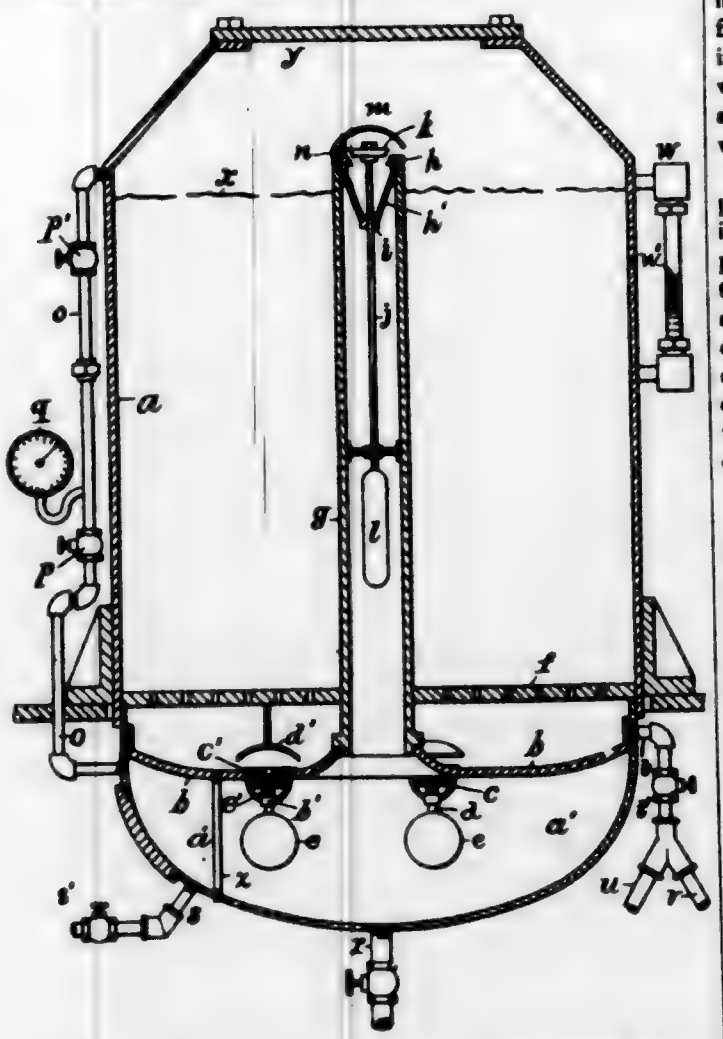


Claim.—1. In a spokeless wheel, the combination of a felly and a hub, of springs in the form of an incomplete circle secured to the felly, said springs encircling said hub, means secured to the periphery and inner circumference of said springs, and means for securing said means to the hub, substantially as described.

2. In a spokeless wheel comprising a felly and hub, the combination of intersecting springs in the form of an incomplete circle secured to said felly, and means carried by said springs for securing the same to the periphery of the hub, substantially as described.

3. In a spokeless wheel, the combination of a felly and hub, of a series of springs in the form of an incomplete circle, each spring having its ends secured to said felly, clips carried by said springs, means for securing the clips, means for securing the said clips and spring to the hub, and means interposed between said clips and the hub, substantially as described.

692,091. BLEACHING-KEIR. JOHN C. TYRE, Garfield, N. J.
Filed Oct. 5, 1901. Serial No. 77,641. (No model.)



Claim.—1. In a bleaching-keir, the combination, with the tank *a* having the partition *b* forming the chamber *a'* in the bottom, of the pipe for supplying steam to such chamber, the check-valves *c* opening downwardly in the partition, and the stand-pipe *g* connecting the chamber with the upper part of the tank.

2. In a bleaching-keir, the combination, with the tank *a* having the partition *b* forming the chamber *a'* in the bottom, of the pipe for supplying steam to such chamber, and the check-valves *c* opening downwardly in the partition, and provided each with float *e* adapted to close the valve when the liquor accumulates in the chamber.

3. In a bleaching-keir, the combination, with the tank *a* having the partition *b* forming the chamber *a'* in the bottom, of the pipe for supplying steam to such chamber, the check-valves *c* opening downwardly in the partition, and the stand-pipe *g* extending from the chamber *a'* to the upper part of the tank and having the check-valve *k* opening upward, as and for the purpose set forth.

4. In a bleaching-keir, the combination, with the tank *a* having the partition *b* forming the chamber *a'* in the bottom, of the pipe for supplying steam to such chamber, the check-valves *c* opening downwardly in the partition, and the stand-pipe *g* extending from the chamber *a'* to the upper part of the tank and having the check-valve *k* opening upward and provided with float *l* suspended within the stand-pipe, substantially as herein set forth.

5. In a bleaching-keir, the combination, with the tank having the partition *b* with check-valves opening downwardly therein, and the stand-pipe *g* extended from the partition to the upper part of the tank, of the valve-seat *h* secured in the top of the stand-pipe with arms *h'* projected downwardly and carrying the guide *i*, the valve-rod *j* fitted to the guide and provided at its upper end with the valve *k* and at its lower end with the float *l*, the whole arranged and operated substantially as herein set forth.

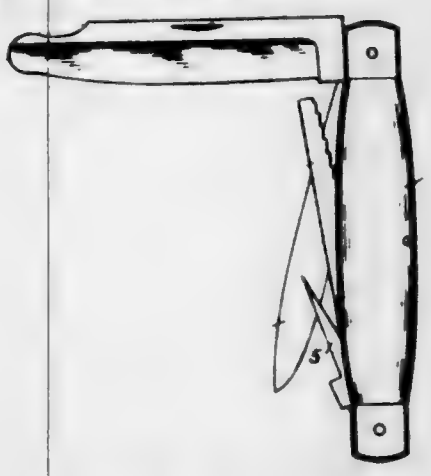
6. In a bleaching-keir, the combination, with the tank *a* having the partition *b* forming the chamber *a'* in the bottom, of the pipe for supplying steam to such chamber, the check-valves *c* opening downwardly in the partition, and the stand-pipe *g* connecting the chamber with the upper part of the tank and having the guard *m* supported above the top of the pipe to protect the valve, while permitting the escape of the liquor.

7. In a bleaching-keir, the combination, with the tank *a* having the partition *b* forming the chamber *a'* in the bottom, of the pipe for supplying steam to such chamber, apertures in the partition with valve-seats *c'* fitted to each, and the valves *c* fitted to such seats and opening downwardly in the partition, and provided each with float *e* adapted to close the valve when the liquor accumulates in the chamber.

8. In a bleaching-keir, the combination, with the tank *a* having the partition *b* forming the chamber *a'* in the bottom, of the pipe for supplying steam to such chamber, apertures in the partition with valve-seats *c'* fitted to each, the valves *c* fitted to such seats and opening downwardly in the partition and provided each with float *e* adapted to close the valve when the liquor accumulates in the chamber, and the grating *f* sustained above the partition and having the guards *d'* fastened thereto over the valve-seats to prevent the direct access of obstructions to the valves.

9. In a bleaching-keir, the combination, with the tank *a* having the partition *b'* forming the chamber *a'* in the bottom, of the pipe for supplying steam to such chamber, the check-valves opening downwardly in the partition, stand-pipe *g* having the check-valve opening upward upon the top, the pipe *o* connecting the chamber *a'* with the upper part of the tank and provided with cocks *p* and *p'* and with pressure-gage *q* intermediate of the cocks, and the upper part of the tank having the glass water-gage *w* attached thereto, the whole arranged and operated to intermittently discharge the liquor upon the goods and to indicate the height of the liquor when filling the tank, and the pressure in the tank and chamber when in operation, substantially as herein set forth.

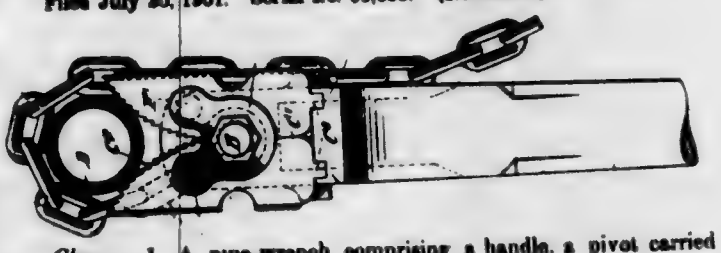
692,092. POCKET-KNIFE. JAMES B. UPHAM, Malden, Mass.
Filed Nov. 16, 1901. Serial No. 82,565. (No model.)



Claim.—1. The combination with a suitable handle, of the blade secured at one end to said handle and formed at its other end with the seat and the curved thick end, substantially as described.

2. As a new article of manufacture, the combination with the clasp-handle, of the blade pivoted at one end thereto and formed at its other end with the broad seat, the curved end, the shoulder and rounded edge opposite to the seat, one surface of the blade being slightly rounded, substantially as described.

692,093. PIPE-WRENCH. FRANK I. WEBBER, Oxford, Nebr.
Filed July 20, 1901. Serial No. 69,053. (No model.)



Claim.—1. A pipe-wrench comprising a handle, a pivot carried thereby, a pair of interlocking jaws held on the said pivot, and a chain carried on the pivot and adapted to engage the article in conjunction with the said jaws, as set forth.

2. A pipe-wrench comprising a handle, a pivot carried thereby, a chain engaging the pivot and a pair of interlocking jaws carried by the said pivot, and a key on the said pivot and handle for locking the jaws in position, as set forth.

3. A pipe-wrench having a pair of interlocking and reversible jaws formed with parallel sides and curved toothed ends, as set forth.

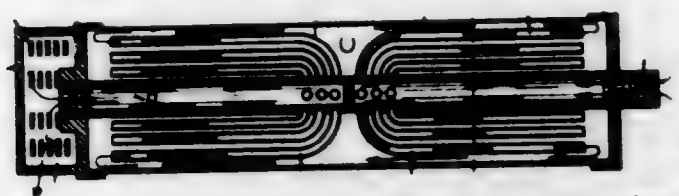
4. A pipe-wrench having a pair of interlocking and reversible jaws formed with parallel sides having interlocking tongues and grooves, the said jaws also having curved toothed ends, as set forth.

5. A pipe-wrench having a handle, a set of interlocking and reversible jaws held on the said handle, the jaws having parallel sides formed with interlocking tongues and grooves, the outer ends of the jaws being formed with teeth and the inner ends with lugs and engaging recesses on the said handle, as set forth.

6. A pipe-wrench having a handle, a set of interlocking and reversible jaws held on the said handle, the jaws having parallel sides formed with interlocking tongues and grooves, the outer ends of the jaws being

formed with teeth and the inner ends with lugs and engaging recesses on the said handle, a key having pins for engaging registering apertures in the said jaws and the said handle, and a bolt engaging the said keys and the said jaws and held on the said handle, as set forth

692,094. MUFFLER FOR EXPLOSIVE-ENGINES. CHRISTIAN F. WEBER, Albany, N. Y. Filed Sept. 7, 1901. Serial No. 74,631. (No model.)



Claim.—1. In a muffler to an explosive-engine, a shell or frame forming a chamber inclosing pipes and tubes; a pipe partly inclosed in said chamber, with one end adapted to be attached to the exhaust-pipe of the engine, and the other end of said pipe extending to or near the center of said chamber; tubes connecting with said pipe at or near the end farthest from the engine, and extending parallel with said pipe to near the end of said chamber nearest the engine, and adapted to conduct said exhaust from said pipe into the end of the chamber nearest the engine; another pipe extending from near the center of said chamber through the end of said chamber farthest from the exhaust-pipe; tubes connecting with the last-named pipe at or near the end nearest the center of said chamber and extending parallel with said pipe to near the extreme end of said chamber farthest from the engine, and adapted to conduct said exhaust from the said chamber to said pipe, and said last-named pipe adapted to conduct said exhaust from said last-named tubes to the outside of said chamber, substantially as described and for the purposes set forth.

2. In a muffler to an explosive-engine, a shell or frame forming a chamber inclosing pipes and tubes; a pipe partly inclosed in said chamber, with one end adapted to be attached to the exhaust-pipe of the engine and the other end terminating in a small inner chamber inclosed within the said first-mentioned chamber; tubes leading from said inner chamber and extending parallel with said pipe to near the end of the chamber nearest the engine; a second small inner chamber near the center of said first-named chamber; a pipe extending from said second inner chamber through the end of said first-named frame or shell farthest from the engine and tubes extending from near the said extreme end of said first-named chamber into said second inner chamber, all substantially as described and for the purposes set forth.

692,095. BUSTLE AND HIP EXTENSION. MARY S. WETHERELL, Boston, Mass., assignor to Sophia H. Sawyer, Wellfleet, Mass. Filed Oct. 5, 1901. Serial No. 77,889. (No model.)



Claim.—1. A device of the class described, comprising a bustle, hip portions, and hip-extension portions, all fastened together at their middle and extending one outside of the other, said hip portions and hip-extension portions arranged to lie in the same transverse plane as the bustle at the rear thereof and diverging forwardly and laterally from the line of union with said bustle, as set forth.

2. A device of the class described, comprising a bustle, hip portions, and hip-extension portions, all fastened together at their middle and extending one outside of the other and spaced one from the other, said hip portions and hip-extension portions arranged to lie in the same transverse plane as the bustle at the rear thereof and diverging forwardly and laterally from the line of union with said bustle, as set forth.

3. A device of the class described, comprising a bustle, hip portions, and hip-extension portions, all fastened together at their rear and extending one outside of the other, said hip portions and hip-extension portions diverging laterally and forwardly with respect to the bustle beginning with the line of union at the rear of the article, the front ends of the hip-extension portions being united to the front ends of the hip portions, as set forth.

4. A device of the class described, comprising a bustle, hip portions, and hip-extension portions, all fastened together at their rear and extending one outside of the other, the front ends of the hip-extension portions being united to the front ends of the hip portions, and stays at the middle portion of the hip extensions to give the desired bulge to the sides of the hip extensions, said hip portions and hip-extension portions diverging laterally and forwardly with respect to the bustle beginning with the line of union at the rear of the article, as set forth.

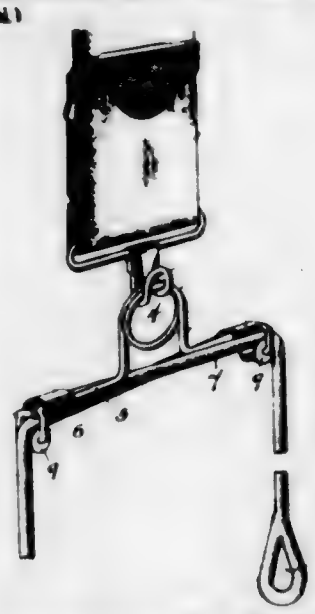
5. A device of the class described, comprising a bustle, hip portions, and hip-extension portions, all fastened together at their middle and extending one outside of the other and on forwardly-diverging lines from the line of union at the rear of the article, the front ends of the hip-extension portions being united to the front ends of the hip portions, stays at the middle portion of the hip extensions to give the desired bulge to the sides of the hip extensions, and braces extending from the said stays to connect with the longitudinal strips of the hip extensions, as set forth.

6. A device of the class described, comprising a rear center stay, a bustle carried by the center stay, hip portions extending from the said center stay and forward of the bustle and spaced laterally thereto, and hip-extension portions extending from the said center stay outside of and in lateral spaced relation to the hip portions and connected therewith at the front ends, as set forth.

7. A device of the class described, comprising a rear center stay, a bustle carried by the center stay, hip portions extending from the said center stay and forward of the bustle and in lateral spaced relation thereto, hip-extension portions extending from the said center stay outside of the hip portions and connected therewith at the front ends, and means for adjusting the said bustle and attaching it to a corset, as set forth.

8. A device of the class described, comprising a rear center stay, a bustle carried by the center stay, hip portions extending from the said center stay and forward of the bustle, hip-extension portions extending from the said center stay outside of the hip portions and connected therewith at the front ends, means carried by the said bustle for attaching the device to the corset, and bands at the united front ends of the hip portions and hip-extension portions to attach the device to the abdominal part of a corset, as set forth.

692,096. SPRING ATTACHMENT FOR ARTICLES OF WEAR, &c. PAUL R. WIRT, Bloomsburg, Pa. Filed May 9, 1901. Serial No. 59,453. (No model.)



Claim.—1. A spring attachment of the class described comprising a spring-wire body having oppositely-extending yielding side arms provided at their terminals with antifriction-guides, and oppositely-reeved crossing attaching elements having a loose running engagement with the guides, and a fixed engagement with the side arms at stress-points contiguous to the guides.

2. A spring attachment of the class described comprising a spring-wire body having oppositely-extending yielding side arms provided at their terminals with antifriction-guides, and contiguous to such guides with holding members forming stress-points, and flexible attaching elements having fixed engagement with said holding members.

3. A spring attachment of the class described comprising a spring-wire body having a central spring-eye and yielding side arms provided at their terminals with antifriction-guides and contiguous to such terminals with holding members constituting stress-points for the side arms, and oppositely-reeved crossing flexible attaching elements, each element having a running engagement with the antifriction-guide at one end of the body, and having a permanent fixed engagement with the holding member at the stress-point for the opposite side arm.

4. A spring attachment of the class described comprising a spring-

wire body having a central spring-eye and yielding side arms provided at their terminals with antifriction-guide eyes, the latter being disposed at right angles to the plane of the arms, and oppositely-reeved crossing flexible attaching elements having a loose running engagement with the guides, and fixed engagement with the side arms at stress-points contiguous to the guides.

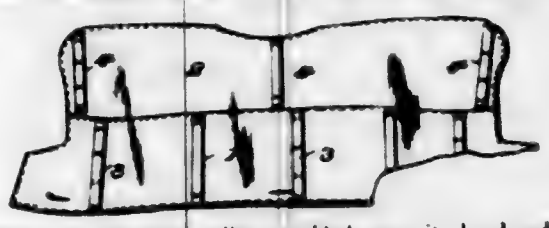
692,097. SPIRIT-LEVEL. JAMES R. WOOD, Glasgow, Scotland. Filed Oct. 30, 1899. Serial No. 735,208. (No model.)

Claim.—1. A spirit-level tube filled with a fluorescent liquid and having a background contrasting in color with the air-bubble.

2. A spirit-level tube containing a colored fluorescent liquid and having a background bearing a mark of a color contrasting with the air-bubble.

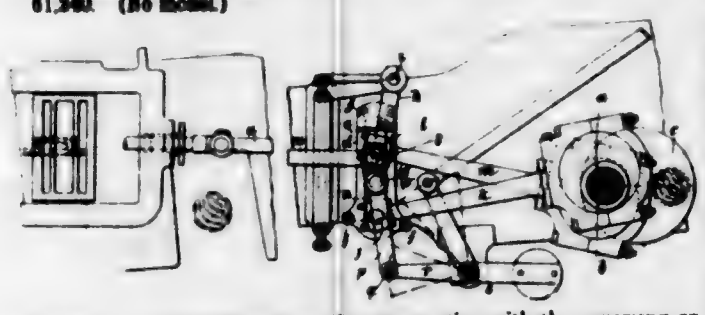
3. A spirit-level tube containing a colored fluorescent liquid surrounding the air-bubble.

692,098. COLLAR. STEPHEN W. WOODBURY, Newton Highlands, Mass. Filed Apr. 1, 1901. Serial No. 53,909. (No model.)



Claim.—A lay-down collar provided upon its band and outer or turned portion with tapes alternately arranged so that the tapes upon one come at points opposite the spaces between the tapes of the other, said tapes being stitched at their sides and at points between their ends to form a series of loops in the height of the collar to admit of the necktie being held at any point in the height of the collar, the end loops of the turned-down portion being arranged immediately adjacent to the corners of said turned-down portion to adapt the tie to hold the same close against the band and shirt-front, substantially as described.

692,099. SLIDE-VALVE GEAR FOR ENGINES. SAMUEL S. YOUNGHUSBAND, Darlington, England. Filed May 21, 1901. Serial No. 61,940. (No model.)



Claim.—1. In a link-motion, the combination with the reversing or expansion link, of cheek-plates fixed to the link at opposite sides thereof and at a distance therefrom and provided with gudgeons for connecting the link-suspension and eccentric rods to the said cheek-plates and link, said gudgeons having their centers axially intersecting the center line of the link-slot, substantially as specified.

2. In a link-motion, the combination with the reversing or expansion link, of cheek-plates fixed to the said link at opposite sides thereof and at a distance therefrom, said cheek-plates being provided at the outer sides thereof with a central pair of gudgeons for the connection thereto of link-suspension rods pivoted to a fixed point, and at the other sides thereof with pairs of gudgeons for connection thereto of the forked ends of the forward and backward eccentric-rods respectively.

3. In a link-motion, the combination with the reversing or expansion link, of the cheek-plates fixed to the said link at opposite sides thereof and at a distance therefrom, said cheek-plates being provided at the outer sides thereof with a central pair of gudgeons for the connection thereto of link-suspension rods, said gudgeons being carried by sunk portions of the cheek-plates so as to afford the necessary length of bearing without external projection beyond the link-suspension rods, and the cheek-plates being provided at the other sides thereof with pairs of gudgeons for connection thereto of the forked ends of the eccentric-rods.

4. In a link-motion, the combination with the reversing or expansion link, of cheek-plates fixed to the said link at opposite sides thereof and at a distance therefrom, said cheek-plates being provided at the one side thereof with a central pair of gudgeons for the connection thereto of link-suspension rods pivoted to a fixed point, and at the other sides thereof with pairs of end gudgeons for connection thereto of the forked ends of the forward and backward eccentric-rods respectively, and of a valve-actuating lever having a pivotal connection with a die-block fitted in the slot of the link, said lever being connected at the one end to the valve-rod and fulcrumed at the other end to arms on a weigh-shaft whereby the position of the die-block in the slot of the link may be varied.

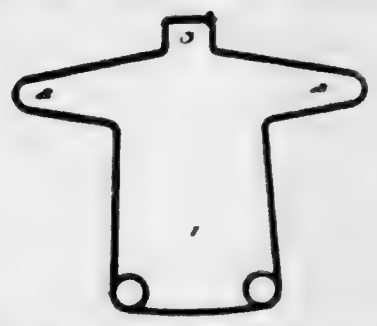
5. In a link-motion, the combination with the reversing or expansion link, of cheek-plates fixed to the said link at opposite sides thereof and at a distance therefrom, said cheek-plates being provided at the one side thereof with a central pair of gudgeons for the connection thereto of link-suspension rods pivoted to a fixed point, and at the other sides thereof with pairs of end gudgeons for connection thereto of the forked ends of the forward and backward eccentric-rods respectively, and of a valve-actuating lever having a pivotal connection with the die-block fitted in the slot of the link, said lever being connected at the one end to the valve-rod and fulcrumed at the other end to arms on a weigh-shaft, the valve-actuating lever being formed of two members acting together as one and passing at either side of the link between the link and the cheek-plates, the two members of said lever being connected to the same cross-pin in the die-block and pivotally connected to a fork on the end of the valve-rod.

692,100. SASH-FASTENER. CHARLES M. ZIRKLE, Richmond, Va. Filed Oct. 2, 1901. Serial No. 77,310. (No model.)



Claim.—The combination with a window-frame and a sash, of a fastener carried by the sash adjacent the frame comprising a plate having tapered surfaces, and a wedge having two beveled edges, one of greater bevel than the other, said wedge being designed to be inserted in either end of the plate so that the edge thereof of greater bevel will engage one of said tapered surfaces, and the outer corner of the other bevel will bear against the window-frame, for the purpose stated.

692,101. GARMENT-STRETCHER. HANNAH ANDERSON, Elgin, Ill. Filed Oct. 7, 1901. Serial No. 77,871. (No model.)



Claim.—1. A device or frame for stretching garments, comprising sides having spring connection at one end and extended arm portions at their opposite free ends, said sides with their extended arm portions adapted to be sprung inwardly for the purpose of inserting the device in a garment, substantially as set forth.

2. A device or frame for stretching garments, comprising sides joined together at one end and having at their opposite ends extended arm portions and upstanding continuations of said arm portions detachably connected together, forming a neck, substantially as set forth.

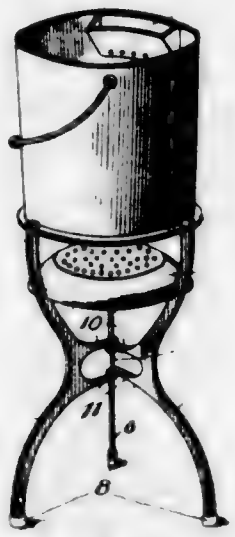
3. A device or frame for stretching garments, formed of a continuous piece of wire, comprising sides, coiled springs formed integral with said sides and ends of said frame, extended arm portions formed on the free ends of said sides, and a neck formed by upstanding continuations of said arms, said sides with their arm and neck portions adapted to be sprung inwardly from said coiled springs for the purpose of inserting the device within a garment, substantially as set forth.

4. An article of the character described formed of a continuous piece of wire, comprising a body, arms and neck, coiled springs arranged at the lower corners of said body portion and forming a part thereof, and a hook and eye formed on opposite free ends of the wires, substantially as set forth.

692,102. NITROCELLULOSE. DAVID BACHRACH, Baltimore, Md. Filed Apr. 4, 1901. Serial No. 54,235. (No specimens.)

Claim.—A nitrocellulose or similar compound protected against corrosive chemical action by the addition of graphite and bitumen, substantially as and for the purposes described.

692,103. PASTE-BUCKET AND STAND THEREFOR. EDWARD L. BAILEY, Streator, Ill. Filed June 5, 1901. Serial No. 63,256. (No model.)



Claim.—The combination with a paste-bucket having an outwardly-directed flange at its base, of a tripod therefor, the legs of the tripod having laterally-projecting fingers pivotally connected for movement of the legs in a common horizontal plane, said legs having notches in the inner faces of the upper ends thereof to receive and hold the base-flange of the bucket against movement in all directions, said legs having also notches in their inner faces below the first-named notches to receive and support a lamp.

692,104. FIRE LADDER AND ESCAPE. PIETRO BASTIANELLO, Perth Amboy, N. J. Filed Mar. 25, 1901. Serial No. 52,723. (No model.)



Claim.—1. In fire-escapes, a truck, supports on the truck, pivotally-connected ladders, a turn-table on said truck and to which the lower ladder is secured, a grappling-iron secured to the upper end of the upper ladder, a windlass, and cables connected with the heel portions of the said ladders and with the said windlass, for the purpose described.

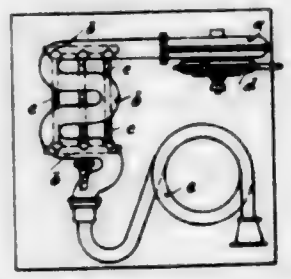
2. In a fire-escape, a wheel-supported truck, pivotally-connected main ladders, the lower main ladder being pivotally supported on the said truck, a guide connection between the two ladders, a grapple at the upper end of the upper ladder, a winding mechanism, and cables connected with the heels of the said ladders and with the said winding mechanism, as described.

3. The combination with the ladder comprising sections pivoted to each other a distance from their adjacent ends, one of the sections having a member curved in an arc struck from the pivot of the sections and the other section having a guide-keeper in which said member moves, cables connected with the ladder-sections below the pivots, and winding mechanism for operating the cables.

4. The combination of ladder-sections, said sections being pivoted to each other a distance from their opposing ends, a support on which the lower section is pivoted a distance from the end of the said section, cables connected with the sections below their pivots, and winding mechanism for said cables.

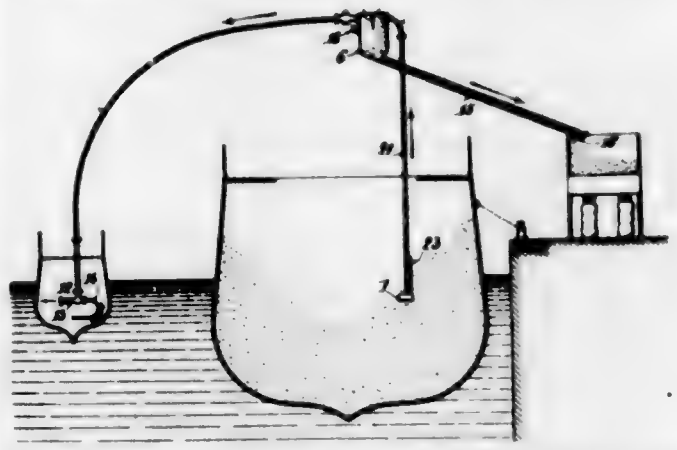
5. The combination of a truck having an elevated table, a turn-table, standards on the turn-table, ladder-sections pivoted to each other and adapted to lie on said elevated table, the lower ladder-section being pivoted to the standards a distance from the lower end of said section, and the sections being pivoted to each other a distance from their adjacent ends, a cable for each ladder-section and connected therewith below the pivot thereof, and winding mechanism for the cables.

692,105. APPARATUS FOR DRYING HAIR. ANDREAS BAUSEN, Würzburg, Germany. Filed Jan. 31, 1901. Serial No. 45,401. (No model.)



Claim.—An apparatus for the purpose described, consisting of a stand or support, a blast-creating device mounted on said support, a motor for driving the blast device, a gas-burner mounted on the support at one side of the blast device and having a series of parallel, horizontal, tubes, a horizontal, sinuously-formed, duct or pipe mounted on said burner and having its sections extending transversely across the parallel tubes thereof, one end of said sinuous pipe being connected with the blast device, and a flexible delivery-tube connected to the other end of said sinuous pipe.

692,106. ELEVATOR FOR GRANULAR SUBSTANCES. PAUL BÉDARRIDES, Paris, France. Filed July 30, 1901. Serial No. 70,261. (No model.)



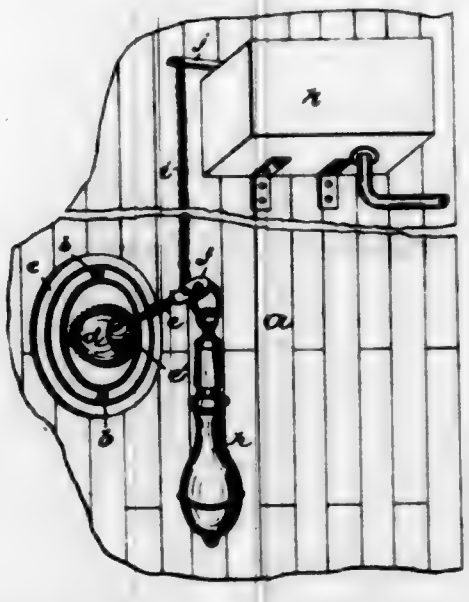
Claim.—1. An apparatus for elevating granulous products, comprising a closed chamber provided with compartments, a grain-chute leading to said chamber, an ejector for creating a partial vacuum in said chamber, and a bifurcated member provided with a hand-valve for connecting said ejector with said compartments independently.

2. An apparatus for elevating granulous products, comprising a closed chamber provided with separate air-tight compartments, a grain-chute provided with a bifurcated end and connected with all of said compartments, an ejector for creating a partial vacuum in said chute, and means controllable at will for connecting said ejector with said compartments independently.

3. An apparatus for elevating granulous products, comprising a closed

chamber provided with separate air-tight compartments, a grain-chute provided with a bifurcated end for conveying said products to said chamber, an ejector for exhausting air from said chamber, and means controllable at will for exhausting air from said compartments independently.

692,107. HANDLE OR PULL FOR FLUSHING-TANKS. Otto Brass, Newark, N. J. Filed Jan. 20, 1899. Serial No. 702,798. (No model.)



Claim.—1. A water-closet pull comprising a base-plate having means for fastening upon a wall, and forming at its front a joint member, a link or connector forming a second member and being hinged at one extremity to the base-plate member by a universal joint, said link normally extending out from the base-plate and being free to swing in any direction, and a valve-chain and handle at the other end of said link, substantially as set forth.

2. A water-closet pull comprising a base-plate adapted to be fastened flatwise upon a wall and providing at its outer face a socket or seat, a rigid link having at one extremity a head adapted to lie in said socket or seat and forming a universal joint therewith, said link extending normally outward from the base-plate and being free to swing in any direction, and a valve-chain and a handle attached to the link near its outer end from the base-plate, substantially as set forth.

3. A water-closet pull having a base-plate *c*, adapted to be applied to a wall and presenting at its outer face a socket or seat, a rigid link *e*, having at one extremity a ball or head *e'*, adapted to form with the said socket on the base-plate a ball-and-socket joint, the link normally extending out from the base-plate and being free to swing in any direction, a handle at the outer end of the link, and a valve-chain attached to the link, substantially as set forth.

692,108. APPARATUS FOR HANDLING TAILINGS. Hiram W. Blandell, Yuma, Ariz. Filed Oct. 23, 1900. Renewed Nov. 19, 1901. Serial No. 82,993. (No model.)

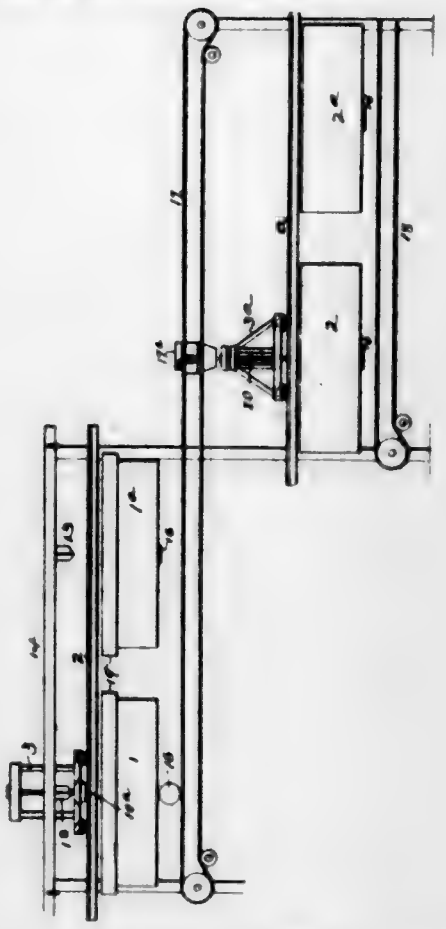
Claim.—1. In an apparatus for treating tailings, the combination with a frame of a bridge movable thereon and a revolubly distributer mounted on said bridge and adapted to be carried thereby from one vat to another.

2. In an apparatus for treating tailings, the combination with a series of vats and a track adjacent to said vats, of a traveling bridge mounted on said track, a revolubly distributer carried by said bridge adapted to discharge material in any of said vats and means for supplying material to said distributer.

3. In an apparatus for treating tailings, the combination of two series of vats disposed in different planes, of a traveling bridge mounted to move above the lower series of vats and means on said bridge for distributing the material supplied to it from the upper vats, evenly throughout the lower vats.

4. In an apparatus for treating tailings, the combination with two series or sets of vats disposed in different planes, of traveling bridges located above each set or series of vats, a distributer for tailings carried by the upper bridge, a combined distributer and excavator for tailings carried by the lower bridge and means for carrying material from the upper series of vats to the lower.

5. In an apparatus for treating tailings, the combination with two sets or series of vats disposed in different planes, of traveling bridges located above each set or series of vats, means for distributing the material in the vats carried by each bridge, a conveyer adapted to carry the material from one series of vats to the other and a conveyer for conveying the material from the last-mentioned series of vats.



692,109. COMBINED HEATER, COOLER, AND STORAGE-BASKET. Monna F. Bonifacr, New York, N. Y. Filed Nov. 27, 1901. Serial No. 83,819. (No model.)



Claim.—1. A device of the class described, comprising a heat-retaining holder, a box fitted therein, a container held in the said box and having a central chamber and pockets on the outside walls of the chamber, the said container forming with the box separate storage-compartments, as set forth.

2. A device of the class described, comprising a heat-retaining holder, a box fitted therein, a container held in the said box and having a central chamber, pockets on the outside walls of the chamber, the said container forming with the box separate storage-compartments, and a heater removably held in the said central chamber, as set forth.

3. A device of the class described, comprising a heat-retaining holder, a box fitted therein, a container held in the said box and having a central chamber, pockets on the outside walls of the chamber, the said container forming with the box separate storage-compartments, a heater removably held in the said central chamber, the said heater comprising a box having a lid provided with a damper, and a grate held in the said box for burning the fuel, as set forth.

4. A device of the class described, comprising a heat-retaining holder, a box fitted therein, a container held in the said box and having a central chamber, pockets on the outside walls of the chamber, the said container forming with the box separate storage-compartments, a heater removably held in the said central chamber, the said heater comprising a box having a lid provided with a damper, and a grate held in the said box for burning the fuel, the said grate being removably held in the box and

formed of spaced apertured retainers for the punk, and provided with legs and a handle, as set forth.

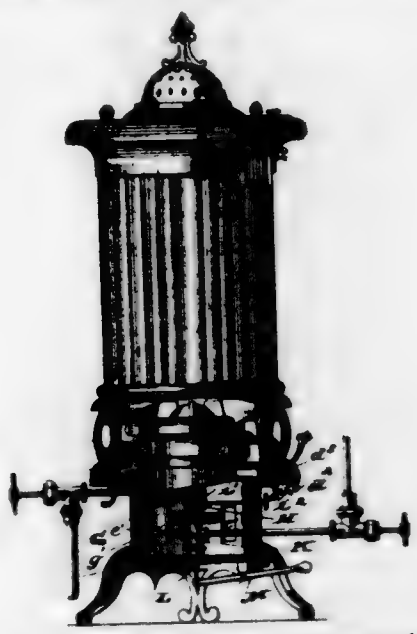
5. A device of the class described, comprising a heat-retaining holder, a box fitted therein, a container held in the said box and having a central chamber, pockets on the outside walls of the chamber, the said container forming with the box separate storage-compartments, an outlet leading from the bottom of the central chamber and extending through the bottoms of the box and holder, and means for closing the outlet, as set forth.

6. A device of the class described, comprising a heat-retaining holder, a box fitted therein, a container held in the said box and having a central chamber, pockets on the outside walls of the chamber, the said container forming with the box separate storage-compartments, and a nipple-box removably supported in one of the storage-compartments, as set forth.

7. A device of the class described, comprising a heat-retaining holder, a box fitted therein, a container held in the said box and having a central chamber, pockets on the outside walls of the chamber, the said container forming with the box separate storage-compartments, and a nipple-box removably supported in one of the storage-compartments and provided with hooks engaging eyes on opposite walls of the box and one of the pockets, as set forth.

8. A device of the class described, comprising a heat-retaining holder, a box fitted therein, a container held in the said box and having a central chamber, pockets on the outside walls of the chamber, the said container forming with the box separate storage-compartments, a heater removably held in the said central chamber, the said heater comprising a box having a lid provided with a damper, and a grate held in the said box for burning the fuel, the said heater-box having air-inlets above the grate, as set forth.

692,110. HYDROCARBON GAS OR VAPOR BURNER AND STOVE. DANIEL W. BOWMAN, Toledo, Ohio, and JOSEPH H. CLOUSE, St. Louis, Mo.; said Clouse assignor to said Bowman. Filed Apr. 22, 1899. Serial No. 714,046. (No model.)



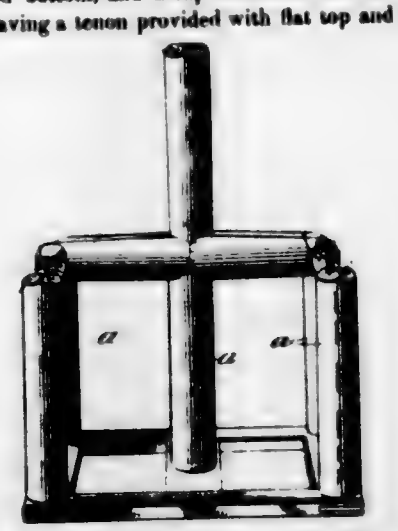
Claim.—In a heating-stove, the combination of a lower cylindrical casing provided with air-inlet openings, a water-ring supported on said casing, an upper casing forming a combustion and heating chamber supported on said ring, and having a suitable outlet, a burner within the inner periphery of the ring and supported thereby, said ring having a series of damper-controlled air-tubes extending vertically therethrough, and adapted to supply air from without the stove to the interior of the upper casing as specified.

692,111. MINE-TIMBER. DAVID W. BRUNTON, Denver, Colo. Filed Oct. 16, 1901. Serial No. 78,866. (No model.)

Claim.—1. Mine-timbers comprising a post having a truncated pyramidal end, a girth having its ends beveled and terminating in a two-sided tenon, and a cap having its ends beveled and provided with a four-sided tenon, the top and bottom sides being deeper than the others.

2. Mine-timbers comprising a post having a truncated pyramidal end, a girth having its ends beveled and terminating in a two-sided tenon, and a cap having its ends beveled and provided with a four-sided tenon, the top and bottom sides being deeper than the others, all combined to form joints having contact-surfaces practically coextensive with the perimeters of the timbers.

3. Mine-timbers comprising a post having its ends beveled in four convergent planes, a girth likewise beveled and each end having a tenon with flat top and bottom, and a cap beveled in four convergent planes and each end having a tenon provided with flat top and bottom and lateral shoulders.

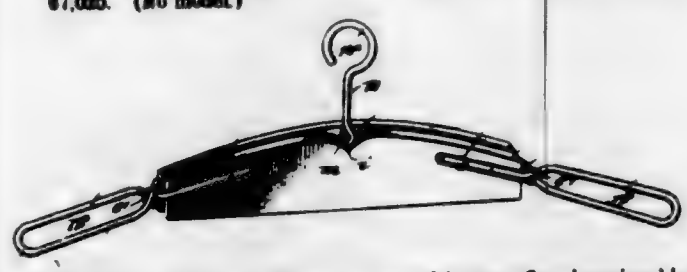


4. A mine-timbering cap-log, having each of its ends beveled and terminating in a tenon having top and bottom of greater area than its sides, said sides constituting shoulders.

5. A mine-timbering girth-log, having each of its ends beveled and terminating in a tenon having flat top and bottom, beveled sides, and a plane extremity adapted to abut against the tenoned ends of cap-logs.

6. A round timber-joint comprising a post having an end in the form of a truncated pyramid, a cap also having four inclined sides and a tenon provided with top and bottom and shoulders, and a girth also having four inclined sides and a tenon having top and bottom, the sides of these three members and the tenons being capable of being cut by appropriately feeding the timbers to a gang of fixed saws appropriately arranged, substantially as herein set forth.

692,112. GARMENT-HANGER. MARTIN H. BOSSHELL and BENJAMIN F. STARSKY, Hazelhurst, Pa. Filed July 3, 1901. Serial No. 67,035. (No model.)



Claim.—1. A garment-hanger, comprising two flat clamping-blocks convexed on the upper edges, one of the blocks having a central notch in its upper edge, a laterally-foldable hook held on a staple spanning said notch, a fibrous facing on the inner side of each clamping-block, and two similar clamps each comprising a resilient metal rod bent centrally, providing two side members extended from the loop or bend, said members being crossed and thence extended as clamping-limbs, that are adapted to engage the sides of the clamping-blocks that have been lapped, and hold said blocks clamped together.

2. A garment-hanger, comprising two flat blocks, each block having a longitudinal groove on the outer side near each end, a staple crossing each groove, a foldable hook on the upper edge of one clamping-block, a fibrous facing on the inner side of each clamping-block, and two similar resilient clamps, each clamp having paired limbs that are adapted to slide into the grooves of the clamping-blocks when said blocks are lapped together, said limbs passing beneath the staples and compressing the blocks together at each end thereof.

692,113. GRAPPLE. MATTHEW H. CALLAHAN, Aspen, Colo. Filed Aug. 20, 1901. Serial No. 72,673. (No model.)



Claim.—1. The improved grapple, comprising two hooks arranged side by side and pivoted together, their shanks extending in opposite directions, and two levers arranged at right angles to the said hooks and secured to their shanks and extending therefrom in opposite directions, substantially as shown and described.

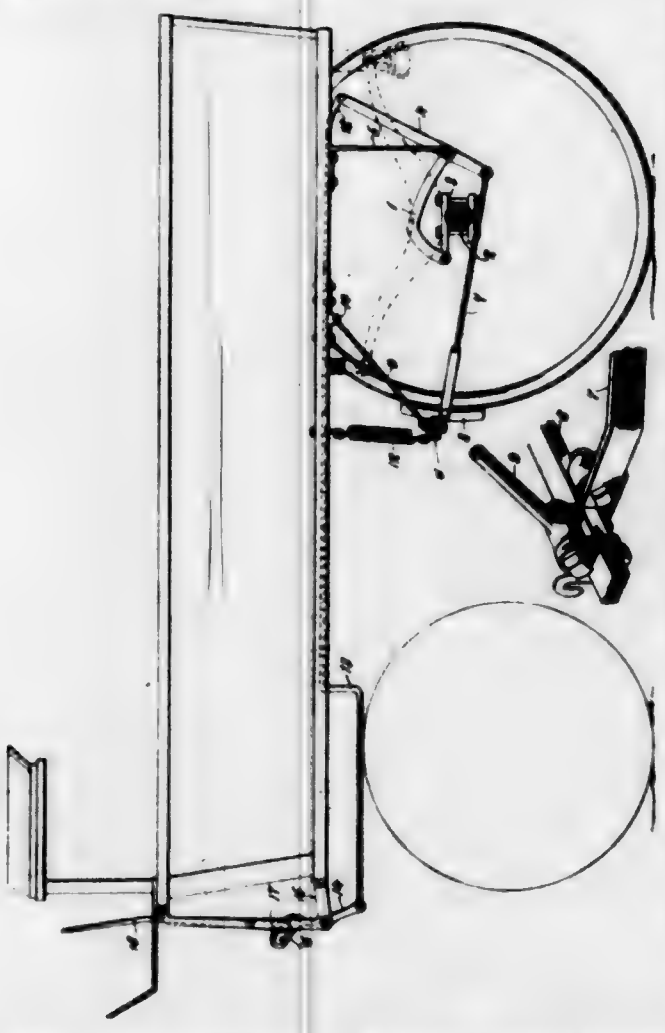
2. The improved grapple comprising two hooks pivoted together and two lifting-bars or levers secured to the shanks of the same at right angles thereto, and the wheel arranged between and connected with the said levers at one end, substantially as shown and described.

3. The improved grapple, comprising two hooks pivoted together and adapted for adjustment as described, two levers or lifting-bars secured to the shanks of said hooks and arranged parallel to each other and at right angles to the hooks, and a transporting-wheel arranged between the said levers at one end and having an axle which is adjustably connected with the levers, substantially as shown and described.

4. The improved grapple comprising two jaws or hooks pivoted together and adapted for adjustment as described, two levers attached to the shanks of said hooks and extending at right angles thereto, sockets applied to the said levers at one end, an axle passing through the outer ends of said sockets and adjustably connected therewith, and the wheel secured upon the axle, substantially as shown and described.

5. The improved grapple, comprising a double hook and a single hook pivoted together and having T-shaped heads formed on the ends of their shanks, two levers or lifting-bars secured to the said heads and extending an equal length on opposite sides of the same, substantially as shown and described.

692,114. WAGON-BRAKE. THOMAS CALLISTER, New York, N. Y. Filed Oct. 21, 1901. Serial No. 79,408. (No model.)



Claim.—1. In a wagon-brake, a fulcrum-arm extended rearward from the wagon-axle and having a vertical movement relatively thereto, spring-rod connections between said arm and the wagon-body, a brake-lever pivoted to the arm in the rear of the axle, a brake-beam, and connections between the beam and said lever, substantially as specified.

2. In a wagon-brake, a fulcrum-arm having a pivotal connection with the vehicle-axle, the said connection being forward of the axle and the free end of the arm being rearward of the axle, a brake-lever fulcrumed in said free end, spring-hangers supporting the arm from the body of the vehicle, a brake-beam suspended from the body, and connections between said brake-beam and the lever, substantially as specified.

3. A wagon-brake, comprising a fulcrum-arm having swinging connection with the wagon-axle, spring-yielding hangers supporting the arm from the vehicle-body, a brake-lever mounted in the free end of the arm, a brake-beam, hangers extended from said brake-beam at an upward and rearward incline to pivotal connection with the vehicle-body, and a spring connection between said beam and the vehicle-body, substantially as specified.

4. A wagon-brake, comprising an arm mounted on the rear axle of the vehicle and extended rearward therefrom, a brake-lever pivoted in said rear end, a brake-beam having connection with the lower end of said lever, swinging connections between said beam and the vehicle-body, a draw-bar extended from the upper end of said lever along the under side of the vehicle, a lever to which the forward end of said bar is connected, the upper portion of said lever being provided with an upwardly and forwardly inclined slot, a foot-lever, and a roller on the lower end of said foot-lever for engaging in said slot, substantially as specified.

5. A wagon-brake, comprising a fulcrum-arm having swinging connection with the wagon-axle and extended rearward therefrom, spring-yielding hangers connecting the rear end of said arm to the vehicle-body, the said hangers being divergent, a brake-lever pivoted to the end of said arm, a brake-beam, divergent draw-rods connecting said beam with the lever, hangers extended upward and rearward from the beam and having pivotal connection with the vehicle-body, and a draw-bar extended from the upper end of the lever to the front portion of the vehicle, substantially as specified.

692,115. RAILROAD-RAIL. GEORGE A. CASE, Joplin, Mo. Filed Aug. 22, 1901. Serial No. 72,939. (No model.)



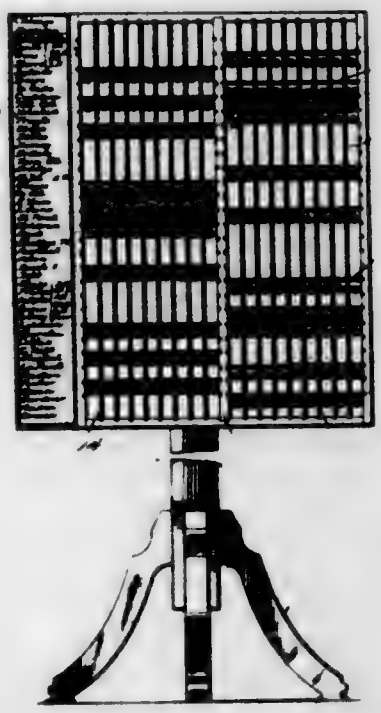
Claim.—1. The combination of a lower or main rail portion, a rail-ball portion having a downwardly-projected flange or skirt with a dovetail recess, a fastening-plate having a part engaged in said recess of the flange or skirt, and means for securing the fastening-plate in position.

2. A rail, comprising a lower or main portion having a base-flange and a web with an enlarged upper edge, a ball portion comprising a ball proper and downwardly-projected side flanges or skirts straddling the upper edge of the web, said skirts having dovetail openings therein, fish-plates lying against the web of the lower portion and having dovetail lugs which enter the openings in the skirts, and means for securing the fish-plates in position.

3. A rail, comprising a lower or main portion, a removable ball portion having a downwardly-projected skirt with an opening therein, a fastening-plate, said plate having a projection entering the opening in the skirt of the ball portion to hold the two together, and means for securing the plate in place.

4. A rail, comprising a lower or main part made up of a base-flange, a web, and a ball of substantially the form of a standard rail, a removable portion forming the ball proper, said movable portion lying on the ball of the lower or main part of the rail and having a skirt projecting down alongside of said lower part of the rail, and means engaged with said skirt to hold the removable part of the rail in place.

692,116. CAR-RECORD DEVICE. JOSEPH R CAVANAGH, JOHN B. HANNAH, and JOSEPH D. CLARKE, Indianapolis, Ind. Filed June 6, 1899. Serial No. 719,597. (No model.)



Claim.—1. A car-record device, comprising a revoluble casing, provided with vertical partitions, in combination with removable shelves, slotted to accommodate the partitions, and provided at their inner ends with sharpened projections.

2. A car-record device, comprising a revoluble casing divided by

vertical partitions into compartments, the walls of which are slotted, in combination with removable shelves having supporting projections at their front ends, and sharpened projections at their rear or inner edges.

3. In a car-record device, the combination with a revoluble casing, comprising a central pivotal support and compartments at each side of the casing divided by vertical partitions, the walls of the compartments having inclined slots, of removable shelves having parallel slots and having their front ends provided with projections fitting the inclined slots of the compartments.

4. In a car-record device, the combination with the revoluble casing formed with shelf-supporting slots, of a removable shelf having lateral projections entering said slots and supporting the front of the shelf, and sharpened projections at its rear edge, the front edge of said shelf being formed with a bead serving as a finger-piece.

5. In a car-record device, the combination with a revoluble casing formed with compartments, and downwardly-inclined slots, of vertical partitions, and removable shelves, formed with parallel slots and end lugs, the rear edges of the shelves being sharpened, and their front edges bent upon themselves to form a reinforcing-bead.

6. In a car-record device, a record-block beveled on its upper surface and provided with a spring-clip, and beveled on its under surface and provided with a spring-clip, in combination with a record-card adapted to be held by said clips, and bearing a number which rests opposite the outer end of the block.

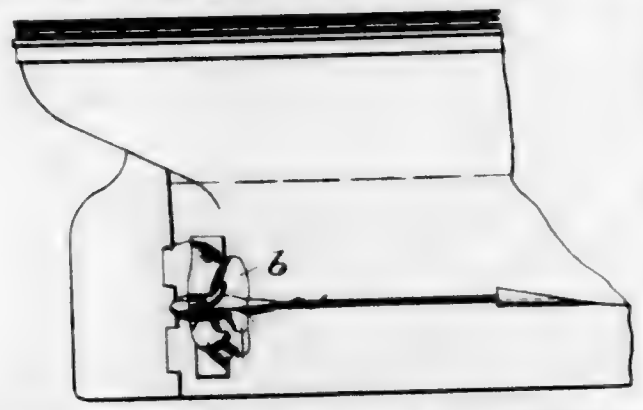
7. In a car-record device, a record-block provided on its upper and lower surfaces with transverse shoulders and spring-clips to expose a record or index space opposite the outer end of the block, of a record-card held by said clips, and a pin secured against one side of the block.

8. In a car-record device, the combination with a record-block and means thereon for securing a card, of a record-card bearing a car-number, and so bent for engagement with the block as to bring said number opposite the outer end of the block, and means for holding the end of the card on said block.

9. In a car-record device, a revoluble casing supported upon a central pivotal support, each side of the casing bearing an index-column, and being divided by vertical partitions, in combination with shelves which are slotted to pass said partitions and provided at their inner edges with sharpened projections for supporting them in position.

10. A record-block of the character described, provided with shoulders upon its opposite faces between which a record-card is designed to be retained and card-retaining devices adjacent to each of the shoulders.

692,117. MARINE PROPULSION. ISAAC M. CHASE, Washington, D. C. Filed Jan. 29, 1896. Serial No. 577,227. (Model.)



Claim.—1. A screw-propeller, in combination with fixed guide-blades aft of, overhanging, and extending forward to a point within the length of the screw.

2. A screw-propeller, in combination with fixed guide-blades aft of, surrounding, extending forward and terminating at approximately the longitudinal center of the screw.

3. A screw-propeller, in combination with fixed guide-blades aft of the screw and having a pitch and a curve from the root to the tip of the blade approximating the pitch and curve of the screw.

4. A screw-propeller, in combination with fixed guide-blades aft of, overhanging the screw and approximating the diameter of the screw.

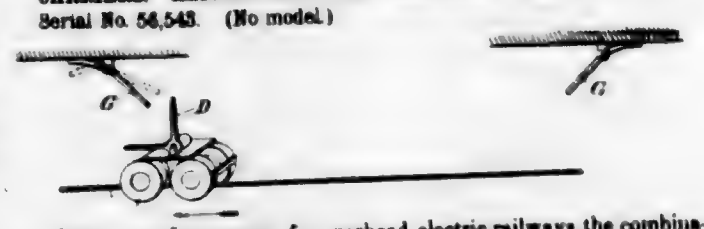
5. A screw-propeller, in combination with a bracket provided with guide-blades, aft of the screw and supporting one end of its shaft.

6. A screw-propeller, in combination with a bracket provided with guide-blades having a pitch approximating the pitch of the screw, aft of and supporting the screw.

7. A screw-propeller, in combination with a bracket provided with guide-plates having transversely-curved or oblique outer surfaces, aft of and adjacent to the screw.

8. A screw-propeller in combination with a bracket provided with guide-blades which surround the screw aft of its longitudinal center.

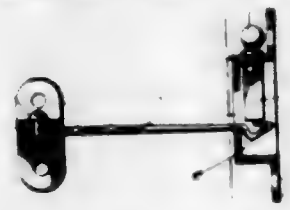
692,118. REVERSING DEVICE FOR OVERHEAD ELECTRIC CARRIERS. ARTHUR S. CLIFT, East Orange, N. J. Filed Apr. 19, 1901. Serial No. 56,543. (No model.)



Claim.—1. In a carrier for overhead electric railways the combination of the motor, a cylindrical reversing switch therefor and mean for automatically turning the switch at predetermined points, and a spring tending normally to hold the switch in its extreme positions, substantially as described.

2. In a carrier for overhead electric railways, the combination of a motor, a cylindrical reversing switch, arms on said switch and means for engaging said arms at predetermined points to turn the switch, and a spring tending normally to hold the switch in its extreme positions, substantially as described.

692,119. SCREEN-DOOR FASTENER. WILLIAM B. COCHRANE, Pocatello, Idaho, assignor of one-half to Louis C. Kettler, Pocatello, Idaho. Filed Aug. 6, 1901. Serial No. 71,065. (No model.)

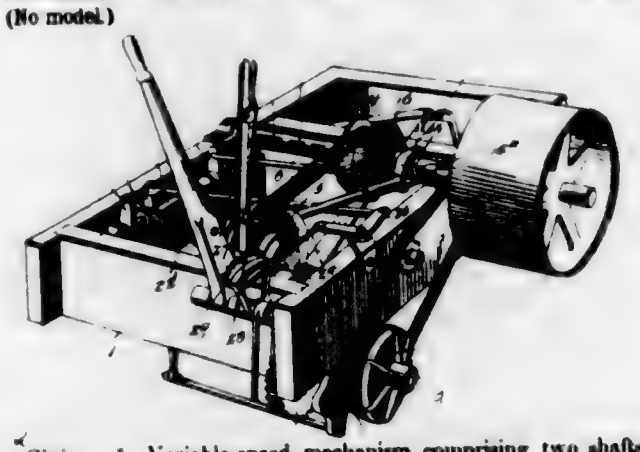


Claim.—1. A door-fastener, consisting of catch-box adapted to be secured to a door and provided with a central opening in its front wall and with a transverse slot in its top wall, an adjustable spring-bar adapted to be secured to a door-casement and provided at its free end with a V-shaped hook adapted to enter the opening of the box and engage the front wall thereof, and a bolt loosely held in the slot of the box and having its lower end extending down into the box, said bolt being adapted to be moved in the said slot to dispose it directly over the hook of the said bar or at one side of the same, as set forth.

2. A door-fastener, comprising a catch-box adapted to be secured to a door and provided with an opening in its front wall and with a transverse slot in its top wall, a spring-bar adapted to be secured to a door-casement and having a hook-shaped end adapted to enter the opening of the box and engage the front wall thereof, and a bolt slidably held in the slot of the box with its end extending down into the same, the said bolt being adapted to be disposed directly over the hook of the bar or at one side of the same, as set forth.

3. A door-fastener, consisting of a box having an opening in its front wall and a slot in its top wall and adapted to be secured to a door, a bolt slidably held in the slot of the box with its end extending down into the same, a slotted footpiece adapted to be secured to a door-casement, and a spring-bar having a plurality of openings for adjustably securing it to the slotted foot, and provided with a hook at one end adapted to enter the opening of the box and engage the front wall thereof, as set forth.

692,120. REVERSIBLE VARIABLE-SPEED GEARING. GEORGE F. CONNER, Port Huron, Mich. Filed Mar. 11, 1901. Serial No. 50,691. (No model.)



Claim.—1. Variable-speed mechanism comprising two shafts, an expansible pulley mounted on each shaft, each pulley consisting of a fixed member and a movable member, a belt connecting said pulleys, a loose shifting collar on each shaft, a fixed bearing-collar on each shaft between the loose member and shifting collar, a hub or projection extending from each loose member and sliding in said fixed collar, and adapted to bear

against said shifting collar, and a coil-spring surrounding said hub or projecting between each loose member and fixed bearing-collar, and serving to normally press said loose member toward its complemental fixed member and to take up a part of the endwise thrust of the belt, thereby preventing undue friction between the said hub or projection and shifting collar, substantially as set forth.

2. Variable-speed mechanism comprising two shafts, an expansible pulley mounted on each shaft, each pulley consisting of a fixed member and a movable member, a belt connecting said pulleys, a loose shifting collar on each shaft, a fixed bearing-collar on each shaft between the loose member and shifting collar, a hub or projection extending from each loose member and sliding in said fixed collar and adapted to bear against said shifting collar, a coil-spring surrounding said hub or projection between each loose member and fixed bearing-collar and serving to normally press said loose member toward its complemental fixed member and to take up a part of the endwise thrust of the belt, thereby preventing undue friction between the said hub or projection and shifting collar, and means for simultaneously operating the shifting collars to contract one pulley and expand the other pulley, substantially as specified.

3. In a variable-speed device, a drive-shaft, a driven shaft, a power-transmitting shaft, variable-speed gearing between the drive-shaft and the driven shaft for changing the relative speeds of said shafts, said gearing comprising expansible pulleys on said drive and driven shafts, a belt connecting said pulleys, and means for simultaneously contracting one pulley and expanding the other pulley; in combination with gearing between the driven shaft and power-transmitting shaft and between the drive-shaft and power-transmitting shaft, and means for throwing either of said two sets of gearing connecting with the power-transmitting shaft into action at will for operating the drive parts of the gearing in either direction as desired, substantially in the manner set forth.

4. In a variable-speed device, the combination of two shafts, pulleys mounted thereon, each comprising a fixed and a movable part, a belt connecting the pulleys, sliding sleeves for operating the movable parts of the pulleys, a rock-shaft, connections between the rock-shaft and sleeves to operate said sleeves to cause one to slide the movable part of one pulley toward the fixed part of said pulley, and the other sleeve to slide the movable part of the other pulley away from the fixed part of said latter pulley, a bell-crank lever, a variable-speed lever connected with one arm of said bell-crank lever, and a connection between the other arm of the bell-crank lever and the rock-shaft, substantially as set forth.

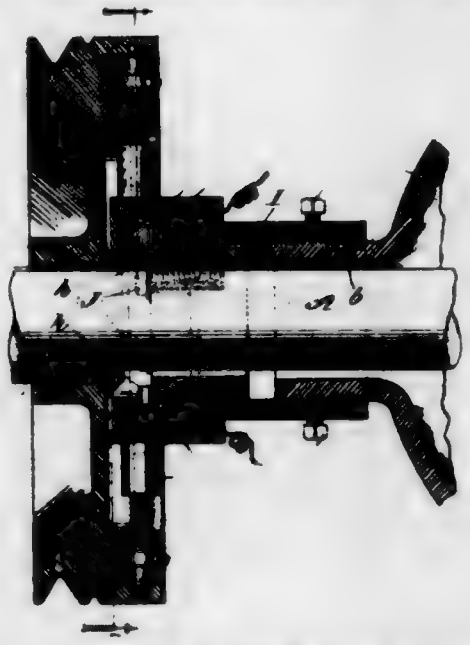
5. In a variable-speed device, the combination of a drive-shaft, a counter-shaft and a power-transmitting shaft, cone-pulleys on the drive and counter shafts, a belt connecting said pulleys, means for simultaneously and alternately contracting and expanding the pulleys to vary the relative speeds of said drive and counter shafts, gearing between the counter-shaft and power-transmitting shaft including a member loosely mounted on the latter shaft, gearing between the drive-shaft and power-transmitting shaft and also including a member loosely mounted on the power-transmitting shaft, clutches alternately acting on the said two loose members on the power-transmitting shaft for reversing the action of the gearing, and means for operating said clutches, substantially as set forth.

6. In a variable-speed device, the combination of a drive-shaft, a counter-shaft and a power-transmitting shaft, cone-pulleys on the drive and counter shafts, a belt connecting said pulleys, means for simultaneously and alternately contracting and expanding the pulleys to vary the relative speeds of said drive and counter shafts, gearing between the counter-shaft and power-transmitting shaft including a member loosely mounted on the latter shaft, gearing between the drive-shaft and power-transmitting shaft and also including a member loosely mounted on the power-transmitting shaft, clutches alternately acting on the said two loose members on the power-transmitting shaft for reversing the action of the gearing, and cams for operating said clutches, substantially as set forth.

7. A variable-speed device comprising two shafts, an expansible pulley on each shaft, each pulley comprising a fixed member and a movable member, a belt connecting said pulleys, springs acting on the movable pulley members to resist the endwise thrust of the belt thereon, means for adjusting and positively limiting the outward movement of the movable pulley members against the pressure of the springs, and for assisting the springs to force said movable pulley members toward the fixed pulley members, and operating means acting on said adjusting and limiting means to simultaneously adjust one movable pulley member toward its complemental fixed pulley in connection with the cooperating spring and releasing the other movable pulley member to adapt it to move outward under the thrust of the belt and against the tension of its spring, substantially as described.

8. Variable-speed mechanism comprising a drive-shaft, a driven shaft, an expansible pulley on each shaft, the pulley on the drive-shaft consisting of a fixed member and a movable member, means for simultaneously expanding one pulley and contracting the other pulley, said means including a shifting collar on the drive-shaft, a fixed bearing-collar on the drive-shaft between the loose pulley member and shifting collar, a hub or projection extending from said loose pulley member and sliding in said fixed collar and adapted to bear against said shifting collar, and a coil-spring surrounding said hub or projection between the loose pulley member and the fixed bearing-collar, and serving to normally press said loose pulley member toward the complemental fixed pulley member and to take up a part of the endwise thrust of the belt, thereby preventing undue friction between the hub or projection and shifting collar, substantially as specified.

692,121. **ALTERNATING-CURRENT MOTOR.** DAVID B. COULSON, Galesburg, Ill., assignor of one-half to Kinsey T. Richards, Galesburg, Ill. Filed Mar. 2, 1901. Serial No. 49,642. (No model.)



Claim.—1. In a motor, the combination with the terminals of the starting or torque coils, the commutator-segments with which they are connected and the armature-shaft, of brushes arranged outside of the commutator-segments and movable toward and from them, means carried by the armature-shaft and in turn carrying and electrically connecting the brushes, and means for yieldingly holding the brushes in contact with the segments, whereby they will be moved out of contact with said segments by centrifugal force, substantially as set forth.

2. In a motor, the combination with the terminals of the starting or torque coils, the commutator-segments with which they are connected and the armature-shaft, of brushes arranged in operative relation to said segments, pins upon which said brushes are slidably mounted, means carried by the armature-shaft and carrying said pins, and means for yieldingly holding said brushes in contact with the commutator-segments, substantially as set forth.

3. In a motor, the combination with the terminals of the starting or torque coils, the commutator-segments with which they are connected and the armature-shaft, of brushes arranged outside of said segments and movable toward and from them, means carried by the armature-shaft and carrying said brushes, and means for yieldingly holding said brushes in contact with the segments, said brushes being electrically connected through the medium of the means by which they are carried, substantially as set forth.

4. In a motor, the combination with the terminals of the starting or torque coils, the commutator-segments with which they are electrically connected, and the armature-shaft, of brushes arranged outside of said segments and movable toward and from them, means carrying and electrically connecting said brushes, said means being in turn carried by the armature-shaft, and means for yieldingly holding the brushes in contact with the commutator-segments, substantially as set forth.

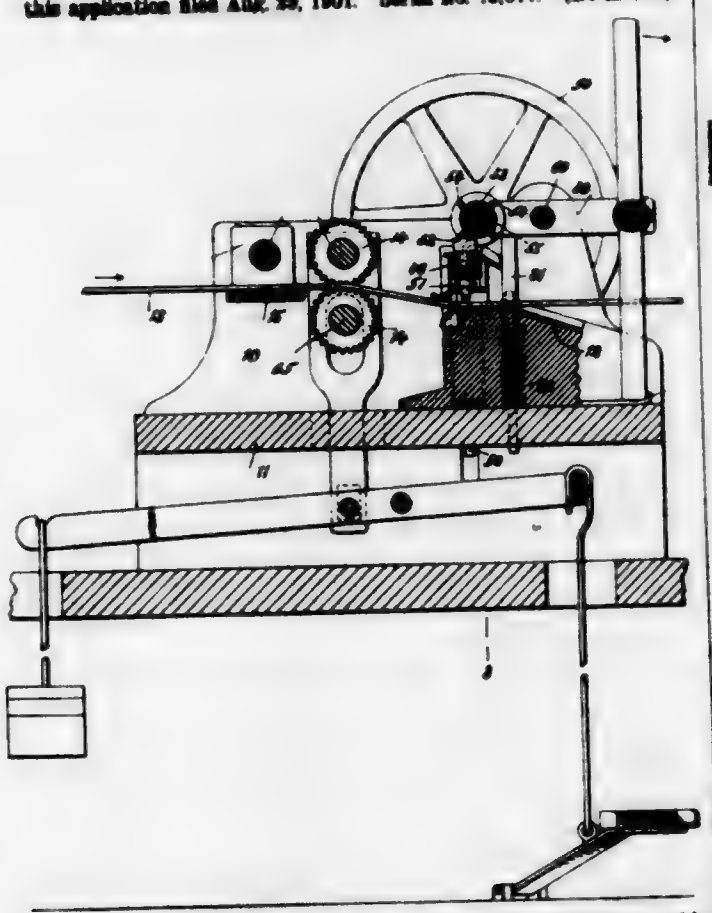
5. In a motor, the combination with the terminals of the starting or torque coils, the commutator-segments and the armature-shaft, of brushes arranged in operative relation to said segments, pins upon which said brushes are adapted to slide toward and from the segments, said pins being disposed radially with respect to the armature-shaft, means carried by the armature-shaft and in turn carrying said pins, and means for yieldingly holding said brushes in contact with the segments, substantially as set forth.

6. In a motor, the combination with the terminals of the starting or torque coils, and the armature-shaft, of brushes arranged in operative relation to said segments, pins upon which said brushes are slidably mounted, said pins being disposed radially with respect to the armature-shaft, coiled springs surrounding the pins and engaging the brushes, adjustable collars carried by the pins and engaging the springs, whereby they may be adjusted, and means carried by the armature-shaft and in turn carrying said pins, substantially as set forth.

7. In a motor, the combination with the terminals of the starting or torque coils, the commutator-segments with which they are electrically connected, and the armature-shaft, of a sleeve to which the segments are secured, means for insulating the sleeve and segments, brushes arranged outside of the segments, and movable toward and from them, means carrying the brushes and in turn carried by the armature-shaft, and means for yieldingly holding the brushes in contact with the segments, substantially as set forth.

8. In a motor, the combination with the terminals of the starting or torque coils, the commutator-segments and the armature-shaft, of brushes arranged outside of the segments and movable toward and from them, a pulley non-rotatively mounted upon the armature-shaft, means for insulating the pulley from the shaft, means carried by the pulley and in turn carrying the brushes, the brushes being electrically connected through the pulley, and means for yieldingly holding the brushes in contact with the segments, substantially as set forth.

692,122. PUNCHING-MACHINE. FRANK F. CURRIE, Rutland, Vt. Original application filed Dec. 4, 1900, Serial No. 38,668. Divided and this application filed Aug. 29, 1901. Serial No. 73,677. (No model.)



Claim.—1. In a punching-machine, a frame, a vertically-movable punch-carrying bar in said frame, and a rotary tappet having tappet-fingers of varying lengths for causing the downward movement of said bar, as set forth.

2. In a punching-machine, a frame, a punch-carrying bar movable vertically in said frame, a shaft supported in the frame, a sleeve adjustable longitudinally on said shaft, and a series of tappet-fingers on said sleeve for operating the punch, said fingers being of varying lengths, as set forth.

3. In a punching-machine, a frame, a punch-carrying bar movable vertically in the frame, a shaft extended across the frame, means for raising and lowering said shaft, a sleeve adjustable longitudinally of the shaft and a series of tappet-fingers on said sleeve, said tappet-fingers being of different lengths, substantially as specified.

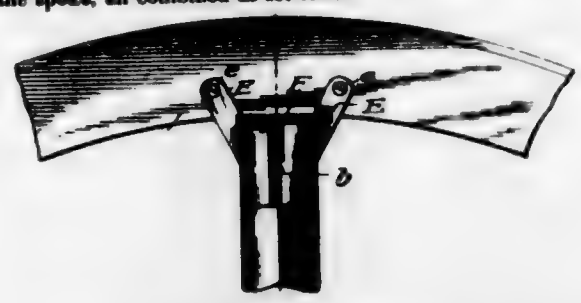
4. A punching-machine having a spring-pressed bar mounted to slide and adapted to carry a punch, and a revoluble tappet-sleeve having tappet-fingers of different lengths, as set forth.

5. A punching-machine having a spring-pressed bar mounted to slide and adapted to carry a punch, a revolable tappet-sleeve having tappet-fingers of different lengths, and means for adjusting said sleeve transversely to bring one or more of the tappot-fingers in operative position relative to the punch, as set forth.

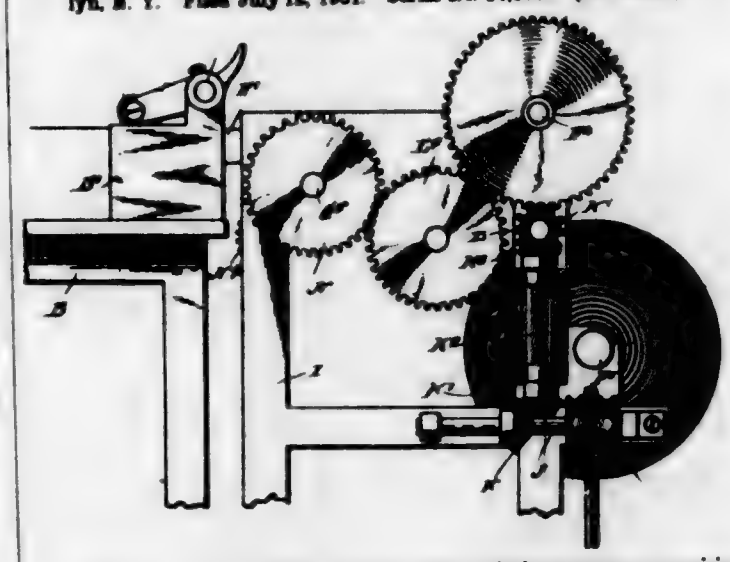
692,123. SPOKE AND FELLY FASTENER. JOHN S DAVIS, Creek, N. C. Filed June 13, 1901. Serial No. 64,425. (No model.)

Claim.—1. In spoke-sockets, a plate uniting the felly and the spoke and having wedge-shaped projections extending between the felly and the end of the spoke all combined as set forth.

2. In spoke-sockets, a plate uniting the felly and the spoke, having wedge-shaped, corrugated projections extending between the felly and the end of the spoke, all combined as set forth.



692,124. SHEETING ATTACHMENT FOR PRINTING-PRESSES. MICHAEL A. DEORTOGUE, Pittsburg, Pa., and GUSTAV F. KALKHOFF, Brooklyn, N. Y. Filed July 12, 1901. Serial No. 67,979. (No model.)



Claim.—1. A sheeting attachment for printing-presses, comprising a traveling apron provided with an extended portion for successively receiving the sheets from the printing-press, the apron being arranged for winding up in a roll with the sheets separated from each other and extending between successive layers of the roll, as set forth.

2. A sheeting attachment for printing-presses, comprising a traveling apron unwinding from a roll and winding up on a roll, means for extending the apron between the unwinding and winding-up rolls, the extended apron part being arranged at the rear of the printing-press and adapted to successively receive the printed sheets, as set forth.

3. A sheeting attachment for printing-presses, comprising a delivering-apron unwinding from a roll and winding up on a roll, means for extending the apron between the unwinding and wind-up rolls, the extended portion of the apron projecting over the rear end of the fly-table of the press, and a feed driven in unison with the press, for continually feeding the apron and winding it up into a roll with the sheets contained between adjacent layers of the roll, as set forth.

4. A sheeting attachment for printing-presses, comprising a delivering-apron unwinding from a roll and winding up on a roll, the apron having an extended portion between the unwinding and winding-up rolls, feed-rollers over which the extended portion of the apron passes, means for driving the feed-rollers from the winding-up roll, and means for rotating the winding-up roll in unison with the press, for continually feeding the apron and winding it up into a roll, with the sheets contained between adjacent layers of the roll, as set forth.

5. A sheeting attachment for printing-presses, comprising a traveling apron unwinding from a roll and winding up on a roll, feed and guide rollers for extending the apron between the said rolls, the extended portion being arranged to receive the printed sheets successively from the press, and means for imparting a traveling motion to the apron and for winding up the apron as a roll, as set forth.

6. A sheeting attachment for printing-presses, comprising an apron unwinding from one roll and winding up on a second roll, the said apron having an extended portion between the unwinding and winding-up rolls and upon which the printed sheets are successively delivered, and rollers arranged above the extended portion of the apron to engage the printed sheet on the top at the sides, as set forth.

7. A sheeting attachment for printing-presses, comprising an apron unwinding from a roll and winding up on a second roll, the apron having an extended portion between the unwinding and winding-up rolls, a guide-roller around which the extended portion of the apron passes to the winding-up roll, feed-rollers between the unwinding-roll and the guide-roller around which the apron passes, and rollers mounted to swing and located above the ends of said guide roller, as set forth.

8. A sheeting attachment for printing-presses, comprising a traveling apron unwinding from a roll and winding up on a roll, feed-rollers and a guide-roller for extending the apron between the unwinding and winding-up rolls, the printing-sheets being successively delivered upon the extended part of the apron, a transverse shaft mounted to turn above the extended part of the apron, arms on the ends of said shaft and a roller journaled on each arm and located above the guide-roller around which the apron passes, as set forth.

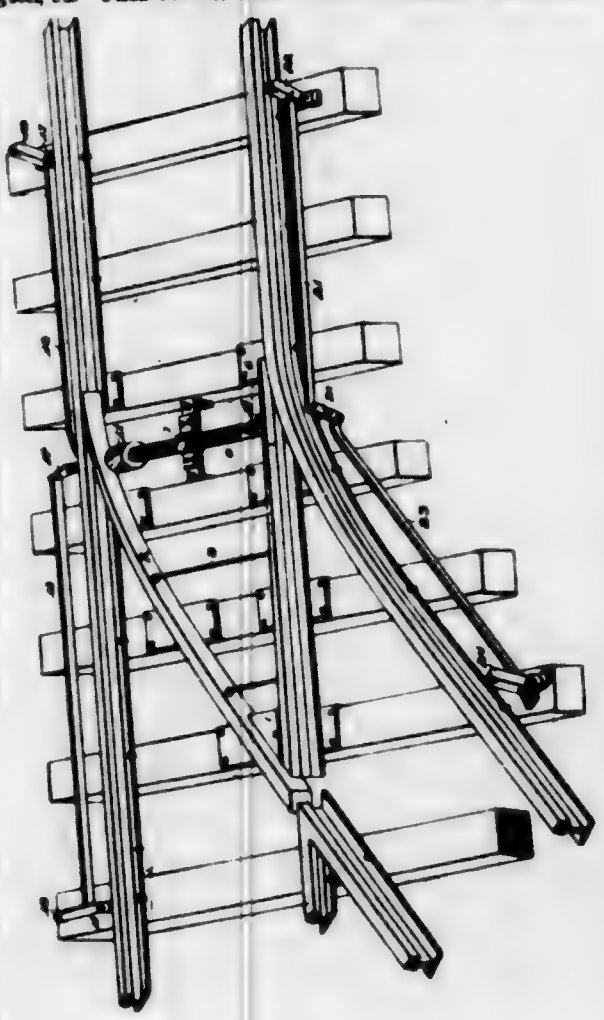
9. A sheeting attachment for printing-presses, comprising a traveling apron unwinding from a roll and winding up on a roll, the apron having a part extended between the said rolls and adapted to receive the printed sheet from the press, feed-rollers around which the apron passes, a guide-roller around which the extended part of the apron passes, a gear connection between the winding-up roll and the feed-rolls, means for driving the winding-up roll in unison with the press, and rollers arranged above the extended portion of the apron and adapted to engage the printed sheet when the latter is delivered from the press, as set forth.

10. A sheeting attachment for printing-presses comprising a traveling apron unwinding from a roll and winding up on a roll, feed-rollers around which the apron passes from the unwinding-roll, a guide-roller journaled in a block at the rear end of the fly-table of a press and around which the apron passes, and a second guide-roller over which the apron passes to the winding-up roll, the apron being arranged to successively receive the sheets from the press, and means for driving the winding-up roll and the feed-rollers in unison with the press, as set forth.

11. A sheeting attachment for printing-presses, comprising a traveling apron, unwinding from a roll and winding up on a roll, a pair of feed-rollers around which the apron passes from the unwinding-roll, a guide-roller for the apron around which the apron passes, a second guide-roller over which the apron passes, a shaft journaled in bearings on the frame of the attachment and arranged to be driven in unison with the printing-press to which the attachment is applied, a vertically-disposed shaft driven from the first-mentioned shaft, a driving connection between the vertically-disposed shaft and the shaft of the winding-up roll, and means for driving the feed-rollers from the winding-up roll, as set forth.

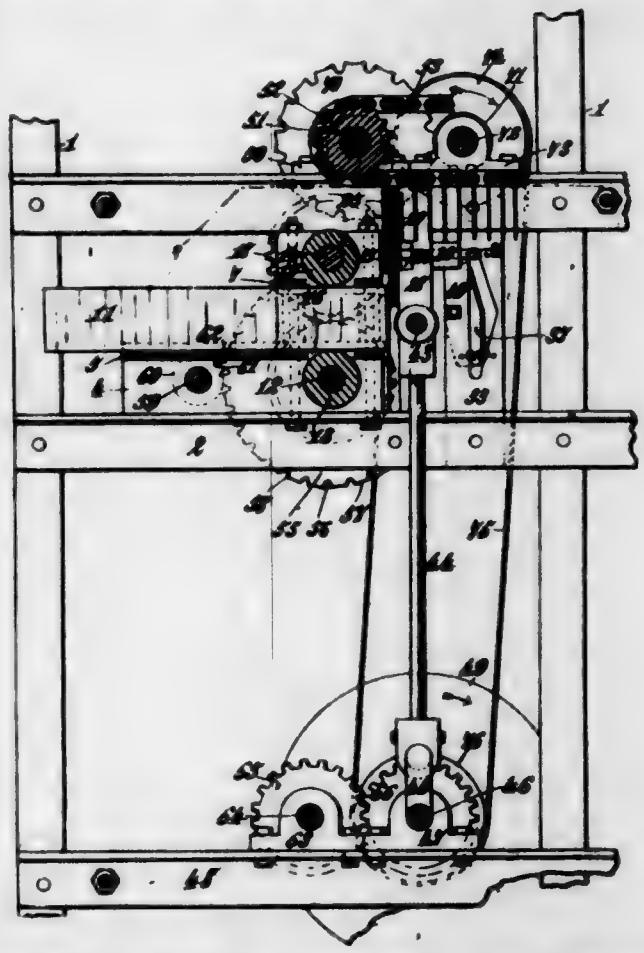
12. A sheeting attachment for printing-presses, comprising an apron arranged to unwind from a roll and wind up on a roll, the apron being provided with an extended portion between the winding and unwinding rolls, the extended portion being arranged at the delivery end of the printing-press for successively receiving the sheets from the press, the apron being arranged to be wound up in a roll with the sheets separated from each other and extending between successive layers of the roll, as set forth.

692,125. **RAILWAY-SWITCH.** CHRISTIAN A. HOSER, New Kensington, Pa. Filed Oct. 28, 1901. Serial No. 80,250. (No model.)



Claim.—In combination with the main and side tracks and a switch-tongue and a switch-rail connected together, a single rock-shaft having bearings located between two of the cross-ties, bushings mounted on said rock-shaft intermediate of its ends, inclined cam-faces on the outer sides of said bushings for engagement with the inner faces of said switch tongue and rail, a lever centrally secured to each end of said rock-shaft on the exterior of the main and side track rails, one of said levers carrying a pair of oppositely-disposed throwing-rods extending in alinement with the main-track rails and having trips carried by their free ends, the other of said levers carrying a pair of oppositely-disposed throwing-rods pivotally secured to its ends, one of said last-named levers extending in alinement with the main track and carrying a trip on its free end, the other of said levers extending in alinement with the side track on the exterior thereof, and carrying a trip on its free end, substantially as described.

692,126. **MATCH-MAKING MACHINE.** EDWARD H. EISENHART, New York, N. Y. Filed July 20, 1901. Serial No. 69,087. (No model.)



Claim.—1. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips in parallel rows, of a vertically-grooved plate arranged to reciprocate in front of the ends of the strips and receive the splints as they are severed therefrom, a knife fixed to the grooved face of said plate and beveled on the side of its cutting edge adjacent to the said plate, and means for reciprocating said knife to simultaneously slice off splints from all the veneer strips, the beveled edge of the knife operating to direct the splints into said grooves, substantially as described.

2. In a match-machine, the combination with means for intermittingly feeding forward a plurality of veneer strips in parallel rows, of a plate arranged to reciprocate transversely in front of the ends of the strips in the direction of their width, said plate having its face adjacent to the strips vertically grooved for a suitable distance to receive the splints as they are severed from the strips, a knife fixed to the grooved portion of the face of said plate and beveled on the side of its cutting edge adjacent to the plate to guide the splints into the said grooves, means for reciprocating the knife and plate in one direction to simultaneously slice off splints from all the veneer strips, and in the other direction to move the knife and grooved portion of the plate from in front of the strips and the ungrooved portion of said plate in front thereof, substantially as described.

3. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely to said strips in the direction of their width, a knife carried by said carrier, means for actuating said knife-carrier to simultaneously slice off splints from the ends of all the strips, a bar carried by the knife-carrier, and means for projecting said bar beneath the forward edges of the strips before the splints are entirely severed, substantially as described.

4. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips, a knife carried by said carrier for simultaneously slicing off splints from the ends of all the strips, said knife-carrier being provided with receptacles arranged to receive the splints as they are severed from the strips, and said knife being arranged to close one side of each of said receptacles, and means for actuating the knife-carrier, substantially as described.

5. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips, the face of said knife-carrier being vertically grooved, a knife fixed to the face of the knife-carrier over said grooves and arranged to simultaneously slice off splints from the ends of all the strips, and means for closing the lower ends of the grooves, substantially as described.

6. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips, the face of said carrier being vertically grooved, a knife fixed to the face of the knife-carrier over said grooves and arranged to simultaneously slice off splints from the ends of all the strips, the lower cutting edge of the knife being beveled on the side next the carrier for directing the severed splints into the grooves, and means for closing the lower ends of the grooves, substantially as described.

7. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips, the face of said carrier being vertically grooved, a knife fixed to the face of said knife-carrier over said grooves and arranged to simultaneously slice off splints from the ends of all the strips, the lower cutting edge of the knife being beveled on the side next the knife-carrier for directing the severed splints into the grooves, a horizontally-movable bar carried by the knife-carrier, and means for moving said bar under the lower edges of the veneer strips before the splints have been completely severed, substantially as described.

8. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips, the face of said carrier being vertically grooved, a knife fixed to the grooved face of said knife-carrier and arranged to slice off splints simultaneously from the ends of all the strips, the lower cutting edge of the knife being beveled on the side next the knife-carrier to direct the splints into the grooves as they are severed from the strips, a horizontally-movable bar carried by the knife-carrier, and means for moving said bar under the lower edges of the veneer strips before the splints have been completely severed, and an endless splint-carrier arranged above the knife-carrier, substantially as described.

9. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips, the face of said carrier being vertically grooved, a knife fixed to the grooved face of the knife-carrier and arranged to slice off splints simultaneously from the ends of all the strips, a horizontally-movable bar carried by the knife-carrier, means for moving said bar under the lower edges of the strips before the splints have been completely severed, means for maintaining said bar in such position during the ascent of the knife-carrier, and an endless splint-carrier arranged above the knife-carrier, substantially as described.

10. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips, the face of said carrier being vertically grooved, a knife fixed to the grooved face of the knife-carrier and arranged to slice off splints simultaneously from the ends of all the strips, a horizontally-movable bar carried by the knife-carrier, means for moving said bar under the lower edges of the strips before the strips have been completely severed, means for maintaining the bar in said position during the ascent of the knife-carrier, means for retracting the bar during the descent of the knife-carrier, and an endless splint-carrier arranged above the knife-carrier, substantially as described.

11. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips, and provided centrally with a horizontal slot, the face of said knife-carrier being vertically grooved from its upper edge to said slot, a knife fixed to the grooved face of the knife-carrier and having its lower cutting edge terminating above the slot, a bar movably arranged in said slot, means for projecting said bar from the slot and under the edges of the strips before the latter are completely severed, means for withdrawing the bar into the slot on the downward stroke of the knife-carrier, and an endless splint-carrier arranged above the knife-carrier, substantially as described.

12. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips and provided centrally with a horizontal slot, the face of said knife-carrier being vertically grooved from its upper edge to said slot, a knife fixed to the grooved face of the knife-carrier and having its lower cutting edge terminating above the slot, a bar movably arranged in said slot, means for projecting said bar from the slot and under the edges of the strips before the latter are completely severed, means for maintaining said bar projected during the ascent of the knife-carrier, means for retracting the bar during the descent of the knife-carrier, and an endless splint-carrier arranged above the knife-carrier, substantially as described.

13. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips and provided centrally with a horizontal slot, the face of said knife-carrier being vertically grooved from its upper edge to said slot, a knife fixed to the grooved face of the knife-carrier and having its lower cutting edge beveled on the side next the knife-carrier and terminating above a bar movably arranged in said slot, means for projecting said bar beneath the lower edges of the strips before the splints have been completely severed, means for retracting the bar during the descent of the knife-carrier, and an endless splint-carrier arranged above the knife-carrier, substantially as described.

14. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips set up on edge in parallel rows, of a vertically-reciprocating knife-carrier arranged to move transversely in front of said strips and provided centrally with a horizontal slot, the face of said knife-carrier being vertically grooved from its upper edge to said slot, a knife fixed to the grooved face of the knife-carrier and having its lower cutting edge terminating above the slot, a bar movably arranged in said slot, means for projecting said bar beneath the lower edges of the strips before the splints have been completely severed, means for retracting the bar during the descent of the knife-carrier, an endless splint-carrier arranged above the knife-carrier, and means for preventing lateral movement of the knife-carrier, substantially as described.

15. In a match-machine, the combination with a vertically-reciprocating knife-carrier provided centrally with a horizontal slot and provided on its face with a plurality of vertical grooves extending from its upper edge to said slot, of a knife fixed to the grooved face of the knife-carrier and having its lower cutting edge terminating above the slot, a bar movably arranged in said slot, laterally-bent arms attached to the rear side of said bar, and vertical guide-bars fixed on opposite sides of the knife-carrier and provided with slots into which the ends of said arms project, said slots having inclined sides against which the ends of the arms impinge on the latter part of the downward movement of the knife-carrier, whereby the said bar is projected from without the slot, substantially as and for the purpose specified.

16. In a match-machine, the combination with a vertically-reciprocating knife-carrier provided centrally with a horizontal slot and provided on its face with a plurality of vertical grooves extending from its upper edge to said slot, of a knife fixed to the grooved face of the knife-carrier and having its lower cutting edge terminating above the slot, a bar movably arranged in said slot, laterally-bent arms attached to the rear side of said bar, vertical guide-bars fixed on opposite sides of the knife-carrier and provided with slots into which the ends of said arms project, said slots having inclined sides against which the ends of the arms impinge during the latter part of the descent of the knife-carrier, whereby the bar is projected from without the slot, and cams disposed within said slots and arranged to engage the ends of the said arms and retract the bar during the initial portion of the descent of the knife-carrier, substantially as and for the purpose specified.

17. In a match-machine, the combination with a vertically-reciprocating knife-carrier provided centrally with a horizontal slot and provided on its face with a plurality of vertical grooves extending from its upper edge to said slot, of a knife fixed to the grooved face of the knife-carrier and having its lower cutting edge terminating above the slot, a bar movably arranged in said slot, laterally-bent arms attached to the rear side of said bar, vertical guide-bars fixed on opposite sides of the knife-carrier and provided with slots into which the ends of said arms project, said slots having inclined sides against which the ends of the arms impinge during the latter part of the descent of the knife-carrier and project the bar without the slot, and pivoted switch-cams disposed within said slots and arranged to engage the ends of the said arms and retract the bar during the initial portion of the descent of the knife-carrier, said switch-cams being arranged to oscillate on the upward movement of the

knife-carrier to permit the passage of the arms therepast, substantially as described.

18. In a match-machine, the combination with a vertically-reciprocating knife-carrier provided centrally with a horizontal slot and provided on its face with a plurality of vertical grooves extending from its upper edge to said slot, of a knife fixed to the grooved face of the knife-carrier above said slot, a bar movably arranged in said slot, laterally-bent arms attached to the rear side of said bar, vertical guide-bars fixed on opposite sides of the knife-carrier and provided with slots into which the ends of said arms project, said slots having inclined sides against which the ends of the arms impinge during the latter part of the descent of the knife-carrier and project the bar without the slot, pivoted switch-cams disposed within said slots and arranged to engage the ends of said arms and retract the bar during the initial portion of the descent of the knife-carrier, and a spring arranged to normally hold the switch-cam in position to be engaged by the arms as the knife-carrier descends, said switch-cams being arranged to oscillate on the upward movement of the knife-carrier to permit the passage of the arms therepast, substantially as described.

19. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips arranged in parallel rows, of a reciprocating knife arranged to move transversely to said strips in the direction of their width, a crank-shaft and pitman for reciprocating the knife, an endless carrier, means moving with the knife for inserting the severed splints in the carrier, and intermittent gearing driven by the crank-shaft and constructed to feed forward the carrier with a step-by-step movement, substantially as described.

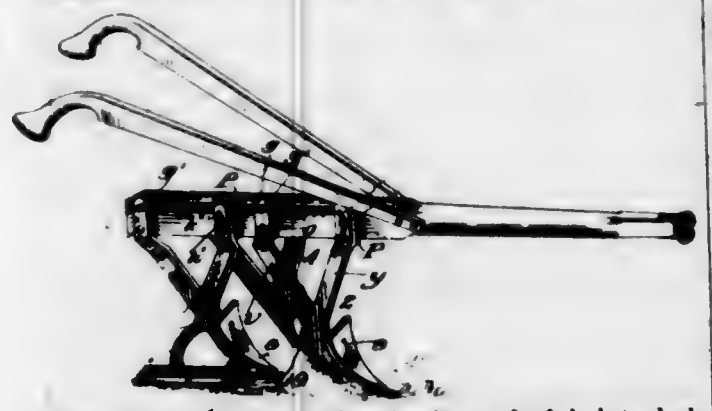
20. In a match-machine, the combination with means for intermittingly feeding forward a plurality of separated veneer strips arranged in parallel rows, of a reciprocating knife arranged to move transversely to said strips in the direction of their width, a crank-shaft and pitman for reciprocating the knife, an endless carrier, means moving with the knife for inserting the severed splints in the carrier, and intermittent gearing driven by the crank-shaft and constructed to feed forward the carrier with a step-by-step movement and to positively lock the carrier against movement while the splints are being cut and inserted, substantially as described.

21. An endless carrier for match-machines consisting of a series of parallel perforated carrier-bars each constructed to receive and hold a plurality of splints and provided at their opposite ends with journals, of links fitted over and connecting said journals, said carrier-bars being rigidly connected together in pairs and said pairs being flexibly connected together, substantially as described.

22. An endless carrier for match-machines consisting of a series of parallel perforated carrier-bars provided at their opposite ends with angular journals, of two series of links fitted over and connecting said journals, the links of one series having circular apertures in their opposite ends in which the journals are free to turn, and the links of the other series having angular apertures corresponding in shape to the journals and in which the latter cannot turn, substantially as described.

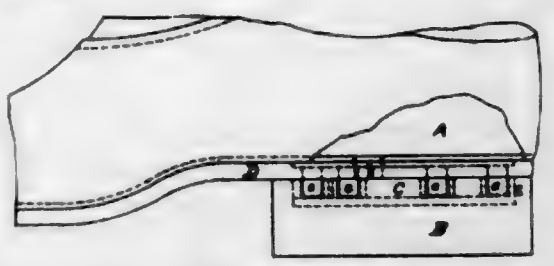
23. An endless carrier for match-machines consisting of a series of parallel perforated carrier-bars provided at their opposite ends with angular journals, of two series of links fitted over and connecting said journals, one series of links being perforated at their ends and the other series slotted at their ends to correspond to the shape of the journals, the slotted and perforated links being alternately arranged on the journals and so disposed that the forward ends of the perforated links overlap the rear ends of the slotted links, substantially as described.

692,127. PLOW. FRANCIS LA FAYETTE EBELL, Flatrock, Tenn. Filed May 27, 1901. Serial No. 62,069. (No model.)



Claim.—The combination with a plow-beam, of a forked standard, one arm of which is pivoted to said beam, and is provided with a curved slot, a bolt passed through said slot into said beam; and the other arm of which is formed with radial teeth and with a curved slot, a plate secured to the plow-beam and having corresponding radial teeth to engage the teeth of the arm and formed at its upper edge with a laterally-projecting lip to lie upon the upper face of the plow-beam, and a bolt extending through the slot last mentioned and the plate, and provided with a nut, substantially as set forth.

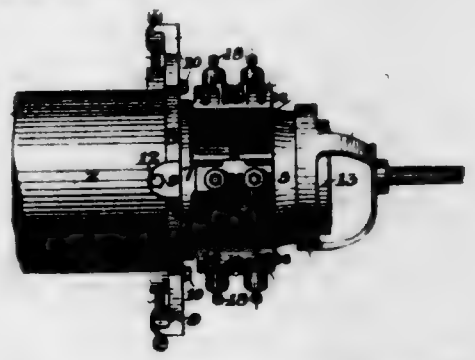
692,128. DETACHABLE SHOE-HEEL. VINCENT A. FABRYCKI, Lasalle, Ill. Filed Jan. 23, 1901. Serial No. 44,489. (No model.)



Claim.—1. The combination with a shoe-sole having lugs on its under face, of a detachable heel carrying recessed bosses for receiving said lugs, and spring-actuated sliding means carrying fingers engaging through said lugs and bosses, and means for actuating said means from the shoe-sole, substantially as described.

2. The combination of the sole, the base-plate attached to said sole and having downwardly-projecting lugs and a perforation for the insertion of a key, the heel-plate attached to the seat of the heel and having recessed bosses to receive said lugs, the two sliding rack-bars having bolting-fingers to engage and lock said lugs and bosses, and the pinion engaging with the racks of said bars and having a key-stem registering with the perforation in the base-plate.

692,129. ROLL-POLISHING APPARATUS. DOUGALD R. FERGUSON, Wilkinsburg, and GEORGE W. HIMON, Port Perry, Pa. Filed Oct. 9, 1901. Serial No. 78,112. (No model.)



Claim.—1. A device for polishing roll-necks comprising a holder or carrier, a buffer supported thereon, and mechanism arranged to support the carrier upon the neck of a roll, and independently of outside support; substantially as described.

2. A device for polishing roll-necks, comprising an annular buffer holder or carrier, end guide-rings arranged to engage the carrier, and mechanism for clamping the guide-rings upon a roll-neck; substantially as described.

3. A device for polishing roll-necks comprising a rotatable buffer-support, having yieldingly-pressed polishers, guide-rings arranged to engage the holder, and mechanism for clamping the rings upon the roll-neck; substantially as described.

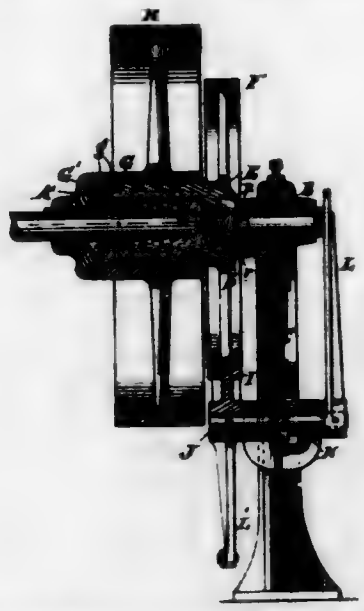
4. A device for polishing roll-necks, comprising a rotatable annular holder having radially-movable buffers, mechanism for exerting an inward pressure upon the buffers, a guide-ring engaging the inner end of the carrier, mechanism for centering the guide-ring upon the roll, and a connection for rotating the carrier; substantially as described

5. A device for polishing roll-necks, comprising an annular rotatory polisher-holder, having spring-pressed polishers, an inner guide-ring engaging the inner end of the holder, and having mechanism for centering and clamping it to the roll, an outer guiding-ring engaging the outer end of the holder, and arranged to be clamped to the end portion of the roll-neck, and a connection for rotating the polisher-holder; substantially as described.

692,130. CLUTCH FOR DRIVING MACHINERY. JOHN W. FRIES, Winston-Salem, N. C. Filed Oct. 15, 1901. Serial No. 78,692. (No model.)

Claim.—1. In a clutch, the combination of the driven shaft having a screw, a brake-hub sleeved upon the shaft and internally screw-threaded acting as a nut to the screw thereof, a driving-wheel sleeved upon the brake-hub and adapted to be clamped to the driven shaft by the brake-hub, and means to retard the rotation of the brake-hub.

2. In a clutch, the combination of the driven shaft having a screw, a brake-hub sleeved upon the shaft and internally screw-threaded acting as a nut to the screw thereof, a driving-wheel sleeved upon the brake-hub and adapted to be clamped to the driven shaft by the brake-hub, means to retard the rotation of the brake-hub consisting of a brake-wheel secured to the brake-hub, and a brake to create a friction upon the brake-wheel.



3. In a clutch, the combination of the driven shaft having a screw, a brake-hub sleeved upon the shaft and internally screw-threaded acting as a nut to the screw thereof, a driving-wheel sleeved upon the brake-hub and adapted to be clamped to the driven shaft by the brake-hub, means to retard the rotation of the brake-hub consisting of a brake-wheel secured to the hub, a brake-shoe to press upon the brake-wheel, and a lever to move the brake-shoe against the brake-wheel.

4. In a clutch, the combination of the driven shaft having a screw, a brake-hub sleeved upon the shaft and internally screw-threaded acting as a nut to the screw thereof, a driving-wheel sleeved upon the brake-hub and adapted to be clamped to the driven shaft by the brake-hub, means to retard the rotation of the brake-hub consisting of a brake-wheel secured to the hub, a brake-shoe to press upon the brake-wheel, a rock-shaft secured to the brake-shoe, an adjustable bearing for the rock-shaft to adjust the brake-shoe to or from the brake-wheel, and a lever secured to the rock-shaft to move the brake-shoe against the brake-wheel.

5. In a clutch, the combination of the driven shaft having a screw, a brake-hub sleeved upon the shaft and internally screw-threaded acting as a nut to the screw thereof, a driving-wheel sleeved upon the brake-hub and adapted to be clamped to the driven shaft by the brake-hub, a stop to arrest the rotation of the brake-hub upon the driven shaft when it has freed the driving-wheel, and means to retard the rotation of the brake-hub.

6. In a clutch, the combination of the driven shaft having a screw, a brake-hub sleeved upon the shaft and internally screw-threaded acting as a nut to the screw thereof and having a lug S, a collar R secured to the driven shaft and having a shoulder *r* acting as a stop for the lug of the brake-hub, a driving-wheel sleeved upon the brake-hub and adapted to be clamped to the driven shaft by the brake-hub, and means to retard or arrest the rotation of the brake-hub and driven shaft.

7. In a clutch, the combination of the driven shaft having a screw, a brake-hub sleeved upon the shaft and internally screw-threaded acting as a nut to the screw thereof and having a clamping end, a driving-wheel sleeved upon the brake-hub and provided with an annular flange G′ adapted to be clamped to the driven shaft by the brake-hub, and means to retard the rotation of the brake-hub.

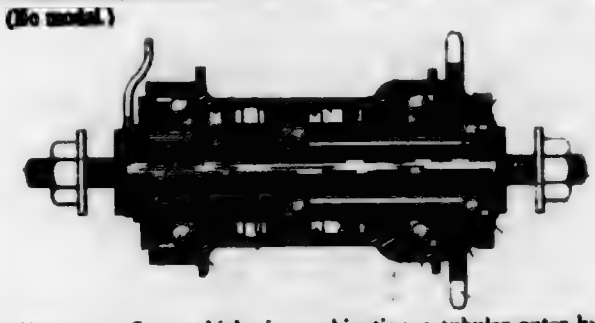
8. In a clutch, the combination of a driving member, a driven member, an intermediate member for clutching the driving member to the driven member adapted to be rotated upon the driven member by the driving member and connected with the driven member by a screw to shift it into or out of clutching action, and externally-controlled means for retarding the rotation of the intermediate or clutching member whereby the driven member is caused to shift it under screw action to release the driving member.

9. In a clutch, the combination of a driving member, a driven member, an intermediate member for clutching the driving member to the driven member adapted to be rotated upon the driven member by the driving member and connected with the driven member by a screw to shift it into or out of clutching action, externally-controlled means for retarding the rotation of the intermediate or clutching member whereby the driven member is caused to shift it under screw action to release the driving member, and a stop to limit the rotation of the driven member in the intermediate member.

10. In a clutch, the combination of the standard, a driven shaft journaled in said standard and having a clutch-flange A′ and a screw D, a brake-hub E carried by the shaft and having screw-threads adapted to the screw thereof and having the brake-wheel F, a driving-hub G sleeved upon the brake-hub and having an annular clutch-flange G′ and a driving-rim such as a pulley, a brake-shoe I acting upon the brake-wheel, and means for applying said brake-shoe.

11. In a clutch, the combination of the standard, a driven shaft journaled in said standard and having a clutch-flange A′ a collar R having a stop *r* and a screw D, a brake-hub E carried by the shaft and having screw-threads adapted to the screw thereof and having the brake-wheel F and stop-lug S, a driving-hub G sleeved upon the brake-hub and having an annular clutch-flange G′ and a driving-rim such as a pulley, a brake-shoe I acting upon the brake-wheel, and lever mechanism for applying said brake-shoe.

692,181. COASTING AND BRAKE MECHANISM. GODFREY J. GASTONGUAY, Hartford, Conn. Filed Sept. 6, 1900. Serial No. 29,196. (No model.)



Claim.—1. In a vehicle, in combination, a tubular outer hub, a tubular inner hub formed in sections, said sections being supported one on the other, a clutch located between the two hubs, one of the clutch parts being secured to the outer hub and another part to a section of the inner hub, a loose clutch part mounted between the two sections of the clutch, a cam-surface and an engaging pin arranged to slide the loose clutch part, a gear-wheel fast to one hub-section, and a brake attached to the other section.

2. In a vehicle, in combination, a tubular outer hub, a tubular inner hub formed in sections, said sections being supported one on the other, a clutch located in a space between the two hubs, one of the clutch parts being secured to the outer hub and another part to a section of the inner hub, a loose clutch part mounted on the inner hub between the fixed sections of the clutch and having a diagonal slot, a pin fast to the shorter of the inner-hub sections and extending into said slot, a gear-wheel fast to one hub-section and a brake connected with the opposite end of the inner-hub section.

3. In a vehicle, in combination, a tubular outer hub, a tubular inner hub formed in sections, said sections being supported one on the other, a clutch part located between the two hubs and having teeth on its opposite edges and adapted to slide lengthwise of the hub, the two fixed clutch parts, one secured to the outer hub and the other to a section of the inner hub, a cam-surface and an engaging pin arranged to slide the loose clutch part, a gear-wheel fast to one section of the hub and a brake attached to the other section.

4. In a coasting and brake mechanism, a tubular outer hub, a tubular inner hub formed in sections, a clutch adapted to connect the two hubs, and including a clutch part secured to the outer hub another part to a section of the inner hub and a loose clutch part to engage the other clutch parts, a cam-surface and an engaging pin arranged to slide the loose clutch part, a drive-wheel fast to one hub-section, ball-bearings for each end of said hub-section, and a brake connected with the other hub-section.

5. In a coasting and brake mechanism, a tubular outer hub, a tubular inner hub including two sections one supported on the other, ball-bearings located at each end of the supported hub-section, a clutch adapted to connect the two hubs and including a clutch part secured to each of said hub-sections and a loose clutch part to connect said parts, a cam-surface and an engaging pin arranged to slide the loose clutch part, a drive-wheel fast to one hub-section and a brake connected to the other section.

6. In a coasting and brake mechanism, a tubular outer hub, a sectional, tubular inner hub, one section of which is reduced in diameter and the other section of which is supported on said reduced portion, a clutch adapted to connect the two hubs and including a clutch part secured to one of said hub-sections, another to the outer hub, and a loose clutch part to connect said parts, a cam-surface and an engaging pin arranged to slide the loose clutch part, a drive-wheel fast to one hub-section and a brake connected with the other hub-section.

7. In a coasting and brake mechanism, a tubular outer hub, a sectional, tubular inner hub having a regular outer surface at the meeting-point of the two sections, one section of the hub being reduced in diame-

ter and the other section of the hub being supported on said reduced portion, a clutch including a member secured to one of said sections, another to the outer hub and a loose member fitting and sliding upon both of said sections, a cam-surface and an engaging pin arranged to slide the loose clutch part, a drive-wheel fast to one hub-section and a brake connected with the other hub-section.

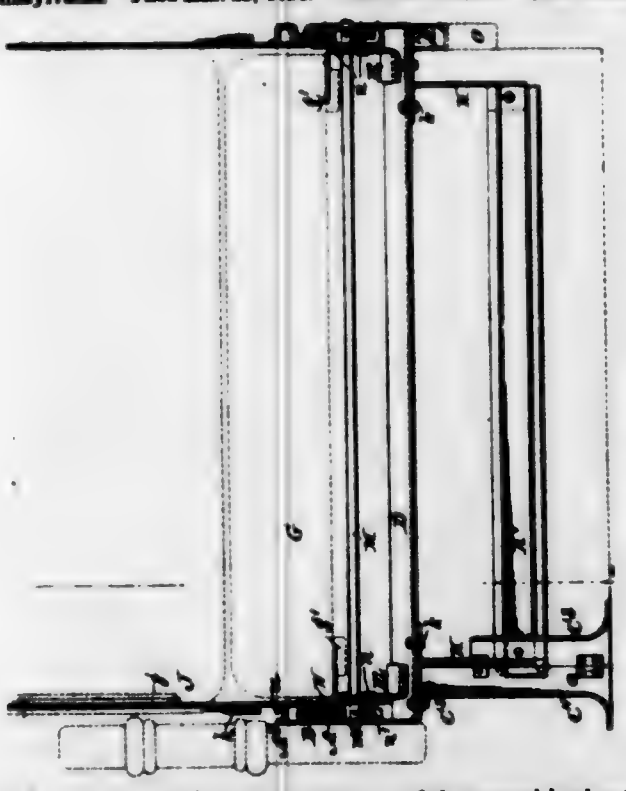
8. In a coasting and brake mechanism, an axle, a sectional hub including a section connected with a brake device at one end and having a clutch part and reduced in diameter at its opposite end and another section mounted upon said reduced portion and having a drive-wheel secured thereto, the brake device, a slidable clutch part mounted upon the two sections, a cam-surface and a pin on said slidable clutch part and the hub-section bearing the drive-wheel, and an outer hub mounted upon the hub-section and having a clutch part adapted to be engaged by the slidable clutch part.

692,182. CHECKREIN-HOLDER. WILLIAM GATES, Woodbridge, Conn., assignor of one-half to John H. Barnes, Norwich, Conn. Filed Feb. 2, 1901. Serial No. 45,694. (No model.)



Claim.—The herein-described checkrein-holder comprehending an elongated base adapted to engage the saddle throughout its entire surface whereby greater resistance is offered to the strain of the checkrein, said holder being formed in three parts comprising twin base members, each having a shank depending therefrom, and each of said members having an upward projection at the rear having its upper inner part cut away, and a backward curved arm on its forward part, said arm and the forward upper inner surface of said member being cut away, and a third member comprising a flat pointed, hook-shaped portion and a handle portion, said three parts adapted to be assembled with the twin members forming the base and support for the hook member which is pivoted between the arms and, when closed, its hook portion fills the hollow between said arms and the recess in the base and its handle portion rests in the hollowed-out top of the rear projection.

692,183. CAR-SEAT. HENRY S. HALE, Philadelphia, Pa., assignor to the Hale and Kilburn Manufacturing Company, a Corporation of Pennsylvania. Filed Mar. 25, 1896. Serial No. 675,075. (No model.)



Claim.—1. In a car-seat, two end frames of sheet metal having top and bottom flanges, and an intermediate curved guide, longitudinal wrought-metal bars having upwardly-directed webs mechanically connected to the two end frames, two sheet-metal movable supports for the seat-cushion supported and guided upon the longitudinal bars and having upper and lower flanges bent wholly to one side so that they form proper guide and supporting surfaces and the vertical part shall be permitted to come close to the end frame, a seat-cushion supported upon the said movable supports, and a seat-back having flat plates extending down between the movable supports and end frames and guided upon the curved guides, the whole being formed to occupy but little lateral space and to permit the movable supports to be brought up very close to the seat-back-supporting plates.

2. In a car-seat the end frame combined with and suitably supported upon a sheet-metal pedestal consisting of two semitubular upright portions of different heights flaring at the bottom into a flange and united at intervals in their height the section or portion of greatest height being secured to the end frame, and the shorter portion being independent thereof.

3. A car-seat having its fixed end frames formed of sheet metal and on the aisle end extending from the level of the seat-cushion to the floor and provided with curved guides, combined with sheet-metal supporting-frames for the seat-back having guides adapted to the curved guides and guided thereon for the purpose of permitting shifting the seat-back in reversing the seat, longitudinal metal bars united at their ends to the end frames and each having an upright wall or rib notched at the ends, and sheet-metal cushion-supports guided in the notches and supported directly by the longitudinal bars for sustaining the seat-cushion in its shifted positions.

4. A car-seat having its fixed end frames formed of stamped sheet metal extending from the level of the seat-cushion to the floor and independent longitudinal metal bars connecting the end frames, combined with stamped sheet-metal supporting-frames for the seat-back guided and supported directly by the end frames for the purpose of shifting the seat-back in reversing the seat, a shifting frame carrying the seat-cushion directly supported by the longitudinal bars, a rock-shaft, and laterally-projecting pins parallel to the shaft and slots or notches making a connection between the rock-shaft and the upper edge of the shifting frame of the seat-cushion and the lower edge of the seat-back and supports whereby the seat-cushion is shifted upon reversing the seat-back.

5. An end frame for a car-seat consisting of thin sheet metal having an upper edge flanged inward and of uniform width and a lower flange of greater width toward the middle part than at the ends adapted to support longitudinal bars, and a curved guide formed upward from the body-surface in the direction of and between the flanges and extending transversely.

6. In a car-seat the combination of two end frames having smooth segmental guides, a seat-back having frames movable upon the guides of the end frames, two independent shifting seat-cushion-supporting frames, a seat-cushion resting upon said supporting and tilting frames, a longitudinal rock-shaft journaled in the end frames, and connecting devices between the rock-shaft and each of the cushion-supporting frames and seat-back frames consisting of disks secured to and rocking with the rock-shaft and lateral pins and notches carried by the disks cushion-shifting frames and seat back frames whereby the said cushion is shifted and tilted upon reversing the seat-back.

7. In a car-seat the combination of a main frame having smooth grooved guides, a seat-back having supporting and shifting frames adapted to said guides so as to shift the seat-back, a seat-cushion, shifting supports for said cushion, a rock-shaft arranged in the main frame between the seat-cushion supports and supports for the back, disks secured to said rock-shaft and having laterally-projecting pins or teeth and notches or recesses respectively in the supports for the seat-cushion and supports for the seat-back upon opposite sides of the rock-shaft and in which one of the notches on said parts and one of the teeth on each side of each disk is made larger than the others to insure proper assemblage of the parts in putting the structure together and whereby the shifting of the seat-back simultaneously shifts the seat-cushion in the opposite direction.

8. In a car-seat, the combination of two end frames formed of stamped sheet metal, and two continuous longitudinal metal bars firmly bolted to said end frames, with shifting seat and back supported respectively by said bars and end frames.

9. In a car-seat, the combination of two end frames formed of stamped sheet metal, two longitudinal metal bars firmly bolted to said end frames, and a pedestal formed of pieces of stamped sheet metal united together arranged under one of the end frames and secured to it, with shifting seat and back supported respectively by said bars and end frames.

10. In a car-seat, the combination of an end frame formed of stamped sheet metal, longitudinal bars for securing the end frame in position, a pedestal formed of pieces of stamped sheet metal united together secured to the lower part of the end frame for supporting it, and a shifting seat-back supported by and guided on the end frame.

11. In a car-seat, the combination of end frames, two connecting longitudinal metal bars of U-shaped cross-section formed with the open side upward and having notches in the upper edges of the sides to form guides near each end, seat-supporting frames of stamped sheet metal having bottom flanges adapted to said guides and made cam-shaped to tilt them when shifted, a seat-cushion supported by said supporting-frames, a

movable seat-back, and means controlled by the seat-back for shifting the supporting-frames and cushion upon reversing the seat-back.

12. In a car-seat, an end frame formed of stamped sheet metal having its edges bent over to form flanges and a segmental curved rib U-shaped in cross-section extending from the body of the metal within the boundary of the top and bottom flanges, and of less projection than the upper flange, in combination with a sliding frame having independent replaceable guides adapted to the curved rib, and a seat-back secured to the sliding frame.

13. In a car-seat, the combination of end frames having curved guides, with seat-back-supporting arms made of thin flat plates extended at the bottom, and two guides removably secured to the lower ends of the supporting-arms near the front and back edges thereof and adapted to the curved guides whereby the seat-back-supporting arms may slide freely upon the end frames.

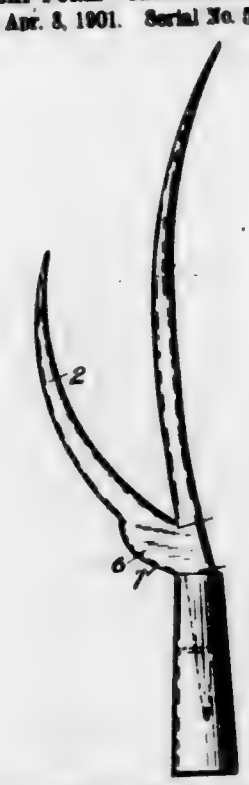
14. In a car-seat, an end frame, in combination with a supporting-pedestal formed of stamped sheet metal consisting of two sections each formed of a curved semicylinder terminating in a flaring base which when united constitutes a cylindrical body with a flaring elliptical base, and in which one section is of greater height than the other and secured to the under part of the end frame.

15. In a car-seat, an end frame formed of stamped sheet metal having a curved guide-portion U-shaped in cross-section extending from the body of the frame, a shifting frame for supporting the seat-back extended to considerable width at the bottom and having widely separated independent replaceable guides adapted to the curved guide portion of the end frame.

16. In a car-seat, the combination of the two end frames of stamped sheet metal, in combination with two longitudinal bars separate from the end frames having their ends of metal formed with guides independent of the end frames, means for fastening the longitudinal bars and their guides to the end frames, a movable seat-back, a movable seat-cushion, supporting devices for the seat-back sustained and guided by the end frames, and supporting-frames for the seat-cushions supported by the guides of the longitudinal bars independently of the end frames.

17. In a seat, an end frame and arms formed of sheet metal as an integral structure and in which the end frame is formed with upper and lower flanges and provided with an intermediate curved guide and the arms extended upward from the upper flange.

692,184. SHEAF-FORK. GEORGE HALL and MILTON T. BEDFORD, Lima, Ohio. Filed Apr. 8, 1901. Serial No. 54,882. (No model.)

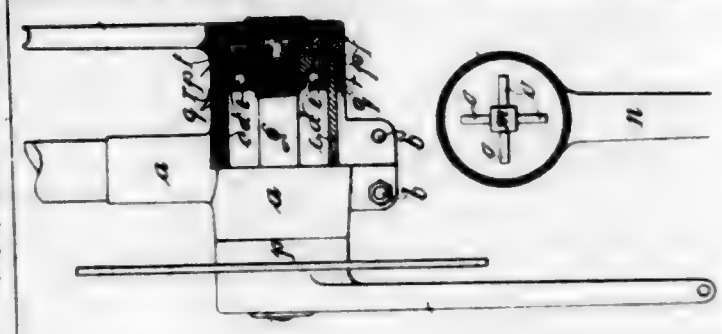


Claim.—1. A sheaf-fork consisting of two upwardly-curved tines located in the same vertical plane, when the fork is in use, substantially as described.

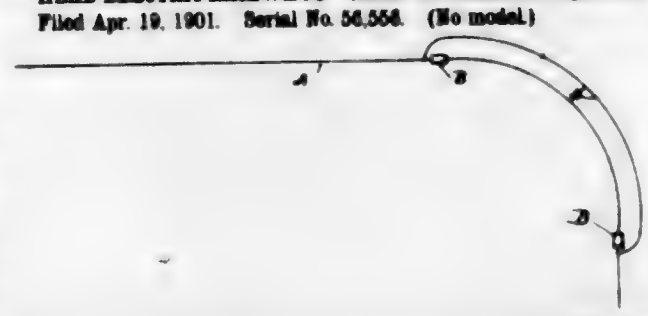
2. A sheaf-fork, comprising an upper, upwardly-curved long tine, and a lower upwardly-curved shorter tine located in the same vertical plane as the said upper tine, substantially as described.

692,185. BALL-BEARING. FRIEDRICH HANSEN, Husum, Germany. Filed Feb. 28, 1901. Serial No. 49,294. (No model.)

Claim.—In a device of the character described, an axle having a square end, a cone carried by the axle, the outer face of said cone having a series of radial grooves formed therein extending down to the crank-axle, a crank, radial ribs on the inner face thereof adapted to engage said radial grooves in the cone, said crank having a square aperture formed therein to receive said square end of the axle, substantially as described.



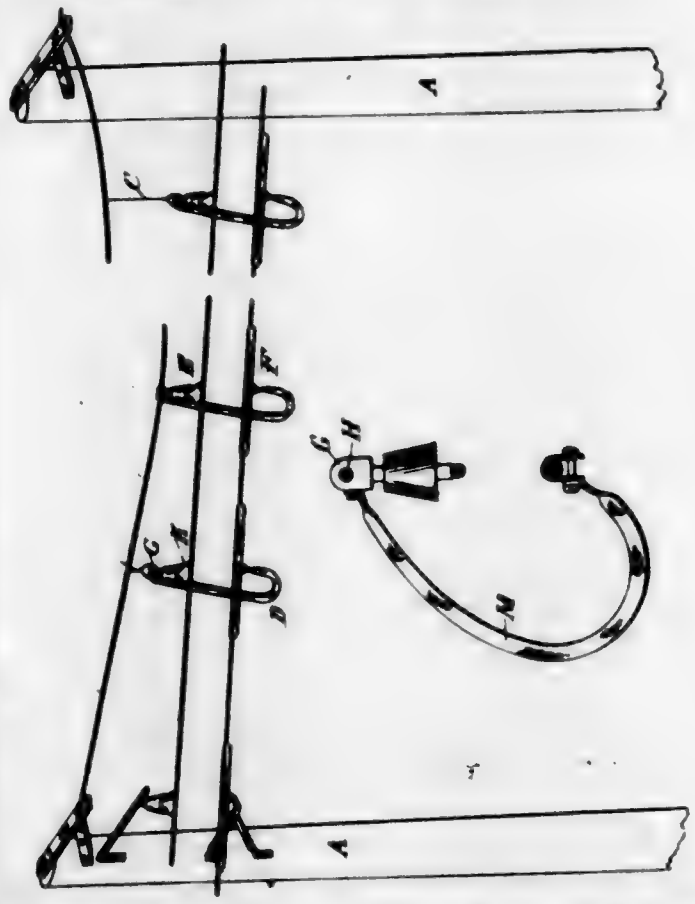
692,186. MEANS FOR REGULATING SPEED OF CARS ON OVERHEAD ELECTRIC RAILWAYS. HENRY M. HARDING, Englewood, N. J. Filed Apr. 19, 1901. Serial No. 56,568. (No model.)



Claim.—1. A means for regulating the speed of overhead electric carriers consisting of a continuous trolley-wire the desired portion of which is insulated from the remainder, a shunt-circuit passing the full strength of the current around the said insulated portion, and a resistance connecting the shunt-circuit and the insulated portions, substantially as described.

2. A means for regulating the speed of overhead electric carriers consisting of a continuous trolley-wire the desired portion of which is insulated from the remainder, a shunt-circuit passing the full strength of the current around the said insulated portion, a resistance connecting the shunt-circuit and the insulated portions and a switch in said resistance, substantially as described.

692,187. SUPPORT FOR TROLLEY AND TRACK WIRES FOR SUSPENDED-CABLE ROADS. HENRY M. HARDING, Englewood, N. J. Filed Apr. 19, 1901. Serial No. 56,568. (No model.)



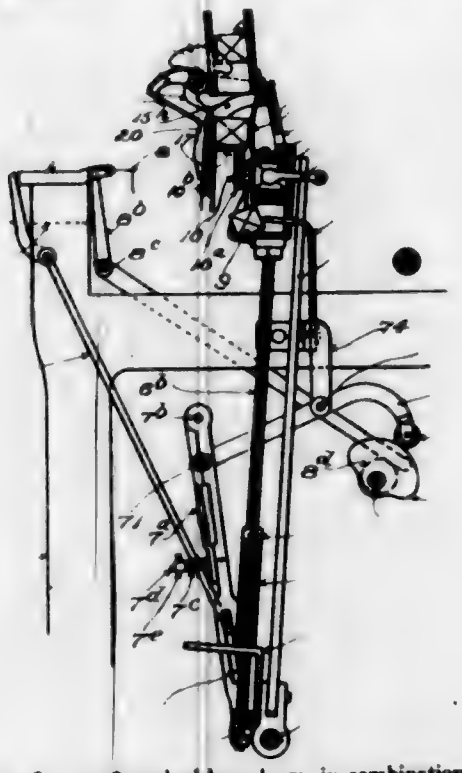
Claim.—1. The combination of a supporting cable or wire, a curved hanger supported therefrom, and trolley and track wires supported on said hanger, substantially as described.

2. The combination of a supporting cable or wire, a hanger supported therefrom, and trolley and track wires attached to said hangers, substantially as described.

3. The combination of a supporting cable or wire, a curved hanger supported therefrom, and trolley and track wires attached to said hangers, substantially as described.

4. A bracket for use in cable-track roads having a head, means on said head for attaching a trolley-wire-supporting device, a curved arm projecting from said head, and means on said curved arm for attaching the track-wire, substantially as described.

692,138. **WEFT-REPLENISHING LOOM.** HENRY I. HARRIMAN, New York, N. Y., assignor to the American Loom Company, Readville, Mass., a Corporation of New Jersey. Filed Oct. 2, 1901. Serial No. 77,285. (No model.)



Claim.—1. In a weft-replenishing loom, in combination, the lay, a magazine for reserve shuttles moving in unison with the lay, a multiple shuttle-box also moving in unison with the lay and having a working cell and a feeder-cell, weft-indicator devices, mechanism under operative control of said weft-indicator devices whereby said shuttle-box is shifted to carry the working cell into discharging position and the feeder-cell into position to bring its contained reserve shuttle into action and then is returned to its normal position, and means to feed a reserve shuttle from said magazine into the empty feeder-cell in the normal position of the shuttle-box, substantially as described.

2. In a weft-replenishing loom, in combination, the lay, a magazine for reserve shuttles supported independently of the lay and moving in unison with the latter, a multiple shuttle-box also moving in unison with the lay and having a working cell and a feeder-cell, weft-indicator devices, mechanism under operative control of said weft-indicator devices whereby said shuttle-box is shifted to carry the working cell into discharging position and the feeder-cell into position to bring its contained reserve shuttle into action and then is returned to its normal position, and means to feed a reserve shuttle from said magazine into the empty feeder-cell in the normal position of the shuttle-box, substantially as described.

3. In a weft-replenishing loom, in combination, the lay, a magazine for reserve shuttles, the support upon the lay to which a reserve shuttle from said magazine is fed, the multiple shuttle-box having a working cell and a spare cell, an injector by which the reserve shuttle on the said support upon the lay is transferred from the latter to the shuttle-box, weft-indicator devices, and mechanism under operative control of said weft-indicator devices whereby said shuttle-box is shifted to effect the discharge of the working shuttle and bring the reserve shuttle into action and then is returned to normal position, substantially as described.

4. In a weft-replenishing loom, in combination, the lay, a magazine for reserve shuttles, the support upon the lay to which a reserve shuttle from said magazine is fed, the multiple shuttle-box having a working cell and a feeder-cell, means to transfer the reserve shuttle from said support into the empty feeder-cell in the normal position of the shuttle-box, weft-indicator devices, and mechanism under operative control of said weft-indicator devices whereby said shuttle-box is shifted to carry the working cell into discharging position and the feeder-cell into position to bring its contained reserve shuttle into action and then is returned to its normal position, substantially as described.

5. In a weft-replenishing loom, in combination, the lay, the magazine for reserve shuttles moving in unison with the lay, the support on the lay to which a reserve shuttle is fed from the said magazine, the multiple shuttle-box also moving in unison with the lay and having the working cell and a spare cell, the injector by which the reserve shuttle on the said support on the lay is transferred from the support to the shuttle-box, weft-indicator devices, and mechanism under operative control of the said weft-indicator devices whereby said shuttle-box is shifted to effect the discharge of the working shuttle and bring the reserve shuttle into action, substantially as described.

6. In a weft-replenishing loom in combination, the lay, the magazine for reserve shuttles moving in unison with the lay, the support on the lay to which a reserve shuttle is fed from the said magazine, the multiple shuttle-box also moving in unison with the lay and having the working cell and the feeder-cell, the injector by which the reserve shuttle on the said support on the lay is transferred from the support to the feeder-cell, weft-indicator devices, and mechanism under operative control of said weft-indicator devices whereby said shuttle-box is shifted to carry the working cell into discharging position and the feeder-cell into position to bring its contained reserve shuttle into action and then is returned to its normal position, substantially as described.

7. In a weft-replenishing loom, in combination, the lay, a magazine for reserve shuttles, the support upon the lay to which a reserve shuttle from said magazine is fed, the multiple shuttle-box having a working cell and a feeder-cell, means to transfer the reserve shuttle from said support into the empty feeder-cell in the normal position of the shuttle-box, weft-indicator devices, mechanism under operative control of said weft-indicator devices whereby said shuttle-box is shifted to carry the working cell into discharging position and the feeder-cell into position to bring its contained reserve shuttle into action and then is returned to its normal position, and an ejector entering the working cell in the discharging position of the latter to eject the shuttle therefrom, substantially as described.

8. In a weft-replenishing loom, in combination, the shifting shuttle-box, means to feed a reserve shuttle to said shuttle-box, weft-indicator devices, mechanism under operative control of the said weft-indicator devices whereby said shuttle-box is shifted in effecting the weft replenishment, a deflector operating in connection with the outer tip of the shuttle to be ejected, and an ejector acting against the inner tip of the said shuttle, substantially as described.

9. In a weft-replenishing loom, in combination, the lay, the shifting shuttle-box, weft-indicator devices, box-shifting mechanism under operative control of the said weft-indicator devices, and a fixed ejector entering the shuttle-box in the swinging movement of the lay in the discharging position of the shuttle-box to eject the shuttle therefrom, substantially as described.

10. In a weft-replenishing loom, in combination, the lay, the shifting shuttle-box moving in unison with the lay, the magazine supported independently of the lay and moving in unison with the latter, the support on the lay to receive a reserve shuttle from said magazine, the means actuated from said shuttle-box for feeding a reserve shuttle from said magazine to said support, the injector operatively connected with said feeding means and acting to transfer the reserve shuttle from said support to the shuttle-box, weft-indicator devices, and mechanism under operative control of the said weft-indicator devices whereby said shuttle-box is shifted to effect the discharge of the working shuttle and bring the reserve shuttle into action, substantially as described.

11. In a weft-replenishing loom, in combination, the multiple shuttle-box, the feeding means operatively connected with the said shuttle-box and actuated by the movement of the latter to feed a reserve shuttle to the shuttle-box, the reciprocatory actuator, means to operate the same, and weft-indicator devices whereby the said actuator is caused to operate said shuttle-box to occasion a change of shuttles, substantially as described.

12. In a weft-replenishing loom, in combination, the lay, the support on the lay for a reserve shuttle, the multiple shuttle-box, the magazine for reserve shuttles, feeding means whereby to feed a shuttle from said magazine to said support and an injector whereby to shift said shuttle from the support to the shuttle-box, both operatively connected with said shuttle-box and actuated by the movement of the latter, the actuator, means to reciprocate said actuator, and weft-indicator devices whereby the said actuator is caused to operate the shuttle-box to occasion a change of shuttles, substantially as described.

13. In a weft-replenishing loom, in combination, the lay, the magazine supported independently of the lay and swinging in unison therewith, the shifting shuttle-box, the support on the lay to receive a shuttle from the said magazine, and a shuttle-guide connected with said shuttle-box and bridging the space between the shuttle-box and the adjacent portion of the magazine, substantially as described.

14. In a weft-replenishing loom, in combination, the lay, the magazine supported independently of the lay and swinging in unison therewith, the shifting shuttle-box, the support on the lay to receive a shuttle from the said magazine, a shuttle-guide connected with said shuttle-box

and bridging the space between the shuttle-box and the adjacent portion of the magazine, and a detent to prevent canting or rocking of the shuttle on said support as the shuttle-box rises, substantially as described.

15. In a weft-replenishing loom, in combination, the lay, the magazine swinging in unison with the lay, the spring-supported mounting for the magazine, shuttle-changing instrumentalities, and weft-indicator devices in operative control of the said shuttle-changing instrumentalities, substantially as described.

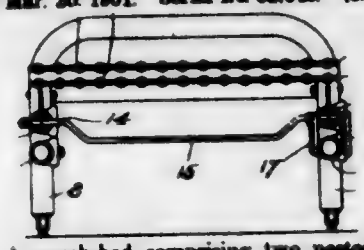
692,139. METHOD OF MAKING HYDROGEN DIOXID. PAUL L. HULIN, Clavaux, par Rioupéroux, France. Filed July 9, 1901. Serial No. 67,582. (No specimens.)

Claim.—1. The process herein described of producing an aqueous solution of hydrogen dioxid, which consists in decomposing sodium dioxid by hydrofluoric acid in the presence of water to form hydrogen dioxid, and converting the sodium into an insoluble precipitate of cryolite by aluminium fluorid, as set forth.

2. The process herein described of producing an aqueous solution of hydrogen dioxid, which consists in decomposing sodium dioxid with an excess of hydrofluoric acid, then adding aluminium hydrate thereby forming aluminium fluorid in quantities sufficient to combine with the sodium fluorid to completely precipitate it as to cryolite, substantially as described.

3. The process herein described of producing an aqueous solution of hydrogen dioxid, which consists in decomposing sodium dioxid by hydrofluoric acid in the presence of water, converting the sodium into an insoluble precipitate, and finally adding an alkaline earth, such as baryta or lime, to render insoluble the reagents that may be in excess as set forth.

692,140. COUCH-BED. JOHN A. HUTCHISON, Cambridge, and EUGENE R. LEIGHTON, Boston, Mass., assignors to Merrimac Mattress Manufacturing Company, Boston, Mass., a Corporation of Massachusetts. Filed Mar. 20, 1901. Serial No. 52,048. (No model.)



Claim.—1. A couch-bed comprising two nested sections, one of which is adapted to slide laterally with relation to the other, each section being provided with a mattress extending from end to end, the mattress of one section being on a plane higher than the mattress of the other section, and a lock for holding said sliding section at either extreme of its movement.

2. A couch-bed comprising two nested sections, one of which is adapted to slide with relation to the other, said sections having side bars, and means for locking the side bar of one section with the side bar of the other section.

3. A couch-bed comprising two nested sections one of which is adapted to slide laterally with relation to the other, said sections having side bars, and a lock for locking a side bar of one section to either of the side bars of the other section.

4. A couch-bed comprising two nested sections of which one is adapted to slide with relation to the other, a handle for moving the sliding section to open or closed position, and a lock for said sections connected to said handle.

5. A couch-bed comprising two nested sections, one of which is adapted to slide laterally with relation to the other, said sections having side bars, and a rock-rod journaled in the side bars of the sliding section and having a lock to engage the side bars of the other section.

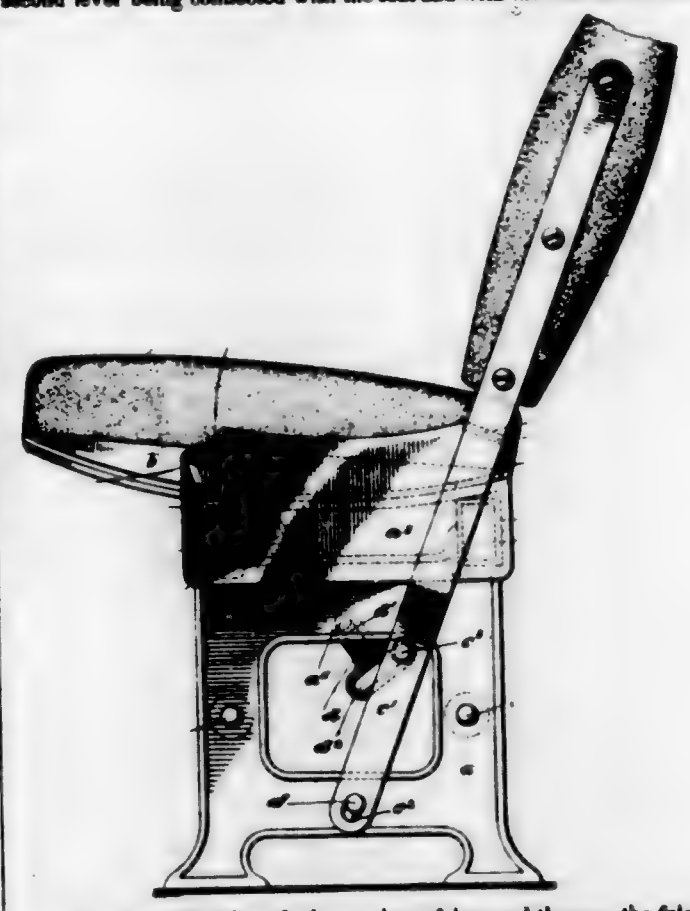
6. A couch-bed comprising two nested sections, one of which is adapted to slide laterally with relation to the other, said sections having side bars, and a rock-rod journaled in the side bars of the sliding section and having fingers to engage either side bar of the other section.

7. A couch-bed comprising two nested sections, one of which is adapted to slide laterally with relation to the other, and a lock located substantially midway between the ends of said sections for locking the sliding section against movement.

692,141. SEAT. FREDERICK H. JAMES, Brooklyn, N. Y. Filed Sept. 12, 1901. Serial No. 75,198. (No model.)

Claim.—1. The combination of a base, a reversible seat, a back, a member on which the back is carried, a pivotal and slidable connection mounting said member on the base, the said member having a part movable therewith into engagement with a part of the base to prevent the movement of the said member, and a connection between the said member and the seat, to reverse the seat.

2. The combination of a base, a reversible seat, a back, a lever fulcrumed on the base, said fulcrum comprising a pivotal and a slidable connection, the lever having a part moving therewith into engagement with the base, for the purpose specified, and a second lever fulcrumed on the base, said fulcrum also comprising a pivotal and slidable connection, the second lever being connected with the seat and with the first-named lever.



3. The combination of a base, a lever fulcrumed thereon, the fulcrum comprising a slidable and pivotal connection and the lever being formed with a lug moving therewith removably to engage a part of the base, whereby to hold the lever immovable, a seat, and a connection between the seat and lever for reversing the seat.

4. The combination of a base having at each side a shoulder, a lever fulcrumed on the base, the fulcrum comprising a slidable and pivotal connection, a lug carried on the lever and moving therewith into engagement with either of the shoulders on the base, a reversible seat on the base, and a connection between the lever and the seat to reverse the seat.

5. The combination of a base, a reversible seat thereon, a lever fulcrumed on the base, said fulcrum comprising a slidable and pivotal connection, the lever having a part sliding therewith removably to engage the base and prevent the movement of the lever, and a connection between the lever and the seat, for reversing the seat.

692,142. METHOD OF TREATING GUNPOWDER. FREDERICK W. JOHN, Berwick, near Ware, England. Filed Dec. 6, 1898. Serial No. 698,413. (No specimens.)

Claim.—1. The method herein specified of taming and regulating granulated explosives for guns consisting in coating the individual grains with a solid substance which when melted is a solvent for the substance of the grain, and subsequently finishing the coating or shell and rendering it closely adherent to the grain by heating the coated grain to a temperature above the melting-point of said solid substance, substantially as specified.

2. The method herein specified of treating already-manufactured granulated gelatinized gunpowders, for the purpose of delaying the passage of ignition from grain to grain, consisting in mixing together a quantity of a granulated gelatinized gunpowder and a quantity of a dry finely-divided solid nitro-hydrocarbon, subjecting the commingled materials to prolonged agitation and thereby coating the powder grains with particles of the nitro-hydrocarbon, and then heating the coated powder grains to a temperature above the melting-point of said nitro-hydrocarbon, to melt such particles and thereby cause the same to unite with one another and with the grains which they cover, whereby each grain is provided with a relatively slow burning shell or glaze adhering to and covering its exterior surfaces, substantially as set forth.

3. The method herein specified of treating already-manufactured granulated gelatinized gunpowders, for the purpose of delaying the passage of ignition from grain to grain, consisting in mixing together a quantity of a granulated gelatinized gunpowder and a quantity of dry finely-divided solid dinitrotoluene, subjecting the commingled materials to pre-

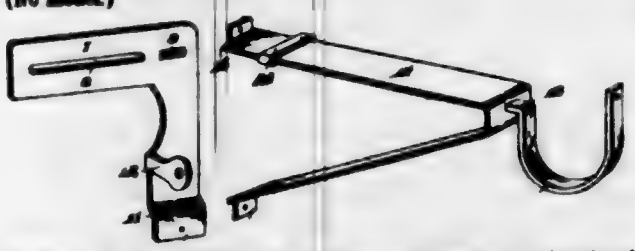
lonped agitation, and thereby coating the powder grains with particles of the dinitrotoluene, and then heating the coated powder grains to a temperature of about 158° Fahrenheit to melt such particles and thereby cause the same to unite with one another and with the grain which they cover, whereby each grain is provided with a relatively slow burning shell or glaze adhering to and covering its exterior surfaces, substantially as set forth.

692,143. **GUNPOWDER.** FREDERICK W. JOHNS, Barwick, near Ware, England. Original application filed Dec. 6, 1899, Serial No. 698,413. Divided and this application filed Nov. 27, 1899. Serial No. 738,454. (No specimens.)

Claim.—1. As a new article of manufacture, a granulated gelatinized gunpowder in which each separate grain is provided with a continuous adhering coating or shell of a comparatively slow burning solid hydrocarbon having a melting-point above 150° Fahrenheit, lying wholly upon the surface of the grain and entirely surrounding it, and an outer glaze of powdered graphite, substantially as set forth.

2. As a new article of manufacture, a granulated gelatinized gunpowder in which each separate grain is provided with a continuous adhering coating or shell of the solid hydrocarbon ceresin, lying wholly upon the surface of the grain and entirely surrounding it, and an outer glaze of powdered graphite, substantially as set forth.

692,144. **WINDOW SHADE AND CURTAIN BRACKET.** THOMAS H. KEEVIL, Homestead, Pa. Filed June 5, 1901. Serial No. 63,185. (No model.)



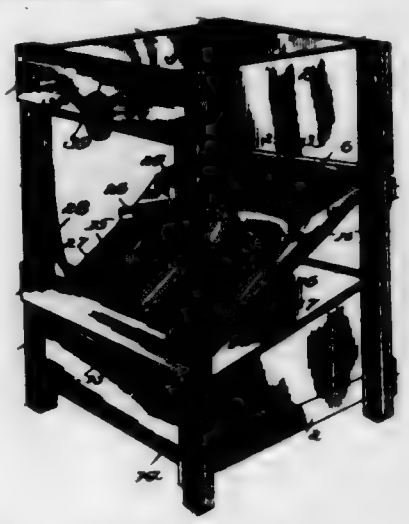
Claim.—1. In a device of the character described, a bracket having elongated slots formed therein at its upper end, the lower end of said bracket being bent outwardly and formed with an opening, a substantially V-shaped bracket having two arms, a downwardly-extending lug on one end thereof, an upwardly-extending lug on the other end, a curtain-pole hanger slidably secured to one arm of said V-shaped bracket and passing through the outer end of said bracket, a strap encircling said arm of the bracket and carried by said extension-arm, and a U-shaped support carried by the outer end of said extension-arm, substantially as described.

2. In a device of the character described, the combination of an angular slotted bracket, a shade-bracket rigidly secured thereto, a removable V-shaped bracket having two arms, a curtain-pole hanger slidably attached to said V-shaped bracket, a strap encircling one arm of said V-shaped bracket, the ends of said strap passing centrally through said curtain-pole hanger and engaging the lower face thereof, and a U-shaped support arranged at the free end of said curtain-pole hanger, substantially as described.

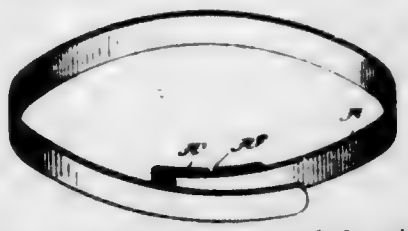
3. In a window shade and curtain bracket, the combination of a lug carrying a lower support, a screw-eye secured in said support, an angular base-plate having formed therein a slot operating under said screw-eye, a removable V-shaped bracket secured in said angular plate, a curtain-pole hanger slidably attached to said V-shaped bracket, a strap encircling said V-shaped bracket, the ends of said strap passing centrally through said curtain-pole hanger and engaging the lower face thereof, and a U-shaped support arranged at the free end of said curtain-pole hanger, substantially as described.

692,145. **GRAIN-SEPARATOR.** WILLIAM J. KERR, Ozark, Mo. Filed Oct. 6, 1900. Serial No. 32,251. (No model.)

Claim.—In a grain-separator, the combination with a frame composed of upright members, braces therefor, and a cross frame-piece, of a hopper supported by the upright members, a vibrating screen comprising a frame composed of longitudinally-extending pieces having cross connecting-pieces, a fine screen connected to the bottom of the screen-frame, a coarser screen at the upper end of the frame and above the fine screen and located at an angle considerably less and more approximating the horizontal than the angle of disposition of the fine screen, and a pair of conveyers or chutes connected to the longitudinal pieces of the screen-frame and located adjacent the lower end of the coarse screen to receive the coarse material therefrom, said conveyers or chutes slanting downwardly at an angle to the upper screen and provided with upright retaining-flanges which converge upwardly and meet each other at the center of the screen-frame, said vibrating screen having its delivery end adapted to work under and closely adjacent to the cross frame-piece to confine the discharge of the grain, spring straps or hangers secured to the machine-frame and to the screen-frame and suspending the latter below the hopper and normally urging the screen in one direction, means for urging the screen in the opposite direction consisting of a rod connected to the screen, a rotary cam having an abrupt shoulder and against which the end of the rod is constantly held by the action of the spring-hangers, and a projecting member carried by the screen which forcibly contacts with the machine-frame to suddenly arrest the movement of the screen after release of the latter and at the end of its movement.



692,146. **NECKTIE-FASTENER.** HERBERT KIENE, Spokane, Wash. Filed July 9, 1901. Serial No. 67,595. (No model.)



Claim.—1. A necktie-fastener composed of a strip of material bent into approximately circular form constituting a neckband and having one end of the strip returned for a short distance within the band, such returned portion extending adjacent to and approximately parallel with that portion of the band within which it lies, and terminating at its free end adjacent to the body of the band and provided in the upper edge of said returned portion with a notch for engagement by the shank of a collar-button as set forth.

2. The combination of a necktie having a loop at the back, and the collar-button, of the holder composed of a strip of material formed into a neckband and having one end returned for a short distance within the band and extending outside of the loop at the back of the tie and provided in the edge of said returned portion with a notch for engagement by the collar-button, substantially as and for the purpose set forth.

3. A necktie-fastener, comprising a neckband of spring material for engaging a collar and a loop of a necktie, the said band having one end turned back or doubled up on the outside of the loop at the back of the tie, the said doubled-up end having a notch for engaging a collar-button, as set forth.

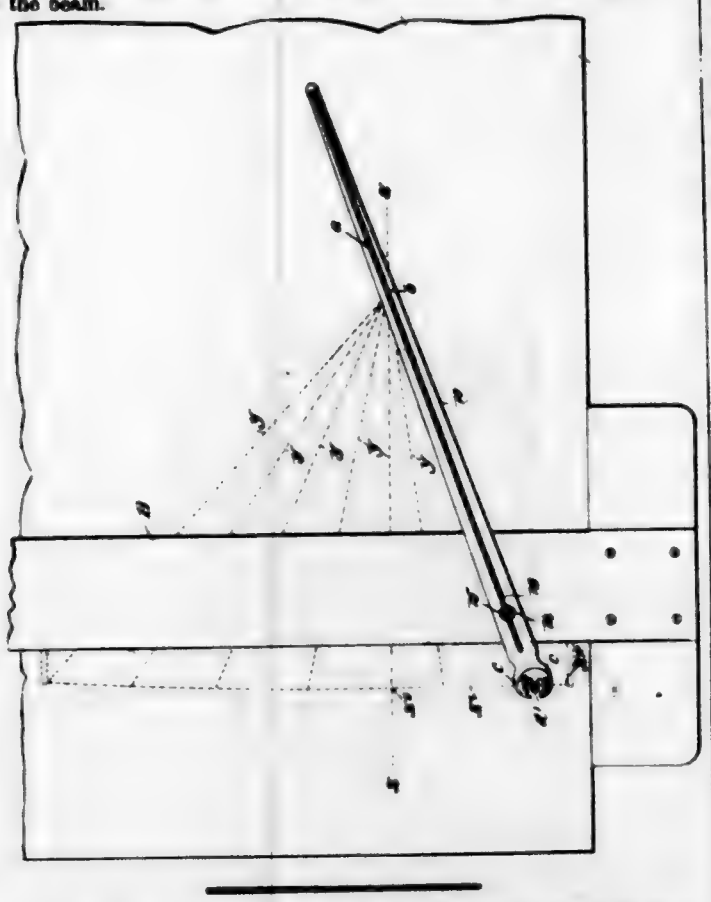
692,147. **RETARDOGRAPH.** GEARY KIMBRELL, Pendleton, Oreg. Filed Aug. 23, 1901. Serial No. 73,009. (No model.)

Claim.—1. A drawing instrument for delineating variable curves, comprising a beam having a longitudinal slot, a fulcrum-post loosely engaging the slot, a slide-block having a depending toe passing down through the slot, means for securing the slide-block on the beam, and a pen or the like loosely held upon one end of the beam.

2. A drawing instrument for delineating variable curves, comprising a beam having a longitudinal slot, a fulcrum-post loosely engaging the slot, a slide-block, a depending toe on one end of the slide-block, a rib on the slide-block engaging the slot in the beam, means for securing the block at any point along the slot in the beam, and a pen or the like loosely held upon one end of the beam.

3. A drawing instrument for delineating variable curves, comprising a beam having a longitudinal slot, curved fingers at one end of the beam, a drawing-pen or like device having a flanged circular coupling-block on one leg, and adapted to loosely receive the curved fingers, a slide block, a depending toe on one end of the slide-block, a rib on said block loosely engaging the slot in the beam, means to secure the block in said slot, and

a fulcrum-post securable in a drawing-board and loosely engaging the slot in the beam.

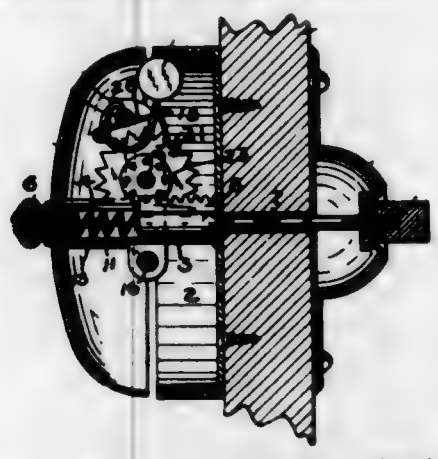


692,148. PROCESS OF RECOVERING ZINC FROM SULFID ORES. HUGH F. KIRKPATRICK-PICARD, London, England. Filed July 9, 1901. Serial No. 67,637. (No specimens.)

Claim.—1. The process of treating sulfid ores containing zinc, which consists in mixing the unroasted ore with a basic material capable of combining with sulfur, and carbonaceous material suitable for coking, forming the mixture into briquets and distilling the briquets in such conditions that they are first coked into coherent masses, and finally the zinc is reduced and volatilized, while the resulting sulfid is retained in minute particles throughout the coke.

2. The process of treating sulfid ores containing zinc and other metals, which consists in mixing the unroasted ores with a basic material capable of combining with sulfur, and carbonaceous material suitable for coking, forming the mixture into briquets and distilling the briquets under such conditions that they are first coked into coherent masses and finally the zinc is reduced and volatilized while the resulting sulfid and the non-volatile metals are retained in minute particles throughout the coke.

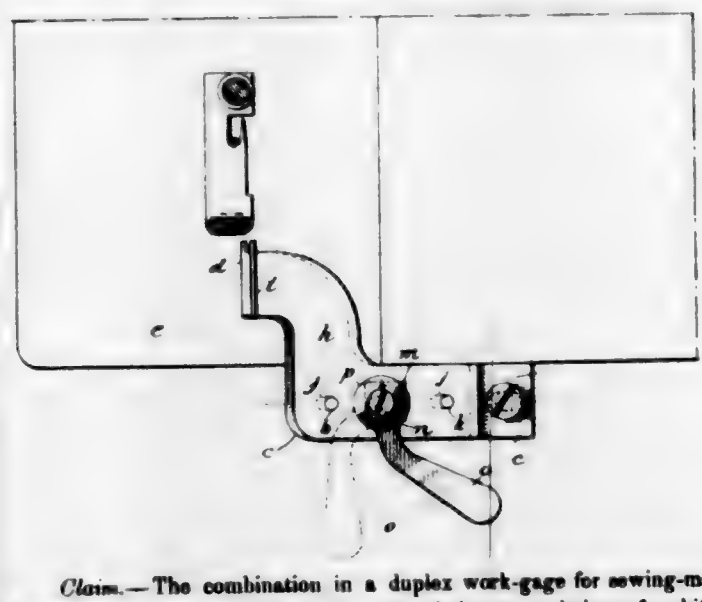
692,149. GONG. ANTHONY F. KLEINSCHMIDT, Indianapolis, Ind. Filed Feb. 15, 1901. Serial No. 47,522. (No model.)



Claim.—1. A gong mechanism including a slotted stationary tube to carry the gong and gong-ringing mechanism, a push-rod extending into said tube with a rack-bar thereon extending through said slot, a spring that resists the inward movement of said push-rod, a shaft, a pinion on said shaft engaged and actuated by said rack-bar, a notched wheel on said shaft, a bell-hammer pivoted in the framework and means rigidly connected with the mounting of the bell-hammer that engages and is oscillated by said toothed wheel for vibrating the hammer.

2. A gong mechanism including a base-plate, a hollow arm secured thereto slotted longitudinally along one side, a frame slipped over the free end of said arm for mounting the hammer-actuating mechanism, a gong secured to the free end of said arm, a push-rod slidably mounted in said hollow arm with a rack on one side extending through the slot in said arm, a spring for returning said push-rod after it has been actuated, a shaft mounted in said frame, a pinion secured to said shaft that is engaged and actuated by the rack of the push-rod, a toothed wheel secured to said shaft, a counter-shaft mounted in said frame, a ball-hammer secured thereto, and a plate secured to said counter-shaft with each end turned toward and into engagement with said toothed wheel whereby said wheel when actuated will rock the counter-shaft carrying the ball-hammer.

692,150. WORK-GAGE FOR SEWING-MACHINES. HERMANN A. KLEMM, New York, N. Y. Filed Apr. 15, 1901. Serial No. 55,941. (No model.)



Claim.—The combination in a duplex work-gage for sewing-machines, of the superposed plates *c* and *h* and the eccentric-lever for shifting the upper plate, said plates having the described work-guiding edges, and plate *c* being adjustably secured to the work-plate relatively to the feed-line, and provided with guide-slots for controlling the upper plate, said upper plate having guide-studs engaging said slots and having a slot for the eccentric of the operating-lever, said lever pivoted in said slot on a stud-pin secured in plate *c*; and the inverted-cup-shaped friction-washer clamped on the eccentric-lever by the pivot-stud head.

692,151. CASH-BOX. WILHELM KNEHANS and FRANZ PÜSCHEL, Bielefeld, Germany, assignors to the Bielefelder Maschinenfabrik, vormals Dürkopp & Co., Bielefeld, Germany. Filed June 2, 1900. Serial No. 18,869. (No model.)

Claim.—1. In a drawer, cash-box or the like the combination with a plurality of divisions and a corresponding number of differently-formed

keys, of means for opening each division by its corresponding key applied to one and the same keyhole, substantially as described.

2. In a drawer, cash-box or the like the combination with a plurality of divisions of a common keyhole, and a plurality of keys, one for each division, substantially as described.

3. In a drawer, cash-box or the like the combination with a plurality of divisions in said drawer of a common keyhole and a plurality of tubes concentrically arranged one over the other, and means by which each tube may unlock its corresponding division, substantially as described.

4. In a drawer, cash-box or the like, having a number of compartments or divisions, the combination with one keyhole of a plurality of tubes concentrically arranged one over the other and means by which each tube may unlock its corresponding drawer-division, substantially as described.

5. In a drawer, cash-box or the like the combination with a keyhole of a plurality of tubes concentrically arranged one over the other, and means by which each tube can be turned independently of the others, substantially as described.

6. In a drawer, cash-box or the like having a number of divisions, the combination with a keyhole of a plurality of tubes concentrically arranged one over the other, a cam on each tube for engaging a projection in the corresponding division of the drawer, substantially as described.

7. In a drawer, cash-box or the like the combination with a keyhole of a plurality of tubes concentrically arranged one over the other, and a corresponding bar in each division of the box connected with the tubes for controlling the drawer-locking mechanisms, substantially as described.

8. In a drawer, cash-box or the like formed with a series of divisions, the combination with a keyhole of a plurality of tubes concentrically arranged one over the other, a bar in each division of the drawer, a locking-hook operated by each bar, a lid for each division, and a corresponding hook on the lid of the division, substantially as described.

692,152. DETACHABLE-KEY RAIL-JOINT. ABRAHAM KREPS, Freedom, Pa. Filed Oct. 1, 1901. Serial No. 77,199. (No model.)



Claim.—1. In a detachable-key rail-joint, the combination of a joint-chair grooved lengthwise and provided with key-slots at the bottom of the groove, a rail having corresponding key-slots formed in its bottom, detachable keys fitting the said slots and passing both into the chair-slots and into the rail-slots thereby preventing longitudinal movement of the rail, the said chair and rail being adapted to be spiked to a tie, substantially as described.

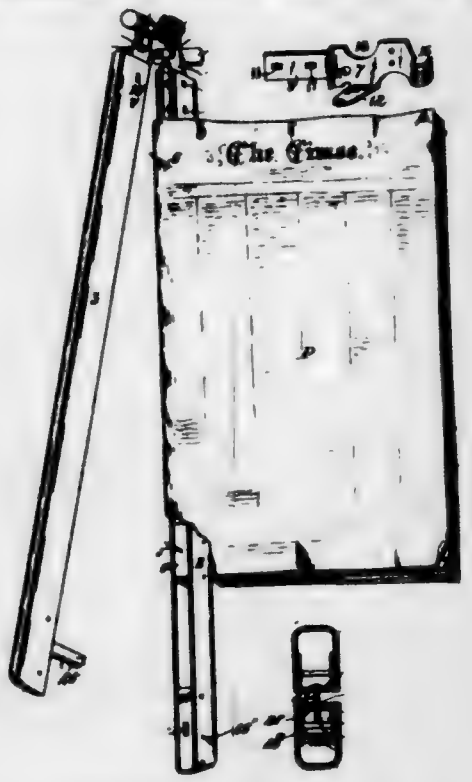
2. In a detachable-key rail-joint, the combination of a joint-chair and means for holding the flange of a rail on the chair against lateral displacement, the said joint-chair being provided with key-slots, a rail having corresponding key-slots in its bottom, keys fitting the said slots and passing into the chair-slots and into the rail-slots thereby preventing longitudinal movement of the rail, and a detachable side brace engaging both the said joint-chair and the upper portion of the rail to prevent tilting and spreading of the rails, substantially as described.

3. In a detachable-key rail-joint, a key C having a lower rectangular block portion joined to an upper rectangular block portion, one end of each block projecting beyond the corresponding end of the other block, substantially as described.

4. In a detachable-key rail-joint, the combination of a grooved joint-chair, the said groove having one perpendicular and one downwardly and outwardly inclined side, the bottom of the said groove being provided with key-slots, a rail having corresponding key-slots, detachable keys fitting the slots and passing into both the chair-slots and rail-slots thereby preventing longitudinal movement of the rail, the said chair and rail being adapted to be spiked to a tie, and detachable side braces engaging both the said joint-chair and the upper portion of the rails to prevent tilting or spreading of the rails, substantially as described.

692,158. NEWSPAPER-FILE. WILLIAM L. LAMBKIN, Ottawa, Canada, assignor to Daniel Lamont McLean, Ottawa, Canada. Filed Sept. 6, 1899. Serial No. 729,641. (No model.)

Claim.—1. In a newspaper-file, the combination of two sheet-metal bars formed U-shaped in cross-section and placed together with their edges facing each other, extensions secured to them at one end and forming part of a hinge-joint, said extensions consisting of matched halves having their inner ends cranked outwardly to meet the inner sides of the bars and their projecting ends in contact and rigidly connected, a hinge-pin secured upon one of said extensions, a shackle adapted to turn and slide upon said pin and pivotally connected with the other extension, said last-named extension formed with a nose adapted to impinge on said pin and lock itself into position thereon, feet formed on the extension of the lower bar to retain the bars lying on edge, a loop formed on the extremity of one of the extensions adapted as a hanger, pins secured on channel-shaped insertions secured in the open space of one bar so that said pins project into the space of the other bar and are adapted to hold the papers, a lock secured to the non-hinge ends of the bars consisting of a rigidly-secured stud having rectangular notches to form rectangular teeth and of a channel-shaped lock-case secured in the other bar said case being provided with a perforation registering with and receiving said stud and a spring-and-key-actuated catch-plate held longitudinally sliding in said case and provided with a registering perforation one end of which is adapted to enter the rectangular notches in said stud, substantially as set forth.



2. In a newspaper-file, the combination of two sheet-metal bars formed U-shaped in cross-section and placed together with their edges facing each other, a pair of matched plates having their central portion in contact and rigidly connected to form a plate of double thickness, their inner ends cranked outwardly to meet the inner sides of the lower bar and be rigidly connected thereto as an extension thereof, their outer ends looped to form a ring and their lower edges provided with laterally-bent lugs to form feet, a hinge-pin straddled upon the outer end of the central portion and rigidly secured in position, another pair of matched plates having their outer portion in contact and rigidly connected to form a plate of double thickness and formed into the shape of a nose and their inner ends cranked outwardly to meet the inner sides of the upper bar and be rigidly connected thereto as an extension thereof and a shackle adapted to turn and slide upon said hinge-pin and pivotally connected to the nose extension at such a point that the nose will move eccentrically and impinge upon said pin when the bar is parallel or nearly so to the other bar, substantially as set forth.

3. In a newspaper-file, the combination of two sheet-metal bars formed U-shaped in cross-section and placed with their edges facing each other, a channel-shaped bracket inserted and rigidly secured within one of said bars, a stud rigidly secured to the transverse portion of said bracket so as to project into the space of the other bar, rectangular notches in said stud forming rectangular teeth and the end of said stud rounded and bevveled toward said teeth, a channel-shaped lock-case rigidly secured within the other bar and provided with a face-plate, a perforation in the face-plate registering with and admitting said serrated stud, a sliding catch-plate within said case and bearing on the inner face of the face-plate and guided in slots in the side of said case and provided with a perforation registering with and admitting said serrated stud, a spring coiled upon a pin and pushing said catch so that one end of its perforation will bear against the serrated edge of the stud and cause it to engage one of the notches, a keyhole in one side of said lock-case and a key adapted to be inserted in said keyhole and to retract the catch-plate against the pressure of the spring, substantially as set forth.

4. In a newspaper-file, the combination with a bar of a projection thereon, a hinge-pin rigidly secured upon said projection, a shackle having an eye adapted to turn and slide upon said pin, a projection on another bar desired to be connected with the bar first above recited, said

last-named projection formed into a nose adapted to impinge on said hinge-pin and said shackle pivotally connected to said nose eccentrically so that when the projection is in a certain desired position, said nose will impinge on said pin, but will swing free thereof in other positions, substantially as set forth.

5. In a newspaper-file, the combination of two bars, provided with means of holding papers between them, such as pins, a self-adjusting locking-hinge connecting said bars at one end and consisting of a projection on one bar holding an elongated hinge-pin, a projection on the other bar forming a nose adapted to impinge on said hinge-pin and a shackle pivoted to the nose and loosely encircling the hinge-pin and sliding freely thereon, and a locking device at the other end of said bars consisting of a stud on one of them having rectangular notches forming rectangular teeth and a case inserted in the other bar containing suitable mechanism to positively engage and hold said stud or to be released by means of a key, substantially as set forth.

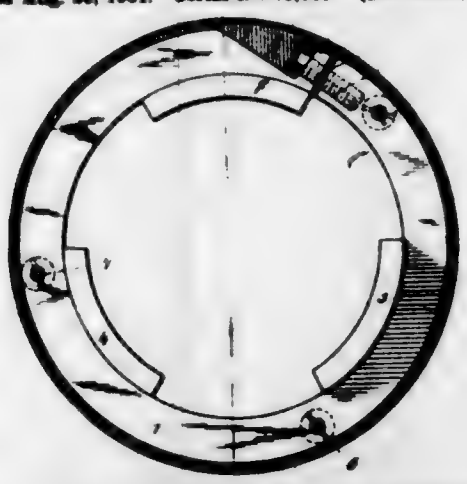
6. In a newspaper-file, the combination of two bars provided with means of holding papers between them, such as pins, a hinge connecting said bars at one end allowing one bar to be lifted and turned aside and consisting of an extension on one bar having an elongated hinge-pin rigidly secured thereto and an extension on the other bar having a shackle pivoted thereto, the loop of which encircles the hinge-pin and is adapted to be turned horizontally and adjusted vertically thereon, and a locking device at the other ends of said bars consisting of a stud provided with rectangular notches forming rectangular teeth, said stud adapted to project into a casing secured to the other bar provided with a registering perforation to admit said stud and containing mechanism to engage any one of said notches and retain the same until released by a key, substantially as set forth.

692,154. CARTRIDGE-SHELL. GEORGE LAMBADIS and DAVID F. STONE, Bridgeport, Conn., assignors to the Union Metallic Cartridge Company, Bridgeport, Conn., a Corporation of New York. Filed July 31, 1901. Serial No. 70,370. (No model.)



Claim.—The combination with a cartridge-shell, of a priming lying in the base thereof and a layer of plastic, hard-drying and highly-inflammable cement molded in the shell over the priming by which the priming is retained in place and deflagration thereof under firing conditions is rendered certain.

692,155. CUTTER-HEAD. SAMUEL M. LANGSTON, Philadelphia, Pa. Filed Aug. 29, 1901. Serial No. 73,689. (No model.)



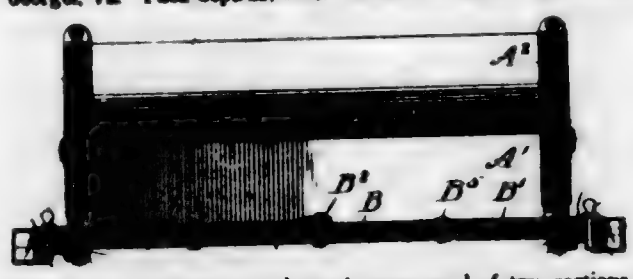
Claim.—1. As an article of manufacture, a cutter-head comprising a split ring provided with bearing-lugs and also provided with normally free ends, an annular cutter rigidly secured to said split ring at a plurality of points but leaving one of said ends free to move, and a screw for actuating the movable end relatively to said other end.

2. As an article of manufacture, a cutter-head, comprising a split ring of resilient metal provided with normally free ends and with bearing-lugs, an annular cutter, screws for securing the same upon said ring so as to confine one of said free ends thereof, and means for actuating the other free end thereof relatively to said cutter for the purpose of engaging and disengaging a shaft.

3. As an article of manufacture, a cutter-head, comprising a split ring of resilient metal provided with lugs integral therewith and spaced apart from each other, and screws for securing an annular cutter to said ring, the relative location of said ring and screws being such that only a single lug is free to move relatively to said cutter, and a screw for dilating and contracting said ring, thereby actuating said single lug toward and from the center of said ring.

4. As an article of manufacture, a cutter-head, comprising a split ring provided with normally free ends, means for rigidly securing an annular cutter upon said ring, so that one of said free ends has a slight movement relatively to said cutter, lugs mounted within said ring, one of said lugs being on one of said normally free ends and free to move with the same, and means for changing the relative position of said normally free end for the purpose of actuating said lug movable therewith, and thereby clamping all of said lugs firmly upon the shaft.

692,156. DRAW-BAR AND COUPLING. JOHN R. LIDDLE, Georgel, Va. Filed Sept. 25, 1901. Serial No. 76,562. (No model.)



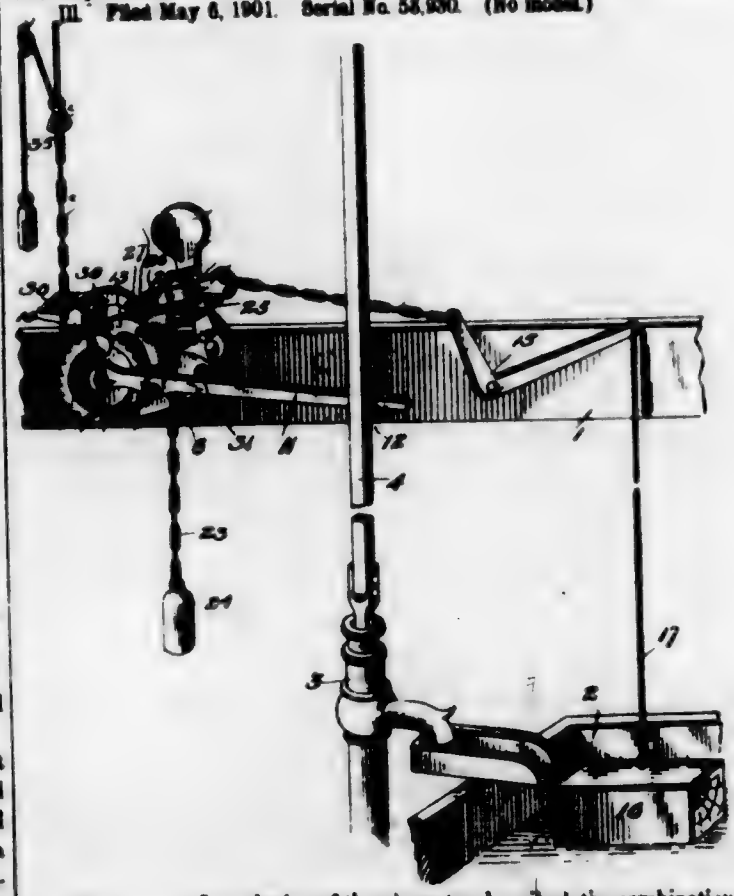
Claim.—1. A draw-bar and coupler composed of two sections disposed in a single horizontal plane each provided at one end with interlocking hooked members one of which is offset from its section to overlap the other, and means passing through said members for securing said parts to a car structure; substantially as specified.

2. In a car structure and in combination with a floor-timber thereof, a draw-bar composed of independent sections having an overlapping interlocking connection at their meeting ends, coupler-heads at the outer ends of said section, inwardly-disposed flanges at the rear of said heads to embrace the ends of the floor-timber, and a securing-bolt passed through said interlocking connection and the floor-timber to retain the parts in position; substantially as specified.

692,157. PROCESS OF REFINING OILS. FRITZ LIENE, Dortmund, Germany. Filed Nov. 19, 1900. Serial No. 36,862. (No specimens.)

Claim.—The process of treating rape-seed oil and other sweet oils, which consists in the following steps: first, adding ten to fifteen per cent. of rich milk to the oil; second, heating the mixture and continuing the application of heat until a thick covering or layer is formed thereon; and third, removing such layer or covering; the latter preventing splashing out or foaming of the oil while boiling, and the oil being purified and its taste and smell being improved, substantially as described.

692,158. WINDMILL-REGULATOR. GEORGE S. LOWE, DeKalb, Ill. Filed May 6, 1901. Serial No. 58,930. (No model.)

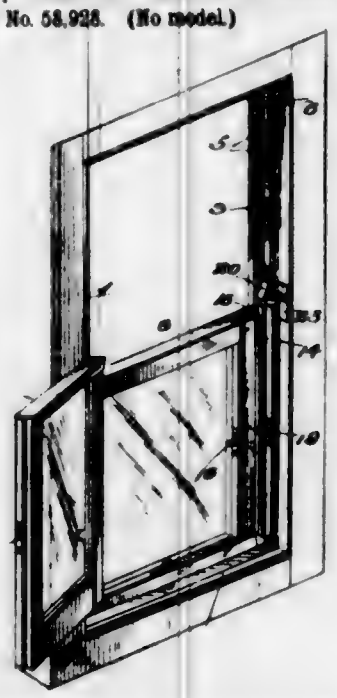


Claim.—1. In a device of the character described, the combination with a ratchet-wheel, of a flexible connection connected to the wheel and

the controlling-rope, a float, a pivoted lever, an operating-pawl pivoted to said lever and designed to coact with the ratchet-wheel, a bell-crank lever, a trip, a flexible connection between one limb of the bell-crank lever and the float, a flexible connection between the trip and the other limb of the bell-crank lever, a locking-dog actuated by said trip and designed to coact with the ratchet-wheel, and a second pivoted lever to automatically disengage said locking-dog from the ratchet to prevent further winding of the wheel, substantially as set forth.

2. In a device of the character described, the combination with a ratchet-wheel, of an operating-lever, an operating-pawl to engage said ratchet-wheel and connected to said operating-lever, a locking-dog to engage said ratchet-wheel, a float-controlled trip for actuating said locking-dog, a second lever for freeing said dog from engagement with the ratchet-wheel, and a chain adapted to be connected to the wheel-controlling rope or rod and provided with a block, said chain being connected to said ratchet-wheel and when wound up by the same to draw its block against the end of said lever, to elevate its other end and thereby automatically disengage the locking-dog from the ratchet-wheel, substantially as set forth.

692,159. WINDOW. JOHN LYER, Buffalo, N. Y. Filed May 6, 1901. Serial No. 58,928. (No model.)



Claim.—The combination with a window-casing, of two sets of bars having sliding connection with the inner faces of said casing, sashes pivoted each to one bar of each set, bolts for connecting said sashes to the opposite bars, counterbalancing-weights for the sashes, an automatic stop arranged within the path of movement of a bar of each set, and when both bars are depressed, adapted to spring out and prevent the upward movement of said bars, and a second automatic stop arranged at a point below the first-named stop to engage one of the bars of the innermost set, substantially as set forth.

692,160. CLASP FOR GARMENT-SUPPORTERS. JOHN B. MANANA and ANDREW I. ROBBINS, Kolso, Wash. Filed Apr. 12, 1901. Serial No. 55,521. (No model.)



Claim.—1. A garment-supporting clasp, consisting of a back plate and a front plate, with a plate 10, hinged to the free extremity of the front plate and carrying prongs, substantially as set forth.

2. A garment-supporting clasp consisting of a back plate and a front plate, with a plate 10, hinged to the free extremity of the front plate and carrying angularly-set prongs, substantially as set forth.

3. A garment-supporting clasp consisting of a back plate and a front plate, with a plate 10, hinged to the free extremity of the front plate, and carrying prongs which work through the front plate, substantially as set forth.

4. A garment-supporting-clasp consisting of a back plate and a front plate with a plate 10, hinged to the free extremity of the front plate and carrying angularly-set prongs which work through the front plate, substantially as set forth.

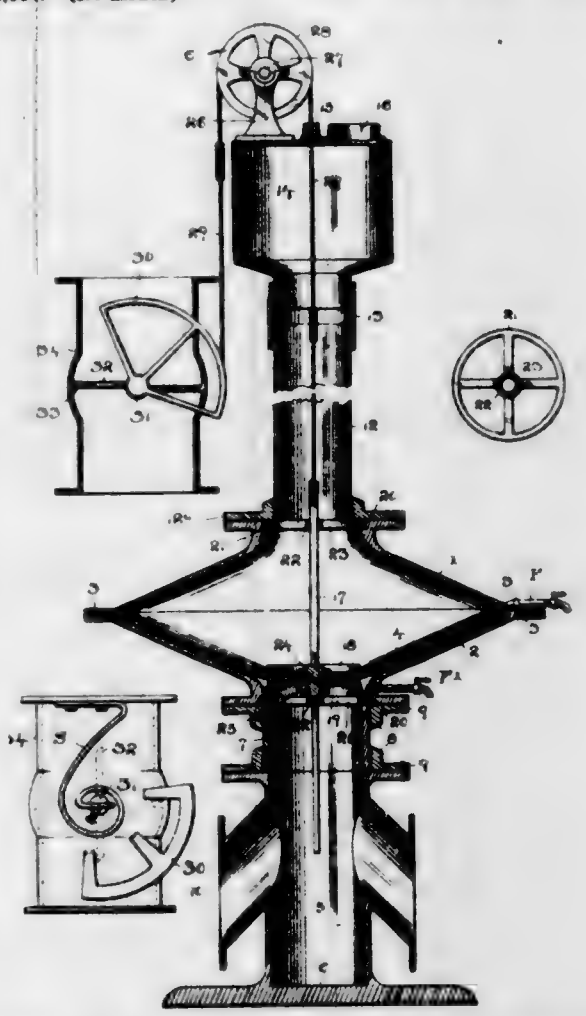
5. A garment-supporting clasp consisting of a back plate 2, and a front plate 1, slitted to form legs 7, 7, and an intermediate spring 8, and a plate 10, supported upon the legs 7, 7, and carrying the prongs 11, 11, and the finger 13, engaging with the spring 8, substantially as set forth.

6. A garment-supporting clasp consisting of a back plate 2, and a front plate 1, slitted to form legs 7, 7, and an intermediate spring 8, and a plate 10, supported upon the legs 7, 7, and carrying angularly-set prongs 11, 11, and the finger 13 engaging with the spring 8, substantially as set forth.

7. A garment-supporting clasp consisting of a back plate 2, a front plate 1, with slits 6, 6, forming legs 7, 7, and an intermediate spring 8, and a plate 10, supported upon the legs 7, 7, and carrying prongs 11, 11, which work through the slits 6, 6, the plate 10, having also a finger 13 which engages with the spring 8, substantially as set forth.

8. A garment-supporting clasp consisting of a back plate 2 and a front plate 1, with slits 6, 6, forming legs 7, 7, and an intermediate spring 8, and a plate 10, supported upon the legs 7, 7, and carrying angularly-set prongs 11, 11, which work through the slits 6, 6, the plate 10, having also a finger 13 which engages with the spring 8, substantially as set forth.

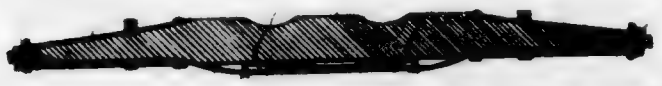
692,161. AUTOMATIC REGULATOR FOR MARINE ENGINES. DANIEL MAHONEY, Brooklyn, N. Y. Filed June 22, 1901. Serial No. 65,697. (No model.)



Claim.—1. An automatic regulator for marine engines, comprising a base-pipe 5 having inlet-pipes leading therein, a diaphragm-chamber, an elastic diaphragm secured therein, a stand-pipe rising vertically from the upper end of the diaphragm-chamber, a surplus-water chamber of greater diameter than the stand-pipe and mounted on the end thereof, a rod secured to the center of the diaphragm, a valve in the steam-pipe of the engine, and a connection between the valve and the diaphragm.

2. An automatic regulator for marine engines, comprising a water-chamber at the base having inlets leading therein, a diaphragm-chamber mounted on the base-chamber and communicating therewith, consisting of reversely-arranged conical shells, an elastic diaphragm secured between the bases of the said shells, a guide-ring on the top of the base-chamber having a central aperture, a guide-ring on the top of the diaphragm-chamber, having a central aperture, oppositely-arranged disks clamping the diaphragm at the center and constituting stops for the openings in the diaphragm-chamber, a guide and clamping rod through the said disks and diaphragm and slidingly projected through the guide-rings, a stand-pipe on the diaphragm-chamber, a surplus-water chamber on the stand-pipe of larger diameter than the stand-pipe, a valve in the steam-pipe, and connections between the valve and the guide-rod of the diaphragm, substantially as and for the purpose specified.

692,162. TRUSS-ROD SPRING FOR VEHICLES. TARGE G. MANDT, Stoughton, Wis. Filed Aug. 13, 1901. Serial No. 71,948. (No model.)



Claim.—In a device of the class described, the combination with an axle and a truss-rod of a bowed spring having downturned notched ends, said spring being mounted with its back centrally on said rod and the said notches engaging the same, substantially as described.

692,168. REACH-COUPLING. TARGE G. MANDT, Stoughton, Wis. Filed Aug. 15, 1901. Serial No. 72,177. (No model.)

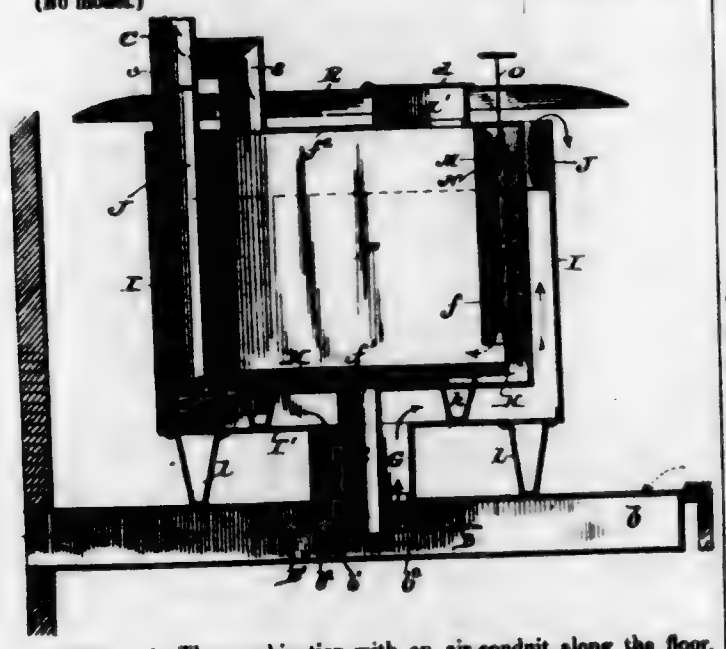


Claim.—1. In a device of the class described, the combination of a box having apertured flanges thereon, a cover for said box, a bowed spring-plate mounted in said box and having downturned ends engaging the ends thereof, a reach-pin passing transversely through apertures in said cover, box, and spring-plate, and provided with a nut bearing on said spring-plate, substantially as described.

2. In a device of the class described, the combination of a box open at the ends and having perforated flanges thereon, a cover for said box, a curved spring mounted in said box and having downturned ends engaging the ends thereof, a reach-pin passing transversely through said cover, box and spring-plate, said pin having a flange thereon which bears on said cover, and a nut mounted to turn and bearing on the under side of said spring-plate, substantially as described.

3. In a device of the class described, the combination with a casing, of a spring-plate located in said casing, a reach-pin extending transversely said casing and said spring-plate, said pin having a threaded shank with a flange and square head thereon, a locking-nut provided with lugs fitting apertures in said casing, said nut fitting said square head and bearing on said flange, and a nut-fitting said threaded shank and bearing on said spring-plate, substantially as described.

692,164. HEATING AND VENTILATING APPARATUS. JOHN M. MILLER, Baldwin, Kans. Filed July 10, 1901. Serial No. 67,712. (No model.)



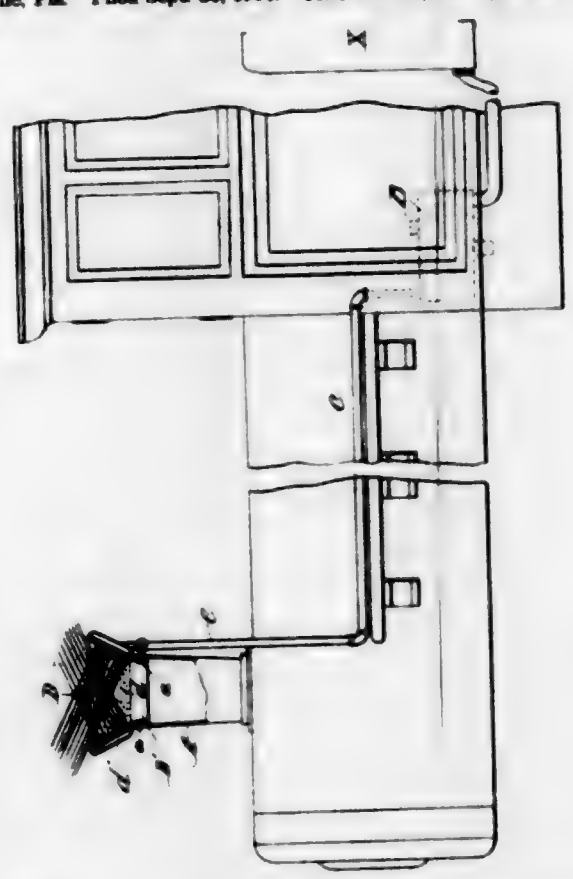
Claim.—1. The combination with an air-conduit along the floor, one end of which conduit is open to the outer air, and the other end open into the room; of a partition with dampers in said conduit between said openings, and a heating and ventilating device located above the same and having concentric foul-air and fresh-air passage-ways communicating with the conduit on opposite sides of the partition the foul-air passage-way opening into and taking air from the room, and the fresh-air passage-way opening through the external walls substantially as described.

2. The combination with an air-conduit along the floor, one end of which is open to the outer air, and the other end open into the room; of a partition with dampers in said conduit between said openings, two vertical concentric pipes connecting therewith and opening on opposite sides of said partition and a heating and ventilating device, one of said concentric pipes being in communication with the air-heating spaces of the heater and the fresh-air side of the partition and the other pipe being in communication with the fire-chamber and smoke-flue thereof and the foul-air side of the partition substantially as described.

3. The combination with a horizontal air-conduit having its opposite ends opening into the outer air and the room as described; of a right-angular partition b' b^2 having at its opposite ends the dampers B B', means for working these dampers, a central pipe opening through the partition to the foul-air end of the conduit, and an outer pipe inclosing the central pipe and opening on the fresh-air side of the partition, and a heating and ventilating device mounted above these pipes substantially as described.

4. The combination with the conduit D having fresh-air and dead-air inlets at opposite ends, and separating-partitions b' b^2 with regulating-dampers B B' as described; of two concentric pipes E G opening on opposite sides of the partition, the outer casing I I' opening into pipe G, the fire-chamber F having bottom flue H and vertical end flues h h' and V communicating with the pipe E, spacing devices J arranged between the fire-chamber and outer casing, and a reflecting-top R extending over the whole device a little above the outer casing substantially as shown and described.

692,165. SPARK-ARRESTER. GEORGE F. MOORE, Jr., Jacksonville, Fla. Filed Sept. 20, 1901. Serial No. 75,674. (No model.)



Claim.—1. A spark-extinguisher consisting of a funnel-shaped top for the smoke-stack having jet-orifices on its inner wall arranged to form a conical fountain of spray above the smoke-stack flue and means for supplying said orifices substantially as described.

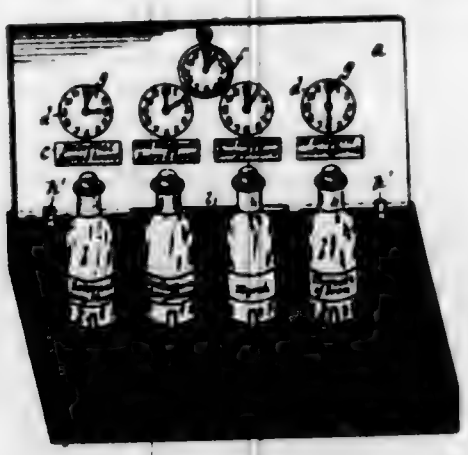
2. A spark-extinguisher consisting of a funnel-shaped top for the smoke-stack having on its inner wall upwardly-inclined nipples, and an externally-arranged water-chamber and means for supplying said chamber substantially as and for the purpose described.

3. A spark-extinguisher consisting of a funnel-shaped top for the smoke-stack having an annular water-jacket with spray-orifices opening inwardly and upwardly across the smoke-flue, and means for forcing water into said jacket substantially as described.

4. A spark-extinguisher consisting of a detachable funnel-shaped top for the smoke-stack having jet-orifices opening upwardly through its inner surface, an annular water-jacket surrounding the same, and a depending flange adapted to be bolted to the top of the smoke-stack and means for supplying said water-jacket substantially as shown and described.

5. The combination with a steam-boiler furnace, its water-tank, and its smoke-stack; of a force-pump having its suction side connected to the tank and its discharge side provided with a pipe leading to the top of the smoke-stack, a funnel-shaped top for the stack having an annular water-jacket connected with the discharge-pipe from the pump, said funnel-shaped top having spray-orifices on its inner surface adapted to form a conical fountain of spray above the flue of the smoke-stack substantially as described.

692,166. MEDICINE-CARRIER. JAKOB SCHAFFER, New York, N. Y. Filed Sept. 21, 1901. Serial No. 76,097. (No model.)



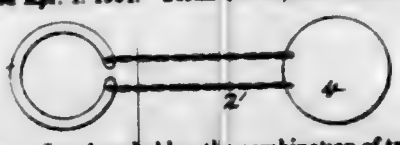
Claim.—1. A lid and a base portion hinged to one another, said base portion having seats for remedy or medicine bottles and said lid having an erasive tablet and a time-indicating dial with settable hands all placed in alinement with the remedy substantially as described.

2. A box-like body portion and a lid hinged thereto, one of said parts having a catch to engage the other for upholding the lid, and the body portion having means for the detachable reception of a bottle or other receptacle and the lid having time-indicating means.

3. A box-like body portion, a lid hinged thereto, a catch on the body portion to engage the lid for upholding the same, a row of seats in said body portion for detachably securing bottles or other receptacles, and a row of time-indicating devices on the lid corresponding in number with the seats.

4. A box-like body portion, a lid hinged thereto, a catch on the body portion to engage the lid for upholding the same, a row of seats in said body portion for detachably securing bottles or other receptacles, a row of time-indicating devices on the lid corresponding in number with the seats, erasive substance on the lid and means upon said lid for detachably sustaining a timepiece.

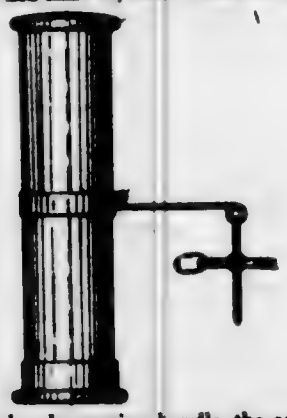
692,167. KEY-HOLDER. CHARLES J. SCHUMACHER, Allegheny, Pa. Filed Apr. 1, 1901. Serial No. 53,808. (No model.)



Claim.—1. In a key-holder, the combination of two objects or members and two independent flexible connections between said members, said members being otherwise disengaged and one of them being adapted for the passing of the eye of the key thereover by manipulation.

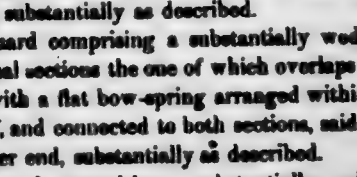
2. In a key-holder, the combination with a member, of an open ring, and independent flexible connections between the tips of the open ring and the member.

692,168. HANDLE FOR DRIVING-REINS, &c. WARD B. SNYDER, Fremont, N. J., assignor of one-half to Harvey T. Andrews, New York, N. Y. Filed Mar. 13, 1901. Serial No. 50,808. (No model.)



Claim.—In a hand-warming handle, the combination of the reticulated hollow cylinder adapted in its transverse dimension to be grasped between the thumb and fingers of a human hand, and being longer than its transverse dimension, and provided with an expanded flange at one end, the handle-shell having the head-flange at one end, and a perforated end cover, and a registering cap therefor, said shell adapted to receive the cylinder with its expanded flange making a close joint with the interior of the handle-shell and an annular air-space between said shells below said expanded collar, the cap having the central boss secured in the end of the cylinder, and the exterior flange receiving the other end of the handle-shell, the bottom of said cap being perforated coincidently with said air-space.

692,169. FOOT-GUARD. EPHRAIM TRUXALL, Pittsburg, Pa. Filed June 10, 1901. Serial No. 63,898. (No model.)



Claim.—1. In a foot-guard comprising a wedge-shaped casing formed of two sections, outwardly-extending flanges arranged on said sections, a contracted portion formed between said flanges, and springs arranged in said casing and connected to said contracted portion, substantially as described.

2. In a foot-guard, the combination of a wedge-shaped casing formed of two sections, and a spring arranged in said casing closing the end thereof, substantially as described.

3. In a foot-guard, the combination of two sections forming a wedge-shaped casing, a spring arranged in one end of said casing connecting said sections together and closing the end thereof, and a spring arranged in said sections connecting the other end of said sections together, substantially as described.

4. In a foot-guard, the combination of two movable sections forming a wedge-shaped casing, outwardly-extending flanges formed integral with said sections, and a spring securing said sections together and closing the end thereof, substantially as described.

5. In a foot-guard, the combination of two movable sections forming a wedge-shaped casing, one of said sections overlapping and underlapping the other of said sections, and a spring arranged in said casing approximately the same width as the interior of the casing, substantially as described.

6. In a foot-guard, the combination of two movable sections forming a wedge-shaped casing, one of said sections overlapping and underlapping the other of said sections, and springs arranged in said casing approximately the same width as the interior of the casing, substantially as described.

7. A foot-guard comprising a wedge-shaped casing formed in two equal sections the one of which overlaps and underlaps the other, and flat bow-springs arranged within the casing, one of said springs closing the end of the casing, substantially as described.

8. A foot-guard comprising a substantially wedge-shaped casing, formed in two equal sections the one of which overlaps and underlaps the other, combined with a flat bow-spring arranged within the casing at the larger end thereof, and connected to both sections, said spring closing the casing at the larger end, substantially as described.

9. A foot-guard comprising a substantially wedge-shaped casing formed in two equal sections, one of which slides within the other, combined with a flat bow-spring arranged within the casing and connecting the sections together, said spring acting to spread the sections and to form a brace therefor, substantially as described.

10. In a foot-guard, a casing formed of two similarly-shaped sections, combined with a spring arranged within the casing and connected to each section, said spring closing the casing at one end and serving as a brace to the sections, substantially as described.

11. A foot-guard comprising a casing formed in two sections, each section having longitudinally-extending shoulders, and a spring connecting the sections and acting as a brace therefor.

12. A foot-guard comprising a casing formed in two sections, each section having longitudinally-extending shoulders, a contracted web portion on each section, and a spring connected at its ends to the contracted web portions of the casing, said spring engaging the upper and lower walls of the casing, as and for the purpose described.

13. A foot-guard comprising two sections, with a spring connecting the sections together, said spring acting to normally spread the sections and also to brace the same, substantially as described.

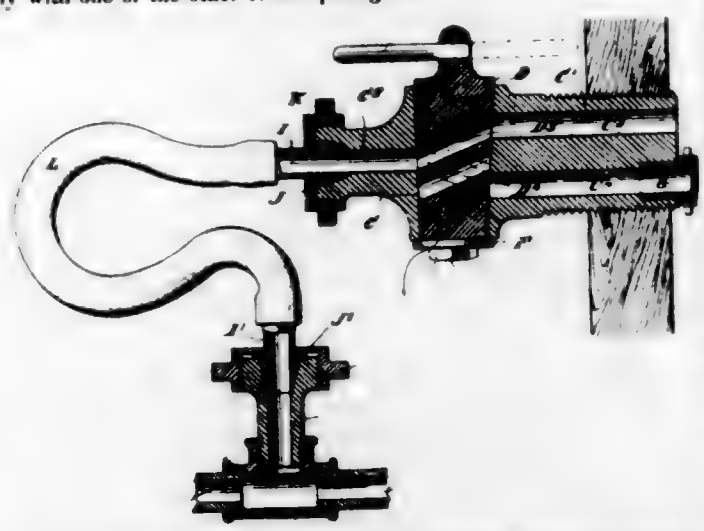
14. A foot-guard comprising two sections, with springs connecting the sections together, the springs acting to normally spread the sections and to brace the same, substantially as described.

15. In a foot-guard, a casing capable of enlargement or contraction, and means within the casing for normally extending the same, the said means closing the casing at one end and acting as a brace to the casing, substantially as described

692,170. APPARATUS FOR AERATING WORT AND IMPROVING THE QUALITY OF YEAST. MAX WALLERSTEIN and HANS H. FREMER, New York, N. Y. Filed May 23, 1901. Serial No. 61,536. (No model.)

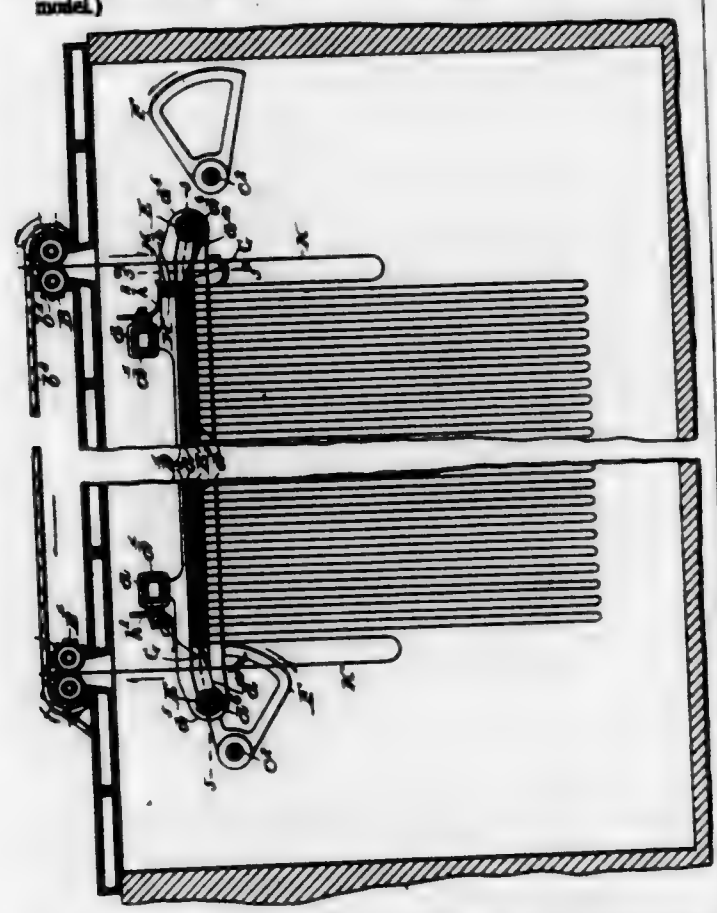
Claim.—1. An aerating-faucet for fermenting-vats, comprising a casing adapted for connection with the vat and with a supply of air, said

casing having two passages leading toward the vat, one of said passages having a relatively large inner orifice, and the other a plurality of small orifices, and a movable plug having ports adapted to connect the air-supply with one or the other of said passages.



2. An aerating-faucet for fermenting-vats, comprising a casing having a plug-seat and adapted to be secured to the vat, the casing having a single passage leading outward from the plug-seat and adapted for connection with an air-supply, and two passages leading inward from the plug-seat toward the vat, one of the said inward passages having a relatively large orifice at the vat end, and the other a plurality of small orifices, and a plug mounted to turn on said plug-seat and having two ports adapted to connect the outward passage with one or the other of the inward passages.

692,171. APPARATUS FOR STEAMING FABRICS, &c. THOMAS WALSH, Lowell, Mass. Filed Sept. 22, 1897. Serial No. 652,563. (No model.)



Claim.—1. The combination of two equal series of fabric-supporting rods, two tracks, parallel throughout their length, means of causing each series of rods to travel on one of said tracks at right angles to said tracks and at all times parallel with each other, in the opposite direction from that taken by the other of said series, means for moving the rods in the direction of their length at the end of each series one at a time from one track to the other, means of feeding a fabric to the rods at one end of each series and means of removing said fabric from said rods at the opposite end of the same series.

2. The combination of two tracks, two equal series of fabric-supporting rods, cams, to move each series of rods intermittently in the opposite direction from that taken by the other series, ways, connecting said tracks, push-rods, and means to reciprocate said push-rods longitudinally in said ways.

3. The combination of two tracks, two equal series of fabric-supporting rods, provided with heads or collars, cams, to move each series of rods intermittently in the opposite direction from that taken by the other series, ways, connecting said tracks, and having rails to support said heads, push-rods, and means to reciprocate said push-rods longitudinally in said ways.

4. The combination of two tracks, two series of fabric-supporting rods, two driving-shafts, cams, turning with each of said shafts, to move each series of rods intermittently in the opposite direction from that taken by the other of said series, ways, connecting the ends of said tracks, cam-shafts, driven from said driving-shaft, other cams, fast on said cam-shafts, levers, actuated by said last-named cams, and push-rods, reciprocated by said levers in said ways, to transfer fabric-supporting rods from one to the other of said tracks.

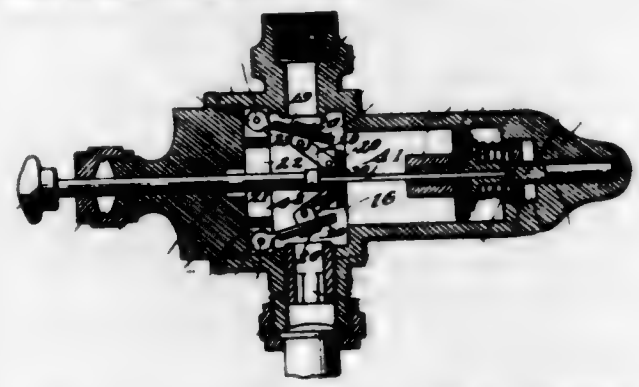
5. The combination with a suitable track, of fabric-supporting rods, adapted to travel on said track and latches, arranged to prevent the return movement of said rods.

6. The combination with a suitable track and fabric-supporting rods, adapted to travel on said track, of a flexible clamp-bar, springs, supporting said bar and pressing said bar downward, said bar being adapted to yield upward and to press upon a fabric resting upon a rod as said rod travels under said bar.

7. The combination with a suitable track and fabric-supporting rods, adapted to travel on said track, of a flexible clamp-bar and springs, supporting said bar and pressing said bar downward, said bar being trough-shaped to receive the ends of said springs, to prevent said bar from being carried along by a rod forced under said bar but allowing said bar to yield upward and to press upon the fabric resting upon said rod.

8. The combination with a suitable track and fabric-supporting rods, adapted to travel on said track, of a trough-shaped clamp-bar and springs, the ends of which enter the trough of said bar, to prevent said bar from moving with a rod forced under said bar, said bar having slits extending from the top nearly to the bottom of said bar to allow said bar to bend to fit the longitudinal curvature of said rod.

692,172. AUTOMATIC SAFETY GAS-VALVE. JAMES M. WESCOTT, Hornellsville, and CHARLES B. SMITH, Prattsburg, N. Y. Filed May 13, 1901. Serial No. 60,070. (No model.)



Claim.—1. In an automatic safety gas-valve, the combination with the valve-casing and its inlet and outlet, of a pair of valves for controlling said inlet and outlet, a plate in said casing having its sides cut away for the purpose specified and suitably connected with said valves, a slide-block having toggle-link connections with said valves, means for moving said slide-block by hand to open said valves, and an adjustable automatically-actuated piston for moving said slide-block in an opposite direction to close said valves on fall of gas-pressure below normal, substantially as described.

2. In an automatic safety gas-valve, the combination with the valve-casing and its inlet and outlet, of a plate in said casing having its sides cut away for the purpose specified, a pair of valves hinged to said plate and having a packing removably secured to their engaging face and adapted to control said inlet and outlet, a slide-block having toggle-link connections with said valves, a longitudinally-movable rod for moving said block in one direction to open said valves, one end portion of said rod being extended outside the valve-casing and serving to indicate whether the valves are open or closed, and an adjustable spring-pressed piston for automatically moving said slide-block in the opposite direction to close said valves on fall of gas-pressure below normal, substantially as described.

3. In an automatic safety gas-valve, the combination with the valve-casing and its inlet and outlet, of a plate in said casing having its sides cut away for the purpose specified, a pair of valves hinged to said plate for controlling said inlet and outlet, an adjustable valve-seat for one of said valves, a slide-block supported in the valve-casing between said valves and having a toggle-link connection with each, a longitudinally-movable rod for moving said slide-block in one direction to break extension of the toggles and thereby open said valves, and an adjustable spring-pressed

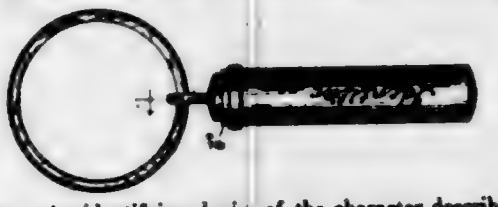
piston for automatically moving said slide-block in the opposite direction to close said valves on fall of gas-pressure below normal, substantially as described.

4. In an automatic safety gas-valve, the combination with the valve-casing and its inlet and outlet, of an adjustable valve-seat in said inlet, a pair of valves for controlling said inlet and outlet, packing suitably connected to the engaging face of said valves, a plate having the sides thereof suitably cut away for the purpose specified and suitably supported in the valve-casing, means for hinging the valves to said plate, a slide-block supported in the valve-casing and having toggle-link connections with said valves, a longitudinally-movable rod projecting from the valve-casing, for moving said slide-block in one direction to open said valves, and an adjustable spring-pressed piston for automatically moving said slide-block in the opposite direction to close said valves on fall of gas-pressure below normal, substantially as described.

5. In an automatic safety gas-valve, the combination with the valve-casing and its inlet and outlet, said valve-casing being further provided in one end with a screw-plug and at its opposite end with an integral casting, said plug and casting having axial perforations one of which constitutes a vent, of a plate in said casing having its sides cut away for the purpose specified, valves hinged to said plate for controlling the inlet and the outlet of said valve-casing, an adjustable valve-seat for one of said valves, a slide-block supported in the valve-casing between said valves and having a toggle-link connection with each, a rod extended through the perforation of said plug for moving said slide-block in one direction by hand from the outside of the valve-casing to set the valves in open position, and an adjustable automatically-actuated mechanism mounted in the valve-casing to control the gas-vent and to close the valves at the inlet and outlet of the valve-casing on fall of gas-pressure below normal, substantially as described.

6. In an automatic safety gas-valve, the combination with the valve-casing and its inlet and outlet, of a plate secured in the casing and having its side cut away for the purpose specified, a pair of valves hinged to said plate for controlling said inlet and outlet, an adjustable valve-seat arranged in said inlet for one of said valves, a slide-block connected with said valves for closing the same, a rod engaging said block for opening the said valves, a piston adapted to engage said block for operating the same, a spring engaging said piston for actuating it, and means for adjusting the tension of said spring.

692,173. IDENTIFYING DEVICE. ISAAC L. WILBER, Boston, Mass. Filed Nov. 16, 1900. Serial No. 36,734. (No model.)



Claim.—An identifying device of the character described, adapted to be attached to a key-ring, the same consisting of two tubular sections adapted to slide one within the other and each having one end closed and the other open, the inner section being adapted to frictionally hold a coiled piece of paper and having at its closed end means for connection with a key-ring, whereby this single section may prevent the loss of said paper if the outer section becomes accidentally detached, said outer section covering substantially the entire length of the inner section, a detachable snap connection being formed between the two sections at a point near the open end of the outer section and the closed end of the inner section.

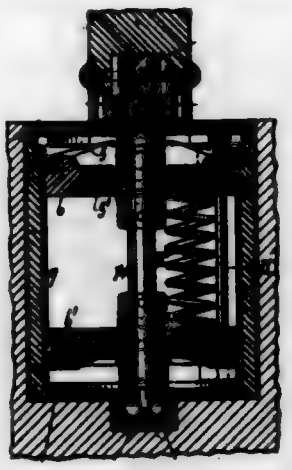
692,174. BLACK SULFUR DYE AND PROCESS OF MAKING SAME. JULIUS ABEL, Mannheim, and FRITZ KALKOW, Ludwigshafen, Germany, assignors to Badische Anilin & Soda Fabrik, at Ludwigshafen, Germany, a Corporation of Bostee. Filed Nov. 1, 1901. Serial No. 80,798. (No specimens.)

Claim.—1. The manufacture of black coloring-matter by heating ortho-para-dinitro-para-hydroxy-diphenylamin with sulfur, an alkaline sulfid, and copper, substantially as described.

2. The new black coloring-matter containing sulfur such as can be obtained by melting ortho-para-dinitro-para-hydroxy-diphenylamin with sulfur, sodium sulfid and copper sulfate, which is almost insoluble in alcohol and dyes cotton, direct, deep black, to greenish-black, shades, which shades on treatment on the fiber with copper sulfate become but less greenish black, and on treatment with hydrogen peroxid do not become blue but dull blue-black, substantially as described.

692,175. HINGE. FRANK L. BARRON, New York, N. Y., assignor to Charles W. Ostertag, New York, N. Y. Filed May 1, 1901. Serial No. 58,337. (No model.)

Claim.—1. A hinge comprising a bridge or door piece, rollers made to swing or travel with said bridge, means for suitably connecting the rollers with the bridge or door piece, and means provided with cam faces or surfaces for the rollers placed out of the path of one another to allow extended travel of the rollers substantially as described.



2. A hinge comprising a bridge or door piece, rollers made to travel with said bridge, means for connecting said rollers with the bridge or door piece, and spring-actuated means provided with cam faces or surfaces on which the rollers travel, said cam faces or surfaces being arranged concentrically or one within the other substantially as described.

3. A hinge comprising a bridge or door piece, upper and lower spring-actuated cam faces or surfaces, means for suitably supporting said cam faces or surfaces, and rollers made to move with the door and to travel on the respective cam faces or surfaces, and means for connecting the rollers with the bridge or door piece substantially as described.

4. A hinge comprising a door-piece, upper and lower plates provided with cam faces or surfaces, a spring between the plates for separating the same and means for supporting said plates, a stem made to swing with the door and suitably connected with said door-piece, and rollers on the stem made to move with the door and to travel on the respective cam faces or surfaces substantially as described.

5. A hinge comprising a door-piece, upper and lower cam-pieces and means for suitably supporting said cam-pieces, separating-springs for the cam-pieces, stems or bolts for securing the cam-pieces against rotation, a stem made to move with the door and suitably connected with said door-piece, and rollers connected to the last-named stem, said rollers being made to travel on their respective cams and to clear the other cams substantially as described.

6. A hinge comprising a door-piece, rollers made to move with the door, and means for supporting said rollers suitably connected with the door-piece, a box having a bottom and cap, fastening-stems for engaging the bottom and cap, spring-separated cam-pieces having eyes engaged by said stems, said rollers being made to travel respectively on the cams, and means for suitably supporting said cam-pieces substantially as described.

7. A hinge comprising a door-piece, a box having a cap, a pair of vertically-moving cam-pieces arranged in the said box, a spring interposed between the said cam-pieces and suitably connected thereto, a stem adapted to move with the door, connected with the door-piece and extending through the cams, arms projecting from the stem, a stop connected with the said cap, and rollers carried by the arms, adapted to travel along the cams and engaged by said stop for arresting their movement.

8. A hinge comprising a door-piece, a box having a cap and a bottom, spring-separated cams in the box, rollers made to travel on the cams, and a stem extended through the cams and to which the rollers are connected, said stem and box-bottom having coinciding ball-bearings for rotatively supporting the stem substantially as described.

9. A hinge comprising a bridge or door piece, a pair of vertically-moving cams, a spring interposed between the said cams and suitably connected thereto, means for supporting the said cams, rollers connected with the door-piece and adapted to travel on the cams, and means for arresting the movement of the said rollers.

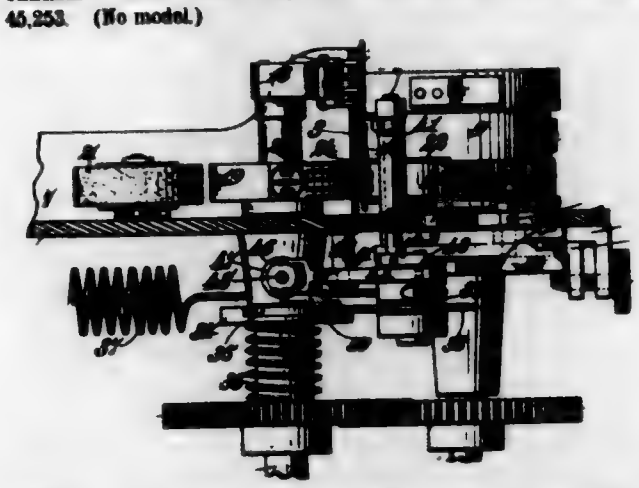
10. A hinge comprising a bridge or door piece secured to the door, a stem connected with said bridge or door piece, provided with rollers and rotated by the opening and closing of the door, spring-actuated vertically-moving cams for the rollers and provided with seats or recesses into which the rollers enter for securing the door in closed position and a spring interposed between said cams and suitably connected thereto substantially as described.

11. A hinge comprising a bridge or piece secured to the door, rollers connected to the bridge to swing with the door, oppositely-located vertically-moving cam pieces or disks, each having its cams provided with seats or depressions into which said rollers enter to secure the door in

closed position and means for causing the vertical movement of said cam-pieces substantially as described.

12. A hinge comprising a bridge or door piece, rollers made to swing or travel with the door, and cams for the rollers placed out of the path of one another and on different levels substantially as described.

692,176. MAIL-MARKING MACHINE. JOHN H. BARR and CHARLES V. FYKE, Kansas City, Mo. Filed Jan. 29, 1901. Serial No. 45,253. (No model.)



Claim.—1. In a mail-marking machine, the combination with means for feeding the letters to be marked, a printing device, and an impression device, of connections between the two for normally keeping them away from the printing position, operative parts adapted to shift said connections, a finger in the letter-path, and mechanism operated by said finger to cause said operative parts to shift said connections and permit said printing and impression devices to assume the printing position when a letter is at the printing-point, substantially as set forth.

2. In a mail-marking machine, the combination with means for feeding the letters to be marked, a printing-cylinder, and an impression-surface, of connections therebetween for normally keeping said impression-surface away from its operative position with respect to the printing-cylinder, operative parts adapted to shift said connections, a finger in the letter-path, and mechanism operated by said finger to cause said operative parts to shift said connections and permit said impression-surface to assume the printing position when a letter is at the printing-point, substantially as set forth.

3. In a mail-marking machine, the combination with means for feeding the letters to be marked, of a rotating printing-cylinder, a bodily-movable impression-surface, wheels connected with said printing-cylinder and impression-surface and contacting with each other to normally retain the impression-surface away from the printing position, one of said wheels being recessed on a portion of its periphery normally out of the path of rotation of the other wheel, a spring for exerting a tension on the impression member toward the printing position, a finger in the letter-path, and mechanism operated by said finger to shift one of said wheels so that the recessed portion on one of them will lie in the path of the other wheel, whereby the impression-surface will assume the printing position when a letter is at the printing-point, substantially as set forth.

4. In a mail-marking machine, the combination with means for feeding the letters to be marked, a printing-cylinder, a shaft rotating the same, a bodily-movable impression-surface normally out of operative position, of a wheel on the printing-cylinder shaft having its periphery provided with a recessed portion, a wheel bodily movable with the impression-surface and normally contacting with the unrecessed portion of the periphery of the printing-shaft wheel, a finger in the letter-path, mechanism operated thereby to shift the relative positions of said wheels so that the impression-surface wheel will contact with the recessed portion of the periphery of the printing-shaft wheel, and means for constantly pressing the impression-surface and its parts toward its operative position, substantially as set forth.

5. In a mail-marking machine, the combination with means for feeding the letters to be marked, of a printing-cylinder, a rotary shaft carrying the same, a vertically-movable wheel on said shaft having a portion of its periphery recessed, a spring for normally retaining said wheel in one position, a bodily-movable impression-surface, a wheel connected therewith and normally contacting with the unrecessed portion of the periphery of the printing-shaft wheel, means for constantly forcing the impression-surface toward the printing position, a finger in the letter-path, and mechanism operated thereby to bodily move the printing-shaft wheel so that its recessed portion will contact with the impression-surface wheel, whereby said impression-surface may be moved to the printing position when a letter is at the printing-point, substantially as set forth.

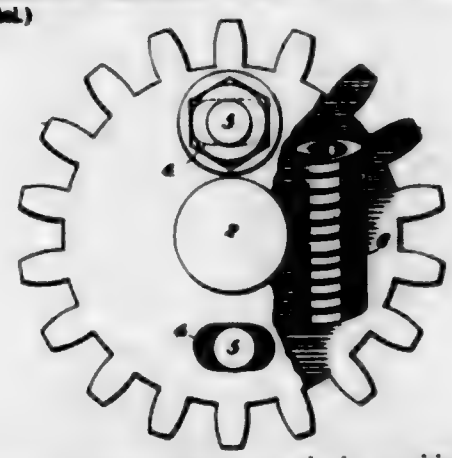
6. In a mail-marking-machine, the combination with means for feeding the letters to be marked, a printing-cylinder, a bodily-movable impression-surface, a shaft for said printing-cylinder, a vertically-movable wheel on said shaft controlling by its position the movement of the impression-surface to and from the printing position, means for normally retaining said wheel in its uppermost position, and a cam on the upper surface of said wheel, of a roller movable horizontally but not vertically and above the upper surface of said wheel, a finger lying across the letter-path, and intermediate connections between the two, whereby the movement of the finger by the entering letter will move said roller horizontally above said wheel and into the path of travel of the cam thereon to depress said wheel and thus permit the impression-surface to occupy the printing position, substantially as set forth.

7. In a mail-marking machine, the combination with means for feeding the letters to be marked, a printing-cylinder, a bodily-movable impression-surface, a shaft for said printing-cylinder, a vertically-movable wheel on said shaft controlling by its position the movement of the impression-surface to and from the printing position, a spring for normally retaining said wheel in its uppermost position, and a cam on the upper surface of said wheel, of a roller movable horizontally but not vertically and above the upper surface of said wheel, a lever pivoted intermediate its length and engaging said roller at one end, a crank-arm engaging the other end of said lever, a vertical shaft to which said crank-arm is fixed, and a finger attached to said shaft and adapted to lie normally across the letter-path and to be deflected by the passage of the letters, the said roller lying out of the path of travel of the cam on the printing-shaft wheel when said finger is in its normal position but shifted into said path of travel by the deflection of said finger to force its wheel to a position for permitting the impression-surface to occupy the printing position, substantially as set forth.

8. In a mail-marking machine, the combination with means for feeding the letters to be marked, a printing-cylinder, a shaft therefor, a bodily-movable impression member, and mechanism on said printing-shaft for controlling the position of said impression member, of intermediate connections between said impression member and controlling mechanism consisting of a movable plate carrying said impression member, a second movable plate, a wheel mounted in said second plate and contacting with the controlling mechanism, and connections between said plates for adjustably securing the same together, substantially as set forth.

9. In a mail-marking machine, the combination with a vertical partition, and an endless feed-belt, between which the letters pass in their passage to the printing-point, of a spring-arm projecting from the belt side of and across the letter-path and located above said belt, the same adapted to yield to the letters and to retain their upper edges in contact with the partition during their passage to the printing position, substantially as set forth.

692,177. COMPENSATING GEAR-WHEEL FOR MOTOR-CARS. FRANK BURGER, Fort Wayne, Ind., assignor of three-fourths to Henry M. Williams, Fort Wayne, Ind. Filed July 6, 1900. Serial No. 722,947. (No model.)



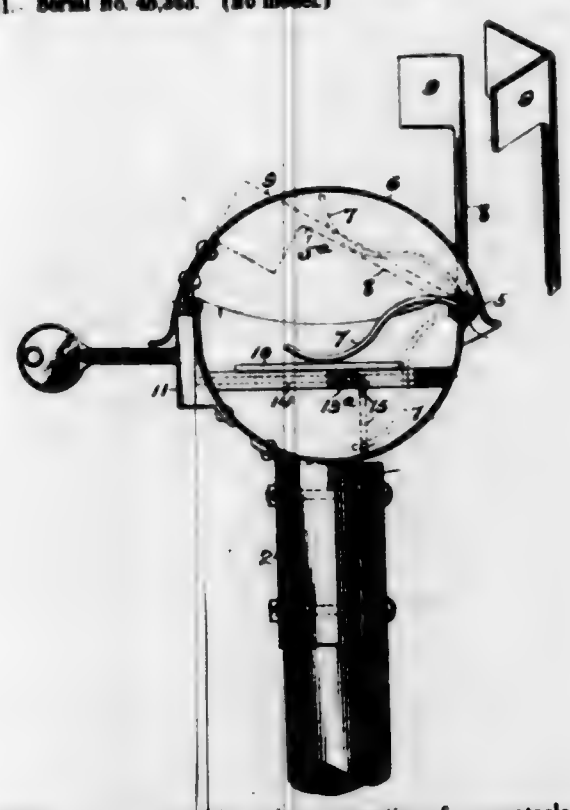
Claim.—1. A compensating gear-wheel comprising two gears of equal diameter, means for holding them together to permit a partial rotary but not longitudinal movement with relation to each other, the gears being provided with alining diagonal recesses in their adjacent faces, and a spring mounted in said recesses tending to control the relations of the gears, substantially as described.

2. A compensating gear-wheel comprising two gears of equal diameter arranged side by side one of them being provided with an elongated slot, the other being provided with an opening, a bolt secured in the opening and extending through the slot, the adjacent faces of the gears being recessed, and a spring seated in said recesses, substantially as described.

3. The combination with a shaft, of a compensating gear-wheel comprising two gears of equal diameter arranged side by side on a shaft one of which is fixed to the shaft and the other is loose thereon, means for connecting the gears together to permit a partial rotary but not longitudinal movement with relation to each other, and a spring seated in a di-

agonally-disposed pocket formed in the adjacent faces of the gears for elastically controlling the relative relations of the two gears, substantially as described.

692,178. MAIL-BOX. ARTHUR M. BURNHAM, Gardiner, Me., assignor of one-half to Mrs. Lute B. Libby, Gardiner, Me. Filed Jan. 30, 1901. Serial No. 45,363. (No model.)



Claim.—1. In a mail-box, the combination of a receptacle for mail, a door or cover therefor, a signal, means on the door or cover for raising the signal when said door or cover is opened and means in the receptacle to coöperate with mail-matter deposited in the receptacle to retain the signal raised after the door or cover has been closed.

2. In a mail-box, the combination with a receptacle, a door or cover therefor and a lock, of means in the receptacle and coöperating with the lock to retain the door or cover unlocked when the receptacle is empty and to permit the operation of the lock when mail-matter has been deposited into the receptacle and the door or cover closed.

3. In a mail-box, the combination with a receptacle, a door or cover therefor, a lock and a signal, of means in the receptacle constructed and arranged to be controlled by mail-matter inserted into the receptacle, for permitting the operation of the lock to lock the door or cover and to retain the signal in displayed position when the door or cover is locked.

4. In a mail-box, the combination with a receptacle and a cover therefor, of a pivotally-supported signal-arm adapted to project above the box, a pin on the cover to engage the signal-arm and raise it when the cover is opened, and means within the receptacle constructed and arranged to be controlled by mail-matter inserted into the receptacle for retaining the signal-arm raised when mail-matter has been deposited into the box and the cover closed.

5. In a mail-box, the combination with a stationary receptacle and a hinged top or cover therefor, of a shaft projecting through said stationary receptacle and carrying a signal at one end and fingers on said shaft in the receptacle to be held by a letter or parcel deposited therein, in a vertical or other position to signify the presence of the contents of the box.

6. In a mail-box, the combination with a stationary receptacle and a cover or top hinged thereto, of a shaft projecting through said stationary receptacle and carrying a signal at one end, fingers on said shaft in the receptacle to be held by a letter or parcel deposited therein in a vertical or other position to signify the presence of the contents of the box and means for locking the cover or top in its closed position.

7. In a mail-box, the combination with a support, a slotted platform for mail, and a hinged top covering said platform, of a shaft carrying a signal at one end, fingers on said shaft adapted to move through the slotted platform and permit the signal to fall, but which will be held in position by a letter or parcel on the platform to maintain the signal in a vertical position.

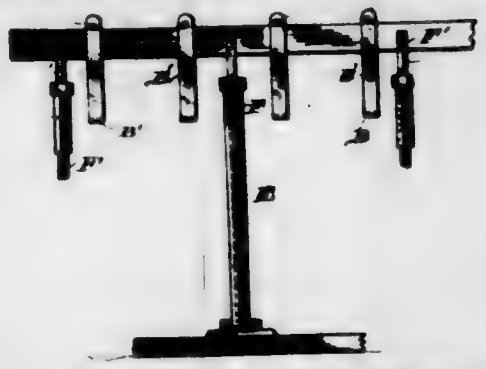
8. In a mail-box, the combination with a stationary receptacle and a hinged top or cover therefor, of a slotted platform in said receptacle for mail, a shaft mounted in said receptacle and extending across the platform, a signal on one end of said shaft and fingers on said shaft adapted to move freely through the slotted platform when the box is empty to permit the signal to fall but whose movement will be limited by a letter or parcel on the platform to hold the signal in a vertical position.

9. In a mail-box, the combination with a receptacle and a closure therefor, of a bolt, a catch to coöperate with the bolt to lock the closure, a finger projecting from the catch and means coöperating with said finger for preventing the operation of the lock when the box is empty, said means constructed and arranged to be controlled by mail-matter in the box for permitting the engagement of the catch with the bolt to lock the closure.

10. In a mail-box, the combination with a receptacle and a closure therefor, of a notched bolt on the closure, a spring-actuated catch for engaging the bolt, a shaft, a signal thereon, a finger on the shaft adapted when the box is empty to hold the catch out of engagement with the bolt but which will be held out of engagement with the catch when a letter or parcel is in the box and in position to set the signal.

11. In a mail-box, the combination with a receptacle and a closure therefor, of a bolt on the closure, a lock on the receptacle for engaging the bolt, a shaft in the receptacle, a signal carried by said shaft, a finger on said shaft in such position as to release the locking mechanism when the box is empty and to set the signal when a letter or parcel is deposited in the box and permit the operation of the lock to secure the closure against movement until the lock is operated by a key.

692,179. BUILDING-SUPPORT. MATTHEW H. CALLAHAN, Aspen, Colo. Filed June 11, 1901. Serial No. 64,099. (No model.)



Claim.—1. An apparatus for supporting walls, chimneys, &c., comprising a bar, a plurality of hooks carried thereby and adapted to underlie the wall to be supported, and means for supporting the said hook-carrying bar, substantially as set forth.

2. An apparatus for supporting walls, chimneys, &c., comprising a bar, a plurality of hooks, carried by said bar and adapted to underlie the wall or other structure, and the jacks for supporting the said bar, substantially as set forth.

3. An apparatus substantially as described, comprising the main bar, a plurality of hooks, carried by and adjustable along said bar, and means for supporting the said hook-carrying bar, substantially as set forth

4. An apparatus substantially as described, comprising the main bar, the hooks adapted to underlie the structure to be supported and having their shanks slotted and adjustable along the bar, and means for supporting the bar, substantially as set forth.

5. An apparatus substantially as described, comprising the main carrying-bar provided with a plurality of hooks adapted to underlie the wall to be supported, and the jacks having their sections connected with the said bar slotted or recessed to receive the said bar, substantially as set forth.

6. An apparatus for supporting walls, chimneys, &c., comprising a main bar, a plurality of hooks carried by said bar and arranged at intervals, and a plurality of jacks supporting said bar at intervals, substantially as set forth.

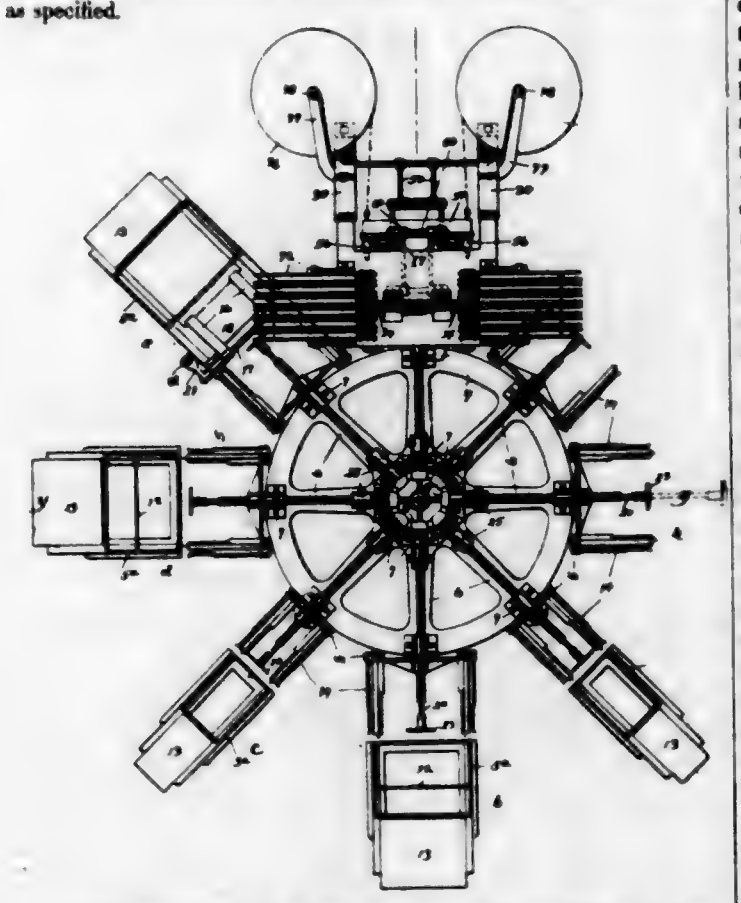
7. An apparatus substantially as herein described, comprising the main bar, the plurality of hooks, slotted to receive the said bar, and adjustable along the same, and jacks for supporting said bar, having their sections engaged therewith slotted or recessed to receive the said bar, substantially as set forth.

692,180. AUTOMATIC BOX-MAKING MACHINE. JAMES H. CLARK and ALFRED MAYER, Philadelphia, Pa. Filed May 2, 1900. Serial No. 15,285. (No model.)

Claim.—1. In a machine for automatically assembling and nailing a box, a series of anvils so mounted as to move step by step, mechanisms for feeding the various shooks to said anvils, mechanism for driving the entire series of nails in the box to secure its sections together, mechanism for ejecting each box from its anvil after being completed, and means for operating the various mechanisms.

2. A machine for automatically assembling and nailing a box, consisting of a series of anvils adapted to travel step by step, means for revolving said anvils upon their axes, a series of magazines for holding the various shooks to form the box, means for feeding the shooks from the magazines to the anvils, a nailing mechanism to which each assembled box is delivered, and means for operating said nailing mechanism, where-

by all the nails are driven to complete the box at one stop, substantially as specified.



3. In a machine of the character described, a suitable base, a turn-table mounted upon said base, means for revolving said turn-table intermittently, a series of anvils, mounted upon said turn-table, means for revolving said anvils upon their axes, a series of magazines for holding the shooks to form the box, means for feeding said shooks to the anvils, nailing mechanism to which the assembled boxes are successively delivered, means for driving all of the nails to complete the box at one step, and means for ejecting each box from its anvil after being completed, substantially as specified.

4. A machine of the character described, comprising a suitable base, a turn-table mounted upon said base, means for revolving said turn-table intermittently, a series of anvils carried by the turn-table, said anvils being so arranged as to be revolved upon their axes by the revolving of the turn-table, means for locking said anvils against axial rotation, a series of magazines for holding the various shooks for forming a box, feed mechanism connected with each magazine for delivering the shooks to the anvils, suitable mechanisms for nailing the assembled box, means for feeding the nails to said nailing mechanism, and mechanism carried by each anvil for ejecting the completed box from said anvils, and means for causing the various mechanisms to operate, as and for the purpose set forth.

5. In a machine of the character described, the combination of a suitable base, a hollow post secured in said base, a sleeve journaled upon the post, a worm-wheel secured upon the sleeve, a worm meshing with said worm-wheel, a short shaft upon which said worm is secured, said shaft being mounted in suitable bearings, a second short shaft journaled in alinement with the first named, a clutch adapted to connect said shafts, mechanism for throwing said clutch into and out of action, whereby the first-named short shaft may be revolved intermittently by the last-named short shaft, a turn-table mounted upon the herein-named sleeve, a series of mandrels journaled upon said turn-table, a series of anvils carried upon the outer ends of said mandrels, pinions secured to the inner ends of said mandrels, a mutilated crown-wheel adapted to mesh with, revolve and lock said pinions when the turn-table is revolved, mechanism for raising and lowering said crown-wheel to bring about the last-named functions, magazines located within the travel of the anvils and adapted to hold the various shooks for forming the box, a push-out slide arranged beneath each of the magazines, mechanism for operating each slide to deliver a shook to the anvil, means carried by the anvil for holding the shooks in place while the assembled box is being conveyed from step to step, nail-driving mechanism, and means for operating the parts.

6. In a machine of the character described, the combination of a suitable base, a hollow post secured in said base, a sleeve journaled upon the post, a worm-wheel secured upon the sleeve, a worm meshing with said worm-wheel, a short shaft upon which said worm is secured, said shaft being mounted in suitable bearings, a second short shaft journaled in alinement with the first named, a clutch adapted to connect said shafts, mechanism for throwing said clutch into and out of action, whereby the first-named short shaft may be revolved intermittently by the last-named short shaft, a turn-table mounted upon the herein-named sleeve, a series of mandrels journaled upon said turn-table, a series of anvils carried upon the outer ends of said mandrels, pinions secured to the inner ends of said mandrels, a mutilated crown-wheel adapted to mesh with, revolve and lock said pinions when the turn-table is revolved, mechanism for raising and lowering said crown-wheel to bring about the last-named functions, magazines located within the travel of the anvils and adapted to hold the various shooks for forming the box, means for feeding said shooks to the anvils, a push-out slide arranged beneath each of the magazines, a series of shafts journaled around the base of the machine and geared together, arms 108 secured to these last-named shafts, adjustable rods connecting the last-named arms and the push-out slides, means for giving the geared shafts an oscillatory movement, means for nailing the shook, and mechanism for ejecting the boxes from the mandrels.

7. The combination in a machine of the character described, of a turn-table, means for revolving said turn-table, a series of mandrels journaled upon the table, a pinion carried upon the inner end of each mandrel, means for revolving said pinions upon their axes and locking them against such rotation at predetermined times, a series of anvils carried upon the outer ends of the mandrels, means carried by each anvil for receiving and retaining the shooks to form the assembled box, a series of magazines for holding the various shooks to be fed to the anvils, push-out slides arranged beneath each of the magazines, means for operating these slides to feed the shooks to the anvils, swinging arms arranged in connection with one of the magazines for the reception of the shooks for forming the bottom of the box, means for operating said arms after a shook has been received thereby for transferring said shook to the anvil, and means for nailing the box together to complete the same, substantially as specified.

8. The combination in a machine of the character described, of a series of anvils, each of which consists of a frame, springs secured thereon for receiving and holding the shooks thereagainst, prongs projecting from that portion of the anvil which corresponds to the bottom of the box to be formed, whereby when the shook for forming said bottom is forced against the anvil it will be pierced and retained by these points in order that it may be conveyed to the driving mechanism, as specified.

9. An anvil for use in combination with a machine of the character described, consisting of a skeleton frame, clamp-springs 14 and 15 secured thereon in such manner as to receive the shooks and hold them against the faces of the anvil, strips I mounted within certain of the faces of the anvil, shanks 11 to which the strips are attached, and springs coiled around said shanks and normally holding the outer surfaces of the strips beyond the faces of the anvil, whereby certain of the shooks when fed to the anvil will be held out of contact with the edges of the shooks previously fed thereto, while permitting the first-named shooks to be forced inward against the edges of the other shooks when the box is being nailed, as specified.

10. An anvil for use in combination with a machine of the character described, consisting of a skeleton frame, clamp-springs 14 and 15 secured thereon in such manner as to receive the shooks and hold them against the faces of the anvil, strips I mounted within certain of the faces of the anvil, shanks 11 to which the strips are attached, springs coiled around said shanks and normally holding the outer surfaces of the strips beyond the faces of the anvil, whereby certain of the shooks when fed to the anvil will be held out of contact with the edges of the shooks previously fed thereto, while permitting the first-named shooks to be forced inward against the edges of the other shooks when the box is being nailed, and prongs carried by that portion of the anvil which corresponds to the bottom of the box for piercing and holding the bottom shook while the box is being assembled, as specified.

11. In an anvil for use in connection with a machine of the character described, a skeleton frame upon which the box may be assembled, a series of short springs arranged to bear upon the inner portion of the shook, a series of longer springs adapted to bear against the outer portion of the shooks, and prongs carried by that portion of the anvil which corresponds to the bottom of the box for piercing and holding the bottom shook while being conveyed to the driving mechanism, as specified.

12. The combination in a machine of the character described, of an anvil consisting of a skeleton frame, means for holding the assembled shooks upon said anvil, a hollow mandrel upon which said anvil is mounted, a plunger-rod fitted to slide within the hollow mandrel, an ejector carried upon the outer end of the plunger-rod, a sleeve fitted to slide upon the outside of the mandrel, a pin passed through said sleeve and through a slot in the mandrel, said pin connecting said sleeve and the plunger-rod, and means for sliding said sleeve longitudinally upon the mandrel whereby the ejector may be moved to and fro to eject a completed box from the anvil, as specified.

13. In combination, driving mechanism, carriers for the driving mechanism, frames in which the carriers are slidable, toggles connecting the frames and carriers, rods pivoted to a carrier and to toggles, an operating-

rod pivoted to the toggles of one of the carriers as and for the purpose described.

14. In a box-making machine, the combination with the mandrels, pinions by which the mandrels are rotated, a crown-gear meshing with the pinions and connected to a suitable source of power, means whereby said crown-gear is elevated into engagement with teeth of the pinions to hold them against movement.

15. In a box-making machine, a turn-table, mandrels journaled thereon, anvils carried by the mandrels, means for feeding shooks to the mandrels, pinions on the mandrels, a mutilated crown-gear over which the pinions travel, means for lifting the crown-gear into contact with two teeth of each pinion to prevent rotation, and for rotating the turn-table on the descent of the crown-gear.

16. In combination with the reciprocating carriers of a driving mechanism of the character described, a series of drivers, each of which consists of a body, jaws pivoted in the outer end of said body, a nail-guide fitted to slide in the body, cams formed upon the nail-driver and arranged to act upon the heel ends of the jaws so as to open and close said jaws for grasping the lowest nail to feed it downward and sever it from the string of nails, a spring coiled about the shank of the nail-guide for operating the latter in one direction, a slotted extension formed with the nail-guide for arresting the movement of the latter while the body is permitted to continue its movement to accomplish the driving of the nail, and a spring-actuated pawl adapted to engage the heads of the nails and hold the string of nails against retraction when the body is moving upward on the nail-guide, as specified.

17. A nail-driver for use in combination with the nailing mechanism of a box-making machine consisting of a body, the lower portion of which is slotted, a nail-guide fitted to slide in the body and having a shank formed therewith, a spring coiled about said shank and incased within the body so as to force the nail-guide outward, jaws pivoted in the lower end of the slotted portion of the body so that their cutting edges can be swung in contact with each other, rolls journaled in the heel ends of said jaws, cams formed upon the nail-guide against which said rolls bear, said cams being adapted to first partly close the jaws so as to cause them to grasp the string of nails above the head of the lowest nail, and finally to sever this nail from the string of nails at the time said nail is driven home, a spring-actuated pawl carried by the nail-guide and adapted to engage the heads of the nails and hold the string of nails against retraction when the body is moving upward upon the nail-guide, as specified.

18. In a box-making machine, a turn-table, mandrels journaled thereon, anvils carried by the mandrels, means for feeding shooks to the anvils, a mutilated crown-gear, pinions on the mandrels rotated by the crown-gear, so positioned as to permit two teeth of each pinion to engage the mutilated portion of the crown-gear, a nailing mechanism, gearing for causing the nailing mechanism to operate while the mandrels are held stationary, as and for the purpose described.

19. In a box-making machine, a turn-table, mandrels, anvils on the mandrels, means for intermittently rotating the mandrels as the table is turned, and for delivering shooks to the anvils, a latch-bolt engaging the table at predetermined points for retaining it stationary, means for projecting and retracting the bolt, means for holding the mandrels stationary simultaneously with the table, a nailing mechanism operating in conjunction with the anvils successively and mechanism for ejecting the completed box from the anvils, substantially as described.

20. In a box-making machine, a turn-table having notches on its under side, a latch-bolt, means for projecting the latch-bolt into the notches, means for intermittently rotating the table and withdrawing the latch-bolt, mandrels journaled on the table, anvils carried by the mandrels, mechanism for delivering shooks to the mandrels, and box-ejecting mechanism geared to operate when the turn-table is locked.

21. In a box-making machine, a turn-table, mandrels mounted thereon, anvils on the mandrels, shook-receptacles, means for delivering shooks to the sides of the mandrels, a swinging arm stationed between one of the shook-receptacles and the mandrels, means for swinging the arm upward to carry shooks to the ends of the mandrels, as and for the purpose described.

22. In a box-making machine, the combination with the intermittently-rotatable table, of mandrels journaled thereon, anvils carried by the mandrels, means for delivering shooks to the anvils, pinions on the mandrels, a plunger-rod slidable in each mandrel, a plunger thereon, a sleeve connected to the plunger-rod and having a depending yoke, a lever engaged by the yoke, a series of short rock-shafts connected by gear-wheels, and suitable connections whereby one of said shafts actuates the lever engaged by a yoke, substantially as described.

23. In a box-making machine, a turn-table, mandrels journaled thereon, anvils carried by the mandrels, shook-receptacles, means for delivering shooks from the receptacles to the anvils, means for intermittently turning the table, and rotating the mandrels, means for locking the table and mandrels against rotating, a nail-driving and a shook-actuating mechanism actuated while the table and mandrels are locked and suitable power-applying means, substantially as described.

24. In a box-making machine, nail-drivers acting in unison from several sides, and each comprising a body having a slotted lower portion, a nail-guide slidable in the body, means for forcing the nail-guide downwardly, jaws pivoted in the slots of the lower end of the body, said jaws having cutting edges for severing the nails and surfaces to engage the head of a nail for driving it, means on the nail-guides for actuating the jaws, means for holding the nails against retraction, anvils adapted to carry shooks for the boxes for nailing, means for moving the nail-drivers into contact with the shooks and suitable mechanism for delivering shooks to the anvils and for ejecting the box when nailed.

25. In a box-making machine, a nailing mechanism comprising a body having a slotted lower portion, a nail-guide slidable in the body and having a shank formed therewith, means for forcing the nail-guide outward, jaws pivoted to the body and having coacting cutting edges, means on the nail-guide for operating the jaws to drive a nail and sever said nail from a string of nails, means for preventing retraction of the nails, and in combination with the nailing mechanism, shook-carrying anvils mounted to rotate and adapted to pass successively within the field of operation of the drivers, and means for ejecting a completed box from the anvils.

26. In a box-making machine, the combination with a turn-table of mandrels and anvils carried thereby, shook-receptacles, shook-actuating slides for delivering shooks to the anvils, a swinging arm stationed between one of the shook-receptacles and the anvils, box-ejecting plungers and means for projecting the plungers, successively, substantially as described.

27. In a box-making machine, the combination with the mandrels, of pinions by which the mandrels are rotated, a crown-gear meshing with the pinions and connected to a suitable source of power, means whereby the said crown-gear is elevated into engagement with teeth of the pinions to hold them against movement, anvils carried by the mandrels, shook-receptacles, shook-actuating slides for delivering shooks to the anvils, a swinging arm stationed between one of the shook-receptacles and the anvils, box-ejecting plungers and means for projecting the plungers successively, substantially as described.

28. In a box-making machine, a turn-table, mandrels journaled thereon, pinions on the mandrels, a mutilated crown-gear over which the pinions travel, means for lifting the crown-gear into contact with two teeth of each pinion to prevent rotation and for rotating the turn-table on the descent of the crown-gear, shook-receptacles, shook-actuating slides for delivering shooks to the anvils, a swinging arm stationed between one of the shook-receptacles and the anvils, box-ejecting plungers and means for projecting the plungers successively, substantially as described.

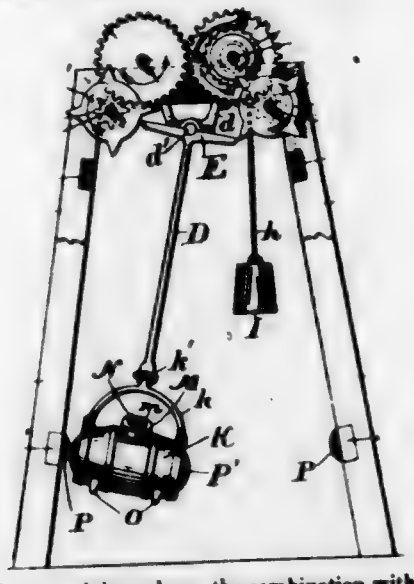
29. In a box-making machine, a turn-table, mandrels journaled thereon, anvils carried by the mandrels, shook-receptacles, means for feeding shooks to the mandrels, a mutilated crown-gear over which the pinions travel, means for lifting the crown-gear into contact with two teeth of each pinion to prevent rotation, means for rotating the table in the descent of the crown-gearing, a latch-bolt for engaging the table at predetermined positions, means for projecting and retracting the bolt, shook-receptacles, shook-actuating slides for delivering shooks to the anvils, a swinging arm stationed between one of the shook-receptacles and the anvils, box-ejecting plungers and means for projecting the plungers successively, substantially as described.

692,181. **WEATHER-STRIP.** JAY COOK, Coldwater, Mich. Filed Apr. 5, 1901. Serial No. 54,491. (No model.)



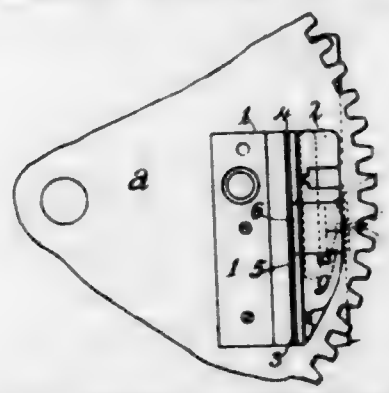
Claim.—A weather-strip, consisting of a body having a longitudinal groove formed in one edge thereof, and opposite openings formed through the back of the strip or body and intersecting the groove, a flexible strip loosely mounted in the groove, and provided at its inner edge with opposite loops projected inwardly of the groove, guide-pins driven through the body and through the respective loops, and springs inserted through the respective openings in the back of the body, each spring having opposite arms bearing in opposite directions against the back of the groove and the inner edge of the flexible strip, and an intermediate eye, and fastenings driven through the respective openings and eyes to hold the springs in place, the openings being normally closed by the part to which the device is secured, and the flexible strip-engaging spring-arms bearing frictionally against the strip to prevent endwise movement of the latter.

692,182. CHURN. JAMES S. FITZHUGH, Waco, Tex. Filed Apr. 11, 1901. Serial No. 55,392. (No model.)



Claim.—In a pendulum-churn, the combination with the frame, of a bracket mounted in the upper portion of said frame, a depending arm pivotally mounted in said bracket, escapement-points provided on said depending arm, an escapement-wheel mounted in said frame engaging with said escapement-points, means for imparting motion to said wheels, a vessel suspended by said arm, a stop limiting the lateral swing of said vessel, and an elastic buffer on said vessel adapted to strike said stop thereby agitating the contents of the vessel and tending to return the vessel to its normal position, substantially as described.

692,183. ADJUSTABLE MOLD FOR LINOTYPE OR OTHER METAL-CASTING MACHINES. MORDECAI P. PERRETT, Los Angeles, Cal. Filed Mar. 25, 1901. Serial No. 52,820. (No model.)



Claim.—1. The combination of a mold-body furnished with a recess transverse a side wall of the mold-chamber; and an adjustable reducer in said recess for closing a portion of the mold-chamber.

2. The combination of a movable mold-body; an adjustable reducer for closing a part of the slot of the mold; and means for shifting the reducer as the mold moves to close and open the portion of the mold-slot affected by said reducer.

3. A linotype-mold having one of its members furnished with a recess to receive a mold-slot reducer; and a mold-slot reducer seated in said recess and furnished with arms to embrace said member and to slide thereon.

4. A linotype-mold having one of its members furnished with a recess to receive a mold-slot reducer; and a mold-slot reducer seated in said recess and furnished with arms to embrace said member and to slide thereon; and a bar fastened to the ends of said arms.

5. The combination of a movable mold-body; an adjustable reducer for closing a part of the slot of the mold and furnished with a lug; two switch-arms for shifting the lug to operate the reducer and close the part of the mold-slot affected by the reducer; and means for moving said switch-arms into and out of operative position.

6. The combination of a mold-body furnished with a recess transverse a side wall of the mold-chamber; an adjustable reducer in said recess for closing a portion of the mold-chamber; and means for moving the reducer into and out of the mold-chamber.

692,184. PNEUMATIC BARKER. CHARLES R. KLINE, Beechwood, and JULIUS KELLER, Philadelphia, Pa.; said Keller assignor, by mesne assignments, to said Kline. Filed Apr. 29, 1901. Serial No. 57,882. (No model.)

Claim.—1. In a pneumatic barker, a casing, a pneumatic motor in the upper portion of said casing, a cutter in the lower part of said casing, the latter being open at its lower portion, and shaped so as to form a hood for said cutter, and power-transmission devices intermediate said motor and cutter.



2. In a pneumatic barker, a casing, a pneumatic motor therein, a cutter in the lower part of said casing, the latter being open at its lower portion and shaped to from a hood inclosing said cutter, means for transmitting power from said motor to said cutter, a handle projecting upwardly at an angle from said casing, and a second handle projecting from said casing at an angle to said first-mentioned handle.

3. The combination of a pneumatic motor, having a casing, a rotary piston therein, journals for said piston, a rotary cutter located within and projecting through the lower portion of said casing, journals for said cutter, gears on said journals, and an idler meshing with said gears.

4. The combination of a pneumatic motor, having a casing, a rotary piston therein, journals for said piston, a rotary cutter within said casing, journals for said cutter, gears on said journals, and an idler meshing with said gears, in combination with means for reversing the rotation of said piston.

5. The combination of a pneumatic motor, having a casing, a rotary piston therein, journals for said piston, a rotary cutter within said casing, journals for said cutter, gears on said journals, and an idler meshing with said gear, said casing being open at its lower portion and permitting said cutter to extend therethrough, in combination with adjustable plates having rollers thereon, located on either side of said open portion, whereby the depth of the cut can be regulated.

6. The combination of a pneumatic motor, having a casing, a rotary piston therein, journals for said piston, a rotary cutter within said casing, journals for said cutter, gears on said journals, and an idler meshing with said gears, in combination with inlet and exhaust passages for said piston, said exhaust-passages discharging upon said cutter.

7. A pneumatic barker, consisting of a casing having an opening in the lower portion thereof, a rotary cutter mounted in said casing and adapted to have its teeth project through said opening, plates mounted on said casing and carrying rollers, means for adjusting said plates so as to regulate the depth of cut, a piston mounted in said casing, means for rotating said piston and power-transmission devices intermediate said piston and cutter.

8. The combination of a casing, a rotary piston therein, a rotary cutter also contained in said casing, power-transmission devices common to said piston and cutter, a handle located on a line passing substantially through the axes of the piston and cutter, and a second handle projecting from said casing at substantially a right angle to said line passing through said axes.

9. In an apparatus of the character named, a casing, a piston therein, a cutter in the lower portion of said casing, power-transmission devices common to said cutter and piston, an inlet for the motive fluid, an exhaust-channel located within said inlet-pipe, inlet and exhaust passages leading to and from said casing and means controlled by said inlet-pipe for reversing the flow of the motive fluid through said inlet and exhaust passages.

10. In a pneumatic barker, a casing, a rotary piston therein, a rotary cutter also mounted in said casing, means for transmitting power from said piston to said motor, an inlet-passage for said piston and an exhaust-passage leading therefrom, said exhaust-passage discharging upon said cutter.

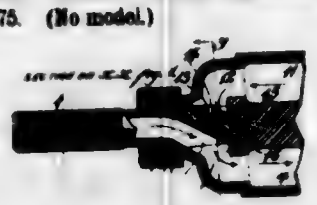
11. In a pneumatic barker, a casing, a pneumatic motor in the upper portion thereof, a cutter in the lower portion of said casing, journals for said motor and cutter, an extension on one side of said casing, gears mounted on extensions of said journals, an idler meshing with said gears, and a plate movably secured to said extension, whereby said gears are readily accessible.

12. In a pneumatic barker, a casing, a pneumatic motor contained therein, a cutter in the lower part of said casing, the latter being open at its lower portion and power-transmission devices intermediate said motor and cutter.

13. In a pneumatic barker, a casing, a pneumatic motor contained therein, a cutter in the lower part of said casing, the latter being open at its lower portion and power-transmission devices intermediate said motor

and cutter, in combination with plates mounted on said casing and carrying rollers, and means for adjusting said plates so as to regulate the depth of cut.

692,185. REVERSING-VALVE. CHARLES R. KLINE, Beechwood, and JULIUS KELLER, Philadelphia, Pa.; said Keller assignor, by mesne assignments, to said Kline. Original application filed Apr. 29, 1901, Serial No. 57,852. Divided and this application filed Oct. 16, 1901. Serial No. 79,075. (No model.)



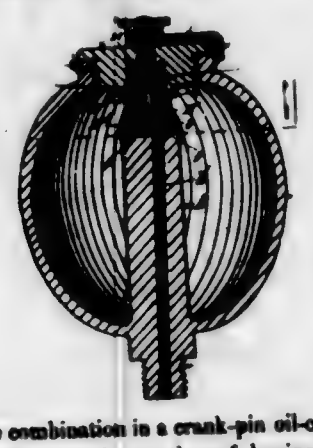
Claim.—1. A reversing-valve for a rotary engine, consisting of a pipe, a suitable seat for the extremity of said pipe, an exhaust-groove in said pipe, a plurality of passages leading from said pipe to a piston-chamber, and means coacting with said pipe for enabling either of said passages to serve as inlet or exhaust.

2. A reversing-valve consisting of a pipe, having a discharge-port at a side thereof, the extremity of said pipe being closed and solid, an exhaust-groove located in said pipe near an extremity thereof, a seat for the reception of the end of said pipe, and means for holding said pipe or valve to its seat.

3. A hollow reversing-valve, having a closed end, a seat for the latter, tapered walls extending to said seat, a flange on said valve, a flanged nut for holding said valve in position, an outlet-port at one side of said valve, and an exhaust-groove near the extremity of said valve.

4. A hollow reversing-valve, having a closed end, a seat for the latter, tapered walls extending to said seat, a flange on said valve, a flanged nut for holding said valve in position, an outlet-port at one side of said valve, and an exhaust-groove near the extremity of said valve, in combination with a plurality of passages leading to a piston-chamber, either of said passages being adapted to register with said port and groove.

692,186. CRANK-PIN OIL-CUP. WILLIAM G. MONTGOMERY, Erie, Pa., assignor of one-half to Frederick Shields, Erie, Pa. Filed May 7, 1901. Serial No. 59,123. (No model.)

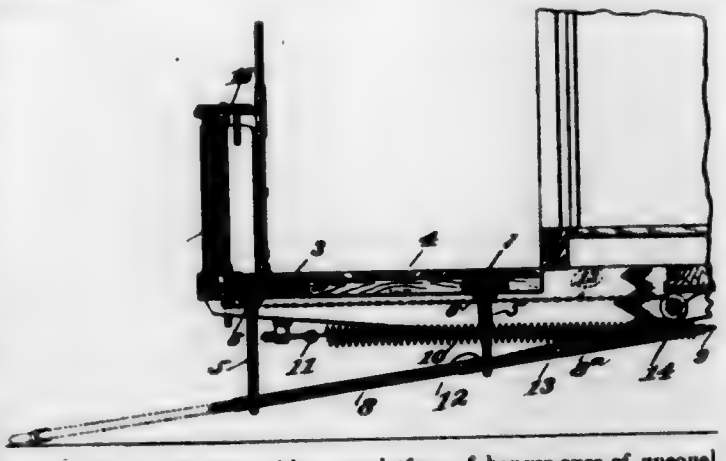


Claim.—1. The combination in a crank-pin oil-cup, of a cup, a stem projecting upward in the central part thereof, having a passage therein opening out of the top of said stem at one side of the center thereof, a cap closing the opening in the top of said oil-cup, a tube on said cap extending down upon the top of said stem and having lateral openings therein below the cap, a spring-actuated stem passing down through the cap of said oil-cup, a head thereon fitting down upon the upper end of the oil-cup stem, and having small holes therethrough, and an arm on the spring-actuated stem above the cap, substantially as and for the purpose set forth.

2. The combination in a crank-pin oil-cup, of a cup, a stem projecting upward in the central part thereof having a recess in the top thereof, and a passage extending downward from one side of the center of said recess, through said stem, a screw-cap closing the top of said cup, notches in the periphery of the upper part of the cup, a tube extending downward therefrom into the recess in the top of the oil-cup stem and having lateral openings in the upper part thereof, a spring-actuated stem in said tube extending out through the top of the cap, a conical head on the lower end of said spring-actuated stem, fitting down upon the bottom of the recess in the oil-cup stem, and having small openings therein, and an arm on said stem above the cap adapted to engage the notches in the periphery of the upper part of the cup, substantially as and for the purpose set forth.

692,187. FENDER. ROBERT SMITH and HENRY W. LEDERER, St. Louis, Mo., assignors of one-third to Elias Dunkhof, St. Louis, Mo. Filed Sept. 21, 1901. Serial No. 76,094. (No model.)

Claim.—1. The combination with the platform of a car, of shouldered hangers depending therefrom, the shanks of said hangers passing through the platform, countersunk nuts for receiving the threaded ends of said shanks, and a fender slidingly mounted in said hanger-eyes, whereby said hanger-eyes are prevented from turning; substantially as described.



2. The combination with a car-platform of hanger-eyes of unequal lengths depending therefrom, a fender-frame slidingly mounted in said hanger-eyes and being adapted to move forwardly and downwardly in an inclined direction, springs for forcing said frame forwardly, and means for retracting said frame and holding it in its retracted position; substantially as described.

3. The combination with the platform of a car, of hangers depending therefrom, a fender slidingly mounted in said hangers, springs connected at one end to the rear end of the fender, and at their other ends to adjustable supports, a chain or cable attached at one end to the fender, a winding-staff to which the other end of said chain or cable is connected and a releasing-dog for said staff; substantially as described.

4. The combination with the platform of a car, of a fender-frame, composed of marginal and intermediate members, rearwardly-projecting arms extending from said frame, hangers through which said rearwardly-projecting arms and said intermediate members are mounted, springs connected to the rearmost ends of said arms at each side of the fender, and means for retracting said fender against the energies of said springs; substantially as described.

5. The combination with a car-platform, of hanger-eyes depending therefrom, a fender-frame composed of marginal and intermediate members, rearwardly-extending arms 8 on said frame, said arms and said intermediate members being mounted in the hanger-eyes, springs at each side of the frame and attached to the rear ends of said arms, a chain or cable, a bolt around which said chain or cable passes, a winding-staff to which said chain or cable is connected, a pinion on said staff, and a locking and releasing dog coöperating with said pinion; substantially as described.

692,188. ANIMAL-POKE. CLAYTON W. FORD, Findlay, Ohio. Filed Oct. 10, 1901. Serial No. 78,197. (No model.)



Claim.—1. In a device of the character described a face-plate having a hooked upper end, a curved head-plate pivoted directly to the face-plate near its upper end, a spur or point at the free end of and forming a prolongation of the curved head-plate, and a spring for normally forcing the curved head-plate away from the face-plate, substantially as shown and described.

2. In a device of the character described, a face-plate having a hook at its upper end, an arched head-plate pivoted at its lower end directly to the front of the face-plate near the upper end of the same, a spur or point at the free end of the arched head-plate forming a prolongation thereof, and a spring secured to the face-plate at or near the point of connection of the face and head plates and bearing against the rear face of the arched head-plate, whereby the said head-plate is normally forced forwardly, substantially as shown and described.

3. In a device of the character described, a face-plate, a hook at its upper end, an arched head-plate pivoted directly to the front of said face-plate at its upper portion, a spur or point at the free end of the head-plate forming a prolongation thereof, and a spring interposed between the

said face-plate and the arched head-plate, substantially as shown and described.

4. In a device of the character described, a face-plate a hook at the upper end thereof, a pad or cushion secured to the end of said hook, adapted to rest upon the head of an animal, an arched head-plate pivoted at its lower end directly to the front face of the upper portion of the face-plate and curved upwardly and rearwardly above the hook at the end of the face-plate, a spur or point forming a continuation or prolongation of the arched plate, a spring secured to the face-plate at or near the point of attachment of the face and head plates, and adapted to normally press the arched plate forwardly, the said spur or point at the end of the arched plate being adapted to be forced into the neck of the animal when pressure is applied to the front of the arched face-plate, substantially as described.

5. In a device of the character described, a face-plate having a hook at its upper end, a pad or cushion secured to the end of the hook adapted to rest upon the head of an animal, an arched head-plate pivoted at its lower end directly to the front of face-plate, a spur or point at the free end of the arched plate forming a continuation or prolongation thereof, a spring secured to the face-plate at or near the junction of the face and head plates, and bearing against the rear face of the arched plate, and means for attaching the device to the head of an animal, substantially as set forth.

6. In a device of the character described, a rigid face-plate, a hook at the upper end thereof whereby the face-plate is adapted to rest on the head of an animal, an arched head-plate pivoted at its lower end directly to the face-plate near its upper end, and curved upwardly, rearwardly and slightly downwardly to a point approximately over the hook end of the face-plate, a spur or point at the end of the arched head-plate forming a continuation or prolongation thereof and projecting slightly to the rear of the hook end of the face-plate, a spring secured to the face-plate and bearing against the rear of the arched head-plate, and means for securing the device to the head of the animal, substantially as described.

7. In a device of the character described, a straight face-plate, a hook at the upper end thereof, having its lower end curved, a pad secured to said curved end, an arched plate secured at its lower end to the front of the face-plate, said arched plate being curved upwardly and rearwardly over the hook at the upper end of the face-plate and terminating in a spur or point, a strap fastened to the face-plate for fastening the same to a headstall, a spring secured to the face-plate between said plate and the arched head-plate and bearing against the rear face of said arched plate, and a strap fastened at or near the free end of the arched plate for securing the same to a headstall, substantially as set forth.

692,189. SWITCHING MECHANISM FOR INTERCONNECTING TELEPHONE-LINES. ALBERT K. ANDRIANO, San Francisco, Cal., assignor to the Automatic Interconnecting Telephone Company, San Francisco, Cal., Incorporated. Filed Apr. 16, 1900. Renewed June 22, 1901. Serial No. 65,544. (No model.)



Claim.—1. In a telephone-switch, a plurality of stationary contacts, a movable contact, and controlling means holding the movable contact normally locked on the home contact while the receiving-telephone is hung up whereby the switch cannot be moved in either direction until the receiver is taken from its support for use, and means operatively connecting said support with the controlling means to throw the same into or out of action by the act of taking down or hanging up the receiver.

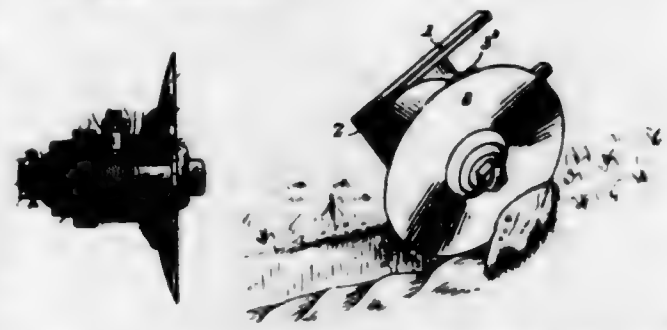
2. In a telephone-switch the combination, with a plurality of stationary contacts including the home contact of the subscriber, and a movable contact, of a locking device and means operatively connecting the same with the subscriber's-telephone hook, whereby the movable contact is normally locked on the home contact and cannot be moved while the receiver is hung up.

3. In a telephone-switch, a plurality of stationary contacts in a circle including the home contact of the instrument, a movable contact-arm adapted by its movements to connect the instrument with any selected one of the stationary contacts, means for setting and holding the arm thereon, a spring to return the arm to the home contact when released, a dial provided with switch-numbers carried by said arm and set by its movements with respect to a sight-aperture to indicate the position of the arm, a telephone-hook, and a locking device operatively connected with the telephone-hook and adapted to prevent the contact-arm from being moved in either direction away from the home contact while the receiver is on the hook and to release the said arm from operation only after the receiver is removed.

4. In a telephone-switch, the combination of stationary contacts in a circle, a movable contact-arm adapted to travel thereon, means for setting said arm comprising a setting-shaft and gears connecting said shaft and arm, a spring for returning said arm, and a locking device comprising a dog engaging one of the gears to lock the same, a slide, a switch-piece connecting the slide with the dog, a telephone-hook, means connecting the telephone-hook with the slide, whereby the same is held down by the hook while the receiver remains on the hook, and a spring adapted to throw up the slide and actuate the switch-piece when the receiver is removed.

5. The combination, with the stationary contacts and the movable contact-arm traveling in a circle on said contacts, of the setting-shaft 2, gears and pinion A *i*, dogs 6 7, latches 27 30, and means actuated by the movements of the telephone-hook to throw one of the dogs into action and the other out of action by taking down and by hanging up the receiver, whereby the switch is rendered inoperative when the receiver is on the hook and is released by the act of taking down the receiver for use.

692,190. DISK PLOW. ALVA S. BAILEY, Lovelock, Nev., assignor of one-half to J. H. Thies, Lovelock, Nev. Filed Sept. 3, 1901. Serial No. 74,224. (No model.)



Claim.—1. The combination of a plow-carrying shaft or axle, a clamp-section having opposite notches or recesses in its passage, engaging lugs on said axle, a plug engaging said shaft or axle, and a second clamp-section carried by said plug and having ribs engaging notches produced in the plow, substantially as set forth.

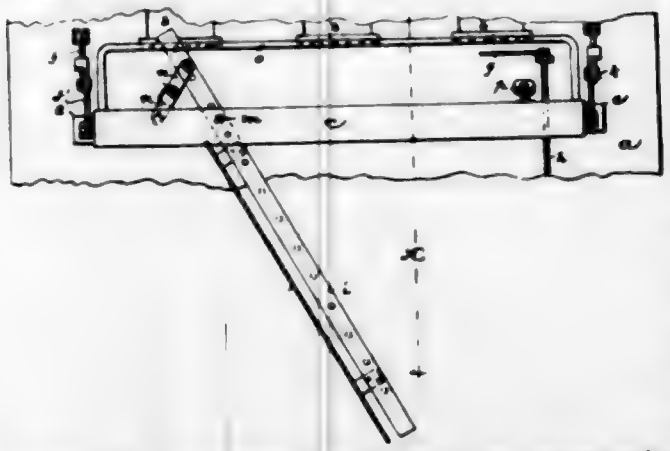
2. The combination of a plow-carrying shaft or axle, a clamp-section having opposite notches or recesses in its passage, engaging lugs on said axle, a plug engaging said shaft or axle, and a second clamp-section carried by said plug and having ribs engaging notches produced in the plow, one of said clamp-sections also having additional notches engaging ribs upon the plow, substantially as set forth.

3. The combination of a plow-carrying shaft or axle, a clamp-section having opposite notches or recesses in its passage, engaging lugs on said axle, a plug engaging said shaft or axle, and a second clamp-section carried by said plug and having ribs engaging notches produced in the plow, one of said clamp-sections having a convexed surface around its central passage, and additional notches produced in said convexed surface, substantially as set forth.

4. The combination of a plow-carrying shaft or axle, a clamp-section having opposite notches or recesses in its passage, engaging lugs on said axle, a plug engaging said shaft or axle, and a second clamp-section carried by said plug and having ribs engaging notches produced in the plow and said clamp-sections having annular recesses around their passages, one adapted to receive a corresponding portion of said axle and the other adapted to receive a shoulder on the inner surface of said plug, substantially as set forth.

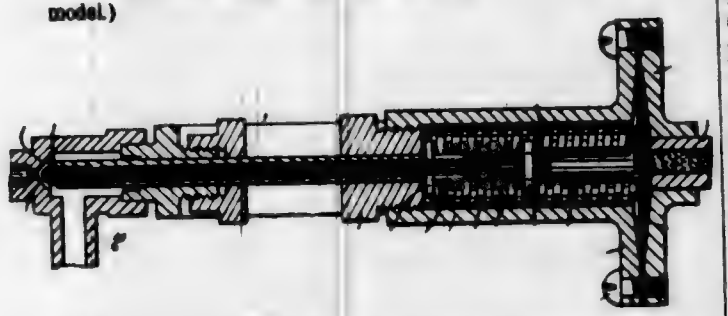
5. The combination of a plow-carrying shaft or axle, a clamp-section having opposite notches or recesses in its passage, engaging lugs on said axle, a plug engaging said shaft or axle, and a second clamp-section carried by said plug and having ribs engaging notches produced in the plow, and said shaft or axle having the tubular or bored extension and a differently-diametered enlargement near its larger end partially housed in one of said clamp-sections, substantially as set forth.

692,191. **FIRE-ESCAPE.** ROBERT BARCLAY, Newark, N. J., assignor of one-fourth to James Cornwell, Newark, N. J. Filed Apr. 25, 1901. Serial No. 57,377. (No model.)



Claim.—In a fire-escape, the combination with suitable brackets adapted to be attached to the building, of a horizontal box-like part, pivoted on said brackets and a ladder pivoted on said box-like part and means for holding said ladder longitudinally within said box-like part, substantially as set forth.

692,192. **FUEL-CONTROLLER FOR STEAM-BOILERS.** HOWARD K. CLOVER, Omaha, Nebr. Filed Sept. 25, 1900. Serial No. 31,062. (No model.)



Claim.—1. In a fuel-controller for steam-boilers, the combination of a boiler, a source of liquid-fuel supply, a fuel-supply pipe discharging into the combustion-chamber of the boiler, a valve-casing connected to said pipe, valves arranged in said casing and operating under different pressures for partially and wholly cutting off the flow of fuel, and a pressure-controlled operating member in communication with the boiler and operatively connected to said valves, substantially as described.

2. In a fuel-controller for steam-boilers, the combination of a boiler, a source of liquid-fuel supply, a fuel-supply pipe extending through the combustion-chamber of the boiler and discharging thereinto, a valve-casing connected to said pipe and having a diaphragm therein, valves arranged in said casing and adapted to be operated by the diaphragm to partially and wholly cut off the flow of fuel, and a pipe establishing communication between the boiler and diaphragm, substantially as described.

3. In a fuel-controller for steam-boilers, the combination of a boiler, a source of liquid-fuel supply, a supply and vaporizing pipe leading therefrom through the combustion-chamber of the boiler and provided with a nozzle discharging thereinto, valves controlling the flow of fuel through the nozzle, one of said valves being adapted to seat before the other to partially cut off the flow of fuel, a diaphragm in communication with and operated by the pressure in the boiler, and springs of different pressures, one acting upon the diaphragm and the other upon one of the valves, in opposition to the boiler-pressure, substantially as described.

4. In a fuel-feed controller for boilers, the combination of a boiler, a liquid-fuel supply, a discharge-nozzle connected thereto and discharging into the combustion-chamber of the boiler, a valve-stem, a valve-sleeve encircling said stem, said stem and sleeve being provided with valves coacting with the discharge-nozzle for regulating the flow of fuel therethrough, one of said valves being adapted to seat before the other and partially cut off the flow of fuel, and means for controlling the movements of said stem and sleeve through the pressure in the boiler, substantially as described.

5. In a fuel-controller for steam-boilers, the combination of a boiler, a liquid-fuel supply, a discharge-nozzle connected thereto and discharging into the combustion-chamber of the boiler, a valve-stem, a valve-sleeve encircling said stem, said stem and sleeve being provided with valves coacting with the discharge-nozzle for regulating the flow of the fuel through said nozzle, one of said valves being adapted to seat before the other and partially cut off the flow of fuel, and a controller proper for regulating the movements of said stem and sleeve, said controller proper comprising a casing, in communication with the boiler, and a diaphragm arranged therein and suitably connected to said stem and sleeve, said diaphragm being operated through the pressure in the casing from the boiler, substantially as described.

6. In a fuel-feed controller for boilers, the combination of a boiler, a liquid-fuel supply, a discharge-nozzle connected thereto, a valve-stem, a valve-sleeve encircling said stem, said stem and sleeve being provided with valves coacting with the discharge-nozzle for regulating the flow of the fuel therethrough, one of said valves being adapted to seat before the other and partially cut off the flow of fuel, and a controller proper for regulating the movements of said stem and sleeve, said controller proper comprising a casing in communication with the boiler, a diaphragm arranged therein and suitably connected to said stem and sleeve, said diaphragm being controlled by the pressure in the casing from the boiler, and means arranged in said casing and exerting pressure upon said diaphragm in opposition to said boiler-pressure, substantially as described.

7. In a fuel-controller for steam-boilers, the combination of a boiler, a liquid-fuel supply, a discharge-nozzle connected thereto, a valve-stem, a valve-sleeve encircling said stem, said stem and sleeve being provided with valves coacting with the discharge-nozzle for regulating the flow of the fuel therethrough, one of said valves being adapted to seat before the other and partially cut off the flow of fuel, and a controller proper for regulating the movements of said stem and sleeve, said controller proper comprising a casing, a diaphragm arranged therein and suitably connected to said stem and sleeve, said diaphaagm-casing being connected with the boiler and the diaphragm controlled by the pressure therein, and a spring arranged in said casing and exerting pressure upon said diaphragm in opposition to said boiler-pressure, substantially as described.

8. In a fuel-feed controller for boilers, a fuel-feed supply having a port, a sleeve provided with a valve for cutting off the flow of fuel through said port, a valve-stem encircled by said sleeve and provided with a valve projecting beyond the sleeve to seat first and formed with grooves through which a reduced supply of fuel may pass through the port when said valve is seated, and means controlled through the pressure in the boiler for operating said valve sleeve and stem.

9. In a fuel-feed controller, the combination of fuel-supplying means having a feed-port provided with a valve-seat, a reducing-valve adapted to close against said seat to partially cut off the flow of fuel, a second valve adapted to close against the same seat to completely cut off the flow of fuel, the valves being movably connected to allow the reducing-valve to seat first, and means for operating the valves, substantially as described.

10. In a fuel-feed controller, the combination of fuel-supplying means having a feed-port provided with a valve-seat, a valve-stem having a valve adapted to close against said seat and partially cut off the flow of fuel and provided with a cross-head, a valve-sleeve slidably mounted upon the stem and having a valve adapted to close against the same seat and completely cut off the flow of fuel, and provided with a slot for receiving said cross-head, a diaphragm having a shank connected directly with said valve-sleeve, a spring acting on the diaphragm to resist the movement thereof, an adjusting-nut on said shank, and a coil-spring between said adjusting-nut and cross-head, substantially as described.

692,198. **WHEEL.** OSBORN CONGLETON, Port Chester, N. Y., assignor to American Elevated Railroad Company, New York, N. Y. Filed Apr. 10, 1901. Serial No. 55,119. (No model.)



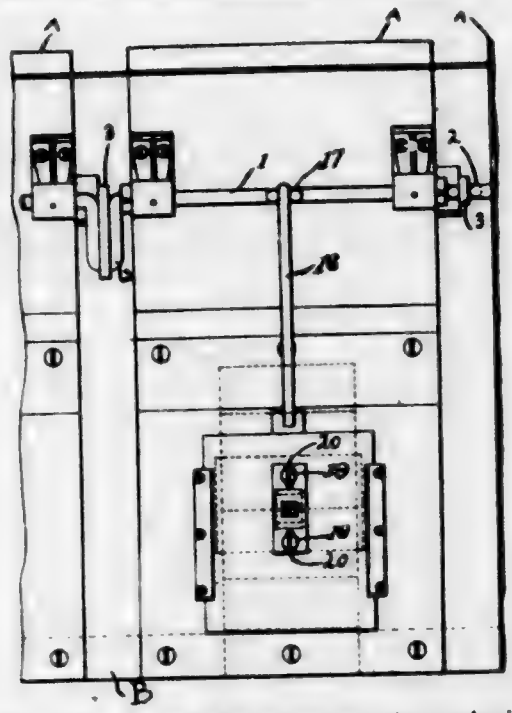
Claim.—A car-wheel having a flat tread with a groove or channel therein, and a plurality of balls retained in said groove or channel and forming the sole flange of the wheel, substantially as described.

692,194. **PNEUMATIC MOTOR.** CHARLES L. DAVIS, Chicago, Ill., assignor, by direct and mesne assignments, of one-half to August Heuer, Jr., Charles A. Brown, George L. Cragg, and A. Miller Belfield, Chicago, Ill. Filed Dec. 17, 1900. Serial No. 40,141. (No model.)

Claim.—1. In a pneumatic motor, the combination with a bellows, of a passage communicating therewith, an exhaust-passage, a passage connecting the bellows-passage and exhaust-passage and communicating with the latter by way of a port formed at the end thereof, the said connecting-passage having an air-port, and valve mechanism controlling the port of the exhaust-passage and the air-port of the connecting-passage, substantially as set forth.

2. The combination with a collapsible bellows, of a passage communicating therewith, an exhaust-passage, a passage connecting the bellows-passage with the exhaust-passage and communicating with the latter by way of a port formed at the end thereof, the said connecting-passage having an air-port, a valve controlling the exhaust-port, a second valve controlling the air-port, a connection between said valves whereby the exhaust-valve opens the exhaust-port at a time when the air-valve closes the

air-port and vice versa, and mechanism for operating one of said valves by the collapse of the bellows, substantially as set forth.



3. The combination with the bellows, of valve mechanism for controlling the admission of air to the bellows and the exhaust of the same therefrom, and a crank for operating said valve mechanism, the said crank being connected with the valve mechanism so as to begin the admission and exhaust of air at a time when the crank is midway between the ends of its throw.

4. The combination with the bellows, of a rotary driving-shaft having bellows and valve-crank, portions arranged on the same side of the shaft and at the same angle therewith, a link connected with the movable member of the bellows and also connected with the crank therefor on said shaft, a passage leading to the interior of the bellows and having air and exhaust ports, a pair of valves, one controlling the exhaust-port and one controlling the air-port, the said valves being connected together so as to move in unison and being arranged so that the exhaust-valve opens the exhaust-port when the air-valve closes the air-port and vice versa, and a link connected with said valves and with the crank therefor on the rotary shaft, the connection being such that the valves open and close their respective ports at a time when the crank therefor is substantially midway between the ends of its throw, substantially as set forth.

5. The combination with the bellows and a rotary driving-shaft having a bellows and valve-cranks, of a link extending between the movable member of the bellows and the crank therefor on said shaft, a passage communicating with the interior of the bellows and having air and exhaust ports, a pair of slide-valves adapted to control the air and exhaust ports of said bellows-passage, said valves being connected together so as to move in unison, and being arranged so that the exhaust-valve closes the exhaust-port at a time when the air-valve opens the air-port and vice versa, and a link extending between one of said valves and the crank therefor on said shaft, substantially as described.

6. The combination with the bellows, of the passage 7 communicating therewith, an exhaust-passage 4, a passage 6 connecting the passage 7 with the passage 4, the latter being provided with a port 5 opening into the passage 6 and the passage 6 being provided with an air-port 8, a slide-valve 9 arranged to travel upon a seat 10 for controlling the port 5, an air-valve 11 controlling the air-port 8, a connection 14 attached to the air-valve 11 and engaging the exhaust-valve 9, a rotary shaft connected for operation with the bellows, the said shaft having a crank 17, and a link 16 extending between the crank 17 and the air-valve 11, substantially as described.

7. In a pneumatic apparatus, a structure providing passages 4 and 7 and a connecting-passage 6, the latter having a port 8 and communicating with the passage 4 by way of the port 5, a valve 9 adapted to control the port 5, a valve 11 arranged to control the port 8, and means for connecting the valves 9 and 11, substantially as described.

8. A motor comprising a plurality of bellows, a rotary shaft having bellows-cranks corresponding to the bellows, the said cranks being arranged at different angles to the shaft, and the shaft also having valve-cranks which are arranged at the same angles with the shaft as the bellows-cranks, links connecting the movable members of the bellows with said bellows-cranks, valve-chests, one for each bellows, each valve-chest having a passage communicating with the interior of the bellows and provided with air and exhaust ports, valve mechanism for controlling said ports, and connections between the valve mechanisms and the respective cranks, said connections being each adapted to cause the valves to open and close their respective ports at a time when the cranks therefor are midway between the ends of their throws, substantially as described.

9. A motor comprising a plurality of bellows, a rotary shaft having cranks corresponding to the bellows, the said cranks being arranged at different angles to the shaft and the shaft also having cranks for valves arranged at the same angles with the shaft as their respective bellows-cranks, links connecting the movable members of the bellows with the cranks therefor, valve-chests, one for each bellows, each valve-chest having a passage communicating with the interior of the bellows and provided with air and exhaust ports, valve mechanism for controlling said ports, each of said valve mechanisms comprising a slide-valve 9 for the exhaust-port, a slide-valve 11 for the air-port, and a connection 14 between said valves and links between the valves 11 and their respective cranks, substantially as described.

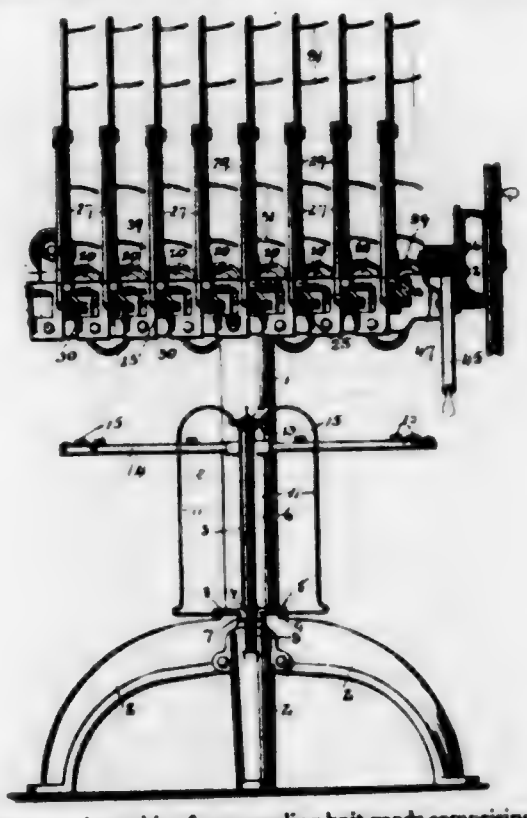
10. The combination with the slide-valves 9 and 11, of a strip 18 having a sliding connection with the valve 11, and a piece 14 secured to the strip 18 and engaging the valve 9, substantially as described.

11. In a pneumatic motor, the combination with a bellows, of a single passage communicating therewith and having air and exhaust ports and a valve mechanism for simultaneously controlling both of said ports, as set forth.

12. In a pneumatic motor, the combination with a bellows, of a passage communicating therewith and having both air and exhaust ports, a double-valve mechanism comprising a couple of valves for simultaneously controlling both of said ports, and means for actuating said double-valve mechanism, as set forth.

13. In a pneumatic motor, the combination with a bellows, of a passage communicating therewith and having both air and exhaust ports, a double-valve mechanism comprising a couple of valves for controlling said ports, and means for reciprocating said valves substantially in unison, substantially as described.

692,195. **MACHINE FOR UNRAVELING KNIT GOODS.** LOUIS A. DÉRY, Montreal, Canada, assignor of one half to Michel Benoit, Montreal, Canada. Filed June 23, 1898. Serial No. 684,213. (No model.)



Claim.—1. A machine for unraveling knit goods comprising a standard; a pivoted support for the knit goods mounted on said standard; a series of reels mounted on said standard, said reels being independently operated to receive the individual threads from said knit goods, and means for rotating said reels with individual varying velocity, substantially as described.

2. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted on said standard; a series of reels mounted on said standard, each reel being independently operated, each of said reels being adapted to receive an independent thread of said knit goods; means for rotating said reels; and means for regulating the velocity of each of said reels independently, substantially as described.

3. A machine for unraveling knit goods comprising a revoluble knit-goods support, a series of revoluble reels each adapted to receive an independent thread from knit goods on said support, and a plurality of individually-regulatable devices in operative relation to the series of reels for driving the latter at optionally-variable speeds, as set forth.

4. A machine for unraveling knit goods comprising an idly-revolvable knit-goods support, a series of independently-mounted reels each adapted to receive a separate thread from knit goods on said support, a series of shafts each adjacent to one of said reels, gearing between the shafts and the reels, and a common driving connection for the series of shafts, substantially as described.

5. A machine for unraveling knit goods comprising a revolvable knit-goods support, a series of independently-mounted reels each adapted to receive a separate thread from knit goods on said support, a series of shafts, gearing between the shafts and the reels, means for shifting the position of one of the two elements of the gear between each reel and one of said shafts, and means for simultaneously driving the shafts, substantially as described.

6. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; means for operating each of said reels; and connections located between said reels and said operating means for varying the velocity of each of said reels, said connections being capable of being regulated during the movement of the machine, substantially as described.

7. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; means for operating each of said reels, and connections adjustably located between said reels and said operating means for varying the velocity of each of said reels, said means being capable of being regulated during the movement of the machine, substantially as described.

8. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels independently operated, pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; means for operating each of said reels; and connections located between each of said reels and said operating means for varying the velocity of each of said reels, substantially as described.

9. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels independently operated, pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; a driving mechanism for each reel, and means for adjusting each driving mechanism during the operation thereof, to effect a variation in the speed of the reel without involving stoppage of the machine, substantially as described.

10. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; a drive-shaft for each of said reels; means for rotating each of said drive-shafts; connections between said drive-shafts and said reels for imparting movement to said reels; and means for altering the position of said connections, whereby the velocity of said reels may be varied, substantially as described.

11. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; a drive-shaft for each of said reels; means for rotating each of said drive-shafts; connections between said drive-shafts and said reels for imparting movement to said reels; and independently-operable levers in operative relation to said connections to vary the speed of the reel without involving stoppage thereof, substantially as described.

12. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; a drive-shaft for each of said reels; means for rotating each of said drive-shafts; connections between said drive-shafts and said reels for imparting movement to said reels; and means for altering the position of said connections, each reel having an independent means, whereby the velocity of each of said reels may be independently varied, substantially as set forth.

13. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods, a drive-shaft for each of said reels, a common driving connection for rotating all of said drive-shafts; friction-gearing between the drive-shafts and the reels for imparting movement to the latter, and means for changing the relation of the members of the friction-gearing between each reel and its respective drive-shaft, whereby the speed of the reels may be varied independently, substantially as described.

14. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each reel being adapted to receive the thread of said knit goods; disks mounted on said standard and contacting with said reels; a series of drive-shafts mounted on said standard; means for rotating said drive-shafts; connections between said drive-shafts and said disks, whereby the rotatory movement of said drive-shafts will be imparted to said disks; and means for adjusting the position of said connections, substantially as described.

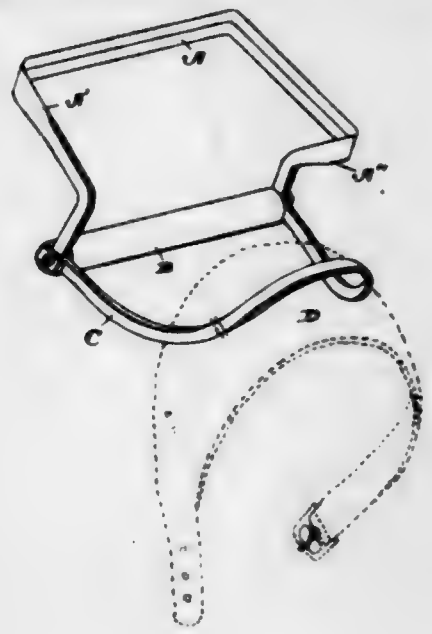
15. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; a series of disks independently operated, mounted on said standard and having contact with said reels; a series of drive-shafts mounted on said standard; means for rotating said drive-shafts; a roller slidably mounted on each of said drive-shafts, each of said rollers engaging with the face of its corresponding disk; and means for varying the position of said rollers, substantially as described.

16. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; a series of disks independently operated, mounted on said standard and having contact with said reels; a series of drive-shafts mounted on said standard; means for rotating said drive-shafts; a roller slidably mounted on each of said drive-shafts, each of said rollers engaging with the face of its corresponding disk; and means for varying the position of said rollers, each of said rollers having an independent means, substantially as described.

17. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; a series of disks independently operated, mounted on said standard and having contact with said reels; a series of drive-shafts mounted on said standard; means for rotating said drive-shafts; a roller slidably mounted on each of said drive-shafts, each of said rollers engaging with the face of its corresponding disk; a series of handles mounted on said standard; and connections between said handles and said rollers, whereby said rollers may be adjusted to alter the velocity of said disks, substantially as described.

18. A machine for unraveling knit goods comprising a standard; a support for the knit goods pivotally mounted thereon; a series of reels pivotally mounted thereon; a series of reels pivotally mounted on said standard, each of said reels being adapted to receive an independent thread of said knit goods; a series of disks independently operated, mounted on said standard and having contact with said reels; a series of drive-shafts mounted on said standard; means for rotating said drive-shafts; a roller slidably mounted on each of said drive-shafts, each of said rollers engaging with the face of its corresponding disk; a series of handles pivotally mounted on said standard; each reel having an independent handle; and connections between each of said handles and its corresponding roller, whereby the position of each of said rollers may be independently adjusted to alter the velocity of their respective disks, substantially as described.

692,196. PLANT-THINNER. ALBERT BETTENCOURT, Ventura, Cal., assignor of two-thirds to Thomas Ruiz and Frank Esparanza, Ventura, Cal. Filed Mar. 18, 1901. Serial No. 51,771. (No model.)



Claim.—1. A device to thin plants, comprising a double-edged cutting-frame detachably secured to a handle, adapted to be gripped by the hand; a wrist-engaging protector rigidly secured to the cutting-frame in combination with a flexible shield attached to protector and adapted to rest on the upper part of the wrist.

2. An implement to thin plants, comprising a frame having a cutting edge on one side, and a wrist-engaging portion on the other side; a handle adapted to be gripped, by the hand, in the middle; a flexible wrist-protector secured to the wrist-engaging portion.

3. A device to thin and cultivate plants, comprising a frame, one end of said frame having a double cutting edge; the other end being bow-shaped to engage and fit the wrist; a handle between the cutting edge and the wrist-engaging portion, and a leather shield secured to the wrist-engaging portion, having two projecting ends, one end terminating in a buckle, and at the other end in a strap adapted to be secured in said buckle.

4. A device to thin plants, comprising a central handle; a cutting portion projecting forwardly from the handle and having a double cutting edge; a wrist-engaging portion projecting rearwardly from said handle, and shaped to pass over and around the wrist; the said cutting portion and the wrist-engaging portion being rigidly and detachably connected together; a leather shield secured to the wrist portion and arranged to secure said device to and to protect the wrist.

692,197. **PROCESS OF MANUFACTURING PLATES OR TILES.** FRITZ GERBE, Zurich, Switzerland. Filed June 15, 1898. Serial No. 683,505. (No specimens.)

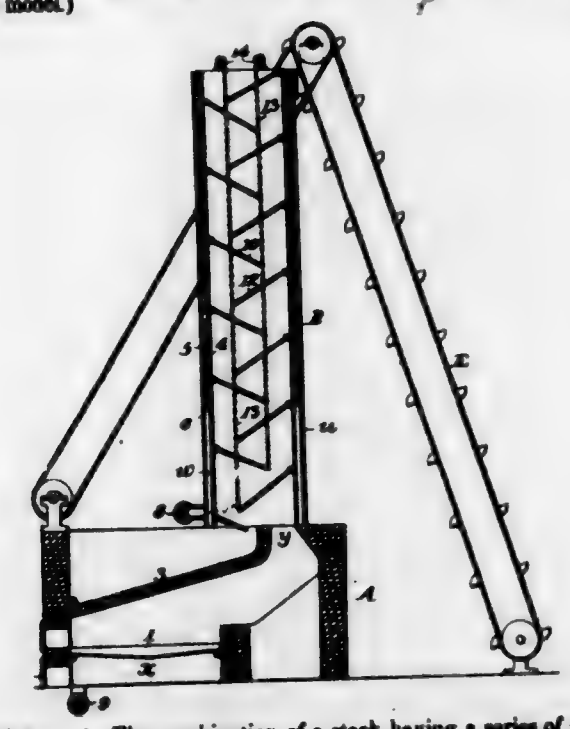
Claim.—1. As an improvement in the process of preparing artificial stone from magnesium carbonate, calcining the material, combining the calcined material with a solution of chlorid of magnesium, chlorid of aluminium and water, supplementing this by a further addition of chlorid of aluminium, adding limestone-spar in the proportion of one part of spar to four parts of carbonate, more or less, measured by weight, adding phosphate of aluminium, making the mass up into bodies of desired shape, and finally baking the same.

2. As an improvement in the process of preparing artificial stone from magnesium carbonate, calcining the material, combining the calcined material with a solution of chlorid of magnesium, chlorid of aluminium and water, adding limestone-spar in the proportion of one part of spar to four parts of the carbonate, more or less, measured by weight, adding phosphate of aluminium and a light filling, making the mass up into bodies of desired shape, and finally baking the same.

692,198. **ALLOY.** GEORGE W. GESNER, Brooklyn, N. Y. Filed May 4, 1901. Serial No. 58,831. (No specimens.)

Claim.—An alloy consisting of iron, hydrogen and copper.

692,199. **APPARATUS FOR HEATING GRANULAR SUBSTANCES.** CARLETON GREENE and WILLIAM M. DOLLAR, Buffalo, N. Y., assignors to Barber Asphalt Paving Company, New York, N. Y., a Corporation of West Virginia. Filed May 2, 1898. Serial No. 590,011. (No model.)

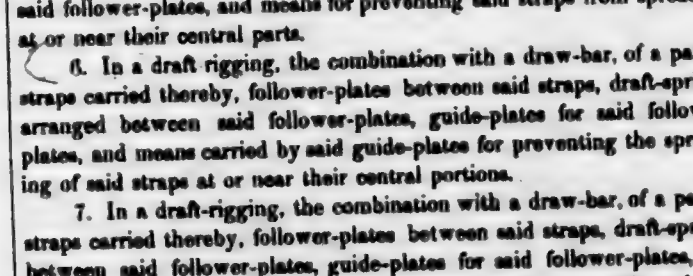


Claim.—1. The combination of a stack having a series of alternating tilting platforms, and means for supporting the same in different positions, a furnace communicating directly with the lower end of the stack, a chamber surrounding the stack and provided with an air-inlet and an air-outlet, and a blower for drawing air through the said chamber from without and forcibly discharging the air into the furnace at the bottom, substantially as shown and for the purpose described.

2. In an apparatus for drying granular substances, the combination with a stack into which the material to be dried is discharged, of a furnace communicating with the lower end of the stack, a hot-air chamber surrounding the lower end of the stack and provided with inlets for cold air, a blower, a pipe leading from the hot-air chamber to the inlet of the blower, and a pipe leading from the blower to the ash-pit below the furnace, whereby the hot air and products of combustion are driven forcibly up the stack, substantially as described.

3. The combination with a combustion-chamber having a receptacle above its roof, and an outlet for the products of combustion, of a stack with its lower end communicating with said outlet and with a discharge-opening leading to the receptacle, a series of alternating imperforate platforms within the stack, and means for forcing the heated products of combustion through the stack, substantially as described.

692,200. **DRAFT-RIGGING.** LOUIS A. HOSEA, St. Louis, Mo. Filed Jan. 12, 1901. Serial No. 42,970. (No model.)



Claim.—1. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby, a pair of follower-plates between said straps, draft-springs bearing against said follower-plates, and a stop carried by each of said straps and situated between said follower-plates.

2. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby, a pair of follower-plates between said straps, draft-springs between said follower-plates, and a stop formed integral with each of said straps and arranged between said follower-plates.

3. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby and unconnected at or near their central parts, a pair of stops carried by said straps at or near their central parts, a pair of follower-plates between said straps and bearing against said stops, and draft-springs bearing against said follower-plates.

4. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby and unconnected at or near their central parts, a pair of stops formed integral with said straps at or near their central parts, a pair of follower-plates bearing against said stops, and draft-springs bearing against said follower-plates.

5. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby and unconnected at or near their central parts, a pair of stops carried by said straps at or near their central parts, a pair of follower-plates bearing against said stops, draft-springs bearing against said follower-plates, and means for preventing said straps from spreading at or near their central parts.

6. In a draft rigging, the combination with a draw-bar, of a pair of straps carried thereby, follower-plates between said straps, draft-springs arranged between said follower-plates, guide-plates for said follower-plates, and means carried by said guide-plates for preventing the spreading of said straps at or near their central portions.

7. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby, follower-plates between said straps, draft-springs between said follower-plates, guide-plates for said follower-plates, and bolts connecting said guide-plates for preventing the spreading of said straps at or near their central portions.

8. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby, follower-plates between said straps, draft-springs between said follower-plates, a pair of guide-plates for said follower-plates, bolts connecting said guide-plates, and guide-bars between said bolts and straps for preventing the spreading of said straps.

9. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby, follower-plates between said straps, draft-springs between said follower-plates, and a pair of pivotally-mounted members, one above and the other below said straps, for clamping said straps.

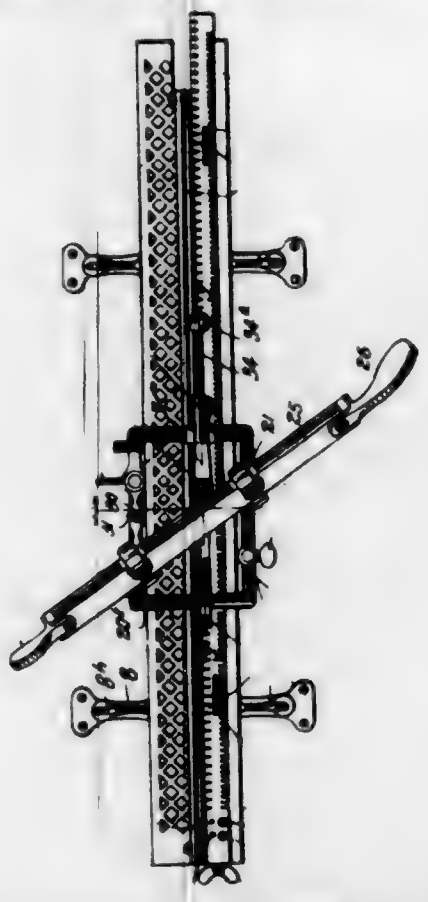
10. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby, follower-plates between said straps, draft-springs between said follower-plates, a pair of guide-plates for said follower-plates, a pair of pivotally-mounted members, one below and the other above said straps, carried by said guide-plates and clamping said straps.

11. In a draft-rigging, the combination with a draw-bar, of a pair

of straps carried thereby, follower-plates between said straps, draft-springs between said follower-plates, a pair of guide-plates for said follower-plates, bolts connecting said guide-plates, and guide-bars between said bolts and straps and rotatably around said bolts for clamping said straps.

12. In a draft-rigging, the combination with a draw-bar, of a pair of straps carried thereby, draft-springs and follower-plates between said straps, guide-plates for said follower-plates, columns dividing each of said guide-plates into two compartments, a pair of lugs intermediate of the length of each guide-plate on the lower side, and a pair of supporting-plates for each guide-plate carried by said lugs and free to be removed laterally from said guide-plates.

692,201. SAW-SHARPENER. NICOLAUS KALL, Denver, Colo. Filed July 2, 1901. Serial No. 66,924. (No model.)



Claim.—1. In a saw-sharpener, the combination of a track composed of two members, means for clamping the saw between the track members, and supporting the track in a suitably-raised position, a gage-plate mounted on the track, a carriage also mounted on the track, means for imparting to the carriage a step-by-step movement on the track, comprising a hand-lever fulcrumed on the carriage, a toothed arm pivotally connected with the lever, its tooth being adapted to engage the gage-plate which is provided with stops for the tooth, a toothed lever also fulcrumed on the carriage, its tooth being arranged to engage the stops of the gage-plate, and an operating connection between the hand-lever and the toothed lever; guides mounted on the carriage, and a file-holder movable in the guides, the arrangement being such that the file-holder occupies a position forming oblique angles with the plane of the saw.

2. The combination of a saw-clamp forming a track, a carriage mounted on the track, a gage-plate mounted on the carriage, means for imparting to the carriage a step-by-step movement on the track, comprising a hand-lever fulcrumed on the carriage, a toothed arm pivotally connected with the lever, its tooth being adapted to engage the gage-plate which is provided with stops for the tooth, a toothed lever also fulcrumed on the carriage, its tooth being arranged to engage the stops of the gage-plate, and an operating connection between the hand-lever and the toothed lever; a file-holder, and means mounted on the carriage for guiding the file-holder in a line diagonally to the line of the saw-teeth.

3. The combination with a saw-holder and a track, of a carriage movable on the track, a gage-plate mounted on the track, a hand-lever fulcrumed on the carriage, an arm pivotally connected with the lever, a second lever also fulcrumed on the carriage and connected with the hand-lever, the said arm and the second lever being arranged to coöperate with the gage-plate as the hand-lever is operated, to impart a step-by-step movement to the carriage, substantially as described.

4. The combination with a saw-holder and a track, of a carriage movable on the track, a hand-lever fulcrumed on the carriage, an arm pivotally connected with the hand-lever, a second lever also fulcrumed on the carriage and connected with the hand-lever, and means mounted on the track and arranged to cooperate with the said arm and the second lever for imparting a step-by-step movement to the carriage as the hand-lever is operated.

5. The combination with a saw-holder, of a gage-plate mounted on the saw-holder, a carriage movable longitudinally on the saw-holder, a file-holder mounted on the carriage, and means also mounted on the carriage and coöperating with the gage, to impart a step-by-step movement of predetermined length to the carriage, said means comprising a hand-lever fulcrumed on the carriage, an arm pivotally connected with the carriage, and a second lever also fulcrumed on the carriage and connected with the hand-lever.

6. The combination with a saw-holder, of a gage attached to the saw-holder, a file-holder carriage movable on the saw-holder, and means mounted on the carriage and coöperating with the gage for imparting the required step-by-step movement to the carriage, said means comprising a hand-lever fulcrumed on the carriage, an arm pivotally connected with the carriage, and a second lever also fulcrumed on the carriage and connected with the hand-lever.

7. The combination with a saw-holder, of a gage-plate mounted thereon, and provided with recesses or notches arranged at regular intervals, a carriage movable longitudinally on the saw-holder, and means mounted on the carriage and engaging the notches of the gage for imparting a suitable step-by-step movement to the carriage, said means comprising a hand-lever fulcrumed on the carriage, an arm pivotally connected with the carriage, and a second lever also fulcrumed on the carriage and connected with the hand-lever.

8. The combination with a saw-holder, of a gage-plate adjustably attached to the saw-holder and provided with recesses located at proper intervals, a file-holder carriage longitudinally movable on the saw-holder, and means mounted on the carriage and coöperating with the gage-plate to impart a suitable step-by-step movement to the carriage, said means comprising a hand-lever fulcrumed on the carriage, an arm pivotally connected with the carriage and a second lever also fulcrumed on the carriage and connected with the hand-lever.

9. The combination with a saw-holder and track, of a file-holder carriage movable longitudinally on the track, and a tension device mounted on the carriage and engaging the track for regulating the movement of the carriage.

10. The combination with a saw-holder and a track, of a gage-plate mounted on the track and provided with recesses located at suitable intervals, a file-holder carriage movable longitudinally on the track, a triple-armed hand-lever fulcrumed on the carriage, a toothed arm pivotally connected with one arm of the said lever, its tooth being adapted to successively engage the recesses of the gage-plate, a toothed lever also fulcrumed on the carriage, its tooth being arranged to engage the recesses of the gage-plate, an operating connection between one arm of the hand-lever and one arm of the toothed lever, the arrangement being such that as the hand-lever is actuated, a suitable step-by-step movement is imparted to the carriage substantially as described.

11. The combination with a saw-holder and a track, of a gage-plate attached to the track and provided with recesses located at regular intervals, a carriage longitudinally movable on the track, and mechanism for imparting a step-by-step movement to the carriage, said mechanism comprising a triple-armed hand-lever fulcrumed on the carriage, an arm pivotally connected with one arm of the hand-lever and provided with a tooth adapted to engage the recesses of the gage-plate, a toothed lever also fulcrumed on the carriage, a hinged bolt connecting one arm of the toothed lever with one arm of the hand-lever, and a nut applied to the bolt and forming a bearing for the hand-lever arm, the parts being constructed and arranged and operating substantially as shown and described.

12. The combination with a saw holder and a track, of a recessed gage-plate mounted on the track, a file-holder carriage movable longitudinally on the track, and means mounted on the carriage for imparting a step-by-step movement to the latter, said mechanism comprising a triple-armed hand-lever, a weighted arm connected with one arm of the hand-lever and provided with a tooth adapted to engage the recesses of the gage-plate, a rearwardly-extending arm rigidly attached to the carriage and provided with a notch, the weighted arm having a lug adapted to engage the notch of said arm, whereby the arm is raised to disengage its tooth from the gage plate, a toothed lever also fulcrumed on the carriage, a flexible connection between the toothed lever and one arm of the hand-lever, and a spring attached to the carriage and engaging an arm of the toothed lever, whereby when the weighted arm is raised to engage the notch of the rigid arm of the carriage, the said spring acts to hold the parts in operative relation, the toothed parts being raised from the gage-plate, permitting the carriage to be moved at will on the track.

13. In a saw-sharpener, the combination with a saw-holder and a carriage-track, of a recessed gage-plate attached to the track, a file-holder carriage movable longitudinally on the track, a hand-lever fulcrumed on the carriage and provided with three arms, an arm being pivotally connected with one arm of the hand-lever and having a tooth adapted to en-

guge the recesses of the gage-plate, another lever fulcrumed on the carriage, and provided with a tooth adapted to engage the recesses of the gage-plate, a flexible connection between the last-named lever and one arm of the hand-lever, whereby as the hand-lever is manipulated, the operation of the carriage-actuating parts is substantially as described, and suitable means for supporting the toothed arm and the toothed lever, above the gage-plate whereby the carriage may be moved at will on the track.

14. In a saw-sharpener, the combination with a saw-holder and a carriage-track, of a file-holder carriage mounted to move longitudinally on the track, means for regulating the movement of the carriage on the track, comprising a plate mounted to have a vertical movement on the carriage, springs attached to said plate and bearing on the track, and a set-screw for adjusting the plate vertically whereby the springs may be made to bear against the track with more or less tension as desired.

15. In a saw-sharpener, the combination with a saw-holder and a carriage-track, of a file-holder carriage having notches engaging the track whereby the carriage is held in place, and a tension device mounted on the carriage and engaging the track for controlling its sliding movement.

16. The combination with a saw-holder and a track, of a carriage movably mounted on the track and provided with sockets, guides provided with vertical lower portions adapted to enter said sockets, and slotted upper portions forming oblique angles with the vertical lower portions, and a file-holder mounted in the slots of the guides.

17. The combination with a saw-holder and a track, of a carriage movably mounted on the track and provided with two vertical sockets on each side, file-holder guides located in two of said sockets, said guides having vertical lower parts adapted to enter the sockets, and upper slotted portions inclined to the horizontal, the said guides being detachable to occupy the two other sockets.

18. The combination with a saw-holder and a track, of a carriage movable longitudinally on the track and provided with four vertical sockets, two file-holder guides mounted in two of the carriage-sockets, said guides having vertical lower parts adapted to enter said sockets, and slotted upper parts forming oblique angles with the lower parts, said guides being detachable, a file-holder adapted to engage the slots of the guides, the said file-holder comprising a frame and set-bolts passing therethrough and having eyes at their extremities adapted to receive the file which is tightened by nuts on the bolts.

19. The combination with a saw-holder and a carriage-track, of a file-holder carriage movable on the track and provided with two pairs of sockets, two detachable guides arranged to alternately engage the two pairs of sockets, said guides having U-shaped arms provided with shoulders, and a file-holder comprising a frame having ledges adapted to engage the shoulders of the frame as the file-holder is manipulated.

20. The combination with a saw-holder and carriage-track, of a reversible gage-plate mounted on the track, a carriage movable on the track, and means mounted on the carriage and coöperating with the gage-plate to impart a step-by-step movement to the carriage, said means comprising a hand-lever fulcrumed on the carriage, an arm pivotally connected with the carriage, and a second lever also fulcrumed on the carriage and connected with the hand-lever.

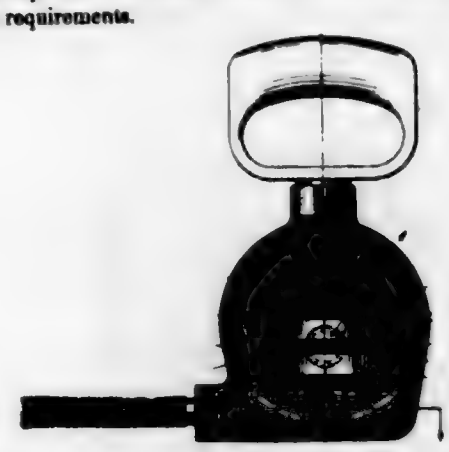
21. The combination with a saw-holder and a carriage-track, of a gage-plate mounted on the track and provided with two rows of notches or recesses, the notches of the one row being farther apart than those of the other row, whereby the gage-plate becomes reversible to adapt it for use with different saws, a hand-lever fulcrumed on the carriage, an arm pivotally connected with the carriage, and a second lever also fulcrumed on the carriage and connected with the hand-lever, the said pivoted arm and the second lever being arranged to coöperate with the gage-plate to impart a step-by-step movement to the carriage as the hand-lever is operated.

22. The combination with a saw-holder, of a gage-plate adjustably mounted thereon, a screw journaled on the saw-holder and threaded in the gage-plate, for adjusting the latter longitudinally, and a device actuated from the gage-plate to indicate the degree of the latter's movement.

23. The combination with a saw-holder, of a gage-plate adjustably mounted thereon and provided with a lug having a threaded opening, a screw journaled on the saw-holder and engaging the lug of the gage-plate for imparting a longitudinal movement to the latter, a graduated face-plate attached to the saw-holder, and a lever-like pointer located adjacent said face-plate and connected with the gage-plate to actuate the pointer as the gage-plate is moved.

692,202. PNEUMATIC MOTOR. CHARLES R. KLINE, Beechwood, and JULIUS KELLER, Philadelphia, Pa. Original application filed Apr. 23, 1901, Serial No. 57,382. Divided and this application filed July 6, 1901. Serial No. 67,231. (No model.)

Claim.—1. In a rotary engine, a casing, a piston-chamber therein, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a plurality of chambers located in said casing in opposite portions thereof, said chambers having ports leading therefrom to said piston-chamber, and said chambers and ports being adapted to be utilized as inlet or exhaust for the motive fluid according to requirements.



2. In a rotary engine, a casing, a piston-chamber therein, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a plurality of chambers located in said casing in opposite portions thereof, said chambers having ports leading therefrom to said piston-chamber, and said chambers and ports being adapted to be utilized as inlet or exhaust for the motive fluid according to requirements.

3. In a rotary engine, a casing, a piston-chamber therein, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, a plurality of chambers located in said casing in opposite portions thereof, said chambers having ports leading therefrom to said piston-chamber, and said chambers and ports being adapted to be utilized as inlet or exhaust for the motive fluid according to requirements, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a handle on said casing, and a second handle on said casing and projecting therefrom at an angle to said first-mentioned handle.

4. In a rotary engine, a casing, a piston-chamber therein, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a plurality of chambers situated in said casing, and ports leading from said chambers to the piston-chamber at opposite sides thereof, one of said ports serving as an inlet for the motive fluid and the other as an exhaust therefor.

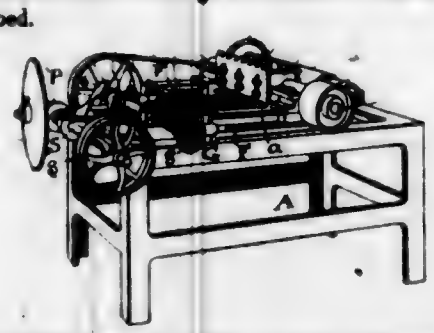
5. In a rotary engine, a casing, a rotary piston therein, said piston consisting of a cylinder, having diametrical plates at the opposite ends thereof, journals projecting from said plates and having their bearings in said casing, a sliding blade having its ends seated in said plates and its sides provided with packing devices, and a plurality of rollers arranged in pairs within said piston between which rollers said blade passes, in combination with a plurality of chambers situated in said casing on opposite sides thereof, ports leading from said chambers to the piston-chamber at the opposite sides thereof, and means for causing either of said ports to act as inlet or exhaust at will.

6. In a rotary engine, a casing, a piston-chamber, a piston therein, a plurality of chambers in said casing and on opposite sides thereof, a plurality of ports leading from said chambers to said piston-chamber, an inlet-pipe for the motive fluid, a plurality of passages leading from said inlet to said chambers, and a reversing-valve for controlling said passages, said valve being formed on said pipe.

692,203. MACHINE FOR MAKING WOOD FIBER. GEORGE E. LE CLAIR, Elyria, Ohio. Filed Feb. 15, 1901. Serial No. 47,450. (No model.)

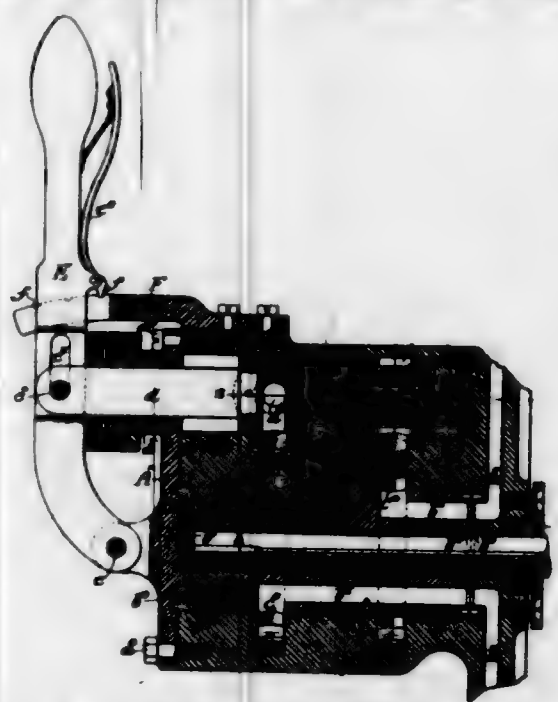
Claim.—1. The rotatable cutter-head and the shaft carrying said head, and bearings supporting said shaft, in combination with worm-shafts engaging said bearings to adjust the same, a screw-shaft geared with said worm-shafts and means to impart varying speed to said screw-shaft, substantially as described.

2. The cutter-head and the movable bearings supporting the ends thereof, screw-shafts engaging said bearings to adjust the same, and a transverse shaft geared with each of said worm-shafts, in combination with the log-rotating shaft, power connections between said log-rotating shaft and said transverse shaft, and speed-varying mechanism operatively connected with said log-rotating shaft comprising a set of friction-disks disposed at right angles to each other, and a lever operatively engaged on the said transverse shaft to change the relations of said disks, substantially as described.



3. In a wood-fiber cutting-machine, a set of speed-varying disks adjustably arranged in respect to each other, a log-carrying shaft and power connections from said disks to said shaft, in combination with a cutter-head, bearings on which said head is fed toward the log, a set of screw-shafts to adjust said bearings, and means to rotate said screw-shafts jointly comprising a transverse shaft G, and gears to said screw-shafts, and power connections from said transverse shaft to the said log-carrying shaft, substantially as described.

692,204. REVERSING-VALVE MECHANISM. CHESTER S. LEONARD, Philadelphia, Pa., assignor of one-half to Frances J. Wise, Philadelphia, Pa. Filed May 2, 1901. Serial No. 58,408. (No model.)



Claim.—1. The combination of a valve-casing having in it a valve-chamber, an inlet and an exhaust passage opening into said chamber, two other passages also opening into the chamber, a valve in the chamber, passages in said valve normally connecting the inlet with the first of the passages in the casing, and the exhaust with the second passage, two other passages in the valve and means for moving the said valve longitudinally whereby the second set of passages in the valve are brought into use and the connections of the two passages in the casing are reversed, substantially as described.

2. The combination in a valve-casing having a valve-chamber into which open an inlet and an exhaust passage, two other passages entering the chamber, a valve in said chamber, four passages therein and means for reciprocating the valve, the said passages in the valve being constructed to connect either one of the passages opening into the valve-chamber with either the inlet or the exhaust passage when said valve is reciprocated substantially as described.

3. In a reversing-valve, the combination of a casing having a valve-chamber, a valve therein having two sets of passages running through it, four passages entering the valve-chamber, one set of passages in the valve connecting said passages entering the casing in pairs, the second set reversing the connections of said passages when the valve is moved longitudinally, substantially as described.

4. The combination of a casing having a valve-chamber, a valve therein, an inlet and an exhaust passage opening into said chamber, two other passages also entering the chamber, means for reciprocating the valve, said valve having an annular recess around it and three passages running through it, being constructed to reverse the direction of flow of a fluid through to the passages in the valve-casing when the valve is moved, substantially as described.

5. The combination in a valve mechanism for an engine, of a casing having two valve-chambers, a reversing-valve constructed to be reciprocated in one chamber and a second valve constructed to continuously rotate in the other chamber, passages in the valves, passages connecting the chambers, and other passages leading from the chambers to the engine-cylinders and an inlet and an exhaust passage in the casing, substantially as described.

6. The combination of a casing having two valve-chambers, an inlet and an exhaust passage opening into one of the same and passages connecting the chambers, a rotary admission in one chamber connected to the ports of a steam-engine, and a cylindrical reversing-valve in the other chamber constructed to reverse the direction of flow of motive fluid through the passages of the rotary valve when said second valve is operated, substantially as described.

7. In a valve mechanism for an engine, the combination of a casing, two valve-chambers therein, an inlet and an exhaust passage entering one chamber, two passages connecting the two chambers, ports leading from the second chamber to an engine, a rotary valve in said second chamber, constructed to be operated by said engine, and a reversing-valve in the first chamber whereby either of the passages connecting the chambers may be connected to the inlet or exhaust at will, substantially as described.

8. The combination of a casing, two valve-chambers therein, an inlet and an exhaust passage leading to one of said chambers, annular passages extending around the second chamber having passages connecting them to both chambers, a rotary valve in the second chamber connecting it to an engine, and a cylindrical reversing-valve constructed to be longitudinally reciprocated in the first chamber whereby the direction of flow of fluid through the ports of the engine may be reversed, substantially as described.

9. The combination of a casing, a cylindrical valve-chamber therein, ports leading to an engine opening into one end of said chamber, inlet and exhaust passages opening on the curved surface of the chamber, and a valve in said chamber having passages through it constructed to periodically connect said ports alternately with said inlet and exhaust passages, substantially as described.

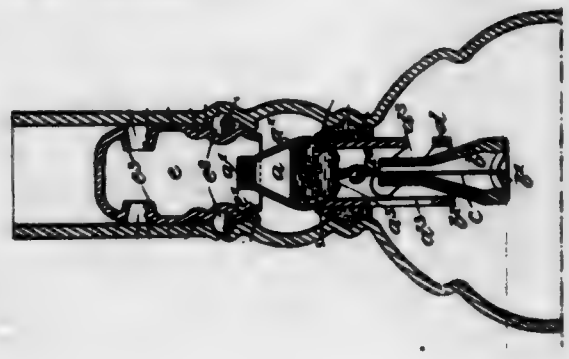
10. The combination of a casing, a cylindrical valve-chamber therein, ports leading to an engine, opening into one end thereof, annular passages surrounding the said chamber, openings from each of said passages into the chamber, a valve constructed to rotate in said chamber, having in it passages, one of said passages opening on the end of the valve and on its curved surface in the plane of the openings from one of the annular passages, and the other passage also opening on the end of the valve and on its curved surface in the plane of the openings from the other annular passage, substantially as described.

11. The combination of a casing having a cylindrical valve-chamber, a valve therein, hardened-metal plates at each end of said chamber, other plates on the ends of the valve, and means for keeping said plates in contact with each other.

12. The combination of a casing having a cylindrical valve-chamber, a valve therein, hardened-metal plates at each end of the chamber, other plates on the ends of the valve, and springs set in recesses in the valve and arranged to keep said plates in contact with each other.

13. The combination of a casing having a cylindrical valve-chamber, a valve therein having passages opening at its ends and on its curved surface, hardened-metal plates on the ends of the valve and similar plates at the end of the chamber, and passages in the casing, the plates at the ends of the valve having passages through them, substantially as described.

692,205. NON-REFILLABLE BOTTLE. ARTHUR C. C. LIARDET, New York, N. Y., assignor to the Liardet Nonrefillable Bottle Company, a Corporation of New Jersey. Filed May 23, 1901. Serial No. 61,609. (No model.)



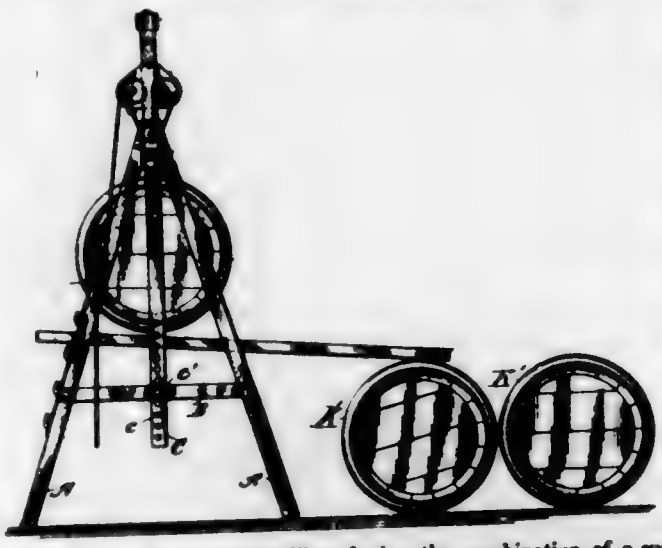
Claim.—1. In a non-refillable bottle, the combination of a hollow float-valve having a hemispherical self-seating lower part and a pointed upper part terminating in a mouth for enabling a liquid to be placed within said hollow valve, of a stopper for closing said mouth, of a tube entirely open at both ends and formed at its upper end with a flanged portion having a cup-shaped head leading to a seat for said valve, of a cork collar surrounding said tube at the part immediately below said flanged portion and adapted to engage with a groove in the bottle-neck, and of a hollow weight formed with cylindrical ends and a conical intermediate portion formed with grooves in its exterior, the lower end of the said weight being of larger diameter and greater weight than the upper end and said weight being suspended from the lower end of said valve by a flexible connection extending from the lower end of the weight to the lower end of the valve substantially as and for the purpose specified.

2. In a non-refillable bottle, the combination of a hollow float-valve having a hemispherical self-seating lower part flattened or dished at the bottom and a pointed upper part terminating in a mouth for enabling liquid to be placed within said hollow valve, of a stopper for closing said mouth, of a tube entirely open at both ends with spiral slots in its sides and formed at its upper end with a flanged portion having a cup-shaped head leading to a seat for said valve, of a cork collar surrounding said tube at the part immediately below said flanged portion and adapted to engage with a groove in the bottle-neck, and of a hollow weight formed with cylindrical ends and a conical intermediate portion having grooves in its exterior, the lower end being of larger diameter and greater weight than the upper end, and said weight being suspended from the lower end of said valve by a flexible connection extending from the lower end of the weight to the lower end of the valve substantially as and for the purpose specified.

3. In a non-refillable bottle, the combination with the float-valve, the open-ended tube and the weight, of a baffle comprising a hollow cylindrical plug closed at its upper end and formed with lateral openings through its walls, and with sets of vertical corrugations on its exterior separated by an annular groove, the corrugations of one set breaking joint with those of another set, of beaded internal flanges surrounding the aforesaid lateral openings, of loose non-spherical locking members engaging with sockets in the plug and with grooves in the bottle-neck, of a shoulder at the lower open end of the plug formed by diminishing the diameter of said open end, and of a shoulder on the bottle-neck against which the said shoulder on the plug bears when the latter is in place substantially as and for the purpose specified.

4. In a non-refillable bottle the combination with the float-valve, the open-ended tube and the weight, of a baffle comprising a hollow cylindrical plug closed at its upper end and formed with lateral openings through its wall and with sets of vertical corrugations on its exterior separated by an annular groove, the corrugations of one set breaking joint with those of another set, of beaded internal flanges surrounding the aforesaid lateral openings, of loose non-spherical locking members engaging with elongated sockets in the plug and with one or other of a series of interrupted grooves in the bottle-neck, of a shoulder at the lower open end of the plug formed by diminishing the diameter of said open end, and of a shoulder on the bottle-neck against which the said shoulder on the plug bears when the latter is in place, substantially as and for the purpose specified.

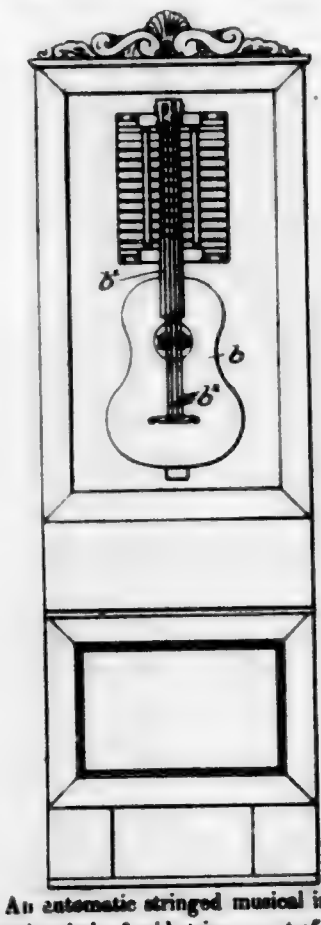
692,206. **CASK-HANDLING DEVICE.** FRANK L. LUKBERT, Everett, Mass. Filed Apr. 6, 1901. Serial No. 54,601. (No model.)



Claim.—1. In a cask-handling device, the combination of a supporting-frame, an extension hoisting-frame vertically adjustable thereon, ledges on the supporting-frame, adapted to sustain a skid-bar, and means for hoisting and lowering casks and the like, substantially as described.

2. In a cask-handling device, the combination of a pair of braced A-frames, a gallows-frame vertically adjustable on the A-frames, racks on the A-frames adapted to support a skid-bar, and means for hoisting and lowering casks and the like, substantially as described.

692,207. **AUTOMATIC MUSICAL INSTRUMENT.** JOHN MCTAMMANY, Worcester, Mass. Filed July 12, 1898. Serial No. 686,362. (No model.)



Claim.—1. An automatic stringed musical instrument having controllers for varying the pitch of said strings, a set of reeds and their valves, and intervening mechanism between said controllers and valve-reeds.

2. An automatic stringed musical instrument having controllers for varying the pitch of said strings, a set of reeds and their valves, intervening mechanism between said controllers and valve-reeds, and a selector for governing the action of the controllers and said intervening mechanism.

3. An automatic stringed musical instrument having controllers for varying the pitch of said strings, a set of reeds and valves, actuators for said valves, and devices governed by said controllers for picking the strings.

4. An automatic stringed musical instrument having string-controllers for varying the pitch of said strings, a set of reeds and valves, pneumatic actuators for said controllers and valves, pickers for the strings, pneumatic actuators for the pickers, and a single selector for governing all the said pneumatic actuators simultaneously.

5. A stringed musical instrument having string-controllers, and pickers governed by the said string-controllers.

6. A stringed musical instrument having string-controllers, actuators for said controllers, pickers, and operative connections between the actuators and the pickers.

7. A musical stringed instrument having string-controllers, pneumatic actuators for said controllers, and pickers governed by said actuators.

8. A stringed musical instrument having string-controllers, pneumatic actuators for said controllers, pickers, pneumatic actuators for said pickers, and operative connections between said actuators.

9. A stringed musical instrument having string-controllers, actuators for said controllers, pickers, actuators for said pickers connected to the first said actuators, and a selector for the first said actuators.

10. A stringed musical instrument having string-controllers arranged in rows equal in number to the strings, a picker for each string, and means governed by any controller in each row, for operating the picker for the string varied in pitch by the last said controller.

11. A stringed musical instrument having string-controllers arranged in rows equal in number to the strings, a picker for each string, an actuator for each picker, and means operated by any controller in each row, for governing a picker-actuator for the string varied in pitch by the last said controller.

12. A stringed musical instrument having string-controllers, pneumatic actuators for said controllers, pickers, pneumatic actuators for the said pickers, and a movable device for operating said picker-actuator, each device being operated by any of the controller-actuators for a single string.

13. A guitar or similar stringed instrument having the usual hole in its belly, and having a support mounted within the body, a plurality of strings outside said body, a series of pickers on said support, automatic devices extending through said hole for picking the strings whereby said usual hole is utilized to properly locate said devices, and means extending through the back of said instrument for actuating the said pickers.

14. A stringed musical instrument having a hollow body with an elongated neck, a shaft supported on the back of said body, a series of rotary pickers journaled on said shaft, and means extending through the said body, for actuating the pickers.

15. The combination with a string, of a rotary picker having sector-shaped laterally-projecting teeth.

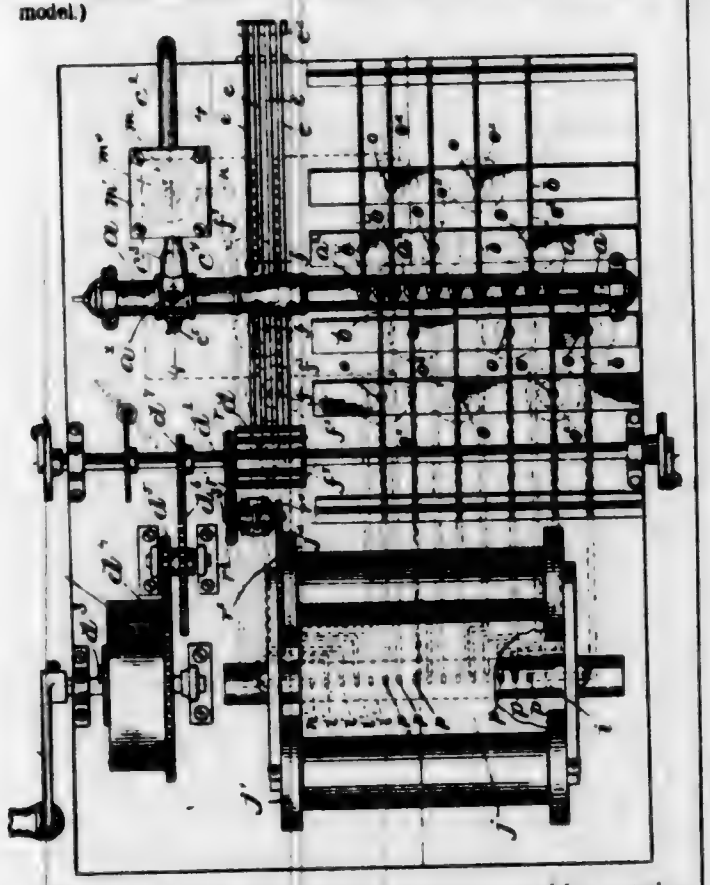
16. The combination with a string, of a rotary picker having sector-shaped laterally-projecting teeth, and means for imparting an intermittent step-by-step movement to said picker.

17. The combination with a string, of a rotary picker having laterally-projecting teeth and also having a hub, a pawl for rotating said picker, and a pawl-carrier journaled on the hub of the picker.

18. A musical instrument having a plurality of strings, and rotary toothed pickers for said strings, said pickers rotating about an axis at a right angle to said strings, and having cam-shaped teeth.

19. A musical instrument having a plurality of strings, rotary toothed pickers for said strings, said pickers rotating about an axis transverse to said strings, and a bearing for said pickers through which the strings pass.

692,208. **MECHANICAL MUSICAL INSTRUMENT.** JOHN McTAMMANY, Spencer, Mass. Filed Aug. 4, 1898. Serial No. 687,688. (No model.)



Claim.—1. A mechanical musical instrument comprising a stationary sound-producing body having a blowing-nozzle, a mouthpiece, and finger-holes, an automatic fingering mechanism, and a blowing mechanism comprising a plurality of air-forcing devices connected with the blowing-nozzle, a motor normally disconnected from said air-forcing devices, and means for automatically connecting one or more of the air-forcing devices with the motor.

2. In a mechanical musical instrument, a blowing mechanism comprising an air-forcing device, a motor normally disconnected therefrom, and automatic means for connecting the motor with the air-forcing device and disconnecting it therefrom.

3. In a mechanical musical instrument, a blowing mechanism comprising an air-delivering conduit, a series of air-forcing devices connected therewith, a motor common to all the air-forcing devices, a series of normally inoperative connecting or coupling devices between the air-forcing devices and the motor, pneumatically-controlled actuators for said coupling devices, and a perforated sheet adapted to control said actuators.

4. In a mechanical musical instrument, the combination of an air-pressure mechanism to form an air-blast, a mechanical motor therefor, a series of sound-regulating fingers, an air-exhaust mechanism, and devices operated by the exhaust mechanism to make the air-pressure mechanism operative by its motor and to operate the fingers.

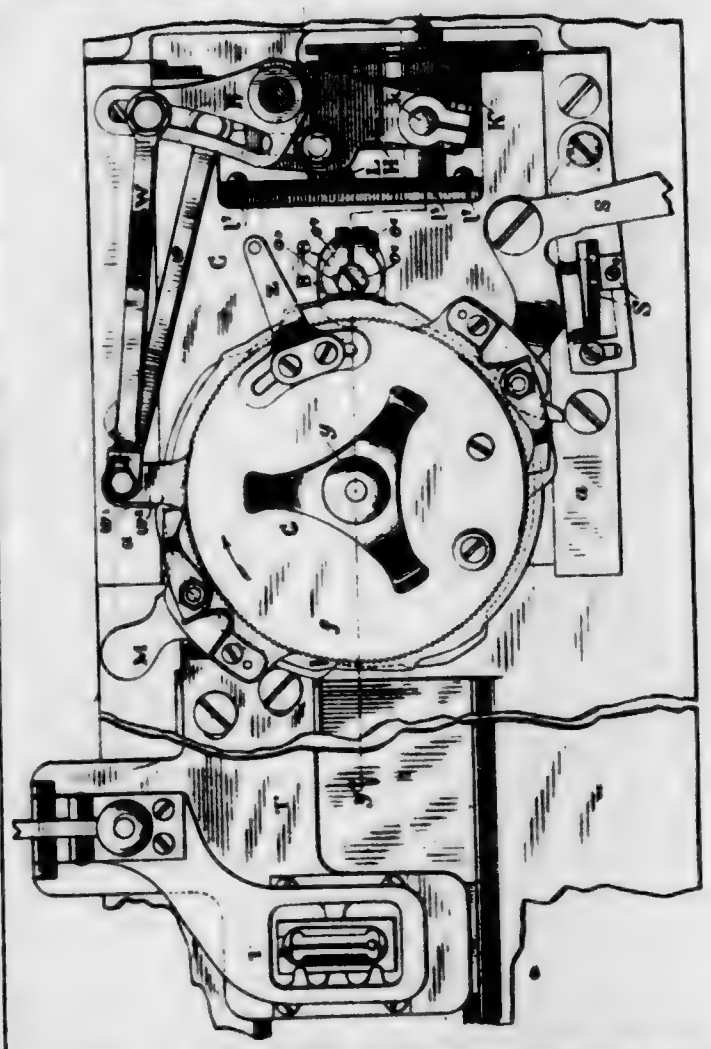
5. In a mechanical musical instrument, the combination of a blowing mechanism comprising pressure-bellows and a motor therefor, the said bellows being normally disconnected from the motor, normally inoperative coupling devices between the bellows and motor, a series of fingers formed to close sound-regulating holes, a series of pneumatics engaged with the said coupling devices, another series of pneumatics engaged with the fingers, and air-exhausting means for operating said pneumatics.

6. A flute or its equivalent having an air-delivering nozzle adjustably mounted relatively to the mouthpiece of the flute.

7. The combination of a stationary flute having a mouthpiece and a series of holes representing the chromatic scale, a music-sheet having rows of primary or fingering perforations corresponding in number with the holes of the flute, and a series of rows of secondary or blowing perforations, a series of pneumatics and fingers controlled by the primary perforations, and a series of air-forcing devices controlled by the secondary perforations, for supplying air to the mouthpiece.

8. A mechanical musical instrument, comprising a series of pneumatically-operated fingers, a series of pressure bellows or feeders to force air to a mouthpiece, a series of windways controlling the fingers, a series of windways controlling the said bellows, and a single channel-board common to both series of windways.

692,209. **BUTTONHOLE SEWING AND CUTTING MACHINE.** FREELAND W. OSTROM, Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn., a Corporation of Connecticut. Filed Feb. 21, 1900. Serial No. 6,107. (No model.)



Claim.—1. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-holding clamp, mechanism to change the relative position of the cloth-holding clamp and stitch-forming mechanism, including a controller-cam capable of controlling the feed of the material transverse to its lengthwise feed, in combination with a cutter, a cutter-actuating mechanism, stopping mechanism, and actuating mechanism therefor including a tripping mechanism capable of adjustment to control the cutting of the buttonhole-slit either substantially at the commencement of the overseaming or substantially at the completion of the overseaming, substantially as described.

2. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-holding clamp, a cutter, cutter-actuating mechanism, and mechanism to change the relative position of the cloth-holding clamp and stitch-forming mechanism including a controller-cam, in combination with stopping mechanism and a tripping mechanism therefor adjustable for changing the initial action of the stitch-forming mechanism relatively to the cutter actuation, substantially as described.

3. In a buttonhole-sewing machine, stitch-forming mechanism, stopping mechanism, a cloth-holding clamp, mechanism for changing the relative position of said clamp and stitch-forming mechanism including a controller-cam, and means to rotate it, and means to trip the stopping mechanism interposed between the stopping mechanism and said cam and by the latter moved into position to trip the stopping mechanism, and adjustable with relation to the cam, substantially as described.

4. In a buttonhole-sewing machine, stopping mechanism, a stitch-forming mechanism and a feed mechanism therefor, including a rotating disk provided with an adjustably-secured tripping-pin for controlling the action of the stopping mechanism at one or the other of two predetermined positions in the finish end of the buttonhole, in combination, substantially as described.

5. In a buttonhole-sewing machine, stitch-forming mechanism, a cloth-clamp, and mechanism for changing the relative position of the cloth-clamp and stitch-forming mechanism for the automatic overseaming of the two sides and the barring of the two ends of the buttonhole, including a rotating cam-disk having barring-sections, one of which is provided with a radial portion of the same radius as that of the portion which controls the overseaming of one of the sides of the buttonhole-slit, in combination with a cutter, cutter-actuating mechanism, a stop mechanism, and a tripping mechanism for said stop mechanism capable of adjustment to compel the action of the cutter substantially at the commencement or completion of the cycle of feed movement, at the will of the operator, substantially as described.

6. In a buttonhole-sewing machine, stitch-forming mechanism and feeding mechanism for forming overseam-stitches, in combination with a rotary controller-cam and coacting jog-rollers, the periphery of said cam having cam portions arranged in different planes at right angles to the axis of revolution of the cam, said cam portions coöperating alternately with their respective jog-rollers, substantially as described.

7. In a buttonhole-sewing machine, stitch-forming mechanism and feeding mechanism for forming overseam-stitches, in combination with a rotary controller-cam and coacting jog-rollers, the periphery of said cam having cam portions arranged in different planes at right angles to the axis of revolution of the cam, said cam portions being of different contours and said contours in part concentric and in part eccentric relatively to the cam and coöperating alternately with their respective jog-rollers, substantially as described.

8. In a buttonhole-sewing machine, stitch-forming mechanism, and cloth-feeding mechanism including a controller-cam having in different horizontal planes opposite plain cam-surfaces of different radii, and intermediate stepped cam-surfaces, combined with jog-rollers one of which is arranged to contact with the plain and stepped cam-surfaces that are in one plane and the other to coöperate with the plain and stepped cam-surfaces in the other plane, substantially as described.

9. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth-holding clamp, a feed mechanism therefor including means for giving to the cloth-holding clamp its feed movements in opposite directions, lengthwise of the buttonhole, and a cam for controlling the feed of the material transverse to its lengthwise feed, in combination with independently-mounted jog-rollers, capable of adjustment relatively one to the other, said jog-rollers constructed to alternately coact with said cam, substantially as described.

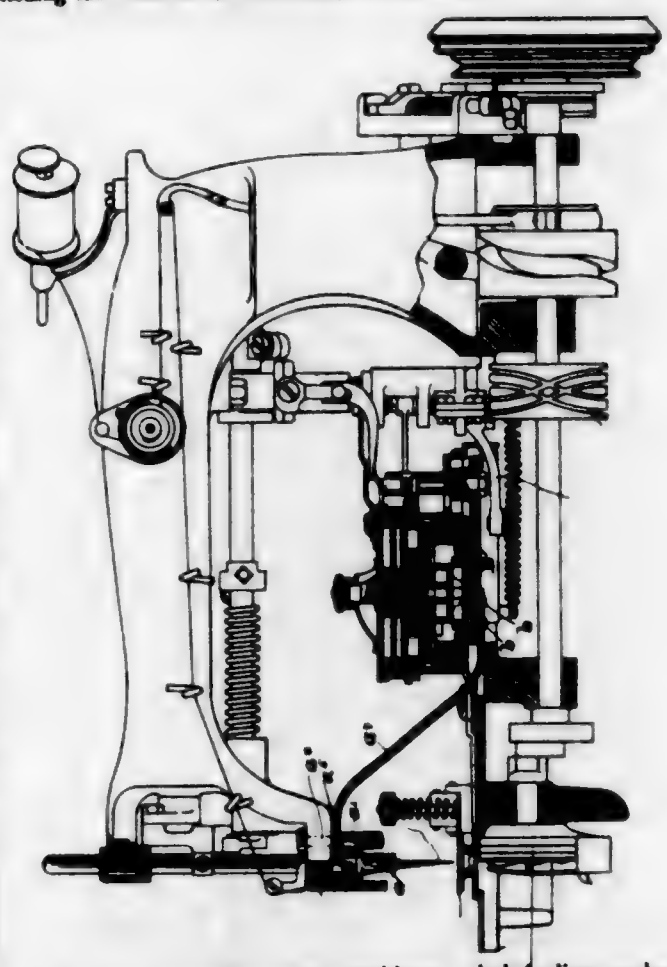
10. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth-clamp, mechanism for giving to said clamp step-by-step feed movements in opposite directions lengthwise of the buttonhole, in combination with a controller-cam having peripheral cam-surfaces, and complemental jog-rollers coacting with said cam-surfaces, one of said jog-rollers being adjustable with relation to the cam-surfaces which coact with the other jog-roller, substantially as described.

11. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth-holding clamp and a controlling mechanism therefor including sectionally-constructed and vertically-divided cam portions, in combination with suitable jog-rollers vertically mounted, one of said rollers capable of adjustments relatively to the other, substantially as described.

12. In a buttonhole-sewing machine, a stitch-forming mechanism, a cloth-holding clamp, means for giving to said clamp transverse feed movements in opposite directions including a controller-cam and jog-rollers, the latter vertically mounted in independent bearings, one of said bearings capable of adjustment relatively to the other in combination, substantially as described.

692,210. **BUTTONHOLE-SEWING MACHINE.** FREELAND W. OSTROM, Bridgeport, Conn., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn., a Corporation of Connecticut. Filed Feb. 21, 1900. Renewed Nov. 5, 1901. Serial No. 81,226. (No model.)

Claim.—1. In a buttonhole-sewing machine, the combination of a cloth-feeding mechanism a cloth-clamp and means for continuously vibrating said cloth-clamp alternately with the descents of the needle, a needle, means to reciprocate said needle, and means to impart a continuous vibration to said needle throughout the entire cycle of movements for stitching the buttonhole, substantially as described.



2. In a buttonhole-sewing machine, a cloth-feeding mechanism, means for continuously vibrating said cloth-feeding mechanism alternately with the descent of the needle-bar, a stitch-forming mechanism including a reciprocating needle, a vibratory holder for said needle, and means for imparting continuous vibration to said holder throughout the cycle of movements necessary to complete the stitching of the buttonhole, substantially as described.

3. In a buttonhole-sewing machine, a stitch-forming mechanism, cloth-feeding mechanism including a cloth-clamp and actuating mechanism therefor including a switch-cam, and connections between the switch-cam and cloth-clamp for vibrating the material under the needle, the stitch-forming mechanism including a needle and means for continuously vibrating the needle substantially at right angles to the vibration of the cloth-clamp, to place the successive overseam-stitches slightly oblique to the line of vibration of the cloth-clamp, substantially as described.

4. In a buttonhole-sewing machine, a feed mechanism, a cloth-holding clamp, actuating mechanism for said clamp including a switch-cam and suitable connections between said cam and clamp for vibrating and thereby properly positioning the material for the formation of the edge and depth stitches, in combination with stitch-forming mechanism including a needle, and means to impart to said needle vertical movements in first one and then the other of two vertical lines during the cycle of feed movements and vibratory movements necessary to complete the stitching of a buttonhole, substantially as described.

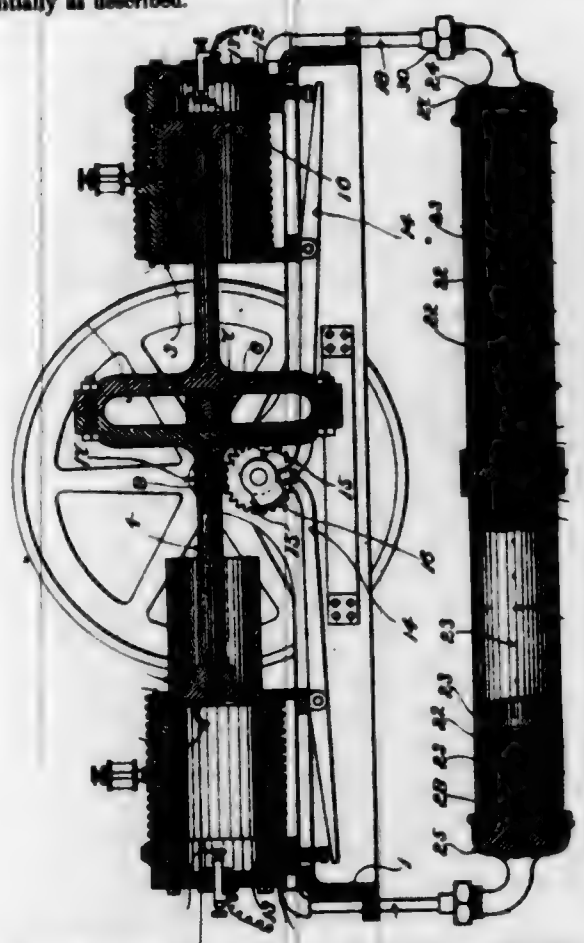
692,211. **MUFFLER FOR GASOLENE-ENGINES.** GUSTAF L. REMSTEDNA, Winchester, Mass. Filed Mar. 31, 1900. Serial No. 9,526. (No model.)

Claim.—1. The improved muffling device comprising successive chambers communicating with one another through holes out of line or breaking joint in the successive separating media, woven-wire fabric filling the respective chambers, and means to lead the exhaust into the first chamber of the series, substantially as described.

2. The improved muffling device for gasolene-engines and the like, comprising concentric shells having holes therethrough at different sides thereof to break joints, as set forth, concentric layers of reticulated material filling the spaces of the said shells, and means to lead the exhaust into the central shell, substantially as described.

3. The improved muffling device for gasolene-engines and the like, comprising concentric shells having holes therethrough, concentric layers of reticulated material filling the spaces of the said shells, caps closing the ends of said shells, and a passage leading into one end of the central shell, the exhaust escaping through the holes of the exterior shell, substantially as described.

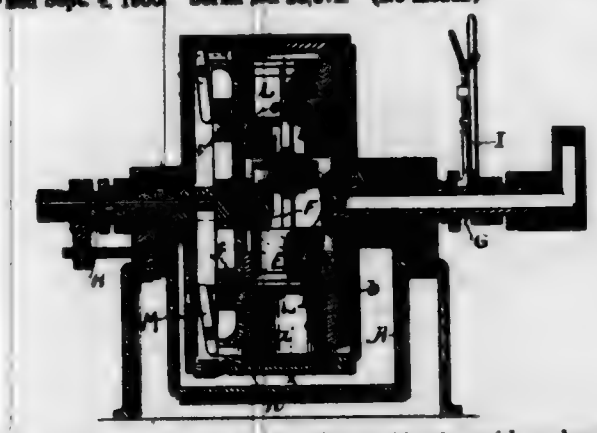
4. In combination, the cylinder of a gasolene-engine or the like, a set of concentric shells having holes therethrough and closed ends, concentric layers of reticulated material filling the spaces of the said shells, and means to lead the exhaust from the cylinder into one end of the central shell, the said exhaust escaping through the holes of the exterior shell, substantially as described.



5. The improved muffling device for gasolene-engines and the like, comprising concentric shells having holes therethrough, each hole in each of the inner shells being opposite the center of a space between the nearest holes in the next outermost shell, concentric layers of reticulated material filling the spaces of the said shells, caps closing the ends of said shells, and a passage leading into one end of the central shell, the said exhaust escaping through the holes of the exterior shell, substantially as described.

6. In combination, the two engine-cylinders, two sets of concentric shells in which each shell has holes therethrough and wire filling occupying the spaces within the said shells, the double cap connecting and closing the proximate ends of the outer shells of the two sets, means to close the other ends of the respective shells, and means to lead the exhaust from the respective cylinders into the central shells of the respective sets, the said exhaust escaping through the holes of the exterior shell, substantially as described.

692,212. **ROTARY ENGINE.** GEORGE F. SAGE, Cleveland, Ohio; Augusta M. Sage administratrix of said George F. Sage, deceased. Filed Sept. 4, 1900. Serial No. 28,872. (No model.)



Claim.—1. In a rotary motor, the combination with a plurality of cylinders; pistons movable therein, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; of an exhaust-port for each of said cylinders, independent of the inlet-port; and means for opening and closing the exhaust-port, said means being operated solely by the pressure within the cylinder.

2. In a rotary motor, the combination with a plurality of cylinders; and pistons movable therein, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; of an exhaust-port for each of said cylinders independent of the inlet-ports; a valve for each of said exhaust-ports, said valves being normally subjected to pressure from within the cylinder to hold said exhaust-ports closed; and means for opening said valve when each piston is about to finish its instroke; and independent means for controlling the inlet of the operating medium.

3. In a rotary motor, the combination with a plurality of cylinders; and pistons movable therein, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; of an exhaust-port for each of said cylinders independent of the inlet-ports; a valve for each of said exhaust-ports, said valves being normally subjected to pressure from within the cylinder to hold said exhaust-ports closed; and means operated solely by the pressure within the cylinder for opening said valve when each piston is about to finish its relative instroke.

4. In a rotary motor, the combination with a plurality of cylinders; and pistons movable therein, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; of an exhaust-port for each of said cylinders independent of the inlet-ports; and a valve for each of said exhaust-ports, said valve forming a portion of a differential mechanism for opening and closing said exhaust-port, said differential mechanism being operated solely by pressure from within the cylinder.

5. In a rotary motor, the combination with a plurality of cylinders; and pistons movable therein, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; of an exhaust-port for each of said cylinders independent of the inlet-ports; a valve for each of said exhaust-ports, said valve being normally held closed by pressure from within the cylinder; and an auxiliary piston movable in a chamber having a direct communication with the cylinder when said piston has about completed its relative instroke, for moving said valve to an open position.

6. In a rotary motor, the combination with a plurality of cylinders; and pistons movable therein, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; of an exhaust-port for each of said cylinders independent of the inlet-ports; a valve for each of said exhaust-ports, said valve being normally held closed by pressure from within the cylinder; an auxiliary piston movable within a chamber having a direct communication with the cylinder when said piston has about completed its relative instroke, for moving said valve to an open position; and means, provided by said piston, for retaining said valve in open position until said piston has about completed its relative outward movement.

7. In a rotary motor, the combination with a plurality of cylinders; and pistons movable therein, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; of an exhaust-port for each of said cylinders independent of the inlet-ports; a valve for each of said exhaust-ports, said valve being normally held closed by pressure from within said cylinder; an auxiliary piston for moving said valve to an open position; and a port communicating with said cylinder and normally closed by the piston, said port being open at substantially the extremes of movement of said piston, whereby said auxiliary piston will be acted upon by the pressure within the cylinder when said piston is at one extreme of movement, and free to be moved when the piston is at the opposite extreme of movement.

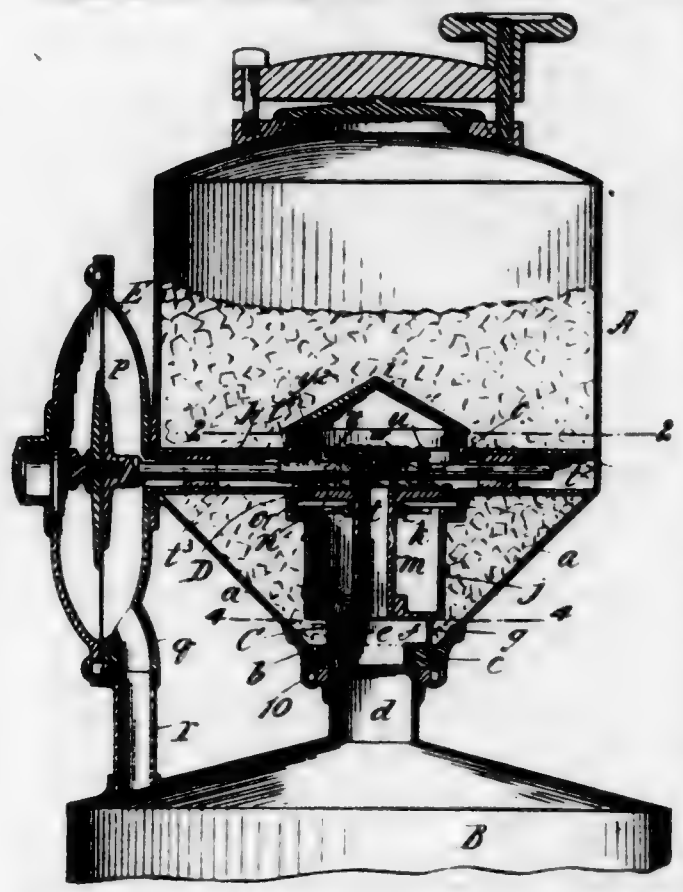
8. In a rotary motor, the combination of a plurality of cylinders; a piston movable in each of said cylinders, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; an exhaust-port for each of said cylinders; and differential mechanism for controlling the opening and closing of the exhaust-port, said mechanism being subject to the pressure within the cylinder.

9. In a rotary motor, the combination of a plurality of cylinders; a piston movable in each of said cylinders, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; an exhaust-port for each of said cylinders; and differential mechanism for controlling the opening and closing of the exhaust-port, said mechanism being subject to the pressure within the cylinder and operative to change the position of the exhaust-port-controlling means only at points approximate the completion of the in and out strokes of the piston.

10. In a rotary motor, the combination of a plurality of cylinders; a piston movable in each of said cylinders, said pistons having a connection with a fixed eccentric common to each of said pistons, each of said cylinders having an inlet-port; an exhaust-port for each of said cylinders; and differential mechanism for controlling the opening and closing of the exhaust-port, said mechanism being subject to the pressure within the cylinder, the portion of said mechanism operating to open said port having

communication with said cylinder only at approximately the completion of the instroke of the piston.

692,213. ACETYLENE-GAS GENERATOR. HERBERT L. SALISBURY, Springfield, Mass., assignor of one-third to William Waring, Springfield, Mass. Filed Aug. 20, 1901. Serial No. 72,655. (No model.)



Claim.—1. In an apparatus of the character described, in combination, a carbid-receptacle constructed with a horizontal circular supporting-ledge, and having a wall surrounding the outer marginal portion of said ledge, which wall has an aperture therethrough, and a part rotatable within said receptacle having an inclined wing or deflector which is movable on said supporting-ledge, and operative to force the material thereon outwardly, a generator-chamber with which the aforesaid aperture communicates, a movable part subject to the action of the gas generated in said chamber, and means between said movable part, and said rotatable part for causing, from the former, the rotational movements of the latter.

2. In an apparatus of the character described, in combination, a carbid-receptacle having at a lower portion thereof a horizontal circular supporting-ledge; and a part rotatable within said receptacle having an inclined wing or deflector which is movable on said supporting-ledge, and operative to force the material thereon outwardly, and having as a portion thereof a substantially cylindrical wall, constituting a marginal outer boundary to said circular supporting-ledge, and having an aperture therein through which the material forced by the deflector may pass; and a generator-chamber with which the said aperture communicates.

3. In an apparatus of the character described the combination with a receptacle for a gas-generating substance, a generator-chamber in connection therewith, a rotatable feeding device controlling the delivery of the material from the receptacle to the generator, having a circular series of ratchet-teeth, a diaphragm-chamber having a diaphragm thereon subject to the pressure of the generated gas, a pawl-bar formed in two members, connected to move endwise in unison and the one to have a rocking motion relatively to the other and provided with an angularly-extended pawl-arm to engage said ratchet-teeth, said pawl-bar having a spring applied thereto for forcing it endwise in one direction, and said bar being in engagement with the diaphragm to be forced endwise thereby in the opposite direction against the spring.

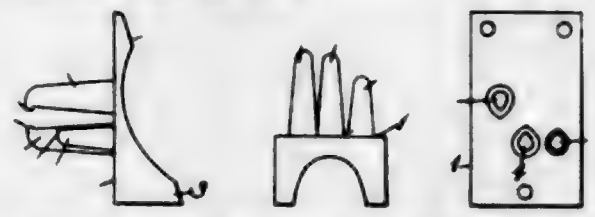
4. In an apparatus of the character described, the combination with the carbid-receptacle having therein the studs *v v*, the generator, the diaphragm-chamber and diaphragm, and a rotatable feed-governing device having the ratchet-teeth and the pawl-bar having the stud *u*, of the paired telescopic spring-cores *x* and *y* having apertured end portions engaged over the said studs *v* and *u* and having seat rests or shoulders, and the spiral springs in compression surrounding said telescope cores and having their ends resting against the said shoulders, all whereby the distention of the diaphragm causes the pawl to retract over the ratchet-teeth against the pawl, the rotational driving of the feed device.

5. In an apparatus of the character described, the combination with the carbid-receptacle, the generator, the diaphragm-chamber, and diaphragm, and a rotatable feed device having the circularly-arranged series of ratchet-teeth, of the pawl-bar in engagement with the diaphragm consisting of two members, one having the longitudinal groove t^4 and an adjoining encircling groove t^5 and the other formed sleeve-like and provided with the stud t^7 to engage in said groove t^5, and one of said members having the angularly-extended pawl-arm *t* engaging with the ratchet-teeth, and a spring reacting on the pawl-bar against the stress of the diaphragm, whereby the distention of the diaphragm under the gas-pressure will cause the retraction of the pawl over the ratchet-teeth, leaving the pawl in position on its reverse movement to engage the rotatable teeth and rotate the feed device.

6. In an apparatus of the character described the combination with a carbid-receptacle having a diaphragm-chamber at its side, the casing inclosed within the receptacle and having tubular supports extended therefrom to the opposite walls of the receptacle and one thereof opening into the diaphragm-chamber, the generator having communication with the carbid-receptacle and also connected with the diaphragm-chamber, the diaphragm in the latter chamber, a rotatable feeding device having a disk provided with a circularly-arranged series of ratchet-teeth within the said casing, a pawl-bar guided for a reciprocatory movement within the said tubular supports one portion thereof being extended to engagement with the diaphragm, said bar having an angularly-extended pawl-arm and a spring or springs reacting against the pawl-bar transversely of the stress of the diaphragm.

7. In an apparatus for generating acetylene gas, the combination with the receptacle having a flaring lower portion, an annular ledge bottom having a marginal wall provided with an opening communicating with the generator, a diaphragm chamber at the side of the receptacle having a diaphragm therein and connected with the generator-chamber, the casing D concentrically located within the carbid-receptacle above said ledge having the opposite tubular supports *h h* opening into said casing and one thereof into the diaphragm-chamber, the shaft *m* having at its lower portion a member provided with a deflector-wing operating upon the surface of said ledge, and said shaft *m* being provided at its upper portion within the casing with the circular series of ratchet-teeth, the pawl-bar mounted in the tubular supports *h* one end thereof in engagement with the diaphragm, and the same being formed in two members one of which has a rocking motion relatively to the other, both members being endwise movable in unison, and one of said members having the angularly-extended pawl-bar and the stud *u*, the studs *v v* fixed within the casing, the telescopic spring-cores engaged with the said studs *u* and *v* and the helical springs *w w*, all substantially as described and for the purpose set forth.

692,214. DEVICE FOR DRAWING TENDONS FROM THE LEGS OF POULTRY. BENJAMIN W. SMALL, West Somerville, Mass., assignor of one-half to J. Frank Adams, Watertown, Mass. Filed May 27, 1901. Serial No. 62,023. (No model.)



Claim.—1. A device for the purpose described consisting of two fingers which are secured to a common base and project outwardly therefrom in the same direction, one of said fingers being arranged above and at one side of the other and closely adjacent thereto, substantially as and for the purpose set forth.

2. A device for the purpose described consisting of two fixed projecting fingers which are arranged side by side in the same horizontal plane, and a third fixed finger which is arranged substantially parallel to, above, and at one side thereof all of said fingers being secured to a common base, as and for the purpose set forth.

3. A device for the purpose described consisting of two fixed projecting fingers which are arranged side by side in the same horizontal plane, one of said fingers being materially shorter than the other, and a holding device which is arranged adjacent to the longer of said fingers, said parts being secured to a common base and being adapted and arranged to coöperate in the manner and for the purpose set forth.

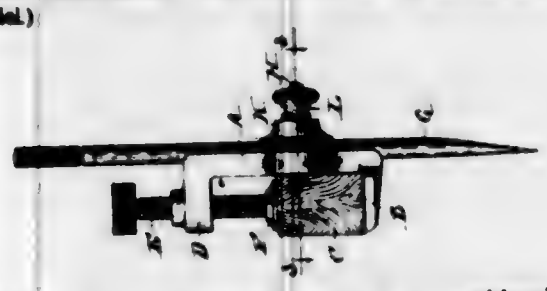
4. A device for the purpose described consisting of two fixed projecting fingers which are arranged side by side in the same horizontal plane, one of said fingers being materially shorter than the other and being beveled on the upper side thereof next the other finger, and a holding device which is arranged adjacent to the longer of said fingers, said parts being secured to a common base and being adapted and arranged to coöperate in the manner and for the purpose set forth.

5. A device for the purpose described consisting of a base having three fingers which are fixed thereto and project therefrom, two of said

fingers being arranged side by side on the same level, and having upwardly-projecting lugs at their outer ends, and said third finger being arranged above and at one side of one of said fingers and having a downwardly-projecting lug at its outer end, as and for the purpose set forth.

6. A device for the purpose described consisting of a base having legs at its upper and lower ends, said legs being materially shorter at its upper than at its lower end, and a pair of fingers which extend vertically from the surface of said base, one of said fingers being arranged above, at one side of, and adjacent the other, whereby said fingers will assume an inclined position when said base is secured in position, said fingers being adapted to coöperate as and for the purpose set forth.

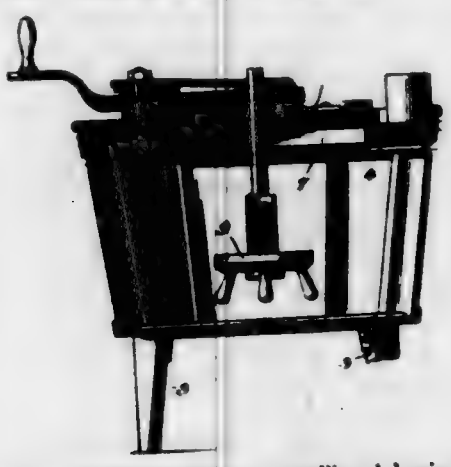
692,215. TOOL-HOLDING DEVICE. LAROY S. STARRETT, Athol, Mass., assignor to The L. S. STARRETT Company, Athol, Mass., a Corporation of Massachusetts. Filed May 3, 1901. Serial No. 58,570. (No model.)



Claim.—1. The tool-holding clamp described, comprising the clamp A B D E, its vertical body being grooved to receive laterally a trammel or other tool, such body being formed with an intermediate enlargement having a transverse aperture in the plane of said groove, in combination with a screw having an enlarged stem located in said aperture, with a transverse perforation through it to receive such tool, and with a hollow cap and terminal nut on said screw to secure the tool in position, substantially as set forth.

2. The improved tool-holder, consisting of the clamp-body grooved in its vertical face and having an opening through it, intersecting such groove, in combination with a screw having a threaded tip, a countersunk head and enlarged stem located in said opening, and a transverse perforation through such stem to receive the tool held in the grooves of the clamp-body, and with a hollow notched cap, terminal nut and interposed spring arranged on said screw, to secure the tool firmly or frictionally, substantially as set forth.

692,216. WASHING-MACHINE. CONRAD P. STEINERTS, Mitchell, S. D., assignor of one-half to Albert Boynton, Mitchell, S. D. Filed Apr. 17, 1901. Serial No. 56,262. (No model.)

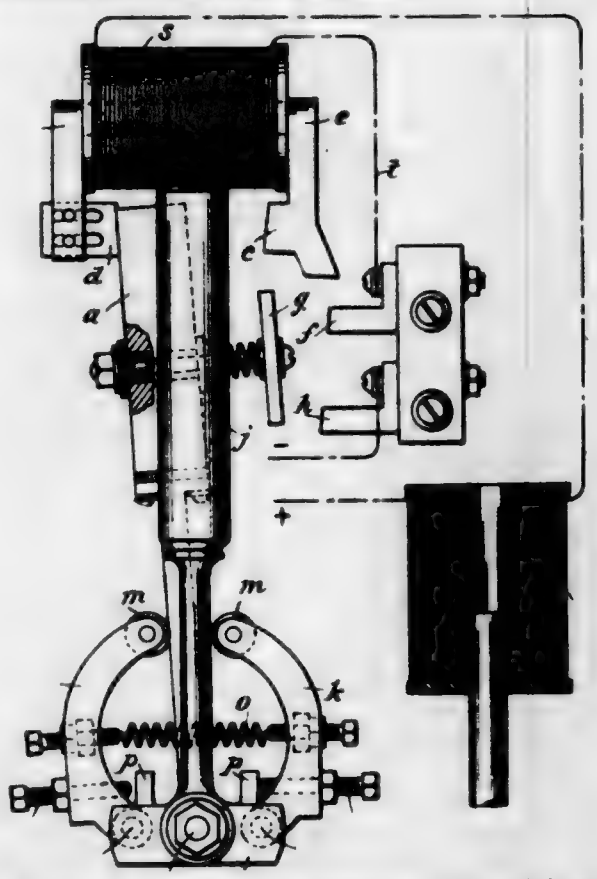


Claim.—In a washing-machine, a metallic tub having an inwardly directed marginal bead formed adjacent to the upper edge thereof, a lid support resting upon the bead, a reinforcing-band embracing the upper edge portion of the tub and above the bead, a wringer-support interposed between the tub and the lid-support and projected above the upper edge of the tub, and fastenings passed through the reinforcing-band, the body of the tub, the wringer-support and into the lid-support.

692,217. SNAP-SWITCH. AUGUST SUHDE, Yonkers, N. Y., assignor to Electrite Company, New York, N. Y. Filed July 31, 1901. Serial No. 70,424. (No model.)

Claim.—1. The combination with the switch bar or lever and the means for shifting said bar or lever, of a magnet with its poles adapted for holding the bar in its open and closed positions respectively by magnetic influences for causing the snap action in both directions.

2. The combination with the switch bar or lever, and the means for shifting said bar or lever, of a magnet with its poles adapted for holding the bar in the open and closed positions respectively, for causing the snap action in both directions, said bar being arranged to vibrate between the two poles of the magnet, one of said poles being a permanent magnet to hold the said bar or lever in the open position.



3. The combination with the switch bar or lever and the means for shifting said bar or lever, of a magnet with pole-pieces adapted for holding the bar in the open and closed positions for causing the snap action, said bar arranged to vibrate between the two poles of the magnet, one of said poles being a permanent magnet to hold the said bar or lever in the open position, and means to vary the distance between the poles to vary the effect of the magnetic action.

4. The combination with a pivoted switch bar or lever and means for shifting said bar or lever, of a magnet with pole-pieces adapted for holding the bar or lever in its open and closed positions respectively by magnetic influences for causing the snap action in both directions, said means for shifting said bar or lever consisting of levers bearing at one end on opposite sides respectively of said bar or lever, and pivoted on a support having rotating movement on the axis of said bar or lever, and being connected together by a tension-spring, temper-screws and stops on said support limiting the movement of said levers in the direction of said bar or lever, and means for imparting rotatory movement to said support.

5. The combination with the switch bar or lever and the means for shifting said bar or lever, of a magnet with pole-pieces adapted for holding the bar by magnetic influence of its respective poles in its open and closed positions respectively for resistance to the shifting device, to cause the snap action, one of the poles of said magnet arranged with relation to the circuit-closing contacts for blowing out the arcs.

6. The combination with the switch bar or lever, and a permanent magnet, said magnet having poles adapted for holding the bar or lever in its open and closed positions respectively, of a wire-spool connected in the circuit to restore the waste of magnetism from the magnet.

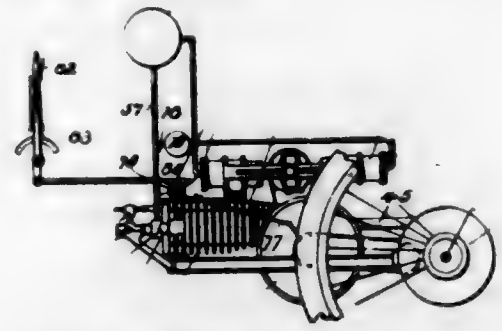
7. The combination with the switch bar or lever, of a magnet having one pole of hard steel and one of soft iron, the poles of said magnet adapted for holding the bar in its open and closed positions respectively, of a wire-spool connected in the electric circuit, to restore the magnetism of gradual loss in the hard pole and to generate magnetism in the soft-iron pole.

8. The combination with the switch bar or lever, of a magnet having one of its poles consisting of hardened steel, and the poles of said magnet being adapted for holding the bar or lever in its open and closed positions respectively, of a wire-spool connected in the circuit to restore the waste of magnetism from the hardened pole and to magnetize the other pole.

692,218. FREE-PISTON EXPLOSIVE-ENGINE. WILLIS A. SWAN, Providence, R. I. Filed Aug. 31, 1900. Serial No. 28,681. (No model.)

Claim.—1. In a gas-engine, the combination of a cylinder, a piston, mechanisms supplying air and oil to said cylinder, the air being under pressure, whereby an initial movement may be given to the piston by the pressure of said air before the explosion, mechanism supplying the air.

under pressure, to return the piston, and an independent motor operating the air and oil supplying mechanisms.



2. In a gas-engine, the combination of a cylinder, a piston, valves supplying air and oil to the explosion end of the cylinder, the air being under pressure, whereby an initial movement may be given to the piston by the pressure of said air before the explosion, a valve supplying air, under pressure, to return the piston, an air-supply under pressure, mechanism operating the several valves, and an independent motor operating the valve mechanism.

3. In a gas-engine, the combination of a cylinder, a piston, valves supplying air and oil to the explosion end of the cylinder, a valve supplying air to return the piston, an independent shaft carrying cams, adapted to operate the several valves, an air-supply under pressure, and an independent motor operating said shaft, whereby the cams are caused to alternately open the valves to admit air and oil to the explosion end of the cylinder and to return the piston.

4. In a gas-engine, the combination with the cylinder and piston thereof, of a shaft operated independently of the motive power of the engine, an air-valve, a cam on said shaft for operating said valves to supply air to the engine-cylinder, and means for supplying air to the rear end of the piston to return it on its back stroke.

5. In a free-piston gas-engine, the combination with the cylinder and piston thereof, of an air-supply reservoir, an air-chamber inclosing the rear end of the piston, and means for alternately supplying air to the front of the piston and to the rear of the same.

6. In a free-piston gas-engine, the combination with the cylinder and piston thereof, of an air-supply reservoir, and auxiliary shaft, a motive power, independent of the engine-driving power, for driving said shaft, and means for alternately supplying air to the front end of the piston and to the rear end thereof.

7. In a free-piston gas-engine, the combination with the cylinder and piston thereof, of an air-chamber, independent of the engine-cylinder, receiving the rear end of the piston, said chamber being provided with air inlet and exhaust ports, a valve arranged to alternately open and close said ports, an air-supply reservoir, and means for alternately supplying air to the front and rear ends of said piston.

8. In a free-piston gas-engine, the combination with the cylinder, air-supply valve and piston thereof, of an air-chamber, independent of the engine-cylinder, receiving the rear end of the piston, said chamber being provided with air inlet and exhaust ports, a shaft carrying cams, and an independent motor for operating said shaft whereby said cams are alternately operated to supply air to the front and rear ends of the piston.

9. In a free-piston engine, the combination with the cylinder and piston thereof, of an air-chamber receiving the rear end of the piston, said chamber being provided with an air-inlet and an exhaust-port, a valve arranged to open and close both the air-inlet and the exhaust-port, and means for operating the valve.

10. In a free-piston engine, the combination with the cylinder and piston thereof, of an air-chamber receiving the rear end of the piston, said chamber being provided with an air-inlet and an exhaust-port, a valve arranged to open and close both the air-inlet and the exhaust-port, a cam arranged to operate the valve, a rod connected to the cam, and a rotatable cam arranged to operate the rod and thereby the valve-cam and valve.

11. In a free-piston gas-engine, the combination with the main cylinder and piston thereof, said piston provided with a rack, of an independent air tube or cylinder receiving the free end of said piston, a driving-shaft carrying a gear-wheel adapted to mesh with the piston-rack, and a motor, independent of the main motive power, for causing a supply of air to enter the air-tube to positively return said piston on its back stroke.

12. In a free-piston gas-engine, the combination with the main cylinder and piston thereof, said piston being provided with a rack, of an independent air tube or cylinder receiving the free end of the piston, a driving-shaft carrying a gear-wheel adapted to mesh with the piston-rack, and a motor, independent of the main motive power, for causing a supply of air to enter behind the piston to give the engine its initial movement and supplying air to the tube or cylinder to positively return said piston on its back stroke, whereby motion is imparted to the driving-shaft.

13. In a free-piston gas-engine, the combination with the main cylinder and piston thereof, said piston being provided with a rack, of an independent air tube or cylinder receiving the free end of the piston, said air-tube being provided with air-inlets and exhaust-ports, a valve arranged to alternately open and close said ports, and a motor, independent of the main motive power, for causing a supply of air to enter the air-tube to force the piston on its return stroke.

14. In a gas-engine, the combination with the oil and air supply valves and means for operating the valves to force the oil and air into the engine-cylinder, of a free-acting piston, an air tube or cylinder receiving the free end of the piston, said air-tube being provided with air-inlets and exhaust-ports, a valve arranged to alternately open and close said ports, and a motor, independent of the main motive power to cause air to be supplied to the air-tube to force said piston on its back stroke.

15. In a gas-engine, the combination with the oil and air supply valves, and a shaft provided with means for operating the valves to force the oil and air into the engine-cylinder, of a free-acting piston having its free end operating in an independent tube or cylinder, air inlet and exhaust valves in said tube, and a motor independent of the main motive power, for driving the shaft, whereby air and oil are supplied to the main or engine cylinder and air to the independent cylinder to force the piston on its return stroke.

16. In a gas-engine, the combination with the oil and air valves, and a shaft provided with means for operating the valves to force the oil and air into the engine-cylinder, of a free-acting piston, an independent air tube or cylinder receiving the free end of the piston, said air-tube being provided with air inlet and exhaust ports, a valve arranged to alternately open and close said ports, means for operating said valve, and a motor, independent of the main motive power, for driving the shaft, whereby air and oil are supplied to the main or engine cylinder and air to the independent cylinder to force the piston on its return stroke.

17. In a gas-engine, the combination with the oil and air valves, and a shaft provided with means for operating the valves to force oil and air into the engine-cylinder, of a free-acting piston, said piston being provided with a rack, an independent air tube or cylinder receiving the free end of the piston, a driving-shaft carrying a gear-wheel adapted to mesh with the piston-rack, and a motor, independent of the main motive power, for operating the valve-operating shaft to supply air and oil to the engine and air to the tube or cylinder to return said piston on its back stroke.

18. In a gas-engine, the combination with the oil and air valves, and a shaft provided with means for operating the valves to force oil and air into the engine-cylinder, of a free-acting piston, said piston being provided with a rack, an independent air tube or cylinder receiving the free end of the piston, said air-tube being provided with air inlet and exhaust ports, a valve arranged to alternately open and close said ports, a driving-shaft carrying a gear-wheel adapted to mesh with the pinion-rack, and a motor, independent of the main motive power, for driving the valve-operating shaft, whereby air and oil are supplied to the engine and air to the tube or cylinder to return said piston on its back stroke.

692,219. EXPANSIBLE PULLEY. ROBERT TEMPLE, Denver, Colo., assignor to the American Expansion Pulley Company, Denver, Colo., a Corporation of Colorado. Filed May 25, 1901. Serial No. 61,950. (No model.)

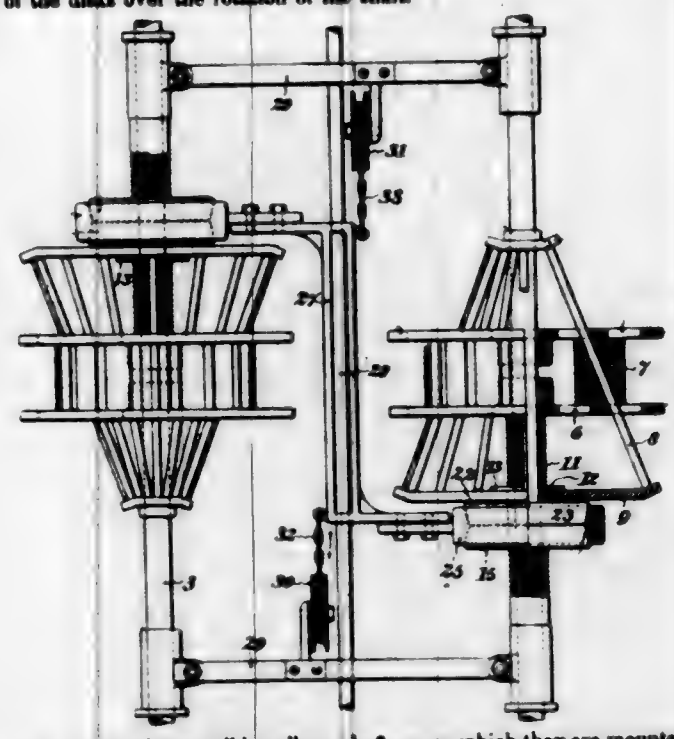
Claim.—1. An expansible pulley, and means to actuate it comprising essentially a clutch having independent flanged disks, means through which said clutch may be moved longitudinally of its supporting-shaft, means to connect one or the other of said disks operatively with the pulley, and a brake-ring for rendering operative one or the other of said flanged disks.

2. An expansible pulley, a shaft upon which it is mounted, and a clutch connected with the expanding member of said pulley to move it longitudinally of the shaft, and comprising essentially independent flanged disks, one of which has a screw-threaded connection with the shaft and the other is carried loosely on said shaft, interposed gearing between said disks, and means to render one or the other of said disks operative at pleasure to effect a longitudinal movement of the expanding member of the pulley.

3. A shaft having a screw-threaded sleeve fast thereon, an expansible pulley mounted upon said shaft and its expanding member movable longitudinally of said shaft, a nut applied to said sleeve and to the expanding member, a clutch having one of its members fixed to said nut and its other member loose thereon, gearing interposed between said clutch members, and means to render one or the other of said clutch members operative to effect the movement of the expanding member longitudinally of the shaft and in opposite directions.

4. An expansible pulley, a shaft upon which it is mounted, and a clutch connected with the expanding member of said pulley to move it longitudinally of the shaft, and comprising essentially independent flanged

disks, one of which has a screw-threaded connection with the shaft and the other is carried loosely on said shaft, interposed gearing between said disks, and means to render one or the other of said disks operative at pleasure to effect a longitudinal movement of the expanding member of the pulley, the gearing being proportioned to accelerate the rotation of one of the disks over the rotation of the shaft.



5. A pair of expansible pulleys, shafts upon which they are mounted independently, a clutch mechanism for each pulley, connections between the clutch mechanism and the expanding mechanism thereof, a screw-threaded connection of one member of each pulley with its appropriate shaft, a loose connection of the other clutch member with said shaft, interposed gearing between said members, means to brake one or the other of said clutch members, and an operating mechanism connecting the said braking mechanism to effect the adjustment of the two pulleys simultaneously and at the same rate by their own revolutions, and while revolving at different and varying speeds.

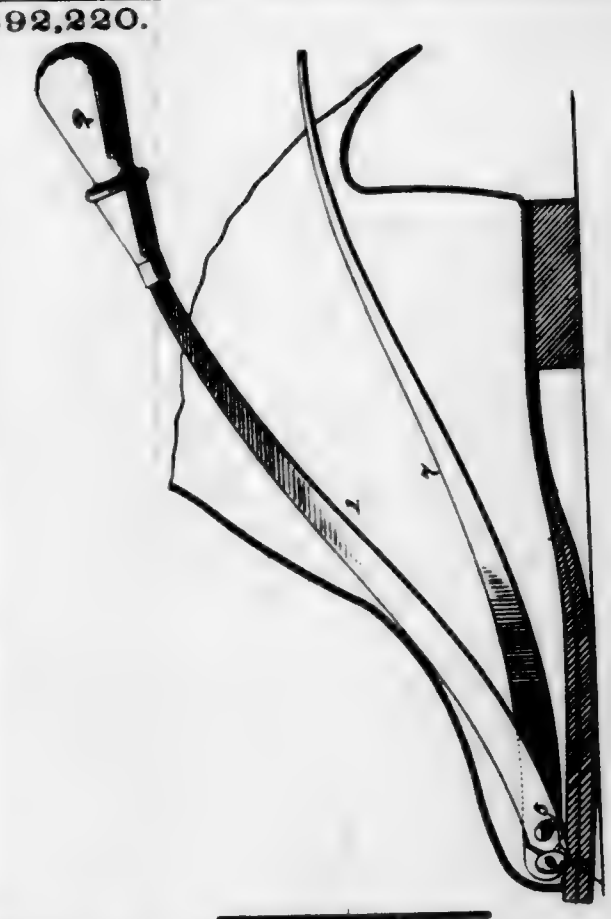
6. Actuating mechanism for expansible pulleys, comprising a rotary shaft, a screw-threaded sleeve fast to said shaft, and a complemental nut mounted upon said sleeve and connected with the pulley, a flanged disk fast to said nut, an independent flanged disk mounted loosely relatively to the nut, differential gearing interposed between said disks, and means alternately to brake one or the other of said disks and thereby render the gearing effective to cause the nut to travel lengthwise of the sleeve in opposite directions.

7. Actuating mechanism for expansible pulleys, comprising essentially a shaft, a screw-threaded sleeve fast thereon, a complemental nut mounted upon said sleeve and engaging the pulley, a flanged disk having a fixed gear and fast to the said nut, a hub and pinion thereon meshing with the said gear, and an independent flanged disk, also having a gear, mounted loosely upon the said hub and likewise engaged by the pinion, and means to brake one of said disks and thereby render the gearing effective to cause the said actuating mechanism to travel longitudinally of the shaft and at an increased speed over the revolution of the shaft.

692,220. PEG-CUTTER. HERBERT S. WARMAN and HENRY A. REBBERS, Beloit, Wis., assignors to Harvey Edward Nichols, Orion D. W. Inman, and Clarence W. Inman, Beloit, Wis. Filed Feb. 16, 1900. Serial No. 5,514. (No model.)

Claim.—In a device of the character described, a pair of curved levers, a handle secured to the extremity of one of said levers, the other of said levers having its extremity flattened, the other end of each of said levers having an enlarged portion forming a shoulder, said enlarged ends being of a width equal to the combined thicknesses of said levers, the said shoulders each having an inclined face, one of said faces being of less incline than the other, a pivotal connection between said levers slightly to the rear of said shoulders, curved jaws made integral with said shoulders and of the same width as the said shoulders, oppositely-disposed curved inner faces on said jaws, one of said curved faces being of greater curvature than the other and adapted to have its edge extend beyond said lesser curved jaw when the device is closed, whereby the jaw of lesser curvature may engage the nail at a point approximately in alinement with the insole and the other engage the nail at a point below the surface of said insole, when the lever connected to said first-named jaw is pressed upward cutting the nail below the surface of said insole, substantially as described.

692,220.

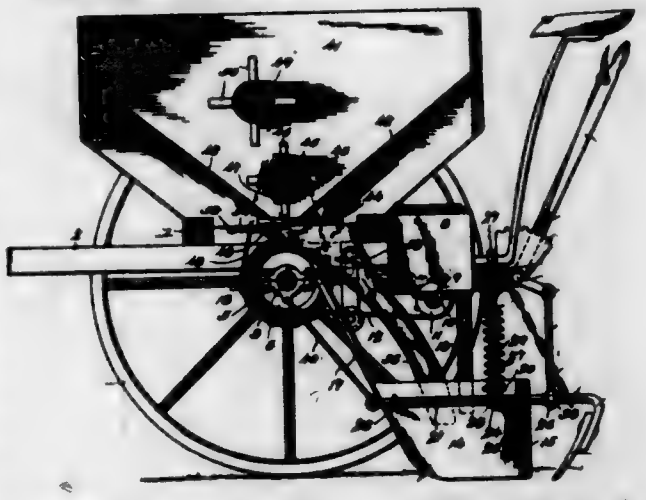


692,221. DOOR-BELL. HENRY L. WARBURG, New York, N. Y., assignor to Wm. R. Moore, Eden, N. Y. Filed June 7, 1901. Serial No. 63,561. (No model.)



Claim.—The combination with the flanged base-plate, central horizontal main shaft, and its lug formed integral with said base-plate, two-armed lever pivotally secured to the lug of the main horizontal shaft by means of the screw, push-rod secured to the two-armed lever, crown-piece, and the striking-train secured to the base-plate; of the approximately semicircular metallic strip having the clappers secured to its free ends, V-shaped wire piece terminating in a vertically-depending slot or way from the apex of the V-shaped portion, and secured to the strip, said strip being pivotally secured to the base-plate, all of said parts constituting the double hammer substantially as herein shown and described as and for the purpose specified.

692,222. COMBINED CORN-DRILL AND MANURE-DISTRIBUTER. CHARLES M. WELLS, Bolin, Mo., assignor of one-half to Mary A. Bragg, Bolin, Mo. Filed Oct. 15, 1900. Renewed Dec. 20, 1901. Serial No. 86,709. (No model.)



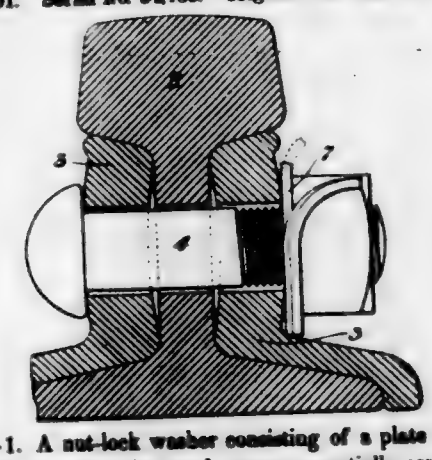
Claim.—1. In a combined planter and fertilizer-distributer, the combination of a frame having an axle-shaft and supporting and traction wheels, a manure-box on said frame, spurred stirring and discharge roll-

ers therein, driven from said axle-shaft, a conveying-apron under the manure-box, and having depending discharge-trunks, seed-hoppers in rear of said manure-box, a revolable shaft in said seedboxes to operate the seed-dropping mechanisms, said shaft being driven from said axle-shaft, seed-tubes depending from said hoppers and in rear of the discharge-trunks of the said conveying-apron, and the furrow-openers having rearward-diverging wings, said discharge-trunks and seed-tubes having their lower ends disposed between said wings, and coverers in rear of said furrow-openers, substantially as described.

2. In a planter, a furrow-opening shoe or runner having rearward-diverging blades or wings, a covering-frame having rearward-diverging arms disposed on the outer sides of said blades or wings and secured thereto, said arms being adapted at their rear ends, in rear of the furrow-opening shoe or runner, for the attachment of covering-shovels, a draft-bar attached to the front end of the covering-frame and a trail-bar attached to the front end of said furrow-opening shoe or runner, and means to raise and lower said shoe or runner, and said covering-frame, substantially as described.

REISSUES.

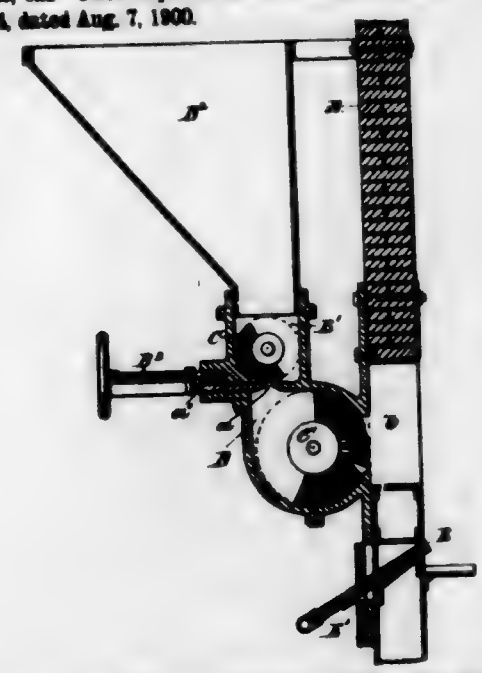
11,963. NUT-LOCK. MILTON BARTLEY, Polk, Pa., assignor of three-tenths to James Moorhead Murdoch and Harry Fleming McDowell, Pittsburg, Pa., and George Lincoln Weaver, Philadelphia, Pa. Filed Dec. 4, 1901. Serial No. 84,709. Original No. 656,152, dated Aug. 14, 1900.



Claim.—1. A nut-lock washer consisting of a plate provided with a bolt-hole and a bearing edge, and a tongue partially severed from the plate on a line corresponding to the edge of the nut, and bent outwardly at an angle to the face of the washer on the line of severance whereby when the tongue is bent down it will bind inwardly against the side of the nut.

2. In a nut-lock, the combination with a bolt and a nut, of a washer-plate engaging the bolt under the nut provided with a bearing edge, a partially-severed tongue bent outwardly on the line of severance, and at an angle to the face of the washer, and adapted to be bent down and to bind inwardly against the side of the nut.

11,964. FUEL-FEEDER FOR FURNACES. FRANK H. SPEAR, Los Angeles, Cal. Filed Sept. 13, 1901. Serial No. 75,153. Original No. 656,494, dated Aug. 7, 1900.



Claim.—1. In a furnace-feeder, the combination with a casing having a feed-chamber and a delivery-chamber, a controlled fuel passage-way between the chambers, a rotary feed-brush arranged within the feed-chamber for causing a continuous feed of fuel to the delivery-chamber, a delivery-brush arranged within the delivery-chamber and compressed by a wall thereof adjacent the discharge-opening by which the fuel is ejected directly into the combustion-chamber, and of means for imparting rotary motion to the said brushes.

2. In a furnace-feeder, the combination with a casing having a feed-chamber and a delivery-chamber, a fuel passage-way between the chambers, a rotary feed-brush arranged within the feed-chamber for causing a continuous feed of fuel to the delivery-chamber, a delivery-brush arranged within the delivery-chamber, and compressed by a wall thereof adjacent the discharge-opening by means of which the fuel is ejected directly into the combustion-chamber, and of means for imparting rotary motion to the said brushes.

3. The combination with a combustion-chamber, of a pulverulent-fuel feeder comprising a feed-chamber and a delivery-chamber within which the fuel is delivered, rotary means arranged within the feed-chamber for causing continuous delivery of the fuel to the delivery-chamber, a resilient delivery-brush arranged within said delivery-chamber so as to contact with a part near the delivery-opening causing the brush to spring and positively throw the fuel directly into the combustion-chamber, and of means for imparting rotation to the delivery-brush.

4. In a fuel-feeder, the combination with a combustion-chamber, a fuel-delivery chamber communicating therewith, a yielding delivery-brush in the delivery-chamber, and means for compressing the brush adjacent the delivery-opening for throwing the fuel into the combustion-chamber, and means for rotating said brush, substantially as described.

5. In a fine-fuel feeder for furnaces, the combination of a casing having a feed-chamber and a delivery-chamber communicating by means of a passage, a rotary feed-brush in said feed-chamber and acting to cause a continuous feed of fuel to the delivery-chamber, a rotary delivery-brush so arranged in said delivery-chamber that a space is afforded for the fuel from the receiving-chamber and to engage a part of the wall near the delivery-opening of the chamber to cause said brush to spring and positively throw the fuel from the delivery-chamber, and means for rotating the brushes, substantially as described.

6. In a pulverulent or dust fuel feeder, the combination of a feed-hopper for the pulverulent or dust fuel, a rotary feed and loosening-roll arranged in the bottom thereof, to provide substantially continuous feed of fuel from said hopper, a fuel-receiving chamber arranged below the feed-hopper, a controlled communication between the feed-hopper and the receiving-chamber and a delivery-roll working within the receiving-chamber and provided with closely-arranged feeding projections by means of which the fuel fed therein is ejected substantially continuously into the combustion-chamber of the furnace.

7. In a pulverulent or dust fuel feeder, the combination of a feed-hopper for the pulverulent or dust fuel, a receiving-chamber below and in communication with it, a feed-controlling device in the bottom of said hopper to regulate the flow of material therefrom to said chamber, a rotary feed and loosening roll arranged in the bottom of said hopper and running close to said controlling device to provide substantially continuous free feed from said hopper and above said device, and a delivery-roll working in said receiving-chamber and provided with closely-arranged feeding projections to deliver the fuel substantially continuously into the combustion chamber.

DESIGNS.

85,607. HANDLE FOR SPOONS OR SIMILAR ARTICLES. JULIA M. BRACKEN, Chicago, Ill., assignor to Oneida Community, Ltd., Kenwood, N. Y., a Corporation of New York. Filed Nov. 29, 1901. Serial No. 84,149. Term of patent 7 years.



Claim.—The design for a handle for spoons or similar articles as herein described and shown.

85,608. BRUSH OR MIRROR BACK. WILLIAM W. BROSHAR, New York, N. Y., assignor to Marcus T. Goldsmith, New York, N. Y. Filed Dec. 19, 1901. Serial No. 86,616. Term of patent 7 years.



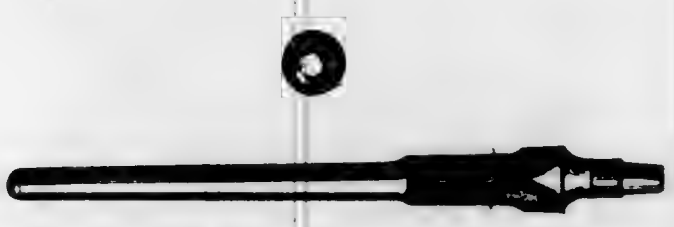
Claim.—The design for a brush or mirror back, as herein shown and described.

85,609. BACK FOR BRUSHES OR SIMILAR ARTICLES. LOUIS R. PRAHAR, Brooklyn, N. Y. Filed Dec. 4, 1901. Serial No. 84,711. Term of patent 14 years.



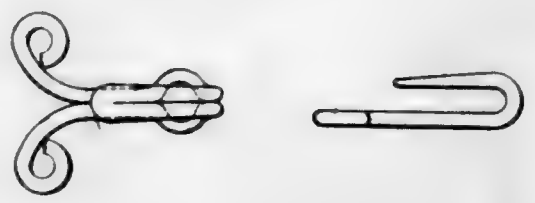
Claim.—The design for the back of a brush or similar article, substantially as shown and described.

85,610. DENTAL-INSTRUMENT HOLDER. JAMES R. VERNON, Paola, Kans. Filed Nov. 7, 1901. Serial No. 81,505. Term of patent 14 years.



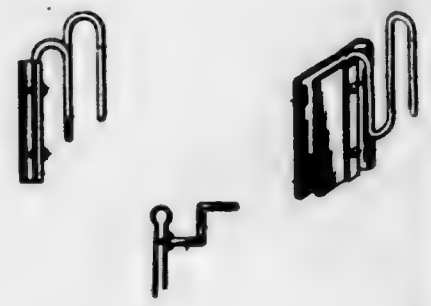
Claim.—The design for a dental-instrument holder, substantially as herein shown and described.

85,611. HOOK FOR GARMENTS. CHARLES LEIB, Philadelphia, Pa. Filed Dec. 21, 1900. Serial No. 40,695. Term of patent 14 years.



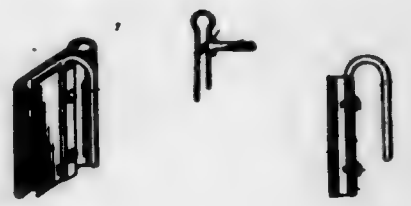
Claim.—The design for a hook for garments as herein shown and described.

85,612. GARMENT-SUPPORTER. FRANCIS G. DIETZ, New York, N. Y. Filed Dec. 5, 1901. Serial No. 84,535. Term of patent 14 years.



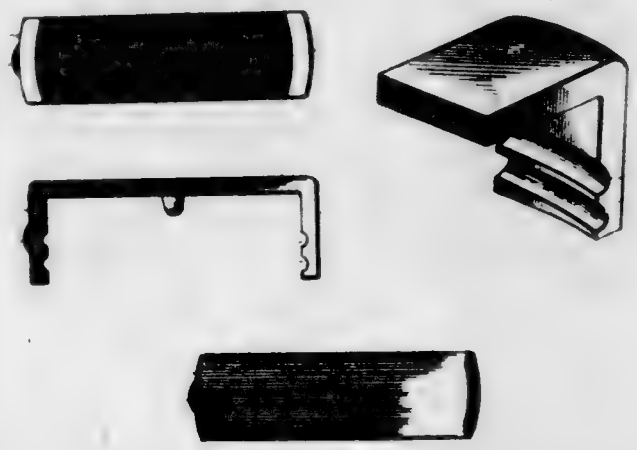
Claim.—The design for a garment-supporter, substantially as shown and described.

85,613. GARMENT-SUPPORTER. FRANCIS G. DIETZ, New York, N. Y. Filed Dec. 5, 1901. Serial No. 84,537. Term of patent 14 years.



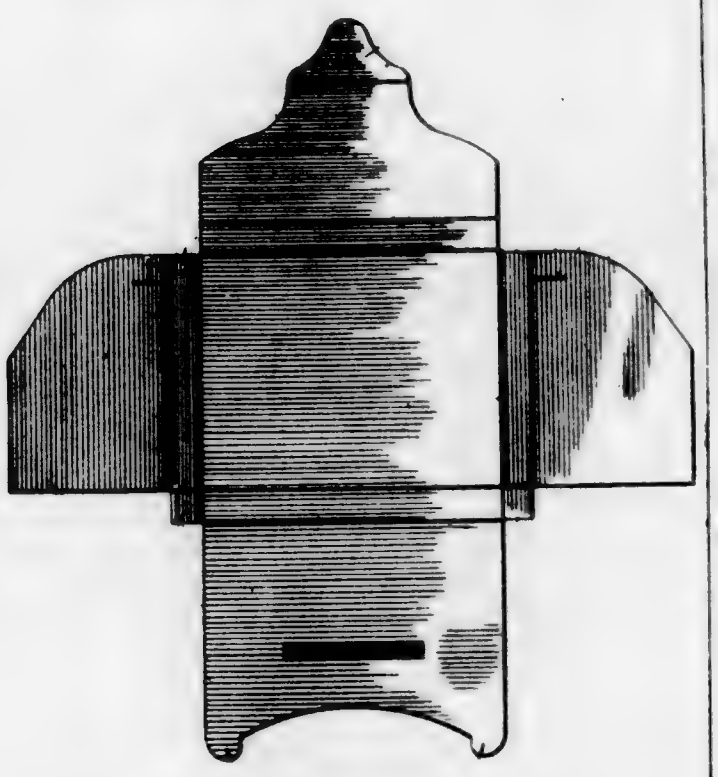
Claim.—The design for a garment-supporter, substantially as shown and described.

85,614. FRUIT-JAR CLAMP. LAURA A. CLINEK, Chicago, Ill. Filed Dec. 12, 1901. Serial No. 85,696. Term of patent 7 years.



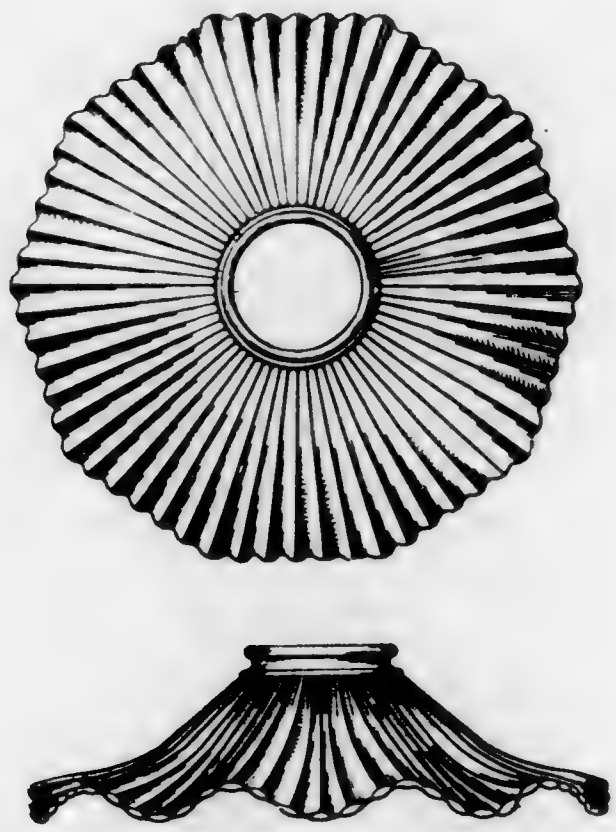
Claim.—The design for a fruit-jar clamp, as herein shown and described.

35,615. PAPER-BOX BLANK. FRANK A. STECHER, Rochester, N. Y., assignor to Stecher Lithographic Company, Rochester, N. Y., a Corporation of New York. Filed Dec. 13, 1901. Serial No. 85,859. Term of patent 7 years.



Claim.—The design for a box-blank, substantially as shown and described.

35,616. REFLECTOR FOR ARTIFICIAL LIGHTS. OTIS A. MYGATT, New York, N. Y. Filed June 3, 1901. Serial No. 63,042. Term of patent 7 years.



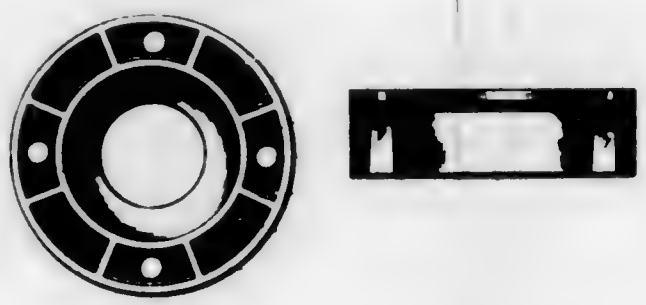
Claim.—The design for a transparent-glass reflector having the general form of the frustum of a flattened cone but curved and scalloped in serpentine direction near the outer rim, the apex terminating in a plain ring, and the body being covered on its outer surface with triangular ribs or prisms radiating from the central ring, substantially as shown and described.

35,617. URINAL. CHARLES DESORMEUX, Cleveland, Ohio. Filed Dec. 21, 1901. Serial No. 86,856. Term of patent 7 years.



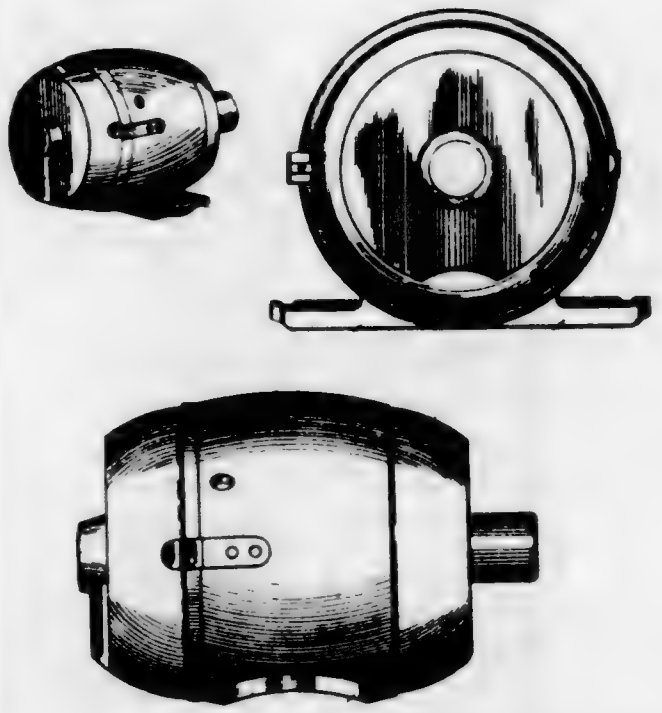
Claim.—The design for a urinal substantially as herein shown and described.

35,618. CLAMPING-RING FOR PIPE-COUPLINGS. SOLOMON R. DREHER, Bradford, Pa. Filed Dec. 14, 1901. Serial No. 85,991. Term of patent 14 years.



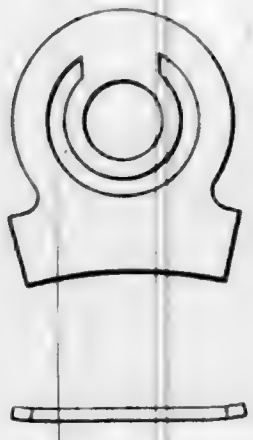
Claim.—The design for a clamping-ring for pipe-couplings, substantially as described.

35,619. CASING FOR DYNAMO-ELECTRIC MACHINES. VINCENT G. APPLE, Dayton, Ohio. Filed May 20, 1901. Serial No. 61,182. Term of patent 14 years.



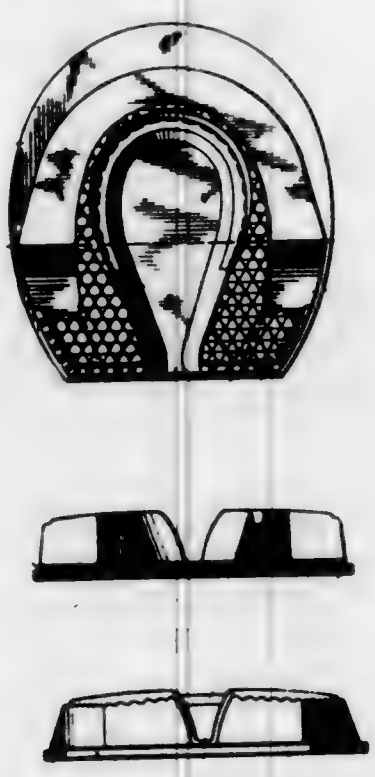
Claim.—The design for a casing for a dynamo-electric machine, as herein shown and described.

35,620. SWITCH CONTACT MEMBER. GERALD W. HART, West Hartford, Conn., assignor to the Hart Manufacturing Company, Hartford, Conn., a Corporation of New Jersey. Filed Oct. 30, 1901. Serial No. 80,561. Term of patent 14 years.



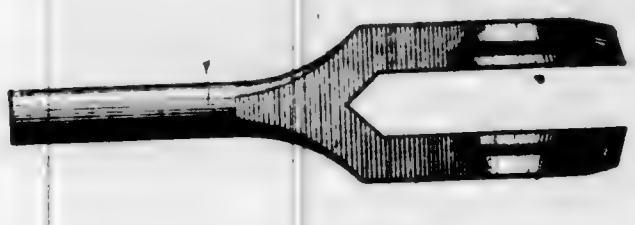
Claim.—The design for a switch contact member herein shown and described.

35,621. HORSESHOE-PAD. JOHN ARBON BUCK and GEORGE HASSLER, New York, N. Y. Filed Dec. 30, 1901. Serial No. 86,712. Term of patent 14 years.



Claim.—The design for a horseshoe-pad herein shown and described.

35,622. BRAKE-ROD END. JAMES H. BAKER, Allegheny, Pa. Filed Dec. 3, 1901. Serial No. 84,587. Term of patent 7 years.



Claim.—The design for a brake-rod end as herein shown and described.

35,622.

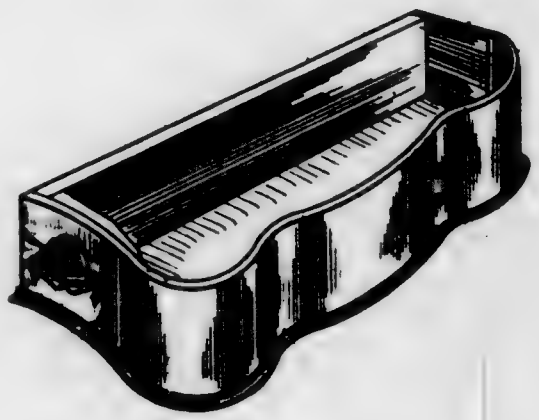


35,628. ENGINE FRAME OR CASING. ROY EDGAR HARDY, Detroit, Mich., assignor to Detroit Motor Works, Detroit, Mich. Filed Nov. 29, 1901. Serial No. 84,151. Term of patent 3½ years.



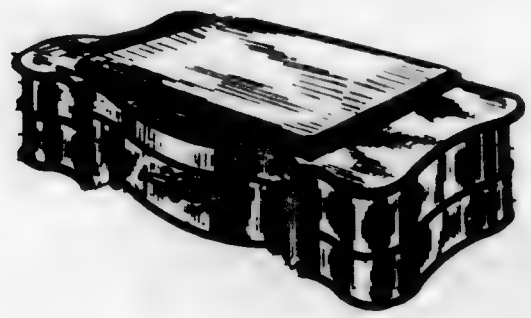
Claim.—The design for an engine frame or casing, as herein shown and described.

35,624. DRAWER FOR CABINETS. THEODOR KUNDTZ, Lakewood, Ohio. Filed Dec. 31, 1901. Serial No. 86,864. Term of patent 7 years.



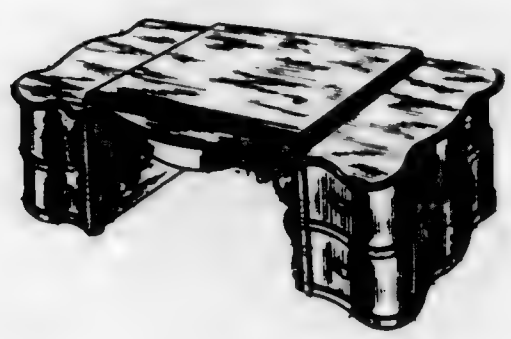
Claim.—The design for a drawer substantially as herein shown and described.

35,625. SEWING-MACHINE CABINET. THEODOR KUNDTE, Lakewood, Ohio. Filed Dec. 21, 1901. Serial No. 86,865. Term of patent 7 years.



Claim.—The design for a sewing-machine cabinet substantially as herein shown and described.

35,626. SEWING-MACHINE CABINET. THEODOR KUNDTE, Lakewood, Ohio. Filed Dec. 21, 1901. Serial No. 86,866. Term of patent 7 years.



Claim.—The design for a sewing-machine cabinet substantially as shown and described.

35,627. FLOWER-STAND. CHARLES W. LIND and CHARLES H. SILVER, Beloit, Wis. Filed Dec. 27, 1901. Serial No. 87,494. Term of patent 14 years.



Claim.—The design for a flower-stand, as herein shown and described.

35,628. RADIATOR-TOP. GEORGE BECK, Eldred, N. Y., assignor to Enterprise Gas Stove Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 31, 1901. Serial No. 87,968. Term of patent 7 years.

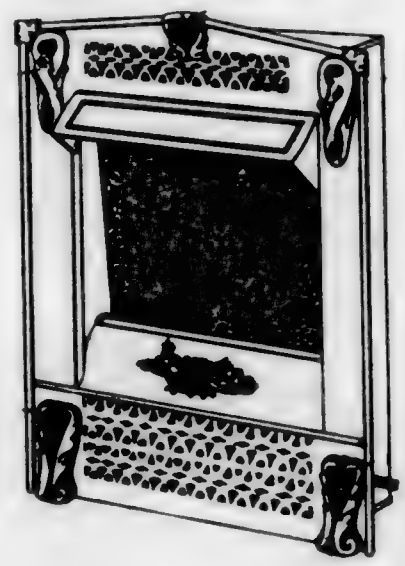






Claim.—The design for a radiator-top substantially as shown and described.

35,629. GAS HEATING-STOVE. JOHN A. WITHAM, Columbus, Ohio. Filed Dec. 28, 1901. Serial No. 87,371. Term of patent 3½ years.



Claim.—The design for a gas heating-stove, as herein shown and described.

35,680. SHOE-SOLE. JOHN S. BERRY, Brooklyn, N. Y. Filed Nov. 23, 1901. Serial No. 83,488. Term of patent 7 years.



Claim.—The design for a shoe-sole, as herein shown and described.

35,681. RUG. ERNEST H. EMMERY, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, copartners trading as John Bromley & Sons, Philadelphia, Pa. Filed Dec. 31, 1901. Serial No. 87,971. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and described.

35,682. RUG. ERNEST H. EMMERY, East Orange, N. J., assignor to John H. Bromley and Edward Bromley, copartners trading as John Bromley & Sons, Philadelphia, Pa. Filed Dec. 26, 1901. Serial No. 87,881. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and described.

35,688. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, copartners trading as John Bromley & Sons, Philadelphia, Pa. Filed Dec. 31, 1901. Serial No. 87,972. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and described.

35,684. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, copartners trading as John Bromley & Sons, Philadelphia, Pa. Filed Dec. 26, 1901. Serial No. 87,882. Term of patent 3½ years.



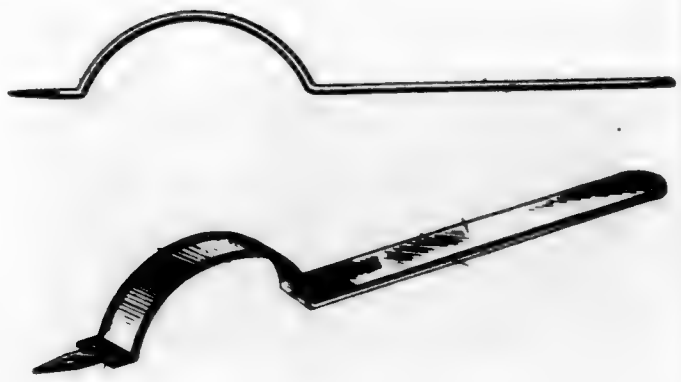
Claim.—The design for a rug substantially as shown and described.

35,685. CARPET. JOHN S. VREDENBURGH, Yonkers, N. Y., assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y., a Corporation of New York. Filed Dec. 24, 1901. Serial No. 87,133. Term of patent 3½ years.



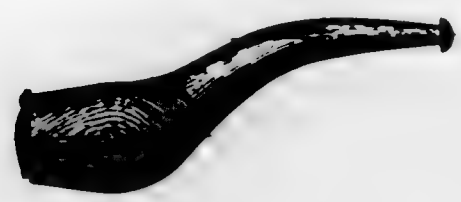
Claim.—The design for carpet, substantially as shown and described.

85,636. MELON AND PIE KNIFE. CHARLES H. HAHN, New Haven, Conn. Filed Dec. 18, 1901. Serial No. 86,599. Term of patent 7 years



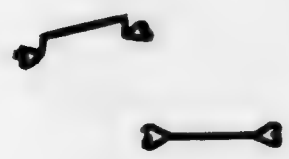
Claim.—The design for a melon and pie knife, as herein shown and described.

85,637. TOBACCO-PIPE. HENRY W. COMSTOCK, Boston, Mass. Filed Dec. 18, 1901. Serial No. 86,459. Term of patent 3½ years.



Claim.—The design for a tobacco-pipe as herein shown and described.

85,638. EYE FOR GARMENT-FASTENERS. THOMAS DE Q. RICHARDSON, Philadelphia, Pa., assignor to the De Long Hook and Eye Company, a Corporation of West Virginia. Filed Dec. 18, 1901. Serial No. 86,450. Term of patent 14 years.



Claim.—The design for an eye for a garment-fastener, substantially as shown and described.

85,639. EYE FOR GARMENT-FASTENERS. GEORGE H. CLIFF, Philadelphia, Pa., assignor to the De Long Hook and Eye Company, a Corporation of West Virginia. Filed Dec. 18, 1901. Serial No. 86,451. Term of patent 14 years.



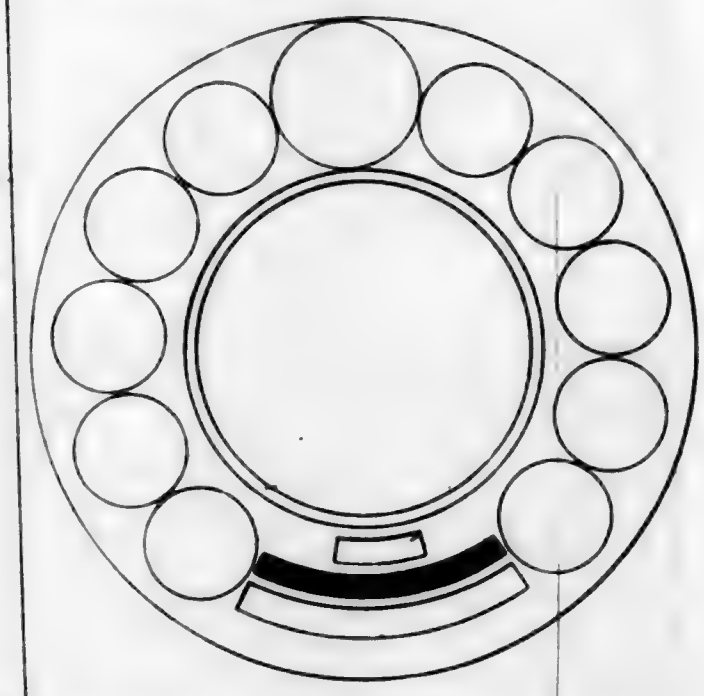
Claim.—The design for an eye for a garment-fastener, substantially as shown and described.

85,640. EYE FOR GARMENT-FASTENERS. FRANK H. DE LONG, Philadelphia, Pa., assignor to the De Long Hook and Eye Company, a Corporation of West Virginia. Filed Dec. 18, 1901. Serial No. 86,452. Term of patent 14 years.



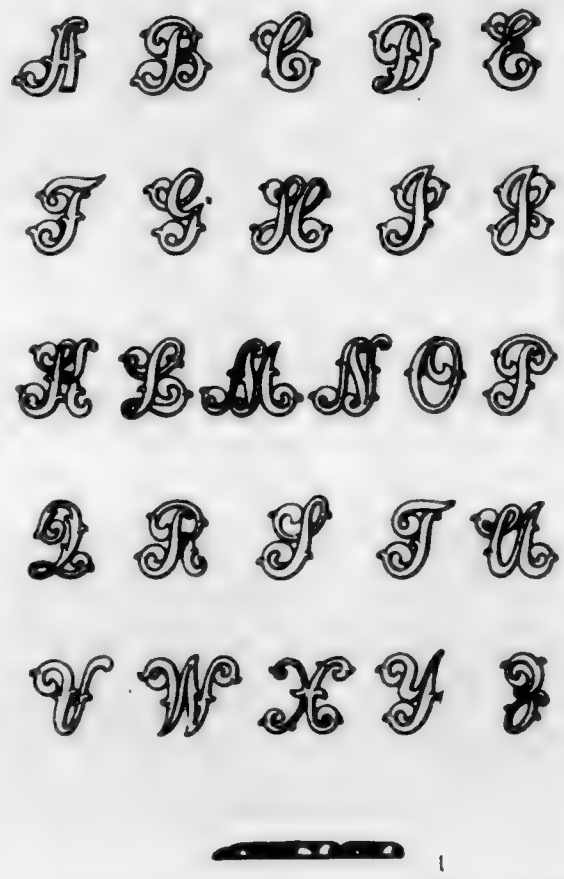
Claim.—The design for an eye for a garment-fastener, substantially as shown and described.

85,641. DIAL. ARON FRIEDMAN, Chicago, Ill. Filed Apr. 11, 1901. Serial No. 55,426. Term of patent 7 years.



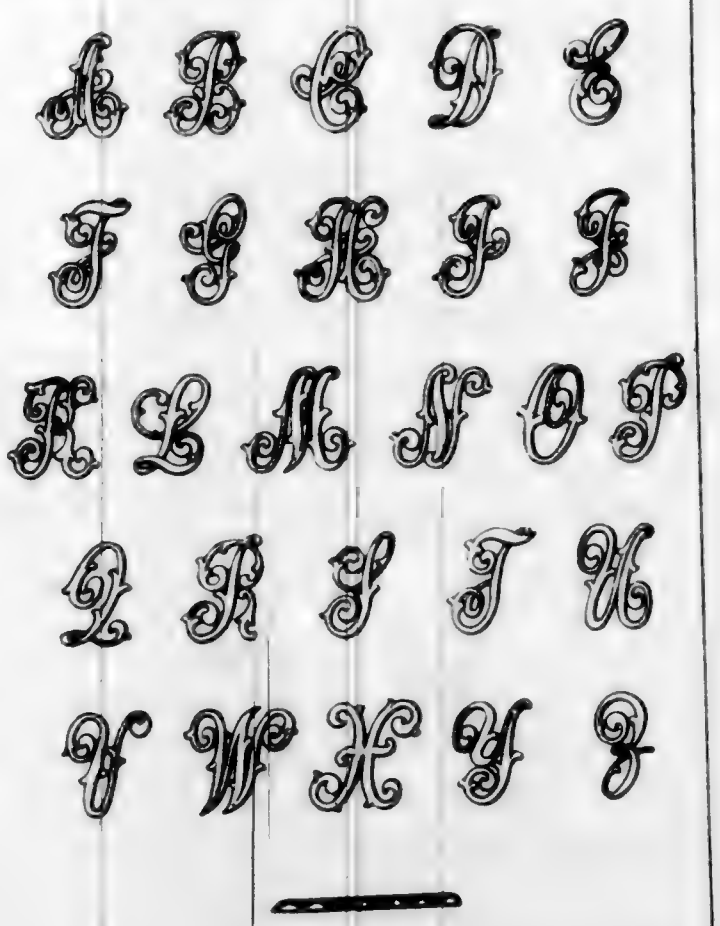
Claim.—The design for a dial, as herein shown and described.

85,642. ALPHABET. MARCUS T. GOLDSMITH, New York, N. Y. Filed Dec. 26, 1901. Serial No. 87,372. Term of patent 7 years.



Claim.—The design for the alphabet herein shown and described.

85,643. ALPHABET. MARCUS T. GOLDSMITH, New York, N. Y. Filed Dec. 26, 1901. Serial No. 87,373. Term of patent 7 years.



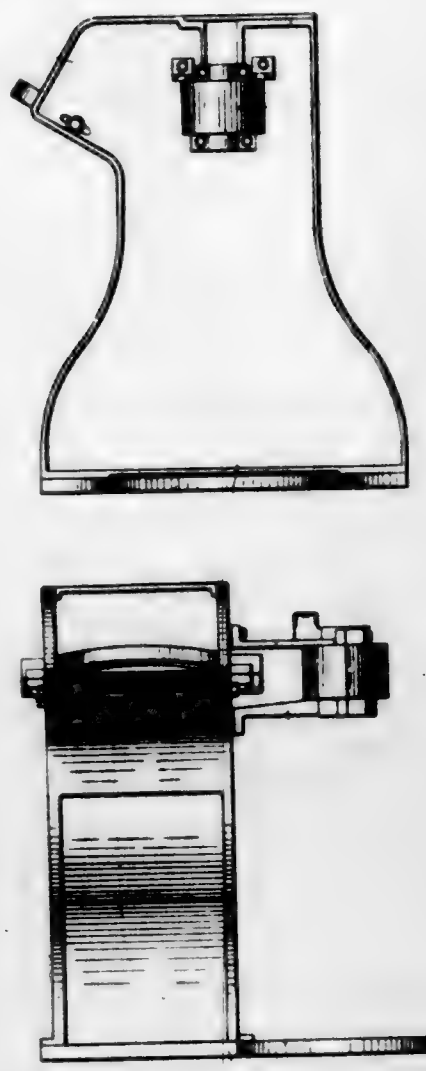
Claim.—The design for the alphabet herein shown and described.

85,644. ALPHABET. MARCUS T. GOLDSMITH, New York, N. Y. Filed Dec. 26, 1901. Serial No. 87,374. Term of patent 7 years.



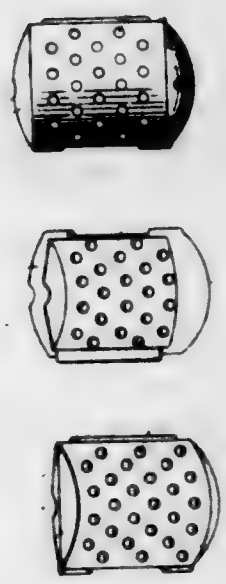
Claim.—The design for the alphabet herein shown and described.

85,645. SUPPORTING-FRAME FOR ICE-CUTTERS AND ICE-CREAM FREEZERS. CHRISTIAN A. CALLESON, New York, and MARTIN CALLESON, Brooklyn, N. Y. Filed Dec. 11, 1901. Serial No. 85,530. Term of patent 14 years.



Claim.—The design for a supporting-frame for an ice-cutter and ice-cream freezer, substantially as herein shown and described.

85,646. CYLINDER-COVER FOR FIREARMS. FREDERICK I. JOHNSON, Fitchburg, Mass., assignor to Mary Elizabeth Johnson, Fitchburg, Mass. Filed Sept. 20, 1900. Serial No. 30,632. Term of patent 14 years.



Claim.—The design for a cylinder-cover for revolving firearms, as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 28, 1902.

87,670. FOUNTAIN-PENS. THE PARKER PEN COMPANY, Janesville, Wis. Filed Dec. 19, 1901.

LUCKY CURVE

Essential feature.—The words "LUCKY CURVE." Used since January 1, 1896.

87,671. TYPE-WRITER RIBBONS, CARBON-PAPERS, STAMP-RIBBONS, AND TYPE-WRITER OIL. TYPEWRITER COMMON KEY CO. Newark, N. J. Filed Dec. 14, 1901.

THOROUGHBRED

Essential feature.—The word "THOROUGHBRED." Used since October 1, 1901.

87,672. DRESS-SILKS. THE NORFOLK SILK CO., Paterson N. J., and Norfolk, Va. Filed Dec. 16, 1901.

PEAU DE CREPE

Essential feature.—The words "PEAU DE CREPE." Used since January 18, 1901.

87,673. WATERPROOF CLOTHS, SILKS, AND OTHER TEXTILE FABRICS. INTERNATIONAL WATER-PROOFING CO., Chicago, Ill. Filed Dec. 23, 1901.

CIELETTE

Essential feature.—The word "CIELETTE." Used since November 1, 1901.

87,674. WOOLEN CLOTH KNOWN AS KERSEY. OSCAR HOFFSTADT, New York, N. Y. Filed Dec. 20, 1901.

K E

Essential feature.—The letters "K E." Used since March 26, 1901.

87,675. SHEETINGS. HERMANN HORDEN, New York, N. Y. Filed Nov. 26, 1901.



Essential feature.—The representation of a hussar in standing position in parade uniform, consisting of a plumed helmet, short sword, light trousers, double-breasted coat, decorated with epaulets and sash, cords, and tassels, braided straps, and a belt, the hussar carrying a gun over his right shoulder. Used since August 30, 1901.

87,676. SHEETINGS. WM. H. WISNER & Co., New York, N. Y. Filed Nov. 26, 1901.



Essential feature.—The representation of a Chinese courier on horseback in motion. Used since February 5, 1897.

87,677. SHEETINGS. WM. H. WISNER & CO., New York, N. Y. Filed Nov. 26, 1901.



Essential feature.—The combination of a woodland scene containing a stag gazing upward at a bat flying directly over it. Used since March 12, 1897.

87,678. SHEETINGS. WM. H. WISNER & Co., New York, N. Y. Filed Nov. 26, 1901.



Essential feature.—The representation of an eagle holding a snake in its beak and perched upon the top of a shield containing the letters "W. & Co." Used since March 29, 1897.

87,679. BOOTS, SHOES, AND SLIPPERS. HUB SOLE MAKERS' Boston, Mass. Filed Dec. 16, 1901.

HUNDRED DOLLAR

Essential feature.—The words "HUNDRED DOLLAR." Used since December 5, 1901.

87,680. CERTAIN NAMED FOOTWEAR. PARKER, HOLMES & Co., Boston, Mass. Filed Mar. 11, 1901.

Waukwell

Essential feature.—The word "WAUKWELL." Used since August 1, 1900.

87,681. BOOTS AND SHOES. B. ROSENBERG & SONS, New Orleans, La. Filed Dec. 14, 1901.

NO NAME

Essential feature.—The words "NO NAME." Used since July 1, 1901.

87,682. LEATHER. A. C. LAWRENCE LEATHER Co., Boston, Mass. Filed Dec. 18, 1901.

WEILDA

Essential feature.—The word "WEILDA." Used since December 1, 1900.

87,688. LEATHER. A. C. LAWRENCE LEATHER Co., Boston, Mass. Filed Dec. 18, 1901.

DURO

Essential feature.—The word "DURO." Used since December 1, 1899.

37,684. SHEET-MUSIC. HOWLEY, HAVILAND & DRESSER, New York, N. Y. Filed Dec. 30, 1901.

QUALITY STREET

Essential feature.—The words "QUALITY STREET." Used since November 1, 1901.

37,685. SUSPENSORY BANDAGES. THE WARE MFG. CO., Camden, N. J. Filed Dec. 18, 1901.

BICYCLE

Essential feature.—The word "BICYCLE." Used since January, 1883.

37,686. NECKBANDS AND TEETHING-BANDS. AMULET CHEMICAL COMPANY, New York, N. Y. Filed Dec. 14, 1901.

AMULET

Essential feature.—The word "AMULET." Used since August 1, 1901.

37,687. WITHDRAWN.

37,688. CHEWING-CANDY. PETER S. MARCOUX, Minneapolis, Minn. Filed Dec. 14, 1901.

LOVIT

Essential feature.—The word "LOVIT." Used since October 1, 1901.

37,689. CERTAIN PREPARED FOODS. MELLIN'S FOOD COMPANY OF NORTH AMERICA, Portland, Me., and Boston, Mass. Filed July 19, 1901.

G. Mellin

Essential feature.—The facsimile signature "G. MELLIN," the representation of a bird descending to a nest containing little birds, and the motto "ORA ET LABORA." Used since December 14, 1900.

37,690. BREAD, CAKES, PIES, AND CRACKERS. MCKINNEY BREAD CO., St. Louis, Mo. Filed Oct. 12, 1899.



Essential feature.—A three-quarter view pictorial representation of the bust of an elderly woman wearing a sunbonnet and glasses and holding in both hands a bread-pan, in which are located two loaves of bread, which appear to be stuck or adhered together. Used since September 1, 1899.

37,691. BAKING-POWDER. MONARCH MANUFACTURING CO., Savannah, Ga. Filed Dec. 14, 1901.

BATTLE AX



Essential feature.—The words "BATTLE AX" and the representation of a battle-ax held in the hand of a bare arm. Used since October 1, 1901.

37,692. STOVE-POLISH. JOHN F. MYERS, San Francisco, Cal. Filed Dec. 17, 1901.



BLACK SATIN

Essential feature.—The face and head of a negro boy and the words "BLACK SATIN." Used since March 9, 1899.

87,693. TOY BANKS. ADAM C. WILLIAMS, Ravenna, Ohio. Filed Dec. 21, 1901.

SKYSCRAPER

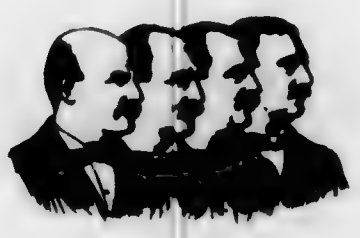
Essential feature.—The word "SKYSCRAPER." Used since January 1, 1900.

87,694. CLOCK MOVEMENTS AND CASES AND CHIME DEVICES. Rawe & Dorrie, New York, N. Y. Filed Dec. 19, 1901.

ELITE

Essential feature.—The word "ELITE." Used since December 30, 1898.

87,695. CERTAIN NAMED FURNITURE AND HOUSEHOLD GOODS. GOLDMAN BROTHERS, St. Louis, Mo. Filed Nov. 11, 1901.



Essential feature.—The portraits of the four brothers, Samuel, Louis, Morris, and Charles Goldman. Used since March 1, 1893.

87,696. COMBINED PEDESTAL, BOOK-RACK, AND MUSIC-CABINET. WILLIAM A. DEISERLINE, Aurora, Ind. Filed Dec. 18, 1901.

ROTA-COPIA

Essential feature.—The hyphenated word "ROTA-COPIA." Used since May 1, 1901.

87,697. DRY-PLATES EMPLOYED IN THE PHOTOGRAPHIC ART. HANNIBAL DRY PLATE CO., St. Louis, Mo. Filed Dec. 28, 1901.



Essential feature.—The representation of a hammer. Used since March 31, 1898.

87,698. KNOBS AND KNOB-SPINDLES. THE YALE & TOWNE MANUFACTURING COMPANY, Stamford and Branford, Conn.; New York, N. Y.; Boston, Mass.; Philadelphia, Pa.; Chicago, Ill., and San Francisco, Cal. Filed Dec. 19, 1901.

TRIPLEX

Essential feature.—The word "TRIPLEX." Used since 1891.

87,699. CHAIN-BLOCKS. THE YALE & TOWNE MANUFACTURING COMPANY, Stamford and Branford, Conn.; New York, N. Y.; Boston, Mass.; Philadelphia, Pa.; Chicago, Ill., and San Francisco, Cal. Filed Dec. 19, 1901.

TRIPLEX

Essential feature.—The word "TRIPLEX." Used since 1890.

87,700. ELECTRIC-CURRENT REGULATORS AND CONTROLLERS. RAIN EXPLORATION COMPANY, New York, N. Y. Filed Dec. 17, 1901.

RHEOCRAT

Essential feature.—The word "RHEOCRAT." Used since September 17, 1900.

87,701. STEAM-PUMPS. JULIA E. CARRERO, New York, N. Y. Filed July 30, 1901.



Essential feature.—The conventionalized figure of an acorn. Used since 1865.

87,702. EYEGLASSES AND PARTS THEREOF. E. KIRSTEIN SONS CO., Rochester, N. Y. Filed Dec. 26, 1901.

Shur-On

Essential feature.—The compound word "SHUR-ON." Used since August, 1900.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON D.C.

LABELS

REGISTERED JANUARY 28, 1902.

8,919.—*Title:* "EAGLE SHOES." (For Shoes.) EDWARD PERLBERG, Jersey City, N. J. Filed October 12, 1901.

8,920.—*Title:* "VICTOR SILK." (For Silk.) H. A. MELDRUM COMPANY, Buffalo, N. Y. Filed December 30, 1901.

8,921.—*Title:* "CANNON BALL." (For Cigars.) THOMAS A. ROBINSON, North Baltimore, Ohio. Filed November 11, 1901.

8,922.—*Title:* "SHELDON'S CRITERION." (For Cigars.) RALPH SHELDON, Baldwinsville, N. Y. Filed December 18, 1901.

8,923.—*Title:* "YANKEE FLYER." (For Cigars.) UPMANN & WILCOX, Chicago, Ill. Filed December 30, 1901.

8,924.—*Title:* "KOL-SAVER." (For a Chemical Compound.) ARTHUR G. HULBERT, Chicago, Ill. Filed December 30, 1901.

8,925.—*Title:* "THE ETENHEIM SAUCE." (For a Sauce.) LOUISE DEE SMITH, New York, N. Y. Filed January 2, 1902.

8,926.—*Title:* "RINCON HEIGHTS VIRGIN OLIVE OIL." (For Olive-Oil.) GUY E. GROSSE, Santa Rosa, Cal. Filed December 30, 1901.

8,927.—*Title:* "PER-FO." (For a Food Preparation.) THE REAL FOOD CO., LTD., Battlecreek, Mich. Filed January 2, 1902.

8,928.—*Title:* "CANBY ACH AND CANBY'S PEERLESS ONE SPOON BAKING POWDER." (For Baking-Powder.) THE NATIONAL LABEL CO., Cincinnati, Ohio. Filed January 8, 1902.

8,929.—*Title:* "THE PROPHET." (For Cigars.) E. J. COOK, Sterling, Ill. Filed January 6, 1902.

8,930.—*Title:* "SCARE CROW." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed January 7, 1902.

8,931.—*Title:* "JUDGE WILSON." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed January 7, 1902.

8,932.—*Title:* "PURITAN." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed January 7, 1902.

8,933.—*Title:* "TRUESTOCK." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed January 7, 1902.

8,934.—*Title:* "ADEVA." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed January 7, 1902.

8,935.—*Title:* "DR. WESTMAL'S COLDOIDS." (For a Medicine.) WESTERN PHARMACAL COMPANY, Omaha, Nebr. Filed January 6, 1902.

8,936.—*Title:* "WHITE CROSS." (For Vaccination-Shields.) HERMAN HEINEMAN, New York, N. Y. Filed December 28, 1901.

8,937.—*Title:* "CHAMPION STOCK FOOD." (For Stock-Food.) WILLIAM L. HANDLEY, Lowell, Ind. Filed January 6, 1902.

PRINTS

REGISTERED JANUARY 28, 1902.

456.—*Title:* "GAYOSO BRAND." (For Cotton-Seed Oil and Cotton-Seed Meal.) GAYOSO OIL WORKS, Memphis, Tenn. Filed November 29, 1901.

457.—*Title:* "DOUGHERTY'S STERILIZED HAIR MATTRESSES." (For Mattresses.) H. L. DOUGHERTY & CO., Philadelphia, Pa. Filed December 30, 1901.

458.—*Title:* "SOLID STEEL." (For Steel Soda-Water Tanks.) ROBT. M. GREEN & SONS, Philadelphia, Pa. Filed December 17, 1901.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BLAKEMAN.

Decided November 30, 1901.

1. FORMAL OBJECTIONS—PRACTICE—FIRST OFFICE ACTION.

Formal objections to a case should be made in the first Office letter; but the fact that they are not so made is no good reason for allowing a patent containing formal defects which are subsequently discovered.

2. LAUDATORY STATEMENTS IN SPECIFICATION.

Statements in the specification which are merely laudatory of the applicant's invention should be canceled.

3. DESCRIPTION—REFERENCE TO PRIOR INVENTIONS.

A statement in the specification that no one else has been able to accomplish a certain result is not necessary to a disclosure of the applicant's invention and should be canceled.

4. SAME—EXAMPLES OF THE INVENTION—SPECIFICATION PROLIX.

Where a long statement is made at the end of the specification giving numerous examples which it is alleged come within the invented process, *Held* that such statement is unnecessary, renders the specification prolix, and should be canceled.

ON petition.

PROCESS OF IMPARTING DRYING AND INDURATING PROPERTIES TO FATTY OILS.

Application of William N. Blakeman, Jr., filed January 2, 1900, No. 59.

Mr. Francis P. Reilly for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring the cancellation of certain descriptive matter in the specification.

This requirement was not made by the Examiner in his first letter after the description was presented, as provided in the rules, but was made for the first time after the case had otherwise been prosecuted to an allowance. While the applicant naturally feels aggrieved at this, it must be recognized that the fact that this Office fails to discover formal defects upon the first consideration of a case is no good reason for allowing a patent containing them when they are discovered.

The Examiner objects to the following statement in the specification as too broad:

Many attempts have been made to impart drying properties to the "non-drying" fatty oils in combination with pigments, but, up to the present time, all such attempts have failed and these oils are still unsuitable for use for many purposes.

The Examiner takes the position that "non-drying" oils had been successfully used in the way stated before this invention; but the only authority cited in support of his contention is a paper read by a chemist after the date of this application. It would seem to be impossible to determine the correctness of this statement without considering the merits of the case and the prior art, and such matters cannot be inquired into upon a petition of this kind. The statement, however, whether correct or not, is not necessary to a full disclosure of the invention, and its omission would not affect the fact or limit the claims beyond the real invention which this applicant has made. It is not necessary to state what others have failed to do, but merely what this applicant has done. If the invention is a pioneer, as claimed, it will receive a liberal construction because of that fact, whether or not a statement to that effect is included in the specification. It is held that the above-quoted statement should be modified or omitted.

The Examiner also objects to the following statement as incorrect:

The drying of oil combined with a pigment, when spread as a paint, is owing to three actions, namely, an increase of surface area exposed, the formation of a metallic soap or saponaceous compound, and the absorption of oxygen.

The Examiner's position, as understood, is that the three actions are in reality one, because they all take place simultaneously. Whether this is true or not it is believed that there is no inaccuracy in referring to them as three actions, and therefore the objection to this statement should not be insisted upon.

The Examiner has required the cancellation of all that part of the specification between line 3, page 6, and line 6, page 8. The first part of this consists of the statement that the applicant does not confine himself to any fixed proportions of ingredients and of numerous examples illustrating the ingredients and proportions which may be used in carrying out the invention. This statement and the examples placed at the end of the description are entirely unnecessary and merely render the specification prolix. There must be some limits to the proportions which may be used in the invention; but the description of the invention itself is the place in which it should be made plain that no one fixed proportion is necessary. The statement and examples objected to should be canceled.

The statement on page 7, between lines 5 and 17, consists of a description of the driers which the applicant uses and is believed to be a proper and essential part of the description of the invention. It should be retained in the application, and the Examiner's objection to it is not well taken.

The balance of the matter in regard to which objection has been made consists merely of laudatory statements in regard to the applicant's invention. It should be canceled.

To the extent indicated the petition is granted.

BOWDITCH *v.* TODD.

Decided December 30, 1901.

1. INTERFERENCE—RIGHT TO MAKE THE CLAIM.

Where the claim of the issue includes "compensating devices" as a separate and independent feature from the other elements of the combination and one party discloses no such independent devices, *Held* that he has no right to make the claim.

2. SAME—INOPERATIVENESS OF DEVICE—TESTIMONY.

The objection of inoperativeness is one which should not be insisted upon except in a clear case, particularly where the application is involved in an interference in which the matter may be fully investigated and in which testimony may be produced throwing light upon the subject.

3. SAME—SAME—PRACTICE IN CASE OF DOUBT.

Where in an interference it is alleged that it is theoretically impossible to make the device of one of the parties operate and he produces a model which is operative, but which is not a complete machine, *Held* that there is sufficient doubt in the matter to permit the interference to proceed to the taking of testimony.

APPEAL on motion.

COTTON-HARVESTER.

Application of Nathaniel Bowditch filed March 31, 1900, No. 10,870. Application of George N. Todd filed September 14, 1899, No. 730,468.

Messrs. Parker & Carter for Bowditch.

Mr. James P. Clark and *Mr. E. A. Dick* for Todd.

ALLEN, *Commissioner:*

This is an appeal by Todd from the decision of the Examiners-in-Chief affirming the decision of the Primary Examiner rendered upon a motion to dissolve, holding, first, that Todd has no right to make the claim of count 1, since his application does not disclose "compensating devices for keeping the pickers in proper position with relation to the guides," and, second, that Todd has no right to make any of the claims, since his device is wholly inoperative.

The decision as to the first of these questions is correct. In Todd's device the pickers in combination with the sockets in which they fit are relied upon to maintain the pickers in proper position, whereas Bowditch has additional mechanism, referred to as "compensating devices," for keeping his pickers in proper position. Count 1 clearly has reference to this additional mechanism which Todd does not show.

The question as to the operativeness of Todd's device is not easy of determination. The Examiner has in his decision discussed the structure and its probable result in operation very fully and has pointed out what he regards as fatal defects in principle which, in his opinion, would prevent a practical and successful use of the machine. The Examiner's opinion, however, seems to have been based, in part at least, upon a model filed by Todd, which he refers to as a "dummy." That model had straight smooth spindles and not the flat spiral spindles which seem to be necessary for practical use, and although that model seems to have operated the Examiner was of the opinion that one with the flat spiral spindles would not operate. When this case was pending upon appeal, Todd filed a model containing the flat spiral spindles and demonstrated the fact that it would operate. This model is not full-sized and is not a complete machine and is therefore not satisfactory proof that a machine would work practically; but it is sufficient to leave the matter in doubt. It embodies the parts of the machine upon which the contention of inoperativeness is based, and its operation is sufficient to overcome the theoretical argument that it is impossible to make a machine in accordance with the disclosure which will work.

The objection of inoperativeness is one which should not be insisted upon except in a clear case, particularly where the application is involved in an interference in which the matter may be fully investigated and in which testimony may be produced throwing light upon the subject. This Office has no means of its own for investigating the question of operativeness and in case of doubt should leave the matter to be determined after testimony is taken in the interference.

It is not intended by this decision to hold finally that Todd's device is operative, but merely that there is sufficient doubt in the matter to warrant a continuance of the interference.

The decision of the Examiners-in-Chief is affirmed as to Todd's right to make the claim of count 1 and is reversed in the matter of the operativeness of his device as a whole.

EX PARTE ROBINSON.

Decided January 17, 1902.

SUSPENSION OF INTERFERENCE—SUGGESTION OF CLAIMS—SECOND INTERFERENCE.

Where two parties are involved in an interference and one of them files a second application containing allowable claims which the other party could make and it appears that the decision in the interference cannot settle the question of priority as to those claims, *Held* that the jurisdiction of the Primary Examiner will be restored to suggest the claims to the second party without suspending the interference.

ON petition.

VEHICLE-BRAKE AND COASTER FOR CYCLES, ETC.

Application of William Robinson filed June 25, 1901, No. 65,913.

Mr. Robinson pro se.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner suspending action in the above-entitled case to await the outcome of a certain interference.

It appears from the record that the petitioner is a party to an interference in the case of *Robinson* v. *Copeland* and that his application involved in this interference is for the same subject-matter as that now under consideration. The present application contains claims covering the same matter as the issue of the interference somewhat more generically and are of such character that they may

be made by the other party to said interference. In the interference testimony has been taken by both parties, and a day for final hearing has been set. Under these circumstances a request by the Primary Examiner for jurisdiction, in order that he might suggest the claims of the present application to the party Copeland, was denied December 6, 1901, for the reason that the question as to who should have these claims might be settled by the decision in the pending interference. It appears, however, upon oral statement by the Examiner that this question cannot be so settled, but that a new interference will be necessary for this purpose should Copeland choose to make the claims. Under these circumstances it appears that there will be less delay if the claims are suggested to Copeland without awaiting the outcome of the present interference. Should he choose to make them, a new interference will be declared with these claims as the issue thereof, allowing the present interference to proceed to final hearing and decision.

An order will be issued, therefore, that the Examiner assume jurisdiction of Copeland's application now involved in the interference *Robinson* v. *Copeland* for the purpose of suggesting to Copeland such of the claims in Robinson's present application as may properly be made therein.

To the extent above indicated the petition is granted.

SARFERT *v.* MEYER.

Decided November 23, 1901.

1. INTERFERENCE—SUSPENDING PROCEEDINGS—PUBLIC USE—STATUTORY BAR TO GRANT OF PATENT.

Where it appears that a *prima facie* case of public use is made out, which if substantiated would prevent a grant of a patent to Meyer, *Held* that as Sarfert is a patentee and as no testimony has been taken by either party the interference should be suspended and the statutory bar determined. (*Sanford Mills* v. *Aveyard*, 88 O. G., 385.)

2. SAME—SAME—SAME—SAME.

Where the interference is between pending applications, the institution of public-use proceedings prior to the final determination of priority is uniformly refused, for the reason that if the bar of public use or sale be established against one of the parties it might leave the road clear to the grant of a patent to the other, who perhaps might not be the prior inventor as against the debarred applicant. (*Chinnock* v. *Edison* v. *Wheeler*, 46 MS. Dec., 398.)

3. SAME—SAME—SAME—SAME.

Public-use proceedings will not ordinarily be instituted prior to the final determination of priority in cases where the allegation of public use was based upon facts which appear by means of admissions or statements made in the testimony which has been taken by either party during the interference proceedings.

4. SAME—SAME—SAME—SAME.

Where one of the parties to an interference is a patentee and the other is an applicant, it is for the Office to determine whether or not said applicant is legally entitled to the grant of a patent. This being the sole question for determination, it is incumbent upon the Office to decide, in view of all the facts, what procedure is the best to pursue in the interest of all parties concerned.

5. SAME—SAME—SAME—SAME.

The delay incident to establishing public-use proceedings before the final determination of the question of priority is an important consideration. Where it appears, however, that no testimony has been taken and that a suit for infringement of the patent which is involved in the interference is pending, the question of delay is not an important one, because testimony showing priority of invention can be taken in the pending suit and this testimony can be used in the interference proceedings.

6. PUBLIC USE—STATEMENTS IN TESTIMONY MERELY SHOW PRIMA FACIE CASE—NOT ESTOPPED FROM SHOWING WHAT ACTUAL FACTS MAY BE.

Where it appears from the testimony of Meyer taken in a prior interference that the invention here involved has been in public use, *Held* that said testimony is only sufficient to establish a *prima facie* case and that Meyer is not estopped by reason of this sworn testimony from showing what the actual facts may be. (*Mead* v. *Brown*, C. D., 1899, 173; *Howard* v *Hey*, C. D., 1899, 8.)

7. CONTINUOUS PROCEEDING—WHAT ACTION NECESSARY—SECTION 4894.

For two applications to be continuations of each other such as to warrant the second application in having the benefit of the first date the proceeding relating to the two must be in fact continuous. The proceedings on the two must be merged into a single proceeding. There must be a connection between the two which is warranted by law. (Section 4894.)

8. PATENT GRANTED JANUARY 16, 1900—APPLICATION FILED FEBRUARY 9, 1901—NOT A CONTINUOUS PROCEEDING UNDER SECTION 4894.

Where it appears that a patent to Meyer was granted on January 16, 1900, and that it disclosed an invention which constituted the subject-matter of an application filed February 9, 1901, *Held* that the application filed February 9, 1901, was not a continuation of the application on which the patent was granted, but must stand by itself and upon its own merits.

9. SAME—SAME—SAME.

The last action by the Office on the parent application was the date upon which the patent granted thereon was signed, sealed, and delivered—viz., January 16, 1900. The next action by applicant was the filing of the present application on February 9, 1901, more than one year after January 16, 1900. The actions are not such as to make of the "whole one continuous proceeding" such as defined in section 4894. A period of more than one year elapsed between successive actions.

10. PUBLIC-USE PROCEEDINGS.

Protestants having made out a *prima facie* case against the grant of a patent to Meyer, formal proceedings to establish legally the alleged facts set forth by protestants will be instituted upon certain conditions to be complied with.

ON protest.

PROCESS OF TREATING HOSIERY.

Patent granted Max Sarfert January 29, 1901, No. 667,142. Application of Robert Meyer filed February 9, 1901, No. 46,712.

Messrs. Wiedersheim & Fairbanks for Sarfert.
Mr. Percy B. Hills for Meyer.

MOORE, *Assistant Commissioner:*

The Sarfert Company, a corporation of New Jersey, filed on October 23, 1901, a protest against the grant of a patent based upon the application of Robert Meyer, one of the parties to the above-entitled interference, on the ground that the statutory bar of two years' public use and sale exists against said grant.

This protest sets forth certain facts and is in the form of an affidavit duly verified by E. Hayward Fairbanks, vice-president of said Sarfert Company.

The application of Robert Meyer referred to in the protest is the one involved in the above-entitled interference.

The Sarfert Company is the owner of the patent to Max Sarfert, also involved in the above-entitled interference.

This interference was declared on March 20, 1901. The preliminary statements of both parties were filed and approved before the filing of this protest. No testimony has been taken by either party.

In the protest paper referred to above is the following allegation:

That prior to the declaration of said interference proceedings, namely, March 6, 1901, this protestant brought suit by bill in equity, in the United States Circuit Court for the Eastern District of Pennsylvania, against the Franklinville Dye Works Company, Limited, Robert Meyer, (the said applicant,) William C. Foulds and Robert Blood, said Robert Meyer being the chairman of the said Franklinville Dye Works Company, Limited, for infringement of said Sarfert patent No. 667,143, and the answer filed in said suit on behalf of said Robert Meyer, *et al.*, sets forth the fact of the filing of the application for patent by said Robert Meyer for the same invention as that of the said Sarfert patent, citing that an interference had been declared between said application and the said Sarfert patent.

It is not the general practice of this Office to suspend interference proceedings and institute public-use proceedings. This action is only taken in exceptional cases. Where the interference is between pending applications, the institution of public-use proceedings prior to the final determination of priority is uniformly refused, for the reason that if the bar of public use or sale be established against one of the parties it might leave the road clear to the grant of a patent to the other, who perhaps might not be the prior inventor as against the debarred applicant. (*Chinnock* v. *Edison* v. *Wheeler*, 46 MS. Dec., 398.)

It has been uniformly held that public-use proceedings would not ordinarily be instituted prior to the final determination of priority in cases where the allegation of public use was based upon facts which appear by means of admissions or statements made in the testimony which has been taken by either party during the interference proceedings. In such cases it is considered that it is to the interest of the public, the Office, and the applicants themselves to first proceed to the final determination of the question of priority of invention.

In the case now under consideration one of the parties is a patentee. The other party being an applicant, it is for the Office to determine whether or not said applicant is legally entitled to the grant of a patent. This being the sole question for determination, it is incumbent upon the Office to decide, in view of all the facts, what procedure is the best to pursue in the interest of all the parties concerned.

The delay incident to establishing public-use proceedings before the final determination of the question of priority is an important consideration, and this question of delay has had much weight in the establishment of the general practice in such cases. Where it appears, however, that no testimony has been taken and that a suit for infringement of the patent which is involved in the interference is pending and one of the defenses set up in said suit is that an interference has been declared in the Patent Office involving said patent, the question of delay is not an important one, because testimony showing priority of invention can be taken in the pending suit, and this testimony can be used in the interference proceedings.

In this case, as in the case of *Sanford Mills* v. *Aveyard*, (88 O. G., 885,) the facts and conditions are such that it is believed to be to the interest of the public, of both of the parties involved, and of this Office that this interference be suspended at this time and public-use proceedings now instituted, provided that a *prima facie* case of public use is made out against the grant of the patent to the applicant and provided, further, that the protestant will file a stipulation that all testimony relating to the question of priority of invention as between Sarfert and Meyer which may be taken in the suit now pending may be filed and received in the interference, should it be necessary to proceed with the same, and that it will have the same force as though such testimony were taken in the interference. (*Sanford Mills* v. *Aveyard*, *supra*.)

It appears that a patent, No. 641,528, was granted to Robert Meyer on January 16, 1900, for an apparatus for singeing hosiery. This patent is involved in an interference, No. 20,509, with an application filed by Max Sarfert. The fact is not disputed that the present issues, involving, as they do, a process of treating hosiery, are fully disclosed in said patent to Meyer. This fact is clearly evident from an examination of said patent. It is also evident that this process can be performed without the use of the machine disclosed in the Meyer patent; but notwithstanding this the fact is not changed that the process is performed by means of the operation of the patented machine.

Testimony has been taken in the interference No. 20,509, in which the patent to Meyer, No. 641,528, is involved, and the case has been heard and a decision has been rendered by the Examiner of Interferences. This testimony is a part of the records of this Office. In the direct testimony Robert Meyer, one of the parties to this interference, in answer to Question 4 states that he performed the process several times between January, 1897, and June, 1898. Meyer then goes on to say:

I then did nothing more with the process, owing to the lack of demand and the fact that I could not get city gas into my factory, the supply-pipes for which were only laid as far as Butler street. I, however, used every effort to get in gas into my factory, and succeeded in doing so in June, 1898. In April or May, 1898, I got inquiries for lisle finish, and explained my idea of a machine to Paul Berger, my engineer, William Heller, Julius Mueller, a man whom I have working around my place, as well as to my business associates, Mr. Foulds, and others.

Mueller made a couple of wooden rollers for me, and with the aid of a starch-box, to which these rollers were fastened, we did our singeing; that is to say, over this arrangement the stockings were passed and I got out my samples. I did the singeing with candles, alcohol and an oil lamp. The manner in which I operated it is as follows: The starch-box was without the lid or cover; on each end of the box, near the top, was one wooden roller. In the bottom we placed the candles, alcohol or oil lamp, the three things with which I did my singeing before I got in gas, and in this manner passed the stockings over the flame. As soon as I got in gas I had a couple of burners made for me and used them instead of candles, alcohol and oil lamp. I, however, used hand-power for the purpose of working this experimental machine. As I got quite a number of orders for lisle finish, I instructed Mueller to build a machine which could be run by power, and he did so. This machine was finished before the gas was put in, or about that time. The first machine had two double burners, rollers and brushes; the brushes rotated in the same direction and were used for the purpose of brushing the burned nap. As the work increased new machines were built; the second one had three double burners and the necessary brushes and rollers.

In the summer of 1898 I shipped one of my machines to Chas. Chipman's Sons, Easton, Pa., and one to the Union Manufacturing Co., Frederick, Md.

* * * * * * *

Q. 35. You have stated that you instructed Mueller to build a machine which could be run by power, and he did so. Please state as nearly as you can the time when that machine was finished.

A. It was in the middle part of June, or last part of June, 1898.

* * * * * * *

Q. 45. Can you recall about when it was first completed and run?
A. It was the middle of June, or the latter part of June; it might be the 20th, or from the 20th to the 25th, I don't know exactly. June, 1898.
Q. 46. Where was this machine first run?
A. We had it right here in the shed near my house, it used to be the old wooden shed there.

From this sworn testimony of Meyer it appears that not only was the process performed, but the articles were made and machines were built in the year 1898. These articles were made because there was a demand for them. Meyer got orders for them. Not only was a machine built and operated by Meyer, so that these orders might be filled, but two more machines were built and shipped to other companies. All this appears from Meyer's answer to Question 4.

In view of the above-quoted testimony it must be held that a *prima facie* case of public use of the invention defined in the present issues has been established. This testimony, however, is only sufficient to establish a *prima facie* case.

As was held in *Mead* v. *Brown* (C. D., 1889, 173) and in *Howard* v. *Hey*, (C. D., 1899, 8,) Meyer is not estopped by reason of this sworn testimony from showing what the actual facts may be. Even though the actual facts are shown to correspond with the testimony of Meyer and the use by him of the invention defined in the issues is shown to constitute public use as contemplated by the statutes and decisions defining the same, said public use would not be a bar to the grant of a patent to Meyer on his application involved in this interference unless the same dates "more than two years prior to his application." (Section 4886 of the Revised Statutes.)

In order to determine whether a *prima facie* case of two years' public use has been made out such as to constitute a statutory bar to the grant of a patent to Meyer on the application here involved, it is necessary to determine whether the date of filing of the said Meyer application is that of February 9, 1901, the date on which it was actually filed, or that of December 28, 1899, the date on which the application was filed on which his patent No. 641,528, which discloses the present invention, was granted.

In Meyer's application, No. 46,712, filed February 9, 1901, which is involved in this interference, is the following statement:

In Letters Patent of the United States No. 641,528, granted to me January 16, 1900, of which this is a division, the present invention is fully disclosed therein. * * *

This statement merely calls attention to an alleged fact. The question whether or not the application is in legal effect a division of the application on which the patent to Meyer was granted is purely an *ex parte* one, as stated by me in the decision rendered in this case October 4, 1901. (72 MS. Dec., 42.)

In considering the question of the statutory bar of public use alleged in the protest filed it is deemed best to express my opinion at this time on this *ex parte* question. This becomes necessary in order to determine whether or not a *prima facie* case of public use has been made out. The mere fact that the parties at interest are now involved in an interference is not a sufficient reason for refusing to take up and consider this *ex parte* question now. If not considered now, a consideration of the same question would be necessary in the event that the protest was renewed after the final determination of priority.

Having decided that it would be for the best interests of all concerned that this interference proceeding be suspended in order that public-use proceedings be instituted in the event that a *prima facie* case of public use be made out, it is absolutely necessary in order to determine that question to express an opinion as to which of the two dates is the legal date of filing of the Meyer application. If it be determined that the application must rest on its own actual date of filing, it follows that a *prima facie* case of public use has been made out. If, on the other hand, it be determined that this application is in legal effect a division or a continuation of the application on which the patent to Meyer was granted, Meyer is entitled to the filing date of the application which resulted in the patent, and this would effectually dispose of the question of public use.

The patent, No. 641,528, to Meyer was granted January 16, 1900. This application here involved was filed by Meyer February 9, 1901. It is therefore seen that Meyer allowed a period of more than one year to elapse from the date on which the patent granted on the alleged parent application was signed, sealed, and delivered to the date on which the second application was filed.

I have been unable to find and the counsel for Meyer and for Sarfert have not referred me to any case in which the precise question here presented has been considered.

There is no direct provision of the statutes relating to divisional applications; neither do the statutes define what are or what are not continuous applications.

The filing of divisional applications is permitted by the rules of this Office as not inconsistent with the law. It is also held not to be inconsistent with the law to regard a subsequent application to be continuous with, or, in other words, a continuation of, a prior application, and thereby take the date of the prior application when the two applications are so connected by continuity of action as to be in fact one continuous proceeding.

In order, then, for a subsequent application to be a continuation of a prior application and thereby relate back to the same for its date of filing, whether the two are divisional or not, it is incumbent upon the applicant to proceed with the filing of the second application in accordance with the law.

By neglecting to file the second application for a period of time after the grant of the first beyond that allowed by the statute for the prosecution of an application an applicant cannot gain benefit which he would not be entitled to if he had filed his application in due season and failed to prosecute the same within the statutory period of one year allowed by section 4894.

That section provides that—

Sec. 4894. All applications for patents shall be completed and prepared for examination within one year after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within one year after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable.

For two applications to be continuations of each other, such as to warrant the second application in having the benefit of the first date, the proceedings relating to the two must be in fact continuous. The proceedings on the two must be merged into a single proceeding. There must be a connection between the two which is warranted by the law.

Now section 4894 provides that—

upon failure of the applicant to prosecute [an application] within one year after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable.

The last action on the parent application was the date upon which the patent granted thereon was signed, sealed, and delivered—namely, January 16, 1900. The next action by the applicant was the filing of the present application, No. 46,712, here involved on February 9, 1901, more than one year after January 16, 1900. There is no doubt of Meyer's right to file his application for a process on February 9, 1901, and obtain a patent thereon, provided all the legal requirements are met and no statutory bar is present; but this application must stand by itself and date from February 9, 1901. It is not a continuous proceeding under section 4894. A period of more than one year has elapsed between successive actions.

The same principle applies to the consideration of the cases of *Hien* v. *Pungs* (68 O. G., 657) and *Carty* v. *Kellogg*, (73 O. G., 285,) in both of which cases it was held that an application filed after its parent application had become abandoned for failure to prosecute must stand on its own footing and could not be considered a continuous application and thereby be given the benefit of the date of filing of the first application.

This is reasonable and it is good law.

Counsel for Meyer contends that if the second application was filed the day before the grant of the patent—namely, January 15, 1900—the second application would be considered to be a continuation of the first and have the benefit of its date. He therefore asks why it would not also be a continuation if filed thirteen months after the grant of the patent on the first application. This question may be answered by the question: What date would the applicant be entitled to if after the filing of the application the day before the grant of the patent no further action were taken by him for thirteen months, when a new application was filed? Clearly the second application would have become abandoned for failure to prosecute, under section 4894, one year after its date of filing, and the new case, filed after the date of abandonment, would stand alone and would not have the benefit of the filing date of the parent application, for the reason that the actions are not continuous.

The same principle of law based on another section of the statutes (4897) is stated by the court of appeals in *Cain* v. *Park*, (86 O. G., 797.) In this case the court was considering the date to be given to an application for the renewal of an application that had been forfeited by failure to pay the final fee within six months from the date of allowance. In this decision it was held that the renewal application having been filed in accordance with the provision of the statute it took the date on which it was originally filed, for the reason that the filing of the renewal within the time allowed by the statute made of the "whole one continuous proceeding."

With respect to the effect of filing the second application after the expiration of the two years allowed by the statute they said:

Section 4897, it may be remarked, places a limitation upon the time within which the inventor or his assignee is permitted to file this renewal application and adds thereto also that upon its hearing abandonment shall be considered as a question of fact. After the two years shall have expired the inventor only can file a new application, which, however, must then stand by itself and upon its own merits.

It is held that the application of Robert Meyer, No. 46,712, filed February 9, 1901, for a patent on a process of treating tubular knitted fabrics must stand by itself and upon its own merits, and consequently that a *prima facie* case of public use has been made out against the grant of a patent on said application.

In view of this holding the interference will be suspended, and, as in *Sanford Mills* v. *Aveyard*, *supra*—

* * * formal proceedings to establish legally the alleged facts set forth in the protest and affidavits accompanying it will be instituted upon receiving within ten days notice of protestant's willingness to produce witnesses and bear the expense incident to the taking of their testimony, including the expenses of the officer before whom the testimony is to be taken and the expenses of an officer detailed from this Office to conduct and supervise the proceedings and the cost of printing the record, if it be deemed expedient to have the same printed.

The protestant must also file within the time named a stipulation that a copy, certified if required, of all testimony relative to the question of priority of invention as between Sarfert and Meyer which may be taken in the suit hereinbefore referred to may be filed in the interference now pending between Sarfert and Meyer and be received and have the same force as though such testimony were taken in the interference.

Patents Nos. 692,223 to 692,810.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Designs	56—No.	35,647 to No. 35,702,	inclusive.
Trade-Marks	67—No.	37,703 to No. 37,769,	inclusive.
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Total issue	731		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	2	----	Nevada	1	----
Arizona Territory	----	----	New Hampshire	5	----
Arkansas	1	----	New Jersey	22	6
California	23	5	New Mexico Territ'y	----	----
Colorado	7	1	New York	88	18
Connecticut	16	----	North Carolina	----	----
Delaware	1	----	North Dakota	1	----
District of Columbia	7	----	Ohio	41	8
Florida	----	----	Oklahoma Territ'y	2	----
Georgia	6	1	Oregon	4	----
Hawaii Territory	----	----	Pennsylvania	64	2
Idaho	----	----	Porto Rico	----	----
Illinois	60	8	Rhode Island	7	----
Indian Territory	----	----	South Carolina	----	----
Indiana	9	----	South Dakota	----	----
Iowa	15	3	Tennessee	3	----
Kansas	9	----	Texas	5	3
Kentucky	9	----	Utah	----	----
Louisiana	6	----	Vermont	2	----
Maine	3	1	Virginia	3	----
Maryland	4	----	Washington	3	----
Massachusetts	20	5	West Virginia	2	----
Michigan	20	1	Wisconsin	16	2
Minnesota	10	1	Wyoming	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	21	----			
Montana	2	----	Total to citizens of the United States	555	65
Nebraska	9	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	----	----	Mexico	----	----
Austria-Hungary	4	----	Netherlands	----	----
Barbadoes	----	----	Newfoundland	----	----
Belgium	----	----	New South Wales	----	----
Bermuda	----	----	New Zealand	1	----
Brazil	1	----	Norway	----	----
Canada	7	1	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile	----	----	Russia	----	----
China	----	----	Scotland	----	2
Colombia	----	----	South African Republic	----	----
Cuba	----	----	South Australia	1	----
Denmark	1	----	Spain	----	1
Egypt	----	----	Sweden	1	----
England	29	6	Switzerland	3	----
France	9	1	Turkey in Asia	----	----
Germany	28	9	Victoria	2	----
Guatemala	----	----	Western Australia	----	----
Haiti	----	----			
India	----	----			
Ireland	1	----	Total to citizens of foreign countries	99	20
Italy	1	----			

The Official Gazette.

The Official Gazette is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1873, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. Terms: To subscribers within the United States, Canada, and Mexico, $5 per annum; to foreign subscribers, $10; single copies, 10 cents; if mailed to foreign countries 10 cents additional for postage; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. *Payment in advance.* No subscription will be received for less than three months. All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Attorneys' Use of Assignment Records.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 28, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks. ‡Labels and Prints, Optics, and Photography.	Jan. 9	Jan. 16	77
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Jan. 6	Jan. 15	204
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Jan. 2	Jan. 16	196
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 2	Jan. 14	176
80	IV. Civil Engineering, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Jan. 2	Jan. 4	239
218	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Dec 31	Jan. 2	200
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Dec. 30	Jan. 16	150
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Dec. 30	Jan. 15	252
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 30	Jan. 15	164
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Dec. 30	Jan. 14	183
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Dec. 30	Jan. 14	166
281	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Dec. 30	Jan. 14	259
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Dec. 30	Jan. 14	146
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Dec. 30	Jan. 14	150
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Dec. 30	Jan. 14	228
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Dec. 30	Jan. 14	234
108	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Dec. 30	Jan. 13	211
246	I. Tillage, etc., and Fences	Dec. 30	Jan. 6	192
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Dec. 30	Jan. 2	329
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Dec. 30	Dec. 30	417
253	X. Carriages and Wagons	Dec. 28	Jan. 15	110
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Dec. 28	Jan. 14	313
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Dec. 28	Jan. 2	154
121	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Dec. 28	Dec. 16	158

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	Between one and two months.			
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Dec. 27	Jan. 13	168
122	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Dec. 26	Jan. 10	174
123	XXIX. Wood-Working Machines, Coopering and Roofing.	Dec. 23	Jan. 14	135
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Dec. 23	Jan. 10	207
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec. 6	Dec. 6	406
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 4	Dec. 30	271
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Dec. 2	Dec. 6	488
93	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 2	Nov. 18	360
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Nov. 30	Dec. 11	300
	Between two and three months.			
245	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Nov. 27	Nov. 29	458
248	XVIII. Steam-Engineering, etc	Nov. 25	Nov. 22	418
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 16	Dec. 17	387

Total number of applications awaiting action.....8,630

Under one month.			
*Designs	Dec. 30	Jan. 16	125
†Trade-Marks	Jan. 3	Jan. 18	132
‡Labels and Prints	Jan. 23	Jan. 24	10

Non-Withdrawal of Allowed Cases for the Purpose of Suggesting Claims for Interference.

Hereafter applications will not be withdrawn from the issue for the purpose of suggesting claims for interference. When an application is pending before the Examiner which contains a claim which may be made in a case in issue, the Examiner may write a letter suggesting such claim to the applicant whose application is in issue, stating that if such claim is made within a certain specified time the case will be withdrawn from issue, the amendment embodied, and the interference declared. Such letter must have the approval of the Commissioner.

When the Examiner suggests a claim appearing in a case in issue to an applicant whose application is pending before him, the case in issue will not be withdrawn for the purpose of interference unless the suggested claim shall be made in the pending application within the time specified by the Examiner.

In either of the above cases the Issue and Gazette Division should be notified when the claim is suggested, so that in case the final fee is paid during the time in which the suggested claim may be made proper steps may be taken to prevent the final fee from being applied.

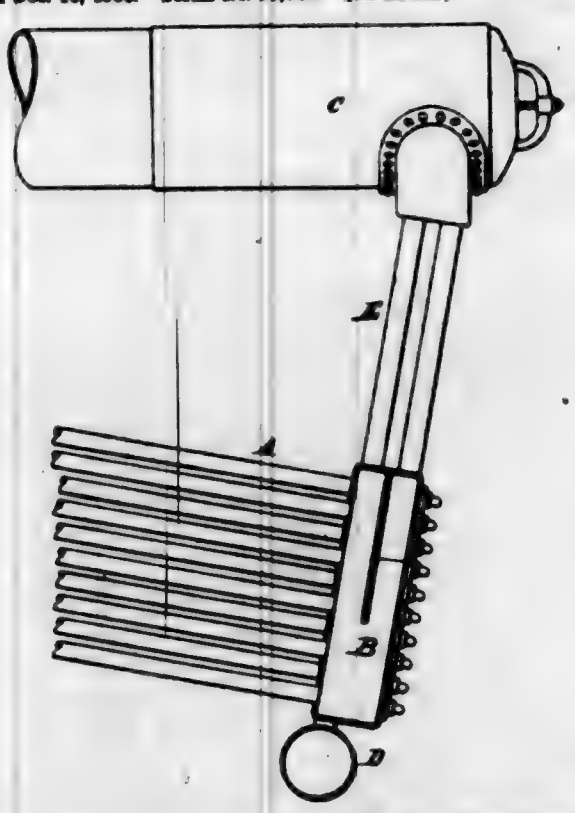
Notice.

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

PATENTS

GRANTED FEBRUARY 4, 1902.

692,223. **WATER-TUBE BOILER.** JAMES A. ANDERSON, Brooklyn, N. Y., assignor of one-half to William A. Price, New York, N. Y. Filed Dec. 10, 1900. Serial No. 39,315. (No model.)



Claim.—In a water-tube boiler, the combination with the tubes and the steam-drum, of a rear header with which said tubes connect, a plurality of risers connecting the header with said steam-drum, and a diaphragm in the header between two of said risers for deflecting the circulating water from one riser past the upper tubes, substantially as set forth

692,224. **GLOVE.** ORLEY R. BAIRD, Meaden, Mich. Filed Nov. 23, 1900. Serial No. 37,531. (No model.)



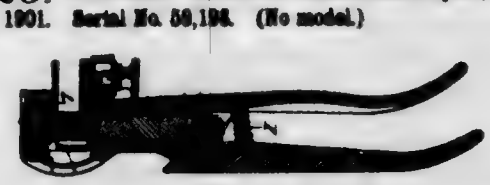
Claim.—1. A glove made up of a hand-blank A having a thumb portion *a*, cut with an integral front portion with extensions at each side for seam at the back, a front-finger portion *b* and a little-finger portion *c* formed integral therewith, there being a gash between the thumb portion and the forefinger and a space for the second and third fingers between the portions *c*, *b*; the portions C, D, for the second and third fingers secured to the hand-blank A; a back portion B with backs *e*, *f*, and *g*, for the second, third and fourth fingers and a portion to extend across the back of the hand with an extension fitted into the base of the thumb at the back whereby seams on the palm and the front of the thumb are avoided; a wrist portion E; and a gusset F as described.

2. A glove made up of a hand-blank A having a thumb portion *a*, cut with an integral front portion with extensions at each side for seam at the back, a front-finger portion *b* and a little-finger portion *c* formed integral therewith, there being a gash between the thumb portion and the forefinger and a space for the second and third fingers between the portions *c*, *b*; the portions C, D, for the second and third fingers secured to the hand-blank A; a back portion B with backs *e*, *f*, and *g*, for the second, third and fourth fingers and a portion to extend across the back of the hand with an extension fitted into the base of the thumb at the back whereby seams on the palm and the front of the thumb are avoided; a wrist portion E as described.

3. A glove made up of a hand-blank A having a thumb portion *a*, cut with an integral front portion with extensions at each side for seam at the back, a front-finger portion *b*, and a little-finger portion *c* formed integral therewith, there being a gash between the thumb portion and the forefinger, and a space for the second and third fingers between the portions *c*, *b*; the portions C, D, for the second and third fingers secured to the hand-blank A; and a back portion B, with backs *e*, *f*, and *g*, for the second, third, and fourth fingers, and a portion to extend across the back of the hand with an extension fitted into the base of the thumb at the back whereby seams on the palm and the front of the thumb are avoided, as described.

4. A glove made up of a hand-blank portion A having a thumb portion *a*, cut with an integral front portion with extensions at each side for seam at the back, a forefinger portion *b*, and a little-finger portion *c*, formed integral therewith; a gash extending between the portions *a* and *b*; blanks for the fingers; and the back having a portion to extend across the base of the forefinger and form the base of the thumb at the back whereby seams on the palm and the front of the thumb are avoided, as specified.

692,225. **SAW-SET.** JOSEPH G. BAKER, Philadelphia, Pa. Filed May 8, 1901. Serial No. 59,196. (No model.)



Claim.—1. In a saw-set, two dies suitably supported, means for reciprocating one die with relation to the other die, two sets of beveled surfaces formed upon each die operating on two teeth in opposite directions, flat surfaces on the faces of each of the dies, means for adjusting one of the dies laterally relative to the other die, guides located on each side of the dies on which the teeth of the saw rest and means for adjusting the guides, substantially as described.

2. In a saw-set, two dies, a suitable body for supporting said dies, one of said dies adapted to reciprocate toward and away from the other die, guideways formed in the body for guiding the reciprocating die, a lever pivoted to the body, a tooth formed with said lever, a notch formed in the shank of the reciprocating die, in which the said tooth is adapted to protrude, a handle secured to or formed with the body, a spring interposed between said handle and said pivoted lever, two sets of beveled surfaces formed upon each of the dies for the purpose of setting two teeth in opposite directions to one another when the dies are brought together, flat surfaces formed upon the face of each of the dies for the purpose of grasping and holding the saw-blade when the dies are brought together, a square lug formed upon the back of the die opposed to the reciprocating die, a slot formed in the body into which the lug is adapted to slide, a screw-threaded rod passing through the body transversely and secured therein, said screw-threaded rod adapted to be threaded through the square lug upon the die for the purpose of adjusting said die laterally relative to the other die, guides located upon each side of the dies upon which the point of the teeth are adapted to rest while the saw is being operated upon, and means for adjusting said guides, substantially as described and for the purpose specified.

3. In combination with a device of the character described, two dies,

one of said dies adapted to be adjusted laterally relative to the other, the other die adapted to reciprocate toward and away from the first-named die, two sets of beveled surfaces formed upon the face of each die, each set of beveled surfaces being inclined in the opposite direction from the other set for the purpose of setting two teeth in opposite directions to one another at one operation when the dies are brought together, flat surfaces formed upon the face of each of the dies adapted to grasp and hold the saw-blade when the dies are brought together, substantially as described and for the purpose specified.

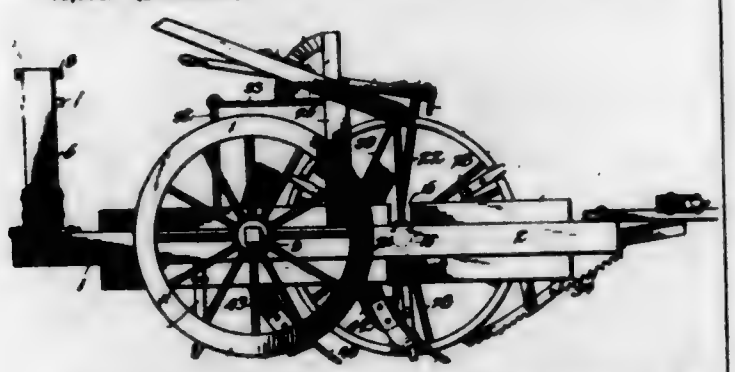
692,226. SAW-SET. JOSEPH S. BAKER, Philadelphia, Pa. Filed May 8, 1901. Serial No. 59,192. (No model.)



Claim.—1. The combination in a device of the character described, a body having flanged sides, a die carried thereby, a lever pivoted to the flanges of a body, an operating-lever pivoted to the body and engaging the first-named lever, two oppositely-beveled surfaces on one of the dies, projections formed upon the second die, the said dies being so formed as to bend two adjoining teeth in opposite directions, substantially as described.

2. The combination in a device of the character described, two dies, one of said dies adapted to be secured rigidly to the body, the other die adapted to be pivoted in the body so as to be caused to rock toward and away from the stationary die, two beveled surfaces formed upon one of the dies, said surfaces being beveled in opposite directions to one another, a flat surface formed upon the face of each die against which the blade of the saw is adapted to rest, an edge formed upon the other die, which edge is adapted to come in contact with the saw at a point opposite the junction of the beveled surfaces, for the purpose of setting one of the teeth in one direction, a projection formed upon the second die, which projection is adapted to come in contact with the saw-tooth at a point between the base and the point of said tooth so as to bend the other tooth in the opposite direction, substantially as described and for the purpose specified.

692,227. COMBINED COTTON CHOPPER AND CULTIVATOR. JAMES M. BASS, Sr., Houston, Tex. Filed Sept. 11, 1901. Serial No. 75,061. (No model.)



Claim.—1. In a combined cotton chopper and cultivator, a plow-supporting frame, in combination with a chopping-wheel disposed in parallel relation with the frame and adapted for upward movement independently of the said frame.

2. In a combined cotton chopper and cultivator, a plow-supporting frame, in combination with a chopping-wheel supported thereby, means for elevating the wheel independently of the frame, and means operating automatically to return the wheel to its normal position upon release of the elevating means.

3. In a combined cotton chopper and cultivator, the combination of a plow-supporting frame, a chopping-wheel supported thereby, and yielding means operating normally to hold the wheel in contact with the ground.

4. In a combined cotton chopper and cultivator, a supporting-frame, a chopping-wheel carried thereby and adapted for upward movement independently thereof, and cutting means arranged in front of said wheel.

5. In a combined cotton chopper and cultivator, a supporting-frame, a chopping-wheel carried thereby and adapted for movement independently thereof, in an upward direction, and yielding cutting means arranged in front of the said wheel.

6. In a combined cotton chopper and cultivator, a main frame, a supplemental frame connected therewith for lateral and vertical movement, a chopping-wheel carried by the latter frame and adapted for upward movement independently thereof, plows and coverers supported in rear of the said wheel, and yielding cutting means arranged in front of the wheel and in alinement with the forward plows.

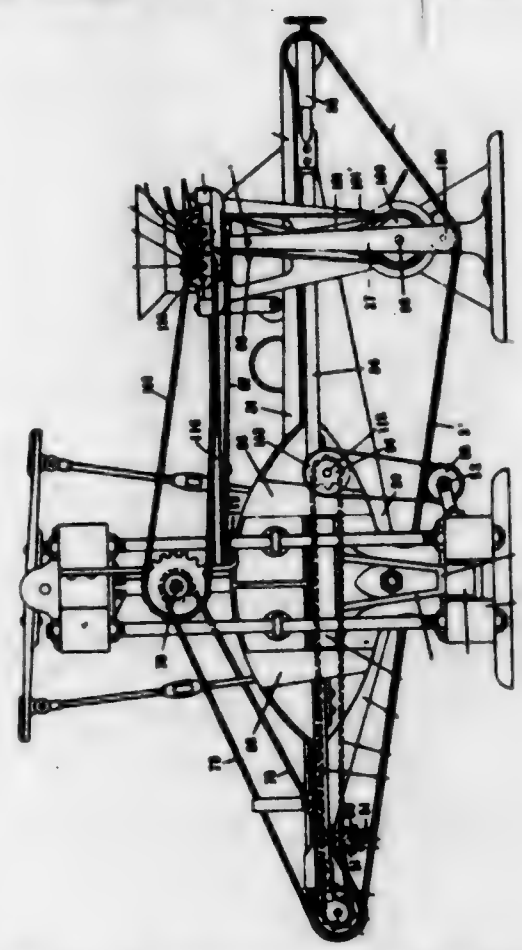
7. In a combined cotton chopper and cultivator, a wheeled supporting-frame, a two-membered supplemental frame connected therewith for lateral and vertical movement, means for adjusting the members of the latter frame in unison, or independently of each other, a chopping-wheel carried by the supplemental frame and adapted for vertical movement independently thereof, plows and coverers supported in rear of the said wheel, and yielding cutting means arranged in front of the wheel.

8. In a combined cotton chopper and cultivator, a plow-supporting frame, a chopping-wheel carried thereby, springs connecting with the axle of the wheel to cause it normally to engage with the ground, and lifting means associated with the axle of the wheel to lift the same above the ground independently of the supporting-frame.

9. In a combined cotton chopper and cultivator, a chopping-wheel having a sectional rim and fenders disposed to bridge the gaps between the terminals of the sections.

10. In a combined cotton chopper and cultivator, a chopping-wheel carrying fenders and having a sectional rim in combination with a wheel-lifting lever carrying means to keep the rim free from accumulated soil.

692,228. CIDER AND FRUIT PRESS. HENRY SNYDER, Reserve, Ind. Filed Apr. 17, 1901. Serial No. 56,178. (No model.)

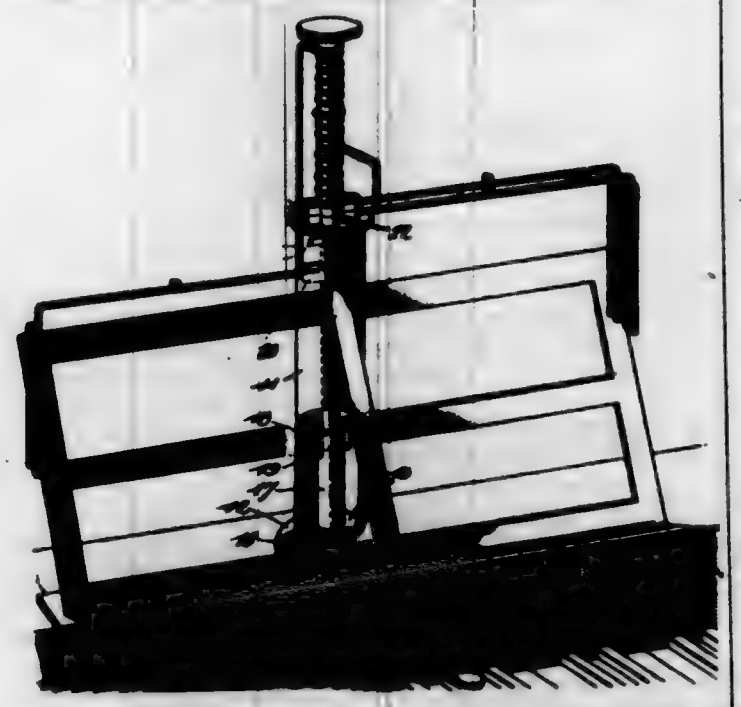


Claim.—1. In a cider and fruit press, an endless belt provided with a corded edge adapted to carry the fruit layers from a grater to and under the press; a layer-chute extending from the grater to or near the press; a cover-cloth adapted removably to the chute and extending down on the sides to the endless belt passing under the press provided with means to keep it extended; longitudinal spaces through the platen of the press and a short distance above its surface and slots from said spaces to and through said surface adapted to permit the corded edges of the endless belt to pass through and to hold them up in place; and means to operate the grater, the press and the endless belt.

2. In a cider and fruit press, an endless belt provided with a corded edge adapted to carry the fruit layers from a grater to or near to the press; a cover-cloth adapted removably to the chute and extending down on the sides to the endless belt passing under the press, provided with means to keep it extended; longitudinal spaces through the platen of the press and a short distance above its surface and slots from said spaces to and through said surface adapted to permit the corded edges of the endless belt to pass through and to hold them in place; and means to operate the grater, the press and the endless belt; and stopping-plates arranged to both ends of the press, the forward one provided with arms and hooks for the engagement of side projections on the platen, the platen being supported by supporting-rods attached to beam-springs pivoted on the upper part of the

frame and so adjusted that when the plates is moved down a short distance, both plates are brought into impingement with it inclosing the fruit layer longitudinally and are held in impingement upon the further downward pressure by the spring of the beams.

692,229. MUSIC RACK AND TURNER. GEORGE P. BENTON, Mattawan, Mich., assignor of one-half to Isaiah H. Hamilton, Lawton, Mich. Filed Mar. 30, 1901. Serial No. 53,001. (No model.)



Claim.—1. A device of the class described comprising a series of pivoted arms, a rotatable shifting rod movable longitudinally into engagement with the arms successively, potential means for rotating the rod, means for holding the rod against the influence of the potential means when disengaged from the arms, and means for moving the rod from the holding means and into engagement with the arms.

2. A device of the class described comprising a pivoted arm, a rotatable rod movable into and out of engagement with the arm, potential means for rotating the rod, means for holding the rod against the influence of the potential means when disengaged from the arm, and means for moving the rod from engagement with the holding means and into engagement with the arm.

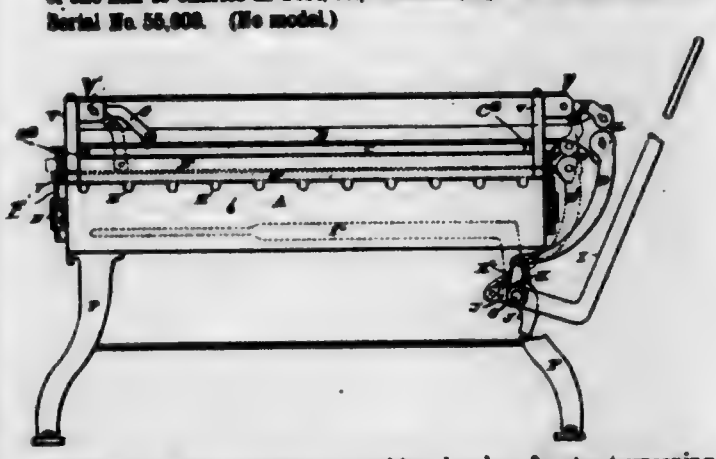
3. A device of the class described comprising a casing having a rod mounted therein for reciprocation and rotation, said rod having spaced pins, a slotted sleeve disposed to receive one of the pins in its slot to hold the rod from rotating, and a series of pivoted arms adapted for engagement successively by the second pin when the first pin is moved from the slot of the sleeve to permit rotation of the rod, and a spring connected with the rod for rotating it when released.

4. A device of the class described comprising a casing having a longitudinal slot, a shift-rod mounted in the casing for rotation and reciprocation, arms mounted rotatably upon the rod and adapted for successive precipitation into the slot of the casing, means for holding the rod against rotation, means for engaging the rod with the arms successively when the rod is moved from its holding means, means for rotating the rod when released, and means for raising the rod, said arms being movable from engagement with the rod when precipitated into the slot of the casing.

5. A device of the class described comprising a casing having a longitudinal slot, a rod mounted in the casing for rotation and reciprocation, a plurality of arms mounted rotatably upon the rod and adapted to rest with the lowermost arm upon the casing, said arms being adapted for successive precipitation into the slot of the casing, a fixed sleeve inclosing a portion of the rod and having a longitudinal slot, a pin carried by the rod for engagement with the slot of the sleeve to hold the rod against rotation, a second pin carried by the rod for engagement with the lowermost arm upon the upper end of the casing, means for rotating the rod when released, and means for moving the rod to draw its first-named pin from the slot of the sleeve to release the rod.

6. A device of the class described comprising a casing having a longitudinal slot in its upper end, a rod rotatably and reciprocally mounted in the casing and having spaced pins, a sleeve inclosing a portion of the rod and having a slot to receive a pin of the rod to hold the rod from rotation, arms mounted upon the rod and adapted to rest with the lowermost arm against the end of the casing and having slotted hubs adapted to successively receive the second pin of the rod to lock the rod thereto, means for rotating the rod, means for moving the rod from engagement with the sleeve and into engagement with the lowermost hub, means for rotating the rod when released from the sleeve, said arms being adapted for successive precipitation into the slot of the casing, and a retaining-finger disposed to hold the arms that are above the lower arm against the top of the casing from rotation.

692,230. MACHINE FOR MAKING BRUSHES FOR STREET-SWEEPING MACHINES. GOTTLIEB BEDDER, Louisville, Ky., assignor of one-half to Charles H. Yost, Jr., Louisville, Ky. Filed Apr. 13, 1901. Serial No. 55,909. (No model.)



Claim.—1. In a machine for making brushes for street-sweeping machines, the combination with a bed having a groove to receive the broom-bristles, of a bar adapted to be forced into said groove, springs acting on said bar in one direction, and means for pressing said bar in opposition to said springs, substantially as described.

2. In a machine for making brooms for street-sweeping machines, the combination with a longitudinal bar, supported at each end by coiled springs, of a lever, I, eccentric arms, K, J, an arm D, a longitudinal metal bar B, supported over the spring-supported bar C, by arms G, and E, between standards V, at either end of the bed A, all constructed and arranged substantially as described and for the purposes specified.

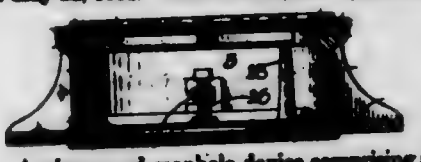
3. In a machine for making brooms for street-sweeping machines, a bed A, having on its top through its middle from end to end a rectangular groove A', of depth suitable to receive the side braces of a street-sweeping broom, transverse grooves H, of equal depth with the longitudinal groove A', a metal strip U, down the middle of the longitudinal groove, legs P, and parallel standards V, V, erected at each end of the bed on each side of the longitudinal groove, substantially as described and for the purposes specified.

4. In a machine for making brooms for street-sweeping machines, the combination with a suitable supporting means, a spring-supported bar adapted to force the bristles into the broom-head, of a means acting on said bar in opposition to the springs thereof, comprehending a lever, a second bar above the first-mentioned bar having pivoted supports for its ends, and connections between said lever and second bar for transmitting motion of the former to the latter.

5. In a machine for making brooms for street-sweeping machines, the combination with a bed having a longitudinal groove to receive the bristles and side braces of the broom-head, and a spring-supported bar adapted to force said bristles into said groove and between said side braces, of a lever, a second bar above the first-mentioned bar having pivoted supports for its ends, and connections between said lever and second bar for transmitting motion from the former to the latter.

6. A machine for making brooms for street-sweeping machines, comprising a bed having a longitudinal groove adapted to receive the side braces of the broom-head and transverse grooves intersecting said longitudinal groove, a strip in the bottom of the longitudinal groove, standards rising from the ends of the bed on each side of said longitudinal groove, a spring-supported bar above said longitudinal groove, guided by said standards in its vertical movements and having no longitudinal movement, a second bar above the first-mentioned bar, pivoted levers supporting the ends of the second bar, an actuating-lever, an eccentric actuated thereby, and a lever connecting said eccentric with an end of said second lever.

692,281. MANHOLE-CASING. CHARLES F. BINGHAM, Buffalo, N. Y. Filed May 28, 1901. Serial No. 62,351. (No model.)



Claim.—1. An improved manhole device comprising a casing having an annular shoulder provided with an annular groove of dovetailed cross-section, a packing of lead cast in said groove, and a cover adapted to seat upon said lead packing; there being holes in said cover through

which the packing of lead is run when the cover is in place, whereby it conforms exactly to the surface of the cover, substantially as set forth.

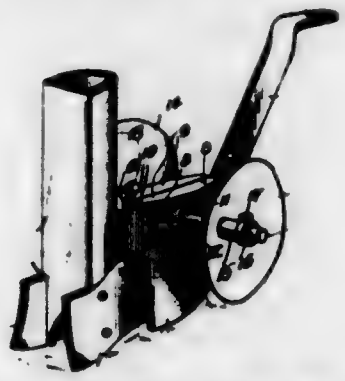
2. An improved manhole device comprising a casing having an annular shoulder provided with a lower central annular groove of dovetailed cross-section and an upper channel above the groove of substantially the same width as the shoulder, a filling of lead in said groove and channel having a top surface of substantially the same width as the shoulder and a cover adapted to seat upon the surface of said lead, substantially as set forth.

3. An improved manhole device comprising a casing having a central circular opening which enlarges at the top to form an annular shoulder having a grooved-out top surface and having a depression exterior to the shoulder, a cover adapted to seat on the shoulder and having a lug fitting in the depression and a packing of soft metal in the groove in the shoulder conforming perfectly to the cover, substantially as set forth.

4. An improved manhole device comprising a casing having a shoulder provided with a groove, a cover adapted to seat on said shoulder, and a packing of soft metal cast in said groove; the device being provided with holes through which the soft metal is run when the cover is in place as and for the purposes specified.

5. In a manhole device, a casing, a circular opening, an interior annular shoulder near the top of said opening and a depression in the casing-top exterior to the shoulder having a bottom surface on substantially the same plane as the shoulder, in combination with a cover adapted to seat upon the shoulder and having an integral horizontal-extending lug adapted to fit in the depression, substantially as set forth.

692,232. CORN-PLANTER. LEE P. BOSS, Chanute, Kans. Filed Oct. 10, 1901. Serial No. 78,351. (No model.)



Claim.—1. In a corn-planter, a furrow-opening shoe extending in advance of the seed-spout and revoluble disks carried by said shoe, the said disks being so disposed that the front cutting edges thereof are in advance of the front edge of the said shoe, for the purpose set forth, substantially as described.

2. A furrow-opening shoe having a vertical extension on its front portion and rearwardly-diverging wings, in combination with a seed-spout, in rear of said extension, having its lower end disposed between the wings and shouldered on its sides to bear upon them, substantially as described.

3. In a corn-planter, a shoe having a vertical extension on the upper side of its front portion, in advance of the seed-spout, blocks secured on opposite sides of said vertical extension, and having overhanging flanges to bear on the upper edge thereof and revoluble disks carried by said blocks, substantially as described.

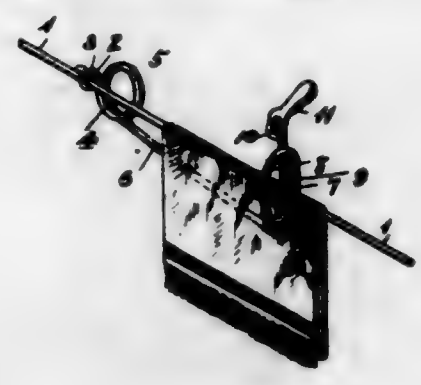
4. In a corn-planter, a shoe having a vertical extension on the upper side of its front portion, in advance of the seed-spout, blocks secured on opposite sides of said vertical extension, revoluble disks carried by said blocks and a draft-bar having its rear end secured to the said shoe between the vertical extension thereof and one of said blocks, substantially as described.

5. A furrow-opening shoe having a vertical extension on its front portion and rearwardly-diverging-wings, in combination with a seed-spout in rear of said extension and having its lower end disposed between the wings, substantially as described.

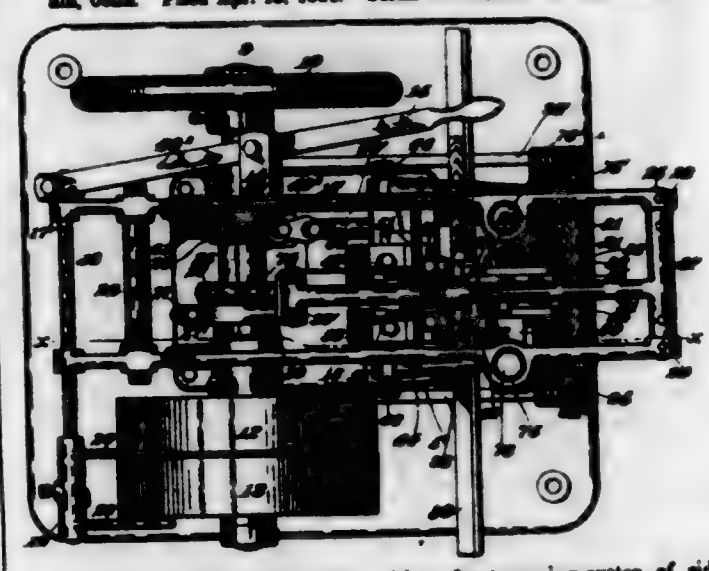
6. In combination with a shoe having a vertical extension on the upper side of its front portion, a seed-spout in rear of said vertical extension and revoluble disks carried by said shoe and having their front, cutting edges in advance of the front edge of the shoe, substantially as described.

692,233. CLOTHES-PIN. ADA K. BRADLEY and JOHN BRADLEY, Clematis, Okla. Filed May 15, 1900. Renewed June 22, 1901. Serial No. 65,647. (No model.)

Claim.—The herein-described securing device consisting of a single piece of wire bent first to encircle a clothes-line and thence shaped to form the tension-loops 4 and 5, the parallel section 6, the vertical section 7, the loop 8, the vertical section 9, and a handle-securing eye in combination with a suitable handle attached to said eye, all combined substantially as specified and for the purpose set forth.



692,284. RECESSING-MACHINE. ROSSER S. BROWN, New Britain, Conn. Filed Apr. 12, 1901. Serial No. 55,630. (No model.)



Claim.—1. The combination, with a front scoring-cutter, of side scoring-cutters, operated independent of said front scoring-cutter; means for removing the material to form a recess therein between the scored or incised portions; means for actuating the front scoring-cutter; and means for actuating the side scoring-cutters.

2. The combination, with independently-operative front and side scoring or incising devices, of means for removing material from between the scores or incisions made by said devices, and devices for marking the work.

3. The combination, with independent front and side scoring or incising knives, of means for actuating the front scoring-knife; means for actuating the side scoring-knives subsequent to the action of the front scoring-knife; and a cutter for removing material from between the scores or incisions made by said knives.

4. The combination, with a work-support, of means for incising material at the sides; means independent of said side scoring means for incising the material at the front; mechanisms for actuating the independent scoring devices at different times; and means for removing the material between the incised portions thereof.

5. In a recessing-machine, the combination, with a work-support, of a front scoring-cutter; side scoring-cutters independent from said front scoring-cutter; means for actuating said cutters at different times; a cutter for removing material from between the incisions made by said side and front cutters; and means for actuating said material-removing cutter.

6. In a recessing-machine, the combination, with a work-support, of a front scoring-knife; means for actuating said front scoring-knife; side scoring-knives; means whereby said side scoring-knives may be adjusted toward and from each other; means for actuating said side scoring-knives subsequent to the action of the front scoring-knife; a slicing-knife for removing the material from between the incised portions of the work; and means for actuating said slicing-knife.

7. In a recessing-machine, the combination, with a front scoring-knife; side scoring-knives independent of the front scoring-knife and operated at a different time therefrom; means for removing the material from between the incisions made by said knives; mechanisms for actuating said knives; a movable work-support; and means for actuating said work-support.

8. In a recessing-machine, the combination, with a work-support, of a front scoring-knife; side scoring-knives independent of the front scoring-knife and operative at a different time therefrom; a movable sup-

port for said side scoring-knives; means for adjustably securing said knives to the support; and means for actuating the front and side scoring-knives.

9. In a recessing-machine, the combination, with a work-support, of a head; means for reciprocating one of said parts with relation to the other; a front scoring-knife carried by the head; indenting points or prods also carried by the head; side scoring-knives; and means for removing the material from between the incisions made by said front and side scoring-knives.

10. The combination, with a head, of a work-support; means for reciprocating one of said parts with relation to the other; a front scoring-knife carried by said head; marking-tools also carried by the head; side scoring-knives; and means for actuating said side scoring-knives.

11. The combination, with a head, of a work-support; means for reciprocating one of said parts with relation to the other; a front scoring-knife carried by said head; and a marking-tool carried by the head and adapted to form a recess in the material on the work-support.

12. The combination, with a head, of a front scoring-knife secured thereto; a series of marking points or prods carried by said head; a work-support; and means for reciprocating said work-support.

13. The combination, with a perforated head, of a front scoring-knife secured thereto; marking points or prods located in the perforations of said head; means for adjusting said marking points or prods; a work-support; means for actuating said work-support; side scoring-knives; and means for removing material from between the scores made by said knives.

14. The combination, with a head having perforations, of a work-support; means for reciprocating one of said parts with relation to the other; marking points or prods located in the perforations of the head; means for scoring or incising the material; and means for removing the material from between the scores or incisions therein.

15. The combination, with a front scoring-cutter, of side scoring or incising cutters independent thereof; means for actuating the side scoring-cutters at a period different from that of the action of the front scoring-cutter; a work-support; means for actuating said work-support; a slicing-knife; and means for actuating said knife.

16. The combination, with a movable lever having a head, of a front scoring-cutter mounted in said head; a movable work-support; side scoring-cutters; a rocking support on which said cutters are mounted; means for actuating said support; a cutter for removing the material between the incised portions thereof; and means for actuating said cutter.

17. The combination, with a movable lever having a head, of a work-support; means for reciprocating said work-support; a cutter carried by the head and having its working surface of less width than its body portion; and means carried by the head for holding an appropriate number of marking-tools.

18. In a machine of the class specified, the combination, with a work-support, of a front scoring-knife; a lever carrying said knife; means for actuating said lever; a grooved block carried by the lever; a series of resilient strippers the ends of which enter the grooves in said block; a series of marking-tools carried by the block; a pivoted head; means for actuating said head; and side scoring-tools adjustably mounted on the head.

19. The combination, with a head and with means for actuating said head, of a front scoring-knife carried by the head; a series of marking prods or points also carried by the head; a work-support; and a series of resilient strippers secured to a stationary support and coöperating with the tools carried by the head.

20. In a machine of the class specified, the combination, with a head, of a front scoring-knife adjustably mounted in said head; a block having longitudinal grooves and perforations secured to the head; marking prods or points adjustably mounted in the perforations of the block; and resilient strippers having deflected portions coöperating with the grooves in the block, said strippers being secured to a stationary support.

21. The combination, with a head, of a work-support; means for reciprocating one of said parts with relation to the other; a scoring-knife mounted in the head; means for positively adjusting said knife; side scoring-knives independent of the head scoring-knife; means for actuating said side scoring-knives subsequent to the action of the other scoring-knife; a knife for removing material from between the incised portions of the work; and means for actuating said knife.

22. The combination, with a work-support, of a rocking head having a guideway; means for actuating said head; side scoring cutters adjustable to vary their distance apart upon said guideway; means for clamping said cutters in position after they have been adjusted; a front scoring-cutter; and a cutter for removing the material between the incised portions of the work.

23. The combination, with a work-support, of means for reciprocating said work-support; a head located over the work-support; a front scoring-knife carried by the head; side scoring-knives independent of the front scoring-knife; means for actuating said knives subsequent to the action of the front scoring-knife; a reciprocating slicing-knife for removing the material from between the incised portions thereof; and an eccentric for actuating said knife.

24. The combination, with a work-support, of means including a treadle for reciprocating said work-support; guiding means for the work-support; a movable head and means for actuating the same; a front scoring-knife carried by said head; side scoring-knives; a support independent of the head upon which said knives are mounted; means for actuating said support; a slicing-knife; and means for actuating said slicing-knife.

25. The combination, with framework, of a movable head; means for actuating said head; a front scoring-knife adjustably mounted in said head; a work-support; guide-rods secured to said work-support and movable on the frame; means for actuating said guide-rods; side scoring-cutters; a support independent of the head and carrying said cutters; means for actuating said support; a cutter for removing material from the work between the scores or incisions therein; and means for actuating said cutter.

26. The combination, with a work-support, of guide-rods secured to said support; levers for actuating said guide-rods; a treadle for actuating the levers; a head; a front scoring-cutter secured to said head; a support; side scoring-cutters carried by the support; a cutter for removing the material from between the incised portions of the work; and means for actuating said cutter.

27. The combination, with a work-support having a bar upon which the work is sustained and a lip bearing upon the top of the work, of means for reciprocating said work-support; a front scoring-cutter; means for actuating said cutter; side scoring-cutters; means for actuating said cutters at a time different from the action of the front scoring-cutter; and a cutter for removing the material from between the scores or incisions.

28. In a machine for forming recesses in wood, the combination with a work-support, of means for actuating said work-support; a movable front scoring-knife; movable side scoring-knives; means for actuating said front scoring-knife; independent means for actuating said side scoring-knives; a slicing-knife for removing material from between the scored or incised portions of the work; means for actuating said slicing-knife; and means for so adjusting said knife that it will form the bottom of the recess in the work at the desired angle.

29. The combination, with cutters independently operative for scoring or incising work, of a work-support; a cutter for removing material from between the incised portions of the work; a cutter-slide; a block in which the cutter-slide reciprocates; means for actuating said cutter-slide; and means for adjusting said block so that the cutter will enter the work at the desired angle.

30. The combination, with a work-support, of a head having grooves, one of said parts being movable relatively to the other; tools carried by the head; and yielding strippers secured to a stationary support bearing against the work and entering the grooves of the head.

31. The combination, with a work-support, of lever mechanism for actuating said work-support; means for laterally adjusting the work-support; a front scoring-knife; a lever to which said front scoring-knife is secured; means for actuating said lever; side scoring-knives; means for actuating said knives; and means for removing the material from between the incisions made by said front and side scoring-knives.

32. The combination, with a work-support, of a pivoted lever having a head, said head being split and channeled; a knife located in the channel of the head; means for securing the knife in position by contracting the split portion of the head; means for actuating the lever; a grooved and perforated block carried by the head; marking points or prods secured in the perforations of the block; and a pair of resilient strippers secured to a stationary support, the ends of said strippers entering the grooves of the block.

33. The combination, with a work-support, of a pivoted lever having a split head and a channel with inclined side walls; a front scoring-knife located in said channel; means for clamping the knife in position; means for positively adjusting the knife; a grooved and perforated block secured to the head in front of the knife; marking points or prods fitted in perforations of the block; a stationary support and bolts passing through the slots of the strippers and serving to adjustably secure them to said support.

34. The combination, with a work-support, of a pivoted lever carrying a head, said head having a channel; a knife located in the channel of the head; means for clamping said knife in position; means for positively adjusting the knife; marking points or prods carried by the head; and an eccentric and its connections for actuating the lever.

35. The combination, with framework having a pair of separated side frames with ends overhanging said framework, of a bolt uniting the free, overhanging ends of said side frames; a lever pivoted on said bolt and having a head intermediate its length; a knife adjustably mounted on said head; a driving-shaft carrying an eccentric; and a connection between the strap of said eccentric and the free end of said lever.

36. The combination with a reciprocating work-support, of means for laterally adjusting said work-support; a front scoring-knife; means for actuating said knife; side scoring-knives operated independently of the front scoring-knife; and means for actuating said side scoring-knives.

37. The combination, with a work-support, of lever mechanism for actuating said work-support; means for laterally adjusting the work-support; a front scoring-knife; a lever to which said front scoring-knife is secured; marking points or prods carried by the lever; side scoring-knives; means for actuating said knives; and means for removing the material from between the incisions made by the front and side scoring-knives.

38. The combination, with a work-support, of a pivoted lever; means for actuating said lever; a longitudinally-perforated block secured to the lever; marking points or prods mounted in the perforations of the block; and a front scoring-cutter carried by the lever.

39. The combination, with a work-support, of a longitudinally-perforated block; means for actuating said block; marking points or prods adjustably mounted in the longitudinal perforations of the block; means for making scores or incisions in the material upon the work-support; and means for removing the material between said scores or incisions.

40. The combination, with a work-support, of a pivoted lever; a front scoring-knife carried by the lever; a block secured to the lever; marking points or prods carried by the block; means for actuating the pivoted lever; side scoring-knives; means for actuating said knives; a slicing-knife; and means for actuating said slicing-knife.

41. The combination, with a work-support, of means for actuating said work-support; means whereby the work-support may be laterally adjusted; a pivoted lever; a front scoring-knife and marking points or prods carried by the lever; adjustable side scoring-knives; means for actuating the side scoring-knives; means for actuating the pivoted lever; an adjustable slicing-knife; and means for actuating said slicing-knife.

42. The combination, with a base-plate, of side frames having overhanging ends; a lever pivoted in said ends; an eccentric and connections for actuating said lever; a front scoring-knife carried by the lever; means for positively adjusting said knife; side scoring-knives; means for positively adjusting the side scoring-knives; means for actuating the side scoring-knives; a slicing-knife for recessing the material between the incisions made by the front and side scoring-knives; and means for actuating said slicing-knife.

43. The combination, with a work-support, of mechanism for reciprocating said work-support; a pivoted lever; a front scoring-knife carried by said lever; means for actuating the lever; side scoring-knives; a guideway upon which the blocks carrying said side scoring-knives may be laterally adjusted to set said knives the desired distance apart; means for actuating the guideway; a slide; a slicing-knife carried by said slide; and means for actuating said slicing-knife.

44. The combination, with a work-support, of means for reciprocating said work-support; a pivoted lever having a head; a front scoring-cutter adjustably mounted in a channel of said head, said cutter having a slot; a screw having a projection fitted in the slot of the cutter; side scoring-cutters independent of the front scoring-cutter; means for actuating said cutters; and means for removing the material from between the incisions made by the scoring-cutters.

45. In a recessing-machine, the combination, with a pivoted lever having a depending head, of a front scoring-cutter secured to said head; a work-support; a block secured to the head of the lever over said front scoring-cutter; marking points or prods adjustably fitted in the block; side scoring-cutters; means for actuating said cutters; and means for removing the material from between the incisions made by the front and side scoring-cutters.

46. The combination, with a work-support, and with means for actuating said work-support, of means for longitudinally inciting the work; independent means for inciting the work at an angle to the longitudinal incisions; means for actuating said independent means at a time different from the time of action of the means for longitudinally inciting the work; and means for removing that portion of the work located between the incisions.

47. In a recessing-machine, the combination, with framework, of a pair of guide-rods mounted for reciprocation on said framework; pivoted levers upon which the ends of said guide-rods rest; a cross-bar connecting said levers so that they will move in unison; a pivoted treadle the lever-arm of which is in contact with said cross-bar; a work-support carried by the guide-rods; and front and side scoring-cutters for inciting the material carried by said work-support, the side scoring-cutters operating independently of said front scoring-cutter.

48. In a recessing-machine, the combination, with a pedestal having laterally-projecting perforated brackets adjacent to its upper and lower ends, of guide-rods mounted in said brackets; means for uniting said guide-rods; a work-support secured to the upper ends of said guide-rods; pivoted levers upon the ends of which the lower extremities of the guide-rods bear; a connection for uniting said levers so that they will move in unison; a lever pivoted at its rear end to the pedestal and bearing upon said connection; a treadle carried by the lever; and means for inciting the work carried by the work-support.

49. In a recessing-machine, the combination, with a pedestal, of an adjustable block located on the top of said pedestal; a slide reciprocatory in said block; a slicing-cutter carried by the slide; means for actuating said slicing-cutter; a work-support; a front scoring-cutter; side scoring-cutters independent of the front scoring-cutter; means for actuating the front scoring-cutter; and mechanism for actuating the side scoring-cutters after the action of said front scoring-cutter

50. In a recessing-machine, the combination, with a pivoted lever having a head, of a cutter carried by said head; marking points or prods; a perforated block in the perforations of which said marking points or prods are located, said blocks having grooves in its face; resilient strippers entering said grooves; means for moving the material at an angle to its length; and means for removing the material from between the scores made therein.

51. In a recessing-machine, the combination, with pivoted lever having a head, of a front scoring-cutter adjustably mounted on said head; a longitudinally-grooved block secured to the head in front of said scoring-cutter; marking points or prods carried by the block; and a stripper secured to the frame and having a portion entering the groove in said block.

52. In a recessing-machine, the combination, with a movably-mounted device, of a front scoring-cutter carried by said device; a longitudinally-grooved block secured to said device over said scoring-cutter; marking points or prods adjustably mounted in the block; and resilient strippers secured to the frame and having portions in contact with the rear walls of the grooves in said block.

53. In a recessing-machine, the combination, with a base-plate having side frames projecting vertically therefrom and overhanging the forward edge of said base-plate, of a bolt uniting the overhanging ends of said side frames; a lever sleeved upon said bolt and having a head; a front scoring-cutter adjustably mounted in a channel of said head; a longitudinally grooved and perforated block secured to the head over said front scoring-cutter; marking points or prods adjustably mounted in the perforations of the block; resilient strippers having bowed portions fitted in the grooved portions of the block; a work-support; cutters for inciting the material at an angle to the incision made by the front scoring-cutter; and means for removing the material from between the incisions made by said inciting-cutters.

54. In a recessing-machine, the combination, with a work-support, of a rocking lever having a guideway of dovetail shape on its upper surface; blocks adjustably mounted on said guideway; means for clamping said blocks to the guideway when adjusted to the desired distance apart; side scoring-cutters carried by the blocks; means for actuating the rocking lever; a front scoring-cutter; and means for removing the material from the work to form a recess therein between the incisions made by said cutters.

55. In a recessing-machine, the combination, with framework, of side bars secured to the top of said framework; a work-support; a lever pivoted to the side bars; a front scoring-knife carried by the lever; a longitudinally grooved and perforated block also carried by the lever; marking points or prods located in the perforations of the block; a rocking lever carrying a guideway; means for actuating said lever; blocks adjustable laterally upon said guideway; side scoring-cutters adjustably mounted in the blocks; a reciprocatory slide; means for reciprocating said slide; and a slicing-cutter carried by the slide.

56. In a recessing-machine, the combination, with a work-support, of guide-rods supporting said work-support; tie-plates connecting said guide-rods and clamped thereon; a guideway on one of said tie-plates; a slide to which the work-support is secured fitted in the guideway; and means for reciprocating the slide.

57. The combination, with guide-rods fitted to slide in the frame, of a tie-plate uniting said guide-rods near their upper ends and clamped thereon, said tie-plate having a guideway; a slide carrying a work-support adjustable in said guideway; means for reciprocating the slide; and a device bearing upon the top of the work while the reciprocating means are in operation.

58. In a recessing-machine, the combination, with a work-support, of means for laterally adjusting said support; means for reciprocating said support; a front scoring-cutter; means for actuating said cutter; side scoring-cutters operative independently of the front scoring-cutter; means for actuating said cutters; a slicing-knife; and means for actuating said knife.

59. In a recessing-machine, the combination, with a work-support, of a front scoring-cutter having a beveled cutting edge of less width than the blade of said cutter; a pivoted lever in which said front scoring-cutter is adjustably mounted; side scoring-cutters operative independently of the front scoring-cutter; means whereby said side scoring-cutters may be adjusted and then clamped in position at the desired distance apart; a slide carrying a slicing-knife; means for longitudinally adjusting said slicing-knife; and means for reciprocating the slide.

60. In a recessing-machine, the combination, with a driving-shaft,

of a sleeve secured to said shaft and carrying a cam and eccentric; a lever pivoted in the frame and actuated by one of the eccentrics; a front scoring-knife carried by said lever; marking points or prods also carried by the lever; a pivoted lever having a rearwardly-extending arm adapted to be actuated by said cam, said lever being provided with a transverse guideway; heads adjustably secured to said guideway; side scoring-knives mounted in the heads; a slide; a slicing-knife carried by the slide; and connections from the slide to the other eccentric.

61. In a recessing-machine, the combination, with a work-support, of a front scoring-cutter; side scoring-cutters operative independently of the front scoring-cutter; means for actuating said front and side scoring-cutters; a slide; a slicing-cutter secured to said slide; a rod or pin carried by the slide; a pitman secured to the rod or pin; and means for actuating the pitman.

62. In a recessing-machine, the combination, with incising-cutters, and with means for actuating said cutters, of a slide carrying means for supporting the work; means whereby said slide may be adjusted and then secured in position; a second slide having means for bearing upon the top of the work; means whereby said second slide may be adjusted and then secured in position; means for actuating the slides to carry the work into position to be operated upon by the incising-cutters; and a cutter for removing that portion of the work located between the incisions made therein by said incising-cutters.

63. In a recessing-machine, the combination, with cutters for incising the work, of means for actuating said cutters; an adjustable slide; a bar upon which the work is supported carried by said slide; a second slide parallel to the first slide and carrying means which rest upon the top of the work and clamp it at an angle to the slides; means whereby said slides may be adjusted horizontally and vertically and then secured in position; and means for reciprocating the slides.

64. In a recessing-machine, the combination, with a pair of rods, of means for reciprocating the rods; a tie-plate uniting said rods and having a guideway; a slide fitted in said guideway; means whereby said slide may be adjusted and then secured in position; means carried by the slide for supporting the work; means for incising the work at the front; independent means for incising the work at the sides of the front incision; and means for removing that portion of the work located between the incised portions thereof.

65. In a recessing-machine, the combination, with a pair of rods, of brackets secured to the frame and in which said rods are mounted; means for reciprocating said rods; a tie-plate uniting the rods and having a guideway; a slide adjustably mounted in the guideway and carrying a work-supporting bar; a second tie-plate uniting the rods at one side of the first tie-plate, said second tie-plate also having a guideway; a slide adjustably mounted in the guideway of said second tie-plate and carrying means for sustaining the work; cutters for incising the work; and a cutter for removing that portion of the work located between the incisions therein.

66. In a recessing-machine, the combination, with a pair of rods, of perforated brackets secured to the frame, and in which said rods are mounted; levers for actuating said rods; means for actuating said levers; tie-plates uniting the rods and each having a guideway; slides adjustably mounted in the guideways of said tie-plates; means carried by said slides for supporting the work at different points; means for incising the work; and means for removing that portion of the work located between the incisions therein.

67. In a recessing-machine, the combination, with a pedestal having perforated brackets, of rods mounted in said brackets; tie-plates clamped to said rods and adjustable longitudinally thereof; means for reciprocating the rods; slides carried by the tie-plates and adjustable thereon; means carried by said slides for supporting the work; a front scoring-cutter; side scoring-cutters; and a cutter for removing material from between the incisions made by said cutters.

68. In a recessing-machine, the combination, with a pair of slides carrying means for supporting and sustaining work, of means whereby said slides may be adjusted; means for reciprocating the slides to bring the work into position for operation; independently-operative cutters for incising the work; and a cutter for removing that portion of the work between the incisions therein.

69. The combination, with framework, of a work-support; a pivoted lever having a guideway; blocks adjustably secured to said guideway; side scoring-cutters mounted in the blocks, each of said cutters having a slot; screws having portions fitted in the slots of the cutters, said screws serving positively to adjust the cutters back and forth; a front scoring-cutter; means for actuating said front scoring-cutter; a slicing-cutter; and means for actuating said slicing-cutter.

70. The combination, with a movable device having a guideway of dovetail shape, of a block having a groove with inclined walls; a double-wedge gib secured between one side of the guideway and one of the inclined walls of said groove in the block; a cutter carried by the block; and means for adjusting said cutter.

71. The combination, with framework having side bars, of a rod uniting said side bars; heads adjustably secured to said rod; resilient strippers carried by the heads; a work-support; cutters for incising the work; and a cutter for recessing the work between the incisions therein.

72. The combination, with framework having side bars; of a rod uniting said side bars; heads having grooved faces adjustably secured to said rod; strippers adjustably secured in the grooves of the heads; a work-support; a front scoring-cutter; side scoring-cutters; and a cutter for recessing the work between the incisions made therein by the front and side scoring-cutters.

73. The combination, with a work-support, of means whereby said work-support may be adjusted vertically and horizontally; means for reciprocating the work-support; incising-knives; means for actuating said knives; marking points or prods for forming screw-hole-starting recesses in the work; a slicing-knife; and means for actuating said slicing-knife.

74. In a recessing-machine, the combination, with a work-support, of means for actuating said work-support; a lever having a head; a front scoring-knife carried by said head; an externally-grooved block secured to the head over the front scoring-knife; marking points or prods carried by the block; strippers, portions of which are received in the grooves of the block; side scoring-knives; means for actuating said knives; a slicing-knife; and means for actuating said slicing-knife.

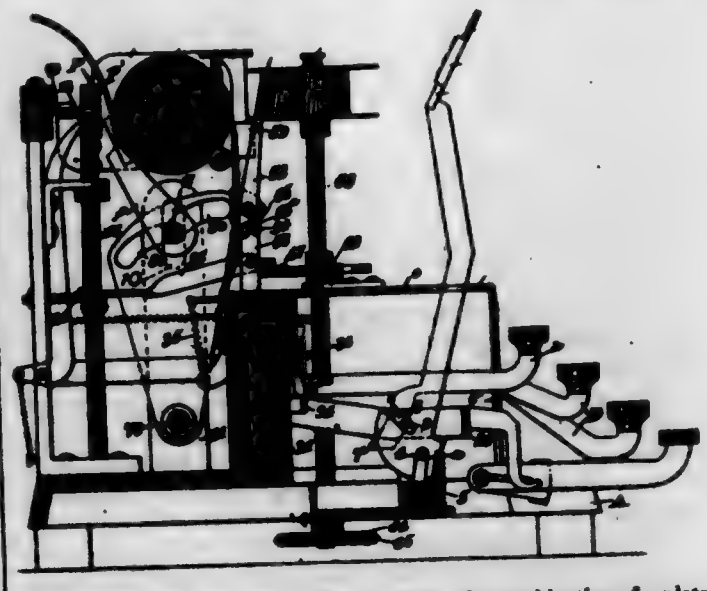
75. In a recessing-machine, the combination, with a work-support, of incising-cutters; marking points or prods; means for actuating said cutters and prods; resilient strippers; a slicing-cutter; and means for actuating said slicing-cutter.

76. In a recessing-machine, the combination, with a work-support, of cutters for incising the work at different points; a cutter for recessing the work between the incised portions thereof; a slide carrying said cutter; a block in which the slide reciprocates; an eccentric and connections for actuating the slide; and means for adjusting the block in which said slide reciprocates.

77. In a recessing-machine, the combination, with a work-support, of a front scoring knife; side scoring-knives, each having a diagonal cutting end, heads in which said side scoring-knives are edgewise supported; means for rocking said heads; a cutter for recessing the material between the incisions made by the front and side scoring-knives; and means for actuating said cutter

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692,285. RIBBON MECHANISM FOR TYPE-WRITING MACHINES. LEE S. BURRIDGE, New York, N. Y., assignor to the Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Original application filed Feb. 10, 1896, Serial No. 578,807. Divided and this application filed Oct. 1, 1898. Serial No. 692,287. (No model.)



Claim.—1. In a type-writing machine, the combination of a platen, a type-bar mechanism, a universal-bar mechanism, an inking-ribbon, a movable frame for carrying said ribbon to and from the printing-point and so arranged that it may be arrested when the ribbon is brought to the printing-point, and a yielding connection between said ribbon-carrying frame and the universal-bar mechanism so constructed and operating as that if the ribbon-frame should be arrested at the printing-point before the type has completed its printing stroke, the motion of said universal-bar mechanism may be continued in order to permit the type to complete said printing stroke and make its impression, said connection yielding so as to permit said continued motion of the universal-bar mechanism.

2. In a type-writer the combination with the platen, the ink-ribbon, type-bar and key mechanism, and the universal mechanism operated by said key mechanism, of a movable frame engaging with the ink-ribbon and constructed to be arrested before the completion of the movement of the universal mechanism, a lost-motion connection between said frame

and the universal mechanism such that the movement of said universal mechanism may be continued subsequently to the arrest of said ribbon-frame, and a spring for taking up said lost motion.

3. In a type-writing machine, in combination with a vibratory ribbon supporting and guiding frame, suitable key-levers, universal mechanism operated by said key-levers and yielding connection from said universal mechanism to said ribbon supporting and guiding frame, said ribbon-frame being arrested before the completion of the movement of said universal mechanism, and said yielding connection permitting the continued movement of said universal mechanism after the arrest of said ribbon-frame, substantially as set forth.

4. In a type-writing machine, the combination of the vibratory ribbon supporting and guiding frame having an operative arm, suitable key-levers, universal mechanism operated by said key-levers and a spring-pressed lever pivoted to said universal mechanism and engaging the arm of said vibratory ribbon supporting and guiding frame, said ribbon-frame being arrested before the completion of the movement of said universal mechanism, and said spring-lever permitting the continued movement of said universal mechanism after the arrest of said ribbon-frame, substantially as and for the purposes set forth.

5. In a type-writing machine, the combination of a platen, a series of type-bars, a reciprocatory ribbon-guide arranged in proximity to said platen and arranged to be arrested, a universal-bar frame, a lever pivoted thereon, a stop arranged on said frame, and a spring adapted to normally press said lever against said stop, said lever being connected to said reciprocatory ribbon-guide, the construction and arrangement being such that after the arrest of said ribbon-guide further movement of the universal-bar frame is permitted by reason of the independent vibration of the said lever thereon in opposition to the tension of said spring.

6. In a type-writing machine, the combination with a platen, a series of types and a universal bar, of a pair of pulleys, a cord engaging both pulleys, a ribbon-spool releasably connected to each pulley, a ratchet-wheel connected to one of said pulleys, and a pawl operatively connected to the universal bar and engaging said ratchet-wheel to effect the rotation of both pulleys.

7. In a type-writing machine, the combination with a platen, a series of type-bars, and a universal bar, of a pair of ribbon-spools arranged forwardly of the platen, a vertical shaft for each spool, operative connections arranged between said universal bar and one only of said shafts, and means for enabling said one shaft to cause the ribbon to wind upon either spool.

8. In a type-writing machine, the combination with a platen, a series of type-bars and a universal bar, of a pair of ribbon-spools arranged forwardly of the platen, a vertical shaft for each spool, a ratchet-wheel secured to one of said shafts, a pawl operatively connected to said universal bar and engaging said ratchet-wheel, whereby intermittent rotation of the latter is caused by reciprocatory movements of the universal bar, and means for transmitting the movement of said ratchet-wheel to the other of said vertical shafts so as to cause the ribbon to wind upon the spool thereon.

9. In a type-writing machine, the combination with a platen and a series of type-bars, of a pair of ribbon-spools arranged forwardly of the platen, a vertical shaft for each spool, means for rotating one of said shafts, a pulley arranged upon each shaft, and a crossed cord engaging both of said pulleys, whereby one of said shafts is driven by the other.

10. In a type-writing machine, the combination with a platen of a series of type-bars arranged forwardly thereof, a pair of ribbon-spools also arranged forwardly of the platen, a vertical shaft for each spool, each of said shafts extending downwardly to a point below the level of the type-bar system, means for rotating one of said shafts, and means connected to said shafts and extending across the machine below the type-bar system and connected to the other shaft, whereby rotary movement is imparted to the latter.

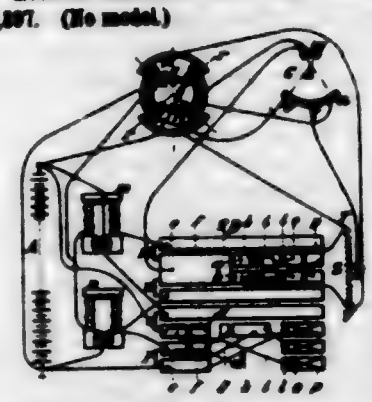
11. In a type-writing machine, the combination with a platen, a series of type-bars and a universal bar, of a pair of ribbon-spools arranged forwardly of the platen, a vertical shaft for each spool, operative connections arranged between said universal bar and one only of said shafts, means for enabling said shaft to cause the ribbon to wind upon either spool, and a reciprocatory guide for said ribbon arranged at a point between the spools and operatively connected to said universal bar.

12. In a type-writing machine, the combination with a platen and a series of type-bars, of a pair of ribbon-spools arranged forwardly of the platen, a reciprocatory ribbon-guide arranged between said spools, a universal bar, an arm secured to said universal bar, means for enabling said arm to rotate either of said spools to wind the ribbon thereon, and means for enabling said arm to reciprocate said ribbon-guide.

13. In a type-writing machine, the combination with a platen and a series of type-bars, of a pair of ribbon-spools arranged forwardly of the platen, a reciprocatory ribbon-guide arranged between said spools, a universal bar, an arm secured to said universal bar, means for enabling said arm to rotate either of said spools to wind the ribbon thereon, means for enabling said arm to reciprocate said ribbon-guide, and means for enabling said arm to control the letter-spacing movements of said platen.

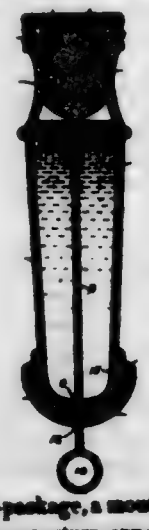
14. In a type-writing machine, the combination with a platen and a series of type-bars, of a pair of ribbon-spools arranged forwardly of the platen, a reciprocatory ribbon-guide arranged between said spools and arranged to be arrested, a universal bar, an arm secured to said universal bar, means for enabling said arm to rotate either of said spools to wind the ribbon thereof, means for enabling said arm to reciprocate said ribbon-guide, and means for enabling said universal bar to continue in motion after said ribbon-guide has been independently arrested.

692,286. ELECTROMECHANICAL DEVICE FOR ELECTRIC TRACTION. Ernesto Cantono, Rome, Italy. Filed Aug. 2, 1900. Serial No. 725,897. (No model.)



Claim.—The combination with the motors, of a steering-switch comprising contact-blocks and a lever adapted to be brought into contact with said blocks, a resistance adapted to be brought into the magnetic field of the motors or either of them to vary their speed according as the lever is brought in contact with the different blocks as described, means for mechanically actuating the lever comprising a hand-wheel, a worm actuated thereby, a spirally-toothed wheel meshing with the worm, a driving-wheel on the shaft of the spirally-toothed wheel, a steering-wheel mounted on the axle of the vehicle, a chain gearing the steering-wheel and driving-wheel together, a pin on the worm adapted to actuate the lever of the steering-switch, and connections between the steering mechanism and the motors and adapted to be actuated by the latter as set forth.

692,287. MUCILAGE-BOTTLE. John C. Carpenter, Canton, Ohio. Filed Oct. 16, 1901. Serial No. 78,681. (No model.)



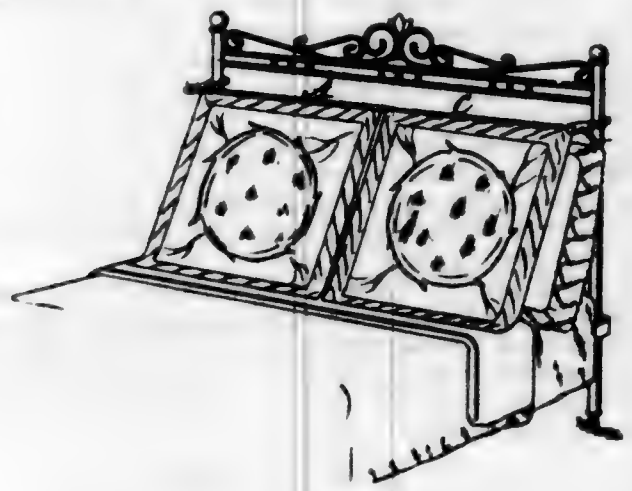
Claim.—1. In a liquid-package, a mouth having a less diameter than the cavity of the package, an aperture opposite said mouth, a rod adjustable through said aperture having a suitable packing, and a porous absorbent dauber on said rod adapted to be adjusted thereby within or protruded from said mouth of the package, substantially as specified.

2. In a liquid-package, a mouth having a less diameter than the cavity of the package, an aperture opposite said mouth, a rod adjustable through said aperture, a porous absorbent dauber on said rod adapted to be adjusted thereby within or protruded from said mouth, an external annular groove around said aperture, and an elastic cap having an aperture embracing said rod and an internal annular rim-bead adapted to contract in said groove, substantially as specified.

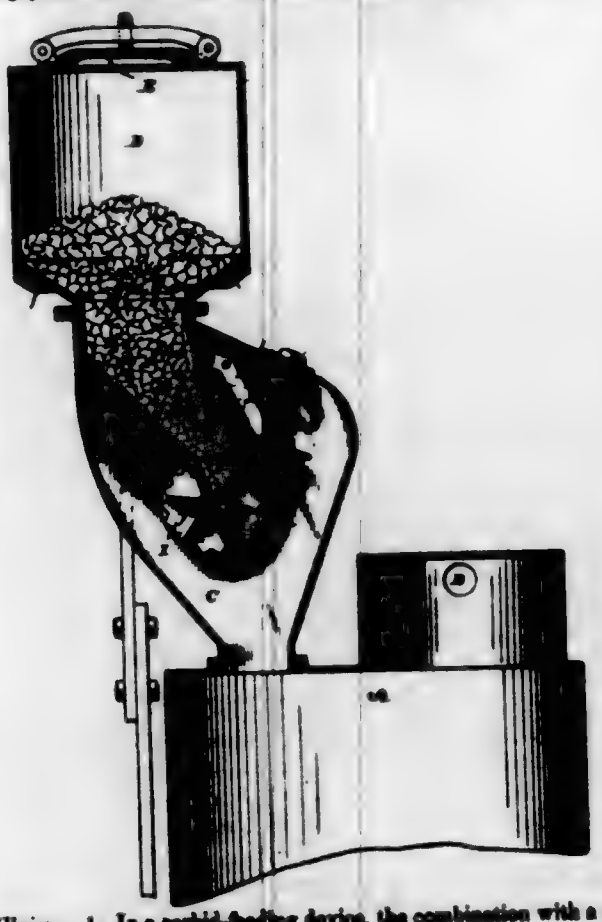
692,288. PORTABLE PILLOW-SHAM HOLDER. George P. Gilman, New York, N. Y., assignor of one-half to John A. Powers, New York, N. Y. Filed May 20, 1901. Serial No. 61,193. (No model.)

Claim.—A pillow-sham holder, comprising two telescoping tubes having right-angled ends, a spring-clamp secured to each of said ends and in alinement therewith, said clamps adapted to slide on the posts of a bed-

stand and to be held at any height thereon by the flexible arms of the clamps, as set forth.



692,239. ACETYLENE-GAS GENERATOR. GEORGE W. COLLIE, Bridgeport, Conn. Filed Jan. 3, 1901. Serial No. 41,958. (No model.)



Claim.—1. In a carbid-feeding device, the combination with a hopper adapted to contain lump-carbid, of a pocketed wheel having notches in its end flanges, a star-wheel adapted to be engaged and operated by said notches to cut out specific charges of carbid from the chute.

2. The combination with a carbid-hopper, of a pocketed wheel to receive and feed therefrom given charges of carbid, a star-wheel operated by said pocketed wheel, links in which said star-wheel is mounted, and a shouldered plate in said hopper carried by said links to agitate the carbid in the hopper with each movement of the wheel.

3. A carbid-feeding mechanism comprising a hopper, a wheel connected therewith comprising a series of radial paddles and circular webs inclosing the ends, to form a series of pockets to receive the carbid, a series of teeth in the periphery of said webs, a star-wheel riding upon said wheel engaged by the teeth of its end webs so as to insure the registration of the radial paddles on one wheel with those of the other to constitute separate and distinct compartments to receive separate and form successive charges of rough carbid from the hopper, links connected to the star-wheel and an agitator supported by said links and operated by said star-wheel to insure the feeding of the carbid.

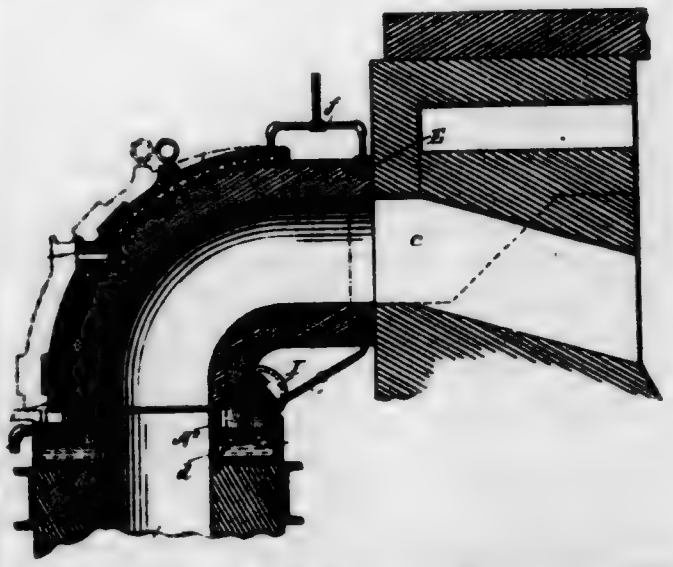
4. In a carbid-feeding mechanism, the combination with a carbid-chute, of a pocketed wheel, flanges inclosing the ends of said pockets provided with a toothed inner peripheral edge, a star-wheel adapted to rotate against said toothed edge in a manner to check and divide the flow of carbid into specified charges, means for operating said pocketed wheel and means for agitating the carbid within the chute at each movement of the pocketed wheel in a manner to insure the desired movement of the carbid.

5. A carbid-feed mechanism for acetylene-gas machines comprising a pocketed feed-drum and mechanism for driving the same, a star-wheel to ride upon and be operated by said drum, a gate controlling the size of the opening for the carbid from its hopper and connections between the star-wheel and gate for automatically and bodily raising and lowering the latter to expand and contract the passage under said gate with each feeding operation of the pocketed drum.

6. A carbid-feeding device comprising a pocketed wheel, a star-wheel engaged thereby, bell-crank links in which said star-wheel is hung, an agitator attached to said links to prompt the flow of carbid, and means to cause the positive rotation of the star-wheel with the pocketed wheel and insure the registration of the pocket of one with that of the other, so as to receive separate and form specific quantities of rough carbid from the hopper into charges, substantially as shown and described.

7. The combination of a carbid-feed mechanism comprising a feed-drum having a series of pockets to receive carbid, a star-wheel riding upon said drum adapted to separate the flow of carbid into specific charges, bell-crank links in which said star-wheel is hung, a gate hung upon the rear end of said links in a manner to impart thereto a slight vertical movement, and a series of shoulders upon the inner side of the gate adapted to engage and agitate the carbid resting thereagainst and insure its further flow into the pockets of the drum.

692,240. FLUE CONNECTION FOR FURNACES. SIMON C. COLLIN, Philadelphia, Pa., assignor of one-half to William White, Jr., Pittsburg, Pa. Filed Aug. 9, 1901. Serial No. 71,477. (No model.)



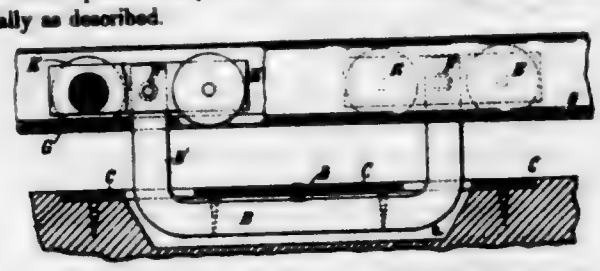
Claim.—1. The combination of a supply-pipe, a water-containing receptacle around the upper end of the supply-pipe, an elbow having a surrounding water-jacket and provided at its lower end with an annular flange depending into said water-containing receptacle to provide a water-sealed connection between the supply-pipe and elbow, means for supporting the elbow to permit lateral movement thereof to and from the furnace-opening, a water-supply pipe leading to the water-jacket, a drain-pipe connection between the water jacket and receptacle, and an overflow-pipe leading from the receptacle.

2. The combination of a supply-pipe, a water-containing receptacle around the upper end of the supply-pipe, an elbow having an upper water-jacketed end adapted to be seated around a furnace-opening and having a lower water-jacketed end and provided with an annular flange depending into the receptacle to provide a water-sealed connection between the supply-pipe and elbow, a water-supply pipe leading to both water-jackets, drain-pipes leading from said jackets into the receptacle, an overflow-pipe leading from the receptacle, and means for supporting the elbow to permit lateral movement thereof to and from the furnace-opening.

3. The combination of a supply-pipe, a water-containing receptacle around the upper end of the supply-pipe, a water-jacketed elbow provided with an annular flange depending from its lower end into the receptacle to provide a water-sealed connection between the supply-pipe and elbow, a water-supply pipe leading to the water-jacket, a valved drain-pipe leading from the water-jacket into the receptacle, a drain-pipe leading from the receptacle, wheels on the elbow supported by track-rails, and a lever connected with the wheel-axle to move the elbow to and from the furnace-opening.

692,241. DOOR-HANGER. JOHN H. COOK, Brooklyn, N. Y., assignor to Henry B. Newhall, Plainfield, N. J. Filed Oct. 29, 1900. Serial No. 34,016. (No model.)

Claim.—1. A door-hanger consisting of two sets of trolleys each set consisting of two double-trolley wheels arranged to engage a track and a trolley-bar connecting the axles of said trolley-wheels, a rigid hanger-bar pivotally attached at its ends to the center portions of said trolley-bars and its middle portion extending below its end portions, said hanger-bar being formed with a seat in its central portion, a carrying-plate secured to a door and extending over the central portion of said hanger-bar, and means attached to said plate to engage the seat in said bar to form a point of suspension for said door from said hanger-bar, substantially as described.



2. A door-hanger consisting of two sets of trolleys each set comprising two double trolleys to engage a track, a trolley-bar connecting the bearings of both of said double trolleys said bar being midway between the trolleys of a set, a U-shaped hanger-bar pivotally connected at its ends with said trolley-bars and having a seat formed at its central portion, and a carrying-plate to be attached to a door having a rocker mounted therein to engage said seat in said hanger-bar, substantially as described.

3. A door-hanger consisting of a rigid hanger-bar the ends of which are pivotally connected to bars joining the front and rear wheels of a trolley, a carrying-plate attached to a door and extending when in position over the hanger-bar, and a rocker between said hanger-bar and said carrying-plate, substantially as described.

4. A door-hanger consisting of two sets of double trolleys connected together by a rigid hanger-bar located between the trolleys of a set, a carrying-plate arranged to be fastened at one end of a door and a rocker attached to said carrying-plate to engage said hanger so that said carrying-plate is free to move about said rocker, substantially as described.

5. A door-hanger consisting of two sets of trolleys each set consisting of two trolleys joined by a rigid trolley-bar, a rigid hanger-bar connected at its two ends to said trolley-bars and formed with a seat, and a carrying-plate having a rocker mounted thereon arranged to be attached to a door and engaging said seat in said hanger-bar so that said door may rise with respect to said hanger-bar and swing pivotally about the same, substantially as described.

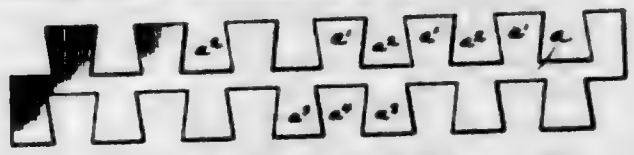
6. A door-hanger consisting of two sets of trolleys each set consisting of two double-trolley wheels arranged to engage a trolley-track and a trolley-bar connecting the axles of said trolley-wheels, a rigid hanger-bar pivotally attached at its ends to the center portions of said trolley-bars and formed with a seat therein, and means arranged to be attached to a door and suspended from said seat in said hanger-bar so as to have freedom of movement about said hanger-bar, substantially as described.

7. A door-hanger consisting of two sets of trolleys arranged to engage a trolley-track, rigid means mounted midway between the trolleys of a set connecting said sets of trolleys and having a support therein, and means arranged to be attached to a door hung in said support to allow said door to move vertically with respect to said support and also to swing about said support, substantially as described.

8. A door-hanger consisting of trolleys, a hanger-bar the ends of which are connected with said trolleys, a carrying-plate attached to the door and extending over said hanger-bar, a rocker between said hanger-bar and said carrying-plate, and an adjusting-rod bearing on the top of said rocker to vertically adjust the door relative to said hanger-bar, substantially as described.

9. A door-hanger consisting of trolleys, a rigid hanger-bar the ends of which are connected with said trolleys, a carrying-plate attached to the door and extending over said hanger-bar, a rocker between said hanger-bar and said carrying-plate, and a threaded rod connected to said carrying-plate and engaging said hanger-bar to laterally adjust the door relative to said hanger-bar, substantially as described.

692,242. ELASTIC FLOOR-COVERING. JAMES COOMBER, New York, N. Y., assignor of one-half to Albert Baumgarten, Freeport, Ill. Filed Apr. 22, 1901. Serial No. 56,206. (No model.)



Claim.—1. An elastic floor-covering formed of a series of sections each of which comprises a long central strip, formed on each of its opposite sides with a series of tongues and intermediate spaces whereinto the tongues of a contiguous section will fit.

2. An elastic floor-covering formed of a series of sections, each of which comprises a long central strip formed on each of its opposite sides with a series of interlocking tongues and intermediate spaces whereinto the tongues of a contiguous section will fit, and whereby the sections will be secured together.

3. An elastic floor-covering formed of a series of sections, each of which comprises a long central strip formed on its opposite sides with a series of tongues and intermediate spaces whereinto the tongues of a contiguous section will fit, the said tongues on said strips being alternately disposed on opposite sides of the strips.

4. An elastic floor-covering formed of a series of sections, each of which comprises a long central strip formed on each of its opposite sides with a series of interlocking tongues and intermediate spaces whereinto the tongues of a contiguous section will fit, and whereby the sections will be secured together, the said tongues on said strips being alternately disposed on opposite sides of the strips.

692,248. MILL. WILLIAM R. COPPENHAVER, Springfield, Ohio, assignor to the Foos Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed Sept. 16, 1901. Serial No. 75,464. (No model.)

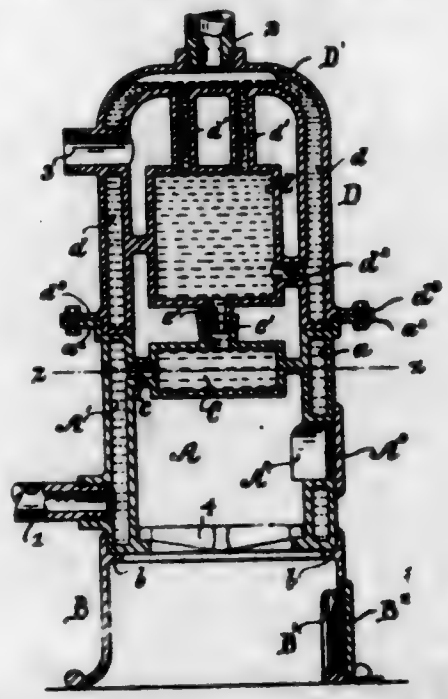


Claim.—1. In a mill of the character described, the combination, with an open head having an eye and spokes connecting the hub and annular body of the head, of wearing-plates secured to the outer or receiving faces of the spokes, substantially as described.

2. In a mill of the character described, the combination, with an open head provided with a feeding-eye and spokes or arms connecting the hub and annular body of said head, said spokes or arms being beveled, as described, of correspondingly-beveled wearing-plates secured on the outer or wider faces of the spokes or arms, substantially as described.

3. In a mill of the character described, the combination, with a casing, of an open head provided with an eye and spokes or arms connecting the hub of said head with its annular body, a seal-ring secured to the casing, and a wearing member detachably secured to the open head and comprising an annular portion, coöperating with the seal-ring, and radial plates fitting the outer or receiving faces of the spokes or arms, substantially as described.

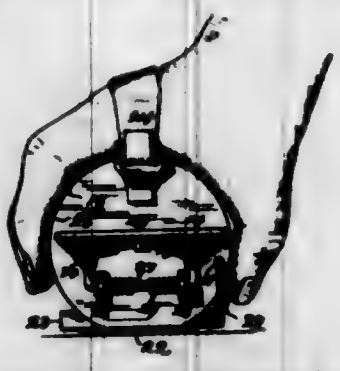
692,244. WATER-HEATER. RICHARD F. COX and GUSTAVE BLAIR, New York, N. Y. Filed Apr. 27, 1901. Serial No. 57,063. (No model.)



Claim.—In a water-heater, the combination, with the fire-box A; the water-jacket A', surrounding said fire-box; the door A^3, leading by the entry A^2, into said fire-box; the entry-pipe 1, adapted and arranged to supply said jacket with water; the grate 4, in the bottom of said fire-

box; the ash-pit B, telescopically attached to said water-jacket; the drum C, within said fire-box; and the channel *c* connecting said drum with said jacket; of the auxiliary compartment D, telescopical connections attaching said auxiliary compartment and said water-jacket; the reservoir *d*, surrounding said compartment D; the drum E, within said compartment; the tubes *d'*, connecting said drum E with the reservoir *d*; telescopic extensions *c'*, and *c'*, connecting the drum E with the drum C, flanges d^2, and d^3, adapted and arranged to be fastened together, and to hold the parts of the structure in position; means for the escape of the products of combustion; and means for the eduction of hot water from said heater, all substantially as and for the purpose set forth.

692,245. STAMP WITH CHANGEABLE FACE. WILL T. CRESSLER, Cincinnati, Ohio. Filed July 11, 1901. Serial No. 67,843. (No model.)



Claim.—1. In a stamp, the combination of a series of solid disks, type-blocks attached to their faces with spaces between them, a housing in which they are mounted for rotation, an opening in said housing permitting a type-block on each disk to protrude beyond the housing, and tongues projecting from the edge of this latter into the opening therein and adapted to engage with their free ends one each the face of a disk in the spaces between the types thereon, thereby holding them in alinement but yielding sufficiently to permit the type-blocks to slide past under them when rotation of the disks is required.

2. In a stamp, the combination of a series of solid disks, mounted for rotation, recesses in their faces open outwardly and at the sides of the disks, type-blocks fitted to these recesses and spacing-washers between the disks, partly closing the recesses at their sides.

3. In a numbering-stamp, the combination of a changeable printing-face, type-blocks of which the same is composed, disks on the faces of which these type-blocks are carried, a housing within which these disks are mounted for rotation, an opening in the housing within which the type-blocks may be alined to form the printing-face and additional permanent printing-faces at the ends of this opening.

4. A type-wheel composed of a solid center of rigid material, frames 17 consisting of a base from opposite edges of which converging sides project, they being secured to the face of the solid center so as to project radially therefrom, rubber type-blocks fitted into the space between the converging sides of frames 17 and blocks of elastic material interposed between them and the bottom of these frames, both being held in place by the convergence of these sides.

5. In a stamp, the combination with the type-face thereof, of a frame or casing, an ink-pad hingedly connected to this latter in a position permitting it to be swung over the type-face to close up the stamp when not in use or for inking and springs to normally hold it clear of this latter when so closed up, but yielding sufficiently upon pressure to establish contact between the two to permit inking of the printing-face.

6. In a stamp, the combination with the type-face thereof, of a frame or casing, an ink-pad hinged to one side of the same in a position permitting it to be folded over the type-face when not in use, locking means to hold it so, the position of the parts at that time being such that they do not touch each other and springs to so hold them apart and to carry this inking-pad away from the printing-face.

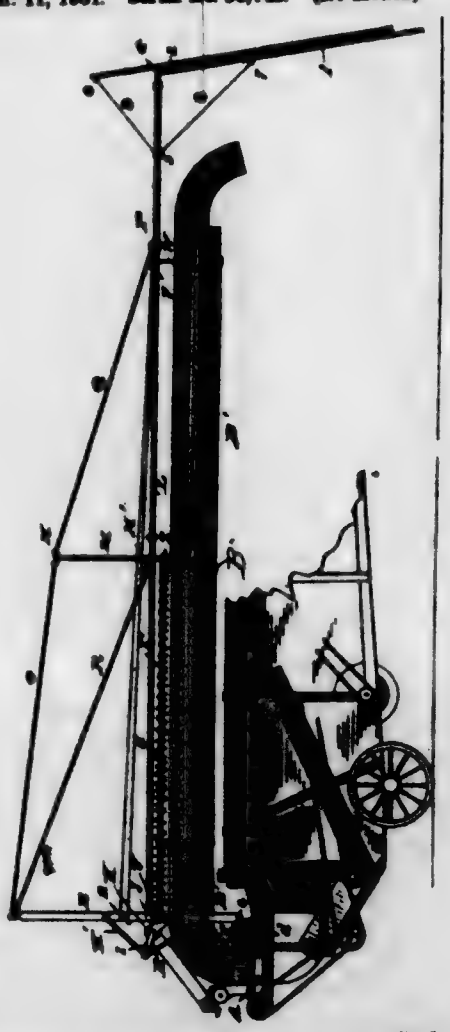
7. In a stamp, the combination of a number of adjustably-mounted disks having type on their faces and supported to permit arrangement of these type to form a printing-face, a substantially cylindrical casing inclosing them with the exception of the printing-face where the casing is left open to permit printing, the casing being of a size as to diameter which prevents a completely-closed grasp of the hand and extended fingers and a gripping-ridge projecting from the round side of the casing and so disposed as to extend crosswise under the fingers as they lie against the side of the casing thereby filling the incomplete grasp of the hand.

8. In a stamp, the combination of a number of adjustably-mounted disks having type on their faces and supported to permit arrangement of these type to form a printing-face, a substantially cylindrical casing inclosing them with the exception of the printing-face where the casing is left open to permit printing, the casing being of a size as to diameter which prevents a completely-closed grasp of the hand and extended fingers, an ink-pad permanently attached to the casing and a hand-strap attached to the ends of the latter and fitted to pass over the back of the hand to assist in the manipulation of the stamp.

9. In a stamp, the combination of a number of adjustably-mounted disks bearing type on their faces, a substantially cylindrical casing inclosing them, but partly open to permit contact of the type for printing, an ink-pad connected thereto in a manner permitting it to be folded over the type-face when the stamp is not in use and means operating automatically to hold the pad normally out of contact with the type-face at such times.

10. In a stamp, the combination of a number of disks bearing type on their faces, a housing within which they are mounted for rotation to permit adjustment of each to form a printing-face for a certain purpose, a pad hingedly connected to the housing in a manner to permit it to lie over the printing-face for inking and to be moved out of this position to clear the same for printing, the connection being such as to cause the pad while moving away from the printing-face, to move for a limited distance at right angles away therefrom, after which it swings clear to one side of the same.

692,246. WIND-STACKER. EDWARD A DARBY, Baraka, Ill. Filed Mar. 11, 1901. Serial No. 50,748. (No model.)



Claim.—1. In a stacker of the character described, a chute mounted to swing in any plane, an extension therefor adapted to be telescoped upon said chute, a single track supported above the chute, a supporting-bail at the free end of the chute extension supported by said track and adapted to move along the same, a deflecting-plate pivoted at the outer end of the track beyond the chute extension, said plate projecting above and below its pivotal point, flexible means attached to the plate, one above and one below said point, means for operating the said flexible portions to move the plate on its pivot and means for shifting the telescoping portion of the chute substantially as set forth.

2. In a stacker of the character described, the combination of an extensible chute B' arranged to swing in all directions, a support for suspending such chute consisting of a frame or mast pivoted to the support which carries the said chute at its rear end, a truss attached to the top of the said mast and extending forward to support the chute at its forward end, a track supported by said truss, a bail W on the forward extremity of the extensible chute portion, the same being supported by the track and adapted to shift thereon, a deflecting-plate pivoted to the forward end of the track as shown, and the wires 8 and 9 attached to the deflector, one above and one below its pivotal point, such wires being carried rearwardly and means for altering the length of the wires for shifting said deflector on its support as set forth.

3. In a stacker of the character described, the chute B, the extension B' thereof, the latter adapted to slide on the former, a mast at the rear end of the chute, a truss connected thereto consisting of the rods O, Q, R, the post M, and the track L arranged as shown and described, the latter attached to the mast, a bail on the forward end of the chute portion B' the same adapted to slide upon the said track, a support for the telescoping ends of the chute portions which consists of the wheels T, U, one on the post M and the other on the mast, and a chain adapted to run upon the said wheels and having the telescoping end of the chute portion B' attached thereto for altering the length of the chute as the chain is shifted as set forth.

4. In a stacker of the character described, the combination of the chute portions B and B', the mast at the rear end of said portion B, the truss O, Q, R, M and the track L arranged as shown and described, the deflecting-plate 1 pivoted to the forward end of the track, the wires 8 and 9 attached thereto for shifting it, the bail W and wheel V for carrying the forward end of the chute portion B' on the said track L, the chain T' connected to the rear telescoping end of the said portion B', wheels T and U for the chain, the said chain adapted to both support and shift the said chute and means for elevating and lowering the entire mechanism for the purposes set forth.

5. In a stacker the combination of the chute portions B and B', the mast composed of the arms E E carrying the chute, a truss secured to such mast and consisting of the arms H and H', the arms J and I, the pulley K between the arms J, by which the mast is swung on its pivot to raise the chute, means for swinging said mast, the truss O, Q, M, R secured to the said mast for supporting the forward end of the chute, the track L connected with the said truss and mast and forming part of such truss, a bail W carrying the chute portion B' and adapted to shift on the said track L, a chain attached to the said chute B' for supporting and shifting the same, wheels T, U for said chain, means for moving the chain to telescope the chute, the deflector 1 pivoted to the forward end of the track L for receiving the straw against it from the chute, and the wires 8 and 9 for adjusting such deflector for the purpose specified.

6. In a wind-stacker, the combination of a straw-chute consisting of the stationary section B and sliding portion B' mounted on a thresher and adapted to swing thereon in all directions, a track L supported from the swinging support of said chute, a trussed support for said track consisting of the portions Q, M, O and R and the bars E to which O and R are attached, a sliding bail for said portion B' and adapted to shift upon the said track whereby said portion B' may be telescoped upon the portion B, means for telescoping said portions, a deflecting-plate 1 pivotally attached to the free end of the track and flexible portions 8 and 9 for moving same on its pivot, the same being within reach of the operator for the purposes described and all being arranged substantially as set forth.

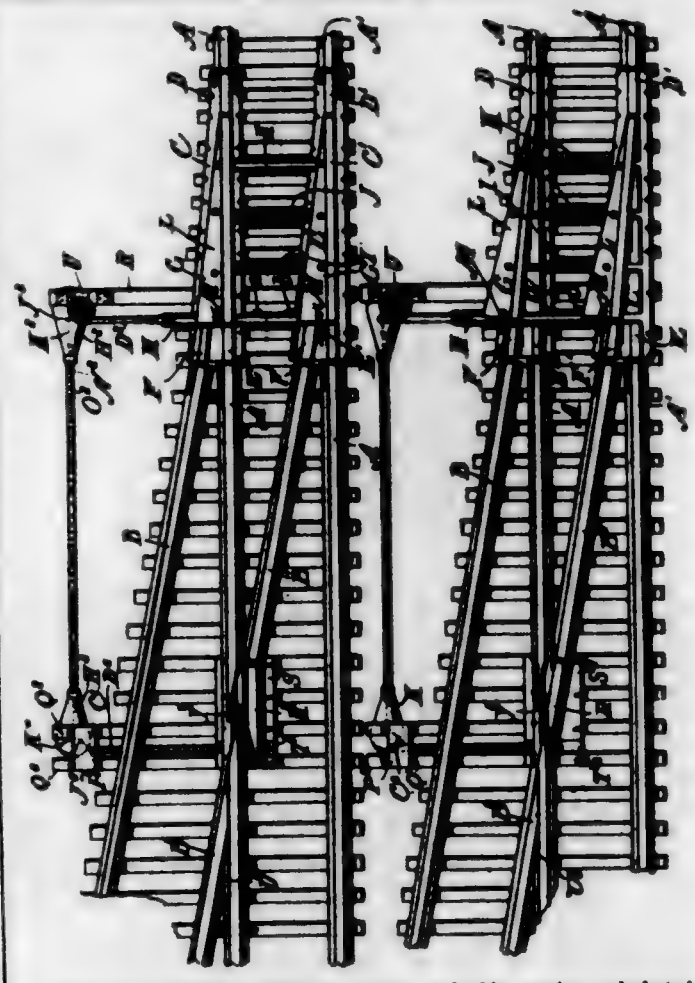
692,247. **RAILWAY-SWITCH.** FRANK L. DARWIN, Marquette, Kans., assignor of seven-eighths to HANS HANSEN, JOHN J. MOTHANDER, ROBERT SOHLBERG, FREDERICK WELHAUSSER, ALBRECHT HAERTLEIN, FRED BURNHAM, JOHN BURNHAM, OSCAR ROSS, CHARLEY LINDSTROM, S. C. BYBEE, and GUSTAF WILLIAM HANSEN, Marquette, Kans., and C. A. INGEMANSEN. Filed May 14, 1901. Serial No. 60,181. (No model.)

Claim.—1. A switch mechanism, comprising the main and siding tracks, plates and stub switch-points mounted on the latter, bars connecting said points, stops mounted on one of said bars and adapted to limit the throw of said switch-points, combined with a switch-stand, a vertically-mounted rotatable switch-rod, pivotal link-and-lever connections between said rod and the bar carrying said stops, a spring-actuated bolt engaging one of said switch-points, and a foot-lever and connections with said bolt, as set forth.

2. A switch mechanism, comprising in combination with the main and side tracks, switch-points connecting the same, mounted as described, stops for limiting the throw of said points, vertically and rotatably mounted switch-rod, pivotal link connections between said switch-rod and said switch-points, hand-wheel keyed to rotate with said switch-rod, a casing and switch-stand on which the same is mounted, a lever having a pivoted handle at its end, adapted to be held in notches in said casing and locked therein, and means for holding said handle out of engagement with the casing when the switch is open, as set forth.

3. A switch mechanism, comprising in combination with the main and side rails, the switch-points connected together as described, the stops for limiting the throw of said points, switch-stand, the switch-rod vertically mounted in suitable bearings and having pivotal link connections with said switch-points, the hand-wheel keyed on said switch-rod, a casing mounted on said switch-stand, a lever keyed to the switch-rod and having a pivoted handle secured to its end, adapted to be locked within said casing when the switch is closed, and a spring-clasp carried by the hand-wheel and adapted to hold said handle out of engagement with said casing when the switch is open.

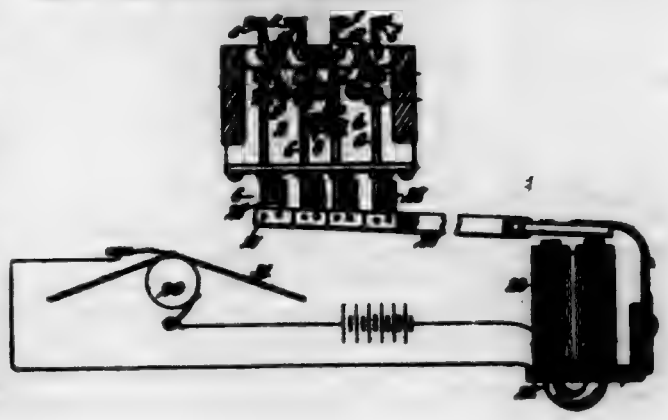
4. A switch mechanism, comprising in combination with the main and siding tracks, the switch-points, the switch-stand, pivotal link connections with said points, and stops to limit the throw of the points, a hand-wheel keyed to the switch-rod and a lever also pivoted to said rod, a handle pivoted to the end of said lever, a casing having notches in its circumference and stops to limit the throw of said lever, a spring-actuated hasp pivoted adjacent to the circumference of said casing, a spring-actuated bolt mounted within the casing, adapted to receive and lock said hasp across the entrance to the notch in which the pivoted handle is seated when the switch is closed, and means for releasing said hasp, as set forth.



5. In combination with the main and side tracks, switch-points, switch-stands, pivotal link connections between said points and the switch-rod, the casing secured to said stand, hand-wheel and lever keyed to the switch-stand, a spring-catch secured to the under side of said hand-wheel, a handle pivoted to the bifurcated end of said lever, adapted to engage in notches in the circumference of the casing, stops on said lever, a hasp, spring-actuated, and pivoted near the circumference of the casing, a hook at one end of said hasp, a block seated within said casing, and a spring-actuated bolt carried by said block, the outer end of said spring-actuated bolt disposed in the path of said hook, and means for releasing said hook to allow the spring-actuated hasp to open to release the pivoted handle, which may be held in one of said notches, as set forth.

6. In combination with the switch-points, means for throwing the same, the apertured plate C, a bolt N passing through said plate and engaging a recess in the switch-point, the yoke secured to the under face of said plate, a spring interposed between said yoke and a collar on the bolt, the foot-lever and link-and-lever connections between same and said bolt, as set forth.

692,248. **MUSICAL STRINGED INSTRUMENT.** GUSTAVE E. DAVIS, New York, N. Y., assignor to the American Automusic Company, New York, N. Y., a Corporation of New Jersey. Filed Apr. 29, 1899. Serial No. 715,003. (No model.)



Claim.—1. In combination with the string of a musical instrument, a picker, a series of fretting devices and means governed by any fretting device of the series for operating the picker.

2. In combination with the strings of a musical instrument, a series of fretting devices and a picker for each string, and means governed by any fretting device for operating the picker of its corresponding string.

3. In a musical stringed instrument, the combination of a device for fretting, and a device for vibrating a string, and means for directly connecting and simultaneously operating both of said devices.

4. In a musical stringed instrument, the combination of devices for fretting and vibrating a string, and means for directly connecting and positively operating both devices from a single motor.

5. In a musical stringed instrument, controlled by a note-sheet, the combination of the string-fretting devices, and a string-vibrating device, with means for operating both of the said devices under the control of a single row of note devices of the note-sheet, for each note to be played.

6. In combination, with the string of a musical instrument, controlled by a note-sheet, a vibrating device, and a series of fretting devices, and means for operating the string-vibrating device and the appropriate fretting device from a single row of note devices of the note-sheet, for each note to be played.

7. In a musical stringed instrument the combination with the picking mechanisms for vibrating the strings and the fretting devices of a set of operating mechanisms each of which actuates both its fretting devices and its string-vibrating mechanism.

8. In a musical stringed instrument the combination with the pickers and the string-displacing devices, of power mechanism and a single set of connections each of which connects the power mechanism with a picker and with a string-displacing device for actuating them.

9. In a musical stringed instrument the combination with a series of pickers, and a series of fretting devices, of a series of frot-rods which operate both the pickers and the fretting devices and means for actuating said rods.

10. In a musical stringed instrument the combination with a series of pickers and a series of fretting devices of a stencil with a single set of perforations for operating both the picking and fretting devices and a single set of connections between the stencil and the picking and fretting devices.

11. In a musical stringed instrument the combination with a series of pickers and a series of fretting devices of a stencil with a single set of perforations for operating both the picking and fretting devices, a series of electromagnets controlled by said stencil and a single set of connections between the magnets and the picking and fretting devices.

12. In a musical stringed instrument, the combination with picker-fingers for vibrating the strings, and fretting devices, of means actuated by the fretting devices for operating the picker-fingers.

13. In a musical stringed instrument, the combination with picker-fingers for vibrating the strings and fretting devices, of means for operating the fretting devices, and means actuated by the fretting devices for operating the picker-fingers.

14. In a self-playing musical stringed instrument, the combination with picker-fingers and fretting devices, of means for automatically operating the fretting devices, and mechanism actuated by the fretting devices for operating the picker-fingers.

15. In a musical stringed instrument, the combination with fretting devices, of picker-fingers normally lying below the strings, and means for causing said picker-fingers to engage the strings when the latter are depressed by the fretting devices.

16. In a musical stringed instrument, the combination with fretting devices, of picker-fingers normally lying below the strings, and means for causing said picker-fingers to engage and sweep beneath the strings when the latter are depressed by the fretting devices.

17. In a musical stringed instrument, the combination with picker-fingers normally lying beneath and out of contact with the strings, of fretting devices operating to shorten the vibrating length of the strings and depress the latter into operative position relatively to the picker-fingers, and means for actuating the picker-fingers to vibrate the strings when the latter are depressed.

18. In a musical stringed instrument the combination with the neck thereof, of a series of longitudinally-movable rods projecting through the neck and provided with ends overlying the strings, a rock-shaft extending lengthwise of the neck in operative engagement with the rods, and means for actuating said rods and shaft.

19. In a musical stringed instrument the combination with the neck thereof of a series of longitudinally-movable rods projecting through the neck and provided with ends overlying the strings, a rock-shaft mounted in and extending lengthwise of the neck, in engaging relation to the rods, and means for actuating said shaft and either of its rods independently of the other rods.

20. In a musical stringed instrument, the combination with the neck thereof, of longitudinally-movable rods projecting transversely up through the neck and provided with ends overlying the strings, means for depressing said rods to shorten the vibrating lengths of the strings, picker-fingers for vibrating the strings, and mechanism actuated by the said rods for operating the picker-fingers.

21. In a musical stringed instrument, the combination with the neck thereof, of longitudinally-movable rods projecting transversely up through the neck and provided with ends overlying the strings, means for depressing the rods to shorten the vibrating lengths of the strings, rock-shafts each provided with a picker-finger arranged in operative relation to one of the strings, and means actuated by the said rods when the latter are depressed for operating the picker-fingers.

22. In a musical stringed instrument, the combination with the neck thereof, of longitudinally-movable rods projecting transversely up through the neck and provided with ends overlying the strings, means for depressing the rods to shorten the vibrating lengths of the strings, rock-shafts arranged longitudinally beneath the neck, picker-fingers mounted on said shafts in operative relation to the strings, and means actuated by the said rods when the latter are depressed for operating the picker-fingers.

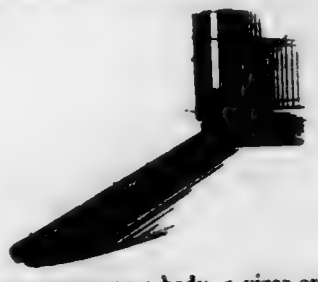
23. The combination, with the neck of a musical stringed instrument, of an extension reaching beyond the opposite side of the head of the instrument and supporting the lengthwise tension of the strings, independently of the rim.

24. The combination, with the neck of a musical stringed instrument, of an extension, attached to the neck and extending beyond the head of the instrument, provided at its rear end with an arm extending beyond and above the head and supporting the lengthwise tension of the strings, independently of the rim.

25. In a musical stringed instrument, the combination with the neck thereof, of longitudinally-movable rods projecting transversely up through the neck and provided with ends overlying the strings, means for depressing the rods to shorten the vibrating lengths of the strings, rock-shafts arranged longitudinally beneath the neck and provided with crank-pins, a projection arranged on each of the said rods in position to engage the corresponding crank-pin when the rod is depressed and rock the rock-shaft, and picker-arms on said rock-shafts operating, when the latter are rocked, to pick the strings.

26. In a musical stringed instrument, the combination with a neck thereof, of longitudinally-movable rods projecting transversely up through the neck and provided with ends overlying the strings, means for depressing the rods to shorten the vibrating lengths of the strings, rock-shafts arranged longitudinally beneath the neck and provided with crank-pins, two collars arranged on each of the said rods and operating to engage the corresponding crank-pin and rock the shaft in opposite directions when the rod is depressed and raised, and picker-arms on said rock-shaft operating, when the latter is rocked to pick the strings.

692,249. APPAREL-CAP. MARK DAVIS, New York, N. Y., assignor of one-half to Isidor Lauterstein, New York, N. Y. Filed Mar. 5, 1901. Serial No. 49,710. (No model.)

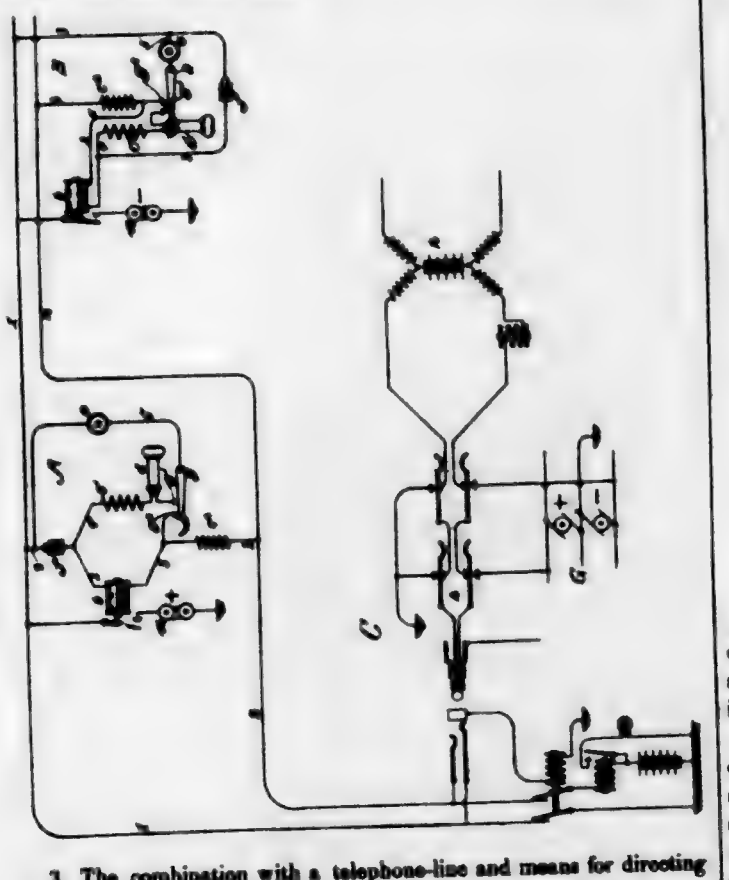


Claim.—A cap comprising a body, a visor or brim, a flexible strip projecting rearwardly from the visor or brim and adapted to form, when lowered, a forehead-protector, and an arched stay or stiffener of springy nature secured to said flexible strip, the distance between said stay and the adjacent portion of the fixed line or hinge of the flexible portion increasing gradually from the ends of the stay to the central portion thereof so that a figure of approximately the shape of a meniscus or crescent is inclosed between the hinge and the adjacent edge of the stay.

692,250. CALLING APPARATUS FOR TELEPHONE-LINES. WILLIAM W. DEAR, Chicago, Ill., assignor to the Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed May 31, 1900. Serial No. 18,492. (No model.)

Claim.—1. The combination with a telephone-line and means for producing current therein, of a bridge of the line having a winding of an induction-coil, a relay and a condenser included serially therein, a telephone-switch and a shunt of the relay and condenser controlled thereby, said shunt including a transmitting-telephone, and a circuit controlled by the relay, as described.

2. The combination with a telephone-line and means for directing current over the line, of a call-bell at the substation thereof and a branch circuit including said call-bell, a relay controlling said branch circuit, transmitting and receiving telephones, an induction-coil having two windings, a permanently-closed bridge of the line including serially the condenser, the relay and a winding of the induction-coil, two shunt-conductors, one of said conductors shunting the relay and including the other winding of the induction-coil, and the other conductor including the transmitting-telephone shunting the condenser and relay, and a switch controlling said shunts, substantially as set forth.

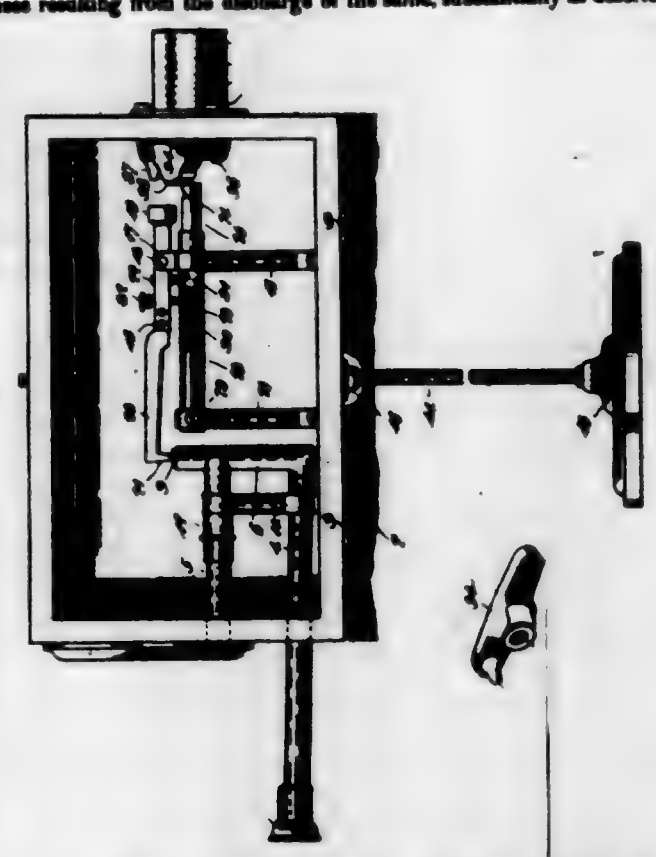


3. The combination with a telephone-line and means for directing calling-current and steady current over the line, of a bridge of the line including serially a telephone-transmitter and one winding of an induction-coil, a telephone-switch controlling said bridge, having its contacts between the transmitter and the said induction-coil winding, a shunt of the transmitter including serially a condenser, another winding of the induction-coil and a receiving-telephone, said shunt being also controlled by the telephone-switch, a signal-bell, a branch circuit from one limb of the line including said signal-bell, a relay controlling said branch circuit, responsive to calling-current, and a permanently-closed conductor including said relay, extending from a point between the first-mentioned winding of the induction-coil and the telephone-switch, in bridge of the line through the condenser, whereby the relay is in the path of calling-current but is short-circuited as to direct current.

4. The combination with a telephone-line and means for directing calling-current and direct current over the line, a call-bell connected by a branch conductor to one limb of the telephone-line at the substation thereof, a relay *b* controlling the connection of the bell with the line, a transmitting-telephone and a receiving-telephone, a switch-lever *g* connected with the limb 1 of the line through the transmitting-telephone, two contacts g' g^2 for the switch-lever normally separated from one another and from the switch-lever, but adapted to be closed together against the switch-lever when the telephone talking apparatus is in use, a winding c^2 of an induction-coil included in a conductor extending from the contact g^2 to the other limb 2 of the telephone-line, a conductor extending from the limb 1 of the telephone-line to the other contact g' of the switch-lever and including serially a condenser and the other winding c' of the induction-coil, the condenser being between the said winding c' and the limb 1 of the telephone-line, and a conductor including the helix of the relay *b*, said conductor extending between the condenser and the contact g^2 of the switch-lever, whereby the relay is included with the condenser in a bridge of the line, to respond to calling-current, and is removed from the path of the direct current, substantially as set forth.

692,251. DUMMY LUNG-TESTER. EDMUND DE MOULIN and ULYSSES S. DE MOULIN, Greenville, Ill. Filed July 20, 1901. Serial No. 68,139. (No model.)

Claim.—1. A device of the class described comprising a casing, a tube adapted to be blown into, a valve, firing mechanism arranged to be tripped by the valve, a cartridge-support, and a receptacle forming a guard and arranged to receive the wad of a cartridge and the smoke and gases resulting from the discharge of the same, substantially as described.



2. A device of the class described comprising a casing having an opening, means for supporting a cartridge at the said opening, firing mechanism, and an exterior receptacle mounted on the casing at the said opening and forming a guard, substantially as described.

3. A device of the class described comprising a casing having an opening, means for supporting a cartridge at the said opening, firing mechanism, and an exterior receptacle having an open inner end located at the said opening, said receptacle being closed at the outer end and provided with suitable perforations or openings for the escape of gas, substantially as described.

4. A device of the class described comprising a casing provided at the back with an opening, an exterior receptacle arranged at the opening and forming a guard, a pivotally-mounted cartridge-support arranged at the back of the casing and having a bore or opening for the reception of the cartridge and adapted to be swung to and from the opening of the casing, firing mechanism, and means for operating the firing mechanism, substantially as described.

5. A device of the class described comprising a casing, a cartridge-support pivoted at one end to the casing and adapted to be swung inward and outward, a spring-actuated firing-pin mounted within the casing and arranged to engage a cartridge held by the said support, a lever for holding the firing-pin in its retracted position, and a tube adapted to be blown into and provided with a valve arranged to engage the lever to release the firing-pin, substantially as described.

6. A device of the class described comprising a casing, a reciprocating spring-actuated firing-pin, a lever provided with means for engaging the firing-pin to hold the same in its retracted position, an adjusting device for supporting the lever to vary its engagement with the firing-pin, said adjusting device extending from the lever in the same plane as that of the movement of the lever, and a tube adapted to be blown into and provided with a valve for engaging the lever, substantially as described.

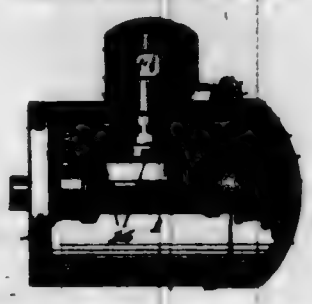
7. A device of the class described comprising a casing, a reciprocating spring-actuated firing-pin, a lever provided with means for engaging the firing-pin, an adjusting-screw carried by the lever and adapted to support the same, said adjusting-screw extending from the lever in the same plane as that of the movement of the lever, and a tube adapted to be blown into and provided with means for engaging the lever, substantially as described.

8. In a device of the class described, the combination of a tubular guide, a reciprocating spring-actuated firing-pin mounted in the guide, a lever provided with a projection engaging the firing-pin, an adjusting-screw mounted on the lever and engaging the guide and supporting the lever, said screw being arranged in the plane of the movement of the lever, and a tube adapted to be blown into and provided with means for engaging the lever, substantially as described.

9. In a device of the class described, the combination of a tubular guide, means for supporting the same, a reciprocating spring-actuated firing-pin mounted in the guide and provided with an aperture, a lever located above the guide and fulcrumed between its ends and having one arm

weighted, a pin mounted on the other arm and arranged to engage the notch of the firing-pin, an adjusting device for supporting the lever arranged in the plane of the movement of the latter, a blow-tube, and a valve mounted in the blow-tube and arranged to engage the lever, substantially as described.

692,252. VALVE. Rodney H. Dixon, East Orange, N. J. Filed Aug. 18, 1900. Serial No. 27,373. (No model.)

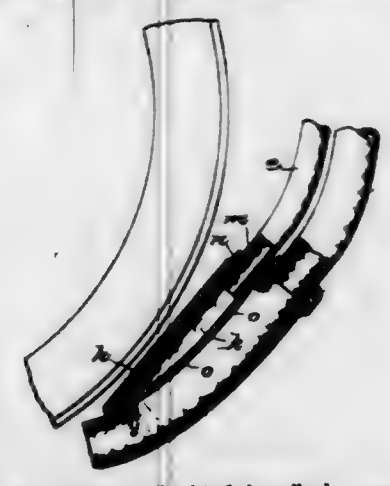


Claim.—1. The combination with a valve-body, valve-seat, and bonnet-body secured to the valve-body, of a reciprocating valve-carrier in the bonnet-body provided with means adjacent to the valve for rendering it irrevoluble and being of cylindrical shape above said means, a stuffing-box in the bonnet body surrounding the cylindrical portion of the carrier, a packing-ring in the stuffing-box, a packing-nut, and means for actuating the carrier.

2. The combination with a valve-body, valve-seat, and bonnet-body secured to the valve-body, of a stuffing-box in the bonnet-body, a packing-nut threaded to the bonnet-body, above the stuffing-box, a valve-carrier adapted to be inserted or withdrawn through the packing-nut and bonnet-body, a flanged stem threaded to the carrier, and a stem-nut threaded to the packing-nut and adapted to confine the flange of the stem, whereby the carrier and stem, either or both, may be removed and replaced upon removal of the stem-nut, without disturbing the packing-nut.

3. The combination with a valve-body, valve-seat, and bonnet-body secured to the valve-body, of an irrevoluble, reciprocatory valve-carrier in the bonnet-body, a stuffing-box in the bonnet-body surrounding the carrier, a packing-nut provided upon opposite ends with internally-threaded recesses, one adapted to fit the externally-threaded end of the bonnet-body, and the other to receive an externally-threaded stem-nut screwed therein, a recess in the stem-nut, a valve-stem threaded to the carrier, a flange on the valve-stem confined between the stem-nut and the packing-nut, and a head on the stem within the recess in the stem-nut.

692,253. TRACK-SANDER. Nathaniel B. Dodge, Fitchburg, Mass. Filed July 8, 1901. Serial No. 67,419. (No model.)



Claim.—1. In a device of the kind described, a sand-pipe, a sand-supply therefor, and means for creating a partial vacuum in said pipe for discharging said sand, said means comprising a series of apertures at one side of said pipe extending obliquely through said side of said pipe, and means for forcing a blast through said apertures toward the outlet of said pipe.

2. In a device of the kind described, a sand-pipe having a discharge-nozzle at its end, a blast-tube in the upper side of said nozzle and having a series of holes opening obliquely toward the opposite lower wall of said sand-pipe for discharging a blast toward the open end of the nozzle.

3. In a device of the kind described, a sand-pipe having a discharge-nozzle provided with a chamber containing a perforated wall opposite one side of the sand-pipe, the perforations in said wall extending obliquely through said wall for discharging a blast therethrough against said opposite side and in the general direction of the discharge end of the nozzle.

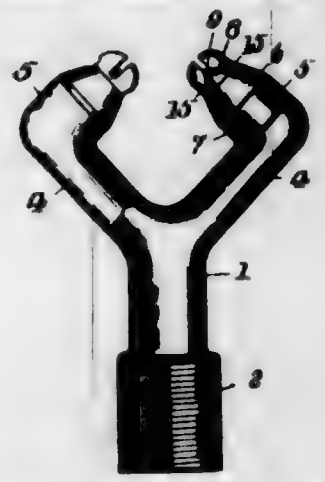
4. In a device of the kind described, a sand-pipe having at its lower end a discharge-nozzle provided on its upper side with a blast chamber or box containing holes opening obliquely into the discharge-passage of said nozzle for discharging a blast forcibly downward toward the discharge end of said nozzle.

5. In a device of the kind described, a sand-pipe having at its lower end a discharge-nozzle provided on its upper side with a chamber, and a blast-tube removably fitted within said chamber containing oblique perforations on its under side for directing a blast therefrom into said nozzle toward the discharge end thereof.

6. In a device of the kind described, a sand-pipe having at its lower end a discharge-nozzle provided on its upper side with a chamber and having perforations through one side thereof for directing a blast into said nozzle, a hollow nipple passing through the upper end of said chamber and engaging said blast-tube, and means for clamping said nipple and tube rigidly in position.

7. In a sanding device for locomotives, a sand-pipe having at its lower end a discharge-nozzle, the locomotive having a steam air-pump, a blast-tube forming the upper wall of the discharge-passage of said nozzle and provided with oblique holes directing a discharge-blast downwardly in said nozzle, and a steam-pipe for providing steam to said tube, said steam-pipe being connected to the exhaust of the air-pump of the engine.

692,254. GAS-BURNER. Edward J. Dolan, Philadelphia, Pa. Filed Oct. 5, 1901. Serial No. 77,716. (No model.)



Claim.—1. In combination with a duplex gas-burner, a slotted tip with wall tapering in two directions, mounted one in each arm of the burner, a slotted cap tapering a portion of its length and frictionally engaging the outer tapered wall of each tip, the outer portion of each cap being contracted beyond its tapered portion, and forming a mixing-chamber with air-inlet apertures, as set forth.

2. In combination with the hollow arms 4, of a duplex gas-burner, the slotted tip 6, mounted in said arms, each tip having a shoulder abutting against the end of an arm, the wall of each tip tapering in two directions, a slotted cap abutting against the end of each arm, and frictionally engaging the tapering wall of a tip, and having its outer end contracted and forming an air-mixing chamber with apertures in the wall thereof, as set forth

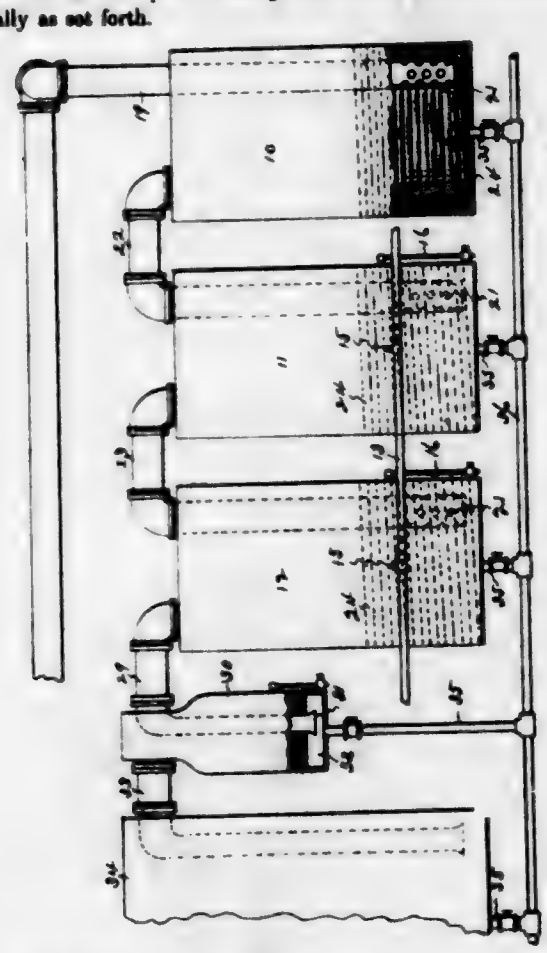
692,255. CARBURETER. Henry J. Doolan, Washington, D. C. Filed Apr. 26, 1901. Serial No. 57,563. (No model.)

Claim.—1. An apparatus for generating gas comprising a series of tanks, an air-inlet pipe leading into one of said tanks, pipes leading from each tank into the next adjoining tank, an outlet leading from the last of said tanks, means for supplying air to said air-inlet pipes, means for supplying oil to each of said tanks, and heating-coils located in each of said tanks, said coils surrounding each of said inlet-pipes, and extending above the normal oil-level, whereby the air passing through said inlet-pipes into the oil is heated simultaneously with said oil, substantially as set forth.

2. An apparatus for generating gas comprising a series of tanks, an air-inlet pipe leading into one of said tanks, pipes leading from each tank into the next adjoining tank, an outlet leading from the last of said tanks, means for supplying air to said air-inlet pipe, means for supplying oil to each of said tanks, and means located within each tank for simultaneously heating the oil contained therein and the air as it passes through said inlet-pipes and into said oil, substantially as set forth.

3. An apparatus for generating gas comprising a series of tanks, an air-inlet pipe leading into one of said tanks, inlet-pipes leading into each of the remaining tanks from the next adjoining tank, said inlet-pipes having their ends closed and provided with holes or perforations, the combined area of which is greater than the area of the bore of said pipe, an outlet leading from the last of said tanks, means for supplying air to said air-inlet pipe, means for supplying oil to each of said tanks, and means

located within each tank for simultaneously heating the oil contained therein and the air as it passes through said inlet-pipes and into said oil, substantially as set forth.



4. An apparatus for generating gas comprising a series of tanks, an air-inlet pipe leading into one of said tanks, inlet-pipes leading into each of the remaining tanks from the next adjoining tank, said inlet-pipes having their ends closed and provided with holes or perforations the combined area of which is greater than the area of the bore of said pipe, an outlet-pipe leading from the last of said tanks, means for supplying air to said air-inlet pipe, means for supplying oil to each of said tanks, and heating-coils located in each of said tanks, said coils surrounding each of said inlet-pipes, and extending above the normal oil-level, whereby the air passing through said inlet-pipes into the oil is heated simultaneously with said oil, substantially as set forth.

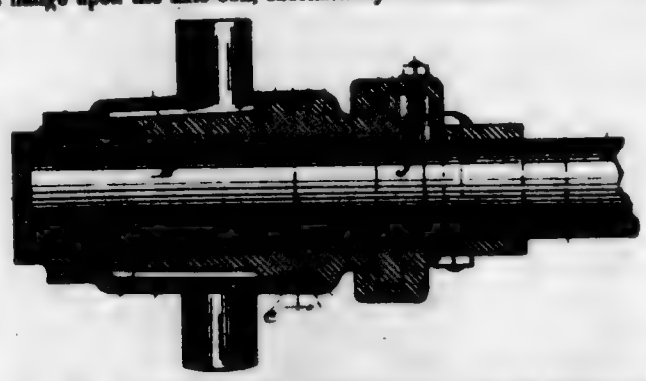
5. An apparatus for generating gas comprising a series of tanks, an air-inlet pipe leading into one of said tanks, inlet-pipes leading into each of the remaining tanks from the next adjoining tank, said inlet-pipes having their ends closed and provided with holes or perforations the combined area of which is greater than the area of the bore of said pipe, a separator, a pipe having a contracted bore leading from the last of said tanks to the separator, an accumulator, a pipe leading thereto from said separator, means for supplying air to said air-inlet pipe, means for supplying oil to each of said tanks, and means located within each tank for simultaneously heating the oil contained therein and the air as it passes through said inlet-pipes and into said oil, substantially as set forth.

6. An apparatus for generating gas comprising a series of tanks, an air-inlet pipe leading into one of said tanks, pipes leading from each tank into the next adjoining tank, an outlet leading from the last of said tanks, means for supplying air to said air-inlet pipe, means for supplying oil to each of said tanks, means for simultaneously heating said oil and said inlet-pipes, an accumulator, an outlet-pipe therefor, and a check-valve located in said pipe having an opening in its casing, said opening being closed by a material of minimum resistance, whereby in the event of the flames lighting back said latter material will be ruptured and the flame will be prevented from entering the accumulator, substantially as set forth.

692,256. WHEEL. JAMES EDWARDS, Peru, Ill. Filed Sept. 14, 1899. Serial No. 730,470. (No model.)

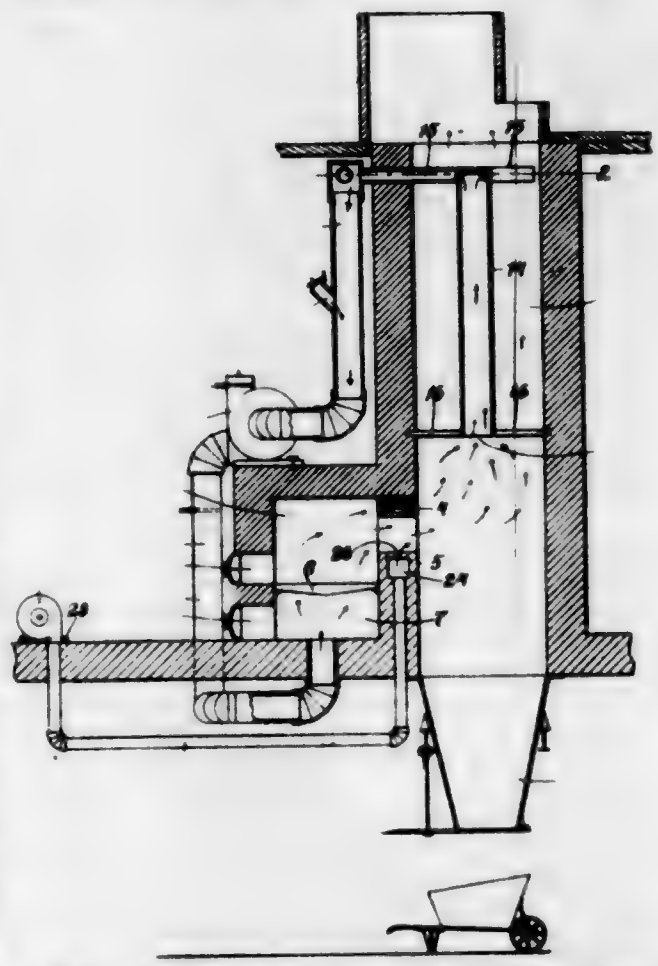
Claim.—1. The combination of the bearing-sleeve, the axle-box inclosing the same and adapted to turn thereon, and the two-part attaching member adapted to be clamped to the axle and lock the sleeve thereto, and engaging the axle-box so as to hold the latter in place upon the sleeve and axle but permit it to freely turn upon the sleeve, substantially as described.

2. The combination of the bearing-sleeve, the axle-box fitted to turn thereon and provided at its inner end with the circumferential flange, and the two-part attaching member adapted to be clamped to the axle and lock the sleeve thereto, and provided with the circumferential recess engaging the flange upon the axle-box, substantially as described.



3. The combination of the bearing-sleeve adapted to fit upon the axle, the axle-box inclosing and adapted to turn upon said sleeve and provided at its inner end with a circumferential flange, and provided also near its inner end with an outwardly-facing annular shoulder and near its outer end with exterior screw-threads, the wheel-hub fitting upon said box and abutting at its inner end against said shoulder, the nut or band screwed upon the outer end of the box and engaging the outer end of the wheel-hub, and the two-part attaching member adapted to be clamped to the axle and engaging the sleeve to lock it to the axle and provided with the circumferential groove engaging the flange upon the axle-box, substantially as described.

692,257. METHOD OF CALCINING LIME, &c. BYRON E. ELDRED, Brookline, Mass. Filed Feb. 18, 1901. Serial No. 47,782. (No specimens.)



Claim.—1. The herein-described process which consists in conducting the combustion of fuel under an artificially-accelerated draft with air and a neutral gaseous diluent, the latter present in sufficient proportion to retard the combustion to a substantial extent, and subjecting the resulting heating agent to an igniting temperature to an extent sufficient to substantially complete its combustion.

2. The herein-described process which consists in conducting the combustion of fuel under an artificially-accelerated draft with air and a neutral gaseous diluent, the latter present in sufficient proportion to retard the combustion to a substantial extent, and applying the heating agent thus produced to a heat-accumulator capable of maintaining the ignition of said heating agent by its stored heat.

3. The herein-described process which consists in conducting the combustion of a bed of solid fuel by passing through the ignited bed an artificially-accelerated draft-current composed of air and a neutral gaseous diluent, the latter present in sufficient proportion to retard the combustion to a substantial extent, and subjecting the resulting heating agent to

an igniting temperature to an extent sufficient to substantially complete its combustion.

4. The herein-described process which consists in conducting the combustion of fuel under an artificially-accelerated draft with air and a neutral gaseous diluent, the latter present in sufficient proportion to retard the combustion to a substantial extent, and adding air to the resulting heating agent and subjecting it to an igniting temperature to an extent sufficient to substantially complete its combustion.

5. The herein-described process which consists in conducting a substantially complete combustion of fuel with a draft-current composed of air and a neutral gaseous diluent comprising the products of said substantially complete combustion.

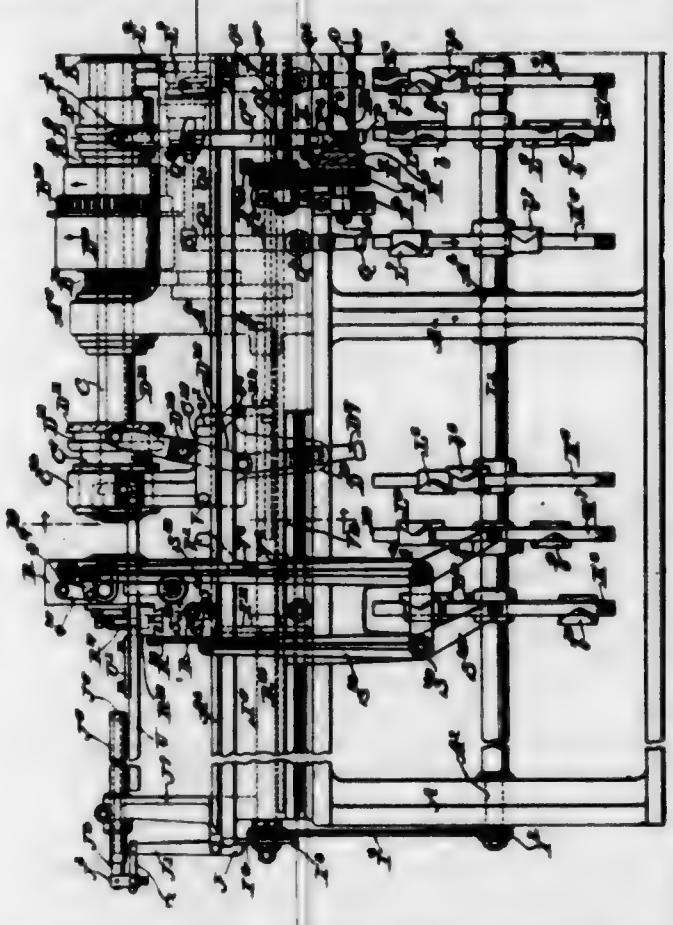
6. The herein-described process of calcining a fragmental mass of lime or cement forming material which consists in conducting the combustion of fuel from an external seat under an artificially-accelerated draft with air and a neutral gaseous diluent, the latter present in sufficient proportion to retard the combustion to a substantial extent, and propelling the resulting heating agent into the mass by the force of the accelerated draft-current.

7. The herein-described process of calcining a fragmental mass of lime or cement forming material by conducting the combustion of fuel from an external seat with an artificially-accelerated draft-current composed of air and a neutral gaseous diluent extracted from the calcining mass, and propelling the resulting heating agent into the mass by the force of the accelerated draft.

8. The herein-described process of calcining a fragmental mass of lime or cement forming material by conducting the combustion of fuel from an external seat with an artificially-accelerated draft-current composed of air and a neutral gaseous diluent, propelling the resulting heating agent into the mass by the force of the accelerated draft, and supplying the heating agent with air to complete its combustion within the mass.

9. The herein-described process which consists in conducting the combustion of fuel with a draft-current of air and a neutral diluent present in a predetermined proportion for the purpose and with the result of decreasing the rate of combustion and increasing the length of the flame.

692,258. BOLT-CUTTING MACHINE. ALONZO W. ERRIGHT, Altoona, Pa. Filed Mar. 1, 1901. Serial No. 49,404. (No model.)



Claim.—1. In a bolt-cutting machine, means for rotating and longitudinally reciprocating a rod in combination with a tool for cutting down the body of said rod, said tool being adjustable to and from operative position, a sectional thread-cutting die having its parts also adjustable from a center to and from operative position and means for bringing said cutting tool and die into successive operation upon the rod during its successive reciprocations.

2. In a bolt-cutting machine, means for rotating and longitudinally reciprocating a rod in combination with a tool for cutting down the body of said rod, said tool being adjustable to and from operative position, a sectional thread-cutting die having its parts also adjustable from a center to and from operative position, means for bringing said cutting tool and die into successive operation upon the rod during its successive reciprocations, and a second adjustable cutting-tool arranged to operate after the threading-dies and during a dwell in the reciprocating movement of the rod and to sever the threaded bolt from the rod.

3. In a bolt-cutting machine, means for rotating and longitudinally reciprocating a rod, in combination with means for cutting down the body of the end of the rod to be formed into a bolt intermediate the portions thereof to be threaded, said cutting-down means being arranged to come into operation during a backward longitudinal movement of the rod, thread-cutting dies arranged to successively thread the portions of the rod lying at each end of the cut-down portions during the succeeding forward movement of the rod and means for severing the threaded bolt from the rod arranged to operate during a dwell in the reciprocating movement of the rod-rotating mechanism.

4. In a bolt-cutting machine, means for rotating and longitudinally reciprocating a rod at varying speeds in combination with means for cutting down the body of the end of the rod to be formed into a bolt intermediate the portions thereof to be threaded, said cutting-down means being arranged to come into operation during a backward longitudinal movement of the rod, thread-cutting dies arranged to successively thread the portions of the rod lying at each end of the cut-down portions during the succeeding forward movement of the rod and means for severing the threaded bolt from the rod arranged to operate during a dwell in the reciprocating movement of the rod-rotating mechanism.

5. In a bolt-cutting machine, a rod-clamping clutch, in combination with means for actuating said clutch to open or close it, means for rotating said clutch and means for giving it a reciprocating longitudinal motion; a stop arranged to arrest the movement of a rod advancing through the open clutch and automatic means for retracting said stop, means for cutting down the body of the rod end during a backward movement of the rod and of the clutch holding and rotating it, means for threading the rod end on both sides of the cut-down portion during a succeeding forward movement of said rod and clutch, and means for severing the threaded end acting during a dwell in the reciprocating movements of the clutch and rod, the stop being withdrawn during the threading and severing of the bolt and restored to operative position after said bolt is severed from the rod.

6. In a bolt-cutting machine, a rod-clamping clutch, in combination with means for actuating said clutch to open or close it, means for rotating said clutch and means for giving it a reciprocating longitudinal motion; a stop arranged to arrest the movement of a rod advancing through the open clutch and automatic means for retracting said stop, frictional means for feeding the rod through the open clutch and against the stop acting wholly or in part during a dwell in the movements of said clutch, means for cutting down the body of the rod end during a backward movement of the rod and of a clutch holding and rotating it, means for threading the rod end on both sides of the cut-down portion during a succeeding forward movement of said rod and clutch, and means for severing the threaded end acting during a dwell in the reciprocating movements of the clutch and rod, the stop being withdrawn during the threading and severing of the bolt and restored to operative position after said bolt is severed from the rod.

7. In a bolt-cutting machine, a rod-clamping clutch, in combination with means for actuating said clutch to open or close it, means for rotating said clutch at varying speeds and means for giving it a reciprocating longitudinal motion also at varying speeds; a stop arranged to arrest the movement of a rod advancing through the open clutch and automatic means for retracting said stop, means for cutting down the body of the rod end during a backward movement of the rod and of the clutch holding and rotating it, means for threading the rod end on both sides of the cut-down portion during a succeeding forward movement of said rod and clutch, and means for severing the threaded end acting during a dwell in the reciprocating movements of the clutch and rod, the stop being withdrawn during the threading and severing of the bolt and restored to operative position after said bolt is severed from the rod.

8. In a bolt-cutting machine, the combination with means for cutting the bolt on and from the end of a rod, of a hollow feed-shaft C through which the rod is fed, a clutch adapted to grip the rod, said clutch being secured to move with the feed-shaft, a rotatable sleeve serving as a bearing for the feed-shaft which is keyed to rotate therewith while free to move longitudinally therein, means for rotating the sleeve and feed-shaft at varying speeds and means for reciprocating the feed-shaft in the sleeve also at varying speeds.

9. In a bolt-cutting machine, the combination with means for cutting the bolt on and from the end of a rod, of a hollow feed-shaft C through which the rod is fed, a clutch adapted to grip the rod, said clutch being secured to move with the feed-shaft, a rotatable sleeve serving as a bear-

ing for the feed-shaft which is keyed to rotate therewith while free to move longitudinally therein, means for rotating the sleeve and feed-shaft at varying speeds, means for reciprocating the feed-shaft in the sleeve also at varying speeds and automatic means for changing the speed of rotation and the direction and speed of the reciprocating movements.

10. In a bolt-cutting machine, the combination with means for cutting the bolt on and from the end of a rod, of a hollow feed-shaft C through which the rod is fed, a clutch adapted to grip the rod, said clutch being secured to move with the feed-shaft, a rotatable sleeve serving as a bearing for the feed-shaft which is keyed to rotate therewith while free to move longitudinally therein, means for rotating the sleeve and feed-shaft at varying speeds, means for reciprocating the feed-shaft in the sleeve also at varying speeds and automatic means for changing the speed of rotation and the direction and speed of the reciprocating movements said automatic means acting also to disconnect the sleeve and shaft at intervals from their actuating devices.

11. In a bolt-cutting machine, the combination with means for cutting the bolt on and from the end of a rod, of a hollow feed-shaft C through which the rod is fed, a clutch adapted to grip the rod, said clutch being secured to move with the feed-shaft, a rotatable sleeve serving as a bearing for the feed-shaft which is keyed to rotate therewith while free to move longitudinally therein, means for rotating the sleeve and feed-shaft at varying speeds, a feed-nut and screw arranged to reciprocate the feed-shaft, means for rotating the moving member of feeding device at varying speeds and in opposite directions said means being coupled to the means for rotating the sleeve-bearing so as to move in definite relationship thereto and automatic means for actuating the variable-speed and reciprocating devices in determined sequence.

12. In a bolt-cutting machine, the combination with means for cutting the bolt on and from the end of a rod, of a hollow feed-shaft C through which the rod is fed, a clutch adapted to grip the rod, said clutch being secured to move with the feed-shaft, a rotatable sleeve serving as a bearing for the feed-shaft which is keyed to rotate therewith while free to move longitudinally therein, means for rotating the sleeve and feed-shaft at varying speeds, means for reciprocating the feed-shaft in the sleeve and also at varying speeds, a shaft I′ carrying selecting devices for regulating the rotation and reciprocation of the sleeve and feed-shaft and means for varying the speed of said shaft at different periods of its rotation automatically governed by a selecting device actuated by it.

13. In a bolt-cutting machine the combination with means for cutting the bolt on and from the end of a rod, of a hollow feed-shaft C through which the rod is fed, a clutch adapted to grip the rod, said clutch being secured to move with the feed-shaft, a rotatable bearing serving as a bearing for the feed-shaft which is keyed to rotate therewith while free to move longitudinally therein, means for rotating the sleeve and feed-shaft at varying speeds, means for reciprocating the feed-shaft in the sleeve also at varying speeds, a frictional feed device for feeding the rod through the hollow feed-shaft and the clutch secured thereto and automatic means for releasing the rod from said device during the cutting of the bolt and reëngaging said rod to feed a fresh section to the cutting devices.

14. In a bolt-cutting machine, the combination with means for cutting the bolt on and from the end of a rod, of a hollow feed-shaft C through which the rod is fed, a clutch adapted to grip the rod, said clutch being secured to move with the feed-shaft, a rotatable bearing serving as a bearing for the feed-shaft which is keyed to rotate therewith while free to move longitudinally therein, means for rotating the sleeve and feed-shaft at varying speeds, means for reciprocating the feed-shaft in the sleeve also at varying speeds, a rotating shaft carrying selecting devices acting in determined sequence to automatically change and shift the motion of the feed-shaft and stop mechanism actuated by a part reciprocating with the feed-shaft and acting to arrest the longitudinal movements of the feed-shaft at the determined limits of its motion.

15. In a machine for cutting bolts from rods, the combination with the rotatable and reciprocable feed-shaft C of a clutch-chuck-supporting head secured on the end of said shaft, an adjustable chuck-jaw guide D secured in said head, a reciprocatory chuck-jaw guide D^4 moving through a fixed path in said head, means actuating said chuck-jaw guide D^4 and rod-gripping chuck-jaws situated between said guides D and D^4.

16. In a machine for cutting bolts from rods, the combination with the rotatable and reciprocable feed-shaft C of a clutch-chuck-supporting head secured on the end of said shaft, an adjustable chuck-jaw guide D secured in said head, a reciprocatory chuck-jaw guide D^4 moving through a fixed path in said head, levers D^7 D^8 pivoted on the head and operating to force the guide D^4 toward the guide D, a lever-actuating annular cam D^9, D^{10}, automatic means for actuating said cam at proper intervals and rod-gripping chuck-jaws situated between the jaw-guides D and D^4 as described.

17. In a machine for cutting bolts from rods, the combination with mechanism for rotating and longitudinally moving the rod, of a tool-holding head through which the rod passes, a support for a cutting-down tool and an oppositely-disposed rod-support sliding to and from operative positions in the head and normally held in non-operative positions, cam-supporting bars U U reciprocating with the rod and supporting-cams U′ U′ adapted to act on the tool and rod supports to bring them to operative position, reciprocating back bearings for the bars U U and automatic means for moving to and retracting from operative position said back bearings.

18. In a machine for cutting bolts from rods, the combination with mechanism for rotating and longitudinally moving the rod, of a tool-holding head through which the rod passes, a support for a cutting-down tool and an oppositely-disposed rod-support sliding to and from operative position in the head and normally held in non-operative positions, cam-supporting bars U U, reciprocating with the rod and supporting-cams U′ U′ adapted to act on the tool and rod supports to bring them to operative position, reciprocating back bearings for the bars U U, said back bearings being attached to slides having cam-lugs 8^{16}, cams 8^{15} for acting on said cam-lugs and means for actuating said cams to bring the back bearings for the bars U into operative position.

19. In a machine for cutting bolts from rods, the combination with mechanism for rotating and longitudinally moving the rod, of a tool-holding head through which the rod passes, a support for a cutting-down tool and an oppositely-disposed rod-support sliding to and from operative position in the head and normally held in non-operative positions, cam-supporting bars U U reciprocating with the rod and supporting-cams U′ U′ adapted to act on the tool and rod supports to bring them to operative position, reciprocating back bearings for the bars U U, automatic means for moving to and retracting from operative position said back bearings, screw-cutting-die-supporting slides T′ T′ moving in the head and normally held out of operative position and automatic means for moving said die-slides to operative position.

20. In a machine for cutting bolts from rods, the combination with mechanism for rotating and longitudinally moving the rod, of a tool-holding head through which the rod passes, a support for a cutting-down tool and an oppositely-disposed rod-support sliding to and from operative position in the head and normally held in non-operative positions, cam-supporting bars U U reciprocating with the rod and supporting-cams U′ U′ adapted to act on the tool and rod supports to bring them to operative position, reciprocating back bearings for the bars U U, automatic means for moving to and retracting from operative position said back bearings, screw-cutting-die-supporting slides T′ T′ moving in the head and normally held out of operative position and automatic means for moving said die-slides to operative position, a slide for a cutting-off tool mounted on the head and automatic means for moving said slide and its tool to cut off a bolt acting after the cutting-down and threading tools as described.

692,259. BOX. AUGUST FLASKAMP, Crefeld, Germany. Filed Mar. 11, 1901. Serial No. 50,700. (No model.)



Claim.—1. A box or like receptacle having a support comprising a post having an integral laterally-projecting flange at its lower end forming a base to engage the bottom of the box, and an independent retaining-plate having an opening through which the body of the post extends, the said retaining-plate engaging the flange of the post and provided with a series of prongs arranged to be forced into the material of the box-bottom to hold the plate in engagement with the flange of the post and secure the post in position in the box, as set forth.

2. The combination with a box or like receptacle, of a plurality of supporting-posts arranged in said box in alined pairs, and each having a flanged lower end forming a base for the post, independent retaining-plates for said posts, and partitions extending through openings in said posts and held in position thereby, as set forth.

3. A box or like receptacle having a plurality of supporting-posts formed at their lower ends with flanges, a retaining-plate for each of said posts and having an opening through which the post extends, the said retaining-plates having prongs adapted to penetrate into the material of the bottom of the receptacle, and partitions extending between alined supporting-posts and held by the same, as set forth.

4. A box or like receptacle having a support arranged therein and flanged at its lower end to form a laterally-projecting base for the support, and a retaining-plate in disk form having a central aperture through which the body of the support extends, the retaining-plate engaging the flange of the support and having sets of prongs arranged in circles to engage the material of the box to hold the support in position, as set forth.

5. A box or like receptacle provided with a plurality of posts formed

of sheet metal and each having a plurality of laterally-projecting flanges at its lower end to form a base to engage the bottom of the box, and a retaining-plate for each post having an opening through which the body of the post extends, the said plate resting on the flanges of the post and having a series of sets of prongs arranged to be forced into the material of the bottom of the box, each set of prongs being arranged in a circle, the flanges of the post being adapted to be pressed into the surface of the box-bottom when the retaining-plate is secured in position, as set forth.

692,260. INCANDESCENT LAMP. HOMER GARWOOD, Ottawa, Ohio. Filed Sept. 9, 1901. Serial No. 74,764. (No model.)



Claim.—1. The combination, with an electric lamp provided with a plurality of filaments having separate contact-pieces at one end arranged one above the other, of a vertically-slidable contact-plate which engages with the said contact-pieces one after the other, substantially as set forth.

2. The combination, with an electric lamp provided with filaments of different candle-power having separate contact-pieces at one end, and having also a screw-threaded socket and a guide; of a bar of insulating material slidable in the said guide and provided with a contact-plate for engaging with the said contact-pieces one after another, and a spring which normally holds the said bar in a prearranged position, substantially as set forth.

3. The combination, with an electric lamp provided with a series of filaments of different candle-power having separate contact-pieces at one end, and having also a screw-threaded socket and a guide; of a bar of insulating material slidable in the said guide and provided with contact-plates at its end portions and a wire connecting them, a spring in the guide, an insulating-plate between the said spring and the contact-plate at the inner end of the said bar, and a contact-spring secured in the said socket and bearing on the contact-plate at the outer end of the said bar, substantially as set forth

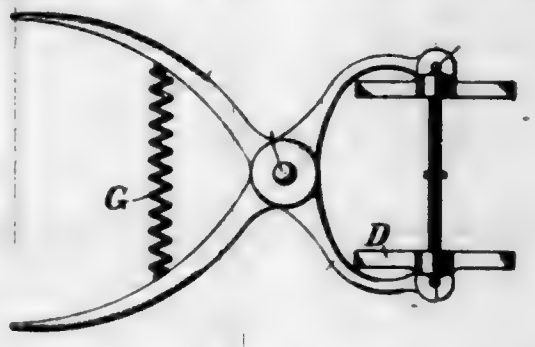
692,261. BLIND-FASTENER. LEONARD B. GAYLOR, Mount Vernon, N. Y. Filed Sept. 20, 1901. Serial No. 75,767. (No model.)



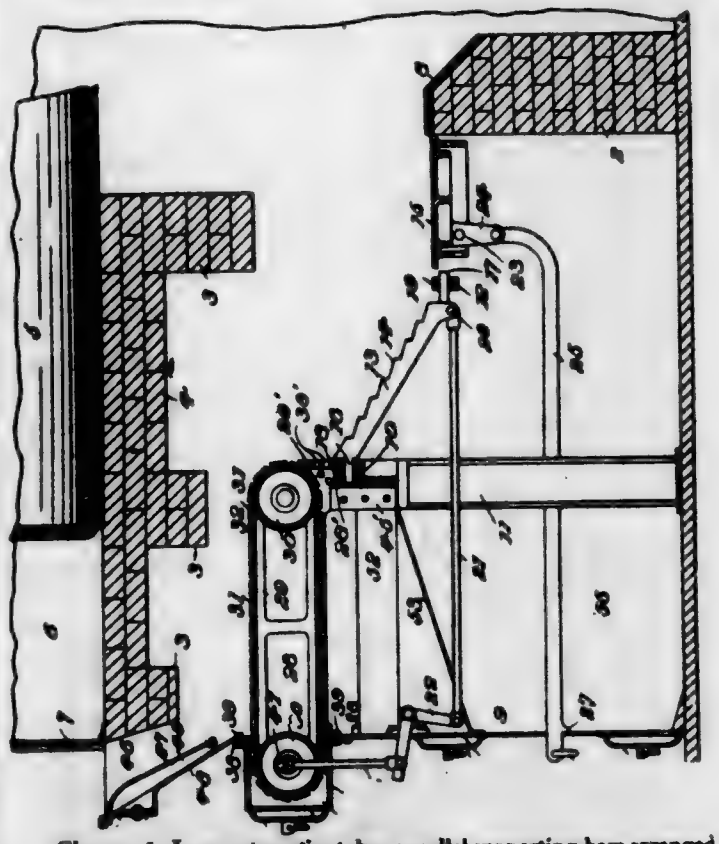
Claim.—A blind-fastener embodying a sill-rod, means on its end whereby it may be pivotally connected to a window-sill, a blind-rod, means on its end whereby it may be pivotally connected to a blind, a casing on one of the rods, and spring-actuated locking devices substantially as described, adapted to engage with the other rod for the control of the blind, inclosed within and protected by said casing.

692,262. PINCERS OR SQUEEZING DEVICE. ALFRED GERKINS, New York, N. Y. Filed June 20, 1901. Serial No. 65,525. (No model.)

Claim.—In pincers the combination of two lever-arms journaled the one upon the other with two jaw-plates one journaled upon each of said lever-arms in operative relation with each other, a rod passing freely through said jaws, and adapted to maintain said jaw-plates in parallelism, and a lug on said rod adapted to check its free play through said jaws when closed.



692,263. FURNACE GRATE AND STOKER. FREDERICK GIRTANNER, New York, N. Y., assignor of one-half to Solomon L. Simpson, New York, N. Y. Filed May 4, 1901. Serial No. 58,770. (No model.)



Claim.—1. In an automatic stoker, parallel supporting-bars arranged at different heights and having corresponding bearing-openings, inclined grate-bars provided at their upper and lower ends with studs relatively inclined thereto and arranged in upper and lower parallel planes and slidingly fitted in the said bearing-openings of the supporting-bars, and means for reciprocating the grate-bars.

2. In an automatic stoker, the combination with a furnace, of an endless traveling grate, a dead grate spaced apart therefrom, an inclined feed-grate interposed between the traveling and dead grates, and operative connections between the traveling and inclined grate for imparting a reciprocatory movement to the feed-grate.

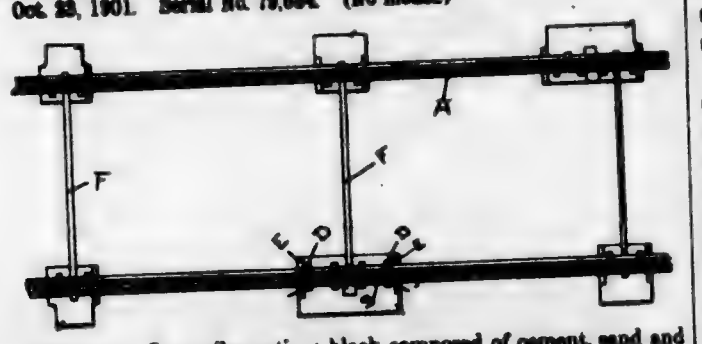
3. In an automatic stoker, the combination with a furnace, of an endless traveling grate, a dead grate spaced apart therefrom, an inclined feed-grate interposed between the traveling and dead grates, a wrist-pin on one of the rolls of the traveling grate, a bell-crank lever, and operative connections between the bell-crank lever, wrist-pin and feed-grate whereby reciprocatory motion is imparted to the feed-grate.

4. In a furnace, a supporting-bar having bearing openings or notches in its upper edge, grate-bars having an end resting in the said bearing-openings, and a grate having a cross-bar resting upon the aforesaid supporting-bar and closing the bearing-openings thereof, substantially as described.

5. In a furnace, a supporting-bar having bearing openings or notches in its upper edge, stops adjacent the supporting-bar, grate-bars having an end resting in the said bearing-openings, and a removable grate having a cross-bar resting upon the supporting-bar and closing the bearing-openings thereof and limited in its movement in one direction by the said stops, substantially as described.

6. In a furnace, a supporting-bar having bearing openings or notches in its upper edge, grate-bars having an end resting in the said bearing-openings, a grate removable through an opening in the front of the furnace and having a cross-bar at its rear end to rest upon the supporting-bar and close the bearing-openings thereof, and having its front portion projecting from the front of the furnace, and a casing inclosing the projecting portion of the grate and closing the opening in the front of the furnace through which the grate is inserted, substantially as described.

692,264. RAILWAY-TIE. JOHN H. GLEASON, Troy, N. Y. Filed Oct. 23, 1901. Serial No. 79,684. (No model.)

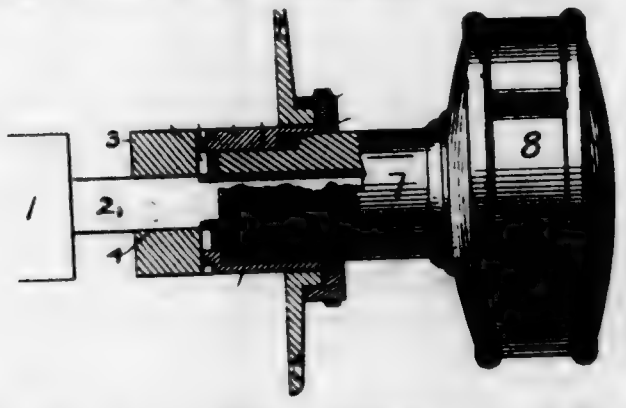


Claim.—1. In a railway-tie, a block composed of cement, sand and stone or similar materials, adapted to support a railway-rail, projections upon said block adapted to prevent the rail from moving sidewise; holes in said block adapted for the reception of spikes suitable to hold the rail down upon said block, and spikes cemented in said holes, substantially as described and for the purposes set forth.

2. A railway-tie consisting of two tie-blocks, composed of concrete or similar material, adapted to support railway-rails; projections upon said blocks adapted to prevent the rails from moving sidewise; holes in said blocks adapted to receive railroad-spikes; spikes with lower ends adapted to fit in said holes and the upper ends to project over the flanges of the rails; and a tie-rod adapted to connect the two tie-blocks when in position, substantially as described and for the purposes set forth.

3. A tie-block made from a composition of cement, sand and stone, suitably adapted for the support of a railway-rail, and having projections arranged and adapted to allow the rail to rest between them; and means to retain the rail in position upon said tie-block, substantially as described and for the purposes set forth.

692,265. KNOB ATTACHMENT. CHARLES GLOVER, New Britain, Conn. Filed Sept. 5, 1900. Serial No. 29,097. (No model.)



Claim.—1. A knob attachment comprising the lock-hub, the spindle passing therethrough, the loose knob threaded on one end thereof carrying a movable sleeve on its shank, said sleeve forming connections between the knob and the hub.

2. A knob attachment comprising the lock-hub, the spindle passing through and locked to said hub to rotate with it, a stationary and loose knob located at opposite ends of the spindle, and a movable sleeve carried on the shank of the loose knob forming connections between said knob and the lock-hub, said sleeve being held in any desired position on the shank by spring-fingers frictionally engaging said shank.

3. In a knob attachment the combination with the lock-hub, the spindle passing therethrough, said parts being connected to rotate together, and the fast and loose knobs at opposite ends of the spindle, of a sleeve sliding lengthwise of the shank on the loose knob and adapted to connect the said knob and the lock-hub, substantially as described.

4. A knob attachment comprising the slotted lock-hub, a threaded spindle passing therethrough, the knob internally threaded to engage the threads on the spindle and carrying on its shank a locking-sleeve held against rotary motion relatively thereto, and one or more projections on said sleeve adapted to enter the slots in the hub to lock the parts together.

5. In a knob attachment the slotted lock-hub, the spindle passing through said hub, a knob carrying on its shank a sleeve capable of lengthwise movement along the shank, spring-fingers for holding the sleeve in position, and one or more projections on said sleeve adapted, in connection with the slots in the hub, to lock the parts together.

6. In a knob attachment the lock-hub, the spindle passing therethrough, a knob having its shank circumferentially grooved, a sleeve mounted on the shank and having spring-fingers engaging the grooves on the shank, and connections between the hub and the sleeve for locking the parts together.

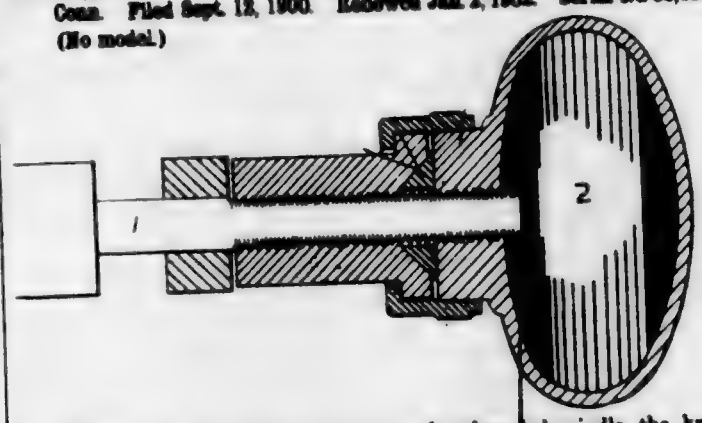
7. In a knob attachment the combination with the slotted lock-hub, the spindle passing therethrough, and the knob, of a sleeve having one or more lugs adapted to slide in grooves in the knob-shank, said lugs extending a short distance beyond the end of the sleeve and being adapted to engage the slots in the hub, and means for holding the sleeve in position.

8. In a knob attachment the combination with the lock-hub, the spindle passing through it, and the loose knob on the end of the spindle, of a sleeve mounted on the knob-shank and capable of lengthwise movement relatively thereto, lugs on the end of the sleeve, a lengthening-piece located on the spindle between the hub and the sleeve, and slots in said lengthening-piece arranged to coact with the lugs on the sleeve, substantially as described.

9. In a knob attachment the hub and spindle arranged in the usual manner, the knob on the spindle, a sleeve carried on the knob-shank and movable lengthwise thereof, connections between the hub and the sleeve and means engaging the end of the sleeve for holding it in position in engagement with the hub.

10. In a knob attachment the slotted hub, the spindle passing therethrough and the knob on the spindle, of a sleeve mounted on the knob-shank and capable of lengthwise movement relatively thereto, one or more lugs on the inner end of said sleeve adapted to engage the slots in the hub and a plate or rose engaging the outer end of the sleeve to hold it in engagement with the hub, substantially as described.

692,266. KNOB ATTACHMENT. CHARLES GLOVER, New Britain, Conn. Filed Sept. 12, 1900. Renewed Jan. 2, 1902. Serial No. 88,031. (No model.)



Claim.—1. In a knob attachment, the threaded spindle, the knob and its separable shank threaded to fit threads on the spindle, a split ring located between the knob and shank and adapted to be compressed thereby, said ring having a sliding fit on the spindle, and a collar uniting the knob and shank.

2. In a knob attachment a threaded spindle, the knob and its separable shank threaded to fit the threads on the spindle, a contractible ring located between the knob and shank and adapted to be contracted thereby, and a collar uniting the knob and its shank by means of a thread opposite in direction to that on the spindle.

692,267. WHEEL-HUB BRAKE. CHARLES GLOVER, New Britain, Conn., and ISAAAR W. HASKINS, Brooklyn, N. Y., assignors to P. & F. Corbin, New Britain, Conn., a Corporation of Connecticut. Filed Nov. 15, 1901. Serial No. 82,422. (No model.)



Claim.—1. A wheel-brake, comprising, a brake-shoe, a lever, a fulcrum therefor, one end of said lever being substantially shorter than the

other end and bearing against said shoe, a brake-actuator, a portion thereof engaging the longer arm of said lever as said actuator is moved in one direction, another portion of said actuator engaging said lever close to said fulcrum when said actuator is moved in a reverse direction.

2. A wheel-brake, comprising, a split ring anchored at one end, a lever, a fulcrum therefor, one end of said lever being shorter than the other and bearing against the free end of said split ring, a brake-actuator, a portion thereof engaging the longer arm of said lever as said actuator is moved in one direction, and another portion of said actuator engaging said lever close to said fulcrum when said actuator is moved in a reverse direction.

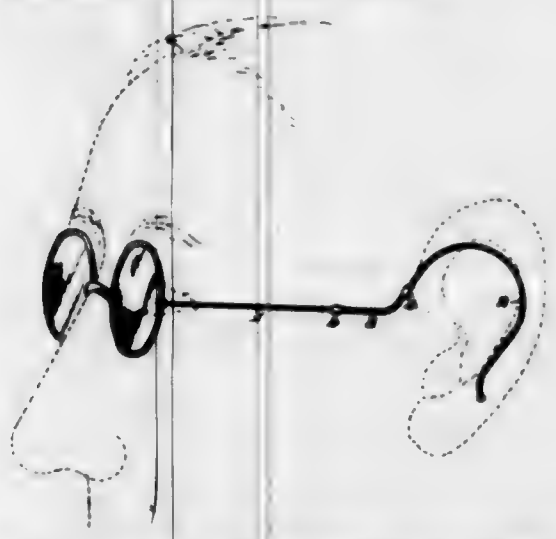
3. In a device of the character described, an axle, a revoluble brake-actuator concentric therewith, a brake-shoe, a lever, a fulcrum therefor, said fulcrum being located to one side of said axle and brake-actuator, one end of said lever bearing against the brake-shoe, the opposite end of said lever extending around said brake-actuator and engaging the same on the side opposite the fulcrum for the lever.

692,268. **PROCESS OF PRESERVING EGG CONTENTS.** NICHOLAS M. GOODLETT, Jr., South Orange, N. J., ancillary executor of John Fortred, deceased, assignor to the Condensed Egg Syndicate, Limited, London, England. Filed Sept. 25, 1901. Serial No. 76,443. (No specimens.)

Claim.—1. The improved process of treating egg contents consisting in mixing them with from sixty-six to one hundred per cent. of sugar and heating the fixture to a temperature exceeding 165° and not exceeding 200° Fahrenheit for about one hour.

2 The improved process of treating egg contents consisting in mixing them with from sixty-six to one hundred per cent. of sugar and heating the mixture to a temperature exceeding 165° and not exceeding 200° Fahrenheit until water has been evaporated equal to between ten per cent. and fifteen per cent. of the weight of the mixture.

692,269. **SPECTACLE-BOW.** GEORGE GORDON, Chicago, Ill. Filed June 15, 1901. Serial No. 64,751. (No model.)



Claim.—1. A spectacle-bow comprising two members spaced apart and a spring capable of elongation and flexible in all directions interposed between and connecting the contiguous ends thereof, and left free for lateral movement, substantially as described.

2. The combination with a pair of spectacles of a bow therefor, comprising a rearwardly-extending member pivotally secured to the frame, a curved member adapted to be passed back of the ear, and a coiled spring securing the rear end of the pivoted member to the front end of the curved member, whereby the spring is adapted to conform to the contour of the temple, permit the bridge-piece of the spectacles to rest lightly upon the nose, and prevent the bow from having a clamping or cutting effect, substantially as described.

3. The combination with a pair of spectacles of bows therefor, each comprising a rearwardly-extending member pivotally secured to the frame of the spectacles, a curved member adapted to pass back of the ear, a coiled spring interposed between the said members, and a sleeve secured to each end of said spring, one of the sleeves being secured to the outer end of the pivoted member, and the other sleeve secured to the inner end of the curved member, substantially as described.

4. A spectacle-bow comprising a straight member, a curved member spaced therefrom, and a spring capable of elongation and flexible in all directions, interposed therebetween and connecting the contiguous ends of said members, and left free for lateral movement, substantially as described.

5. A spectacle-bow, comprising a straight and a curved member spaced apart, and a coiled spring interposed therebetween and connecting the contiguous ends of said members and left free for lateral movement and being capable of elongation and flexible in all directions, substantially as described.

6. In a pair of spectacles, the combination with a suitable frame, of bows carried thereby, each comprising a straight rearwardly-extending member, a curved member spaced therefrom and adapted to surround the ear of the wearer, and a laterally and longitudinally flexible spring interposed between said straight and curved members and secured to the contiguous ends thereof, each of the said springs being in such position with relation to said spectacles as, in operation, to press the temple of the wearer, substantially as described.

692,270. **MACHINE FOR MAKING CIGARETTES.** HANS R. GRAAU, Hoboken, N. J., assignor to the Garcia-Rabell Trading Company, New York, N. Y., a Corporation of New York. Filed Oct. 5, 1900. Serial No. 692,712. (No model.)



Claim.—1. The combination with a longitudinally-slotted tube, of folding devices extending into the slot of the tube for folding the edges of a wrapper-strip with a double fold to a position within the tube, a guide-tube constituting a continuation of the slotted tube, having openings through the walls thereof, crimping devices extending into one of the openings of the guide-tube, and a presser device extending into the other of said openings, substantially as set forth.

2. The combination with a longitudinally-slotted tube having a bell-shaped mouthpiece, the guide therein, and the folding devices extending into the slot of the tube for folding the edges of a wrapper-strip, of a guide-tube having openings in its wall, crimping devices extending into one of said openings of the guide-tube, a presser device extending into the other opening thereof, and a carrier-belt arranged to pass through the first-named tube and along the exterior of said guide-tube, substantially as set forth.

3. The combination with the supporting-block having a semicircular groove in its upper portion, of a separate slotted tube adjustably seated therein, and clamping-plates secured to the block and engaging said tube at their inner ends, substantially as set forth.

4. The combination with the supporting-block having a semicircular groove in its upper portion, of a slotted tube adjustably seated therein, clamping-plates secured to the block and engaging said tube at their inner ends, and folding devices supported on said clamping-plates and extending into the slot of the tube, substantially as set forth.

5. The combination with the slotted tube having an opening in its lower wall near the rear end, means for supplying the wrapper-strip and the filler to said tube and the folding devices coöperating with said tube,

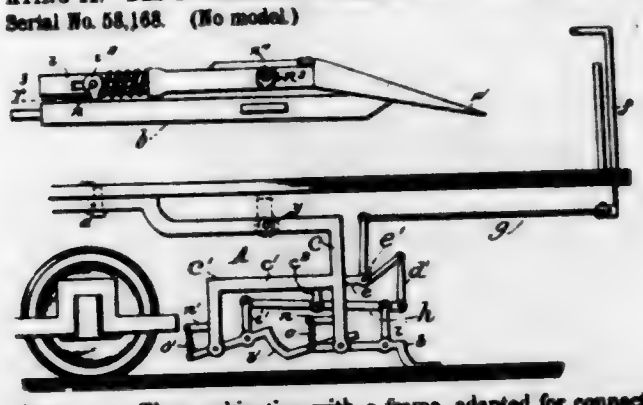
of a guide-tube in line with said slotted tube and having an opening in its wall, crimping devices extending into the opening of the guide-tube, and a carrier-belt adapted to travel through the slotted tube and out therefrom through said opening therein below the crimping devices, substantially as set forth.

6. The combination with the slotted tube and the detachable bell-shaped mouthpiece therefor, of a guide supported opposite and projecting at one end into said mouthpiece and provided with a central tapering channel and two converging side channels, guide-plates having ribs extending downward into the slot of the tube and provided with beveled faces in line with the inner ends of said side channels, and folding devices in rear of said guide-plates, substantially as set forth.

7. The combination with the support composed of two parts hinged together, of a guide-tube mounted in the support, and operating devices carried by the upper part of the support, substantially as set forth.

8. The combination with the horizontally-divided support the parts of which are hinged together at one side, of a horizontally-divided guide-tube carried by the support, and operating devices mounted on the upper part of the support, substantially as set forth.

692,271. RAILWAY-SWITCH AND MECHANISM FOR OPERATING IT. DEE T. GRANBERY, Memphis, Tenn. Filed Apr. 30, 1901. Serial No. 58,168. (No model.)



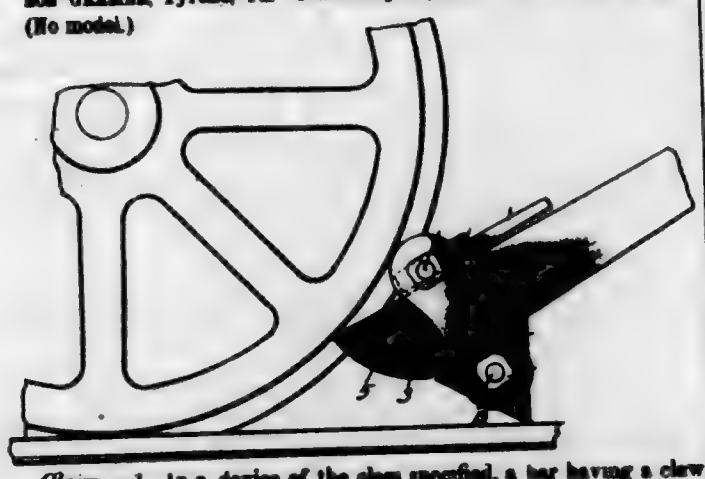
Claim.—1. The combination with a frame, adapted for connection with a car, of a switch-opening and a switch-closing device, both being pivotally connected with said frame, pivoted levers carried by said frame and connected at their ends with said opening and closing devices, springs *o*, *o'* which connect said opening and closing devices with said frame, a draw-rod *g*, a bell-crank lever and a connecting-rod through which said pivoted levers are operated, substantially as set forth and described.

2. The combination with a frame of switch-opening devices and switch-closing devices connected with said arms, pivoted levers carried by said frame, each of said levers being connected by rods at or near its ends with said opening and closing devices, and mechanism for actuating said levers, substantially as set forth and described.

3. The combination with a frame of a switch-closing device made in two parts which are connected endwise by a pivotal joint, a bent spring secured to one of said parts and adapted to hold the other at an angle therewith and to close a switch-rail, substantially as set forth and described.

4. In a switch-opening device, the combination with the main part which is beveled at its forward end, of a slotted spring-rod provided with an inclined point, substantially as set forth and described.

692,272. COMBINED SPIKE-PULLER AND CAR-MOVER. GIDEON GRAHER, Tyrone, Pa. Filed July 17, 1901. Serial No. 68,858. (No model.)



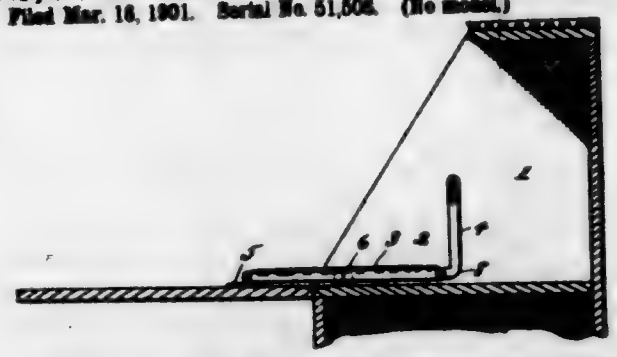
Claim.—1. In a device of the class specified, a bar having a claw at one end, and a block slidably disposed with relation to said bar, said block being of triangular form in cross-section and having a plurality of sharp edges any one of which may be adjusted to form the fulcrum-point of the bar.

2. In a device of the class specified, a claw-bar and an adjustable fulcrum slidably disposed with relation to said bar, said fulcrum being in the form of a triangular block, adjustable with respect to the bar and having a plurality of sharp edges, any one of which may be arranged to form the fulcrum-point of the bar.

3. In a device of the class specified, a claw-bar, a block having a series of sharp edges and disposed below said bar, a plate having a transverse knife-edged rib and disposed above said bar, and links engaging said block and plate slidably with said bar.

4. In a device of the class specified, a claw-bar, a triangular block having a plurality of sharp edges, any one of which may be adjusted to form the fulcrum-point, studs projecting from the central portion of the ends of said block, a plate adapted to engage with the upper side of the bar, studs projecting from the opposite sides of said plate, and links arranged one on each side of the bar and connecting the studs of the plate and block, substantially as described.

692,273. DESK-SUPPORT. EDWARD J. GULICK, Jamestown, N. Y. Filed Mar. 18, 1901. Serial No. 51,506. (No model.)



Claim.—1. In a desk-support, the combination of a vertical arm, a horizontal arm formed like an inverted U in cross-section, said vertical arm being secured within said horizontal arm, a hinge adapted to be secured to the desk-lid, and pivoted within said horizontal arm, and a cushion of rubber or like material secured within said horizontal arm, substantially as described.

2. In a desk-support, the combination of a vertical arm, a horizontal arm U-shaped in cross-section, a hinge secured thereto, and a cushion of rubber or like material interposed between the parallel sides of said horizontal arm, substantially as described.

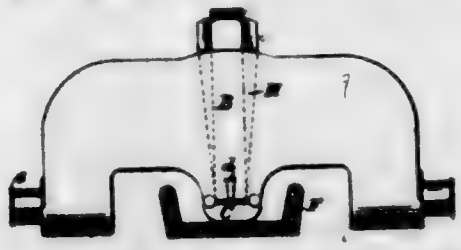
3. In a desk-support, the combination of a vertical arm, a horizontal arm U-shaped in cross-section, and a cushion of rubber or like material interposed between the parallel sides of said arm, substantially as described.

692,274. DRESS-HOLDER. MARIE L. OSMER, Guyuard, N. Y. Filed Mar. 12, 1901. Serial No. 50,837. (No model.)



Claim.—As a new article of manufacture, a dress-holder comprising a continuous strand bent centrally thereof to form a spring and extended into divergent prongs, said prongs on opposite and the outer edges thereof being provided with serrations and presenting inwardly a smooth surface, a slide inclosing said prongs and adapted to engage said serrations and contract and hold said prongs against the tension of said spring, an enlarged resilient pad encompassing the extremity of said prongs respectively and a cap adapted to engage the extremity of each prong within each pad.

692,275. TIRE-CLAMPING DEVICE. WALTER GOSSENDOVER. New York, N. Y. Filed Mar. 6, 1900. Serial No. 7,475. (No model.)



Claim.—1. A clamp for the purpose described, comprising a body having wire-engaging portions thereon, an opening therethrough and a convex surface adjacent to one end of said opening, a draw-bolt whose stem projects through said opening and is of smaller diameter than the

same and whose head is provided with wire-engaging portions coöperating with the corresponding parts on said body, and a nut upon the projecting end of said bolt adapted to engage said convex surface, as and for the purpose set forth.

2. A clamp for the purpose described comprising a body having wire-engaging portions thereon and having a transversely-elongated, longitudinally-tapering opening therein, a draw-bolt whose stem extends through and substantially fits the lower end of, and plays in the enlarged upper end of, said opening and whose head is provided with wire-engaging portions coöperating with those on said body, and means for moving said draw-bolt longitudinally in said opening, as and for the purpose set forth.

3. A clamp for the purpose described, comprising a body having wire-engaging portions thereon, a transversely-elongated, longitudinally-tapering opening therein and a convex surface adjacent to the upper end of said opening, a draw-bolt whose stem extends through said opening and whose head is provided with wire-engaging portions coöperating with those on said body, and a nut upon the projecting end of the stem of said bolt adapted to engage said convex surface, as and for the purpose set forth.

4. A clamp for the purpose described, comprising a body having wire-engaging portions thereon and having an opening extending therethrough, the said opening having a longitudinally-extending slot intersecting the same, a draw-bolt whose stem extends through said opening, is of smaller diameter than the same and is provided with a laterally-projecting rib adapted to fit within said slot and whose head is provided with wire-engaging portions coöperating with those on said body, and means for moving said bolt longitudinally in said opening, as and for the purpose set forth.

5. A clamp for the purpose described, comprising a body having wire-engaging portions thereon and having a transversely elongated, longitudinally-tapering opening therein, the said opening having longitudinally-extending, tapering slots intersecting the same, a draw-bolt whose stem extends through said opening and is provided with laterally-projecting wings which fit within said slots and whose head is provided with wire-engaging portions coöperating with those on said body, and means for moving said bolt longitudinally in said opening, as and for the purpose set forth.

6. A clamp for the purpose described, comprising a body having wire-engaging portions thereon, a transversely-elongated, longitudinally-tapering opening therein and a convex surface adjacent to one end of said opening, the said opening having longitudinally-extending, tapering slots intersecting the same, a draw-bolt whose stem extends through said opening and is provided with laterally-projecting wings which fit within said slots and whose head is provided with wire-engaging portions coöperating with those on said body, and a nut upon the projecting end of the stem of said bolt adapted to bear against said convex surface, as and for the purpose set forth.

7. In a device for securing elastic tires to vehicle-wheels, two clamps, each provided with wire-gripping means, and a pair of levers pivoted to each other and connected, respectively, to said clamps, as and for the purpose set forth.

8. In a device for securing elastic tires to vehicle-wheels, two clamps, each provided with wire-gripping means, a pair of levers pivoted to each other and connected, respectively, to said clamps, and means for locking said levers in any position to which they may be turned, as and for the purpose set forth.

9. In a device for securing elastic tires to vehicle-wheels, two clamps, each provided with wire-gripping means, a pair of levers pivoted to each other and connected respectively to said clamps, and means for connecting the free ends of said levers to each other, as and for the purpose set forth.

10. In a device for securing elastic tires to vehicle-wheels, two clamps, each provided with wire-gripping means, a pair of levers pivoted to each other and adjustably connected with the respective clamps, and means for locking the free ends of said levers to each other, as and for the purpose set forth.

11. In a device for securing elastic tires to vehicle-wheels, two clamps, each provided with wire-gripping means, a pair of levers pivoted to each other and adjustably connected with the respective clamps, a pivoted arm on one of said levers, and means for adjustably connecting said arm to the other of said levers, as and for the purpose set forth.

12. A device for securing elastic tires on vehicle-wheels, comprising a clamp bar or body adapted to fit into the channel of the wheel and having on its under surface a clamping projection adapted to project into the wheel-channel and having corrugated grooves for receiving the fastening-wires, said clamp having an arch-shaped top and provided with an oblong bolt-hole tapering downwardly, a draw-bolt having at its lower end a projection with corrugated grooves adapted to rest in the channel and hold the retaining-wires at the same level as they are in the rubber, said grooves coöperating with corresponding grooves on the clamp, and means for controlling the grip of the grooves upon the retaining-wires, substantially as described.

13. A clamp for securing elastic tires to vehicle-wheels comprising a bar or body recessed to fit over and project into the wheel-channel, having on its under surface corrugated grooves adapted to receive the fastening-wires and provided with a downwardly-tapering bolt-hole, a draw-bolt which substantially fits the lower end of said bolt-hole, plays in the enlarged upper end thereof and has in its lower end a projection provided with corrugated grooves adapted to coöperate with the grooves in said body, and means for moving said draw-bolt longitudinally.

14. In a clamping device for securing elastic tires on vehicle-wheels, the combination of a screw-threaded bolt, a downwardly-tapering bolt-hole, the clamp-body having a rectangular end piece attached to said bolt and provided with corrugated grooves for receiving the fastening-wires, and wings projecting from the sides of said screw-bolt into a downwardly-tapering slot in said clamping device, all arranged to allow the clamp to hold at the same time wires of uneven size and adapted to prevent its turning on the screw-bolt axis, substantially as described.

15. In a clamp having an arch-shaped top for securing elastic tires to vehicle-wheels, the combination of an oblong bolt-hole tapering downward, vertical slots cut in said bolt-hole, a draw-bolt having side projections adapted to engage the vertical slots in the bolt-hole, said clamp and draw-bolt fitting into the channel and being provided with corresponding corrugated grooves for receiving and holding the retaining-wires, substantially as set forth.

16. In a device for securing elastic tires to vehicle-wheels, the combination of a pair of clamps, and a pair of levers pivoted to each other and having means for adjustably and detachably engaging said clamps, substantially as set forth.

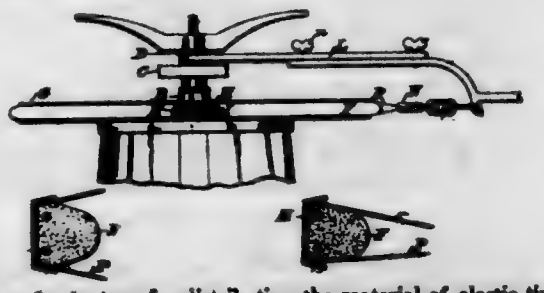
17. In a device for securing elastic tires to vehicle-wheels, the combination of a pair of clamps adapted to rest in the channel of the wheel and provided with means for receiving and holding the retaining-wires, lugs attached to the sides of said clamps, a pair of levers pivoted to each other and having means for adjustably and detachably engaging the lugs on the clamps, and means for securing said lever when under strain, substantially as set forth.

18. In a device for securing elastic tires to vehicle-wheels, the combination of a pair of clamps adapted to rest in the wheel-channel and provided with means for receiving and holding the retaining-wires, lugs attached to the sides of said clamps, a pair of levers pivoted to each other and constructed to engage said lugs and adapted to relieve the friction of the tire in the channel when the ends of the wires are drawn together, substantially as described.

19. In a device for securing elastic tires to vehicles, the combination of a pair of clamps fitting in the wheel-channel, outwardly-projecting lugs adapted to detachably engage a pair of levers, and a pivoted joint in said levers for relieving the friction of the tire in the channel, substantially as set forth.

20. In a clamp for securing elastic tires to vehicle-wheels, the combination of a base provided with corrugated grooves and recessed to fit over and down into the wheel-channel, an arch-shaped top, a downwardly-tapering bolt-hole, a draw-bolt also provided with corrugated grooves, and means for controlling the grip of the grooves for accommodating wires of unequal diameter, substantially as set forth.

692,276. TIRE-ADJUSTING DEVICE. WALTER GOMMERSHEIM, New York, N. Y. Filed Mar. 19, 1900. Renewed Nov. 26, 1901. Serial No. 83,813. (No model.)



Claim.—1. A strap for distributing the material of elastic tires on vehicle-wheels, composed of oil-tanned rawhide or its equivalent.

2. In a device for distributing elastic material on vehicle-wheels, the combination of an adjusting-strip of self-lubricating pliable material, adapted to conform easily and exactly to the shape of the tire and of the channel, an adjustable lever, and means for attaching the said strip to the lever, substantially as described.

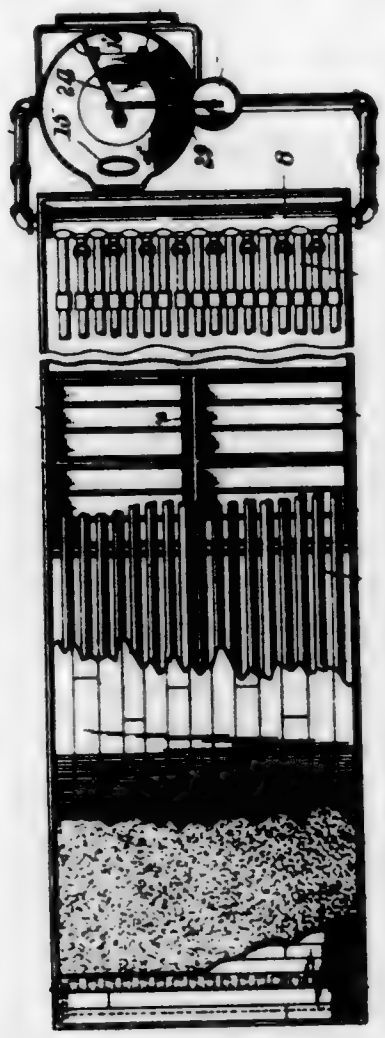
3. In a device for adjusting elastic tires on vehicle-wheels the combination of one or more strips of rawhide suitably tanned and an adjustable lever adapted to be attached to the said strip, substantially as described.

4. An apparatus for adjusting elastic tires on vehicle-wheels com-

posed of an adjustable lever adapted to revolve about the center of said wheel, self-lubricating pliable strips adapted to be placed under said tires and adjustable means for attaching said strips to said lever, substantially as described.

5. The method of adjusting elastic tires on vehicle-wheels, which consists in placing strips of oil-tanned rawhide, or similar material, at proper intervals about the circumference of the tire between the elastic tire and the vehicle-rim, and means for controlling these strips to distribute the elastic material in a natural and unconstrained state about the circumference of the vehicle-wheel, substantially as described.

692,277. INCUBATOR. WILBER P. HALL, Pembroke, N. Y. Filed Sept. 30, 1901. Serial No. 77,132. (No model.)

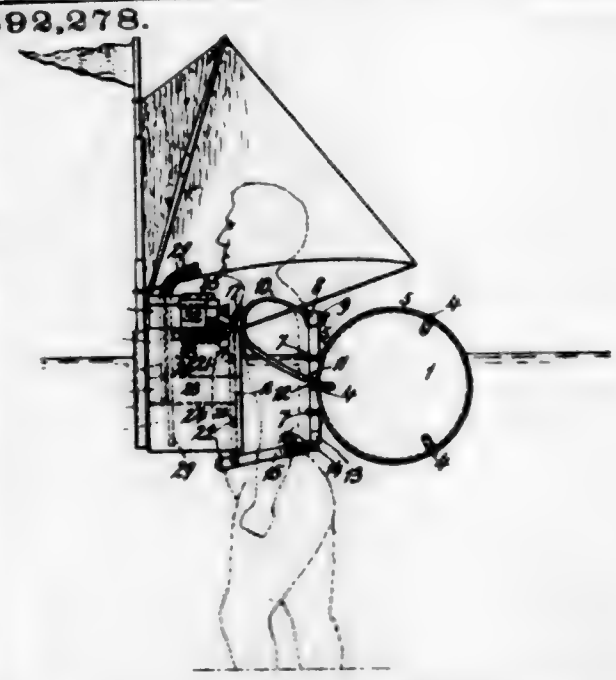


Claim.—In combination with an incubator, a heater, having a water-jacket, pipes within the incubator having communication with said water-jacket, the upper end of the heater having an air-chamber, a throttle mounted over an aperture leading into said chamber, a stem to said throttle passing through an aperture in the upper wall of said chamber, an expansion-cylinder, a float mounted therein, said expansion-cylinder having communication with the water-jacket, an adjustable bracket-arm on the support for the expansion-cylinder, a lever pivoted to the end of said bracket-arm, a damper pivoted to the top of the chamber of the heater, a rod connecting said damper, with the pivoted lever, a second lever fulcrumed on a bracket or arm of said expansion-cylinder, and having connection with the float at one end, and the stem of said throttle at a location adjacent to its other end, which rests upon the pivoted lever carried by the bracket-arm, substantially as shown and described.

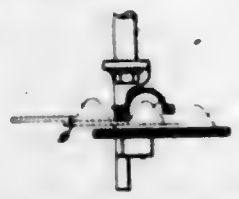
692,278. LIFE-PRESERVER. GEORGE HARRISSEN and GUSTAV A. STYLLER, Berne, Switzerland. Filed Oct. 17, 1900. Serial No. 33,387. (No model.)

Claim.—An apparatus for saving life in case of shipwreck, consisting of a float made of two parts to be taken apart, to be secured by means of shoulder-straps and in connection with hooks and eyes to a belt on the back of a person, and of a provision and food reservoir to be secured on the chest of the person by breast-straps, one end of these straps being fastened to the shoulder-straps of the float, the other end being connected with the belt, the provision and food reservoir being provided with the necessary air-space for its own buoyancy and capacity of bearing, and with sail and signal appliances, substantially as and for the purpose herein set forth.

692,278.

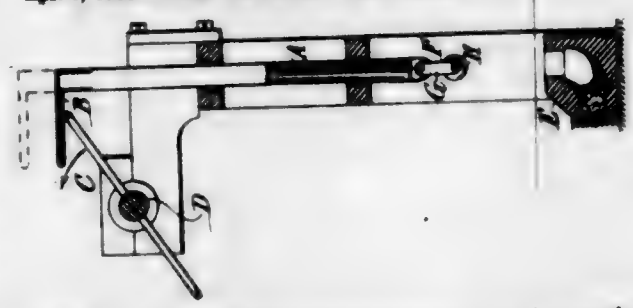


692,279. GUIDE FOR STRAW-BRAID-SEWING MACHINES. JOHN F. HAMILTON, South Framingham, Mass. Filed Feb. 23, 1900. Serial No. 6,227. (No model.)



Claim.—In a sewing-machine for sewing straw braid provided with a beaded edge, the combination with a feed-surface, of a presser-foot arranged to bear upon the surface of the upper braid at one side of the bead and to coöperate with the feed-surface to clamp the upper and lower braids therebetween and feed the same, a guide for the edge of the upper braid arranged at a sufficient distance above the feed-surface to be out of contact with the lower braid and an arch spanning the space between the presser-foot and the guide for supporting the guide from the presser-foot extending over the bead of the upper braid and out of contact therewith, substantially as described.

692,280. RAMMER. ALFRED E. HANNER, Branford, Conn. Filed Apr. 6, 1901. Serial No. 54,648. (No model.)



Claim.—1. A deflectable ramming-head for use in ramming bent cores, comprising a deflectable member and a roller at the end thereof journaled transversely thereto.

2. The combination with a bent-core box, of a reciprocable rammer and a ramming-head curved at its lower end and transversely deflectable so that it may follow the shape of the box when rammed into the same.

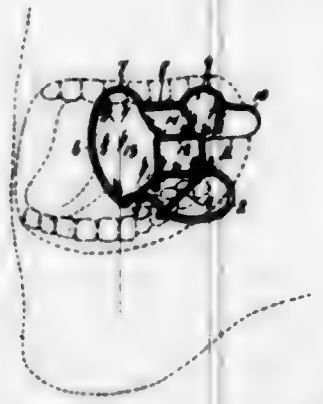
3. The combination with a bent-core box, of a reciprocable rammer and a ramming-head deflectable to follow the shape of the box when rammed into the same, and a roller in the end of said ramming-head journaled transversely thereto.

4. The combination with a bent-core box, of a reciprocable rammer and a ramming-head deflectable to follow the shape of the box when rammed into the same, said head comprising a roller H and a link G connecting said roller to said rammer, said roller being journaled transversely to said link.

5. A rammer for use in ramming bent cores, carrying a deflectable ramming-head, and a roller in the end of said head journaled transversely thereto.

6. A rammer for use in ramming bent cores, carrying a deflectable ramming-head, said head comprising a roller H and a link G, said roller being journaled transversely to said link.

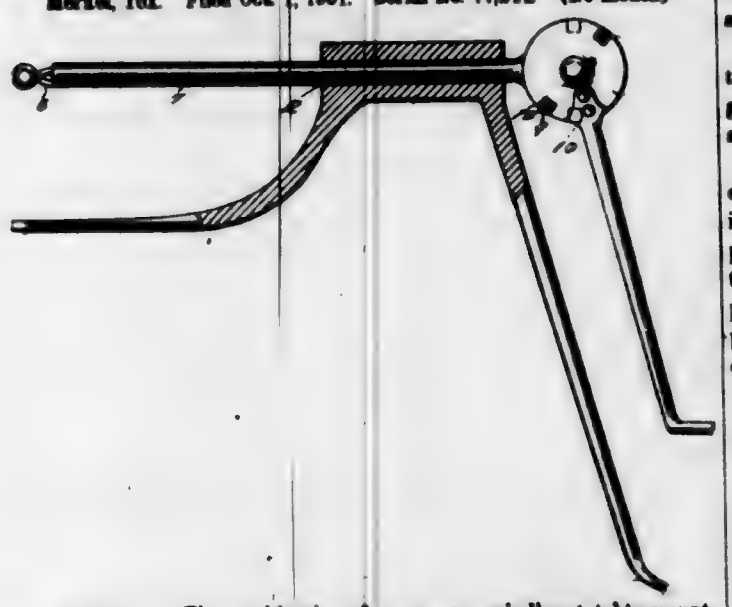
692,281. DENTAL MOUTH PROP AND MIRROR. WILLIAM HARR, Augusta, Ill. Filed June 29, 1901. Serial No. 66,604. (No model.)



Claim.—1. In a device for the purpose set forth, the combination of a mouth-prop comprising a wedge-shaped frame open on its outer side and provided on its inner side with a concaved reflector, the top of the device also having a reflecting under surface and being provided in its upper face with a channel for the reception of the teeth, the bottom portion of the frame having an arch for the reception of the lower teeth and the frame having two projecting brackets for holding the cheek from the teeth.

2. In a device for the purpose set forth, the combination of a tapering or wedge-shaped frame, having a concaved reflector on its inner side and being open at its outer side, the top of said frame having a channel formed therein for the upper teeth, the lower part of the frame having a curved portion for the reception of the lower teeth, the under side of the top having a reflecting-surface and the laterally-projecting cheek-retractors at the top and bottom.

692,282. WIREWORKING-TOOL. BENJAMIN O. HARGROVE, Merkel, Tex. Filed Oct. 1, 1901. Serial No. 77,244. (No model.)



Claim.—1. The combination of a support, a spindle rotatably mounted in said support and having a wire-engaging device at one end and a fixed disk head on the opposite end, said disk head being provided with notches, another disk head pivotally applied to said fixed head and also provided with notches, and a crank-handle attached to said pivoted head and adapted to rotate the spindle.

2. The combination of a support having a fulcrum-arm with a yoke-terminal at its inner end and also provided with an outer leg having a terminal claw, a spindle rotatably mounted in said support and having a wire-engaging device at one end and a fixed disk head on the opposite end provided with notches, another disk head pivotally applied against said fixed head and also having notches therein, and a crank-handle attached to said pivoted head.

3. In a wireworking device, the combination of a support, a spindle rotatably mounted in said support and having a wire-engaging device at one end and a wire-cutting mechanism at the other end, part of said cutting mechanism being formed integral with the spindle and the other part movable on the latter, and a crank-handle secured to the movable portion of the wire-cutting mechanism and operated in a vertical plane to actuate said mechanism and also in a circular plane to rotate the spindle.

692,283. PROCESS OF REFINING OILS. JOHN H. HARRIS, South Norwood, England, assignor to the Globe Trading Company, Limited, London, England, a Corporation of Great Britain. Filed Nov. 2, 1898. Serial No. 695,574. (No specimens.)

Claim.—1. The process as herein described of treating oils and consisting in heating the oil to from 110° to 130° Fahrenheit, mechanically mixing with the oil a powdered purifying material as carbon, allowing the mixture to stand while the powdered material with the impurities precipitates, the temperature being maintained at about 120° Fahrenheit, and then aerating in the presence of methylated alcohol as set forth.

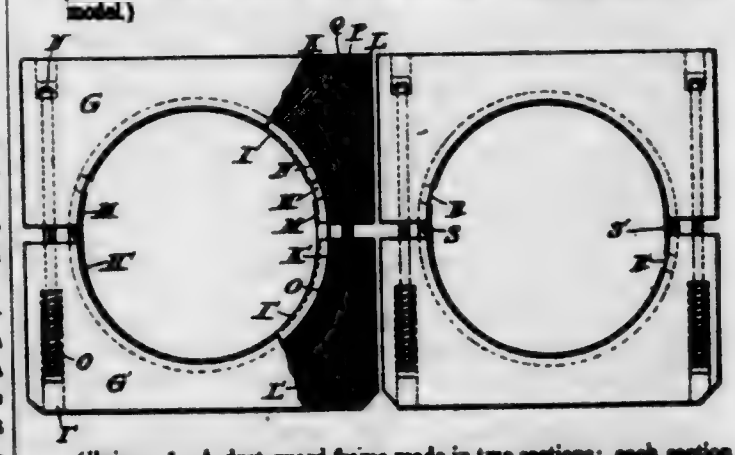


2. In the treatment of oils the process of heating the oil to from 110° to 130° Fahrenheit, mechanically mixing a chemically-acting purifying material as powdered animal charcoal with the oil and allowing the oil to stand while the charcoal with the impurities precipitates, the temperature being maintained at about 120° Fahrenheit, as described.

3. In the treatment of oils which have been purified and decolorized the process of aerating in the presence of methylated alcohol containing gum-myrrh and gum-benzoin in substantially the proportions specified, as and for the purpose described.

4. In the treatment of rancid oils of the character specified the process of heating the oil to from 110° to 130° Fahrenheit, mechanically mixing the oil with powdered carbon and powdered prepared chalk for the purpose of neutralizing the free acids in the oil, and allowing the mixture to stand while the powdered material and impurities precipitate, the temperature being maintained at about 120° Fahrenheit, and drawing off the purified material and aerating the same in the presence of methylated alcohol, as set forth.

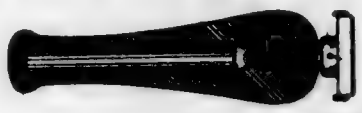
692,284. DUST-GUARD FOR JOURNAL-BOXES. FRANK B. HARRISON, Toledo, Ohio. Filed May 9, 1901. Serial No. 59,439. (No model.)



Claim.—1. A dust-guard frame made in two sections; each section having holes, K and K', and one of said holes being increased in diameter to form a chamber for the reception of a spring; rods located in the holes, K K'; springs located in the chambers and surrounding the bolts and each spring bearing at one end against the bottom of a chamber and at the other end against a bolt head or nut; and means for regulating the compression of the springs.

2. A dust-guard frame made in two sections and each section cut away or fashioned to embrace the dust-guard bearing of an axle; one of said sections having a hole, K, and the other section a hole, K', and a chamber, L'; a rod in holes, K K', and a spring, O, within the chamber and surrounding the bolt; and means located at the opposite side of the opening for the journal which unite the sections and hold them in alinement.

692,285. **TICKET-DATER.** SETH F. HASKINS, Peoria, Ill. Filed June 6, 1900. Serial No. 19,322. (No model.)



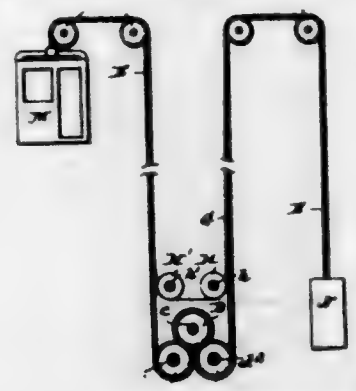
Claim.—1. In a dating-stamp of the character described, the combination of a bed-plate having a dovetailed groove in its surface, a type-carrier adapted to slide into said plate and be retained therein, a series of knife-edged type on the carrier and a series of type for said carrier consisting of removable blocks having points secured therein, such points arranged to form letters and figures so as to perforate the paper in the manner described.

2. In a dating-stamp of the character described comprising a bed-plate, having a dovetailed groove in one of its surfaces, a type-carrier adapted to seat in said plate and be secured therein, knife-edged type made with the carrier and designed to indicate the issuing-station on the ticket, and a series of type consisting of blocks removably attached to the carrier and having a series of points inserted in the blocks to form perforations in the ticket for the purposes set forth and described.

3. In a dating-stamp, the combination of a bed-plate having a dovetailed groove in one of its surfaces, a type-carrier for entering the plate and made in the form of a wedge to correspond with such groove, a series of knife-edged type on the surface of the carrier, a series of type-blocks interchangeably and removably seated in the carrier and having characters inserted in the spaces between the letters or figures, ordinarily left to separate such letters or figures, whereby the intended dates or wording in an impression made from the stamp cannot be altered.

4. In a dating-stamp, a hollow handle, a stem adapted to enter the same, a collar on the stem, a collar on the handle for limiting the movement of said stem, a notch in the latter, a catch in the handle for engaging the notch and a type-carrier on the lower end of the stem all arranged substantially as and for the purposes set forth.

692,286. **ELEVATOR.** FRANK E. HERDMAN, Winnetka, Ill. Filed Mar. 16, 1900. Serial No. 8,880. (No model.)



Claim.—1. In an elevator, the combination with the hoisting cable or cables, of a sprocket-chain attached thereto and operated thereby, a sprocket-wheel gearing with and operated by said sprocket-chain, a shaft on which said wheel is mounted, a screw-threaded shaft, gearing between said shafts, a nut on the screw-threaded shaft, a yoke loose on said shaft, and engaging said nut so as to normally hold it from rotation, controlling mechanism, and complementary clutch members on said nut and screw-shaft, whereby the nut will engage said shaft in its limit of travel in either direction, and turn said yoke to operate the controlling mechanism, substantially as described.

2. In an elevator, the combination, with the hoisting cable or cables, of a sprocket-chain attached thereto and operated thereby, a sprocket-wheel gearing with and operated by said sprocket-chain, the elevator controlling mechanism, means for directly operating said controlling mechanism, and mechanism actuated by said wheel and adapted, at a predetermined point in the travel of said chain, to engage and actuate the means for operating said controlling mechanism, substantially as described.

3. In an electrically-operated elevator, the combination, with the hoisting cable or cables, of a sprocket-chain attached to and operated by the hoisting cable or cables, sprocket-wheels gearing with and operated by said sprocket-chain, the elevator-controller, means for directly operating said controller, mechanism actuated by one of said wheels and adapted at a predetermined point in the travel of said chain to engage and actuate the controller-operating means, the other of said wheels being pivotally supported and upheld by said chain, and connection between said last-mentioned wheel and the means for operating the controller, whereby the breaking of said chain will permit said last-mentioned wheel to drop and actuate said controller-operating means, substantially as described.

4. In an elevator, the combination with the hoisting cable or cables, the elevator controlling mechanism, an electric circuit, a switch interposed in said circuit, a plurality of wheels connected with and operated by said cable or cables, means for directly operating said controlling mechanism, mechanism actuated by one of said wheels and adapted, at a predetermined point in the travel of the hoisting cable or cables to engage and actuate said controlling-mechanism-operating means, the other wheel being pivotally supported and upheld by said chain, and the switch being connected to and carried by said wheel, whereby the breaking of said chain will permit said wheel to drop and open the switch, substantially as described.

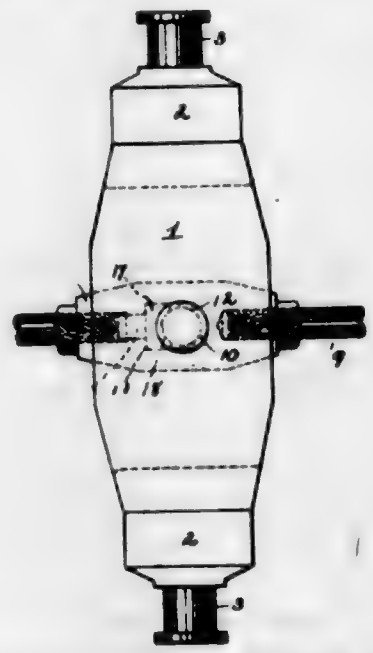
5. In an elevator, the combination with the hoisting cable or cables, of a sprocket-chain attached thereto and operated thereby, a sprocket-wheel gearing with and operated by said sprocket-chain, a shaft on which said wheel is mounted, a screw-threaded shaft, gearing between said shafts, a nut on the screw-threaded shaft, a yoke loose on said shaft and engaging said nut so as to normally hold it from rotation, controlling mechanism connected with said yoke, and complementary clutch members on said nut and screw-shaft, whereby the nut will engage said shaft in its limit of travel in either direction, and turn said yoke to operate the controlling mechanism, a second sprocket-wheel gearing with and operated by said sprocket-chain and upheld by said chain and pivotally supported, an electric circuit, a switch carried by said second wheel and interposed in said circuit, whereby the breaking of the chain will permit said wheel to drop and open the switch, substantially as described.

6. In an elevator, the combination, with the car, of the lifting cable or cables therefor, a sprocket-chain connected with and operated thereby, sprocket-wheels engaging the sprocket-chain, car-stopping means connected with one of said wheels and adapted to be thrown into operation at a predetermined point in the travel of the lifting-cables, and car-stopping means connected with the other wheel and adapted to be thrown into operation by the dropping of said wheel.

7. In an elevator, the combination, with the hoisting cable or cables, of devices connected with each other and with the cable and operated by the cable, car-stopping means connected with one of said devices and adapted at a predetermined point in the travel of the hoisting-cable to be thrown into operation thereby, and car-stopping means connected with the other of said devices adapted to be thrown into operation thereby when the latter drops by reason of the severance of connection between said devices and the cable or the breaking of the cable, substantially as described.

8. In an elevator, the combination with the hoisting cable or cables, of an apparatus connected with said cables so as to be operated thereby during the travel of said cable in the shaft, car-stopping means connected with said apparatus and adapted to be operated thereby at a predetermined point in the travel of the hoisting-cables, and car-stopping means, normally inoperative, but adapted to be thrown into operation by said apparatus when the latter drops by reason of the severance of connection between it and the cable or the breaking of the cable, substantially as described.

692,287. **ENGINE CROSS-HEAD.** FRED D. HOLLINGSWORTH, Claremont, N. H., assignor to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill., a Corporation of New Hampshire. Filed Apr. 9, 1901. Serial No. 54,979. (No model.)



Claim.—1. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods thereto, of a vertical pin secured centrally in said cross-head to swing therewith, a block pivoted on

said pin and provided with means for the attachment of a piston-rod thereto and means for taking up the wear between the pin and said block.

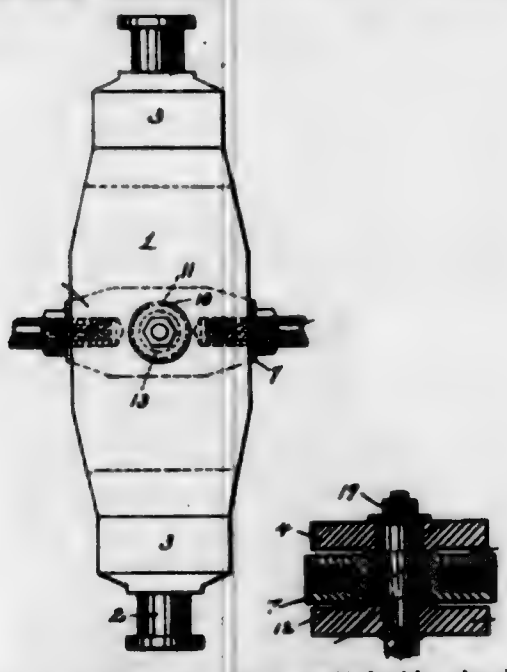
2. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods thereto, of a block provided with an opening and with means for the attachment of a piston-rod thereto, of a swivel-pin secured to the cross-head to swing therewith and passing through the opening in said block, a wear-plate between said pin and block, and means for adjusting the same.

3. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods, of a block provided with an opening and with means for adjustably securing a piston-rod thereto, of a swivel-pin connected to the cross-head to swing therewith and passing through the opening in the block, and a wear-plate between the end of the adjustable piston-rod and swivel-pin.

4. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods thereto, of a block provided with a vertical opening and with a screw-threaded opening for receiving the end of a piston-rod, said screw-threaded opening communicating with the vertical opening, of a swivel-pin secured to the cross-head to swing therewith and passing through said vertical opening, and a wear-plate between said swivel-pin and projecting into the screw-threaded opening, whereby the adjustment of the piston-rod will force said plate tightly against the swivel-pin.

5. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods thereto, of a block provided with a vertical opening and with a longitudinal opening communicating with the vertical opening, of a piston-rod adjustably secured on said longitudinal opening, a swivel-pin secured to the cross-head to swing therewith and passing through the vertical opening, and a wear-plate in said vertical opening between the swivel-pin and projecting into the longitudinal opening against the adjustable piston-rod.

692,288. ENGINE CROSS-HEAD. FRED D. HOLDSWORTH, Claremont, N. H., assignor to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill., a Corporation of New Hampshire. Filed Apr. 9, 1901. Serial No. 54,980. (No model.)



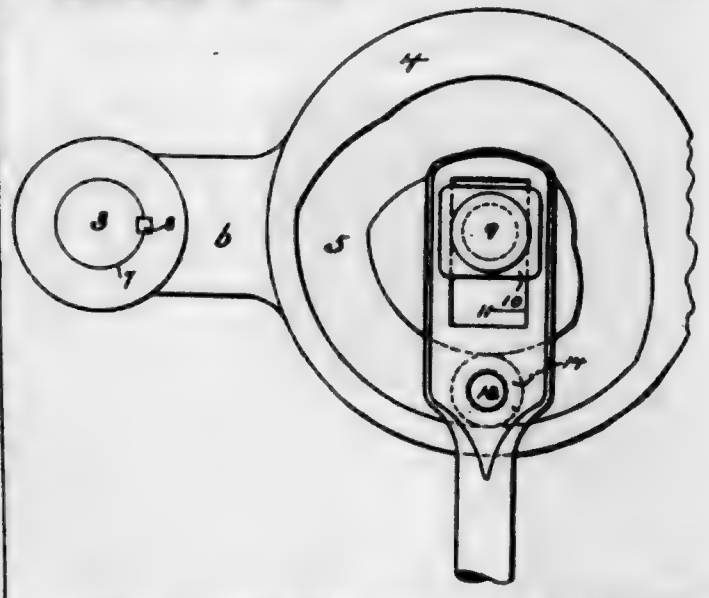
Claim.—1. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods thereto, of a block provided with a cylindrical opening, a split sleeve fitting in said opening, and a swivel-pin passing through said sleeve and secured to the cross-head to swing therewith, said block being provided with means for the attachment of a piston-rod thereto.

2. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods thereto, of a block provided with a cylindrical opening, a split sleeve therein, said sleeve having a tapered opening, and a swivel-pin having a tapered portion passing through said sleeve and secured to the cross-head to swing therewith.

3. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods thereto, of a block provided with an opening and with means for the attachment of the piston-rod thereto, of a split sleeve in the opening in said block and provided with a tapered opening, and a pin having a tapered portion passing through said sleeve and secured to the cross-head, the construction being such that said pin and sleeve will move in unison with the cross-head.

4. An engine cross-head provided with wrist-pins at the ends for the attachment of connecting-rods thereto, of a block provided with a cylindrical hole through the center thereof and with means for the attachment of the piston-rod thereto, of a split sleeve in said opening, said sleeve having a tapered bore, a swivel-pin having a tapered portion passing through said sleeve, said pin having screw-threaded portions at both ends, and nuts fitting thereon and bearing on the upper and lower faces of the cross-head.

692,289. VALVE-GEAR FOR ENGINES. FRED D. HOLDSWORTH, Claremont, N. H., assignor to Sullivan Machinery Co., Claremont, N. H., and Chicago, Ill., a Corporation of New Hampshire. Filed Apr. 9, 1901. Serial No. 54,982. (No model.)

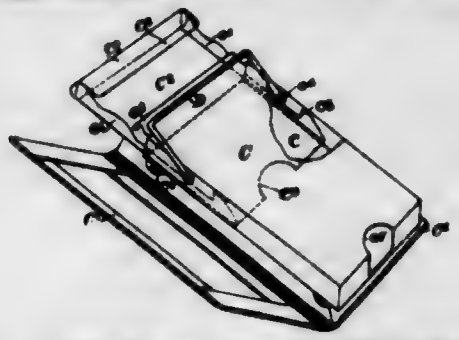


Claim.—1. In valve-gear for engines, and the like, the combination with a crank shaft and pin, of a cam secured to the crank-pin with its axis coincident with the axis of the crank-shaft, a valve-operating link actuated by said cam and means on the cam for guiding the link in a right line.

2. In valve-gear for engines, and the like, the combination with a crank shaft and pin, of a cam secured to the crank-pin with its axis coincident with the axis of the crank-shaft, a valve-operating link, a pin coincident with the axis of the cam for guiding the link, and a projection on the link engaging the cam.

3. In valve-gear for engines, and the like, the combination with a crank shaft and pin, of a cam secured to the crank-pin with its axis coincident with the axis of the crank-shaft, a valve-operating link, a pin coincident with the axis of the cam, a block on said pin and engaging a slot in the link, and a projection on the link engaging the cam.

692,290. MANIFOLD COUNTER CHECK OR SALES BOOK FOR DRAPERS, TAILORS, OR OTHERS. JAMES S. HOLMES, Carlton, Victoria. Filed Oct. 2, 1901. Serial No. 77,315. (No model.)



Claim.—1. In combination, a case C, a slide C^2 therein, multiple sheets held within said slide, and a tongue-piece carried by said slide for clamping the paper to be written upon in position upon the top of the case when the slide is pushed into the case, substantially as described.

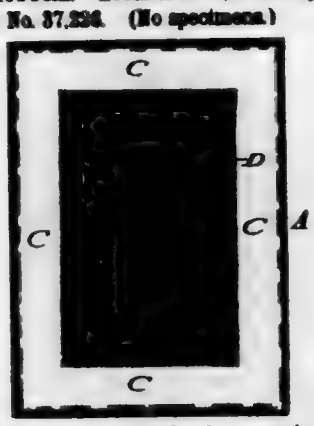
2. In combination, a case C, a slide C^2 therein, multiple sheets carried by said slide, a bail hinged to said case and carrying a carbon-sheet, and a tongue-piece carried by the slide and passing over the bail when the slide is pushed in for holding the carbon and multiple sheets together upon the top of the case, substantially as described.

3. A case C for the purpose stated having stop-pins c^4 and hinged bar D combined with a slide C^2 having a tongue-piece c^2 adapted to pass over the top surface of the case and sides c' furnished with shoulders c^3 which by contact with said stop-pins prevent the withdrawal of the slide substantially as described and shown.

4. In combination a case C provided with a semicircular gap c^7, a slide C^2 provided with sides c' and end tongue c^2, a hinged bar D centered on pins at side of said case and a cover C' to which said case is secured substantially as described and shown.

5. A case C provided with a slide C^3 having tongue-piece c^3 and with a hinged bar D adapted to hold a sheet of carbon B combined with two sheets or lengths of paper both divided off at corresponding regular intervals by transverse lines of perforations and with the spaces between the division-lines consecutively numbered, printed and prepared, one sheet to serve as the original and the other as the duplicate sales-check, laid together and folded zigzag fashion and arranged within and about the said case substantially as described and shown.

692,291. PICTURE. LOUIS HUSSON, Philadelphia, Pa. Filed Nov. 21, 1900. Serial No. 37,226. (No specimens.)



Claim.—1. A picture composed of a metal plate, a dull surface thereon, and a transferred photograph on said surface.

2. A picture composed of a metal plate, a dull surface on a portion of the face thereof, a transferred photograph on said surface, and a border around said surface composed of the bright remaining portions of said plate.

3. A picture composed of a metal plate, a dull surface on a portion thereof, a transferred photograph on said surface, a border around said dull surface composed of the bright remaining portions of said plate, and lacquer on said photograph.

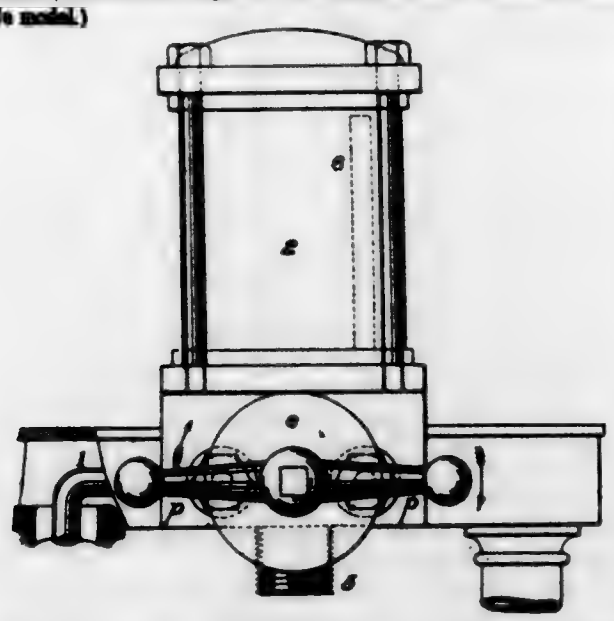
4. A picture composed of a metal plate, a dull surface on a portion thereof, a transferred photograph on said surface, a border around said dull surface composed of the bright remaining portions of said plate, and lacquer on said photograph and border.

5. The method of producing a picture consisting in forming a dull surface on a metallic plate, transferring a photograph to said surface, and securing it thereto, softening the photograph, then removing the paper of the photograph, and leaving the photograph proper on said surface.

6. The method of producing a picture consisting in forming a dull surface on a metallic plate, transferring a photograph to said surface and securing it thereto, softening the photograph, removing the paper thereof, and then waterproofing the photograph as remaining.

7. The method of producing a picture consisting in forming a dull surface on a metallic plate, electroplating said plate, transferring a photograph to said surface, softening the photograph, removing the paper thereof, and then waterproofing the photograph as remaining, and the border portions of the plate not occupied by said photograph.

692,292. APPARATUS FOR SUPPLYING AERATED LIQUIDS ON DRAFT. SYDNEY A. JACKSON, Heaton Chapel, and LOUIS LANG, Old Trafford, Manchester, England. Filed Aug. 22, 1901. Serial No. 73,063. (No model.)



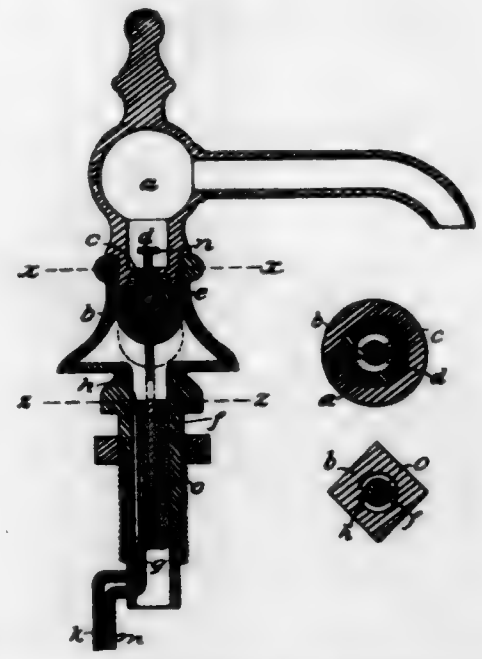
Claim.—1. In apparatus for supplying aerated liquor on draft from bulk, the combination with a supply-pipe 1, a containing vessel 2, and inlet and outlet passages thereto, and an air-passage 6, to admit air to and permit of its escape from the containing vessel, of the three-way plug-valve *a* to admit and discharge the liquor, a casing in which the valve is fitted provided with ports 3, 3 and 4, for the passage of the liquor into the vessel, and ports 4 and 5 for the discharge of the liquor, an auxiliary inlet-valve *g* closed by the action of a spring and held closed by the pressure of the liquor, which acts with the three-way valve *a* to admit the liquor, a spindle *k* projecting from such valve, a cam *e* on the spindle of the main valve *a* to operate the auxiliary valve *g*, and an air-valve *f* placed in the casing to permit of the escape and admission of air to the containing vessel, closed by a spring and opened by the same cam, substantially as described.

2. In apparatus for supplying aerated liquor on draft from bulk, the combination with a supply-pipe 1, a containing vessel 2, and inlet and outlet passages thereto, and an air-passage 6 to admit air to and permit of its escape from the containing vessel, and a plug-valve *a* which acts to admit the liquor to the containing vessel and discharge it therefrom, of the admission-valve *g* held to its seat by the pressure of the liquor to admit the liquor to the plug-valve *a*, the air-valve *f* to discharge and admit air to the vessel 2, and the single cam *e* placed on the spindle of the main valve *a* to open both valves *g* and *f* substantially as described.

3. In apparatus for supplying aerated water on draft from bulk, the combination with a containing vessel 2, inlet-pipe 1, valve *g* provided with a spindle *k* closed by pressure and opened by a cam, to control the passage of the liquor, air-tubes 6 and 7 for drawing off and admitting air to the containing vessel, valve *f* provided with spindle *e* placed therein to open and close same, of a plug-valve *a* with three-way passages through which the liquor is admitted to and discharged from the vessel 2, and a cam *e* placed upon the spindle of the valve *a* to open in turn the valves *g* and *f*, substantially as described.

4. In apparatus for supplying aerated water on draft from bulk, the combination with a containing vessel 2, inlet-pipe 1, and air-discharge pipes 6 and 7, of a casing provided with three valve-chambers, and passages leading from the pipes 1 to the vessel 2, from the vessel 2 to the discharge, and from the tube 6 to the tube 7, a three-way plug-valve *a* placed in one chamber to admit and discharge the liquid, a projecting spindle and operating-handle thereon, an admission-valve *g* placed in the chamber *h* to control the inlet-passage 3, a spindle *k* projecting therefrom, an air-valve placed in the chamber *m* to admit or exhaust air from the vessel 2, a spindle *o* projecting therefrom, and a cam *e* in the spindle of valve *a* to act upon the spindles *k* and *o* and operate the valves *g* and *h* simultaneously with the main valve *a*, substantially as described.

692,293. VALVE. CHARLES A. JACOBY, Waterloo, Iowa. Filed July 27, 1901. Serial No. 69,901. (No model.)



Claim.—1. A valve consisting of a valve-chamber, a ball-valve movable within said chamber, and mounted upon an armature-spindle having a collar at its upper end and slidable within a retaining-ring, an electromagnet within said valve-chamber, insulated therefrom, means for establishing and breaking a circuit through said electromagnet and including a source of electrical power, as and for the purpose set forth.

2. A valve consisting of a valve-chamber formed of separable parts *a* and *b*, a ball-valve *c* mounted on a spindle *d* having a collar *n*, retaining-ring *e*, an insulated electromagnet *f*, and conducting-wires *k* and *m*, substantially as shown and described.

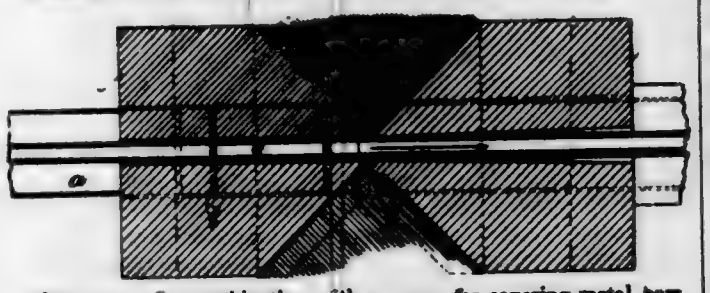
692,294. DENTAL LAMP. BERMAN J. JARDER, New York, N. Y. Filed May 5, 1900. Serial No. 15,583. (No model.)



Claim.—1. A dental lamp, consisting of the combination of a miniature bulb containing a given filament, a slender stem of substantially the same diameter as that of the lamp, extended to the proper length to permit the lamp to reach to any part of the mouth of a person operated upon, the lamp and stem being formed entirely of glass in one piece and evacuated, the leading-in wires, extending from the filament end of the lamp to the end of the stem farthest removed from the lamp, so as to be entirely inclosed in the glass stem.

2. A dental lamp, consisting of the combination of a long and slender tube, having a filament at one end, glass bridges at the ends, platinum wires extending through the bridges, and all connected to given conductors extending throughout the length of said tube, one pair of said platinum wires being connected to the filament of the lamp, and the other pair being extended to the base of the lamp, said tube being of glass, exhausted, and of sufficient length to reach to any part of the mouth or throat of the person to be operated upon.

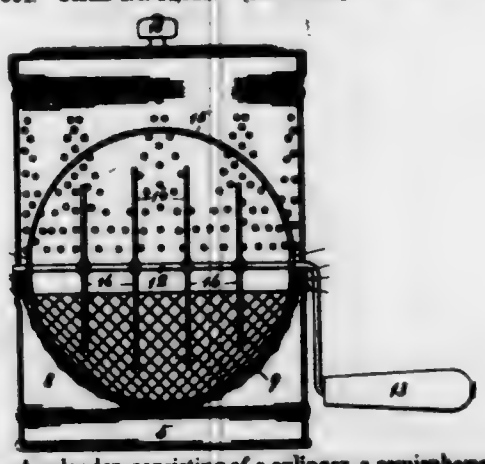
692,295. APPARATUS FOR PROVIDING BARS OR THE LIKE WITH A COVERING OF EXTRUDED MATERIAL. DENZIL J. JARVIS and JOSEPH W. WADKIN, Leicester, and THOMAS S. KING, Colchester, England. Filed July 16, 1901. Serial No. 68,500. (No model.)



Claim.—1. In combination with a press for covering metal bars, tubes, cables, and other articles with extruded or plastic metal, a stopping-off or distance piece, which is placed between the lengths of such bars, tubes, cables or other articles for passing through the press-dies, substantially as hereinbefore described.

2. In combination with a press for extruding an envelop of metal over a bar or the like, a stopping-off piece comprising a short bar of the same cross-section as the bar to be covered and laterally-projecting cutting edges at or near the opposite ends thereof, substantially as described.

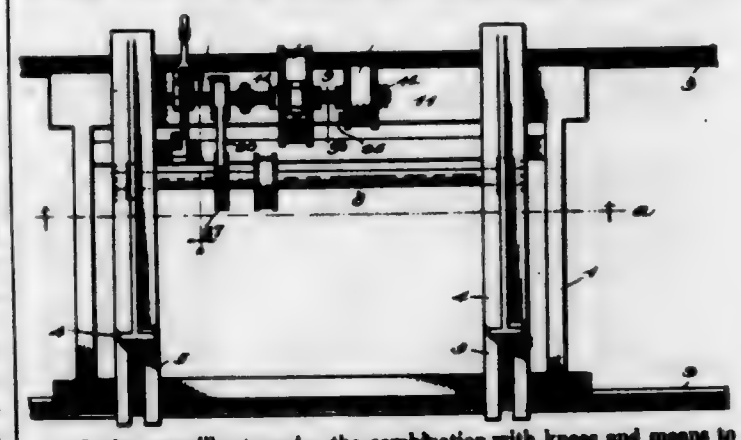
692,296. COLANDER. MARY C. JENKINS, Kansas City, Mo. Filed Jan. 22, 1901. Serial No. 44,322. (No model.)



Claim.—A colander, consisting of a cylinder, a semispherical woven-wire bottom portion, a crank-shaft transversely journaled in the cylinder, a plurality of semicircular loops secured at their opposite terminals to said crank-shaft, and a series of knives also secured to said shaft and graduated in length to conform to the semispherical bottom portion, substantially as described.

692,297. SAWMILL SET-WORKS. MOSES F. JOHNSTON, Dunbar, Wis., assignor of one-half to Ralph E. Gessler, Dunbar, Wis. Filed Sept. 29, 1900. Serial No. 31,519. (No model.)

Claim.—1. In sawmill set-works, the combination with knees and means to adjust them, of a rock-shaft connected to and actuating said knee-adjusting means, a rock-arm on said rock-shaft, means to oscillate said rock-shaft and thereby actuate said knee-adjusting means, a set-lever and locking-arc therefor, a stop to limit the strokes of the rock-shaft, and means to detachably secure said set-lever to said rock-arm and thereby adapt the rock-shaft to be manually operated, substantially as described.



2. In sawmill set-works, the combination with knees and means to adjust them, of a rock-shaft connected to and actuating said knee-adjusting means and having a rock-arm, and an oscillating piston, a casing in which said piston oscillates, means to apply fluid-pressure alternately to opposite sides of said piston, a set-lever and an adjustable stop, said set-lever and stop coacting with said rock-arm to limit the strokes of the rock-shaft, and means to secure said set-lever to said rock-arm and thereby adapt the rock-shaft to be manually operated, substantially as described.

3. In sawmill set-works, in combination with knees and means to adjust them, a rock-shaft in two sections and having a coupling to secure said sections together and detach them at will, a fluid-pressure mechanism operative on one of said sections to rock said shaft, a hand-lever pivoted on the other section, the latter also having a rock-arm fast therewith, a stop, coacting with said hand-lever, to limit the strokes of the rock-arm and thereby limit the strokes of the rock-shaft, means to secure said hand-lever to said rock-arm, for the purpose set forth, and connections between said rock-shaft and the means for adjusting the knees, substantially as described.

4. In sawmill set-works, in combination with knees and means to adjust them, a rock-shaft in two sections and having a coupling to secure said sections together and detach them at will, a power mechanism operating on one of said sections to rock said shaft, a rock-arm fast with the other section of said rock-shaft, a hand-lever, a locking-arc therefor, means to detachably connect said lever with said rock-arm, a stop to limit the strokes of the rock-shaft, and connections between said rock-shaft and the means for adjusting the knees, substantially as described.

692,298. POSITIVE ELECTRODE FOR ACCUMULATORS WITH CONSTANT ELECTROLYTE. ERNST W. JUNGNER, Stockholm, Sweden. Filed Mar. 16, 1900. Serial No. 8,974. (No specimens.)

Claim.—1. The method of making active material for accumulator-electrodes, which consists in binding silver by means of chlorid of silver and removing the chlorin from the bound mass, substantially as described.

2. The method of making active material for accumulator-electrodes, which consists in binding silver and silver compounds with chlorid of silver, and electrolytically reducing the mass to a metallic state, substantially as described.

3. The method of making active material for accumulator-electrodes, which consists in mixing finely-divided silver with chlorid of silver, compressing and drying the mixture on a suitable grid, and electrolytically reducing the mass to metal, substantially as described.

4. The method of making active material for accumulator-electrodes, which consists in mixing finely-divided silver with silver chlorid, compressing and drying the same on a suitable grid, heating the mass to fuse the silver chlorid, and removing the chlorin by electrolysis, substantially as described.

5. The method of making active material for accumulator-electrodes, which consists in mixing finely-divided silver and silver compounds with silver chlorid, compressing and drying the mixture on a suitable grid, removing the chlorin by electrolysis and finally transforming the silver into an oxid, substantially as described.

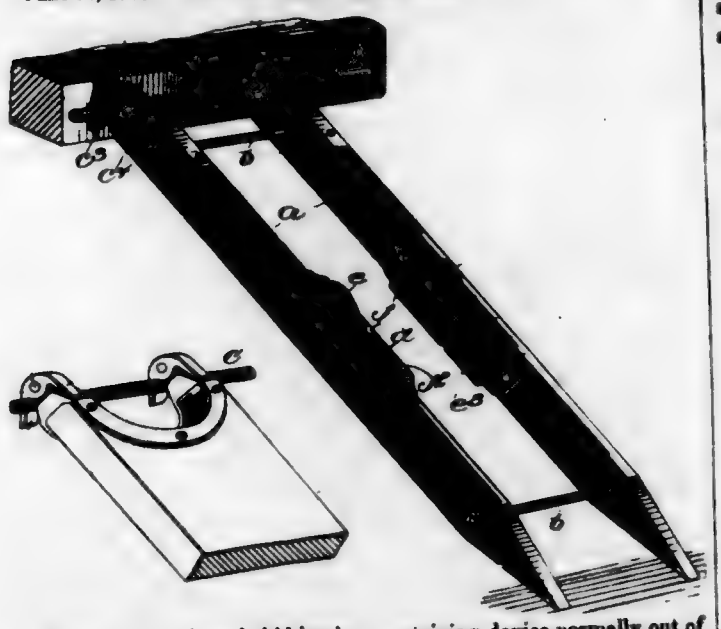
6. The method of making active material for accumulator-electrodes, which consists in binding finely-divided silver by means of silver chlorid, removing the chlorin and finally oxidizing the resulting metallic silver, substantially as described.

7. The method of making active material for accumulator-electrodes, which consists in binding finely-divided silver by means of silver chlorid, removing the chlorin by using the material as cathode in an electrolytic cell with an alkali-metal-hydrate bath, and oxidizing the resulting silver by using the mass in a similar cell and bath as anode, substantially as described.

8. The method of making active material for accumulator-electrodes, which consists in fusing silver chlorid, removing the chlorin therefrom by

using the fused mass as cathode in an electrolytic cell with an alkali-metal-hydrate solution, and oxidizing the resulting silver by using it as anode in a similar cell and solution, substantially as described.

692,299. SKID. LEANDER D. JUNKINS, Somerville, Mass. Filed June 27, 1901. Serial No. 66,247. (No model.)



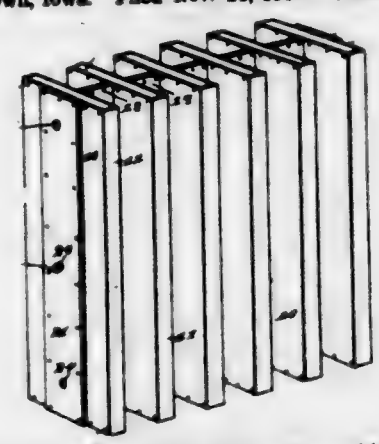
Claim.—1. A barrel-skid having a retaining device normally out of the path of travel of the barrel; and means actuated by the barrel for moving said retaining device into the path of the barrel, as set forth.

2. A barrel-skid having a retaining device and an operating device therefor, said operating device being beyond the retaining device in the direction of movement of the barrel and adapted to be operated by the barrel, as set forth.

3. A barrel-skid having a pivotal retaining device normally out of the path of movement of the barrel; an operating device also pivotally supported and having an engaging portion which normally stands in the path of the barrel; and means for connecting said retaining device and said operating device, whereby said retaining device is operated by the movement of the operating device when engaged by the barrel, as set forth.

4. The combination with a skid; of a retaining-hook pivotally connected therewith and having two hook members one of which is adapted to be engaged by one surface of the skid, and the other by the other surface thereof.

692,300. SHEET-METAL RADIATOR. JOHN D. KARRAGHAN, Marshalltown, Iowa. Filed Nov. 26, 1900. Serial No. 37,799. (No model.)



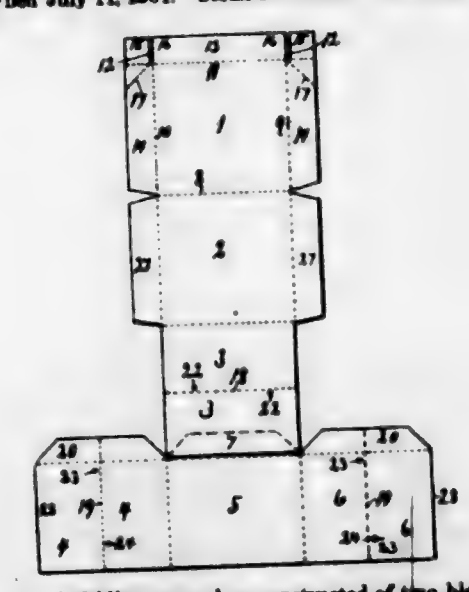
Claim.—1. In a sheet-metal radiator the combination of two opposing sheets, said sheets formed into a series of tubes and connections between said tubes, those portions of the sheets forming the connections being secured together at top and bottom and spaced therebetween forming passages, and means for closing the ends of said tubes.

2. In a sheet-metal radiator the combination of two opposing sheets, said sheets formed into a series of tubes and connections between said tubes, those portions of the sheets forming the connections being secured together at top and bottom, blocks interposed between the portions of the sheets forming the connections, rivets passed through the sheets and blocks, and means for closing the ends of said tubes.

3. In a sheet-metal radiator the combination of two opposing sheets, said sheets formed into a series of tubes and connections between said tubes, those portions of the sheets forming the connections being secured together at top and bottom, and spaced therebetween forming passages, and means for closing the ends of said tubes, and plates at the ends of the radiator and rods fixed to the plates and passed through the tubes and connections.

4. In a sheet-metal radiator the combination of two opposing sheets, said sheets formed into a series of tubes and connections between said tubes, the tubes being substantially rectangular in cross-section of a width at right angles to the longitudinal axis of the radiator materially greater than their thickness, the portions of the sheets forming connections being secured together at top and bottom and spaced therebetween forming passages, and means for closing the ends of said tubes.

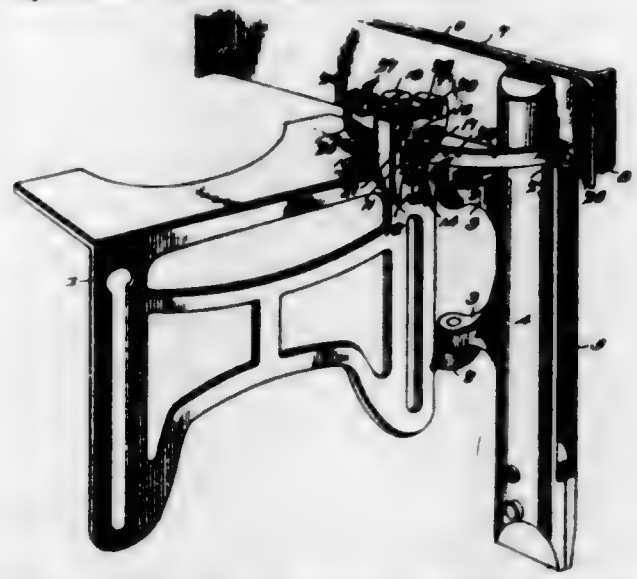
692,801. FOLDING PAPER BOX. MICHAEL J. KANE, St. Paul, Minn. Filed July 11, 1901. Serial No. 67,907. (No model.)



Claim.—1. A folding paper box constructed of two blank-sections, one having a middle portion 5 forming the front side of the box, and the vertically centrally creased end pieces 4 and 6 at opposite ends of said front piece the other section having one end secured at the edge of the middle of the first section and extending transversely therefrom forms the centrally-folding bottom 3, the rear sides 2 with the flaps 27 adapted to be pasted to the edges 28 of the first section, and the cover portion 1, jointed at 8 and having the flaps 13 and 14 and the creases 17 to permit of knocking down of the cover when the box is knocked down.

2. In a folding paper box, the combination with the box-body having outwardly-folding, central vertical creases in both sides, the flaps 20 at the bottom edges thereof and adapted to be folded in under the bottom, an upwardly-folding centrally-creased bottom secured to the front and rear of the box, a folding cover attached to the rear wall of the box, and a tape inserted in the bottom, the same supporting the flaps 20 and the creased bottom and having its ends passed through apertures in the sides of the box zigzag over the folding-creases, and adapted to be tied over the cover of the box, said tape being tightly fitted in the apertures and is thereby friction-held in and by the apertures so as to hold the box in shape also when the cover is raised.

692,802. MITER-BOX. JAMES M. KELLY, Houghton, Mich. Filed Sept. 11, 1901. Serial No. 75,056. (No model.)



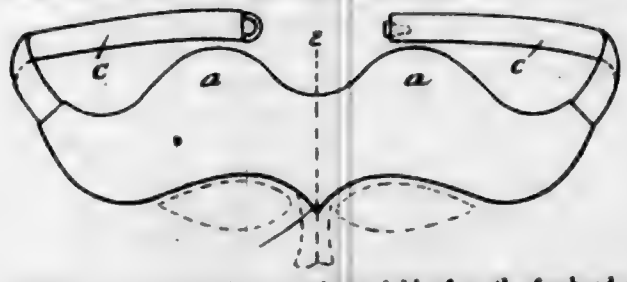
Claim.—1. In a device of the class specified, a base having a guiding-slot, a saw-guide pivoted to the base, a segment having its opposite ends secured to the saw-guide and adapted to the guiding-slot, a block extending through said slot and adjustable lengthwise thereof, and a spring

locking-finger carried by said block and adapted to engage the notches of the segment.

2. In a device of the class specified, a base having a guiding-slot, a block adapted to said slot and adjustable lengthwise thereof, a locking-screw for holding said block in adjusted position, a spring-pressed locking-finger pivoted to said block and having its engaging edge passing through a slot in the same, a saw-guide pivoted to the base, and a segment secured to said saw-guide and adapted to the guiding-slot of the base, said segment having in its upper surface notches for the engagement of the finger.

3. In a device of the class specified, the combination of the base, a slotted block 10 thereon, a block adapted to said slot and adjustable lengthwise therein, depending ears forming part of said adjustable block, adjusting-screws 14 in said ears and having their inner ends bearing against the block 10, a locking-finger pivoted to the block, a spring normally tending to depress said finger, a saw-guide pivoted to the base, a segment carried by said saw-guide and adapted to said guiding-slot, said segment having in its upper face a series of notches for the engagement of the locking-finger.

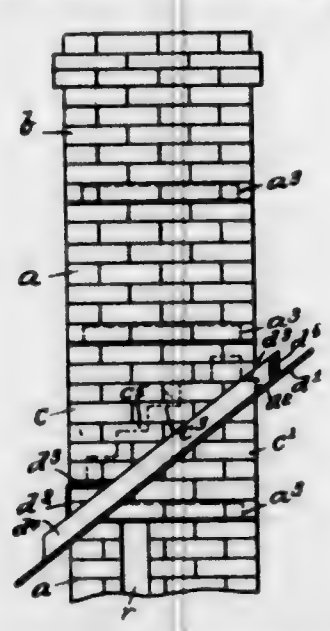
692,803. **WRINKLE-REMOVING DEVICE.** JULIA R. KENDALL, Boston, Mass. Filed Oct. 26, 1900. Serial No. 34,521. (No model.)



Claim.—1. A device for removing wrinkles from the forehead, comprising a band curved transversely its length, composed of several layers of flexible material having an even contacting surface and provided with arched portions above the eyes, and straps for retaining said band in intimate contact with the forehead, substantially as described.

2. A device for removing wrinkles from the forehead, comprising a band curved transversely its length composed of several layers of flexible material having an even contacting surface and provided with arched portions and a downwardly-extended projection from the lower edge, and straps for retaining said band in intimate contact with the forehead, substantially as described.

692,804. **CHIMNEY.** JOHN B. KENNON, MICHAEL F. BURK, and JOHN A. PERKINS, Lynn, Mass. Filed Jan. 28, 1901. Serial No. 45,105. (No model.)

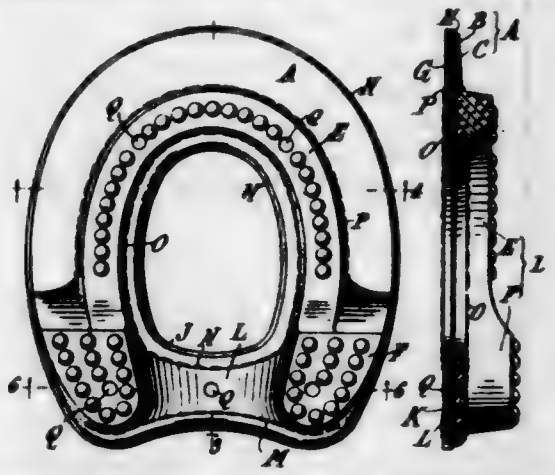


Claim.—1. A chimney having as a component part of it a divided section c, c', the upper and lower parts of which are separated on a diagonal line, one of said parts having the centrally-disposed projection c^3 formed with stepped sides c^4 and the other part having the centrally-disposed recess c^4 formed with stepped sides c^4, substantially as described.

2. A chimney having as a component part of it a divided section c, c', the upper and lower parts of which are separated on a diagonal line, and a flashing interposed between said parts c, c', and thereby held in place, substantially as described.

3. A chimney having a flashing composed of two parts, one of which is connected to the roof and has an upturned lip, three sides of the chimney, as described, and the other of which is connected to the chimney and has an upwardly-extended portion constructed and arranged to receive the upturned lip on the aforesaid part, substantially as described.

692,805. **HOOF-PAD.** WILLIAM J. KENT, Brooklyn, N. Y., assignor to Revere Rubber Company, Boston, Mass., a Corporation of Massachusetts. Filed June 26, 1901. Serial No. 66,075. (No model.)



Claim.—1. A hoof-pad comprising a body portion adapted to fit the toe and sides of the hoof, projections connected to said body portion and forming individual heel-cushions, and a connecting portion connecting said cushions at the heel of the pad and having a continuous recess on the under side, whereby the tread of the hoof is given a firm, and the frog a more yielding, support.

2. A hoof-pad comprising a body portion adapted to fit the toe and sides of the hoof, projections connected to said body portion and forming individual heel-cushions, and a connecting portion connecting said cushions at the heel of the pad and having a continuous recess on the under side, whereby the tread of the hoof is given a firm, and the frog a more yielding, support, said body portion being composed of a bearing-strip of cushioning material and a reinforce secured to the back of said bearing-strip.

3. A hoof-pad comprising a body portion adapted to fit the toe and sides of the hoof, and projections connected to said body portion and forming individual heel-cushions, said body portion being composed of a bearing-strip of cushioning material and a reinforce secured to the back of said bearing-strip, and said reinforce having a connecting portion J connecting said cushions at the heel of the pad so as to leave a continuous recess on the under side, whereby the tread of the hoof is given a firm, and the frog a more yielding, support.

4. A hoof-pad comprising a body portion adapted to fit the toe and sides of the hoof, and projections connected to said body portion and forming individual heel-cushions, said body portion being composed of a bearing-strip of cushioning material and a reinforce secured to the back of said bearing-strip, and said reinforce having a connecting portion J connecting said cushions at the heel of the pad so as to leave a continuous recess on the under side, and having a portion R extending across between the sides of said body portion.

5. A hoof-pad comprising a body portion adapted to fit the toe and sides of the hoof, projections connected to said body portion and forming individual heel-cushions, and a connecting portion connecting said cushions at the heel of the pad and having a continuous recess on the under side, whereby the tread of the hoof is given a firm, and the frog a more yielding, support, said pad being composed of a cushioning member comprising a layer of textile material and a layer of rubber, and of a reinforcing member of leather secured to the back of said cushioning member.

6. A hoof-pad comprising a body portion adapted to fit the toe and sides of the hoof, projections connected to said body portion and forming individual heel-cushions, and a connecting portion connecting said cushions at the heel of the pad and having a continuous recess on the under side, whereby the tread of the hoof is given a firm, and the frog a more yielding, support, said body portion being composed of a cushioning member comprising a layer of textile material and a layer of rubber, and of a reinforcing member of leather secured to the back of said cushioning member.

7. A hoof-pad comprising a body portion adapted to fit the toe and sides of the hoof, and projections connected to said body portion and forming individual heel-cushions, said body portion being composed of a bearing-strip of cushioning material comprising a layer of textile material and a layer of rubber, and a reinforce of leather secured to the back of said bearing-strip, and said reinforce having a connecting portion J connecting said cushions at the heel of the pad so as to leave a continuous recess on the under side, whereby the tread of the hoof is given a firm, and the frog a more yielding, support.

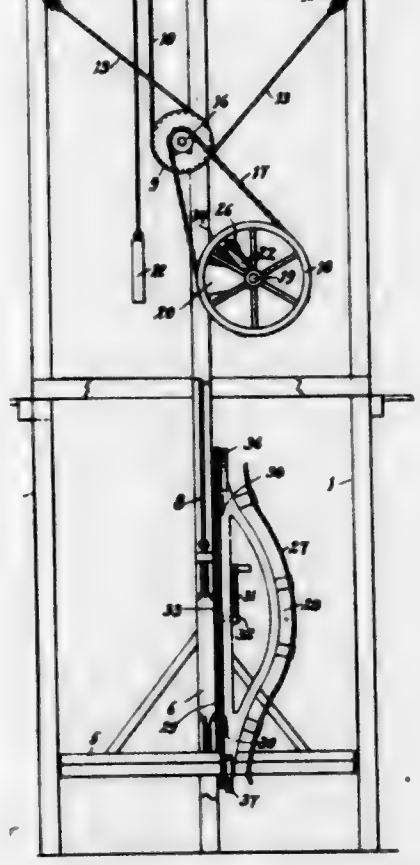
8. A hoof-pad comprising a body portion adapted to fit between the

shoe and hoof, having a projecting portion within the contour of the shoe at the toe thereof and having projections at the heel in rear of the shoe forming individual heel-cushions, and a connecting portion connecting said cushions at the heel of the pad and having a continuous recess on the under side, whereby the tread of the hoof is given a firm, and the frog a more yielding, support.

9. A hoof-pad comprising a body portion adapted to fit between the shoe and hoof, having a projecting portion extending within and conforming to the contour of the shoe at the toe and sides thereof and having projections at the heel in rear of the shoe forming individual heel-cushions connecting with the side portions of said projection whereby the latter braces the heel-cushions, and a connecting portion connecting said cushions at the heel of the pad and having a continuous recess on the under side, whereby the tread of the hoof is given a firm, and the frog a more yielding, support.

692,806. MEANS FOR OPERATING ELEVATOR-DOORS.

CHARLES W KIESER, Milwaukee, Wis., assignor to Elevator Safety Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Apr. 1, 1901. Serial No. 53,754. (No model.)



Claim.—1. In combination, a vertically-movable elevator-car, one or more vertically-movable gates, a drum, a rope attached to each gate and winding on the drum adapted to lift the gates, a gravity-counterbalance provided with a rope winding on said drum, an oscillating wheel, a sprocket-wheel fixed on the drum-shaft, a chain secured to and running from opposite sides of the oscillating wheel on and about the drum-shaft, whereby the oscillation of the wheel rotates the drum back and forth, a radial arm fixed on the oscillating wheel and provided with a crank-pin, and an upwardly and downwardly extending camway on the car consisting of a curved trough with two operating-faces adapted to take and swing said crank-pin, thereby moving the oscillating wheel in each direction, whereby the gates and the counterbalance are alternately positively lifted as the cam on the car passes the crank-pin.

2. In combination, a vertically-movable elevator-car, one or more vertically-movable gates, a drum, a rope attached to each gate and winding on the drum adapted to lift the gates, a gravity-counterbalance provided with a rope winding on said drum, an oscillating wheel, means connecting the oscillating wheel operatively to the drum, a crank-pin on the oscillating wheel, and an upwardly and downwardly extending curved grooved camway on the car, the camway having two operating-faces adapted to take and guide the crank-pin whereby the gates are lifted when the wheel is oscillated in one direction and the counterbalance is lifted when the wheel is oscillated in the other direction.

3. In mechanism for opening an elevator-gate, an oscillating drum-rotating wheel, a radial arm fixed on the axle of the oscillating wheel, a crank-pin member revolubly loose on the axle of the oscillating wheel, and a locking member hinged to and oscillable with the radial arm and having a pin adapted to engage and hold the crank-pin arm releasably to oscillation with the radial arm.

4. In mechanism for opening an elevator-gate, an oscillating drum-rotating wheel, a recessed radial arm fixed on the axle of the oscillating wheel, a crank-pin member revolubly loose on the axle of the oscillating wheel, and a spring-holding locking member hinged in the recess to and oscillable with the radial arm and having means adapted to engage and hold the crank-pin arm releasably to oscillation with the radial arm.

5. In combination in mechanism for opening an elevator-gate, an oscillating drum-rotating wheel, a radial arm rigid on the axle of the wheel, a crank-pin member revolubly loose on said axle, a locking member hinged on and oscillable with the radial arm and provided with means engaging the crank-pin member and holding it releasably to oscillation with the radial arm, and a cam on the car adapted as the car moves up or down to contact with the crank-pin and oscillate the arm.

6. In combination in mechanism for opening an elevator-gate, an oscillating drum-rotating wheel, a radial arm rigid on the axle of the wheel, a crank-pin member revolubly loose on said axle, a locking member hinged on and oscillable with the radial arm and provided with means engaging the crank-pin member and holding it releasably to oscillation with the radial arm, a cam on the car adapted as the car moves up or down to contact with the crank-pin and oscillate the arm, and a shiftable elongated cam on the car adapted to be put into position to contact with said locking member as the car passes it, and put it out of engagement with the crank-pin member permitting the crank-pin member to rotate alone.

7. In combination in mechanism for opening an elevator-gate, an oscillating drum-rotating wheel, a radial arm rigid on the axle of the wheel, a crank-pin member revolubly loose on said axle, a locking member hinged on and oscillable with the radial arm and provided with means engaging the crank-pin member and holding it releasably to oscillation with the radial arm, a cam on the car adapted as the car moves up or down to contact with the crank-pin and oscillate the arm, a shiftable elongated cam on the car adapted to be put into position to contact with said locking member as the car passes it and put it out of engagement with the crank-pin member permitting the crank-pin member to rotate alone, a rock-shaft, a crank-handle on the rock-shaft, and a finger on the rock-shaft adapted by contact with a pin on the elongated cam to shift it into and out of action.

8. In combination, a vertically-traveling elevator-car, an opening gate, a swinging arm in means for automatically opening the gate, a counterweight to the gate so mounted as when relieved of the weight of the gate to tilt said arm when not locked, a catch adapted automatically to engage said arm and hold it and the counterweight against movement, and means on the car for automatically putting the catch out of work.

9. In mechanism for opening an elevator-gate, an oscillating wheel, a recessed radial arm fixed on the axle of the wheel, a crank-pin member loose revolubly on said axle, a locking member hinged to said radial arm in said recess and rotatable with said radial arm and provided with a pin adapted to engage said crank-pin member and hold it to rotation with said radial arm, and a spring holding said locking member to its work.

692,807. STEAM-ENGINE.

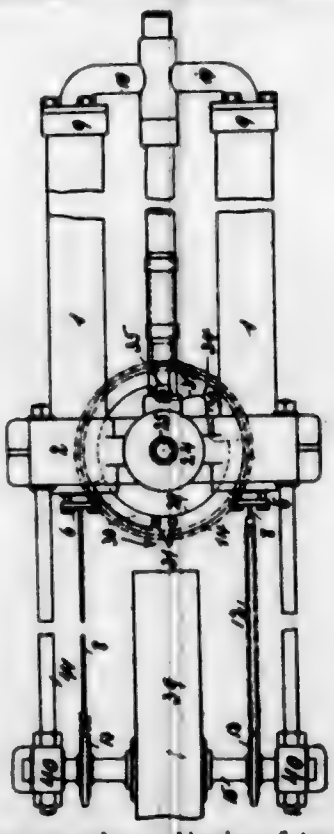
JOHN G. A. KITCHEN, Windermere, England. Filed May 23, 1900. Serial No. 17,769. (No model.)

Claim.—1. In a steam-engine the combination with a cylinder having a steam-port at its inner end, a piston in the cylinder, a piston-rod, a cylinder-cover, and gland for the piston-rod, of a driving-chain attached to said piston-rod and passing over a chain-wheel mounted loose upon the engine-shaft and over a toothed chain-guide wheel, and a clutch-box clutching the chain-wheel to the shaft when pulled by the chain in one direction and releasing it when pulled in the other direction, and valve mechanism connected up with the said chain-guide wheel for alternately admitting steam to said cylinder, and exhausting it therefrom.

2. In a steam-engine the combination with two parallel cylinders each having a steam-port, a cover with a gland, a piston, and a piston-rod passing through said gland, of a driving-chain connecting the outer ends of said piston-rods, and passing over two toothed chain-wheels mounted loose upon the engine-shaft and over a toothed guide-wheel, clutch-boxes connected to said chain-wheels and adapted to clutch each wheel to the shaft when pulled around by the chain in one direction and to become disengaged when pulled around in the opposite direction, and valve mechanism operated by the said guide-wheel for alternately admitting steam to the said cylinders between the covers and pistons and exhausting the steam.

3. In a steam-engine the combination of an engine-shaft mounted in bearings, two clutch-boxes mounted loose on the said shaft self-actingly clutching the same when turned in one direction and releasing it when turned in the other direction, two chain-wheels forming part of said clutch-boxes, two cylinders the center lines of which are tangential to said chain-wheels, a piston in each cylinder and a piston-rod passing through a gland in a cylinder-cover, a driving-chain connected to both piston-rods and pass-

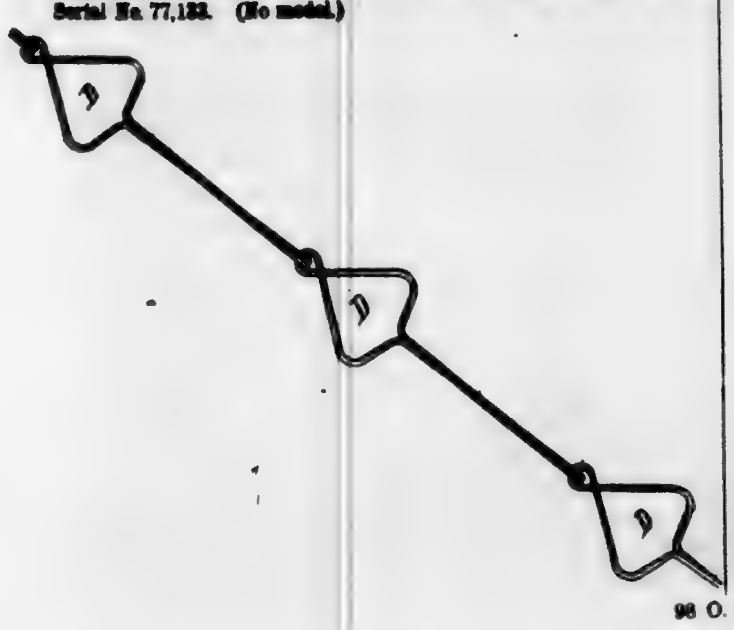
ing over said chain-wheels and a guide-wheel, and valve mechanism operated by said guide-wheel for admitting steam alternately to said cylinders between the pistons and cover and exhausting it therefrom.



4. In a steam-engine the combination of two steam-cylinders, a steam-chest communicating with each cylinder by a port and by third port with the exhaust-pipe, a cock-valve in said steam-chest controlling the admission and exhaust of steam to and from said cylinders, and actuated by the reciprocating rotary motion of a chain-wheel, a piston and piston-rod for each cylinder, a driving-chain connecting the outer ends of said piston-rods and passing around said chain-wheel and two other chain-wheels mounted loose on the engine-shaft and provided with clutch-boxes adapted to clutch the shaft when they are turned in one direction and releasing it when turned in the other direction.

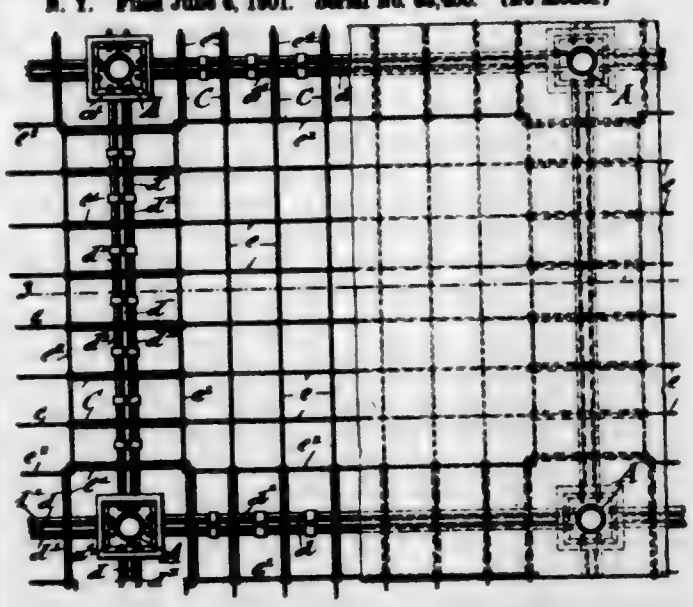
5. In a steam-engine having two single-acting cylinders the pistons of which drive the engine-shaft by means of a chain which is connected to the piston-rods and passes over two chain-wheels on said shaft formed with clutch-boxes locking the chain-wheels to the shaft when turned in one direction and releasing them when turned in the other direction, and over a third guide chain-wheel, the combination therewith of a steam-chest having ports communicating with each cylinder and the exhaust-pipe, a cock-valve adapted to alternately place each cylinder into communication with the steam-space and the exhaust-port in said steam-chest, a disk keyed upon a spindle fixed centrally in said cock-valve, a projection on said disk in the path of a driver fixed in said guide chain-wheel, two inclines formed on the edge of said disk in opposite directions, from a point of the edge centrally opposite the said projection, and a roller pressed by a spring against the inclines in a radial direction, substantially as and for the purpose set forth.

692,808. **PIN-LESS CLOTHES-LINE.** BYRON W. KNIGHT, McFall, Mo., assignor to Knight & Cobb, McFall, Mo. Filed Sept. 30, 1901. Serial No. 77,133. (No model.)



Claim.—A clothes-line made up of a series of connected links, each link formed of a piece of wire bent upon itself to form two flexible shank portions which are partially twisted substantially their entire length about each other and terminating in a loop, formed by the two portions of the link being bent in opposite directions, and then at substantially right angles, with portions converging and bent beyond their point of intersection into an eye in the plane of said loop, as set forth.

692,809. **FIREPROOF FLOOR.** GOTTFRIED KROMER, New York, N. Y. Filed June 6, 1901. Serial No. 63,400. (No model.)



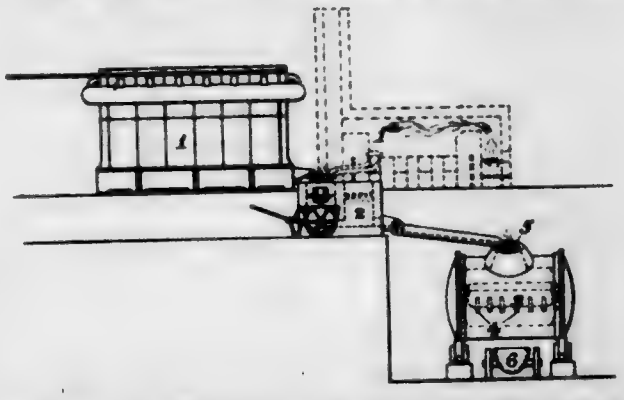
Claim.—1. A fireproof floor, consisting of girders supported on columns, brackets extending transversely from said girders, an iron frame connecting the ends of said brackets, arc-shaped tie-rods suspended from the opposite sides of said frame and intercrossing with each other, and a concrete body embedding said girders, brackets and suspended tie-rods, substantially as set forth.

2. A fireproof floor, consisting of supporting-columns, girders connecting said columns, brackets extending transversely from said girders, an iron frame connecting the ends of said brackets, intercrossing tie-rods suspended from opposite sides of said frame, and a body of concrete in which said girders, brackets and tie-rods are embedded, substantially as set forth.

3. A fireproof floor, consisting of girders, each formed of a pair of arc-shaped tie-rods, resting on projections of the supporting-columns, and a channel-bar below said tie-rods also supported on projections of the columns, brackets extending transversely from said girders, an iron frame connecting the inner ends of said brackets, intercrossing tie-rods connecting the opposite sides of said frame, and a concrete body surrounding the girders, brackets and tie-rods, substantially as set forth.

4. A fireproof floor, consisting of girders resting on supporting-columns, brackets extending transversely from said girders, intercrossing tie-rods connecting said brackets, the inner tie-rods being suspended at a greater depth than the outer ones, and a concrete body inclosing said tie-rods and forming ribs and intermediate panels, substantially as set forth.

692,810. **METHOD OF TREATING COPPER ORES.** WILLIAM J. KNOX, Edgewood Park, Pa., assignor to George Westinghouse, Pittsburg, Pa. Filed Feb. 4, 1901. Serial No. 45,969. (No specimens.)



Claim.—1. The method of separating copper from copper matte in which the iron and other metals exist largely as sulfids, which consists in melting the matte, oxidizing iron and sulfur of the matte by forcing air into contact therewith while in a molten state, thereby generating heat sufficient to maintain the mass in a molten state and thereby causing the formation of iron oxysulfids under such conditions that substantially no

silicate of iron is formed, and in separating the copper therefrom by causing it to remain quiescent a sufficient time to separate by gravity.

2. The method of utilizing iron of an iron-bearing copper ore as a flux for removing the acid components of the ore, which consists in smelting the ore, thereby forming a matte producing iron oxysulfids by oxidizing in a basic-lined vessel the matte while in a molten state, and returning to the smelting-furnace the oxysulfids thus obtained.

3. The method of separating copper from iron-bearing copper ores, which consists in smelting the ore with the addition of iron oxysulfids, oxidizing the resulting matte in a basic-lined vessel by forcing air therethrough, thus producing iron oxysulfids, separating the copper from the iron oxysulfids by gravity, and utilizing the latter as a basic flux in the smelting-furnace.

4. The method of treating iron-bearing copper ore, which consists in smelting the ore, withdrawing the slag therefrom, oxidizing the resulting matte in a basic-lined vessel substantially free from silica, thereby forming iron oxysulfids and copper, and performing the act of separating the copper from such iron compounds by subjecting the mass to the action of gravity while in a molten state, thereby leaving basic-iron compounds substantially free from copper and silica and utilizing practically all of the iron thus obtained for fluxing the ore.

5. The method of separating metals capable of reaction and separation, as described, existing in the form of sulfids, which consists in melting the matte, creating oxysulfids of certain of the metals under such conditions that substantially no silicates are formed, and performing the act of separating the oxysulfids from the remaining constituents by permitting the same to remain in a state of quiescence while in a molten condition a sufficient time to permit stratification.

6. The hereinbefore-described method of eliminating iron from a copper matte composed largely of copper and iron sulfids practically free from silica, which consists in melting the matte, oxidizing the iron into non-silicious compounds of iron and performing the act of separation of the same from the enriched matte while in a fluid state by utilizing the difference in their specific gravities.

7. The method of separating the copper from a matte composed largely of copper and iron sulfids practically free from silica, which consists in melting the matte, oxidizing the sulfids of iron, thereby forming oxysulfids under such conditions that substantially no silicate of iron is formed, and then occasioning the separation of the copper from the oxysulfids through the instrumentality of their different specific gravities, while in a molten state.

8. The method of treating iron-bearing copper ore in which the iron or other metals exist as sulfids, which consists in first smelting the ore thereby producing a matte composed largely of iron and copper sulfids, oxidizing the major portion of the iron of the matte into magnetic oxid of iron while in a molten state, thereby producing a bath composed essentially of oxysulfid of iron and sulfid of copper, and precipitating the latter from the former by reason of the difference in their specific gravities.

9. The method of producing from iron-bearing copper matte, copper free from metalloids, which consists in melting the matte, transforming the copper matte into metallic copper and a basic compound of iron by oxidizing the iron sulfids, and causing the metalloids to unite with the iron compounds thus formed.

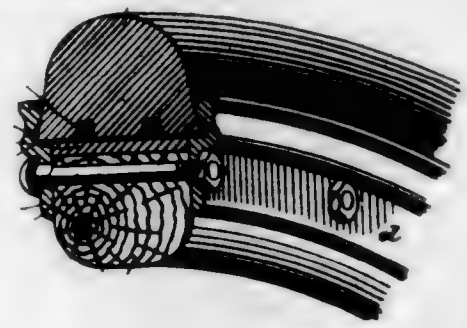
10. The process of treating copper matte containing iron existing in the form of sulfids, which consists in melting the matte, oxidizing the iron into magnetic oxid of iron, and transforming this into a fusible compound of iron by heating it in the presence of metallic sulfids capable of uniting therewith under such conditions that substantially no silicate of iron is formed.

11. The method of extracting copper from copper matte containing iron and practically free from acid components, which consists in melting and oxidizing the matte in a vessel neutral to the compounds formed in the vessel, thereby creating a fusible basic compound of iron of less specific gravity, then causing the mass to remain quiescent, and separating copper from such molten mass by the action of gravity.

12. The process of treating copper matte containing iron in the form of sulfid, which consists in melting the matte, oxidizing a portion of the iron contained therein to magnetic oxid of iron in the presence of the remaining sulfids contained in the matte under such conditions that substantially no silicate of iron is formed, maintaining the mass in a molten state, and thereby transforming the magnetic oxid of iron into a fusible compound of iron.

692,811. **RUBBER TIRE.** ALVARO S. KROTZ, Springfield, Ohio, assignor to Consolidated Rubber Tire Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 29, 1901. Serial No. 58,028. (No model.)

Claim.—1. In a rubber tire for vehicle-wheels, the combination with the wooden felly of the wheel, and a flat metallic band, of a continuous rubber tire, V-shaped endless metallic strips in the base of said tire, said tire formed on its tread in the arc of a circle of less diameter than the width of its base, and curved outwardly near its base, forming a sloping shoulder on each side at its base, plates upon each side of said felly and rim, with flanges forming a channel for said tire slightly narrower than the width of the tire at said shoulders, extending upwardly and inwardly over said sloping shoulders to press said tire in its seat under the angles formed by said V-shaped strips and then outwardly, leaving a space between said tire and the upper portion of said flanges, and bolts extending at intervals through said felly to clamp said side plates in position, substantially as specified

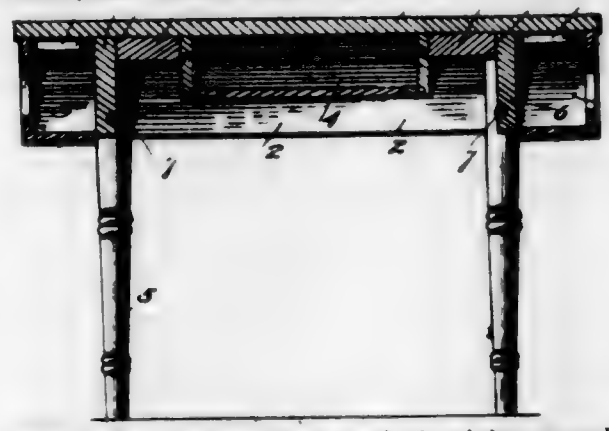


2. In a rubber tire for vehicle-wheels, the combination with the wooden felly of the wheel, and a flat metallic band, of a continuous rubber tire, V-shaped endless metallic strips vulcanized in the base of said tire, said tire formed narrower on its tread than at its base, with shoulders on each side at its base, plates upon each side of said felly and rim, with flanges forming a channel for said tire slightly narrower than the width of said tire at the shoulders, extending upwardly and inwardly over said shoulders to compress said tire in its seat under the angles formed by said V-shaped strips, and then outwardly, leaving a space between said tire and the upper portion of said flanges, and bolts extending at intervals through said felly, to clamp said side plates in position, substantially as specified.

3. In a vehicle-wheel, the combination with the wooden felly of the wheel, and a flat metallic band, of a continuous rubber tire, V-shaped endless metallic strips in the base of said tire, said tire being of greater width than said rim, narrower on its tread than at its base, with shoulders formed on each side at its base, plates upon each side of said felly and rim, with flanges forming a channel for said tire, having recesses to seat said tire where it extends over the base of said rim, and extending upwardly and inwardly over said shoulders to compress said tire, and then outwardly, leaving a space between said tire and the upper portion of said flanges, and bolts extending at intervals through said felly to clamp said side plates in position, substantially as specified.

4. In a vehicle-wheel, the combination with the wooden felly of the wheel and a flat metallic band of equal width with said felly, of a continuous rubber tire, V-shaped endless metallic strips vulcanized in the base of said tire, said tire being of greater width than said rim, flat on its base and formed on its tread in the arc of a circle of less diameter than the width of its base and curved outwardly near its base, forming a sloping shoulder on each side at its base, plates upon each side of said felly and rim with flanges forming a channel for said tire having recesses to seat said tire where it extends over the edges of said rim, and extending upwardly and inwardly over said sloping shoulders to compress said tire and then outwardly, leaving a space between said tire and the upper portion of said flanges, and bolts extending at intervals through said felly to clamp said side plates in position, substantially as specified.

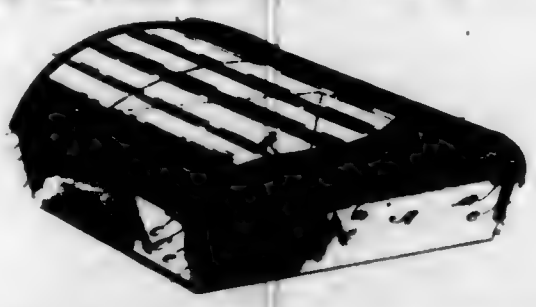
692,812. **TABLE.** CHRISTIAN F. LAIR, New London, Wis. Filed May 27, 1901. Serial No. 62,058. (No model.)



Claim.—In combination, a table-top having shelves secured below the same at its ends, of legs, cross-bars connecting the legs and when the legs are in distended position or position for use, adapted to act as the inner walls or backs of said shelves, through-bolts extending through the

sides of the table, at a point inward of the inner edges of said shelves, through the legs and the cross-bars, and provided with tightening-nuts for holding the legs in adjusted position, and cleats secured to the under side of the table within the path of movement of each set of legs and serving to limit the outward movement of the lower ends of said legs, substantially as set forth.

692,813. COOKING UTENSIL. MARY A. K. C. LAMBERT, Chicago, Ill. Filed Nov. 23, 1900. Serial No. 738,055. (No model.)



Claim.—1. In a cooking utensil, an attachment for baking-pans comprising a cover of thin resilient material in the form of an arch adapted to fit over an ordinary pan and provide fixed openings at opposite ends thereof, and fastenings at the sides of the cover for securing and supporting it upon the upper edge of the pan, substantially as described.

2. In a cooking utensil, an attachment for baking-pans comprising an arched cover constructed of thin resilient material adapted to fit over the pan and provide fixed openings at the ends thereof; said cover having its end portions at said fixed openings extended beyond the sides or ends of the pan to insure a heat-radiating surface and even temperature coextensive with the surface of the pan, and suitable fastenings for detachably securing and supporting the cover on the pan, substantially as described.

3. In a cooking utensil, an attachment for baking-pans comprising an arched cover of thin resilient metal crimped or otherwise stiffened along the edges thereof which extend in the direction of the arch, and having its end portions broadened or extended beyond the side portions thereof so as to project beyond or overhang the sides or ends of the pan over which it is fitted, substantially as described.

4. In a cooking utensil, an attachment for baking pans or vessels comprising an arched cover gradually enlarged or widened from its lower edges toward the highest point of the arch, and indented at such point, said cover being formed of non-conducting material and having fastenings at the sides thereof to adapt it to be applied to and sustained upon and removed from the pan, substantially as described.

5. In a cooking utensil, an attachment for baking pans or vessels comprising a cover arched over the pan so as to provide fixed openings at opposite ends thereof, to permit free ventilation through the arch above the pan, said cover being made of a sheet of suitable material having its sides rising abruptly from the pan and thence gradually enlarged or widened toward the highest point of the arch, thus to project at the ends beyond the sides of the pan, said cover being indented at such point, and fastenings at the sides of said cover to adapt it to be applied to, sustained upon and removed from the pan, substantially as described.

6. In a cooking utensil, an attachment for baking pans or vessels comprising a cover arched over the pan so as to provide fixed openings at its ends to permit free ventilation around the arch above the pan; said cover being made of a thin sheet of suitable non-combustible material with its sides rising abruptly from the pan and then extending on a gradually-ascending scale to the center; the ends of the cover being broadened or extended outwardly beyond the sides or ends of the pan on which it is placed, and provided at the highest point thereof with indentations or recesses to facilitate the escape of the heated air and gases arising from the pan; and fastening devices at the sides of the cover for detachably securing it upon the pan, substantially as described.

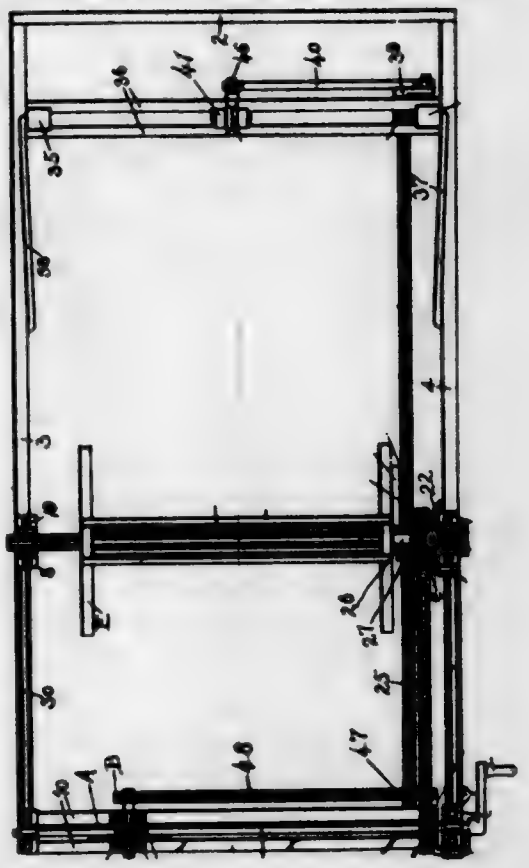
7. An attachment for baking-pans, comprising an arched cover fitted over the pan with fixed openings at each end thereof and fastenings at the sides adapted to contact with the outside of the pan only for securing and supporting the cover upon the pan; the ends of the cover being provided with indentations centrally of the arch to facilitate the escape of the heated air and gases rising from the pan, substantially as described.

8. An attachment for baking-pans, comprising an arched cover gradually enlarged or widened from its lower edges toward the highest point of the arch, substantially as described.

9. An attachment for baking-pans, comprising an arched cover gradually enlarged or widened from its lower edges toward the highest point of the arch and indented at such point, substantially as and for the purpose described.

10. An attachment for baking-pans, comprising an arched cover gradually enlarged or spread outwardly from its lower edges toward the highest point of the arch, and suitable fastenings for securing the cover to a pan, substantially as described.

692,814. WIRE-MACHINE. ARTHUR LANDGREBE, Wilsonville, Nebr. Filed July 5, 1901. Serial No. 67,257. (No model.)



Claim.—In an apparatus of the character described, the combination with a frame, of a worm-wheel secured to said frame, a driving-shaft supported by said frame, said shaft being provided with a worm meshing with said worm-gear, a reel-shaft, a brake to control the movement of said reel-shaft, said reel-shaft and driving-shaft being in sprocket connection, an auxiliary frame, a rocking arm held adjustably within said auxiliary frame, a shaft, said shaft being operated by said worm-gear, and means to connect said last-mentioned shaft to said rocking arm, as and for the purpose set forth.

692,815. AMALGAMATOR. JOHN W. R. LAXTON, Lynn, Mass. Filed Nov. 16, 1900. Serial No. 36,714. (No model.)

Claim.—1. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto, said tank enlarged in diameter at the middle and having a contracted outlet at the top, means for passing mixed pulverized ore and water through a body of mercury in the vessel and thence upwardly through the tank, and one or more centrally-located receptacles in the enlarged part of the tank for catching entrained mercury, substantially as described.

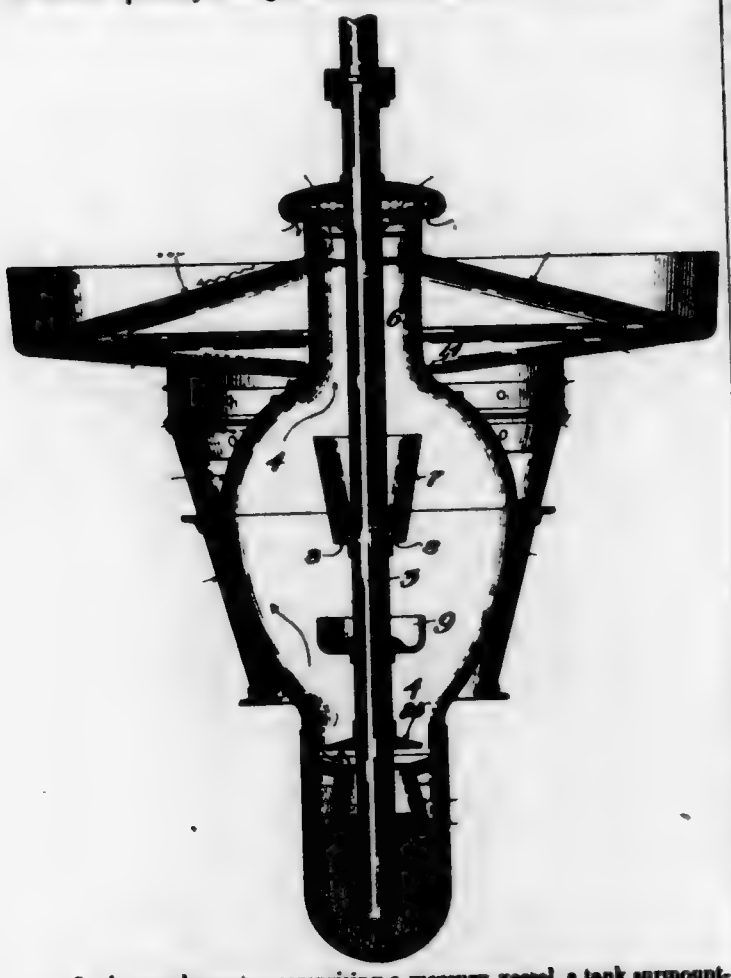
2. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto, said tank enlarged in diameter at the middle and having a contracted outlet at the top, a deflector at the mouth of the mercury vessel, one or more centrally-located receptacles in the enlarged part of the tank for catching entrained mercury, and means for passing mixed pulverized ore and water through a body of mercury in the vessel and thence upwardly through the tank, substantially as and for the purpose described.

3. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto, said tank enlarged in diameter at the middle and having a contracted outlet at the top, an ore-inlet pipe extending downwardly through the tank and into the vessel, and one or more receptacles on said pipe for catching entrained mercury, substantially as described.

4. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto, said tank enlarged in diameter at the middle and having a contracted outlet at the top, an ore-inlet pipe extending downwardly through the tank and into the vessel, a deflector on said pipe at the mouth of the vessel, and one or more receptacles on said pipe for catching entrained mercury.

5. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto and an outlet at its upper end, a dome over this outlet extending laterally beyond the same and having one or more bottom discharging-openings, and means for passing

mixed pulverized ore and water through a body of mercury in the vessel and thence upwardly through the tank, substantially as described.



6. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto and an outlet at its upper end, a dome over this outlet and having one or more bottom discharging-openings, a conical apron encircling the upper part of the tank below the discharge-openings of the said dome, and means for passing mixed pulverized ore and water through a body of mercury in the vessel and thence upwardly through the tank, substantially as described.

7. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto and an outlet at its upper end, a dome over this outlet and having one or more bottom discharging-openings, a conical apron encircling the upper part of the tank below the discharge-openings of the said dome, a centrally-discharging pan below the apron, and means for passing mixed pulverized ore and water through a body of mercury in the vessel and thence upwardly through the tank, substantially as described.

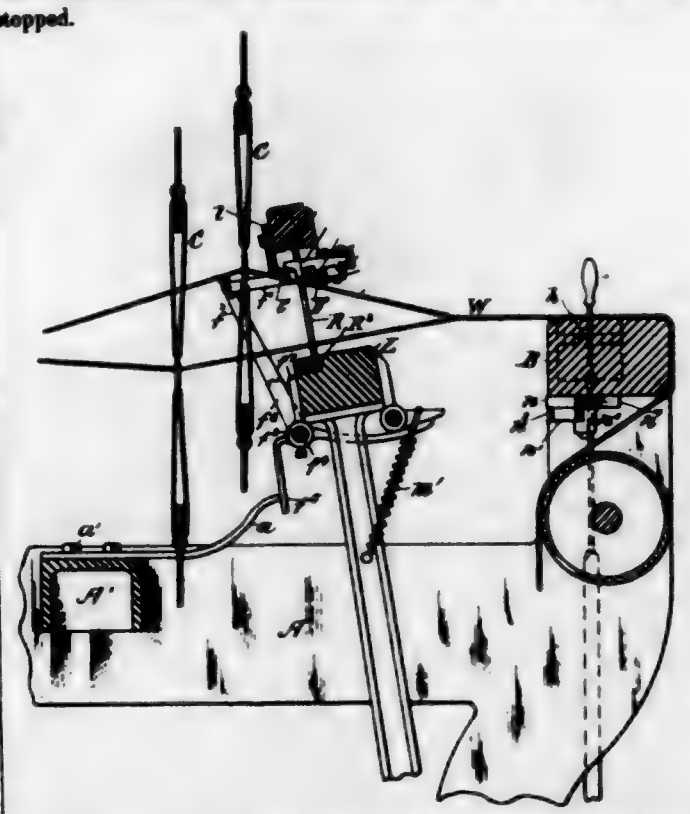
8. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto and an outlet at its upper end, a dome over this outlet and having one or more bottom discharging-openings, a conical apron encircling the upper part of the tank below the discharge-openings of the said dome, a rotatable centrally-discharging pan below the apron, and means for passing mixed pulverized ore and water through a body of mercury in the vessel and thence upwardly through the tank, substantially as described.

9. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto, said tank enlarged in diameter at the middle and having a contracted outlet at the top, an ore-inlet pipe extending downwardly through the tank and into the vessel, a deflector on said pipe at the mouth of the vessel, a dome surrounding the inlet-pipe over the contracted tank-outlet and having bottom discharge-openings outwardly beyond the latter, a conical apron below said dome, and a centrally-discharging pan below the apron and encircling the same.

10. An amalgamator comprising a mercury vessel, a tank surmounting the same with its lower part opening thereinto, said tank enlarged in diameter at the middle and having a contracted outlet at the top, an ore-inlet pipe extending downwardly through the tank and into the vessel, a deflector on said pipe at the mouth of the vessel, a dome surrounding the inlet-pipe over the contracted tank-outlet and having bottom discharge-openings outwardly beyond the latter, a conical apron below said dome, and a rotatable centrally-discharging pan below the apron and encircling the same.

692,816. WARP STOP-MOTION FOR LOOMS. JOSEPH R. LEMYRE, Manchester, N. H., assignor, by mesne assignments, to Textile Machinery Improvement Company, a Corporation of New Jersey. Filed Feb. 28, 1901. Serial No. 48,921. (No model.)

Claims.—1. In a warp stop-motion for looms, the combination with the reed of a system of movable warp-thread detectors inserted between the reed-dents, and carried by a detector-frame whereon the detectors rest in gravity contact, the detector-frame, a feeler automatically vibrated across the detectors, the detectors adapted to be moved by the warp-threads in the formation of the shed, provided the warps are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.



2. In a warp stop-motion for looms, the combination with the reed of a system of movable warp-thread detectors inserted between the reed-dents, and carried by a detector-frame whereon the detectors rest in gravity contact, the detector-frame hung in front of the reed, a feeler automatically vibrated across the detectors, the detectors adapted to be moved by the warp-threads in the formation of the shed, provided the warps are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

3. In a warp stop-motion for looms, the combination with the reed of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a detector-frame external to the structure of the reed, the detector-frame, a pivot-ledge on the detector-frame, whereon the detectors rest in gravity contact, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

4. In a warp stop-motion for looms, the combination with the reed of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a detector-frame, the detector-frame, consisting of a shelf hung in front of the reed provided with a pivot-ledge whereon the detectors rest in gravity contact and a feeler-platform, a feeler automatically vibrated upon the feeler-platform across and under the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

5. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed, and carried by a detector-frame, the detector-frame, the said detectors consisting of keys, tapered at their points of insertion between the reed-dents, provided with gravity-contact pivots at their outer ends and with feeler-engaging shoulders on their lower edges, the detector-frame being hung on the reed-frame in front of the dents and provided with a pivot-ledge whereon the pivot ends of the detectors rest in gravity contact, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread,

and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

6. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a detector-frame, the detector-frame, consisting of a shelf hung on the front of the reed-frame and provided with a pivot-ledge wherein the detectors rest in gravity contact, a guard secured over the detectors whereby their movement is limited, and a feeler-platform, a feeler automatically vibrated upon the feeler-platform across and under the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

7. In a warp stop-motion for looms, the combination with the reed of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a vertically-adjustable detector-frame external to the structure of the reed and attached thereto, the detector-frame, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warps in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

8. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a vertically-adjustable detector-frame hung on the reed-frame in front of the dents, the detector-frame, a feeler, automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

9. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a vertically-adjustable detector-frame external to the structure of the reed-frame and attached thereto, the detector-frame, a pivot-ledge on the detector-frame, whereon the detectors rest in gravity contact, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, the shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

10. In a warp stop-motion for looms, the combination with a reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a vertically-adjustable detector-frame, the detector-frame, consisting of a shelf hung on the front of the reed-frame and provided with a pivot-ledge whereon the detectors rest in gravity contact and a feeler-platform, a feeler automatically vibrated upon the feeler-platform across and under the detectors which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

11. In a warp stop-motion for looms the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed, and carried by a vertically-adjustable detector-frame, the detector-frame, the said detectors consisting of keys tapered at their points of insertion between the reed-dents, provided with a gravity-contact pivot at their outer ends and with feeler-engaging shoulders on their lower edges, the detector-frame being hung on the reed-frame in front of the dents, and provided with a pivot-ledge whereon the pivot ends of the detectors rest in gravity contact, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

12. In a warp stop-motion for looms, the combination with the reed of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a detector-frame, the detector-frame, external to the structure of the reed-frame and attached thereto, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped and a drop-guard normally out of contact with the detectors and adapted to limit the fall of a detector when its warp-thread breaks.

13. In a warp stop-motion for looms, the combination with the reed and reed-frame, of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a detector-frame in front of the dents, the detector-frame, a feeler, automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped and a drop-guard normally out of contact with the detectors, and adapted to limit the fall of a detector when its warp-thread breaks.

14. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a detector-frame external to the structure of the reed-frame and attached thereto, the detector-frame, a pivot-ledge on the detector-frame, whereby the detectors rest in gravity contact, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped and a drop-guard normally out of contact with the detector, and adapted to limit the fall of a detector when its warp-thread breaks.

15. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a detector-frame, the detector-frame, consisting of a shelf hung on the front of the reed-frame and provided with a pivot-ledge whereon the detectors rest in gravity contact and a feeler-platform, a feeler automatically vibrated upon the feeler-platform across and under the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped and a drop-guard normally out of contact with the detectors, and adapted to limit the fall of a detector when its warp-thread breaks

16. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed, and carried by a detector-frame, the detector-frame, the said detectors consisting of keys, tapered at their points of insertion between the reed-dents, provided with a gravity-contact pivot at their outer ends and with feeler-engaging notches on their edges, the detector-frame being hung on the reed-frame in front of the dents and provided with a pivot-ledge whereon the pivot ends of the detectors rest in gravity contact, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped and a drop-guard normally out of contact with the detector and adapted to limit the fall of a detector when its warp-thread breaks.

17. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of movable warp-thread detectors inserted between the dents of the reed and carried by a detector-frame, the detector-frame, consisting of a shelf hung on the front of the reed-frame and provided with a pivot-ledge whereon the detectors rest in gravity contact, a guard secured over the detectors whereby their movement is limited, and a feeler-platform, a feeler automatically vibrated upon the feeler-platform across and under the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped and a drop-guard normally out of contact with the detectors and adapted to limit the fall of a detector when its warp-thread breaks.

18. In a warp stop-motion for looms, the combination with the reed and reed-frame of a system of warp-thread detectors inserted between the dents of the reed and carried by a detector-frame, the detector-frame, fastening-plates inserted in the ends of the reed-frame, the detector-frame secured to the fastening-plates, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the for-

mation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

19. In a warp stop-motion for looms, the combination of a reed, a system of movable warp-thread detectors carried by a detector-frame external to and moving with the reed, the detector-frame, a feeler, automatically vibrated across the detectors each detector provided with a reed-space-entering end and a pivot-point, and a warp-engaging finger between the reed end and the pivot, the said detectors adapted to be moved by the warp-threads in the formation of the shed provided the warps are in good order, the feeler adapted to make contact with a detector which is not lifted by a shedding warp, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

20. In a warp stop-motion for looms, the combination with the reed of a system of movable warp-thread detectors carried by a detector-frame hung on the reed-frame in front of the dents, the detector-frame, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

21. In a warp stop-motion for looms, the combination with the reed, of a system of movable warp-thread detectors carried by a detector-frame external to the structure of the reed, the detector-frame, a pivot-ledge on the detector-frame, whereon the detectors rest in gravity contact, a feeler automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

22. In a warp stop-motion for looms, the combination with a reed of a system of movable warp-thread detectors carried by a detector-frame, the detector-frame, consisting of a shelf hung in front of the reed provided with a pivot-ledge whereon the detectors rest in gravity contact and a feeler-platform, a feeler automatically vibrated upon the feeler-platform across and under the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

23. In a warp stop-motion for looms, the combination with the reed, of a system of movable warp-thread detectors carried by a vertically-adjustable detector-frame hung on the reed-frame in front of the dents, the detector-frame, a feeler, automatically vibrated across the detectors, which are adapted to be moved by the warp-threads in the formation of the shed, provided the threads are in good order, the feeler adapted to make contact with any detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

24. In a warp stop-motion for looms, the combination of a reed, a system of movable warp-thread detectors carried by a detector-frame external to and moving with the reed, the detector-frame, hung in front of the reed, a feeler, automatically vibrated across the detectors, each detector provided with a reed-space-entering end and a pivot-point, and warp-engaging fingers between the reed end and the pivot, the said detectors adapted to be moved by the warp-threads in the formation of the shed provided the warps are in good order, the feeler adapted to make contact with a detector which is not lifted by a shedding warp, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

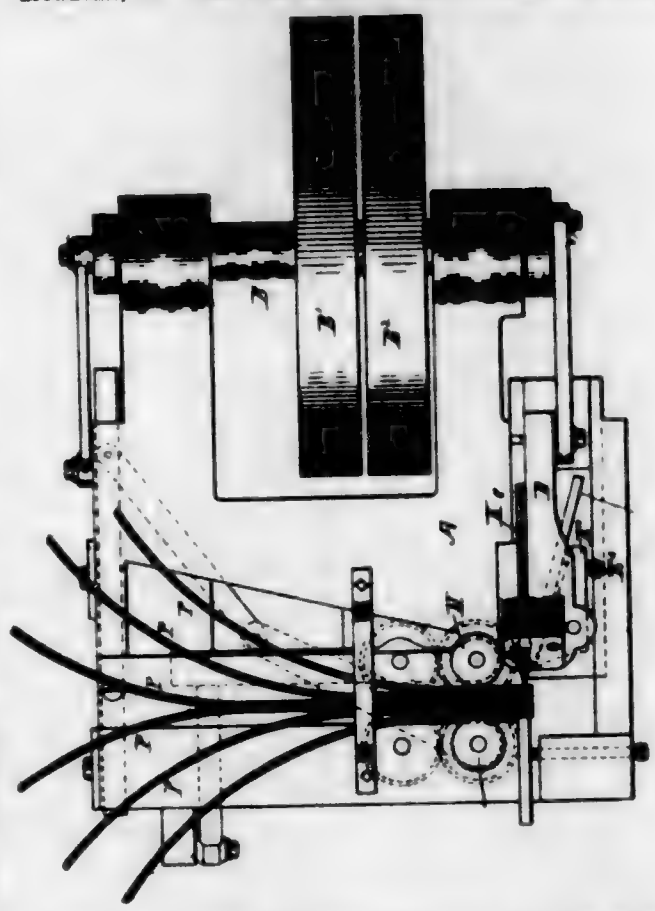
25. In a warp stop-motion for looms, the combination of the reed, a system of movable warp-thread detectors, loosely laid in gravity contact upon a detector-frame and having ends inserted between the reed-dents, the detector-frame, and blocks carried by the detector-frame whereby the detectors are kept in place laterally, a feeler, automatically vibrated across the reed-dents, the detectors adapted to be moved by the warp-threads in the formation of the shed, provided the warps are in good order, the feeler adapted to make contact with a detector which is not lifted by a warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector the loom is stopped.

26. A warp-thread detector for loom stop-motions, adapted to cooperate with the reed, and consisting of a key provided with a reed-entering point at one end, a gravity pivot-bearing at the other end, and a warp-engaging point, thicker than the reed-entering end, between the latter and the pivot-bearing.

27. In a warp stop-motion for looms, the combination of the reed, a series of warp-thread detectors playing between the reed-dents, mounted externally to the reed upon a detector-frame, and independently removable therefrom, the detector-frame, a feeler, automatically vibrated across the detectors, the detectors adapted to be moved by the warp-threads in the formation of the shed provided the warps are in good order, the feeler adapted to make contact with a detector which is not lifted by its warp-thread, and shipper mechanism connected with the feeler whereby when the movement of the feeler is affected by a detector, the loom is stopped.

28. In a warp stop-motion for looms, the combination of a reed, a system of movable warp-thread detectors carried by a detector-frame external to and moving with the reed, the detector-frame, a feeler, automatically vibrated across the detectors, each detector provided with a reed-space-entering end, a pivot, and a warp-engaging finger between the reed end and the pivot, the said detectors adapted to be sustained by the warp-threads in the formation of the shed provided the warps are in good order, the feeler adapted to make contact with a detector which is not sustained by a shedding warp, and shipper mechanism connected with the feeler whereby, when the movement of the feeler is affected by a detector the loom is stopped.

692,317. **MACHINE FOR MAKING SHOE-PEGS.** JOHN LEWIS, Brownville, Me. Filed Oct. 26, 1900. Serial No. 34,384. (No model.)



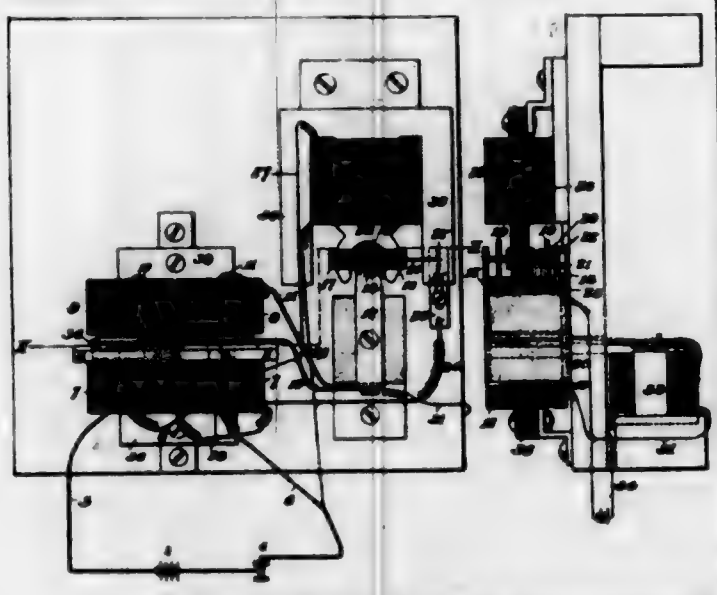
Claim.—In a machine for making shoe-pegs from waste peg-wood strips; a mechanism for feeding the said strips into the field of action of the cutting-knives; a reciprocating carrier having two knives; one having V-shaped cutting edges adapted to form the points of the pegs, the other having a straight cutting edge adapted to sever the pegs from the strip, the said pointing-knife set in advance of the severing-knife, whereby the work of cutting requires less force; substantially as and for the purpose set forth.

692,318. **COIN OR METAL DETECTOR.** FRANCIS E. J. LETOT and ADOLPHUS MAYER, Pittsburg, Pa. Filed July 5, 1900. Serial No. 564,957. (No model.)

Claim.—1. In an apparatus for testing metals the combination with a device for producing a primary field and a device for producing a secondary field of a relay adapted to be set in operation by the variation of electromotive forces in the secondary field, and suitable operating mechanism between the relay and the support for the article to be tested whereby said support may be operated to release the metal; substantially as described.

2. In an apparatus for testing metals or coins a movable support for the metal or coin, a device for producing a primary field, a device for producing a secondary field, a relay adapted to be operated by variations of electromotive forces in the secondary field and operative connections between the relay and the movable support whereby the latter may be operated; substantially as described.

3. In an apparatus for testing metals, the combination with a support for the metal to be tested, of a device for producing a primary field, of a device for producing a secondary field, and electromechanical devices adapted to be set in operation by variation of electromotive forces in the secondary field, said electromechanical devices being operatively connected with the support for the metal to be tested; substantially as described.



4. In apparatus for testing metal, the combination of a primary coil, a secondary coil, a relay consisting of coils mounted on a pivot, a contact-arm connected with the pivoted coils, a contact-post, a conductor leading from the post to a magnet, and a blank or coin support connected with the armature of the magnet and adapted to be moved thereby; substantially as specified.

5. In apparatus for testing metal, the combination of primary coils, secondary coils placed in inductive relation thereto, a blank or coin support, a switch adapted to be closed by the insertion of a coin or blank, a relay, and a magnet, the armature of which is connected with the coin-support; substantially as specified.

6. In apparatus for testing metal, the combination of a primary coil, secondary coils in inductive relation thereto, a coin or blank support, a switch adapted to be closed by the insertion of a blank or coin, a relay, a magnet adapted to be energized on the disturbance of the secondary field, a magnet adapted to be energized by the insertion of the coin or blank, intermediate mechanism, an armature situate between the two magnets, and a blank or coin support connected with the armature; substantially as specified.

7. In an apparatus for testing metals or coins, a movable support for the said metal or coin, a device for producing a primary field, a device for producing a secondary field, electromechanical devices adapted to be set in operation by variation of electromotive forces in said secondary field and operative connections between said electromechanical devices and the movable support whereby the latter is operated to automatically eject the metal being tested; substantially as described.

692,819. SOLDERING-MACHINE. ANDREW W. LIVINGSTON, San Francisco, Cal. Filed Apr. 2, 1901. Serial No. 54,016. (No model.)

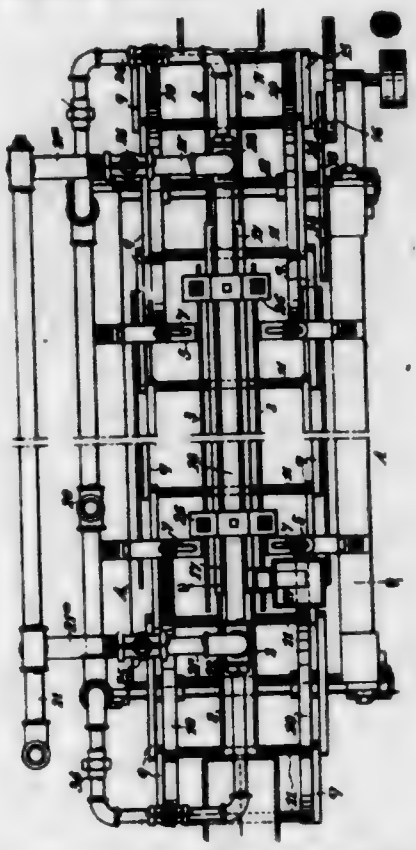
Claim.—1. In a soldering-machine, the combination of a can-support and means for moving the cans thereon, a V-shaped solder-bar above and parallel with said support, said bar provided with perforations through which solder is fed, and a burner directing flame-jets through the perforations of the bar.

2. A soldering-machine consisting in combination, of longitudinal guides supporting the can, a V-shaped solder-bar above and parallel with said guides, a burner in conjunction with said bar, perforations in said bar through which solder is fed, and through which flame is directed upon the can-seam beneath, and means by which the can is carried through the machine.

3. The combination in a can-soldering machine of a V-shaped solder-bar having perforations in its bottom, a burner extending parallel with said bar having perforations in line with and corresponding to the perforations in the solder-bar, means by which solder is delivered into the bar, and means whereby a can is made to travel with its seam to be soldered, immediately beneath and in the direction of the length of said bar.

4. In a soldering-machine, the combination with a V-shaped solder-bar having perforations for the discharge of solder, of a burner extending approximately the length of said bar, means whereby a can to be soldered is passed endwise beneath said bar whereby its longitudinal seam is soldered, and means whereby the elevation of said bar and burner above said can may be varied.

5. In a soldering-machine, the combination with a can-support, of a solder-bar horizontal therewith and provided with perforations for the discharge of solder, a burner by which said solder-bar is heated and a flame-jet is directed upon the can-seam beneath, pivotal connections whereby said burner and solder-bar may be simultaneously taken out of or brought into proximity with said can-support.



6. In a soldering-machine, the combination of longitudinal spaced guides, upon which the bottom side of the can is supported, a V-shaped solder-bar above and extending substantially parallel with the guides, and provided with perforations, a perforated burner above and parallel with the solder-bar and adapted to discharge flame-jets through the perforations thereof, and an endless carrier including side chains and transverse connecting-rods adapted to move the cans endwise along the guides.

7. In a soldering-machine, the combination with a support, of a horizontal guide-trough adapted to support a can to be soldered, an intermittently-moving carrier by which said can is carried through said trough, a perforated trough-like solder-bar above said can-trough, and means by which solder is intermittently admitted to said solder-bar simultaneously with the intermittent movement of the carrier.

8. In a soldering-machine, the combination of a V-shaped solder-bar, beneath which but out of actual contact therewith, the can is adapted to travel with its axis parallel with said bar, slotted perforations in the bottom of said bar, a plate movable in one of said slots adapted to have its lower edge protrude slightly beyond said slot, means by which said bar is heated and means for delivering solder into said bar.

9. The combination in a can-soldering machine of a support, a horizontal guide-trough upon which cans to be soldered are supported, means by which said cans are carried through this trough, a solder-bar parallel with and above said trough, a horizontal burner consisting of a perforated pipe by which said bar is heated, and to which said bar is adjustably secured, means whereby solder may be intermittently fed to said solder-bar, and pivotal connections of said burner whereby the bar and burner may be raised clear of cans in said trough.

10. The combination in a can-soldering machine of a support, a horizontal guide-trough, an endless carrier by which cans are conveyed through said trough, means by which this carrier is given an intermittent forward movement, a perforated V-shaped solder-bar parallel with said trough, having its apex portion adapted to be in line with the seam of the can to be soldered, a burner above and parallel with said bar having perforations corresponding to the perforations in said solder-bar, a solder-hopper, a gate controlling the discharge from this hopper, a bell-crank lever engaging the cans in the trough, and connections of this lever and gate whereby the latter is intermittently operated to discharge solder into the solder-bar in unison with the intermittent movement of the carrier.

692,820. MUSIC-LEAF TURNER. JOSÉ LOMBARDERO, San Francisco, Cal., assignor of one-half to Medardo Garcia, San Francisco, Cal. Filed Aug. 22, 1901. Serial No. 73,573. (No model.)

Claim.—1. The combination with a body having a recess therein; of a pin extending through the recess, a pulley journaled thereon, an arm

secured to the pulley and extending laterally therefrom and from the recess, a plate loosely mounted above the pulley and on the pin, an arm extending laterally from the plate and projecting from the recess, a clip upon the arm of the pulley adapted to engage the arm of the plate, a rod extending from the body, and means upon said rod and the free ends of the arms, for engaging the edges of sheets of music.



2. The combination with a body having a recess therein; of a pulley journaled within the recess, an arm extending laterally therefrom, a second arm loosely pivoted within the recess, a clip upon the arm of the pulley adapted to engage the second arm when pressed thereagainst, a flexible strip upon the pulley adapted to revolve the same, and a holder at the free end of each arm, adapted to engage the edge of a sheet of music.

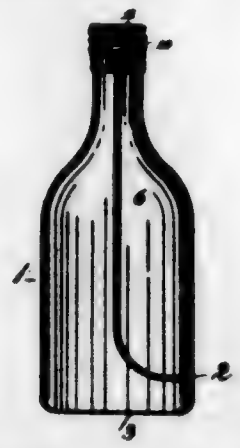
3. The combination with a body having recesses in opposite sides thereof; of a pulley journaled within one of the recesses, an arm extending laterally therefrom, a second arm loosely pivoted within the recess and extending laterally therefrom, a clip upon the arm of the pulley adapted to engage the second arm when pressed thereagainst, a flexible strip extending partly around the pulley and from the body, a treadle adjustably secured to the strip, an adjustable rod secured to the body, a clip thereto and revolubly mounted thereon, and pivoted holder-strips at the free end of each arm, said strips and clips being adapted to grip the edges of a sheet of music.

4. The combination with a body having a recess therein; of a pulley journaled within the recess, an arm extending laterally from the recess and pulley, a second arm loosely pivoted within the recess, a spring secured at opposite ends to the arm of the pulley and to the body, a clip upon the arm of the pulley adapted to engage the second arm when pressed thereagainst, a cord mounted upon the pulley, whereby the same may be revolved, a treadle secured to the cord, and holders upon the arms for clasping the edges of the sheet of music.

5. The combination with a music-rack, of a body having recesses extending thereinto from opposite sides, one of said recesses being adapted to receive the base of the rack, a pulley journaled within the remaining recess, an arm extending therefrom, a second arm loosely mounted within said recess, a spring secured at opposite ends to the arm of the pulley and to the rear of its recess, a cord mounted on the pulley and extending from the body, a treadle adjustably secured to the cord, a clip upon the arm of the pulley adapted to engage the second arm when pressed thereagainst, a rod upon the body, a clip thereon, holders upon the free ends of the arms, said clip and holders being adapted to engage the edges of a sheet of music.

692,821. BOTTLE. ARTHUR MAASS, New York, N. Y. Filed May 21, 1901. Serial No. 62,456. (No model.)

Claim.—1. A bottle consisting of two separable halves, one half of which is provided with a base portion 3, the two being joined together to form a complete bottle along a line horizontal at the point 2 merging gently into a central vertical longitudinal line extending up through the neck portion of the bottle, and means for securing the two halves together, substantially as shown and described.



2. A bottle consisting of two separable halves one half of which is provided with a base portion 3, the two being joined together to form a complete bottle along a line horizontal at the point 2 merging gently into a central vertical longitudinal line extending up through the neck portion of the bottle, an exterior screw-thread upon the neck end of the bottle and an imperforate-topped screw-cap coacting with said neck-thread to lock the two halves together, substantially as shown and described.

3. A bottle consisting of two separable halves, one half of which is provided with a base portion 3 the two being joined together to form a complete bottle along a line horizontal at the point 2 merging into a central vertical longitudinal line extending up through the neck portion of the bottle, a flange or flanges upon each of the halves along the line of junction, a strip or strips of packing material which is soft and elastic at the point of junction, and means for securing the two halves together at the neck end, substantially as shown and described.

4. In a bottle separable into two parts along a longitudinal line turned at a right angle at the bottom so as to leave one half with the base portion of a flange upon the junction-line of the base-half upon the inner side of the junction-line, a groove to receive such flange formed in the junction-line of the baseless half, a strip of soft elastic packing material located in the groove of the baseless half, and a strip of like material located outside of the flange of the base-half adjacent thereto, substantially as shown and described

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692,822. CARBID-CARTRIDGE FOR ACETYLENE-GAS GENERATORS. ELMER P. MACKENSEN, New York, N. Y., assignor of one-half to George V. Foster, New York, N. Y. Original application filed Aug. 28, 1900, Serial No. 28,291. Divided and this application filed Mar. 14, 1901. Serial No. 51,074. (No model.)



Claim.—1. A charge for a gas-generator, comprising a generating material, an envelop inclosing the generating material and having the parts thereof pasted together to close and seal the same, and a perforated shell in which the envelop is arranged, said shell being larger than the envelop so as to leave a space between the envelop and the sides of the shell, whereby when the charge is immersed, the envelop will be unsealed by the liquid and forced apart and against the sides of the shell by the gas, as set forth.

2. A charge for a gas-generator, comprising a generating material, and a package for inclosing the same, the package consisting of envelops contained one in the other, each envelop comprising a pasteboard box, and a covering for the same of flexible material, said covering being folded and pasted to the box, as set forth.

3. A charge for a gas-generator, provided with a package comprising a box made of a cross-shaped piece of pasteboard, and a covering for

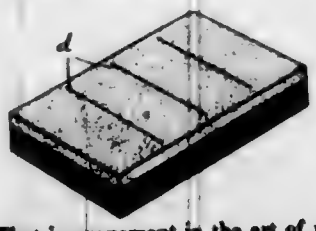
the same consisting of a square piece of fabric and a square piece of paper, as set forth.

4. A charge for a gas-generator, provided with a package comprising a box made of a cross-shaped piece of pasteboard, and a covering for the same consisting of a square piece of fabric and a square piece of paper, the flexible portions of the covering being folded and pasted to the sides of the box, as set forth.

5. A charge for a gas-generator, comprising a generating material, an envelop in the shape of a cube and inclosing the generating material, the parts of the envelop being pasted together to close and seal the same, and a spherical perforated shell made in two sections, whereby a space will be left between the envelop and the sides of the shell, as and for the purpose set forth.

6. A charge for a gas-generator, comprising a perforated shell, a generating material, and a cubic envelop inclosing the generating material and arranged in the shell, the said envelop comprising two box-like sections, each formed of a cross-shaped piece of pasteboard and a covering for the same consisting of a square piece of fabric and a square piece of paper, the covering being folded and pasted to the sides of the box, as set forth.

692,823. **ART OF MAKING FROZEN CONFECTIONS.** PETER MARIER, Chicago, Ill. Filed May 3, 1901. Serial No. 58,563. (No specimens.)

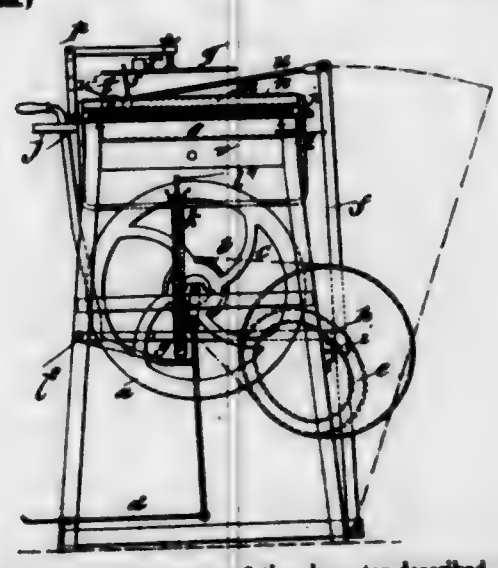


Claim.—1. That improvement in the art of making frozen confections composed of a plurality of layers, which consists in molding the congealed material for each layer separately, then refrigerating the said materials and then assembling layers of different flavor or character to form a composite confection.

2. That improvement in the art of making frozen confections composed of a plurality of layers, which consists in molding the congealed material for each layer separately and of sufficient size to form a plurality of layer-sections, then refrigerating the said materials, and cutting the layers into sections and assembling the layers to form a composite confection.

3. That improvement in the art of making frozen confections composed of a plurality of layers, which consists in molding the congealed material for each layer separately and of sufficient size to form a plurality of layer-sections, then refrigerating the said materials, then superposing the layers and then cutting the assembled layers to form blocks of composite confection.

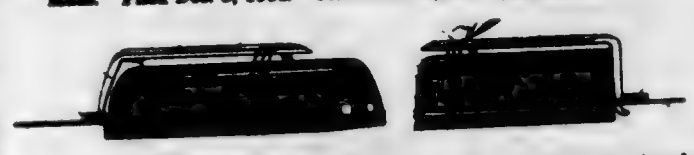
692,824. **AUTOGRAPHIC COPYING APPARATUS.** LOUIS MARTIN, Lausanne, Switzerland. Filed Feb. 16, 1899. Serial No. 705,700. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a cam, means for operating the same, a lever *f*, having a connection with and adapted to be oscillated from the cam, a second lever *g*, having a connection with and adapted to be oscillated from the cam, an inking-roller, a jointed connection between it and the first lever, a frame *m*, a connection between it and the lever *g*, and a hand-lever arranged to limit the downward movement of the lever *g*, for the purpose specified.

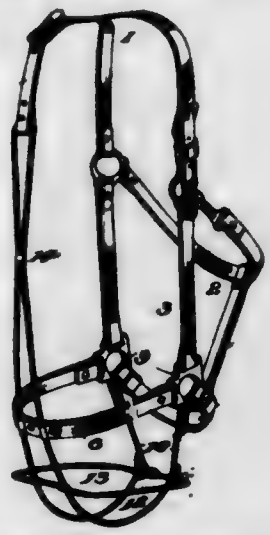
2. In an apparatus of the character described, the combination of a cam, means for operating the same, a lever *f*, having a connection with and adapted to be oscillated from the cam, a second lever *g*, having a connection with and adapted to be oscillated from the cam, an inking-roller, a jointed connection between it and the lever *f*, a frame *m*, a connection between it and the lever *g*, and an endless apron arranged to travel beneath the frame *m*.

692,825. **RUBBER TIRE.** CHARLES A. MAYNARD, Springfield, Mass. Filed Dec. 3, 1900. Serial No. 38,495. (No model.)



Claim.—The combination with a rubber tire and retaining band or core extending through the tire, of a clamp for retaining the tire compressed from the terminal end of the core, and comprising an end wall adapted to conform to and bear against the tire end above the core, a spur upon the bottom of said wall adapted to hook into and engage the core; and a lever-arm from the top of said wall bent at approximately right angles thereto and extending hook over the tire, and means for securing the lever-arm to the tire, all as set forth.

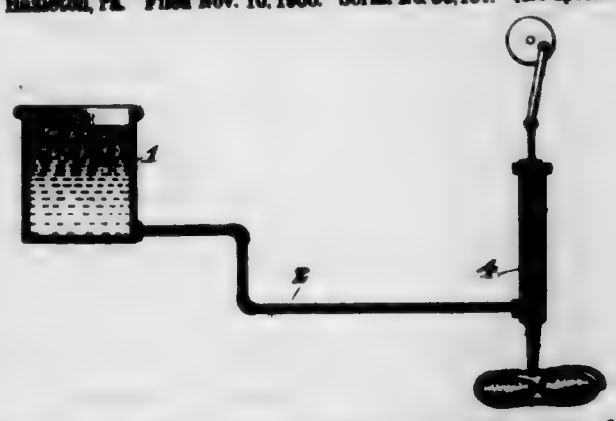
692,826. **ANTICRIBBING DEVICE.** MELVIN M. MILLER, Cooperstown, N. Y. Filed Nov. 23, 1901. Serial No. 33,436. (No model.)



Claim.—1. In combination with a halter, an anticribbing device comprising a frame suspended from the head-strap and adapted to extend in front of the head and around the nose, a nose-band connecting oppositely-curved portions of the frame, and hangers connecting the lower rear portion of the said frame with the side links of the halter, substantially as specified.

2. In combination with a halter having side links, a frame suspended from the head-strap of the halter and comprising side members having their lower ends curved to extend around the nose and terminating in eyes, hangers connecting the rear ends of the frame members with the said side links, and a nose-band having its rear portion passing through the aforesaid eyes of the frame members and having its front portion bent to encircle the said frame members, substantially as set forth.

692,827. **PROCESS OF SALTING PEANUTS.** HORACE D. MOYER, Hazleton, Pa. Filed Nov. 10, 1900. Serial No. 36,107. (No specimens.)



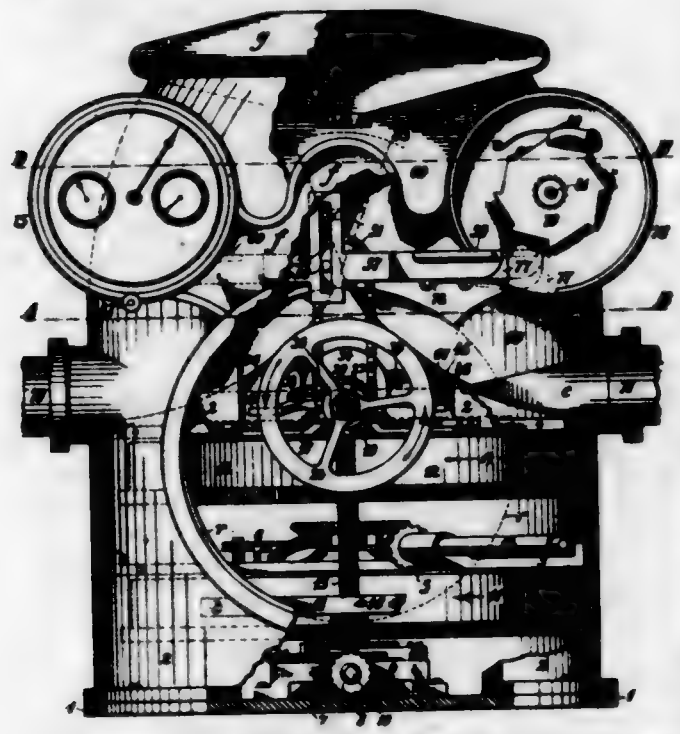
Claim.—1. The process of salting peanuts which consists, first, in injecting a saline material into the nut through an opening therein, and afterward roasting the nut.

2. That process for imparting flavor to nuts which consists in sub-

jecting the nut while in the shell to the action of a flavoring liquid, subsequently removing the surplus moisture by evaporation, and finally roasting the nut thus treated.

3. That process for salting peanuts which consists in injecting a saline solution through the shell of the nut, thereafter removing the surplus fluid by evaporation, and finally roasting the nut thus treated.

692,328. APPARATUS FOR DELIVERING EQUAL QUANTITIES OF LIQUID. ARDUINO MUSCIAGNO, Berlin, Germany. Filed June 24, 1901. Serial No. 65,897. (No model.)



Claim.—1. In a device of the class described, means for laterally guiding a liquid, a vertical vibrating distributer at the junction thereof, means for vibrating the distributer, a horizontal vibrating rod beneath the distributer to control the latter and time-controlled means to control the vibration of said rod, substantially as described.

2. In a device of the class described, means for laterally guiding a liquid, a vibrating distributer at the junction thereof, a spring-propelled drum to vibrate the distributer, a vibrating rod to control the driving of said distributer and rotating time-controlled mechanism to control the vibrations of said rod, substantially as described.

3. In a device of the class described, means for laterally guiding a liquid, a vibrating distributer, a spring-driven drum, a shaft driven by said drum, a stop-wheel and its shaft driven therefrom, a distributer vibrated from the stop-wheel and shaft, a vibrating arm to control the movement of said stop-wheel and shaft, a second spring-driven drum, mechanism driven thereby to vibrate said rod and time-controlled means to determine the vibration of the rod, substantially as described.

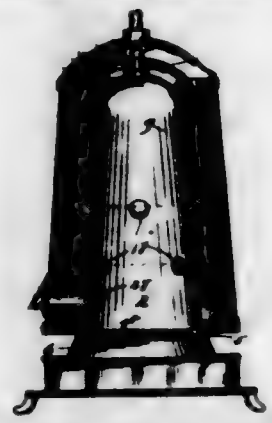
4. In a device of the class described, two compartments in juxtaposition, a distributer and its shaft at the junction; a spring-driven drum, a stop-wheel and shaft driven from said drum, a slide having a slot, means for reciprocating the slide from said stop-wheel shaft, a pin on the distributer-shaft taking into the slot, whereby the distributer is vibrated and time-controlled means engaging the cam-wheel to control the revolution of it and its shaft, substantially as described.

5. In a device of the class described, two compartments in juxtaposition, a shaft having a recess fitting over the junction of said compartments, a spring-driven drum, a stop-wheel and shaft driven from said drum and arranged to drive the distributer-shaft, a slide having a slot therein, said pin taking into the slot, a registering mechanism operated by the slide, and an arm engaging the stop-wheel and means time-controlled to control the movement of said lever, substantially as described.

6. In a device of the class described, two compartments in juxtaposition, a shaft having a recess fitting over the junction of said compartments, a distributer, a stop-pin and an actuating-pin on said shaft, a spring-driven drum, a vertical shaft, a stop-wheel, its shaft and a sprocket-wheel thereon driven from the vertical shaft, means for driving the distributer-shaft from said sprocket-wheel, a pivoted arm arranged to engage the stop-wheel, a second drum, a driving-wheel having a single tooth, its shaft and a second stop-wheel thereon driven from the second drum, a pair of shafts geared together and having notches and time-driven, the rotation of said second stop-wheel controlled by said notched shaft, substantially as described.

7 In combination, means for guiding a substance to be measured, a vibrating distributer, a driven drum, a shaft driven thereby, a stop-wheel and its shaft driven from the drum, an arm, a second driven drum to vibrate said arm to control the stop-wheel and time-controlled means to determine the times of vibration of said arm, substantially as described.

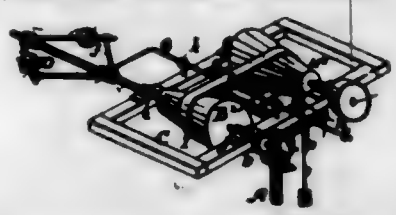
692,329. HOT-WATER HEATER. JOHN D. MCLAUGHLIN, New York, N. Y. Filed Apr. 26, 1901. Serial No. 57,494. (No model.)



Claim.—1. The herein-described hot-water heater, comprising a heater proper, a boiler arranged above the same and consisting of two concentric shells separated by a space which constitutes the working interior of the boiler, an outer casing surrounding and spaced from the boiler by a flue-space, a plurality of upwardly-ranging boiler-tubes extending through the boiler and whereby the flue-space communicates with the interior of the inner shell of the boiler, said outer casing being provided at the top with a flue connection, and a contracted flue-pipe extending through the boiler at the top of the same in alinement with the flue connection.

2. The herein-described hot-water heater, comprising a heater proper, a boiler arranged above the same and consisting of two concentric shells separated by a space which constitutes the working interior of the boiler, an outer casing surrounding and spaced from the boiler by a flue-space, a plurality of upwardly-ranging boiler-tubes extending through the boiler and whereby the flue-space communicates with the interior of the inner shell of the boiler, and a contracted flue-pipe extending through the boiler at the top of the casing.

692,330. GOVERNOR. JOSEPH E. MOREAU, Brockway, Minn. Filed Nov. 2, 1901. Serial No. 80,905. (No model.)



Claim.—1. In a speed-regulator, the combination of a vertical shaft, carrying a bevel-gear, a horizontal shaft carrying a bevel-gear on one end, a ball-governor and its sliding sleeve on the opposite end of said shaft, a rectangular frame carrying said shaft, a cone-pulley upon said shaft, a second shaft having a belt-pulley on one end and carrying a cone-pulley, a belt uniting said cone-pulleys, a rod passing through the loop of said belt and having one end connected with the sleeve of the ball-governor, friction-rollers upon said rod, and a weighted cord also connected with said rod, substantially as described.

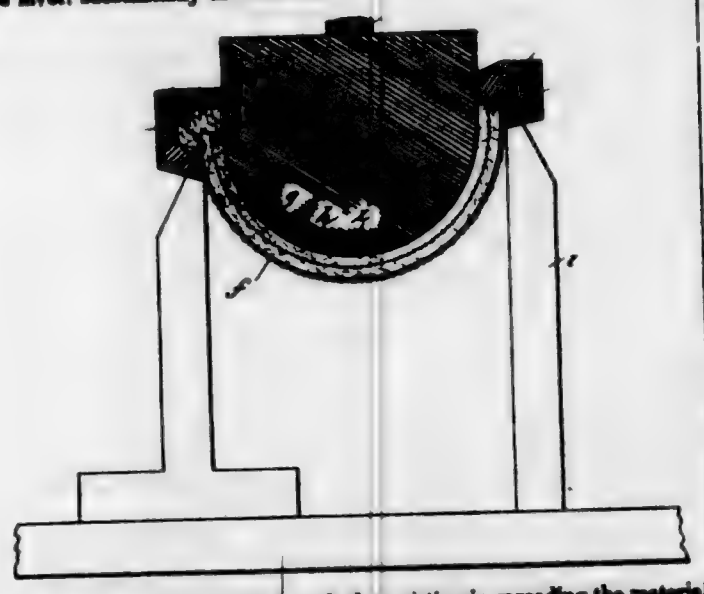
2. In a speed-regulator the combination of two parallel shafts, cone-pulleys upon said shafts, a belt uniting said cone-pulleys, a ball-governor having its sliding sleeve mounted upon one of said shafts, a sliding rod having one end connected with said sleeve and passing through the loop of the belt, two friction-rollers upon said rod, a rectangular frame carrying the cone-shafts, guide-eyes mounted upon said frame to guide the sliding rod and a weighted cord connected with said rod, substantially as described.

3. In a speed-regulator, the combination of the frame C, two parallel shafts mounted thereon, cone-pulleys upon said shafts, a belt uniting said cone-pulleys, and an adjustable belt-tightener consisting of a roller as long as said cone-pulleys, two pivoted arms supporting said roller and brackets secured to the frame C for the pivot, with weights adjustably mounted upon the pivoted arms, substantially as described.

692,331. METHOD OF MAKING EAVES-TROUGHS. ADOLPH BERGHEIM, Cleveland, Ohio. Filed Jan. 20, 1901. Serial No. 45,377. (No model.)

Claim.—1. The herein-described method consisting in placing a layer of pulp on a flexible foundation-piece, a layer of wire screen on the

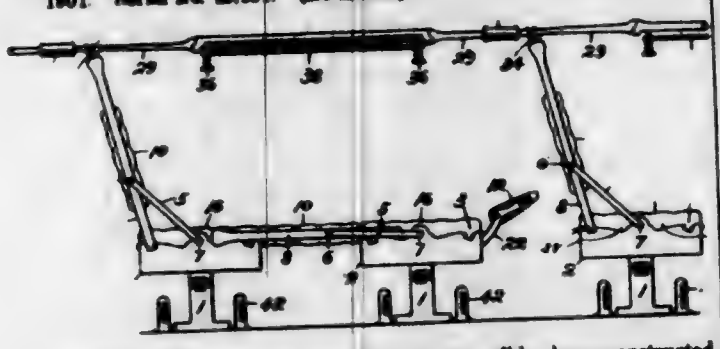
pulp, a second layer of pulp on the screen thus molding the layers to the required shape, and finally separating the flexible foundation-piece from the layer, substantially as described.



2. The herein-described method consisting in spreading the material capable of being molded upon a flexible foundation-piece, moving the two ends of said foundation with the material thereon toward each other to assume a trough-like form, and then separating the flexible foundation-piece from the said shaped material, substantially as described.

3. The herein-described method consisting in placing a layer of paper on a wire screen, placing a layer of pulp on the paper, a layer of wire screen on the pulp and a second layer of pulp on the wire screen and then a layer of paper on the second layer of pulp, molding the layers to the required shape and removing the first layer of screen material, substantially as described.

692,882. **CONVERTIBLE CHAIR FOR RAILWAY-COACHES.** HARRY C. ORR and GEORGE MATHEWS, Kansas City, Mo. Filed Jan. 28, 1901. Serial No. 45,131. (No model.)



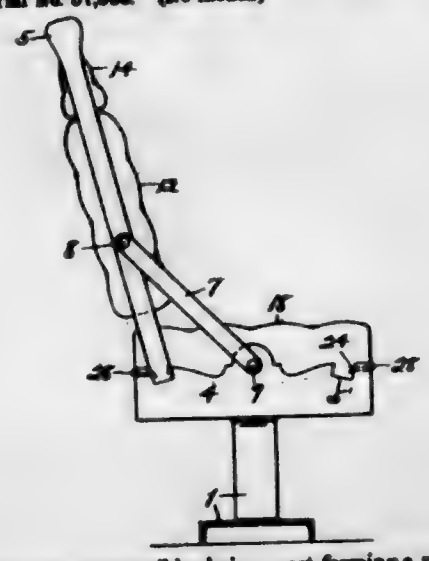
Claim.—1. The combination of three reversible chairs constructed as described hereinbefore, said chairs being secured in straight alinement, with the distances between their adjacent seat-cushions substantially equal to the heights of their respective back-cushions, the backs of the outer two chairs being in elevated position and the back-cushion of the intermediate chair lying between the seat-cushions of said outer chairs, back-posts forming the sides of said chair-backs, each back-post having two sockets in its upper end, two jointed braces having their downwardly-projecting ends inserted in the back-post socket of said outer two chairs respectively, cross-bars resting across the tops of the back-posts of said chairs, respectively, and a hammock having its ends secured to said cross-bars respectively, substantially as described.

2. In combination with the back-posts of two alternate chairs, a bracing-bar having downwardly-projecting ends adapted to be inserted in sockets in two of said back-posts, said bar being divided near one of its ends, an internally-threaded sleeve connecting the externally-threaded ends of the two sections of said bar, two depending pins secured to said bar near its respective ends, expansion-springs on said pins, a rod having eyes at its ends embracing said pins and supported by said springs, a companion bracing-bar supported by the two back-posts at the opposite sides of said chairs, a companion rod supported by springs from said companion bar, a series of transverse spring-slats having their ends hooked downwardly for engaging said rods, and a sheet of flexible material to which said slats are secured; said bars acting as braces for the backs of said chairs and as supports for said slats, substantially as described.

3. In combination with the back-posts of two alternate chairs, a pair of bracing-bars having downwardly-projecting ends adapted to be inserted in sockets in the upper ends of said posts, two depending pins secured to each of said bars near the respective ends thereof, expansion-springs supported by the heads of said pins, a pair of mattress-supporting rods below and parallel to said bracing-bars respectively and having terminal eyes embracing said pins and supported by said springs, and a mattress supported by said rods, said mattress consisting of a series of transverse slats sewed between two sheets of flexible material, substantially as described.

4. An upper couch or cot, comprising, in combination with the back-posts of two adjacent chairs, said posts having sockets in their upper ends, the combination of a pair of bracing-bars having their ends inserted in the sockets of said posts and extending between said chairs, a hammock having its ends secured to transverse rods lying against the ends of said bracing-bars, and a mattress yieldingly supported by said bars, said mattress being formed of a series of transverse slats secured between two sheets of flexible material, substantially as described.

692,888. **REVERSIBLE CHAIR FOR RAILROAD-COACHES.** HARRY C. ORR and GEORGE MATHEWS, Kansas City, Mo. Filed Apr. 25, 1901. Serial No. 57,383. (No model.)



Claim.—1. In a reversible chair, a post forming a part of the chair-back and having two oppositely-arranged notches therein near its lower end, a chair-frame having a socket for the lower end of said post formed in its side, and having a recess extending outwardly from one side of said socket, a latch mounted slidably in said recess, a perforated cap secured across the outer opening of said recess, the stem of said latch extending through said cap, and an expansion-spring confined between said cap and the head of said latch, for engaging the latch with one of the notches in the post, substantially as described.

2. In a reversible chair, a post forming a part of the chair-back and having a notch therein near its lower end, a chair-frame having a socket for the lower end of said post formed in its side, and having a recess extending outwardly from said socket, a perforated cap secured across the outer opening of said recess, a latch mounted slidably in said recess its stem projecting through said cap, an eye at the outer end of said latch, a shoulder on said latch, an expansion-spring confined between said cap and shoulder, and a spring-catch lying in a slot or groove in said latch, having one end thereof secured to the latch, and its free end projecting through said cap, said spring-catch engaging the edge of said cap when the latch is fully withdrawn, substantially as described.

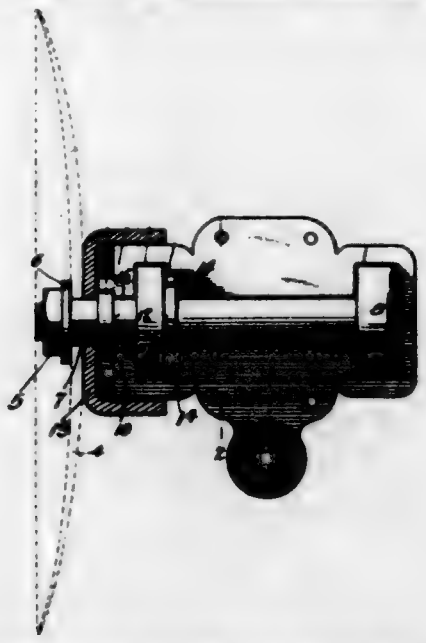
3. In a reversible chair, a pair of posts forming the sides of the chair-back, braces connecting said posts, lugs secured to the inner sides of said posts near the upper ends thereof, said lugs having notches therein, a cushioned head-rest, and pins projecting from the ends thereof, said pins resting within the notches in said lugs and being removable therefrom; substantially as described.

4. In a reversible chair, the side castings 4, each having a horizontal groove in its inner face, and a head-rest rack secured thereto comprising a pair of supporting-arms 29, cross-rods 31, 32, connecting said arms, two slidable blocks mounted in said grooves respectively and having sockets entered by the cross-rod 31 at the inner ends of said arms, said arms being provided with two sets of notches near their outer ends, substantially as and for the purpose described.

5. In a reversible chair, in combination, the side castings of the seat-frame, two pairs of transverse rods 22, 23, connecting said castings, a seat-plate 19, depending feet 21 secured to said seat-plate and provided with notches 21′ for engaging said rods 22, said feet 21 being further provided with shoulders 21″ and upwardly-extending recesses 21‴, whereby said seat-plate may be inclined from a level position by shifting said feet upon said rods 22, 23; substantially as shown and described.

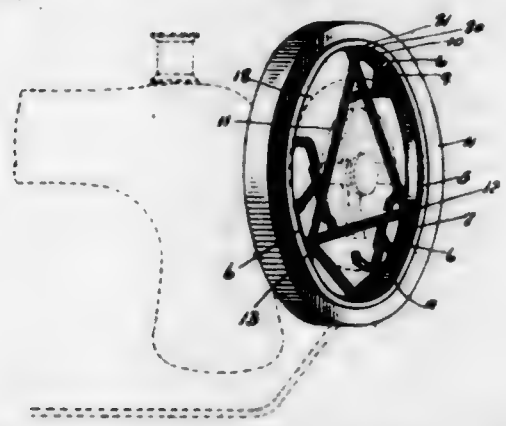
692,884. **DUST-PROOF JOURNAL-BOX.** MARION OWENS, Beaf, Kans. Filed July 9, 1901. Serial No. 67,054. (No model.)

Claim.—1. In a device of the class described, the combination of the sectional journal-box having a closed inner end and provided at its outer end with an annular groove and having an exterior annular flange extending from the outer wall of the groove and offset from the inner edge of the said wall to provide an annular recess, a spindle arranged in the journal-box and provided with an inner collar arranged in the annular groove and having a ball-race, antifriction-balls arranged in the ball-race, an outer collar mounted on the spindle and arranged in the recess formed by the exterior flange, and a cap mounted on the spindle and extending inward over the outer end of the journal-box, substantially as described.



2. In a device of the class described, the combination of a sectional journal-box closed at its inner end and provided at its outer end with an annular groove and having an exterior annular flange extending from the outer wall of the groove and forming an annular recess, a spindle provided with an inner collar arranged in the groove, said spindle being also provided with an outer collar arranged in the annular recess formed by the exterior flange, and a cap mounted on the spindle and receiving the outer end of the journal-box, substantially as described.

692,885. GRINDING OR POLISHING ATTACHMENT. WALTER R. PARKER, St. Louis, Mo. Filed May 20, 1901. Serial No. 61,067. (No model.)



Claim.—1. In a device of the class described, the combination with the rim, of the frame mounted to rotate therein, and clamping members pivotally connected to said frame and adapted to swing about their pivots to bring said members nearer to or farther from a central point; substantially as described.

2. In a device of the class described, the combination with the rim, of the frame mounted to rotate therein, the clamping members connected to said frame to be moved thereby relative to a central point, and means for locking said members in any desired position of adjustment, substantially as described.

3. In a device of the class described, the combination with the rim, of the frame mounted to rotate therein, the clamping members connected to said frame to be moved thereby relative to a central point, and means for locking said frame and thereby said members in any desired position of adjustment.

4. In a device of the class described, the combination with the rim, of the frame mounted to rotate therein, and clamping members connected to said frame and rim and movable to clamp a wheel or disk between said members and said frame; substantially as described.

5. In a device of the class described, the combination with the rim, of the frame mounted to rotate therein, the clamping members pivoted to said frame, the links pivoted to the rim and to the clamping members, and means for locking said frame in any desired position of adjustment; substantially as described.

6. In a device of the class described, the combination with the rim carrying the guide-channels 7, the frame 11 having its corners adapted to enter said channels and to be guided thereby as it rotates relative to the rim, and clamping members connected to said rim and said frame; substantially as described.

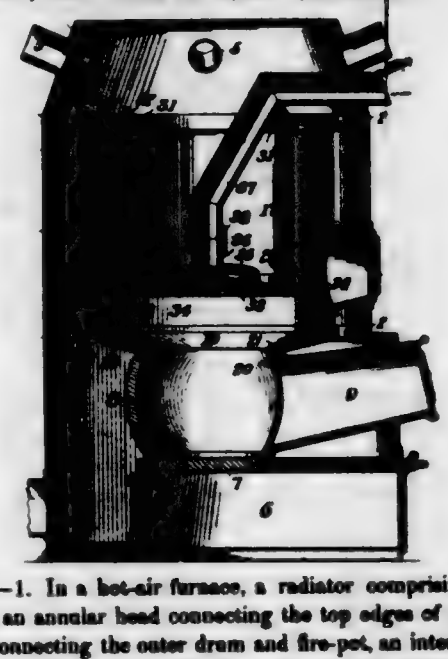
7. In a device of the class described, the combination with the rim, of the frame mounted to rotate relative to said rim, clamping members connected to said rim and frame and adapted to be moved thereby, and the toggle-levers connected to said rim and said frame for rotating the frame; substantially as described.

8. In a device of the class described, the combination with the rim having the ear 8 with the slot 10 therein, of the frame mounted to rotate relative thereto and having the pin 20 projecting through said slot 10, the clamping members connected to said frame and rim so as to be moved by the rotation of the frame, and the thumb-nut 21 coöperating with the screw-threaded pin 20 to clamp the frame in any desired position of adjustment.

9. In a device of the class described, the combination with the rim, of the frame mounted to rotate relative to said rim, the links 9 pivoted to the frame, and the clamping members 16 pivoted to the frame and to the links 9 and having the hooked end with the portion 17 adapted to bear against one side of a wheel while the other side thereof is pressed against the frame; substantially as described.

10. In a device of the class described, the combination with the rim, of the frame mounted to rotate relative to said rim, the links 9 pivoted to the frame, and the clamping members 16 pivoted to the frame and to the links 9 having the hooked end with the portion 17 adapted to bear against one side of a wheel while the other side thereof is pressed against the frame, and means for securing said frame in any desired position; substantially as described.

692,886. HOT-AIR FURNACE. LEWIS PATEIL, Springfield, Ohio. Filed June 4, 1901. Serial No. 63,153. (No model.)

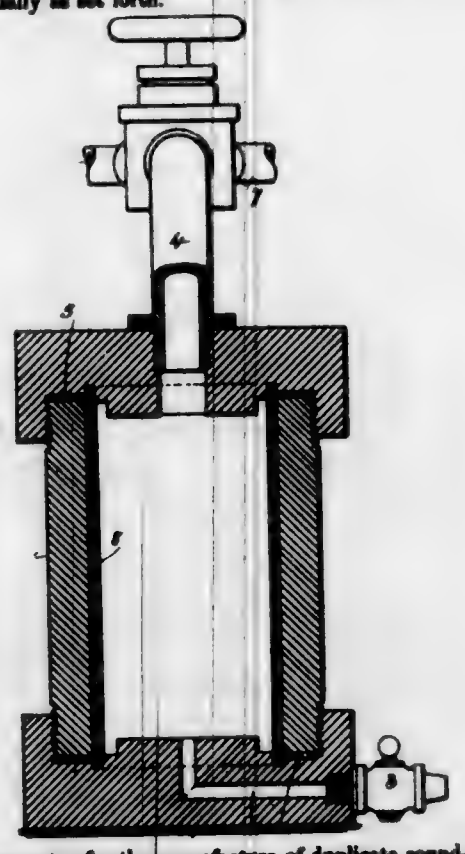


Claim.—1. In a hot-air furnace, a radiator comprising outer and inner drums, an annular head connecting the top edges of said drums, a lower head connecting the outer drum and fire-pot, an intermediate head extending across the bottom of the inner drum and provided with perforations, and a fresh-air conduit extending through the open top of the inner drum and adapted to supply fresh air through the perforations in the intermediate head to the combustion-chamber.

2. In a hot-air furnace, a radiator comprising upper and lower annular heads, outer and inner drums interposed between said heads, the inner drum being suspended from the upper head and terminating above the lower head, an intermediate head extending across the bottom of the inner drum and provided with perforations, a hot-air chamber located over the intermediate head, and a fresh-air conduit communicating with said hot-air chamber and extending through the open top of the inner drum and outward through the furnace-casing where it is provided with means for regulating the air-supply.

692,887. APPARATUS FOR MANUFACTURING DUPLICATE SOUND-RECORD CYLINDERS FOR PHONOGRAPHS. ADELBERT H. PETIT, Newark, N. J., assignor to himself and Albert O. Petit, Newark, N. J. Original application filed Dec. 3, 1900, Serial No. 38,127. Divided and this application filed Mar. 18, 1901. Serial No. 51,594. (No model.)

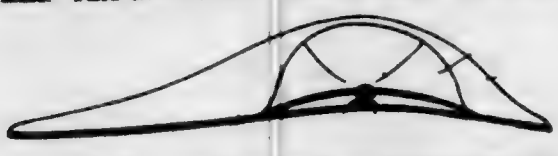
Claim.—1. An apparatus for the manufacture of duplicate sound-record cylinders for phonographs and similar machines, comprising a cylindrical matrix, a head connected thereto by a screw-thread at one end, a base connected thereto also by a screw-thread at the opposite end, the base being provided with an exit-opening and an escape-cock, a pipe connected to the head at an opening therein, a three-way cock connected to the pipe and pipes extending therefrom in opposite directions for steam and air, substantially as set forth.



2. An apparatus for the manufacture of duplicate sound-record cylinders for phonographs and similar machines, comprising a cylindrical matrix exteriorly threaded at the respective ends, a head having a threaded flange and connected to the matrix at one end, a base having a threaded flange and connected to the matrix at the opposite end, packings between the respective ends of the matrix and the inner faces of the head and base, the base being provided with an exit-opening and escape-cock, a pipe connected to the head at an opening therein, a three-way cock connected to said pipe and pipes extending therefrom in opposite directions for steam and compressed air, substantially as set forth.

3. An apparatus for the manufacture of duplicate sound-record cylinders for phonographs and similar machines, comprising a cylindrical matrix exteriorly threaded at the respective ends, a head having a threaded flange and connected to the matrix at one end, a base having a threaded flange and connected to the matrix at the opposite end, packings between the respective ends of the matrix and the inner faces of the head and base, the base being provided with an exit-opening and escape-cock, a pipe connected to the head at an opening therein, a three-way cock connected to said pipe, and pipes extending therefrom in opposite directions for steam and compressed air, the inner surfaces of the head and base being provided with annular recesses adjacent to the inner surface of the matrix to receive the respective ends of the duplicate sound-record cylinder, substantially as set forth.

692,888. INSTEP-ARCH SUPPORTER. George H. Phelps, Brookline, Mass. Filed Nov. 23, 1901. Serial No. 83,422. (No model.)



Claim.—1. The improved instep-arch supporter composed of a stiffening-plate and its sole-shaped attachments, in combination with an adjusting-plate, and means to vary the curvature of the surface of the adjusting-plate.

2. The adjusting-plate above described curved to fit at its edges on the stiffening plate of an instep-arch supporter and with means to hold it adjustably to that stiffening-plate, substantially as and for the purpose specified.

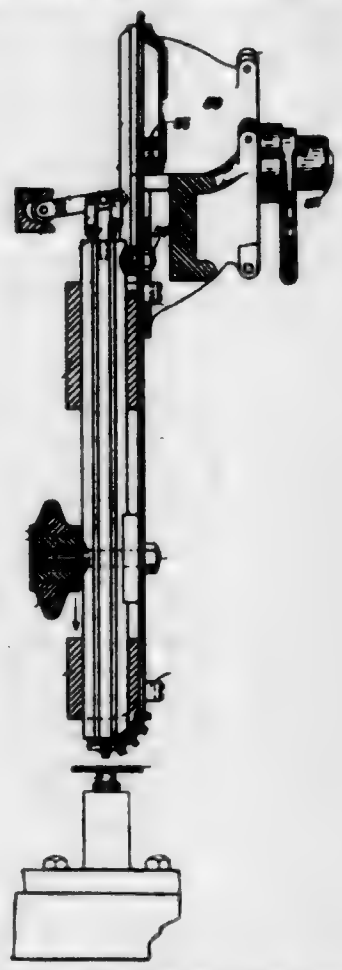
692,889. KILN FOR DRYING GREEN SAND CORES. Robert F. Phillips, Pittsburg, Pa. Filed June 9, 1900. Serial No. 19,746. (No model.)

Claim.—1. In an oven for drying green sand cores consisting of a rectangular metallic casing, having an opening in one of its walls, and friction-plates at the edges of said opening, a rotary reel or rack having vertical radial partitions projecting beyond the edges of the shelves, and horizontal shelves, the partitions arranged to contact with said plates and to press against the same.



2. An oven for drying green sand cores, consisting of the base B', having a furnace or heater located at the back part thereof, a rectangular box-like structure A resting on said base, and composed of plates bolted together, one of which, forming the front of the oven, is formed with an opening D, a reel arranged within the oven so as to project partly through said opening and consisting of a central shaft, a series of radial partitions, and a series of segmental shelves arranged in alined sets forming circles, and spring-plates h, h, attached to the edges of the opening D, against which the partitions contact, the edges of said partitions projecting beyond the edges of the shelves, substantially as described.

692,840. SEPARATOR AND STOP FOR LACING-HOOK-SETTING MACHINES. John Pierce, Milton, Mass., assignor of two-thirds to Joseph H. Chadbourne, Watertown, Mass., and Walter B. Moore, Swampscott, Mass. Filed Sept. 19, 1900. Serial No. 30,523. (No model.)



Claim.—1. In a machine for attaching lacing-hooks and the like to sheet material, a plunger, mechanism for imparting a reciprocating motion to said plunger, a raceway bearing a fixed relation thereto, a separator-slide, a stop-slide, said slides carried by said plunger, and mechanism for imparting a simultaneous reciprocating motion to said slides in opposite directions.

2. In a machine for attaching lacing-hooks and the like to sheet material, a plunger, mechanism for imparting a reciprocating motion to said plunger, a raceway bearing a fixed relation thereto, an anvil, a separator-slide, a stop-slide, said slides carried by said plunger and located upon op-

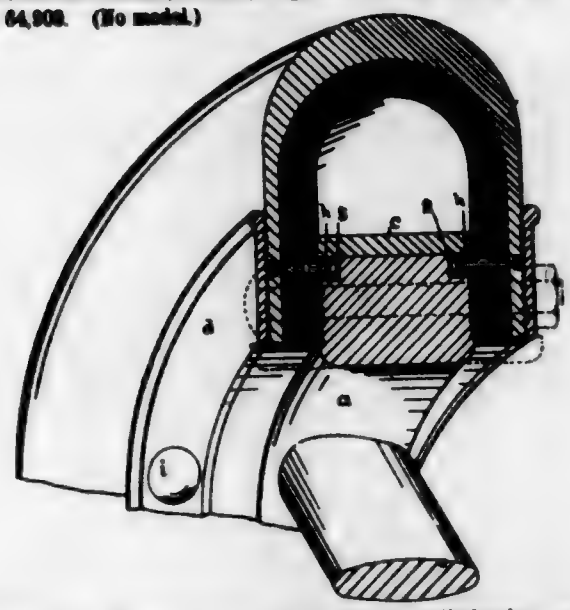
posite sides of a plane extending through the center of the anvil and intersecting the path of the hooks on the raceway as they approach the anvil, and mechanism for imparting a simultaneous reciprocating motion to said slides in opposite directions.

3. In a machine for attaching lacing-hooks and the like to sheet material, a plunger, mechanism for imparting a reciprocating motion to said plunger, a raceway bearing a fixed relation thereto, a separator-slide, a stop-slide, said slides carried by said plunger, a lever pivoted to said plunger and connected to said slides at opposite sides of the pivot thereof, and mechanism for rocking said lever upon its pivot, and imparting a simultaneous reciprocating motion to said slides in opposite directions.

4. In a machine for attaching lacing-hooks and the like to sheet material, a plunger, mechanism for imparting a reciprocating motion to said plunger, a raceway bearing a fixed relation thereto, a separator-slide, a stop-slide, said slides carried by said plunger, a lever pivoted to said plunger, links connected to said slides and to said lever at opposite sides of the pivot thereof, and mechanism for rocking said lever upon its pivot and imparting a simultaneous reciprocating motion to said slides in opposite directions.

5. In a machine for attaching lacing-hooks and the like to sheet material, a plunger, mechanism for imparting a reciprocating motion to said plunger, a raceway bearing a fixed relation thereto, a separator-slide, a stop-slide, said slides carried by said plunger, a lever pivoted to said plunger, links connected to said slides and to said lever at opposite sides of the pivot thereof, and means connecting one end of said lever to a fixed point, whereby a rocking motion is imparted to said lever and a simultaneous reciprocating motion to said slides in opposite directions.

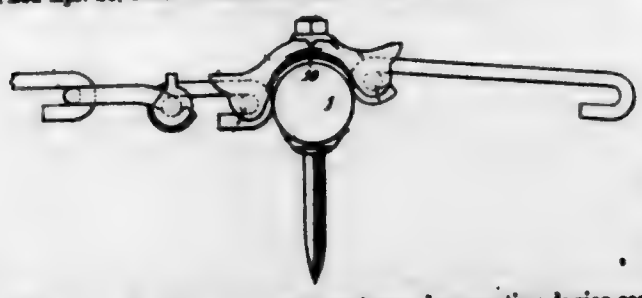
692,841. **WHEEL AND TIRE FOR VEHICLES.** GEORGE W. PITT and EDWARD MARTIN, London, England. Filed June 17, 1901. Serial No. 64,909. (No model.)



Claim.—1. The combination with a wheel, a felly having serrations upon each side, and a pair of serrated rings; of a waved or corrugated steel tire upon the outer face of said felly opposite the tread of the tire, to prevent creeping of the same, and a rubber tire adapted to fit on said felly and adapted to be clamped between said rings and felly by through-bolts, substantially as described.

2. The combination with a wheel, a serrated felly provided with an annular groove upon each side encircling said wheel, a waved or corrugated steel tire encircling said felly, and serrated rings upon each side of said felly; of a rubber tire U-shaped in cross-section, adapted to have its ends clamped between said serrated felly and said serrated rings, and retaining-blocks riveted at intervals around said rubber tire, said blocks being adapted to rest in said annular grooves, substantially as described.

692,842. **HARROW.** GEORGE H. POUNDER, Fort Atkinson, Wis. Filed Apr. 29, 1901. Serial No. 57,894. (No model.)



Claim.—1. In a harrow, a rail securing and connecting device comprising a clip provided with a terminal hood having a spool-shaped pivot for hinging a link therein and preventing play of the link laterally and limiting the swing of the link vertically.

2. In a harrow, an integral rail securing and connecting device comprising an elongated curved clip of hollow-rib form adapted to fit upon and to extend from side to side over a rail and having projecting means terminally for connecting links thereto.

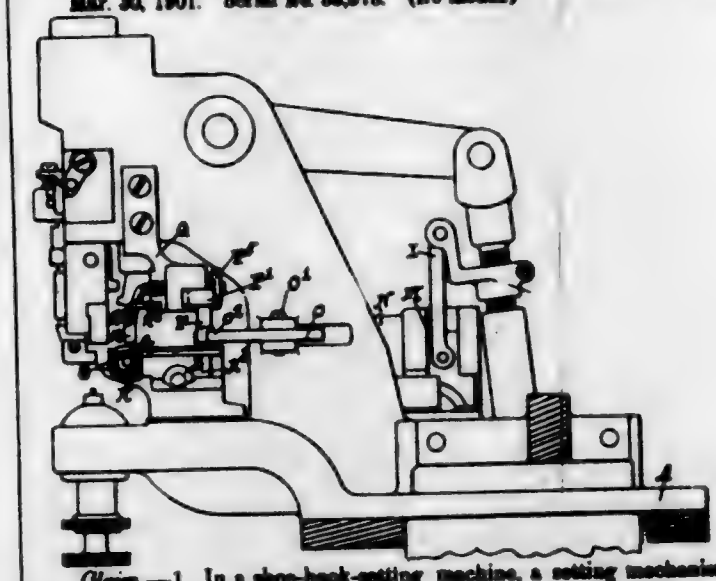
3. In a harrow, a rail securing and connecting device comprising an elongated curved clip of hollow-rib form and provided medially with an elongated slot for receiving a bolt therethrough and permitting its adjustment therein.

4. In combination in a harrow, a tooth-holding rail, a clip in curved form fitting on the rail and provided with a longitudinal slot medially, a bolt fixed transversely in the rail and extending through the slot in the clip, a locking-plate loose on the bolt and having a finger adapted to enter said slot, and a nut turning on the bolt against the locking-plate.

5. In combination in a harrow, a tooth-holding rail, a clip in curved form fitting on and secured adjustably to the rail rotatively, hoods on and forming the extremities of the clip the hoods having means for holding therein pivotally and limiting the swing of links, and links connected to said clips in said hoods.

6. In combination in a harrow, a tooth-holding rail, a clip in curved form fitting on the rail rotatively said clip being provided medially with a slot, a bolt through the rail and projecting through the slot, a nut on the bolt, a locking-plate on the bolt under the nut adapted to hold the bolt against movement in the slot, and means in the ends of the clip for connecting links thereto and limiting the swing of the parts relative to each other.

692,843. **SHOE-HOOK-SETTING MACHINE.** EBERHARD L. PUPKE, East Orange, N. J., assignor to the Agatine Shoe-Hook and Eyelet Company, Newark, N. J., a Corporation of New York. Filed Mar. 30, 1901. Serial No. 53,578. (No model.)



Claim.—1. In a shoe-hook-setting machine, a setting mechanism, a feeding mechanism, a raceway, for bringing hooks to the feeding mechanism, pivoted at its upper end to permit its lower end to be moved out of engagement with the feeding mechanism, whereby the hooks contained on the raceway may be removed, and a fastening device, for securing the lower end of the raceway to the base of the machine, substantially as described.

2. In a shoe-hook-setting machine, a setting mechanism, a feeding mechanism, a raceway, for bringing hooks to the feeding mechanism, pivoted at its upper end to permit its lower end to be moved out of engagement with the feeding mechanism, whereby the hooks contained on the raceway may be removed, a projection, carried by one of said parts and fitting a recess of the other when the raceway is brought into engagement with the base of the machine, and a fastening device for holding the parts together, substantially as described.

3. In a shoe-hook-setting machine, a setting mechanism, a feeding mechanism, a hopper, a raceway, for bringing hooks to the feeding mechanism, pivoted to swing about the axis of the hopper, to bring its lower end out of engagement with the feeding mechanism, whereby the hooks contained on the raceway may be removed; and a fastening device, carried by one of said parts, for securing the lower end of the raceway to the base of the machine, substantially as and for the purpose described.

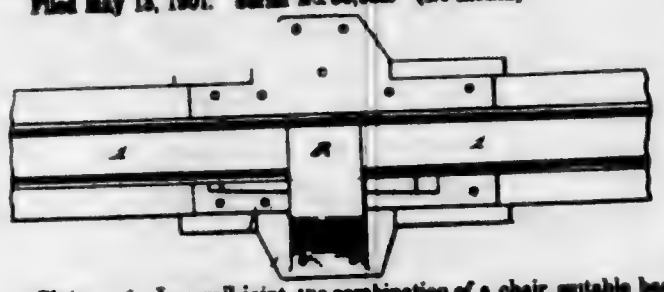
4. In a shoe-hook-setting machine, a setting mechanism, a feeding mechanism, a raceway, for bringing hooks to the feeding mechanism, having its lower end movable, to disengage it from the feeding mechanism, whereby the hooks contained on the raceway may be removed; and a fastening device, for securing the lower end of the raceway to the base of the machine, substantially as and for the purpose described.

5. In a shoe-hook-setting machine, a raceway, for supplying hooks, a setting mechanism, and a mechanism for feeding hooks from the race-

way to the setting mechanism, said feeding mechanism having a reciprocatory bar arranged at an angle to the setting mechanism, carrying a finger pivoted at the side of the reciprocatory bar, and a spring for pressing the finger against the raceway during the feeding stroke, in combination with means for reciprocating the bar, and with a fixed stop for swinging the finger away from the raceway during the return stroke, substantially as described.

6. In a shoe-hook-setting machine, a raceway, for supplying hooks, a setting mechanism, and a mechanism for feeding hooks from the raceway to the setting mechanism, said feeding mechanism having a reciprocatory bar arranged at an angle to the setting mechanism, carrying a finger secured upon a pivotal pin which passes through the reciprocatory bar; a spring-pressed stop secured to the pivotal pin at the side of the bar opposite the finger; a fixed stop in the path of the above-named stop; a spring for pressing the finger against the raceway during the feeding stroke of the bar; and means for reciprocating the bar.

692,844. RAIL-JOINT. WILLIAM H. F. RAIFSNYDER, Sunbeth, Pa. Filed May 13, 1901. Serial No. 60,922. (No model.)

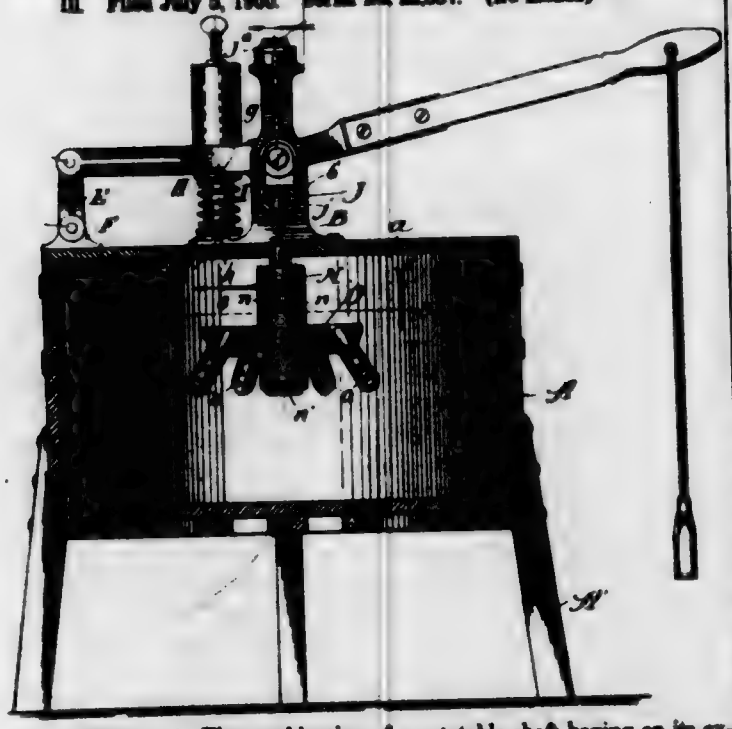


Claim.—1. In a rail-joint, the combination of a chair, suitable bases secured thereto, an integral fish-plate carried by said chair, said chair having an opening formed therein, a base-plate, lugs carried thereby, a wedge-shaped fish-plate, a base secured thereto, the said chair adapted to be interposed between the rails, substantially as described.

2. In a rail-joint, the combination of a chair, an upper face of the same contour as the tread of the rail secured thereto, said chair having an opening formed therein, bases secured to said chair, a wedge-shaped fish-plate, a base secured to the lower face thereof, a base-plate, lugs carried on the upper face thereof, the said bases of the chair adapted to be secured between said lugs, substantially as described.

3. In a rail-joint, the combination of a chair, a fish-plate made integral with one side thereof, the said fish-plate being of less height than the said chair, the upper face of said chair conforming to the shape of the tread of a rail, said chair having an opening beneath said upper face extending through said chair, bases secured to said chair, an independent wedge-shaped fish-plate, a base secured thereto, a base-plate, a pair of lugs carried on opposite sides thereof and having a space therebetween, substantially as described.

692,845. WASHING-MACHINE. JOHN M. RAUNEFF, Chicago, Ill. Filed July 5, 1900. Serial No. 22,567. (No model.)



Claim.—1. The combination of a rotatable shaft having on its exterior a spiral track, a reciprocating head or guide, a rotatable journal or stem having its body mounted and axially revolving in the head or guide and having an acting end integral with and revolving only with the body and arranged in a fixed relation to directly and axially abut the spiral track and impart rotation to the shaft, means for reciprocating the head to travel the integral acting end of the journal or stem in direct engagement with the track and revolve the shaft, and means for maintaining the parts in definite relation to each other, substantially as described.

2. The combination of a rotatable shaft having around its outer face a spiral track, a head or guide slidable on the shaft, a rotatable journal or stem having its body mounted and axially revolving in the head or guide and having an acting end integral with and revolving only with the body and arranged in a fixed relation to continuously and directly abut the spiral track for the engagement of the integral acting end to revolve the shaft and having the journal or stem and its integral acting end adjustable as one toward and from the track, and a lever connected with and operating the sliding head, substantially as described

3. The combination of a rotatable shaft having around its outer face a spiral track, a reciprocating head carried on the shaft, a journal or stem rotatably mounted in the head, a contact or bearing on the rotatable journal or stem engaging with the spiral track of the shaft, a lever connected with the head, a swinging support having the end of the lever pivoted thereto, a tube or casing engaging the lever, a second tube or casing entering into the first tube or casing and having a rocking support at its lower end, and a coiled spring surrounding the second tube or casing entered into the first tube or casing for engagement therewith to return the lever to normal position, substantially as described.

4. The combination of a rotatable shaft having around its outer face a spiral track, a reciprocating head carried on the shaft, a journal or stem rotatably mounted in the head, a contact or bearing on the rotatable journal or stem engaging with the spiral track of the shaft, a lever pivotally connected with the head, a swinging support having one end of the lever pivoted thereto, a swinging tube or casing connected with the lever, and a spring carried by the swinging tube or casing, substantially as described.

5. The combination of a rotatable shaft having around its outer face a spiral groove with tapered or inclined side walls or faces, a reciprocating head carried by and endwise slidable on the shaft, a journal or stem rotatably mounted in the head and having a contact or bearing with a face adapted for engaging the inclined or tapered side faces or walls of the groove, and a lever pivotally connected with the head and operating to move the head bodily endwise on the shaft and cause a rotation of the shaft, substantially as described.

6. The combination of a rotatable suspended shaft having a body of uniform diameter its entire length and having on its exterior a spiral track for a portion of its length, a continuous frame or support formed of a vertical standard or upright on each side, a cross-bar at the top and a cross-bar at the bottom, both bars integral with the side standards or uprights and the top cross-bar at the bottom, having a carrying-head into which the upper end of the shaft enters, and the bottom cross-bar having an opening corresponding in diameter to the diameter of the shaft for the passage of the shaft endwise to enter its upper end in the carrying-head of the top cross-bar and furnishing a support against lateral play of the shaft, a circumferential groove in the upper end of the shaft within the carrying-head, balls in the circumferential groove of the shaft, a ring entered into the head and forming with the groove a track or race for the balls, and an adjustable plug-screw threaded into the head for suspending the shaft from the head mounted on ball-bearings and maintained in a vertical line, substantially as described.

7. The combination of a rotatable suspended shaft having a body of uniform diameter its entire length and having on its exterior face a spiral track or bearing-face for a portion of its length, a circumferential groove in the upper end of the shaft, balls entered into the circumferential groove, a continuous frame or support formed of a standard or upright on each side, a cross-bar at the top and a cross-bar at the bottom, both bars integral with the side standards or uprights and the top cross-bar having a central carrying-head receiving the upper end of the shaft and the balls and the bottom cross-bar having an opening corresponding in diameter to the diameter of the shaft for the passage of the shaft endwise to enter its upper end in the carrying-head of the top cross-bar and furnishing a support against lateral play of the shaft, a reciprocating head carried by and encircling the shaft and endwise slidable thereon and having a bearing and guide on the shaft, journals or stems rotatably mounted in the head on opposite sides thereof, each journal or stem having its acting end maintained constantly endwise in relation to the shaft, furnishing a contact or bearing continuously engaging with the spiral track or bearing-face of the shaft axially of the journal or stem, and a lever located between the vertical side standards or uprights of the frame or support and connected with and operating to move the head bodily up and down on the shaft in a straight line within the space of the continuous frame, giving the shaft a support on two sides, substantially as described.

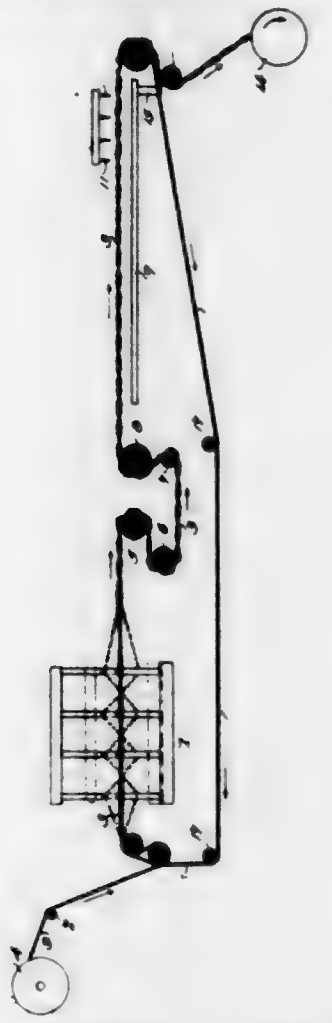
8. The combination of a rotatable shaft spirally grooved on its exterior to form a track or bearing-face, a reciprocating head carried by and encircling the shaft and endwise slidable thereon and having a bearing and guide on the shaft, journals or stems each having its body rotatably mounted and axially revolving in the head and on opposite sides thereof, each journal or stem having an acting end integral with and coincidingly

revolving with its body with the body maintained constantly endwise in relation to the shaft for the head to furnish a fixed contact or bearing continuously engaging with the spiral groove of the shaft and revolving axially with the journal or stem, a horizontal lever pivotally connected with the head on each side and having an oscillating movement, a swinging support having one end of the lever pivoted thereto, and a spring arranged to engage the lever between the free end and the pivoted end thereof and operating to return the lever to normal position, substantially as described.

9. The combination of a rotatable shaft spirally grooved on its exterior to form a track or bearing-face, a reciprocating head carried by and encircling the shaft and endwise slidable thereon and having a bearing and guide on the shaft, journals or stems each having its body rotatably mounted and axially revolving in the head and on opposite sides thereof, each journal or stem having an acting end integral with and coincidingly revolving with its body with the body maintained constantly endwise in relation to the shaft for the head to furnish a fixed contact or bearing continuously engaging with the spiral groove of the shaft and revolving axially in a fixed relation with the journal or stem, a horizontal lever pivotally connected with the head on each side and having an oscillating movement, and operating to move the head bodily back and forth on and cause a rotation of the shaft from the engagement of the integral acting ends of the journals or stems with the spiral track or bearing-face of the shaft continuously endwise, substantially as described.

10. The combination of a rotatable shaft having around its upper face a spiral track or bearing-face, means engaging with the spiral track or bearing-face and operating to rotate the shaft, a lever actuating the means for rotating the shaft, a spring for retracting the lever and a swinging guide carrying the spring and maintaining the spring in proper relation to the lever, substantially as described.

692,346. METHOD OF WEAVING AND COMPLETING CANE OR RATAN FABRICS. GEORGE O. REDPATH, Frankfort, Ky. Filed Apr. 29, 1901. Serial No. 57,983. (No specimens.)



Claim.—1. The method of weaving and completing cane or ratan fabrics consisting in weaving the warp and weft strands in intersecting relation, feeding the continuous fabric thus formed direct from the weaving organization to and continuously moving it longitudinally over a support, and successively inserting diagonal strands and spacing the meshes of the fabric while in motion.

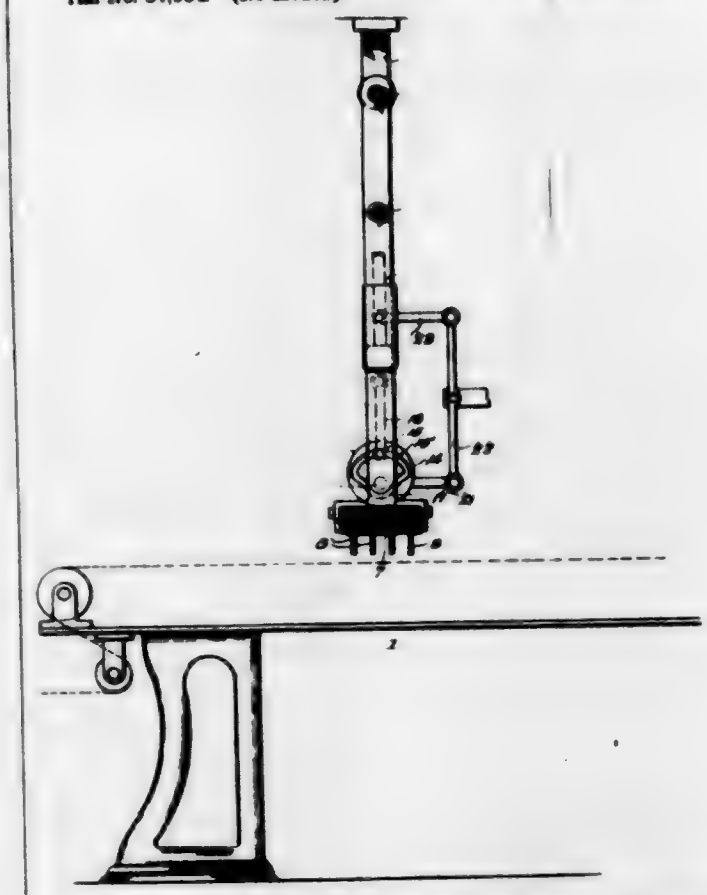
2. The method of weaving and completing cane or ratan fabrics consisting in weaving warp and weft strands in intersecting relation, feeding the continuous fabric direct from the weaving organization to and continuously moving it longitudinally over a support, successively inserting diagonal strands and spacing the meshes of the fabric while in motion, and winding the completed fabric in rolls in marketable condition.

3. The method of weaving and completing cane or ratan fabrics consisting in weaving warp and weft strands in intersecting meshed relation, feeding the continuous fabric direct from the weaving organization to and continuously moving it longitudinally over a support, and inserting diagonal strands in the fabric while in motion to complete the same.

4. The method of weaving and completing cane or ratan fabrics consisting in weaving warp and weft strands in intersecting meshed relation, feeding the continuous fabric direct from the weaving organization to and continuously moving it longitudinally over a support, and adjusting the weft-strands of the fabric while in motion to properly space the mesh of the same.

5. The method of weaving and completing cane or ratan fabrics consisting in weaving warp and weft strands in intersecting meshed relation, simultaneously weaving continuous marginal binders in the opposite sides of the fabric thus formed, feeding the fabric and binders direct to and continuously moving it longitudinally over a support from the weaving organization, successively inserting diagonal strands and spacing the meshes of the continuous fabric while the latter is in motion, and withdrawing the marginal binders after the fabric has been spaced and permitting them to run back to the weaving organization for subsequent similar use.

692,847. COMB FOR SPACING THE MESH OF WOVEN FABRICS. GEORGE O. REDPATH, Frankfort, Ky. Filed Apr. 29, 1901. Serial No. 57,984. (No model.)



Claim.—1. A comb for spacing the mesh of woven fabrics having telescopic suspending devices which are mounted to have a swinging movement, and means for imparting vertical and horizontal reciprocating movements in opposite directions to said devices.

2. A comb for spacing the mesh of woven fabric comprising a head with teeth therein, means for suspending said head, and mechanism for imparting a horizontal reciprocating motion thereto in opposite longitudinal directions.

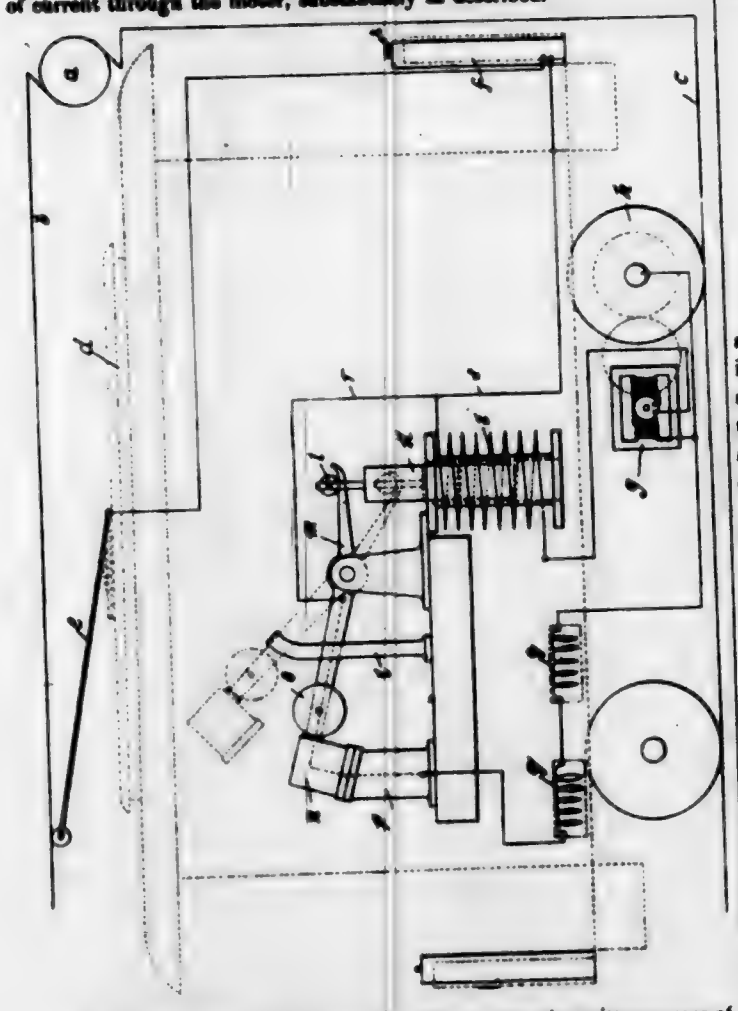
3. A movably-suspended comb for spacing the mesh of woven fabrics, and means for imparting up-and-down and swinging movements in opposite directions thereto.

4. A comb for spacing the mesh of woven fabric, comprising a head with teeth therein, and a swinging suspending means for said head whereby a horizontal reciprocating movement may be imparted to said head in opposite longitudinal directions.

5. A comb for spacing the mesh of woven fabric, comprising a head having teeth therein, and a swinging suspending mechanism for said head.

692,848. SYSTEM OF ELECTRICAL DISTRIBUTION. EMIL R. W. REICHEL, Stegitz, Germany, assignor to the Siemens & Halske Electric Company of America, Chicago, Ill., a Corporation of Illinois. Filed Oct. 2, 1899. Serial No. 732,335. (No model.)

Claim.—1. In a system of electric traction, the combination with a source of current, of a vehicle, a motor for propelling the same, a heating-winding, a circuit including the motor supplied with current from said source, a manually-operated controller for varying the amount of current supplied to the motor, a second circuit including the heating-winding also supplied with current from said source, and means responsive to a predetermined increase of current through the motor for depriving the heating-winding of current, and for giving said winding current upon a decrease of current through the motor, substantially as described.



2. In a system of electric traction, the combination with a source of current, of a vehicle, a motor for propelling the same, a heating-winding, a circuit including the motor supplied with current from said source, a manually-operated controller for varying the amount of current supplied to the motor, a second circuit including the heating-winding also supplied with current from said source, means responsive to a predetermined increase of current through the motor for depriving the heating-winding of current, and for giving said winding current upon a decrease of current through the motor, and a trolley carried by the vehicle for engaging a conductor leading from the source of electricity and supplying current to the motor.

3. In a system of electric traction, the combination with a source of current, of a vehicle, a motor for propelling the same, a heating-winding, a circuit including the motor supplied with current from said source, a controller for varying the amount of current supplied to the motor, a second circuit including the heating-winding also supplied with current from said source, and means responsive to a predetermined increase of current through the motor for depriving the heating-winding of current, and for giving said winding current upon a decrease of current through the motor, substantially as described.

4. In a system of electric traction, the combination with a source of current, of a vehicle, a motor for propelling the same, a heating-winding, a circuit including the motor supplied with current from said source, a controller for varying the amount of current supplied to the motor, a second circuit including the heating-winding also supplied with current from said source, means responsive to a predetermined increase of current through the motor for depriving the heating-winding of current, and for giving said winding current upon a decrease of current through the motor, and a trolley carried by the vehicle for engaging a conductor leading from the source of electricity and supplying current to the motor.

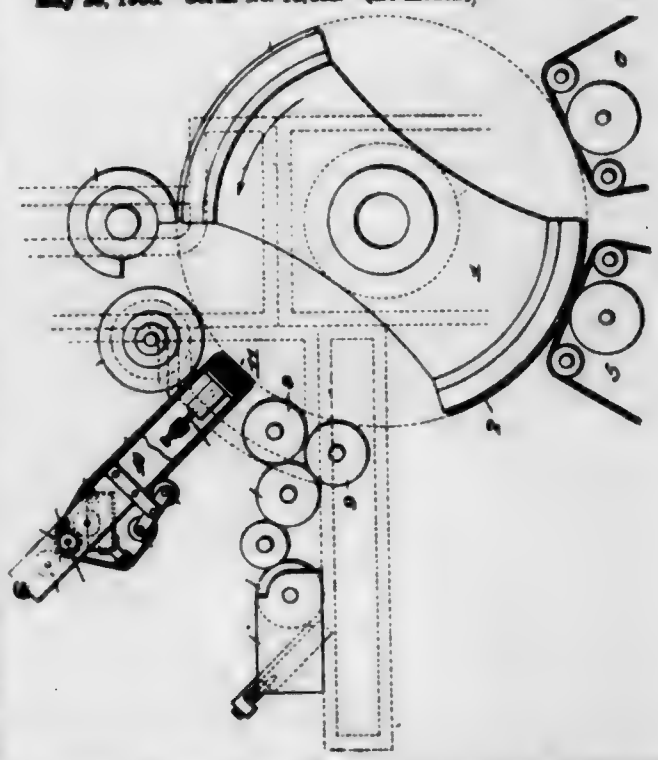
692,849. SAW-MANDREL. JOHN R RECHTENBACH, Wilmot, Ohio. Filed Nov. 11, 1901. Serial No. 81,783. (No model.)

Claim.—1. The combination of a mandrel provided with a fixed collar or flange, slots or recesses formed in the mandrel, recesses or notches located in the mandrel and adjacent to the slots, shoulders located at the outer ends of the slots in the mandrel, blades pivotally attached to the mandrel and located in the slots and provided with lugs upon their inner ends and outer edges, and flanges upon their inner edges having inclined shoulders, and a bolt or needle provided with a tapered end located in the mandrel and the tapered end of the needle interposed between the inner inclined shoulders of the blades, and the blades provided with extensions or arms, and springs located between the extensions or arms of the blades, and the shoulders of the notches located at the outer ends of the slots, substantially as and for the purpose specified.

2. The combination of a mandrel having fixed thereto a saw-collar, a movable saw collar or flange located upon the mandrel, means for holding the movable collar in fixed position, pivoted blades located in slots and provided with inclined shoulders upon their inner edges and lugs upon their outer edges, extensions or arms formed upon the pivoted blades, and springs interposed between the extensions of the blades and the shoulders of the notches located at the ends of the slots or recesses, and a screw-threaded bolt or needle provided with a tapered end, and a jam-nut located upon the screw-threaded bolt or needle, substantially as and for the purpose specified.

3. The combination of a mandrel provided with recesses or slots, pivoted blades located in the recesses or slots and the blades provided with lugs located upon the inner ends and outer edges of the blades, and inclined shoulders or flanges upon their inner edges, a screw-threaded bolt or needle provided with a tapered end and the tapered end located adjacent to the inclined shoulders of the pivoted blades, and the pivoted blades provided with extensions or arms at their outer ends, and springs located under the extensions or arms and the outer edges of the pivoted blades rounded, substantially as and for the purpose specified.

692,850. ATTACHMENT FOR PLATE-PRINTING PRESSES. ALEXANDER REID, Jersey City, N. J., assignor to the American Bank Note Company, New York, N. Y., a Corporation of New York. Filed May 20, 1900. Serial No. 18,402. (No model.)

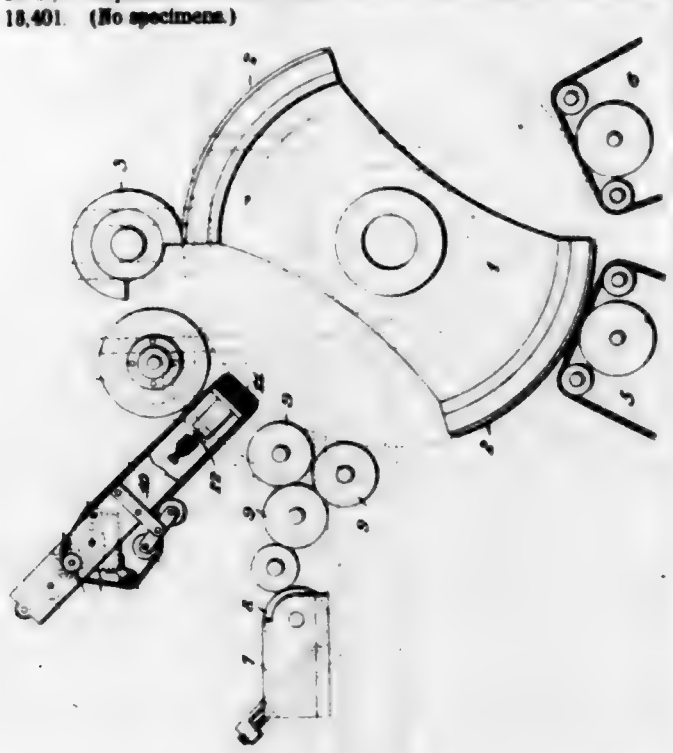


Claim.—1. In a plate-printing press, a dampening device adapted to contact with the plate and located intermediate the impression-point and the inking mechanism for depositing a film of liquid on said plate before it receives the ink, substantially as set forth.

2. In a plate-printing press, the combination with the plate-carrier, the impression-surface, the inking mechanism, and wiping and polishing mechanism, of a dampening device lying in the path of travel of the plate and located intermediate the impression-surface and the inking mechanism for depositing a film of liquid on said plate before it receives the ink, substantially as set forth.

3. In a plate-printing press, the combination with the plate-carrier, the impression-surface, the inking mechanism, and wiping and polishing mechanism, of a dampening band or belt lying in the path of travel of the plate and located intermediate the impression-surface and the inking mechanism, means for carrying said band or belt in contact with the plate, and means for wetting said belt, substantially as set forth.

692,351. ART OF PLATE-PRINTING. ALEXANDER REID, Jersey City, N. J., assignor to the American Bank Note Company, New York, N. Y., a Corporation of New York. Filed May 29, 1900. Serial No. 18,401. (No specimens.)



Claim.—1. In the art of plate-printing, the process of treating an engraved or intaglio plate preparatory to taking an impression therefrom, which consists in first dampening or depositing on the ordinary finished surface thereof and without preparatory treatment a film of liquid, then inking said plate in the usual manner, and finally wiping and polishing the same, substantially as set forth.

2. In the art of plate-printing, the process of treating an engraved or intaglio steel plate preparatory to taking an impression therefrom, which consists in first dampening or depositing on the ordinary finished surface thereof and without preparatory treatment a film of liquid, and then inking said plate in the usual manner, substantially as set forth.

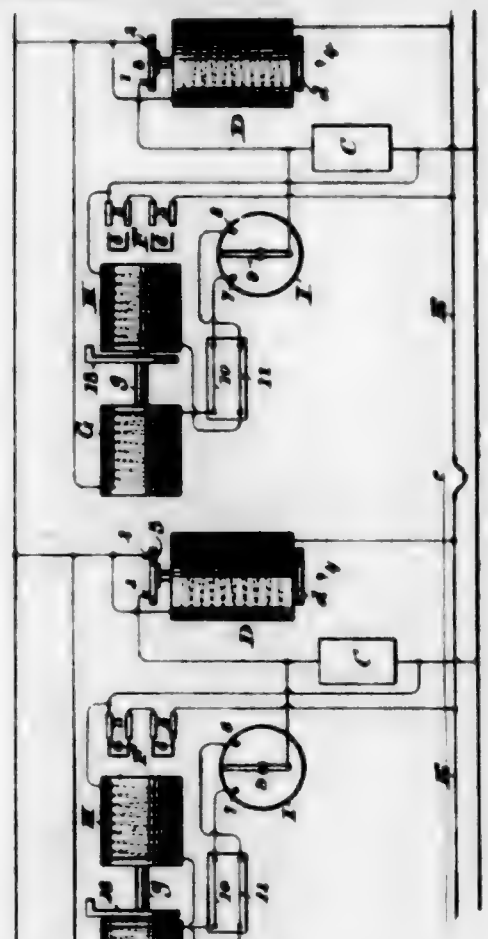
692,352. CONTROLLING APPARATUS FOR ELECTRIC MOTORS. WALTER J. RICHARDS, Milwaukee, Wis., assignor to Niels A. Christensen, Milwaukee, Wis. Filed Apr. 27, 1901. Serial No. 57,680. (No model.)

Claim.—1. In controlling apparatus for electric motors, the combination with an electric motor and main conductors of a switch controlling the motor-circuit, a magnet for closing said switch having one terminal connected with one of said conductors, and a primary switch having a contact-piece connected with the other terminal of said magnet and another contact-piece connected with the motor-circuit between the motor and the point at which said circuit is opened and closed, substantially as described.

2. In controlling apparatus for electric motors, the combination with an electric motor and main conductors of a switch controlling the motor-circuit, two magnets for opening and closing said switch, and a primary switch having maximum and minimum pressure contact-pieces connected with the coils of said magnets and a third contact-piece connected with the motor-circuit between the motor and the point at which said circuit is opened and closed, substantially as described.

3. In controlling apparatus for electric motors, the combination with a compressor-motor and main conductors, of a switch controlling the motor-circuit, a magnet for closing said switch having one terminal connected with one of said conductors, and a primary switch having a fluid-pressure-actuating connection and contact-pieces, one of which is connected with the other terminal of said magnet and another with the motor-circuit between the motor and the point at which said circuit is opened and closed, substantially as described.

4. In controlling apparatus for electric motors, the combination with a compressor-motor and main conductors, of a switch controlling the motor-circuit, two magnets for opening and closing said switch, a primary switch having maximum and minimum pressure contact-pieces connected with the coils of said magnets and a third contact-piece connected through the motor with one of said conductors, and a fluid-actuating connection with said primary switch whereby its connection with the motor-circuit is automatically opened and closed by variations in fluid-pressure, substantially as described.



5. In controlling apparatus for electric motors, the combination with an electric motor and main conductors, of a main switch controlling the motor-circuit, a magnet for operating said switch, a relay-switch controlling the circuit of the main-switch magnet, a magnet for closing the relay-switch, having a connection with the motor-circuit between the motor and the main switch, and a primary switch controlling said connection, substantially as described.

6. In controlling apparatus for electric motors, the combination with an electric motor and main conductors, of a main switch controlling the motor-circuit, a magnet for operating said switch, a relay-switch controlling the circuit of the main-switch magnet, two magnets for operating the relay-switch, and a primary switch having maximum and minimum pressure contact-pieces connected with the coils of the relay-magnets and a third contact-piece connected with the motor-circuit between the motor and the main switch, substantially as described.

7. In controlling apparatus for electric motors, the combination with an electric motor and main conductors, of a main switch controlling the motor-circuit, a magnet for operating said switch, a relay-switch controlling the circuit of the main-switch magnet, a magnet for closing said relay-switch, having a connection with the motor-circuit between the motor and the main switch, a primary switch controlling said connection, and an equalizing-conductor for connecting said main-switch magnet with a corresponding magnet controlling another motor-circuit, substantially as described.

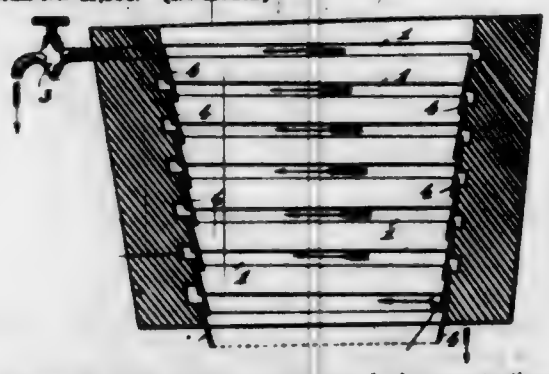
8. In controlling apparatus for electric motors, the combination with an electric motor and main conductors, of a main switch controlling the motor-circuit, a magnet for operating said switch, a relay-switch controlling the circuit of the main-switch magnet, two magnets for operating the relay-switch, a primary switch having maximum and minimum pressure contact-pieces connected with the coils of said magnets and a third contact-piece connected with the motor-circuit between the motor and the main switch, and an equalizing-conductor for connecting the main-switch magnet with corresponding magnets controlling the circuits of other motors, substantially as described.

9. In controlling apparatus for electric motors, the combination with a compressor-motor and main conductors, of a main switch controlling the motor-circuit, a magnet for operating said switch, a relay-magnet controlling the circuit of the main-switch magnet, a magnet for closing the re-

lay-switch, having a connection with the motor-circuit between the motor and the main switch, a primary switch having a fluid-actuating connection with the compressor and adapted to automatically open and close said connection according to variations in the pressure produced by said motor, and an equalizing-conductor for connecting the main-switch magnet with corresponding magnets of other motor-circuits, substantially as described.

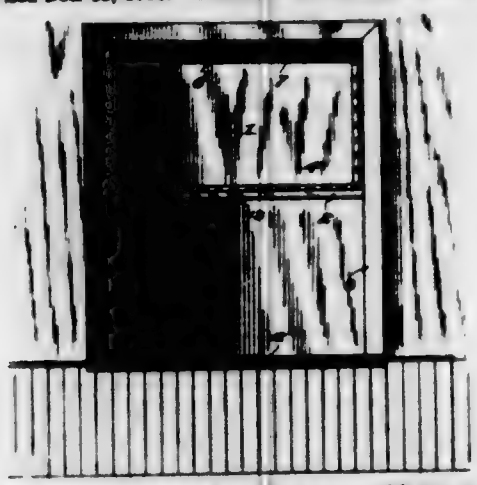
10. In controlling apparatus for electric motors, the combination with a compressor-motor and main conductors, of a main switch controlling the motor-circuit, a magnet for operating said switch, a relay-switch controlling the circuit of the main-switch magnet, two magnets for operating the relay-switch, a primary switch having maximum and minimum pressure contact-pieces connected with the coils of said magnets and a third contact-piece connected with the motor-circuit between the motor and the main switch, a fluid-actuating connection with the compressor for operating the primary switch according to variations in the pressure produced by said motor, and an equalizing-conductor for connecting the main-switch magnet with corresponding magnets of other motor-circuits, substantially as described.

692,853. DIE FOR BRICK-PRESSING MACHINES. KARL RIEDEL and HERMANN SCHIEMER, Rochsdorf, Germany. Filed Feb. 7, 1901. Serial No. 46,230. (No model.)



Claim.—In a die of the class described, the combination with the walls of the die, of a continuous winding water-conduit leading from the bottom to the top of the die along the inner walls thereof and having one side opening to the interior of the die, and an inlet at one end of the conduit, and an outlet at the other end of same, and overlapping metal blades covering the open side of the conduit, substantially as set forth.

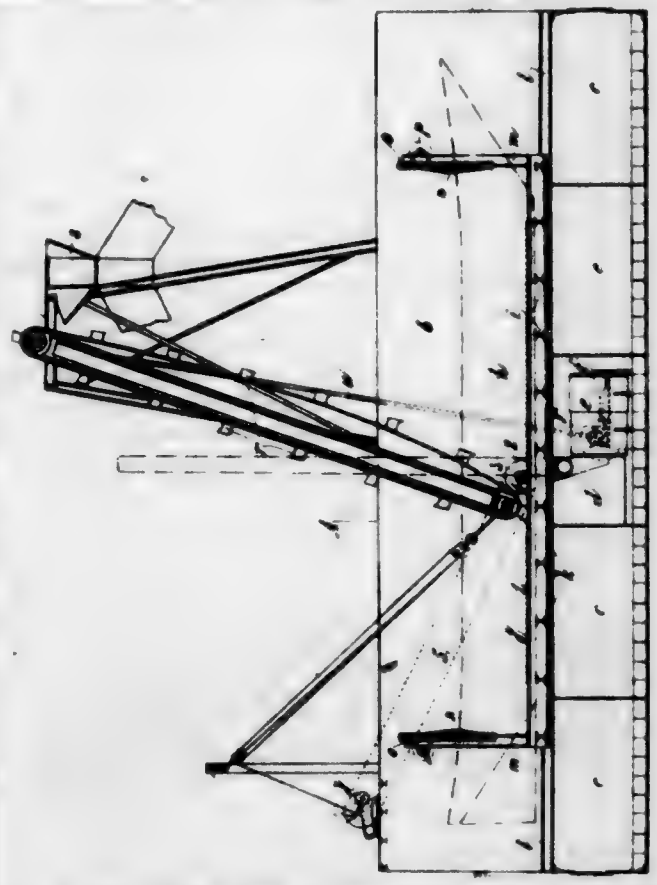
692,854. BLACKBOARD. JOSEPH K. RITCHEY, Roaring Spring, Pa. Filed Dec. 13, 1900. Serial No. 39,750. (No model.)



Claim.—In a blackboard, the combination with a casing having an inclosing rear wall the lower portion forming a writing-surface, a top and opposite side boxings secured to said wall, and channels at the inner side face portions of the side boxings formed by means of the rear wall and by the extension of the front strips of the side boxings toward the center of the casing, pulleys secured in the top boxing, and a chalk-receptacle formed longitudinally in the sill of the casing, of a blackboard having marginal graduation-marks thereon, and a spring-screen secured to the upper portion of the blackboard, said blackboard mounted in said channels, and counterbalancing-weights located in said side boxings, and cords connected to the top of the blackboard and passing over the pulleys and connected to said counterbalancing-weights whereby a vertical adjustment of the said blackboard is had, substantially as specified.

692,855. APPARATUS FOR LOADING OR UNLOADING BULK CARGOES. ALEXANDER W. ROBERTSON, London, England. Filed Sept. 20, 1901. Serial No. 75,863. (No model.)

Claim.—1. The combination with a pontoon of a movable carriage secured thereto, means for securing a floating vessel to said carriage and means for transferring the bulk cargoes of said floating vessel, as set forth.



2. The combination with a pontoon of means for preventing a floating vessel rising or sinking relatively thereto, means for transferring the bulk cargoes of said vessel and ballast-tanks, as set forth.

3. The combination with a pontoon of a movable carriage secured thereto, means for securing a floating vessel to said carriage, means for transferring the bulk cargoes of said vessel, and ballast-tanks, as set forth.

4. The combination with a pontoon of a movable carriage, standards fixed to said carriage, movable cross-beams carried by said standards, and means for raising and lowering said beams, as set forth.

5. The combination with a pontoon of a movable carriage, rollers on which said carriage is supported and which project beneath girders secured to the pontoon and means for securing a floating vessel to said carriage, as set forth.

6. The combination with a pontoon of a movable carriage, standards fixed to said carriage, movable cross-beams carried by said standards, means for raising and lowering said beams, and rollers on which said carriage is supported and which project beneath girders secured to the pontoon, as set forth.

7. Apparatus for transferring bulk cargoes comprising a pontoon formed with a series of ballast-tanks, means for independently charging and discharging said tanks, a movable carriage secured to said pontoon and adapted to receive the vessel whose cargo is to be transferred, and means for securing the vessel to the carriage, as set forth.

8. Apparatus for transferring bulk cargoes comprising a pontoon formed with a series of ballast-tanks, means for independently charging and discharging said tanks, a movable carriage secured to said pontoon and adapted to receive the vessel whose cargo is to be transferred, means for securing the vessel to the carriage, and means for moving said carriage, as set forth.

9. Apparatus for transferring bulk cargoes comprising a pontoon formed with a series of ballast-tanks, means for independently charging and discharging said tanks, a movable carriage secured to said pontoon and adapted to receive the vessel whose cargo is to be transferred, means for securing the vessel to the carriage, means for transferring the cargo and means for moving said carriage, as set forth.

10. Apparatus for transferring bulk cargoes comprising a pontoon, an elevator carried thereby, a carriage secured to said pontoon, means for securing a vessel to said carriage and means for moving said carriage relatively to said elevator, as set forth.

11. Apparatus for transferring bulk cargoes comprising a pontoon an elevator carried thereby, a carriage secured to said pontoon, means for securing a vessel to said carriage, means for moving said carriage relatively to said elevator, a series of ballast-tanks and means for independently charging and discharging said tanks, as set forth.

12. Apparatus for transferring bulk cargoes comprising a pontoon, an elevator carried thereby, a carriage secured to said pontoon, means for

securing a vessel to said carriage, means for moving said carriage relatively to said elevator, a series of ballast-tanks, a pump the suction-pipe of which is connected to said tanks, inlet-pipes from the sea to said tanks, and means controlling said pipe connections, as set forth.

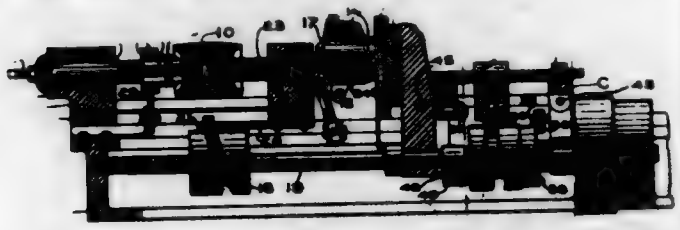
13. Apparatus for transferring bulk cargoes comprising a pontoon, an elevator carried thereby, a carriage secured to said pontoon, means for securing a vessel to said carriage, means for moving said carriage relatively to said elevator, a series of ballast-tanks, a pump the suction-pipe of which is connected to said tanks, inlet-pipes from the sea to said tanks, means controlling said pipe connections, and motive-power apparatus for driving said elevator and pumps, as set forth.

14. In apparatus for transferring bulk cargoes, the combination of a pontoon, a number of ballast-tanks arranged longitudinally thereof, means for independently charging and discharging said tanks, a movable carriage and means for securing to said carriage the floating vessel whose cargo is to be transferred, substantially as described.

15. The combination with a pontoon having ballast-tanks and means for charging and discharging same, of a longitudinally-movable carriage, means for preventing vertical movement thereof relatively to the pontoon, means for securing a floating vessel thereto, a bucket elevator fixed to said pontoon and means for moving said carriage toward and from said elevator, as set forth

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692,356. CARVING-MACHINE. JEAN B. ROBIE, St. Paul, Minn. Filed June 17, 1901. Serial No. 64,838. (No model.)



Claim.—1. In a machine of the class described, the combination with the supporting-framework, and a rotatable cutter carried thereby, of a material-support arranged in front of said cutter, a clamp normally holding a piece of material against said support, a carriage slidable toward and from said support, and slidable parallel to the face of said support, means carried by said carriage to engage with said material and carry the same a predetermined distance through the machine, and means for releasing the clamp from the material as the same is carried through the machine.

2. In a machine of the class described, the combination with the framework, and a rotatable cutter carried thereby, of a material-support arranged in front of said cutter, a clamp normally holding a piece of material against said support, a carriage slidable toward and from said support, and slidable parallel to the face thereof, means for actuating said clamp to release said material, and means carried by said carriage to engage with said material, as and for the purpose set forth.

3. In a machine of the class described, the combination with the supporting-framework, of a rotatable cutter slidably supported thereby, a carriage slidably supported in front of said cutter, means for holding the material against the face of said carriage when the cutter is carried toward the material, means for releasing the material when the cutter is carried away, and simultaneously moving the material a predetermined distance through the machine, and means for simultaneously forcing the cuttings from the cutter.

4. In a machine of the class described, the combination with the supporting-framework, of a rotary cutter carried thereby, a driving-shaft, a cradle supported in front of said cutter, clamping means for holding a piece of material against said cradle, a carriage transversely slidable in said cradle, pointed rods slidably supported in said carriage, and operating connections between said shaft and said clamping means, carriage and rods, as and for the purpose set forth.

5. In a machine of the class described, the combination with the supporting-framework, of a rotatable cutter carried thereby, a driving-shaft, a cradle supported in front of said cutter, a clamping device slidable longitudinally of said cradle for holding a piece of material against the face thereof, rods secured transversely of said cradle, a carriage slidable thereon, pointed rods slidably supported by said carriage, and means operated from said shaft for releasing said clamping means from said material and for actuating said carriage and pointed rods to carry said material a predetermined distance through the machine.

6. In a machine of the class described, the combination with the supporting-framework, of a rotary cutter carried thereby, a driving-shaft, a cradle supported in front of said cutter, a clamping device slidable longitudinally of said cradle for holding a piece of material against the face of said cradle, an operative connection between said clamping device and driving-shaft, rods secured transversely of said cradle, a carriage slidably supported upon said rods, downwardly-projecting fingers upon said carriage, a cam carried by said driving-shaft between said fingers, pointed rods slidably supported by said carriage, and an operating connection between said rods and driving-shaft.

692,357. HORSE-DETACHER. JOHN H. ROGERS, Hastings, Nebr. Filed Apr. 27, 1901. Serial No. 57,289. (No model.)



Claim.—1. The combination with a singletree of a spring-actuated rotatable disk having independent segmental slots concentrically arranged therein with reversely-disposed terminal seats formed by enlarging the said slots at said points, controlling-rods of equal length longitudinally slidable on the singletree on opposite sides of the center of the latter and having their inner extremities bent at an angle and loosely engaging said slots, the outer extremities of the said rods being coiled to move the ends of the traces off from and inwardly over the opposite ends of the singletree, the coiled extremities having forwardly-opening threats, a cap mounted over said disk and having opposite slots through which the rods movably extend and also provided with angular toes adjacent to said slots for securement to the disk, and an operating pull device attached to the disk and extending backwardly to the vehicle.

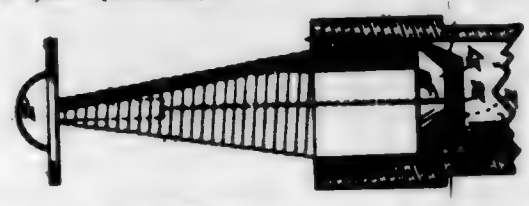
2. The combination with a singletree, of a spring-actuated rotatable disk having opposite segmental slots therein, controlling-rods longitudinally slidable on said singletree and having inner angular extremities loosely engaging said slots and free to be shoved inwardly by a manual operation, the outer ends of the said slots being coiled and provided with forwardly-opening threats to move the ends of the traces off from and inwardly over the ends of the singletree, a cap mounted over said disk and having opposite slots through which the rods movably extend, and angular toes adjacent to said slots for securement to the disk, and means for operating the disk to move the trace ends off from the ends of the singletree.

692,358. DETERGENT. DAVID ROGER-JONES, Birmingham, England. Filed Nov. 12, 1900. Serial No. 36,184. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of washing-soda, whiting, borax, kieselguhr, resin and rouge.

2. The herein-described composition of matter, consisting of washing-soda, twenty pounds, whiting fifty pounds, borax six pounds, kieselguhr ten pounds, resin six pounds, and rouge four ounces.

692,359. BOTTLE-STOPPER. GEORGE ROUSE, Joliet, Ill., assignor of one-fourth to John Mason, Joliet, Ill. Filed Aug. 10, 1901. Serial No. 71,634. (No model.)



Claim.—1. A bottle-stopper comprising an outer shell and an extensible coiled filler in the shell, whereby the stopper is held in its seat

in the bottle, and means for extending the coil to release the pressure on the stopper.

2. A bottle-stopper comprising an outer shell, a yielding cylindrical form within the shell, a central core, an extensible coiled filler within the cylindrical form to expand the form within the shell, and means to withdraw the core and extend the filler.

3. A bottle-stopper comprising an outer shell, an inner core, a coiled filler interposed between the shell and core, and means substantially as described for elevating the core and extending the coiled filler.

4. A bottle-stopper comprising an outer shell, an inner core arranged therein, a spirally-wound filler interposed between the shell and core and connected with said parts, and means for drawing the core outwardly.

5. A bottle-stopper comprising an outer shell, an inner core, a spirally-wound filler interposed between the shell and core and connected at opposite ends to said parts, a cover connected to the core and removably seated on the shell, and means for lifting the cover with the core to extend the coil in a line with its axis.

6. A bottle-stopper comprising an outer shell, an inner core, a coiled filler interposed between the shell and core and connected at its opposite ends to said parts, a cover inclosing the filler and connected with the core, and a handle connected with said cover to lift the cover with the core and extend the coil.

7. A bottle-stopper comprising an outer shell, an inner core, a coiled filler interposed between the shell and core and connected therewith, means for drawing the core outward, and means for limiting the outward movement of the core.

8. A bottle-stopper comprising an outer shell, an inner core, a coiled filler interposed between the shell and core and connected with said parts, means for drawing the core outward, and a flexible connection interposed between the shell and core for limiting the outward movement of the core relatively to the shell.

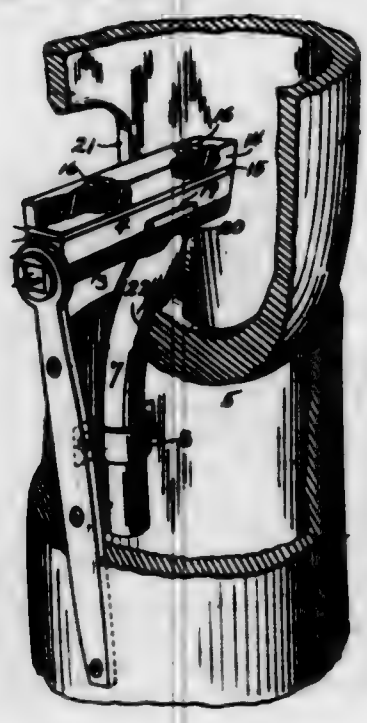
9. A bottle-stopper comprising an outer shell, a core, a coiled filler interposed between the shell and core and connected with said parts, means for drawing the core outward, a reinforce at the bottom of the stopper, and a flexible connection between said reinforce and core.

10. A bottle-stopper comprising an outer shell, a tubular core having an internal shoulder, a coiled filler interposed between the shell and core and connected with said parts, means for drawing the core outward, a reinforce at the bottom of the stopper, and a flexible connection having terminal stops one of which is associated with the reinforce and the other arranged to bear against the shoulder within the core.

11. A bottle-stopper comprising an outer shell, a tapering form inclosed therein, a central core, a coiled filler interposed between the form and core and having its opposite ends connected to said parts, means for drawing the core outward, and means for limiting the outward movement of the core with respect to the shell of the stopper.

12. A bottle-stopper comprising an outer shell, an inner core, a coiled filler interposed between the shell and core and connected with said parts, a cover fastened to the core and forming the top of the stopper, means for limiting the outward movement of the core, and a flexible handle connected with said cover.

692,860. ARTIFICIAL LIMB. JAMES F. ROWLEY, Chicago, Ill. Filed May 20, 1901. Serial No. 61,070. (No model.)



Claim.—1. In an artificial limb, the combination of two limb-sections pivotally connected by a bolt extending transversely of said sections; a threaded seat secured to one of said sections; a movable shoe interposed between said threaded seat and said bolt, and adapted to bear against the bolt; and a threaded pin seated in said threaded seat and acting against the shoe, for regulating the pressure of said shoe against the bolt.

2. In an artificial limb, the combination of two limb-sections one of which has a socket in one end and a pair of arms projecting beyond said end on opposite sides of the socket; the other section having one end extending into the socket and between said arms, and having an aperture for a bolt extending between said arms; a bolt in said aperture secured to each of said arms and forming the axis for said apertured section; a threaded seat secured to said apertured section; a movable shoe interposed between said threaded seat and said bolt and adapted to bear against the bolt; and a threaded pin seated in said threaded seat and acting against the shoe for regulating the pressure of the shoe against the bolt.

3. In an artificial limb, the combination of two limb-sections one of which has a socket in one end and a pair of arms projecting beyond said end on opposite sides of the socket; the other section having one end extending into the socket and between said arms and having an aperture for a bolt extending between said arms; a bolt in said aperture secured to each of said arms and forming the axis for said apertured section; a post projecting upwardly between said arms, secured to the section supporting said arms, and removably embracing said bolt; a threaded seat secured to said apertured section; a movable shoe interposed between said threaded seat and said bolt, having a recess for the upper part of said post and adapted to bear against said bolt; and a threaded pin seated in said threaded seat, and acting against the shoe for regulating the pressure of said shoe against said bolt.

4. In an artificial limb, the combination of a leg-section having a socket in its upper end; a pair of arms secured to the leg-section and extending upwardly on opposite sides of the socket; a post secured to the leg-section within the socket and extending upwardly between said arms and having a part at its upper end for removably embracing a bolt; a hollow thigh-section extending into said socket and having a recess forming a path for said post and a cushion at the front of said recess for abutting the post; a bolt passing through the thigh-section, secured to said arms and embraced by said post; a cross-piece secured within the thigh-section above said bolt and having a threaded aperture; a movable shoe interposed between said cross-piece and said bolt; a threaded pin seated in said threaded aperture and acting upon the shoe for regulating the pressure of the shoe upon the bolt.

5. In an artificial limb, the combination of a pair of pivotally-connected limb-sections; a pair of arms secured to one of said sections; a bolt passing through the other section and removably secured to said arms; a cross-piece secured to said other section near said bolt; a shoe interposed between said cross-piece and said bolt; and means acting between said cross-piece and shoe for regulating the pressure of said shoe upon said bolt.

6. In an artificial limb, the combination of two pivotally-connected limb-sections; a bolt secured to one of said sections and forming a pivotal bearing for the other section; a block secured to said other section near said bolt; a shoe interposed between said block and said bolt; and means acting between said block and said shoe for regulating the pressure of the shoe upon the bolt.

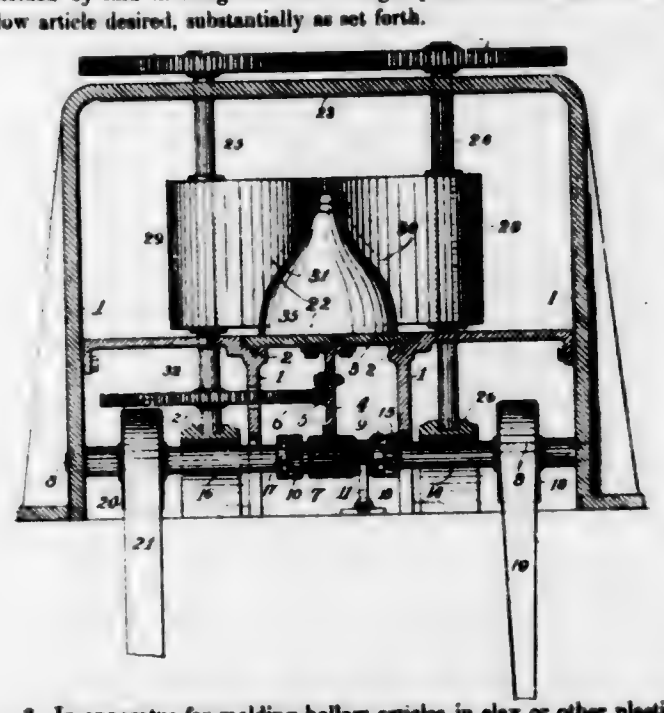
7. In an artificial limb, the combination of a pair of pivotally-connected limb-sections, one of which has a socket therein; a post secured within said socket by a bracket permitting the longitudinal movement of the post in said bracket; and a bolt secured to said post and forming the pivotal axis for said sections.

692,861. APPARATUS FOR MOLDING HOLLOW ARTICLES IN CLAY OR OTHER PLASTIC MATERIALS. WILFRID R. ROWLEY, Rockville, Swadlincote, England, assignor of three-fourths to Samuel Hunt Rowley, Moses James Adams, and Thomas Till, Swadlincote, England. Filed Oct. 22, 1901. Serial No. 80,294. (No model.)

Claim.—1. In apparatus for molding hollow articles in clay or other plastic material, the combination of a mold having externally the shape of the interior of the article to be molded, a plurality of matrices adapted to rotate on axes located around said mold, and each adapted to mold a portion of the external shape of said article, a traveling support for said mold adapted to carry said mold in a straight line between said matrices, and means for causing said matrices to revolve in proper correlation with the movement of said support, whereby clay laid upon said mold is molded between said matrices into a single piece of the shape of the hollow article desired, substantially as set forth.

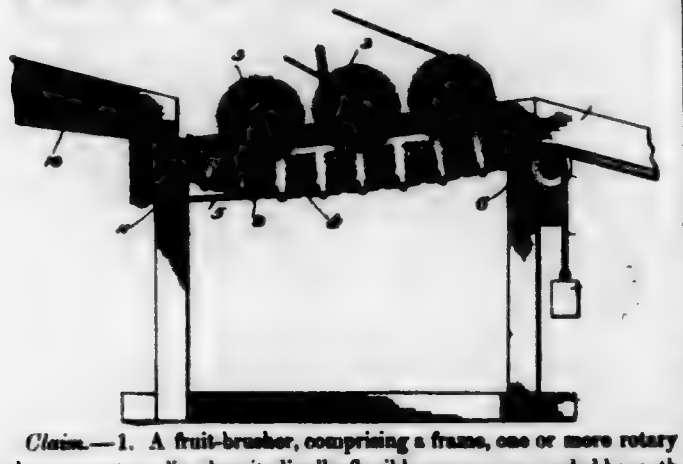
2. In apparatus for molding hollow articles in clay or other plastic material, the combination of a mold having externally the shape of the interior of the article to be molded, a plurality of molding-rolls adapted to revolve on their axes, located around said mold, each adapted to mold a portion of the external shape of the said article, a traveling table for car-

rying said mold between said molding-rolls and means for causing said molding-rolls to revolve in proper correlation with each other and with the corresponding portions of said mold, whereby clay laid upon said mold is molded by said molding-rolls into a single piece of the shape of the hollow article desired, substantially as set forth.



3. In apparatus for molding hollow articles in clay or other plastic material, the combination of a mold having externally the shape of the interior of the article to be molded, two molding-rolls adapted to revolve on axes located on opposite sides of said mold, each adapted to mold a portion of the external shape of said article, a table for carrying said mold in a straight line between said molding-rolls, and means whereby the said molding-rolls are caused to revolve on their axes so as to move their molding-surfaces in proper correlation with the corresponding portions of the said mold, whereby clay laid upon said mold is molded by said molding-rolls, into a single piece of the shape of the hollow article desired, substantially as set forth.

692,862. **FRUIT-BRUSHER.** HENRY B. RUGGLES, Redlands, Cal., assignor to Fred Stobler, Riverside, Cal. Filed Oct. 20, 1900. Serial No. 33,740. (No model.)



Claim.—1. A fruit-brusher, comprising a frame, one or more rotary brushes, a non-traveling longitudinally-flexible runway suspended beneath said brushes and extending transversely thereto, and means for yieldingly supporting said runway at one end, substantially as described.

2. A fruit-brusher, comprising a frame, one or more rotary brushes, and a non-traveling runway consisting of flexibly-connected rigid brush-sections and suspended by its ends beneath the brushes and transversely thereto, substantially as described.

3. A fruit-brusher, comprised of a frame, a rotary brush, a non-traveling runway consisting of rigid brush-sections flexibly connected together transversely of the runway, said runway extending transversely beneath said brush, and means for suspending it at its ends, the means at one end being yieldable.

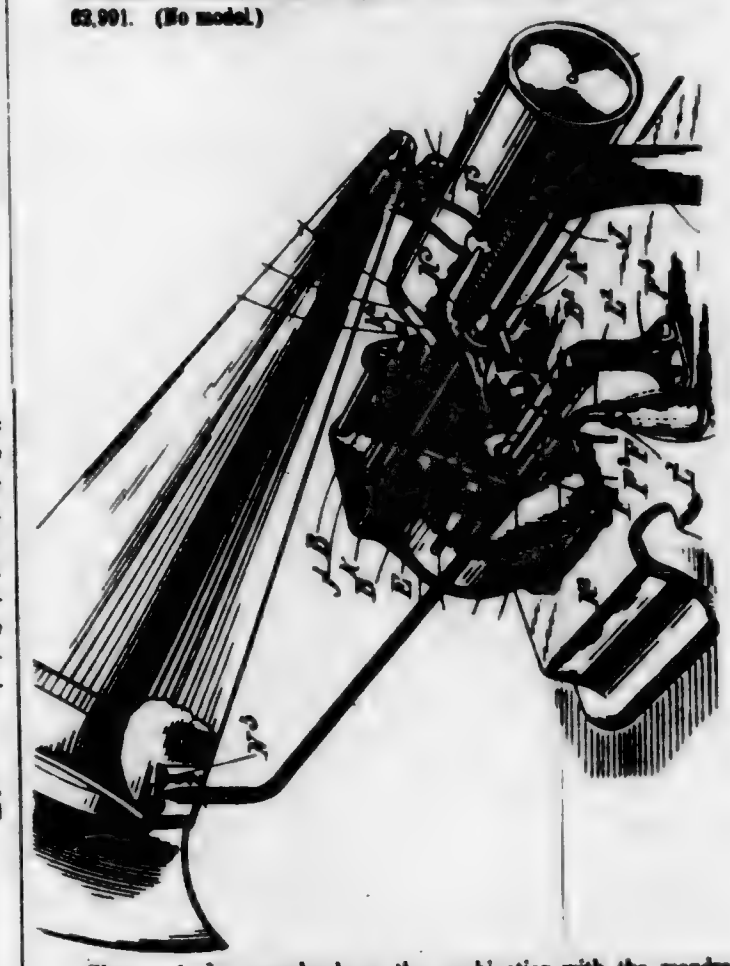
4. The combination with the rotary brushes 3, of the stationary flexible runway 4, the suspending-strap 5 secured to the runway at a distance from the initial end thereof, and a weighted strap 6 yieldingly suspending the other end of the runway, substantially as described.

5. A fruit-brusher comprising one or more rotary brushes, and a stationary trough-shaped runway suspended beneath the brushes and consisting of flexibly-connected middle brush-sections and upwardly-inclined lateral brush-sections connected to the sides of the middle brush-sections, substantially as described.

6. A fruit-brusher, comprising a frame, one or more rotary brushes, a non-traveling flexible runway suspended by its ends beneath said brushes and transversely thereto, and means for yieldingly supporting the runway at a point between its ends, said means being yieldable vertically and laterally, substantially as described.

7. In a fruit-brusher, the combination of a frame, a rotary brush, a non-traveling transversely-flexible runway extending longitudinally beneath said brush, the delivery end of said runway extending rearward in a substantially straight manner, means for yieldingly supporting said delivery end of the runway, whereby the runway will be held yieldingly up to its work.

692,863. **GRAPHOPHONE, PHONOGRAPH, OR THE LIKE.** WALTER C. RUSER, London, England. Filed June 3, 1901. Serial No. 62,991. (No model.)



Claim.—1. In a graphophone, the combination with the mandrel and record, of means for rotating the mandrel, a sound-trumpet and pivotal means for supporting its larger end, means for supporting its smaller end, a pivoted guide for the smaller end of the trumpet, means for feeding said guide, and means for rocking said guide on its pivot, substantially as described.

2. In a graphophone, the combination with the mandrel and record, of means for rotating the mandrel, a sound-trumpet and pivotal means for supporting its larger end, an adjustable socket attached to the smaller end of the trumpet, a stylus secured in said socket and adapted to rest upon the record and support the smaller end of the trumpet, a screw and means for rotating the same, a rod arranged parallel to said screw, a pivoted guide-carrier slidably mounted upon said rod and adapted to engage said screw, a fork carried by said guide-carrier and arranged to guide the smaller end of the trumpet, means for rocking said guide-carrier on its pivot to lift the smaller end of the trumpet and the stylus clear of the record, and means for holding the stylus out of contact with adjacent parts of the mechanism when the instrument is out of operation, substantially as described.

3. In a graphophone, the combination with the mandrel and record, of means for rotating the mandrel, a sound-trumpet and pivotal means for supporting the larger end of the same, a stylus connected to the trumpet and adapted to rest upon the record and support the smaller end of the trumpet, a pivoted guide for the smaller end of the trumpet, means for feeding said guide, and means for rocking it on its pivot to lift the stylus from the record, substantially as described.

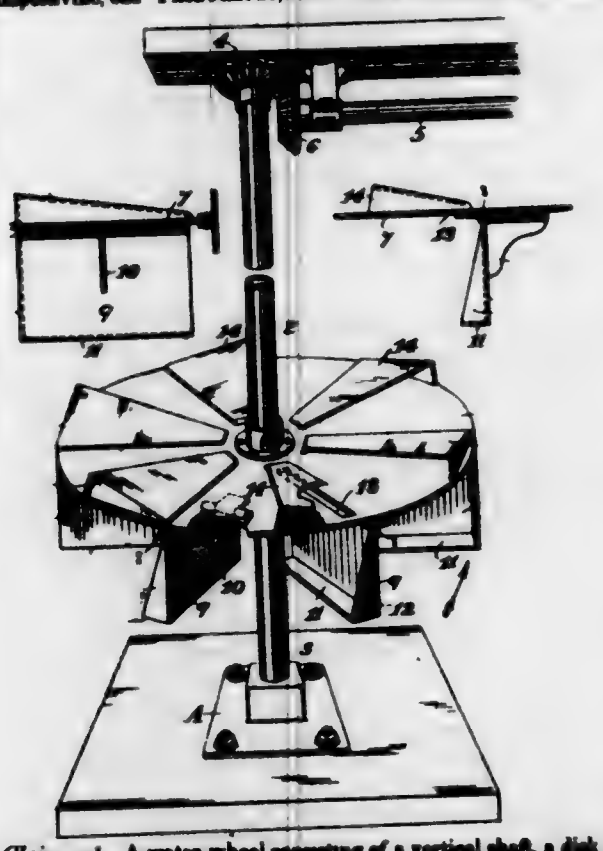
4. In a graphophone, the combination with the mandrel and record, of means for rotating the mandrel, a sound-trumpet and pivotal means for supporting the larger end of the same, a stylus connected to the trumpet and adapted to rest upon the record and support the smaller end of the trumpet, a pivoted, slidably-mounted guide-carrier supporting a guide for the trumpet, means for feeding said guide-carrier, and means for rocking it upon its pivot to lift the stylus from the record, substantially as described.

5. In a graphophone, the combination with the mandrel and record, of means for rotating the mandrel, a sound-trumpet, means for supporting the smaller end of the trumpet, and means for pivotally supporting the larger end of the trumpet, consisting of a vertical socket provided with vertical slots, a bent rod supported in said socket and provided with pins engaging said slots and also provided with a pointed extremity entering a hole in the side of the larger end of the trumpet, and a U-shaped piece over said hole within the larger end of the trumpet and arranged with a substantially horizontal longitudinal portion resting upon the point of the bent rod, substantially as described.

6. In a graphophone, the combination with the mandrel and record, of means for rotating the mandrel, a sound-trumpet, and means for supporting its larger end, consisting of a vertical socket provided with slots, a bent rod supported in said socket and provided with pins engaging said slots, said rod being also provided with a pointed extremity entering a hole in the side of the larger end of the trumpet, and a U-shaped piece over said hole within the larger end of the trumpet and arranged with a substantially horizontal longitudinal portion resting upon the point of the rod, an adjustable socket attached to the smaller end of the trumpet, a stylus secured therein and adapted to rest upon the record and support the smaller end of the trumpet, a screw rotatably mounted parallel to the axis of the record, means for rotating the same, a pivoted guide-carrier slidably mounted upon a rod and adapted to engage said screw, a fork carried by said guide-carrier and arranged to guide the smaller end of the trumpet, means for rocking said guide-carrier on its pivot to lift the smaller end of the trumpet and the stylus clear of the record, and means for holding the stylus out of contact with adjacent parts of the mechanism when the instrument is out of operation, substantially as described.

7. In a graphophone, the combination with the mandrel and record, of means for rotating the mandrel, a sound-trumpet, means for supporting the larger end thereof, consisting of a socket provided with slots, a rod supported in said socket and engaging the slots said rod being provided with a pointed extremity entering a hole in the side of the larger portion of the trumpet, and a U-shaped piece within the trumpet having an approximately horizontal longitudinal portion resting upon the point of the rod, a stylus connected to the trumpet adapted to rest upon the record and support the smaller end of the trumpet, a screw, means for rotating the same, a pivoted, slidably-mounted guide-carrier adapted to engage said screw and provided with a fork to guide the smaller end of the trumpet, and means for rocking said carrier on its pivot to lift the stylus from the record, substantially as described.

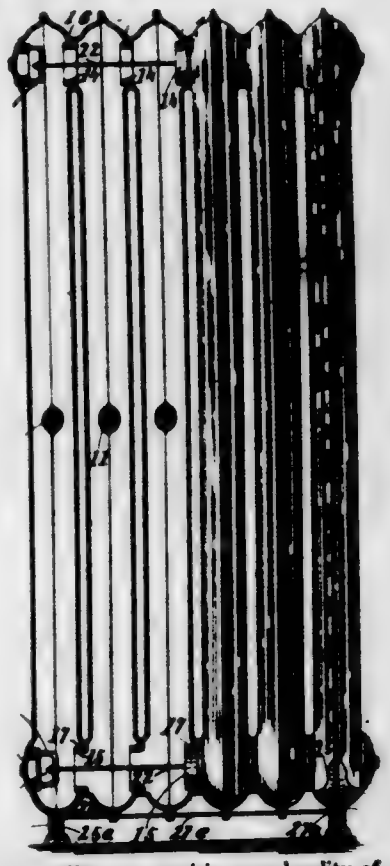
692,864. CURRENT WATER-WHEEL. PETER H. RUSSELL, Camptonville, Cal. Filed June 26, 1901. Serial No. 66,066. (No model.)



Claim.—1. A water-wheel consisting of a vertical shaft, a disk fixed thereon, blades or wings hinged to the under side of the disk, said disk having a series of radial slots or openings corresponding to the number of blades and one opening disposed over each wing, means by which the blades are prevented from swinging beyond a vertical position in one direction, and housings over the slots or openings, said housings open at the front and closed at the rear and ends, and made both broader and higher at their outer ends and tapering downwardly and inwardly toward the shaft and with their inner ends approximately flush with the disk.

2. A water-wheel consisting in combination of a vertical shaft, a disk fixed thereon, blades each having a flange along the lower edge and along one side, leaving the other or inner side open said end flange being of essentially triangular form, and said blades hinged to and pendent from said disk and extending radially thereof, vertically-disposed brackets on the under side of the disk for limiting the swing of said blades in one direction, radially-extending slots in said plate corresponding to the blades, housings for said slots, each of said housings being broader and higher at their outer ends and tapering toward the center of the wheel, substantially as described.

692,865. SHEET-METAL RADIATOR. CLARENCE E. SAFFORD, Buffalo, N. Y. Filed Feb. 23, 1898. Serial No. 671,276. (No model.)



Claim.—1. A radiator comprising a plurality of sections having coupling devices, one of the sections having a diaphragmatic portion provided with a coupling device, said diaphragmatic portion being adapted to be moved by pressure within the radiator to force the coupling device into tight connection with a coöperating coupling device of an adjacent section.

2. A radiator having a plurality of sections, one section at least of which has a diaphragmatic portion and a coupling, said diaphragmatic portion being adapted to be moved by pressure within the section to force the coupling into tight connection with an adjacent section.

3. A radiator-section having a plurality of contacting parts; said parts having their outer margins bent to clamp and support both sides of the parts.

4. A radiator-section having a plurality of sheet-metal parts having contacting margins joining to each other by oppositely-bent folds and having at least two superimposed thicknesses of metal on each side of the line of separation between said contacting margins.

5. A radiator-section having a plurality of joined parts and having a connection between parts consisting of their two margins lying together and bending to clamp and support both sides of the parts.

6. A radiator-section formed of two portions of sheet metal having two marginal parts of unequal length and having the edge of the longer part bent upon the outer edge of the other part and the superimposed lapping edges bent back again upon themselves in the opposite direction, thereby forming reinforcements on both sides of the parts.

7. A radiator comprising a plurality of sections formed of flexible sheet metal, and united by homogeneous coupling means tightened by internal fluid-pressure.

8. A radiator formed of flexible sheet metal and comprising a plurality of sections united by coupling members which are tightened by the bulging of the sections through internal pressure, and tie-rods for securing the sections together.

9. A radiator comprising a plurality of sections formed of flexible sheet metal and united by homogeneous coupling members tightened by the pressure of the heating agent, as set forth.

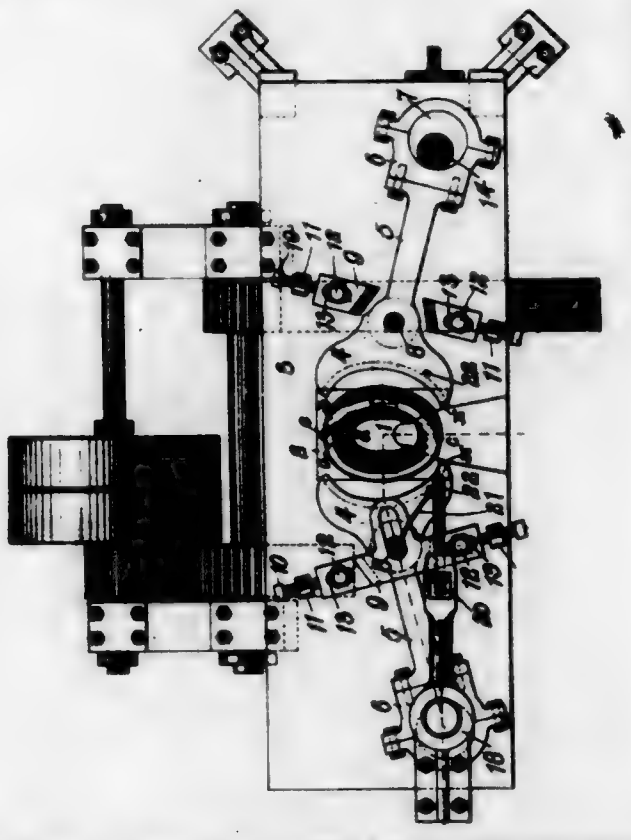
10. A sheet-metal radiator composed of two or more sections each having male and female nipple portions formed integral therewith and extending from the sides thereof, the male nipples of one section being adapted to be inserted in the corresponding female nipple portions of the adjacent section, and to be more firmly forced therein by the bulging of the sections caused by the pressure of the heating agent.

11. A radiator comprising a series of sections each having diaphragmatic portions provided with coupling devices, said diaphragmatic portions being adapted to be moved by the fluid-pressure of the radiator, to force the coupling devices into tight connection.

12. A radiator composed of two or more sections of flexible metal connected together by joints which are tightened by the bulging of the sections through the pressure of the heating agent, and connecting means for rigidly maintaining the end sections in substantially the same relative position with respect to each other.

13. A radiator formed of flexible sheet metal composed of two or more sections formed in two portions, a male and a female portion, tubular nipple portions integral with and extending outwardly from the sides of all the male portions with the exception of the end male portion, tubular nipple portions formed integral with and extending inwardly from the sides of the female portions and the end male portion, the said outwardly-extending portions being adapted to telescope in the inwardly-extending portions to secure the sections together, and tubular devices seated in the inwardly-extending tubular portions of the male portion and the inwardly-projecting portions of the female portion of the section at the opposite end and each provided with an inner yoke, and rods or bars passing through the yokes, telescoping nipples and the sections for drawing and securing the sections together, whereby the bulging of the sections tends to force the tubular devices into closer contact to tighten the joint.

692,366. MACHINE FOR WELDING LINKS. WILLIAM SCRIMSHOUR, Jr., and JOHN BEWER, Portsmouth, Va., assignors of one-half to Robert A. Carter, Pittsburg, Pa. Filed Apr. 1, 1901. Serial No. 53,808. (No model.)



Claim.—1. In a machine for welding links, the combination of pressing-jaws and mechanism for causing the jaws to bear progressively from one end to the other on the sides of the link, substantially as set forth.

2. In a machine for welding links, the combination of a former, pressing-jaws and means for causing the jaws to bear progressively from one end to the other on the sides of the link, substantially as set forth.

3. In a machine for welding links, the combination of a former, movable arms, pressing-jaws pivotally connected to the arms, and means for causing successive portions of the jaws to bear against the sides of the link, substantially as set forth.

4. In a machine for welding links, the combination of a former, adjustable guides, arms movable through the guides, jaws pivotally connected to the arms, and means for reciprocating the arms, substantially as set forth.

5. In a machine for welding links, the combination of a former, pressing-jaws, springs for holding the jaws normally at an angle to the major axis of the former, and means for reciprocating the jaws, substantially as set forth.

6. In a machine for welding links, the combination of a former recessed adjacent to the point at which the weld is formed, pressing-jaws and means for reciprocating the jaws, substantially as set forth.

692,367. DRESS-SHIELD. GEORGE B. M. SEAGER, Adrian, Mich. Filed Oct. 5, 1901. Serial No. 77,710. (No model.)



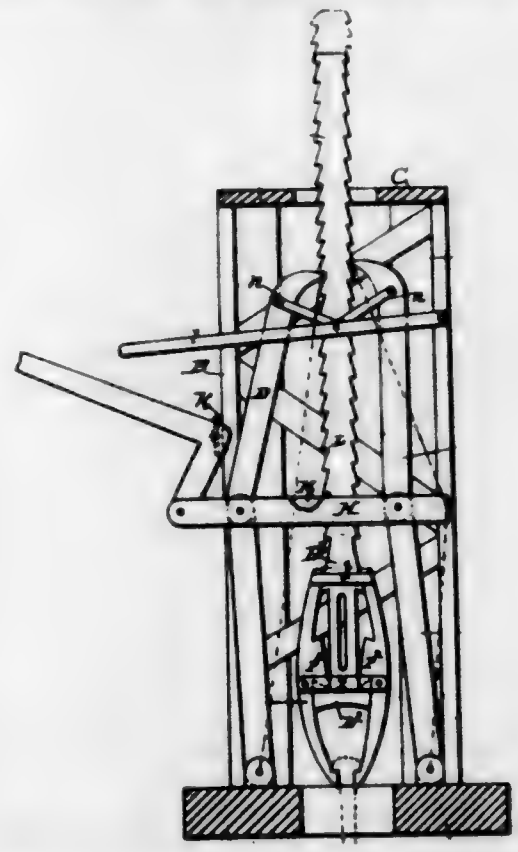
Claim.—A dress-shield spreader and holder, comprising an arcuate continuous wire helix substantially equal in length to the width of a dress-shield and forming a continuously-elastic support for the latter, and one or more arm-eyes-engaging fastenings carried by the helix and projected at the convex side thereof.

692,368. PNEUMATIC TIRE. FREDERICK J. SIMMS, Manchester, England. Filed Apr. 15, 1901. Serial No. 55,967. (No model.)



Claim.—A disconnectible joint for the pneumatic tubes of wheel-tires, consisting of a tapered spigot A of less diameter at the root than the body of the tube C, forming thereby an annular shoulder *c*, the end of the spigot being formed with an annular rim or flange *a*, a sleeve forming a frustum of a cone joined at its base to the body of a second tube C, and corresponding in length with the distance between the shoulders *c* and the flange *a*, and the internal diameter being about the same as the external diameter of said nozzle between the parts *a* and *c*, said sleeve and spigot being thin enough and tapered enough to permit the external air-pressure to act centrally upon the external surface of said sleeve, and both the nozzle and sleeve being open throughout their diameters.

692,369. SPIKE HOLDER AND PULLER. WARD R. SEWELL, Baxter, Iowa. Filed Apr. 29, 1901. Serial No. 57,861. (No model.)

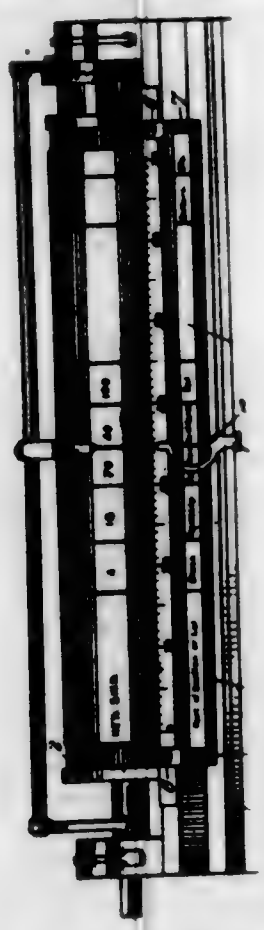


Claim.—1. In a machine for clamping and lifting spikes and other objects, a clamp consisting of a bar having a cross-head at its lower end,

an enlargement and inclined planes at some space above the cross-head mating curved jaws having enlargements on their inner edges and central portions to engage said bar and cross-head, and cross-bars pivoted at their ends and central portions to retain the jaws connected, arranged and combined to operate in the manner set forth for the purposes stated.

2. A machine for clamping and lifting spikes and other objects, comprising a frame composed of a four-sided frame as a base and an upright fixed to each of the four corners of the base and connected by fixed cross-pieces at their tops, toggle-jointed levers pivoted to the base and connected at their joints by cross-pieces, a bell-crank lever fulcrumed to parallel uprights and pivotally connected with the cross-bars at the joints of the toggle-jointed levers, a hand-lever pivoted to one of the uprights and connected with the upper end portions of the toggle-jointed levers, a straight bar having ratchet-teeth on two parallel edges adapted to be engaged by the upper ends of the toggle-jointed levers, a cross-head at its lower end, inclined planes at some space above the cross-head and mating jaws fitted thereto and adjustably connected with said cross-head and inclined planes, all arranged and combined to operate in the manner set forth.

692,870. TYPE-WRITING MACHINE. CHARLES D. SHAFFER, Canon City, Colo. Filed Apr 22, 1901. Serial No. 56,396. (No model.)



Claim.—1. In a type-writing machine, having a main scale, an auxiliary scale, comprising a frame and an index-strip adapted to be freely removed from said frame, and lugs on said frame adapted to be engaged by the securing means of the main scale.

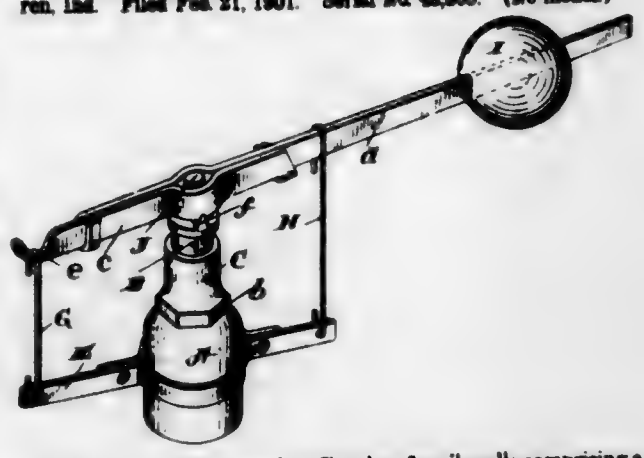
2. In a type-writing machine, having a main scale, an auxiliary scale, comprising a frame and an index-strip adapted to be freely removed from said frame, lugs on said frame adapted to be engaged by the securing means of the main scale, and a pointer coöperating with said scales.

3. An auxiliary scale for a type-writer, comprising a frame formed of a plate having its opposite edges bent over toward each other, an index-strip held in said frame under the edges thereof and freely removable therefrom, lugs on said frame to secure the same in juxtaposition to the main scale, in combination with a duplex pointer coöperating with said main and auxiliary scales.

4. An auxiliary scale for a type-writer, comprising a frame formed of a plate having its opposite edges bent over toward each other, a scale on one edge thereof graduated to correspond with the main scale, an index-strip held in said frame and freely removable therefrom, lugs on said frame to secure the same in juxtaposition to the main scale, in combination with a duplex pointer coöperating with said main and auxiliary scales.

5. An auxiliary scale for a type-writer, comprising a frame having its opposite edges bent over toward each other, a removable index-strip in said frame, a lug at one end of said frame, and a spring-clip engaging the other end of said frame, whereby said index-strip is held in position in said frame.

692,871. AUTOMATIC TIGHTENER FOR STUFFING-BOXES. ROBERT J. SHAW, Warren, Ind., assignor to Thomas D. Hanrotty, Warren, Ind. Filed Feb. 21, 1901. Serial No. 48,205. (No model.)



Claim.—1. An improved stuffing-box for oil-wells comprising a casing, a stuffing-box connected to the upper end thereof, a tubular plunger, a clamp below the plunger and having oppositely-extending arms, a lever consisting of two separate but interlocking portions having intermediate engagement with the upper end of the plunger, one end of the lever connected with one of said clamp-arms, and an upwardly-projecting guide carried by the opposite arm and engaging loosely the opposite end of the said lever, and a weight carried by the lever, substantially as described.

2. An improved stuffing-box for oil-wells, comprising a casing, a stuffing-box at the upper end thereof, a tubular plunger within the stuffing-box, a laterally-projecting arm, a lever having intermediate engagement with the upper end of the plunger, a connection between the arm and one end of the said lever, a weight carried by the opposite end of the lever, the said lever formed of two separate but interlocking longitudinally-extending portions, whereby the lever can be readily separated or detached from the device, substantially as described.

692,872. METALLIC RAILWAY-TIE. LUCIUS T. SHEFFIELD, New York, N. Y.; Mary J. Sheffield executrix of said Lucius T. Sheffield, deceased. Filed May 17, 1901. Serial No. 60,670. (No model.)



Claim.—1. A metallic tie comprising a horizontally-disposed rail-bearing member and, angularly disposed in relation thereto, a single centrally and longitudinally disposed and sinuously-distorted flange or web member, the surfaces of which are inclined obliquely to the rail-bearing surface and convergent from a sinuously-disposed origin toward a substantially straight line of termination, substantially as and for the purposes described.

2. A metallic tie comprising a horizontally-disposed rail-bearing member and disposed in relation thereto at oblique angles a single centrally and longitudinally disposed and sinuously or serpentinely distorted flange or web member, the surfaces of which are obliquely inclined relatively to the horizontal bearing-surface of the rail-bearing member and divergent from a straight line of origin toward a sinuously-disposed line of termination, substantially as and for the purposes described.

3. A metallic tie comprising a horizontally-disposed rail-bearing member and disposed in relation thereto at oblique angles a single centrally and longitudinally disposed and sinuously or serpentinely distorted flange or web member, the surfaces of which are obliquely inclined relatively to the horizontal bearing-surface of the rail-bearing member and convergent from a sinuously-disposed origin toward a substantially straight line of juncture or convergence and from each last-mentioned line of juncture or convergence divergent toward a correspondingly sinuously or serpentinely disposed line of termination, substantially as and for the purposes described.

692,873. STUD MEMBER. MADISON D. SHIPMAN, Duluth, Ill. Filed May 1, 1900. Serial No. 15,168. (No model.)

Claim.—1. A stud member of a separable fastening device consisting of a stud having a head, a groove below the head, an offset below the groove, and a base-flange, the material between the offset and the

flange being folded around the head of a nail or screw, with the head of said nail or screw bearing against the interior shoulder formed by the offset.



2. A stud member of a separable fastener, consisting of a head, a groove, a hollow shell having an offset, and a nail or screw secured in the hollow shell against the offset by folds or crimps in the metal, substantially as described.

3. A stud member of a separable fastening device, comprising a hollow stem having a base-flange and an interior shoulder, and a headed tack or screw secured within said stud member by a double fold of the metal between the interior shoulder and the base-flange.

692,374. JAR CAP OR CLOSURE. ELDRIDGE J. SMITH, Washington, D. C., assignor to Perfect Jar Cap Company, Alexandria, Va., a Corporation of Virginia. Filed May 23, 1901. Serial No. 61,604. (No model.)



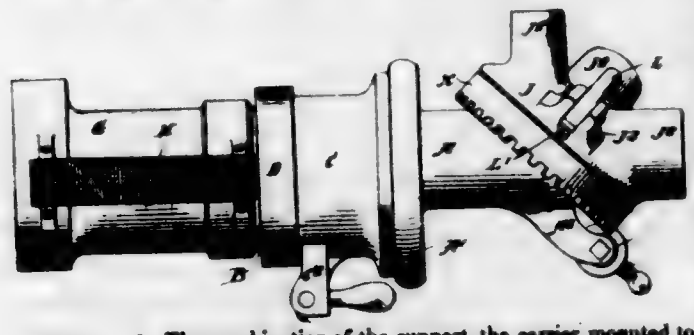
Claim.—1. A cap consisting of a flexible absorbent material, said cap having concentrically-arranged corrugations, and a handle attached to the cap, the free end of said handle extending over the depression of a corrugation.

2. A cap consisting of a flexible absorbent material, said cap having concentrically-arranged corrugations, and a handle attached to the cap in the depression of a corrugation.

3. A cap adapted to fit in the mouth of a jar or bottle consisting of a flexible absorbent material, said cap having near its outer edge a concentrically-arranged corrugation, the outer edge of the cap extending upward and outward and a handle attached to the cap.

4. A cap adapted to fit in the mouth of a jar or bottle consisting of a flexible absorbent material, said cap having near its outer edge a concentrically-arranged corrugation, the outer edge of the cap extending upward and outward.

692,375. HOELLER. CHARLES A. SNIDER, Jersey City, N. J. Filed Apr. 22, 1901. Serial No. 57,103. (No model.)

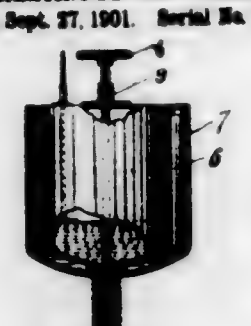


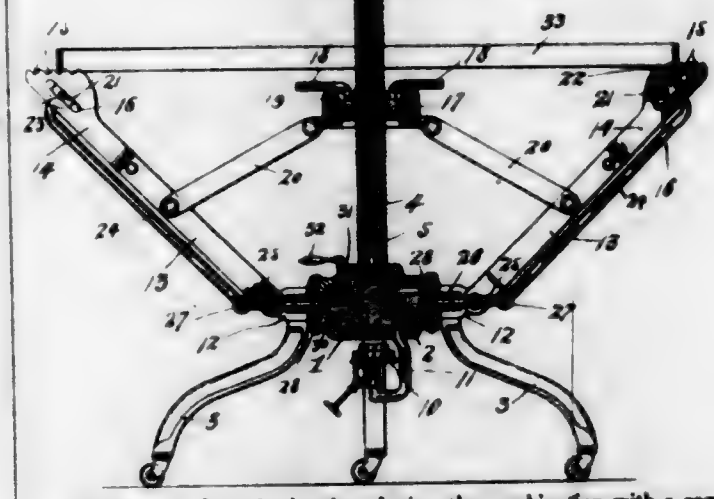
Claim.—1. The combination of the support, the carrier mounted to turn thereon and formed with teeth, articles projected from the carrier on the side opposite to the support and each arranged to aline therewith axially when in registry therewith, and a worm journaled on the support and engaging the teeth of the carrier.

2. The combination of the tubular support having an eccentric exterior flange, the carrier mounted to rotate on the support in advance of the flange and provided with outwardly-leading apertures adapted to register with the tubular support, the pipe-section surrounding said support eccentrically, but concentric with the flange thereof, and the ring arranged on the said pipe-section concentrically and movable lengthwise thereof toward and from said flange.

3. The combination of a tubular support having an eccentric exterior flange, a nozzle device carried by the tubular support at a point beyond the flange, a pipe-section surrounding the tubular support, the pipe-section being disposed eccentrically to the tubular support and concentrically to the flange thereof, and a ring arranged on the pipe-section concentrically to and movable lengthwise thereof toward and from the flange of the tubular support.

692,376. TIRE-HEATING DEVICE. CHRISTOPHER SOLBERG, Eden Valley, Minn. Filed Sept. 27, 1901. Serial No. 76,747. (No model.)





Claim.—1. In a tire-heating device, the combination with a common support, of a plurality of radially-adjustable burners, and a plurality of radially-adjustable tire-supports, which burners and supports are movable toward and from the axis of said common support.

2. In a tire-heating device the combination with a plurality of tire-supports and burners arranged in concentric circles, of means for supplying the combustible fluid to said burners, and means for imparting common radial adjustment to said supports and burners toward and from the axis of said common support, substantially as described.

3. In a tire-heating device, the combination with a centrally-located support, of a plurality of tire-supporting arms pivoted to said support at their lower ends and adjustable radially toward and from the axis thereof, of a vertically-adjustable element at the axis of said series of supporting-arms, links connecting said adjustable element with said supporting-arms, for imparting common adjustments thereto, and means for applying heat to the tire, substantially as described.

4. In a tire-heating device, the combination with a vertically-disposed screw-threaded standard, of a nut working thereon, a non-rotary ring carried by said nut, a plurality of radially-adjustable tire-supporting arms, a centrally-located support to which said arms are pivoted at their lower ends, a plurality of links connecting said supporting-arms to said ring, for imparting common adjustments thereto, and means for applying heat to the tire, substantially as described.

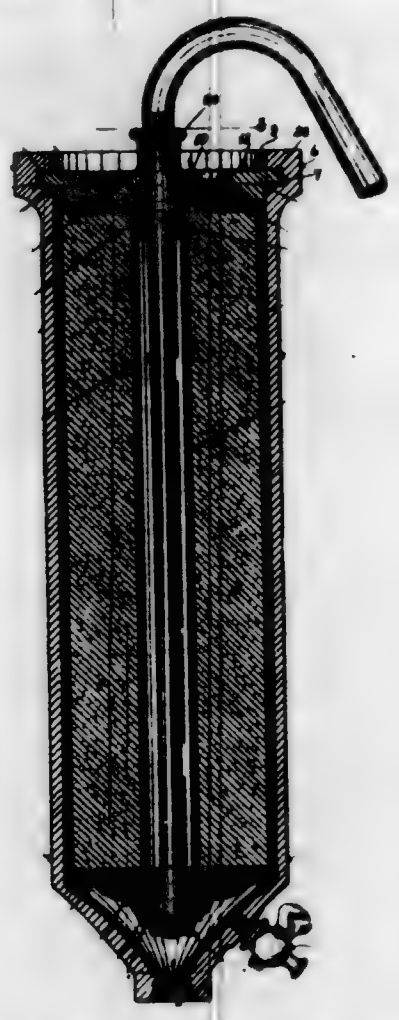
5. The combination with a plurality of tire-supporting arms, and means for simultaneously adjusting the same with their free ends always in circular arrangement, of a plurality of burners carried at the free ends of said arms, and gas-supplying connections to said burners having flexible joints which permit the said burners to move with said arms, substantially as described.

6. The combination with a gas-generating chamber, of a vertical tubular standard rising therefrom and communicating therewith, a plurality of radially-adjustable tire-supporting arms pivoted at their lower ends in the vicinity of said generating-chamber, a nut working with screw-threaded engagement on said tubular standard, a non-rotary ring carried by said nut, links connecting said ring to said supporting-arms, burners carried at the free ends of said arms, flexibly-jointed gas-tubes leading from said generating-chamber to said burners, and an oil-supplying tank communicating with the upper end of said tubular standard, substantially as described.

7. The combination with a generating-chamber 1, of the tubular standard 4 having the tank 6 at its upper end, the valve 5 for opening and closing the passage from said standard to said generating-chamber, the nut 17 working with screw-threaded engagement on said standard, the ring 19 loosely mounted on said nut, the supporting-arms 13 pivoted at their lower ends and pronged at their upper ends 14, said prongs hav-

ing notches 15 and slots 16, the burners 21 mounted between said prongs 14 and provided with trunnions 23 working in said slots 16, the gas-tubes leading from said generating-chamber to said burners and having the flexible joints 27, the perforated valve-ring within said generating-chamber for opening and closing said gas-tube, and a burner located below said generating-chamber and communicating therewith, substantially as described.

692,877. **FILTER.** ISAAC H. SPEER, St. Louis, Mo. Filed May 15, 1901. Serial No. 60,806. (No model.)



Claim.—1. In a filter, a cylindrical case open at one end, there being an internal annular groove at the open end of said case and entrances to said groove, a cap-plate adapted to close the end of said case, a gasket against the lower face of the cap-plate, a flange extending from said gasket, a filtering-body against said gasket and within said flange, and lugs extending from said cap-plate to engage in said groove and pass in and out through the said entrances, substantially as specified.

2. In a filter, a cylindrical case open at one end, there being an internal annular groove at the open end and entrances to said groove the main entrance to the case being enlarged outside the groove, and there being an inclined surface or shoulder below the groove, a cap-plate adapted to close the end of said case, a gasket against the lower face of the cap-plate, a flange extending from said gasket, a filtering-body against said gasket and within said flange and lugs extending from said cap-plate to engage in said groove and pass in and out through the said entrances, substantially as specified.

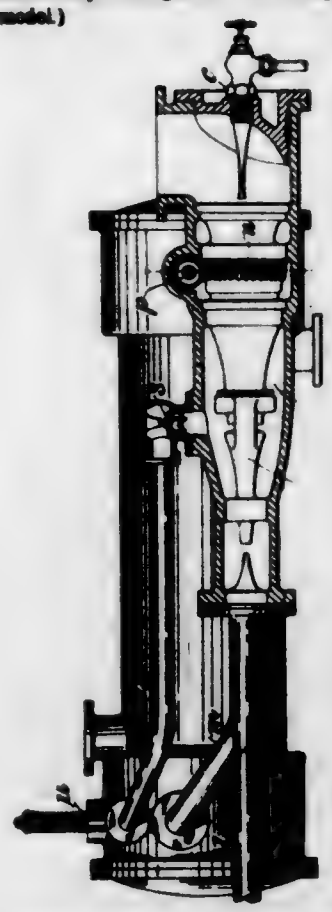
3. In a filter, a cylindrical case open at one end, there being an internal annular groove at the open end and entrances to said groove, the main entrance to the case being enlarged outside of the groove, and there being an inclined surface or shoulder below the groove, and a filtering-body adapted to have lugs engage in said groove and a compressible gasket to pass beyond the inclined shoulder, substantially as specified.

4. In a filter, a cylindrical case open at one end, there being an internal annular groove at the open end of said case and entrances to said groove, a cap-plate adapted to close the end of said case, a gasket against the lower face of the cap-plate, a flange extending from said gasket, a filtering-body against said gasket and within said flange, and lugs extending from said cap-plate to engage in said groove and pass in and out through the said entrances, a supply-pipe communicating with the muddy-water chamber and a drain-cock leading from the muddy-water chamber.

5. In a filter, a cylindrical case open at one end, there being an internal annular groove at the open end of said case and entrances to said groove, a cap-plate adapted to close the end of said case, a gasket against the lower face of the cap-plate, a flange extending from said gasket, a filtering-body against said gasket and within said flange, and lugs extending from said cap-plate to engage in said groove and pass in and out through the said entrances, a supply-pipe communicating with the muddy-water chamber and a drain-cock leading from the muddy-water chamber, said filtering-body being hollow and there being a discharge-opening from the filtering-body through the cap-plate.

6. In a filter, a case open at one end, a cap-plate, a filtering-body having a central bore, a rod loosely hinged to said cap-plate and extending through said bore, means at the lower end of said rod for closing said bore, a compressible gasket at the upper end of said filtering-body, and means of suspending the filtering-body in the case, substantially as specified.

692,878. **FEED-WATER HEATER AND CONDENSER.** JOHN W. STANSFIELD, Hartlepool, England. Filed Aug. 8, 1901. Serial No. 71,353. (No model.)



Claim.—1. In a condenser and feed-water-supply apparatus in combination, an injector provided with an adjustable cone for regulating the water-inlet, an outlet branch for connection to the end of the cooler and another outlet branch leading to the boiler feed-supply substantially as described.

2. In a condenser in combination, an injector having a cold-water starting branch or nozzle a water-supply inlet from the cooler-chamber and a water-supply outlet or delivery to the end of the same chamber, with an additional outlet or delivery branch for hot condensed water to boiler, substantially as described

3. In a condenser in combination a cooling-chamber, an injector having an inlet for exhaust-steam, an inlet for water from the cooler, two outlets for water to the cooler one being an overflow provided with a non-return valve, and a free delivery-outlet for water at the end of the injector substantially as described.

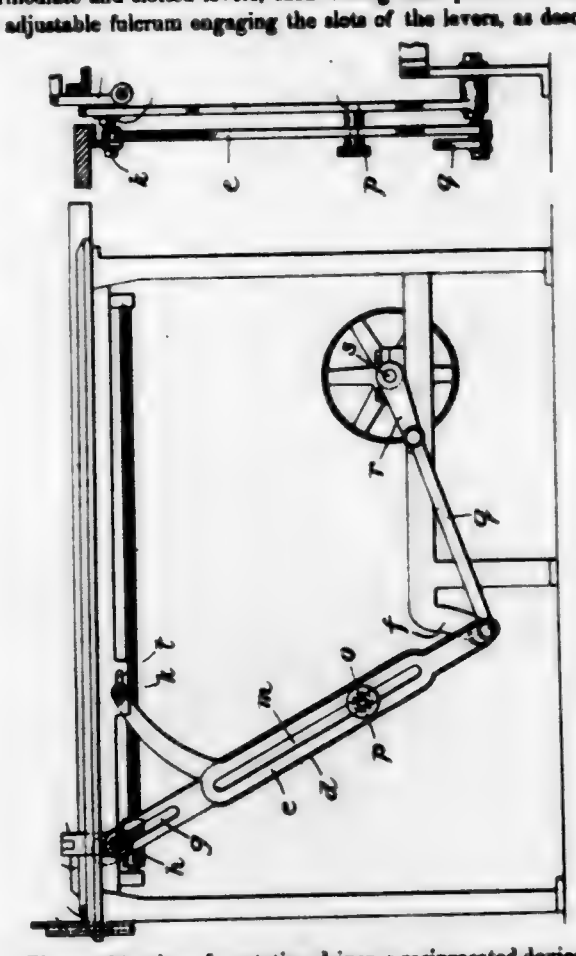
692,879. **MECHANICAL MOVEMENT.** CLARENCE STONE, Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, New York, N. Y., a Corporation of New Jersey. Filed May 24, 1901. Serial No. 61,796. (No model.)

Claim.—1. The combination of a rotating driver, a reciprocated device, a pair of intermediate levers, and means imparting to one of the levers a constant limit of movement in one direction and a variable extent of movement in the opposite direction, as described.

2. The combination of a rotating driver, a reciprocated device, a pair of intermediate levers, an adjustable fulcrum carried by one lever and loosely engaging a slot of the other, whereby the limit of movement of the reciprocated device in one direction remains constant and may be varied in the reverse direction, as described.

3. The combination of a rotating driver, a reciprocated device and a pair of intermediate levers, each having fixed pivots of vibration, a fulcrum connecting the levers, one lever connected to the reciprocated device and the other to the rotary driver, as described.

4. The combination of a rotating driver, a reciprocated device, a pair of intermediate and slotted levers, each having fixed pivots of vibration and an adjustable fulcrum engaging the slots of the levers, as described.



5. The combination of a rotating driver, a reciprocated device, a pair of intermediate and slotted levers, each having fixed pivots of vibration and an adjustable fulcrum slidingly engaging the slot of one lever and fixed in the slot of the other, as described.

6. The combination of a rotating driver, a reciprocated device, a pair of slotted levers with an adjustable fulcrum engaging the slots one lever having a pivot of vibration at its lower end and its upper end slotted to engage the reciprocated device, and the other lever having a pivot of vibration at its upper end and its lower end connected to the rotating driver, as described.

7. The combination of a rotating driver, a reciprocated device a pair of slotted levers with an adjustable fulcrum engaging the slots, one lever having a pivot of vibration at its lower end and its upper end slotted to engage the reciprocated device and the other lever having an adjustable pivot of vibration at its upper end and its lower end connected to the rotating driver, as described.

692,880. DIAMOND-CUTTING MACHINE. JOHN H. G. STOUTMAN, Brooklyn, N. Y., assignor of one-half to Herman A. Groen and Joseph Groen, New York, N. Y. Filed Apr. 30, 1901. Serial No. 58,173. (No model.)

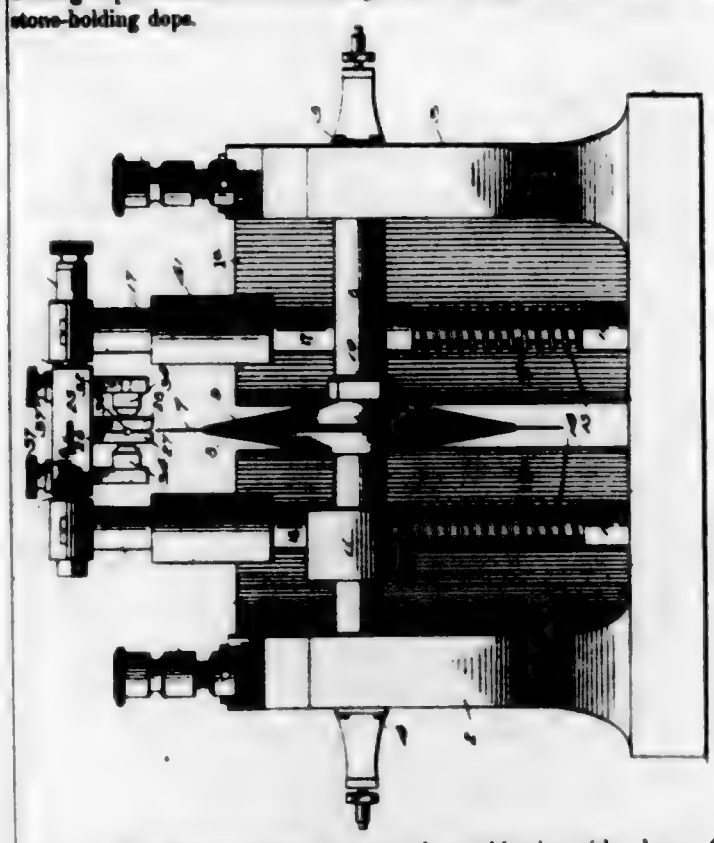
Claim.—1. In a diamond-cutting machine, the combination with a vertical rotating cutting-disk, of an overhanging arm arranged above the cutting-disk, a cutting-disk guide depending therefrom, stone-holding dops depending from said arm, and means for rotating the cutting-disk.

2. In a diamond-cutting machine, the combination of a vertically-rotating cutting-disk, oppositely-placed dop-holders, and a cutting-disk guide disposed between the dop-holders.

3. In a diamond-cutting machine, the combination of a rotating cutting-disk, a resiliently-supported frame, a disk-guide secured in said frame, laterally-adjustable dop-holders disposed on each side of the disk-guide and means for adjusting dop-holders and disk-guide in relation to the rotary disk.

4. In a diamond-cutting machine, the combination of a rotating cutting-disk, standards having shoulders adjacent to their base, vertical rods having sockets in their lower ends to engage over the upper ends of the said standards, expansive springs on the standards to yieldingly support the vertical rods, a frame supported by the rods, stone-holding dops adjustably arranged in the frame, a disk-guide formed with vertical slits to take on the disk and opposite apertures in the disk-guide to take in the corners of the diamond.

5. In a diamond-cutting machine, the combination of a rotating cutting-disk, a horizontally-disposed tube resiliently supported above the disk, a housing adjustable lengthwise and having an arm projected into the tube, a threaded rod to engage the end of the arm within the tube, stone-holding dops mounted in the housing, and a disk-guide intermediate the stone-holding dops.



6. In a diamond-cutting machine, the combination with a base, of a rotary cutting-disk mounted thereon, a frame mounted on the base, adjustable dop-holders carried by the frame, means to clamp the dop-holders in adjusted position, a disk-guide arranged intermediate the dop-holders, and springs to normally lift and hold the frame with the dop-holders and disk-guide above the disk.

7. In a diamond-cutting machine, the combination with a rotating cutting-disk mounted thereon, a resiliently-supported disk-guide carried by the base and arranged above the cutting-disk, whereby pressure must be exerted upon the guide to bring the guide in operative relation to the disk, said guide comprising two bifurcated arms spaced apart, of a pair of dops one arranged on each side of the guide and adapted to be adjusted toward and from the same, and means for adjusting the guide and dops simultaneously with an independent relation to the rotary disk.

8. In a diamond-cutting machine, the combination of a rotary cutting-disk, a resiliently-supported frame arranged over the disk, an endwise-adjustable housing in the frame, oppositely-placed dop-holders in the housing, and a disk-guide having a vertical slit to engage over the disk and disposed intermediate the dop-holders.

692,881. CLAMP. CHARLES T. SWAFFIELD, Elkhart, Ind. Filed May 6, 1901. Serial No. 58,986. (No model.)



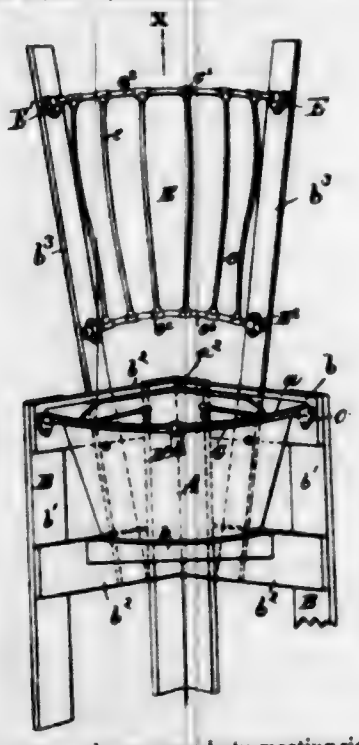
Claim.—1. A clamp for axles and the like comprising a frame having an enlarged lower end of loop shape, a narrow upper portion with parallel sides, a compressing-screw passing through the upper end of the frame, a cross-bar secured to said compressing-screw, a rocking foot or shoe connected to the cross-bar, said cross-bar being guided between the parallel sides of the narrow upper portion of the frame, substantially as described.

2. A clamp for axles and the like comprising an elongated frame, composed of a single piece of metal, the lower end of which is enlarged and of loop shape, a compressing-screw threaded through the upper end of the frame, a rocking foot or shoe connected thereto having the central portion of its under face curved and one end of said shoe having its under face curved at right angles to the curve on the under face of the shoe, substantially as described.

3. In a clamp for axles and the like, a frame having an enlarged

rounded end, a compressing-screw passing through the other end, a connecting member secured thereon, projections on opposite sides of said connecting member, a rocking shoe or foot having ears on each side thereof adapted to be swaged upon said projections on opposite sides of the connecting member, substantially as described.

692,882. COMBINED MANGER AND HAY-RACK FOR STABLES. THOMAS M. SWIFTON, East St. Kilda, Victoria. Filed Nov. 7, 1901. Serial No. 81,424. (No model.)



Claim.—1. A manger having angularly-meeting sides, and a rounded front, and a guard-bar within the manger having a curved portion secured to said front at a distance therefrom, and ends extending backward and secured to said sides, substantially as described.

2. A hinged clip D D′ combined with a manger A having a front curved lip *a*, and with a tubular carrier-bar C′ substantially as described and shown.

3. A manger A having a front lip *a* angle-pieces *a*′, inner rail A′ carried by brackets A^2 and A^3, combined with hinged clip D D′, curved bar C carried by brackets C′ and the wooden frame B substantially as described and shown.

4. The combination of the manger A having front curved lip *a*, angle-pieces *a*′, inner rail A′ carried by brackets A^2 A^3, clip D D′, curved carrier-rail C, carried by brackets C′, wood frame B and the hay-rack E carried on frame B by brackets E′ and E^2, substantially as described and shown.

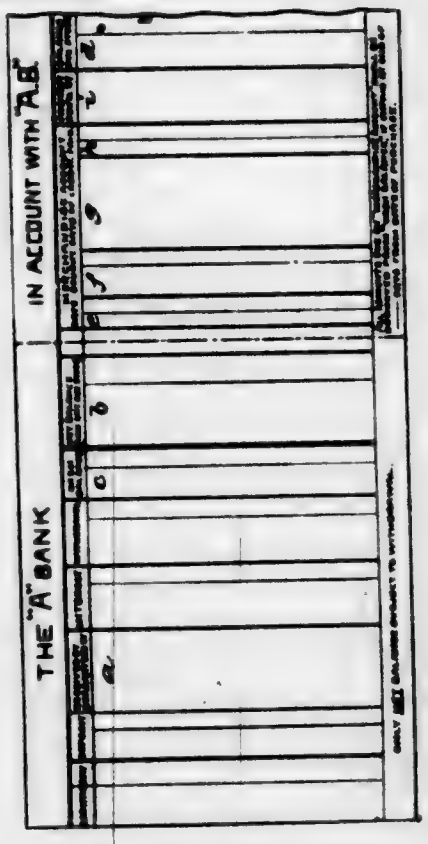
692,883. BICYCLE. PETER TARJIAN and MESURDICH TARJIAN, Paterson, N. J. Filed May 17, 1901. Serial No. 60,684. (No model.)



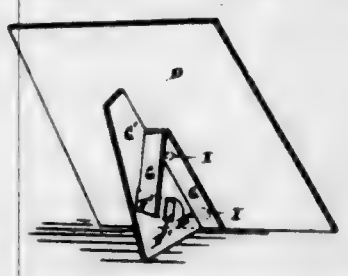
Claim.—The combination, with the head portion of a bicycle, of a disk mounted on said head portion, handle-bars carried by said head portion, and a hollow casing arranged on said disk and inclosing said head portion and the parts of said handle-bars which form a joint therewith, said casing being divided substantially vertically thereof to form separable sections, and one of said sections being hinged to the other and having its line of hinge horizontally disposed, substantially as described.

692,884. DEPOSIT-CREDIT BOOK. THOMAS D. TAYLOR, Providence, R. I. Filed Aug. 20, 1901. Serial No. 72,704. (No model.)

Claim.—A deposit-credit book having complementary pages, one of which constitutes a deposit-sheet and is provided with appropriately-headed spaces for data relating to deposits, one of said spaces being for entries of the cash balance and another for the available or net balance; the other of said pages constituting an account-sheet provided with appropriately-headed spaces for data relating to commercial transactions other than those with the bank, one of said spaces being for the credits received by the customer in such transactions.



692,885. DISPLAY-CARD SUPPORT. EDWARD J. TEMPLAR, Chicago, Ill. Filed May 23, 1901. Serial No. 61,654. (No model.)

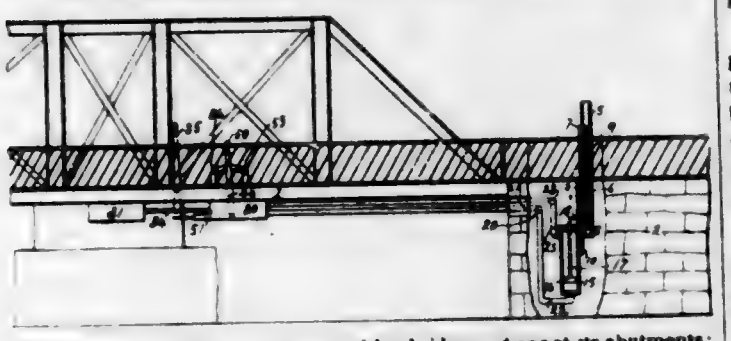


Claim.—1. In a display-card support, a blank provided with an L-shaped tongue at one end thereof and provided with a score on which the blank may be bent to obtain a flap on one side thereof, of which flap one arm of the L-shaped tongue is an extension, and provided with an additional score on which the L-shaped tongue may be bent back toward the flap, and such blank also provided with apertures in the body part thereof through which the free arm of the L-shaped tongue may be passed when the blank is bent up into operative position, and such L-shaped tongue provided with a score upon which one arm thereof may be bent to lie adjacent to the body part of the blank and to extend through the apertures, in combination with means for attaching the blank to a display-card; substantially as described.

2. In a display-card support, a blank provided with top and bottom edges of different lengths, such top edge being at right angles to the side of the blank which is to be attached to a display-card and the bottom edge at substantially right angles with the remaining side of the blank, to form the base of the support, such blank provided with a flap to be attached to a display-card, an L-shaped tongue one arm whereof is a continuation of the flap of the blank, and such blank provided with slotted apertures through which the free end of the L-shaped tongue extends when the blank is formed into operative condition, and means for attaching the flap to a display-card; substantially as described.

3. As a new article of manufacture, a blank provided with L-shaped slots therein, and provided with a plurality of straight slots, such blank also provided with a line to indicate a line of division of such blank into duplicate blanks each one whereof will be provided with an L-shaped tongue when so divided, and such blank provided with marks to indicate lines upon which the duplicate blanks may be, severally, folded to obtain flaps, means for attaching the flaps to display-cards, and such blank provided with additional marks to indicate the base-lines of the duplicate blanks, respectively; substantially as described.

692,886. BRIDGE-GUARD. HERMAN W. TEN BROEKE, Milwaukee, Wis. Filed Apr. 29, 1901. Serial No. 57,946. (No model.)



Claim.—1. The combination with a bridge and one of its abutments; of a gate arranged transversely of the approach to the bridge; actuating mechanism for raising and lowering the gate; coupling-heads on the face of the abutment, one having operative connection with the gate-lifting mechanism, and another with the gate-lowering mechanism; a source of power-supply; longitudinally-movable power-transmitting connections located on the bridge, and arranged to separately connect the coupling-heads with the source of power-supply; and manually-controlled mechanism for alternately coupling and uncoupling said connections from their respective coupling-heads, said connections being normally disconnected from the heads.

2. In a device of the described class, the combination with a gate and actuating mechanism therefor; of separate coupling-heads on the face of the bridge-abutment, having separate operative connection with the gate setting and reversing mechanism; manually-controlled devices on the bridge, adapted to be separately engaged with the corresponding coupling-heads; and power-supply connections with said devices.

3. The combination with a bridge and its abutments; of a gate located in a suitable channel in each abutment or approach; depending rack-bars connected with the gate near each end; pinions arranged in mesh with said racks and mounted on a common supporting-shaft; air-cylinders provided with pistons having operative connection with the gate; independent tubular connections for the opposing ends of said cylinders, having open-ended projections on the face of the abutment; a source of air-supply located on the bridge; and mechanism for alternately connecting the air-supply with the tubular connections leading to the upper and lower ends of the gate-actuating cylinders, respectively.

4. The combination with a bridge and its abutments; of a gate located in a suitable channel in each abutment or approach; depending rack-bars connected with the gate near each end; pinions arranged in mesh with said rack-bars and mounted on a common supporting-shaft; air-cylinders provided with pistons having operative connection with the gate; independent tubular connections for the opposing ends of said cylinders, having open-ended projections on the face of the abutment; a source of air-supply located on the bridge; and mechanism for alternately connecting the air-supply with the tubular connections leading to the upper and lower ends of the gate-actuating cylinders, respectively; together with means for counterbalancing the weight of the gate.

5. The combination with a bridge and its abutments; of a gate located in a suitable channel in each abutment or approach; depending rack-bars connected with the gate near each end; pinions arranged in mesh with said racks and mounted on a common supporting-shaft; air-cylinders provided with pistons having operative connection with the gate; independent tubular connections for the opposing ends of said cylinders, having open-ended projections on the face of the abutment; a source of air-supply located on the bridge; mechanism for alternately connecting the air-supply with the tubular connections leading to the upper and lower ends of the gate-actuating cylinders, respectively; together with a movable track-section extended through the gate and pivoted at one side thereof; and a lifting-bar located on the gate and adapted to engage and lift the track-section during the final movement of the gate.

6. The combination with a bridge and its abutments; of a gate arranged transversely of the approach to the bridge; depending rack-bars connected with the gate near each end; pinions in mesh with said racks; a common supporting-shaft for said pinions; a source of power-supply; bridge raising and lowering mechanism; power-transmitting connections for operating said mechanism to raise the bridge; independent connections for operating the actuating mechanism to lower the bridge; coupling-heads for each of such connections projecting from the face of the draw; and manually-controlled power-transmitting connections for each coupling-head, located on the bridge and adapted to actuate in opposite directions to engage and disengage the same from said heads, and connect the same with the source of power-supply, said connections being normally out of engagement with the coupling-heads.

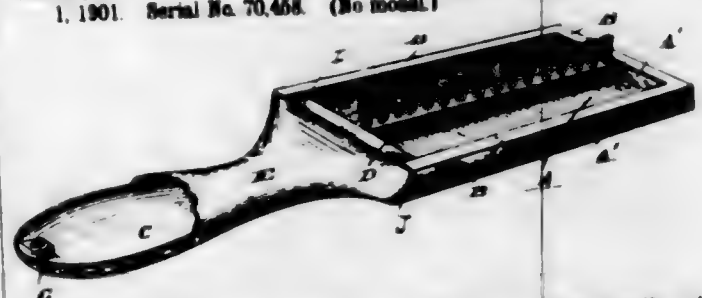
7. In a device of the described class, the combination with a bridge-gate and its operating connections; of a rail or tram way section of a track, pivotally secured to a fixed support at one end; and a connection between the gate and the track-section adapted to communicate motion from the former to the latter when said gate is completing its movement in either direction.

8. In a device of the described class, the combination with a bridge-gate and its operating connections; of a rail or tram way section of a track, pivotally secured to a fixed support at one end; and a connection between the gate and the track-section, adapted to communicate motion from the former to the latter when said gate is completing its movement in either direction; together with means for limiting the upward movement of the end of the track-section opposite to its pivotal connection.

9. In a device of the described class, the combination with a bridge-gate and its operating connections; of a rail or tram way section of a track, pivotally secured to a fixed support at one end; and a connection between the gate and the track-section, adapted to communicate motion from the former to the latter when said gate is completing its movement in either direction; said track-section being provided with a depending hooked arm, adapted to engage a fixed support, and limit its upward movement.

10. In a device of the described class, the combination with a bridge-gate and its actuating connections; of a rail or tram way track section, pivotally secured at one end to a fixed support, and extending through the gate, said track-section being provided with a notch adapted to receive the upper gate-bar; and said gate being provided with a vertical guideway through which the track-section passes, adapted to permit a limited vertical movement of the gate, without actuating the track-section; and track-engaging bars adapted to actuate said section during the final movement of the gate.

692,887. BRUSH. CHARLES R. UHLHANE, Peoria, Ill. Filed Aug. 1, 1901. Serial No. 70,468. (No model.)



Claim.—1. A brush comprising a hollow back and its handle, said back having a lip at each side and at its outer end projecting inward, a series of independent removable bristle-strips placed in said back and extending beneath the said lips to be retained thereby, and a detachable handle portion adapted to be affixed to the main handle and also having a lip to correspond with the lips on the back for holding the said bristle-strips and all being arranged substantially as described.

2. A brush of the character described having a hollow back and a detachable handle-section, a series of bristle-strips adapted to be fitted within the back and there held, the back having retaining-strips on its end and sides for engaging the brush-strips, said detachable handle-section adapted to be put in place after entrance of the brush-strips and secured to assist holding the said strips as set forth.

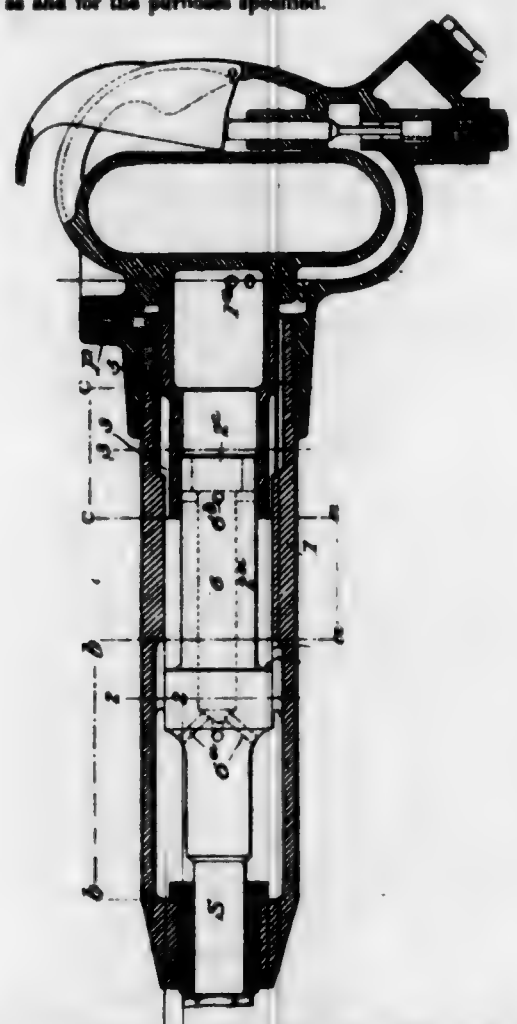
3. A brush consisting of the hollow back and handle portion A and C respectively, the sides and ends A', the overhanging lips B, the strips D having bristles therein, said strips being located in the hollow back and held in place by the said lips B, the handle portion E having the lip I to enter between the lips B, the projections J for passing beneath the said lips, and the screw F for rigidly securing the parts together as set forth.

4. In a brush of the character described, the combination of the back A, the sides and end A' perpendicular to the plane of said back, the overhanging lips B on said sides and end parallel with the said back, the handle portion C formed with said back, a threaded socket G in said handle portion, the removable bristle-strips D in the back and held beneath the said lips B, the handle portion E having a lip I to correspond with the lips B and engage the end of the bristle-strips, an aperture in the end of said handle portion E to register with the socket G, and a screw F for passing through the aperture into the threaded socket G for holding the handle-sections together and securing the brush-strips in place as set forth.

692,888. MOTIVE-FLUID-OPERATED TOOL. HENRY H. VAUGHAN, Chicago, Ill., assignor to Ridgely and Johnson Tool Company, a Corporation of Illinois. Filed Apr. 5, 1901. Serial No. 54,440. (No model.)

Claim.—1. In a motive-fluid-operated tool, the combination with a cylinder having suitable supply-ports, and an exhaust-port, of a differential piston having an exhaust-passage therethrough which connects the greater head of the piston with the exhaust-port of the cylinder, the exhaust and supply ports being arranged to maintain a constant pressure on the lesser head of the piston and in the direction of the tool; substantially as and for the purposes specified.

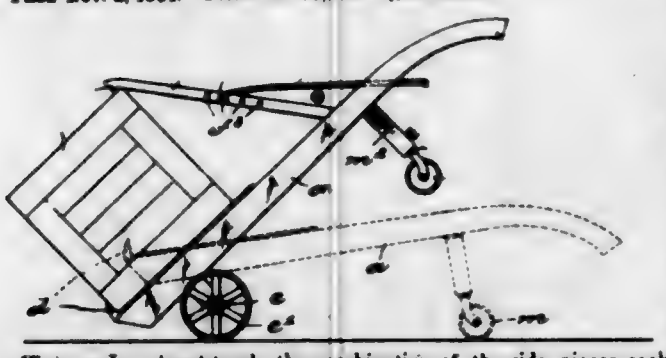
2. In a motive-fluid-operated tool, the combination with a cylinder having supply-ports, and an exhaust port or passage, of a differential piston provided with a stem having an exhaust-passage which communicates with the exhaust-port of the cylinder and with the greater head of the piston, the exhaust and supply ports being arranged to maintain a constant pressure on the lesser head of the piston and in the direction of the tool; substantially as and for the purposes specified.



3. In a motive-fluid-operated tool, the combination with a cylinder having supply-ports, of a piston having a stem on its lesser head, said stem provided with exhaust-passages which open on the periphery of the stem, and an exhaust-port opening from the chamber which receives the stem of the piston, the exhaust and supply ports being arranged to maintain a constant pressure on the lesser head of the piston and in the direction of the tool; substantially as and for the purposes specified.

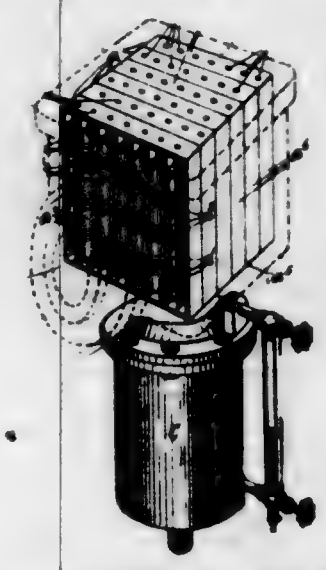
4. In a motive-fluid-operated tool, the combination with a cylinder having a supply-port and a chamber for the reception of the stem of a piston, said chamber provided with an exhaust, of a piston having a stem provided with an exhaust-port leading from the greater head of the piston and delivering into the stem-chamber, the exhaust and supply ports being arranged to maintain a constant pressure on the lesser head of the piston and in the direction of the tool; substantially as and for the purposes specified.

692,889. **TRUCK.** GEORGE M. VICKERS, Jr., Philadelphia, Pa. Filed Nov. 2, 1901. Serial No. 80,996. (No model.)



Claim.—In a hand-truck, the combination of the side pieces each having at the delivery end of the truck an upwardly-projecting prong or spur adapted to slide under the package when the handle end of the truck is elevated, to penetrate the package when said handle end is lowered, with a hooked rod pivotally connected at its rear end to the truck-frame and having a prong at its free end adapted to penetrate the package to lock the same, in conjunction with the prongs of the side pieces, to the truck-frame, and an operating-bar disconnected from the truck-frame and adapted to detachably and adjustably engage the hooked rod intermediate of the ends of said rod, substantially as and for the purposes described.

692,890. **SEPARATOR.** EDWARD P. WARCOMBE, Syracuse, N. Y., assignor to the A. A. Griffing Iron Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 2, 1898. Serial No. 676,170. (No model.)



Claim.—1. A separator comprising a frame having an opening for the passing fluid, a separating-surface arranged in the path of said fluid, an inclosed conduit for the oil or other material to be separated, said conduit extending along the separating-surface and having an inlet-opening arranged in proximity to the separating-surface, means for conducting the passing fluid to and from the frame, and a receiving-chamber communicating with the conduit, substantially as and for the purpose described.

2. A separator comprising an inclosing shell or casing, a frame arranged within the inclosing shell or casing, and having an opening for the passing fluid, a separating-surface arranged in the path of said fluid, and an inclosed conduit for the oil or other material to be separated, said conduit extending along the separating-surface and having an inlet-opening arranged in proximity to the separating-surface, and conduits for conducting the passing fluid to and from the inclosing shell or casing, substantially as and for the purpose specified.

3. A separator comprising an inclosing shell or casing, a frame arranged within the inclosing shell or casing, and having an opening for the passing fluid, a separating-surface arranged in the path of said fluid, an inclosed conduit for the oil or other material to be separated, conduits for conducting the passing fluid to and from the inclosing shell or casing, and a receiving-chamber arranged beneath the inclosing shell or casing and communicating with the conduit of the frame, substantially as and for the purpose set forth.

4. A separator comprising an inclosing shell or casing, a frame removably arranged within the inclosing shell or casing and having openings for the passing fluid, separating-surfaces arranged in the path of said fluid, inclosed conduits for the oil or other material to be separated, said conduits being arranged at the rear of the separating-surfaces and having inlet-openings arranged in proximity to the separating-surfaces and having outlet-openings in their lower ends, conduits for conducting the passing fluid to and from the inclosing shell or casing, and a receiving-chamber arranged beneath the inclosing shell or casing and communicating with the outlet-openings of the conduits of the frame, substantially as and for the purpose described.

5. A separator comprising a frame composed of separable sections, each section having an opening for the passing fluid, a separating-surface arranged in the path of said fluid, and a conduit for the oil or other material to be separated, said conduit extending along the separating-surface and having an inlet-opening arranged in proximity to the separating-surface, and means for supporting the separable sections in position, substantially as and for the purpose specified.

6. A separator comprising an inclosing shell or casing, a frame arranged within the inclosing shell or casing and composed of separable sections, each section having an opening for the passing fluid, a separating-surface arranged in the path of said fluid, and a conduit for the oil or other material to be separated, said conduit extending along the separating-surface and having an inlet-opening arranged in proximity to the separating-surface, and conduits for conducting the passing fluid to and from the inclosing shell or casing, substantially as and for the purpose set forth.

7. A separator comprising a frame composed of separable sections each section having an opening for the passing fluid, a separating-surface arranged in the path of said fluid, and a conduit for the oil or other material to be separated, the opening of one of said sections being arranged

out of alinement with the corresponding opening in an adjacent section, and means for conducting the passing fluid to and from the frame, substantially as and for the purpose specified.

8. A separator comprising an inclosing shell or casing, a frame arranged within the inclosing shell or casing and having an opening for the passing fluid, a series of separating-surfaces arranged one above the other in the path of said fluid, and an inclosed conduit for the oil or other material to be separated, said conduit having a plurality of inlet-openings arranged in proximity to the lower ends of the separating-surfaces, and conduits for conducting the passing fluid to and from the inclosing shell or casing, substantially as and for the purpose described.

9. A separator comprising an inclosing shell or casing, a frame arranged within the inclosing shell or casing and provided with a plurality of bars having adjacent edges thereof separated, said bars being formed with transverse shoulders, grooves extending upwardly from the shoulders, and lengthwise conduits communicating with the lower ends of the grooves, and conduits for conducting the passing fluid to and from the inclosing shell or casing, substantially as and for the purpose specified.

10. A separator comprising an inclosing shell or casing, a frame arranged within the inclosing shell or casing and provided with a plurality of bars having adjacent edges thereof separated, said bars being formed with lengthwise conduits, and having their front or advance faces formed with transverse shoulders and grooves interposed between the shoulders and communicating with the conduits, said grooves being decreased upwardly in depth, and conduits for conducting the passing fluid to and from the inclosing shell or casing, substantially as and for the purpose set forth.

11. A separator comprising an inclosing shell or casing, a frame arranged within the inclosing shell or casing and provided with a plurality of bars having adjacent edges thereof separated, said bars being formed with lengthwise inclosed conduits, and having their front or advance faces formed with transverse shoulders, and grooves interposed between the shoulders and communicating with the conduits, said grooves being decreased upwardly in depth, conduits for conducting the passing fluid to and from the inclosing shell or casing, and a receiving-chamber arranged beneath the inclosing shell or casing and communicating with the conduits, substantially as and for the purpose described.

12. A separator comprising a frame composed of separable sections, each section being provided with a plurality of bars having adjacent edges thereof separated, the bars of one section being arranged out of alinement with the bars of contiguous sections, and having their front and rear faces separated from the bars of said contiguous sections, and each of said bars being formed with a lengthwise conduit and having its front or advance face formed with a groove communicating with said conduit, and means for conducting the passing fluid to and from the frame, substantially as and for the purpose specified.

13. A separator comprising an inclosing shell or casing, a frame composed of separable sections removably arranged one in advance of the other within the inclosing shell or casing, each section being provided with a plurality of bars united at their opposite ends and having adjacent edges thereof separated, the bars of one section being arranged out of alinement with the bars of contiguous sections, and having their front and rear faces separated from the bars of said contiguous sections, and each of said bars having its front or advance face formed with transverse shoulders, and grooves interposed between the shoulders and decreased upwardly in depth and being provided with a lengthwise inclosed conduit communicating with the lower ends of the grooves and having an outlet-opening in its lower end, conduits for conducting the passing fluid to and from the inclosing shell or casing, and a receiving-chamber communicating with the outlet-openings of the lengthwise conduits in said bars, substantially as and for the purpose set forth.

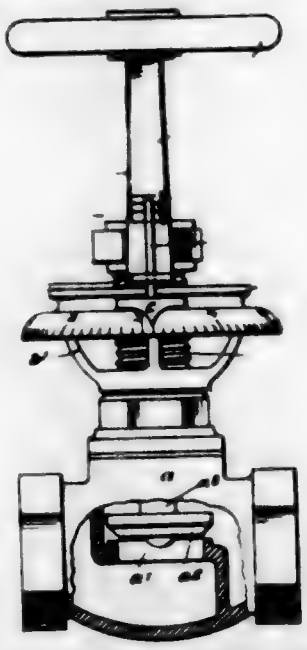
692,891. VALVE. ANTON WAGNER, Manville, R. I. Filed Apr 5, 1901. Serial No. 54,471. (No model.)

Claim.—1. A valve provided with a movable stem and with a coarse-measure scale for measuring approximately the motions of said stem, in combination with a micrometer-scale for measuring said motions exactly.

2. A valve provided with a revoluble and longitudinally-movable stem and with two coacting scales, one of said scales for registering the number of revolutions made by said stem, and the other for measuring subdivisions of a single revolution thereof.

3. A valve provided with a revoluble and longitudinally-movable stem with which a rigid arm is connected so as to partake of the motions thereof, in combination with a member slidably secured to said arm and free to revolve therewith in a fixed plane only, and a scale-rim located in another fixed plane parallel to the said fixed plane.

4. The combination with a valve, of a scale-rim held stationary thereon and having an overhanging flange, a pointer running on the scale-rim and engaging said flange, an arm arranged to turn with the valve-stem and having a scale thereon, and a rod connected to the pointer or indicator and having sliding connection with the arm, the rod reading on the scale of the arm.

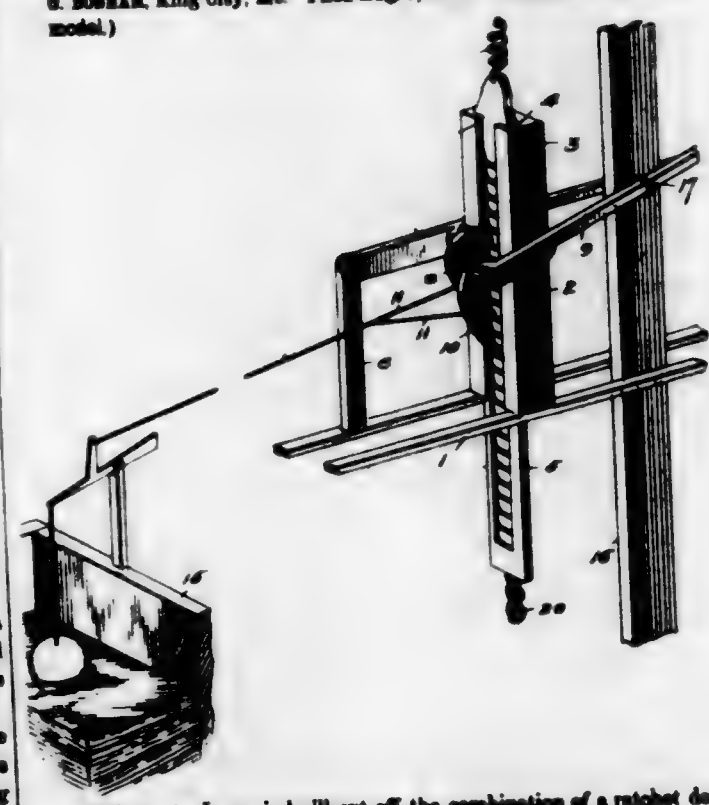


5. A valve provided with a revoluble and longitudinally-movable stem with which a rigid arm is connected so as to partake of the motions thereof, a member provided with a plurality of pointers and slidably secured to said rigid arm so that said pointers will travel in different paths, and a plurality of graduated surfaces located parallel with the respective paths traveled by said pointers.

6. A valve provided with a revoluble and longitudinally-movable stem, in combination with a longitudinally-disposed scale for measuring longitudinal movements in said stem, and a radially-disposed scale for measuring radial movements thereof.

7. The combination, with a valve, of a scale-rim mounted in a fixed plane thereon, a longitudinal scale-arm also mounted thereon and perpendicular to said scale-rim, a traveling pointer located thereon in a plane parallel to the scale-rim, and another traveling pointer, also located thereon, in a line parallel to said scale-arm.

692,892. WINDMILL CUT-OFF. RUFUS W. WALDO and AUSTIN G. BOSMAN, King City, Mo. Filed Aug. 3, 1901. Serial No. 70,796. (No model.)



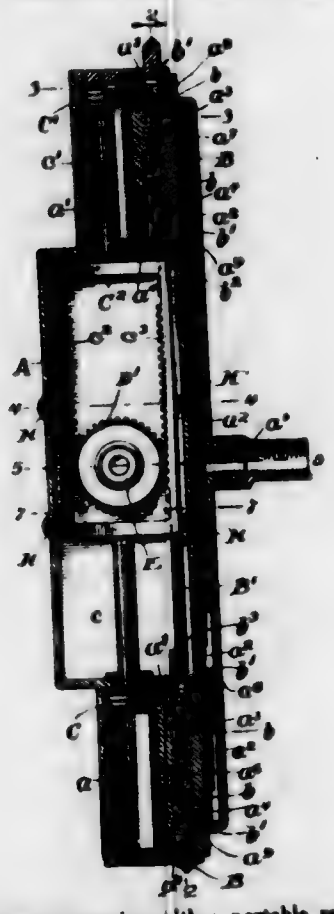
Claim.—1. In a windmill cut-off, the combination of a ratchet dog-rod, a spiral spring at the top thereof, a cut-off wire secured thereto, a spiral spring at the bottom of said dog-rod, a dog-lever of the first degree secured to one side of said dog-rod, and fulcrumed in the guide of said dog-rod, a dog-lever of the second degree, secured on the opposite side of said dog-rod, and fulcrumed to an upright standard located in front of and to one side of said dog-rod, dogs secured to said dog-lever, and adapted to engage the teeth in said dog-rod, connecting-wires secured to said dogs, a float connected to a wire which connects with said connecting-wires and adapted to disengage said dogs from the dog-rod, a pump-rod having

lugs thereon adapted to engage said dog-levers, said lugs being adjustable so as to limit the throw of said dogs, substantially as and for the purpose set forth

2. In a windmill cut-off, the combination of a pump-rod, lugs adjustably secured thereto, a ratchet dog-rod secured in a guide, dog-levers of the first and second degrees, fulcrumed on either side of said dog-rod, dogs secured to said dog-levers, springs secured to the top and bottom of said dog-rod, a float, means for connecting said float with said dogs, substantially as described.

3. In a windmill cut-off, the combination of a pump-rod, a ratchet dog-rod secured in a guide, dog-levers of the first and second degrees fulcrumed on either side of said dog-rod, dogs secured to said dog-levers, a float adapted to disengage said dogs from said dog-rod, the whole arranged so that said dogs operate in opposite directions when the pump is reciprocated, substantially as described.

692,893. COMPRESSED-AIR DRILL. FRED WEBBAR, Chicago, Ill., assignor of two-thirds to S. A. French, Chicago, Ill., and T. D. Howitt, Freeport, Ill. Filed Jan. 5, 1901. Serial No. 42,207. (No model.)



Claim.—1. The combination with a portable reciprocating-engine cylinder and its piston, of a flexible pipe for delivering motive fluid to the cylinder, a rigid frame extending from the cylinder alongside the path of the piston-rod, two gears mounted in said frame to rotate upon an axis perpendicular to the axis of the cylinder, two racks connected directly to the piston-rod, to reciprocate therewith, and engaging the two gears, respectively, but upon opposite sides, a tool-chuck mounted in the common axis of the gears, clutch devices arranged to transmit to the chuck like alternate movements of the gears, and a slide-valve operated directly by parts accompanying the piston in its reciprocation.

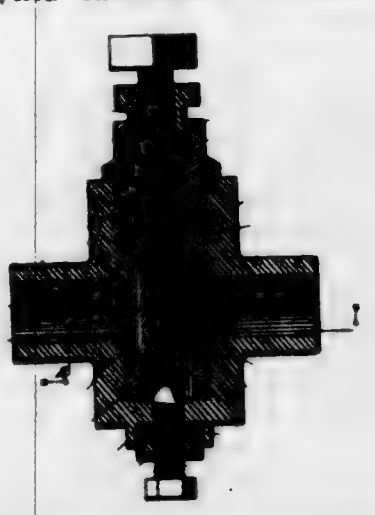
2. The combination with a portable reciprocating engine and its piston, of a rigid frame extending from the cylinder alongside the path of the piston-rod, two gears mounted in said frame to rotate about a common axis, a rigid rack-frame connected directly to the outer end of the piston-rod and provided with two sets of rack-teeth engaging said gears, respectively, but upon opposite sides, a chuck mounted centrally within said gears, clutch mechanism arranged to transmit to said chuck like alternate movements of the gears, and a slide-valve extending outward alongside the path of the rack-frame and provided with shoulders in position to be struck alternately by the rack-frame near the limits of its movements.

3. In devices of the class described, the combination with two engine-cylinders having a common axis, of a suitable casing connecting the cylinders, two gears mounted in the casing to rotate about a common axis transverse to that of the cylinders, a tool-holding chuck lying in the axis of the gears, ratchet devices connecting the gears with the chuck, to rotate it, two racks engaging the gears, respectively, a piston in each cylinder, a piston-rod connecting each piston with the corresponding ends of the racks, and means for operating the pistons.

4. The combination with the casing, A, having the cylinders, a, a', of the pistons, C, C', the piston-rods, c, c', the frame, C^2, secured at its opposite ends to the piston-rods, and provided with the racks, c^2, c^3, the two gears respectively in mesh with the respective racks and journaled in the casing, the chuck journaled in the gears and provided with ratchet connections therewith tending to rotate in the same direction, suitable air and exhaust ports in the casing, and the slide-valve, B, provided with suitable ports and having the shoulders, b^3, b^3, adapted for engagement with the frame, C^2, to shift the valve; substantially as described.

5. In a device of the class described, the combination with the casing, A, provided with suitable cylinders, air-chest, oblique air-ports, a^3, a^4, and adjacent exhaust-ports, a^5, a^6, of the slide-valve, B, guided in the casing and having the oblique air-ports, b, adapted to register and line up with the ports, a^3, a^4, and the adjacent ports, b', adapted to connect the inner portions of the air-ports with the exhaust-ports, a^5, a^6; substantially as described.

692,894. STOP-COCK. DAVID B. WHITEHILL, North Clarendon, Pa. Filed Apr. 11, 1901. Serial No. 55,381. (No model.)



Claim.—1. In a stop-cock, a plug or core, a valve carried thereby, a pivoted tongue bearing on the valve, and means for positively adjusting the tongue with relation to the valve.

2. In a stop-cock, a plug, a valve carried thereby, a pivoted tongue carried by the plug and means for forcing the tongue against the valve.

3. In a stop-cock, a plug, a valve carried thereby, a tongue, and a set-screw carried by the shell or casing and engaging the tongue to hold the same in engagement with the valve.

4. In a stop-cock, a shell, a rotary plug fitting therein, a pivoted tongue carried by the plug, and means for adjusting the plug with relation to the valve.

5. A stop-cock having a casing provided with a passage-way and with a bore or seat, a plug working in the seat, a valve carried by the plug and bearing against the seat and controlling the passage-way, a tongue, and means for forcing the tongue against the valve.

6. A stop-cock having a casing provided with a passage-way and with a bore or seat, a plug working in the seat, a valve carried by the plug and bearing against the seat and controlling the passage-way, a tongue, and a set-screw carried by the casing to force the tongue against the valve.

7. A stop-cock having a casing provided with a passage-way and with a bore or seat, a plug working in the seat, a valve carried by the plug and bearing against the seat and controlling the passage-way, a tongue, a set-screw carried by the casing to force the tongue against the valve, a packing-ring surrounding the screw, and a nut carried by the screw to compress the packing-ring.

8. In a stop-cock, the combination with a casing provided with a bore or seat and with passage-ways, of a plug or core for controlling the passage-ways, the plug or core comprising a hollow cylinder having one side cut away to a length somewhat greater than that of the width of the passage-way, a detachable valve fitting in an opening opposite the cut-away portion, a tongue arranged within the plug, and means carried by the casing for forcing the tongue against the valve, a stem pivotally connected with the plug or core, a stuffing-box on the stem to engage a threaded opening in the casing, and a gland also on the stem to engage a packing-ring in the stuffing-box to effect a fluid-tight juncture.

9. In a stop-cock, a hollow cylindrical plug having one side cut away, an orifice in the plug opposite the cut-away portion, a valve fitted in the orifice and having its outer face conforming to the circumference of the plug, a tongue bearing on the valve and means for adjusting the tongue with relation to the valve.

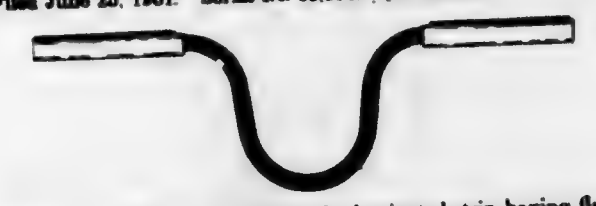
10. In a stop-cock, a plug, a valve carried thereby provided with a fulcrum-pin, and an adjustable tongue bearing on the pin.

11. In a stop-cock, a plug, a valve carried thereby and provided with a fulcrum-pin, a tongue, and means for forcing the tongue against the pin.

12. In a stop-cock, a casing provided with a bore or seat, a plug working in the bore, a valve carried by the plug and provided with a fulcrum-pin, a tongue, and a screw carried by the casing to force the tongue against the pin.

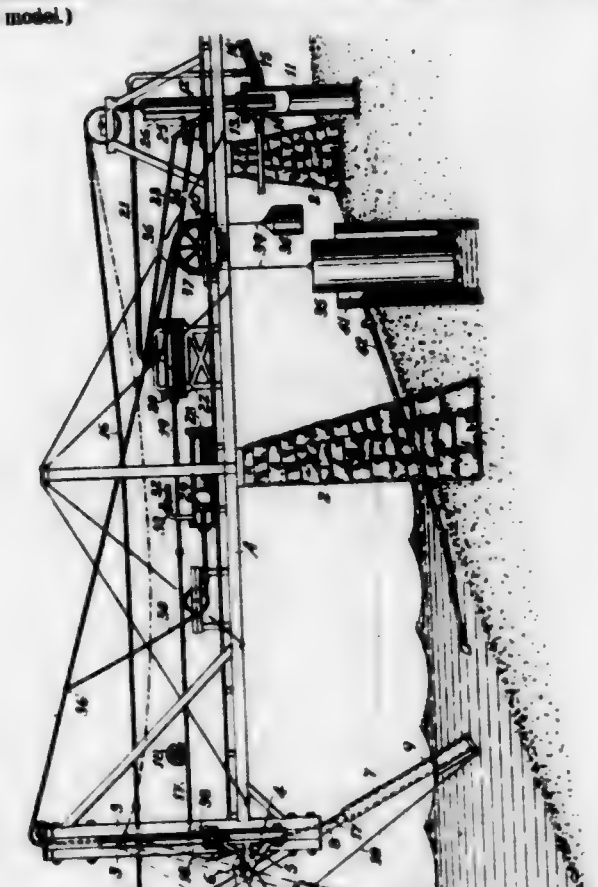
13. In a stop-cock, a shell or casing provided with a passage-way and with a bore or seat of the same diameter throughout its length, in combination with a hollow cylindrical plug or core loosely fitting in the seat, a valve carried by the plug, and means carried by the casing for forcing the valve against the seat.

692,395. RAIL-BOND. MORRIS F. WETTON, Hingham, Mass. Filed June 25, 1901. Serial No. 65,950. (No model.)



Claim.—A rail-bond composed of a laminated strip having flat feet and an intermediate extensible portion, solder interposed between the several layers composing said flat feet and a ferrule, band or clip inclosing said flat feet and secured thereto by solder or otherwise, thereby closing the side openings between the several layers composing the flat feet, substantially as described.

692,396. WAVE-MOTOR. JOSEPH R. WILCOX, San Francisco, Cal., assignor to Matilda L. Wilcox, David Farquharson, and William R. Swett, San Francisco, Cal. Filed June 3, 1901. Serial No. 62,928. (No model.)



Claim.—1. A wave-motor consisting of a frame or support, vertical guides at the outer end thereof, an oscillating paddle slidable in said guides and connections of said paddle with a plunger-pump, said paddle including two parts one slidable in relation to the other.

2. A wave-motor comprising a frame or support, a paddle including two parts one slidable in relation to the other and one of said parts pivotally mounted, vertical guides on said support and in which said paddle is slidable, a cylinder and a plunger operating therein, and connections between the plunger and paddle.

3. In a wave-motor, the combination of a frame or support, guides thereon, a paddle adjustable in said guides, a weight and a cable connecting said weight and paddle, a weight, a float and a cable connecting said weight and float said float so operating when it is moved upward as to cause the weight to descend and raise the paddle and when said float is lowered to raise the weight and lower the paddle.

4. In a wave-motor, the combination of a support, vertical guides thereon, a sash carrying an oscillating paddle slidable in said guides, a weight, and connections of said weight and sash whereby the former tends continually to raise the latter and consequently to lift the paddle out of the water, a balance-float, and connections of said float and weight, a well in which said float is contained and a siphon-pipe connecting said well and the water in which the paddle normally dips, whereby the water within the well and that without are constantly maintained at the same level, and as the float rises the weight lowers and the paddle is raised and vice versa as the float lowers the weight rises and allows the paddle to lower.

5. The combination in a wave-motor, of a frame or support, vertical guides thereon, an oscillating paddle pivoted upon a sash slidable in said guides, storm-cylinders in each of which a piston is movable, connections of the rods of said pistons and sash whereby the latter, with the paddle, is moved vertically when the pistons are reciprocated, and means for admitting fluid under pressure to said cylinders to move the pistons.

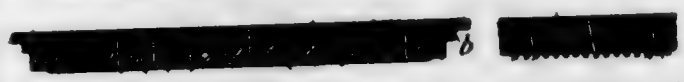
6. The combination in a wave-motor, of a support, an oscillating paddle, said paddle having a vertically and independently slidable horizontal portion, a cylinder in which a piston is reciprocable, connections between said horizontal paddle portion and the rod of said piston, and means whereby fluid under pressure is admitted to said cylinder to move the piston, and raise said horizontal portion.

7. The combination in a wave-motor of a support, a paddle pivoted thereon, said paddle having a vertically and independently slidable horizontal portion and having its longer lower portion normally in contact with the water, and a shorter portion above its pivotal points, and said support having a vertical guide for the paddle, a cylinder, a plunger operating therein, and a cable connecting said plunger with the said shorter portion of the paddle whereby the piston is reciprocated by the oscillation of the paddle.

8. The combination in a wave-motor of a support, a paddle pivoted thereon and adapted to be oscillated by the waves, said paddle having a vertically and independently slidable horizontal portion normally offering a resisting-surface to the flow of the water, a cylinder in which a piston is reciprocable, connections of the rod of said piston and said horizontal paddle portion, means by which fluid under pressure is automatically admitted to said cylinder to move the piston and raise the horizontal portion, and by which the fluid is discharged from said cylinder and the said portion lowered.

9. A wave-motor consisting in combination of a support, guides thereon, an oscillating paddle slidable in said guides, an independently-slidable horizontal portion on said paddle, said horizontal portion normally offering a resisting-surface to the flow of the water, a pump having a weight-plunger adapted to be raised by the alternate oscillations of said paddle, and to fall by gravity on the successive oscillations thereof, a cylinder in which a piston is reciprocable, connections of the rod of said piston with the horizontal paddle portion, a pipe connecting said cylinder and pump, a three-way cock in said pipe, and means by which said cock may be turned to admit fluid under pressure to the cylinder on alternate reciprocations of the pump-plunger, and to turn said cock to discharge the fluid from the cylinder on the successive reciprocations of said pump-piston.

692,397. NON-SLIPPING WEARING TREAD OR COVERING. CHARLES H. WILKINSON, Huddersfield, England. Filed Jan. 10, 1901. Serial No. 42,779. (No model.)



Claim.—A wearing-tread formed of elastic material, and provided with a series of depressible spring-wires arranged at an angle to its front or wearing surface and falling and rising simultaneously with it, said wires being fastened at the back of the tread and extending through it and having their free ends arranged flush with its front surface, substantially as set forth.

692,398. MAIL-POUCH FASTENER. WILLIAM H. WILLIAMS, Shateford, Pa., assignor of two-thirds to John O. Owens and Charles Strunk, Shateford, Pa. Filed May 14, 1901. Serial No. 60,208. (No model.)

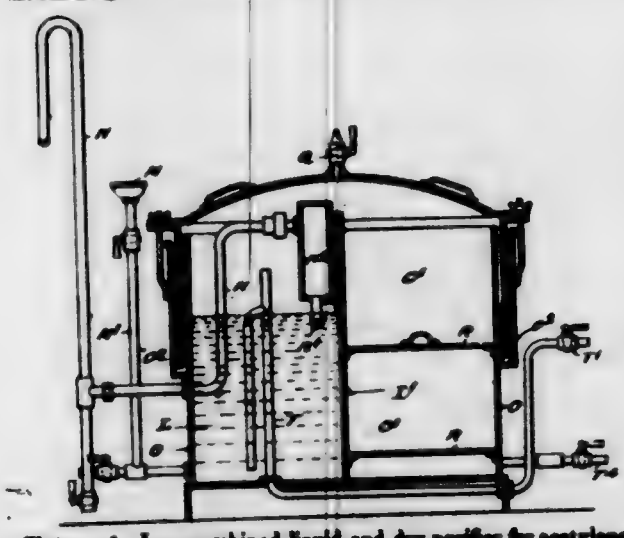
Claim.—1. A mail-pouch consisting of two sections adapted to be secured together so as to form a bag, a flap formed with the rear extension, a reinforcement formed upon the front section by folding an extension from said front section back upon itself, a flexible collar adapted to surround the upper portion of the pouch and be secured to said pouch at the rear, an extension formed with said collar and extending downward therefrom in the front, the flap adapted to be inserted between the front portion of the collar and the pouch, means for locking the flap both to the pouch and the extension extending downward from the collar so as to pre-

vent the withdrawal of said flap, substantially as described and for the purpose specified.



2. A mail-pouch consisting of a front and rear section, extensions formed upon the upper end of each of these sections, the extension upon the rear section to be used for the flap for closing the mouth of the pouch, the extension upon the front section adapted to be folded upon said section and secured thereto, a flexible collar adapted to surround the upper end of the pouch and be secured to the same at the rear, an extension extending downward from the front of the collar, a slot formed through said extension, a staple secured rigidly to the front of the pouch and adapted to register with and normally protrude through the slot in the collar extension, the flap adapted to be inserted between the collar and the pouch for the purpose of closing the mouth of the pouch, a slot formed through the end of the flap and adapted to register with and pass over the staple and lie between the collar extension and the front of the pouch, and a lock, the shackle of which is adapted to pass through the staple outside of the collar extension, substantially as described and for the purpose specified.

692,899. GAS-PURIFIER. ALEXANDER D. WILLIAMSON, Colerraine, Ireland. Original application filed May 23, 1899. Serial No. 717,633. Divided and this application filed Nov. 5, 1900. Serial No. 36,576. (No model.)



Claim.—1. In a combined liquid and dry purifier for acetylene gas the combination with a vessel O having a water-sealed cover and a division-plate L′ vertically dividing said vessel into two compartments L and O′ the former forming a liquid purifier containing carbon oil and the latter horizontally divided by perforated plates R or series of trays forming a dry purifier in its upper part containing chlorinated powdered lime and its lower part oxid of iron, of a perforated spray-pipe N′ provided with an antisiphon-chamber N² in the liquid purifier, and an overflow stand-pipe T for maintaining the level of liquid in said liquid purifier provided with inverted siphon-pipe to draw off spent liquid, a siphon-pipe N for admission of gas and a discharge-pipe leading from the dry purifier substantially as set forth.

2. In a combined liquid and dry purifier for acetylene gas the combination with a vessel O having a water-sealed cover and a division-plate L′ vertically dividing said vessel into two compartments L and O′ the former forming a liquid purifier containing carbon oil and the latter horizontally divided by perforated plates R or series of trays forming a dry purifier its upper part containing chlorinated powdered lime and its lower part oxid of iron, of a perforated spray-pipe N′ in the liquid purifier and an overflow stand-pipe T for maintaining the level of liquid in said liquid purifier provided with regulating-cock T′, a feed-cup M at end of pipe M′ for supply of oil during working, a siphon-pipe N exterior of vessel O provided with an antisiphon-chamber N² for preventing the liquid from flowing back or the gas returning after it has passed through said perforated spray-pipe N′, a relief-tap in the cover of said vessel O and a discharge-pipe leading from the dry purifier substantially as set forth.

692,400. MEANS FOR DISENGAGING AND REPLACING THE SUPPORTS OF BOATS ON SHIPS, &c. THOMAS WILSON, Sunderland, England. Filed May 14, 1901. Serial No. 60,144. (No model.)



Claim.—1. Means for disengaging and replacing the supports of boats on ships and elsewhere, comprising bars or supports A, A carrying chocks D, D, hinged together endwise so as to be angled or distended and capable of being tilted or turned over to one side, and a lever E upon the deck or other place for effecting and controlling said movements, substantially as described and shown.

2. Means for disengaging and replacing the supports of boats on ships and elsewhere comprising bars or supports A A, a bracket B pivoted to the deck or other support and having a pivotal connection with one of the said bars and a guide-bracket C similarly pivoted to the deck or support, the other end of the other bar or support A being mounted in said guide-bracket C whereby the arms or supports when distended can be tilted over to one side free from the boat, substantially as described.

3. In means for disengaging and replacing the supports of boats on ships and elsewhere, a lever E erected upon the deck or other place having a cam-face *e* coacting with the end of the bar or support A which works in the guide-bracket C to cause the bars or supports A, A to be angled or distended, and having a toe *e′* adapted to engage with a recess in the bracket C to tilt the whole to one side, substantially as described and shown.

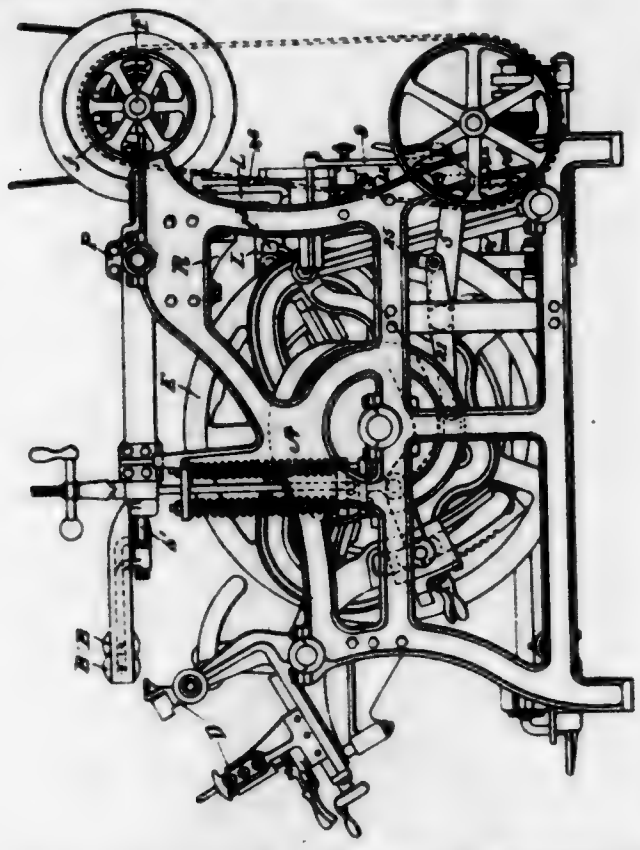
4. In means for disengaging and replacing the supports of boats on ships and elsewhere, the combination of a guide-bracket C having a housing *c⁴* thereon, the bars A A, one of which has a projection *a′* on its sliding end to be received by the housing *c⁴* when the bars A A are in their angled or normal position whereby the bars will be locked and prevented from being tilted over accidentally, substantially as described.

5. In combination, in means for disengaging and replacing the supports of boats on ships and elsewhere, the arms or supports A A, the chocks D D pivoted to the said arms at their outer ends and the guide-plates *d′* at the inner ends of the said chocks engaging the arms A A whereby the chocks are free to tilt or move without jamming or gripping the boat while the supports are being distended and prevented from moving in a fore-and-aft direction upon said support, substantially as described.

6. In combination, the two bars pivoted together, chocks pivoted to the bars, and pivotal connections between the ends of the bars and the deck or other support, substantially as described.

7. In combination, the two bars pivoted together, chocks pivoted in the bars, and pivotal connections between the ends of the bars and the deck or other support one of said pivotal connections being detachable, substantially as described.

692,401. SOLE-LEVELING MACHINE. ERASTUS E. WINKLEY, Lynn, Mass., assignor to Goodyear Shoe Machinery Company, Portland, Me., a Corporation of Maine. Filed Oct. 22, 1900. Renewed May 24, 1901. Serial No. 61,905. (No model.)



Claim.—1. A sole-leveling machine, having, in combination, a leveling-roll, a shoe-supporting jack, mechanism for relatively actuating the roll and jack to level the sole of a shoe placed upon the jack, an adjusting device connected with said mechanism, two independent mechanisms for automatically actuating said device and means for connecting said device to either of said mechanisms, substantially as described.

2. A sole-leveling machine, having, in combination, a leveling-roll, and a shoe-supporting jack, mechanism for changing the relative lateral inclination of the roll and jack, an adjusting device connected with said mechanism, a plurality of independent mechanisms for automatically actuating said device and means for connecting said device to any one of said mechanisms, substantially as described.

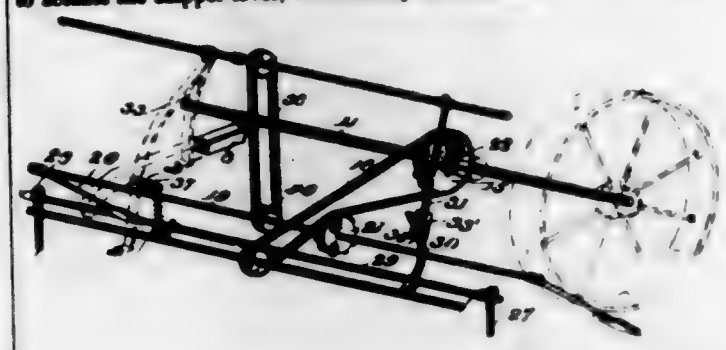
3. A sole-leveling machine, having, in combination, a leveling-roll, a shoe-supporting jack, mechanism for changing the relative lateral inclination of the roll and jack, two adjusting devices connected with said mechanism, one of said devices acting to vary the operation of the other and the other acting to vary the operation of said mechanism, a plurality of independent mechanisms for automatically actuating the former of said devices, and means for connecting it to any one of said mechanisms, substantially as described.

4. A sole-leveling machine, having, in combination, a leveling-roll, a shoe-supporting jack, mechanism for relatively actuating the roll and jack to level the sole of a shoe placed upon the jack, an adjusting device connected with said mechanism, two or more cams for independently actuating the adjusting device and means for connecting said device to any one of said cams, substantially as described.

692,402. WIRELESS CORN-PLANTER. HENRY G. WITT, Grafton, Iowa. Filed Sept. 10, 1901. Serial No. 74,913. (No model.)

Claim.—1. In a planter, and in combination with the grain-spout, a valve for controlling the passage therethrough, and an arm connected with the said valve, a rotary shaft, an arm connected with the shaft for rotation therewith and forked at its outer end, and a pin having adjustable connection with the forked sides and adapted to intermittently actuate the aforementioned trip-arm, substantially as set forth.

2. In a planter, the combination of hoppers, grain-spouts leading therefrom, valves in the grain-spouts, a trip-arm connected with the said valves, a shaft, an arm connected with the said shaft for rotation therewith, a pin adapted to have adjustable connection with the said arm for actuating the trip-arm to regulate the amount of grain dropped in a hill, a marker-shaft connected with the aforementioned shaft, a drive-shaft for actuating the operating parts, a clutch for throwing the drive mechanism into and out of gear, a shipper-lever at all times under control of the driver, and a hand-lever for raising and lowering the runner-frame and adapted to actuate the shipper-lever, substantially as set forth.



692,408. WINDOW-SCREEN ATTACHMENT. FRANCIS C. WRIGHT, Cavespring, Ga. Filed Mar. 20, 1901. Serial No. 52,731. (No model.)



Claim.—1. The combination with wire screen and a window-frame of the metal plate C, secured to the under side of the top bar of said frame and have a series of lateral projections which are spaced equidistantly and provided with flexible claws, that connect with the upper edge of the screen, and hold it separated from the frame, as shown and described.

2. The combination with a window or door frame and a translucent medium held therein, of the plate having transverse slots and arranged horizontally beneath the top bar of said frame, and devices passing through said slots and serving to secure the plate in any required adjustment, for the purpose of regulating the space between the said medium and the top bar of the frame, substantially as shown and described.

3. The combination, with a window or door frame having its top bar beveled on the outside, to provide an opening as specified, and a screen applied to said frame, of a denticulated plate having a series of projections or arms spaced apart and provided with claws as specified, the said plate being secured adjustably to the top bar of the frame and its projections extending laterally therefrom and being secured to the upper edge of the screen, substantially as shown and described, whereby the screen is supported and adapted for adjustment to regulate the size of the openings provided for the passage of insects, as specified.

692,404. WOVEN-WIRE BAG. WILLIAM J. WRIGHT, Pittsburg, Pa., assignor to John S. Scully, Pittsburg, Pa. Filed Apr. 1, 1901. Serial No. 53,800. (No model.)



Claim.—1. A bag for transporting coal, &c., comprising a cylinder of wire-netting, the strands of said netting being movably interwoven one with another so as to constitute a freely expansible and collapsible bag, substantially as described.

2. A bag for transporting coal, &c., comprising a cylinder of wire-

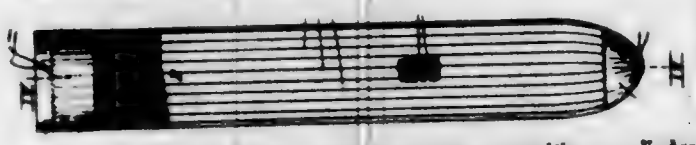
netting, the strands of said netting being movably interwoven one with another so as to constitute a freely expansible and collapsible bag, and means for closing the bottom and top of the bag; substantially as described.

3. A bag for transporting coal, &c., comprising a cylinder formed of coils of wire movably interwoven one with another so as to constitute a freely expansible and collapsible bag, and means for closing the bottom and top of the bag; substantially as described.

4. A bag for transporting coal, &c., comprising a cylinder formed of spiral coils of wire movably interwoven one with another so as to constitute a freely expansible and collapsible bag, and means for closing the bottom and top of the bag; substantially as described.

5. A bag for transporting coal, &c., comprising a cylinder formed of spiral coils of wire movably interwoven one with another so as to constitute a freely expansible and collapsible bag, means for reinforcing the bottom and closing it, and means for closing the top; substantially as described.

692,405. **WOVEN WIRE BAG.** WILLIAM J. WRIGHT, Pittsburg, Pa., assignor to John S. Scully, Pittsburg, Pa. Filed Apr. 1, 1901. Serial No. 53,801. (No model.)



Claim.—1. A bag for transporting coal, &c., comprising a cylinder of woven-wire netting provided with interlooped longitudinal strengthening-wire, a reinforcing flexible extension at the bottom and top and means for closing the bottom and top.

2. A bag for transporting coal, &c., comprising a cylinder formed of interwoven or interspun coils of wire provided with interlooped longitudinal strengthening-wires, and means for closing the bottom and top.

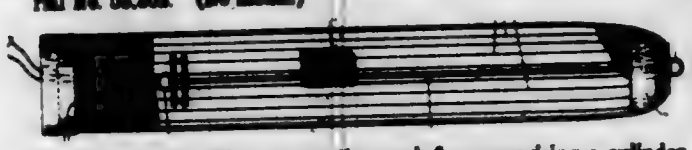
3. A bag for transporting coal, &c., comprising a cylinder formed of interwoven or interspun spiral coils of wire, provided with interlooped longitudinal strengthening-wires, and means for closing the bottom and top.

4. A bag for transporting coal, &c., formed of interwoven or interspun spiral coils of wire, provided with interlooped longitudinal strengthening-wires, means for reinforcing the bag, and means for closing the top.

5. A bag for transporting coal, &c., formed of interwoven spiral coils of wire provided with interlooped longitudinal strengthening-wires, means for reinforcing the bottom and for closing it, a reinforcing flexible extension at the top extending beyond the upper edge, and means for closing the top together.

6. A bag for transporting coal, &c., formed of interwoven spiral coils of wire provided with longitudinal strengthening-wires, means for reinforcing the bottom and for closing it, a reinforcing flexible extension at the top extending beyond the upper edge, and a tying-wire extending through looped eyes in the upper ends of strengthening-wires and through such flexible extension.

692,406. **WOVEN-WIRE BAG.** WILLIAM J. WRIGHT, Pittsburg, Pa., assignor to John S. Scully, Pittsburg, Pa. Filed Apr. 1, 1901. Serial No. 53,802. (No model.)



Claim.—1. A bag for transporting coal, &c., comprising a cylinder of interwoven or interspun spiral coils of wires, a central sustaining member provided with top and bottom disks, and means for securing the extremities of the bag around such disks.

2. A bag for transporting coal, &c., comprising a cylinder of interwoven or interspun spiral coils of wire provided with tying-wire at each end, a central sustaining member provided with attaching members fixedly secured thereto, and adapted to be engaged by the tying-wire.

3. A bag for transporting coal, &c., comprising a cylinder of interwoven or interspun spiral coils of wires, having tying-wire at each end and reinforcing material surrounding such ends and tying-wire and a central supporting member provided with attaching members fixedly secured thereto, and adapted to be engaged by the tying-wire, whereby the ends of the bag are tightly closed.

4. A bag for transporting coal, &c., comprising a cylinder of interwoven or interspun spiral coils of wire, provided with tying-wire at each end, a central sustaining member provided with attaching members fixedly secured thereto, and a terminal lifting device connected with the central sustaining member.

5. A bag for transporting coal, &c., comprising a cylinder of interwoven or interspun spiral coils of wires provided with longitudinal stay-wires, a central sustaining member provided with attaching-disks, and means for closing the bottom and top of the bag around such disks.

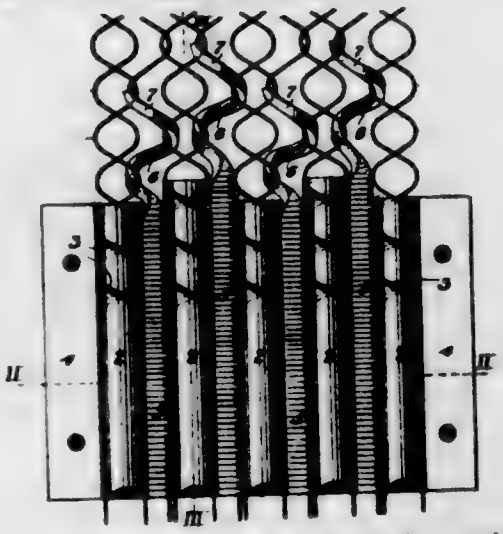
6. A bag for transporting coal, &c., comprising a cylinder of interwoven or interspun spiral coils of wires provided with longitudinal stay-wires, a central sustaining member provided with fixedly-attached grooved disks, and means for closing the bottom and top of the bag around such disks.

7. A bag for transporting coal, &c., comprising a cylinder of interwoven or interspun spiral coils of wires provided with longitudinal stay-wires, a central sustaining member provided with fixedly-attached grooved disks, having lateral projecting flanges for projecting and supporting the ends of the bag and means for closing the bottom and top of the bag around such disks.

8. A bag for transporting coal, &c., comprising a cylinder formed of interwoven or interspun spiral coils of wire, supplemental longitudinal stay-wires, means for reinforcing the bag at the top and bottom, a central sustaining member provided with fixedly-attached grooved disks, and means for closing the bottom and top of the bag around such disks.

9. A bag for transporting coal, &c., comprising a cylinder formed of interwoven or interspun spiral coils of wire, supplemental longitudinal stay-wires, means for reinforcing the bag at the top and bottom, a central sustaining member provided with fixedly-attached grooved disks and means for closing the bottom and top of the bag around such disks, and a lifting device connected with one or both ends of the central sustaining member.

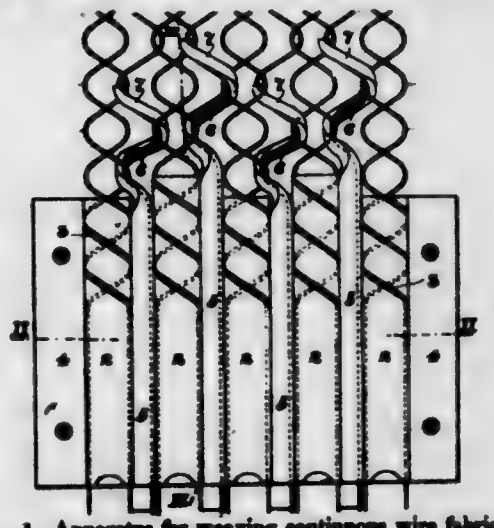
692,407. **METHOD OF WEAVING WIRE.** WILLIAM J. WRIGHT, Pittsburg, Pa., assignor to John S. Scully, Pittsburg, Pa. Filed May 9, 1901. Serial No. 59,414. (No specimens.)



Claim.—1. The method of making wire fabric consisting in simultaneously forming pairs of interwoven spiral coils and independently forming intervening connecting-coils between such pairs, substantially as set forth.

2. The method of making wire fabric consisting in simultaneously forming pairs of interwoven spiral coils and independently forming intervening coils and alternately engaging the same with the adjacent members of the pairs, substantially as set forth.

692,408. **APPARATUS FOR WEAVING WIRE.** WILLIAM J. WRIGHT, Pittsburg, Pa., assignor to John S. Scully, Pittsburg, Pa. Filed May 9, 1901. Serial No. 59,425. (No model.)



Claim.—1. Apparatus for weaving continuous wire fabric, consisting of a plurality of grooved spindles, intervening guides terminating in

coiled extremities, and means for feeding the wire, substantially as set forth.

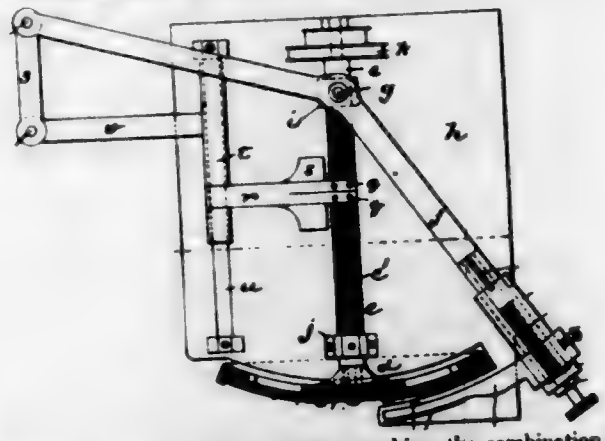
2. Apparatus for weaving continuous wire fabric, consisting of a plurality of grooved spindles, intervening guides terminating in coiled extremities, adapted to interact with the grooved spindles, and means for feeding the wire, substantially as set forth.

3. Apparatus for weaving continuous wire fabric, consisting of a plurality of multigrooved spindles, intervening grooved guides terminating in spiral coiled extremities, and means for feeding the wire, substantially as set forth.

4. A device for coiling wire consisting of a straight grooved guide terminating in a spiral coiled extremity, the groove being located on the inner side of the guide, substantially as set forth.

5. In apparatus of the class described, a device for forming independent coils consisting of a straight grooved guide terminating in a spiral coiled extremity, the groove being narrowed to prevent escape of the wire, and being located on the inner side of the guide, substantially as set forth.

692,409. TALKING OR SOUND RECORDING AND REPRODUCING MACHINE. JOHN R. ALEXANDER, West Orange, N. J., assignor to the General Phonosphere Corporation, a Corporation of New Jersey. Filed Sept. 28, 1900. Serial No. 31,357. (No model.)



Claim.—1. In a sound-reproducing machine, the combination with a rotary main shaft having means for holding the record, means for rotating said shaft, a lever having a speaker or sound-box holder and being connected with said main shaft and movable simultaneously therewith to cause the speaker to move in a curved path, of a spherically-convex record, the convexity of which is concentric with the path of movement of the speaker, substantially as set forth.

2. In a sound-reproducing machine, the combination with a rotary main shaft having means for holding the record and effect a rotation of said record, of a lever fulcrumed, in plan, in the axial line of the main shaft, and connection of said main shaft and lever for transmitting movement from one to the other, substantially as set forth.

3. In a sound-reproducing machine, the combination with a rotary shaft and its record having a convex surface, of a pivotally-moving speaker-holder adapted to traverse in a curved path the said curved surface, and means for transmitting power from said shaft to said speaker-holder, substantially as set forth.

4. In a sound-reproducing machine, the combination with the threaded main shaft having a record-holder, of a nut engaging said main shaft, a lever carrying a speaker-holder, and connections between said nut and lever, substantially as set forth.

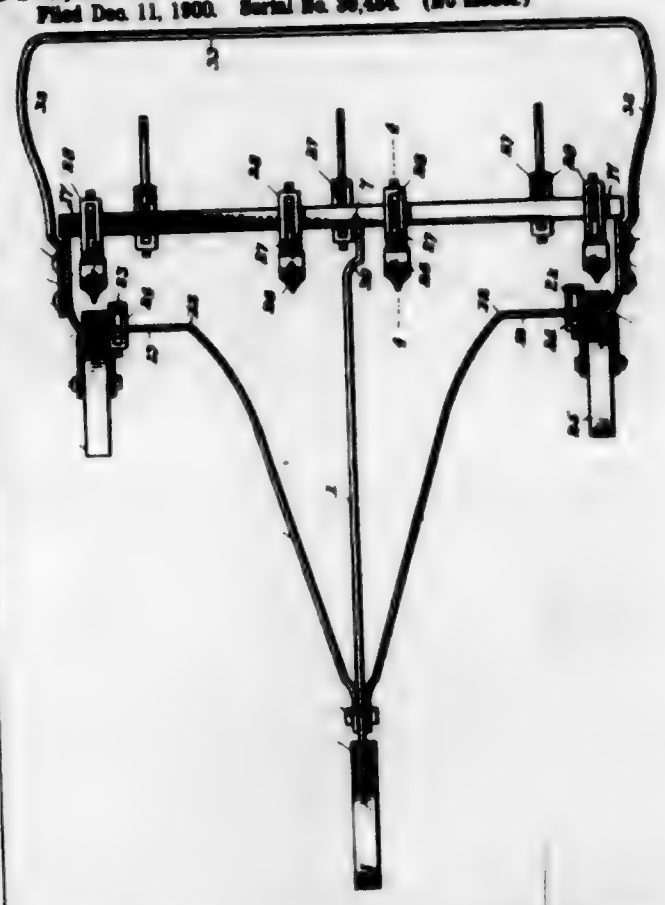
5. In a sound-reproducing machine, the combination with the threaded main shaft having a record-holder, a nut engaging said main shaft, an arm *r*, carrying said nut, a sliding sleeve *t*, an arm *v*, pivoted connections *s*, lever *f*, loosely connected to said connection, and an adjustable speaker-holder, substantially as set forth.

6. The combination with a rotary record-holder, of a speaker or sound-box holder movable in a curved path on a center coincident, looking in one direction, with the axial center line of the record-holder, and means for rotating said record-holder and moving said speaker or sound-box holder, substantially as set forth.

7. The combination with the stylus, in a sound-reproducing machine, of a segment of a sphere seated at its center upon the extremity of a rotary shaft and means for rotating said shaft and means for effecting a spiral tracing of the stylus on the curved surface of the segment, substantially as set forth.

8. A sound-reproducing device provided with a record comprising the segment of a sphere, said segment being supported on the end of a rotary shaft and movable with said shaft, in combination with reproducing means so supported in connection with said segment as to travel in the arc of a great circle concentric with a curvature of said segment, substantially as set forth.

692,410. CULTIVATOR. SAMUEL L. ALLEN, Moorestown, N. J. Filed Dec. 11, 1900. Serial No. 39,494. (No model.)



Claim.—1. In an agricultural implement, a frame comprising a centrally-disposed longitudinal draft-bar, transversely-arranged tool-carrying bars, to which the rear end of the draft-bar is secured, side bars bolted at their forward ends to the central draft-bar, said side bars diverging rearwardly and having their ends secured in the respective ends of the tool-carrying bars, and supporting-wheels secured on said side bars slightly in advance of the tool-carrying bars, substantially as described.

2. In an agricultural implement, a rigid frame comprising a transversely-arranged tool-carrying frame, a centrally-disposed draft-bar secured at one end to the tool-carrying frame, a pair of side bars secured at their forward ends to the central draft-bar, said side bars diverging in V shape to within a short distance of the transverse tool-frame, then extending laterally toward the respective ends of said tool-frame and terminating in short arms parallel to the draft-bar, said arms having their ends secured to the tool-carrying frame, substantially as described.

3. In an agricultural implement, the combination of a transversely-arranged tool-carrying frame comprising a pair of channel-bars arranged one above the other, a central draft-bar having its rear end fitting between the channel-bars, a clip riveted to the end of said central bar adapted to fit between the channel-bars, a bolt passing through said channel-bars and through the ears of the clip, side bars secured at their forward ends to the central draft-bar, said side bars diverging rearwardly in V shape to a point slightly in advance of the tool-bars thence running laterally toward the respective ends of the tool-bars having their free ends bent at substantially right angles and secured between the two transverse tool-bars, substantially as described.

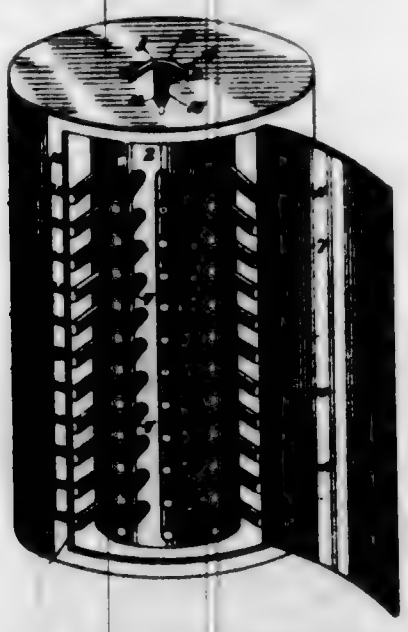
4. The combination of a longitudinally-disposed central draft-bar, a pair of transversely-disposed tool-carrying bars, means for securing the draft-bar between the tool-carrying bars, side bars secured at their forward ends to the central draft-bar, said side bars diverging rearwardly to form a substantially V-shaped frame to within a short distance in front of the tool-carrying bars and then bent outwardly forming portions parallel with the tool-carrying frame and terminating in angularly-disposed arms which are secured between the tool-carrying bars, and supporting-wheels adjustably mounted upon the parallel portions of the side frames, substantially as described.

5. In an agricultural-implement frame, the combination of a pair of transversely-arranged channel-bars placed one above the other having their flanges oppositely disposed, a central draft-bar secured at its rear end between said channel-bars, side bars secured at their forward ends to the central bar and having their rear ends diverging and passing between the respective ends of the channel-bars, a U-shaped clip secured to the ends of the side bars having ears extending between the flanges of the channel-bars and a bolt adapted to pass through the channel-bar and through the ears of the clip for securing the parts together, substantially as described.

6. In a cultivator, the combination with a main frame, of a tool-

carrying frame comprising twin bars, tool-holding clamps adapted to be adjustably secured on each of said bars, the said bars being so arranged with relation to each other as to admit of the clamps on one bar being adjusted laterally past those of the other bar, substantially as described.

692,411. REVOLVING PHONOGRAPH-RECORD CASE. ERNEST L. APPLEBY, Bradford, Pa. Filed Apr. 17, 1901. Serial No. 56,266. (No model.)



Claim.—1. In a phonograph-record holder or case, the combination with the outer case or covering, of a drum mounted therein and a plurality of record-supporting devices carried by said drum and a locking device comprising a hinged arm mounted on one of the journals of the drum and having means to engage the inner drum to prevent its rotation.

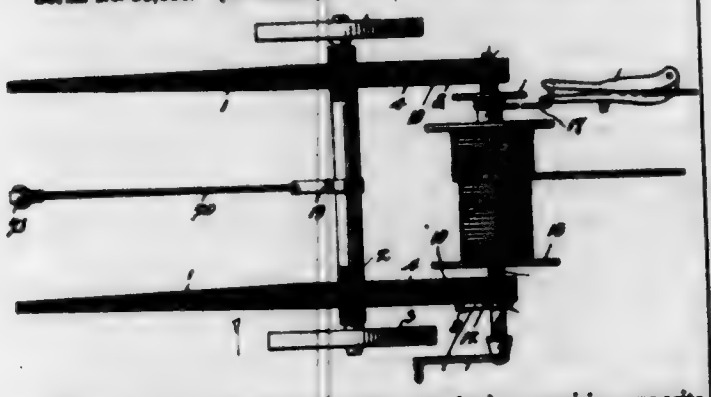
2. In a phonograph-record holder or case, the combination with the outer case or covering, of a drum rotatably mounted therein, and a plurality of record-supporting devices carried by said drum and adapted to maintain the record out of contact one with another and a locking device comprising a hinged arm mounted on one of the journals of the drum and having means to engage the inner drum to prevent its rotation.

3. In a phonograph-record holder or case, the combination with the outer case or covering, of an inner rotatable drum, a rod extending concentrically through said drum and journaling it to the case, and a plurality of radially-extending record-supporting devices carried by said drum and a locking device comprising a hinged arm mounted on one of the journals of the drum and having means to engage the inner drum to prevent its rotation.

4. In a phonograph-record holder or case, the combination with the outer case or cover provided with a record-index, of an inner rotatable drum journaled therein, a plurality of record-supporting devices carried by the drum and a device for locking the drum against rotation mounted on the journal of the inner drum and hinged between its ends.

5. In a phonograph-record holder or case, the combination with the outer case or cover, of a rotatable drum journaled therein, a plurality of record-supporting devices carried by the drum, a door in the outer case admitting access to its interior and an index carried by the outer case adjacent to the door for designating the contained records.

692,412. WIRE STRETCHER AND REELING MACHINE. GEO. S. AUSTIN and WILLIAM D. AUSTIN, Cerulean, Ky. Filed May 10, 1901. Serial No. 59,990. (No model.)



Claim.—1. A machine of the class set forth comprising opposite side bars attached to an axle-beam having wheels thereon, combined braces and supports secured to the axle-beam and the rear portions of the bars and having upwardly-extending obliquely-arranged portions with bearing-seats therein, keepers hinged to the upper rear ends of said combined braces and supports to close forwardly and downwardly over the said seats and complete the latter, and a reel removably supported in the said seats to have a rotatable movement, the upwardly-extending obliquely-arranged portions of the combined braces and supports being adapted to be brought down to the ground-surface by tilting the axle-beam to permit an empty reel to be removed and another filled one to be rolled over into place without lifting the same up to the normal position of said obliquely-arranged portions.

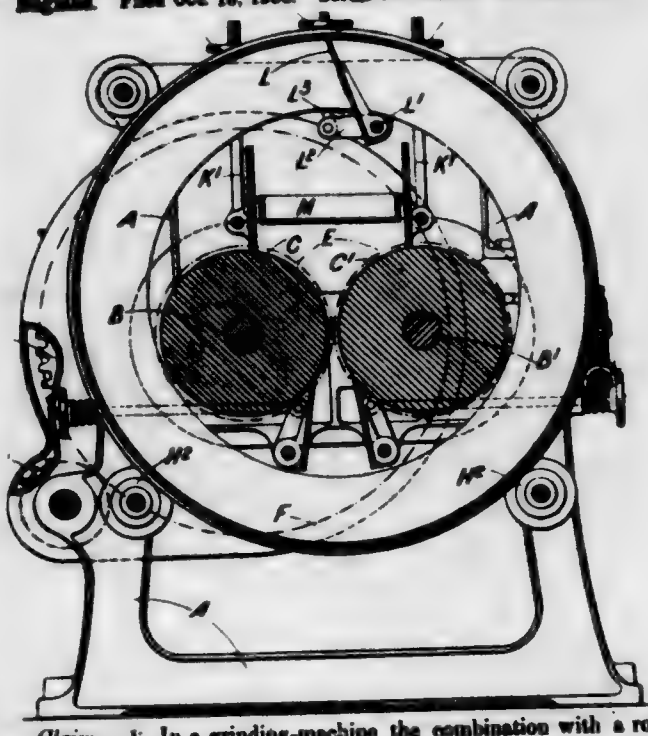
2. A machine of the class set forth comprising opposite side bars attached to an axle-beam having wheels thereon, combined braces and supports secured to the axle-beam and the rear ends of the bars and formed with upwardly-projecting obliquely-arranged portions, keepers hinged to the upper ends of said latter portions and adapted to close down over the same, and a reel rotatably and removably held between said keepers and the obliquely-arranged portions of the braces and supports, the upwardly-extending obliquely-arranged portions of the combined braces and supports being adapted to be brought down to the ground-surface by tilting the axle-beam to permit an empty reel to be removed and another filled one to be rolled over into place without lifting the same up to the normal position of said obliquely-arranged portions.

692,413. ELECTRIC HEATER. JOSEF F. BACHHAUS and ADOLF VOGT, Vienna, Austria-Hungary, assignors to the Electric Resistance and Heating Company, Limited, London, England. Original application filed Nov. 22, 1898, Serial No. 697,191. Divided and this application filed Dec. 12, 1899. Serial No. 740,101. (No model.)



Claim.—An electric heater comprising a body composed of a mixture of an electrically-conductive and non-conductive substance and having one or more circular, inclined grooves therein substantially V shape in cross-section, metallic conductors in said grooves held in place by the conicity formed by the sides of said circular grooves, an electrically-conductive cement covering the wires in said grooves, means for placing the wires in an electric circuit and a cement covering said first-mentioned cement to fill said grooves and of the same material as the heater, substantially as set forth.

692,414. GRINDING APPARATUS. GEORGE S. BAKER, London, England. Filed Oct. 13, 1900. Serial No. 32,986. (No model.)

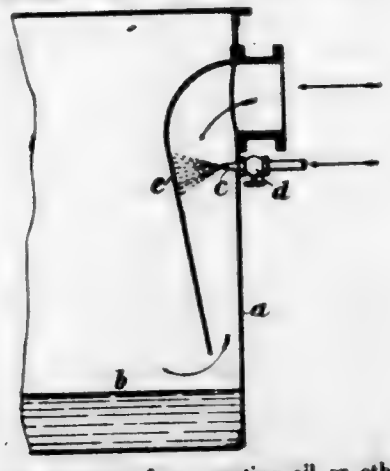


Claim.—1. In a grinding-machine the combination with a rotary casing open at one end of coacting grinding-rollers within but not borne by the casing, a driving-shaft operatively connected with both the rollers, a scraper within the casing above the rollers, movable bearings supporting one of the rollers, an adjusting-screw for moving those bearings, an operative connection between the screw and the driving-shaft, a disconnecting-clutch constituting a part of that operative connection, a clutch-operating mechanism and a cam adapted to actuate that mechanism and operatively connected with the adjusting-screw, substantially as set forth.

2. In a grinding-machine the combination with a rotary casing open at one end of coacting grinding-rollers within but not borne by the casing, a driving-shaft operatively connected with both the rollers, a scraper

within the casing above the rollers, movable bearings supporting one of the rollers, an adjusting-screw for moving those bearings, an operative connection between the screw and the driving-shaft, a disconnecting-clutch constituting a part of that operative connection, and a clutch-operating mechanism substantially as set forth.

692,415. APPARATUS FOR SEPARATING GREASE FROM STEAM. WILLIAM J. BAKER, Scarborough, England. Filed Sept. 9, 1901. Serial No. 74,823. (No model.)



Claim.—1. In apparatus for separating oil or other grease from steam, the combination with the casing into which the steam is introduced, provided with an inlet and outlet, and with means for deflecting the steam between said inlet and outlet, of a device for lowering the temperature of the steam located adjacent to the inlet to said casing to facilitate the separation of the oil or grease, substantially as described.

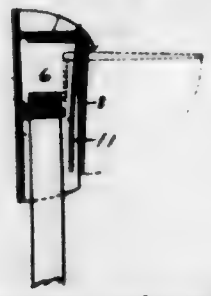
2. In apparatus for separating oil or other grease from steam, the combination with the casing into which the steam is introduced, provided with an inlet and outlet, and with means for deflecting the steam between said inlet and outlet, of a water-pipe located in the path of the steam adjacent to the inlet to said casing to reduce the temperature of the steam to facilitate the separation of oil and grease, substantially as described.

3. In apparatus for separating oil or other grease from steam, the combination with the casing into which the steam is introduced, provided with an inlet and outlet, and with means for deflecting the steam between said inlet and outlet, of a water-injecting device, located adjacent to said inlet and discharging directly into the steam, to lower the temperature of the steam and facilitate the separation of oil and grease, substantially as described.

4. In apparatus for separating oil and other grease from steam, the combination with the casing into which the steam is introduced, provided with an inlet, an outlet and a deflecting device between the inlet and outlet, of a water-injecting device located adjacent to said inlet and discharging against said deflecting device, for cooling the steam and facilitating the separation of oil and grease therefrom, substantially as described.

5. In apparatus for separating oil and other grease from steam, the combination with the casing into which the steam is introduced, provided with an inlet, an outlet, a deflecting device adjacent to the inlet and a series of baffle-plates in the casing, of a water-injecting device located in said casing and discharging against said baffle-plates to cool the steam and facilitate the separation of oil and grease therefrom, substantially as described.

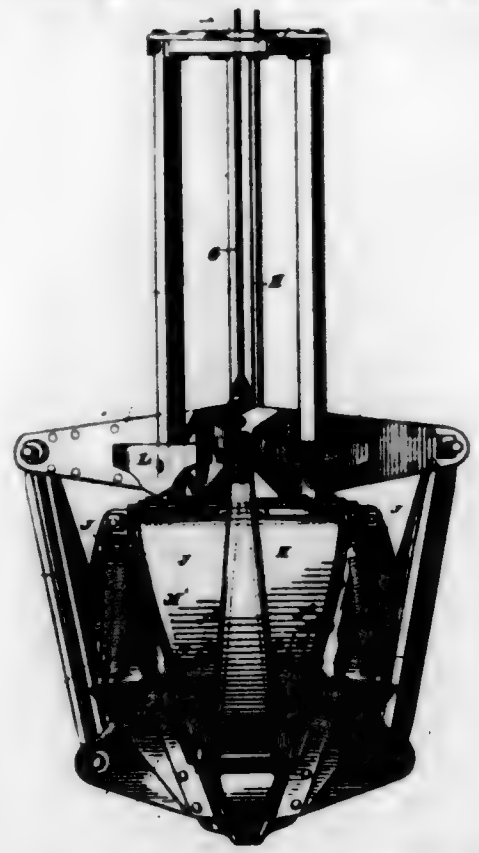
692,416. REIN-HOLDER. NICHOLAS J. BAKKE and WILLIAM H. BUNKE, Morris, Minn. Filed July 21, 1900. Serial No. 24,262. (No model.)



Claim.—1. In a rein-holding attachment of the class described, the combination with a casing, of an outwardly-projecting post carried thereby, a flap hinged above said post and projecting downward past the free end thereof, and a wing projecting inwardly from the upper end of said flap past the free end of said post.

2. In a rein-holding attachment of the class described, the combination of a casing consisting of a back and side walls, a post projecting outwardly from the back of said casing intermediate of the side walls, a flap hinged between said side walls above said post, and a wing projecting inwardly from the upper end of said flap between the side walls, said wing extending past the free end of the post.

692,417. DREDGE OR GRAPPLE. ALEXANDER BECKERS, Hoboken, N. J. Filed Nov. 4, 1901. Serial No. 80,964. (No model.)



Claim.—1. A dredge-bucket or grapple comprising a body, blades pivoted to said body, a slide or carrier movable relatively to the body and connected with the blades at a distance from their pivots, and wings pivoted to the said blades.

2. A dredge-bucket or grapple comprising a body, blades movably connected therewith and arranged to open and close, a slide or carrier movable relatively to the body and operatively connected with the blades, and wings pivoted to said blades.

3. A dredge-bucket or grapple comprising blades mounted to open and close, means for effecting the opening and closing movement of said blades, and wings pivoted to said blades.

4. A dredge-bucket or grapple comprising blades mounted to open and close, mechanism for opening and closing the blades and wings pivoted to the side edges of said blades.

5. A dredge-bucket or grapple comprising blades mounted to open and close, means for opening and closing the blades, and wings pivoted to the side edges of the blades and extending from the outer ends or points of said blades toward the pivot ends thereof and terminating short of said pivot ends.

6. A dredge-bucket or grapple comprising blades mounted to open and close, means for effecting an opening and closing movement of said blades, and spring-pressed wings pivoted to the sides of said blades, the free edges of the wings of adjacent blades being adapted to engage each other in the closed position of the grapple or dredge-bucket.

7. A dredge-bucket or grapple comprising blades mounted to open and close, means for opening and closing the blades, and spring-pressed wings pivotally attached to the said blades along the side edges thereof.

8. A dredge-bucket or grapple comprising a body, blades pivoted thereto, means for opening and closing the blades, and stops pivoted to the body and adapted to be engaged by adjacent blades on opposite sides of the stop-pivot when the blades open.

9. A dredge-bucket or grapple comprising a body with the blades pivoted thereto, a carrier movable relatively to the body and operatively connected with the blades, a pulley-block at the lower portion of the body, another pulley-block having a swivel connection with the carrier, a lowering-rope connected with the second-named pulley-block, and a hoisting-rope engaged with the pulleys of both blocks.

10. A dredge-bucket or grapple comprising a body, blades pivoted thereto, a carrier movable relatively to said body and operatively connected with said blades, a pulley-block on the lower portion of the body, another pulley-block having a swivel connection with the carrier to turn in a substantially horizontal plane and also capable of swinging relatively thereto on a substantially horizontal axis, a lowering-rope connected with the pulley-block of the carrier, and a hoisting-rope engaged with the pulleys of both blocks.

11. A dredge-bucket or grapple comprising a body having upright spaced bars connected at the top and at the bottom, blades pivoted to the lower portion of the body, a carrier movable along the said bars and operatively connected with the said blades, a pulley-block on the body, a lowering-rope connected with the carrier, a hoisting-rope engaged with the pulley of said block, and a guide for the said ropes, the said guide being located at the upper ends of the body-bars.

692,418. **SEWER-TRAP.** HERMANN L. BEHRENS, St. Louis, Mo., assignor of one-half to Charles M. Lamping, St. Louis, Mo. Filed Sept. 11, 1901. Serial No. 75,095. (No model.)



Claim.—A trap comprising a series of assembled conical tubular sections, a coupling-ring to which the upper section is secured, a flange forming a part of said ring, a waste-pipe having a flange located below the flange of the ring, bolts for securing the said flanges to the opposite faces of the sink-bottom, a cup depending from the discharge end of the lower section of the trap, straps for securing said cup in position, the upper edge of the cup being located in a plane above the end of the said lower trap-section, substantially as set forth.

692,419. **BED-CANOPY.** VIRGINIA M. BROWN, Washington, D. C. Filed Nov. 12, 1901. Serial No. 82,002. (No model.)



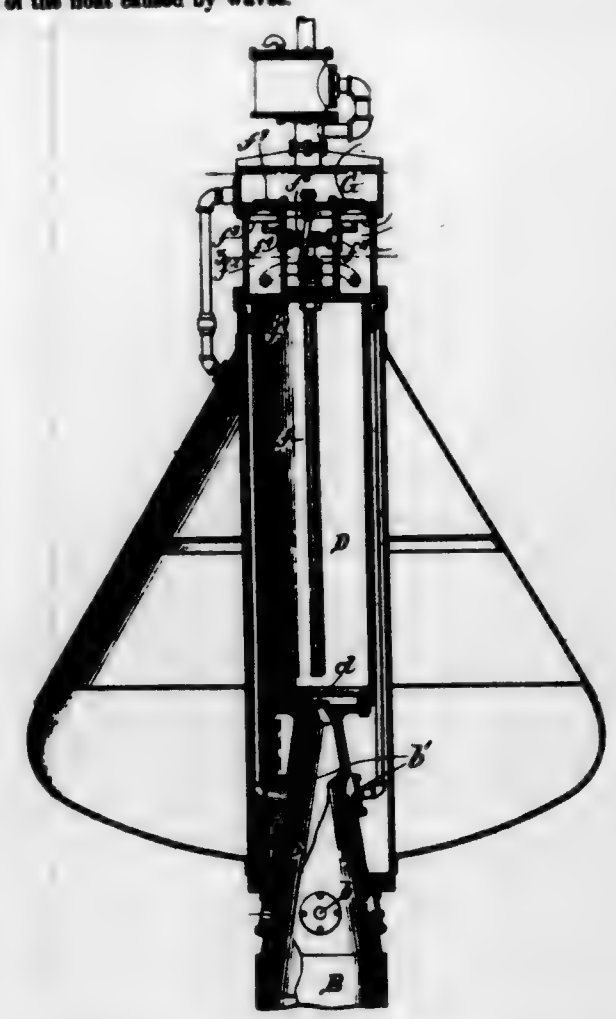
Claim.—1. A canopy comprising a supporting bracket or standard, a frame supported thereby and having a central ring, a canopy-curtain consisting of a strip of fabric passed through and secured to the ring and having its sides hanging pendent from opposite sides of the frame, and an insert covering the space between the sides of the curtain at the front of the frame, substantially as described.

2. A canopy comprising a circular frame having a central ring, means for supporting the frame, a cover or curtain passed through the ring and having its sides hanging pendent from the frame, and an insert covering the space between the sides of the curtain at the front of the frame and consisting of a strip passed through the ring with its sides overlapping and diverging and connected to the frame, substantially as specified.

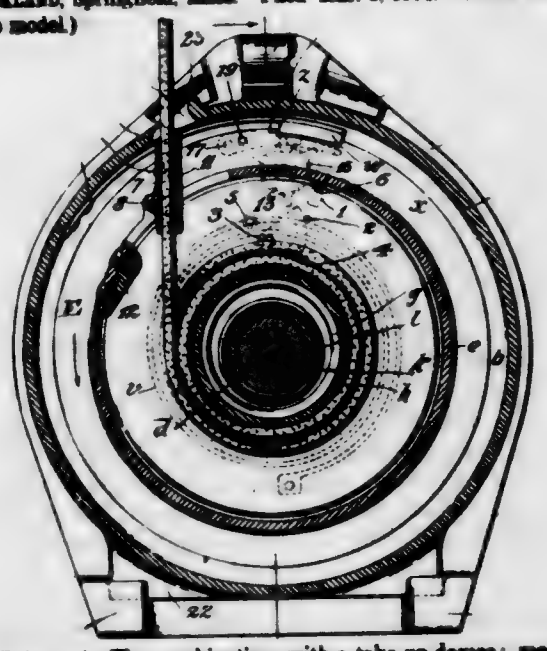
3. A canopy comprising a frame consisting of a hoop, a central ring, radial inclined braces detachably connected to the hoop and ring, a supporting bracket or standard formed of an extension from one of said braces, a canopy-curtain consisting of a strip of fabric passed through and secured to the ring and having its sides hanging pendent from opposite sides of the frame, and an insert covering the space between the sides of the curtain at the front of the frame, substantially in the manner set forth.

692,420. **WAVE-MOTOR.** WILLIAM S. BRYANT, Cohasset, Mass. Filed July 26, 1900. Serial No. 24,475. (No model.)

Claim.—In combination a tube open at its lower end, and provided with water-inlet valves; a reservoir connected with the upper end of the tube; a valve opening out of the tube and into the reservoir; a float carrying the tube with its open lower end well below the surface of the water which sustains the float; and a pipe leading from the reservoir and serving as an outflow for the water forced into the reservoir by the motion of the float caused by waves.



692,421. **TAKE-UP DEVICE FOR TROLLEY-CORDS.** SETH J. BUCKLAND, Springfield, Mass. Filed Mar. 6, 1901. Serial No. 50,011. (No model.)



Claim.—1. The combination, with a take-up device; means for actuating the same; and means for varying the efficiency of the actuating means; of a winding mechanism; and a device for normally locking said mechanism against movement.

2. The combination, with a winding mechanism; and with a device for normally locking said mechanism against movement; of a rotatable spool; a disk movable relatively to the spool, and having a plurality of apertures; a spring for actuating said disk; and a lever pivoted on the spool and having a projection for engaging said apertures.

3. The combination, with a winding mechanism; and with a device for normally locking the same against movement; of a rotatable spool; a disk movable relatively to the spool and having a plurality of apertures; a lever pivoted on the spool and having a projection for engaging said apertures; a spring for actuating said disk; and means for securing said lever in position.

4. The combination, with a take-up device; a winding mechanism; and a device for normally locking said mechanism against movement; of means for releasing said winding mechanism; and a mechanism for maintaining said locking device in inoperative position.

5. The combination, with a take-up device; a winding mechanism; and a device for normally locking said mechanism against movement; of means for releasing said winding mechanism; and a progressively-movable mechanism for maintaining said locking device in inoperative position.

6. The combination, with a take-up device; a winding mechanism; and a device for normally locking said mechanism against movement; of means for releasing said winding mechanism; a progressively-movable mechanism for maintaining said locking device in inoperative position; and carried by said winding mechanism.

7. The combination, with a take-up device; a rotatable drum; and a device for normally locking said drum against movement; of means for releasing said drum; a mechanism for maintaining said locking device in inoperative position, and operable by the movement of said drum.

8. The combination, with a take-up device; a rotatable winding-drum having a flange; and a device for normally locking said drum against movement; of means for releasing said drum; and a mechanism in engagement with said locking device, and movable in one direction for maintaining said locking device in inoperative position, and movable in the opposite direction for permitting said locking device to engage the drum.

9. The combination, with a take-up device; a winding mechanism; and a device for normally locking said mechanism against movement; of means for releasing said mechanism; a rotatable cam for controlling the locking device, and operable by the movement of said drum.

10. The combination, with a take-up device; a winding mechanism; and a device for normally locking said mechanism against movement; of means for releasing said mechanism; a rotatable cam for controlling the locking device, and operable by the movement of said drum; and means for partially rotating said cam during each complete rotation of said winding mechanism.

11. The combination, with a take-up device; a winding mechanism; and means for normally locking said mechanism against movement; of means for releasing said mechanism; a rotatable cam for maintaining said locking device in inoperative position; a star-wheel for partially rotating said cam during each complete rotation of the winding mechanism; and a stop for partially rotating said star-wheel.

12. The combination, with a take-up device, a rotatable drum; and a device for normally locking said drum against movement; of means for releasing said drum; a rotatable cam for maintaining said locking device in inoperative position; a star-wheel for partially rotating said cam during each rotation of the drum, and mounted for rotation on said drum and revolving therewith; and a stop for engaging said star-wheel.

13. The combination, with a take-up device; a rotatable drum having a flange; and a spring-actuated detent for locking said drum against movement; of means for releasing said drum; a rotatable cam carried on said drum; and a member movable by said cam for preventing the detent from engaging said flange.

14. The combination, with a take-up device; a rotatable winding-drum having a flange; and a spring-actuated detent for normally locking said drum against movement; of means for releasing said detent; a rotatable cam carried on said drum; and a lever movable by said cam and pivoted on said flange; and in engagement with said detent.

15. The combination, with a take-up device; and a flexible band having one end secured thereto; of a winding mechanism; a device for normally locking said mechanism against movement; means for releasing said winding mechanism, and controlled by the movement of said take-up device; and means for causing the band to move with the winding mechanism.

16. The combination, with a take-up device; and a flexible band having one end secured thereto; of a winding mechanism; a device for normally locking said mechanism against movement; means for releasing said winding mechanism, and controlled by the movement of said take-up device; means for causing the band to move with the winding mechanism; and a clamping device for holding the band in contact with the drum.

17. The combination, with a take-up device; and a flexible band having one end secured thereto, of a winding mechanism; a device for normally locking said mechanism against movement; means for releasing said winding mechanism, and controlled by the movement of said take-up device; means for causing the band to move with the winding mechanism; a clamping device for holding the band in contact with the drum, and controlled by the movement of said drum.

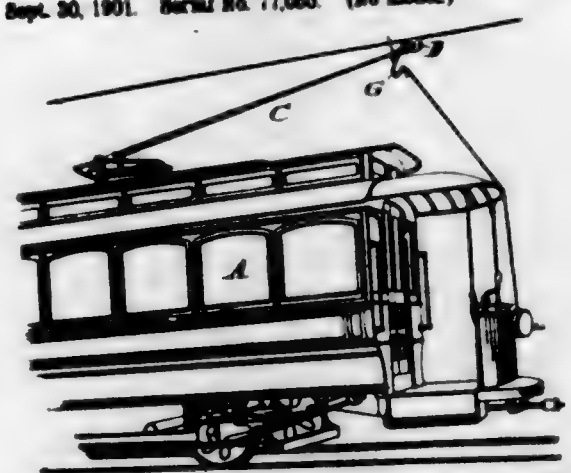
18. The combination, with a take-up device; and a flexible band having one end secured thereto; of a winding mechanism; a device for normally locking said mechanism against movement; means for releasing said winding mechanism, and controlled by the movement of said take-up device; means for causing the band to move with the winding mechanism; a clamping device for holding the band in contact with the drum, and carried thereon.

19. The combination, with a take-up device; and a flexible band having one end secured thereto; of a winding mechanism; a device for normally locking said mechanism against movement; means for releasing said winding mechanism, and controlled by the movement of the take-up device; a fixed jaw carried on said drum; and a movable jaw coöperative therewith, and for holding said band in contact with said drum.

20. The combination, with a take-up device; and a flexible band having one end secured thereto; of a winding mechanism; a device for normally locking said mechanism against movement; means for releasing said winding mechanism, and controlled by the movement of the take-up device; a fixed jaw carried on said drum; and a movable jaw coöperative therewith, and for holding said band in contact with said drum, and positioned by the line of travel of said band.

21. The combination, with a take-up device; and with a flexible band having one end secured thereto; of a winding mechanism; a device for normally locking said mechanism against movement; means for releasing said mechanism, and controlled by the movement of the take-up device; a casing having an opening for the passage of said band; a guiding-wall for the band and for causing a deflection of the line of travel of the band, upon the movement of the winding mechanism; and a clamping device for holding said band in contact with the drum, and controlled by the movement thereof.

692,422. WATER SHED OR DEFLECTOR FOR TROLLEY POLES AND ROPES. SETH J. BUCKLAND, Springfield, Mass. Filed Sept. 30, 1901. Serial No. 77,055. (No model.)



Claim.—1. The combination with a trolley-pole, a car-platform, and a controlling-cord, of a guard or deflector consisting of a loop-shaped device located on the cord between the pole and platform; substantially as described.

2. A guard or shield for connecting a trolley-pole and its controlling-cord, consisting of a double-looped or reverse-curved device of suitable material, substantially as described.

3. A guard or shield for connecting a trolley-pole and its connecting-cord, consisting of a double-looped or reverse-curved device of suitable material having attaching means at its ends; substantially as described.

4. A guard or shield for connecting a trolley-pole and its controlling-cord, consisting of a double-looped or reverse-curved device of suitable material having a projecting bulb or point on the under surface of its lower looped portion; substantially as described.

5. A trolley-pole in combination with a controlling-cord, and a guard, having its ends connected to said pole and cord, respectively, said guard having a depending looped portion; substantially as described.

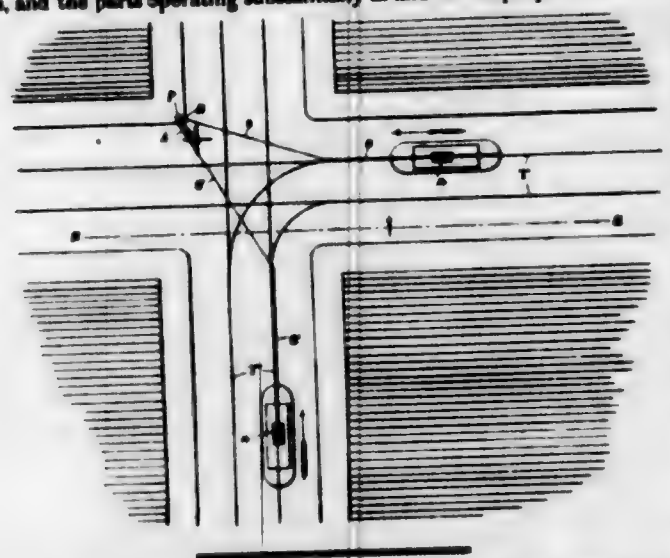
6. A guard or shield for connecting a trolley-pole and its controlling-cord, consisting of a device having a large depending loop and a smaller upper loop and provided at its ends with eyes for attaching the same to said pole and cord; substantially as described.

7. The combination with a controlling-cord for trolley-poles, of a double-looped or reverse-curved device of suitable material for the purpose of deflecting water and preventing the same from passing downwardly to the car-platform or take-up; substantially as described.

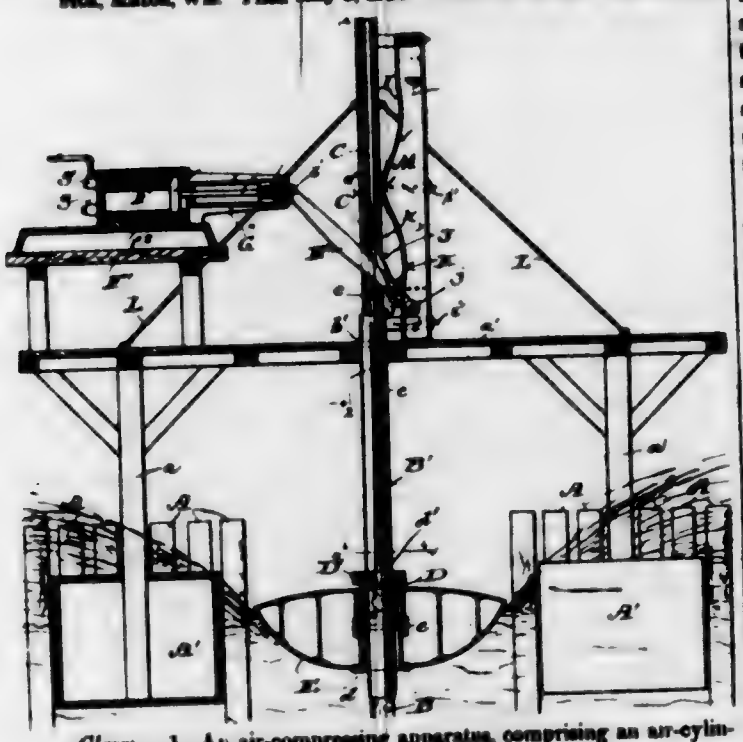
692,428. ELECTRIC SIGNAL. CONRAD BUDER, Jr., St. Louis, Mo. Filed Oct. 7, 1901. Serial No. 77,900. (No model.)

Claim.—An electric signal comprising two intersecting line-wires, a signal-wire carried by but insulated from each line-wire, a solenoid in electric circuit with each signal-wire, a pole for the support of the solenoids, a solenoid-bar for each solenoid, cables for the support of the solenoid-bars, pulleys for guiding said cables, suitable intersecting brackets forming a pair of arms disposed in one plane, a second pair of arms dis-

posed in a plane at right angles to the first pair and having fixed ends secured at the point of intersection of said first pair, signal-arms adapted to swing in planes at right angles to one another, pivoted to each of the aforesaid pair of arms, links connecting the adjacent ends of each pair of said signal-arms, the upper ends of the cables being connected to said links, and the parts operating substantially as and for the purpose set forth.



692,424. AIR-COMPRESSING APPARATUS. JOSEPH H. BUR-NOK, Milton, Wis. Filed May 5, 1900. Serial No. 15,670. (No model.)



Claim.—1. An air-compressing apparatus, comprising an air-cylinder, having an air-inlet and air-outlet; a piston movable within said cylinder; a float, adapted to be raised and depressed by the rise and fall of waves; and means, connected to said piston and said float, for causing the piston to travel inward the full extent of its stroke with each elevation and depression of said float, the outward travel of said piston varying in extent with the height of the waves.

2. In an air-compressing apparatus, the combination with an air-cylinder, provided with an air-inlet and air-outlet, of a piston movable in said cylinder; guideways extending from said cylinder; a cross-head movable in said guideways; a piston-rod connecting said piston and cross-head; a structure having a vertically-arranged cam edge adjacent to said cylinder; vertical guideways adjacent to said structure; a cross-head movable in said last-named guideways; pitmen pivotally attached to the first-named cross-head, and linked to the last-named cross-head; rollers carried by said pitmen, and adapted to travel against said cam edge; a float, and connections between said float and the cross-head in the vertical guideways for elevating and depressing said cross-head as the float rises and falls.

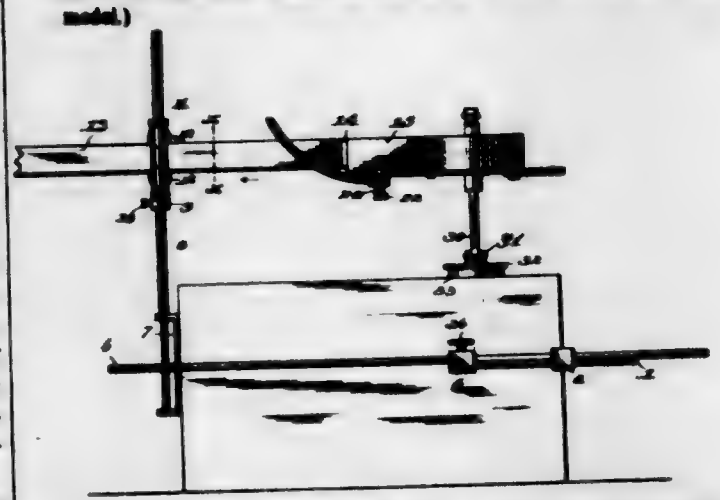
3. In an air-compressing apparatus, the combination with an air-cylinder, having an air-inlet and air-outlet, of a piston movable in said cylinder; guideways extending from said cylinder; a cross-head movable in said guideways; a piston-rod connecting said piston and cross-head; a structure having a vertically-arranged cam edge adjacent to said cylinder; vertical guideways adjacent to said structure; a cross-head movable in said last-named guideways; pitmen pivotally attached to the first-named cross-head, and linked to the last-named cross-head; rollers carried by said pitmen, and adapted to travel against said cam edge; a vertical guide beneath said vertical guideways; a sleeve movable upon said guide; rigid tie-rods connecting said sleeve with the cross-head in the vertical guideways; and a float, loosely connected to said sleeve.

4. In an air-compressing apparatus, the combination with a horizontally-arranged air-cylinder, having an air-inlet and air-outlet, of a piston movable in said cylinder; guideways projecting from said cylinder in horizontal line therewith; a cross-head movable in said guideways; a piston-rod connecting said piston and cross-head; a structure having a vertically-arranged cam edge adjacent to said cylinder, said cam edge having its most forward point of projection at the center thereof and in line with said piston-rod; vertical guideways adjacent to said structure; a cross-head movable in said vertical guideways; pitmen pivotally attached to the horizontally-moving cross-head and linked to the vertically-moving cross-head; rollers carried by said pitmen, and adapted to travel against said cam edge; a float adapted to be raised and depressed by the rise and fall of waves; and connections between said float and the vertically-moving cross-head, for reciprocating said cross-head as the float rises and falls, whereby the piston shall reach its forward limit of travel in the cylinder at the midway point of action of each wave in its rise or fall, and be drawn back to admit a fresh charge of air within said cylinder by the passing of the wave above or below its said midway point of action.

5. In an air-compressing apparatus, the combination with an air-cylinder, provided with an air-inlet and air-outlet, of a piston movable in said cylinder; guideways extending from said cylinder; a cross-head movable in said guideways; a piston-rod connecting said piston and cross-head; a structure having a vertically-arranged cam edge adjacent to said cylinder, and having its most forward point of projection at its center and in line with said piston-rod; vertical guideways adjacent to said structure; a cross-head movable in said last-named guideways; a float, and connections between said float and the cross-head in the vertical guideway; and a pitman-and-link connection between the two cross-heads and rollers on said pitmen in engagement with said cam edge, whereby the piston is made to travel an even distance for each unit of distance in the rise or fall of the float at any point.

6. In an air-compressing apparatus, the combination with an air-cylinder, of a piston movable therein, a wave-actuated device, and connections between said device and said piston, for forcing the latter inward to the full extent of its compression-stroke, during each reciprocation, without regard to the height of the waves.

692,425. GRINDING OR POLISHING APPARATUS. HERCULES CAVICCHI, Barre, Vt. Filed Apr. 24, 1901. Serial No. 57,216. (No model.)



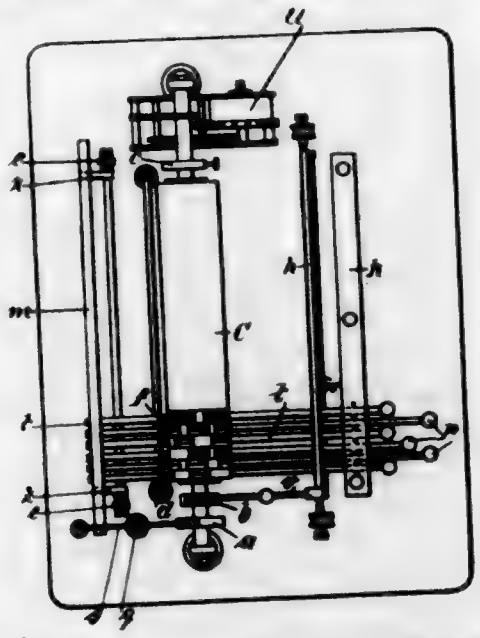
Claim.—1. The combination with a clamp; of an upright supported thereby, a bracket revoluble upon the upright, a strip slidably mounted within the upright, a motor secured at one end of said strip, and a grinding-plate adapted to be revolved by said motor.

2. The combination with a clamp; of an upright supported thereby, a bracket revoluble upon the upright, grooved rollers journaled within the bracket, a strip mounted between the rollers and within the grooves, a casing secured to said strip, a shaft journaled within the casing, a motor within the casing for imparting motion to the shaft, and a grinding-disk secured to the shaft.

3. The combination with a hooked strip; of a screw thereon, a second hooked strip, means for clamping the strips together, a rod supported by one of said strips, a sleeve adjustably secured thereon, a bracket loosely mounted upon the rod and bearing upon the sleeve, grooved pulleys journaled within the bracket one above the other, a strip mounted between the pulleys and extending into the grooves therein, a casing secured to said strip, inlet and exhaust ports to said casing, a rocking cylinder pivoted adjacent to said ports and having an inlet and an exhaust port, a crank-shaft journaled within the casing, a piston-rod connecting said crank with a piston in the cylinder, a balance-wheel upon said shaft, a forked bar se-

cured to the shaft, a grinding-disk secured within the fork of said bar, and a handle to the casing.

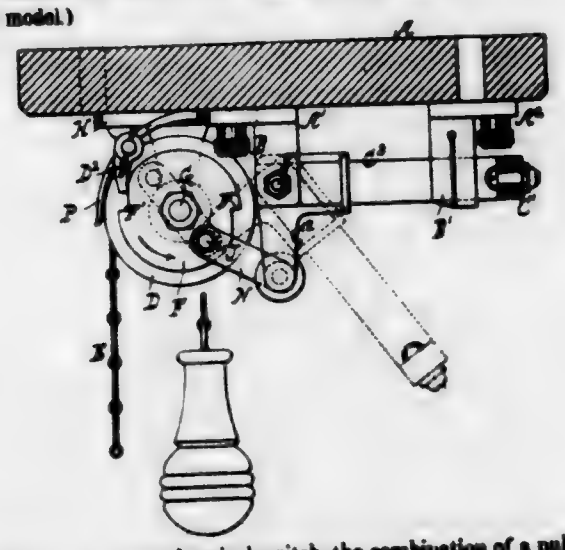
692,426. TRANSMITTER FOR MORSE ALPHABET AND PRINTING TELEGRAPHY. LUIGI CERBOTANI, Munich, Germany. Filed Mar. 8, 1900. Serial No. 7,919. (No model.)



Claim.—1. Automatic transmitter for Morse alphabet and printing telegraphy, comprising a cylinder divided into zones of conducting and non-conducting parts, wheelwork rotating said cylinder, lever-keys each provided with a catch *l*, contact-springs *f* secured to said keys, a rod *m* located above said key ends and rocked by them, lever-arms *z* carrying said rod, a pivoted spring-lever *s* one end of which is raised by said rod on rocking, a disk *a* rigidly connected with said cylinder and provided with a nose *a'* normally engaged by the other arm of said lever *s*, a frame having an upper bar mounted in bearings and a lower swinging bar engaging with said key-catches *l*, a spring-lever *v* secured to said upper frame-bar, and an eccentric *b* rigidly connected with said cylinder and operating said lever *v*, all arranged in such manner that on depression of a key the corresponding spring *f* contacts with its cylinder zone, the lever *s* is released from the disk *a*, the cylinder rotates, and the key is held down by the lower frame-bar until the cylinder has made a complete rotation, when it is released by the eccentric *b* and the cylinder brought to rest, all substantially as described.

2. The devices for starting and stopping rotation of the transmitter-shaft, comprising in combination with keys each provided with a catch *l* a rod *m* located above said key ends and rocked by them, lever-arms carrying said rod, a pivoted spring-lever *s* one end of which is raised by said rod *m* on rocking, a disk *a* rigidly mounted on said shaft and provided with a nose *a'* normally engaged by the other arm of said lever *s*, a frame having an upper bar mounted in bearings and a lower swinging bar engaging with said key-catches *l*, a spring-lever *v* secured to said upper frame-bar, and an eccentric *b* rigidly mounted on said shaft and operating said lever *v*, all substantially as described.

692,427. ELECTRIC SWITCH. JOHN D. CLAY and FREDRICK A LA ROCHE, New York, N. Y. Filed Aug. 22, 1900. Serial No. 27,632 (No model.)



Claim.—1. In an electrical switch, the combination of a pulley having a cord, band or chain secured thereto, a ratchet-wheel adjacent to the said pulley, a shaft common to said pulley and wheel, means exerting between said shaft and pulley for returning said pulley, a pawl on the pulley engaging the ratchet-wheel, a switch-lever, a crank-pin on the ratchet-wheel, and a link connecting said lever to the crank-pin, substantially as described.

2. In an electrical switch, the combination of a pendant-wheel having a cord, band or chain attached thereto, a ratchet-wheel adjacent to said pendant-wheel, a push-pawl on the pendant-wheel engaging the ratchet-wheel, a shaft common to said wheels, a return-spring on said wheel-shaft acting upon the pendant-wheel, and a shaft-hanger, stop-pins on the pulley adapted to arrest the motion of said pulley when the same shall rotate so as to make contact with the shank of said hanger, for regulating the motion of said pulley when the same shall have been moved in opposite directions alternately; substantially as described.

3. In an electrical switch, the combination of a pulley having a cord, band or chain attached thereto, a ratchet-wheel adjacent to the pulley, a push-pawl on the pulley engaging the ratchet-wheel, a shaft common to said ratchet-wheel and pulley, a return-spring secured to said common shaft adapted to actuate the pulley, said pulley having stop-pins, and a shaft-hanger adapted to contact with said stop-pins on said pulley alternately for regulating and limiting the motion of the said pulley, a switch-lever, and a crank-pin on the ratchet-wheel, and a link connecting said lever to the crank-pin; substantially as described.

4. In an electrical switch, the combination of a pulley having a cord, band or chain attached thereto, a ratchet-wheel adjacent to the pulley, a push-pawl on the pulley engaging the ratchet-wheel, a shaft common to said ratchet-wheel and pulley, a return-spring on said common shaft adapted to actuate the said pulley, and a shaft-hanger, a segmental arm formed integral and homogeneous with said hanger disposed with relation to said pulley so as to form a guard for said pendant, and a switch-lever having a driving-lever, C^3, connected therewith, a crank-pin on the ratchet-wheel, and a link, N, connecting said driving-lever to said crank-pin; substantially as described.

5. In an electrical switch, the combination with a switch-lever thereof, of a bolt adapted to form a hinge-joint upon which the said lever swings, a cam-washer having a radial-faced recess disposed upon the said bolt, and a wedge secured at one end to the said lever, having its free end interposed between the head of said bolt and the said cam-washer, whereby upon moving the said switch-lever into an operative position said wedge will tighten said hinge-joint, and upon moving said lever into an inoperative position so as to open the circuit of the said switch, said wedge will be moved so as to loosen said hinge-joint; substantially as described

6. In a mechanically-operated electrical switch, the combination o a switch-lever, a motor, connecting devices between said motor and switch lever, whereby said motor is adapted to open and close the switch by successive movements of the motor, a means adapted to retain the said switch in an open or closed position when it shall have been operated by the said motor and a means provided at the joint of the said lever, adapted to increase the conductivity of the said joint when the switch is closed, and to give freedom of motion to the said lever at the said joint when the switch is opened; substantially as described.

7. In a mechanically-operated electrical switch, the combination of a motor being adapted to actuate the said switch, means between the motor and the switch for retaining the said switch in an open or closed position, a reactive spring for returning the motor to its normal position, a hanger for the motor having a guard, P, depending therefrom and a pendant for the motor, together with means for limiting and controlling the motion of the said motor; substantially as described.

8. In a mechanically-operated electrical switch, the combination of a driving mechanism consisting of ratchet-wheel F having ratchet-teeth F', a pulley D, having therein a groove D', a pawl D^2 carried by the said pulley, a shaft G and a shaft-hanger H adapted to carry the shaft G, a guard P secured to the shaft-hanger H, a crank-pin J, a link N and a driving-lever C^3; substantially as described.

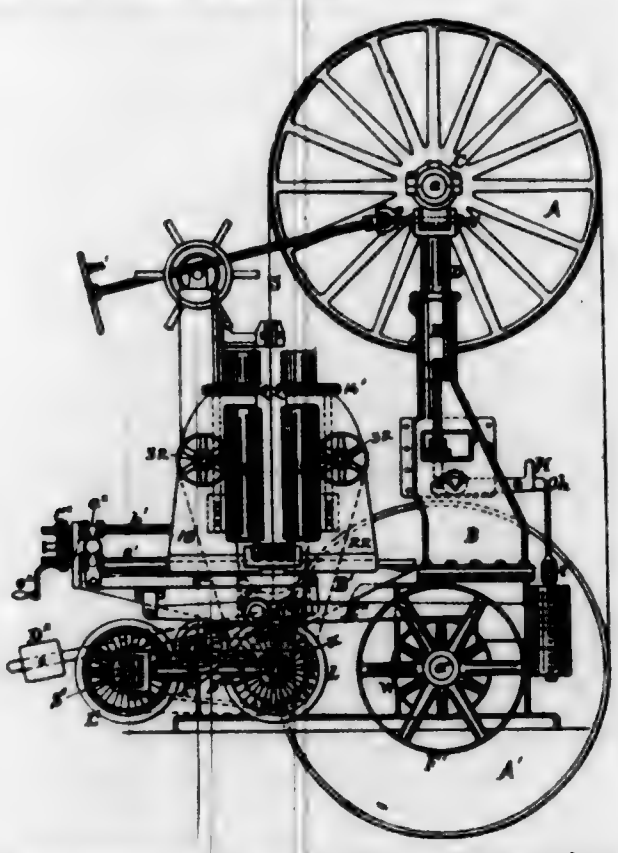
692,428. BAND RESAWING-MACHINE. FRANK H. CLEMENT, Rochester, N. Y. Filed May 17, 1901. Serial No. 60,654. (No model.)

Claim.—1. The combination of the band-saw and means for driving the same, with a set of feed-rolls adapted to be tilted for beveled sawing comprising main rolls and supplemental rolls lapping the saw, said latter rolls being movable transversely out of the path of the blade to avoid the saw when the set is tilted.

2. The combination of the band-saw and means for driving the same, a set of feed-rolls comprising main rolls and supplemental rolls lapping the saw, an independent yoke for each of said latter rolls, one of said yokes being transversely adjustable.

3. The combination of the band-saw and means for driving the same, a set of feed-rolls comprising main rolls and supplemental rolls lapping the saw, an independent yoke for each of said latter rolls, one of said

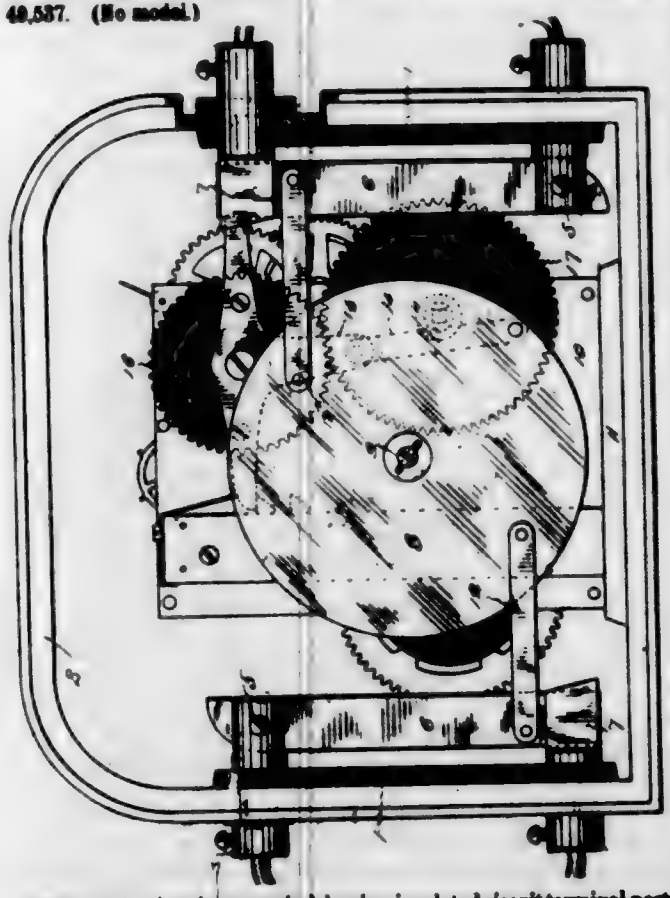
yokes being transversely adjustable, and the other supported by springs and thereby made automatically adjustable.



4. The combination of a band-saw and means for driving the same, with a set of feed-rolls comprising grain rolls and supplemental rolls lapping the saw, and supporting-yokes, one of said yokes being pivoted to swing to and from the saw.

5. The combination of a band-saw and means for driving the same, with a set of feed-rolls comprising grain rolls and supplemental rolls lapping the saw, and supporting-yokes, one of said yokes being pivoted to swing to and from the saw, the other yoke being spring-supported.

692,429. ELECTRIC SWITCH. HENRY J. COSSWELL, Hartford, Conn., assignor to the Acme Switch Company, Incorporated, Hartford, Conn., a Corporation of Connecticut. Filed Mar. 2, 1901. Serial No. 49,537. (No model.)

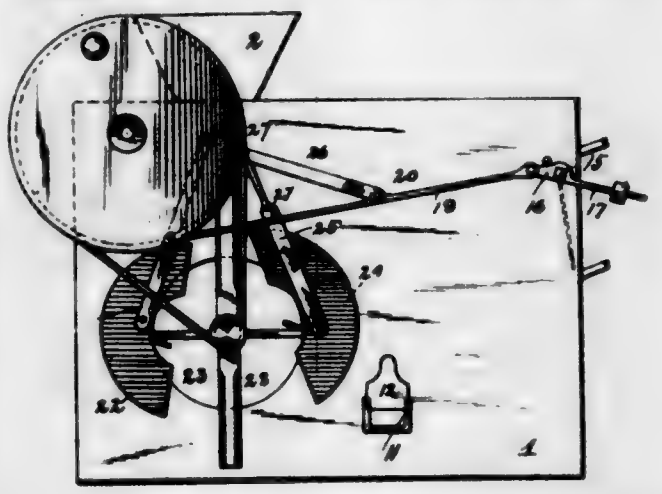


Claim.—1. An electric switch having insulated circuit terminal posts, pivoted blades, each blade being adapted to connect and disconnect a pair of terminals, a rotatable disk, links connecting the blades with the disk, a crank-arm, a link connecting the crank-arm with the disk, and means for intermittently rotating the crank-arm, substantially as specified.

2. An electric switch having insulated circuit terminal posts, conducting-blades each having one end pivoted to a terminal post, and the other end adapted to connect and disconnect an opposite terminal post, a rotatable disk, links connecting the free ends of the blades with the disk, a crank-arm, a link connecting the crank-arm with the disk, means for rotating the crank-arm, and means for intermittently preventing the rotation of the crank-arm, substantially as specified.

3. An electric switch having insulated circuit terminal posts, pivoted blades, each blade being adapted to connect and disconnect a pair of terminals, a rotary disk of insulating material, links connecting the blades with the disk, a crank-arm connected with the disk, a pinion connected with the crank-arm, and a gear meshing with the pinion, substantially as specified.

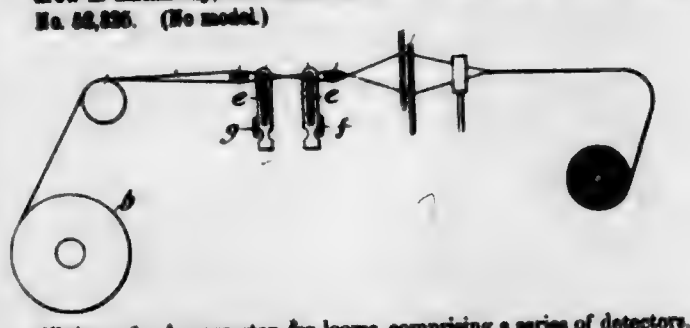
692,480. FAN OR BLAST REGULATOR. ALBERT G. CRITCHFIELD, Alto, Wash. Filed Sept. 10, 1900. Serial No. 29,563. (No model.)



Claim.—1. The herein-described automatic blast-regulator comprising the fan of a fanning-mill, grain-separator or the like, an apron-section normally depending across the delivery-chute at the outer end of the riddle, hood-sections pivotally mounted independently of each other for controlling the supply of air admitted to the fan, an adjustable weight-section cooperating with said apron-section, a system of levers attached to the hood-sections and pivotally mounted independently of each other, a rod pivotally connected with the weighted section and with the supports of the hood-sections, the pivots of the hood-sections being in different planes with relation to the center of the opening leading to the fan substantially as described.

2. The combination of the fan, a riddle, a transverse shaft, an apron thereon mounted so that its position shall be variable in accordance with the quantity of material passing through the machine, a counterbalanced arm connected with the extended end of said shaft, a substantially horizontally extended controlling-rod pivotally mounted on said arm, hood-sections, a link pivotally connected to the controlling-rod, a lever attached to one of the hood-sections and pivotally connected with said link, and a pivotally mounted lever connected to the other hood-section and pivotally connected between its ends with the inner end of the controlling-rod, all substantially as shown and described.

692,481. WARP STOP-MOTION FOR LOOMS. JOHN V. CUSHIFF and EDWARD CUSHIFF, New Bedford, Mass., assignors of one-half to Andrew R. Hathaway, New Bedford, Mass. Filed Mar. 25, 1901. Serial No. 52,226. (No model.)



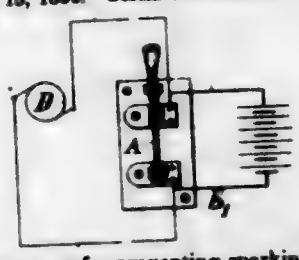
Claim.—1. A warp-stop for looms, comprising a series of detectors, normally supported on the warp-threads, oscillating arms below the warp-threads, one of said arms having an aperture, a latch pivoted on the said arm, a chain secured to the other of the arms and having its other end projected through the aperture in the first-mentioned arm and secured to the latch, and a spring to hold the latch depressed and the chain taut.

2. A warp stop-motion for looms, comprising detectors normally supported on the warp-threads, oscillating arms below the warp-threads, a latch pivoted on one of the said arms, a chain having one end secured

to the other arm and its other end secured to the latch and means to hold the latch depressed and the chain taut.

3. A warp stop-motion for looms, comprising detectors supported on the warp-threads, oscillating arms below the warp-threads, one of said arms having an aperture, stopping means pivoted on the last-mentioned arm, a chain secured to the other of the arms and having its other end projected through the aperture in the last-mentioned arm and secured to the stopping means thereon.

692,432. APPARATUS FOR THE PREVENTION OF SPARKING AND ARCING IN ELECTRIC CIRCUITS. HERBERT H. DOW, Midland, Mich. Filed Mar. 13, 1899. Serial No. 708,796. (No model.)



Claim.—1. As a means for preventing sparking and arcing in an electric circuit carrying a current when said circuit is broken, circuit-breaking means, a current-diverting device out of circuit with said means and operable simultaneously with such breaking, said device generating an electromotive force counter to that of the current in said circuit, said device being normally short-circuited through that part of the circuit in which the break is to occur.

2. As a means for preventing sparking and arcing in an electric circuit carrying a current when said circuit is broken, circuit-breaking means, a current diverting device, including a polarizing-battery, out of circuit with said means and operable simultaneously with such breaking, said device generating an electromotive force counter to that of the current in said circuit, said device being normally short-circuited through that part of the circuit in which the break is to occur.

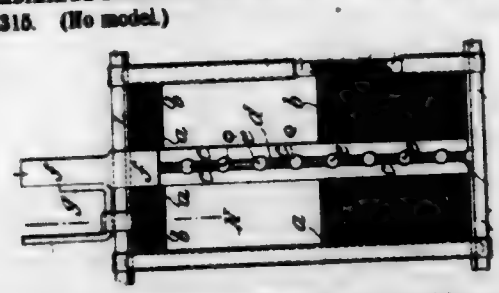
3. As a means for preventing sparking and arcing in an electric circuit carrying a current when said circuit is broken, circuit-breaking means, a current-diverting device out of circuit with said means and operable simultaneously with such breaking, said device being normally short-circuited through that part of the circuit in which the break is to occur, said device generating an electromotive force counter to that of the current in said circuit, said force increasing from the instant of breaking substantially from zero to that of the current in said circuit, whereby a gradual stoppage of the electromotive force in the circuit will be provided.

4. As a means for preventing sparking and arcing in an electric circuit carrying a current when said circuit is broken, circuit-breaking means, a current-diverting device out of circuit with said means and operable simultaneously with such breaking, said device being normally short-circuited through that part of the circuit in which the break is to occur, said device generating by polarization of an electrolytic cell a counter electromotive force which varies from the instant of breaking substantially from zero to that of the current in the main circuit.

5. The combination with a polarizing-battery, means for opening an electric circuit, said battery connected in shunt with said opening means, substantially as set forth.

6. The combination with an electric circuit containing means for opening said circuit, of a number of electrolytic cells connected in series with each other and in shunt with the means for opening the circuit, such number of electrolytic cells being sufficient to practically stop the current in the main circuit when connected up with its electromotive force opposed to that of the said current in the main circuit, substantially as set forth.

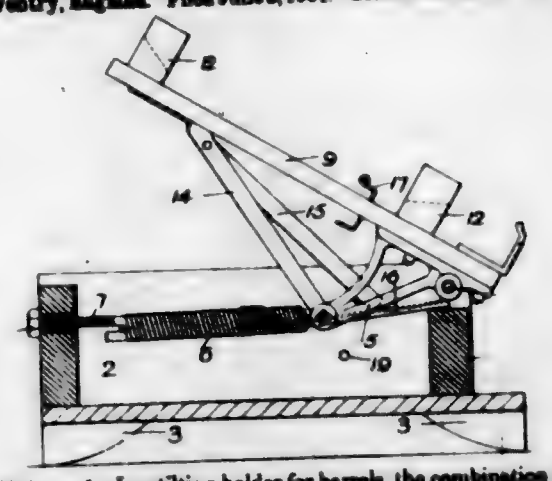
692,433. ELECTRIC ACCUMULATOR. CHARLES HOVITE P. ELLISON and VLADIMIR DE BOSKEWY, Paris, France. Filed May 15, 1901. Serial No. 60,315. (No model.)



Claim.—1. An electric accumulator-plate comprising a central conducting-core, and stripe of thin lead alternately flat and corrugated, attached at one end to each side of the core and free at their other end.

2. The combination with an accumulator-plate having a central conducting-core, and stripe of thin lead alternately flat and corrugated, attached at one end to each side of the core and free at their other end, and a strengthening-frame comprising upper and lower cross-pieces of insulating material and india-rubber ligatures binding the whole together but allowing a free lateral expansion of the thin lead strips.

692,434. TILTING HOLDER FOR BARRELS. JAMES ELLIOTT, Coventry, England. Filed June 3, 1901. Serial No. 62,976. (No model.)

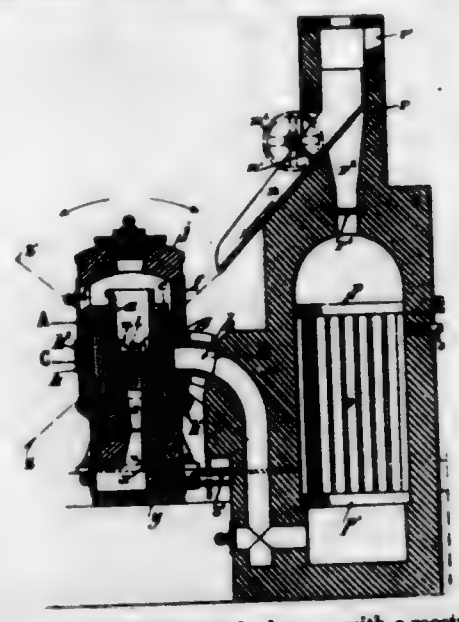


Claim.—1. In a tilting holder for barrels, the combination of a frame, a plank, a pivotal connection between the same frame and plank, means for retaining a barrel on the said plank, a spring adapted to gradually lift the free end of the said plank, and a screw connected to the said spring and the said frame, substantially as and for the purposes set forth.

2. In a tilting holder for barrels, the combination of a frame, a plank, a bracket fixed to the said plank, a spindle adapted to pivotally connect the said bracket to the said frame, a spring connected to the said bracket, a screw connected to the said spring and to the said frame, a stop and cross-bars on the said plank, a stay connecting the said bracket to the free end of the said plank, a rack fixed to the said frame, and a rod jointed to the said plank and adapted to engage in the said rack substantially as and for the purposes set forth.

3. In a tilting holder for barrels, the combination of a frame, a plank, a bracket fixed to the said plank, a spindle adapted to pivotally connect the said bracket to the said frame, a spring connected to the said bracket, a screw connected to the said spring and to the said frame, a stop and cross-bars on the said plank, a stay connecting the said bracket to the free end of the said plank, a rack fixed to the said frame, a rod jointed to the said plank and adapted to engage in the said rack, means for retaining the said jointed rod out of engagement with the said rack, holes in the said frame and means for holding down the said plank against the action of the said spring, substantially as and for the purposes set forth.

692,485. MELTING-FURNACE. JULES HOUPET and EMILE LAURAIN, Paris, France. Filed May 18, 1900. Serial No. 17,166. (No model.)



Claim.—1. The combination of a base *y*, with a receiving-chamber, an inlet-pipe *x* for combustible gas under pressure leading thereto, a furnace pivotally supported above the base, there being a chamber in the bottom of the furnace communicating with the receiving-chamber, said chambers forming the combustion-chamber, a crucible above said chamber, a refractory wall around the crucible and within the furnace, there being a passage for the products of combustion between the refractory wall and the crucible, there being also a reverse outlet-passage between

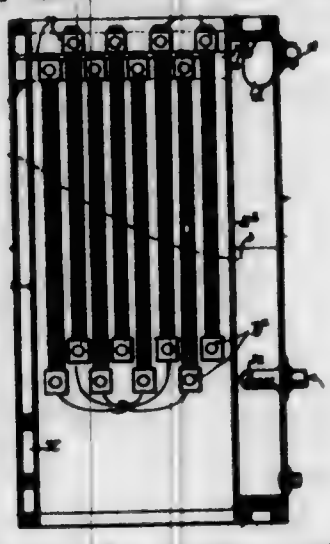
the refractory wall and the furnace-wall, and a passage with which said outlet communicates when the furnace is in upright position.

2. The combination of a pivoted furnace, a crucible therein, means for admitting combustible gases below the crucible, an outlet for gases, a chute in position for filling the crucible without removing it when the furnace is turned on its pivot toward the chute, and a regenerator through which air for combustion is admitted, and through which the products of combustion escape, said chute extending across the regenerator-outlet and adapted to hold the next charge for the crucible, whereby said charge will be heated by the escaping gases.

3. The combination of a pivoted furnace, a crucible supported therein, a crucible-filling inclined chute into line with which the crucible is moved when the furnace is suitably tilted, a regenerator into the outlet of which the chute is extended, and means for holding the contents of the chute within said outlet before its admission to the crucible.

4. The combination, of a pivoted furnace, a crucible supported therein, a crucible-filling inclined chute into line with which the crucible is moved when the furnace is suitably tilted, a regenerator into the outlet of which the chute is extended, means for holding the contents of the chute within said outlet before its admission to the crucible, and a register in the regenerator-outlet below said chute.

692,436. STEAM-GENERATOR. CHARLES H. FOX, Cincinnati, Ohio. Filed May 28, 1901. Serial No. 61,367. (No model.)



Claim.—1. A steam-boiler embodying a straight vertical water-jacketed shell approximately vertical horizontally, and open interiorly above and below; combined with a system of tube units each, substantially as described, placed in closely-adjacent parallel series at different elevations, each tube unit being connected at its diagonally opposite ends to the water-space of the jacket, substantially as set forth.

2. A steam-boiler embodying a straight, vertical, water-jacketed shell approximately vertical horizontally, and open interiorly above and below, combined with a system of tube units, each substantially as described, placed in closely-adjacent parallel series at different elevations, each tube unit being connected at its diagonally opposite ends to the water-space of the jacket, and having at the remaining ends a resting-support upon the water-shell by a stud projecting through the same, substantially as set forth.

3. In a steam-boiler, of the character indicated, a water-jacket composed of substantially rectangular outer and inner shells arranged to give a relatively increasing width of water-space from front to rear, in combination with a series of adjacent tube units opening into the water-jacketed space above and below, substantially as set forth.

4. In a steam-generator of the character indicated, in combination with an inclosing water-jacketed shell open above and below, a plurality of independent detachable steam-generating units composed of horizontal headers connected endwise by a direct horizontal connection with the water-space of the jacket and the outer shell of the jacket being provided with a plugged opening in the projected axis of the header connection, substantially as set forth.

5. In a steam-generator of the character indicated, in combination with an inclosing water-jacketed shell open above and below, a plurality of independent detachable steam-generating units composed of horizontal headers connected by parallel vertical tubes, each header being connected endwise at one end with the water-space of the jacket, and at the other with a removable stud extending through a hollow stay-bolt connecting the outer and inner shells of the jacket in the prolonged axis of the header, substantially as set forth.

6. In a steam-generator, of the character indicated the combination of an inclosing water-jacket, a plurality of tube units, each substantially as described, extending from side to side of the jacket and connected to the water-space above and below, and guiding-partitions such as, p^2, to collect the discharge from a series of tube units, and conduct the same to a predetermined point of final discharge into the water-space of the jacket, substantially as set forth.

7. In a steam-generator, of the character indicated, a "bay" or inclosed space formed by partitions adjacent to the water-feed opening and carried slightly above the normal water-level and over the upper edges of which partitions the water flows into the water-space, substantially as set forth.

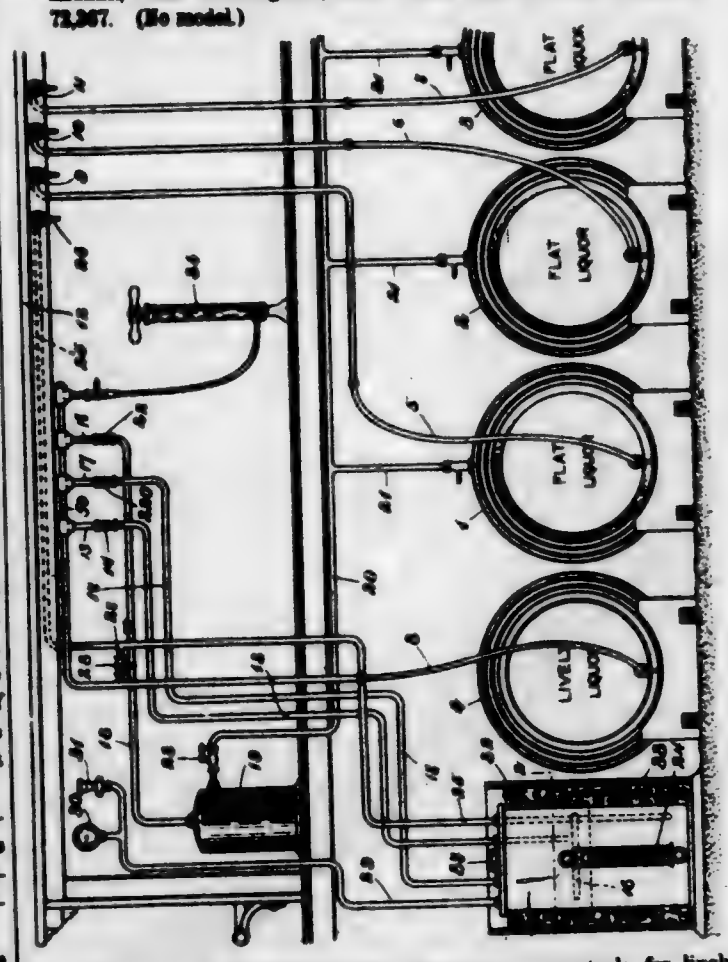
8. In a steam-generator of the character indicated, a "bay" or inclosed space partitioned to a point above the normal water-level, and an inlet-nozzle perforated at the lower sides thereof and entering said "bay" from without, for the admission and distribution of the feed-water, substantially as set forth.

692,437. HYDROCHLORID OF CINNAMYL-QUININ AND PROCESS OF MAKING SAME. GOTTHOLD FROMM, Biebrich, Germany, assignor to Kalle & Company, Biebrich, Germany. Filed Oct. 22, 1901. Serial No. 80,316. (No specimens.)

Claim.—1. As a new process the manufacture of the hydrochlorid of cinnamyl-quinin by acting with cinnamyl chlorid on quinin freed from water of crystallization substantially as described.

2. As a new product the hydrochlorid of cinnamyl-quinin obtained by the action of cinnamyl chlorid on anhydrous quinin representing a tasteless compound melting at 235° to 236° centigrade, difficultly soluble in water, easily soluble in alcohol and crystallizing in white needles.

692,438. LIQUID DISPENSING APPARATUS. WILLIAM E. GALLAGHER, South Framingham, Mass. Filed Aug. 17, 1901. Serial No. 72,267. (No model.)



Claim.—1. In liquid-dispensing apparatus, a receptacle for lively liquor, a receptacle for flat liquor, a separator connected with the receptacle for lively liquor, and means to conduct the gas-pressure from said separator to the receptacle for flat liquor.

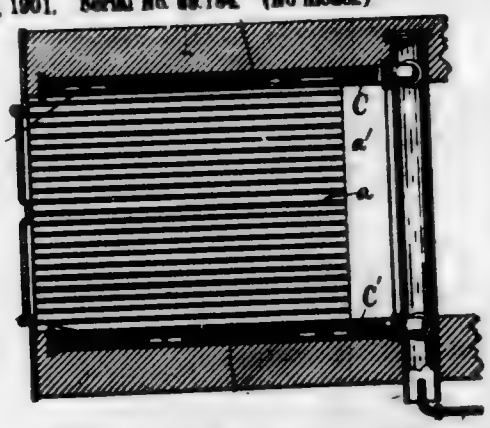
2. In liquid-dispensing apparatus, a receptacle for lively liquor, a receptacle for flat liquor, a separator connected with the receptacle for lively liquor, means to conduct the gas-pressure from said separator to the receptacle for flat liquor, and means to cool said separator.

3. In liquid-dispensing apparatus, a receptacle for lively liquor, a receptacle for flat liquor, a separator connected with the receptacle for lively liquor, means to conduct the gas-pressure from said separator to the receptacle for flat liquor, means to draw the liquor from the last-said receptacle, and means to draw the lively liquor from the separator.

4. In liquid-dispensing apparatus, a receptacle for lively liquor, a receptacle for flat liquor, a separator, a conduit connecting said separator with the lower part of the receptacle for lively liquor, means to conduct the gas-pressure from said separator to the receptacle for flat liquor, means

to draw the liquor from the last-said receptacle, a drawing-conduit connected with the lower part of the separator, a by-pass connecting the said two conduits, and a valve controlling said by-pass.

692,489. FURNACE. JOSEPH G. GRIGGS, Cincinnati, Ohio. Filed July 22, 1901. Serial No. 69,184. (No model.)



Claim.—1. In a furnace the combination of a horizontal pipe adjacent to the bridge-wall and having an open end extending outside of the furnace-walls, pipes in the side walls of the furnace above the grate-bars with their inner faces directly exposed to the heat of the furnace, having perforations leading into the furnace and being tapped into said horizontal pipe, and a steam-injector leading into the open end of said horizontal pipe, substantially as shown and described.

2. In a furnace the combination of a transverse pipe placed immediately in the rear of the bridge-wall and having an open end extending through one of the side walls of the furnace, a longitudinal pipe connected to said transverse pipe and placed in each side wall of the furnace above the grate-bars with its face exposed to and having rearwardly-directed perforations forming communication with the interior of the furnace and a steam-injector leading into the open end of the transverse pipe, substantially as shown and described.

3. In a furnace the combination of a transverse pipe adjacent to the bridge-wall and having an open end extending through one side wall of the furnace, two longitudinal pipes tapped into the transverse pipe having the inner side flattened situated in the side walls of the furnace with the flattened sides flush with said side walls and having rearwardly-directed perforations in said flattened sides and a steam-injector leading into the open end of the transverse pipe, substantially as shown and described.

692,440. MAGAZINE LEAD-PENCIL. BYRON B. GOLDSMITH, New York, N. Y. Filed June 17, 1901. Serial No. 64,858. (No model.)



Claim.—1. A lead-pencil comprising a magazine constructed to receive a series of individual marking-points, inwardly-extending spring-jaws communicating therewith, a feeding-finger and a spring for causing the approach of the jaws and finger and thus causing the finger to drive and hold the marking-point in place within the jaws or to eject it, substantially as described.

2. A lead-pencil comprising a magazine-tube constructed to receive a series of individual marking-points and communicating with inwardly-extending spring-jaws, a feeding-finger extending within the magazine-tube and a spring surrounding the tube for causing the approach of the jaws and finger to drive and hold a marking-point in place between the jaws, or to eject it, substantially as described.

3. A lead-pencil comprising a magazine constructed to receive a series of individual marking-points, inwardly-extending spring-jaws communicating therewith, a feeding-finger, a compressor, and a spring for causing the approach of the finger and compressor and the jaws, whereby the finger ejects or drives a marking-point in place and the compressor compresses the jaws thereupon, substantially as described.

4. A lead-pencil comprising a magazine-tube for receiving a series of individual marking-points communicating with inwardly-extending spring-jaws, non-gripping of themselves, a feeding-finger, and a spring for causing the approach of the jaws and finger, whereby pressure upon the spring permits a marking-point to retire within the magazine and expansion of the spring causes the fingers to eject or drive a marking-point into position, substantially as described.

5. A lead-pencil comprising a magazine-tube for receiving a series of individual marking-points communicating with jaws non-gripping of themselves, a feeding-finger extending into the tube, a compressor embracing the jaws, and a spring for causing the approach of the finger and compressor and the jaws, whereby the expansion of the spring causes the finger to eject or drive a marking-point in place and the compressor compress the jaws thereupon and the compression of the spring permits a marking-point to drop into the magazine from the non-gripping jaws, substantially as described.

6. A lead-pencil comprising a mantle, a magazine-tube sliding within the mantle for receiving a series of individual marking-points and provided with inwardly-extending spring-jaws, non-gripping of themselves, a feeding-finger and a compressing-nozzle, each secured in a fixed position to the mantle, and a helical spring surrounding the tube for drawing the jaws toward the compresser-nozzle and feeding-finger, substantially as described.

7. A lead-pencil comprising a magazine and a feeding and a spacing finger movable in relation thereto, substantially as described.

8. A lead-pencil comprising a tube constructed to receive a series of individual marking-points, a feeding and a spacing finger movable therein and a spring for causing relative motion between the tube and finger, substantially as described.

9. A lead-pencil comprising a slotted magazine-tube, a series of individual marking-points and a feeding-finger and a spacing-finger movable in relation to the tube and constructed to enter and withdraw therefrom in alternation, substantially as described.

10. A lead-pencil comprising a tube communicating with pencil-holding jaws, constructed to receive a series of individual marking-points, a feeding-finger and a spacing-finger therebehind, movable in relation to the tube, the construction being such that when the fingers are in their position removed from the jaws the spacing-finger projects within the tube, substantially as described.

11. A lead-pencil comprising a magazine constructed to receive a series of individual marking-points, spring-jaws non-gripping in themselves communicating therewith, and a feeding and a spacing finger movable in the magazine, whereby a marking-point can be withdrawn into the magazine, a single new point can be fed into position and a worn point can be ejected, substantially as described.

12. A lead-pencil comprising a magazine constructed to receive a series of individual marking-points, spring-jaws non-gripping in themselves communicating therewith, feeding and spacing fingers movable with relation to the jaws, and a spring causing the approaching motion of fingers and jaws, whereby a marking-point can be withdrawn into the magazine, a single new point can be fed into position, and a worn-out point can be ejected, substantially as described.

13. A lead-pencil comprising a magazine constructed to receive a series of individual marking-points and communicating with spring-jaws non-gripping in themselves a feeding-finger and a spacing-finger movable in the magazine, a compressor for the jaws and a spring causing the approaching motion of the jaws and the fingers and compressor whereby a marking-point can be withdrawn into the magazine, a single new point can be fed into position and a worn point can be ejected, substantially as described.

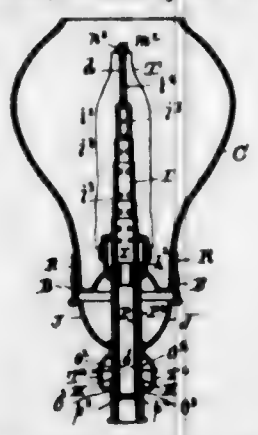
14. A lead-pencil comprising a magazine-tube for receiving a series of individual marking-points, pencil-holding jaws communicating therewith, and a spacing-finger movable in the tube and withdrawable from its interior on motion toward the jaws, substantially as described.

15. A lead-pencil comprising a magazine adapted to receive a series of individual marking-points, pencil-holding jaws non-gripping in themselves, a compressor therefor, a spring-impelled push-piece, and means actuated thereby for permitting a marking-point to fall into the magazine from the jaws, substantially as described.

692,441. MANTLE-HOLDER FOR GAS-BURNERS. ALBERT P. GRIFFIN, Troy, N. Y., assignor of one-half to William E. Hagan, Troy, N. Y. Filed Aug. 26, 1900. Serial No. 28,318. (No model.)

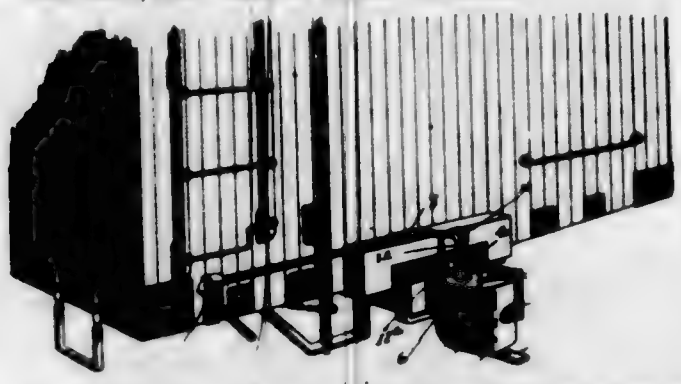
Claim.—1. In combination with a lamp chimney or shade a tapering burner provided with longitudinal passages having lateral openings

throughout its length, and having a closed top provided with a notch, whereby a mantle may be suspended between the latter and the shade or chimney to encircle said burner, means for supporting said burner and shade or chimney, and means substantially as described whereby a supply of gas and air may be supplied to said burner to be burned between the latter, and the mantle, substantially as and for the purposes set forth



2. The combination with the shade or chimney C, having the support B, of the upwardly-extended and inwardly-tapering tube form burner I, provided with side apertures i^3, and having a closed top provided with a notch a^3; substantially as, and for the purposes set forth.

692,442. CAR-COUPLING. HENRY S. HALLWOOD, Columbus, Ohio. Filed June 2, 1899. Serial No. 719,062. (No model.)



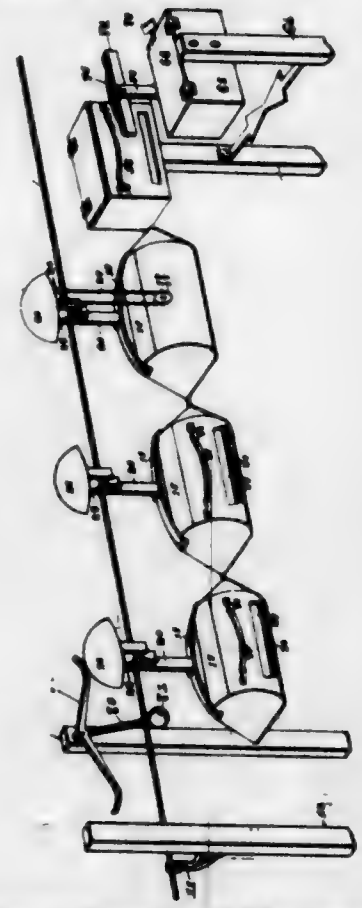
Claim.—In a car-coupling, the combination with the draw-head, a knuckle and a vertically-movable hinge-pin connecting said knuckle and draw-head and a laterally-projecting shoulder or lug 6 on said draw-head, of a journaled and sliding pin-operating lever, the latter having a jointed connection with said hinge-pin and a downward extension formed with said lever and having an outturned end portion which is adapted to engage with or pass said lug 6, substantially as specified.

692,443. MAIL AND PARCEL CARRIER. HIRAM O. HARDEN, Ioka, Iowa. Filed May 13, 1901. Serial No. 60,836. (No model.)

Claim.—1. An improved, automatic receiving and delivering apparatus, comprising in combination, a suspended wire or cable, one or more cars mounted for movement on said wire or cable, means for propelling said car or cars on said wire or cable, a stationary delivering-box, and a stationary receiving-box adjacent thereto, said boxes being arranged on opposite sides of the line of travel of the car or cars, a tilting shelf in each traveling car, a tilting shelf in the stationary delivering-box, and means for actuating said tilting shelves at the same time when the traveling car passes between the stationary receiving and delivering boxes, for the purposes stated.

2. In a receiving and delivering apparatus, the combination of a suspended wire or cable, a car mounted upon said wire or cable, capable of traveling thereon, means for propelling said car on the wire or cable, a stationary receiving-box arranged adjacent to the line of travel of the car, a tilting shelf carried by the car, a projecting trip device carried by the car to tilt the shelf, a device adjacent to the stationary receiving-box, to engage the projected trip device of the car, and means for automatically holding said trip device inwardly after the shelf has been tilted.

3. In an automatic receiving and delivering apparatus, the combination of a suspended wire or cable, a car mounted for movement on said wire or cable, means for propelling the car on the wire or cable, a tilting shelf borne by the car, a projecting trip device on the car connected with the shelf, whereby, when the trip device is engaged, the shelf will be tilted to discharge its contents, a stationary delivering-box arranged adjacent to the path of travel of said car, a stationary receiving-box on the opposite side of the line of travel of said car, a tilting shelf in the stationary delivering-box, a projecting trip device connected therewith, to tilt the shelf when engaged, said projecting trip devices being arranged to engage with each other when the car passes the stationary delivering-box, whereby, the contents of the stationary delivering-box is discharged into the car and the contents of the shelf borne by the car is discharged into the stationary receiving-box, for the purposes stated.



4. In an automatic receiving and delivering apparatus, the combination of a suspended wire or cable, a car mounted for movement on said wire or cable, means for propelling the car on the wire or cable, a tilting shelf borne by the car, a projecting trip device on the car connected with the shelf, whereby, when the trip device is engaged the shelf will be tilted to discharge its contents, means for automatically holding the said projecting trip device inwardly after the shelf has been tilted, a stationary delivering-box arranged adjacent to the path of travel of said car, a stationary receiving-box on the opposite side of the line of travel of said car, a tilting shelf in the stationary delivering-box, a projecting trip device connected therewith, to tilt the shelf when engaged, means for automatically holding the said projecting trip device inwardly after the shelf has been tilted, said projecting trip devices being arranged to engage with each other when the car passes the stationary delivering-box, whereby the contents of the stationary delivering-box is discharged into the car and the contents of the shelf borne by the car is discharged into the stationary receiving-box, for the purposes stated.

5. In an automatic receiving and delivering apparatus, the combination of a suspended wire or cable, a car-body, an upright connected with the car-body and extended over the wire or cable, a frame pivoted in the top of said upright to swing in a horizontal plane, a grooved wheel borne by the said pivoted frame, and spring-actuated arms connected with the said pivoted frame to engage each other beneath the wire or cable, for the purposes stated.

6. In an automatic receiving and delivering apparatus, the combination of a car-body, having a slot in each side, a tilting shelf in the car-body, having the end designed to cover one of the slots when the shelf is in a horizontal position, and a plate pivoted to the opposite end of the shelf and passed through a slot in the bottom of the car and designed to direct the contents of the shelf through one of said slots when the shelf is tilted, for the purposes stated.

7. In a mail receiving and delivering apparatus, the combination of a car-body, a tilting shelf in the car-body, a lever fulcrumed at one end to a stationary support, a link connecting the other end of the lever with the tilting shelf, a rod attached to the central portion of the lever and passed through the side of the car-body, a spring-actuated curved plate having its central portion fixed to said rod and projected outwardly beyond the car-body, whereby, when the said plate strikes an obstruction it will be forced inwardly and the said shelf will be tilted.

8. In a mail receiving and delivering apparatus, the combination of a car-body, a tilting shelf in the car-body, a lever fulcrumed at one end to a stationary support, a link connecting the other end of the lever with the tilting shelf, a rod attached to the central portion of the lever and passed through the side of the car-body, a spring-actuated curved plate

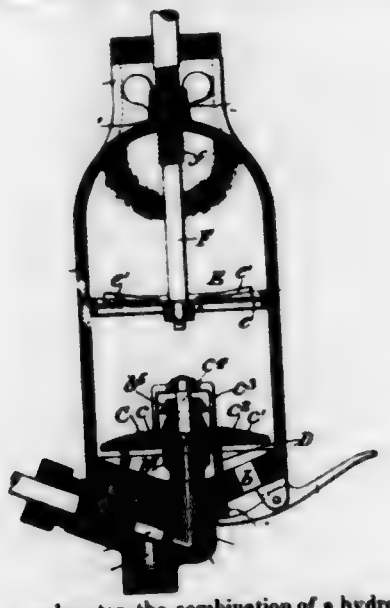
having its central portion fixed to said rod and projected outwardly beyond the car-body, whereby, when the said plate strikes an obstruction it will be forced inwardly and the said shelf will be tilted, and means for automatically locking said lever in its tilted position.

9. In an automatic receiving and delivering apparatus, the combination of a car-body, a tilting shelf in the car-body, a lever pivoted at one end to a stationary support above the tilting shelf, a link connecting the opposite end of said lever with the tilting shelf, a rod pivoted to the central portion of the lever and projected outwardly through the side of the car-body, a coil-spring on its outer end, with one end in engagement with the car-body, a curved flexible plate having its central portion fixed to said rod, and brackets to slidingly support the ends of said plate, for the purposes stated.

10. In a mail delivering and receiving apparatus, the combination with a stationary delivering-box having a movable portion to be engaged and pushed inwardly by the traveling car, and means for holding the same inwardly, one or more knives connected therewith in such a manner as to move inwardly and outwardly in unison with said part, for the purposes stated.

11. In an automatic receiving and delivering apparatus the combination of a suspended wire or cable, a car-body, an upright connected with the car-body and extended over the wire or cable, a frame pivoted in the top of said upright to swing in a horizontal plane, a grooved wheel borne by the said pivoted frame, a second grooved wheel fixed to the first grooved wheel, a grooved wheel mounted on the car-body, and a belt connected with the two latter-mentioned grooved wheels whereby the car may be propelled along the wire or cable and rounded curves.

692,444. CARBURETER FOR EXPLOSION-ENGINES. NELSON O. HARRIS, Chicago, Ill., assignor to American Bicycle Company, New York, N. Y., and Jersey City, N. J., a Corporation of New Jersey. Filed July 27, 1901. Serial No. 69,922. (No model.)



Claim.—1. In a carbureter, the combination of a hydrocarbon-inlet, a valve for the inlet, a movable vaporizing-hood below and surrounding the inlet and carrying the valve, and means whereby the incoming air is directed against said hood to lift the same and the valve and permit the hydrocarbon to flow past the valve and through and upon the hood, substantially as shown and described.

3. In a carbureter, the combination of a shell or body, a base-piece secured thereto and having air-inlets and a hydrocarbon-duct therethrough, a vaporizing-hood below the terminal of said duct supported and guided by said base-piece and a valve-plug carried by said hood and controlling the flow of hydrocarbon through said duct upon said hood, substantially as shown and described

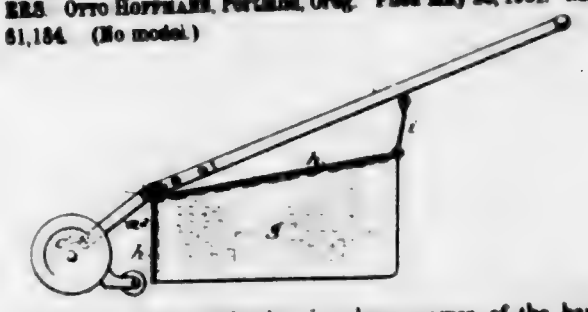
3. In a carbureter, the combination of a shell or body, a base-piece having air-inlets and an oil-duct therethrough and having a central boss, a vaporizing-hood below the terminal of said duct having a sleeve movable upon and guided by said central boss, and a valve-plug carried by said hood to regulate the flow of hydrocarbon through said duct upon said hood, substantially as shown and described.

4. In a carbureter, the combination of a shell or body, a base-piece having air-inlets and an oil-duct therethrough and a central boss, a conical cap secured upon the upper end of said boss and from which the hydrocarbon may flow, a vaporizing-hood and a valve-plug carried by said hood to control the flow of hydrocarbon through said duct, substantially as shown and described.

5. In a carbureter, the combination of a shell or body, a base-piece having air-inlets and an oil-duct therethrough, a vaporizing-hood below the terminal of said duct, a valve-plug carried by said hood to control the flow of hydrocarbon through the oil-duct upon said hood, and means manipulated externally for lifting said hood and valve-plug for starting up, substantially as shown and described.

6. In a carbureter, the combination of a shell or hood, a base-piece having an oil-duct therethrough, a vaporizing-hood, a valve-plug carried by said hood to control the flow of hydrocarbon through said duct, a pin projected upward through said base-piece against said hood, and a lever pivoted externally to said shell or body to coöperate with said pin for the purpose of lifting said hood, substantially as shown and described.

692,445. GRASS-CATCHER ATTACHMENT FOR LAWN-MOWERS. OTTO HOFFMANN, Portland, Oreg. Filed May 20, 1901. Serial No. 61,184. (No model.)



Claim.—1. The combination, in a lawn-mower, of the handle-bar and the yoke thereof having downwardly-bent extremities pivotally connected with the mower, stud-pins laterally projecting from the yoke, and a grass-catcher comprising a wire frame and fabric body; ears, or perforated portions, at the upper front end of the frame removably inserted on said stud-pins; and means for suspending the rear end of the catcher, substantially as described.

2. The combination, in a lawn-mower, of the handle-bar and the yoke thereof having downwardly-bent extremities, pivotally connected to the mower; stud-pins laterally projecting from the yoke, and the grass-catcher comprising a wire frame and fabric body, the portions at the upper front end of the frame being formed into loops, or ears, removably inserted on said stud-pins; and means for suspending the rear end of the catcher, substantially as described.

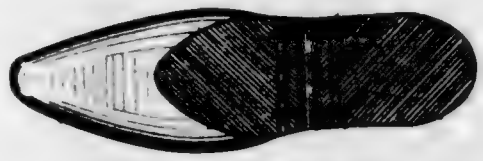
692,446. PNEUMATIC-TUBE PROTECTOR. HAAKAN D. HOPKINSON, Spokane, Wash. Filed Apr. 8, 1901. Serial No. 54,880. (No model.)



Claim.—1. A protector for bicycle-tires having its outer surface provided with intersecting grooves which run diagonally of the tread of the tire.

2. A protector for vehicle-tires having its outer surface provided with intersecting grooves which run diagonally of the tread of the tire and its ends overlapped, one of the overlapped ends having a plurality of longitudinal slots, the side walls of which are recessed, and the other end having perforations for alinement with the slots, and clamping-bolts adapted for engagement with the slots and perforations and to hold the overlapping ends of the protector against lateral movement, thus to protect the inner tube from injury, and having heads adapted to enter the recesses interchangeably to hold the ends in different positions and to lie flush with the protector.

692,447. LAST. JOHN C. IRELAND, Toronto, Canada. Filed Feb. 27, 1901. Serial No. 49,141. (No model.)



Claim.—1. A last embracing in its construction a fore part, a heel part, a link interposed between the fore and heel parts to oscillatingly connect the fore part to the heel part and guide the movement of the heel part when moving relatively to the fore part, slots formed in the side face of the link and located respectively within the fore and heel parts and pins passing through the slots in the link, substantially as specified.

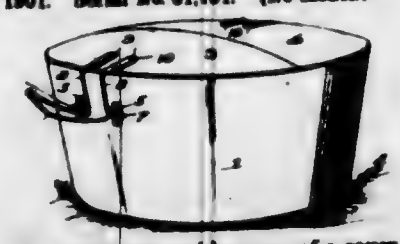
2. A last embracing in its construction a fore part, a heel part, a link interposed between the fore and heel parts to oscillatingly connect the fore part to the heel part and guide the movement of the heel part when moving relatively to the fore part, slots formed in the side face of

the link located respectively within the fore and heel parts, retaining-pins passing through the slots in the link, in combination with a pin passing through the links engaging the contacting faces of the fore and heel parts to assist the link in guiding the oscillating movement of the heel part when moving relatively to the fore part and to render the fore and heel parts rigid except for such oscillating movement, substantially as specified.

3. A last embracing in its construction a fore part, a heel part, alining grooves cut in the opposing faces of the fore and heel parts intermediate the sides of the last, a link interposed between the fore and heel parts contained in the alining grooves to oscillatingly connect the fore part to the heel part and guide the movement of the heel part when moving relatively to the fore part, slots formed in the side faces of the links located respectively in the alining grooves in the fore and heel parts and retaining-pins contained in the fore and heel parts passing through the slots, substantially as specified.

4. A last embracing in its construction a fore part, a heel part, alining groove cut in the opposing faces of the fore and heel parts intermediate the sides of the last, a link interposed between the fore and heel parts contained in the alining grooves to oscillatingly connect the fore part to the heel part as I guide the movement of the heel part when moving relatively to the fore part, slots formed in the side faces of the link located respectively in the alining grooves in the fore and heel parts, retaining-pins contained in the fore and heel parts passing through the slots, in combination with a pin passing through the link engaging the contacting faces of the fore and heel parts to assist the link in guiding the oscillating movement of the heel part when moving relatively to the fore part and to render the fore and heel parts rigid except for such oscillating movement, substantially as specified.

692,448. BAKING-PAN. ISABELLA H. JOHNS, Salisbury, Md. Filed Nov. 9, 1901. Serial No. 81,731. (No model.)



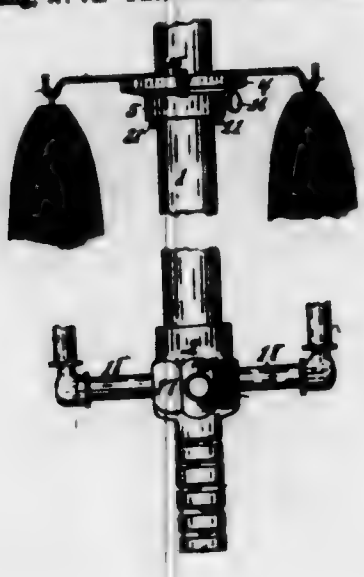
Claim.—1. The combination with a pan, of a cover comprising independent sections and handles pivotally secured to opposite sides of the pan and having angle-arms secured to said cover-sections, said handles serving as stops or braces to support the cover-sections in their raised or open positions.

2. The combination with a pan, of a cover comprising independent sections, and means for hinging the sections consisting of ears secured to the pan, and a handle having laterally-projecting pintles and angle-arms, said arms being secured to the cover-sections.

3. The combination with a pan, of a cover comprising independent semicircular sections each secured to the pan by a combination hinge and handle device consisting of a single piece of wire bent to form a loop-handle, laterally-projecting pivots, and angle-arms, and ears secured to the pan to serve as bearings for said pivots.

4. The combination with a pan, of cover-sections having a lap-joint, at their meeting edges, and handles pivotally secured to the pan and provided with angle-arms secured to the cover-sections said handles serving as stops or braces to support the cover-sections in raised position.

692,449. CLUSTER INCANDESCENT GAS-LAMP. SHELDON JOHNES, Wheeling, W. Va. Filed Nov. 2, 1901. Serial No. 80,940. (No model.)



Claim.—1. In a cluster incandescent gas-lamp, the combination with the stem, of a collar surrounding the same and having an annular channel about its central opening, and having vertical holes extending from said channel through the shank thereof and radial grooves in the face thereof, the inner ends of said grooves registering as to position with the said vertical holes, substantially as and for the purposes set forth and described.

2. In a cluster incandescent gas-lamp, the combination with the stem, of a collar surrounding the same and having a shank thereon and provided with an annular groove about its central opening, said collar having vertical holes extending from said channel into said shank, the upper face of said collar having radial grooves therein, mantle-supporting wires having vertical portions adapted to be seated in said vertical holes and horizontal portions adapted to lie within said radial grooves, substantially as specified.

692,450. ADHESIVE CASEIN AND PROCESS OF MAKING SAME. JOHN A. JUST, Syracuse, N. Y., assignor of one-half to D. H. Burrell & Company, Littlehalls, N. Y., a Firm. Filed Apr. 17, 1901. Serial No. 56,201. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of casein and an alkaline salt of tannic acid, said composition forming with water an adhesive substance and becoming hard and water-resisting upon drying, substantially as set forth.

2. The herein-described method of producing an adhesive substance from casein which consists in combining with casein an alkaline salt of tannic acid and adding water, substantially as set forth.

692,451. BAKING-POWDER. JOHN A. JUST, Syracuse, N. Y., assignor of one-half to D. H. Burrell & Company, Littlehalls, N. Y., a Firm. Filed May 17, 1901. Serial No. 60,696. (No specimens.)

Claim.—1. The herein-described composition of matter consisting of calcium acid phosphate and casein.

2. A baking-powder composed of the herein-described composition of matter consisting of calcium acid phosphate and casein, a carbonate and a filler.

3. The herein-described composition of matter consisting of calcium acid phosphate and casein substantially free from milk-sugar, salts, and other ingredients of milk, substantially as set forth.

4. A baking-powder composed of the herein-described composition of matter consisting of calcium acid phosphate and casein substantially free from milk-sugar, salts, and other ingredients of milk, a carbonate and a filler, substantially as set forth.

692,452. BAKING-POWDER. JOHN A. JUST, Syracuse, N. Y., assignor of one-half to D. H. Burrell & Company, Littlehalls, N. Y., a Firm. Filed June 10, 1901. Serial No. 63,996. (No specimens.)

Claim.—1. The herein-described highly-acid composition of matter consisting of phosphoric acid and casein, containing phosphoric acid largely in excess of the amount which is contained in acid phosphate of casein and being dry, non-hygroscopic and soluble in water.

2. The herein-described composition of matter consisting approximately of twenty-four parts, by weight, of phosphoric acid and seventy-six parts of casein.

3. A baking-powder composed of a carbonate, a filler and the herein-described composition of casein and phosphoric acid, containing phosphoric acid largely in excess of the amount which is contained in acid phosphate of casein and being dry, non-hygroscopic, and soluble in water.

4. A baking-powder composed of a carbonate, a filler and the herein-described composition of casein and phosphoric acid, composed approximately of twenty-four parts, by weight, of phosphoric acid and seventy-six parts of casein.

692,458. BAKING-POWDER. JOHN A. JUST, Syracuse, N. Y., assignor of one-half to D. H. Burrell & Company, Littlehalls, N. Y., a Firm. Filed July 5, 1901. Serial No. 67,168. (No specimens.)

Claim.—A baking-powder containing an acid ingredient, an alkaline carbonate, and casein substantially free from milk-sugar, salts and other ingredients of milk, in sufficient proportion to practically neutralize an excess of the alkaline ingredient or of the acid ingredient, substantially as set forth.

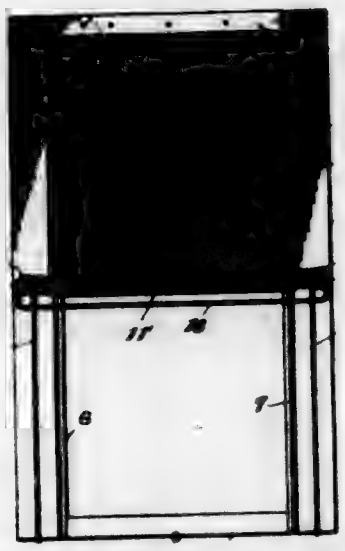
692,454. METHOD OF MAKING CASEIN PHOSPHATE. JOHN A. JUST, Syracuse, N. Y., assignor of one-half to D. H. Burrell & Company, Littlehalls, N. Y. Original application filed June 10, 1901, Serial No. 63,996. Divided and this application filed Sept. 30, 1901. Serial No. 77,137. (No specimens.)

Claim.—1. The herein-described method of producing a compound of phosphoric acid and casein which consists in forming an aqueous solution of phosphoric acid, adding thereto part of the required amount of

casein, concentrating the mixture to a syrupy consistency, adding the remainder of the casein, and thoroughly uniting the ingredients, substantially as set forth.

2. The herein-described method of producing a compound of phosphoric acid and casein which consists in forming an aqueous solution of phosphoric acid, adding thereto part of the required amount of casein, heating and concentrating the mixture to the syrupy consistency, adding the remainder of the casein, thoroughly uniting the ingredients, and drying the product, substantially as set forth.

692,455. SCREEN. FRANCIS M. KEPLER, Hanna City, Ill. Filed Sept. 20, 1901. Serial No. 75,679. (No model.)

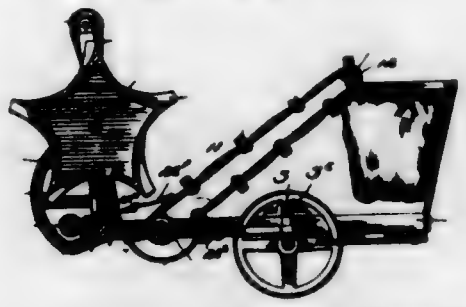


Claim.—1. The combination with a casing, of a screen attached at one end to the upper end of the casing, a roller with which the opposite end of the screen is connected, cords wound upon the ends of the roller and attached to the lower end of the casing, and a bail for the roller pivoted to the ends thereof and having its web portion parallel with the axis of the roller, to wedge between the roller and the cords to hold the roller against rotation in one direction.

2. The combination with a window-casing having raised portions at the sides of the window-opening and extending throughout the height of the latter, of a fabric having one end stretched across the window-opening and having its sides extending beyond the raised portions and taken rearwardly thereover and secured in the rear of the front faces of the raised portions, and means connected with the opposite end of the fabric for holding it with its side edges under tension and in the rear of the front faces of the raised portions.

3. The combination with a window-casing having a frame surrounding the window-opening and having its edges beveled to the face of the casing, of a fabric attached at one end to an end of the frame and having its side edges taken downwardly over the bevels to the face of the casing, a roller disposed transversely of the frame to run thereon and to which the opposite end of the fabric is attached, said roller having terminal drums, cords wound upon the drums and having their ends attached to the casing to rotate the roller when it is raised or lowered, a bail having its ends pivoted to the ends of the roller and a pin for engagement by the bail to hold it with the roller at one limit of its movement.

692,456. PEA-HARVESTER. SALEM B. KIRKOLF, Jackson, Tenn. Filed Oct. 11, 1900. Serial No. 32,753. (No model.)



Claim.—1. In a machine of the character described, the "flailing-cylinder" having a series of peripheral blades or flails, and a roll arranged at the forward edge of the machine, both said cylinder and roll having their upper surfaces turning forward, and said cylinder lying above the passage of the objects acted upon, and said roll lying below said passage, substantially as set forth.

2. In a machine of the character described, the "flailing-cylinder" having a series of peripheral oblique or spiral blades or flails, and a roll arranged at the forward edge of the machine, both said cylinder and roll having their upper surfaces turning forward, and said cylinder lying above the passage of the objects acted upon, and said roll lying below said passage, substantially as set forth.

3. In a machine of the character described, the flailing or threshing cylinder having a series of peripheral oblique or spiral blades or flails, tapered at their outer longitudinal edges, both said cylinder and roll having their upper surfaces turning forward and said cylinder lying above the passage of the objects acted upon, and said roll lying below said passage, substantially as set forth.

4. In a machine of the character described, the flailing or threshing cylinder having a series of peripheral blades, and a series of concavities between said blades, and a roll arranged at the forward edge of the machine, both said cylinder and roll having their upper surfaces turning forward and said cylinder lying above the passage of the object acted upon, and said roll lying below said passage, substantially as set forth.

5. In a machine of the character described, a flailing or threshing cylinder having peripheral blades, a roll arranged at the forward edge of the machine, and an apron or elevator, both said cylinder and roll having their upper surfaces turning forward and said cylinder lying above the passage of the object acted upon, and said roll lying below said passage, substantially as set forth.

6. In a machine of the character described, a flailing or threshing cylinder having a series of peripheral oblique or spiral blades or flails tapered transversely or radially, a yielding presser-plate arranged under said cylinder, and a roll arranged at the forward edge of said machine, both said cylinder and roll having their upper surfaces turning forward and said cylinder lying above the passage of the object acted upon and said roll lying below said passage, substantially as set forth.

7. In a machine of the character described, a flailing or threshing cylinder having peripheral oblique blades, a spring presser-plate arranged under said cylinder, and a roll arranged at the forward edge of the machine, both said cylinder and roll having their upper surfaces turning forward, and said cylinder lying above the passage of the object to be acted upon and said roll lying below said passage, substantially as set forth.

8. In a machine of the character described, the combination of the machine-apron a flailing-cylinder and a spring presser-plate arranged under said cylinder, with its forward edge extended or bent down, opposite the forward edge of the machine-frame, said presser-plate having a rearward extension or apron resting upon the machine-apron, substantially as set forth.

9. In a machine of the character described, a flailing or threshing cylinder having peripheral oblique blades, a series of additional blades secured to the first-named blades, and a roll arranged at the forward edge of the machine, both said cylinder and roll having their upper surfaces turning forward, and said cylinder lying above the passage of the object acted upon, and said roll lying below said passage, substantially as set forth.

692,457. DUMPING-CAR. GEORGE I. KING, Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo., a Corporation of New Jersey. Filed May 18, 1901. Serial No. 60,859. (No model.)

Claim.—1. In a car of the character described, the combination with the side walls, of inclined stiffening bars or braces, side sills located some distance below the side walls, oppositely-inclined members attached to the side walls and to the side sills intermediate said inclined stiffening-braces, and cross-ridges; substantially as described.

2. In a car of the character described, the combination with supporting-bolsters, of side sill members attached thereto, vertically-disposed side walls above the side sills, triangularly-arranged stiffeners for said side walls, sloping floor-sheets attached to the lower edges of said side wall, and cross-ridges attached to the lower edges of said sloping floor-sheets; substantially as described.

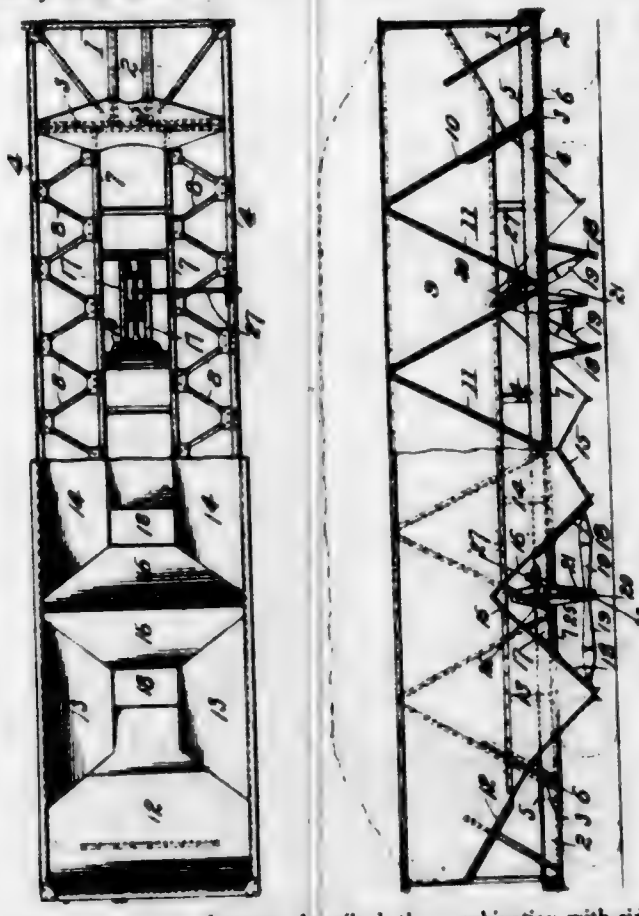
3. In a car of the character described, the combination with supporting-bolsters, of horizontally-disposed girders carried thereby, the outer members of said girders serving as side sills, vertically-disposed side walls arranged above the side sill, triangularly-arranged stiffeners for said side walls, sloping floor-sheets attached to the lower edges of the side walls and to the inner edges of the horizontally-disposed girders, and cross-ridges; substantially as described.

4. In a car of the character described, the combination with the side walls, of sloping end sheets having different degrees of inclination; substantially as described.

5. In a car of the character described, the combination with side walls, of end sheets whose upper portions are inclined and whose lower portions are also inclined but at a different angle; substantially as described.

6. The combination with side walls of sloping end sheets having different degrees of inclination, and inclined side hopper-sheets; substantially as described.

7. In a car of the character described, the combination with side walls, of end sheets having different degrees of inclination throughout different portions thereof, inclined side hopper-sheets, and a cross-ridge; substantially as described.



8. In a car of the character described, the combination with side walls, of sloping end sheets, inclined side hopper-sheets, and cross-ridges of unequal lengths; substantially as described.

9. In a car of the character described, the combination with the side hopper-sheets, of cross-ridges arranged at the upper and lower edges of said hopper-sheets; substantially as described.

10. In a car of the character described, the combination with the hopper-sheets, of a cross-ridge arranged at the upper edge thereof, doors hinged to the legs of said cross-ridge, and a cross-ridge arranged at the lower edge of said hopper-sheets, and against which the free ends of said doors swing; substantially as described.

11. In a car of the character described, the combination with hopper-sheets and sloping end sheets, of cross-ridges 16, doors hinged to the legs of said cross-ridges, and a cross-ridge 15; substantially as described.

12. In a car of the character described, the combination with the sloping end sheet and the end hopper-sheets 13, of the middle hopper-sheets 14, a short cross-ridge arranged between the lower inner edges of the middle hopper-sheets 14, cross-ridges 16 arranged between the upper portions of the hopper-sheets 13 and 14, and doors hinged to the cross-ridges 16; substantially as described.

13. In a car of the character described, the combination with girders lying in a horizontal plane, of hopper-sheets whose inner edges overhang and depend from said girders to form vertical walls for the exit-openings for the load, and means for tying said depending vertical walls against lateral displacement; substantially as described.

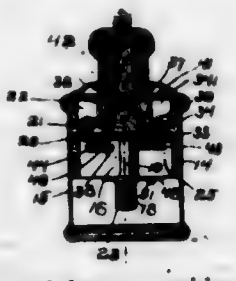
14. In a car of the character described, the combination with a cross-ridge, of doors hinged to the legs thereof, and bars secured wholly within the cross-ridge for strengthening the same in the absence of center sills and for supporting the door-operating mechanism, substantially as described.

15. In a car of the character described, the combination with the cross-ridge, doors hinged to the legs thereof, bars arranged wholly within the cross-ridge for strengthening the same, guide-plates secured to said bars, and mechanism for operating the doors, part of said mechanism being guided in its movement by said guide-plates; substantially as described.

692,458. ELECTRIC-LAMP SOCKET. STANISLAUS A. KOLTOWSKI, Boston, Mass. Filed Dec. 1, 1899. Serial No. 738,789. (No model.)

Claim.—1. A socket for electric lamps comprising an insulating-support; lamp-contacts on said support adapted to engage and sustain the lamp and being disposed with relation to said support whereby one is located in the median line thereof, a casing inclosing said support and having an apertured permanently-closed end and provisions whereby conductor-wires inserted through the said apertured end may be secured in place by an instrument inserted in the open end of said casing.

2. A socket for electric lamps comprising an insulating-support, having apertures extending from rear to front and completely separated from each other by a wall of insulating material for the reception of the conductor-wires, lamp-contacts at the front of the support, a switch mechanism connected to one of said contacts, a casing inclosing the support, and means accessible through the open end of the casing for connecting the conductors to the other of said contacts and to the switch mechanism respectively.



3. A socket for electric lamps comprising an insulating-support having two apertures completely separated by a wall for the reception of the conductors, switch mechanism mounted on said support and including a detachable key, lamp-contacts carried by said support of which one is connected with the switch mechanism, means accessible from the front end of the support for connecting the conductor to the switch mechanism and the other of said lamp-contacts, and a coupling and casing permanently connected together and inclosing the support, said casing having an aperture to receive the said switch-key.

4. A socket for electric lamps including an insulating-support having a chamber, switch mechanism located in said chamber and including a pintle projecting laterally from said support through the walls of the chamber, lamp-engaging contacts carried by said support, and a non-separable casing inclosing said support and having a flanged end bearing thereagainst, said casing having an aperture for the switch-pintle whereby said casing is held against removal when the switch-pintle is in place.

5. A socket for electric lamps comprising lamp-engaging contacts, an insulating-support therefor having separated apertures for the insertion of conductor-wires from the rear end, screws for securing the conductor-wires to said contact, each screw having provisions for coiling a conductor-wire thereabout and clamping it firmly to its contact, and an inclosing casing having a permanently-closed rear end provided with a coupling in alinement with said apertures.

6. An electric-lamp socket, comprising lamp-engaging contacts, an insulating-support therefor having an aperture for the insertion of a conductor-wire from the rear end, a casing inclosing said support and a screw arranged longitudinally of the support and casing, and accessible from the front end of said support without removing said casing, said screw having means whereby when it is rotated, the wire is wrapped about the shank thereof and electrically engaged with one of said contacts.

7. An electric-lamp socket, comprising a cylindrical insulating-support having a chamber at one end, a part of which is located in the median line of the support, said support also having a second chamber in said end separated by a wall from the first said chamber, an inner lamp-engaging contact located in the first-mentioned chamber, at the inner part thereof and in the median line of the said support, a switch mechanism located in the second-mentioned chamber, and longitudinally-arranged screws in said chambers for connecting conductor-wires to the said contact and the said switch mechanism.

8. An electric-lamp socket comprising an insulating-support having in one end two chambers completely separated by a wall and in the other end two holes leading into said chambers, a switch mechanism located in one chamber, a lamp-engaging contact located in the other chamber in the median line of the support, and longitudinally-arranged screws in said chambers for securing conductor-wires passed through said holes into said chambers to said switch mechanism and contact respectively.

9. An electric-lamp socket, comprising an insulating-support having in one end two chambers completely separated by a wall, and in the other end two holes leading into said chambers for the conductor-wires, a switch mechanism located in one chamber, a lamp-engaging contact located in the other chamber, and means located in said chambers and accessible from the front of the support for connecting the conductors to the lamp-engaging contact and the switch mechanism respectively.

10. An electric-lamp socket, comprising a lamp-engaging contact, a switch mechanism, and an insulating-support having separate chambers for said contact and mechanism, metallic strips in said chambers electrically connected with said contact and said switch mechanism respectively, and a screw in each of said chambers for connecting a conductor-wire to the metallic strip therein, said screws being accessible from the front end of the support.

11. An insulating-support for an electric-lamp socket, consisting of a cylindrical body having in one end two chambers separated by a wall and in the other end two tapering apertures leading into said chambers, said

support having two additional screw-receiving apertures leading from said last-mentioned end into said chambers.

12. The combination with an insulating-support having lamp-engaging contacts, of a shell or casing inclosing said support formed of two permanently-connected parts of which one is rotatable with relation to the other, and means located within said casing for securing the support thereto.

13. The combination with an insulating-support having lamp-engaging contacts, of a shell or casing inclosing said support, said shell being formed of two permanently-connected parts, a coupling rigidly secured to said shell, and means connected independently of the casing to said coupling for securing said support thereto.

14. The combination with an insulating-support having lamp-engaging contacts, of a shell or casing inclosing said support, a coupling rigidly secured to said shell, and an arm inside the casing and connected independently of the casing to said coupling and support for securing them together.

15. In combination, a support having two separated centrally-located longitudinal apertures for the conductor-wires, and spaces communicating with said apertures and separated by a wall of insulating material, for the reception of the lamp-engaging contacts; a casing inclosing the support and having a coupling in alinement with the said apertures; and provisions accessible from the front end of the casing and of the support for attaching the conductor-wires to the lamp-engaging contacts.

16. In combination, a casing having a coupling; lamp-engaging contacts; an insulating-support having at the front end spaces separated by a wall of insulating material for the reception of the lamp-engaging contacts, and also having separate apertures leading from said spaces rearward to communicate with the said coupling, whereby wires may be insulated through the coupling, and apertures into the said spaces; and means for attaching the conductor-wires to the lamp-engaging contacts, without removing the casing from the support.

17. A two-part casing for an electric-lamp socket, comprising a cylindrical portion for inclosing the support, and a closed end part undetachably and rotatively connected to the said portion and means in the casing for connecting said parts rigidly and non-revolubly together.

18. A two-part casing for an electric-lamp socket, comprising a part for inclosing the support, and a closed end part permanently and rotatively connected to the said part, and means located entirely within and concealed by said casing for rigidly connecting said parts together.

19. A block for an electric-lamp socket having at one end the chamber 16, and the chambers 24 and 25 separated therefrom by a wall, one of said chambers extending into the middle portion of said block, said chambers having at the other end the holes 42, 41, leading into said chambers 16 and 25.

20. An electric-lamp socket having a block with an aperture, a screw in said aperture, and a coiled spring for frictionally holding said screw in said aperture.

21. An electric-lamp socket having a block with an aperture, a casing, a screw in said aperture for securing said block to said casing, and means in said aperture for holding the screw yieldingly therein when it is inoperative.

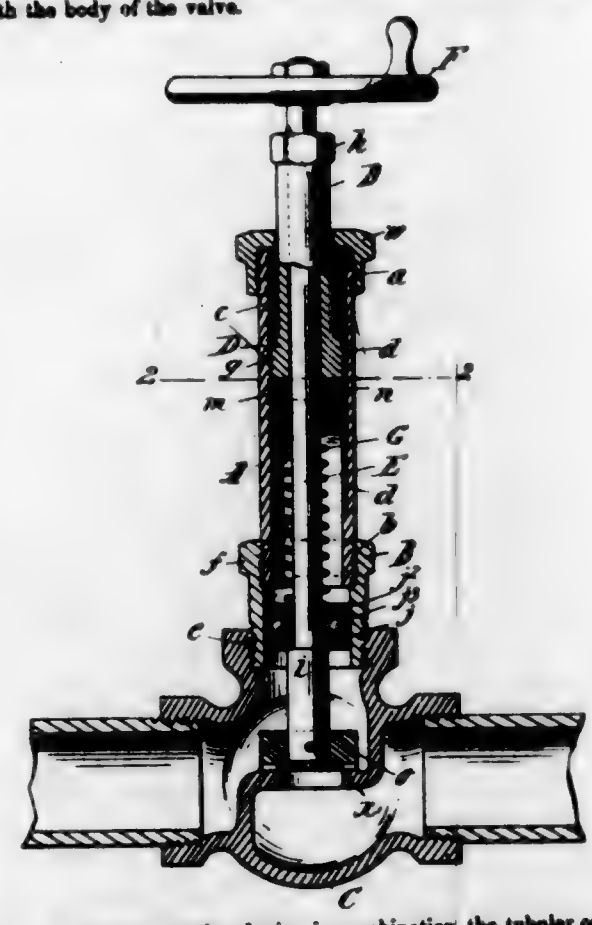
22. An electric-lamp socket, comprising a block or support formed in a single piece, lamp-engaging contacts on said support, a casing, and means inside the casing and accessible only from the open end of the support, for securing said casing and support together, said means including an arm attached to the casing and a screw for securing the arm to the support.

23. An electric-lamp socket comprising a block or support having longitudinal apertures for the reception of conductor-wires and chambers communicating with said apertures for the reception of lamp-contacts, one of said contacts being located in the median line of said support, a casing inclosing said insulated support and having a permanently-undetachable closed end, and means accessible from the open end of the casing for securing the conductor-wires to the lamp-contacts, substantially as described.

692,459. VALVE-RESEATING DEVICE. JOSEPH C. LANGLOIS, Greenfield, Mass. Filed May 16, 1901. Serial No. 60,487. (No model.)

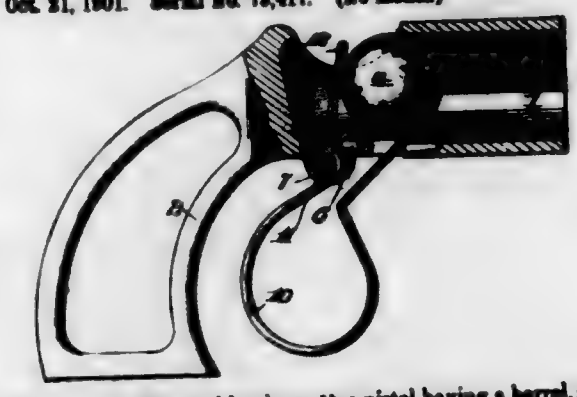
Claim.—1. In a valve-reseating device, the combination with the tubular casing, internally screw-threaded at its upper end portion, and internally longitudinally spline-grooved, of the sleeve having a screw-thread engagement within the upper portion of the casing, the shaft or spindle rotatable through said sleeve, and having at its lower end the tool or cutter, a washer next below the aforesaid sleeve, having a spline engagement in the casing, a spiral spring encircling the shaft, the upper end of which is in engagement with the washer, and exerting a downward reaction on the tool-carrying shaft, and means for connecting the said casing to the body of the valve to be worked upon, substantially as described.

2. In a valve-reseating device, the combination with the tubular casing, of a tool-carrying shaft rotatable therein, and endwise movable in relation thereto, a spring located within said casing and resting downwardly on said shaft, means accessible from the exterior of the casing for regulating the tension of said spring, and means for connecting the casing with the body of the valve.



3. In a valve-reseating device, in combination, the tubular casing A, internally screw-threaded at its upper end portion and provided with the longitudinal spline-groove, and provided at its lower end with means for its connection with the body of a valve, of the sleeve D screw-threading in the upper portion of the casing, and longitudinally adjustable, the tool-shaft E rotatable in, and movable endwise through said sleeve, having at its lower end the cutter, and having near its lower end the shoulder *i*, and a ball-bearing member *j*, a second ball-bearing member j^2 thereabove, free of the shaft, and the interposed balls, the washer *m*, next below the sleeve D, spline-engaged with the groove of the casing, and the spring G interposed between said washer and the ball-bearing member j^2, substantially as described.

692,460. TOY PISTOL. MICHAEL LEHR, Rochester, N. Y. Filed Oct. 21, 1901. Serial No. 79,417. (No model.)



Claim.—1. The combination with a pistol having a barrel, and a pivoted trigger provided with an ejector adapted to engage the rear side of a missile inserted in the barrel, a finger extending in front of said missile, and a spring connection between said finger and trigger.

2. The combination with a pistol having a barrel, and a pivoted trigger, of a finger engaging the barrel, and a spring connection between the trigger and finger adapted as the trigger is moved to retract the finger and to be put under tension to return the trigger when the latter is released.

3. The combination with a pistol having a barrel provided with an aperture at one side, and a pivoted trigger provided with an ejector normally lying in rear of a missile inserted in the barrel, of a finger projecting through the aperture and engaging the barrel, and a spring connection between the trigger and finger by means of which the latter is retracted by the operation of the former which operation also moves the finger in

contact with the edge of the aperture to return the parts to their normal position when the trigger is released.

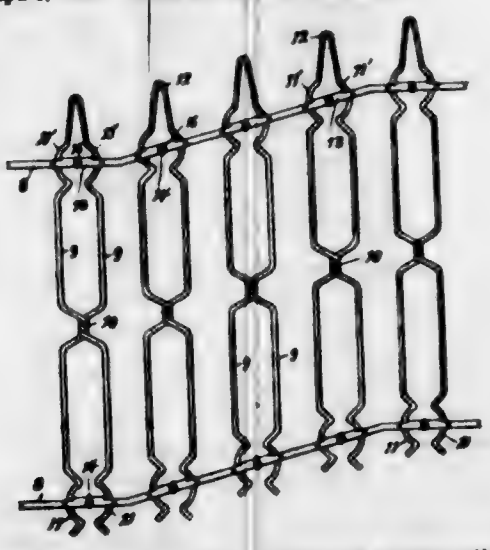
4. In a toy pistol, the combination with a barrel provided with an aperture, in its lower side, of a journal-pin beneath the aperture, a trigger composed of a single piece of material forming the coil surrounding the pin and having one end extending from said coil into the barrel, and adapted to lie in rear of a missile inserted therein, and its opposite end engaging the missile and adapted to be removed from engagement therewith after the first end has been put under tension by the movement of the trigger.

5. The combination with the barrel, of a missile holding and ejecting device pivoted at one side of the barrel and having the missile-holding arm projecting into the barrel forward of the pivot and the elastic projecting arm connected directly to said holding-arm.

6. The combination with the barrel, of a missile holding and projecting device consisting of a single piece of spring material pivoted at one side of the barrel and having the holding-arm extending into the barrel forward of the missile and the ejecting-arm in rear thereof, said device being adapted to be moved on the pivot to withdraw the holding-arm from the barrel.

7. The combination with the barrel, of a missile holding and projecting device pivoted at one side of the barrel having the elastic ejecting-arm extending into the barrel, a missile-holding arm extending in front of said ejecting-arm and an extension or operating portion to which said arms are directly connected and by the movement of which the ejecting-arm is flexed and the holding-arm withdrawn from the barrel.

692,461. **FENCE.** FREDERICK LIGHTFELDT, Milwaukee, Wis. Filed Sept. 8, 1900. Serial No. 29,269. (No model.)



Claim.—1. The combination of a fence-rail, a picket adjacent to the rail, said picket consisting of two parallel or substantially parallel members, each member having a segmentally-curved portion at or near its end, the said segmentally-curved portions being opposed to each other, and a picket-securing device adjustably secured to the rail and engaging and movable on the segmentally-curved portions of the two members of the picket.

2. The combination of a channeled fence-rail, a picket adjacent to the rail, said picket having a rounded or substantially rounded formation at or near its end, a picket-securing device comprising a bar having its ends engaging the rounded portions of the picket, a bolt passing through the bar and provided with a hook engaging under the flange of the channeled rail, and a nut engaging the bolt and adapted to be turned against the bar.

3. The combination of a channeled fence-rail, a picket adjacent to the rail, said picket consisting of two parallel or substantially parallel members, and said picket having a rounded or substantially rounded formation at or near its end, a picket-securing device comprising an angle-bar extending across the picket at the curved portions thereof, the flange of the bar resting upon the top of the rail, and the ends of said bar engaging the curved portions of the picket, a bolt passing through the bar and provided with a hook engaging under the flange of the channeled rail, and a nut engaging the bolt and adapted to be turned against the bar.

4. The combination of fence-rails, a picket adjacent to the rails, said picket consisting of two parallel or substantially parallel members, each member having segmentally-curved portions at or near opposite ends thereof, the said segmentally-curved portions at each end being opposed to each other, and picket-securing devices adjustably secured to the rails and respectively engaging and movable on the respective segmentally-curved portions of the two members of the picket.

5. A fence-picket constructed of wire, bent so as to form the picket with two legs or members, said legs or members being coiled about each other at a medial point but elsewhere separated from and unconnected with each other, and the legs provided at or near their ends with complementary oppositely-rounded portions.

6. In a fence, the combination of channeled rails abutting each other at their ends, a picket adjacent to the abutting rail ends, said picket having a rounded or substantially rounded formation at or near its end, a picket-securing device comprising a bar and engaging and movable on the rounded portions of the picket, a bolt passing through the bar and provided with a hook engaging the flange of the rail, a nut turning on the bolt against the bar, a strap member fitted in the channels and overlapping the ends of two adjoining rails, said strap provided with a recess to accommodate the hook of the bolt, collars fitted about and movable along on the rails and the strap member, and holding-screws turning in the collars against the strap member.

7. The combination of a fence-rail, a picket adjacent to the rail, said picket comprising two legs or members coiled about each other at a medial point but elsewhere separated from and unconnected with each other, and a clamp engaging opposed untwisted portions of the legs or members of the picket, said clamp having means for adjustably engaging said opposed untwisted portions of the legs or members.

8. The combination of a channeled fence-rail, a picket adjacent to one side of said rail, a clamping-bar engaging the picket, and a bolt passing through the clamping-bar, said bolt having its outer end provided with a hook, the hook receiving therein the edge of one of the downwardly-extending flanges of the channeled rail.

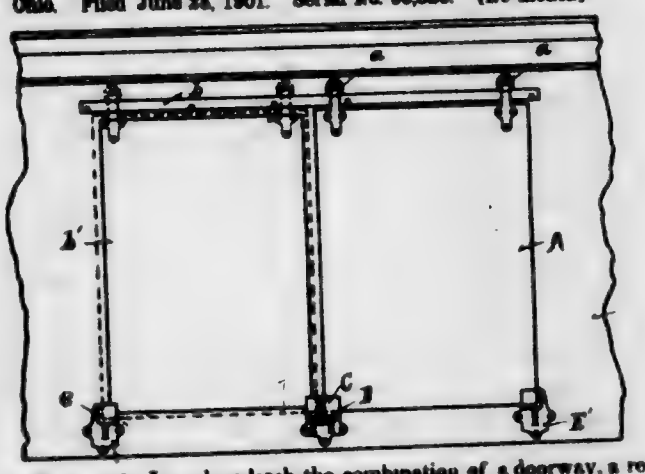
692,462. **VESSEL-CAP.** PHILIP LINDENEYR, Baltimore, Md., assignor to Maryland Stopper Company, Baltimore, Md., a Corporation of Maryland. Filed Oct. 18, 1901. Serial No. 79,179. (No model.)



Claim.—1. The combination of a vessel having two rings near its mouth separated by a circumferential groove, with a cap having in its lower edge a series of teeth separated by spaces extending over the groove and terminating near it, said teeth being bent under the under side of the lower ring with their bodies fitting said under side and their extremities situated in the angle between the rib and bottle-neck to hold on the cap and also guard the ends of the teeth, all substantially as set forth, whereby an instrument can be introduced into the groove between any two adjacent teeth and guided by such groove in stripping a plurality of teeth in succession from the vessel.

2. The combination of a vessel having two rings near its mouth separated by a circumferential groove, with a cap having in its lower edge a series of teeth separated by spaces extending over the groove and terminating near it, said teeth being bent under the under side of the lower ring with their bodies fitting said under side and their extremities situated in the angle between the rib and bottle-neck to hold on the cap and also guard the ends of the teeth, and a stripping-wire situated in the groove and secured to one of the teeth and extending about one-half the circumference of the vessel-neck.

692,468. **DOOR-LATCH.** CHARLES B. LIVINGSTON, Cincinnati, Ohio. Filed June 28, 1901. Serial No. 66,336. (No model.)



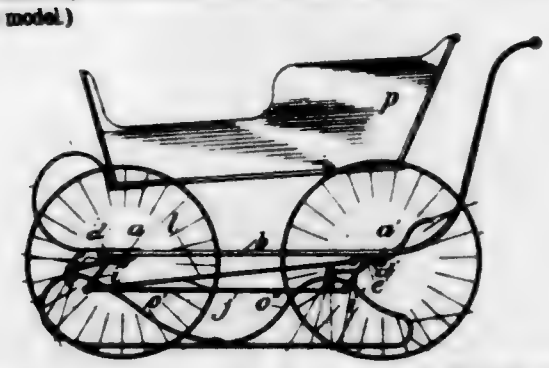
Claim.—1. In a door-latch the combination of a doorway, a reciprocating door to open and close the same, a pawl journaled upon one side of the doorway to be projected automatically across the path of the door when it has passed it, and a check-plate secured to the opposite side of the door between which and the pawl the door is held in its closed position, substantially as shown and described.

2. In a door-latch the combination of a doorway, a reciprocating door to open and close the same, a pawl journaled upon one side of the doorway to be projected automatically across the path of the door when it has passed it, a check-plate secured to the opposite side of the door between which and the pawl the door is held in its closed position, and a check-plate in the path of the door at a distance from the pawl equal to the width of the door and upon the side of the pawl opposite from the aforesaid check-plate, substantially as shown and described.

3. The combination of a reciprocating door to open and close a doorway, an angle-plate secured at a lower corner of the doorway and having a horizontal member to come beneath the lower edge of the door and a vertical member forming a way for the door to slide in, a pawl pivoted upon the angle-plate to be projected automatically across the path of the door when the door has passed it, and a check-plate secured to the opposite side of the doorway from the angle-plate and between which and the pawl the door is held in its closed position.

4. The combination of a reciprocating door to open and close a doorway, an angle-plate secured at the lower edge of one side of the doorway having a horizontal member to come beneath the door a vertical member forming with said horizontal member a way for the door to slide in and a transverse slot in said vertical and horizontal members, a pawl pivoted in the slot having a vertical and a horizontal arm the horizontal arm by its weight normally to hold the vertical arm in the path of the door, a check-plate secured to the opposite side of the doorway having a transverse member to stop the motion of the door and a vertical longitudinal member to bear against the front face of the door, and a similar check-plate secured in the path of the door upon the side of the angle-plate opposite the aforesaid check-plate and at a distance from the angle-plate equal to the width of the door, substantially as shown and described.

692,464. COMBINED BABY CARRIAGE AND SLEIGH. DANIEL MACKENZIE, Owen Sound, Canada. Filed May 4, 1901. Serial No. 58,825. (No model.)

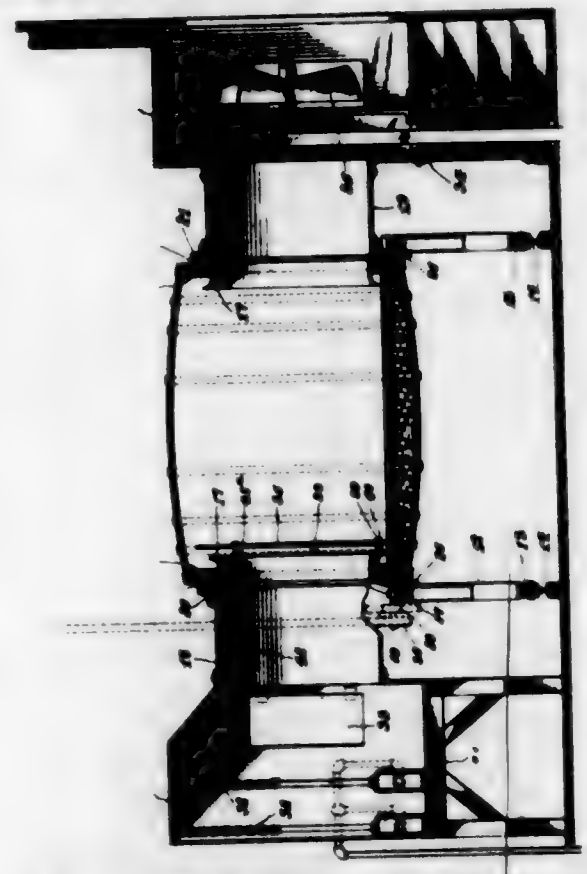


Claim.—1. In a combined baby carriage and sleigh the ground-wheels, axles for the ground-wheels, side bars supported upon the axles between the ground-wheels, springs connected to the side bars, and a body supported by the springs, in combination with bearings connected to the side bars contiguous to the axles of the ground-wheels, crank-shafts journaled in the bearings parallel with the axles, axle-arms for the ends of the crank-shafts, sleeves rotatably mounted on the axle-arms, pendent lugs integrally formed with the rotatable sleeves, slots formed in the pendent lugs, runners, the tops of which pass through the slots, set-screws passing through the lugs to bind the runners in the slots, levers connected to the crank-shafts, a link connecting the levers, an operating-lever to adjust the position of the runners and a connecting-rod connected to the operating-lever and lever of the front crank-shaft, substantially as specified.

2. In a combined baby carriage and sleigh the ground-wheels, axles for the ground-wheels, side bars supported upon the axles between the ground-wheels, springs connected to the side bars, and a body supported by the springs, in combination with bearings connected to the side bars contiguous to the axles of the ground-wheels, crank-shafts journaled in the bearings parallel with the axles, axle-arms for the ends of the crank-shafts, sleeves rotatably mounted on the axle-arms, pendent lugs integrally formed with the rotatable sleeves, slots formed in the pendent lugs, runners each consisting of a shoe member and upturned front and heel members integrally formed with the shoe member passing through the slots in the pendent lugs forming the supports for the bearings and terminating in downwardly-directly braces connected to the upper side of the shoe member, set-screws passing through the lugs to bind the runners in their respective slots, levers connected to the ground-shafts, a link connecting the levers, an operating-lever to adjust the position of the levers and a connecting-rod connected to the operating-lever and to the lever of the front crank-shaft, substantially as specified.

692,465. EVAPORATING APPARATUS. JAMES MERRIDY, London, England. Filed Oct. 29, 1900. Serial No. 34,690. (No model.)

Claim.—1. In an apparatus for evaporating or desiccating eggs, a treatment vessel having its active interior surface substantially unbroken and curved in the direction of its length, and inturned gutters within the ends of said vessel and defining the limits of the active curved surface thereof, combined with means for rotating the vessel on its axis, whereby a film will be formed throughout the active surface of said vessel and the return movement of the surplusage of material will be downward and toward the center, thereby forming an admixture of the bulk contents due to the curvature of the vessel, and means for producing a circulation of air through said vessel, substantially as and for the purposes set forth.



2. In an apparatus for evaporating or desiccating eggs, a treatment vessel the interior of which is substantially unbroken and unobstructed throughout its active surface, said active surface being curved continuously in the direction of its length and of circular cross-sectional contour, and inturned gutters defining the limits of said curved active area or surface of the vessel, combined with means for rotating the vessel, whereby a film will be formed throughout the active surface of said vessel and the return movement of the surplusage of material will be downward and toward the center, thereby forming an admixture of the bulk contents due to the curvature of the vessel, and means for circulating air through the vessel and in paths closely following the contour of the active surface of said vessel, substantially as described.

3. In an evaporating apparatus, the combination of an air-heater; a suction device; a revolubie vessel interposed between and having detachable and operative engagement at its end portions with the air-heater and the suction device; and a wheeled carriage supporting said revolubie vessel and adapted to bodily shift the same transversely with respect to the air-heater and suction device, whereby the vessel may be displaced from its operative position and the end portions thereof exposed to convenient access, as set forth.

4. In an evaporating apparatus, the combination of a revolubie vessel; a shiftable carriage on which said vessel is revolubly mounted; and means for inducing a heated current of air therethrough, the inducing means being located at the discharge end of the vessel, said carriage being movable transversely of the direction of the air-current; and means for rotating the vessel when in its operative relation to the air-inducing mechanism, substantially as and for the purposes described.

5. In an evaporating apparatus, the combination with a vessel, of means for inducing a suction-current therethrough, and a foldable distributer-plate removably supported within the vessel and arranged for the edges thereof to terminate close to the inner surface of the vessel and thereby form a restricted annular space or opening, substantially as described.

6. In an evaporating apparatus, the combination with an air-heater, and a suction device, of a revolubie vessel situated between the heater and the suction device, foldable sectional distributer-plate within said vessel adjacent to the air-heater, and means for holding said plate in a stationary position, free from engagement with the revolubie vessel, and for locking the sections of said plate in their operative positions, substantially as described.

7. In an evaporating apparatus, the combination of an air-heater, a

suction device, a shiftable carriage mounted for transverse movement between the air-heater and said suction device and a revoluble vessel on the carriage, said vessel being shiftable with the carriage into and out of alined relation to the air-heater and the suction device, substantially as described.

8. In an evaporating apparatus, the combination of a shiftable carriage, a revoluble vessel thereon, a distributer-plate, and means attached to the carriage for supporting said plate within said vessel, substantially as described.

9. In an evaporating apparatus, an air-distributer consisting of a foldable sectional plate having its members hinged together, combined with a revoluble vessel, and means for sustaining said foldable plate in an operative stationary position relative to said vessel, substantially as described.

10. In an evaporating apparatus, the combination of a carriage, a revoluble vessel thereon, a support attached to the carriage and extending into the vessel, a grooved seat-rail on the support, and a distributer-plate fitted to the groove of said seat-rail and mounted within an open end portion of the vessel, substantially as described.

692,466. SALT-CELLAR. CHARLES W. MORRIS, Philadelphia, Pa. Filed Nov. 2, 1901. Serial No. 80,909. (No model.)



Claim.—1. In a vessel for condiments, the combination with a perforated cover, the upper surface of which is arched or crowned, of a disk within the cover having its interior portions cut and struck up so as to form a plurality of apertures therein and a plurality of scrapers on the upper side thereof and formed integrally therewith, the edges of which are shaped to conform to the curve of the cover, parallel agitating-arms rigidly attached to the under side of the disk, and a handle to actuate the disk extending through a horizontal slot in the side of the cover, substantially as described.

2. In a receptacle for condiments, the combination with a perforated cover having its upper surface arched, of a disk within the cover, a plurality of apertures therein and scrapers upon its upper side formed integrally therewith, parallel agitating-arms on its under side and a handle attached to the disk and extending through a horizontal slot in the side of the cover, substantially as described.

3. In a vessel for condiments, the combination, with a perforated cover, of a disk provided on its upper side with scrapers struck up at right angles to the disk and adapted to contact evenly with the inner surface of the perforated cover, apertures in the disk between the scrapers, a plurality of parallel arms rigidly attached to the under side of the disk, and a handle to revolve the disk, substantially as described.

4. In a vessel for condiments the combination with a perforated cover of a disk provided on its upper side with scrapers struck up diagonally to the plane of the disk and adapted to contact evenly with the inner surface of the perforated cover, apertures in the disk between the scrapers, a plurality of arms rigidly attached to the under side of the disk, and a handle to revolve the disk, substantially as described.

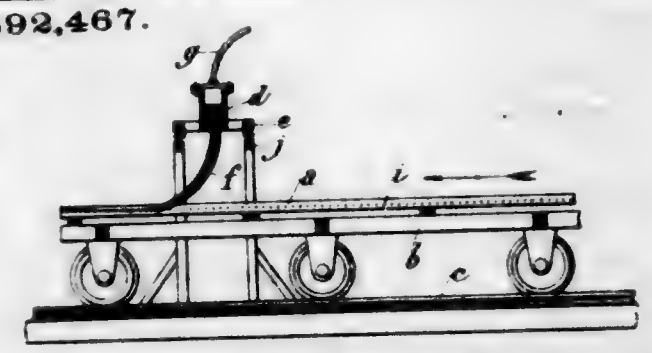
5. In a salt-cellar, the combination of the vessel A provided with the perforated cover B, the disk C loosely fitted within the said cover, the scrapers D on the upper side of said disk and formed integrally therewith, the agitating-arms F on the under side of the disk, and the handle E attached to the disk and extending through a slot in the side of the cover, as set forth.

692,467. FABRIC. JOSEPH HUGUIER, Lyons, France. Filed May 28, 1901. Serial No. 62,264. (No specimens.)

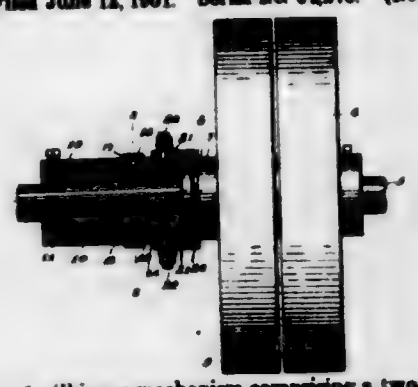
Claim.—1. As an article of manufacture, a fabric consisting of a plurality of threads of a viscous liquid secured together solely by the natural viscousness of the material before drying, substantially as described.

2. A fabric consisting of a plurality of threads of a viscous liquid secured together solely by the natural viscousness of the material before drying, and combined with another layer of fabric, substantially as described.

692,467.



692,468. SHIPPER MECHANISM. JOHN MCCAFFREY, Lawrence, Mass. Filed June 12, 1901. Serial No. 64,275. (No model.)

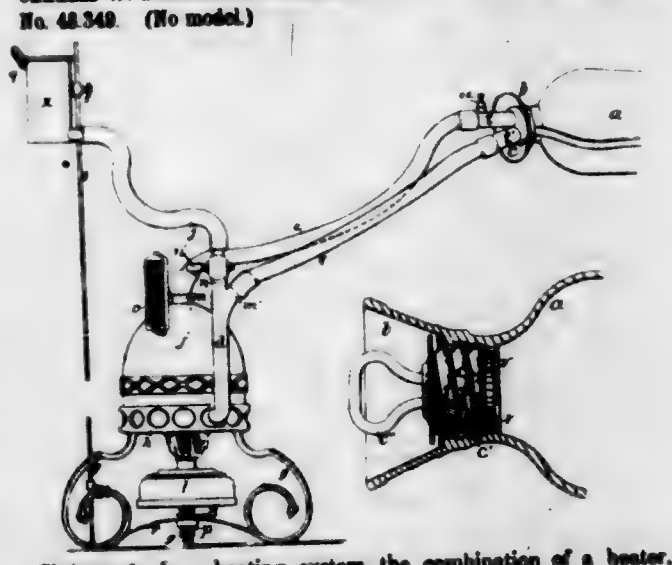


Claim.—1. Shipper mechanism comprising a two-part thrust-resisting member having a recess formed therebetween, a cam seated in the recess, a shipper-sleeve loosely mounted on said thrust member, and means intermediate the cam and said sleeve for causing the partial rotation of the cam when the sleeve is moved longitudinally.

2. Shipper mechanism comprising a two-part thrust-resisting member having a recess formed therebetween, a cam seated in said recess and having a lever member, and a shipper-sleeve loosely mounted on the thrust member and having means for engaging said cam-lever, for the purpose described.

3. The combination with the collar 10 adapted to be secured to a shaft and having the recess 12, the collar 14 adapted for movement on the shaft and having the recess 15, and the cam-lever 17, seated in such recesses and having the arm 18, of the shipper-sleeve 19 mounted on said collars and having means for engaging the arm 18 to swing the same.

692,469. HOT-WATER-APPLIANCE HEATING APPARATUS. CHARLES W. MCCUTCHEN, Peekskill, N. Y. Filed Feb. 21, 1901. Serial No. 48,349. (No model.)



Claim.—1. In a heating system, the combination of a heater, a collapsible radiator, a flexible supply-pipe and a flexible return-pipe connecting the water-heater with the radiator and forming therewith a circuit, a vertically-adjustable reservoir connected to the return-pipe of the circuit by a single flexible pipe whereby upon adjusting the reservoir at different elevations the pressure and quantity of liquid circulating in the circuit may be changed, substantially as set forth.

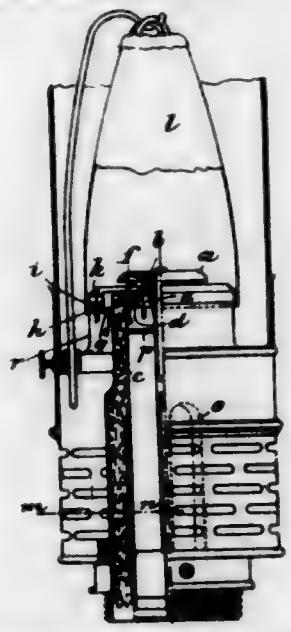
2. In a heating system, the combination of a heater, a collapsible radiator, a flexible supply-pipe and a flexible return-pipe connecting the water-heater with the radiator and forming therewith a circuit, a vertically-adjustable reservoir connected to the return-pipe by a flexible pipe whereby upon adjusting the reservoir at different elevations the pressure and quantity of liquid in the collapsible radiator may be changed, and a controlling-cock in the pipe connecting the reservoir to the return-pipe, substantially as herein set forth.

3. In a heating system the combination of a heater, a collapsible radiator, a flexible supply-pipe and a flexible return-pipe connecting the water-heater with the radiator and forming a circuit therewith, a removable stopper in the radiator having tubes therein to which the supply and return pipes are connected, a vertically-adjustable reservoir connected to the return-pipe of the circuit by a single flexible pipe whereby upon adjusting the reservoir at different elevations the pressure and quantity of liquid circulating in the circuit may be changed.

4. In a heating system, the combination of a heater, a collapsible radiator, a flexible supply-pipe and a flexible return-pipe connecting the water-heater with the radiator and forming therewith a circuit, a vertically-adjustable reservoir connected to the return-pipe of the circuit by a single flexible pipe whereby upon adjusting the reservoir at different elevations the pressure and quantity of liquid circulating in the circuit may be changed, a removable stopper in the radiator having tubes therein to which the supply and return pipes are connected, and a flexible extension of the supply-tube within the radiator provided with a float at its extremity, substantially as herein set forth.

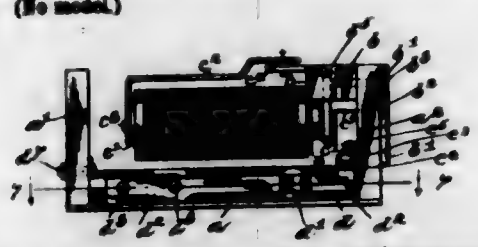
5. In a heating system, the combination of a heater, a collapsible radiator, a flexible supply-pipe and a flexible return-pipe connecting the water-heater with the radiator and forming therewith a circuit, a vertically-adjustable reservoir connected to the return-pipe of the circuit by a single flexible pipe whereby upon adjusting the reservoir at different elevations the pressure and quantity of liquid circulating in the circuit may be changed, and an air-valve in one of the radiator-tube connections, substantially as herein set forth.

692,470. **BURNER FOR OIL-LAMPS HAVING INCANDESCENT MANTLES.** LARS C. NIELSEN, Frederiksberg, Denmark. Filed May 28, 1900. Serial No. 18,143. (No model.)



Claim.—In a burner for an incandescent oil-lamp the combination with a wick-tube, through and around which air is supplied to the flame, of a reversed-cup-shaped generator *a*, *b* fixed within and overhanging said wick-tube, an inner ring *d* provided with air-channels *f* and fixed inside the wick-tube near its upper edge, an outer ring *i* carried by the burner-frame and surrounding the upper end of the wick-tube, air-channels *h* in said outer ring *i* and an inclined deflector *k* carried by the burner-frame and placed over the channels *h*, substantially as and for the purpose set forth.

692,471. **ELECTRIC ANNUNCIATOR.** ELSWORTH R. OVERSHINER, Chicago, Ill., assignor to the Swedish-American Telephone Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 9, 1900. Serial No. 36,910. (No model.)



Claim.—1. An annunciator comprising a vertical support, a casing, or guide, on the front of said support, an aperture in the lower portion of said casing, or guide, a disassociated drop comprising a signal, adapted to be moved vertically and freely in said casing, a support for retaining said drop in an elevated position, an electromagnetic armature adapted to remove said support, and a means located in said casing for raising said drop, substantially as set forth.

2. An annunciator comprising a vertical support, a casing, or guide, on the front of said support, an aperture in the lower portion of said casing, or guide, a disassociated drop comprising a signal adapted to be moved vertically and freely in said casing, a support for retaining said drop in an elevated position, an electromagnetic armature adapted to remove said support, a spring-jack and a means associated with said spring-jack and annunciator for raising said drop, substantially as set forth.

3. An annunciator comprising a vertical support, a casing, or guide, on the front of said support, an aperture in the lower portion of said casing, or guide, a disassociated drop comprising a signal, adapted to be moved vertically and freely in said casing, a support for retaining said drop in an elevated position, an electromagnetic armature adapted to remove said support, a spring-jack associated with said annunciator, a lever located in said casing, and a means associated with said spring-jack for automatically lifting said lever, whereby said drop is restored, substantially as set forth.

4. A spring-jack annunciator, comprising a drop, a spring-jack, a switching-plug adapted to enter the said jack, a lever in the path of the said plug, a means for lifting the drop, and a device intermediate of the said lever and the said means, adapted to be operated by the said lever for raising the drop, substantially as set forth.

5. In a spring-jack annunciator, the combination of a spring-jack tube, a pointed switching-plug adapted to be inserted therein, a recess on one side of said tube, a spring-lever having an extension adapted to be held normally within said recess and within the path of said plug, a drop for said annunciator, and a device between said drop and said spring-lever, adapted to lift said drop by the coöperation of the said lever at the time when said spring-lever is displaced from its normal position, and to lift said drop when said spring-lever returns to its normal position, after said plug is withdrawn from said spring-jack, substantially as set forth.

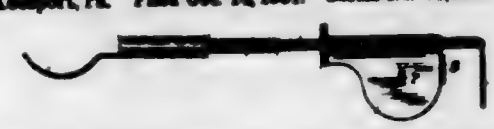
6. In a spring-jack annunciator, the tube *d*, recess *d'*, the spring-lever d^2 adapted to extend into said recess, a latch *e* adapted to be vibrated when said spring-lever is displaced, and when it returns to its normal position, a pawl e^3 adapted to be raised by the said latch, a drop-lifter e^4 operated by said pawl and latch, a drop and a plug adapted to displace said spring-lever, when said plug is inserted within said tube, substantially as set forth.

7. In a spring-jack a switching plug adapted to enter the said jack, a device in the path of said plug adapted to be displaced thereby, circuit-terminals approximately near said device, said circuit adapted to be closed when said device is displaced by said plug, and a spring for returning said device to its normal position, after said plug has been withdrawn, without closing said circuit, substantially as set forth.

8. In a spring-jack a switching-plug adapted to enter the said jack, a dog adapted to extend into the path of said plug and to be displaced thereby, a spring for holding said dog normally in said position, a lever adapted to be laterally displaced, by said dog, when the latter is displaced by said plug, and to ride upon said dog when the latter is returned to its normal position, substantially as set forth.

9. In an annunciator and spring-jack, an upright support, a series of terminal spring-blades or brushes extending inwardly therefrom, a series of uncovered conducting-wires or rods, at right angles thereto and common to a vertical series of said annunciators, and a means for retaining said annunciator-terminals in contact therewith, substantially as set forth.

692,472. **CURTAIN AND SHADE HOLDER.** GUSTAVE PALMLAD, McKeesport, Pa. Filed Oct. 14, 1901. Serial No. 78,336. (No model.)



Claim.—1. In a curtain and shade holder, the combination with a frame or casing and a facing-strip, of a bar, an ear portion on said bar adapted to be forced down between the casing and strip, and means on said bar for engaging with said strip to secure the holder in place.

2. In a curtain and shade holder, the combination with a frame or casing and a facing-strip, of a bar, an ear portion on said bar adapted to be forced down between the casing and strip, a sleeve on said bar adapted to engage with said strip, and means engaging with said sleeve to hold the same against said strip and secure the holder in place.

3. In a curtain and shade holder, the combination with a frame or casing and a facing-strip, of a bar, an ear portion on said bar adapted for insertion between the casing and strip, a sleeve on said bar, projections on said sleeve adapted to engage with said strip, and means engaging with said strip to hold the projections against said strip and secure the holder in place.

4. In a curtain and shade holder, the combination with a frame or

casing and a facing-strip, of a bar, an ear portion on said bar adapted to be forced down between the casing and strip, a sleeve on said bar adapted to engage with the strip, and a nut adapted to engage with threads on said bar and with the sleeve to hold the latter against the strip and secure the holder in place.

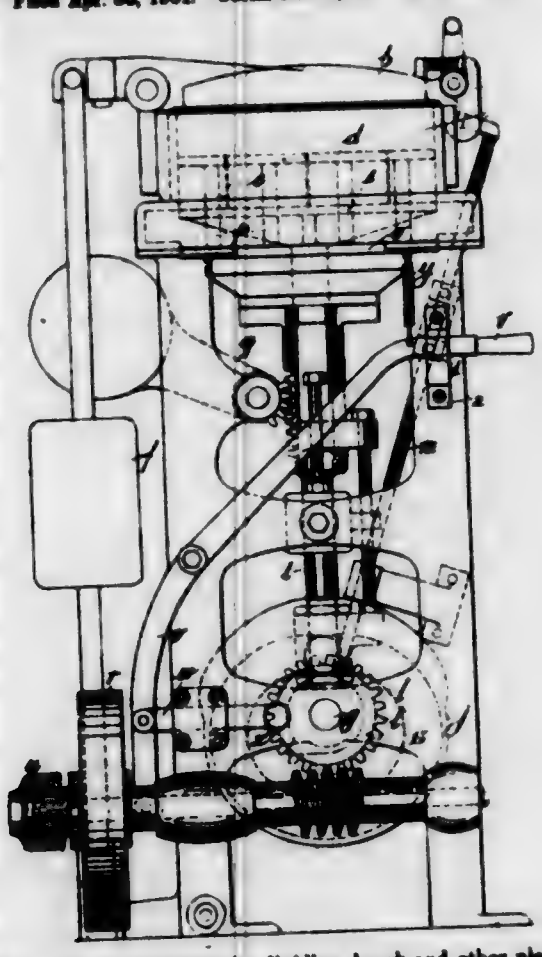
5. In a curtain and shade holder, the combination with a frame or casing and a facing-strip, of a bar, an ear portion on said bar adapted for insertion between the casing and strip, a sleeve on said bar, projections on said sleeve adapted to engage with said strip, and a nut adapted to engage with threads on said bar and with the sleeve to hold the projections against the strip and secure the holder in place.

6. In a curtain and shade holder, the combination of a bar, a sleeve adapted to engage with threads on said bar, and a telescopic sleeve on said first sleeve for supporting the pole and curtain in the position desired.

7. In a curtain and shade holder, the combination of a bar, a sleeve on said bar adapted to engage with threads on said bar, a telescopic sleeve on said first sleeve for supporting the pole and curtain in the position desired, and a stop on said first sleeve adapted to engage with the telescopic sleeve and limit the movement of the same.

8. In a curtain and shade holder, the combination of a bar, a sleeve on said bar having its end bent to engage with threads on said bar, a telescopic sleeve on said first sleeve having a curved portion thereon for supporting the pole and curtain in the position desired, and a stop on said first sleeve adapted to engage with a like stop on the telescopic sleeve to limit the movement of the same.

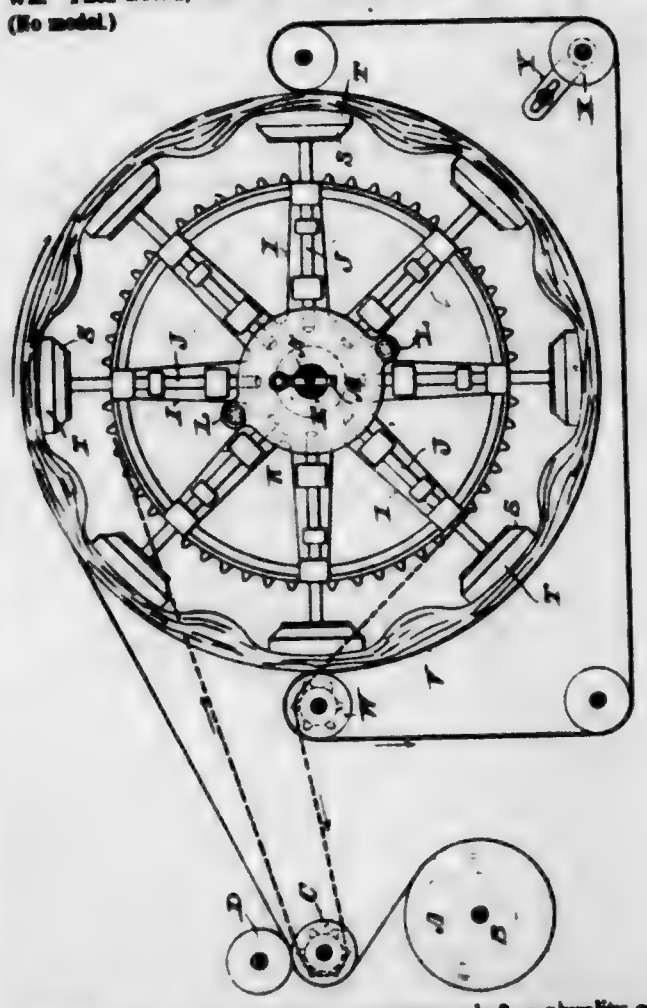
692,473. MACHINE FOR DIVIDING DOUGH. JOHN R. POUPTON and CHARLES R. POUPTON, Wellington, England, assignors to Lewis & Pointon's Pantification, Limited, Wellington, England, a Registered Company. Filed Apr. 30, 1901. Serial No. 58,155. (No model.)



Claim.—1. In machines for dividing dough and other plastic material, the combination with movable press-heads or platens respectively carrying dividing-knives and press-plates, and a receiver inclosing the said knives and plates and having a counterweighted lid provided with a spring fastening-catch, of means for the automatic intermittent operation of the said knives, plates, and catch, consisting of a continuously-rotating pulley, an automatically-detachable driving connection between the said pulley and the shaft on which it is mounted, and cam-driving connections between the said shaft and the aforesaid parts to be intermittently operated, substantially as described.

2. In machines for dividing dough and other plastic material, the combination consisting of movable press-heads or platens respectively carrying dividing-knives and press-plates, a receiver inclosing the said knives and plates and having a counterweighted lid provided with a spring fastening-catch, a rotatable shaft carrying a gapped worm-wheel, cam-driving connections between the shaft and the said heads or platens and fastening-catch, a worm-shaft gearing with the said worm-wheel shaft and carrying a clutch and loose driving-pulley, and a clutch-operating lever having in connection therewith a link carrying a roller intermittently engaging the gap in the said worm-wheel, substantially as described.

692,474. REELING MECHANISM. CHARLES R. PERT, Kaukauna, Wis. Filed Nov. 2, 1900. Renewed July 1, 1901. Serial No. 66,742. (No model.)



Claim.—1. A reel comprising a rotatory shaft, a plurality of connected cones in slip fit on the shaft, a plural series of radially-disposed guides rotative with said shaft, cone-opposing rods loose in each series of guides, slats connected to the outer ends of alined rods, and means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by the tension and accumulation of material winding on the slats.

2. A reel comprising a rotatory shaft, a plurality of connected cones in slip fit on the shaft, a lug on one of the cones engaging a longitudinal slot in said shaft, a loose rod opposing the cone-lug, a pivotal arm in contact with the lug-opposing rod under pressure, a plural series of radially-disposed guides rotative with the aforesaid shaft, rods loose in the guides against the cones, and slats connected to outer ends of alined rods.

3. A reel comprising a rotatory shaft, a plurality of connected cones in slip fit on the shaft, a lug on one of the cones engaging a longitudinal slot in said shaft, a loose rod opposing the cone-lug, a pivotal arm in contact with the lug-opposing rod, a flexible runner connected to the arm and trained on pulleys supported by said arm and an adjacent stationary portion of the machine, a weight suspended from the runner, a plural series of radially-disposed guides rotative with the aforesaid shaft, rods loose in the guides against the cones, and slats connected to outer ends of alined rods.

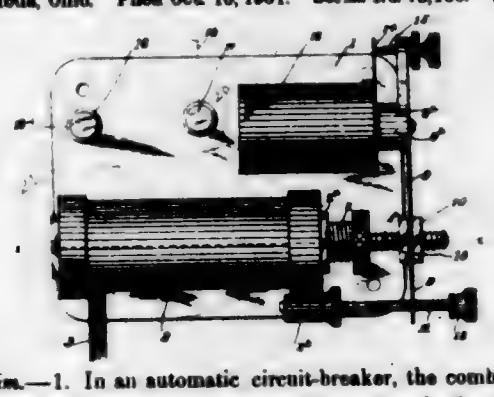
4. A reel comprising a rotatory shaft, a plurality of connected cones rotative with the shaft, a plural series of radially-disposed guides rotative with the shaft, cone-opposing rods loose in each series of guides and slats connected to outer ends of alined rods; means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by the tension and accumulation of material winding on the reel-slats, and an apron arranged circumferentially of a portion of the reel in opposition to said material.

5. A reel comprising a rotatory shaft, a plurality of cones in slip fit on the shaft, a plural series of radially-disposed guides rotative with the shaft, cone-opposing rods loose in each series of guides and slats connected to outer ends of alined rods; means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by the tension and accumulation of material winding on the reel-slats, and an endless traveling apron arranged circumferentially of a portion of the reel in opposition to said material.

6. A reel comprising a rotatory shaft, a plurality of cones in slip fit on the shaft, a plural series of radially-disposed guides rotative with the shaft, cone-opposing rods loose in each series of guides and slats connected to the outer ends of alined rods; means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by tension and accumulation of material winding on the reel-slats, a supporting-roller for the material on its way to the reel, and gearing connecting said reel and roller.

7. A reel comprising a rotatory shaft, a plurality of cones in slip fit on the shaft, a plural series of radially-disposed guides rotative with the shaft, cone-opposing rods in each series of guides and slats connected to the outer ends of alined rods; means constituting a yielding resistance to recedence of the cones and rods adapted to be placed under pressure by tension and accumulation of material winding on the reel-slats, an apron arranged circumferentially of a portion of the reel in opposition to said material, and a supporting-roller for the aforesaid material on its way to the reel, and gearing connecting said reel and roller.

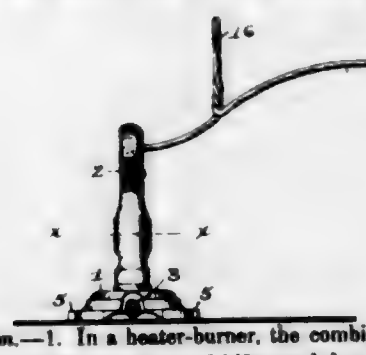
692,475. AUTOMATIC CIRCUIT-BREAKER. CARL REYBOLDS, Columbus, Ohio. Filed Oct. 10, 1901. Serial No. 78,160. (No model.)



Claim.—1. In an automatic circuit-breaker, the combination with an electromagnet, of an armature-bar and contact projection thereon, said bar having a suitably-supported spring-strip extension and means for imparting an outward movement to said spring-strip prior to the breaking of the contact between the armature-bar and magnet-contact projection, substantially as specified.

2. In an automatic circuit-breaker, the combination with a cylinder and a spring-actuated plunger-rod and plunger working therein, said cylinder having an inlet-pipe at one end, of an electromagnet 13 having a contact-strip 14, an armature-bar having a contact-point 15 and a spring-strip 9 connecting said armature-bar with the outwardly-extending portion of said plunger-rod and wires running respectively to the magnet-coil and to the cylinder, substantially as specified.

692,476. TOOL-HEATER. FREDERICK RICHARDSON, Providence, R. I. Filed June 27, 1901. Serial No. 66,201. (No model.)



Claim.—1. In a heater-burner, the combination with the gas and air inlets, a mixing-chamber and bifurcated ducts discharging the product toward a common center, of deflector-plates on opposite sides of the gas-inlet directing the flow of the gas through the mixing-chamber, as described.

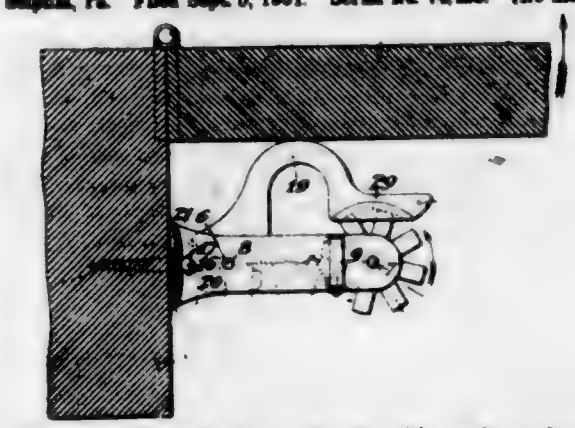
2. In a heating-burner, the combination with a chamber having air-inlets and the gas-inlet and provided with the curved ducts, of the deflector-plates 7 7 placed on opposite sides of the gas-inlet, as described.

3. The combination with a heater-burner provided with two oppositely-disposed ducts 10 10 and the bearing 12, of a tool-support provided with a hook engaging with the bearing and a part of the burner, as described.

4. In combination with a heating-burner having two oppositely-disposed ducts, of a central bearing and a tool-support connected with the bearing and sustained by the burner, as described.

5. In a heater-burner, the combination with the base 1, the inlet-pipe and the nipple 4, of a burner having the tip 6, the deflectors 7 on the tip, the mixing-chamber 8 provided with the air-openings 9 in the wall of the same, the bifurcated ducts 10, a central body forming the inner walls of the ducts 10 10 and obliquely-disposed outlets, as described.

692,477. LOCK FOR MILK-CANS. JOSEPH RITTENHOUSE, Philadelphia, Pa. Filed Sept. 5, 1901. Serial No. 74,420. (No model.)



Claim.—1. In a lock, the combination with a casing; of a hasp pivoted in said casing; a rotary wheel supported by said casing and provided with a peripheral notch, and arranged to present said notch intermediate of said casing and the free extremity of said hasp; and means to limit the rotation of said wheel to one direction, substantially as set forth.

2. In a lock, the combination with a casing; of a wheel mounted to rotate in said casing and provided with a peripheral notch; means to prevent reverse movement of said wheel; a hasp pivoted in said casing, having its free extremity arranged to close said notch, substantially as set forth.

3. In a lock, the combination with a casing; of a notched wheel mounted to rotate in said casing; a pawl arranged to permit said wheel to rotate in one direction and prevent its rotation in the other direction; a hasp pivoted in said casing and having its free extremity arranged to close the contiguous notches in said wheel, substantially as set forth.

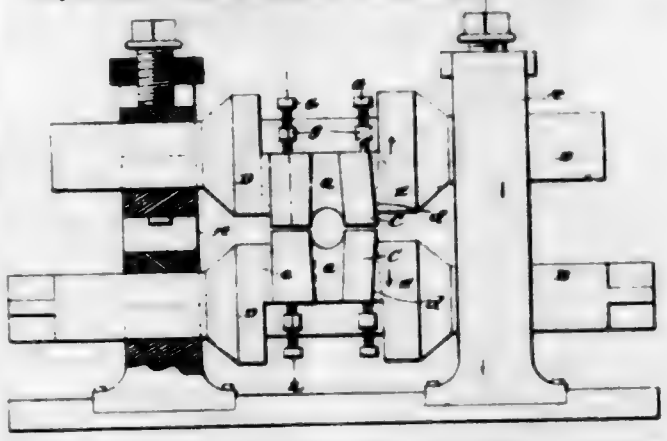
4. In a lock, the combination with a casing; of a notched wheel mounted to rotate in said casing; means to prevent reverse movement of said wheel; a hasp pivoted in said casing and provided with a recess at its free extremity arranged to engage the periphery of said wheel, substantially as set forth.

5. In a lock, the combination with a casing; of a notched wheel mounted to rotate in said casing; a hasp pivoted in said casing, and provided with a recess at its free extremity arranged to engage the periphery of said wheel; a spring-pawl mounted within said casing and arranged to permit said wheel to rotate in but one direction and to return the hasp to normal position, substantially as set forth.

6. In a lock, the combination with a casing provided with a screw-aperture; of a cover for said aperture removably fitted in said casing; a notched wheel mounted to rotate in said casing; a hasp pivoted in said casing and provided with a recess at its free extremity arranged to engage the periphery of said wheel; and a flange upon the inner extremity of said hasp, arranged to prevent the removal of said cover when the hasp is closed and to permit the removal of said cover when the hasp is opened, substantially as set forth.

7. In a lock, the combination with a casing provided with a screw-aperture; of a cover for said aperture removably fitted in said casing; and a member of said lock arranged to engage with and prevent the removal of said cover when the lock is closed and to permit the removal of said cover when the lock is opened, substantially as set forth.

692,478. MILL FOR ROLLING SEAMLESS TUBES. WILLIAM H. ROBBINS, JOHN J. BYE, and ALBERT E. JONES, Ellwood City, Pa. Filed May 21, 1901. Serial No. 61,296. (No model.)



Claim.—1. The combination with a roll having an enlargement provided in its inner side with a groove, and another enlargement provided with an inclined inner face; of a swage or die adapted to be interposed between the enlargements of the roll, and having a lug or tongue at one end to enter the groove in one enlargement, and also having its

opposite end inclined in conformity to the inclined inner face of the other enlargement.

2. The combination with a roll having an enlargement provided with an inclined inner face, and also having another enlargement; and a projection interposed between the enlargements; of a swage or die adapted to be interposed between the enlargements of the roll, and having one of its ends inclined in conformity to the inclined inner face of one enlargement, coacting means on the other enlargement and the swage, whereby the latter is held to the former, and an adjustable device bearing in the projection of the roll and adapted to engage the inner edge of the swage.

3. The combination with a roll having an enlargement provided in its inner side with a groove, and another enlargement provided with an inclined inner face, and also having a threaded socket arranged intermediate of the enlargements; of a swage or die adapted to be interposed between the enlargements of the roll and having a lug or tongue at one end to enter the groove in one enlargement, and its opposite end inclined in conformity to the inclined inner face of the other enlargement, a bolt arranged in the threaded socket of the roll and having a head provided with a threaded aperture, and a bolt bearing in said aperture and arranged to engage the inner end of the swage.

692,479. EGG-BEATER. EMMETT R. ROBERTS, Indianapolis, Ind. Filed May 31, 1901. Serial No. 62,518. (No model.)



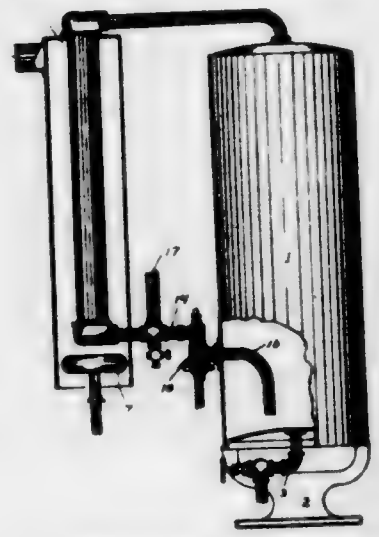
Claim.—1. In an egg-beater, the combination of the agitator-head having the oblong aperture therein, the beater-blades attached to said head, the spiral actuator-bar extending through said oblong aperture, the straight guide-stem projecting from the lower end of said bar, the stop member at the junction of said stem and said bar, the handle rigidly secured to said bar at the upper end thereof, the guide-bar extending between said blades and engaged by said guide-stem, and the spring seated against said handle and also against the upper side of said head at one side of said oblong aperture, substantially as set forth.

2. In an egg-beater, the combination of the vertically-movable handle having the bore extending longitudinally therein, the spiral actuator-bar having its upper end secured in said bore and having the guide-stem projecting from the lower end thereof, the agitator-head engaged by said bar, the beater-blades, the guide-bar extending between said blades and engaged by said stem, and the reversing-spring, substantially as set forth.

3. In an egg-beater, the combination of the agitator-head having the pair of circular intersecting apertures therein, the actuator-bar extending through said apertures, the beater-blades attached to said head, the guide-bar extending between said blades, the guide-stem projecting from the lower end of said actuator-bar and engaging said guide-bar, the actuator-bar handle, the reversing-spring, and the stop member formed of an integral part of said actuator-bar and situated at the junction of said actuator-bar and said guide-stem, substantially as set forth.

4. In an egg-beater, the combination with the agitator having the guide-bar secured thereto and also having the oblong aperture in the head thereof, of the actuator-bar and guide-stem combined and formed of a single piece of wire bent upon itself and having the lower end of one of the strands thereof extending as a straight guide-stem engaging said guide-bar, and having the lower end of the other one of the strands thereof bent about said stem as a stop member, the handle secured to said actuator-bar, and the reversing-spring, substantially as set forth.

692,480. WATER-HEATER CONTROLLING AND REVERSING VALVE. FREDERICK W. ROBERTSHAW, Pittsburg, Pa. Filed May 31, 1901. Serial No. 62,599. (No model.)



Claim.—1. In a water-heater, a reservoir, a heater-pipe, connections between said heater-pipe and reservoir, a valve-casing, a feed-pipe connected thereto, connections between the valve-casing and the reservoir and between the valve-casing and the heater-pipe, a service-pipe connected to the last-named connection, and automatic valve mechanism in said casing adapted to insure a circulation of water downwardly through the reservoir and upwardly through the heater-pipe when the service-pipe is closed, and to reverse the circulation when the service-pipe is opened whereby the previously-heated water passes from the reservoir down through the heater-pipe.

2. In a water-heater, a reservoir, a heater-pipe, connections between said heater-pipe and reservoir, a valve-casing, a feed-pipe connected to the same, said valve-casing being provided with circulation-ports connected respectively to the reservoir and the heater-pipe, a service-pipe connected to the last-named connection, a valve in said casing and controlling the said ports, said valve being arranged to maintain a circulation of water downwardly through the reservoir and upwardly through the heater-pipe when the service-pipe is closed and to reverse the circulation when the service-pipe is opened whereby the previously-heated water passes from the reservoir down through the heater-pipe, and a safety or leak port or passage between the valve-chamber and feed-pipe.

3. In a water-heater, a reservoir, a heater-pipe, connections between said reservoir and heater-pipe, a valve-casing, a feed-pipe connected to the same, said valve-casing being provided with circulating-ports connected respectively to the reservoir and to the heater-pipe, a service-pipe connected to the last-named connection, and a piston-valve provided with a leak or safety port in said casing, said piston-valve controlling the ports in the valve-casing and arranged to maintain a circulation of water downwardly through the reservoir and upwardly through the heater-pipe when the service-pipe is closed and to reverse the circulation when the service-pipe is opened, whereby the previously-heated water passes from the reservoir down through the heater-pipe.

4. In a water-heater, a reservoir, a heater-pipe, connections between said reservoir and heater-pipe, a valve-casing, a feed-pipe connected thereto, said valve-casing being provided with circulation-ports connected respectively to the reservoir and to the heater-pipe, a service-pipe connected to the last-named connection, and a valve in said casing, said valve being arranged to close the feed-pipe port and open the circulation-port when the service-pipe is closed and to close the circulating-port before opening the feed-port when the service-pipe is opened, whereby the course of the water through the reservoir and heater is reversed and the flow of cold water to the service-pipe prevented.

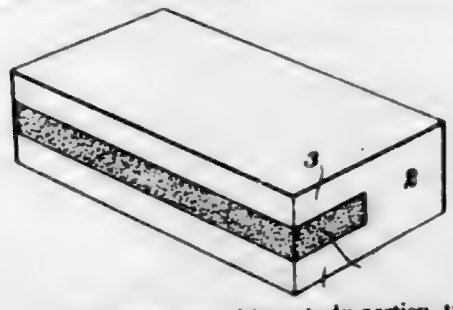
5. In a water-heater, a reservoir, a heater-pipe, connections between said reservoir and heater-pipe, a valve-casing, a feed-pipe connected thereto, said valve-casing being provided with circulation-ports connected respectively to the reservoir and to the heater-pipe, a service-pipe connected to the last-named connection, a valve in said casing and controlling the said ports, said valve when the service-pipe is closed closing the feed-pipe and maintaining the circulating-ports open, and when the service-pipe is opened said valve opening the feed-port and closing the circulating-port before opening the feed-port, whereby the course of the water through

the reservoir and heater is reversed, and a safety or leak port or passage between the valve-chamber and feed-pipe.

6. In a water-heater, a reservoir, a heater-pipe, connections between said reservoir and heater-pipe, a valve-casing, a feed-pipe connected thereto, said valve-casing being provided with circulation-ports connected respectively to the reservoir and to the heater-pipe, a service-pipe connected to the last-named connection, and a double piston-valve in said casing and controlling the said ports, one of said piston-valves provided with a leak or safety port and arranged to close the feed-water pipe when the service-pipe is closed, and the other of said piston-valves being arranged when the service-pipe is opened to first close the port leading to the heater in advance of the first-named piston opening the feed-water pipe, whereby the current of water to the reservoir and boiler is reversed.

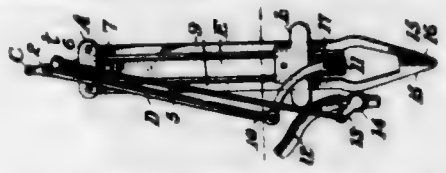
7. In a water-heater, a reservoir, a heater-pipe, connections between said reservoir and heater-pipe, a valve-casing, a feed-pipe connected to the same, a pipe connecting the valve to the reservoir, said pipe projecting into the reservoir close to the bottom thereof, connections between the valve-casing and heater-pipe, a service-pipe connected to the last-named connection, and automatic valve mechanism in said casing adapted to maintain a circulation of water downwardly through the reservoir and upwardly through the heater-pipe when the service-pipe is closed and to reverse the circulation when the service-pipe is open, whereby the previously-heated water passes from the reservoir down through the heater-pipe.

692,481. SOAP CAKE. WILLARD E. ROBINSON, Malden, Mass. Filed May 23, 1901. Serial No. 61,531. (No specimens.)



Claim.—A cake of soap, comprising a body portion, two side layers projecting from one side of the body portion and separated from each other, the body and the side layers being integral with each other and composed of a given kind or quality of soap, and an intermediate layer between said side layers, composed of a harder kind or quality of soap, so that the intermediate layer wears more slowly and is caused to protrude slightly as the surfaces of the cake wear away, the edges of the two side layers and of the intermediate layer forming a laminated surface extending along one edge and partly across the two ends of the cake, the other three surfaces of the cake presenting only one kind or quality, the series of layers being held together by the body portion.

692,482. HAND-PLANTER. CHARLES C. ROSE, Beaver Creek township, Ohio. Filed Aug. 21, 1901. Serial No. 72,799. (No model.)



Claim.—1. In a hand-planter the combination of the frame provided with the upper cross-head and the lower cross-head, the bars pivoted in said upper cross-head and traversing said lower cross-head, and the points of said bars provided with suitable cavities to receive the body and roots of plants, substantially as described.

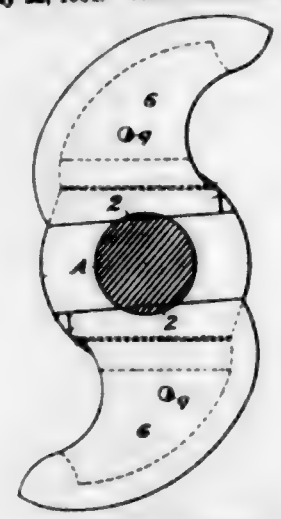
2. In a hand-planter the combination of the frame provided with the upper cross-head and the lower cross-head, the bars pivoted in said upper cross-head and traversing said lower cross-head, the expanding-plate having spindle pivoted in said frame, the arm attached to said spindle, the connection-rod D and the handle, substantially as described.

3. In a hand-planter the combination of the frame provided with upper and lower cross-heads, the hoes hinged to the sides of the lower cross-head, the connection-rods 4 4 and 3 3, and the handle to give a central movement to said hoes, substantially as described.

4. In a hand-planter the combination of the frame provided with the upper and lower cross-heads, the bar provided with points 15 pivoted within the upper cross-head, the stop-cock attached to said bar, the arm attached to the plug of said stop-cock, the rod 5, the plate 7 of the upper cross-head and the spiral spring 6 to close said stop-cock, substantially as described.

5. In a hand-planter the combination of the frame, the handle C, connection-rods 3 3 and 4 4, the hoes hinged to said frame, the bars 9 provided with points 15 pivoted to said frame, the rod D pivoted to said handle, the arm 10, and the expanding-plate 11 held on a spindle supported in the rail F, substantially as described.

692,483. STAMP-BATTERY CAM. CHARLES C. RUDNER, Butte, Mont. Filed May 22, 1901. Serial No. 61,360. (No model.)



Claim.—1. A sectional cam, consisting of a hub provided with wedge-shaped sockets or seats formed therein, independent cam-arms having a wedge-shaped base adapted to fit the seats in the hub, said seats intersecting the bore into which the cam-shaft fits, said shaft having transverse notches registering with the seats of the cam-hub.

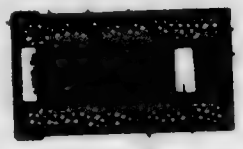
2. A cam consisting of separate arms having wedge-shaped bases, with supplemental projecting ribs, a hub having tapering seats planed therethrough, corresponding in shape with the bases, and ribs whereby the lateral separation of the interlocking parts is prevented.

3. A cam consisting of a hub bored to fit upon the cam-shaft and provided with wedge-shaped seats made transversely upon opposite sides of the hub, and cam-arms having wedge-shaped bases adapted to fit the seats in the hub and to lock the latter to the shaft, there being shoulders formed upon the hub against which the cam-arms abut to prevent undue wedging.

4. The combination in a cam of a hub bored to fit the cam-shaft, having transverse wedge-shaped cam-seats, cam-arms having wedge-shaped bases adapted to fit the seats in the hub, stops to limit the inward movement of the cam-arms, there being lugs upon the hub, with holes through the lugs and coincident parts of the cam-arms, and screws fitted thereto.

5. A cam-shaft having transverse notches, cam-hubs bored to fit the shaft and having wedge-shaped key-seats made therethrough, intersecting the bore and coincident with the notches of the shaft, cam-arms having the wedge-shaped bases adapted to fit the seats in the hub and to lock the latter to the shaft, there being shoulders fixing the position of the cam-arms upon the hub, and locking-lugs and screws by which the cam-arms are further secured.

692,484. COMBINED SHAVING-BRUSH AND SOAP-HOLDER. GEORGE F. SALISBURY, Boston, Mass. Filed Aug. 28, 1901. Serial No. 73,501. (No model.)



Claim.—1. A combined brush-handle and soap-holder comprising an inner tube or casing having a coupling member at one end adapted to engage a complemental coupling member on a shaving-brush and a brush-receiving mouth at the other end, said tube being formed to contain the brush, and an outer tube or casing connected at one end with one end of the inner member, and separated from the latter by an annular space adapted to receive a tubular soap stick or cake, said outer tube having an open end or mouth surrounding the mouth of the inner tube.

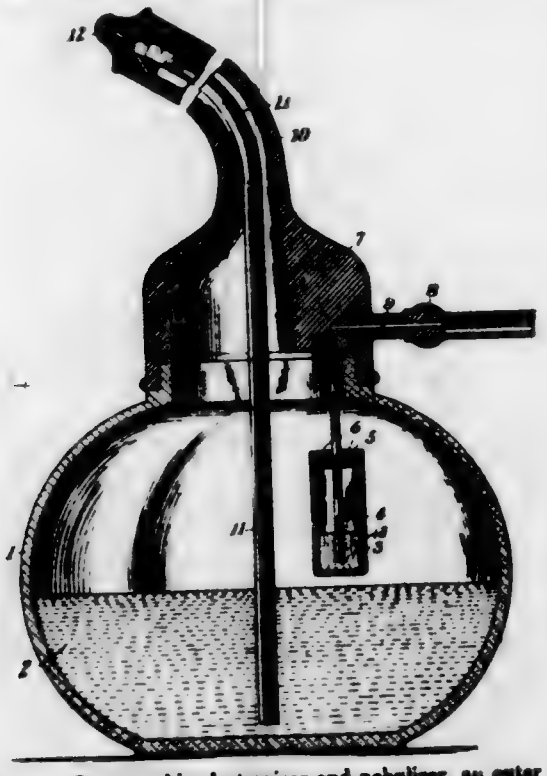
2. A combined brush and soap-holder comprising a handle composed of an inner tube having an internal screw-thread at one end, an outer tube connected at one end with the threaded end of the inner tube, and separated from the latter by an annular soap space or chamber adapted to contain a tubular cake of soap, and a brush having an externally-threaded shank or stem adapted to engage the internal thread of the inner tube, said brush and its stem being formed to enter the said inner tube.

3. A combined brush-handle and soap-holder comprising an inner

tube having an internal screw-thread at one end, an outer tube connected at one end with the threaded end of the inner tube, and separated from the latter by an annular soap space or chamber adapted to contain a tubular cake of soap, and a cover adapted to close the open end of the outer tube.

4. A combined brush-holder and soap-holder comprising an inner casing formed to contain a brush, and an outer casing connected at one end with one end of the inner casing and separated from the latter by a space adapted to receive a tubular soap stick or cake.

692,485. ATOMIZER AND NEBULIZER. CYRUS J. SELTZER, Philadelphia, Pa., assignor to George Woodward, Philadelphia, Pa. Filed Mar. 19, 1900. Serial No. 9,282. (No model.)



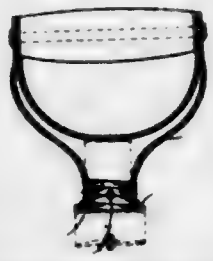
Claim.—1. In a combined atomizer and nebulizer, an outer receptacle, a cap-piece having a thickened portion formed integral therewith and provided with a tube arranged in free communication with the interior of said receptacle, an inner tube situated within the aforesaid tube and extending into the receptacle, a detachable atomizer spray-tip adapted to be positioned in the usual manner upon the adjacent outer ends of the two tubes, a nipple carried by said cap-piece adjacent its thickened portion and integral therewith, a passage formed in the thickened portion of said cap-piece and its integral nipple, an inner receptacle situated within the outer receptacle, an apertured closure for said inner receptacle for the free passage of air or vapor between the interiors of the two receptacles, means carried by said closure to prevent the escape of liquid from the inner receptacle through said aperture, a nebulizer spray-tube pendent from said cap-piece and passing through the aperture in said closure, the passage in the cap-piece being arranged in communication with the usual air-passage in the nebulizer-tube, substantially as described.

2. In a combined atomizer and nebulizer, an outer receptacle 1, a cap-piece 7 therefor, a nipple 8 integral with said cap-piece, a tube 10 carried by said cap-piece, a tube 11 within said tube 10 and extending into receptacle 1, an atomizer spray-tip 12 detachably carried at the outer ends of tubes 10 and 11, an inner receptacle 3, a liquid seal 24 for said inner receptacle, a nebulizer spray-tube 16 carried by said cap-piece and extending within said inner receptacle, and a passage 9 formed in one wall of said cap-piece and its integral nipple, said passage 9 communicating with the usual air-passage in said nebulizer-tube, substantially as described.

3. A nebulizer-tube comprising a tube of suitable material, a short rod or plug of a diameter throughout its length substantially equal to the bore of the tube, said rod or plug being positioned within the bore of said tube, a passage extending through the wall of said tube and through said plug, a recess in the upper portion of said plug and communicating with the bore of the tube and with said passage, and a second recess in said plug extending upwardly from the bottom thereof and intersecting said passage, substantially as described.

692,486. HANDLE. EDWARD SEYBOLD and CLARENCE E. MOUNTFORD, Ottawa, Canada, assignors to the Eclipse Office Furniture Company of Ottawa, Limited, Ottawa, Canada, a Corporation. Filed Oct. 22, 1901. Serial No. 79,576. (No model.)

Claim.—1. A handle the shank whereof consists of abutting semicircular halves said halves being conjointly formed with a continuous screw-thread to be threaded upon an implement and means for retaining said halves against displacement relatively to one another, substantially as described.

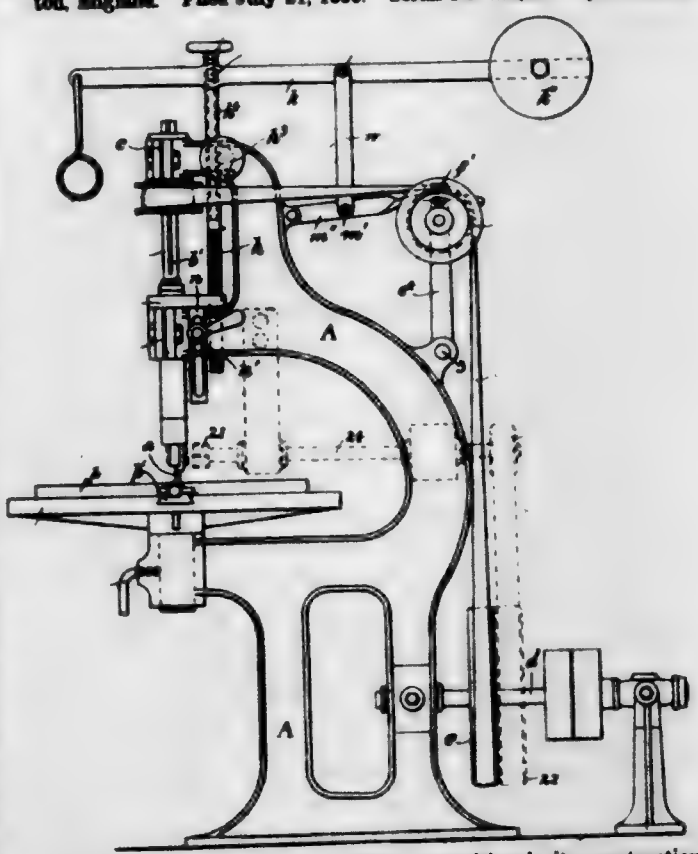


2. A handle the shank whereof consists of abutting semicircular halves, said halves being conjointly formed with a continuous screw-thread to thread upon the shank of an implement, and a ferrule fitting upon the end of said shank, substantially as described and for the purpose set forth.

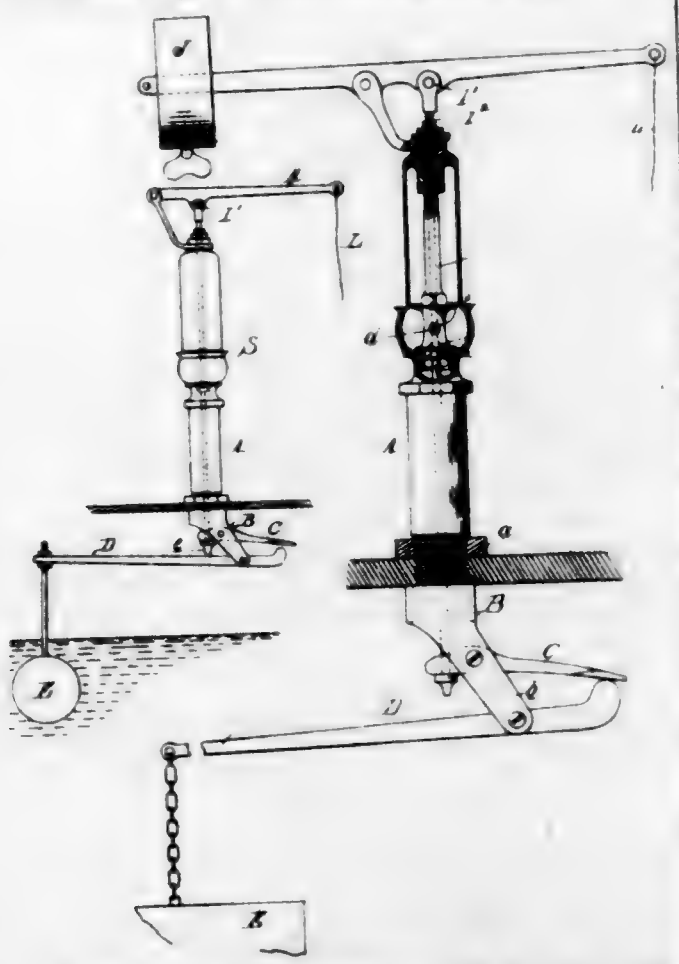
3. A handle the shank whereof consists of abutting semicircular halves, said halves being conjointly formed with a continuous screw-thread to thread upon the shank of an implement, and a ferrule consisting of an annulus of rectangular cross-section sprung upon the end of said shank, substantially as described and for the purpose set forth.

4. A D-handle frame consisting of a single piece of sheet metal bent in the form of a fork the shank whereof consists of two resilient semicircular portions detached from and abutting against one another, said semicircular portions being conjointly formed with a continuous screw-thread to be threaded upon an implement and means for retaining said halves against displacement relatively to one another, substantially as described.

692,487. WOODWORKING-MACHINE. THOMAS SHURMER, Bolton, England. Filed July 21, 1899. Serial No. 724,692. (No model.)


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upwardly from said lever through the pipe-section, valve-case, and tube, a valve on this rod adapted to close upwardly against said seat, a hand-lever for depressing said rod and manually opening the valve, and a float rigidly but adjustably connected with one arm of the lever within the boiler and adapted to be submerged when the valve is closed and the water is at its normal height, all as and for the purpose set forth.



2. In a low-water alarm, the combination with the boiler, a pipe-section passing through the boiler-shell and communicating with the steam-space therein, a valve-case upon the exterior of the boiler communicating and in alinement with said pipe-section, an interior downwardly-facing valve-seat therein, a tube leading upwardly from and in alinement with the valve-case, and a whistle connected therewith; of a compound lever pivoted to the pipe-section within the boiler, a straight rod leading upwardly from the lever through the pipe-section, valve case and tube, said rod being in sections adjustably connected, a valve on this rod adapted to close upwardly against said seat, a hand-lever for depressing said rod and manually opening the valve, and a float rigidly but adjustably connected with the lever within the boiler and adapted to be submerged when the valve is closed and the water-level is at its normal height, all as and for the purpose described.

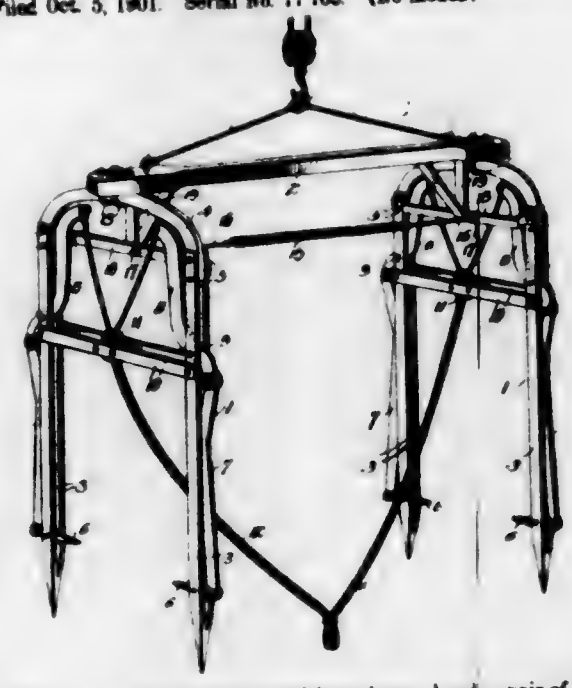
3. In a low-water alarm, the combination with the boiler, steam-whistle, and a pipe-section passing through the shell of the boiler and a valve-case in alinement with it and connecting said whistle with the steam-space of the boiler, of a valve-rod extending through said pipe-section and valve-case, and carrying a downwardly-opening valve seated below said whistle and controlling the admission of steam thereto, a lever exteriorly mounted above said valve-rod and adapted to open the valve and admit steam to the whistle by manually depressing said lever, a compound lever pivoted to the pipe-section within the boiler, below the valve-rod, and a float rigidly but adjustably connected with said lever within the boiler and adapted to be submerged when the water is at its normal height and close the valve by raising the lever and valve-rod.

4. In a low-water alarm, the combination with a boiler, a pipe-section passing through the shell of the boiler, a valve-case in alinement with said pipe-section and a whistle carried by the valve-case upon the exterior of the boiler and communicating therethrough with the steam-space of the boiler, of a valve-rod extending through said pipe-section and valve-case, and carrying a downwardly-opening valve seated below said whistle and controlling the admission of steam thereto, a lever pivotally connected with the upper end of said valve-rod and adapted to open said valve by manually depressing said lever, two levers pivotally secured to the pipe-section within the boiler, one below the other, the upper lever having a short arm engaging with the lower end of the valve-rod and the lower one of said levers having a short arm extending beneath the long arm of the upper one of said levers and operating the same, and a long arm adapted to bear against the lower end of the valve-rod and having a weighted float rigidly secured to its end.

5. In a low-water alarm, the combination with a boiler, a pipe-section passing through the boiler-shell, a valve-case mounted upon said pipe-section in alinement therewith, a whistle carried by the valve-case upon the exterior of the boiler and a valve-rod passing through said pipe-section and valve-case carrying a valve controlling the admission of steam to said whistle, of two levers pivotally mounted to the pipe-section within the boiler one below the other, the upper lever having a short arm connected to the lower end of the valve-rod and a lower lever having a short arm adapted to bear against the long arm of the upper lever, and a long arm carrying a float.

6. In a low-water alarm, the combination with a boiler, a pipe-section passing through the boiler-shell, and a valve-case carrying a steam-whistle mounted upon said pipe-section in alinement therewith, of a valve-rod extending through said valve-case and pipe-section, and carrying a downwardly-opening valve controlling the admission of steam from the steam-space of the boiler into the whistle, a hand-lever mounted upon the whistle and pivotally connected to the upper end of the valve-rod to open the valve by manually depressing said lever, and two levers pivoted to the pipe-section within the boiler, one below the other, the upper lever having a short arm engaging with the lower end of the valve-rod and the lower lever having a short arm adapted to bear against the long arm of the upper lever and a weighted float rigidly secured to the long arm of said lever.

692,489. HAY-FORK. JACOB F. SMITHER, Humboldt, Nebr. Filed Oct. 5, 1901. Serial No. 77,702. (No model.)



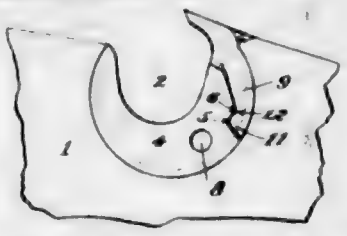
Claim.—1. A hay-fork comprising a bar or head, a pair of forks suspended for swinging movement thereon, and means operating normally to hold the forks in parallel relation with each other.

2. A hay-fork comprising a bar or head, a pair of forks suspended for swinging movement thereon, a spring connecting the forks and operating normally to hold the same disposed parallel with each other, and stops or abutments for limiting the inward movement of the forks.

3. A hay-fork comprising a bar or head having means for connection with an overhead support, laterally-yieldable spring-retracted forks carried by the terminals of the bar, and means for holding the forks in parallel relation with each other against the stress of the spring.

4. A hay-fork having two sets of forks supported from a common head, the forks being adapted to yield laterally, in event of the barbs of one of the forks being tripped to the exclusion of the other, and to resume their normal position automatically after the load is discharged.

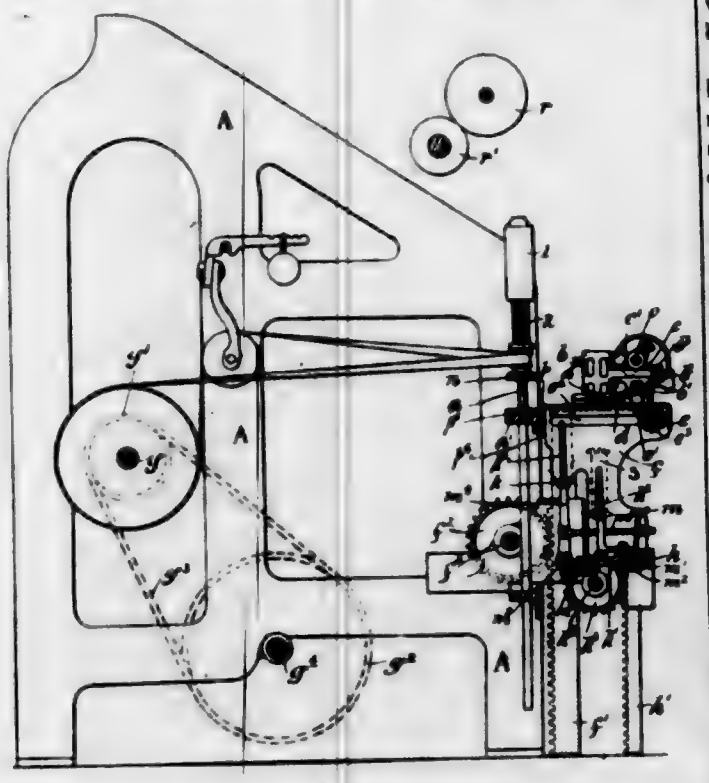
692,490. INSERTED SAW-TOOTH. EDWIN H. STEEDMAN, St. Louis, Mo. Filed Oct. 11, 1901. Serial No. 78,316. (No model.)



Claim.—The combination with a saw-plate having a curved recess whose periphery is struck from a single center, and a bit-piece whose back conforms to and engages the said plate at the periphery of said recess, said bit-piece having at its front a shoulder, a projection at the inner end

of the bit-piece, and a recess formed by said projection and the body portion of the bit-piece between said shoulder and said projection, of a resilient mouthpiece whose outer periphery conforms to and engages the said plate at the periphery of said recess, said mouthpiece having an end portion which, when the parts are assembled in said recess, engages under said shoulder upon the bit-piece, a recess which receives said projection upon the bit-piece, and a fulcrum-point which engages said recess upon the bit-piece, there being, when the said parts are assembled in the said recess of the saw-plate, engagement between said bit-piece and said mouthpiece only at the said shoulder and the point of the said fulcrum; substantially as described.

692,491. **DOFFING APPARATUS FOR SPINNING MACHINERY.** ALFRED STELL and GEORGE STELL, Steeton, and JOHN STELL, Keighley, England. Filed Apr. 8, 1901. Serial No. 54,382. (No model.)



Claim.—1. In doffing apparatus for spinning machinery, a series of hinged clips as *b* provided with lateral projections as b^3 for the purpose hereinbefore described, and cams adapted to enter between the arms of each pair of clips for operating the said clips, substantially as and for the purpose described.

2. In doffing apparatus for spinning and like machinery, a series of hinged clips as *b* provided with hinged arms as b^4 for the purposes hereinbefore described, and means for operating same, in combination substantially as herein specified.

3. In doffing apparatus for spinning and like machinery, a series of hinged clips as *b* provided with lateral projections as b^3 and hinged arms as b^4, and means for operating same, in combination substantially as herein specified.

4. In doffing apparatus for spinning and like machinery, a series of hinged clips as *b*, a bar as *d* provided with fingers as *d'* and means for operating same, in combination substantially as herein specified.

5. In doffing apparatus for spinning and like machinery, a series of hinged clips as *b* the springs b^4 on which tend to keep the jaws in a closed position, a series of cam-shaped lever-arms as *c'* for opening said jaws, and means for operating and adjusting the positions of same, in combination substantially as herein specified.

6. In doffing apparatus for spinning and like machinery, a series of hinged clips, means for operating same, a bar *d* provided with fingers or projections *d'* and means for operating same, consisting of the shaft *c*, having cam d^2, levers d^5 and d^7, the former having one end engaged by the cam d^2 and its other end connected to lever d^7, and the latter having its other end connected to the bar *d*.

7. In doffing apparatus for spinning and like machinery a series of hinged clips arranged to receive the cops and bobbins, supports for said clips, vertical and horizontal guides for said supports, the horizontal guides being at a right angle to the rail of the machine, and means for moving the supports along said guides, substantially as specified.

8. In doffing apparatus for spinning and like machinery a series of hinged spring-clips arranged to receive the cops and bobbins, supports for said clips, vertical and horizontal guides for said supports, the horizontal guides being at a right angle to the rail of the machine, means for moving the supports along said guides, and means for tilting the clips out of the way of the usual top front rollers and thread-guide board, substantially as specified.

9. In doffing apparatus for spinning and like machinery, a series of hinged spring-clips and parts in connection therewith for receiving and moving the cops and bobbins, a vertically-movable rail having pegs or projections for receiving the full bobbins, and means for operating same, in combination substantially as herein specified.

10. In doffing apparatus for spinning and like machinery, a series of hinged spring-clips and parts in connection therewith for receiving and moving the cops and bobbins, a rail having pegs or projections whereby the empty bobbins are raised within said clips, and means for operating same in combination substantially as herein specified.

11. In doffing apparatus for spinning and like machinery, a series of hinged spring-clips for receiving and moving the cops and bobbins, a rail having projections upon which the full bobbins are projected, means for moving said rail vertically and also around the fulcrum of the levers upon which it is mounted and means for holding it in its raised position in combination substantially as herein specified.

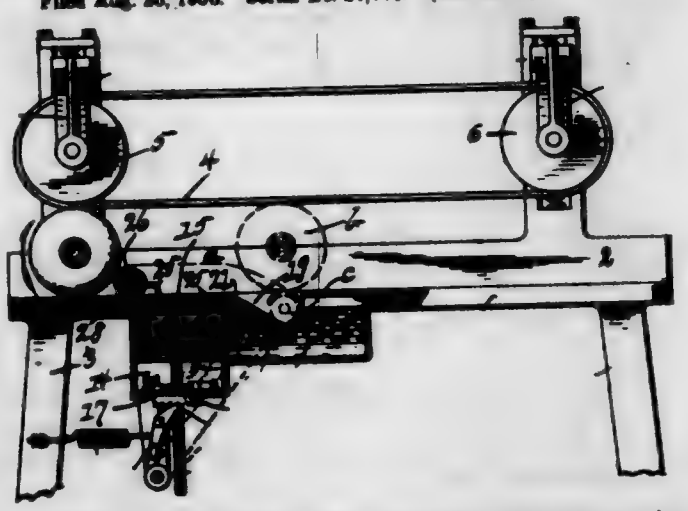
12. In doffing apparatus for spinning and like machinery, a series of hinged spring-clips arranged to receive and move the cops and bobbins, rails having independent pegs for receiving and moving the full bobbins and the empty bobbins respectively, and means for causing same to operate in combination substantially as herein specified.

13. In doffing apparatus for spinning and like machinery, a series of hinged spring-clips arranged to receive and move the cops and bobbins, means for operating same, and means for placing the threads or yarns in proper position relatively with the spindles, the last-mentioned means including spring-arms carried by the clips.

14. In doffing apparatus for spinning and like machinery, a series of spring-clips for receiving and moving the cops and bobbins, means for operating same, and means for causing the lifter-rail of the machine to be raised simultaneously with the raising of the parts carrying said clips, in combination substantially as herein specified.

15. In doffing apparatus for spinning and like machinery, a series of spring-clips for carrying the cops and bobbins, rails having independent projections for receiving the full bobbins and the empty bobbins respectively, mechanism for carrying the threads to their proper position in proximity with the spindles, thread-severing mechanism, and means whereby the several parts are operated in combination substantially as herein specified.

692,492. **LABELING-MACHINE.** JAMES A. TURNEY, Toledo, Ohio. Filed Aug. 23, 1900. Serial No. 27,778. (No model.)



Claim.—1. A labeling-machine, comprising a table having a label-receptacle located therein, an endless belt in proximity to the table-top, yieldingly-supported pulleys carrying said belt, a spring located beneath each pulley and a spring located above the same for exerting a yielding downward and forward pressure on both of said pulleys, and means for pasting the uppermost label contained in the label-receptacle, substantially as described.

2. A labeling-machine, comprising a table having a label-receptacle located beneath an opening therein, an endless belt arranged in proximity to the table, separate means for supporting the said belt at its ends from one side of the table only, means upon that side of the table for directing the articles to be labeled, means for forcing the belt downwardly upon said articles to roll the same along the table, and means for applying paste to the uppermost label in the label-receptacle, substantially as described.

3. A labeling-machine comprising a suitable table, standards at each end thereof on one side of the machine, brackets slidably engaging the same, means for cushioning the movements of said brackets, pulleys supported by said brackets, an endless belt carried by said pulleys, means for actuating one of said pulleys, and means supported by said table beneath

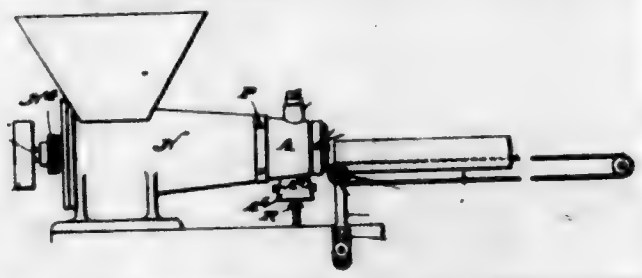
said belt for labeling articles directed by the belt longitudinally of the table, substantially as described.

4. A labeling-machine, comprising a suitable table, a pair of vertical standards, at each end of said table and secured to one edge thereof, a bracket slidably mounted between each pair of said standards, each bracket being formed with an integral horizontal arm extending transversely of said table, and provided with a downwardly-extending arm, a pulley mounted between each of said brackets and its respective downwardly-extending arm and journaled therein, means for yieldingly supporting each of said brackets, a belt carried by said pulleys, adapted to direct the article to be labeled longitudinally of said table, and means supported by said table for applying a label to each article so directed, substantially as described.

5. In a labeling-machine, the combination with a table, provided with a label-receptacle and a paste-receptacle, and means for causing the article to be labeled to move across said table over the said receptacles, of brackets extending downwardly from said table, a roller-frame pivotally mounted upon said brackets, a pasting-roller carried by the upper end of said roller-frame, a spring for normally holding said paste-roller at one end of said label-receptacle, a plate within said label-receptacle and adapted to support the labels therein contained, a threaded stem secured to said plate and extending through the bottom of said receptacle, a ratchet-wheel revolubly mounted in the bottom of said label-receptacle and provided with threads engaging those of the said threaded stem, a pawl carried by said roller-frame and adapted to engage said ratchet-wheel for advancing the same with the movement of said frame, whereby the label-supporting plate is advanced for a distance equal to the thickness of a label with each operation of said paste-roller, and means for preventing back movement of the said ratchet-wheel, substantially as described.

6. A labeling-machine, comprising a suitable table, and means for rolling articles to be labeled along the same, a label-applying device arranged beneath an opening in said table, comprising a label-receptacle, radially-swinging arms mounted below the table and carrying a pasting-roller the said roller being adapted to move in the arc of a circle, the paste-receptacle having a depressed portion in its cover extending down into the paste, means for permitting the paste to ooze through to the top of the said depressed portion, so as to engage the said roller when it is moved into said depression, the structure being such that the roller will apply the paste to a label and then will be moved into the depression in the cover of the paste-receptacle so as to be out of the way of the labeled article, and at the same time to receive a new charge of paste, substantially as described.

692,493. APPARATUS FOR MAKING DESIGNS IN CAKES OF SOAP. HERMAN H. UCHOTTER, Cincinnati, Ohio. Filed May 3, 1900. Serial No. 15,900. (No model.)



Claim.—1. In mechanism for forming bars out of plastic material, a tapering shell, and a central former consisting of a rod, longitudinally formed so as in cross-section to represent the design to form the aperture in the soap bar, and supported at or near the receiving end of the plotter, and having a taper increasing from the receiving end toward the discharge-shell, substantially as and for the purposes specified.

2. In mechanism for forming bars out of plastic material, the combination of a converging shell, and a rear plate containing the opening of a given design for the formation of the design-core, and a table and means for moving the table vertically, substantially as and for the purpose specified.

3. In mechanism for forming bars out of plastic material, a tapering shell and a former centrally and axially located therein, and having a taper, increasing from the receiving end toward the discharge-shell, substantially as and for the purposes specified.

4. In mechanism for forming bars out of plastic material, a tapering shell and a former centrally located therein, and longitudinally so as in cross-section to represent the design to form the aperture in the soap bar, and tapered, increasing in diameter toward the delivery end, substantially as and for the purposes specified.

5. In mechanism for forming bars out of plastic material, a tapering shell and a former centrally located therein, and longitudinally so as in cross-section to represent the design to form the aperture in the soap bar, and tapered, increasing in diameter toward the delivery end, and a spider connectible to the shell, and supporting centrally the former, substantially as and for the purposes specified.

6. In mechanism for forming bars out of plastic material, a tapering shell and a former centrally located therein, and longitudinally so as in cross-section to represent the design to form the aperture in the soap bar, and tapered, increasing in diameter toward the delivery end, and a spider connectible to the shell, having a hole in its hub, the former provided with a shouldered terminal and screw-thread thereon, this terminal adapted to be received in the spider, and secured thereto, substantially as and for the purposes specified.

7. In mechanism for forming bars out of plastic material, a tapering shell and a former centrally located therein, and longitudinally so as in cross-section to represent the design to form the aperture in the soap bar, and tapered, increasing in diameter toward the delivery end, and a spider connectible to the shell for supporting the former, the latter and the spider being adapted to be united or separated at will, substantially as and for the purposes specified.

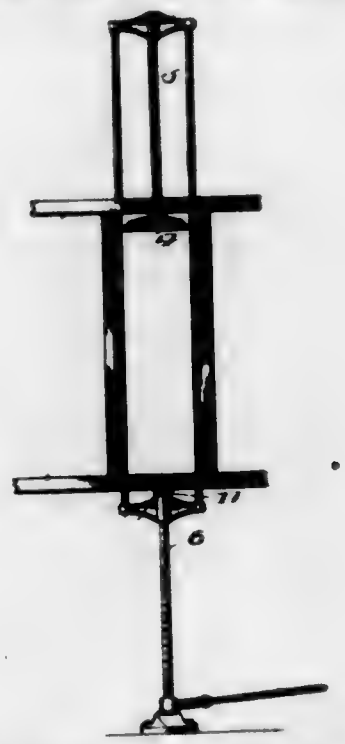
8. In mechanism for forming bars out of plastic material, a tapering shell, a former centrally located therein, and shaped so as, in cross-section, to represent the design to form the aperture in the soap bar, and tapered, increasing in diameter toward the delivery end, a disk or plate located at the discharge end of the plotter, and provided with a large opening having a bevel so that the opening enlarges in the direction of the discharge of soap, the discharge end of the former being located in the field of the opening of the said plate, substantially as and for the purposes specified.

9. In combination, a converging shell, and a former therein for forming a central aperture in the material discharged therefrom, and a table having guides, and means for elevating or depressing the table, substantially as and for the purposes specified.

10. In combination, a converging shell, and a former therein for forming a central aperture in the material discharged therefrom, and a table having guides, and means for elevating or depressing the table, and a sliding support on the said table, substantially as and for the purposes specified.

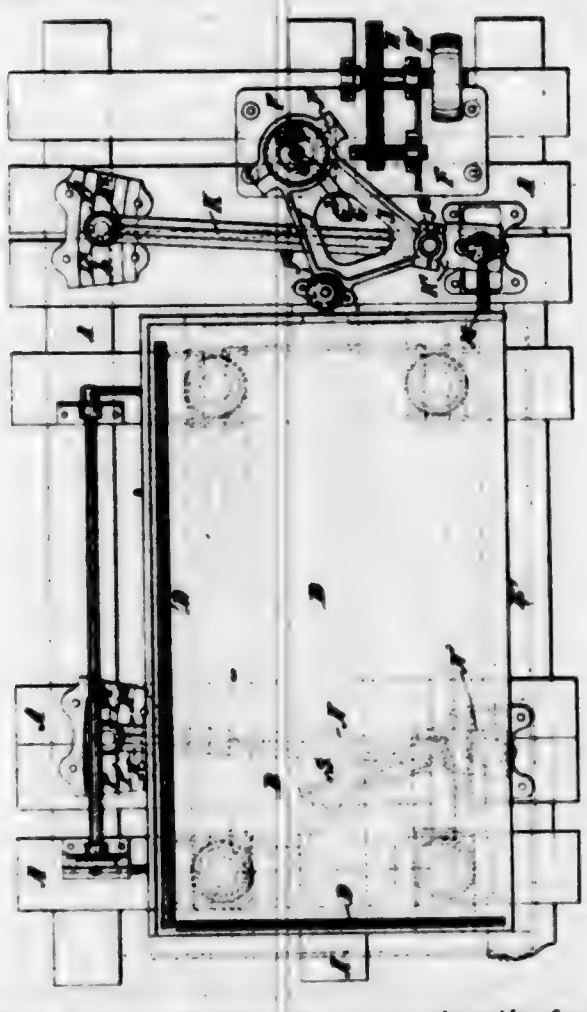
11. An apparatus for molding plastic materials, comprising a converging shell, having means to form a bar of plastic material, and provided with a former supported within it and arranged to produce an opening in the plastic bar, and a plate adapted for attachment to the shell, and having an opening corresponding in contour to the cross-sectional shape of the former, to produce a design-core for insertion in the plastic bar, substantially as and for the purposes specified.

692,494. TOBACCO-PRESS. JAMES M. VAUGHAN, Owensboro, Ky. Filed July 23, 1901. Serial No. 69,386. (No model.)



Claim.—In a press, a horizontally-arranged beam or floor, yokes arranged one above the other below the said beam or floor, tie-rods connecting the yokes, a plunger located above the said beam or floor and connected with the upper yoke, and a vertical press-screw in line with the plunger-rod and threaded into the lower yoke and located below the said beam or floor and obtaining a bearing at its upper end thereagainst for supporting the said beam or floor against the weight and compressing force, substantially as set forth.

692,495. CONCENTRATING-TABLE. JOHN A. B. WESLEY, Gawler, South Australia. Filed Mar. 1, 1901. Serial No. 49,495. (No model.)



Claim.—1. The combination with a concentrating-table, of a horizontally-disposed triangular lever connected at one angle to the table, a driven eccentric at the second angle thereof, a horizontally-disposed lever-arm pivoted at one end to a stationary element and at the other end to the third angle of the triangular lever, substantially as described.

2. The combination with a concentrating-table, of a parallel motion comprising two horizontally-disposed lever-arms, each pivoted at one end to a fixed element, and means to connect their free ends, a link connecting one of said levers to the table, a triangular lever connected at one angle to the table and at the other to the end of the second lever-arm, and means for moving the third angle of the triangular lever in a circle, whereby an elliptical motion will be imparted to the whole table, substantially as described.

3. The combination with a concentrating-table, of a parallel motion comprising two horizontally-disposed lever-arms, fixed axes in which said lever-arms are adjustably pivoted at one end and a rod connecting their free ends, a horizontally-disposed triangular lever having sides of different lengths and connected at one angle to the free end of one of said lever-arms, at the second angle to the end of the table and means at the third angle to move it in a circular path, whereby the table will receive a practically elliptical motion in a horizontal plane, substantially as described.

4. The combination with a concentrating-table, of a horizontally-disposed parallel motion, a link to connect said parallel motion to the table, supports for the table having a universal motion in a horizontal plane, means to adjust the relative heights of said supports to vary the inclination of the table, a horizontally-disposed triangular lever connected at one angle to the parallel motion, at the second angle to one end of the table and a driven eccentric at the third angle, whereby a substantially elliptical motion is imparted to the table, substantially as described.

5. The combination with a concentrating-table, of a horizontally-disposed parallel motion, a link to connect said parallel motion to the table, rolling ball-supports for the table, two coöperating wedges under each support, means to simultaneously move one of the wedges under each support to vary the inclination of the table, a horizontally-disposed triangular lever having sides of unequal length, one angle of said lever connected to the parallel motion, a second angle universally jointed to one end of the table, an eccentric at the third angle of the lever and elliptical gear to drive the eccentric, whereby a practically elliptical motion in a horizontal plane can be imparted to said table, substantially as described.

692,496. CAR-HAUL. ALFRED M. ACKLIN, Pittsburg, Pa. Filed Oct. 4, 1901. Serial No. 77,566. (No model.)

Claim.—1. A device for moving cars, consisting of a secondary traveling chain having hooks thereon for engaging with the car, and a main traveling chain having hooks thereon for engaging with the car and adapted to travel at a greater speed than the first-named chain.



2. A device for moving cars up an incline, consisting of a secondary traveling chain having hooks thereon for engaging with the car, and a main traveling chain having hooks thereon for engaging with the car and adapted to travel at a greater speed than the first-named chain.

3. A device for moving cars up an incline, consisting of a secondary traveling chain having hooks thereon for engaging with the car, a main traveling chain having hooks thereon for engaging with the car and adapted to travel at a greater speed than the first-named chain, and an auxiliary traveling chain having hooks thereon for engaging with the car and adapted to travel at a less speed than the secondary chain.

4. A device for moving cars, consisting of a secondary traveling chain having hooks thereon for engaging with the car, a main traveling chain having hooks thereon for engaging with the car and adapted to travel at a greater speed than the first-named chain, and a power-transmission device between the main chain and the first-named chain to operate the same.

5. A device for moving cars, consisting of a secondary traveling chain mounted on wheels and having hooks thereon for engaging with the car, a main traveling chain mounted on wheels and having hooks thereon for engaging with the car and adapted to travel at a greater speed than the first-named chain, and a driving-chain connected to wheels mounted on the wheel-shafts of both of said first-named chains for operating the same.

6. A device for moving cars, consisting of a secondary traveling chain mounted on wheels and having hooks thereon for engaging with the car, a main traveling chain having hooks thereon for engaging with the car and adapted to travel at a greater speed than the secondary chain, a power-transmission device between the main chain and the secondary chain to operate the same, an auxiliary chain having hooks thereon for engaging with the car and adapted to travel at a less speed than the secondary chain, and a power-transmission device between the secondary chain and auxiliary chain to operate the same.

7. A device for moving cars, consisting of a secondary traveling chain mounted on wheels and having hooks thereon for engaging with the car, a main traveling chain having hooks thereon for engaging with the car and adapted to travel at a greater speed than the secondary chain, a power-transmission device between the main chain and secondary chain to operate the same, an auxiliary traveling chain having hooks thereon for engaging with the car and adapted to travel at a less speed than the secondary chain, and a driving-chain connected to wheels mounted on the wheel-shafts of the secondary and auxiliary chains to operate the same.

8. A device for moving cars, consisting of a secondary traveling chain mounted on wheels and having hooks thereon for engaging with

the car, a main traveling chain having hooks thereon for engaging with the car and adapted to travel at a greater speed than the secondary chain, a driving-chain connected to wheels mounted on the wheel-shafts of the secondary and main chains, an auxiliary traveling chain mounted on wheels and having hooks thereon for engaging with the car and adapted to travel at a less speed than the secondary chain, and a driving-chain connected to wheels mounted in the wheel-shafts of the secondary and auxiliary chains to operate the same.

9. A device for moving cars, consisting of a secondary traveling chain having hooks thereon for engaging with the car, and a main traveling chain having hooks thereon adapted to engage with the car, said chains being so positioned that when the hooks on the secondary chain disengage with the car, the hooks on the main chain will engage the same, and said main chain being adapted to travel at a faster speed than the secondary chain.

10. A device for moving cars, consisting of a secondary traveling chain having hooks thereon adapted to engage with the car, a main traveling chain having hooks thereon adapted to engage with the car, and an auxiliary traveling chain having hooks thereon adapted to engage with the car, said chains being so positioned that when the hooks on the auxiliary and secondary chains disengage with the cars, the hooks on the secondary and main chains will engage the same.

11. A device for moving cars, consisting of a secondary traveling chain having hooks thereon adapted to engage with the car, a main traveling chain having hooks thereon adapted to engage with the car, said main chain being adapted to travel at a faster speed than the secondary chain, and an auxiliary traveling chain having hooks thereon adapted to engage with the car, said chains being so positioned that when the hooks on the auxiliary and secondary chains disengage with the cars, the hooks on the secondary and main chains will engage the same.

12. A device for moving cars, consisting of a secondary traveling chain having hooks thereon adapted to engage with the car, a main traveling chain having hooks thereon adapted to engage with the car, said main chain being adapted to travel at a faster speed than the secondary chain, and an auxiliary traveling chain having hooks thereon adapted to engage with the car, said chains being so positioned that when the hooks on the auxiliary and secondary chains disengage with the cars, the hooks on the secondary and main chains will engage the same, and said secondary chain being adapted to travel at a greater speed than the auxiliary chain.

13. A device for moving cars, consisting of a secondary traveling chain having hooks thereon for engaging with the car, and a main traveling chain having hooks thereon for engaging with the car, said hooks on the main chain being spaced at a greater distance apart than the hooks on the secondary chain.

14. A device for moving cars, consisting of a secondary traveling chain having hooks thereon for engaging with the car, a main traveling chain having hooks thereon for engaging with the car, and an auxiliary traveling chain having hooks thereon for engaging with the car, said hooks on the secondary chain being spaced at a greater distance apart than the hooks on the auxiliary chain.

15. A device for moving cars, consisting of a secondary traveling chain having hooks thereon for engaging with the car, a main traveling chain having hooks thereon for engaging with the car, said hooks on the main chain being spaced at a greater distance apart than the hooks on the secondary chain, and an auxiliary traveling chain having hooks thereon for engaging with the car, said hooks on the secondary chain being spaced at a greater distance apart than the hooks on the auxiliary chain.

692,497. PROCESS OF MAKING ACETYL-CELLULOSE. MAXIMILIAN C. L. ALTHAUSEN, Billwärder-an-der-Bille, near Hamburg, Germany, assignor to Firm of Fabrik Chemischer Präparate von Dr. Richard Sthamer, Hamburg, Germany. Filed Dec. 12, 1901. Serial No. 85,991. (No specimens.)

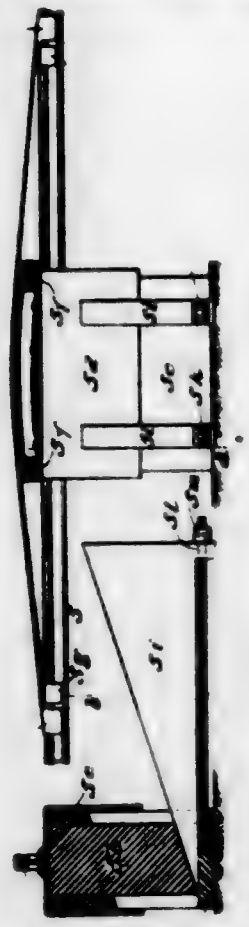
Claim.—1. The process which consists in reacting on hydrocellulose with glacial acetic acid and acetyl chlorid at a suitable temperature and upon the reaction product with sulfuric acid, for the purpose set forth.

2. The process which consists in reacting on hydrocellulose with glacial acetic acid and acetyl chlorid at a suitable temperature and upon the reaction product with sulfuric acid, liquefying the resultant product by heat and separating the acetyl derivate of hydrocellulose from its liquid constituents, for the purpose set forth.

3. The process which consists in reacting upon hydrocellulose with glacial acetic acid and acetyl chlorid at a suitable temperature, and upon the reaction product with sulfuric acid at a temperature of from 60° to 70° centigrade, maintaining this temperature until the resultant product is liquefied and precipitating the acetyl derivate of hydrocellulose by means of water.

692,498. RAILROAD-TRACK ADJUSTER. RALPH RAGSDALEY, Pittsburg, Pa. Filed Nov. 7, 1901. Serial No. 81,471. (No model.)

Claim.—1. In a railroad-track, the combination of fixed rails, an intermediate movable rail-section, bridge-pieces articulated at one end to the movable section and resting, at their opposite ends, on the fixed rails, and means for vertically adjusting the movable section.



2. In a railroad-track, the combination of fixed rails, an intermediate vertically-movable seat-block, a rail-section fixed to said seat-block, bridge-pieces articulated, at one end, to the seat-block and resting, at their opposite ends, on the fixed rails, and means for vertically adjusting the seat-block.

3. In a railroad-track, the combination of fixed rails, an intermediate vertically-movable seat-block, a rail-section fixed to said seat-block, bridge-pieces articulated, at one end, to the seat-block and resting, at their opposite ends, on the fixed rails, lateral guide-flanges fixed to the bridge-pieces and fitting the sides of the fixed rails, and means for vertically adjusting the seat-block.

4. In a railroad-track, the combination of fixed rails, an intermediate vertically-movable seat-block, a rail-section fixed to said seat-block, bridge-pieces articulated, at one end, to the seat-block, and resting, at their opposite ends, on the fixed rails, removable thin-edged shoes or extensions connected to the ends of the bridge-pieces farther from the movable rail-section, and means for vertically adjusting the seat-block.

5. In a railroad-track, the combination of fixed rails, an intermediate vertically-adjustable seat-block, a rail-section fixed to said seat-block, a wedge supporting the seat-block and fitting a transverse recess therein, and an adjusting-screw journaled in a fixed bearing and engaging a nut on the wedge.

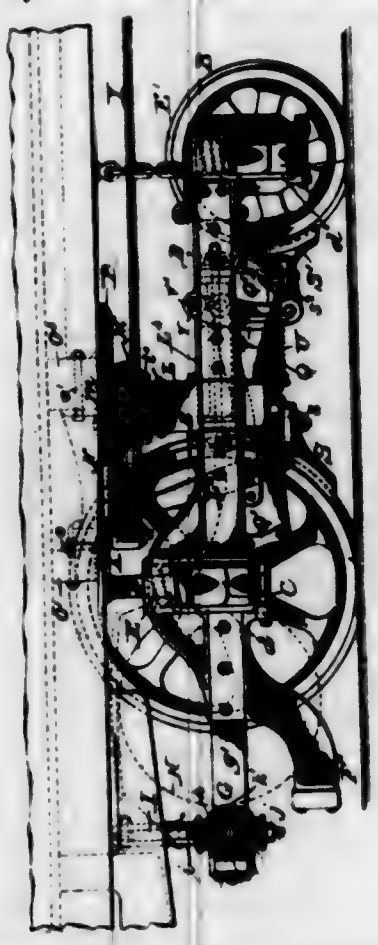
692,499. CAR-TRUCK. WILLIAM S. G. BAKER, Baltimore, Md. Filed Feb. 25, 1899. Serial No. 706,862. (No model.)

Claim.—1. The combination of the wheels, axles and axle-boxes, the side beams supported by the axle-boxes, and a motor-supporting frame, the opposite ends of which are attached to the ends of the side beams of the truck and are inclined inwardly across the outer-wheel tread-surface toward the longitudinal axis of the truck, whereby contact of the truck with the running-boards is avoided when the truck is turned.

2. The combination of the wheels, axles and axle-boxes, side beams supported by the axle-boxes and terminating adjacent to the outer-wheel tread-surface, and a motor-supporting frame, the opposite ends of which are attached to the ends of the side beams of the truck and are inclined inwardly from the ends of the side beams toward the longitudinal axis of the truck, whereby contact of the truck with the running-boards is avoided when the truck is turned.

3. The combination of the side frames of the truck, the car-body, the wheels and axles, the transverse bolster arranged between the wheels close to the drivers, a swivel connection between the car-body and the bolster, posts depending from the bolster and through the side frames and guided thereby, leaf-springs below the said frames, to the central portions of which the posts are secured, links suspended from the side frames close

to the axle-boxes of the drivers and attached to the front ends of the leaf-springs, and links attached to the side frames and to the opposite ends of the leaf-springs at a considerable distance inwardly from the axle-boxes of the small wheels, the arrangement being such that a larger proportion of the load is borne by the drivers than by the small wheels.



4. The combination with the side frames, of a truck, of a transverse bolster, the downwardly-projecting posts secured to the opposite ends thereof, the roller-brackets mounted on the opposite ends of the bolster, the car-body, curved grooved chafe-plates secured thereto in which the rollers ride, a segmental swivel-plate secured to the bolster, and a swivel-casting secured to the car-body and connected by a swivel-bolt with the segmental plate.

5. The combination of the car-body, the car-truck frame, the transverse bolster mounted thereon, a plate attached to the bolster, a casting attached to the car-body and having at its front end a hub for the swivel-bolt, a bolt extending through the hub and through an opening in the front end of the swivel-plate, a stud on the rear end of said plate extending through a curved slot in the swivel-casting, and a block on said casting extending into a curved groove in the swivel-plate.

6. The combination with the side frames of a truck, of a transverse bolster, the downwardly-projecting posts secured to the opposite ends thereof, the roller, brackets mounted on the opposite ends of the bolster, the car-body, curved grooved chafing-plates secured thereto in which the rollers ride, a swivel-plate secured to the bolster, a swivel-casting secured to the car-body and connected by a swivel-bolt with the plate, and cone-shaped rollers arranged in the roller-brackets, the axes of which are arranged radially with reference to the swivel-bolt.

7. The combination of the truck-frame, the bolster, the car-body, a casting secured to the car-body, a plate secured to the bolster, a pivotal connection between the plate and casting, and a longitudinal guide in the plate for the upper end of a brake-operating lever.

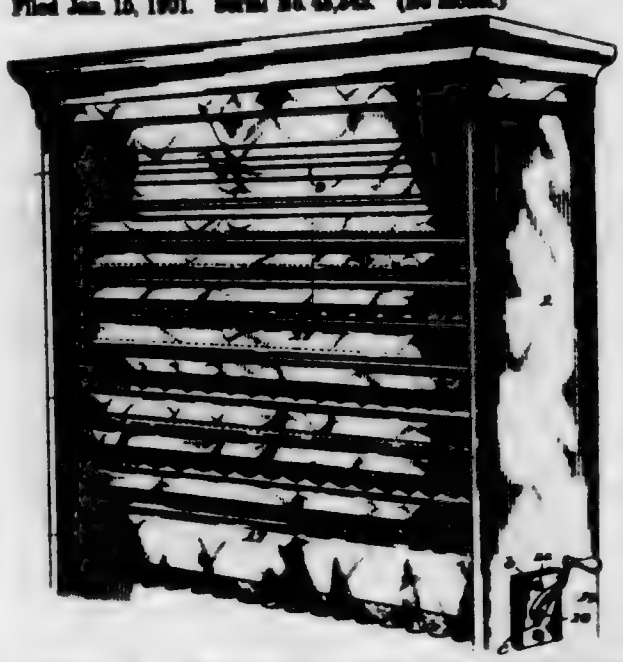
8. The combination of the side frames of the truck, the car-body, a pair of relatively small supporting-wheels, a pair of driving-wheels of larger diameter than the small wheels, the transverse bolster arranged between the wheels close to the drivers, a swivel connection between the car-body and the bolster, over or approximately over the axis of the drivers, posts depending from the bolster and extending through the side frames, leaf-springs below the side frames, to the central portion of which the posts are secured, links suspended from the side frames close to the axle-boxes of the drivers, and attached to the front ends of the leaf-springs, and links attached to the side frames and to the opposite ends of the leaf-springs at a considerable distance inwardly from the axle-boxes of the small wheels.

9. The combination of the truck-frame, the car-body, the bolster supported on the truck-frame, the plate secured to the bolster and having a headed stud projecting therefrom, and a casting secured to the car-body and provided with a curved slot into which the headed stud projects.

10. The combination of the truck-frame, the bolster, the car-body, a casting secured to the car-body, a plate secured to the bolster, a pivotal connection between the plate and the casting, a curved oblong block n' on the casting and a groove on the plate into which the block n' fits.

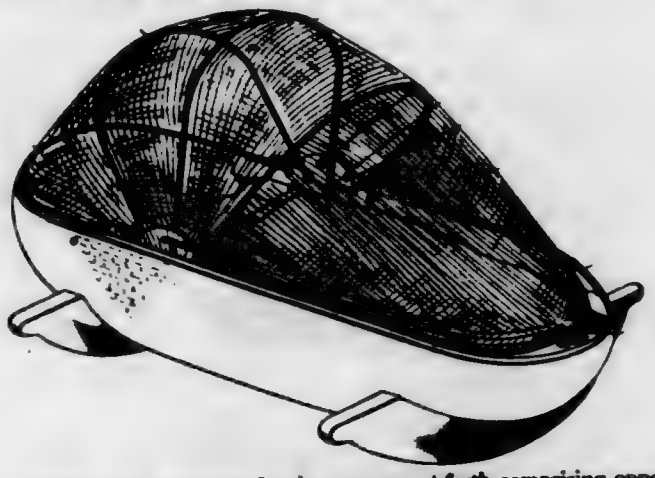
11. The combination of the truck-frame, the car-body, the bolster supported on the truck-frame, the plate secured to the bolster and having a headed stud projecting therefrom, a casting secured to the car-body and provided with a curved slot into which the headed stud projects, and a curved oblong block n' on the casting fitting a groove on the plate.

692,500. DISPLAY-RACK. GEORGE W. BARNETT, Keokuk, Iowa.
Filed Jan. 15, 1901. Serial No. 43,242. (No model.)



Claim.—In a display-rack, opposite endless carriers, formed by sprocket-wheels and sprocket-chains, certain of the corresponding links having inner rearwardly-directed flanges, tie-rods connected to the flanges of corresponding links, and opposite brackets carried by the other corresponding links.

692,501. FLY-SCREEN. FRANK D. BENTLEY, Sanborn, N. D.
Filed May 21, 1901. Serial No. 61,247. (No model.)



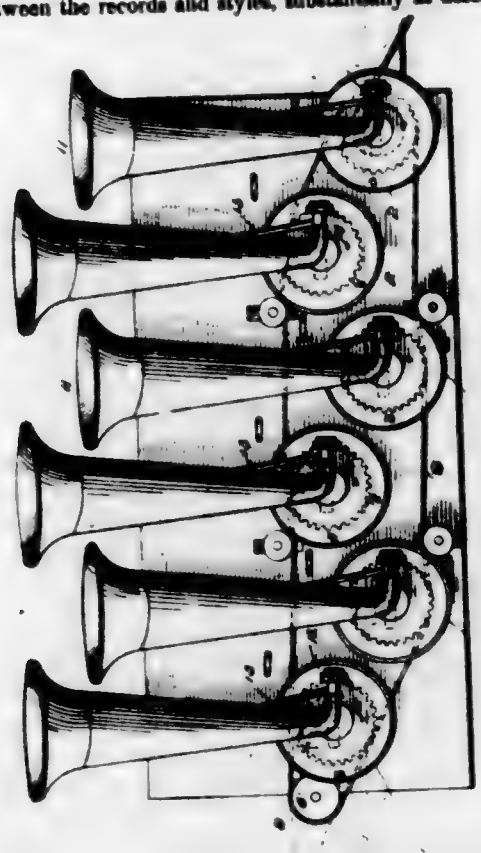
Claim.—A fly-screen for the purpose set forth comprising opposite side supporting devices, a series of bows having their terminals applied to the inner opposing sides of said devices and movably held in the latter, a netting secured to the end bow and arranged over the remaining bows of a series of bows, and a bowed holder of greater length and width than the said series of bows and movable over the latter and also over the outer side of the netting, the terminals of said holder being applied to the outer sides of the said supporting devices and adapted to be arranged over one end of the net to hold the latter in applied position.

692,502. GRAMOPHONE. EMILE BERLINER, Washington, D. C.
Filed June 13, 1900. Serial No. 20,170. (No model.)

Claim.—1. A sound-reproducing machine comprising the combination of a number of identical records, reproducing-styles arranged for contact at corresponding points thereof, and mechanism common to all of the identical records for producing a relative but synchronous movement between the records and styles, substantially as described.

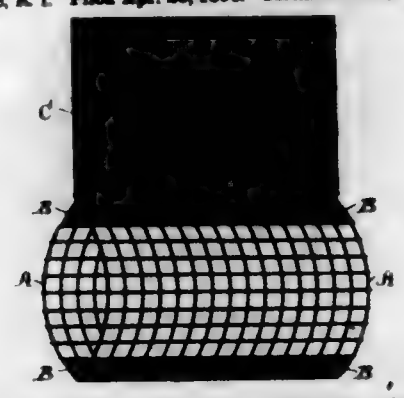
2. A sound-reproducing machine comprising the combination of a number of identical records, gearing common to the records for driving them synchronously and reproducing-styles arranged for contact with corresponding points of the records, substantially as described.

3. A sound-reproducing machine comprising the combination of a number of identical records, registering mechanism for insuring the exact register of each record upon its support, reproducing-styles arranged for contact with corresponding points of the records and mechanism common to all of the identical records for producing a relative but synchronous movement between the records and styles, substantially as described.



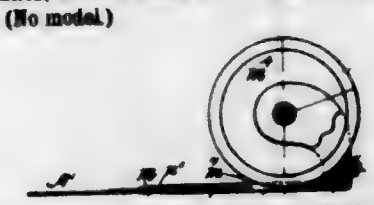
4. A sound-reproducing machine comprising a number of rotatable tables or record-supports each provided with a pin so placed that all the pins correspond in position, a number of identical records, one for each table, and each having an orifice registering with the pin on its table or support, reproducing-styles arranged for contact with corresponding points of the records, and mechanism common to all the supports for rotating the record-supports synchronously, substantially as described.

692,503. **REVERSIBLE BANDAGE-CASE.** SAMUEL BOTTOMLEY, Providence, R. I. Filed Apr. 26, 1898. Serial No. 678,847. (No model.)



Claim.—In a bandage-case, the combination with a casing having two sides, the central portions A A which are formed of large, open meshes and the edges B B of closely-packed textile threads, of the reversible covering-strip C connected at one edge with the case; whereby the covering-strip may cover one side when the other is in use and vice versa, as described.

692,504. **MEANS FOR CUTTING CORDUROY CLOTH.** MALCOLM G. CHACE, Central Falls, R. I. Filed Oct. 14, 1899. Serial No. 733,649. (No model.)



Claim.—1. A cutting device for cutting the loop-threads of corduroy or similar fabric, comprising a cutter-holder having a forward-extending pointed foot adapted to extend into the race of the cloth, a slot or recess in the upper surface of the foot and a rotary cutter mounted in said holder, having a cutting edge extending into said slot or recess formed by bevels which extend from the cutting edge over the foot on each side of the slot or recess whereby they serve in conjunction with the foot as guards to the cutting edge of the cutter.

2. In a device for cutting loop-threads of corduroy or similar fabrics, a rotary shaft, cutter-holders mounted on said shaft having a forward-extended pointed foot to enter the race of the cloth and rotary cutters mounted on said shaft.

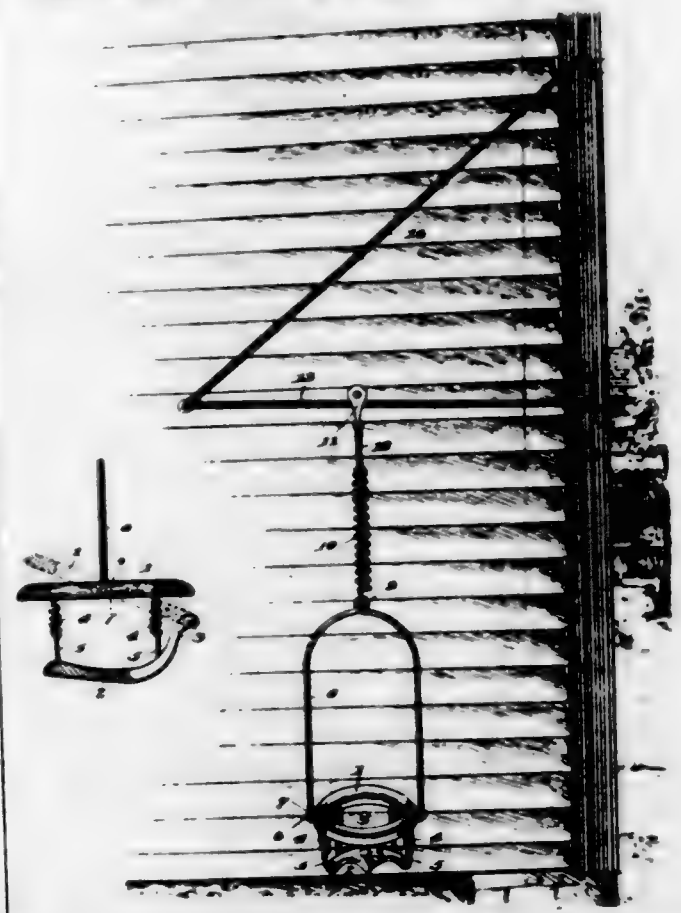
3. In a device for cutting the loop-threads of corduroy or similar fabrics, a rotary shaft, feet mounted on said shaft, each having forward-extended pointed ends and cutter-guards, and rotary cutters on said shaft.

4. In a device for cutting the loop-threads of corduroy or similar fabrics, cutter-holders mounted on a rotary shaft having forward-extended pointed feet and cutter-guards, the rotary cutters and means for adjusting the cutter-holders.

5. In a device for cutting the loop-threads of corduroy or similar fabrics, cutter-holders mounted on a rotary shaft, having forward-extended feet and cutter-guards, rotary cutters mounted upon the shaft and means for adjusting the shaft, cutters and cutter-holders vertically, simultaneously.

6. In a device for cutting the loop-threads of corduroy or similar fabrics, a rotary cutter, a cutter-guard, having a forward-extended foot to enter the race, the foot being shaped and hung to guide the fabric to the cutter and the cutter-guard, and the cutter and cutter-guard being shaped to prevent the cutting edge of the cutter from injuring the portion of the fabric passing beneath the guard.

692,505. **BABY-JUMPER.** JOHN H. CRUTCHFIELD, Atlanta, Ga. Filed June 10, 1901. Serial No. 63,955. (No model.)



Claim.—1. In a baby-jumper, the combination of a horizontal swinging arm a suspending-spring having a sliding connection with said arm, a bail attached to the lower end of said spring, an annular body member pivotally connected to said bail, a supporting-saddle, and spring connections between said saddle and said body member.

2. In a baby-jumper, the combination with a support, of a bail-shaped hanger hung therefrom, a body-embracing member pivoted between the lower ends of the hanger to tilt vertically thereon, and a saddle located below the said member and having a loose elastically-yieldable connection therewith.

3. In a baby-jumper, the combination of a horizontal swinging arm, and a body-supporting member hung therefrom and having a pivotal connection therewith to tilt vertically, the said body member being mounted to travel longitudinally on the arm.

4. In a baby-jumper, the combination with a support, of a body-embracing ring, a bail pivotally connected to opposite portions of the ring and resiliently and slidably suspended by the support, and a saddle resiliently and movably suspended from the ring.

5. In a baby-jumper, the combination of a substantially horizontal swinging arm, an upwardly-inclined brace connected to the outer end of the arm, supporting-brackets constructed for the pivotal connection of the corresponding ends of the arm and the brace, a pulley mounted to travel upon the arm, a helical spring pendent from the pulley, an inverted substantially U-shaped hanger hung from the spring, a body-embracing ring located between the lower ends of the hanger and pivotally connected thereto at diametrically opposite points, a saddle located below the ring, and marginal spring connections between the saddle and the ring.

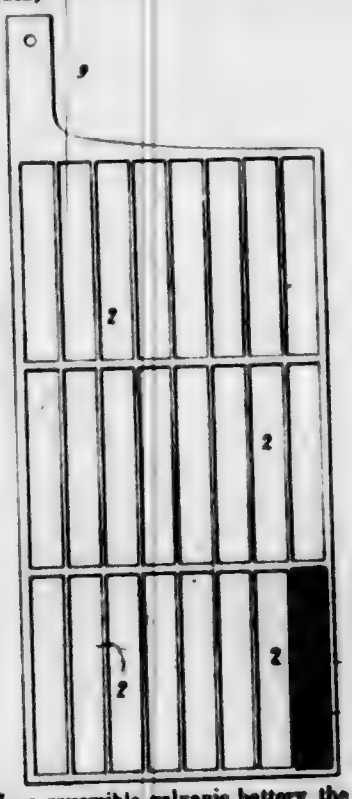
692,506. MILITARY STOOL. HEINRICH ECKER, Stuttg, Germany. Filed June 7, 1900. Serial No. 19,464. (No model.)



Claim.—1. In a stool, the combination of the seat-boards provided with matching dovetailed grooves, cross-pieces provided with dovetailed slabs or arris-fillets fitted in said grooves and a marginal flange, fastening devices passed upward through the flange and into the seat-boards on opposite sides of but not through the dovetailed projections of the arris-fillets, and legs fitted in sockets in said cross-pieces, substantially as set forth.

2. In a stool, the combination of the seat-boards provided with matching dovetailed grooves and with counter-dovetailed grooves, cross-pieces provided with dovetailed slabs or arris-fillets fitted in said grooves, and a marginal flange, fastening devices passed upward through the flange and into the seat-boards on opposite sides of the arris-fillets, and legs fitted in sockets in the cross-pieces and having dovetailed heads fitted in said counter-dovetailed grooves, substantially as set forth.

692,507. REVERSIBLE GALVANIC BATTERY. THOMAS A. EDISON, Llewellyn Park, N. J., assignor to Edison Storage Battery Company, a Corporation of New Jersey. Filed June 20, 1901. Serial No. 65,287. (No model.)



Claim.—1. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support, finely-divided metallic cadmium carried by said support, a second conducting-support, and an electrolytically-active oxid of a magnetic metal other than iron carried by the second support, substantially as set forth.

2. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support, finely-divided metallic cadmium carried by said support, a second conducting-support, and a mixture of electrolytically-active oxid of a magnetic metal other than iron and a flake-like conducting material carried by the second support, substantially as set forth.

3. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support, finely-divided metallic cadmium carried by said support, a second conducting-support, and a mixture of electrolytically-active oxid of a magnetic metal other than iron and flake-graphite carried by the second support, substantially as set forth.

4. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support, finely-divided metallic cadmium carried by said support, a second conducting-support having perforated pockets or receptacles, and an electrolytically-active oxid of a magnetic metal other than iron carried within said pockets or receptacles, substantially as set forth.

5. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support, finely divided metallic cadmium carried by said support, a second conducting-support having perforated pockets or receptacles, and a mixture of electrolytically-active oxid of a magnetic metal other than iron and a flake-like inert conducting material carried within said pockets or receptacles, substantially as set forth.

6. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support, finely-divided metallic cadmium carried by said support, a second conducting-support having perforated pockets or receptacles, and a mixture of electrolytically-active oxid of a magnetic metal other than iron and flake-graphite carried within said pockets or receptacles, substantially as set forth.

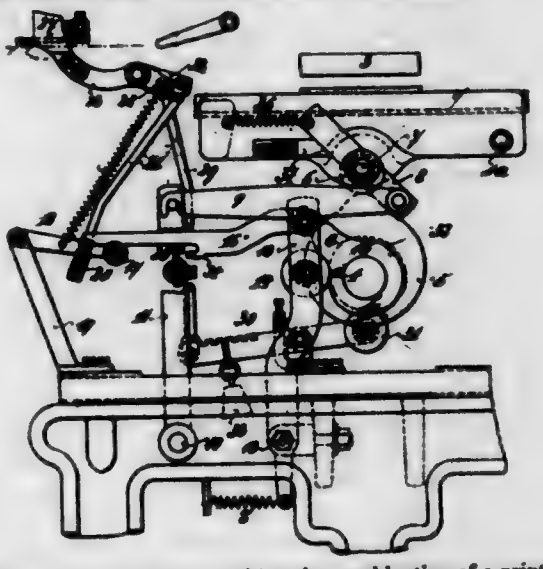
7. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support having perforated pockets or receptacles, finely-divided metallic cadmium carried by said pockets or receptacles, a second conducting-support, and an electrolytically-active oxid of a magnetic metal other than iron carried by the second support, substantially as set forth.

8. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support having perforated pockets or receptacles, finely-divided metallic cadmium carried by said pockets or receptacles, a second conducting-support having perforated pockets or receptacles, and an electrolytically-active oxid of a magnetic metal other than iron carried within the pockets or receptacles of the second support, substantially as set forth.

9. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support, finely-divided cadmium in filamentary form carried by said support, a second conducting-support, and an electrolytically-active oxid of a magnetic metal other than iron carried by the second support, substantially as set forth.

10. In a reversible galvanic battery, the combination of an electrolyte which remains unchanged during all conditions of use, a conducting-support, finely-divided cadmium in filamentary form carried by said support, a second conducting-support having perforated pockets or receptacles, and an electrolytically-active oxid of a magnetic metal other than iron carried within said pockets or receptacles, substantially as set forth.

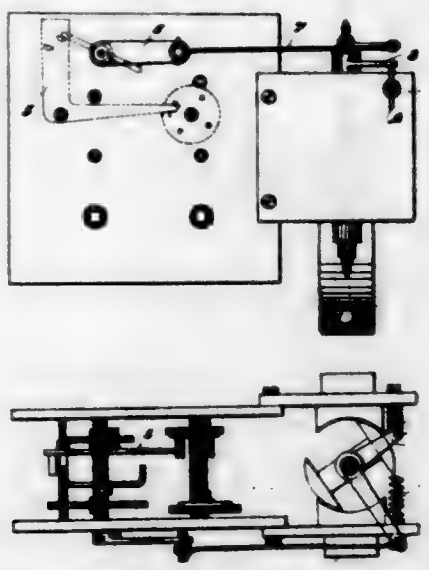
692,508. PRINTING-PRESS. ERNST FISCHER, Barmen, Germany. Filed Feb. 27, 1901. Serial No. 48,147. (No model.)



Claim.—In a printing-machine the combination of a printing-frame means to rock said frame and means to lower and raise it consisting of an eccentrically-located roller a lever fitted to said roller and having connection with a lever-arm, of a second lever-arm being oscillated by a cam and bearing a pushing-rod, said rod being supported by an arm having connection with the sheet-examiner, said rod being provided with a hook

in order to be hooked with said lever-arm for the purpose described and set forth.

692,509. ELECTRIC CLOCK. MARTIN FISCHER, Zurich, Switzerland, assignor to Actiengesellschaft "Magneta," (Electrische Uhren Ohne Batterie & Ohne Contacte,) Zurich, Switzerland, a Firm. Filed Sept. 3, 1901. Serial No. 74,162. (No model.)



Claim.—1. The combination with a current-generator, its armature, an abutment rigidly connected to the latter and a spring on either side and in the path of said abutment; of means for oscillating the armature, for the purpose set forth.

2. The combination with a current-generator, its armature, an abutment rigidly connected thereto and a spring on either side and in the path of said abutment; of mechanism for oscillating the armature and means for timing the operation of said mechanism to periodically impart to the armature a partial rotation first in one direction and then in another, for the purpose set forth.

3. The combination with a current-generator, its armature, an abutment rigidly connected thereto, a spring on either side and in the path of said abutment, and a revoluble crank connected with the armature to impart to it a partial rotation first in one direction and then in another at each revolution of said crank; of mechanism for rotating the crank and means for timing the operation of said mechanism, for the purposes set forth.

4. The combination with a current-generator, its armature, an abutment rigidly connected thereto, a spring on either side and in the path of said abutment, a revoluble crank connected to the armature to impart to it a partial rotation first in one direction and then in another at each revolution of the crank; of mechanism for revolving said crank, a clock time-train and appliances controlled thereby and timing the operation of said mechanism, for the purpose set forth.

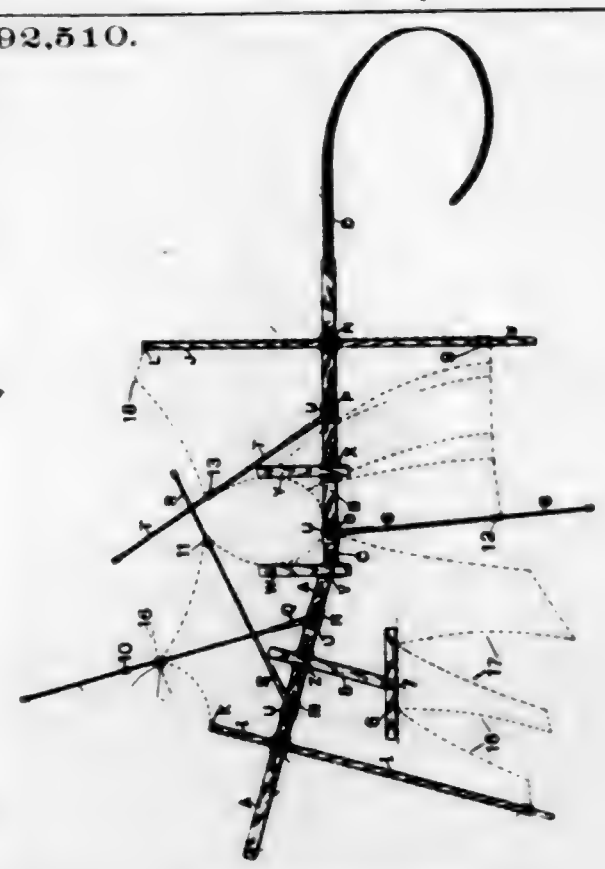
5. The combination with a current-generator, its armature, an abutment rigidly secured thereto, a spring on either side and in the path of said abutment, a revoluble crank connected to the armature to impart to it a partial rotation first in one direction and then in another at each revolution of said crank, and a spring or weight driven train of gearing connected with the shaft of said crank for revolving the same; of a stop device adapted to lock said train of gearing against operation a clock time-train, and a let-off device controlled by the minute-arbor of said time-train and operating on the stop device to periodically release the same, for the purpose set forth.

692,510. GARMENT-FITTER. EDWARD P. FOLLETT, Chicago, Ill. Filed Mar. 20, 1901. Serial No. 52,006. (No model.)

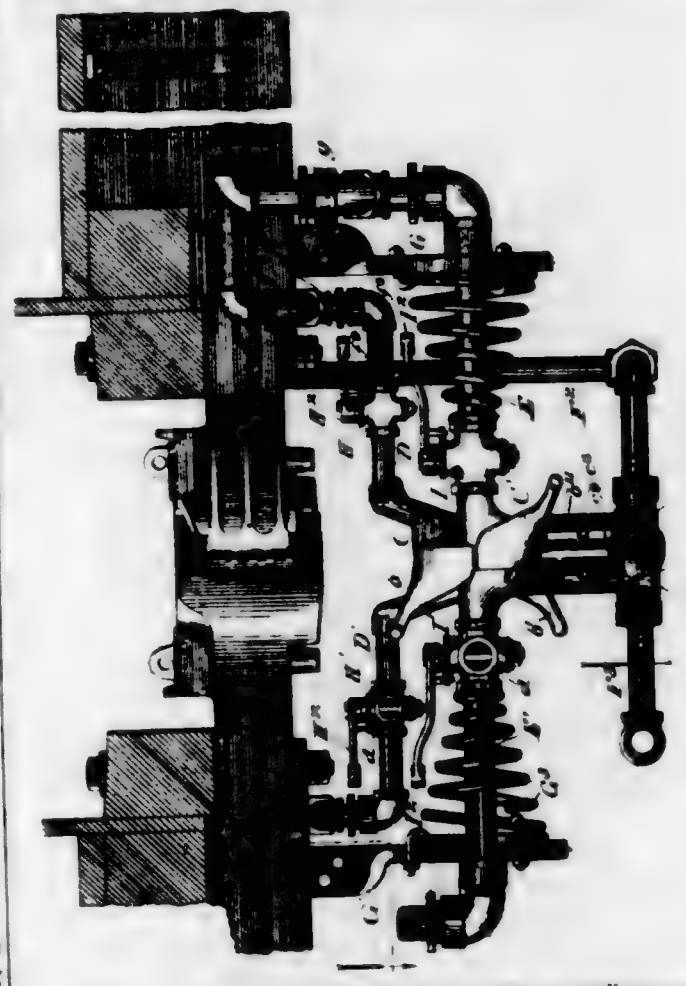
Claim.—1. In a device for laying out tailors' patterns, a belt adapted to be secured around the body close under the arms, said belt comprising in part two main portions pivotally connected at a point close to the arm-scye position, clasps mounted on the said main portions of the belt and movable longitudinally thereon, arms having one end portion movably connected with the clasps and no connection with any other portion of the device, and indicating-slides on the free end portion of the arms for the purpose stated.

2. In a device for laying out tailors' patterns, a belt adapted to be secured around the body close under the arms, a series of clasps mounted on the belt and movable longitudinally thereon, arms having one end pivotally secured to a number of the clasps and another series of arms slidingly fitted to the remaining clasps intermediate the length of the arms, whereby the end portions thereof project freely above and below the belt, and indicating-slides on the free end portions thereof, for the purpose stated.

692,510.



692,511. TRAIN-PIPE COUPLING. JOSEPH E. FORSYTH, Chicago, Ill. Filed Nov. 18, 1901. Serial No. 82,660. (No model.)



Claim.—1. In an automatic train-pipe coupling, a coupling member comprising a perforated pipe-head having two diagonally opposite convex flanking surfaces, and two diagonally opposite forwardly divergent inclined prongs branching from said pipe-head and having at their bases concave surfaces for receiving the convex surfaces of a companion coupling member and having also at their bases flanking or lateral surfaces for engaging similar surfaces of a companion coupling member, the flanking surface of each prong-base lying, respectively, in substantially horizontal and vertical planes.

2. In an automatic train-pipe coupling, the combination of a yieldingly-held coupling member provided with a perforated pipe-head having two diagonally opposite convex flanking surfaces, two diagonally opposite forwardly divergent prongs branching from said pipe-head and hav-

ing at their bases concave surfaces for receiving the convex surfaces of a companion coupling member, and having at their bases lateral or flanking surfaces for engaging similar surfaces of a companion coupling member, the flanking surfaces of each prong-base lying, respectively, in substantially horizontal and vertical planes, and a yielding air-projected gasket at the orifice of said pipe-head, substantially as and for the purpose set forth.

3. In an automatic train-pipe coupling, a yieldingly-held coupling-head provided with an air-passage and with suitable guide-prongs and interlocking surfaces, the orifice of said passage lying in a central vertical longitudinal plane with reference to the car, and a detachable steam-pipe head carried by said coupling member so as to be automatically connected with the corresponding head of a companion coupling member during coupling of the cars, said steam-pipe head having an orifice lying in vertical alinement with said first-named orifice.

4. In an automatic train-pipe coupling, a coupling-head provided with signal and brake passages having orifices lying in a central vertical longitudinal plane with reference to the car, said head being provided with guide-prongs and interlocking surfaces, and a detachable steam-pipe head operatively carried by said first-named head and forming a portion of the coupling member, said steam-pipe head having an orifice opening in a vertical diagonal plane.

5. In an automatic train-pipe coupling, a yieldingly-held coupling-head provided with guide-prongs and interlocking surfaces and supplied with an air-passage having an orifice equipped with a transverse air-expanded gasket and a steam-pipe head operatively carried by said first-named head and having a gasket lying in a vertical diagonal plane.

6. In an automatic train-pipe coupling, a yieldingly-held coupling-head provided with guide-prongs and interlocking surfaces and supplied with an air-passage having an orifice equipped with a transverse soft gasket, and a steam-pipe head operatively carried by said first-named head and having a hard gasket lying in a vertical diagonal plane and provided with a prong for engaging the companion steam-pipe head.

7. In an automatic train-pipe coupling, a yieldingly-held coupling-head provided with guide-prongs and interlocking surfaces, and supplied with an air-passage having an orifice equipped with a gasket, and a steam-pipe head operatively carried by said first-named head and independently movable with relation to said first-named head, said steam-pipe head having a gasket-equipped orifice in vertical alinement with said first-named orifice.

8. In an automatic train-pipe coupling, a yieldingly-held coupling-head provided with guide-prongs and interlocking surfaces and supplied with a fluid-passage having a gasket-equipped orifice, and a steam-pipe head operatively carried by said first-named head and capable of movement with relation to said first-named head about a vertical axis.

9. In an automatic train-pipe coupling, a yieldingly-held coupling-head provided with guide-prongs and interlocking surfaces and supplied with a fluid-passage having a gasket-equipped orifice, and a steam-pipe head operatively carried by said first-named head and having swivel connection therewith.

10. In an automatic train-pipe coupling, a yieldingly-held coupling-head provided with guide-prongs and interlocking surfaces and supplied with a fluid-passage having a gasket-equipped orifice, and a steam-pipe head having swivel connection with said first-named head and equipped with a gasket lying in a vertical oblique plane, the orifices of said heads being in vertical alinement.

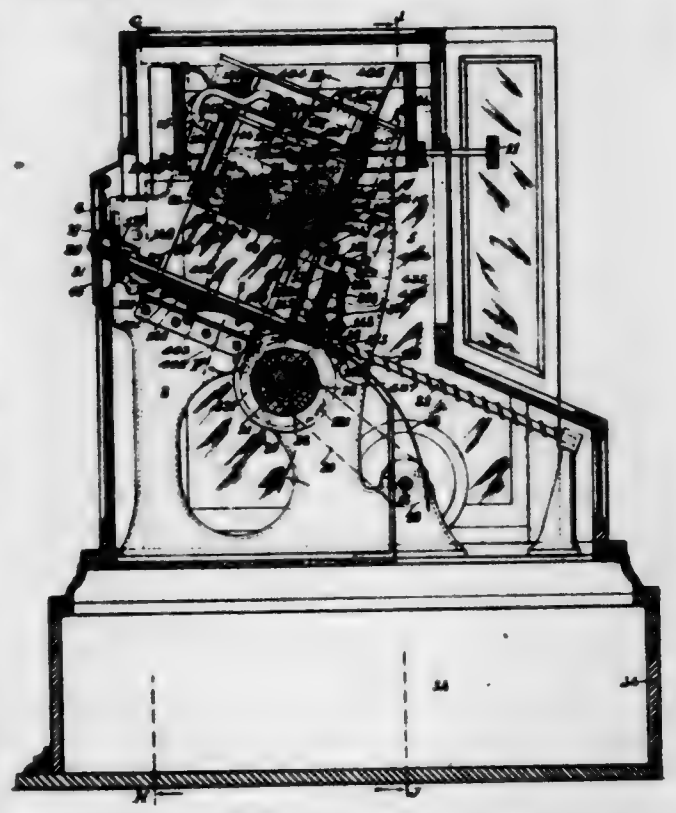
11. In an automatic train-pipe coupling, a coupling member comprising a perforated pipe-head having two diagonally opposite convex flanking surfaces and two diagonally opposite forwardly-diverging inclined prongs branching from said pipe-head and having at their bases concave surfaces for receiving the convex surfaces of a companion coupling member, and having also at their bases flanking or lateral surfaces for engaging similar surfaces of a companion coupling member, the flanking surfaces of each prong-base lying, respectively, in substantially vertical and horizontal planes, said coupling-head being provided with brake and signal passages having orifices equipped with transverse gaskets, and a steam-pipe head operatively carried by said first-named head and capable of a turning movement with relation thereto, said steam-pipe head having a steam-passage with its orifice equipped with a gasket lying in a vertical oblique plane, substantially as and for the purpose set forth.

12. In an automatic train-pipe coupling, a coupling member comprising a head having two diagonally opposite flanking surfaces and two diagonally opposite forwardly-diverging inclined prongs branching from said head and having at their bases concave surfaces for receiving the convex surfaces of a companion coupling member and having also at their bases flanking or lateral surfaces for engaging similar surfaces of a companion coupling member, the flanking surfaces of each prong-base lying respectively in substantially horizontal and vertical planes, and two fluid-passages in said head having orifices equipped with yielding gaskets lying in a transverse plane and within an imaginary cylinder passing through said convex and concave surfaces.

13. In a train-pipe coupling, the combination of a yieldingly-supported steam-pipe head having a passage whose orifice is equipped with a gasket lying in an oblique plane, and having a yielding prong opposed to said gasket, and an emergency coupling device comprising a member having an obliquely-disposed gasket and a prong for connecting with said steam-pipe head, and a member serving to connect with a corresponding member of another car, substantially as and for the purpose set forth.

14. In a train-pipe coupling, a yieldingly-held coupling-head, comprising a central perforated pipe-head, two diagonally opposite convex flanking surfaces, two diagonally opposite forwardly-projecting inclined prongs branching from said pipe-head and having at their bases concave surfaces for receiving the convex surfaces of a companion coupling-head, and having, also, lateral surfaces for engaging similar surfaces of a companion coupling member, the flanking surfaces of each prong-base lying, respectively, in substantially horizontal and vertical planes, and a second pipe-head attached to said first-named head and having a passage whose orifice lies in the vertical plane of the orifice of said first-named pipe-head, substantially as described.

692,512. APPARATUS FOR AUTOMATICALLY INSURING, REGISTERING, AND FRANKING LETTERS. ALBERIC FRANC, Sanary, and FRANCISQUE VOLAND, Lyons, France. Filed Sept. 25, 1900. Serial No. 31,060. (No model.)



Claim.—1. A machine for registering or insuring letters automatically, comprising a stamping device for imprinting identical indications on the letter and on two bands of paper; a device for holding the letter while it is being marked and then advancing it into a receiving-box; a device for holding each of the bands of paper while it is being marked and for then feeding it forward; a device for rolling up in the machine the printed part of one of the bands; a device for causing the other band to issue from the machine and for cutting off the part printed; devices for preventing fraudulent manipulation and controlling mechanism for causing all these parts to operate in the desired order.

2. In a machine of the kind herein described, the combination of a carriage 14, a numbering apparatus carried by said carriage and comprising numbering-wheels 62, 63, 64, an automatic controlling mechanism for said numbering-wheels comprising the gear-wheels 86, 87, 88 fixed to the said numbering-wheels, the gear-wheels 89, 90, 91 engaging with the aforesaid gear-wheels and mounted on arbors which extend right along the carriage 14, which arbors also carry toothed wheels 92, 93, 94, a triple rack 95 pivoted to the frame of the machine and capable of imparting to the said wheels 92, 93, 94 suitable fractions of a revolution, while the carriage 14 is ascending and a device for causing the said rack to advance and recede from the said wheels 92, 93, 94 at the required moment.

3. In a machine of the kind herein described, the combination of a carriage 14, numbering-wheels mounted in this carriage, a movable rack 95, toothed wheels between said rack and the numbering-wheels for operating the latter, a device for causing said rack to approach and recede from the said gear-wheels comprising a traction-spring 96, keeping the said rack disengaged with the said wheels, the tail 100 fixed to the said

rack and obliging it to move when the said tail is struck by the lower edge of the carriage 14; the spring-pressed finger 101 which keeps the rack against the tension of the said spring 96, and the projection 104 on the carriage 14, which projection disengages the finger 101 from the said rack allowing the latter to be pulled back by the spring 96.

4. In a machine of the kind herein described, the combination of a carriage 14, printing-wheels carried by said carriage, mechanism for operating said carriage comprising the handle 15, the chain-wheel 17 connected with this handle by the chain 300 and the rod 16, the arbor 18 carrying said chain-wheel, the arbor 22, transmitting-gear between these two arbors, the two pinions 23, 24 keyed onto the arbor 22, the racks 25 and 26 gearing with the said pinions and united elastically to the carriage, and the spring 27 which coils itself when the handle is pulled, and which afterward returns by the aforesaid mechanism to its original position.

5. In a machine of the kind herein described a device serving to hold the letter while it is being marked and then to advance it into a receptacle comprising the spring-table 7, the comb 8 for stopping the letter, the advancing-roller 30, a mechanism for imparting rotation to this roller after the marking has occurred, and a device for forcing the letter against the roller and depressing the comb 8.

6. In a machine of the kind herein described, the combination with a comb 8 for arresting the letter and an advancing-roller 30, of a device serving to force the letter against said roller 30 and to depress the comb 8, comprising the movable frame 140, the springs 341 for keeping said frame normally raised, the roller 142 and springs for supporting it on said frame, the fingers 28 carried by said frame, means for causing the frame to descend, and means for keeping said frame depressed during the advancement of the letter.

7. In a machine of the kind herein described, the combination of a carriage 14, printing-rollers carried by said carriage, a comb 8 for stopping the letter, an advancing-roller 30, a movable frame 140 and attached parts which as the frame descends depress the comb and force the letter against the advancing-roller, and devices for depressing said frame 140 and for keeping it depressed during the advance of the letter, comprising projections 139 carried by the carriage 14, a spring-catch 151 carried by the frame, and a projection 147 on the carriage 14 for disengaging the spring-catch 151 and permitting the raising of the carriage.

8. In a machine of the kind herein described, the combination of a manipulating-handle, a device for preventing this handle from being actuated unless the letter has been introduced, comprising an arbor 47, pins 46 carried on said arbor to be encountered and pushed forward by the letter at the moment of its introduction, an arbor 22 geared with the handle, a notched disk 50 on said arbor 22, and a pawl 48 attached to said arbor 47 and ordinarily engaged in the notch of the disk 50, but disengaged therefrom when a letter is introduced and moves the said pins 46.

9. In a machine of the kind herein described, the combination of a carriage 14, printing-wheels carried by said carriage, a case having an opening for the introduction of letters, and a device for preventing this introduction when the carriage 14 is not in its raised position, said device comprising the flap 6 provided with spring-arms 137, an adjustable projection 136 carried by the carriage 14, a spring-pressed catch 138, and a rod carried by the carriage 14 for coöperating with the catch to force it back.

10. In a machine of the kind herein described, the combination of a roller 30 for advancing the letter into a receptacle, and a device for preventing the withdrawal of the letter and assuring its advancement which comprises the sliding frame 31 provided with teeth 29, guide-rods for said frame, racks 133 on said guide-rods, springs 150 for pushing back the sliding frame, and disks 132 fixed on the roller 30 and provided with teeth on a portion of their peripheries.

11. In a machine of the kind herein described, the combination of a stamping device for printing identical indications on the letter and on bands of paper, a device serving to hold one of these bands of paper while it is being printed and then to feed it forward, comprising a feeding-roller 35, a table 36, a second feeding-roller 41, a mechanism for pressing the band of paper against these feeding-rollers when the feeding is produced and for keeping the band stationary when the feeding is terminated, and mechanism for rotating said rollers 35 and 41.

12. In a machine of the kind herein described, the combination of a printing device for imprinting identical indications on the letter and on bands of paper, a device serving to hold the band of paper while it is being printed and then to feed it forward, comprising a table 36, feed-rollers 35 and 41, a mechanism for rotating these rollers and a mechanism for pressing the paper band against the feeding-rollers when the feeding is to be produced and for holding it stationary when the feeding is terminated, such mechanism comprising the ribs 178 formed on a part of the periphery of the said feeding-roller 35, the lever-arms 165, 166, 167, 168, the rollers 169, 170, the pressing-pad 176 carried by the said lever-arms and the springs 175 keeping the rollers 169, 170 against the feeding-rollers substantially as described.

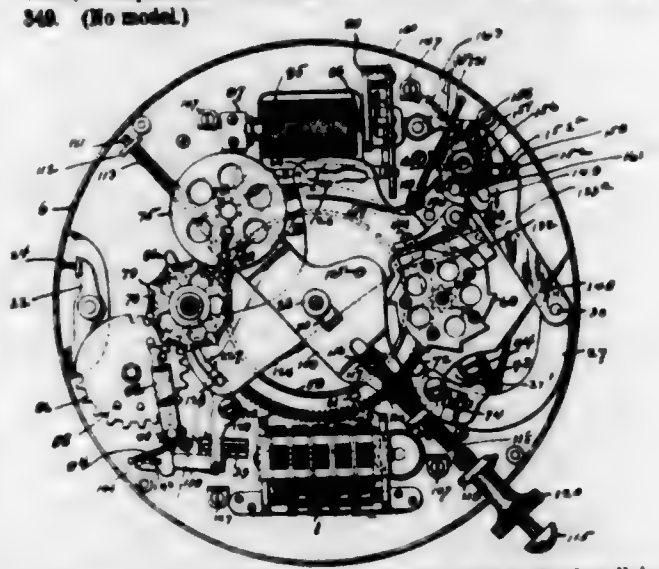
13. In a machine of the kind herein described, the combination of a manipulating-handle, a stamping device operated by said handle for imprinting identical indications on a letter introduced into the machine as well as on bands of paper, rollers 35 and 41 for feeding said bands, a mechanism for rotating said feed-rollers which comprises a sleeve 158, a pawl mechanism for uniting the sleeve to the said handle, and a coiled spring 163 uniting the roller 35 to the said sleeve, a return-movement mechanism uniting the roller 35 to the roller 41, and a retaining device for preventing the rotation of the feeding-rollers.

14. In a machine of the kind described herein, the combination of a carriage 14 and a printing device carried by said carriage for printing identical indications on a letter and on two paper bands with a device serving for advancing the letter after it has been marked having a movable frame 140 with a device serving for feeding forward each band of paper after it has been marked having a roller 35 under the action of a coiled spring 163, of a retaining device for preventing the rotation of the roller 35, comprising the pin 171 fixed to the said roller 35, the hooked arm 172 carried by the arbor 152, the arms 173 also carried by the said arbor 152, the roller 143 connected with the frame 140 by the spring-arms 144 and serving to press the letter against the said arms 173 in order to depress these arms and cause the said arm 172 to oscillate, the notch 164 in the roller 35 and the beveled pin 141 carried by the frame 140 and engaging in this notch when the frame descends, substantially as and for the purpose set forth.

15. In a machine of the kind herein described, the combination of a printing device for printing identical indications on a letter and on two bands of paper, a mechanism for rolling up the printed band 39 comprising the arbor 182 united by gearing to a handle, the arm 183 fixed on the said arbor 182, the sleeve 184 mounted loosely on the said arbor 182 and carrying at one of its ends the ratchet-wheel 185 and at the other the drum 186 provided with a pin 190, the drum 43 mounted loosely on the sleeve 184 and carrying a pawl 193 as well as a ratchet-wheel 194 with which engages a pawl 195 pivoted to the frame of the machine, the spring-barrel 188 and the cord 187 connecting this barrel with the drum 186, substantially as and for the purpose set forth.

16. In a machine of the kind herein described the combination with the carriage 14 carrying the printing device for printing identical indications on a letter and on bands of paper with the device for feeding each band of paper comprising the feeding-rollers 35× and 41× on which rollers the band is pressed by the rollers 169× 170× with means for lifting these rollers from the said feeding-rollers 35× 41× and with a movable blade 37 for cutting off the printed part of one of the bands, of a device for moving said blade comprising springs 196, arms 199, 200 and a connecting-bar 202 pivoted on a fixed rod 201 and engaging with said blade, the hooked lever 203, the arm 206 of which bears under the action of the spring 207 on the roller 170× and the projection 208 carried by the carriage 14 for depressing said bar 202 and thereby raising said blade, all substantially as and for the purposes described.

692,513. **FARE-REGISTER.** CHARLES H. GIBBINS, Westhaven Conn., assignor to the New Haven Car Register Company, Westhaven, Conn., a Corporation of Connecticut. Filed Jan. 4, 1900. Serial No. 349. (No model.)



Claim.—1. In a register, the combination with indicating-dials; of a main gear; a fulcrumed actuating-lever; a dial-gear; a base-plate between said gears; a carriage pivotally connected with said base-plate; a pinion rotatably mounted in said carriage and adapted to engage with the teeth of both of said gears; and means for actuating said carriage, whereby the said pinion will be disengaged from said gears.

2. In a register, the combination with indicating-dials; of a main lever fulcrumed upon a projecting member; a main gear; a dial-gear

rotatable about the said projecting member; a pinion mounted in a shiftable carriage and having engagement with the teeth of said gears; and means for actuating said carriage, whereby the said pinion can be disengaged from the said gears.

3. In a register, the combination with the lever 27 fulcrumed upon a stud 26; of a base-plate 56; main gear 2 rotatable upon the said stud 26 below the said base-plate; and dial-gear 57 also rotatable upon the said stud 26 above the said base-plate; carriage 65 pivotally connected with said base-plate; and pinion 63 rotatably secured within said carriage.

4. In a dial-actuating mechanism, the combination with a dial; of a rotary finger; a pinion fixed to said dial; a toothed wheel having a plurality of parallel projections thereon in the path of said rotary finger; and a trip-lever having a yielding engagement with said lateral projection.

5. In a dial-actuating mechanism, the combination with the indicating-dial; of a pinion affixed thereto; a trip-lever; a toothed wheel having a plurality of lateral projections thereon; a trip-lever having a hooked end in engagement with the said lateral projections; and means for rotating the said trip-finger in the path of said lateral projections and the hooked end of said trip-lever.

6. In combination with an indicating-dial, having a pinion fixed thereto; a toothed wheel having a plurality of lateral projections; a coil-spring for actuating the said wheel in one direction; a trip-lever, the hook end of which is adapted to be engaged by the lateral projections; a trip-finger rotatable in the path of said lateral projections; and means for moving said trip-lever, whereby the hook end thereof is freed from the said lateral projections.

7. In a dial-actuating mechanism; the combination with a dial; of a rotary finger; a toothed wheel, having lateral projections thereon in the path of said rotary finger; a pinion connected with said dial and engaging the said toothed wheel; a yielding lever having engagement with said lateral projections; spring mechanism for rotating said toothed mechanism in one direction; and stop projections for limiting the movement thereof.

8. In a dial-actuating mechanism, the combination with a dial; of a rotary finger; a toothed wheel having lateral projections thereon in the path of said rotary finger; a pinion connected with said dial and engaging with said toothed wheel; a yielding lever having engagement with said lateral projections; spring mechanism for rotating said toothed mechanism in one direction; and means for holding the said yielding lever out of engagement with the said lateral projections while the said toothed wheel is being actuated by said spring mechanism.

9. In a dial-actuating mechanism, the combination with a dial; of a rotary finger; a toothed wheel having lateral projections thereon in the path of said rotary finger; a pinion connected with said dial engaging with said toothed wheel; a yielding lever having engagement with said lateral projections; spring mechanism for rotating said toothed mechanism in one direction; and means for holding said yielding lever out of engagement with said lateral projections while the said toothed wheel is being actuated by said spring mechanism, the said means being actuated from a resetting mechanism.

10. In a dial-actuating mechanism, the combination with a dial; of a toothed wheel having lateral projections thereon; a rotary finger moving in the path of said lateral projections and adapted to engage therewith, and advance the said toothed wheel a fraction of a revolution, while so engaged; a pinion connected with said dial and having engagement with said toothed wheel; a yielding member having engagement with said lateral projections; and means for holding said yielding member out of engagement from the said lateral projections; and means for rotating said toothed wheel in one direction when the said yielding member is disengaged therefrom.

11. In a resetting mechanism, the combination with a gear having a laterally-projecting flange with a radial slot therethrough; of a push-plate; a manually-operated pinion meshing into said gear; a stop projection in said gear; and a rigid stop outside of said gear for limiting the movement thereof in one direction.

12. In a register having an indicating-dial and a gear for rotating the same; the combination therewith of a resetting mechanism, comprising a push-plate; a shiftable pinion, actuated from the said push-plate for disengaging the said gear from its operative mechanism; a rigid stop; a stop projection in said gear; and a manually-operated pinion meshing into said gear.

13. In a register-resetting mechanism, the combination with a gear for actuating the indicating-dials, having a laterally-projecting flange and stop projections upon one side thereof; a manually-operated pinion meshing into said gear; a fixed stop; and a push-plate, having a pin therein which registers with a radial slot in the said flange when the stop projection in said gear is brought up against the said fixed stop.

14. In a register having a main gear rotatable in one direction by lever mechanism; a dial-gear rotatable in a plane parallel to said main gear; and a pinion, the axis of which is parallel to the axis of said gears, mounted in a shiftable carriage; the combination therewith of a resetting mechanism, comprising a push-plate, a swing-plate having operative connection with said push-plate and shiftable carriage, whereby the said pinion will be moved into and out of engagement with the said main and dial gears; and a manually-operated pinion meshing into said dial-gear, for rotating the same in one direction.

15. In a register-resetting mechanism, the combination with an indicating-dial; of a ratchet-disk secured thereto; a gear for actuating said dial; a push-plate; a swing-plate actuated from the said push-plate; means for preventing the retraction of said push-plate before the full stroke is imparted thereto; a stop-pawl; means for actuating the same, whereby the said pawl engages the teeth in said ratchet-disk when the said push-plate is operated.

16. In a register operated from a lever; a main gear actuated therefrom; a dial-gear; a shiftable pinion, connected with the said gears; indicating-dials; a direction-barrel; a push-plate; a swing-plate; means for intermittently rotating said direction-barrel and locking the said lever against movement, the said means being actuated from said push-plate.

17. In a register having a dial-actuating mechanism, comprising a dial; a rotary finger; a toothed wheel provided with lateral projections in the path of said finger; a pinion connected with said dial and engaging with said toothed wheel; and a yielding lever having engagement with said lateral projections, the combination therewith of a resetting mechanism; and means actuated from said resetting mechanism for holding said yielding lever out of engagement with said lateral projections.

18. In a register having an operating-lever, a flash-shield mechanism comprising a fixed frame, a shield-plate slidably mounted thereon, and a stop for limiting the movement of said shield-plate in one direction; the combination therewith of means for imparting a reciprocating movement to said shield-plate from said operating-lever; a yielding member forming the sole medium of connection between said shield-plate and said operating means.

19. In a register; a flash-shield mechanism comprising a fixed frame, a shield-plate slidably mounted thereon, and a stop for limiting the movement of said shield-plate in one direction; the combination therewith of means for imparting a reciprocating movement to said shield-plate from the operating-lever, the said means comprising a lever-plate, a link having connection with said operating-lever and engaging the said lever-plate, and a yielding rod having connection at one end with said lever-plate and at the other end with said shield-plate and forming the sole medium of connection therebetween.

20. In a lever-actuated register, the combination with the main lever 27; of the link 148 pivotally connected therewith; pawl 154; spring-actuated lever-plate 152; spring-rod 151 connected with said lever-plate; and a flash-shield 146 actuated through said spring-rod.

21. In a register, the combination with the lever 27; of a main gear 2; dial-gear 57; shiftable pinion 63, adapted to connect the said gears; push-plate 109; swing-plate 124; lever 129, having engagement with said swing-plate; and latch 33 actuated from said lever 129.

22. In a register, the combination with an indicating-dial; of a shield-frame; a shield-plate slidably mounted upon said frame and adapted in one position to conceal the characters upon said dial; a stop for limiting the movement of said shield-plate in one direction; an operating-lever; a lever-plate; a yielding member having a fixed engagement with said lever-plate at one end and loosely connected with the said shield-plate at the other end; and means for directly actuating said lever-plate from said operating-lever and indirectly actuating said shield-plate, imparting thereto a reciprocating movement.

23. In a register, the combination with the supporting-frame 147; of the shield-plate 166 movably mounted thereon; stop 165 connected with said frame; operating-lever 27; lever-plate 152; the yielding member 151 fixed to said lever-plate at one end and loosely engaging said shield-plate at the other end; pawl 154 engaging said lever-plate in one position; and link 148 having connection with said operating-lever at one end and in its movement adapted to engage said pawl 154 and said lever-plate, all constructed and operating substantially as described.

24. In a register, the combination with the base 4; of a case or shell 6, surrounding the same and having slots 19 therein; a locking-catch 22 pivotally secured to said base midway of its length; and a spring bearing against one end of said lever and holding the other end thereof in engagement with the said projections and locking the said shield against movement, all constructed and operating substantially as described.

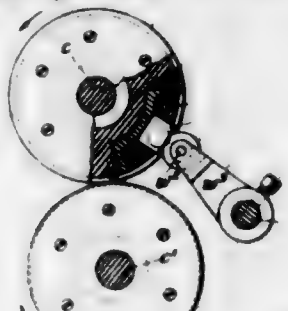
692,514. COMBINED PENCIL-CLIP AND CALENDAR. THOMAS GRIFFIN, Berlin, N. H. Filed July 9, 1901. Serial No. 67,672. (No model.)



Claim.—The combination with a holding device such as a pencil or pen stock, of a tube flushly fitted on the said holding device and provided

with month-numerals on the outer surface and also with an outer reduced extremity forming a bearing-seat and an inner circumferential shoulder, a spring-arm secured against the inner side of the reduced extremity of the tube and having an outwardly-extending stud which movably projects through said tube and is located close to said circumferential shoulder, a recess 12 being located adjacent to said movably-projecting stud and formed by cutting away a portion of the shoulder for insertion of the finger-nail of the operator, and a collar mounted on the said bearing-seat to have rotation and held against longitudinal movement, the inner end edge of the collar being formed with notches which are open to the said shoulder and adapted to aline with the recess 12, the said collar having the initials of the days of the week consecutively circumscribing the same.

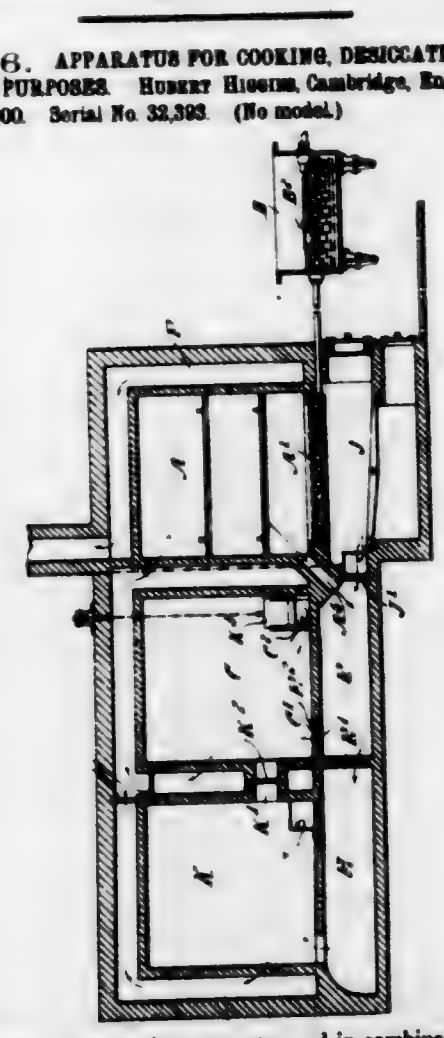
692,515. NUMBERING ATTACHMENT FOR PRINTING-PRESSES. ERNEST F. HAMSON, Dorchester, Mass., assignor to Library Bureau, Boston, Mass., a Corporation of Massachusetts. Filed Mar. 7, 1901. Serial No. 50,170. (No model.)



Claim.—1. In a printing-counter, the combination of a case, a disk-frame slidingly mounted in the case, disk-advancing mechanism connected with the frame and actuated by its sliding movement, an actuating cam or projection forming part of and projecting from the frame to a height below that of the printing row of characters on the disks substantially as described.

2. The combination, with one of the prime members of a printing-press of a printing-counter, consisting of a case, a disk-frame slidingly mounted in the case, and having thereon a disk-actuating cam located below the type-surfaces of the disks, and a wiper, mounted on the press-frame and adapted to make contact with the actuating-cam and depress the frame between printing impacts of the counter, substantially as described.

692,516. APPARATUS FOR COOKING, DESICCATING, OR SEASONING PURPOSES. HUBERT HIGGINS, Cambridge, England. Filed Oct. 8, 1900. Serial No. 32,393. (No model.)



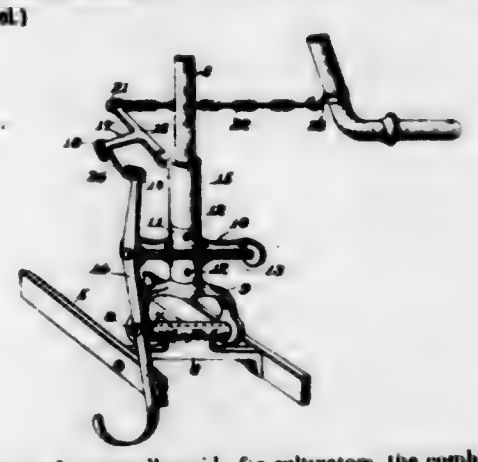
Claim.—1. In a heating apparatus and in combination a source of heat; a chamber placed above said source of heat; a shallow receptacle for water on the floor of said chamber; a second chamber; a jacket partly surrounding both chambers; an exhaust-opening in the jacket; a casing surrounding the source of heat so as to collect the combustion-gases; a flue underneath said second chamber communicating both with the casing and the second chamber; a conduit leading from the first chamber and opening into the said flue so as to carry the steam formed in said chamber into the flue and mix it with the combustion-gases coming from the casing; a communication between said second chamber and the jacket and means for circulating the gases passing from said chamber in the jacket before escaping by the exhaust-opening substantially as specified.

2. In a heating apparatus and in combination a source of heat; a chamber placed above said source of heat; a shallow receptacle for water on the floor of said chamber; means for maintaining a constant level of water in said receptacle; a second chamber; a jacket partly surrounding both chambers; an exhaust-opening in the jacket; a casing surrounding the source of heat so as to collect the combustion-gases; a flue underneath said second chamber communicating both with the casing and the second chamber; a conduit leading from the first chamber and opening into said flue so as to carry the steam formed in the said chamber into the flue and mix it with the combustion-gases coming from the casing; a communication between said second chamber and the jacket and means for circulating the gases passing from said chamber in the jacket before escaping by the exhaust-opening substantially as specified.

3. In a heating apparatus and in combination a source of heat; a chamber placed above said source of heat; a shallow receptacle for water in the floor of said chamber; a second chamber; a jacket partly surrounding both chambers; an exhaust-opening in the jacket; a casing surrounding the source of heat so as to collect the combustion-gases; a flue underneath said second chamber communicating both with the casing and the second chamber; means to control the communication between the casing and the flue; a conduit leading from the first chamber and opening into said flue so as to carry the steam formed in said chamber into the flue and mix it with the combustion-gases coming from the casing; a communication between said second chamber and the jacket and means for circulating the gases passing from said chamber in the jacket before escaping by the exhaust-opening substantially as specified.

4. In a heating apparatus and in combination a source of heat; a steaming-chamber placed above said source of heat; a shallow receptacle for water on the floor of said chamber; two drying-chambers; a jacket partly surrounding all the chambers; a casing surrounding the source of heat so as to collect the combustion-gases; a flue underneath the two drying-chambers communicating with the casing and with both drying-chambers; means for controlling the communication between the casing and the flue and means for controlling the communications between the flue and the drying-chambers; a conduit leading from the steaming-chamber and opening into said flue; a communication between the two drying-chambers and means for controlling the said communication; a communication between each of said drying-chambers and the jacket and means for controlling said communication; and adjustable means for controlling the circulation of the heating-gases in the jacket substantially as specified.

692,517. TREADLE-GUIDE FOR CULTIVATORS. SAMUEL F. HUGHES, Fort Madison, Iowa. Filed Sept. 16, 1901. Serial No. 75,475. (No model.)

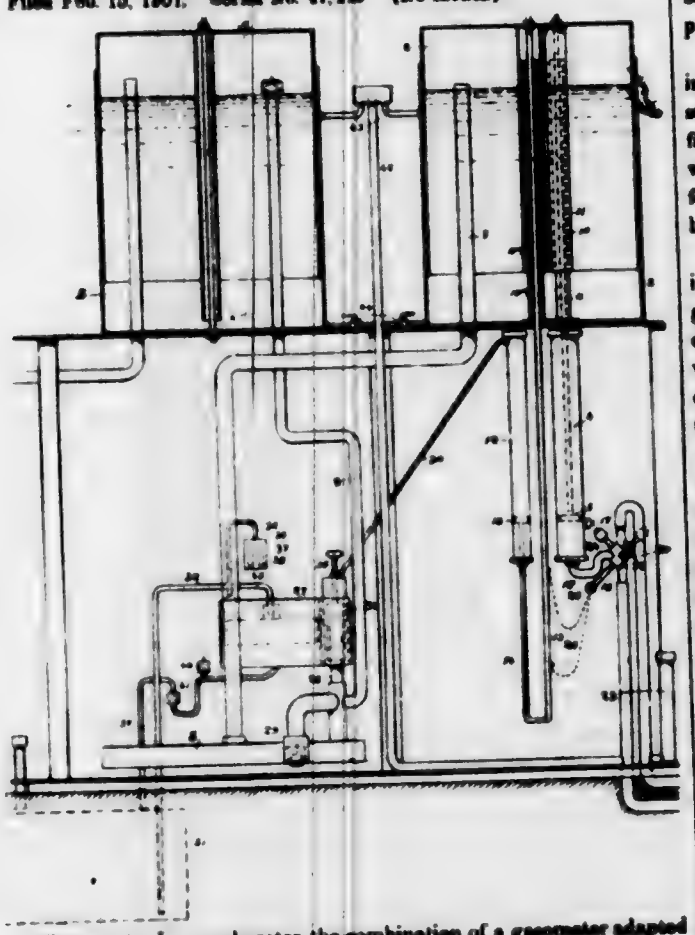


Claim.—1. In a treadle-guide for cultivators, the combination of a hanging rod, plow-beams pivotally joined to the lower end of the said rod, a vertically-disposed foot-lever pivotally supported upon the said rod, a horizontally-disposed arm pivotally supported upon the said rod, the said arm having a branch arm, a link pivotally coupling the said branch arm and foot-lever, and a chain connecting the said pivoted arm and a relatively-fixed part of the cultivator, substantially as described.

2. In a treadle-guide for cultivators, the combination of the plow-beams, a hanging rod, a pronged casting 9 secured to the lower end of the said rod, the said plow-beams having a cross-brace pivotally joined to the said pronged casting, a second pronged casting 10 having a verti-

cal portion secured to and inclosing the said rod, a vertically-disposed foot-lever pivotally supported upon the said pronged casting 10, a horizontally-disposed arm pivotally supported upon the said rod, the said arm having a branch arm, a link pivotally coupling the said branch arm and foot-lever, and a chain connecting the said pivoted arm and a relatively-fixed part of the cultivator, substantially as described.

692,518. CARBURETER. FRED S. JACKS and WILLIAM D. JACKS, San Francisco, Cal.; said William D. Jacks assignor to said Fred S. Jacks. Filed Feb. 15, 1901. Serial No. 47,440. (No model.)



Claim.—1. In a carbureter the combination of a gasometer adapted to rise and fall within a liquid seal, a pump including a bell and a tank with a liquid seal within which said bell may rise and fall, a carbureter adapted to contain a hydrocarbon liquid, a constantly open suction-pipe extending therefrom to the bell of the pump, means for positively elevating said last-named bell and thereby producing a vacuum in it above the water and also in said pipe, whereby gas is drawn into the bell through said pipe, which latter returns the gas to the carbureter when the bell descends, and pipe connections between the carbureter and the bell of the gasometer.

2. In a carbureter, the combination of a gasometer-bell, a liquid-containing tank in which it is adapted to rise and fall, a second liquid-tank and a constantly-operating bell therein, a cylinder in line with the last-named bell and having a piston connected with the latter, a fluid-pressure admitted to the cylinder to positively elevate said second-named bell and thereby create a vacuum above the water in the tank thereof, a constantly open suction-pipe leading into said second-named bell and a carbureter connected with the opposite end of said pipe whereby gas is drawn into the bell as the latter rises and is forced back into the carbureter through the same pipe as the bell descends, and a pipe connection between the carbureter and the bell of the gasometer.

3. In a carbureter the combination of a gasometer and a pump each including a water-tank and a rising-and-falling bell, means for positively operating the bell of the pump, a carbureter, a suction-pipe between it and the bell of the pump, a pipe connection between the carbureter and the bell of the gasometer, a hydrocarbon-tank and a measuring-tank between it and the carbureter.

4. In a gas-machine, a carbureter, a hydrocarbon-tank, a measuring-tank interposed between the two, a pipe through which the hydrocarbon is delivered from the tank to the measuring-chamber, an automatically-actuated pumping mechanism and connections whereby air is drawn through the charge in the carbureter, a gasometer and connections whereby the gas thus produced is forced into the carburetor, an air-pump operated in unison with said pumping apparatus, connection between said air-pump and the hydrocarbon-containing tank whereby a charge of hydrocarbon is forced from the tank to the measuring-chamber at each complete reciprocation of the pump, and passages through which the charge is delivered into the carbureter.

5. In a gas-machine, a gasometer, a pumping device, a carbureter, pipes connecting with the pumping device and with the gasometer whereby gas is first drawn from the carbureter into the pump and then forced into the gasometer, a hydrocarbon-containing tank, a measuring-chamber interposed between it and the carbureter, a pipe through which hydrocarbon is delivered to the measuring-chamber, an air-pressure pipe and pump by which air is forced into the carbureter to deliver a charge into the measuring-chamber, an air-inlet pipe connecting with the carbureter and valve whereby air is drawn into the carbureter to mix with the hydrocarbon by each upward movement and suction of the pump, said valve being closed and communication opened with the gasometer when the pump descends.

6. The combination with the gasometer, of a carbureter, a pumping device consisting of a bell, a water-tank within which its mouth is submerged, and mechanism by which it is caused to alternately rise and fall, a pipe from the carbureter leading through the water in the tank, by which the gas is first drawn into the bell from the carbureter and then forced back through this same pipe, and a pipe connecting with the carbureter to conduct the gas therefrom to the gasometer.

7. The combination in a gas-machine of a gasometer, an air-pumping device, a carbureter and pipes connecting it with the pump and the gasometer, with controlling devices, a measuring-tank through which hydrocarbon liquid is supplied in stated charges to the carbureter, a reservoir, a pipe connecting it with the measuring device, and a liquid seal carried by a rising-and-falling float in the measuring-tank, into which seal the end of the feed-pipe dips.

8. In a gas-machine, a carbureter, a hydrocarbon-liquid reservoir, a measuring-tank having a float adapted to rise and fall therein, a liquid seal carried upon the float, a pipe leading from the reservoir and dipping into the liquid seal, and an automatic discharge from the measuring-tank to the carbureter, whereby the passage from the reservoir to the measuring-tank is opened by the discharge of the tank, and is cut off when the tank is filled.

9. The combination in a gas-machine of a gasometer, a carbureter, a main air-pumping device connected with the carbureter and gasometer, a hydrocarbon-liquid reservoir, a supplemental air-pump with pipe leading therefrom to the reservoir, a conducting-pipe, a measuring-tank and seal interposed between the reservoir and the carbureter, and a relief-valve in the air-pressure pipe.

692,519. TROLLEY-HARP. ALFRED JOHNSON, Quincy, Ill. Filed Oct. 10, 1901. Serial No. 78,543. (No model.)

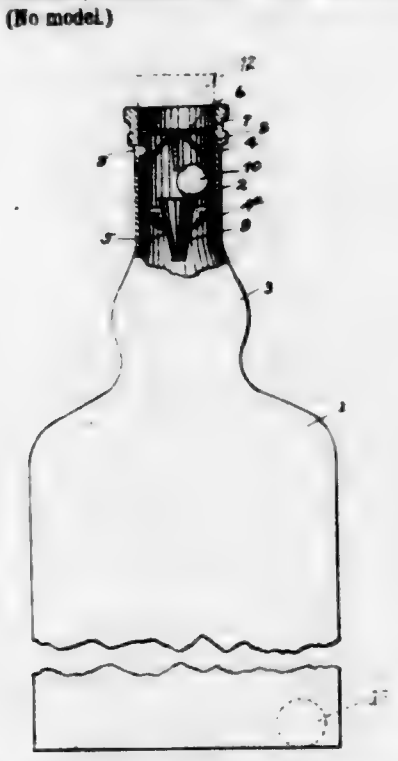


Claim.—1. The combination with a trolley-harp having a bifurcated upper end and a tapered recess at the base of the bifurcated portion, a

trolley-wheel journaled between the arms of said harp, of contact-springs bearing on said wheel and having their lower ends located within the tapered recess, and an adjustable tapered plug located in said recess between the contact-springs for clamping the latter in position; substantially as described.

2. The combination with a trolley-harp having its upper end bifurcated forming arms and a tapered recess at the base and between the arms, and a trolley-wheel journaled between the ends of said arms, of contact-springs bearing on opposite sides of the hub of said wheel and extending down between said arms and into the tapered recess, a tapered plug between said springs for clamping them in said recess, and a bolt passing down through said plug and into the base of the harp for holding the plug in place and whereby said bolt may be operated from the upper end of the harp; substantially as described.

692,520. NON-REFILLABLE BOTTLE. EDWARD A. JOHNSON and GOODWIN M. ROBERTS, Columbus, Ohio. Filed June 20, 1901. Serial No. 65,222. (No model.)



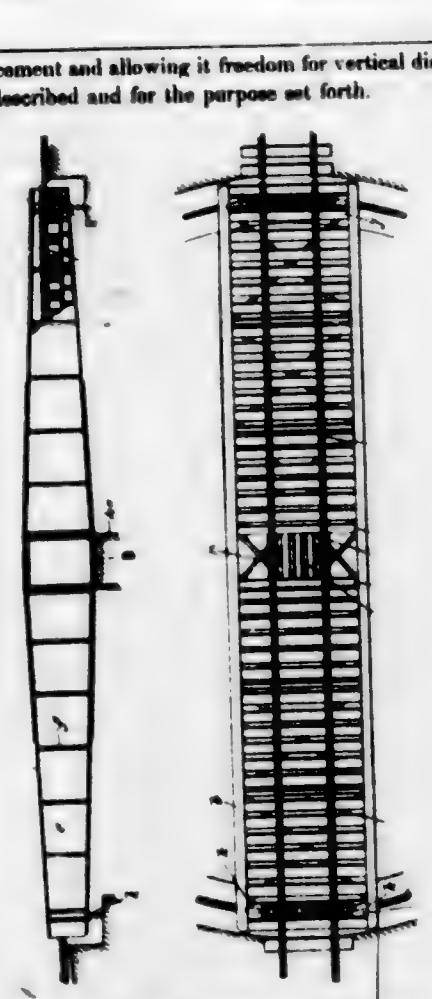
Claim.—1. In a non-refillable bottle, the combination with a bottle-body 1, of a casing 4 inserted within the neck portion of said bottle, a top plate for said casing having openings therein, said top plate having depending curved fingers 8 and said casing having a tapering bottom portion provided with a central opening, a tapering valve adapted to project through and close the opening 5, a ball 10 above said valve and a ball arranged within the body of the bottle, substantially as specified.

2. In a non-refillable bottle, the combination with the bottle-body 1 and a neck portion 2 and a rounded enlargement 3 at the base of said neck, of a casing within the neck, a top plate for said casing having openings therein, said casing having a tapering bottom provided with a central opening, a tapering valve for said opening as described, a ball above said valve and a ball in the body of the bottle, substantially as specified.

692,521. RAILROAD TURN-TABLE. PHELPS JOHNSON, Montreal, Canada. Filed July 12, 1900. Serial No. 23,381. (No model.)

Claim.—1. The combination with the tilting frame of a railroad turn-table, of a rotatable base; a pair of fulcrum-rods secured parallel to one another upon the surface of said rotatable base and said rods being located one on each side of the center of said frame, said frame resting transversely upon but being detached from said rods; and means for retaining said frame against horizontal displacement and allowing it freedom for vertical displacement, substantially as described and for the purpose set forth.

2. The combination with a rotatable base of a railroad turn-table, of a pair of fulcrum-rods secured parallel to one another upon the surface of said rotatable base and said rods being located one on each side of the center of said turn-table; a frame consisting of a pair of main longitudinal girders; a pair of spaced girders arranged transversely of said longitudinal girders midway of the length thereof; means for connecting said transverse girders rigidly to said longitudinal girders; a series of spaced beams extending longitudinally of said frame between said transverse girders; means for connecting said longitudinal beams rigidly to said transverse girders; the frame thus formed resting transversely upon but being detached from said rods; and means for retaining said frame against horizontal displacement and allowing it freedom for vertical displacement, substantially as described and for the purpose set forth.



3. The combination with a rotatable base of a railroad turn-table, of a pair of fulcrum-rods secured parallel to one another from the surface of said rotatable base, and said rods being located one on each side of the center of said turn-table; a frame consisting of a pair of main longitudinal girders; a pair of spaced girders arranged transversely of said longitudinal girders midway of the length thereof; means for connecting said transverse girders rigidly to said longitudinal girders; a series of spaced beams extending longitudinally of said frame between said transverse girders; means for connecting said longitudinal beams rigidly to said transverse girders; a transversely-grooved saddle-plate secured upon the under side of the frame thus formed and having its grooves fitting upon said fulcrum-rods but being detached from said rods with freedom for vertical displacement, substantially as described and for the purpose set forth.

4. A base for a railroad turn-table consisting of a rigid base-casting formed with an annular oil-chamber the surface of the outer wall whereof is formed with a channel having its outer wall of greater height than its inner wall; a rotatable section; a depending annular filler-section formed upon the under side of the periphery of said rotatable section and projecting into and partially filling said channel, and said rotatable section having an oil-passage leading from the top thereof to the under side of said filler-section; a ball-bearing between said rotatable section and the base-casting, and means for localizing said rotatable section relatively to the base-casting, substantially as and for the purpose set forth.

5. A base for a railroad turn-table consisting of a rigid base-casting formed with an annular oil-chamber the surface of the outer wall whereof is formed with a channel having its outer wall of greater height than its inner wall; a rotatable section; a depending annular filler-section formed upon the under side of the periphery of said rotatable section and projecting into and partially filling said channel, and said rotatable section having an oil-passage leading from the top thereof to the under side of said filler-section; a depending annular peripheral flange upon said rotatable section and overhanging the periphery of said base-casting; a ball-bearing between said rotatable section and the base-casting, and means for localizing said rotatable section relatively to the base-casting, substantially as and for the purpose set forth.

6. A base for a railroad turn-table consisting of a rigid base-casting formed with an annular oil-chamber the surface of the outer wall whereof is formed with a channel having its outer wall of greater height than its inner wall; an annular tread located in said oil-chamber; a series of balls supported upon said tread, a rotatable section having on its under side an annular tread resting upon said series of balls; a depending annular filler-section formed upon the under side of the periphery of said rotatable section and projecting into and partially filling said channel, and said rotatable section having an oil-passage leading from the top thereof to the under side of said filler-section; and means for localizing said rotatable section relatively to the base-casting, substantially as and for the purpose set forth.

7. A base for a railroad turn-table consisting of a rigid base-casting formed with an annular oil-chamber; a seat formed concentrically of said rigid base, the surface of said rigid base between said seat and oil-chamber being set below the top of the outer wall of said oil-chamber; a rotatable section; a ball-bearing between said rotatable section and the base-casting, and a pin carried rigidly by said rotatable section concentrically thereof and taking into said seat in the rigid base-casting, substantially as and for the purpose set forth.

8. A base for a railroad turn-table consisting of a rigid base-casting formed with an annular oil-chamber the surface of the outer wall whereof is formed with a channel having its outer wall of greater height than its inner wall; a seat formed concentrically of said rigid base, the surface of said rigid base between said seat and oil-chamber being set below the top of the outer wall of said oil-chamber; a rotatable section; a depending annular filler-section formed upon the under side of the periphery of said rotatable section and projecting into and partially filling said channel, and said rotatable section having an oil-passage leading from the top thereof to the under side of said filler-section a ball-bearing between said rotatable section and the base-casting and a pin carried rigidly by said rotatable section concentrically thereof and taking into said seat in the rigid base-casting, substantially as and for the purpose set forth.

9. A base for a railroad turn-table consisting of a rigid base-casting formed with an annular oil-chamber the surface of the outer wall whereof is formed with a channel having its outer wall of greater height than its inner wall; a seat formed concentrically of said rigid base, the surface of said rigid base between said seat and oil-chamber being set below the top of the outer wall of said oil-chamber; a rotatable section a depending annular filler-section formed upon the under side of the periphery of said rotatable section and projecting into and partially filling said channel, and said rotatable section having an oil-passage leading from the top thereof to the under side of said filler-section; a depending annular peripheral flange upon said rotatable section and overhanging the periphery of said base-casting; a ball-bearing between said rotatable section and the base-casting and a pin carried rigidly by said rotatable section concentrically thereof and taking into said seat in the rigid base-casting, substantially as and for the purpose set forth.

10. A base for a railroad turn-table consisting of a rigid base-casting formed with an annular oil-chamber the surface of the outer wall whereof is formed with a channel having its outer wall of greater height than its inner wall; a seat formed concentrically of said rigid base, the surface of said rigid base between said seat and oil-chamber being set below the top of the outer wall of said oil-chamber; a rotatable section; a depending annular filler-section formed upon the under side of the periphery of said rotatable section and projecting into and partially filling said channel, and said rotatable section having an oil-passage leading from the top thereof to the under side of said filler-section; a depending annular peripheral flange upon said rotatable section and overhanging the periphery of said base-casting; and a pin carried rigidly by said rotatable section concentrically thereof and taking into said seat in the rigid base-casting, substantially as and for the purpose set forth.

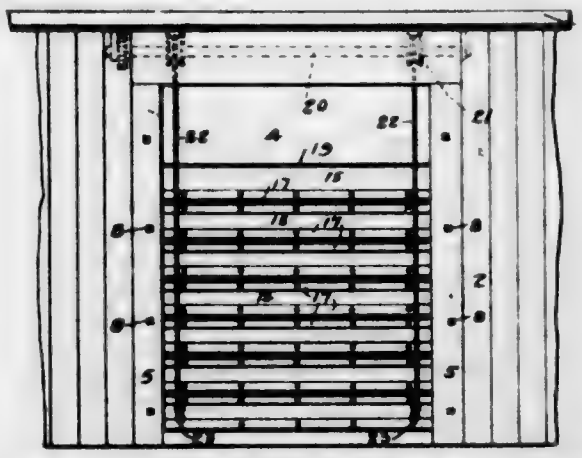
11. A base for a railroad turn-table consisting of a rigid base-casting formed with an annular oil-chamber the surface of the outer wall whereof is formed with a channel having its outer wall of greater height than its inner wall; a seat formed concentrically of said rigid base, the surface of said rigid base between said seat and oil-chamber being set below the top of the outer wall of said oil-chamber; an annular tread located in said oil-chamber; a series of balls supported upon said tread; a rotatable section having on its under side an annular tread resting upon said series of balls; a depending annular filler-section formed upon the under side of the periphery of said rotatable section and projecting into and partially filling said channel, and said rotatable section having an oil-passage leading from the top thereof to the under side of said filler-section; a depending annular peripheral flange upon said rotatable section and overhanging the periphery of said base-casting; and a pin carried rigidly by said rotatable section concentrically thereof and taking into said seat in the rigid base-casting, substantially as and for the purpose set forth.

692,522. GRAIN-DOOR FOR FREIGHT-CARS. FRANK H. JOHNS, Minneapolis, Minn., assignor, by direct and mesne assignments, of two-thirds to E. K. Proctor and W. J. Farrar, Minneapolis, Minn. Filed Apr. 29, 1901. Serial No. 57,524. (No model.)

Claim.—1. A grain-door for freight-cars, comprising a series of pivotally-connected sections, and angle-bars provided lengthwise of the abutting edges of said sections, for the purpose specified.

2. A grain-door for freight-cars, comprising a series of pivotally-connected sections, angle-bars provided upon said sections lengthwise of their abutting edges, one bar of each pair overlapping the edge of its section and the adjoining bar being set back from the edge of its section, for the purpose set forth.

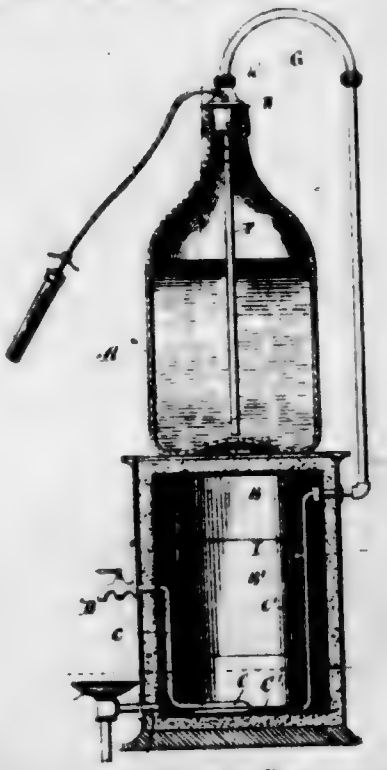
3. The combination, with a freight-car door, of guideways provided thereon, a door composed of a series of sheet-metal sections hinged together and movable vertically in said guideways, angle-bars provided lengthwise of the abutting edges of said sections, and means for raising said sections.



4. The combination, with a freight-car-door frame, of guideways provided thereon, a door composed of a series of sheet-metal sections movable vertically in said guideways, said sections being hinged together and several of the upper sections being connected to each other and in contact with the other sections but not attached thereto, strengthening or bracing bars provided lengthwise of and near the abutting edges of said sections, and means attached to the lower portion of the door for raising all of said sections simultaneously.

5. The combination, with a freight-car-door frame, of guideways provided thereon and extending up under the car-roof, a door composed of a series of sheet-metal sections adapted to move vertically in said guideways, angle-bars provided lengthwise of the abutting edges of said sections, the lower sections being pivotally connected and several of the upper sections being connected to each other but not to the lower sections, and means for raising said sections to a horizontal position beneath the car-roof.

692,523. WATER SUPPLY AND COOLING APPARATUS. FRANK G. KAMERER, Chicago, Ill. Filed Dec. 4, 1899. Renewed Aug. 26, 1901. Serial No. 73,234. (No model.)



Claim.—1. A water supply and cooling apparatus comprising a supply vessel having an orifice at its top, a refrigerator, a discharge-pipe embracing a portion which is located within the refrigerator, which passes through the wall of the same and is provided with a rigid upward extension which rises to a point adjacent to the top of the supply vessel, a siphon-tube which passes through the opening of said supply vessel, and projects outside the same, and a short detachable connecting-pipe between the upper end of said extension and the siphon-tube, said discharge-pipe being provided with a faucet.

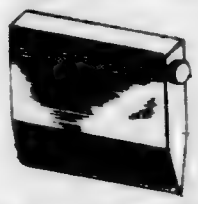
2. A water supply and cooling apparatus embracing a supply vessel having an orifice in its top, a refrigerator and a discharge-pipe, the upper part of which forms a siphon, and a part of which is located within the refrigerator, and constitutes a cooling-pipe, said pipe being provided be-

low the level of the short leg of the siphon with an air-valve and at its discharge end with a faucet.

3. A water supply and cooling apparatus embracing a supply vessel having an orifice in its top, a refrigerator, and a discharge-pipe, the upper part of which forms a siphon and a portion of which is located within the refrigerator and constitutes a cooling-pipe, said discharge-pipe being provided at its discharge end with a faucet, located above the level of the main portion of the said cooling-pipe and an air-valve located in said pipe between the lower end of the short leg of the siphon and the faucet.

4. A water supply and cooling apparatus comprising a supply vessel having an orifice at its top, a refrigerator, and a discharge-pipe, the upper end of which forms a siphon to draw water from the vessel, and a portion of which is located in the refrigerator and constitutes a cooling-pipe which is provided at its discharge end with a faucet, and a stopper within the orifice of said vessel, said stopper comprising a tube through which the short leg of the siphon passes, a packing surrounding said tube and fitting tightly within said orifice, said tube being constructed to provide between the same and the leg of the siphon an air-space communicating with the interior of the vessel, a casing surrounding the upper end of said tube between which and the short leg of the siphon is provided an air-tight joint and a nipple in the wall of said casing communicating with said air-space and adapted for attachment thereto of an air-pump.

692,524. **FOUNTAIN-CRAYON.** JOSEPH F. KASHICKA, Chicago, Ill. Filed Sept. 30, 1901. Serial No. 77,054. (No model.)

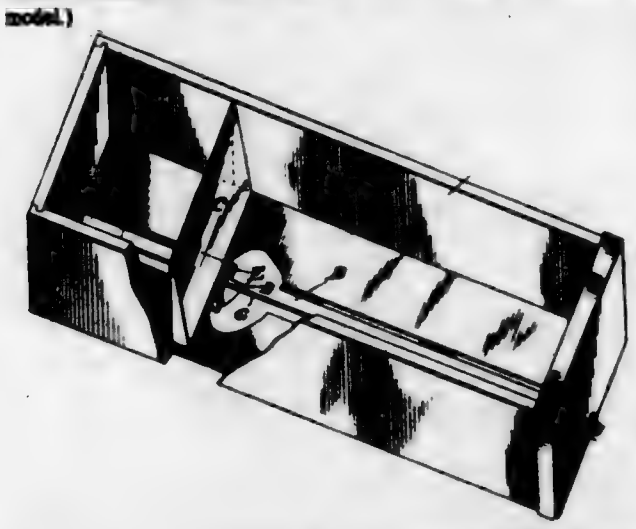


Claim.—1. A fountain-crayon having a body portion forming a reservoir for containing the marking fluid, said body portion having a grooved marking edge; and a feeding-duct communicating between the fluid-reservoir within the body portion and the marking edge to feed the marking fluid upon the surface to be marked.

2. A fountain-crayon having a body portion forming a reservoir for containing the marking fluid, said body portion having a marking edge with a longitudinal feeding-groove therein; and a feeding-duct communicating between the fluid-reservoir within the body portion and said marking edge.

3. A fountain-crayon having a body portion forming a reservoir for containing the marking fluid, said body portion having a grooved marking edge with a longitudinal feeding-groove therein; a feeding-duct communicating between the interior of said reservoir and said longitudinal feeding-groove; a filling-opening for said reservoir; and a closure for said filling-opening.

692,525. **CARD-INDEX FILE.** WILLIAM D. KELLY and JOHN D. KELLY, Chicago, Ill. Filed May 28, 1900. Serial No. 18,228. (No model.)



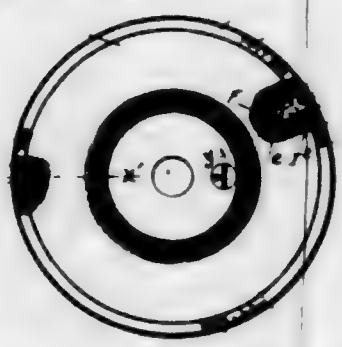
Claim.—1. In a card-index file, the combination with a casing having a longitudinal slot in the bottom thereof of a guide-rod extending centrally and longitudinally through said slot, a follower, and a self-acting friction-lock between said follower and the casing, said rod passing freely through said lock substantially as described.

2. In a card-index file, the combination with a casing having a longitudinal slot in the bottom thereof, and a guide-rod extending centrally and longitudinally through said slot, of a follower, and a friction-plate secured thereto and adapted to engage the lower side of the casing-bottom, said plate having a loose separable connection with said rod, substantially as described.

3. In a card-index file, the combination with a casing having a central longitudinal slot in the bottom thereof, of a follower fitting transversely in said casing, and a friction-plate rigidly secured to the lower edge of said follower, said friction-plate being of substantially an inverted-U shape with the body thereof fitting and working in the slot in the bottom and the ends or flanges thereof lying below and normally parallel but out of contact with the bottom, and adapted to be brought into locking engagement with the bottom by the deflection of said follower, substantially as described.

4. In a filing-case, the combination of a longitudinally-slotted support, a follower movable over said support, a friction-plate, a connection through said slot and between said follower and said friction-plate, whereby said follower may freely slide over said support, and similar faces upon opposite sides of said follower, whereby the pressure of cards, and the like, filed in said case, upon either side of said follower, will cause said follower to be deflected from an unlocked position so as to lock said friction-plate against the under side of said casing and beyond the sides of said slot, substantially as described.

692,526. **COVER FOR SEPARATOR-BOWLS.** PERLEY L. KIMBALL, Bellows Falls, Vt., assignor to Vermont Farm Machine Company, Bellows Falls, Vt., a Corporation of Vermont. Filed May 14, 1901. Serial No. 60,234. (No model.)



Claim.—1. Means for securing a cover to a separator-bowl comprising coöperating lugs and slots in combination with a locking-pin located in one of the parts and adapted to move radially to enter a socket in the other part.

2. Means for securing a cover to a bowl comprising lugs of different sizes interengaging with suitable slots in combination with a radially-movable locking-pin located in one of the parts, and a coöperating recess in the other part.

3. In a locking device for the covers of separator-bowls, the combination with the bowl having slots formed on its interior and lugs on the cover adapted to move in said slots, of a spring-actuated locking-pin located in a recess in the cover and a socket for said pin formed in the bowl.

4. In a locking device for the covers of separator-bowls, the combination with the bowl having slots formed on its interior and lugs on the cover adapted to move in said slots, of a spring-actuated locking-pin located in a recess in the cover and a socket for said pin formed in the bowl, and means for disengaging the locking-pin from its socket, substantially as described.

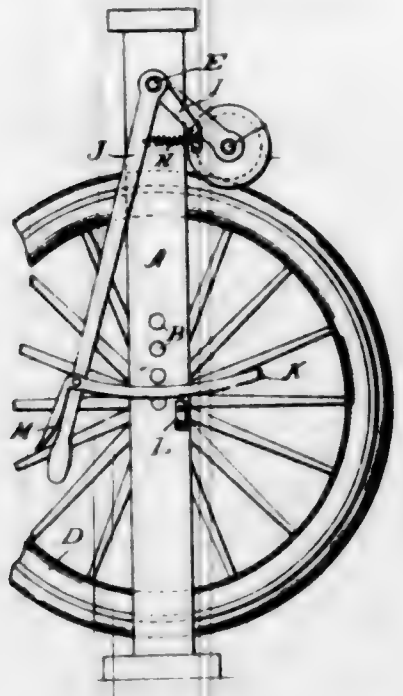
692,527. **APPARATUS FOR BRINGING THE ENDS OF RUBBER TIRES TOGETHER.** FRANK W. KINNEY and RAYMOND B. PRICE, Chicago, Ill., assignors to Calumet Tire Rubber Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 10, 1900. Serial No. 26,477. (No model.)

Claim.—1. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, of an arm pivotally mounted on said supporting devices, a roller journaled on said arm and adapted to bear upon the tire of the supported wheel, a lever pivotally mounted on said supporting devices, and a yielding connection between said arm and said lever, whereby when said lever is turned in one direction said roller is brought to bear upon the tire with a yielding pressure.

2. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, of an arm pivotally mounted on said supporting devices, a roller journaled on said arm and adapted to bear upon the tire of the supported wheel, a lever pivotally mounted on said supporting devices, and a spring connection between said arm and said lever, whereby when said lever is turned in one direction said roller is brought to bear upon the tire with a yielding pressure.

3. In a device of the kind specified, the combination with parallel supports and devices for revolubly supporting a wheel between the same, of a lever pivotally mounted between said supports, a roller revolubly mounted on said lever and adapted to bear upon the tire of the wheel, a

second lever pivotally mounted on said supporting devices independently of said first-named lever, and a yielding connection between said levers.



4. In a device of the kind specified, the combination with parallel supports and devices for revolubly supporting a wheel between the same, of a lever pivotally mounted between said supports, a roller revolubly mounted on said lever, a spring connected at one end with said lever, and devices engaging said spring at its other end and bearing against a part of said frame for putting tension on said spring, whereby said roller is brought to bear upon the tire of said supported wheel with a yielding pressure.

5. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, of a lever pivotally mounted on said supporting devices, a roller revolubly mounted on said lever and adapted to be brought to bear upon the tire of the supported wheel, and devices for forcing said roller upon the tire of the supported wheel with a yielding pressure, comprising a lever pivotally mounted upon said supporting devices, and a spring connection between said levers.

6. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, of a lever pivotally mounted on said supporting devices, a roller revolubly mounted on said lever and adapted to be brought to bear upon the tire of the supported wheel, a second lever pivotally mounted upon said supporting devices, and a spring interposed between both said levers, whereby by moving said last-named lever said roller will be forced upon the tire of the supported wheel with a yielding pressure.

7. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, of a lever pivotally mounted on said supporting devices and adapted to swing in the plane of the supported wheel, a roller revolubly mounted on said lever and adapted to be brought to bear upon the tire of the supported wheel, a second lever pivotally mounted upon said supporting devices, and a spring connection between said levers.

8. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, of a shaft carried by said supporting devices, an arm on said shaft, a roller revolubly mounted on said arm and adapted to bear upon the tire of the supported wheel, a lever mounted on said shaft and movable with relation to said arm, and a spring connection between said lever and said arm, whereby said roller may be brought to bear upon the tire of the supported wheel with a yielding pressure.

9. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, of an arm pivotally mounted on said supporting devices, a roller revolubly mounted in the free end portion of said arm, a second arm having rigid connection with said first-named arm, a lever pivoted on said supporting devices, and a spring interposed between said lever and said last-named arm.

10. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, of a shaft journaled in said supporting devices, an arm rigidly mounted on said shaft, a roller revolubly mounted in the free end portion of said arm, a second arm rigidly mounted on said shaft, a lever pivotally mounted on said shaft adjacent said last-named arm, and a tension-spring connected at its ends with said last-named arm and said lever respectively.

11. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, and a spring-actuated, revoluble roller movable toward and away from the tire of said wheel, of devices engaging the spring actuating said roller for controlling the pressure of said spring.

12. In a device of the kind specified, the combination with devices for revolubly supporting a wheel, and devices movable toward and away from the tire of said wheel and carrying a revoluble roller adapted to bear upon the tire of said wheel, of a spring engaging said roller-carrying devices, and devices engaging said spring for controlling the pressure of said roller upon said tire.

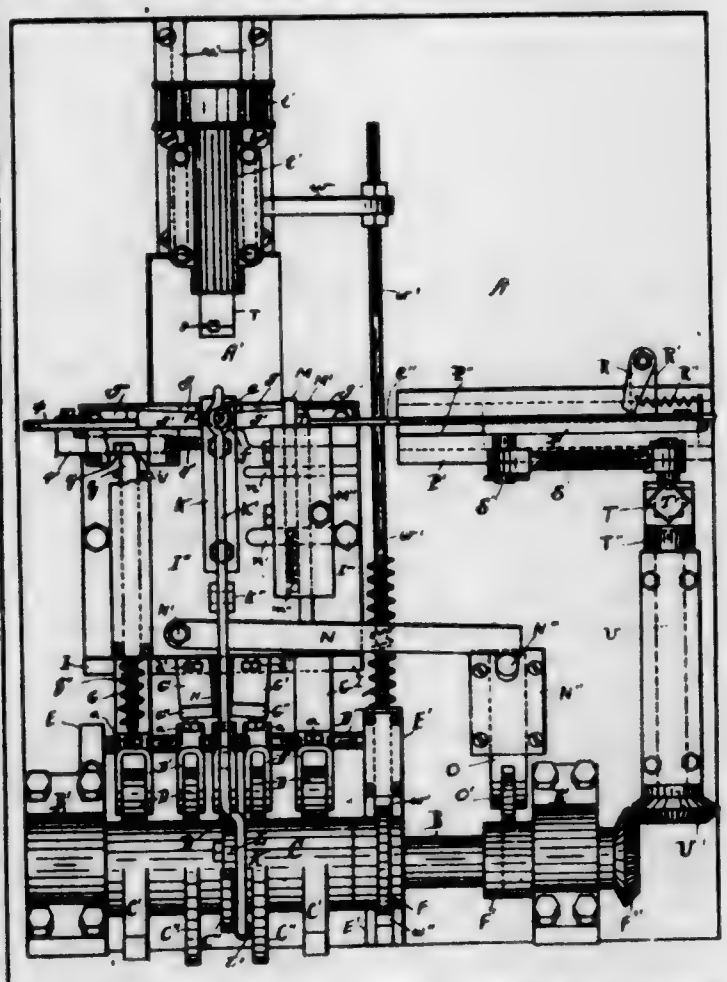
13. In a device of the kind specified, the combination with a frame, and devices for revolubly supporting a wheel thereon, of a roller adapted to bear upon the tire of the supported wheel, a member carrying said roller movably secured directly to a rigid part of said frame, thereby forming a point of reaction against the pressure exerted upon said tire, a spring engaging said member, and devices carried by said frame and engaging said spring for adjusting the force exerted by the latter on said member carrying said roller.

14. In a device of the kind specified, the combination with a frame for revolubly supporting a wheel, of a member movably mounted directly upon a rigid part of said frame and carrying a roller adapted to bear upon the tire of the supported wheel, said direct connection of said member with said frame forming a point of reaction against the pressure exerted upon said tire, a second member movably mounted on said frame, and a spring interposed between said members for causing said roller to bear upon said tire with a yielding pressure.

15. In a device of the kind specified, the combination with a frame, and devices for revolubly supporting a wheel thereon, of a member movably secured directly to said frame, a roller carried by said member and adapted to bear upon the tire of the supported wheel, and a spring actuating said member, said direct connection between said member and said frame forming a point of reaction against the pressure exerted upon said tire.

16. In a device of the kind specified, the combination with a frame, devices for revolubly supporting a wheel thereon, and a member movably mounted directly on said frame and carrying a roller adapted to bear upon the tire of the supported wheel, said direct connection between said member and said frame forming a point of reaction against the pressure exerted on said tire, of a spring engaging said member for causing said roller to bear upon said tire with a yielding pressure.

692,528. **MACHINE FOR MAKING COTTER-PINS.** NATHANIEL W. KIRKPATRICK and MICHAEL HENRY, Dayton, Ohio. Filed Aug. 9, 1901. Serial No. 71,512. (No model.)



Claim.—1. In a machine for making cotter-pins, the combination with wire-feeding mechanism, and wire-cutting mechanism, of a pin or

former, means for moving said pin or former to a position to form a cotter-pin, a longitudinally-reciprocating clamping and initial-bending bar adapted to clamp the wire against said pin and to initially bend said wire, a longitudinally-reciprocating bending-bar located on each side of said clamping-bar in parallel relation thereto, means for imparting the necessary movements to said bending-bars to engage the wire on each side of the pin after said wire has received its initial bend from the clamping-bar, and means for moving said bending-bars inwardly at their bending ends to complete the formation of the cotter-pin, substantially as specified.

2. In a machine for making cotter-pins, the combination with wire-feeding mechanism, of a vertically-reciprocating pin in the rear of which wire is fed, a longitudinally-reciprocating clamping-bar adapted to hold said wire against the pin, the said clamping-bar having its engaging end recessed to form the initial bend in the wire, a longitudinally-reciprocating bending-bar located on each side of said clamping-bar in parallel relation thereto, means for imparting longitudinal movement to said bending-bars during which the wire is engaged and is carried around the sides of the pin, and means for moving the bending ends of said bending-bars inwardly after the wire has been carried around the sides of the pin, and whereby the formation of the cotter-pin is completed.

3. In a machine for making cotter-pins, the combination of a pin or former around which the cotter-pins are formed, means for lowering and raising said pin or former at predetermined times, a clamping-bar adapted to clamp the stock against said pin or former and to give the initial bend to said stock, inner reciprocating bars adjacent to said clamping-bar, outer reciprocating bars, and connections between said inner and outer reciprocating bars whereby the inner bars are given inward movements from the longitudinal movements of the outer bars, and means on said inner reciprocating bars for engaging with the stock during said inward movements to impart the final bend thereto which completes the formation of the cotter-pins.

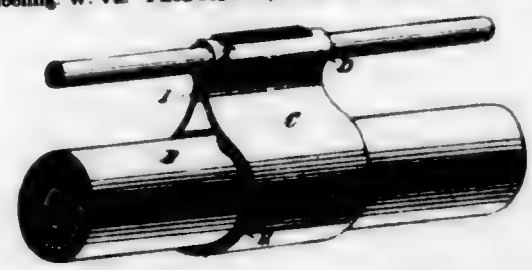
4. In a machine for making cotter-pins, the combination with stock or wire feeding mechanism, of a pin or former, in the rear of which the stock or wire is fed, means for lowering and raising said pin or former at predetermined times, a clamping-bar adapted to press the stock or wire against said pin or former and to initially bend said stock or wire, inner reciprocating bars adjacent to said clamping-bar, outer reciprocating bars, link connections between the outer reciprocating bars and the inner reciprocating bars whereby inward and outward movements are imparted to the inner reciprocating bars from the longitudinal movements of said outer bars, and means on said inner bars for engaging with the wire or stock on each side of the pin or former to impart thereto the final bending in the formation of cotter-pins.

5. In a machine for making cotter-pins, the combination with wire-feeding mechanism, a gage to limit the feed of said wire to the required extent, and cutters for cutting said wire in pieces of the necessary length, of a pin or former in the rear of which the severed pieces of wire find lodgment, means for lowering said pin or former prior to the operation of cutting each piece of wire and for raising said pin or former after each complete operation of forming a cotter-pin, a clamping-bar adapted to clamp each piece of wire against the pin or former and to give the initial bend thereto, a plurality of bars in parallel relation and all of which have longitudinally-reciprocating movements, and two of which have in addition to such movements, movements toward and from each other, the last-named movements being imparted from the bars having the longitudinally-reciprocating movements only, and means for imparting such movements to said bars.

6. In a machine for making cotter-pins, the combination with wire-feeding and wire-cutting mechanisms, of a pin or former, means for moving said pin or former to a position to form a cotter-pin, a longitudinally-reciprocating clamping-bar adapted to clamp the wire around the pin or former and to initially bend said wire, a longitudinally-reciprocating bending-bar on each side of the clamping-bar in parallel relation therewith, outer longitudinally-reciprocating bars, and link connections between said bending-bars and said outer bars whereby the bending-bars are moved inwardly at the completion of their longitudinal movements to complete the formation of the cotter-pin, means for imparting the necessary movements to said bending or clamping bars, and means for pointing the ends of the cotter-pins before they are delivered from the pin or former.

7. In a machine for making cotter-pins, the combination with wire feeding and cutting mechanisms, and devices for gaging each feed of wire, of a pin or former, means for moving said pin or former to a position to form a cotter-pin and to subsequently deliver said cotter-pin, a longitudinally-reciprocating clamping-bar adapted to initially bend the wire around said pin or former, a longitudinally-reciprocating bending-bar located on each side of said clamping-bar in parallel relation therewith, outer reciprocating bars, pivotal connections between the said outer bars and the adjacent bending-bars by means of which the said bending-bars are given inward movements to complete the formation of a cotter-pin, and means for simultaneously imparting movements to the clamping-bar, the bending-bars and said outer bars.

692,529. HANGER FOR AERIAL CABLES. GEORGE J. KETTLE, Wheeling, W. Va. Filed Sept. 10, 1901. Serial No. 74,950. (No model.)



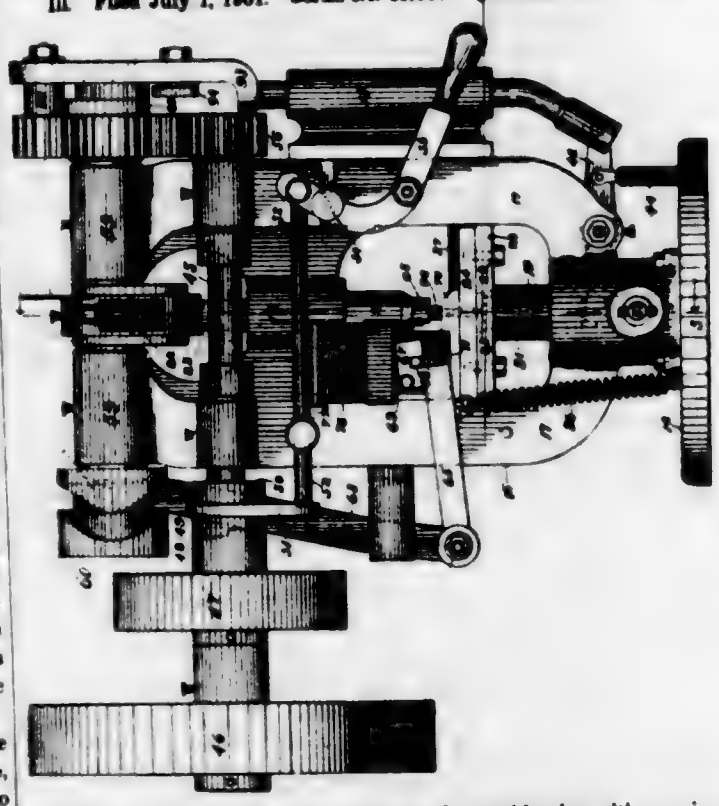
Claim.—1. A hanger for aerial cables, consisting of a sheet-metal strap bent to form a loop at its base adapted to encircle a cable, and its terminals bent to form a second loop for encircling a messenger-wire, one terminal of the strap being provided with a transverse slot and the opposite terminal with a rearwardly-extending tongue adapted to interlock said terminals, substantially as described.

2. A hanger for aerial cables consisting of a thin spring-metal strap bent to form a cable-embracing band at its base, the terminals of said strap bent outward and inward forming a second band for embracing a messenger-wire, one of said terminals provided with a transverse slot, and the opposite terminal with a rearwardly-extending tongue or bill adapted for engagement with said slot to interlock said terminals over the messenger-wire, substantially as described.

3. A hanger for aerial cables consisting of a thin spring-metal strap bent to form a cable-embracing band at its base, an insulating-band on the inner face of said cable-embracing band adapted to insulate the cable from said strap, the terminals of said strap beyond said cable-embracing band each bent to form a compound curve, one of said terminals provided with a transverse slot and the other with a rearwardly-extending tongue adapted to engage the said slot to interlock the said terminals over the messenger-wire, substantially as described.

4. A hanger for aerial cables consisting of a thin spring-metal strap bent to form a loop at its base adapted for yieldingly embracing a cable, a band of insulating material mounted on the inner face of said loop, a second loop formed by the ends of said strap, the second loop being adapted for embracing a messenger-wire, one terminal of the strap provided with a transverse slot and the opposite terminal with a rearwardly-extending tongue adapted to interlock said terminals over a messenger-wire, substantially as described.

692,580. STAMPING-MACHINE. WILLIAM KRAEMER, Chicago, Ill. Filed July 1, 1901. Serial No. 66,689. (No model.)



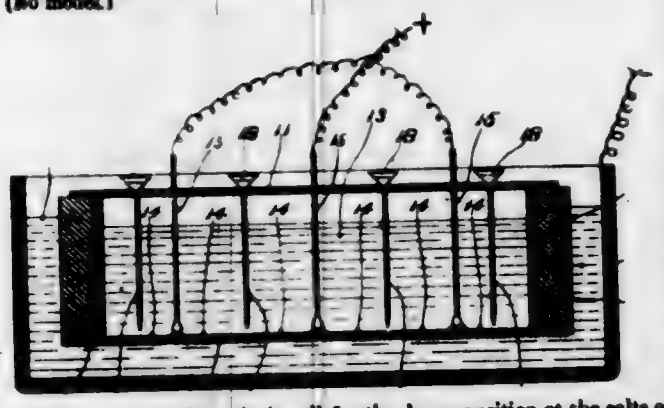
Claim.—1. In a stamping-machine, the combination with a main or supporting frame, of a matrix-plate horizontally located in its lower portion, a slidable feed-box on said plate and communicating with the matrices thereof, a rotatable conveyer comprising a shaft with blades oppositely pitched and horizontally journaled in said box and means to advance and retract the box and rotate the conveyer, substantially as described.

2. In a stamping-machine, the combination with a main or supporting frame, of a matrix-plate horizontally located in its lower portion, a slidable feed-box on said plate and communicating with the matrices thereof,

a rotatable conveyer horizontally journaled in the feed-box, the said conveyer comprising a shaft with blades thereon oppositely pitched, a die-carrying plunger vertically movable above the matrix-plate, an adjustable ejector-carrying plunger vertically movable below said plate, and means to advance and retract the feed-box to rotate the conveyer therein and to raise and lower said plungers, substantially as described

3. In a stamping-machine, the combination with a main or supporting frame, of a matrix-plate horizontally located in its lower portion, a slidable feed-box on said plate and communicating with the matrices thereof, a rotatable conveyer horizontally journaled in the feed-box, said conveyer comprising a shaft carrying oppositely-pitched blades, a shaft horizontally journaled on the upper portion of the main frame, a die-carrying plunger vertically movable above the matrix-plate, an ejector-carrying plunger vertically movable below said plate, eccentric connections uniting said shaft and plungers, a lever fulcrumed on the main frame and connected at one of its ends to the feed-box, a cam-grooved pulley on the said shaft, a roller on the upper end of the said lever and located in the groove of the said pulley, a rack-bar pivotally secured to the main frame and engaging the shaft of the rotatable conveyer, substantially as described.

692,531. ELECTROLYTIC CELL. ERNEST A. LE SUEUR, Rumford Falls, Me., assignor to the Electro-Chemical Company, Rumford Falls, Me., a Corporation of Maine. Filed Mar. 5, 1898. Serial No. 673,054. (No model.)



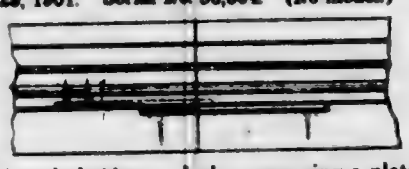
Claim.—1. An electrolytic cell for the decomposition of the salts of the alkaline metals, having an anode, a cathode consisting of an amalgamated reticulated or foraminated metallic sheet, one side of which receives the alkaline metal, said cell constructed to contain in contact with that side of said sheet the solution to be decomposed and also to hold in contact with the other side of said sheet a body of water into which the said metal is discharged, and having means of supplying fresh mercury to said sheet to maintain the mercury held thereby free from impurities, substantially as described.

2. An electrolytic cell for the decomposition of the salts of the alkaline metals, having an anode, a cathode consisting of amalgamated wire-gauze one side of which receives the alkaline metal, said cell constructed to contain in contact with that side of the said sheet the solution to be decomposed and also to hold in contact with the other side of said sheet a body of water into which the said metal is discharged, and having means of supplying fresh mercury to said sheet to maintain the mercury held thereby free from impurities, substantially as described.

3. An electrolytic cell for the decomposition of the salts of the alkaline metals, having an anode, a cathode consisting of a horizontal amalgamated reticulated or foraminated metallic sheet, one side of which receives the alkaline metal, said cell constructed to contain in contact with that side of said sheet the solution to be decomposed and also to hold in contact with the other side of said sheet a body of water into which the said metal is discharged, and having means of supplying fresh mercury to said sheet to maintain the mercury held thereby free from impurities, substantially as described.

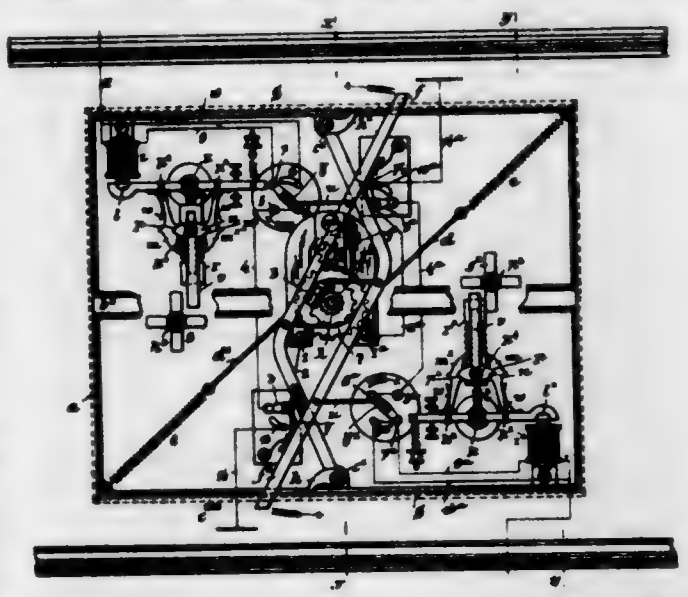
4. An electrolytic cell for the decomposition of the salts of the alkaline metals, having an anode, and also having a cathode consisting of an amalgamated reticulated or foraminated metallic sheet, and having means of supplying fresh mercury to said sheet to maintain the mercury held thereby free from impurities, substantially as described.

692,532. SASH-HOLDER. RICHARD B. MALOON, New York, N. Y. Filed Apr. 29, 1901. Serial No. 58,064. (No model.)



Claim.—A sash holder, or lock, comprising a plate provided with two shoulders, or ledges, mounted in the dividing-strip facing the upper sash, and a spring catch-plate mounted in the face of the upper sash and adapted to successively engage said shoulders, or ledges, as and for the purpose set forth.

692,533. ELECTRIC SIGNALING DEVICE FOR PREVENTING RAILWAY COLLISIONS. GIUSEPPE DEL MONACO, Triest, Austria-Hungary. Filed Sept. 4, 1900. Serial No. 28,950. (No model.)

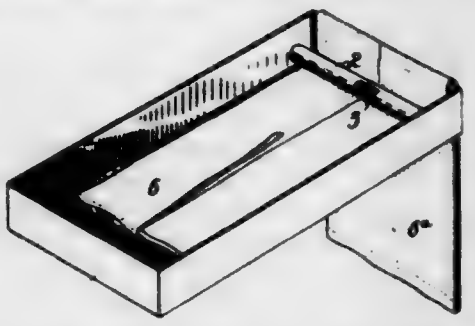


Claim.—1. In an electric signaling device for preventing collisions of railway-trains, the combination of a lever *f* (*f'*) arranged to be oscillated by an arm or lever *c* on the locomotive, an inductor C of one apparatus and suitably-connected electromagnets *i i'* of a similar apparatus excited in the reverse movement of said lever to its initial position, swinging armatures *l l'* coacting with said magnets, double-acting catches *m m'* actuated by said armatures; rack-bars *r r'*, rotating crosses *s s'* engaged thereby to lock an arm of the cross in the way of a bell-crank D on a locomotive running from the opposite direction, said bell-crank being thereby turned back and by suitable connections causing the steam-whistle to sound.

2. In apparatus of the nature described the combination with the rack-bars *r*, *r'*, of the double cams *n* pivotally mounted in slots of said rack-bars and provided with arms *v'* adapted to be actuated through the bell-crank D of a locomotive passing over the apparatus, whereby the catches *m*, *m'* are moved in opposite directions and the rack-bars *r*, *r'* disengaged from the catches are permitted to slide back in their normal position.

3. In apparatus of the nature described the combination with slidingly-movable covers *b'*, *b²*, covering the channel *b²*, when the apparatus is not in use, of the levers *f*, *f'* arranged to be actuated by an arm *c* fastened at the fore part of the locomotive, the rocking pivots to which said levers are secured, and the tappets on said pivots arranged to push the sliding covers outward when the levers are actuated.

692,534. BOX FOR PACKING GARMENTS. CHARLES R. MURPHY, Decatur, Ill. Filed July 18, 1901. Serial No. 68,249. (No model.)

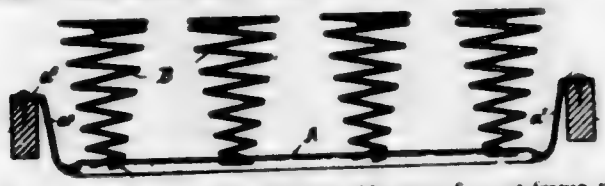


Claim.—1. In a box for packing garments, the combination with the box, of a hollow roll extended crosswise of the box out of contact with the ends, top and bottom thereof, and a tape passed through the roll and secured to the box, substantially as described.

2. In a box for packing garments, the combination with the box of a hollow roll having an opening in its perimeter, and a pair of tapes secured to the box, extended into the hollow roll and knotted together at the opening in the roll, substantially as described.

3. In a box for packing garments, the combination with the box, of a roll and a tape or the like attached to the box and attachable to the roll for securing the roll in the box.

692,535. SPRING-SEAT. WILLIAM A. MURRAY, Cincinnati, Ohio. Filed Oct. 28, 1901. Serial No. 80,168. (No model.)



Claim.—1. In a spring-seat the combination of a seat-frame, metal cross-strips having inturned edges with perforations and flat upturned hangers at the ends to be secured to the frame, and coiled springs whose ends engage the perforations in the cross-strips, substantially as shown and described.

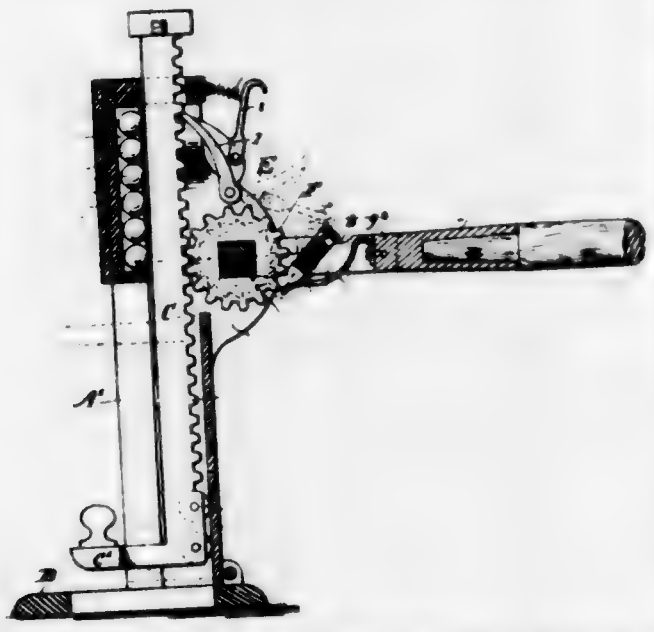
2. In a spring-seat the combination of a seat-frame, metal cross-strips with downturned edges having groups of perforations to seat the lower coils of springs and flat upturned ends to engage the frame, and the coiled springs seated in the perforations in the cross-strips, substantially as shown and described.

3. As a new article of manufacture a cross-strip, having both its edges inturned to within a short distance of its ends with perforations in the inturned edges and the ends upturned to form hangers, substantially as shown and described.

4. As a new article of manufacture a cross-strip formed from a flat strip of metal having both its edges perforated and turned inward in a semicircular form except for a short distance at the ends, which are upturned to form hangers, substantially as shown and described.

5. The combination of a frame, cross-strips secured at their ends to the frame and having inturned edges having perforations therein, and coiled springs whose ends engage the perforations in the cross-strips, substantially as shown and described.

692,536. LIFTING-JACK. HUGH MCDERMID, Chicago, Ill. Filed Dec. 14, 1900. Serial No. 39,872. (No model.)



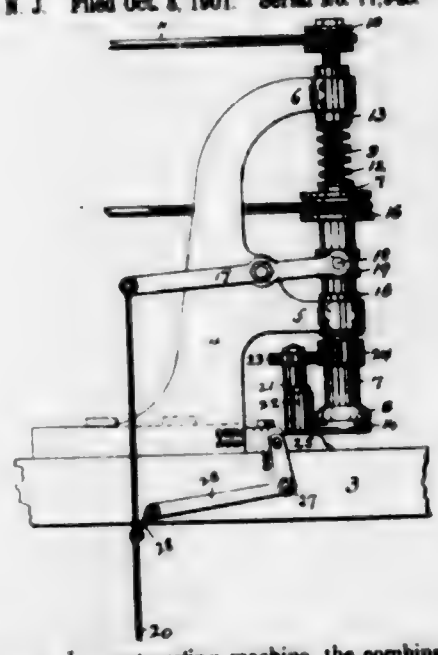
Claim.—1. In a lifting-jack, the combination with the casing and the lifter-bar guided to slide vertically therein, of a rack formed on the rear face of the lifter-bar, a pair of brackets secured to the casing, a shaft journaled in said brackets, a gear fast on said shaft and engaging said rack on the lifter-bar, a ratchet-wheel also fast on said shaft, a lever loosely mounted on said shaft, a spring-pressed pawl journaled in said lever and normally engaging said ratchet-wheel, a pawl journaled between said brackets and normally engaging the teeth of the rack on the lifter-bar to keep the latter elevated, and separable connections between the two pawls whereby, when they are connected, a downward stroke of the lever withdraws the last-named pawl from the rack and simultaneously withdraws the first-named pawl from its ratchet-wheel, substantially as described.

2. In a lifting-jack, the combination with the casing and the lifter-bar guided to slide vertically therein, of a rack formed on the rear face of the lifter-bar, a pair of brackets secured to the casing, a shaft journaled in said brackets, a gear fast on said shaft and engaging said rack on the lifter-bar, a pair of ratchet-wheels also fast on said shaft, one on either side of said gear, a forked lever loosely mounted on said shaft, a spring-pressed double pawl journaled between the arms of said lever and normally engaging said ratchet-wheels, a spring-pressed pawl journaled between said brackets and normally engaging the teeth of the rack on the lifter-bar to keep the latter elevated, and separable connections between the two pawls whereby they may be simultaneously disengaged from their respective coöperating parts by a single downward stroke of the lever, thus allowing the lifter-bar to drop, substantially as described.

3. In a lifting-jack, the combination with the casing and the lifter-bar guided to slide vertically therein, of a rack formed on the rear face of the lifter-bar, a pair of brackets secured to the casing, a shaft journaled in said brackets, a gear fast on said shaft and engaging said rack on the lifter-bar, a pair of ratchet-wheels also fast on said shaft, one on either side of said gear, a forked lever loosely mounted on said shaft, a spring-pressed double pawl journaled between the arms of said lever and normally engaging said ratchet-wheels, a spring-pressed pawl journaled between said brackets and normally engaging the teeth of the rack on the lifter-bar to keep the latter elevated, and a hook pivoted in the back of said last-named pawl and adapted, when the lever is raised to a certain height, to drop over and engage the shank of said first-named pawl, whereby, on the next downward stroke of the lever the two pawls are simultaneously disengaged from their respective coöperating parts, thus allowing the lifter-bar to drop, substantially as described.

4. In a pawl-and-ratchet operating mechanism for lifting-jacks and similar devices, the combination with a rotatable shaft having fast thereon a pair of ratchet-wheels and an intermediate power-transmitting wheel, of a forked operating-lever pivoted on the ends of said shaft, and a double pawl journaled between the arms of said forked lever and normally engaging said ratchet-wheels, the shank of said pawl having projections which extend laterally over and engage the upper edges of the arms of said lever, substantially as and for the purposes described.

692,537. HAT-CURLING MACHINE. WILLIAM J. MCGALL, West Orange, N. J. Filed Oct. 8, 1901. Serial No. 77,940. (No model.)



Claim.—1. In a hat-curling machine, the combination with a suitable frame and operating mechanism, of an inner shaft and an outer shaft arranged concentric with said inner shaft, each provided with a curling member, the curling members being adapted to receive the brim therebetween.

2. The combination in a hat-curling machine, with suitable supports and operating means, of a hollow shaft, a smaller shaft arranged within said hollow shaft and curling members on said hollow and smaller shafts.

3. The combination with the hollow shaft and inner shaft arranged concentrically, and each having a curling member, of large and small pulleys applied to said shafts and adapted to impart differential movements to said curling members.

4. The combination with the frame 4, having the arms 5 and 6, of a tubular shaft 7, an inner shaft 9, arranged within said tubular shaft, said shafts being each provided with curling members, means for moving the curling members, one from the other, and means for rotating said shafts at differential rates of speed.

5. In a curling-machine, the combination with a suitable frame and a shaft carrying a curling tool or member, of a curling member arranged concentrically and movable longitudinally with respect to said shaft and means for moving the said curling member to and from curling relation, substantially as set forth.

6. In a curling-machine, the combination with the shafts movable one within the other and each provided with a curling member, of a spring arranged to press one of said shafts longitudinally with respect to the other and a shifter adapted to move the one said shaft against the power of the spring substantially as set forth.

7. In a curling-machine, the combination with a frame and a shaft 7, carrying at its lower end a curling member 8, and means for rotating said shaft 7, and means for moving said shaft 7, longitudinally in its bear-

ings, of a second shaft arranged concentric with the first said shaft and carrying another curling member adapted to coöperate with the first-mentioned curling member to effect a curling of the hat-brim, and means for rotating the second said shaft.

8. In a hat-curling machine, the combination of two concentric curling members arranged near to one another, to engage the opposite sides of a hat-brim, means for rotating said curling members, and means for moving one of said members in the line of its axis away from the other of said members, substantially as set forth.

9. In a hat-curling machine, the combination of two concentric curling members arranged near to one another to engage the opposite sides of a hat-brim, means for rotating said curling members at differential rates of speed, and means for moving one of said members in the line of its axis, away from the other of said members, substantially as set forth.

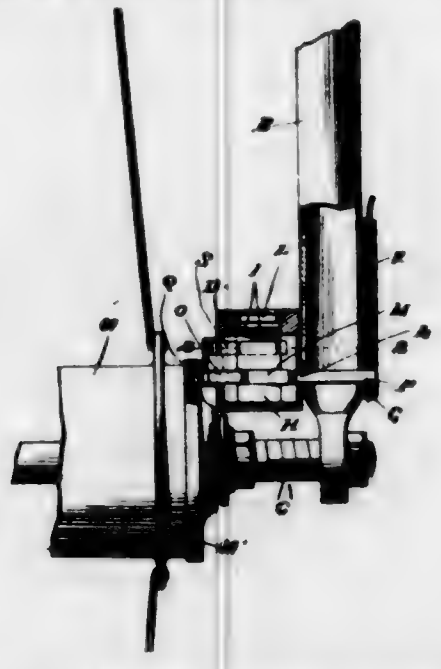
10. In a hat-curling machine, the combination of two concentric curling members arranged near to one another to engage the opposite sides of a hat-brim, means for rotating said members having a gear-wheel, 24, in connection therewith, a feed and stay roller 21, arranged adjacent to said curling member and geared to said wheel 24, and means for moving said roller 21, to and from said curling members, substantially as set forth.

11. In a hat-curling machine, the combination with the concentric curling members and means for rotating the same, of wheels or rollers arranged adjacent to said curling members for holding the hat-brim up to said curling members, and means for moving said rollers away from said curling members to permit an easy withdrawal of the hat-brim, substantially as set forth.

12. In a hat-curling machine, the combination of two rotary hat-brim-curling members, movable one from the other in the line of their concentric axes, and a roller arranged adjacent to said members and adapted to hold the hat-brim against said members, said roller being movable away from said members, and means for moving the curling members away from one another and the said brim-holding roller away from the curling members simultaneously, substantially as set forth.

13. In a hat-curling machine, the combination with two rotary hat-brim-curling members, one movable from the other in the line of the concentric axes of said members, a roller 21, a slide 25, supporting said roller, a lever 26, adapted to move said slide to and from the curling members, means for moving the movable curling member connected to said lever 26, and operable therewith, substantially as set forth.

692,588. **BICYCLE-LOCK.** WILLIAM H. NIEMEYER, Los Angeles, Cal. Filed Apr. 29, 1901. Serial No. 58,083. (No model.)

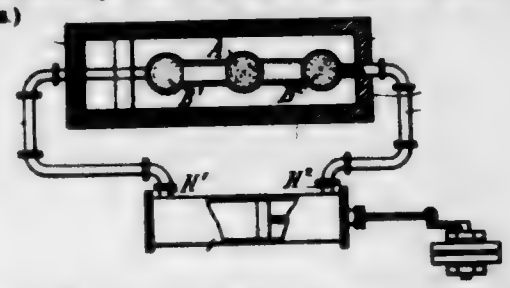


Claim.—1. In a bicycle-lock, a lock-casing adapted to be secured upon the framework of the machine, a name-plate casing also adapted to be secured upon the framework of the machine, a slide adapted to be guided in suitable guideways in the name-plate casing, a revolving plug journaled in the lock-casing, said plug adapted to be turned by a suitable key, an eccentric portion formed upon said plug, two bolts upon the opposite sides of said plug adapted to be operated upon by said eccentric portion, openings formed in the hub of a bicycle with which one of said bolts is adapted to come into engagement, openings formed through the fork of the bicycle, the name-plate casing and the name-plate slide, through which the opposite bolt is adapted to protrude when the other bolt is withdrawn from the openings in the hub of the wheel, substantially as described and for the purpose specified.

2. In a bicycle-lock, a lock-casing adapted to be secured to the inside of the fork of the bicycle, a name-plate casing adapted to be secured to the opposite side of said fork, a slide adapted to be guided in said name-plate casing, openings formed in the face of the hub of the bicycle, a bolt adapted to be guided in the lock-casing and adapted to come into engagement with said openings in the hub, a second bolt adapted to be guided in the lock-casing and protrude through the fork of the bicycle, openings formed through the name-plate casing and name-plate slide through which the last-named bolt is also adapted to protrude when the first-named bolt is withdrawn from the openings in the face of the hub, a revolving plug journaled in the lock-casing, means whereby the revolution of said plug will alternately cause the two bolts to lock the wheel against rotation and unlock the name-plate slide, a suitable key for causing said plug to revolve, substantially as described and for the purpose specified.

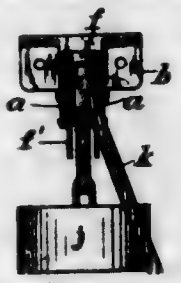
3. In combination in a bicycle-lock, a casing D adapted to be secured to the inside of the fork of the bicycle, a name-plate casing G secured to the outside of the fork of the bicycle, a slide R adapted to slide vertically within guideways in the name-plate casing, openings formed through the lower end of said name-plate casing and slide R, openings Q formed in the face of the hub of the bicycle, a plug H journaled in the lock-case, an eccentric portion formed upon said plug, a bolt O adapted to slide in suitable guideways in the lock-casing upon one side of said plug, said bolt O adapted to register with and come into engagement with the openings in the face of the hub of the bicycle, a bolt P upon the opposite side of the plug guided in suitable guideways and passing through the form of the bicycle and adapted to come into engagement with the openings formed through the name-plate casing and side for the purpose of locking the same in place, a strap surrounding the eccentric portion of the plug to which the two bolts are secured, flat surfaces formed upon each side of the plug, a spring adapted to be secured to the lock-case and lie against one of said flat surfaces, a disk L adapted to revolve in the lock-casing above the revolving plug, said disk L having a slot formed therethrough, a suitable key adapted to engage the plug and revolve the same, substantially as described and for the purpose specified.

692,589. **PROCESS OF REDUCING ORES.** HERMANN NIEWERTH, Berlin, Germany. Filed Aug. 13, 1897. Serial No. 648,162. (No specimens.)



Claim.—The herein-described process of reducing ores, which consists in heating the mass of ore to be reduced, heating two bodies of carbonaceous material, forcing a heated reducing-gas from one of said carbonaceous bodies into the ore for reducing the same, withdrawing the decomposed gas from the ore back into the first carbonaceous body for regeneration, forcing a quantity of reducing-gas from the second carbonaceous body into the ore for reducing the same, returning the decomposed gas into the second carbonaceous body for regeneration, and alternately continuing the movements of the heated reducing-gases through the ore until the reduction of the same is completed, substantially as set forth.

692,540. **CORD-AND-PULLEY BRAKE.** DANIEL D. HUGHEY, Harrison, N. J. Filed May 17, 1901. Serial No. 60,690. (No model.)



Claim.—1. An automatic brake for a pulley-cord, comprising the pulley *d*, the housing *a* extended downward below the pulley with the transverse axle *c* having the pulley fitted thereon with clearance at each side of the same, the pin *e* inserted through the housing below the pulley, the arched yoke pivoted upon the pin and fitted between the sides of the pulley and the housing, and the yoke having cheeks *f'* extended backwardly from the pin *e* and having the arched brake-shoe *f* connecting only the upper portions of the cheeks, so that the cord may be drawn

backwardly between the cheeks at various angles without actuating the brake.

2. An automatic brake for a pulley-cord, comprising the pulley *d*, the housing *a* with the transverse axle having the pulley fitted thereon with clearance at each side of the same, the pin *e* inserted through the housing at one side of and below the pulley, the arched yoke pivoted upon the pin and fitted between the sides of the pulley and the housing, and the yoke having cheeks *f'* extended backwardly from the pin *e*, and having the arched brake-shoe *f* connecting only the upper portions of the cheeks, and the housing having a stop to support the arched yoke when the brake-shoe is clear of the cord.

3. An automatic brake for a pulley-cord, comprising the pulley *d*, the housing *a* with the transverse axle *c* having the pulley fitted thereon with clearance at each side of the same, the pin *e* inserted through the housing at one side of and below the pulley, the arched yoke pivoted upon the pin and fitted between the sides of the pulley and the housing, and balanced in its central position, and having cheeks *f'* with the eccentric brake-shoe *f* connecting only their upper portions, and the housing having the stop *i* to support the brake-shoe when clear of the cord, whereby the weight may be raised and lowered without the arched yoke touching the cord, and the brake may be thrown into action by the lateral movement of the cord.

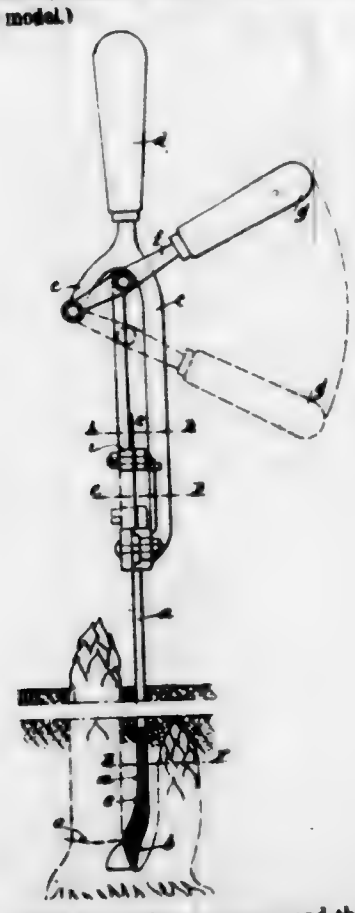
692,541. CONCRETE FLOOR. PAUL V. PARNY, Pernes-en-Artois, France. Filed Sept. 23, 1901. Serial No. 76,208. (No model.)



Claim.—1. The combination with I-beams, and the like, of strengthening-stripe engaging the heads thereof, flags carried by the strengthening-stripe having a free space between their ends, and the heads of the beams, and concrete engaging the ends of the strengthening-stripe and the head of the beam, substantially as described.

2. The combination with I-beams, and the like of flat strengthening-stripe having their ends engaging the heads of the said beams, flags carried by the said stripe and having a free space between their ends and the heads of the beams, lugs carried by the flags and engaging the web of the beam, and concrete engaging the ends of the strengthening-stripe, the heads of the beam, and said lugs, substantially as described.

692,542. KNIFE FOR CUTTING ASPARAGUS OR THE LIKE. ALEXANDRE PERDRIEL, Nantes, France. Filed Sept. 20, 1901. Serial No. 75,700. (No model.)



Claim.—1. A knife for cutting asparagus and the like, comprising a sheath or guide adapted to be passed down along the stalk, a laterally-movable blade or cutter movable outwardly through the lower end of the sheath or guide to sever the stalk, and means for operating the said blade or cutter; substantially as described.

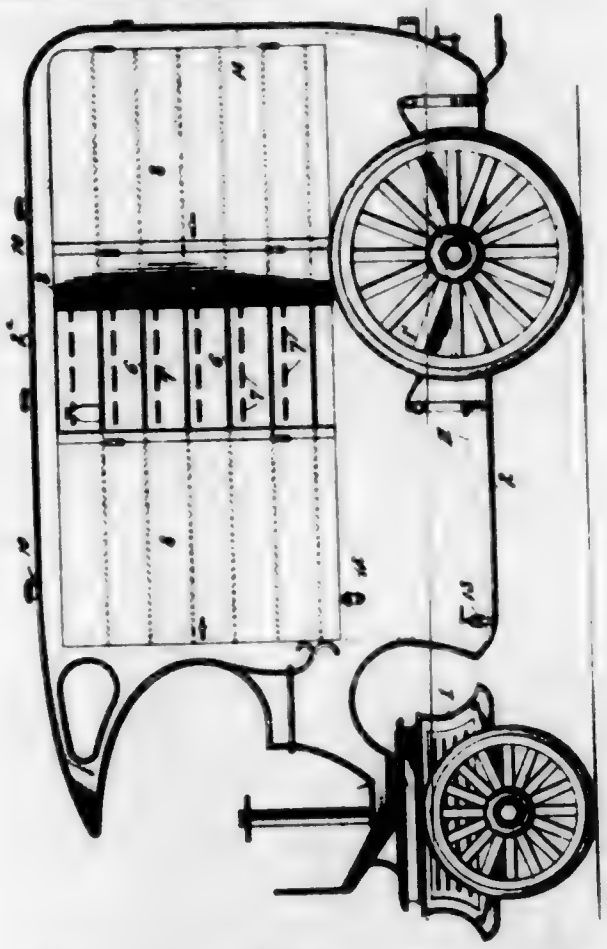
2. A knife for cutting asparagus and the like, comprising a sheath or guide adapted to be passed down along the stalk, and terminating in a gouge, a blade movable laterally out of said guide or sheath at its junction with the gouge, and means for operating the blade; substantially as described.

3. A knife for cutting asparagus and the like, comprising a tubular sheath or guide having a lateral opening in its lower portion, a flexible blade mounted in the sheath or guide, and means for operating the blade; substantially as described.

4. A knife for cutting asparagus and the like, comprising a tubular sheath or guide having a lateral opening in its lower portion and terminating in a gouge, a flexible blade mounted in the sheath or guide, and means for operating the blade; substantially as described.

5. A knife for cutting asparagus and the like, comprising a tubular sheath or guide having a lateral opening in its lower portion, a flexible blade within the sheath, a frame or standard from the lower end of which said guide depends, a handle for said frame, a lever pivoted to the frame or standard, a pivoted rod or link *k*, depending from said lever, and provided at its lower end with a clamp in which the upper end of the flexible blade is secured; substantially as described.

692,543. DELIVERY-WAGON. THEODORE H. PRICE, New York, N. Y., assignor to the Century Milk Company, New York, N. Y., and Jersey City, N. J., a Corporation of New Jersey. Filed Sept. 18, 1900. Serial No. 30,333. (No model.)



Claim.—1. In a delivery-wagon the combination with the containing body or shell, provided with a door, of shelves arranged within said shell and provided with adjustable supporting means at one end, and operating means for moving said supporting means, whereby the shelves may be inclined toward or from the door, substantially as and for the purpose set forth.

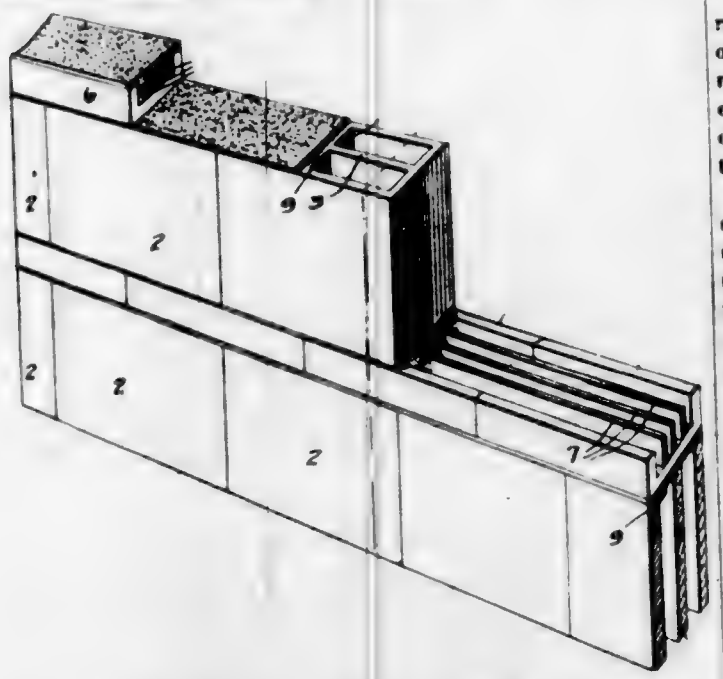
2. In a delivery-wagon the combination with the containing body or shell provided with a door, of shelves arranged within said shell means for supporting one end of the shelves, posts supporting the other end of the shelves, and means for raising and lowering said posts.

3. In a delivery-wagon the combination with the containing body or shell provided with a door, of shelves arranged within said shell, means for supporting one end of the shelves, posts supporting the other end of the shelves, and means for raising and lowering said posts, such means comprising racks on the posts, pinions engaging therewith, a worm-wheel connected to said pinions, a worm engaging said worm-wheel and a handle connected to said worm.

692,544. TILE WALL. JAMES L. RICORD, Minneapolis, Minn. Filed Aug. 20, 1901. Serial No. 72,654. (No model.)

Claim.—1. A tile wall formed of rows or courses of hollow tiles

and provided with interposed strips or sheets of thin open material extending over the openings in said tiles and suitable cement in which said material is embedded, substantially as described.



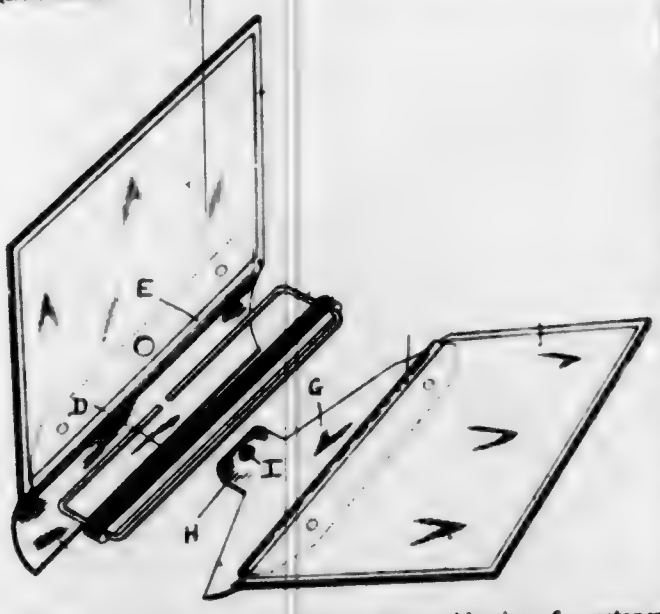
2. A wall formed of rows or courses of hollow tiles provided with interposed strips of thin open material arranged over the openings in said tiles, substantially as described.

3. A wall provided with rows or courses of hollow tiles having strips of thin open material placed over the openings in said tiles, suitable cement placed upon the edges of the walls of the tiles and upon said open material, and other tiles arranged thereon, substantially as described.

4. The combination, with hollow tiles arranged upon end, strips of thin open material placed upon and covering the openings in said tiles, a cement bed formed upon the edges of the walls of said tiles and upon said open material, and other tiles arranged upon said cement bed, substantially as described.

5. The combination, with the hollow tiles, of the strips of wire-netting placed over the open ends of the tiles, and suitable cement in which said netting is embedded, substantially as described.

692,545. **TEMPORARY BINDER.** CHARLES K. REED and CHESTER A. REED, Worcester, Mass. Filed Nov. 4, 1901. Serial No. 80,973 (No model.)



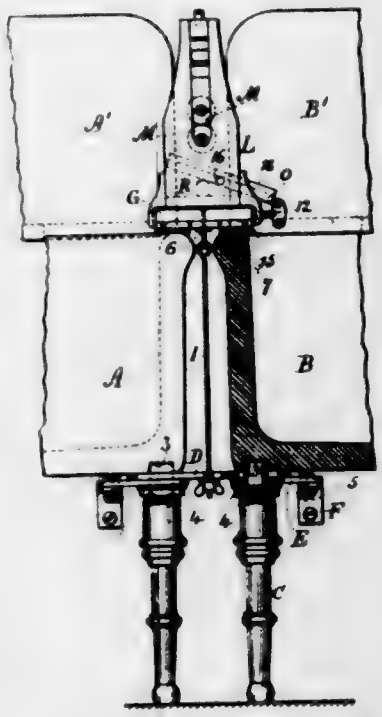
Claim.—1. In a temporary binder, the combination of a rectangular frame, supporting rods or wires permanently secured on said frame, a cover permanently hinged to each side bar of the rectangular frame, and means for detachably closing the back of the construction, so that when the back is opened magazines or other folded matter can be dropped into position to straddle the supporting rods or bars, and will be held in place by the back of the construction when the same is closed.

2. In a temporary binder, the combination of a rectangular wire frame, supporting rods or bars strung upon the end pieces of the rectangular wire frame, a cover permanently hinged to each side bar of the rectangular wire frame, and flaps for detachably closing the back of the construction, said parts being arranged so that when the back flaps are opened magazines or other folded matter may be dropped into place to straddle the supporting rods or bars, and will be held in place by the back flaps when the same are fastened in closed position.

3. In a temporary binder, the combination of covers, a substantially rectangular wire frame, sheet-metal hinge-pieces bent around the side bars of the wire frame, and riveted to the covers, so that the parts will be permanently secured together, rods or wires strung on the frame, and flaps extending from the covers so that when said flaps are opened pamphlets or portfolios can be strung upon or removed from the rods, and so that the same will be held in place when the flaps are closed.

4. In a temporary binder, the combination of a pair of covers, a substantially rectangular wire frame, sheet-metal pieces bent around the side bars of said frame, and riveted to the covers, rods or wires strung upon the frame, and flaps extending from the covers to close the book of the construction, one of said flaps being provided with a tongue having a spring-catch for detachably engaging a socket in the other cover, substantially as described.

692,546. **WRINGER ATTACHMENT.** JOHN REID, Yonkers, N. Y., and LOUIS M. HOOPER, Rutherford, N. J., assignors to The J. L. Mott Iron Works, New York, N. Y., a Corporation of New York. Filed Apr. 13, 1896. Serial No. 587,257. (No model.)



Claim.—1. The combination with two separated adjacent tubs and their supporting-legs, of a removable wringer-base adapted to rest upon the upper parallel adjacent edges of the tubs, a device at the rear end for removably connecting the wringer-base to the wall, an eye connected to the under side of the wringer-base, a tie-rod connected thereto and passing freely down between the tubs, a cross-bar beneath the tubs and rigidly connected to the respective front legs and receiving the tie-rod to hold the wringer-base in position, substantially as set forth.

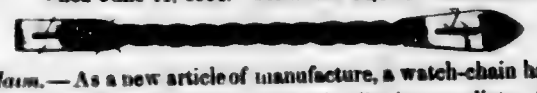
2. The combination with the two adjacent porcelain tubs, of a wringer-base and rubber cups fastened to the under side of the wringer-base and resting upon the convex upper edges of the tubs so as to support the wringer-base and aid in preventing lateral motion, a notched cross-bar beneath the tubs and a tie-rod connected at the upper end to the wringer-base and adapted to pass into the notch of the cross-bar and a nut upon the tie-rod for clamping the wringer-base and rubber cups upon the top of the tubs, substantially as set forth.

3. The combination with the separate adjacent tubs, of a wringer-base adapted to rest upon the top edges of the tubs, means for clamping such wringer-base in position, and a separate support for the back end of such wringer-base, substantially as set forth.

4. The combination with the separate adjacent tubs, of a wringer-base adapted to rest upon the top edges of the tubs, means for clamping such wringer-base in position and a socket fastened to the wall and receiving the rear end of the wringer-base, substantially as set forth.

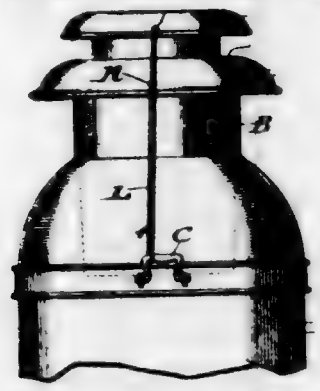
5. The combination with the earthenware tubs, of a removable wringer-base adapted to rest upon the adjacent top edges of the earthenware tubs, plates secured at the opposite edges of the wringer-base and extending below the bottom surface thereof and plates having recesses adapted for engagement by the clamping devices of a wringer, and a tie-rod connected to the wringer-base and means for holding such tie-rod at the end distant from the wringer-base for securing the base with a wringer to the tubs, substantially as set forth.

692,547. WATCH CHAIN OR GUARD. JOHN J. RICE, Camden, N. J. Filed June 11, 1901. Serial No. 64,074. (No model.)



Claim.—As a new article of manufacture, a watch-chain having tabs, one at each end thereof, slots in each tab, slits intermediate of said tabs producing strands, and a plaited portion formed of said strands, said parts being integral.

692,548. MILK-CAN. GERHARD ROTHENHAUSLER, Philadelphia, Pa. Filed Mar. 28, 1901. Serial No. 53,335. (No model.)



Claim.—1. In a milk-can, a refrigerator in the upper portion thereof, a hood on said refrigerator projecting over and below the upper portion of the milk-can, and a lid for said refrigerator having a hood projecting beyond the plane of the junction of said lid with said refrigerator, both of said hoods serving to direct the water or drippings to prevent the same from entering the can.

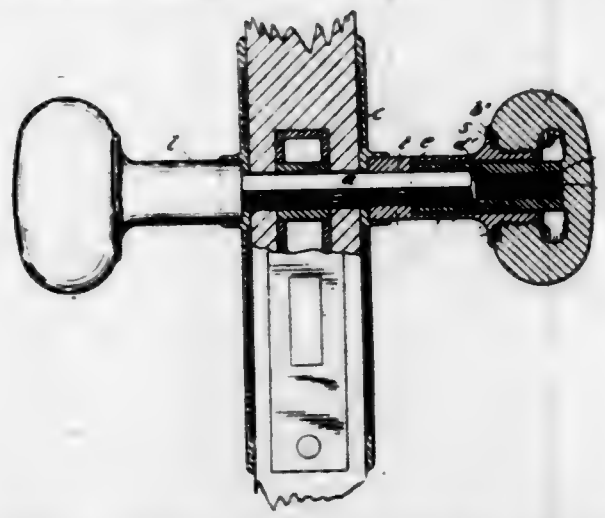
2. In a milk-can, a refrigerator in the upper portion thereof, a shoulder projecting inwardly from the upper portion of said refrigerator, a hood projecting over and below the upper portion of the milk-can, and a lid for said refrigerator having a hood projecting beyond the plane of the junction of said lid with said refrigerator, both of said hoods serving to direct the water or drippings and prevent the same from entering the can.

692,549. PROCESS OF MAKING ORNAMENTAL AND ADVERTISING ARTICLES. WILLIAM SCHAAF, Detroit, Mich., assignor to Detroit Composite Company, Detroit, Mich., a Corporation of Michigan. Filed Nov. 8, 1901. Serial No. 81,579. (No specimens.)

Claim.—1. The herein-described process of manufacturing useful and ornamental articles, which consists in bringing together in a mixture water, pulp, and cementitious material, in molding the mixture into the desired form, in heating the molded or shaped article, in then treating the article with a glue solution, and finally drying the article.

2. The herein-described process of making ornamental and advertising articles, which consists in forming a mixture of water, wood-pulp and plaster-of-paris, in molding the mixture into a desired form, in heating the molded or shaped article, in then subjecting the article while hot to the action of a hot glue-bath, and finally drying the article.

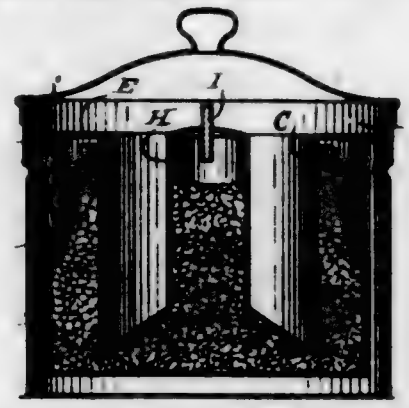
692,550. KNOB ATTACHMENT. WILLIAM SCHARFWERKER, Seattle, Wash., assignor of one-half to Alfred S. Gross, Seattle, Wash. Filed Apr. 24, 1901. Serial No. 57,311. (No model.)



Claim.—1. In a knob attachment, the combination with a spindle having a screw-threaded end, of a shank having an opening extending therethrough one end of which registers with the polygonal cross-section of the spindle and counterbored from the other end, a sleeve-nut of less outside diameter than the aforesaid counterbore of the shank having a female thread extending a portion of its length adapted to engage with the thread upon the said spindle and counterbored from the other end, a chambered knob adapted to lock the said sleeve-nut in place and be itself locked by a spring-catch connected thereto engaging with a tooth upon a flange of the said shank, substantially as described.

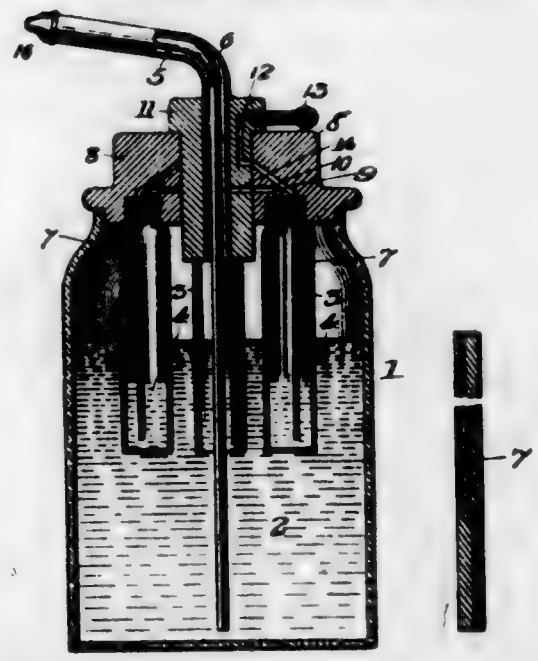
2. In a knob attachment, the combination with a polygonal spindle having a threaded end, and a chambered knob having an internal thread cut therein and adapted to engage with the thread upon the shank, of said shank having an external thread at one end and an opening extending through the entire length of the shank, one end of which opening adapted to register with the polygonal cross-section of the spindle and counterbored from the other end, and a sleeve-nut having an internal thread extending from one end for a portion of its length and counterbored the remainder, substantially as and for the purposes described.

692,551. ICE-CREAM FREEZER. EARNEST R. SCHLICK, Chicago, Ill. Filed June 3, 1901. Serial No. 62,988. (No model.)



Claim.—An ice-cream freezer comprising a vessel adapted to contain cracked ice and brine, an annular perforated receptacle in the upper end of said vessel adapted to contain salt, a ring-shaped receptacle adapted to project into said vessel and displace the ice and brine therein and cause the latter to rise to a level above the lower end of said salt-receptacle, an annular flange on said ring-shaped receptacle adapted to rest on the upper end of said vessel, a circumferential flange on said annular flange extending above and below the latter and fitting over said vessel, and an air-vent on the central chamber of said ring-shaped receptacle consisting of a tube extending downwardly into said chamber whereby when said ring-shaped receptacle is inverted said annular flange and said tube serve to prevent any ice or brine from coming in contact with the frozen cream or the platter receiving same.

692,552. COMBINED ATOMIZER AND NEBULIZER. CYRUS J. SELTZER, Philadelphia, Pa., assignor to George Woodward, Philadelphia, Pa. Filed May 11, 1900. Serial No. 16,338. (No model.)



Claim.—1. In a combined atomizer and nebulizer, an atomizer, a plurality of nebulizers, a fluid-duct, and a single common means for connecting said fluid-duct in turn with either the atomizer or with any one of the plurality of nebulizers, substantially as described.

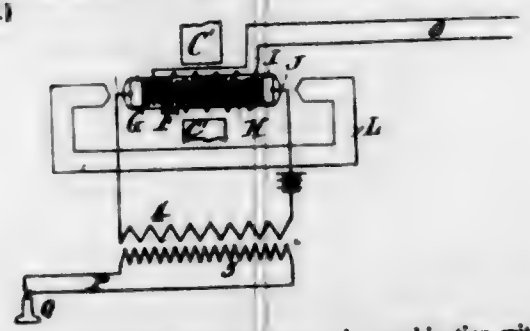
2. In a combined atomizer and nebulizer, a receptacle for containing liquid to be atomized, a plurality of receptacles for containing liquids

to be nebulized, the usual inner and outer atomizing-tubes for said atomizing-receptacle, a nebulizing-tube in each of said nebulizing-receptacles, a fluid-duct, and means constructed and arranged to connect said fluid-duct with any one of said nebulizing-tubes and simultaneously connect the interior of the particular receptacle containing said tube with the outer atomizing-tube, or to connect said fluid-duct with the interior of the atomizing-receptacle, as desired, substantially as described.

3. In a combined atomizer and nebulizer, a fluid-duct, a plurality of receptacles for containing liquids to be nebulized, a nebulizing-tube in each of said receptacles, a block or cap-piece provided with an aperture, two passages in said block or cap-piece for each of said receptacles, one of said passages of each set being constructed to connect such aperture with one of the nebulizing-tubes, and the other passage of each set constructed to connect such aperture with the interior of the nebulizing-receptacle, a plug or valve fitting in said aperture, and itself provided with a bore or aperture, passages in said plug constructed to connect the fluid-duct to that passage in the block which is in communication with any desired one of the nebulizing-tubes, and simultaneously to connect that passage in the block which is in communication with the interior of the receptacle containing such particular nebulizing-tube with the bore or aperture of said plug, substantially as described.

4. In a combined atomizer and nebulizer, a block or cap 8, two or more receptacles 3 for containing the liquid to be nebulized secured to the bottom of said cap, a receptacle 1 for the liquid to be atomized secured to said cap and surrounding receptacles 3, two passages 10 and 9 in said cap for each receptacle 3, passages 10 and 9 arranged with their lower ends in communication with said receptacles 3, a nebulizer-tube 7, in each receptacle 3 and arranged with its air-passage in communication with the lower end of the corresponding passage 10, a valve 11 rotatably mounted in said cap and provided with an aperture, a discharge-pipe 6 secured in the aperture in said valve and arranged in communication with receptacle 1, a passage 12 in said rotatable valve, one end of said passage being provided with a nipple 13 constituting a suitable fluid-duct and the other end of said passage 12 located in the plane containing the upper ends of passages 10, a passage 14 in said valve communicating at one end with the discharge-tube 6 and having its other end located in the plane containing the upper ends of passages 9, a passage 15 in said cap arranged with its lower end in communication with receptacle 1 and its upper end in the plane containing the upper ends of passages 10, a liquid-tube 5 for the atomizer of smaller external diameter than the passage, or bore, of the discharge-tube 6, said tube 5 being arranged within said discharge-tube and having its lower end located within receptacle 1, and a spray-nozzle suitably attached to the upper ends of the tubes 5 and 6, substantially as described.

692,553. TELEPHONE REPEATER OR RELAY. SEVERN D. SPROWS, Metuchen, N. J. Filed Aug. 14, 1901. Serial No. 72,011. (No model.)



Claim.—1. In an electrical resistance, the combination with an insulated chamber the interior of which is in a state of partial vacuum, of particles of carbon-coated iron particles within the same, circuit connections with said chamber and in circuit with the particles therein, and a magnet in juxtaposition to chamber for normally holding the particles in a fixed relation.

2. The combination, with a telephone-line, of a plurality of superimposed carbon particles and means inclosing them, a coil in connection with said line and surrounding said particles and a permanent magnet whose lines of force are at right angles to the lines of force set up by a current passing from the line through the said coil, and a battery-circuit and induction-coil, the primary of said induction-coil in connection with the carbon particles and the secondary connected to an outgoing or receiving line, substantially as shown and described.

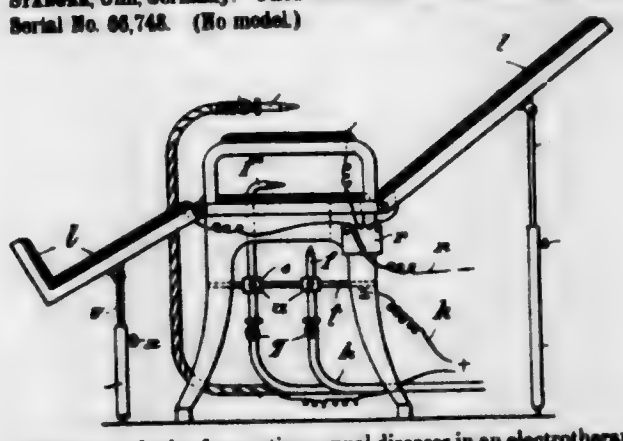
3. The combination, with a telephone-line, of a plurality of superimposed particles of iron coated with carbon, a closed glass chamber containing said particles, a coil connected with the line and surrounding said chamber, a permanent magnet suspended over the said parts in such position that its lines of force are at right angles to the lines of force set up by a current passing through the said coil, an auxiliary magnet whose lines of force are parallel to the lines of force of the said current, and a battery-circuit and induction-coil, the primary of said induction-coil in connection with the carbon particles and the secondary in connection with an outgoing or receiving line, substantially as shown and described.

4. The combination, with a telephone-line, of a plurality of superimposed oblong particles of iron coated with carbon, a closed glass chamber containing said particles, a coil connected with the line and surrounding said chamber, a vertically-adjustable permanent magnet having adjustable poles, the said coil and particles located between the magnet-poles in such position that the lines of force of the magnet are at right angles to the lines of force set up by the current from the line through the coil and an auxiliary vertically and horizontally adjustable magnet having its lines of force parallel to the lines of force of the coil-current, and a battery-circuit and induction-coil, the primary of said induction-coil in connection with the said particles and the secondary in connection with an outgoing line and receiver, substantially as shown and described.

5. The combination, with a telephone-line, of a plurality of superimposed oblong particles of iron coated with carbon, a closed glass chamber containing said particles and which is partly exhausted of air and has a carbon block in each end thereof, a coil of copper insulated wire surrounding the said chamber and in connection with the telephone-line and a copper cylinder surrounding the said coil and means supporting the parts in stationary position, a vertically-adjustable permanent magnet having adjustable poles, and means for adjusting said magnet, the said coil and its connected parts located between the magnet-poles in such position that the lines of force of the magnet are at right angles to the lines of force set up by the current from the line through the coil, and a vertically and horizontally adjustable magnet having its lines of force parallel to the lines of force of the coil-current, and means for adjusting said magnet, and a battery-circuit and induction-coil, the primary of said induction-coil connected to the carbon particles by means of the said carbon blocks in the cylinder, and the secondary connected with an outgoing line and receiver, substantially as shown and described.

6. The combination, with a telephone-line, of a plurality of superimposed particles of iron coated with carbon, a closed glass chamber containing said particles, a coil connected with the line and surrounding said chamber, a permanent magnet suspended over the said parts in such position that its lines of force are at right angles to the lines of force set up by a current passing through the said coil, a magnet-shaped soft-iron part arranged, when magnetized, with its lines of force parallel to the lines of force set up by the said current, and a battery-circuit and induction-coil, the primary of said induction coil in connection with an outgoing or receiving line, substantially as shown and described.

692,554. CHAIR FOR THERAPEUTIC PURPOSES. JOHANN J. STANGER, Ulm, Germany. Filed June 26, 1900. Renewed July 1, 1901. Serial No. 66,743. (No model.)



Claim.—A device for treating sexual diseases in an electrotherapeutic way consisting of a chair provided with an adjustable back-support and an adjustable foot-rest, the seat being provided with a recess through which a nozzle of a hose may be passed in order to lead an electrically-charged fluid-stream to the diseased genitals, while the current returns by means of electrodes *l* distributed over the chair substantially as described.

692,555. FLAT-IRON. HENRY C. STIEFEL, Pittsburg, Pa. Filed Sept. 24, 1901. Serial No. 76,368. (No model.)



Claim.—1. In combination with a flat-iron, a casing incasing said flat-iron thereby forming a space therebetween for the reception of a non-

heat-conducting material, said casing being provided with an inwardly-extending flange adapted to engage the flat-iron and have its lower face lie flush with the bottom face of said flat-iron forming part of the rubbing-surface, said casing having a second inwardly-extending flange for securing said non-heat-conducting material within said space, substantially as described.

2. In combination with a flat-iron having an integral flange formed around its body portion, a casing incasing said flat iron forming a space therebetween for the reception of a non-heat-conducting material composed of magnesia, said casing having an inwardly-extending flange engaging the lower periphery of said flat-iron and a second inwardly-extending flange for securing said non-heat-conducting material within said space, said first-named flange adapted to bind the said non-heat-conducting material to the flat-iron, substantially as described.

3. In a flat-iron, a body portion carrying a handle, an integral flange secured to said body portion, an outer casing incasing said body portion forming a space therebetween, said casing having two inwardly-extending flanges, one of which forms part of the rubbing-surface of the iron and engages the entire periphery of said body portion, the other of said flanges extending inwardly above said body portion, a suitable non-heat-conducting material within said space, completely covering the top and sides of said body portion and held in position by said integral flange and second-named inwardly-extending flange, substantially as described.

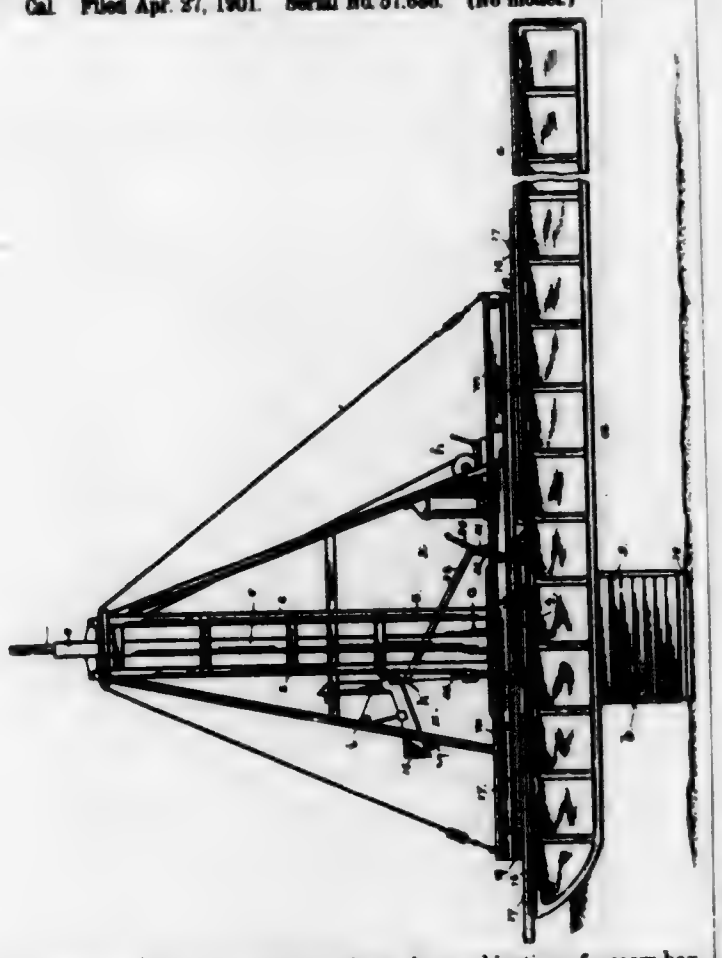
692,556. **ARTIFICIAL EAR-DRUM.** ANTON VON SUCHORZEWSKI and MAX KOHL, Breslau, Germany. Filed Oct. 8, 1901. Serial No. 77,968. (No model.)



Claim.—1. An artificial ear-drum consisting of an elastic tube having an inclined inner end, a membrane secured on said inclined end and a valve on said membrane adapted to open inwardly of said tube.

2. An artificial ear-drum consisting of a bag-shaped tube having an inclined inner end, a membrane secured on said end, a valve on said membrane adapted to open inwardly of said tube and a metallic plate secured to the exterior surface of said membrane above the center thereof.

692,557. **MINING-DREDGE.** JOHN A. SWENSON, San Francisco, Cal. Filed Apr. 27, 1901. Serial No. 57,636. (No model.)



Claim.—1. In a dredging-machine, the combination of a scow having a well or opening, a caisson open at both ends movable vertically therein, means for raising and lowering the caisson, a platform movable longitudinally on the scow over the top of the caisson, a dredging implement carried on the truck and means for lowering the dredging implement into and for raising it out of the caisson and for operating it to cut, excavate and elevate the material, the position of the dredging implement being controlled by the movements of the truck.

2. In a dredging-machine, a scow having a well or opening, a caisson suspended in said opening, open at both ends, and a dredging implement adapted to cut, excavate and elevate the material within the caisson, said dredging implement having longitudinally-progressive movement within the caisson.

3. In a dredging-machine, a scow having a well or opening, a caisson open at both ends and vertically movable therein, a platform movable longitudinally over the top of the caisson and adapted to support and bring into operative position by successive steps a dredging implement.

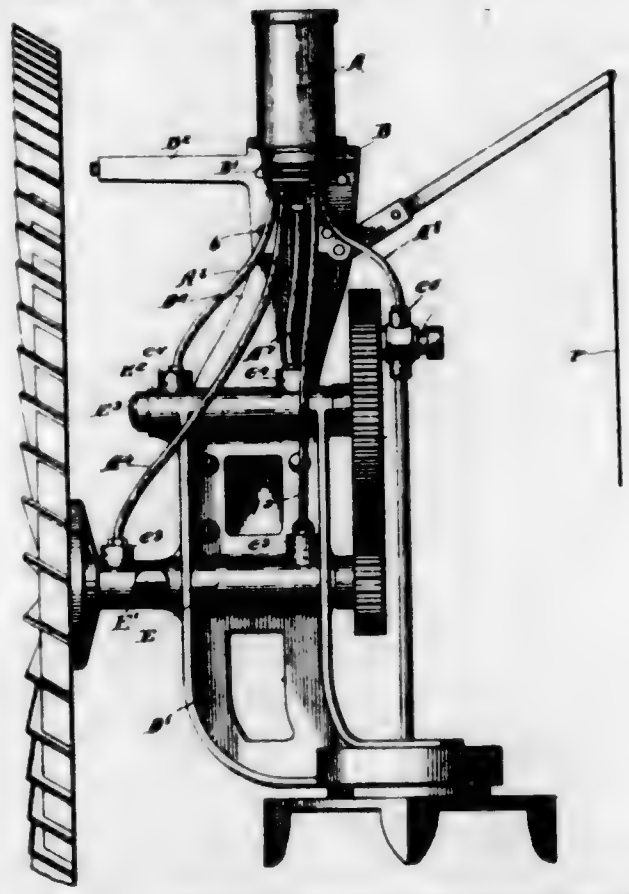
4. The combination with a scow having a well or opening; of a caisson open at both ends, vertically movable in the well, and a dredging implement adapted to cut, excavate and elevate the material inclosed within the caisson and having longitudinal progressive movement horizontally in addition to its vertical movement.

5. The combination with a scow having a well or opening, and a caisson suspended in the well and open at both ends; of a movable platform on the scow adapted to travel longitudinally over the top of the caisson and dredging apparatus mounted for operation on the platform, and adapted to excavate and elevate the material within the caisson by successive descending and ascending movements of the dredging implement, and horizontal progressive movements of the platform at intervals.

6. In a dredging-machine, a sectional caisson composed of horizontally-laid planks joined by tongue-and-groove joints, angle-plates at the corners, angle-rims uniting the angle-plates, diagonal brace-irons and bolts securing the planks to the angle-plates.

7. In a dredging-machine, a sectional caisson consisting of horizontally-laid planks, joined by tongue-and-groove joints, angle-plates at the corner, angle-irons uniting the angle-plates, spaced diagonal braces at the corners, bolts securing the planks to the angle-plates and a bottom rim forming a tight joint having a ledge extending under and bolted against the bottom plate.

692,558. **LUBRICATING DEVICE.** MINOR W. TAYLOR, Waterloo, Iowa, assignor of one-half to Olin R. Taylor, Waterloo, Iowa. Filed June 6, 1901. Serial No. 63,370. (No model.)



Claim.—1. A lubricating device comprising a single receptacle provided with a bottom wall having a series of discharge-openings, a valve-plate provided with a number of apertures equal to those of the receptacle-bottom, a tube-supporting plate beneath said valve-plate, and a plurality of tubes, one for each aperture of the receptacle-bottom depending from said tube-supporting plate, said valve-plate being movable to bring the apertures thereof into register with the receptacle-bottom and through said valve-plate apertures to bring the interior of the receptacle into direct communication with the tubes in a manner to permit the oil to flow from said receptacle to and through said tubes.

2. A lubricating device comprising an oil-receptacle, provided in its bottom with a plurality of apertures, a valve-plate provided with an equal number of apertures, the apertures in one of said parts, to wit, the recep-

tacle-bottom or the valve-plate being made of varying sizes, means for moving said valve-plate to bring the apertures thereof into register with the apertures of the receptacle-bottom and tubes depending from the device each receiving the oil which flows through one of the apertures of the valve-plate.

3. A lubricating device comprising an oil-receptacle provided in its bottom with a plurality of apertures, an apertured valve-plate having a yielding facing which engages said apertured bottom of the oil-receptacle, said yielding facing having apertures registering with the apertures of the valve-plate, and some of which are larger than others, tubes depending from the device, each receiving the oil which flows through one of the apertures of the valve-plate, and means for actuating said valve-plate to bring the apertures thereof into register with the apertures of the receptacle-bottom.

4. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a plurality of discharge-ducts equal in number to said discharge-openings, each adapted to receive the oil from one of said discharge-openings and a rotative valve-plate located between the receiving ends of said ducts and said bottom of the receptacle and provided with a plurality of openings corresponding with the openings in said bottom of the receptacle and adapted by rotation of the valve-plate to register with the discharge-openings of said bottom, one of said parts, to wit, the bottom of the receptacle or the valve-plate having openings of varying sizes.

5. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a plurality of discharge-ducts adapted to receive oil from said discharge-openings, a centrally-located stud depending from said bottom of the receptacle, a valve-plate rotatively mounted on said stud between the receiving ends of the ducts and said bottom of the receptacle, said valve-plate being provided with a plurality of openings adapted to register with said discharge-openings of the receptacle, and the openings in one of said parts, to wit, the bottom of the receptacle or the valve-plate, being made of varying sizes.

6. A lubricating device comprising an oil-receptacle provided in its bottom with an annular series of discharge-openings, a distributing-chamber divided into a plurality of compartments, a plurality of ducts leading from the distributing-chamber, one from each compartment thereof, a centrally-located stud depending from the bottom of said receptacle, a valve-plate rotatively mounted on said stud and provided with a plurality of openings adapted to register with said discharge-openings, the openings in one of said parts, to wit, the bottom of the receptacle or valve-plate, being made of varying sizes.

7. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a rotative valve-plate beneath said bottom of the receptacle provided with a plurality of openings adapted to register with the openings in said bottom of the receptacle, a tube-supporting plate beneath said valve-plate and forming a distributing-chamber, said tube-supporting plate being provided with a plurality of openings located beneath the discharge-openings of the receptacle, means for detachably connecting said valve and tube-supporting plate with the receptacle, and tubes connected with the said openings in the said tube-supporting plate.

8. A lubricating device comprising an oil-receptacle provided in its bottom with an annular series of discharge-openings, a stud depending centrally from said bottom of the receptacle, a valve-plate rotatively mounted on said stud beneath said bottom, and provided with a plurality of openings adapted to register with the discharge-openings of the receptacle, a tube-supporting plate mounted on said stud beneath the valve-plate and provided with a plurality of openings, corresponding with the discharge-openings of the receptacle, said valve-plate being provided with annular flanges, one on the upper side overlapping the receptacle, and one on the lower side engaging the tube-supporting plate, a nut on the lower end of said depending stud and a spring interposed between said nut and said tube-supporting plate.

9. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a rotative valve-plate beneath said bottom provided with a series of openings adapted to register with said discharge-openings, an apertured tube-supporting plate located beneath the valve-plate and formed to provide between the same a distributing-chamber, said tube-supporting plate being provided on its upper face with a plurality of radial ribs which divide the chamber into a plurality of compartments and tubes depending from said tube-supporting plate, one communicating with each compartment.

10. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a rotative valve-plate beneath said bottom provided with a series of openings adapted to register with said discharge-openings, an apertured tube-supporting plate located beneath the valve-plate and formed to provide between the same a distributing-chamber, said tube-supporting plate being provided on its upper face with a plurality of radial ribs which divide the chamber into a plurality of compartments, tubes depending from said tube-supporting plate, one communicating with each compartment, the openings in the valve-plate and bottom of the receptacle being so formed with respect to each other as to discharge varying quantities of oil from the distributing-chambers therethrough in each operation of the device.

11. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a plurality of discharge-ducts adapted to receive oil from said discharge-openings, a rotative valve-plate located between the receiving ends of said ducts and the discharge-openings of the receptacle, and provided with a plurality of openings adapted to register with said discharge-openings, a gasket interposed between said valve-plate and the bottom of the receptacle and provided with a plurality of openings located in line with the openings in the valve-plate, and interfitting connections between said valve-plate and the gasket preventing relative rotative movement of the gasket and plate.

12. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a plurality of discharge-ducts adapted to receive oil from said discharge-openings, a rotative valve-plate located between the receiving ends of said ducts and said discharge-openings of the receptacle and provided with a plurality of openings adapted to register with said discharge-openings, and a gasket interposed between said valve-plate and the bottom of the receptacle and provided with openings located in line with the openings of the valve-plate, said openings in the gasket being made of varying sizes.

13. A lubricating device comprising an oil-receptacle provided in its bottom with a series of discharge-openings, a plurality of discharge-ducts adapted to receive oil from said discharge-openings, and a valve-plate located between the receiving ends of said ducts and said discharge-openings and provided with a plurality of openings which are located normally out of line with the said discharge-openings, and means for moving said valve-plate to bring the openings therein into register with and past said discharge-openings and a spring for returning said plate to its initial position.

14. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a plurality of discharge-ducts adapted to receive oil from said discharge-openings, a valve-plate located between the receiving ends of said ducts and said discharge-openings of the receptacle and provided with a plurality of openings which are located normally out of line with the discharge-openings, means for actuating said valve-plate to bring the openings therein into register with and past said discharge-openings and to return said valve-plate to its initial position, and interacting stops on the receptacle and valve-plate for arresting said valve-plate at each limit of its movement.

15. A lubricating device comprising a receptacle provided in its bottom with an annular series of discharge-openings, a plurality of discharge-ducts adapted to receive oil from said discharge-openings, a rotative valve-plate located between the receiving ends of said ducts and said discharge-openings of the receptacle, and provided with a plurality of openings adapted to register with said discharge-openings, an actuating-arm on said valve-plate, a lever connected with one end of said arm for rotating the plate in one direction and a restoring-spring connected also with said arm.

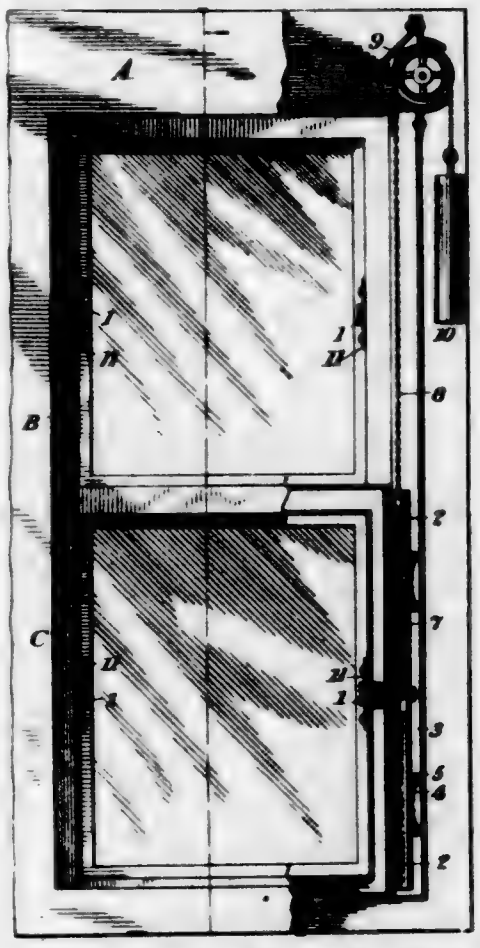
16. A lubricating device comprising a receptacle, a plurality of discharge-ducts leading therefrom, a base-plate to which said oil-chamber is attached, a rotative valve-plate controlling the flow of oil from said receptacle to said discharge-ducts, an arm rigid with said valve-plate which passes through an opening in said base-plate, a lever pivoted to said base-plate and connected at one end to said arm, and a restoring-spring attached at one end to said base-plate and at its other end to the arm and acting in opposition to said lever.

692,559. PUZZLE. GUSTAVE W. TREICHEL, Chestnut Hill, Pa. Filed Apr. 22, 1901. Serial No. 57,061. (No model.)



Claim.—A puzzle consisting of three parts, one large part and two smaller parts, the large part to be made of flexible material, the smaller parts to be made of stiffened material, two vertical slits cut through the larger part parallel with one another, these slits terminating before the edge of the part cut through is reached so as form a strip between the two slits, a hole formed through the flexible piece directly beneath the strip, a string, the loop of which is adapted to pass through said hole from the front to the rear and then around the strip, the two stiffened smaller parts adapted to be secured to each end of the string, substantially as described and for the purpose specified.

692,560. WINDOW. WILLIAM D. WATSON, Chicago, Ill. Filed Dec. 11, 1901. Serial No. 85,435. (No model.)

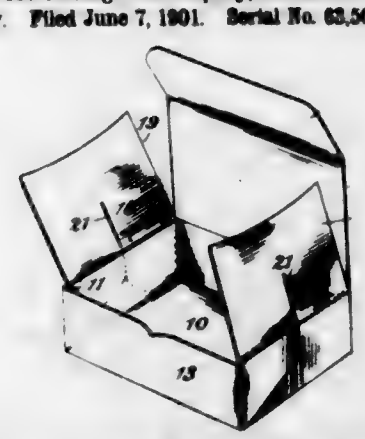


Claim.—1. The combination with a window-casing and inclosed sash, of interposed weather-bars mounted to slide longitudinally in the casing and normally spring-pressed into grooves in the sash, pivots extending between the sash and weather-bars, and means connected with the pivots for counterbalancing the sash, substantially as described.

2. The combination with a window-casing and inclosed sash, of interposed weather-bars mounted to slide longitudinally in the casing and normally spring-pressed into grooves in the sash, pivots extending between the sash and weather-bars, chains or cords secured to the pivots and suspending the sash thereby, and counterbalancing devices connected with said chains or cords, substantially as described.

3. The combination with a window-casing and inclosed sash, of interposed tubular weather-bars mounted to slide longitudinally in the casing and normally spring-pressed into grooves in the sash, pivots extending between the sash and weather-bars, suspending devices secured to said pivots and extending upwardly through the tubular bars, and counterbalancing devices connected with said suspending devices, substantially as described.

692,561. FOLDING BOX. ZAIDA B. WEBB, Whippany, N. J., assignor to Webb Folding Box Company, Newark, N. J., a Corporation of New Jersey. Filed June 7, 1901. Serial No. 63,509. (No model.)

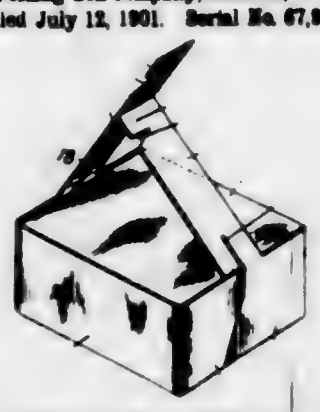


Claim.—1. As an improved article of manufacture, a folding box comprising a bottom portion, side pieces on two edges thereof, one set of side pieces having end flaps with extensions on their upper edges and with slots transversely of the flaps partly in the flaps and partly in the extensions, and the second set of side pieces having end flaps with tongues on their inner edges which tongues are adapted to extend through the aforesaid slots and so hold the opposed end flaps together.

2. As an improved article of manufacture, a folding box comprising a bottom portion, end pieces projecting from two edges of the bottom portion, and side pieces projecting from the two remaining edges of the bottom, one side piece having end flaps with extensions on their upper and outer edges and with slots transversely of the flaps formed partly in the flaps and partly in the extensions thereof, and the second side piece having end flaps cut away on their inner edges to form hooks or tongues adapted to enter the slots of the first-mentioned flaps.

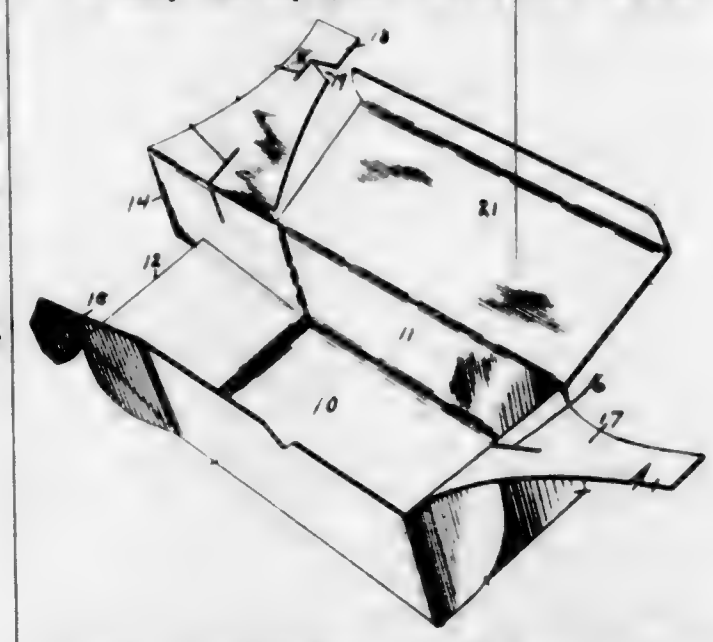
3. As an improved article of manufacture, a folding box comprising a bottom portion, end pieces projecting from two edges of the bottom portion, said end pieces having notches in their upper edges, and side pieces projecting from the two remaining edges of the bottom, one side piece having end flaps with extensions on their outer and upper edges and with slots transversely of the flaps formed partly in the flaps and partly in the aforesaid extensions, and the second side piece having end flaps cut away on their inner edges to form tongues adapted to extend through the aforesaid slots and engage with the notched end piece.

692,562. FOLDING BOX. ZAIDA B. WEBB, Whippany, N. J., assignor to Webb Folding Box Company, Newark, N. J., a Corporation of New Jersey. Filed July 12, 1901. Serial No. 67,868. (No model.)



Claim.—The combination with a folding box, of opposed handle members, each formed integral with an adjacent edge of the box, each member being slotted longitudinally from the box edge toward the free end of the member, and each member having also at its free end and at each side a laterally-extending tongue so that when the opposed members are overlapped the tongue of one shall enter the slot of the other and a two-ply handle be thereby formed.

692,563. FOLDING BOX. ZAIDA B. WEBB, Whippany, N. J., assignor to Webb Folding Box Company, Newark, N. J., a Corporation of New Jersey. Filed July 12, 1901. Serial No. 67,869. (No model.)



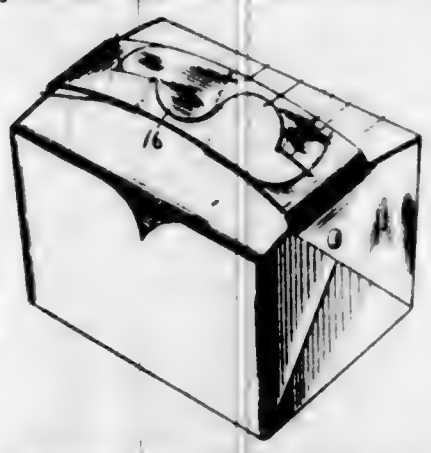
Claim.—1. The combination with a box, of opposed handle members attached to the box edges, said members being adapted to overlap each other and provided with laterally-extending and engaging tongues and one of the said members having means to permit the tongue which engages it to slide longitudinally therein so that the engaging parts may be readily flattened down on the box top.

2. The combination with a box, of opposed handle members secured thereto, the members having laterally-arranged engaging tongues and one member being slotted longitudinally near one of the tongues so as to permit the tongue on the opposed member to slide in the slot when the two tongues are engaged.

3. The combination with a folding box, of side pieces formed integral with opposed parts of the box so as to project from opposite edges thereof, each member having laterally-arranged tongues near the free end

and one member being slotted longitudinally near the said tongue so as to permit a sliding engagement of the tongues, substantially as described.

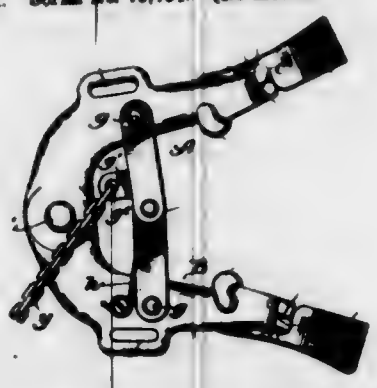
692,564. FOLDING BOX. ZAIDA B. WEBB, Whippany, N. J., assignor to Webb Folding Box Company, Newark, N. J., a Corporation of New Jersey. Filed July 12, 1901. Serial No. 67,960. (No model.)



Claim.—1. The combination with a box, of a two-part handle, each part being attached to opposed edges of the box, and each part being longitudinally slotted and provided near its free end with a laterally-extending tongue and at a point between the tongue and slot with an independent laterally-extending keeper so that when the two parts of the handle are overlapped the tongue of one may enter the slot of the other and the keeper of one overlap and engage with the body portion of the other.

2. The combination with a box, of a two-part handle, each part being integral with opposed edges of the box, and each part being longitudinally slotted and provided with a laterally-extending terminal tongue and with a laterally-arranged rounded keeper so that when the two parts of the handle are overlapped the tongue of one may enter the slot of the other and the keeper of one overlap the body portion of the other.

692,565. VETERINARY MOUTH-SPECULUM. PAUL J. WEBER, Chicago, Ill., assignor to Sharp & Smith, Chicago, Ill., a Firm. Filed Oct. 24, 1901. Serial No. 79,791. (No model.)



Claim.—1. In a veterinary mouth-speculum, the combination of jaws formed with upper and lower side bars pivoted together, and means for locking the jaws against closing when opened, comprising a toggle fulcrumed at its opposite ends to the said upper and lower side bars and having its members pivotally connected together between said bars, substantially as set forth.

2. In a veterinary mouth-speculum, the combination of jaws formed with upper and lower side bars pivoted together, a toggle fulcrumed at its opposite ends to the said upper and lower side bars and having its members pivotally connected together between said bars, and a stop in the path of one of the toggle members limiting its movement beyond the dead-center at one side to lock the jaws against closing when opened, substantially as set forth.

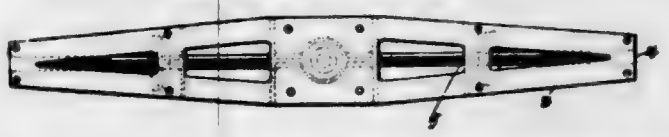
3. In a veterinary mouth-speculum, the combination of jaws formed with upper and lower side bars pivoted together, a toggle fulcrumed at its opposite ends to the said upper and lower side bars and having its members pivotally connected together between said bars, a stop in the path of one of the toggle members limiting its movement beyond the dead-center at one side to lock the jaws against closing when opened, and a spring operating normally to hold said member against said stop, substantially as set forth.

4. In a veterinary mouth-speculum, the combination of jaws formed with upper and lower side bars pivoted together, a toggle fulcrumed at its opposite ends to the said upper and lower side bars and having its members pivotally connected together between said bars, a stop in the path of one of the toggle members limiting its movement beyond the dead-center at one side to lock the jaws against closing when opened, and a flexible tag connected with one of the toggle members, substantially as and for the purpose set forth.

5. In a veterinary mouth-speculum, the combination of jaws formed with upper and lower side bars, rule-joint connections between the side bars limiting the opening movement of the jaws, a toggle fulcrumed at its opposite ends to the said upper and lower side bars and having its members pivotally connected between said bars, and a stop in the path of one of the toggle members limiting its movement beyond the dead-center at one side to lock the jaws against closing when opened.

6. In a veterinary mouth-speculum, the combination of jaws formed with upper and lower side bars pivoted together, bit-bars pivotally connected with the free ends of the said side bars, toggle-lever locking means for holding the jaws against closing when opened, and removable tooth-plates provided with hooked ends to engage the said side bars and resting between their ends against the said bit-bars, substantially as and for the purpose set forth.

692,566. CAR-TRANSOM. CHARLES T. WHITLAKE, Granite, Ill. Filed June 20, 1901. Serial No. 65,245. (No model.)



Claim.—1. A car-transom, consisting of the side portions forming the top plate and converging and formed integral with each other at their outer ends, and a bottom extending outwardly and upwardly and formed integral with the top at its outer ends, substantially as specified.

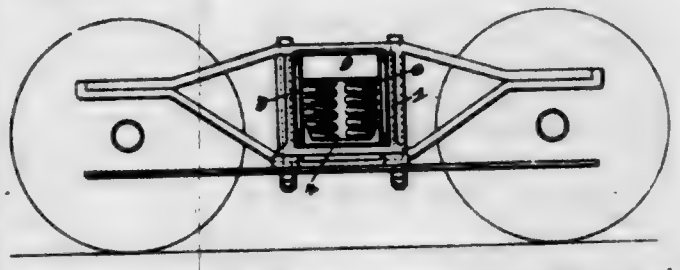
2. A transom for cars, consisting of a center piece, a top plate composed of side portions extending from the center piece and the said side portions converging toward their outer ends where they are formed integral with each other, a bottom extending outwardly and upwardly from the center piece and formed integral with the top at its outer ends and connected therewith intermediate of its outer ends and the center piece by strengthening-webs, substantially as specified.

3. The improved transom for cars, consisting of a center piece, a top plate composed of the members 3 integral with said center piece, the said members 3 converging toward their outer ends and being formed integral thereat, a bottom 6 extending outwardly and upwardly from the center piece and formed integral with the top at its outer ends, a web connecting the bottom and the top intermediate of the outer ends and the center piece and the whole having side bearings 8 and center bearings below the said webs 7, substantially as specified.

4. A car-transom having a top member, two side pieces converging toward and merging together at their ends, and vertical stiffening-webs, the longitudinal one being reinforced at its lower edge, substantially as shown and described.

5. A car-transom having a top member composed of two side pieces converging toward and merging together near their ends, and vertical stiffening-ribs, said top member having a downward and outward offset at its ends to accommodate deeper side sills, substantially as shown and described.

692,567. SWINGING SPRING-SEAT FOR CAR-BOLSTERS. CHAS. T. WHITLAKE, Granite, Ill. Filed June 20, 1901. Serial No. 65,246. (No model.)



Claim.—1. The combination in a car-truck, of the side frames, swinging spring-supports connected directly to said side frames, springs, and a bolster arranged to space apart the upper ends of said supports.

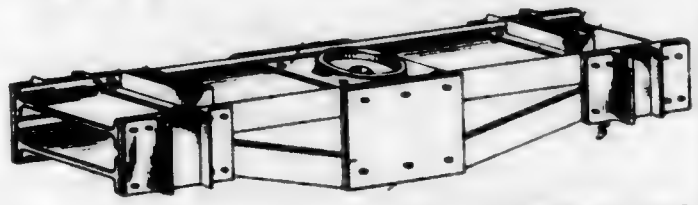
2. In a car-truck, side frames having vertical arms formed integral with a common base, links pivotally supported by said arms, spring-seats carried by said links, springs located upon said spring-seat, and a bolster mounted upon said springs, substantially as specified.

3. In a car-truck, the combination of the side frames 1 having the lugs 2, suspending-links directly supported by said lugs, independent spring-supports carried by the suspending-links, springs mounted upon the spring-supports, and a bolster supported by said springs.

4. In a car-truck, independently-movable spring-supports, and flanges 7 for limiting the movement of said supports, springs mounted upon said

supports, a bolster movably carried by said springs, and flanges 10 for limiting the movement of the bolster.

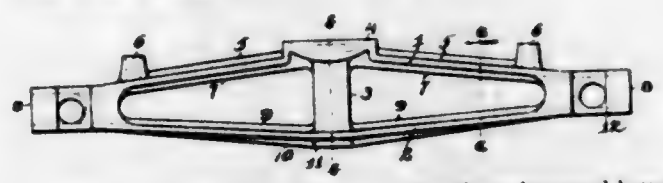
692,568. CAR-BOLSTER. CHARLES T. WESTLAKE, Granite, Ill. Filed June 20, 1901. Serial No. 65,247. (No model.)



Claim.—1. A car-bolster, consisting of a top in the form of an I-beam and having upwardly and downwardly projecting flanges and bearings carried upon the top between the said flanges, and a bottom rigidly connected to the said top, substantially as specified.

2. A bolster, comprising a top and bottom both in the form of an I-beam and having upwardly and downwardly projecting flanges, side brackets connected to the top and bottom, and bearings mounted upon the top between the said vertical flanges, substantially as specified.

692,569. CAR-BOLSTER. CHARLES T. WESTLAKE, St. Louis, Mo. Filed Aug. 26, 1901. Serial No. 73,219. (No model.)



Claim.—1. A car-truck bolster, comprising bowed top and bottom members substantially in the form of horizontal plates spaced apart and formed with integral connections at their ends and an integral connection at their centers forming a central bearing, and open between said connections, and projecting substantially vertical flanges or webs integral with each of said members and extending from the center bearing outwardly toward their ends, substantially as specified.

2. A car-truck bolster, comprising a web-like top member, a web-like bottom member spaced apart from said top member, sides 8 connecting said members at their ends, a connection integral with said members and forming a central bearing, and vertical flanges or webs integral with each of said members and extending outwardly from the center bearing and forming reinforcements to assist in strengthening the bolster, substantially as specified.

3. A car-bolster, consisting of the top member 1 substantially in the form of a plate, a bottom member 2 also in the form of a plate, a central bearing 3 connecting said members, integral connections 8 between said members at their ends, flanges or webs 5 integral with the upper side of the top member, side bearings 6 formed integral with the top member, flanges or webs 7 integral with the under side of the top member and extending outwardly from the center bearing, flanges 9 integral with the upper side of the bottom member, and flanges 10 integral with the under side of the bottom member and forming a central bearing extending outwardly therefrom, substantially as specified.

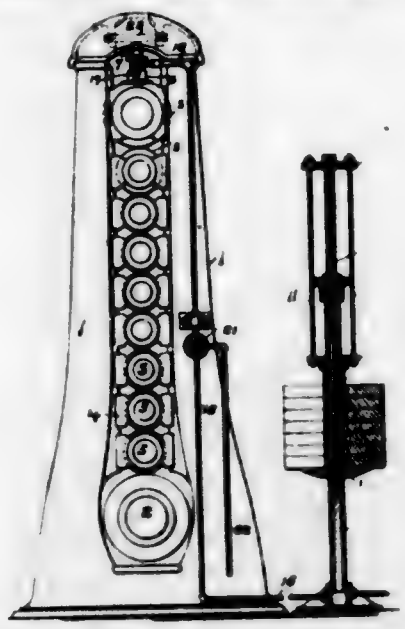
692,570. CALENDERING-MACHINE. MYRON J. WHITLOCK, Ansonia, Conn. Filed May 27, 1901. Serial No. 61,996. (No model.)

Claim.—1. The combination with a frame, of sliding bearings mounted therein, rolls supported by the bearings, an abutment carried by the frame, a liquid-containing chamber, a piston in said chamber, said chamber and piston being interposed between the roll-bearings and the abutment, means for forcing liquid into said chamber, and yielding means for transmitting the pressure on the piston to the roll-bearings, substantially as described.

2. The combination with a frame, of sliding bearings mounted therein, rolls supported by the bearings, an abutment carried by the frame, a liquid-containing chamber, a piston in said chamber, said chamber and piston being interposed between the roll-bearings and the abutment, means for forcing liquid into said chamber, and a suitably-mounted spring coöperating with the piston to transmit the pressure on the piston to the roll-bearings, substantially as described.

3. The combination with a frame, of sliding bearings mounted therein, rolls supported by the bearings, abutments on each side of the frame, a pair of liquid-containing chambers, pistons mounted therein, said chambers and pistons being interposed between the roll-bearings and the abutments, springs mounted on the abutments and against which the piston-heads bear, and means for forcing liquid into said chambers, substantially as described.

4. The combination with a frame, of sliding bearings mounted therein, rolls supported by the bearings, abutments mounted on the frame, a pair of liquid-containing chambers, pistons mounted in said chambers, said chambers and pistons being interposed between the abutments and the roll-bearings, a chamber in open communication with said pair of chambers, a piston in said chamber, means for applying varying degrees of pressure to said piston, whereby varying degrees of pressure can be applied to the pistons in the pair of chambers, and yielding means for transmitting said pressure to the roll-bearings, substantially as described.



5. The combination with a frame, of sliding bearings mounted therein, rolls supported by the bearings, abutments mounted on the frame, a pair of liquid-containing chambers, pistons mounted in said chambers, said chambers and pistons being interposed between the abutments and the roll-bearings, a chamber in open communication with said pair of chambers, a piston in said chambers, means for applying varying degrees of pressure to said piston, whereby varying degrees of pressure can be applied to the pistons in the pair of chambers, and a spring for transmitting said pressure to the roll-bearings, substantially as described.

6. The combination with a frame, of sliding bearings mounted therein, rolls supported by said bearings, abutments mounted on the frame, springs carried by the abutments, a pair of liquid-containing chambers, pistons mounted in said chambers, said chambers and pistons being interposed between the roll-bearings and the springs, a liquid-containing chamber in open communication with said pair of chambers, a piston in said chamber, means whereby said piston may be caused to support a series of weights whereby varying degrees of pressure may be applied to said piston, and a spring for transmitting said pressure to the roll-bearings, substantially as described.

692,571. FIRE HOSE NOZZLE. FRED W. WIRMAN, Lawrence, Kans. Filed July 20, 1901. Serial No. 69,119. (No model.)

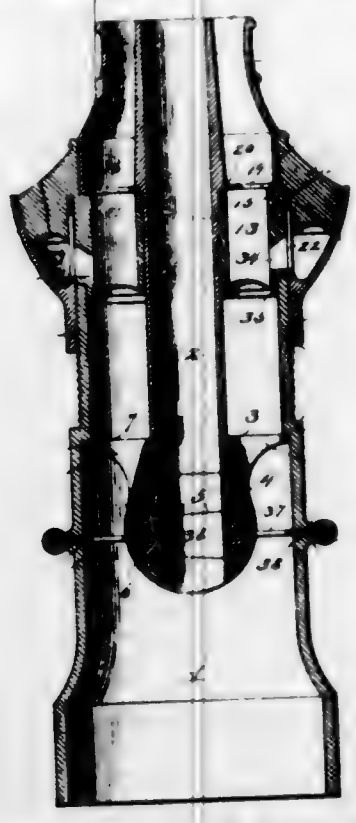
Claim.—1. In a nozzle, the combination with the outer casing; of a centrally-arranged stream-pipe mounted therein to leave a surrounding annular space, means for controlling the passage of water through said annular space, and a valve for controlling the stream-pipe, the casing of said valve being held in place by the stream-pipe and provided with a rim abutting against an internal shoulder within the casing.

2. In a nozzle, the combination with the outer tubular casing; of a centrally-arranged stream-pipe mounted therein, a valve-casing connected with the inner end of the stream-pipe, a valve in said casing having oppositely-projecting stems, and a bail-shaped handle having its extremities connected with the valve-stems and adapted to open and close the valve.

3. In a nozzle, the combination with the outer casing provided with an internal annular shoulder; of a valve-casing mounted within said outer casing and provided with an apertured head comprising a rim which is seated against the internal shoulder, a centrally-arranged stream-pipe having a threaded engagement with the valve-stem, a valve mounted in the valve-casing, stems projecting in opposite directions from the valve through the outer casing and having handle-sockets, and a bail-shaped valve-operating handle having its extremities inserted in said sockets, and held by set-screws.

4. In a nozzle, the combination with the outer casing and a centrally-arranged stream-pipe mounted therein; of a valve-casing having a threaded engagement with the inner end of the stream-pipe and comprising a rim seated against an internal shoulder within the outer casing, a valve mounted in the valve-casing and having oppositely-projecting stems which pass through the outer casing, bails mounted upon the outer extremities of said stems and together with the stems provided with openings or sockets, and

a bail-shaped valve-operating handle having its extremities inserted in said sockets and held, substantially as and for the purpose specified.



5. In a nozzle, the combination with the outer casing; of a centrally-arranged stream-pipe mounted therein to leave a surrounding annular space, a head having a circular series of openings communicating with said annular space, a rotatable outer nozzle-tube provided in its inner end with ports adapted to move into and out of alinement with the passage-ways in the head, and an adjustable hood mounted on the outer casing and provided with a flange which encircles the head.

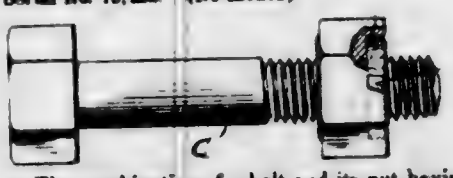
6. In a nozzle, the combination with the outer casing and a stream-pipe arranged centrally therein to leave a surrounding annular water-space; of a valve controlling the stream-pipe, an outer rotatable nozzle controlling the annular space, a head extending around the stream-pipe and serving as a deflector, and a conical hood adjustably mounted on the outer casing and comprising a flange which encircles the deflecting head.

7. In a nozzle, the combination with the outer casing and the stream-pipe arranged centrally therein; of a valve controlling said stream-pipe, a head surrounding the stream-pipe and constituting means for deflecting the water, and a conical hood adjustably mounted on the outer casing and comprising concentric flanges one of which is received in a groove or seat in the head and provided with side openings for the passage of the water, and the other of which encircles the head.

8. In a nozzle, the combination with the outer casing and a centrally-arranged stream-pipe therein, provided with a shoulder; of a head screwed upon said stream-pipe, an outer nozzle-tube surrounding the stream-pipe and rotatably mounted in the head and held in place by the shoulder on the stream-pipe, said outer nozzle-tube and the head being provided with ports adapted to be thrown into and out of alinement with each other, for the purpose specified.

9. In a nozzle, the combination with the outer casing and a stream-pipe mounted centrally therein; of a head mounted upon the stream-pipe and provided with side ports and an annular groove in its inner face, and a hood adjustably mounted on the outer casing and comprising inner and outer concentric flanges, the inner flange working in the groove in the head and being provided with side openings which register with the openings in the head, and the outer flange encircling the periphery of the head and being adjustable toward and away from the same.

692,572 NUT-LOCK. EDWIN T. WILCOX, Berea, Ohio. Filed Aug. 27, 1901. Serial No. 73,422. (No model.)



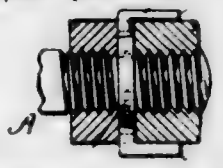
Claim.—1. The combination of a bolt and its nut having an annular recess in the outer face thereof around the bolt, with a split locking-ring adapted to be forced directly into said recess, and a connection between the nut and said locking-ring preventing their relative rotation, the peripheral wall of said locking-ring and the wall of said annular recess coöperating and one of said walls flaring outwardly away from the threaded portion of the nut and being smooth transversely, substantially as and for the purpose specified.

2. The combination of a bolt, and its nut having an annular recess in its outer face around the bolt-hole and a notch in said outer face, with a split locking-ring having an outwardly-extended tongue adapted, when the ring is forced into said recess, to enter said notch, the periphery of said locking-ring and the wall of said annular recess coöperating and one of them being beveled, substantially as and for the purpose specified.

3. The combination of a bolt, and its nut having an annular recess in its outer face around the bolt-hole, and a notch in said outer face, with a split locking-ring having a tapered periphery, an outwardly-projecting tongue, and one or more inwardly-extended sharp teeth, substantially as and for the purpose specified.

4. The combination of a bolt having one or more longitudinal grooves, and a nut having in its outer face an annular recess around the bolt-hole, and a notch in said outer face, with a split locking-ring having an outwardly-projecting tongue and an inwardly-extending tooth, the periphery of said locking-ring and the wall of said annular recess coöperating and one of them being beveled, substantially as and for the purpose specified.

692,578. NUT-LOCK. EDWIN T. WILCOX, Berea, Ohio. Filed Oct. 14, 1901. Serial No. 78,535. (No model.)



Claim.—1. The combination of a bolt, its nut and jam-nut, the said nut having an annular recess in the outer face thereof around the bolt and an outward opening from such recess, and a split locking-ring adapted to be forced into said recess and having an outward projection adapted to occupy said outward recess and extending sufficiently to be adapted to be bent up against the outer side of the jam-nut, the periphery of said locking-ring and the wall of said annular recess coöperating and one of them being beveled, substantially as described.

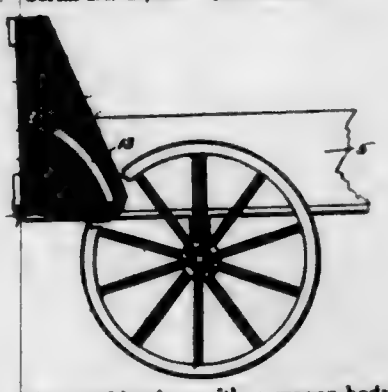
2. A bolt, its nut and jam-nut, there being an annular recess in the outer face of the nut and a pair of diametrically-opposed notches in said outer face, combined with a split locking-ring having a pair of outwardly-extending tongues occupying said notches and locking the ring to the nut, one of said tongues projecting beyond the notch and being adapted to be bent up along the side of the jam-nut, the periphery of said locking-ring and the wall of said annular recess coöperating and one of them being beveled, substantially as described.

3. The combination of a bolt and its nut having an annular recess in its outer face, and a notch connecting with said recess, and a split locking-ring having a tapered periphery, an uneven interior, and a pair of projecting free ends adapted to occupy said notch, substantially as described.

4. The combination of a bolt and its nut having an annular recess in its outer face, and a pair of diametrically-opposed notches leading from said recess, a split locking-ring having a tapered periphery and an uneven interior and two projecting free ends and projection diametrically opposite said free ends, said two free ends being normally separated to allow the ring to be easily slipped over the bolt and being adapted to be brought toward each other when the ring is forced in place, substantially as described.

5. A locking-key for a nut-lock consisting of an annular split ring having an uneven interior and a tapered exterior, and a projecting tongue on the opposite side from the split of the ring, substantially as described.

692,574. END-GATE. JERRY WILCOX, Schuyler, Nebr. Filed Jan. 4, 1901. Serial No. 42,003. (No model.)

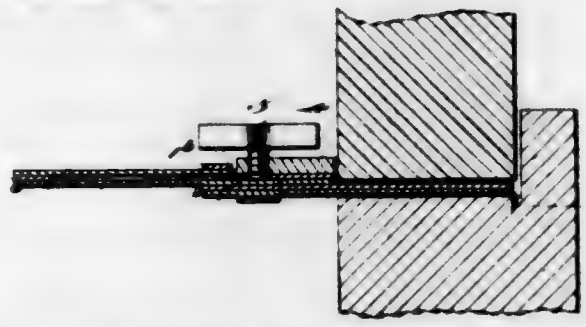


Claim.—1. The combination with a wagon-body of an end-gate hinged to the bottom thereof and having sides disposed to inclose the

sides of the body, the sides of the gate having arcuate slots terminating in lateral enlargements, and plates pivotally mounted and connected with the body, said plates being disposed for adjustment to move through the slots or to lie transversely in the enlargements of the slots to hold the gate against movement, the widths of the plates being greater than the widths of the slots adjacent to the enlargements.

2. The combination with a wagon-body, of an end-gate hinged thereto and having sides between which the sides of the body are received, the sides of the gate having arcuate slots therein, links pivoted to the body, plates pivoted to the links and disposed for movement through the slots, the plates being wider than the slots, said slots having laterally-enlarged portions, and means for rotating the plates in the enlarged portions of the slots to lie transversely thereof and with their edges beyond the narrowed portions of the slots to hold the gate in closed position.

692,575. DOOR-SECURER. JULIUS P. WILDER, Willis, Kans., assignor of one-half to F. C. Hill, Willis, Kans. Filed Apr. 26, 1901. Serial No. 57,608. (No model.)



Claim.—1. A door-securer, comprising a fastening bar or plate having a lateral loop, and a slide provided with a lateral loop or keeper adapted to receive said fastening-bar and said slide, itself, adapted to be received by the loop of said fastening-bar, and means for securing said fastening-bar and slide in position, substantially as set forth.

2. A door-securer, comprising a fastening bar or plate having a loop or keeper, a slide provided with a lateral loop or keeper and beyond said loop with a plate portion or extension extending through the loop of said fastening-bar, the loop of said slide receiving said fastening-bar, said slide also having a set or binding screw and packing-strips interposed between said fastening-bar and slide, substantially as set forth.

3. A door-securer, comprising a fastening bar or plate having a loop or keeper, a slide provided with a lateral loop or keeper and beyond said loop with a plate portion or extension extending through the loop of said fastening-bar, the loop of said slide receiving said fastening-bar, said slide also having a set or binding screw and packing-strips interposed between said fastening-bar and slide, one of said packing-strips having a longitudinal slot therein through which said set or binding screw passes, substantially as set forth.

4. A door-securer, comprising a fastening bar or plate having a loop or keeper, a slide provided with a lateral loop or keeper and beyond said loop with a plate portion or extension extending through the loop of said fastening-bar, the loop of said slide receiving said fastening-bar, said slide also having a set or binding screw and packing-strips interposed between said fastening-bar and slide, said packing-strips having near one end, upon the edge, stops or shoulders, adapted to engage the edge of the slide-loop, one of said packing-strips having a longitudinal slot engaged by said set or binding screw and the others of said packing-strips having bent terminals at their normally outer ends, substantially as set forth.

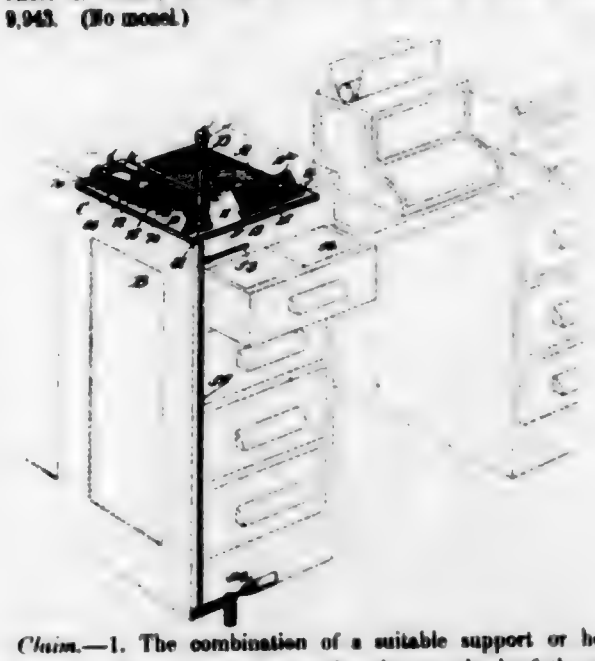
692,576. RAZOR-GAGE. ALEXIS WITTE, Brooklyn, N. Y. Filed Oct. 8, 1901. Serial No. 77,969. (No model.)



Claim.—1. A razor-gage, consisting of a plate generally rectangular in outline, but provided at its edges with convex arcs each different in curvature from the others, substantially as set forth.

2. A razor-gage, consisting of a plate generally rectangular in outline, but provided at its edges with convex arcs each different in curvature from the others, and a uniformly-tapering gage-opening in said plate, substantially as set forth.

692,577. DEVICE FOR TRANSFERRING CHECKS, TICKETS, &c. JACOB C. WOLFE, New York, N. Y. Filed Mar. 23, 1900. Serial No. 9,943. (No model.)



Claim.—1. The combination of a suitable support or holder for checks or the like, means for separating the top check of the pile from the others so that it may be readily accessible to the grasping device, a carrier reciprocating vertically above said check support or holder and provided with grasping devices adapted to move horizontally toward and away from each other to grasp a check and then to release it, and means for actuating said grasping devices to seize the check when moved down upon it and to release it when the carrier has moved away from the pile of checks, substantially as and for the purpose set forth.

2. The combination of a suitable support or holder for checks or the like, means for separating the top check of the pile from the others so that it may be readily accessible to the grasping device, a carrier adapted to travel horizontally back and forth between said check-support and a distant point where the checks are in turn to be deposited and having a vertically-reciprocating motion above said check support or holder, said carrier being provided with grasping devices adapted to move horizontally toward and away from each other to grasp a check and then to release it, and means for actuating said grasping devices to seize the check when moved down upon it and to release it when the carrier has moved away from the pile of checks, substantially as and for the purpose set forth.

3. The combination of a suitable support or holder for a pile of checks or the like, a carrier moving to and fro between said support and the distant point where the checks are in turn to be deposited, said carrier being adapted to pick up the top check of the pile and deposit it at the distant point, and a separating device for engaging the check when deposited and moving it so as to expose a check that may accidentally lie beneath it, substantially as and for the purpose set forth.

4. The combination of a suitable support or holder for a pile of checks or the like, an arching device comprising a vertically-reciprocating frame provided with a set of suitably-spaced yielding members adapted to be pressed down upon the top check of the pile and to move toward each other in the initial contact when so pressed down upon the check to arch or buckle the same between them, substantially as and for the purpose set forth.

5. The combination of a suitable support or holder for a pile of checks or the like, an arching device comprising a vertically-reciprocating frame provided with a set of suitably-spaced obliquely-depending yielding members projecting toward each other and adapted to be pressed down upon the top check of the pile and to move toward each other in the initial contact when so pressed down upon the check to arch or buckle the same between them, substantially as and for the purpose set forth.

6. The combination of a suitable support or holder for a check or the like, an arching device comprising a suitable frame or member provided with suitably-spaced flaps of rubber or like frictional material, having their free ends projecting toward each other so that they tend to approach each other when pressed against the check for arching the same, the said support and the said arching device having relative movement toward and away from each other, substantially as and for the purpose set forth.

7. The combination of a suitable support or holder for a check or the like, an arching device comprising a spring-supporting bar suspended at about its central point of length and provided at each end with friction devices adapted when pressed against the check to buckle the same between them, the said support and arching device having relative movement toward and away from each other, substantially as and for the purpose set forth.

8. The combination of a suitable support or holder for a check or the

like, an arching device comprising a bar supported at about its center of length and provided at each end with spring-pressed flaps of rubber projecting toward each other and adapted when pressed against the check to buckle the same between them, the said support and arching device having relative movement toward and away from each other, substantially as and for the purpose set forth.

9. The combination of a suitable support or holder for a check or the like, an arching device comprising a suitable support or member provided with suitably-spaced friction members adapted to approach each other when pressed in contact with the check and thereby buckle the same between them, the said arching device adapted to move toward and away from the said check-supporting device so as to be pressed in contact with the check, substantially as and for the purpose set forth.

10. A device for lifting a check or the like, the same comprising a suitable member or frame having the ends thereof lying beyond the plane of the center portion thereof and adapted to be pressed in contact with the check, a grasping device mounted upon said member or frame at a point between its ends and out of the plane of such ends whereby when the check is held by the grasping device its ends are depressed, substantially as and for the purpose set forth.

11. A device for transferring checks or the like from a pile of the same to a point distant therefrom, such device comprising a carrier provided with means for arching the top check of the pile, mechanism for grasping the arched check, and a releasing device for depositing the said check when the carrier arrives at the distant point, substantially as and for the purpose set forth.

12. A device for transferring checks or the like from a pile of the same to a point distant therefrom, such device comprising a carrier traveling to and fro between the pile of checks and the distant point and having capacity of movement toward and away from the checks at right angles to its path of travel, means for forcing the carrier down upon the top check of the pile, said carrier being provided with means for arching the top check when forced against the same, mechanism for grasping the arched check, and a releasing device for depositing the said check when the carrier arrives at the distant point, substantially as and for the purpose set forth.

13. A device for transferring checks or the like from a pile of the same to a point distant therefrom, such device comprising a horizontally-swinging carrier-arm and means for swinging it to and fro, such carrier-arm having capacity of vertical movement and means for so moving it when brought over the pile of checks, the said carrier-arm being provided with means for arching and grasping the top check of the pile, and a releasing device for depositing the said check when the carrier arrives at the distant point, substantially as and for the purpose set forth.

14. A device for transferring checks or the like from a pile of the same to a point distant therefrom, such device comprising a horizontally-swinging carrier-arm having capacity of vertical movement when brought over the pile of checks and provided with means for arching and grasping the top one of the pile, a plunger-rod provided with an operating lever or treadle, connections between said plunger-rod and the swinging carrier-arm whereby the lifting of the plunger-rod serves to raise the carrier-arm from the pile of checks and then swing it over to the distant point and whereby the descent of the plunger-rod may swing the carrier-arm back and lower it onto the pile of checks, substantially as and for the purpose set forth.

15. A device for transferring checks or the like from a pile of the same to a point distant therefrom, such device comprising a horizontally-swinging carrier-arm having capacity of vertical movement when brought over the pile of checks and provided with means for grasping the top check of the pile, a plunger-rod provided with an operating lever or treadle, a fixed cylinder through which the plunger-rod works, said cylinder being provided with a guide-slot having a straight and a curved section, a loose sleeve mounted upon said cylinder and provided with a guide-pin projecting into the slot of said cylinder, the said carrier-arm being mounted upon said sleeve, substantially as and for the purpose set forth.

16. A device for transferring checks or the like from a pile of the same to a point distant therefrom, such device comprising the combination of a horizontally-moving carrier-arm having capacity of vertical movement when brought over the pile of checks or the like, means for moving said carrier-arm horizontally and vertically, a grasping device mounted upon said carrier-arm and provided with movable fingers for grasping a check or the like, mechanism for moving the fingers toward and away from each other, and connections between said finger-operating mechanism and the operating means of the moving arm, whereby as the carrier-arm descends the fingers move away from each other and then toward each other, substantially as and for the purpose set forth.

17. A device for transferring checks or the like from a pile of the same to a point distant therefrom, such device comprising the combination of a horizontally-moving carrier-arm having capacity of vertical movement when brought over the pile of checks, means for moving said arm horizontally and vertically, a grasping device mounted upon said arm and provided with movable fingers for grasping a check or the like, mechanism for moving said fingers toward and away from each other, the same comprising horizontally-moving slides, a vertically-moving bar, rockers connecting said bar and slides whereby the vertical movement of the bar may affect the horizontal movement of the slides, and a tilting rod connected with said vertically-moving bar and actuated by the operating means of said carrier-arm, substantially as and for the purpose set forth.

18. The combination of a suitable support or holder for a pile of checks or the like, a reciprocating carrier provided with means for grasping the top one of a pile of checks and a device for releasing said check, a movable table upon which the check is deposited upon being released by the carrier, an operating-lever and connections between the same and the said carrier for swinging the carrier to and fro and for actuating said grasping and releasing device, said connections actuating the said table to discharge therefrom the deposited check as the carrier returns with another check to the table, substantially as and for the purpose set forth.

19. A grasping and releasing device for a check or the like, the same comprising a vertically-reciprocating frame or member provided with suitably-spaced grasping-fingers projecting toward each other and adapted to move toward and away from each other to grasp and release the check, means for opening the fingers as the grasping device descends toward the check and then moving the fingers toward each other to grasp the check and subsequently to open the fingers again to release the check, substantially as and for the purpose set forth.

20. The combination of a suitable support or holder for a pile of checks or the like, means for arching the top one of the pile of checks, a grasping device comprising a suitable frame or member moving vertically toward and away from the pile of checks and provided with oppositely-arranged fingers projecting toward each other and adapted to move toward and away from each other so as to grasp the arched check when moved toward each other and to release the same when moved away from each other, slides upon which said fingers are mounted and means for actuating the slides to move the fingers toward each other as the said frame descends and subsequently to move the fingers away from each other, substantially as and for the purpose set forth.

21. The combination of a suitable support or holder for a pile of checks or the like, a carrier adapted to transfer the top check of the pile to a distant point and deposit it upon a table, a tilting table upon which the carrier deposits the check, said carrier having a reciprocating motion from a point above said support or holder to a point above said table, and means for tilting said table to discharge the deposited check after the carrier has moved away from the table, substantially as and for the purpose set forth.

22. The combination of a horizontally-swinging carrier-arm for transferring a check or the like from one point to another and depositing the same, means for moving said carrier-arm to and fro between said points, said carrier-arm being provided with means for engaging and lifting a check, a releasing device for depositing the same, a tilting table for receiving the check when deposited, connections between the said operating means for the swinging arm and the tilting table for actuating said table to discharge the check simultaneously with the swinging movement of the carrier-arm when approaching the tilting table, substantially as and for the purpose set forth.

23. The combination of a platform formed with a slot wider than the thickness of the check or card, an inclined tilting table hinged upon the platform adjacent to the slot so that a check or the like when resting upon the table has its lower edge lying within the slot in engagement with the side of the slot, and means for tilting the table to drop the check through the slot, substantially as and for the purpose set forth.

24. The combination of a suitable table or support upon which the checks are in turn deposited, and a separating device adapted to move over said table for engaging the check placed thereon and moving it or buckling it to expose a check that may accidentally be beneath the same and then engaging and holding the subjacent check while the other check is being removed or dislodged from said table or support, substantially as and for the purpose set forth.

25. The combination of a table having a tilting and a fixed part, a separating device adapted to engage a check when deposited on the table and to move it so as to expose a check that may accidentally be beneath it and then to engage and hold against the fixed part of said table the check lying beneath it, substantially as and for the purpose set forth.

26. The combination of an inclined table for receiving the check thereon and comprising a tilting part and a fixed part, a separating device arranged above the fixed part of said table and adapted to engage the check deposited on the table and to push it so as to expose a check that may accidentally lie beneath the same and then to engage and hold against the fixed part of the table the said exposed check and temporarily prevent its dislodgment by the movement of said tilting part of the table, substantially as and for the purpose set forth.

27. In a device for transferring checks and the like, a receptacle, an arm movable to and from the receptacle, and capable of both vertical and rotary movement, the said arm being provided with means for arching the central portion of the uppermost article on the receptacle, and clamping devices for engagement with the arched portion of the article, as described.

28. In a machine for transferring checks and the like, a receptacle, a transferring-arm having buckling and clamping devices, and means for rotating and lifting said arm, as set forth.

29. In a machine for transferring checks and the like, a receptacle, an arm capable of moving to and from the receptacle in a rotary and vertical direction, elastic gripping devices carried by said arm, and adjustable clamping devices also carried by said arm, the clamping devices being at an angle to the supports for the gripping devices, and means, substantially as described, for operating the clamping devices simultaneously with the operation of the said arm, as described.

30. In a device for transferring checks, a receptacle provided with guards, a dumping-table, an arm mounted to turn and also having vertical movement, means for operating the said arm, a spring-support carried by the arm and having elastic gripping devices at its ends, clamping devices likewise carried by the said arm, which clamping devices are at right angles to the support for the gripping devices, and mechanism for carrying the clamping devices in direction of each other when the arm is raised and for separating the clamping devices when the arm is lowered, as described.

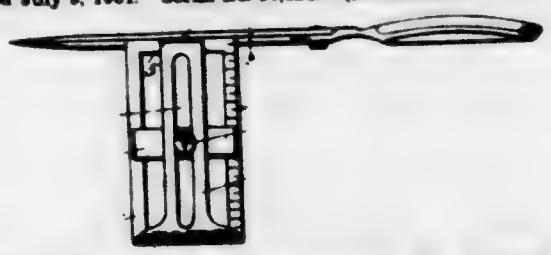
31. In a device for transferring checks, a receptacle for checks and the like, a dumping-table, a plunger-operated arm, which arm is capable of vertical and of rocking movement, gripping and clamping devices carried by the arm, a rod arranged to elevate the said plunger, and a projection from the said arm, arranged to operate the dumping-table, as set forth.

32. In a device for transferring checks and the like, an arm capable of vertical and of rotary movement, a head carried by the said arm, means for raising the said arm, gripping devices carried by the head of the arm, and operated by the mechanism controlling the movements of said arm, and a spring-support crossing the said head, and provided at its ends with spring controlled flexible grippers, for the purpose specified.

33. In a machine for transferring checks and the like, a cylinder having a slot produced therein, said slot having a straight body portion and a curved upper portion, a stop at the upper portion of said cylinder, a plunger held to slide in the cylinder, means for operating said plunger, a head provided with clamping devices, mechanism substantially as described, for operating the clamping devices by the movement of the plunger, and gripping devices carried by the said head, for the purpose set forth.

34. In a machine for transferring checks and for similar purposes, a dumping-table, a fixed section at an end of the table, having a roughened outer face, a trip device for the table, and a lip held to travel over the fixed section of the table and operated by the said trip device, as set forth.

692,578. SCISSORS-GAGE. FRANK C. WOLFF, Lajunta, Colo. Filed July 9, 1901. Serial No. 67,631. (No model.)

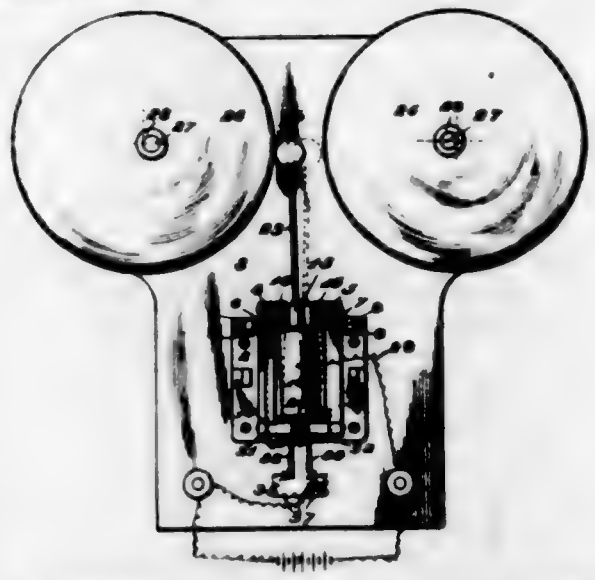


Claim.—In a device of the class described the combination of a gage-frame having parallel side bars and provided with means for attaching it to a scissors-blade, one of said bars having a scale thereon, a guide-plate parallel to said gage-frame and having a slot therein, a slide mounted between said gage-frame, and guide-plate, and a set-screw mounted in said slot and constructed to clamp said slide, substantially as described.

692,579. ELECTRIC GONG. JAMES A. WOTTON, Atlanta, Ga., assignor to Wotton Electric & Manufacturing Company, a Corporation of Georgia. Filed June 8, 1901. Serial No. 63,788. (No model.)

Claim.—1. An electric bell mechanism, comprising a permanent magnet, a vibrating core mounted therein, a coil surrounding the said core and made up of windings having opposite directions, and means for passing the current through first one winding and then the other in different directions from the source of energy to change the polarity of the core and vibrate the bell-tapper, substantially as described.

2. A bell mechanism, comprising gongs and a tapper, a permanent magnet, a core pivotally secured within the neutral portion of the magnet, and projecting outwardly between the poles of the magnet, a coil surrounding the core and having oppositely-wound portions, and means passing an electrical current through first one portion and then the other of the said coil to change the polarity of the core and vibrate the tapper, substantially as described.



3. A bell mechanism, comprising oppositely-arranged gongs, a tapper adapted to vibrate between them, a permanent magnet, a pivoted core mounted within the magnet and having its free end extending between the poles of the magnet and carrying the said tapper, set-screws bearing against each of the pole ends of the magnet for adjusting their position with respect to each other to give the tapper a proper limit of vibration, and means for adjusting the gongs after the limit of vibration for the tapper has been established to correspond with the stroke of the said tapper, substantially as described.

4. A bell mechanism, comprising gongs and a tapper, a pivoted core carrying the said tapper, and a permanent magnet surrounding the core, the said core being pivoted to the magnet at its neutral portion, the said magnet being formed of arms carrying pole-pieces and a plate interposed between and connecting the ends of said arms and forming the neutral portion of the magnet, said connecting-plate being provided with an aperture for receiving the pivoted end of the core, needle-points for pivotally holding the core in position in said neutral plate, means for adjusting one of the needle-points to properly hold the core in position, and means for changing the polarity of the core comprising a coil surrounding the same and suitable connections for transmitting currents of electricity thereto, substantially as described.

5. A bell mechanism, comprising a permanent magnet, means for adjusting the poles thereof with respect to each other, to give a bell-tapper a greater or less range of movement as desired, a pivoted core adapted to move back and forth between the poles of the magnet, a tapper carried by the said core, gongs arranged on each side of the tapper the said gongs being eccentrically mounted so that they may be adjusted, after the stroke of the tapper has been determined so as to correspond with said stroke, by turning them upon their supports, and means for vibrating the core, substantially as described.

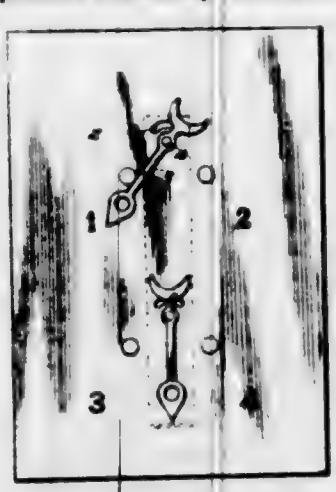
6. A bell mechanism, comprising a gong and tapper, a permanent magnet, a core pivoted therein so that its free end extends between the poles of the magnet, a coil surrounding the core and provided with windings extending in different directions, contact-springs carried by the pivoted end of the core and connected with the opposite windings of the coil, contacts for engaging said spring-pieces, and means for connecting both windings of the coil and both of the fixed contacts with a battery or other source of electrical energy, whereby a current of electricity will be sent alternately in different directions about the core for changing its polarity and vibrating the tapper, substantially as described.

692,580. ANNUNCIATOR. JAMES A. WOTTON, Atlanta, Ga., assignor to Wotton Electric & Manufacturing Company, a Corporation of Georgia. Filed June 10, 1901. Serial No. 63,990. (No model.)

Claim.—1. An annunciator having a face-plate, one or more pointers pivoted thereon, tangs carried by the said pointers extending through slots in the face-plate, means for drawing the pointers to one or more indications on the face-plate, and a movable slide having tang-engaging apertures formed with enlarged portions for permitting the setting of said pointers with their tangs, and with narrow portions for positively engaging the tangs and forcing the pointers to their normal non-indicating positions when said slide is moved, substantially as described.

2. In an annunciator the combination with a suitable casing of a face-plate mounted therein, one or more pointers or needles pivoted there-

on, electromagnets arranged upon either side of the said pointers for drawing them to certain indications on the face-plate, tangs formed upon the said pointers and projecting through segmental slots formed in the face-plate, and a reciprocating bar on the said face-plate formed with elongated slots having flaring portions adapted to coincide with the segmental slots in the face-plate, the said flaring portions being arranged to engage and force the tangs of the pointers to their normal positions when the said bar is reciprocated, substantially as described.



3. In an annunciator the combination with a suitable face-plate having indications thereon of a series of pointers pivotally suspended on the face-plate, electromagnets arranged behind the face-plate and having their poles extending through the same at the sides of the pointers for deflecting the pointers and drawing them toward the said indications, tangs upon the said pointers extending through elongated segmental slots made in the face-plate, a reciprocating bar or plate movably mounted on the pivots of the pointers to the rear of the face-plate and provided with elongated slots engaging the said pivots, the said slots having flared portions at their upper ends for accommodating the tangs in their movement with the pointers, the said flaring portions being adapted to lead the tangs back into the elongated portions of the slots when the reciprocating bar is raised whereby the pointers will be restored to their normal positions, and means extending outside the casing for operating the reciprocating bar, substantially as described.

4. In an annunciator the combination with a casing of a face-plate mounted therein, a series of pivoted indicating-pointers mounted thereon having tangs extending through the said plate, means for engaging the said tangs for positively resetting the pointers, magnets for drawing the pointers to indicating positions, a bell-operating magnet secured to a removable frame and mounted in the upper portion of the casing, contact-pieces on the said frame adapted to be secured to contact-pieces in the casing for removably holding the bell mechanism in the casing and at the same time completing a contact with the wiring of the said annunciator, the structure being such that the bell mechanism can be removed from the annunciator without disturbing the wiring thereof, substantially as described.

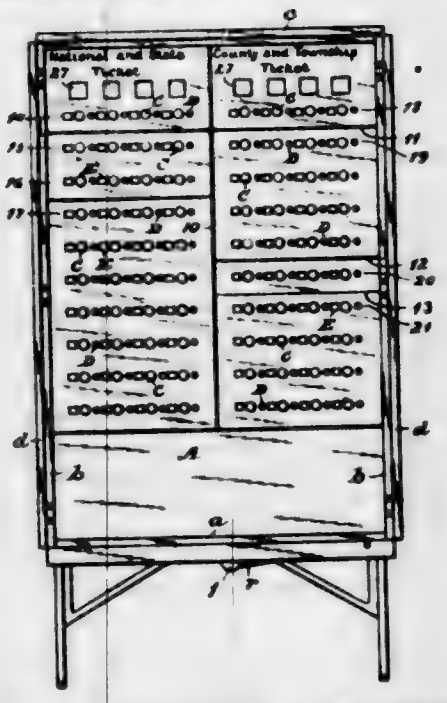
5. In an annunciator the combination with a face-plate of pivoted pointers mounted thereon, integral tangs formed on the pointers and extending rearwardly through segmental apertures in the face-plate, a vertically-moving slide arranged inside the face-plate and provided with elongated slots having flaring portions at their upper ends, said flaring portions coinciding with the segmental slots in the face-plate, and adapted to bring the tangs in a vertical line with the pivots of the pointers when the slide is raised, electromagnets having their poles extending through the face-plate at the sides of the pointers for drawing the said pointers to indications on the face-plate, a rod projecting through the bottom of the casing and adapted to engage the lower end of the slide, and an operating-knob on the lower end of said rod the structure being such that when the knob is lifted the rod will be forced inwardly and the slide will be correspondingly lifted to positively reset the annunciator-pointers, substantially as described.

692,581. VOTING-MACHINE. CHARLES M. WRIGHT, Anderson, Ind. Filed Apr. 5, 1900. Serial No. 11,783. (No model.)

Claim.—1. A voting-machine provided with a toothed escapement-wheel rotatably mounted, a sliding bolt having a lug engaging a tooth of the wheel, and a carrier whereby the lug may be disengaged from one tooth and engaged with an adjacent tooth of the wheel.

2. A voting-machine provided with a toothed escapement-wheel rotatably mounted, a knob whereby the escapement-wheel may be rotated, movable stops for the escapement-wheel, means whereby the movable stops may be controlled and operated, and a counter operated by the knob.

3. A voting-machine provided with a pivoted carrier, and a sliding bolt mounted on the carrier having a depending bar pivoted thereto and having a lug projecting therefrom.



4. A voting-machine provided with a rotating knob having a stem attached thereto, a toothed wheel attached to the stem, a sliding bolt drawn by the toothed wheel, and an indicator attached to the sliding bolt and operating at a sight-aperture.

5. A voting-machine provided with a pivoted carrier disposed horizontally, a bolt slidingly mounted upon the carrier, a vertical bar pivoted to the carrier, a rotatably-mounted toothed wheel engaging the bolt operatively, and means whereby the bolt may be locked to prevent rotation of the wheel.

6. A voting-machine provided with a series of pivoted carriers, a sliding bolt mounted on each carrier, a series of knobs having each a rotatably-mounted stem, a toothed wheel on each stem and engaging a sliding bolt, a bar pivoted to a series of pivoted carriers, a rocking bar pivoted and hinged to another series of the pivoted carriers and having an arm thereon, a series of sliding bars carried and operated by the rocking bolts and having each a lug adapted to oppose and also adapted to be opposed by the arms of the rocking bars, and a spring for the rocking bar.

7. A voting-machine provided with a series of pivoted carriers having each a sliding bolt mounted thereon, means for operating the bolts slidingly, indicators operated by the sliding bolts, a frame controlling the pivoted carriers and comprising a series of bars pivoted to numbers of the carriers and a rocking bar journaled in the frame and connected to other numbers of the carriers, restraining-springs for the sliding bolts, means for locking the sliding bolts whereby operation of the indicators is prevented, and means whereby the frame may be controlled.

8. A voting-machine including a series of sliding bolts, means for operating the sliding bolts, carriers for the sliding bolts, a frame connected to the carriers, sliding bars whereby the bolts may be locked, a ribbon guided by the frame and engaged operatively by the sliding bars whereby the operation of a limited number of sliding bars may be determined, and a gage for the ribbon.

9. A voting-machine including a case, a keyboard, a tally-board, knobs at the front of the keyboard having each a stem extending through the space between the keyboard and the tally-board, counters operated by the stems, toothed escapement-wheels attached to the stems, pivoted carriers mounted on the keyboard, sliding bolts mounted on the carriers and operated by the escapement-wheels and having each a pendent bar pivoted thereto and having also a stud projecting therefrom, sliding locking-bars extending across series of the sliding bolts longitudinally therewith and having slots engaged by the studs on such bolts whereby any one of the sliding bolts may move a sliding bar, studs or lugs attached to the sliding bars adapted to engage the pendent bars whereby the sliding bolts and the knobs may be locked, a skeleton frame connected to all the pivoted carriers and controlling their movements, and means for operating the frame.

10. A voting-machine including a knob having a stem rotatably mounted, a toothed wheel secured to the stem, a counter operated by the stem, a sliding bolt so engaging the toothed wheel as to stop the same without disengagement therewith, a stop for the sliding bolt, and means whereby the sliding bolt may be disengaged from one tooth and engaged with an adjacent tooth of such toothed wheel.

11. A voting-machine including a rotatably-mounted toothed wheel, a sliding bolt having a lug normally inserted between two teeth of such wheel, a sliding bar adapted to be moved by the sliding bolt and also

adapted to lock the sliding bolt against movement thereof, and means whereby the sliding bolt is prevented from moving while being locked.

12. A voting-machine including a case, a keyboard and a tally-board inclosed within the case, counters and operating mechanism therefor, locking mechanism for the operating mechanism, a frame connected to the locking mechanism, a spring operating upon the frame whereby the operating mechanism is held and locked in inoperative positions, and means whereby the frame may be shifted and release the locking and operating mechanism.

13. A voting-machine including a keyboard, a series of rotating keys mounted on the keyboard, a label-frame at each key, a sight-aperture at each key, an indicator behind the keyboard at each sight-aperture, a stem for each key, an escapement-wheel on each stem, and a sliding bolt operated by the escapement-wheel and controlling the indicator.

14. A voting-machine including a keyboard divided into vertical sections, mechanism for each section divided into horizontally-disposed sections and comprising rotating keys and stems, escapement-wheels on the stems, counters operated by the stems, pivoted carriers, a frame controlling the carriers, sliding bolts on the carriers engaging the escapement-wheels, an indicator carried by each sliding bolt, a sliding bar whereby the operation of one sliding bolt in a section shall lock all other sliding bolts and rotating keys in such horizontal section, and means whereby the operation of one sliding bar shall lock other sliding bars against operation thereof.

15. A voting-machine including a rotatably-mounted toothed escapement-wheel, means for rotating the escapement-wheel, a sliding bolt operatively engaging a tooth of the escapement-wheel, a counter operatively connected with the escapement-wheel, a sliding bar adapted to be moved by the sliding bolt and also adapted to lock the sliding bolt against movement thereof, a pivoted carrier for the sliding bolt, stops for the sliding bolt, stops for the sliding bar, means whereby the sliding bar may be normally held against one of the stops therefor, and means whereby the sliding bolt may be shifted from one tooth to another tooth of the escapement-wheel.

16. A voting-machine including toothed escapement-wheels rotatably mounted, means for rotating the escapement-wheels separately, a sliding bolt for each escapement-wheel and operatively engaging a tooth thereof whereby the movement of the wheel may be limited, a counter for each escapement-wheel and operatively connected therewith, stops automatically locking the counters and the escapement-wheels against backward movement thereof, pivoted carriers supporting the sliding bolts, a frame connecting all the pivoted carriers whereby the sliding bolts may be disengaged from the teeth of the escapement-wheels and again engage with other teeth thereof, sliding bars adapted to be moved by the sliding bolts and also adapted to lock other sliding bolts, and means whereby the frame may be controlled.

17. In a voting-machine, the combination with the keyboard, of the axial studs secured to the keyboard, carriers pivotally mounted on the studs and each consisting of a bar provided with guides at the top thereof and a projecting lug at one end thereof and having the centrally-disposed journal-bearing engaging one of such studs, a pivot-pin at the end of the carrier opposite the lug, bolts slidingly mounted in the guides upon such carriers and each consisting of a bar having an upturned lug at one end thereof and a bar pivoted to the opposite end thereof and normally hanging over the end of the carrier having the pivot-pin, an escapement-wheel operating to slide such bolt and draw such pivoted depending bar upon the carrier, and a locking-bar adapted to operate against such depending bars whereby such sliding bolts and such connecting escapement-wheels may be locked.

18. In a voting-machine, the combination with the keyboard, of pivoted carriers mounted on the board, sliding bolts mounted on the carriers, rotating toothed wheels engaging the sliding bolts operatively and secured each to a rotating stem or shaft, counters connected with the stems, bars included in a frame and pivoted to a series of the carriers, rocking bars also included in the frame and pivoted to other series of the carriers, pendent bars pivoted to the sliding bolts, arms attached to the rocking bars, sliding locking-bars adapted to engage the pendent bars and having lugs adapted to oppose and be opposed by the arms of the rocking bars, and pivoted pawls connected operatively with the bars included in the frame and adapted to lock such toothed wheels.

19. In a voting-machine, the combination with the keyboard, of pivoted carriers, a frame comprising bars pivoted to carriers and end coupling-bars and jointed rocking bars journaled in the end coupling-bars and pivoted also to other carriers and provided with extending arms, sliding bolts on the carriers, toothed wheels engaging the sliding bolts, locking-bars controlled by the sliding bolts and also adapted to lock the sliding bolts whereby the toothed wheels are locked and having lugs or studs adapted to engage the extending arms, and means whereby the frame may be operated and controlled.

20. In a voting-machine, the combination of the case, the keyboard, the tally-board, the knobs, the stems, the escapement-wheels, the counters, the pivoted carriers, the sliding bolts having the lug and the pendent bar, the indicators carried by the sliding bolts, the restraining-springs for the sliding bolts, the sight-apertures in the keyboard and in the tally-board, the frame connected to the pivoted carriers and including the rocking bars having the extending arms, the sliding locking-bars having the lugs or studs adapted to engage with the extending arms and having also the studs adapted to bear against and restrain the pendent bars, the springs at the ends of the locking-bars, the spring acting upon the frame, the cable connected to the frame, and the folding door connected to the cable, substantially as set forth.

21. In a voting-machine, the combination with the locking-bars and the shifting frame, of the ribbon whereby the locking-bars are stopped, the guides for the ribbon, and the gage for the ribbon, substantially as set forth.

22. In a voting-machine, the combination of a case, a keyboard, a tally-board, a series of counters, rotatably-mounted keys operatively connected with the counters and provided each with an escapement-wheel, sliding bolts engaging the escapement-wheels and adapted to be moved thereby to permit the counters to register, stops whereby each movement of an escapement-wheel shall limit the movement of a counter, stops for preventing reverse movements of the counters, rocking carriers supporting the sliding bolts whereby the bolts may be disengaged from the escapement-wheels after a partial rotation thereof and be permitted to shift to new positions to again engage such wheels at different points, locks whereby the counters may be prevented from advance movements while such sliding bolts are being shifted, indicators operatively connected with such keys, a frame connected to all the rocking carriers whereby they may be controlled and operated so as to permit movement of such sliding bolts, means whereby such sliding bolts may be automatically shifted when released from such escapement-wheels to their normal positions for reëngagement with such wheels, stops for such sliding bolts, means whereby such frame may be held in a position whereby such sliding bolts shall be disengaged from such escapement-wheels, a counter operated by such frame, and means whereby such frame may be shifted to cause such sliding bolts to engage such escapement-wheels, substantially as set forth.

23. In a voting-machine, the combination of a case, a keyboard, a tally-board, a series of counters, knobs or keys for operating the counters, escapement-wheels operated by the knobs, sliding bolts operating with the escapement-wheels, pivoted carriers supporting the sliding bolts, a frame connected to the pivoted carriers, a spring acting against the frame, a door hinged to the case, a cable attached to the frame and to the door, and pulleys for the cable, substantially as set forth.

24. In a voting-machine, the combination of a case, a keyboard, knobs or keys rotatably mounted in the keyboard, labels for the keys, counters for the keys and operated thereby, indicators for the keys and operated thereby, escapement-wheels operated by the keys, sliding bolts operating with the escapement-wheels, carriers whereby the sliding bolts may be engaged and disengaged with the escapement-wheels, a frame connected to all the carriers, means acting upon the frame so as to normally prevent engagement of the sliding bolts with the escapement-wheels, and means whereby the frame may be forcibly shifted so as to cause the sliding bolts to engage the escapement-wheels and maintain such engagement while such counters are being operated, substantially as set forth.

25. In a voting-machine, the combination of a case, a keyboard having sight-apertures, a tally-board having sight-apertures, counters operating at the sight-apertures in the tally-board, knobs or keys rotatively mounted in the keyboard, label-frames on the keyboard, indicators operated by the keys at the sight-apertures in the keyboard, means whereby the rotation of the keys may be limited to predetermined distances of travel, locks for the keys whereby reverse movements thereof shall be prevented, a frame operatively acting to prevent rotation of the keys and whereby the keys may be released and permitted to operate the counters, and a counter operated by the frame, substantially as set forth.

26. In a voting-machine, the combination of a case, a keyboard, a tally-board, counters connected with the tally-board, keys rotatably mounted in the keyboard and having each a stem connected with a counter, escapement-wheels attached to the stems, bolts engaging the escapement-wheels and limiting the movement thereof, locks adapted to secure the keys after having been rotated, locks whereby the operation of one escapement-wheel shall lock a predetermined number of other escapement-wheels, and means whereby the bolts may be disengaged from the escapement-wheels and again placed in engagement therewith at differing points of contact, substantially as set forth.

27. In a voting-machine, the combination of a case, a keyboard, a tally-board, a series of counters provided each with a knob or key rotatably mounted in the keyboard, a series of toothed escapement-wheels each operatively connected with a counter, a series of pivoted carriers each provided with means whereby the teeth of the escapement-wheels may be successively engaged as the wheels are intermittently rotated, a frame connected to all the pivoted carriers, means for controlling the carriers so that the escapement-wheels may be engaged by the escape-

ployed therefor, and locks whereby the operation of one escapement-wheel shall prevent the operation of other escapement-wheels, substantially as set forth.

28. In a voting-machine, the combination with a rotating counter, of a rotating stem or shaft operatively connected to the counter, frictional stops whereby the counter shall be prevented from accidentally operating, stops whereby the counter shall be prevented from operating backward, a toothed escapement-wheel mounted so as to rotate in unison with the counter, means whereby the stem may be rotated manually, a pivoted carrier, a sliding bolt supported by the carrier and operating in connection with the escapement-wheel, stops for the bolt, a spring connected to the carrier and also to the bolt, and an indicator controlled by the stem and operating simultaneously with the counter, substantially as set forth.

29. In a voting-machine, the combination with a series of counters, of a series of knobs or keys rotatably mounted and having operative connections with the counters, toothed escapement-wheels, a series of pivoted carriers, a series of sliding bolts on the carriers provided each with a pendent bar pivoted at one end thereof and normally hanging over an end of the carrier, locking-bars extending longitudinally with a series of the carriers and adapted to be shifted by either of the sliding bolts in the series, and lugs or arms attached to the locking-bars and adapted to engage the pendent bars and retain them against the ends of the carriers whereby operation of the counters connected with such bolts having the locked bars shall be prevented, substantially as set forth.

30. In a voting-machine, the combination of a case, a keyboard, a tally-board, counters mounted on the tally-board and comprising each a series of concentric rings and a central disk having a projecting hub, a rotating stem for each counter and connected therewith and extending through the keyboard, a knob or key attached to each stem, an escapement-wheel for each stem or knob, a lug operating with each escapement-wheel, a carrier and controller for each lug, a frame connected to all the carriers and controllers, a locking-bar for a series of lugs adapted to be operated by the action of any one lug of a series whereby the remaining lugs of the same series shall be locked, a door acting as a lever, and a cable connected to the frame and also to the door or lever, substantially as set forth.

31. In a voting-machine, the combination of a pivoted carrier, a bolt slidingly mounted on the carrier, a bar attached to the bolt whereby the same may be locked, a rotatably-mounted toothed wheel engaging the bolt operatively, a stop for the bolt whereby the movement of the wheel shall be limited, and a counter operatively connected with the toothed wheel.

32. In a voting-machine, the combination of a case, a keyboard, a tally-board, counters mounted on the tally-board, knobs or keys mounted on the keyboard and operatively connected with the counters, escapement-wheels operated by the knobs or keys, lugs operating with the escapement-wheels, carriers for the lugs, locking-bars for the lugs, and means whereby the operation of a predetermined number of locking-bars shall cause the remaining locking-bars to be locked.

33. In a voting-machine, the combination with the counters, of the keys operatively connected with the counters, the escapement-wheels, the lugs operating with the escapement-wheels whereby movement of the counters shall be limited, carriers for the lugs, a frame connected to all the carriers, locking-bars sliding across the frame and operated by movement of the lugs and also adapted to prevent movement of the lugs and also of the escapement-wheels, guides attached to the frame, guides attached to the locking-bars, and a ribbon or its equivalent anchored to the frame and extending through the guides and adjustably secured so as to provide more or less slack therein whereby the operation of a limited predetermined number of the locking-bars may be permitted and the remaining locking-bars be locked.

34. In a voting-machine, the combination of the case, the keyboard, the tally-board, the counters, the keys, the escapement-wheels, the sliding bolts, the pivoted carriers, the indicators, the frame connected to the carriers, the doors inclosing the tally-board, the doors covering the keyboard, the cable connected to said frame and also to one of said doors, and the guide-pulleys for the cable, substantially as set forth.

35. In a voting-machine, the combination of a keyboard, a tally-board, counters mounted on the tally-board, rotative stems mounted in the keyboard and connected with the counters, escapement-wheels operated by the rotative stems, means whereby portions of the escapement-wheels may be intermittently engaged, indicators controlled by the stems, and means whereby the stems may be actuated.

36. In a voting-machine, a plurality of series of ballot-counters, each series independently interlocked, in combination with a series of movable parts, one for each series of interlocking devices and coöperating therewith and actuated in unison with any one of the counters in the series therewith, a flexible ribbon so mounted as to provide a variable length between its supports and connected with said movable parts so that a predetermined number of said movable parts may be permitted to operate and the remainder be locked, whereby the number of counters operated in a given number of series collectively may be limited.

37. In a voting-machine, the combination of a plurality of series or rows of counters, independent interlocking devices for the counters of each series including movable bars each actuated in unison with any one of the counters in the series with said bar, a series of independent stops for the movable bars whereby the number of counters operated in a series or row may be limited, and a flexible ribbon slidingly mounted in fixed guides and slidingly connected with said movable bars and so anchored at the ends thereof that a predetermined number of said bars may be operated and the remainder thereof be locked together with corresponding numbers of the counters in a given number of series or rows collectively.

38. In a voting-machine, a plurality of series of ballot-indicators, each series independently interlocked, in combination with a series of movable parts, one for each series of interlocking devices and coöperating therewith, a flexible chain controlling said movable parts, whereby the number of ballot-indicators operated by the voter in a given number of series collectively may be limited.

692,582. **DENTAL INSTRUMENT.** NEWTON T. YAGER, Louisville, Ky. Filed May 23, 1901. Serial No. 61,537. (No model.)



Claim.—1. A dental instrument having a plug-carrier, and interchangeable plugs adapted to be seated on said carrier and arranged to receive the bands, caps or crowns to be forced on the teeth, as set forth.

2. A dental instrument, comprising a handle, a plug-carrier on said handle and extending at an angle thereto, and a plug seated on said carrier for receiving a band, cap or crown to be forced on a tooth, as set forth.

3. In a dental instrument, a handle, and a plug removably carried by the handle and adapted to receive the band cap or crown to be forced on a tooth, as set forth.

4. A dental instrument, comprising a handle having a socket at one end, and a plug-carrier having an angular shank for engaging said socket, said carrier having a plurality of apertures for receiving interchangeable plugs, as set forth.

5. A dental instrument having a handle provided with a socket at one end, a plug-carrier having an angular shank for engaging said socket, means for fastening the carrier in position, the carrier having a plurality of apertures of different sizes, and plugs adapted to be seated on said carrier at said apertures, as set forth.

6. A dental instrument, comprising a handle having a finger-piece and a socket at one end of the handle, a plug-carrier having an angular shank adapted to engage the socket, and means for securing the shank and carrier in place after the same are adjusted to the desired normal position relatively to the finger-piece, as set forth.

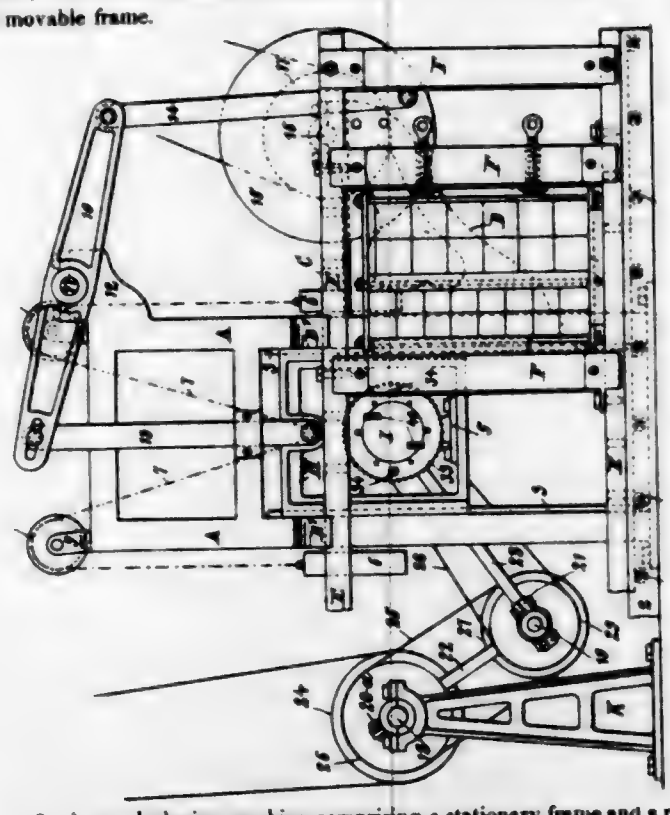
7. In a dental instrument, a handle formed at its outer end with a finger-piece and having a central socket, the said handle being adapted to carry a plug to receive the band, cap or crown to be forced on a tooth, as set forth.

692,583. **WOODWORKING-MACHINE.** FRANK E. ZIMMERMANN, New York, N. Y. Filed Jan. 21, 1901. Serial No. 44,000. (No model.)

Claim.—1. A woodworking-machine comprising a frame, a shaft mounted therein, a cutter-head set on the shaft and comprising a block, a circular saw secured to the block and projecting beyond its circumference, cutters secured to the block on the rear side of the saw and having their cutting edges set parallel to, and beyond the teeth of the saw and planing-cutters secured to the block with their edges projecting forward beyond the plane of the saw in a line progressively ascending from the lateral edge of the teeth of the saw toward the center of the cutter-head, guides secured to the frame of the machine in a line parallel to the progressively-ascending line on the edges of the saw and of the cutters set in the cutter-head, substantially as described; a frame for holding the material to be operated upon by the cutter-head, set movably in the guides and means for rotating the shaft.

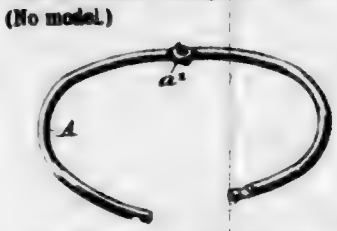
2. A woodworking-machine comprising a stationary frame, a reciprocating frame movably mounted therein, a shaft mounted in the reciprocating frame; a cutter-head secured to the shaft and comprising a block, a circular saw secured to the block and projecting beyond its circumference, cutters secured to the block on the rear side of the saw and having their cutting edges set parallel to, and beyond the teeth of the saw and planing-cutters secured to the block with their edges projecting forward

beyond the plane of the saw in a line progressively ascending from the lateral edge of the teeth of the saw toward the center of the cutter-head, guides secured to the stationary frame of the machine in a line parallel to the progressively-ascending line of the edges of the saw and of the cutters set in the cutter-head, substantially as described; a frame for holding the material to be operated upon by the cutter-head, set movably in the guides; means for rotating the cutter-head and means for reciprocating the movable frame.



3. A wood-planing machine comprising a stationary frame and a reciprocating frame, a shaft mounted in the reciprocating frame, a rotary cutting device secured to the shaft and provided with sawing and planing tools arranged progressively in a line rising from the periphery toward the center of the rotary cutting device; guideways secured to the stationary frame and set in a line parallel to the line marked by the edges of the different tools in the rotary cutting device; a frame for feeding the material to be operated upon by the rotary cutting device set movably in the guideways; means for reciprocating the movable frame and means for rotating the shaft.

692,584. METAL RING FOR TEMPORARY BINDING. HENRY T. ADAMS and OTTO KELLNER, Chicago, Ill. Filed May 31, 1901. Serial No. 62,646. (No model.)

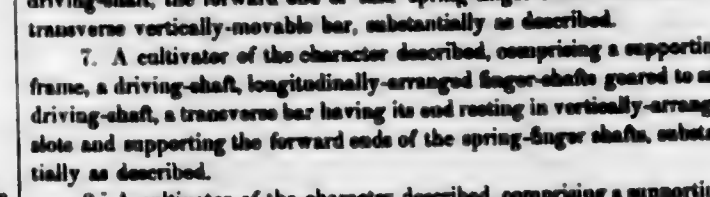


Claim.—1. A spring-metal ring for temporary binders and the like formed of sections laterally pivoted together at one end, and each provided on one side at the free end with an interlocking or notched face located in a plane intersecting the axis of the ring, which free confronting ends, in open position, stand in offset relation with said notched faces remote from each other but, by lateral stress, are brought together with said notched faces adjacent each other and interlocked, whereby said ring-sections are positively placed under torsional strain to hold the parts in interlocked position.

2. A spring-metal ring for temporary binders and the like formed of sections having flattened ends, overlapped and laterally pivoted together, each of said sections having a "plain side" and an "interlocking side," said "plain sides" abutting at the pivot-point and said "interlocking sides" provided at the free ends with interlocking or notched faces located in planes intersecting the axis of the ring, which free confronting ends, in open position, stand in offset relation with said notched faces remote from each other but, by lateral stress, are brought together with said notched faces adjacent and interlocked, whereby said ring-sections are positively placed under torsional strain to hold the parts in interlocked position.

3. A spring-metal ring for temporary binders and the like formed of sections having flattened ends, overlapped and laterally pivoted together, each of said sections having a "plain side" and an "interlocking side," said "plain sides" abutting at the pivot-point and said "interlocking sides" provided at the free ends with interlocking or notched faces located in planes intersecting the axis of the ring, which free confronting ends, in open position, stand in offset relation with said notched faces remote from each other but, by lateral stress, are brought together with said notched faces adjacent and interlocked, whereby said ring-sections are positively placed under torsional strain to hold the parts in interlocked position, said flattened pivoted ends being expanded or enlarged in the direction of the plane of the ring to resist such torsional strain.

692,585. CANE-STUBBLE CLEANER. WILLIAM H. ADAMS, Lafayette, La., assignor of one-half to F. Fidel Lombard, Lafayette, La. Filed Sept. 24, 1901. Serial No. 76,620. (No model.)



Claim.—1. A cultivator of the character described, comprising a supporting-frame, a driving-shaft, a longitudinally-arranged spring-finger shaft geared to the driving-shaft, the forward end of the spring-finger shaft having a vertical movement, substantially as described.

2. A cultivator of the character described, comprising a supporting-frame, a driving-shaft, parallel longitudinally-arranged spring-finger shafts geared to the driving-shaft, and a plurality of transversely-arranged spring-fingers supported by each of said longitudinal shafts, substantially as described.

3. A cultivator of the character described comprising a supporting-frame, a driving-shaft, longitudinally-arranged parallel spring-finger shafts geared to the driving-shaft, each spring-finger shaft provided with a plurality of transversely-arranged spring-fingers, the said spring-fingers arranged upon each shaft in spiral relation, substantially as described.

4. A cultivator of the character described comprising a supporting-frame, a driving-shaft, parallel-arranged longitudinal spring-finger shafts geared to the driving-shaft, a transversely-arranged vertically-movable bar carrying journals for the forward ends of the spring-finger shafts, and springs serving to hold the transversely-arranged bar normally in its downward position, substantially as described.

5. A cultivator of the character described comprising a supporting-frame, a driving-shaft, a longitudinally-arranged spring-finger shaft geared to the driving-shaft, and a plurality of spring-fingers carried by the said longitudinal shaft, the spring-fingers consisting of an intermediate spiral and straight ends, substantially as described.

6. A cultivator of the character described, comprising a supporting-frame, a driving-shaft, longitudinally-arranged finger-shafts geared to said driving-shaft, the forward end of said spring-finger shafts mounted on a transverse vertically-movable bar, substantially as described.

7. A cultivator of the character described, comprising a supporting-frame, a driving-shaft, longitudinally-arranged finger-shafts geared to said driving-shaft, a transverse bar having its end resting in vertically-arranged slots and supporting the forward ends of the spring-finger shafts, substantially as described.

8. A cultivator of the character described, comprising a supporting-frame, a driving-shaft, longitudinally-arranged finger-shafts geared to said driving-shaft, a transverse bar having reduced outer ends resting in vertically-arranged slots carried by the frame, and said bar supporting the forward end of the finger-shafts, substantially as described.

9. A cultivator of the character described comprising a supporting-frame, a driving-shaft, longitudinally-arranged finger-shafts geared to said driving-shaft, a transverse bar having its ends resting within vertically-arranged slots carried by the frame and said bar supporting the forward end of the finger-shafts, and springs within said slots above said bars, substantially as described.

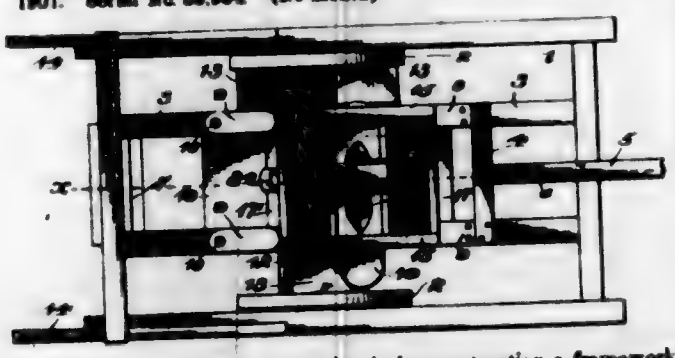
10. A cultivator of the character described, comprising a supporting-frame, a driving-shaft, longitudinally-arranged finger-shafts geared to the driving-shaft and having transverse openings therein, spring-fingers passing through said openings and means for securing said fingers therein, substantially as described.

11. A cultivator of the character described, comprising a supporting-frame, a driving-shaft, longitudinally-arranged finger-shafts geared to the driving-shaft, and having transverse openings therein, spring-fingers passing through said openings, and set-screws intersecting said openings and adapted to secure said fingers therein, substantially as described.

12. A cultivator of the character described, comprising a supporting-frame, a driving-shaft, longitudinally-arranged finger-shafts geared to the driving-shaft and having transverse openings therein, spring-fingers con-

sisting of an intermediate spiral and straight ends, said ends adapted to enter the openings in the finger-shafts, and means for securing said fingers therein, substantially as described.

892,586. CORN AND COTTON PLANTER AND FERTILIZER-DISTRIBUTER. REUBEN M. ALDRIDGE, Walthall, Miss. Filed Apr. 1, 1901. Serial No. 53,984. (No model.)



Claim.—1. A planter, comprising in its construction a framework, traction-wheels supporting the same, rearwardly-extending lugs carried by said framework adapted to securely hold the front edge of a hopper, pivoted buttons secured to the frame and adapted to engage and retain the rear edge of a hopper, a plurality of hoppers having forwardly and rearwardly extending flanges for engaging said lugs and buttons so as to be capable of interchangeable application to said framework, one of said hoppers only being applied at a time, means within each of said hoppers for dropping the material contained thereby, and means for operating said dropping means, substantially as described.

2. A planter comprising a framework supported by suitable wheels, a hopper carried by said framework, and having a slotted primary bottom, an apertured secondary bottom, the edges thereof extending beyond the edges of the primary bottom, means carried by said framework for engaging said projecting edges for retaining said secondary bottom in position, a slide operating in the slot of said primary bottom for carrying the contents of said hopper into register with the aperture of the secondary bottom, and means carried by said wheels for operating said slide, substantially as described.

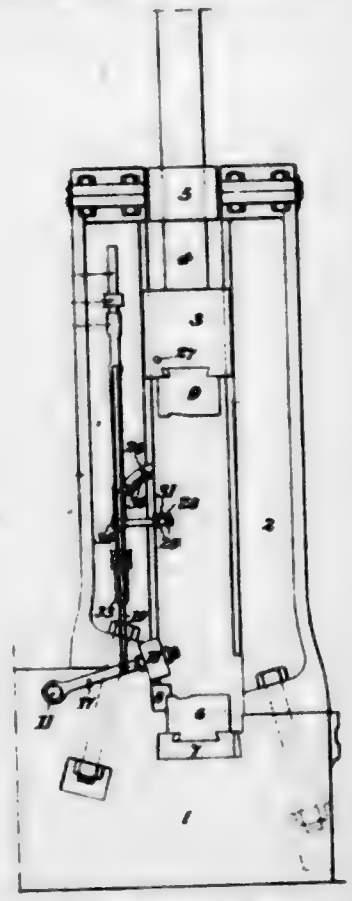
3. A planter, comprising a framework having longitudinal, parallel beams, and wheels supporting the framework, a hopper carried by said framework, consisting of suitable sides, a slotted primary bottom, a slide moving in said slot, an apertured secondary bottom, having its front and rear edges projecting beyond the edges of said primary bottom, and a third bottom formed with an aperture registering with the aperture of the secondary bottom, the said third bottom being secured to and of less width than the secondary bottom and adapted to fit between said parallel beams for preventing lateral movement of the hopper, the secondary bottom resting upon said framework, means carried by the framework for retaining said secondary bottom against longitudinal movement, and means for operating said slide for bringing the contents of the hopper into register with the apertures of the secondary and third bottoms, substantially as described.

4. A planter comprising a suitable framework supported by traction-wheels, a hopper supported upon said framework having sides, a slotted primary bottom, a secondary bottom beneath the primary bottom and formed with an elongated aperture extending transversely of the slot of the primary bottom, a slide operating within said aperture and adapted to close the same, a slide operating in the slot of said primary bottom and adapted to carry a quantity of the contents of said hopper into register with the aperture of the secondary bottom, means for limiting said quantity, and means for operating the slide of said primary bottom, substantially as described.

5. A planter, comprising a framework, traction-wheels at either side thereof carrying the same, an axle connecting and rigidly secured to said wheels and supporting said framework, a crank formed in the length of said axle near one of said wheels, cam-blocks secured to the wheel at the crank end of said axle having their flat faces resting against said crank, cam-blocks carried by the opposite wheel on that diameter of the wheel opposite that of the first-mentioned wheel occurring between the cam-blocks thereof, whereby rotation of said wheels will present alternate cam-blocks at each quarter-revolution, a hopper mounted upon said frame between said wheels, and a slide extending transversely thereof and operating within the same for dropping its contents, the ends of said slide projecting beyond the sides of said hopper and being adapted to be alternately struck by the said cam-blocks, substantially as described.

692,587. PRESS FOR FORGING AXES, &c. REMER P. ALEXANDER, Youngstown, Pa. Filed July 22, 1901. Serial No. 69,248. (No model.)

Claim.—1. In a press for forging axes and other like tools, the combination with the dies open at one side, when in contact, to form the die-cavity, means for moving the dies into contact to forge a blank within the die-cavity, a head-block for closing the opening in the die-cavity, and mechanism operated by a moving part of the press to advance the head-block to receive the thrust of expanding metal during the adverse movement of said head-block, substantially as described.



2. In a press for forging axes and like tools, the combination with the dies forming a die-cavity open at one side, means for forcing the dies into contact to forge a blank held therein, of a head-block adapted to close the open side of the die, and mechanism for advancing the head-block to receive the thrust of expanding metal during the advance movement of said head-block, substantially as described.

3. In a drop-forge press for forging axes and the like, the combination with the lower die fixed to the base structure, a hammer carrying an upper die, said dies forming a die-cavity open on the head end, of a head-block adapted to close said opening; and connections between the hammer and said block for causing the said block to advance to receive the thrust of expanding metal in the die-cavity, during the advance movement of the head-block, whereby the head of the tool is squared, substantially as described.

4. In a drop-forge press for forging axes and the like, the combination with the lower die fixed to the base structure, a hammer carrying an upper die, said dies forming a die-cavity open at the head, when in contact, of a header-arm terminating in a head-block operating to close the head-opening in the die-cavity, a cam engaging said header-arm, and connections between said cam and hammer for causing the arm to advance to receive the thrust of expanding metal in the die, during the advance movement of the head-block, substantially as described.

5. In a drop-forge press for forging axes and the like, the combination with the dies forming a die-cavity open at the head, and operating parts for forcing the dies together, of a head-block adapted to close the opening in the die-cavity, and mechanism operated by a moving part of the press to advance the head-block to receive the thrust of expanding metal in the die-cavity, during the advance movement of the head-block, substantially as described.

6. In a drop-forge press for forging axes and the like, the combination with the dies, forming a die-cavity open at the head, a hammer carrying one of the dies, and a header-arm terminating in a head-block for closing said head-opening, of means controlled by the movement of the hammer for advancing the head-block to receive the thrust of expanding metal in the die-cavity, during the advance movement of the head-block, substantially as described.

7. In a drop-forge press for forging axes and the like, the combination with the dies, forming a die-cavity open at the head, a hammer carrying one of the dies, a header-arm terminating in a head-block adapted to close the said head-opening, of a cam engaging the header-arm, and lever mechanism between the cam and hammer controlled by the movements of the hammer to cause said cam to advance the head-block to re-

ceive the thrust of metal in the die-cavity, as the hammer forces its die into contact with the other die, substantially as described.

8. In a drop-forge press for forging axes and the like, the combination with the dies, forming a die-cavity open at the head, a hammer carrying one of the dies, a header-arm terminating in a head-block adapted to close the said head-opening, of a cam rotatably mounted in the base structure and engaging the header-arm, a guide rod slidably mounted on the press structure, connections between said rod and the cam, and mechanism connected to the rod and adapted to be operated by the hammer as the latter delivers its blow, whereby the said head-block is advanced to receive the thrust of metal in the die-cavity, substantially as described.

9. In a drop-forge press for forging axes and the like, the combination with the dies, forming a die-cavity open at the head, a hammer carrying one of the dies, a header-arm terminating in a head-block adapted to close the said head-opening, of a shaft journaled in the base structure, a cam on said shaft engaging the header-arm, an arm on the shaft, a guide-rod slidably mounted in the press structure, a link connecting the cam-shaft arm and the guide-rod, a toggle-lever having one member fulcrumed on the press and the other member connected to the guide-arm, and extensions from said toggle-lever mechanism, and a pin on the hammer adapted to engage one of said extensions, as the hammer delivers its blow, and to engage the other extension, as the hammer is withdrawn, substantially as described.

10. In a drop-forge press for forging axes and the like, the combination with the dies, forming a die-cavity open at the head, a hammer carrying one of the dies, a header-arm terminating in a head-block adapted to close the said head-opening, of a cam engaging the header-arm, a guide-rod slidably mounted in the press structure, and connections between the cam and guide-rod, a toggle-lever having one of its members fulcrumed on the press structure, and its other member pivotally connected with the guide-rod, a pin on the hammer, and an arm laterally projecting from the latter member of the toggle-lever into the path of the pin on the hammer in its descent, and a curved arm normally out of range of said pin when the hammer is raised, but in the path of said pin after the hammer delivers its blow, substantially as described.

11. In a drop-forge press for forging axes and the like, the combination with the dies, forming a die-cavity open at the head, a head-block for closing said opening, and a hammer for closing the dies together, of mechanism for advancing the head-block to receive the thrust of metal in the die, as the blow is delivered, operated intermittently by said hammer, and a buffer between the hammer and the said head-block-advancing mechanism, substantially as described.

12. In a drop-forge press for forging axes and the like, the combination with the dies, forming a die-cavity open at the head, a head-block for closing the said opening, of mechanism having a part adapted to be engaged by the hammer in its descent to cause the head-block to advance into the die-cavity, when the blow is delivered, and a spring-buffer on said part with which the hammer engages, substantially as described.

13. In a drop-forge press for forging axes and the like, the combination of the dies, forming a die-cavity open at the head, a hammer having a projection thereon, a head-block adapted to close the head-opening, a lever mechanism, for advancing the head-block into the die-cavity as the blow is delivered, interposed between the hammer and the head-block and having an arm extending into the path of the projection on the hammer and provided with a buffer for receiving the shock of contact, substantially as described.

692,588. SODIUM SULFOGUAIACOLATE AND PROCESS OF MAKING SAME. WILLIAM C. ALPERS, Bayonne, N. J. Filed May 8, 1901. Serial No. 59,319. (No specimens.)

Claim.—1. As a new article of manufacture, the above-described sodium sulfo-guaiacolate, which appears as a fine crystalline grayish-white powder which dissolves readily in water but sparingly in alcohol, is insoluble in ether, and its solution is colored violet upon the addition of tincture of chlorid of iron.

2. The process for the manufacture of sodium sulfo-guaiacolate, consisting in treating guaiacol with sulfuric acid to form a thick red mass, subjecting this mass to the action of calcium carbonate, to form calcium sulfo-guaiacolate, precipitating the calcium sulfate, and then treating the solution with sodium carbonate, to precipitate calcium carbonate and to produce sodium sulfo-guaiacolate in solution containing two different guaiacol salts, and finally separating the two salts to produce sodium sulfo-guaiacolate in crystalline form.

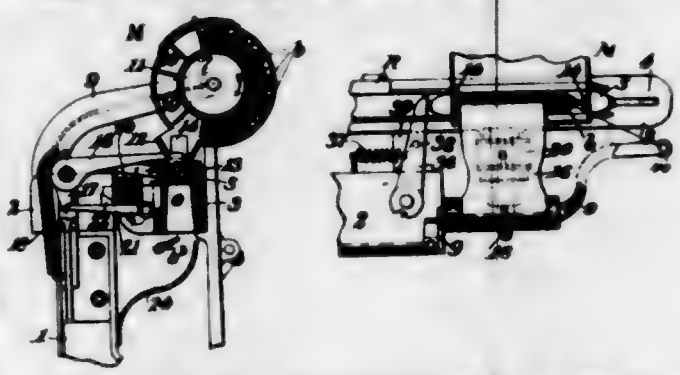
692,589. GAS-LIGHTING DEVICE. ADOLF BACHNER, Berlin, Germany. Filed Apr. 21, 1898. Serial No. 713,964. (No model.)

Claim.—1. An igniting apparatus, consisting of a rod, an arm pivoted thereto, a protecting-cage at the end of said arm, a catalytic igniting-body in said cage, and a removable cap for inclosing said cage and igniting-body for preventing deterioration of the latter, said cap consisting of a body portion adapted to surround the body of the cage, a projecting lug on said body portion, a closed bottom, and a top composed of two plates pivoted to one side of the body portion and provided with recesses for accommodating the arm, and lugs at the outer ends of said plates adapted to engage the projecting lug of the body portion, substantially as set forth.



2. An igniting apparatus, consisting of a rod, a key at the end of said rod, an arm pivoted to said rod adjacent said key, and a stop extending from said key into the path of said arm and forming a rest for the same, substantially as set forth.

692,590. WEFT-REPLENISHING MECHANISM FOR LOOMS. WILLIAM H. BAKER, Central Falls, R. I., and FREDERIC R. KIP, Montclair, N. J. Filed Aug. 2, 1899. Serial No. 725,862. (No model.)



Claim.—1. In a loom, the combination with the vibrating lay, and the shuttle-box mounted thereon, of a rotatable bobbin-magazine, a receiver at the outlet of said magazine, to receive a bobbin delivered therefrom, a vibratable knocker for knocking the bobbin from the receiver down into the shuttle on the lay, mechanism for vibrating said knocker at proper times, electrical means controlling said knocker-operating mechanism, and means for imparting intermittent rotary impulses to said magazine.

2. In a loom, the combination with the vibrating lay, the shuttle-box thereon, the magazine, and the receiver, situated over the shuttle-box when the lay is at the beating-up point, of the pivotally-mounted knocker, having a pendent arm 17, the retracting-spring 18, the electromagnet on the lay, its armature, the hinged tappet on the lay and carrying said armature, said tappet being so mounted that when the magnet is excited the tappet is alined with the arm on the knocker, the controlling electric circuit, including said magnet and having terminals at the shuttle-box, the shuttle having in it an electric circuit closed with the exterior circuit when the shuttle is in the box, and a bobbin, having in it a circuit closed with that in the shuttle when the bobbin is in place therein, said circuit in the bobbin having in it a self-closing break held open by the weft thereon.

3. In a loom, the combination with the vibrating lay, the bobbin-magazine, the vibrating knocker, the electromagnet, the tappet for actuating the knocker controlled by said magnet, and the outer circuit including said magnet and having terminals at the shuttle-box, of the shuttle, having contact-plates 32 and 32^{x} to contact with the terminals on the box, the end spring 31 and side springs 30, connected electrically with the respective plates 32 and 32^{x}, the bobbin, having a metal band or bands 25, which are embraced by the side springs 30, and a metal end piece 26, which is in contact with the end spring 31, the metal ring or piece 27, and the spring-terminal 29, in electric contact with the bands 25, and held out of contact with the piece 27 by the overwrapped weft.

4. In a loom, the combination with a shuttle having two metal contact-plates, a metal plate 31, jaws 30, and conductors connecting said plate and jaws, respectively, with said contact-plates, of a supporting device for the weft, comprising a spindle carrying a contact-piece in metallic contact with the plate 31, a headpiece on said spindle, a metal band or ring on said headpiece and in electrical contact with the jaws in the

shuttle, and a spring-contact indicator connected electrically with the contact on the spindle and occupying a slot in the headpiece under the band thereon.

692,591. DETECTOR MECHANISM FOR WEFT-REPLENISHING LOOMS. WILLIAM H. BAKER, Central Falls, R. I., and FREDERIC R. KIP, Montclair, N. J. Filed Mar. 28, 1901. Serial No. 53,264. (No model.)



Claim.—1. In a loom, a filling or weft holder having a magnetic body, a feeler sustained yieldingly in a normal position, a normally open electric circuit, including a coil and generator, for magnetizing said feeler, means for closing the magnetizing-circuit when the magnetic body on the weft-holder is uncovered by exhaustion of the weft, and filling changing or supplying means operated by the movement of said feeler into abnormal position due to the coöperation of said feeler with said filling or weft holder.

2. In a loom, a filling or weft holder having a magnetic body, a feeler of magnetic metal sustained yieldingly in a normal position, a normally open electric circuit, including a coil and a generator, for magnetizing said feeler, the coil being stationary and the feeler slidable therein, springs which hold said feeler in its normal position, means for closing the feeler-magnetizing circuit when the magnetic body on the weft-holder is uncovered by exhaustion of the weft, and filling changing or supplying means operated by the movement of said feeler into abnormal position due to the coöperation of said feeler with said filling or weft holder.

3. In a loom, a filling or weft holder having a magnetic body, a feeler of magnetic metal sustained yieldingly in a normal position, a normally open electric circuit, including a coil and a generator, for magnetizing said feeler, the latter being formed of two insulated terminals of the magnetizing-circuit, springs which hold said feeler in its normal position, and filling changing or supplying means operated by the movement of said feeler into abnormal position due to the coöperation of said feeler with said filling or weft holder, the feeler being composed of two bodies of magnetic metal which also form terminals of the magnetizing-circuit.

4. In a loom, the combination with a bobbin or weft-holder having on it a magnetic body 23, which is normally covered by the weft or filling and exposed by the partial exhaustion thereof, and a shuttle having an aperture or way to admit a feeler to contact with said body when exposed, of a feeler composed of two circuit-terminals made from magnetic metal, a normally open electric circuit including said feeler-terminals, a magnetizing-coil about said feeler-terminals and a generator, springs for holding said feeler-terminals in normal position, and filling changing or supplying means operated by the movement of said feeler into abnormal position due to the coöperation of said feeler-terminals with the exposed magnetic body on said filling or weft holder.

5. In a loom, a filling-carrier, a magnetic body carried thereby, an electric circuit including a magnetizing-coil, a feeler device made periodically a magnetized body by the current of said circuit, and filling-changing means made operative as required by the momentary adhesion of said feeler device to said magnetic body, all combined to operate substantially as set forth.

6. In a loom, a feeler sustained yieldingly in a balanced condition, a normally open electric circuit including a magnetizing-coil for turning said feeler into a magnetized body, a lay, a shuttle-box thereon, a filling-carrier in said box, a filling-holder in said carrier provided with a magnetic body adapted to contact with the feeler and adapted to adhere to and carry said feeler back with it on the back stroke of the lay after the substantial exhaustion of the filling from the filling-holder in said carrier, in combination substantially as set forth.

7. In a loom, a filling-carrier and a feeler yieldingly sustained in a normal position, each provided with a magnetic body, and means for temporarily magnetizing one of said bodies when the feeler is put in contact electrically with the body in the weft-carrier by the exhaustion of filling in the said carrier to a predetermined extent.

8. In a loom, a filling-carrier and a feeler yieldingly sustained in normal position, one having a magnetic and the other a periodically-magnetized body, means for magnetizing the last-named body when the filling in the carrier is exhausted to a predetermined extent, and filling-changing means set in operation by the movement of said feeler into abnormal position due to coöperation of said feeler with said filling-carrier.

9. In a loom, a filling-carrier provided with a filling-holder having a magnetic body normally covered by filling, a periodically-magnetized body or feeler, means for magnetizing the said feeler when the filling on the holder is exhausted to a predetermined extent, and filling-changing means made operative by a change of position of said feeler due to the uncovering or partial uncovering of said magnetic body on the filling-holder in the act of weaving.

10. In a loom, a shuttle or filling-carrier provided with a magnetic body, an intermittently-operating feeler device adapted to feel the volume of filling in said carrier, and an electric circuit and coil to periodically magnetize said feeler when the circuit is completed, the completing of the circuit being effected by the contact of the feeler with the magnetic body in the filling-carrier when said body is uncovered by exhaustion of the filling.

11. In a loom, a filling-carrier provided with a magnetic body, a yieldingly-sustained feeler, which through the agency of a normally open electric circuit is periodically made a magnetized body, and the said circuit, including a magnetizing-coil about the feeler, said feeler feeling through an aperture in the carrier and being capable of movement with the latter by magnetic action from its normal into its abnormal position, when the magnetizing-circuit is completed through exhaustion of the filling to a predetermined extent.

12. In a loom, filling-changing means, a shuttle provided with a filling-holder having a magnetic body normally covered by filling, a solenoid-magnet the core of which acts as a feeler to feel for exhaustion of filling, an electric circuit acting to make said feeler periodically a magnetized body, the said feeler being put in its abnormal position whenever the magnetic body carried by the shuttle is sufficiently denuded of filling and effecting the operation of the filling-changing means.

692,592. BRUSH-BROOM. ALONZO BALDWIN, Chicago, Ill., assignor to Royal Brush and Broom Company, Chicago, Ill., a Corporation of Illinois. Filed July 8, 1901. Serial No. 67,425. (No model.)



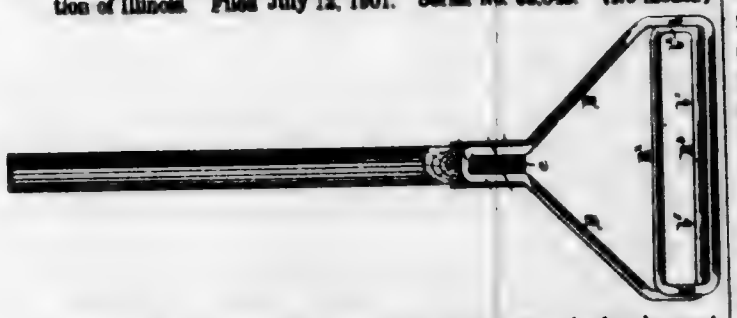
Claim.—1. The combination of a head having in each end a slot running from near the center to the top of the head, and a holder formed of a single piece of flexing material bent on itself to have a spring-arm on each side and a tang or neck uniting the arms at one end and furnishing a means for attaching the holder to a handle, each spring-arm having its free end bent or turned to have an inwardly-extending end and a side or shoulder, for the end to enter the end of the head and the side or shoulder to enter and engage the slot in the head end and furnish a rigid interlock uniting the head and the holder, substantially as described.

2. The combination of a head having in each end a longitudinal hole and a slot opening from the base of the hole to the top of the head, a holder formed of a single piece of flexing material bent on itself to have a spring-arm on each side and a tang or neck uniting the arms at one end, each spring-arm having its free end bent or turned to have an inwardly-extending end and a side or shoulder, for the end to enter the hole in the head end and the side or shoulder to enter and engage the slot in the head end and furnish a rigid interlock uniting the head and the holder, and a handle having a longitudinal slot extending back from its end into which the tang or neck of the holder is inserted for attaching the support to the handle, substantially as described.

3. The combination of a head having in each end a longitudinal hole and a slot opening from the base of the hole to the top of the head, a holder formed of a single piece of flexing material bent on itself to have a spring-arm on each side and a tang or neck uniting the arms at one end, each spring-arm having its free end bent or turned to have an inwardly-extending end and a side or shoulder, for the end to enter the hole in the head end and the side or shoulder to enter and engage the slot in the head end and furnish an interlock uniting the head and the holder, a handle having in its end a slot to receive the tang or neck of the holder, a ferrule encircling the end of the handle, and a wedge driven into the slot between the bars of the tang or neck forcing the sides of the tang or neck against the wall of the ferrule, substantially as described.

4. The combination of a head having in each end a longitudinal hole and a slot opening from the base of the hole to the top of the head, a holder formed of a flexing material having a spring-arm on each side, the arms lying within the slots in the head and having their ends bent or turned forming inward extensions to enter the holes in the head and furnish a rigid interlock uniting the head and the holder, and a handle to receive and rigidly secure the holder, substantially as described.

692,593. BRUSH OR BROOM. ALONZO BALDWIN, Chicago, Ill., assignor to Royal Brush and Broom Company, Chicago, Ill., a Corporation of Illinois. Filed July 12, 1901. Serial No. 68,049. (No model.)



Claim.—1. A combined support and head or base for brushes and brooms, consisting of a single piece of material formed to have side supporting arms or bars and cross-bars one over the other constituting the head or base proper and adapted for attachment of the material for the brush or broom, substantially as described.

2. A combined support and head or base for brushes and brooms, and formed of a single piece of material bent to have diagonal side supporting arms or bars, a tang or neck at the apex end of the side arms or bars and cross-bars one over the other constituting the head or base proper and adapted for attachment thereto of the material for the brush or broom, substantially as described.

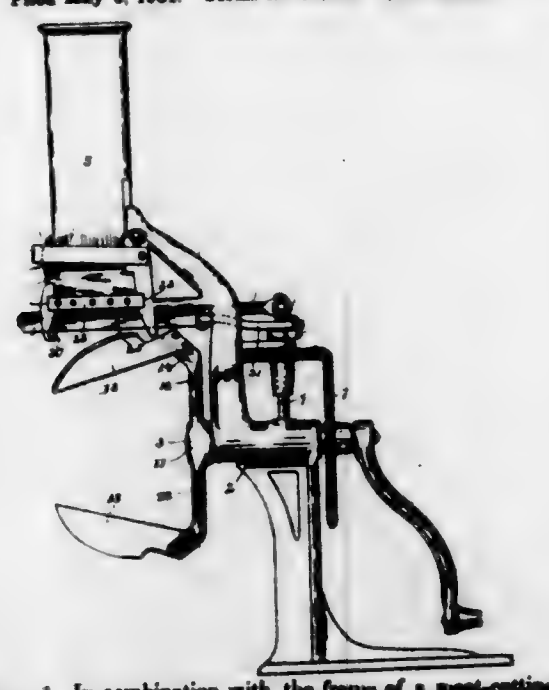
3. The combination, in a brush or broom, of a combined support and head or base, formed of a single piece of material to have side supporting arms or bars, a tang or neck for attachment to the handle and three cross-bars two of which are adjacent forming in effect, a double bar, the bars constituting the head or base proper, and brush or broom material attached to the base or head proper, substantially as described.

4. The combination, in a brush or broom, of a combined support and head or base, having side supporting arms or bars, a tang or neck for attachment to the handle, cross-bars a single bar above and two adjacent bars below constituting the head or base proper, brush or broom material attached to the head proper, and a handle having the tang or neck secured in its end, substantially as described.

5. The combination in a brush or broom, of a combined support and head or base having side supporting arms or bars, cross-bars one above the other constituting the head or base proper and two series of broom-wisps the inner and lower series being bent around the lower cross-bar and the outer and upper series being bent around the upper cross-bar and secured over the inner and lower series of wisps and cross-bar therein, substantially as described.

6. The combination in a brush or broom, of a combined support and a head or base having side supporting arms or bars, a tang or neck for attachment to the handle, cross-bars a single bar above and two adjacent bars below constituting the head or base proper and two series of broom-wisps the inner and lower series being bent around the adjacent lower cross-bars and the outer and upper series being bent around the single upper bar secured over the inner and lower series of wisps and the bars contained therein, substantially as described.

692,594. MEAT-CUTTING MACHINE. LOUIS BALLBACH, Detroit, Mich. Filed May 6, 1901. Serial No. 58,965. (No model.)



Claim.—1. In combination with the frame of a meat-cutting machine, a vertical hopper mounted thereon, a horizontal shaft journaled thereon, a longitudinally-movable rectangular frame beneath said hopper, a gang of knives in said frame, a second longitudinally-movable rectangular frame beneath the first-named frame and in proximity thereto, said frame being curved in cross-section concentrically with the axis of said shaft and provided with a gang of longitudinal knives with their backs lying in the curved plane of the lower side of said frame, an arm on said shaft, and a knife on said arm adapted to move with its cutting edge close to the under side of said lower gang of knives, and means for rotating said shaft and reciprocating said gangs of knives.

2. In a meat-cutting machine, a vertical hopper, two gangs of longitudinally-movable knives, one above the other, beneath said hopper, a shaft journaled on said machine-frame, a knife on said shaft adapted to be moved with its cutting edge close to the under side of said lower gang of knives, a support for the point of said knife, and means for rotating said shaft and knife and reciprocating said gangs of knives.

3. In a meat-cutting machine, in combination with the hopper thereof, longitudinally-movable rectangular frames beneath said hopper, one above the other, gangs of longitudinal knives in said frames, ways for said frames at one side of said hopper, a hanger having corresponding ways and detachably secured to the opposite side of said hopper, and means for reciprocating said frames.

4. In a meat-cutting machine, in combination, a vertical hopper, rectangular frames extending at right angles to each other, one above the other and each provided with a gang of knives, ways at one side of said hopper to engage one side and one end of said frames, a hanger at the opposite side of said hopper having corresponding ways for the opposite sides and end of the frames, a pin in said hanger to engage an opening in said hopper, and a yoke pivoted to said hopper and engaging said hanger.

5. In combination with the frame of a meat-cutting machine having a journal-bearing, a horizontal shaft in said bearing, a vertical hopper mounted on said frame, a rectangular frame provided with a gang of longitudinal knives beneath said hopper, a second frame provided with a gang of longitudinal knives beneath the first-named frame and in proximity thereto said lower frame being curved throughout its width concentrically with the axis of said shaft, ways at one side of said hopper, a hanger at the opposite side of said hopper provided with similar ways, lugs on said hopper to engage shoulders on said hanger, a pin on said hanger to engage an opening in the hopper, a yoke pivoted to the hopper to engage the hanger, a hub on said shaft, arms on said hub, knives on said arms, a groove in said hanger to engage and support the point of said knives, and means for rotating said shaft and reciprocating said gangs of knives.

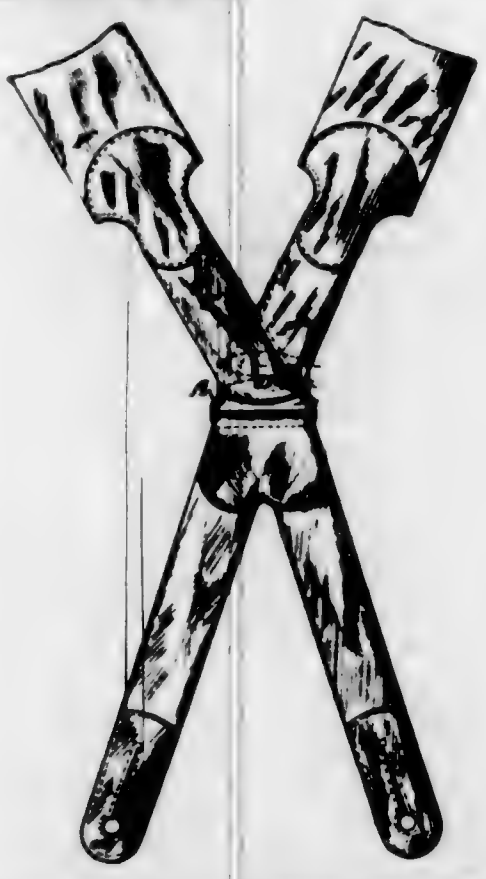
6. In combination with the frame of a meat-cutting machine, having a journal-bearing, a horizontal shaft on said bearing, a hub on said shaft, arms on said hub having bent and slotted outer ends, knives secured to said arms by bolts engaging said slots, and so extended that the heels of the cutting edges thereof will cut in advance of their points and the backs thereof move in a different path than their cutting edges, a vertical hopper above said knives, rectangular frames having gangs of longitudinal knives movable in ways beneath said hopper, the lower of said gang of knives being so arranged that the backs thereof lie close to the path of the cutting edge of said rotary knives, and means for rotating said knives and reciprocating said gangs of knives.

7. In a meat-cutting machine, in combination, a frame having journal-bearings and an upwardly and laterally extended and forked upper portion, a vertical hopper secured between the arms of said forked portion, a horizontal shaft in one of said bearings and a vertical shaft in the other bearing a hub on said horizontal shaft, arms on said hub, knives on said arms, a rectangular frame beneath the hopper, a gang of longitudinal knives in said frame, a second frame beneath the first-named frame, a gang of longitudinal knives in said second frame, said frame and its gang of knives presenting a lower surface curved concentrically with the axis of said horizontal shaft, ways on the machine-frame to support said frames for the gangs of knives at one side of the hopper, a hanger at the opposite side of said hopper and detachably secured thereto, having similar ways and a curved groove to engage the point of the rotating knives, a bevel-gear and a crank-handle on the end of said horizontal shaft opposite said hub, a gear on the vertical shaft, a crank-arm on the upper end of said vertical shaft, a connecting-rod connecting said crank-arm with the lower frame having one gang of knives, a bell-crank pivoted to the machine-frame, and connecting-rods connecting the ends of said bell-crank with the said frames having the gangs of knives.

692,595. SUSPENDER-LINK. BYRON J. BALLIETT, Mansfield, Ohio. Filed Nov. 26, 1900. Serial No. 37,851. (No model.)

Claim.—1. A suspender provided with a link, crown-rollers journaled on the link and straps passing over the crown-rollers whereby the straps are kept constantly centered during their movements and prevented from contact with the sides of the link.

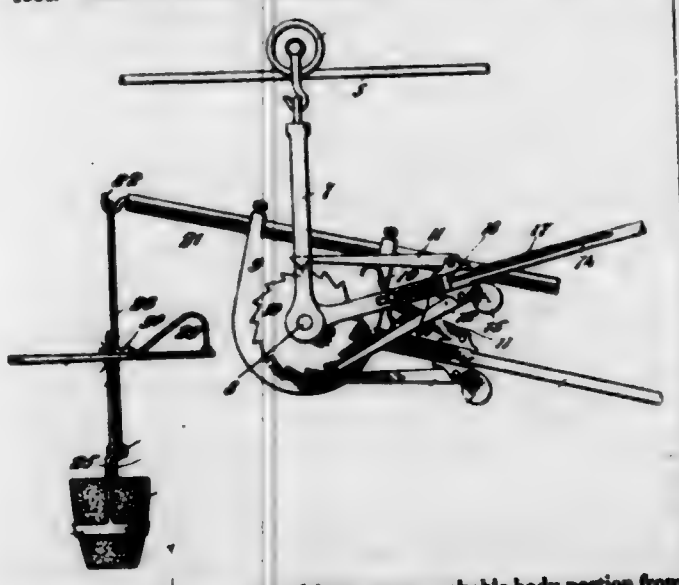
2. A suspender provided with a link, crown-rollers formed from elliptically-shaped blanks of sheet metal journaled on the link, and suspender-straps passing over the rollers and constantly retained in a central position thereby which permits a freely-sliding movement of the straps to accommodate the movements of the wearer at the same time preventing the straps from contact with the link.



3. A suspending device provided with a link composed of a plurality of cross-bars, and end bars connecting the cross-bars, hollow crown-rollers journaled on the cross-bars, the rollers bearing on the cross-bars only at their extreme ends, and straps passing under the rollers which straps are centered by the crown-rollers, the latter reducing the amount of friction and wear on the straps by preventing their contact with the link proper.

4. The combination with a frame comprising a plurality of cross-bars, and end bars connecting them, of hollow crown-rollers mounted on one or more of said cross-bars, said crown-rollers formed each of a blank of sheet metal, the side edges of which are approximately elliptical in form and the opposite ends incurved, the roller so formed that the elliptical side edges lie against each other in a straight line whereby the body of the roller is given a suitable convexity and the ends only of the rollers bear upon the bars on which the rollers are mounted to turn, the convex surface of the roller having the effect of throwing the objects drawn over them toward the center.

692,596. CRANE. SETH L. BATTEL, Reading, Pa. Filed Apr. 16, 1901. Serial No. 56,096. (No model.)



Claim.—1. A crane, comprising tongs, a rockable body portion from which the tongs are suspended, and means for rocking the body to raise or lower the tongs.

2. A crane, comprising tongs, a rockably-supported body from which the tongs are suspended, a ratchet-wheel connected with the body, a hand-lever, and a pawl on the hand-lever.

3. The combination of a rockably-supported body, a ratchet-wheel thereon, a hand-lever, two pawls carried thereby and normally engaging the ratchet-wheel, and means on the hand-lever for spreading the pawls to disengage the ratchet-wheel.

4. The combination of a rockably-supported body, a ratchet-wheel thereon, a hand-lever, a pawl mounted on the upper side of the lever and engaging the ratchet-wheel, a pawl carried on the under side of the hand-lever and having a counterweight serving to throw the pivot of the pawl upward against the ratchet-wheel, and means carried on the hand-lever for spreading the pawls apart to disengage the ratchet-wheel.

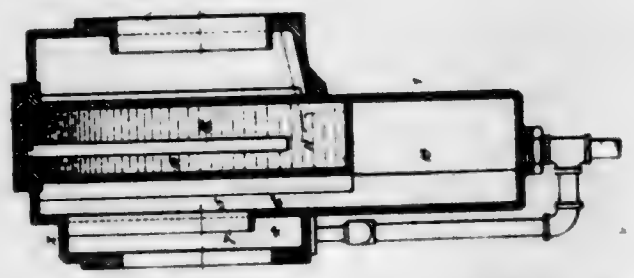
5. The combination of a track, a body portion arranged to move thereon, means for rocking the body portion, and tongs carried by the body portion.

6. The combination of tong-sections, pivotally-connected bars engaged with the tong-sections to permit operating the same, a supporting-rod connected with the tong-sections, and quadrants carried by the bars and slidably engaged with the rod.

7. The combination of tong-sections, a supporting-rod, and bars arranged to move toward and from each other and engaged respectively with the tong-sections to facilitate the manipulation thereof.

8. The combination of a rockably-sustained body portion, means for rocking the same, a beam supported on the body portion, a rod hung from the beam, tong-sections connected with the rod, and bars mounted to move toward and from each other and engaged with the tong-sections to facilitate the manipulation thereof.

692,597. STEAM-SEPARATOR. HOWARD C. BAUM, Reading, Pa., administrator of Clarence M. Baum, deceased. Filed July 16, 1901. Serial No. 68,556. (No model.)



Claim.—1. A steam-separator having a casing with deflector therein, and having, in advance of said deflector, a supplementary receiving-chamber separated from the deflecting-chamber by a partition which extends above the bottom of the pipe for supplying steam to the separator, substantially as specified.

2. A steam-separator having a casing with deflector therein, and having, in advance of said deflector, a supplementary receiving-chamber separated from the deflecting-chamber by a partition which extends upwardly above the bottom and inwardly beyond the sides of the pipe for supplying steam to said separator, substantially as specified.

3. A steam-separator having a casing with deflector therein, and having, in advance of said deflector, a supplementary receiving-chamber separated from the deflecting-chamber by a partition which extends inwardly beyond the walls of the pipe for supplying steam to the separator, and has, around its inner edge, a forwardly-projecting flange, substantially as specified.

4. A steam-separator having a hollow deflector for the steam and means for circulating water or other cooling agent through said deflector, substantially as specified.

692,598. PROCESS OF SEPARATING ORTHOTOLUENESULFOCHLORID. ALBERT BAUR, Mulhouse, Germany, assignor to Fabriques de Produits Chimiques de Thann & de Mulhouse, Thann, Germany. Filed July 9, 1901. Serial No. 67,577. (No specimens.)

Claim.—1. An improvement in the manufacture of orthotoluenesulfochlorid, which consists in separating pure orthotoluenesulfonic acid from a solution of the same in sulfuric acid by addition of a small quantity of water and action of a low temperature.

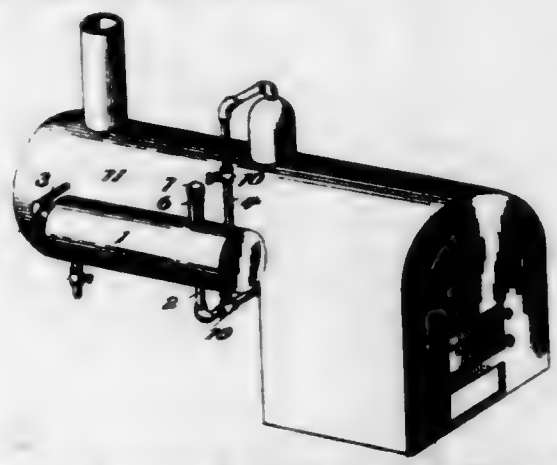
2. An improvement in the manufacture of orthotoluenesulfochlorid, which consists in acting with chlorosulfonic acid (SO_2Cl) on a salt of orthotoluenesulfonic acid, at a temperature not exceeding 15° to 18° centigrade.

3. An improvement in the manufacture of orthotoluenesulfochlorid which consists in acting with chlorosulfonic acid (SO_2Cl) on the magnesium salt of orthotoluenesulfonic acid at a temperature not exceeding 15° to 18° centigrade.

4. An improvement in the manufacture of orthotoluenesulfochlorid,

which consists in separating pure orthotoluenesulfonic acid from a solution of the same in sulfuric acid by addition of a small quantity of water and action of a low temperature, transforming the orthotoluenesulfonic acid thus obtained into a corresponding metallic salt and finally acting on this salt of orthotoluenesulfonic acid with chlorosulfonic acid (SO_2Cl), at a temperature not exceeding 15° to 18° centigrade.

692,599. BOILER-CLEANER. DANIEL N. BAXTER, Wichita, Kans., assignor of one-half to James A. Ray, Wichita, Kans. Filed Sept. 4, 1901. Serial No. 74,325. (No model.)



Claim.—The herein-described boiler-cleaner comprising an oblong shell or drum adapted to be arranged horizontally, steam and blow-off pipes connected to the shell at diagonally opposite points, the steam-pipe being uppermost and the blow-off at the lowest point, an inflow-pipe connected with the upper portion of the shell at the end having the blow-off pipe, an outflow-pipe at the opposite end of the shell and passing upward through the bottom and top thereof and projecting a short distance above the shell, and a casing secured to the shell and inclosing the projecting end portion of the outflow-pipe and spaced therefrom, substantially as and for the purpose set forth.

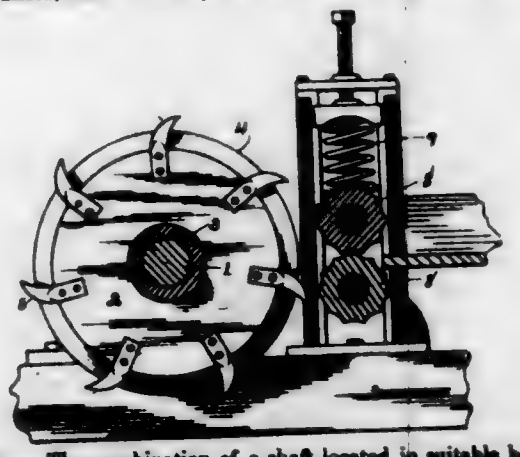
692,600. METAL RAILROAD-TIE. WARREN V. BEAL and SAMUEL SMITH, Redcloud, Nebr. Filed Nov. 6, 1901. Serial No. 81,336. (No model.)



Claim.—1. In a tie of the class described, a body portion having a plane deck surrounded on three sides by a flange and a bar attached to said body, and having an upturned end adapted to engage the inner flange of a rail, substantially as described.

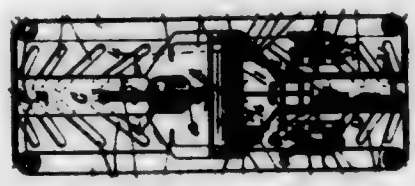
2. In a tie consisting of the combination of two body members each comprising a deck surrounded by a downwardly-extending flange, means mounted on said decks for engaging the outer flanges of the rails, and bars connected to said bodies and having upturned ends adapted to engage the inner flanges of said rails, substantially as described.

692,601. HEAD FOR FODDER-SHREDDERS. ALBERT W. BERGER, Canton, Ohio. Filed Sept. 14, 1901. Serial No. 75,368. (No model.)



Claim.—The combination of a shaft located in suitable bearings, a series of cutting-disks fixed to the shaft and provided with continuous cutting peripheries, cutting-knives located upon the sides of the cutting-disks and extended beyond the peripheries of the cutting-disks, fixed collars located upon the shaft and collars adapted to hold the disks in proper spaced position upon the shaft, substantially as and for the purpose specified.

692,602. WHEEL. CHARLES H. BIGALEY, Oneida, N. Y. Filed Dec. 24, 1900. Serial No. 40,861. (No model.)



Claim.—1. The combination with the hub and spokes of a pulley, of a sheet-metal rim having its opposite edges bent inwardly for forming annular ribs, and tubular sections having circumferential slots receiving the ribs.

2. The combination with the hub and spokes of a pulley, of a sheet-metal rim having its opposite edges bent inwardly for forming annular ribs, said ribs being formed with lateral annular shoulders, and sheet-metal annular tubes slotted circumferentially for receiving the ribs and interlocked with the shoulders for the purpose described.

3. The combination with the hub and spokes of a pulley, of a sheet-metal rim split axially, each section having its circumferential edges bent inwardly and formed with semi-annular laterally-projecting shoulders, and semicircular tubes slotted circumferentially for receiving the inturned edges and interlocked with said shoulders.

4. The combination with the hub and spokes of a pulley, of a sheet-metal rim split axially, each section having its circumferential edges bent inwardly and formed with semi-annular laterally-projecting shoulders, and semicircular tubes slotted circumferentially for receiving the inturned edges and interlocked with said shoulders, said tubes being movable circumferentially on the rim for breaking joints at the meeting edges of the rim-sections and tubes.

5. The combination with the hub and spokes of a pulley, of a sheet-metal rim having its peripheral walls formed with transverse openings arranged one in advance of the other and extending diagonally across and through the rim, the end of each opening being extended circumferentially beyond the adjacent end of the next opening.

6. The combination with the hub and tubular spokes of a pulley, of a sheet-metal rim having depressed portions for forming bosses adapted to enter the tubular outer ends of the spokes.

7. The combination with the hub and spokes of a pulley, of a sheet-metal rim split axially and having portions of the meeting edges of its sections depressed for forming inwardly-projecting split bosses, opposite spokes having their outer ends arranged to inclose corresponding split bosses for the purpose described.

8. The combination with the hub and spokes of a pulley, of a sheet-metal rim having depressed portions for forming bosses, said rim being split axially through one of the bosses, the split boss being inclosed by the adjacent end of one of the spokes for the purpose described.

9. In a pulley, the combination of a sheet-metal band having portions thereof depressed at intervals for forming inwardly-projecting diametrically opposite bosses, said band being split transversely through two of the opposite bosses, semi-annular sheet-metal sections interlocking with the marginal edges of the band and having their meeting edges adapted to break joints with the meeting edges of the band, a hub, and tubular spokes having their inner ends engaged with the hub and their outer ends surrounding their respective bosses.

10. In a pulley an axially-split rim formed of sheet metal, each section being provided with an inner lengthwise flange, a clamping-plate secured to each of the sections, a portion of one of the plates of one section being extended beyond the meeting edges of the sections and lapped upon the flanges of both of said sections, and means for drawing said plates together.

11. The herein-described clamp for securing the meeting edges of split pulleys together, said clamp comprising two sheet-metal plates having base-flanges and intermediate loops, the loop of one plate being extended beyond its base and adapted to telescope with the other loop, and means for forcing the plates lengthwise of each other.

12. The herein-described clamp for securing the meeting edges of split pulleys together, said clamp comprising two sheet-metal plates having base-flanges and intermediate loops adapted to telescope with each other, one end of one of the loops being cut away above the base for the purpose described.

13. In a pulley, a sheet-metal rim divided axially and having portions of the meeting ends of its sections depressed for forming inwardly-projecting bosses, a sheet-metal hub divided circumferentially and having portions of its meeting faces pressed outwardly for forming nipples, and tubular spokes having their opposite ends inclosing the bosses and nipples respectively for the purpose described.

14. In a pulley, a sheet-metal rim divided axially and having portions of the meeting ends of its sections depressed for forming inwardly-projecting bosses, a sheet-metal hub divided circumferentially and having portions of its meeting faces pressed outwardly for forming nipples, and

tubular spokes having their opposite ends inclosing the bosses and nipples respectively for the purpose described, and semi-annular rim-sections interlocking with the marginal edges of the drum and having their meeting edges adapted to break joints with the meeting edges of the drum-sections.

15. In a pulley, the combination with a rim and spokes of a sheet-metal hub comprising outer and inner shells having shaft-openings, the outer shell being divided circumferentially and the sections secured at their meeting edges, and hollow stay-bolts passed through apertures in the adjacent walls of the shells and secured thereto.

16. In a pulley, a sheet-metal hub comprising outer and inner shells divided axially and provided with shaft-openings, the shell-sections of the hub being provided with transverse apertures, opposite sleeves passed through the apertures and having their inner and outer ends expanded for locking the half-shell sections together, and clamping means inserted into the sleeves for the purpose described.

17. In a pulley, a sheet-metal rim comprising outer and inner shells divided axially and provided with shaft-openings, the shell-sections of each half of the hub being provided with transverse apertures, opposite internally-threaded sleeves passed through the apertures and having their inner and outer ends expanded for locking the half-shell sections together, and a clamping-screw having right and left threads engaged respectively with said sleeves for the purpose described.

18. A sheet-metal hub for pulleys comprising outer and inner shells, having shaft-openings, the outer shell being divided circumferentially, hollow internally-threaded stay-bolts secured to the outer and inner shells, and set-screws engaged with the threads of the stay-bolts and adapted to lock the hub to the shaft.

19. A sheet-metal hub for pulleys comprising an outer shell divided circumferentially and provided with a shaft-opening, an inner sheet-metal shell composed of opposite semicylindrical sections each having its longitudinal edges bent outwardly at an angle to the meeting plane of the inner-shell sections and engaged with the inner face of the outer shell and means for securing the outer and inner shells together.

20. In a pulley, the combination with the rim and spokes, of a sheet-metal hub comprising outer and inner shells having shaft-openings, the outer shell being divided circumferentially, hollow internally-threaded stay-bolts secured to the outer and inner shells, sleeves encircling the stay-bolts and having their opposite ends engaged with the adjacent faces of the outer and inner shells, and set-screws engaged with the threaded stay-bolts for locking the hub to the shaft.

21. In a pulley, a sheet-metal hub comprising an outer shell divided axially and provided with a shaft-opening, each half-section being formed with inturned meeting flanges and apertures extending through their peripheral walls and meeting flanges, an inner shell composed of opposite sheet-metal semicylindrical sections each having lengthwise wings, the opposite ends of the wings being bent in the form of sleeves alined with their respective apertures in the outer shell, and clamps passed through the apertures and sleeves for drawing the hub-sections together.

22. In a wheel, a sheet-metal hub split circumferentially and provided with a shaft-opening, and a reinforcing-plate impinged between the circumferential meeting edges of the hub-sections and extended inwardly beyond said meeting edges toward the shaft-opening for the purpose described.

23. In a wheel, a rim, a sheet-metal hub having a lengthwise shaft-opening and peripheral spoke-nipples, said hub being split circumferentially through the nipples and spokes having their inner ends formed hollow and arranged to inclose the opposite sections of their respective nipples for the purpose set forth.

24. A wheel comprising a rim, a hollow sheet-metal hub split circumferentially, the hub-sections having their circumferential meeting edges provided with lateral projections alined with each other for forming nipples, and spokes having tubular inner ends inclosing their respective nipples.

25. A wheel comprising a rim, a hollow sheet-metal hub having apertures through its outer wall, and spokes having their inner end faces engaged with the periphery of the hub and provided with tangs projecting into said apertures.

26. A wheel comprising a circumferentially-split hub formed of sheet metal and provided with apertures at opposite sides of the meeting faces of the hub-sections, and spokes having their inner end faces abutting against the periphery of the hub and provided with tangs extending into the apertures for the purpose described.

27. A wheel comprising a hollow sheet-metal hub having a peripheral flange provided with separate tangs, and spokes having their inner ends inserted between the tangs and their end faces engaged with the periphery of the hub.

28. A wheel comprising a hollow sheet-metal hub split circumferentially, the hub-sections having circumferential meeting edges provided with peripheral flanges and with lateral depressions alined with each other and forming nipples, the opposite hub-sections being formed with apertures at opposite sides of the meeting flanges, there being tangs projecting from the flanges on opposite sides of the nipple, and spokes having their inner ends inserted between said tangs and surrounding the nipples and provided with lengthwise slots receiving the flanges of the hub, the inner end faces of the spokes being engaged with the periphery of the hub and formed with tangs projecting into said apertures.

29. The herein-described reinforcing-yoke in combination with an axially-split sheet-metal hub and a rim and spokes, said yoke comprising semicylindrical sections formed of sheet metal, each yoke-section having opposite lengthwise wings disposed at an angle with the meeting faces of the hub-section and engaged with the inner faces of said hub-sections.

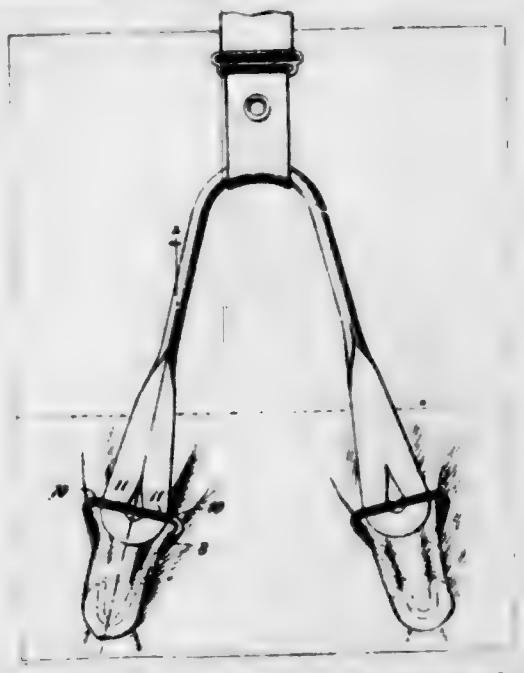
30. The herein-described reinforcing-yoke in combination with an axially-split sheet-metal pulley hub and a rim and spokes, said yoke comprising semicylindrical sections formed of sheet metal, each yoke-section having opposite lengthwise wings bent back from the meeting faces of the hub-section, the free end of each wing being bent in the form of a sleeve and means to pass through the sleeves and engage with the hub-sections for locking the hub and yoke sections together.

31. The herein-described hub for wheels consisting of opposite concavo-convex sheet-metal sections secured base to base and provided with concavo-convex substantially radial arms at their bases for forming hollow nipples.

32. A wheel-hub comprising concavo-convex sheet-metal sections arranged base to base and having their outer ends open and provided with inturned annular flanges, said sections being each formed with semi-annular arms or flanges adapted to form hollow peripheral nipples.

33. A wheel-hub comprising an outer shell composed of sections arranged end to end and having their outer ends provided with inturned annular flanges, a second shell within the former shell and encircling said flanges, said inner shell having its opposite ends formed with outturned flanges engaging the peripheral walls of the former shell.

692,608. SUSPENDER ATTACHMENT. PHILIP J. BLOOM, Tidioute, Pa., assignor of one-half to George E. Ellingwood, Tidioute, Pa. Filed Oct. 12, 1901. Serial No. 78,418. (No model.)



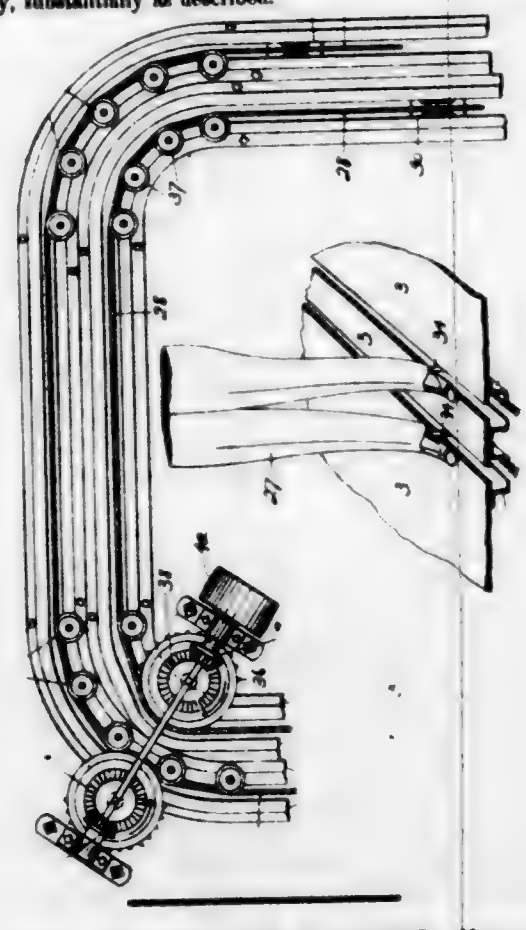
Claim.—A suspender attachment comprising a strip of metal bent to form a button-engaging lower portion and having its upper end members turned inward and then outward, the said upper members being spaced apart, substantially as specified.

692,604. MOVING MODEL FOR ADVERTISING PURPOSES. EDWARD J. BOURKE, Kansas City, Mo., assignor of one-half to Timothy Cotter and John McDonnell, Kansas City, Mo. Filed June 22, 1901. Serial No. 65,567. (No model.)

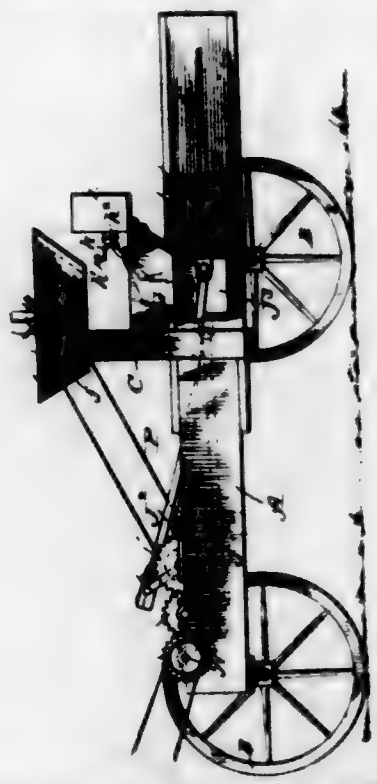
Claim.—1. An advertising apparatus comprising a dummy figure, a pair of traveling carriages supporting the feet of said figure, two endless tracks for said carriages, respectively, each track consisting of a pair of angle-bars separated to form a slot therebetween, two endless chains below and parallel to said tracks, respectively, flanged wheels or rollers supporting said chains, a connection between each chain and the adjacent carriage, two segmental sprocket-gears for moving said chains respectively intermittently and alternately, in the same direction, and means for rotating said sprocket-gears continuously; substantially as described.

2. In advertising apparatus, the combination of a dummy figure

having legs pivotally connected to the trunk, two carriages supporting the respective feet of said figure, two endless tracks on which said carriages run, two endless chains connected to said carriages, two segmental sprocket-gears for moving said respective chains intermittently and alternately, in the same direction, and means for driving said sprocket-gears continuously, substantially as described.



692,605. ARTIFICIAL-FUEL COMPRESSOR. MARCUS L. BRATTON, Luray, Kans. Filed May 9, 1901. Serial No. 59,397. (No model.)



Claim.—1. A machine for compressing expansible material comprising three press-boxes with corresponding plungers and pitmen-rods, a crank-shaft having three cranks between its ends set at an angle of one hundred and twenty degrees to each other, and positive driving-gears at both ends of said crank-shaft substantially as and for the purpose described.

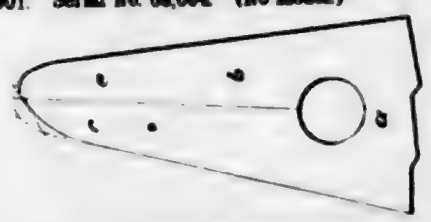
2. A machine for compressing an artificial fuel, of fibrous material and a liquid hydrocarbon, consisting of a series of horizontal press-boxes having pressing-plungers and operating mechanism, and a series of hoppers above each press-box, a corresponding series of tanks for containing the hydrocarbon arranged above and feeding into the hoppers, and a revolving cutter for the fibrous material arranged above the hoppers and discharging into the same substantially as described.

3. The combination of a series of horizontal press-boxes and plungers with pressing mechanism, a series of hoppers arranged above and feeding into the press-boxes and an elevated trough arranged above the hoppers and in crosswise relation to the press-boxes, said trough having a bed with stationary cutting-knives, and a rotating shaft provided also with cutting-knives passing between those on the bed substantially as described.

4. The combination of a series of horizontal press-boxes having plungers and pressing mechanism, a series of hoppers arranged above and feeding into the boxes, a transverse trough arranged above the hoppers and having a bed-plate with stationary knives arranged in pairs, a revolving shaft with knives spaced thereon to pass between the pairs of stationary knives, and spikes or arms fixed to the rotating shaft midway between the knives to positively feed the cut material down into the hoppers substantially as described.

5. A machine for compressing artificial fuel, comprising a main frame with supporting-wheels, a series of horizontal press-boxes mounted therein and provided with plungers, pitmen-rods, and a crank-shaft, a series of hoppers above the press-boxes having oil-tanks therein with feed-spouts for the oil, and a cutting device for fibrous material mounted above the hoppers and consisting of stationary bed-knives and a shaft with revolving knives substantially as and for the purpose described.

692,606. PEN. ARTHUR BREITFELD, Erfurt, Germany. Filed July 12, 1901. Serial No. 68,064. (No model.)



Claim.—1. As a new article of manufacture, a pen, the left point of which recedes as compared with the right point and is shorter and narrower than the latter so that the right point will come into contact with the paper above the left point, the two points of the pen being constructed so that a writing-point is presented free from angles and corners, substantially as set forth.

2. As a new article of manufacture, a pen of the character which is always narrowing toward the writing end, having the left point thereof shorter and narrower than the right point so that the right point will come into contact with the paper above the left point, the two points of the pen being constructed so that an easy-writing point is presented free from angles and corners, substantially as described.

692,607. DOOR-JAMB, GATE-POST, OR THE LIKE. JOSEPH BREMNER, Milton, New Zealand. Filed Oct. 25, 1901. Serial No. 80,006. (No model.)



Claim.—1. The combination with a doorway or the like, of rotatable posts or jambs therefor, substantially as described.

2. In combination, a rotatable post or jamb and a door or the like hinged thereto, substantially as described.

3. In combination, a rotatable cylindrical post or jamb, axial extensions therefrom, and a door pivotally connected with said axial extensions, substantially as described.

4. In combination, a pair of rotatable cylindrical posts or jambs, a pair of doors or the like pivotally supported and means for securing said doors against swinging, substantially as described.

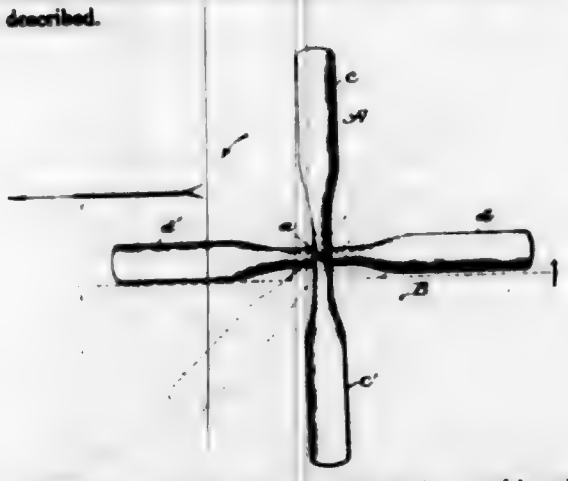
692,608. TOY BOOMERANG. SAMUEL BRISTOW, Wetmore, Kans. Filed June 21, 1901. Serial No. 65,293. (No model.)

Claim.—1. An instrument of the character described, comprising three or more vanes radiating from a common center, said vanes being elongated in form to be readily grasped by the hand and having correspondingly-beveled surfaces on one side thereof to cleave the air during rotation, substantially as described.

2. An instrument of the character described, comprising three or more vanes radiating from a common center, said vanes having corresponding beveled or slanting surfaces on one side thereof to cleave the air in a common manner during rotation, the rear edges of said vanes being thicker than the advance edges, thereby to strengthen the vanes and engage the air, substantially as and for the purpose set forth.

3. An instrument of the character described, having three or more vanes radiating from a common center, said vanes having correspondingly-beveled surfaces on one side thereof and corresponding thick rear edges,

the extremities of the vanes being thickened at the sharp edges, substantially as described.



4. An instrument of the character described, comprising three or more vanes radiating from a common center, said vanes being provided with weights near their extremities of greater specific gravity than the material of the vanes.

5. An instrument of the character described, comprising three or more vanes radiating from a common center, said vanes having on one side concave surfaces, the advance edge of each vane being thinner than the rear edge thereof, substantially as described.

6. An instrument of the character described, comprising three or more vanes radiating from a common center and having on one side correspondingly-beveled surfaces, said vanes being yieldingly connected at the center of radiation.

7. An instrument of the character described, comprising two or more cross-arms, connected to afford vanes radiating from a common center, each cross-arm having oppositely-beveled surfaces and oppositely-located thickened rear edges.

8. An instrument of the character described, comprising two or more cross-arms pivotally connected together at their centers to afford vanes radiating from a common center, said vanes having one side correspondingly beveled.

9. An instrument of the character described, comprising vanes radiating from a common center, a pivot connecting said vanes at their centers, and friction material interposed between said vanes at their centers.

10. In an instrument of the character described, the combination of two cross-arms having corresponding plane surfaces on one side, each cross-arm having on the other side oppositely-beveled surfaces on opposite sides of its center, thereby affording vanes having correspondingly-beveled surfaces on one side.

11. An instrument of the character described, comprising suitably-beveled connected vanes and removable weights attached to said vanes near their extremities.

12. An instrument of the character described, comprising suitably-connected vanes, said vanes having on one side plane surfaces perpendicular to the axis of the instrument ending at the rear edges of the vanes in rounded corners, the opposite side of said vanes being beveled, producing relatively thin advance edges.

692,609. **AUTOMATIC WEIGHING-MACHINE.** WILLIAM BROOKS, Baltimore, Md. Filed May 1, 1901. Serial No. 58,258. (No model.)

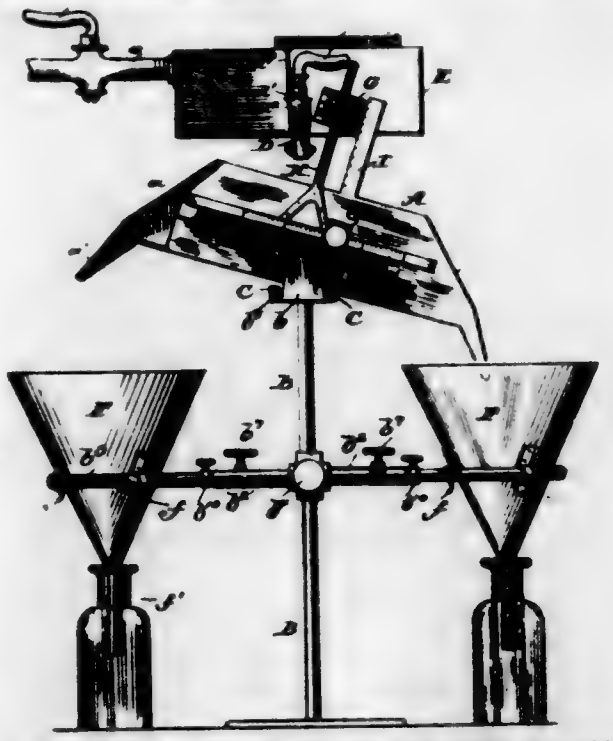
Claim.—1. The improved automatic liquid-weighing apparatus, comprising the fixed tank E, and its valve and float for maintaining a uniform height of liquid in the tank, a discharge-cock, and the tiltable hopper, arranged centrally in relation to said cock, and provided with hoods and discharge-spouts arranged and projecting downward, as shown and described.

2. In a liquid-weighing apparatus, the hopper supported centrally on horizontal pivots and having its ends provided with the inwardly-inclined hoods *a*, and the discharge-spouts *a'*, which extend downward at an obtuse angle to the flat bottom of the hopper and are provided with narrow discharge-openings, substantially as shown and described.

3. In a liquid-weighing apparatus, the tiltable hopper having its ends provided with covers or hoods *a*, and discharge-spouts which extend downward and have nearly the same width as the body of the hopper and are very narrow in the direction of the length of the hopper, so as to deliver the liquid in a wide but thin sheet, as shown and described.

4. In a weighing apparatus of the class described, the combination, with the pivoted tiltable hopper and a support therefor, of an elastic buffer consisting of a strip of elastic material secured at the middle of its length, and blocks arranged between the middle and ends of said strip, whereby the latter is held supported at its free ends to operate as and for the purpose described.

5. In an apparatus of the class described, the combination, with ring supports, of funnels having spring-clasps adapted to engage said supports, substantially as shown and described.



6. In an apparatus of the class described, the combination, with ring supports, of funnels having spring-clasps attached to their sides and having an S-shaped curve whereby they are adapted to engage the said supports detachably, substantially as shown and described.

7. In an apparatus of the class described, the combination with a support of a funnel-holder adapted to rotate horizontally and weighted on one side whereby it is adapted to normally maintain an inclined position as shown and described.

8. In an apparatus of the class described, the combination with a supporting-bar having a socket, of a holder for a funnel, having a shank provided with a circumferential groove, and a securing device which enters said groove as shown and described.

9. In an apparatus of the class described, the combination with a support of a funnel-holder adapted to rotate on its axis, and a stop for limiting its movement as and for the purpose specified.

10. In an apparatus of the class described, the combination with a supporting-bar having a socket and a lug as specified, of a funnel-holder whose shank is provided with two lugs or shoulders between which the single lug projects and is adapted to play as shown and described.

692,610. **FOCUSING DEVICE FOR PHOTOGRAPHIC CAMERAS.** FRANK A. BROWNELL, Rochester, N. Y., assignor to Eastman Kodak Company, Rochester, N. Y., a Corporation of New York. Original application filed Sept. 24, 1900, Serial No. 30,880. Divided and this application filed Sept. 20, 1901. Serial No. 75,814. (No model.)

Claim.—1. In a camera, the combination with a support having a guide or way thereon, a slide movable upon the way, and a catch arranged between the slide and way adapted to lock the slide at either extreme of its movements, of a carriage movable on the slide and coöperating therewith to operate it and also coöperating with the catch to disengage the slide from the way.

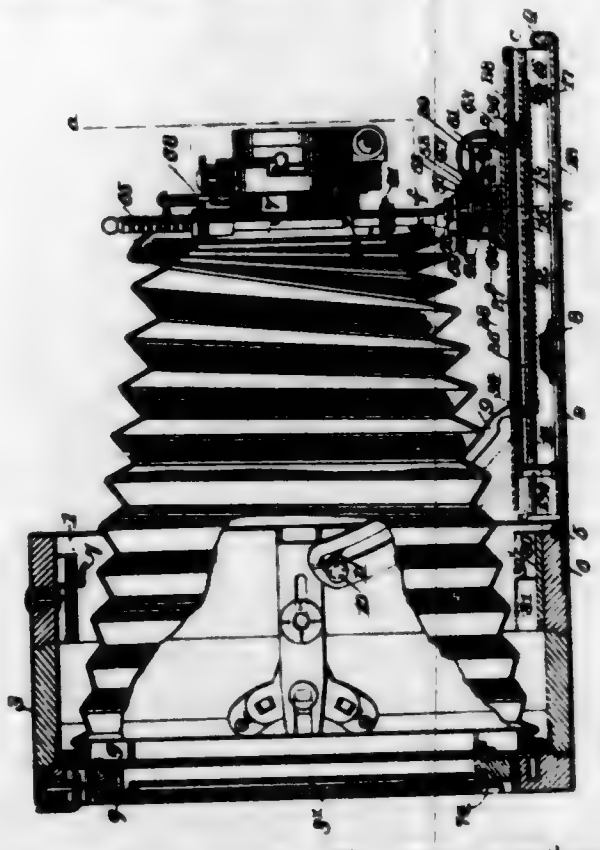
2. In a camera, the combination with a support having a guide or way thereon, a slide movable on the way, and a catch arranged between the slide and way to secure the latter at either extreme of its movements, of a carriage movable on the slide and engaging the latter near opposite ends to move it and also coöperating with the catch to release the slide when in position to engage and move the latter.

3. In a camera, the combination with a support, a way thereon, a slide movable on the way and detachable fastening devices for securing the slide to the way, of a carriage movable upon the slide and adapted to engage the latter to move it and also adapted to coöperate with the fastening devices to disengage the slide from the way, and detachable clamping devices for securing the carriage upon the slide.

4. In a camera, the combination with a support, a way thereon, a slide movable on the way and detachable fastening devices for securing the slide to the way, of a carriage movable upon the slide and adapted to engage the latter to move it and also adapted to coöperate with the fastening devices to disengage the slide from the way and automatic clamping devices on the carriage adapted to engage the slide and having operating portions which, when grasped by the operator, serve to release the carriage and operate as handles for adjusting the latter.

5. In a camera, the combination with a support, a way thereon, a

slide movable on the way, and a spring-catch adapted to engage and lock the slide at both extremes of its movement, of a carriage movable on the slide and engaging the ends of the latter to move it and also coöperating with the catch to release the latter when the carriage is at the end of the slide with which the catch is engaged.



6. In a camera, the combination with a support, a way thereon, a slide movable on the way and a catch arranged between the slide and its way to secure the former to the latter at both extremes of its movement, of a carriage movable upon the slide and adapted to engage and move the slide in both directions and coöperating with the catch to release the slide from its way and a detachable connection between the carriage and slide operated to release the latter from the former when at one extreme of its movement on the way.

7. In a camera, the combination with a support, a way thereon, a slide movable on the way and a catch for holding the slide at either extreme of its movement, of a carriage movable on the slide, engaging the latter to operate it in one direction and also adapted to release the catch, a movable stop on the slide adapted to be engaged by the carriage to operate the slide in one direction and means for releasing said catch when the slide is at one extreme of its movement.

8. In a camera, the combination with a support, a way thereon, a slide movable on the way and a catch at the forward portion of the way adapted to engage and lock the slide at either extreme of its movement, of a carriage movable on the slide and coöperating with the catch to release it, a movable abutment on the slide engaged by the carriage and a stop for moving the abutment out of the path of the carriage when the slide is detained by the catch at one extreme of its movement.

9. In a camera, the combination with a support, a way thereon, a slide movable on the way and locking devices for securing the slide at either extreme of its movement, of a carriage movable on the way adapted to engage and release the locking devices, connections between the carriage and the slide for operating the latter by the movement of the former in one direction and means for disengaging the carriage from the slide when the latter is secured to the way by the locking devices.

10. In a camera, the combination with a support, a way thereon, a slide movable on the way and a catch for holding the slide at both extremes of its movement, of a carriage movable on the slide and coöperating with the latter to move it in one direction, a movable projection on the slide adapted to be engaged by the carriage to cause the latter to move with it, means for withdrawing the projection when the slide is at one extreme of its movement and secured by the catch.

11. In a camera, the combination with a support, a way thereon, a slide movable on the way and a supplemental way in line with the slide, of a carriage movable upon the slide and the supplemental way, locking devices for securing the slide at the extremes of its movement and adapted to be released by the carriage and connections between the carriage and slide for causing the movement of the latter by the former in both directions and means for releasing the carriage from the slide when the former is moved toward the supplemental way.

12. In a camera, the combination with a support, a way thereon, a slide movable on the way and a supplemental way in line with the slide, of a catch on the way engaging the slide to lock it, a carriage movable on the slide and supplemental way, and engaging the former to move it in one direction, a movable catch on the slide engaged by the carriage to move the former in the opposite direction, a stationary stop engaged by the catch to release the carriage from the slide, said carriage operating to release the catch holding the slide when moved over it.

13. In a camera, the combination with a way, a slide movable thereon and a supplemental way in line with the slide, of a carriage movable upon the slide and supplemental way, locking devices for the slide released by the carriage, detachable connections between the carriage and slide released by the movement of the latter on the way and connections between the carriage and slide for moving the latter in one direction by the movement of the former, the parts arranged and operating substantially as described.

14. In a camera, the combination with the main frame having the supplemental way thereon, the hinged bed having the way, the slide on the way and the carriage movable on the supplemental way and upon the slide, locking devices between the slide and its way released by the carriage when at the ends of the slide, a detachable connection between the carriage and slide, and means for releasing it when the slide is adjacent to the supplemental way, whereby the carriage may move from the slide to the supplemental way freely and when moved in the opposite direction on the slide will disengage the latter from its way and carry it outward with it.

15. In a camera, the combination with the bed having a stationary way thereon, an extension-section movable on the way having a way and a rack thereon, a movable pinion mounted on the bed and coöperating with the rack, and a movable slide, of a carriage movable upon the slide, a catch between the slide and its way adapted to be released by the carriage when at the extremes of its movement on said slide and means for clamping the carriage on the slide.

16. In a camera, the combination with the way-plate 14, having the spring-catch 36 and the slide 27, having the apertures 31 and 131 coöperating with the catch, of the plate 28, the carriage 29 operating on the plate 28 and adapted to coöperate with the catch and coöperating projections between the carriage and the ends of the plate 28.

17. In a camera, the combination with the plate 14 having the spring-catch 36, the slide 27 having the apertures 31 and 131 and the catch 33 and the plate 28, of the carriage 29 adapted to engage catches 36 and 33 and the stop 136 coöperating with the catch 33, substantially as described.

18. In a camera, the combination with a way, a carriage movable thereon and supporting a lens, of a pair of spring-operated clamping cam-levers arranged between the carriage and the way, a movable block or plate operated by said levers and coöperating with the way and operating finger-pieces on opposite sides of the carriage and connected to the levers for simultaneously operating the levers and serving as a means for adjusting the carriage.

19. In a camera, the combination with a way, a carriage movable thereon and supporting a lens, a movable clamping-piece coöperating with the top of the guide, and the two rotary spring-operated cam-plates mounted on a vertical center and arranged between the clamping-piece and carriage, and the finger-pieces connected to the ends of the levers and projecting at the sides of the carriage whereby the cams may be released and the carriage operated.

20. In a camera, the combination with the movable carriage, the laterally-adjustable frame, and a lens-frame carried thereby, of a spring-operated clamping device arranged between the carriage and adjustable frame having an operating finger-piece at one side of the frame and in proximity to a stationary part thereof whereby the operator may grasp the finger-piece and frame and simultaneously release and adjust the latter.

21. In a camera, the combination with the way, a carriage adjustable thereon, the vertical pin on the carriage, the two spring-operated cam-levers pivoted on the pin between the carriage and way having the operating finger-pieces at the sides of the laterally-movable frame having the slot for the vertical pin, the spring-operated cam-lever coöperating with the pin and the laterally-movable frame having an operating portion in proximity to a stationary portion of the latter.

22. In a camera, the combination with the way-plate, the carriage 29, the block 63 and the rotary cam-levers 60 arranged between the block and way-plate, of the spring 62 operating on the cam-levers and the finger-pieces 61 connected to the cam-levers and arranged at the sides of the carriage.

23. In a camera, the combination with the carriage 29, the pin 49, and the cam-plate 54, of the slotted lever 56 engaging the cam-plate, the operating-handle having the spring 50 for operating it, and the slotted frame carrying the lens with which the cam-plate coöperates.

24. In a camera, the combination with the carriage, and the laterally-movable plate having the guiding-flanges extending over the carriage, of the standards having the threaded extensions passing through

the ends of the plate, the nuts on the ends of the standards, and the lens-frame vertically adjustable on the standards.

25. In a camera, the combination with a frame or support, the notched standards secured thereto, and the lens-frame having the perforated ears sliding on the standards, of the spring-catches secured to the lens-frame inside of the standards and adapted to automatically engage the notches on the standards to lock the lens-frame thereto, said catches having grasping portions extending outside of the standards and opposite each other serving as handles for raising or lowering the lens-frame when they are operated to release the latter.

26. In a camera, the combination with the frame having the notched standards, of the lens-frame guided to move upon the standards, the spring-catches engaging the notches and having the oppositely-arranged operating portions, and the centering-springs on the lens-frame coöperating with the notches on the standards.

27. In a camera, the combination with the focusing-glass frame having the openings, of the hinged door extending over the opening having the extension beyond the hinge-pintle, the spring operating upon said extension to open the door, the flexible cover-pieces at the sides, and the catch for holding the door closed against the tension of the spring.

28. In a camera, the combination with a support having a way thereon, of a slide movable on the way, and means for locking the slide to the way both when extended and when retracted, and a carriage movable on the slide.

29. In a camera, the combination with a support having a way thereon, of a slide movable on the way, a single locking device arranged between the slide and way and adapted to lock the slide in either extended or retracted position and a carriage movable on the slide.

30. In a camera, the combination with the bed having the way, the support on the way and means for adjusting it, of the slide movable on the support, a catch between the slide and support for locking the former in extended or retracted position, and a carriage movable on the slide.

31. In a camera, the combination with the bed, the support movable thereon and means between the bed and support for moving the latter, of the slide movable on the support, a spring-catch for locking the slide to the support in two positions and means for releasing the catch.

32. In a camera, the combination with the bed, the support adjustable thereon and means for locking the parts together, of a slide movable on the support and an automatic catch for locking the slide in retracted position.

33. In a camera, the combination with a support, and a slide movable thereon, of automatically-engaging catch devices for locking the slide in extended and retracted positions.

34. In a camera, the combination with a support, a slide movable thereon, and a supplemental way in line therewith, of a carriage movable on the slide and supplemental way, a catch for locking the slide in retracted position and means for preventing the removal of the carriage from the slide until the latter is locked to the support.

35. In a camera, the combination with the frame having the way therein provided with the recess in its upper portion, of the bed hinged to the frame, the ways thereon and the carriage adjustable on the ways in the frame and bed.

692,611. FLUSHING APPARATUS. JOÃO BUHOSA, Rio Janeiro, Brazil. Filed Aug. 20, 1901. Serial No. 73,741. (No model.)

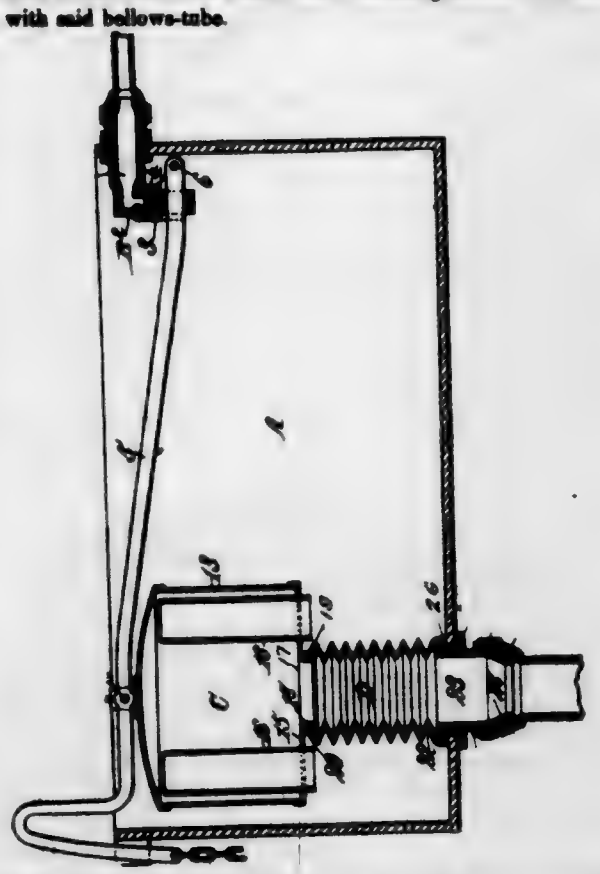
Claim.—1. The combination of a tank having an outlet, a bellows-tube the lower end of which is connected with said outlet, a float having an outlet in its bottom centrally thereof connected with the upper end of said tube, and a siphon-tube projecting through the bottom of said float at one side of the outlet in said float.

2. The combination of a tank having an outlet, a bellows-tube the lower end of which is connected with said outlet, a float having an outlet in its bottom centrally thereof connected with the upper end of said tube, a siphon-tube projecting through the bottom of said float at one side of the outlet in said float, a supply-pipe for said tank, having a valve, and a lever for actuating said valve connected with the float.

3. The combination of a tank having an outlet, a bellows-tube the lower end of which is connected with said outlet, a float having an outlet in its bottom centrally thereof connected with the upper end of said tube, siphon-tubes projecting through the bottom of said float at opposite sides of the outlet in said float, a supply-pipe having a valve, and a lever for actuating the valve, said lever being pivoted to the upper side of the float and having an inverted-U-shaped portion.

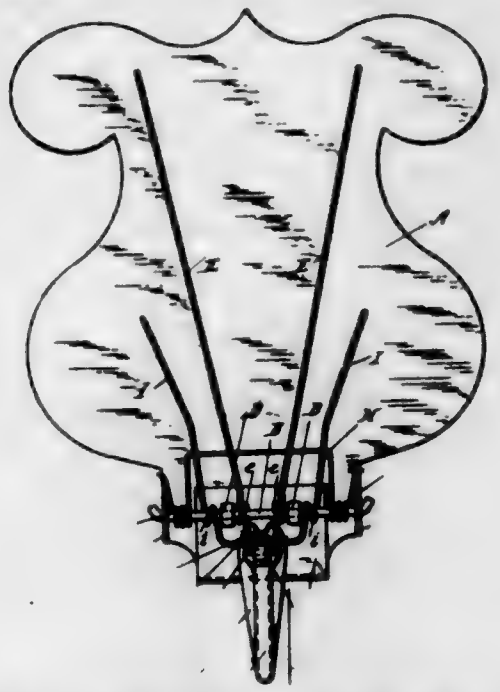
4. The combination of a tank, a float in said tank having an outlet provided with a downturned peripherally-grooved annular flange, a bellows-tube provided at its top with an annulus fitted in the groove in said flange, a pipe-section projecting through the bottom of the tank and having a flange set in a seat in the lower end of the bellows-tube, a nut on said pipe-section, a pipe the upper end of which is flared to embrace the lower end of the pipe-section and the latter being tapered, and a tapered nut at the junction of the pipe-section and pipe.

5. The combination of a tank, a float in said tank, a main siphon-tube projecting into the float through the bottom thereof and having a discharge-orifice, a tube secured in said orifice, a circular cap secured to said tube and having a central discharge-passage, a bellows-tube connected to the float in line with said orifice, and a discharge-outlet in communication with said bellows-tube.



6. The combination of a tank, a float in said tank, a main siphon-tube projecting into the float through the bottom thereof and having a discharge-orifice, a tube secured in said orifice, a circular cap secured to said tube and having a central discharge-passage, a second tube surrounding the other tube and separated therefrom and also inclosed by said orifice, a bellows-tube connected to the float in line with said orifice, a discharge-outlet in communication with said bellows-tube, a supply-pipe having main and auxiliary valves, the auxiliary valve being hand-operable, and a lever for actuating the main valve, connected with said float.

692,612. MUSIC-HOLDER. GEORGE BURT, Terre Haute, Ind. Filed June 1, 1901. Serial No. 62,701. (No model.)



Claim.—1. In a holder, the combination, with a plate, of a pair of spring-fingers pivotally supported above the said plate and provided with a rearwardly-projecting loop, and a cam-lever pivoted to the said loop and bearing against the said plate, substantially as set forth.

2. In a holder, the combination, with a plate, and a shaft supported above the plate; of a pair of spring-fingers pivoted on the said shaft and provided with a rearwardly-projecting loop, a cam-lever interposed be-

tween the said loop and plate, and a spring which raises the spring-fingers when the cam-lever is thrown out of action, substantially as set forth.

3. In a holder, the combination, with a plate, and a shaft supported above the plate; of two pairs of spring-fingers pivoted independently on the said shaft and each provided with a rearwardly-projecting loop, a cam-lever pivoted to one of the said loops and operatively engaging with the other said loop and bearing on the said plate, whereby the said pairs of spring-fingers are operated simultaneously, substantially as set forth.

4. In a holder, the combination, with a plate, pillars projecting from the plate, and a shaft carried by the said pillars; of a pair of spring-fingers provided with a central loop and eyes which are pivoted on the said shaft between the pillars, a cam-lever which bears on the plate and is provided with a lug which is pivoted to the said central loop, a second pair of spring-fingers having a loop which bears on the top of the said lug and eyes which are pivoted on the said shaft outside the pillars, and a lifting-spring also carried by the said shaft and provided with a loop which extends under the pairs of spring-fingers, substantially as set forth.

692,613. VEHICLE-SPRING. ZACHARIAH T. BUSH, Grandledge, Mich. Filed Aug. 2, 1901. Serial No. 70,611. (No model.)

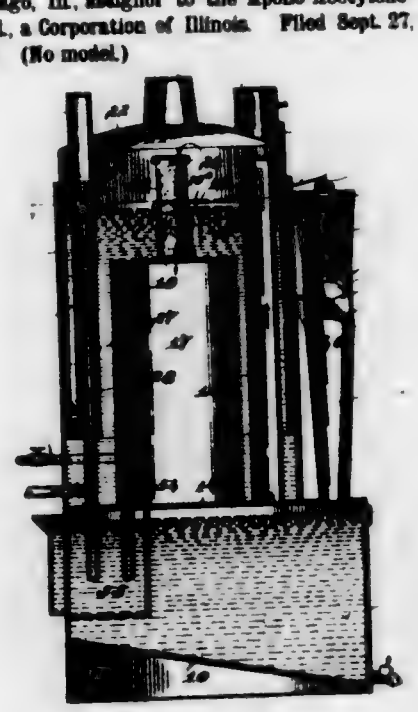


Claim.—1. A vehicle-spring substantially as herein described consisting of the end springs, provided at their centers with the outwardly-bowed portions and near their ends with the outwardly-bowed portions curved reversely to the said central portions, the intermediate spring arranged between the end springs and having at its center the outwardly-bowed portions arranged reversely to the center portions of the end springs, and provided at its ends with the outwardly-bowed portions which are arranged reversely to the end portions of the end springs, the devices connecting the ends of the end and intermediate springs, and the spring-bar supporter comprising the bars secured upon the end springs at their centers, and having the end eyes, the intermediate bar arranged between said bars and provided at its ends with eyes, and the connecting-bolts passing through the eyes of the said bars, all substantially as and for the purposes set forth.

2. The combination in a vehicle-spring of the intermediate spring, the end springs bowed outwardly at their middles, and the spring-bar supporter consisting of the bars secured between their ends to the end springs, the bar intermediate the said end spring-bars, and devices connecting the said bars at their ends, substantially as set forth.

3. In a vehicle-spring the combination of the end springs, the intermediate spring, said end and intermediate springs being bowed outwardly at their middles in reverse directions, the bars secured at their middles upon the outwardly-bowed portions of the end springs and provided with the end eyes, the bar between the said bars and having the end eyes coinciding with those of the end bars, and the bolts passing through said eyes, substantially as and for the purpose set forth.

692,614. ACETYLENE-GAS GENERATOR. CHARLES W. CALDWELL, Chicago, Ill., assignor to the Apollo Acetylene Gas Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 27, 1900. Serial No. 31,309. (No model.)



Claim.—1. The combination with a carbid-holder divided at its lower end into two compartments, of a valve in each compartment, each of said valves comprising two cross-pieces with a space between them, and each of said cross-pieces being adapted to prevent the discharge of carbid from the holder, a separate pivotal support for each valve, means for rocking one only of said valves to permit the discharge of carbid through the space between the two cross-pieces of the valve while the other valve remains stationary, means for normally holding one of said cross-pieces of the said operating-valve in position to prevent the discharge of carbid, means for throwing and holding the other cross-piece of said operating-valve into position to prevent the discharge of carbid in case of accident to the means through which said operating-valve is moved, and means for thereafter operating the other of the two valves only, substantially as specified.

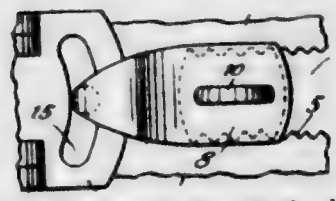
2. In an acetylene-gas generator, the combination with a casing open at its upper end and adapted to contain water, a bell movable therein, a water-reservoir communicating with said casing and adapted to contain water, a carbid-holder communicating with said reservoir, a valve in said holder, an operating-rod pivotally connected with said valve, means for moving said rod through the downward movement of the said bell, a cap or cover for the carbid-holder, and a supporting connection for said rod, extended to said cap or cover and removably secured thereto, whereby upon its disengagement from the cap or cover in order to permit said cap or cover to be removed, the said rod will turn upon its pivotal connection out of position to be operated upon by the bell, substantially as and for the purpose specified.

3. In an acetylene-gas generator, the combination with a casing open at its upper end and adapted to contain water, a bell movable therein, a water-reservoir communicating with said casing and adapted to contain water, a carbid-holder communicating with said reservoir, a valve in said holder, a rock-shaft secured to said valve and suitably journaled in said holder and projecting at one end therethrough, a crank on said projecting end, a rod pivoted to said crank, means for moving said rod through the downward movement of the said bell, a cap or cover for the carbid-holder, and a supporting connection for said rod, extended to said cap or cover and removably secured thereto, whereby upon its disengagement from the cap or cover in order to permit said cap or cover to be removed, the said rod will turn upon its pivotal connection out of position to be operated upon by the bell, substantially as and for the purpose specified.

4. In an acetylene-gas generator, the combination with a casing open at its upper end and adapted to contain water, a bell movable therein, a water-reservoir communicating with said casing and adapted to contain water, a carbid-holder communicating with said reservoir, a valve in said holder, an operating-rod pivotally connected with said valve, means for moving said rod through the downward movement of the said bell, a cap or cover for the carbid-holder, an engaging device carried by said cap or cover and adapted to receive a hook, and a link attached at one end to said pivoted rod and having a hook at the other end adapted to be connected to said engaging device on the cap or cover, substantially as and for the purpose specified.

5. The combination with a carbid-holder open at its lower end, of a valve comprising two curved concentric cross-pieces with a space between them, each of said curved concentric cross-pieces being arranged in juxtaposition to the open lower end of the carbid-holder and adapted to close such open lower end, a pivotal support for said valve located below the valve, means for rocking said valve on its pivotal support, and a stop on each side of the valve to limit the movement of the valve in either direction so as to insure the said open lower end of the carbid-holder being closed by one or the other of said curved concentric cross-pieces in case of accident and thereby prevent the discharge of any carbid from the holder, substantially as and for the purpose specified.

692,615. LEATHER-STRETCHING DEVICE. JOHN CALDWELL, Minneapolis, Minn., assignor to W. S. Nott Company, Minneapolis, Minn., a Corporation. Filed Nov. 19, 1901. Serial No. 82,316. (No model.)



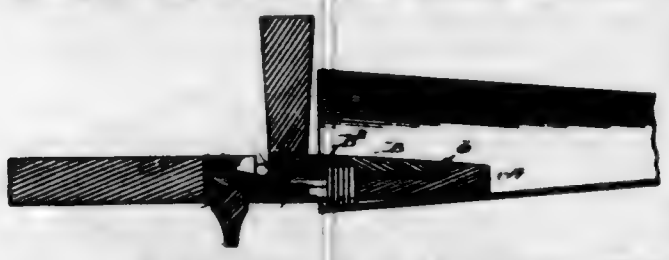
Claim.—1. The combination with a stretcher-head having a slot extending in the direction of the machine's tension, the side walls of the slot having irregularities of surface, of an independent leather-holder coupling device provided with a body adapted to be inserted and retained in such slot to connect a leather-holder to the stretcher-head, substantially as set forth.

2. The combination with a stretcher-head having a slot extending

to the direction of the machine's tension, the side walls of the slot having irregularities of surface, of an independent leather-holder coupling device provided with a body adapted to be inserted and retained in such slot, and means for pivotally connecting a leather-holder to the coupling device, substantially as set forth.

3. The combination with a stretcher-head having a slot extending in the direction of the machine's tension, the side walls of the slot having irregularities of surface, of an independent leather-holder coupling device provided with a pivotally-connected body adapted to be inserted and retained in such slot, and means for connecting a leather-holder to such coupling device, substantially as set forth.

692,616. STAMP FOR PRINTING ON INNER OR OUTER SURFACES OF CONES, CYLINDERS, AND CURVED SURFACES. CHARLES H. CALLAHAN, Cedartown, Ga., assignor of one-half to Paul F. Akin, Cartersville, Ga. Filed July 6, 1901. Serial No. 67,366. (No model.)



Claim.—1. In a device such as described, the combination with the body portion, the carrier pivoted near one end thereof, and adapted to be moved toward and from the body portion and to lie in substantial parallelism therewith, the handle on the body and the independent handle on the movable member and means for retaining the impression device in the carrier.

2. In a device for the purpose specified, the combination with the relatively long body having the rounded surface at one end, the handle at the opposite end, the recessed portion above the rounded surface and the slot extending through from said cut-away portion, of the carrier fitting in said recessed portion of the body pivoted at one end and having a handle at the opposite end, and impressing devices mounted in the carrier and projecting through the slot in the body; substantially as described.

3. In a device of the character specified, the combination with the elongated body having the handle at one end and the recessed portion and slot at the opposite end, of the carrier mounted in said recessed portion, the type and clamp for holding the same in the carrier in position to project through the slot in the body and means for inking the type mounted on the body; substantially as described.

4. In a device of the character specified, the combination with the body and carrier pivotally mounted thereon, said body and carrier being rounded and tapered toward the end, of type mounted in the carrier and projecting through the body and handles on the outer ends of the body and carrier respectively; substantially as described.

5. In a device of the character specified, the combination with the elongated body and carrier pivotally mounted thereon, type mounted in the carrier and projecting through the body, of an inking-pad mounted on the body and movable toward and from the path of the type and handles on one end of the body and carrier respectively; substantially as described.

692,617. GAME. JOHN D. CANALE, Memphis, Tenn. Filed Aug. 29, 1901. Serial No. 73,727. (No model.)



Claim.—1. A game-board, having a plurality of individually-distinguished sections, each section being provided with a plurality of characters disposed in the form of a scale, and a plurality of independent mobile indicators corresponding to the respective sections and capable of being moved in all directions over the board and into coöperative relation with the scale by tilting and shaking movements of the board.

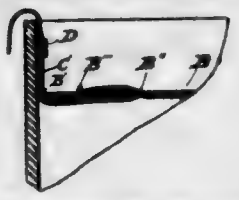
2. A game-board, having a circular series of characters, a socket or depression disposed concentrically with respect to the characters, and a mobile pointer or index having an intermediate lateral stud or projection, said pointer being capable of being moved in all directions over the board to enter the projection thereof into the socket and to coöperate the pointer with the characters by tilting and shaking movements of the board.

3. A game, comprising a body having a plurality of individually-distinguished sections, each of which is provided with a socket or depression, and a circular series of numerals arranged concentrically with respect to the socket or depression, and a plurality of loosely-movable pointers corresponding to the respective sections, and provided with intermediate lateral projections or studs to be seated in the respective sockets and thereby to coöperate the pointers with the respective series of numerals.

4. A game, embodying a body having a flat upper surface which is provided with a plurality of depressions, the backs of the depressions being differently colored so as to be individually distinguished, each depression also being provided with a circular series of characters and a socket or perforation disposed concentrically with respect to the characters, and a plurality of mobile pointers colored to correspond with the backs of the respective depressions and provided with intermediate lateral projections or studs, said pointers being capable of being freely moved in all directions over the upper surface of the body to enter the projections or studs in the respective sockets or openings by tilting and shaking movements of the board.

5. A game, comprising a body having a stepped upstanding marginal flange to form an intermediate marginal shoulder, a flat plate supported upon the shoulder and provided with a depression having a circular series of characters upon the back thereof, and also provided with a socket or perforation disposed concentrically with respect to the characters, the adjacent upstanding rim portion of the body being provided with inwardly-directed punched portions snugly overlapping the upper side of the plate to hold the same against the shoulder, a transparent cover, and a mobile pointer of slightly less length than the diameter of the depression in the plate and provided with an intermediate lateral stud or projection, said pointer being freely movable in all directions over the upper surface of the plate to enter the stud in the socket or perforation by tilting and shaking movements of the board.

692,618. DISPLAY-BOX. EDWARD F. GARR, Los Angeles, Cal. Filed Aug. 23, 1900. Serial No. 27,853. (No model.)



Claim.—1. A display-box, comprising an outer case or box; a perforated false bottom in said box; ribbons in said perforations, having one end fastened to the box near the top, said ribbons passing through said perforations, as shown and described, the weight of the goods on the false bottom locking the free end of the ribbon between the false bottom and the portion of the ribbon which sustains the weight, and being adapted to elevate and hold the false bottom at any point of elevation in the box, as and for the purposes substantially as described herein.

2. A display-box, comprising an outer case or box; a perforated movable false bottom in said box; means, comprising ribbons, one at each end of said box, having one end fastened to the end of the box at or near the top thereof, thence passing down and under the false bottom, thence along and across a perforation therein, and then up and through a second perforation in said bottom; thence down through the first perforation and back up to the top of the box to elevate and hold elevated said false bottom in said box.

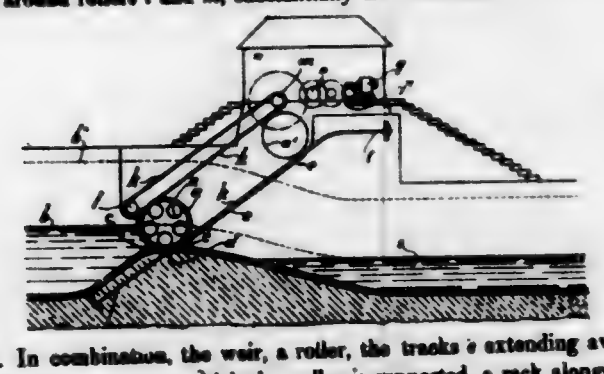
3. A display-box, comprising an outer case or box; a perforated movable false bottom in said box; means, comprising cords, having one end attached to the movable bottom, the free end passing through catches on the box, and catches on the box to elevate and hold elevated said false bottom in said box.

4. A display-box, comprising an outer case or box; a movable false bottom in said box; ribbons fastened to said movable bottom, the free ends passing through catches on the box; and catches on the box, adapted to catch and hold said ribbons, substantially as described herein.

692,619. FLOOD-GATE DAM OR WEIR. MAX CARSTANJEN, Nuremberg, Germany, assignor to Firm of Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg, A.-G., Nuremberg, Germany. Filed Sept. 27, 1900. Serial No. 31,292. (No model.)

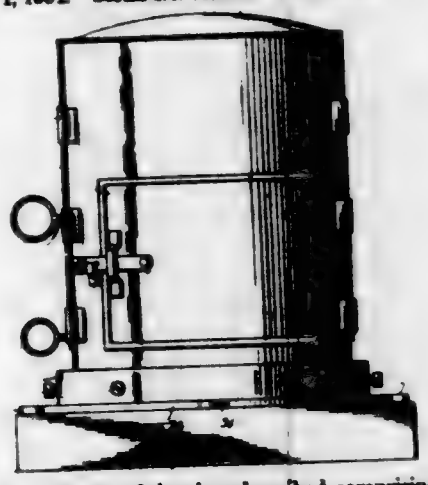
Claim.—1. In combination a flood-gate, a weir, a roller *a*, a track extending away from the said weir and upon which the roller is adapted to move, and by which it is supported, and means for positively moving the roller along the track, substantially as described.

2. In combination in a flood-gate, a weir, a roller *a*, a track extending away from the said weir and upon which the roller is adapted to move, and by which it is supported, and means for positively moving the roller along the track, said means consisting of the chain *k* extending around a part of the roller having its ends anchored and its intermediate portion passing around rollers *l* and *m*, substantially as described.



3. In combination, the weir, a roller, the tracks *c* extending away from the weir, and upon which the roller is supported, a rack alongside the track, a gear on the roller meshing with the rack and means for moving the roller along the track, substantially as described.

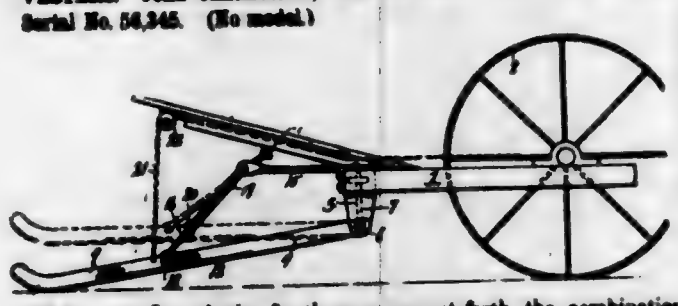
692,620. **FLOW-PREVENTER.** HARDY CARTER, Yazoo City, Miss. Filed Aug. 1, 1901. Serial No. 70,532. (No model.)



Claim.—1. A device of the class described comprising an inner cylindrical body having inwardly and outwardly directed flanges at its lower end, the inwardly-directed flange being adapted to fit about a well-casing, a cylindrical casing inclosing the body and secured to the exterior flange thereof, a door-opening in the casing having a closure, a spout passed through the body and registering with the door-opening of the casing, and a closure for the spout.

2. A device of the class described comprising a cylindrical body having an inclosing casing spaced therefrom, a door-opening in the casing having a closure, a spout passed into the body and communicating therewith, the outer end of the spout being disposed adjacent to the door-opening, a pivoted disk within the body and disposed for movement to cover the inner end of the spout, means for rocking the disk into and out of closing position, a cover for the body having a weight-receptacle, and a cover for the casing, the body and casing being connected at their lower ends and the body having an inwardly-directed flange at its lower end constructed and arranged to snugly fit about a well-casing.

692,621. **STUBBLE-CUTTER ATTACHMENT FOR CORN-HARVESTERS.** JOHN CHAMBERLIN, Flatrock, Mich. Filed Apr. 18, 1901. Serial No. 56,345. (No model.)



Claim.—1. In a device for the purpose set forth, the combination of a portable frame, a knife-carrying frame loosely attached thereto, a knife upon said frame and a spring-actuated rod jointedly attached to the knife-frame for holding said knife yieldingly in position.

2. In a device for the purpose set forth, the combination of a transporting-frame, an auxiliary frame comprising rearwardly and downwardly extending bars whose rear ends bear upon the ground and whose forward ends are jointedly attached to the transporting-frame, a knife mounted on said auxiliary frame to present its edge obliquely to the line of stalks and having its forward end elevated above the rear end thereof, a rigid bar attached to the transporting-frame and extending rearwardly, a rod jointedly attached to the auxiliary frame at its lower end and passing freely through said bar at its upper end, a spring surrounding the upper end of said bar being supported at its lower end by a pin through said rod and bearing at its upper end against said bar and means for raising the rear end of the auxiliary knife-frame.

3. In a device for the purpose set forth, the combination of a portable frame, an auxiliary frame attached thereto to have a slight lateral movement at its rear end, a knife mounted obliquely in the auxiliary frame and means for allowing the auxiliary frame to move laterally against spring resistance.

4. In a device for the purpose set forth, the combination of a portable frame, an auxiliary frame loosely attached thereto comprising knife-supporting bars whose rear ends rest upon the ground, a knife mounted at an angle in said auxiliary frame, a spring-actuated rod pivoted to the knife-frame and a rigid bar mounted on the portable frame supporting the upper end of said rod and through which said rod passes freely.

692,622. **WATCHMAKER'S TOOL.** SAMUEL W. CHERRYTREE, Washington, N. J. Filed Apr. 4, 1901. Serial No. 54,291. (No model.)



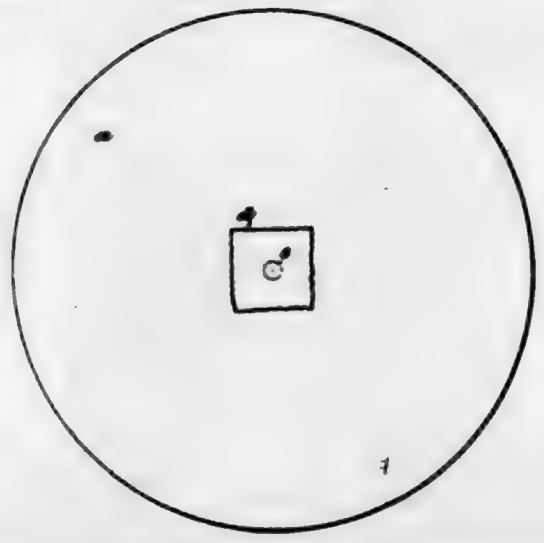
Claim.—1. A watchmaker's tool, comprising a block having a vertical groove in one side edge, and provided with a handle projecting from one end, and a spring-plate secured at one end to the block and extending across the said groove, as set forth.

2. A watchmaker's tool comprising a block having an attached handle, said block being provided in one side edge with a seat for a jewel, in the form of a groove in one side, a plate-spring secured at one end to the block and extending across the said groove, and a tension device for the said spring, as described.

3. In a watchmaker's tool, a body provided with a handle, the said body being provided with an opening adapted to receive the staff of a balance-wheel, the body being further provided with a recess in one side opposite the said opening, the said recess being adapted as a seat for a jewel, a spring extending across the said recess, a regulating device for the spring, and a latch pivoted upon the body adjacent to the opening therein, which latch extends to the outer end of said body and terminates in a point adapted for punching out old jewels, as set forth.

4. In a watchmaker's tool, the combination with a body provided with an opening to receive the staff of a balance-wheel, and with a jewel-seat, and a retaining device for holding a jewel in said seat, of a latch pivoted to the body adjacent to the opening therein, said latch having a recess in one edge and a point or spur at its end, as and for the purpose set forth.

692,628. **SEAL FOR PHONOGRAPHIC RECORDS.** ALFRED CLARK, Paris, France. Filed Dec. 7, 1900. Serial No. 38,992. (No model.)



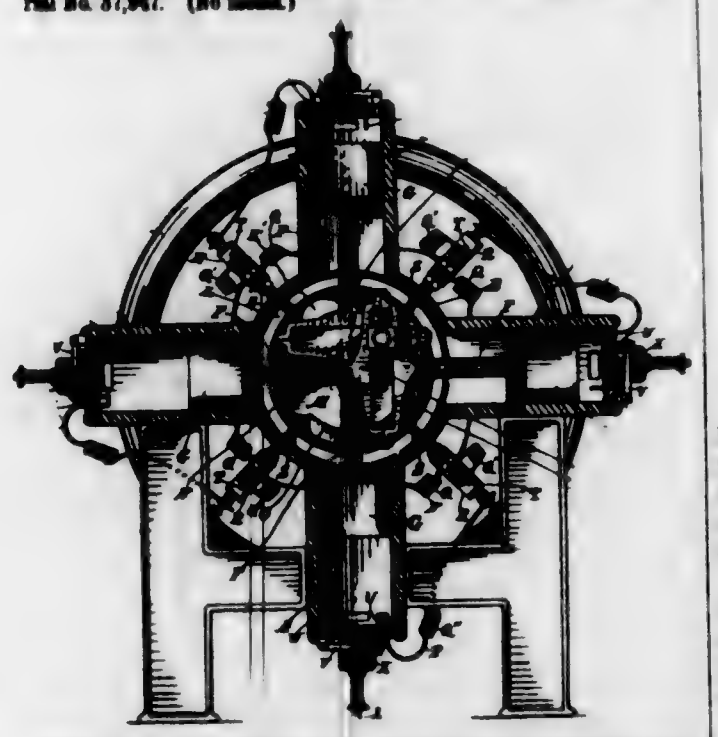
Claim.—A phonographic record having a seal embedded therein or placed thereon to cover the central aperture so that it must be punctured by the act of placing the record in use upon the machine, substantially as described.

692,624. SEAL FOR PHONOGRAPHIC RECORDS. ALFRED CLARK, Paris, France. Filed Apr. 22, 1901. Serial No. 56,329. (No model.)



Claim.—A phonographic record having a seal-shackle passed through its central bore or aperture and having its ends united and sealed by wax or its equivalent, substantially as described.

692,625. SPARKING IGNITER FOR COMBUSTIBLE-VAPOR ENGINES. DEVELLO P. CLARK, Grand Rapids, Mich., assignor of one-half to Alvah W. Brown, Grand Rapids, Mich. Filed Nov. 27, 1900. Serial No. 37,947. (No model.)



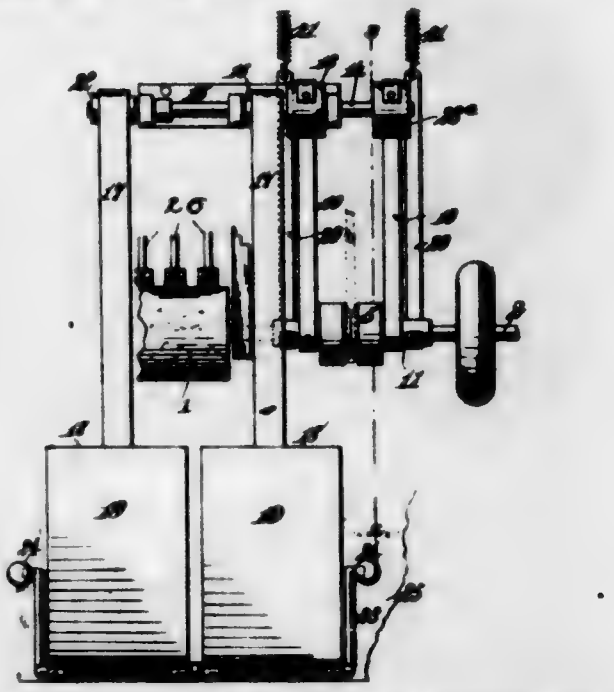
Claim.—1. The combination of a crank-shaft, four combustible-vapor engines arranged radially about said shaft and connected thereto, an electric igniter to each engine, a normally open circuit to each igniter, a circuit-closer in each circuit, radial and longitudinally-movable rods to operate the circuit-closers, a cam-wheel loosely journaled on the crank-shaft and having a cam to successively engage the rods and close the circuits, and gears connecting the cam and shaft whereby the cam is revolved once to every three revolutions of the shaft, substantially as described.

2. The combination of a crank-shaft, a series of combustible-vapor engines arranged radially about said crank-shaft, an electric igniter and an exhaust-valve to each engine, an electric circuit having normally open branch circuits to each igniter, a circuit-closer in each branch circuit, radial and longitudinally-movable rods to operate the circuit-closers and exhaust-valves, a cam-wheel loosely journaled on the crank-shaft, a cam on the wheel to engage the circuit-closer rods, a second cam on the wheel to engage the valve-rods, an internal gear attached to the cam-wheel, a pinion attached to the crank-shaft, and a gear connecting the internal gear with the pinion and rotative on a fixed stud, substantially as described.

3. The combination of four combustible-vapor engines arranged radially about a common crank-shaft, an exhaust-valve and an electric igniter to each engine, an electric circuit having a branch to each igniter, an insulated electrode and an insulated plate in each branch, radial and longitudinally-movable rods supporting the electrodes, radial and longitudinally-movable rods operating the exhaust-valves, a cam-wheel loosely journaled on the crank shaft, cams on the wheel to operate all of said rods, and means for rotating the wheel on the shaft, substantially as described.

4. The combination of a crank-shaft, four combustible-vapor engines arranged radially about the crank-shaft, an electric igniter and an exhaust-valve to each engine, an electric circuit having a branch circuit to each igniter, a fixed insulated plate in each branch, a movable insulated electrode in each branch circuit, radial and longitudinally-movable rods supporting the electrodes, springs on the rods to open the circuits, longitudinally-movable rods to operate the valves, springs on the rods to close the valves, a cam-wheel loosely journaled on the crank-shaft, a cam on the wheel to engage the rods which close the circuits, a cam on the wheel to engage the rods which open the valves, an internal gear attached to the cam-wheel, a pinion attached to the shaft, a gear connecting the internal gear and the pinion, and rotative on a fixed stud, substantially as described.

692,626. FOOT-PROPELLING DEVICE. GEORGE P. CLARK, New York, N. Y., assignor of one-half to G. Howlett Davis, New York, N. Y. Filed Mar. 3, 1900. Serial No. 7,307. (No model.)



Claim.—1. In a mechanically-played musical instrument, the combination of an operating-pedal, means for transmitting reciprocating motion therefrom, friction-clutch mechanism converting the reciprocating motion into continuous rotary motion, the power-drum deriving continuous rotation from said clutch mechanism, and friction-shoes actuated by the drum, substantially as set forth.

2. A pedal-clutch mechanism for driving the motor-drum of a mechanically-operated musical instrument, comprising pedals 19, 19, pull-straps 17, 17, pulleys 13, 16, 22, 23ª, shaft 14, belts 10 and 20, clutch-sleeves 11, 11, eccentric clutches 6, and clutch-pulleys 5, on the shaft 2, of motor-drum 1, substantially as described.

3. A pedal-clutch mechanism for driving the motor-drum of a mechanically-operated musical instrument, comprising pedals 19, 19, pull-straps 17, 17, pulleys 13, 16, 22, 23ª, shaft 14, a shaft 2, clutch-sleeves 11, 11; eccentric clutches 6, mounted on shaft 2, clutch-pulleys 5, belts connecting said sleeves 11, 11, and pulleys 13, and 23ª, and a power-drum 1, on said shaft 2, substantially as described.

4. In a pedal-clutch mechanism for driving the power-drum of a mechanically-operated musical instrument, the combination with a shaft to be driven and the power-drum on said shaft, of a double clutch-pulley also on said shaft, a counter-shaft having pulleys thereon, straps connecting the loose pulley-sections on the driven shaft and the pulleys on the counter-shaft, a pair of foot-pedals, separate straps each attached at one end to one of the pedals and at the other end to the counter-shaft, and spring-controlled straps acting on the clutch-pulleys in opposition to the other straps acting on said pulleys, the parts operating substantially as described.

692,627. HYDROCARBON COMPOSITION. BEE R. CLAWSON, Oakland, Cal. Filed Nov. 4, 1901. Serial No. 81,084. (No specimens.)

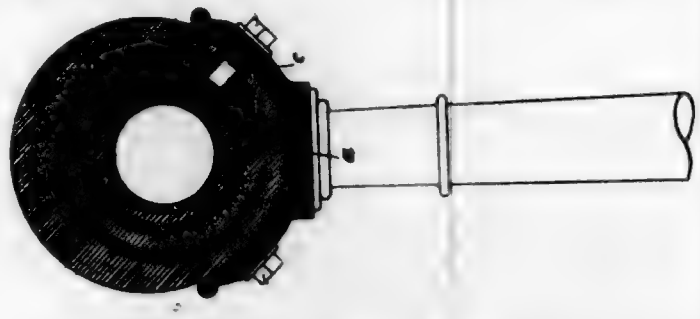
Claim.—1. The herein-described composition of matter, consisting of asphaltum, bituminous rock, sand or like material, the mineral "uintahite" or "gilsonite," and litharge, substantially as described and for the purposes specified.

2. The herein-described composition of matter, consisting of asphaltum one hundred pounds, bituminous rock three hundred pounds, "uintahite" or "gilsonite" one hundred pounds, sand or like material fifty pounds, and litharge five pounds, all substantially as described.

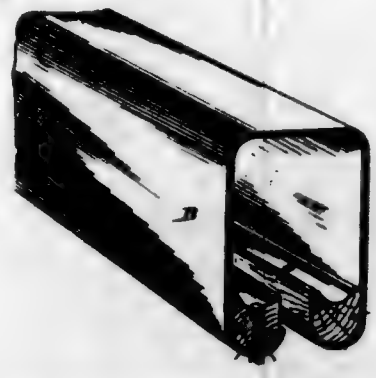
692,628. RESILIENT TIRE FOR VEHICLES. FRANZ CLOUTH, Cologne-Nippes, Germany. Filed Dec. 7, 1901. Serial No. 85,078. (No model.)

Claim.—1. In a tire for the wheels of vehicles, the combination of a resilient body material, with insertions of non-extensible strengthening material of complete circular section except for a breadth on the inner circumference of the tire in proximity to the bed of the rim at which part the resilient material is uninterrupted substantially as and for the object set forth.

2. In a tire for the wheels of vehicles, the combination of a resilient body material, insertions of non-extensible strengthening material complete in the outer portion of the tire but terminating in each side near the center of the bed of the rim, and means of attachment adapted to engage said tire in the part containing the canvas insertion, substantially as and for the object set forth.



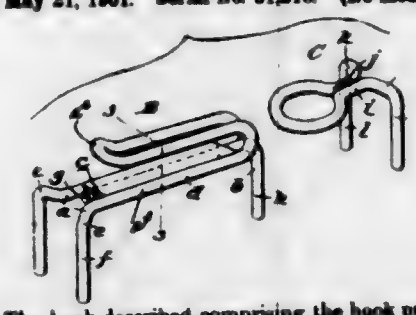
692,629. SOUND-DEADENING DEVICE FOR METALLIC TROLLEY-TRACKS. ARNO A. COBURN, Holyoke, Mass. Filed July 11, 1901. Serial No. 67,882. (No model.)



Claim.—1. In a tubular metallic trolley-track having separated parallel runways, non-metallic sound-deadening linings applied to said runways, and means for fixing said linings thereto, presenting no part thereof on the wheel-engaging surface thereof, substantially as described.

2. In a tubular metallic trolley-track having separated parallel runways, sound-deadening linings of wood applied to said runways, and bolts fixing said linings therein having the heads thereof buried within said linings out of contact by a wheel running thereon, substantially as described.

692,630. HOOK AND EYE. WILLIAM P. COWERY, New Orleans, La. Filed May 21, 1901. Serial No. 61,216. (No model.)

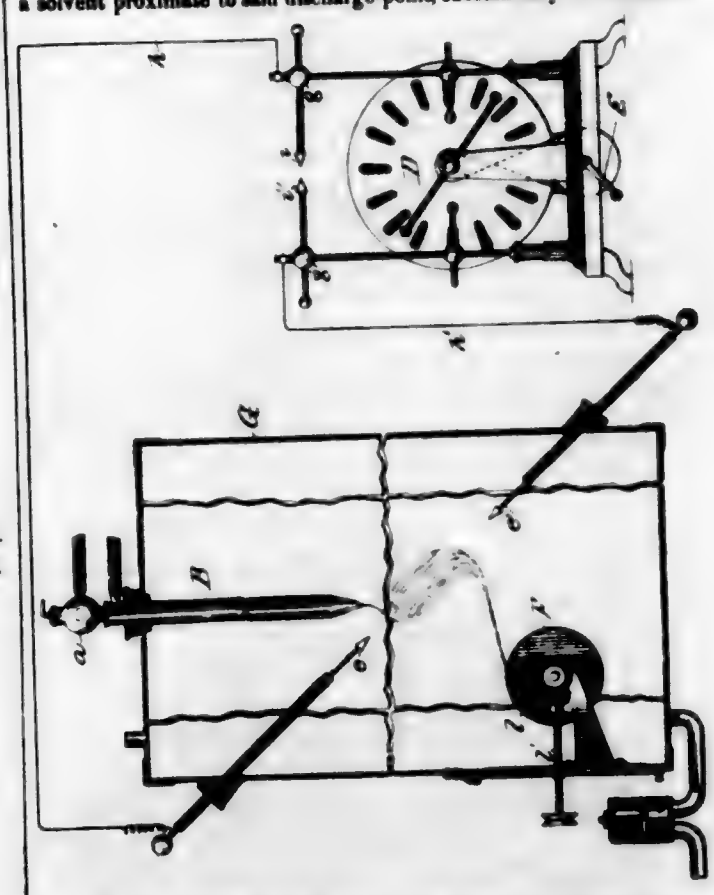


Claim.—The hook described comprising the hook proper made of a single piece of wire looped to form a hook and parallel shank portions at the rear end of the hook, and having said shank portions bent laterally outward and terminating in prongs disposed at right angles to the shank, and a tongue also made of a single piece of wire and having an arm interposed between and connected to the shank portions of the hook proper, and also having a prong disposed at right angles to the arm and arranged at the forward end of the hook.

692,631. APPARATUS FOR ELECTRICALLY DISPERSING FLUIDS. JOHN F. COOLEY, Boston, Mass., assignor to Charles S. Farquhar and Ambrose Eastman, Boston, Mass. Filed Oct. 6, 1899. Renewed June 8, 1900. Serial No. 19,626. (No model.)

Claim.—1. In an apparatus for separating from composite fluids the volatile liquid component and breaking up the fixed component thereof, the combination of a source of high-tension electricity, means for feeding the composite fluid into the field of electrical discharge from said source of high-tension electricity, and a feeder for a solvent proximate to the feeding-point of said fluid, substantially as described.

2. The combination, with a source of high-tension electricity, of means for projecting a fluid into the field of electrical discharge from said source of high-tension electricity, an electrical connection from one pole of said source of high-tension electricity to said discharge-point and a feeder for a solvent proximate to said discharge-point, substantially as described.



3. The combination with a source of high-tension electricity of means for projecting a fluid into the field of electrical discharge from said source of high-tension electricity, an electrical connection from one pole of said source of high-tension electricity to said discharge-point, an electrical connection from the other pole thereof to an attracting point or surface, and a feeder for a solvent proximate to said discharge-point, substantially as described.

4. The combination of a vessel having a discharge-orifice, a source of high-tension electricity, an electrical connection from one pole of said source of electricity to the discharge-orifice and mechanism for withdrawing the product from the electrical field, substantially as described.

5. The combination of a vessel having a discharge-orifice, a source of high-tension electricity, an electrical connection from one pole of said source of electricity to the discharge-orifice, an electrical connection from the other pole of said source of electricity to an attracting point or surface and mechanism for withdrawing the product from the field of electrical discharge before reaching said attracting-point, substantially as described.

6. The combination of a vessel having a discharge-orifice, a source of high-tension electricity, an electrical connection from one pole of said source of electricity to the discharge-orifice, mechanism for collecting the product, substantially as described.

7. In an apparatus for electrically producing fibers from composite fluids, the combination of a source of high-tension electricity, means for projecting the composite fluid into the field of electrical discharge thereof, an electrical connection from one pole of said source of electricity to the delivery-point of said composite fluid and a reeling mechanism for reeling the fibers, substantially as described.

8. In an apparatus for electrically producing fibers from composite fluids, the combination of a source of high-tension electricity, means for delivering a stream of a viscous composite fluid into the field of electrical discharge thereof, an electrical connection from one pole of said source of electricity to the delivery-point of said fluid, an electrical connection from the other pole of said source of electricity to an attracting point or surface, and a reeling mechanism for reeling the fibers, substantially as described.

9. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated form into the path of convective action, and means for conducting a supply of the composite fluid to the delivering device, substantially as described.

10. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said

source, means for delivering a composite fluid in a free and attenuated form into the path of convective action and for proportioning the volume delivered to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivering device and means for collecting the fixed or non-volatile products of the convective action upon the composite fluid, substantially as described.

11. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated form into the path of convective action and for proportioning the volume delivered to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivering device and means for collecting the fixed or non-volatile products of the convective action upon the composite fluid, and for removing them from proximity to the path of convective action, substantially as described.

12. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated form into the path of convective action and for proportioning the volume delivered to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivering device and means for collecting the volatile products of the convective action upon the composite fluid, substantially as described.

13. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated form into the path of convective action and for regulating the volume delivered to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivering device and means for collecting the volatile products of the convective action upon the composite fluid, substantially as described.

14. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, and for adjusting the length thereof, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, and means for conducting a supply of the composite fluid to the delivering device, substantially as described.

15. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for regulating the tension of said source, means for producing a field of convective discharge interposed in the circuit of said source and for adjusting the length thereof, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, and means for conducting a supply of the composite fluid to the delivering device, substantially as described.

16. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, means for supplying a supplementary solvent to the device at its verge or place of transition of the composite fluid from the confined to the free state, and means for conducting a supply of the composite fluid to the delivering device, substantially as described.

17. In an apparatus for separating the volatile liquid component from the component of fixed substances in a composite fluid composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, means for supplying a supplementary fluid to the delivering device at its verge or place of transition of the composite fluid from the confined to the free state, means for regulating the supply of the supplementary fluid, means for adjusting the position in the field of the delivery of the composite fluid and for proportioning the volume thereof to the dispersive strength of the convective action, and means for conducting a supply of the composite fluid to the delivering device, substantially as described.

18. In an apparatus for separating the volatile liquid component from the component of fixed substances in a composite fluid composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, means for supplying a supplementary fluid to the delivering device at its verge or place of transition of the composite fluid from the confined to the free state, means for regulating the supply of the supplementary fluid, means for adjusting the position in the field of the delivery of the composite fluid and for proportioning the volume thereof to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivering device, and means for collecting the fixed or non-volatile products of the convective action upon the composite fluid, substantially as described.

19. In an apparatus for separating the volatile liquid component from the component of fixed substances in a composite fluid composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, means for supplying a supplementary fluid to the delivering device at its verge or place of transition of the composite fluid from the confined to the free state, means for regulating the supply of the supplementary fluid, means for adjusting the position in the field of the delivery of the composite fluid and for proportioning the volume thereof to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivering device, and means for collecting the volatile products of the convective action upon the composite fluid, substantially as described.

20. In an apparatus for separating the volatile liquid component from the component of fixed substances in a composite fluid composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, means for supplying a supplementary fluid to the delivering device at its verge or place of transition of the composite fluid from the confined to the free state, means for regulating the supply of the supplementary fluid, means for adjusting the the position in the field of the delivery of the composite fluid and for proportioning the volume thereof to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivering device, and means for collecting the fixed or non-volatile products of the convective action upon the composite fluid, and removing them from their proximity to the path of convective action, substantially as described.

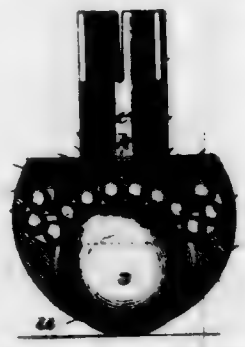
21. In an apparatus for separating the volatile liquid component from the component of fixed substances in a composite fluid composed thereof, the combination of a source of high-tension electricity, means for producing a field of convective discharge interposed in the circuit of said source, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, means for supplying a supplementary fluid to the delivering device at its verge or place of transition of the composite fluid from the confined to the free state, means for regulating the supply of the supplementary fluid, means for adjusting the position in the field of the delivery of the composite fluid and for proportioning the volume thereof to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivering device, and means for collecting the volatile products of the convective action upon the composite fluid, and removing them from their proximity to the path of convective action, substantially as described.

22. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for regulating the tension of said source, means for producing a field of convective discharge interposed in the circuit of said source and for adjusting the length thereof, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, means for supplying a supplementary fluid to the delivering device at its verge or place of transition of the composite fluid from the confined to the free state, means for regulating the supply of supplementary fluid, means for adjusting the position in the field of the delivery of the composite fluid and for proportioning the volume thereof to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivery device, and means for collecting the fixed or non-volatile products of the convective action upon the composite fluid and removing them from their proximity to the path of convective action, substantially as described.

23. In an apparatus for separating the volatile liquid component from the component of fixed substances in composite fluids composed thereof, the combination of a source of high-tension electricity, means for regulating the tension of said source, means for producing a field of convective discharge interposed in the circuit of said source, and for adjusting the length thereof, means for delivering a composite fluid in a free and attenuated condition into the path of convective action, means for supplying a supplementary fluid to the delivering device at its verge or place of transition of the composite fluid from the confined to the free state, means for regulating the supply of supplementary fluid, means for

adjusting the position in the field of the delivery of the composite fluid and for proportioning the volume thereof to the dispersive strength of the convective action, means for conducting a supply of the composite fluid to the delivery device, and means for collecting the volatile products of the convective action upon the composite fluid and removing them from their proximity to the path of convective action, substantially as described.

692,682. BALL-CASTER. CHARLES W. COREY, Boston, Mass., assignor of three-fourths to Robert I. Davis, Chelsea, Mass., and Fred. M. Ambrose, New York, N. Y. Filed May 18, 1901. Serial No. 60,535. (No model.)



Claim.—1. In a ball-caster, the combination with a shell having a substantially spherical cavity in the lower portion thereof, a curved annular shoulder adjacent said cavity and an annular inwardly-inclined portion disposed at an obtuse angle to said curved shoulder, said curved shoulder and inclined portion forming an enlarged recess, having sloping walls, surmounting said spherical cavity, and the walls of said cavity and enlarged recess forming the inside wall of said shell; of a concave plate projecting into said enlarged recess, a large ball contained within said spherical cavity, and a plurality of smaller balls in said enlarged recess, the parts being so arranged that the smaller balls are divided into two layers, one in contact with said large ball and concave plate and the other in contact with the inner walls of said enlarged recess.

2. In a ball-caster, the combination of a socket-plate flared at its lower end, a top plate in which said socket-plate is secured, said top plate being screw-threaded and provided with a projection, a plug fitted in the lower part of said socket, a concave plate connected to said plug, an annular washer located between said concave plate and said top plate, the main shell of the caster open at the top and bottom and screw-threaded at the top, said shell having a spherical opening in the bottom, said opening being enlarged and curved outwardly about said spherical part, and being inwardly inclined about said enlarged portion, a large antifriction-ball located in said shell and smaller antifriction-balls filling the empty space above said large ball.

692,683. HINGE-PIN. WINFIELD S. DANIELS, St. Louis, Mo. Filed Aug. 5, 1901. Serial No. 70,892. (No model.)



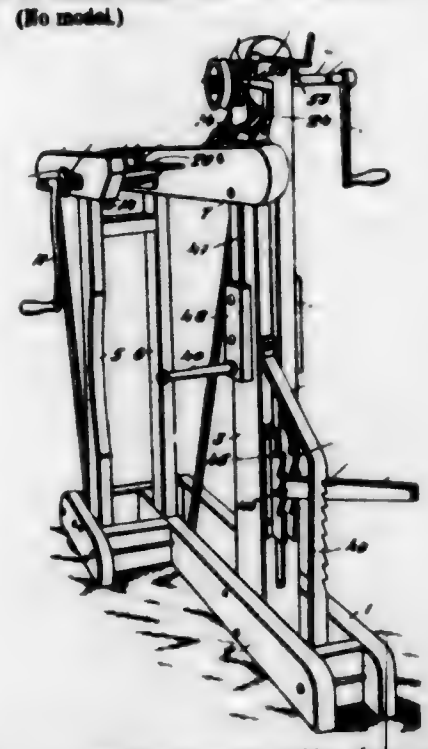
Claim.—The improved hinge-pin, consisting of a pin having a shoulder formed integral with the upper end thereof, to rest upon the upper end of the hinge-knuckle and having oil-passages formed through the said shoulder opposite to each other and a groove around the pin immediately below the shoulder to receive the oil, and a spiral passage or groove leading from the first-mentioned groove around the pin and terminating above the lower end of the pin so that the oil will be held within the said passage or groove and be distributed over the surface of the pin when the hinge is operated, substantially as specified.

692,684. PROCESS OF EXTRACTING PRECIOUS METALS FROM THEIR ORES. HERMAN DAVIS, Dayton, Nev. Filed July 17, 1901. Serial No. 68,051. (No specimens.)

Claim.—1. A process for the extraction of the precious and other metals from ore, ore-pulp, sands, slimes, tailings, mineral-bearing earths or other substances containing these metals, which consists in applying chlorin gas or chlorin-water to change the metals into chlorids, then removing a portion of the free chlorin by the application of air, and lastly leaching out the chlorids with a solution of a cyanid of the alkali or alkali-earth metals, substantially as described.

2. A process for the extraction of the precious and other metals from ore, ore-pulp, sands, slimes, tailings, mineral-bearing earths or other substances containing these metals which consists in introducing chlorin gas into the ore and afterward wholly or partially removing the excess of chlorin by forcing air into the material and afterward treating with a cyanid solution to dissolve the chlorids, substantially as described.

692,685. TIRE-SETTING MACHINE. JOHN M. DECKER, Kingston, Ohio, assignor of one-half to John O. Black, Nolan L. Gartner, and Shannon R. Sibrell, Kingston, Ohio. Filed Apr. 24, 1901. Serial No. 57,268. (No model.)



Claim.—1. A machine for setting rubber tires, comprising a frame, a supply device for a fastening-band, a gripper for engaging with the fastening-band, means for drawing said gripper to tighten the band, a pair of clamps mounted on the frame for engaging with the tightening-band, a shaft adjustable longitudinally in the frame and a presser-roller on the shaft, substantially as specified.

2. A machine for setting rubber tires, comprising a frame, a gripping device movable on the frame for tightening a fastening-band, a pair of clamps mounted to swing on the frame and adapted for engagement with the fastening-band, a longitudinally-adjustable shaft over said clamping devices, and a smoothing-roller on said shaft, substantially as specified.

3. A machine for setting rubber tires, comprising a frame, a spindle mounted in the frame, means for adjusting said spindle vertically, means for holding the spindle as adjusted, clamping devices on the frame above the spindle, a gripping device rearward of the clamping devices, means for moving said gripping device, and a smoothing-roller above the clamping devices, substantially as specified.

4. In a machine for setting rubber tires, a frame comprising front uprights provided with vertical slots, a wheel-supporting spindle extended through said slots, a slide-plate extended into the slots and having connection with the spindle, a hand-lever, fulcrum-rocks for said hand-lever, a link connection between the hand-lever and the slide-plate, means for holding the lever as adjusted, a smoothing-roller above the plate, and band-tightening devices on the frame, substantially as specified.

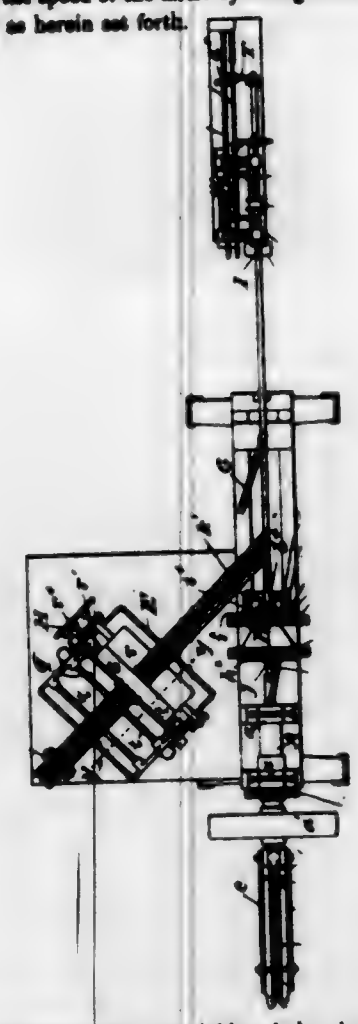
5. In a machine for setting rubber tires, clamping devices each having a jaw mounted on swinging arms, and a movable jaw, an angular lug on one of the jaws engaging in a slot in the other jaw, said jaws being channeled on their adjacent faces, a screw-bolt extended from the first-named jaw through the movable jaw, a clamping nut or lever engaging with said bolt and against the outer side of the movable jaw, and pins on one of the jaws for engaging in openings in the other jaw, substantially as specified.

6. In a machine for setting rubber tires, a frame, clamping devices on said frame for holding a fastening-band, a shaft mounted in the upper portion of a standard of the frame and adjustable longitudinally therein, a latch-plate mounted to swing on the standard and adapted to engage in an annular channel formed in the shaft, and a smoothing-roller attached to said shaft, substantially as specified.

7. In a machine for setting rubber tires, a frame, a spindle for supporting a wheel, a smoothing-roller adjustable laterally of the frame, clamping devices on the frame, a gripping device, a winding-drum mounted in the frame, a connection between said gripping device and the winding-drum, a roller over which said connection passes, a gear-wheel on said winding-drum, a pinion engaging therewith, a crank-handle on the shaft of the pinion, a ratchet-wheel on said shaft, and a pawl for engaging with the ratchet-wheel, substantially as specified.

692,686. MACHINERY FOR MAKING TUBES OF PAPER. TERESA DOHERTY, Brooklyn, N. Y., administratrix of HARMER DOHERTY, deceased. Filed July 31, 1899. Renewed June 14, 1901. Serial No. 64,902. (No model.)

Claim.— 1. The combination with a mandrel and of a revoluble hollow head concentric with the mandrel, and feed-rolls carried by the hollow head, and arranged to feed the core along the mandrel, of a barrel concentric with the mandrel, revoluble at a speed different from that of the head, and mechanism for transmitting motion from the barrel to the feed-rolls to control the speed of the latter by changes in the speed of the barrel, substantially as herein set forth.



2. The combination with a revoluble tubular sleeve, a mandrel revoluble with the said sleeve, means for supplying a ribbon of material through the sleeve to the mandrel, a hollow head concentric with the mandrel, feed-rolls carried by the hollow head and arranged to feed along the mandrel the core formed thereon by the ribbon, a barrel concentric with the mandrel revoluble at a speed different from that of the head, and mechanism for transmitting motion from the barrel to the feed-rolls, whereby the speed of the feed-rolls and consequently the pitch of ribbon wound on the mandrel may be changed by changing the motion of the barrel, substantially as herein set forth.

3. The combination with a mandrel of a revoluble hollow head concentric with the mandrel and feed-rolls carried by the head and arranged to feed the core along the mandrel, of a barrel concentric with the mandrel revoluble at a speed different from that of the head, mechanism for transmitting motion from the barrel to the feed-rolls, a shaft geared to rotate in unison with the mandrel, means for transmitting a continuous rotary motion from said shaft to the head, and mechanism for transmitting an intermittent rotary movement from the shaft to the barrel in a direction opposite to that of the motion of the head, substantially as herein set forth.

4. The combination with a tubular revoluble sleeve, a mandrel revoluble with the said sleeve, means for supplying a ribbon of material through the sleeve to the mandrel, a head concentric with the mandrel and revoluble in the same direction as the mandrel, and feed-rolls carried by the head for feeding along the mandrel the core formed thereon by the ribbon, of a barrel through which the mandrel is passed, mechanism for actuating the feed-rolls from the barrel, means for adjusting the distance apart of the feed-rolls, a counter-shaft actuated from the tubular sleeve, and mechanism for transmitting motion from the counter-shaft to the head and the barrel in opposite directions, substantially as herein set forth.

692,687. MINER'S SAFETY LOADING-TOOL. ALFRED V. DES MOINEAUX, Silverplume, Colo. Filed Apr. 16, 1901. Serial No. 56,104. (No model.)

Claim.—1. A miner's safety loading-tool, comprising a pair of twin jaws, free to shear past each other, and provided with operating edges for engaging a fuse and with idle indicating edges for showing the relative position of the operating edges.

2. A miner's safety loading-tool, comprising a pair of twin members connected by a pivot, each member being provided with a jaw radiating from said pivot, each jaw being free to shear past the other, and provided with operating edges for engaging a fuse, and also with idle indicating edges for exhibiting the relative position of said operating edges.

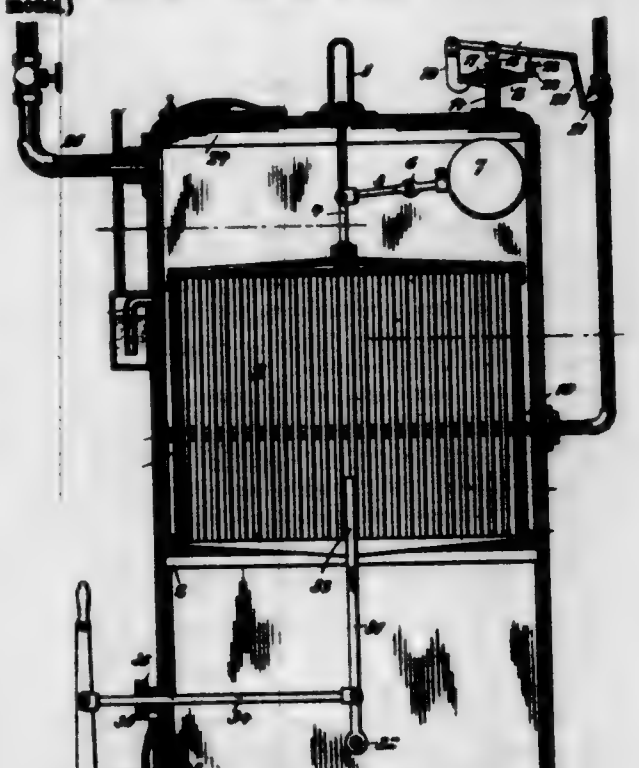
3. In a miner's combination-tool, a pair of opposing jaws each provided with a cutting edge and a crimping edge, in combination with an indicator for showing the relative position of the opposing jaws with regard to each other, substantially as described.

4. In a miner's combination-tool, a pair of opposing twin jaws each provided with a cutting edge and a crimping edge, and provided also with a transverse shoulder located adjacent to said crimping edge, said jaws being free to slide upon each other with a shearing motion and so arranged that the relative position of the opposing crimping edges will be indicated by the relative position of the opposing transverse shoulders, and means for actuating said jaws, substantially as described.

5. A miner's safety loading-tool, comprising a pair of twin members connected by a pivot, each member being provided with a jaw radiating from said pivot, each jaw being free to shear past the other, and provided with a cutting edge and with a crimping edge, said edges being formed upon the same surface of the jaw and in alinement with the pivot.

6. A miner's safety loading-tool, comprising a pair of twin members connected by a pivot, each member being provided with a jaw radiating from said pivot, each jaw being free to shear past the other, and provided with a cutting edge, a crimping edge and an idle indicating edge for showing the relative position of the jaws.

692,688. ACETYLENE-GAS GENERATOR. EDWARD H. DICKERSON, New York, N. Y. Filed May 17, 1897. Serial No. 636,945. (No model.)



Claim.— 1. The combination of a closed vessel, a receptacle adapted to contain carbid hung therein upon a pivotally-supported lever, a counterbalance for said receptacle, and means for indicating on the exterior of the vessel the movements of said vessel, substantially as described.

2. The combination of a closed vessel, a counterbalanced receptacle in the interior of said vessel adapted to contain carbid, means for indicating on the exterior of said vessel the movements of the carbid-receptacle, means for agitating the contents of said vessel, and means operated by the pressure in the interior of the vessel to automatically control the admission of fluid to the interior of said vessel, substantially as described.

3. The combination of a closed vessel, a counterbalanced cage adapted to contain carbid, means for indicating on the exterior of the vessel the movements of said cage, means for agitating the contents of said cage, and means operated by the pressure in the interior of the vessel to automatically control the admission of fluid thereto, substantially as described.

4. The combination of a closed vessel, an interior receptacle adapted

to contain carbid, a reciprocating agitator for agitating said carbid, to remove the refuse material therefrom, a spraying device for spraying water on said carbid, and means for automatically controlling said spray as the pressure of the gas varies, substantially as described.

5. The combination with a generating-chamber adapted to contain carbid, and a water-supply pipe for conveying water to said chamber, of a valve in the water-supply pipe, and a regulating mechanism connected thereto, consisting of a casing, a diaphragm therein, a stem connected to the diaphragm, a lever pivoted to the stem, one end of said lever being pivoted to the casing and the other end being connected to the valve in the water-supply pipe, a support, and a weight secured to the lever and adapted to rest on the support and to compensate for a predetermined pressure in the interior of the generating-chamber, the said regulating mechanism being set to hold the valve open under a predetermined pressure within the chamber, and to close it when the pressure is below such predetermined pressure, substantially as described.

6. The combination with a generating-chamber adapted to contain carbid, and a water-supply pipe for conveying water to said chamber, of a valve in the water-supply pipe, and a regulating mechanism connected thereto, consisting of a casing, a diaphragm therein, a stem connected to the diaphragm, a lever pivoted to the stem, one end of said lever being pivoted to the casing and the other end being connected to the valve in the water-supply pipe, a support, and a weight secured to the lever and adapted to rest on the support and to compensate for a predetermined pressure in the interior of the generating-chamber, the said regulating mechanism being set to hold the valve open under a predetermined pressure within the chamber and so connected to the valve as to close it when the pressure exceeds or falls below such predetermined pressure, substantially as described.

7. The combination with a generating-chamber adapted to contain carbid, and a valved water-supply pipe for conveying water to said chamber, of a regulating mechanism consisting of a casing situated on the top of the generating-chamber and communicating with the interior thereof, a flexible diaphragm in the casing, a stem connected to the diaphragm and passing through an opening in the upper portion of the casing, a lever pivoted to the upper end of the stem, one end of which lever is pivoted on an arm extending from the casing, the other end of said lever being attached by means of a link and crank-arm to the valve in the water-supply pipe, a ledge on the casing adapted to support a weight secured to the lever intermediate of its connection with the stem and link, the said weight being adapted to compensate for a predetermined pressure in the interior of the generating-chamber, and the said regulating mechanism being set to hold the valve open under a predetermined pressure within the chamber, and to close it when the pressure is below such predetermined pressure, substantially as described.

8. The combination with a closed vessel, of a support connected to the vessel within the same, a movable receptacle in the interior of the vessel, for supporting carbid, and normally resting directly on said support, a rod connected to the receptacle and to a lever pivoted on the closed vessel, and a counterweight on said pivoted lever, balanced by the weight of the carbid and adapted to raise the receptacle only when the latter contains a minimum of carbid, substantially as described.

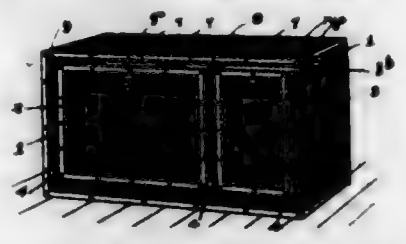
9. The combination with a closed vessel, of a support within the vessel, a movable receptacle resting upon said support in the interior of said vessel adapted to contain carbid, means for bringing water in contact with the carbid, an agitator extending upwardly through said receptacle, and means for reciprocating the agitator in the bottom of the receptacle, to agitate the carbid for removing refuse material therefrom and thereby expose fresh surfaces of carbid, substantially as described.

10. The combination with a closed vessel of a support within the vessel, a movable cage resting upon said support in the interior of said vessel, the said cage having a grated bottom formed of bars and being adapted to contain carbid, means for bringing water in contact with the carbid, an agitator having prongs extending upwardly through said grated bottom of the cage, and means for reciprocating the prongs of the agitator through the bars of the grated bottom to agitate the carbid for removing the refuse material therefrom and thereby expose fresh surfaces of carbid, substantially as described.

11. The combination with a closed vessel, of a support within the vessel, a movable interior receptacle resting upon said support adapted to contain carbid, a reciprocating agitator operating through the bottom of said receptacle for agitating said carbid, to remove the refuse material therefrom, and a spraying device for spraying water on said carbid, substantially as described.

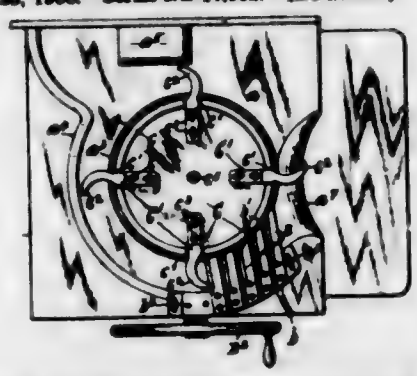
692,639. LOCKING DEVICE FOR COMBINED MESS-CHESTS AND RANGES. GEORGE B. DONAVIN, Columbus, Ohio. Filed May 20, 1901. Serial No. 61,061. (No model.)

Claim.—1. In a locking device for a combined mess-chest and range the combination with the range-body having side doorways, doors therefor hinged in their lower portions to permit vertical movement, inwardly-projecting angular catch-bars 5 on the upper portions of said doors and outwardly-projecting angular catches 6 on the body of the range and keepers 9 projecting from said range above the doorways, of an angular locking-bar 8 having one of its arms adapted to be inserted in said keepers and having its remaining arm provided with a lateral extension adapted to enter an opening in the end of the range and means for securing said extensions from withdrawal, substantially as specified.



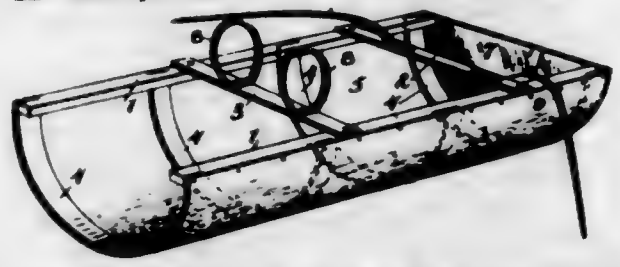
2. In a locking device for a combined mess-chest and range, the combination with the range-body having a sliding and removable top plate or plates, doorways on one side of the range, vertically-movable hinged doors for said doorways, angular catches as described projecting respectively from said doors and range-body and keepers 9 projecting from said range-body above said doors, of an angular locking-bar 8 having its shorter arm 8^b provided with a lateral extension 8^c and an upwardly-projecting lug 8^d, the longer arm 8^a of said locking-bar adapted to be inserted in said keepers 9, the shorter arm 8^b adapted to embrace a portion of the end of the range and its extension 8^c adapted to enter an opening in the latter, substantially as specified.

692,640. SLICING-MACHINE. SUMNER DRURY, Walcott, N. Y. Filed May 25, 1900. Serial No. 17,902. (No model.)



Claim.—The improved slicing-machine herein described and shown consisting of a table having a central opening, a curved retaining-rib on the upper side of the table concentric with said opening and having one end turned off therefrom, a hopper supported above the table, a chute leading from the hopper to a point near the offturned end of the retaining-rib, a radially-adjustable curved support secured on the table adjacent to the opposite end of the rib, and having a stepped upper side, a series of knives secured rigidly on the upper side of the said support and projecting toward the central opening of the table, a rotary carrier mounted in said central opening, means for rotating said carrier, and a series of radial arms secured to and projecting from the carrier and adapted to coact with the knives.

692,641. CANOPY-SUPPORT. THOMAS J. DURRETT, Sr., Arnaudville, La. Filed Sept. 3, 1901. Serial No. 74,143. (No model.)

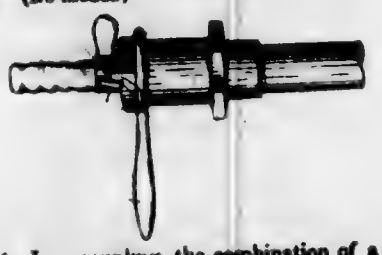


Claim.—1. A sunshade consisting of longitudinal parallel bars, bowed strips connecting the outer edges of said bars, a cover over said strips and extending over and covering one end of said frame, a transverse bar connecting the said parallel bars on their side and about midway the length thereof, arm or shoulder attaching loops carried by said bar, a second transverse bar at a point between the first bar and the closed outer end of the frame, waist securing-straps carried thereby, whereby the device is secured to the body with a forwardly-projecting portion adapted to shade the head, and a closed rear end adapted to shade the body, substantially as described.

2. A sunshade consisting of two longitudinal parallel bars, upwardly-extending bowed strips connecting the outer edges of said bars, a cover

over said bowed strips and secured to the parallel bars and extending over one end formed by the bowed strips, a transverse bar connected to the parallel bars intermediate their ends, arm-receiving loops carried by said bar, a second transverse bar secured to the parallel bars between the first bar and the closed end, and waist securing-straps carried by said second transverse bar, substantially as described.

692,642. PIPE-COUPLING. OSCAR EISENHUTH, Detroit, Mich., assignor to C. F. Heyerman, Detroit, Mich. Filed Apr. 22, 1901. Serial No. 56,585. (No model.)



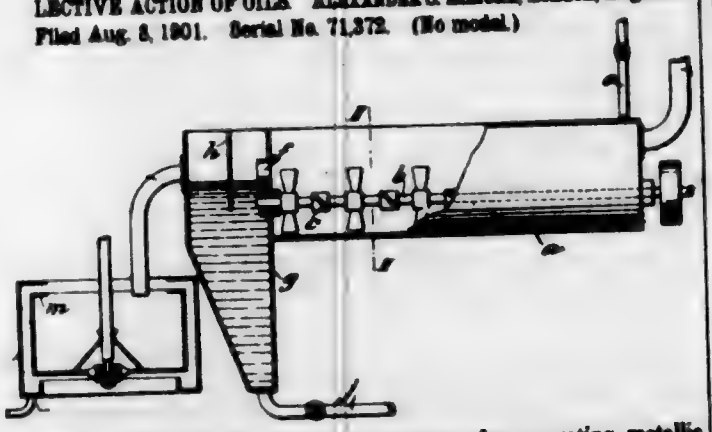
Claim.—1. In a coupling, the combination of a member provided with a central tube, a packing-ring on said tube, a washer on said tube, and means for moving said washer longitudinally on said tube to compress said packing-ring endwise and expand the same laterally; and a member adapted to receive said member and to be engaged by said packing-ring.

2. In a coupling, in combination, a member consisting of a central tube, a packing-ring on said tube, a washer longitudinally movable on said tube, inclines on said washer, and lugs on said tube to engage said inclines; and a member provided with a sleeve to receive said member.

3. In a coupling, the combination of two coupling members, one provided with a central tube having one end formed into a nipple, a packing-ring on said tube, a washer longitudinally movable on said tube, inclines on said washer, stops and grooves at the upper ends of said inclines, lugs on said tube to engage said inclines, and a handle on said washer; and the other member provided with a sleeve adapted to be engaged by said packing-ring.

4. In a pipe-coupling, a coupling member having a head, an internally-screw-threaded socket extending downward from said head to receive a pipe-section, and an internally-corrugated sleeve extending upward therefrom, and a second coupling member having a head, a nipple extending upward therefrom, a tube extending downward therefrom, lugs and a handle on said head, a nut on said tube near the lower end, a packing-ring sleeved on said tube and held thereon by said nut, a washer on said tube, a handle on said washer, upwardly-extended inclines on said washer adapted to engage the said lugs, and stops and grooves at the upper ends of said inclines.

692,648. APPARATUS FOR SEPARATING MINERALS BY SELECTIVE ACTION OF OILS. ALEXANDER S. ELMORE, London, England. Filed Aug. 8, 1901. Serial No. 71,372. (No model.)



Claim.—The combination in an apparatus for separating metallic from rocky constituents of ore, of a trough, a shaft adapted to revolve within said trough and provided with inclined blades, pipes for delivering oil and water to said trough, a subsidence-tank arranged at one end of said trough, extending below the same and communicating therewith, said tank adapted to receive the liquid mineral pulp and oil from said trough, a vertically-extending partition arranged in said tank at the top thereof for the purpose set forth, a centrifugal drum arranged at one side of said tank, a pipe connected to said tank and communicating with said drum for discharging therein the metallic ingredients and the oil, and a pipe connected to the tank for discharging therefrom the earthy and rocky ingredients.

692,644. ARTIFICIAL STONE AND PROCESS OF MANUFACTURING SAME. FREDERIC M. REMINGTON, Brookline, Mass., assignor to Murdock Parlor Grate Co., Boston, Mass., a Corporation of Massachusetts. Filed Aug. 19, 1901. Serial No. 72,505. (No specimens.)

Claim.—1. The herein-described process of manufacturing artificial stone having a central core or body of one concrete material, and a surface facing or veneer of another concrete material, which consists in building up the core or body and the facing or veneer at the side thereof from uncompressed concrete materials, then compressing the material of one of these parts whereby it is caused to intimately unite with the material of the other part, then compressing the material of the other of these two parts, then continuing to build up the core and the veneer at the side thereof, both from uncompressed concrete materials, and, after they are so built up, compressing them alternately, and continuing these operations until the desired size of stone is formed, substantially as set forth.

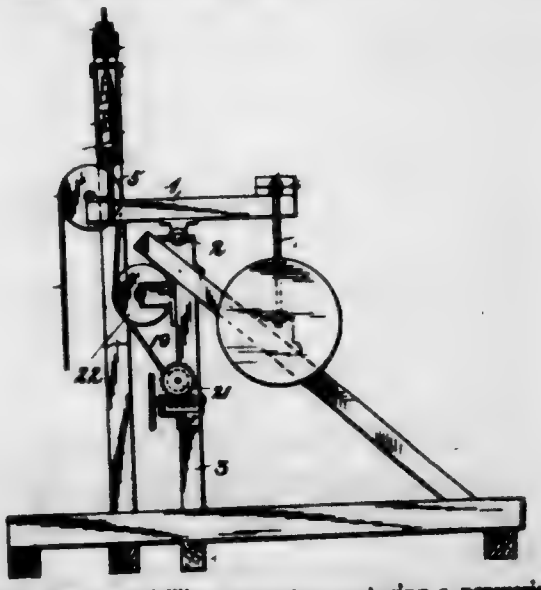
2. The herein-described process of forming a block of artificial stone, having its exposed faces of a concrete of one composition, and its central or body portion of a concrete of another composition, which consists in placing in a mold a layer of concrete material to form the surface or veneer, compressing the central portion of such material leaving a rim or edge of uncompressed material, then filling in the depression formed by such compression with material for the body or core and compressing this, then compressing the said rim or edge surface material, then building up the rim from material which is to constitute the surface coating or veneer to above the level of the core, then adding another layer of the core material within said rim and alternately continuing these operations until the block is completed, substantially as set forth.

3. The herein-described process of manufacturing artificial stone, which consists in forming a layer of concrete material, compressing the central portion thereof leaving an uncompressed edge or rim of the material, filling the depression formed by such compressing of the material with concrete material and compressing this, then compressing the edge or rim part of the first mass of material and building a rim or edge of concrete material around the central portion of the concrete secondly placed, and continuing to alternately compress and build up the rim or edge, and the core or body, whereby an intimate union or bond is secured between the facing of the block and the core, substantially as set forth.

4. The within-recited process of manufacturing artificial stone, which consists in first compressing the center of the layer of the facing material in the bottom of the mold, next abrading and moistening said facing material; then compressing the lower layer of the material constituting the core, then abrading and moistening the same, then compressing the sides of the first-mentioned layer of facing material which is next to the inside of the mold, then roughening and moistening the said layer at the sides, then continuing said steps in succession until the finished face of the block is produced, and finally retaining it in the mold in a wet condition until sufficiently hardened, as set forth.

5. An artificial stone, consisting of a core formed of a concrete of angular (fractured) stone, sharp sand and Portland cement, and an exterior facing or veneer formed of a concrete of small, irregular fragments of marble and Portland cement, the concrete of the exterior facing and that of the core being intimately united by compression, substantially as described.

692,645. APPARATUS FOR BORING WELLS BY PERCUSSION. ALBERT FAUDE, Jr., Marcinkowice, Austria-Hungary. Filed July 8, 1901. Serial No. 67,479. (No model.)



Claim.—In a well-drilling apparatus employing a percussion-drill, the combination with a frame or support; of a walking-beam fulcrumed thereto, an operating-shaft having eccentric heads of different diameters, a rod mounted upon the power-arm of the beam, variable connecting-rods for connecting said eccentric heads with the said rod on the power-arm on the beam, whereby long or short strokes may be imparted to the beam, a suspension-rope connected with the load-arm of the beam for

suspending the drill-rod therefrom, a casing located above the lead-arm of the beam, a yoke engaging the lead-arm of the beam and swiveled to the casing, a screw-threaded bearing mounted in the frame above said casing, one or more soft suspension-springs inclosed within the casing, and a rod having a head forming an abutment for the springs and a screw-threaded exteriorly-projecting end working in said bearing, whereby the tension of said spring or springs may be varied, substantially as described.

692,646. CORN OR COTTON PLANTER. CHARLES L. PERRIOTT, Bartlett, Tex. Filed Aug. 26, 1901. Serial No. 73,337. (No model.)



Claim.—1. In a planter, the combination of a beam pivotally supported at its front end whereby its rear end is adapted to be raised and lowered, a furrow-opener carried at the rear end of said beam, a rock-shaft having a rock-arm connected to said beam to raise and lower the said furrow-opener, a rock-shaft having a hand-lever, covering-shovels carried by said last-mentioned rock-shaft and connections between said hand-lever and said first-mentioned rock-shaft, whereby said rock-shafts may be simultaneously operated to raise and lower said furrow-opener and coverers, substantially as described.

2. In a planter, the combination of a wheeled frame, a beam pivotally connected at its front end to the frame, whereby its rear end is adapted to be raised and lowered, said beam carrying a furrow-opener at its rear end, a rock-shaft having a rock-arm connected to said beam to raise and lower said furrow-opener, bearings for said rock-shaft on said wheeled frame, a rock-shaft in bearings at the rear end of the frame and having a hand-lever, covering-shovels carried by said last-mentioned rock-shaft and disposed radially with reference thereto, a link-rod connecting said hand-lever to a crank-arm on said first-mentioned rock-shaft and means to lock said hand-lever at any desired adjustment, substantially as described.

692,647. WALL-PAPER PASTER AND TRIMMER. SIDNEY FIELD, Chicago, Ill. Filed May 13, 1901. Serial No. 60,087. (No model.)



Claim.—1. In a wall-paper paster and trimmer, the combination of a frame, a receptacle for paste detachably suspended therefrom, a cylinder rotatably mounted on the frame within the paste-receptacle, a roller rotatably mounted and contacting with the cylinder, and a brush adjustably mounted to engage with or be withdrawn from the roller, substantially as described.

2. In a wall-paper paster and trimmer, the combination of a frame adapted to be fastened to the edge of a table and provided with hangers, a receptacle for paste detachably suspended from the hangers, a cylinder rotatably mounted between the hangers and operating within the paste-receptacle, a roller rotatably mounted on the frame and contacting with the cylinder, a brush held in an adjustable rod, and means for bringing the brush into and out of engagement with the roller, substantially as described.

3. In a wall-paper paster and trimmer, the combination of a frame adapted to be fastened to the edge of a table and provided with hangers, a receptacle for paste detachably suspended from the hangers, a cylinder rotatably mounted between the hangers and operating within the paste-receptacle, a roller rotatably mounted on the frame and contacting with the cylinder, cutting-wheels rotatably mounted upon a carrying-rod, brushes held in a rod adjustably connected with the carrying-rod, and means for bringing the brush and wheels simultaneously into and out of engagement with the roller, substantially as described.

4. In a wall-paper paster and trimmer, the combination of a frame adapted to be fastened to the edge of a support, a rod for carrying a roll of paper rotatably mounted in the frame, a receptacle for paste suspended from the frame, a cylinder operating within the paste-receptacle, a roller rotatably and adjustably mounted in the frame, a brush on a brush-rod, cutting-wheels on a carrying-rod, and means for bringing the brush and cutting-wheels simultaneously into contact with the roller, substantially as described.

5. In a wall-paper paster and trimmer, the combination of a frame provided with jaws and set-screws acting thereon, hangers attached to the frame and provided with recesses or notches, a receptacle for paste provided with a stud at each end adapted to enter a recess or notch of the hanger, a rod for carrying a roll of paper rotatably mounted in the frame, a cylinder extending into the body of the paste-receptacle and journaled in the hangers, a roller adjustably journaled on the frame and contacting with the cylinder, a rocking grooved carrying-rod having a brush-rod connected therewith, brushes on the brush-rod, cutting-wheels rotatably mounted in oscillating spring-supports on the carrying-rod, a lever fixedly attached to the carrying-rod, and means for rotating the roller, substantially as described.

6. In a wall-paper paster and trimmer, the combination of a frame, a paper-carrying rod mounted therein, a receptacle for paste suspended therefrom, a roller mounted on the frame, means for distributing the paste evenly over the paper, and a cylinder rotatably mounted in the paste-receptacle and provided with risers or shelves on its inner face, and a tongue having a head fixedly attached thereto and mounted on the axle of the cylinder, substantially as described.

7. The combination with a rocking carrying-rod, of a cutting-wheel journaled in a forked support having its body bent forward and back to form a spring and having its base end rounded to oscillate in a groove of the carrying-rod, and a collar on the carrying-rod having the base end of the forked support pivoted thereto, substantially as described.

692,648. WEEDER AND THINNER. ALEXANDER T. PHEMISTER and HENRY CORDES, Detroit, Mich. Filed Feb. 28, 1901. Serial No. 49,363. (No model.)



Claim.—1. In a weeder and thinner, the combination of parallel plates *a*, *b*, provided with registering holes, a stiffening-back C, secured to the plates *a*, *b*, and hoe-blades having shanks, each of which is provided with a plurality of holes *k*, and a slot *g*, substantially as described.

2. In a weeder and thinner, in combination with parallel plates, depending from a stiffening back piece and provided with a plurality of holes arranged in vertical rows, hoe-teeth having shanks provided with adjustment-holes, wheels, and means for securing the wheels directly to the ends of the tooth-holding bar, substantially as described.

3. In a weeder and thinner, the combination of a hoe-holding bar having parallel plates spaced for the insertion of the shank of a tooth therebetween, and provided with holes for the securing-bolts by which the teeth are held, a threaded receptacle at each end of said bar for the reception of a threaded wheel-spindle, wheels on said spindle and means for propelling the bar, substantially as described.

692,649. WEEDER AND THINNER. ALEXANDER T. PHEMISTER, Detroit, Mich. Filed Apr. 26, 1901. Serial No. 57,573. (No model.)

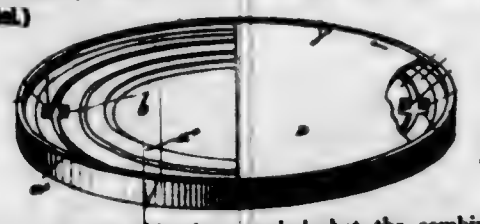
Claim.—1. In an implement for weeding, the combination of a tooth-holding bar provided with parallel slots extending lengthwise the bar and

across the implement, handles secured to the tooth-holding bar, extending forward and provided with axles, wheels mounted on the axles, a plurality of teeth, and means for securing each tooth adjustably in a slot of said bar, substantially as described.



2. In an implement for weeding, the combination of a bar provided with a slot extending lengthwise the bar, handles secured to the bar, extending forward and provided at their forward terminals with an axle, wheels mounted on said axle, a plurality of teeth adapted to be secured adjustably along said slot and means for securing the teeth, substantially as described.

692,650. COMBINATION PUZZLE-LOCKET. ALEXANDER D. FISHER, Toronto, Canada. Filed Mar. 25, 1901. Serial No. 52,793. (No model.)



Claim.—1. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid fitting within the same and provided with depending projections which are designed to have an unlimited rotary movement in either direction, of two rings suitably secured within the casing and provided with a channel between and recesses through which such projections are designed to extend when the parts are fitted together, such projections being arranged when the lid is turned to extend underneath the edges of the rings, so as to lock the lid in place as and for the purpose specified.

2. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid fitting within the same and provided with depending projections, of two rings suitably secured within the casing and provided with a channel between and coacting recesses through which such projections are designed to extend when the parts are fitted together, such projections being arranged when the lid is turned to extend underneath the edges of the rings, so as to lock the lid in place, index-points and a point on the lid designed to coact with the index-points on the edge of the wall as and for the purpose specified.

3. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid fitting within the same and provided with reverse T-shaped depending projections, of annular rings suitably secured within the casing and forming a groove within which the laterally-extending ends of the projections are located when the lid is closed, an operating-ring provided with coacting recesses and a projection with which the projection on the lid is designed to coact and a retaining-ring provided with coacting recesses located diametrically opposite each other as shown and for the purpose specified.

4. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid fitting within the same and provided with reverse T-shaped depending projections, of annular rings suitably secured within the casing and forming an annular groove within which the laterally-extending ends of the projections are located when the lid is closed, the outside and inside operating-rings suitably held within the aforesaid rings and provided with inner and outer coacting recesses respectively and two projections on the outside ring and one on the inside designed to coact with the projections on the lid and fixed inside and outside retaining-rings provided with the inside and outside recesses as and for the purpose specified.

5. In a combination puzzle-locket, the combination with the circular casing having a suitable bounding edge or wall and the lid fitting within the same and provided with reverse T-shaped depending projections, of rings suitably secured within the casing and forming an annular groove within which the laterally-extending ends of the projections are located when the lid is closed, the outside and inside operating-rings suitably held within the aforesaid rings and provided with inner and outer recesses respectively, and two projections on the outside ring and one on the inside designed to coact with the projections on the lid and fixed inside and outside retaining-rings provided with the inside and outside recesses, the lid being provided with an index-point and the rim of the case with an index-point opposite the recess in the fixed retaining-ring and supplemental index-points at each side of such latter point as and for the purpose specified.

692,651. PIPE-COUPLING. JOSEPH R. FORSYTH, Chicago, Ill. Filed Mar. 28, 1901. Serial No. 53,580. (No model.)

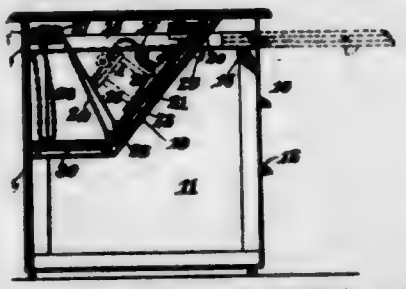


Claim.—1. The combination with a pipe-section having an enlarged end provided internally with a shoulder and adjacent to said shoulder with a smooth cylindrical surface and adjacent thereto with internal threads, a pipe-section extending into said enlarged end and provided with a rigid collar engaging said shoulder, a packing-ring engaging said collar and an externally-threaded annular nut through which said last-named pipe-section extends and which serves to compress said packing-ring against said collar, substantially as described.

2. The combination with an elbow provided with an enlarged end having an internal shoulder and adjacent thereto a smooth cylindrical surface, said enlarged end being internally threaded adjacent to said cylindrical surface, a pipe-section extending into said enlarged end and provided near its inner end with a rigid collar engaging said shoulder, a packing-ring adjacent to said collar, and an externally-threaded annular nut receiving the pipe-section and serving to compress said packing-ring between itself and the collar, substantially as and for the purpose set forth.

3. The combination with a pipe-section A, of an elbow connected therewith and provided with an enlarged end having an internal shoulder and a cylindrical surface adjacent to said shoulder, a pipe-section extending into said enlarged end and provided with a rigid collar engaging said shoulder, a packing-ring adjacent to said collar, an annular nut receiving said pipe-section and connected with said enlarged end and serving to compress said packing-ring between itself and said collar, and an elbow *b* connected with the free end of said pipe-section, substantially as and for the purpose set forth.

692,652. TYPE-WRITER SUPPORT FOR DESKS, &c. JOHN W. PRESCELL, Eau Claire, Wis. Filed Dec. 19, 1900. Serial No. 40,414. (No model.)



Claim.—1. In a device of the class described, the combination with a desk or analogous article of furniture having an open space beneath its top, of a frame slidably mounted in the upper portion of said space and comprising a pair of slides connected at their rear ends by a cross-piece, a platform pivotally mounted intermediate its ends between and upon the slides, said platform having a stop that abuts against the under face of the rear cross-piece to limit the swinging movement of the platform, and means for movably securing a type-writing machine upon the platform so that said type-writing machine may be moved to either side of the pivot-axis of the platform.

2. In a device of the class described, the combination with a slidably-mounted supporting-frame, of a platform pivotally mounted intermediate its ends upon said supporting-frame, means connecting the frame and platform for limiting the downward-swinging movement of said platform, and a spring-drum having a connection with the platform and the frame and arranged to move the platform into engagement with said frame.

3. In a device of the class described, the combination with a desk having a knee-space, of a frame slidably mounted in the upper portion of said space, and comprising a pair of slides connected at their rear ends by a cross-piece, and a platform pivotally mounted intermediate its ends upon the slides and arranged to engage the under side of the cross-piece, said platform being provided with upstanding flanges having grooves in their opposing faces adapted to receive a type-writer base.

4. In a device of the class described, the combination with a desk having a knee-space, of a frame slidably mounted in the upper portion of said space and comprising a pair of slides connected at their rear ends by a cross-piece, means for limiting the movement of the frame, a platform pivotally mounted intermediate its ends upon the slides and arranged to

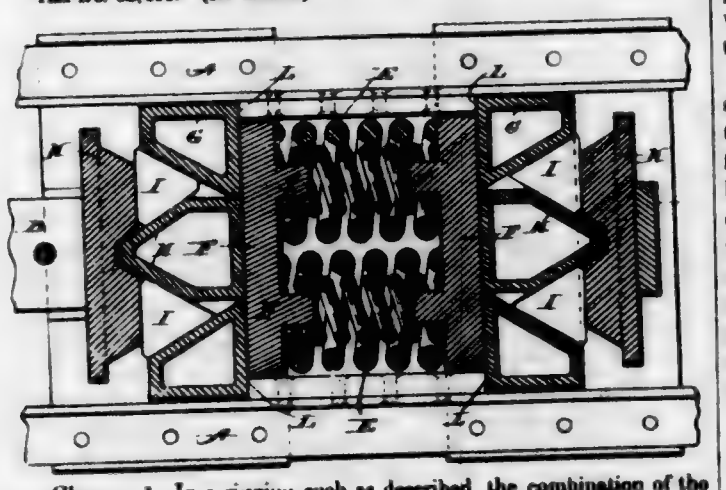
engage the under side of the cross-piece, said platform being provided at its opposite side edges with upstanding flanges having grooves in their opposing faces adapted to receive a type-writer base, and means connecting said cross-piece and platform to limit the downward-swinging movement of the latter.

5. In a device of the class described, the combination with a desk having a knee-space, of a frame slidably mounted in the upper portion of said knee-space, and comprising a pair of slides connected at their rear ends by a cross-piece, a flexible connection between the desk and the frame to limit the outward movement of the latter, a platform pivotally mounted intermediate its ends upon the slide and arranged to engage the under side of the cross-piece when in raised position, said platform being provided with upstanding flanges at its opposite side edges, said flanges having grooves in the opposing faces adapted to receive a type-writer base, a flexible connection between the cross-piece and the platform to limit the downward-swinging movement of the same, and a spring-drum mounted upon the cross-piece and having a connection with the platform, said spring-drum being arranged to draw the platform into engagement with the cross-piece.

6. In a device of the class described, the combination with a desk or analogous article of furniture having a knee-space beneath its top, of a horizontal wall extending across the rear portion of the knee-space, rollers mounted upon the opposing side walls of said space, slides movably mounted upon the rollers, inclined cleats secured to said side walls and extending from the slides to the horizontal wall, a platform pivotally mounted intermediate its ends between and secured to the slides, said platform being arranged to be tilted so that its lower end will abut against the horizontal wall and its upper end will rest against the under side of the desk-top, said platform when thus tilted fitting snugly between the inclined cleats, and means for movably supporting a type-writing machine upon the platform so that said machine may be moved to either side of the axis of said platform.

7. In a device of the class described, the combination with a desk or analogous article of furniture having a knee-space, of rollers mounted upon the side walls of the knee-space, an open frame slidably mounted upon the rollers, and comprising spaced slides connected at their rear ends by a cross-piece, a platform arranged between and pivotally connected intermediate its ends to the side bars, said platform being arranged to engage the cross-bar of the open frame whereby its swinging movement is limited, and means for securing a type-writing machine upon the platform.

692,653. DRAFT AND BUFFING RIGGING. RICHARD D. GALLAGHER, Jr., New York, N. Y., assignor to Standard Coupler Company, New York, N. Y., a Corporation of New Jersey. Filed Nov. 15, 1901. Serial No. 82,460. (No model.)



Claim.—1. In a rigging such as described, the combination of the following instrumentalities, to wit; a pressure-transmitting member, a spring, connections between both ends of the spring and pressure-transmitting member whereby the spring may move bodily with the pressure-transmitting member and friction elements having a differential movement interposed between one end of said spring and pressure-transmitting member and embodying a guiding-frame held against movement when the friction elements are operative, whereby one end of the spring is advanced more rapidly than the other to effect spring compression, as set forth.

2. In a rigging such as described, the combination of the following instrumentalities, to wit; a yielding pressure-resisting member, supports therefor at opposite ends thereof, movable in the same direction during spring compression, a pressure-transmitting member and a differential friction mechanism interposed between one of said supports and the pressure-transmitting member, whereby one of said supports is moved at a greater speed than the other; substantially as described.

3. In a rigging such as described, the combination with a yielding pressure-resisting member and supports for opposite ends of said member, of a pressure-transmitting member constituting a retaining means for holding said supports against relative movement away from each other and a differential gear having friction-faces interposed between one of said supports and the pressure-transmitting mechanism one of the elements of said gear being held in fixed position when the gear is operative whereby when the pressure-transmitting member is moved both said supports will advance in the same direction, but one will advance at greater speed than the other; substantially as described.

4. In a rigging, such as described, the combination with the bodily-movable yielding pressure-resisting member, and a pressure-transmitting member controlling the bodily movements of the resistance member, of friction-gear embodying inclines fixed when operative, wedge, follower-plate and wedge-blocks, interposed between said members at one end whereby during the bodily movement of the resisting member it is compressed to resist the movement of the pressure-transmitting member; substantially as described.

5. In a rigging, such as described, the combination with a friction-gear embodying fixed and movable inclines with interposed wedge-blocks, of a pressure-transmitting member coöperating with said friction-gear on one side, a spring coöperating with said friction-gear on the opposite side and a support moving in unison with the pressure-transmitting member and between which and the friction-gear the spring is held, whereby the spring may have a bodily movement in addition to the movement tending to compress the same; substantially as described.

6. In a rigging such as described, the combination with the spring, followers between which it is confined, and the draw-bar and strap constituting the support for preventing movement of the followers away from each other, of a guiding-frame having inclines thereon, stops for limiting the movement of the frame in one direction, a wedge, follower-plate and wedge-blocks located outside of one of the followers and coöperating therewith and with the inclines on the frame to produce a differential movement between the follower and draw-bar; substantially as described.

7. In a rigging such as described, the combination with the spring, followers between which it is confined, guiding-frames having inclined friction-faces and stops for limiting the movement of said frames, of the wedges, follower-plates and wedge-blocks, and the draw-bar and strap embracing the follower-plates and constituting the support for preventing expansion of the spring or movement of the followers away from each other; substantially as described.

8. In a rigging such as described, the combination with the guiding-frames having oppositely-directed inclines, stops for holding each of said frames against movement in one direction, the wedge-blocks coöperating with the inclines of the frame, the wedges coöperating with the wedge-blocks and the spring confined between and tending to force the wedges apart, of the draw-bar, strap and follower-plates forming an inclosing support for holding said wedges against separation, said frames, wedges and wedge-blocks forming a friction-gear for moving the wedges differentially to compress the spring; substantially as described.

9. In a rigging such as described, the combination with the oppositely-located guiding-frames, movable outwardly, fixed stops for limiting the inward movement, followers between said frames and springs confined between the followers, of wedges bearing on the followers, wedge-blocks interposed between the wedges and frames, follower-plates coöperating with the wedge-blocks and the draw-bar and strap surrounding the follower-plates and constituting the support for preventing the movement of the wedges away from each other whereby movement in either direction will allow the spring to move bodily and will cause the rear follower to advance more rapidly than the bodily movement of the spring, thereby compressing the latter to resist draw-bar movements; substantially as described.

692,654. COOKING-RANGE. ALBERT H GARRISON, Milwaukee, Wis., assignor to the Brand Stove Company, Milwaukee, Wis. Filed June 1, 1897. Serial No. 638,877. (No model.)

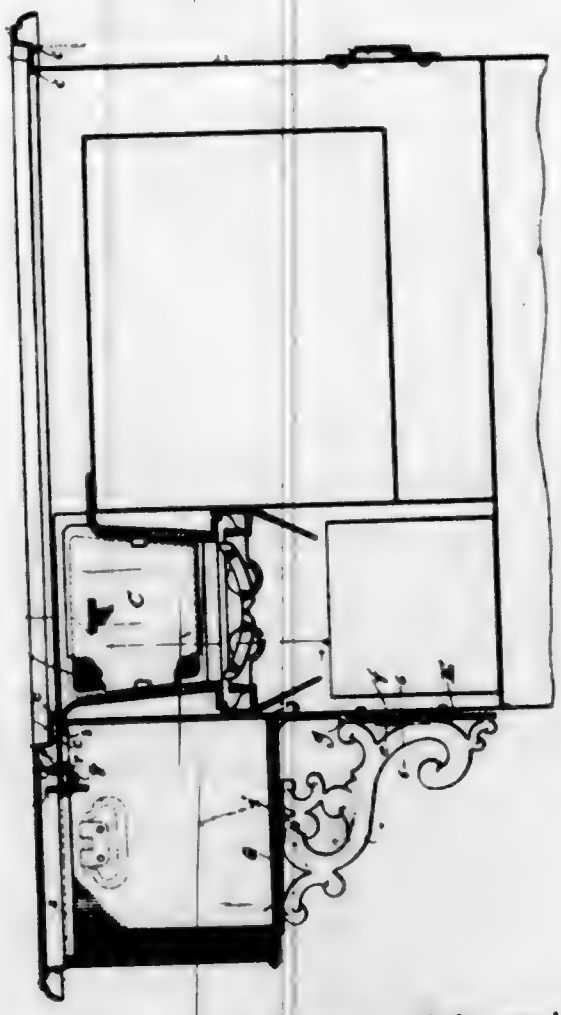
Claim.—1. In a cooking-range, the combination with the range-body and fire-box, of a properly-supported portable water-tank, a tank-cover frame, and a cam-latch in conjunction with the tank-cover frame operative to lock the tank in close contact with the range-body.

2. In a cooking-range, the combination with the range-body and fire-box, of a water-tank shelf supported from said range-body, a water-tank, and a water-tank-cover frame provided with a cam-latch that has wedging action against the inner side of a portion of the top of said range-body.

3. In a cooking-range, the combination with the range-body and fire-box, of exterior plates on one end of said body, right-angle brackets having the vertical arms thereof in detachable connection with the plates, and a water-tank shelf in like connection with the horizontal arms of the brackets but provided with rear bracket-opposing lips, whereby it requires that the latter bracket-arms be connected to said shelf from the front of the same prior to connection of the former bracket-arms with said plates.

4. In a cooking-range, the combination with the range-body and

fire-box, of exterior plates on one end of said body, right-angle brackets having the vertical arms thereof in detachable connection with the plates and provided with shoulders overlapping upper ends of the same, and a water-tank shelf in like connection with the horizontal arms of said brackets.



5. In a cooking-range, the combination with the range-body and fire-box, of a water-tank shelf supported from said range-body, a portable water-tank supported on said shelf, a cover-frame supported on said shelf, a cover-frame supported on the rim of the water-tank, and having a horizontal inner portion provided with a central longitudinal slot, and a depending apertured flange, a detachable cover, comprising a pair of plates in hinge connection, normally resting on said cover-frame and on the adjacent end portion of the top of the range-body, a cam-latch extending up through the said slot in the cover-frame for wedging contact with the adjacent portion of the range-body, a shank secured to said cam-latch and passing through said depending apertured flange, and a hand-wheel fast on the other end of said shank.

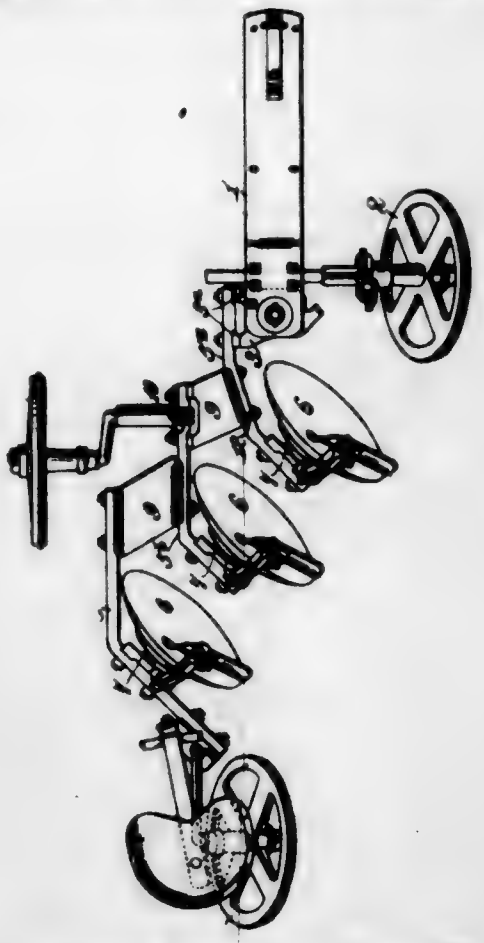
692,655. CONVERTIBLE DISK PLOW. MILTON T. HANCOCK, Shreveport, La. Filed Oct. 26, 1901. Serial No. 80,126. (No model.)

Claim.—1. In a convertible disk plow, the combination with a coupling element, of a primary disk-carrying beam provided with a caster-wheel, and a supplemental disk-carrying beam, the supplemental beam constructed and adapted to detachably connect to the coupling element and the primary beam constructed and adapted to detachably connect directly to the coupling element and also to be connected to the supplemental beam, substantially as described.

2. In a convertible disk plow, the combination with a coupling element, of a primary disk-carrying beam provided with a caster-wheel and constructed and adapted to detachably connect directly to said element, and a supplemental disk-carrying beam adapted to be interposed between the primary beam and the coupling element and constructed and adapted to be detachably attached directly to said element, said primary beam being also constructed and adapted to be detachably connected to the supplemental beam, substantially as described.

3. In a convertible disk plow, the combination with a coupling element, of primary and supplemental disk-carrying beams having similarly-constructed attaching ends, a caster-wheel carried by the primary beam and means for detachably securing the primary or supplemental beams to the coupling element or the primary beam to the supplemental beam when the latter is included in the plow, substantially as described.

4. In a convertible disk plow, the combination with a coupling element, of primary and supplemental disk-carrying beams having similarly-constructed attaching ends, whereby they are adapted to be substituted one for the other at the coupling element, and means for detachably incorporating said beams in the plow organization, substantially as described.



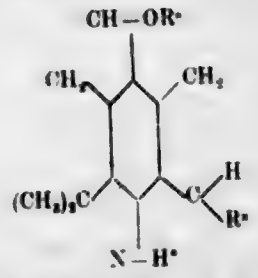
5. In a convertible disk plow, the combination with a coupling element, of detachable primary and supplemental disk-carrying beams, having similarly-constructed attaching ends, and a detachable and shiftable land-side wheel adapted to be connected to either of said beams, substantially as described.

6. In a convertible disk plow, the combination with detachable primary and supplemental disk-carrying beams, having similarly-constructed attaching ends, a coupling element constructed to connect with either of said beams, and detachable spacing members interposed between the beams and to which the forward ends of the beams are connected whereby spacing adjustment between the disks is secured, substantially as described.

7. In a convertible disk plow, the combination with detachable primary and supplemental disk-carrying beams, having similarly-constructed attaching ends, a coupling element constructed to connect with either of said beams, detachable spacing members interposed between the beams and to which the forward ends of the beams are connected, and a detachable and shiftable land-side wheel adapted to be connected to either of said beams, substantially as described.

692,656. ACIDYL DERIVATIVE OF UNSYMMETRICAL ACETON ALKAMINS AND PROCESS OF MAKING SAME. CARL HARRIES, Berlin, Germany, assignor to Chemische Fabrik auf Actien, vorm. E. Schering, Berlin, Germany. Filed Dec. 11, 1897. Serial No. 661,518. (No specimens.)

Claim.—1. As new chemical products, acidyl compounds of the stable unsymmetrical acetonalkamins the composition of which compounds answers the formula



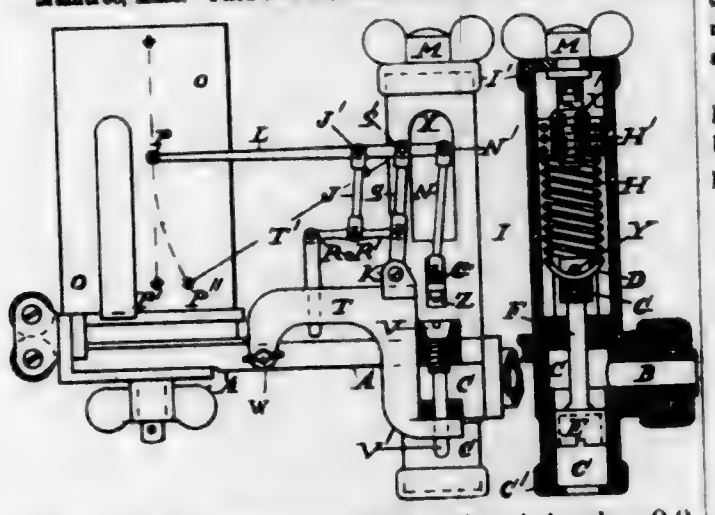
in which R* signifies an acidyl group, R* an aliphatic or aromatic radical and H* a hydrogen atom which can be replaced by an alkyl group; such compounds in the form of free bases are oily bodies, insoluble in water, decompose upon boiling with watery or alcoholic alkali into the respective alkamin base and a salt of that acid, the radical of which was substituted for the hydrogen atom of the hydroxyl acids and combines with inorganic and organic acids to form the corresponding salts which have anesthetic properties.

2. The process of obtaining local anesthetics from the stable modifications of the unsymmetrical cyclical acetonalkamins, which consists in treating the unsymmetrical bases of the triacetonamin series with a suitable reducing agent, then heating the product thus obtained with an alkylate, thus producing the stable modifications of the unsymmetrical bases of the triacetonalkamins, and then substituting in these bases an acidyl group for the hydrogen atom of the hydroxyl, by treating them with an acidyl reagent preferably after transforming them into a salt, substantially as described.

3. In the process of obtaining local anesthetics reacting on the stable modifications of the unsymmetrical cyclical acetonalkamins, preferably after transforming them into a salt, with an acidyl reagent whereby the acidyl group is substituted for the hydrogen atom of the hydroxyl, substantially as described

4. In the process of obtaining local anesthetics from the stable modifications of the unsymmetrical cyclical acetonalkamins, the production of the alkyl derivatives from the said bases by reacting thereon with alkyl reagents.

692,657. STEAM-ENGINE INDICATOR. WILLIAM H. HARRISON, Braintree, Mass. Filed Feb. 26, 1900. Serial No. 6,451. (No model.)



Claim.—1. In a steam-engine indicator, a base A A, a drum O O, and a pencil-moving mechanism having the motion-link N jointed to the swivel G″ and to the end of the lever L, in combination with the lever L bearing the pencil P, the fulcrum-link S, the pendent link J, the toggle-bar R, the toggle-bar R′, the swing-arm T, and the pivot-screw V V′, concentric with the said swivel G″.

2. In a steam-engine indicator a pin Y, in combination with the cross-head G G′ having the boss G slotted at the top and internally threaded at the bottom, the spring H, the piston-rod F, and the piston E.

3. In a steam-engine indicator, a spring having the foot D formed by a curve in the middle of a single wire, and the elastic part or body H wound in two separate spirals from the remainder of the wire with the internally-threaded head H′, in combination with a cross-head G G′, having the boss G slotted at the top and internally threaded at the bottom, the piston-rod F, and the piston E.

4. In a steam-engine indicator, a cross-head G G′ having the boss G slotted at the top and internally threaded at the bottom, and the swivel G″, in combination with the piston-rod F, and the piston E.

5. In a steam-engine indicator, a base A A, a drum O O, a piston E and piston-rod F in a cylinder C C having at its closed top an inlet B above said piston E for the working fluid and at the bottom a free passage to the atmosphere, a spring-case I, a spring H, and a cross-head G G′ with a swivel G″, in combination with a pencil-moving mechanism having the motion-link N jointed to the swivel G″ and to the end of the lever L, the lever L, the fulcrum-link S, the pendent link J, the toggle-bar R, the toggle-bar R′, the swing-arm T, and the pivot-screw V V′ concentric with said swivel G″.

6. In a steam-engine indicator, a base A A, a drum O O, a piston E and piston-rod F in a cylinder C C having at its closed top an inlet B above said piston E for the working fluid and at the bottom a free passage to the atmosphere, a spring-case I, and a range-screw M, in combination with a spring having the foot D formed by a curve in the middle of the wire and the elastic part of body H wound in two separate spirals from the remainder of the wire with the internally-threaded head H′, a cross-head G G′ having the boss G slotted at the top and internally threaded at the bottom, the pin Y, and the swivel G″, and a pencil-moving mechanism having a motion-link N jointed to the swivel G″, and to the end of the lever L.

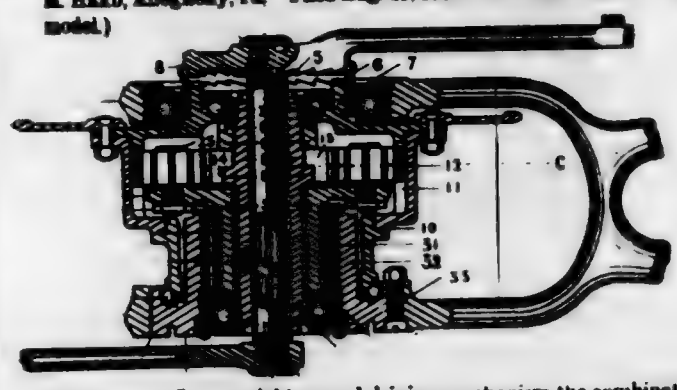
7. In a steam-engine indicator, a base A A, a drum O O, a piston E and piston-rod F in a cylinder C C having at its closed top an inlet B above said piston E for the working fluid and at the bottom a free passage to the atmosphere, a spring-case I, and a range-screw M, in combination with a spring having the foot D formed by a curve in the middle of the wire and the elastic part or body D wound in two separate spirals from the remainder of the wire with the internally-threaded head H′, a cross-head G G′ having the boss G slotted at the top and internally threaded at the bottom, the pin Y, and the swivel G″, a pencil-moving mechanism having the motion-link N jointed to the swivel G″ and to the end of the lever L, the lever L, the fulcrum-link S, the pendent link J, the toggle-bar R, the toggle-bar R′, the swing-arm T, and the pivot-screw V V′ concentric with said swivel G″.

8. In a steam-engine indicator, a base A A, a drum O O, a piston E and piston-rod F in a cylinder C C having at its closed top an inlet B above said piston E for the working fluid and at the bottom a free passage to the atmosphere, a spring-case I, a spring H, and an upward central extension of the piston-rod F, in combination with a pencil-moving mechanism having the motion-link N jointed to an upward extension of the piston-rod F and to the end of the lever L, the lever L, the fulcrum-link S, the pendent link J, the toggle-bar R, the toggle-bar R′ and the swing-arm T with a sleeve encircling the spring-case I.

9. In a steam-engine indicator, a pivot-screw V V′ having its axis concentric with the swivel G″ on the cross-head G G′ and parallel to the axis of the cylinder C C, and threaded into the lug formed on said cylinder C C having the conical head V and the cylindrical tail V′, in combination with the two lugs on the swing-arm T, and a pencil-moving mechanism.

10. In a steam-engine indicator, an adjusting-screw W threaded in a hole through a downwardly-projecting end of the swing-arm T, in combination with the base A A, the drum O O, and the lever L bearing the pencil P movable angularly with the swing-arm T.

692,658. VARIABLE-SPEED DRIVING MECHANISM. REUBEN M. HEAD, Allegheny, Pa. Filed Aug. 15, 1900. Serial No. 26,957. (No model.)



Claim.—1. In a variable-speed driving mechanism the combination of two clutches, with an inclosing drum, revolving in a fixed, unchanging direction, from which the power is delivered; intermediate gear-wheels connecting said drum, with a prime moving shaft or axle; means on said shaft or axle for alternately engaging and disengaging said clutches automatically, thereby increasing or diminishing the speed or power delivered from said drum and caused by a reversal of the direction in which the prime moving shaft or axle rotates, substantially as described.

2. In a variable-speed driving mechanism the combination of a face-plate forming part of a clutch member and secured to a hollow hub or crank-hanger by a locking device, a spanner or carrier forming another portion of said clutch member, a crank-axle within a hollow shaft, a crank-arm forming part of a clutch member, an inclosing drum, from which the power is delivered, forming another portion of said clutch member, intermediate gear-wheels transmitting power from the hollow shaft to the inclosing drum, means on the crank-axle for alternately engaging and disengaging the clutch members and caused by a forward or backward movement of the crank-arm; substantially as described.

3. In a variable-speed driving mechanism, the combination of a crank-axle, a pin on the axle, a hollow shaft provided with an inclined slot, said pin extending into the slot and caused to move laterally in one direction when the revolution of the crank-axle is forward and in the opposite direction when the revolution of the crank-axle is reversed, thereby moving the crank-axle longitudinally within the hollow shaft, a spur-wheel attached to the hollow shaft, a spanner or carrier, pinions carried thereby engaging with said spur-wheel, a fixed collar, clutch-rollers carried by an extension of said spanner and adapted to engage said fixed collar to prevent rotation of the spanner or carrier in one direction, an inclosing drum, an internal gear-wheel within said drum meshing with said pinions, one end of said drum forming a clutch member, a cooperating clutch member fixed to the crank-axle and means whereby power may be transmitted from said drum substantially as described.

692,659. CATTLE-MUZZLE. ALEXANDER F. HENDRICKS and CHARLES A. LOGWOOD, Warren, Okla. Filed May 18, 1901. Serial No. 60,875. (No model.)

Claim.—1. A combined cattle muzzle and poke comprising a headstall having a barb or pricking-lever arranged thereon, an operating-lever attached also to the headstall and connected with the barb or pricking-lever, and the guard for protecting the barb or pricking-lever, substantially as shown and described.

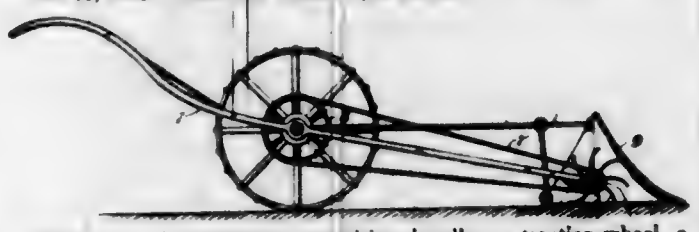


2. A combined cattle muzzle and poke comprising a headstall having a barb or pricking-lever arranged thereon, an operating-lever carried also by the headstall and extending upwardly, and a hook arranged below the headstall and operatively connected with the operating-lever, substantially as shown and described.

3. In a device of the kind described, the combination with the headstall, of a barb or pricking-lever attached thereto, the operating-lever connected to the barb or pricking-lever, the cords or wires depending from the upper end of the operating-lever, and the bail suspended by the cords or wires and terminating in a forwardly-projecting hook, substantially as described.

4. The combination with the headstall, of a guard arranged thereon, the barb and operating-lever pivotally arranged between the headstall and guard, the depending bail and means connecting the upper end of the operating-lever and the said depending bail, substantially as herein shown and described.

692,660. **CULTIVATOR.** GEORGE W. HENRY, Oil City, Pa. Filed Oct. 19, 1901. Serial No. 79,222. (No model.)



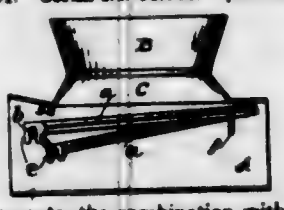
Claim.—1. A cultivator, comprising handles, a traction-wheel, a shaft arranged at the forward portion of the handles, cultivator-fingers on said shaft, a hood over the fingers and driving connections between said shaft and the traction-wheel, substantially as specified.

2. A cultivator, comprising handles, a traction-wheel having its shaft-bearings in said handles, a shaft at the forward end of the handles, curved fingers on said shaft, a hood over the fingers, a sprocket-wheel on said shaft, a sprocket-wheel on the shaft of the traction-wheel, and a chain connection between said sprocket-wheels, substantially as specified.

3. A cultivator, comprising handles, a traction-wheel supporting said handles, a shaft arranged at the forward portion of the handles, a driving connection between said shaft and the traction-wheel, cultivator-fingers on said shaft, and a hood arranged over said fingers, substantially as specified.

4. A cultivator, comprising handles, a traction-wheel supporting the handles, cultivator-teeth arranged at the forward portion of the handles, a driving connection between said cultivator-teeth and the traction-wheel, a rod extended from the shaft of the traction-wheel, a frame having swinging connection with said rod, and a protecting-hood connected to said frame, substantially as specified.

692,661. **STOVE-GRATE.** GEORGE HESS, Quarryville, Pa. Filed May 25, 1901. Serial No. 61,968. (No model.)

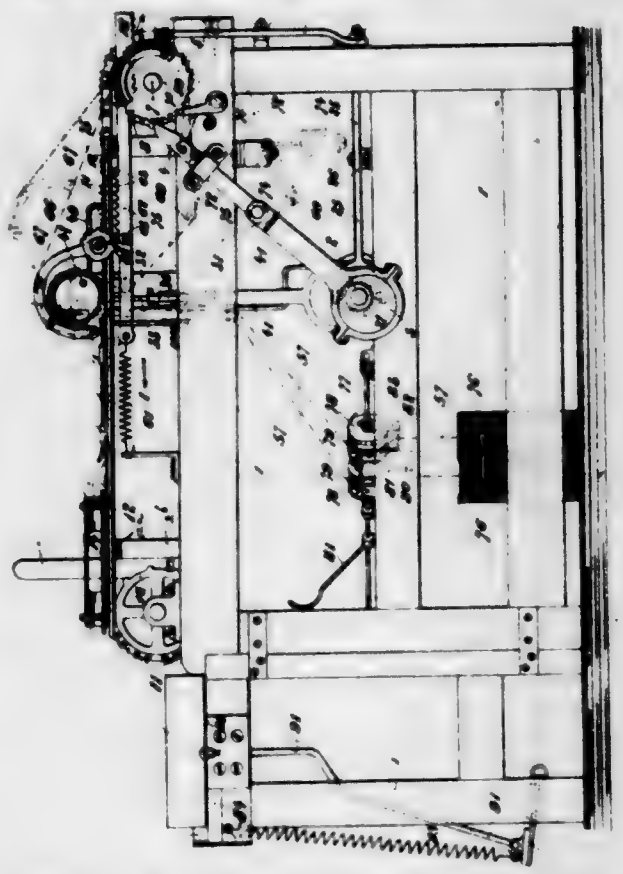


Claim.—1. In a grate, the combination with a fire-pot, an ash-pit supporting said pot, a transverse bar carried by the said pit, intermediate its top and bottom and having its upper face notched, a shaft rotatably mounted in the forward end of said pit and having alternate cranks carried thereby, and grate-bars having their forward ends secured to the said cranks and their rear ends of a shape to correspond with the notches in the upper face of the transverse bar, substantially as described.

2. In a grate, the combination with a fire-pot, an ash-pit supporting said pot, a transverse bar carried by the rear end of said pit intermediate its top and bottom and having its upper face provided with notches, a shaft rotatably mounted in the forward end of said pit and having alternately-arranged cranks carried thereby, grate-bars having their rear ends of a shape to correspond with said notches in the transverse bars, and their forward ends provided with downwardly-extending forked portions adapted to receive said cranks, and a pin passing through the forked ends of said bars, whereby the bars are fastened to the cranks, substantially as described.

3. In a grate, the combination with a fire-pot, an ash-pit supporting said pot, a transverse bar carried by the said pit intermediate its top and bottom, and having V-shaped notches in its upper face, a shaft rotatably mounted in the forward end of said pit and having alternately-arranged cranks and grate-bars having their forward ends secured to said cranks and the rear lower faces being shaped to correspond with the notches in the transverse bars and adapted to rest therein, substantially as described.

692,662. **MACHINE FOR MAKING STRAW BOTTLE-COVERS.** MATHIAS VAN DEN HEUVEL, Gangelt, near Gellenkirchen, Germany. Filed Nov. 6, 1900. Serial No. 35,665. (No model.)



Claim.—1. In a machine of the kind described means for guiding the straws while being sewed around the sewing-cylinder comprising movable arched guides an endless cord or rope kept taut by a suitably-arranged weight, said guides being mounted on a rock-shaft, provided with a partially-toothed gear-wheel, adapted to engage an upper series of teeth on a double rack-bar, the lower series of teeth of which gear with a second partially-toothed wheel keyed on the auxiliary shaft the gearing being so arranged that the rack-bar is withdrawn to its initial position by a spring the moment it ceases to gear with the wheel on the auxiliary shaft, in consequence of which the other gear-wheel and the guides are returned to their initial position, substantially as described.

2. In a machine for manufacturing straw bottle-covers, a sewing-cylinder, means for conveying the cover-blanks to said cylinder, mechanism for sewing the cover-blanks, means for guiding the sewed blanks around said cylinder, means for automatically operating said guide means, means for cutting the thread when the cover has been formed, means for automatically and intermittently operating said sewing mechanism, and means for intermittently operating the said conveying means.

3. In a machine for manufacturing straw bottle-covers, sewing mechanism for the cover-blanks, a pair of arched arms for guiding the blanks while being sewed, means for automatically operating said arms, means for conveying the cover-blanks to said sewing mechanism, a presser-frame engaging the cover-blanks upon the conveying means, operating means for said sewing mechanism, and operating means for said conveying means.

4. In a machine for manufacturing straw bottle-covers, a sewing-cylinder, a longitudinal reciprocating bar mounted therein, guide-pins for the thread mounted on said bar, needles operating in said cylinder, needle-levers, operating means therefor, means for conveying cover-blanks to said cylinder, a pair of arched arms surrounding said cylinder for guiding the sewed blank, means for automatically operating said arms, a presser-frame engaging the blanks upon said conveyer, and operating means for said conveyer.

5. In combination, in a machine of the character described, a sewing-cylinder, a needle-thread looper, means for automatically and intermittently operating said looper, means for cutting and gripping the sewing-thread, means for automatically and intermittently operating said cutting and gripping means, sewing mechanism, operating means therefor means for conveying the cover-blanks to the sewing-cylinder to be sewed, means for intermittently operating the same, a pair of arched arms for guiding the sewed cover around the sewing-cylinder, and means for automatically moving said arms into and out of operative position.

6. In combination, in a machine of the character described, a sewing-cylinder, a needle-thread looper, means for automatically and intermittently operating said looper, means for cutting and gripping the sewing-thread, means for automatically and intermittently operating said cutting and gripping means, sewing mechanism, operating means therefor, means for conveying the cover-blanks to the sewing-cylinder to be sewed, a pressure device for causing the blanks to engage the conveying means, means for intermittently operating the same, a pair of arched arms for guiding the sewed cover around the sewing-cylinder, and means for automatically moving said arms into and out of operative position.

7. In a machine for manufacturing straw bottle-covers, a sewing-cylinder, means for conveying the cover-blanks to said cylinder, mechanism for sewing the cover-blanks, means for guiding the sewed blanks around said cylinder, means for automatically moving said guide means into operative position, means for automatically moving said guide means to inoperative position, means for automatically and intermittently operating said sewing mechanism, and means for intermittently operating said conveying means.

8. In a machine for manufacturing straw bottle-covers, a sewing-cylinder, means for conveying the cover-blanks to said cylinder, a pressure device for causing the blanks to engage the conveying means, mechanism for sewing the cover-blanks, means for guiding the sewed blanks around the cylinder, means for automatically moving said guide means to operative position, means for automatically moving said guide means to inoperative position, means for cutting the thread when the cover has been formed, means for automatically and intermittently operating said sewing mechanism, and means for intermittently operating said conveying means.

9. In combination in a machine of the character described, a sewing-cylinder, a needle-thread looper, means for cutting and gripping the sewing-thread, sewing mechanism, means for conveying the cover-blanks to the sewing-cylinder to be sewed, a pressure-frame engaging the blanks upon the conveying means, a pair of arched arms for guiding the sewed cover around the sewing-cylinder, means for automatically moving said arms to operative position, means for automatically moving said arms to inoperative position, and means for automatically operating said conveying means.

10. In combination in a machine of the character described, a sewing-cylinder, an automatically-operating needle-thread looper mechanism, an automatically-operating cutting and gripping mechanism for the sewing-thread, an automatically-operating sewing mechanism, an automatically-operating conveying mechanism for presenting the cover-blanks to the sewing-cylinder to be sewed, a presser-frame engaging the blanks upon the conveying means, an automatically and intermittently operating means for guiding the sewed cover around the sewing-cylinder, automatically-operating means for moving said guide means into operative position, and an automatically-operated means engaging the said guide means for moving the latter into inoperative position.

11. In a machine for manufacturing straw bottle-covers, a sewing-cylinder, an endless conveyer for feeding the cover-blanks to said cylinder, mechanism for sewing the cover-blanks, means for guiding the sewed blanks around said cylinder, means for automatically moving said guide means into operative position, means for automatically moving said guide means into inoperative position, means for operating said guide means, means for intermittently operating said sewing mechanism, and means for intermittently operating said conveyer.

12. In a machine of the character described, a sewing-cylinder, means for feeding the cover-blanks thereto, a sewing mechanism for the cover-blanks, means for guiding the sewed blanks around said cylinder, a spring-return bar engaging with the said guide means for automatically and intermittently operating the latter to bring the same into operative position, means engaging with the said guide means for moving the same into inoperative position after the said guide means has been operated by the said spring-return bar, and means for intermittently operating said feeding means.

13. In a machine for manufacturing straw bottle-covers, a sewing mechanism, a sewing-cylinder, means for feeding the blanks to the sewing mechanism, means for guiding the blanks around the sewing-cylinder, means engaging with the said guide means for moving the same into operative position, means engaging with said guide means for moving the same to inoperative position, a main shaft, and separate connections between the main shaft, sewing mechanism, guide-operating means therefor and feed means for automatically and intermittently operating them.

14. In a machine for manufacturing straw bottle-covers, a sewing-cylinder, sewing mechanism, means for feeding the cover-blanks to the sewing mechanism, means for causing the engagement of the cover-blanks with the feeding means, means for guiding the sewed blank around the cylinder, an automatically and intermittently operating bar engaging with the guide means for moving the latter into operative position, means engaging with the guide means for moving the same into inoperative position, means for automatically and intermittently operating said sewing mechanism, and means for automatically and intermittently operating said conveying means.

15. In a machine for manufacturing straw bottle-covers, a sewing-cylinder, a sewing mechanism, means for feeding the cover-blanks to said mechanism, means for causing the cover-blanks to engage with the feeding means, means for guiding the sewed cover around said cylinder, means for cutting the thread when the cover has been formed, an automatically and intermittently operating bar engaging with the said guide means for moving the same into operative position, means engaging with the guide means for moving the same into inoperative position, means for automatically operating said cutting means, means for automatically operating said sewing mechanism, and means for automatically and intermittently operating said conveying means.

16. In a machine of the character described, a sewing mechanism, means for feeding cover-blanks thereto, a pair of arched arms for guiding the blank while being sewed, a spring-return bar engaging with the arched bars for automatically and intermittently moving the same into operative position, means engaging with the bars and moving the same into inoperative position, mechanism for operating said spring-return bar, mechanism for operating said sewing mechanism, and means for suitably operating said feeding means.

692,668. DEVICE FOR CLEANING WATCH-MOVEMENTS.

JOHN J. HIGGINS, Duquoin, Ill. Filed Apr. 27, 1901. Serial No. 57,704. (No model.)



Claim.—1. A device for cleaning watch and clock movements, comprising a receptacle, a cover for the same, a shaft mounted in the receptacle, a supporting-plate carried by the shaft, a series of retaining members and spring clamping members carried by the supporting-plate and arranged to retain the various portions of a watch or clock movement, the said clamping and retaining members comprising upwardly-extending spring-clamps having opposing members, and clamps having spring-arms and keepers, and means for imparting motion to the shaft, as set forth.

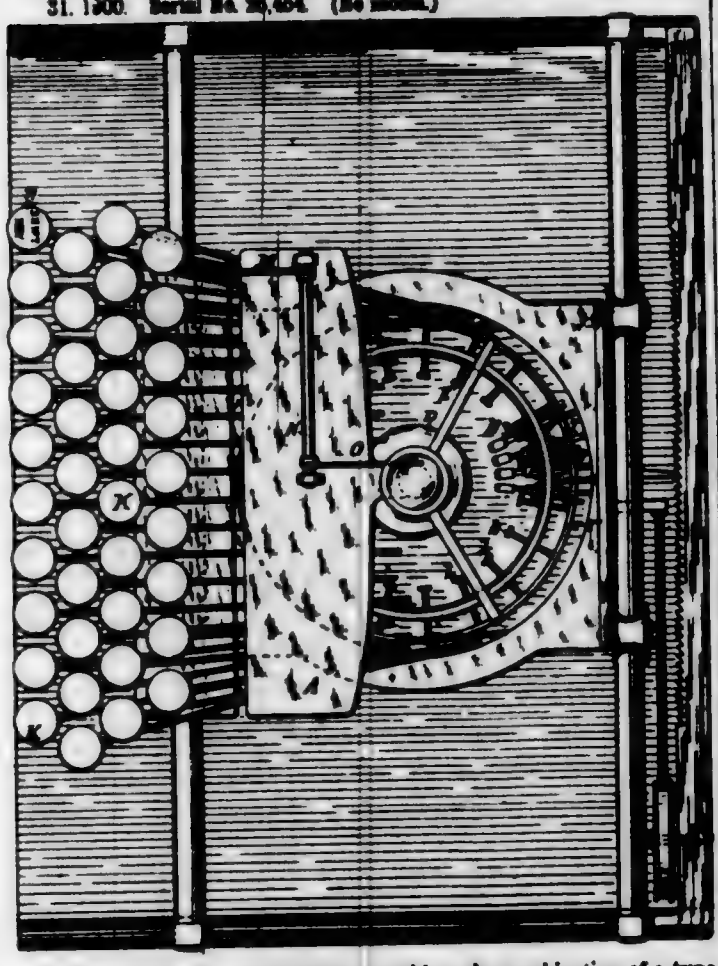
2. A device for cleaning watch and clock movements comprising a main receptacle adapted to contain a cleaning compound or liquid, a shaft mounted to rotate in the receptacle, a supporting-plate carried by the shaft, retaining members and spring-clamps carried by the supporting-plate, a hook-standard also carried by the supporting-plate, a small apertured receptacle adapted to be suspended from the said hook-standard, a lower hook-standard on the supporting-plate for holding the receptacle in place, and means for imparting an alternating motion to the shaft, for the purpose specified.

3. In a device for cleaning watch and clock movements, the combination with a receptacle and a removable cover therefor, the receptacle being adapted to contain a cleansing compound or liquid and a shaft journaled in the cover and the bottom of the receptacle, of a supporting-plate secured to the lower portion of said shaft, and retaining and spring clamping members carried by said plate and having an upward inclination, the said members being adapted to support the various parts of a watch or

clock movement, sundry of said members being detachably connected with the plate and one of said detachable members comprising an upwardly-extending spring-fork, for the purpose set forth.

4. In a device for cleaning watch and clock movements, a receptacle, a supporting-plate mounted to turn in the receptacle, and provided with a series of clamps and carriers for the parts of the movement, the said clamps and carriers comprising upwardly-extending spring-clamps having opposing members, spring-arms and keepers, and upright carriers, a small apertured receptacle, and means carried by the supporting-plate for holding said apertured receptacle in place, for the purpose specified.

692,664. **TYPE-WRITING MACHINE.** FREDERIC W. HILLARD, Brooklyn, N. Y., assignor to the Elliott & Hatch Book-Typewriter Company, a Corporation of New York. Filed May 25, 1897. Renewed July 31, 1900. Serial No. 26,454. (No model.)



Claim.—1. In a type-writing machine, the combination of a type-bar, a spring-controlled type-head pivoted on the type-bar, a tripping member pivoted on the type-bar concentrically with the type-head, and a loose connection between the type-head and tripping member, substantially as described.

2. In a type-writing machine, the combination of a type-bar, a type-head pivoted to said bar and carrying a plurality of type, a loose member pivoted to the type-bar, and adapted to move the type-head positively in one direction, a tripper arranged to engage the loose member during the printing stroke, to move the same and thereby the type-head in one direction, and a buffer arranged to restore the loose member to its original position on the return of the type-bar to its normal position.

3. In a type-writing machine, the combination of a type-bar, a type-head pivoted thereon and having a plurality of type, a loose member on the type-bar acting to move the head, a tripper engaging the loose member during the printing stroke to move the same in one direction, and a fixed buffer for restoring the loose member on the return of the type-bar from the printing stroke substantially as described.

4. In a type-writing machine, the combination of a type-bar, a type-head having a plurality of type, a loose tripping member on the type-bar capable of movement on the type-bar in one direction without causing movement of the type-head, the loose tripping member and type-head having contacting parts whereby the type-head may be shifted by the movement of the loose tripping member in the opposite direction, substantially as described.

5. In a type-writing machine, the combination of a type-bar, a type-head having a plurality of type, a loose tripping member on the type-bar, the loose tripping member being capable of movement in one direction without causing movement of the type-head, and contacting parts on the loose tripping member and type-head whereby a movement of the loose tripping member in the other direction insures that the type-head assume a definite position, substantially as described.

6. In a type-writing machine, the combination of a swinging type-bar, the type-head pivoted on said bar, and having a plurality of type, a member on the type-bar movable in one direction independently of the type-head, and adapted by its movement in the other direction to turn the type-head, means for tripping the loose member to disengage it from the head, and means operative during the printing stroke of the type-bar to turn the type-head after disengagement from the loose member.

7. In a type-writing machine, the combination of a type-bar, a type-head having a plurality of type, a loose tripping member on the type-bar, the loose tripping member and type-head having contacting parts whereby the type-head may be shifted in one direction by the loose tripping member, and means not effecting the movement of the loose tripping member, and operative only upon a movement of the type-bar for tripping the type-head in the opposite direction, substantially as described.

8. In a type-writing machine, the combination of a type-bar, a movable type-head having a plurality of type, a movable tripper, a loose tripping member engaging with and moved in one direction by the said tripper upon the initial movement of the type-bar and escaping from the tripper on further movement of the type-bar, means for moving the tripping member in the opposite direction upon the return of the type-bar to normal position, and engaging faces on the loose tripping member and type-head whereby on the movement of the loose tripping member in one direction the type-head is positively shifted in one direction and whereby upon the movement of the loose tripping member in the opposite direction the type-head is released for movement in the opposite direction to that in which it was moved by the tripping member, substantially as described.

9. In a type-writing machine, the combination of a type-bar, a type-head having a plurality of type, a loose tripping member on the type-bar, the loose tripping member and type-head having contacting parts whereby the type-head may be shifted by the loose tripping member in one direction, and whereby the loose tripping member subsequent to such tripping of the type-head may be moved without causing movement of the type-head, and means, brought into action on the movement of the type-bar for shifting the type-head in the opposite direction, substantially as described.

10. In a type-writing machine, the combination of a type-bar, a type-head having a plurality of type, a loose tripping member on the type-bar, the loose tripping member and type-head having contacting parts whereby the type-head may be shifted in one direction by the loose tripping member, means independent of the loose tripping member for holding the type-head in such tripped position in the normal unused position of the type-bar, and means operative upon a movement of the type-bar for tripping the type-head in the opposite direction, substantially as described.

11. In a type-writing machine, the combination of a type-bar, a type-head bearing a plurality of type, a loose tripping member, contacting parts on the loose tripping member and type-head, means including the loose tripping member for shifting the type-head in one direction, means for shifting the type-head in the opposite direction, and a basket-ring or buffer positioned to support and rest the loose tripping member independently of the type-head, substantially as described.

12. In a type-writing machine the combination of a type-bar, a loose tripping member pivoted on the type-bar, a type-head bearing a plurality of type pivoted on the type-bar and having a limited movement on its pivot independently of the loose tripping member, when the latter has been tripped in one direction, means for tripping the loose tripping member in the opposite direction, and contacting parts on the loose tripping member and type-head for tripping the type-head in one direction by the loose tripping member.

13. In a type-writing machine the combination of a type-bar, a type-head bearing upper-case type and a lower-case type, pivoted on the type-bar and having a limited movement on its pivot whereby each type is brought to the printing position, a loose tripping member pivoted on the type-bar and having a movement on its pivot, means for shifting the loose tripping member in either direction independently of the type-head when the type-head is in position for printing the lower-case type, and contacting parts on the loose tripping member and the type-head for moving the type-head into position for printing the lower-case type.

14. In a type-writing machine, the combination of a type-bar, a type-head movably supported thereon having a plurality of type, a tripper, means for moving the tripper into the path of the type-head in each printing position of the type-head, whereby upon the printing stroke of the type-bar, the type-head is shifted free of the tripper in each position of the tripper, substantially as described.

15. In a type-writing machine the combination of a type-bar, a type-head movably supported thereon having a plurality of type, means for holding the type-head in the position in which it is set in all positions of the type-bar, and means operative on the printing stroke of the type-bar for shifting the type-head from each printing position into any other printing position, substantially as described.

16. In a type-writing machine, the combination of a type-bar, a type-head movably supported thereon, having tripping members, the type-head also having a plurality of type, a tripper operative on the printing stroke of the type-bar for shifting the type-head from each printing position into any other printing position, and means for moving the tripper into the path of the type-head tripping members to shift the type-head from one printing position to another, substantially as described.

17. In a type-writing machine, the combination of a type-bar, a type-head movably supported thereon having tripping members, the type-head also having a plurality of type, a tripper operative on the printing stroke of the type-bar for shifting the type-head from each printing position into any other printing position, means for moving the tripper into the path of the type-head tripping members to shift the type-head from one printing position to another, and means for holding the type-head in each position into which it is shifted by the tripper, while the position of the tripper remains unchanged, substantially as described.

18. In a type-writing machine, the combination of a type-bar, a type-head movably supported thereon having two type, a tripper operative on the printing stroke of the type-bar for shifting the type-head from each printing position into the other printing position, means for bringing the tripper into each of its operative positions to shift the type-head from one printing position into the other printing position, and means for holding the type-head in each position into which it is shifted by the tripper in all positions of the type-bar until the position of the tripper is changed, substantially as described.

19. In a type-writing machine, the combination of a series of type-bars each provided with a type-head movably supported thereon and having a plurality of type, a series of tripping members and a series of brackets between the type-bars each provided with projecting parts for tripping the type-heads of the adjoining type-bars, substantially as described.

20. In a type-writing machine, the combination of a series of type-bars each provided with a type-head movably supported thereon and having two type, a series of tripping members on the type-bars, and a series of brackets between the type-bars provided with projecting parts to engage with the tripping members and trip the type-heads of the adjoining type-bars into position for printing with one type, and means for tripping the type-heads into position for printing with the other type, substantially as described.

21. In a type-writing machine, the combination of a type-bar, a type-head bearing a plurality of type, an independent tripping member, means for shifting the type-head by the tripping member from its position for printing one type to its position for printing the other type, means for shifting the tripping member independently of the type-head, a spring for controlling the type-head in each printing position, and means whereby the spring is flexed through a greater distance when the type-head is shifted and through a lesser distance when the tripping member only is shifted, substantially as described.

22. In a type writing machine, the combination of a type-bar, a type-head on the type-bar, and a tripping member on the type-bar tripping the type-head and having a movement independent thereof, the tripping member having a banking-stop contacting with the type-bar and limiting its movement, substantially as described.

23. In a type-writing machine the combination of a type-bar, a type-head on the type-bar, and a loose tripping member on the type-bar for tripping the type-head, the loose tripping member having a banking-stop to contact with the bar to limit its movement, substantially as described.

24. In a type-writing machine, the combination of a type-bar, a type-head pivoted on said bar and provided with two type and with stop-shoulders to bank against the bar, and a spring acting to press the stop-shoulders into contact forcibly with the bar whereby the type-head is stopped and held in exact relation to the bar.

25. In a type-writing machine, the combination of a type-bar T, a type-head H, carrying two type, and having stop-shoulders *m* and *n*, to encounter the bar, and a spring S attached to the bar and acting on the head to hold one shoulder or the other forcibly in intimate contact with the bar.

26. In a type-writing machine, a type-bar T, having a circular end, a pivoted type-head H, provided with two type and with a recess to receive the end of the bar, and two shoulders *m* and *n* to bank on said bar, and means for turning said head on the bar, and alternately holding its stop-shoulders forcibly in contact with the bar.

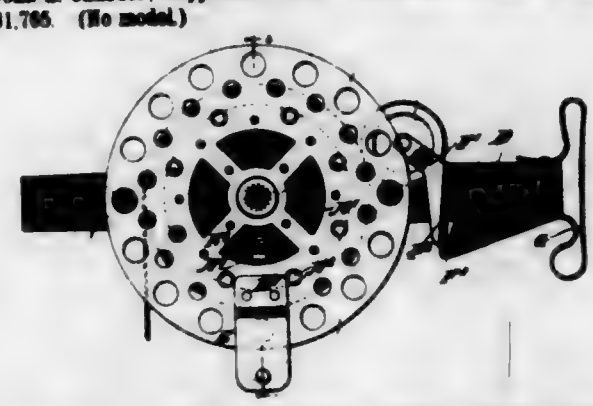
27. In a type-writer, the combination of a movable type-bar, a type-head pivotally mounted thereon and provided with a plurality of type, a tripping member mounted on the type-bar and connected with the type-head to shift it, means contacting with the tripping member to shift and reshift it on the type-bar during the printing and returning stroke of the type-bar and a banking-face between the type-head and type-bar, substantially as described.

28. In a type-writer, the combination of a movable type-bar, a type-head pivotally mounted thereon and provided with a plurality of type, a tripping member mounted on the type-bar and connected with the type-head to shift it, the type-head and tripping member being free for limited relative movement, means contacting with the tripping member to shift and reshift it on the type-bar during the printing and returning stroke of the type-bar, a banking-face between the tripping member and type-bar and a banking-face between the type-head and type-bar, substantially as described.

29. In a type-writing machine, the combination with the type-bar, and the type-head pivoted thereto and having a projecting portion, of a device carried by the type-bar separate from the type-head and coöperating with the projecting portion to effect the turning of the head.

30. In a type-writing machine, the combination with the type-bar, of a type-head pivoted thereon and having a plurality of type, a device on the type-bar acting to move the head, a tripper engaging the device during the printing stroke to move the same, and a buffer for restoring said device on the return of the type-bar from the printing stroke.

692,665. **REEL FOR TAPE-MEASURES.** VICTOR G. HILLS and JOHN R. CHAPMAN, Cripplecreek, Colo. Filed Oct. 2, 1900. Serial No. 31,766. (No model.)



Claim.—1. A reel for a tape-measure, having a frame, a spool journaled therein, a steel tape winding on said spool, and a spring-pressed follower pressing on said tape, to hold the tape from uncoiling, but to allow a comparatively free unwinding from or winding up of the tape on the spool, said follower comprising a roller arranged to engage the tape, an arm fulcrumed on said frame and carrying said roller, and a spring pressing said arm, as set forth.

2. A reel comprising a frame open at one side and carrying a spindle, a flanged reel mounted to turn on said spindle, a tape winding on said reel, a spring-pressed frame pressing said tape on the reel, and guide-arms carried on said frame and engaging the flanges of the reel on their opposing or inner sides, as set forth.

3. A reel formed with perforated flanges, and a cylindrical body having a series of transverse grooves in its peripheral surface, said grooves terminating in the perforations of said flanges, as set forth.

4. A reel for a tape-measure, comprising a frame, a revoluble spool journaled therein, a normally straight spring-tape free to wind upon and unwind from said spool, a pivoted member provided with a wheel for engaging the spring-tape, and a resilient member engaging said pivoted member for the purpose of pressing said wheel against the said spring-tape.

5. A reel for a tape-measure, comprising a frame, a revoluble spool journaled therein, a guide mounted upon said frame for steadying said spool, means for rotating said spool, a normally straight spring member free to wind upon and to unwind from said spool, a wheel free to roll upon the surface of said spring member and thereby maintain the position of the windings thereof, a pivoted arm carrying said wheel, and an elastic member having a tension opposed to the tension of said normally straight spring member, for the purpose of holding said wheel in engagement with the same.

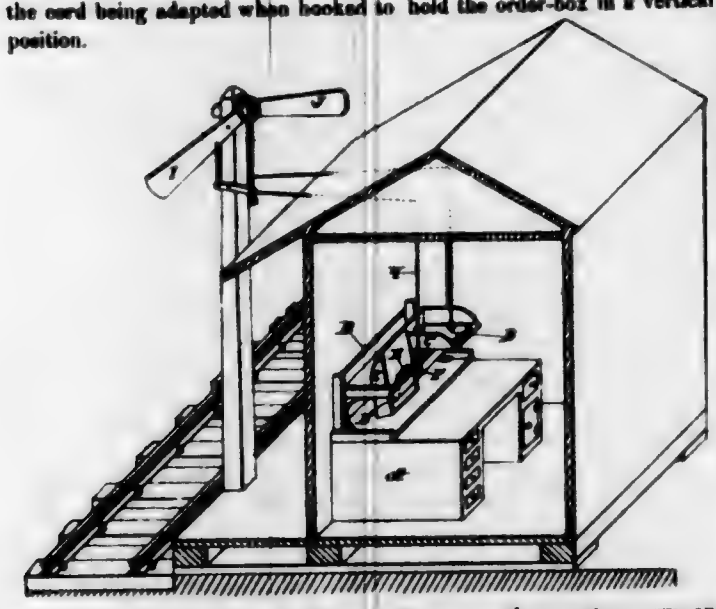
6. A reel for a tape-measure, comprising a frame, a spool journaled therein, means for actuating said spool, a spring-tape free to wind upon and unwind from said spool and tensioned so as to normally unwind therefrom, a wheel engaging said tape for the purpose of maintaining the position of the windings thereof, a movable arm supporting said wheel, and a resilient member engaging said movable arm and so tensioned as to oppose the tension of said spring-tape.

7. A reel for a tape-measure, comprising a frame, a revoluble spool journaled therein, means for manually actuating said spool in either direction, a resilient spring member free to wind upon and unwind from said spool and tensioned to normally unwind from the same by its own elasticity, a member loosely pivoted upon the frame and carrying an antifriction device for engaging the windings of said spring member, and a resilient member for engaging the pivoted member.

692,666. **TRAIN-ORDER BOX.** IRA G. HOAG, Los Angeles, Cal. Filed Aug. 12, 1901. Serial No. 71,818. (No model.)

Claim.—1. The combination with a gravity-operated semaphore-

arm of the herein-described order-box, mounted to swing in a vertical plane and adapted to hold orders while in a longitudinal position and unfit to receive them when in a vertical position, a cord secured at one end to and extending from the semaphore-arm to elevate and hold an arm in an elevated position when taut, the other end of the cord adapted to engage a hook on the order-box, the cord being of the required length to become taut when hooked thereon, a hook on said order-box for hooking the cord, the cord being adapted when hooked to hold the order-box in a vertical position.



2. The combination with a gravity-operated semaphore-arm and the cord for retaining the same in a horizontal position, the herein-described order-box mounted to swing on horizontal pivots and remain in horizontal position for holding orders when disconnected from the cord, a hook to secure said cord below said box, a ring on the free end of the cord to engage the said hook, the hook being arranged with reference to the box so that a cord passing directly from the hook to the semaphore-arm will tilt the box and prevent the placement therein of an order.

3. In a railway signaling device, the combination with the gravitating semaphore-arm I, of the order-box C pivoted to swing vertically and adapted to receive orders only when in a horizontal position, and located to contact with and be thrown into vertical position when the operating-cord H is taut and thereby rendered unfit to receive or hold orders, the semaphore-operating cord H secured at one end to the semaphore-arm to elevate and hold the arm in its elevated position when taut, the other end being adapted for engagement with the hook F, the hook F to engage the said cord whereby when it is desired to indicate by the signal that the track is clear, the cord is secured to the hook and becoming taut thereby will throw the order-box into a vertical position unfit to hold orders and raise and lock the semaphore-arm in an elevated position indicating a clear track.

4. The herein-described means to operate a railway signaling device, comprising an order-box to receive train-orders the said box adapted to be placed in a horizontal position when disconnected with the semaphore-operating cord, a semaphore-operating cord extending from the box to a semaphore-arm and connected at one end to said arm, and having on the other end a ring, a hook for said ring in such position with reference to said box, that when the hook is on the ring the cord will tilt the order-box into a vertical position and render it impracticable to place an order therein.

5. The combination of a semaphore-arm, an operating-cord connected at one end therewith, a ring on the other end of said cord, an order-box pivoted to turn vertically but arranged to stand in a horizontal position and so located between the semaphore-arm and the cord-engaging hook, that the cord when taut will tilt the box and prevent the placement therein of an order.

6. In a railway-signal, the combination with a semaphore-arm and its connected operating-cord, a train-order box having means, substantially as shown and described, to throw said box into a vertical position rendering it thereby impossible to place an order therein when the operating-cord is made to elevate the arm and indicate thereby that the track is clear.

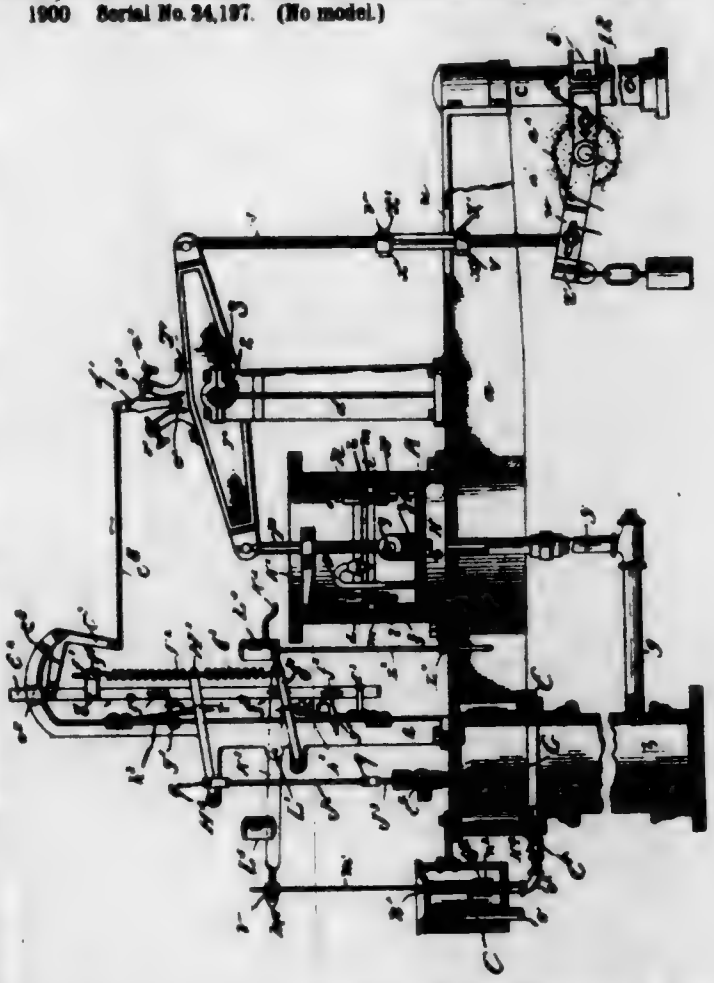
7. A semaphore-arm, a cord operatively connecting the same with an order-box and arranged to be attached to or detached from said box, an order-box adapted to tilt vertically and to be placed in a horizontal position to receive and hold orders when the cord is detached and connecting means between said box and cord to throw said box into a vertical position when said cord is taut and unfit it for holding orders.

692,667. FOOD PRODUCT AND METHOD OF PREPARING SAME. WILLIAM J. HOWARD, Louisville, Ky. Filed Dec. 14, 1901. Serial No. 85,980. (No specimens.)

Claim.—1. The process herein described of preparing chilli-con-carne for preservation and deferred use, consisting in partly frying meat in rendered suet, subjecting the chilli-pepper prior to its introduction into the mixture to individual treatment to eliminate rank moisture therefrom, and also frying the garlic separately and removing the grease before its introduction into the mixture; cooking said pepper and partly-fried meat in the presence of each other; and finally adding the oragno, camino, chilli-relish and treated garlic and cementing all by rendered suet, substantially as described.

2. The herein-described preserved product of the kind stated, embracing in addition to cooked meat, oragno, camino, and chilli-relish, chilli-pepper treated to remove moisture therefrom, and fried garlic from which grease has been eliminated, said ingredients being cemented together and sealed against the admission of air thereto by hardened rendered suet, substantially as described.

692,668. MOTOR. DAVID HURST, Mansfield, Ohio. Filed July 19, 1900. Serial No. 24,197. (No model.)



Claim.—1. In an automatic motor, the combination with a fluid-chamber, and a cylinder, of pipes connecting the chamber and cylinder, a piston in the cylinder, means for intermittently causing the fluid to actuate the piston, mechanism actuated by the piston for controlling the fluid-pressure, and an escape-valve for the excess of fluid.

2. In an automatic motor, the combination with a cylinder and piston operating therein, of a fluid-chamber, communications between the cylinder and chamber, means for causing the fluid in the chamber to force the piston in one direction, means surrounding the cylinder for causing a vacuum therein whereby the piston makes its return stroke by atmospheric pressure and means operated by the piston for intermittently permitting the admission of pressure to the fluid in the fluid-chamber.

3. In a motor, the combination with a cylinder, a piston operating therein, and a fluid-chamber in communication with the cylinder, of a cooling means surrounding the chamber, positive means for actuating the piston in one direction, the positive means being intermittently cut off from the fluid-chamber, the cooling means acting upon the positive means whereby a vacuum is created in the fluid-chamber thereby allowing the piston to be returned to its original position by atmospheric pressure.

4. An automatic motor comprising a bed-plate, a cylinder and a fluid-chamber attached thereto, connections between the chamber and cylinder, a piston in the cylinder, positive means for intermittently actuating the piston in one direction, means operated by the piston for controlling the positive means and means acting on the positive means for causing a vacuum in the fluid-chamber whereby the piston is moved in the opposite direction by atmospheric pressure alone.

5. An automatic motor consisting of a bed-plate, a removable fluid-chamber suitably packed, secured thereto, a removable cylinder, a piston

therein, connections between the chamber and cylinder, means for positively actuating the fluid in the chamber whereby to drive the piston in one direction, means operated by the piston to control the admission of the first-named means into the fluid-chamber, and a cooling means operating on said first-named means whereby to create a vacuum in the fluid-chamber and permit atmospheric pressure to return the piston to its original position.

6. In a motor, a water-chamber, a steam-inlet a water-jacket surrounding the water-chamber, cylinder open at one end, a piston operating in the cylinder, pipe connections between the water-chamber and the cylinder, means for intermittently causing a jet of steam to enter the water-chamber, whereby the water therein is forced through the pipes and against the piston to give it a positive impulse in one direction, the water-jacket meanwhile condensing the steam to form a vacuum in the water-chamber in order that the piston may be returned to its former position by means of atmospheric pressure.

7. A motor consisting of a water-chamber and a cylinder, pipes connecting the two, a piston operating in the cylinder of means for giving the piston a positive impulse in one direction, means for creating a vacuum in the water-chamber to allow atmospheric pressure to return the piston to its original position and an outlet from the water-chamber, the outlet provided with an intermittently-actuated valve for permitting the escape of water therefrom.

8. A motor provided with an air-tight water-chamber, a cylinder and piston, pipe connections between the cylinder and the water-chamber, and means for causing the actuation of the piston of an auxiliary chamber connected to the water-chamber, an air-tight valve in the auxiliary chamber, governing the outflow of water from the water-chamber, and an overflow-pipe for conducting away the surplus water.

9. An automatic motor operated by steam and atmospheric pressure, a fluid-chamber, a cooling means surrounding the fluid-chamber, a cylinder, a piston therein, and means of communication between the chamber and cylinder whereby steam entering the chamber forces the fluid therein against the piston to impel it in one direction, the cooling means operating to create a vacuum in the chamber whereupon the piston is returned to its first position by atmospheric pressure.

10. In a motor, a bed-plate having a trunnion-support attached thereto, a walking-beam journaled in bearings on the trunnion-support, a bracket secured on the walking-beam, the bracket provided with arms slightly curved, adjusting-screws fitted in the arms, a flange between the arms of the bracket and a lever journaled in the flange, the throw of the lever being regulated by the adjusting-screws, a fluid-chamber, a cylinder, means of communication between the chamber and cylinder, a piston in the cylinder connected to the walking-beam, means for actuating the piston and mechanism connected to the lever whereby to control the actuating means.

11. In a motor, a piston having a slotted stud-bolt attached to the end thereof, means for actuating the piston, a piston-rod, a walking-beam to which the rod is secured a bracket attached to the beam, a lever d', connected with the bracket, a bell-crank lever, a rod connecting the first-named lever and the bell-crank lever, the latter secured to a bracket e, the bracket e, provided with guides, a bar E^2 inserted in the guide, the bar having slots cut therein adapted to receive adjustable pins, and trips operated by said pins whereby the actuating means is controlled.

12. An automatic motor provided with a cylinder and a piston therein, a bracket mounted on the motor, arms pivotally attached to the bracket, spring-catches on the bracket, a bar slidably connected to the bracket, pins on the bar and on the arms, the pins on the arms adapted to engage the spring-catches trips pivoted on the bracket adapted to engage the catch-springs, the pins on the bar adapted to engage the trips whereby to release the levers from engagement with the catch-springs, one of the pins on the bar adapted to engage one of the arms, springs connecting the arms and the bar, a valve for admitting operating means whereby to actuate the piston, means on one of the arms for controlling the valve, a walking-beam connected to the piston, and means of connection between the sliding bar and the walking-beam, whereby the piston controls the admission of actuating power to itself.

13. In a motor of the character described provided with a water-chamber, a cylinder and piston a bracket, spring-catches secured to the bracket the ends of the catches pointing in opposite directions, trips secured to the bracket, levers pivotally attached to the bracket and pins on the levers for engaging the spring-catches, a sliding bar connected to the bracket, means on the sliding bar to engage the trips and one of the levers, whereby to release the levers from engagement with the spring-catches, means connecting the levers with each other and the sliding bar, means secured to one of the levers to control the actuation of the piston, a rocking member, connections between the rocking member and the piston and between the rocking member and the sliding bar whereby the reciprocation of the piston controls the actuating mechanism therefor.

14. A motor of the character described provided with a water-chamber, an auxiliary chamber, a cylinder and piston, a bracket, levers attached to the bracket, a rod connected to one of the levers, the rod secured to a valve-stem and adapted to open and close the valve alternately, a rocking member connected to the piston, a sliding bar on the bracket connected to the rocking member, means on the sliding bar for operating the levers, whereby a jet of steam is injected into the water-chamber to positively actuate the piston.

15. In a motor of the character described provided with a water-chamber, an auxiliary chamber, a cylinder and piston, a piston-rod attached to the piston, a dog or arm projecting from the rod, a lever with which the arm contacts when the piston is on its upward stroke, weights on the lever, a rod m', attached to one end of the lever, a valve in the auxiliary chamber to which the rod m' is attached, a rod L^2, attached to the opposite end of the lever, the latter rod adapted to fit in a hole in the bed-plate, and an adjustable collar fitted thereon to limit the oscillation of the lever.

16. A motor, having a closed chamber C, attached to the bed-plate, a sleeve n', fitted in the head of the chamber, and projecting downward thereinto, a rod m', adapted to be received in the sleeve, a check-valve controlled by the rod, the valve provided with holes drilled immediately under the cap thereof a pipe e^2, over which the valve is fitted, a lever to which the rod is connected, a lug on the opposite end of the lever, a cylinder and a piston reciprocating therein, a piston-rod, a dog on the piston-rod adapted to engage the lug on the lever to close the valve, and adjustable means for controlling the movements of the lever.

17. An automatic motor provided with a bed-plate, supports for the bed-plate, a fluid-chamber, a cylinder, a piston reciprocating therein, means connecting the cylinder and chamber, means in connection with the chamber for operating the piston, a walking-beam operated by the piston, a swinging lever connected to the walking-beam a revolvable shaft, and means actuated by the swinging lever for rotating the shaft.

18. An automatic motor provided with a fluid-chamber, a cylinder communication between the cylinder and chamber, a piston in the cylinder, a walking-beam operated by the piston, an auxiliary chamber connected with the fluid-chamber, a valve operated by the piston for governing the connection between the auxiliary and fluid chambers, a valve for admitting steam into the water-chamber whereby to operate the piston, and means controlled by the piston for actuating the steam-valve.

19. An automatic steam-motor provided with a fluid-chamber adapted to receive steam therein, a cylinder open at one end, a piston therein adapted to be moved in one direction by the steam-impelled fluid, a cooling means surrounding the fluid-chamber adapted to cool the steam and create a vacuum in the fluid-chamber whereby the atmospheric pressure acting on the outer face of the piston returns the latter to its former position, the steam prevented from coming in contact with the lower face of the piston by means of the intervening fluid.

20. An automatic motor operated by steam and atmospheric pressure, a bed-plate, a fluid-chamber, connected thereto, a water-jacket surrounding the fluid-chamber, the jacket integral with the bed-plate, a cylinder, a piston therein, and means of communication between the chamber and cylinder whereby steam entering the chamber forces the fluid therein against the piston to impel it in one direction, the water-jacket operating to create a vacuum in the chamber whereupon the piston is returned to its first position by atmospheric pressure.

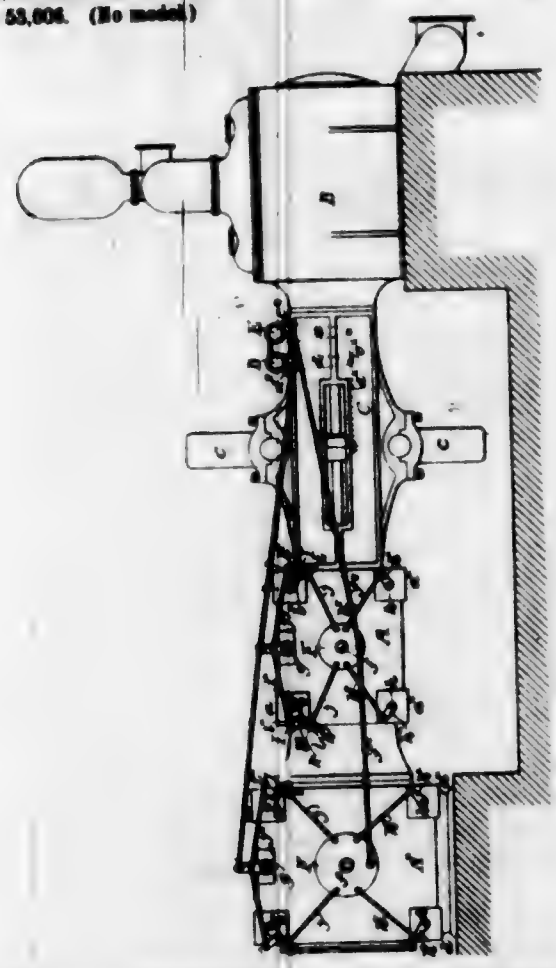
21. An automatic motor comprising a fluid-chamber, a cylinder connected therewith, a piston in the cylinder, means for actuating the piston, an overflow-chamber also connected with the fluid-chamber by means of piping, the overflow-chamber provided with a cover, a sleeve on the cover extending into the chamber, an overflow-pipe, an air-tight valve for the pipe connection, provided with side inlets, an adjustable rod operating the valve, the rod received in the sleeve, a lever secured on the motor to which the rod is attached, the opposite end of the valve adapted to be actuated by the reciprocations of the piston to open and close the valve.

22. In a motor the combination with a water-chamber, and cylinder, of pipes connecting the two, a piston in the cylinder, the diameter of the piston being smaller at its upper than at its lower end, packing between the piston and cylinder, a packing-ring, secured to the piston, an air-vent in the piston, a walking-beam to which the piston is connected, an impelling means by which the water in the water-chamber is forced against the piston to positively actuate it in one direction and operate the walking-beam and means actuated by the walking-beam for controlling the admission of the impelling force to the fluid-chamber.

23. The combination in a motor, provided with a bed-plate of a cylinder, a piston in the cylinder, a water chamber connected to the cylinder, means for forcing the water contained in the chamber against the piston, a walking-beam operated by the piston a connecting-rod secured to the other end of the walking-beam, and extending through a slot in the bed-plate, a swinging lever attached to the connecting-rod, means on the lever to counterbalance the weight of the piston and an adjustable split sleeve V, on the rod, the sleeve provided with stops which contact with the bed-plate whereby to limit the length of stroke of the connecting-rod and means actuated by the walking-beam to control the admission of the motive power into the fluid-chamber.

24. An automatic motor comprising a bed-plate, a fluid-chamber removably secured thereto, a cylinder and an overflow-chamber connected with the fluid-chamber by suitable pipes, a piston in the cylinder, a walking-beam supported on the bed-plate and operated by the piston, a revoluble shaft, a swinging lever pivoted on the shaft, a rod connection between the walking-beam and the swinging lever means on the lever for rotating the shaft, and means controlled by the piston for admitting motive power to the fluid-chamber

692,669. VALVE MECHANISM FOR DUPLEX ENGINES. HERMAN A. JUSSENIUS, Camden, N. J., assignor to Camden Iron Works, Camden, N. J., a Corporation of New Jersey. Filed Mar. 30, 1901. Serial No. 53,606. (No model.)



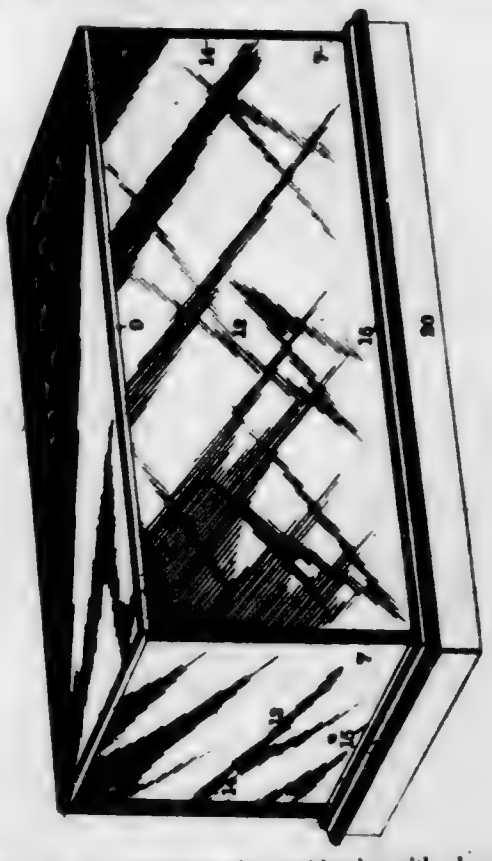
Claim.—1. The combination in a duplex pumping-engine in which the admission of steam is controlled by the opposite side of the engine and the closing of the valves for cut-off is controlled by its own engine, of a valve-chest at each end of the cylinder, a valve therein, an arm on each valve, a floating lever pivoted to each arm, a lever connected to one arm of each floating lever, one of said arms of the floating lever being provided with adjustable mechanism whereby the cut-off of the engine may be varied and a disk connected to the other arm of each floating lever, the said disk being connected to the mechanism controlled by the opposite engine and the lever being connected to the mechanism controlled by its own engine, substantially as described.

2. The combination in a duplex pumping-engine in which the admission of steam is controlled by the opposite side of the engine and the closing of the valves for cut-off is controlled by its own engine, a steam-inlet valve-chest, a valve therein, an arm on the valve, a floating lever pivoted to the arm, one arm of the said lever being connected to the mechanism of its own engine, an adjustable pivot on the other arm, a rod connected to said pivot and to the mechanism operated by the opposite engine so that the amount of cut-off can be regulated by adjusting the pivot toward and from the point where the floating lever is pivoted to the arm of the valve, substantially as described.

3. The combination in a duplex pumping-engine, of a cylinder, a steam-inlet valve and an exhaust-valve at each end of the cylinder, mechanism connected to the opposite engine, and mechanism connected to its own engine, arms on both the inlet and exhaust valves, floating levers carried by the arms on the inlet-valves, one arm of each floating lever having adjustable mechanism whereby the cut-off may be varied, said adjustable mechanism on each floating lever and the arm of each exhaust-valve being connected with mechanism controlled by the opposite engine, the other arm of each floating lever being connected to the mechanism controlled by its own engine, substantially as described.

4. The combination in a duplex pumping-engine, of a cylinder, valves at each corner of the said cylinder, two of these valves being steam-inlet valves and two of the valves being exhaust-valves, arms on each valve, floating levers pivoted to the arms of the steam-inlet valves, a pivoted disk controlled by the mechanism of the opposite cylinder and connected to the arms of the exhaust-valves and connected to a block on one of the arms of each floating lever, means for adjusting the block to regulate the amount of cut-off, and a pivoted lever connected to the mechanism of its own engine and connected to the other arm of each floating lever, substantially as described.

692,670. SHOW-CASE. LAWRENCE J. JOHNSON, Kansas City, Mo. Filed Jan. 19, 1901. Serial No. 43,911. (No model.)



Claim.—1. In a show-case, the combination with a base-frame, provided with grooves, posts or standards provided with radial grooves throughout their length, dowel-pins securing said posts to said frame, glass plates adapted to be slid into said grooves from their upper ends, a grooved top frame, adapted to be secured upon the top of said posts, and into which said glass plates fit, a felt strip cemented upon the upper side of said top frame, and a glass top plate cemented upon said strip, substantially as described.

2. In a show-case, the combination with a base-frame, posts or standards supported thereby, glass side plates inserted between said posts, and a frame supported upon the tops of said posts; of a felt strip cemented upon the upper side of said frame, and a glass top plate laid upon and cemented to said felt strip, substantially as described.

3. In a show-case, the combination with a base-frame, corner posts or standards supported upon said frame, glass side plates adapted to fit in grooves in said posts, and a frame secured upon the tops of said posts, and grooved upon its under side to receive the tops of said side plates; of a felt strip cemented to the upper side of said frame, and a glass top plate cemented to the top of said felt strip, substantially as described.

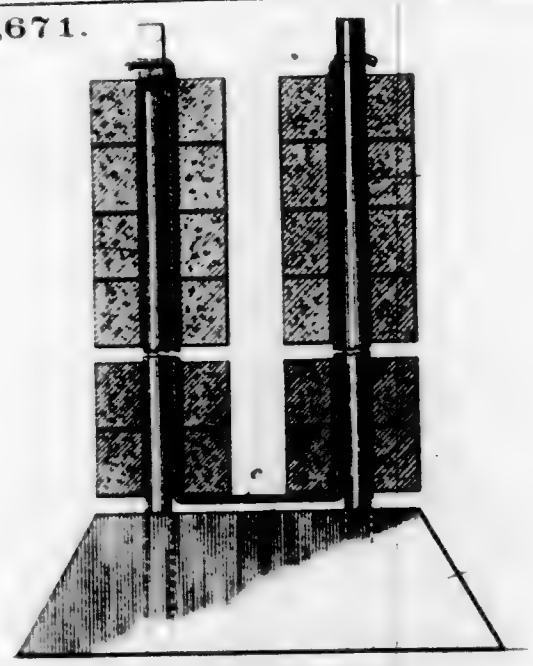
4. In a show-case, the combination with a base-frame, corner posts or standards supported upon said frame, glass side plates adapted to slide in grooves in said posts, and a rectangular frame secured upon the tops of said posts encircling the top of the case, and provided upon its under side with grooves adapted to receive the tops of said side plates; of a heavy felt strip cemented to the upper side of said frame, and a glass top plate cemented upon the top of said felt strip, in such manner that said top plate may be removed by the insertion of a knife-blade or the like through said felt to separate said felt into two strips, substantially as described.

692,671. FLOAT-STRINGER. WILLIAM T. JOHNS, New Westminster, Canada. Filed June 18, 1901. Serial No. 65,019. (No model.)

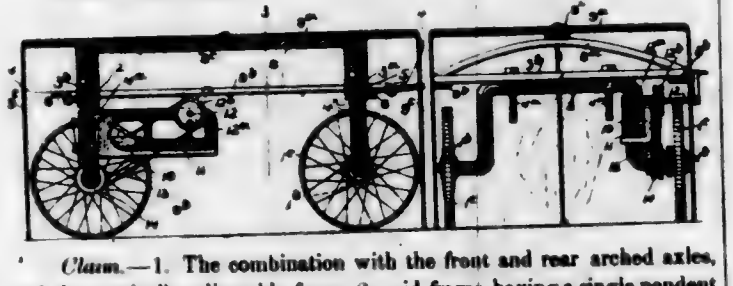
Claim.—1. A float-stringer, comprising a base and a needle-like standard attached to and having means at its upper end for the engagement of a cord or string therewith.

2. A float-stringer, having a base and two needle-like standards extending side by side and provided at their upper ends with means for engaging respectively the ends of a cord, so that the cord may extend down alongside of the standards with its middle portion crossing between them at their lower ends.

692,671.



692,672. INSECT-DESTROYING APPARATUS. RUDOLPH JOOST and BENTLEY T. GEORGE, Gates, Oreg. Filed Oct. 5, 1901. Serial No. 77,694. (No model.)



Claim.—1. The combination with the front and rear arched axles, and the vertically-adjustable frame 8, said frame having a single pendent bolt or rod at the front adapted to form the pivot or king bolt for the front axle, and having a plurality of rods for slidably connecting with the rear axle, for the purposes specified.

2. The combination with the front and rear arched axles; of the frame 8, consisting of cross-bars, the ends of which are adapted to project beyond the sides of the carriage, said bars having pendent members vertically adjustable on the arched axle, curved cross-bars and longitudinal members, and a flexible covering, adapted to hang pendently over the sides and ends of the carriage and supported on the frame 8, for the purposes described.

3. An improved insect-destroying apparatus, comprising a carriage having front and rear arched axles, a furnace mounted on the carriage, a blower for said furnace, means controlled by one of the drive-axles for operating the blower, a frame projected up from the carriage and a flexible covering detachably suspended from the frame to envelop the entire apparatus, for the purposes specified.

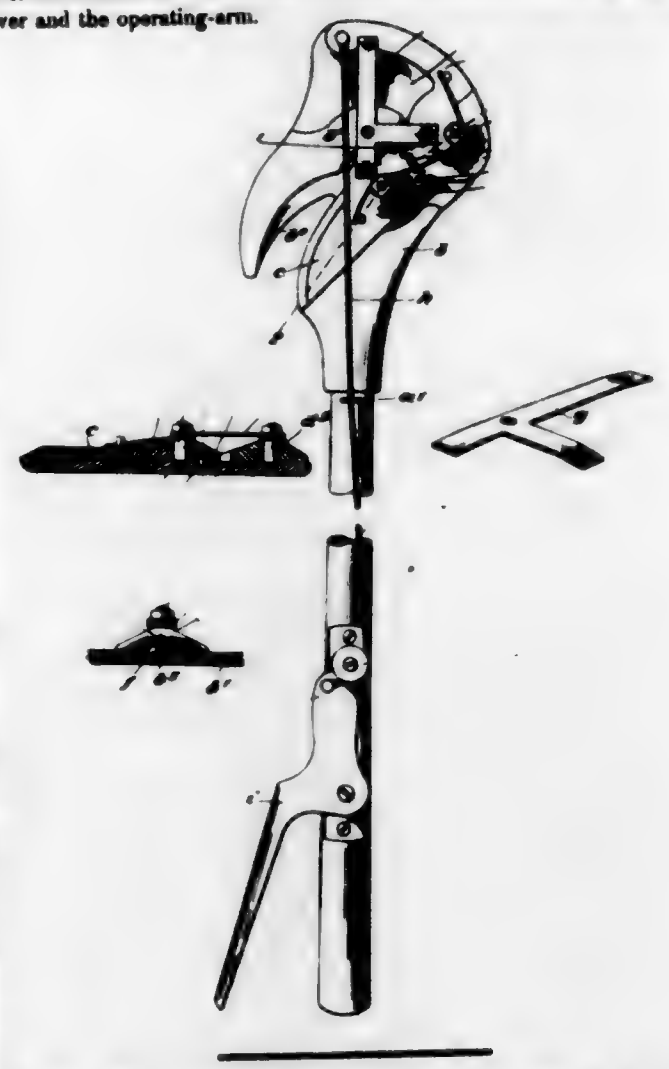
4. The combination with the front and rear arched axles, the frame 8, vertically adjustable on said axles, the detachably-held flexible covering, the furnace carried on the carriage-frame, a blower, a cam device for operating the blower, including a winding-shaft and clutch mechanism on one of the drive-shafts, geared with said winding-shaft, all being arranged substantially as shown and for the purposes described.

692,673. PRUNER. JOHN P. H. JOSEPH, New York, N. Y. Filed Jan. 15, 1901. Serial No. 43,329. (No model.)

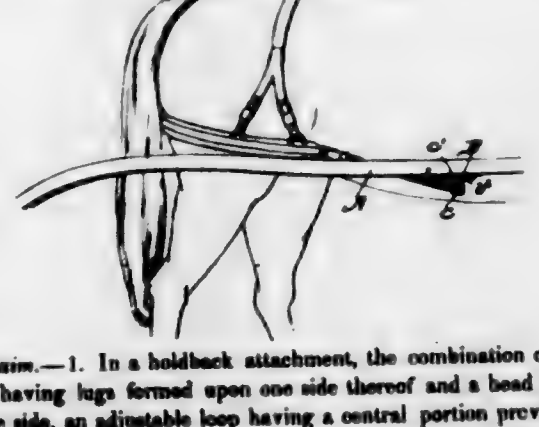
Claim.—1. A pruner, comprising a head with a flat surface and adapted to be attached to a handle, the head having a ledger-blade thereon, a shear-blade mounted on the head and bearing snugly against the flat side thereof, the shear-blade having gear-teeth thereon, an operating-arm pivoted on the flat side of the head and bearing snugly against the same, the operating-arm having teeth meshing with the teeth on the shear-blade, means for swinging the arm, and a guard fastened to the head and having spring-arms projecting over and engaging the shear-blade and the operating-arm to hold them properly in position.

2. In a pruner, the combination with a head, comprising a ledger-blade, of a shear-blade mounted on the head, and a rolling member held by one of said parts and working on an incline surface on the other part.

3. A pruner, comprising a head with a flat surface, the head having a ledger-blade formed thereon, a shear-blade mounted on the head and bearing snugly against the flat side thereof, the shear-blade having gear-teeth, an operating-arm pivoted to the flat side of the head and bearing snugly against the same, said arm having teeth meshing with the teeth on the shear-blade, a guard fastened to the head and having spring-arms projecting over and engaging the shear-blade and the operating-arm, to hold them properly in position, a handle attached to the head, a hand-lever fulcrumed on the handle, and a flexible connection between the hand-lever and the operating-arm.



692,674. HOLDBACK. JAMES C. JOYCE, Florida, N. Y. Filed Apr. 20, 1901. Serial No. 56,748. (No model.)



Claim.—1. In a holdback attachment, the combination of a base-section having lugs formed upon one side thereof and a head upon the opposite side, an adjustable loop having a central portion provided with a slot, lugs projecting from either side of the said central portion and having recesses that are adapted to engage the head of the base-section, and means for holding the said loop in its adjusted position, substantially as shown and described.

2. In a holdback attachment, the combination of a thill having a base-section arranged thereon, flanges formed on said base-section, ratchet-teeth formed between said flanges, and a loop having lugs projecting laterally therefrom and provided with recesses in which the said flanges fit, the said loop having a dog for engagement with the ratchet-teeth, substantially as shown and described.

3. In a holdback attachment, the combination of a base-section having lugs formed thereon, a head having laterally-projecting flanges formed integral with the said base, ratchet-teeth formed on the said head and arranged between the said flanges, a loop provided with a slot slidably held on the said head, a dog projecting from one edge of the loop, and an arm projecting from the opposite edge thereof, and means carried by the said arm for holding the dog into engagement with the said ratchet-teeth, substantially as shown and described.

4. In a holdback attachment, the combination of a base-section having a head formed upon one side thereof, laterally-projecting flanges formed on the said head, ratchet-teeth arranged between the said flanges,

the said head having grooves arranged adjacent the said ratchet-teeth, and a loop having a dog for engagement with the ratchet-teeth, the said dog having extensions that are adapted to enter the said grooves, and a spring secured to the said loop, all arranged substantially as shown and described.

5. In a holdback attachment, the combination of a base-section having flanges formed integral therewith and projecting from either side thereof, and a loop having laterally-projecting lugs provided with recesses that are adapted to receive the flange formed on the head, substantially as shown and described.

6. In a holdback attachment, the combination of a base-section having a head formed thereon with ratchet-teeth produced centrally therein, a loop having a dog formed upon one edge thereof and an arm upon the opposite edge, and a spring secured to the said arm and adapted for engagement with the head of the base-section, whereby the pawl is held in engagement with the said ratchet-teeth, substantially as shown and described.

692,675. DIAZO DYE AND PROCESS OF MAKING SAME. PAUL JULIUS and AKIN TRATSCH, Ludwigshafen, Germany, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany, a Corporation of Baden. Filed Nov. 29, 1901. Serial No. 84,101. (No specimens.)

Claim.—The new coloring-matter such as can be obtained by combining ortho-diazo-phenol-meta-sulfo-acid with 1.8-amide-naphthol-4-sulfo-acid, which dissolves in water yielding a red-violet solution which on the addition of hydrochloric acid becomes redder and on the addition of sodium carbonate bluer, which dissolves in concentrated sulfuric acid with a violet-red solution and dyes wool direct violet shades these shades becoming blackish on treatment with potassium bichromate, and blue on treatment with copper sulfate.

692,676. DIAZO WOOL-DYE AND PROCESS OF MAKING SAME. PAUL JULIUS and FRITZ GÜNTHER, Ludwigshafen, Germany, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany, a Corporation of Baden. Filed Dec. 7, 1901. Serial No. 85,094. (No specimens.)

Claim.—1. The process of making a diazo dyestuff which consists in combining the tetrazo compound of diamido-para-hydroxy-benzyl-sulfonic acid with beta-naphthol.

2. As a new product the diazo dyestuff which can be obtained from one molecular proportion of the tetrazo compound of diamido-para-hydroxy-benzyl-sulfonic acid and two molecular proportions of beta-naphthol, which dyes wool in shades which are within the range of violet to brownish-violet, which shades on treatment with bichromate of potash become blue-black, and which dyestuff on treatment with concentrated sulfuric acid gives a blue-violet color which becomes wine-red on dilution with water.

692,677. MANUFACTURE OF INLAID LINOLEUM. KARL KLIC, Vienna, Austria-Hungary, and OSCAR POPPE, Rixdorf, near Berlin, Germany. Filed Nov. 27, 1900. Serial No. 37,909. (No specimens.)

Claim.—1. In combination with various pieces of material for forming inlaid linoleum, a linoleum-cement for joining the pieces together, the said cement being gelatinized and triturated so as to form a fluid emulsion.

2. In combination with various pieces of material for forming an inlaid linoleum, a linoleum-cement for joining the pieces together made up of oil and resin mixed and oxidized to a rubber-like consistency after which it is gelatinized by a volatile solvent and then reduced by mechanical means to an emulsion, substantially as described.

3. A cement for making inlaid linoleum containing oil and resin oxidized to such an extent that a rubber-like consistency is obtained, the said mixture being gelatinized by a volatile solvent and then reduced or triturated by mechanical means to form an emulsion, substantially as described.

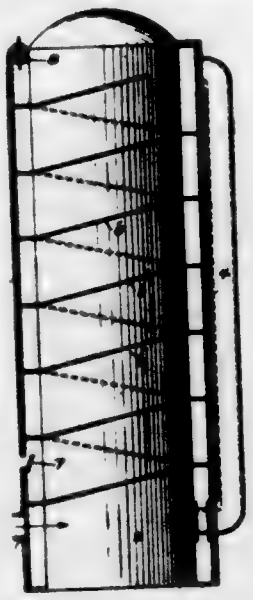
692,678. HOT-BLAST STOVE. CARL W. A. KOELKEBECK, Pittsburg, Pa. Filed Oct. 28, 1897. Serial No. 656,642. (No model.)

Claim.—1. The combination, with a set or group of hot-blast stoves for furnaces, which are provided with air-jackets surrounding the stoves for heating air before its admission to the interior of a stove, of connecting means whereby air may be supplied from any of the jackets to the interior of any one or more of the stoves at will, substantially as set forth.

2. The combination, with a hot-blast stove for furnaces, of an air-jacket on the outside of the stove, an air-blast inlet and outlet for the jacket, and means constructed and arranged to be operated by the air-blast to admit cooling-air to the jacket, substantially as set forth.

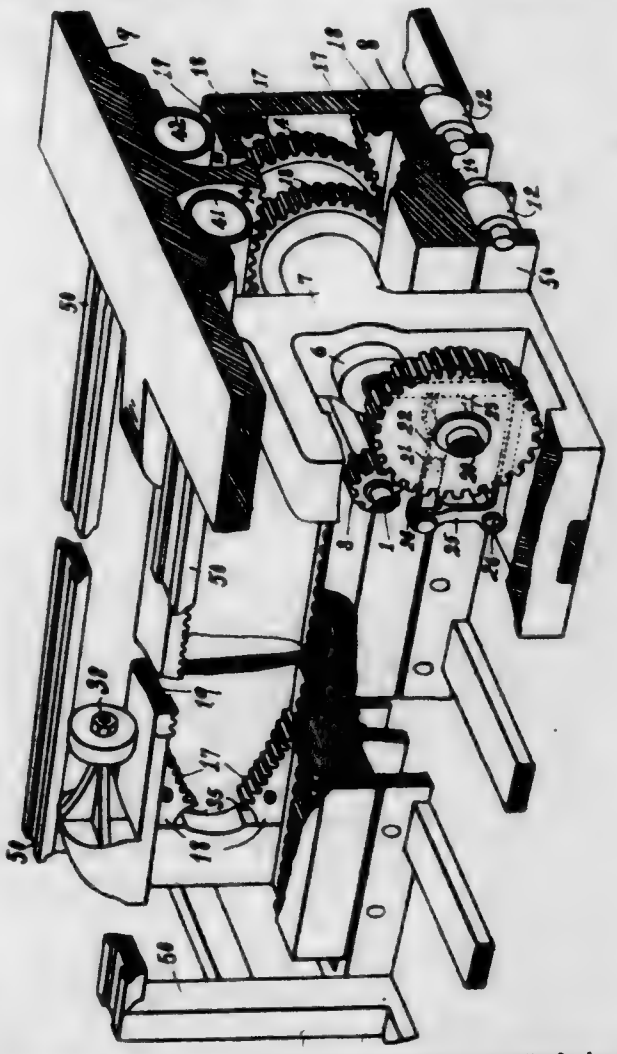
3. The combination, with a hot-blast stove, of a jacket on the outside of the stove, means for supplying air under pressure to the interior of the jacket, an outlet for the air from the stove, and valves for air leading into and out of the jacket, said valves arranged to be actuated by variations of the air-pressure within the jacket, substantially as set forth.

4. The combination, with a hot-blast stove, for furnaces, of an air-jacket on the outside of the stove, an air-blast inlet and outlet for said jacket, independent openings for admitting cooling-air to the jacket and gravity-valves controlling said openings and arranged to be lifted and closed by the air-blast, substantially as set forth.



5. The combination, with a set or group of hot-blast stoves for furnaces, which are provided with air-jackets for heating air before its admission to the interior of a stove, of a blowing-engine, a connection from the blowing-engine to an air-jacket, and connecting means whereby air may be supplied from the air-jackets to the interior of any one or more of the stoves at will substantially as set forth.

692,679. MECHANICAL MOVEMENT AND BED-MOTION FOR CYLINDER PRINTING-MACHINES. EDWIN F. LEILICH, San Francisco, Cal. Filed May 7, 1901. Serial No. 59,181. (No model.)



Claim.—1. In an apparatus of the character described, the combination of a rotating shaft, a longitudinally-reciprocating body, means operated by said shaft for reciprocating said body, a second longitudinally-reciprocating body of substantially the same mass as the first, and an operative connection between them whereby they reciprocate in opposite directions with equal velocities, substantially as described.

2. In an apparatus of the character described, the combination of a rotating shaft, a longitudinally-reciprocating body, a wheel driven by said shaft and operatively connected alternately at opposite sides thereof with said body to reciprocate the same, a second longitudinally-reciprocating body of substantially the same mass as the first, and an operative connection between them whereby they reciprocate in opposite directions with equal velocities, substantially as described.

3. In an apparatus of the character described, the combination of a rotating shaft, a gear-wheel thereon, a second gear-wheel meshing with the first, a longitudinally-reciprocating body, upper and lower racks thereon, means operated by the first-named shaft for moving the latter gear-wheel into mesh with said upper and lower racks alternately, a second longitudinally-reciprocating body, of substantially the same mass as the first, and an operative connection between the two bodies whereby they reciprocate in opposite directions with equal velocities, substantially as described.

4. In an apparatus of the character described, the combination of a shaft, a continuously-driven gear-wheel thereon, a longitudinally-reciprocating body, upper and lower racks thereon, means for moving said shaft to bring said gear-wheel into mesh with said racks alternately, upper and lower auxiliary racks at each end of said body, provided with the shoes 35, and a segmental gear provided with the rollers 34, mounted on said shaft and engaging with said auxiliary racks at points near the ends of the strokes, substantially as described.

5. In an apparatus of the character described, the combination of a shaft, a continuously-driven gear-wheel thereon, a longitudinally-reciprocating body, upper and lower racks thereon, means for moving said shaft to bring said gear-wheel into mesh with said racks alternately, upper and lower auxiliary racks at each end of said body provided with the shoes 35, said auxiliary racks being out of alinement with the main racks, and a segmental gear provided with the rollers 34, mounted on said shaft and engaging said auxiliary racks at points near the ends of the strokes, substantially as described.

6. The combination of a printing-bed, a rack thereon, an oscillating gear-wheel meshing with said rack, a weight having a rack with which said gear-wheel meshes on its opposite side, and means for reciprocating said weight, substantially as described.

7. The combination of a printing-bed, a rack thereon, an oscillating gear-wheel meshing with said rack, a weight having a rack with which said gear-wheel meshes on its opposite side, means for varying the weight to equalize its mass with that of the printing-bed, and means for reciprocating said weight, substantially as described.

8. The combination of a printing-bed, a weight, means for reciprocating the weight, and an operative connection between the weight and the printing-bed whereby the latter is moved in the opposite direction to the former and with the same momentum, substantially as described.

9. The combination of a printing-bed, a weight, means for varying the mass of the weight, means for reciprocating the weight, and an operative connection between the weight and the printing-bed whereby the latter is moved in the opposite direction to the former and with the same momentum, substantially as described.

10. The combination of a printing-bed, a weight, means for reciprocating the weight, means for reducing the speed at each end of its reciprocation gradually before bringing it to rest, and for gradually increasing the speed at the beginning of the reciprocation, and an operative connection between the weight and the printing-bed whereby the latter is moved in the opposite direction to the former and with the same momentum, substantially as described.

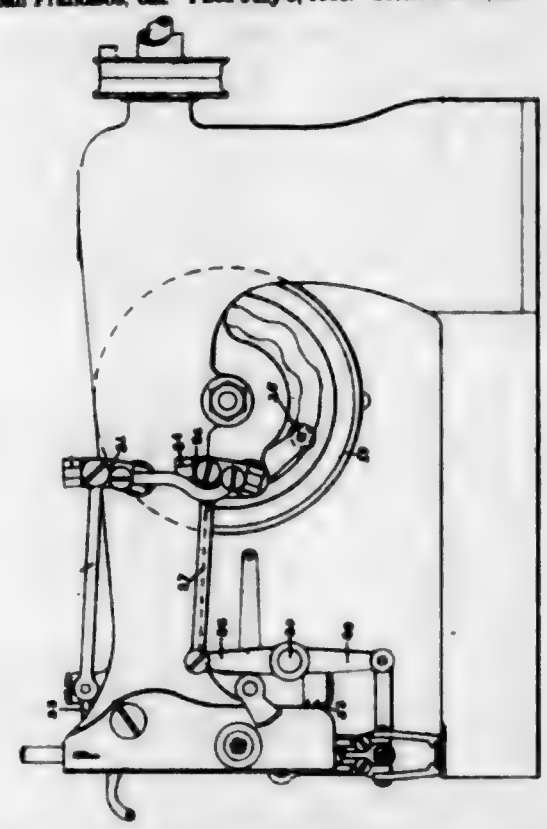
11. The combination of a printing-bed, a weight, means for reciprocating the weight, an operative connection between the printing-bed and weight whereby the latter is moved in the opposite direction to the former and with the same momentum, and means carried by said bed and weight for reducing the shock on the stoppage of said bed and weight at the end of the stroke, substantially as described.

12. The combination of a printing-bed, a weight, means for reciprocating the weight, means for reciprocating the bed in the opposite direction to the weight and with the same momentum, and means for reducing the shock on the stoppage of said reciprocating elements at the end of their stroke, said means comprising cylinders, and pistons arranged to enter said cylinders at the ends of the stroke and compress the air therein, substantially as described.

13. The combination of a driving gear-wheel and a segmental gear rotating together, a weight having upper and lower main racks and upper and lower oblique auxiliary racks, means operated at predetermined intervals for reciprocating the driving gear-wheel and segmental gear relatively to said upper and lower racks, whereby the gear-wheel and segmental gear are thrown out of engagement with the upper main and auxiliary racks and brought into engagement with the lower main and auxiliary racks or vice versa, a printing-bed, and an oscillating wheel driven by the weight and driving the printing-bed in the opposite direction to the weight, substantially as described.

14. The combination of a rotating shaft, a gear-wheel mounted thereon, a driving gear-wheel meshing with the first gear-wheel, a weight having upper and lower racks, a cam-wheel driven by means of the rotating shaft, a lever operated by said cam-wheel to reciprocate the shaft of the driving gear-wheel into mesh alternately with the upper and lower racks of the weight, oblique auxiliary upper and lower racks at the ends of the weight, a segmental gear reciprocated with the driving gear-wheel, and brought into mesh alternately with the upper and lower oblique auxiliary racks, rollers carried by said segmental gear and engaging shoes on said weight, a printing-bed, a rack thereon, a rack on the weight, an oscillating gear-wheel engaging both of said latter racks whereby the printing-bed and the weight move in unison in opposite directions, cylinders, and pistons carried by said weight and printing-bed and entering said cylinders in opposite directions at the ends of a stroke, substantially as described.

692,680. BUTTON-SEWING MACHINE. FRANCIS T. LEILICH, San Francisco, Cal. Filed July 3, 1901. Serial No. 67,089. (No model.)



Claim.—1. In a sewing-machine, the combination with a stitch-forming mechanism comprising among its elements a vertically-reciprocating needle capable of a vibratory movement, of means competent to vibrate said needle in a given path relatively to the button-holding clamp and to automatically suspend said vibratory movement, while the vertical reciprocation of the needle continues, a button-holding clamp and means competent to vibrate said button-holding clamp in a given path and to automatically suspend said vibratory movement at one end of its path, while the vertically-reciprocating movement of the needle continues, to permit the sewing of tying-stitches.

2. In a sewing-machine, the combination of a stitch-forming mechanism comprising among its elements a vertically-reciprocating and laterally-vibrating needle-bar and needle, of a button-holding clamp, two cams rotated synchronously and once only in the operation of sewing on a button, means connected to one of said cams and operated thereby to vibrate said needle-bar and needle and to automatically suspend said vibratory movement and means connected to the other of said cams and operated thereby to vibrate said button-holding clamp and to automatically suspend said vibratory movement.

3. In a sewing-machine, the combination of a vertically-reciprocating and laterally-vibrating needle-bar; a horizontally-moving button-holding clamp; a disk provided with two cam-paths rotated by means positively connected to the driving-shaft; means actuated by the said cam-paths and connected with the said needle-bar-vibrating and button-holding-clamp mechanisms respectively, to bring them into operative relationship with each other; and a registering device secured to the said means for driving said cam-disk; whereby the latter can be removed from its position and replaced, without disturbing its relative position to the reciprocations of the needle-bar.

4. In a sewing-machine, the combination of a vertically-reciprocating and laterally-vibrating needle-bar; a horizontally-moving button-holding clamp; a disk rotated by means positively connected to the driving-shaft and provided with two cam-paths cut in its inner face; means, including two levers provided with studs and rollers entering into the two

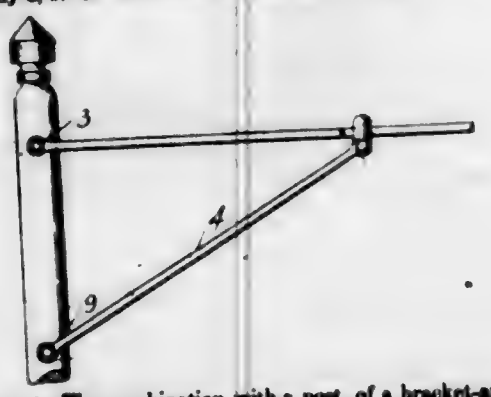
cam-paths respectively and actuated thereby, and connected to the said needle-bar-vibrating and button-holding-clamp mechanisms respectively, to bring them into operative relationship with each other; and a pin secured to the said positively-connected means for driving the cam-disk and entering a hole in the latter; whereby the cam-disk may be removed from its position and replaced, without disturbing its relative position to the reciprocations of the needle-bar.

5. In a sewing-machine, the combination of a vertically-reciprocating needle-bar; a horizontally-moving button-holding clamp; a stud set in the frame of the machine and having a collar formed thereon; a worm secured to the shaft of the machine; a gear driven by said worm and rotated upon said stud between the collar formed thereon and the machine-frame and provided at its outer face with a register-pin; said a cam-disk confined to a path of rotation between the collar formed on said stud and a screw or nut at its outer extremity, said cam-disk having a hole into which said register-pin enters and by which it is rotated; whereby the rotation of the said gear may be communicated to the cam-disk and the latter removed from its position and replaced, without disturbing its position relative to the reciprocations of the needle-bar.

6. In a sewing-machine the combination of a vertically-reciprocating needle-bar; a horizontally-moving button-holding clamp; a cam, rotated by the driving-shaft once only during the operation of sewing on a button and provided with two cam-paths; means positively connected to said cam-paths and said needle-bar and button-holding clamp respectively to bring them into operative relationship with each other, and a registering device, whereby the said cam can be removed from its position and replaced in the same relative position to the reciprocations of the needle-bar.

7. In a sewing-machine, the combination of a vertically-reciprocating and laterally-vibrating needle-bar; a horizontally-moving button-holding clamp; a worm and gear actuated by the driving-shaft; a disk, having formed in it two cam-paths, driven by said worm and gear; two levers, each provided with a stud and roller, to project into one each of the respective cam-paths in said disk, the levers being arranged to permit of a sliding adjustment of related parts; a connection, adjustably secured at one end to one of the said levers, and at the other, movably secured to a device for vibrating the needle-bar laterally; a connection, adjustably secured at one end, to the other of said levers, and at its opposite end, movably secured to suitable means for reciprocating a button-holding clamp across the vibratory path of the needle-bar; and adjustable means for securing the said connections to the said levers.

692,681. TROLLEY-WIRE BRACKET. SAMUEL LEONARD, Hollidaysburg, Pa., assignor of one-half to William A. Loudon, Altoona, Pa. Filed July 8, 1901. Serial No. 67,490. (No model.)

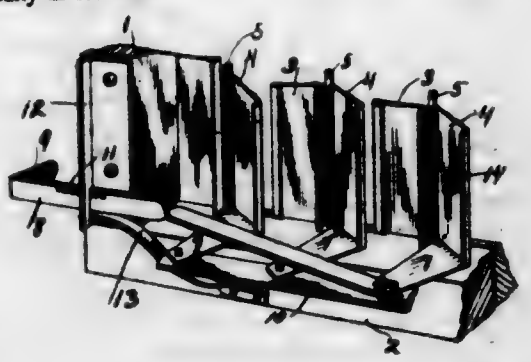


Claim.—1. The combination with a post, of a bracket-arm secured thereto, braces connected to the opposite sides of the post, and a saddle or yoke connecting the upper ends of the braces with the bracket-arm, substantially as set forth.

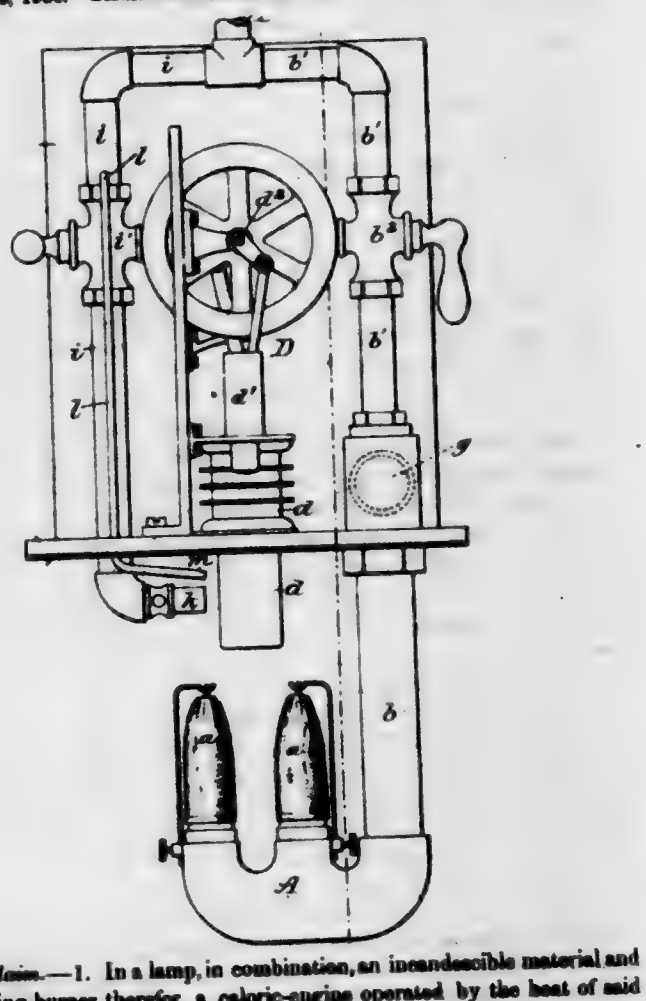
2. The combination with a pole or post, of a bracket-arm having a bifurcated inner end formed with eyes, a bolt passed through the eyes of the bracket-arm and through the post, diagonally-arranged braces having eyes at their ends, a bolt passed through the eyes at the lowermost ends of said braces and through the post, a saddle or yoke straddling the outer ends of the bracket-arm and provided with eyes which register with the eyes at the upper ends of the braces, and a bolt passed through the registering eyes of the saddle or yoke and those at the upper ends of the braces, substantially as set forth.

692,682. SEPARATOR-SIEVE. DAVID LIPPY, Mansfield, Ohio, assignor of three-fourths to Lorenzo D. Patten, Christian K. Horshey, and James T. Sawhill, Mansfield, Ohio. Filed Dec. 6, 1900. Serial No. 38,946. (No model.)

Claim.—In a separator-sieve of the class described, the combination of a rectangular frame provided with transverse fixed strips or plates spaced from each other, transverse rods or bars journaled to the frame, and located between the fixed strips, blades or slats fixed to the said journaled bars said blades or slats provided with downturned edges, downturned arms located upon the ends of one section or division of the blades or slats fixed to the journaled rods, and means comprising the bars or plates 8, 10 and 12 for adjusting the blades or slats fixed to the journaled bars, and a spring-plate for holding the blades or slats in fixed adjustment, substantially as set forth.



692,683. APPARATUS FOR SUPPLYING AIR OR OTHER COMBUSTION-SUPPORTING SUBSTANCE TO GAS OR OTHER BURNERS. THOMAS J. LITLE, Jr., Cleveland, Ohio, assignor to the New Process Lighting Company of Cleveland, Ohio, a Corporation of Ohio. Filed Aug. 6, 1900. Serial No. 26,039. (No model.)



Claim.—1. In a lamp, in combination, an incandescible material and a heating-burner therefor, a caloric-engine operated by the heat of said burner, a conduit leading to said burner, and means actuated by said caloric-engine for augmenting the supply of combustion-supporter to said burner through said conduit.

2. In a lamp, in combination, an incandescible material and a heating-burner therefor, a caloric-engine operated by the heat of the burner, a conduit for supplying combustible fluid to said burner, and means operated by said engine for augmenting the supply of combustion-supporter to said burner through the same conduit.

3. In a lamp, in combination, an incandescible material and a heating-burner therefor, a caloric-engine operated by the heat thereof, a blower driven by said engine, a discharge-passage from said blower and a gas-supply pipe both communicating with said burner.

4. In a lamp, in combination, an incandescible material and a heating-burner therefor, a passage-way for leading gas and air thereto, a caloric-engine operated by the heat of the burner, a fan of a rotary blower driven by said engine, a casing for said rotary blower inclosing the fan and communicating with said passage-way.

5. In a lamp, in combination, an incandescible material, and a heating-burner therefor, a caloric-engine operated by the heat thereof, a blower

driven by said engine and suitably connected for forcing a continuous current of air to said burner, and means for regulating the admission of air to said blower.

6. In a lamp, the combination of an incandescible material, a heating-burner adapted to coöperate therewith, a caloric-engine operated by the waste heat from said burner, and means operated by such caloric-engine for increasing the supply of combustion-supporter for such burner.

7. In a lamp, in combination, an incandescible material, a burner adapted to heat the same, a supply-pipe leading to said burner, an air-passage to said pipe, a caloric-engine above said material operated by the waste heat from said burner, and means actuated by said caloric-engine for augmenting the air-supply through said pipe.

8. In a lamp, the combination of an incandescible material and a heating-burner therefor, a caloric-engine operated by the heat thereof, means operated by said engine for augmenting the supply of combustion-supporter to the burner, and an independent heater for initially heating the caloric-engine.

9. In a lamp, the combination of incandescible material and a heating-burner therefor, a caloric-engine operated by the heat thereof, means operated by said engine for augmenting the supply of combustion-supporter to said burner, a Bunsen burner for initially heating the caloric-engine, and independent supply-pipes for said two burners branching from a common supply-pipe.

10. In a lamp, the combination of incandescible material and a main heating-burner therefor, a caloric-engine operated by the heat thereof, means operated by said engine for augmenting the supply of combustion-supporter to said burner, an independent heating-burner for initially heating the caloric-engine, and a pilot-burner common to both the main heating-burner and the independent heating-burner.

11. In a lamp, the combination of incandescible material and a heating-burner therefor, a caloric-engine operated by the heat thereof, means operated by said engine for augmenting the supply of combustion-supporter to said burner, an ignition or pilot burner adapted to continuously carry light, said pilot-burner being located in position to contribute its heat to the engine.

12. In a lamp, the combination of incandescible material and a heating-burner therefor, a caloric-engine supported above the burner, a heat-diaphragm between the burner and engine, a supply-pipe to the burner, and means operated by the caloric-engine for forcing air through said supply-pipe to the burner.

13. In a lamp, in combination, a suspensible frame including a depending gas-pipe, an incandescible material and a heating-burner therefor in communication with said gas-pipe, a caloric-engine supported by said frame above said burner, and means operated by the engine for increasing the supply of combustion-supporter to said burner.

14. In a lamp, in combination, a suspensible frame including a depending gas-pipe, an incandescible material and a heating-burner therefor carried by and in communication with said gas-pipe, a caloric-engine carried by said frame above the burner, a heat-diaphragm between the burner and engine, and means operated by the engine for augmenting the supply of combustion-supporter to said burner.

15. In a lamp, in combination, a suspensible frame including a depending gas-pipe, a burner having an incandescing-mantle and carried by and in communication with the lower end of said gas-pipe, a caloric-engine carried by said frame above said burner, a blower-fan driven by said engine, a blower-casing for said fan communicating with said gas-pipe, whereby the engine operates to force air into said gas-pipe, and means for regulating the admission of air to said blower-casing.

16. In a lamp, a suspensible frame including a depending gas-pipe, a burner carried by and in communication with the lower end of said gas-pipe, an incandescible material associated with the burner, a caloric-engine carried by said frame above said burner, a fan driven by said engine, a casing for said fan communicating with said gas-pipe, whereby the engine operates to force air into said gas-pipe, and a heat-diaphragm above the burner and crosswise of the displacement-cylinder of the caloric-engine.

17. In a lamp, the combination of an incandescible material and a heating-burner therefor, a caloric-engine which converts a portion of the waste heat from said burner into rotary mechanical movement, and mechanism operated by such rotary movement for increasing the supply of combustion-supporter to the burner.

692,684. FIRE-ESCAPE. GOTTLIEB LOEWENSTEIN, Brunswick, Ga. Filed June 10, 1901. Serial No. 63,965. (No model.)

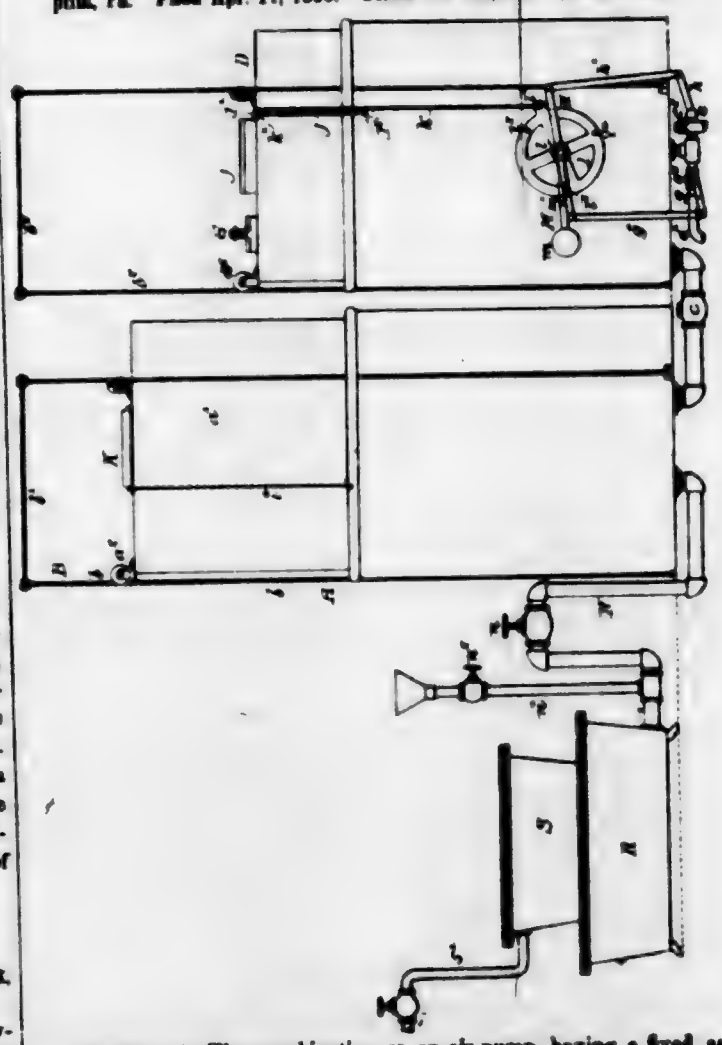
Claim.—1. A fire-escape comprising supporting-brackets each having a slotted side and an overhanging portion formed with openings, a drum having pulleys connected to its opposite ends and secured to the drum so as to rotate therewith in both directions of rotation of the drum, said drum having its axle entering the slots in the brackets and having an up-and-down movement in relation to the brackets, friction-straps passing around the pulleys, rods crossing each other and having the ends of the straps connected to their lower ends, said rods extending through the openings in the overhanging portion of the brackets and supported from the brackets, a cable connected with the drum, a seat supported from the cable, and means for sustaining the seat between the brackets beneath the drum when in its raised position, substantially as described.



2. A fire-escape comprising a rotatable drum, a cable connected to the drum, a seat connected to the cable and provided with inwardly-folding legs, and a spreading-bar having a sliding connection with the folding legs, and arranged to lie between the legs and seat when the legs are folded and to spread the legs apart when drawn down between the legs, substantially as described.

3. A fire-escape comprising supporting-brackets, each bracket having an overhanging arm, a flange extending along one edge, and a brace for the overhanging arm, said arm, flange and brace being formed by cutting and bending the material of which the bracket is formed, a drum having pulleys and slidably connected with the brackets, friction-straps passed around the pulleys, rods supported from the overhanging arms of the brackets and connected at their lower ends to the friction-straps for supporting the drum and its pulleys, a cable connected to the drum and a cage or seat supported from the cable, substantially as described.

692,685. AIR-PUMP FOR GAS APPARATUS. FERDINAND LOGAN, Phœnixville, Pa., assignor to Thomas Leiper Hodge, trustee, Philadelphia, Pa. Filed Apr. 17, 1899. Serial No. 713,349. (No model.)

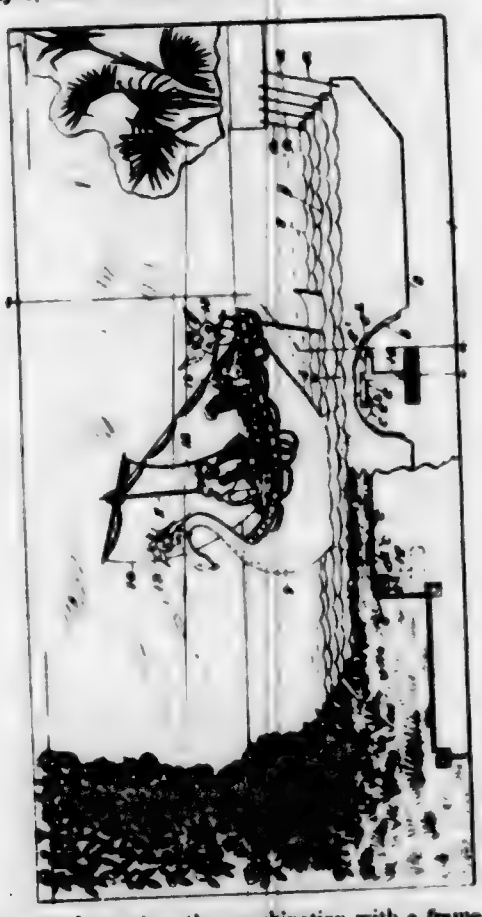


Claim.—1. The combination of an air-pump, having a fixed and a movable section, an air-inlet valve constructed to admit air when the movable section is raised, a cylinder, a piston in said cylinder connected to the movable section of the pump, water inlet and outlet pipes communicating with the cylinder, valves in said pipes, a pivoted lever connected to the movable section of the pump, a weighted lever also pivoted and

constructed to be periodically engaged by the first-mentioned lever, a pivoted arm operatively connected to the valve in the inlet and outlet pipes, said weighted lever being constructed to move the pivoted arm and thereby operate the valves, substantially as described.

2. The combination of an air-holder, an air-pump consisting of a fixed and a movable section, an air-inlet valve, a cylinder, a piston in said cylinder connected to the movable section of the pump, water inlet and outlet passages communicating with the cylinder, valves in said passages, a pivoted lever connected to the movable section of the pump, a weighted lever also pivoted and constructed to be periodically engaged by the first-mentioned lever, a pivoted arm operatively connected to the valves in the inlet and outlet pipes, said weighted lever being constructed to move the pivoted arm and thereby operate the valves, a passage communicating with the upper portion of the pump and the upper portion of the holder, the movable portion of the pump being heavier than the movable portion of the holder, so that when air is admitted to the pump and the water allowed to escape from the cylinder, the weighted movable section will cause the air to pass into the holder, substantially as described.

692,686. VIBRATING SIGN. ERNEST B. LYDICK, Pittsburg, Pa. Filed May 9, 1901. Serial No. 59,407. (No model.)



Claim.—1. In a sign, the combination with a frame, and a pendulum hung thereon, of an object mounted for sliding movement in two directions at approximately right angles to each other and means for loosely connecting the object with the pendulum so as to cause the object to be actuated when the pendulum swings.

2. In a sign, the combination with a suitable support, of a series of wave-strips, means for supporting the wave-strips for movement, a movable object across which the strips extend, and a pendulum-lever connected loosely with the wave-strips and the object so as to give action to the object and wave-strips when said lever is swung.

3. In a sign, the combination with a suitable support, of a series of wave-strips, loose connections between the ends of said strips and the support, a movable object across which the strips extend, and a pivoted pendulum-lever having arms thereon, said arms being pivoted upon the object and the wave-strips, so as to adapt the swinging movement of the pendulum to actuate the wave-strips and object.

4. In a sign, the combination with a box-like frame, and a plurality of wave-strips hung by their ends at the ends of the frame, of an object pivoted on the rear wall of the frame and having an arm extended down therefrom, and a weighted pendulum-lever pivoted upon the frame by its upper end, said lever having lateral projections pivoted upon the object and upon the wave-strips.

5. In a sign, the combination with a box-like frame, a plurality of wave-strips scalloped on their upper edges to simulate waves, and suspending link rods loosely engaging the ends of the strips and corresponding ends of the frame, of a ship having a set sail, a looped connection for the sail on the rear wall of the frame, and a pendulum-lever pivoted on a projection from the rear wall of the frame, said lever having two arms that are loosely connected with the lower portion of the ship and also with the wave-strips.

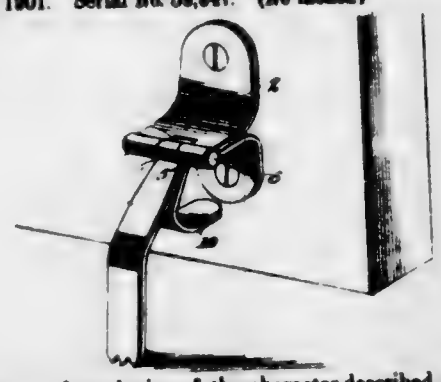
6. The combination of a series of strips overlapping at their upper edges, arranged in different positions from front to rear and having end supports, an actuating device, and connections between the said device and the strips at points intermediate the ends of the strips.

7. The combination of a series of strips overlapping at their upper edges and having end supports, an object adjacent to said strips and mounted for movement, an actuating device, and connections between the strips and the actuating device and between the said object and the actuating device.

8. The combination with an object mounted for movement, of pendulums, and a connection between the pendulums and the object at different points on the object.

9. The combination with an object mounted for movement, of pendulums, connections between the pendulums and the object at different points on the object, a series of strips, and connections between the strips and the pendulum.

692,687. DOOR-STOP. ARRIE S. MARTIN, Roadhouse, Ill. Filed May 11, 1901. Serial No. 59,847. (No model.)

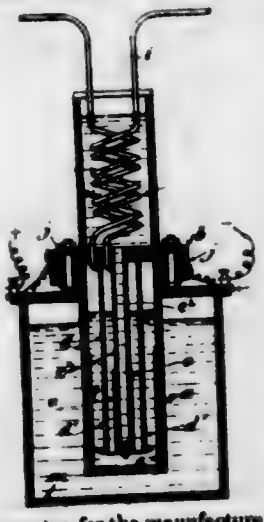


Claim.—1. In a device of the character described, the combination with a bracket, formed with a laterally-extending leaf terminating in cylindrical portions, a hinged pintle carried thereby, a curved arm formed from a single piece of metal having a plurality of teeth or impinging-points at its lower end, its upper end bent to form a barrel whereby said arm may be carried by said pintle, and then bent back upon itself and terminating in a right-angularly-projecting foot.

2. In a device of the character described, the combination with a bracket having a projecting leaf formed with cylindrical portions, a hinged pintle carried thereby, an arm formed from a single piece of metal having a plurality of teeth or impinging-points, at the extreme end thereof, bent to form a barrel whereby said arm may be carried by said pintle, terminating in a projecting foot whereby said arm may be swung into engagement with the floor, and means for normally holding said arm out of engagement with the floor.

3. In a device of the character described, the combination with a bracket having a projecting leaf formed with cylindrical portions, a cut-out portion intermediate the said cylindrical portions, the sides of which are arranged at an angle, a pintle carried by the said cylindrical portions, an engaging arm having a barrel, the sides of which form a corresponding angle to those of the said cut-out portion, whereby the said arm may be secured from accidental displacement when the arm is in its normal position.

692,688. APPARATUS FOR PRODUCING FLUORIN. MAURICE MESLANS, Paris, France. Filed Nov 10, 1900. Serial No. 36,083. (No model.)

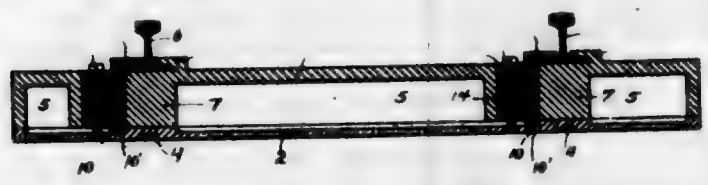


Claim.—1. An apparatus for the manufacture of fluorin by electrolysis and provided with a partition wholly of metal separating the anode

and cathode cells, and having openings through it only below the normal level of the electrolyte, said partition being electrically connected with the anode and being of a metal having the described property of forming on its surface a layer of insulating fluorid, all substantially as set forth.

2. An apparatus for the manufacture of fluorin by electrolysis and provided with a copper partition separating the anode and cathode cells, said partition being electrically connected with the anode and having openings below the normal level of the electrolyte but being imperforate above, all as and for the purpose described.

692,689. METALLIC RAILWAY-TIE AND RAIL-FASTENING. DOMINICK J. MEYER, Allegheny, Pa. Filed Nov. 9, 1901. Serial No. 81,694. (No model.)



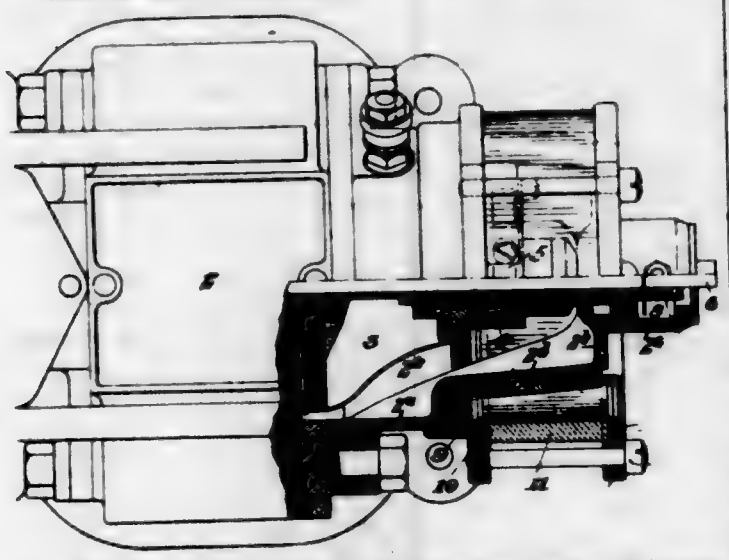
Claim.—1. The combination of a tie having a vertical opening formed with a lateral offset, a rail-confining clip adapted to fit the opening-offset and interlock with the tie, and a key adapted to enter the opening behind the clip and secure the same, said key being formed with a lateral clip-embracing extension, substantially as shown and described.

2. The combination of a tie having vertical opening 11 formed with lateral offset 12, rail-confining clip 9 having shank 10 adapted to fit offset 12 and formed at its lower end with enlargement 10' whereby the clip is held against vertical displacement, and a key adapted to be inserted in opening 11 for securing the clip in the position described.

3. The combination of a tie formed with a vertical countersunk opening having a lateral offset, a rail-confining clip having a shank adapted to fit said opening-offset, the clip-shank being enlarged at its lower end to overlap the lower portion of said opening-offset, and a locking-key removably fitting the opening and confining the clip in the position described, the key being formed with a flat and notched head which fills the countersunk portion of the tie-opening and embraces the clip.

4. The combination of a tie formed with a vertical opening, a rail-confining clip having a shank within the opening, a clip-confining key fitting the opening and formed with a vertical aperture, and a screw extended therethrough and into the base portion of the tie.

692,690. MOTOR FOR RAILWAY DEVICES. HENRY D. MILES, Detroit, Mich., assignor to the Union Switch and Signal Company, Swissvale, Pa., a Corporation of Pennsylvania. Filed Mar. 12, 1901. Serial No. 50,796. (No model.)



Claim.—1. In an electric motor, a motor-box, a casing for hermetically sealing the commutator and brushes of the motor, and clamping devices engaging said casing and said motor-box for clamping the casing tightly against the motor-box; substantially as described.

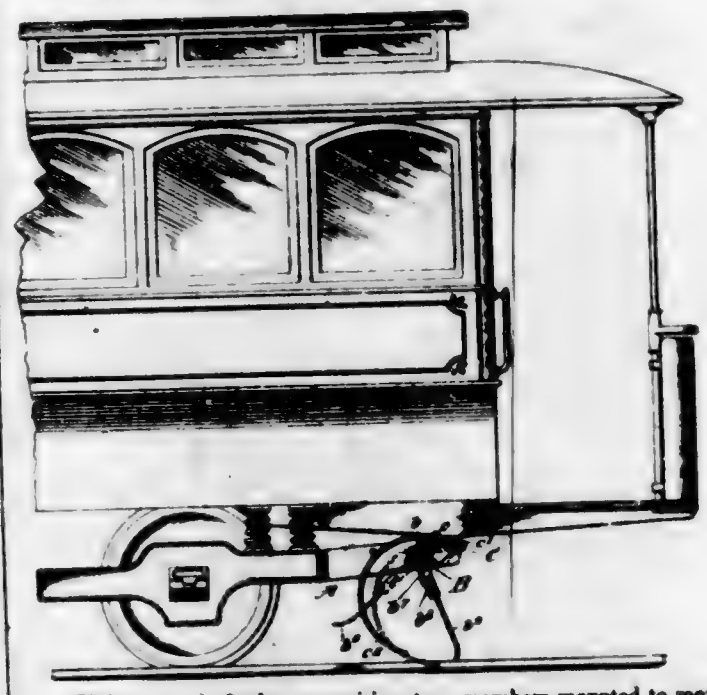
2. In an electric motor, a motor-box, a casing the inner edge of which abuts against said motor-box, and clamping devices engaging the said motor-box and the outer portion of said casing for clamping the casing tightly against said motor-box, substantially as described.

3. In an electric motor, a motor-box having a clamping-ring extending therefrom, a glass cylinder forming part of a casing the inner edge of which cylinder abuts against said clamping-ring, an outer metal rim also forming part of the casing and abutting against the outer edge of said glass cylinder, and clamping devices for bringing the said clamping-ring and said metal rim into tight engagement with the glass cylinder; substantially as described.

4. In an electric motor, a motor-box having a clamping-ring extending therefrom, a glass cylinder forming part of a casing, the inner edge of which cylinder abuts against said clamping-ring, an outer metal rim also forming part of the casing and abutting against the outer edge of said glass cylinder, clamping devices for bringing said clamping-ring and said metal rim into tight engagement with the glass cylinder, and packing-rings between the glass cylinder and the clamping-ring and between the metal rim and the glass cylinder; substantially as described.

5. In an electric motor, a motor-box, a casing for the commutator and brushes the inner edge of which abuts against said motor-box, and clamping devices secured to the motor-box and abutting against the outer portion of the casing for effecting a tight engagement of said inner edge of the casing with the motor-box; substantially as described.

692,691. CAR-FENDER. CLIFTON H. MOORE, Monroe, Mo. Filed June 7, 1901. Serial No. 63,553. (No model.)



Claim.—1. A fender comprising two members mounted to move toward each other, the one member being adapted to yield on impact with an object, and the other member being adapted to receive the object.

2. A fender comprising two members mounted to move toward each other, and means for returning the two members to their initial positions, the one member being adapted to yield on impact with the object, and the other member being adapted to receive the object.

3. In a car-fender, a rock-shaft provided with curved, resilient teeth; and a second rock-shaft provided with depending teeth; the teeth of the first shaft being adapted to move between the teeth of the second shaft.

4. In a car-fender, the combination of two rock-shafts geared together so as to move in opposite directions, each of the rock-shafts being provided with teeth, the teeth of the one rock-shaft being adapted to move between the teeth of the other rock-shaft to make way for an object.

5. In a car-fender, the combination of two resilient rakes oppositely curved and mounted to move toward each other, one of the rakes being adapted to yield before an object and the other rake being adapted to receive the object, the teeth of the one rake being received between the teeth of the other rake.

6. A car-fender consisting of two rock-shafts mounted to turn in opposite directions; a yielding member depending from one rock-shaft; and a curved, resilient member projecting from the other rock-shaft, the yielding member being swung upwardly by an object, and the curved, resilient member being simultaneously moved downward to receive the object.

7. A fender comprising two rock-shafts adapted to turn in opposite directions; inwardly-curved teeth secured to the one rock-shaft and arranged to yield upon impact with an object; outwardly-curved resilient teeth secured to the other rock-shaft and arranged to receive the object; and means for returning the parts to their normal positions.

8. A car-fender comprising a frame; two rock-shafts journaled in the frame; gears connecting the rock-shafts, one of the gears being adjustable; curved spring-teeth on one of the shafts; teeth on the other rock-shaft adapted to be received between the curved spring-teeth on the other shaft; and a spring on one of the shafts whereby the said shafts are returned to their normal positions.

9. A car-fender comprising two members arranged to swing toward and from each other, the one member, in addition to its swinging movement, having an independent limited yielding movement.

10. A car-fender comprising two members arranged to swing toward and from each other, the one member, in addition to its swinging movement, being adapted to yield independently and being adjustable relatively to the road.

11. In the herein-described car-fender, the combination of a rock-shaft, a frame yieldingly mounted on the rock-shaft by means of a slotted sleeve and a spring; a pin projecting from the rock-shaft through the slot of the sleeve and serving the purpose of limiting the independent movement of the frame; and a tooth-bar extending across the frame and having means whereby it may be adjusted relatively to the ground.

692,692. INCANDESCENT GAS-MANTLE. KATHERINE V. MORAN, New York, N. Y., assignor to Joseph B. De Lery, New York, N. Y. Filed Apr. 11, 1901. Serial No. 55,333. (No model.)



Claim.—1. The combination with an incandescing mantle, of a supporting cord or thread therefor of separate material, and having a stiffening or reinforcing material incorporated therewith.

2. The combination of an incandescing mantle, of a separate supporting thread or cord made up of metal and of material indestructible by heat and attached to said mantle, for the purpose set forth.

3. The combination with an incandescing mantle, of an independent supporting thread or cord in the form of a loop attached thereto, said loop being reinforced by a suitable metal strip.

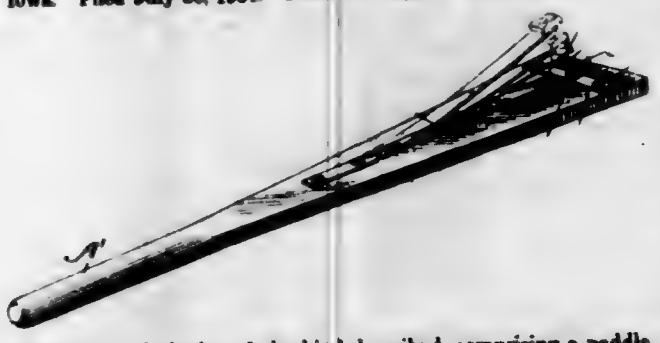
4. The combination with an incandescing mantle, of a loop attached thereto for supporting the same, said loop consisting of an asbestos thread or cord having its middle or bent portion surrounded by a metallic strip for retaining the shape of the loop, for the purpose described.

692,693. TOY PADDLE. WILLIAM L. MORGAN, Burlington, Iowa. Filed Mar. 30, 1901. Serial No. 53,672. (No model.)



Claim.—In a toy of the kind described, the combination of a paddle, a clip held upon said paddle, a shaft held by said clip, a hammer having one end provided with perforated ears through which the shaft projects, a spring held on the said shaft and having one end thereof engaging the hammer and its opposite end engaging the paddle, a contact-piece held upon the paddle and adapted to be engaged by a spring-plate pivoted to the said paddle, a staple held upon the said paddle and a trigger connected at one end to the staple and its free end provided with a finger portion for engagement with the hammer, substantially as shown and described.

692,694. DETONATING TOY. WILLIAM L. MORGAN, Burlington, Iowa. Filed July 20, 1901. Serial No. 69,143. (No model.)

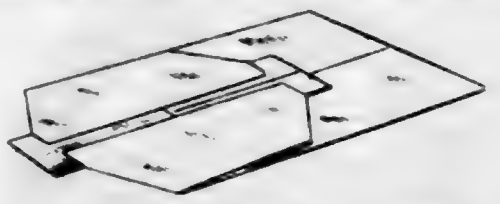


Claim.—1. A device of the kind described, comprising a paddle, a flat striker-plate secured upon said paddle, a retaining-wire secured at one end beneath the striker-plate, the opposite end extending across the striker-plate, and a hammer attached to the said paddle and adapted to contact with the striker-plate, substantially as described.

2. A device of the kind described, comprising a paddle, a striker-plate attached to said paddle, a U-shaped retaining-wire, one member of which extends beneath the plate and the other above the same, and a spring attached to the paddle and carrying a disk at its free end, said free end being weighted, substantially as described.

3. In a device of the kind described, a paddle having a striker-plate secured thereto, a U-shaped retaining-wire having one member arranged beneath the striker-plate, the end of such member being bent to bear against the paddle, the other member extending across the face of the striker-plate and having its end turned slightly upward, and the spring attached to the paddle and carrying a bolt at its free end, said bolt having a disk upon its lower end, and a nut upon its upper end, substantially as and for the purpose described.

692,695. BAG-MAKING MACHINE. DANIEL J. MULLEN, Middletown, Ohio. Filed Apr. 24, 1901. Serial No. 57,227. (No model.)



Claim.—1. In a paper-bag machine, the combination with paper feeding, folding and pasting mechanism, of a paper-guide consisting of an upstanding plate having parallel guide-slots, oppositely-projecting bracket-arms, a horizontal former supported thereby and consisting of a plate having its opposite side edges grooved, rotary tucking-rollers working in the grooves of the former, and elbow-hangers adjustably connected to the bracket-arms of the upstanding plate and having the tucking-rollers journaled thereon.

2. In a paper-bag machine, the combination with the paper-web feeding and folding mechanism, of parallel stationary blades extending lengthwise of the machine and arranged to partially open the tucked side folds of the tube or blank, laterally-swinging fingers pivotally connected to the rear ends of said blades, folding wedge-shaped extensions hinged on transverse axes to the fingers, and cam-operated connections for vibrating said fingers laterally with respect to the movement of the paper tube or blank.

3. In a paper-bag machine, the combination with the paper-web feeding and folding mechanism, of parallel stationary tuck-opening blades extending longitudinally of the machine-frame, laterally-swinging fingers pivotally connected to the rear ends of said blades, triangular extensions hinged to the fingers, an operating cam-shaft, jointed connecting-rods operated by the cam-shaft and attached to the extensions for reversing the latter, and means for simultaneously swinging the fingers and extensions laterally with respect to the movement of the paper.

4. In a paper-bag machine, the combination with paper-web feeding and folding mechanism, of a creasing and pasting roller provided with one or more paste-carrying pads and a centrally-arranged lip for engaging and drawing down one of the bag-bottom flaps and applying adhesive material thereto.

5. In a paper-bag machine, the combination with paper-web feeding and folding mechanism, of creasing-rollers arranged one above the other, the upper roller being partially cut away on its outer surface and provided centrally of the cut-away portion with a lip for drawing down one of the bag-bottom flaps.

6. In a paper-bag machine, the combination with paper-web feeding and folding mechanism, of a pair of rolls between which the paper passes, one of said rolls being concaved at one side of its axis and having parallel paste-applying stripe extending part way around its concentric outer surface for laying adhesive material on the bottom-flaps of the bag, a centrally-arranged lip for engaging and drawing down one of the bottom-flaps of the bag, a paste-conveying roll, and a paste-receptacle.

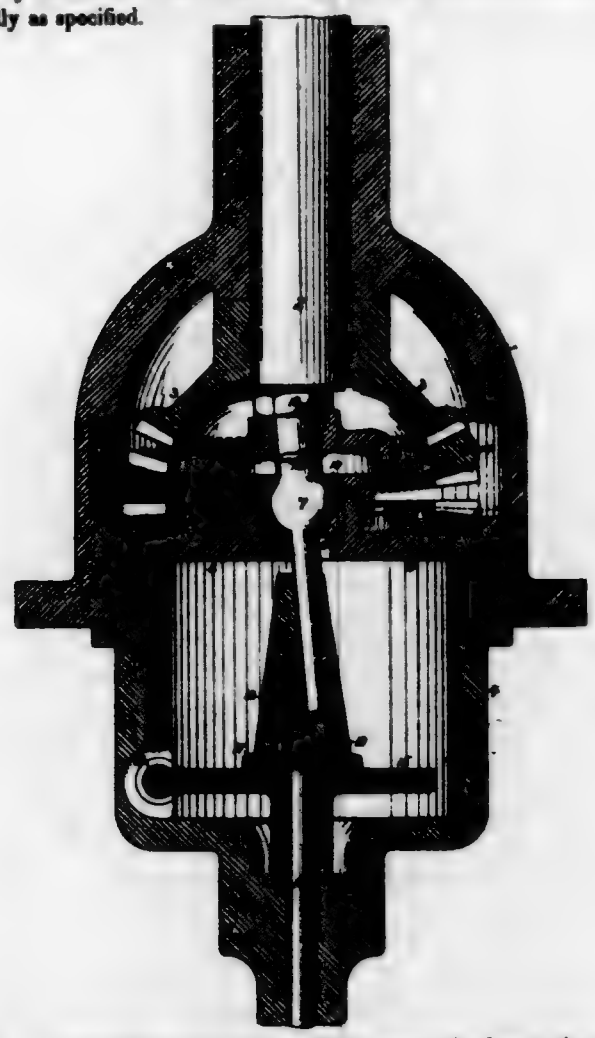
7. In a paper-bag machine, the combination with paper-web feeding and folding mechanism, of a pair of rolls between which the paper passes, one of said rolls constituting the paste-applying roll and having parallel paste-applying stripe, a paste-supply roll, and a paste-conveying roll lying between and in contact with the paste applying and supply rolls and geared to the supply-roll in such manner that the supply and conveying rolls are driven at different surface speeds, substantially as described.

8. In a paper-bag machine, the combination with paper-web folding and feeding mechanism, of presser-rolls, a rotary flap-lifter, and stationary guard-plates at opposite sides of the flap-lifter for holding down the blank and flap, the adjacent edges of the guard-plates being spaced apart to accommodate the rotary movement of the flap-lifter.

692,696. MECHANICAL MOVEMENT. HERBERT MCCORMACK, Westchester, Pa. Filed May 10, 1897. Serial No. 635,882. (No model.)

Claim.—1. A mechanical movement in which are combined a rotating gear, a fixed gear facing the same, a universally-mounted shaft having an axis inclined in respect to the axis of the shaft which drives the rotating gear, and a duplex wabble-gear secured to said inclined shaft

so as to swing between the rotating gear and the fixed gear and mesh with one on one side of its center and with the other on the opposite side of its center, whereby the swinging movement of the wabble-gear is caused by the action of the teeth of the gears with which it meshes, substantially as specified.



2. A mechanical movement in which are combined a rotating gear, a wabble-gear adapted to mesh therewith, provision for preventing rotation of said wabble-gear, a wabble-gear shaft mounted so as to swing in any direction, a shoe mounted upon said wabble-gear shaft, and a wheel with which said shoe engages the axis of the wabble-gear shaft being inclined in respect to the axis of the said wheel, substantially as specified.

3. A mechanical movement in which are combined a rotating gear, a wabble-gear meshing therewith, provision for preventing rotation of said wabble-gear, a wabble-gear shaft mounted so as to be free to swing in any direction, a shoe mounted upon said shaft, a wheel with which said shoe engages, and a centering pin or projection entering an opening in said shoe in line with the axis of the said wheel.

4. A mechanical movement in which are combined a wabble-gear and a gear meshing therewith, said gears having bearing contact independent of the toothed portions of the gears but exerting no pressure upon the wabble-gear to cause swinging movement of the same, substantially as specified.

5. A mechanical movement in which are combined a wabble-gear, a gear meshing therewith, and bearing contact independent of the teeth of the gears and serving to restrict the approach of the latter, said bearing contact lying in the pitch-cone of the gear with which the wabble-gear engages.

6. A mechanical movement in which are combined a rotating gear, a fixed gear opposed thereto, a wabble-gear swinging between the two, and a bearing contact for said wabble-gear, independent of the teeth of the gears, and lying in the pitch-cone of said fixed gear.

692,697. LADLE. TURNER H. HARDY, Talladega, Ala. Filed June 20, 1901. Serial No. 65,355. (No model.)

Claim.—1. In a ladle, the combination with a receptacle or bowl having a handle and a socket located in the outer face of said receptacle or bowl, of a support for the ladle comprising a standard having its lower end sharpened and its upper end arranged to fit in the socket.

2. In a device of the class described, the combination with a receptacle or bowl, having a projection which is provided with a socket, of a handle extending from one side of the receptacle or bowl and a support for the receptacle comprising a standard having its lower end sharpened and its upper end detachably fitting in the socket of the projection.

3. In a device of the class described, the combination with a receptacle or bowl, of a handle secured to one side of the receptacle or bowl, a projection located at the juncture of the handle and receptacle or bowl and provided with a socket, and a support for the receptacle or bowl comprising a standard having its lower end sharpened and its upper end detachably fitting in the socket.



4. In a melting-ladle, the combination with a receptacle or bowl having a pouring-lip and provided with an offset lug at its upper edge, said lug having a socket in its under face, of a supporting-standard having its lower end sharpened and its upper end detachably fitting in the socket, a handle-stem secured at one end to the lug and provided at its other end with a hand-grip, and another hand-grip in the form of a sleeve which is slidably and rotatably mounted upon the stem between the grip and the receptacle or bowl.

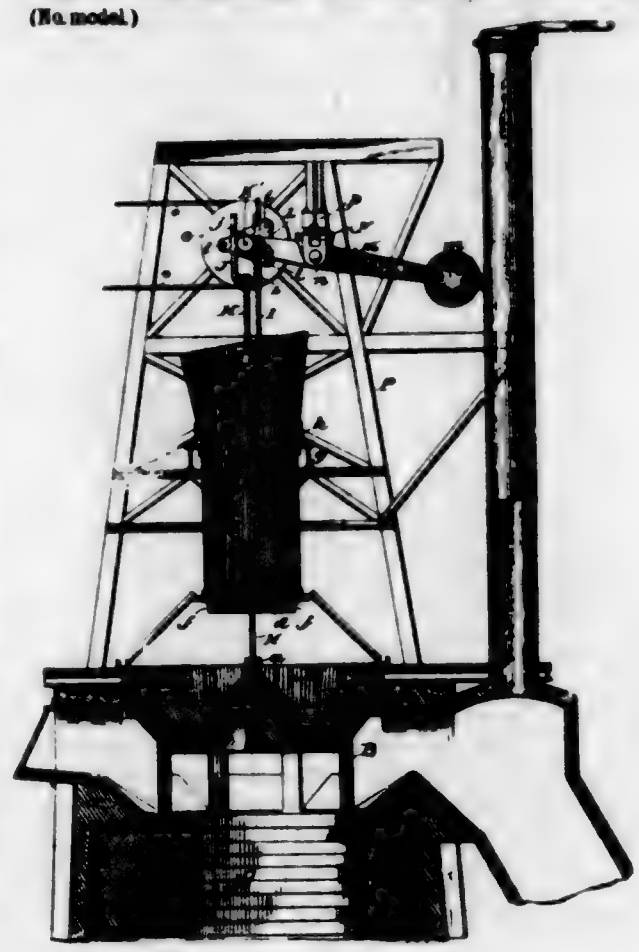
5. In a device of the class described, the combination with a receptacle or bowl, of a handle secured to one side of the receptacle or bowl, an absorbent wick located in the bottom of the receptacle, and means engaging the wick and bottom of the bowl to secure said wick in place.

6. In a device of the class described, the combination with a receptacle or bowl, of a handle secured to one side of the receptacle or bowl, an absorbent wick located in the bottom of the receptacle, and a rivet passing through the wick and bottom of the bowl to secure said wick in place.

7. In a device of the class described, the combination with a receptacle, of an asbestos wick located in the bottom of the receptacle, a washer arranged over the wick, and a fastening device passing through the washer, the wick, and the receptacle.

8. In a ladle, the combination with a bowl, of a handle-shank projecting from one side of the bowl, a support for the bowl having its lower end sharpened and its upper end detachably engaging said bowl, and a handle-grip in the form of a sleeve which is slidably mounted upon the handle and has a free movement toward and from the bowl.

692,698. MECHANISM FOR FEEDING BLAST-FURNACES. ALBRECHT B. NEUHAUS, Joliet, Ill. Filed May 29, 1901. Serial No. 62,403 (No model.)



Claim.—1. In a mechanism for feeding blast-furnaces, the combination of a receiver or hopper, a receiving-chamber having communication with the receiver or hopper and with the furnace, an initial or upper bell for controlling the communication between the receiver or hopper and the receiving-chamber, a final or lower bell for controlling the communication between the receiving-chamber and the furnace, a rod for carrying the initial or upper bell, a rod for carrying the final or lower bell, and a common means for reciprocating both rods, oppositely acting on the rods simultaneously in manipulating the bells, substantially as described.

2. In a mechanism for feeding blast-furnaces, the combination of a receiver or hopper, a receiving-chamber having communication with the receiver or hopper and with the furnace, an initial or upper bell for controlling the communication between the receiver or hopper and the receiving-chamber, a final or lower bell for controlling the communication between the receiving-chamber and the furnace, a rod for carrying the initial or upper bell, a rod for carrying the final or lower bell, and a common means for reciprocating both rods arranged to have an upward pull on one rod coincident with a downward push on the opposite rod, for the downward push to open a bell, substantially as described.

3. In a mechanism for feeding blast-furnaces, the combination of a receiver or hopper, a receiving-chamber having communication with the receiver or hopper and with the furnace, an initial or upper bell for controlling the communication between the receiver or hopper, and the receiving-chamber, a final or lower bell for controlling the communication between the receiving-chamber and the furnace, a hollow rod for carrying the initial or upper bell, a rod for carrying the final or lower bell and movable within the rod of the initial or upper bell, means for reciprocating each rod, the same means operating both rods and oppositely acting on the rods simultaneously and a balance-lever carrying the means for reciprocating the rods, substantially as described.

4. In a mechanism for feeding blast-furnaces, the combination of a receiver or hopper, a receiving-chamber having communication with the receiver or hopper and with the furnace, an initial or upper bell for controlling the communication between the receiver or hopper and the receiving-chamber, a final or lower bell for controlling the communication between the receiving-chamber and the furnace, a tube or hollow rod for carrying the initial or upper bell, a rod for carrying the final or lower bell and sliding within the tube or hollow rod of the initial or upper bell, a rack-bar on the upper end of each rod, a gear engaging the racks of both bars, and means for revolving the gear in either direction for the gear to act oppositely on the racks and the rods, substantially as described.

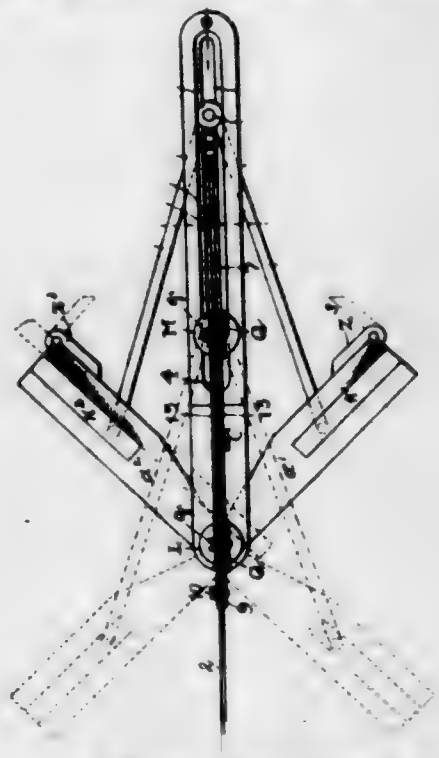
5. In a mechanism for feeding blast-furnaces, the combination of a receiver or hopper, a receiving-chamber having communication with the receiver or hopper and the furnace, an initial or upper bell for controlling the communication between the receiver or hopper and the receiving-chamber, a final or lower bell for controlling the communication between the receiving-chamber and the furnace, a tube or hollow rod for carrying the initial or upper bell, a rod for carrying the final or lower bell and slidable in the tube or hollow rod of the initial or upper bell, a rack-bar on the upper end of each rod, a gear engaging the racks of both bars, a head inclosing the rack-bars, and means for rotating the gear in either direction, for the gear to act oppositely on the racks and the rods, substantially as described.

6. In a mechanism for feeding blast-furnaces, the combination of a receiver or hopper, a receiving-chamber having communication with the receiver or hopper and with the furnace, an initial or upper bell for controlling the communication between the receiver or hopper and the receiving-chamber, a final or lower bell for controlling the communication between the receiving-chamber and the furnace, a tube or hollow rod for carrying the initial or upper bell, a rod for carrying the final or lower bell and slidable in the tube or hollow rod of the initial or upper bell, a rack-bar on the upper end of each rod, a gear engaging the racks of both bars, a head inclosing the rack-bars, a balance-lever carrying the head, and means for revolving the gear in either direction for the gear to act oppositely on the racks and the rods, substantially as described.

7. In a mechanism for feeding blast-furnaces, the combination of a receiver or hopper, a receiving-chamber having communication with the receiver or hopper and with the furnace, an initial or upper bell for controlling the communication between the receiver or hopper and the receiving-chamber, a final or lower bell for controlling the communication between the receiving-chamber and the furnace, a tube or hollow rod for carrying the initial or upper bell, a rod for carrying the final or lower bell and slidable in the tube or hollow rod of the initial or upper bell, a connection common to both rods for moving the rods, oppositely acting on the rods simultaneously, and a head for carrying the connection, substantially as described.

8. In a mechanism for feeding blast-furnaces, the combination of a receiver or hopper, a receiving-chamber having communication with the receiver or hopper and with the furnace, an initial or upper bell for controlling the communication between the receiver or hopper and the receiving-chamber, a final or lower bell for controlling the communication between the receiving-chamber and the furnace, a tube or hollow rod for carrying the initial or upper bell, a rod for carrying the final or lower bell and slidable in the tube or hollow rod of the initial or upper bell, a connection common to both rods for moving the rods oppositely acting on the rods simultaneously, a head carrying the connection, and a balance-lever for supporting the head, substantially as described.

692,699. **MITER-SAWING MACHINE.** SILAS R. OWEN, St. Joseph, Mo. Filed Mar. 29, 1901. Serial No. 53,452. (No model.)



Claim.—1. In a miter-sawing machine, the combination with a base-bar, its guide-posts, and angularly-adjustable wings, of the vertically-adjustable rests at the outer end portions of said wings, substantially as specified.

2. In a miter-sawing machine, the combination with a base-bar, its guide-posts, and angularly-adjustable wings, of the vertical wing-post, the vertically-adjustable bar in said post carrying a rest, and means for securing said bar, and rest as adjusted, substantially as specified.

3. In a miter-sawing machine, the combination with a base-bar, its guide-posts, and angularly-adjustable wings, of the vertical wing-posts, the vertically and pivotally adjustable bars in said posts, the rests carried by said bars, and means for securing said bars and rests as adjusted, substantially as specified.

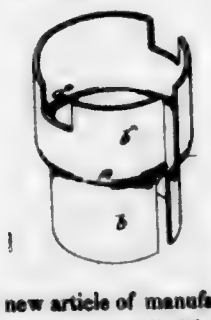
4. In a miter-sawing machine, the combination with the base-bar, its guide-posts, and the angularly-adjustable wings, of the saw-carrying frame engaging said posts, the extensions of said frame, and the saw-clamps having a sliding engagement with said extensions, substantially as specified.

5. In a miter-sawing machine, the combination with the base-bar, its separable guide-posts, and the angularly-adjustable wings, of the vertically-adjustable, extensible saw-carrying frame engaging said posts, and having the forward and rear extensions, the slidable saw-clamps engaging said extensions, and the adjustable depth-gages carried by said frame, substantially as specified.

6. In a miter-sawing machine, the central hollow base bar or support having upper and lower, and lateral longitudinal slots, the forward stationary bifurcated guide-post, having guideways in the bifurcations thereof, the angularly-adjustable wings or braces, having guide ribs or uprights, the braces connecting said wings and bar, and working in the lateral slots of said bar, the rear longitudinally-adjustable bifurcated guide-post working in the upper slot of said bar, the saw-carrying frame engaging said posts, and having lateral pins or extensions working in the longitudinal slots of the forward post, the forward and rear extensions of said frame, and the saw-clamps having a slidable engagement with said extensions, substantially as specified.

7. In a miter-sawing machine, the central hollow base bar or support, having an upper longitudinal slot, the forward stationary guide-post, the angularly-adjustable wings having guide ribs or uprights, the rear longitudinally-adjustable guide-post working in the slot of said bar, the saw-carrying frame engaging said guide-posts, and having forward and rear guide extensions, means for adjusting the length of said saw-carrying frame to accord with movement of said rear post, and the saw-clamps having a slidable engagement with said guide extensions, substantially as specified.

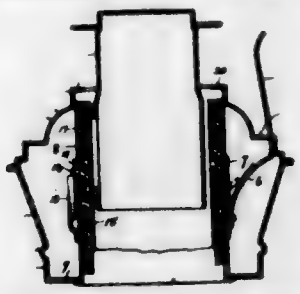
692,700. INSULATING-LINING FOR INCANDESCENT-LAMP SOCKETS. HENRY T. PAINE, Philadelphia, Pa. Filed June 3, 1901. Serial No. 63,652. (No model.)



Claim.—1. As a new article of manufacture, an insulating-shell for a lamp-socket having two connected cylindrical sections of different diameters, the same consisting of an elongated, rolled-up sheet of insulating material, one edge of said sheet being equal in length to the circumference of one section of the shell and the opposite edge of the sheet being continuous and of such a length and configuration that when the sheet is rolled up and formed, the ends of said sheet will perfectly meet in a line, substantially as described.

2. A blank from which an insulating-bushing is to be formed, the same consisting of a piece of sheet material, one edge thereof being straight and having recesses therein, the opposite edge being a bent line and the edges of the ends being each cut in lines at an angle to each other, one of said lines being at right angles to the straight edge of the blank, substantially as described.

692,701. LAMP-BURNER. WILLIAM A. PENFIELD, Meriden, Conn., assignor to the Bradley & Hubbard Mfg. Co., Meriden, Conn., a Corporation. Filed Jan. 15, 1901. Serial No. 43,348. (No model.)

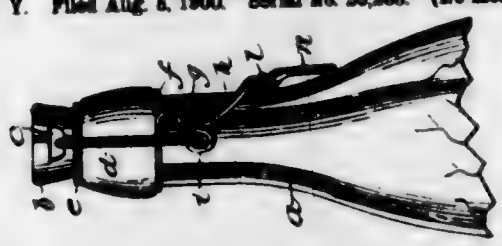


Claim.—1. A lamp-burner having a vertically-movable chimney-gallery formed with a wick-stop collar adapted to be engaged by the wick to limit the upward movement thereof, whereby the wick is prevented from smoking, and formed with a plurality of teeth which are engaged by the wick and between which the wick burns, and said gallery being constructed to be locked in its depressed or normal position against the lifting action of the wick.

2. A lamp-burner having a chimney-gallery comprising a perforated gallery-cone, a gallery-ring, a locking-sleeve carried by the said ring, and adapted to ride up and down upon the outer wick-tube of the burner, a wick-stop collar located at the upper edge of the gallery-cone and formed with an extension into the path of the wick, the upward movement of which it limits.

3. In a lamp-burner, the combination with a vertically-movable and rotatable chimney-gallery having its cone provided with an inward extension into the path of the wick, the upward movement of which is thereby limited, and carrying a locking-sleeve formed with a bayonet-lock groove and with a locking-notch intersected by the upper end of the said groove; of a burner-skirt and an outer wick-tube connected therewith and provided with a pin coacting with the said bayonet-lock groove, and with the inclined lower edge of the said notch, whereby the said edge by riding under the said pin when the gallery is rotated, locks the same in its normal or depressed position against the lifting power of the wick when the same impinges against the said extension of the gallery-cone.

692,702. BOTTLE-STOPPER FASTENER. HENRY PENNER, Brooklyn, N. Y. Filed Aug. 8, 1900. Serial No. 26,263. (No model.)



Claim.—In a toggle-lock stopper-fastener, the combination of the stopper as *b*, and the hoop, as *d*, of a bail A having a rigid interlocking twist *f*, and a flat loop *s* beyond said twist to form a handle, said bail having a bend adjacent said twist to cause the handle to lie parallel with the bottle-neck, with the end of said handle in contact with the bottle, whereby a space is left between the handle and the bilge of the bottle to permit the handle to be grasped by the fingers.

692,703. RUBBER GLOVE. JACOB PFEIFFER, Jr., Akron, Ohio. Filed Jan. 8, 1901. Serial No. 42,480. (No model.)

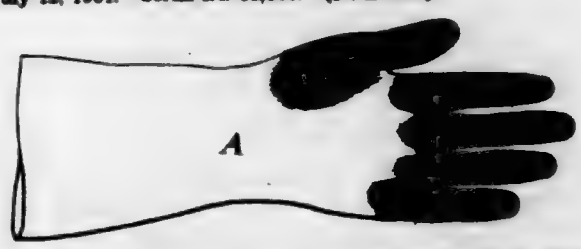


Claim.—1. As a new article of manufacture, a rubber glove having grooves and ribs alternately lengthwise on both sides in its wrist portion, substantially as described.

2. As a new article of manufacture, a rubber glove having a textile base covered on both sides with rubber and provided in its wrist portion with a series of ribs and grooves alternately forming flutes lengthwise of the glove on both sides, whereby a laterally expanding and contracting wrist portion is produced, substantially as described.

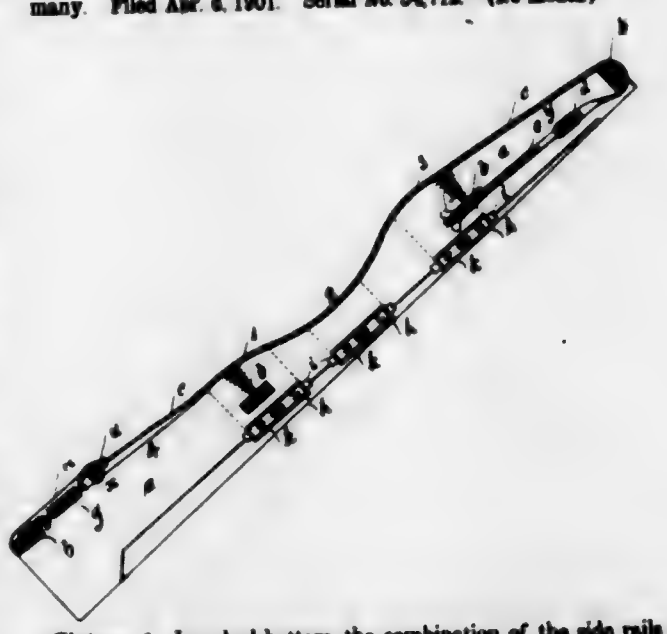
3. In gloves, an elastic glove having a knit seamless textile base and a coating of rubber on both sides without rib or seam, thereby producing a rubber glove of uniform elasticity at all points, substantially as described.

692,704. RUBBER GLOVE. JACOB PFEIFFER, Akron, Ohio. Filed July 12, 1901. Serial No. 68,060. (No model.)



Claim.—A rubber glove having finger-fronts provided with non-expansible strips of fabric embedded in the rubber surface thereof, thus providing a glove with an expansible all-rubber body and non-expansible finger-fronts, substantially as described.

692,705. MATTRESS. FRIEDRICH PLETTENBERG, Iserlohn, Germany. Filed Apr. 6, 1901. Serial No. 54,712. (No model.)



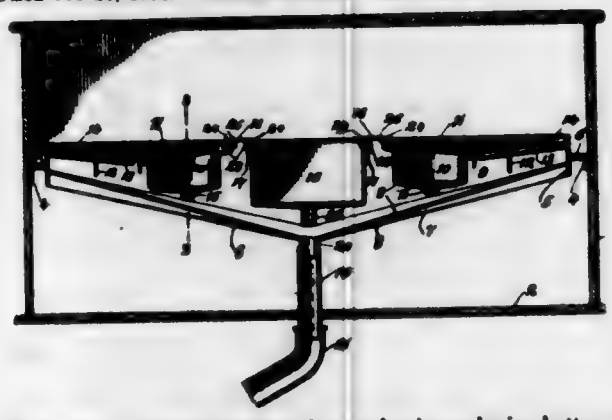
Claim.—1. In a bed-bottom, the combination of the side rails *a*, *a* having elevations 1, 3, 4 and intervening depressions corresponding to the profile of the human back; the webbing *c*; means for stretching said webbing longitudinally, and lateral supports for the said webbing from the respective elevations 1, 3 and intervening depressions 2 of the side rails whereby the said webbing is made to conform approximately to the contour of the back, substantially as explained.

2. The combination of the side rails *a*, *a*, having elevations 1 and 3 and intervening depressions 2; transverse stay-bars *b*, *b*, *b*; webbing *c*; means for applying elastic and variable longitudinal tension to the said webbing; and independent means for stretching the webbing laterally from the undulating bearing-points 1, 2, 3; substantially as and for the purposes set forth.

3. The combination of the side rails *a*, *a*, having bearing-supports 1, 2, 3 for the webbing of unequal elevation; the stay-bars *b*, *b*, connecting said side rails; the webbing *c*; connected to a straining-bar and tension-springs at one end, and turned down and over the other end of the frame; a straining-bar *d* to which said turned-over end of the webbing is connected and suitable straining-screws *e* and nuts *f* operating in conjunction with one of the transverse bars *b* to apply tension to the webbing, as described.

4. The combination of the side rails *a*, *a*, formed with support-bearings 1, 2, 3 of unequal height; the webbing *c*; means for applying elastic and variable longitudinal tension to the webbing; lateral tabs *h*, supporting the webbing from the several bearing-points 1, 2, 3; and means for stretching the webbing transversely through the medium of said tabs, substantially as explained.

692,706. BAR-FIXTURE. WILLIAM R. POATE, Stillville, Wis. Filed Oct. 26, 1901. Serial No. 80,062. (No model.)



Claim.—1. The combination of a tray having a sloping bottom, supporting-bars fixed to said tray above the bottom thereof, and receptacles resting on the bars and suspended thereby within said tray, each receptacle adapted to drain into the tray.

2. The combination of a tray having a sloping bottom and a drain-gutter therein, supporting-bars fixed to said tray, and receptacles fitted removably to said bars and suspended thereby within said tray, each receptacle having a nozzle arranged to discharge directly to said drain-gutter.

3. The combination of a tray having a bottom formed by converging sections which meet at a common outlet, said sections having drain-gutters, suitable drain-shelves supported at the ends of the tray and arranged to discharge liquid to the bottom thereof, supporting-bars fixed to the tray between said shelves, and receptacles resting on the bars and suspended thereby within said tray, each receptacle having a nozzle arranged to discharge into a drain-gutter.

4. The combination with a casing, of an externally-flanged tray suspended therein and provided with a sloping bottom, drain-shelves supported in the end portions of the tray and inclined toward the bottom thereof, receptacles suspended removably within the tray between the drain-shelves and arranged to discharge thereto, and flanged carving-shelves supported removably in the tray and spanning the spaces between said receptacles.

692,707. BRIDLE CROWN-PIECE. AMOS R. POLLARD, Montezuma, Iowa, assignor of one-half to Lorain C. Medearis, Marshalltown, Iowa. Filed July 20, 1901. Serial No. 68,109. (No model.)



Claim.—1. In a bridle, the combination with the crown-piece and a checkrein, of a spreader applied to the crown-piece and provided with opposite upstanding projections, and a guard-strap lying longitudinally across the spreader with its opposite ends connected to the crown-piece and also provided with perforations corresponding to and receiving the respective projections, the intermediate portion of the strap being secured to the crown-piece, and the opposite checkrein-sections lying in the respective guide-loops formed by the spreader, the adjacent projection thereof and the guard-strap.

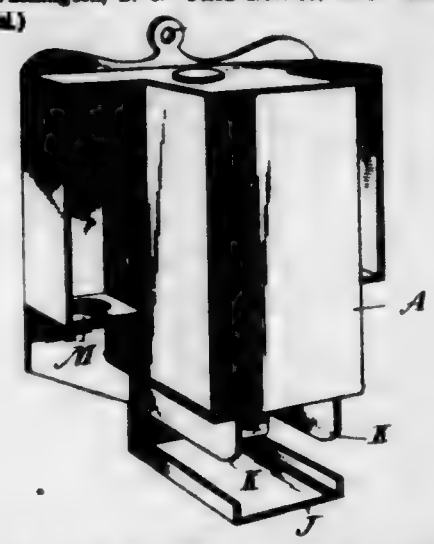
2. In a bridle, the combination with a crown-piece, a checkrein and a winker-stay, of a checkrein spreader-plate applied to the crown-piece and provided with opposite upstanding projections, a guard-strap secured longitudinally across the spreader-plate and connected at its opposite ends to the crown-piece, there being opposite perforations formed in the strap and for the reception of the respective projections, the opposite sections of the checkrein lying in the respective loops formed by the spreader-plate, the adjacent projection and the guard-strap, a buckle secured to the intermediate portion of the crown-piece, an upstanding loop or keeper projected through the guard-strap, the upper end of the winker-stay being engaged with the buckle and passed through the loop or keeper and over the guard-strap to connect the intermediate portion of the latter to the crown-piece.

3. A checkrein-guide consisting of a crown-piece, a spreader-plate applied thereto and having opposite lateral projections located inwardly from the respective ends thereof, a guard-strap arranged longitudinally across the plate and having its ends projected beyond the latter and connected to the crown-piece, and also having opposite perforations corresponding to and for the reception of the respective projections, and also provided with an intermediate longitudinal slot or opening, a buckle having an attaching member arranged to lie across the intermediate portion of the spreader-plate, and a loop or keeper receiving the said attaching member and projected through the intermediate slot of the guard-strap.

4. In a harness-bridle, the combination of a crown-piece, opposite upstanding projections carried by and rising above the same, and a guard-strap applied longitudinally to the crown-piece and having its opposite ends only secured thereto and projected in opposite directions outwardly beyond the projections, the intermediate loose portion of the guard-strap being provided with perforations corresponding to and for the reception of the respective projections, whereby checkrein guide-loops are formed between the respective projections and the adjacent portions of the crown-piece and guard-strap.

5. In a harness-bridle, the combination of a crown-piece, opposite upstanding projections carried by and rising above the same, a guard-strap applied longitudinally to the crown-piece and having its opposite ends projected outwardly in opposite directions beyond the projections, the loose intermediate portion of the strap being provided with perforations corresponding to and for the reception of the respective projections, and a winker-stay connection carried by the crown-piece and located between the projections, and also provided with an upstanding loop or keeper projected through an opening in the intermediate portion of the guard-strap and constructed for the reception of the free end of a winker-stay.

692,708. TOOTH BRUSH AND POWDER CABINET. CORWIN T. PRICE, Washington, D. C. Filed Nov. 15, 1901. Serial No. 82,443. (No model.)



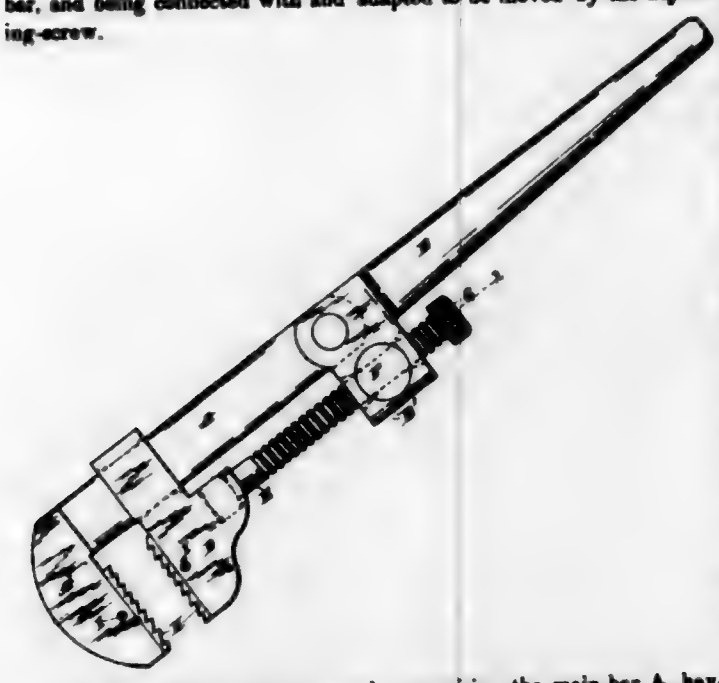
Claim.—In combination with the receptacle, having its rear wall projecting laterally beyond the sides of the receptacle and forming the back and outer walls of the brush-holding compartments, the brush-holding racks supported by the outer walls of said receptacle, a portion of the top of the receptacle projecting beyond the opposite side walls, to form closed tops to the brush-holding compartments, as set forth.

692,709. WRENCH. GEORGE W. PRICE, Los Angeles, Cal., assignor of one-half to S. E. Harpham, Los Angeles, Cal. Filed June 17, 1901. Serial No. 64,936. (No model.)

Claim.—1. A wrench comprising a main bar having a fixed jaw and pivoted to a handle; a sliding jaw on said main bar, having a recess therein for the reception of the head of an adjusting-screw; the handle having a projecting arm; a cylinder having a transverse screw-threaded hole extending therethrough revolubly mounted in said arm; an adjusting-screw passing in threaded contact through said cylinder and having a head adapted to fit in the recess in the sliding jaw.

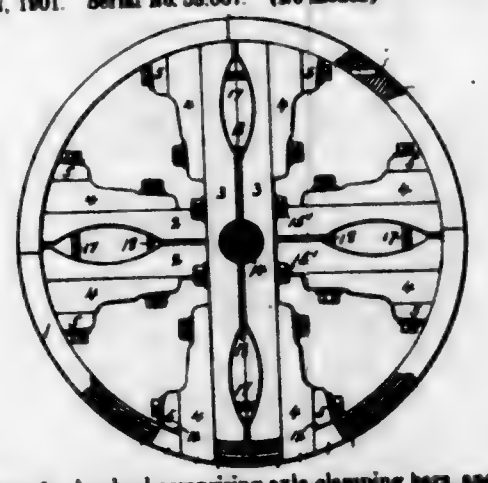
2. A wrench having a handle pivoted to the main bar carrying a fixed jaw, and the handle provided with a projecting arm; a cylinder in

said arm, having a transverse internally-threaded hole extending therethrough; an adjusting-screw in said cylinder; a sliding jaw on the main bar, and being connected with and adapted to be moved by the adjusting-screw.



3. The herein-described wrench, comprising the main bar A, having fixed jaw A' integral therewith; the handle B having projecting arm B', the said handle being pivoted to the main bar; cylinder F in said arm, having an internally-threaded hole extending transversely therethrough; an adjusting-screw E in said cylinder; and the sliding jaw D on the main bar; the said jaw being operatively connected with the adjusting-screw, substantially as herein shown and described.

692,710. WHEEL. FRED J. RADFORD, Oswego Falls, N. Y. Filed Mar. 27, 1901. Serial No. 53,067. (No model.)



Claim.—1. A wheel comprising axle-clamping bars, and a split rim having the meeting ends of its sections each provided with lugs having staggered tenons extending through the rim and secured to the bars.

2. The combination with a diametrically split rim, the meeting ends of each half-section being each provided with an inwardly-projecting lug, clamping-bars having their opposite ends interposed between the lugs, and their intermediate portions arranged to engage opposite faces of the shaft and means for drawing adjacent lugs toward each other into engagement with the bars.

3. A wheel comprising a diametrically split rim having the meeting ends of its sections each provided with inwardly-projecting lugs tenoned into the rim in staggered relation to each other, and shaft-clamping bars having their opposite ends impinged between the adjacent lugs of the opposite rim-sections.

4. A wheel comprising a diametrically split rim having the meeting ends of its sections each provided with inwardly-projecting lugs tenoned into the rim in staggered relation to each other, clamping-bolts passed through the lugs for drawing the rim-sections together, and means detachably connected to the rim for securing the rim to the shaft.

5. A wheel comprising a diametrically split rim having the meeting ends of its sections each provided with inwardly-projecting lugs tenoned into the rim in staggered relation to each other and clamping-bars having their opposite ends interposed between opposite adjacent lugs of each section and their intermediate portions adapted to engage a shaft, and means for clamping the lugs and arms together.

6. A wheel comprising a diametrically split rim having the meeting ends of its sections each provided with inwardly-projecting lugs tenoned into the rim in staggered relation to each other, and clamping-bars having their opposite ends interposed between opposite adjacent lugs of each section and their end faces abutting against the inner faces of the meeting ends of said sections, the intermediate portions of the bars being arranged to engage the opposite faces of the shaft for the purpose set forth.

7. A wheel comprising a diametrically split rim having the meeting ends of its sections each provided with inwardly-projecting lugs tenoned into the rim in staggered relation to each other, and clamping-bars having their opposite ends interposed between opposite adjacent lugs of each section and clamping-bolts passed through the opposite ends of the bars and the lugs adjacent thereto for drawing the rim-sections and for impinging the ends of the bars between the lugs.

8. A wheel comprising a rim formed of quarter-segments having their meeting ends formed with inwardly-projecting lugs, and independent pairs of clamping-bars each having their opposite ends inserted between diametrically opposite lugs.

9. A wheel-rim split transversely in intersecting planes for forming quarter rim-segments, in combination with independent pairs of clamping-bars arranged at substantially right angles to each other and having their meeting faces alined respectively with the opposite meeting faces of the rim-segments, and means for detachably securing the bars to the segments.

10. The combination with the sections of a split rim, each section being provided with inwardly-projecting lugs in proximity to its end faces, clamping-bars having their opposite ends inserted between the adjacent lugs and their end faces abutting against the inner faces of the meeting ends of the sections, and means engaged with the adjacent lugs for drawing the rim-sections together and thereby clamping the opposite ends of the bars between adjacent lugs.

11. The combination with opposite axle-clamping bars, of a split rim having the meeting faces of its sections in substantial alinement with the adjacent meeting faces of the bars, the inner faces of the meeting ends of the rim-sections being engaged with the end faces of the bars and provided with inwardly-projecting lugs engaged with the arms and detachably secured thereto.

12. The combination with opposite axle-clamping bars, of a split rim having the meeting faces of its sections in substantial alinement with the adjacent meeting faces of the bars, the inner faces of the meeting ends of the rim-sections being lapped upon the end faces of the bars and provided with inwardly-projecting lugs lapped upon the arms, and means engaged with the lugs for drawing the rim-sections and bars together.

13. The combination with opposite axle-clamping bars, of a split rim having the meeting faces of its sections in substantial alinement with the adjacent meeting faces of the bars, the inner faces of the meeting ends of the rim-sections resting upon the end faces of the bars and provided with inwardly-projecting lugs engaged with the arms and detachably secured thereto, and means for forcing the intermediate portions of the bars toward each other for the purpose described.

14. The combination with independent pairs of clamping-bars arranged in intersecting planes and formed of substantially the same length, of a rim divided in alinement with the meeting faces of the bars of each pair, lugs tenoned in the rim-segments of the rim in proximity to their meeting faces, and means for detachably securing the ends of the bars to the adjacent lugs.

15. A wheel comprising a split rim, the meeting ends of its sections being each provided with lugs tenoned in the rim in staggered relation to each other, clamping-bars having their opposite ends inserted between adjacent opposite lugs, said bars being removable endwise of the wheel, and means for detachably securing the bars to the lugs.

16. A wheel comprising a rim having opposite pairs of inwardly-projecting lugs tenoned in the rim, said rim being split between the lugs of each pair, and clamping-bars removable endwise of the wheel and having their opposite ends inserted between the lugs of each pair, either of the sections being removable independently of the bars, and means for clamping each pair of lugs to the adjacent ends of the bars.

692,711. SCREEN-DOOR ATTACHMENT. MIKE ROHRER, Westgate, Iowa. Filed June 8, 1901. Serial No. 63,762. (No model.)

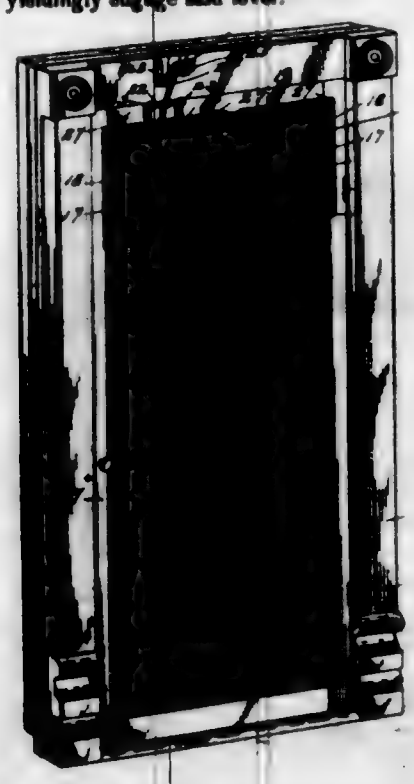
Claim.—1. The combination with a screen-door, of a fly-guard hingedly mounted on and adjacent to the top of the door, a lever fulcrumed on the screen-door and operatively connected with said guard, and a lever-operating device mounted on the door-frame.

2. The combination with a screen-door, of a hinged fly-guard carried thereby, an operating-lever fulcrumed on the screen-door, a link connecting one arm of said lever with the fly-guard, and a lever-operating device mounted on the door-frame.

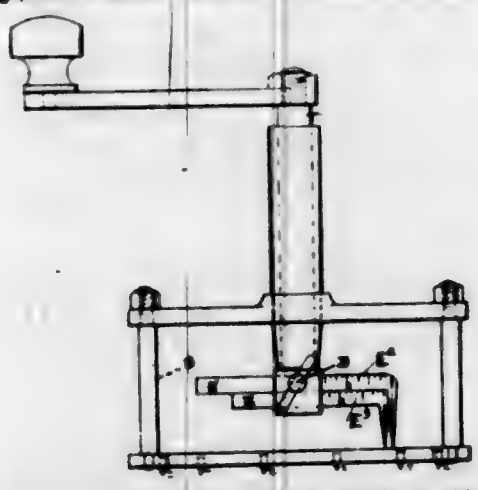
3. The combination with a screen-door, of a hinged fly-guard mounted thereon and provided with a slot, an operating-lever connected with the fly-guard and operating within said slot, and a lever-operating device mounted on the door-frame.

4. The combination with a screen-door, of a movable fly-guard mount-

ed thereon, an operating-lever fulcrumed on the door-frame and connected with said guard, and a lever-operating device mounted on the door-frame and adapted to yieldingly engage said lever.



692,712. WASHER AND GASKET CUTTER. JAMES A. ROSE, Hastings, Nebr. Filed June 26, 1901. Serial No. 66,448. (No model.)



Claim.—1. In a washer and gasket cutter, the combination with a suitable frame, of a sleeve mounted thereon, a shaft rotatably mounted within said sleeve, knives carried by one end of said shaft, means for permitting longitudinal adjustment of said knives with respect to each other, graduations formed on each of said knives for indicating the relative adjustment thereof, means at the opposite end of said shaft for facilitating the operation of the same, and a base supporting said frame and inclosing the cutting-points of said knives, and adapted to rest upon and retain the material operated upon in position, substantially as described.

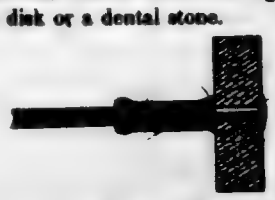
2. A washer and gasket cutter, comprising a ring forming a base, means carried by said base adapted to retain the material operated upon in position, a suitable framework mounted upon said base, a plurality of pointed knives rotatably mounted in said framework, and means for changing the radii of stroke of points of said knives, substantially as described.

3. A washer and gasket cutter, comprising a flat ring forming a base, a plurality of pointed legs extending downwardly therefrom and adapted to enter the material operated upon for retaining the same in position, a suitable framework mounted above the said base, a plurality of rotatably-mounted knives provided with cutting-points, means for revolving said knives, and means for changing the radii of stroke of said cutting-points said points always operating within the inner periphery of said ring, substantially as described.

692,718. DENTAL MANDREL. BERNARD RUBINSON, Philadelphia, Pa. Filed May 2, 1900. Serial No. 15,256. (No model.)

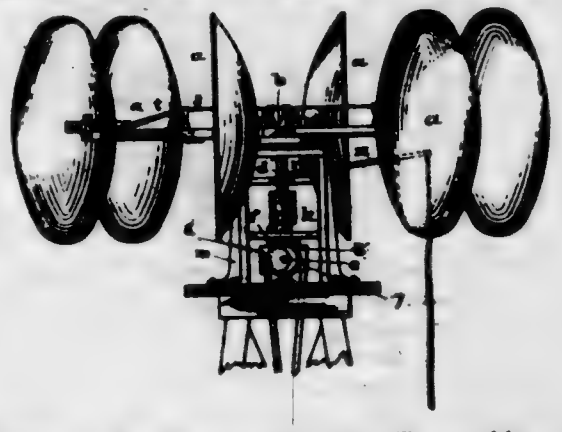
Claim.—1. In combination, a threaded mandrel-stem, a nut threaded upon said stem to move longitudinally thereon, and a head provided with a stem having a smooth exterior surface detachably engaging said mandrel-stem, said nut when moved being adapted to approach or recede from said head.

2. A dental mandrel comprising a spindle or body having a screw-threaded socket in its outer end, a screw threaded to said socket and having its head adapted to act as a clamping member for one side of a dental disk or stone, and a sleeve or nut threaded upon said spindle or mandrel-body, the end of said sleeve being adapted to abut against the opposite side of the disk or stone, the said sleeve having a range of movement to clamp either a thin disk or a dental stone.



3. A dental mandrel comprising in its construction a mandrel-body or spindle having a screw-threaded socket in its outer end, a screw having a smooth or unthreaded portion near its head and having a threaded portion fitted to said socket, and a sleeve or nut fitted to external threads upon the outer end of said spindle.

692,714. WINDMILL. JOSEPH C. SALA and GIOACCHINO STABILE, San Francisco, Cal. Filed Oct. 23, 1901. Serial No. 79,655. (No model.)



Claim.—1. The herein-described windmill, comprising a suitable frame, an upright driving-shaft, a head, radial arms fixed thereto, braces uniting the arms, oval disk-shaped vanes secured to the ends of the arms with the longer axes of the vanes perpendicular to the arms, a horizontal shaft having crank-arms on the ends set diametrically opposite to each other, a pitman connected to the crank-arm, a beveled gear fast on the crank-shaft, a bevel-gear loose on the upright shaft, a two-part clutch connecting that bevel-gear to its shaft, and a clutch-lever.

2. In a windmill, a wind-wheel comprising a head, radial arms secured thereto at points around the circle, said arms being composed each of a member rigidly secured to the head, and a member attached to the rigid member by a hinged joint, a supporting-plate on the member-extending under the hinge, and detachable brace-arms connecting the outer hinged members together.

3. In a windmill, a wind-wheel comprising a head mounted for rotation on an upright shaft, a plurality of arms secured to the head in radial position around the circle, and a vane on the end of each arm composed of an oval disk-shaped disk having its longer axis set upright and perpendicular to the arm, said disks being in cross-section less than a semicircle on the line of the longer and shorter axes.

692,715. FERTILIZER, SEED, AND GRAIN DISTRIBUTER. THOMAS C. SARSEANT, Northampton, England. Filed Aug. 8, 1901. Serial No. 71,354. (No model.)

Claim.—1. A distributer comprising a hopper, a drum in the bottom of same, end flanges to said drum forming revolving end boards by which the delivery of the material to the spreading device is facilitated and a radially-arranged hood forming an adjustable gate for the hopper; substantially as described.

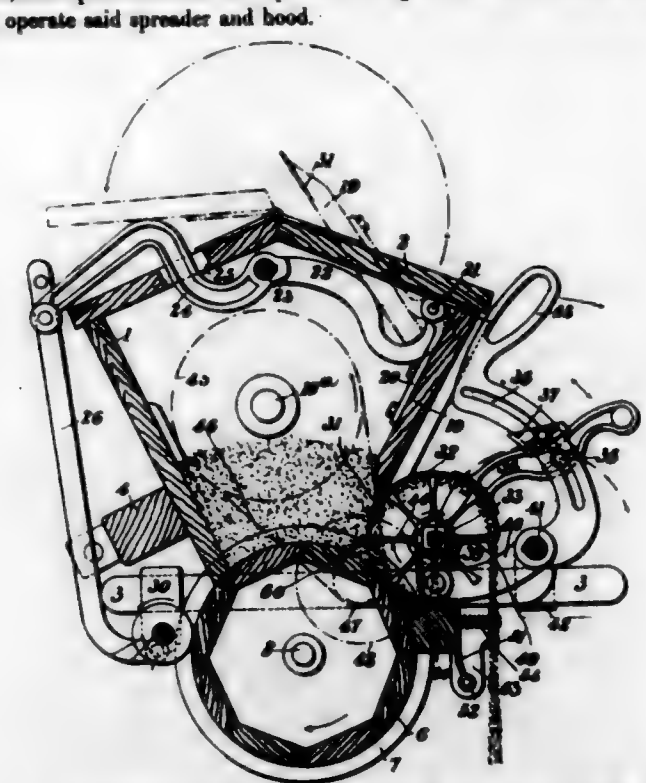
2. The combination with a hopper, a drum forming the bottom of same, a radially-arranged hood forming an adjustable gate for the hopper and a rotating spreader beneath said hood.

3. A distributer comprising a hopper, a suspended side, means for swinging same outwardly for cleaning, a lever connected with said side, means for vibrating said lever, a spreading device, and a hood for same against which the lower edge of the side rests.

4. The combination with a hopper and feeding drum of a spreader, a hood around said spreader, means for carrying the hood and adjusting its position with respect to the hopper to which it acts as a gate, and means for moving the spreader and hood outwardly so that they can be turned out of the way.

5. In combination, a rocking shaft, a spreader-wheel, an arm 39 supporting said spreader-wheel, an arm 40 carried by said rocking shaft and

supporting said arm 39, a hood capable of rotation on the axis of the spreader, a lever carried by said hood, a quadrant-arm secured to said rocking shaft and means carried by same for adjusting the position of the lever, such quadrant-arm when pulled serving to turn the rocking shaft and operate said spreader and hood.

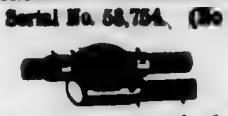


6. In a distributer, the combination with the hopper and feeding device, of a hood located adjacent the discharge-opening of said hopper, and a rotating spreader mounted below said hood and coöperating therewith for conveying the discharged contents of the hopper around said hood and forcibly throwing said contents vertically to the ground.

7. In a distributer, the combination with the hopper, of a feeding device comprising a rotatable drum forming the bottom of said hopper, a hood located adjacent the discharge-opening of said hopper, a rotary spreader mounted below said hood and rotating in the same direction as said rotatable drum, and coöperating with said hood for conveying and forcibly throwing the contents of said hopper to the ground.

8. In combination a hopper, a rotating feeding-drum, a rotating spreader, a radial hood around same, and a shield or scraper beneath such spreader and means for holding same lightly up to the drum.

692,716. HARNESS. FREDERICK J. SCHEIBE, Monticello, Ill. Filed May 4, 1901. Serial No. 58,754. (No model.)



Claim.—1. In harness construction, the herein-described attaching device comprising a tubular portion with cut-away portion intermediate its ends and a tubular socket rigid with the tubular portion, substantially as described.

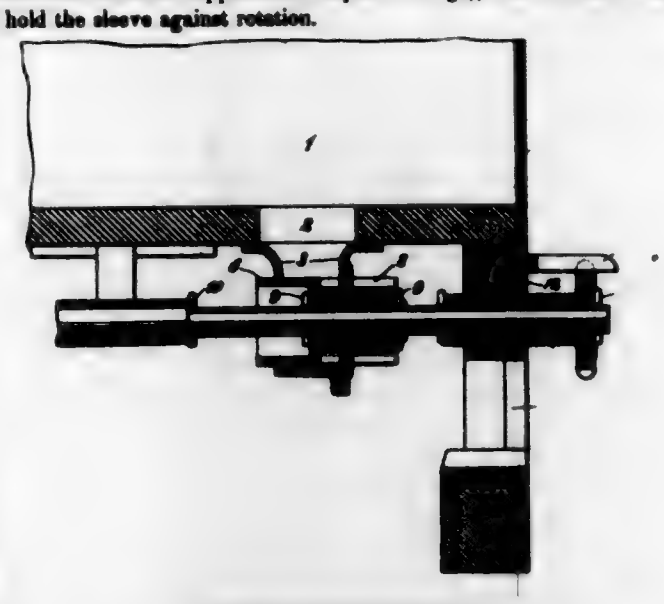
2. In harness construction, the herein-described attaching device comprising a tubular portion with cut-away portion intermediate its ends and a tubular socket rigid with the tubular portion and parallel therewith and closed at one end substantially as described.

3. In harness construction, the herein-described attaching device comprising a tubular portion with cut-away portion intermediate its ends and a tubular socket rigid with the tubular portion and parallel therewith and closed at one end, and an anchoring device extending laterally from the most vertical wall of the body portion to engage the portion of a rope disposed opposite said cut-away portion.

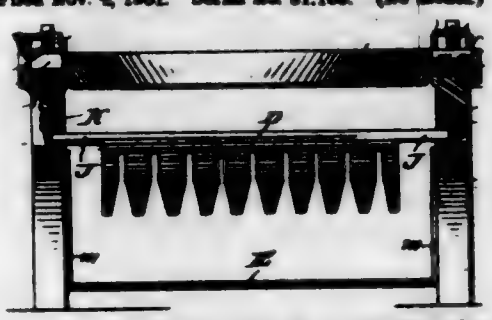
692,717. FEED-REGULATING DEVICE FOR GRAIN-DRILLS. ROBERT H. SCHLACHTER, Clay Center, Nebr., assignor to Clay Center Manufacturing Company, Clay Center, Nebr. Filed Oct. 1, 1901. Serial No. 77,179. (No model.)

Claim.—1. In a grain-drill, the combination with a shaft and feeding mechanism carried by the shaft; of a sleeve constituting a bearing for one end of the shaft and serving, when rotated, to reciprocate the shaft; a notched flange on the sleeve; and means adapted to engage the notched flange to hold the sleeve against rotation.

2. The combination with a grain-drill feed-box, a support therefor, a shaft mounted beneath the feed-box, and feeding mechanism carried by the shaft; of a sleeve threaded in the feed-box support, said sleeve constituting a bearing for one end of the shaft and serving when turned to reciprocate the shaft; a notched flange on the sleeve; and a dog pivoted on the feed-box support and adapted to engage the notched flange to hold the sleeve against rotation.



692,718. KNOCKDOWN STOVE. NORMAN F. SEAT, Madisonville, Ky. Filed Nov. 4, 1901. Serial No. 81,165. (No model.)



Claim.—1. In a knockdown stove, the combination of an open-work frame comprising suitably-braced end pieces, a grate removably supported thereby, and a removable vessel-support located above said grate and having laterally-projecting studs supported by said end pieces, substantially as described.

2. In a knockdown stove, the combination of an open-work frame comprising suitably-braced end pieces, a grate removably supported thereby, a vessel-support located above the grate and having laterally-projecting studs supported by said end pieces, and means for fastening the studs in position on said end pieces, substantially as and for the purpose set forth.

3. In a stove of the character described, the combination with the supporting-frame, of a grate supported thereby, and a vessel-support having laterally-projecting studs supported by said frame, said studs being provided with collars to prevent the spreading of the upper ends of the side pieces of the frame, and stringers for preventing the spreading of the lower ends of the side pieces of the frame, substantially as set forth.

4. In a stove of the character described, the combination with the end pieces of the supporting-frame and means for connecting the end pieces together near their lower ends, of a grate supported by the end pieces, a vessel supported by the upper ends of the end pieces above said grate and provided with collars that engage the outer sides of the end pieces and brace said end pieces against spreading, substantially as set forth.

5. In a stove of the character described, the combination with a suitable supporting-frame provided with bearings in its upper end, of a suitably-supported grate, and a vessel-support located above said grate and having studs to engage said bearings, said studs being provided with flat surfaces, pivoted latches for bearing against said flat surfaces, and means for holding the latches in locked contact with said flat surfaces, substantially as set forth.

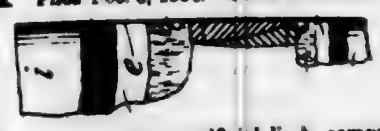
6. In a stove of the character described, the combination with the end pieces, the inner faces of which are provided with curved grooves, of longitudinal stringers, the ends of which are connected by arch-shaped pieces which fit into said grooves, means for securing said arch-shaped pieces in said grooves, a grate supported by the end pieces, and a vessel-support located above said grate, substantially as set forth.

7. In a stove of the character described, the combination with the supporting-frame, of a vessel-support supported thereby and consisting of three pieces, one of which is oval and the others of which are semicircular and have a sliding connection with the oval section, substantially as set forth.

8. In a stove of the character described, the combination with the supporting-frame, of a vessel-support supported thereby and consisting of

three pieces, one of which is oval and the others of which are semicircular and have a sliding hook connection with the oval section, substantially as set forth.

692,719. ARTIFICIAL LIMB. JAMES E. SHELEY, Los Angeles, Cal., assignor to W. W. Sweeney Co., Los Angeles, Cal., a Corporation of California. Filed Feb. 8, 1901. Serial No. 46,572. (No model.)



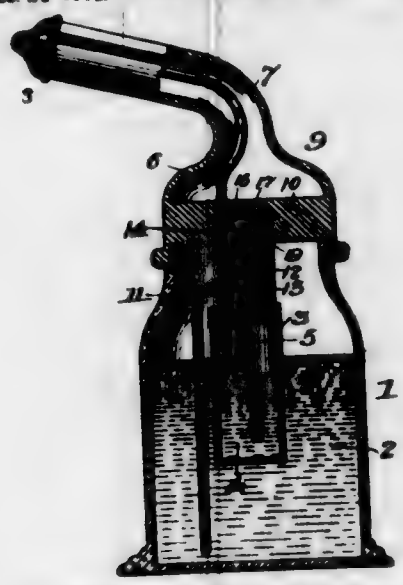
Claim.—A member for an artificial limb comprising a section of yucca brevifolia; a coating of cement on the outside of the yucca-brevifolia section; and a winding composed of thread embedded in the cement.

692,720. INDIGO PASTE. PAUL SEIDEL, Ludwigshafen, Germany, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany, a Corporation. Filed June 15, 1900. Serial No. 20,433. (No specimens.)

Claim.—1. As a new product the composition of matter consisting of indigo, a thickening agent, and water, which is liquid when containing twenty to forty per cent. of indigo, and does not deposit a precipitate of indigo, substantially as described.

2. As a new product the composition of matter consisting of twenty per cent. of indigo, and one-fifth per cent. of gum and of water, substantially as described.

692,721. ATOMIZER. CYRUS J. SELTZER, Philadelphia, Pa., assignor to George Woodward, Philadelphia, Pa. Filed May 11, 1900. Renewed Dec. 24, 1901. Serial No. 87,045. (No model.)



Claim.—1. In a combined atomizer and nebulizer, an outer receptacle for containing liquid to be atomized, a cap secured to the receptacle and provided with an apertured portion 10, an outer atomizer-tube secured to said cap and in communication with said aperture in the portion 10, a block closely fitting in said aperture, an inner receptacle for containing liquid to be nebulized carried by the block, said block being provided with a passage connecting the inner receptacle and the aperture and with a second passage connecting the outer receptacle and the aperture, an inner atomizer-tube in the outer receptacle and passing through said second passage into the outer atomizer-tube, said block being provided with a third passage extending from the interior of the block into communication with the inner receptacle and with a passage connecting said second and third passages, a three-way cock arranged to connect a fluid-pressure supply with either said second or said third passage, and a detachable tip carried at the outer ends of the inner and outer atomizer-tubes.

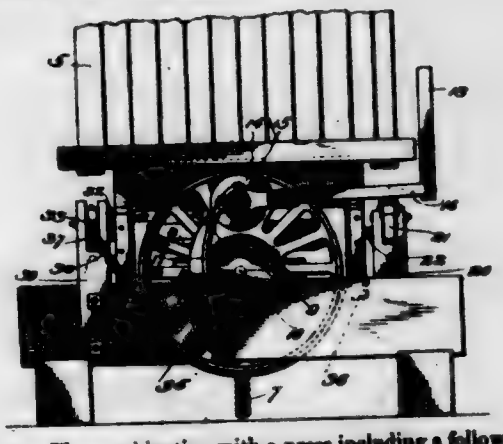
2. In a combined atomizer and nebulizer, a cap 9 having an apertured portion 10, a block 11 extending through said aperture and secured therein by an air-tight connection, a receptacle 1 for containing the liquid to be atomized secured to the bottom of said cap, a receptacle 3 for the liquid to be nebulized located within receptacle 1 and secured to the bottom of the block 11, said block provided with passages 12 and 13 arranged with their lower ends in communication with the interior of receptacle 3, a nebulizer-tube 5 within receptacle 3 and arranged with its air-passage in communication with passage 12, said block being provided with passages 14 and 15 and an aperture 16, the passage 14 arranged with its lower end in communication with receptacle 1, the passage 15 arranged in communication with passage 13, the aperture 16 connecting passages 13 and 14, a three-way cock 17 rotatably mounted in said passage 15 and provided with passages 18 and 19, a discharge-tube 7 carried by the cap 9 and communicating therewith above the portion 10, a liquid-tube 6 of smaller external diameter than the passage 14 and arranged to pass through said passage, said tube 6 arranged with its lower end suitably located within receptacle 1, and its upper end extending within outlet-tube 7, and a spray-tip suitably connected to the upper ends of tubes 6 and 7, substantially as described.

692,722. ATOMIZER. CYRUS J. SELTZER, Philadelphia, Pa., assignor to George Woodward, Philadelphia, Pa. Filed May 11, 1900. Renewed Dec. 24, 1901. Serial No. 87,049. (No model.)



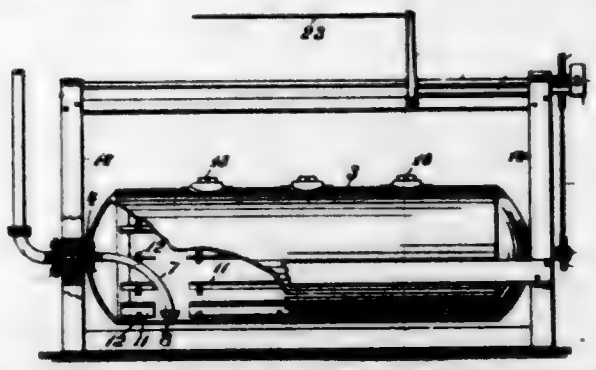
Claim.—In a combined atomizer and nebulizer, an outer receptacle for containing the liquid to be atomized, a cap on the outer receptacle and provided with the portion 6, apertures 10, 13 and recesses 11, 12 in said portion, a block 7 secured to said cap and having passages 8 and 9 connected respectively to aperture 10 and recess 11, an inner receptacle 3 secured to the block 7, a nebulizing-tube in said inner receptacle and in communication with the passage 9, a valve provided with a longitudinal passage and a lateral aperture communicating therewith, said valve being so located in the recess 12 that it can be adjusted to place said lateral aperture in communication with either the recess 11 or the passage 13, an outer atomizer-tube carried by said cap, an inner atomizer-tube passing through said outer tube and passage 13 and extending into the outer receptacle, and a detachable atomizer-tip carried at the outer ends of the atomizer-tubes, substantially as shown and described.

692,723. AUTOMATIC STOP MECHANISM FOR SCREW-PRESSES. LEMUEL A. SHANNON, Cullman, Ala., assignor of two-thirds to Silas P. McDonald and Ira Childs, Cullman, Ala. Filed Sept. 3, 1901. Serial No. 74,151. (No model.)



Claim.—The combination with a press including a follower, a screw-shaft 7 connected thereto, a threaded hub 8 having gear-teeth, a pinion 9 intermeshing therewith, a shaft 10 carrying the pinion, a friction-wheel 11 mounted on the shaft and having two concentric friction-faces 12 and 13, a friction-roller 14 adapted to be moved in engagement with one or other of said friction-faces, a pivoted lever 16 carrying said friction-roller, a lever 21, a standard 20 forming an adjustable fulcrum for said lever, one end of said lever being arranged in operative contact with the pivoted lever 16 and the opposite end being arranged in the path of downward movement of the follower-block, a lever 31 arranged on the opposite side of the press, a standard 30 carrying the same, a band-brake 35 partly embracing the periphery of the friction-wheel and having its free end adjustably connected to one end of the lever 31, the opposite end of said lever 31 being arranged in the path of downward movement of the follower-block, substantially as specified.

692,724. STATIONARY CHEMICAL FIRE-ENGINE. RUSSEL B. SEAFORTH, Racine, Wis. Filed Aug. 22, 1900. Serial No. 27,742. (No model.)



Claim.—1. In a stationary chemical fire-engine, the combination of a cylindrical shell fitted on trunnions, and adapted to revolve, one of the trunnions being hollow and having a stationary discharge-pipe therein curved downwardly and extending to the bottom of the cylinder, and receptacles within the upper side of said cylinder, and a series of narrow longitudinal shelves, with their sides radially disposed and located a short distance from the wall of the cylinder and having an angular break in the shelves to provide a path for the stationary discharge-pipe, as set forth.

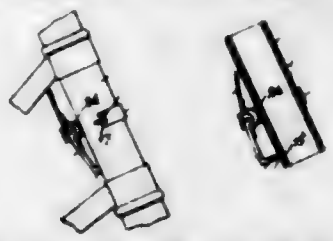
2. In a stationary chemical fire-engine, a cylindrical shell fitted on trunnions in a frame and adapted to revolve, having connections at one end with a discharge-pipe, and provided with means for generating pressure and agitating the chemicals, in combination with a shaft on the upper end of the frame, said shaft having at one end a lever projecting therefrom horizontally when in its normal position, said lever having weights thereon, a sprocket-wheel on the trunnion of the cylinder and a sprocket-wheel on the upper shaft in alinement and connected by a chain, and means for tripping said weighted lever, substantially as set forth.

3. In a stationary chemical fire-engine, a cylindrical shell adapted to revolve; the interior having longitudinally-disposed stripe and acid-receptacles, a small sprocket-wheel on the shaft at one end and a shaft above carrying a larger sprocket-wheel and a connecting sprocket-chain, and a weighted trip-lever or pendulum secured to said upper shaft, normally held in a horizontal position and adapted to oscillate when released from its normal position.

4. In a stationary chemical fire-engine, a cylindrical shell for containing and generating chemicals, having at one end a sprocket-wheel, in combination with an upper shaft having a larger sprocket-wheel thereon, and a connecting-chain between the two wheels, a weighted lever secured to the end of the upper shaft to serve as a pendulum, said lever resting normally on the end of a horizontal trip-bar, and a trip-lever connected with said trip-bar and hinged to the frame, said trip-lever being operated by a cable extending from the operating-boxes in a building, substantially as shown.

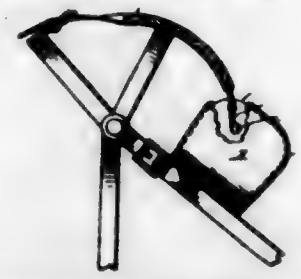
5. In a stationary chemical fire-engine, the combination of a frame, a cylinder horizontally mounted therein on trunnions and adapted to revolve, one trunnion being hollow and having a discharge-pipe leading therefrom, the other trunnion having thereon a sprocket-wheel the interior of the cylinder having acid-receptacles and agitating-strips, a horizontal shaft above the cylinder, having at one end a sprocket-wheel in alinement with the lower sprocket-wheel, and connecting-chain, a weighted lever on the end of the upper shaft, a trip-bar on which said lever rests, and a trip-lever for operating said bar, substantially as shown.

692,725. BICYCLE ATTACHMENT. HARRY SIMMONS, Boone, Iowa. Filed Sept. 9, 1901. Serial No. 74,741. (No model.)



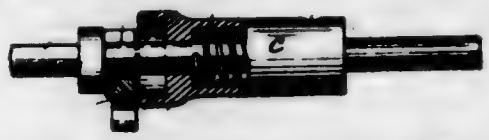
Claim.—The combination with a bicycle, having an opening in its steering-head and an opening of different size in the fork-stem, said openings being so positioned as to be in alinement when the bicycle-wheels are in alinement, a two-part clamp to encircle the steering-head, a screw for connecting the said parts, a lever fulcrumed to the said clamp and having one end designed to enter both of said openings, and a spring having its ends fixed to the said lever on opposite sides of its fulcrum and having its central portion arched or bowed to yieldingly engage the adjacent portion of the steering-head, substantially as and for the purposes stated.

692,726. BLIND FOR BRIDLES. ELSY L. SIPE, Louis, Kans. Filed May 25, 1901. Serial No. 61,949. (No model.)



Claim.—The combination of a blind having a diagonally-arranged slot therein formed with an enlargement at its lower end and a winker-strap having an inbent end interlocking with the slot and adapted to slide therein, and a knob on the inbent end for engaging the blind on the opposite side to the winker-strap.

692,727. LOCKING DEVICE FOR STRIPPING-BRUSH IN REVOLVING-FLAT CARDS. CYRUS H. SMITH, Fall River, Mass., assignor of one-half to Edward Shove, Fall River, Mass. Filed Mar. 15, 1901. Serial No. 51,288. (No model.)



Claim.—1. A spindle; a bearing therefor in a bracket; means to prevent a lengthwise movement of the spindle relatively to said bracket; a bolt mounted on said spindle and provided with a cylindrical recess whose axis coincides with that of the spindle and whose orifice is adjacent to said bracket; and a catch which is so mounted in reference to the bracket and the bolt that the catch and cylindrical surface of said recess in the bolt may be in locking engagement.

2. A spindle; a bearing therefor in a bracket; means to prevent a longitudinal movement of the spindle relatively to the bracket; a bolt mounted on said spindle and provided with a cylindrical recess whose axis coincides with that of the spindle and whose orifice is adjacent to said bracket, said bolt being movable longitudinally; and a catch fixed to said bracket to engage the cylindrical surface of said recess in the bolt.

3. A spindle; a bearing therefor in a bracket; means to prevent a longitudinal movement of the spindle relatively to the bracket; a bolt mounted on said spindle and provided with a cylindrical recess whose axis coincides with that of the spindle and whose orifice is adjacent to said bracket, said bolt being movable longitudinally and transversely relatively to the spindle; a catch fixed to said bracket, to engage the cylindrical surface of said recess in the bolt; means to exert stress on the bolt to hold the bolt and catch in engagement; and means on the spindle to limit the movement of the bolt toward the catch.

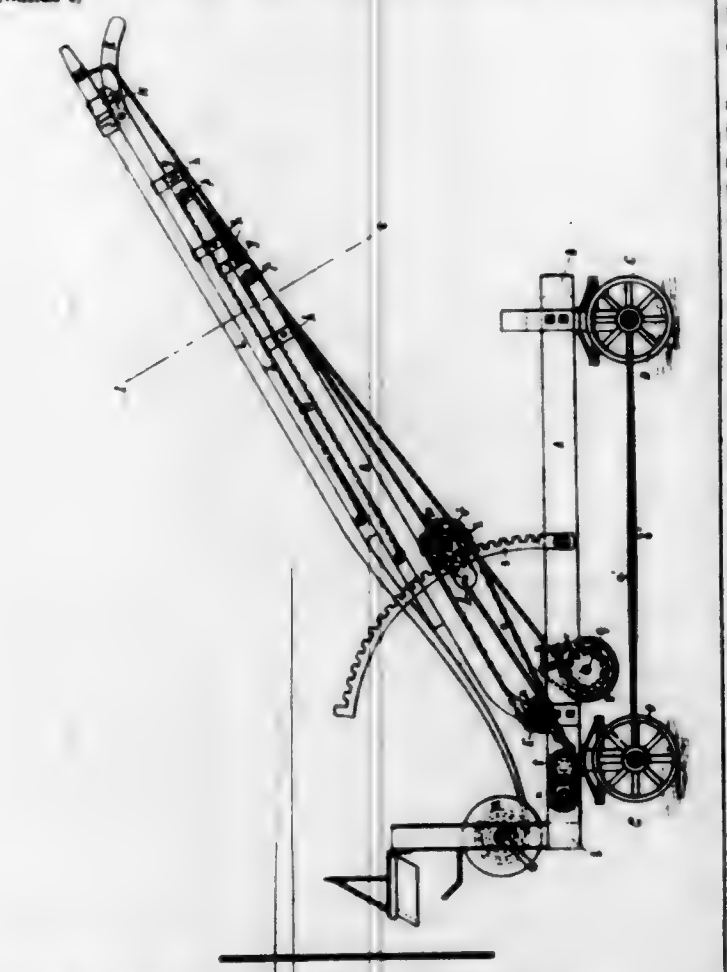
692,728. FIRE-LADDER. JAMES H. STRATHBOGIE, Kansas City, Mo., assignor of one-half to Myron L. Reid, Kansas City, Mo. Filed Aug. 30, 1900. Serial No. 28,547. (No model.)

Claim.—1. In a fire extension-ladder the side rails A, the bearings F, fastened to the said side rails, the shaft E, resting in the said bearings F, the sprocket-wheel n, fixed on the said shaft E, means for rotating the shaft E, the toothed segments *i*, pivoted at one end to the side rails A, in combination with the ladder G, pivoted on the said shaft E, the shaft *j*, mounted on the ladder G, having the sprocket-wheel m, fixed upon it, the spur-gears *k*, mounted upon the ends of said shaft *j* and meshing with the toothed segments *i*, the movable guide-rollers *l*, and the sprocket-chain o, connecting the said sprocket-wheels m, n.

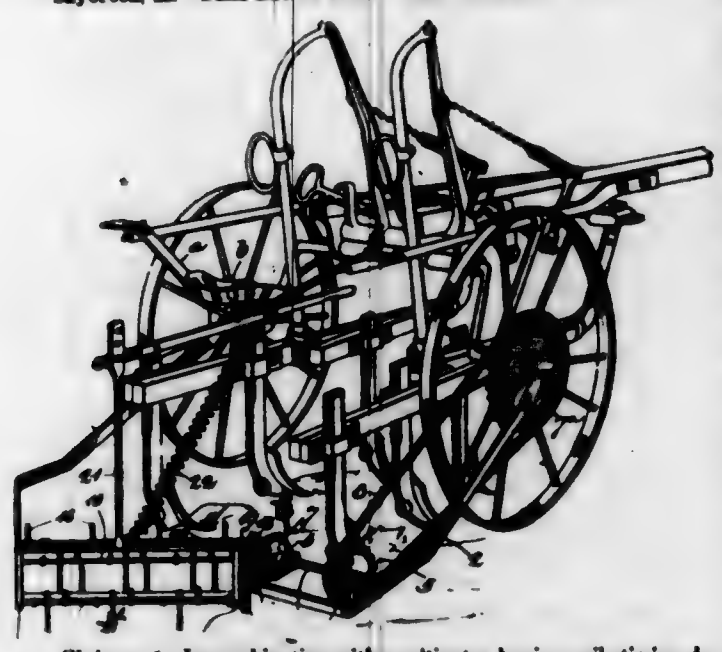
2. In a fire extension-ladder, the rails A, the bearings F, fastened to the said rails A, the shaft E, the sprocket-wheel n, mounted on the shaft E, means for rotating the said shaft E, the toothed segments *i*, pivoted at one end to the rails A, the windlass q, mounted on the rails A, between the bearings F, and the segments *i*, bearing on its shaft outside the rail A, a ratchet and detent *r*, and on the inside of said rails A, a friction band-brake S, in combination with the ladder G, pivoted on the said shaft E, the shaft *j*, mounted on the ladder G, the sprocket-wheel m, on said shaft *j*, the spur-gears *k*, mounted on the ends of the said shaft *j* and meshing with the toothed segments *i*, the movable rollers *l*, the sprocket-chain o, connecting the said sprocket-wheels m, n, the ladder H, telescoping the ladder G, ropes from the windlass q, passing over pulleys at the top of the ladder G to the base of the ladder H, the ladder I, telescoping the ladder H, ropes attached to the top of the ladder G passing over a pulley at the top of the ladder H and attached to the base of the ladder I.

3. In a fire extension-ladder, the windlass q, the ratchet and detent *r*, the friction band-brake S, in combination with the ladder G, the ladder

H, telescoping the ladder G, ropes from the windlass *q*, passing over pulleys at the top of the ladder G to the base of the ladder H, the ladder I, telescoping the ladder H, ropes attached to the top of the ladder G, passing over a pulley at the top of the ladder H, and attached to the base of the ladder I, the lower part of the said ladder I, having the rails *a*, made of the wood member *b*, the angle-steel *c*, and the strap-steel *d*, the upper part of the ladder I, formed by continuing the angle-steel *c*, forming the upper edge *c'*, the battering-point K, and the lower edge *d'*, the plates *f'*, connecting the upper edge *c'* with the lower edge *d'*, and the steel rounds *e'*.



692,729. ATTACHMENT FOR CULTIVATORS. JOSEPH STEIL, Saybrook, Ill. Filed Nov. 4, 1901. Serial No. 81,146. (No model.)



Claim.—1. In combination with a cultivator having soil-stirring devices disposed for operation on the sides of a row, a revolvable plant-lifting and clod-removing element disposed for operation on the row, substantially as described.

2. The combination with a cultivator having soil-stirring devices disposed for operation on the sides of a row, of a revolvable plant-lifting and clod-removing element in rear thereof and disposed obliquely with relation to the line of draft and over the row, the said revolvable plant-lifting and clod-removing element being provided with spurs, substantially as described.

3. The combination with a cultivator having soil-stirring devices disposed for operation on the sides of a row, of a revolvable plant-lifting and clod-removing element, disposed for operation in rear thereof and over the row and provided with spirally-disposed spurs, substantially as described.

4. The combination with a cultivator having soil-stirring devices disposed for operation on the sides of a row, of a revolvable plant-lifting and clod-removing element, in rear thereof and disposed obliquely with relation to the line of draft and over the row, the said revolvable plant-lifting and clod-removing element being provided with spirally-disposed spurs, substantially as described.

5. The combination, in a machine of the class described, of a revolvable plant-lifting and clod-removing element having spurs, and a revolvable clearing element having spurs intercurrent with those of said revolvable plant-lifting and clod-removing element, substantially as described.

6. In a machine of the class described, the combination of a frame, a rake on the front side thereof, a revolvable plant-lifting and clod-removing element in rear of said rake, and a revolvable clearing element above said revolvable plant-lifting and clod-removing element, the said last-mentioned elements being provided with intercurrent spurs, substantially as described.

7. In a machine of the class described, the combination of a frame, a rake on the front side thereof, a revolvable plant-lifting and clod-removing element in rear of said rake, a revolvable clearing element above said revolvable plant-lifting and clod-removing element, the said last-mentioned elements being provided with intercurrent spurs, and means for rotating said elements in the same direction, substantially as described.

8. In combination with a cultivator having soil-stirring devices disposed for operation on the sides of a row having a power-wheel, a frame disposed in rear of the cultivator and having a revolvable plant-lifting and clod-removing element disposed over the row, and connections, between the latter and said power-wheel, whereby said element is rotated, substantially as described.

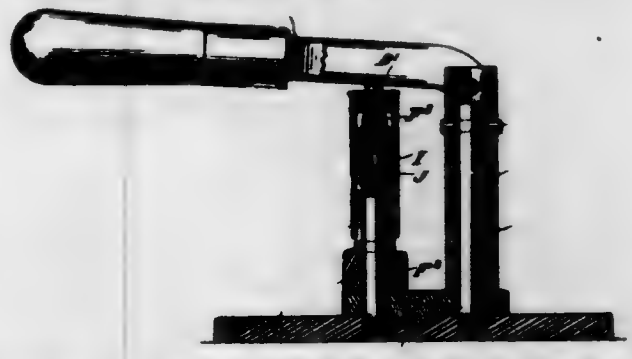
9. In combination with a cultivator having soil-stirring devices disposed for operation on the sides of a row, a plant-lifting and clod-removing element disposed for operation in rear of the cultivator and over the row, and means to raise and lower said element, substantially as described.

10. In combination with a cultivator having soil-stirring devices disposed for operation on the sides of a row, a plant-lifting and clod-removing element disposed for operation, in rear of the cultivator and over the row, a spring to normally raise said element, and a lever to depress the same against the tension of said spring, substantially as described.

11. A plant-lifting attachment for sulky-cultivators comprising a frame having means whereby it may be pivotally connected to the cultivator, and disposed in rear thereof, a counter-shaft in said frame, means to convey power to said counter-shaft from one of the wheels of the cultivator, a revolvable plant-lifting and clod-removing element carried by said frame and power connections between said element and said counter-shaft, substantially as described.

12. A plant-lifting attachment for sulky-cultivators, comprising a frame having means whereby it may be pivotally connected to the cultivator, and disposed in rear thereof, a counter-shaft in said frame, means to convey power to said counter-shaft from one of the wheels of the cultivator, a revolvable plant-lifting and clod-removing element carried by said frame, a revolvable clearing element carried by said frame, said plant-lifting and clod-removing and said clearing elements being provided with intercurrent spurs, means to convey power from said clearing element to said plant-lifting element, and means to convey power from said counter-shaft to said clearing element, substantially as described.

692,780. CAPPING OR DECAPPING MACHINE FOR CARTRIDGE-SHELLS. JAMES R. STOCKDALE, Sheldon, Mo. Filed Sept. 20, 1901. Serial No. 75,632. (No model.)



Claim.—1. A capping-machine for cartridge-shells, comprising a frame, a die for holding a cartridge-shell, a hand-lever provided with operative members mating said die and with a radially-disposed rigid arm, said lever being mounted upon said frame and free to swing radially in different planes relative thereto, and a stop for limiting the movement of said radially-disposed arm.

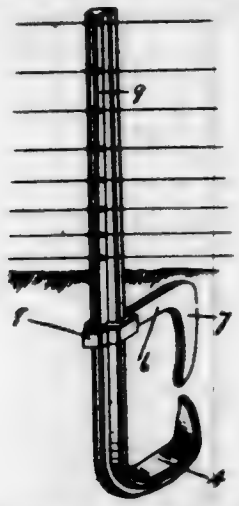
2. A capping-machine for cartridge-shells, comprising a primer-re-

moving device, and a primer-replacing device, the said devices comprising a lever having a punch and a presser, a removable die for receiving and holding the shell, an ejector in said die, and a support for the said die and moving with the said lever, as set forth.

3. A capping-machine for cartridge-shells, comprising a lever mounted to swing and to turn, and having a punch and a presser, a spring-pressed die mounted to slide, a stationary ejector-pin in said die and adapted to project above the same when the die is pressed, and an arm swinging with the said lever and adapted to pass under the said die to hold the latter against movement at the time the lever has its punch in register with the die, the said arm being out of engagement with the die at the time the said presser is in alinement with the ejector-pin, as set forth.

4. A capping-machine for cartridge-shells, comprising a lever mounted to swing and to turn, and having a punch and a presser, a spring-pressed die mounted to slide, a stationary ejector-pin in said die and adapted to project above the same when the die is pressed, and an arm swinging with the said lever and adapted to pass under the said die to hold the latter against movement at the time the lever has its punch in register with the die, the said arm being out of engagement with the die at the time the said presser is in alinement with the ejector-pin, means for limiting the turning movement of the lever, and means for limiting the sliding movement of the die, as set forth.

692,781. **FENCE-POST ANCHOR.** LEVI SWOVERLAND, Waupecong, Ind. Filed Aug. 3, 1901. Serial No. 70,741. (No model.)



Claim.—The herein-described fence-post having the hooked terminal 4 and an adjustable clamping member comprising the parts 6, 7 and 8, in combination with an anchoring member 5 adapted to be engaged by said member and said hooked terminal 4, all operatively combined substantially as specified and for the purpose set forth.

692,782. **TRIMMING-TABLE.** THOMAS W. TALIAFERRO, Omaha, Nebr. Filed Aug. 22, 1901. Serial No. 73,018. (No model.)



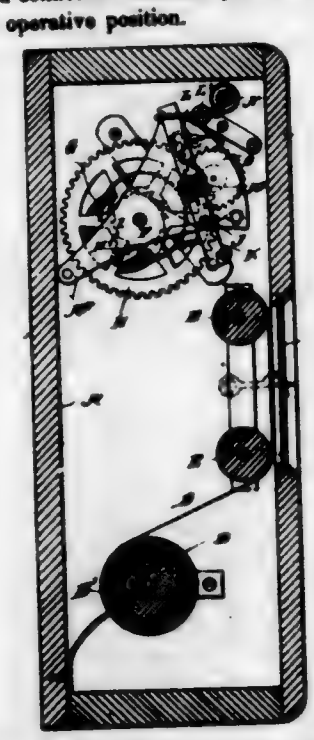
Claim.—1. A trimming-table comprising an annular stationary part and a rotary part within the same, the said rotary part having a central opening therein, an outer rim and an inclined conical wall between said opening and said rim.

2. A trimming-table comprising an annular stationary part and a rotary part within the same, the said rotary part having a central opening therein, an outer rim, an inclined conical wall adjacent to said rim, and a funnel-mouthed passage leading to said opening.

3. A trimming-table comprising an annular stationary part and a rotary part located within the same, the said rotary part having an outer rim, an inclined wall adjacent to said rim, a belt-groove on the under side of said rim and a bearing-ring, a driving-belt fitting within said groove, and a series of rollers on which said ring bears, as and for the purpose set forth.

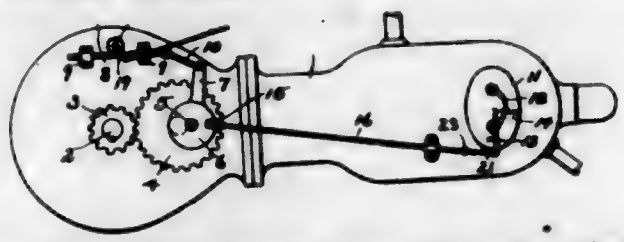
692,783. **STATION-INDICATOR.** ANDREW M. TAYLOR, Port Byron, N. Y. Filed Aug. 20, 1901. Serial No. 72,688. (No model.)

Claim.—1. In a station-indicator, the combination with a movable apron, a motor-driven shaft, and a take-up roller mounted on said shaft and adapted to have said apron wound thereon, of a slotted wheel mounted on said shaft, a locking-lever provided with a locking projection, means acting on said lever to normally hold the projection in locking engagement with the slotted wheel and thereby arresting said shaft, a manually-operative push-pin, and a spring-repressed lever in operative relation to the locking-lever and connected with said push-pin to normally hold the latter in an exposed operative position.



2. In a station-indicator, the combination with a movable apron, and a roller-shaft, of a take-up roller for said apron and having clutch connection with the shaft to be driven thereby when the shaft rotates in one direction, means for impelling said shaft in one direction, a slotted wheel loosely fitted on the shaft and having clutch connection thereto so as to rotate therewith when driven by the impelling means, whereby the roller-shaft is adapted to be turned in a backward direction without affecting the take-up roller or the slotted wheel, and a manually-operative locking and releasing mechanism normally engaged with the slotted wheel.

692,784. **SPARKING IGNITER FOR EXPLOSIVE-ENGINES.** GEORGE M. THOMPSON, Philadelphia, Pa. Filed Mar. 20, 1901. Serial No. 53,563. (No model.)



Claim.—1. In an igniter for explosive-engines a sparker having a fixed electrode, a movable electrode attached to an oscillating shaft, an arm attached to said shaft, a crank-shaft, a gear-wheel actuated thereby, an adjustable disk pivoted eccentrically to the gear-wheel, a rod pivoted at one end to the disk, the opposite end having a movement in alinement with the sparker-arm to actuate the same and means for holding the disk in adjusted position.

2. In an igniter for explosive-engines a sparker having a fixed electrode, a movable electrode attached to an oscillating shaft, an arm attached to said shaft, a crank-shaft and a gear-wheel actuated thereby, an adjustable disk pivoted eccentrically to the gear-wheel, a rod pivoted at one end to the disk the opposite end having a movement in alinement with the sparker-arm to actuate the same, an arm projecting from the disk, a rod connected with the arm by a link and means for holding the arm, and thereby the disk fixed in adjusted position.

692,785. **COMBINED ELECTRIC SWITCH AND SPARK-BLOW-OUT MECHANISM.** JAMES R. THOMPSON, Portland, Oreg. Filed June 17, 1901. Serial No. 64,902. (No model.)

Claim.—1. In an apparatus as described, a supporting member, a stud or bracket 6 projected therefrom, having a tubular sleeve 6ª, and an air-channel 6' that discharges through the upper end of the bracket 6, an air-blast pipe connected with the channel 6', a spring-actuated rod 20ª, slidable in the sleeve 6ª, a contact at the upper end thereof, a cylinder mounted on the sleeve 6ª, into which the upper end of the rod 20ª projects and the channel 6' discharges, a stationary contact member held on the support and projected within the upper end of the cylinder, a valve for controlling the air-blast, a detent for holding the sliding rod and its

contact to its closed position, and a single lever device for coöperating with the detent and the air-blast-controlling valve, adapted to release the said sliding rod, and open the valve when the movable contact leaves the stationary contact, all being arranged substantially as shown and for the purposes described.



2. The combination with the support, the two terminals, one of which carries a contact-member, the other one having a tubular sleeve, a cylinder of non-conducting material supported on said sleeve, and surrounding the aforesaid contact-member, a rod slidable in the sleeve, said rod carrying a contact-member adapted to close up against the other contact-member, means for normally forcing the rod to a downward position, a detent for holding said rod with its contact closed against the other contact, the aforesaid sleeve having an air-inlet discharging into the cylinder, a valved air-feed pipe discharging into the sleeve air-inlet, said valve having a handle provided with a trip adapted to engage and release the detent devices that hold the slidable contact-rod, all being arranged substantially as shown and described.

692,786. DEVICE FOR TEACHING MUSIC. CONSTANCE R. TIBBLEY, New York, N. Y. Filed Nov. 13, 1900. Serial No. 36,261. (No model.)



Claim.—The herein-described means for use in teaching music, comprising a table having on its surface a representation of a musical staff and a series of marginal divisions, formed by lines extending inward from the edge of the top, in combination with a series of pieces, having the form of musical characters, which are adjustable on said table-top.

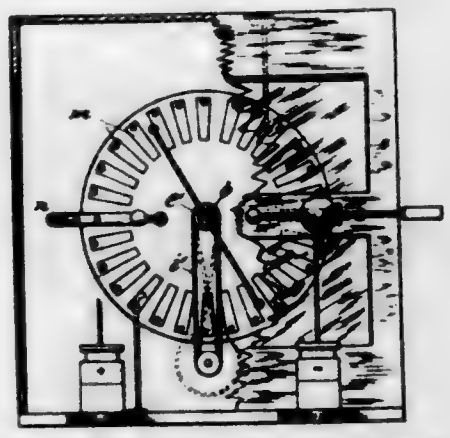
692,787. STATIC ELECTRIC MACHINE. HENRY R. TODD, Meriden, Conn. Filed May 11, 1901. Serial No. 59,512. (No model.)

Claim.—1. In a static induction-generator, the combination with the usual driving, supporting and collecting mechanism, of a generator-plate and a supplemental plate mounted in close relation to and turning with the generator-plate.

2. In a static induction-generator, the combination with the usual driving, supporting and collecting mechanism, of a generator-plate and a supplemental plate mounted on the same hub and rotating with the generator-plate.

3. In static machines, the combination of a pair of plates mounted in close relation to each other and adapted to turn together in the same direction of rotation.

4. In static machines, in combination, a hub, a plate-clamp having one section secured to the hub, a removable section, threaded interengaging hubs on the respective sections and a generator-plate secured to the hub by means of the sectional clamp.



5. In static machines, in combination, a hub, a sectional clamp having one member secured to the hub and the other removable therefrom, interengaging threaded parts on the respective sections of the clamp, a generator-plate adapted to be mounted on the hub-section of the clamp and a supplemental plate mounted on the clamp and in close relation to the generator-plate and secured thereon by means of the clamp.

6. In static machines, in combination, a plural number of plates mounted to turn in pairs in opposite directions each pair made up of a generator-plate and a supplemental plate turning with the generator-plate and located a short distance from it on the same axis.

7. In static machines, in combination with the generator-plates, a collector arranged to embrace the edges of the plates on one side and having two supporting devices, one formed in telescopic sections with a clamp to bind the sections together and the other fitting a socket or guide in a fixed bracket, one of said supports forming the pole-piece.

8. In a static induction-generator the combination with the usual driving, supporting and collecting mechanism, of a generator-plate and a supplemental plate mounted in close relation to and turning with the generator-plate, the inclosing case, a bracket secured thereto, a bent rod with one arm adjustably clamped to the bracket, the rod clamped on the bracket, a telescopic section borne on the outer end of the rod and a brushe electrode supported from the outer end of the rod.

9. In static machines in combination with the generator-plates, a collector arranged to embrace the edges of the plates on one side and having two supporting devices, one consisting of the pole-piece made in the telescopic sections with a clamp device for binding the sections together and the other fitted into a socket or guide in a fixed bracket.

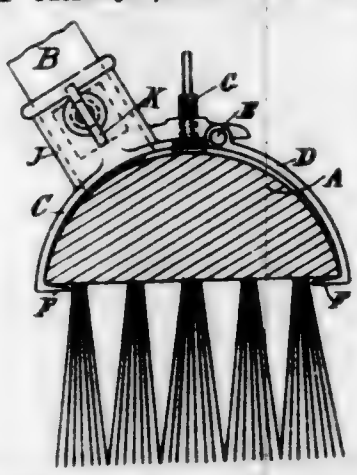
692,788. ACETYLENE-GAS GENERATOR. ALBERT L. TOWNE and EDGAR F. CLOUGH, Fresno, Cal. Filed Apr. 15, 1901. Serial No. 55,882. (No model.)



Claim.—In an acetylene-gas apparatus, the combination of a gasometer, a generating-chamber supported upon the exterior of the water-tank of the gasometer, a combined valved water-inlet and drain-pipe connected to the bottom of the generator, a valved water-supply pipe communicating between said inlet and drain pipe and the interior of the water-tank of the gasometer, a gas-discharge pipe leading from the top of the generator and extending downward and thence projecting into the tank, a conducting-pipe communicating with said discharge-pipe and extending upward therefrom into the bell, a tapered plunger-valve sliding in the upper open end of the conductor-pipe and controlling the flow of gas therefrom to the bell, a safety-pipe having an always open port communicating with the conducting-pipe adjacent to the upper end thereof and extending downward therefrom and submerged in the water of the

tank, a bracket supported by one of said pipes within the tank, a lever pivoted intermediately to said bracket and counterweighted at one end and contacting at its other end with the bell to be operated thereby, the said plunger-valve being pivoted to the weighted end of said lever, substantially as described.

692,739. BRUSH-HANDLE HOLDER. WILLIAM J. TRANTER, Tipton, England. Filed July 29, 1901. Serial No. 70,138. (No model.)



Claim.—A brush-handle holder, comprising a clamping device formed of two sections C and D, means for hinging the said sections together, a claw integral with the free end of each of the sections and extending at right angles thereto, a screw-pin extending through the section C and engaging the block or back of the brush for clamping the sections thereto, means forming a socket integral with the section C and adapted to receive the brush-handle, and a binding-screw extending in the socket for securing the brush-handle therein.

692,740. NAILING IMPLEMENT. SIDNEY VAN AUKEN, Saginaw, Mich. Filed Feb. 13, 1901. Serial No. 47,175. (No model.)

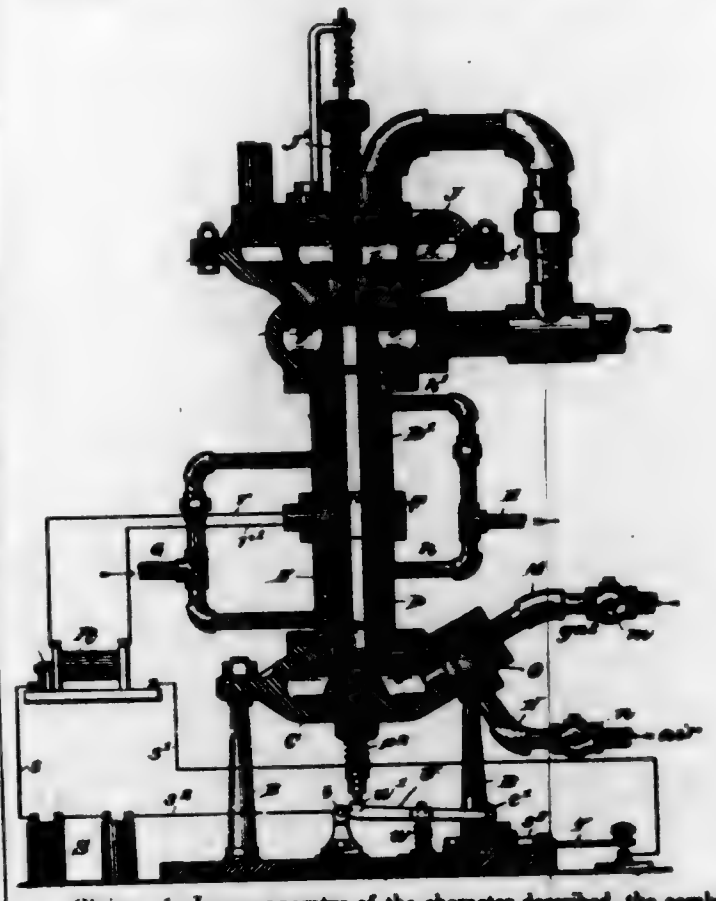


Claim.—1. The combination, in a nailing implement, of a magazine provided with an extension, as described, and having a vertical semicircular groove in the inner side of its wall, said groove forming a portion of the bore for a nail-driver, a casing provided with a groove forming the other portion of the bore, said casing having a horizontal extension, forming the bottom of the magazine, and a vertical extension provided with a nail-receiving channel, a feedway connecting the magazine with the receiving-channel, and a nail-driver, substantially as specified.

2. The combination, in a nailing implement, of a magazine provided with an extension, as described, and having a vertical semicircular groove in the inner side of its wall, said groove forming a portion of the bore for a nail-driver, a casing provided with a groove forming the other portion of the bore, said casing having a horizontal extension, forming the bottom of the magazine, and a vertical extension provided with a nail-receiving channel, a feedway connecting the magazine with said receiving-channel, a gage guide-bar adjustably secured in the feedway, and a nail-driver substantially as specified.

3. In a nailing-machine, the combination with a supply-magazine having a feedway extension, of a nail-driving mechanism arranged within the supply-magazine, the casing of said mechanism being provided with a horizontal extension forming a bottom for said magazine, a nail-receiving channel below the driving mechanism, a feedway situated in the feedway extension and communicating with the magazine and receiving-channel, and a guide-bar vertically adjustable in said feedway extension to guide nails of different lengths.

692,741. AIR-EXHAUSTING APPARATUS. HENRIK F. WALLMAN, Chicago, Ill., assignor to the Wallmann Engine Company, a Corporation of Illinois. Filed July 24, 1899. Serial No. 724,966. (No model.)



Claim.—1. In an apparatus of the character described, the combination with the combustion-cylinder and an igniter therein, of an outwardly-opening discharge-valve closing one end of the cylinder and adapted to be shot open by the force of the explosion, an air-pipe having an annular discharge-opening surrounding the discharge-valve of the cylinder, means for instantly closing the discharge-valve after the exhaust of the products of combustion under the impetus of their own expansion, whereby a vacuum is created in the cylinder, and means for admitting a fresh charge through the agency of the vacuum thus created.

2. In an apparatus of the character described, the combination with the combustion-cylinder and an igniter therein, of an outwardly-opening discharge-valve closing one end of the cylinder and adapted to be shot open by the force of the explosion, an air-pipe having an annular discharge-opening surrounding the discharge-valve of the cylinder, means for instantly closing the discharge-valve after the exhaust of the products of combustion under the impetus of their own expansion, whereby a vacuum is created in the cylinder, means for admitting a fresh charge through the agency of the vacuum thus created, and means for effecting the automatic ignition of said fresh charge simultaneously with the closing of the inlet-valve.

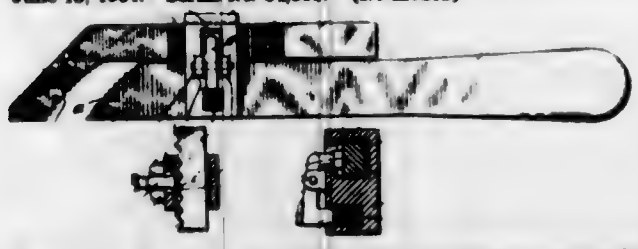
3. In an apparatus for producing a draft of air on the exhaust principle by the action of the expanding products of combustion from previously-ignited charges of explosive mixture, the combination with a combustion-cylinder and means for discharging the expanding products of combustion therefrom against a body of air in an adjacent air-conductor, so as to induce an air-current in the latter, of an electric igniter for the combustion-cylinder, an inlet-valve for said cylinder, and a make-and-break device in the igniter-circuit controlled by the inlet-valve, so that when said valve is open the circuit is broken, and when it is seated the circuit is closed.

4. In an apparatus of the character described, in combination the combustion-cylinder having three coaxially-arranged annular chambers in one of its cylinder-heads, said chambers having constricted annular orifices arranged adjacent to each other, an air-pipe having a branched end

which taps the two outer chambers, an exhaust-pipe communicating with the intermediate chamber, means for admitting and igniting an explosive charge within the cylinder, and means for directing the expanding products of combustion across the annular orifices of the outer chambers into the intermediate chamber, whereby a suction is produced in the air-pipe.

5. In an apparatus of the character described, in combination the combustion-cylinder having three coaxially-arranged annular chambers in one of its cylinder-heads, said chambers having constricted annular orifices arranged adjacent to each other, an air-pipe having a branched end which taps the two outer chambers, an exhaust-pipe communicating with the intermediate chamber, means for admitting and igniting an explosive charge within the cylinder, and a spring-controlled exhaust-valve closing the end of the cylinder and adapted to be opened by the force of the explosion and to direct the expanding products of combustion in the form of an annular jet across the annular orifices of the outer chambers into the intermediate chamber, whereby a suction is produced in the air-pipe.

692,742. WRENCH. PATRICK W. WALSH, Butte, Mont. Filed June 13, 1901. Serial No. 64,396. (No model.)



Claim.—1. A wrench, comprising a lever-bar having a serrated jaw at one end, a guide-box on one edge of the lever-bar having an opening in its side wa", a slide-bar movable in the guide-box and having a jaw at one end, a detent-dog held to rock on the lever-bar and having two limbs one of said limbs being provided with a plurality of teeth and extending through the opening in the side wall of the guide-box to engage a toothed rack on one side of the slide-bar, the other limb extending loosely into a socket in the lever-bar, and a spring held in said socket and engaging the end of said limb within the socket.

2. A wrench, comprising a lever-bar on one end of which is a convexed and toothed jaw, inclined from one edge of the bar toward an opposite edge thereof, a guide-box projected from one edge of the lever-bar and having an opening in one of its side walls, a movable jaw comprising a straight member loosely engaging the guide-box, an angularly-bent jaw at the end of the straight member, said jaw having a concaved toothed face, a toothed rack on the side of the movable jaw opposite the opening in the side of the guide-box, parallel ears projecting from one side of the lever-bar, a detent-dog held to rock between said ears and having two limbs, one of said limbs passing through the opening in the guide-box and provided with a plurality of teeth adapted to engage with the toothed rack, the other limb extending loosely into a socket in the lever-bar, and a spring seated in the socket and pressing on the end of the said limb.

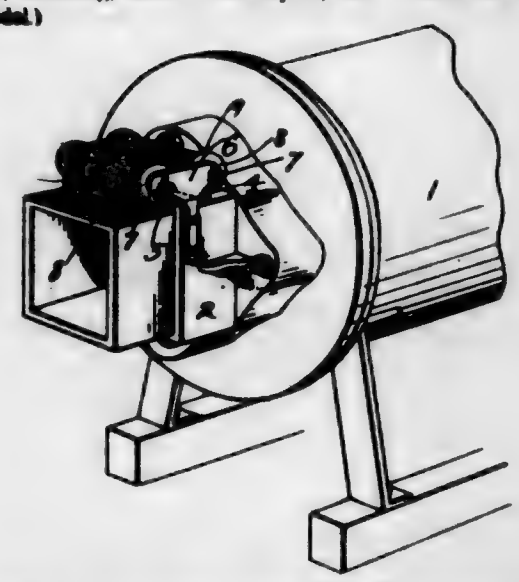
3. A wrench, comprising a lever-bar having a serrated jaw at one end, the body of the bar having a thickened portion adjacent to said end and extending outwardly from one edge of the lever-bar, the extended portion having a longitudinal opening forming a guide-box and having an opening in one side wall communicating with the longitudinal opening, a slidable jaw, the bar of which loosely engages the guide-box and bears upon one edge of the lever-bar, and a detent-dog having a body portion pivoted on the lever-bar at one side and two laterally-bent limbs, one of said limbs being toothed and extending into the opening in the side wall of the guide-box and normally engaging a toothed rack on the side of the slidable jaw, the other limb extending into a socket in the lever-bar and engaging a spring held in said socket, and a thumb-piece on the outer face of the body of the detent-dog at the end connected with the last-mentioned limb, as set forth.

692,743. PROCESS OF OBTAINING EDIBLE VEGETABLE OIL. GEORGE C. WARR, London, and WILLIAM T. WRIGHT, Weybridge, England. Filed Aug. 14, 1901. Serial No. 71,805. (No specimens.)

Claim.—1. The method of securing oil from oil-bearing nuts, which consists in separating the kernels and the nuts from their shells; pulverizing the kernel; submitting the pulverized kernels to a heat of from 100° to 200° Fahrenheit, depending on the age of the nuts, and finally in subjecting the pulverized kernels to pressure to express the oil therefrom.

2. The method of securing oil from oil-bearing nuts, which consists in separating the kernels and the nuts from their shells; pulverizing the kernel; submitting the pulverized kernels to a heat of from 100° to 200° Fahrenheit, depending on the age of the nuts; subjecting the pulverized kernels to pressure to express the oil therefrom, and finally in allowing the oil to run into a suitable menstruum, whereby the grosser impurities in the oil are removed.

692,744. DEVICE FOR ORNAMENTING FACES OF TILE. LEVI WARSTLER, Louisville, Ohio, assignor of one-half to Adam J. Morley, Canalburg, Ohio. Filed Sept. 5, 1901. Serial No. 74,441. (No model.)

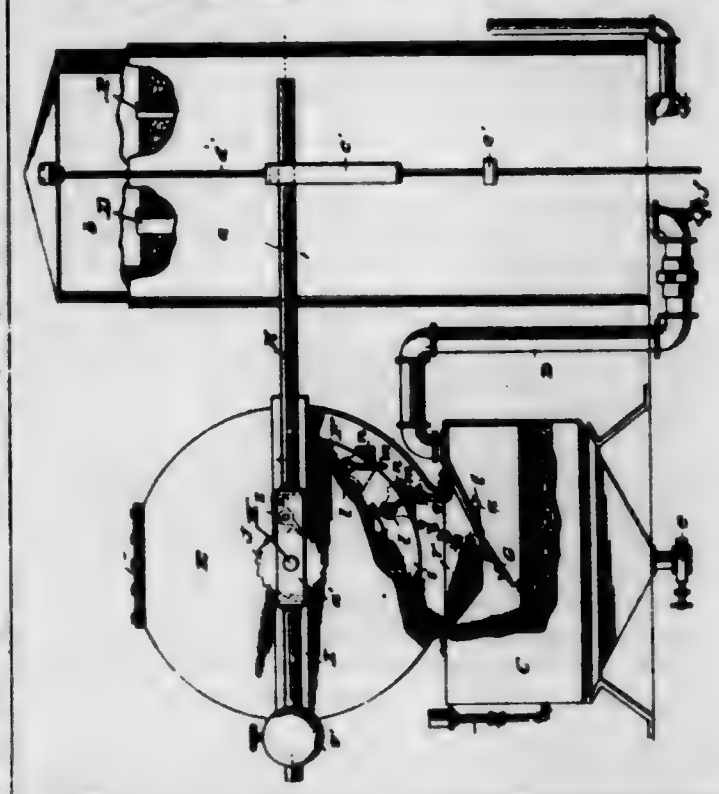


Claim.—1. In a brick or hollow block die, a cross-slot through the shell of said die, an endless belt, or a sheet or a series of sheets entering said slot and passing forward contiguous with the inner face of said shell to the mouth of the die, and a mold or matrix formed on or attached to the free face of said belt, or sheet or series of sheets, substantially as specified.

2. The combination of a die adapted to form tile, said die provided with an opening, and a bar located adjacent to the opening, and said bar provided with a beveled or rounded part, said beveled or rounded part located adjacent to the face of the plastic clay, and a flexible band or strip movable with the flow of clay between the face thereof, and the rounded portion of the bar, substantially as and for the purpose specified.

3. The combination of a die for forming tile, brackets secured thereto, said brackets provided with guide-rollers and a flexible band guided by said guide-rollers, a bar located adjacent to the face of the plastic tile and a band or strip movable with the flow of the plastic clay, between the face thereof and the bar, substantially as and for the purpose specified.

692,745. ACETYLENE-GAS GENERATOR. EMANUEL L. WEIL and THOMAS W. EVANS, New Orleans, La. Filed July 8, 1901. Serial No. 67,494. (No model.)



Claim.—1. In an acetylene-gas machine, the combination of a generator, a casing disposed above and communicating with the generator, a tappet arranged in the casing, a vertically-disposed carbid-wheel mounted in the casing, and comprising upright disks, transverse shafts journaled in said disks and having cranks arranged to be engaged by the tappet, and pendent carbid-buckets carried by the shafts and interposed between the disks, and means for rotating the carbid-wheel.

2. In an acetylene-gas machine, the combination of a gasometer

having a vertically-movable water-bell, a generator connected with the gasometer, a casing disposed above and communicating with the generator, a tappet arranged in the casing, a vertically-disposed carbid-wheel mounted in the casing and comprising a central shaft journaled in the side walls of the casing and extended outwardly beyond one of said side walls, upright disks fixed on the shaft, transverse shafts journaled in said disks, and having cranks arranged to be engaged by the tappet, and pendent, carbid-buckets carried by said transverse shafts and interposed between the disks, a ratchet-disk fixed on the extended portion of the central shaft of the carbid-wheel, a lever fulcrumed on the said extended portion of the central shaft and carrying a pawl arranged to engage the ratchet disk, and means intermediate of the water-bell of the gasometer and the lever for rocking the lever and turning the carbid-wheel when the water-bell descends.

3. The herein-described acetylene-gas machine comprising the generator having a hopper, the counterbalanced trap-door pivotally connected to and adapted to normally close the lower end of the hopper, the casing disposed above the generator and communicating with the same, a tappet arranged in said casing at a point adjacent to the hopper of the generator, the strengthening-frame surrounding the casing and provided in one of its side bars with a cap-nut and in its other side bar with a stuffing-box, a shaft extending through the side walls of the casing and having one of its ends disposed in the cap-nut, and also having a collar at an intermediate point of its length arranged against the gland of the stuffing-box, a screw bearing in the cap-nut and impinging against one end of the shaft, the carbid-wheel mounted on the shaft and having the disks or sides, and carbid-buckets mounted in and adapted to swing between said sides or disks and having cranks arranged to be engaged by the tappet, a gasometer connected with the generator and having a vertically-movable water-bell, a ratchet-disk fixed on the shaft of the carbid-wheel, a lever fulcrumed on the shaft and having a pawl in engagement with the ratchet-disk and also having a counterbalance-weight on one of its arms, and means intermediate of the water-bell of the gasometer and the other arm of the lever whereby said lever will be rocked and the carbid-wheel turned to discharge one of the buckets of its contents incident to downward movement of the water-bell.

4. In an acetylene-gas machine, the combination of a generator, a casing disposed above and communicating with the generator, a tappet arranged in the casing, a strengthening-frame surrounding the casing and provided in one of its side bars with a cap-nut and in its other side bar with a stuffing-box, a shaft extending through the side walls of the casing and having one of its ends disposed in the cap-nut and also having a collar at an intermediate point of its length arranged against the gland of the stuffing-box, a screw bearing in the cap-nut and impinging against one end of the shaft, a carbid-wheel mounted on the shaft within the casing and having buckets arranged to be dumped by the tappet, a gasometer connected with the generator and having a vertically-movable water-bell, and ratchet mechanism operated by said water-bell for rotating the carbid-wheel through the medium of its shaft.

692,746. COMBINED CHARGING AND DISCHARGING DEVICE FOR COKE-OVENS. SAMUEL T. WELLMAN, CHARLES H. WELLMAN, and JOHN W. SEAVER, Cleveland, Ohio. Filed Mar. 15, 1901. Serial No. 51,272. (No model.)

Claim.—1. A coke oven or retort charging machine having a movable coal-carrier whereby the charge of coal is carried into the oven or retort, and a pusher combined with said coal-carrier whereby the charge of coke may be pushed from the oven at the same time that the fresh charge of coal is being introduced into the same.

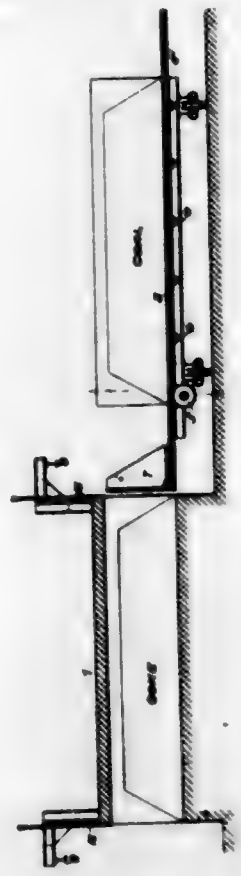
2. A coke oven or retort charging machine having a pusher detachably connected to the coal-carrying element of the machine, whereby the coke can be pushed from the oven while the fresh charge of coal is being carried into the same and the coal-carrier then withdrawn from the oven without bringing the pusher with it.

3. The combination in an oven or retort charging machine, of a coal-receiving box having a longitudinally-movable bottom for supporting the coal and carrying it into the oven, with a pusher movably connected to the forward end of said bottom but having no other connection with the machine.

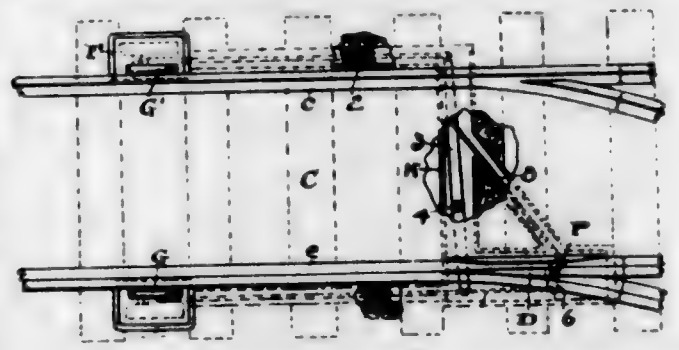
4. The combination in an oven or retort charging machine of a coal-receiving box having a longitudinally-movable bottom for supporting the coal and carrying it into the oven, with a pusher detachably connected to the forward end of said bottom but having no other connection with the machine.

5. The combination of a coke-oven structure, a charging-machine having a coal-carrying element with pusher detachably connected to its forward end, and a trolley-runway and trolley whereby the detached pusher may be conveyed from the delivery end of an oven to the receiving end of the same.

692,746.



692,747. SWITCH-THROWING DEVICE. WILLIAM H. H. WELTON, Akron, Ohio, assignor of one-half to Frank Kirt, Chagrin Falls, Ohio. Filed May 13, 1901. Serial No. 59,930. (No model.)



Claim.—1. In switch-throwing mechanism, a pivoted switch-throwing lever on each side of a car-track and a box in which each lever is pivoted, a switch and an upright pivoted post therefor, a horizontally-transverse bar pivoted between its sides, and link connections between said bar and the said levers and switch-post, substantially as described.

2. In switch-throwing devices, a car-track and a box at each side thereof, a crank-lever pivoted in each box and having one end adapted to project above the track, a switch and a vertical post 7 carrying the switch, a cross-bar 6 fixed to said post, a transverse bar having a pivot 4 between its ends, connecting-rods 2 between said crank-levers and said bar 3, and link 8 connecting one end of bar 3 with bar 6, substantially as described.

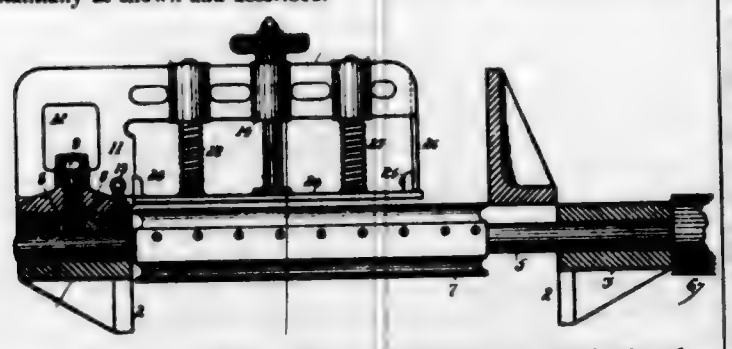
3. A switch for railways and a post supporting the switch, a set of switch-throwing levers G, G' and links and equalizing-bars operatively connecting said levers with said post, 7, in combination with a set of levers 10 and 16 to engage and operate said switch-throwing levers G, G', the lever controlled by cross-rod 9 having arms 12 and 13 extending in opposite directions and links 14 connecting said arms with the levers 15 and 16, whereby one or the other of the switch-throwing levers is depressed according as rod 9 is rotated one way or the other, substantially as described.

692,748. GUARD FOR POWER-DRIVEN WOOD-JOINTERS. ALFRED J. WHITE, Akron, Ohio. Filed Apr. 18, 1901. Serial No. 56,509. (No model.)

Claim.—1. A guard for power-driven wood-jointers consisting of a supporting-arm having an adjusting-rod bearing a shoe to overhang the knife, and guide-rods to steady said shoe and springs to press said shoe downward, substantially as shown and described.

2. A guard for power-driven wood-jointers consisting of a supporting-arm hinged at one end to swing over the knife and away therefrom, having an adjusting-rod bearing a shoe to overhang the knife, and guide-

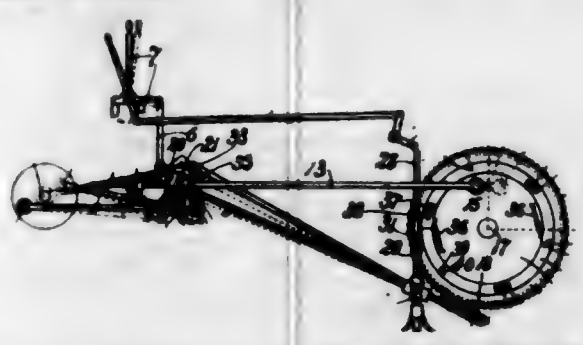
rods to steady said shoe and springs to press said shoe downward, substantially as shown and described.



3. In a guard for power-driven wood-jointers, the combination of an L-shaped frame means for pivoting its shorter arm to the frame of the jointer at one side of the revolving knife, a vertically-slidable shoe depending from said frame having guides at both ends, springs to constantly press down said shoe, a threaded rod to limit the downward motion of said shoe, and means to lock the rotation of said frame on its pivot, substantially as shown and described.

4. The combination in a wood-jointer having an opening surrounding a revoluble knife mounted on a shaft, of an L-shaped frame, means for attaching it to the table of said jointer at one side of said opening, comprising a bolt, a turn-table surrounding said bolt to guide said frame in its horizontal rotation, a lock consisting of a vertical pin arranged to pass through said frame and enter perforations in the top of said jointer, a suspended shoe below the frame of said guard normally pressed downward by springs, a threaded rod to limit the downward motion of said shoe, and guides at the end of said shoe to steady its vertical motion, substantially as shown and described.

692,749. POWER-TRANSMITTER AND SPEED-CONTROLLER. NATHAN WHITE, Pasadena, Cal., assignor to Georgia White, Pasadena, Cal., and Sol Rosseau, Sierraville, Cal. Filed July 17, 1901. Serial No. 68,678. (No model.)



Claim.—1. The combination of a driving-shaft furnished with two oppositely-arranged cranks; two links; connecting-rods connecting the cranks and links, respectively; connecting-rods pivoted coaxially of the driving-shaft and pivoted to one end of the links, respectively; a driven shaft; means for converting reciprocating to rotary motion to rotate the driven shaft; and means operatively connecting the links with such motion-converting means, respectively.

2. The combination of a driving-shaft furnished with two oppositely-arranged cranks; two links; connecting-rods connecting the cranks and links, respectively; connecting-rods pivoted coaxially of the driving-shaft and pivoted to one end of the links, respectively; a driven shaft; and reversible means for converting reciprocating to rotary motion, operatively connecting the links and the driven shaft.

3. The combination of a driving-shaft furnished with two cranks; two links; connecting-rods connecting the cranks and links, respectively; connecting-rods pivoted coaxially of the driving-shaft and pivoted to one end of the links, respectively; two ratchet-driving members; ratchet-driving connecting-rods pivoted to the ratchet-driving members, respectively; pivoted bearing-blocks through which said connecting-rods slide; sliding blocks in the links respectively; and pins connecting the sliding blocks with the ratchet-driving connecting-rods, respectively.

4. The combination of a driving-shaft furnished with two cranks; two links; connecting-rods connecting the cranks and links, respectively; connecting-rods pivoted coaxially of the driving-shaft and pivoted to one end of the links, respectively; two ratchet-driving members; ratchet-driving connecting-rods pivoted to the ratchet-driving members, respectively; pivoted bearing-blocks through which said connecting-rods slide, respectively; sliding blocks in the links, respectively; pins connecting the blocks with the ratchet-driving connecting-rods, respectively; and means for raising and lowering the links.

5. The combination of a driving-shaft furnished with two cranks; two links; a connecting-rod connecting one of the cranks with one of the links; a connecting-rod connecting the other crank with the other link; connecting-rods pivoted coaxially of the driving-shaft and pivoted to one end of the links, respectively; a driven shaft; differential gear for driving said driven shaft; a ratchet-wheel on the outer shell of the differential gear; driving members journaled on the driven shaft and furnished with crank-pins, respectively; means carried by said driving members to drive the shell of the differential gear in one direction; slidingly-pivoted connecting-rods connected with the crank-pins of the driving members, respectively; sliding blocks pivoted to said connecting-rods and mounted in said links; pawls operatively connected with the links, respectively, for driving the ratchet-wheel in the other direction; and means for moving the pawls into and out of position for operating the ratchet-wheel.

6. The combination of a driven shaft; differential gearing for driving said shaft; means for turning the master-wheel of the differential gearing in one direction; a master-wheel-operating member journaled coaxially of said shaft; pawls carried by said master-wheel-operating member for turning the master-wheel in the opposite direction; cranks journaled in said member to engage and release the pawls; and means for operating the cranks.

7. The combination of a driven shaft; differential gearing for driving said shaft; means for turning the master-wheel of the differential gearing in one direction; a member journaled coaxially of said shaft; pawls carried by said member for turning the master-wheel in the opposite direction; cranks journaled in said member to engage and release the pawls; a ring mounted on said member and operatively connected with the cranks to turn the same; means for partially rotating the ratchet-operating member back and forth; and means for turning the ring to operate the crank.

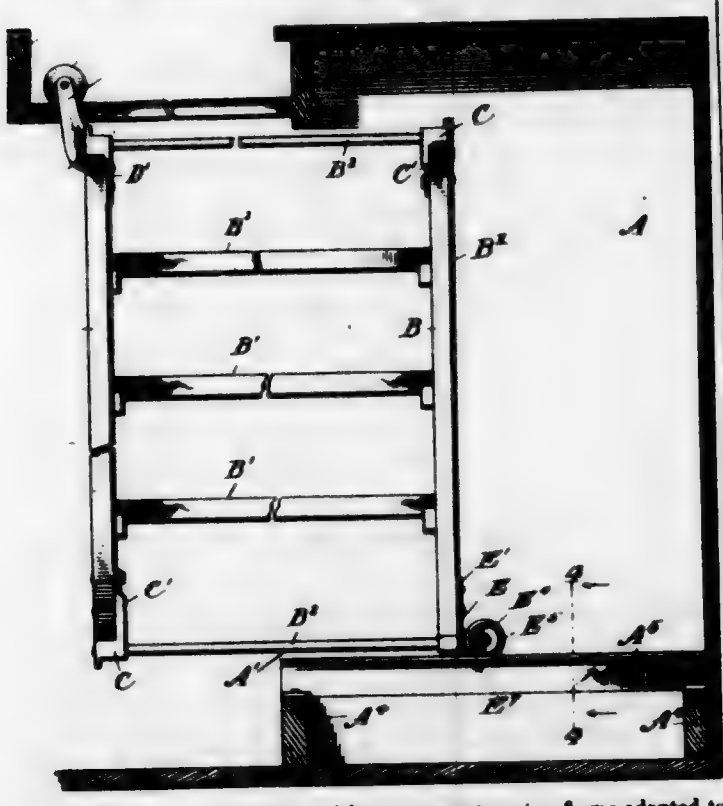
8. The combination of a driving-shaft furnished with two cranks; two links; a connecting-rod connecting one of said cranks with one of said links; a connecting-rod connecting the other of said cranks with the other of said links; a connecting-rod pivoted coaxially of the driving-shaft and pivoted to one end of one of the links; a connecting-rod pivoted coaxially of the driving-shaft and pivoted to the other of said links; a driven shaft; differential gearing for driving the driven shaft; a pawl-operating member; a connecting-rod connecting one of the links with said pawl-operating member; pawls carried by the pawl-operating member for turning the shell of the differential gearing in one direction; another pawl-operating member; a connecting-rod connecting the other link with said other pawl-operating member; pawls carried by the pawl-operating member to turn the shell of the differential gearing in one direction; cranks in one of said pawl-operating members to hold its pawls out of operative position; cranks in the other of said pawl-operating members for holding the pawls of said member out of operative position; means on one of said pawl-operating members to operate its cranks; means on the other pawl-operating member to operate its cranks; means for operating said crank-operating means; means connected with one of the links for turning the differential shell in the other direction; means connected with the other link for turning the differential shell in said other direction; and means for throwing said differential shell-turning means into and out of operative position.

9. The combination of two oppositely-arranged cranks; means for simultaneously turning said cranks; two links; means for simultaneously raising and lowering said links; connecting-rods pivoted respectively to said links and coaxially of said cranks; a driven shaft; a ratchet member for driving the driven shaft; two pawl-carrying members for driving the shaft-driving member in one direction; means connecting one of the links with one of said pawl-carrying members to partially rotate the same back and forth; means connecting the other link with the other pawl-carrying member to partially rotate said other pawl-carrying member back and forth; pawls on said pawl-carrying members respectively; means for holding the pawls of one pawl-carrying member out of operative position; means for operating said pawl-holding means; a pawl connected with one of said links and carried by said means for operating said pawl-holding means and arranged to drive the ratchet member in the opposite direction; another pawl connected with the other of said links and carried by said means for operating said pawl-holding means and arranged to drive the ratchet member in said other direction; said last-mentioned pawls being in operative position when the first-mentioned pawls are out of operative position, and vice versa.

10. A motion-transmitting device comprising two crank-operated links; a member to be turned connected with said links by two sets of mechanisms for operating in one and the other direction, alternately, the said member to be turned; said sets of mechanisms; and means for simultaneously throwing one of said sets of mechanisms into and the other set out of opertion, and vice versa.

11. A motion-transmitting device comprising two crank-operated links; a member to be turned; means operatively connecting one of said links with said member to turn the same in one direction; means operatively connecting the other of said links with said member to turn the same in said one direction; and means for raising and lowering said links.

692,750. DRIER. THOMAS S. WILLIS, Albany, N. Y. Filed Aug. 28, 1901. Serial No. 73,634. (No model.)



Claim.—1. A drier comprising a compartment, a frame adapted to travel therein, a support for the front end of said frame arranged wholly outside of said compartment, and a support for the rear end of said frame arranged within said compartment and below the frame; substantially as specified.

2. A drier comprising a compartment, a frame adapted to travel therein, a support for the front part of said frame arranged wholly outside of said compartment, a support for the rear part of said frame constituting its only bearing within the compartment and comprising a track arranged within said compartment and below said frame, and gearing operatively connecting the rear part of said frame with said track; substantially as specified.

3. A drier-frame comprising end walls, end-wall-connecting bars, and frame-supporting devices comprising a single suspending-roller having one upper bearing-point at one corner of the frame and a frame-carrying support having more than one bearing-point at the diagonally opposite corner; substantially as specified.

4. A drier comprising a compartment, a frame adapted to travel therein, a support for the front part of said frame, arranged wholly outside of said compartment, and a support for the rear part of said frame comprising a track located within said compartment and below said frame, and rotatable gearing having opposite points of contact with said track; substantially as specified.

5. A drier comprising a compartment, a frame adapted to travel therein, a support for said frame at its upper end at the outside of said compartment, oppositely-located bearing-wheels having flanges and adapted to ride upon rails at the lower portion of said compartment, and guard-rollers beneath said wheels adapted to engage the under surface of the heads of said rails; substantially as specified.

6. A drier comprising a compartment, a frame adapted to travel therein, a support for the front part of said frame at the outside of said compartment, gearing adapted to ride upon rails at the lower portion of said compartment, and means adapted to engage the under surface of the heads of said rails to keep said gearing upon said track; substantially as specified.

7. A drier comprising a compartment, a frame adapted to travel therein, a support for the upper front part of said frame arranged outside of said compartment, oppositely-located bearing-wheels having flanges connected with the lower rear wall of said frame and tracks for said wheels at the lower portion of said compartment and below said frame; substantially as specified.

8. A drier comprising a compartment, rails located at the lower portion thereof, a supporting-track at the upper portion of said compartment and outside of the same, a frame provided at its front upper corner with a roller-bearing adapted to travel upon said upper track, and bearing-wheels carried by the lower rear corner of said frame and adapted to travel along tracks within said compartment; substantially as specified.

9. A drier comprising a compartment, tracks located at the lower portion thereof, a supporting-track at the upper portion of said compartment and outside of the same, a frame provided with a roller-bearing adapted to travel upon said upper track, and oppositely-disposed bearing-wheels having flanges adapted to engage the edges of said lower tracks to prevent lateral movement of the frame; substantially as specified.

10. A drier comprising a compartment, flanged rails located at the lower portion thereof, a supporting-rail at the upper portion of said compartment and outside of the same, a frame provided with a roller-bearing adapted to travel upon said upper rail, oppositely-disposed bearing-wheels having flanges upon their inner sides adapted to engage the edges of the flange of said lower rails to prevent lateral movement of the frame, and rotatable rollers beneath each of said bearing-wheels adapted to engage an under surface of the rail; substantially as specified.

11. A roller-bearing for a drier-frame comprising a securing-plate provided with a frame-seat on one face, lugs extending from the opposite face thereof, a shaft journaled in said lugs and carrying flanged bearing-wheels, and means opposite said wheels for preventing vertical movement of the wheels upon the tracks; substantially as specified.

12. A roller-bearing for a drier-frame comprising a securing-plate, lugs extending from the opposite ends thereof, a shaft journaled in said lugs and carrying at opposite ends bearing-wheels having flanges upon their faces next to said lugs, and an additional shaft journaled in said lugs beneath said wheel-shaft and carrying at opposite ends guard-rollers; substantially as specified.

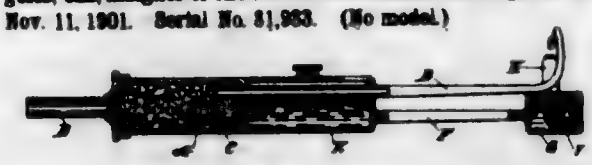
692,751. CAPO TASTO. EDWIN H. WITCHELL, Chicago, Ill., assignor of one-half to Charles W. Parrington, Duluth, Minn. Filed Oct. 18, 1901. Serial No. 78,770. (No model.)



Claim.—1. In a capo tasto and in combination a bar provided with a central opening, a shouldered pin with a part one side the shoulder fitting loosely in the opening and a counterpart projecting from the bar and provided with engaging means, a finger-piece on the end of the pin adapted to hold it and rotate it in the opening of the bar, and a hollow stud provided with an exterior thread and interior engaging means suited to cooperate with the engaging means of the pin as and for the purposes specified.

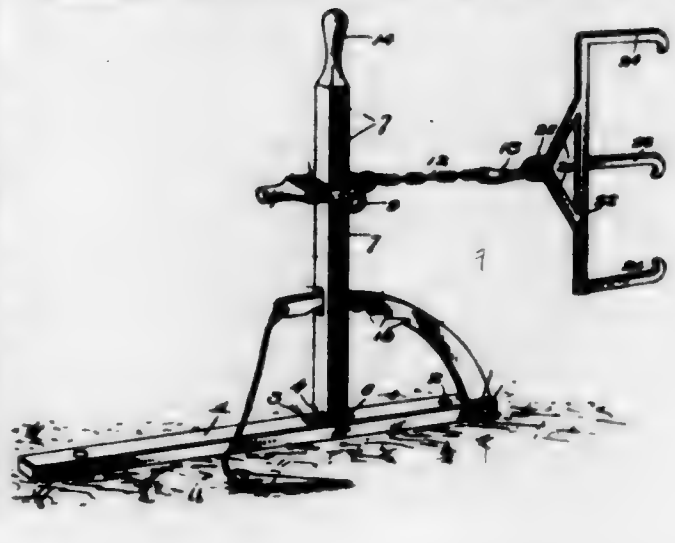
2. The combination with the neck of the instrument of a series of hollow studs set in the face along the central line and a bar-piece provided with a finger-piece, and projecting pin having means to engage the hollow of the studs substantially as specified.

692,752. BLOWPIPE-TORCH. CLAY G. WOODWARDER, Los Angeles, Cal., assignor of one-half to R. C. Hamlin, Los Angeles, Cal. Filed Nov. 11, 1901. Serial No. 81,983. (No model.)



Claim.—The herein-described vapor-generating chamber A, having waste C therein; air-passage B connected to the rear end, and blowpipe-tube D connected to the front of said chamber; reservoir E attached to the front end of the generating-chamber; tube F connecting said reservoir with lamp G; lamp G, having burner-tube H terminating below the end of the blowpipe-tube; and wick I in said lamp.

692,753. WIRE-STRETCHER. SAMUEL H. WRIGHT, Bear Grove township, Ill. Filed July 29, 1901. Serial No. 70,142. (No model.)



Claim.—1. A portable wire-stretcher comprising a base designed to be arranged upon the ground and provided with means for detachably anchoring it, an upright lever fulcrumed at its lower end on the base and arranged to swing longitudinally of a fence for stretching the wires thereof, an inclined ratchet-bar secured at its lower end to the base and engaging and holding the lever at the desired adjustment, and a slide mounted on the lever and operating at a point above the ratchet and provided with means for engaging a fence-wire, substantially as described.

2. A wire-stretcher comprising a horizontal base provided with depending projections adapted to be embedded in the ground, an upright lever fulcrumed at its lower end on the base and provided with means for engaging a fence-wire, an inclined ratchet-bar pivoted at its lower end to the base and engaging the lever, and a stake connected with the ratchet-bar and adapted to be driven into the ground, substantially as described.

3. A wire-stretcher comprising a base, an upright stretching-lever, a ratchet-bar for holding the lever, a slide arranged on the lever and provided with an antifriction-roller, a wire-engaging device carried by the slide, and means for securing the slide to the lever, substantially as described.

4. A wire-stretcher comprising a base provided between its ends with an opening and having one end bifurcated, a lever pivoted in the opening, a curved ratchet-bar pivoted in the bifurcation and engaging the lever, and a slide adapted to be moved upward and downward on the lever and provided with means for engaging fence-wire, substantially as described.

692,754. **REVERSING-CLUTCH.** CHARLES R. ALLEN, Middletown, Conn. Filed May 23, 1901. Serial No. 61,574. (No model.)



Claim.—1. A clutch comprising a male member, a female member, a cage, and power-transmitting means held in operative position by the cage and coacting with parts of the two members.

2. A clutch comprising a male member, a female member, a cage, and friction-rollers carried by the cage and coacting with parts of the two members.

3. A clutch comprising a male member, a female member, a cage provided with slots, and friction-rollers mounted in the slots.

4. A clutch comprising a male member, a female member, a cage provided with longitudinal slots, and friction-rollers mounted in the slots and bearing at their ends against the terminals of the slots.

5. A clutch comprising a male member, a female member, a cage provided with longitudinal slots having inset terminals, and tapered friction-rollers mounted in the slots and having rounded ends to engage the said terminals.

6. A clutch comprising a male member having an external sleeve, a female member housed within the sleeve, a cage, and friction-rollers carried by the cage and interposed between the sleeve and the female member.

7. A clutch comprising a male member having a tapered axial portion and an external sleeve, a female member housed within the sleeve and having a part to engage the said tapered portion, a cage, and friction-rollers carried by the cage and interposed between the sleeve and the female member.

8. A clutch comprising a male member, a female member, a cage in which the female member revolves and provided with longitudinal slots, and friction-rollers working in the slots.

9. A clutch comprising a male member having an external sleeve, a female member housed within the sleeve, a cage provided with longitudinal slots, and friction-rollers mounted in the slots and projecting at each side beyond the cage, whereby to engage either with the external taper of the female member or the internal taper of the sleeve.

10. A clutch comprising a male member having a tapered axial portion and an external sleeve, a female member housed between the sleeve and the axial portion, a fixed cage in which the female member revolves, and friction-rollers carried by the cage and disposed between the female member and the sleeve.

11. A clutch comprising a male and a female member, each connected with a section of a shaft, the male member having an axial portion to house the ends of both shaft-sections, whereby to hold them in alinement.

12. A clutch comprising a female member fixed to a shaft, a male member shiftable to coact with one part of the female member to cause direct motion, friction-rollers to coact with another part of the female member and with a part of the male member to cause reverse motion, and means for holding and guiding the rollers with relation to the parts with which they coact, the coacting surfaces of the different parts of the clutch being all pitched at an angle to the longitudinal axis of rotation and on lines that converge to a common center.

13. A clutch comprising a movable male member having an internal and an external taper, a fixed female member having an internal and an external taper, the internal taper of the female member being normally engaged by the external taper of the male member, and power-transmitting means interposed between the external taper of the female member and the internal taper of the male member.

14. A clutch comprising a movable male member having an internal and an external taper, a fixed female member having an internal and external taper, and friction-rollers interposed between the external taper of the female member and the internal taper of the male member.

15. A clutch comprising a movable male member having an internal and an external taper, a fixed female member having an internal and external taper, and tapered friction-rollers interposed between the external taper of the female member and the internal taper of the male member.

16. A clutch comprising a movable male member having an internal and an external taper, a fixed female member having an internal and external taper, and tapered friction-rollers interposed between the external taper of the female member and the internal taper of the male member, the rollers being free to rotate on their longitudinal axes, and means to hold the rollers against displacement with relation to the parts with which they coact.

17. A clutch comprising a movable male member having an internal and an external taper, a fixed female member having an internal and external taper, and tapered friction-rollers interposed between the external taper of the female member and the internal taper of the male member, the rollers being free to rotate on their longitudinal axes, and means to hold the rollers against displacement with relation to the parts with which they coact, the coacting surfaces of the parts of the clutch being all pitched at an angle to the longitudinal axis of rotation and on lines that converge to a common center.

18. A clutch comprising a female member, a male member, a cage, and friction-rollers carried by the cage.

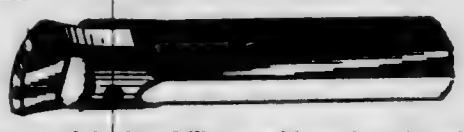
19. A clutch comprising a female member, a male member, a cage on which the female member revolves, tapered friction-rollers carried by the cage, and a reversing-lever coacting with the male member to move the same to and from the female member.

20. A clutch comprising a male member, a female member, a cage carried by the female member, said cage being provided with longitudinal slots having at each end a hemispherical bearing, and tapered friction-rollers having their ends rounded to engage the bearings.

21. A clutch comprising a female member, a male member, a cage having longitudinal slots, friction-rollers mounted in the slots, and a roller-holding ring at one end of the cage, the ring and cage being provided with means to hold the rollers against displacement.

22. A clutch comprising a female member, a male member, a cage having longitudinal slots, tapered friction-rollers mounted in the slots, and a roller-holding ring at one end of the cage, the cage and the ring having depressions in which the ends of the friction-rollers work.

692,755. **INTERCHANGEABLE-BIT ROCK-DRILL.** HENRY AYLMER, Sherbrooke, Canada, assignor to Aylmer Drill Manufacturing Company, Montreal, Canada. Filed Feb. 16, 1901. Serial No. 47,692. (No model.)

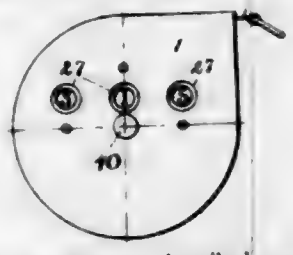


Claim.—A rock-boring drill comprising a bar of steel designed to have power applied directly on a line with the axis and provided with a straight longitudinal slot cut at one end thereof and holes cut transversely in the lugs forming each side of the slot, a flat steel bit designed to fit loosely in the slot at the end of the bar and protrude from the end thereof and having an orifice slightly out of alinement with the holes in the lugs and a tapered pin having the outer side parallel and designed to lie snugly against the outer side of the holes in the lugs and the inner side inclined, so that it contacts and wedges against the inner side of the hole in the bit and thereby when driven home forces the bit firmly on its base, as and for the purpose specified.

692,756. **MEASURING DEVICE.** FRANK S. BALDWIN, Newark, N. J. Filed Nov. 26, 1901. Serial No. 83,740. (No model.)

Claim.—1. A device of the character described, comprising a reg-

istering mechanism including a units and a tens gear, the said gears situated in different planes, and a rotatable and laterally-movable actuating-gear adapted to be brought into engagement respectively and independently with the said gears, substantially as described.

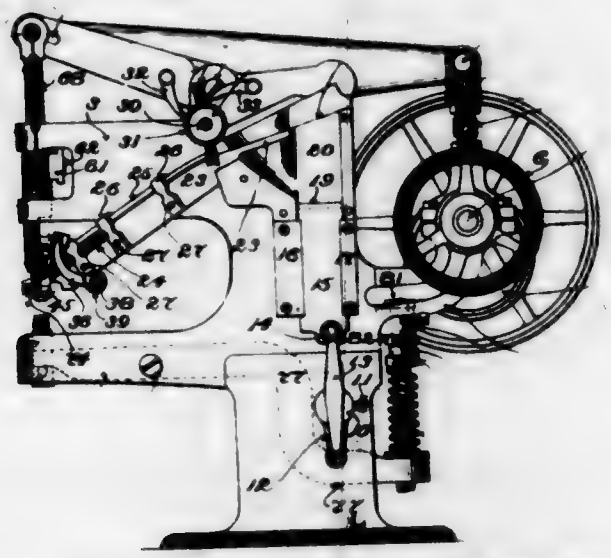


2. A device of the character described, comprising a registering mechanism including a units and a tens gear located in different planes, the tens-gear being cut away for the purpose described, and a rotatable and laterally-movable gear normally in contact with the units-gear, and adapted to be moved into engagement with the tens-gear, substantially as described.

3. A device of the character described, comprising a rotatable and laterally-movable actuating-gear, a registering mechanism including a units, a tens and a hundreds gear located concentrically around the actuating-gear and adapted to be engaged thereby, the units-gear located in a different plane from the plane in which the tens and hundreds gears are located, the tens and hundreds gears being partially cut out for the purpose described, means for normally holding the actuating-gear normally in engagement with the units-gear, and means for moving the actuating-gear laterally in engagement with the tens and hundreds gears, substantially as described.

4. A device of the character described, including a rotatable and slidable shaft carrying an actuating-gear, the shaft projecting beyond the outer face of the case, for the purpose described, a registering mechanism including a units and a tens gear, the said gears located in different planes, yielding means for normally holding the actuating-gear in engagement with the units-gear, but permitting the actuating-gear to be carried into engagement with the tens-gear, substantially as described.

692,757. **STAPLING-MACHINE.** EVERETT A. BARBER, Quincy, Mass., assignor to the Standard Rivet Company, Boston, Mass., a Corporation of New Hampshire. Filed May 9, 1900. Serial No. 16,051. (No model.)



Claim.—1. In a staple-setting machine, in combination, a raceway for staples, a driver, a throat-piece constructed to retain a staple in its passage-way until forced therethrough by the driver and movable toward the work under pressure of the driver against said staple, and detents operatively connected with the said throat-piece and caused thereby to act alternately in feeding the staples successively to the throat-piece.

2. In a staple-setting machine, in combination, a driver, a raceway for staples, a detent to engage with a staple on said raceway adjacent the delivery end of the latter, a throat-piece constructed to retain a staple in its passage-way and movable toward the work under pressure of the driver against said staple, a second detent, operated by the said throat-piece, and serving to hold the staple after its release from the detent first mentioned, means to raise the throat-piece as the driver ascends, and means to operate the detent first mentioned from the throat-piece.

3. In a staple-setting machine, in combination, a driver, a raceway for staples, a detent to engage with a staple adjacent the driver, a throat-piece movable toward the work under pressure of the driver against a staple therein and provided with an elastically-held portion to retard the movement of the staple through its passage-way, and also provided with means to hold the staple last released from the detent until the descent of the throat-piece and then free the same, the said throat-piece acting in the ascent thereof to operate the detent, and means to raise the throat-piece as the driver ascends.

4. In a staple-setting machine, in combination, a driver, a raceway for staples, a holding-clamp to press against a staple adjacent the driver, a throat-piece movable toward the work under pressure of the driver against a staple therein, means to raise the said throat-piece as the driver ascends, and means to operate the clamp from the throat-piece, substantially as described.

5. In a staple-setting machine, in combination, a driver, a raceway leading toward the driving-point in the machine, a clamp to engage a staple at the delivery end of said raceway adjacent the driver, and a throat-piece movable in unison with the driver and provided with means to raise the clamp in the ascent of the driver to thereby release the staple held by the clamp, and also with means to hold the released staple until the driver and throat-piece descend in unison in the driving of the preceding staple, substantially as described.

6. In a staple-setting machine, in combination, a driver, a raceway for staples, a detent to engage with a staple adjacent the delivery end of the raceway, a throat-piece movable toward the work under the pressure of the driver against a staple therein and provided with a detent to arrest the staple just released by the detent first mentioned until after the driving of the previous staple, means to raise the said throat-piece as the driver ascends, and means to operate the first detent from the throat-piece, substantially as described.

7. In a staple-setting machine, in combination, a driver, a raceway for staples, a clamp to engage with a staple adjacent the delivery end of the raceway, a throat-piece movable toward the work under pressure of the drive against a staple therein and provided with a detent to arrest the staple just released from the clamp until after the driving of the previous staple, means to raise the said throat-piece as the driver ascends, and means to operate the clamp from the throat-piece, substantially as described.

8. In a staple-setting machine, in combination, a driver, a raceway for staples, the spring-actuated clamp to press against a staple adjacent the driver and provided with a projection to prevent displacement of the staple from the raceway after being released, the throat-piece provided with an elastically-held portion to retard the movement of a staple through its passage-way, movable toward the work under pressure of the driver against such staple, and provided with a detent to hold the staple last released from the clamp until the descent of the throat-piece, the said throat-piece acting in the ascent thereof to raise the clamp, and means to raise the said throat-piece as the driver ascends, substantially as described.

9. In a staple-setting machine, the combination of a driver, a raceway for staples, a detent adjacent to the driver and provided with a projection extending into proximity to the driver to prevent displacement of the staple from the raceway after being released, and connections between the driver and detent for operating them in unison.

10. In a staple setting machine, in combination a raceway shaped to be straddled by staples, a fixed receptacle or hopper having therein a forwardly-inclined surface in continuation of the upper portion of the raceway, a lifter-plate moving at the side of said surface and having a transversely-beveled upper end to lift from the bottom of the fixed hopper a portion of the staples therein and discharge the uplifted staples laterally onto said surface, and means to operate the said lifter-plate, substantially as described.

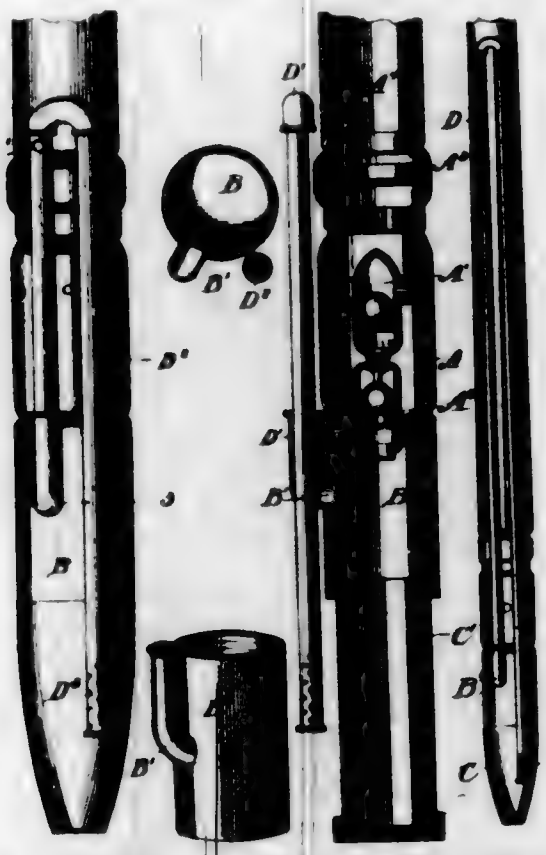
11. In a staple-setting machine, in combination, a raceway shaped to be straddled by staples, a fixed receptacle or hopper having therein a forwardly-inclined shoulder 22 in continuation of the upper portion of the raceway, a lifter-plate sliding vertically in said hopper and having a transversely-beveled upper end to lift from the bottom of the fixed hopper a portion of the staples therein and discharge the thus-uplifted staples laterally onto said shoulder, and means to operate the said lifter-plate, substantially as described.

692,758. **OIL-SAND FLOODER.** AARON E. BARNHART, Millerstown, Pa., assignor to Oscar Z. Barnhart, Millerstown, Pa. Filed May 20, 1901. Serial No. 61,112. (No model.)

Claim.—1. In an oil-sand flooder, the combination with a suction-pipe and working barrel having a foot-valve, of a coupling secured at the lower end thereof to form a receiving-chamber, an anchor-section at the lower end of said coupling, an inlet communicating with said coupling between its ends, an intake-pipe connected to said inlet and extending above the level of said foot-valve, and a section-leg to said intake extending below said coupling; substantially as specified.

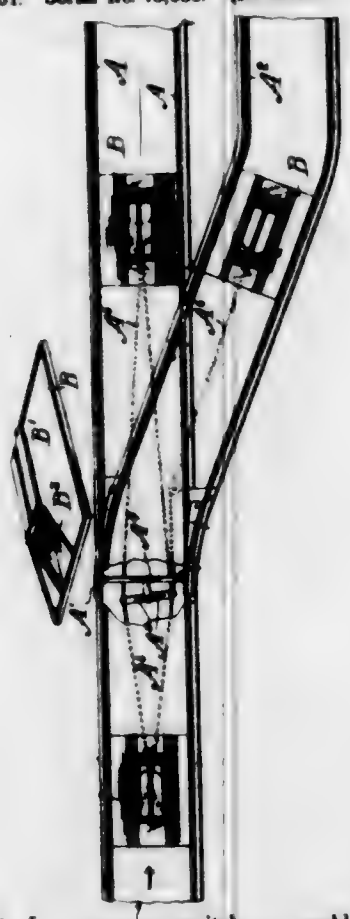
2. A coupling for a working barrel and anchor-section of an oil-sand flooder comprising an open cylindrical section, threaded at opposite ends, and an intake connection extending parallel with the outer periphery of

said coupling toward one end thereof and communicating at its opposite end with the coupling between its ends; substantially as specified.



3. In an oil-sand floeder, the combination with a working barrel containing a sprayer device and having a threaded lower end, a coupling threaded to said end and to an anchor-section, an inlet communicating with said coupling between its ends, an intake-pipe connected to said inlet and having an opening therein above said sprayer device, and a suction-leg to said intake extending below the point of connection with said coupling; substantially as specified.

692,759. TRAMWAY SWITCH. LESTER H. RAYNE, Washington, Pa., assignor of one-fourth to Thomas B. Crouch, Bower Hill, Pa. Filed Aug. 29, 1901. Serial No. 73,661. (No model.)


A
A
A²
B
B
B'
B²
B²
B'
A
A
A

15. A switch-operating mechanism comprising a vertically-adjustable plow mounted upon a truck of a moving member, and means carried by said member for adjusting said plow in a vertical plane; substantially as specified.

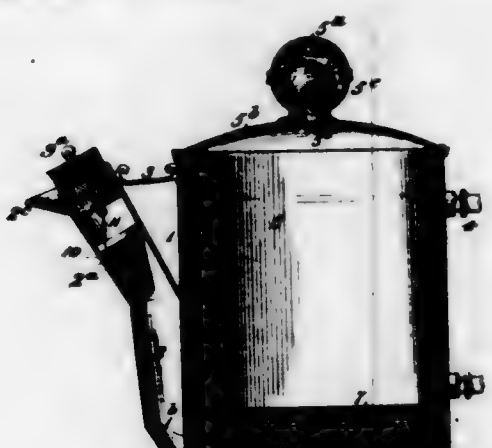
692,760. PROCESS OF MAKING HYDROSULFITES. MAX BAZLEN, Ludwigshafen, Germany, assignor to the Badische Anilin & Soda Fabrik, Ludwigshafen, Germany, a Corporation. Filed Dec. 20, 1899. Serial No. 740,986. (No specimens.)

Claim.—1. The process for the manufacture of hydrosulfites which consists in adding directly sulfurous acid as such to a commercially-pure bisulfite and reducing the mixture so obtained.

2. The process for the production of hydrosulfites consisting in adding to the bisulfite used a quantity of sulfurous acid equal to one-half the sulfurous acid otherwise contained in the said bisulfite and reducing this mixture with zinc-dust.

3. The process for the production of hydrosulfites consisting in adding to the bisulfite used a quantity of sulfurous acid equal to one-half the sulfurous acid otherwise contained in the said bisulfite and reducing this mixture with zinc-dust and treating the resulting liquid with milk of lime.

692,761. COFFEE-POT. JOHN E. BICKEL, Harrisburg, Pa. Filed Aug. 30, 1901. Serial No. 73,782. (No model.)



Claim.—1. In a pot of the character described, the combination with the body 1, having a pouring-opening near the bottom, and a spout leading therefrom, and the cup-shaped strainer 7, removably supported on the bottom of the pot; of the lid or cover having a pendent member 5, adapted to snugly fit within the pot, steam-tight, and having its lower edge oppose the upper edge of the strainer, for the purposes specified.

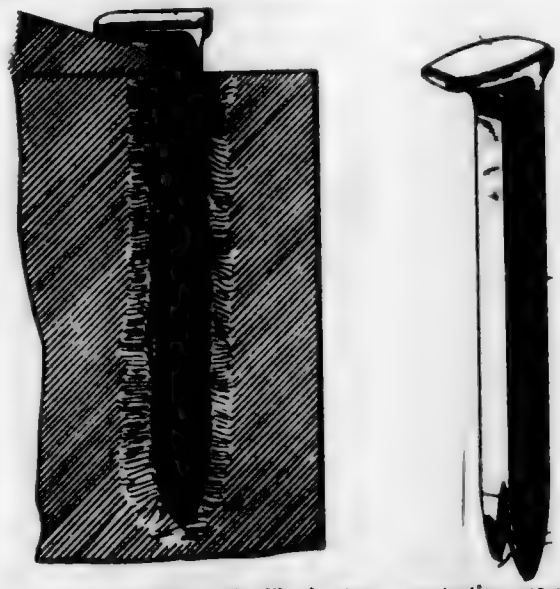
2. A coffee-pot, consisting of a cylindrical body, a removable inverted-cone-shaped strainer adapted to seat on the pot-bottom, and having its upper or widest portion of a diameter to engage the pot sides, said pot having a pouring-opening below the upper edge of the strainer and a spout joined therewith, a closure member consisting of a lid or cover, and a pendent portion adapted to detachably fit within the pot, having a length to extend down in close proximity to the strainer-top, and having a part made to closely fit the inside of the pot to form a steam-tight joint, the aforesaid lid having a vent-opening, and an imperforated vertical extension surrounding the vent, a perforated member adapted to connect with the imperforated extension, and a gravity-valve held in said imperforated extension, all being arranged substantially as shown and for the purposes described.

3. In a coffee-pot of the character described, the combination with the pot-body, a strainer held therein, and a pouring-spout, said spout having a hook member; of the supplemental conical strainer, adapted to detachably seat in the spout, a spout-stopper, and a flexible connection joining the conical strainer and spout-stopper, all being arranged substantially as shown and described.

692,762. BLUE SULFONATED DYE. RENÉ BOHN, Mannheim, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany, a Corporation. Filed Nov. 29, 1901. Serial No. 84,127. (No specimens.)

Claim.—The new blue sulfonated coloring-matter such as can be obtained by fusing a beta-amido-anthraquinone body with caustic potash and causing a sulfo group to remain attached to the molecule, which dissolves in concentrated sulfuric acid (containing about ninety-six per cent. of H_2SO_4) with an olive-green color, and in fuming sulfuric acid (containing about twenty-three per cent. of free SO_3) with a brown-red color, which in its reduced form directly dyes cotton blue, and in its oxidized form dyes wool green-blue.

692,763. SPIKE. SMITH H. BRACEY, Chicago, Ill. Filed Mar. 16, 1901. Serial No. 51,553. (No model.)

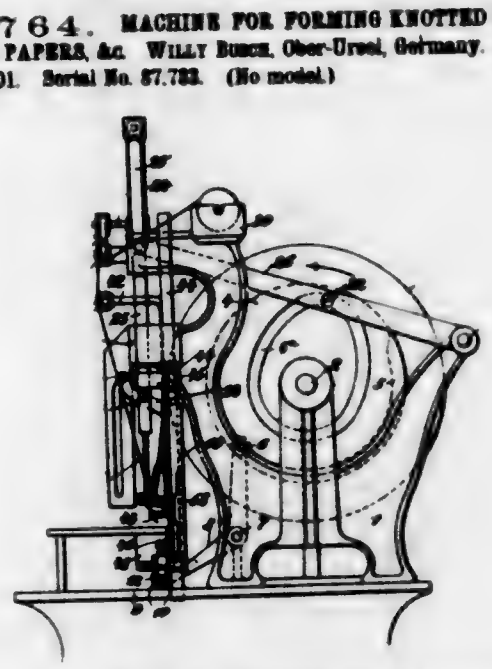


Claim.—1. A spike or the like having a penetrating extremity provided with two converging chisel-faces and two diagonally-opposed supplemental faces, set at acute angles to said two chisel-faces respectively, and forming with them cutting edges, which slant toward the lower or extreme penetrating end or ends of the spike, and which, if the spike is driven in normal position into a wooden tie or the like, will run at oblique angles to the longitudinal direction of the grain or fiber of the wood.

2. A spike or the like having a penetrating extremity provided with cutting edges of acute angle, said cutting edges slanting from approximately opposite directions toward the lower or extreme penetrating end or ends of the spike, and running, if the spike is driven in normal position into a wooden tie or the like at oblique angles to the longitudinal direction of the grain or fiber of the wood.

3. A spike or the like having a penetrating extremity provided with two cutting edges of acute angle, said cutting edges slanting from approximately diagonally opposite directions toward the lower or extreme penetrating end or ends of the spike, and running, if the spike is driven in normal position into a wooden tie or the like, at oblique angles to the longitudinal direction of the grain or fiber of the wood.

692,764. MACHINE FOR FORMING KNOTTED LOOPS ON BAGS, PAPERS, &c. WILLY BUSCH, Ober-Ursel, Germany. Filed Dec. 30, 1901. Serial No. 87,733. (No model.)



Claim.—A machine of the character described comprising a work-table, a guide having a slot, a needle-bar, a thread-holder pivoted to the needle-bar having a pin working in the slot, a spring angle-lever pivoted to the holder for grasping the thread, a fixed bar, for operating the angle-lever, a pin on which the thread is laid by the holder, thread-grippers located beneath the work-table to which the thread is carried by the holder, a knotter located beneath the work-table, cutting-blades located beneath the knotter, and means for operating the said needle-bar, the said thread-grippers, the said knotter and the said cutting-blade.

692,765. FIRE-ALARM APPARATUS. LOUDOUN CAMPBELL, Washington, D. C., assignor of one-half to Robert J. Thomas, Alexandria, Va. Filed June 10, 1901. Serial No. 63,906. (No model.)

Claim.—1. In a fire-alarm box, the combination with a door and a fastening device therefor, of a knob for operating said fastening device, a locking device arranged to lock said knob against turning, and an alarm constructed and arranged to be operated by said locking device when the latter is moved to unlock the knob.



2. In a fire-alarm box, the combination with a door, and a fastening device adapted to lock and unlock the door and arranged to cause delay in opening the same, of a locking device arranged to lock and unlock said fastening device, and an alarm constructed and arranged to be operated by said locking device when the latter is moved to release the fastening device.

3. In a fire-alarm box, the combination with a door and a fastening device therefor, of a knob for operating said fastening device, a lever arranged to lock said knob against turning, and an alarm constructed and arranged to be operated by said lever when the latter is moved to unlock the knob.

4. In a fire-alarm box, the combination with the door, of a lock for the door, a device for operating the lock, and means for locking said device and for operating an alarm when said device is released, said lock-operating device being so constructed as to delay the opening of the door for a suitable period of time after said device is released.

5. In a fire-alarm box, the combination with the door, of a lock for the door, a device for operating the lock and mechanism for locking said device and for operating sounding and illuminating alarms when said device is released, said lock-operating device being so constructed as to delay the opening of the door for a suitable period of time after said mechanism is released.

6. The combination with a fire-alarm box and a door therefor, of a fastening device for said door, a knob and threaded connections between said knob and said fastening device whereby several turns of the knob are required to release the fastening device, an alarm and mechanism for operating the alarm constructed and arranged to prevent the turning of the knob until said alarm mechanism is moved to operate the alarm.

7. In a fire-alarm box, the combination with a door, and an alarm, of a lock for the door, a fastening device including a knob requiring several turns to unlock the door, and a device for locking the knob, said knob-locking device being arranged to operate the alarm when moved to unlock the knob.

8. In a fire-alarm box, the combination with the door, a knob, and a fastening device requiring several turns of the knob to unlock the door, of a device for locking the knob, and means operated by said knob-locking device for illuminating the vicinity of the box when said device is moved to unlock the knob.

9. In a fire-alarm box, the combination with the door, a knob, and a fastening device requiring several turns of the knob to unlock the door, of a device for locking the knob, and means operated by said knob-locking device for illuminating the vicinity of the box and sounding an alarm when said device is operated to unlock the knob.

10. In a fire-alarm box, the combination with the door, a knob, and a fastening device requiring several turns of the knob to unlock the door, of a device for locking the knob, and one or more spring-pressed rods arranged to be released by said knob-locking device and operate an alarm when said device is moved to unlock the knob.

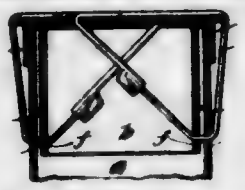
11. In a fire-alarm box, the combination with the door, a knob, and a fastening device requiring several turns of the knob to unlock the door, of a device for locking the knob, one or more spring-pressed rods arranged to be released by said knob-locking device when the latter is moved to release the knob, and means for locking said rods to prevent their movement when the box is being inspected.

12. In a fire-alarm box, the combination with the door, a knob, and a fastening device requiring several turns of the knob to unlock the door, of a device for locking the knob, one or more spring-pressed rods arranged to be released by said knob-locking device when the latter is moved to release the knob, a slide adjacent to said rods arranged to reset the springs, and means for locking said slide in two positions.

13. In a fire-alarm box, the combination with the door, a knob, and a fastening device requiring several turns of the knob to unlock it, of a lever arranged to lock and release the knob, and cartridge-exploding devices arranged to be released by the movement of said lever.

14. In a fire-alarm box, the combination with the door, and a fastening device therefor, of a lever arranged to lock said fastening device, and a spring-pressed rod arranged to be released by said lever and operate an alarm when the lever is moved to release the fastening device.

692,766. NON-REFILLABLE BOTTLE. CAROLINE CARR, Sunderland, England. Filed May 21, 1901. Serial No. 61,213. (No model.)



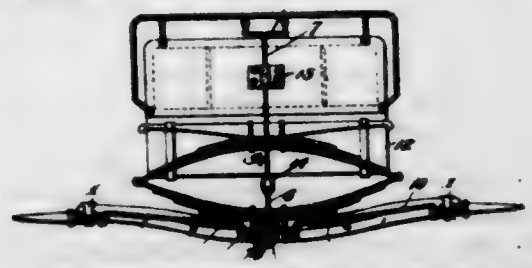
Claim.—1. The combination with a receptacle having a main and a reëntrant wall at its mouth and perforations through both of them, of a closure for the receptacle and metallic locking means passing through the closure and the perforations in the main and reëntrant walls and a device on the sealing means to prevent withdrawal thereof, substantially as set forth.

2. The combination with a receptacle having a main and a reëntrant wall at its mouth and perforations in both of them, of a closure having a depending flange and a resilient metallic locking device organized to spring into locked position within the reëntrant portion at the mouth of the receptacle to prevent withdrawal, and pass through said closure and the perforations in said walls, substantially as set forth.

3. The combination with a receptacle having a main and a reëntrant wall at its mouth and perforations in both of them, of a closure having a depending flange and a resilient metallic locking device having a recurved spring end and adapted to pass through the perforations in said walls and flange in one direction and be locked within the reëntrant portion at the mouth of the receptacle, substantially as set forth.

4. The combination with a receptacle having a main and a reëntrant wall at its mouth and perforations in both of them, of a closure having a depending flange exterior of the mouth of the receptacle, and a locking device of spring metal having a central bend to form a bail and ends passing through said walls and flange and adapted to interlock within the reëntrant portion at the mouth of the receptacle, substantially as described.

692,767. COMBINED HORSE-DETACHER AND BRAKE FOR VEHICLES. JOHN CHIAL, Lakepark, Minn. Filed Oct. 7, 1901. Serial No. 77,883. (No model.)



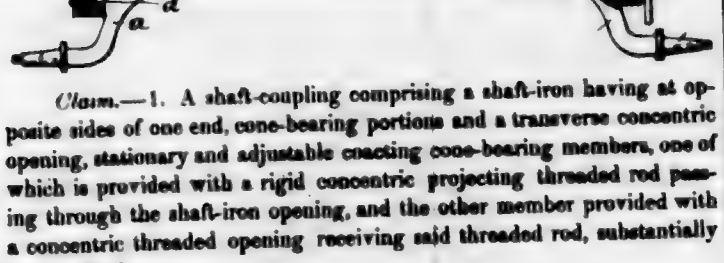
Claim.—1. In a vehicle, the combination of a movable operating element, a bowed spring-bar attached to a support and having brake-shoes at its ends, supports for the end portions of said bent spring-bar, whereby said end portions thereof are adapted for longitudinal movement and a connection between said operating element and said arched or bent spring-bar, substantially as described.

2. In a vehicle, the combination of a movable operating element, releasing devices for the tongue or thills, connected thereto and operated

thereby, a flexible bowed brake-bar, supports and guides for the ends thereof to permit longitudinal movement of the said ends of said brake-bar, brake-shoes operated by the longitudinal movement of the ends of said brake-bar, and a connection between the said brake-bar and the said movable operating element, substantially as described.

3. In a vehicle, the combination of a movable operating element, releasing devices for the tongue or thills, connected thereto and operated thereby, a flexible bowed brake-bar, supports and guides for the end portions thereof to permit longitudinal movement of the said end portions, brake-shoes operated by the longitudinal movement of said end portions of said bowed brake-bar, a spring to normally bow said bar and draw the ends thereof inwardly and a connection between the said bowed brake-bar and the said movable operating element, to straighten said bent or bowed bar and thereby extend the ends thereof to apply the brakes, when said operating element is moved, substantially as described.

692,768. SHAFT-COUPLING. CHARLES COMSTOCK, Norwalk, Conn. Filed May 20, 1901. Serial No. 61,154. (No model.)



Claim.—1. A shaft-coupling comprising a shaft-iron having at opposite sides of one end, cone-bearing portions and a transverse concentric opening, stationary and adjustable coacting cone-bearing members, one of which is provided with a rigid concentric projecting threaded rod passing through the shaft-iron opening, and the other member provided with a concentric threaded opening receiving said threaded rod, substantially as described.

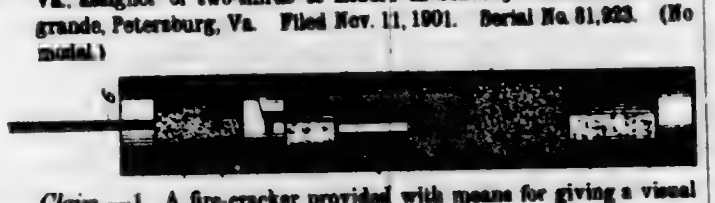
2. A shaft-coupling comprising an axle having curved ends, projections extending from the outer side of the curve and carrying a cone-bearing, and a shaft-eye having cone-shaped recesses adapted to coact with the cone-bearing and means for holding said eye on said cone, substantially as described.

3. A shaft-coupling comprising an axle having downwardly-curved ends, outwardly-projecting arms carrying at the inner portion a rigid and an outwardly-projecting screw-threaded rod, an adjustable cone upon the screw-threaded end of the rod, and an eye having cone-shaped recesses adapted to receive the said rigid and adjustable cone.

4. A shaft-coupling comprising an axle having downwardly-curved ends, the downwardly-curved ends provided with outwardly-extending arms, the outwardly-extending arms having their inner portions provided with a bearing-cone, the bearing-cone provided with an outwardly-extending screw-threaded rod, an adjustable cone upon the screw-threaded rod, the adjustable cone carrying a handle, and an eye having cone-shaped recesses adapted to receive the said rigid and adjustable cones.

5. A shaft-coupling comprising a stationary cone having an outwardly-extending screw-threaded rod, and an adjustable cone adapted to receive said rod and having a transverse slit adjacent its outer end, substantially as described.

692,769. FIRE-CRACKER. ANTONIO DELGRANDE, Petersburg, Va., assignor of two-thirds to Robert H. Seabury and Nicholas Delgrande, Petersburg, Va. Filed Nov. 11, 1901. Serial No. 81,923. (No model.)



Claim.—1. A fire-cracker provided with means for giving a visual signal, of a pronounced character, and other than that produced from the smoke and flame resulting from combustion, in advance of the explosion of the cracker.

2. A fire-cracker containing a material adapted upon ignition to give a visual signal of a pronounced character, said material constituting a means of igniting a charge of powder.

3. A fire-cracker provided with means for giving consecutively a visual and an audible signal in advance of the explosion of the cracker.

4. The combination with a fire-cracker, of a holder containing a "whistling compound," and a charge of illuminating material.

5. A fire-cracker containing a charge of illuminating material adapted upon ignition to give a visual signal in advance of the explosion of the cracker.

6. A fire-cracker containing a charge of powder, a charge of illuminating material separated therefrom by a non-combustible substance, and a fuse connecting the illuminating material and the powder.

7. A fire-cracker containing a charge of powder, a charge of illuminating material separated therefrom by a non-combustible substance, and a holder embedded in the said substance and containing a whistling compound.

8. A fire-cracker containing a charge of powder, a charge of illuminating material separated therefrom by a non-combustible substance, and a holder embedded in the said substance and in the powder and containing a whistling compound, the illuminating material operating to ignite the said compound, and the latter to ignite the powder.

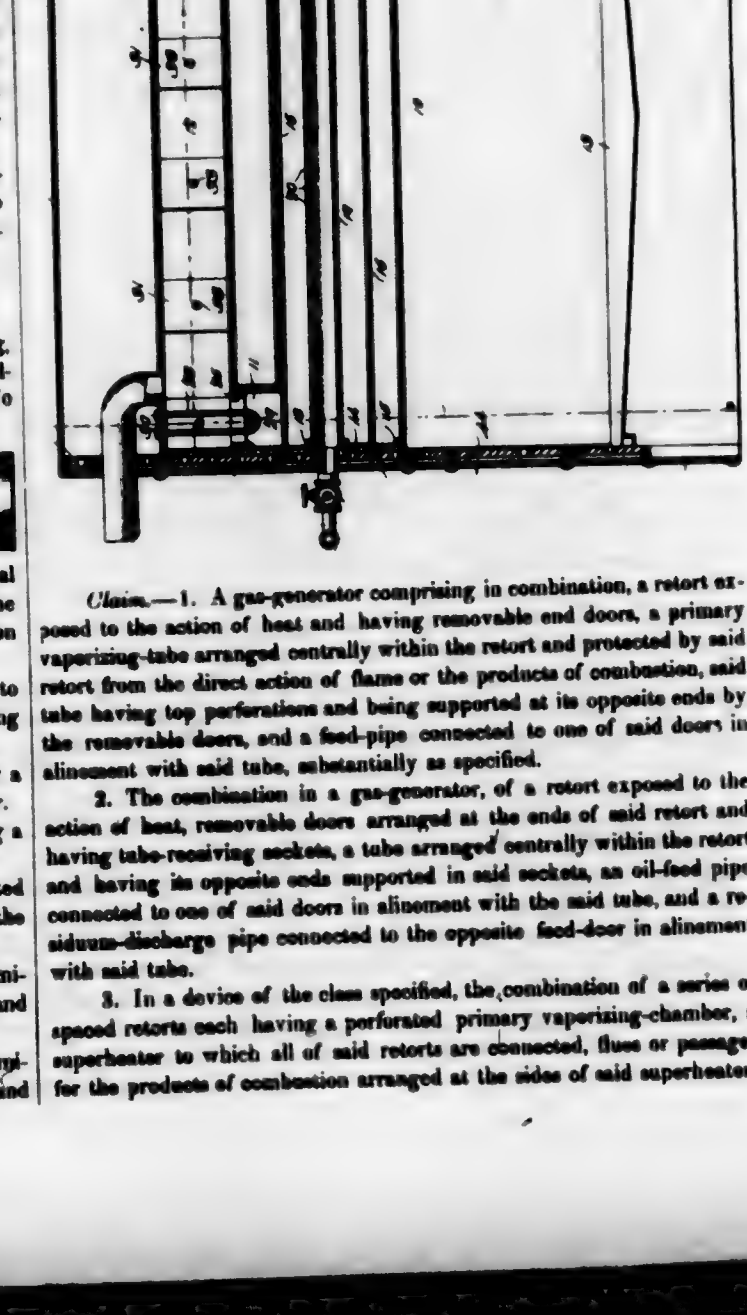
692,770. PYROTECHNIC COMPOUND. ANTONIO DELGRANDE, Petersburg, Va., assignor of two-thirds to Robert H. Seabury and Nicholas Delgrande, Petersburg, Va. Filed Nov. 15, 1901. Serial No. 82,427. (No specimens.)

Claim.—1. A composition for pyrotechnic use obtained by incorporating picric acid, saltpeter, carbonate of magnesia, dissolved glue, and powdered gunpowder with water, and removing the water, the ingredients to be substantially in the proportions specified.

2. A composition for pyrotechnic use obtained by incorporating picric acid, saltpeter, carbonate of magnesia, dissolved glue, a salt of copper and powdered gunpowder with water, and removing the water, the ingredients to be substantially in the proportions specified.

3. A composition for pyrotechnic use obtained by incorporating twenty parts of picric acid, seventy parts of saltpeter, five parts of carbonate of magnesia, five parts of dissolved glue, three parts of paris-green and four parts of powdered gunpowder with a sufficient quantity of boiling water to reduce the ingredients to a pasty mass, and then removing the water.

692,771. APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS. ROBERT DEMPSTER, Marietta, Ohio, assignor to Mary Dempster, Henry H. Burns, and Norman Morrow, Marietta, Ohio. Filed Sept. 16, 1901. Serial No. 75,530. (No model.)



Claim.—1. A gas-generator comprising in combination, a retort exposed to the action of heat and having removable end doors, a primary vaporizing-tube arranged centrally within the retort and protected by said retort from the direct action of flame or the products of combustion, said tube having top perforations and being supported at its opposite ends by the removable doors, and a feed-pipe connected to one of said doors in alinement with said tube, substantially as specified.

2. The combination in a gas-generator, of a retort exposed to the action of heat, removable doors arranged at the ends of said retort and having tube-receiving sockets, a tube arranged centrally within the retort and having its opposite ends supported in said sockets, an oil-feed pipe connected to one of said doors in alinement with the said tube, and a residuum-discharge pipe connected to the opposite feed-door in alinement with said tube.

3. In a device of the class specified, the combination of a series of spaced retorts each having a perforated primary vaporizing-chamber, a superheater to which all of said retorts are connected, flues or passages for the products of combustion arranged at the sides of said superheater.

and a combustion-chamber in which the retorts and superheater are arranged.

4. In a device of the class specified, a combustion-chamber having suitable side and end walls, and a fuel-grate, a series of retorts situated within said combustion-chamber and spaced for the passage of the products of combustion, a superheater forming the crown-sheet for the combustion-chamber and communicating with all of the retorts, there being in the sides of said superheater flues or passages for the products of combustion.

5. In a device of the class specified, the combination with a combustion-chamber, of a series of retorts, a superheater communicating with said retorts, there being in the opposite side of said superheater a series of flues or passages for the products of combustion, the intervening portions of the superheater between said flues or passages forming chambers having removable end covers or doors.

6. In a device of the class specified, the combination with a combustion-chamber, of a series of retorts, a superheater forming a crown-sheet for the combustion-chamber, a series of side passages arranged in the superheater, removable doors or covers closing said passages, and securing-bolts extending transversely of the superheater and through said covers or doors on opposite sides of the same.

7. In a device of the class specified, the combination with a retort, of a sectional casing comprising a series of perforated sheets, the perforations of each sheet being countersunk from the inner side, and a sheet-metal outer casing surrounding the perforated casing and separated therefrom by an air-space.

692,772. **NON-REFILLABLE BOTTLE.** EDWARD T. EVANS, Upper Clapton, England. Filed July 1, 1901. Serial No. 66,761. (No model.)



Claim.—1. In a non-refillable bottle, the combination with the bottle-neck thereof, of a sleeve suitably mounted therein, a pair of valve-seats secured within said sleeve and each provided with an outlet-passage, valves for closing said passage, a disk for closing the top of said sleeve, an outlet-tube secured in said disk, a vent-tube extending through said disks and valve-seats, valve-seats arranged in said vent-tube and provided with inlet-passages, and valves for closing said inlet-passages.

2. In a non-refillable bottle, the combination with the bottle-neck thereof, of valve-seats suitably mounted therein and provided with outlet-passages, valves for closing said passages, an L-shaped outlet-tube arranged in the bottle-neck and suitably secured therewith, a vent-tube extending through said bottle-neck and provided with a contracted entrance end, and valves arranged in said vent-tube for closing the same.

3. In a non-refillable bottle, the combination with the bottle-neck thereof, of valve-seats suitably secured therein and provided with eccentrically-arranged outlet-passages, valves for closing said passages, an L-shaped outlet-tube arranged in the bottle-neck, having a contracted entrance end and suitably secured to the bottle-neck, a vent-tube extending through said bottle-neck and provided with a contracted entrance end, and valves arranged in said vent-tube for closing the same.

4. In a non-refillable bottle, the combination with the bottle-neck, of a non-refilling device suitably secured therein and consisting of a sleeve, a pair of valve-seats having eccentrically-arranged outlet-passages, a disk for closing said sleeve, a pair of conical valves for closing said outlet-passages, an L-shaped outlet-tube secured to said disk and provided with a contracted entrance end, a vent-tube extending through the bottle-neck and formed with a contracted entrance end, valve-seats arranged in said vent-tube and provided with inlet-passages, and ball-valves for closing said inlet-passages.

5. In a non-refillable bottle, the combination with the bottle-neck having discharge-passages and valves for closing them, of a disk closing said neck, and an L-shaped discharge-tube and a valved vent-tube projecting through said disk, the inner entrance end of the discharge-tube and the outer entrance end of the valved vent-tube being contracted, substantially as described.

6. In a non-refillable bottle, the combination with the neck thereof, having eccentrically-arranged outlet-passages and means for closing said passages, of an L-shaped outlet-tube suitably connected to the bottle-neck, an air-tube extending through the bottle-neck and provided with a contracted entrance end, and a pair of valves arranged in said vent-tube for closing the same.

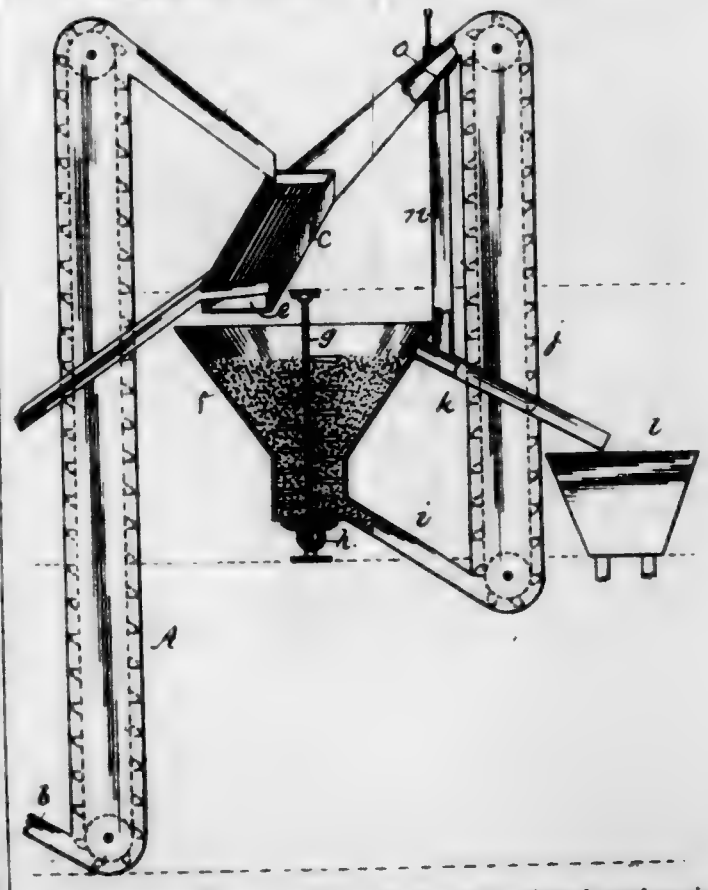
7. In combination, a non-refillable bottle, a pair of valve-seats arranged in the bottle-neck and provided with discharge-passages, valves for closing said passages, an outlet-tube connected with the bottle-neck and provided with a contracted lower end, a vent-tube extending through the valve-seats and provided with a contracted upper end, and ball-valves arranged in said tube for closing the same.

692,773. **ZITHER.** CARL R. FIEDLER, Klingenthal, Germany. Filed Sept. 6, 1901. Serial No. 74,582. (No model.)



Claim.—A zither comprising a hollow double-faced sounding-board having an opening therethrough, strings passing across said opening on each face of the board, a scale on the bottom wall of the opening indicating the strings by the corresponding notes, adjustable transverse bridges on the outside of the board for supporting the strings, and a bridge within the board at right angles with and supporting the outer bridges, substantially as described.

692,774. **CLAY-MIXER.** DAVID APPLEBY, Jr., Wilmington, Del. Filed May 24, 1901. Serial No. 61,671. (No model.)



Claim.—1. The combination with the mixing-bin and rotating mixer therein, of the feeder of the ground clay thereto, the screen intermediate of said feeder and bin, and means for discharging the clay from the mixing-bin and repeatedly returning, accumulating and remixing it therein, and an overflow-discharge for the excess.

2. The combination with the mixing-bin and rotating mixer therein, of the feeder of the ground clay thereto, the screen intermediate of said feeder and bin, mixing-spout receiving the clay from the screen, means for discharging the clay from the mixing-bin and repeatedly returning and accumulating and remixing it therein, also means for mixing the returns and the incoming new clay from the screen prior to entering the bin, means for discharging the clay from the mixing-bin and repeatedly returning, accumulating and remixing it therein and an overflow-discharge for the excess.

3. The combination with the mixing-bin, screen, feeder, and means for returning the clay to the bin, of the by-pass for emptying the said bin.

4. The combination with the mixing-bin and rotating mixer therein, of the feeder of the ground clay thereto, means for discharging the clay from the mixing-bin and repeatedly returning, accumulating and remixing it therein and an overflow-discharge for the excess.

692,775. CELLULOSE LAKES AND PROCESS OF MAKING SAME. MAXIMILIAN C. L. ALTHAUSEN, Billwärder-an-der-Bille, near Hamburg, Germany, assignor to Fabrik Chemischer Präparate von Dr. Richard Sthamer, Hamburg, Germany, a Firm. Original application filed Nov. 2, 1900, Serial No. 35,286. Divided and this application filed July 30, 1901. Serial No. 70,260. (No specimens.)

Claim.—1. The process of producing coloring-matter from acetyl derivatives of hydrocellulose, which consists in combining coloring-matter with a solution of an acetyl derivative of hydrocellulose and separating the resultant product therefrom, for the purpose set forth.

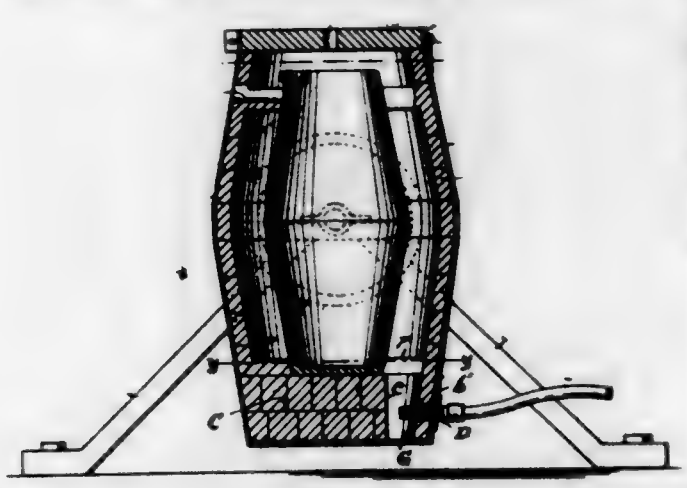
2. The process of producing coloring-matter by means of acetyl derivates of hydrocellulose, which consists in combining a suitable coloring-matter with a solution of an acetyl derivative of hydrocellulose and in separating the coloring-paste from this mixture by salting out with a concentrated solution of common salt, substantially as and for the purpose set forth.

3. The process of producing coloring-matter by means of acetyl derivates of hydrocellulose, which consists in combining a suitable coloring-matter with a solution of an acetyl derivate of hydrocellulose, diluting this mixture and separating the coloring-matter therefrom, substantially as and for the purpose set forth.

4. The process of producing coloring-matter by means of acetyl derivates of hydrocellulose, which consists in combining a suitable coloring-matter with a solution of an acetyl derivate of hydrocellulose, diluting this mixture and salting out the coloring-matter by means of pulverized common salt, substantially as and for the purpose set forth.

5. As a new article of manufacture, the herein-described coloring-paste, which consists of an acetyl derivate of hydrocellulose combined with a suitable coloring-matter, said coloring matter or paste being absolutely insoluble in water after drying and being substantially transparent when applied in a thin layer, substantially as set forth.

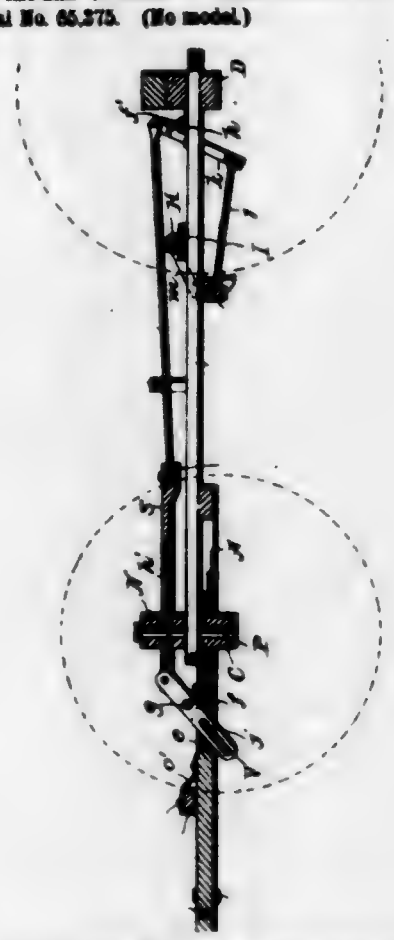
692,776. SMELTING-FURNACE. HARVEY E. AUBAN, Reading, Pa., assignor to the Harvey Burner and Furnace Company, Reading, Pa. Filed June 5, 1901. Serial No. 63,195. (No model.)



Claim.—1. A rotatably-supported smelting-furnace, formed of a casing, a crucible-support in the bottom thereof and of a less diameter than the casing, a combustion-chamber formed by one side of the support, and the casing and a hydrocarbon-burner located therein, a crucible resting upon the support, a series of openly-spaced fire-bricks projecting inwardly from the casing, surrounding the crucible and engaging the same only near the top and bottom, to prevent displacement when the casing is tilted, a groove in the upper face of one of the fire-brick and extending through the casing, and a cover for closing the furnace, substantially as and for the purposes set forth.

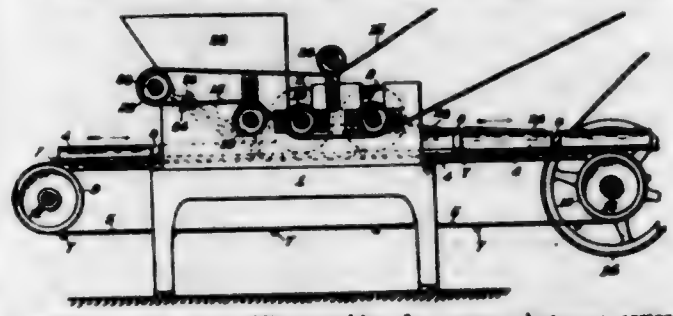
2. A rotatably-mounted smelting-furnace, formed of a casing, a crucible-support therein, a combustion-chamber formed by one face of the support and the casing, and a hydrocarbon-burner therein, a crucible resting upon the support, said crucible being of a larger diameter near its center than at its top and bottom, a series of inwardly-projecting fire-bricks entirely surrounding and engaging the crucible only near its top and bottom, to hold the same rigidly in position and prevent displacement when tilted, openings between the fire-brick, an outlet for the molten metal and means for closing the furnace, substantially as described.

692,777. VEHICLE-BRAKE. GARDNER L. BLAIR, Redwine, Ky., assignor of one-half to Daniel B. Hall, Redwine, Ky. Filed June 20, 1901. Serial No. 65,375. (No model.)



Claim.—An automatically-acting vehicle-brake, consisting of the horizontal bracing rock-shaft having bearings in and connecting the branches of the front bounds forward of the front axle, and carrying a lever, the horizontal bracing rock-shaft, having bearings in and connecting the branches of the rear bounds, and carrying a lever slotted to embrace the reach, the connecting-rod for the upper arms of said levers having a pivotal joint between the front and rear bounds, the forward section of such rod having a slot therein, the king-bolt engaging such slot, and also connecting the reach with the front bolster, the slidable draft-tongue embraced by the branches of the front bounds, and having the step-shoulders for engagement therewith, and connected to the lower arm of the lever of the forward rock-shaft, the pendent brake-beam having a connection with the lower arm of the lever of the rear rock-shaft, and the bracing-strap connecting the branches of the rear bounds, and limiting lateral movement of the rear section of said connecting-rod, substantially as specified.

692,778. MACHINE FOR MOLDING PLASTIC MATERIALS. WILLIAM BORROWE and JOHN LOMLEY, San Francisco, Cal.; said Borrowe assignor to Mary Elizabeth Borrowe, Sausalito, Cal. Filed June 1, 1900. Renewed July 24, 1901. Serial No. 68,581. (No model.)



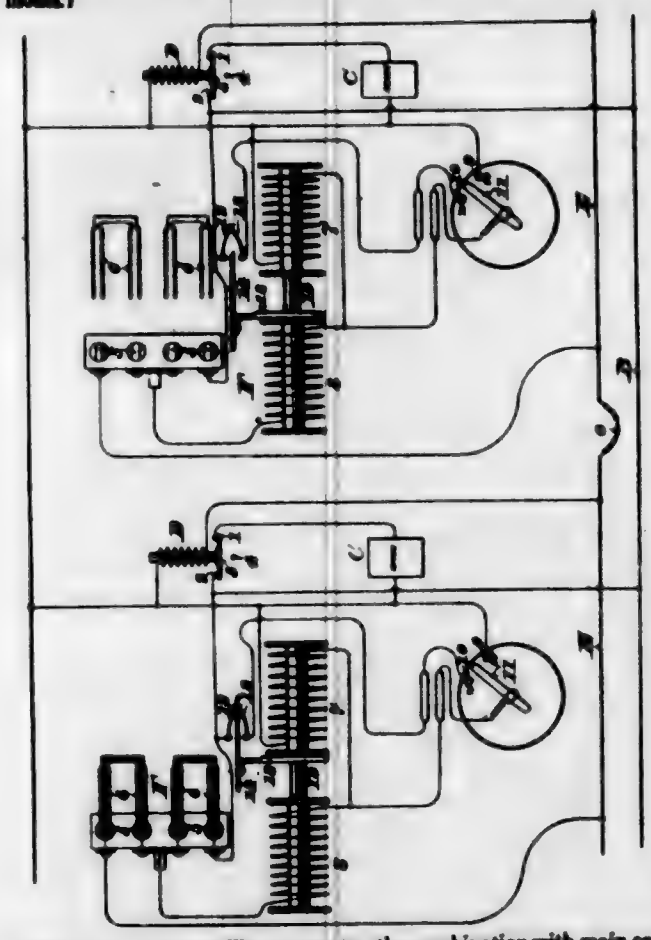
Claim.—1. In a molding-machine for porous plastics, a series of forms for supporting the plastic material, means for advancing said forms in succession, a hopper above said line of forms, molding and smoothing rollers above said forms for shaping and finishing the upper surface of the plastic material, and regulable means in connection with said hopper for feeding the plastic material to the forms and rollers in graduated quantity without compression, substantially as specified.

2. In a molding-machine for porous plastics, a series of forms for supporting the plastic material, a conveyer for carrying forward said forms in a straight line, molding and smoothing rollers above said conveyer, with means for driving the same at a surface speed slightly in excess of that of the conveyer, and in combination therewith means for feeding the plastic material to said forms in graduated and regulable quantity without compression, substantially as specified.

3. In a molding-machine for porous plastics, a series of forms for supporting the plastic material, a conveyer for carrying forward said forms in a straight line, rollers above said conveyer for giving shape and smoothness to the said material passing beneath them, means for driving said rollers at a surface speed slightly greater than that of the forms, means for feeding the plastic material to the forms in graduated and regulable quantity without compression, and smoothing-dies to complete the shape and finish of the plastic articles carried beneath them, substantially as specified.

4. In a molding-machine for plastic material, a continuously-moving conveyer-band 5, a series of bottom forms 4 thereon and advanced thereby, superimposed rollers to mold and shape the material on the forms, these latter driven by a band 15 at a rate in excess of the movement of the material to produce a rubbing action thereon, substantially as specified.

692,779. **CONTROLLING APPARATUS FOR ELECTRIC MOTORS.** FREDERICK F. BRUSH, New York, N. Y., assignor to Niels A. Christensen, Milwaukee, Wis. Filed Apr. 27, 1901. Serial No. 57,661. (No model.)



Claim.—1. In controlling apparatus, the combination with main conductors and an electric motor, of a main switch controlling the motor-circuit, a magnet for operating said switch, a relay-switch in the circuit of the main-switch magnet, a magnet for operating the relay-switch, and a primary switch controlling the circuit of said relay-magnet and adapted to be operated by variations in fluid-pressure, substantially as described.

2. In controlling apparatus, the combination with main conductors and a number of electric motors arranged in parallel, switches controlling the supply of current to the several motors, magnets for operating said switches, and an automatic controller comprising a switch in the circuit of said several magnets and means adapted to be operated by variations in fluid-pressure for automatically opening and closing the controller-switch, substantially as described.

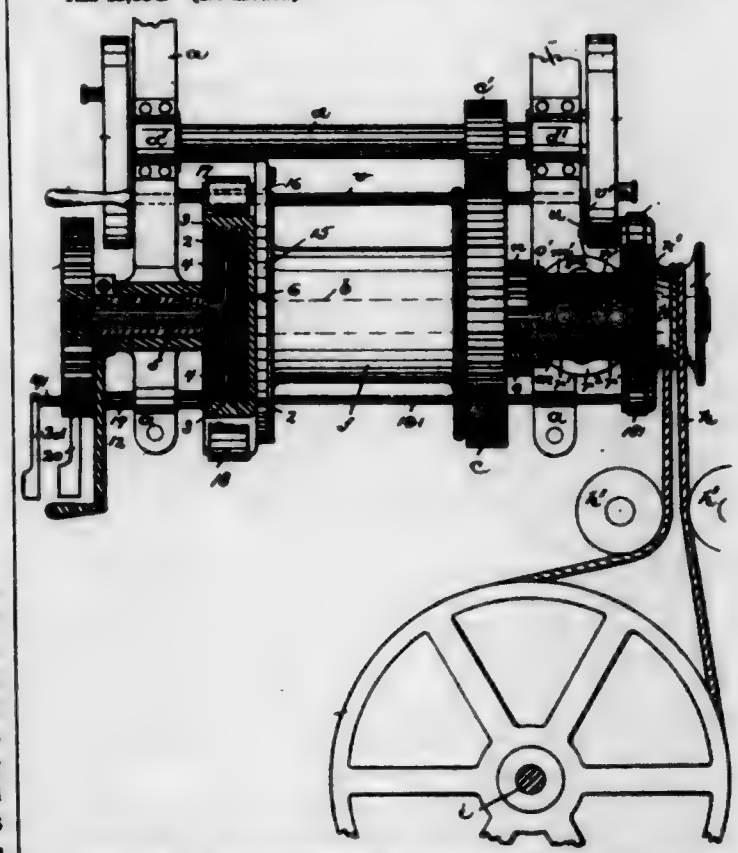
3. In controlling apparatus, the combination with main supply and return conductors and an electric motor, of a switch controlling the supply of current to said motor, a magnet for operating said switch, an equalizing-conductor for connecting said magnet with other switch-operating magnets, and an automatic controller adapted to open and close a connection between said equalizing-conductor and one of the main conductors according to variations in fluid-pressure, substantially as described.

4. In controlling apparatus, the combination with main supply and return conductors and an electric motor, of a switch controlling the connection of said motor with one of said conductors, a magnet for operating said switch, having one terminal connected with the supply-conductor, an equalizing-conductor for connecting the other terminal of said magnet with the corresponding terminals of other similar switch-operating magnets, and an automatic controller adapted to be actuated by variations of fluid-pressure and to electrically connect and disconnect said equalizing and return conductors, substantially as described.

5. In controlling apparatus, the combination with main conductors and an electric motor, of a main switch controlling the supply of current to said motor, a magnet for operating said switch, a magnetic relay comprising a switch controlling the passage of current through the main-switch magnet and two magnets for operating the relay-switch, a primary switch having maximum and minimum pressure contact-pieces and adapted to be operated by variations of fluid-pressure and to control the supply of current to the relay-magnets, and an auxiliary switch controlling a connection between one of the contacts of the primary switch and the return conductor and adapted to be operated by said relay-magnets, substantially as described.

6. In controlling apparatus, the combination with an electric motor and main conductors, of a switch controlling the supply of current to said motor, a magnet for operating said switch, an equalizing-conductor for connecting said magnet with other similar switch-operating magnets, an automatic controller comprising a relay-switch governing the passage of current through said equalizing-conductor and the main-switch-operating magnets connected thereby, a primary switch having maximum and minimum pressure contact-pieces and a movable contact-piece adapted to be actuated by variations of fluid-pressure, two magnets for operating the relay-switch, one terminal of each of said relay-magnets being connected with the movable contact-piece of the primary switch, the remaining terminal of one magnet with one of the main conductors and the remaining terminal of the other magnet with a contact of the relay-switch, the maximum-pressure contact-piece of the primary switch being connected with one of the main conductors and the minimum-pressure contact-piece being connected through an auxiliary circuit-breaker operated by the relay-magnets, with the other main conductor, substantially as described.

692,780. **HOISTING-ENGINE.** COLIN CAMPBELL, Newark, N. J., assignor to Joseph S. Mundy, Newark, N. J. Filed Feb. 4, 1901. Serial 45,864. (No model.)



Claim.—1. In a hoisting-engine, the combination with a drum-shaft projecting at one end beyond its bearings, and means for driving said shaft, of a winch mounted loose on said projecting end of the shaft, said winch terminating at its outer end approximately with the extremity of the shaft and permitting free access to its periphery, and means adapted to engage the inner end of the winch to transmit motion thereto from the drum-shaft and turn said winch either with or against the shaft, substantially as set forth.

2. In a hoisting-engine, the combination with a drum-shaft adapted to be continuously rotated in one direction, and means for rotating said shaft, of a drum mounted loose on said shaft and presenting a free peripheral exterior, and means adapted to frictionally transmit motion to said drum at its end and rotate said drum either with or against the shaft, substantially as set forth.

3. In a hoisting-engine, the combination of the drum-shaft, a drum mounted loose on said shaft, and means at one side of, and receiving motion from, said shaft, said means being adapted to be brought into engagement to turn said drum either with or against the shaft, substantially as set forth.

4. In a hoisting-engine, the combination with a drum-shaft adapted to be rotated continuously in one direction, of a drum mounted loose on said shaft and having at its end a friction-surface substantially concentric with and parallel to the said shaft, and driving means receiving motion from the drum-shaft and adapted to be forced in a direction at right angles thereto into frictional engagement with the drum, substantially as set forth.

5. The combination with a drum-shaft and a drum loose thereon, of two movable pinion-shafts parallel to said drum-shaft and to each other, one of said pinion-shafts receiving motion from the drum-shaft and the other receiving motion from the first, and pinions on said shafts adapted to engage the drum.

6. The combination with a drum mounted loose upon a shaft, of two swinging shafts receiving motion from a common rotary driver, one directly and the other through an intermediate member, said rotary driver, pinions upon said swinging shafts to engage the drum, and means for moving said shafts.

7. In a hoisting-engine, the combination with a drum-shaft, a drum mounted loose thereon and having an annular recess in its end, of a shaft parallel to the drum-shaft, a friction-pinion lying in the said annular recess of the drum and being fast on said parallel shaft and rotated thereby, and means for shifting said pinion into or out of engagement with a wall of the said recess in the drum, substantially as set forth.

8. The combination with a drum-shaft and a drum mounted loose thereon, of driving-pinion shafts parallel to said drum-shaft, means for transmitting motion from the drum-shaft to rotate said pinion-shafts oppositely with respect to each other, pinions on said shafts to engage the drum, links pivotally supported at their lower ends and at their upper ends providing journal-bearings for said pinion-shafts, a connecting-bar holding said upper ends of said links at a fixed distance apart and means for swinging said links.

9. In a hoisting-engine, the combination with a drum-shaft and a drum loose on said shaft, said drum being recessed at one end to provide a friction-surface concentric with and parallel to the shaft, a friction-pinion adapted to engage at its periphery the said friction-surface on the drum, a driving-shaft parallel to the drum-shaft and having the said pinion fast thereon, a train of gearing transmitting motion from the drum-shaft to said pinion-shaft, and means for shifting the pinion-shaft toward or away from the drum-shaft without throwing it out of gear therewith, substantially as set forth.

10. The combination with a bed-frame, *a*, a drum-shaft journaled therein, and a drum loose on the projecting end of said shaft, of driving-pinion shafts parallel to said drum-shafts, means for transmitting motion to said pinion-shafts to rotate them oppositely with respect to each other, pinions on said shaft to engage the drum, a cap *p*, for the journal-bearings of the drum-shaft in the bed-frame adjacent to the said drum, links pivoted on said cap at their lower ends and at their upper ends providing bearings for the pinion-shafts, a connecting-bar holding said pinion-shafts at a fixed distance apart and a lever *t*, fulcrumed at its lower end on the said cap *p*, and adapted to swing the pinion-shafts.

11. In a hoisting-engine, the combination with a drum-shaft and a drum loosely mounted thereon, said drum being recessed or bored out at one end and having circumferential friction-grooves on the outer walls of said recess, of friction-pinions lying in said recess and being circumferentially grooved to coöperate with said friction-surface on the drum, shafts parallel to the drum-shaft and on which said friction-pinions are keyed, means for driving said shafts from the drum-shaft in opposite directions and means for shifting said shafts to engage or disengage the pinions with respect to the drum, substantially as set forth.

12. The combination with the drum-shaft *b*, of a drum mounted loose thereon and having an internal friction-surface, friction-pinions adapted to alternately engage said internal friction-surface of the drum, shafts disposed parallel to the drum-shaft and upon which said pinions are keyed, a gear-wheel fast upon one of said pinion-shafts and receiving motion from the drum-shaft, a second gear fast on the second pinion-shaft and receiving motion from the first gear-wheel, and means for supporting said pinion-shafts and permitting them limited sidewise movement, substantially as set forth.

13. The combination with a drum-shaft, a drum mounted loose on said shaft, friction-pinions adapted to engage the drum and being fast on separate shafts, and means for transmitting motion from the drum-shaft to rotate said pinion-shafts in opposite directions with respect to each other, links each pivotally supported at its lower end and at its upper end providing journal-bearings for one of the pinion-shafts, a connecting-bar holding the upper ends of said links at a fixed distance apart, and means for swinging said links in unison, substantially as set forth.

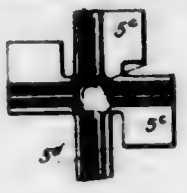
14. The combination with the drum-shaft and a drum having an internal friction-surface, of friction-pinions adapted to engage the drum, shafts for said pinions parallel to the drum-shaft, means for oppositely rotating said pinion-shafts, links each pivotally supported at its lower end and having a pinion-shaft journaled in its upper end, a connecting-bar holding said pinion-shafts at a fixed distance apart and being vertically apertured, a lever extending downward through said apertured connecting-bar and being at a lower point fulcrumed to swing in a vertical plane transverse to the pinion-shafts, and means for swinging said lever, substantially as set forth.

15. In a hoisting-engine, a drum-shaft, a winch or spool mounted loose on the projecting end of the drum-shaft and having its peripheral groove freely accessible from the outer end, and means adapted to transmit motion to the inner end portion of the winch and turn said winch either with or against the drum-shaft.

16. In a hoisting-engine, a shaft, a winch mounted loose on the end of said shaft and having its rope-receiving periphery freely exposed at the outer end, and means for frictionally transmitting motion to the other end of the winch to turn the same in either direction.

17. In a hoisting-engine, a shaft, a winch mounted loose on the freely-projecting end of said shaft and having a peripheral rope-receiving groove, means for holding said winch on the shaft while permitting free access to said rope-receiving groove over the outer ends of the winch and shaft, and means for frictionally transmitting motion to the inner end portion of the winch to turn the same either with or against the shaft.

692,781. MEANS FOR FASTENING WIRES AND STAYS TOGETHER. CHARLES COLMAN, Denver, Colo., assignor, by direct and mesne assignments, to M. H. Smith, George A. Smith, and Frank Canfield, Denver, Colo. Filed Sept. 3, 1901. Serial No. 74,057. (No model.)

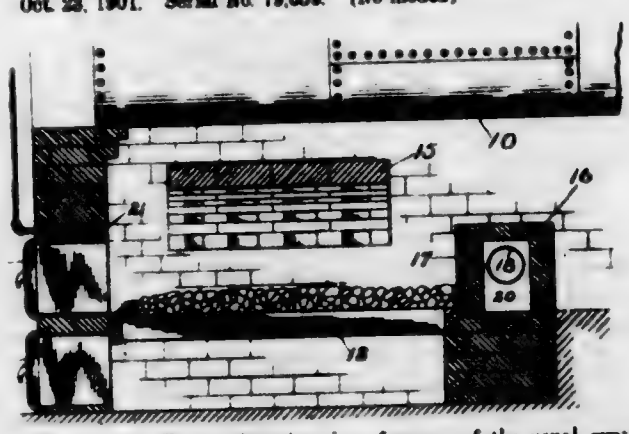


Claim.—1. A clip for fastening wires and stays together at their intersections, comprising a plate having a central cavity into which the wire or stay is bent, recesses forming seats leading outwardly from said cavity and communicating therewith, the said seats being of less depth than the central cavity, and wings adjacent the seats and arranged to be bent over the wire and stay whereby the two parts are held firmly in place.

2. A clip for fastening wires and stays together at their intersections, comprising a plate having a central cavity, seats leading outwardly from said cavity and of less depth than the latter, and wings adjacent the seats and arranged to be bent over the wire and stay, the wings which engage the wire being bent from opposite directions to give additional strength and security to the fastener.

3. In a wire fence, the combination with the wires and stays of an integral clip having a central cavity, into which the wire or stay is bent, seats for the wires and stays extending outwardly from the cavity, and of less depth than the latter, two wings located on opposite sides of the cavity and projecting from the wire-seats in opposite directions and adapted to be bent over the wire from opposite sides, and a wing projecting from the stay-seat above the wire and adapted to be bent over the stay.

692,782. SMOKE-CONSUMING FURNACE. HENRY G. COX, Indianapolis, Ind., assignor to John T. Brush, Indianapolis, Ind. Filed Oct. 23, 1901. Serial No. 79,659. (No model.)

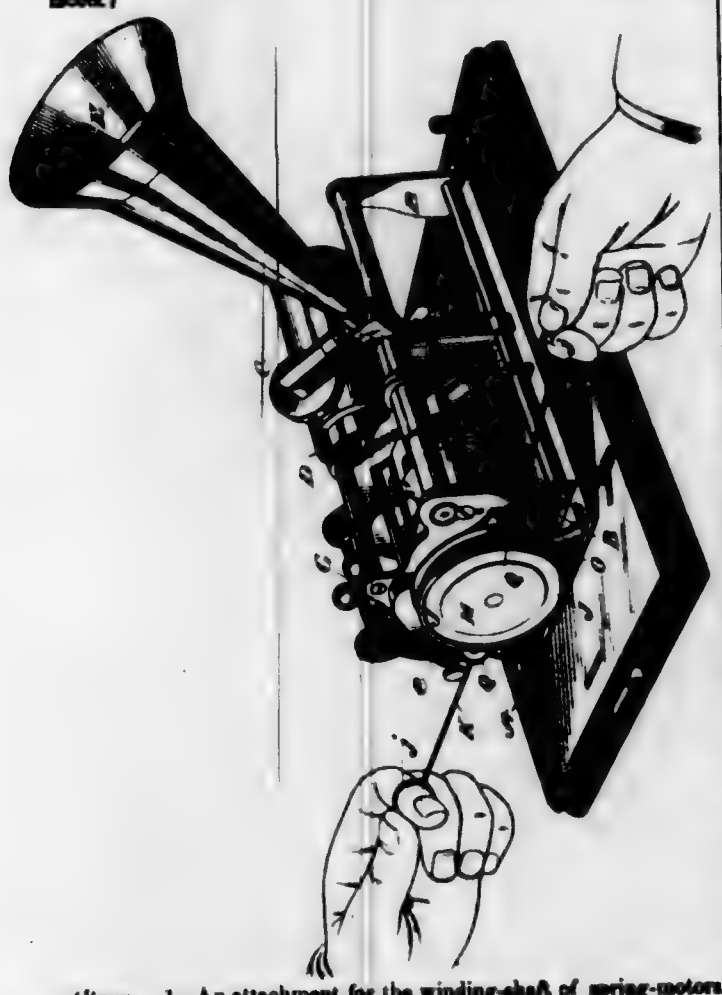


Claim.—1. The combination, in a furnace, of the usual grate-bars and walls, an arch extending between said walls over said grate-bars and having its ends open thereby permitting the passage of the products of combustion around both of said ends, a hollow bridge-wall beyond the rear end of said arch into which the air is admitted from the outside and wherein it is heated, openings in said bridge-wall leading from the chamber therein toward the front end of the furnace at a point below the arch, and other openings in the front wall of the furnace leading directly op-

positely thereto, whereby currents of air are discharged into the combustion-chamber below said arch thus producing violent conflicting air-currents and thoroughly agitating the products of combustion which are thereby caused to be more perfectly consumed and which pass up through and around both ends of the arch into contact with the boiler to be heated, all substantially as shown and described.

2. The combination, in a furnace, of the usual walls and fuel-carrying grate, an open-ended and perforated arch or roof above said grate between it and the thing to be heated, a hollow bridge-wall into which air is admitted from the outside and wherein it is heated provided with suitable openings leading from the chamber therein into the combustion-chamber, other openings leading from the opposite direction into said combustion-chamber, and means for forcing in air through said openings and thus producing conflicting air-currents below the roof or arch, substantially as and for the purposes set forth.

692,783. WINDING ATTACHMENT FOR GRAPHOPHONES. WILLIAM R. DYER, Takoma Park, D. C., assignor of one-half to Henry Parker, New York, N.Y. Filed Mar. 23, 1901. Serial No. 52,613. (No model.)



Claim.—1. An attachment for the winding-shaft of spring-motors, comprising a drum mounted upon said shaft, and cords secured to the drum adapted to rotate it by agency of a pair of forces acting simultaneously in opposite directions, substantially as and for the purposes specified.

2. An attachment for the winding-shaft of spring-motors, comprising a drum mounted upon said shaft, cords secured to the drum and adapted to rotate it by agency of a pair of equal forces acting in opposite directions, and oppositely-disposed guides for conducting said cords to the drum, substantially as and for the purpose specified.

3. An attachment for the winding-shaft of spring-motors, comprising a drum mounted upon said shaft, cords secured to the drum and adapted to rotate it by agency of a pair of equal forces acting in opposite parallel lines, and means for automatically returning the drum to its normal position, substantially as and for the purpose specified.

4. An attachment for the winding-shaft of spring-motors, comprising a drum mounted upon said shaft, cords secured to the drum and adapted to rotate it by agency of a pair of equal forces acting in opposite parallel lines, a clutch mechanism interposed between said drum and shaft, and means for automatically returning the drum to its normal position, substantially as and for the purpose specified.

5. An attachment for the winding-shaft of spring-motors, comprising a drum rotatably mounted with relation to said shaft, cords secured to the drum and adapted to rotate it by agency of a pair of equal forces acting in opposite parallel lines, a pawl and ratchet interposed between said drum and shaft, and a recoil-spring for returning the drum to its normal position, substantially as and for the purpose specified.

6. An attachment for the winding-shaft of spring-motors, comprising a drum rotatably mounted with relation to said shaft, cords secured to the drum and adapted to rotate it by agency of a pair of equal forces acting in opposite parallel lines, a ratchet-wheel secured to the shaft, a coacting pawl carried by the drum, and a recoil-spring for returning the drum to its normal position, substantially as and for the purposes specified.

7. An attachment for the winding-shaft of spring-motors, comprising a drum rotatably mounted with relation to said shaft, cords secured to the drum and adapted to rotate it by agency of a pair of equal forces acting in opposite parallel lines, ratchet and recoil mechanisms carried by the drum, and suitable case-plates for inclosing said mechanisms, substantially as and for the purposes specified.

8. An attachment for the winding-shaft of spring-motors, comprising a drum rotatably mounted with relation to said shaft, cords secured to the drum and adapted to rotate it by agency of a pair of equal forces acting in opposite parallel lines, a ratchet mechanism interposed between said drum and shaft, and a recoil-spring secured at its opposite ends to said drum and to a fixed point of support, substantially as and for the purposes specified.

9. An attachment for the winding-shaft of spring-motors, comprising a drum rotatably mounted with relation to said shaft, cords secured to the drum and adapted to rotate it by agency of a pair of equal forces acting in opposite parallel lines, a ratchet mechanism interposed between said drum and shaft, a recoil-spring secured at its opposite ends to said drum and to a fixed point of support, and a non-rotatable back plate serving to steady the attachment in operative position, substantially as and for the purposes specified.

10. An attachment for the winding-shaft of spring-motors, comprising a rotatable drum, oppositely-extending cords secured to the drum for rotating it, a ratchet mechanism interposed between said drum and shaft, a recoil-spring secured at one end to the drum, and a non-rotatable back plate affording a fixed support for the opposite end of said recoil-spring and a closure for the spring-compartment, substantially as and for the purposes specified.

11. An attachment for the winding-shaft of spring-motors, comprising a rotatable drum, oppositely-extending cords secured to the drum for rotating it, a ratchet mechanism interposed between said drum and shaft, a recoil-spring secured at one end to the drum, and a back plate affording a fixed support for the opposite end of said recoil-spring having a foot for engaging the frame of the motor aforesaid, substantially as and for the purposes specified.

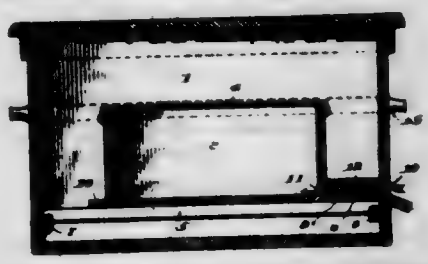
12. An attachment for the winding-shaft of spring-motors, comprising a rotatable drum, oppositely-extending cords secured to said drum for rotating it, and a supporting back plate having a foot for engaging the frame of the motor aforesaid, substantially as and for the purposes specified.

13. An attachment for the winding-shaft of spring-motors, comprising a rotatable drum, oppositely-extending cords secured to said drum for rotating it, and a supporting back plate having an angular foot for engaging the frame of the motor aforesaid, substantially as and for the purposes specified.

14. An attachment for the winding-shaft of spring-motors, comprising a rotatable drum, oppositely-extending cords secured to said drum for rotating it, a supporting back plate having an angular foot, and a tang upon said foot for engaging the frame of the motor aforesaid, substantially as and for the purposes specified.

15. An attachment for the winding-shaft of spring-motors, comprising a rotatable drum, oppositely-extending cords secured to said drum for rotating it, a supporting back plate having oppositely-arranged cord-guides, and an angular foot projecting from said plate bearing a yielding tank for engaging the frame of the motor, substantially as and for the purposes specified.

692,784. WINTERING-CASE FOR BEEHIVES. MILTON HEMPLE, Bloomington, Wis., assignor to Walter R. Hemple, Bloomington, Wis. Filed May 11, 1901. Serial No. 59,837. (No model.)

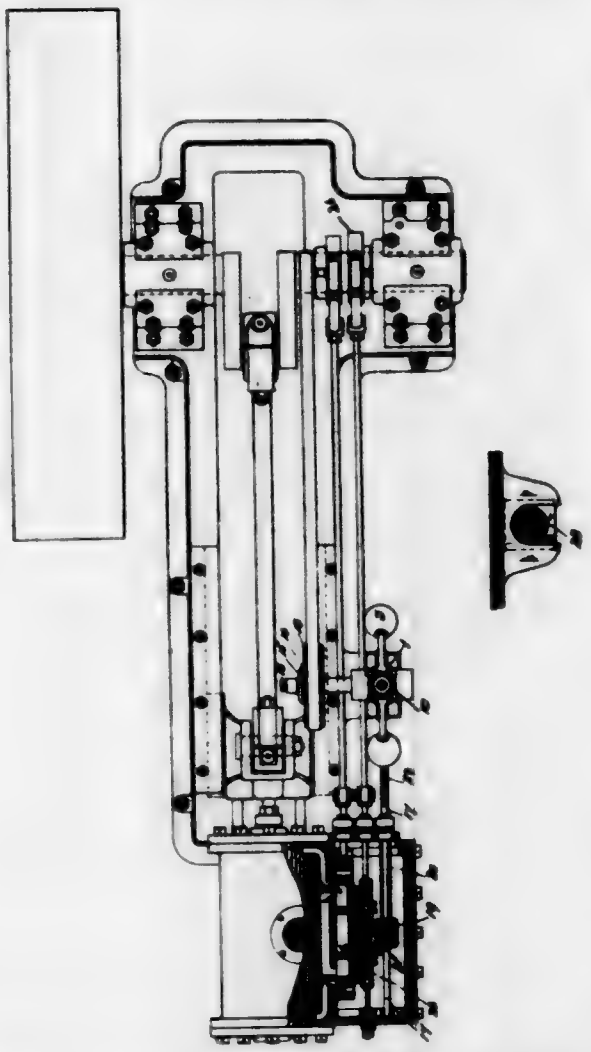


Claim.—1. A device of the class described comprising a case, designed to be filled with a suitable packing, the longitudinal supporting-bars, a hive arranged upon the supporting-bars and provided near the front ends of the same with a ledge, the transverse spacing-bar interposed between the ledge of the hive and the front of the case, and the tapering

bee-escape removably supported upon the ledge and upon the spacing-bar, substantially as described.

2. A device of the class described comprising a case provided at its front with an opening, the longitudinal supporting-bars, the hive arranged upon the supporting-bars and having a ledge near the front ends of the same and provided with a fabric covering, the spacing-bar interposed between the hive and the front of the case, the removable bee-escape, and the rear bar mounted on the supporting-bars and located at the back of the hive and retaining the latter in position, substantially as described.

692,785. CUT-OFF GEAR FOR STEAM-ENGINES. WILLIAM D. HOOKER, St. Louis, Mo. Filed Mar. 16, 1901. Serial No. 51,541. (No model.)



Claim.—1. In a cut-off gear for steam-engines, the combination with the cut-off-valve rod of a sleeve adapted to rotate on the said rod, and having a right and left handed screw engaging the cut-off valves, and having a toothed wheel engaged by a toothed wheel on the cut-off shaft, controlled by the governor, substantially as described.

2. In a cut-off gear for steam-engines the combination with the cut-off-valve rod of a sleeve adapted to rotate on the said rod, and having a right and left handed screw engaging the cut-off valves, and having a toothed wheel engaged by a toothed wheel on the cut-off shaft, and means for rotating the said shaft by hand, substantially as described.

3. In a cut-off gear for steam-engines, the combination with the cut-off-valve rod of a sleeve adapted to rotate on the said rod, and having a right and left handed screw engaging the cut-off valves, and having a toothed wheel engaged by toothed wheel on the cut-off shaft, controlled by the governor, the said shaft having a screw-threaded portion engaging the correspondingly-threaded portion of the arm for moving the said arm along a slotted index-piece projecting from the valve-casing, substantially as described.

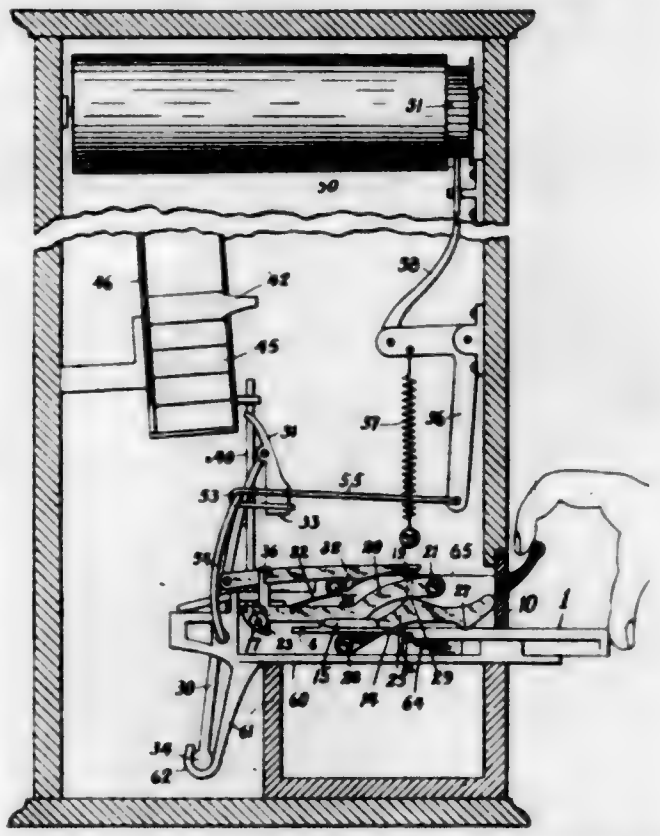
4. In a cut-off gear for steam-engines the combination of the cut-off shaft 17 connecting the governor to the right and left hand screw 22 and its valve-rod connected to eccentric 26 by mechanism as shown of the cap 8 screw 9 having shoulder 12 and hand-wheel 10, substantially as described.

5. In a cut-off gear for steam-engines the combination of the cut-off shaft 17 connecting the governor to the right and left hand screw 22 and its valve-rod connected to eccentric 26 by mechanism as shown, of the cap 8, screw 9, wheel 10 and coiled spring 11, substantially as described.

6. In a cut-off gear for steam-engines the combination of the shaft 17 connecting the governor to the right and left hand screw 22 and its valve-rod to eccentric 26 by mechanism as shown of the governor-pulley 13 disk 14, disk-plate 15 and nut 16, substantially as described.

7. In the cut-off gear for steam-engines the combination with the shaft 17 connected to the governor and the cut-off-valve rod connected to eccentric 26 by mechanism as shown, of the gear 19 fast to the cut-off shaft in the steam-chest and connecting with gear 21 of the right and left hand screw 22, the gear 19 having wider teeth than the gear 21, substantially as described.

692,786. COIN-OPERATED VENDING-MACHINE. CHARLES L. HURD, Chelsea, Mass., assignor of one-half to Hollis F. Smith, Chelsea, Mass. Filed July 20, 1901. Serial No. 69,093. (No model.)



Claim.—1. The combination with the slide having the coin-opening and the elongated slot communicating therewith, of the lever passing through said slot and pivotally supported below the slide and having the coin-engaging nose, and the detent pivoted above the slide and constructed to lock the slide except when raised by the upward movement of said lever given thereto by a coin in said opening, substantially as described.

2. The combination with the slide having the coin-opening and the elongated slot communicating therewith, of the lever passing through said slot and pivotally supported below the slide, said lever having the coin-engaging nose and the shoulder, and the detent pivoted above the slide and having the slide-engaging hook, said detent resting upon said shoulder near the former's pivotal point, substantially as described.

3. The combination with the coin-released slide and the ejector-arm operated thereby, of means for normally locking said arm, and slide-releasing devices constructed to unlock said arm simultaneously with their releasing of the slide, substantially as described.

4. The combination with the coin-released slide and the ejector-arm, of a pawl carried by said arm, a fixed pin engaged by said arm to hold the latter from unwarranted manipulation, and means operated by the slide-releasing mechanism for disengaging said pawl from said pin, substantially as described.

5. The combination of the slide, the coin-released hooked detent raised to free the slide, the ejector-arm, the pawl pivoted thereto, the fixed pin engaging said pawl, and a connection between said detent and pawl constructed to enable both to rise simultaneously, substantially as described.

6. In a coin-operated vending-machine, the combination with the chute and the weight slidable therein, and the coin-operated slide constructed to empty said chute, of the vertical rod longitudinally movable by said weight, and the counterweighted pawl supporting said rod and constructed to engage and lock said slide when depressed by the action of the weight and rod, substantially as described.

7. In a coin-operated vending-machine, the combination with the slide having the circular coin-opening and the slot communicating therewith, of a coin-ejector located in said slot, and a laterally-sloping shelf beneath said opening, substantially as described.

8. In a coin-operated vending-machine, the combination with the slide having the circular coin-opening and the slot communicating there-

with, of a coin-ejector located in said slot and affixed laterally-sloping shelf located beneath the point at which said coin-opening discharges its contents, substantially as described.

9. In a coin-operated vending-machine, the combination with the slide having the coin-opening, of the pivoted lever constructed to ride over the coin in said opening, the hooked detent coacting with said slide, and means for adjustably supporting said detent by said lever, substantially as described.

10. In a coin-operated vending-machine, the combination of the slide having the coin-opening and the slot, the lever passing through said slot and having the nose and the shoulder, the hooked detent coacting with said slide, and the adjusting-screw tapped into said detent and abutting upon said shoulder, substantially as described.

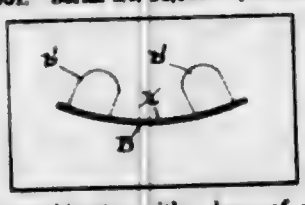
11. In a coin-operated machine, the combination of the slide having the coin-opening and the slot, the lever located in said slot, the pivoted detent, the spring pressing said detent upon said lever, and a support carried by the slide and constructed to engage the detent and relieve said lever from the pressure of the detent during the latter part of the slide's inward stroke, substantially as described.

12. In a coin-operated machine, the combination of the slide having the coin-opening and the slot, the lever located in said slot, the detent and a spring pressing it upon said lever, and a wheel and a coacting support connected with said slide and detent, said wheel and support being constructed to relieve the lever from the pressure of the detent during the latter part of the slide's inward stroke, substantially as described.

13. In a coin-operated vending-machine, the combination of the slide having the coin-opening and the raised track or bridge, the detent normally locking said slide, a spring for pressing said detent into engagement with the slide, and a member projecting from said detent and riding up and on said bridge when an inserted coin has released the slide from the detent, substantially as described.

14. In a coin-operated vending-machine, the combination of the slide, the hooked detent normally locking the same, the spring for said detent, the lever having the nose impressed into engagement with an inserted coin by said detent, and the wheel carried by said detent, said slide having the bridge for raising said wheel and detent, substantially as described.

692,787. **TOY PICTURE.** JOSEPH A. IRROW, New York, N. Y. Filed Nov. 11, 1901. Serial No. 81,808. (No model.)



Claim.—1. The combination with a base, of a toy picture of thin paper, said picture being curved cylindrically and provided at its lower end with inwardly and radially projecting tongues connected to said base.

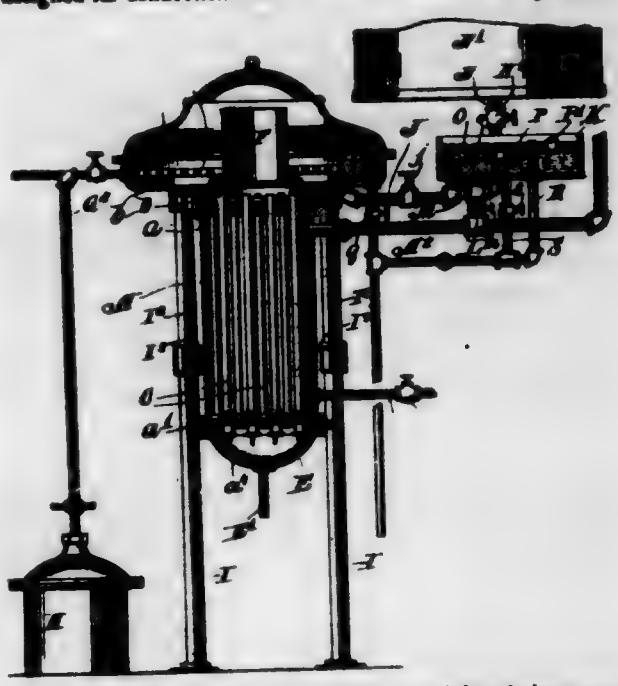
2. The combination with a toy picture of thin paper, and a base, of two slits in said base located on arcs of the same circle, and tongues carried by the said toy picture inserted through the slits of, and in under, the base in the direction of the center of the arcs described by the slits, to cause the said toy picture to stand up at right angles from the said base without leaning over.

692,788. **DISTILLING APPARATUS.** IRA H. JEWELL, Chicago, Ill. Filed May 8, 1900. Renewed May 11, 1901. Serial No. 59,874. (No model.)

Claim.—1. A distilling apparatus comprising an upright tubular jacket, having supply and discharge orifices, condensing tube or tubes therein, which extend through the end walls of the jacket, a boiler located above said jacket, a chamber located between said boiler and the jacket, the upper wall of which is formed by the lower end of said boiler and the lower wall by the upper end wall of the jacket, and an upwardly-extending steam-gathering tube having its upper end above the water-line in said boiler, and opening at its lower end into said chamber.

2. A distilling apparatus comprising a tubular water-jacket having supply and discharge orifices, a condensing tube or tubes therein which extend through the end walls of the jacket, a boiler supported on said jacket and having a water-supply pipe connected with a water-supply which is independent of the water-supply of the jacket, a chamber located between the boiler and jacket, the upper wall of which is formed by the lower end of the boiler, and the lower wall by the upper end wall of the jacket, and an upwardly-extending steam-gathering tube, having its upper end above the water-level in said boiler, and opening at its lower end into said chamber.

3. A distilling apparatus comprising a tubular water-jacket having supply and discharge orifices, a condenser in said jacket which extends through the end walls of said jacket, a boiler supported on said jacket, a chamber located between said boiler and jacket the upper wall of which is formed by the lower end of said boiler, and the lower wall by the upper end wall of the jacket, an upwardly-extending steam-gathering tube having its upper end above the water-line in said boiler and opening at its lower end into said chamber, and a steam-coil surrounding said tube and designed for connection with a source of steam under pressure.



4. A distilling apparatus comprising an upright tubular water-jacket having supply and discharge orifices a condensing tube or tubes in said jacket, extending at their opposite ends through the top and bottom walls of the jacket, a boiler located above the jacket, a chamber intermediate with said boiler and the water-jacket communicating with the condensing tube or tubes, a steam gathering tube which rises upwardly from the bottom of the boiler and extending above the water-line in the boiler, said gathering-tube being open at both ends to afford communication between the boiler and said intermediate chamber, a heating device for said boiler, and a drip-cup below said condensing tube or tubes provided with a discharge-orifice.

5. A distilling apparatus comprising a water-jacket having supply and discharge orifices, a condenser therein, a boiler, a steam-gathering tube in the boiler communicating with the condenser, a tank located outside of the jacket, a pipe leading from said tank to the boiler, and communications between the discharge orifice of said jacket and tank including an automatic water-regulating device.

6. A distilling apparatus comprising an upright tubular water-jacket having supply and discharge orifices, a boiler located thereover, a steam-gathering tube therein, a condensing tube or tubes in said jacket which are in communication with said steam-gathering tube, a feed-water tank, a pipe leading from said tank of the boiler, a supply-pipe leading to said feed-tank, and means for controlling the supply of water to said tank comprising a valve, a float located in the tank, and connected with said valve, and an overflow-pipe projecting into the tank above the normal water-line therein.

7. A distilling apparatus comprising an upright tubular water-jacket having supply and discharge orifices, a boiler located thereover, and containing a steam-gathering tube, a condensing tube or tubes in said jacket, in communication with the steam-gathering tube, a feed-water tank located at the level of the said boiler, a pipe leading from said tank of the boiler, a supply-pipe leading to said feed-tank and means for controlling the supply of water to said tank comprising a valve, a float located in the tank and connected with the valve, and an overflow-pipe leading through the bottom of the tank and projecting into the tank above the normal water-line therein, and a pipe leading from the bottom of said feed-tank and discharging into the overflow-pipe.

8. A distilling apparatus comprising an upright tubular water-jacket having supply and discharge orifices, a boiler located over said jacket, a steam-gathering tube therein, a condensing tube or tubes in said jacket which communicate with the steam-gathering tube, a feed-tank, a pipe connecting said feed-tank and boiler, a pipe leading from the discharge-orifice of the jacket, a pipe connecting said discharge-pipe with the feed-tank, a valve between said last-mentioned pipe and the feed-tank, and a float in said tank operatively connected with said valve.

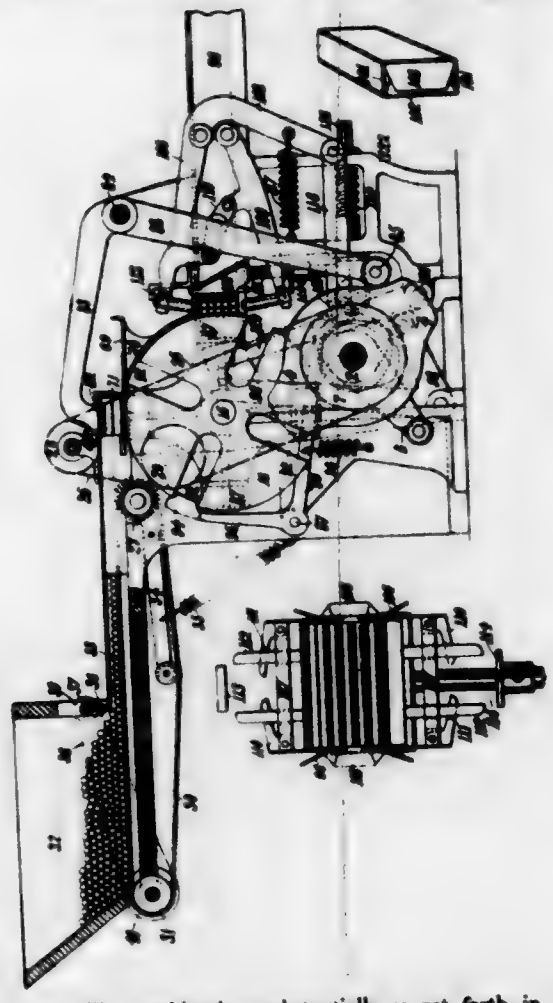
9. A distilling apparatus comprising a tubular water-jacket, supply and discharge pipes leading to and from the jacket respectively, which pipes include parts of a pressure water system, a boiler located over said jacket, condensing tube or tubes in said jacket which receive at their upper ends steam from said boiler and connections between said water-jacket discharge-pipe and boiler.

10. A distilling apparatus comprising a tubular water-jacket, supply and discharge pipes leading to and from the jacket respectively, which pipes include parts of a pressure water system, a boiler located over said jacket, condensing tube or tubes in said jacket which receive steam from said boiler, and connections between said water-jacket discharge-pipe and the boiler embracing a regulating-valve.

11. A distilling apparatus comprising a tubular water-jacket, supply and discharge pipes leading to and from the jacket respectively, which pipes include parts of a pressure water system, a boiler located over said jacket, condensing tube or tubes in said jacket which receive steam from said boiler, and connections between said water-jacket discharge-pipe and the boiler embracing an automatic water-controller designed to maintain a given supply of water in the boiler.

12. A distilling apparatus comprising an upright tubular water-jacket having discharge and supply pipes, a boiler located over said jacket and separated from the interior of the jacket by the upper end wall of said jacket, condensing tube or tubes located within the jacket which pass at their upper ends through the upper wall of the jacket and receive steam from said boiler and discharge at their lower ends in a drip-cup located beneath the jacket, the upper ends of said tubes being accessible for cleaning or renewing when the boiler is removed.

692,789. MACHINE FOR PACKING CIGARETTES. WILLIAM R. LANDFEAR, Brooklyn, N. Y., assignor of one-half to Richard H. Wright, New York, N. Y. Filed Oct. 25, 1900. Serial No. 34,278. (No model.)



Claim.—1. The combination, substantially as set forth, in a machine for forming cigarette-packages, of a mold adapted to receive a wrapper and several superposed layers of cigarettes, means for delivering the wrapper over the mouth of the mold, means for delivering the several layers of cigarettes successively over the wrapper, devices for forcing the first layer of cigarettes and the wrapper and each succeeding layer of cigarettes successively and to the same extent into the mold and devices for retaining the wrapper and the first layer of cigarettes in the position in the mold to which they are forced either directly by the forcing devices or by the pressure of a superposed layer, whereby the wrapper and the several layers of cigarettes are gradually introduced to their final position in the mold.

2. The combination, substantially as set forth, in a machine for forming cigarette-packages, with a mold, means for delivering a wrapper and several layers of cigarettes to such mold and means for introducing into the mold a wrapper and successive layers of cigarettes, of a movable mold-bottom and devices for holding such bottom in the position to which it is forced by the introduction of each successive layer of cigarettes, for the purpose set forth.

3. The combination, substantially as set forth, in a machine for forming cigarette-packages, of a mold adapted to receive a wrapper and several layers of superposed cigarettes and provided with a movable bottom whose normal position is at the top of the mold, a plunger, and means for reciprocating the plunger and limiting its movement to the top of the mold, means for holding the mold in registration with the plunger while the latter makes several reciprocations, devices for delivering the wrapper over the mouth of the mold, devices for delivering the several layers of cigarettes for a package successively between the mouth of the mold and the plunger and devices for holding the bottom of the mold stationary therein when the plunger is withdrawn, whereby one layer of cigarettes with the wrapper is pressed into the mold and supported by the movable bottom until a succeeding layer is pressed upon it to force it further into the mold and so on until the mold is filled with the desired number of cigarette layers.

4. The combination substantially as set forth, in a machine for forming cigarette-packages, with a mold for receiving layers of cigarettes and means for pressing the layers into the mold, of end pieces arranged and operating to be brought over the ends of the cigarettes and hold them temporarily in place in the mold.

5. The combination substantially as set forth, in a machine for forming cigarette-packages, with a mold for receiving layers of cigarettes for a package, means for feeding the desired number of cigarettes for a package layer over the mold and means for pressing the layers into the mold, of end swinging pieces, as 76, provided with inwardly-projecting flanges, as 77, on which the ends of the cigarettes of a layer rest, and outwardly-projecting flanges, as 78, to hold the cigarettes of a layer in place when pressed into the mold.

6. The combination, substantially as set forth, in a machine for forming cigarette-packages, of pivoted end pieces, as 76, arms, as 79, connecting-rods, as 80, and a double-barreled rotary cam, as 81, whereby the pieces 76 are positively swung outwardly and inwardly as described.

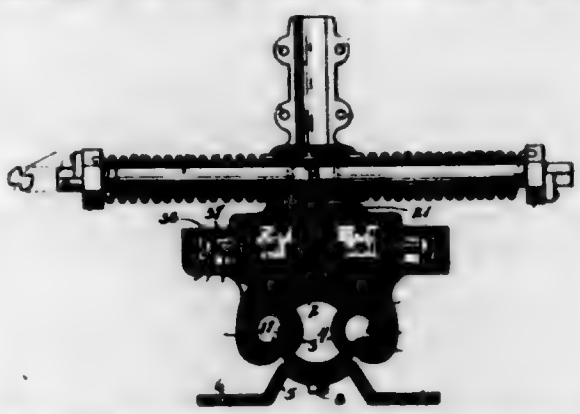
7. The combination, in a package-mold, of a movable bottom, as 88, a guide-rod as 90, attached to such bottom, a boss, as 90ª, through which the rod passes, and a spring, as 89, located in such boss and arranged to bear against the rod, substantially as and for the purpose set forth.

8. The combination substantially as set forth, in a machine for forming cigarette-packages, of a pair of end edge folders, as 104, carried upon the end of swinging arms, as 108, a cross-bar, as 107, to which the folders are pivoted, tailpieces, as 110, provided with cams, as 111, and fingers, as 112, attached to some fixed point and passing through the cross-bar and operating upon the folders to give them a lateral movement as they operate to form laps 101.

9. The combination substantially as set forth, in a machine for forming cigarette-packages, with a channel, as 93, of end side folders, as 106, constructed and arranged to operate in substantially the same line with the edge walls of the channel, means for moving the folders toward the entrance of the channel to form final laps, as 103, and means for moving them back to their normal position simultaneously with the advance of the package and in contact with the formed laps.

10. The combination substantially as set forth, in a cigarette-packing machine, with a folding and expelling channel, as 93, having the ends of its walls adjacent its mouth diagonal to the direction of the channel, of end side folders, as 106, having corresponding diagonal edges, substantially as and for the purpose set forth.

692,790. TROLLEY-STAND. OTTO F. LIDKE, Ypsilanti, Mich., assignor to Detroit Trolley and Manufacturing Company, Limited, Detroit, Mich. Filed Aug. 14, 1901. Serial No. 72,002. (No model.)



Claim.—1. In combination with a rail adapted to be secured to the top of a car, a carriage movable along said rail, a trolley-arm, means intermediate said arm and said carriage arranged to allow the trolley-arm a universal swinging movement, substantially as described.

2. In combination with a track and a carriage shiftable thereon, means for holding the carriage to the track, a trolley-pole socket arranged to swing freely in the direction of the track with a limited movement

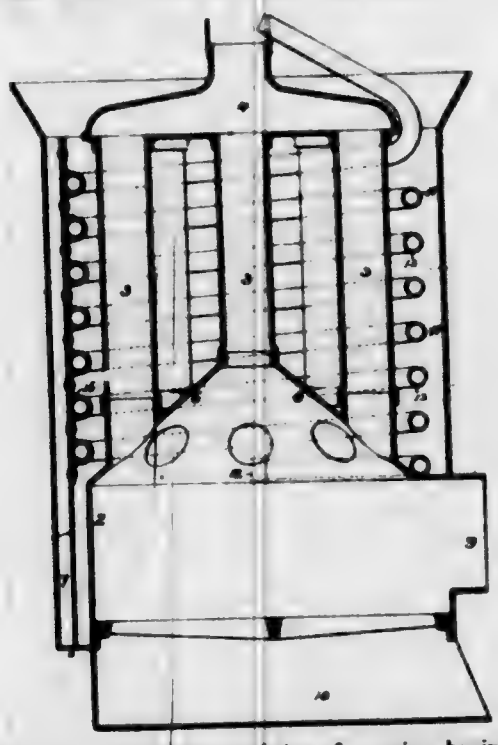
across the track and to rotate on a central needle-point bearing, substantially as described.

3. In a trolley-support, a trolley-socket provided with a needle-pointed bearing, means whereby the bearing is capable of rotation on the point of said bearing, and means whereby the trolley-pole socket is arranged to swing with respect to the needle-point bearing, substantially as described.

4. The combination of a track provided with running-grooves a carriage provided with sockets, and balls arranged to hold the carriage to the track and to furnish bearings on which the carriage runs, substantially as described.

5. The combination of a trolley-arm provided with cross-arms and supported on a needle-point bearing a pair of springs arranged to lift the arm when the arm is in either position, and means for adjusting the tension of the springs, substantially as described.

692,791. SAND-DRIER. CHARLES LINDSTROM, Bloomington, Ill., assignor of one-half to Clarence M. Mendenhall, Bloomington, Ill. Filed June 4, 1901. Serial No. 63,101. (No model.)



Claim.—1. A sand-drier consisting of a casing having a fire-pot, flues for said fire-pot extending upwardly through the casing and a vapor-escape pipe having a series of convolutions disposed one above another in the space between the flues and the casing, said convolutions being provided with openings for carrying off vapor, substantially as described.

2. A sand-drier consisting of a casing having a fire-pot, flues from said fire-pot extending upwardly through the casing and a vapor-escape pipe having a series of convolutions disposed one above another in the space between the flues and the casing, said convolutions being provided with openings in their under sides for carrying off vapor, substantially as described.

3. In a sand-drier the combination of a casing, a fire-pot having flues extending upwardly through the casing, a smoke-chamber into which said flues discharge, and a vapor-escape pipe having convolutions disposed one above another in the annular space between the casing and said flues, said escape-pipe communicating with the smoke-chamber and said convolutions having openings for the escape of vapor from the sand, substantially as described.

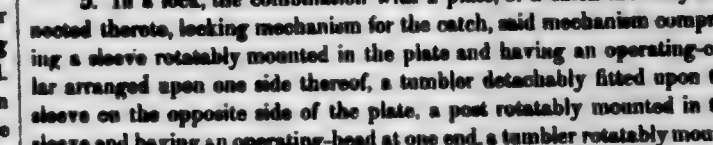
4. In a sand-drier the combination of a casing, a fire-pot having flues extending upwardly through the casing, and a continuous coil of pipe presenting convolutions one above another within the annular space between the casing and said flues, said convolutions having openings through which vapor from the mass of sand can enter the same, substantially as described.

5. In a sand-drier the combination of a casing, a fire-pot having flues extending upwardly through the casing, a smoke-chamber into which said flues discharge and a continuous coil of pipe disposed in the annular space between the casing and said flues and presenting convolutions one above another which are provided with a number of openings, said pipe communicating with the smoke-chamber, substantially as described.

6. In a sand-drier the combination of a casing, a fire-pot having flues extending upwardly through the same, a smoke-chamber into which said flues discharge, a continuous coil of pipe in the annular space between the casing and said flues, the same presenting convolutions one above another, which convolutions have a number of openings in their under sides, said pipe communicating with the smoke-chamber, substantially as described.

7. The combination in a sand-drier of a casing, a fire-pot and a smoke-chamber having flues extending between them, and a continuous coil of pipe within the annular space between the casing and the said flues, the convolutions of said coil extending substantially from the bottom to the top of said annular space and having openings for the escape of vapor from the sand, substantially as described.

692,792. LOCK. CRAWFORD D. LOGAN, Coalhill, Ark., assignor of two-thirds to Albert V. Cheny and Thomas J. Gipson, Coalhill, Ark. Filed Sept. 28, 1901. Serial No. 76,820. (No model.)



Claim.—1. The combination with a hasp, of a catch for holding the hasp, locking means for the catch, actuating mechanism for the locking means, a cover removably fitting over the actuating mechanism, and an operating device for the catch, said device also constituting holding means that engage the cover to secure said cover over the actuating mechanism.

2. The combination with a hasp, of a holding-catch carried by the hasp, locking means for the catch also carried by the hasp, actuating mechanism for the locking means located upon the exposed face of the hasp, a cover for the actuating mechanism hinged to the hasp and arranged to removably fit over said actuating mechanism, and an operating device for the catch, said device also constituting holding means that engage the cover to secure said cover over the actuating mechanism.

3. The combination with a hasp, of a sliding catch-bolt carried by the hasp, locking means for the bolt also carried by the hasp, actuating mechanism for the locking means located upon the exposed face of the hasp, a cover for the actuating mechanism hinged to the hasp, an operating-stem secured to the catch-bolt and projecting above the face of the hasp, and a rotatable head secured to the projecting portion of the stem and arranged to engage the cover to hold the same in operative position over the lock-actuating mechanism.

4. The combination with a hasp, of a sliding catch-bolt arranged upon the under side of the hasp, locking means for the bolt also carried by the hasp, actuating mechanism for the locking means located upon the exposed face of the hasp, a cover for the actuating mechanism hinged to the hasp and provided in its free end with an opening, an operating-stem rotatably secured to the catch-bolt, said stem extending through and projecting above the face of the hasp, and a head secured to the projecting portion of the stem and arranged to engage in the opening of the cover, said head being provided with an offset lug that engages said cover to hold the same in operative position over the lock-actuating mechanism.

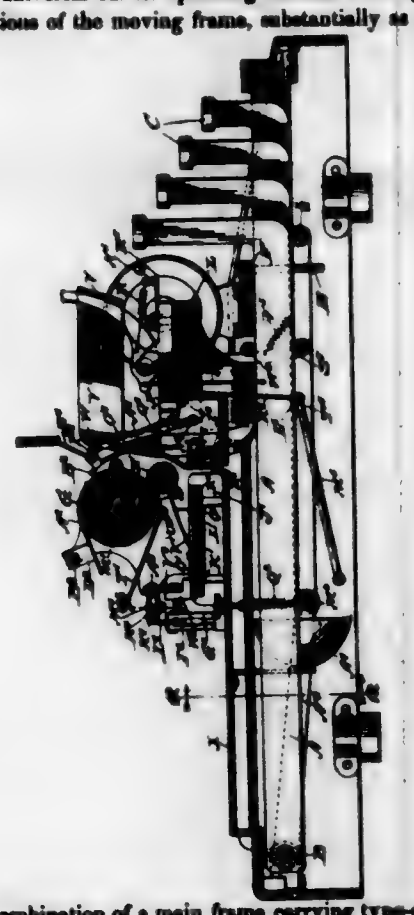
5. In a lock, the combination with a plate, of a catch movably connected thereto, locking mechanism for the catch, said mechanism comprising a sleeve rotatably mounted in the plate and having an operating-collar arranged upon one side thereof, a tumbler detachably fitted upon the sleeve on the opposite side of the plate, a post rotatably mounted in the sleeve and having an operating-head at one end, a tumbler rotatably mounted upon the other end, a holding device fitted upon the post and detachably securing the tumbler and post against relative movement, and a fastener for holding said securing device in place.

6. In a lock, the combination with a plate, of a sliding bolt arranged upon the under side of the plate, and locking mechanism for the bolt, said mechanism comprising a sleeve rotatably mounted on the plate and having an operating-collar located upon the outer side thereof, a tumbler detachably fitted upon the sleeve on the inner side of the plate, a post rotatably mounted in the sleeve and having an operating-head arranged upon the outer side of the plate, the other end of said base being angular in cross-section, a tumbler rotatably mounted upon the post contiguous to the angular portion, a holding-disk fitted upon the angular portion and engaging the rotatable tumbler to hold the post and tumbler against relative movement, a washer located over the disk, and a screw passing through the washer and engaging the post.

692,793. TYPE-WRITER. JASON C. LOTTERHAND, New York, N. Y., assignor of one-half to Walter B. Manny, St. Louis, Mo. Filed Aug. 7, 1897. Serial No. 647,414. (No model.)

Claim.—1. In a type-writing machine, the combination with the main frame of the machine, of a carrier-frame movable rearwardly and forwardly of the main frame, a paper-carriage movable to and fro on said carrier-frame at right angles to the direction of motion thereof, an upper-case key, a bell-lever connecting said key with said carrier-frame, a spring for returning said carrier-frame to normal position after displacement therefrom by said bell-lever, and a movable crank or cam for actuating said bell-lever and carrier-frame and holding them in their shifted positions against the force of said spring, substantially as described.

2. The combination of a main frame carrying type-operating mechanism and a universal bar, a backwardly and forwardly moving frame mounted on the main frame and carrying a laterally-movable paper-carriage, letter-spacing mechanism carried by said moving frame and by said carriage, one part on each, whereby operative connection is maintained between said parts, and connections between the said letter-spacing mechanism and the universal bar for operating the said letter-spacing mechanism in all positions of the moving frame, substantially as described.



3. The combination of a main frame carrying type-operating mechanism and a universal bar, a backwardly and forwardly moving frame mounted on the main frame and carrying a laterally-movable paper-carriage, letter-spacing mechanism carried by said moving frame and by said carriage, one part on each, whereby operative connection is maintained between said parts, ribbon-spools mounted upon the main frame, a ribbon-guide upon the moving frame, and connections between the letter-spacing mechanism and the universal bar, substantially as described.

4. The combination, with the platen-roller G, of the bar B^2 extending longitudinally thereof and journaled at its opposite ends in the paper-carriage frame, the paper-fingers A^2 A^2 mounted upon said bar and adjustable longitudinally thereof, and the springs C^2 applied to the opposite ends of said bar and pressing the paper-fingers A^2 against the platen-roller G, substantially as described.

5. In a type-writing machine, the combination of a platen-carrier frame, a platen-roller journaled therein, a spring-pressed bar extending longitudinally of the platen and journaled in the said frame, and paper-guide fingers mounted on said bar in a non-rotative manner and adjustable longitudinally thereof and coacting with the platen-roller, substantially as described.

6. The combination, with the platen-roller G, of the bar B^2 extending longitudinally thereof and journaled at its opposite ends in the paper-carriage frame, the paper-fingers A^2 A^2 mounted upon said bar and adjustable longitudinally thereof, the springs C^2 applied to the opposite ends of said bar to press the paper-fingers A^2 against the platen-roller, and the cam-arms E^2 carried by the paper-fingers A^2 and coöperating with the bar B^2 to hold the paper-fingers in their different adjusted positions along said bar, substantially as described.

7. The combination, with the platen-roller G provided with the ratchet G^2 at one end, of the rock-shaft I^2, the arm O^2 fast thereon, the pawl H^2 pivotally mounted on the arm O^2 and spring-pressed toward the ratchet G^2, the screw N^2 coöperating with the pawl H^2 to disengage it from the ratchet, the spring M^2 for yieldingly holding the rock-shaft and pawl in and restoring them to normal position, and the lever K^2 for operating the rock-shaft.

8. In a type-writing machine, the combination of a platen-frame, a cylindrical platen having a ratchet-wheel at one end thereof, a spring-pressed rock-shaft mounted in said frame and parallel to said platen, a pawl connected to said rock-shaft at right angles thereto and to the axis of the platen and adapted to engage said ratchet-wheel, and a key or lever also attached to said rock-shaft at right angles thereto and arranged to work in a vertical plane substantially at right angles to the axis of said platen.

9. The combination, with the platen-roller G having the ratchet G^2, the rock-shaft I^2, the arm O^2 fast thereon, the spring-pressed pawl H^2 pivoted on said arm and coöperating with the ratchet G^2 and the stop-screw N^2, the spring M^2 applied to the shaft I^2, the lever K^2 for rocking said shaft, the stop Q^2 carried by the plate R^2 hung upon the spindle of the roller G and provided with the projection V^2 coöperating with the notches W^2 in the edge of the plate N', and with the knob U^2 for adjusting it from one position to another, and the spring S^2 bearing upon the plate R^2 and serving to hold its projection V^2 in engagement with the notches W^2 in the plate N', substantially as and for the purpose described.

10. The combination, with the platen-roller G provided with the ratchet G^2, of the spring-plate Y^2 carrying the roller X^2 engaging said ratchet, and the lever Z^2 adapted to pass between the plate Y^2 and the end of the carriage to disengage the roller X^2 from the ratchet, substantially as described.

11. In a type-writer, the combination of a platen-roller having a ratchet, a member frictionally engaging said ratchet to hold the roller in positions determined by the teeth or notches of the ratchet, means for disengaging such device from the ratchet, to permit the roller to be freely turned to and remain in any desired position, said roller being provided upon one end with a series of graduations having main divisions corresponding to the notches of the ratchet and minor divisions intermediate the same, and a pointer or index coöperating with such graduations to determine the position of the roller; whereby when the frictionally-engaging member is held temporarily out of engagement with the ratchet-wheel the paper may be conveniently and finely adjusted for printing between regular line-spaces, and so that such printing may occur at regular or uniform and predetermined interlinear places or heights.

12. The combination, with the rack-bar A^2 of the paper-carriage, of the rock-shaft I^2, the sleeve fast thereon and having formed upon it the pallet R^2, the second sleeve splined upon the shaft I^2 and having formed upon it the pallet S^2, the spring U^2 surrounding the shaft I^2 within the counterbored ends of the respective sleeves, the stop T^2 for limiting the movement of the pallet S^2 under the action of the spring U^2, the arm K^2 fast upon the shaft I^2, and the link L^2 connecting the arm K^2 with the universal bar of the machine.

13. In a type-writing machine and in an escapement mechanism, the combination of a carriage, a feed-rack, a member coöperating with the rack for letter-space feed, and means for automatically disengaging said rack and said member by the pressure of the rack on said means during retraction of the carriage, substantially as described.

14. In a type-writing machine, and in an escapement mechanism, the combination of a carriage having a feed-rack, a member coöperating with said rack for letter-space feed, and a movable device on the frame adjacent the path of the rack and having a part normally engaging with the teeth of the rack, whereby when a return movement of the carriage takes place the device is actuated by the rack and the rack in turn is moved by the device to cause a disengagement of the rack from its coöperating member, substantially as described.

15. In a type-writing machine and in an escapement mechanism, the combination of a carriage having a feed-rack, a member coöperating with said rack for letter-space feed, and a pivoted spring-pressed device having a part normally engaging with the teeth of the rack whereby when a return movement of the carriage takes place the device is actuated by the rack and the rack in turn is moved by the device to disengage it from its coöperating member, substantially as described.

16. In a type-writing machine and in an escapement mechanism, the combination of a carriage, a feed-rack, a member coöperating with the rack for letter-space feed, and said rack being movable to disengage it from said member, and a pivoted rack-mover adapted upon a return movement of the rack to be moved by the pressure of the rack-teeth thereon and during said motion to disengage the rack from its coöperating member and also to hold the rack disengaged during the retractile or return movement of the carriage but adapted to resume its normal position and to permit of the automatic reëngagement of the rack and its coöperating member immediately the retractile force on said rack is released, substantially as described.

17. In a type-writing machine and in an escapement mechanism, the combination of a carriage, a rack-bar movable transversely of its length into and out of position for engagement with a letter-space-feed coöperating member, the coöperating member, and a spring-pressed pivoted plate having a corner normally engaging the teeth of the rack-bar and permitting the rack-bar to move freely by it during the letter-space-feed movement of the carriage but operating to automatically move the bar out of engagement with its coöperating member and to so hold it during the return movement of the carriage, substantially as described.

18. In a type-writer, the combination, with the rack-bar of the paper-carriage, capable of vertical movement, of a spring-pressed pivoted plate engaging the teeth of said rack-bar, said plate permitting the teeth of the bar to ride freely over it as the paper-carriage travels in a forward direction but operating to automatically lift the bar when the paper-car-

rriage is moved in the reverse direction to reset it, substantially as described.

19. In a type-writing machine, the combination with a carriage rack-bar movable transversely of its length, of the spring-pressed-plate V^3 pivoted on the frame on an axis at right angles to the plane of the rack and lying in or substantially in the plane of and coacting with the teeth of the rack to move the rack transversely of its length during retraction of the carriage, substantially as described.

20. The combination, with the rack-bar A^3, of the plate H^4 having the vertical rear portion and the horizontal upper portion engaging the bar A^3, the plate L^4 secured at its rear edge to the plate H^4 and bearing at its forward edge against the under side of the bar A^3, the screw M^4 passed upward through the plate L^4 into the plate H^4, and the spring N^4 interposed between the head of the screw M^4 and the under surface of the plate L^4, with a trip-arm carried by said plate H^4, a gong and its striker, as and for the purpose described.

21. The combination of a main frame carrying the type-operating mechanism and the universal bar, a backwardly and forwardly moving frame carrying a laterally-movable paper-carriage, letter-spacing mechanism carried part by said moving frame and part by said carriage, a rod projecting vertically from the universal bar and provided with a lateral projection adjacent said moving frame, a horizontally-moving plate or bar on said moving frame and adapted to be moved into and out of the vertical path of said projection in all positions of the moving frame, and an arm or projection upon the paper-carriage adapted to actuate such plate or bar and move the same beneath said projection to lock the type-operating mechanism, substantially as described.

22. In a type-writing machine, the combination with the laterally-movable paper-carriage, key-levers, and a universal bar coöperating with said levers, a rod projecting vertically from said bar and provided at its upper end with a lateral projection or head, a pivoted locking bar or plate adapted to be swung under said head, a projection on the carriage for so swinging said bar, and means for sliding or moving said bar longitudinally of itself to withdraw it from engagement with the head and allow the projection or part on the carriage to pass by said bar, and a spring for swinging and moving said bar to a normal position as soon as it is clear of the projection or part upon the carriage, substantially as described.

23. The combination, with the paper-carriage, and the key-levers A and the universal bar M^3 coöperating therewith, of the rod U^4 projecting vertically from the bar M^3 and provided at its upper end with the lateral projection, the plate I^{14} adapted to be moved into and out of the path of the projection upon the upper end of the rod U^4, a projection upon the paper-carriage adapted to coöperate with the plate I^{14} and move it beneath the upper end of the rod U^4, and the lever S^4 for withdrawing the plate I^{14} from the path of the projection upon the paper carriage, for the purpose described.

24. The combination, with the paper-carriage, and the key-levers A and universal bar M^3 coöperating therewith, of the rod U^4 projecting vertically from the universal bar M^3 and provided with a lateral projection at its upper end, the plate I^{14}, movable into and out of the path of such projection and provided with the lug O^4, the adjustable plate H^4 mounted upon the rack-bar of the paper-carriage, the arm I^4 carried by the plate H^4 and coöperating with the lug O^4 of the plate I^{14}, and the lever S^4 connected to the plate I^{14} for withdrawing its lug O^4 from the path of the arm I^4, for the purpose described.

25. The combination, with the laterally-movable paper-carriage, of the two parallel plates A^3 B^3 located at the right-hand end of the path of the paper-carriage, the plate A^3 being secured in fixed position beneath the carriage and the plate B^3 being capable of slight longitudinal adjustment, the plate E^3 guided between the plates A^3 B^3, and the latch D^3 pivoted upon the plate E^3 and provided with teeth coöperating with teeth upon the inner edge of the plate B^3, said latch D^3 constituting a stop coöperating with a projection upon the paper-carriage to limit the movement of the latter, substantially as described.

26. The combination, with the laterally-movable paper-carriage, of the two parallel plates A^3 B^3 located at the right-hand end of the path of the paper-carriage, the plate A^3 being secured in fixed position beneath the carriage and the plate B^3 being capable of slight longitudinal adjustment, the plate E^3 guided between the plates A^3 B^3, and provided with an index or pointer D^3 coöperating with a scale upon the plate A^3, and the latch D^3 pivoted upon the plate E^3 and provided with teeth coöperating with teeth upon the inner edge of the plate B^3, said latch D^3 constituting a stop coöperating with a projection upon the paper-carriage to limit the movement of the latter, substantially as described.

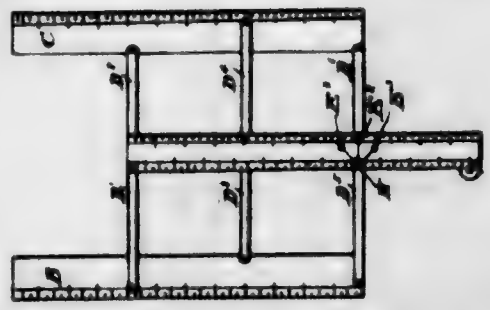
27. In a type-writing machine, the combination with a paper-carriage, and an adjustable marginal stop located at the right-hand end of and beneath its plane of travel, of a stop arm or projection pivoted on said carriage on a horizontal axis and extending below the carriage to coact with said marginal stop and limit the return movement of the paper-carriage, and means for lifting said arm or projection to pass over said marginal stop, substantially as described.

28. In a type-writing machine, the combination with a paper-carriage, and an adjustable marginal stop located at the right-hand end of and beneath its plane of travel, of a stop arm or projection pivoted to said carriage on a horizontal axis and extending beneath the said carriage to coact with said stop and limit the return movement of the paper-carriage, and a push-rod on said carriage coöperating with said stop-arm to lift it to pass over said marginal stop, substantially as described.

29. In a type-writing machine, the combination with a paper-carriage, and an adjustable marginal stop located at the right-hand end of and beneath its plane of travel, of a stop arm or projection pivoted upon said carriage on a horizontal axis and adapted to coact with said stop to limit the return movement of the carriage, and a spring-pressed push-rod borne by said carriage and pivotally connected to said stop-arm for lifting the same to pass over said marginal stop, substantially as described.

30. The combination, with the paper-carriage and an adjustable marginal stop located at the right-hand end of its path of travel, of the movable projection H^3 upon the paper-carriage, adapted to contact with said stop and limit the return movement of the paper-carriage, and the spring-pressed endwise-movable releasing-rod I^3 coöperating with said movable projection to throw it out of line with the marginal stop, for the purpose described.

692,794. PARALLEL EXTENSIBLE RULER. FREDERIC A. MORLEY, Brooklyn, N. Y. Filed Feb. 1, 1901. Serial No. 45,843. (No model.)



Claim.—1. The combination in an extensible ruler of the ruling-bar A, and the ruling-bar B, connected together by means of the links D', D^2 and D^3 with the ruling-bar C connected to the ruling-bar A by means of the links D^2, D^4 and D^5, all being joined together in such manner as to be capable of being extended in length to make a long ruler, and also capable of being extended in width so as to make a wide ruler, for the purpose as herein set forth and described.

2. The combination in an extensible ruler of the parallel bars A and B connected together by means of the links D', D^2 and D^3, and the bar C connected and parallel to the bar A by means of the links D^2, D^4 and D^5 with the set-screw H to clamp the parts together so that the links D', D^2, D^3, D^4, D^5, D^6 and the bars A, B and C can be secured and held at any desired point or angle, all being joined together in such manner as to be capable of being extended so as to make a long parallel-ruler or a wide parallel-ruler, as herein set forth and described.

3. The combination in a parallel extensible ruler of the bar A having a lip G and center point F, the screw-holes E', E^2, E^3, the set-screw H to clamp the parts together for trying and obtaining angles, the link D^6 having screw-hole to receive point F so that the parts can be clamped together for obtaining a square and angles, with the bars B and C and the braces D', D^2, D^3, D^4, D^5, all for the purpose as set forth and described.

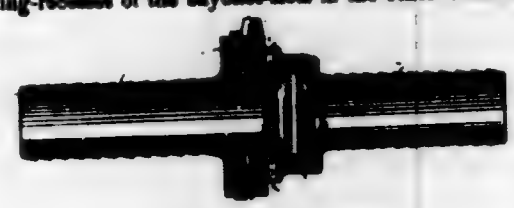
4. The combination in a parallel-ruler of the bars A, B and C, capable of being extended in such manner as to lengthen the ruler or widen the ruler, with the links D', D^2, D^3, D^4, D^5, D^6, for obtaining squares and angles, all being capable of being folded up in a compact form, substantially as set forth and described.

5. The combination in an extensible ruler of the bar A having a lip G, a center point F, the holes E' E^2 and E^3 and the set-screw H, of the parallel bars B and C, said bars A and B being connected by the links D' D^2 and D^3, said bars A and C being connected by the links D^2 D^4 and D^5, said link D^6 being provided with a hole arranged to register with either of the said holes E' E^2 or E^3 in the bar A, and to receive the point F passing therethrough, substantially as described.

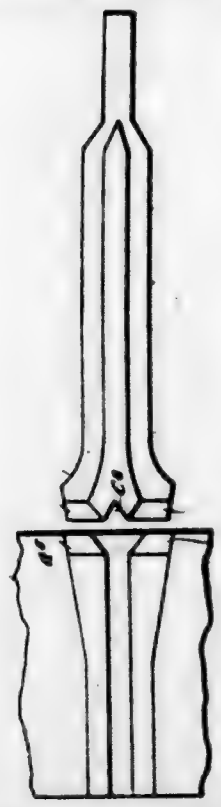
692,795. HOSE OR PIPE COUPLING. LEWIS MEYER, St. Louis, Mo., assignor, by mesne assignments, to Handlan-Buck Manufacturing Company, St. Louis, Mo., a Corporation. Filed Mar. 26, 1901. Serial No. 52,698. (No model.)

Claim.—A coupling of the class described, comprising a member provided with projections and an annular rim, a member externally threaded and provided with bayonet-slots, and an internally-threaded ring mounted on the externally-threaded member and adapted to be brought into con-

tact with the annular rim to hold the projections on one member seated in the locking-recesses of the bayonet-slots in the other member.



692,796. SHARPENING-MACHINE FOR DRILL-BITS. THEODORE H. PROSSER, Victor, Colo. Filed Aug. 14, 1901. Serial No. 71,996. (No model.)

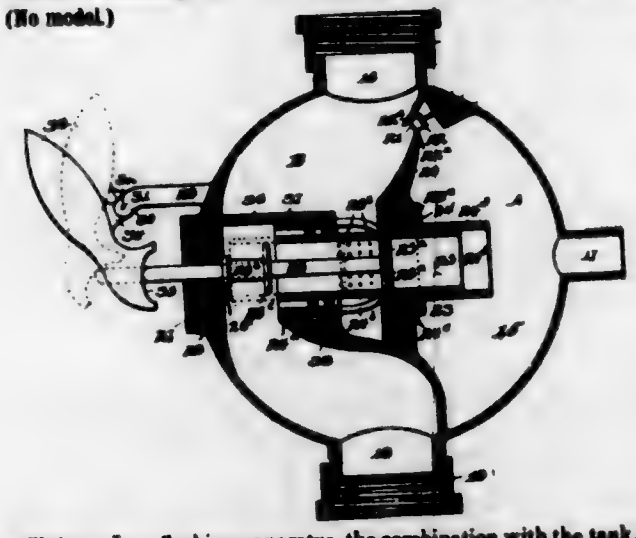


Claim.—1. A sharpening-machine for drill-bits, comprising a die, and a dolly reciprocating toward and from said die, the die and the dolly having registering bevels to serve as a protection to the shaping part of the dolly and as a guide and bumper for the same, as set forth.

2. A sharpening-machine for drill-bits, comprising a die provided with an operating-face bounded by angular edges, a dolly provided with an operating-face mating said face of the die, and provided further with radially-disposed wings provided with cutting edges mating said angular edges of said die.

3. A sharpening-machine for drill-bits, comprising a die provided with an operating-face bounded by angular edges, a dolly having radially-disposed wings provided with an operating-face bounded by angular edges, the arrangement being such that said operating-faces act as formers while said angular edges have a slight shearing movement.

692,797. FLUSH TANK AND VALVE. JOHN F. HODGES, Chartiers township, Pa. Filed Sept. 13, 1900. Serial No. 29,851. (No model.)



Claim.—In a flushing apparatus, the combination with the tank, of a combined supply and discharge pipe connected thereto and to the bowl to be flushed, a valve-casing in said pipe and in communication with the water-supply, a partition or wall in said valve-casing provided with a centrally-arranged opening and an inlet-port, a regulating-valve controlling the admission of water through said inlet-port to regulate the flushing action, a guide-sleeve mounted in said central opening, a slide-valve arranged in said sleeve and adapted to be normally closed under pressure of the water from the water-inlet, and means for operating said valve to open the same to permit the flushing of the bowl, substantially as described.

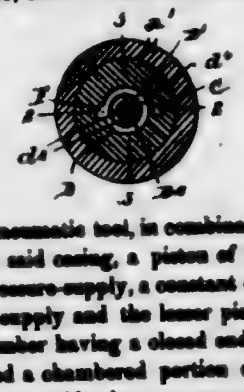
692,798. TIP FOR ATOMIZERS AND NEBULIZERS. CYRUS J. SELTZER, Philadelphia, Pa. Filed Oct. 29, 1900. Serial No. 34,794. (No model.)



Claim.—1. In a combined atomizer and nebulizer and in combination with the usual inner and outer atomizer-tubes thereof, an atomizing-tip carried by said inner tube and provided with passages for air and liquid, said passages being arranged to cause the air to impinge upon the issuing liquid and thereby atomize said liquid in the usual manner, and an apertured tip adjustably secured to said outer tube.

2. In a combined atomizer and nebulizer and in combination with the usual inner and outer atomizer-tubes thereof, an atomizing-tip carried by said inner atomizer-tube, and provided with passages for air and liquid, said passages being arranged to cause the air to impinge upon the issuing liquid and thereby atomize said liquid in the usual manner, and an apertured tip adjustably secured to said outer tube and so constructed that when adjusted in one position its aperture will snugly fit against or around the outer surface of said atomizing-tip, while when adjusted in another position its aperture will permit free escape of air therethrough from said outer tube, substantially as described.

692,799. PNEUMATIC TOOL. WILLIAM H. SELBY, Philadelphia, Pa., assignor of one-half to George A. Dallett, Philadelphia, Pa., and Thomas H. Dallett, Cheyney, Pa., trading as Thomas H. Dallett & Company. Filed June 15, 1899. Serial No. 20,417. (No model.)



Claim.—1. In a pneumatic tool, in combination with a casing, a piston-chamber formed in said casing, a piston of differential area in said chamber, a source of pressure-supply, a constant communication between said source of pressure-supply and the lesser piston area, a valve-chamber, a valve in said chamber having a closed end, constantly acted on by the pressure-supply, and a chambered portion communicating with the piston-chamber, a piston for said valve, a passage leading from said valve-chamber to the piston-chamber and adapted in the reciprocation of the piston to be covered by the piston and open into the chamber below the piston-ports in said valve, connecting with the chambered portion of the valve, one port adapted in the movement of the valve in one direction to register with an exhaust-passage and the other port in the reciprocation of the valve in the other direction adapted to register with the air-supply.

2. In a pneumatic tool in combination with a casing, a piston-chamber formed in said casing, a piston of differential area in said chamber, a source of pressure-supply, a constant communication between said source of pressure-supply and the lesser piston area, a valve-chamber, a valve in said chamber having a closed end, constantly acted on by the pressure-supply, and a chambered portion communicating with the piston-chamber, a piston for said valve, a passage leading from said valve-chamber to the piston-chamber and adapted in the reciprocation of the piston to be covered by the piston and open into the chamber below the piston-ports in said valve connecting with the chambered portion of the valve, one port adapted in the movement of the valve in one direction to register with an exhaust-passage and the port in the reciprocation of the valve in the other direction adapted to register with the air-supply, an annular groove b^2 in the piston, a port F extending through the casing to the piston-chamber and a passage H extending from the valve-chamber to the piston-chamber opposite port F.

5. In a pneumatic tool of the character described, a source of pressure-supply, a piston and piston-chamber, a valve-chamber, a valve having a closed end in communication at that end with the pressure-supply at all times and an open end in communication with the piston-chamber at all times, ports and passages connecting the open end of the valve with the exhaust and pressure-supply.

4. In a pneumatic tool of the character described, a source of pressure-supply, a piston and a piston-chamber, a valve-chamber, a valve having a closed end in communication at that end with the pressure-supply at all times and an open end in communication with the piston-chamber at all times, ports and passages connecting the open end of the valve with the exhaust and pressure-supply, and a piston for said valve, ports and passages controlled by the main piston adapted to connect the valve-piston portion of the valve-chamber with the pressure-supply and exhaust.

692,800. **TOBACCO-PIPE CLEANER.** ALBERT S. SPEIER, New York, N. Y. Filed June 19, 1901. Serial No. 65,195. (No model.)



Claim.—1. A pipe having a cylindrical bowl provided in its wall with opposite openings above the plane of the bottom of the tobacco receptacle or cavity, a stem and a plug interchangeably fitted in said openings, and a cleaning filament attached to the plug, spanning the tobacco receptacle or cavity of the bowl above the bottom thereof and extending into the bore of the stem.

2. A pipe having a cylindrical bowl provided in its wall with opposite axially-alined openings of approximately equal diameters, arranged above the plane of the bottom of the tobacco receptacle or cavity, a stem and a plug interchangeably fitted in said openings, and a cleaning filament attached to the plug, spanning the tobacco receptacle or cavity above its bottom and extending into the bore of the stem.

3. A pipe having a bowl provided in its wall with opposite openings arranged above the plane of the bottom of the tobacco receptacle or cavity, a stem and a plug interchangeably fitted in said openings, the plug being provided with a bore or perforation in alinement with that of the stem, and a cleaning filament extending through the bore of the plug, spanning the tobacco receptacle or cavity and extending into the bore of the stem, and provided at the end adjacent to the plug with an enlargement for preventing longitudinal withdrawal thereof from the bore of the plug, and for permitting withdrawal of the filament by the removal of the plug from the opening in which it is fitted.

4. A pipe comprising a bowl and a stem completely separable therefrom, and a cleaner remaining continuously in the pipe and stem so that the bowl may be used as a handle for cleaning the stem when the latter is separated therefrom, the cleaner being removable from the bowl and stem at will and comprising a tubular plug and a filament, the latter having one extremity passed through the plug and doubled and secured in the outer end of said plug so as to be exteriorly accessible in forming a securement for the end of the filament that will resist disconnection of the filament from the plug when the latter has a drawing force applied thereto, the remaining portion of the filament normally projecting into the stem.

692,801. **SELF-THREADING LOOM-SHUTTLE.** EDWARD S. STURTEVANT, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 7, 1901. Serial No. 77,852. (No model.)

Claim.—1. In an automatically self-threading shuttle, a block having in its base a longitudinal thread-passage having a short tubular portion at its rear end, a thread-entrance above said portion and communicating therewith by an inclined, narrow slot, a downturned guard in the entrance overhanging the slot, the inclination of the latter being toward the pocket formed by the guard, and a horn the head of which extends over the front end of the thread-passage, the back of the head being at a distance from the thread-entrance and leaving an open space between them.

2. In an automatically self-threading shuttle, a block having in its base a longitudinal thread-passage having a short tubular portion at its rear end, a thread-entrance above said portion and communicating therewith by a narrow slot, a downturned guard in the entrance overhanging the slot, and a horn the head of which extends over the front, open portion of the thread-passage, the back of the head constituting a shoulder extended laterally in front of and at a distance from the guard.



3. In an automatically self-threading shuttle, a block having longitudinal parallel side walls one of which is higher than the other and having its front end inclined to constitute a horn, an overhanging head on said wall above the horn, a transverse connecting-wall at the rear end of said side walls and having a tubular longitudinal opening therein constituting the inlet end of the thread-passage, a thread-entrance in said transverse wall above and communicating at its bottom with the tubular opening by a narrow slot, and a downturned guard in said entrance, mounted on the high side wall and overhanging the slot, the front end of the thread-passage leading from the tubular opening and extending between the side walls at the lower portion thereof to the horn.

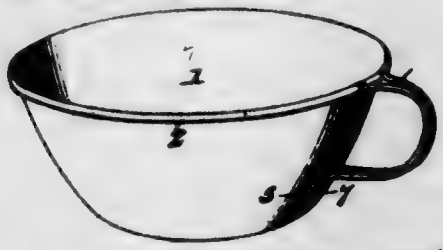
4. In an automatically self-threading shuttle, a long, longitudinal thread-passage open for the greater part of its length and having a tubular inlet at its inner end, a wide thread-entrance above said tubular inlet and communicating therewith by a narrow slot, a guard in said entrance overhanging the slot, and a horn having its head overhanging the front open end of the thread-passage and leaving an unobstructed opening between the back of the head and the thread-entrance.

5. In an automatically self-threading shuttle, a long, longitudinal thread-passage open for the greater part of its length and having a tubular inlet at its inner end, a wide thread-entrance above said tubular inlet and communicating therewith by a narrow slot, a guard in said entrance overhanging the slot, and a horn having its head overhanging the front open end of the thread-passage, the inner edge of the head being diagonally extended across the said passage and leaving an unobstructed opening between the thread-entrance and the point of the head.

6. In an automatically self-threading shuttle, a long, longitudinal thread-passage open for the greater part of its length and having a tubular inlet at its inner end, a wide thread-entrance above said tubular inlet and communicating therewith by a narrow slot, a guard in said entrance overhanging the slot, and a horn having its head overhanging the front open end of the thread-passage, the back of the head presenting a transverse shoulder in front of the thread-entrance and separated therefrom by an unobstructed opening.

7. In an automatically self-threading shuttle, a long, longitudinal thread-passage open for the greater part of its length and having a tubular inlet at its inner end, a wide thread-entrance above said tubular inlet and communicating therewith by a narrow slot, a guard in said entrance overhanging the slot, and a horn having its head overhanging the front open end of the thread-passage, the inner edge of the head being extended rearward from its tip diagonally to the transverse back of the head and beveled adjacent the back, to shed the thread from the top of the head.

692,802. **DRINKING-CUP.** BEN B. STROUP, Coshocton, Ohio, assignor to the Standard Advertising Co., Coshocton, Ohio. Filed Dec. 5, 1900. Serial No. 38,796. (No model.)



Claim.—1. As a new article of manufacture, a vessel formed with a bead around its edge, and having a handle formed by a doubled strand

of wire the ends of said strands being extended into the bead at opposite sides of the handle to effect the retention of the handle and to stiffen the bead, the extremity of said handle which is formed by the doubling of the strand, being bent into contact with the receptacle at a point below the bead.

2. As a new article of manufacture, a drinking-cup provided with a bead around its edge and having a handle formed from a single wire strand bent upon itself and having its ends passed in opposite directions into the bead, the two side portions of the strand being brought together at a point intermediate of the ends of the handle and being slightly separated at the opposite ends of the handle, such separation at the lower end of the handle forming a bearing-loop in contact with the wall of the cup at a point below the bead.

3. As a new article of manufacture, a drinking-receptacle provided with a bead around its edge and having a handle comprising a wire strand bent upon itself and having its extremities passed in opposite directions into the bead and terminating therein, the two side portions of the strand being brought together at a point intermediate of the ends of the handle and being slightly separated at the end of said handle to form a loop said handle having a downwardly-extended portion disposed to bear against the side wall of the receptacle.

692,803. STUMP-SOCKET FOR ARTIFICIAL LIMBS. LEO STUMPF, Covina, Cal., assignor to W. W. Sweeney Co., Los Angeles, Cal., a Corporation of California. Filed Jan. 23, 1901. Serial No. 45,125. (No model.)



Claim.—In a stump-socket, the combination with a protecting and strengthening case and a case-holding thimble, of layers between the case and thimble, composed respectively of yucca brevifolia conformed to the stump to be fitted, and the material commercially known as "moose-skin," being the specially-prepared skin of the hog-deer.

692,804. BURIAL-CASKET. JAMES A. TURNEY, Toledo, Ohio. Filed Oct. 22, 1900. Serial No. 33,858. (No model.)



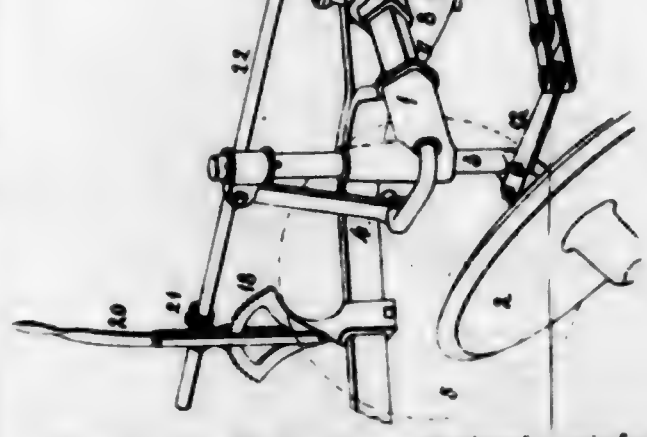
Claim.—1. In a burial-casket, a body portion, a removable lid having an opening therethrough, means for manually fastening and clamping the lid to the body portion, said means when the lid is in place being accessible only through said opening in the lid, a panel to close said opening, and means for automatically locking the panel to the lid, said automatic locking mechanism being inaccessible when locked in place upon the closed casket.

2. A burial-casket comprising a body portion, a removable bottom, a removable lid having an opening therethrough, normally inaccessible means within the casket for fastening and clamping said bottom and lid to said body portion, said lid-fastening, when the lid and bottom are in place, being accessible only through said opening, a panel to close said opening, means for automatically locking the panel to the lid, said automatic locking mechanism being inaccessible when locked in place upon the closed casket.

3. In a burial-casket, a screw-bolt entering the inner vertical wall thereof, an angular head upon said bolt, a flange on said bolt, a cam on said bolt, and a leaf pivotally secured to a horizontal portion of said casket and adapted to engage said cam and flange, in combination with a packing between said wall and said horizontal portion.

4. In a burial-casket, a top, a pair of rods slidably secured lengthwise thereof, a compression-spring interposed between said rods, bolts at the outer ends of said rods, laterally-disposed bolts, connections between said latter bolts and said rods, a flange to engage the outer ends of said bolts, in locked position, and beveled surfaces upon said bolts adapted to slide upon said flange.

692,805. DISK PLOW. LEWIS R. WATERMAN, Rockford, Ill., assignor to Emerson Manufacturing Company, Rockford, Ill. Filed Aug. 31, 1901. Serial No. 74,034. (No model.)



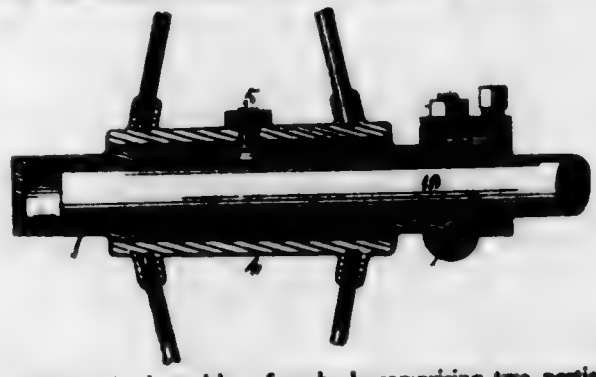
Claim.—1. In a disk plow, the combination of a main frame, an evener-support having a pivotal connection with the main frame, a furrow-wheel, a connection between the evener-support and furrow-wheel, and a lever for moving the connection.

2. In a disk plow, the combination of a main frame, an evener-support, a furrow-wheel, a link connection between the furrow-wheel and evener-support, a toothed segment, a hand-lever, a rod connecting the hand-lever and link connection, and a stop to the lateral movements of the evener-support.

3. In a disk plow, the combination of a main frame, an evener-support having a pivotal connection with the main frame, a furrow-wheel, an adjustable connection between the evener-support and furrow-wheel, and a lever for moving the connection.

4. In a disk plow, the combination of a main frame, an evener-support having a pivotal connection with the main frame, a vertical shaft pivotally supported by the evener-support and having its ends in crank form, a furrow-wheel, a connection between one of the cranks of the shaft and furrow-wheel, a lever supported by the main frame, and a rod having a connection between the other crank of the shaft and the lever.

692,806. SAND-BOX FOR WHEELS. LEWIS R. WATERMAN, Rockford, Ill., assignor to Emerson Manufacturing Company, Rockford, Ill. Filed Aug. 31, 1901. Serial No. 74,035. (No model.)

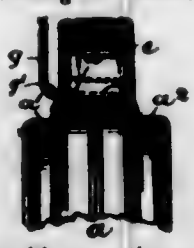


Claim.—1. A sand-box for wheels comprising two portions connected together and one portion having a solid collar integral therewith.

2. A sand-box for wheels comprising two portions connected together, one portion having a solid collar integral therewith, and a set-screw for the collar.

692,807. CHATELAINE-FRAME AND LOCK OR CATCH THEREFOR. ADAH WEBER, Newark, N. J., assignor to J. R. Osborn Manufacturing Company, a Corporation of New Jersey. Filed Aug. 28, 1901. Serial No. 73,248. (No model.)

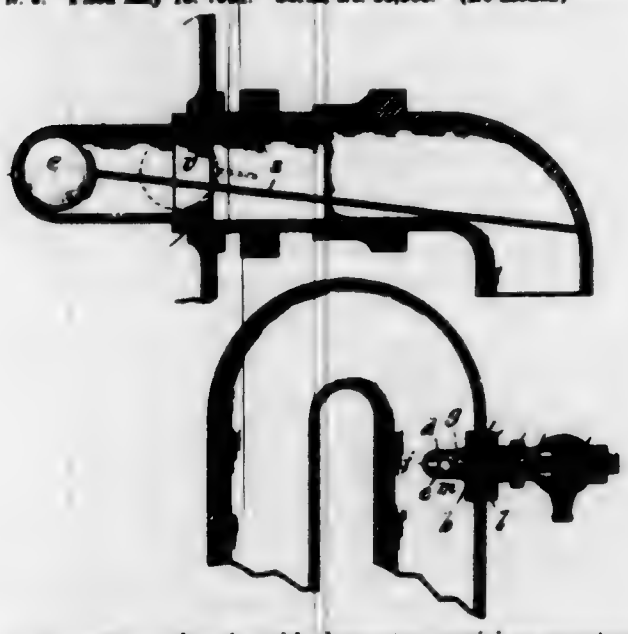
Claim.—1. The improved chatelaine-frame herein described consisting of hinged sections, one of which is provided with projections *d*, and the other with a box *e*, which projects into catching relation with the catches *d*, at its projecting edge, said projecting edge or portion being bent down to enter into said catching relation with said catch and then reversely bent to provide an upwardly-turned tongue against which the finger may press when releasing the catches, substantially as set forth.



2. The combination with the sections a', a^2, of a lug-frame, the first said section having a catch *d*, of a box formed of a single piece of metal and secured at opposite ends to the around said section and intermediate of said ends, providing a catch edge or surface adapted to enter into engagement with the coöperating catch of the opposite section, said intermediate catch edge being rounded and doubled where engaging the catch *d*, and provided with a finger-piece extending up from said edge, substantially as set forth.

3. The combination with the sections a', a^2, the first of which has a catch, of a box fastened to the section a^2, and projecting over the section a', and at its projecting longitudinal edge where engaging the coöperating catch, being doubled or reversely bent and provided with an upturned finger-piece *g*, substantially as set forth.

692,808. **SAFETY-VALVE.** WILLIAM H. WEBBER, Trenton, N. J. Filed May 16, 1901. Serial No. 60,565. (No model.)



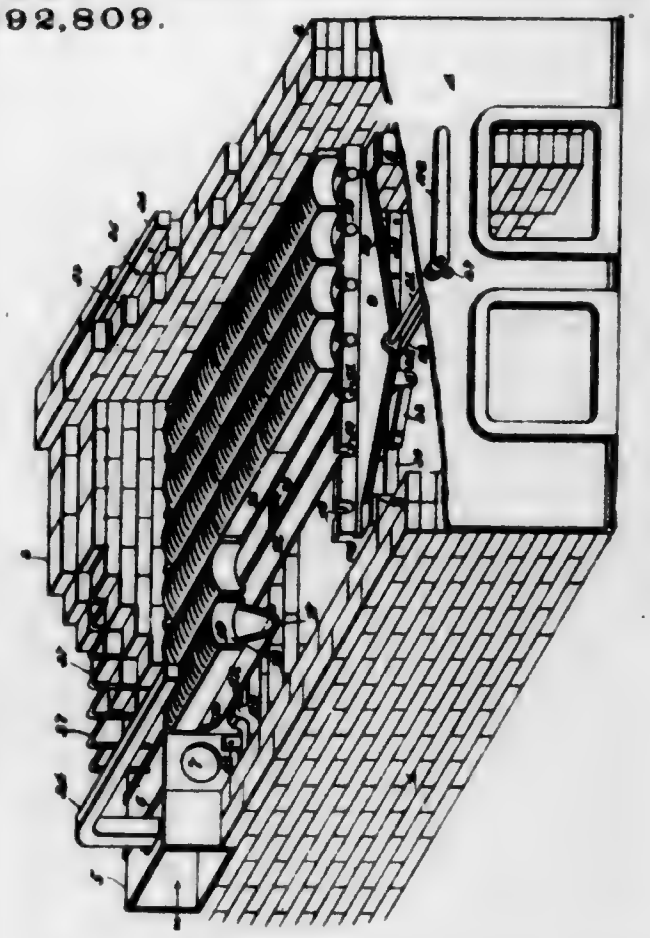
Claim.—The combination with a hot-water-containing apparatus and an outlet-tube connected thereto, having a valve or abutment, of an elongated cage having a rear opening, and a front inner valve-seat, a ball loosely movable in said cage, and a loose or detached piece of wire forming a prop adapted to engage by its respective ends said valve or abutment and said ball, substantially as specified.

692,809. **GRATE.** JAMES L. WHITE, West Superior, Wis., assignor to J. L. White Furnace Company, Milwaukee, Wis., a Corporation of Wisconsin. Filed Sept. 9, 1897. Serial No. 651,139. (No model.)

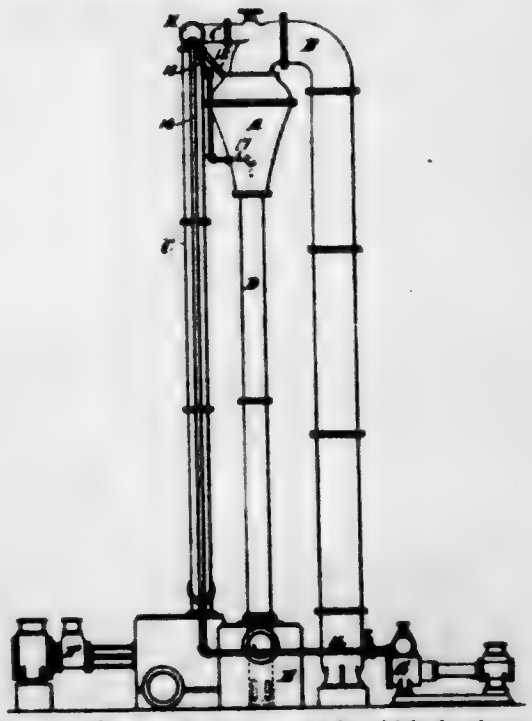
Claim.—1. An improved hollow grate-bar, suitable for forced and natural drafts, provided with pivotal supports at the extremities thereof, whereby it may be rocked, and with a hinged section 17, adapted to be closed when used for forced drafts, and opened when used for natural drafts, the lower face of said hinged section being sector-shaped, a lug 22, with a cut-away portion 23 thereon, adapted to be brought into engagement with the lower face of said hinged section for closing the same, and means for rocking said grate.

2. An improved grate, comprising a plurality of hollow grate-bars, each having a slitted upper portion and a hinged lower section, the lower faces of said lower section being sector-shaped, drawn upon a center adjacent to the axis of said grate-bar, a reciprocating rod or bar mounted beneath the said grate-bars, and lugs carried by said bars for engaging with the lower faces of said hinged section, whereby the same may be closed and means for simultaneously rocking said grate-bars, substantially as described.

692,809.



692,810. **CONDENSER SYSTEM.** CHARLES C. WORTHINGTON, Dunellen, N. J., and LOUIS R. ALBERGER, New York, N. Y. Filed Nov. 27, 1899. Serial No. 738,306. (No model.)



Claim.—1. In a condensing system in which the air or part of the air is removed from the condensing-chamber by an air-pump, the combination with the condenser and connections to the air-pump, of a surface cooler and cooling-liquid connections therefor for cooling the air on its way to the air-pump by liquid-cooled surfaces, substantially as described.

2. In a condensing system in which the air or part of the air is removed from the condensing-chamber by an air-pump, the combination with the condenser and connections to the air-pump, of a surface cooler cooled by the incoming condensing water for cooling the air on its way to the air-pump, substantially as described.

3. The combination with an elevated injector or other aspirating condenser, an air-pump, and connections between the condenser and air-pump for removing air from the condensing-chamber, of a surface cooler and cooling-liquid connections therefor between the condenser and air-pump for cooling the air on its way to the air-pump by liquid-cooled surfaces, substantially as described.

4. The combination with condensing-chamber A, of air-receiver 11 placed centrally of the chamber and flaring downwardly, an air-pump,

pipe connections between receiver 11 and the air-pump, and a surface air-cooler on said connections, substantially as described.

5. The combination with condensing-chamber A and condensing-water pipe C, of air-cooler H on said pipe C and having end chambers 13, 15 and pipes 14 through which the air passes, and pipes connecting said chambers 13, 15 respectively with the condensing-chamber and air-pump, substantially as described.

6. The combination with condensing-chamber A and condensing-water pipe C, of air-cooler H on said pipe C and having end chambers 13, 15 and pipes 14 through which the air passes, pipes connecting said chambers 13, 15 respectively with the condensing-chamber and air-pump, baffles 1 in chamber 13 for separating the water, and drain-pipe 17 from chamber 13, substantially as described.

7. The combination with condensing-chamber A and condensing-water pipe C, of air-cooler H on said pipe C and having end chambers 13, 15 and pipes 14 through which the air passes, pipes connecting said chambers 13, 15 respectively with the condensing-chamber and air-pump, baffles 1 in chamber 13 for separating the water, and drain-pipes 17, 18 from chambers 13, 15, substantially as described.

8. The combination with condensing-chamber A and condensing-water pipe C, of air-cooler H on said pipe C and having end chambers 13, 15 and pipes 14 through which the air passes, pipes connecting said chambers 13, 15 respectively with the condensing-chamber and air-pump, and drain-pipes 17, 18 from chambers 13, 15, substantially as described.

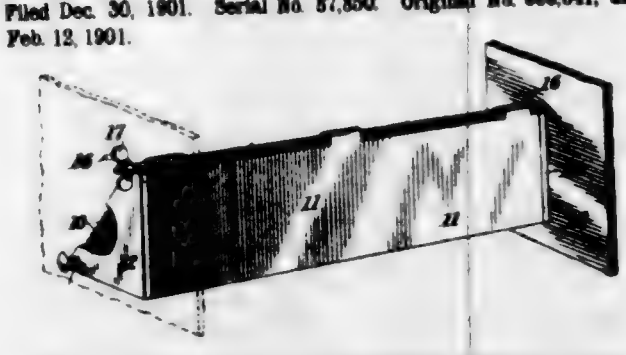
9. The combination with condensing-chamber A and condensing-water pipe C, of air-cooler H on said pipe C and having end chambers 13, 15 and pipes 14 through which the air passes, air-receiver 11 placed centrally of the condensing-chamber and flaring downwardly, pipes connecting the air-cooler with receiver 11 and the air-pump, baffles 1 in chamber 13 for separating the water, and drain-pipe 17 from chamber 13, substantially as described.

10. The combination with condensing-chamber A, condensing-water pipe C and a surface air-cooler on said pipe, of pipes connecting said surface air-cooler with the condensing-chamber and the air-pump, and a water-drain pipe from said air-cooler connecting with the condensing-chamber or its delivery connections for carrying off water drawn from the condensing-chamber with the air or condensed in the air-cooler, substantially as described.

11. In a condenser, the combination with the condensing-chamber and the exhaust and water-delivery pipes leading thereto, a bell located in the condensing-chamber and a pipe opening beneath said bell and adapted to convey air therefrom, of a supplementary condensing-chamber arranged within the water-delivery pipe and cooled by the water passing therethrough, and a pipe leading from said supplementary condenser to an air-suction pipe, substantially as described.

REISSUES.

11,963. THRESHING-MACHINE. ELI W. FLAGG, Battlecreek, Mich., assignor to Nichols and Shephard Company, Battlecreek, Mich. Filed Dec. 30, 1901. Serial No. 87,850. Original No. 668,041, dated Feb. 12, 1901.



Claim.—1. The combination of a toothed cylinder, a concave comprising a concave portion, and a grate close to the sweep of the cylinder-teeth steeply inclined and deflecting the straw upwardly, while permitting kernels to pass through it, and a checking and directing plate extending downward from a line adjacent to the upper edge of the grate.

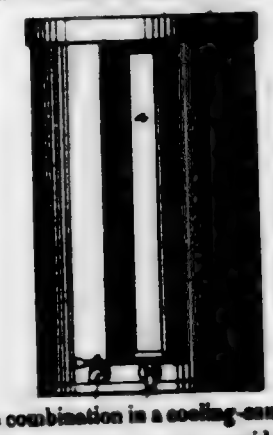
2. The combination with a threshing-cylinder and concave, of a grate forming an extension of the rear end of the concave, a checking and directing plate arranged behind the grate, and supporting means common to both the grate and check-plate, substantially as described.

3. The combination with the cylinder and concave of a threshing-machine, of an inclined grate, a check-plate arranged in rear of the cylinder and behind the grate and adapted to direct the flying grain into the grain-pan, and end walls extending from the grate rearward to the check-plate, substantially as described.

4. The combination with the cylinder and concave of a threshing-machine, of a grate pivotally associated with the rear end of the concave, a movable hanger-bar for adjusting the opposite end of said grate, and a check-plate arranged in rear of the grate and connected with said hanger-bar, substantially as described.

5. The combination with the cylinder and concave of a threshing-machine, of a hinged grate, a pivotally-hung check-plate located behind the grate and serving as a stop for the flying grain passing through the grate, and a rod forming a common support for the check-plate and free end of the grate, substantially as set forth.

11,966. COOLING CAN. EDWARD S. CHESMAN, Centerville, Iowa. Filed Nov. 30, 1901. Serial No. 84,209. Original No. 681,876, dated Sept. 3, 1901.



Claim.—1. The combination in a cooling-can, of a water-can, a milk-can located within said water-can so as to provide an interspace between the walls and bottoms of said milk-can and said water-can, a vertical panel formed by turning in the walls of said water-can and joining the edges of said turned-in portion to the walls of said milk-can, and a gage-glass located at the back of said panel so as to form a portion of the wall of said milk-can, substantially as described.

2. A cooling-can comprising an outer shell, an inner shell or can so located as to provide an interspace between the walls and bottoms of the outer and inner shells, a lid adapted to fit over said outer shell and provided with a depressed portion leading solely to said inner can, said depressed portion forming a cover for said inner can, an inner tube extending downward through said inner can and the bottom thereof and opening into the space between said inner and outer cans, and a vertical collar fitting over the upper end of said inner tube, said collar having an annular flange, substantially as described.

3. A cooling-can, comprising an outer shell, an inner shell or can so located as to provide an interspace between the walls and bottoms of the outer and inner shells, the walls of said inner shell being corrugated vertically the entire length of said walls, a lid adapted to fit over said outer shell and provided with a depressed portion having a strainer at the bottom thereof, an inner tube extending downward through said inner can and the bottom thereof and opening into the space between said inner and outer cans, and a vertical collar fitting over the upper end of said inner tube, said collar having an annular flange forming the inner seat for the strainer, said cover, strainer and collar serving to support the upper end of said tube against lateral movement and strain, substantially as described.

DESIGNS.

35,647. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. HENRY L. WALLACE, Wallingford, Conn., assignor to R. Wallace & Sons Mfg. Co., Wallingford, Conn., a Corporation. Filed Dec. 12, 1901. Serial No. 85,705. Term of patent 7 years.



Claim.—The design for a handle for a spoon, fork or similar article as herein shown and described.

35,648. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. HENRY L. WALLACE, Wallingford, Conn., assignor to R. Wallace & Sons Mfg. Co., Wallingford, Conn., a Corporation of Connecticut. Filed Apr. 22, 1901. Serial No. 57,029. Term of patent 7 years.



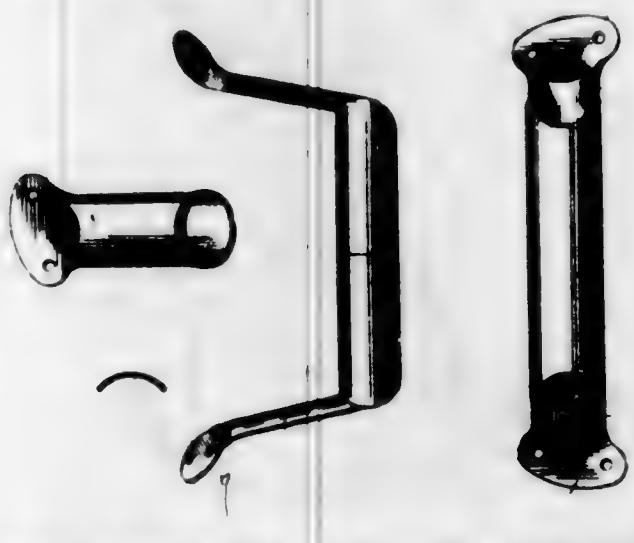
Claim.—The design for a handle for spoons, forks, and similar articles as herein shown and described.

35,649. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. FRANK H. OSBORNE, New York, N. Y., assignor to Gorham Manufacturing Company, Providence, R. I. Filed Jan. 2, 1902. Serial No. 88,949. Term of patent 14 years.



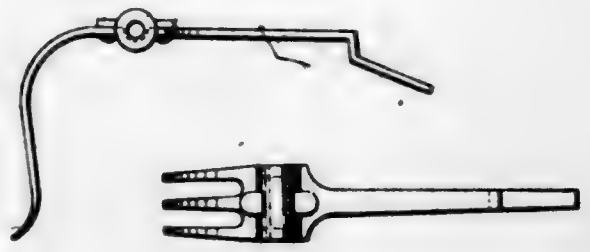
Claim.—The design for the handle of a spoon, fork or similar article, as herein shown and described.

35,650. HANDLE. HENRY A. KEHER, Brooklyn, N. Y., assignor to Elizabeth C. Seaman, New York, N. Y. Filed Oct. 7, 1901. Serial No. 77,918. Term of patent 14 years.



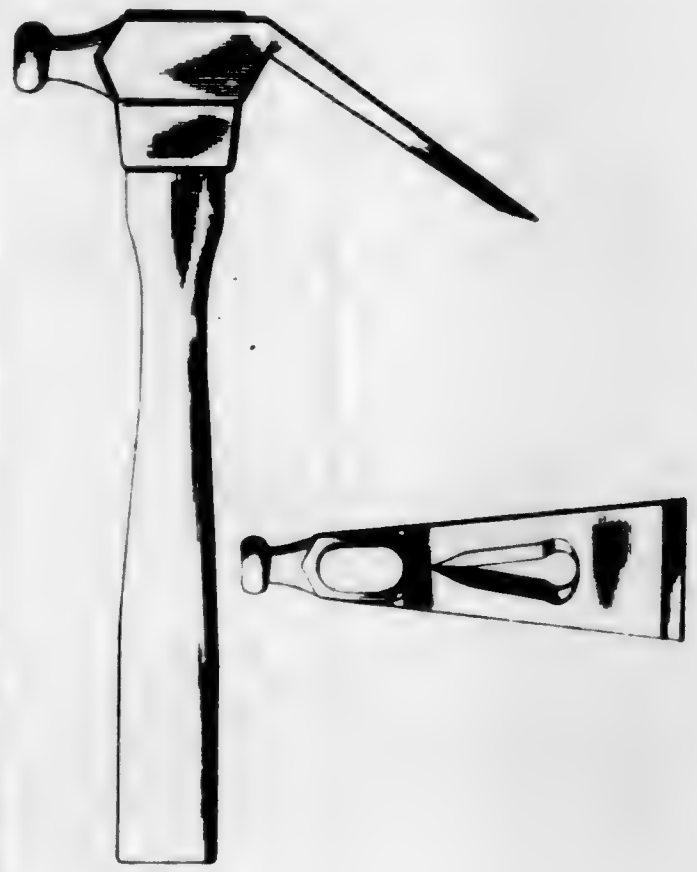
Claim.—The design for a handle substantially as herein described and shown in the drawings.

35,651. LOOM-FORK. ARTHUR DUNF, Fall River, Mass. Filed Dec. 5, 1901. Serial No. 84,838. Term of patent 14 years.



Claim.—The design for a loom-fork, as herein shown and described

35,652. CHISEL, NAIL-PULLER, AND HAMMER. MESHOPE DAVID, ZAKAR DAVID, HARRY DAVID, and PAUL DAVID, Brockton, Mass. Filed Dec. 11, 1901. Serial No. 85,490. Term of patent 14 years.



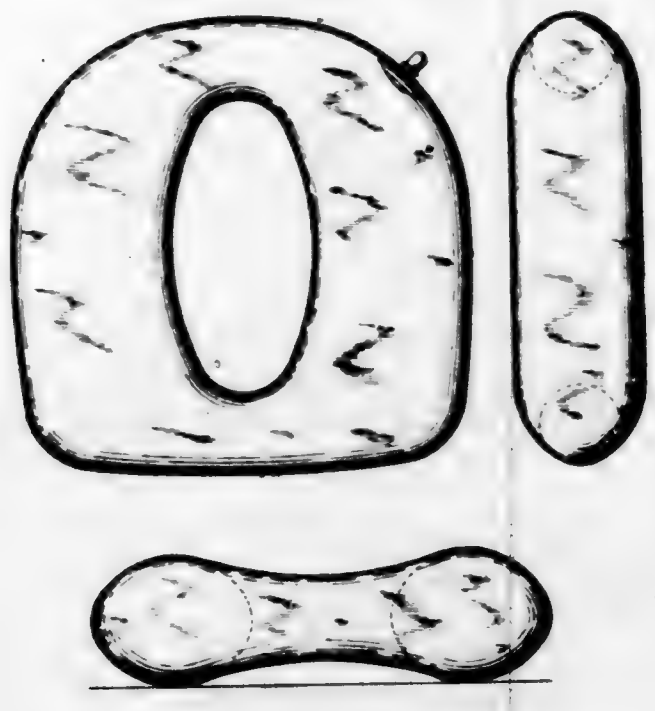
Claim.—The design for a chisel, nail-puller, and hammer, as herein shown and described.

35,653. EYEGLASS OR PINCE-NEZ SPRING. HENRY R. KIRSTEIN, Rochester, N. Y. Filed May 22, 1901. Serial No. 61,460. Term of patent 14 years.



Claim.—The design for an eyeglass or pince-nez spring, substantially as herein shown and described.

35,654. CUSHION. CHRISTIAN WILLIAM MEINECKE, Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y., a Corporation of New Jersey. Filed Jan. 3, 1902. Serial No. 88,361. Term of patent 14 years.



Claim.—The design for a cushion substantially as herein shown and described.

35,655. MASSAGE-ROLLER. CHARLES J. BAILEY, Newton, Mass. Filed Nov. 29, 1901. Serial No. 84,150. Term of patent 14 years.



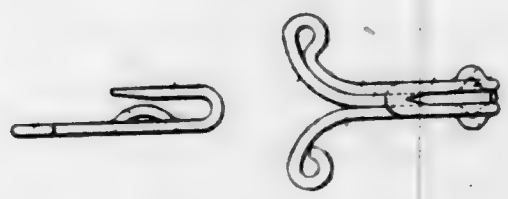
Claim.—The design for a massage-roller as herein shown and described.

35,656. KEEPER FOR HOOKS. JOSEPH GRIES, Colonia, N. Y., assignor to Covert Manufacturing Company, Watervliet, N. Y., a Corporation of New York. Filed June 26, 1901. Serial No. 66,168. Term of patent 14 years.



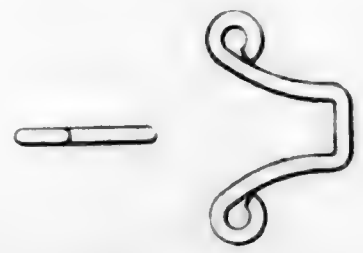
Claim.—The design for a keeper for hooks substantially as shown and described.

35,657. HOOK FOR GARMENTS. CHARLES LEIB, Philadelphia, Pa. Filed Dec. 21, 1900. Serial No. 40,696. Term of patent 14 years.



Claim.—The design for a hook for garments as herein shown and described.

35,658. GARMENT-EYE. CHARLES LEIB, Philadelphia, Pa. Filed Dec. 21, 1900. Serial No. 40,697. Term of patent 14 years.



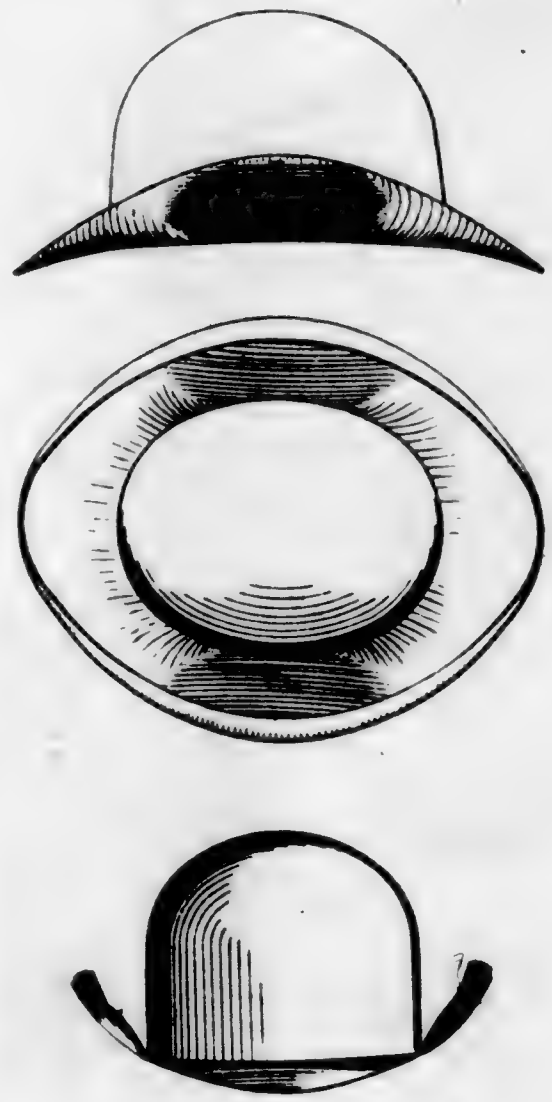
Claim.—The design for a garment-eye, as herein shown and described.

35,659. GARMENT-GRIP. ALFRED H. SIEGLER, Boston, Mass. Filed Oct. 4, 1901. Serial No. 77,603. Term of patent 14 years.



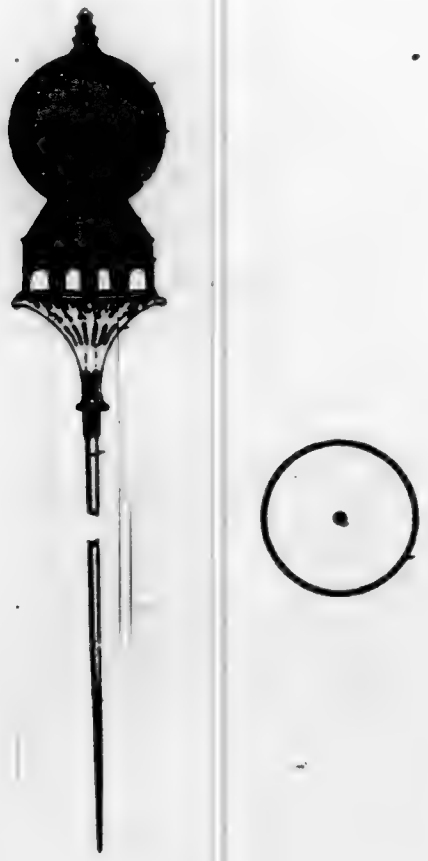
Claim.—The design for a garment-grip as herein shown and described.

35,660. HAT. SAMUEL MUNDHEIM, New York, N. Y. Filed Dec. 4, 1901. Serial No. 84,714. Term of patent 3½ years.



Claim.—The design for a hat, substantially as herein shown and described.

35,661. SOUVENIR HAT-PIN. JOHN T. DONNELL, St. Louis, Mo. Filed Dec. 12, 1901. Serial No. 85,711. Term of patent 3½ years.



Claim.—The design for a souvenir hat-pin, substantially as herein shown and described.

35,662. NECKTIE. ABRAHAM W. COWEN, New York, N. Y. Filed Dec. 17, 1901. Serial No. 86,315. Term of patent 3½ years.



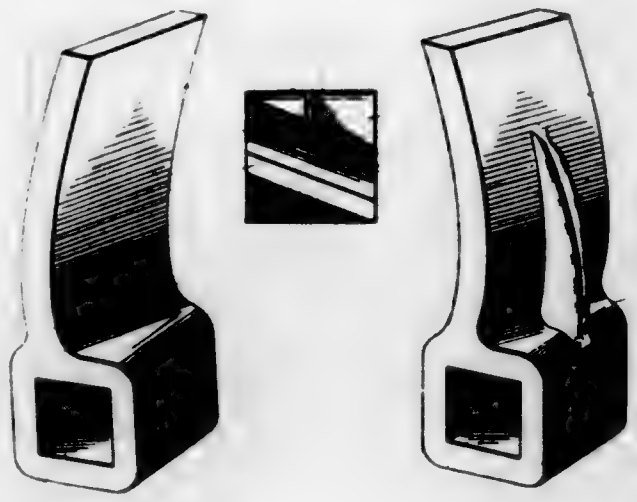
Claim.—The design for a necktie herein shown and described.

35,668. FERRULE. CHARLES P. SMITH, New Britain, Conn., assignor to Landers, Frary & Clark, New Britain, Conn. Filed Jan. 2, 1902. Serial No. 88,264. Term of patent 7 years.



Claim.—The design for a ferrule, as herein shown and described.

35,664. MIXER-BLADE. CHESTER T. DRAKE, Chicago, Ill. Filed Dec. 3, 1901. Serial No. 84,579. Term of patent 14 years.



Claim.—The design for a mixer-blade as herein shown and described.

35,665. TRACE-HOLDER. GEORGE R. WOODBURY, Charlotte, Mich. Filed Dec. 18, 1901. Serial No. 86,453. Term of patent 7 years.



Claim.—The design for a trace-holder, as herein shown and described.

35,666. BUST-PAD. LINDA R. WADE, St. Louis, Mo. Filed Nov. 7, 1901. Serial No. 81,514. Term of patent 7 years.



Claim.—The design for a bust-pad, as herein shown and described.

35,666.



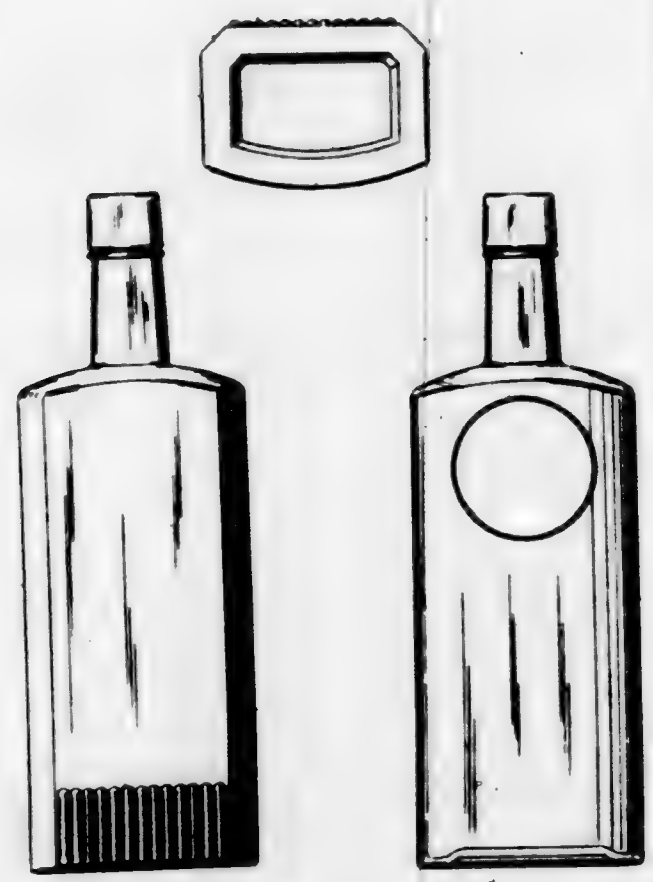
Claim.—The design for a boat-pad, as herein shown and described.

35,667. BOTTLE. KARL KIEFER, Cincinnati, Ohio. Filed Apr. 1, 1901. Serial No. 53,970. Term of patent 7 years.



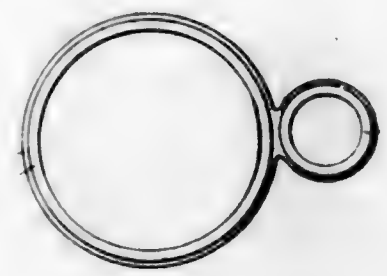
Claim.—The design for a bottle as herein shown and described.

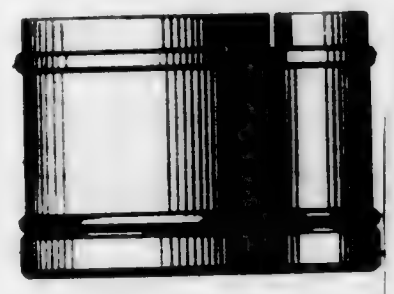
35,668. BOTTLE. RUDOLPH J. TAUSSIG, San Francisco, Cal. Filed Dec. 19, 1901. Serial No. 86,630. Term of patent 7 years.



Claim.—The design for a bottle as herein shown and described.

35,669. PASTE-JAR. ARTHUR H. RITZ, Milwaukee, Wis. Filed Dec. 2, 1901. Serial No. 84,487. Term of patent 14 years.

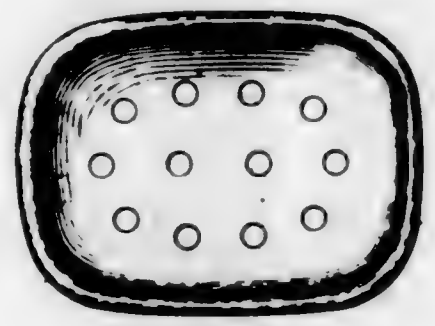




Claim.—The design for a paste-jar, substantially as herein shown and described.

35,670. DRAINER FOR DISHES. JOHN P. BOURN, Newtonville, Mass. Filed Nov. 23, 1901. Serial No. 84,144. Term of patent 7 years.

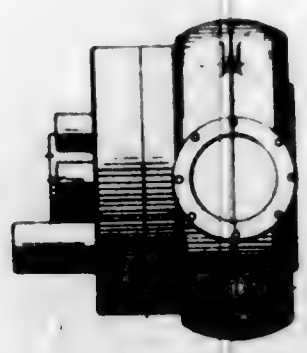


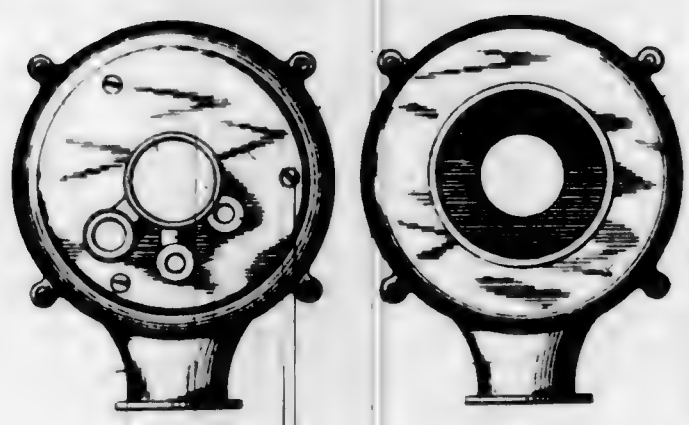




Claim.—The design for a drainer for dishes, as herein shown and described the drainer being oblong, and having a perforated bottom, rounded corners, and exterior flange which extends downwardly part way toward the bottom of the drainer, and continuously around the drainer.

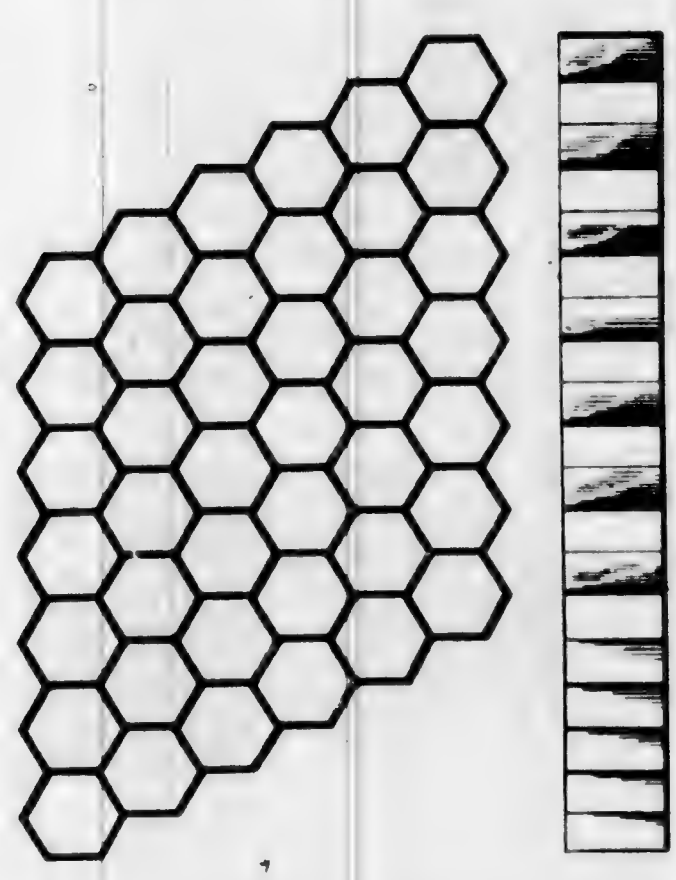
35,671. BLOWER AND GEAR CASING. ALBERT EARL CANEDY, Chicago Heights, Ill., assignor to the Canedy Otto Manufacturing Company, Chicago Heights, Ill. Filed Dec. 16, 1901. Serial No. 86,169. Term of patent 7 years.





Claim.—The design for a blower and gear casing, substantially as shown and described.

35,672. EGG-CASE FILLER. LEWIS D. WEEKS, Santa Margarita, Cal. Filed Sept. 3, 1901. Serial No. 74,254. Term of patent 14 years.



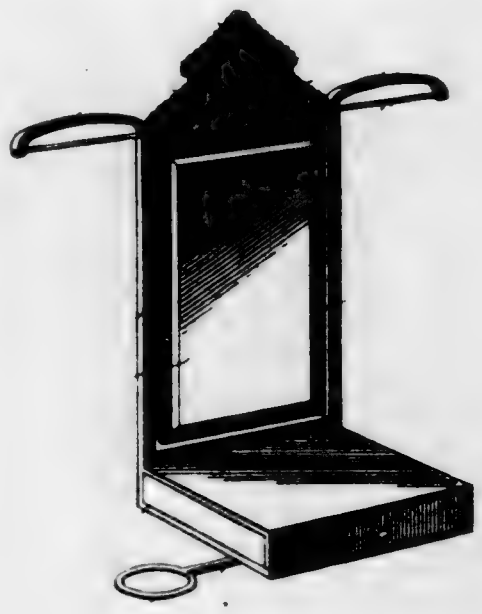
Claim.—The design for an egg-case filler, substantially as shown and described.

35,673. WRAPPING-PAPER. JASON W. COOPER, St. Paul, Minn. Filed Oct. 7, 1901. Serial No. 77,921. Term of patent 14 years.



Claim.—The design for wrapping-paper, substantially as herein shown and described.

35,674. DRESSING-CASE. LEE O. CHURCH, Verne, Ind. Filed Jan. 3, 1902. Serial No. 88,964. Term of patent 7 years.



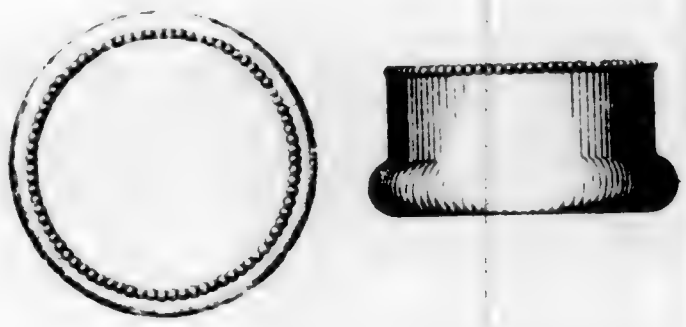
Claim.—The design for a dressing-case, as herein shown and described.

35,675. SHOW-CASE. JOSEPH T. ROBIN, New York, N. Y. Filed Sept. 27, 1901. Serial No. 76,806. Term of patent 7 years.



Claim.—The design for a show-case substantially as shown and described.

35,676. RECEPTACLE. JOHN P. BUERK, Newtonville, Mass. Filed Nov. 29, 1901. Serial No. 84,143. Term of patent 7 years.



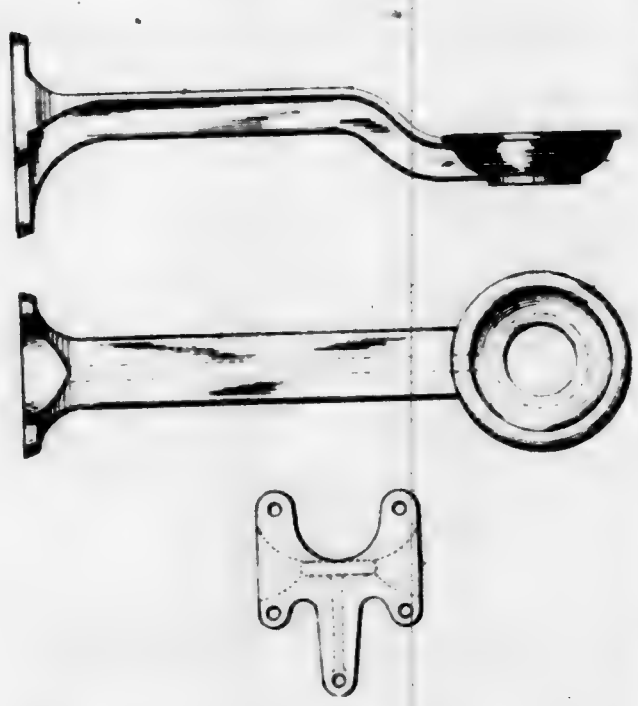
Claim.—The design for a receptacle, as herein shown and described.

35,677. ADVERTISING-CARD OR SIMILAR ARTICLE. WALTER A. SCHIFFER, New York, N. Y. Filed Dec. 4, 1901. Serial No. 84,712. Term of patent 14 years.



Claim.—The design for an advertising-card or similar article, substantially as herein shown and described.

35,678. SUPPORT FOR PUNCHING-BAGS. GEORGE S. MAXWELL, Jersey City, N. J., assignor of one-half to Henry D. Crippen, New York, N. Y. Filed Oct. 16, 1901. Serial No. 78,333. Term of patent 14 years.



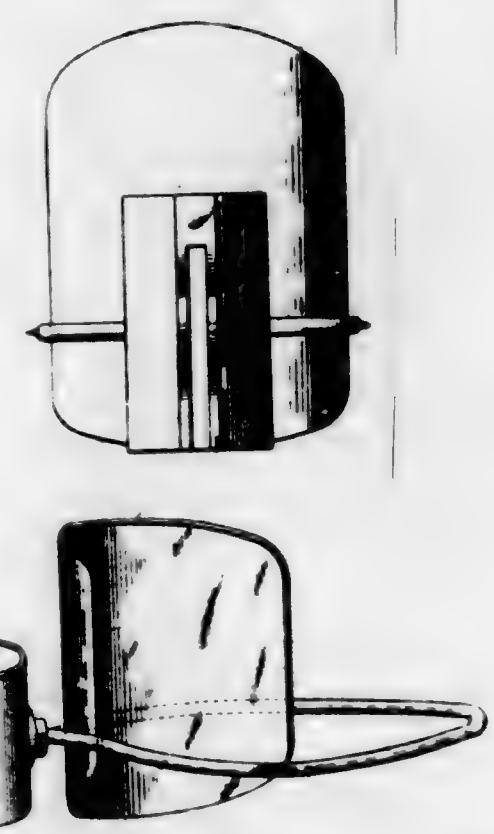
Claim.—The design for a support for punching-bags, as herein shown and described.

35,679. CONNECTING MEMBER FOR HYDROCARBON-STOVES. WILLIAM R. JEAVONS, Cleveland, Ohio. Filed Dec. 4, 1901. Serial No. 84,708. Term of patent 7 years.



Claim.—The design for a connecting member for hydrocarbon-stoves, substantially as shown and described.

35,680. MEMBER FOR SACK-SUPPORTS. PETER O. DE MOSS, Moro, Oreg. Filed July 6, 1901. Serial No. 67,268. Term of patent 7 years.



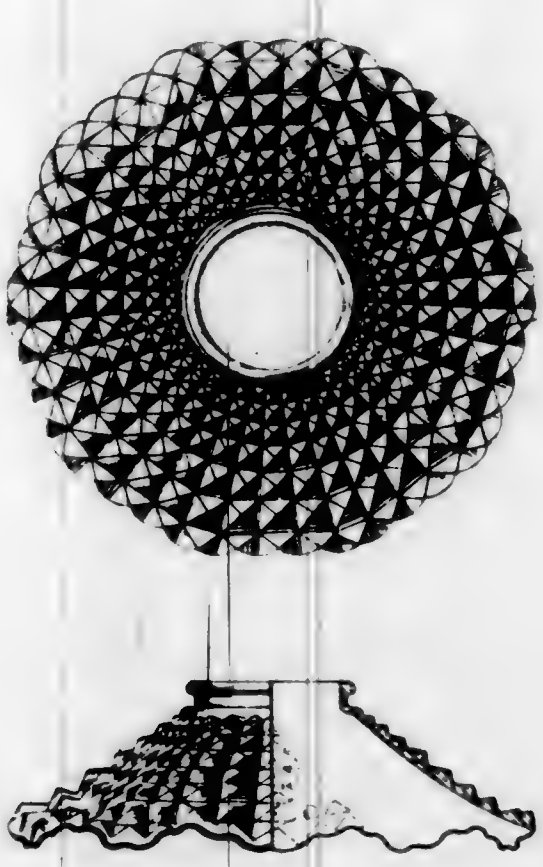
Claim.—The design for a member of a sack-support, as herein shown and described.

35,681. METAL-FRAMED ROCKING-CHAIR. GUSTAV SCHUMACHER, Chicago, Ill. Filed Jan. 2, 1902. Serial No. 88,202. Term of patent 7 years.



Claim.—The design for a metal-framed rocking-chair, as herein shown and described.

35,682. REFLECTOR FOR ARTIFICIAL LIGHTS. OTIS A. MYGATT, New York, N. Y. Filed June 3, 1901. Serial No. 63,047. Term of patent 7 years.



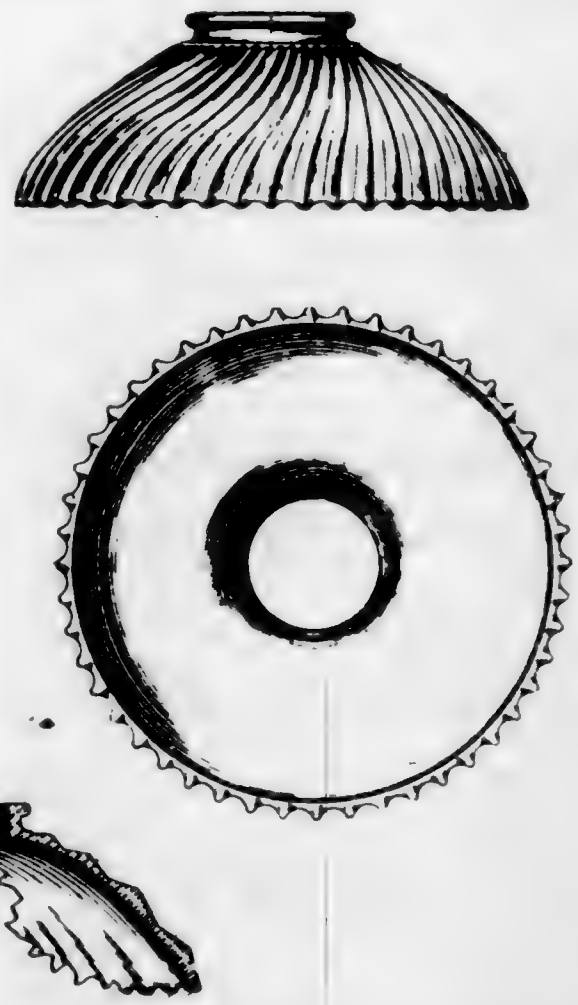
Claim.—The design for a reflector for artificial lights, as shown and described.

35,683. REFLECTOR FOR ARTIFICIAL LIGHTS. OTIS A. MYGATT, New York, N. Y. Filed June 3, 1901. Serial No. 63,044. Term of patent 7 years.



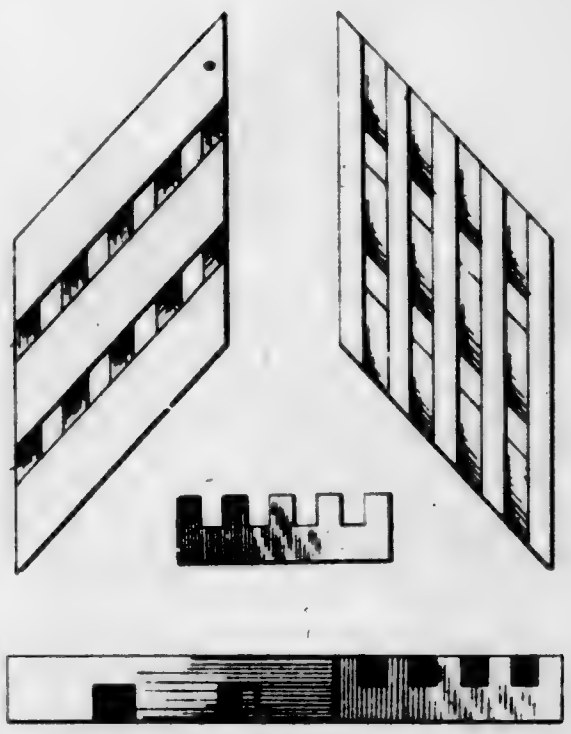
Claim.—The design for a reflector for artificial lights, as shown and described.

35,684. REFLECTOR FOR ARTIFICIAL LIGHTS. OTIS A. MYGATT, New York, N. Y. Filed June 3, 1901. Serial No. 63,046. Term of patent 7 years.



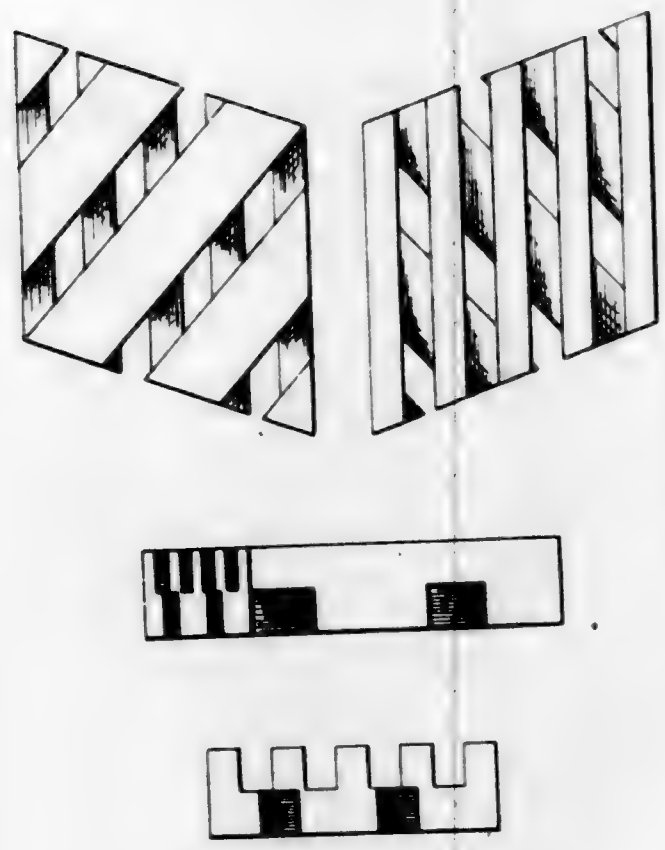
Claim.—The design for a transparent reflector, having the body portion in form of a segment of a sphere, open at the center, said central opening surrounded by a band, as described, and the spherical body having on its outer surface spirally-arranged prisms, terminating in beads at the edge of the body, substantially as shown and described.

35,685. KINDLING-BLOCK. COLLINGWOOD POLLARD, Bradford, England. Filed Dec. 18, 1901. Serial No. 86,620. Term of patent 14 years.



Claim.—The design for a kindling-block as herein shown and described.

85,686. KINDLING-BLOCK. COLLINGWOOD POLLARD, Bradford, England. Filed Dec. 18, 1901. Serial No. 86,431. Term of patent 14 years.



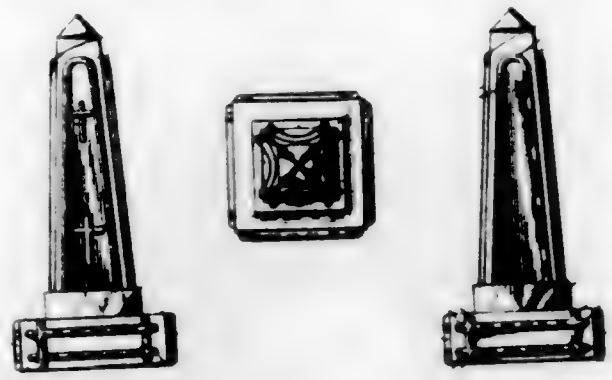
Claim.—The design for a kindling-block as herein shown and described.

85,687. SUSPENDER-YOKE. BENJAMIN STEIN, New York, N. Y. Filed Dec. 18, 1901. Serial No. 86,457. Term of patent 7 years.



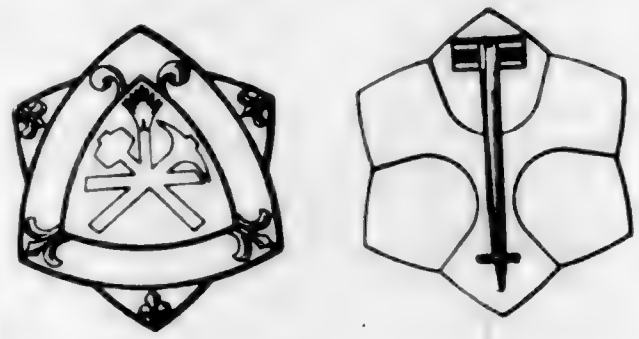
Claim.—The design for a suspender-yoke herein shown and described.

85,688. MONUMENT. JAMES ELBERT WELLS, Burdickville, Mich. Filed Oct. 24, 1901. Serial No. 79,873. Term of patent 14 years.



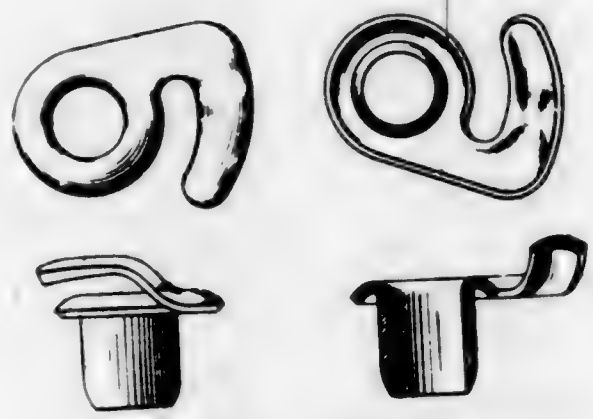
Claim.—The design for a monument, as herein shown and described.

85,689. BADGE. ROBERT S. STOCKTON, Golden, Colo. Filed Dec. 12, 1901. Serial No. 85,700. Term of patent 14 years.



Claim.—The design for a badge as herein shown and described.

85,690. LACE-FASTENER. JAMES L. POALS, Merchantville, N. J., assignor to New Century Hook and Eyelet Company, Camden, N. J., a Corporation of New Jersey. Filed Dec. 16, 1901. Serial No. 86,168. Term of patent 14 years.



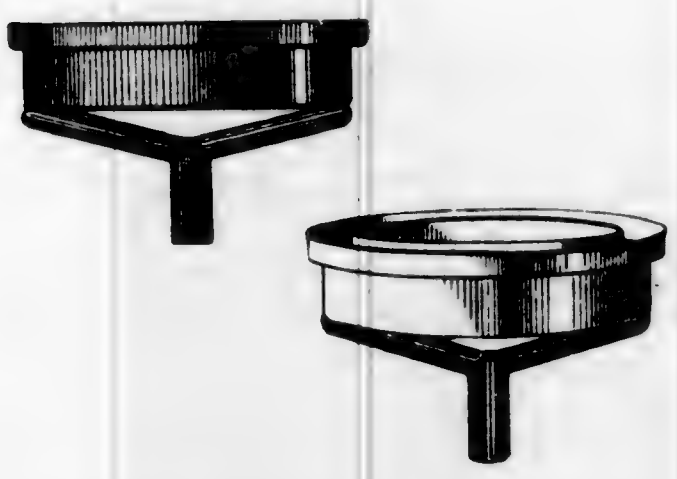
Claim.—The design for a lace-fastener, substantially as herein shown and described.

85,691. TILE. DAVID H. WATTS, Jr., Philadelphia, Pa. Filed Dec. 20, 1901. Serial No. 86,714. Term of patent 14 years.



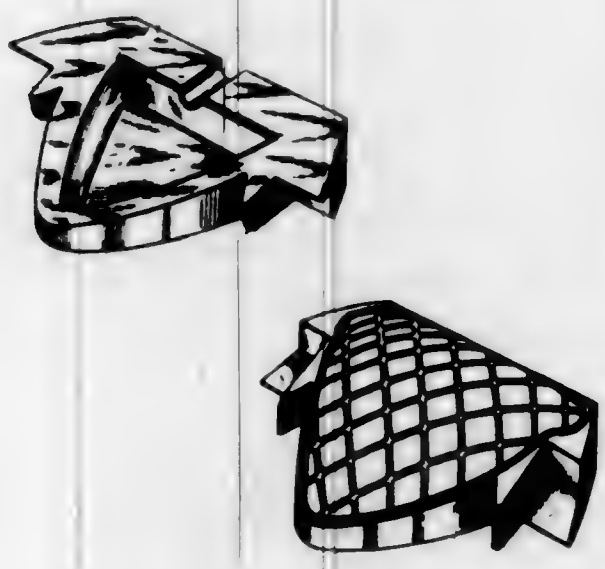
Claim.—The design for a tile substantially as described and as shown in the accompanying drawing.

35,692. BOWL-SUPPORT FOR HYDROCARBON-BURNERS. WILLIAM R. JEAVONS, Cleveland, Ohio. Filed Dec. 4, 1901. Serial No. 84,707. Term of patent 7 years.



Claim.—The design for a bowl-support for hydrocarbon-burners, substantially as described.

35,693. HOOF-PAD. JOHN CAMPBELL, New York, N. Y. Filed Oct. 17, 1901. Serial No. 79,021. Term of patent 14 years.



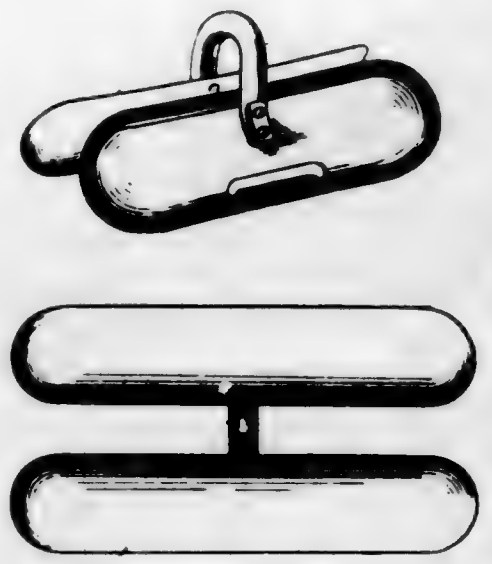
Claim.—The design for a hoof-pad, as herein shown and described.

35,694. HALTER-LOOP. SCOTT H. HULL, Onawa, Iowa. Filed Oct. 23, 1901. Serial No. 79,743. Term of patent 14 years.



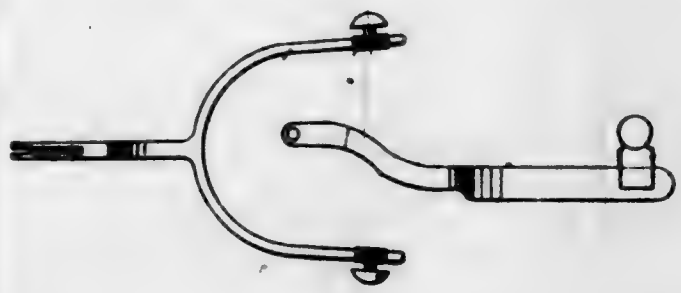
Claim.—The design for a halter-loop, substantially as herein shown and described.

35,695. HARNESS-PAD. FRANK JASPER ROGERS, Diagonal, Iowa. Filed Dec. 21, 1901. Serial No. 86,880. Term of patent 14 years.



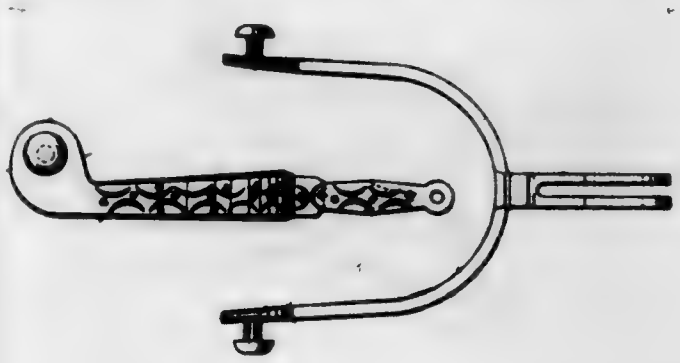
Claim.—The design for a harness-pad herein shown and described.

35,696. SPUR-BODY. WILLIAM EARL UNDERWOOD, Gainesville, Tex. Filed Nov. 12, 1900. Serial No. 36,301. Term of patent 7 years.



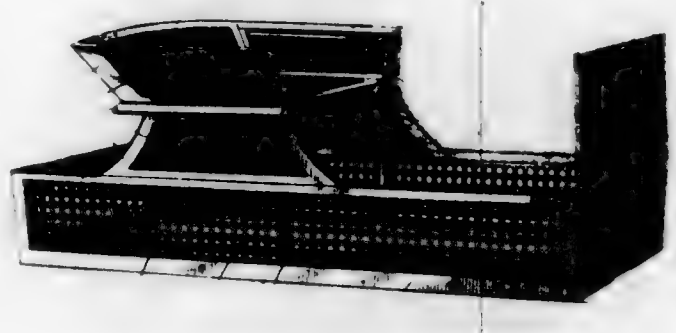
Claim.—The design for a spur-body as herein shown and described.

35,697. SPUR-BODY. WILLIAM E. UNDERWOOD, Gainesville, Tex. Filed May 27, 1901. Serial No. 62,174. Term of patent 7 years.



Claim.—The design for a spur-body, substantially as herein shown and described.

35,698. VEHICLE-BODY. BERNHARD C. WALTER, Norfolk, Nebr. Filed Dec. 16, 1901. Serial No. 86,158. Term of patent 7 years.



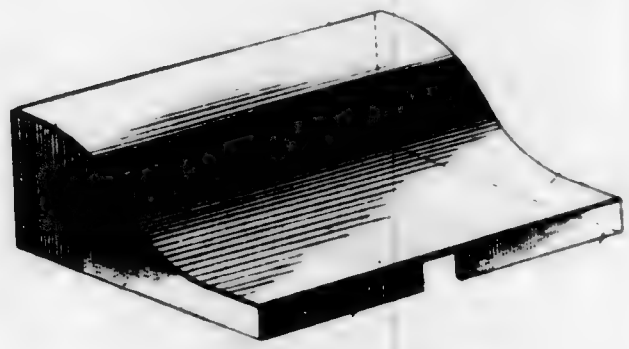
Claim.—The design for a vehicle-body, as herein shown and described.

35,699. CORN-HOLDER. LOUIS F. TRICHARD, New Orleans, La. Filed Oct. 7, 1901. Serial No. 77,827. Term of patent 7 years.



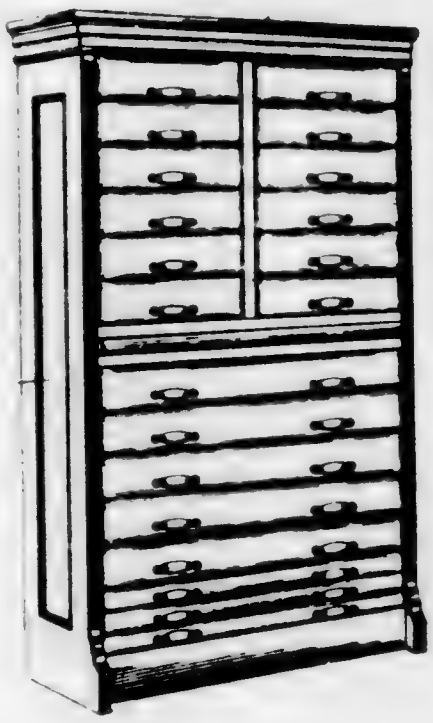
Claim.—The design for a corn-holder, as herein shown and described.

35,700. PROTECTOR FOR BEEHIVES. JOSEPH G SMITHERS, De-kalb Junction, N. Y. Filed Dec. 18, 1901. Serial No. 86,447. Term of patent 14 years.



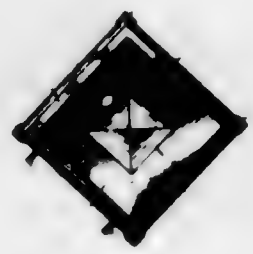
Claim.—The design for a protector for a beehive, as herein shown and described.

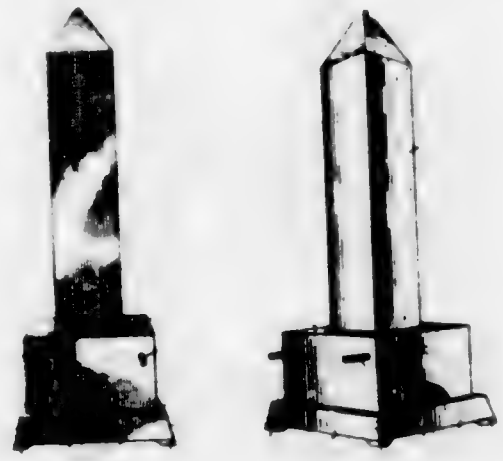
35,701. CABINET. JOHN D. WARREN, Chicago, Ill. Filed Dec. 23, 1901. Serial No. 87,048. Term of patent 7 years.



Claim.—The design for a cabinet substantially as herein shown and described.

35,702. VENDING-MACHINE CASE. FRANK H. FITCH, Rochester, N. Y., assignor of two-thirds to Herman V. Hoag, Jr., Smithville Flats, N. Y., and Joseph H. Fitch, Rochester, N. Y. Filed Dec. 2, 1901. Serial No. 84,477. Term of patent 14 years.





Claim.—The design for a vending-machine case, as herein shown described.

TRADE-MARKS

REGISTERED FEBRUARY 4, 1902.

87,703. WOVEN, KNIT, DYED, OR PRINTED FABRICS AND YARNS. Compañía General de Tabacos de Filipinas, Barcelona, Spain. Filed Sept. 20, 1901.



Essential feature.—A pair of divergent overlapping shields surmounted by a crown, the whole being surrounded by fanciful flowers. Used since September, 1900.

87,704. WITHDRAWN.

87,705. UNDERWEAR, EXCEPTING THEREFROM CORSETS AND WAISTS. Chicago-Rockford Hosiery Co., Kenosha, Wis. Filed Nov. 26, 1901.

American Beauty

Essential feature.—The words "American Beauty." Used since June 17, 1901.

87,706. COTTON PIECE GOODS. Simon Hachtmann & Co., New York, N. Y. Filed Nov. 23, 1901.



Essential feature.—The representation of a nightingale. Used since July 10, 1899.

87,707. WITHDRAWN.

87,708. WITHDRAWN.

87,709. WITHDRAWN.

87,710. LADIES' BOOTS AND SHOES. Alfred H. Berry, Portland, Me. Filed Dec. 27, 1901.

Debutante

Essential feature.—The word "Debutante." Used since December 1, 1901.

87,711. LADIES' BOOTS AND SHOES. F. Loewer & Co., Brooklyn, N. Y. Filed Jan. 3, 1902.

INNOVATION

Essential feature.—The word "Innovation." Used since November 12, 1901.

87,712. SHOES. Felix Emile Mistrot, Galveston, Tex. Filed June 10, 1901.



Essential feature.—The representation of a female figure holding a shoe. Used since October 1, 1900.

87,713. SHOES. Felix Emile Mistrot, Galveston, Tex. Filed June 10, 1901.



Essential feature.—The representation of a youth in foot-ball attire. Used since October 1, 1900.

87,714. PATENT AND ENAMELED LEATHER. HUGH SMITH, Newark, N. J. Filed Sept. 24, 1901.

M.B.

Essential feature.—The letters "M. B." Used since 1899.

87,715. IMITATION LEATHER. ROGERSON & NEARBY, New York, N. Y. Filed Dec. 26, 1901.

CORIUMOLE

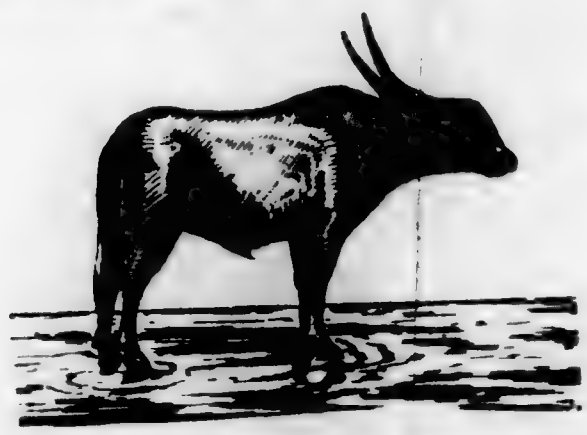
Essential feature.—The word "CORIUMOLE." Used since June 1, 1901.

87,716. RUBBER HOSE, BELTING, AND PACKING. BOWERS RUBBER CO., San Francisco, Cal. Filed Dec. 20, 1901.

CARABAO

Essential feature.—The word "CARABAO." Used since October 1, 1900.

87,717. RUBBER HOSE, BELTING, AND PACKING. BOWERS RUBBER CO., San Francisco, Cal. Filed Dec. 20, 1901.



Essential feature.—The representation of a carabao. Used since October 1, 1900.

87,718. SMOKING-TOBACCO, CIGARS, CHEROOTS, AND CIGARETTES. R. MURATTI, SONS & CO., LIMITED, Manchester, England. Filed July 22, 1901.

AFTER LUNCH

Essential feature.—The words "AFTER LUNCH." Used since 1895.

87,719. CIGARETTES, CIGARS, AND SMOKING AND CHEWING TOBACCO. UNIVERSAL TOBACCO CO., New York, N. Y. Filed Sept. 27, 1901.



Essential feature.—The word "IBIS" or the representation of the sacred Egyptian ibis. Used since 1897.

87,720. CIGARETTES, CIGARS, AND SMOKING AND CHEWING TOBACCO. UNIVERSAL TOBACCO CO., New York, N. Y. Filed Sept. 27, 1901.

SOVEREIGN.

Essential feature.—The word "SOVEREIGN." Used since December 26, 1877.

87,721. CIGARETTES, CIGARS, AND SMOKING AND CHEWING TOBACCO. UNIVERSAL TOBACCO CO., New York, N. Y. Filed Sept. 27, 1901.

ST. LEGER.

Essential feature.—The words "ST. LEGER." Used since September 11, 1901.

87,722. SCOTCH WHISKY. IRVINE & GRIEVE, LIMITED, Edinburgh, Scotland. Filed Nov. 20, 1901.

Uam-Var

Essential feature.—The compound word "UAM-VAR." Used since August, 1879.

87,723. IRISH WHISKY. IRVINE & GRIEVE, LIMITED, Edinburgh, Scotland. Filed Nov. 20, 1901.

Jara

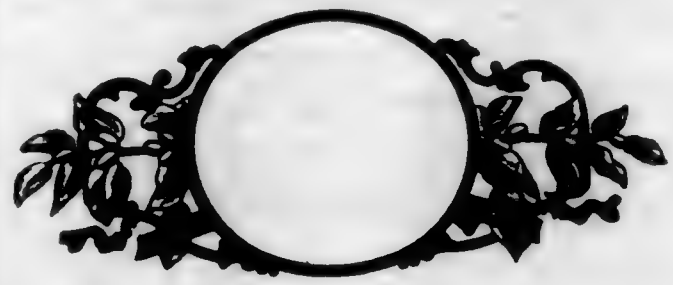
Essential feature.—The word "TARA." Used since August 1879.

87,724. APRICOT-BRANDY. MORIN BROS., CORBETT & SON, LTD., London, England. Filed May 18, 1901.



Essential feature.—A rectangular label with two straight bands near the center and a curved band above and below. Used since 1886.

87,725. COFFEE. THE ORIENTAL TEA & COFFEE CO., Galveston, Tex. Filed June 25, 1900.



Essential feature.—The representation of an oval, oppositely-extending olive branches, and scrolls. Used since March 1, 1900.

37,726. SHREDDED-WHEAT BISCUIT. THE NATURAL FOOD COMPANY, Niagara Falls, N. Y. Filed Nov. 12, 1901.



Essential feature.—A representation of the goddess Ceres. Used since 1894.

37,727. WHEAT-FLOUR. VALLEY & SPIRE MILLING CO., Marine, Ill. Filed Sept. 16, 1901.

DAINTY

Essential feature.—The word "DAINTY." Used since May 1, 1885.

37,728. CANNED SALMON. ALASKA PACKERS ASSOCIATION, San Francisco, Cal. Filed Nov. 23, 1901.

COMMANDER

Essential feature.—The word "COMMANDER." Used since August 28, 1901.

37,729. PICKLED OLIVES. ALARY AND MCGUIRE, New York, N. Y. Filed Dec. 12, 1901.

SALMOLAS

Essential feature.—The word "SALMOLAS." Used since July 1 1901.

37,730. BUTTER. WILLIAM H. HOLMES, Aurora, Ill. Filed Nov 11, 1901.



Essential feature.—The character used to represent the pound sterling. Used since July 1, 1899.

37,731. SOAP. EUCRYL, LIMITED, Hull, England. Filed Nov. 14, 1901.

EUCRYL

Essential feature.—The word "EUCRYL." Used since May, 1898.

37,732. OXID OF TIN. THE ROESSLER & HASSLACHER CHEMICAL CO., New York, N. Y., and Perth Amboy, N. J. Filed Nov. 19, 1901.

A1

Essential feature.—A five-pointed star and the characters "A1" therein. Used since October, 1901.

37,733. CERTAIN NAMED CHEMICAL SUBSTANCES AND PREPARATIONS. AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION, Berlin, Germany. Filed Dec. 14, 1901.

Bromocoll

Essential feature.—The word "BROMOCOLL." Used since April 14, 1900.

37,734. CERTAIN NAMED CHEMICAL SUBSTANCES AND PREPARATIONS. AKTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION, Berlin, Germany. Filed Dec. 14, 1901.

Peruol

Essential feature.—The word "PERUOL." Used since May 18, 1899.

37,735. CERTAIN NAMED CHEMICAL COMPOUNDS. STERN & HELLER, Cleveland, Ohio. Filed Nov. 8, 1901.

MOSOK

Essential feature.—The word "MOSOK." Used since October 1, 1901.

37,736. MERCURY PREPARATIONS. CHEMISCHE FABRIK AUF AKTIEN, vorm. E. SCHERING, Berlin, Germany. Filed Dec. 20, 1901.

SUBLAMIN

Essential feature.—The word "SUBLAMIN." Used since April 30, 1901.

37,737. CERTAIN NAMED ANTISEPTIC POULTICE. THE COLUMBIA CHEMICAL COMPANY, Denver, Colo. Filed Oct. 18, 1901.

M

Essential feature.—The capital letter "M" and the word "MARACH." Used since September 1, 1901.

87,738. DISINFECTANTS, ANTICORROSIVES, ANTISEPTICS, AND DEODORIZERS. EUCRYL, LIMITED, Hull, England. Filed Nov. 14, 1901.

EUCRYL

Essential feature.—The word "EUCRYL." Used since May, 1898.

87,739. CERTAIN NAMED TOILET PREPARATIONS. EUCRYL, LIMITED, Hull, England. Filed Nov. 14, 1901.

EUCRYL

Essential feature.—The word "EUCRYL." Used since May, 1898.

87,740. CERTAIN NAMED TOILET ARTICLES AND PREPARATIONS. REZO REMEDY CO., Iowa City, Iowa. Filed Jan. 2, 1902.

REZO

Essential feature.—The word "REZO." Used since November 15, 1901.

87,741. HYGIENIC CREAM OR PASTE FOR THE SKIN. BOSSARD-LEMAIRE, Paris, France. Filed Mar. 14, 1901.



Essential feature.—The words "LA REINE DES CRÈMES." Used since March 26, 1897.

87,742. HAIR AND SCALP TONIC. KENNEDY & KENNEDY, Johnstown, N. Y. Filed Dec. 31, 1901.

DYNO

Essential feature.—The word "DYNO." Used since October 4, 1901.

87,743. MEDICAL TABLETS AS A LAXATIVE OR CATHARTIC. ALBERT J. YOUNG, Milwaukee, Wis. Filed Dec. 17, 1901.



Essential feature.—The representation of a tablet upon which are printed the letters "A J Y." Used since July 1, 1901.

87,744. MEDICAL PREPARATIONS FOR WOUNDS AND CERTAIN NAMED DISEASES. CHEMISCHE FABRIK RESSANIA, Aachen, Germany. Filed Dec. 14, 1901.

TRYPTARGAN

Essential feature.—The word "TRYPTARGAN." Used since October, 1901.

87,745. CERTAIN NAMED MEDICAL COMPOUNDS. EUCRYL LIMITED, Hull, England. Filed Nov. 14, 1901.

EUCRYL

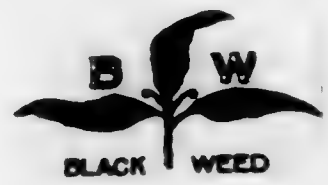
Essential feature.—The word "EUCRYL." Used since May, 1898.

87,746. REMEDY FOR CERTAIN NAMED DISEASES. LOUIS W. ABT, Chicago, Ill. Filed Dec. 14, 1901.

ABTENA

Essential feature.—The word "ABTENA." Used since November 5, 1901.

87,747. REMEDY FOR CERTAIN NAMED DISEASES. JOHNS AND JOHNS, Atlanta, Ga. Filed Dec. 13, 1901.



Essential feature.—The representation of a stem with three leaves extending therefrom, the letters "B" and "W," and the words "BLACK WEED." Used since June 1, 1901.

87,748. REMEDY FOR CERTAIN NAMED DISEASES. SAMUEL B. WHEELER, North Plainfield, N. J. Filed Dec. 13, 1901.



Essential feature.—The representation of a bust of an Indian on a medallion placed in front of a bow and arrow and arrow-heads. Used since July 1, 1901.

87,749. BLOOD MEDICINE. CHARLES W. MCKEE & COMPANY, Chicago, Ill. Filed Oct. 19, 1901.



Essential feature.—The words "FATHER NEWMAN'S" and a portrait of Father Julius Newmann. Used since July 15, 1901.

37,750. TONIC. JOSEPH TRIBER, Chicago, Ill. Filed Oct. 5, 1901.



Essential feature.—The representation of the bitter-root bearing the letters "J T" in monogram form. Used since February 1, 1900.

37,751. CERTAIN NAMED SURFACE-FINISHING MATERIALS. J. J. HECKENJOS COMPANY, Newark, N. J. Filed Dec. 27, 1901.



Essential feature.—The word "KALKO." Used since December 1, 1901.

37,752. PHOTOGRAPHIC DEVELOPERS. FARBENFABRIKEN OF ELBERFELD CO., New York, N. Y. Filed Dec. 19, 1901.

EDINOL

Essential feature.—The word "EDINOL." Used since July 1 1901.

37,753. LUBRICATING-OIL. BORNE SCRYMSER COMPANY, Elizabeth, N. J., and New York, N. Y. Filed Dec. 21, 1901.



Essential feature.—The word "VALOIL." Used since September 25, 1896.

37,754. LUBRICATING-OILS. VALVOLINE OIL COMPANY, Edgewater, N. J., and New York, N. Y. Filed Dec. 10, 1901.

VALVOLINE

Essential feature.—The word "VALVOLINE." Used since July, 1873.

37,755. EYEGLASS AND SPECTACLE FRAMES OR MOUNTINGS. AMERICAN OPTICAL CO., Southbridge, Mass. Filed Jan. 2, 1902.



Essential feature.—The mark ⅃. Used since November 1, 1901.

37,756. EYEGLASS AND SPECTACLE FRAMES OR MOUNTINGS. AMERICAN OPTICAL CO., Southbridge, Mass. Filed Jan. 2, 1902.



Essential feature.—The mark ⅀. Used since November 1, 1901.

37,757. EYEGLASS AND SPECTACLE FRAMES OR MOUNTINGS. AMERICAN OPTICAL CO., Southbridge, Mass. Filed Jan. 2, 1902.

Essential feature.—The mark ⁓ Used since November 1, 1901.

37,758. CERTAIN NAMED OPTICAL GOODS. HENRY KAHN, San Francisco, Cal. Filed Aug. 26, 1901.

OCULARIUM

Essential feature.—The word "OCULARIUM." Used since November 2, 1901.

37,759. LENSES. CHIEN-BERETTA OPTICAL CO., San Francisco, Sacramento, Stockton, and Oakland, Cal. Filed Jan. 6, 1902.

RETFO

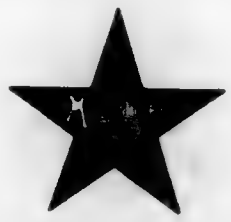
Essential feature.—The word "RETFO." Used since August, 1901.

37,760. CERTAIN NAMED TYPE-WRITING SUPPLIES. TYPE-WRITER COMMON KEY CO., Newark, N. J. Filed Dec. 14, 1901.

EMPRESS

Essential feature.—The word "EMPRESS." Used since April, 1901.

87,761. CERTAIN NAMED STATIONERY AND TYPE-WRITING SUPPLIES. F. S. WEBSTER CO., Boston, Mass.; New York, N. Y.; Chicago, Ill., and London, England. Filed Dec. 26, 1901.



Essential feature.—The pictorial representation of a star and the arbitrary word "MULTIKOPY." Used since January, 1897.

87,762. FOUNTAIN-PENS. L. E. WATERMAN COMPANY, New York, N. Y. Filed Dec. 11, 1901.



Essential feature.—The conjoined or associated representations of a globe and fountain-pen. Used since January, 1896.

87,763. WRITING FLUIDS AND INKS. JOSEPH H. TIBBALL, Philadelphia, Pa. Filed Dec. 30, 1901.



Essential feature.—The words "CROWN STANDARD" and the representation of a crown between them. Used since December 1, 1899.

87,764. WITHDRAWN.

87,765. VASES, URNS, DISHES, LAMPS, AND PRESSED WARE GENERALLY. OTIS A. MYGATT, New York, N. Y. Filed Dec. 31, 1901.

PAGODA

Essential feature.—The word "PAGODA." Used since October 1, 1901.

87,766. LAMP SHADES AND REFLECTORS. OTIS A. MYGATT, New York, N. Y. Filed Dec. 21, 1901.



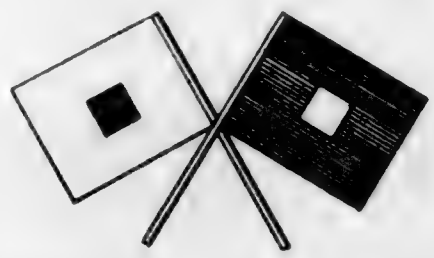
Essential feature.—The word "PAGODA" borne on a triangle surrounded with the conventional representation of an office-seal. Used since October 1, 1901.

87,767. CERTAIN NAMED TOOLS. CLEVELAND TWIST DRILL CO., Cleveland, Ohio. Filed Dec. 18, 1901.



Essential feature.—The representation of an approximately hollow square having dished or curved sides and the letter "C" located within the field inclosed by said sides. Used since October 1, 1893.

87,768. PAINTS, VARNISHES, AND CEMENTS. THE SEABOARD PAINT COMPANY, New York, N. Y. Filed Oct. 26, 1901.



Essential feature.—The representation of two flags mounted on crossed staffs, one flag having a white field and a blue center and the other having a blue field and a white center. Used since September 17, 1901.

87,769. COAL. BOOMER COAL & COKE CO., Columbus, Ohio. Filed Dec. 30, 1901.

BOOMER

Essential feature.—The word "BOOMER." Used since March, 1898.

LABELS

REGISTERED FEBRUARY 4, 1902.

8,938.—*Title:* "LEE BROOM." (For Brooms.) LEE BROOM & DUSTER CO., Davenport, Iowa. Filed November 9, 1901.

8,939.—*Title:* "GOOD LUCK SHOE." (For Shoes.) MOSES OPPENHEIM, New York, N. Y. Filed January 8, 1902.

8,940.—*Title:* "URSUS SHOE." (For Shoes.) COLE & WIGGINS, Marblehead, Mass. Filed January 9, 1902.

8,941.—*Title:* "GOLD LUSTRE." (For Gold Luster.) JOSEPH MAYER and ERNEST MAYER, Beaverfalls, Pa. Filed October 1, 1901.

8,942.—*Title:* "DERMACURA." (For a Medicine.) J. C. NELSON & Co., Manistee, Mich. Filed November 8, 1901.

8,943.—*Title:* "VIGORINE." (For Pills.) GUSTAVE TASSE, Montreal, Canada. Filed October 30, 1901.

8,944.—*Title:* "FONTAINE DE JOUVENCE, (FOUNTAIN OF YOUTH.)" (For a Toilet Preparation.) JAMES A. HERLIHY, Chillicothe, Ohio. Filed January 13, 1902.

8,945.—*Title:* "EAGLE BRAND." (For Shoe-Polish.) HENRY KLEINE, Chicago, Ill. Filed January 10, 1902.

8,946.—*Title:* "CUPID'S." (For Chocolates and Bonbons.) THE JAMES MCINTOSH COMPANY, Minneapolis, Minn. Filed January 14, 1902.

8,947.—*Title:* "PAT ROONEY, CHIP OF THE OLD BLOCK CIGARS." (For Cigars.) LORENZ P. HERRMANN, New York, N. Y. Filed December 7, 1901.

8,948.—*Title:* "INDIAN COFFEE." (For Coffee.) MARSHALL SHEPPEY, Toledo, Ohio. Filed January 10, 1902.

8,949.—*Title:* "RISING SUN COFFEE." (For Coffee.) MARSHALL SHEPPEY, Toledo, Ohio. Filed January 10, 1902.

8,950.—*Title:* "RISING SUN." (For Baking-Powder.) MARSHALL SHEPPEY, Toledo, Ohio. Filed January 10, 1902.

8,951.—*Title:* "BECLEANER." (For Washing-Powder.) JOHN W. HUSSEY, New York, N. Y. Filed October 12, 1901.

8,952.—*Title:* "EMPIRE ROLLED WHITE OATS." (For Rolled Oats.) MARSHALL SHEPPEY, Toledo, Ohio. Filed January 10, 1902.

PRINTS

REGISTERED FEBRUARY 4, 1902.

459.—*Title:* "DR. DICK'S PECAN OIL." (For Medicine.) GEM DISTRIBUTING CO., Davenport, Iowa. Filed January 8, 1902.

460.—*Title:* "McCORMICK." (For Harvesting-Machines.) McCORMICK HARVESTING MACHINE COMPANY, Chicago, Ill. Filed January 11, 1902.

461.—*Title:* "McCORMICK." (For Harvesting-Machines.) McCORMICK HARVESTING MACHINE COMPANY, Chicago, Ill. Filed January 11, 1902.

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REPORT

OF THE

COMMISSIONER OF PATENTS

TO CONGRESS,

FOR THE YEAR ENDING DECEMBER 31, 1901.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 27, 1902.

To the Senate and House of Representatives of the United States of America in Congress assembled:

In compliance with section 494 of the Revised Statutes I have the honor to submit the following report of the business of the Patent Office for the year ending December 31, 1901:

RECEIPTS.

Detailed statement of all moneys received for patents, for copies of records or drawings, or from any source whatever.

Applications:		
Cash received		$1,269,786 00
Cash refunded		5,540 00
Net cash		1,264,246 00
Certificates of deposit		35,835 00
Total cash and certificates		1,300,081 00
Copies:		
Cash received		115,844 25
Cash refunded		6,969 70
Net cash		108,874 55
Certificates of deposit		475 82
Total cash and certificates		109,350 37
Recording assignments:		
Cash received		24,579 00
Cash refunded		1,271 11
Net cash		23,307 89
Certificates of deposit		137 00
Total cash and certificates		23,444 89
Subscriptions to Official Gazette:		
Cash received		9,830 96
Cash refunded		80 06
Net cash		9,750 90
Certificates of deposit		20 00
Total cash and certificates		9,770 90
Registration of prints and labels:		
Cash received		7,656 00
Cash refunded		917 00
Net cash		6,739 00
Certificates of deposit		12 00
Total cash and certificates		6,751 00
Aggregates.		
Cash received		$1,437,696 21
Cash refunded		14,777 87
Net cash		1,412,918 34
Certificates of deposit		36,479 82
Total cash and certificates		1,449,398 16

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EXPENDITURES.

Approximate amounts expended and incurred under the several appropriations from January 1, 1901, to December 31, 1901.

	Expended.	Estimated liabilities.	Total.
Salaries	$770,708 85		$770,708 85
Scientific Library	918 97		918 97
Transportation of publications to foreign countries	(*)	(*)	(*)
International Union for Protection of Industrial Property	738 60		738 60
Stationery	14,414 98		14,414 98
Postage on foreign matter	1,598 00		1,598 00
Furniture	2,612 67		2,612 67
Carpets	1,891 88		1,891 88
Ice	507 28		507 28
Telephones	770 75		770 75
Washing towels	99 18		99 18
Sundries	9,428 86		9,428 86
Law Library, Patent Office	464 10		464 10
Official Gazette, (illustrations,) paid contractor	64,887 50		64,887 50
Photolithographing, paid contractor	104,191 39		104,191 39
Printing and Binding.			
Paid Public Printer for Official Gazette, indexes, printing specifications, miscellaneous work	295,133 70	$29,529 40	324,663 10
Total	1,267,856 94	29,529 40	1,297,385 64

* Not accessible.

RECEIPTS AND EXPENDITURES.

Receipts from all sources	$1,449,398 16
Expenditures	1,297,385 64
Surplus	152,012 52

Statement of balance in the Treasury of the United States on account of the patent fund.

Amount to the credit of the fund January 1, 1901	$5,177,458 55
Amount of receipts during the year 1901	1,449,398 16
Total	6,626,856 71
Deduct expenditures for the year 1901	1,297,385 64
Balance January 1, 1902	5,329,471 07

SUMMARY OF THE BUSINESS OF THE PATENT OFFICE.

Number of applications for patents for inventions	43,973
Number of applications for patents for designs	2,361
Number of applications for reissues of patents	115
Total number of applications	46,449
Number of caveats filed	1,843
Number of applications for registration of trade-marks	2,410
Number of applications for registration of labels	1,064
Number of applications for registration of prints	223
Number of disclaimers filed	4
Number of appeals on the merits	910
Total	6,463

Total number of applications, etc., requiring investigation and action	52,912
Number of patents issued, including designs	27,292
Number of patents reissued	81
Total	27,373
Number of trade-marks registered	1,998
Number of labels registered	878
Number of prints registered	159
Total	2,905
Number of patents expired during the year	19,147
Number of patents withheld for non-payment of final fees	4,111
Number of applications allowed awaiting final fees	8,369

PATENTS ISSUED.

Patents issued to citizens of the United States, with the ratio of population to each patent granted.

States and Territories.	Patents and designs.	One to every—	States and Territories.	Patents and designs.	One to every—
Alabama	82	22,300	Nevada	7	6,047
Alaska Territory	2	31,796	New Hampshire	109	3,776
Arizona Territory	19	6,470	New Jersey	1,198	1,573
Arkansas	102	12,858	New Mexico Territory	23	8,491
California	758	1,959	New York	4,008	1,773
Colorado	314	1,718	North Carolina	108	18,886
Connecticut	758	1,198	North Dakota	45	7,092
Delaware	56	3,298	Ohio	1,720	2,417
District of Columbia	215	1,296	Oklahoma Territory	48	8,298
Florida	53	9,972	Oregon	125	3,308
Georgia	149	14,874	Pennsylvania	2,887	2,221
Hawaii	11	14,000	Philippine Islands	1	----------
Idaho	29	5,578	Porto Rico	1	----------
Illinois	2,430	1,984	Rhode Island	271	1,581
Indian Territory	22	17,880	South Carolina	47	28,517
Indiana	660	3,812	South Dakota	43	9,338
Iowa	571	3,908	Tennessee	194	10,415
Kansas	249	5,905	Texas	359	8,998
Kentucky	218	9,849	Utah	55	5,081
Louisiana	121	11,418	Vermont	73	4,707
Maine	155	4,480	Virginia	199	9,657
Maryland	296	4,013	Washington	172	3,012
Massachusetts	1,905	1,472	West Virginia	118	8,125
Michigan	757	3,198	Wisconsin	530	3,908
Minnesota	417	4,199	Wyoming	14	6,609
Mississippi	86	18,088	United States Army	8	----------
Missouri	809	3,840	United States Navy	8	----------
Montana	60	4,055	Total	23,890	----------
Nebraska	207	5,151			

Patents granted to citizens of foreign countries.

Algeria	1	Mexico	11
Argentina	5	Netherlands	19
Austria-Hungary	156	New South Wales	20
Belgium	54	New Zealand	25
Bermuda	1	Norway	20
Brazil	1	Peru	1
Canada	876	Queensland	5
Cape Colony	2	Roumania	3
China	2	Russia	29
Colombia	3	San Salvador	1
Cuba	4	Scotland	55
Denmark	30	South Africa	1
Egypt	3	South African Republic	9
England	998	South Australia	8
France	806	Spain	1
Germany	1,045	Sweden	53
India	4	Switzerland	56
Ireland	25	Turkey	1
Italy	37	Turkey in Asia	1
Jamaica	1	Victoria	35
Japan	1	Western Australia	3
Java	1	Total	3,402
Jersey	1		

The following tables present a comparative statement of the business of the Patent Office since the enactment of the statute of 1836 and exhibit in detail the business of the Office during the last calendar year:

Comparative statement of the business of the Office from 1837 to 1901, inclusive.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1837			435	$29,289 06	$25,506 98	----------
1838			520	42,198 54	37,393 92	$4,784 62
1839			425	38,019 97	34,543 51	8,476 46
1840	765	228	473	38,056 51	39,080 67	----------
1841	847	312	495	40,413 01	58,666 67	----------
1842	761	291	517	36,505 68	31,941 43	5,264 20
1843	819	315	519	35,315 81	30,776 96	4,538 85
1844	1,045	330	497	42,509 26	36,344 53	6,164 73

Comparative statement of the business of the Office from 1837 to 1900, inclusive—Continued.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1845	1,946	452	508	51,076 14	39,395 65	11,680 49
1846	1,972	448	638	50,264 16	46,158 71	4,105 45
1847	1,531	533	569	63,111 19	41,878 35	21,232 84
1848	1,638	607	653	67,576 69	58,905 84	8,670 85
1849	1,965	595	1,077	80,762 78	77,716 44	3,046 34
1850	2,198	602	998	86,927 05	80,100 95	6,826 10
1851	2,258	760	872	95,738 61	86,916 93	8,821 68
1852	2,639	996	1,019	112,056 34	95,916 91	16,139 43
1853	2,673	901	961	121,527 45	133,809 83	----------
1854	3,394	868	1,844	168,780 84	167,146 32	----------
1855	4,435	906	2,013	216,459 35	179,540 33	36,919 02
1856	4,960	1,024	2,505	192,588 02	199,981 02	----------
1857	4,771	1,010	2,896	196,132 01	211,582 09	----------
1858	5,364	942	3,710	208,716 16	198,193 74	10,522 42
1859	6,225	1,079	4,588	245,942 15	210,278 41	35,663 74
1860	7,653	1,084	4,819	256,352 59	252,890 80	3,531 79
1861	4,643	700	3,340	187,354 44	221,491 91	----------
1862	5,088	894	3,521	215,754 99	182,810 39	32,944 06
1863	6,014	787	4,170	195,593 29	189,414 14	6,179 15
1864	6,972	1,063	5,020	240,919 98	229,868 00	11,051 98
1865	10,664	1,987	6,616	348,791 84	274,199 34	74,592 50
1866	15,269	2,723	9,450	496,665 38	361,724 28	133,941 10
1867	21,276	3,597	13,015	646,581 92	639,263 32	7,318 60
1868	20,445	3,705	13,378	681,565 86	628,679 77	52,886 09
1869	19,271	3,624	13,986	698,145 81	486,430 74	206,715 07
1870	19,171	3,273	13,321	669,456 76	557,147 19	112,309 57
1871	19,472	3,366	13,083	678,716 46	562,091 64	116,624 82
1872	18,246	3,090	13,590	699,736 39	665,595 00	34,131 39
1873	20,414	3,248	12,864	706,191 77	691,178 98	12,012 79
1874	21,602	3,181	13,599	738,278 17	679,288 41	58,989 76
1875	21,638	3,094	14,887	743,458 36	721,657 71	21,795 65
1876	21,425	2,697	15,595	757,987 65	652,542 60	105,445 05
1877	20,306	2,809	14,187	732,342 85	613,152 62	119,190 23
1878	20,260	2,755	13,444	725,375 55	593,092 89	132,282 66
1879	20,059	2,690	13,213	703,961 47	529,686 97	174,274 50
1880	23,012	2,490	13,947	749,685 32	538,865 17	210,820 15
1881	25,059	2,406	16,584	853,665 89	605,173 28	248,492 61
1882	31,522	2,553	19,267	1,009,219 45	683,867 67	325,351 78
1883	34,576	2,741	22,353	1,146,240 00	675,234 86	471,005 14
1884	35,600	2,582	20,413	1,075,798 80	970,579 76	105,219 04
1885	35,717	2,552	24,238	1,188,089 15	1,024,378 85	163,710 30
1886	35,998	2,513	22,508	1,154,551 40	992,503 45	162,047 95
1887	35,613	2,622	21,477	1,144,509 60	994,472 22	150,037 38
1888	35,797	2,251	20,506	1,118,516 10	973,108 78	145,407 32
1889	40,575	2,461	24,158	1,281,728 05	1,052,955 96	228,772 09
1890	41,048	2,311	26,292	1,340,372 66	1,099,297 74	241,074 92
1891	40,552	2,408	23,244	1,271,285 78	1,139,713 35	131,572 43
1892	40,753	2,290	23,559	1,286,331 88	1,110,739 24	175,592 59
1893	38,473	2,247	23,769	1,242,871 64	1,141,088 45	101,833 19
1894	38,439	2,286	20,867	1,187,439 58	1,100,047 12	87,392 46
1895	40,680	2,415	22,057	1,245,246 93	1,106,389 49	138,857 44
1896	43,982	2,271	23,573	1,324,059 83	1,113,418 71	210,646 19
1897	47,905	2,176	23,794	1,375,641 72	1,122,843 13	252,798 59
1898	35,842	1,659	22,267	1,137,734 48	1,136,196 20	1,538 28
1899	41,443	1,716	25,527	1,325,457 03	1,211,783 73	113,673 30
1900	41,980	1,731	26,499	1,350,898 53	1,260,019 62	90,808 91
1901	46,449	1,842	27,373	1,449,398 16	1,297,385 64	152,012 52

Statement showing the number of the first patent, Design patent, and reissued patent, and the number of the first certificate of registration of a Trade-Mark, Label, and Print issued in each calendar year since July 28, 1836, when the present series of numbers of Letters Patent commenced, together with the total number of each issued during the year.

[The number of patents granted prior to the commencement of this series of numbering (July 28, 1836) was 9,957.]

Calendar year.	Number of first patent and certificate issued in each calendar year.						Number of patents and certificates of registration issued during each calendar year.							
	Patents.	Designs.	Reissues.	Trade-Marks.	Labels.	Prints.	Patents.	Designs.	Reissues.	Total patents.	Trade-Marks.	Labels.	Prints.	Total certificates.
1836 (July 28)	1						109							
1837	110						436							
1838	546		1				515		6					
1839	1,061		7				404		13					
1840	1,465		20				458		10					
1841	1,928		20				490		6					
1842	2,413		26				488		13					
1843	2,901	1	49				494	14	11	519				
1844	3,395	15	60				478	12	7	497				
1845	3,873	27	67				475	17	11	503				
1846	4,348	44	78				566	59	13	638				
1847	4,914	108	91				495	60	14	569				
1848	5,409	163	105				584	46	28	658				
1849	5,998	209	128				988	49	30	1,067				
1850	6,961	258	188				884	83	26	993				
1851	7,885	341	184				757	90	25	872				
1852	8,922	431	209				880	109	30	1,019				

Statement showing the number of the first patent, Design patent, and reissued patent—Continued.

Calendar year.	Number of first patent and certificate issued in each calendar year.						Number of patents and certificates of registration issued during each calendar year.							
	Patents.	Designs.	Reissues.	Trade-Marks.	Labels.	Prints.	Patents.	Designs.	Reissues.	Total patents.	Trade-Marks.	Labels.	Prints.	Total certificates.
1853	9,513	540	229	.....	.....	.....	846	86	29	961	.....	.....	.....	.....
1854	10,358	626	258	.....	.....	.....	1,759	57	28	1,844	.....	.....	.....	.....
1855	12,117	683	286	.....	.....	.....	1,892	70	51	2,013	.....	.....	.....	.....
1856	14,009	758	337	.....	.....	.....	2,315	107	83	2,505	.....	.....	.....	.....
1857	16,324	860	420	.....	.....	.....	2,686	113	97	2,896	.....	.....	.....	.....
1858	19,010	973	517	.....	.....	.....	3,467	102	126	3,695	.....	.....	.....	.....
1859	22,477	1,075	643	.....	.....	.....	4,165	108	231	4,504	.....	.....	.....	.....
1860	26,642	1,183	874	.....	.....	.....	4,363	183	232	4,778	.....	.....	.....	.....
1861	31,005	1,366	1,106	.....	.....	.....	3,040	142	147	3,329	.....	.....	.....	.....
1862	34,045	1,508	1,253	.....	.....	.....	3,221	195	116	3,532	.....	.....	.....	.....
1863	37,266	1,708	1,369	.....	.....	.....	3,781	176	227	4,184	.....	.....	.....	.....
1864	41,047	1,879	1,596	.....	.....	.....	4,638	139	248	5,025	.....	.....	.....	.....
1865	45,685	2,018	1,844	.....	.....	.....	6,099	221	296	6,616	.....	.....	.....	.....
1866	51,784	2,239	2,140	.....	.....	.....	8,874	294	290	9,458	.....	.....	.....	.....
1867	60,658	2,583	2,490	.....	.....	.....	12,301	325	400	13,026	.....	.....	.....	.....
1868	72,959	2,858	2,830	.....	.....	.....	12,544	446	420	13,410	.....	.....	.....	.....
1869	85,508	3,304	3,250	.....	.....	.....	12,967	506	534	13,997	.....	.....	.....	.....
1870	98,460	3,810	3,784	1	.....	.....	12,157	737	489	13,383	121	.....	.....	121
1871	110,617	4,547	4,223	122	.....	.....	11,687	905	464	13,056	486	.....	.....	486
1872	122,304	5,452	4,687	608	.....	.....	12,200	884	529	13,613	491	.....	.....	491
1873	134,504	6,336	5,216	1,099	.....	.....	11,616	747	501	12,864	492	.....	.....	492
1874	146,120	7,083	5,717	1,591	1	.....	12,290	895	498	13,599	559	232	.....	791
1875	158,350	7,969	6,200	2,150	233	.....	13,291	915	631	14,837	1,138	225	.....	1,370
1876	171,641	8,884	6,881	3,288	465	.....	14,172	802	621	15,595	969	472	.....	1,431
1877	185,813	9,686	7,452	4,247	687	.....	12,920	699	568	14,187	1,216	392	.....	1,608
1878	196,738	10,385	8,080	5,463	1,389	.....	12,345	590	509	13,444	1,455	492	.....	1,947
1879	211,078	10,975	8,529	6,918	1,821	.....	12,133	592	488	13,213	872	355	.....	1,227
1880	223,211	11,567	9,017	7,790	2,176	.....	12,926	515	506	13,947	349	208	.....	552
1881	236,137	12,082	9,523	8,139	2,379	.....	15,548	565	471	16,584	884	292	.....	1,036
1882	251,685	12,547	9,994	8,973	2,581	.....	18,135	861	271	19,267	947	304	.....	1,251
1883	269,830	13,508	10,265	9,920	2,865	.....	21,196	1,020	167	22,383	982	906	.....	1,888
1884	291,016	14,528	10,432	10,822	3,791	.....	19,147	1,150	116	20,413	1,021	513	.....	1,534
1885	310,168	15,678	10,548	11,843	4,304	.....	23,381	773	129	24,283	1,067	391	.....	1,458
1886	333,494	16,451	10,677	12,910	4,695	.....	21,797	595	116	22,508	1,029	378	.....	1,407
1887	355,291	17,046	10,798	13,989	5,073	.....	20,429	949	99	21,477	1,133	380	.....	1,513
1888	375,720	17,995	10,892	15,072	5,458	.....	19,585	895	86	20,506	1,059	327	.....	1,386
1889	395,305	18,890	10,978	16,131	5,780	.....	23,300	723	75	24,158	1,229	319	.....	1,548
1890	418,665	19,553	11,053	17,360	6,099	.....	25,322	896	84	26,292	1,415	304	.....	1,719
1891	443,987	20,439	11,137	18,775	6,403	.....	22,328	836	80	23,244	1,762	137	.....	1,899
1892	466,315	21,275	11,217	20,537	6,540	.....	22,661	817	81	23,559	1,737	a6	.....	1,743
1893	488,976	22,092	11,298	22,274	None.	1	22,768	902	99	23,769	1,677	None.	2	1,679
1894	511,744	22,994	11,397	23,951	Do.	3	19,875	958	64	20,857	1,806	Do.	4	1,810
1895	531,619	23,922	11,461	25,757	Do.	7	20,863	1,115	59	22,057	1,829	Do.	3	1,832
1896	552,502	25,087	11,520	27,586	6,546	10	21,867	1,445	61	23,273	1,813	1	32	1,846
1897	574,369	26,462	11,581	29,399	6,547	42	22,098	1,631	65	23,794	1,671	14	16	1,701
1898	596,467	28,113	11,646	31,070	6,561	58	20,404	1,803	60	22,267	1,288	200	35	1,473
1899	616,871	29,916	11,706	32,308	6,761	93	23,296	2,139	92	25,527	1,649	511	100	2,260
1900	640,167	32,055	11,798	33,957	7,272	193	24,660	1,758	81	26,499	1,721	737	93	2,551
1901	664,827	33,813	11,879	35,678	8,009	286	25,558	1,734	81	27,373	1,928	878	150	2,965

a Registration of labels practically suspended May 27, 1891, under decision of the United States Supreme Court in *Higgins et al.* v. *Keuffel et al.* (55 O. G., 1139) with the registration of No. 6,545, June 14, 1892. Resumed June 9, 1896, with the registration of No. 6,546.

First Print registered Mar. 7, 1888.

Statement of prices paid for photolithographic work since 1884-85.

Fiscal year.	Contractor.	Patents issued.	Official Gazette.		Publishing expired patents.	Total Official Gazettes.
			Per page.	Number of copies.		
1884-85	Norris Peters	21,496	$7 86	6,500	.....	$39,614 40
1885-86	do	24,134	7 45	6,500	.....	44,351 00
1886-87	do	21,731	7 45	6,500	.....	41,868 40
1887-88	do	20,658	7 45	6,500	.....	41,188 60
1888-89	do	21,518	7 45	6,500	.....	43,999 70
1889-90	do	25,857	7 45	6,500	.....	58,992 40
1890-91	do	25,307	7 45	7,000	.....	65,966 10
1891-92	Norris Peters Co	23,626	7 45	7,000	.....	52,969 50
1892-93	do	23,468	7 45	7,000	.....	54,998 30
1893-94	National Lithographic Co	22,546	6 30	7,000	$4,999 70	49,997 70
1894-95	Norris Peters Co	20,745	5 25	7,000	.....	38,297 88
1895-96	A. B. Graham	22,791	5 10	7,000	.....	42,396 30
1896-97	Norris Peters Co	23,994	4 50	7,000	.....	35,712 00
1897-98	do	22,731	5 10	7,000	.....	39,749 40
1898-99	do	23,590	5 60	7,000	.....	46,065 60
1899-1900	do	26,540	5 60	7,000	.....	55,092 80
1900-1901	do	26,481	6 25	7,000	.....	62,100 00
1901-1902	do	a27,886	6 25	7,000	.....	a66,450 00

Statement of prices paid for photolithographic work since 1884-85—Continued.

Fiscal year.	Contractor.	Drawings of Letters Patent per sheet, current issues. Thin copies.	Thick copies.	Bond copies.	Other lithographic work.	Total.
			Cents.	Cents.		
1884-85	Norris Peters	$0 01	3	3	$78,671 99	$118,286 89
1885-86	do	01	3	3	84,940 19	129,291 19
1886-87	do	01	3	3	79,509 57	121,377 97
1887-88	do	01	3	3	77,907 96	119,091 56
1888-89	do	01	3	3	88,284 54	127,284 24
1889-90	do	01	3	3	101,292 67	160,285 07
1890-91	do	01	3	3	110,998 97	176,965 07
1891-92	Norris Peters Co	*b* 1 48	3	3	99,992 58	152,962 08
1892-93	do	*b* 1 48	2	3	99,788 92	154,787 22
1893-94	do	*b* 1 46	3	3	94,911 88	144,909 08
1894-95	National Lithographic Co	*b* 95	2	2	60,482 04	98,779 92
1895-96	Norris Peters Co	*c* 98	.0175	.0175	58,866 60	101,192 90
1896-97	A. B. Graham	*d* 01	.015	.01	58,960 78	94,672 78
1897-98	Norris Peters Co	*c* 80	.015	.02	68,999 28	108,748 68
1898-99	do	*c* 84 *d* 015	.02	.025	75,999 85	122,065 45
1899-1900	do	*c* 90 *d* 02	.02	.025	98,999 90	154,022 70
1900-1901	do	*e* 89 *d* 02	.03	.03	108,999 54	171,099 54
1901-1902	do	*e* 93 *d* 03	.03	.03	*a*107,824 36	*a*174,274 36

a Estimated amounts for current year based upon business for first half of fiscal year 1901-1902. *b* For 102 copies. *c* For 100 copies. *d* Two proof copies each. *e* For 75 copies.

Table showing the number of patents issued by the United States and foreign countries from the earliest period to December 31, 1900. (*Foreign figures for 1901 estimated.*)

Countries.	To 1870, inclusive.	1871 to 1901.	Total.
Argentine Republic	83	4,249	4,332
Austria		25,173	25,173
Austria-Hungary	15,350	67,583	82,933
Bahamas		2	2
Barbadoes		118	118
Belgium	35,044	132,232	167,276
Bolivia	42	65	107
Brazil	185	3,984	4,169
British Guiana	32	94	126
British Honduras	1	19	20
Canada	4,081	73,641	77,722
Ceylon	58	489	547
Chili	20	335	355
Congo Free State		94	94
Denmark	464	11,473	11,937
Fiji Islands		27	27
Finland	112	1,632	1,744
France	103,934	227,043	330,977
Germany	9,996	134,243	144,239
Great Britain	53,408	241,350	294,758
Guatemala		57	57
Hawaii (prior to August 12, 1898)		148	148
Hong-Kong		87	87
Hungary		18,780	18,780
India	445	6,490	6,935
Italy and Sardinia	4,723	51,733	56,456
Jamaica	22	152	174
Japan		4,821	4,821
Leeward Islands		16	16
Liberia		2	2
Luxemburg		4,643	4,643
Malta		36	36
Mauritius	113	238	351
Mexico	22	3,134	3,156
Netherlands	4,535		4,535
Newfoundland	40	224	264
New South Wales	236	9,760	9,996
New Zealand	109	7,587	7,696
Norway	737	11,127	11,864
Portugal	245	3,187	3,432
Queensland	67	5,075	5,142
Russia	1,464	11,235	12,699
St. Helena		4	4
South African Republic		1,256	1,256
South Australia	123	5,471	5,594
Spain		25,727	25,727
Straits Settlements		103	103
Sweden	1,629	15,116	16,745
Switzerland		22,562	22,562
Tasmania	43	2,046	2,089
Trinidad	6	151	157
Tunis		459	459
Turkey		1,040	1,040
Uruguay		196	196
Venezuela		154	154
Victoria	822	10,037	10,859
Western Australia		2,581	2,581
Total foreign	238,191	1,149,281	1,387,472
United States	120,573	579,768	700,341
Grand total	358,764	1,729,049	2,087,813

SUMMARY OF TABLES.

In 1901 there were received 43,973 applications for mechanical patents, 2,361 applications for design patents, 115 applications for reissues of patents, 2,410 applications for registration of trade-marks, 1,064 applications for registration of labels, and 233 applications for registration of prints. There were 27,292 patents issued, including designs, 81 patents reissued, 1,928 trade-marks registered, 878 labels, and 159 prints. The number of patents that expired was 19,147. The number of allowed applications awaiting the payment of final fees was 8,369. The number that were forfeited for non-payment of the final fees was 4,111. The total expenditures were $1,297,385.64. The receipts over expenditures were $152,012.52. The total balance to the credit of the Patent Office in the Treasury of the United States on January 1, 1902, was $5,329,471.07.

In proportion to population more patents were issued to citizens of Connecticut than to those of any other State—1 to every 1,198. Next in order are the following: District of Columbia, 1 to every 1,296; Massachusetts, 1 to every 1,472; New Jersey, 1 to every 1,572; Rhode Island, 1 to every 1,581; Colorado, 1 to every 1,718; New York, 1 to every

1,773; California, 1 to every 1,959; Illinois, 1 to every 1,984; Pennsylvania, 1 to every 2,221; Ohio, 1 to every 2,417; Washington, 1 to every 3,012; Michigan, 1 to every 3,198; Delaware, 1 to every 3,298; Oregon, 1 to every 3,308; New Hampshire, 1 to every 3,776; Indiana, 1 to every 3,812; Missouri, 1 to every 3,840; Wisconsin, 1 to every 3,903; Iowa, 1 to every 3,908; Maryland, 1 to every 4,013; Montana, 1 to every 4,055; Minnesota, 1 to every 4,199; Maine, 1 to every 4,480; Vermont, 1 to every 4,707; Utah, 1 to every 5,031; Nebraska, 1 to every 5,151; Idaho, 1 to every 5,578; Kansas, 1 to every 5,905; Nevada, 1 to every 6,047; Arizona Territory, 1 to every 6,470; Wyoming, 1 to every 6,609; North Dakota, 1 to every 7,092; West Virginia, 1 to every 8,125; Oklahoma Territory, 1 to every 8,298; New Mexico Territory, 1 to every 8,491; Texas, 1 to every 8,993; South Dakota, 1 to every 9,338; Virginia, 1 to every 9,657; Kentucky, 1 to every 9,849; Florida, 1 to every 9,972; Tennessee, 1 to every 10,415. The fewest patents granted in proportion to the number of inhabitants were in the following States and Territories: Alaska Territory, 1 to every 31,796; South Carolina, 1 to every 28,517; Alabama, 1 to every 22,300; North Carolina, 1 to every 18,386; Mississippi, 1 to every 18,038; Indian Territory, 1 to every 17,820; Georgia, 1 to every 14,874.

As to foreign patents, 1,045 were granted to residents of Germany; 986 to those of England; 376 to those of Canada; 306 to those of France; 156 to those of Austria-Hungary; 56 to those of Switzerland; 55 to those of Scotland; 54 to those of Belgium; 53 to those of Sweden; 37 to those of Italy; 35 to those of Victoria; 30 to those of Denmark; 29 to those of Russia; Ireland and New Zealand, 25 each; New South Wales and Norway, 20 each; 19 to those of Netherlands; 11 to those of Mexico; 9 to those of South African Republic; 8 to those of South Australia; Argentina and Queensland, 5 each; Cuba and India, 4 each; Colombia, Egypt, Roumania, and Western Australia, 3 each; Cape Colony and China, 2 each, and Algeria, Bermuda, Brazil, Jamaica, Japan, Java, Jersey, Peru, San Salvador, South Africa, Spain, Turkey, and Turkey in Asia, 1 each.

The Patent Office issued 27,373 patents during the year 1901, the largest annual issue in its entire history.

The total number of trade-marks, prints, and labels registered for the year 1901 was 2,965, the largest issue of certificates of registration in the history of the Office.

The condition of the Examining Divisions upon December 31 is indicated by the fact that of the thirty-six divisions sixteen were then taking up new cases for action within one month from the date of filing, nineteen were in arrears between one and two months, and one division between two and three months. The total number of cases awaiting action on the part of the Office upon December 31 was 8,510. Of the Examining Divisions of this Office those which are more than one month in arrears and numbering twenty are under rules requiring them to work until five o'clock p. m. so long as they remain more than one month in arrears, and thus one hundred and twenty-eight Examiners and assistants out of two hundred and nineteen are working overtime to keep up the work of their divisions. The work thus required beyond the regular hours of the Department is equal to the working time of twenty persons working continuously for the regular departmental hours. This condition is chronic and is due to the fact that the work has outgrown the examining corps.

The number of Examiners should be increased to provide properly for this situation, which operates unfairly against a skilled body of employees of the Government and which may be reasonably expected to grow worse by the growth of the business of this Bureau in accordance with the general growth of the industrial arts of the country, of which it is an index.

Already the work of classification has become a considerable part of the work of this Office and requires the continuous employment of a force of twelve Examiners and fourteen clerks. The value of this work is already manifest, and it should be allowed to proceed faster by the assignment of more assistants to this division. The fact that over seven hundred thousand patents have been issued by the Government is enough to suggest the truth that classification is a necessary thing if the system of examination of applications upon the question of novelty is to continue.

During the year 1901 changes have been made in the methods employed in receiving, opening, examining, and recording the mails of this Office and its cash contents. These changes were made upon the discovery of irregularities within the Office, which resulted in some changes in the personnel, and they have now been in force for five months. The result has been an almost complete cessation of complaints of losses of money alleged to have been sent to this Office. The improvement in this respect may be best estimated by considering the following statement:

Total receipts for five months ending December 31, 1900	$529,618 69
Total receipts for five months ending December 31, 1901	558,405 72
Recorded complaints of losses of money for above period of 1900	364 20
Recorded complaints of losses of money for above period of 1901	6 05

The system in force before this change undoubtedly permitted the destruction of complaints of losses, so that the $364.20 only shows those remaining of record. Each of these items includes complaints of losses which may have occurred in the mails, as well as claims erroneously made.

An indefinite but considerable loss of funds transmitted by postage-stamps was due to the same causes which resulted in losses of cash during the earlier part of the year 1901. The changes made have resulted in a total cessation of complaints of losses of this character.

It is expected that the safeguards now employed will suffice to prevent loss of funds actually received by the Office.

The Scientific Library of this Office contains about seventy-six thousand volumes, and it is the

best scientific library in this country. The sum of $5,000, which was provided by Congress for the installation of steel stacks for its use, has been employed for this purpose, the library having been given new and enlarged quarters, and it now appears that the further sum of $2,500 will enable this work to be completed, and the increased usefulness and greater safety of the library will justify and require this further expense to complete this work.

The annual sum of $2,000 provided for the purchase of books is insufficient to furnish all that are required for the purposes of this library, and small as this sum is about $500 has been taken from it annually to pay the expenses of transporting publications of patents issued by this Office to foreign governments. This custom is of long standing, but is not founded in reason, and the library should receive $4,000 per annum for purchase of books alone to enable it to serve the purposes of Examiners searching the arts in their respective classes.

This Office is in receipt of continual complaints from people who send for printed copies of patents, only to be answered that the desired copies are exhausted and cannot be furnished. The sum provided for this purpose is expended where it is most urgently required, for copies needed in the trial of cases in the courts and for other purposes rendering the request for reproduction special. A larger appropriation should be made for reprinting patents, so that eventually all exhausted copies may be restored to the files and be available as ordered.

It is believed that to meet the necessities already pressing upon this Office, whereby its work may be kept up within the working hours provided by the rules prevailing generally in the Departments of the Government and to meet the requirements of the business of this Office for the fiscal year 1902–1903, there should be furnished the following additional force, viz: three Principal Examiners, of whom one shall take the place of an assistant now at the head of one of the Examining Divisions and the other two shall have charge of two new divisions to be formed. The following Assistant Examiners will be required: four First Assistant Examiners, eight Second Assistant Examiners, ten Third Assistant Examiners, and ten Fourth Assistant Examiners.

This force will go in part to supply the twenty places now represented by overtime work in these divisions and will also replace eleven Acting Assistant Examiners who are drawn from grades of employees not expected to perform such services and whose services can then be used in lines of work for which they were originally intended and which need them. It will also permit more rapid progress in the work of classification.

The balance in favor of this Office for the calendar year 1901 amounted to $152,012.52, and if a portion of this could be expended in increase of force it would only meet the existing necessities of the work of this Bureau.

Respectfully submitted,

F. I. ALLEN,
Commissioner of Patents.

DECISIONS OF THE COMMISSIONER OF PATENTS.

COMMISSIONER'S DECISIONS.

EX PARTE JOHN DEWAR & SONS, LIMITED.

Decided January 23, 1902.

1. LABEL—USE OF A PERSON'S NAME WITHOUT HIS CONSENT—PUBLIC POLICY.

Where a label is presented including as its most prominent feature the words "King Edward VII," *Held* that registration should be refused upon the ground of public policy, which does not sanction the use of a person's name for purposes of trade without his consent.

2. SAME—SAME—USE FOR COMMERCIAL PURPOSES—PUBLIC MAN.

Descriptions and publications giving information in regard to a public man cannot be suppressed upon the ground of a right of privacy upon his part; but the use of his name for commercial purposes in advertisement of goods offered for sale stands upon a different footing.

3. SAME—SAME—PROPERTY RIGHT.

If a person's name has any commercial value as applied to goods offered for sale, he alone is entitled to the benefits, and it is a property right which no one else has the right to usurp without his consent.

4. SAME—SAME—LABELS USED FOR PURPOSES OF TRADE.

Prints and labels, although registered under the copyright law, are for purposes of trade, and the use of a person's name as the most prominent feature thereof without his consent is no more permissible than its use as a trade-mark.

ON appeal.

LABEL FOR WHISKY.

Application for registration filed November 21, 1901.

Mr. F. T. F. Johnson for the appellants.

ALLEN, *Commissioner:*

This is an appeal from the action of the Examiner refusing to register a label for whisky the title of which is "King Edward VII." The label is an artistic production and describes the contents of the package to which it is to be applied as "Finest Old Scotch Whiskey," and therefore registration has not been and could not be refused upon the ground that it is lacking in artistic merit or that it is not properly descriptive. The label, however, includes as its most prominent feature the words, in large type, "King Edward VII," and the question presented is: Should a party be permitted to make use of that name for purposes of trade without the permission of the present King of England, to whom it refers?

The copyright law under which labels are registered does not in terms vest the Commissioner of Patents with authority to exercise his discretion in regard to the registration of prints and labels,

but it has never been held and cannot be successfully contended that he is bound to register everything which parties may present and entitle a print or label. The thing presented must contain certain characteristics which in fact make it a valid print or label within the meaning of the copyright law as construed by the courts. Even where it comes within the general definitions of prints or labels it should not be registered where it is contrary to good morals. In such case registration will properly be refused upon the broad ground of public policy, with reference to which all laws must be construed. It must be held, therefore, that some discretion is left with the Commissioner of Patents in regard to the registration of prints and labels.

If the label in the present case is to be refused registration, it must be upon the ground of public policy, which does not sanction an invasion of the privacy of an individual for purposes of trade without his consent. It is true that when a person becomes so prominent in affairs of state or in business as to be what is known as a "public man" he cannot insist upon privacy in regard to himself and his acts. Descriptions and publications giving information in regard to him cannot be suppressed upon the ground of the right of privacy upon his part, and such publications would probably be registered by the Librarian of Congress under the copyright law. The use of a public man's name for commercial purposes in advertisement of goods offered for sale stands upon a different footing. It amounts to publicly using his name for private purposes of gain. If his name has any commercial value as applied to goods offered for sale, he and he alone is entitled to the benefits. If it has a commercial value, it is a property right similar in character to the good-will which attaches to an established business and no one else has the right to usurp it without his consent. If that value arises from the fact that he is engaged in selling goods of a certain character to the public, there are many decisions of the courts to the effect that he will be protected against the use of his name by others for that purpose, and it would seem that in so far as his right to protection is concerned it is not of consequence by what means the commercial value became attached to his name. Whatever value there is is his.

Commissioner Duell said in *ex parte McInnerney* (85 O. G., 148) in reference to the word "Dewey" as a trade-mark:

> I cannot, however, refrain from expressing the opinion that even if it be registrable, no one has the right without the consent of Dewey to appropriate it as a trade-mark. A living celebrity is entitled to protection from the ordinary trader.

There are other decisions relating to trade-marks to the same effect.

The present application is for a label under the copyright law and not for a trade-mark; but under the express provisions of the law prints and labels which are registered in this Office are for purposes of trade. They pertain to articles of manufacture which are to be sold to the public. The use of a person's name as an essential feature of such a label is objectionable for the same reasons as is its use as a trade-mark. The article of trade upon which the present label is used would undoubtedly become known as "King Edward VII Whiskey," for that is the most prominent feature of the label. It is against public policy to sanction such use of a person's name without his consent.

The decision of the Examiner is affirmed.

EX PARTE REAGAN.

Decided January 17, 1902.

INTERFERENCE—REJECTED CLAIM—INOPERATIVE DEVICE.

A party whose claim stands rejected on the ground that his device is inoperative is not entitled to an interference with a patent making the same claim.

ON petition.

OCEAN TELEGRAPHY AND TELEPHONY.

Application of Harry C. Reagan, Jr., filed May 14, 1898, No. 680,686.

Messrs. Wiedersheim & Fairbanks for the applicant.

ALLEN, *Commissioner:*

This is a petition that the Examiner be advised that having passed upon the admissibility of claim 24 in the present application and having stated that it was allowable and was entitled to an interference with claim 3 of a certain patent to Kitsee he shall proceed to declare an interference between claim 24 of the above-entitled application and said claim 3 of the Kitsee patent.

An inspection of the record fails to substantiate appellant's allegation that claim 24 has been stated to be allowable and entitled to an interference with the patent to Kitsee. On the contrary, the Examiner in his letter dated November 30, 1900, distinctly says:

> Inasmuch as the objection to the operativeness has not been overcome, claim 24 is rejected for that reason.

He states, further, that this claim will be allowed if applicant overcomes this objection to the operativeness of the device.

As the case now stands claim 24 is rejected on the ground that it covers an inoperative device. This being so, Reagan has no right to the institution of an interference. (See *Abel and Dewar* v. *Maxim* v. *Nobel*, 56 O. G., 139; *Glidden* v. *Noble*, 67 O. G., 676; *ex parte Russell*, 84 O. G., 2021.)

Before any interference involving claim 24 of this application can be instituted the objection which has been urged against it must be overcome. If Reagan is unable to convince the Examiner of the operativeness of his device, further prosecution of the case by him should be by the regular course of appeal.

The petition is denied.

Patents Nos. 692,811 to 693,358.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 98.—No. 6. TUESDAY, FEBRUARY 11, 1902. Price—$5 per year.

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Patents	548	No. 692,811 to No. 693,358,	inclusive.
Designs	37	No. 35,703 to No. 35,739,	inclusive.
Trade-Marks	31	No. 37,770 to No. 37,800,	inclusive.
Labels	17	No. 8,933 to No. 8,949,	inclusive.
Prints	6	No. 462 to No. 467,	inclusive.
Reissues	1	No. 11,967.	
Total issue	640		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	1	Nevada	----	----
Arizona Territory	2	----	New Hampshire	1	----
Arkansas	1	----	New Jersey	23	6
California	13	2	New Mexico Territ'y	1	----
Colorado	9	----	New York	81	11
Connecticut	7	----	North Carolina	2	1
Delaware	----	----	North Dakota	2	----
District of Columbia	6	1	Ohio	50	----
Florida	1	----	Oklahoma Territ'y	1	----
Georgia	1	2	Oregon	2	----
Hawaii Territory	----	----	Pennsylvania	60	6
Idaho	----	----	Porto Rico	----	----
Illinois	70	3	Rhode Island	5	1
Indian Territory	----	----	South Carolina	2	----
Indiana	14	1	South Dakota	2	----
Iowa	9	----	Tennessee	5	1
Kansas	6	----	Texas	8	1
Kentucky	1	1	Utah	3	1
Louisiana	4	----	Vermont	4	----
Maine	2	----	Virginia	4	1
Maryland	11	1	Washington	2	----
Massachusetts	69	4	West Virginia	2	----
Michigan	18	2	Wisconsin	12	1
Minnesota	6	2	Wyoming	----	----
Mississippi	2	----	U. S. Navy	----	----
Missouri	17	3			
Montana	1	----	Total to citizens of the United States	585	53
Nebraska	5	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	----	----	Mexico	----	----
Austria-Hungary	1	----	Netherlands	1	----
Barbadoes	----	----	Newfoundland	----	----
Belgium	----	----	New South Wales	----	----
Bermuda	----	----	New Zealand	----	----
Brazil	----	----	Norway	1	----
Canada	8	----	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile	----	----	Russia	----	----
China	----	----	Scotland	----	----
Colombia	----	----	South African Republic	----	----
Cuba	1	----	South Australia	----	----
Denmark	----	----	Spain	----	----
Egypt	----	----	Sweden	1	----
England	11	1	Switzerland	----	----
France	5	----	Turkey in Asia	----	----
Germany	6	----	Victoria	1	----
Guatemala	----	----	Western Australia	----	----
Haiti	----	----			
India	----	----			
Ireland	1	----	Total to citizens of foreign countries	37	1
Italy	----	----			

Prohibiting Changes in Office Papers.

(Order No. 1,455.)

Department of the Interior,
United States Patent Office,
Washington, D. C., February 4, 1902.

It is hereby ordered that no erasures be made or any note, interlineation, or other mark in pencil or otherwise, except by formal amendment duly signed, in the body or written portions of the specification or of any other paper filed in an application for patent.

It is further directed that no change be made by any person in any record of this Office without the written approval of the Commissioner of Patents.

Attorneys, employees of the Patent Office, and all others will be held to strict accountability for any violation of this order.

F. I. ALLEN,
Commissioner.

Changes in Classification.

(Order No. 1,454.)

Department of the Interior,
United States Patent Office,
Washington, D. C., February 1, 1902.

A change in classification is directed, as follows: Subclass 166, Wheels, tires, roller-supported, in class 105, Railway Rolling Stock, is abolished, the patents therein having been transferred to subclasses in class 64, Journal-Boxes, Pulleys and Shafting, and to other subclasses in class 105, Division XII.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 4, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks. ‡Labels and Prints, Optics, and Photography.	Jan. 17	Jan. 16	95
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Jan. 14	Jan. 21	168
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Jan. 13	Jan. 22	191
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Jan. 13	Jan. 18	175
253	X. Carriages and Wagons	Jan. 9	Jan. 16	88
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Jan. 8	Jan. 4	164
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Jan. 7	Jan. 22	149
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Jan. 6	Jan. 22	205
123	XXIX. Wood-Working Machines, Coopering and Roofing.	Jan. 6	Jan. 22	132
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 6	Jan. 21	177
213	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Jan. 6	Jan. 21	184
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 6	Jan. 21	179
261	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Jan. 6	Jan. 21	275
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Jan. 6	Jan. 21	131
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Jan. 6	Jan. 21	115
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Jan. 6	Jan. 21	233
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Jan. 6	Jan. 20	341
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Jan. 6	Jan. 20	174
108	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 6	Jan. 20	193
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 6	Jan. 13	320
80	IV. Civil Engineering, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Jan. 6	Jan. 9	211
245	I. Tillage, etc., and Fences	Jan. 6	Jan. 9	182
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Jan. 4	Jan. 23	169
	Between one and two months.			
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Jan. 3	Jan. 15	308

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Jan. 3	Jan. 9	400
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Jan. 2	Jan. 21	162
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Jan. 2	Jan. 21	185
122	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Dec. 31	Jan. 17	178
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Dec. 16	Dec. 11	317
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec 11	Dec. 12	402
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 7	Jan. 6	245
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Dec. 6	Dec 6	453
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 5	Nov. 19	882
	Between two and three months.			
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Dec. 2	Dec. 9	498
248	XVIII. Steam-Engineering, etc	Nov. 29	Nov. 22	393
190	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 18	Jan. 9	412

Total number of applications awaiting action.....8,476

Under one month.			
*Designs	Jan. 10	Jan. 18	135
†Trade-Marks	Jan. 18	Jan. 25	94
‡Labels and Prints	Feb. 1	Jan. 28	9

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., January 31, 1902.

SIR: The Secretary of the Interior has ordered that Elias H. Long, of Selinsgrove, Pa., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

(ORDER No. 1,453.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 1, 1902.

Pursuant to the provisions of section 487 of the Revised Statutes, and with the approval of the Secretary of the Interior, Harry A. Holgate, of Philadelphia, Pa., registry number 4,225, is hereby disbarred from practice before the United States Patent Office for gross misconduct.

F. I. ALLEN,
Commissioner.

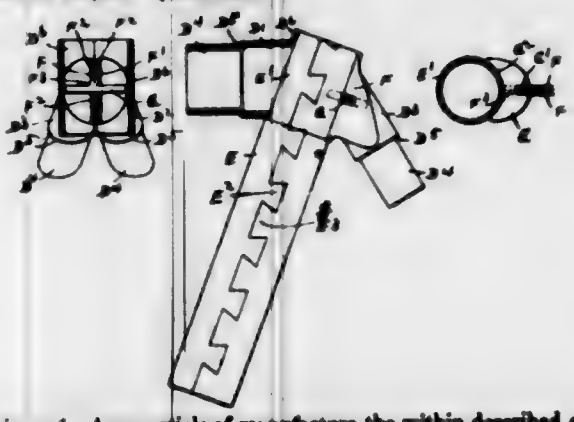
Money by Mail.

Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered.

PATENTS

GRANTED FEBRUARY 11, 1902.

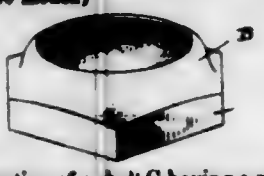
692,811. BICYCLE. ARTHUR G. ANDERSON, Worcester, Mass., assignor to Edmund Converse, Worcester, Mass. Filed Nov. 20, 1899. Serial No. 737,731. (No model.)



Claim.—1. As an article of manufacture the within-described coupling for bicycle-frames comprising a central portion to receive a seat-post tube and having a prong D' and divergent prongs D^2 and D^3 with their adjacent sides F and F' abutting and provided with notched edges and a notched tie-piece engaging the notched edges of said abutting sides, substantially as described.

2. In a bicycle the combination in a coupling of a central tubular portion to receive a seat-post tube, a prong D' and divergent prongs D^2, D^3, their adjacent sides F, F' abutting and provided with notched edges, a notched crescent-shaped tie-piece engaging the notched edges of said abutting sides, and a tube E having interlocked dovetailed edges inserted in said central portion and abutting the concave edge of said tie-piece, substantially as described.

692,812. CAP-NUT. ARTHUR G. ANDERSON, Worcester, Mass., assignor to Edmund Converse, Worcester, Mass. Filed July 23, 1900. Serial No. 24,531. (No model.)



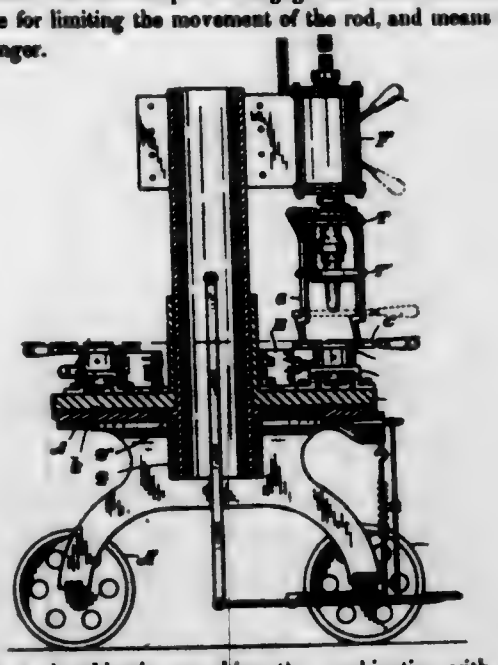
Claim.—The combination of a shell C having a polygonal section A, and a circular section H, of a plate D provided with a screw-threaded hole E, said plate being held in the polygonal section of said shell, substantially as described.

692,813. GLASS-BLOWING MACHINE. EDMUND B. BALL, Muncie, Ind., assignor to Ball Brothers Glass Manufacturing Company, Muncie, Ind., a Corporation of Indiana. Filed Mar. 15, 1901. Serial No. 51,309. (No model.)

Claim.—1. The combination in a glass-blowing apparatus, of integral pressing-molds, blowing-molds, and a pressing-head or plunger, an integral cylindrical neck-mold provided with a central screw-threaded opening, and oppositely-extending projections, a handle extending from one of the projections, means adapted to engage the projections on the neck-mold and lift the same from the pressing-molds, and mechanism for operating said lifting means.

2. In a glass-blowing machine, the combination with a pressing-mold, a neck-mold, a plunger arranged above the pressing-mold, a plate carried by the plunger, a rod balanced on the plate, hooks pivoted to the opposite ends of the rod adapted to engage and lift the neck-mold and means for actuating the plunger.

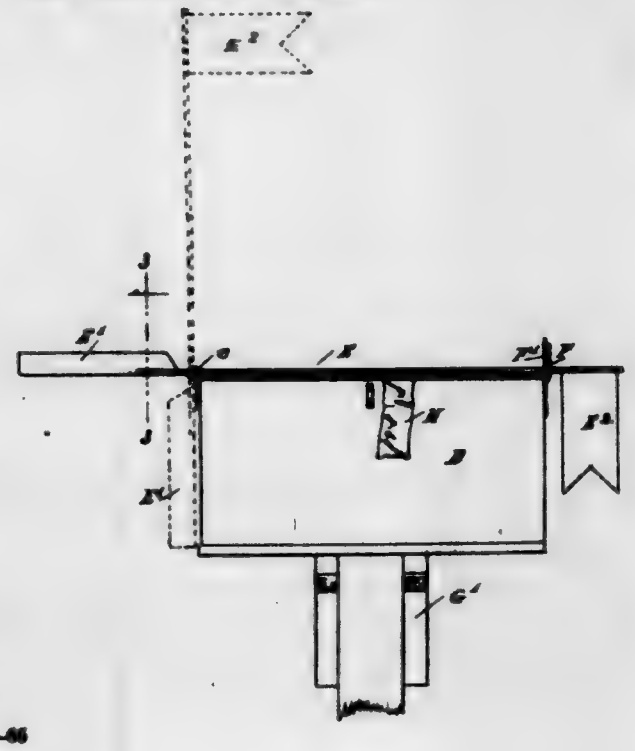
3. In a glass-blowing machine, the combination with a pressing-mold, a neck-mold, a plunger arranged above the pressing-mold, a plate carried by the plunger, a rod balanced on the plate, hooks pivoted to the opposite ends of the rod adapted to engage and lift the neck-mold, clips on the plate for limiting the movement of the rod, and means for actuating the plunger.



4. In a glass-blowing machine, the combination with a pressing-mold, a neck-mold, of a plunger arranged above the pressing-mold, a plate carried by the plunger, a rod balanced on the plate, gravity-actuated hooks pivoted to the opposite ends of the rod, means for limiting the movement of the hooks, and mechanism for actuating the plunger.

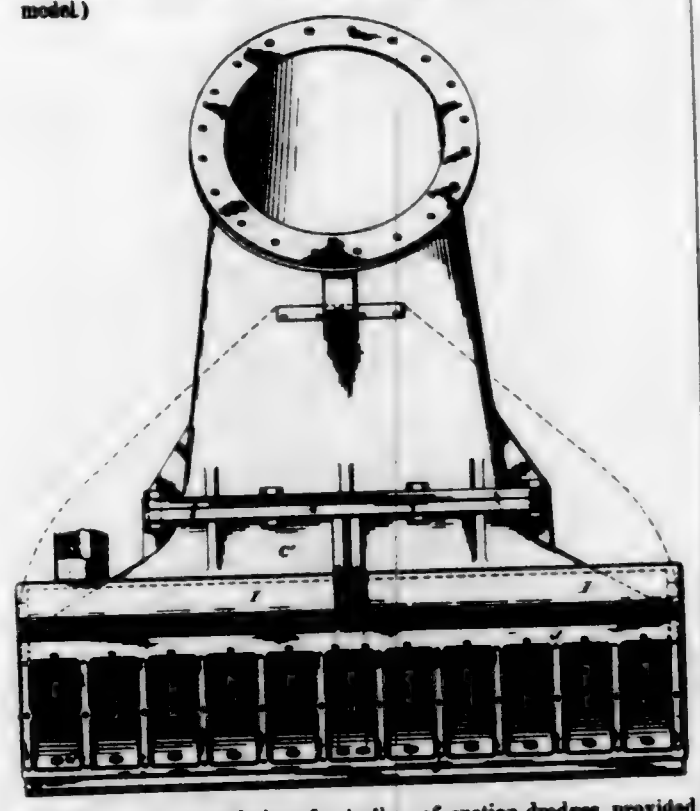
5. In a glass-blowing machine, the combination with a pressing-mold, a neck-mold, of a plunger arranged above the pressing-mold, a plate carried by the plunger, a rod provided with an opening surrounding the plunger, depending lugs on the rod located on opposite sides of the plunger bearing against the top of the plate on which the rod is balanced, hooks pivoted to the opposite ends of the rod adapted to engage and lift the neck-mold, and means for actuating the plunger.

692,814. MAIL-BOX. JOHN M. BALL, Auburn, Ill. Filed Apr. 9, 1901. Serial No. 55,042. (No model.)



Claim.—In a mail-box, the combination of a box, a door on said box hinged to turn downward and adapted to gravitate to a closed position, a latch on said door, an arm pivotally supported on said box, and carrying a signal, a weight detachably connected with said arm and gravitating to raise the arm to a vertical position to display the signal when the door is opened, and a guide on said box adapted to guide said arm into engagement with said latch, said arm being released by the opening of said door, as set forth.

692,815. MOUTHPIECE FOR SUCTION-DREDGES. LIBDON W. BATES, Chicago, Ill. Filed July 19, 1900. Serial No. 24,252. (No model.)



Claim.—1. A mouthpiece for trailers of suction-dredges provided with a cutting edge; and a series of water-jets located in a plane above said cutting edge and arranged to act in conjunction therewith, said jets being directed outwardly in substantially parallel lines with said edge away from the mouthpiece.

2. A mouthpiece for trailers of suction-dredges provided with a series of outwardly-projecting ribs; outwardly-extending passages formed in said ribs; and means for forcing water under pressure through said passages outwardly in practical alinement with the passages.

3. A mouthpiece for trailers of suction-dredges having a series of ribs formed therein; outwardly-extending passages formed in said ribs; means for forcing water under pressure through said passages; and a cutter also carried by said mouthpiece.

4. A mouthpiece for trailers of suction-dredges provided with a series of ribs formed therein; a series of outwardly-extending passages formed in said ribs; a pipe or conduit extending across the entire width of the mouthpiece, and communicating with said passages; and means for supplying water under pressure to said pipe or conduit and causing the jets to be projected away from the mouth.

5. A mouthpiece for trailers of suction-dredges provided with a series of ribs formed therein; outwardly-extending channels formed in said ribs; a pipe or conduit extending across the mouthpiece and communicating with said passages; means for forcing water into said pipe or conduit and out of the openings; and a cutter carried by said mouthpiece.

6. In combination with a suction-pipe A, a mouthpiece carried thereby; a knife carried by said mouthpiece; a series of ribs formed in the mouthpiece; outwardly-extending channels formed in said ribs; a conduit extending across the mouthpiece and communicating with said channels; a pipe K connected with said conduit; and connections between said pipes A and K and the dredge.

692,816. KNIFE FOR CUTTING ROPES USED IN BORING ARTESIAN OR OIL WELLS. GEORGE F. BELL, Sistersville, W. Va. Filed July 2, 1901. Serial No. 66,863. (No model.)

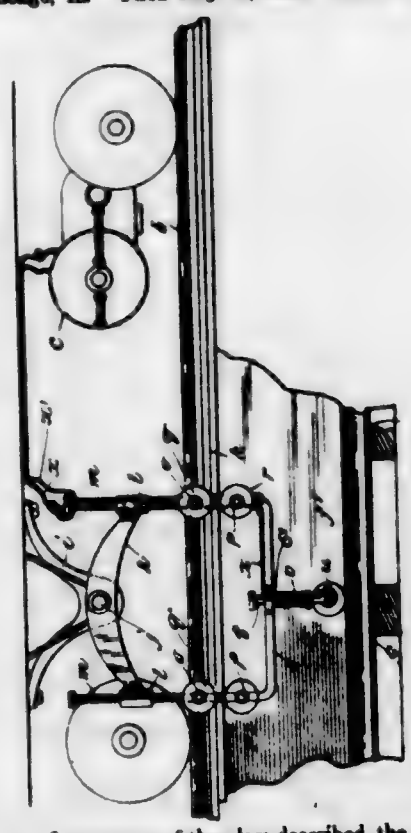
Claim.—1. An implement of the class described, comprising a knife-head, a knife pivotally suspended therefrom and adapted to engage and coact with a rope-socket, said knife having a guide on one side thereof to engage the main rope, the center of gravity of said knife being below the pivot and between the said pivot and the main rope, whereby, the knife by gravity tends to swing from the main rope, to maintain its cutting edge out of engagement with the main rope during the descent of the implement, substantially as described.



2. An implement of the class described, comprising a knife-head, a knife pivotally suspended from the lower end thereof and adapted to engage and coact with a rope-socket, and a guide projecting from the inner side of said knife, at a point below the pivotal connection thereof, and adapted to engage the main rope, said guide forming a weight-lever to keep the edge of the knife from engagement with the main rope during the descent of the implement, substantially as described.

3. An implement of the class described comprising a knife-head, a knife pivotally suspended from the lower end thereof having a guide-groove on its inner side to engage the main rope and a cutting edge at the lower end of said guide-groove, and a guide to engage the main rope, said guide projecting from the inner side of said knife, below the pivotal connection thereof and forming a weight-lever to keep the cutting edge of the knife from engagement with the main rope during the descent of the implement, substantially as described.

692,817. ELECTRIC SYSTEM FOR RAILWAYS. DANIEL S. BERGER, Chicago, Ill. Filed May 11, 1901. Serial No. 59,715. (No model.)



Claim.—1. In a system of the class described, the combination with an electric conduit, a conductor, a car, a track and car-motor of a trolley-

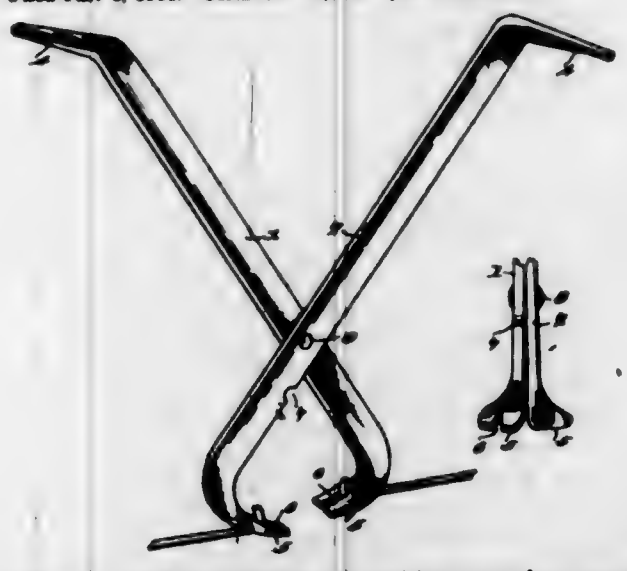
carrier consisting of a frame in yielding connection with the car, wheels above and below the conduit-slot for maintaining said frame in a constant relation to the latter, and a yielding contact supported by said frame, substantially as described.

2. In a system of the class described, the combination of a railway-track, a car having an electric motor thereon, a longitudinally-slotted electric conduit having a varying level with respect to the track-level, a yoke pivotally sustained at its middle to a support secured to the car, a U-shaped frame the vertical arms of which are extended through bores in the ends of said yoke, the lower portion of said frame being projected into the conduit-slot, wheels mounted upon each of said arms, one above and the other below said slot, an electric conductor within said conduit and a yielding contact supported by said U-shaped frame whereby the frame may maintain a constant and positive relation to said conduit, and an electric contact may be insured.

3. In a system of the class described, the combination of a railway-track, a car having an electric motor thereon, a longitudinally-slotted electric conduit having a varying level with respect to the track-level, a conductor located within said conduit, a yoke pivotally held at its middle to a support secured to the car, a frame consisting of the vertical arms *m m* and cross-bar *s*, wheels *g r*, located above and below the conduit-slot respectively, a yielding, spring-actuated contact in operative connection with said conductor and means for electrically connecting the same with said motor, substantially as described.

4. In an electric-railway system, the combination with an electric-supply conductor, of a railway-track, a car, an electric motor thereon, a longitudinally-slotted conduit for said supply-conductor, a contact-carrier consisting of a depending frame jointedly connected with the car and extending within the conduit, wheels upon said frame located above and below the slot-rails of the conduit for maintaining a constant relation between said frame and slot-rails or conduit-shell, a yielding contact element connected to and supported by said frame and means for maintaining the same in contact with said conductor, substantially as described.

692,818. **WIRE-FENCE TOOL.** JAMES O. BERRY, Bellevue, Tex. Filed July 8, 1901. Serial No. 67,504. (No model.)



Claim.—A tool for stretching and repairing fence-wires comprising two bars 1 and 2 pivoted together between their ends and having their outer ends enlarged and provided with laterally offset claws arranged to clear each other entirely and adapted to engage the ends of a broken fence-wire and capable of swinging entirely past each other, whereby the ends of the wire may be stretched to the desired tension prior to twisting them together, said bars being provided at their inner ends with laterally-projecting handles arranged at right angles to the bars and extending outward at right angles to the line of movement of the bars and adapted to be readily grasped while stretching a fence-wire, substantially as described.

692,819. **MEANS FOR EFFECTING NOISELESS DISCHARGE OF GUNS.** JOSEPH R. RUSSELL, Pittsburg, Pa., assignor to David G. Kuttel, Allegheny, Pa. Filed Apr. 21, 1900. Renewed July 9, 1901. Serial No. 67,023. (No model.)

Claim.—1. As a means for effecting the noiseless discharge of guns, the combination of an explosive material, a projectile, a piston interposed between the explosive material and the projectile, means for preventing the escape of gases from the muzzle of the gun, and a liquid-transmitter interposed between the piston and the projectile, substantially as set forth.

2. As a means for effecting the noiseless discharge of guns, the combination of a piston chamber or shell, an explosive material at one end of the shell and projectile at the opposite end of the shell, a piston, means for preventing the escape of gases from the muzzle of the gun, and a liquid-transmitter interposed between the explosive material and the projectile, substantially as set forth.



692,820. **SCALE.** LEW BOTE, Berlin, Wis. Filed Sept. 8, 1900. Serial No. 29,407. (No model.)



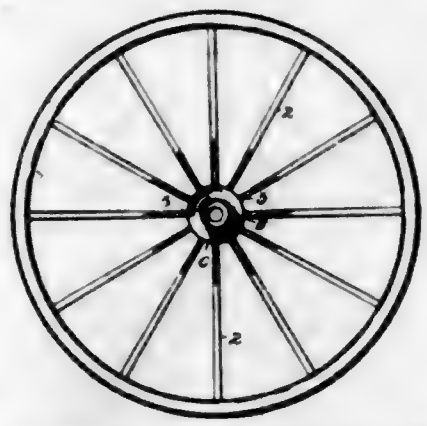
Claim.—The combination with a weighing-scale, of a platform movable with relation thereto to extend above and over the scale-plate, and paper-holders carried by the scale and extending above and over the scale-plate and beneath the projecting platform, substantially as described.

692,821. **END PIECE FOR WHEEL-SPOKES.** GUY S. BRAITINGHAM, New York, N. Y. Filed May 10, 1901. Serial No. 59,562. (No model.)

Claim.—1. A spoke having in combination an end piece provided with a projecting tenon for holding the spoke in the wheel-hub, said tenon having side shoulders impinging against the exterior of said hub.

2. A spoke having in combination an end piece made of resistant and durable material and provided with a projecting tenon for holding the spoke in the wheel-hub, said tenon having side shoulders impinging against the exterior of said hub.

3. The combination with a spoke, of an end piece to which the spoke is secured and which is provided with a projecting tenon for holding the spoke in the wheel-hub, and means for securing the spoke to a side wall of the end piece.



4. The combination of a spoke and an end piece to which the spoke is mortised, the end piece having a projecting tenon for holding the spoke in the wheel-hub, and also having side shoulders impinging against the exterior of said hub.

5. The combination of a spoke, an end piece provided with walls on three sides and open on the fourth side whereby the end piece may be fitted to the spoke by sliding the two together transversely to the axis of the spoke, and a fastening device extending through a wall of the end piece and into the spoke for securing the two together.

6. The combination with a plurality of spokes, of end pieces each provided with walls on three sides but open on the fourth side, said end pieces being secured to the respective spokes and contacting one with the other and mutually supporting each other when in place, and having projecting tenons for holding the spokes in place.

7. The combination with a plurality of spokes, of end pieces each provided with walls on three sides but open on the fourth side, said end pieces being secured to the respective spokes and contacting one with the other and mutually supporting each other when in place, fastening devices which pass through the walls of the respective end pieces and into the corresponding spokes for securing the parts together, and tenons upon the end pieces for holding the spokes in place.

8. The combination of a spoke provided with a tenon, an end piece having an undercut mortise for receiving the tenon of the spoke and which is open on one of its four sides, means for securing the spoke to the end piece, and a tenon on the end piece for holding the spoke in place.

9. The combination of a spoke provided with a tenon, an end piece having a mortise open upon one of its four sides for receiving the tenon of the spoke, a screw passing through a wall of the mortise for securing the spoke and the end piece together, and a tenon on the end piece for holding the spoke in place.

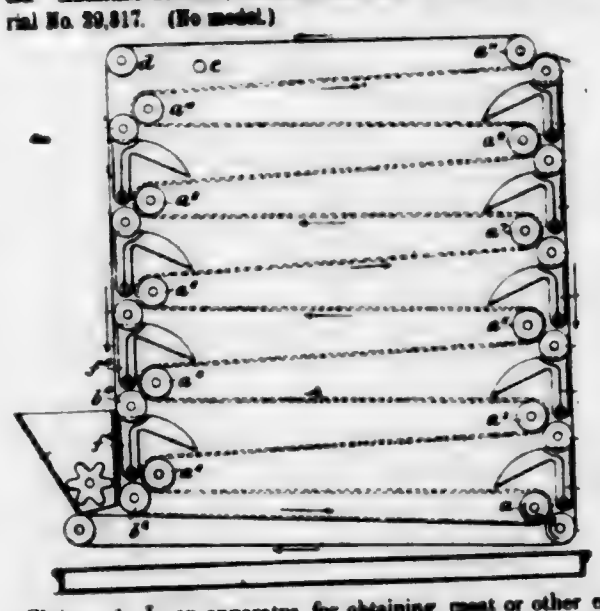
692,822. FOLDING STOOL. SAMUEL S. BERCHBIEL, Altoona, Pa. Filed Aug. 12, 1901. Serial No. 71,715. (No model.)



Claim.—1. A folding stool, comprising a two-part standard, a coupling-rod fixed in the lower part and slidingly engaged by the other part of the standard, radially-arranged seat-bars having their inner ends pivotally secured to the upper end of the standard, supporting-bars having their upper ends secured to the outer ends of the seat-bars, a collar slidingly mounted on the standard intermediate the ends thereof and having the lower ends of the supporting-bars pivotally secured thereto, a second collar slidingly mounted on the standard and carrying the upper intermediate collar, legs pivotally connected to this second collar having their lower ends curved inward, bottom bars pivotally secured to the lower end of the standard and their outer ends pivotally secured to the curved ends of the legs.

2. A folding stool comprising a vertical two-part standard, a coupling-pin rigidly secured in the upper end of the lower part and extending loosely within the upper part, a collar rotatably mounted on the upper end of the standard and held against vertical displacement, a collar rigidly fixed on the foot of the standard, collars slidingly mounted on the standard intermediate the ends, the upper one of the intermediate collars being rotatably mounted on the lower intermediate collar, seat-bars pivotally secured to the collar at the top of the standard, supporting-bars pivotally secured to the outer ends of the seat-bars and having their lower ends pivotally secured to the upper intermediate collar, legs pivotally secured to the lower intermediate collar and having their lower ends curved inward and bottom bars having one end pivotally secured to the end of the curved portions of the legs and their inner ends pivotally secured to the collar on the lower end of the standard.

692,828. MEANS FOR EXTRACTING JUICE FROM RAW MEAT, &c. HERMANN BERNER, Munich, Germany. Filed Sept. 12, 1900. Serial No. 29,817. (No model.)



Claim.—1. In an apparatus for obtaining meat or other extracts, the combination of guide-rollers arranged one above the other in opposite tiers, endless aprons passing in a zigzag course over said rollers, means for feeding the material to be extracted to the aprons at their lower ends, pressure-rollers arranged in proximity to the guide-rollers, means for supplying extracting fluid at the upper part of the endless aprons, and means for receiving the expressed extract, substantially as set forth.

2. In an apparatus for obtaining meat or other extracts, the combination of hollow guide-rollers arranged one above the other in opposite tiers, endless aprons passing in a zigzag course over said rollers, means for feeding the material to be extracted to the aprons at their lower ends, hollow pressure-rollers arranged in proximity to the guide-rollers, means for heating the guide and pressure rollers, means for supplying extracting fluid at the upper part of the endless aprons, and means for receiving the expressed extract, substantially as set forth.

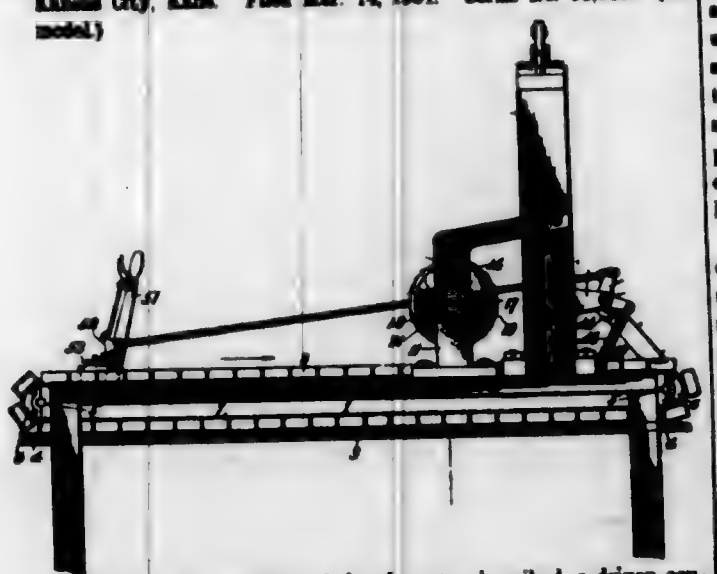
3. In an apparatus for extracting meat or other extracts, the combination of guide-rollers arranged one above the other in opposite tiers, endless aprons passing in a zigzag course over said rollers, means for feeding the material to be extracted to the aprons at their lower ends, hollow pressure-rollers arranged in proximity to the guide-rollers and means for heating the same, means for supplying extracting fluid at the upper part of the endless aprons, and means for receiving the expressed extract, substantially as set forth.

4. In an apparatus for obtaining meat or other extracts, the combination of a frame, guide-rollers arranged one above the other in opposite tiers on either side of the frame, two endless aprons carried upwardly side by side in a zigzag course over said guide-rollers, means for feeding the material to be extracted between the aprons at their lower ends, adjustably-mounted pressure-rollers arranged in proximity to each of the guide-rollers, means for supplying extracting fluid at the upper part of the endless aprons, and means for receiving the expressed extract, substantially as set forth.

5. In an apparatus for obtaining meat or other extracts, the combination of guide-rollers arranged one above the other in opposite series, endless aprons passing in a zigzag course over said rollers, means for feeding the material to be extracted to the aprons at their lower ends, a pressure-roller arranged in proximity to each guide-roller, means for supplying extracting fluid at the upper part of the endless aprons, and a receptacle beneath each pair of guide and pressure rollers divided by a partition extending nearly to the bottom thereof into two compartments, one

provided with an outlet for fat and the other with a channel for the discharge of the extract from which the fat has been removed, substantially as set forth.

692,824. PORK-LOINING MACHINE. ANDREW M. BURLESON, Kansas City, Kans. Filed Mar. 14, 1901. Serial No. 51,040. (No model.)



Claim.—1. In a machine of the character described, a driven conveyer, a saw above the same to cut through the rib-bones of a "side" of meat carried by the conveyer, and a scoop-knife, embracing an edge to pass through the cut made by the saw, and an edge to underlie the bones and tenderloin below and scoop the tenderloin from the underlying fat.

2. In a machine of the character described, a driven conveyer, a saw above the same, means to yieldingly oppose movement which increases the distance between said saw and conveyer, and a scoop-knife having an edge to follow the line of saw-cut and an edge extending at an angle to the first-named edge and adapted to scoop the tenderloin from the underlying fat.

3. In a machine of the character described, a driven conveyer, a rotating saw above the same, and a scoop-knife having an edge to follow the line of cut made by the saw and an edge extending at an angle to the first-named edge and adapted to separate the tenderloin from the underlying fat.

4. In a machine of the character described, a driven conveyer, a rotary saw above the same, springs holding said saw yieldingly depressed, and a scoop-knife having an edge to follow the line of cut made by the saw and an edge extending at an angle to the first-named edge and adapted to separate the tenderloin from the underlying fat.

5. In a machine of the character described, a driven conveyer, a saw above the same, means for holding the same yieldingly depressed, means to limit the depth of saw-cut, and a scoop-knife having an edge to follow the line of cut made by the saw and an edge extending at an angle to the first-named edge and adapted to separate the tenderloin from the underlying fat.

6. In a machine of the character described, a driven conveyer, a saw above the same, means for holding the saw yieldingly depressed, and a yieldingly-depressed scoop-knife having an edge to follow the line of cut made by the saw and an edge extending at an angle to the first-named edge and adapted to separate the tenderloin from the fat.

7. In a machine of the character described, a driven conveyer, a saw above the same, means for holding the saw yieldingly depressed, a yieldingly-depressed scoop-knife to follow the line of cut made by the saw and to separate the tenderloin from the fat, and means to adjust the same to accommodate the thickness of the fat underlying the tenderloin.

8. In a machine of the character described, a driven conveyer, a saw above the same, a scoop-knife to follow the saw-cut and separate the tenderloin from the underlying fat, and a knife also following the saw-cut and adapted to cut through the fat, substantially as described.

9. In a machine of the character described, a driven conveyer provided with a longitudinal groove in its upper side, a saw vertically above and operating in the plane of said groove, and a scoop-knife embracing an edge to follow the saw-cut, and an edge to sever the underlying tenderloin from the fat, and a knife adapted to register with and project into said groove.

10. In a machine of the character described, a driven conveyer provided with a longitudinal groove in its upper side, a saw vertically above and operating in the plane of said groove, a scoop-knife embracing an edge to follow the saw-cut, and an edge to sever the underlying tenderloin from the fat, and a spring-depressed knife adapted to register with and project into said groove.

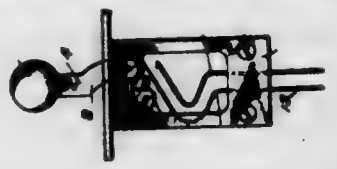
11. In a machine of the character described, a driven conveyer provided with a longitudinal groove in its upper side, a saw vertically above and operating in the plane of said groove, and a scoop-knife embracing an edge to follow the saw-cut, and an edge to sever the underlying tenderloin from the fat, a spring-depressed knife adapted to register with and project into said groove, and means for raising and holding said knife to an inoperative position.

12. In a machine of the character described, a suitable framework, a driven conveyer thereon, a saw above the conveyer, a superstructure upon the frame, a spring-depressed cross-head mounted therein, a hollow scoop-knife below and movable with the cross-head, pipes projecting from the ends of the same up through the cross-head, flexible pipes for the supply and discharge of steam connecting the cross-head with the upper part of the superstructure, one being the supply and the other the discharge pipe for the steam, and means for elevating the cross-head and the knife when desired, substantially as described.

13. In a machine of the character described, a driven conveyer, a driven shaft, a rotary cutter mounted on the shaft, and a shoulder journaled on the shaft adjacent to the cutter, and adapted by pressing upon the meat carried by the conveyer and subjected to the action of the cutter, to limit the depth of cut made by the latter, and to rotate at a speed corresponding to that of the conveyer and, by preventing the meat from being dragged forwardly rapidly by the cutter, afford a resistance which insures a more reliable cutting operation.

14. In a machine of the character described, a driven conveyer, a driven shaft, a rotary cutter mounted on the shaft, a shoulder journaled on the shaft adjacent to the cutter, and adapted by pressing upon the meat carried by the conveyer and subjected to the action of the cutter, to limit the depth of cut made by the latter, and to rotate at a speed corresponding to that of the conveyer and, by preventing the meat from being dragged forwardly rapidly by the cutter, afford a resistance which insures a more reliable operation, and means to yieldingly oppose movement which increases the distance between said cutter and conveyer.

692,825. OPERATOR'S KEY. ALBERT CARLIN, Chicago, Ill., assignor to American Electric Telephone Company, Chicago, Ill., a Corporation. Filed Apr. 1, 1901. Serial No. 53,775. (No model.)



Claim.—1. In an operator's key, the combination with a top plate having an aperture, of an elbow-lever pivoted beneath the top plate and having a segmental or arc-shaped portion passing through the aperture, a handle for operating the same, projecting above the top plate, contact-springs supported beneath the top plate and in proximity to said lever, and means on said lever for operating the said springs.

2. In an operator's key, the combination with a top plate having an aperture, of an elbow-lever pivoted at the end of one arm beneath the plate, the other arm having a segmental or arc-shaped portion projecting through said aperture and whose center is the pivotal center of the lever, a handle on said projecting arm for operating said lever, spring contacts or terminals supported beneath the plate, and means for operating said springs or terminals by said lever.

3. In an operator's key, the combination with a top plate, of an elbow-lever, one arm of which is pivoted beneath the plate, the other arm projecting through an aperture in said plate, a plate or shield carried by the latter arm and adapted to normally close the aperture about said arm and to be depressed therewith, springs located on said key beneath the plate, and means for operating said springs by said lever.

4. In an operator's key, the combination with a top plate having an aperture therein, of an elbow-lever pivoted at the end of one arm beneath the plate, the other arm projecting through said aperture, a plate or shield carried by said latter arm and adapted to be pressed against the lower face of said plate when the lever is in normal position to prevent the passage of dust therethrough, the said plate being adapted to be depressed with the lever to throw off any dust or dirt thereon, and contact-springs located beneath said lever and adapted to be operated thereby.

5. In an operator's key, the combination with a top plate having an aperture, of an elbow-lever pivoted at the end of one arm beneath the plate, its other arm projecting through the aperture and carrying a sheet or plate of leather which is adapted to normally press against the lower surface of the plate and to be depressed and tilted with the lever when it is operated, contact-springs arranged beneath the lever, and adapted to be operated thereby.

6. In an operator's key, the combination with a top plate, of an elbow-lever pivoted at the end of one of its arms, the other arm having a segmental portion passing through an aperture in said plate, the said aperture being curved to fit the part of the lever passing therethrough, the

center of that portion being at the pivotal center of the lever, and contact-springs arranged beneath the lever and adapted to be operated thereby.

7. In an operator's key, the combination with a top plate, of an elbow-lever pivoted thereberneath at one end of its horizontal arm, the other arm projecting through an aperture in said plate, a stop for said horizontal arm, contact-springs arranged thereberneath, and insulating-rollers carried by the arm to engage with said contact-springs.

8. In an operator's key, the combination with a top plate having a curved slot therein, side frames or plates depending from the lower side of said plate, an elbow-lever pivoted at the end of one of its arms between the side plates and having its other arm which comprises a curved portion projecting through said slot, both the curved slot and curved portion being centered at the pivot of the lever, a knob or handle for the latter arm above the top plate, a small plate carried by said latter arm and adapted to be normally pressed against the lower side of the top plate, insulating-blocks between the lower edges of the side plates, contact-springs secured in said blocks and having their upper ends in proximity to the angle of said lever, and insulating-rollers journaled on said lever at its angle and adapted to operate upon said springs.

9. In an operator's key, the combination with a top plate, of side plates depending therefrom, insulating-blocks between said side plates at their lower edges, contact-springs secured in said blocks and passing vertically therethrough, the ends of said springs above the blocks being reversely bent toward one side of the side plates and back to bring their free ends beneath the elbow-lever and at an angle to their vertical portions, an elbow-lever pivoted between said side plates and having one arm projecting through the top plate carrying a handle, and means carried by said lever to operate said springs.

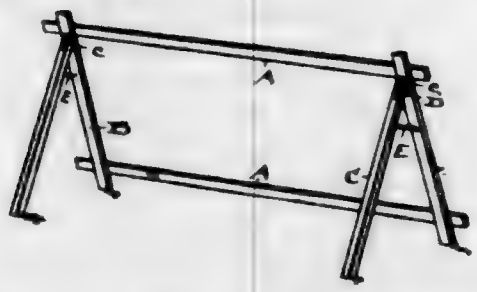
10. In an operator's key, the combination with a top plate, of side plates depending therefrom, an elbow-lever pivoted between said side plates and having one arm projecting through the top plate and provided with a handle for its operation, insulating-blocks between the lower edges of the side plates, two sets of springs mounted side by side in said blocks, a plurality of springs in each set, all of said springs being reversely bent above the blocks so as to lie at an angle to their other parts and beneath said elbow-lever, and insulating-rollers journaled on each side of the elbow-lever to operate each set of springs.

11. In an operator's key, the combination with a top plate, of an elbow-lever pivoted at the end of one of its arms beneath the plate, the other arm extending through an aperture in the top plate for the operation of the lever, contact-springs mounted beneath the lever with their free ends in proximity to said lever, rollers mounted at the angle of said lever to operate upon said springs, the ends of said springs being so formed as to hold the lever in its depressed position.

12. In an operator's key, the combination with a support, of an elbow-lever pivoted at the end of one of its arms on said support, a handle at the end of its other arm, rollers journaled at its angle, contact-springs mounted on said support with their free ends adjacent said rollers and so formed as to hold the lever in raised position normally and to also hold it depressed when operated.

13. In an operator's key, the combination with a top plate, of side plates depending therefrom, an elbow-lever pivoted at the end of one arm between the side plates, its other arm having a segmental portion operating in an aperture in the top plate, the said arm being provided with a knob or handle for operating it, a plate carried by the latter arm beneath the top plate to normally close the opening therethrough, insulating-blocks located between the lower edges of said plates, two sets of springs passing vertically through said blocks and held thereby, the said springs being reversely bent above said blocks so as to set their free ends at an angle beneath the lever, and insulating-rollers carried on each side of the angle of said lever and normally held in raised position by a pair of said springs, the said springs being so bent or formed as to also hold the lever in its depressed position when operated.

692,826. EASEL-LEG FOR CURTAIN-STRETCHERS. CHARLES G. CARLSON and WALTER A. MAYR, Chicago, Ill. Filed Apr. 11, 1900. Serial No. 12,462. (No model.)



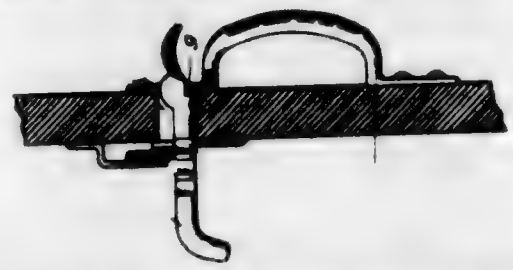
Claim.—1. The combination with a curtain-stretching frame and easel-leg therefor of a hinged connection, the same comprising a bracket secured to one of said members and projecting from the face thereof, said projecting portion having a longitudinal aperture therein which extends perpendicular to the member to which the bracket is secured, the other member having a slot adapted to receive the projecting portion of said bracket, and a pivot-pin passing transversely through said last-named member, and through the longitudinal aperture in said bracket, as and for the purpose set forth.

2. The combination with a curtain-stretching frame and easel-leg therefor of a hinged connection, the same comprising a bracket consisting of a plate angled centrally whereby one end stands substantially perpendicular to the face of the opposite end, one of said ends being provided with screw-holes by means of which it is secured to said frame and the other end being provided with a longitudinal aperture which extends perpendicular to the member to which the bracket is secured, said leg being provided with a slotted, or bifurcated end adapted to receive the apertured end of the bracket, and a screw passing transversely through the said leg and through the said aperture in the bracket, as and for the purpose set forth.

3. The combination with a frame and hinged easel-leg of a brace, the same comprising a metal plate, staples passed into said frame over a portion of the base of said plate whereby a hinged connection is formed, the free end of said brace bearing against the said leg when in use and lying contiguously between said frame and leg when folded, for the purpose set forth.

4. The combination with a frame and hinged easel-leg, of a brace, the same consisting of a metal plate having pintles at right angles to the sides at one end thereof, staples passed into said frame and inclosing said pintles, the free end of said plate bearing against the under side of said leg when in use and lying contiguously between said frame and leg when folded, as and for the purpose set forth.

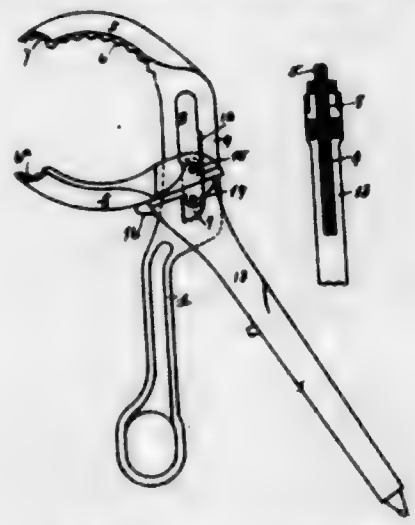
692,827. THUMB-LATCH FOR DOORS. HARRY CHEMER, Philadelphia, Pa. June 12, 1901. Serial No. 64,363. (No model.)



Claim.—1. In a door-latch, the combination of a latch-lever adapted to pass through a slot in the door, a slotted keeper on the outside of the door which forms a bearing for the thumb-latch, grooves formed in the latch-lever adjacent the inner face of the door, and a keeper adapted to engage the said grooves, for the purpose described.

2. In a door-latch, the combination of a latch-lever adapted to pass through a slot in the door, a handle secured to the outside of the door having a slotted extension through which the latch-lever passes, grooves formed on the sides of the latch-lever adjacent the interior face of the door, and a keeper secured to the door having a slotted opening, the vertical walls of which engage the grooves of the latch-lever, substantially as described.

692,828. WRENCH. JOHN M. CLARK and JOHN C. CRUSE, Dayton, Ohio. Filed July 8, 1901. Serial No. 67,494. (No model.)



Claim.—1. In a wrench, the combination with a stationary member, having a longitudinal slot in the median portion thereof, a fulcrum-

block mounted in said slot, an adjustable member pivoted to said fulcrum-block, an adjustable jaw pivoted to said fulcrum-block adjacent to the pivoted end of the adjustable member, said jaw having its bearing on said adjacent end of the adjustable member, and means for maintaining said fulcrum-block in its adjusted position, substantially as specified.

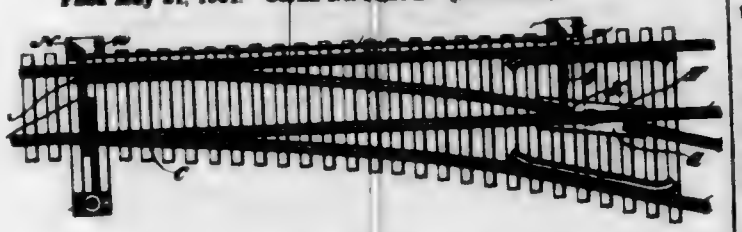
2. In a wrench, the combination of a stationary member having an integral gripping-jaw, and a longitudinal slot, a fulcrum-block inclosed within said slot, a spring normally locking said fulcrum-block in its upper position, an adjustable member, the upper portion of which incloses the stationary member and is pivoted to the lower portion of said fulcrum-block, an adjustable jaw inclosing the sides of the stationary member above the adjustable member, said jaw having a pivotal connection with the fulcrum-block adjacent to the pivot of the adjustable member, substantially as specified.

3. In a wrench, the combination of a stationary member having an integral gripping-jaw, and a longitudinal slot, an adjustable block inclosed within said slot, means for maintaining said fulcrum-block in an upper position within said slot, an adjustable member having a pivotal connection with said fulcrum-block, an adjustable gripping-jaw also having a pivotal connection with said fulcrum-block, the said jaw having a bearing on the upper end of the adjustable member, substantially as specified.

4. In a wrench, the combination with a stationary member having an integral gripping-jaw, and a slot, a shoulder in one side of said slot, and a spring in the opposite side thereof, a fulcrum-block inclosed within said slot and supported in its upper position on said shoulder by the tension of said spring, an adjustable member, and an adjustable jaw having pivotal connections with said fulcrum-block, the said adjustable jaw having a working bearing upon the upper end of the adjustable member, substantially as specified.

5. The combination of a stationary handle or member having an integral jaw and a longitudinal slot therein, a fulcrum-block mounted within said slot, a spring controlling the upper position of said block, an adjustable handle or member having a pivotal connection with said block, and an adjustable jaw also having a pivotal connection with said block, said adjustable jaw having a bearing on the upper end of the adjustable handle, and the said adjustable handle providing means for moving the block to different positions in adjusting the jaws.

692,829. CONTINUOUS-RAIL FROG. HARRY R. COLLINS, South Bethlehem, Pa., assignor of one-third to R. Paul Stout, Bethlehem, Pa. Filed May 21, 1901. Serial No. 61,294. (No model.)



Claim.—1. A movable rail-frog consisting of a rail-section centrally pivoted between the terminals of two adjacent track-rails so as to fill the intervening gap and form a continuous line of rails at such point; said rail-section having lateral bracing and guiding arms rigidly secured to each side thereof on opposite sides of its pivot, and guides in which said arms are slidably fitted, substantially as described

2. A movable rail-frog consisting of a rail-section centrally pivoted between the terminals of two adjacent track-rails so as to fill the intervening gap and form a continuous line of rails at such point; said rail-section having lateral bracing and guiding arms rigidly secured to each side thereof on opposite sides of its pivot, guides in which said arms are slidably fitted, and means for shifting said rail-section so as to connect the terminals of the adjacent side-track rails intersecting said first-mentioned line of rails.

3. A movable rail-frog consisting of a rail-section centrally pivoted between the terminals of two adjacent track-rails so as to fill the intervening gap and form a continuous line of rails at such point; said rail-section having lateral bracing and guiding arms rigidly secured to each side thereof on opposite sides of its pivot, guides in which said arms are slidably fitted, means for shifting said rail-section, and means for automatically locking the same in a fixed position, substantially as described.

4. In a railway-frog, the combination with the diverging tracks and the switch, the inner or intersecting rail of said tracks each terminating at each side of the point of intersection, of the movable rail for connecting the terminals of said intersecting rails pivotally supported at said point of intersection, an extensible rod pivoted at one end to said movable rail-section and at the other end to a bell-crank lever, a rod connecting said bell-crank lever with a second bell-crank lever which is in turn connected with the switch-bar, whereby said movable rail-section may be turned to effect the desired connection simultaneously with the operation of the switch, substantially as described.

5. In a railway-frog, the combination with the diverging stationary rails each terminating at each side of their point of intersection, of a bed-plate having a bore at said point of intersection, a movable rail-section for connecting the terminals of either of the stationary rails having a pivot journaled in said bore, and guiding arms or slides secured to the sides of said rail-section, guides on the bed-plate in which said arms are fitted, said guides also forming abutments for limiting the movements of said rail-section to secure alinement thereof with the stationary rails, substantially as described.

6. In a railway-frog, the combination with the diverging stationary rails each terminating at each side of the point of intersection, of a bed-plate having a raised portion or boss provided with a bore at said point of intersection, a movable rail-section for effecting connection with one of said stationary rails having a pivot journaled in said bore, and circular bearings or slides formed on the bed-plate concentric with and at each side of said pivot to support said movable rail, substantially as described.

7. In a railway-frog, the combination with the diverging stationary rails terminating away from their point of intersection, of the movable rail-section pivoted at said point of intersection, and a support therefor, said movable rail-section having projections or slides at the sides thereof, and guides on the support in which said slides are fitted, substantially as described.

8. In a railway-frog, the combination with the diverging stationary rails terminating away from their point of intersection, of the movable rail-section pivotally supported at said point of intersection and having at each side reinforcing-bars provided with curved arms or projections on opposite sides of the pivot, and guides or yokes in which said arms are fitted, whereby said movable rail is held in place and its movements properly guided, substantially as described.

9. In a railway-frog, the combination with the diverging stationary rails each terminating away from their point of intersection, of the movable rail-section pivotally supported at said point of intersection and having arms or projections at the sides thereof, and guides for said arms whereby the movable rail is held in place, said guides also forming stops or abutments for the rail-section so as to properly limit the movements of the same to aline with the stationary rails, substantially as described.

10. In a railway-frog, the combination with the diverging rails each terminating away from the point of intersection, of the bed-plate having pockets or inclosures conforming to the shape of the rail upstanding at each end thereof and in each of which the end of one of said rails is fitted and bolted, a bore in said bed-plate at the point of intersection of the rails, and a movable rail-section having a pivot journaled in said bore, substantially as described.

11. In a movable railway-frog, the combination with the fixed rails, and a bed-plate having a bore, of the movable rail for connecting the terminals of the fixed rails having a pivot on its under side journaled in said bore, said pivot being secured to said movable rail by means of rivets passing therethrough and through the lower flanges of the rail, substantially as described.

12. In a movable railway-frog, the combination with the fixed rails, and the bed plate or support, of the movable rail pivotally supported at the point of intersection of the fixed rails, said movable rail having secured to its sides the reinforcement-bars provided with the curved arms or projections, substantially as and for the purposes described.

13. In combination with the switch and the movable rail-frog for connecting the adjacent terminals of the main-track rail and adjacent terminals of the side-track rail, the two parallel members movably secured together, one of said members being connected with the switch and one with the frog, a lock for the latter member, and means for actuating said lock by the independent movements of the other member, substantially as described.

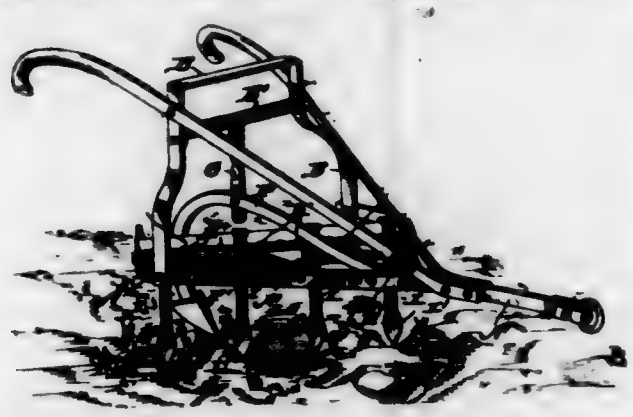
14. In combination with the switch, and the movable frog, a shift-bar connected to the frog, a lock therefor, an actuator-bar operatively connected with the switch and, movably connected with the shift-bar so as to impart movement thereto and to have independent motion before and after imparting such movement, a lever connected with the lock so as to unlock and lock the same when rocked in opposite directions, and connections with the actuator-bar for effecting movement of the lever to unlock the lock during the first independent motion of said bar, and the opposite movement of the lever during the second independent motion of said bar, substantially as described.

15. In combination with the switch, and the movable frog, a shift-bar connected to the frog, a lock therefor, an actuator-bar operatively connected with the switch and movably connected with the shift-bar so as to impart movement thereto and to have independent motion before and after imparting such movement, a lock-actuating lever adapted to unlock when moved in one direction and to lock when moved in the opposite direction, a second lever connected to the said lock-actuating lever in such manner as to rock the same oppositely to its own movement, the actuator-bar being adapted to engage the lock-actuating lever during its first independent motion, and to engage the second lever during its second independent

motion, thereby automatically unlocking and locking the lock before and after the shifting of the frog, substantially as described.

16. In combination with the switch and the movable frog, a shift-bar connected to the frog, a second bar operatively connected with the switch so as to be moved simultaneously therewith, a lock for the shift-bar, and means for actuating said lock directly by the other bar; one of said bars being movably secured to the other through guides carried by the latter, a lug carried by one bar between said guides and a spring interposed between each of said guides and lug, said springs thus serving to impart gradual pressure to the shift-bar when the other bar is moved so as to permit an independent motion of the latter bar to actuate the lock both before and after moving the shift-bar.

692,830. CULTIVATOR OR HARROW. MARCELLUS COLLINS, Sturgis, Miss. Filed June 22, 1901. Serial No. 65,685. (No model.)



Claim.—1. In a cultivator, the combination with the side beams and arched standard, of the handles connecting the forward portions of the side beams and the arched standard, and the tooth-bar secured to the diverging portions of the side beams and the vertically-adjustable central beam, all arranged substantially as described.

2. In a cultivator, the combination with the side beams connected at their forward ends and diverging rearwardly, the extreme ends of the side beams being bent toward each other, of the arched standard connecting the end of one beam to the intermediate portion of the other beam, and a tooth-bar connecting the intermediate portion of the first-named beam and the end portion of the second-mentioned beam, substantially as shown and described.

3. The combination with the side beams connected at their forward ends and diverging rearwardly, the arch-shaped standard connecting the side beams, the reinforcing or brace bar attached to the side beams, the central portion of said bar being enlarged and slotted vertically, and the central beam pivoted between the side beams and working in the slot of the brace or reinforcing bar, substantially as described.

4. In a cultivator, the combination with the side beams constructed as described, of the arch-shaped standard connecting said beams, the brace-bar attached to the said standard and having a depending hanger, a brace or reinforcing bar slotted centrally, and the central beam pivoted between the side beams, working through the slot of the brace-bar and attached to the depending hanger, substantially as described.

692,831. BOLTING-CLOTH CLEANER. GEORGE W. COMBS, Leavenworth, Kans. Filed May 3, 1900. Serial No. 15,316. (No model.)



Claim.—1. The combination with a bolting-sieve, comprising a bolting-cloth, and a foraminous support substantially parallel therewith, of a cleaner confined between the cloth and support, consisting of a buffer resting on the support, and a spring secured to the buffer and having a thin line of contact with and exerting a yielding pressure against the bolting-cloth, and having its upper end bent downward and out of contact with the bolting-cloth, substantially as described.

2. The combination with a bolting-sieve, comprising a bolting-surface and a perforated support substantially parallel therewith, of a cleaner confined between said surface and support consisting of a metallic thimble, a buffer surrounding said thimble, and a spring projecting above the thimble and buffer, substantially as described.

3. The combination with a bolting-sieve, comprising a bolting-surface and a perforated support substantially parallel therewith, of a cleaner confined between said surface and support comprising a thimble, a buffer surrounding said thimble, and a spring secured to the thimble and projecting above the same and the buffer, substantially as described.

4. A cloth-cleaner for sieves adapted to be carried by a foraminous support substantially parallel with a bolting-sieve, said cloth-cleaner consisting of a body portion and a resilient coiled-spring member secured thereto and adapted to have a portion of its coils in contact with the cloth, substantially as set forth.

5. A cloth-cleaner for sieves, adapted to be carried by a foraminous support, arranged substantially parallel with the bolting-sieve, said cloth-cleaner consisting of a body portion provided on its under side with a shoe, and a resilient coiled-spring member projecting upwardly from the body portion and adapted to have a portion of its coils in contact with the sieve, substantially as set forth.

692,832. AQUARIUM-JARDINIÈRE. SAMUEL R. CREAMER, Sanford, Me. Filed May 13, 1901. Serial No. 59,997. (No model.)



Claim.—1. A jardinière having a body portion adapted to hold water and contain living objects, a receptacle for containing growing objects, said receptacle depending within said body portion in concealed position and being impervious to the entrance of water from said body portion, and permitting the display of plants and the like without contamination thereby of the body of water.

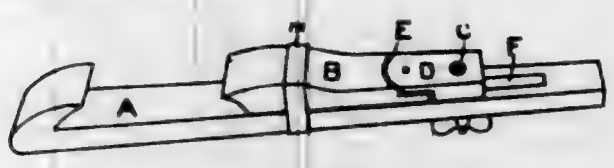
2. A jardinière, consisting of an aquarium continuously open freely to the air at its top for supporting the life of living objects contained in the water therein and visible through the walls thereof, and provided with means extending within said aquarium adapted to hold growing objects out of contact with the water and permit them to extend out from the aquarium for purposes of display and ornamentation.

3. A jardinière, consisting of an aquarium through whose walls the living objects contained in the water may be seen, said aquarium being continuously open freely to the air at its top for supporting the life of said living objects, combined with a removable cup-like receptacle contained within the aquarium for supporting plants and permitting them to stand out from the aquarium in display position.

4. A jardinière having its body portion composed of an aquarium adapted to hold water and contain living objects, and having at its mouth a flanged holder, the flange being seated on the mouth of the aquarium part, said holder having a portion thereof extending downwardly within the aquarium for receiving and concealing a flower-pot or other article from which ornamental growths extend above the aquarium, said holder having air-openings between the depending portions and the top edge of the aquarium for the admission of air to the latter.

5. The combination with an aquarium having an open mouth, of a holder having a laterally-extending flange resting on said mouth and a cup suspended within the aquarium, the supports between said cup and flange extending obliquely and having openings therein through which air is admitted to the interior of the aquarium.

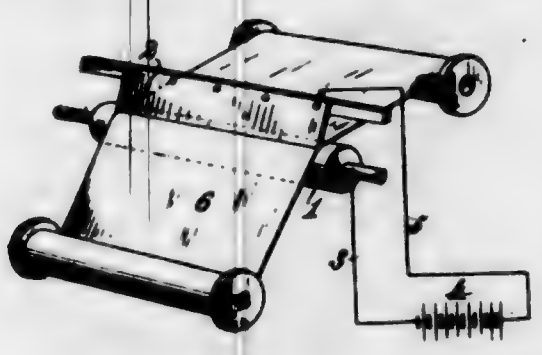
692,888. DEVICE FOR THROWING HEAVY BELTS UPON PULLEYS. TRUMAN A. CROWNER, Wilna, N. Y. Filed July 8, 1901. Serial No. 67,470. (No model.)



Claim.—1. The improved belt-adjuster, herein set forth, the same comprising the clamping-bar, provided with a permanent terminal hook and an independent clamping-jaw adjustably mounted upon said bar, and having means for lateral swinging thereupon, whereby the belt-adjuster may be quickly engaged with and disengaged from a belt-pulley of any width as set forth.

2. The improved belt adjuster herein set forth, the same comprising the clamping-bar A, provided with a permanent terminal hook, the independent clamping-jaw B, vertically pivoted to the block D, said block being mounted to slide upon the clamping-bar and provided with means for locking said block to said bar at any predetermined point, as set forth.

692,884. METHOD OF BURNING METALLIC PARTICLES FROM PAPER, &c. GEORGE H. DAVE, Orange, N. J. Original application filed Apr. 17, 1901, Serial No. 56,288. Divided and this application filed Aug. 9, 1901. Serial No. 71,425. (No specimens.)



Claim.—1. The method herein described of removing metallic particles or substances from a sheet, strip or web having such particles embedded therein, which consists in moving the sheet, strip or web in surface contact with the terminals of an electric circuit whereby the circuit is completed through said terminals when the latter are bridged by a metallic particle, and passing a current of electricity of sufficient strength through the circuit to cause the particles to be burned out as said particles bridge the terminals.

2. The method herein described of removing metallic particles or substances from a web or sheet, which consists in passing such web or sheet between and in surface contact with the terminals of an electric circuit whereby the circuit is completed through said terminals when a metallic particle or body is brought therebetween, an arc being thus produced and the metallic particle burned out.

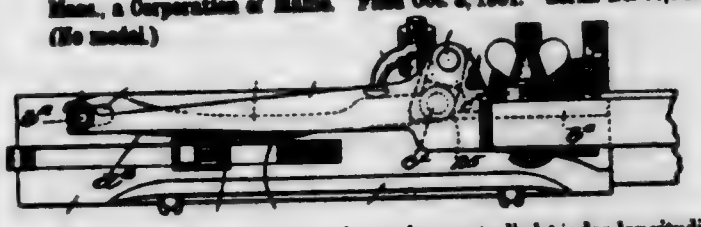
3. The method herein described of removing metallic particles or substances from a web or sheet having such particles embedded therein, which consists in passing the web or sheet between and in surface contact with the terminals of an electric circuit whereby the circuit is completed through said terminals when a metallic particle or body is brought therebetween, and passing an electric current through said circuit of sufficient strength to cause a spark at the point of contact between the metallic particle and terminals whereby said particle will be burned out.

4. The method herein described of burning metallic substances from a sheet, strip or web, which consists in moving the sheet, strip or web containing such metallic substances in juxtaposition to the terminals of an electric circuit, and passing an electric current through said circuit of sufficient strength to cause sparkings at the terminals when metallic particles are encountered whereby said particles will be burned out.

5. The method herein described of burning metallic particles from a sheet, strip or web, which consists in moving the same between two oppositely-arranged electric terminals, and passing an electric current through said terminals of sufficient intensity to cause a spark thereat when the terminals are bridged by a metallic particle carried by sheet, strip or web, whereby said particle will be burned therefrom.

6. The method herein described of burning metallic particles from a sheet, strip or web, which consists in subjecting the said particles to the action of an electric current through terminals arranged to be bridged by said particles, said electric current being of sufficient strength to cause the particles to be burned out as the current passes through them.

692,885. SHUTTLE-CHECKING MEANS FOR LOOMS. CLARE H. DRAPER, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 3, 1901. Serial No. 77,347. (No model.)



Claim.—1. A shuttle-box and a spring-controlled binder longitudinally and bodily movable by and in the direction of movement of the shuttle.

2. A shuttle-box, a spring-controlled binder longitudinally movable by and in the direction of movement of the incoming shuttle, and means to throw the outer end of the binder into the shuttle-path upon such longitudinal movement of said binder.

3. A shuttle-box, a spring-controlled binder, a fulcrum for and relatively to which the outer end of said binder may rock laterally, and also move longitudinally, by or through impact of the incoming shuttle, and a fixedly-fulcrumed link pivotally connected with the inner end of the binder.

4. A shuttle-box, two fixed fulcrum-studs, a binder having a sliding connection with one stud, a toggle connection between the inner end of the binder and the other stud, and yielding means to normally maintain the binder in the path of the shuttle.

5. A shuttle-box, a spring-controlled binder having a swell portion normally in the path of the incoming shuttle, and means to sustain the binder to permit longitudinal and lateral movement thereof by the incoming shuttle.

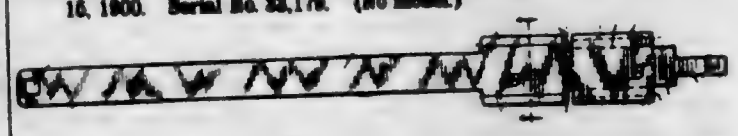
6. A shuttle-box, a spring-controlled binder having a swell and a concave portion between the swell and its outer end, and means to throw the concave portion of the binder into the path of the shuttle-shoulder by or through impact of the entering shuttle with the binder.

7. A shuttle-box, a binder slotted at its outer end, a fixed stud to enter the slot, a swinging link having a fixed fulcrum and pivotally connected with the inner end of the binder, and means to normally maintain the binder in the shuttle-path, the binder being longitudinally movable and also adapted to swing laterally upon the fixed stud as a fulcrum.

8. A shuttle-box, a spring-controlled, longitudinally-movable binder having a swell normally in the shuttle-path, and a toggle connection for the inner end of the binder, the entering shuttle engaging the binder and moving the same longitudinally to straighten said toggle connection and also moving the binder laterally against its controlling-spring.

9. A shuttle-box and a spring-controlled binder longitudinally and bodily movable by and in the direction of movement of the incoming shuttle, and means to maintain substantially continuous contact between the shuttle and binder from the instant of impact to full stoppage of the shuttle.

692,886. CAR-SEAL. CHARLES S ELLIS, Chicago, Ill. Filed Oct. 16, 1900. Serial No. 33,179. (No model.)



Claim.—1. In a seal formed of a single piece of metal, the combination of a locking-strap having an aperture in the free end, a hollow chamber formed of two flanged portions laterally folded in a given direction, one set of flanges being turned and fastened over the other set along grooves cut longitudinally upon the folded set of flanges, and a double tongue bent in the same direction as the flanged portions, the said tongue being adapted to be caught in the aperture in the free end of the binding-strap through an opening in the chamber, all substantially as described and for the purpose specified.

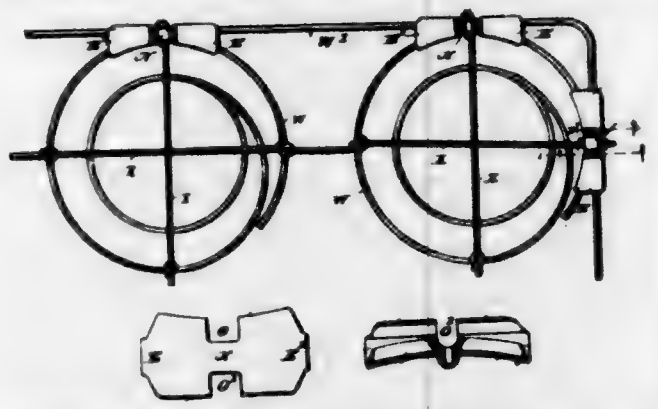
2. A seal composed of a single strip of metal, having a tongue extending from one end, two like sets of flanges integral with the strip and slightly separated from each other near the tongued end, and having also an aperture through the free end thereof, the strip being laterally folded in a given direction, so as to make of the perforated end a binding or locking strap, and of the other end a hollow chamber having an opening therein between the folds of the strip and containing a double tongue bent inwardly away from the opening, the set of flanges nearer the perforated end of the strip being longitudinally turned and fastened over the set of flanges nearer the tongued end thereof, all substantially as described and for the purpose specified.

3. A seal composed of a single strip of metal, having a double tongue extending from one end, two like sets of flanges integral with the strip and slightly separated from each other near the tongued end, and having also an aperture through the free end thereof, the strip being laterally folded

in a given direction, so as to make of the perforated end a binding or locking strap, and of the other end a hollow chamber having an opening therein between the folds of the strip containing the tongue bent inwardly away from the opening, the set of flanges nearer the perforated end of the strip being longitudinally turned and fastened over the set of flanges nearer the tongued end thereof, the turned flanges being grooved or cut along the lines of turning, the strip having depressions therein midway between the flanges, the flanges near the tongued end of the strip being angled so as to form the sides of the chamber and yet leave extending outwardly therefrom wings or flanges over which the grooved flanges are turned and fastened, all substantially as described and for the purpose specified.

4. A single-piece car-seal consisting of a locking-strap, a hollow chamber, open at one end, and a locking-tongue within the chamber, the locking-strap having an aperture in the free end thereof, the other end running into and being integral with the floor of the chamber, the chamber being formed of two flanged portions and a narrow connecting portion to make its closed end, the flanges of the part forming the floor of the chamber being bent over the flanges of the part forming the roof and long sides thereof, the locking-tongue, integral with the portion of the chamber which forms its roof, being turned at the line of junction with such portion into the chamber and occupying position therein with its end turned forward in the form of a hook bent upwardly toward the roof of the chamber and having a distance from end to elbow greater than the chamber's height.

692,837. SPRING-UPHOLSTERY WORK. CHARLES S. ELLIS, Chicago, Ill. Filed Nov. 22, 1900. Serial No. 37,517. (No model.)



Claim.—1. In a spring couch or cushion, the combination of rows of springs properly supported, a wire border extending around the outer rows of springs, a cord fastening the border to the springs, the springs to each other and connecting them also with their underlying support, and metal clips, fastening the wire border and the springs over the cord, the said clips consisting of two portions, each having one right-angled flange along a straight edge and one curved flange along an inwardly-curving edge and joined together by a neck rounded to fit over the cord, the right-angled flanges being adapted to be bent around the edge wire to connect the wire and springs, all substantially as described.

2. As a new article of manufacture, a metal clip for spring-upholstery work consisting of two body portions, straight on one edge and curved on the other edge, a bent neck connecting said body portions, a substantially right-angled flange on each body portion at the straight edge thereof, and a curved flange on each body portion, opposite the right-angled flange, and disposed along the curved edge.

3. In spring-upholstery work, the combination of a coiled spring and straight-edged wire adjacent thereto, a cord fastening together the spring and the edge wire and a clip clamped over the edge wire, spring and cord, the said clip consisting of two portions each having an angular flange, along a straight edge, and another flange opposite thereto along a curved edge, the two portions being joined by a rounded neck fitting over the cord, all substantially as described.

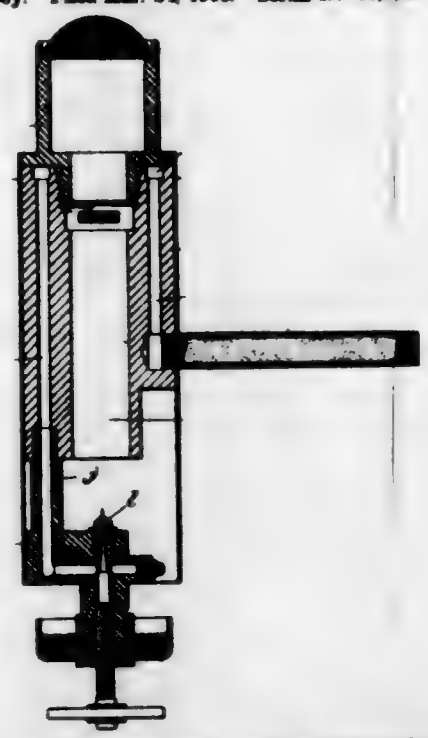
692,888. FRUIT-PICKER. HERMILAR ELLSWORTH, Albuquerque, N. Mex. Filed June 18, 1901. Serial No. 65,054. (No model.)

Claim.—1. A fruit-picker, comprising a handle, a picker member having jaws extended laterally with respect to the handle, and a socket applied to the handle, and a socket-holder driven longitudinally inward between the handle and the socket, one end of the holder being projected beyond the socket and provided with a hook projected laterally from the handle and formed for the support of a receptacle.

2. A fruit-picker, comprising a handle, a picker member formed by an angular metallic body, one part of which is provided with lateral incisions with the metal bent laterally outward in opposite directions into alternately-disposed loops forming a socket for the reception of the handle, and the other part being bifurcated to form opposite jaws, a holding device driven inwardly between one of the loops and the handle, and having its upper end formed into a laterally-projected hook, and a receptacle detachably hung from the hook.



692,889. HYDROCARBON-BURNER. SIMEON E. FARRADAY, Gloucester City, N. J., and JOHN H. GOSS, Waterbury, Conn., assignors to Welsbach Light Company, Gloucester City, N. J., a Corporation of New Jersey. Filed Mar. 24, 1900. Serial No. 10,018. (No model.)



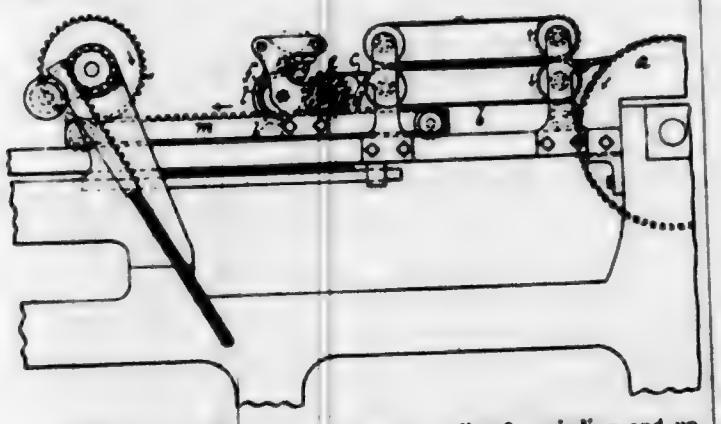
Claim.—1. A hydrocarbon-burner comprising a body portion having a bore or passage extending longitudinally thereof, which constitutes a complete mixing-chamber, and having in its top an annular groove or recess, a burner head or cap constructed to cover said groove and forming therewith a vaporizing-chamber having inlet and outlet passages, said body portion having circumferentially-arranged slots located under said vaporizing-chamber and communicating with the mixing-chamber, and a shield surrounding the body portion and having openings arranged opposite the slots, substantially as described.

2. A hydrocarbon-burner comprising a solid body portion having a central bore or passage extending the length thereof, which constitutes a complete mixing-chamber, and having in its top an annular groove or recess, a burner head or cap constructed to cover said groove and forming therewith a vaporizing-chamber and having a tapered tubular part or shank which is screw-threaded to fit a correspondingly-threaded portion of the mixing-chamber, said vaporizing-chamber having suitable inlet and outlet passages, a vapor-discharge nozzle or jet communicating with said outlet and having an axial discharge into the mixing-chamber, rabbarners penetrating the wall of the mixing-chamber at points adjacent said tapered part or shank and arranged to heat the vaporizing-chamber, and a shield or skirt secured to said body portion and encircling the discharge nozzle or jet, substantially as described.

3. A hydrocarbon-burner comprising essentially two castings whereof one consists of a solid body portion that is provided centrally with a bore or passage constituting a complete mixing-chamber, and in its top with an annular groove or recess, and whereof the other consists of a burner head or cap constructed to cover said groove or recess and pro-

vided with a tapered tubular part or shank that is afforded a seat inside the mixing-chamber, said burner-cap and the walls of the groove conjointly forming a vaporizing-chamber, said vaporizing-chamber having suitable inlet and outlet passages, a vapor discharge-nozzle communicating with the outlet-passage and arranged to discharge into the mixing-chamber from below thereof, subburners penetrating the walls of the mixing-chamber at points subjacent said tapered part or shank and arranged to heat the vaporizing-chamber, and a shield surrounding said body portion and encircling the discharge-nozzle having ventilating-openings to accommodate the subburners, substantially as described.

692,840. SHEET-DELIVERY APPARATUS. GEORGE P. FENNER, New London, Conn. Filed May 16, 1901. Serial No. 60,535. (No model.)



Claim.—1. A sheet-delivery apron, a roller for winding and unwinding said apron, means for effecting the reciprocation of said roller, means for holding a part of the apron against reciprocation with said roller, a delivery-roller arranged to travel with and to receive a sheet from said first-mentioned roller, and a sheet-reverser arranged to coact with said delivery-roller.

2. A sheet-delivery apron having a fixed end, a reciprocating roller about which said apron is wound, and a delivery-roller and reversing-guide made to reciprocate with the first-named roller, a ratchet and pawl for rotating the delivery-roller, and an actuating-gear for the ratchet and pawl.

3. An impression-cylinder, a sheet-delivery apron having a fixed and a movable end, a reciprocating roller for the movable end, a delivery-roller made to travel with the reciprocating roller, a ratchet-pawl and gear for actuating the delivery-roller when traveling away from the impression-cylinder, and a second gear carried by the reciprocating roller and made to engage the ratchet-pawl gear.

4. A sheet-delivery apron, a roller for winding and unwinding said apron, means for effecting the reciprocation of said roller, means for holding a part of the apron against reciprocation with said roller, a delivery-roller arranged to travel with and to receive a sheet from said first-mentioned roller, and a sheet-reverser having a concaved face arranged contiguous to the periphery of said delivery-roller.

5. A sheet-delivery apron, a reciprocating roller for winding and unwinding one end of the apron, a delivery-roller made to reciprocate with the first-named roller, a reversing tape or tapes extended about the delivery-roller, and guide-rollers for the tape extended about the delivery-roller.

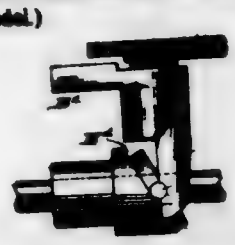
692,841. STRUCTURAL SUPPORT. EUGENE FENTON, Evanston, Ill. Filed Nov. 1, 1901. Serial No. 80,743. (No model.)



Claim.—1. A structural support, comprising a base or foundation having a series of openings, an internally-screw-threaded socket-piece having on its outer surface flanges or projections, and located in the central opening of said base, cement located around said socket-piece, a body having on its surface adjacent to the base or foundation, flanges at its perimeter, and pins or projections, and provided with a central opening, a screw-threaded pipe or bar extending through the central opening of the body and engaging at one of its ends the said socket-piece, and a nut engaging the other end of the pipe or bar and the upper end of the body, substantially as described.

2. In a structural support, the combination with a base or foundation having a series of openings, of a flanged and internally-screw-threaded socket-piece located in one of said openings, cement surrounding said socket-piece, a body having a central opening and provided with projections on its surface adjacent to the base or foundation to fit in some of the openings thereof, a pipe or bar screw-threaded at each of its ends and located in the central opening of the body, one of the ends of the said pipe or bar engaging the socket-piece, a nut on the other end of the pipe or bar, a screw-threaded plug engaging the outer end of the central opening of the body, a pipe or bar secured at one of its ends to said plug, a frame composed of pipe-sections united together by couplings, and secured to the outer or upper end of the last-named pipe or bar, and a board hinged on one of the sections of said frame, substantially as described.

692,842. SHUTTLE-DRIVING MECHANISM FOR SEWING-MACHINES. WILLIAM C. FREE, Chicago, Ill. Filed May 27, 1901. Serial No. 62,154. (No model.)



Claim.—In a shuttle-driving mechanism for sewing-machines, in combination, an oscillatory-shuttle-carrier driver, a gimbal-ring mounted in bearings therein, a driving-shaft passing through the gimbal-ring, a collar—fast to the driving-shaft—having a driving-face thereon which is in a plane oblique to the longitudinal axis of said driving-shaft, whereby the adjacent face of said gimbal-ring is held substantially parallel to, and in contact with, the inclined end of said collar, and means for driving said shaft, substantially as and for the purpose specified.

692,843. SHUTTLE-DRIVING MECHANISM. WILLIAM C. FREE, Chicago, Ill. Filed May 27, 1901. Serial No. 62,155. (No model.)



Claim.—1. In a sewing-machine, in combination, an oscillatory-shuttle-carrier driver, a gimbal-ring mounted in bearings therein, a shaft passing through the opening in the gimbal-ring, a collar—fast to the shaft—having an inclined face thereon substantially parallel to the adjacent face of the gimbal-ring, a ball-bearing interposed between the inclined face of the collar and the adjacent face of the gimbal-ring, and means for driving said shaft, substantially as and for the purpose specified.

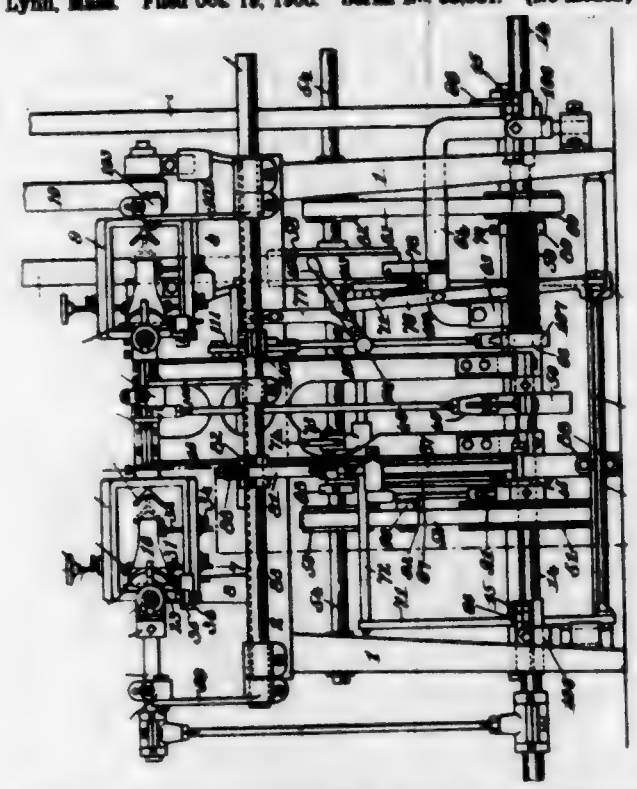
2. The combination, with an oscillatory-shuttle-carrier driver, of a gimbal-ring, mounted in bearings therein and having an annular race sunk into the working face thereof, a series of balls arranged in said annular race, a shaft passing through the opening in the gimbal-ring, a collar—fast to the shaft—having an inclined driving-face thereon substantially parallel to, and in contact with, the balls in the race in the gimbal-ring.

and means for driving the shaft, substantially as and for the purpose specified.

3. The combination, with an oscillatory-shuttle-carrier driver mounted on a pivot terminating at its lower end in bifurcations having transverse bearings therein, of a gimbal-ring, mounted in the transverse bearings in the shuttle-carrier driver and having an annular race sunk into the working face thereof, a circular row of balls arranged in said race, a shaft passing through the opening in the gimbal-ring, a collar—fast to the shaft—having an inclined driving-face thereon substantially parallel to and contacting the row of balls in the race in the gimbal-ring, and means for driving the shaft, substantially as and for the purpose specified.

4. In a sewing-machine, in combination, a base-plate, an oscillatory-shuttle-carrier driver mounted on a pivot on the base-plate provided, at its upper end, with a transversely-projecting arm to support a shuttle-carrier, and terminating, at its lower end, in bifurcations having transverse bearings therein, a gimbal-ring, mounted in the transverse bearings in the shuttle-carrier driver and having an annular race sunk into the working face thereof, a circular row of balls arranged in said race, a shaft passing through the gimbal-ring, a collar—fast to the shaft—having an inclined driving-face thereon substantially parallel to and in contact with the row of balls in the race in the gimbal-ring, and a shuttle-carrier secured to the transversely-projecting arm on the shuttle-carrier driver, substantially as and for the purpose specified.

692,844. LAST-TRIMMING MACHINE. BERNARD GALLAGHER, Lynn, Mass. Filed Oct. 19, 1900. Serial No. 33,581. (No model.)



Claim.—1. A last-trimming machine, having, in combination, a cutter, a jack constructed and arranged to support a last and present the end of the last to the cutter, and connected mechanism acting automatically to relatively actuate the jack and cutter to transfer the point of contact of the cutter back and forth across the end of the last supported on the jack and to change the relative longitudinal positions of the jack and cutter, substantially as described.

2. A last-trimming machine, having, in combination, a cutter, a jack constructed and arranged to support a last and present the end of the last to the cutter, connected mechanism acting automatically to relatively actuate the jack and cutter to transfer the point of contact of the cutter back and forth across the end of the last supported on the jack and to change the relative longitudinal positions of the jack and cutter, and means for automatically returning the parts to their initial position, substantially as described.

3. A last-trimming machine, having, in combination, a cutter, an oscillating jack for supporting a last and presenting the end of the last to the cutter, and connected mechanism acting automatically to change the relative longitudinal positions of the jack and cutter and oscillate the jack, substantially as described.

4. A last-trimming machine, having, in combination, a cutter, an oscillating jack for supporting a last and presenting the end of the last to the cutter, connected mechanism acting automatically to change the relative longitudinal positions of the jack and cutter and oscillate the jack, and means for automatically returning the parts to their initial position, substantially as described.

5. A last-trimming machine, having, in combination, a cutter, a jack for supporting a last and presenting the end of the last to the cutter, mechanism for oscillating the jack, mechanism for moving the jack longitudinally, and means for automatically returning the jack to its initial position, substantially as described.

6. A last-trimming machine, having, in combination, a cutter, a jack for supporting a last and presenting the end of the last to the cutter, and connected mechanism acting automatically to oscillate the jack and move it longitudinally, substantially as described.

7. A last-trimming machine, having, in combination, a cutter, an oscillating jack for supporting a last and presenting the end of the last to the cutter, mechanism for oscillating the jack, mechanism for moving the jack longitudinally, and means for automatically throwing said mechanisms out of operation, substantially as described.

8. A last-trimming machine, having, in combination, a cutter, an oscillating jack for supporting a last and presenting the end of the last to the cutter, said cutter and jack being movable toward and from each other, means for controlling such movements, means for oscillating the jack, means for changing the relative longitudinal positions of the jack and cutter, and means for automatically separating the jack and cutter, substantially as described.

9. A last-trimming machine, having, in combination, a cutter, a jack constructed and arranged to support a last and present the end of the last to the cutter, said cutter and jack being movable toward and from each other, means for controlling such movements, connected mechanism acting automatically to relatively actuate the jack and cutter to transfer the point of contact of the cutter back and forth across the end of the last supported on the jack, and to change the relative longitudinal positions of the jack and cutter, and means for automatically throwing said mechanism out of operation and separating the jack and cutter, substantially as described.

10. A last-trimming machine, having, in combination, a cutter, an oscillating jack for supporting a last and presenting the end of the last to the cutter, mechanism for oscillating the jack, mechanism for moving the jack longitudinally, and means for automatically throwing the mechanism for oscillating the jack out of operation and separating the jack and cutter, substantially as described.

11. A last-trimming machine, having, in combination, a cutter, an oscillating jack for supporting a last and presenting the end of the last to the cutter, mechanism for oscillating the jack, mechanism for moving the jack longitudinally, and means for automatically throwing the mechanism for moving the jack longitudinally out of operation and separating the jack and cutter, substantially as described.

12. A last-trimming machine, having, in combination, a cutter, an oscillating jack for supporting a last and presenting the end of the last to the cutter, mechanism for oscillating the jack, mechanism for moving the jack longitudinally and means for automatically throwing said mechanisms out of operation and separating the jack and cutter, substantially as described.

13. A last-trimming machine, having, in combination, a cutter, a jack constructed and arranged to support a last and present the end of the last to the cutter, said cutter and jack being movable toward and from each other, means for controlling such movements, connected mechanism acting automatically to relatively actuate the jack and cutter to transfer the point of contact of the cutter back and forth across the end of the last supported on the jack and to change the relative longitudinal positions of the jack and cutter, means for automatically separating the jack and cutter, and means for automatically returning said parts to their initial position, substantially as described.

14. A last-trimming machine, having, in combination, a cutter, an oscillating jack for supporting a last and presenting the end of the last to the cutter, said cutter and jack being movable toward and from each other, mechanism for oscillating the jack, mechanism for moving the jack longitudinally, means for automatically throwing said mechanisms out of operation, and means for automatically returning said jack to its initial position, substantially as described.

15. A last-trimming machine, having, in combination, a pattern-guide, a cutter, a frame movable toward and from the cutter and guide, jacks pivotally mounted in the frame, one of said jacks constructed to support a last-pattern with its end bearing against the pattern-guide, the other of said jacks constructed to support a last with its end bearing against the cutter, and connected mechanism acting automatically to oscillate the jacks and move the frame laterally, substantially as described.

16. A last-trimming machine, having, in combination, a pattern-guide, a cutter, a frame movable toward and from the guide and cutter, two jacks pivotally mounted in the frame constructed to support a last-pattern and a last, respectively, a shaft upon which said frame is pivoted, mechanism driven from the shaft for oscillating the jacks, and means for moving the frame laterally comprising a screw-threaded sleeve surrounding said shaft and bearing against said frame, means for rotating the sleeve and a screw-threaded nut engaging said sleeve, substantially as described.

17. A last-trimming machine, having, in combination, a pattern-guide, a cutter, a frame movable toward and from the guide and cutter, two jacks pivotally mounted in the frame constructed to support a last-pattern and a last, respectively, a shaft upon which said frame is pivoted, mechanism driven from the shaft for oscillating the jacks, driving mechanism for the shaft, means for moving the frame laterally comprising a screw-threaded sleeve surrounding said shaft and bearing against said frame, means for rotating the sleeve and a screw-threaded nut engaging said sleeve, and means for automatically disengaging the nut and sleeve and throwing the driving mechanism for the shaft out of operation, substantially as described.

18. A last-trimming machine, having, in combination, a pattern-guide, a cutter, a frame movable toward and from the guide and cutter, two jacks pivotally mounted in the frame constructed to support a last-pattern and a last, respectively, a shaft upon which said frame is pivoted, mechanism driven from the shaft for oscillating the jacks, mechanism for moving the frame laterally, means for returning the frame, comprising a screw-threaded shaft and a nut carried by the frame adapted to engage said shaft, and means for automatically throwing the mechanism for moving the frame laterally out of operation and for moving the nut into engagement with the shaft, substantially as described.

19. A last-trimming machine, having, in combination, a frame, a clamp movable longitudinally of the last when in position on the jack and arranged to extend over and engage the toe of the last and clamps for engaging the sides of the last, substantially as described.

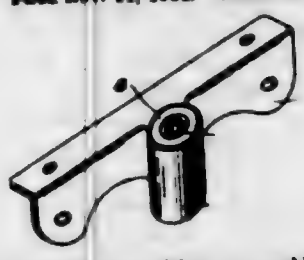
20. In a last-trimming machine, a jack comprising a frame, and clamps for engaging the sides of the last adjustable on the frame transversely to the plane of the bottom of the last when in position on the jack, substantially as described.

21. In a last-trimming machine, a jack comprising a frame, clamps for engaging the last and a heel-gage for centering the last movable transversely to the plane of the bottom of the last when in position on the jack, substantially as described.

22. In a last-trimming machine, a jack comprising a frame, clamps for engaging the last, and last-centering gages shaped to engage opposite sides of the heel and top portions of the last movably mounted on the frame, substantially as described.

23. A last-trimming machine, having, in combination, a pattern-guide, a cutter, a frame movable toward and from the guide and cutter, two jacks pivotally mounted in the frame constructed to support a last-pattern and a last, respectively, a shaft upon which said frame is pivoted, mechanism driven from the shaft for oscillating the jacks, driving mechanism for the shaft, means for moving the frame laterally comprising a screw-threaded sleeve surrounding said shaft and bearing against said frame, means for rotating said sleeve and a screw-threaded nut engaging said sleeve, means for returning the frame comprising a screw-threaded shaft and a nut carried by the frame, adapted to engage said shaft, mechanism for moving the frame away from the guide and cutter, a treadle, a locking device for the treadle, means for raising the treadle, intermediate connections for disengaging the nut and sleeve, throwing the driving mechanism for the shaft out of operation, moving the frame away from the cutter and guide and engaging the nut and screw-threaded shaft when the treadle rises, and means for automatically releasing the treadle, substantially as described.

692,845. BALL-BEARING ROWLOCK. THOMAS H. GARRETT, Jr., Auburn, N. Y. Filed Nov. 11, 1901. Serial No. 81,940. (No model.)



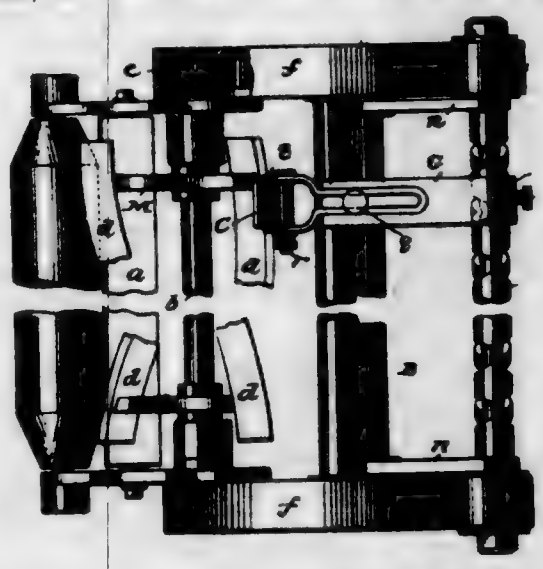
Claim.—1. A rowlock comprising a movable sleeve, a fixed support, ball-races connected with the sleeve and with the support, balls interposed between said races, and a fork having a shank fitted to the sleeve so as to turn therewith, substantially as described.

2. In a rowlock, the combination of a tapered flaring sleeve, a socket, ball-races secured to the socket, a ball-race fitted to the flaring upper end of the sleeve, a ball-race fitted to the lower end of the sleeve, nuts for securing the last-mentioned ball-race, and balls between said races, substantially as described.

3. In a rowlock, a socket, a support for the socket, a tubular piece mounted in the socket and provided with ball-races, a tapered flaring sleeve mounted through said tubular piece, a ball-race fitted to the flaring upper end of the sleeve, a ball-race fitted to the lower end of the sleeve, nuts for holding the last-mentioned ball-race, and balls interposed between said races, substantially as described.

4. A rowlock comprising a tubular member adapted for attachment to a boat and provided with upper and lower ball-races, a sleeve mounted through said tubular member and provided with ball-races above and below the last-mentioned ball-races, balls interposed between said races, and a fork having a shank fitted to said sleeve so as to turn therewith, substantially as described.

692,846. LAWN-MOWER SHARPENER. WILLIAM H. GILBERT, Toledo, Ohio. Filed Mar. 21, 1901. Serial No. 52,200. (No model.)



Claim.—1. In a lawn-mower the combination with the cutter-head and its knives, of an attachment for sharpening said knives, which consists of a sharpening device, a carrier therefor, and means actuated by the wheels of the lawn-mower, whereby the carrier is automatically reciprocated laterally to carry the sharpening device the length of the knives, substantially as described.

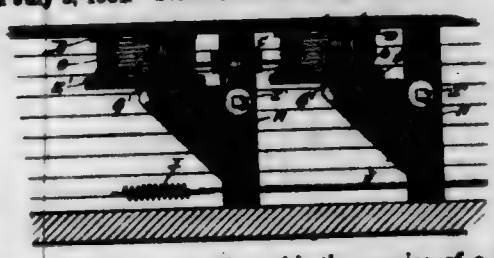
2. The combination in a lawn-mower, of the rotating cutter-head, a cross-threaded driving-shaft, a carrier arranged to be reciprocated thereby, a sharpening device and means adjustably supported by the carrier for suspending the sharpening device, substantially as described.

3. The combination in a lawn-mower, of a rotating cutter-head and its knives, a sharpening device for sharpening the knives, a carrier, means adjustably supported by the carrier for suspending said sharpening device, and a shaft having reverse threads and a tongue oscillating on the carrier and engaging said threads, with means actuated by the wheels of the lawn-mower for rotating the shaft, substantially as described

4. The combination in a lawn-mower, of a rotating cutter-head, connecting-rod B, a shaft having reverse threads turning in links swinging about said connecting-rod and provided with pulleys bearing on the driving-wheels of the mower, a carrier through which the threaded shaft passes, provided with the oscillating tongue engaging the screw-thread, and a sharpening device supported by the carrier, substantially as set forth.

5. The combination in a lawn-mower, of a rotating cutter-head, a cross-threaded driving-shaft, a carrier arranged to be reciprocated thereby, a fork adjustably supported by the carrier, and a sharpening device suspended from the fork, substantially as set forth.

692,847. FIRE-ESCAPE. THOMAS G. GOODFELLOW, Chicago, Ill. Filed July 3, 1901. Serial No. 66,006. (No model.)



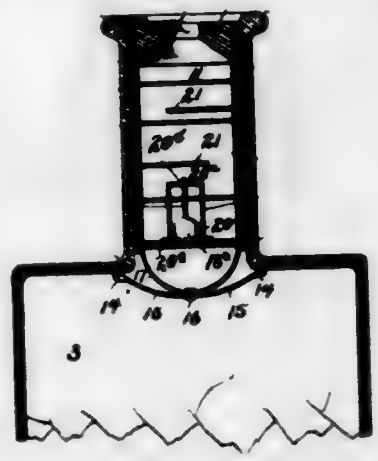
Claim.—1. The combination with the cornice of a building of a fixed pulley, secured within said cornice, a cord passing over said fixed pulley, vertical parallel guide-plates within said cornice, reels carrying said cord detachably secured between said guide-plates and means for releasing said reels from said cornice and guide-plates.

2. The combination with the cornice of a building of a fixed pulley, secured within said cornice, a cord passing over said pulley, parallel vertical guide-plates within said cornice, horizontal pivot-plates pivotally secured within said cornice, reels carrying said cord, detachably supported by said pivot-plates between said guide-plates, means normally holding said pivot-plates in engagement with said pulleys, and means for releasing said pivot-plates from said reels.

3. The combination with the cornice of a building of a fixed pulley secured within said cornice, a cord passing over said pulley, parallel vertical guide-plates within said cornice, horizontal pivot-plates pivotally secured within said cornice, reels carrying said cord detachably supported by said pivot-plates between said guide-plates, a spring acting by tension to hold said pivot-plates normally in engagement with said reels, and a cord extending from said guide-plates to the ground for moving said pivot-plates out of engagement with said reels.

4. The combination with the cornice of a building of a fixed pulley secured within said cornice, a cord passing over said pulley, parallel vertical guide-plates within said cornice, horizontal pivot-plates pivotally secured within said cornice, reels carrying said cord detachably supported by said pivot-plates, between said guide-plates, a spring acting by tension to hold said pivot-plates normally in engagement with said reels, and a cord operatively secured to said pivot-plates and detachably secured to the building, and adapted when released therefrom to throw said pivot-plates out of engagement with said reels.

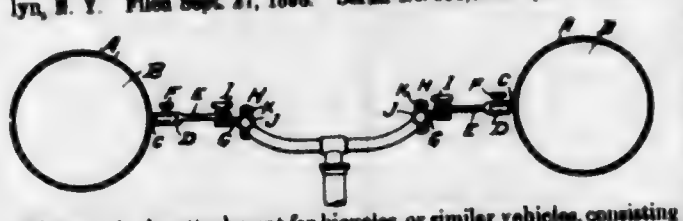
692,848. NON-REFILLABLE-BOTTLE CORK. JOSEPH B. GOODMAN, Philadelphia, Pa. Filed Apr. 13, 1901. Serial No. 55,656. (No model.)



Claim.—1. An improved non-refillable-bottle cork, comprising a shell which is adapted to fit within the bottle-neck and is provided at its upper end with a pouring-opening, a wire frame which is secured within said shell and carries a valve-seat at its lower end, a valve which operates with respect to said valve-seat, a plurality of mutilated guard-disks secured to said wire frame within said shell and in alternately oppositely inwardly projecting arrangement, said wire frame being formed at its lower end into a depending loop which projects beneath the lower end of said shell, and spring-fingers carried by said loop and adapted to be folded upwardly when said wire frame is inserted into the bottle-neck and to project within the bottle to prevent extraction of the device from the bottle-neck.

2. An improved non-refillable-bottle cork, comprising a shell which is adapted to fit within the bottle-neck and is provided at its upper end with a pouring-opening, a wire frame which is secured within said shell and carries a valve-seat at the lower end of said shell, a valve which operates with respect to said valve-seat, said frame consisting of a plurality of longitudinal body-wires and a plurality of annular body-wires which extend transversely of said longitudinal body-wires, a plurality of mutilated guard-disks secured to said wire frame within said shell and in alternately oppositely inwardly projecting arrangement, said wire frame being formed at its lower end into a depending loop which projects beneath the lower end of said shell, and a plurality of spring-fingers carried by said loop and arranged to project within the bottle to prevent extraction of the entirety from the bottle-neck.

692,849. ATTACHMENT FOR BICYCLES. JOHN C. GROUT, Brooklyn, N. Y. Filed Sept. 27, 1898. Serial No. 691,973. (No model.)



Claim.—1. An attachment for bicycles, or similar vehicles, consisting of a clamp for engaging the frame, an arm adjustably pivoted to said clamp and a disk adjustably pivoted to said arm, the pivot of said disk being at right angles to the pivot of said arm.

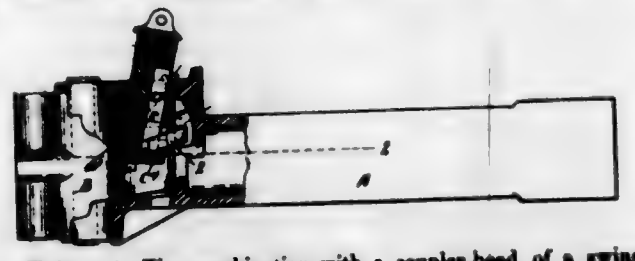
2. An attachment for bicycles or other vehicles consisting of a clamp for engaging the frame, an arm adjustably pivoted to said clamp to swing in a horizontal plane, and a disk adjustably pivoted to said arm to turn into a vertical or horizontal plane.

3. An attachment for bicycles or other vehicles, consisting of a clamp for engaging the frame, an arm adjustably pivoted to said clamp and provided with a socket, a disk provided with a stud arranged to turn in said socket, and means for securing said stud in position in said socket.

4. An attachment for bicycles or other vehicles, consisting of a clamp for engaging the frame, an arm adjustably pivoted to said clamp, and a disk carried by said arm and adjustable into the plane of said arm.

5. An attachment for bicycles or other vehicles, consisting of a clamp for engaging the frame, an arm E, a set-screw I for adjustably securing the arm and clamp together, a socket D on said arm, a disk B having a stud C adjustably secured in said socket.

692,850. CAR-COUPLING. PHILIP T. HANDIGEN, Detroit, Mich., assignor, by direct and mesne assignments, to Thomas H. Simpson, trustee, and Michigan Malleable Iron Co., Detroit, Mich., a Corporation of Michigan. Filed Apr. 13, 1901. Serial No. 55,616. (No model.)



Claim.—1. The combination with a coupler-head, of a swinging knuckle, a vertically-movable locking device seating upon a portion of said head when in raised position, and a knuckle-opening device actuated by the further lifting of the locking device off its seat.

2. The combination with a coupler-head, of a swinging knuckle, a vertically-movable locking device seating upon a portion of said head when in raised position, and a knuckle-opening device actuated by the lifting of the locking device off from its seat, said knuckle-opening device restored to normal position by gravity when free to move.

3. The combination with a coupler head provided with a vertical orifice therein, and with a shelf projecting into the path of said orifice, of a swinging knuckle, a vertically-movable locking-pin in said orifice constructed to seat upon said shelf, and a knuckle-opening device actuated by the lifting of the locking device off its seat, said knuckle-opening device contacting with the locking device causing the locking device to seat upon said shelf when the locking device is in raised position.

4. The combination with a coupler-head, of a swinging knuckle, a vertically-movable locking device seating upon a portion of said head when in raised position, a lifting device to lift the locking-pin, and a knuckle-opening device actuated by the lifting of the locking device, whereby the locking device may be lifted by the lifting device to its seat in the head, and whereby by a further operation of the lifting device, the locking device will actuate the knuckle-opening device to open the knuckle.

5. The combination with a coupler-head, of a swinging knuckle, a vertically-movable locking-pin seated upon a portion of said head when in raised position, and constructed with a longitudinally-extending recess, and a knuckle-opening device constructed with an arm projecting into the recess of the locking-pin, said knuckle-opening device actuated by the lifting of the locking device.

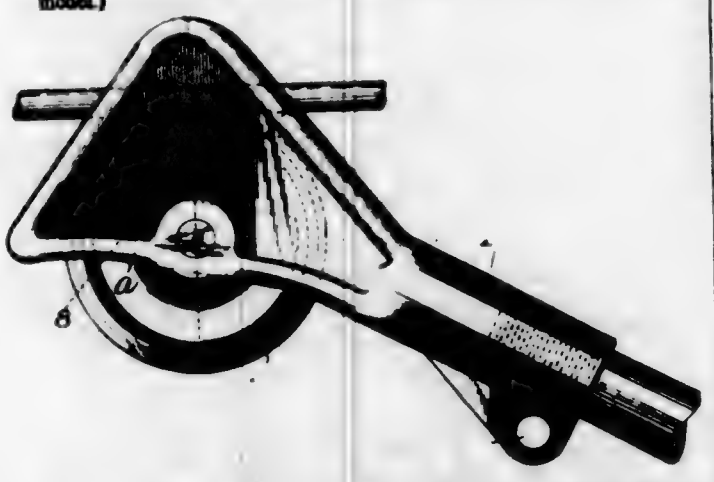
6. The combination with a coupler-head, of a swinging knuckle, a vertically-movable locking device seating upon a portion of said head when in raised position, a knuckle-opening device actuated by the lifting of the locking device, said locking device constructed with an elongated recess, and with a ledge at its base, and said knuckle-opening device constructed with an arm projecting into said recess above said ledge.

7. The combination with a coupler-head, of a swinging knuckle, a vertically-movable locking device seating upon a portion of said head when in raised position and a knuckle-opening device actuated by the lifting of the locking device, said knuckle-opening device constructed with an arm to engage the adjacent end of a knuckle and the opposite end of the knuckle-opening device constructed with an arm engageable by the locking device.

8. The combination with a coupler-head, of a swinging knuckle, a vertically-movable locking device seating upon a portion of said head when in raised position, and a knuckle-opening device located within a chamber in the head actuated by the lifting of the locking device, said knuckle-opening device serving to retain the locking device from disengagement from the head.

9. The combination with a coupler-head, of a swinging knuckle, a vertically-movable locking device seating upon a portion of said head when in raised position, a rocking lever located within a chamber in said head actuated by the further lifting of the locking device off its seat, and means to hold the rocking lever in place within the head.

692,851. TROLLEY HARP AND WHEEL. WILLIAM A. HELLER, Muskegon, Mich., assignor to Jennie G. Heller and Harold W. Heller, Muskegon, Mich. Filed Oct. 29, 1901. Serial No. 80,434. (No model.)



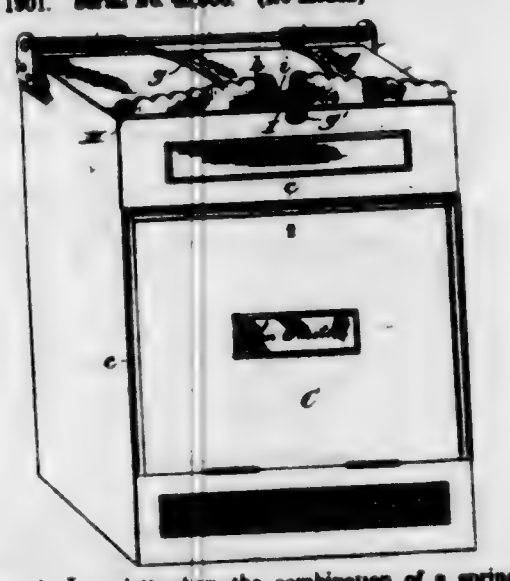
Claim.—1. The combination with a trolley-harp provided with upwardly-extending angular portions, the inner faces of said portions approaching each other most nearly at points directly above the axis of the trolley-wheel and receding from each other forward and in rear of said points to facilitate rounding curves, and a trolley-wheel mounted in said harp, substantially as described.

2. The combination with a trolley-harp provided with upwardly-extending angular portions, the inner faces of said portions approaching each other most nearly at points directly above the axis of the trolley-wheel and receding from each other forward and in rear of said points to facilitate rounding curves, said faces being also inclined upwardly and outwardly and a trolley-wheel mounted in said harp below said faces, substantially as described.

3. The combination with a trolley-harp having recesses in the inner lateral faces thereof, of a trolley-wheel mounted in said harp and provided with a hub having concave lateral faces and brushes located in said recesses and engaging said concave portions of said hub, substantially as described.

4. The combination with a trolley-harp having its inner faces provided with recesses, of a shaft mounted in the side portions of said harp and passing through said recesses, a trolley-wheel mounted on said shaft and provided with a hub having concave lateral faces and brushes having an opening therethrough for receiving said shaft and being adapted to rest in said recesses and engage the concave lateral faces of said hub, substantially as described.

692,852. LETTER-BOX. HENRY HETTINGER, Aurora, Ill. Filed Jan. 31, 1901. Serial No. 45,600. (No model.)



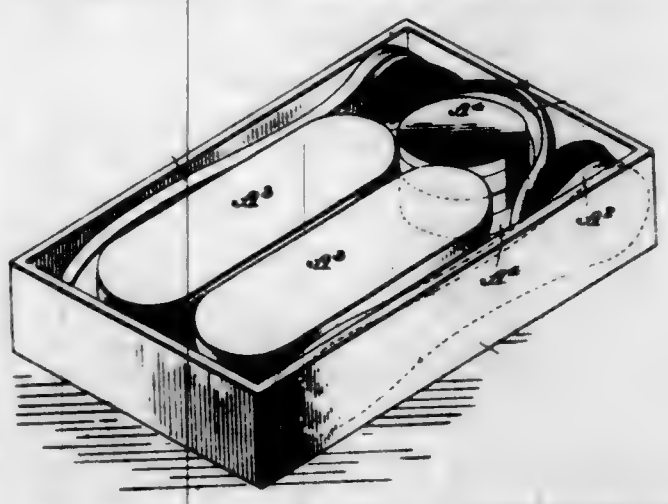
Claim.—1. In a letter-box, the combination of a spring-clip attached to the top of the box at or near the back thereof, and a plate projecting upwardly on the forward portion of the said top, said clip projecting forward of the plate, substantially as and for the purpose described.

2. The combination in a letter-box, with a spring-clip attached to the top of the box, of a substantially vertical plate on the said top, such clip having a handle, and said plate having an upwardly-opening slot in which such handle is normally received, substantially as and for the purpose describes.

3. The combination in a letter-box, with a spring-clip attached to the top of the box, of a substantially vertical plate on the said top, such clip having a handle and said plate having an upwardly-opening slot in which such handle is normally received, and a cushion in said slot and beneath such handle, substantially as and for the purpose described.

4. The combination in a letter-box, with a spring-clip attached to the top of the box, of a substantially vertical plate on the said top, such clip having a handle, and said plate having an upwardly-opening slot in which such handle is normally received, and a cushion in said slot and beneath such handle, said cushion having slits in its sides by which it is engaged by the edges of the plate, substantially as and for the purpose described.

692,858. TOILET OUTFIT. THOMAS O. HOLLAND, Philadelphia, Pa. Filed Aug. 10, 1898. Serial No. 688,322. (No model.)

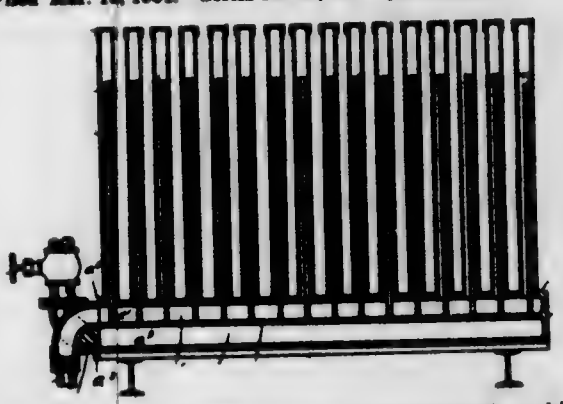


Claim.—1. The combination with a box adapted to contain a shoe-cleaning outfit, of a combined shoe-horn and mud-remover adapted to inclose the box containing the blacking or dressing and to keep the same out of contact with the bristles of the dauber, substantially as described.

2. The combination with a box adapted to contain a shoe-cleaning outfit, of a shoe-horn terminating at one end in a hook, constituting a mud-remover, the said shoe-horn being detachably connected with the box and adapted for keeping the blacking-box out of contact with the bristles of the dauber, substantially as described.

3. The combination with a box adapted to contain a shoe-cleaning outfit, embracing a brush and a dauber, of a shoe-horn likewise contained within the box and arranged to prevent contact between the bristles of the dauber and the contents of the box, and means for locking the shoe-horn to the box, substantially as described.

692,854. STEAM-RADIATOR. JOHN T. HOPE, Kansas City, Mo. Filed Mar. 18, 1901. Serial No. 51,754. (No model.)



Claim.—1. In a heating apparatus, the combination with a hollow base, divided by a diaphragm into a lower steam-inlet and an upper steam-outlet receptacle, of a steam-supply pipe connected with the lower steam-inlet receptacle, and a drain-pipe elbow on the outer side of the base connected with the upper steam-outlet receptacle, return heating-tubes connected with the latter receptacle, and outgoing steam-circulating pipes leading from the lower steam-outlet receptacle within the return-tubes, said drain-pipe elbow having a duct for the condensed steam leading to the lower steam-inlet receptacle.

2. In a steam-radiator, a hollow base divided by a diaphragm into a lower steam-inlet and an upper steam-outlet receptacle, a steam-supply pipe connected with the lower steam-inlet receptacle, and a drain-pipe elbow connected with the upper steam-outlet receptacle and a web connected with said base and elbow, said elbow having a duct for the condensed steam leading to the lower steam-inlet receptacle through said web.

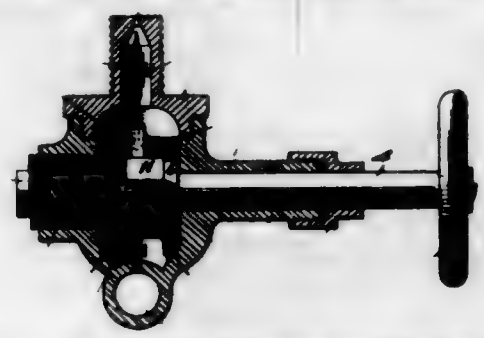
692,855. ROLL FOR SPINNING-MACHINES. JAMES B. HUDSON, Charlotte, N. C. Filed Apr. 30, 1901. Serial No. 58,148. (No model.)

Claim.—1. A roll, consisting of a core, a layer of yielding material cemented to the outer surface thereof, and a layer of flexible inelastic waterproof material separate from the layer of yielding material, but cemented to the outer surface thereof.



2. A roll, consisting of a metallic core, a layer of fibrous material cemented to the outer surface thereof and having its meeting edges abutting against each other, and a layer of oil-cloth cemented to the outer surface of said layer of fibrous material and having its meeting edges abutting against each other, the whole being tightly rolled or compressed during the operation of covering the core.

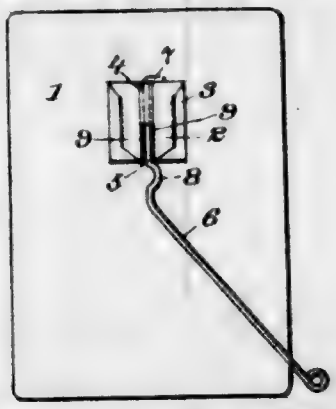
692,856. SELF-CLEANING NEEDLE-VALVE. WILBERT J. JACKMAN, Lima, Ohio. Filed May 22, 1901. Serial No. 61,435. (No model.)



Claim.—1. In a self-cleaning needle-valve of the class described, the combination of a casing having means at its base to supply the same with vapor, guideways in opposite sides, a bearing-sleeve on one side, and a vapor-outlet, a valve-stem in said sleeve and having a wheel at its inner end forming a collar that bears against the inner end of said sleeve, a cross-head guided in said guideways and spaced from the walls of the casing to allow the passage of vapor from the supply to the outlet, said cross-head having a needle to enter said outlet, said cross-head bearing against the inner side of said collar-wheel, coacting therewith to prevent longitudinal movement of the valve-stem, and having a slot, and a crank-pin secured to said collar-wheel and operating in said slot, substantially as described.

2. In a self-cleaning needle-valve of the class described, the combination of a casing having a vapor-supply and a vapor-outlet, disposed opposite each other, guideways formed in opposite side walls and a bearing in an intermediate wall, a cross-head guided in said guideways, spaced from the walls of the casing to allow the passage of vapor from the supply to the outlet, and having a needle to operate in said outlet, a valve-stem in said bearing, a collar-wheel on said stem, and disposed between said bearing and said cross-head, to prevent longitudinal movement of said stem, and a connection between said collar-wheel and said cross-head, to operate the latter when said valve-stem is turned, substantially as described.

692,857. EASEL-BACK. HENRY W. JOHNS, Brooklyn, N. Y. Filed Jan. 19, 1900. Serial No. 1,997. (No model.)



Claim.—1. As an element of a combination forming a locking hinged joint, a plate having a portion along its medial line crimped up in semicylindrical shape, with a second portion cut through along said medial line and also transversely to separate it from the crimped portion the wings thus formed being bent up to form oppositely-disposed jaws.

2. As an element of a combination forming a locking hinged joint, a plate having a portion along its medial line crimped up in semicylindrical shape, with a second portion cut through along said medial line and also transversely to separate it from the crimped portion the wings thus formed being bent up to form oppositely-disposed jaws, said plate also having a third portion cut away to form a recess symmetrical with respect to said medial line adjacent to said jaws.

3. The combination of an easel, the plate attached to the back of the easel having a portion along its medial line crimped up in semicylindrical form, with a second portion cut through along said medial line and stamped up to form oppositely-disposed jaws, a bent-wire brace having one portion lying along said crimped and stamped up portion of the plate and another portion projecting to form the brace, said wire being provided with a projection adapted to engage the jaws of the plate and said crimped portion of the plate being adapted to be engaged by the wire to prevent the disengagement of the wire or plate.

692,858. SHELF-BRACKET. CHARLES F. KADE, Sheboygan, Wis., assignor to Isabella Francis Kade, Sheboygan, Wis. Filed May 16, 1900. Serial No. 16,856. (No model.)



Claim.—1. The combination of a pair of horizontally-extending plates engaging each other at their inner edges, a pair of downwardly-extending abutting webs formed integral with said plates, a pair of spring-plates formed separately from and secured to said webs at a point removed from the inner ends of said webs, said spring-plates being movable toward and from each other under the overhanging portions of said horizontal plates, and an adjustable binding device extending through said spring-plates, substantially as described.

2. The combination of a pair of horizontally-extending plates engaging each other at their inner edges, and having downwardly-extending abutting webs, said webs being fixedly connected together, a pair of spring-plates secured near their outer ends to said webs at a point removed from the inner ends of said webs, said spring-plates being movable toward and from each other beneath the overhanging portions of said horizontal plates, the free ends of said spring-plates being formed into clamping devices, and an adjustable binding device between said clamping devices and the inner ends of said webs, substantially as described.

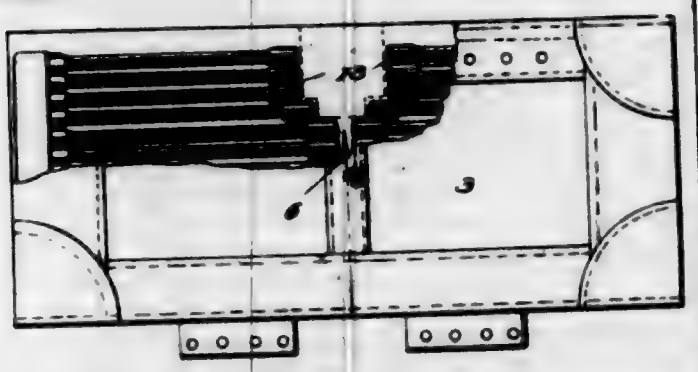
692,859. APAREJO. JESSE KELLER and RICHARD TREWORTH, Fort Bliss, Tex. Filed Apr. 26, 1901. Serial No. 57,001. (No model.)

Claim.—1. In an aparejo, and in combination with the flexible body or casing, boot-sticks located in the ends of the casing, and ribs having their lower ends fitted to said boot-sticks and having their inner or upper ends loose and adapted to conform to the shape of the animal so as to uniformly distribute the pressure and load, substantially as set forth.

2. In an aparejo, and in combination with the casing or body, boot-sticks located in the ends thereof, and ribs having detachable connection with the boot-sticks and loose at their inner or upper ends, substantially as set forth.

3. In an aparejo, and in combination with the flexible casing or body, hollow boot-sticks located at the ends thereof, and ribs having their upper ends loose and their lower ends fitted in the spaces of the boot-sticks, substantially as set forth.

4. In an aparejo, and in combination with the casing or body, ribs located within the casing, means for confining the ribs, and caps fitted to the ends of the ribs and serving to properly space them, substantially as set forth



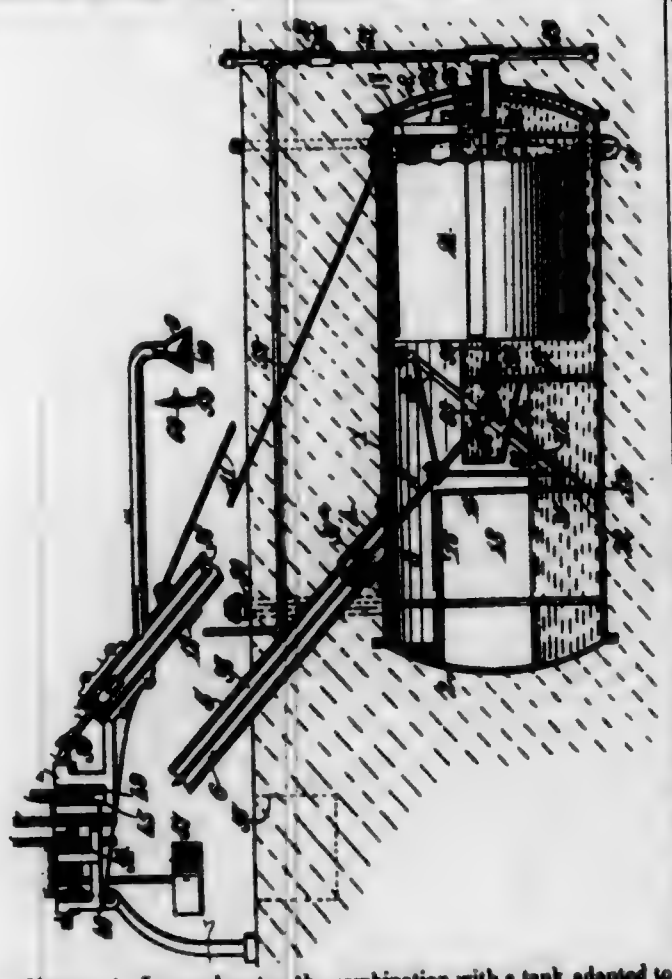
5. In an aparejo, and in combination with the casing or body, ribs located within the casing, means for confining the ribs, and caps fitted to the ends of the ribs and having lugs at their sides to properly space the ribs, substantially as set forth.

6. In an aparejo, and in combination with the casing, hollow boot-sticks located at the ends of the casing, caps applied to the boot-sticks and located in the spaces thereof, and ribs having their lower ends inserted in the said caps, substantially as set forth.

7. In an aparejo, and in combination with the casing or body, boot-sticks located at the ends of the casing, ribs having their lower ends fitted to the boot-sticks, and caps of rubber or analogous soft and flexible material fitted to the upper ends of the ribs and serving to properly space said ends and prevent injurious pressure thereof upon the animal, substantially as set forth.

8. In an aparejo, and in combination with the casing or body, boot-sticks located in the ends of the casing and formed of metal casings and stiffeners, the latter occupying the inner or lower portion of said metal casings, metal caps inserted in the upper spaces of the metal casings, incased spring-metal rods having their lower ends inserted in said metal caps, and caps of rubber or like flexible and soft material fitted to the upper ends of the incased rods, said caps having lugs or projections at their sides to properly space the incased rods, substantially as set forth.

692,860. CARBURETER. CLARENCE M. KEMP, Baltimore, Md. Filed Feb. 20, 1901. Serial No. 48,109. (No model.)



Claim.—1. In a carbureter, the combination with a tank adapted to hold a body of hydrocarbon, of an air-pumping wheel rotatably mounted in said tank and immersed in the body of hydrocarbon, an air-supply pipe leading from said tank, means for driving said pumping-wheel, whereby air is drawn into the tank and converted into gas through its contact with the hydrocarbon and power-transmitting connections traversing said air-pipe.

2. In a carbureter, the combination with a tank having an air-pumping-wheel compartment at one end, of an air-pumping wheel rotatably mounted therein, means for supplying hydrocarbon to said wheel-compartment, an air-supply pipe leading from said tank, means for driving said air-pumping wheel, whereby air is drawn into the tank and converted into gas by being brought into contact with the hydrocarbon, and interconnecting power-transmitting devices traversing said air-pipe.

3. In a carbureter, the combination with a tank having an air-pumping-wheel compartment at one end, of an air-pumping wheel rotatably mounted therein, means for supplying hydrocarbon to said wheel-compartment, an inclined air-supply pipe leading from said tank, means for driving said air-pumping wheel, whereby air is drawn into the tank and converted into gas, and interconnecting power-transmitting devices traversing said inclined air-pipe.

4. In a carbureter, the combination with a tank having an air-pumping-wheel compartment at one end, of an air-pumping wheel rotatably mounted therein, a hydrocarbon-supply compartment at the other end of said tank, means for feeding the hydrocarbon from said supply-compartment to said pumping-wheel compartment, an air-supply pipe leading from said tank, means for driving said pumping-wheel, and interconnecting power-transmitting devices traversing said air-pipe.

5. In a carbureter, the combination with a tank having a wheel-compartment at one end, of an air-pumping wheel rotatably mounted therein, a closed compartment at the other end of said tank to contain a supply of hydrocarbon, an open well or reservoir communicating with said supply-compartment, means for transferring hydrocarbon from said well to said pumping-wheel compartment, an air-supply pipe leading from said tank, driving means for said pumping-wheel, and interconnecting power-transmitting devices traversing said air-pipe.

6. In a carbureter, the combination with a tank having a wheel-compartment at one end, of an air-pumping wheel rotatably mounted therein, a closed compartment at the other end of said tank to contain a supply of hydrocarbon, an open well or reservoir communicating with said supply-compartment, a dipping-wheel for transferring hydrocarbon from said well to said pumping-wheel compartment, an air-supply pipe leading from said tank, driving means for said pumping-wheel, and interconnecting power-transmitting devices traversing said air-pipe.

7. In a carbureter, the combination with a tank having a compartment at one end, of an air-pumping wheel rotatably mounted therein and having a suitable outlet, a supply-reservoir for hydrocarbon, a dipping-wheel mounted so as to rotate in said reservoir in an inclined plane and overhang said pumping-wheel compartment, means for driving said dipping-wheel, means for driving said pumping-wheel, and an air-supply pipe leading from said tank.

8. In a carbureter, the combination with a tank having a compartment at one end, an air-pumping wheel rotatably mounted in said compartment, a closed compartment at the other end of said tank for the supply of hydrocarbon, a well in communication with said supply-compartment, an inclined dipping-wheel running in said well and overhanging said wheel-compartment, means for driving said pumping-wheel, said means serving also to rotate said dipping-wheel, and an air-supply pipe leading from said tank.

9. In a carbureter, the combination with a tank having a compartment in one end, of an air-pumping wheel rotatably mounted therein and provided with a suitable outlet, a closed compartment at the other end of said tank to hold the supply of hydrocarbon, an open well in communication with said supply-compartment, an air-supply pipe leading from said tank, a power-transmitting shaft traversing said air-pipe and connected with said pumping-wheel, and an inclined dipping-wheel mounted on said shaft, said dipping-wheel running in said open well and overhanging said pumping-wheel compartment.

10. In a carbureter, the combination with a tank having a compartment in one end, of an air-pumping wheel rotatably mounted therein and provided with a suitable outlet, a closed compartment at the other end of said tank to hold the supply of hydrocarbon, an open well in communication with said supply-compartment, an inclined air-supply pipe leading from said tank, an inclined power-transmitting shaft traversing said inclined air-pipe and connected with said pumping-wheel, and a dipping-wheel mounted on said inclined shaft, said dipping-wheel running in said open well and overhanging said pumping-wheel compartment.

11. In a carbureter, the combination with a tank having a compartment at one end, of an air-pumping wheel rotatably mounted therein, a closed double compartment at the other end of said tank for the supply of hydrocarbon, a well intermediate the sections of said supply-compartment and in communication therewith, an inclined air-supply pipe leading from said tank, a power-transmitting shaft traversing said inclined air-pipe and connected with said wheel, means for driving said shaft, and

a dipping-wheel mounted on said shaft and running in said intermediate well and overhanging said pumping-wheel compartment.

12. In a carbureter, the combination with a tank having a compartment at one end, of an air-pumping wheel rotatably mounted in said compartment, a closed compartment at the other end of said tank to hold the hydrocarbon-supply, a well between the said compartments and in communication with said supply-compartment, an air-supply pipe, means for driving said pumping-wheel, a power-transmitting shaft traversing said air-supply pipe and having a driving connection with the pumping-wheel shaft, a trough projecting from the wall of said pumping-wheel compartment and in communication therewith in which the said driving connection turns, and a dipping-wheel mounted on said power-transmitting shaft and running in said well, said dipping-wheel being inclined so as to overhang the pumping-wheel compartment, and being dished to accommodate said projecting trough.

13. In a carbureter, the combination with a tank having an air-supply pipe and a gas-outlet pipe, of a vertically-placed partition substantially midway said tank to form separate compartments therein, a journal-bearing carried by said partition, a journal-bearing at the inner end of said outlet-pipe, an air-pumping wheel rotatably mounted in said bearings, means for driving said pumping-wheel, a power-transmitting shaft traversing said air-pipe and having a driving connection with said pumping-wheel, a closed compartment to receive the main supply of hydrocarbon, an open compartment or well in communication with said closed compartment, a dipping-wheel carried by said power-transmitting shaft running in said well, said dipping-wheel being inclined so as to overhang the said vertical partition and being provided with buckets to deliver hydrocarbon from said well to the pumping-wheel compartment.

14. In a carbureter, the combination with a tank having a suitable air-inlet and a gas-outlet, of an air-pumping wheel rotatably mounted in said tank, means for supplying a body of hydrocarbon in which said pumping-wheel runs, and a torsional power-transmitting shaft connected with said pumping-wheel, and operating to rotate the wheel whereby air is drawn into the tank and converted into gas.

15. In a carbureter, the combination with a tank having an air-pumping wheel rotatably mounted therein, of means for supplying a body of hydrocarbon in which said pumping-wheel runs, an air-pipe leading from said tank, a power-transmitting shaft traversing said air-pipe and having a driving connection with said pumping-wheel shaft, whereby the wheel is rotated to draw air into the tank and convert it into gas, a bearing at the lower end of said air-pipe for said power-transmitting shaft, a head or cap closing the upper end of said air-pipe and forming the upper bearing for said transmitting-shaft, an air-feeding pipe entering said air-supply pipe and a motor-shaft connected with the upper end of said power-transmitting shaft.

16. In a carbureter, the combination with a tank having an air-pumping wheel rotatably mounted therein, and constructed to draw air into the tank and convert it into gas, of means for supplying a body of hydrocarbon in which said pumping-wheel runs, an inclined air-pipe leading upward from said tank, a torsional power-transmitting shaft traversing said air-pipe, and having a knuckle-joint driving connection with said pumping-wheel shaft, a bearing at the lower end of said inclined air-pipe for said power-transmitting shaft, a head or cap closing the upper end of said air-pipe and forming the upper bearing for said torsional transmitting-shaft, an air-feeding pipe entering said air-supply pipe, and a motor-shaft connected with the upper end of said power-transmitting shaft.

17. In a carbureter, the combination with a tank adapted to be buried in the ground and having an air-pumping wheel and a supply-compartment for hydrocarbon therein, of means for delivering hydrocarbon from said supply-compartment to the pumping-wheel, an inclined air-supply pipe leading from said tank, said pipe being provided with heat-non-conducting material and being closed at its top, an air-inlet pipe entering said supply-pipe, means for heating said inlet-pipe, a motor for driving the air-pumping wheel, and a power-transmitting shaft traversing said air-supply pipe.

18. In a carbureting apparatus, the combination with a tank adapted to be buried in the ground, of air-carbureting means located within said tank, an air-shaft pipe leading upward from said tank, means for driving the air-carbureting means and a power-transmitting shaft traversing and having its bearing in said air-supply pipe.

19. In a carbureting apparatus, the combination with a tank adapted to be buried in the ground, of air-carbureting means located within said tank, an inclined air-supply pipe leading upward from said tank, means for driving the air-carbureting means, and a torsional power-transmitting shaft traversing and having its bearings in said air-supply pipe.

20. In a carbureting apparatus, the combination with a tank adapted to be buried in the ground and provided with air-carbureting devices, of an inclined air-supply pipe leading upward from said tank, shaft-bearings at either end of said pipe, a power-transmitting shaft mounted in said bearings and having an intermediate torsional part, a motor-shaft connected with said torsional power-transmitting shaft, means for preventing backward rotation of said motor-shaft, and driving connections between said power-transmitting shaft and said air-carbureting devices.

21. In combination, a carbureting-tank having air-carbureting instrumentalities therein, an air-supply pipe leading from said tank, a power-transmitting shaft traversing said air-supply pipe, driving connections between said shaft and said air-carbureting instrumentalities, and a motor-shaft connected with said power-transmitting shaft.

22. In combination, a carbureting-tank having air-carbureting instrumentalities therein, an air-supply pipe leading upward from said tank, a torsional power-transmitting shaft traversing said air-supply pipe, driving connections between said shaft and said air-carbureting instrumentalities, a motor-shaft connected with said power-transmitting shaft, and means for preventing backward movement of said power-transmitting shaft.

23. In combination, a carbureting-tank having air-carbureting instrumentalities therein, an air-supply pipe leading from said tank, a torsional power-transmitting shaft mounted in and traversing said air-supply pipe, driving connections between said shaft and said air-carbureting instrumentalities, a motor-shaft, pawl-and-ratchet connections between said motor-shaft and said power-transmitting shaft, a pawl-and-ratchet locking device to prevent backward rotation of said power-transmitting shaft, a winding-drum loosely mounted on said motor-shaft, a gear-wheel carried by said drum, back gearing driven by said gear-wheel, and a pinion keyed to said motor-shaft and meshing with said back gearing.

24. In combination, a carbureting tank having air-carbureting instrumentalities therein, an air-supply pipe leading from said tank, a power-transmitting shaft mounted in and traversing said air-supply-pipe, said shaft having a driving connection with said air-carbureting instrumentalities, means for driving said power-transmitting shaft comprising two shafts one of which is connected with said power-transmitting shaft, a ratchet-and-pawl connection between the said first shaft and the other, a pinion keyed to the second shaft, back gearing meshing with said pinion, a winding-drum loosely mounted on said second shaft, a gear-wheel secured to said winding-drum, and meshing with said back gearing, and a weight to rotate said winding-drum.

25. In a carbureter, the combination with a tank having a compartment in one end, of an air-pumping wheel rotatably mounted in said compartment, an outlet-pipe entering said air-pumping-wheel compartment, a stand-pipe with which said outlet-pipe connects having a depending trap portion, a drainage-pipe for said pumping-wheel compartment, a closed hydrocarbon-supply compartment in the other end of said tank, a filling and vent pipe therefor, said pipe serving also as a drainage-tube, a well or reservoir in communication with said supply-compartment, an air-supply pipe entering said tank, a power-transmitting shaft mounted in and traversing said air-supply pipe, driving connections between said shaft and said pumping-wheel, an inclined dipping-wheel carried by said power-transmitting shaft, said dipping-wheel running in said well and overhanging said pumping-wheel compartment, and a motor connected with and driving said power-transmitting shaft.

26. In a carbureting apparatus, the combination with a tank, of air-carbureting instrumentalities therein, an air-supply pipe leading upward from said tank, a power-transmitting shaft traversing said air-pipe and having a driving connection with said air-carbureting instrumentalities, said shaft comprising a member mounted in bearings at the lower end of said air-supply pipe, a second member mounted in bearings at the upper end of said pipe, and an intermediate section removably attached to said members, and a motor connected with said power-transmitting shaft.

27. In a carbureting apparatus, the combination with a tank, of air-carbureting instrumentalities therein, an inclined air-supply pipe leading from said tank, a power-transmitting shaft traversing said air-pipe and having a driving connection with said air-carbureting instrumentalities, said shaft comprising a member mounted in bearings at the lower end of said air-supply pipe, a second member mounted in bearings at the upper end of said pipe, and an intermediate torsional section removably attached to said members, and a motor connected with said power-transmitting shaft.

28. In a carbureter, the combination with a tank containing the air-carbureting instrumentalities, of means for driving said instrumentalities, and a power-transmitting shaft comprising two end members mounted in suitable bearings and a removable, intermediate section, connecting said driving means and said air-carbureting instrumentalities.

29. In a carbureter, the combination with a tank containing the air-carbureting instrumentalities, of means for driving said instrumentalities, and a power-transmitting shaft comprising two end members mounted in suitable bearings and a removable torsional, intermediate section, connecting said driving means and said air-carbureting instrumentalities.

30. In a carbureter, the combination with a tank having an air-supply pipe and a gas-outlet pipe, of a vertically-placed partition substantially midway said tank to form separate compartments therein, a journal-bearing carried by said partition, a journal-bearing at the inner end of said outlet-pipe, an air-pumping wheel rotatably mounted in said bearings, means for driving said pumping-wheel, and a power-transmitting

shaft traversing said air-pipe and having a driving connection with said pumping-wheel.

31. In a carbureter, the combination with a tank adapted to hold a body of hydrocarbon, of an air-pumping wheel rotatably mounted in said tank and immersed in the body of hydrocarbon, a pipe leading upward from said tank, means for driving said pumping-wheel, whereby air is drawn into the tank and converted into gas, power-transmitting connections traversing said pipe, and an air-inlet and a gas-outlet for the tank.

32. In a carbureting apparatus, the combination with a tank adapted to be buried in the ground, of air-carbureting means located within said tank, a pipe leading upward from said tank means for driving the air-carbureting means whereby the air drawn within the tank is converted into gas, a power-transmitting shaft traversing said pipe, and an air-inlet and gas-outlet for the tank.

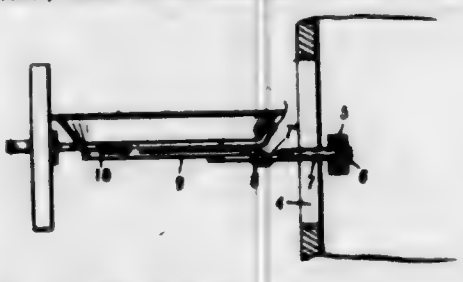
33. In a carbureting apparatus, the combination with a tank buried in the ground and adapted to hold a body of hydrocarbon, of an air-pumping wheel rotatably mounted in said tank and immersed in the body of hydrocarbon, a pipe leading upward from said tank, a power-transmitting shaft traversing said pipe, means for rotating said shaft, whereby the pumping-wheel is rotated and air drawn into the tank and in contact with the hydrocarbon to convert said air into gas, and an air-inlet and a gas-outlet for the tank.

34. In a carbureting apparatus, the combination with a tank buried under ground and adapted to hold a body of hydrocarbon, of an air-pumping wheel rotatably mounted in the tank and having its bearings wholly within the same whereby the use of stuffing-boxes in the ends of the tank is avoided, a pipe leading upward from the tank and terminating above the ground, a power-transmitting shaft for driving the pumping-wheel, traversing said pipe, means for driving said shaft, whereby the pumping-wheel is rotated to draw air into the tank to convert it into gas, and an air-inlet and a gas-outlet for the tank.

35. In a carburetor, the combination with a tank buried in the ground and adapted to hold a body of hydrocarbon, of air-carbureting instrumentalities located in said tank and immersed in the body of hydrocarbon therein, a pipe leading upward from said tank and terminating above the surface of the ground and power-transmitting means for driving the air-carbureting instrumentalities traversing said pipe.

36. In a carburetor, the combination with a tank adapted to hold a body of hydrocarbon, of an air-pumping wheel rotatably mounted in said tank and immersed in the body of hydrocarbon therein, a pipe leading upward from said tank, means for driving said pumping-wheel whereby air is trapped by the wheel and brought into contact with the hydrocarbon and converted into gas, power-transmitting connections traversing said pipe, and an air-inlet and a gas-outlet for the tank.

692,861. TRAY-SUPPORT FOR PHYSICIANS' TABLES. WILLIAM H. KERSEY, Indianapolis, Ind., assignor to Clark & Roberts, Indianapolis, Ind., a Firm. Filed Feb. 5, 1901. Serial No. 46,065. (No model.)

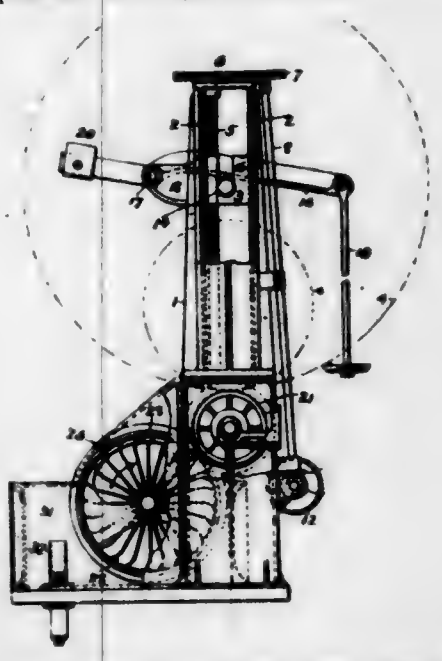


Claim.—1. The combination with an inclosing casing having an aperture in the front thereof, of a swinging arm pivoted to said casing adjacent said opening, a second arm pivoted to the swinging arm, a tray-frame pivoted to the second arm, a panel forming part of said tray-frame and arranged to close the opening in the casing, means carried by the tray-frame opposite to the panel for engaging a tray, and a tray adapted to fit between said means and the panel.

2. The combination with an inclosing casing having an aperture in the front thereof, of a swinging arm pivoted to said casing adjacent said opening, a second arm pivoted to said swinging arm, a tray-frame pivoted to said second arm, said tray-frame consisting of a pair of diverging arms each having an upturned finger at its end, and a panel arranged opposite the upturned fingers and adapted to close the opening in the casing, and a tray adapted to lie between said panel and upturned fingers, substantially as and for the purpose set forth.

692,862. MACHINE FOR THE MANUFACTURE OF SHEETS, BOARDS, OR TUBES FROM PULP. FRANK E. KEYES, Holyoke, Mass. Filed June 26, 1901. Serial No. 66,120. (No model.)

Claim.—1. In a machine for making pulp-board, the combination with a vat, of a pulp mold or cylinder disposed over and adapted to pass through pulp therein, said mold or cylinder comprising a series of scoop-shaped radial partitions and an open-work cover.



2. In a machine for making pulp-board, the combination with a vat, of a pulp mold or cylinder having a double cone centrally therein, partitions radiating from said cone, a reticulated cover and a perforated rib projecting from the center of said double cone and supporting the central portion of said reticulated cover.

3. In a machine for making pulp-board, the combination with a vat, of a pulp mold or cylinder, a double cone centrally within said cylinder, partitions having scoop-shaped outer ends radiating from said cones, and a reticulated cover.

4. In a machine for making pulp-board, the combination with a vat, a pulp mold or cylinder therein, and a couch-roll for taking the pulp from the mold or cylinder of uprights or standards projecting above the couch-roll, a winding-roll between said uprights or standards, vertically-movable bearings in said standards upon which the journals of the winding-roll are mounted means for moving the bearings and winding-roll up and down.

5. In a machine for making pulp-board, the combination with a vat, a pulp mold or cylinder therein and a couch-roll for taking the pulp from the mold or cylinder, of an upright at each end of the machine, a winding-roll a screw carried by each upright, a bearing in each upright in which the respective journals of the winding-roll are mounted, said bearings engaging the screw and means for rotating the screws in unison.

6. In a machine for making pulp-board, the combination with a vat, a pulp mold or cylinder therein, and a couch-roll, of an upright at each end of the machine, a bearing carried by each upright, a winding-roll having trunnions mounted upon said bearings so as to be movable up and down therewith, and a weighted lever bearing on each trunnion.

7. In a machine for making pulp-board, the combination with a vat, a pulp mold or cylinder therein, and a couch-roll, of an upright at each end of the machine, a bearing carried by each upright, means for adjusting said bearings vertically, a winding-roll having trunnions mounted upon said bearings so as to move up and down therewith, and a weighted lever pivoted to each movable bearing and adapted to bear on the trunnions of the winding-roll.

8. In a machine for making pulp-board, the combination with a vat, and suction-flues leading from both ends thereof of a cylinder located within the vat, and divided into compartments by a series of radial partitions, and air or suction boxes interposed between the cylinder and the open ends of the air-flues for conducting the exhaust-air from the cylinder to the flues.

9. In a machine for making pulp-board, the combination with a vat and suction-flues leading from both ends thereof, of a shaft within the vat, a cylinder on said shaft, air or suction boxes carried by suitable supports and forming bearings for the shaft, substantially as set forth.

10. In a machine for making pulp-board, the combination with a vat and a vertically-adjustable overflow-pipe therein, of a pulp mold or cylinder within said vat, a couch roll, a winding-roll, and means at both ends of the cylinder for exhausting the air therefrom.

692,868. SUBSTITUTED SULFINID AND PROCESS OF MAKING SAME. JOSEPH KOETSCHET, St. Fons, France, assignor to Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France, a Corporation. Filed July 2, 1901. Serial No. 66,906. (No specimens.)

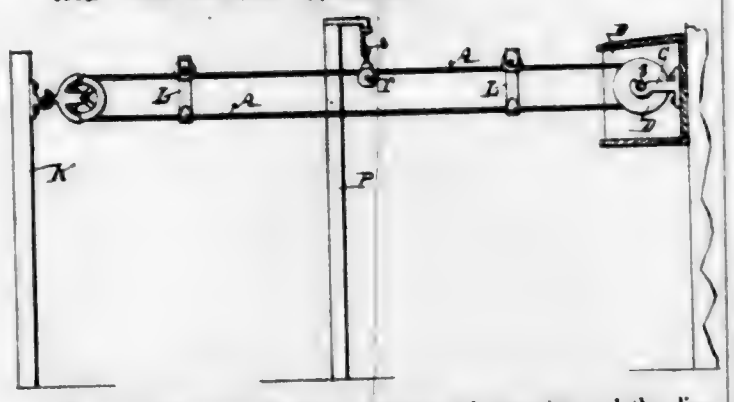
Claim.—1. In the manufacture of a substituted sulfinid, heating a substituted sulfamid with an alkaline sulfid.

2. In the manufacture of a substituted sulfinid, heating a substituted toluene sulfamid with an alkaline sulfid.

3. In the manufacture of para-amido-benzoic sulfinid heating para-nitro-ortho-toluene sulfamid with an alkaline sulfid.

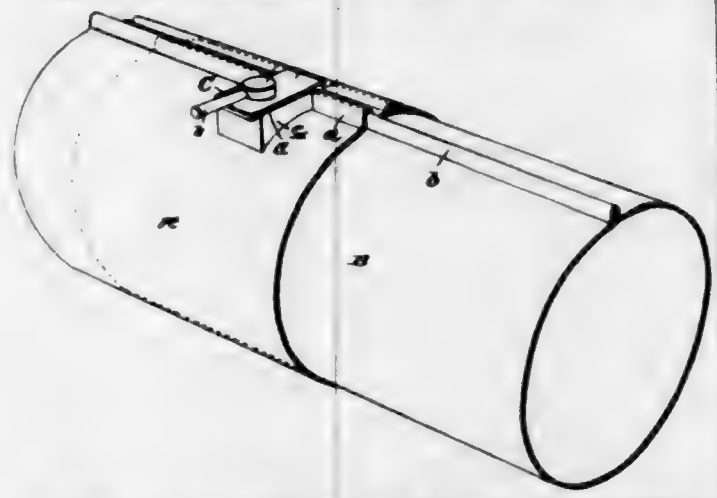
4. The process of preparing para-amido-benzoic sulfinid which consists in boiling para-nitro-ortho-toluene sulfamid in a solution of sulfur in caustic alkali, acidifying, and extracting the resulting precipitate, substantially as described.

692,864. APPARATUS FOR SUPPORTING AND OPERATING CLOTHES-LINES. CHARLES J. LANTZ, Gowrie, Iowa. Filed Feb. 2, 1901. Serial No. 45,697. (No model.)



Claim.—An apparatus for supporting and operating a clothes-line, comprising a fixed box, a roller journaled in bearings fixed in the box, openings in the parallel walls of the box, the journals of the roller having angular extensions at their free ends that extend outward beyond the bearings and in alinement with said openings, a fixed post distant from the fixed box, a pulley connected with said fixed post, a fixed post located between the box and said pulley and an arm projected horizontally from its top, a hanger connected with the said arm and a pulley at the lower end of said hanger, a line coiled around the roller and extended over the pulleys connected with the fixed posts and a plurality of line-supports having pulleys at their tops and hooks at their lower ends, arranged and combined to operate in the manner set forth for the purposes stated.

692,865. STOVEPIPE. JOHN H. LAUTERBAH, Colorado Springs, Colo. Filed Oct. 22, 1901. Serial No. 79,591. (No model.)

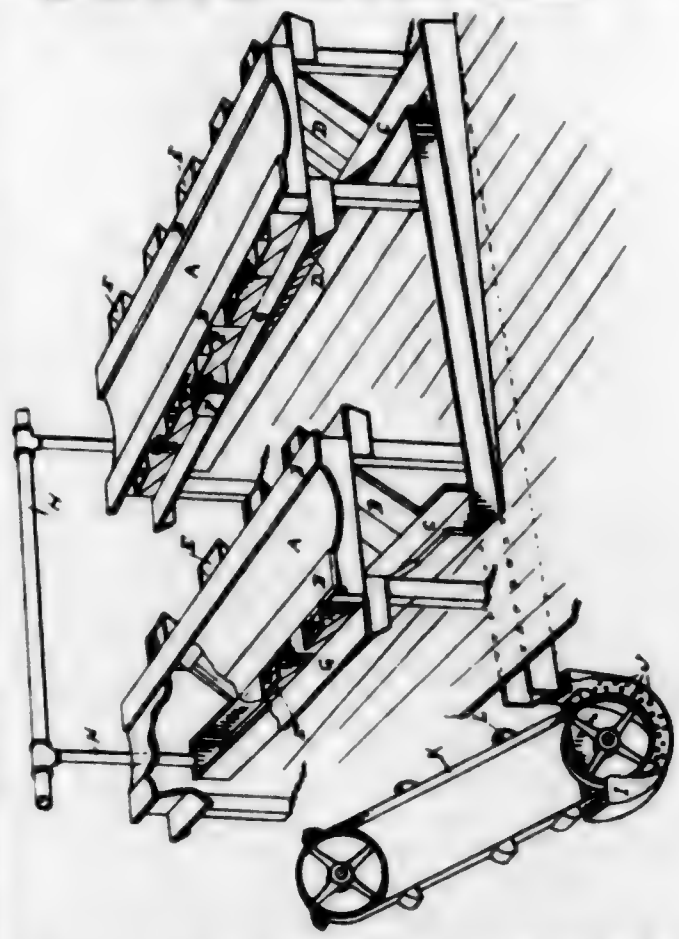


Claim.—1. In an adjustable pipe, the combination of a male section having an exterior, longitudinal rib or projection, a female section having a longitudinal offset of U shape in cross-section receiving the rib or projection of the male section, and a device comprising a body fixed on the outer side of the female section at one side of the offset thereof, and a member adjustable on the body and having a portion disposed at the opposite side of the offset with reference to the body and provided with means for coacting with the offset and rib and fixing the sections against movement with respect to each other.

2. In an adjustable pipe, a male pipe-section having an exterior, longitudinal projection, a female pipe-section of sheet metal having an outwardly-extending, longitudinal offset of U shape in cross-section receiving the projection of the male section, and a clamp on the female pipe-section for pinching the offset thereof against the projection of the male section and thereby fixing the sections with respect to each other.

3. In an adjustable pipe, the combination of a male section having an exterior rib or projection, a female section having an offset receiving the rib or projection of the male section, and the device comprising the body fixed on the female section at one side of the offset, a slide having means for coacting with the offset and rib to fix the sections to each other, and also having an oblong aperture, and a cam arranged in said aperture and interposed between and carried by a pintle journaled in the body, and a head or enlargement disposed above the slide.

692,866. FISH-CUTTING TABLE. EDWARD M. LAWRENCE, Lubec, Me. Filed Oct. 24, 1901. Serial No. 79,779. (No model.)



Claim.—1. In a fish-cutting table, a suitable receptacle for the uncut fish, a cutting-block at the side thereof, an inclined trough beneath the table, converging walls extending from the table to the trough, chutes extending from points adjacent to the cutting-table to said inclined walls and means for introducing water into the higher end of said trough, substantially as and for the purposes set forth.

2. In a fish-cutting table, a suitable receptacle for the uncut fish, a cutting-block at the side thereof, an inclined trough beneath the table, converging walls extending from the table to the trough, chutes extending from points adjacent to the table to said inclined walls, means for introducing water into the higher end of said trough, a perforated tank at the end of said trough and an endless carrier with buckets to convey the solid matter from said tank, substantially as and for the purposes set forth.

692,867. ELECTRIC ANNOUNCER. MARTIN LEHMAN, Kansas City, Mo. Filed June 3, 1901. Serial No. 63,055. (No model.)

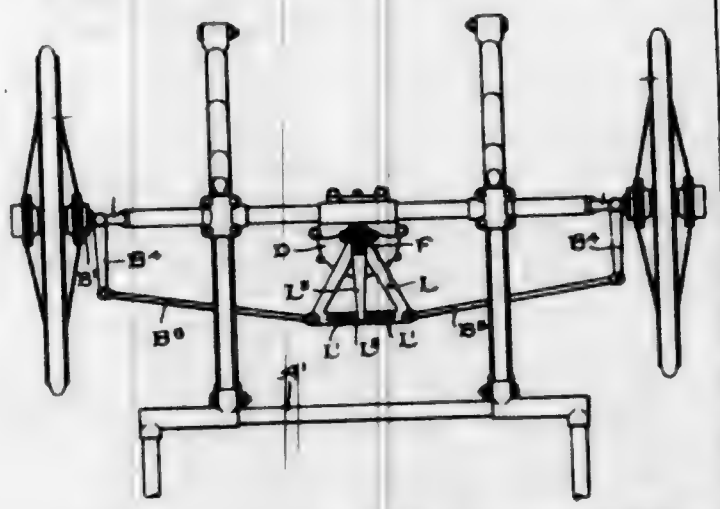


Claim.—1. In an advertising or display apparatus, the combination of a box containing light-tight compartments, electric bulbs located in said compartments, individual circuits including the bulb in each compartment, a switch in each circuit, a translucent screen having a single picture or design over the entire front of said box, and a plurality of opaque slides having holes or openings formed therein in the shape of advertising or display symbols, said slides being independently and removably interposed between the electric bulbs and the screen, all as and for the purpose set forth.

2. In an advertising or display apparatus, the combination with a

box containing light-tight compartments, electric bulbs located in said compartments, and a translucent screen having a picture or design over the front of said box, of a slide-carrier removably located between the electric bulbs and the screen and composed of two pieces of wire-gauze within a frame of galvanized iron and an opaque slide between the gauze pieces having display-openings cut therein and covered with colored tissue, all as and for the purpose set forth.

692,868. **STEERING MECHANISM FOR AUTOMOBILE VEHICLES.** HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed July 15, 1898. Serial No. 686,063. (No model.)



Claim.—1. In a locking mechanism for two elements which are movable with respect to each other, the combination of a divided receptacle, a passive fluid which fills the receptacle, an operator mechanism connected to one of the elements, and means for transferring more or less of the fluid from one part of the receptacle to the other, the amount of fluid thus transferred being in proportion to the movement of the operator.

2. In a locking mechanism, the combination of a fixed and a moving element, a receptacle, a passive fluid which fills the receptacle, a means capable of dividing the receptacle into compartments which are alike or unlike in size depending upon its position, and a handle which is connected to the said means, the relation of parts being such that the movement of the handle regulates the amount of fluid transferred from one compartment to another.

3. In a steering-check for vehicles, the combination of a steering-wheel, a handle mechanically connected thereto, a receptacle containing a body of passive fluid, means connected to the handle which divides the receptacle into compartments, and positively transfers the fluid from one compartment to another during the act of steering, and means for checking this transfer of fluid when for any reason the transfer tends to take place faster than is permitted by the handle, as would be the case when the steering-wheel struck a road obstruction.

4. In a steering mechanism for vehicles, the combination of an axle, a hydraulic locking device for the axle, a handle for steering the vehicle and controlling the operation of the hydraulic lock under normal conditions, and means for rendering the locking automatic when undue pressure is applied to the axle.

5. In a steering mechanism for vehicles, the combination of an axle, a locking mechanism comprising a piston and cylinder, a valve controlling the operation of the locking mechanism, and means connected to the axle for moving it, and for controlling the operation of the valve.

6. In a steering mechanism for vehicles, the combination of an axle, a locking mechanism comprising a piston and cylinder, a pair of valves controlling the action of the piston, a handle mechanically connected to the axle for steering the vehicle and controlling the operation of the valves, and a lost-motion connection between the handle and the valves, whereby the latter may close when the axle is subjected to sudden strains.

7. In a steering mechanism for vehicles, the combination of an axle, a locking mechanism comprising a piston and cylinder, oppositely-acting valves controlling the action of the locking mechanism, and a handle for steering the vehicle and controlling the operation of the valves, the relation between the handle and the locking and steering mechanism being such that one of the valves is released each time the handle is moved from a position of rest.

8. In a steering mechanism for vehicles, the combination of an axle, a locking mechanism comprising a piston and cylinder, a pair of oppositely-acting valves mounted on the piston, a handle for moving the axle, and a connection between the handle and the axle, having a certain amount of lost motion.

9. In an automobile vehicle, the combination of a steering wheel or wheels, a hydraulic locking mechanism for holding the wheel or wheels and preventing the transmission of wheel strains to the steering device, and a manual steering device which is mechanically connected to the steering-wheels and is so arranged that a movement in either direction from the position which it last occupied will first release the lock and then move the steering wheel or wheels.

10. In a steering mechanism, the combination of a steering device, a divided receptacle forming a part of a hydraulic locking mechanism, a passive fluid which fills the receptacle, a handle mechanically connected with the steering device, and means actuated by the handle for positively transferring or setting in motion the fluid within the receptacle.

11. In a hydraulic lock for vehicle-wheels, the combination of a cylinder which is attached to the vehicle-frame, a piston connected to the vehicle-wheels, fluid-chambers on each side of the piston, a valve in the piston for regulating its action, a reservoir containing fluid, and a passage connecting the reservoir with one of the chambers.

12. In a hydraulic lock for vehicle-wheels, the combination of a cylinder which is attached to the vehicle-frame, an operating-shaft, a piston sleeved on the shaft and connected by suitable means with the vehicle-wheels, fluid-chambers on each side of the piston, valves on the piston, and an actuator on the operating-shaft for opening the valve.

13. In an automobile vehicle, the combination of a pair of steering-wheels, a cylinder, a body of normally quiescent fluid contained therein, a rotary piston mounted for movement therein, means for releasing the piston, a steering-handle for moving the piston, and a lost-motion connection between the piston and the steering-handle.

14. In an automobile vehicle, the combination of a locking mechanism for the wheels, comprising a fixed cylinder which is mounted on the vehicle-frame, and a rotary piston, fluid-chambers formed in the cylinder by the piston and a fixed partition, valves controlling the passage of fluid between the chambers, a shaft for moving the wheels, an actuator mounted on the shaft, which is so arranged that it first opens one of the valves, and then moves the wheels, and a reservoir for maintaining a body of fluid in the chambers.

15. In a vehicle, the combination of a double-axle suspension for the steering-wheels, an operating-handle for manually changing the position of the wheels, a vertically-extending shaft connecting said handle to the steering-wheels, and a piston and cylinder constituting a dash-pot, whereby the transmission of wheel strains to the operating-handle is prevented.

16. In a device for checking movement between two elements or members which are movable with respect to each other, the combination of a cylinder, a piston, an actuator, a normally quiescent body of fluid, and a valve which is normally opened and closed by the actuator, but which is automatically closed when a sudden movement is imparted to one of the said members.

17. In combination, two elements which are movable with respect to each other, an actuator, a hydraulic locking mechanism between the elements which, under ordinary operating conditions, is controlled by the actuator, and means for rendering the operation of the locking mechanism automatic when, for any reason, the elements tend to move with respect to each other without the assistance of the actuator.

18. In a device for checking sudden movements between two movable members, the combination of an actuator, a locking mechanism consisting of a cylinder filled with fluid, a piston working therein, a valve for controlling the fluid within the cylinder, which is opened by the actuator when it is desired to move the members with respect to each other, but which is automatically closed when one member tends to move with respect to the other without the aid of the actuator.

19. In a steering mechanism, the combination of a handle which is connected to a steering-wheel and is capable of assuming a number of positions with respect to the normal or starting position, and a hydraulic lock for the steering-wheel which is operative in each of said positions of the handle and is normally controlled thereby, and means for rendering the locking automatic whenever the wheel strikes an obstruction and tends to transmit wheel strains to the steering-handle.

20. In a steering mechanism for vehicles, the combination of a steering-wheel, a manually-operated handle secured thereto, and so arranged that its angular position indicates relatively the direction of travel, a hydraulic lock composed of a body of fluid which takes no part in the act of moving the wheel, but which holds the steering-wheel in any position to which it may have been moved by the steering-handle, and releasing mechanism for the lock which is controlled by the handle.

21. In a steering mechanism, the combination of a frame-bar or fixed axle, a cylinder secured thereto, a piston mounted in the cylinder, a shaft secured to the piston, a frame sleeved on the shaft, which is mechanically coupled to the steering apparatus, and a spring connection between the shaft and the steering apparatus.

22. In a checking mechanism, the combination of a cylinder, a piston, a fixed partition therein, the partition and piston acting to divide the

cylinder into two chambers, oppositely-acting valves mounted on the piston and covering the opening therein, and means for opening the valves.

23. In a checking mechanism, the combination of a cylinder, a piston sleeved on a shaft and mounted for movement within the cylinder, which piston is provided with a central opening, an actuator for the piston mounted within the opening therein, a valve covering the opening in the piston, and means connected with the piston-actuator for actuating the valve.

24. In combination, two elements which are mounted in such manner that they have a limited movement with respect to each other, a hydraulic lock between the two elements, composed of a body of fluid which takes no part in the act of moving either of the elements, and valves for controlling the lock that operate automatically irrespective of the position which the elements occupy with respect to each other.

25. In a steering mechanism, the combination of a steering device, means for moving said device, a compression-spring connected between the steering device and said means, and a hydraulic lock for controlling the action of the parts, which is released when the spring is compressed.

26. In a self-propelled vehicle, the combination of steering-wheels having a double-axle suspension, rods connecting the axles, a frame to which the rods are secured, an actuator for moving the frame, springs between the rods and the actuator, and means for locking the wheels as soon as the actuator is relieved from pressure.

27. In a locking or checking device, the combination of a cylinder, a rotary piston mounted therein, a fixed partition in the cylinder; the piston and partition uniting to divide the cylinder into two chambers, a fluid body in said chamber, and a third chamber which acts as a reservoir and is situated above the other and in connection therewith.

28. In an automobile vehicle, the combination of a pair of steering-wheels, a steering-handle connected to the wheels, a cylinder, a rotary piston mounted for movement therein, means for moving the piston, a lost-motion connection between the piston and the steering-handle, and valves for checking the transmission of wheel strains to the steering-handle.

29. The combination in an automobile vehicle of a manually-actuated steering-handle, or its equivalent, under the control of the operator, means connecting said handle with the steering mechanism, and a hydraulic lock composed of a body of fluid which performs no part in the act of moving the steering-wheel, and is normally in its locked position, but unlocked as long as pressure is applied to the handle.

30. The combination in an automobile vehicle, of a manually-actuated steering-handle, or its equivalent, under the control of the operator, means whereby said handle can act to actuate a steering mechanism, and a hydraulic lock normally operative but unlocked as long as pressure is applied to the handle, and means for closing said lock if the steering mechanism tends to be thrown in the wrong direction.

31. The combination of two elements which are movable with respect to each other, a hydraulic lock comprising a piston and a cylinder; a body of fluid surrounding the piston, a body of passive fluid in communication with the first for preventing a decrease in the amount of fluid in the cylinder; and also for preventing the entrance of air, and a detachable partition between the piston and said body of passive fluid.

32. The combination of two elements which are movable with respect to each other, a piston and cylinder constituting a check for the moving elements, a body of passive fluid filling the cylinder on both sides of the piston, a reservoir composed of a top and a removable partition also containing a passive body of fluid which surrounds the working parts of the check in such a manner that it prevents the entrance of air into the cylinder.

33. In a hydraulic lock, the combination of a piston and cylinder, a passive body of fluid located in the cylinder-packing between the moving and stationary parts of the lock, a reservoir located above the joints between the parts of the hydraulic lock, and having a grooved periphery, which groove contains fluid means for closing the reservoir, and a body of passive fluid within the reservoir which prevents the entrance of air to the cylinder.

34. In a steering mechanism for vehicles, the combination of steering wheels mounted independently, a mechanical connection between the wheels, a single locking device for holding both wheels in any desired position, a steering-handle for moving the wheels, means whereby the movement of the handle in the proper direction for steering releases the locking device, and moves the wheels and a spring and lost-motion connection for causing the locking device to be reset when pressure is removed from the handle.

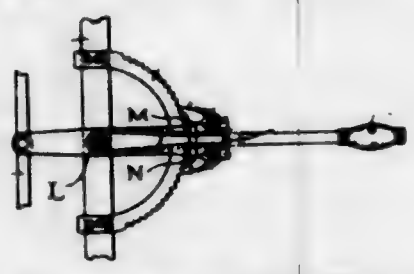
35. In a vehicle, the combination of a fixed axle, hangers secured to the ends thereof, short axles each carrying a wheel mounted in the hangers, a pair of jointed rods which connect the short axles, a steering-handle which is connected to each rod through a lost-motion connection, and a locking mechanism for preventing wheel strains from being transmitted to the handle, composed of two parts, one of said parts being rigidly connected to the vehicle-frame, while the second part is connected to the steering-handle through said lost-motion connection.

36. In a vehicle, the combination of a fixed axle, hangers secured to the ends thereof, short axles mounted in the hangers, connections between said short axles, a steering-handle operatively connected to the wheels, a locking device composed of two principal parts, one of which is secured to the fixed axle and is concentrically arranged with respect to the center of movement of the steering-shaft, a second part capable of moving around the axis of the shaft as a center and arranged to be locked and unlocked with respect to the first-mentioned part, and means carried by the handle for controlling the locking and unlocking.

37. In a steering apparatus for vehicles, a controlling member having a swinging movement to steer, an axle, wheel-spindles pivoted thereto, an arm set at an angle on each spindle, and connections intermediate the spindle-arms and controlling member, including a double-acting lock, the initial steering movement of said controlling member operating to release said lock thereby permitting continued movement of the controlling member to change the angular position of the wheel-spindles.

38. A steering wheel or wheels, a manually-operated controller to change the position thereof, locking means to maintain the same in a given position, said wheel or wheels being operatively connected with a rotative member of said means, a release device connected with the controller, the latter and the rotative member being also connected but having a limited relative movement to operate the releasing device, and means to thereafter effect movement of the said rotative member by the controller independent of the releasing device.

692,869. **STEERING MECHANISM FOR VEHICLES.** HERMAN LEMP, Lynn, Mass., assignor to Ellen Thompson, Swampscott, Mass. Filed Oct. 24, 1896. Serial No. 609,372. (No model.)



Claim.—1. In a steering mechanism for vehicles, the combination of a fixed support, a semicircular plate or sector secured thereto, a steering-handle, a steering-lever pivotally secured to the support, and connected to a steering-wheel, a pair of arms pivotally secured to the lever, each provided with a loose block that engages with the sector, a pivot for each arm which is located between the center of motion of the lever and the sector; the relation of the lever, arms and pivots being such as to constitute two toggles, whereby the transmission of wheel strains to the steering-handle is prevented.

2. In a steering mechanism for vehicles, the combination of a fixed support, a plate having a semicircular surface secured to the support, a steering-lever, a pair of arms pivotally secured to the lever at a point between the center of motion of the lever and the semicircular surface on the plate, loose blocks mounted on the arms and arranged to engage with the semicircular surface, a steering-handle, and means moving with the steering-handle for moving the blocks out of engagement with the plate when it is desired to steer, the said means having a certain amount of lost motion whereby the arms and blocks are permitted to act as a toggle and prevent the transmission of wheel strains to the steering-handle.

3. In a steering apparatus for vehicles, a controlling member having a swinging movement to steer, an axle, wheel-spindles pivoted thereto, an arm set at an angle on each spindle, and connections intermediate the spindle-arms and controlling member including a double-acting friction-lock, the initial steering movement of said controlling member operating to release said lock, thereby permitting continued movement of the controlling member to change the angular position of the wheel-spindles.

4. A steering wheel or wheels, a manually-operated controller to change the position thereof, friction locking means to maintain the same in a given position, said wheel or wheels being operatively connected with a rotative member of said means, a releasing device connected with the controller, the latter and the rotative member being also connected but having a limited relative movement to operate the releasing device, and means to thereafter effect movement of the said rotative member by the controller independent of the releasing device.

5. In a steering apparatus for vehicles, a controlling member having a swinging movement to steer, an axle, wheel-spindles pivoted thereto, an arm set at an angle on each spindle, and connections intermediate the spindle-arms and controlling member, including a locking means comprising a fixed annular, and a concentric relatively rotatable member, a plurality of interposed locking-dogs to normally prevent relative rotation of said members, and a device to render either dog inoperative, said device and the rotatable member being actuated successively by the steer-

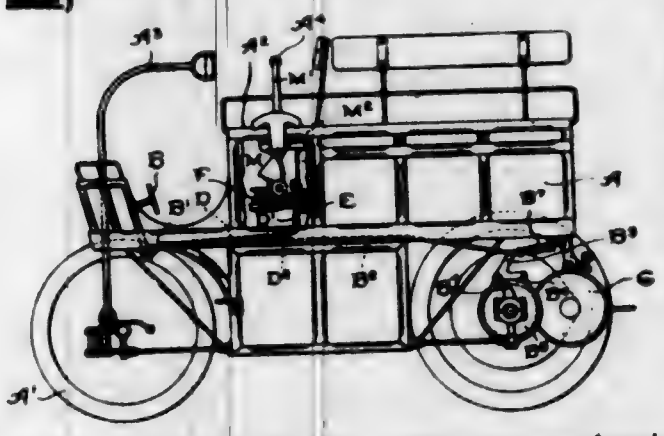
ing movement of the controlling member in either direction, whereby the locking means is first released and thereafter the angular position of the spindle changed.

6. In a motion-checking device, the combination of a fixed and a moving element, a friction-plate secured to one of the elements, friction-blocks arranged to engage therewith, a lever pivoted at a point intermediate the ends, pivoted arms mounted on the lever which arms support the blocks, stops carried by the lever for moving the friction-blocks around with said lever, and a connection between the lever and the second element.

7. In a motion-checking mechanism, the combination of an actuator for moving the parts, a fixed support, a moving element, a lever pivoted to the support and connected to the element, a plate mounted on the support, devices engaging with the plate for checking motion, arms pivoted on the lever at a point between its center of motion and the plate, which arms form supports for said motion-checking devices, and a pair of stops for each arm which are disposed on opposite sides thereof so as to impart movement thereto when the actuator is moved.

8. A steering wheel or wheels, a manually-operated controller to change the position thereof, friction locking means to maintain the same in a given position, said wheel or wheels being operatively connected with a rotative member of said means, a releasing device connected with the controller, the latter and the rotative member being also connected but having a limited relative movement, to operate the releasing device, and means to thereafter effect movement of the said rotative member by the controller independently of the releasing device.

692,870. CONTROLLER FOR AUTOMOBILE VEHICLES. HERMANN LEMP, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Nov. 2, 1898. Serial No. 695,942. (No model.)



Claims.—1. The combination with a vehicle, of a source of supply, a separate means for cutting off the supply of energy from the motor when the brake is applied, a mechanical brake, and a yielding connection between the mechanical brake and the said means, whereby the movements of the brake and the said means may be dissimilar.

2. In an automobile vehicle, the combination of a motor, a source of electrical energy, a mechanical brake arranged to operate on one of the wheels, a brake-lever arranged to be operated by the foot, a connection between the lever and the brake, a controller for regulating the speed of the motor in a step-by-step manner, and a circuit-breaker so constructed and arranged as to cut the controller out of circuit irrespective of its position, and means for actuating the circuit-breaker whenever the mechanical brake is applied, irrespective of the position of the controller.

3. In a controller, the combination of moving and stationary contacts for changing the motor-circuits, and a handle for actuating the moving contacts arranged to have movement in a definite fixed path passing into a plurality of planes, movement in said different planes being arranged to establish different circuit connections.

4. In a controller, the combination of moving and stationary contacts for changing the motor-circuits, and a handle for actuating the moving contacts arranged to have three planes of movement, the first of said movements acting to control the motor-circuits to give a forward rotation, the second to establish the brake-circuits and retard the vehicle, and the third to connect the circuits in such manner as to give a backward rotation.

5. The combination with a controller, adapted by its continuous rotation to carry on the control of an electric motor in either direction, of an operating-handle actuating said controller, and a fixed plate guiding the handle into different planes during its consecutive movement.

6. The combination with a controller, of contacts thereon, and other contacts codperating therewith, whereby the movement of the controller will operate to control electric-motor circuits, of an operating-handle therefor, and a retarding device for preventing too-rapid operation of the controller, the same consisting of a slotted plate constraining the handle to follow a predetermined path and to pass from one plane to another between steps.

7. In a controller for an electric motor, the combination of contacts for establishing a forward rotation of the motor-armature and controlling the speed of the motor in a step-by-step manner while so connected, contacts for including the motor in a closed circuit when the controller is at the off position, and contacts situated back of the off position and forming a single step in the controller, which establish the proper connections to cause the motor-armature to revolve in a backward direction.

8. In a controller for automobile vehicles, the combination of a source of power divided into units, a dynamo-electric machine, means for coupling the units in various orders to vary the electromotive force supplied to the said machine, thereby doing away with the necessity for any external resistance, contacts for including the dynamo-electric machine on a local circuit together with a resistance which acts as a load therefor, and contacts for coupling the machine in circuit with the source of power without any resistance in a manner to cause a backward rotation of the armature of the machine.

9. In a system of control, the combination of a storage battery divided into units, contacts for coupling the units in series or parallel to change the electromotive force supplied to the load-circuit, thereby avoiding the use of an external resistance, and means for disconnecting the source of supply from the load-circuit and including the load on a local circuit with an external resistance.

10. In an electric controller, the combination of a handle, and a slotted guide-plate in which the handle travels, having an offset formed in the slot, whereby the free passage of the handle is checked and it becomes necessary to move the handle laterally in passing from one end of the slot to the other.

11. In an electric controller, the combination of a handle, a slotted plate in which the handle moves, the slot being provided with an offset to prevent a quick movement of the handle from one end of the slot to the other, and means permitting the handle to follow the slot if actuated in a gradual manner.

12. The combination with a controller of an actuating-handle mechanically connected thereto, and a slotted guide-plate in which the said handle is adapted to travel, whereby a bodily movement of the handle in a plane at an angle to its normal plane of movement is required, and a definite check interposed, at the desired point or points.

13. The combination with a controller of an actuating-handle mechanically connected thereto, and a slotted fixed guide-plate in which the said handle is adapted to travel, whereby a bodily movement of the handle in a plane at an angle to its normal plane of movement is required, and a definite check interposed, at the desired point or points.

14. In a controller, the combination of a slotted guide-plate having an offset in the slot, an oscillating handle arranged to work in said plate, and a spring-controlled means for closing the offset.

15. In a controller, the combination of a fixed guide-plate having a slot-section, with a second slot-section communicating with the first, and a third section out of line with the second section, but communicating therewith, but not with the first section, and a handle arranged to operate the controller and move in the slot-sections.

16. As an article of manufacture, the guide for a controller comprising a metal plate having a slot-section M^3, a slot-section M^4, and a slot-section M^5, the said slot-sections communicating with each other in the order named, substantially as described.

17. In a controller, the combination of a set of moving and a set of stationary contacts, an operating-handle for actuating said contacts whereby the movement of the handle will act to control electric-motor circuits, of a retarding device for preventing too-rapid operation of the controller, the same consisting of means for arresting the motion of the handle, and means whereby the actuation of the handle in a direction at an angle with its normal direction will allow it to be moved to cause the further operation of the controller in the direction in which it was proceeding before its motion was arrested.

18. In a controller, the combination of a set of moving contacts, a handle for moving the contacts arranged to move in two planes, means for normally restricting the movement of the handle to one plane of movement, a pivoted dog for opposing the handle in the second plane of movement, and a spring for actuating the dog.

19. In a controller, the combination of moving and stationary contacts, a circuit-breaker which under normal conditions is unaffected by the operation of the controller, or by the current flowing therethrough, and means for rendering the operation of the circuit-breaker dependent upon the action of the moving contacts.

20. The combination with a controller of a spring-actuated circuit-breaker in circuit therewith, mechanical means for opening said circuit-breaker at will, and means whereby the circuit-breaker is reset by the controller.

21. The combination with a controller of a circuit-breaker, mechan-

ical means for opening said circuit-breaker at will, and means whereby the circuit-breaker is reset by the controller in the off position.

22. In a controller, the combination of a circuit-breaker, an actuator for the breaker, a shaft, a cam carried thereby and arranged to control the action of the actuator of the circuit-breaker, and a pivoted latch for holding the actuator under the normal operation of the controller.

23. In a controller, the combination of an actuating-handle mounted upon a suitable support, a detachable handle having nothing to do with the normal operation of the controller, and means controlled by the detachable handle for rendering the controller inoperative.

24. In a circuit-breaker, the combination of a spring-pressed contact, a metal tube in which the contact is mounted, a head for the tube, and a curved metal strip which is secured to the tube at one end and to the contact at the other.

25. In a circuit-breaker, the combination of a pivoted lever, a contact carried thereby, a latch for holding the lever in its closed position, means for releasing the latch, and a spring which normally holds the latch in engagement with the lever and also opens the contact when the lever is released.

26. In a system of control for automobile vehicles, the combination of a controller arranged to control the propelling-motor over its range of speed, a mechanical brake, and means controlled by the brake which require that the controller shall be returned to the off position after each application of the brake before the vehicle can be started.

27. In a system of control for electrically-propelled vehicles, the combination of a controller arranged to couple the motor in any desired relation with the source of energy and to regulate it when so connected, a brake having an operating means separate from that of the controller, and means so arranged that it is necessary to return the controller to the off position either before or after each application of the brake, in order to place the controller in operative relation with respect to the propelling-motor and source of energy

28. A motor-controller arranged to connect the motor field and armature windings in series in a closed circuit when thrown to the off position, the connections being so made that the motor is prevented from running away under the influence of the backward force.

29. A controller for series motors arranged to short-circuit the motor field and armature windings, without reversing their relative connections, when thrown to the off position, whereby the motor is prevented from running away under the influence of a backward force.

30. The combination in an automobile vehicle, of a controlling device therefor and an additional part or handle, independent of the controlling device and having nothing to do with the normal control of the vehicle, adapted for ready removal, and means whereby the operation of said part renders the vehicle inoperative.

31. In a controller for electrically-propelled vehicles, the combination of a supply-circuit, contacts for controlling the vehicle during the forward movement, contacts for controlling the vehicle during the backward movement, a mechanical brake, and means entirely independent of the sets of contacts and controlled by the mechanical brake, for interrupting the supply-circuit irrespective of the position occupied by the sets of contacts.

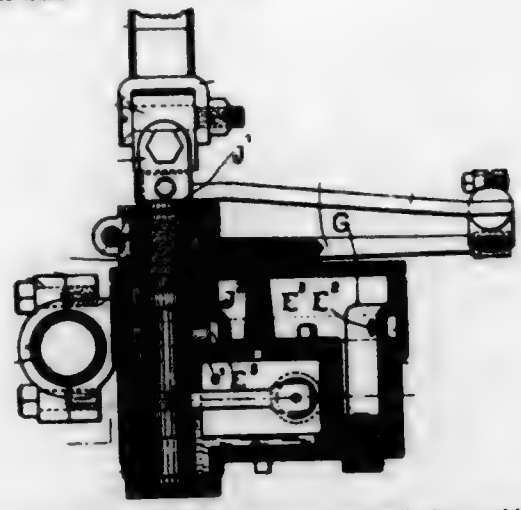
32. In a controller for an electrically-propelled vehicle, the combination of a motor, contacts for controlling a motor during the forward movement, a mechanical brake, means actuated by the mechanical brake and independent of the contacts for interrupting a circuit, and a second set of contacts arranged to include the motor in a brake-circuit after the mechanical brake has been started into operation.

33. In a controller for electrically-propelled vehicles, the combination of a motor, contacts for regulating the motor during the forward movement, a mechanical brake, means actuated by the mechanical brake for rendering the regulating-contacts inoperative, and a second set of contacts for including the motor in a brake-circuit, the second set of contacts being so arranged that they may be rendered operative while the first set is inoperative.

34. In an electrically-propelled vehicle, the combination of an electrically-operated mechanism, contacts for connecting the mechanism for power purposes, contacts for connecting the mechanism for braking purposes, a mechanical brake for said mechanism, and means whereby the actuation of the mechanical brake will render the power-circuits inoperative without affecting the brake connection.

692,871. MOTION-CHECKING DEVICE. HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed July 18, 1900. Renewed Nov. 1, 1901. Serial No. 80,823. (No model.)

Claim.—1. In an apparatus of the character described, the combination of an element having a cylindrical wall, a second element eccentrically mounted with respect to the first, the two elements being capable of movement with respect to each other, a body of normally quiescent fluid for checking the free movements of the parts, and means for controlling the fluid.



2. In an apparatus of the character described, the combination of a cylindrical casing, a piston eccentrically mounted within the casing which divides the same into chambers, a piece having a face concentric with the moving piston located within the casing, a body of normally quiescent fluid, and means for governing the passage of fluid from one chamber to another.

3. In combination, a fluid-containing cylindrical casing, a piston eccentrically mounted within the casing, a removable member fitting into the cylinder and provided with an extension which has a surface concentric with the center of motion of the piston, and valves for controlling the passage of fluid from one side of the piston to the other.

4. In a motion-checking device, the combination of a cylindrical casing, a non-concentrically mounted piston working therein, a removable member containing an auxiliary fluid-chamber mounted within the casing and provided with an extension having a surface which is concentric with the center of motion of the piston.

5. In a motion-checking device, the combination of a casing, a piston eccentrically mounted for movement therein, a removable member closely fitting the casing and containing a fluid-chamber, and a second fluid-chamber opening into the joint between the casing and the member for preventing the entrance of air.

6. In a motion-checking device, the combination of a cylindrical casing, a piston eccentrically mounted therein and provided with a hub, a removable member through which the hub of the piston extends, and an annular fluid-containing chamber which surrounds the hub and opens into the joint between the hub and said member for preventing the entrance of air into the space occupied by the piston.

7. In a motion-checking device, the combination of a cylinder, a piston having a hub mounted therein, the centers of the piston and cylinder being non-coincident, a removable member, an annular fluid-containing chamber opening into the joint between the cylinder and the member, and a second annular fluid-containing chamber which opens into the joint between the said member and the piston-hub.

8. In a motion-checking device, the combination of a cylinder, a piston having a hub mounted therein, a removable member, an annular fluid-containing chamber opening into the joint between the cylinder and the member, and a second annular fluid-containing chamber which opens into the joint between the said member and the piston-hub, the two annular chambers being eccentrically located with respect to each other.

9. In an apparatus of the character described, the combination of a cylindrical casing having a seat formed in one of its walls, a removable member which has a peripheral groove and is adapted to be seated on the shoulder of the casing, a piston eccentrically mounted within the casing, and a cover which rests on the removable member and is secured to the casing.

10. In a motion-checking device, the combination of a cylinder, means for closing the ends, a piston mounted within said cylinder, with its axis of movement disposed eccentrically with respect to the center of the cylinder, a body of fluid located on each side of the piston, valves for regulating the passing of fluid from one chamber to another, and a means located within the cylinder, which fills a certain amount of space between one of the walls and the end of the piston and has a surface which is concentric with the center of motion of the piston.

11. In combination, a cylinder, a piston having a hub, a grooved shaft extending through said hub and capable of a slight independent movement, and a fluid-containing chamber which communicates with the grooved portion of the shaft, the object being to prevent the entrance of air around the shaft.

12. In combination, a piston, bearings therefor, a cylinder containing a body of fluid, a removable member containing an auxiliary fluid-chamber, a fluid-chamber communicating with the piston-bearings, and a

second fluid-chamber communicating with the joint between said member and the cylinder, both of said chambers drawing their fluid from the auxiliary chamber.

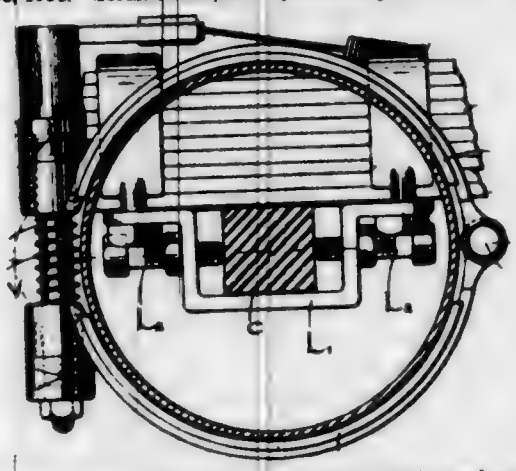
13. In a motion-checking device, the combination of two elements which are movable with respect to each other, an auxiliary fluid-containing chamber, and chambers opening into the joints between the two elements, which draw their fluid-supply from the auxiliary chamber.

14. As an article of manufacture, an element for a motion-checking device, comprising a body of metal having a cylindrical surface with an annular groove therein, an opening for receiving a piston-actuator, and a projection which has at least one curved surface that is eccentrically disposed with respect to the main body.

15. As an article of manufacture, a removable member for a checking device, comprising a substantially disk-like main body having an opening to receive the piston-actuator, and a projection which has one surface that is concentric and one surface that is non-concentric with the main body.

16. As an article of manufacture, a piston for a checking device comprising a substantially L-shaped structure having an extended upper hub through which the shaft passes with a lower hub that is arranged to be seated in a suitable bearing, and a chamber that is formed in the horizontal portion of the structure and communicates with the outside of the piston through two valve-openings.

692,872. VEHICLE-BRAKE. HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Original application filed Mar. 27, 1900, Serial No. 10,388. Divided and this application filed July 30, 1900. Serial No. 26,226. (No model.)



Claim.—1. In combination, a rotary cylindrical member forming a part of a brake mechanism, a second member arranged to engage with the first, a fixed support for the second member, a cam on said second member, a second cam arranged to engage with first, and means for actuating one of the cams.

2. In combination, a cylinder, a band arranged to make frictional engagement therewith, cams on opposite ends of the band and a rotary cam which is mounted on a shaft and is arranged to operatively engage with the cams on the band and move the latter into frictional engagement with the cylinder.

3. In combination, a revolving brake-cylinder, a strap arranged to make frictional engagement therewith, pieces having cam-surfaces secured to opposite ends of the strap, a shaft extending through said pieces and provided with two cams engaging with the cam-surfaces, and a spring which normally tends to separate the ends of the strap.

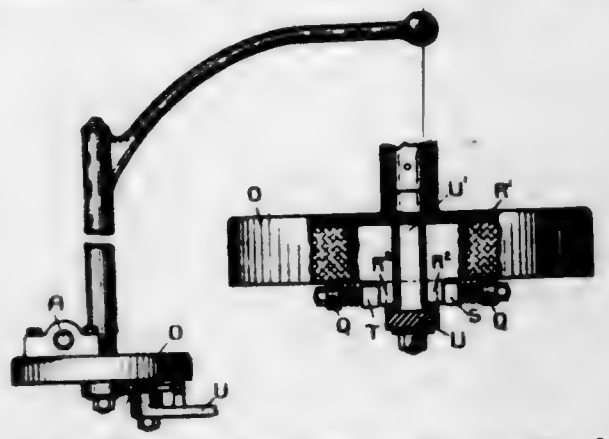
4. In combination, a cup-shaped brake member secured to the hub of a wheel, a band arranged for frictional engagement therewith, pieces on opposite ends of the band which are provided with cam-faces and slightly-tapered holes, a shaft extending through said holes, cams actuated by the shaft for forcing the strap against the cup-shaped brake member, and a means for rotating the shaft.

5. In combination, a wheel having an enlarged hub, a sprocket mounted on said hub, a bolt and friction-nut for retaining the sprocket in place, a cup-shaped brake member which is also mounted on the hub and is secured in place by said bolt and friction-nut.

6. In a vehicle, the combination of supporting-springs, a revolving element for a brake, a two-part strap mounted for engagement therewith, an extension on one part of the strap for supporting it, means for clamping the vehicle-springs and the extension, and means whereby the relative positions of the parts may be adjusted.

692,873. STEERING MECHANISM FOR VEHICLES. HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Original application filed Oct. 24, 1898, Serial No. 694,872. Divided and this application filed Aug. 14, 1900. Serial No. 27,259. (No model.)

Claim.—1. In a steering mechanism for vehicles, the combination of a stationary support, a steering-shaft mounted within the support, a steering-wheel, a steering-handle, a means for locking the support to the shaft, which is capable of expanding and contracting, means actuated by the shaft for contracting or releasing said means, and means actuated by the steering-wheel for expanding or locking said means, whereby the transmission of wheel strains to the operating-handle is prevented.



2. In a steering mechanism for vehicles, the combination of a stationary element having a cylindrical surface, a friction-ring located within the stationary element and arranged to be forced outward into engagement with the cylindrical surface and lock the steering-wheel, means for moving the wheel, and means for automatically moving the friction-ring out of engagement with the cylindrical surface as the steering-handle is moved.

3. In a steering mechanism for vehicles, the combination of a steering-handle having a lost-motion connection with the steering-wheel, a friction-clutch between the handle and the wheel, a connection extending from the wheel to the clutch, comprising a stationary cylindrical casing and an expansible and contractible ring mounted therein, and means actuated by the handle as it moves either way from a central position for releasing the clutch.

4. In a steering mechanism for vehicles, the combination of a double-axle suspension for the steering-wheels, pivoted rods connecting the axles, a fixed element having a friction-surface, an expansible and compressible movable member mounted within the fixed element and arranged to engage with the friction-surface, a steering-handle having a lost-motion connection with the steering-wheels, and means actuated during the time the lost motion is being taken up for positively moving the friction member out of engagement with the stationary element.

5. In a steering mechanism, the combination of a fixed support having a curved friction-surface on its inner wall, a split movable member mounted within the support and arranged to make frictional engagement therewith, and means for forcing the member outward into engagement with the surface, comprising a lever pivoted to the movable member between the center of movement and the curved friction-surface, which is provided with an actuator that enters between the split in the said member.

6. In a steering mechanism, the combination of a double-axle suspension, a rod connecting the axles, a cup-shaped casting and a split-ring clutch arranged to form a friction-clutch, the casting being secured to one element of the vehicle and the clutch to another, the two elements being movable with respect to each other, a lever connected to the rod and one element of the clutch, a steering-handle having a lost-motion connection with the steering-wheels, and means operated by the steering-handle for releasing the clutch before the handle operates to steer the vehicle.

In a steering mechanism for vehicles, the combination of a cup-shaped casting, clamps for securing the casting to a fixed part of the vehicle, a clutch having a split ring mounted within the casting and forming the moving member of a friction-clutch, a steering-handle, a fork carried by the handle and provided with means for gripping the split ring of the clutch on opposite sides of the split, and a lever which is pivoted to the clutch and is connected to the steering-wheels.

8. In a steering mechanism for vehicles, the combination of cup-shaped casting forming one element of a clutch, a split ring forming the second element of the clutch, an actuator carried by the steering-handle and arranged to release the split ring from the cup-shaped casting, a lever pivotally secured to the split ring and connected to the steering-wheels, and means carried by the lever for forcing the split ring into engagement with the cup-shaped casting.

9. In a steering mechanism for vehicles, the combination of an inverted-cup-shaped casting, clamps for securing the casting to a fixed part of the vehicle, a steering-shaft having a lost-motion connection with the wheels, a split ring loosely mounted on the shaft, a forked actuator rigidly secured to the shaft, spring-buffers between the arms of the fork and the bosses formed on the ring each side of the split, a lever pivotally secured to the hub of the ring and connected to the wheels, and an actuator car-

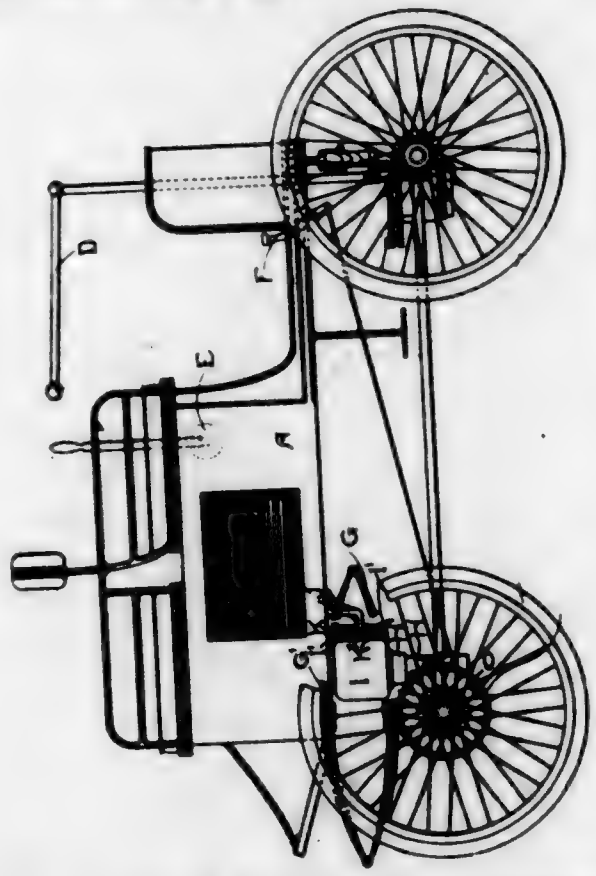
ried by the lever which extends between the split in the ring and forces it into engagement with the cup-shaped casting.

10. In a steering mechanism, the combination of a cylindrical support, a shaft extending through the support, a split ring sleeved on the shaft, a forked arm rigidly secured to the shaft and arranged to force the ends of the ring toward each other when moved by the shaft, a lever pivoted to the split ring and connected to the steering-wheel, and an actuator carried by the lever for expanding the ring.

11. In a steering-check for vehicles, the combination of a steering-wheel, a support, a shaft which extends through the support and is secured to the steering-wheel, an elastic friction device comprising a metal piece which is arranged to engage with a friction-surface on the support and act as a lock, means for forcing the piece into engagement with said surface and thereby prevent the transmission of wheel strains to the operating device, and means for releasing the piece when it is desired to change the position of the steering-wheel.

12. In a steering mechanism for vehicles, a pair of wheels mounted on independently-pivoted axles, a lock preventing turning of the wheels by power transmitted by said wheels, the said lock comprising a member capable of expansion and contraction and a non-expansible member, a steering-handle connected to the wheel-axles, and intermediate mechanical connections for releasing the lock and turning the vehicle to right or left by a simple handle movement in that direction.

692,874. ELECTRIC AUTOMOBILE. HERMANN LEMP, Lynn, Mass., assignor to General Electric Company, a Corporation of New York. Filed Nov. 2, 1900. Serial No. 35,253. (No model.)



Claim.—1. The combination of a vehicle, a driving-wheel, a source of energy, a motive-power agency, worm-gearing between the motive-power agency and a driving-wheel, a regulator for said motive-power agency, and means controlled by said regulator for connecting and disconnecting the worm-driving mechanism from the driving-wheel.

2. In a vehicle, the combination of a stationary axle, a driving-wheel sleeved thereon, a mass of magnetic material arranged to move with the wheel, an energizing magnet-coil mounted on the stationary axle, a magnetic keeper sleeved on the axle, means for rotating said keeper, a motor, and means for including the energizing-coil in circuit with the motor whenever it is receiving current.

3. In a vehicle, the combination of a stationary axle, a casing rigidly secured thereto, a driving mechanism inclosed in said casing, a motor supported by said casing, gearing between said motor and the driving mechanism located within the casing, and a flexible nose suspension for the motor.

4. In a vehicle, the combination of an axle, a driving-wheel mounted thereon, a casing rigidly mounted on the rear axle, an electromotor supported by said casing, gearing between the motor and the driving-wheel located within the casing, a vehicle-body, a supporting-spring between the vehicle-body and the axle, and a socket formed in said casing in which said spring is seated.

5. In a vehicle, the combination of an axle, a casing mounted on said axle, a vehicle-body, an elliptic spring between said vehicle-body and the casing, a socket carried by said casing and arranged to receive the under side of the spring, an electromotor having a vertically-extending armature-shaft mounted on said casing, and a bracket carried by the vehicle-body for supporting the nose end of the motor.

6. In a vehicle, the combination of a source of electric supply, a pair of motors for propelling the vehicle, a magnetic clutch between each motor and its driving-wheel, and a single controller for coupling the motor-coils in different relations for speed changes, and for maintaining the clutch-coils in fixed relation under all changes in motor combinations.

7. In a vehicle, the combination of a source of electric supply, a pair of motors for propelling the vehicle, a magnetic clutch between each motor and a driving wheel or wheels, a controller, contacts thereon for effecting various combinations of the motor-windings, and contacts also on said controller which are so arranged that whenever the motor-circuit is completed the circuit through the magnetic clutches is also completed and in the same direction.

8. The combination of a stationary axle, a casing rigidly mounted thereon, a motor mounted on the casing in such a manner that its armature-shaft extends at right angles to the plane of the axle, a vehicle-body, a supporting-spring between the axle and the body, a bracket secured to the body, and a flexible connection between the motor and the bracket.

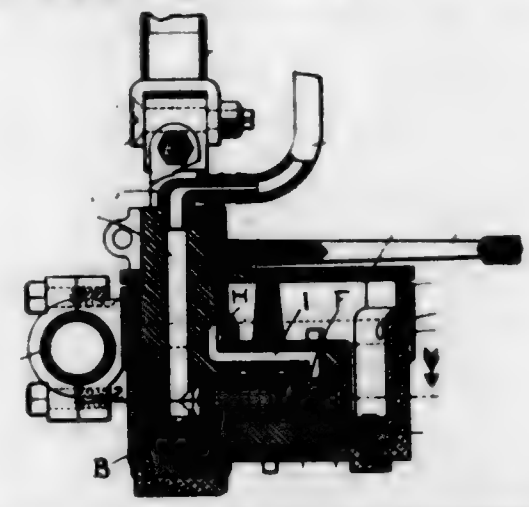
9. The combination of a driving-wheel, a shaft therefor, a source of energy, a motor having its driving-shaft located at right angles to the wheel-shaft, worm-gearing between the wheel and the motor, a rotating element concentrically mounted with respect to the axle and forming a support for one part of the worm-gearing, a second element secured to the driving-wheel, means for operatively connecting the two elements, and a regulating device for controlling the speed of the motor and throwing the two elements into and out of operative relation.

10. In an electric motor, a worm driven thereby, a worm-wheel meshing with the worm, a mass of magnetic material forming a support for the worm-wheel, a wheel driven by the motor, a mass of magnetic material moving with the wheel, an energizing-coil, and a single controller for changing the relation of the motor-coils to vary the speed of the motor and energizing the coil.

11. In combination, an axle, a support rigidly mounted thereon, an electric motor mounted on the support and having its driving-shaft mounted at right angles to the shaft, worm-gearing between the axle and the motor, and a clutch-coil which is included in the motor-circuit and is broken each time the supply of energy to the motor is interrupted.

12. In combination, an axle, an armature mounted thereon, a worm-wheel secured to the armature, a worm meshing with the wheel, a gear-casing which is rigidly secured to the axle and inclosing both the worm-wheel and the worm, a motor mounted on the casing and connected to the worm, and an elastic means for decreasing the tendency of the motor to revolve around the axle.

692,875. MOTION-CHECKING DEVICE. HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed Nov. 17, 1900. Serial No. 36,806. (No model.)



Claim.—1. In a motion-checking device, the combination of a moving and a stationary member, a hydraulic lock for holding the parts in fixed relation, a valve, and a fluid-actuated means for moving the valve.

2. In a motion-checking device, the combination of a moving and a stationary member, a hydraulic lock for holding the parts in fixed relation, and a bulb actuated by the movement of the hand for creating fluid-pressure to move the valve.

3. In a motion-checking device, the combination of a moving and a stationary member, a double-acting lock for securing the parts, and a valve actuated by fluid-pressure controlling the unlocking of the parts.

4. In a motion-checking device, the combination of a moving and a stationary member, a double-acting lock for securing the parts, a valve actuated by fluid-pressure arranged to unlock the parts, and a mechanical means for closing the valve and locking the parts.

5. In a motion-checking device, the combination of a casing, a piston mounted therein and arranged to divide the casing into two chambers, a body of fluid for each chamber, a valve actuated by fluid-pressure for controlling the transfer of fluid from one chamber to another, and means for supplying fluid-pressure to actuate the valve.

6. In a motion-checking device, the combination of a casing, a piston mounted therein and arranged to divide the casing into two chambers, a body of fluid for each chamber, a valve actuated by fluid-pressure for controlling the transfer of fluid from one chamber to another, and a manually-actuated means for creating a fluid-pressure to actuate the valve.

7. In a motion-checking device, the combination of elements movable with respect to each other, an actuator rigidly connected to one of the elements, a lock for securing the elements in fixed relation, a fluid-actuated means for controlling the lock, and manually-actuated means for creating the necessary fluid-pressure.

8. In a motion-checking device, the combination of two members movable with respect to each other, a double-acting lock between the members, a handle for moving the members with respect to each other, and a manually-actuated fluid-pressure-creating device for releasing the lock.

9. In a motion-checking device, the combination with two members movable with respect to each other, a double-acting lock between the members, a handle for moving the members with respect to each other, and a bulb which has to be compressed prior to the act of moving the members for causing a fluid-pressure to release the lock.

10. In a motion-checking device, the combination of two members movable with respect to each other, a lock for securing the parts against movement, and fluid-actuated means for controlling the lock.

11. In a motion-checking device, the combination of two members movable with respect to each other, a lock for securing the parts against movement, a valve controlling the lock, and a means for furnishing fluid under pressure for actuating the valve.

12. In a motion-checking device, the combination of two members movable with respect to each other, a lock for securing the parts against movement, a valve controlling the lock, a handle for moving the members with respect to each other, and an air-bulb held in a support on the handle for furnishing the necessary pressure to actuate the valve.

13. In a motion-checking device, the combination of a piston, a casing containing a chamber in which the piston is movable, a body of normally quiescent fluid filling the chamber each side of the piston, a pressure-actuated valve carried by the piston for controlling the transfer of fluid from one side of the piston to the other, and means external to the casing for creating a fluid-pressure and conveying it to the valve.

14. The combination of a casing, a piston dividing the same into two compartments and having a fluid-passage formed therein, a fluid-actuated valve mounted in a chamber in the piston, which chamber communicates with said passage, and external means for supplying fluid under pressure to the passage for actuating the valve.

15. The combination of a casing, a piston working therein, a cylindrical valve mounted in the piston, a coiled spring for pressing the valve in one direction, a removable plug for closing the end of the chamber containing the valve, a passage in the piston communicating with the valve-chamber, and means for conveying fluid under pressure to the passage for actuating the valve.

16. The combination of a casing, a piston, a valve working within the piston, a passage formed in the piston which extends outside of the casing, and means for supplying fluid under pressure to the passage for actuating the piston.

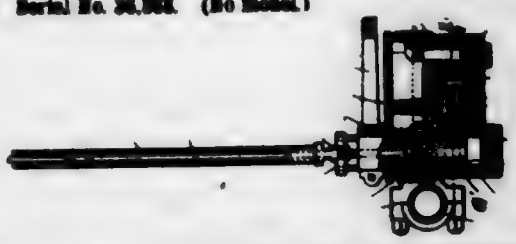
17. In a motion-checking device, the combination of a casing, a body of normally quiescent fluid therein, a piston, a piston-valve mounted in the piston and arranged to open and close a passage through the same, and a relief-passage into which a certain amount of fluid is forced as the valve is moved.

18. In a motion-checking device for vehicles, the combination of a steering-wheel, an axle, a casing and a piston movable with respect to each other and mechanically connected to the axle and wheel, a body of normally quiescent fluid which fills the casing, a valve for controlling the movement of the fluid within the casing, and a manually-controlled means for creating a fluid to actuate the valve.

19. In a motion-checking device, the combination of members movable with respect to each other, a lock therefor comprising a fluid body, a valve for controlling the transfer of the fluid, and a relief-passage into which fluid is forced by the movement of the valve.

20. In a motion-checking device, the combination of elements movable with respect to each other, a lock, fluid-pressure-actuated means controlling the lock, and manually-actuated means for creating the necessary fluid-pressure to operate the lock-controlling means.

692,876. MOTION-CHECKING DEVICE. HERMANN LEMP, Lynn, Mass., assignor to Hilma Thomsen, Swampscott, Mass. Filed Nov. 17, 1900. Serial No. 36,968. (No model.)



Claim.—1. In a motion-checking device, the combination of members movable with respect to each other, a body of normally quiescent fluid acting as a lock between the members, a positively-actuated valve for controlling the action of the fluid, a handle which is rigidly connected to one of the elements and imparts movement thereto, and a positive mechanical connection between the handle and the valve.

2. In a motion-checking device, the combination of members movable with respect to each other, a body of normally quiescent fluid acting as a lock between the members, a positively-actuated valve for controlling the action of the fluid, a handle which is rigidly connected to one of the elements and is positively connected to the valve and so arranged that when it is moved in one direction it actuates the valve and when moved in a different direction moves one of the members.

3. In a motion-checking device, the combination of members movable with respect to each other, a body of normally quiescent fluid acting as a lock between the members, a positively-actuated valve for controlling the action of the fluid, a swinging handle rigidly connected to one of the members and capable of moving in a horizontal as well as a vertical plane, and a mechanical connection between the valve and the handle which is operative during the movement of the handle in one plane but not in the other.

4. In a motion-checking device, the combination of members movable with respect to each other, a body of normally quiescent fluid acting as a lock between the members, a positively-actuated valve for controlling the action of the fluid, a swinging handle rigidly connected to one of the members and capable of moving in a horizontal as well as a vertical plane, and a jointed connection between the handle and the valve which is operative only when the handle is moved in the vertical plane.

5. In a motion-checking device, the combination of two members movable with respect to each other, a body of normally quiescent fluid acting as a lock between the members, a valve mounted in one of the members, a handle for moving the member carrying the valve, and a mechanical connection between the valve and the handle.

6. In a motion-checking device, the combination of two members movable with respect to each other, a valve carried by one of the members, a tube connected to and actuating one of the members, an operating-handle secured to the tube, and a valve-operating means which passes through the tube for controlling the valve.

7. As an article of manufacture, a motion-checking device, comprising two main members capable of movement with respect to each other, a positively-actuated valve carried by the movable member, a tube secured to the moving member, a valve-operating rod which passes through the tube, and actuating means for the movable member and the valve-rod.

8. In a motion-checking device, the combination of two elements movable with respect to each other, a valve carried by one of the elements, a tube rigidly connected to the valve-carrying element, an operating-handle secured to the tube, and a valve-operating rod which passes through the tube.

9. In a steering-check for vehicles, the combination of a member secured to a fixed part of the vehicle, a member moving with a steering-wheel, a device for locking the members together, a tubular actuator, a flexible connection between the actuator and the moving member, a means for actuating the lock, and a flexible connection between said means and the lock.

10. In a steering-check for vehicles, the combination of a stationary member, a moving member, a device for locking the members together, a tube, a jointed connection between the tube and one of the members, a means for controlling the action of the lock, a rod passing through the tube, and a jointed connection between the rod and the lock-controlling means.

11. In a steering-check for vehicles, the combination of a steering-wheel, a pair of members which are movable with respect to each other, a double-acting lock between the members, a steering-tube connected to the movable member, a means extending through the tube for actuating the lock, a handle secured to the tube for moving the steering-wheel, and a connection between the handle and the lock-actuating means which is inoperative in so far as the valve is concerned when the steering-wheel is being moved, but is operative when the handle is moved in a manner other than that required to steer.

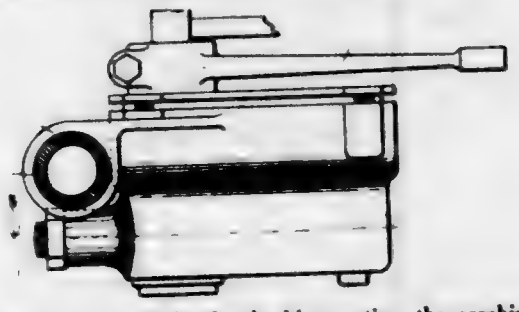
12. In a motion-checking device, the combination of a movable and

a stationary member, a lock for securing the members against relative motion, comprising a body of normally quiescent fluid, and a valve for controlling the lock, comprising a piston-like structure having a relief-passage through which a certain amount of the fluid is transferred when the valve is actuated, and other passages permitting the main body of fluid to circulate, and means for positively actuating the valve.

13. In a motion-checking device, the combination of a casing, a piston mounted therein, a valve-chamber formed in the piston, a piston-valve mounted therein, a relief-passage shunting and affording a relief for the piston-valve, and other passages for permitting fluid to pass from one side of the piston to the other, and a rod for positively actuating the valve.

14. In a motion-checking device, the combination of two members movable with respect to each other, a body of normally quiescent fluid forming a lock between the members, a positively-actuated valve, a rod for actuating the valve, a handle for moving the members and actuating the valve, a flexible connection between the handle and the rod, and a means for moving the handle in a direction to actuate the valve-rod as soon as the hand of the operator is removed from the handle.

692,877. STEERING-CHECK FOR AUTOMOBILES. HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed Jan. 17, 1901. Serial No. 43,600. (No model.)



Claim.—1. In a device for checking motion, the combination of a stationary element, a moving element, a body of normally quiescent fluid for holding the elements in any definite relation, a valve for regulating the relative movements of the parts, and a relief-passage which is always open for permitting a small amount of fluid to escape from the compression-chamber to decrease the shock or thrust between parts.

2. In a motion-checking device, the combination of elements movable with respect to each other, a body of normally quiescent fluid acting as a lock between the elements, a means controlling the action of the elements, and means for cushioning the effect of a thrust between the elements, which means operates each time a thrust takes place.

3. In a motion-checking device, the combination of a casing, a piston movable within the casing, a body of normally quiescent fluid located in chambers on each side of the piston, a valve for regulating the passage of fluid from one side of the piston to the other, and a by-pass around the piston which is never closed.

4. In a motion-checking device, the combination of a piston movable within the casing, a body of normally quiescent fluid located in chambers on each side of the piston, a valve for regulating the passage of fluid from one side of the piston to the other, a by-pass around the piston which is never closed, and means for adjusting the effect of the by-pass.

5. In a motion-checking device, the combination of a casing, a piston pivotally mounted therein and arranged to make a working fit, a by-pass formed in the casing which shunts the piston and is never closed, and means, adjusted from the outside of the casing, for varying the opening in the by-pass.

6. In a motion-checking device, the combination of two elements movable with respect to each other, a body of fluid forming a lock between the elements, and an air-chamber which is in communication with the fluid and so arranged that the thrust of one part on the other forces fluid into it and compresses the air therein.

7. In a motion-checking device, the combination of two elements movable with respect to each other, a lock for locking the elements together, and an air-compression chamber forming a part of the lock for decreasing the effect of the thrust when one element tends to move suddenly and independently of the other.

8. In a motion-checking device, the combination of a piston, a cylinder, a body of normally quiescent fluid on each side of the piston, a valve for controlling the transfer of fluid from one side of the piston to the other, and an air-chamber into which the fluid is forced when the piston and cylinder tend to move suddenly with respect to each other, which fluid compresses the air in the chamber.

9. In a motion-checking device, the combination of a piston, a cylinder, bodies of normally quiescent fluid on each side of the piston, a valve for controlling the transfer of fluid from one side of the piston to the other, and an air-chamber on each side of the piston, the chambers and pistons being so arranged that the fluid on the compression side of the piston will enter the chamber on that side and compress the air therein whenever the piston and cylinder tend to move suddenly with respect to each other.

10. In a motion-checking device, the combination of two elements movable with respect to each other, a body of normally quiescent fluid, an air-chamber, and a by-pass, the relation of the chamber and by-pass to the elements being such that when one element tends to move suddenly with respect to the other fluid circulates under pressure therein.

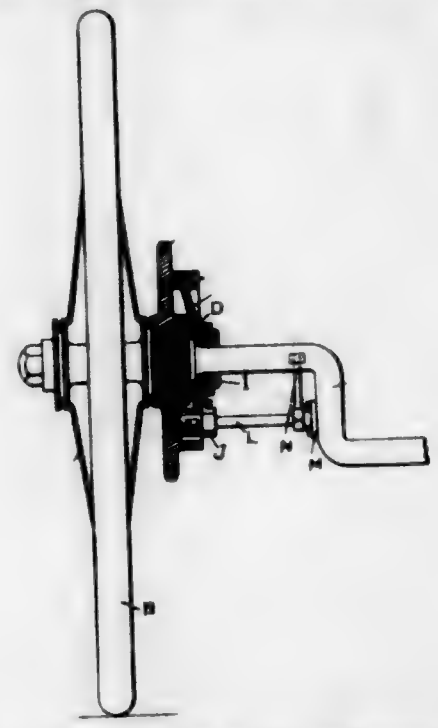
11. In a motion-checking device, the combination of a cylinder, a piston, air-chambers each consisting of a tubular structure with a restricted neck where it enters the cylinder, the two chambers being located on opposite sides of the piston, and a body of fluid located on each side of the piston and in constant communication with an air-chamber.

12. In a motion-checking device, the combination of two elements movable with respect to each other, a body of fluid forming a lock between them, an air-chamber arranged to receive fluid when the elements tend to move independent of each other, and means for admitting air to the chamber.

13. In a steering mechanism, the combination of a fixed support, a pair of short axles carried thereby on which the steering-wheels are mounted, connecting means between the axles, a steering-handle, a locking mechanism for preventing the transmission of wheel strains to the handle, and an air-cushion to take up a certain amount of the thrust when the wheels meet a road obstruction.

14. In a steering mechanism, the combination of a fixed support, a pair of short axles pivotally mounted thereon, connecting means between the axles, a double-acting lock, one element of which is connected to the wheel and another element to the support, means for operating the lock, a steering-handle, and a cushioning device between the two relatively movable parts of the lock for absorbing, to a certain extent, the thrusts due to road obstructions.

692,878. BRAKE FOR VEHICLES. HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Original application filed Feb. 28, 1900, Serial No. 6,805. Divided and this application filed Feb. 7, 1901. Serial No. 46,313. (No model.)



Claim.—1. In a brake for vehicles, the combination of a wheel having a flange, a split ring having a hub formed integral therewith which hub is secured to a fixed part of the vehicle-frame, one half of the split rim acting as a brake when the vehicle is running in one direction, and so set that the movement of the wheel tends to increase the friction, the other half being correspondingly set and acting when the wheel moves in the opposite direction, a common actuator for pressing the parts of the split ring against the flange which is operative in both the forward and backward movement of the vehicle, and a bearing for the actuator which is secured to the hub.

2. In a motion-arresting device the combination of the rotating element, a split ring arranged to engage with the element, a hub formed integral with the ring, projections secured to the ends of the ring adjacent to the split, and an actuator mounted between the projections and arranged to engage therewith when rotated.

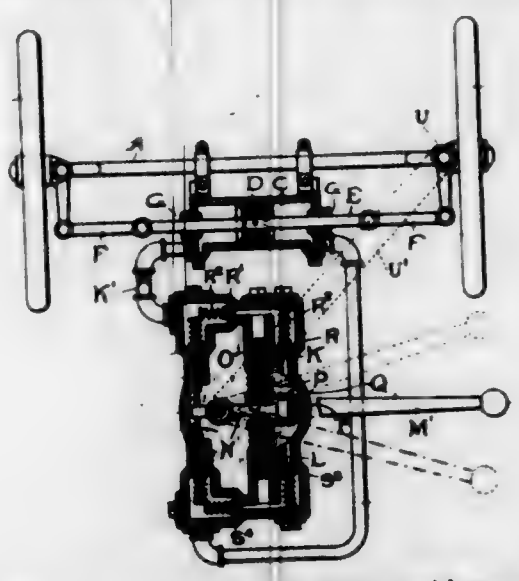
3. In a vehicle, the combination of an axle having an offset portion, a wheel-hub having an inwardly-extending flange, a split ring rigidly secured to the axle and fitting into the hub-flange, an actuator, a shaft there-

for, a bearing for the shaft secured to the split ring, and a second bearing for the shaft which is secured to the axle.

4. In a vehicle, the combination of an axle having an offset portion, a wheel-hub having an inwardly-extending flange, a split ring rigidly secured to the axle and fitting into the hub-flange, a friction-band between the pulley and the hub-flange, an actuator having two corresponding faces, which faces engage with adjacent ends of the split ring for expanding it, a shaft extending parallel with the axle and connected to the actuator, and a lever for rotating the shaft.

5. In a motion-arresting device, the combination of a wheel, a flange secured thereto, an axle, a split ring, a hub formed integral therewith, an actuator located between the ends of the split ring and arranged to engage with both of them when moved, a bearing for the actuator mounted on an extension of the hub, a second bearing therefor mounted on the axle, and a lever for moving the actuator.

692,879. STEERING MECHANISM FOR AUTOMOBILES. HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed June 23, 1901. Serial No. 66,227. (No model.)



Claim.—1. In combination two elements which are movable with respect to each other, a body of fluid, manually-actuated means for moving the elements with respect to each other through the medium of the fluid, and locking means which automatically locks the elements when one element tends to move with respect to the other due to an extraneous means, and this without regard to the position of the manually-actuating means.

2. In combination a vehicle body and axle movable with respect to each other, a wheel capable of moving independent of the body and axle, hydraulic motive devices mounted on the axle and vehicle-body, a body of fluid which has no potential energy for transmitting motion from one element to the other, and manual means for creating the necessary fluid-pressure when it is desired to move the wheel with respect to the axle.

3. In combination a pair of elements movable with respect to each other, a hydraulic motive device for each element for transmitting motion from one element to the other, fluid-transmitting means which connect opposite sides of the motive devices, a manually-actuated means for creating the necessary fluid-pressure, a valve for regulating the transfer of fluid which is opened by the said manually-actuated means, and means for closing the valve automatically.

4. In a device for causing synchronous movements, the combination of a pair of fluid-pressure motors, supports for the motors which are capable of independent movements, means for connecting the supports in a manner to permit one to move with respect to the other, a body of fluid, and manually-actuated means for imparting pressure to the fluid through one of the motors.

5. In a device for causing synchronous movements, the combination of a pair of fluid-pressure motors, supports for the motors which are capable of independent movements, means for uniting the supports, a body of fluid, and manually-actuated means for imparting pressure to the fluid through one of the motors, means for admitting to the second motor the fluid which is delivered by the first, and means for admitting to the first motor the exhaust from the second.

6. In a motion-transmitting device, the combination of a pair of cylinders, pistons of different areas for the cylinders, separate supports for the cylinders which are capable of independent movement, springs secured to and connecting the supports, a manually-actuated handle which is operatively connected to one of the pistons, pipes for conveying fluid from one motor to the other, and a valve controlled by the handle for controlling the fluid circulation.

7. In a steering mechanism, the combination of a fixed support, wheels carried thereby, a motor mounted on the support and operatively connected to the wheels, a vehicle-frame, a motor mounted thereon, a body of fluid, means for conveying fluid between the two motors, a steering-handle which is connected to one motor in such manner that pressure may be imparted to the fluid, and an automatically-operating valve which cuts off the transfer of fluid from one motor to another.

8. In a motion-transmitting device, the combination of two elements which are movable with respect to each other, means for uniting the parts in such manner that they can move with respect to each other, and fluid-pressure motors for the elements, one of said motors being provided with a single piston, while the other is provided with two pistons.

9. In combination, a pair of elements which are movable with respect to each other, a fluid-pressure motor which is provided with a single piston and is mounted on one element, and is connected to the other in a manner to move it, a third element, a second motor mounted thereon which is provided with two pistons, and means so arranged that when one of the pistons of the second motor is active the other is idle.

10. In combination a pair of elements which are movable with respect to each other, a motor for each element, and a manually-actuated handle for creating the necessary energy in one motor to drive the other, the handle being so arranged that movement one side of a given position causes the two elements to move in one direction with respect to each other, while movement of the handle on the opposite side of the given position causes movement of the elements in the opposite direction.

11. In combination, elements which are movable with respect to each other, a fluid-pressure motor for each of said elements, each motor comprising a piston and cylinder, means whereby a number of piston-strokes of one motor is required to give the maximum stroke to the piston of the other motor or motors, and a valve which is manually opened on each delivery-stroke of the piston, and closes automatically.

12. In combination, elements which are movable with respect to each other, a piston and cylinder for one of the elements, a pair of pistons and cylinders for another element, and an actuator which can be operatively connected to either of the last-mentioned pistons, and is arranged to actuate one piston for moving the elements in one direction from a given position, and to actuate the other piston for moving the elements in another direction.

13. In combination, elements which are movable with respect to each other, a fluid-motor for one of the elements, a fluid-motor for another element comprising a piston and cylinder, an actuator for the piston, and means for automatically returning the actuator and piston to their initial positions.

14. In combination, elements which are movable with respect to each other, a fluid-motor for one of the elements, a fluid-motor for another element comprising a pair of pistons and their respective cylinders, an actuator mounted in a manner to operate both of the pistons, and springs acting on the pistons and actuator to return them to their initial positions.

15. In combination, elements which are movable with respect to each other, a fluid-motor for each of the elements, a body of fluid for transmitting motion from one motor to the other, manually-actuating means for one of the motors, an automatic check-valve which controls the fluid delivered by one of the motors, and a manually-controlled valve which controls the exhaust of one of the motors, and closes each time pressure is removed from the motor-actuating means.

16. In a steering mechanism for vehicles, the combination of a motor comprising a piston and cylinder mounted on a fixed part of the frame, a connection from the motor to the steering-wheel, a second motor comprising a pair of pistons and cylinders which are mounted on the vehicle-frame, a manual actuator operating the pistons of the second motor, oppositely-acting valves which are controlled by the actuator, one of the valves remaining idle while the other is active, and automatic valves for controlling the transmission of fluid from one motor to the other.

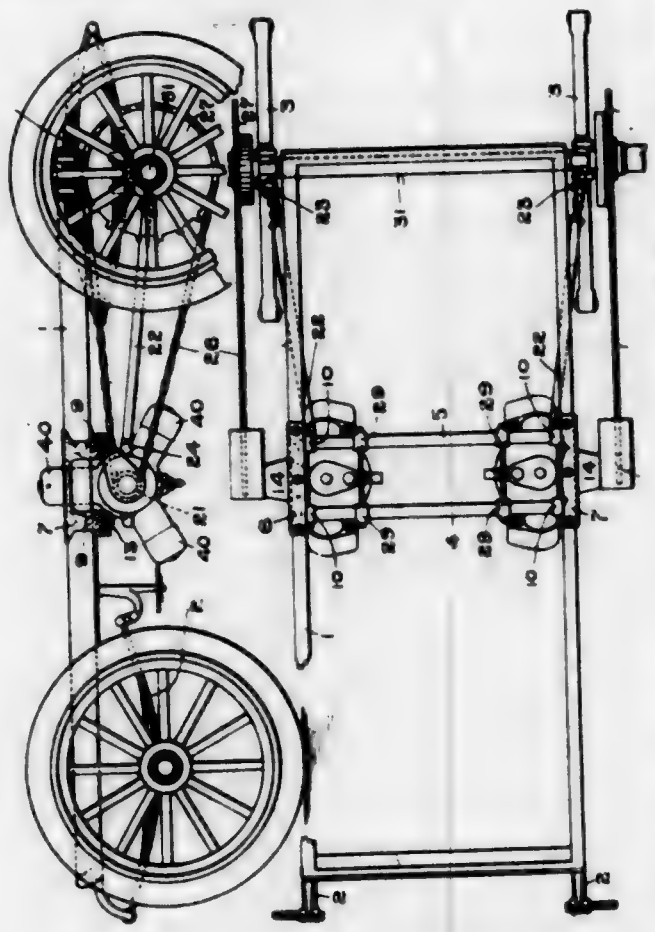
692,880. SUPPORT FOR MOTORS OF SELF-PROPELLED VEHICLES. HERMANN LEMP, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed Nov. 1, 1901. Serial No. 80,734. (No model.)

Claim.—1. In a vehicle, the combination of longitudinal bars, a transverse frame-bar, hangers for supporting the transverse bars from the longitudinal bars, a motor having a detachable head, a driving-wheel, gearing between the motor-shaft and the wheel, and means located between the gear and the body of the motor for adjustably supporting the motor on the transverse bar.

2. In a vehicle, the combination of a pair of longitudinal frame-bars, a pair of transversely-extending frame-bars, hangers for securing the longitudinal and transverse frame-bars together, a motor having a detachable head, supporting devices secured to the motor and arranged to engage with both of the transverse bars, a driving-wheel, and gearing between the motor and the wheels.

3. In a vehicle, the combination of a pair of longitudinal frame-bars,

a pair of transversely-extending frame-bars, a pair of hangers mounted on the longitudinal bars, each hanger having two sockets for receiving the transverse rods, a motor having a detachable head, means adjustably secured to the transverse frame-bars and to the motor-casing for supporting the motor, a driving-wheel, an axle therefor, chain-gearing between the engine and the wheel, and a connecting-rod between the engine and the axle for maintaining a given tension on the chain.



4. In a vehicle, the combination of longitudinal frame-bars, transverse frame-bars, an engine which extends between the transverse frame-bars, detachable supporting members for the engine which are rigidly secured thereto, and means whereby the members are adjustably secured to both of the transverse frame-bars.

5. In a vehicle, the combination of a frame, a pair of motors, a transversely-extending frame-bar forming a support common to the motors, means whereby each motor may be adjusted laterally independent of the other, an axle, springs between the axle and the frame, connecting-rods between the axle and each motor whereby the position of the axle with respect to a motor may be independently adjusted, wheels mounted on the axles for driving a common load, and gearing between the motors and the wheels.

6. In a vehicle, the combination of a frame composed of longitudinal and transverse bars, a motor having a detachable head, a supporting member for the motor comprising a ring having bosses through which the transverse bars extend, and means for securing the ring to the motor.

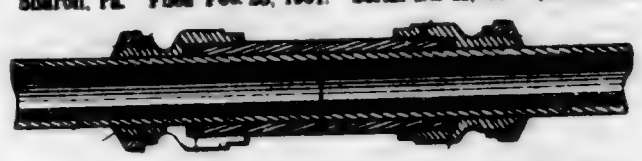
7. In a vehicle, the combination of a frame composed of longitudinal and transverse bars, a motor having a detachable head, a supporting-ring having bosses through which the transverse bars extend, means for securing the ring to the motor, and means for securing the head to the motor which also passes through the ring.

8. In a vehicle, the combination of a frame, a pair of transversely-extending frame-bars, a motor having detachable heads, one of said heads being provided with bosses through which the bars extend, a detachable ring also having bosses through which the frame-bars extend, and means for securing the ring to the motor.

9. In a vehicle, the combination of a frame, a pair of transversely-extending bars, a motor, a ring for supporting one end of the motor which is provided with a pair of bosses through which the bars extend, and a lug, a driving-wheel, an axle therefor, gearing between the driving-wheel and the motor, and a connecting-rod extending between the axle and the lug on the ring.

10. In a vehicle, the combination of transversely-extending frame-bars, a motor having a pair of detachable heads, a ring for supporting one end of the motor having a shouldered portion which closely fits the motor-casing, bosses formed on the ring through which the frame-bars extend, means for securing the ring to the casing, and means which pass through the head and the ring for securing the head to the casing.

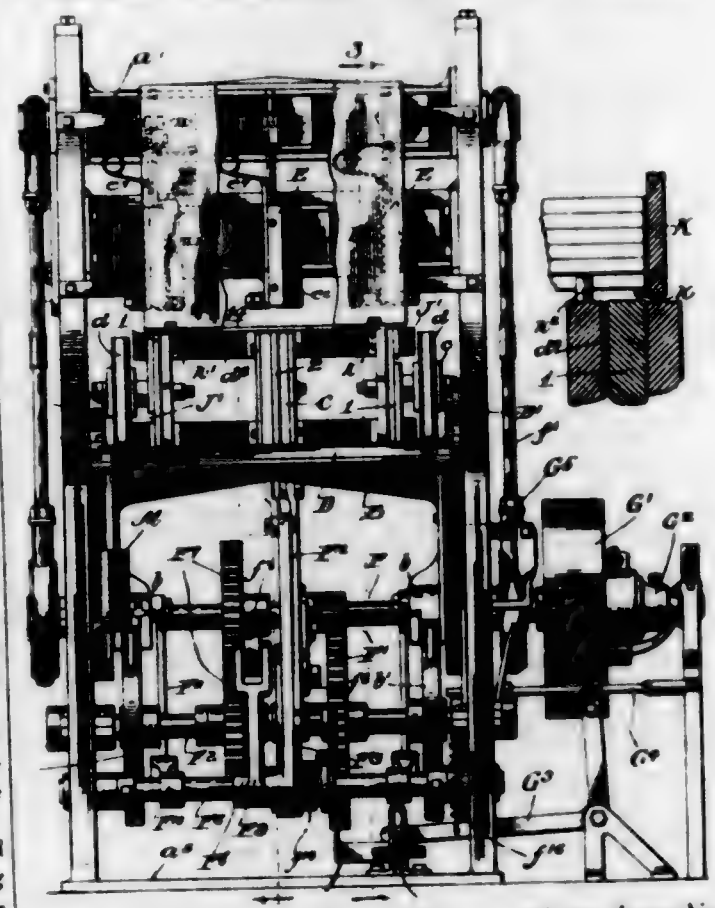
692,881. **PIPE-UNION.** ROBERT F. LINDSAY, Greenville, S. C., assignor to Samuel C. Koonce, Clarksville, Pa., and John S. Leslie, Sharon, Pa. Filed Feb. 25, 1901. Serial No. 48,786. (No model.)



Claim.—1. A detachable coupling or union for water-pipes, comprising a sleeve having a bore of a diameter approximately the same as that of the pipe ends which it is designed to embrace and having its end threaded externally, a gland having internal threads to engage the threaded end of said sleeve, said gland having an externally-threaded and longitudinally-slitted extension formed with a bore of a diameter approximately the same as that of said pipe ends, and a nut threaded upon said extension.

2. A detachable coupling or union for water-pipes, comprising a sleeve having a bore of a diameter approximately the same as that of the pipe ends which it is designed to embrace, and having its ends threaded externally, glands having internal threads to engage the threaded ends of said sleeve, said glands being formed to provide confined spaces outside the ends of the sleeve, packing in said spaces, extensions from said glands having bores of a diameter approximately the same as that of said pipe ends, said extensions being slitted longitudinally and having conical free ends, and nuts threaded upon said extensions and having beveled walls to engage said conical ends.

692,882. **BOX-STAPLING MACHINE.** PHILLIP F. LINDT, St. Joseph, Mich. Filed May 27, 1901. Serial No. 62,074. (No model.)



Claim.—1. In a machine for making crates or boxes, the combination of a rotatable form, bodily-shifting support upon which said form is mounted, said form and support being adapted to separate, so as to permit the form to rotate, mechanical devices or means for positively moving said support forward and back in both directions, and staple shaping and driving mechanism for securing the slats or side pieces of said crate or box to the crate-boards or end walls.

2. In a crate or box making machine, the combination of means for inserting fastening devices, a rotatable form for holding the work, a sliding support upon which said form is mounted, the support and form being adapted to separate to permit the form to rotate, a driving-shaft adapted to be rotated by power, and power-transmitting connections whereby the former is moved back and forth by the power communicated to the shaft.

3. A machine for making crates, comprising a rotary form adapted to hold the boards or transverse walls of the crates, a support having a shifting connection with said form, the said transverse walls or boards of the crate resting edgewise upon said support, and suitable devices for securing the slats to the edges of said crate-boards, said form and support

separating automatically for the purpose of permitting the form to turn or rotate, substantially as described.

4. A machine for making crates, comprising a shifting support upon which the crate-boards are supported or allowed to rest edgewise, a form for holding said crate-boards in position to receive the slats or side and bottom portions of the crate, suitable devices for fastenings for securing said slats to the edges of said crate-boards, and mechanism for causing relative shift on the part of the said form and support, and also relatively to the means which insert the fastenings into the slats and crate-boards, such relative shift being for the purpose of permitting the form to turn or rotate and thereby successively present its sides to the means or devices for applying the fastenings to the slats and edges of the crate-boards, substantially as described.

5. A machine for making crates, comprising a form for holding the crate-boards in their proper relative positions, means for driving or applying fastenings to the slats and edges of crate-boards, so as to secure said slats to the edges of said crate-boards, and mechanism for automatically shifting said form relatively to said means for applying fastenings, and also for automatically rotating the form, so as to automatically present the different sides of the form to the means or mechanism for applying the fastenings, the said form having an automatic and intermittent bodily shift relatively to the means which apply the fastenings, substantially as and for the purpose set forth.

6. A machine for making crates, comprising a rotatable form adapted to hold the crate-boards in their proper relative positions, a support having a shifting connection with said form, means for fastening the slats to the edges of the crate-boards, a cam for causing the form to have an automatic intermittent shift or feeding movement relatively to the means which apply the fastening devices to the slats and edges of the crate-boards, and suitable ways for engaging the form and causing the latter and the said support to automatically separate, said separation being for the purpose of allowing the form to rotate, substantially as described.

7. The combination of a former, means for feeding the wire into the path of said former, means for cutting off the wire, a loop-bar arranged in position to support the wire and cooperate with said former in bending and shaping the staple, a pair of pivoted dogs arranged in position to engage and bend the points or end portions of the staple, said dogs thereby centering and alining the staple-points before the staple is driven, and a driver, substantially as described.

8. In a stapling-machine, the combination of a former, means for feeding the wire into the path of said former, means for cutting off the wire in suitable lengths, the cutting device being of such character as to provide each length of wire with one-sided points, a loop-bar arranged to cooperate with said former in bending the wire into staples, a pair of pivoted dogs arranged in position to engage and bend the staple-points into the center, said dogs thereby centering and alining the staple-points before the staples are driven, and means for driving the staples, substantially as described.

9. In a machine for cutting wire and bending it into staples, the combination of a cutting device adapted to cut the wire into suitable lengths having one-sided points, means for bending said lengths of wire into staples, and a pair of deflectors arranged in position to engage and bend the staple-points into the center, said deflectors engaging each staple at opposite sides, so as to center and aline the points of each staple, substantially as described.

10. In a machine for cutting wire into suitable lengths, and bending said lengths into staples, the combination of a cutting device adapted to cut the wire into suitable lengths having one-sided points, means for bending said lengths into staples, and a pair of movable deflectors arranged in position to engage and bend the staple-points into the center, said deflectors engaging each staple at opposite sides, so as to center and aline the points of each staple, substantially as described.

11. In a stapling-machine, the combination of means for feeding the wire, means for cutting the wire into suitable lengths having one-sided points, a former and loop-bar arranged to cooperate in bending said lengths of wire into staples, a pair of oppositely-arranged pivoted dogs engaged by the lower end of said former to bend or deflect the points of said staples, and a driver for driving the staples, substantially as described.

12. In a stapling-machine, the combination of means for feeding the wire, a cutting device for cutting the wire into suitable lengths having one-sided points, a former and loop-bar cooperating to bend said lengths of wire into staples, a pair of oppositely-arranged swinging deflectors having their swinging end portions arranged in position to be engaged by the lower end of the former, the said end portions of the deflectors being depressed by said former and brought into position to engage and bend the points of the staple, and a driver for driving the staple, substantially as described.

13. In a stapling-machine, the combination of means for feeding the wire, a cutting device adapted to cut the wire into suitable lengths having one-sided points, a bifurcated former, a loop-bar arranged to cooperate with said former in bending said lengths of wire into staples, a pair of pivoted and spring-controlled dogs or fingers arranged in position to be depressed by the downward movement of said former, such movement on the part of said dogs or fingers operating to deflect or bend the staple-points into the center, and a driver for driving the staples, substantially as described.

14. In a stapling-machine, the combination of means for feeding the wire, a cutting device adapted and arranged to cut the wire into suitable lengths having one-sided points, a bifurcated former, a loop-bar adapted and arranged to cooperate with said former in shaping and bending the said lengths of wire into staples, a pair of oppositely-arranged pivoted dogs or fingers, springs for maintaining the said dogs or fingers in an elevated position, the ends of said dogs or fingers being in position to be engaged by the downward movement of the former, such movement causing the ends of the dogs or fingers to swing downwardly in a direction to engage and bend the points or end portions of the staples, the said dogs or fingers pointing in opposite directions, substantially as described.

15. In a machine for forming and driving staples, the combination of means for feeding the wire, means for shaping and driving the staples, a form for holding the work, said form being mounted for rotation about an axis transverse to the line of feed of said wire, and an automatically-shifting support for said form, the form and its shifting support separating automatically to permit the form to turn and rotate, substantially as described.

16. In a stapling-machine, the combination of mechanism for feeding the wire, means for shaping and driving the staples, a bodily-adjustable form for holding the work, said form being mounted for rotation about an axis transverse to the line of feed of said wire, an automatically shifting or sliding support for carrying the form, the form and its shifting or sliding support separating automatically to permit the form to turn or rotate, substantially as described.

17. A stapling-machine comprising suitable means for feeding the wire, mechanism for shaping and driving the staples, a rotatable form for holding the work, said form being bodily adjustable in a direction transverse to its axis of rotation, and a shifting or sliding support for carrying said rotary form, said form and its support separating to permit the form to turn or rotate, substantially as described.

18. A stapling-machine comprising means for feeding the wire, a series of devices for shaping and driving the staples, a form for holding the work, said form being rotatable about an axis extending parallel, or substantially parallel, with said series of staple forming and driving devices, and a support engaging said form and opposing the pressure of the devices which drive the staples, said rotary form and its support separating or shifting relatively to permit the form to turn or rotate, substantially as described.

19. A stapling-machine comprising means for feeding the wire, mechanism for bending and driving the staples, a rotatable form supported and arranged for bodily rise and fall, and suitable bearings arranged to support the form for rotation about a horizontal axis, substantially as described.

20. A stapling-machine, comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, and a rotatable form for holding the work, said form being supported and arranged for bodily rise and fall, and the axis of said form extending parallel with said row of said staple bending and driving devices, substantially as described.

21. A stapling-machine, comprising means for feeding the wire, mechanism for bending and driving the staples, a rotatable form for holding the work, and a support which sustains the weight of the form and work during the driving of the staples, said support automatically locking the form against rotation during the driving of the staples, and said form and support automatically separating in order to allow the form to turn or rotate, substantially as described.

22. A stapling-machine, comprising means for feeding the wire, a staple bending and driving mechanism, a rotatable form mounted in suitable bearings, and a support which engages the under side of the form and sustains the weight of the form and work during the operation of driving the staples, the said support also automatically locking the form against rotation during said operation, and means for causing the form and its support to automatically separate for the purpose of allowing the form to turn or rotate, substantially as described.

23. A stapling-machine, comprising means for feeding the wire, staple bending and driving mechanism, a bodily adjustable or movable support, and a form adapted to hold the work and rotatably mounted upon said shifting support, said support engaging the work and opposing the pressure of the devices which drive the staples, substantially as described.

24. A stapling-machine comprising means for feeding the wire, staple bending and driving mechanism, a horizontally shifting or sliding support, and a form adapted to hold the work and rotatably mounted upon said sliding or shifting support, the back-and-forth movement of the support carrying the form in a forward-and-back direction relatively to the staple bending and driving mechanism, said support engaging the work

and directly opposing the pressure of the devices which drive the staples, substantially as described.

25. A stapling-machine comprising means for feeding the wire, mechanism for bending and driving the staples, a rotatable form for holding the work, and a shifting support for said form, the support and form separating to permit the latter to turn, substantially as described.

26. In a stapling-machine, the combination of means for driving staples, a rotatable form, a shifting support for said form, the support and form being capable of separating or shifting relatively for the purpose of permitting the form to turn, and the said support engaging the work and thereby opposing the pressure of the devices which drive the staples, substantially as described.

27. A stapling-machine comprising means for feeding the wire, mechanism for shaping and driving the staples, a rotatable form for holding the work, a support for said form, the support and form being mounted for forward-and-back shift or adjustment, and the rotatable form and its support having a bodily intermittent shift or movement in a horizontal plane below the staple bending and driving mechanism, substantially as described.

28. A stapling-machine comprising means for feeding the wire, mechanism for bending and driving the staples, a rotatable form for holding the work, a support for supporting the form and work during the operation of driving the staples, said form being mounted for rotation about a horizontal axis, means for causing a relative shift on the part of the form and its support, so as to allow the same to separate and thereby permit the form to turn, the form having a bodily intermittent movement in a horizontal plane below said staple bending and driving mechanism, substantially as described.

29. A stapling-machine comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a rotatable form for holding the work, a support upon which said form is mounted and which sustains the weight of the form and work during the operation of driving the staples, the form being mounted for rotation upon an axis parallel with said row of staple bending and driving devices, the form and its support being mounted for bodily forward-and-back motion or adjustment in a direction transverse to said row of staple bending and driving devices, the form and its support separating for the purpose of allowing the form to turn, and the form and its support having an intermittent shift or feeding movement while advancing below said staple bending and driving devices, substantially as described.

30. A stapling-machine comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a form adapted to hold the work and mounted for rotation about an axis parallel with said row of staple bending and driving devices, a support automatically engaging the under side of the form and sustaining the weight of the form and work during the operation of driving the staples, the form and its support automatically separating in order to allow the form to turn or rotate, and means for causing the bodily forward-and-back movement on the part of said form and its support, and a cam for causing a bodily intermittent shift or feeding movement on the part of said form while advancing below said staple bending and driving devices, substantially as described.

31. In a stapling-machine, the combination of mechanism for shaping and driving the staples, a form for holding the work, a support for said form, the support and form and mechanism for shaping and driving the staples being capable of relative separation, so as to permit the form to turn the work, substantially as described.

32. A stapling-machine comprising means for feeding the wire, means for bending and driving the staples, a rotatable form for holding the work, a support for said form and a cam for causing the support and form to separate, so as to allow the form to turn or rotate, substantially as described.

33. A stapling-machine comprising means for feeding the wire, mechanism for bending and driving the staples, a rotatable form adapted to hold the work, and a cam for causing the form to move back and forth below the said staple bending and driving mechanism, said cam causing an intermittent shift or feeding movement on the part of the form while advancing below said mechanism, and a cam releasing the form and allowing it to have free or independent back movement, substantially as described.

34. A stapling-machine comprising means for feeding the wire, a plurality of staple bending and driving devices, arranged in a row, a form adapted to hold the work and mounted for rotation about a horizontal axis extending parallel with said row of staple bending and driving devices, a support which automatically engages the under side of the form and thereby sustains the weight of the form and work during the operation of driving the staples, the form and its support being mounted for bodily forward-and-back movement in suitable guideways, such forward-and-back movement being in a direction transverse to said row of staple bending and driving devices, a power-shaft, a cam for communicating forward-and-back motion from said power-shaft to said form, said cam being shaped to cause an intermittent shift or feeding movement on the part of said form while advancing below said staple bending and driving devices, and means for controlling the rotation of said cam, substantially as described.

35. A stapling-machine, comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, or substantially in a row, a form adapted to hold the work and mounted for rotation about a horizontal axis extending parallel, or substantially parallel, with said row of stapling devices, a support automatically engaging said form and thereby sustaining the weight of the form and work during the operation of driving the staples, a power-shaft, a cam for communicating motion to said form and support, the movement of said form and support being in a direction transverse to the axis of said form and to the said row of stapling devices, means for controlling the rotation of said cam, the cam being shaped to cause an intermittent shift or feeding movement on the part of the form while advancing below the said stapling devices, and the said cam being adapted to permit a quick release or back movement on the part of the form and its support, substantially as described.

36. A stapling-machine comprising means for feeding the wire, mechanism for bending and shaping the staples, a form adapted to hold the work, a power-shaft, a cam and lever for communicating motion from said shaft to said form, the cam being adapted to cause an intermittent shift or feeding movement on the part of said form while advancing below said staple bending and driving mechanism, and means for controlling the rotation of said cam, substantially as described.

37. A stapling-machine comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a suitable framework or body constructed with guideways, a support arranged for forward-and-back or sliding movement in said guideways, a rotatable form mounted on said support and adapted to hold the work, said guideways being in position to cause the form and its support to move back and forth below said stapling devices, the support automatically engaging the under side of the form to sustain the weight of the form and work during the operation of driving the staples, the form and its support automatically separating after the driving of the staples in order to allow the form to turn or rotate, the forward-and-back movement of the form being in a direction transverse to its axis and to the said row of stapling devices, a power-shaft, a power-transmitting connection between said shaft and said support adapted to cause the latter and the form to move back and forth below said stapling devices, the form having an intermittent shift or feeding movement while advancing below the staple bending and driving devices, and said power-transmitting connection permitting the form and its support to have a free and independent back-and forth movement or return to its inoperative position, and a clutch and foot-treadle for controlling the transmission of power and movement from said shaft to said support, substantially as described.

38. A stapling-machine comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a rotatable form adapted to hold the work, means for shifting the form, so as to cause it to move back and forth below said staple bending and driving devices, a shiftable support upon which said form is mounted, the form and its support automatically engaging each other during the operation of driving the staples, so as to prevent the form from turning, and the form and its support automatically separating upon the return of the form to its inoperative position, so as to allow the form to turn or rotate, a power-shaft, and means for communicating power and motion from said shaft to said support, substantially as described.

39. A stapling-machine comprising means for feeding the wire, mechanism for bending and driving the staples, a form adapted to hold the work and mounted for rotation, said form being also mounted for bodily forward-and-back movement below said stapling devices, a cam for causing a bodily forward shift on the part of said form, said cam releasing the form and permitting it to have a free or independent back movement to its original or inoperative position, and means for retarding the back movement or return of said form, substantially as described.

40. A stapling-machine comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a form arranged for bodily forward-and-back movement below and in a direction transverse to said row of stapling devices, said form being rotatable about an axis parallel, or substantially parallel, with said row of staple bending and driving devices, and mechanism for automatically rotating or turning the form about its axis during its return movement, substantially as described.

41. A stapling-machine comprising mechanism for forming and driving the staples, a form for holding the work, said form being supported for rotation about a horizontal axis, means for causing said form to shift and move in a direction at right angles to this axis, and devices for gripping and removing the finished work or product from the said form, substantially as described.

42. In a stapling-machine comprising mechanism for bending and driving the staples, a bodily-shifting form for holding the work, means for

causing the form to have a bodily back-and-forth or reciprocating movement, and devices for gripping and removing the finished work or product from the said form, said devices engaging the work or finished product when the form moves forward for the last time, substantially as described.

43. A stapling-machine comprising means for feeding the wire, mechanism for bending and driving the staples, a rotatable bodily-shifting form for holding the work, a driven member and power-transmitting connections for causing the said form to have a bodily back-and-forth or reciprocating movement, and devices for engaging and removing the finished work or product from the said form, said devices engaging the finished work or product when the form moves forward for the last time, substantially as described.

44. In a stapling-machine comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a form adapted to hold the work and arranged for bodily shift in a direction transverse, or substantially transverse, to said row of staple bending and driving devices, and a pair of grappling-hooks or arms arranged to automatically engage and remove the finished work or product from the said form, substantially as described.

45. A stapling-machine comprising a suitable frame or body, means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a rotary form adapted to hold the work and arranged for forward-and-back movement below said staple bending and driving devices, a pair of oppositely-arranged arms or grappling-hooks arranged to engage and automatically remove the finished work or product from the said form, and means for causing a forward-and-back movement of said form, substantially as described.

46. A stapling-machine comprising a suitable frame or body, means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a rotatable form adapted to hold the work and arranged for bodily forward-and-back movement below said staple bending and driving devices, each end of said form being provided with a slot, a pair of swinging arms or grappling-hooks mounted upon said frame or body and arranged in position to engage and automatically remove the finished work or product from the said form, the end portions of said arms or hooks being adapted to enter said slot in the end of said form, substantially as set forth.

47. A stapling-machine comprising means for feeding the wire, means for bending and driving the staples, a form for holding the work, mechanism for causing a bodily forward-and-back movement on the part of said form, a holder for supporting certain portions of the stock or material in position to be engaged and removed therefrom by the form during its forward movement, dogs or fingers moving with said form and adapted to engage and remove the stock from said holder, the stock or material supported by said holder automatically feeding downward to permit each forward movement of the form to remove the desired amount or quantity of said material and carry it forward into position to be operated upon by said staple bending and driving mechanism, substantially as described.

48. A stapling-machine comprising a suitable frame or body, a horizontal bar mounted for up-and-down movement, a plurality of staple formers and drivers carried by said bar, a rotatable form for holding the work, said form being arranged for bodily forward-and-back movement below and in a direction transverse to said bar, means for feeding the wire, means for causing an up-and-down movement on the part of said bar, said form being rotatable about an axis substantially parallel with said bar, substantially as described.

49. A stapling-machine comprising a suitable frame or body, a horizontal bar mounted for up-and-down movement in suitable guideways formed in said frame or body, a plurality of staple formers and drivers arranged in a row or line and carried by said bar, a rotary form arranged for bodily forward-and-back movement in a plane below and in a direction substantially parallel with said vertically-movable bar, a bodily-shifting support for said form, said form being rotatable about an axis extending parallel with said bar, and the direction in which the form shifts or moves bodily being at right angles to the axis about which it rotates, and a cam for causing a bodily forward-and-back movement on the part of said form below said row of staple formers and drivers, substantially as described.

50. A stapling-machine comprising means for feeding the wire, mechanism for bending and driving the staples, a rotary form for holding the work, said form being arranged for bodily forward-and-back movement below said staple bending and driving mechanism, the direction in which the form moves or shifts being at right angles to its axis, a cam for causing the form to move forward below said staple bending and driving mechanism, said cam releasing the said form at the end of the latter's forward movement, and a weight for drawing the form back to its original or inoperative position, substantially as described.

51. A machine for making crates comprising means for feeding the wire, a plurality of staple bending and driving devices, a form for holding the work, said form being adapted to receive the end and intermediate walls of said crate and hold the same in position to receive the slats or side portions of said crate, a support which automatically engages the under side of said form and thereby sustains the weight of the form and work during the operation of driving the staples, means for causing the form and its support to shift back and forth below the said staple bending and driving devices, and means for causing the form and its support to separate in order to allow the form to turn or rotate, substantially as described.

52. A machine for making crates, comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a form for holding the work and mounted for forward-and-back movement in a direction transverse to said row of staple bending and driving devices, the number of said staple bending and driving devices corresponding to the number of end and intermediate walls or boards of said crate, and the said form being provided with means for holding each of said walls or boards in line with its allotted staple bending and driving devices, said form being rotatable upon an axis extending parallel, or substantially parallel, with said row of staple bending and driving devices, and means for moving the said form back and forth below said staple bending and driving devices, the form having an intermittent shifting movement while advancing below said staple bending and driving devices, substantially as described.

53. A machine for stapling crates, comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, a rotatable form, a support for said form, the form being rotatable upon an axis parallel, or substantially parallel, with said row of said staple bending and driving devices, the support for said form being shiftable in a direction transverse to the axis of said form, the number of said staple bending and driving devices corresponding to the number of transverse boards or walls of said crate, the said form being provided with means for holding each of said transverse walls or boards in line with its allotted staple bending and driving device, the said support sustaining the weight of the form and work during the operation of driving the staples, thereby preventing rotation of the form during such operation, and the said form and its support automatically separating to allow the form to turn or rotate, means for causing a forward-and-back movement on the part of said form, the latter having an intermittent movement while advancing below the said staple bending and driving devices, substantially as described.

54. A machine for making crates comprising means for feeding the wire, a plurality of staple bending and driving devices arranged in a row, the number of said staple bending and driving devices corresponding to the number of transverse walls or boards of said crate, a form for holding the work and adapted to hold each transverse wall or board of the crate in line with its allotted staple bending and driving device, the form being arranged for forward-and-back movement in a direction transverse to its axis, so as to carry the said crate-boards into position to receive the staples from the said staple bending and driving devices, means for rotating the form, so as to successively present the different edges of the said crate-boards to said stapling devices, and a cam suitably arranged and connected for causing the said forward-and-back movement of the form, the cam being so shaped as to cause the form to have an intermittent shift or feeding movement while advancing below said staple bending and driving devices, thereby giving the staple bending and driving devices time to operate properly, and means for controlling the rotation of said cam, substantially as described.

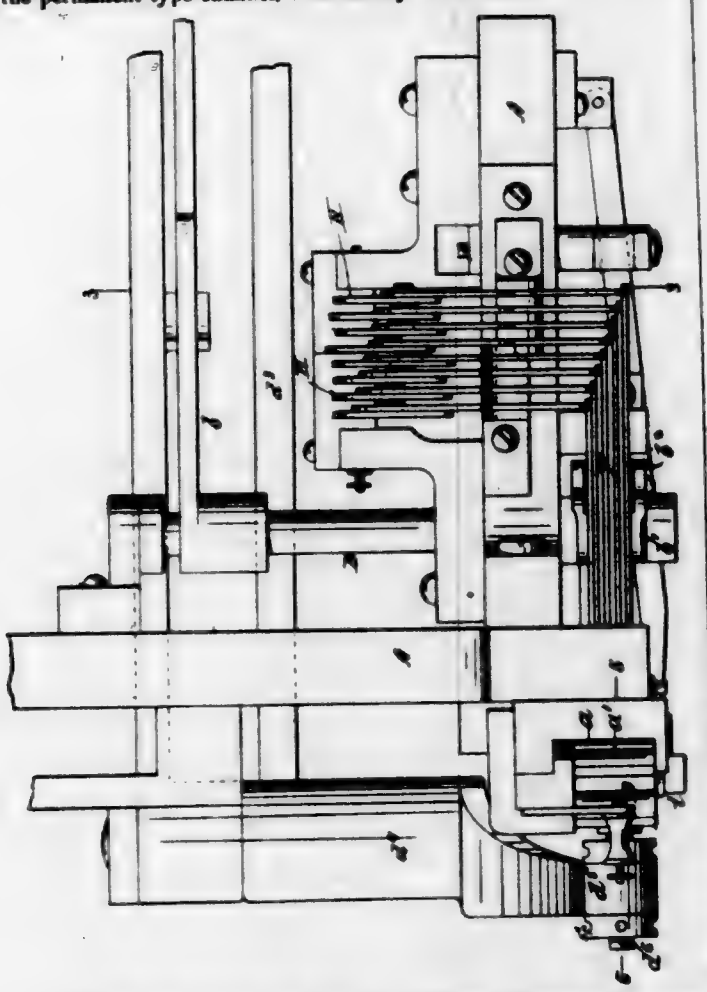
55. A stapling-machine comprising means for feeding the wire, means for shaping and driving the staples, a form for holding the crate-boards, and a cam for causing a bodily intermittent movement of said form in a direction parallel, or substantially parallel, with the line or direction of feed of said wire, the said staple shaping and driving means being adapted to receive the wire thus fed, and the said staple shaping and driving means inserting the staples lengthwise in the edges of the crate-boards, substantially as described.

56. A stapling-machine comprising means for feeding the wire, means for shaping and driving the staples, a form for holding the crate-boards, said form being bodily adjustable and also rotatable upon an axis extending at right angles, or substantially at right angles, with the line of feed of said wire, whereby the said staple shaping and driving means are enabled to insert the staples lengthwise in the edges of the crate-boards, and a ratchet device for causing intermittent rotation of said form, substantially as described.

692,888. TYPE-DISTRIBUTING APPARATUS. ABBOT A. LOW and JAMES BERAKEY, Brooklyn, N. Y., assignors to Alden Type Machine Company, New York, N. Y. Filed Apr. 12, 1900. Serial No. 12,589. (No model.)

Claim.—1. In a type-distributing apparatus of the kind designated, a vertical type-channel for containing undistributed type in a horizontal position, and a series of horizontally-arranged nick-feeling levers combined with suitable mechanism for setting the signal-levers, substantially as herein set forth.

2. In type-distributing apparatus of the kind designated a permanent vertical type channel formed with a type-supporting shoulder, type-feeling mechanism, signal-setting mechanism controlled by said type-feeling mechanism and a transfer-channel adapted to form a continuation of the permanent type-channel, substantially as set forth.

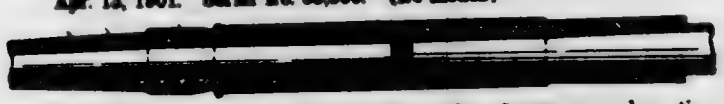


3. In a type-distributing apparatus of the kind designated, the combination of the permanent vertical channel a', a series of horizontal type-feeling levers F, the intermediate levers G, H, and the signal-setting mechanism controlled thereby, substantially in the manner and for the purpose described.

4. In type-distributing apparatus substantially of the kind designated, the combination with a vertical type-channel, and with a series of horizontal feeler-levers of a rock-lever arranged to throw said feeler-levers out of contact with the type, substantially in the manner and for the purpose described.

5. In type-distributing apparatus substantially of the kind designated the combination with a permanent vertical type-channel a', having the type-shoulder a^3, and with the series of feeler-levers F, the rock-lever arm b', provided with a contact-roller b^2, for throwing the said feeler-levers out of contact with the type, substantially as set forth.

692,884. FISHING-ROD. BAXTER LYON, Providence, R. I. Filed Apr. 13, 1901. Serial No. 55,508. (No model.)



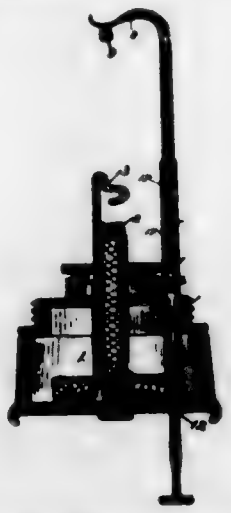
Claim.—A fishing-rod made up of a series of sections each section comprising a metallic tube and a coating of rubber completely incasing the tube and closing the ends thereof, whereby the access of moisture to the interior as well as the exterior of the tube is prevented, substantially as described.

692,885. GAS-DETECTING ATTACHMENT FOR MINERS' SAFETY-LAMPS. MATTHEW D. MACKIE, Scranton, Pa. Filed July 12, 1901. Serial No. 67,998. (No model.)

Claim.—1. The herein-described gas-detector for miners' safety-lamps comprised in a sheath extending through the bowl of the lamp, a sliding rod passed therethrough and surmounted by a hook to which is suspended a substance sensitive to burning gases, the said substance being suspended directly over the flame of the lamp, and shiftable toward and from the said flame substantially as and for the purpose specified.

2. A gas-detector for miners' lamps comprised in a sliding support in the vicinity of the flame of the lamp, a sensitive substance held by said support directly over the flame of the lamp, and means for shifting the said substance toward and from the flame, substantially as specified.

3. A gas-detector for miners' safety-lamps comprised in a suitable support for a sensitive substance directly over the flame of the lamp, and means for shifting said substance toward and from the flame, substantially as specified.



4. A gas-detector for miners' safety-lamps of the kind described consisting of a slidable support in the vicinity of the flame of the lamp, a portion of platinum wire suspended from said support directly over the flame, and means for sliding the support upward and downward so as to shift the platinum wire toward and from the flame, substantially as specified.

5. The herein-described gas-detector comprised in a sheath extending through the bowl of the lamp, a sliding support fitted therein, said support supporting a portion of platinum wire directly over the flame and shiftable upward and downward by sliding the support through the sheath aforesaid, substantially as specified.

6. The herein-described gas-detector for miners' safety-lamps comprised in a sheath extending through the bowl of the lamp, a sliding support fitted therein, said support supporting a portion of platinum wire directly over the flame, the lower portion of said sheath provided with an internal screw-thread, a screw-threaded member fitted therein and adapted to drive the support upward and downward, substantially as and for the purpose specified.

7. In combination with a miner's safety-lamp, a gas-detector comprised in a sheath or tube extending vertically through the bowl of the lamp, a sliding rod extending through said sheath and slidable therein, the said sliding rod supporting a loop of platinum wire or other substance having an affinity for burning marsh-gas, the said substance being supported directly over the flame of the lamp and shiftable upward and downward, together with a graduated scale for indicating the various percentages of gas according to the effect of the flame on the substance aforesaid, substantially as specified.

692,886. GRINDING OR CRUSHING HEAD. VOLNEY W. MASON, Jr., New York, N. Y. Filed Apr. 29, 1901. Serial No. 57,389. (No model.)

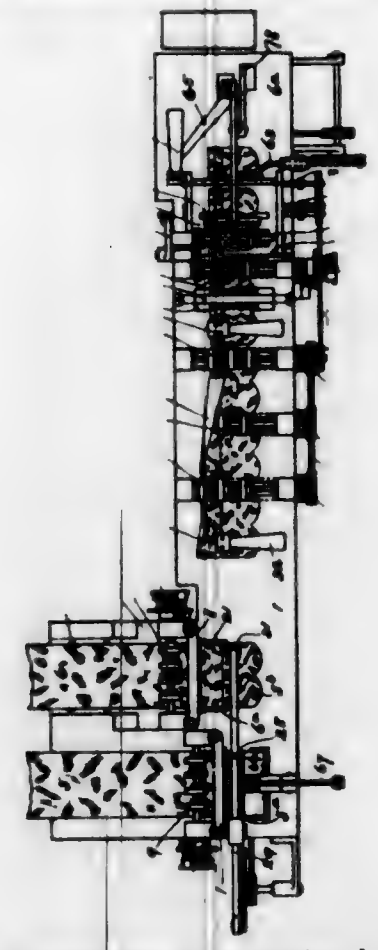


Claim.—A grinding or crushing head, comprising a core having sockets, segments adapted to be placed thereon having ears or projections which enter said sockets, and bolts passing longitudinally through the core which traverse said sockets and pass through said ears or projections and thereby secure the segments to the core, substantially as described.

692,887. POUCH-MAKING MACHINE. CLARENCE MILLINER and CHARLES L. A. DOUPE, Richmond, Va., assignors to the Milliner Manufacturing Company, Richmond, Va. Filed Dec. 6, 1899. Serial No. 739,599. (No model.)

Claim.—1. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

2. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding compound section, and mechanism for sewing two adjacent open edges of the doubled compound sections.



3. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to fold the free edge of one of the outer sections onto the adjoining section, mechanism to secure the said free edge to the adjoining section, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

4. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to fold the free edge of one of the outer sections onto the adjoining section, mechanism to secure the said free edge to the adjoining section, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

5. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to turn the free edge of one of the outer sections and to fold the turned free edge of the said outer section onto the adjoining section, mechanism to secure the said turned free edge to the adjoining section, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

6. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to turn the free edge of one of the outer sections and to fold the turned free edge of the said outer section onto the adjoining section, mechanism to secure the said turned free edge to the adjoining section, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

7. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to fold the free edge of one of the outer sections onto the adjoining section, mechanism to secure the said free edge to the adjoining section, mechanism for sewing a hem in the fold of the said outer section, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

8. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to fold the free edge of one of the outer sections onto the adjoining section, mechanism to secure the said free edge to the adjoining section, mechanism for sewing a hem in the fold of the said outer section, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

9. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to turn the free edge of one of the outer sections and to fold the turned free edge of the said outer section onto the adjoining section, mechanism to secure the said turned free edge to the adjoining section, mechanism for sewing a hem in the fold of the said outer section, mechanism for clipping the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

10. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent sections of fabric, the said sections being sufficient when united for the formation of one pouch, mechanism to turn the free edge of one of the outer sections and to fold the turned free edge of the said outer section onto the adjoining section, mechanism to secure the said turned free edge to the adjoining section, mechanism for sewing a hem in the fold of the said outer section, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, mechanism for clipping the doubled compound section from the next succeeding section, and mechanism for sewing two adjacent open edges of the doubled compound sections.

11. In a pouch-machine, the combination of mechanism for severing portions of fabric from two or more independent continuous strips of fabric means for bringing the severed portions of fabric together so that an edge of each portion of fabric laps an edge of the adjacent portion or portions, sewing mechanism to sew together the lapped edges of the portions of fabric, clipping mechanism to separate the foremost compound section of fabric from the succeeding one, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

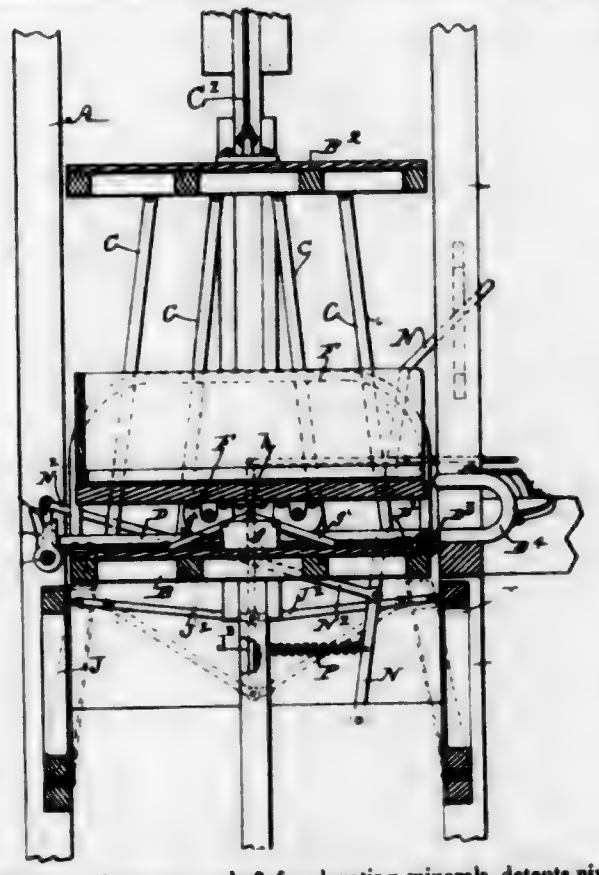
12. In a pouch-machine, the combination of mechanism for severing portions of fabric from two or more independent continuous strips of fabric, means for bringing the severed portions of fabric together so that an edge of each portion of fabric laps an edge of the adjacent portion or portions, sewing mechanism to sew together the lapped edges of the portions of fabric, mechanism for doubling the compound section so that the fold will form a side of the finished pouch, clipping mechanism to separate the doubled compound section of fabric from the succeeding one, and mechanism for sewing two adjacent open edges of the doubled compound sections.

13. In a pouch-machine, the combination of mechanism for uniting by their edges two or more independent portions of fabric the said portions being sufficient when united to form a pouch, a feeding device for feeding the compound section of fabric onto a doubling-table, the said feeding device being adapted to be raised from the said compound section of fabric after it has fed the latter onto the doubling-table, means for operating the feeding device, clipping mechanism to separate the foremost compound section of fabric from the succeeding one, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

14. In a pouch-machine, the combination of feeding mechanism to feed two independent continuous strips of fabric to cutters, cutting mechanism to sever from the continuous strips of fabric portions which when united will be sufficient for the formation of one pouch, a rising and falling table to receive one of the severed portions of fabric and arranged to be operated to lower the said portion of fabric which lies upon it so that the other severed portion of fabric may be adjusted with one of its edges overhanging an edge of the said portion of fabric, and then to raise the said portion of fabric to the level of the sewing-table, means for operat-

ing the rising and falling table, a transferring device to transfer the other portion of fabric to such a position that one of its edges will overhang one of the edges of the said lowered portion of fabric and, when the last-named portion of fabric has been raised to the level of the sewing-table, to transfer the overlapped portions of fabric to a sewing mechanism, sewing mechanism to sew together the lapped edges of the portions of fabric, clipping mechanism to clip the compound sections apart, mechanism for doubling the separated compound section of fabric so that the fold will form a side of the finished pouch, and mechanism for sewing two adjacent open edges of the doubled compound sections.

692,888. CAR-DUMP FOR ELEVATORS IN MINES. JOHN MOSER, Youngstown, Iowa. Filed Nov. 22, 1900. Serial No. 37,359. (No model.)



Claim.—1. A cage in a shaft for elevating minerals, detents pivotally connected with the top and central portion of the floor of the cage, track-rails pivotally connected with one edge portion of the floor, a car on the track-rails, an iron fixed to the bottom and central portion of the car to engage said detents, a rock-shaft journaled to the frame in the shaft, props fixed to the rock-shaft for supporting the track-rails in an inclined position, an arm on the rock-shaft, a coil-spring fixed to said arm and to a lever, a lever fulcrumed to the frame for operating the rock-shaft and props and means for raising and lowering the cage, arranged and combined to operate in the manner set forth for the purposes stated.

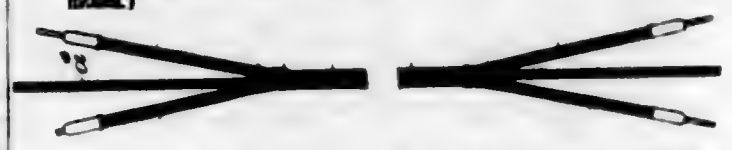
2. A car-dump for elevators in mines, parallel uprights fixed in a shaft, frames pivotally connected at their lower ends to the parallel shafts, rods pivotally connected with the upper portions of said frames, a lever connected with the rods for adjusting the frames, a cage fitted between the parallel uprights, track-rails for a car pivotally connected with one edge portion of the floor of the cage, hook-shaped stops fixed to a cross-piece at the top portions of the uprights for engaging car-wheels, detents pivoted to the top and central portion of the floor of the cage for detachably fastening the car, a car on the track-rails, an iron fixed on the under side of the car to engage said detents, a rock-shaft journaled to the uprights of the frame in the shaft, props fixed to said rock-shaft to support the free ends of track-rails, means for adjusting said rock-shaft and props and means for raising and lowering the cage, all arranged and combined to operate in the manner set forth for the purposes stated.

692,889. BREAD, &c., AND METHOD OF MAKING SAME. ROCCO MUSOSOTTI, New York, N. Y. Filed May 7, 1901. Serial No. 59,107. (No specimens.)

Claim.—1. The herein-described process of preparing a food for invalids which consists in incorporating together pulverized almonds, yolks of eggs and butter, and after thorough mixture beating the whites of the eggs and mixing the same with the first-named ingredients.

2. A bread or the like obtained from the following ingredients in the ratio given, one pound pulverized white almonds, the yolks of twenty eggs, one-eighth pound of butter, and the well-beaten whites of twenty eggs, substantially as described.

692,890. ELECTRICAL CONNECTING-CORD. CHARLES H. McEVOY, Lowell, Mass. Filed Nov. 15, 1901. Serial No. 82,367. (No model.)



Claim.—1. An electrical connecting-cord, comprising a plurality of conductors insulated from each other, an outer covering common to said conductors to the point where said conductors diverge, a separate outer covering for one of said conductors from said common covering to the adjacent end of said last-named conductor and a suspension-cord integral with said separate outer covering at the point where said conductors diverge.

2. An electrical connecting-cord, comprising a plurality of conductors insulated from each other, an outer covering common to said conductors to the point where said conductors diverge, a separate outer covering for one of said conductors from said common covering to the adjacent end of said last-named conductor and a suspension-cord integral with said separate outer covering at the point where said conductors diverge and attached to said common covering.

3. An electrical connecting-cord, comprising a plurality of conductors insulated from each other, an outer covering common to said conductors to the point where said conductors diverge, a separate outer covering for one of said conductors from said common covering to the adjacent end of said last-named conductor and a suspension-cord integral with said separate outer covering at the point where said conductors diverge, said suspension cord having a half-hitch around the end portion of said common covering.

4. An electrical connecting-cord, comprising two conductors insulated from each other, an outer covering, common to both conductors to the point where they diverge and continued to the end of one conductor, to form an outer covering for the same, a separate outer covering for the other conductor from said common covering to the adjacent end of said last-named conductor, and a suspension-cord integral with said separate outer covering at the point where said conductors diverge.

5. An electrical connecting-cord, comprising two conductors insulated from each other, an outer covering, common to both conductors to the point where they diverge and continued to the end of one conductor, to form an outer covering for the same, a separate outer covering for the other conductor from said common covering to the adjacent end of said last-named conductor, and a suspension-cord integral with said separate outer covering at the point where said conductors diverge and secured to the end portion of said common covering.

6. An electrical connecting-cord, comprising two conductors insulated from each other, an outer covering, common to both conductors to the point where they diverge and continued to the end of one conductor, to form an outer covering for the same, a separate outer covering for the other conductor from said common covering to the adjacent end of said last-named conductor, and a suspension-cord integral with said separate outer covering at the point where said conductors diverge and connected to said common covering by a half-hitch in said suspension-cord around said common covering.

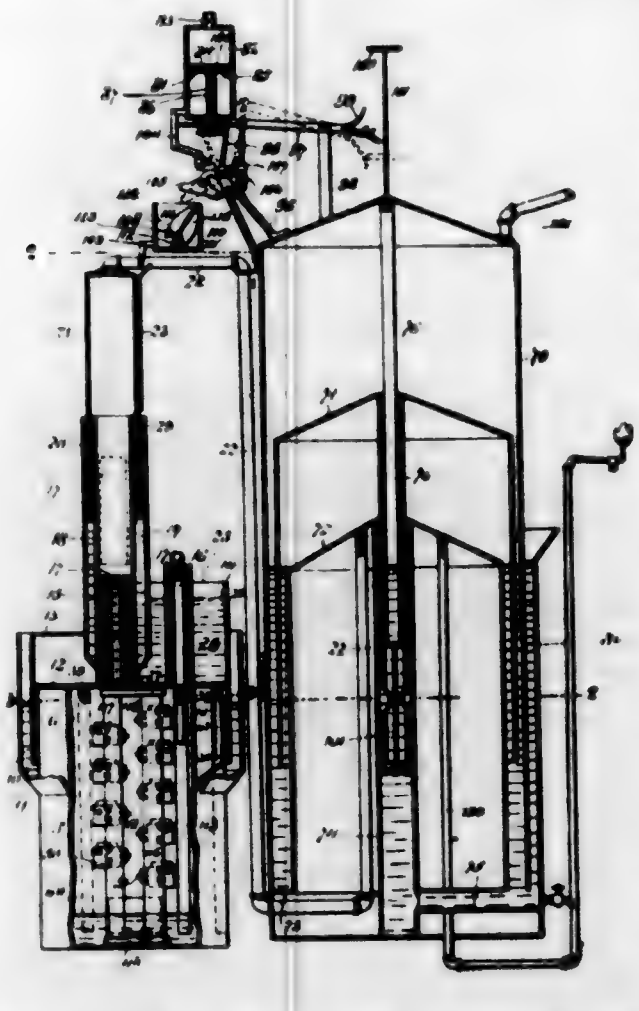
692,891. ACETYLENE-GAS APPARATUS. JOHN ST. LEGER MCGIBB, Winnipeg, Canada, assignor to Charles Cushing Holland, trustee, Montreal, Canada. Filed Jan. 20, 1899. Serial No. 702,330. (No model.)

Claim.—1. An acetylene-gas generator comprising a body portion and a cover, a tube extending upwardly from said cover and communicating with the interior of said body portion; a controlling-valve for said tube; means for sealing said valve while the generator is not operating; a vertical tubular section extending upwardly from the cover and encircling said tube; a gas-conducting pipe; and means for connecting one end of said pipe to said tubular section, for the purpose set forth.

2. An acetylene-gas generator comprising a body portion and a cover, a pair of tubes extending upwardly from said cover, and communicating with the interior of said generator; a sealing-chamber formed to inclose said tubes and having an overflow-opening near its upper end; a controlling-valve for each of said tubes; one of said valves being operated by the rising gas-pressure in the generator, the liquid in said sealing-chamber sealing said valves; a vertical tubular extension from the floor of said sealing-chamber and encircling said automatically-controlled tube, and communicating at its lower end with said sealing-chamber; a gas-conducting pipe and means for connecting one end of said gas-conducting pipe to said tubular extension, for the purpose set forth.

3. An acetylene-gas generator comprising a body portion and a cover, a pair of tubes extending upwardly from said cover, and communicating with the interior of said generator; a sealing-chamber formed to inclose

said tubes and having an overflow-opening near its upper end; a controlling-valve for each of said tubes; one of said valves being operated by the rising gas-pressure in the generator, the liquid in said sealing-chamber sealing said valves; a vertical tubular extension from the floor of said sealing-chamber and encircling said automatically valve-controlled tube, and communicating at its lower end with said sealing-chamber; a gas-conducting pipe and means comprising a water seal for connecting one end of said gas-conducting pipe to said tubular extension, for the purpose set forth.



4. An acetylene-gas generator comprising a body portion and a cover, a pair of tubes extending upwardly from said cover, and communicating with the interior of said generator; a sealing-chamber formed to inclose said tubes and having an overflow-opening near its upper end; a controlling-valve for each of said tubes; one of said valves being operated by the rising gas-pressure in the generator, the liquid in said sealing-chamber sealing said valves; a vertical tubular extension from the floor of said sealing-chamber and encircling said automatically valve-controlled tube, and communicating at its lower end with said sealing-chamber; an encircling pocket formed upon the upper end of said tubular extension and having an overflow-opening near its upper end; a tubular section taking downwardly a short distance into said pocket, and communicating at its upper end with a gas-conducting pipe a depending peripheral flange upon said cover; the body of the generator having a pocket formed at its upper end to receive said depending flange, the outer wall of said pocket being of greater height than the generating-chamber and the upper end of said generating-chamber being formed with an overflow-opening; means for supplying water to the pocket of said vertical tubular extension; means for holding calcium carbid located within said generator; and means actuated by the water as it rises in said generator for causing said calcium carbid and water to combine for the purpose set forth.

5. An acetylene-gas generator comprising a body portion and a cover, a pair of tubes extending upwardly from said cover, and communicating with the interior of said generator; a sealing-chamber formed to inclose said tubes; and having an overflow-opening near its upper end a controlling-valve for each of said tubes; one of said valves being operated by the rising gas-pressure in the generator, the liquid in said sealing-chamber sealing said valves, a vertical tubular extension from the floor of said sealing-chamber and encircling said automatically valve-controlled tube, and communicating at its lower end with said sealing-chamber; an encircling pocket formed upon the upper end of said tubular extension and having an overflow-opening near its upper end; a tubular section taking downwardly a short distance into said pocket, and communicating at its upper end with a gas-conducting pipe a depending peripheral flange upon said cover; the body of the generator having a pocket formed at its upper end to receive said depending flange, the outer wall of said pocket being of greater height than the generating-chamber and the upper end of said generating-chamber being formed with an overflow-opening; means for supplying water to the pocket of said vertical tubular extension; a series of holders for predetermined quantities of calcium carbid located within said generator; and means actuated by the water as it rises in said generator for successively submerging said holders in the water for the purpose set forth.

6. In a generator containing water, a frame comprising one or more vertical standards each having a series of longitudinal slots; a series of cups; a staple-like projection upon each cup and taking into one of said longitudinal slots; a series of levers fulcrumed to said standards and normally taking at one end into the portion of said staple-like projections protruding through said slots and means for successively moving said levers out of engagement with said staples, for the purpose set forth.

7. In a generator containing water, a removable frame comprising one or more vertical standards semicircular in cross-section and each having a series of diagonal slots in the edges thereof, and a series of longitudinal slots; a series of cups; a series of lateral pin projections upon the sides of said cups and taking into said slots; a staple-like projection upon each cup and taking into one of said longitudinal slots; a series of levers fulcrumed to said standards and normally taking at one end into the portion of said staple-like projections protruding through said slots and means for successively moving said levers out of engagement with said staples, for the purpose set forth.

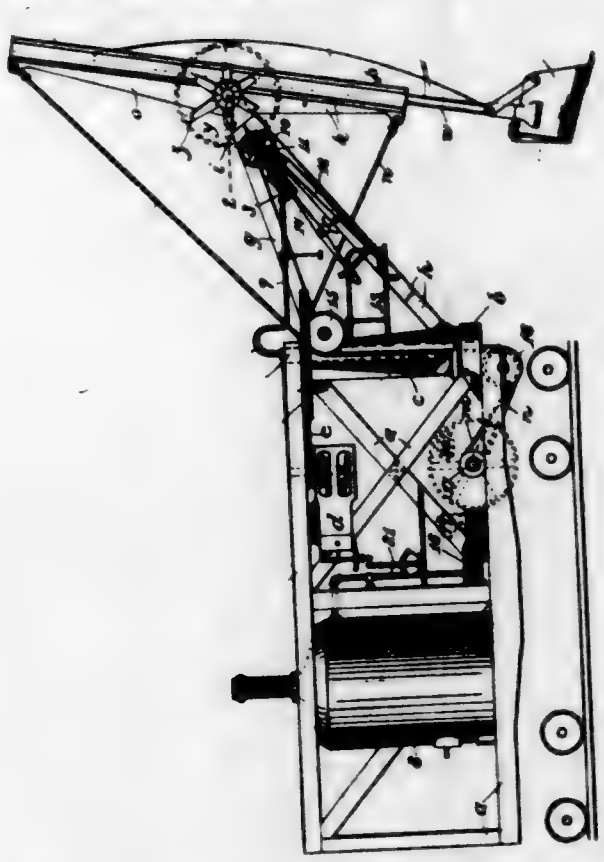
8. In a generator containing water; means for supplying water to said generator, a removable frame comprising one or more vertical standards, and a series of vertical slots; a series of cups; a staple-like projection upon each cup and taking into one of said vertical slots; a series of levers fulcrumed to said standards and taking at one end into the portion of said staple-like projections protruding through said slots and a float for successively moving said levers substantially as and for the purpose set forth.

9. In a generator containing water; means for supplying water to said generator, a removable frame comprising one or more vertical standards each having a series of diagonal slots in the edges thereof, and a series of longitudinal slots; a series of cups; a series of lateral pin projections upon the sides of said cups and taking into said slots; a staple-like projection upon each cup and taking into one of said longitudinal slots; a series of levers fulcrumed to said standards and taking at one end into the portion of said staple-like projections protruding through said slots and a float for successively moving said levers substantially as and for the purpose set forth.

10. In a generator a carbid-containing cup consisting of an inside cup having its upper edge notched; an outside cup having a series of perforations about midway of the height of said inside cup; and a cover for said inside cup consisting of an inverted cup, equal in length to said inside cup, and taking between said inside and outside cups; as and for the purpose set forth.

11. An acetylene-gas generator consisting of a circular casing having a pocket 9 at its upper end and an overflow-opening 41; a series of radial partitions 30, having overflow-opening 38, 31 having overflow-opening 39, 32 having overflow-opening 40 and 33 a removable frame located in each subchamber and comprising one or more vertical standards semicircular in cross-section and each having a series of diagonal slots in the edges thereof, and a longitudinal slot; a series of cups; a series of lateral pin projections upon the sides of said cups and taking into said slots; a staple-like projection upon each cup and taking into said longitudinal slot; a series of levers fulcrumed to said standards and taking at one end into the portion of said staple-like projections protruding through said slots and a float guided in the inner angle of each subchamber for successively moving said levers; a removable cover for said casing; a pair of tubes extending upwardly from said cover, and communicating with the interior of said casing; a sealing-chamber formed to inclose said tubes and having an overflow-opening to said pocket 9, a controlling-valve for each of said tubes; one of said valves being operated by the rising gas-pressure in the generator, the liquid in said sealing-chamber sealing said valves; a vertical tubular extension from the floor of said sealing-chamber and encircling said automatically valve-controlled tube and communicating at its lower end with said sealing-chamber; an encircling pocket formed upon the upper end of said tubular extension and having an overflow-opening near its upper end; a tubular section taking downwardly a short distance into said pocket, and communicating at its upper end with a gas-conducting pipe; a depending peripheral flange upon said cover taking into said pocket 9; the outer wall of said pocket 9 being of greater height than the generating-chamber and the upper end of said generating-chamber, and the upper end of said generating-chamber being formed with an overflow-opening; and means controlled by the exhaustion of the gas in said generator for supplying water to the pocket of said vertical tubular extension, substantially as described and for the purpose set forth.

692,892. EXCAVATOR. WALTER S. MCKINNEY, Chicago, Ill. Filed Mar. 2, 1901. Serial No. 49,545. (No model.)



Claim.—1. In an excavator, the combination of a guide-beam, pivotally supported between its ends, a bucket-handle sliding therein, and power devices attached to said guide-beam on opposite sides of the pivot thereof for rotating said guide-beam.

2. In an excavator, a bucket-arm consisting of a pivotally-supported guide member and a bucket-handle sliding therein, in combination with means for controlling the position of said handle in said guide member, and power devices attached to said guide member on opposite sides of the pivot thereof for rotating said guide member.

3. In an excavator, the combination of a guide-beam, pivotally supported between its ends, a bucket-handle sliding upon said beam, cables attached to said beam on opposite sides of the pivot thereof and a power-operated drum for controlling said cables.

4. In an excavator, the combination of a guide-beam pivotally supported between its ends, a bucket-handle sliding longitudinally upon said guide-beam, a cable attached to said beam upon one side of the point of support thereof, a second cable attached to said beam upon the other side of the point of support thereof, a drum whereon said cables are wound in opposite directions and a power device for operating said drum.

5. In an excavator, the combination of a guide member pivotally supported by means of laterally-projecting sleeves or bushings formed thereon, a shaft concentric with said sleeves or bushings, a pinion on said shaft, a bucket-handle sliding within said guide member and having a rack, gearing with said pinion for regulating the position of said handle in its guide, and power devices applied to said guide member for rotating the same about its pivot.

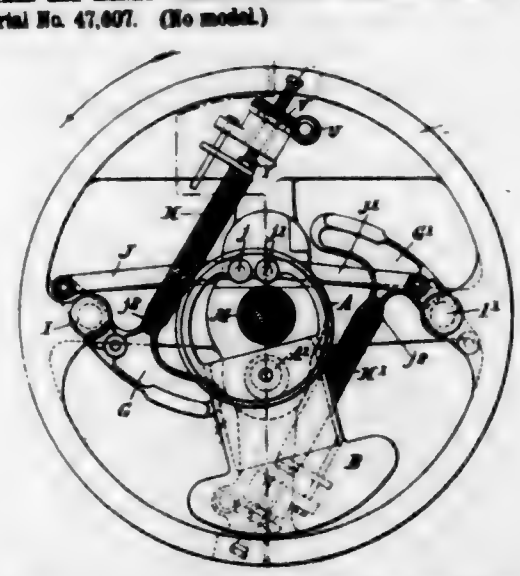
6. In an excavator, the combination of a guide-beam pivotally supported between its ends, a bucket-handle sliding longitudinally upon said guide-beam, a cable attached to said beam upon one side of the point of support thereof a second cable attached to said beam upon the other side of the point of support thereof, and means for operating said cables.

7. In an excavator the combination with a telescoping, pivotally-supported bucket-arm, of cables attached to said arm on opposite sides of the point of support thereof and a hoisting-drum for operating said cables, said cables being wound upon said drum in opposite directions.

8. In an excavator, a bucket-arm composed of two parts, one sliding within the other, one of said parts being chambered, in combination with a gear-wheel housed within the said chambered part and meshing with a rack upon the second of said parts for varying the relative positions of said parts.

9. In an excavator, a pivotally-supported power-receiving member, a second member sliding thereon, and constituting the bucket-handle; and controlling mechanism for determining the relative positions of said members, said controlling mechanism comprising a power device, a shaft driven by means of said power device, said shaft being concentric with the pivot of said first-mentioned power-receiving member, and connections between said shaft and said second member for sliding the latter in the power-receiving member.

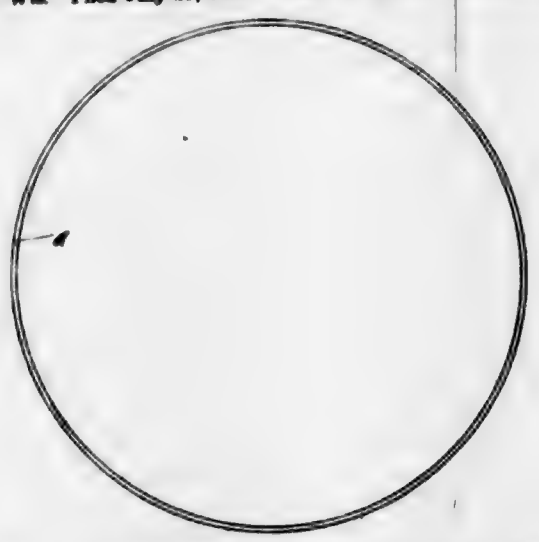
692,893. GOVERNING DEVICE FOR ENGINES, &c. JOHN MCLAREN and HENRY MCLAREN, Leeds, England. Filed Feb. 16, 1901. Serial No. 47,607. (No model.)



Claim.—1. A device for varying the tension of governor-weight springs in steam-engines while the engine is running, comprising a drum, weights pivoted thereto, a threaded rod, springs secured to the weights at one end, and to the drum near the periphery at the other end through the threaded rod, a worm-wheel nut on the rod, and a worm engaging said worm-wheel nut, and a shaft for the worm carrying a gear at its outer end, a radially-placed shaft having gears at each end, one gear meshing with the gear on the worm-wheel shaft and the other gear meshing with a centrally-arranged means for rotating said radially-placed shaft while the engine is running, and bearings for such shaft secured to the drum at either end, substantially as described.

2. In a governing device for engines operated by steam or other fluid pressure, the combination with a disk or drum fast on the engine-shaft; governor-weights pivoted to the disk or drum on diametrically opposite sides of the axis thereof, a counterweighted eccentric pivoted to the drum and connected by rods to the governor-weights, and springs acting in conjunction with the said governor-weights and with the counterweighted eccentric to maintain a uniform speed under varying conditions of load, of a stud or pin, carried by the disk or drum, coaxial with the engine-shaft, friction disks or wheels, mounted loosely on the stud or pin, toothed wheels carried by, or formed integral with the friction disks or wheels; and gearing with similar wheels fast on radial shafts carried in bearings on the disk or drum, other toothed wheels on the radial shafts in gear with corresponding wheels on shafts carrying worms; screw-threaded rods connected to springs attached to the governor-weights; a combined worm-wheel and nut on each of the screw-threaded rods and gearing with the worms, so that by retarding one or other of the friction disks or wheels the tension of the springs can be increased or diminished and thereby the speed of the engine be varied as desired substantially as hereinbefore described.

692,894. FIREPROOF GRAIN-BIN. PHILAY R. MCQUEEN, Superior, Wis. Filed July 25, 1901. Serial No. 69,634. (No model.)



Claim.—1. The combination with the walls of a bin or similar structure built of fireproof blocks united by cement or mortar, of a binding-wire wound spirally and embedded in the cement which unites the blocks, substantially as described.

2. The combination with the walls of a bin or similar structure built of fireproof blocks united by cement or mortar, of reinforcing-wires

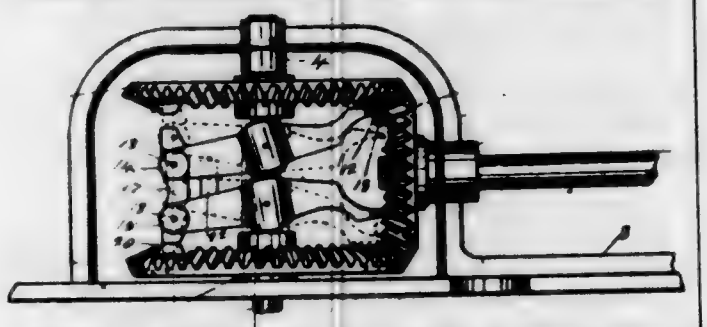
wound spirally in horizontal planes and embedded in the cement which unites the said blocks, substantially as described.

3. The combination with the walls of a bin or similar structure, built of hollow tile-blocks, arranged in layers united by cement or mortar, of closely-spaced binding-wires laid between the layers of tile-blocks and embedded in the cement or mortar, which binding-wires overlie the openings in said tile-blocks and serve to support the cement or mortar while the same is in plastic condition, substantially as described.

4. The combination with the walls of a bin or similar structure, built of hollow tile-blocks united by horizontal layers of cement or mortar, of binding-wires coiled on horizontal planes and embedded in the cement which unites the horizontal surfaces of the tile-blocks, substantially as described.

5. The combination with the walls of a bin or similar structure, built of hollow tile-blocks *a'*, united at their horizontal surfaces by layers of cement or mortar *b*, of binding-wires *f* coiled in horizontal planes and embedded in the said layers of cement *b*, and spacing-wires *g* applied to the said wires *f*, substantially as described.

692,895. REVERSING MECHANISM. WILLIAM HARKWOLF, Fort Wayne, Ind. Filed Aug. 26, 1901. Serial No. 73,584. (No model.)



Claim.—1. The combination of a vertical shaft; oppositely rotatable gear-wheels mounted on said shaft; means for operating the wheel; a power-shaft; an actuating-pinion on said power-shaft in mesh with said wheels, and provided upon its inner face at or near its periphery with a projecting pin or lug; and a two-part detent pivoted on said vertical shaft between the said gear-wheels, adapted to be thrown into an interlocked engagement with said wheels alternately at each second revolution thereof by means of said pin or lug.

2. A reversing mechanism consisting of a vertical shaft, a pair of rotatable gear-wheels loosely mounted on said shaft; a meshing pinion adapted to actuate said wheels; and a detent pivotally mounted on the shaft and consisting of two duplicate sections whose inner ends are provided with a terminal lug adapted to alternately form an actuating engagement with the meshing pinion, and having their outer ends pivotally connected and adapted to be alternately interlocked with said gear-wheels at every second revolution thereof.

3. In a reversing mechanism a revoluble shaft; a pair of gear-wheels loosely mounted on said shaft; means for actuating the said gear-wheels; a two-part detent pivotally mounted on said shaft between the said gear-wheels, adapted to be thrown into an interlocked engagement with said wheels alternately at each second revolution thereof; and means for tripping the said detent at predetermined points in its travel.

692,896. LOCOMOTIVE-BOILER. CHARLES W. NEWTON, Baltimore, Md. Filed June 5, 1901. Serial No. 63,251. (No model.)

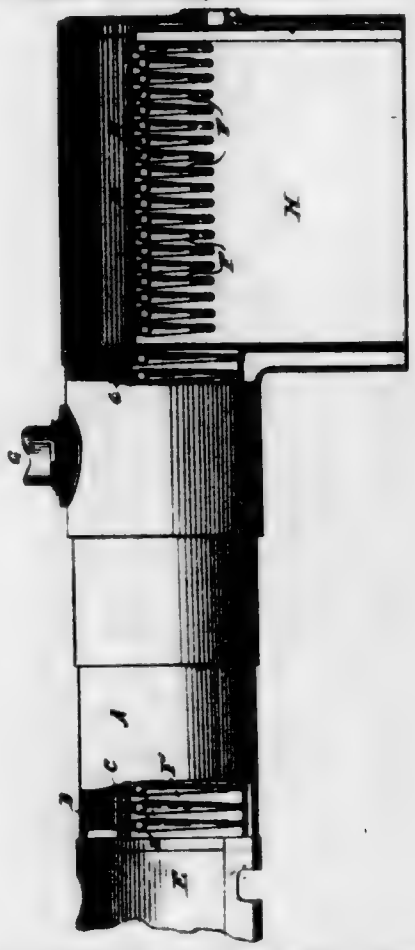
Claim.—1. In a locomotive-boiler the combination of the fire-box with a series of manifolds secured to the crown-sheet and the sides of the fire-box and means for circulating the water through the manifolds.

2. In a locomotive-boiler the combination of the fire-box with a series of manifolds consisting of an upper and lower header, tubes connecting said headers, tubes projecting from the upper header and secured in the crown-sheet and tubes in the ends of headers for securing the manifolds to the sides of the fire-box.

3. In a locomotive-boiler the combination of the fire-box with a series of manifolds, consisting of an upper horizontal header, a lower arched header, vertical water-tubes connecting said headers, tubes projecting from the upper header and secured in the crown-sheet and tubes in the ends of the header for securing the manifolds to the sides of the fire-box whereby circulation is provided for and established.

4. In a locomotive-boiler the combination of the outer shell, and flue, the latter having a flat top with manifolds consisting of an upper horizontal header, a lower header conforming to the curve of the flue, tubes in the ends of both headers, and the lower point of the bottom header connecting the manifold to the curved portion of the flue, and tubes projecting from the upper header and secured in the flat portion of the flue.

5. In a locomotive-boiler, the combination of the outer shell and inner shell or flue, the latter having a flat top with manifolds consisting of an upper horizontal header, a lower header conforming to the curve of the flue, tubes connecting said headers and tubes in the ends of both headers, and lower point of bottom header connecting the manifold F, to the curved portion of the flue, tubes projecting from the upper header and secured to the crown-sheet, and means for bracing the crown-sheet to and by the manifold substantially as described.



6. The combination in a boiler of the locomotive type of a cylindrical portion and sectional portion, the sectional portion being secured to and within the cylindrical portion by hollow brace connections, and the fire-box portion having depending sections secured to the crown-sheet also by hollow connections, the section in the cylindrical portion being adapted to circulate water through the top, bottom and side thereof, and the section in the fire-box being adopted to circulate water through the crown-sheet and the water-legs, thus forming means for a thorough, entire and constant circulation of the water in the boiler through all its parts simultaneously, substantially as described.

692,897. TELEPHONE-RECEIVER. JAMES G. HOLES, Chicago, Ill. Filed Apr. 20, 1901. Serial No. 57,858. (No model.)



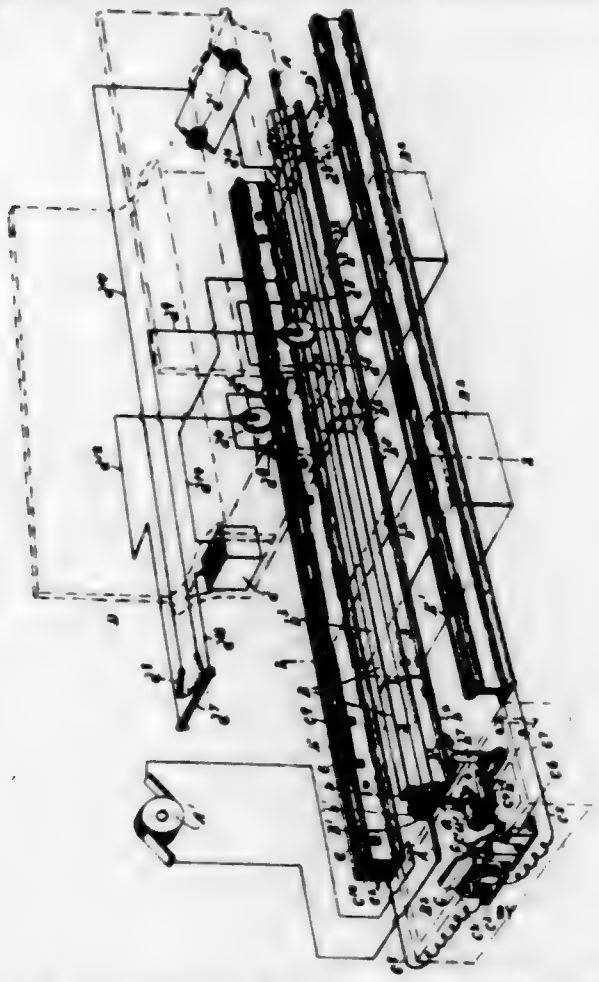
Claim.—In a telephone-receiver the combination of a diaphragm, a cylindrical magnet having its polar end rounded, a magnetized rod within said cylindrical magnet, a coil near the polar ends of said magnet, a case covering said magnets, screw-threads in said case, screw-threads on said magnet, and a check-nut on said magnet for holding said magnet and said case in a fixed relation, substantially as set forth.

692,898. ELECTRIC-RAILWAY SYSTEM. BYRON R. CARPER, Auburn, N. Y. Filed May 13, 1897. Serial No. 636,370. (No model.)

Claim.—1. The combination of a moving vehicle, a concealed conductor for the main current, an exposed sectional conductor consisting of upper and side walls united to each other transversely for concealing the first conductor and conveying the main current to the vehicle, electromagnets for operating the connecting-pieces, and means carried by the vehicle for controlling the operation of the electromagnets, substantially as and for the purpose described.

2. The combination of a moving vehicle, a concealed conductor for the main current, an exposed sectional conductor for conveying the main

current to the vehicle, independently-movable connecting-pieces for connecting the conductors, said connecting-pieces being provided with engaging pieces flexibly connected thereto, electromagnets for operating the connecting-pieces, and means carried by the vehicle for controlling the operation of the electromagnets, substantially as and for the purpose specified.



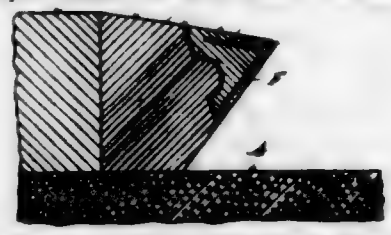
3. The combination of a moving vehicle, a concealed conductor for the main current, an exposed sectional conductor for conveying the main current to the vehicle, separated contact-pieces connected respectively to the concealed and sectional conductors, independently-movable connecting-pieces for connecting the conductors, said connecting-pieces being provided with engaging pieces flexibly connected thereto for connecting the contact-pieces, electromagnets for operating the connecting-pieces, permanent magnets for holding the connecting-pieces in their normal position, and means carried by the vehicle for controlling the operation of the electromagnets, substantially as and for the purpose specified.

4. The combination of a moving vehicle, a concealed conductor for the main current composed of separate sections having their adjacent ends electrically connected together, an exposed sectional conductor for concealing the first conductor and conveying the main current to the vehicle, independently-movable connecting-pieces for connecting the conductors, electromagnets for operating the connecting-pieces, and means carried by the vehicle for controlling the operation of the electromagnets, substantially as and for the purpose set forth.

5. The combination of a concealed conductor for the main current, an exposed sectional conductor provided with a lengthwise passage for partially inclosing the first conductor, independently-movable connecting-pieces for connecting the conductors, a pair of rails, an exposed conductor secured to one of the rails, electromagnets for operating the connecting-pieces, said electromagnets being connected to the second exposed conductor and to one of the rails, a vehicle movable along the conductors and rails and provided with terminals for engaging the exposed conductors and one of the rails, electrically-operated means carried by the vehicle and connected to the terminal for engaging the first exposed conductor, and a source of electric energy carried by the vehicle and connected to the terminals for engaging the second exposed conductor and said one of the rails connected to the electromagnets, substantially as and for the purpose set forth.

6. The combination of a pair of rails, an exposed conductor secured to one of the rails, a vehicle movable along the rails, a concealed conductor, a conduit having a lengthwise chamber for receiving the concealed conductor, a portion of said conduit consisting of an exposed sectional conductor for conveying the main current to the vehicle, chambers arranged at intervals beneath the conduit, independently-movable connecting-pieces supported within the chambers for connecting the concealed conductor and the exposed conductor forming part of said conduit, electromagnets arranged within the chambers for operating the connecting-pieces, said magnets being connected to one of the rails and to the exposed conductor secured to the other rail, and means carried by the vehicle for engaging said rails and exposed conductors, substantially as and for the purpose described.

692,899. **BILLIARD-TABLE CUSHION.** THERON R. PALMER, Erie, Pa. Filed Apr. 23, 1901. Serial No. 57,094. (No model.)

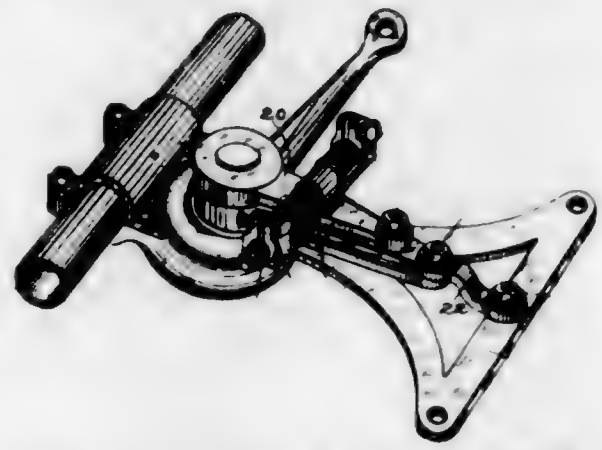


Claim.—1. In a billiard-table cushion, the combination of a cushion-strip of a suitable resilient substance, with a longitudinal strip of diagonally-woven braid molded into the body thereof, substantially as and for the purpose set forth.

2. In a billiard-table cushion, the combination of a cushion-strip of vulcanized rubber or other suitable resilient substance, with a longitudinal strip of flat diagonally-woven braid in the upper part thereof, substantially as and for the purpose set forth.

3. In a billiard-table cushion, the combination of a cushion-strip of vulcanized rubber or other suitable resilient substance, with a longitudinal strip of flat diagonally-woven braid in the upper part thereof, and a strip of fabric in the face thereof, both of which are molded into the body of the cushion, substantially as and for the purpose set forth.

692,900. **MECHANISM FOR OPERATING MOTION-CHECKING DEVICES.** OTTO F. PERSSON, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed Aug. 28, 1901. Serial No. 73,583. (No model.)



Claim.—1. In combination, a pair of elements movable with respect to each other, means for moving one of the elements, a locking device between the elements, and a lock-releasing means which imparts a thrust to the moving element against its direction of motion.

2. In combination, a pair of elements movable with respect to each other, means for moving one of the elements, a locking device between the elements, and a system of lock-releasing levers, which when operated, imparts a thrust to the moving element against its direction of motion.

3. In combination, a stationary element, a movable element, a lock for holding the parts against relative movement, means for releasing the lock, which when operated imparts a thrust to the movable element against its direction of motion, and a means common to the second element and the lock for moving the one and releasing the other.

4. In combination, a stationary member, a movable member, a lock between the members for preventing relative movement, a lever pivoted to the movable member, a second lever pivoted concentrically with respect to the stationary member, and a lock-releasing device operated by the conjoint action of the levers.

5. In combination, a stationary member, a movable member, a lock between the members for preventing relative movement, a lever pivoted to the movable member, a second lever pivoted concentrically with respect to the stationary member at one point, and to the first-mentioned lever at another point, a third lever pivoted to one of the other levers, and a lock-releasing device operated by the last-mentioned lever.

6. In a motion-checking device, the combination of a stationary member, a frame movable about the stationary member as a center, a lever pivoted to the frame and extending toward the center of motion, a second lever concentrically supported with respect to the center of motion, and extending toward the pivot of the first lever, a pivot for uniting the levers, a lock between the members for preventing relative movement,

and a third lever which controls the lock and is pivotally secured to the other two.

7. In a motion-checking device, the combination of a stationary member, a movable frame, a lock between the member and the frame, an actuator for moving the frame, a lever pivotally secured to the frame and to the actuator, a second lever rigidly secured to the releasing mechanism of the lock and pivotally secured to the first, and means permitting a certain amount of lost motion between the first-mentioned lever and the releasing mechanism of the lock.

8. In a motion-checking device, the combination of a stationary member, a movable frame, a lock between the member and the frame, an actuator for moving the frame, a lever pivotally secured to the frame, a pair of spring-pressed buffers carried by the lever, and a lever which controls the releasing mechanism of the lock, and passes between the buffers.

9. In a motion-checking device, the combination of a stationary member, a movable frame, an actuator for moving the frame, a friction-lock between the member and the frame, a device for throwing the friction-lock out of operation, a system of levers acting on the said device, which levers impart a thrust to the frame in a direction opposite to that imparted by the actuator.

10. In a motion-checking device, the combination of a stationary member, a movable member, an actuator therefor, friction-rolls between the two members constituting a friction-lock, means engaging with the rolls for forcing them out of engagement, a lever pivotally secured to the movable member and extending toward the center of motion, the said lever being arranged to exert a thrust on the movable member in opposition to that of the actuator, and a device which is operatively connected to the lever and to the roll-releasing means.

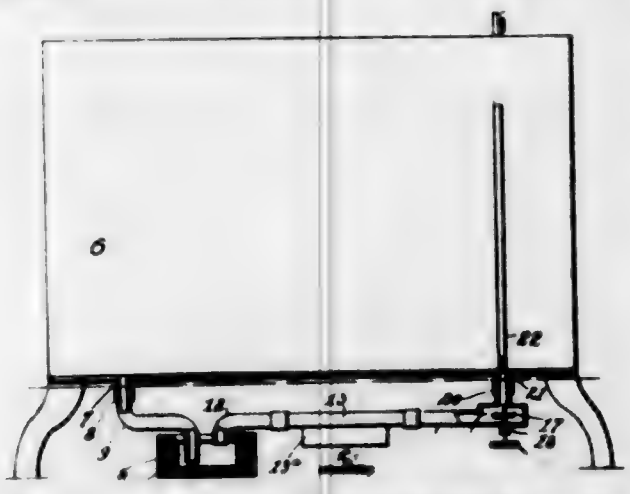
11. In a motion-checking device, the combination of a stationary member, a second member mounted for movement about the first, a lock, a stud extending through the members and arranged to control the lock, a bell-crank lever sleeved on the stud, a lever pivotally secured to the movable member and also to the bell-crank lever, a second lever pivoted to the second and rigidly connected to the stud, and means for limiting the motion of one lever independent of the other or others.

12. In combination, a pair of members movable with respect to each other, a locking mechanism for preventing said movement, an actuator for moving one of the members, and a lock-releasing device controlled by the actuator which device exerts a thrust on the movable member opposing that of said actuator.

13. In combination, a pair of members movable with respect to each other, a locking mechanism for preventing said movement, an actuator for moving one of the members, a lock-releasing device which exerts a thrust on the movable member opposing that of the actuator, and a lost-motion connection.

14. In a steering mechanism, the combination of a pair of wheels, a separate axle for each wheel, a support for the axles, rods connecting the axles, a motion-checking device having two principal parts, one of which is secured to the support, the other being attached to the rods, a lock between the parts of the device, a steering-handle for moving the wheels, and a lock-releasing mechanism which is under the control of the steering-handle and interposes a thrust against the movement of the wheels during the time that the lock is held in the open position.

692,901. ELECTRICAL GENERATING-MACHINE. JOHN H. PFIFER, Shumway, Ill. Filed Aug. 6, 1901. Serial No. 71,101. (No model.)



Claim.—1. An air-drying apparatus for electrical generating-machines comprising an insulated pipe communicating with the interior of the casing of the machine and adapted to conduct the air therefrom, means to deprive the air so conducted of its moisture, and an insulated pipe adapted to return the air into the casing.

2. An air-drying apparatus for electrical generating-machines comprising an air-pipe communicating with the interior of the casing, an insulating-coupling between the pipe and the casing, means to exhaust the air from the casing through the pipe, means to extract moisture from the air so exhausted, means to then heat the air, and an insulated pipe adapted to return the air so heated to the casing.

3. In an air-drying apparatus for electrical generating-machines, in combination, a casing for the machine, a vessel in which air may be deprived of its moisture, an insulated pipe connecting the casing and the vessel, another pipe leading out of the vessel having means to heat the air therein, and a fan adapted to force the air into the casing.

4. In an air-drying apparatus for electrical generating-machines, in combination, a casing for the machine, an opening in the bottom thereof, an insulated pipe connected with said opening, a vessel adapted to receive air from said pipe, means to extract moisture from the air in the vessel, a heating-chamber, a pipe communicating between the vessel and the chamber, a pipe communicating from the heating-chamber to the interior of the casing, and a fan adapted to force the air through the pipe.

692,902. METALLIC RAILWAY-TIE AND MEANS FOR SECURING THE RAILS THERETO. CHESTER RABERT, Coalburg, W. Va. Filed May 1, 1901. Serial No. 58,227. (No model.)



Claim.—1. A sectional metallic railway-tie composed of interfitting upper and lower sections centrally united, substantially as set forth.

2. A metallic railway-tie having a wide top and base, reëntrant sides, and a reinforced center, substantially as set forth.

3. A metallic railway-tie having a wide base and top, reëntrant sides having parallel vertical portions near the middle thereof, and a block interposed between said parallel portions, substantially as set forth.

4. A metallic railway-tie consisting of a lower section, having a wide base and sides converging toward the center and then bent to vertical position, a top section of similar construction, the vertical side portions of which interfit with the vertical portion of the lower section, a block 5 reinforcing the structure at the place of connection, and bolts uniting the parts, substantially as set forth.

5. A metallic tie having a hollow top section and a solid center, and a solid structure interposed between the top plate and the solid center at the point of crossing of the rail, substantially as set forth.

6. A metallic tie comprising a sheet-metal base having converging sides and a solid apex, a hollow sheet-metal top section, and means interposed between the apex of the lower section and the top plate of the upper section to support the latter at the point of crossing of the rail, substantially as set forth.

7. In a railway structure, a rail, a metallic tie comprising a top plate having a serrated under surface, a saddle correspondingly serrated and bearing against said under surface, a bolt seated in said saddle and extending through openings in the top of the tie, and means connected with the bolt for engaging with the rail to secure the same, substantially as set forth.

8. In railway construction, a rail, a metallic tie comprising a top plate

having bolt-openings therein, a saddle bearing against the under surface of the top, a bolt seated in the saddle, the bolt and saddle being correspondingly curved to the arc of a circle, and means carried by the bolt for engaging the rail to secure the same upon the tie, substantially as set forth.

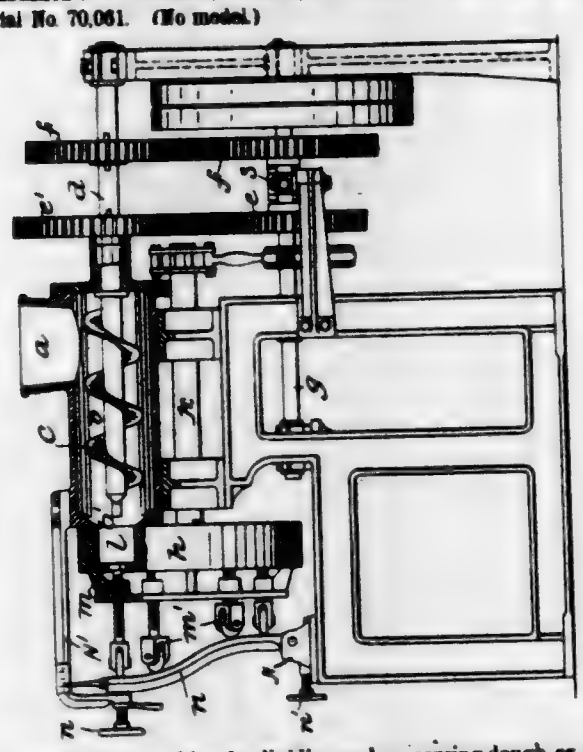
9. In railway construction, a rail, a hollow metallic tie, devices for securing the rail comprising a curved bolt passing through the top of the tie, a saddle in which said bolt is seated, means for securing the saddle against longitudinal movement, and means for securing the saddle against lateral movement, substantially as set forth.

10. In railway construction, the combination with the rail and a hollow tie, of devices for determinnig the lateral position of the rail passing through the top of the tie, means for securing said devices in adjusted position located within the tie, and means for operating said securing means located outside of the tie, substantially as set forth.

11. A metallic railway-tie comprising two hollow sections of substantially triangular form in cross-section joined together at their apexes, substantially as set forth.

12. A metallic railway-tie comprising two hollow sections of substantially triangular form in cross-section arranged with their apexes toward each other, cross-bolts uniting these sections at their apexes and means for reinforcing the tie where the two sections come together, substantially as set forth.

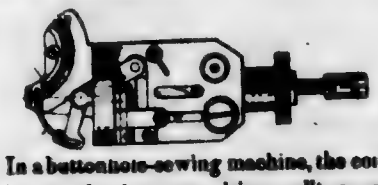
692,908. **MEASURING-MACHINE FOR PLASTIC MATERIAL.** FREDERICK J. G. RAINBOW, Barnstaple, England. Filed July 29, 1901. Serial No. 70,061. (No model.)



Claim.—1. A machine for dividing and measuring dough or plastic material, consisting of in combination a horizontal feeding-cylinder with internal screw presser and feed-hopper; an intermittently-revolving mold or pocket disk coöperating with said feeding-cylinder; means for adjustment of capacity of molds or pockets and for discharge of contents; alternative differential gearing for adjustment of speed of screw presser; and means for producing an intermittent revolution of the said mold-disk constantly in the same direction with dead-stops at moment of feed into pockets.

2. In combination, means for constantly feeding and pressing plastic material toward adjustable pockets or molds; a disk containing a series of pockets or molds adapted to intermittently revolve in front of feeding and pressing device; means for modifying the speed of the pressing device; an eccentric upon a first-motion shaft; and a pawl-and-ratchet gear upon shaft of mold-disk to communicate intermittent rotation thereto constantly in the same direction with dead-stops between.

692,904. **BUTTONHOLE-SEWING MACHINE.** MARIETTA RESCH, Boston, and FRANCIS A. SHEA, Brookline, Mass., administrators of John Resch, deceased. Filed Aug. 20, 1901. Serial No. 72,726. (No model.)



Claim.—1. In a buttonhole-sewing machine, the combination of overedge-stitch-forming mechanism comprising a slit-penetrating needle, a work-holder, means for giving a relative rotary movement to said slit-penetrating needle and said work-holder, the said slit-penetrating needle being located to move during said rotation in a path that intersects the plane of the work between the axis of said rotation and the edge being stitched.

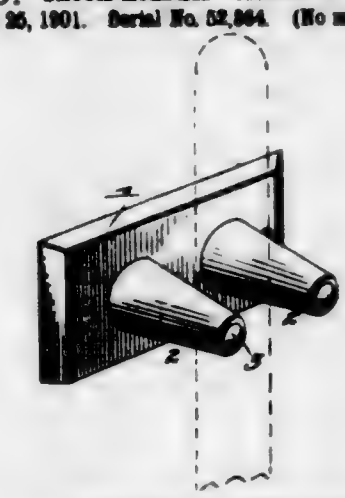
2. In a buttonhole-sewing machine, the combination of overedge-stitch-forming mechanism comprising a slit-penetrating needle, a work-holder, means for giving a relative rotary movement to said stitch-forming mechanism and work-holder, the said slit-penetrating needle being located to move during said rotation in a path that intersects the plane of the work between the axis of said rotation and the edge being stitched.

3. In a buttonhole-sewing machine, the combination of overedge-stitch forming mechanism comprising a slit-penetrating needle, a work-holder, means for giving a bodily rotation to said stitch-forming mechanism relatively to the work-holder, the said slit-penetrating needle being located to move during said rotation in a path that intersects the plane of the work between the axis of said rotation and the edge being stitched.

4. In a buttonhole-sewing machine, the combination of overedge-stitch-forming mechanism comprising an under-thread-carrying slit-penetrating needle, a work-holder, means for giving a relative rotary movement to said stitch-forming mechanism and work-holder, the said slit-penetrating needle being located to move during said rotation in a path that intersects the plane of the work between the axis of said rotation and the edge being stitched.

5. In a buttonhole-sewing machine, the combination of overedge-stitch-forming mechanism comprising an under-thread-carrying slit-penetrating needle, a work-holder, means for giving a rotary movement to said stitch-forming mechanism, the said slit-penetrating needle being located to move during said rotation in a path that intersects the plane of the work between the axis of said rotation and the edge being stitched.

692,905. **BROOM-HOLDER.** CHARLES K. REHRIG, Trenton, N. J. Filed Mar. 25, 1901. Serial No. 52,864. (No model.)



Claim.—1. A broom-holder consisting of two elastic studs arranged side by side with an intervening space between them, means for clamping said studs against movement and for increasing their circumference to diminish the intervening space between them, substantially as set forth.

2. A broom-holder consisting of a base-plate and two elastic truncated conical studs arranged side by side with an intervening space between them, and devices for clamping the studs to the base-plate and for compressing them to vary their diameters and thereby vary the intervening space between them, substantially as set forth.

692,906. **GOLF-REGISTER.** WILLIAM D. RESSIE and STEPHEN G. VAN DEMARK, Hackensack, N. J., assignors of one-half to Frederick R. Sage and Leverett H. Sage, Hackensack, N. J. Filed May 6, 1901. Serial No. 58,950. (No model.)



Claim.—1. In a register, the combination of a detachable dial, mounted on a revoluble disk, provided with teeth on its circumference, a lever and pawl, engaging said teeth and means for perforating said dial to make a record thereon.

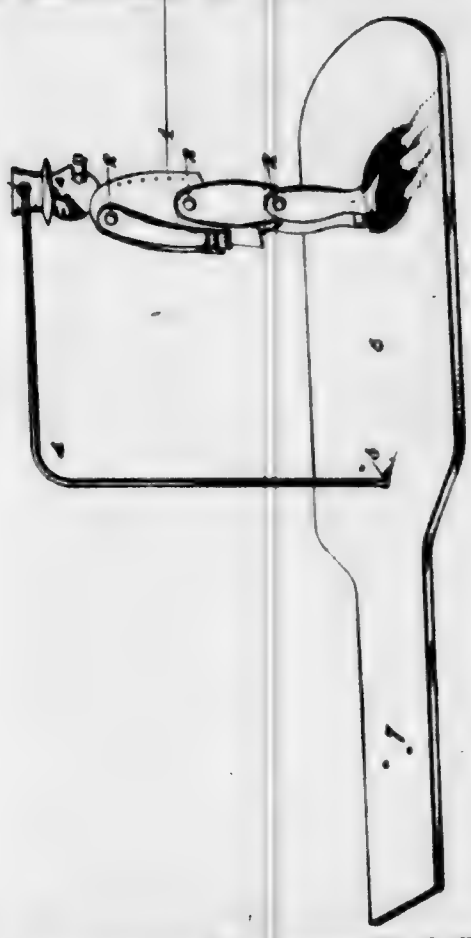
2. In a register, the combination of a detachable dial mounted on a

revoluble disk provided with teeth on its circumference, a lever and pawl engaging the teeth of said disk, a punch consisting of a spring-lever, a die and matrix, and a case in which the whole is mounted.

3. In a register, the combination of a detachable dial mounted on a revoluble disk provided with teeth on its circumference, a lever and pawl engaging the teeth of said disk, a punch consisting of a spring-lever, a die and matrix, and a case in which the whole is mounted, and a pin and catch attached to the back of said case, substantially as described.

4. In a register, the combination of a case in which is mounted a revoluble disk, with teeth upon its periphery, a lever and pawl engaging the said teeth, said lever extending through and beyond the case, a punch operated by a lever upon the free end of which is mounted a die, and said lever extending through and beyond the case, a matrix and slot, and a detachable dial adapted to be placed on the disk and inserted in the slot of the matrix, substantially as described.

692,907. DANCING TOY. WILLIAM R. REPPELL, St. Louis, Mo., assignor of one-half to Louis H. Reppell, Kansas City, Mo. Filed Mar. 1, 1901. Serial No. 49,393. (No model.)



Claim.—In a dancing toy, the combination with a flexible floor adapted to be held rigidly at its inner end under the body of the operator; of an unyielding arm secured rigidly at its inner end to the bottom of the floor near the support of the latter, a rigid support rising from the forward end of said arm and passing loosely through a hole in the floor, and a figure pivotally carried by said support with its feet resting upon said floor.

692,908. CULTIVATING-PLOW. JAMES Y. REYNOLDS, Malino, Tenn. Filed Oct. 16, 1901. Serial No. 78,878. (No model.)



Claim.—1. In a cultivating-plow, a frame comprising a longitudinal bar and cross-bars at the ends and projecting from opposite sides thereof, in combination with beams carrying soil-stirring devices, said beams having their ends pivotally connected to the said cross-bars and handles attached to the said respective beams, whereby the latter may be turned axially to move the soil-stirring devices carried thereby, toward or from each other, substantially as described.

2. In a cultivating-plow, the combination of a frame, beams mounted and adapted to be turned therein in planes at right angles to their axes, and handles attached respectively to the beams, whereby the latter may be turned to move the soil-stirring devices carried thereby laterally, toward and from each other, substantially as described.

3. In a cultivating-plow, the combination of a frame, a pair of beams, means for mounting the beams in the frame for rotary movement in planes at right angles to their axes and for laterally adjusting the beams in the frame, toward and from each other, and handles attached respectively to the beams, whereby the latter may be turned to move the soil-stirring devices carried thereby, laterally toward and from each other, substantially as described.

4. In a cultivating-plow, the combination of a frame having cross-bars at its ends, a pair of beams having their ends pivotally connected to said cross-bars, whereby said beams are adapted for axial movement, handles reversibly connected to said respective beams, and soil-stirring devices having standards reversibly attached to said beams, whereby the said cultivator-plow is adapted to be run with either end foremost, and said beams are adapted to be turned axially to move said soil-stirring devices toward and from each other, substantially as described.

5. In a cultivating-plow, the combination of a frame comprising a longitudinal bar and cross-bars at the ends thereof, a pair of beams carrying soil-stirring devices, said beams having their ends pivotally connected to said cross-bars and thereby adapted for axial movement, handles attached to said beams, respectively, and springs secured to said longitudinal bar and bearing against said beams, substantially as described.

692,909. VENEER FOR USE IN THE MANUFACTURE OF BOXES, &c. JOHN C. ROBERTS, London, England. Filed Mar. 11, 1901. Serial No. 50,722. (No model.)

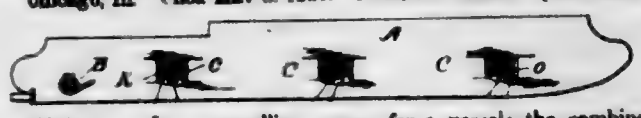
Claim.—1. A veneer boarding comprising a pair of veneers and a metallic strengthening layer between them, provided with projections penetrating the veneers, substantially as described.

2. A veneer boarding comprising a pair of veneers, and a metallic strengthening layer between them, provided with teeth extending through and clenched upon the outer faces of the veneers, substantially as described.

3. A veneer boarding comprising a pair of veneers and a strengthening layer of sheet metal between them provided with integral teeth extending into the veneers, substantially as described.

4. A veneer boarding comprising sheets of veneers a metallic strengthening layer interposed between them and provided with projections penetrating the veneers, and a layer of flexible fabric interposed between the metallic strengthening layer, and the adjacent veneer, substantially as described.

692,910. PROPELLER FOR VESSELS. DETLEV H. ROHWEDDER, Chicago, Ill. Filed May 3, 1901. Serial No. 58,566. (No model.)



Claim.—1. In a propelling means for a vessel; the combination with a vessel provided with a pocket or indentation, of closed platforms projecting outwardly from the hull at the bottom and top of said pocket, and a propeller rotatably mounted in said pocket, substantially as described.

2. In a propelling means for vessels, the combination with a vessel-hull provided with a substantially semicircular pocket or indentation, of closed platforms projecting from the hull at the bottom and top of the said pocket, and a propeller rotatably mounted in said pocket the axis of rotation of said propeller being within the line of the hull of the vessel, substantially as described.

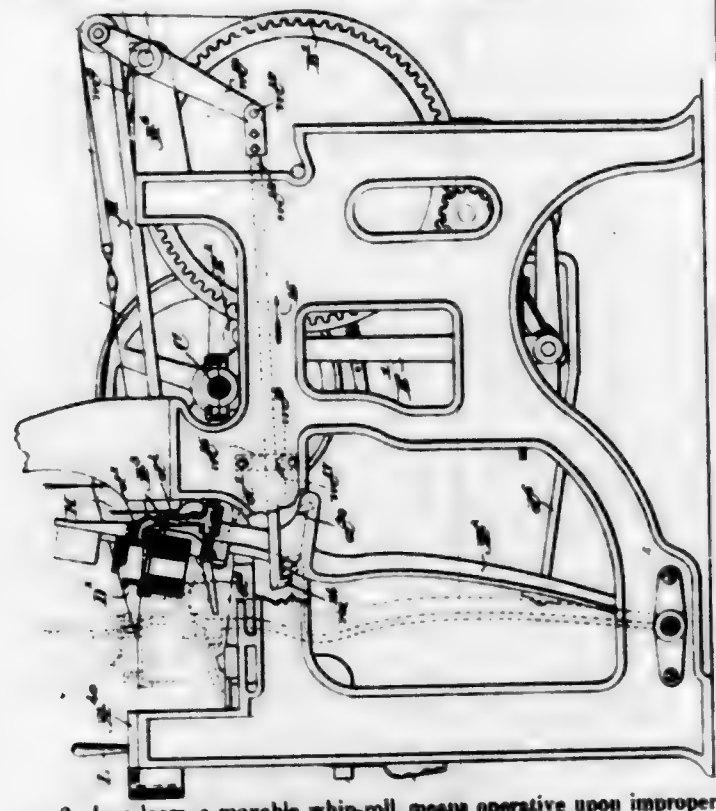
3. In a propelling means for vessels, the combination with a hull provided with a substantially semicircular pocket or indentation, of closed platforms projecting from the hull at the top and bottom of said pocket, and a propeller journaled in said pocket on an inclined axis, said propeller practically filling the pocket, its blades projecting in the rotation thereof outside of the line of the hull of the vessel, substantially as described.

692,911. LOOM. CHARLES F. ROPER, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed May 8, 1901. Serial No. 59,247. (No model.)

Claim.—1. In a loom, a movable whip-roll, means operative upon improper boxing of the shuttle to positively move the whip-roll to slacken the warps, independent means to hold the warps from bodily movement toward the fell when the filling is normally beaten in, and mechanism to prevent contemporaneous operation of the said two means.

2. In a loom, a spring-controlled whip-roll, protector mechanism, means actuated by or through operation thereof to positively move the

whip-roll to slacken the warps, independent means to hold the whip-roll from movement upon normal beat-in of the filling, and mechanism to prevent contemporaneous operation of the said two means.



3. In a loom, a movable whip-roll, means operative upon improper boxing of the shuttle to positively move the whip-roll to slacken the warps, independent means to restrain bodily movement of the warps toward the fell upon normal beat-in of the filling, and a device controlled by the operation of the former means to prevent the operation of the latter means.

4. In a loom, the lay, a movable whip-roll, protector mechanism, means actuated by or through operation thereof to positively move the whip-roll to slacken the warps, a link connected with the whip-roll and normally adapted to be engaged and held stationary by the lay as the filling is beaten in, to thereby retain the whip-roll from movement, and a device to move said link into inoperative position by or through the positive movement of the whip-roll to slacken the warps.

5. In a loom, the lay having a stop movable therewith, a pivotally-mounted spring-controlled whip-roll, a link connected therewith and provided with a cam and a projection, the latter normally engaging the stop when the filling is beaten in, to hold the whip-roll from movement toward the fell, a fixedly-mounted cam, protector mechanism, and means actuated by operation of said mechanism to positively move the whip-roll to slacken the warps, such positive movement of the whip-roll effecting engagement of the cam on the link with the fixed cam, to thereby move the projection on the link out of the path of the said stop.

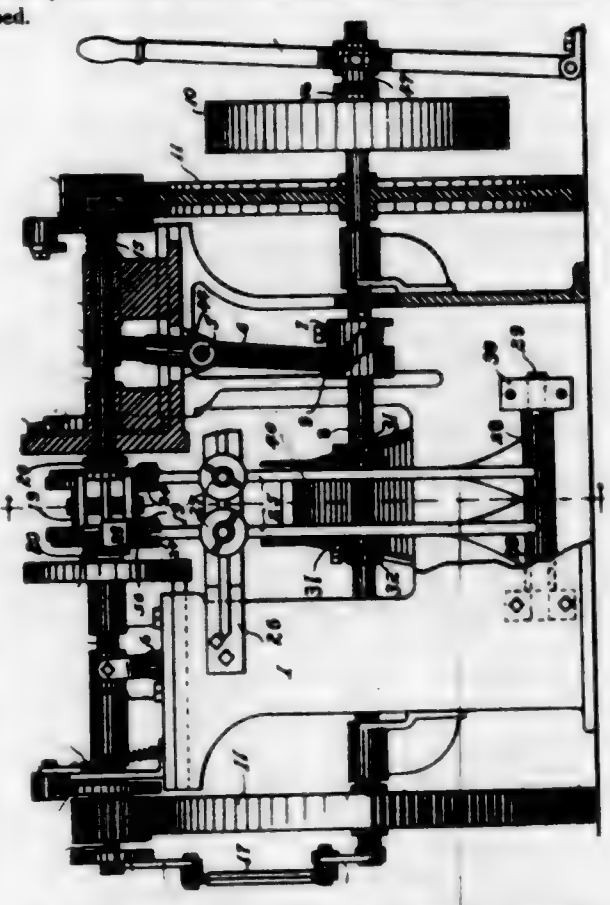
692,912. ADJUSTABLE SQUARE-CAN-HEADING MACHINE. WILLIAM RUBIN, South Omaha, and LEE C. SHARP, Omaha, Nebr. Filed June 21, 1901. Serial No. 65,479. (No model.)

Claim.—1. The combination with a suitable framework and bearings, of two shafts mounted in said bearings in line with each other and adapted to be intermittently rotated from any suitable power, can-holders on the adjacent opposite inner ends of said shafts, a second shaft, a can-carrier hub mounted thereon, and can-carriers projecting laterally from said hub, each carrier consisting of two jaws and a spring for normally holding them together, the hub being so located that the carriers will be brought into position between the can-holders and the cans will be rotated thereby, substantially as described.

2. The combination with a suitable framework and bearings mounted thereon, of can-holders and means for positively actuating them to alternately clamp the can endwise and release the same, a shaft, a head or hub mounted thereon, radially-located can-carriers projecting from said hub, each can-carrier consisting of two can-inclosing jaws pivoted to the head, a spring connecting the said jaws for normally drawing the jaws together upon a can, and telescoping flanges on the adjacent jaws of adjacent pairs for closing the space between the latter, substantially as described.

3. The combination with a can-carrier and means for holding and rotating a can in a carrier, of a lever pivoted to the frame, a head on the lever, lugs upon said head, an arm loosely pivoted at its center between said lugs, crimping-rollers pivoted in the opposite ends of said arm, means for yieldingly pressing the lever toward the can in the carrier, and means for pressing the lever away from the can, substantially as described.

4. In a can heading and crimping machine, a can-feeding mechanism comprising a central hub or disk, can-holders thereon, each consisting of a pair of jaws yieldingly pressed toward each other, and curved plates secured to the ends of the jaws and projecting rearwardly therefrom, the curved plates on the jaws of one carrier overlapping so as to telescope with the plates on the jaws of the adjacent carriers, substantially as described.

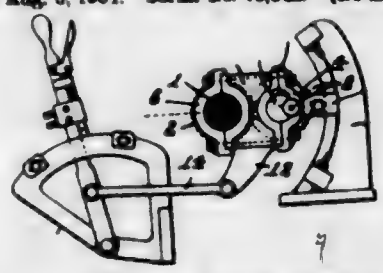


5. A can-feeding mechanism for a crimping or seaming machine comprising a hub or disk, circular plates forming peripheral flanges on each side of said hub or disk, radial arms projecting from the hub, can-holders projecting from the hub, each side of the jaw pivoted between peripheral flanges on opposite sides of the arms, and springs passing through the arms and secured at their ends to the jaws, substantially as described.

6. The combination in a can heading and crimping machine, of two shafts in line with each other, can-holders carried on the inner opposite ends thereof, a main shaft, a suitable driving-wheel on the main shaft having gear-teeth on a portion of its periphery and the rest of its periphery plain, a pinion on each can-holder shaft adapted to engage the teeth of the gear-wheel, a disk on each can-holder shaft having a notch in one side, and a roller normally pressed against the periphery of the disk and adapted to engage in the notch thereof, while the smooth portion of the periphery of the driving gear-wheel is passing the teeth of the pinion, substantially as described.

7. The combination with a suitable framework and bearings mounted thereon, of can-holders and means for positively actuating them to alternately clamp the cans endwise and release the same, a can-carrying mechanism, comprising a hub having radially-extending projections formed thereon, jaws pivoted upon each side of each projection for forming can-holding receptacles, the said projections forming a center stop for said jaws, springs for drawing the said jaws against the said radial projections for holding the jaws against the cans, substantially as described.

692,913. VALVE-GEARING. WILLIAM H. RUBELY, Laporte, Ind. Filed Aug. 5, 1901. Serial No. 70,848. (No model.)



Claim.—1. In a valve-gear, the combination, substantially as set forth, of an engine-shaft, a spur-gear fast thereon, an angularly-adjustable housing having its axis of oscillation coincident with that of the engine-shaft and having bearings of oscillation at each side of said spur-gear, a counter-shaft journaled in the housing parallel with the engine-shaft, an eccentric carried by the counter-shaft, a spur-gear on the counter-shaft and en-

gaging the first-mentioned spur-gear, and means for angularly adjusting the housing.

2. In a valve-gear, the combination, substantially as set forth, of an engine-shaft, a spur-gear fast thereon, an angularly-adjustable housing having its axis of oscillation coincident with that of the engine-shaft and having bearings of oscillation at each side of said spur-gear, a counter-shaft journaled in the housing parallel with the engine-shaft, a pair of eccentrics carried by the counter-shaft, a spur-gear on the counter-shaft and engaging the first-mentioned spur-gear, and means for angularly adjusting the housing.

3. In a valve-gear, the combination, substantially as set forth, of an engine-shaft, a spur gear fast thereon, an angularly-adjustable housing having its axis of oscillation coincident with that of the engine-shaft and having bearings of oscillation at each side of said spur-gear, a counter-shaft journaled in the housing parallel with the engine-shaft, said housing having a pair of journal-bearings engaging said counter-shaft, an eccentric carried by the counter-shaft, a spur-gear on the counter-shaft and engaging the first-mentioned spur-gear and disposed between the two counter-shaft bearings of the housing, and means for angularly adjusting the housing.

4. In a valve-gear, the combination, substantially as set forth, of an engine-shaft, a spur-gear fast thereon, an angularly-adjustable housing having its axis of oscillation coincident with the axis of the engine-shaft, a counter-shaft journaled in the housing parallel with the engine-shaft, an eccentric carried by the counter-shaft, a spur-gear fast on the counter-shaft and engaging the first-mentioned spur-gear, a curved standard rigidly supported concentric with the engine-shaft, jaws projecting from the housing and engaging the sides of said standard, and means for angularly adjusting the housing.

5. In a valve-gear, the combination, substantially as set forth, of an engine-shaft, a spur-gear fast thereon, a counter-shaft parallel with the engine-shaft, a spur-gear on the counter-shaft engaging the first-mentioned spur-gear, an eccentric carried by the counter-shaft, an angularly-adjustable housing having half-boxes engaging the counter-shaft and engine-shaft upon opposite sides of the spur-gears thereon, journal-box caps engaging said half-boxes, and means for angularly adjusting said housing.

6. In a valve-gear, the combination, substantially as set forth, of an engine-shaft, a spur-gear fast thereon, a counter-shaft parallel with the engine-shaft, a spur-gear on the counter-shaft engaging the first-mentioned spur-gear, an eccentric carried by the counter-shaft, an angularly-adjustable housing having half-boxes engaging the counter-shaft and engine-shaft upon opposite sides of the spur-gears thereon, journal-box caps engaging half-boxes of the housing at the engine-shaft, journal-box caps engaging the half-boxes of the housing at the counter shaft and having outward extensions bolted together and formed with a notch, a rigid curved standard concentric with the engine-shaft and engaging said notch, and means for angularly adjusting said housing.

7. In a valve-gear, the combination, substantially as set forth, of an engine-shaft, a counter-shaft parallel therewith, an eccentric carried by the counter-shaft, intermembering spur-gears upon the engine-shaft and counter-shaft, a housing having journal-bearings engaging the engine-shaft and counter-shaft on opposite sides of the gears thereon and having a box inclosing the communicating portions of said gears, and means for angularly adjusting said housing.

692,914. CAR-BOLSTER. RALPH V. SAGE, Westmont, Pa. Filed Dec. 10, 1901. Serial No. 85,411. (No model.)

Claim.—1. In a bolster, a combined top and side member consisting of a plate bent in channel or trough form, the sides being deeper at the center than at the ends, a bottom member of channel-section secured to the lower portion of the side members by its externally-projecting flanges.

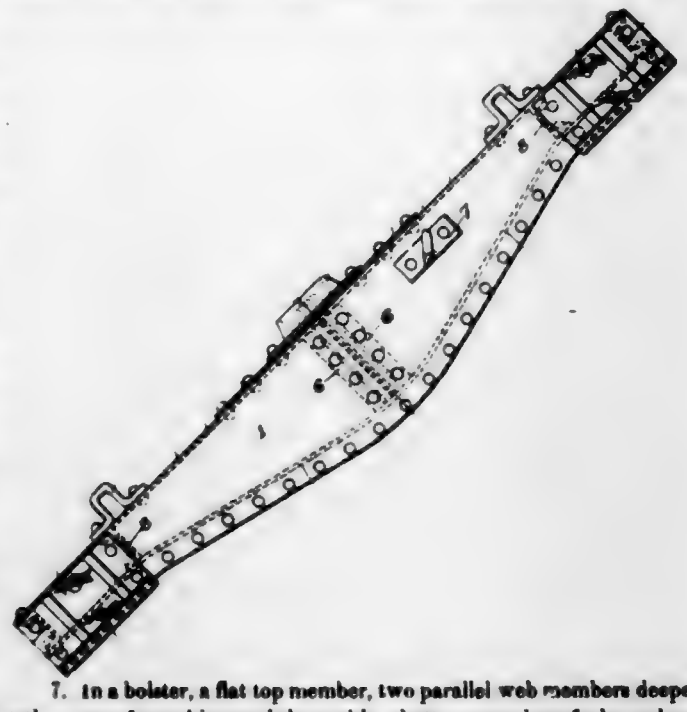
2. In a bolster, a combined web and top member composed of a plate bent on straight lines to form a flat top and two sides, said sides being deeper at the center than at the ends, a bottom member of channel-section, said side members and bottom member being secured together by their externally-projecting portions.

3. In a bolster, a plate bent in trough shape, having a flat top and two depending sides, said sides being deeper at the center than at their ends, a bottom member of channel-section bent to conform to the outline of the lower edges of said sides and secured thereto by its exteriorly-projecting flanges.

4. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges.

5. In a box-bolster, a center brace comprising a pair of channels placed back to back, the central portions of the webs of said channels being pressed to form a cylindrical opening, said channels being attached by their flanges to the bolster sides.

6. A center brace for a box-bolster, comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster sides, the central portion of the web of each channel being pressed in semicylindrical shape, thus together forming a cylindrical hole for the king-pin.



7. In a bolster, a flat top member, two parallel web members deepest at the center formed integral therewith, a bottom member of channel-section bent to conform to the lower outline of, secured to and between the lower edges of said web members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms, said end yokes being attached by their sides to the said bolster-webs.

8. In a bolster, a flat top member, two parallel web members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured to and between the lower edges of said web members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms, said end yokes being attached by their sides to the said bolster-webs, and end diaphragms composed of short pieces of rolled channels placed between and secured to the top and bottom members by means of the flanges of said channels.

9. In a box-bolster provided with a flat top and depending web members formed integral therewith, end yokes comprising plates of trough form with flat bottoms, said end yokes being attached to said bolster-webs by their sides.

10. In a box-bolster provided with a flat top and web members formed integral therewith, end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes and crimped plates being attached to the bolster-webs by bolts or rivets passing therethrough.

11. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith, a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a cover-plate and center bearing attached to the central portion of said flat top member.

12. In a bolster, a flat top member, two parallel side members, deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms attached to said bolster-webs by their sides.

13. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms, column-guides of crimped plates, said end yokes and column-guides being secured to the bolster-webs by rivets or bolts passing therethrough.

14. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes being attached to said bolster sides by rivets passing therethrough, end diaphragms composed of short pieces of channels secured by their flanges to the top and bottom members of said bolster, near their ends.

15. In a box-bolster, end diaphragms composed of short pieces of

rolled channels secured by their flanges to the top and bottom members of said bolster.

16. In a bolster, a flat top member, two parallel side members, deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, end diaphragms composed of short pieces of rolled channels secured by their flanges to and between the top and bottom members, near the ends of said bolster.

17. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of end secured between the lower edges of said side members by means of its downwardly-projecting flanges, a cover-plate attached to the central portion of said flat top member, a center bearing mounted on said cover-plate, end yokes comprising plates of trough form with flat bottoms, said end yokes being attached by their sides to said bolster sides.

18. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each channel being pressed in a semicylindrical shape.

19. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each channel being pressed in a semicylindrical shape, end yokes comprising plates of trough form with flat bottoms secured by their sides to said bolster sides.

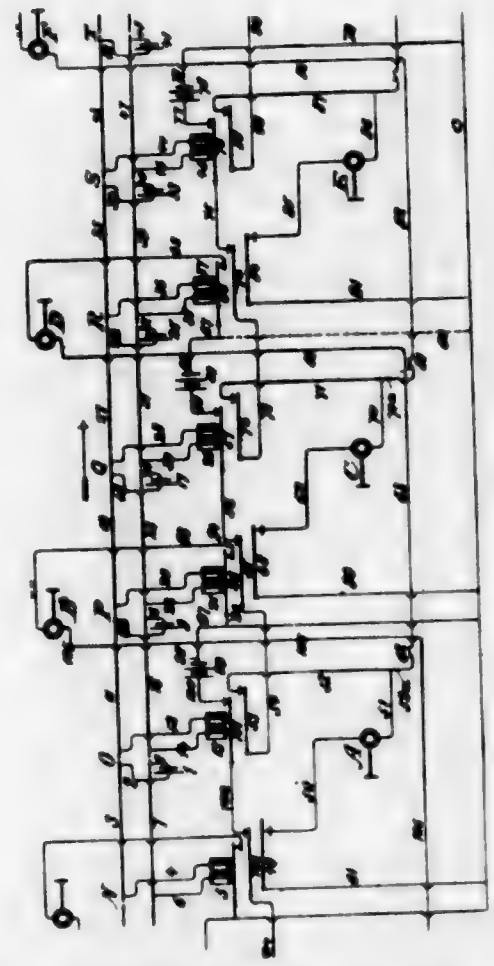
20. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each channel being pressed in semicylindrical shape, end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes and column-guides being secured to said bolster sides by rivets passing therethrough.

21. In a bolster, a flat top member, two parallel side members deepest at the center formed integral therewith; a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each channel being pressed in semicylindrical shape; end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes and column-guides being secured to said bolster-webs by rivets passing therethrough; end diaphragms composed of short pieces of rolled channels secured by their flanges to the top and bottom members of said bolster.

22. A bolster comprising a flat top member, two parallel web members deepest at the center formed integral therewith, a bottom member of channel-section bent to conform to the lower outline of and secured between the lower edges of said side members by means of its downwardly-projecting flanges, a center brace comprising a pair of rolled channels placed back to back and secured by their flanges to the bolster-webs, the central portion of the web of each center brace being in semicylindrical shape, a cover-plate secured to the central portion of said flat top member, end yokes comprising plates of trough form with flat bottoms, crimped-plate column-guides, said end yokes and end column-guides being secured to the bolster webs by rivets or bolts passing therethrough, end diaphragms composed of short pieces of channel-section secured by their flanges to the top and bottom members of said bolster.

692,915. SIGNALING SYSTEM FOR SINGLE-TRACK RAILWAYS. WILBER W. SALMON, Chicago, Ill., assignor to the Hall Signal Company, a Corporation of Maine. Filed July 21, 1894. Serial No. 518,218. (No model.)

Claim.—1. In a signaling system for single-track railways, the combination of a series of outrunning blocks and a series of overlapping inrunning blocks, signals for the blocks normally at danger but operating to go to safety in front of the trains which they face, each outrunning signal guarding a portion of the track which is also guarded by a corresponding inrunning signal, said inrunning signal being located in the rear of its corresponding outrunning signal not less than the distance between the said inrunning signal and the next inrunning signal toward the said outrunning signal, means for operating the inrunning signal to put it to or hold it at danger controlled by an outrunning train from a point in advance of said corresponding outrunning signal and means for operating the outrunning signal to put it to danger controlled by an outrunning train from a point substantially at the said outrunning signal, substantially as set forth.



2. In a signaling system for single-track railways, the combination of a series of outrunning blocks and a series of overlapping inrunning blocks, signals for the blocks normally at danger but operating to go to safety in front of the trains which they face, each outrunning signal guarding a portion of the track which is also guarded by a corresponding inrunning signal, said inrunning signal being located in the rear of its corresponding outrunning signal not less than the distance between the said inrunning signal and the next inrunning signal toward the said outrunning signal, means for operating the inrunning signal to put it to or hold it at danger controlled by an outrunning train from a point in advance of said corresponding outrunning signal, means for operating said inrunning signal to put it to danger controlled by an inrunning train from a point substantially at the inrunning signal, and means for operating the outrunning signal to put it to danger controlled by an outrunning train from a point substantially at the said outrunning signal and by an inrunning train to hold it at or put it to danger from a point in the rear of said outrunning signal and not nearer thereto than the corresponding inrunning signal, substantially as set forth.

3. In an electric signaling system for single-track railways, the combination of a series of outrunning blocks and a series of overlapping inrunning blocks, signals for the blocks normally at danger but operating to go to safety in front of the trains which they face and normally deënergized operating or controlling circuits for the signals, each outrunning signal guarding a portion of the track which is also guarded by a corresponding inrunning signal, said inrunning signal being located in the rear of its corresponding outrunning signal not less than the distance between the said inrunning signal and the next inrunning signal toward the said outrunning signal, a track-circuit for operating the circuit for the inrunning signal to put it to or hold it at danger controlled by an outrunning train from a point in advance of said corresponding outrunning signal, and a track-circuit for operating the circuit for the outrunning signal to put it to danger controlled by an outrunning train from a point substantially at the said outrunning signal, substantially as set forth.

4. In an electric signaling system for single-track railways, the combination of a series of outrunning blocks and a series of overlapping inrunning blocks, signals for the blocks normally at danger but operating to go to safety in front of the trains which they face and normally deënergized operating or controlling circuits for the signals, each outrunning signal guarding a portion of the track which is also guarded by a correspond-

ing inrunning signal, said inrunning signal being located in the rear of its corresponding outrunning signal not less than the distance between the said inrunning signal and the next inrunning signal toward the said outrunning signal, a track-circuit for operating the circuit for the inrunning signal to put it to or hold it at danger controlled by an outrunning train from a point in advance of said corresponding outrunning signal, a track-circuit for operating the circuit for the inrunning signal to put it to danger controlled by an inrunning train from a point substantially at the inrunning signal, and track-circuits for operating the circuit for the outrunning signal to put it to danger controlled by an outrunning train from a point substantially at the said outrunning signal and by an inrunning train to hold it at or put it to danger from a point in the rear of said outrunning signal and not nearer thereto than the corresponding inrunning signal, substantially as set forth.

5. In an electric signaling system for single-track railways, the combination of a series of outrunning blocks and a series of overlapping inrunning blocks, signals for the blocks normally at danger but operating to go to safety in front of the trains which they face and normally deënergized operating or controlling circuits for the signals, each outrunning signal guarding a portion of the track which is also guarded by a corresponding inrunning signal, said inrunning signal being located in the rear of its corresponding outrunning signal not less than the distance between the said inrunning signal and the next inrunning signal toward the said outrunning signal, a rail-circuit for operating the circuit for the inrunning signal to put it to or hold it at danger controlled by an outrunning train from a point in advance of said corresponding outrunning signal, a rail-circuit for operating the circuit for the inrunning signal to put it to danger controlled by an inrunning train from a point substantially at the inrunning signal, and rail-circuits for operating the circuit for the outrunning signal to put it to danger controlled by an outrunning train from a point substantially at the said outrunning signal and by an inrunning train to put it to or hold it at danger from a point in the rear of said outrunning signal and not nearer thereto than the corresponding inrunning signal, substantially as set forth.

6. In a single-track block-signaling system, two series of signals, each series adapted to act as danger-signals for trains moving in one direction and as opposing signals for trains moving in the other direction, electric signaling-circuits, normally broken at one point, controlled by the train for operating said signals, a circuit-maker at said break in each of said circuits adapted to be closed by the train while on the portion of track in advance of a signal, said signaling-circuits for operating each signal of one series being also controlled by the train while on any portion of the track between said signal of the first series and the opposing signal of the other series which is the second one of said series beyond a preliminary track-section lying immediately in advance of the said signal of the first series, and the circuit for operating each signal of the second series being controlled by the train while on any portion of the track between said signal and the farther end of a preliminary track-section lying immediately beyond the signal of the first series which is next beyond or opposite to the next signal of the second series, substantially as set forth.

7. In a single-track block-signaling system, two series of signals, each series adapted to act as danger-signals for trains moving in one direction and as opposing signals for trains moving in the other direction, said signals being arranged alternately along the track, first a signal from one series, then a signal from the other, and so on, electric signaling-circuits, one for each signal, normally broken at one point, controlled by the train for operating said signals, a circuit-maker in each of said circuits adapted to be closed by the train while on the section of the track immediately in advance of the signal operated by said circuit, the circuit for operating each signal of one series being also controlled by the train while on any portion of the track between said signal of the first series and the opposing signal of the other series which is the second one of said series beyond a preliminary track-section lying immediately in advance of the said signal of the first series, and the circuit for operating each signal of the second series being controlled by the train while on any portion of the track between said signal and the end of a preliminary track-section lying immediately in advance of the signal of the first series which is next beyond or opposite to the next signal of the second series, substantially as set forth.

8. In a single-track block-signaling system, two series of signals, each series adapted to act as danger-signals for trains moving in one direction and as opposing signals for trains moving in the other direction, said signals being arranged alternately along the track, first a signal from one series, then a signal from the other, and so on, insulated sections of track, a track-circuit for each of said sections of track adapted to be operated by the train while on said section, a relay in each of said circuits, a secondary signaling-circuit, normally broken at one point, adapted to operate each signal, a circuit-maker at said break in each signaling-circuit adapted to be closed by the train while on the section of track in advance of the signal in said circuit, circuit-breakers in each of said signaling-circuits adapted in the signal-circuits of one series of said signals to be operated by the relays in three of said track-circuits and in the signaling-circuits of the other series of signals to be operated by the relays in four of said track-circuits, substantially as set forth.

9. In a single-track block-signaling system, two series of signals, each series adapted to act as danger-signals to trains moving in one direction and as opposing signals to trains moving in the other direction, said signals being arranged alternately along the track, first a signal from one series, then a signal from the other and so on, insulated sections of track, a normally closed track-circuit for each of said sections of track adapted to be operated by the train while on the said section, a relay in each of said circuits, a secondary signaling-circuit, normally broken at one point, adapted to operate each signal, a circuit-maker in each of said signaling-circuits adapted to be closed by the train while on the section of track immediately in advance of the signal of said circuit, circuit-breakers in each of said signaling-circuits, adapted in the signaling-circuits of one series of said signals to be operated by the relays in three of said track-circuits, and in the signaling-circuits of the other series to be operated by the relays of said track-circuits, substantially as set forth.

10. In a single-track block-signaling system, two series of signals, each series adapted to act as danger-signals for trains moving in one direction and as opposing signals to trains moving in the other direction, insulated sections of track, track-circuits, including the said insulated sections, adapted to be operated by the train, relays in said circuits, a secondary signaling-circuit, normally broken at one point, adapted to operate each signal, a circuit-maker at the break in each of said circuits adapted to be closed when the train is on the section of track immediately in advance of the signal of said circuit, circuit-breakers in each of said signaling-circuits adapted in the signaling-circuits of one series of said signals to be operated by the relays of the track-circuits covering the portions of track between a signal of said first series and the opposing signal of the other series which is the second one of said series beyond a preliminary track-section which lies immediately in advance of the said signal of the first series, and adapted in the signaling-circuits of the other series of said signals to be operated by the relays of the track-circuits covering the said preliminary track-sections and the track-sections between it and the second signal of the said other series beyond said preliminary track-section, substantially as set forth.

11. In a single-track block-signaling system two series of signals, each series adapted to act as danger-signals for trains moving in one direction and as opposing signals for trains moving in the other direction, insulated sections of track, track-circuits, normally closed, including said insulated sections and adapted to be operated by the train while on said sections, relays in said circuits, a secondary signaling-circuit normally broken at one point adapted to operate each signal, a circuit-maker at the break in each of said circuits adapted to be closed by the train while on the section of track immediately in advance of the signal of said circuit, circuit-breakers in each of said signaling-circuits adapted in the signaling-circuits of one series of said signals to be operated by the relays of the track-circuits covering the sections of track between a signal of said first series and the opposing signal of the second series which is the second one of said second series beyond a preliminary track-section which lies immediately in advance of the said signal of the first series, and adapted in the signaling-circuits of the other series of said signals to be operated by the relays of the track-circuits covering the said preliminary track-section and the track-sections between it and the second signal of the said second series beyond said preliminary track-section, substantially as set forth.

12. In an electric signaling system for single-track railways, the combination of a rear signal normally at danger, an opposing signal normally at danger, line-circuits for the signals and normally closed rail-circuits operated by the passage of a train for controlling or operating said signals, an electromagnetically-operated switch located in one of said rail-circuits to cause the rear signal to show safety before an approaching train when the track-section guarded by the signal is clear, a circuit-breaker to cause said signal to show danger as long as the train is in said guarded track-section, and a mechanical means to prevent the opposing signal in advance of the train from showing clear until the train has passed it, substantially as set forth.

13. In an electric signaling system for single-track railways, the combination of a series of rear signals normally at danger, a series of corresponding opposing signals normally at danger, line-circuits for the signals and normally closed rail-circuits operated by the passage of a train for controlling or operating said signals, an electromagnetically-operated switch located in one of said rail-circuits to cause a rear signal to show safety before an approaching train when the track-section guarded by the said signal is clear, a circuit-breaker to cause said signal to show danger as long as the train is in said track-section and until after it has passed beyond the next rear signal in advance of the train, and a mechanical means for preventing the corresponding opposing signal in advance of the train from showing clear until the train has passed it, substantially as set forth.

14. In an electric signaling system for single-track railways, the combination of a rear signal normally at danger, an opposing signal normally at danger, line-circuits for the signals and normally closed rail-circuits operated by the passage of a train for controlling or operating said signals, an electromagnetically-operated switch located in one of said rail-circuits to cause the rear signal to show safety before an approaching train when the track-section guarded by the signal is clear, a circuit-breaker to cause said signal to show danger as long as the train is in said guarded track-section, and a mechanical means for preventing the opposing signal in advance of the train from showing clear until the train has passed it, said rear signals serving to control the setting or continuing of its corresponding signal as an opposing signal, substantially as set forth.

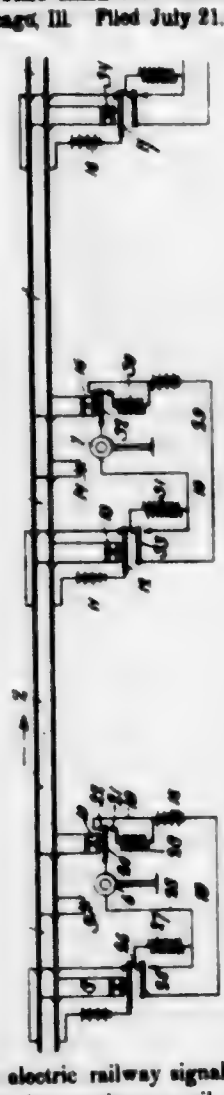
15. In an electric signaling system for single-track railways, the combination of a series of rear signals normally at danger, a series of corresponding opposing signals normally at danger, line-circuits for the signals and normally closed rail-circuits operated by the passage of a train for controlling or operating said signals, an electromagnetically-operated switch located in one of said rail-circuits to cause a rear signal to show safety before an approaching train when the track-section guarded by said signal is clear, a circuit-breaker to cause said signal to show danger as long as the train is in said track-section and until after it has passed beyond the next rear signal in advance of the train, and a mechanical means for preventing the corresponding opposing signal in advance of the train from showing clear until the train has passed it, said rear signals serving to control the setting or continuing of its corresponding signal as an opposing signal, substantially as set forth.

16. In an electric signaling system for single-track roads, the combination of a series of outrunning blocks and a series of overlapping inrunning blocks, signals for the blocks and operating or controlling line-circuits for the signals, each outrunning signal guarding a portion of the track which is also guarded by a corresponding inrunning signal, said inrunning signal being located in the rear of its corresponding outrunning signal not less than the distance between the said inrunning signal and the next inrunning signal toward the said outrunning signal, a track-circuit for operating the circuit for the inrunning signal to put it to danger controlled by an outrunning train and located in advance of said corresponding outrunning signal, and a track-circuit for operating the circuit for the outrunning signal to put it to danger controlled by an outrunning train and located substantially at the said outrunning signal, the several circuits of the blocks being so arranged that the inrunning signals are connected together and the outrunning signals are connected together and the inrunning and outrunning signals are interconnected, substantially as set forth.

17. In an electric signaling system for single-track roads, the combination of a series of outrunning blocks and a series of overlapping inrunning blocks, signals for the blocks and operating or controlling line-circuits for the signals, each outrunning signal guarding a portion of the track which is also guarded by a corresponding inrunning signal, said inrunning signal being located in the rear of its corresponding outrunning signal not less than the distance between the said inrunning signal and the next inrunning signal toward the said outrunning signal, a track-circuit for operating the circuit for the inrunning signal to put it to danger controlled by an outrunning train and located in advance of said corresponding outrunning signal, a track-circuit operating the circuit for the inrunning signal to put it to danger controlled by an inrunning train and located substantially at the inrunning signal, a track-circuit for operating the circuit for the outrunning signal to put it to danger controlled by an outrunning train and located substantially at the said outrunning signal, and a track-circuit for operating the circuit for the outrunning signal to put it to danger controlled by an inrunning train and located in the rear of said outrunning signal and not nearer thereto than the corresponding inrunning signal, the several circuits of the blocks being so arranged that the inrunning signals are connected together and the outrunning signals are connected together and the inrunning and outrunning signals are interconnected, substantially as set forth.

18. In an electric signaling system for single-track roads, the combination of a series of outrunning blocks and a series of overlapping inrunning blocks, signals for the blocks and operating or controlling line-circuits for the signals, each outrunning signal guarding a portion of the track which is also guarded by a corresponding inrunning signal, said inrunning signal being located in the rear of its corresponding outrunning signal not less than the distance between the said outrunning signal and the next inrunning signal toward the said outrunning signal, a rail-circuit for operating the circuit for the inrunning signal to put it to danger controlled by an outrunning train and located in advance of said corresponding outrunning signal, a rail-circuit for operating the circuit for the inrunning signal controlled by an inrunning train and located substantially at the inrunning signal, a rail-circuit for operating the circuit for the outrunning signal to put it to danger controlled by an outrunning train and located substantially at the said outrunning signal, and a rail-circuit for operating the circuit of the outrunning signal to put it to danger controlled by an inrunning train and located in the rear of said outrunning signal and not nearer thereto than the corresponding inrunning signal, substantially as set forth.

692,916. ELECTRIC RAILWAY SIGNALING SYSTEM. WILBER W. SALMON, Chicago, Ill. Filed July 21, 1900. Serial No. 24,359. (No model.)



Claim.—1. In an electric railway signaling system, the combination of a signal-circuit having a resistance-coil and a circuit-controller, the circuit-controller operating to exclude and include the resistance-coil to energize and deënergize the signal-circuit and thereby operate the signal, and means controlled by a train for operating the circuit-controller.

2. In an electric railway signaling system, the combination of a normally deënergized circuit having a resistance-coil and a circuit-controller, the circuit-controller operating to exclude and include the resistance-coil to energize and deënergize the signal-circuit and thereby operate the signal, and means controlled by a train for operating the circuit-controller.

3. In an electric railway signaling system, the combination of a signal-circuit having a resistance-coil and a circuit-controller, the circuit-controller operating to exclude and include the resistance-coil to energize and deënergize the signal-circuit, and thereby operate the signal, and a rail-circuit controlled by a train for operating the circuit-controller.

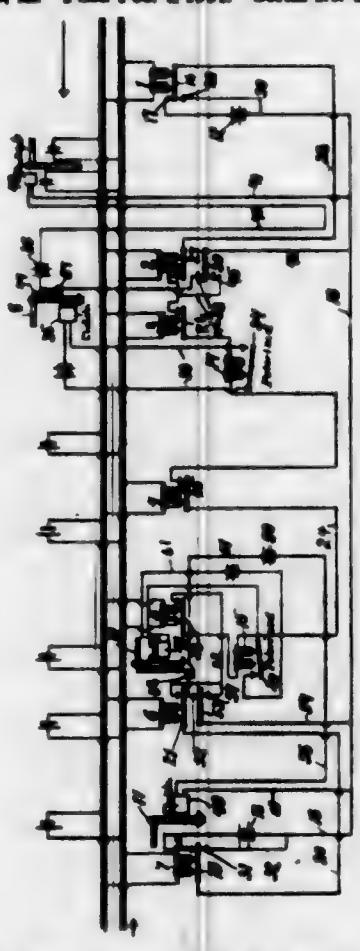
4. In an electric signaling system, the combination of a normally deënergized signal-circuit having a resistance-coil and a circuit-controller, the circuit-controller operating to exclude and include the resistance-coil to energize and deënergize the signal-circuit and thereby operate the signal, and a rail-circuit controlled by a train for operating the circuit-controller.

5. In an electric railway signaling system, the combination of a normally deënergized signal-circuit normally including a resistance-coil and a circuit-controller, the circuit-controller operating to exclude and include the resistance-coil to energize and deënergize the signal-circuit and thereby operate the signal, means controlled by a train in the rear of the signal for operating said circuit-controller to exclude said resistance-coil from the signal-circuit, whereby the train may put the signal to safety in advance thereof, a second resistance-coil normally excluded from the circuit, and a second circuit-controller arranged to include and exclude said second resistance-coil from the circuit, and means controlled by a train for including the second resistance-coil in the signal-circuit to deënergize the signal-circuit and put the signal to danger in the rear of the train.

6. In an electric railway signaling system, the combination of a normally deënergized signal-circuit normally including a resistance-coil and a circuit-controller, the circuit-controller operating to exclude and include the resistance-coil to energize and deënergize the signal-circuit and thereby operate the signal, and a rail-circuit controlled by a train in the rear

of the signal for operating said circuit-controller to exclude the resistance-coil from the signal-circuit, whereby a train may put the signal to safety in advance thereof, a second resistance-coil normally excluded from the circuit, and a second circuit-controller arranged to include and exclude said second resistance-coil from the circuit, and a rail-circuit controlled by a train for including the second resistance-coil in the signal-circuit to de-energize the signal-circuit and put the signal to danger in the rear of the train.

692,917. ELECTRIC SIGNALING SYSTEM. WILBER W. SALMON, Chicago, Ill. Filed Feb. 4, 1901. Serial No. 46,823. (No model.)



Claim.—1. In a single-track electric signaling device the combination of inrunning and outrunning signals; a signal-circuit containing a source of electric energy and two polarized magnetic devices adapted to control the operation of the said signal, and means controlled by an inrunning train to permit the flow of a constant current for selecting one of said polarized magnets; and means controlled by an outrunning train to select the other polarized magnet.

2. In a single-track electric signaling system, the combination of inrunning and outrunning signals, a signal-circuit containing two polarized magnetic devices adapted to control the operation of said signals, opposing batteries, and means controlled by an inrunning train to permit the flow of the current from one of said batteries in the said signal circuit.

3. In a single-track electric signaling system, the combination of inrunning and outrunning signals normally at danger; a signal-circuit containing two polarized magnetic devices in series which are adapted to control the operation of said signals; a generator in series with the said magnets; and means for selectively controlling the said magnetic devices.

4. In a single-track electric signaling system, the combination of inrunning and outrunning signals normally at danger; a signal-circuit containing two polarized magnetic devices adapted to control the operation of said signals; a generator in series with the said polarized magnets; means controlled by an inrunning train in the rear of the inrunning signal to operate the magnetic device of the inrunning signal and prevent the operation of the magnetic device of the outrunning signal; and means controlled by an outrunning train in the rear of the outrunning signal to operate the magnetic device of the outrunning signal and prevent the operation of the magnetic device of the inrunning signal; said means being so arranged that when they are simultaneously operated the magnetic devices cause said signals to be at danger.

5. In a single-track electric signaling system, the combination of inrunning and outrunning signals normally at danger; a signal-circuit containing two polarized magnetic devices adapted to control the operation of said signals, opposing sources of electric energy; means controlled by an inrunning train in the rear of the inrunning signal to operate the magnetic device of the inrunning signal; and means controlled by an outrunning train in the rear of the outrunning signal to operate the magnetic device of the outrunning signal, said means being so arranged that when they are simultaneously operated the magnetic devices cause said signals to remain at danger.

6. In a single-track electric signaling system, the combination of inrunning and outrunning signals normally at danger; a signal-circuit containing two polarized magnetic devices adapted to control the operation of said signals; opposing sources of electric energy; means controlled by an inrunning train in the rear of the inrunning signal for cutting out one of said sources to operate the magnetic device of the inrunning signal; and means controlled by an outrunning train in the rear of the outrunning signal for cutting out another of the said sources to operate the magnetic device of the outrunning signal, and means controlled by a train between said signals for holding both signals at danger.

7. In a single-track electric signaling system, the combination of inrunning and outrunning signals; a signal-circuit containing two opposing batteries and two polarized magnetic devices adapted to control the operation of said signals, said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train to operate the magnetic device of the inrunning signal; and means controlled by an outrunning train to operate the magnetic device of the outrunning signal; said means being so arranged that when they are simultaneously operated the magnetic devices cause said signals to be at danger.

8. In a single-track electric signaling system, the combination of inrunning and outrunning signals normally at danger; a signal-circuit containing two opposing batteries and two polarized magnetic devices adapted to control the operation of said signal, said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train to operate the magnetic device of the inrunning signal; and means controlled by an outrunning train to operate the magnetic device of the outrunning signal, said means being so arranged that when they are simultaneously operated the magnetic devices cause said signals to remain at danger.

9. In a single-track electric signaling system, the combination of inrunning and outrunning signals normally at danger; a signal-circuit containing two opposing batteries and two polarized magnetic devices adapted to control the operation of said signals, said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train in the rear of the inrunning signal to operate the magnetic device of the inrunning signal and prevent the operation of the magnetic device of the outrunning signal; and means controlled by an outrunning train in the rear of the outrunning signal to operate the magnetic device of the outrunning signal and prevent the operation of the magnetic device of the inrunning signal, said means being so arranged that when they are simultaneously operated the magnetic devices cause said signals to be at danger.

10. In a single-track electric signaling system, the combination of inrunning and outrunning signals normally at danger; a signal-circuit containing two opposing batteries and two polarized magnetic devices adapted to control the operation of said signals; said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train in the rear of the inrunning signal to operate the magnetic device of the inrunning signal and prevent the operation of the magnetic device of the outrunning signal; and means controlled by an outrunning train in the rear of the outrunning signal to operate the magnetic device of the outrunning signal and prevent the operation of the magnetic device of the inrunning signal, said means being so arranged that when they are simultaneously operated the magnetic devices cause said signals to remain at danger, and means controlled by a train between said signals for holding both signals at danger.

11. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals, a distant signal being so arranged that its movement to safety is dependent upon the previous movement of its home signal to safety; a signal-circuit containing two magnetic devices adapted to control the operation of said home signals; said magnetic devices being operative upon different conditions of the signal-circuit; means controlled by an inrunning train to operate the magnetic device of the inrunning home signal; and means controlled by an outrunning train to operate the magnetic device of the outrunning home signal; said means being so arranged that when they are simultaneously operated the magnetic devices cause said home signals to be at danger.

12. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger, a distant signal being so arranged that its movement to safety is dependent upon the previous movement of its home signal to safety; a signal-circuit containing two magnetic devices adapted to control the operation of said home signals; said magnetic devices being operative upon different electrical conditions of the signal-circuit; means controlled by an inrunning train to operate the magnetic device of the inrunning home signal; and means controlled by an outrunning train to operate the magnetic device of the outrunning home signal; said means being so arranged that when they are simultaneously operated the magnetic devices cause said home signals to remain at danger.

13. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger; a signal-circuit containing two magnetic devices adapted to control the operation of said home signals; said magnetic devices being operative upon different electric conditions of the signal-circuit; means controlled by an inrunning train in the rear of the inrunning distant signal to operate the magnetic device of the inrunning home signals to put said inrunning signals to safety, and means controlled by an outrunning train to operate the magnetic device of the outrunning signals to put said signals to safety; said means being so arranged that when they are simultaneously operated the magnetic devices cause said inrunning and outrunning home and distant signals to remain at danger.

14. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger; a signal-circuit containing two magnetic devices adapted to control the operation of said signals; said magnetic devices being operative upon different electric conditions of the signal-circuit; means controlled by an inrunning train in the rear of the inrunning distant signal to hold the outrunning signals at danger and to operate the magnetic device of the inrunning signals to put said inrunning signals to safety; and means controlled by an outrunning train in the rear of the outrunning distant signal to hold the inrunning signals at danger and to operate the magnetic device of the outrunning signals and put said outrunning signals to safety; said means being so arranged that when they are simultaneously operated the magnetic devices cause said inrunning and outrunning home and distant signals to be at danger.

15. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger, a signal-circuit containing two magnetic devices adapted to control the operation of said signals; said magnetic devices being operative upon different conditions of the signal-circuit; means controlled by an inrunning train in the rear of the inrunning distant signal to hold the outrunning signals at danger and to operate the magnetic device of the inrunning home signal and thereby put both of said inrunning signals to safety; and means controlled by an outrunning train in the rear of the outrunning distant signal to hold the inrunning signals at danger and to operate the magnetic device of the outrunning home signal and thereby put both of said outrunning signals to safety; said means being so arranged that when they are simultaneously operated the magnetic devices cause said inrunning and outrunning home and distant signals to remain at danger.

16. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger; a signal-circuit containing two polarized magnetic devices adapted to control the operation of said signals; said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train in the rear of the inrunning distant signal to operate the magnetic device of the inrunning signals to put said signals to safety; and means controlled by an outrunning train in the rear of the outrunning distant signal to operate the magnetic device of the outrunning signals to put said signals to safety; said means being so arranged that when they are simultaneously operated the magnetic devices cause said inrunning and outrunning home and distant signals to remain at danger.

17. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger, a distant signal being so arranged that its movement to safety is dependent upon the previous movement of its home signal to safety; a signal-circuit containing two polarized magnetic devices adapted to control the operation of said home signals, said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train in the rear of the inrunning distant signal to hold the outrunning signals at danger and to operate the magnetic device of the inrunning signals and put said inrunning signals to safety; and means controlled by an outrunning train in the rear of the outrunning distant signal to hold the inrunning signals at danger and to operate the magnetic device of the inrunning signals to put said inrunning signals to safety; said means being so arranged that when they are simultaneously operated the magnetic devices cause said inrunning and outrunning home and distant signals to remain at danger.

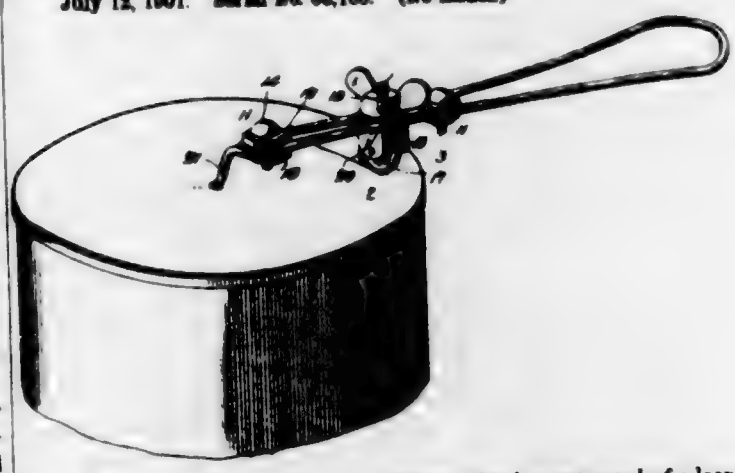
18. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals, a signal-circuit containing two opposing batteries and two polarized magnetic devices adapted to control the operation of said signals, said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train to operate the magnetic device of the inrunning signals; and means controlled by an outrunning train to operate the magnetic device of the outrunning signals; said means being so arranged that when they are simultaneously operated the magnetic devices cause said signals to be at danger.

19. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger, a signal-circuit containing two opposing batteries and two polarized magnetic devices adapted to control the operation of said home signals, said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train in the rear of the inrunning distant signal to hold the outrunning signals at danger and to operate the magnetic device of the inrunning signals to put said inrunning signals to safety; and means controlled by an outrunning train in the rear of the outrunning distant signal to hold the inrunning signals at danger and to operate the magnetic device of the outrunning signals to put said signals to safety, said means being so arranged that when they are simultaneously operated the magnetic devices cause said inrunning and outrunning home and distant signals to remain at danger.

20. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger, a distant signal being so arranged that its movement to safety is dependent upon the previous movement of its home signal to safety; a signal-circuit containing two opposing batteries and two polarized magnetic devices adapted to control the operation of said home signals, said polarized magnetic devices being arranged with like poles toward each other; means controlled by an inrunning train in the rear of the inrunning distant signal to hold said outrunning signals at danger and to operate the magnetic device of the inrunning signals to put said inrunning signals to safety, and means controlled by an outrunning train in the rear of the outrunning distant signal to hold the inrunning signals at danger and to operate the magnetic device of the outrunning signals to put the outrunning signals to safety; said means being so arranged that when they are simultaneously operated the magnetic devices cause said outrunning and inrunning home and distant signals to remain at danger.

21. In a single-track electric signaling system, the combination of inrunning and outrunning home and distant signals normally at danger; signal-circuits for the distant signals, each such circuit being controlled by the movement of its corresponding home signal; a normally closed signal-circuit containing two opposing batteries and two polarized magnetic devices arranged with like poles toward each other, and each controlling a home signal, whereby said batteries normally neutralize each other and said polarized magnetic devices are normally deënergized; track-circuits in the rear of the inrunning and outrunning distant signals, each adapted to cut in and out of circuit one of said batteries, whereby an inrunning train in the rear of the inrunning distant signal may cut out one battery and thereby hold the outrunning signals at danger and put the home and distant inrunning signals to safety, and whereby an outrunning train in the rear of the outrunning distant signal may cut out one battery and thereby hold the inrunning signals at danger and put the inrunning home and distant signals to safety; and track-circuits between the inrunning and outrunning signals in operative connection with the several signal-circuits, the arrangement being such that when an inrunning train is between the inrunning home and distant signals said distant signal goes to danger and said home signal remains at safety; when the train is between the inrunning home signal and the outrunning distant signal the inrunning home and distant signals are held at danger, and from the time the inrunning train puts the inrunning signals to safety until the train has passed the outrunning distant signal the outrunning signals are both held at danger.

692,918. CAN-OPENER. CHARLES SANDS, Palatka, Fla. Filed July 12, 1901. Serial No. 66,106. (No model.)



Claim.—1. A can-opener comprising a shank constructed of a loop of wire or rod of which one extremity is projected laterally to form a center point, clamps for securing the sides of the loop in operative relation, and a cutting member carried by the shank.

2. A can-opener comprising a shank consisting of a looped wire or rod of which one side is extended to form a center point, clamps engaging the sides of the loop at intervals to hold them in operative relation, and a cutting member adjustably mounted upon the shank between said clamps and provided with means for securing it in its adjusted positions.

3. A can-opener comprising a shank consisting of a looped wire or

rod of which one extremity is extended to form a center point, spaced clamps engaging and securing the sides of the loop formed by the shank, and a cutting member having a head provided with seats for the reception of the sides of the loop, a threaded stem, and a thumb-nut threaded upon the stem to engage the sides of the loop.

4. A can-opener comprising a shank consisting of a looped wire or rod having its sides arranged parallel with each other from their forward end to an intermediate point, terminal and intermediate clamps engaging the sides of the loop at the extremities of said parallel portions, each clamp consisting of relatively adjustable members of which one is provided with seats for the sides of the loop, and a cutting member adjustably mounted upon the parallel side portions of the loop between said clamps and provided with means for frictionally engaging said side portions to secure the cutting member in its adjusted positions, one side member of the looped shank being extended to provide a puncturing center point.

692,919. CAKE-PAN. ELEANOR B. SCHAUBLOEFFEL and ALLAN M. SCHAUBLOEFFEL, Kansas City, Mo. Filed Mar. 19, 1901. Serial No. 51,820. (No model.)



Claim.—1. The combination with a cake-pan provided with a conical central piece and having at the junction of its walls and central piece with the bottom parallel grooves or channels with their sides inclined opposite to each other; of a removable bottom provided with parallel depending converging flanges inclined at the same angles as those of the sides of said grooves and adapted to fit snugly thereto, as and for the purpose set forth.

2. The combination with a circular cake-pan provided with a central piece and having at the junction of its walls and central piece with the bottom concentric grooves or channels with inclined sides; of a removable bottom provided with concentric depending flanges inclined at the same angles as those of the sides of said grooves and adapted to fit snugly thereto, as and for the purpose set forth.

692,920. FOUNTAIN-SYRINGE HOLDER. GUSTAV SCHERER, Chicago, Ill. Filed June 12, 1901. Serial No. 64,315. (No model.)

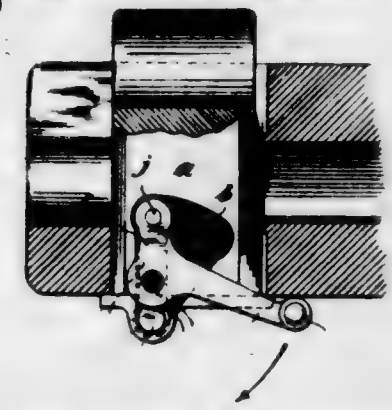


Claim.—1. A syringe-holder consisting of a rod suitably secured, a collar slidably mounted on said rod, said collar adapted to support a syringe, a connection depending from said collar at its lower end surrounding said rod and means located at the lower end of said connection for securing the same to the rod.

2. A syringe-holder consisting of a rod suitably secured, said rod being provided with graduations, a collar slidably mounted on said rod, said collar adapted to support a syringe, a connection depending from said collar at its lower end surrounding said rod, and means located at the lower end of said connection for securing the same to the rod.

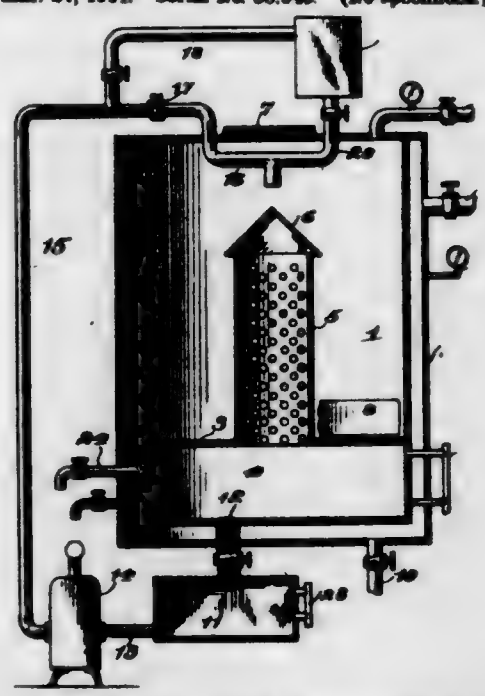
3. A syringe-holder consisting of a rod suitably secured, a collar located on said rod and adapted to support the syringe, a lower collar located on the rod being provided with a means for securing the same to the rod, a bar connecting the said collars together and a vessel-support located on the said rod between the said collars.

692,921. BREECH MECHANISM FOR GUNS. ANDREAS W. SCHWARZLOSE, Suhl, Germany. Filed June 25, 1901. Serial No. 66,001. (No model.)



Claim.—A breech mechanism for guns, comprising a wedge sliding in a transversal bore in the breech of the barrel, a rod, being pivoted to said wedge and moving in a recess of same, a double-armed lever articulated to the barrel, the short arm of which moves in a recess of the barrel, said arm being articulated to the free end of said rod; substantially as shown and described.

692,922. PROCESS OF TREATING GREASE-CONTAINING MATERIAL. JONAS J. SELDNER, Baltimore, Md., assignor to Universal Centrifugal Dryer Company, Baltimore, Md., a Corporation of Maryland. Filed Mar. 27, 1901. Serial No. 53,040. (No specimens.)



Claim.—1. The herein-described method of treating animal or vegetable material to extract matter therefrom, consisting in heating the material in a closed vessel, collecting the liquid expelled from the material by such heating, withdrawing the desired matter from said liquid, and returning the remainder of the liquid to the material within the heating vessel.

2. The herein-described method of treating animal or vegetable material to extract matter therefrom, consisting in heating the material in a closed vessel, collecting the liquid expelled from the material by such heating, withdrawing the desired matter from said liquid, and repeatedly returning the remainder of the liquid to the material within the heating vessel.

3. The herein-described method of treating animal or vegetable material, consisting in heating the material in a closed vessel to expel the liquid contents thereof, and returning said liquid and passing it through said material repeatedly, for the purpose set forth.

4. The herein-described method of treating oil-containing material, consisting in heating the material to separate the oil and other liquid elements therefrom, separating and withdrawing the oil from the other liquid and returning the remainder of the liquid to the heating vessel.

5. The method of treating animal or vegetable material to extract oil or grease therefrom which consists in heating said material to expel liquid therefrom, separating out from said liquid the oil and grease therein, and returning the remaining liquid to the material under treatment to serve as a vehicle for conveying further oil and grease from said material.

692,923. ADVERTISING STREET AND STATION INDICATOR. JOSEPH H. SHEPARD, Toronto, Canada. Filed June 22, 1901. Serial No. 65,673. (No model.)



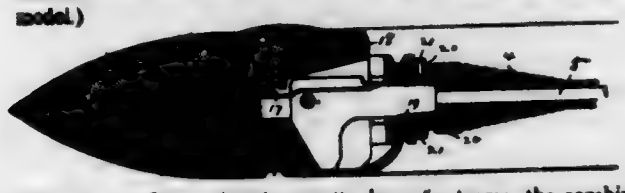
Claim.—1. In a street and station indicator, the combination with the frame, main shaft and counter-shaft suitably journaled therein, of the sprocket-wheels on the ends of the main shaft and the sprocket-wheels on the ends of the counter-shaft and the sprocket-chains connecting the same, and the flaps having the edge notches arranged in zigzag fashion as to each adjacent flap but opposite each other as to each alternate flap, the connecting-tails secured to the flaps and to the cross-bars of the links, means for imparting movement to the main shaft, a lever for controlling said flaps, said lever provided with an end roller designed to project in front of the notches in the flaps and means connected to the main shaft for imparting a lateral movement to the lever and consequently the roller as and for the purpose specified.

2. In a street and station indicator, the combination with the frame, main shaft and counter-shaft suitably journaled therein, of the sprocket-wheels on the ends of the main shaft and the sprocket-wheels on the ends of the counter-shaft, and the sprocket-chains connecting the same, and the flaps having the edge notches arranged in zigzag fashion as to each adjacent flap but opposite each other as to each alternate flap, the connecting-tails secured to the flaps and to the cross-bars of the links, means for imparting movement to the main shaft, a lever for controlling said flaps said lever provided with an end roller designed to project in front of the notches in the flaps, the wheel secured on the end of the shaft provided with face-teeth, the spring provided with a roller engaging with such teeth and the link connecting such spring to the lever as and for the purpose specified.

3. The combination with the main shaft and a pair of sprocket-wheels secured at each end of the main shaft, and the counter-shaft, and the sprocket-chains connecting the same and the flaps connected to the cross-bars of the outer sprocket-chain and an intermediate set of flaps connected to the cross-bars of the inner sprocket-chains, which latter cross-bars are situated intermediately of the length of the cross-bars of the outer sprocket-chains as and for the purpose specified.

4. The combination with the main shaft and counter-shaft and sprocket and sprocket-chains and flaps secured to the sprocket-chains, of a ratchet-wheel secured in the end of the main shaft, the arm pivoted at one end on the main shaft, the lever-pawl pivoted on the end of the arm, the stop-pins for limiting the pawl movement and means for raising the pawl so as to give a step-like movement to the ratchet-wheel as and for the purpose specified.

692,924. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Nov. 26, 1900. Serial No. 037,350. (No model.)



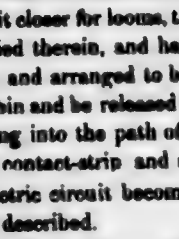
Claim.—1. In an electric-circuit closer for looms, the combination with a shuttle-body having a metallic bobbin-support and a bobbin held thereby, of a metallic surface on said bobbin arranged to be brought into direct contact with said bobbin-support as the bobbin is inserted in the shuttle, a band on said bobbin electrically connected with said metallic contact-surface, a yielding metallic blade arranged to continuously press against the weft on the bobbin and to come into contact with said band as the weft is removed and means for completing an electric circuit through said blade and said bobbin-support, substantially as described.

2. In an electric-circuit closer for looms, the combination with a shuttle-body and a bobbin held therein, of a hinged spindle supporting said bobbin, a contact-strip on the shuttle-body electrically connected with said hinged spindle, an interior metallic bushing in said bobbin in contact with said spindle, a metallic band on the outer surface of the bobbin arranged to be covered with weft when the bobbin is wound, an electrical connection between said outer band and said interior bushing, a yielding blade arranged to come in contact with said outer band when it is uncovered, a contact-strip on the shuttle electrically connected with said yielding blade, and brushes forming part of an electric circuit extending into the path of the contact-strips on said shuttle-body, substantially as described.

3. In an electric-circuit closer for looms, the combination with the shuttle-body, a bobbin held therein, a contact-strip on the shuttle-body, an interior metallic bushing in said bobbin in electrical connection with said contact-strip on the shuttle-body, a metallic band on the outer surface of the bobbin arranged to be covered by the weft carried thereby, an electrical connection between said band and interior bushing, and a blade adapted to contact with the metallic band when it is uncovered by the weft and complete the electrical connection through the said contact-strip and blade.

4. In an electric-circuit closer for looms, the combination with the shuttle-body, a bobbin held therein, a conducting-support for said bobbin, a conducting-band on said bobbin in electrical connection with the support, and a yielding blade arranged to constantly press against the weft on the bobbin and to contact with the band as the weft is removed from the bobbin and before complete exhaustion thereof, and means for completing an electric circuit through said blade and band.

692,925. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Jan. 27, 1899. Serial No. 703,841. (No model.)



Claim.—1. In an electric-circuit closer for looms, the combination with a loom-shuttle body and a bobbin carried therein, of a rocking lever pivoted on said bobbin and arranged to be covered by the weft as the bobbin is wound, whereby said lever is held in its normal position, a pair of contact-strips arranged in the path of said rocking lever as it is released by the unwinding of the weft from the bobbin and means for bringing said contact-strips into an electric circuit, substantially as described.

2. In an electric-circuit closer for looms, the combination with a shuttle-body and a bobbin carried therein, and having a recess, of a rocking lever pivoted in said recess and arranged to be held in said recess by the weft wound upon said bobbin and be released when the weft is unwound, and a contact-strip extending into the path of said lever as it is released, means for connecting said contact-strip and said lever with the poles of a battery, whereby the electric circuit becomes closed by the rocking of said lever, substantially as described.

3. In an electric-circuit closer for looms, the combination with a shuttle-body and a contact-strip thereon extending into the bobbin-chamber, of a bobbin provided with a recess, a movable member held in said bobbin-recess by the weft wound on the bobbin and covering said recess, said movable member being arranged to fall by gravity as the weft is removed therefrom, and into contact with said contact-strip, and means for electrically connecting said contact-strip and said movable member with the poles of an electric battery or other source of an electric current, substantially as described.

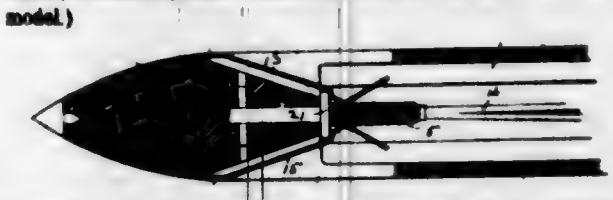
4. In an electric-circuit closer, the combination with a shuttle-body having a hinged spindle and a bobbin carried thereon and provided with a recess, of a lever inclosed in said bobbin-recess, said lever being arranged to be supported against gravity by the weft wound on said bobbin, and to fall when the weft has been removed, contact-strips on said shuttle-body and forming part of an electric circuit, extending beneath and into the path of said hinged lever as it falls, whereby said strips are electrically connected, substantially as described.

5. In an electric-circuit closer for looms, the combination with a shuttle-body and a bobbin carried therein, said bobbin having a recess, of a lever pivoted in said recess and arranged to be held therein by the weft wound over said recess and to be released when the weft is unwound there-

from, a contact-strip in the path of said lever as it is released by the unwinding of the weft, said strip and said lever forming part of an electric circuit, substantially as described.

6. In a circuit-closer for looms, the combination of a shuttle-body, a spindle supported therein and adapted to carry a bobbin, said bobbin being provided with a recess, a lever movable in said recess and arranged to be held therein by the weft wound over the recess and to project from said recess when released by the unwinding of the weft, and a contact-strip carried by the shuttle-body and in the path of said lever as it is released by the unwinding of the weft, the said contact-strip and lever forming parts of an electric circuit.

692,926. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Feb. 6, 1899. Serial No. 704,782. (No model.)



Claim.—1. The combination with a shuttle-body provided with a bobbin-chamber, of a pair of contact-strips on the outside of said shuttle-body, a pair of brushes forming part of an electric circuit and projecting into the paths of said contact-strips, yielding feelers electrically connected with said contact-strips and extending through slots in said shuttle-body into the bobbin-chamber with their free ends arranged to rest upon the weft carried by the shuttle, and means for electrically connecting said feelers as the weft is removed from between them, substantially as described.

2. The combination with a shuttle-body and a weft-carrier carried therein, of a pair of yielding feelers forming the terminals of an electric circuit, and arranged on opposite sides of the weft-carrier, whereby they are held apart by the weft, and an intervening member lying in the path of said feelers as they approach each other, by which they are electrically connected as the weft is withdrawn, substantially as described.

3. The combination with a shuttle-body and a weft-carrier carried therein, of a pair of yielding feelers supported at one end by the shuttle-body beyond the base of the weft-carrier and having their free ends overlapping the end of the weft-carrier and on opposite sides thereof, whereby said feelers are separated by the weft, said feelers forming the terminals of an electric circuit, and an intervening member in the paths of said feelers as they approach each other, whereby they are electrically connected as the weft is withdrawn, substantially as described.

4. The combination of a shuttle-body having a bobbin-chamber and a bobbin or cop carried therein, of a pair of yielding feelers lying parallel with the axis of said bobbin or cop, a metallic contact between said feelers and at the end of the bobbin or cop, said contact lying in the path of said feelers as they approach each other, by the withdrawal of the weft and means whereby said feelers are brought into an electric circuit by the movement of the shuttle, substantially as described.

5. In an electric-circuit closer for looms, the combination with a shuttle-body having a chamber for a weft-carrier and a weft-carrier held therein, of a pair of yielding feelers arranged to press against the weft on the weft-carrier, said feelers being substantially parallel with the axis of the weft-carrier and forming the terminals of an electric circuit, and an intervening member lying in the path of said feelers as they approach each other by the removal of the weft, by which said feelers are electrically connected, substantially as described.

6. In an electric-circuit closer for looms the combination with a shuttle-body and a weft-carrier held therein to deliver thread from the end thereof, of a yielding feeler held near one end by the shuttle-body, with its free end parallel with the axis of the weft-carrier and arranged to normally press against the weft in the path of said feeler, as the weft is removed, substantially as described.

7. In an electric-circuit closer for looms, the combination with a shuttle-body and a weft-carrier held therein, of a yielding feeler held near one end in the shuttle-body with its free end parallel with the axis of the weft-carrier and overlapping its base and arranged to normally press against the weft held thereon and a contacting member lying between the supported end of the feeler and the weft-supporting surface of the carrier, substantially as described.

8. In a circuit-closer for looms, the combination of the shuttle-body and a weft-carrier held therein at one end or base to deliver yarn from the other end thereof, a contact-band on a portion only of the weft-supporting surface of the carrier to be covered by the weft only after the same has been wound a number of turns on the weft-supporting surface to one side of said band, and a yielding feeler held at one end near the base of the carrier and extending parallel to the axis thereof, said feeler arranged to normally press against the weft and to contact with the said band as the weft approaches exhaustion and prior to the complete exhaustion thereof.

692,927. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Feb. 12, 1900. Serial No. 4,874. (No model.)



Claim.—1. In an electric-circuit closer for looms, the combination with a shuttle-body having a pair of contact-plates and adapted to support a weft carrier or bobbin, a rocking feeler journaled in the shuttle-body and provided with arms projecting angularly therefrom, a spring applied to rock said feeler to hold one of said arms against the weft, and to move the other of said arms into electrical connection with one of the contact-plates as the weft is withdrawn, and means for electrically connecting the feeler with the other of said plates.

2. In an electric-circuit closer for looms, the combination with a shuttle-body, of a feeler journaled in said shuttle-body, means for rocking said feeler in one direction, an arm projecting angularly from said feeler arranged to come into contact with the weft, whereby the rocking motion of the feeler is limited, a second arm on said feeler forming one of the terminals of an electric circuit, and a contact-plate forming the other terminal of the electric circuit and arranged in the path of said second arm, whereby the circuit is closed as the weft is withdrawn.

3. In an electric-circuit closer for looms, the combination with a shuttle-body having a bobbin-chamber and a contact-chamber, of a rocking feeler having one end extending into the bobbin-chamber and the opposite end extending into the contact-chamber, means for rocking the feeler in one direction, an arm arranged on said feeler to bear against the weft in the bobbin-chamber, a fixed contact-surface in the contact-chamber, and a second arm on said feeler arranged to strike against said contact-surface as the weft is withdrawn, substantially as described.

4. In an electric-circuit closer for looms, the combination with the shuttle-body, of a feeler provided with arms projecting angularly therefrom, means for moving the feeler axially to press one of said arms toward the weft-carrier, and a contact-plate in the path of movement of the other arm of the feeler.

5. In an electric-circuit closer for looms, the combination with the shuttle-body, of a feeler journaled therein, means for turning said feeler about its longitudinal axis, said feeler being provided with arms one of which is adapted to bear upon the weft carried by the shuttle, and a contact-plate in the path of movement of the other of said arms.

692,928. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Feb. 16, 1900. Serial No. 5,415. (No model.)



Claim.—1. In a circuit-closer for looms, the combination with a shuttle-body and a bobbin held therein, of a pair of yielding feelers arranged to press against the weft on the bobbin, contact-strips on the outside of the shuttle-body, means for electrically uniting said contact-strips and said feelers and a push-button carried by the shuttle and operatively connected with said feelers to move them away from the weft, substantially as described.

2. In an electric-circuit closer for looms the combination with a shuttle-body, a bobbin and a pair of yielding feelers normally held in the path of the bobbin as it is inserted in the shuttle, of means operative from the outside of the shuttle for withdrawing both of said feelers out of the path of the bobbin, substantially as described.

3. In an electric-circuit closer for looms the combination with a shuttle-body, a bobbin of a yielding feeler arranged to press against the weft on the bobbin, and normally held in the path of the bobbin as it enters the shuttle and means carried by the shuttle-body for forcibly withdrawing said feeler from the path of the bobbin, substantially as described.

4. In an electric-circuit closer for looms, the combination of a shuttle-body, a bobbin or weft-carrier adapted to be supported therein and having a contact-band thereon, feelers and means for normally forcing said feelers toward the contact-band to make electric connection therewith and complete the circuit when the weft has become nearly exhausted, and means for separating the free ends of the feelers to permit a filled bobbin or weft-carrier to be readily inserted in the shuttle.

692,929. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Feb. 23, 1900. Serial No. 6,182. (No model.)

Claim.—1. In an electric-circuit closer for looms, the combination with a shuttle-body and a weft-carrier held in said shuttle-body, of a

yielding blade, or feeler, arranged to bear against the weft, an adjusting-screw held by the weft-carrier in the path of said blade, or feeler, as the weft is removed and means for bringing said blade, or feeler, and said screw into an electric circuit, whereby said circuit is completed by the contact of said blade, or feeler, and said screw, substantially as described.



2. In an electric-circuit closer for looms, the combination of a shuttle-body provided with a bobbin-chamber, a weft-carrier, means for holding the weft-carrier in said chamber with one end free to deliver the weft therefrom, said means forming one of the terminals of an electric circuit, a blade, or feeler, pivoted at one end and arranged to bear against the weft held on said weft-carrier, said blade, or feeler, forming the other terminal of the electric circuit and extending longitudinally into said bobbin-chamber and in the path of and to be moved on its pivot by the weft-carrier as it is inserted in said chamber, said terminals being held out of contact by the weft and to come into contact as the weft is removed, substantially as described.

3. In an electric-circuit closer for looms, the combination of a shuttle-body, a weft-carrier supported by said shuttle-body to deliver weft from the end thereof, a contact-point carried by said weft carrier and forming one of the terminals of an electric circuit, a yielding blade or feeler adjacent said weft-carrier and forming the opposite terminal of the circuit, said blade or feeler lying longitudinal of said shuttle-body and adapted to be moved by the weft as the weft-carrier is placed in position in the shuttle-body.

4. In an electric-circuit closer for looms, the combination of a shuttle-body having a bobbin-chamber, a spindle pivoted in the shuttle-body for carrying the weft and provided with a contact-point, a pin held in the shuttle-body, a sleeve capable of rocking on said pin, a blade attached to said sleeve, a spring acting to press said blade against the weft and carry it into contact with said point as the weft is removed, said blade and said point forming the terminals of an electric circuit, substantially as described.

5. In an electric-circuit closer for looms, the combination with a shuttle-body provided with a chamber, a weft-carrier to deliver the weft from the end thereof, an exposed and adjustable contact-point applied to said carrier, and means to complete the circuit through said adjustable point as the weft approaches complete exhaustion.

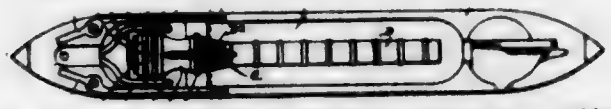
6. In an electric-circuit closer for looms, the combination of a shuttle-body, a weft-carrier supported thereby, a contact-point applied to said carrier at one end of and beyond the weft-supporting surface of the carrier to be exposed at all times, and means to complete the circuit through said contact-point as the weft approaches exhaustion.

7. In an electric-circuit closer for looms, the combination of a shuttle-body, a weft-carrier supported thereby, a contact-point applied to said carrier at one end of and beyond the weft-supporting surface of the carrier to be exposed at all times, a yielding feeler adapted to bear upon the weft on the weft-carrier and to contact with said contact-point to complete the circuit as the weft approaches exhaustion.

8. In an electric-circuit closer for looms, the combination of a shuttle-body, a weft-carrier supported thereby, an exposed contact carried by the weft-carrier, a feeler adapted to bear upon the weft on the said carrier and to form electrical connection with said exposed contact as the weft approaches exhaustion.

9. In an electric-circuit closer for looms, the combination of a shuttle-body, a weft-carrier supported thereby, an exposed and adjustable contact carried by the weft-carrier, a feeler adapted to bear upon the weft on the said carrier and to form electrical connection with said exposed contact as the weft approaches exhaustion.

692,930. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Feb. 27, 1900. Serial No. 6,706. (No model.)



Claim.—1. In an electric-circuit closer for looms, the combination with a shuttle-body and a bobbin held therein, of a circumferential contact-band on said bobbin, yielding blades, or feelers, forming the terminals of an electric circuit, placed transversely to said bobbin and in the plane of said band, said bobbin being reduced in diameter between said band and the head of the bobbin, substantially as described.

2. In an electric-circuit closer for looms, the combination with a shuttle-body having a bobbin-chamber and a bobbin for delivering weft from the end thereof and held therein, having a circumferential metallic contact-band, of a pair of contact-strips on the shuttle-body, a pair of yielding blades, or feelers, hinged to said contact-strips, means by which the free ends of said feelers are pressed toward said bobbin in the plane of said metallic band, and means for bringing said blades, or feelers, into an electric circuit, the weft as it slides beneath the feelers in passing off the end of said bobbin, raising the feelers as the weft approaches exhaustion, substantially as described.

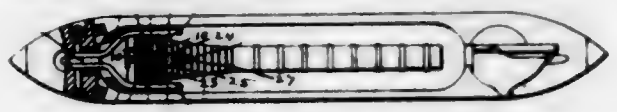
3. In an electric-circuit closer for looms, the combination with a shuttle-body, of a pair of yielding blades, or feelers, a bobbin having a circumferential metallic contact-band in the plane of said blades and provided with a reduced portion, or neck, between said band and the head of the bobbin, whereby the diameter of said neck is less than the outer diameter of said band to allow the feelers to contact with said band, substantially as described.

4. In an electric-circuit closer for looms, comprising a shuttle-body, a yielding blade, or feeler, carried by the shuttle-body, a bobbin held in said shuttle and a circumferential metallic band on said bobbin, of a rib in said blade arranged to contact with said metallic band and transversely thereto, substantially as described.

5. In an electric-circuit closer for looms, the bobbin having a circumferential metallic band on the weft-supporting surface and said weft-supporting surface having a reduced portion, or neck, between said band and the head of the bobbin on which the filling or weft is adapted to be wound prior to covering said band, substantially as described.

6. In an electric-circuit closer for looms, the bobbin having a circumferential contact-band on the weft-supporting surface and said weft-supporting surface having a reduced portion on each side of said band on which the filling may be wound prior to covering the said band.

692,931. ELECTRIC-CIRCUIT CLOSER FOR LOOMS. HARRY W. SMITH, Worcester, Mass. Filed Mar. 3, 1900. Serial No. 7,168. (No model.)



Claim.—1. In an electric-circuit closer for looms, the combination with a shuttle-body provided with a pair of bobbin-holding jaws, of electric contact-points held by said jaws, and a bobbin provided with means controlled by the weft for electrically uniting said contact-points, substantially as described.

2. In an electric-circuit closer for looms, the combination with a bobbin provided with metallic circumferential bands, a shuttle-body, means carried by the shuttle-body for bringing said bands into an electric circuit, wires electrically connected with said bands and forming the terminals of the circuit, and means controlled by the weft for electrically uniting said terminals, substantially as described.

3. In an electric-circuit closer for looms the combination of a shuttle-body provided with bobbin-holding jaws, and a bobbin held therein, of metallic contact-points held by said jaws, contact-strips on the outside of the shuttle-body electrically connected with said contact-points, means for bringing said contact-strips into an electric circuit, metallic surfaces on said bobbin held in contact with the contact-points of said bobbin-holding jaws and means controlled by the weft, whereby said metallic surfaces, on the bobbin, and said points are electrically united, substantially as described.

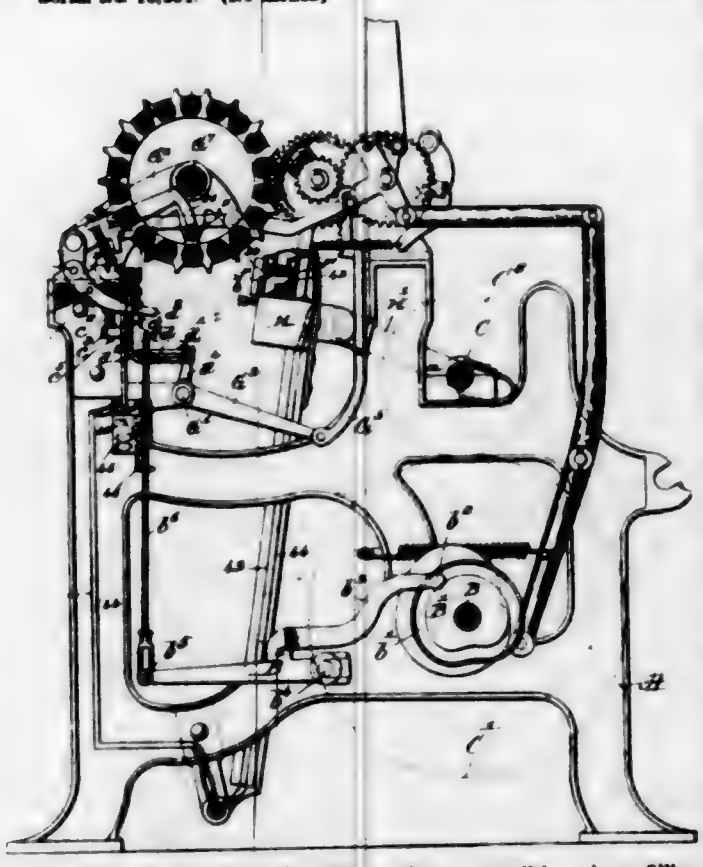
4. In an electric-circuit closer for looms the circuit-closing bobbin, having two metallic contact-surfaces arranged to be brought into an electric circuit, in the operation of weaving, whereby said metallic surfaces are made the terminals of an electric circuit, an intervening blade arranged to electrically unite said terminals and a spring by which said blade is held normally in contact with said terminals said blade projecting into the path of the weft as it is wound on the bobbin, whereby the blade is crowded out of contact with said terminals by the pressure of the weft thereon, substantially as described.

5. In an electric-circuit closer for looms, the circuit-closer bobbin having two opposing metallic surfaces arranged to be brought into, and form the terminals of an electric circuit, a recess in said bobbin, a spring-actuated blade held in said recess with its end normally in contact with said terminals and projecting into the path of the weft as it is wound upon the bobbin, whereby the winding of the weft will serve to crowd said blade into said recess and out of contact with said terminals.

6. The combination with a shuttle-body provided with bobbin-holding jaws adapted to engage a bobbin, said jaws being insulated from each other, and means for electrically joining said jaws in electric circuit on the practical exhaustion of the weft carried by the bobbin.

7. The combination of a shuttle-body having a pair of notched bobbin-holding jaws, metallic contact-points held by said jaws, means for bringing said contact-points into an electric circuit, a bobbin having metallic bands on its periphery, said bobbin having a projecting ring adapted to engage the notches on said jaws and hold said metallic bands in contact with the contact-points on said jaws, substantially as described.

892,982. ELECTRIC FILLING-CHANGING MECHANISM FOR LOOMS. HARRY W. SMITH, North Grafton, Mass. Filed Mar. 30, 1900. Serial No. 10,531. (No model.)



Claim.—1. In a loom the following instrumentalities, viz: a filling-changing mechanism to supply filling prior to complete exhaustion of the filling in an active shuttle, means for detecting the near approach to exhaustion of filling in a shuttle, and means to operate the filling-changing mechanism and cause it to act after the filling has been laid a plurality of picks subsequent to the detection of near approach to exhaustion of the filling.

2. In a loom the following instrumentalities, viz: a filling-changing mechanism to supply filling prior to complete exhaustion of the filling in an active shuttle, means for detecting the near approach to exhaustion of the filling in a shuttle, shifting shuttle-boxes, and means to operate the filling-changing mechanism and cause it to act after the filling has been laid a plurality of picks subsequent to the detection of the near approach to exhaustion of the filling.

3. In a loom, the following instrumentalities, viz: a filling-changing mechanism to supply filling on the practical exhaustion of the filling in an active shuttle, shifting shuttle-boxes, and means connected to the shifting shuttle-boxes to control the time of operation of the filling-changing mechanism.

4. In a loom, the following instrumentalities, viz: shifting shuttle-boxes, a filling-changing mechanism to supply filling on the practical exhaustion of the filling in an active shuttle, an actuator for said mechanism, positioning devices connected to the shifting shuttle-boxes to move said actuator into operative position.

5. In a loom the following instrumentalities, viz: a filling-changing mechanism to supply filling prior to complete exhaustion of the filling in an active shuttle and electrically-controlled means to operate the filling-changing mechanism and cause it to act after the filling has been laid a plurality of picks by the nearly-exhausted shuttle subsequent to the detection of the near approach to exhaustion of the filling.

6. In a loom the following instrumentalities, viz: a filling-changing mechanism to supply filling prior to complete exhaustion of the filling in an active shuttle, means for detecting the condition of the filling in the shuttle, shifting shuttle-boxes, and electrically-controlled means to operate the filling-changing mechanism and cause it to act after the filling has been laid a plurality of picks by the nearly-exhausted shuttle subsequent to the detection of the near approach to exhaustion of the filling.

7. In a loom the following instrumentalities, viz: a filling-changing mechanism to supply filling on the practical exhaustion of the filling in an active shuttle, shifting shuttle-boxes, and electrically-controlled means connected to the shifting shuttle-boxes to control the time of operation of the filling-changing mechanism.

8. In a loom the following instrumentalities, viz: a filling-changing mechanism to supply filling on the practical exhaustion of the filling in an active shuttle, an actuator for said mechanism, electrically-controlled positioning devices connected to the shifting shuttle-boxes to move said actuator into operative position.

9. In a loom the following instrumentalities, viz: shifting shuttle-boxes, a filling-changing mechanism to supply filling on the practical exhaustion of the filling in an active shuttle, electrically-controlled devices to cause said filling-changing mechanism to operate on a subsequent arrival of the shuttle in the box adjacent the filling-changing mechanism, and connections between said devices and the shifting shuttle-boxes, whereby should the boxes be changed after an indication of practical exhaustion of filling in an active shuttle, the said devices are rendered inoperative.

10. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator for said mechanism, positioning devices for said actuator, means, including an electric circuit extending through the shuttle, to place said positioning devices into operative position on a practical exhaustion of the filling in an active shuttle, and provisions to cause the positioning devices to move the actuator into the path of movement of a part of the loom upon a return of the shuttle to the box adjacent to the filling changing mechanism.

11. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, positioning devices to move the actuator into the path of movement of a part of the loom, means including an electric circuit extending through the shuttle to place the positioning devices in operative position on a practical exhaustion of the filling in an active shuttle, shifting shuttle-boxes, and connections between the shifting shuttle-boxes and said devices.

12. In a loom the following instrumentalities, viz: a filling-changing mechanism to supply filling on the practical exhaustion of the filling in an active shuttle, an actuator therefor, a bunter, electrically-controlled positioning devices for moving the actuator into the path of movement of the bunter on a subsequent arrival of the practically-exhausted shuttle in the box, and means for retaining the actuator in the path of movement of the bunter.

13. A series of shuttle-boxes, actuating means therefor, a filling-carrier feeder, means for moving the filling-carrier feeder in unison with the shuttle-boxes a transferring mechanism, actuating means therefor, and devices connected to the shuttle-boxes for controlling the operation of said last-named actuating means.

14. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, positioning devices to move the actuator into position to be struck by a moving part of the loom, means including an electric circuit extending through the shuttle to place said devices in operative position on a practical exhaustion of the filling in an active shuttle, and retaining means to hold the said devices in such position after the shuttle has left the box and the electric circuit is interrupted to delay the operation of the filling-changing mechanism until a subsequent arrival of said shuttle in said box after practical exhaustion of the filling in the shuttle.

15. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, positioning devices to move the actuator into position to be struck by a moving part of the loom, means including an electric circuit extending through the shuttle to place said devices in operative position on a practical exhaustion of the filling in an active shuttle, and retaining means to hold the said devices in such position after the shuttle has left the box and the electric circuit is interrupted, shifting shuttle-boxes and means controlled therefrom whereby when the shuttle-boxes change the positioning devices are moved to assume their inoperative position.

16. In a loom, the following instrumentalities, viz: shifting shuttle-boxes, a filling-changing mechanism for supplying filling of different characters or colors to replace that practically exhausted, and means for controlling the time of operation of said filling-changing mechanism, and cause it to act after the filling has been laid a plurality of picks subsequent to detection of the near approach to exhaustion of the filling, said means including an electric circuit, said circuit being normally held open by the presence and adapted to be closed by the substantial absence of filling in an active shuttle.

17. In a loom, the following instrumentalities, viz: shifting shuttle-boxes, a filling-changing mechanism for supplying filling of different kinds or colors to replace that practically exhausted, and means for controlling the time of the operation of said changing mechanism, and cause it to act after the filling has been laid a plurality of picks subsequent to detection of the near approach to exhaustion of the filling, said means being controlled by an electric circuit including an electromagnet, and said circuit being completed by the substantial absence of filling from an active shuttle.

18. In a loom the following instrumentalities, viz: shifting shuttle-boxes, a filling-changing mechanism for furnishing filling of different kinds or colors to replace that practically exhausted, and electrical means, controlled by the active shuttle, for controlling the operation of said filling-changing mechanism and cause it to act after the filling has been laid a plurality of picks subsequent to detection of the near approach to exhaustion of the filling.

19. In a loom, the following instrumentalities, viz: shifting shuttle-

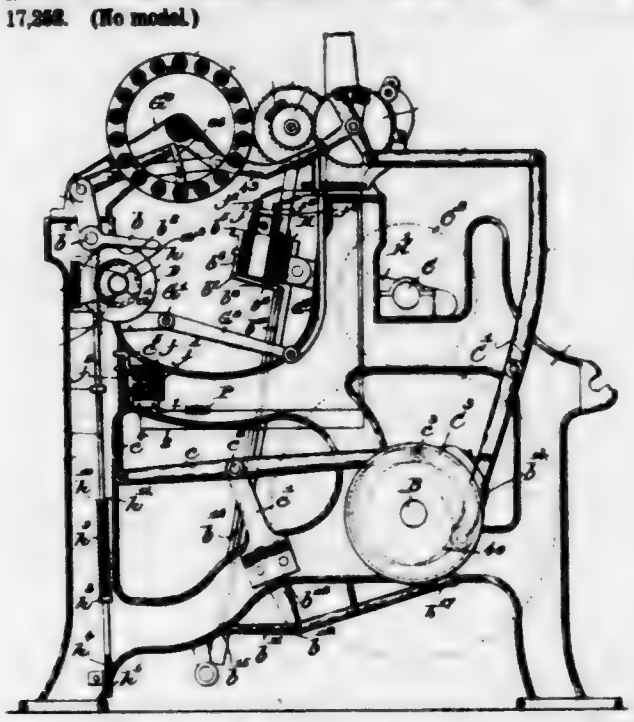
boxes, a filling-changing mechanism for furnishing filling holders or carriers containing different kinds or colors of filling to the shuttle to replace that practically exhausted, and electrical means controlled by the active shuttle to control the operation of the filling-changing mechanism and cause it to act after the filling has been laid a plurality of picks subsequent to detection of the near approach to exhaustion of the filling.

20. In a loom, the following instrumentalities, viz: shifting shuttle-boxes, a filling-changing mechanism for supplying filling of different kinds or colors to replace that practically exhausted, and means for actuating said supplying mechanism after a plurality of picks of filling have been laid subsequent to practical exhaustion, including a magnet and circuit extending from the magnet to a circuit-closing device, the latter being controlled by the filling in the active shuttle.

21. In a loom the following instrumentalities, viz: shifting shuttle-boxes, a filling-changing mechanism for supplying filling of different kinds or colors to the shuttle to replace that practically exhausted, and means for actuating said changing mechanism after a plurality of picks of filling have been laid subsequent to practical exhaustion, including a magnet and a circuit extending from the magnet to a circuit-closing device, the latter being controlled by the filling in the active shuttle.

692,933. WEFT-REPLENISHING MECHANISM FOR LOOMS.

HARRY W. SMITH, Worcester, Mass. Filed May 19, 1900. Serial No. 17,262. (No model.)



Claim.—1. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism, means for operating the latter to effect a change of filling when that in an active shuttle has become nearly exhausted, and devices for suspending the action of said means until a subsequent arrival of the nearly-exhausted shuttle in the box adjacent the filling-changing mechanism.

2. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism, means for operating the latter to effect a change of filling when that in an active shuttle has become practically exhausted, and devices connected to the shifting or drop shuttle-boxes for suspending the action of said means until a subsequent arrival of the practically-exhausted shuttle in the box adjacent the filling-changing mechanism.

3. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism, an indicator provided with devices for controlling the operative condition of said mechanism, filling-detecting mechanism operative on a practical exhaustion of filling in an active shuttle to position said devices, and connections between said indicator and shuttle-boxes.

4. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism, an indicator provided with devices for controlling the operative condition of said mechanism, electrically-controlled filling-detecting mechanism operative on a practical exhaustion of filling in an active shuttle to position said devices, and means to cause said indicator to move in unison with the shuttle-boxes.

5. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism, means for operating the same to effect a change of filling, devices for placing said means in operative position controlled by the condition of the filling in an active shuttle, and connections between said devices and the drop-boxes to suspend the effective action of said devices when the shuttle-boxes are moved after an indication by the active shuttle.

6. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism including a transferrer, a dagger connected to the latter, devices controlled by the condition of filling in the active shuttle for placing said dagger in operative position to effect a change of filling, and connections between said devices and the shuttle-boxes to suspend the effective action of said devices until a subsequent return of the practically-exhausted shuttle to the filling-changing side of the loom.

7. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism including a transferrer, a dagger connected to the latter, an indicator provided with means controlled by the condition of filling in the active shuttle for placing said dagger in operative position to effect a change of filling, and connections between said indicator and shuttle-boxes for moving the former in unison with the latter to carry the said means from operative engagement with said dagger

8. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism including a transferrer, a dagger connected to the latter, an indicator carrying a series of dogs or lifters, connections between said indicator and drop-boxes to move the former in unison with the latter and an actuator controlled by the condition of filling in the active shuttle to raise a dog or lifter.

9. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism including a transferrer, a dagger connected to the latter, an indicator carrying a series of dogs or lifters, connections between said indicator and drop-boxes to move the former in unison with the latter, an actuator controlled by the condition of filling in the active shuttle to raise a dog or lifter, and means to maintain the latter in such position.

10. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism, an indicator provided with devices for controlling the operative condition of such mechanism, means for moving the indicator in unison with the shuttle-boxes, an electric circuit, including an electromagnet, completed by a condition of practical exhaustion of filling in an active shuttle, and an actuator for said devices under control of the electromagnet.

11. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism, means for rendering said mechanism operative to effect a change of filling when that in an active shuttle has become practically exhausted, and devices for suspending the effective condition of said means when the shuttle-boxes are changed after the entrance thereinto of the practically-exhausted shuttle and to restore said effective condition on the return of said shuttle to action

12. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism including a transferrer, a dagger connected to said transferrer, an indicator provided with a series of dogs or lifters, connections between the shuttle-boxes and indicator to move the latter in unison with the former, an actuator for said dogs or lifters, means for reciprocating said actuator, an electric circuit including an electromagnet controlling the path of movement of said actuator, and devices for closing said circuit on the practical exhaustion of filling in an active shuttle whereby the actuator is caused to raise a dog or lifter to place the dagger in operative position.

13. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism including a transferrer and dagger, means for positioning the latter to cause a change of filling when that in an active shuttle has become practically exhausted, the lay, a bunter carried by the lay, and devices for moving the bunter so as not to contact with the dagger under normal working conditions of the loom.

14. In a loom the following instrumentalities, viz: shifting or drop shuttle-boxes, a filling-changing mechanism including a transferrer and dagger, means for positioning the latter to effect a change of filling when that in an active shuttle has become practically exhausted, connections between said means and shuttle-boxes to cause said means and shuttle-boxes to move in unison, the lay, a bunter carried by the lay and devices for moving the bunter so as not to contact with the dagger.

692,934. WEFT-REPLENISHING MECHANISM FOR LOOMS.

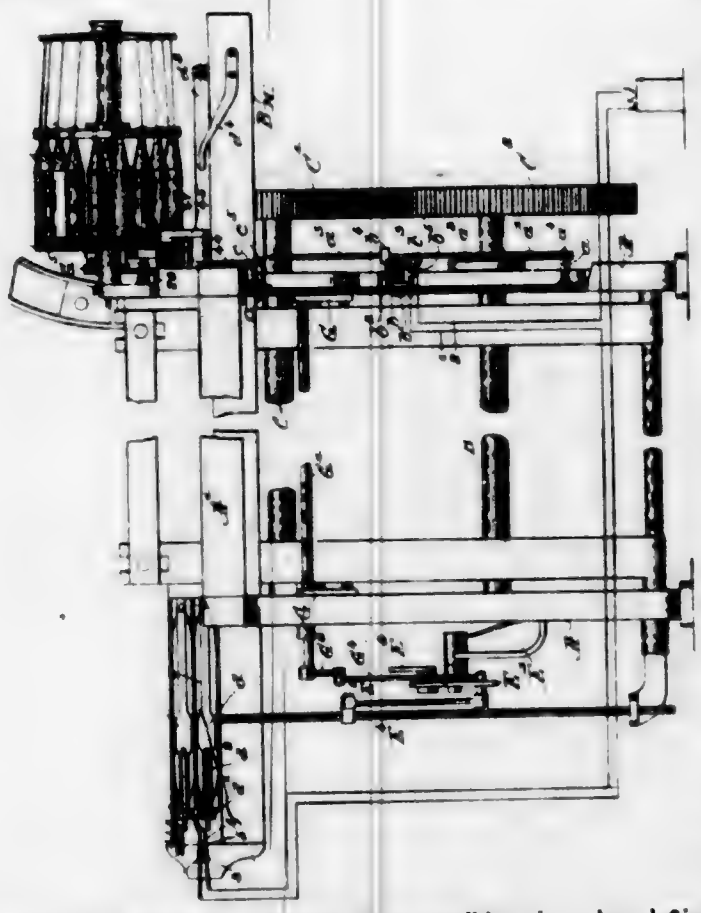
HARRY W. SMITH, North Grafton, Mass. Filed Oct. 22, 1900. Serial No. 33,799. (No model.)

Claim.—1. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes, a filling-changing mechanism, and provisions for rendering the filling changing mechanism operative to effect a change of filling on the practical exhaustion of the filling in any of the shuttles.

2. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes, a filling-changing mechanism, and provisions adjacent the shifting shuttle-boxes for detecting the condition of filling in the shuttles and rendering the filling-changing mechanism operative to effect a change of filling when that in any shuttle has become practically exhausted.

3. In a loom the following instrumentalities: a lay, shifting shuttle-boxes, a filling-changing mechanism, and detecting mechanism adjacent

the shifting shuttle-boxes to feel for and detect the condition of the filling in the shuttles and means operative through the detecting mechanism on practical exhaustion of filling in an active shuttle to operate the filling-changing mechanism.



4. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes at one end of the lay, detecting mechanism adjacent the same end of the lay, and a filling-changing mechanism adjacent the opposite end of the lay.

5. In a loom the following instrumentalities: a lay, shifting shuttle-boxes, a filling-changing mechanism, electrically-controlled means for detecting the condition of practical exhaustion of filling in any of the shuttles and rendering the filling-changing mechanism operative to effect a change of filling.

6. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes at one end of the lay, a detecting mechanism at the end of the lay adjacent the shifting shuttle-boxes for detecting the condition of the filling in any of the shuttles, a filling-changing mechanism adjacent the opposite end of the lay, and electrically-controlled devices for operating the filling-changing mechanism to effect a change of filling when that in an active shuttle has become practically exhausted.

7. In a loom the following instrumentalities: a lay, shifting shuttle-boxes, a filling-changing mechanism, an electric circuit including an electromagnet, means under control of the electromagnet for rendering the filling-changing mechanism operative to effect a change of filling, and detecting mechanism adjacent the shifting shuttle-boxes for completing the circuit on the practical exhaustion of the filling in an active shuttle.

8. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes, a filling-changing mechanism, an electric circuit including an electromagnet, electric terminals or contact-plates adjacent the shifting shuttle-boxes, means for completing the circuit through said terminals on the practical exhaustion of the filling in a shuttle, and devices under control of the electromagnet for rendering the filling-changing mechanism operative to effect a change of filling.

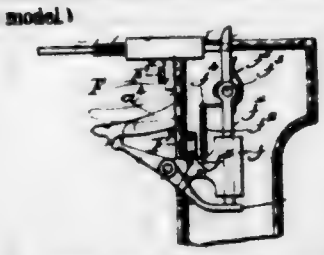
9. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes carried at one end thereof, a filling-changing mechanism at the opposite end thereof, an electric detecting device at the end of the lay adjacent the shifting shuttle-boxes and devices movable to operate the filling-changing mechanism.

10. In a loom the following instrumentalities: a lay having shifting shuttle-boxes, electrically-actuated detecting means occupying a position adjacent said shifting shuttle-boxes and substantially in line with the raceway of the lay, said detecting means coöperating with the shuttle in any cell of the shuttle-boxes as that cell is brought on the line of the race.

11. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes at one end thereof, a filling-changing mechanism adjacent the opposite end of the lay, detecting mechanism to detect the condition of filling in the shuttles including an electric circuit, said detecting mechanism comprising a pair of terminals adjacent the shifting shuttle-boxes, pairs of contact-fingers on said boxes adjacent the cells in said shuttle-boxes, means in the shuttles for completing the circuit through the fingers and terminals on a practical exhaustion of filling in a shuttle, and means under control of the electric circuit for operating the filling-changing mechanism when the filling in a shuttle is to be changed.

692,985. WEFT-REPLENISHING MECHANISM FOR LOOMS.

HARRY W. SMITH, Grafton, Mass. Filed Oct. 22, 1900. Serial No. 33,800. (No model.)



Claim.—1. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes, detecting mechanism adjacent the shifting shuttle-boxes adapted to feel for the filling in one of the shuttles as the lay beats up, and filling-changing mechanism operative on the practical exhaustion of the filling in an active shuttle to supply fresh filling.

2. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes, a filling-changing mechanism, a detecting mechanism having provisions for entering and feeling for the filling in the shuttles and means for causing the operation of the filling-changing mechanism to effect a change of filling when that in an active shuttle has become practically exhausted.

3. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes, a filling-changing mechanism, a stationary detecting mechanism adjacent the shifting shuttle-boxes having provisions for feeling for the filling in one of the shuttles and means for causing the operation of the filling-changing mechanism to effect a change of filling when that in the active shuttle has become practically exhausted.

4. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes, a filling-changing mechanism, a stationary detecting mechanism comprising fingers adapted to enter a cell of the shifting shuttle-box to feel for the filling in the shuttle, and means to cause the filling-changing mechanism to operate to supply fresh filling when that in an active shuttle has become practically exhausted.

5. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes at one end thereof, a filling-changing mechanism at the opposite end thereof, a detecting mechanism adjacent the shifting shuttle-boxes having provision for feeling for the filling in one of the shuttles as the lay beats up, and means for causing the operation of the filling-changing mechanism to effect a change of filling when that in an active shuttle has become practically exhausted.

6. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes at one end thereof, a filling-changing mechanism at the opposite end thereof, a stationary detecting mechanism provided with feeler-fingers to enter a cell of the shifting shuttle-boxes and means under the control of said feeler-fingers to cause the operation of the filling-changing mechanism when the filling in an active shuttle has become practically exhausted.

7. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes at one end thereof, each cell of which is provided with a binder having a perforation therein, a filling-changing mechanism at the opposite end of the lay, a detecting mechanism having feeler-fingers adapted to enter each cell of the shuttle-boxes, and means under control of the feeler-fingers for causing the filling-changing mechanism to become operative to effect a change of filling when that in an active shuttle has become practically exhausted.

8. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes the cells of which are provided with perforations for the reception of feeler-fingers, a detecting mechanism mounted on the loom-frame comprising a pair of feeler-fingers located adjacent the shifting shuttle-boxes, a filling-changing mechanism and means controlled by said fingers for causing the filling-changing mechanism to effect a change of filling when that in an active shuttle has become practically exhausted.

9. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes at one end thereof, a filling-changing mechanism, a detecting mechanism supported by the loom-frame adjacent the shifting shuttle-boxes and comprising yielding fingers adapted to enter a cell of the shifting shuttle-boxes to feel for the filling in the shuttle, and means under control of said fingers for causing the filling-changing mechanism to supply fresh filling when that in an active shuttle has become practically exhausted.

10. In a loom the following instrumentalities, viz: a lay, shifting shuttle-boxes at one end thereof, a filling-changing mechanism, a detecting mechanism supported by the loom-frame adjacent the shifting shuttle-boxes and comprising yielding fingers adapted to enter a cell of the

shifting shuttle-boxes to feel for the filling in the shuttle, a drop-finger under control of the feeler-fingers, a dagger and means between the drop-finger and dagger to position the latter to cause the operation of the filling-changing mechanism when the filling in an active shuttle has become practically exhausted.

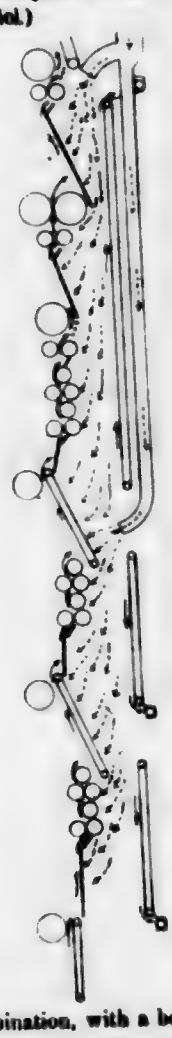
11. In a loom the combination of the lay, shifting shuttle-boxes at one end thereof, a filling-changing mechanism, yielding feeler-fingers supported adjacent the shifting shuttle-boxes and adapted to enter a cell of said boxes to feel for the filling in the shuttle, a dagger and means interposed between the dagger and feeler-fingers to position the former to cause the filling-changing mechanism to operate when the filling in an active shuttle has become practically exhausted.

12. In a loom the combination of the lay, shifting shuttle-boxes, a detecting mechanism including feeler-fingers adapted to enter a shell of the shuttle-boxes to feel for the filling in the shuttle next to be put in play, a drop-finger normally sustained by one of said feeler-fingers and adapted to be disengaged therefrom by the other feeler-finger when the filling in said shuttle has become practically exhausted, and filling-changing mechanism made operative by the drop-finger to effect a change of filling when that in said shuttle has become practically exhausted.

13. In a loom the following instrumentalities: a filling-changing mechanism, a lay, a detecting mechanism including two feeler-fingers adapted to enter the shuttle and feel for the filling, and mechanical means under control of said feeler-fingers for operating the filling-changing mechanism to supply fresh filling when that in the shuttle has become nearly exhausted.

14. In a loom the following instrumentalities: a filling-changing mechanism, a lay, a detecting mechanism including two independently-movable feeler-fingers adapted to enter the shuttle and feel for the filling, and mechanical means under control of said feeler-fingers for operating the filling-changing mechanism to supply fresh filling when that in the shuttle has become nearly exhausted.

692,986. **MACHINE FOR TREATING FLAX.** JOHN T. SMITH, Heron Lake, Minn. Filed Apr. 17, 1900. Renewed Mar. 8, 1901. Serial No. 50,408. (No model.)



Claim.—1. The combination, with a box or casing having closed sides and a top closed except for air-holes provided at intervals therein, the ends of said box being provided with receiving and discharge openings, of a crushing and cleaning mechanism provided within said box adapted to treat the straw or tow stock fed into the same to soften the fiber and separate the refuse material therefrom, and a hot-air-blast apparatus provided within said box and adapted to direct blasts of air through the material as it passes over or through said mechanism, substantially as described.

2. A machine for treating flax or hemp straw, comprising a long box or casing having closed sides and a top closed except for ventilating-openings provided therein, the ends of said box having receiving and discharge openings respectively, a crushing and cleaning mechanism provided within said box and through which the straw stock is fed to separate the refuse material and soften the fiber, transverse conveyers provided in the bottom of said box beneath said mechanism to carry the refuse material out of the machine, floors or plates provided beneath said mechanism to receive the refuse material therefrom, slatted conveyers operating over said floors to gather up the material thereon and deposit it in said transverse conveyers, and an air-blast apparatus provided within said casing and adapted to direct currents of air through the material passing over said mechanism, substantially as described.

3. A machine for treating flax or hemp straw, comprising a long box or casing having closed sides and a top, and ends provided respectively with receiving and discharge openings, the crushing and cleaning mechanism provided within said casing and adapted to receive the flax or hemp straw, crush and soften the same and separate the refuse material therefrom, means provided in the bottom of said casing to receive the refuse material and convey it out of the machine, and means for establishing an air-blast through the material as it passes over or through said crushing and cleaning mechanism, substantially as described.

4. The combination, with a long box or casing, having a top and closed sides and provided in its ends with receiving and discharge openings, of a crushing and cleaning mechanism provided within said casing to which the straw is fed through said receiving-opening, means provided beneath said crushing and cleaning mechanism to gather up the refuse material therefrom and convey it out of the machine, an air-trunk provided in the bottom of said casing and having a discharge-opening near the middle section of said crushing and cleaning mechanism, a second discharge-opening provided in said trunk near the delivery end of said casing, whereby the material passing through said mechanism may be subjected to a blast of air, substantially as described.

5. The combination, with a box or casing having a hopper at one end, of a floor provided in said hopper, a conveyer operating over said floor, a picker provided in said casing above said conveyer, a perforated shaker whereon the material falls from said picker, an inclined guiding-plate provided above said shaker, and a flexible strip provided on the lower edge of said inclined plate, substantially as described.

6. In a machine of the class described, the combination, with the box or casing having a hopper at one end, of a conveyer operating over the bottom of said hopper, a picker provided above said conveyer and adapted to catch up and separate the material thereon, the perforated shaker whereon the material is thrown by said picker, crushing-rolls provided in the rear of said shaker and adapted to receive the material therefrom, an inclined plate provided beneath said shaker near said crushing-rolls, and an adjustable strip or plate provided on said inclined plate, substantially as described.

7. In a machine of the class described, the combination, with a long closed box having a hopper at one end and a discharge-opening at the other, of a conveyer provided in said hopper whereon the material is deposited, a picker provided above said conveyer, a shaker adapted to receive the material from said picker, crushing-rolls provided in the rear of said shaker, a beater to receive the material as it passes over said crushing-rolls, a long slowly-moving conveyer whereon the material is deposited from said beater, and means for maintaining a current of air through the material as it passes between said rolls and is carried along by said conveyer, substantially as described.

8. The combination, with a long closed box or casing, having a hopper-opening at one end and a discharge-opening at the other, of a shaker provided near said hopper-opening, crushing-rolls adapted to receive the material from said shaker, beaters provided near said crushing-rolls, a slow-moving upwardly-inclined conveyer to receive the tow material from said beaters, a picker provided above the upper end of said conveyer, a second shaker to receive the material from said picker, a second series of crushing-rolls and beaters to receive the material from said second shaker, and means for establishing a current of warm air through and under the material as it passes over said shakers and beaters and through said rolls, substantially as described.

9. The combination, with the closed box or casing, having a hopper-opening at one end and a discharge-opening at the other, of a conveyer provided near said hopper-opening to receive the tow material and convey it back into the machine, a shaker to receive the tow material from said conveyer, a series of crushing-rolls and beaters in the rear of said shaker, a slowly-moving conveyer adapted to receive the tow material from the last-named beater of the series, a picker provided above said slow-moving conveyer, a second shaker, a second series of crushing-rolls and beaters, a second slow-moving conveyer, and means for maintaining a current of warm air through and under the material on said slow-moving conveyers, whereby the streams of tow material are thoroughly dried before reaching the discharge end of said casing, substantially as described.

10. The combination, with the closed box or casing, having a hop-

per-opening at one end and a discharge-opening at the other, of a conveyer provided near said hopper-opening and whereon the material to be treated is deposited, a series of cleaning and crushing mechanisms to receive the tow material from said conveyer, a slow-moving conveyer adapted to receive the material from said cleaning and crushing mechanism, a second series of cleaning and crushing mechanisms, a second slow-moving conveyer, a third series of cleaning and crushing mechanisms, means provided beneath said cleaning and crushing mechanisms to receive the refuse material therefrom and carry it out of said casing, an air-trunk provided in the bottom of said casing and adapted to direct currents of air through and under the material as it passes through said cleaning and crushing mechanisms and is carried along by said conveyers, whereby the tow material is thoroughly dried before reaching the delivery end of said casing, substantially as described.

11. The combination, with the closed box or casing, having a hopper at one end and a discharge-opening at the other, of a conveyer provided in said hopper, a series of cleaning and crushing mechanisms adapted to receive the material from said conveyer, a long slow-moving conveyer adapted to receive the material from said cleaning and crushing mechanisms, a second series of cleaning and crushing mechanisms to receive the tow material from said slow-moving conveyer, a second slow-moving conveyer, a third series of cleaning and crushing mechanisms, conveyers provided beneath said cleaning and crushing mechanisms to receive the refuse material therefrom and take it out of the machine, an air-blast trunk provided in the bottom of said casing and adapted to direct a hot blast of air through the tow material as it passes through said mechanisms and over said slow-moving conveyers, and a carrier whereto the finished tow material is delivered at the discharge end of said casing, substantially as described.

12. In a machine of the class described, the combination, with an inclined perforated shaker, of crushing-rolls arranged in the rear of the same, an inclined plate provided beneath said shaker and near said crushing-rolls, an adjustable strip provided on said plate, and carding-cylinders provided in the rear of said crushing-rolls and adapted to receive the stream of tow material therefrom, substantially as described.

13. In a machine of the class described, the combination, with an inclined perforated shaker, of crushing-rolls to receive the tow material therefrom, carding-cylinders provided in the rear of said crushing-rolls to receive the stream of tow passing between the same, a second inclined perforated shaker whereon the material falls from said carding-cylinders, a second set of crushing-rolls, a beater to engage the material as it passes between said second set of rolls, a carrier to receive the material from said beater, and means for establishing a current of hot air through and under the material as it passes over said shakers and between said rolls and cylinders, substantially as described.

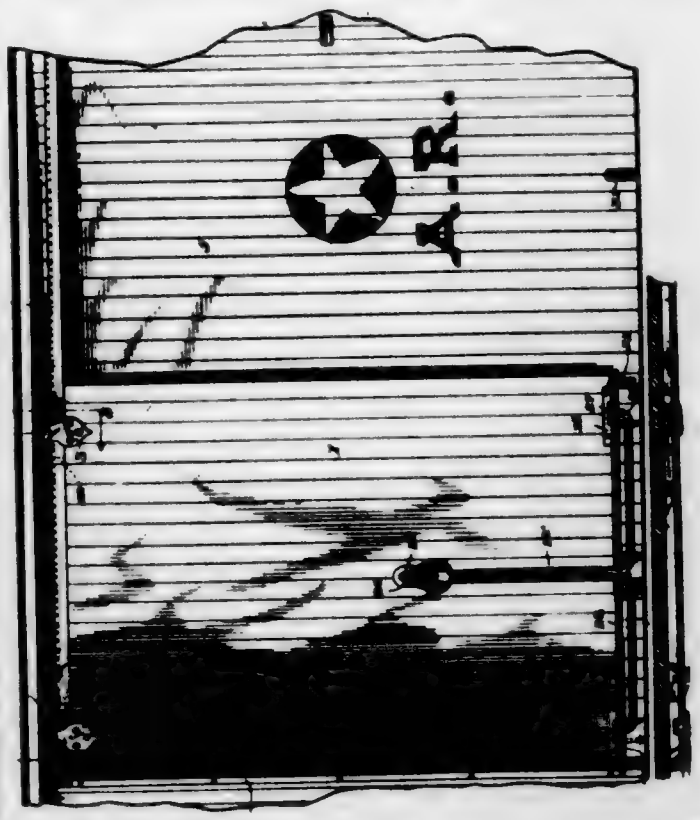
14. The combination, with a closed box or casing having a hopper-opening at one end and a discharge-opening at the other, of a straw-receiving mechanism provided at the receiving end of said casing, crushing-rolls and beaters adapted to receive the material from said receiving mechanism, an inclined conveyer having its lower end below the discharge side of the last beater of the series, and adapted to receive material therefrom and from said crushing-rolls, said conveyer being adapted to move at a slower speed than said beaters and crushing-rolls, whereby the material will pile up thereon, a picker provided at the upper end of said slow-moving conveyer, and means for maintaining a blast of hot air through said conveyer and the material thereon, substantially as described.

15. The combination, with a long closed box or casing having a hopper-opening at one end and a discharge-opening at the other, of a series of crushing-rolls and beaters adapted to receive the material deposited in said hopper, the inclined slowly-moving conveyor having its lower end beneath and near the last beater of the series and driven at a slower speed to permit the material to pile up to the desired height thereon, a picker provided at the upper end of said conveyer, a second series of crushing-rolls and beaters, a second inclined slowly-moving conveyor in the rear of said second series of rolls and beaters, the lower end of said second conveyer being lower than the last beater of the series and having a slower speed than the same, a second picker provided at the upper end of said second conveyer, and means for establishing a hot blast through the material as it passes through said first and second series of rolls and beaters and over said slowly-moving conveyers, substantially as described.

16. The combination, with a closed box or casing provided with receiving and discharge openings, of a straw crushing and cleaning mechanism provided therein and adapted to treat the straw or tow stock fed into the same to soften the fiber and separate the refuse material therefrom, and an air-blast apparatus adapted to direct currents of air through the material as it passes over or through said mechanism, substantially as described.

17. The combination, with a closed box or casing provided with receiving and discharge openings, of a crushing and cleaning mechanism therein adapted to treat the straw or tow stock fed into the same to soften the fiber and separate the refuse material therefrom, a conveyer adapted to receive the material from said crushing and cleaning mechanism, said conveyer moving at a slower speed than said mechanism, whereby the material will pile up thereon, and means for establishing blasts of air through the material as it is carried along by said conveyer, substantially as described.

692,937. **FREIGHT-CAR DOOR.** STANBURY J. SMITH, Pine Bluff, Ark. Filed Nov. 9, 1900. Serial No. 35,835. (No model.)



Claim.—1. The combination with a car, of a track mounted on the car and provided at its inner face with openings, a car-door provided with beveled tongues arranged to engage the inner faces of the track at the openings, and hangers suspending the car-door from the track, substantially as described.

2. The combination with a car, of a track having an opening, a car-door capable of vertical movement and provided with a tongue arranged to engage the opening, a hanger suspending the car-door from the track, and means for raising the door, substantially as described.

3. The combination with a car, of a track having an opening, a door having a tongue to engage the opening, and a hanger having a beveled face arranged to engage the track whereby the said hanger is adapted to clear the outer face of the track, substantially as described.

4. The combination with a car, of a track mounted thereon, a vertically-movable car-door, and a suspending device arranged to run on the track and carrying a beveled face located above the track when the door is closed and in an elevated position and arranged to engage the track and move the door outward when the latter is lowered, substantially as and for the purpose described.

5. The combination with a car having a track, of a door, and a hanger suspending the door from the track and provided with a roller having a beveled flange at its outer end arranged to force the hanger slightly from the track to prevent binding, substantially as and for the purpose described.

6. The combination with a car, of a track mounted thereon, a car-door provided with hangers to engage the track and capable of vertical movement, said door being provided with means for interlocking it with the track when it is raised, and means for raising the car-door, substantially as described.

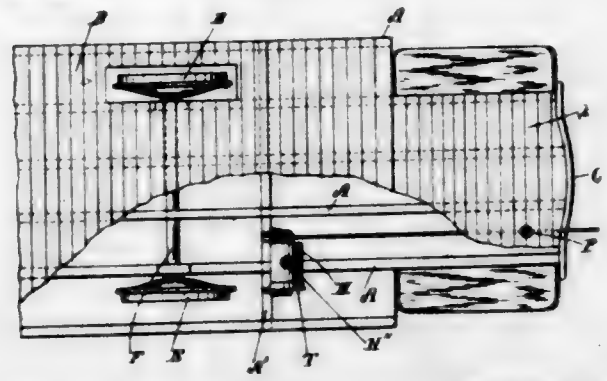
7. The combination with a car having a track, and a car-door suspended therefrom, of the movable catches mounted on the car and located at the bottom of the car-door when the latter is closed, and a rock-shaft provided with arms arranged to engage the catches to carry the latter into engagement with the bottom of the door, substantially as described.

8. The combination with a car, and a sliding car-door, of hinged catches extending outward from the interior of the car and located beneath and capable of engaging the bottom of the car-door, and a rock-shaft journaled in suitable bearings of the car and provided with arms arranged to engage the catches to carry the same into engagement with the car-door, said rock-shaft being provided with an operating-arm adapted to be fastened to the car, substantially as described.

9. The combination with a car provided with a track having a side

sill provided with recesses, a vertically-movable door suspended from the track and provided with means for engaging the same, a hinged catch located at the bottom of the door in the said recesses and provided with inner and outer flanges arranged to engage the car and the door, and means for operating the catch and the door, substantially as described.

692,938. CAR-TRACK-SANDING DEVICE. ABRAHAM L. SPRAGUE, Milton, Mass., assignor to Sprague Car Appliance Company, Portland, Me., a Corporation of Maine. Filed July 12, 1901. Serial No. 67,873. (No model.)



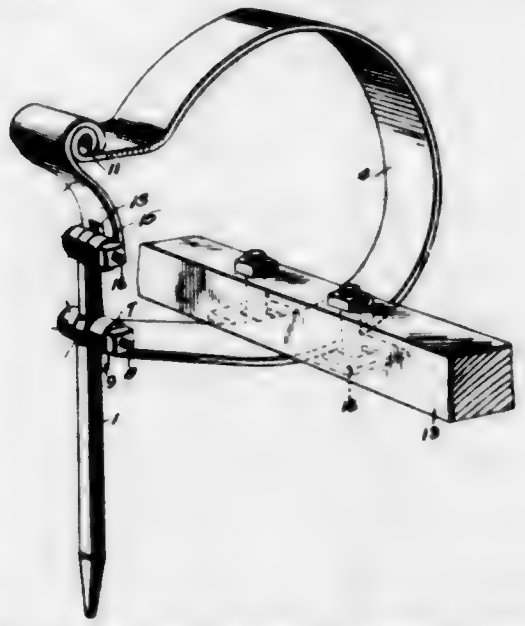
Claim.—1. The herein-described car-track-sanding device consisting of an intermittently-actuated rotary sand-receptacle H having internal and external buckets secured within one end of said receptacle, ports connecting said internal and external buckets, a stationary hood arranged adjacent to said buckets, a chute within said hood and a discharge opening or spout leading from the said hood substantially as and for the purpose set forth.

2. The herein-described car-track-sanding device consisting of an intermittently-actuated rotary sand-receptacle having internal and external buckets connected by ports, a stationary hood containing a chute and discharge spout or opening and intermediate connecting mechanism to a pedal for imparting an intermittent rotary motion to said sand-receptacle, substantially as and for the purpose set forth.

3. In a car-track-sanding device, an intermittently rotary sand-receptacle H having in one of its ends a head R provided with peripheral ports r, internal and external buckets R′ and R″ each of the former having its forward edge r' projecting slightly in advance of the forward edge r^2 of the port r for the purpose herein set forth and described.

4. In a car-track-sanding device an intermittently-actuated rotary sand-receptacle having attached to it a ratchet-wheel actuated by a rocking pawl-carrying lever, combined with a link or rod Q connected to said lever and having a rack q in its forward end, a bracket N secured to the forward portion of the car, a bell-crank lever pivoted to said bracket, a pedal for actuating said bell-crank lever, and a pawl N^4 pivoted to said bell-crank lever for engagement with said rack during the depression of the said pedal substantially as and for the purpose set forth.

692,939. SPRING-TOOTH FOR HARROWS. LAFFAYETTE J. STANTON, Millbrook, Mich. Filed June 17, 1901. Serial No. 64,905. (No model.)

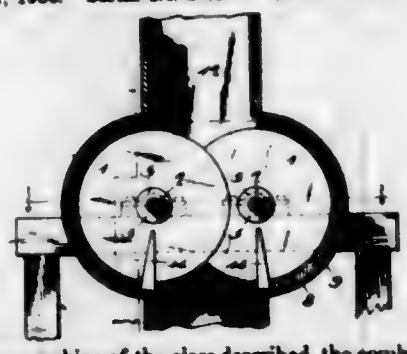


Claim.—1. In a device of the class described, a C-shaped spring having a transverse enlargement on its upper end, a harrow-tooth, means whereby said tooth is pivotally engaged by the lower end of said spring, a link having a transverse hook engaging said transverse enlargement, and means whereby said link may be pivotally engaged by the upper end of said tooth, substantially as shown and described.

2. In a device of the class described, a C-shaped spring having a transverse enlargement on its upper end, and bifurcated at its lower end and with eyes at opposite sides of the bifurcation, a harrow-tooth having a transverse perforation below the upper end and disposed in said bifurcation, a transverse bolt passing through said eyes and said perforation, a link having a transverse hook on one end engaging said transverse enlargement, and means whereby said link may be pivotally engaged by the upper end of said tooth.

3. In a device of the class described, a C-shaped spring bifurcated at one end and with transverse eyes at opposite sides of said bifurcation, a stop depending from the inner end of said bifurcation, a harrow-tooth having a transverse perforation below the upper end and disposed between said eyes, and engaging said stop, a transverse bolt engaging said eyes and the perforation in said tooth, and a link flexibly connecting the upper end of said bolt and the other end of said spring, whereby said tooth is yieldable vertically but rigid laterally, substantially as shown and described.

692,940. CORN-CUTTER. ELIAS A. STARR, Waukesha, Wis. Filed Aug. 17, 1900. Serial No. 27,106. (No model.)



Claim.—In a machine of the class described, the combination of the parallel horizontal cutter-shafts, the horizontal series of rotary cutters mounted upon the shafts and having overlapping portions and being tapered from their centers to their peripheries and having inwardly-tapered spaces between them, the inwardly-tapered spaces of one series of cutters receiving the overlapping portions of the other series of cutters, the casing provided with the opposite semicylindrical portions and having the upper and lower centrally-arranged vertical chutes 12 and 13 having their end walls arranged in the same vertical planes as the shafts, and the vertical combs arranged in the same planes as the end walls of the chutes and forming continuations of the walls of the lower chute and extending therefrom to points directly beneath the cutter-shaft, substantially as and for the purpose described.

692,941. GARDEN-PLOW. WILLIAM J. STEWART, Lynnville, Tenn. Filed Aug. 26, 1901. Serial No. 73,367. (No model.)



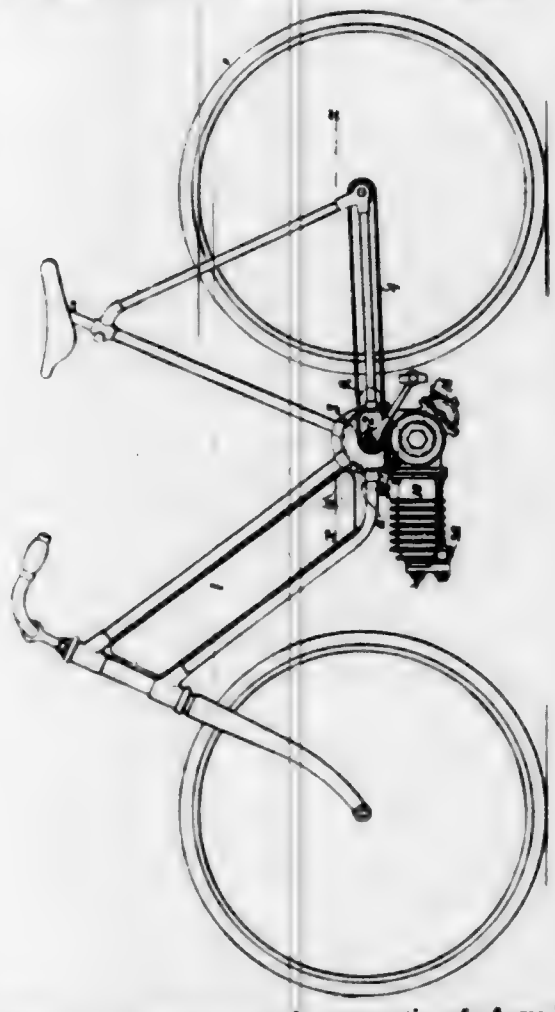
Claim.—1. In a garden-plow, the combination with the handle-bars, of brackets secured thereto and provided at their lower ends with hori-

zontally-disposed slots, and a furrow-wheel having the ends of its axle working in the slots.

2. In a garden-plow, the combination with the handle-bars, of brackets adjustably connected therewith and provided at their lower ends with horizontally-disposed slots, and a furrow-wheel having the ends of its axles working in the slots.

3. In a garden-plow, the combination with handle-bars carrying at their front end a supporting-wheel, of brackets secured to the handle-bars and provided at their lower ends with horizontally-disposed slots, a furrow-wheel having the ends of its axle working in the slots, and a shovel-carrying beam having its forward end mounted on the supporting-wheel axle and its rear end connected with the said brackets.

692,942. MOTOR-CYCLE. EDWIN S. STRICKLAND, Boundbrook, N. J. Filed Oct. 1, 1901. Serial No. 77,234. (No model.)



Claim.—1. In a motor-cycle, the combination of a frame having its lower central portion adapted to receive an inclosed driving-gear, and an explosive-motor also having an inclosed driving-gear with means for joining together the corresponding inclosure or casing of said motor and cycle gear, as set forth.

2. In a motor-cycle, the combination of a frame having its lower central portion adapted to receive an inclosed driving-gear and a double-cylinder explosive-motor having an inclosed gear between the cranks, with means for joining together the corresponding gear-casings of the motor and cycle, as set forth.

3. In a motor-cycle, the combination of an explosive-motor having an inclosed driving-gear, a frame having an inclosed cycle driving-gear, and a suitable flexible medium between the rim and shaft or hub of said cycle driving-gear, with means of transmitting the power from said shaft or hub to the driving-wheel of the cycle or vehicle, as set forth.

4. In a motor-cycle, the combination of an explosive-motor, having an inclosed driving-gear, a frame having an inclosed cycle driving-gear and one or more flexible spring-arms between the rim and shaft or hub of said cycle-gear with means of transmitting the power from said shaft or hub to the driving-wheel of the cycle or vehicle.

5. In a motor-cycle, the combination of a double-cylinder two-cycle explosive-motor having an inclosed driving-gear mounted between the cranks, a frame having an inclosed cycle driving-gear mounted therein and one or more flexible spring-arms between the rim and sleeve or hub of said cycle driving-gear, with means of transmitting power from said inclosed sleeve or hub to the driving-wheel of the cycle or vehicle, as set forth.

6. In a motor-cycle, the combination of an explosive-motor having an inclosed driving-gear, a frame also having an inclosed cycle driving-gear in the central lower portion thereof, with a pedal-shaft extending through and journaled in the sleeve of said inclosed cycle driving-gear, or journaled in the side of the casing of said cycle driving-gear, with suitable chain or gear connections from the pedal-shaft to the driving-wheel of the cycle or vehicle.

7. In a motor-cycle, the combination of a double-cylinder two-cycle explosive-motor, having crank-case supply-chambers, the cranks set at one hundred and eighty degrees, with a gear between said cranks, said gear being inclosed and meshing with a cycle driving-gear journaled in a casing at the central lower portion of the frame, with a sleeve or shaft extending from within the casing to a sprocket and suitable connections to the driving-wheel of the cycle or vehicle.

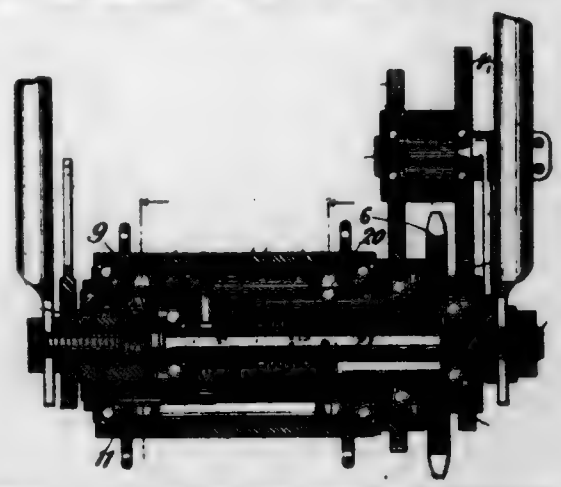
8. In a motor-cycle, the combination of a drop-frame, a casing rigidly secured to the lower central portion of said frame and inclosing a cycle driving-gear meshing with a motor driving-gear inclosed between the cranks of a pair of explosive-motors that are adjacently mounted, said gear-casing being extended to inclose a cam and electrode shaft, and means for transmitting power from the inclosed driving-gears to the driving-wheel of the cycle, as set forth.

9. In a motor-cycle, the combination of a double-cylinder two-cycle explosive-motor with its crank-case gas-supply chambers detachably fixed to and forming a continuation of a cycle-gear casing integral with and dependent from the lower central portion of the cycle-frame, a train of driving-gears contained in said casings and means for transmitting the driving effect of such train to the driven wheel of the cycle.

10. In a motor-cycle, the combination of a frame, having its lower central portion adapted to unite with a sectional casing, said casing, a train of gears inclosed therein, said casing being adapted to unite separably with a pair of forwardly-projecting motor-cylinders having pistons common to said cylinders and to crank-case supply-chambers integral with said casing, said pistons driving a common shaft in turn driving said gear-train, and means for transmitting the power effect of said gear-train to the driven wheel of said cycle.

11. In a motor-cycle, the combination of a drop-frame, a three-part sectional casing rigidly secured as to its upper section to the lower central portion of said frame, a cycle driving-gear inclosed in said section and meshing with a motor driving-gear inclosed in the central section of said casing, a pair of explosive-motor cylinders adjacently fixed to the front of said central casing, and an electric ignition device inclosed in the lower section of said casing, the said sections being separably joined, with means for transmitting motive power from the said cycle driving-gear to the driven wheel of said cycle.

692,943. BICYCLE-GEARING. CHARLES S. THOMPSON, Elizabeth, N. J. Filed June 28, 1901. Serial No. 66,359. (No model.)



Claim.—1. In bicycle-gearing, the combination with a primary driving member, a sprocket-wheel mounted thereon, an intermediate member and gearing connecting the said members whereby they are driven together, but at different relative rates of speed, of a wheel with which either the said primary or said intermediate member is adapted to engage, and means operated by the driving mechanism for permitting the engagement of either the primary member or the intermediate member with the wheel.

2. In bicycle-gearing, the combination with two driving members, of a sprocket-wheel forming a power-transmitting member for the said members, gearing connecting the said members whereby they are driven together, but at different relative rates of speed, means for operatively connecting either one or the other of said driving members with the wheel to be driven, and means operated by movements of the power-transmitting member for causing either one or the other of the said connecting means to operate.

3. In bicycle-gearing, the combination with two driving members, of a sprocket-wheel, forming a power-transmitting member, secured to one of the said members, gearing connecting the said members whereby

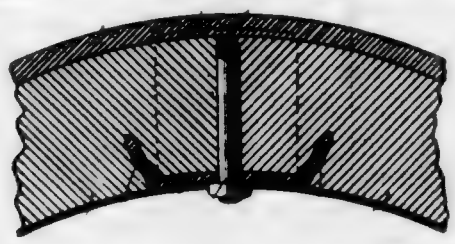
they are driven together, but at different relative rates of speed, means for operatively connecting either one or the other of said driving members with the wheel to be driven, and means operated by movements of the power-transmitting member for causing either one or the other of the said connecting means to operate.

4. In bicycle-gearing, the combination with two driving members, of a sprocket-wheel forming a power-transmitting member for the said members, spur-gears connecting the said members whereby they are driven together, but at different relative rates of speed, means for operatively connecting either one or the other of said driving members with the wheel to be driven, and means operated by movements of the power-transmitting member for causing either one or the other of the said connecting means to operate.

5. In bicycle-gearing, the combination with two driving members, of a sprocket-wheel forming a power-transmitting member for the said members, a spur-gear carried by each said member, said spur-gears being of different diameters, two intermediate spur-gears secured together and engaging the first two said spur-gears, a journal or bearing for the said intermediate spur-gears, a stationary axle about which the said driving members are mounted to revolve, means for operatively connecting either one or the other of said driving members with the wheel to be driven, and means operated by movements of the power-transmitting member for causing either one or the other of the said connecting means to operate.

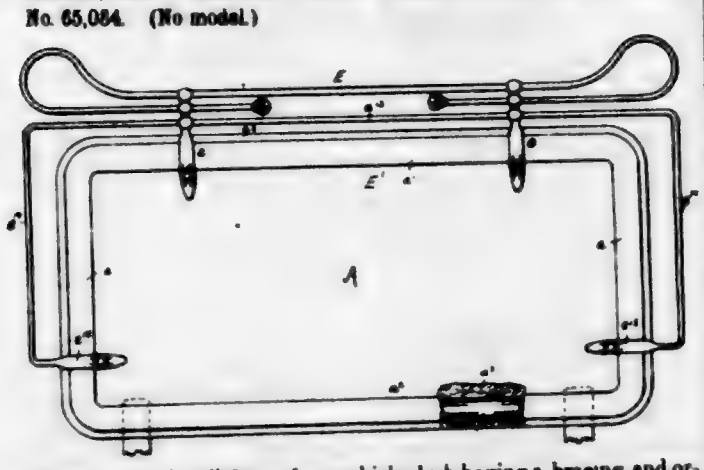
6. In bicycle-gearing, the combination with two driving members, of a sprocket-wheel forming a power-transmitting member for the said members, a spur-gear carried by each said member, said spur-gears being of different diameters, two intermediate spur-gears being together and engaging the first two said spur-gears, a journal or bearing for the said intermediate spur-gears, a stationary axle about which the said driving members are mounted to revolve, a link or bar connecting the said journal or bearing and the said stationary axle, means for operatively connecting either one or the other of said driving members with the wheel to be driven, and means operated by movements of the power-transmitting member for causing either one or the other of the said connecting means to operate.

692,944. **FELLY AND TIRE BRACE.** JOHN M. THORNE, Williams, Ariz. Filed May 4, 1901. Serial No. 58,771. (No model.)



Claim.—A vehicle-wheel having a substantially U-shaped clip embracing the felly with its opposite ends projected outwardly beyond the periphery thereof, but terminating short of the tread of the rim, to present tire-embracing stops to prevent lateral displacement of the tire, the end portions of the bend of the clip being provided with spurs or prongs to be seated in the felly, and a T-shaped bolt having its terminals provided with means for holding them rigidly associated with the clip, substantially as and for the purpose specified.

692,945. **VEHICLE-DASHBOARD FRAME.** PAUL J. TIBBELAKE, Jackson, Mich. Filed Nov. 17, 1900. Renewed June 18, 1901. Serial No. 65,084. (No model.)



Claim.—1. A rail-frame for a vehicle-dash having a bracing and ornamenting rail extending across the top of the dash, means for attaching it to the dash, and a rein-holder secured to said frame independently of the dash, substantially as set forth.

2. A rail-frame for a vehicle-dash having a bracing-rail, adapted to be attached to the dash at a distance therefrom and extending across its top, means for attaching the rail to the dash, and a bar adjacent to the said rail, and attachable and detachable therewith, and adapted to clamp a rein against the said rail, substantially as set forth.

3. A strengthening and ornamenting rail-frame for a vehicle-dash having attaching-standards, a bar extending across the dash rigidly attached to said standards, and two oppositely-extending bars with free ends and rigidly connected with the aforesaid bars and adapted to clamp the ends of reins against it, substantially as set forth.

4. As an article of manufacture, a vehicle-dash rail-frame having two parallel bars and two bars intermediate thereof bent as described to permit the fastening of straps between the intermediate bars and those at the sides thereof, and means for fastening said frame to a vehicle-dash, substantially as set forth.

5. As an article of manufacture, a dash rail-frame having two adjacent bars and one or more intermediate bars with one or more free ends, the end parts and the adjacent bars lying in different planes whereby means are provided for the grasping of straps between the intermediate bar and the adjacent bars, and means for detachably fastening said frame to a dash, substantially as set forth.

6. As an article of manufacture, a vehicle-dash frame having two adjacent bars adapted to extend across the top of a vehicle-dash, and leg-bars e^{14} adapted to be placed by the sides of the dash, an arm or arms with free ends between the said bars and lying in planes other than those of the said bars, and means for securing the said parts of the frame together, and to a vehicle-dash, substantially as set forth.

7. As an article of manufacture, a vehicle-dash frame having a bar as at E adapted to extend across the top of a vehicle-dash, said bar being bent backward upon itself at its ends to form arms having the end parts disposed substantially as set forth relative to the main part of the bar to permit the grasping of a strap between the said bar and the said end parts, as described.

8. As an article of manufacture a vehicle-dash rail-frame having a bar adapted to extend across the top of a dash, said bar being bent back upon itself at its ends and having the end parts in planes other than the plane of the main central part of the bar, and protecting enlargements on the free ends, substantially as set forth.

9. As an article of manufacture, a vehicle-dash rail-frame having the brackets for securing it to the dash, a bar adapted to extend across the dash and seated in eyes in the said bracket and a supplemental bar or bars, having arms with two free ends, also held in apertures in the said brackets, said free ends being arranged substantially as set forth to permit the grasping of straps by the rail-frame, as described.

10. As an article of manufacture, a vehicle-dash rail, frame having two brackets, as at b, c each with two apertures, a rail or bar adapted to extend across the top of the dash, the central part of said bar being secured in one of the apertures in each bracket, and said bar having its ends bent back toward said central part, and secured in the other eyes of the brackets and arranged in planes other than those of the central part of the bar, substantially as set forth.

11. A combined rail-frame and rein-holder for a vehicle-dash, it having two horizontally-arranged bars above the dash, one of which has its ends projecting freely, and both bars being more or less in substantially the same vertical planes except that the said free ends where one of the said bars is bent so as to lie in vertical planes different from those of the adjacent portion of the other bar.

12. A combined top rail-frame, rein-holder and hand-rail for a vehicle-dash, it comprising two parallel bars rigidly connected together and to the dash, one of said bars having freely-projecting ends lying in vertical planes other than those of the adjacent parts of the neighboring bar, the last said bar being extended downward and secured to the sides of the dash.

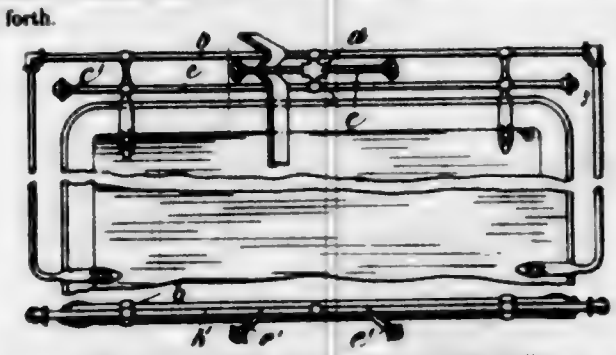
13. In a dash rail-frame the combination of two vertically-arranged standards adapted to be secured to the rim of the dash, a bar connecting and rigidly secured to the two standards, a supplemental bar adjacent to the aforesaid bar, the said two bars being detachable together from the dash and being shaped relatively to each other substantially as set forth to provide a rein-holder wherein the reins can be slipped and clamped between the said bars.

692,946. **VEHICLE-DASHBOARD FRAME.** PAUL J. TIBBELAKE, Jackson, Mich. Original application filed Nov. 17, 1900, Serial No. 36,834. Divided and this application filed June 17, 1901. Serial No. 64,903. (No model.)

Claim.—1. A rail-frame for a vehicle-dash having a bracing-rail extending across the top of the dash, means for attaching it to the dash, and a rein-holder secured to the said frame independent of the dash and arranged near the end of the frame and over the side or edge portion of the dash, substantially as set forth.

2. A rail-frame for a vehicle-dash having a bracing-rail arranged to be attached to the dash at a distance therefrom and extending across its top, means for attaching the rail to the dash, and a supplemental bar con-

nected with the said rail and arranged to lie between it and the top of the dash, the ends of the said supplemental bar being free and arranged to constitute, in combination with the cross-rail, a rein-holder, substantially as set forth.



3. A rail-frame for a vehicle-dash having a bracing-rail arranged to extend across the top of a dash at a distance therefrom and having its ends extending downward to constitute substantially vertically disposed hand-rails, means for securing the said bar or rail to the dash, and a supplemental bar connected with the said cross bar or rail and arranged between it and the top of the dash, the ends of the said supplemental bar being free and terminating inside of the said vertical hand-rails, and arranged to constitute rein-holders, substantially as set forth.

4. A rail-frame for a vehicle-dash having the standards *b b* arranged to be secured to the dash, a cross-bar *c* supported in the standards and arranged to extend across the top of the dash, the ends of the cross-bar being free, and another cross bar or rail *b'* supported by the said standards above the cross-bar *c*, the ends of the said cross-bar *b'* being continued around outside of the free ends of the bar *c*, the free ends of the bar *c* being arranged to clamp and hold the rein, substantially as set forth.

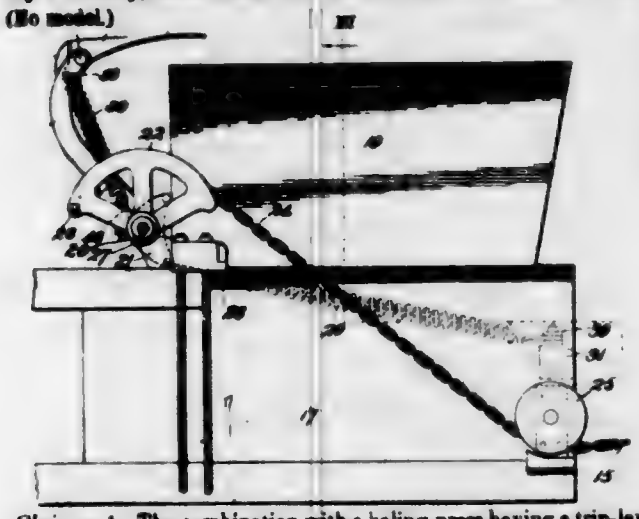
5. A rail-frame for a vehicle-dash, comprising standards or brackets for attachment to the dash, a supplemental cross-bar *c* supported therein and having its ends free, a cross-bar *b'* supported adjacent to the bar *c*, and attachments at the free ends of the bar *c* and coöperating therewith to constitute rein-holders, substantially as set forth.

6. A rail-frame for a vehicle-dash having a strengthening-rail extending across the top of the dash, means for attaching it to the dash, a supplemental cross-bar connected with the said strengthening cross-bar and arranged between it and the top of the dash, and the supplemental bar having free ends arranged to constitute rein-holders at the sides of the frame, and a rein-holder attachment situated near the center of the frame, substantially as set forth.

7. A rail-frame for a vehicle-dash having a strengthening-rail adapted to be attached to the dash at a distance therefrom and extending across its top, means for attaching it to the dash, a supplemental bar substantially parallel with the said strengthening-bar, and having its ends free and provided with enlarged attachments, the said free ends of the bar and their attachments constituting, in combination with the strengthening-bar, holders for the reins, substantially as set forth.

8. In a rail-frame for a vehicle-dash, the combination of brackets or standards *b*, a strengthening cross bar or rail *b'* supported in the said brackets or standards and having its ends extending downward to constitute hand-rails *b²*, the supplemental cross-bar *c*, a bracket connecting the said cross-bars near the center of the frame, and oppositely-extending arms or bars extending from the said bracket and arranged between the cross-bars *b'*, *c* to clamp and hold a rein, substantially as set forth.

692,947. SELF-FEEDER FOR BALING-PRESSES. JOHAN S. TUTTLE and CHARLES L. COOKSON, Kansas City, Mo., assignors to Timothy C. Bradley, Kansas City, Mo. Filed Oct. 8, 1901. Serial No. 77,954. (No model.)



Claim.—1. The combination with a baling-press having a trip-lever, of a feeder suitably supported contiguous to the baling-case, a revoluble cam suitably journaled at the power end of the machine, a connection between the cam and the feeder whereby movement imparted to the former by the trip-lever, is accompanied by the advance or feeding movement of the feeder, and means for synchronously restoring the feeder to its original position and causing the cam to continue its movement until it has described a complete circle, substantially as described.

2. The combination with a baling-press having a trip-lever, of a feeder suitably supported contiguous to the baling-case, a revoluble cam suitably journaled at the power end of the machine, a connection between the cam and the feeder whereby movement imparted to the former by the trip-lever, is accompanied by the advance or feeding movement of the feeder, and a spring for synchronously restoring the feeder to its original position and causing the cam to continue its movement until it has described a complete circle, substantially as described.

3. The combination with a baling-press having a trip-lever, of a feeder suitably supported contiguous to the baling-case, a revoluble cam suitably journaled at the power end of the machine, a flexible connection suitably guided between the cam and the feeder whereby movement imparted to the former by the trip-lever, is accompanied by the advance or feeding movement of the feeder, and means for synchronously restoring the feeder to its original position and causing the cam to continue its movement until it has described a complete circle, substantially as described.

4. The combination with a baling-press having its trip-lever provided with a roller, of a movable feeder, supported contiguous to the baling-chamber, a rotary cam journaled in the path of said supplemental trip-lever roller, a connection between the feeder and the cam, the front end of the connection being pivoted or swiveled to the cam so as to swing across the face thereof, and means for yieldingly resisting the movement imparted to the cam and feeder by the trip-lever roller and for restoring said parts to their original position after the trip-lever roller has passed, substantially as described.

5. The combination with a baling-press having a trip-lever, of a self-feeder embodying swinging arms, a presser-foot pivoted to said arms and projecting forwardly therefrom, and a spring holding said presser-foot at a suitable angle, a revoluble cam suitably journaled at the power end of the machine, a connection between the cam and the feeder whereby movement imparted to the former by the trip-lever is accompanied by the advance or feeding movement of the feeder, and means for synchronously restoring the feeder to its original position and causing the cam to continue its movement until it has described a complete circle, substantially as described.

6. The combination with a baling-press having a trip-lever of a self-feeder embodying swinging arms, provided with forwardly-disposed shoulders, a presser-foot provided with a reinforce plate or casting, and a spring normally holding said casting against said shoulders, a cam suitably journaled at the power end of the machine, a connection between the cam and feeder whereby movement imparted to the former by the trip-lever is accompanied by the advance or feeding movement of the feeder, and means for synchronously restoring the feeder to its original position and causing the cam to continue its movement until it has described a complete circle, substantially as described.

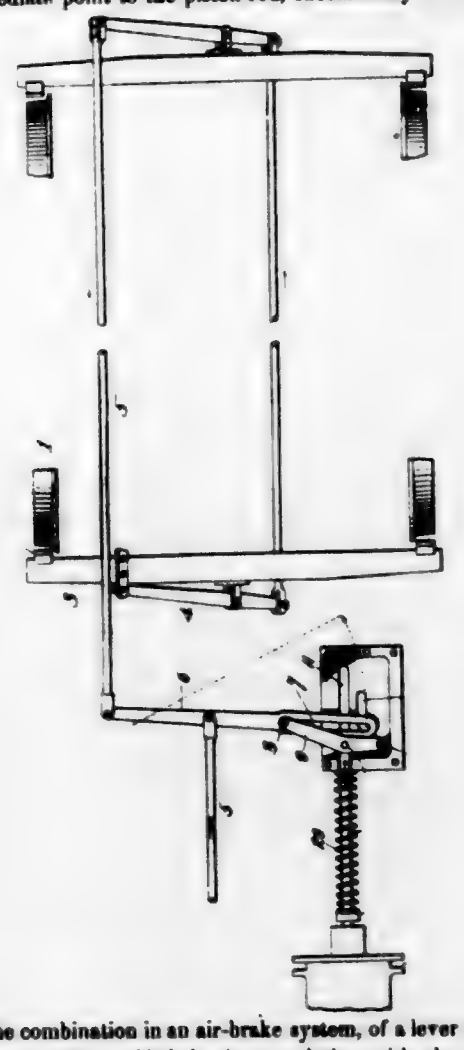
7. The combination with a baling-press having a trip-lever of a self-feeder, comprising a transverse shaft suitably journaled at the rear end of the feed-opening, a segmental drum and lever on opposite ends of the same, a retractile spring connecting said lever with a fixed part of the press, arms projecting from said shaft and provided with forwardly-disposed shoulders, and a presser-foot provided with a reinforce-plate, pivoted to said arms, a retractile spring connecting the shaft with said reinforce-plate so as to hold the latter against said shoulders, a revoluble cam in the path of the trip-lever, a pulley journaled upon the case, and a flexible connection depressed by said pulley and attached at its opposite ends to said drum and said cam, and adapted to sweep across the face of the latter, substantially as described.

8. The combination with a baling-press, having a trip-lever, of a self-feeder, comprising a transverse shaft suitably journaled, arms projecting from said shaft and provided with forwardly-disposed shoulders, a presser-foot pivoted to said arms, a spring forming a part of the feeder mechanism and holding the presser-foot normally against said shoulders, means actuated by the trip-lever for operating said shaft and thereby effecting the descent of the presser-foot into the baling-chamber, and means for reversing the operation of said shaft after the overcoming pressure of the trip-lever is removed and thereby reëlevating the presser-foot, substantially as described.

692,948. AIR-BRAKE SYSTEM. THOMAS H. VAN DYKE, Kansas City, Mo., assignor of one-third to John W. Taylor, Kansas City, Kans. Filed Mar. 11, 1901. Serial No. 50,596. (No model.)

Claim.—1. The combination in an air-brake system, of a lever having a movable fulcrum suitably guided, having a relation with the float-

ing lever whereby its leverage thereon is gradually increased, and pivoted at an intermediate point to the piston-rod, substantially as described.



2. The combination in an air-brake system, of a lever having a movable fulcrum suitably guided, having a relation with the floating lever whereby its leverage thereon is gradually increased, and pivoted at an intermediate point to the piston-rod, the path of said pivotal point converging with the path of the fulcrum-point, substantially as described.

3. In an air-brake system, the combination of a lever, having a movable fulcrum, having a relation with the floating lever whereby its leverage thereon is gradually increased, and pivoted to the piston-rod at an intermediate point, and means for withdrawing the piston-rod, substantially as described.

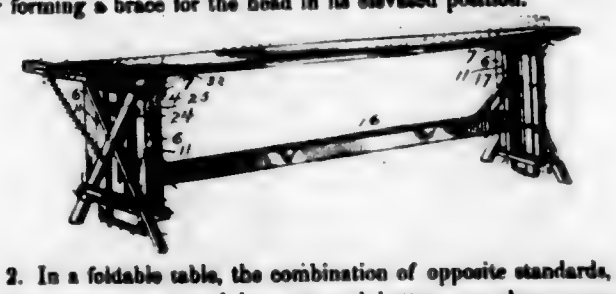
4. In an air-brake system, the combination of a casing, provided with a longitudinal guide-slot in the plane of the piston-rod, and with an angle-slot, the oblique portion of the latter converging forwardly with respect to the first-named slot, and having its remaining portion parallel with the first-named slot, a lever having a fulcrum upon one end engaging said second slot, and having a relation with the floating lever whereby its leverage thereon is gradually increased, and pivotally connected at an intermediate point to the piston-rod, the pivot-pin operating in said first-named slot, substantially as described.

5. In an air-brake system embodying a longitudinally-slotted floating lever, the combination of a casing having a longitudinal guide-slot in the plane of the piston-rod, and a companion angle-slot, the rear portion of which converges with respect to the first-named slot while its front portion extends parallel with the latter, a lever having a fulcrum-pin engaging said angle-slot, and having a pin engaging the slot of the floating lever, and pivoted at an intermediate point to the piston-rod, the pivot-pin at such point projecting into the first-named guide-slot, substantially as described.

6. In an air-brake system embodying a longitudinally-slotted floating lever, the combination of a casing having a longitudinal guide-slot in the plane of the piston-rod, and a companion angle-slot, the rear portion of which converges with respect to the first-named slot while its front portion extends parallel with the latter, a lever having a fulcrum upon and engaging said angle-slot, and having a pin engaging the slot of the floating lever, and pivoted at an intermediate point to the piston-rod, the pivot-pin at such point projecting into the first-named guide-slot, and a spring encircling the piston-rod and arranged to insure its withdrawal after the brakes are released, substantially as described.

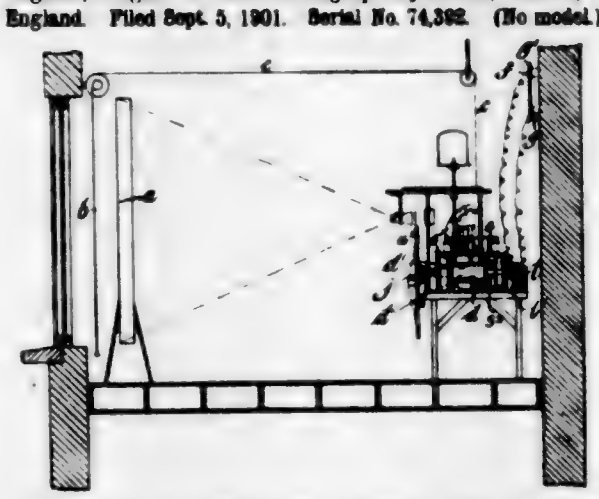
692,949. **IRONING-TABLE.** ROBERT VARNOY, Manchester, Tenn. Filed Apr. 6, 1901. Serial No. 54,762. (No model.)

Claim.—1. A table having a leg-standard, comprising crossed legs, top and bottom cross-bars connecting the same, opposite upright side bars secured to the cross-bars, an adjustable head, having a pendent arm slidably mounted between the side bars, and provided with a longitudinal series of perforations, one of the cross-bars having a perforation in alinement with the perforations of the arm, a removable fastening carried in the perforation of the cross-bar and for adjustable engagement with the perforations of the arm, and an adjustable rod carried by the upper cross-bar, and projected loosely through the head, and a top having a socket for the reception of the upper projected end of the adjustable rod, the latter forming a brace for the head in its elevated position.



2. In a foldable table, the combination of opposite standards, each of which comprises crossed legs, top and bottom cross-bars connecting the same, opposite upright side bars connected to the cross-bars, top and bottom cleats secured to the side bars, the top cleat and adjacent cross-bar having corresponding perforations, a connecting-bar, having cross-heads at opposite ends, each cross-head having opposite terminal journals, which are pivotally mounted in the adjacent top and bottom cleats respectively, an adjustable head for each standard, and having a pendent arm slidably mounted between the adjacent side bars, and provided with a longitudinal series of perforations for adjustable alinement with the perforations of the cleat and cross-bar, a removable fastening for adjustable engagement with the perforations of the cleat, the cross-bar and the arm, detachable braces between the connecting-bar and the respective standards, a removable top, a spring carried by one of the standards and having a detachable connection with the adjacent end of the table-top, and brackets to support the table-top when the table is folded.

692,950. **ADVERTISING DEVICE.** ROBERT W. VIRING, Ealing, England, assignor to Auto-Postergraph Syndicate, Limited, London, England. Filed Sept. 5, 1901. Serial No. 74,392. (No model.)



Claim.—An advertising device consisting of in combination, an optical projecting apparatus, a translucent screen arranged to receive the image projected thereby, a rotating lantern-slide carrier, means for giving the said carrier an intermittent motion from continuous motion, a uniform-speeded motor for driving the machine, a timing mechanism having electrical contacts, an electrical control mechanism controlled by the timing mechanism, a roller-blind carrying permanent advertising matter, a winding mechanism adapted to roll up and unroll the said blind, a reversing and disengaging mechanism connecting the motor with the winding mechanism, means operated by the electrical control device adapted to effect the reversing and disengaging mechanism, and a mechanical controlling device operated by the winding mechanism adapted to control the supply of energy to the motor and of the lighting agent to the optical lantern, substantially as described.

692,951. **BOTTLE-TAP.** EDWIN WALKER, Erie, Pa. Filed May 17, 1901. Serial No. 60,683. (No model.)

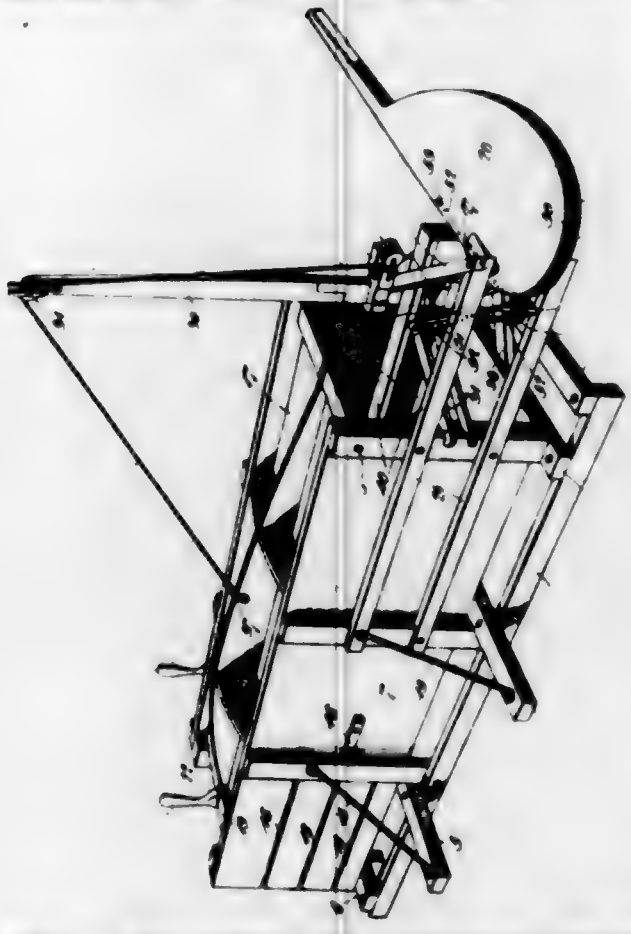


Claim.—1. The combination in a bottle-tap of a hollow screw, valve mechanism for closing the orifice in said screw, and a spring-actuated

telescopic section on the lower end of said screw, substantially as and for the purpose set forth.

2. The combination in a bottle-tap of a hollow screw, an enlarged head having a valve-chamber therein, and a valve-seat around the upper end of the orifice in the screw, arms extending laterally from said head, one of which has an orifice therein communicating with the valve-chamber in the head, a screw-actuated compression-valve in said valve-chamber, operating on the valve-seat therein, a tubular extension on the lower end of the hollow screw, having lateral openings therein, and a spring-actuated sleeve having a point on the lower end thereof adapted to telescope over the tubular extension and close the openings therein, substantially as set forth.

692,952. HAY-PRESS. WILLIAM W. WESTON, Weston, S. C. Filed Aug. 21, 1901. Serial No. 72,844. (No model.)



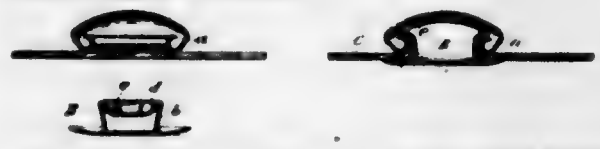
Claim.—1. The combination with a press-box and a reciprocating plunger, of a cam-drum mounted for partial rotation in reverse directions, reversely-disposed compressing and retracting cords connecting said cam-drum to said plunger, to impart reciprocating movement to the latter, direction-sheaves engaged by said cords, and a traveling pulley, bearing on said cam-drum and around which said retracting-cord passes, substantially as described.

2. In a press, the combination of a press-box, a pivotally-mounted packing-door, a reciprocating plunger, an operating-cord connected to said door, said plunger having an engaging element in the path of which said operating-cord is disposed, whereby said cord is caught by said engaging element, on the outstroke of the plunger, to raise said packing-door, said operating-cord and an element of said plunger having coacting trip elements to release said cord from said engaging element, for the purpose set forth, substantially as described.

3. The combination of a horizontally-disposed press-box having a packing-door adapted to be raised and lowered to open and close the upper side of the box, a plunger in the latter, means to operate the plunger, an operating-cord to open said packing-door, a trip on said cord, means, carried by said plunger-bar, to engage and draw said cord and open said packing-door, on the outstroke of said plunger, and a tappet, carried by said plunger to coact with said trip to release said cord from said engaging means and thereby permit said packing-door to drop to a closed position prior to the ensuing instroke of the plunger, substantially as described.

4. In a baling-press, a horizontally-disposed press-box having its outer end closed, its upper side open, a door in one of its sides, at the outer end thereof, and a packing-door to close the open upper side thereof, said packing-door when closed extending from end to end of the press-box and being hinged at one end to the inner end of the press-box, in combination with a plunger, operative in said press-box, means, actuated by said plunger to raise said packing-door on the outstroke of the plunger, and release said door when raised, so that the said packing-door will fall by its own weight prior to the compressing instroke of the plunger, and means to lock said packing-door and side door, when closed, said side door permitting the removal of the bales and said closed outer end of the press-box coacting with the sides and bottom thereof and with the packing-door and plunger to compress the bales, substantially as described.

692,953. FASTENER. FRANKLIN R. WHITE, Waterbury, Conn., assignor to the Patent Button Company, Waterbury, Conn., a Corporation of Connecticut. Filed May 2, 1901. Renewed Jan. 10, 1902. Serial No. 89,224. (No model.)



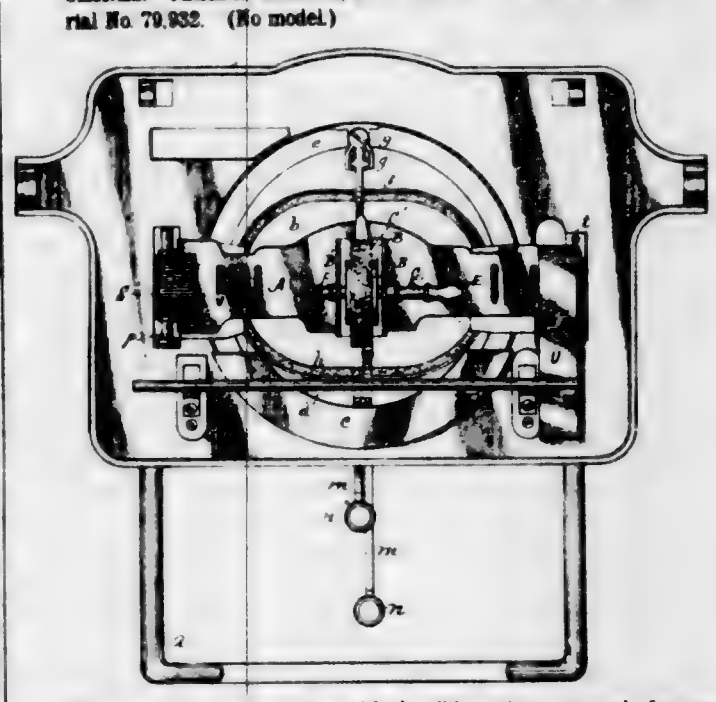
Claim.—1. The socket member of a ball-and-socket fastener, consisting of an outer shell having a restricted opening and a fastening-eyelet, the top of which is closed and depressed or recurved, whereby said top may be expanded and locked within said shell, substantially as described.

2. The socket member of a ball-and-socket fastener, consisting of a shell having a restricted opening, and a fastening-eyelet, said eyelet comprising a shank or tubular portion, the top of which is closed, depressed and slitted, and at its opposite end a flange, whereby the closed, depressed top of said eyelet may be expanded and locked within said shell, substantially as described.

3. The socket member of a ball-and-socket fastener, consisting of a shell having a curled rim, and an eyelet, consisting of a flange and shank, the top of said shank being closed and depressed or recurved, whereby the same may be spread or expanded over and upon said curled rim, substantially as described

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692,954. TYPE-CLEANING DEVICE FOR TYPE-WRITING MACHINES. JAMES A. WHITING, Boston, Mass. Filed Oct. 25, 1901. Serial No. 79,932. (No model.)



Claim.—1. In combination with the ribbon plate or guard of a type-writing machine, a type-cleaning device adapted to slide into position on said ribbon-plate; and means for mechanically pushing the ribbon out of the path of the type as the type-cleaning device is moved into such position.

2. In combination with the ribbon plate or guard of a type-writing machine, a type-cleaning device adapted to slide laterally into position on said ribbon-plate; and means making a part of said type-cleaning device whereby the moving of said device into engagement with the ribbon-plate removes the ribbon mechanically out of the path of the type.

3. In combination with the ribbon plate or guard of a type-writing machine, a type-cleaning device comprising a frame and a rotative brush; and means connected with said frame whereby the moving of said device into position on the ribbon-plate removes the ribbon mechanically from the path of the type.

4. A type-cleaning device for type-writing machines, comprising a frame; a rotative brush mounted on said frame; grooved ways for engagement with the edges of the central opening in the ribbon-plate; and means for mechanically pushing the ribbon out of the path of the type as the device is slid into connection with the ribbon-plate.

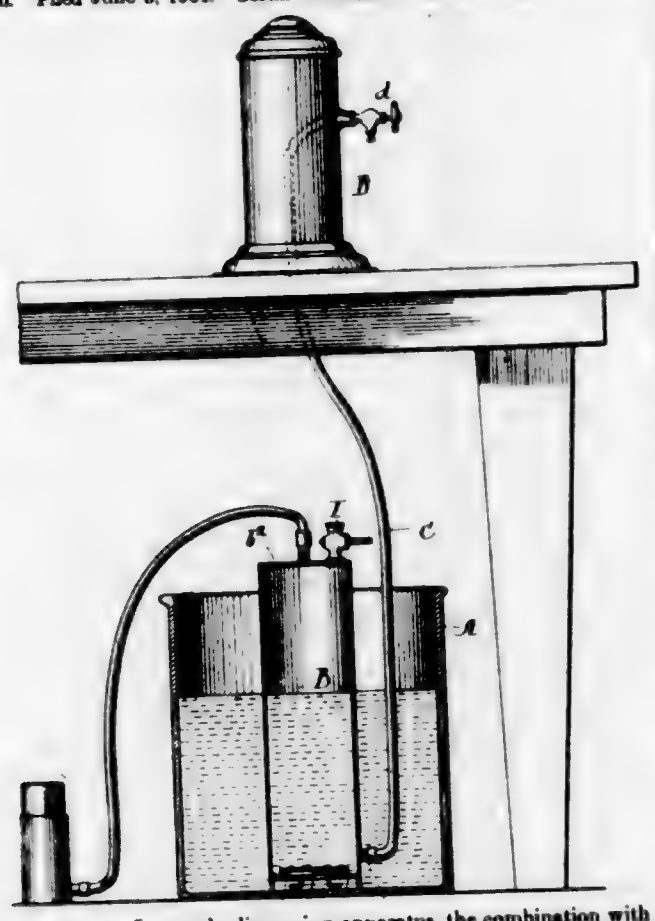
5. A type-cleaning device for type-writing machines, comprising a

frame; a rotative brush mounted on said frame; grooved ways for engagement with the edges of the central opening in a ribbon-plate; and extensions projecting forward from the frame, whereby as the device is slid into connection with the ribbon-plate said extensions underlap the ribbon and push it out of the path of the type.

6. A type cleaning device for type-writing machines, comprising a frame; a rotative brush mounted thereon; grooved ways for engagement with the edges of the central opening in the ribbon-plate; projections for underlapping and pushing forward the ribbon as the device is applied to the ribbon-plate; and means for locking said device to the ribbon-plate.

7. A type-cleaning device for type-writing machines, comprising a frame; a rotative brush mounted thereon; the ribs H on the under side of the frame providing grooves I; the hook P extending forward from the frame; the underlapping extensions K projecting forward from the ribbon-plate; a spring for preventing side shake of the frame; and a suitable stop, substantially as set forth.

692,955. SODA-WATER APPARATUS. ELMER A. WILCOX, Chicago, Ill., assignor to Adam P. Kastler and Frank S. Smith, Chicago, Ill. Filed June 3, 1901. Serial No. 62,829. (No model.)



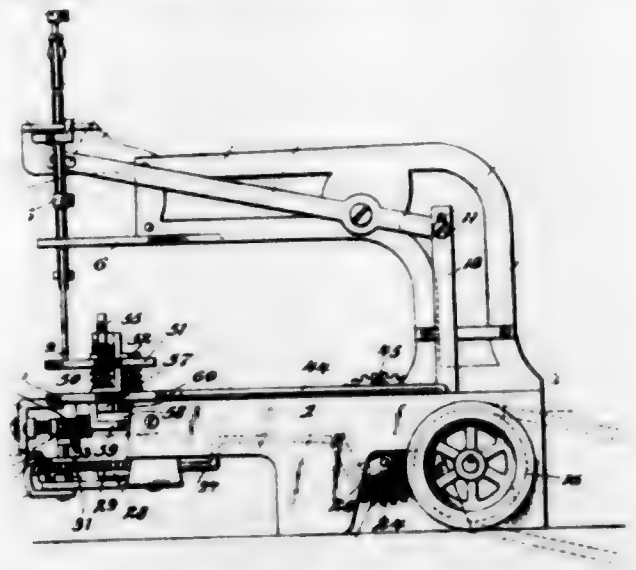
Claim.—1. In a soda-dispensing apparatus, the combination with a reservoir, for containing soda solution, of a supplemental tank adapted to be immersed in the solution, a check-valve submerged in the solution and removably held in said reservoir and for controlling the entry of liquid into said tank, a cock for permitting the escape of compressed air from said tank to cause the flow of the solution to said tank, a draft-arm, a suitable connection between said draft-arm and said tank, and means whereby air may be forced into said tank.

2. In a soda-dispensing apparatus, the combination with a reservoir, for containing soda solution, of a supplemental tank adapted to be immersed in the solution and removably held in said reservoir, a check-valve in the bottom of said tank, and for controlling the entry of liquid into said tank, a cock for permitting the escape of compressed air from said tank to cause the flow of the solution to said tank, a draft-arm, a suitable connection between said draft-arm and said tank and means whereby air may be forced into said tank.

3. In a soda-dispensing apparatus, the combination with a reservoir, for containing soda solution, of a supplemental tank adapted to be immersed in the solution and removably held in said reservoir, a check-valve in the bottom of said tank, and for controlling the entry of liquid into said tank, a cock for permitting the escape of compressed air from said tank to cause the flow of the solution to said tank, a draft-arm, a pipe extended from the side of said tank and upwardly within the reservoir, and connecting said draft-arm and said tank and means whereby air may be forced into said tank.

692,956. SHOE-LACING MACHINE. DANIEL A. WILLIAMSON, Tyrone, Pa. Filed Apr. 30, 1900. Serial No. 15,019. (No model.)

Claim.—1. In a lacing-machine of the class set forth, the combination of a bed, a clamping device for a shoe-upper, means for imparting a step-by-step movement to said clamping device over one end of the bed, and mechanism carried by the bed for looping a thread or lace and drawing the same through the eyelets of the upper, the said clamping device having means for holding portions of the loops of the thread or lace away from the upper.



2. In a lacing-machine of the character set forth, the combination of a support, a shoe-upper-holding device having loop-holders in connection therewith and movable on one end of the support, and mechanism on the said support for automatically drawing a thread or lace through the eyelets of the upper.

3. In a lacing-machine of the character set forth, the combination of a support, a shoe-upper-holding device having loop-holders in connection therewith and movable on the said support, means for moving the said holding device and means operating in timed relation to the movement of the holding device for the shoe-upper for drawing a thread or lace through the eyelets of the upper and securing the opposite parts of the latter preparatory to lasting.

4. In a lacing-machine of the character set forth, the combination of a support, a slotted clamp having loop-holders in connection therewith and movable over the support by a step-by-step feed and arranged to receive and tightly bind a shoe-upper, a needle-bar carrying a hooked needle having reciprocation through the slotted portion of the clamp and the upper held thereby, a looping device below the clamp, and means for operating the said parts.

5. In a lacing-machine of the character set forth, the combination of a support, a slotted clamp having loop-holders in connection therewith and movable over the support by a step-by-step feed and arranged to receive and tightly bind a shoe-upper, a needle-bar carrying a hooked needle having reciprocation through the slotted portion of the clamp and the upper held thereby, a looping device below the clamp, a cast-off device working in conjunction with the needle-bar and needle, and means for operating the said parts.

6. In a lacing-machine of the character set forth, the combination of a support, a shoe-upper-holding device having loop-holders in connection therewith and movable on the said support, a vertically-reciprocating needle-bar carrying a hooked needle movable through the said clamp and the shoe-upper carried thereby to draw a thread or lace through the eyelets of the upper, means for looping the thread or lace and located below the clamp, a cast-off in intimate relation to the needle-bar and needle and having a timed actuation by the movement of the needle-bar, means for controlling the movement of the cast-off and regulating its time of actuation, and means for operating the several mechanisms.

7. In a lacing-machine of the character set forth, the combination of a support, a clamp having loop-holders in connection therewith and movable over the support and arranged to receive the upper of a shoe, a loop-frame adjustably carried by and movable with the clamp, mechanism for forming and drawing a looped thread or lace through the clamp and loop-frame, and means for operating the several devices.

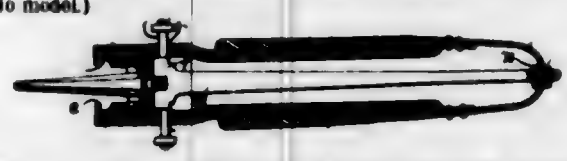
8. In a lacing-machine of the character set forth, the combination with mechanism for looping a lace or thread, of a regularly-fed holding device for a shoe-upper disposed in operable relation to the said mechanism to permit the looped thread or lace to be drawn through the eyelets of the upper, means for feeding the said holding device, and a looping-frame carried by the said holding device and movable and adjustable independently of the latter and also manually movable in a plane at right angles to the feeding direction of the latter to release the loops therefrom.

9. In a lacing-machine of the character set forth the combination with mechanism for looping a lace or thread, of a shoe-upper-holding de-

vice disposed in operable relation to said mechanism to hold the eyelets in the shoe-upper in alinement therewith, an adjustable loop-frame carried by the said holding device, and mechanism for operating the several parts.

10. A lacing-machine of the class set forth, comprising a device for supporting and holding a shoe-upper to dispose the eyelets thereof in alined pairs, a loop-forming mechanism having a single needle to successively pass through the eyelets of the upper and lock the series of loops loosely in said eyelets, means for imparting a step-by-step movement to said device for supporting and holding the upper, and means for operating the loop-forming mechanism in timed relation to the movement of the said device.

692,957. **IMPLEMENT FOR FINISHING NECKS AND LIPS OF BOTTLES.** ALLEN F. WILSON, Clayton, N. J., assignor of one-half to John Wesley Webb, Clayton, N. J. Filed Oct. 1, 1901. Serial No. 77,206. (No model.)

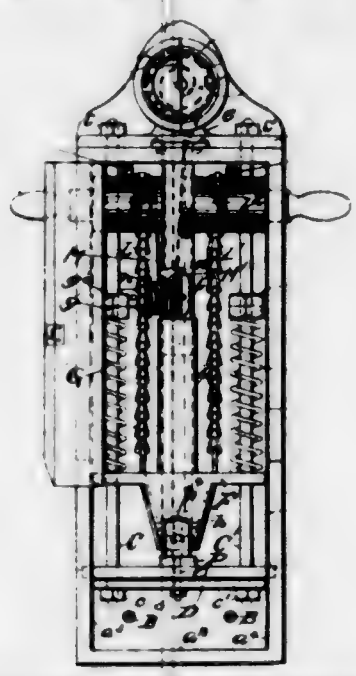


Claim.—1. In a tool for finishing bottle-necks with external segmental projections thereon, a rotatable mold adapted to inclose the end of the bottle-neck having segmental recesses opening to the rim of the mold in combination with expansible and contractible jaws and connected handles for holding said jaws in closed position over the mold and bottle-neck substantially as set forth.

2. In a tool for finishing bottle-necks a rotatable mold adapted to surround the neck of a bottle and having recesses therein for molding projections on the bottle-neck, a tapering non-rotatable fluted plug in combination with shouldered jaws adapted to close over the mold and connected handles for opening and closing said jaws as set forth.

3. In a tool for finishing bottle-necks and forming segmental projections thereon, a rotatable mold adapted to surround the neck of a bottle and having segmental recesses open to the edge of the mold in combination with expansible and contractible jaws having shoulders fitting over the edge of the mold, shanks and handles and a spring uniting said shanks, and a stem and guide controlling the position of said mold and jaws arranged to operate as set forth.

692,958. **COIN-CONTROLLED STRENGTH-TESTING MACHINE.** ADDISON WILSON, Lowell, Mass. Filed Aug. 16, 1901. Serial No. 72,229. (No model.)



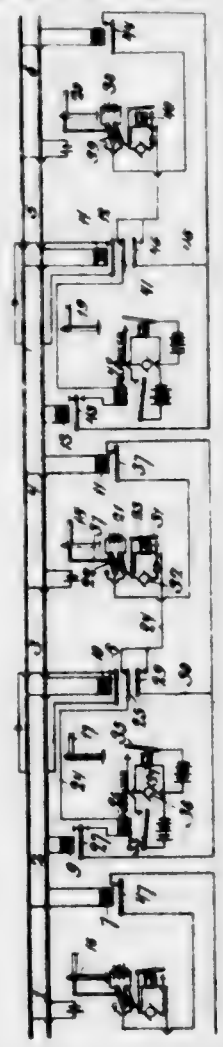
Claim.—1. The combination of a suitable case provided with a coin-slot, a follower, means of raising said follower, springs to resist the raising of said follower and to restore said follower, when raised and let go, to normal position, a coin-chute, formed in two telescoping sections, one attached to said case, and the other to said follower, and a lock, normally engaging said follower and preventing the raising thereof and adapted to be struck by a coin from said chute and disengaged from said follower.

2. The combination of a suitable case, provided with a coin-slot, a follower, guides to direct said follower, springs, surrounding said guides, to resist the movement of said follower and to restore the same to normal position, a coin-chute, a lock, normally preventing the movement of said follower, and adapted to be unlocked by being struck by a coin from said chute, a spindle, journaled in said case and having handles which project from said case, flexible connections between said follower and spindle, adapted to be wound on said spindle, and an indicator to show the movement of said spindle.

3. The combination of a suitable case, provided with a coin-slot, a follower, guides to direct said follower, springs surrounding said guides to resist the movement of said follower, and to restore the same to normal position, a coin-chute, a lock, normally preventing the movement of said follower, and adapted to be unlocked by being struck by a coin from said chute, a spindle, journaled in said case, and having handles which project from said case, flexible connections between said follower and spindle, adapted to be wound on said spindle, an arbor, a flexible connection between said spindle and said arbor, a figured dial and a pointer, carried by said arbor over said dial.

4. The combination of a suitable case, provided with a coin-chute, a follower, guides to direct said follower, springs surrounding said guides to resist the movement of said follower, and to restore the same to normal position, a lock, normally preventing the movement of said follower, and adapted to be unlocked by being struck by a coin from said chute, a spindle, journaled in said case and having handles which project from said case, flexible connections between said follower and spindle, to be wound on said spindle, an arbor, a flexible connection between said spindle and said arbor, a figured dial, a pointer secured to said arbor, a spring to restore said arbor to normal position, and a stop arranged in the path of a projection, with which said arbor is provided, to prevent said pointer from passing the zero-point in its return movement.

692,959. **ELECTRIC SIGNALING SYSTEM.** ADONIRAM J. WILSON, Westfield, N. J., and WILMER W. SALMON, Chicago, Ill. Filed Nov. 6, 1900. Serial No. 35,633. (No model.)



Claim.—1. In an electric signaling system, the combination of a home signal and a distant signal; a signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the neutral magnet to operate the home signal; and means for shifting the pole-changer to energize the polarized magnet and operate the distant signal, said means being automatically operated upon the energization of the neutral magnet.

2. In an electric signaling system, the combination of a home signal and a distant signal; a signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the neutral magnet to operate the home signal; and means operated by the home signal for shifting the pole-changer to energize the polarized magnet and operate the distant signal.

3. In an electric signaling system, the combination of a home signal and a distant signal, both normally at danger; a normally deënergized

signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the signal-circuit and thereby energizing the neutral magnet to put the home signal to safety; and mechanical means operated by the home signal for shifting the pole-changer to energize the polarized magnet to put the distant signal to safety.

4. In an electric signaling system the combination of a home signal and a distant signal, both normally at danger; a normally deënergized signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the signal-circuit and thereby energizing the neutral magnet to put the home signal to safety; and means operated by the home signal for shifting the pole-changer to energize the neutral magnet to put the distant signal to safety.

5. In an electric signaling system, the combination of a home signal and a distant signal; a signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the neutral magnet to operate the home signal; means for shifting the pole-changer to energize the polarized magnet and operate the distant signal, said means being automatically operated upon the energization of the neutral magnet; and means for holding said signals to danger when a train is in advance thereof.

6. In an electric signaling system, the combination of a home signal and a distant signal, both normally at danger; a normally deënergized signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the signal-circuit and thereby energizing the neutral magnet to put the home signal to safety; means for shifting the pole-changer to energize the polarized magnet to put the distant signal to safety; and means for holding said signals to danger when a train is in advance thereof.

7. In an electric signaling system, the combination of a home signal and a distant signal; a signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the neutral magnet to operate the home signal; means for shifting the pole-changer to energize the polarized magnet and operate the distant signal, said means being automatically operated by the energization of the neutral magnet; and track-circuits for operating the signal-circuit.

8. In an electric signaling system, the combination of a home signal and a distant signal; a signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer, means for energizing the neutral magnet to operate the home signal; means operated by the home signal for shifting the pole-changer to energize the polarized magnet and operate the distant signal; and track-circuits for operating the signal circuit.

9. In an electric signaling system, the combination of a home signal and a distant signal, both normally at danger; a normally deënergized signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the signal-circuit and thereby energizing the neutral magnet to put the home signal to safety; means for shifting the pole-changer to energize the polarized magnet to put the distant signal to safety; and track-circuits for operating the signal-circuit.

10. In an electric signaling system the combination of a home signal and a distant signal, both normally at danger; a normally deënergized signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; means for energizing the signal-circuit and thereby energizing the neutral magnet to put the home signal to safety; means operated by the home signal for shifting the pole-changer to energize the polarized magnet to put the distant signal to safety; and track-circuits for operating the signal-circuit.

11. In an electric signaling system the combination of a home signal and a distant signal guarding a block of a track, both signals being normally at danger; a normally deënergized signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; and means controlled by a train for energizing and deënergizing the signal-circuit and for shifting the pole-changer and thereby energizing and deënergizing said magnets to operate the signals; the arrangement being such that both of said signals may be put to safety by a train in the rear thereof; the distant signal may be put to danger by a train between said signals, and both of said signals may be put to danger by a train in the block guarded by said signals.

12. In an electric signaling system the combination of a home signal and a distant signal guarding a block of a track, both signals being normally at danger; a normally deënergized signal-circuit for said signals containing a neutral magnet for the home signal, a polarized magnet for the distant signal and a pole-changer; and means controlled by a train for energizing and deënergizing the signal circuit and for shifting the pole-changer and thereby energizing and deënergizing said magnets to operate the signals; the arrangement being such that both of said signals may be put to safety by a train in the rear thereof; the distant signal may be put to danger by a train between said signals, and both of said signals may be put to danger by a train in the block guarded by said signals, the movement of the home signal to safety initiating the operation which puts the distant signal to safety.

13. In an automatic electric signaling system, the combination of two signals separated from each other and normally at danger, said signals guarding a common portion of a track, a signal-circuit controlled or operated by a train for operating said signals and containing a neutral magnet for the signal in advance, and a polarized magnet for the signal in the rear, a pole-changer operated by one of said signals, and means for energizing the neutral magnet and thereupon automatically operating the pole-changer to energize the polarized magnet.

14. In an automatic electric signaling system, the combination of two signals separated from each other and normally at danger, said signals guarding a common portion of a track, a signal-circuit controlled or operated by a train for operating said signals and containing a neutral magnet for the signal in advance, and a polarized magnet for the signal in the rear, a pole-changer operated by one of said signals, whereby the movement of the signal in advance to safety initiates the operation of the polarized maguet to put the signal in the rear to safety.

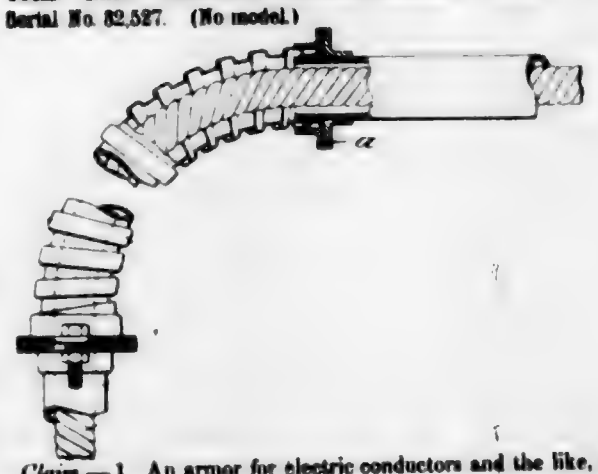
15. In an automatic electric signaling system, the combination of two signals separated from each other and normally at danger, said signals guarding a common portion of a track, a signal-circuit controlled or operated by a train for operating said signal and containing a neutral magnet for the signal in advance, and a polarized magnet for the signal in the rear, track-circuits operated by a train, and a pole-changer operated by one of said signals for controlling or operating the signal-circuit.

16. In an automatic electric signaling system, the combination of two signals separated from each other and normally at danger, said signals guarding a common portion of a track; a signal-circuit controlled or operated by a train for operating said signals and containing a neutral magnet for the signal in advance and a polarized magnet for the signal in the rear, an electric switch mechanically operated by the said signal the arrangement being such that the movement of the signal in advance to safety initiates the operation of the polarized magnet to put the signal in the rear to safety, and track-circuits operated by a train for controlling or operating the signal-circuit.

17. In an automatic electric signaling system, the combination of a track divided into blocks; signals located along the track to guard the blocks, a pair of signals guarding a block; signal-circuits for the signals, each signal-circuit containing a neutral magnet and a polarized magnet, the neutral magnet being for that signal of the pair which is located in advance of the other signal, and the polarized magnet being for the other signal of the pair, each signal-circuit containing also a pole-changer; and means operated by a train for making responsive first the neutral magnet and then the polarized magnet to operate the signals.

18. In an automatic electric signaling system, the combination of a track divided into blocks; signals located along the track to guard the blocks, a pair of signals guarding a block; signal-circuits for the signals, each signal-circuit containing a neutral magnet and a polarized magnet, the neutral magnet being for that signal of the pair which is located in advance of the other signal, and the polarized magnet being for the other signal of the pair, each signal-circuit containing also a pole-changer; and means operated by a train for making responsive first the neutral magnet and then the polarized magnet to operate the signals, the signal in advance of each pair of signals being arranged to operate or control the operation of the pole-changer.

692,960. ARMOR OR SHEATHING FOR ELECTRIC CONDUCTORS. EMIL WITZENMANN, Pforzheim, Germany. Filed Nov. 16, 1901. Serial No. 82,527. (No model.)



Claim.—1. An armor for electric conductors and the like, comprising lengths of metallic spiral hose capable of being compressed longitudi-

nally, secured together at their ends by couplings capable of being readily loosened or disconnected, whereby the whole of the incased conductor may be exposed piece by piece, substantially as described.

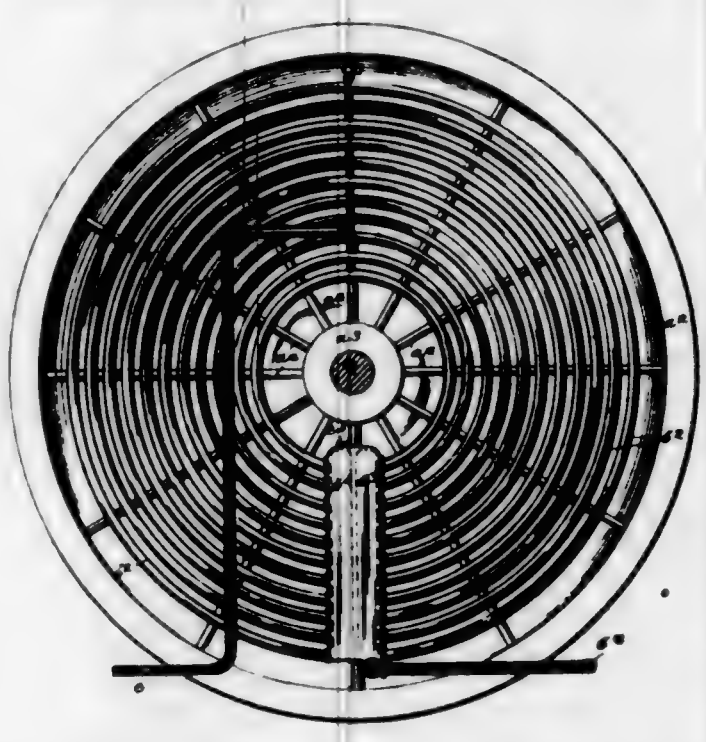
2. An armor for electric conductors and the like, comprising lengths of rigid tubing and of flexible metallic spiral hose capable of being compressed longitudinally, secured together at their ends by couplings capable of being readily loosened or disconnected, whereby the whole of the portion of the conductor incased by the flexible hose may be exposed piece by piece, substantially as described.

692,961. COMPOUND FOR PROTECTING AND INDURATING POROUS MATERIALS. ALFRED WOLF, Paris, France. Filed Aug. 15, 1901. Serial No. 72,281. (No specimens.)

Claim.—1. A compound for penetrating, hardening and protecting porous materials which consists of resin and stearin combined in about equal parts by weight.

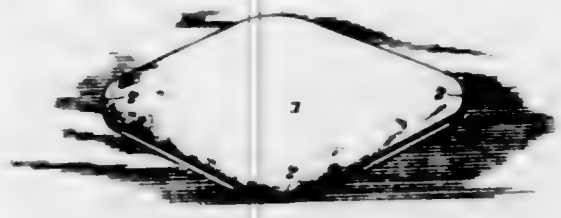
2. A compound for penetrating, hardening and protecting porous materials which consists of resin and stearin combined in about equal parts by weight with a little addition of bitumen, benzoin and creosote in about the proportions stated.

692,962. COOLING OR CONDENSING COIL. WILLIAM O. WORTH and WILLIAM R. DONALDSON, Chicago, Ill., assignors of one-third to Henry W. Kellogg, Battlecreek, Mich. Filed Nov. 6, 1899. Serial No. 735,902. (No model.)



Claim.—The combination of a rotating wheel, projections, wings or ribs on said wheel adapted to agitate the air when said wheel is in motion, a series of pipes arranged proximate to the face of said wheel and within the path of air so agitated, an entrance-header and an exit-header common to all the pipes, and a pump for forcing the circulation of a fluid through said pipes, substantially as set forth.

692,963. QUOIT. CLARENCE A. WRIGHT, Keene, N. H. Filed July 27, 1901. Serial No. 69,967. (No model.)

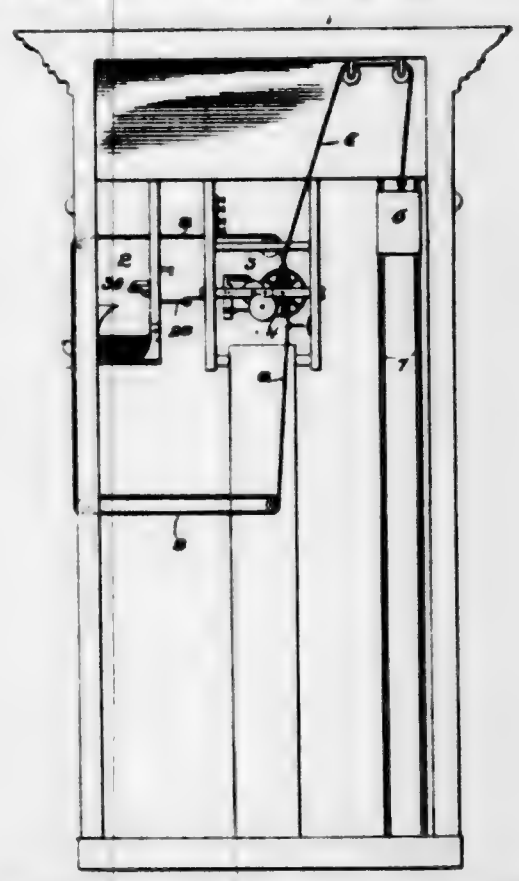


Claim.—1. A quoit having flat parallel upper and lower faces and provided with rounded corners and square straight edges between said corners.

2. A freely-flexible rubber quoit having rounded corners and square straight edges between said corners.

3. A quoit composed of a flat piece of flexible rubber having parallel upper and lower faces and rounded corners, the edges between said corners being square and straight whereby the quoit is prevented from rolling.

692,964. VENDING MECHANISM FOR COIN-CONTROLLED APPARATUS. CHARLES A. YALE, Burlington, Vt., assignor to Yale Wonder Clock Company, Burlington, Vt., a Corporation of Vermont. Filed Feb. 21, 1901. Serial No. 48,281. (No model.)



Claim.—1. In a delivery mechanism, a compartment for tickets or packages of goods having an open lower end, supports for the tickets or goods below the compartment, a pivoted ejector, spring-fingers for holding said ejector in one position, means for moving it in one direction to push a ticket or package from the supports into a tube or tray, and means for returning the ejector to its original position at each operation of the mechanism.

2. In a delivery mechanism, a compartment for tickets or packages of goods, said compartment having an open lower end, supports for the tickets or goods below the compartment, a pivoted ejector, spring-fingers for holding said ejector in one position, a stop to limit the outward movement of said ejector, and means for moving the ejector in one direction to push out a ticket or package and to return the ejector to its initial position.

3. In a delivery mechanism, a compartment for tickets or goods, supports for tickets or goods below said compartment, a pivoted ejector for pushing out the bottom ticket or package of goods, spring-fingers for holding said ejector in one position and means for moving the ejector in and out at each operation of the mechanism.

4. In a delivery mechanism, a compartment for tickets or goods, an ejector for delivering said tickets or goods, spring-fingers for holding said ejector in one position, a stop to limit the outward movement of the ejector, means for moving the ejector to push out a ticket or package of goods, and a bail for returning the ejector to its original position.

5. In a delivery mechanism, a ticket-compartment, an ejector provided with an enlargement, a pair of spring-fingers for engaging the enlargement to hold the ejector in one of its two positions, and means for moving the ejector in and out, substantially as described.

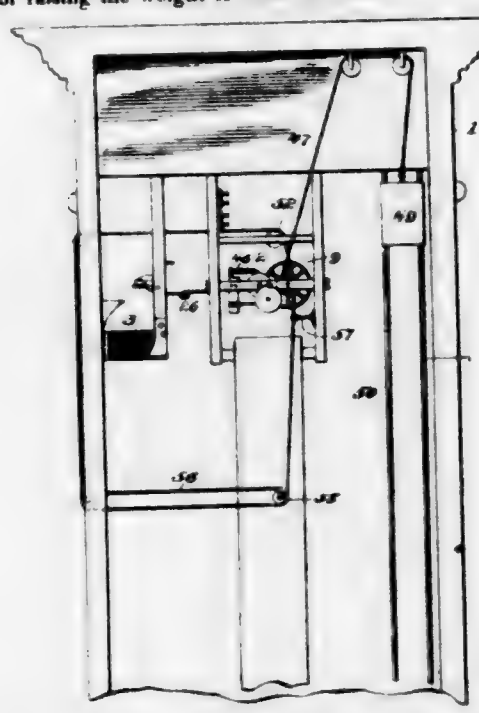
6. In a delivery mechanism for coin-controlled apparatus, a series of compartments for tickets or goods, an ejector for each compartment, electromagnets for moving the ejectors independently for ejecting a ticket or goods, a stop for limiting the outward movement of each ejector, spring-fingers for holding the ejectors in one position, and means for returning the ejectors at each operation of the machine.

692,965. MOTOR FOR COIN-CONTROLLED APPARATUS. CHARLES A. YALE, Burlington, Vt., assignor to Yale Wonder Clock Company, Burlington, Vt., a Corporation of Vermont. Filed Feb. 21, 1901. Serial No. 48,282. (No model.)

Claim.—1. A weight-operated motor comprising a winding-drum, a weight, a cord attached to the drum and weight, guide-rods upon which the weight slides, and an endless winding-cord passed around the drum and extending around pulleys to a point within easy reach of an operator for winding up the motor.

2. A weight-operated motor inclosed within a cabinet and comprising a winding-drum, a weight, a cord attached to the drum and weight,

and an endless winding-cord passed around the drum and extending over pulleys and out through the wall of the cabinet within easy access of an operator for raising the weight to wind the motor.



3. In a motor, a winding-drum, an endless winding-cord passed around the drum, and an automatic clamp or clutch for said cord which permits the cord to move freely in one direction and clamps said cord when a pull is exerted in the opposite direction.

4. In a weight-operated motor, a winding-drum, a ratchet-wheel thereon, a master-wheel carrying spring-pawls for engaging the ratchet-wheel, a weight, a cord attached to said weight and drum, guide-rods passing through the weight to steady its movements, and an endless winding-cord passed around the drum and extending to a point within reach of an operator for winding up the weight.

5. In a weight-operated motor, a winding-drum, a weight, a cord connected to the drum and weight, guide-rods passing through the weight for steadying its movements, an endless winding-cord passing around the drum and over pulleys to a point within easy access for winding up the weight, and an automatic clamp for said winding-cord which permits the cord to move freely in one direction and clamps said cord when a pull is exerted in the opposite direction.

6. In a motor, a winding-drum, a cord and weight for operating the drum, a master-wheel on the drum, a pinion in mesh with said master-wheel, said pinion being fixed to a shaft carrying a notched disk, a spring-brush bearing upon the periphery of the disk, and means for throwing the brush out of the notch in the disk for permitting the motor to start and for returning the brush to the notch for stopping the motor, substantially as described.

7. In a weight-operated motor, a winding-drum, a master-wheel on the drum, a pinion in mesh with said master-wheel, a notched disk on the pinion-shaft, a spring-brush, a stop at the side of the disk, an armature normally in contact with said stop, and means for moving the armature out of the path of the stop and for returning it to its normal position.

8. In a weight-operated motor, a winding-drum, a master-wheel on the drum, a pinion in mesh with the master-wheel, an eccentric on the pinion-shaft, a yoke connected to the eccentric, a notched disk, a stop, a spring-brush, an armature, an electromagnet, and means for moving the brush out of the notch in the disk, substantially as described.

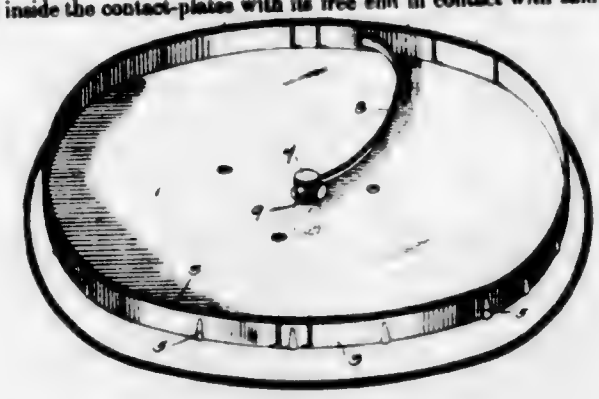
9. In a weight-operated motor, a winding-drum, an endless winding-cord passing around the drum and around a system of pulleys, one of said pulleys being journaled to a spring-arm for holding the cord taut, substantially as described.

692,966. CONTACT-DISK FOR COIN-CONTROLLED APPARATUS. CHARLES A. YALE, Burlington, Vt., assignor to Yale Wonder Clock Company, Burlington, Vt., a Corporation of Vermont. Filed Apr. 18, 1901. Serial No. 56,448. (No model.)

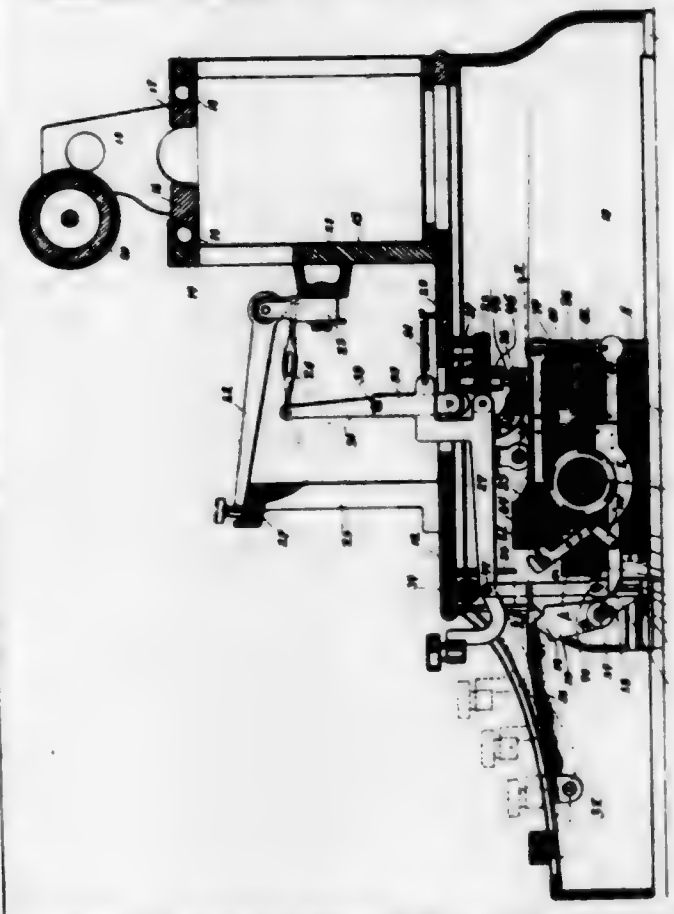
Claim.—1. A contact-disk, comprising a non-conducting disk, a series of curved contact-plates each secured to the face of said disk by a metal pin or tack driven from the back of the disk and secured to the contact-plate, substantially as described.

2. A contact-disk, comprising a non-conducting disk, a series of curved contact-plates each secured to the face of said disk by a metal pin or tack driven from the back of said disk at the side of the contact-plate, and secured thereto by solder.

3. A contact-plate, comprising a non-conducting disk, a series of contact-plates seated in a groove near the periphery of said disk and each plate secured in place by a metal tack or pin driven from the back of the disk and soldered to the contact-plate, and having a conducting-wire attached to each pin, in combination with a spring-brush adapted to be rotated inside the contact-plates with its free end in contact with said plate.



692,967. TELEGRAPHIC TRANSMITTER. CHARLES E. YETMAN, Oakpark, Ill. Filed Feb. 8, 1901. Serial No. 46,580. (No model.)



Claim.—1. The combination with the series of transmitter switch-shifters, of a series of individual finger-keys of varying length corresponding thereto and having operating connections therefor, the lengths of which connections vary in accordance with the lengths of the corresponding finger-keys.

2. The combination with the individual finger-keys of varying lengths and with the series of transmitter switch-shifters corresponding thereto, of the connectors extending from said finger-keys and engaging with said shifters, the position of the points of engagement between said connectors and shifters varying in accordance with the varying lengths of the corresponding finger-keys.

3. The combination with the individual finger-keys of varying lengths and with the series of transmitter switch-shifters corresponding thereto, of the set of connectors extending between said keys and shifters and having offsets for engaging said shifters, the location of said offsets upon the connectors varying in accordance with the varying lengths of the corresponding finger-keys.

4. The combination with the individual finger-keys of varying lengths and with the series of pivoted transmitter switch-shifters corresponding thereto, of the set of connectors pivoted to said finger-keys and provided with offsets adapted to engage the free ends of said shifters, the distances between the pivots and offsets of said connectors varying in accordance with the varying lengths of the corresponding finger-keys.

5. The combination with the series of transmitter switch-shifters, of a series of individual finger-keys corresponding thereto and having operating connections therefor, and a set of toggle-latches for holding said shifters out of normal position when actuated by the finger-keys.

6. The combination with the individual finger-keys, and with the

series of transmitter switch-shifters corresponding thereto, of the set of connectors extending between said keys and shifters, whereby said shifters are depressed, and the set of latches for holding said shifters depressed, each of said latches consisting of toggle-levers one of which is pivoted to a fixed part and the other to the appropriate shifter.

7. The combination with the individual finger-keys and with the series of transmitter switch-shifters corresponding thereto, of the set of connectors extending between said finger-keys and said shifters, whereby the latter are depressed, and the set of toggles extending between a fixed part and said shifters for holding the shifters in the depressed position.

8. The combination with the individual finger-keys and with the series of transmitter switch-shifters corresponding thereto, of the set of connectors extending between said finger-keys and said shifters for actuating said shifters, the set of toggles extending between a fixed part and said shifters, for holding the latter out of normal position when actuated by the finger-keys, and trip-pawls for throwing said toggles to restore the selected shifters to their normal position.

9. The combination in an electric transmitter, with a series of switch-shifters and with a rotating shaft having circuit make and break devices thereon, of a set of toggles engaging with said shifters to hold them depressed, trip-pawls carried thereby and projected by the descent of said shifters into the path of said make and break devices, and engaging at intervals therewith to throw the separate toggles and restore the shifters to their normal position.

10. The combination, in an electric transmitter, with a series of switch-shifters, of a set of latches engaging with said shifters to hold them depressed, trip-pawls pivoted thereon and actuated by a moving part of the device to throw said latches and restore the shifters to their normal position, and lugs on said latches engaging said pivoted trip-pawls.

11. The combination, in an electric transmitter, with a series of swift-shifters and of a set of latches engaging with said shifters to hold them depressed, trip-pawls pivoted thereon and actuated by a moving part of the device to throw said latches and restore the shifters to their normal position, said latches being provided with lugs engaging said pivoted trip-pawls on either side.

12. The combination, in an electric transmitter, with the series of spring-pressed, switch-shifters, of a set of spring-pressed toggles extending between a fixed part and said switch-shifters to hold the latter depressed, and means for throwing said toggles to restore the shifters to their normal position.

13. The combination with a rotating shaft, and with a series of circuit make and break rings thereon, of a set of shifters for controlling said rings, a set of contact-pieces engaging said rings, and springs extending between said shifters and said contact-pieces.

14. The combination with a series of movable contact-surfaces, of a set of shifters controlling the movement of said surfaces, a set of brushes engaging said surfaces and springs between said brushes and said shifters.

15. The combination with a rotating shaft, and with a series of circuit make and break rings thereon, of a set of shifters for controlling said rings, a pair of contact-pieces, loosely connected together engaging each of said rings, and springs between each pair of contact-pieces and the shifter corresponding thereto.

16. The combination with a rotating shaft and with a series of circuit make and break rings thereon, of a set of shifters having curved seats or depressions for supporting said rings, and insulating-strips secured to said shifters on one side of said seats or depressions and extending between the rings.

17. The combination with a rotating shaft and with a series of circuit make and break rings thereon, of a set of contact-pieces engaging said rings, and insulating-strips secured to said contact-pieces and extending between said rings.

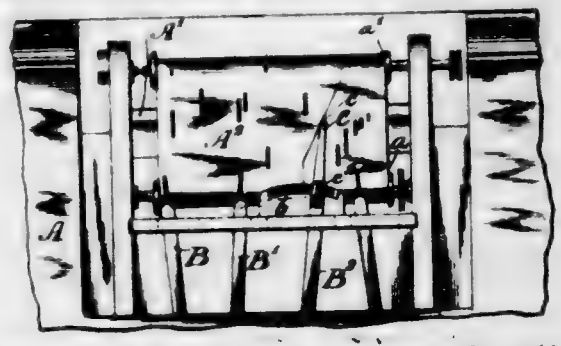
18. The combination with a rotating shaft, and with a series of circuit make and break rings thereon, of a set of shifters for controlling said rings, a set of contact-pieces engaging said rings, and insulating-pieces secured to said shifters and to said contact-pieces and extending between the rings.

19. The combination with the frame of a type-writer, of a transmitter-frame, a series of finger-keys, switch-shifters and type-bars corresponding thereto, pivoted supplemental levers operatively connected to said type-bars, offsets on said finger-keys engaging said supplementary levers, a throw-off common to the fulcra of the supplementary levers to disengage them from said offsets, and connectors pivoted to said finger-keys and engaging said switch-shifters.

20. The combination in a combined type-writer and transmitter, of the individual pivoted finger-keys, the series of type-bars and switch-shifters, corresponding thereto, the set of pivoted supplemental levers connected by links with said type-bars, offsets on said finger-keys provided with notches engaging pins secured to said supplemental levers, connectors pivoted to said finger-keys and having offsets engaging said switch-shifters, a throw-off common to the fulcra of said supplemental levers for bodily moving the same to disengage said pins from said notches, and a second throw-off common to said connectors to cast the same at will and free the shifters from the keys.

21. The combination in a combined type-writer and transmitter, of the individual finger-keys, the series of type-bars and switch-shifters corresponding thereto, the set of pivoted supplemental levers operatively connected to said type-bars, connections intermediate said finger-keys and said supplemental levers and intermediate said finger-keys and said switch-shifters, a throw-off common to the fulcra of said supplemental levers for disengaging the same from said connections, and a second throw-off arranged to free said shifters from said connections.

692,968. **CONTROLLER FOR MECHANICAL MUSICAL INSTRUMENTS.** FRANCIS L. YOUNG, London, England, assignor to the Aeolian Company, New York, N. Y., a Corporation of Connecticut. Filed Nov. 15, 1901. Serial No. 82,393. (No model.)



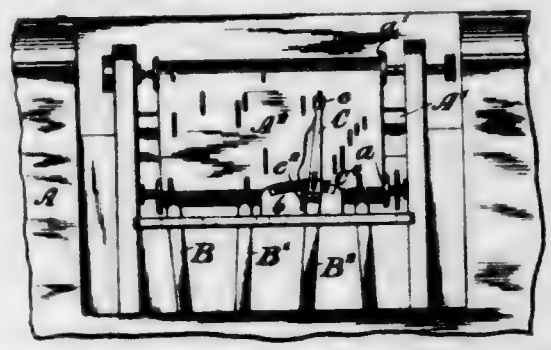
Claim.—1. In a mechanical musical instrument, the combination of a perforated music-sheet having marked thereon, a line which indicates effects to be produced in playing, and a controller, by which such effects are governed, extending over the music-sheet and capable of adjustment by the operator to follow said line, substantially as described.

2. In a mechanical musical instrument the combination of a perforated music-sheet having marked thereon a line which indicates effects to be produced in playing, and a controller for a mechanism comprised in the musical instrument, said controller extending over the music-sheet and which will when operated produce the effect indicated by said line, substantially as described.

3. The combination of a perforated music-sheet having a tempo-line, a tempo-controller extending over the music-sheet and capable of adjustment by the operator to follow the tempo-line, whereby the speed of the music-sheet may be made to correspond to that indicated by the tempo-line.

4. The combination in a mechanical musical instrument, of a perforated music sheet having a tempo-line, means for moving said sheet over the tracker-board, and the tempo mechanism of the instrument comprising a controller-lever extending over the music-sheet and capable of adjustment by the operator to follow the tempo-line, whereby the speed of the music-sheet may be made to correspond to that indicated by the tempoline.

692,969. **DEVICE FOR MARKING PERFORATED MUSIC-SHEETS WITH A LINE INDICATING AN EFFECT TO BE PRODUCED.** FRANCIS L. YOUNG, London, England, assignor to the Aeolian Company, New York, N. Y., a Corporation of Connecticut. Filed Nov. 15, 1901. Serial No. 82,394. (No model.)



Claim.—1. The combination with a perforated music-sheet of means for moving said sheet, and means for marking a line thereon during the movement of said sheet to indicate effects to be produced in playing.

2. In a mechanical musical instrument, the combination of a perforated music-sheet, means for moving said music-sheet, a marking device operated during the playing of the instrument and delineating upon the music-sheet a line corresponding to characteristics of the playing.

3. In a mechanical musical instrument, the combination of a perforated music-sheet, means for moving said music-sheet, a controller for a mechanism comprised in said musical instrument, and a marking device

operated from said controller, for delineating a line upon the music-sheet which corresponds to characteristics in the playing to be produced by the mechanism of said controller.

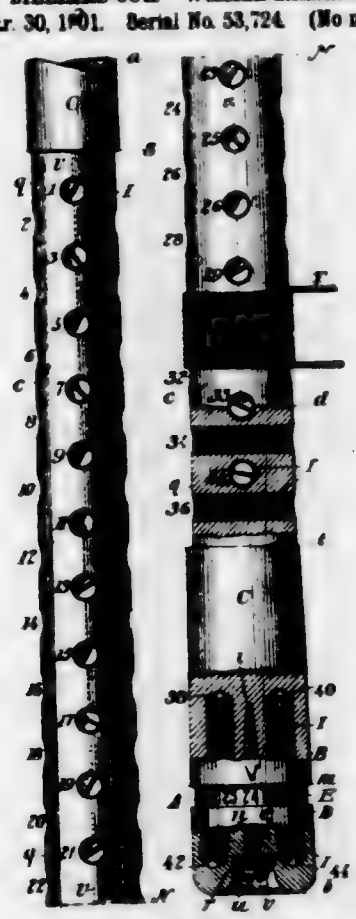
4. In combination with the tempo mechanism of a mechanical musical instrument having a lever for controlling the same, a perforated music-sheet movable over the tracker-board of the mechanical instrument and a marking device carried by the lever of the tempo mechanism for applying a tempo-line to the music-sheet as it moves over the tracker-board.

5. In combination with the tempo mechanism of a mechanical musical instrument having a lever for controlling it, a perforated music-sheet movable over the tracker-board of the musical instrument, a lever-arm carried by said lever and a marking device carried by said lever-arm for applying a tempo-line to the music-sheet as it moves over the tracker-board.

6. In combination with the tempo mechanism of a mechanical musical instrument, a music-sheet, a lever controlling said mechanism on the operation of which the speed of the tempo mechanism may be varied and consequently the speed of the music-sheet, and means carried by said lever which marks on the music-sheet the changes to be made in the speed of the music-sheet.

7. In combination with a perforated music-sheet, of means for moving said sheet and means for applying a tempo-line thereto during the movement of the music-sheet.

692,970. BILLIARD-CUE. WILLIAM ZAEHRINGER, New Orleans, La. Filed Mar. 30, 1901. Serial No. 53,724. (No model.)



Claim.—1. A billiard-cue having in its shank, or handle, a series of horizontal, alternately transverse, and threaded holes, numbered from "1" to "36" inclusively, in combination with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I, wherewith the said handle may be repeatedly loaded, and unloaded to suit, substantially as, and for the purposes set forth.

2. A billiard-cue having in its integral butt B, a series of vertical threaded holes, numbered from "37" to "40" inclusively, in combination with a corresponding number of uniform, double pointed, double-slotted, and adjustable screw-weights I, wherewith the said butt may be repeatedly loaded, and unloaded to suit, substantially as, and for the purposes set forth.

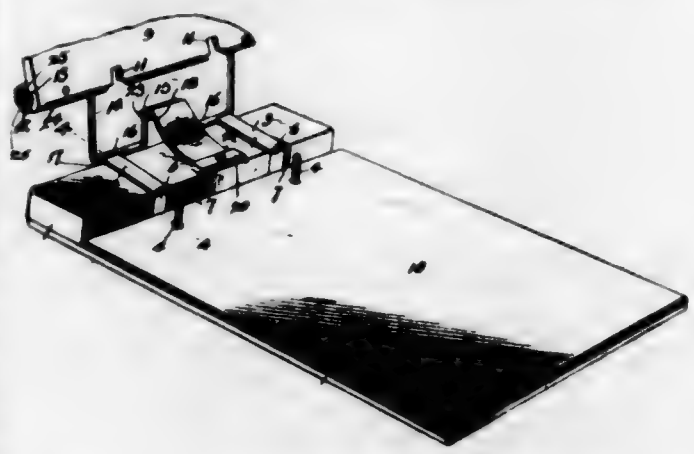
3. A billiard-cue provided with an adjustable supplementary butt-piece D, having a hole *e* through its vertical center, a centrally-depressed horizontal surface *m*, containing a series of rigid, pointed, and vertically protruding dowel-pins *f*, *g*, *h*, *j*, *k*, and *l* near its edge, a vertical neck E at its top, a countersunk shoulder *v* at its bottom, and a series of slanting, threaded holes, numbered from "41" to "44" inclusively, in combination with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I, wherewith the said butt-piece may be repeatedly loaded, and unloaded to suit, a round head connecting-screw *n*, a metallic washer *u*, and a leather washer *r*, substantially as, and for the purposes set forth.

4. A billiard-cue having the combination of a perforated and longitudinally-countersunk shank, or handle *c*, containing an annular punctured, or serrated shoulder *s* at its upper end, and an annular punctured, or serrated shoulder *t* at its lower end, adapting the said respective shoulders to firmly grip, and securely hold the first (upper) coil, and the last (lower) coil of the twine covering T, whenever occasion demands the readjustment of the said twine to completely cover the series of perforations, and the corresponding, or an optionally less number of the adjustable screw-weights I, which may be located in the said shank, or handle *c*, substantially as, and for the purposes set forth.

5. A billiard-cue in combination with a stamped, molded, or printed weight-index slip A encircling the vertical neck E of the adjustable supplementary butt-piece D, and an incised V-shaped pointer, or equivalent, upon the integral butt B, for indicating the manifoldly-variable total current-weight, being dependent upon the minimum normal weight of the cue proper, and the therewith-combined adjustable screw-weights I, which may have been inserted in various quantities into the shank, or handle *c*, the integral butt B, and the adjustable butt-piece D, substantially as, and for the purposes set forth.

6. In a billiard-cue, the combination of a longitudinally-countersunk shank, or handle *c*, having a series of horizontal, alternately-transverse, and threaded holes, numbered from "1" to "36" inclusively, with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I; an integral butt B, having a series of vertical, threaded holes, numbered from "37" to "40" inclusively, with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I; an adjustable supplementary butt-piece D, having a hole *e* through its vertical center, a centrally-depressed horizontal surface *m*, containing a series of rigid, pointed, and vertically-protruding dowel-pins *f*, *g*, *h*, *j*, *k*, and *l* near its edge, a vertical neck E at its top, a countersunk shoulder *v* at its bottom, and a series of slanting threaded holes, numbered from "41" to "44" inclusively, with a corresponding number of uniform, double-pointed, double-slotted, and adjustable screw-weights I, a round-head connecting-screw *n*, a metallic washer *u*, and a leather washer *r*; a longitudinally-countersunk shank, or handle *c*, containing an annular punctured or serrated shoulder *s* at its upper end, and an annular punctured or serrated shoulder *t* at its lower end, adapting the said shoulders to firmly grip, and securely hold the first (upper) coil, and the last (lower) coil of the twine covering T, whenever occasion demands the readjustment of the said twine, to completely cover the series of perforations, and the corresponding, or an optionally less number of the adjustable screw-weights I, which may be located in the said shank, or handle *c*; a stamped, molded, or printed weight-index slip A encircling the vertical neck E of the adjustable supplementary butt-piece D, an incised V-shaped pointer, or equivalent, upon the integral butt B, for indicating the manifoldly-variable total current-weight, being dependent upon the minimum normal weight of the cue proper, and the therewith-combined adjustable screw-weights I, which may have been inserted in various quantities into the shank, or handle *c*, the integral butt B, and the adjustable butt-piece D, substantially as, and for the purposes set forth.

692,971. COMBINED LETTER-FILE AND COPY-HOLDER. WILLIAM M. BARKER and FRANK J. BIRDS, Hobron, Nebr. Filed Sept. 5, 1901. Serial No. 74,408. (No model.)



Claim.—1. A device of the class described comprising a back, a cover, and a frame hinged to the cover and to the back and adapted to permit the said cover to be arranged to form a copy-holder and capable of also permitting the cover to be swung away from the back, said frame forming a support for the cover when the latter is arranged as a copy-holder and the back being arranged in a horizontal position, substantially as and for the purpose described.

2. A device of the class described comprising a back designed to be

arranged in a horizontal position to form a support for paper, a spring-actuated clamping-lever fulcrumed between its ends and provided with a slot or bifurcation adapted to receive a paper-fastener, a spring for holding the lever in engagement with the paper-fastener, a cover provided with an opening arranged over the slot or bifurcation when the cover is closed, and means for connecting the cover with the back, whereby the cover is adapted to swing upward away from the engaging end of the lever, substantially as described.

3. A device of the class described comprising a back provided with a cross-piece or head, an L-shaped clamping-lever fulcrumed at its angle on the cross-piece or head and provided with a slotted or bifurcated jaw arranged to receive a paper-fastener, and a spring for holding the clamping-lever in engagement with the paper-fastener, substantially as described.

4. A device of the class described comprising a back, a clamp mounted on the back and adapted to receive and hold a paper-fastener, a cover having a slot or bifurcation for the reception of the paper-fastener and adapted to engage letters or other papers filed on the fastener, and a frame hinged to the back and to the cover and having inner and outer pintles, said cover being adapted to swing upward on the inner pintle to form a copy-holder, and capable of swinging on the outer pintle to afford access to the paper-fastener, substantially as described.

5. A device of the class described comprising a back, designed to be arranged in a horizontal position to support a writing-pad, a cover, and a frame having inner and outer pintles and connecting the cover with the back and adapted to permit the said cover to swing on either pintle, whereby the cover is adapted to be swung upward to a position above the back to form a copy-holder while the said back is in a horizontal position, and means carried by the cover for engaging a copy, substantially as described.

6. A device of the class described comprising a back designed to be arranged in a horizontal position and provided with means for engaging papers, a cover provided with means for engaging a copy, and a frame connecting the cover and the back and forming inner and outer hinge-joints, said cover being adapted to swing on either of the hinge-joints, whereby it is adapted to be swung above and in rear of the horizontal back to form a copy-holder, substantially as described.

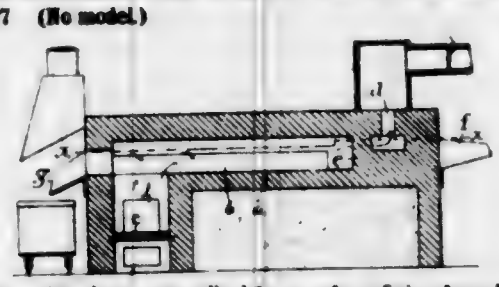
7. A device of the class described comprising a back, a cover, the frame provided with inner and outer pintles connected to the back and the cover, said frame being also provided with a loop or bend forming a crank, and a spring engaging the loop or bend, substantially as described.

8. A device of the class described comprising a back, a cover, the approximately rectangular frame composed of sides provided with pintles connected with the cover, and a transverse portion forming an outer pintle and connected with the back, said transverse portion being also provided with a loop or bend, and a spring engaging the loop or bend and provided with a stop for limiting the movement of the same, substantially as described.

9. A device of the class described comprising a back, a cover having bearings, a frame having inner and outer pintles, the inner pintles being arranged in the bearings of the cover, and the outer pintle being connected to the back, coiled springs disposed on the inner pintles and engaging the same, to hold the cover, and a spring for engaging the frame adjacent to the outer pintle, substantially as described.

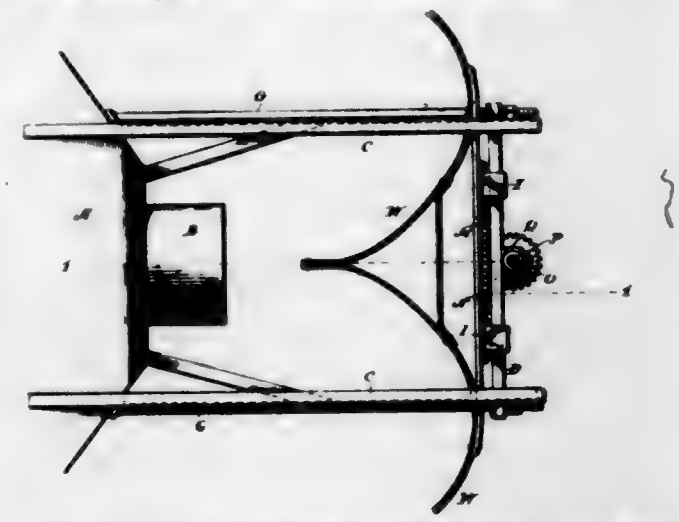
10. A device of the class described comprising a back having a head or cross-piece, a cover provided at opposite sides with bearing-blocks, an approximately rectangular frame having L-shaped sides and provided with inner pintles arranged in the bearing-blocks, said frame being provided at its outer portion with a loop or bend and having the said outer portion hinged to the head or cross-piece of the back, and a spring secured at one end to the head or cross-piece and provided at its other end with a flange and engaging the loop or bend, substantially as described.

692,972. FURNACE FOR REFINING LEAD AND ZINC FUME. FRANK L. BARTLETT, Canon City, Colo. Filed Mar. 25, 1901. Serial No. 52,697. (No model.)



Claim.—The herein-described furnace for refining fume having a flat hearth, a feed-opening at one end and a discharge-opening at the other end, a fire-box on each side of the discharge-opening below the level of the hearth, vertical flues leading from the fire-boxes to the hearth and bridge-walls extending diagonally from the front to the sides, separating the fire-boxes from the hearth.

692,973. HYDRAULIC DREDGE. LINDON W. BATES, Chicago, Ill. Filed July 13, 1900. Serial No. 23,511. (No model.)



Claim.—1. In combination with the discharge-pipe of a dredge, a baffle-plate adapted to receive the impact or pressure of the outflowing current from said pipe, said baffle-plate having two diverging faces and being greater in depth at its extremities than at the point of junction of said faces.

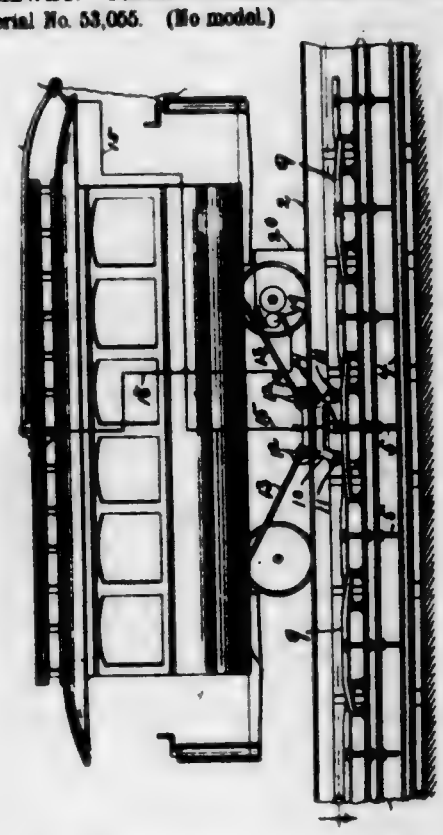
2. In combination with the discharge-pipe of a dredge, a baffle-plate adapted to receive the impact or pressure of the outflowing current from said pipe, said baffle-plate being in ground plan a Newtonian tractrix.

3. In combination with the discharge-pipe of a dredge, a baffle-plate adapted to receive the impact or pressure of the outflowing current from said pipe, said plate being in ground plan a Newtonian tractrix and having its under face less in depth at its apex than at its extremities.

4. In combination with a pontoon, a discharge-pipe carried thereby; levers extending outwardly from the end of said pontoon; a guide-bar carried by said levers; stanchions extending out from the lower end of said pontoon; a guide-bar carried by said stanchions; a baffle-plate; brackets extending out from said baffle-plate and engaging the guide-bars; and means for shifting the baffle-plate and the brackets along said bars.

5. In combination with a pontoon, a discharge-pipe carried thereby; levers C extending outwardly from said pontoon; stanchions G also extending out from said pontoon at or near the bottom thereof; guide-bars D, H, adjustably secured to said levers and stanchions respectively; a baffle-plate; brackets secured to said baffle-plate; rollers mounted in said brackets adapted to bear upon the guide-bars; and means for shifting the baffle-plate.

692,974. COMBINED UNDERGROUND AND OVERHEAD ELECTRIC RAILWAY. DANIEL S. BERGIN, Chicago, Ill. Filed Mar. 27, 1901. Serial No. 53,055. (No model.)



Claim.—1. In a system of the class described, the combination of a motor element, an overhead trolley-pole in permanent electrical connection therewith, a conductor beneath the car, a collector therefor, a con-

ductor leading from said collector to the top of the car and means for detachably connecting said trolley-pole therewith.

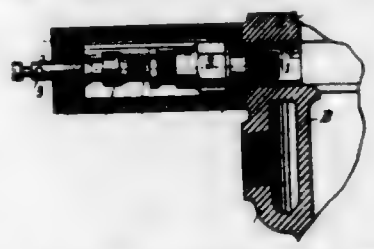
2. In an electric railway, the combination of primary and secondary line-conductor systems, one being above and the other below the car, of a motor element, an overhead trolley-pole in electrical connection therewith, a collector for said secondary system and means for electrically and detachably connecting the same with said trolley-pole.

3. In a system of the class described, the combination of a conduit having a conductor inclosed therein, an underground collector, a motor, an overhead trolley-pole and means for connecting said underground collector with said trolley-pole.

4. In a system of the class described, the combination of a conduit having a conductor insulated therein, a series of contact elements inclosed therein and insulated from the walls thereof, said elements being normally out of engagement with said conductor, an underground collector, means for causing contact between said contact elements and said conductor, a motor element, an overhead trolley-pole and means for electrically connecting said underground collector with said trolley-pole, whereby a change may be made at will from an overhead to an underground conductor without changing the motor-circuit.

5. In a system of the class described the combination of a conduit having a conductor insulated therein, a series of contact elements inclosed therein and insulated from the walls thereof, said elements being normally out of engagement with said conductor, an underground trolley having wheels for supporting the same in the slot of said conduit, means thereon for causing contact between said contact elements and said conductor, a motor element, an overhead trolley-pole, and means for detachably connecting said underground trolley with the wheel of said trolley-pole, whereby a change may be made from an overhead to an underground conductor at will, substantially as described.

692,975. IGNITION-PLUG FOR EXPLOSIVE-MOTORS. JEAN B. BOISSELOT, New York, N. Y., assignor to Eduard Van Dam, New York, N. Y. Original application filed Oct. 11, 1900, Serial No. 32,698. Divided and this application filed Jan. 2, 1901. Serial No. 41,791. (No model.)



Claim.—1. In a motor, an igniting-plug provided with an insulated terminal holder and a yieldingly-mounted binding-post in contact with the terminal of said holder, as described.

2. In a motor, an ignition-plug provided with an insulated terminal holder, a yieldingly-mounted binding-post in contact with the terminal of said holder, and a surrounding sleeve, as described.

3. In a motor, an ignition-plug provided with a base, an insulated terminal holder mounted in said base, a removable sleeve carried by said base, an insulated head carried by the sleeve and a yielding binding-post mounted in said head, as described.

692,976. VOTING-MACHINE. FRANK M. BORING and LEONARD P. CRITWOOD, Dayton, Ohio, assignors to Leopold Rauh, Dayton, Ohio. Filed Feb. 13, 1901. Serial No. 47,096. (No model.)

Claim.—1. In a voting-machine, a plurality of voting-levers, a sliding plate upon which said levers are mounted, a fixed plate provided with a plurality of slots through which the ends of said levers project, a series of registering-counters mounted on said fixed plate, and actuating-levers therefor pivoted to the fixed plate and extending over said slots, whereby the movement of the sliding plate in one direction will cause all the operated voting-levers to contact with their respective actuating-levers to register the operation, substantially as shown and described.

2. In a voting-machine, a plurality of voting-levers, a sliding plate upon which said levers are mounted, a fixed plate provided with a plurality of cam-slots contracted at one end, through the contracted ends of which said levers project to lock same from operation, means for sliding said plate to unlock the voting-levers, registering mechanism extending over the lower edge of said cam-slots and cam-surface therefor, to register the operated voting-levers and return same to their normal position upon the return movement of said sliding plate, substantially as shown and described.

3. In a voting-machine, a plurality of voting-levers, with flat shanks, and a series of sliding blocks between the abutting ends of which the flat shanks of the voting-levers pass, with stops to limit the movement of the sliding blocks and prevent the operation of more than one voting-lever at a time, and shoulders on one of the abutting ends of said sliding blocks to retain the operated lever until positively released, substantially as shown and described.



4. In a voting-machine, a plurality of pivoted voting-levers arranged in rows and provided with flat shanks, a plate upon which said voting-levers are mounted, a series of interfering-blocks in corresponding rows mounted on said plate, with the flat shanks of the voting-levers inserted between the abutting ends of said blocks, means for uniting a plurality of rows of interfering-blocks in series, and stops at the beginning and at the end of said united series to limit the movement of said blocks as a whole, substantially as shown and described.

5. In a voting-machine, a plurality of pivoted voting-levers arranged in rows and provided with flat shanks, a plate upon which said voting-levers are mounted, a series of interfering-blocks in corresponding rows mounted on said plate, with the flat shanks of the voting-levers inserted between the abutting ends of said blocks, links coupling together the alternate ends of said rows of blocks, stops for limiting the movement of the blocks, and means for pivoting said links to the said plate, whereby the movement of one row of blocks will be transferred to the successive rows coupled by the links, substantially as shown and described.

6. In a voting-machine, the combination, with voting-levers and a sliding plate upon which said levers are mounted, of a folding framework, to form a booth when opened out, and connecting mechanism between said booth and sliding plate, whereby the movement of the booth-frame will actuate said sliding plate, substantially as shown and described.

7. In a voting-machine, the combination, with a roll of paper, and means for propelling the strip of paper therefrom, a plurality of voting-levers, a sliding plate upon which said voting-levers are mounted, a closing device for preventing access to said paper-roll, and mechanism intermediate said sliding plate and closing device, whereby when said closing device is released, said paper strip shall be propelled from the roll with the movement of the sliding plate, substantially as shown and described.

8. In a voting-machine, the combination, with a roll of paper, and means for propelling the strip of paper therefrom, a plurality of voting-levers, a sliding plate upon which said voting-levers are mounted, a door for preventing access to said paper roll, and mechanism intermediate said sliding plate and door, whereby when said door is open, said paper strip shall be propelled from the roll with the movement of the sliding plate, substantially as shown and described.

9. In a voting-machine, the combination, with a roll of paper, and means for propelling the strip of paper therefrom, voting mechanism for indicating and registering the selection of candidates, and a canceling device arranged to impinge on said paper strip, and means for actuating said voting mechanism and canceling device simultaneously, whereby any selection of candidates by the voting-levers will cancel the name of any candidate for the same office written on said strip of paper, substantially as shown and described.

10. In a voting-machine, the combination, with a roll of paper, and means for propelling the slip of paper therefrom, a plurality of voting-levers, a sliding plate upon which said voting-levers are mounted, canceling-bars, one for each list of candidates for the same office, mounted on said sliding plate, whereby said canceling-bars may be made to impinge on said paper strip, substantially as shown and described.

11. In a voting-machine, the combination, with a roll of paper, means for propelling the strip of paper therefrom, of a plurality of pivoted levers, a sliding plate upon which said levers are mounted, a plurality of sliding canceling-bars, one for each series of voting-levers for candidates for the same office, with lugs on said canceling-bars projected into the pathway of said voting-levers, when same are actuated, and means for sliding said plate, whereby the canceling-bars in the pathway of said

actuated voting-levers may be caused to impinge on said paper strip, substantially as shown and described.

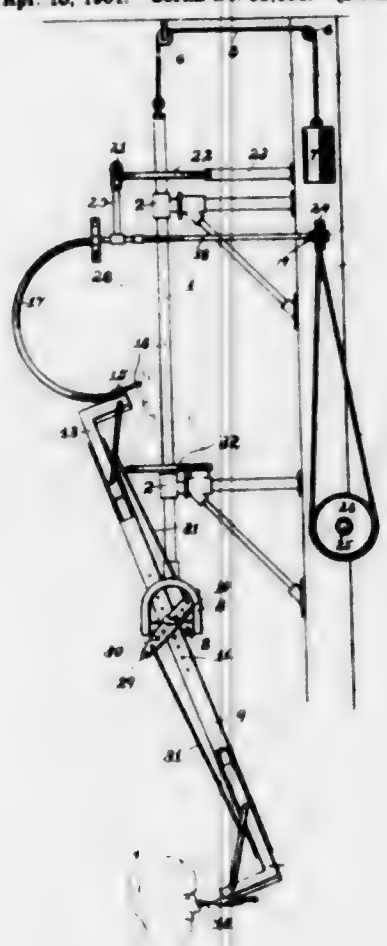
12. In a voting-machine, the combination, with a roll of paper, writing-tablet, and storage-roll, a plurality of voting-levers, a sliding plate upon which said voting-levers are mounted, a door to prevent access to said writing-tablet, gear on said storage-roll, and rack-bar pivoted to said sliding plate, normally out of contact with said gear, connecting mechanism between said door and rack-bar, whereby when said door is open, said rack-bar may be brought into connection with said gear for the actuation of same with the movement of the sliding plate, substantially as shown and described.

13. In a voting-machine, the combination, with a roll of paper, writing-tablet, and storage-roll, a plurality of voting-levers, a sliding plate upon which said voting-levers are mounted, a door to prevent access to said writing-tablet, gear on said storage-roll, and rack-bar pivoted to said sliding plate, normally out of contact with said gear, connecting mechanism between said door and rack-bar, whereby when said door is open, said rack-bar may be brought into connection with said gear for the actuation of same with the movement of the sliding plate, dog to hold said door open, and means for releasing said dog to allow the door to close as the sliding plate approaches the limit of its movement, substantially as shown and described.

14. In a voting-machine, a plurality of voting-levers, a sliding plate upon which said levers are mounted, a plurality of supplemental levers similarly mounted, and a series of sliding blocks between the abutting edges of which said voting and supplemental levers pass, with stops to limit the movement of the blocks, a fixed plate with slotted openings therein, having two contracted portions at top and bottom, through which slots the ends of the supplemental levers pass, and a movable bar provided with slots corresponding to the number of said supplemental levers, through which said levers pass, the cross-bars forming said slots being removable, whereby with the actuation of said movable bar, any number of said supplemental levers may be actuated as desired, simultaneously, substantially as shown and described.

15. In a voting-machine, a plurality of voting-levers, a sliding plate upon which said levers are mounted, a plurality of supplemental levers, similarly mounted, and a series of sliding blocks between the abutting edges of which said voting and supplemental levers pass, with stops to limit the movement of the blocks, a fixed plate, with slotted openings therein, having two contracted portions at top and bottom through which slots the ends of the supplemental levers pass, whereby said supplemental levers shall be locked when the voting-levers are unlocked, substantially as shown and described.

692,977. CARVING-MACHINE. SIMON T. BRANNAN, Baltimore, Md. Filed Apr. 15, 1901. Serial No. 55,898. (No model.)

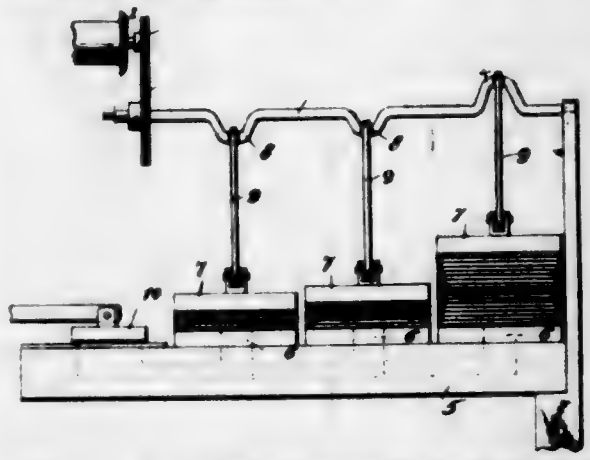


Claim.—1. In a machine of the class described the combination of a movable supporting element having a revoluble member, a mobile bar pivotally attached to said revoluble member, extensible elements carried by said mobile bar at opposite ends thereof and adapted respectively for the attachment thereto of guiding and cutting points, an oscillating bar on said mobile bar, and connections between said oscillating bar and said extensible elements, substantially as described.

2. The combination of a vertically-movable counterweighted shaft, a revoluble element carried thereby, a mobile bar pivoted to said revoluble element, an oscillating bar on said mobile bar, point-carrying elements longitudinally movable on said mobile bar and connections between said tool-carrying elements and said oscillating bar, substantially as described.

3. In combination with a movable support, a mobile bar universally jointed thereto, an oscillating bar pivoted to and adjustable on said mobile bar, tool-carrying elements carried by said mobile bar, and connections between said point-carrying elements and said oscillating bar, substantially as described.

692,978. GOVERNING DEVICE FOR PNEUMATIC PIANO-PLAYERS. THEODORE P. BROWN, Worcester, Mass. Filed May 29, 1901. Serial No. 62,344. (No model.)



Claim.—1. In a pneumatic-governing device, the combination with a driving-shaft, of a governor-shaft geared thereto, a base-board having a series of air-passages formed therein, said passages each terminating at one end in an elongated port-opening of varying area throughout its length, said series of ports being arranged in parallelism, pneumatic devices attached to said base-board and each having communication with one of the said air-passages, a cranked connection between said governor-shaft and each pneumatic device, and means contacting with said base-board, and adapted to control the active area of said port-openings, substantially as described.

2. In a pneumatic-governing device, the combination with a driving-shaft, of a governor-shaft geared thereto, a base-board having chambers and air-passages formed therein, said air-passages leading from the chambers and each terminating in a V-shaped port-opening, said ports being arranged in parallelism each with its narrower end adjacent to the narrower end of the next port, pneumatic devices attached to said base-board and having communication with said chambers, a cranked connection between said governor-shaft and each pneumatic device, and a valve contacting with said base-board and movable back and forth over said port-openings to simultaneously control the active area thereof, substantially as described.

3. In a pneumatic-governing device, the combination with a driving-shaft, of a governor-shaft geared thereto and driven thereby, cranks on said governor-shaft, pneumatic devices operatively connected with said cranks, there being an independent air-passage leading from each of said pneumatics, said air-passages each terminating in an elongated port-opening of varying area throughout its length, the port-openings being arranged in parallelism each with its narrower end adjacent to the narrower end of the next port, and a valve movable back and forth over said port-openings to simultaneously control the active area thereof, substantially as described.

692,979. PROCESS OF PURIFYING WATER. CLEMENS O. BRUECKNER, Fort Wayne, Ind. Filed Jan. 4, 1901. Serial No. 42,122. (No specimens.)

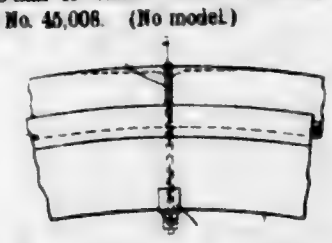
Claim.—1. The herein-described process for purifying and clarifying water, which consists in subjecting the water successively to soda-ash, lime and phosphate of soda in the proportions of fifteen grains of soda-ash, twenty-three grains of lime and seven grains of phosphate of soda to five gallons of water.

2. The herein-described process for purifying and clarifying water, which consists in subjecting the water while agitated successively in the proportions of fifteen grains of soda-ash dissolved in boiling water, twenty-

three grains of slaked lime and seven grains of phosphate of soda to five gallons of water.

3. The herein-described process for purifying and clarifying water, which consists in subjecting the water successively to soda-ash dissolved in boiling water, lime and phosphate of soda in the proportions substantially as specified to five gallons of water.

692,980. RUBBER TIRE. CLARENCE H. BRYAN, Chicago, Ill., assignor of one-half to James Webster, Chicago, Ill. Filed Jan. 28, 1901. Serial No. 45,006. (No model.)



Claim.—1. The combination with an elastic tire, of a series of holding devices which pass around the outer boundary of the tire and movably engage some parts of the wheel, said holding devices separated by extended free portions of the elastic tire, each holding device free to move in and out, and provided with a limiting device which limits its outward movement.

2. The combination with an elastic tire, of a looped holding device, looped about the outer boundary of the tire, the ends of the holding device movably engaging some part of the wheel so as to be free to move radially, and a limiting device adjustably connected with said ends.

3. The combination with an elastic tire of a confining device about which the tire passes, a holding device for holding the tire in position, said holding device passing around the tire and engaging the confining device inside of its outer or side faces so as to leave said outer or side faces free from said holding device.

4. The combination with an elastic tire, of an automatically-adjustable holding device, consisting of a part looped about the outer boundary of the tire, and passing through the channel or rim of the wheel, said device free to move in and out, a protecting part on the rim of the wheel through which said device passes, and limiting devices connected with the holding device, for limiting its outward movement.

5. The combination with an elastic tire, of a holding device, consisting of a piece of material looped about the outer boundary of the tire, the ends of the loop passing through some part of the wheel so that the loop is free to move in and out, said ends being threaded, and being provided each with a nut which limits the outward movement of the holding device.

6. The combination with an elastic tire, of a holding device, consisting of a piece of rigid or stiff material, looped about the outer boundary of the tire, the ends of said loop passing loosely through holes in the felly of the wheel, said ends provided with a limiting device which engages the inner face of the felly of the wheel or some part associated therewith, and limits the outward movement of the holding device so that the holding device is free to automatically adjust itself when pressure is applied to it.

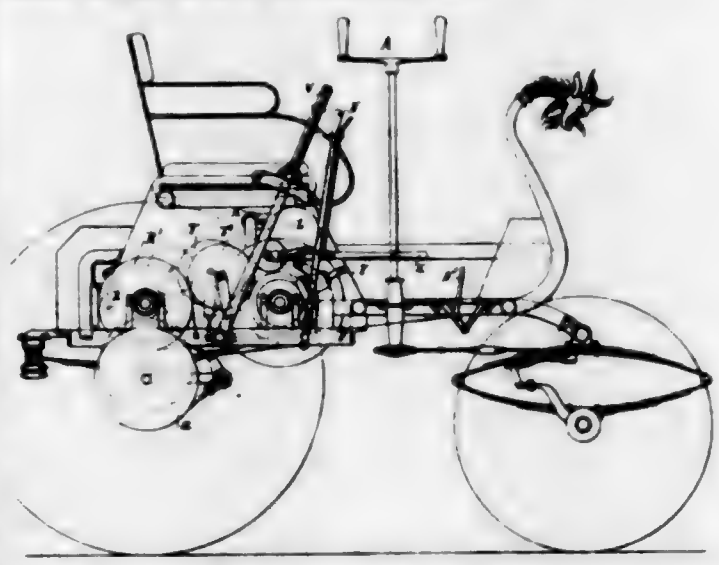
7. The combination with an elastic tire of a holding device with disconnected ends, which passes around the outer boundary of the tire and movably engages some part of the wheel, and an adjusting device associated with said disconnected ends of said holding device, the movement of said holding device adapted to be regulated by the adjusting device.

8. A wheel for vehicles, comprising a wheel proper, an elastic tire passing thereabout, a confining device in which the elastic tire is loosely held, a series of comparatively small holding devices which pass around the outer boundary of the tire at intervals and which leave the greater part of the periphery of the tire exposed, said holding devices movably connected to some part of the wheel, whereby the tire is free to creep around the wheel.

9. The combination with an elastic tire of a confining device extending around the tire and projecting in or through the holding device at points inside of the outer or exposed faces, said holding device movably connected with the confining device.

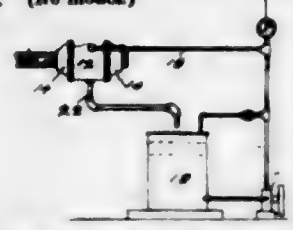
692,981. SELF-PROPELLED VEHICLE. CHARLES R. CALLOCK, La Flèche, France. Filed Aug. 17, 1897. Serial No. 648,589. (No model.)

Claim.—1. In a motor-vehicle, the combination of two double cylinders arranged side by side, two pistons in each cylinder, a rod arranged intermediate of and connecting each pair of pistons, transverse cross-head connected with each rod and extending beyond the sides of the cylinders, a double-crank shaft arranged adjacent to one end of the cylinders and transversely thereof, a connecting-rod extending longitudinally of and at each side of each pair of cylinders and connected with the cross-heads and the cranks on the crank-shaft, an axle, gearing between it and the crank-shaft, a valve-casing carried at each end of the double cylinders and communicating with the interior thereof, fluid admission and exhaust valves in each casing normally held to their seats, a rod carrying each valve projecting beyond one end of the casing, and extending longitudinally of the cylinders, springs arranged to normally force the valve-rods outwardly to thereby hold the valves normally to their seats, a shaft arranged transversely of the cylinders between the valve-casings as set forth, cams on said shaft, and slides arranged in line with the valve-rods adapted to be struck by the cams and to force the valve-rods inwardly to cause the valves to move off their seats, for the purpose specified.



2. In a motor-vehicle, the combination with motor mechanism, and a driven shaft rotated from said mechanism, of a shaft S, gearing between the driven shaft and shaft S comprising two pulleys on shaft S, two pulleys on the driven shaft, two rollers arranged intermediate the pulleys on shaft S, and those on the drive-shaft and adapted to frictionally engage with the same, a lever supporting arms in connection therewith and supporting the rollers, shafts V V', hollow axle-journals, wheels thereon, a shaft passing through each hollow journal, a ball-and-socket connection between the inner ends of the latter shafts and shafts V V', the pins *m* having grooves and the pins *n*, all arranged as described.

692,982. BEARING FOR JOURNALS, SHAFTS, OR ROTATING COLUMNS. GEORGE J. CAPEWELL, Hartford, Conn. Filed Mar. 5, 1901. Serial No. 49,734. (No model.)

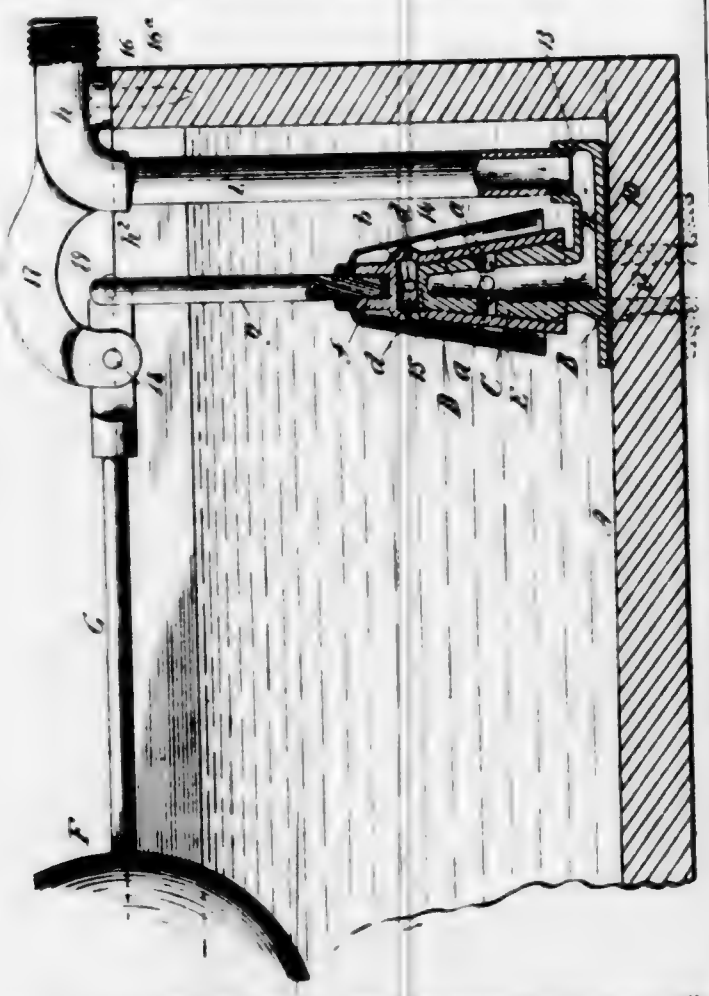


Claim.—A hydraulic bearing mechanism for a journal, shaft or column, which comprises a stationary box, block or bed, the bearing-surface of which encircles only a portion of the periphery of the journal, shaft or column, and is not packed at its ends, a supply-duct leading from an oil-tank to the bearing-surface of the box, block or bed, a force-pump communicating with the supply-duct and adapted to force lubricant to the bearing-surface of the box, block or bed and maintain a flowing film of lubricant throughout the entire bearing area between the rotating and non-rotating surfaces, whereby the rotating and non-rotating bearing-surfaces are kept separated by a constantly-flowing film of lubricant and the full area of the bearing-surfaces utilized, a collecting-chamber, a duct leading from the collecting-chamber to the oil-tank, and deflecting means independent of and out of contact with any stationary part, arranged on the journal, shaft or column opposite to the ends of the bearing-surface for diverting the oil as it flows from between the rotating and non-rotating bearing-surfaces and directing it into the collecting-chamber, substantially as specified.

692,988. VALVE FOR WATER-TANK SUPPLY. WILLIAM E. CLARK, Springfield, Mass. Filed May 7, 1901. Serial No. 59,063. (No model.)

Claim.—1. The combination with an upstanding plug or member externally tapered having a longitudinal passage therein in communication with the water-supply, and having one or more outwardly-leading ways extending from the longitudinal passage to the tapered external periphery of said member, of a shell, the opening in which is downwardly flaring and adapted to have a closing fit about, and to be movable axially

relatively to the said upstanding plug or member, with means for imparting thereto automatically its endwise opening movement.



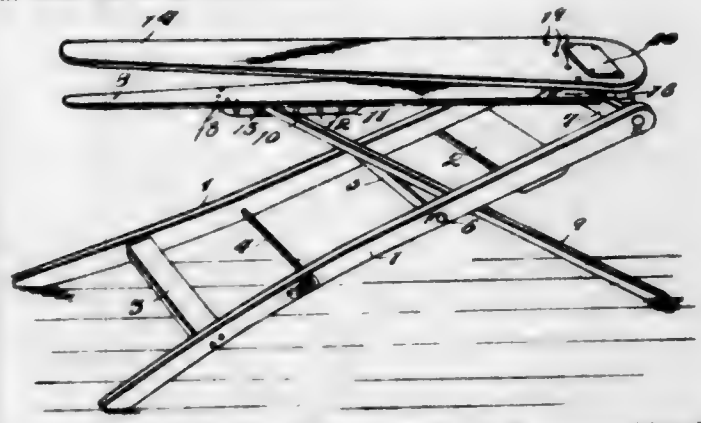
2. The combination with an upstanding plug or member externally tapered having a longitudinal passage therein in communication with the water-supply, and having one or more outwardly-leading ways extending from the longitudinal passage to the tapered external periphery of said member, of a shell, the opening in which is downwardly flaring and adapted to have a closing fit about, and to be movable axially relatively to the said upstanding plug or member, with means for imparting thereto automatically its endwise opening movement, the said shell being formed with an opening or chamber therein at the portion thereof which is beyond the end of the tapered member, and having one or more waterways extending outwardly from said chamber.

3. The combination with a valve, one member of which consists of an axially vertical part supported above a hollow base, which is constructed with an upwardly-opening socketed member 13, the coupling A having the footpiece adapted to be secured to the top of the tank, and having the downwardly-turned limb A^2, the pipe *i* connected to said limb, and to said portion 13, and serving as a medium between the coupling and the base member of the valve, for confining the latter against the bottom of the tank, the secondary member of the valve relatively movable to and away from the first-named valve member, and means for automatically moving it.

4. In a valve mechanism for tanks, in combination, the upstanding tapered plug C having the vertical passage 14, radial ways *a a*, and upper end-closing wall 15, and the supporting-base therefor having the horizontal passage 12 and upstanding threaded socketed portion 13, the coupling A, having footpiece 16 and downwardly-turned limb A^2, the pipe-section *i* connected to said limb A^2 and said part 13, the bracket-arm 17 supported by the coupling, the float and its lever-arm pivotally connected to the bracket, the valve-stem to which said lever-arm is connected, and the downwardly-flaring shell adapted to fit about the tapered plug, carried at the lower end of said stem, substantially as described.

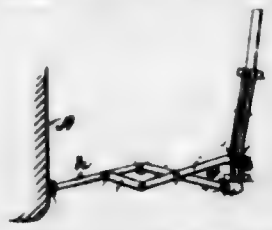
692,984. IRONING-TABLE. JOHN J. CLICK, Bellevue, Tex., assignor of one-half to Winston L. Welch, Bellevue, Tex. Filed Apr. 23, 1901. Serial No. 57,123. (No model.)

Claim.—1. A foldable ironing-table, having a pair of superposed pivotally-connected ironing-boards 14, 8, of which the lower is the smaller and the upper is mounted to swing edgewise in a substantially horizontal plane to uncover the lower board, a main leg formed of longitudinal side bars 1 and transversely-connected cross-bars 2, 3, 4, an upper rock-bar 7 carried by the side bars and rigidly secured to the lower ironing-board 8, an intermediate cross-bar 5 carried by said side bars, a longitudinal rib or cleat 11 on the under side of said lower board and provided with perforations 12, a removable pin 13 carried in one of said perforations and projected at opposite sides of the cleat, and a prop 9 having its upper end bifurcated for the reception of said rib or cleat, said upper end of the prop being inclined or beveled to fit and jam between the removable pin and the under side of the lower board.



2. An ironing-table having superposed pivotally-connected boards 14, 8, the lower fixed board 8 being the smaller and tapered to form a sleeve-board, a cleat 16 secured to said lower board and having an inclined stop-face, a cleat 15 secured to the lower face of the upper board and serving to separate said boards, a pivot-bolt 17 passing through both boards and cleat 15 at a point to one side of the longitudinal center of said boards, said cleats forming stops to limit the edgewise-swinging movement of the upper board, substantially as specified.

692,985. FOLDING CAR-GATE. NICHOLAS H. COLWELL, Pawtucket, R. I., assignor to R. Bliss Manufacturing Company, Pawtucket, R. I. Filed Apr. 6, 1901. Serial No. 54,721. (No model.)



Claim.—1. In a car-gate, the combination of the folding gate-sections hinged to each other, with a lever and a connecting-link pivoted to the folding gate-sections at opposite sides of the hinge-joint between them and forming therewith a lazy-tongs movement, whereby the gate-sections may be either opened out or folded, substantially as described.

2. In a car-gate, the combination of the folding gate-sections hinged to each other, with a lever and a connecting-link pivoted to the folding gate-sections at opposite sides of the hinge-joint between them and forming therewith a lazy-tongs movement, the deflected guide, and the connecting means between the deflected guide and the lever of the lazy-tongs movement, substantially as described.

3. In a car-gate, the combination of the folding gate-sections hinged to each other, with a lever and a connecting-like pivoted to the folding gate-sections at opposite sides of the hinge-joint between them and forming therewith a lazy-tongs movement, a deflected guide, connecting means between the deflected guide and the lever of the lazy-tongs movement, and the hand-operated lever connected with the lazy-tongs lever, substantially as described.

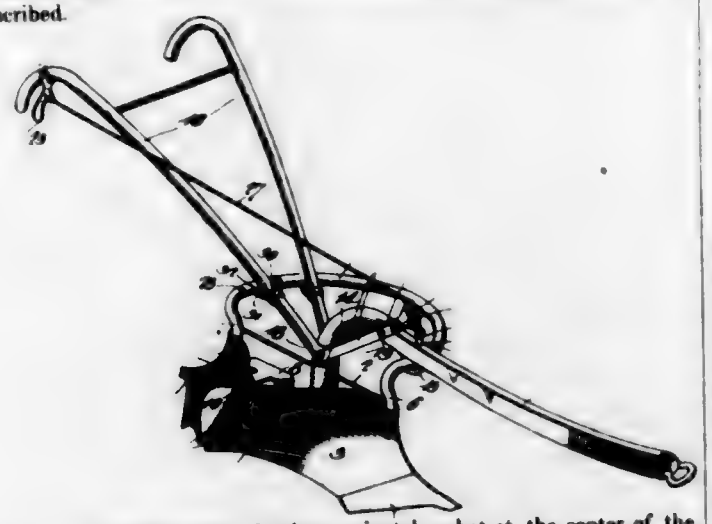
4. In a car-gate, the combination of the folding gate-sections hinged to each other, with a lever and a connecting-link pivoted thereto at opposite sides of the hinge-joint between the gate-sections, and forming therewith a lazy-tongs movement, and a deflected guide, controlling the outer end of the lever, means for actuating the lever along the deflected guide, and the gate-locking means, substantially as described.

5. In a car-gate, the combination of the supporting-frame and the hand-lever pivoted to the frame, with the folding gate-sections hinged to each other and pivoted to the frame, a lever and a connecting-link pivoted to the folding gate-sections at opposite sides of the hinge-joint between the sections, and forming therewith a lazy-tongs movement, link connection between the hand-operated lever and the lazy-tongs lever, and a deflected guide for controlling the lazy-tongs movement, substantially as described.

692,986. REVERSIBLE PLOW. ERWIN J. COUCH, Medford, Wis. Filed Aug. 19, 1901. Serial No. 72,560. (No model.)

Claim.—1. In a reversible plow, the oppositely-disposed moldboards, bridge-bars on the inner sides thereof connecting the same together and turning-wings united together and disposed between the proximate portions of said moldboards and pivotally supported by said bridge-bars, substantially as described.

2. In a reversible plow, a landside-plate, reversely-disposed moldboards secured to the ends of said landside-plate, projecting laterally from one side thereof and converging toward each other, bridge-bars on the inner sides of said moldboards and connecting them together, turning-wings, united together and disposed at an outwardly-opening angle, and between the proximate portions of the moldboards, said united turning-wings being pivotally connected to the said bridge-bars, substantially as described.



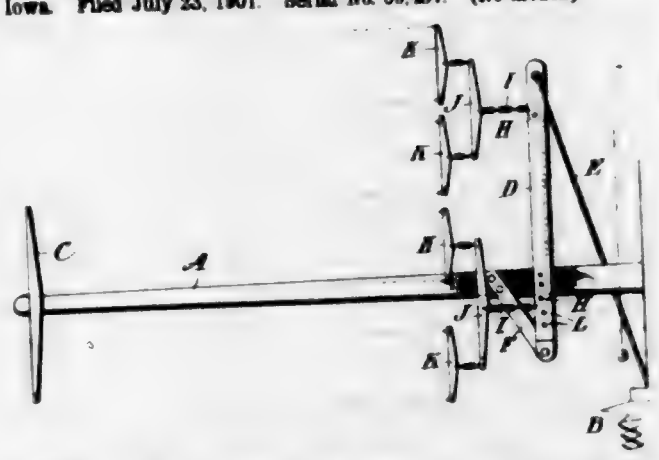
3. A reversible plow, having a pivotal socket at the center of the landside-plate, and a semicircular laterally and horizontally disposed bar with downturned ends secured to the ends of the landside-plate, in combination with a beam, a standard, the latter being pivotally mounted in said socket, a keeper on said beam engaging said semicircular bar, and means to lock said beam to said bar when adjusted, substantially as described.

4. In a reversible plow, a landside-plate carrying a semicircular, laterally-disposed bar, in combination with handles carrying abutments to engage the under side of the bar, substantially as and for the purpose specified.

5. In a reversible plow, a landside-plate having a semicircular laterally-disposed bar, in combination with a beam having a standard pivotally attached to said landside-plate, and handles attached to said beam and slidably connected to said laterally-disposed bar, substantially as described.

6. In a reversible plow, the combination of a landside-plate having a semicircular laterally-disposed bar, a beam having a standard pivotally attached to said landside-plate, and handles, attached to the beam, slidably connected to said laterally-disposed bar, and having upwardly and forwardly extending arms secured to the beam, substantially as described.

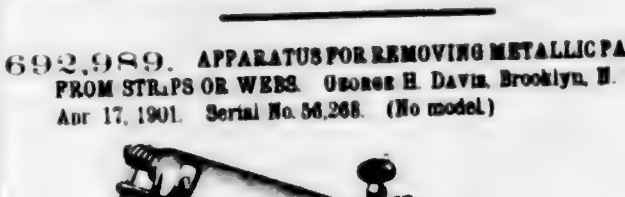
692,987. **FOUR-HORSE EVENER.** ALBERT CROSSER, Hartley, Iowa. Filed July 23, 1901. Serial No. 69,437. (No model.)



Claim.—1. In a device of the character described, a draft-bar, a cross-bar rigidly secured thereto, with a greater length on one side of the draft-bar than on the other, a brace-rod connecting the long end of the cross-bar with the machine, a brace connecting the short end of the cross-bar with the draft-bar, a channel in the front edge of the draft-bar, a pulley mounted in each end thereof, a chain extending around the pulleys and through the channel, and means on the end of the chain to which horses may be attached, substantially as described.

2. In a device of the character described, a draft-bar, a cross-bar rigidly secured thereto with a greater length on one side of the draft-bar than on the other, a brace-rod extending from the long end of cross-bar rearward beneath the draft-bar and connected to the machine, an angular brace extending from short end of the cross-bar forward to the draft-bar with its end bent thereover and secured thereto, a channel in the front edge of the cross-bar, a pulley mounted in each end thereof, the pulley at the short end of the cross-bar being adjustable with relation to the draft-bar, a chain extending around the pulleys and through the channel and means on the ends of the chain to which horses may be attached substantially as described.

692,988. **DRILL-CHUCK.** ADELBERT S. DAVIS, Seneca Falls, N. Y., assignor to the Seneca Falls Manufacturing Company, Seneca Falls, N. Y. Filed May 20, 1901. Serial No. 60,983. (No model.)

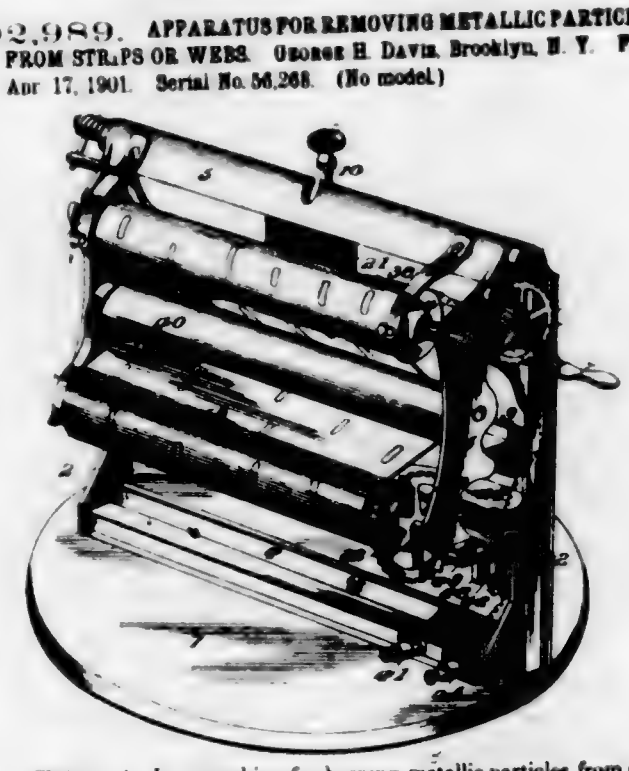


Claim.—1. In a chuck, the combination with a socket having an opening which extends through its wall, a filling-piece provided with an external groove in alinement with said opening, a locking-ball arranged in said opening and capable of moving inward and outward therein, said ball being adapted to project into the groove in the filling-piece when in locking position, and a ring surrounding the socket and capable of movement in the axial direction of the same, said ring having a plain inner face coacting with the ball to force the latter inward to its locking position, substantially as described.

2. In a chuck, the combination with a socket member having an opening which extends through its wall, a filling-piece provided with an external groove in alinement with said opening, and a locking-ball arranged in said opening and capable of moving inward and outward therein, said ball projecting into the groove in the filling-piece when in locking position, of a locking-ring snugly fitting throughout its width the periphery of the socket member and capable of movement in the axial direction of the same, said ring having a plain inner face by which the ball is forced inward to its locking position, substantially as described.

3. In a chuck, the combination with a socket member having an opening which extends through its wall, a filling-piece provided with an external groove, and a locking device arranged in said opening and capable of moving inward and outward therein, the portion of said device projecting beyond the wall of the socket member having a curved uninterrupted periphery, of a locking-ring snugly surrounding said socket member and capable of movement in the axial direction of the same, said ring having a plain inner face coacting with the portion of the locking device, extending through the wall of the socket member, for forcing the device inward into locking position, and a stop device consisting of an annular groove in the outer side of said socket and a projection on the inner side of said ring entering said groove, substantially as described.

692,989. **APPARATUS FOR REMOVING METALLIC PARTICLES FROM STRIPS OR WEBS.** GEORGE H. DAVIS, Brooklyn, N. Y. Filed Apr. 17, 1901. Serial No. 56,268. (No model.)



Claim.—1. In a machine for burning metallic particles from a strip or web having such particles attached thereto, a pair of electric terminals constructed to make continuous or unbroken surface contact with a web or sheet, and a source of electric energy in circuit with said terminals and of sufficient strength to cause a sparking at the terminals when a metallic particle is brought therebetween whereby said particle will be burned from the sheet or web.

2. In a machine for burning metallic particles from a strip or web

having such particles attached thereto, a pair of electric terminals arranged in juxtaposition, means for advancing said sheet or web in surface contact with said terminals, and a source of electric energy in circuit with said terminals, said circuit being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered whereby said particle will be burned from the strip or web.

3. In an apparatus for burning metallic particles from a web or sheet of paper, a pair of electric terminals between which the sheet is caused to pass, a source of electric supply with which said terminals are in circuit, said electric supply being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered during the movement of the web or sheet therebetween, and means for advancing the sheet or web.

4. In an apparatus for burning metallic particles from a web or sheet of paper, the combination with a suitable base-frame, of a pair of electric terminals between which the sheet is caused to pass, a source of electric supply with which said terminals are in circuit, said electric supply being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered during the movement of the sheet therebetween, a sheet-delivery roll journaled in said frame, and means for operating said roll.

5. In an apparatus for burning metallic particles from a web or sheet of paper, the combination with a suitable base-frame, of a swinging frame movably connected to said base-frame, a pair of electric terminals between which the sheet is caused to move, one of said terminals being attached to the base-frame and the other mounted upon the movable frame, a source of electric supply with which the said terminals are in circuit, said electric circuit being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered during the movement of the sheet therebetween, and a sheet-delivery and sheet-receiving roll journaled in the movable frame.

6. In an apparatus for burning metallic particles from a web or sheet of paper, the combination with a suitable base-frame, of a second frame movably connected to said base-frame, a pair of electric terminals between which the sheet is caused to travel, one of said terminals being attached to the base-frame and the other mounted upon the movable frame, a source of electric supply with which the said terminals are in contact, said electric circuit being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered during the movement of the sheet therebetween, insulated switch-blades carried by one of the frame parts and a circuit making and breaking pin or lug carried by the opposite frame part, as and for the purpose described.

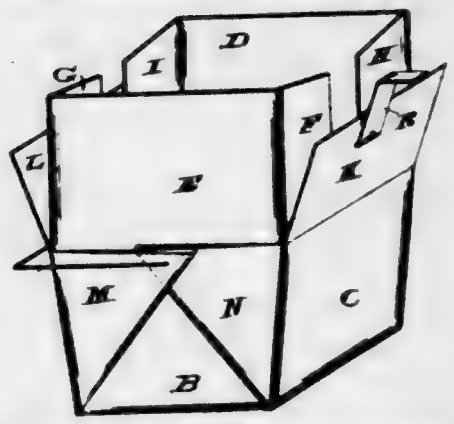
7. In an apparatus for burning metallic particles from a sheet or web of paper, the combination with a suitable base-frame, of an electric terminal blade carried by said frame, a swinging frame hinged to said base-frame and normally acting to move out of operative position, a latch for retaining the movable frame in operative position, an electric terminal surface carried by the swinging frame and arranged to make contact with the terminal blade, mechanism for advancing the sheet to be treated between the said terminals, a source of electric energy with which the terminals are in circuit, said electric circuit being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered during the movement of the sheet therebetween, and means for operating the latch to release the movable frame whereby it is free to automatically move out of operative position.

8. In an apparatus for burning metallic particles from a sheet or web of paper, the combination with a suitable base-frame, of an electric terminal blade carried by said frame, a swinging frame hinged to said base-frame and acting normally to move out of operative position, a latch for retaining the movable frame in operative position, an electric terminal surface carried by the swinging frame and arranged to make contact with the terminal blade, a sheet-delivery roll and a sheet-receiving roll journaled upon opposite sides of the terminal surface, an electromagnet and an armature for automatically operating the said latch, and a source of electric energy with which the terminals and magnets are in circuit, said source of electric energy being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered during the movement of the sheet therebetween.

9. In an apparatus for burning metallic particles from a web or sheet of paper, the combination with a suitable base provided with a pair of upright side standards, of a swinging frame hinged to the upper portion of said standards, an electric terminal blade carried by the standards, a sheet-delivery roll and a sheet-receiving roll journaled in said swing-frame, and a metallic contact terminal roller journaled intermediate said rolls and movable to and from the terminal blade, means for operating said rolls to advance the sheet or web between the said terminals, and a source of electric energy in circuit with the terminals, said source of electric energy being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered during the movement of the sheet therebetween, substantially as described.

10. In an apparatus for burning metallic particles from a web or sheet of paper, the combination with a suitable base-frame, of an electric terminal blade carried by said frame, a swinging frame hinged to said base-frame and normally acting to move out of operative position, a latch for retaining the movable frame in operative position, an electric terminal surface carried by the swinging frame and arranged to make contact with the terminal blades, a sheet-delivery roll and a sheet-receiving roll journaled in the swinging frame upon opposite sides of the terminal surface, means for operating said rolls, an electromagnet an operating-rod for the said latch, an armature attached to said rod and coöperating with the said magnet, a source of electric energy in circuit with the said terminals and magnet, said source of electric energy being of sufficient strength to cause a sparking at the terminals when a metallic particle is encountered during the movement of the sheet therebetween, insulated switch-plates attached to the upright standards, and a metallic pin or projection carried by the swinging frame and arranged to enter between the said switch-plates to complete the circuit at the point when the said swinging frame is in operative position.

692,990. **PAPER PAIL.** JOHN H. DAVIS, Dayton, Ohio, assignor to the Weston Paper and Manufacturing Company, Dayton, Ohio, a Corporation of Ohio. Filed Sept. 18, 1899. Serial No. 730,861. (No model.)



Claim.—A pail made from a single blank of paper scored and creased to form bottom, sides and ends, with uncut corner folds between the sides and ends to fold together to form side laps, and having side and end flaps attached to the sides and ends, each of the side flaps being of a size to completely cover the top and carrying side tucks the full length of the side flaps to fold down along the ends when the pail is closed, and the end flaps disconnected from the side flaps provided with a clasp to fasten same together over the side flaps, and a bail attached to the adjacent side laps but not piercing the side walls of the package, substantially as shown and described.

692,991. **FENCE.** THEODORE F. DE WITT, Ovid, Mich. Filed Apr. 30, 1900. Renewed June 3, 1901. Serial No. 62,935. (No model.)



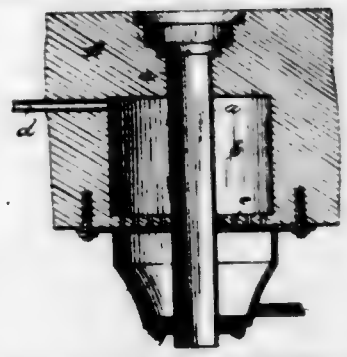
Claim.—1. In a fence, the combination of the longitudinal rail, the posts attached to the opposite ends thereof, the fence-slats mounted opposite each other upon said rail and between said posts and the longitudinal wire strands extending between said posts and embracing the ends of said slats.

2. In a fence, the combination of a plurality of panels each comprising a longitudinal rail having posts secured to the opposite ends thereof, opposed slats mounted upon said rail intermediate the posts, strands of twisted wire extending between said posts and embracing the ends of said slats, and means for detachably uniting the meeting posts of said panels.

692,992. **DIE-BLOCK.** ARCHIBALD A. DICKSON Toronto, Canada. Filed June 24, 1901. Serial No. 65,876. (No model.)

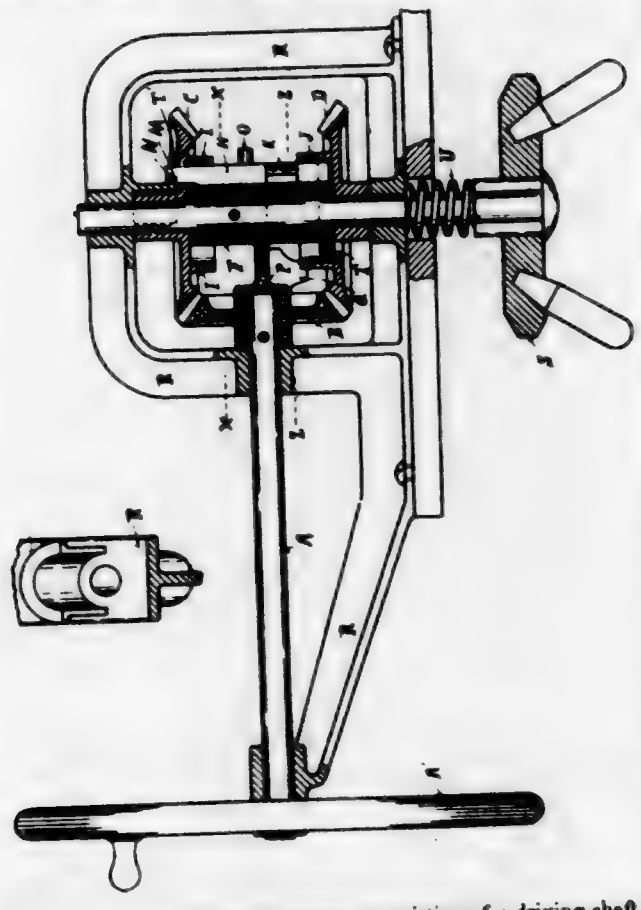
Claim.—1. A die-block provided with a compression-tube and a

water-chamber combined with an extension of the water-chamber surrounding an extension of the compression-tube, substantially as described



2. A die-block comprising a compression-tube, a chamber adapted to receive a cooling medium, an extension of the compression-tube extending below the die-block proper and a water-chamber surrounding such extension and forming a continuation of the main chamber, substantially as described.

692,993. **MECHANICAL MOVEMENT.** CONRAD DIETZ, Cincinnati, Ohio. Filed Dec. 22, 1900. Serial No. 40,765. (No model.)



Claim.—1. A mechanical movement consisting of a driving-shaft, a gear mounted thereon, a driven spindle, two gears mounted loosely thereon, and each driven by the gear on the driving-shaft; a key sliding endwise along said spindle, and a tilting arm adapted to engage the key and automatically shift it to alternately engage the respective gears on the spindle.

2. A mechanical movement consisting of a driving-shaft, a gear mounted thereon, a driven spindle, two gears loosely mounted thereon, a sleeve rigidly mounted upon the spindle between said gears, a key seated in a groove in said sleeve, and a tilting arm adapted to engage said key and automatically shift it endwise to alternately engage the gears upon the spindle, substantially as specified.

3. A mechanical movement consisting of a driving-shaft, a gear mounted thereon, a driven spindle, two gears loosely mounted thereon, each of said gears being provided with a recess to engage an end of the key, and a laterally-projecting annular flange upon its inner face, a sleeve rigidly mounted upon the spindle between the gears, a key seated in a groove in the face of said sleeve and provided with cross-arms to limit its endwise movement, a shifting-lug on said key, and a tilting arm loosely mounted and carried on the end of the driving-shaft, and also having wings for automatically shifting the key endwise to alternately engage the gears upon the spindle.

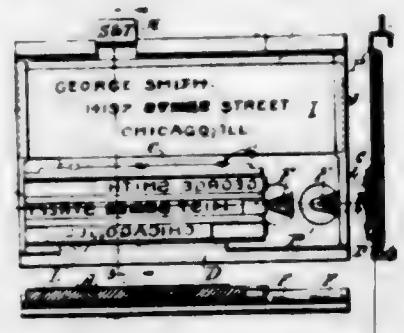
4. A mechanical movement consisting of a driving-shaft, a gear mounted thereon, a driven spindle, two gears loosely mounted thereon, each provided with an aperture adapted to engage the end of the key, a sleeve mounted rigidly upon the spindle, a key mounted in a groove in the face of said sleeve, a semi-annular stationary rib adapted to engage the key and lock the key in the adjusted position during a prescribed portion of its movement, and a tilting arm adapted to automatically shift the key endwise to alternately engage the opposite gears on the spindle.

5. In a mechanical movement, a driving-shaft, a gear mounted thereon, a driven spindle, two gears loosely mounted thereon, a tilting arm having wings, a sleeve having a flange adapted to engage and hold said tilting arm in place, a key adapted to be shifted endwise along the driven spindle to alternately engage the respective gears thereon, and a tilting arm adapted to engage and shift said key.

6. A mechanical movement consisting of a driving-shaft, a gear mounted thereon, a driven spindle, two gears loosely mounted thereon, each of said gears being provided with a recess to engage the end of the key and a laterally-projecting annular flange upon its inner face, a sleeve rigidly mounted upon the spindle, a key, and means for shifting and holding the same.

7. A mechanical movement consisting of a driven shaft, a gear mounted thereon, a driven spindle, two gears loosely mounted thereon, each of said gears being provided with a recess to engage the end of the key, a sleeve rigidly mounted upon the spindle, a key seated in a groove in the face of said sleeve and provided with cross-arms adapted to move therewith and to limit its movement endwise, a shifting-lug on said key, and means for endwise adjustment of said key.

692,994. **HOLDER FOR CARD-INDEXES AND PRINTING-PLATES.** JOSEPH S. DUNCAN, Chicago, Ill., assignor to Addressograph Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 15, 1901. Serial No. 55,987. (No model.)



Claim.—1. A holder of the character described comprising a frame provided with a printing-plate section and a card-section, and devices on the holder for removably securing said plate and card thereto, substantially as described.

2. A holder of the character described comprising a frame formed of a single sheet of metal and provided with a printing-plate section and a card-section and devices integral with the frame for removably securing said plate and card thereto, substantially as described.

3. A holder of the character described comprising a frame having a printing-plate section and a section depressed below the printing-plate section to receive a card.

4. A holder of the character described comprising a frame having a printing-plate section, a section depressed below the printing-plate section to receive a card, and clips at the edges of said card-section to engage the edges of the card and hold it in place in the frame below the face of the printing-plate.

5. A holder of the character described comprising a frame having a printing-plate section and devices for securing a printing-plate thereon, and a depressed card-section and devices for securing a card thereon, substantially as described.

6. A holder of the character described comprising a printing-plate section and a card-section and devices for securing a plate and a card on said sections, and spacing flanges or ribs on opposite edges of said frame, substantially as described.

7. A holder of the character described comprising a frame having a printing-plate section, guides at the edges of said section to receive the edges of the printing-plate, a stop at one end of said section and a spring-tongue at the other end thereof to engage the ends of the printing-plate and hold it against endwise movement, substantially as described.

8. A holder of the character described comprising a frame having a printing-plate section, guides adjacent to said section to receive the edges of said printing-plate, a stop at one end of said section and a spring-tongue at the other end thereof, a card-section and clips adjacent to said card-section for retaining the card in place thereon, substantially as described.

9. A holder of the character described comprising a printing-plate section and devices for securing a printing-plate thereon, a card-section and devices for securing a card thereon, and an index-tongue at the top of the frame, substantially as described.

10. The combination of a rectangular frame, a printing-plate removably secured on the frame, and spacing flanges or ribs on the frame formed by bending opposite edges of the frame to provide a clearance above each plate when a number of frames are piled, substantially as described.

11. A holder of the character described, comprising a frame having a printing-plate section and a card-section, in combination with a printing-plate and a card removably secured on said sections, and spacing flanges or ribs formed by bending opposite edges of the frame so that the holders can be arranged in a pile with a clearance above the face of each printing-plate and card, substantially as described.

692,995. COMBINED CARD-INDEX AND STENCIL-FRAME. JOSEPH S. DUNCAN, Chicago, Ill., assignor to Addressograph Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 15, 1901. Serial No. 55,964. (No model.)



Claim.—1. A frame of the character described comprising a skeleton stencil-section and a card-section connected therewith, substantially as described.

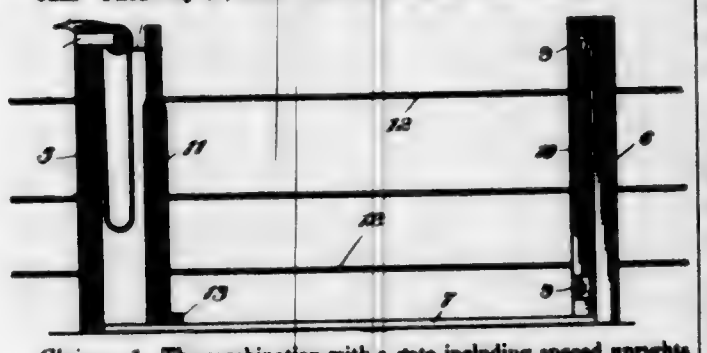
2. A frame of the character described comprising a skeleton stencil-section and a card-section arranged above the upper edge of said stencil-section and connected therewith, substantially as described.

3. A frame of the character described comprising a skeleton stencil-section and a card-section integral with the stencil-section and formed of material cut or stamped out of the stencil-section, substantially as described.

4. A frame of the character described comprising a skeleton stencil-section and a card-section secured thereto at its upper edge, and devices for holding the card in said card-section on the upper edge of the stencil-section, substantially as described.

5. A frame of the character described comprising a skeleton stencil-section having flanges thereon for securing a stencil therein a card-section provided with end flanges and securing-lugs and an index-tongue all stamped out of a single sheet of metal, substantially as described.

692,996. WIRE-GATE FASTENER. ABLE EDWARDS, Ranger, Okla. Filed May 25, 1901. Serial No. 61,933. (No model.)

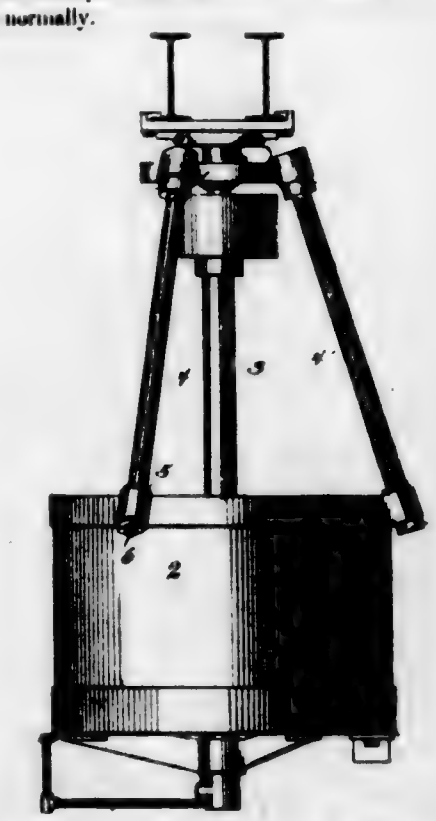


Claim.—1. The combination with a gate including spaced uprights having connecting-wires, of a double drum, a rope wound upon one member of the drum and attached at its free end to an upright of the gate to rotate the drum when said upright is moved, said rope having its opposite end disposed to wind upon the second drum member when the first-named portion of the rope is unwound from its drum member, and means for holding the drum against rotation.

2. The combination with a pivoted upright of a second upright having wires connecting it with the first upright, a block behind which the foot of the second upright is adapted for engagement, a rope attached at one end to the second upright, a winding-drum to which the rope is attached midway of its ends, the end portions of the rope being disposed for alternate winding as the drum is rotated alternately in opposite directions, and a pawl-and-ratchet mechanism for holding the drum against return movement.

692,997. DEVICE FOR SECURING RODS OR SHAFTS IN PLACE AND FOR PERMITTING READY REMOVAL OF SAME. GODFREY EVERS, Baltimore, Md. Filed Sept. 1, 1900. Serial No. 28,852. (No model.)

Claim.—1. The combination, with a rod having a shoulder, an object to which said rod may be connected, having an aperture through which said shoulder may pass, and means for so connecting said rod to said object, of a split ring, surrounding said rod, and having an internal diameter less than that of the shoulder and an external diameter greater than that of the said aperture, and means for holding the sections of said ring together normally.



2. The combination, with a rod having a shoulder, an object to which said rod may be connected, having an aperture through which said shoulder may pass, and means for so connecting said rod to said object, of a split ring, surrounding said rod, and having an internal diameter less than that of the shoulder and an external diameter greater than that of said aperture, and a retaining-ring for holding the sections of said split ring together normally.

3. In a centrifugal machine, the combination, with a suspension-head and a curb, of rods for suspending said curb from said suspension-head, passing through the curb and having limiting-flanges and means for holding the curb against said flanges, the outer ends of said rods passing through the suspension-head and being provided with means for connecting said rods to said head and with shoulders beneath such head, the said suspension-head having apertures, for the passage of such rods, which apertures are larger than the shoulders of said rods directly beneath said head, split rings on said rods interposed between said head and the shoulders of said rods, and means for holding the sections of said rings together normally.

4. In a centrifugal machine, the combination, with a suspension-head and a curb, of rods for suspending said curb from said suspension-head passing through the curb and having limiting-flanges and means for holding the curbs against said flanges, the outer ends of said rods passing through the suspension-head and being provided with means for connecting said rods to said head and with shoulders beneath such head, the said suspension-head having apertures, for the passage of such rods, which apertures are larger than the shoulders of said rods directly beneath said head, split rings on said rod interposed between said head and the shoulders of said rods, and retaining-rings for holding the sections of said rings normally together.

692,998. KITE ATTACHMENT. SIDNEY W. FLETCHER, Viborg, S. D. Filed Mar. 19, 1901. Serial No. 51,908. (No model.)

Claim.—1. The combination with a kite and the string thereof, of a parachute having an attaching-string, means for holding the parachute-string at an angle to the kite-string, and a traveler upon the kite-string and having a knife for engagement with the parachute-string to cut it.

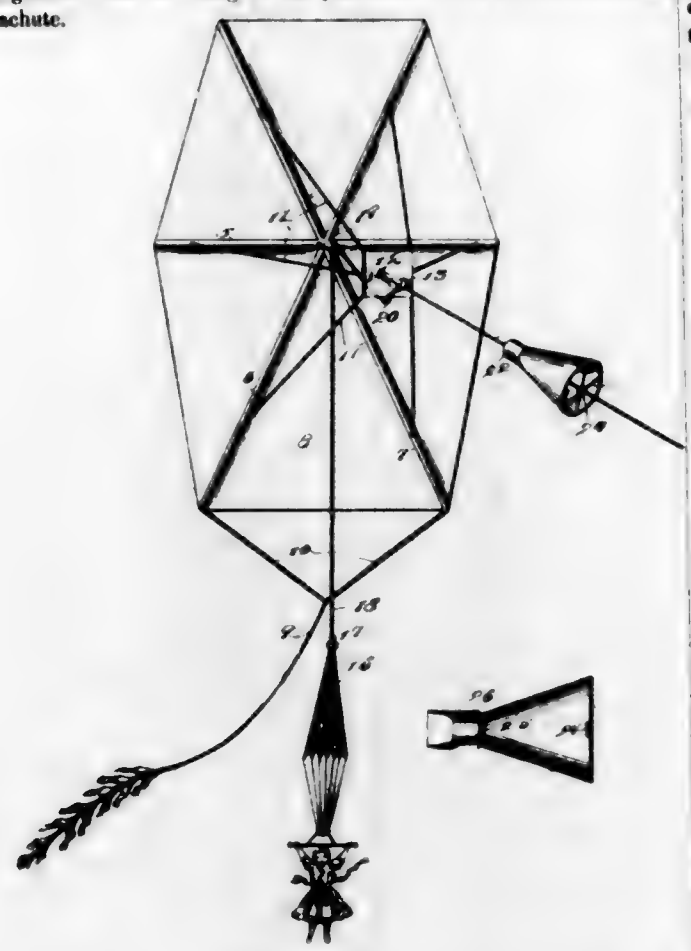
2. The combination with a kite and the string thereof, of a plate attached to the kite and with which the kite-string is connected, guides upon the plate and the kite, a parachute having an attaching-string passed through the guides and connected to lie at an angle to the kite-string, and a traveler disposed slidably upon the kite-string and having a knife for engagement with the string of the parachute to cut the string and release the parachute.

3. The combination with the kite, of a parachute attached to the kite by means arranged adjacent to the kite-string, and a traveler on the kite-string adapted to engage said attaching means and to effect the release of the parachute.

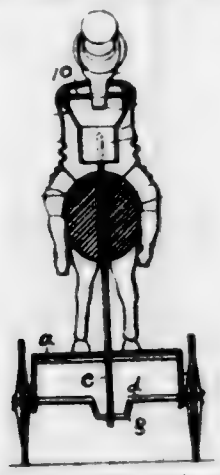
4. A wind-propelled traveler for kite-strings including a frusto-conical body portion having guide-rings held centrally thereof to receive a kite-string, and an annular knife at the minor end of the body portion.

5. The combination with a kite and the string thereof, of a parachute having an attaching-string secured to the kite, and a traveler mov-

able upon the kite-string and having a knife constructed and arranged for engagement with the string of the parachute to cut it and release the parachute.



692,999. **WHEELED TOY.** MELCHIOR FLICK, Cleveland, Ohio. Filed July 8, 1901. Serial No. 67,390. (No model.)



Claim.—1. In a toy, a suitable carriage and a horse fixed thereon, a rider-body and an operating-support for said body connected with the running mechanism of the carriage to move said body up and down, and legs for the rider independent of his body and supported on the horse, substantially as described.

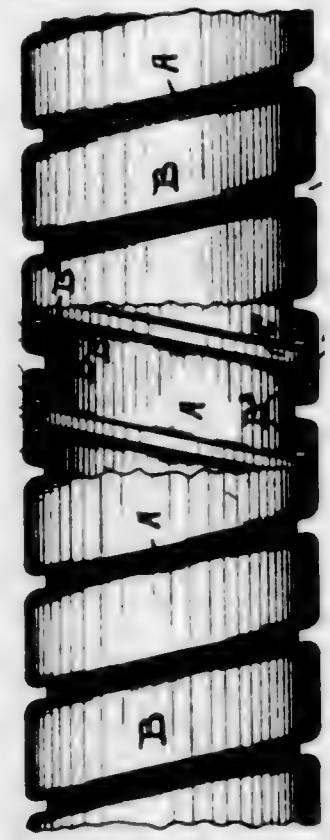
2. A toy comprising a suitable carriage and horse, a rider's body, means connected with the running-gear of the carriage to support and operate said body, legs for the rider connected across the horse and separate from the rider's body, and a flexible cover over said body and top of the legs, substantially as described.

3. A carriage, a horse, and a rider arranged substantially as shown, an operating-rod connected with the body of said rider and crank mechanism on the carriage for operating said rod, a set of legs connected across the horse independently of the body of the rider, a head pivotally supported on said body and a coat covering the body of the rider and the top of his legs and fastened about its lower edge, substantially as described.

4. In toys, a horse and a rider thereon formed in three separate sections comprising the body, the legs and the head, the head being pivoted on the body and the legs connected across the horse independently of the body, a power-actuated rod for raising and lowering the body of the rider and a coat covering said body and legs, substantially as described.

5. In toy horses, a rider having a body-frame and the arms and head pivoted thereon, a pair of legs independent of the body and a connection between their upper ends across the horse, and a coat covering said body and arms and having the legs fixed thereto, said coat having slack length above its attachment to said legs, in combination with the horse and the carriage and a crank-operated rod fixed to the body of the rider and adapted to actuate said body independently of the legs of the rider, substantially as described.

698,000. **FLEXIBLE METALLIC TUBING.** FREDERICK O. FRANKENBERG, Chicago, Ill., assignor, by mesne assignments, to American Metal Hose Company, Chicago, Ill., a Corporation of Illinois. Filed May 31, 1901. Serial No. 62,457. (No model.)

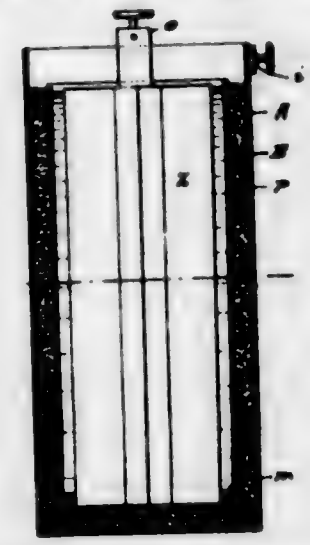


Claim.—1. The combination with a helically-wound ribbon of metal having its edges bent outward and folded back so as to leave exterior helical channels having flat surfaces parallel with the axis of the helix, of a second helically-wound ribbon of metal having its edges similarly bent inward and interlocking with the outwardly-bent edges of the first ribbon, said interlocking edges of the two ribbons being adapted to freely slide upon each other to a limited extent, substantially as described.

2. The combination with a helically-wound interior ribbon provided with exterior flanges, of a similar exterior ribbon provided with interior flanges, said ribbons being arranged so that their flanges will interlock and slip on each other, and said flanges being bent so as to provide spaces for packing, substantially as described.

3. The combination with a helically-wound interior ribbon provided with exterior flanges, of a similar exterior ribbon provided with interior flanges, said ribbons being arranged so that their flanges will interlock and slip on each other, substantially as described.

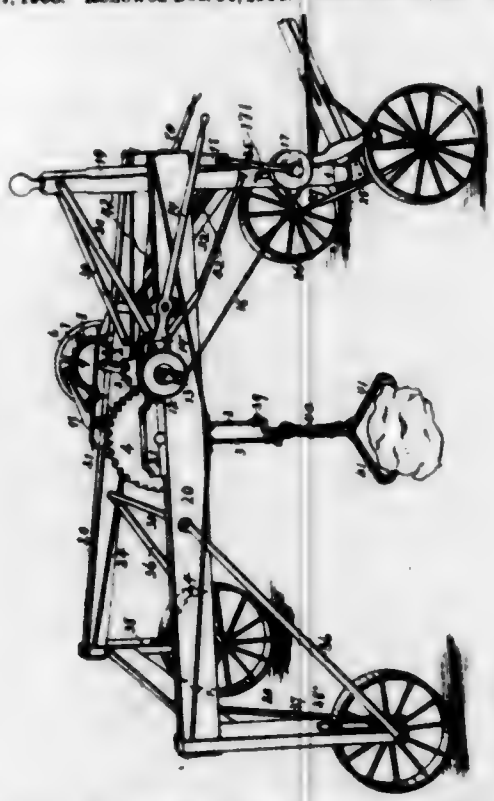
693,001. **PRIMARY BATTERY.** JOHN W. FREES, Reading, Pa. Filed May 15, 1901. Serial No. 60,272. (No model.)



Claim.—A primary battery comprising a lead casing or jar having an open top, and a porous receptacle B having an open top, located in

said casing, with a quantity of pulverized lead chlorid between said casing and receptacle, a corrugated zinc Z, located in said receptacle and surrounded by a solution composed of hydrochloric acid and a chlorid of an element whose oxid unites with water to form a hydrate, a quantity of paraffin-oil covering said substance and a quantity of mercury resting on the bottom of said receptacle B in contact with the zinc, all substantially as and for the purpose specified.

693,002. STONE-LIFTING MACHINE. FREDRICK A. FULSHUR, Waterloo, Iowa, assignor, by direct and mesne assignments, to himself, and W. L. M. Blumenstiel and W. T. Smith, Charles City, Iowa. Filed Apr. 27, 1900. Renewed Dec. 30, 1901. Serial No. 87,704. (No model.)



Claim.—1. In a machine of the character described, the combination with a power-shaft, and a friction-disk and ratchet-wheel thereon; of a pawl engaging said ratchet-wheel, a band-brake connected at one end to a fixed point and leading around said disk, and a lever having a fork of which one limb is attached to the other end of the band and the remaining limb engages the pawl, whereby the pawl is tripped and the brake is applied simultaneously, substantially as described.

2. In a machine of the character described, the combination with a power-shaft, a friction-disk and ratchet-wheel thereon, and a second shaft parallel to and driven by the power-shaft; of a pawl pivoted on the driven shaft and engaging said ratchet-wheel, a band-brake connected at one end to said driven shaft and leading around said disk, and a lever having a fork of which one limb is attached to the other end of the band and the remaining limb engages the pawl, whereby the pawl is tripped and the brake is applied simultaneously, as and for the purpose set forth.

3. In a machine of the character described, the combination with a power-shaft, a friction-disk and ratchet-wheel thereon, a pulley loose on the power-shaft, a cable wound around the pulley and led to a suitable source of power, and a clutch between the pulley and power-shaft; of a pawl engaging said ratchet-wheel, a band-brake connected at one end to a fixed point and leading around said disk, and a lever having a fork of which one limb is attached to the other end of the band and the remaining limb engages the pawl, whereby the pawl is tripped and the brake applied simultaneously, as and for the purpose set forth.

4. In a machine of the character described, the combination with a power-shaft, a friction-disk and ratchet-wheel thereon, a hand-wheel secured rigidly to the extremity of this shaft, a second shaft parallel with and geared to the power-shaft, a pulley loose on the power-shaft, a cable wound around the pulley and led to a suitable source of power, and a clutch between the pulley and power-shaft; of a pawl pivoted on the driven shaft and engaging said ratchet-wheel, a band-brake connected at one end to said driven shaft and leading around said disk, and a lever having a fork of which one limb is attached to the other end of the band and the remaining limb engages the pawl, whereby the pawl is tripped and the brake is applied simultaneously, substantially as described.

5. In a machine of the character described, the combination with a framework consisting of timbers suitably supported by posts, a horizontal shaft projecting from one post at a relatively low point, and a pulley mounted thereon for rotation and longitudinal movement; of a power-shaft mounted in relatively high bearings on the timbers, a second shaft driven therefrom, and a cable leading under said pulley and around a drum on the power-shaft, as and for the purpose set forth.

6. In a machine of the character described, the combination with a framework consisting of timbers suitably supported by posts, a horizontal shaft projecting from one post at a relatively low point, and a grooved pulley mounted on the shaft; of a power-shaft mounted in relatively high bearings on the timbers, a second shaft driven therefrom, and a cable leading under said pulley and around a drum on the power-shaft, as and for the purpose set forth.

7. In a lifting-machine, the combination with a framework comprising timbers in triangular shape, posts supporting the corners, wheels mounted in slots in two of these posts, and a wheeled truck and trussed support swiveled to the remaining post; of a driving and a driven shaft journaled across said timbers, gears connecting them, a pulley on the driving-shaft from which leads a power-cable, two cables wound on the driven shaft and leading to a cross-bar, clutch-hooks, chains connecting them with said cross-bar, a pawl and brake for preventing a retrograde movement of the shafts, and a single lever for simultaneously tripping them both, all substantially as described.

693,003. FIRE DETECTOR AND ALARM. FREDERICK G. GASCHLIN, San Francisco, Cal., assignor of nine-sixteenths to Simon Davis and Moses Davis, San Francisco, Cal. Filed May 13, 1901. Serial No. 60,009. (No model.)



Claim.—1. A fire detector and alarm including a normally broken electrical circuit, a spring bent or returned substantially upon itself to form two arms one of which is normally connected to a contact, and the other is movable said movable arm adapted to be drawn toward the fixed arm, and a destructible strip connected to both arms and holding the movable arm normally away from its contact.

2. A fire detector and alarm, consisting of an insulating-base with binding-posts and contacts, a spring bent at its central portion to form two arms one of which is fixed to one of said contacts and the other is movable, and a destructible strip extending from the extremity of one arm to the other, and holding the movable arm normally away from its contact.

3. A fire detector and alarm consisting of an insulating-base, separated contact-plates fixed thereto, binding-posts for connecting of electrical conducting-wires, a spring consisting of a strip coiled at its center and returned substantially upon itself to form two arms, one of which is secured to one of the contact-plates, upturned ends to the arms, a destructible strip engaging the upturned ends of the arms and connecting said ends when the other arm has been drawn away from its contact-plate.

4. A fire detector and alarm, consisting of an insulating-base, separated contact-plates and electrical connections carried thereby, a two-armed elastic spring, one portion of which is fixed to one of the contact-plates, and both arms having upturned ends, a destructible strip connecting said upturned ends and disconnecting a movable arm normally away from its contact-plate, an ignitible fuse or cord, and means for attaching it contiguous to the destructible strip, said fuse extending outside of the device.

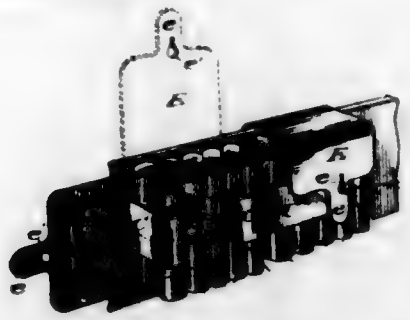
5. A fire detector and alarm, consisting of an insulating-base, contact-plates and electrical connections secured thereto, a two-armed spring, means by which one of said arms is secured to one of the contacts, a destructible strip, and means for connecting it with the spring-arms whereby the second arm is normally held away from its contact-plate, a hook formed upon the first-named contact-plate, contiguous to the destructible strip, an ignitible fuse or cord attached to said hook, extending away from the device, and having branches divergent from each other.

6. A fire detector and alarm, consisting of an insulated base, contact-plates and electrical connections carried thereon, a spring attached to one of said plates having an elastic arm adapted to form contact with the other of said plates, a destructible strip by which said arm is normally retained out of contact with its plate, means for incoming fire or heat to destroy said strip, and an inclosing perforated casing by which the device is covered and protected from injury.

698,004. CARTRIDGE-CARRIER. EDWARD T. GIBSON, Fort Harrison, Mont. Filed Apr. 8, 1901. Serial No. 54,898. (No model.)

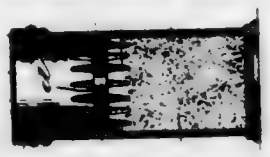
Claim.—1. A cartridge-carrier comprising a body-piece having upon its front side receptacles for cartridges formed of cylindrical tubes, a flap permanently secured by one extremity to the back side of the said body-piece by a single rivet the shank of which passes through a hole in the

said flap, the said flap admitting of being revolved sidewise on the said shank to lie behind the said body-piece when not in use, a fastening device in the free extremity of the said flap, and, to detachably engage with the said fastening device, a companion fastening device on a strip which is distinct from the said cylindrical tubes.



2. A cartridge-carrier comprising a body-piece having upon its front side an inner and an outer row of cylindrical tubes, a flap permanently secured by one extremity to the back side of the said body-piece by a single rivet situated in the said body-piece between two of the said cylindrical tubes in the inner row and the shank of which rivet passes through a hole in the said flap, the said flap admitting of being revolved sidewise on the said shank of the rivet to lie behind the said body-piece when not in use, a fastening device in the free extremity of the said flap, and, to detachably engage with the said fastening device, a companion fastening device on the front of the cartridge-carrier.

693,005. SALT CELLAR OR DREDGE. ELBERT J. GILMORE, Lowell, Mass. Filed Nov. 1, 1901. Serial No. 80,810. (No model.)

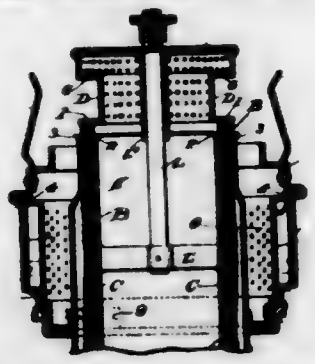


Claim.—1. A salt-cellar consisting of a receptacle for the salt, a perforated top fitted thereon, and an agitator longitudinally movable in the receptacle and provided with a series of oppositely-extended prongs, to clear the perforations in the top and to break the salt, on the top of which the agitator normally rests, said agitator having openings therein to admit the passage of the salt, and having a continuous periphery which closely approaches the inner wall of the receptacle.

2. A salt-cellar consisting of a receptacle for the salt, a perforated top therefor, and an agitator comprising a body having apertures therein and corresponding exteriorly to the cross-section of the receptacle and provided with oppositely-extended series of prongs, to clear the perforations in the top and to break the salt on the top of which the agitator is normally supported, the periphery of the body closely approaching the inner wall of the receptacle.

3. As a new article of manufacture, an agitator for salt-cellars, comprising an apertured, disk-like member having series of elongated prongs extended oppositely therefrom.

693,006. LAMP-BURNER. JOSEPH GREGORY, New York, N. Y. Filed June 24, 1899. Serial No. 721,721. (No model.)



Claim.—1. In a central-draft lamp, the combination with an inner wick-tube, of a perforated spreader having a wick-guard coacting with said spreader, said guard preventing the flame from reaching the upper inner surface of the wick, and forcing the gas from the upper inner surface of the wick to pass into the central draft and mingle with air before passing out through the perforations in the spreader to the flame, substantially as described, for the purpose set forth.

2. In a central-draft lamp, the combination with an inner wick-tube, of a vertically-movable perforated spreader having a wick-guard coacting with the spreader to prevent the flame from reaching the upper inner surface of the wick and forcing the gas from that portion of the wick to pass into the central draft, and the spreader and guard terminating above the upper plane of the inner wick-tube to prevent the heat of the spreader and guard from charring the upper inside surface of the wick, substantially as described.

3. In a central-draft lamp, the combination with an inner wick-tube, of a vertically-movable perforated spreader having a guard coacting with the spreader to prevent the flame from reaching the upper inside surface of the wick and compel the gas from that portion of the wick to pass into the central draft, a centrally-disposed rod to limit the upward movement of the spreader and guard, said spreader and guard terminating above the upper plane of the inner wick-tube to prevent the heat of the spreader and guard from charring the upper inside surface of the wick, substantially as set forth.

4. In a central-draft lamp, the combination with an inner wick-tube, of a spreader, a guard coacting with the spreader to prevent the flame from reaching the upper inside surface of the wick, an opening below the guard through which the gas from the upper inside surface of the wick is forced to pass into the central draft and mingle with air before reaching the flame, substantially as described.

5. In a central-draft lamp, the combination with an inner wick-tube, of a perforated spreader, a wick-guard coacting with the spreader to prevent the flame from reaching the upper inside surface of the wick, and the gas from that portion of the wick from reaching the flame before passing through an opening below the guard into the central draft where it mingles with air within the spreader and passes out through the perforations in the spreader to the flame, substantially as described and for the purpose set forth.

6. In a central-draft lamp, the combination with an inner wick-tube, of a spreader coacting with a guard to prevent the flame from reaching the upper inner surface of the wick, and a means for the escape of gas from the inner portion of the wick, substantially as described.

7. In a central-draft lamp, the combination with an inner wick-tube, of a flame-spreader and a wick-guard to prevent the flame from reaching the upper inside surface of the wick and a means for the escape of gas from that portion of the wick to the flame, substantially as described.

8. In a central-draft lamp, the combination with an inner wick-tube, of a flame-spreader and guard, the upper inside surface of the wick uniting with the guard to form the outer and upper walls of the gas-space which communicates with the flame, substantially as described.

9. In a central-draft lamp, the combination with an inner wick-tube, of a flame-spreader and guard forming a gas-space immediately below the guard, the upper inner surface of the wick being uncovered to said gas-space, and a means for the escape of gas from said gas-space, substantially as described.

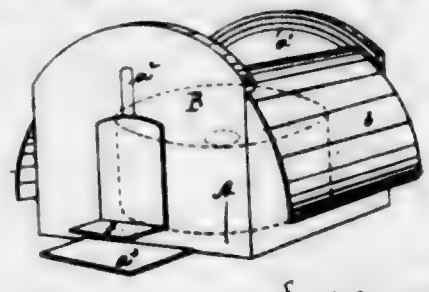
10. In a central-draft lamp, the combination of a wick, and a coacting flame-spreader and guard to inclose a gas-space which communicates with the flame and prevents the flame from reaching the inner side of the wick, substantially as described.

11. In a central-draft lamp, a perforated flame-spreader having a guard to bear on the upper edge of the wick to prevent the flame from reaching the inner side of the wick, the perforations in said spreader permitting the passage of gas from the inner side of the wick to the flame, substantially as described.

12. In a lamp-burner, a vertically-movable flame-spreader having a guide-tube, in combination with a fixed guide-rod, engaged by said guide-tube, and means on said guide-rod above said flame-spreader, to limit the vertical movement of said flame-spreader on said guide-rod, substantially as described.

13. In a lamp-burner, the combination of an inner wick-tube, a fixed vertical guide-rod connected thereto and supported thereby, a vertically-movable flame-spreader having a guide-tube engaging said guide-rod, and a stop-nut screwed and adjustable on said guide-rod above said flame-spreader, to limit the vertical movement of the latter, substantially as described.

698,007. SPITTOON-GUARD. CHRISTOPH HAGEN, New York, N. Y. Filed Oct. 22, 1901. Serial No. 79,496. (No model.)

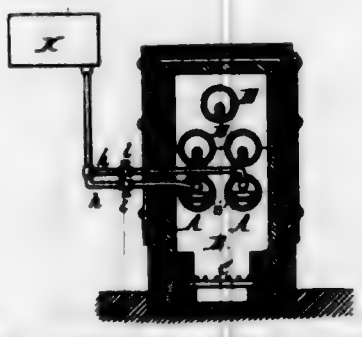


Claim.—1. A guard for spittoons composed of a vessel having two opposite sides grooved near their upper ends, sliding covers engaging the

grooves, spring-influenced levers connected to the covers, and a slide operatively connected to the levers, substantially as specified.

2. A guard for spittoons composed of a rectangular vessel having two opposite grooved longer sides, and two opposite shorter sides, sliding covers engaging the grooves of the longer sides and adapted to be projected over the shorter sides, spring-influenced levers connected to the covers, and a slide operatively connected to the levers, substantially as specified.

698,008. METHOD OF MANUFACTURING GAS. LOUIS G. HARRIS, East Orange, N. J. Filed Mar. 7, 1901. Serial No. 50,171. (No specimens.)

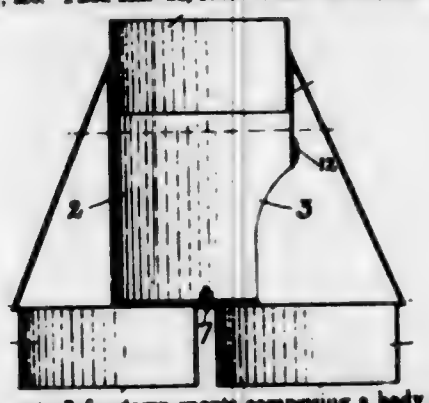


Claim.—1. The herein-described method of manufacturing a combustible gas which consists in preparing a mixture of mineral oil, a quantity of water greatly in excess of the mineral oil, and an alkaline ingredient, distilling the mixture, and superheating the resulting gas and vapor, substantially as set forth.

2. The herein-described method of manufacturing a combustible gas which consists in preparing a mixture of mineral oil, a quantity of water in excess of the mineral oil, potash, salt, slaked lime and nitrate of soda, distilling the mixture, and superheating the resulting gas and vapor, substantially as set forth.

3. The herein-described method of manufacturing a combustible gas which consists in mixing substantially fifty gallons of water, substantially fifteen gallons of mineral oil, and an alkaline ingredient, distilling the mixture and superheating the resulting gas and vapor, substantially as set forth.

698,009. CUT-OFF FOR DOWN-SPOUTS. MARION C. HARRISON, Kansas City, Mo. Filed Mar 22, 1901. Serial No. 52,343. (No model.)

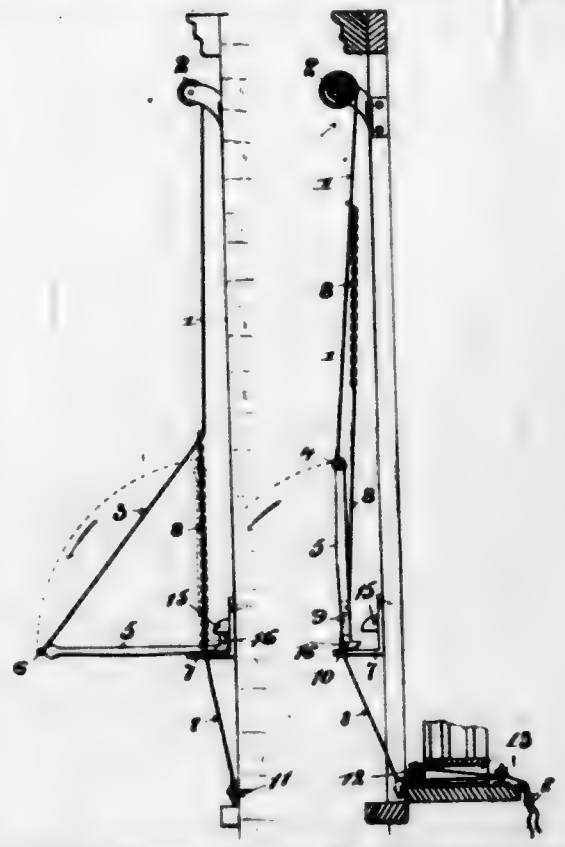


Claim.—A cut-off for down-spouts comprising a body portion having two parallel sides and two downwardly-diverging sides, a cylindrical collar fitted in the top of said body portion, a plate secured across the bottom of said body portion and having two outlet-openings therein, an open-topped cylindrical sleeve having its upper end loosely embracing said collar and an opening in its side, a crescent-shaped cut-off plate secured to said sleeve, having its concavity below said opening, a pivot-pin passing through said cut-off plate and secured to the bottom of said body portion, said pin being concentric with said sleeve, a horizontal slot in said body portion, and a stem 10 pivotally connected to said cylinder and projecting through said slot to form a handle for rotating said cylinder and cut-off.

698,010. AWNING. EDWARD F. HARTSHORN, Newark, N. J., assignor to Stewart Hartshorn Company, a Corporation of New Jersey. Filed Nov. 16, 1900. Serial No. 36,606. (No model.)

Claim.—1. In an awning for windows, the combination with the awning mounted on a roller, of side braces, connected by one end to the bottom of the awning; stops with which the ends of the braces engage, and cords fastened to the sides of the awning above the braces, whereby the bottom of the awning is thrown and held out when the awning is pulled down, substantially as described.

2. In an awning for windows, the combination with the awning mounted on a roller of side braces connected by one end to the bottom of the awning; stops with which the ends of the braces engage; and cords fastened to the sides of the awning above the braces, and engaging with the braces and stops, whereby the bottom of the awning is thrown and held out when the awning is pulled down, substantially as described.



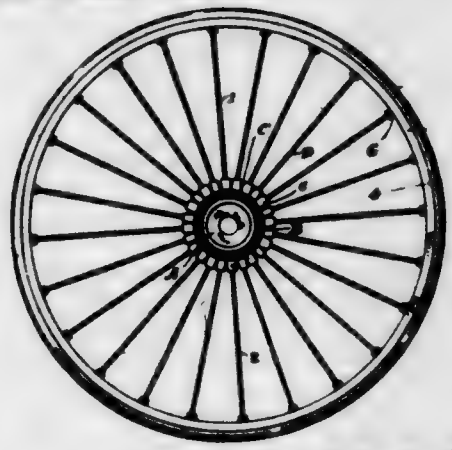
3. In a roll-awning, in combination, the awning mounted on the roller; loose side braces connected by one end to the bottom of the awning; brackets adapted to engage with the side braces whereby the bottom of the awning is thrown out; and cords attached to the sides of the awning by which the latter is lowered and held down, substantially as described.

4. In a roll-awning, in combination, the awning mounted on the roller; loose side braces connected by one end to the bottom of the awning; brackets adapted to engage with the side braces whereby the bottom of the awning is thrown out; and cords attached to the sides of the awning, and engaging with the braces and the brackets, by which the awning is lowered and held down, substantially as described.

5. In a roll-awning for windows, in combination, the awning mounted on the roller; loose side braces 5, connected to the bottom of the awning, and adapted to engage with the brackets, whereby the bottom of the awning is thrown out; brackets 7 with which the side braces engage; and cords 8 attached to the awning and arranged to pass through the braces and brackets by which the awning is unwound from the roller, substantially as described.

6. In a roll-awning for windows, in combination, the awning mounted on the roller; loose side braces 5 connected to the bottom of the awning, and provided with the projecting end 16; brackets 7 having the projection 15, with which the braces engage; and cords 8 attached to the awning and arranged to pass through and engage with the braces and brackets, by which the awning is unwound from the roller and held extended, substantially as described.

698,011. WHEEL. FRANCIS M. HAWK, Muncie, Ind. Filed May 9, 1901. Serial No. 59,389. (No model.)

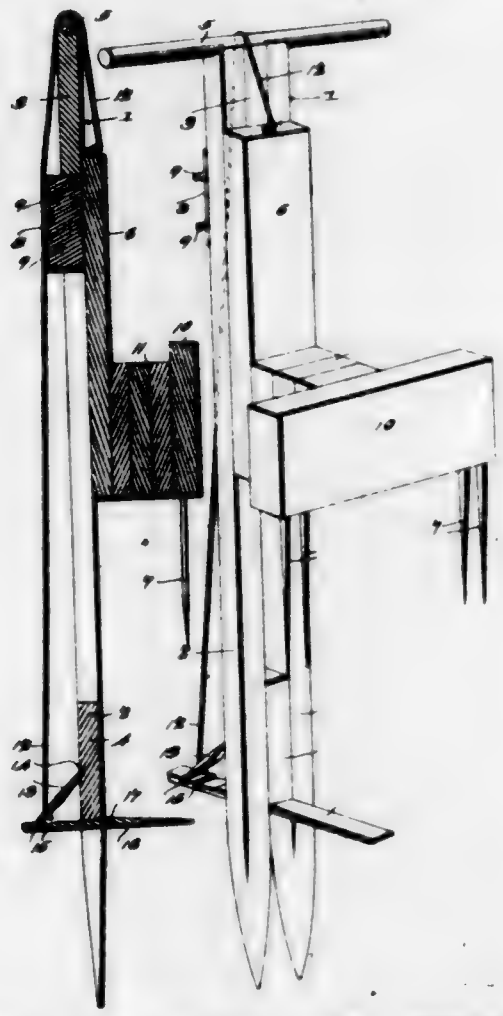


Claim.—1. In a wheel, the combination with the rim, the rim being provided with a series of countersunk portions spaced apart, of spokes

having their outer ends passing through the countersunk portions of the rim and their inner ends secured to the hub, screw-threads on the outer ends of the spokes, and a pair of nuts for each spoke engaging the threads, one nut being adapted to be screwed up against the bottom of the rim, and the other nut being adapted to be screwed down against the top of the rim and being positioned in one of the countersunk portions of the rim.

2. In a wheel, the combination with a hub and channel-rim, of spokes secured to the hub, countersunk portions on the top of the rim through which pass the outer ends of the spokes, nuts on the ends of the spokes in the countersunk portion bearing against the top of the rim, the upper portion of the nuts extending slightly above the surface of the rim.

693,012. **ANIMAL-TRAP.** JOHN W. HAWKINS, Munfordville, Ky. Filed Oct. 11, 1901. Serial No. 78,378. (No model.)



Claim.—1. A trap comprising a support composed of uprights spaced apart to form a guide or way, a vertically-movable slide located at the front of the supports and having a flange or web extending through the space between the uprights, transverse fastening devices passing through the web or flange and arranged at the back of the support and detachably securing the said web or flange to the uprights, a front piece connected with the slide and provided with means for engaging an animal, and means for setting and tripping the trap, substantially as described.

2. A trap comprising a support composed of uprights spaced apart, and blocks arranged between the uprights, one of the blocks being located adjacent to the lower portions of the uprights, said lower portions being extended to form a crotch, a vertically-movable plunger having a slide arranged at the front of the support and provided with a web or flange extending through the space between the uprights and provided with transverse fastening devices engaging the uprights and detachably securing the plunger to the support, a flexible connection attached to the slide and adapted to be drawn over the top of the support and provided with the bar or piece 13, adapted to engage the support, and the trigger arranged in the said crotch and engaging the bar or piece 13, substantially as described.

3. A trap comprising a support composed of uprights spaced apart, blocks arranged between the uprights and the top piece extended beyond the uprights to form handles, the vertically-movable plunger consisting of the slide arranged at the front of the support having the flange or web projecting through the space between the uprights and provided with a transverse fastening device located at the rear faces of the uprights and detachably securing the plunger to the support, the front piece having depending spikes or rods, and the weighted connecting-block, the flexible connection attached to the plunger and adapted to be drawn over the top of the support, the bar 13 attached to the said flexible connection, and the trigger arranged between the lower portions of the uprights, substantially as described.

693,013. **ELECTRIC SIGNALING APPARATUS.** FELIX B. HERSOG, New York, N. Y. Filed Apr. 8, 1889. Serial No. 306,474. (No model.)



Claim.—1. In a transmitter, circuit-terminals comprising two contact-springs, combined with moving parts and a step-by-step wheel and acting when the transmitter is not set to keep the springs apart, and to keep them together while the apparatus is set.

2. A transmitter comprising a number of separately-movable parts—as push-buttons—all coöperating in the variation of the signals; together with a single pair of contacts which coöperate with every one of the various signals; a magnet, and, controlled by this magnet, mechanism for closing the contacts at the beginning of the signal and permanently separating them at the end thereof, substantially as described.

3. In a transmitter, means for setting it to transmit one of a number of variable signals; circuit-controlling devices including a pair of contact-springs; means whereby the springs are kept in contact when the transmission begins; means whereby they are separated when the transmission ends; and means whereby the signal transmitted depends as to its differentiation from the various signals the apparatus is adapted to transmit upon the interval between the beginning of the transmission and the final separation of the contacts.

693,014. **ELECTRIC SIGNALING APPARATUS.** FELIX B. HERSOG, New York, N. Y. Filed Aug. 5, 1890. Serial No. 361,043. (No model.)

Claim.—1. A chemical annunciator comprising a series of line-terminals, a coöperating marking-surface normally concealed and a magnet-controlling means acting to exhibit the surface after passage of a current through a terminal.

2. The chemical annunciator comprising a series of line-terminals, a coöperating common return connection, a magnet normally in series, and means acting to break the common return upon the passage of a current.

3. A chemical annunciator comprising a series of line-terminals, a coöperating common return connection, a magnet-controlling means acting to interrupt the circuit at the operated terminal.

4. A chemical annunciator comprising a series of line-terminals, a coöperating marking-surface arranged to be brought into and out of contact with the electrodes and mechanism common to two or more of the electrodes for indicating that a signal has been sent, substantially as described.

5. A chemical annunciator comprising a series of line-terminals, a coöperating marking-surface carried by a framework and arranged to be brought into and out of contact with the electrodes and a magnet controlling the position of the framework and the said surface; together with mechanism for indicating that a signal has been sent, substantially as described.

6. A chemical annunciator comprising a series of line-terminals, a coöperating marking-surface arranged to be brought into and out of contact with the electrodes and mechanism for indicating that a signal has

been sent together with chemical substances incorporated with the surface and arranged and adapted to be alternately decomposed during the signal so as to produce a visible mark and subsequently to be altered so as to produce a disappearance of said mark.



7. A chemical annunciator comprising a series of line-terminals, a coöperating marking-surface arranged to be brought into and out of contact with the electrodes together with a reservoir holding a supply of electrolyte and arranged and adapted to feed this to the said surface.

8. A chemical annunciator comprising a series of line-terminals, a coöperating marking-surface arranged to be brought into and out of contact with the electrodes and a framework carrying this surface; together with an independent layer of absorbent packing for the same arranged to hold an electrolyte and to supply it to the said surface.

9. A chemical annunciator comprising a series of line-terminals, pins connected thereto, a coöperating marking-surface arranged to be brought into and out of contact with the pins, circuit connections arranged so that the pins act as electrodes of one polarity while the surface moistened by an electrolyte acts as an opposed pole; together with mechanism arranged to hold the surface against the pins and to permit it to be rocked away therefrom.

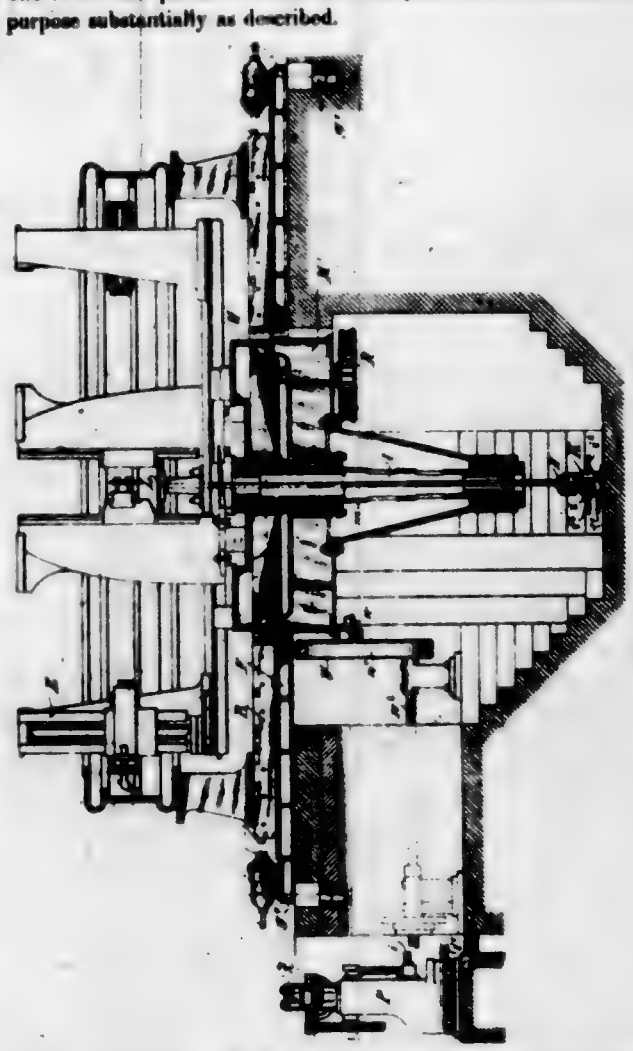
10. A chemical annunciator comprising a series of line-terminals, a coöperating marking-surface arranged to be brought into and out of contact with the electrodes and carrying a discoloring electrolyte; a support which carries the record-surface; and devices by which the support and record-surface may be jointly moved into position to display the record; and guides acting to control this motion to be in a direction which is not parallel to the area of normal contact between the terminals and the surface.

11. A chemical annunciator comprising a series of line-terminals, a coöperating marking-surface arranged to be brought into and out of contact with the electrodes and carrying a discoloring electrolyte; a support which carries the marking-surface; and devices by which the support and record-surface may be jointly moved into position to display the record; and guides acting to control this motion to be in a direction which is at an angle to the area of normal contact between the terminals and the surface.

698,015. DEVICE FOR ADJUSTING THE WORK ON MACHINE-TOOLS. HENRY HEIM, Ober-Schoenweide, Germany. Filed May 13, 1901. Serial No. 59,908. (No model.)

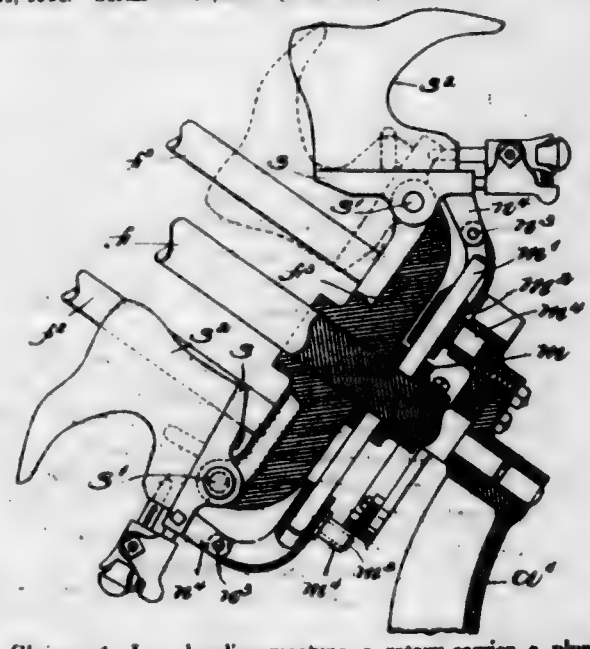
Claim.—1. The combination of a horizontal machine-bed, a horizontal work-holding plate resting thereon and adapted for free movement in all horizontal directions, a series of independent shifting devices disposed upon said bed around said plate and adapted to engage and move the latter upon the former, a hand controlling device common to said shifting devices and serving to put said shifting devices selectively into action, and means connecting said common controlling device with said independent shifting devices.

2. A device for adjusting the work on machine-tools consisting of an intermediate plate movable in the horizontal plane in any direction on the bed of the machine, a series of housings and pressure-pistons mounted on the machine around the said plate and means for actuating by pressure any one of the said pistons to move the said plate in the manner and for the purpose substantially as described.



3. A device for adjusting the work on machine-tools consisting of an intermediate plate to which the work is attached, a series of pressure-pistons mounted on the machine-frame and adapted when extended to move the said intermediate plate, a distributing-valve inserted between the pressure-generating source and the said pistons and means for adjusting the same to direct the pressure to any one of the said pistons in the manner and for the purpose substantially as described.

693,016. LEVELING-MACHINE. JOHN J. HEYD, Lynn, Mass., assignor of one-half to Maurice V. Brennahan, Lynn, Mass. Filed Nov. 21, 1901. Serial No. 83,184. (No model.)

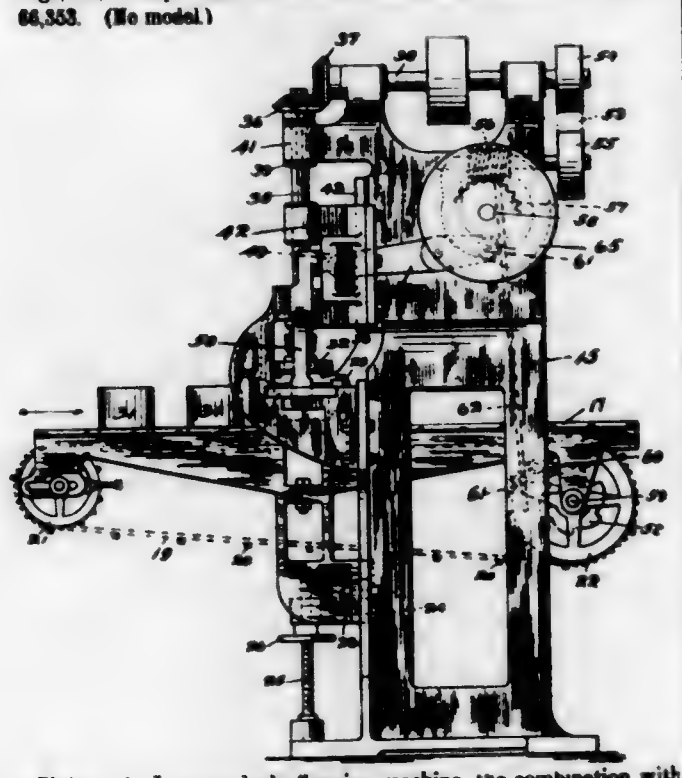


Claim.—1. In a leveling-machine, a rotary carrier, a plurality of jack-tables pivoted thereto, a stationary cam, a plurality of radial guides rotating with said carriers, sleeves movable on said guides and having projections for operatively engaging said cam, and connections between said sleeves and said jack-tables.

2. In a leveling-machine, a rotary carrier, a plurality of jack-tables pivoted thereto, a stationary cam, a plurality of radial pins, a sleeve slidably mounted on each pin, and having a projection to operatively engage said cam, and a link pivoted to each sleeve and to one of the jack-tables.

3. A leveling-machine having a rotary carrier, a jack-table pivoted thereon, a radial guide rotating with said carrier, a sleeve sliding on said pin and having a laterally-projecting pin, a link pivotally connected to said sleeve and to the jack-table, and a stationary cam having the concentric portion, as at f^{10}, and the cam-path as at f^{11}.

693,017. CAN-BODY-FLANGING MACHINE. JOHN G. HODGSON, Maywood, Ill., assignor to Automatic Vacuum Canning Company, Chicago, Ill., a Corporation of Illinois. Filed June 28, 1901. Serial No. 66,353. (No model.)



Claim.—1. In a can-body-flanging machine, the combination with a support for the can-body, of a flanging head and tool and opening and closing can-body-clamping jaws embracing the can-body to center it with the flanging head and tool, and to control or limit, shape and true the flange formed on the can-body, means for automatically operating the flanging-head, and automatic mechanism for opening and closing the clamping-jaws, substantially as specified.

2. The combination with the feed-table for supporting the can-bodies, of a can-body conveyer or feeder, a pair of opening and closing can-body-clamping jaws, and a rotating and reciprocating flanging-head, furnished with flanging-tools, substantially as specified.

3. The combination with the feed-table, of a can-body conveyer or feeder, a pair of opening and closing can-body-clamping jaws, a rotary flanging head and tool, a slide for reciprocating said flanging-head provided with cams for operating the clamping-jaws, substantially as specified.

4. In a can-body-flanging machine, the combination with a support for the can-body, of a flanging head and tool and opening and closing can-body-clamping jaws embracing the can-body to center it with the flanging head and tool and to control or limit, shape and true the flange formed on the can-body, said can-body-clamping jaws having a raised and rounded bead or die 71 for forming a curved and slightly-raised shoulder at the corner or junction of the can-body and its flange, substantially as specified.

5. The combination with a can-body feed-table, of an endless flexible can-body conveyer, longitudinal guides for the can-bodies, a rotating and reciprocating flanging head and tool, and means for centering the can-body with the flanging head, substantially as specified.

6. In a can-body-flanging machine, the combination with a can-body feed-table, of an intermittent can-body feeder or conveyer, a flanging head and tool, and means for automatically centering the can-body with the flanging head, substantially as specified.

7. The combination with a can-body feed-table and conveyer, of clamping-jaws embracing the can-body near its top, and a flanging head and tool, substantially as specified.

8. The combination with a can-body feed-table and conveyer, of clamping-jaws embracing the can-body near its top, and a flanging head and tool, said feed-table having longitudinal guides for the can-bodies, substantially as specified.

9. The combination with a can-body feed-table and conveyer, of clamping-jaws embracing the can-body near its top, a flanging head and tool, and strippers or ejectors for freeing the can-bodies from the clamping-jaws, substantially as specified.

10. The combination with a can-body-flanging head and tool of a feed-table having a central channel, an endless, flexible can-body feeder-chain working in said channel below the surface of the table, substantially as specified

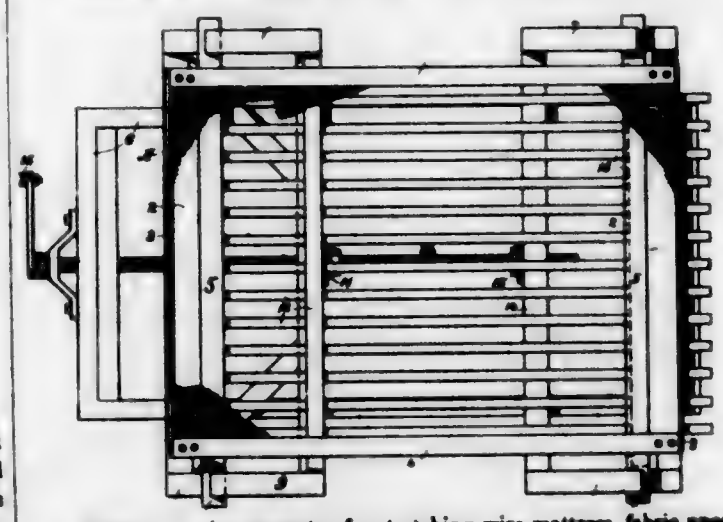
11. The combination with a vertically-adjustable can-body feed-table having laterally-adjustable can-body guides, of a rotating and reciprocating flanging head and tool, substantially as specified.

12. The combination with a vertically-adjustable can-body feed-table having laterally-adjustable can-body guides, of a flanging-head and means for centering the can-body with the flanging-head, substantially as specified.

13. The combination with a rotating and reciprocating flanging-head, of can-body-clamping jaws, a slide for the reciprocating flanging-head, provided with cams for operating the clamping-jaws, substantially as specified.

14. The combination with a rotating and reciprocating flanging-head, of can-body-clamping jaws, a slide for reciprocating the flanging-head, provided with cams for operating the clamping-jaws, and an adjustable threaded sleeve connection between the flanging-head shaft and said slide, substantially as specified.

693,018. WIRE-MATTRESS STRETCHER. JOHN HOEY, San Francisco, Cal. Filed Nov. 13, 1901. Serial No. 82,115. (No model.)



Claim.—1. An apparatus for stretching wire-mattress fabric upon its frame, consisting of fixed supports with a removable transverse bar adapted to edgewise engage the end bar to which the ends of the fabric are secured, a guided slidable movable support and corresponding removable cross-bar to edgewise engage the opposite end bar of the mattress, and means by which said support is moved away from the fixed support and the two parts of the fabric stretched simultaneously.

2. An apparatus for stretching wire-mattress fabric upon its frame, consisting of a main frame, side supports fixed thereto, a transverse bar removably connected with the supports and formed to engage and hold one of the end bars of the mattress-frame to which the overlapping ends of the fabric are first secured, a guided slidable frame having side supports and cross-bar adapted to hold the opposite end bar of the mattress-frame so that the fabric lies in two sheets, one above and one below the end bars, a nut fixed to the movable frame, a screw passing therethrough having the opposite end turnable in a fixed socket, and means for turning the screw so as to separate the end bars and stretch the fabric.

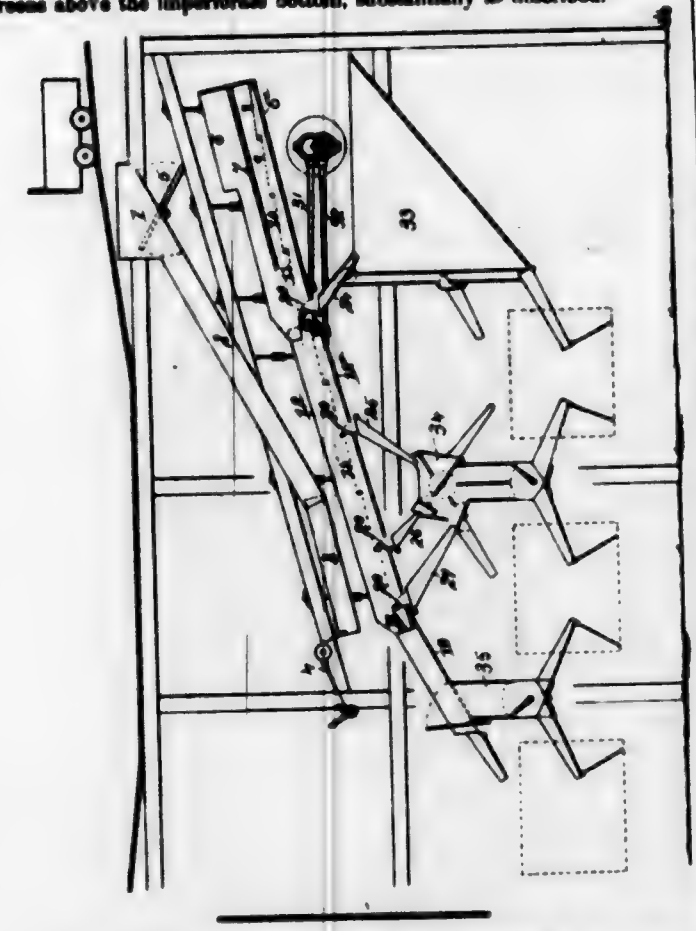
3. The combination in an apparatus for stretching wire mattresses including upper and lower sheets of fabric, of a main frame with fixed and movable supports upon the sides, between which the mattress is located, transverse bars secured to the supports and passing between the upper and lower sheets of fabric, and adapted to be brought in contact with the inner edges of the end bars of the mattress and having their ends detachably engaged with the supports, and means by which the movable supports and bar are retracted from the fixed ones.

693,019. COMBINED SCREEN AND CHUTE. GRANT HOLMES, Danville, Ill., assignor to Robert Holmes & Bros., Danville, Ill. Filed May 31, 1901. Serial No. 62,566. (No model.)

Claim.—1. In a combined screen and chute, the combination of a chute, a hopper for the upper end of the chute, a door in the bottom of the hopper swung between its ends on a transverse pivot, and a screen extending below the chute lengthwise thereof and comprising an imperforate bottom having closable openings at intervals and graded screens above the imperforate bottom, substantially as described.

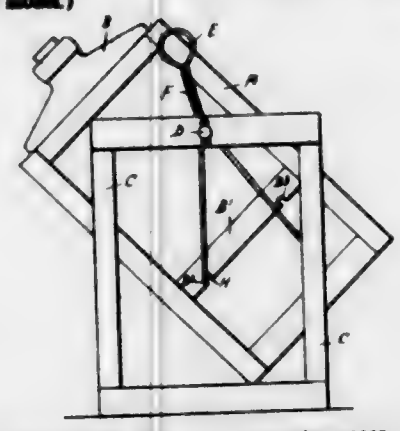
2. In a combined screen and chute, the combination of a chute having a lower section hinged to swing vertically, means for raising and lowering the hinged section, a hopper for the upper end of the chute, a door in the bottom of the hopper swung between its ends on a transverse pivot, and a screen extending below the chute lengthwise thereof and compris-

ing an imperforate bottom having closable openings at intervals and graded screens above the imperforate bottom, substantially as described.



698,020. SWINGING CRATE FOR BOTTLES OR CARBOYS.

ELBRIDGE G. HOWE, Millbury, Mass. Filed Aug. 16, 1900. Serial No. 27,022. (No model.)



Claim.—1. The combination of a supporting-case, or frame, C, a crate A adapted to be suspended in said case, gudgeons D, D, held by said case and suspension-hooks hung upon said gudgeons and engaging said crate upon opposite sides, the hooks on each side comprising a pair of independent hooks engaging the crate upon opposite sides of a vertical plane passing through the center of said gudgeons, substantially as described.

2. The combination with a case C, and a crate A suspended therein, of gudgeons D held by said case, hooks H, H', engaging said crate upon opposite sides and suspended upon said gudgeons, and handles E extending above said gudgeons, substantially as described.

3. The combination with a case C, having gudgeons D, and a crate A, of the suspension devices comprising handles E, curved sections G, G, adapted to spring over said gudgeons, D, D, and hooks H, H', substantially as described.

698,021. DOOR-CHECK.

JOHN HORNFELD, Chicago, Ill., assignor to E. Emma Hornfeld, Chicago, Ill. Filed Apr. 10, 1901. Serial No. 55,131. (No model.)



Claim.—1. The combination with a door or equivalent device, of a rod hinged thereto, having its free end flanged or capped, a tube having an apertured cap in which the step of said rod plays, and flanged or capped at its opposite end, a second tube having an apertured cap embracing the cylindrical portion of the last-mentioned tube, and being hinged at its farther end to a point of support or retention, and means to cushion the sections as the door is thrown fully open, substantially as described.

2. The combination with a door or equivalent device, of a rod hinged thereto having its free end flanged, a tube having an apertured cap in which the stem of said rod plays, and flanged at its opposite end, a second tube having an apertured cap embracing the cylindrical portion of the last-mentioned tube, and being hinged at its farther end to the door-frame or point of retention, and short sections of springs interposed between the various flanges and caps, substantially as described.

3. In combination with a door or equivalent device, a rod hinged thereto telescoping with tubular telescopic members, flanges and apertured ends on said rod and tubes to prevent their being drawn out of engagement, the outer tube being hinged to the door-frame, holes in said tubes to allow the free passage of air in and out thereof, and short sections of springs interposed between the said flanges and caps to cushion the sections as the door is swung to the limit of its throw, substantially as described.

698,022. VENTILATOR.

JOHN HORNFELD, Chicago, Ill., assignor to E. Emma Hornfeld, Chicago, Ill. Filed Jan. 18, 1901. Serial No. 43,808. (No model.)

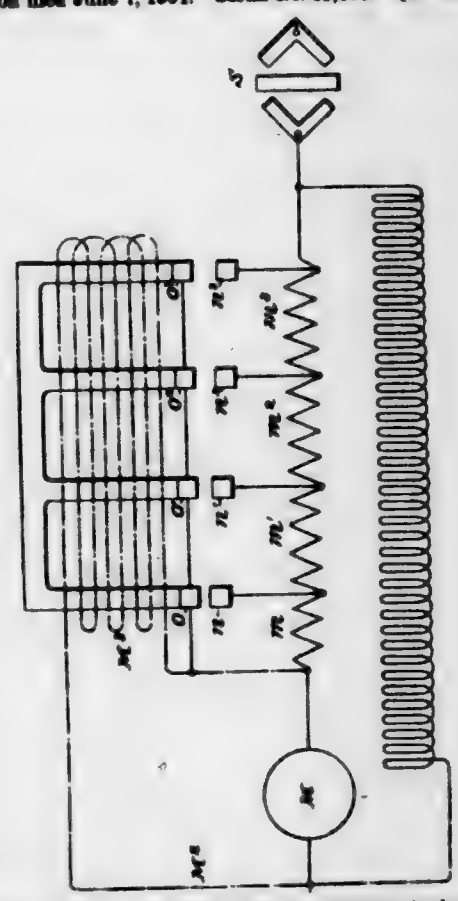


Claim.—1. In combination, a ventilating tubular member provided with lateral connecting-tubes, flanges on said lateral tubes, nipples adapted to engage the ends of said lateral tubes, short tubes with outwardly-closed ends inserted in the end of said ventilating-tube provided with lateral openings to register with the openings in the lateral tubes, screws or pins in said short tubes engaging with slots in said ventilating-tube substantially as described.

2. In combination, a perforated ventilating-tube, supply-tubes connected therewith furnishing communication with the outer air, a tube inserted in said ventilating-tube provided with lateral slots or perforations adapted to register with the perforations in said ventilating-tube and openings adapted to register with the openings into the supply-tubes, and means for rotating said inner tube substantially as described.

693,028. ELECTROMAGNETIC REGULATOR FOR ELECTRIC CURRENTS.

JOHN D. ILDER, Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J., a Corporation of New Jersey. Original application filed Apr. 17, 1900, Serial No. 13,260. Divided and this application filed June 7, 1901. Serial No. 63,631. (No model.)



Claim.—1. The combination with a translating device and sectional resistance, of a magnet having a series of cores, a circuit including the

magnet, and connections controlled by the armatures controlling the sectional resistance, substantially as described.

2. The combination with a translating device, and sectional resistance in circuit therewith, of a magnet having a series of cores, armatures connected with said sectional resistance, and a circuit connected with said translating device including the magnet, the armatures being arranged to be operated to control the sectional resistance according to variations of current in the magnet-coil, substantially as described.

3. The combination with the armature of a motor having a sectional armature-resistance, of a multiple magnet having a series of cores, a shunt-circuit around the armature embracing the cores, and a series of armatures connected to the sectional armature-resistance and arranged substantially as described so that the motor-armature resistance is cut in or out successively and progressively, substantially as described.

698,024. HOSE-COUPLING CLAMP. OLE IVERSEN, East Berkeley, Cal. Filed Apr. 19, 1901. Serial No. 56,614. (No model.)

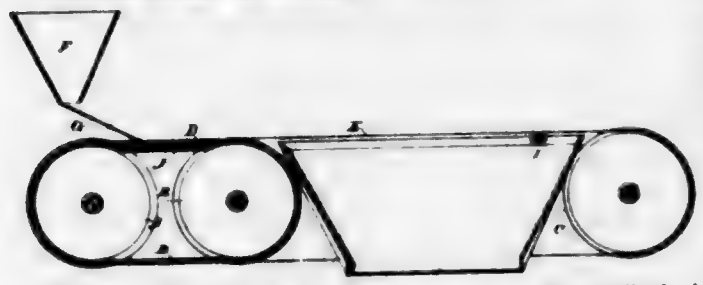


Claim.—1. In combination with a tubular rod to fit within the hose, a clamp adapted to fit upon the hose placed upon said tube, said clamp comprising externally-threaded sections which are disconnected from each other and also from the tube and are adjustable independently of each other and also of the said tube to occupy different positions longitudinally of said tube and a nut for compressing the sections onto the hose, substantially as described.

2. In combination, the tube B adapted to fit within the hose, a female member swiveled on the said tube B, a clamp composed of sections disconnected from each other and from the tube B and a nut for holding the clamping-sections, said clamping-sections being arranged about the smooth part of the tube B back of the swivel, substantially as described.

3. A hose-coupling clamp comprising a plurality of threaded and tapered members, adapted to be assembled so as to conjointly surround a hose, a superficial groove for weakening each member longitudinally, and a nut adapted to engage the threads of said members.

698,025. SEPARATOR. ROBERT W. JESSUP, San Francisco, Cal., assignor, by direct and mesne assignments, to Spiral Belt Separator Co., San Francisco, Cal., a Corporation of California. Filed Nov. 18, 1899. Serial No. 737,416. (No model.)



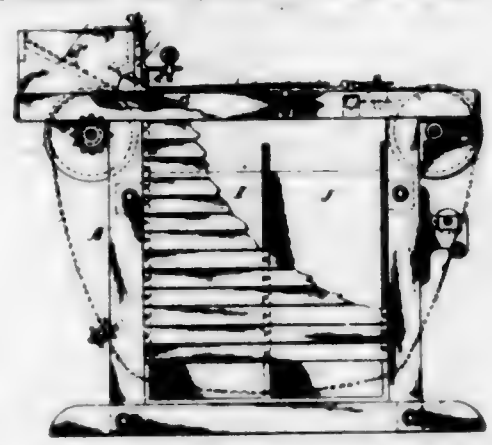
Claim.—1. A separator, comprising a traveling, substantially, horizontally disposed, flat screen, an imperforate bottom therefor, lying in contact therewith, and traveling, for a time, with said screen, means for feeding the material to the screen at a point where screen and bottom are together, and means for causing divergence of said screen and bottom.

2. A separator, comprising an endless traveling screen, mounted upon terminal rollers, an imperforate bottom in contact with said screen, and traveling, for a time, therewith, means for feeding the material to the screen at a point where screen and bottom are together, and means for causing divergence of said screen and bottom in the direction of the motion of the screen.

3. A separator, comprising an endless traveling screen, terminal rollers upon which said screen is mounted, an endless traveling imperforate bottom, under, and in contact with the screen, and mounted, at one end, upon one of the terminal rollers of, and directly beneath the endless screen, a roller intermediate the terminal rollers of the screen, upon which said intermediate roller the other end of the traveling bottom is mounted, whereby said bottom travels, for a time, with said screen, and diverges therefrom in the direction of the motion of the screen, and means for feeding the material to the screen at a point where screen and bottom are together.

4. A separator, comprising an endless traveling screen, terminal rollers upon which said screen is mounted, an endless traveling imperforate bottom, under, and in contact with the screen, and mounted, at one end, upon one of the terminal rollers of, and directly beneath the endless screen, a roller intermediate the terminal rollers of the screen, upon which said intermediate roller the other end of the traveling bottom is mounted, whereby said bottom travels, for a time, with said screen and diverges therefrom in the direction of the motion of the screen, a means for feeding the material to the screen at a point where screen and bottom are together, and a fixed table, to hold the imperforate bottom to the screen, for the time it travels therewith.

698,026. SEPARATOR. ROBERT W. JESSUP, San Francisco, Cal., assignor to Spiral Belt Separator Co., San Francisco, Cal., a Corporation of California. Filed Apr. 24, 1901. Serial No. 57,243. (No model.)



Claim.—1. In a separator, the combination of an endless, traveling, non-reciprocating, channeled screen, a table lying under and in contact with the screen at the place of feed of the material thereto, and thence extending, in such contact, for a portion of the functionally operative part of the screen, whereby the longer particles, entering the channels with the shorter particles are caused to lie down therein, bridging the openings of the screen, and are, thereby, carried by the screen, after the table is passed and the shorter particles have dropped through the screen, and an apron lying flat and directly upon the top surface of the screen beyond the place of feed, whereby the long particles are held in a recumbent position in said channels, to insure their being carried by the screen to their discharge.

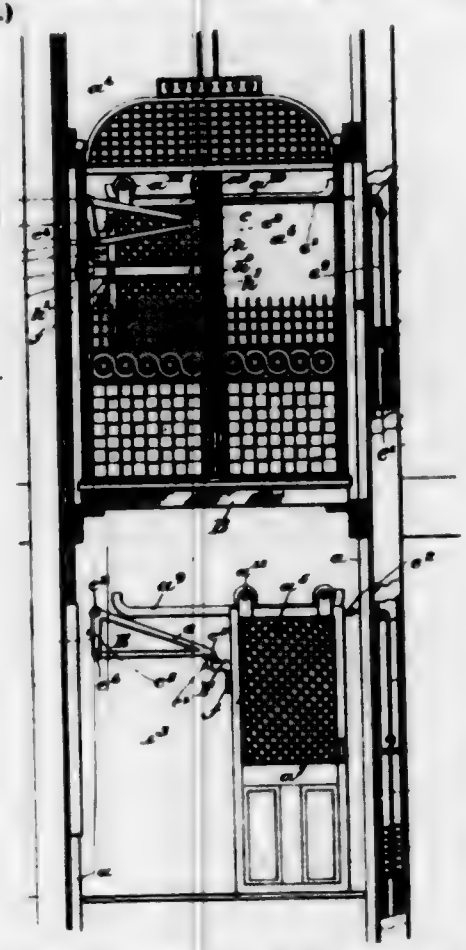
2. In a separator, the combination of an endless, traveling, non-reciprocating, channeled screen, a table lying under and in contact with the screen at the place of feed of the material thereto, and thence extending, in such contact, for a portion, of the functionally operative part of the screen, whereby the longer particles, entering the channels with the shorter particles are caused to lie down therein, bridging the openings of the screen, and are, thereby, carried by the screen, after the table is passed and the shorter particles have dropped through the screen, an apron lying flat and directly upon the top surface of the screen beyond the place of feed, whereby the long particles are held in a recumbent position in said channels, to insure their being carried by the screen to their discharge, and a means located at a point between the place of feed and the entrance to the apron, and so adjusted as to level the material to the plane of the top surface of the screen, whereby all the particles passing said leveling means must lie in the screen-channels.

3. In a separator, the combination of an endless, traveling, non-reciprocating, channeled screen, a table lying under and in contact with the screen at the place of feed of the material thereto, and thence extending, in such contact, for a portion of the functionally operative part of the screen, whereby the longer particles, entering the channels with the shorter particles are caused to lie down therein, bridging the openings of the screen, and are, thereby, carried by the screen, after the table is passed and the shorter particles have dropped through the screen, an apron lying flat and directly upon the top surface of the screen beyond the place of feed, whereby the long particles are held in a recumbent position in said channels, to insure their being carried by the screen to their discharge, and a gate located at a point between the feed and the entrance to the apron and so adjusted as to level the material to the plane of the top surface of the screen whereby all the particles passing said gate must lie in the screen-channels, the lower edge of said gate being beveled as described to cause particles too large to enter the channels to be guided laterally to a discharge.

4. In a separator, the combination of an endless, traveling, non-reciprocating, channeled screen, a table lying under and in contact with the screen at the place of feed of the material thereto, and thence extending, in such contact, for a portion of the functionally operative part of the screen, whereby the longer particles, entering the channels with the shorter particles are caused to lie down therein, bridging the openings of the screen, and are, thereby, carried by the screen, after the table is passed and the shorter particles have dropped through the screen, an apron lying flat and directly upon the top surface of the screen beyond the place of feed, whereby the long particles are held in a recumbent position in said

channels, to insure their being carried by the screen to their discharge, and a means located at a point between the place of feed and the entrance to the apron, and so adjusted as to level the material to the plane of the top surface of the screen, whereby all the particles passing said leveling means must lie in the screen-channels, said leveling means being disposed at an angle to the direction of travel of the screen, whereby particles too large to enter the channels are guided laterally to a discharge.

698,027. SAFETY ATTACHMENT FOR ELEVATORS. GEORGE F. JOYCE, Brookline, Mass. Filed Nov. 12, 1897. Serial No. 658,243. (No model.)



Claim.—1. The combination with an elevator-car and its shaft provided with a door, of locking means mounted on the shaft and arranged to lock said door in closed position; means tending constantly to close said door when open; means carried by the elevator-car to retract said locking means and permit opening movement of said door when said car is opposite the same; and means on the exterior of said car acting upon opening movement of said door to automatically and directly engage the latter and retain it in open position during the period of proximity of the car thereto, substantially as described.

2. The combination with an elevator-car and its shaft, the latter having a door; of devices mounted on said shaft and car respectively, to lock said door, the former acting in closed position, and the latter in open position, of said door; keeper devices mounted on said door and arranged to coöperate directly with said locking devices respectively; and means carried by said car to engage the locking device on said shaft and release said door at times, all operating substantially as and for the purpose set forth.

3. In an elevator, an elevator-shaft having a door, a car to traverse said shaft, means tending normally to close said door when open, locking devices on said shaft to hold said door closed, means on the car to automatically release the said locking devices when the car is in opposition to the door, a spring-catch on the exterior of the car, and a projection on said door to engage said catch when the door is open.

4. In an elevator, a car and its shaft, a series of doors leading to the shaft, a detent, and a coöperating keeper device for each door to hold the same in closed position, a cam device on said car to engage said detents successively when said car is in opposition to said doors respectively, to release the latter, a spring-catch carried by said car on its exterior, a projection carried by each door, said catch coöperating with the projections in similar succession to retain the doors in opened position, and a base forming a unitary structure with said cam device and catch to support the same on said car.

5. In an apparatus of the class described; a series of keeper devices, and a corresponding and coöperating series of locking devices; and a combined cam and spring-catch-bearing structure arranged to be carried past said series, to engage the same respectively in succession, the cam to control the operation of said locking devices, and the spring-catch to engage said keeper devices operatively, substantially as described.

6. In an elevator, an elevator-shaft having a door, a car to traverse said shaft, means tending normally to close said door when opened, a ratchet mounted on the door, a cushioned detent on the shaft and adapted to engage said ratchet to hold the door closed, means on the car to automatically release said detent from the ratchet when the car is in opposition to the door, and means on the exterior of the car acting upon the opening movement of said door to automatically and directly engage the latter to retain it in its open position during the period of proximity of the car thereto.

698,028. KEYLESS LOCK. EDWARD A. JUDD, New Britain, Conn., assignor to Corbin Cabinet Lock Company, New Britain, Conn., a Corporation of Connecticut. Filed July 17, 1901. Serial No. 68,622. (No model.)



Claim.—1. In a keyless lock in combination, a plurality of dials mounted one above the other adapted to move in unison, means for changing the relation of these dials with reference to one another, a plurality of tumblers mounted on the same axis with the dials, connections between one of said dials and one of said tumblers, and an indicator coöperating with the second dial and connected with the second tumbler.

2. In a keyless lock in combination, a plurality of dials mounted one above the other adapted to move in unison, means for changing the relation of these dials with respect to one another, a plurality of tumblers mounted on the same axis with the dials, connections between one of said dials and one of said tumblers, an indicator coöperating with the second dial and connected with the second tumbler, and means for changing the combination of either of said dials independently of the other.

3. In combination in a keyless lock, a bushing frictionally held in position in the frame, dials mounted on the outer end of said bushing, one of said dials being secured to said bushing, the other being loosely mounted thereon and connections between said dials to cause them to move together; a tumbler mounted on the inner end of said bushing and adapted to be moved by one of said dials, a knob carrying an indicator which cooperates with the second dial, a stem on said knob projecting through said bushing and a second tumbler secured to said stem, substantially as described.

4. In combination in a keyless lock a bushing mounted in the frame, dials mounted on the outer end of said bushing, one of said dials being secured thereto and the other being loose thereon, connections between said dials and means for changing the relative position of said dials with respect to each other; a notched tumbler mounted on the inner end of said bushing and keyed thereon, a knob carrying an indicator coöperating with the second dial, a stem on said knob extending through said bushing, a second notched tumbler mounted on said stem and means for connecting said tumbler with said stem and for changing the position of said tumbler with respect to said indicator, substantially as described.

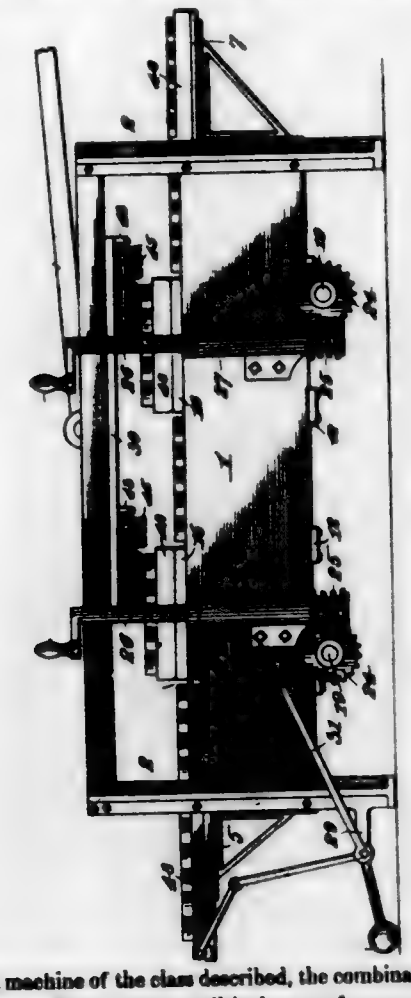
693,029. CAN-POLISHING MACHINE. FRITZ KAMMER, Highland, Ill. Filed Oct. 28, 1901. Serial No. 80,216. (No model.)

Claim.—1. In a machine of the class described, a framework over which can-carrying trays pass, means whereby the can-carrying trays are passed over said framework, means whereby a plurality of the can-carrying trays are simultaneously elevated during their passage over the framework, brush-holders arranged for reciprocation above the framework, and a plurality of brushes yieldingly held in the brush-holders, substantially as specified.

2. In a machine of the class described, a framework over which can-carrying trays pass, means whereby the can-carrying trays are elevated, means whereby the can-carrying trays are moved from one elevating means to the other, and reciprocating brushes operating above the framework, substantially as specified.

3. In a machine of the class described, a framework over which can-carrying trays pass, brushes reciprocating horizontally above the framework, means whereby the can-carrying trays are elevated to bring the ends of the cans into the path of travel of the brushes, and means whereby

the can-carrying trays are rigidly held while elevated, substantially as specified.



4. In a machine of the class described, the combination with a framework over which the cans to be polished pass, of means whereby the cans are moved over said framework, means whereby said cans are elevated at certain points during their passage over the framework, a brush-holder reciprocating above the framework, and a plurality of brushes yieldingly carried by said brush-holder, substantially as described.

5. In a machine of the class described, a framework over which the cans to be polished pass, means whereby the cans are moved over the framework, brush-holders arranged for reciprocation above the framework, and a plurality of brushes yieldingly held in the brush-holders, substantially as specified.

6. In a machine of the class described, a framework over which the cans to be polished pass, means whereby the cans are moved over the framework, means whereby the cans are elevated at certain points during their passage over the framework, means whereby the cans are rigidly held while in an elevated position, brush-holders reciprocating above the framework, and a plurality of brushes yieldingly held in said brush-holders, substantially as specified.

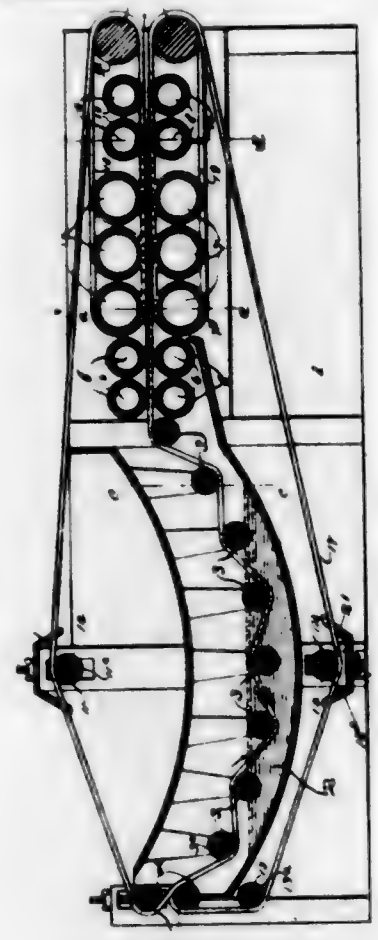
698,080. LAUNDRY-MACHINE. DANIEL W. KEITH, Keithville, La. Filed Oct. 6, 1900. Renewed Dec. 23, 1901. Serial No. 87,310. (No model.)

Claim.—1. In a laundry-machine of the class described, the combination of a starch-tank, starching-rollers therein, endless traveling carrier elements coacting with said starching-rollers, pressing-rollers beyond said starching-rollers and to which said endless traveling carrier elements lead, drying-rollers beyond said pressing-rollers, moistening-rollers beyond the said drying-rollers, said drying and moistening rollers being engaged by said carrier elements, and endless traveling fender elements engaging the opposing sides of said drying-rollers and disposed parallel to said endless traveling carrier elements, substantially as described.

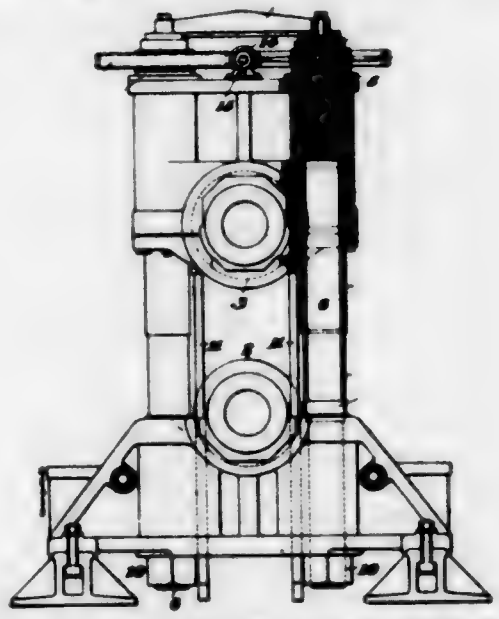
2. In a laundry-machine of the class described, the combination of a starch-tank, starching-rollers therein, endless traveling carrier elements coacting with said starching-rollers, pressing-rollers beyond said starching-rollers and to which said endless traveling carrier elements lead, drying-rollers beyond said pressing-rollers, moistening-rollers beyond said drying-rollers, said drying and moistening rollers being engaged by said endless traveling carrier elements, and scrapers for said endless traveling carrier elements, substantially as described.

3. In a laundry-machine of the class described the combination of a starch-tank, starching-rollers therein, endless traveling carrier-wires coacting with said starching-rollers, pressing-rollers beyond said starching-rollers, and to which said endless traveling carrier-wires lead, drying-rollers beyond said pressing-rollers and moistening-rollers beyond said drying-rollers, substantially as described.

4. In a laundry-machine of the class described, the combination of a starch-tank, starching-rollers therein, endless traveling carrier-wires coacting with said starching-rollers, pressing-rollers beyond said starching-rollers, drying-rollers beyond said pressing-rollers and moistening-rollers beyond said drying-rollers, said endless traveling carrier-wires engaging the said pressing, drying and moistening rollers and fender-wires traveling on said drying-rollers, the opposing leads of said fender-wires being disposed parallel to said carrier-wires, said carrier-wires and fender-wires projecting beyond the opposing surfaces of said drying-rollers to prevent the work from coming in direct contact with said drying-rollers, substantially as described.



698,081. ROLLING-MILL. JULIAN KENNEDY, Pittsburg, Pa. Filed Feb. 17, 1899. Serial No. 705,796. (No model.)



Claim.—1. A rolling-mill having housings, each having an upper part in the form of a cross-head, bearings for the upper roll supported on said cross-heads, bolts connecting the upper cross-head portions with the lower parts of the housings and forming the sole support for the upper roll, and adjusting mechanism for simultaneously adjusting the upper cross-heads and the roll carried thereby positively toward and from the lower roll; substantially as described.

2. A rolling-mill having end housings, each having a separated upper cross-head portion, bearings for the upper roll supported on said cross-heads, bolts extending through said cross-heads on each side of the roll-bearing and connected to the base portions of the housings, and adjust-

ing mechanism for simultaneously adjusting the upper cross-head portions and the upper roll carried thereby positively toward and from the lower roll; substantially as described.

3. A rolling-mill having end housings, each having an upper part in the form of a cross-head, bearings for the upper roll supported on said cross-heads, tension-bolts extending through said cross-heads and through the base portions of the housings, and constituting the entire connection between them, and adjusting mechanism, of which the bolts are members, arranged to simultaneously adjust the upper cross-head portions and the upper roll carried thereby positively toward and from the lower roll; substantially as described.

4. A rolling-mill having at each end, cross-head portions supporting the bearings for the upper roll, bolts extending through said cross-heads and secured to the housings for the lower roll, said bolts supporting the upper cross-heads, nuts rotatably connected with the cross-heads and engaging screw-threaded portions of said bolts above the cross-heads, and means for operating the nuts simultaneously, whereby the upper roll is moved positively toward or from the lower roll; substantially as described.

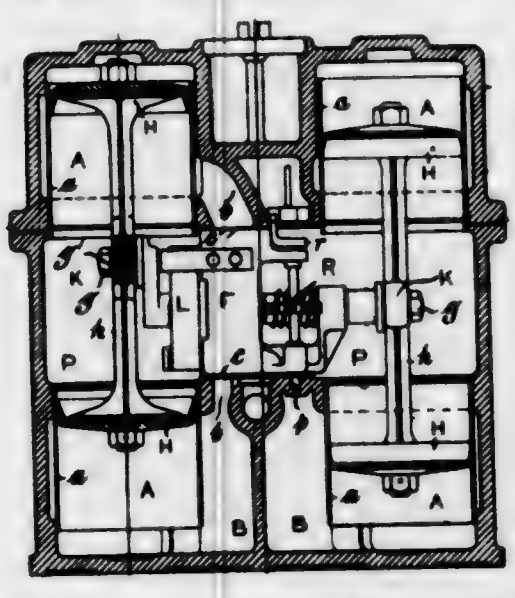
5. A rolling-mill having the upper part of each housing made of a separate cross-head supporting the upper-roll housing, with bolts extending through it on each side of the bearing and secured to the lower part of the housings, said bolts forming the sole support for the cross-heads and upper roll, nuts engaging the screw-threaded portions of the bolts and arranged to move the upper roll positively in both directions, gear connections for operating the nuts simultaneously, and mechanism for adjusting one end of the roll relatively to the other; substantially as described.

6. A rolling-mill having housings made in separate parts connected by bolts, said bolts forming the sole support for the upper roll, nuts engaging screw-threaded portions of the bolts, and worm-gear arranged to simultaneously operate the nuts and thereby adjust the upper parts of the housings; substantially as described.

7. A rolling-mill having housings made in separate parts connected by bolts, said bolts fixing the position of the upper roll both vertically and laterally, nuts engaging screw-threaded portions of the bolts, connected worm-gearing arranged to simultaneously operate the nuts and thereby adjust the upper parts of both housings, and mechanism for adjusting one end of the roll relatively to the other; substantially as described.

8. A rolling-mill having housings made in separate parts and connected by bolts, means for adjusting one part of the housing relatively to the other, and telescopic casing-sections surrounding and protecting the bolts between the housing portions; substantially as described.

693,032. LIQUID-METER. WALTER G. KENT, London, England. Filed Aug. 5, 1901. Serial No. 70,963. (No model.)

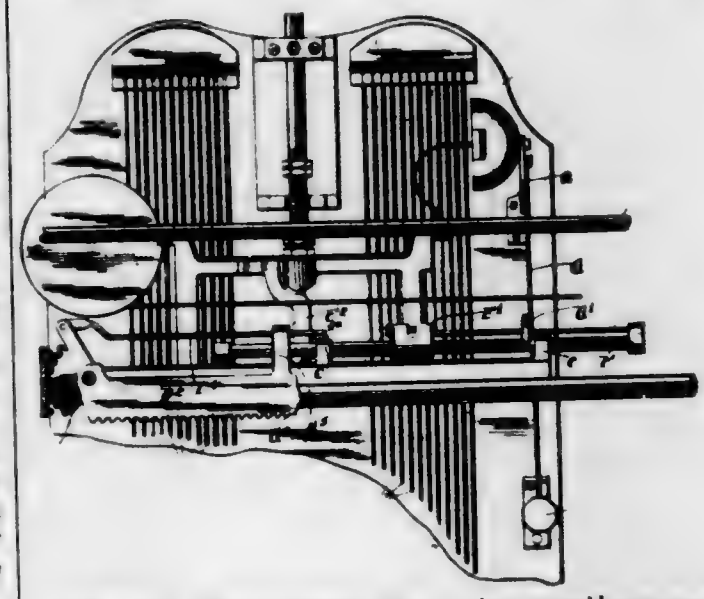


Claim.—1. A liquid-meter consisting of, in combination, reciprocating pistons in cylinders; a single joint dividing cylinders at a port-face; a central removable port-block uniting cylinder-ports to a single valve port-face; a valve fitted to operate over said valve-face; a pipe entry and exit to port-block situated in lower part of casing; and valve and piston driving connections passing through and connected with said port-block, adapted so as to allow all working parts and port-block to be removed, upon disconnecting the parts at the said single dividing-joint.

2. In a liquid-meter, in combination, four reciprocating pistons paired in couples; four cylinders in pairs, each pair adapted to receive one of the said paired pistons, placed parallel to one another; a two-throw crank-shaft, at right angles, connecting such paired pistons, having a bearing in a removable and central port-block, a valve thereon; and a single dividing-joint between upper and lower parts of cylinder-castings, situated so as to enable all working parts and said port-block and valve to be removed upon disconnecting the parts at said single joint.

3. In a liquid-meter, in combination, a removable port-block adapted to unite the ports of multiple cylinders with one port-face; a crank-shaft passing centrally through said port-block and having a bearing therein; an eccentric keyed upon said central shaft; an annular valve, having an annular pocket or recess therein toward port-face, and fitted to move freely about the periphery of the said eccentric; a dowel-pin adjustment to said port-block on port-face; and a jointed cover holding said port-block and shaft-bearing in place when bolted up.

693,033. TYPE-WRITING MACHINE. THERON L. KNAPP, Woodstock, Ill., assignor to the Oliver Typewriter Company, Chicago, Ill., a Corporation of Illinois. Filed July 24, 1901. Serial No. 69,473. (No model.)



Claim.—1. The combination with an endwise-movable paper-carriage and a frame supporting the same provided with guides for the carriage, of a margin-stop consisting of a rod mounted to rotate and slide endwise in said frame, a stop-arm on the rod for contact with the carriage and means for rotating said rod to swing the stop-arm out of the path of the carriage comprising a second rod arranged parallel with and rigidly attached to said rotative rod, and a key-lever having endwise-sliding connection with said second rod.

2. The combination with an endwise-movable paper-carriage and a frame supporting the same provided with guides for the carriage, of a margin-stop consisting of a rod mounted to slide endwise and rotate in said frame, a stop-arm on the rod adapted for contact with the carriage, and means for rotating said rod to swing the stop-arm out of the path of the carriage comprising a second rod arranged parallel with and rigidly attached to said rotative rod, a key-lever and a link connecting with said lever and said second rod, said link being connected with the second rod in a manner permitting the rod to slide endwise with respect to the link.

3. The combination with an endwise-movable paper-carriage and a frame supporting the same provided with guides for the carriage, of a margin-stop consisting of a rod mounted to slide endwise and rotate in said frame, a stop-arm on the rod adapted for contact with the carriage, and means for rotating said rod to swing the stop-arm out of the path of the carriage comprising parallel arms on said rotative rod, a second rod parallel with the rotative rod mounted in said arms, an oscillatory lever, and a link pivoted at its lower end to said lever and provided at its upper end with an aperture through which said second rod loosely passes.

4. The combination with an endwise-movable paper-carriage and a frame supporting the same provided with guides for the carriage, of a margin-stop consisting of a rod mounted to rotate and slide endwise in said frame, a stop-arm on the rod for contact with the carriage and means for rotating said rod to swing the stop-arm out of the path of the carriage, comprising a second rod arranged parallel with and rigidly attached to said rotative rod, a key-lever, a link connecting said lever with the second rod having endwise-sliding connection with the latter, and a spring against the action of which said lever is depressed, said spring returning said arm into the path of the carriage when pressure on the lever is released.

5. The combination with an endwise-movable paper-carriage and a frame supporting the same provided with guides for the carriage, of a rod mounted to rotate in said frame, a stop-arm on the rod adapted for contact with a stop-lug on the carriage, a key-lever connected with the rod and adapted to rotate said rod to swing said stop-arm out of the path of said lug, a rotative platen on the carriage, a ratchet-wheel on the platen-shaft, an oscillatory gear-segment mounted concentrically with respect to

the platen-shaft, a second oscillatory gear-segment mounted on the carriage and having intermeshing engagement with the first gear-segment, means for connecting said first gear-segment with the ratchet-wheel to rotate the latter when the gear-segment is oscillated, and an endwise-movable rod attached at one end to said second gear-segment and having sliding engagement with said lug and adapted for contact with said stop-arm in advance of the lug.

6. The combination with an endwise-movable paper-carriage and a frame supporting the same provided with guides for the carriage, of a rod mounted to rotate in said frame, a stop-arm on the rod adapted for contact with a stop-lug on the carriage, a key-lever connected with said rod and adapted to rotate the same to swing said stop-arm out of the path of said lug, a rotative platen on the carriage, a ratchet-wheel on the platen-shaft, an oscillatory, endwise-movable, spring-actuated, actuating-arm, a sliding knob on the platen-shaft by which the actuating-arm is given endwise movement, an oscillatory gear-segment mounted concentrically with respect to the platen-shaft, and with which the actuating-arm has endwise-sliding engagement, a second oscillatory gear-segment mounted on the carriage and intermeshing with the first gear-segment, and an endwise-movable rod attached to said gear-segment and having sliding engagement with said lug and adapted for contact with said stop-arm in advance of the lug to oscillate the second gear-segment.

7. The combination with a carriage and a platen, of two presser-rollers acting to press the paper against the platen, a floating frame embracing two end bars in which said rollers are journaled, said end bars being loosely connected with the carriage, springs applied to said end bars to press said end bars toward the platen, and means acting on both of said end bars to throw said rollers away from the platen.

8. The combination with a carriage and a platen, of two presser-rollers acting to press the paper against the platen, a frame in which said rollers are mounted, said frame being loosely connected at its ends with the carriage, springs applied to press said frame toward the platen, a horizontally-arranged actuating-shaft mounted on the carriage, and operative connections between said shaft and both ends of the said frame constructed to throw the frame away from the platen when the shaft is turned.

9. The combination with a carriage and a platen, of two presser-rollers acting to press the paper against the platen, a frame in which said rollers are mounted, said frame being loosely connected at its ends with the carriage, springs applied to press the said frame toward the platen, a longitudinally-arranged actuating-shaft provided with eccentrics, and push-bars at the ends of the carriage which are engaged with said eccentrics and act on the ends of said frame.

10. The combination with a carriage and a platen, of two presser-rollers, a floating frame embracing two end bars in which the said rollers are journaled, and a longitudinal bar connecting said end bars, said frame having sliding connection at its ends with the carriage enabling it to move toward and from the platen, a longitudinally-arranged actuating-shaft provided with eccentrics and push-bars which engage the eccentrics and act against both ends of said floating frame.

11. The combination with a carriage and a platen, of a presser-roller located below the platen and held by spring-pressure in contact therewith, two presser-rollers located between said first-mentioned roller and the printing-line, a floating frame embracing two end bars in which the two last-mentioned rollers are mounted, springs acting on said end bars to hold the two last-mentioned rollers against the platen, and means for simultaneously moving all of said rollers away from the platen embracing parts which act on both ends of said lower roller and on both of said end bars of the floating frame.

12. The combination with a carriage and a platen, of a presser-roller located below the platen, spring-arms attached to the cariage upon the free end of which said roller is mounted, two rollers for holding the paper against the platen as it approaches the striking-point of the type, a floating frame in which said two rollers are mounted, a rock-shaft mounted in the carriage above said spring-arms and provided with cam projections which act upon the spring-arms to depress the lower roller away from the platen, and endwise-movable push-bars which are acted upon by said rock-shaft to throw said floating frame and the rollers carried thereby away from the platen when the latter is rocked to depress the lower roller.

13. The combination with a paper-carriage and a platen mounted therein, of two presser-rollers for holding the paper against the platen as it approaches the striking-point of the type, a floating frame for supporting said rollers embracing two end bars in which the rollers are journaled, a rock-shaft mounted in the carriage, two endwise-movable push-bars actuated by said rock-shaft and engaging the ends of the floating frame to move the latter and the rollers carried thereby away from the platen when the shaft is rotated.

14. The combination with a paper-carriage provided with end plates and a platen mounted thereon, of two presser-rollers for holding the paper against the platen as it approaches the striking-point of the type, a floating frame for supporting said rollers, embracing two end bars in which the rollers are journaled, a rock-shaft mounted in the end plates of the carriage and provided with eccentrics and endwise-movable push-bars mounted on said carriage end plates engaging said eccentrics, said push-bars being adapted to act at their outer ends against the ends of the floating frame.

15. The combination with a carriage having end plates and a platen, of two presser-rollers, a floating frame embracing two end bars in which the rollers are journaled and a longitudinal bar connecting said end bars, said frame being movably supported on the carriage by means of slots in the end plates thereof and outwardly-projecting pins on said end bars which engage said slots, and springs applied to throw said frame toward the platen.

16. The combination with a paper-carriage and a platen mounted therein, of two presser-rollers for holding the paper against the platen as it approaches the striking-point of the type, a floating frame, embracing end bars and a longitudinal bar connecting said end bars, said rollers being journaled in said end bars and a guide-plate attached to said frame between said rollers, pivotal and sliding connection between the ends of the floating frame and the carriage and springs attached to the carriage and bearing against said frame to press the rollers against the platen.

17. The combination with a paper-carriage provided with end plates and a platen mounted therein, of two presser-rollers for holding the paper against the platen as it approaches the striking-point of the type, a floating frame embracing end bars in which the rollers are journaled, and a longitudinal bar connecting said end bars being provided with outwardly-extending pins which engage slots in the end plates of the carriage and afford pivotal and sliding connection of the floating frame with the carriage.

18. The combination with a paper-carriage and a rotative platen thereon, of an automatic line-spacing mechanism comprising a radial arm which is adapted to be locked to the platen to rotate with the same, a spring-pressed stop plate which has sliding and pivotal movement on the carriage-frame and is provided with a stop-arm which limits the throw of said radial arm, said stop plate being provided with a plurality of notches or recesses which are severally adapted for engagement with a stationary stop-pin on the carriage-frame, whereby the throw of the radial arm may be varied.

19. The combination with a paper-carriage and a rotative platen thereon, of an automatic line-spacing mechanism comprising a radial arm which is adapted to be locked to the platen to rotate with the same, a stop-plate provided with a slot through which the platen-shaft passes and with a stop-arm which limits the throw of said radial arm, said stop-plate being provided on its end margin with a plurality of notches adapted to engage a stationary stop-pin on the carriage, and a spring for yieldingly holding said plate engaged with said stop-pin.

20. The combination with a paper-carriage and a revolving platen thereon, of an automatic line-spacing mechanism comprising a ratchet-wheel on the platen-shaft, an oscillatory, endwise-movable, platen-actuating arm, a sliding knob on said shaft by which the actuating-arm is given movement, an oscillatory gear-segment mounted concentrically on the platen-shaft and with which said actuating-arm has endwise-sliding engagement, a second oscillatory gear-segment mounted on the carriage and intermeshing with the gear-segment first mentioned, means acting on said second gear segment in the endwise movement of the carriage, operating to turn the gear-segments and a spring-pressed stop-plate which has sliding and pivotal connection with the carriage and is provided with a stop-arm which limits the throw of said first-mentioned gear-segment, said stop-plate being provided with a plurality of notches or recesses which are severally adapted for engagement with a stationary stop-pin on the carriage, whereby the throw of said first-mentioned gear-segment may be varied.

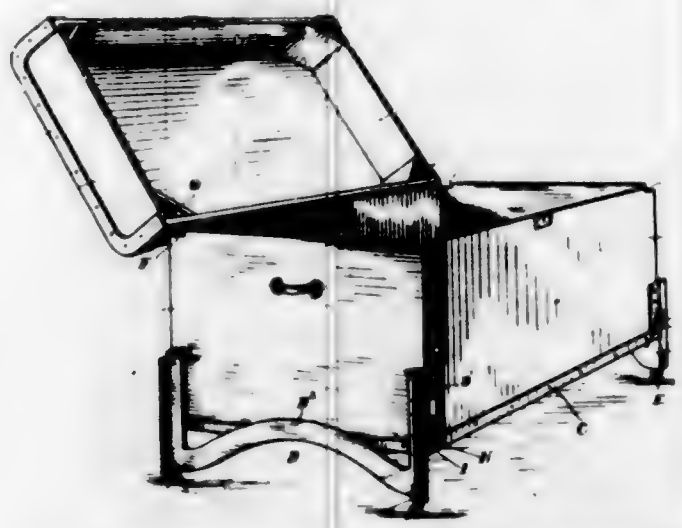
693,084. CASTER-SUPPORT FOR TRUNKS. CHARLES H. KUEL, Detroit, Mich. Filed June 8, 1901. Serial No. 63,725. (No model.)

Claim.—1. In a caster-support for trunks, in combination with a trunk having a cover provided with recesses, legs hinged to the ends of said trunk at one end, casters secured to the opposite ends of said legs, said legs being adapted to be turned upward to engage said casters with said recesses in the cover and hold said legs in the upturned position, and means for locking the legs in the position for supporting the trunk.

2. A caster-support for trunks, consisting of legs adapted to be hinged at one end to the ends of a trunk and extended laterally at their opposite ends, and casters secured to the laterally-projecting portions of said legs, said legs being adapted to be turned downward to support the trunk and to be turned upward to bring said casters beneath the trunk-cover.

3. A support for trunks, consisting of legs formed of angle-iron, a web extending across the inner angle of each of said legs at one of its ends, hinges in the opposite ends of said legs to allow the legs to be turned down to support the trunk and to be turned up to engage the corners of the trunk, and means for holding the legs in the position for supporting the trunk.

4. In a caster-support for trunks, in combination with a trunk having portions cut away at its upper corners, and a cover, a supporting-frame hinged to each end of said trunk consisting of legs formed of angle-iron and connected by a bar, a web extending across the inner angle of each leg near its end, casters secured to said webs, and means for securing the legs in the position for supporting the trunk.



5. In a caster-support for trunks, in combination with a trunk-body having portions cut away at its upper corners, and a cover having recesses at its corners, angle-irons secured over the corners of the trunk-body, each of said angle-irons formed with one member of a hinge in its upper end, supporting-frames consisting of leg portions formed of angle-iron with an opposing hinge member at one end and a web at the opposite end and extending across its inner angle, and a bar connecting said legs, casters on said webs and means for holding said supporting-frames in the position for supporting the trunk.

693,035. PROCESS OF THE ELECTROLYTIC MANUFACTURE OF CHLORATES AND PERCHLORATES. PIERRE L. E. LEDERLIN, Cheddo, France. Filed July 19, 1901. Serial No. 68,962. (No specimens.)

Claim.—1. The process of electrolytically producing substances the yield of which is increased by the addition of chromic acid in suitable form to the solution to be electrolyzed, said process consisting in adding chromic acid in suitable form to a solution capable of yielding the desired substance, passing an electric current from an anode to a cathode through the liquid thus formed, and constantly maintaining the greater part of the chromic acid in the electrolyte in the state of bichromate during passage of the current.

2. The process of electrolytically producing substances the yield of which is increased by the addition of chromic acid in suitable form to the solution to be electrolyzed, said process consisting in adding chromic acid in suitable form to a solution capable of yielding the desired substance, passing an electric current from an anode to a cathode through the liquid thus formed, and adding a suitable mineral acid to the electrolyte to constantly maintain the greater part of the chromic acid in the electrolyte in the state of bichromate during passage of the current.

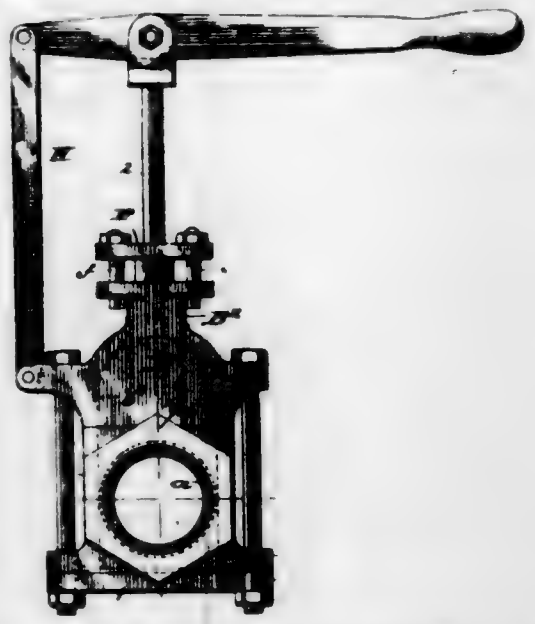
3. The process of producing chlorates or perchlorates from a solution capable of yielding the same, consisting in adding chromic acid in suitable form to said solution, passing an electric current from an anode to a cathode through the liquid thus formed, and constantly maintaining the greater part of the chromic acid in the state of bichromate during passage of the electric current.

4. The process of producing chlorates or perchlorates from a solution capable of yielding the same, consisting in adding chromic acid in suitable form to said solution, passing an electric current from an anode to a cathode through the liquid thus formed, and adding a suitable mineral acid to the electrolyte to constantly maintain the greater part of the chromic acid in the electrolyte in the state of bichromate during passage of the current.

5. The process of producing chlorates or perchlorates from a solution capable of yielding the same, consisting in adding chromic acid in suitable form to said solution, passing an electric current from an anode to a cathode through the liquid thus formed, and adding hydrochloric acid to the electrolyte to maintain the greater part of the chromic acid in the electrolyte in the state of bichromate during passage of the current.

6. The process of producing highly-soluble chlorates or perchlorates from a solution capable of yielding the same, consisting in adding chromic acid in suitable form to said solution, passing an electric current from an anode to a cathode through the liquid thus formed, constantly maintaining the greater part of the chromic acid in the state of bichromate during passage of the electric current and then cooling the electrolyzed liquor to deposit the chlorates or perchlorates in crystalline form.

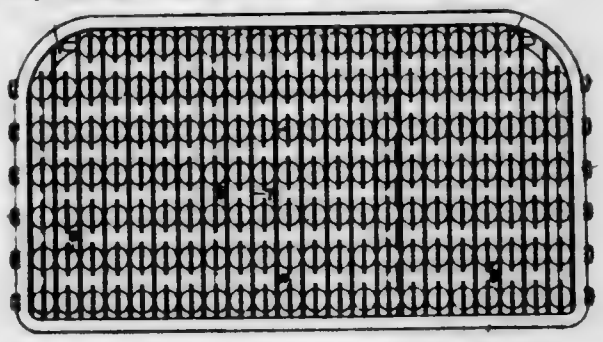
693,086. GATE-VALVE. DAVID LESLEY, New Orleans, La. Filed Mar. 16, 1901. Serial No. 51,447. (No model.)



Claim.—1. In a sliding gate-valve the combination of a casing composed of an upper and lower section each of which having perforated lugs extending laterally therefrom, the said lower section having a recess formed in its upper surface and adapted to receive the lower end of the upper section, the said lower section also having a recess in its lower end, a plate for closing said recess, bolts for locking the said sections of the casing and plate together and a valve adapted to operate in the said casing, substantially as shown and described.

2. In a sliding gate-valve the combination of a casing composed of two sections each of which having perforated lugs extending laterally therefrom, one of said lugs upon the upper section being bifurcated, a supporting-rod pivoted to the said bifurcated lug, a lever connected to the said rod, and adapted to be connected to a valve operating within the said casing, a plate connected to the lower casing, and bolts engaging said lugs and plate, substantially as shown and described.

693,037. STEP. CHARLES H. LEMON, Milwaukee, Wis. Filed July 17, 1901. Serial No. 68,595. (No model.)



Claim.—1. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing blocks or washers between the plates, and means for securing the plates and the spacing-blocks together.

2. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing blocks or washers between the plates, and arranged on a plane below the upper edges of the plates, and means for securing the plates and the spacing-blocks together.

3. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, the upper edges of said plates being roughened or serrated, spacing blocks or washers between the plates, and means for securing the plates and the spacing-blocks together.

4. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing blocks or washers between the plates, said blocks or washers being of circular form, and means for securing the plates and washers together.

5. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing-blocks be-

tween the plates, and tie-rods passing through registering openings in the plates and blocks, and having their ends secured to the frame.

6. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing-blocks between the plates, and means for adjustably clamping said plates and spacing-blocks together.

7. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing-blocks between the plates, tie-rods passing through registering openings in the plates and blocks, and having their ends passing through the frame, and nuts on the threaded extremities of the rods and providing a means for adjustably clamping the plates and interposed spacing-blocks together.

8. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing-blocks between the plates, means for securing the plates and the washers together, and filling-pieces extending above the spacing-blocks, and narrowing the spaces between two of the plates.

9. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, turnable spacing-blocks between the plates, and means for holding the plates and spacing-blocks together.

10. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing blocks or washers between the plates, and tie-rods passing through registering openings in the plates and blocks, and having their extremities secured to the frame, the spacing-blocks being mounted on the rods so as to be capable of turning thereon.

11. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, spacing blocks or washers between the plates, said blocks or washers being of circular form and provided each with a flange projecting outwardly therefrom and narrowing the space between two of the plates, and means for securing the plates and the spacing-blocks together.

12. In a step, the combination of a frame provided upon opposite inner sides with inwardly-extending horizontal flanges, flat plates or strips having their ends resting upon the opposite flanges, turnable spacing blocks or washers between the plates and provided thereabout with a projecting flange, said flange being disposed on a vertical plane and narrowing the space between two of the plates, and means for securing the plates and the spacing-blocks together.

698,038. ELECTRIC ELEVATOR. NILS O. LUNDSTROM, New York, N. Y., assignor to Alonzo B. See and Walter L. Tyler, Brooklyn, N. Y. Filed Nov. 9, 1901. Serial No. 81,665. (No model.)

Claim.—1. In an electric elevator, an actuating-machine having two armature-circuits acting in opposition to each other, in combination with means in the elevator-car for controlling the current in each circuit.

2. In an electric elevator, an actuating-machine having two armature-circuits acting in opposition to each other, a rheostat in each circuit and means for simultaneously throwing one rheostat out of its circuit and the other into its circuit, substantially as described.

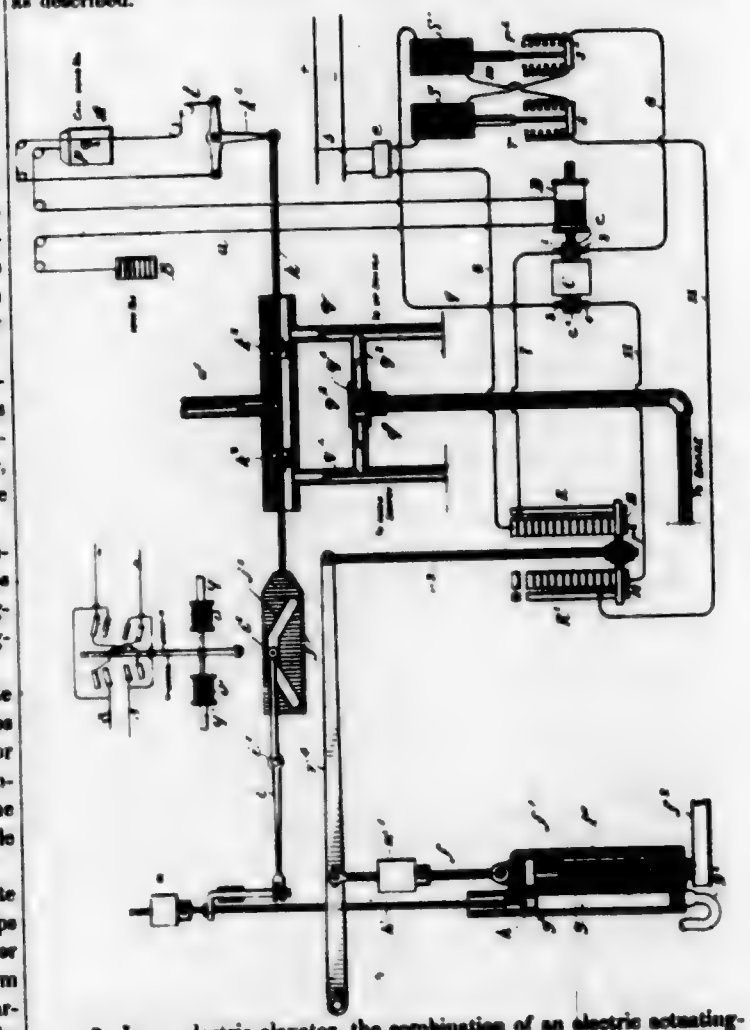
3. In an electric elevator, an actuating-machine having two armature-circuits acting in opposition to each other, a rheostat in each circuit and means in the elevator-car for simultaneously throwing one rheostat out of its circuit and the other into its circuit, substantially as described.

4. In an electric elevator, an actuating-machine having a main working circuit and a second circuit in which a current is generated by the rotation of the machine, in combination with means in the elevator-car for controlling the current generated in the second circuit, substantially as described.

5. In an electric elevator, an actuating-machine having two armature-circuits acting in opposition to each other, a rheostat for each circuit and means whereby current flowing in one circuit will throw one of the rheostats into the other circuit, substantially as described.

6. In an electric elevator, an actuating-machine having two armature-circuits acting in opposition to each other, a rheostat for each circuit and means whereby current flowing in one circuit will throw one of the rheostats into the other circuit, in combination with a second resistance for each circuit under control from the elevator-car.

7. In an electric elevator, an actuating-machine having two armature-circuits acting in opposition to each other, a rheostat for each circuit and means whereby current flowing in one circuit will throw one of the rheostats into the other circuit, in combination with a second resistance for each circuit, and means in the elevator-car for simultaneously cutting out one of the second resistances and cutting in the other, substantially as described.



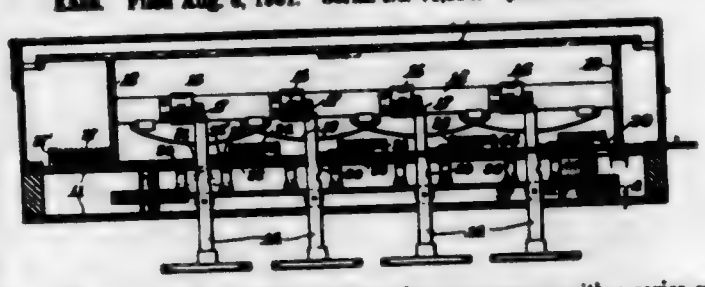
8. In an electric elevator, the combination of an electric actuating-machine, a controlling-rheostat therefor, a fluid-motor adapted to actuate the rheostat, a valve for the motor actuated from the elevator-car, and means whereby the stroke of the motor will correspond to the stroke of the valve.

9. In an electric elevator, the combination of a fluid-motor, a valve therefor having a movement variable at will from the elevator-car, a movable part of said motor having a stroke equal and corresponding to that of the valve, a rheostat for an actuating-machine controlled by said motor, and an actuating-machine, substantially as described.

10. In an electric elevator, an actuating-machine having two armature-circuits acting in opposition to each other, a rheostat for each circuit, and an electromagnet in each circuit controlling the rheostat for the other circuit.

11. In an electric elevator, the combination of the car, a counterweight overbalancing the car, an actuating-machine having a main circuit and a local short circuit opposing the main circuit, resistances in each circuit and means for controlling the resistances from the car, substantially as described.

698,089. VOTING-MACHINE. LAWRENCE W. LUELLEN, Olathe, Kans. Filed Aug. 8, 1901. Serial No. 71,337. (No model.)



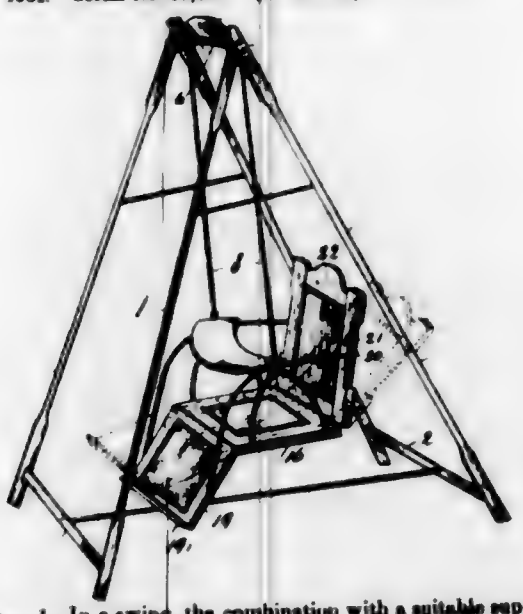
Claim.—1. In a voting-machine, the combination with a series of keys, of a flexible member coöperating with all the keys of the series, and supports for the member at the ends of the series one of which is adjustable to vary the effective length of the member.

2. In a voting-machine, the combination with a series of keys, of a flexible member coöperating with all the keys of the series, supports for the member at the ends of the series one of which supports is movable, and an adjustable projection carried by the movable support adapted to enter a groove in a relatively stationary element.

3. In a voting-machine, the combination with a series of keys, of a flexible member coöperating with all the keys of the series, and supports for the member at the ends of the series one of which supports is rota-

table, and a screw adapted to enter one of a plurality of openings in the support and a groove in a relatively stationary element.

698,040. SWING. WILLIAM MERKER, New York, N. Y. Filed June 8, 1901. Serial No. 63,677. (No model.)



Claim.—1. In a swing, the combination with a suitable supporting-frame, of a chair-seat having an adjustable back and an adjustable leg-rest, slide-rods secured to either side of the adjustable back of the chair, supporting-rods secured at the top to the supporting-frame and at the bottom to the chair-seat, side-adjusting rods secured to the slide-rods of the chair-back so as to slide up and down thereon, and secured at the other end to the leg-rest by a pivotal connection, and means for adjustably locking the side rods to the supporting-rods, substantially as shown and described.

2. In a swing, the combination with a suitable supporting-frame, a chair-seat, supporting rods pivotally supported at the top in the frame having bifurcated lower ends secured to the chair-seat, a leg-rest hinged to the seat, a back hinged to the seat, a slide-rod on either side of the back, a securing-rod on either side of the seat, slidingly secured upon the slide-rod and pivoted at the other end to the leg-rest passing through the supporting-rods just above the point of bifurcation, and a set-screw for securing the securing-rods carried by the supporting-rods, substantially as shown and described.

3. In an adjustable chair, the combination with a seat of a leg-rest and a back hinged thereto at the front and rear, slide-rods located on either side of the back, securing-rods pivotally secured at one end to the leg-rest through the other end of which one of the slide-rods passes, a coupling or boss having a passage through which the securing-rod passes, and a downwardly-extending bifurcation secured to the chair-seat on either side, and a set-screw in the coupling or boss for locking the securing-rods against movement therein and means for supporting said coupling or boss, substantially as shown and described.

698,041. ELECTRIC-ARC LAMP. SVEND M. MEYER, Brooklyn, N. Y., assignor of one-half to Frank C. Kohart, Brooklyn, N. Y. Filed Mar. 12, 1901. Serial No. 50,795. (No model.)

Claim.—1. In an electric-arc lamp having a coil in the circuit of the carbons, a core in said coil, a carbon-holder connected to said core, and a magnetic clutch energized by said coil and engaging said core to control the movement of the carbon-holder.

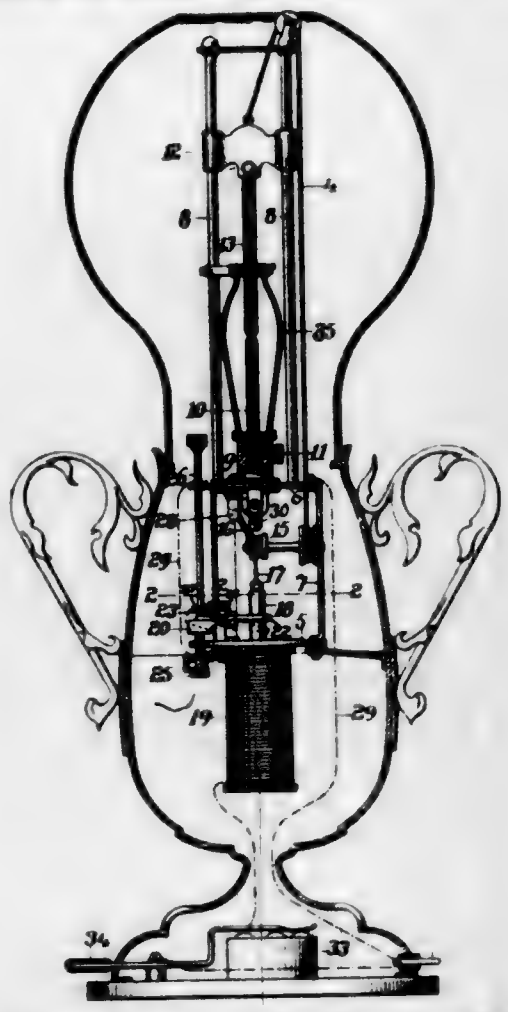
2. An electric-arc lamp having a coil in the circuit of the carbon, a movable core in said coil and connected to one of the carbon-holders, and a magnetic clutch grasping said core and controlling the movement thereof.

3. An electric-arc lamp having a coil in the circuit of the carbon, a movable core in said coil and connected to one of the carbon-holders, a magnetic clutch engaging said core and actuated by said coil to control the feeding of the carbons.

4. In an electric-arc lamp, a coil in the circuit of the carbons, a magnetizable core in said coil connected to a movable carbon-holder, and a clutch consisting of pivoted magnetic members attracted to the core through the action of said coil and grasping it to regulate the feed of the carbons.

5. In an electric-arc lamp, a coil in the circuit of the carbons, a core of low magnetic quality suspended in said coil connected to a movable carbon-holder, and a tilting clutch having pivoted iron jaws for engaging said core to regulate the feed, said core being magnetized by current in said coil to attract said jaws for the purpose set forth.

6. In an electric-arc lamp, a solenoid having a movable core connected to a movable carbon and a magnetically-actuated feeding-clutch for engaging said core and controlling the feed.



7. In an electric-arc lamp, a solenoid having a movable core connected to a movable carbon, a tilting platform, clutch members of soft iron pivoted thereon, and a spring tending to hold the clutch open, said clutch being attracted into engagement with the core when the solenoid is energized.

8. In an electric-arc lamp, a feeding mechanism consisting of a solenoid having a movable core and a tilting clutch magnetically actuated to engage said core and controlling the movement thereof, the magnetic influence arising from the current in the solenoid.

9. The combination with the movable carbon-holder, of the solenoid, the movable core of the solenoid, the tilting platform, the pivoted clutch members thereon for engaging said core, means for regulating the movement of the platform, and means for adjusting the distance of the clutch members from the core, for the purpose set forth.

10. The combination with the movable carbon-holder, of the differential pulley, the solenoid, the movable core of the solenoid, the flexible connection between the core and pulley and carbon-holder, and the magnetic clutch for engaging said core.

11. The combination of an ornamental casing provided with a base for supporting it, a rheostat in said base, circuit-terminal contacts protruding from the base, an arc-lamp frame supported in said casing and insulated therefrom, a globe inclosing the upper part of said frame and the arc-producing parts and supported on the casing, and a removable flexible connection for attachment to said terminals, for the purpose set forth.

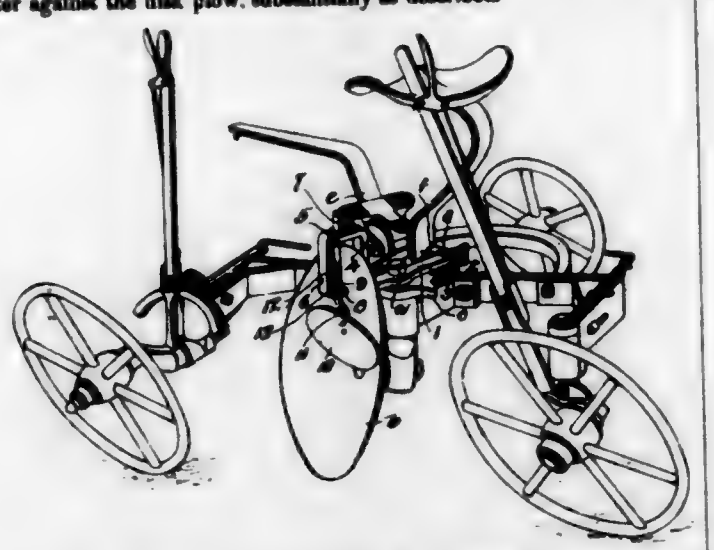
698,042. SCRAPER FOR REVERSIBLE-DISK PLOWS. WILLIAM B. MICHAEL, Chattanooga, Tenn. Filed Nov. 27, 1901. Serial No. 83,823. (No model.)

Claim.—1. In combination with a disk plow and means for reversing the same, a pivoted arm connected to and automatically operated by the plow-reversing means, and a scraper carried by said pivoted arm, substantially as described.

2. In combination with a disk plow and means for reversing the same, a pivoted arm, connected to and automatically operated by the plow-reversing means, a scraper bearing on the disk plow and a yielding connection between said scraper and said pivoted arm, substantially as described.

3. In combination with a disk plow and means for reversing the same, a pivoted arm connected to and automatically operated by the plow-reversing means, said arm having a depending spring-arm at its outer end, a scraper having a spindle journaled in a bearing in said pivoted arm and

connected to said depending spring-arm, and a spring carried by said spring-arm, and bearing inwardly against said spindle of the scraper to press the latter against the disk plow, substantially as described.



4. In a plow of the class described, the combination of a plow-disk, a reversing-spindle carrying the same, a reversible draft element, a gear on said reversing-spindle, a pinion connected to and actuated by said reversing draft element and engaging said gear, an arm pivoted on said spindle, a connection between said arm and said pinion whereby said arm is reversed simultaneously with the plow-disk by said pinion and a scraper for said plow-disk and carried by said arm, substantially as described.

5. In a plow of the class described, the combination of a plow-disk, means to reverse the same, a scraper for the plow-disk, and an arm carrying the scraper, said arm being connected to and automatically operated by said disk-reversing means, substantially as described.

693,048. **FLY-FINGER FOR PRINTING-PRESSES.** ROBERT MIEHLE, Chicago, Ill. Filed June 15, 1901. Serial No. 64,633. (No model.)



Claim.—1. The combination with a fly-finger of a sandpaper cover, and springs acting to hold the cover by pressure upon its ends, substantially as specified.

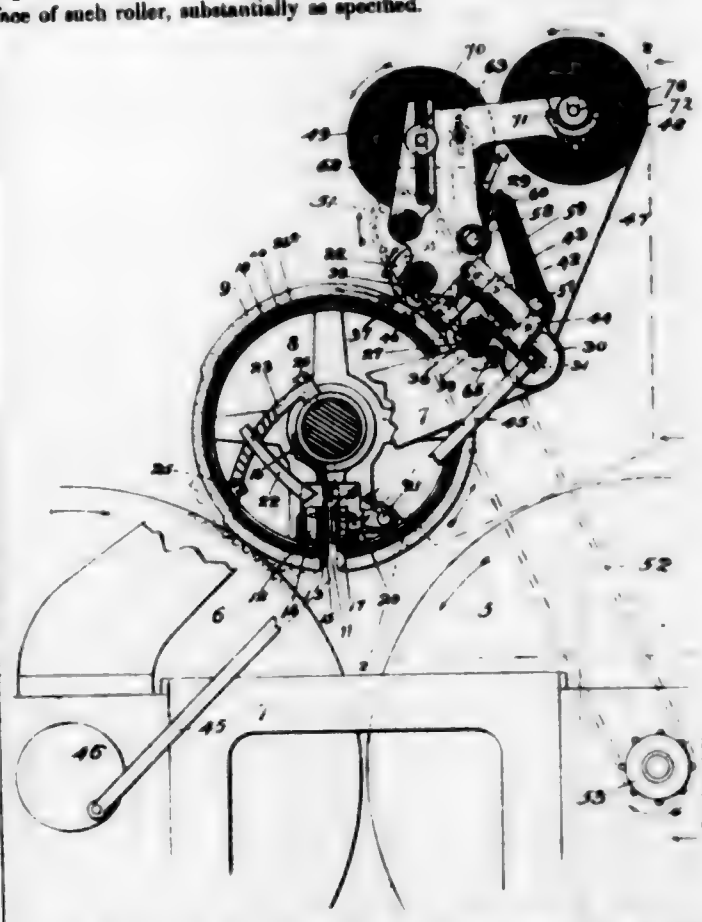
2. The combination with a fly-finger and its sandpaper cover, of friction-springs having their ends bent and serrated, and acting to hold the cover, substantially as specified.

3. The combination with the fly-finger and its sandpaper cover, of spring 13 extending beyond the rigid portion of the finger, and bent downward, substantially as specified.

4. The combination with the fly-finger and its sandpaper cover, of spring 13 extending beyond the rigid portion of the finger, and bent downward, the sandpaper being doubled around the spring with its extremity secured between the spring and said rigid portion, substantially as specified.

693,044. **OFFSET MECHANISM FOR PRINTING-PRESSES.** ROBERT MIEHLE, Chicago, Ill. Filed June 24, 1901. Serial No. 65,760. (No model.)

Claim.—1. The combination of the impression-cylinder and a composition-covered roller for removing the offset from the cylinder, the same being relatively located so as to normally prevent contact between them, but sufficiently close so that contact can be obtained by raising or projecting the composition surface of the roller, and means for raising the surface of such roller, substantially as specified.



2. The combination of the impression-cylinder and a composition-covered roller for removing the offset from the cylinder, the same being relatively arranged so as to normally prevent contact between them, and a filling for the composition roller whereby portions of the composition covering thereof are raised so as to bring them into contact with the impression-cylinder, substantially as specified.

3. The combination with the slotted roller 8, of a composition covering and its reinforce, one end of the reinforce being made fast to the roll, and the other end being inserted in the slot thereof with tightening means consisting of a rock-shaft journaled in the roller-arms on said shaft adapted to engage the free end of the reinforce, a crank for operating the shaft and means for locking the crank, substantially as specified.

4. The combination with the slotted roller 8 of a composition covering and its reinforce, one end of the reinforce being provided with a retainer 12 adapted to set under and engage the periphery at the slot, means for holding the retainer in engagement, and means for holding the other end of the reinforce, substantially as specified.

5. The combination with the slotted roller 8 of a composition covering and its reinforce, one end of the reinforce being provided with a retainer 12 adapted to set under and engage the periphery at the slot, means for holding the retainer in engagement, and means acting on the other end of the reinforce and serving both to draw the covering tightly around the roller and to secure it in its tightened condition, substantially as specified.

6. The combination with the slotted roller 8, of a composition covering and its reinforce, one end of the reinforce being made fast to the roller within the slot, and the other end being passed into the slot; with tightening means consisting of a bar attached to the free end of the reinforce, a rock-shaft journaled in the roller having arms engaging said bar, a crank for operating the shaft and a rack adapted to engage and lock said crank and permitting a range of adjustment in the positioning of the crank, substantially as specified.

7. The combination with impression-cylinder, of a composition roller for removing offset from the cylinder, hard-surfaced rollers for transferring the offset from the composition roller to the wiper-web, a wiper-web acting on said transfer-rollers and devices arranged to press the web yieldingly against the transfer-rollers, substantially as specified.

8. The combination with impression-cylinder, of a composition roller for removing offset from the cylinder, hard-surfaced rollers for transferring the offset from the composition roller to the wiper-web, a wiper-web acting on said transfer-rollers, means for guiding the wiper-web past said transfer-rollers and devices for yieldingly pressing the web against the transfer-rollers, and guides for holding the web down on the rollers, substantially as specified.

9. The combination with impression-cylinder, of a composition roller for removing offset from the cylinder, hard-surfaced rollers for transfer-

ring the offset from the composition roller to the wiper-web, a wiper-web acting on said transfer-rollers and means for imparting endwise movement to said transfer-rollers, substantially as specified.

10. The combination with impression-cylinder, of a composition roller for removing offset from the cylinder, hard-surfaced rollers for transferring the offset from the composition roller to the wiper-web, a wiper-web acting on said transfer-rollers, means for drawing the web down on the transfer-rollers, and means for imparting an endwise movement to the rollers, substantially as specified.

11. The combination with the impression-cylinder, of a roller covered with composition for removing offset from the cylinder, said roller having those portions of the composition which it is necessary should contact with the cylinder raised above the non-acting portions thereof, substantially as specified.

12. The combination with the impression-cylinder receiving offset from the printed matter of a composition roller for removing such offset, said roller having the acting portions raised above the non-acting portions so that only the former contact with the cylinder, substantially as specified.

13. The combination with an impression-cylinder receiving offset from the printed matter of a composition roller for removing such offset, said roller having the portions of its surface which it is desirable should contact with the cylinder to remove offset raised above the other portions of its surface, substantially as specified.

14. The combination with an impression-cylinder receiving offset from the printed matter, of a roller having portions only of its surface adapted to contact with the cylinder-surface, substantially as specified.

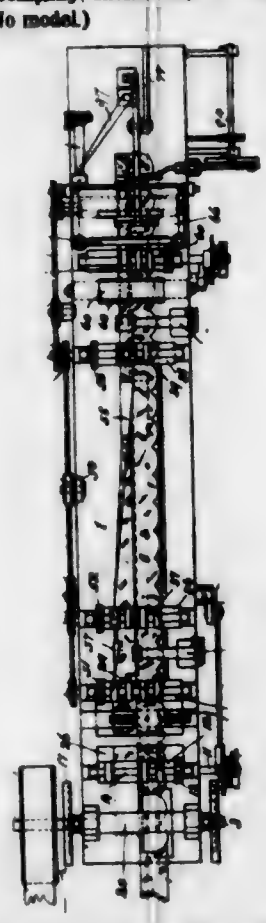
15. The combination with an impression-cylinder adapted to receive offset, of a roll having a surface susceptible to change and which is arranged to remove offset from predetermined portions of the surface of the impression cylinder.

16. The combination with an impression-surface adapted to receive offset; of a transfer-roll and means for causing any desired predetermined portions of the surface of the transfer-roll to remove offset from corresponding contacting portions of the impression-surface.

17. The combination of an impression-surface to receive offset, with means for removing ordinary offset therefrom but leaving "solid" offset thereon.

18. The combination of an impression-cylinder a roll, and a roller contacting therewith to remove offset therefrom, with a wiper-web and brushes mounted on adjustable rocking arms and adapted to yieldingly press the web against the transfer-roll.

693,045. POUCH-MAKING MACHINE. CLARENCE MILLHISER and CHARLES L. A. DOMPTE, Richmond, Va., assignors to the Millhiser Manufacturing Company, Richmond, Va. Filed Dec. 8, 1899. Serial No. 739,596. (No model.)



Claim.—1. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, sewing mechanism to sew together the overlapped edges of the strips of fabric, cutting mechanism to sever from the united strips portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portions of fabric after the sewing mechanism has sewed one of the open edges so that the said sewing mechanism continuing to sew may sew the second open edge.

2. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, sewing mechanism to sew together the overlapped edges of the strips of fabric, mechanism for folding longitudinally that strip of fabric which is to form the "upper" of the pouch, sewing mechanism to sew the folded edge to the underlying fabric, cutting mechanism to sever from the united strips portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portions of fabric after the sewing mechanism has sewed one of the open edges so that the said sewing mechanism continuing to sew may sew the second open edge.

3. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, sewing mechanism to sew together the overlapped edges of the strips of fabric, a turning device for turning in the outer edge of that strip of fabric which is to form the "upper" of the pouch, mechanism for folding the said strip longitudinally, sewing mechanism to sew the folded edge of the said strip to the underlying fabric, cutting mechanism to sever from the united strips portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portions of fabric after the sewing mechanism has sewed one of the open edges so that the said sewing mechanism continuing to sew may sew the second open edge.

4. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism, the said strips overlapping one another, sewing mechanism to sew together the overlapping edges of the strips of fabric, a turning device for turning in the outer edge of that strip of fabric which is to form the "upper" of the pouch, means for securing the turned outer edge of the said strip to form a hem, cutting mechanism to sever from the united strips of fabric portions each sufficient for the formation of a pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portions of fabric after the sewing mechanism has sewed one of the open edges so that the said sewing mechanism continuing to sew may sew the second open edge.

5. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, hemming mechanism located in advance of the sewing mechanism to turn the overlapping edge or edges under before the said edge or edges are sewed to the underlying fabric, sewing mechanism to sew together the overlapping edges of the strips of fabric, mechanism for folding longitudinally that strip of fabric which is to form the "upper" of the pouch, sewing mechanism to secure the free edge of the said folded strip, cutting mechanism to sever from the united strips of fabric portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portions of fabric after the sewing mechanism has sewed one of the open edges so that the sewing mechanism continuing to sew may sew the second open edge.

6. In a pouch-machine the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, hemming mechanism located in advance of the sewing mechanism to turn the overlapping edge or edges under before the said edge or edges are sewed to the underlying fabric, sewing mechanism to sew together the overlapping edges of the strips of fabric, cutting mechanism to sever from the united strips of fabric portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the double portions of fabric after the sewing mechanism has sewed one of the open edges so that the said mechanism continuing to sew may sew the second open edge.

7. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, mechanism for folding longitudinally that strip which is to form the "upper" of the pouch, sewing mechanism to sew together the overlapping edges of the strips of fabric and to secure the free edge of the folded strip, cutting mechanism to sever from the united strips portions each sufficient for the formation of one pouch, doubling mechanism to double the severed portions, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portion of fabric after the sewing mechanism has sewed one of the open edges so that the said sewing mechanism continuing to sew may sew the second open edge.

8. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, mechanism for turning the outer edge of that strip of fabric which is to form the "upper" of the pouch and for folding the said strip longitudinally, sewing mechanism to sew together the overlapped edges of the strips and to secure the free edge of the folded strip, cutting mechanism to sever from the united strips of fabric portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portions of fabric after the sewing mechanism has sewed one of the open edges so that the said sewing mechanism continuing to sew may sew the second open edge.

9. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, hemming mechanism to turn the overlapping edge or edges under, mechanism for folding longitudinally that strip of fabric which is to form the "upper" of the pouch, sewing mechanism to sew together the overlapped edges and to secure the free edge of the folded strip, cutting mechanism to sever from the united strips of fabric portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portions of fabric after the sewing mechanism has sewed one of the open edges so that the said sewing mechanism continuing to sew may sew the second open edge.

10. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, mechanism for turning the outer edge of that strip which is to form the "upper" of the pouch and for folding the said strip longitudinally, sewing mechanism to sew together the overlapped edges of the strips of fabric and to secure the turned outer edge of the folded strip of fabric and also to run a line of stitches at a short distance from the fold of the folded strip of fabric to form a channel for the draw-string, cutting mechanism to sever from the united strips of fabric portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, sewing mechanism to sew two adjacent open edges of the doubled portions of fabric, and means for turning the doubled portions of fabric after the sewing mechanism has sewed one of the open edges so that the said sewing mechanism continuing to sew may sew the second open edge.

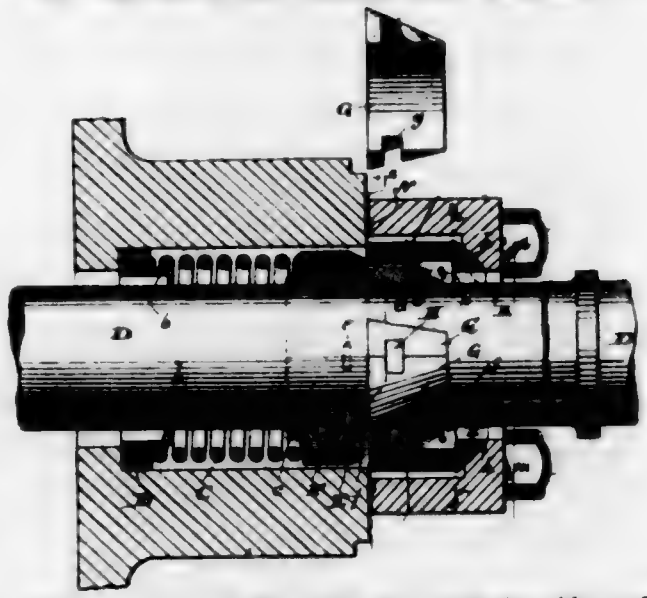
11. In a pouch-machine, the combination of a sewing-machine to sew two adjacent open edges of a folded portion of fabric, a movable pivot adapted and arranged to engage the folded portion of fabric, means for imparting to the pivot an intermittent vertical reciprocating motion and feed mechanism of the sewing-machine, the said feed mechanism turning the folded portion of fabric on the pivot so that the sewing mechanism may sew a curved line of stitches on one of the open edges of the folded portion of fabric.

12. In a pouch-machine, the combination of folding mechanism to fold a portion of fabric, a punch to punch an edge of the folded portion of fabric in such a manner that the finished pouch may have a bottom of the desired shape, means for operating the punch, a sewing-machine to sew two adjacent open edges of the folded portion of fabric, a movable pivot adapted and arranged to engage the folded portion of fabric, means for imparting to the pivot an intermittent vertical reciprocating motion, and feed mechanism of the sewing-machine, the said feed mechanism turning the folded portion of fabric on the pivot so that the sewing mechanism may sew a curved line of stitches along the punched edge of the folded portion of fabric.

13. In a pouch-machine, the combination of intermittently-acting feed mechanism to feed a strip of fabric intermittently to punching mechanism, punching mechanism to punch one edge of the continuous strip of fabric in such a manner that the finished pouch may have a bottom of the desired shape, mechanism for feeding the punched continuous strip of fabric and another strip of fabric to sewing mechanism the unpunched edge of the punched strip and one of the edges of the other strip overlapping, sewing mechanism to sew together the overlapping edges of the strips of fabric, cutting mechanism to sever from the united strips of fabric portions each sufficient for the formation of one pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, a sewing-machine to sew two adjacent open edges of the doubled portions of fabric, a movable pivot adapted and arranged to engage a folded portion of fabric, means for imparting to the pivot an intermittent vertical reciprocating motion, and feed mechanism of the sewing-machine, the said feed mechanism turning the folded portion of fabric on the pivot so that the sewing mechanism may sew a curved line of stitches along the punched edge of the folded portion of fabric.

14. In a pouch-machine, the combination of mechanism for feeding two or more independent continuous strips of fabric to sewing mechanism the said strips overlapping one another, sewing mechanism to sew together the overlapped edges of the strips of fabric, cutting mechanism to sever from the united strips portions each sufficient for the formation of a pouch, mechanism for doubling the severed portions of fabric so that the severed edges are brought into juxtaposition, and mechanism for sewing two adjacent open edges of the doubled portions of fabric.

693,046. METALLIC PACKING. JACOB C. MILLER, Milwaukee, Wis. Filed June 27, 1901. Serial No. 66,198. (No model.)



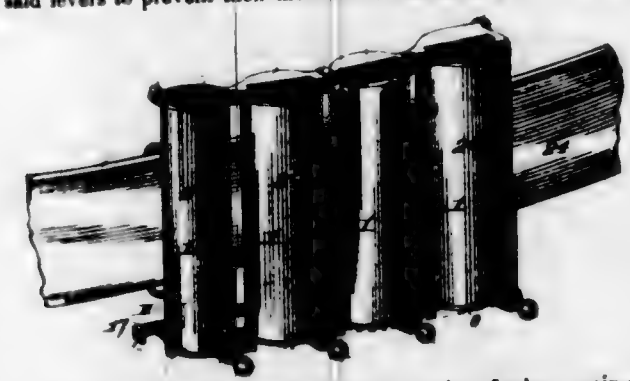
Claim.—1. In a metallic packing, the combination with a stuffing-box and its gland, and a rod or stem having longitudinal movement therethrough, of a tension-spring and outer hard-metal ring entirely within the stuffing-box; a soft-metal ring formed in sections, held together by means of recesses in their meeting edges, and keys in said recesses, said sectional ring having a cylindrical bore and conical periphery, and a flat base bearing against the outer end of the hard-metal ring in the stuffing-box, but being itself wholly within the gland, and a conically-bored hard-metal ring, also wholly within said gland, and in engagement with the said sectional soft-metal ring.

2. In a metallic packing, the combination of a stuffing-box, and its suitably-packed gland, with a piston-rod passing therethrough; a ring resting against the bottom of the stuffing-box and having an outwardly-projecting annular flange; another ring surrounding said rod adjacent to the outer end of the stuffing-box, said last-named ring being shouldered on its periphery, and there centrally screw-threaded, each edge of said periphery being conical; another ring screwed on the last-named ring; a spiral tension-spring surrounding the piston-rod between the first and last named rings; a sectional soft-metal packing-ring, having a flat base, a cylindrical bore, and a conical periphery, the sections of said ring being united by keys at their meeting edges, and surrounding the piston-rod within the gland; another hard-metal ring, having a conical bore bearing upon the said soft-metal packing-ring; and another ring surrounding but of greater diameter than the piston-rod, and having a flat base and a spherically-rounded periphery, the said base having sliding contact with the outer face or edge of the cone-bored ring, and the rounded periphery having a rolling contact with the similarly-rounded inner end surface of the gland.

693,047. COIN-HOLDER. THOMAS O. MILLER, St. Louis, Mo., assignor of forty-nine one-hundredths to S. J. Wimberly, Houston, Tex. Filed June 3, 1901. Serial No. 62,362. (No model.)

Claim.—1. In a coin-holder, the combination of a tube having an open lower end, a coin-support located beneath said tube, a lever pivoted to said support, and a lock-bar adapted to engage said lever and prevent movement thereof, substantially as described.

2. In a coin-holder, the combination of a series of tubes, a coin-supporting plate located beneath said tubes, levers pivotally mounted beneath said tubes and a lock-bar adapted to be thrown into engagement with said levers to prevent their movement, substantially as described.

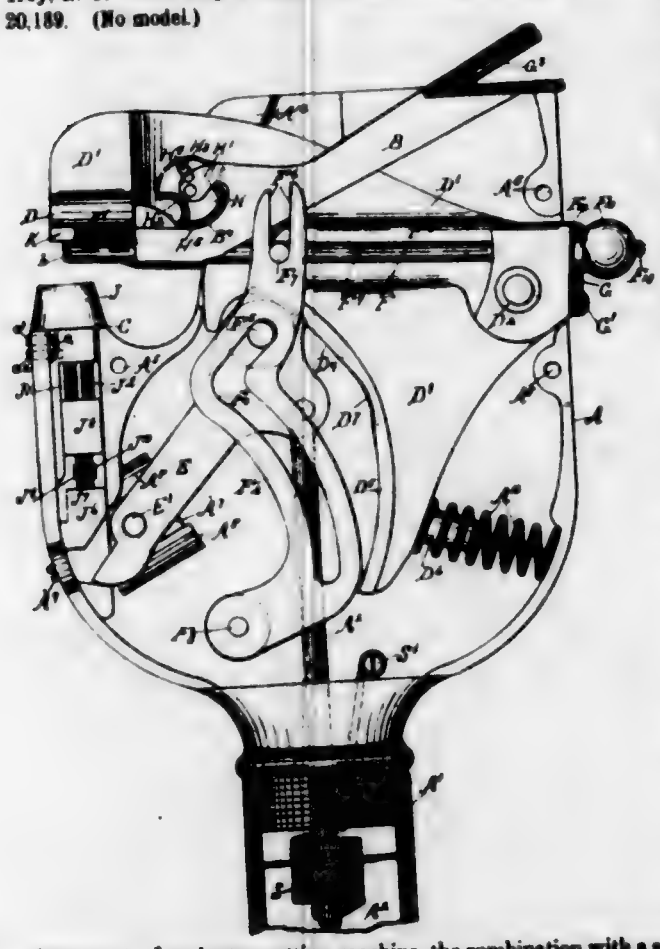


3. In a coin-holder, the combination of a series of tubes, a coin-supporting plate located beneath said tubes, levers pivotally mounted beneath said tubes, a lock-bar adapted to be thrown into engagement with said levers to prevent their movement, and a spring carried by said lock-bar adapted to engage a fixed part carried by said coin-supporting plate, substantially as described.

4. In a coin-holder, the combination of a tube having an open lower end, a coin-supporting plate, a pivoted lever located beneath said tube and adapted to engage and eject a coin deposited onto said supporting-plate, and a slidable lock-bar adapted to be thrown into engagement with said levers to prevent their movement, substantially as described.

5. In a coin-holder, the combination of a series of tubes, a slotted lid swingingly mounted at the upper ends of said tubes, a supporting-plate located beneath said tubes and having cut-away portions beneath the tubes, levers pivoted to said supporting-plate, springs arranged to bear against said levers, a slotted lock-bar mounted on said supporting-plate and adapted to engage said levers, studs located in the slots in said bar, and a spring carried by said bar arranged to engage one of said studs, substantially as described.

693,048. BUTTON-SETTING MACHINE. GEORGE A. MOSHER, Troy, N. Y. Filed May 2, 1892. Renewed June 13, 1900. Serial No. 20,189. (No model.)



Claim.—1. In a button-setting machine, the combination with a setting member, and a stationary, slotted supply-chute mounted upon a rigid part of the frame, of a holding member movable to and fro between the setting member and supply-chute and provided with a slot open at both ends, adapted to register with the slot in the chute and receive therefrom a button with its pendent fastener, a plunger movable longitudinally of the slots in the chute and holding member for the purpose of feeding from the chute buttons with pendent fasteners, locating the buttons in, and discharging them from, the holding member, and means substantially as described for operating the several parts, substantially as described.

2. In a button-setting machine, the combination with a bell-crank lever having cam-surfaces, and a holding member secured to the lever, of an actuating-lever fulcrumed intermediately of its ends, a cam-follower upon one arm of the actuating-lever engageable with the cam-surfaces on the bell-crank lever, a setting member consisting of a guide or support and a setting-die movable in such support, mechanism for connecting the setting-die and the other arm of the actuating-lever, and means for operating the actuating-lever, substantially as described.

3. In a button-setting machine, the combination with a setting member, and a stationary supply-chute, of a holding member movable to and fro between the setting member and supply-chute, a bell-crank lever for operating the holding member, having a cam-surface on each of its arms, and a follower-recess D^2 between its cam-surfaces, a cam-follower adapted to alternately engage the cam-surfaces on the lever, and means for actuating the cam-follower, substantially as described.

4. In a button-setting machine, the combination with a slotted holding member, a plunger movable to and fro along the slot in such member for locating fasteners pendent from buttons in the holding member, and means for imparting to-and-fro movements to the plunger, of a stop-seat, and stop on the plunger, the stop and seat being adjustable relatively to each other, substantially as described.

5. In a button-setting machine, the combination with a holding member having a plurality of fastener-seats located successively along a common supply-groove, of a fastener-locating plunger common to all the seats, and an adjustable stop for limiting the plunger movement, substantially as described.

6. In a button-setting machine, the combination with a slotted holding member having a plurality of fastener-seats and a supply-groove common to such seats, along which groove the seats are successively located, of a setting member having a plurality of setting-dies coöperative with the fastener-seats respectively, and a plunger movable longitudinally of the supply-groove and common to all the seats for locating a fastener pendent from a button in a predetermined seat, substantially as described.

7. In a button-setting machine, the combination with a slotted supply-chute, of a slotted holding member registering therewith and having a plurality of fastener-seats and a supply-groove common to such seats, of a setting member having a plurality of setting-dies coöperative with the fastener-seats respectively, a plunger movable longitudinally of the supply-groove for locating a fastener pendent from a button in a predetermined seat, means for communicating to-and-fro movements to the plunger, and an adjustable stop for limiting the plunger movement, substantially as described.

8. In a button-setting machine, and in combination, a slotted holding member, a slotted chute registering with the holding member, a setting member having a pair of setting-dies arranged in alinement with the slot in the holding member, a locating-plunger movable longitudinally of the slot in the holding member, a stop on the plunger, a fixed seat in the path of the plunger-stop, a removable seat interposed between the fixed seat and the plunger-stop, and means for operating the plunger, substantially as described.

9. In a button-setting machine having a fixed button-supply chute, a holding member movable to and from the chute and means for operating the holding member, the combination with an axially-movable feeding-segment having a fixed support and a yielding button-seat in its periphery adapted to receive buttons one at a time, of a cam connection between the segment and movable holding member for moving such yielding seat through an arc intersecting the button-supply path, substantially as described.

10. In a button-setting machine, a slotted holding member having a plurality of fastener-seats and setting-surfaces on its under side, and provided with a supply-groove common to such seats and setting-surfaces, the seats being successively located in the groove and differing from each other in depth relatively to the setting surfaces, substantially as described.

11. In a button-setting machine, a slotted holding member having a plurality of fastener-seats and a supply-groove common to such seats, the seats being successively located along such groove and differing from each other in organized form, whereby they are respectively adapted to seat fasteners of different predetermined types, substantially as described.

12. In a button-setting machine, the combination with a slotted holding member, of a setting-die, and a guide for the die, the die and the guide being adjustable transversely of the slot in the holding member, and means for holding the die and guide in adjustment, substantially as described.

13. In a button-setting machine having a plurality of button-fastener seats in the supply-groove of the holding member, a setting-die and mechanism substantially as described for adjusting the die longitudinally of such supply-groove, substantially as described.

14. In a button-setting machine, a holding member consisting of a tube slotted longitudinally at its bottom, and a tubular member within the slotted tube consisting of a single piece of sheet metal having its body portion bent to approximately fit the interior of the slotted tube, and its longitudinal edge portions cut from the body part along its front end and upwardly inclined along the opposite sides of the tube-slot, substantially as described.

15. In a button-setting machine, a setting-die consisting of a pair of steel wires having their fastener-engaging ends divergingly beveled, substantially as described.

16. In a button-setting machine, the combination with a setting member, a stationary supply-chute, a holding member movable to and fro between the setting member and supply-chute, and a stop to limit the upward movement of the holding member, of a bell-crank lever for operating the holding member having a cam-surface, a cam-follower adapted to engage the cam-surface for actuating the bell-crank lever to move the holding member toward the setting member, means for actuating the cam-follower, and a retracting-spring engaging the bell-crank lever to move the holding member from the setting member to the supply-chute, substantially as described.

17. In a button-setting machine, the combination with a stationary guide for the setting-die, and a stationary supply-chute, of a holding member provided with a slot open at both ends movable to and fro between the chute and guide, a setting-die movable in such guide, and means for alternately actuating the holding member and die, substantially as described.

698,049. DRIFT-PIN FOR DRILLING-MACHINES. FREDRICK MUENGER, Hill City, S. D., assignor of one-half to Camillo von Woehrmann, Hill City, S. D. Filed Oct. 16, 1901. Serial No. 78,887. (No model.)



Claim.—1. The herein-described drift-pin for removing bushings from drill spindles or sockets, having one end portion cylindrical and adapted to engage the bushing when inserted in the spindle and its other end portion flattened, and provided with a projecting transverse rib on its side intermediate its end portions by which it can be driven, for the purpose and substantially as described.

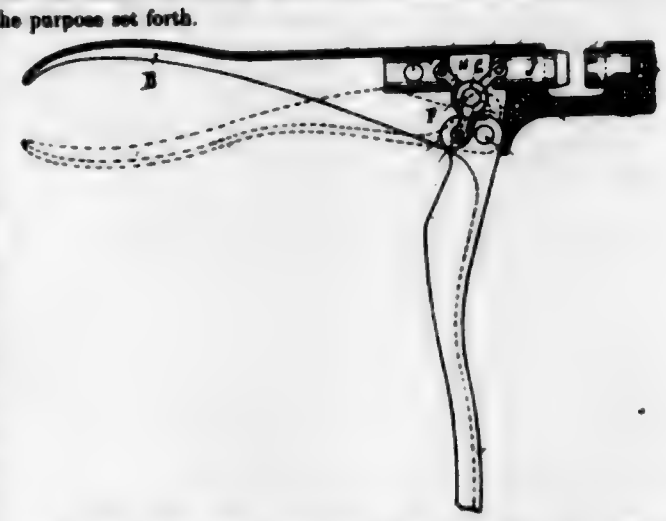
2. The combination of the spindle having a slot, and a removable bushing in the spindle; with a removable drift-pin adapted to be inserted in the spindle through the slot having a projecting transverse rib or flange on one side, and one end adapted to engage the bushing and its other end beveled on its upper side, for the purpose and substantially as described.

3. The combination of the drill spindle or socket having an opening, and a removable bushing in said socket; with a drift-pin adapted to be placed in said spindle having a central projecting rib on one side, and having one end part cylindrical and its other end part flattened, substantially as described.

4. The combination of the drill spindle or socket having an opening, and a removable cylindrical bushing in said socket; with a cylindrical drift-pin having a central parti-cylindrical rib projecting through the opening of the spindle and having one end beveled, and a cover for the opening in the socket, all substantially as described.

698,050. HAND PRESS. JAMES MURDOCK, Jr., Cincinnati, Ohio. Filed Aug. 30, 1900. Serial No. 27,410. (No model.)

Claim.—1. In a hand-press, a stationary handle and frame, the latter having a mouth on one side to receive the material to be pressed, and a movable handle secured to the stationary handle and frame on the side opposite said mouth, a stationary press member, a movable press member, a removable abutment-block, a toggle-joint and a link, all housed within said frame, said link connecting the toggle to the movable handle whereby the press member is extended and retracted, and so arranged that the handle will remain closed when desired, substantially as and for the purpose set forth.



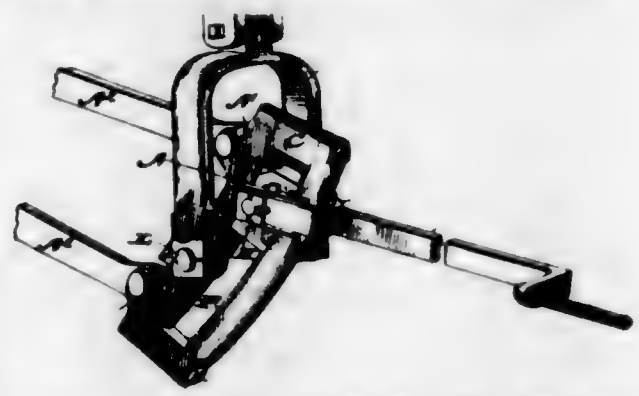
2. In a hand-press, a stationary press member, a movable press member, an abutment-block, a toggle-joint, a pivoted wiper, and a shield interposed between said toggle-joint and pivoted wiper.

3. In a hand-press, in combination with a stationary press member; a movable press member; and an abutment-block; a toggle-joint composed of a series of links, the extended arms of alternate links being strung upon separate pivots and entering sockets in the abutment-block and movable press member respectively, substantially as specified.

4. In a hand-press, in combination with a stationary press member; a movable press member; and an abutment-block; a toggle-joint composed of a series of separate link members strung upon a central pivot; part of the extending arms of said links engaging the abutment-block, the movable press member and the wiper, substantially as specified.

5. In a hand-press a movable press member and an abutment-block, each having in one end thereof a transverse cylindrical concavity provided with a mouth or opening smaller than the diameter of said concavity, and a cylindrical boss upon each end of a jointed connection adapted to take into said concavity and be held in pivotal and axial engagement with the walls thereof, substantially as set forth and for the purpose specified.

698,051. VALVE-GEAR LINK. MARION MCCLURE, Felicity, Ohio. Filed May 16, 1901. Serial No. 60,574. (No model.)



Claim.—1. The combination with a link, of the right-angular plates fastened upon opposite sides of one of its side members, trunnions formed integral with the said angular plates, and the saddle having the bearings into which the trunnions are journaled, substantially as shown and described.

2. In a device of the kind described, the combination with a link having the inner faces of its side members formed with a double bevel, of the block having V-shaped grooves adapted to slide within the link, said block having trunnions formed integral therewith, the valve-operating rod carrying bearings to receive the trunnions on the block, right-angular plates having trunnions and the saddle having bearings at its ends, adapted to receive the trunnions carried by the angular plates, all arranged and adapted to operate, substantially as shown and described.

698,052. PICTURE-MOUNT AND PORTFOLIO THEREFOR. MOTT W. MCDONALD, Galion, Ohio. Filed May 27, 1901. Serial No. 62,015. (No model.)

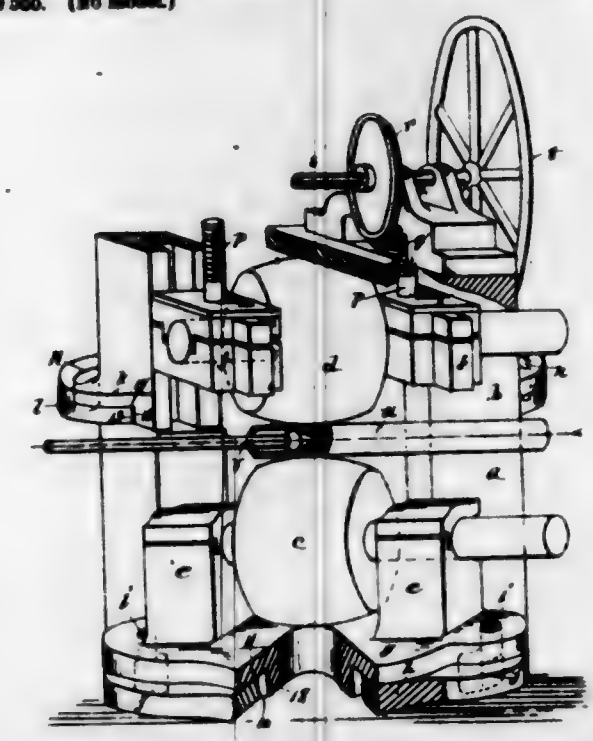
Claim.—1. The combination, with a portfolio having retaining-

flaps, of a card, and a mat secured to the card to leave free edges in the vicinity of said flaps, whereby the said retaining-flaps may be inserted between the card and mat.



2. A mount for pictures and the like, comprising a card, and a mat secured thereto at places remote from the edges, whereby objects may be inserted between the card and mat at such edges.

698,053. MACHINERY FOR PRODUCING SEAMLESS METALLIC TUBES. FREDERICK J. McINTOSH and WILLIAM THOMSEN, Detroit, Mich., assignors to the Seamless Steel Tubes Company, Detroit, Mich., a Corporation of Michigan. Filed May 10, 1901. Serial No. 59,555. (No model.)



Claim.—1. In a machine for making seamless tubes from metallic billets, the combination of a stationary bed, a lower supporting-base oscillatory upon said bed, an upper supporting-frame oscillatory upon said base and rotatable rolling bodies carried by said base and frame, respectively, the axes of said bodies being horizontally adjustable by the oscillation of said base and of said frame.

2. In a machine for making seamless tubes from metallic billets, the combination of a stationary bed, a lower supporting-base oscillatory upon said bed, an upper supporting-frame oscillatory upon said base, rotatable rolling bodies carried by said base and frame, respectively, the axes of said bodies being horizontally adjustable by the oscillation of said base and of said frame, the rolling body carried by said frame being also vertically adjustable.

3. In a machine for making seamless tubes from metallic billets, the combination of a stationary bed, a lower supporting-base oscillatory upon said bed, an upper supporting-frame, oscillatory, upon said base, rotatable rolling bodies carried by said base and by said frame, respectively, bearings supported upon said base to carry the lower rolling body, bearings supported upon said frame to carry the upper rolling body, and means to vertically adjust the bearings of the upper rolling body.

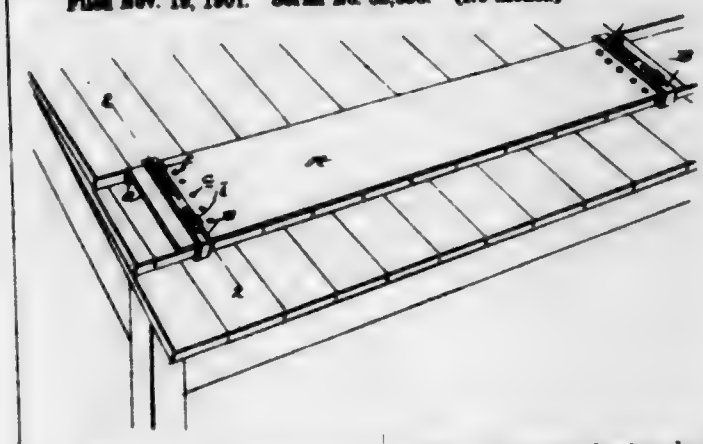
4. In a machine for making seamless metallic tubes from metallic billets, the combination of a stationary bed, a lower supporting-base oscillatory upon said bed, an upper supporting-frame oscillatory upon said base, and rotary rolling bodies carried by said base and by said frame, respectively, said stationary bed and lower supporting-base constructed with male and female members, whereby said base may be moved horizontally in the arc of a circle, and said base and said frame constructed with male and female members whereby said frame may be moved horizontally in the arc of a circle.

5. In a machine for making seamless tubes from metallic billets, the combination with a lower oscillatory supporting-base provided with a bed at the upper end thereof, of an upper supporting-frame provided with a base having an oscillatory engagement with the bed at the top of said base, and rotary rolling bodies carried by said base and by said frame, respectively.

6. In a machine for making seamless tubes from metallic billets the combination of a stationary bed, a supporting-base oscillatory upon said bed, a supporting-frame oscillatory upon said base, rotatable rolling bodies carried by said base and frame respectively, having their axes adjustable by the oscillation of said base and frame in a horizontal plane from the axial plane of the travel of the billet without changing the contact centers of said bodies, and roller side guides carried by said base on either side of the path of the billet.

7. In a machine for making seamless tubes from metallic billets the combination of a stationary bed, a supporting-base oscillatory upon said bed, a supporting-frame oscillatory upon said base, rotatable rolling bodies carried by said base and frame respectively, having their axes adjustable by the oscillation of said base and frame in a horizontal plane from the axial plane of the travel of the billet without changing the contact centers of said bodies, adjustable frames carried by said base, and roller side guides carried by said adjustable frames on either side of the path of the billet.

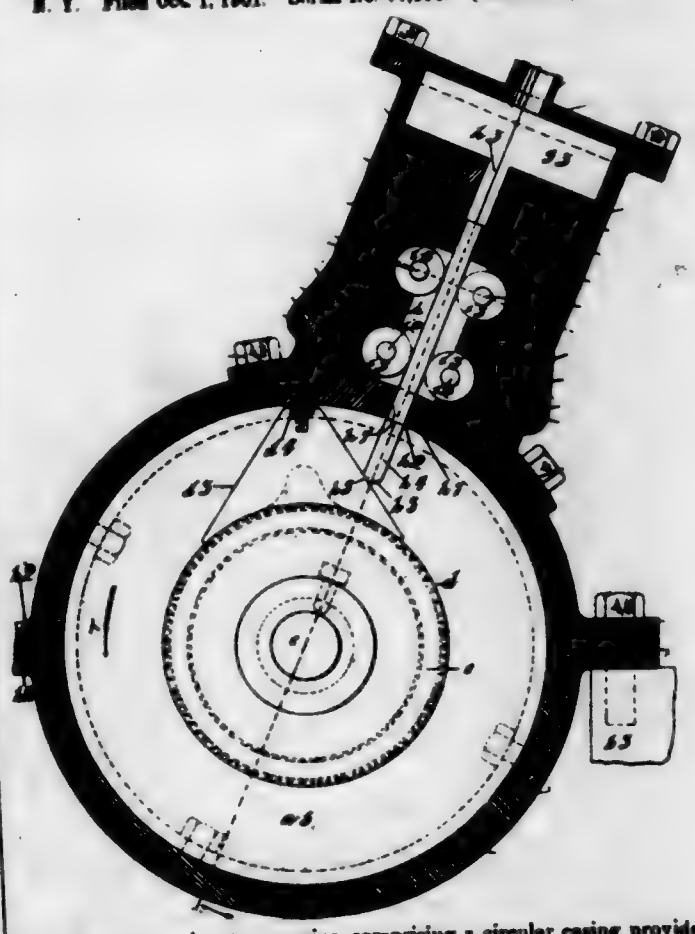
698,054. SHINGLE-GAGE. FREDERICK L. NELSON, Alta, Iowa. Filed Nov. 19, 1901. Serial No. 82,530. (No model.)



Claim.—1. A shingle-gage comprising a body-bar having the depending flange or abutment and also having two transverse rows of apertures; the apertures of one row being disposed opposite the spaces between the apertures of the other row, a hook adapted to receive the lower end of a shingle and having an apertured shank, and a bolt secured in coincident apertures of the body-bar and hook-shank.

2. The shingle-gage comprising the body-bar having the depending flange or abutment and also having two rows of apertures adjacent to its opposite ends; the apertures of one row being disposed opposite the spaces between the apertures of the adjacent row, the hooks adapted to receive the lower ends of shingles, and having apertured shanks disposed on the body-bar, and bolts secured in coincident apertures of the body-bar and hook-shanks.

698,055. ROTARY ENGINE. GEORGE P. NIELSEN, Whitestone, N. Y. Filed Oct. 1, 1901. Serial No. 77,196. (No model.)



Claim.—1. A rotary engine comprising a circular casing provided with a central circular chamber and an annular steam-chamber inclosing the same, a shaft passing centrally through the central chamber and pro-

vided within said chamber with a disk or plate, the perimeter of which passes through the annular wall of the central chamber, a piston-block connected with the perimeter of said disk or plate and movable in the annular steam-chamber, a supplemental casing connected with one side of the first-named casing and provided in its outer end with a steam-chamber and means for admitting steam thereto, a steam-operated slide mounted centrally in said supplemental casing radially of the first-named casing and extending into the annular steam-chamber, steam ports or passages in the opposite sides of the supplemental casing and in communication with said steam-chamber, valves for controlling the said ports or passages, other steam ports or passages also in the opposite sides of the supplemental casing and in communication with the first-named ports or passages and with the annular steam-chamber at the opposite sides of said slide, said last-named ports or passages being so formed as to open outwardly through the side of the supplemental casing and being also provided outside of their communication with the first-named ports or passages with valves by which they are controlled, substantially as shown and described.

2. A rotary engine comprising a circular casing, provided with a central circular chamber and an annular steam-chamber inclosing the same, a shaft passing centrally through the central chamber and provided within said chamber with a disk or plate, the perimeter of which passes through the annular wall of the central chamber, a piston-block connected with the perimeter of said disk or plate and movable in the annular steam-chamber, a supplemental casing connected with one side of the first-named casing and provided in its outer end with a steam-chamber and means for admitting steam thereto, a steam-operated slide mounted centrally in said supplemental casing radially of the first-named casing and extending into the annular steam-chamber, steam ports or passages in the opposite sides of the supplemental casing and in communication with said steam-chamber, valves for controlling the said ports or passages, other steam ports or passages also in the opposite sides of the supplemental casing and in communication with the first-named ports or passages and with the annular steam-chamber at the opposite sides of said slide, said last-named ports or passages being so formed as to open outwardly through the sides of the supplemental casing and being also provided outside of their communication with the first-named ports or passages with valves by which they are controlled, the valves in said ports or passages at each side of the supplemental casing being arranged in pairs and connected and longitudinally movable, substantially as shown and described.

3. In a rotary engine, a circular casing provided with a central circular chamber and an annular steam-chamber surrounding the same, a shaft passing centrally through the central chamber and provided within said chamber with a disk or plate, the perimeter of which passes through the annular wall of said chamber and is provided with a piston-block movable in the annular steam-chamber, a supplemental casing connected with the circular casing at one side thereof and extending radially therefrom and provided centrally with a steam-operated slide movable in and radially of the annular steam-chamber, a steam-chamber within the supplemental casing and means for admitting steam therefrom to the annular steam-chamber at either side of said slide, substantially as shown and described.

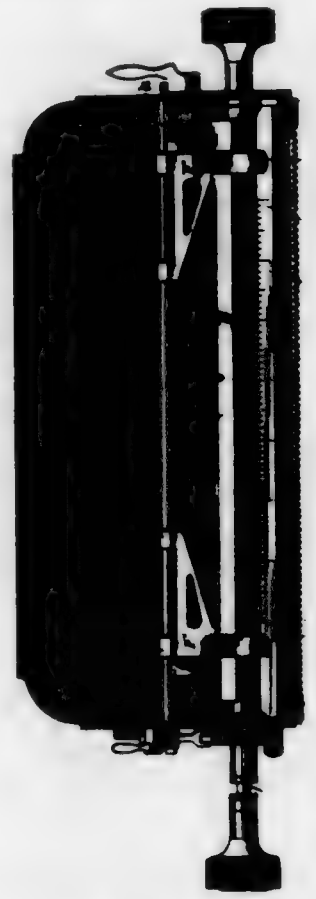
693,056. PRESERVE-JAR. SAMUEL OAKMAN, Cheshire, Mass., assignor to Angeline C. Oakman, Cheshire, Mass. Filed Feb. 19, 1901. Serial No. 47,974. (No model.)



Claim.—A preserve-jar comprising a jar proper having near its upper edge an exterior and interior shoulder, the exterior shoulder adapted to hold a fender-band, and the interior shoulder adapted to hold a cover and the sealing material, the lower edge of the jar having a shoulder adapted to hold a band to act as a fender against adjacent jars, and as a cushion to rest upon the subjacent jar; and said bands substantially as and for the purpose set forth.

698,057. PAPER-GUIDE FOR TYPE-WRITING MACHINES. THOMAS OLIVER, Woodstock, Ill., assignor to the Oliver Typewriter Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 20, 1901. Serial No. 75,756. (No model.)

Claim.—1. The combination with a paper-carriage and platen of two guide-plates for guiding the paper away from the platen after it has passed the printing-point, said guide-plates being arranged parallel with the platen and located one at each end of the same, said guide-plates being supported from the carriage at their outer ends and being free at their inner or adjacent ends and having sliding engagement with the carriage to afford movement thereof on the carriage toward and away from each other.

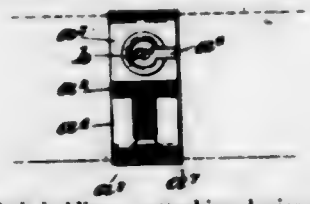


2. The combination with a paper-carriage, a platen mounted therein and presser-rollers for holding the paper against the platen, and a lower paper-guide on which the paper rests as it approaches the platen, of two guide-plates for guiding the paper away from the platen after it has passed the printing-point, and a longitudinal bar on the carriage-frame on which said guide-plates are supported, said plates having sliding connection at their outer ends with the said bar and being free at their inner ends.

3. The combination with a carriage, a platen mounted therein, and presser-rollers for holding the paper against the platen, a lower paper-guide on which the paper rests as it approaches the platen and guide-fingers for the side edges of the paper which extend over and are adjustable endwise of the platen, of two guide-plates, one at each end of the carriage, which are attached at their outer ends to and are movable with said guide-fingers.

4. The combination with a carriage, a platen mounted therein, and presser-rollers for holding the paper in contact with the platen, a lower paper-guide on which the paper rests as it approaches the platen, oblique guides provided with guide-fingers, and a supporting-bar on which said oblique guides are adapted to slide, of two guide-plates for directing the paper away from the platen, said guide-plates being attached at their outer ends to and moving with the said oblique guides.

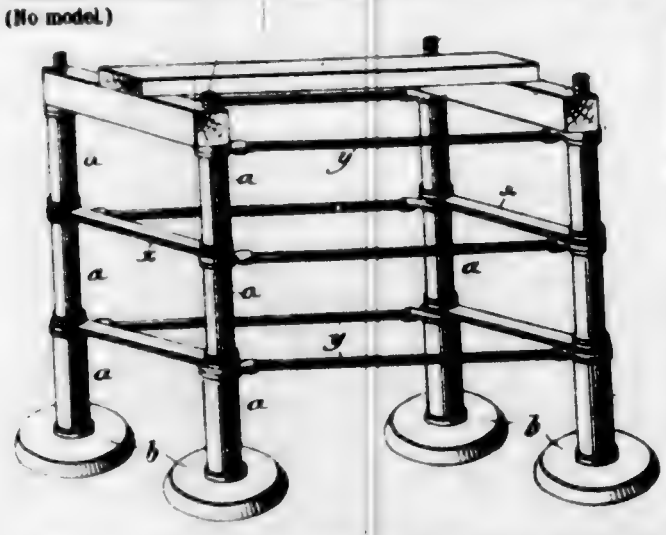
698,058. BELT HOLDING OR ATTACHING DEVICE. HOWARD PARKER, Irvington, N. Y. Filed June 23, 1901. Serial No. 66,345. (No model.)



Claim.—1. A belt holding or attaching device, consisting of a band or loop open at one side, one of the ends being provided with an eyelet and a laterally-directed slot communicating therewith, and the other end being provided with a vertically-arranged notch or recess, and a prong secured therein longitudinally thereof, substantially as shown and described.

2. A belt attaching or holding device consisting of an oblong band a having a transverse opening a^2 in one side thereof, one end of said band being provided with an eyelet a^3, and a lateral slot or opening a^4 communicating therewith, the other end being provided with a longitudinal opening a^1, and a pin or prong a^5 secured therein, substantially as shown and described.

693,059. PIER FOR THE SUPPORT OF BRIDGES. GERARDO PASCALE, Somerville, N. J. Filed June 6, 1901. Serial No. 63,486. (No model.)



Claim.—1. A column for bridge-piers composed of separate pipe-sections, and a base-plate strung on a central pipe, said pipe being threaded below the base-plate and above the column, whereby nuts may be applied to draw the columns together, substantially as set forth.

2. In a pier for the support of bridges, the combination of lead or soft-metal gaskets in each horizontal joint, substantially as described.

693,060. SAW STRAIGHTENING AND TENSIONING HAMMER. ANGE O. PAYENAUDE, Korbel, CHARLES J. ANDERSON, Eureka, and JOHN A. ANDERSON, Falk, Cal. Filed Aug. 12, 1901. Serial No. 71,679. (No model.)



Claim.—A tool of the character described comprising a single handle, oppositely-arranged hammer-heads both supported by said handle, one of said hammers being yieldable relative to the other, and an outer contact portion on one of the heads adapted to receive a blow from a hammer or the like, substantially as described.

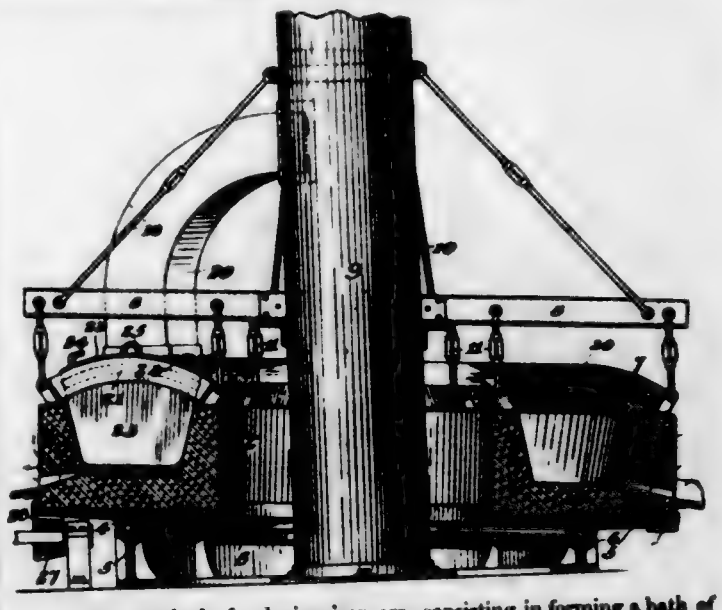
693,061. FENCE-POST. JOHN PEGG, Bloomingport, Ind. Filed Aug. 23, 1900. Serial No. 27,765. (No model.)



Claim.—The herein-described fence-post, comprising a wooden core, a series of plain cylindrical fence-wire-receiving tubes driven through transverse openings in the core and held therein by friction alone and located one above the other with their ends projecting out an appreciable distance from the respective sides of the core, and a protective covering or envelop of cement completely covering the sides and ends of the core and laid flush with the mouths of the tubes.

693,062. MANUFACTURE OF PIG-IRON. JOHN A. POTTER, Camden, N. J. Filed July 11, 1901. Serial No. 67,253. (No specimens.)

Claim.—1. The method of reducing iron ore, consisting in forming a bath of molten pig-iron and carrying into and under said bath a mixture of iron ore and basic material, substantially as described.



2. The method of reducing iron ore, consisting in forming a bath of pig-iron and carrying iron ore, carbonaceous material and basic material into and under said bath, substantially as described.

3. The method of reducing iron ore, consisting in successively carrying beneath a bath of molten pig-iron successive additions of iron ore and basic material, substantially as described.

4. The method of reducing iron ore, consisting in forming a bath of molten pig-iron upon a continuous hearth, carrying successive portions of iron ore, carbon and basic material on the hearth into and under the bath, and feeding such material to successive portions of the hearth, substantially as described.

5. The method of reducing iron ore, consisting in forming a bath of molten pig-iron, submerging iron ore and basic material in said bath, tapping out the bath, replacing it with fresh molten pig-iron, and carrying a further supply of ore and basic material into and under said bath, substantially as described.

6. The method of reducing iron ore, consisting in forming a molten bath of pig-iron upon one portion of a continuous hearth, adding iron ore and basic material to the hearth, carrying them into and under the liquid bath, tapping off a portion of the bath, and continuing the additions of ore and basic material, substantially as described.

693,063. ELECTRIC MASSAGE-ROLLER. WILLIARD R. PRESTON, Chicago, Ill. Filed Dec. 4, 1901. Serial No. 84,656. (No model.)



Claim.—1. In a massage-roller, the combination with two brackets of electricity-conducting material spaced apart, of shafts in said brackets projecting inward beyond the same and spaced apart, rollers of conducting material on said shafts in the brackets, and a roller of non-conducting material between the brackets and supported on the ends of the respective shafts.

2. In a massage-roller, the combination with a block of non-conducting material, metal brackets, shanks on the brackets supported in the block and spaced apart, electric wires connected with the respective shanks, metal rollers carried by the brackets, a roller of non-conducting material between the brackets, and a handle of non-conducting material surrounding the block.

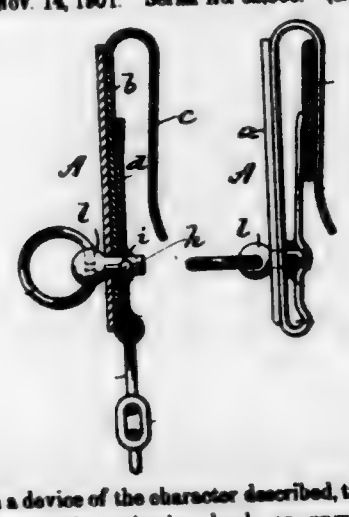
3. In a massage-roller, the combination with a block of non-conducting material, metal brackets having shanks secured in parallel bores of the block and spaced apart, screws in the ends of said shanks for the attachment of electricity-conducting wires, metal rollers mounted to revolve in said brackets, a roller of non-conducting material mounted to revolve between the brackets, and a cylindrical handle inclosing the block, screws and a portion of the wires and removably secured to the block.

693,064. MASSAGE DEVICE. CHARLES I. PROSSER and GEORGE FISCHER, Jr., New York, N. Y. Filed June 21, 1901. Serial No. 65,407. (No model.)

Claim.—A massage device comprising a handle, a pair of opposed curved arms projecting therefrom, said arms having concaved inner surfaces, and antifriction-rollers projecting from said inner surfaces of the arms, and a massage-ball located within the curves of said arms, said ball projecting laterally and actually beyond said arms whereby the sides and the end of the ball can be manipulated upon the part to be massaged.



698,065. SAFETY-HOLDER. ADOLPH RAUDNITZ, New York, N. Y. Filed Nov. 14, 1901. Serial No. 82,306. (No model.)



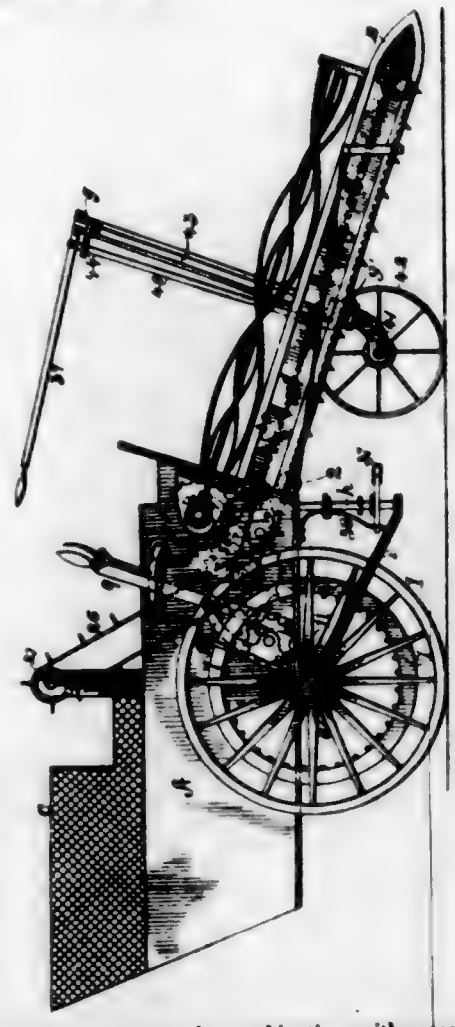
Claim.—In a device of the character described, the combination with a body of a downwardly-projecting hook, an upwardly-folded spring-tongue normally resting against the rear of the said body, a centrally-perforated swell in the spring-tongue, a revoluble stud mounted in the body and traversing the swell, projections in the stud intermediate the body and spring-tongue, and normally registering with the swell of the latter.

698,066. CORN-HARVESTER. ARTHUR W. RICHARDS, Indianola, Iowa. Filed June 11, 1901. Serial No. 64,122. (No model.)

Claim.—1. In a corn-harvester a receptacle mounted upon wheels, and a slotted frame extending forward therefrom, rotary spiral cutters arranged on opposite sides of the slot or guideway for the corn, means for rotating said cutters inward or toward each other and means for conveying the severed ears back to the said receptacle substantially as shown and described.

2. In a corn-harvester the combination with a fixed box or receptacle and a forwardly-extended frame provided with the slot or guideway for the standing corn, of two spiral cutters arranged on opposite sides of such guideway and differing in size, the larger one being located on the inner side at a lower point than the smaller one, and an endless traveling apron arranged beneath the larger cutter, for conveying the severed ears to said receptacle, substantially as shown and described.

3. In a corn-harvester, the combination, with a receptacle mounted upon wheels and having a forwardly-extended frame provided with a slot or guideway for the corn, of a reciprocating cutter arranged adjacent to such guideway on the inner side thereof, and a rotary cutter arranged above such reciprocating cutter, and an endless traveling apron arranged inwardly from the reciprocating cutter and beneath the rotary cutter, substantially as shown and described.



4. In a corn-harvester, the combination, with a receptacle mounted upon wheels and having a forwardly-extended slotted frame, cutters arranged parallel to the slot, and a spring-cushion or buffer arranged on the opposite side of said slot, substantially as shown and described.

5. In a corn-harvester, the combination, with a receptacle mounted upon wheels and having a slotted forwardly-extended frame, of cutters arranged parallel to said frame, endless traveling aprons arranged beneath the cutters, and a second traveling apron coöperating with the first, for delivering ears of corn into the receptacle, gearing for operating the said cutters and aprons, other gearing which is in contact mesh therewith, an internal gear fixed on one of the transporting-wheels and a shiftable gear adapted for engagement with a gear on the said wheel, and also with the gearing for rotating the cutters and aprons, substantially as shown and described.

6. In a corn-harvester, the combination, with a receptacle mounted on wheels and having a forwardly-extended slotted frame, of two rotary cutters arranged parallel to said frame, on opposite sides of the slot, spur-gears fixed on the shafts of said cutters and meshing as shown, a bevel-gear on one of the cutter-shafts, a transverse shaft having spur and bevel gears as specified and an internal gear on the adjacent wheel substantially as shown and described.

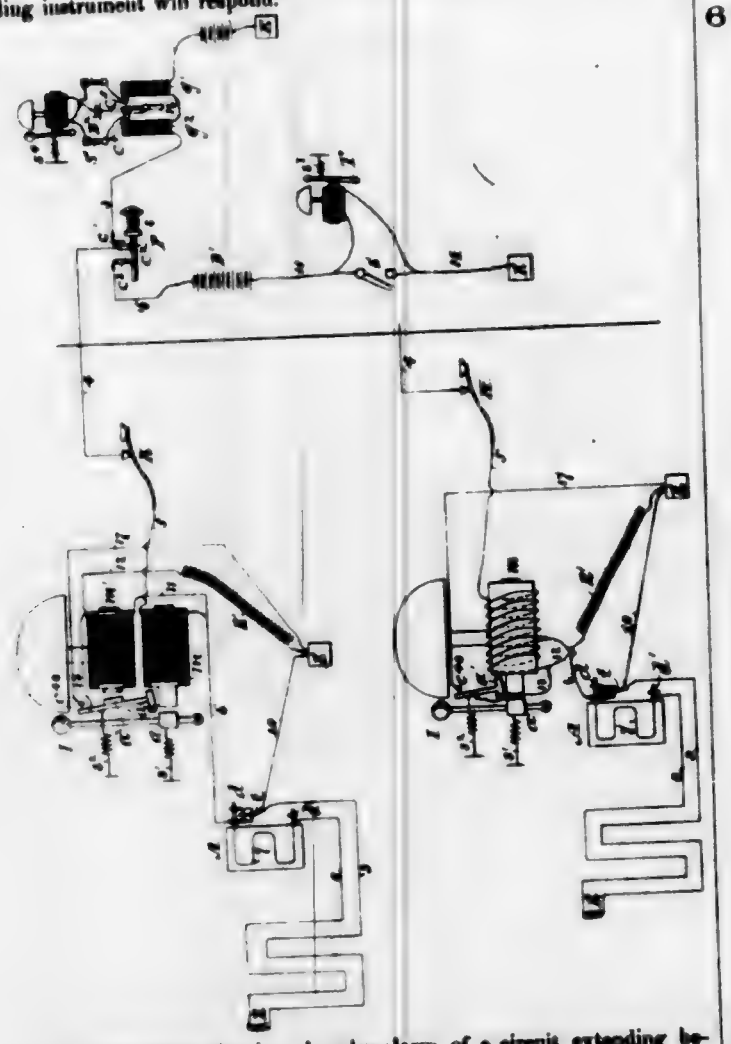
7. In a corn-harvester, the combination, with the box or receptacle, transporting-wheels, and a forwardly-extended slotted frame, of the third transporting and caster wheel, a forked, rotatable, vertical shaft in whose fork said wheel is journaled, a pivoted lever extending rearward into proximity to the box, a rigid arm on the shaft, a rod passing through said arm and attached to the shaft, and cross-braces attached to said frame and supporting it upon the caster-wheel, as shown and described, to operate as specified.

8. In a corn-harvester, the combination, with a box or receptacle mounted upon wheels and having a forwardly-extended, slotted frame, of cutters arranged alongside the slot in said frame, and a spring-cushion or buffer also located adjacent to said slot, substantially as and for the purpose specified.

698,067. ELECTRIC BURGLAR-ALARM. HENRY C. ROCHE and WILLIAM G. ROCHE, Jersey City, N. J. Filed Feb. 28, 1895. Serial No. 540,115. (No model.)

Claim.—1. In a burglar-alarm system, the combination of a circuit extending between a guarded structure and a control office, a divided circuit at the guarded structure, one branch of which is included in the protective wiring of the structure, normally closed, including a resistance, and

another branch of which comprises a greater resistance and constitutes a leak-circuit, a signaling instrument at the guarded structure, normally in circuit with the line through the leak-circuit, a signaling-battery at the central office and normally out of the line-circuit, and means at the central office for connecting said signaling-battery with the line-circuit, whereby upon a break in the normally closed protective-wiring circuit the signaling instrument will respond.



2. The combination in a burglar-alarm of a circuit extending between the office and the guarded structure, a branch circuit at the guarded structure having an interposed high resistance, a shunting-out magnet at the guarded structure having a winding formed of a portion of the branch circuit, and means for shunting out the high resistance of the branch circuit, substantially as specified.

3. The combination in a burglar-alarm of a circuit extending between the office and the guarded structure, a branch circuit at the guarded structure having an interposed high resistance, a magnet at the guarded structure having a winding formed of a portion of the main circuit, and a winding formed of a portion of the branch circuit, and means operated by said magnet for shunting out the high resistance of the branch circuit and operating a signaling instrument, substantially as specified.

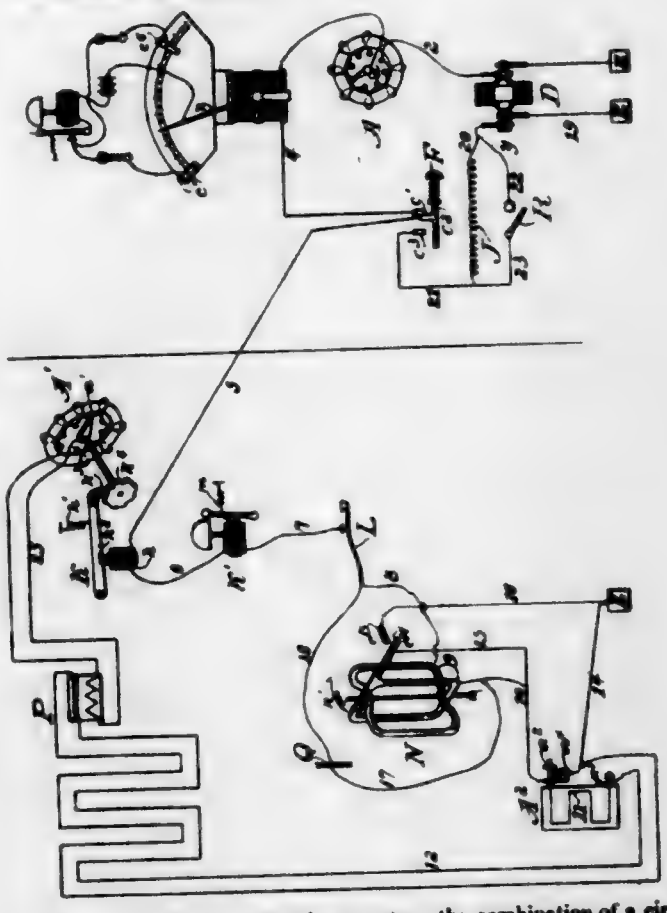
4. In a burglar-alarm, the combination of a relay having two sets of magnets, one being in a line-circuit between a central office and a guarded structure, while the other magnet is in a circuit normally closed through a heavy resistance, an armature common to both magnets and attracted when a heavy current is sent through the line-circuit from the central office and thereby shunting out the heavy resistance, and a local circuit closed by the armature, substantially as specified.

5. In a burglar-alarm system, the combination of a circuit extending between a central office and a guarded structure, a divided circuit at the guarded structure, one branch of which is included in the protective wiring of the structure, normally closed and including a resistance, another branch of which comprises a greater resistance and constitutes a leak-circuit, a signaling instrument at the guarded structure, normally in circuit with the line through the leak-circuit, a test apparatus at the central office, a signaling-battery at the central office normally out of the line-circuit, means at the central office for connecting said battery with the line-circuit, whereby upon a break in the normally closed protective-wiring circuit of the guarded structure the signaling instrument and test apparatus will respond.

6. In a burglar-alarm, the combination of a generator, an alarm instrument at a central office, a circuit extending to a guarded structure protected by wiring, a normally closed leak-circuit located in the guarded structure parallel with said protective wiring, a signaling instrument having two sets of windings, one of which is connected to the normal circuit, and a branch circuit connected to the other winding.

7. A burglar-alarm, the combination of a central office, a circuit extending therefrom to a guarded structure protected by wiring, a combined relay and signaling instrument having two sets of windings and two armatures, an alarm instrument at the central office, and means for causing the operation of the combined relay and signaling instrument, substantially as specified.

693,068. ELECTRICAL BURGLAR-ALARM. HENRY C. ROOME and WILLIAM G. ROOME, Jersey City, N. J. Filed Mar. 24, 1899. Serial No. 710,298. (No model.)



Claim.—1. In a burglar-alarm system, the combination of a circuit extending between a central office and a guarded structure, a source at the central office for sending a continuous and an alternating current through the circuit and two sets of instruments at the guarded structure, one responsive to the alternating current and the other responsive to the continuous current and adapted to change the strength of the alternating current.

2. In a burglar-alarm, the combination of a circuit extending between the office and the guarded structure, a ratchet or movable device at the guarded structure controlled from the central office, a secondary circuit at the guarded structure, and means in said secondary circuit for changing the self-induction of the secondary circuit, said means being controlled by the ratchet, substantially as specified.

3. In a burglar-alarm, the combination of the alternating-current generator, energizing the circuit extending to the guarded structure, an alarm instrument, a transformer, and a ratchet or movable device in the secondary circuit of the transformer controlled by the central office, and adapted to change the self-induction of the circuit at the guarded structure, substantially as specified.

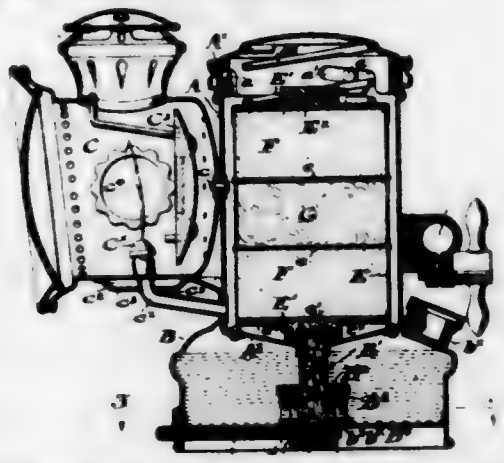
4. In a burglar-alarm, the combination of the alternating-current generator, the circuit extending to a guarded structure, an alarm instrument, a choke-coil or inductive device, and a ratchet or movable device controlled by the central office and adapted to change the self-induction of the circuit at the guarded structure, substantially as specified.

5. In a burglar-alarm system, the combination of the circuit extending to the guarded structure, a signaling instrument at the guarded structure, a ratchet or movable device at the guarded structure for changing the strength of current in the circuit and a signaling-circuit at the central office adapted to be varied so as to control the ratchet device, or to control the signaling instrument alone.

693,069. ACETYLENE-GAS-GENERATING LAMP. EDWIN M. ROSENBLOTH, Philadelphia, Pa. Filed Feb. 4, 1899. Serial No. 704,482. (No model.)

Claim.—1. In an acetylene-gas generator, a carbid-chamber, a water-chamber, a wick extending from said water-chamber within said carbid-chamber, a rotary valve surrounding said wick and arranged to control the supply of water thereto, an opening through said valve, arranged

so that said wick may be withdrawn therefrom, an operating-handle for said valve, and a removable plug arranged to adjust said valve in its casing, to secure said handle upon said valve, and to normally close the wick-opening in said valve, substantially as set forth.



2. In an acetylene-gas generator, a carbid-chamber, a water-chamber, a wick extending from said water-chamber within said carbid-chamber, a rotary valve surrounding said wick and arranged to control the supply of water thereto, an opening through said valve arranged so that said wick may be withdrawn therefrom, and a removable plug arranged to normally close the wick-opening in said valve, substantially as set fo th.

3. In an acetylene-gas generator, a carbid-chamber, a water-chamber, a wick extending from said water-chamber within said carbid-chamber, a rotary valve surrounding said wick and arranged to control the supply of water thereto, an opening through said valve arranged so that said wick may be withdrawn therefrom, and a removable plug arranged to normally close the wick-opening in said valve, and serving to adjust said valve in its casing, substantially as set forth.

4. In an acetylene-gas generator, the combination with a water-chamber, of a carbid-chamber having a downwardly-inclined floor fixed above the water-chamber, a wick-tube extending from said water-chamber within said carbid-chamber and terminating above said inclined floor, and a lateral opening in said wick-tube at its junction with said floor, arranged so that liquid upon said floor shall drain within said tube, substantially as set forth.

5. In an acetylene-gas generator, the combination with a water-chamber, of a carbid-chamber fixed above the water-chamber, a wick-tube extending from said water-chamber within said carbid-chamber, and terminating above the floor of the latter, a wick in said tube, and a notch in the upper edge of said tube arranged to receive a laterally-projecting portion of said wick, substantially as set forth.

6. In an acetylene-gas generator, the combination with a water-chamber, of a carbid-chamber, fixed above the water-chamber, a wick-tube fixedly connecting the floor of said water-chamber with the floor of said carbid-chamber, and terminating above the latter, a lateral inlet to said wick-tube from said water-chamber, and a valve arranged to control the flow of water from said water-chamber through said lateral inlet to said wick-tube, substantially as set forth.

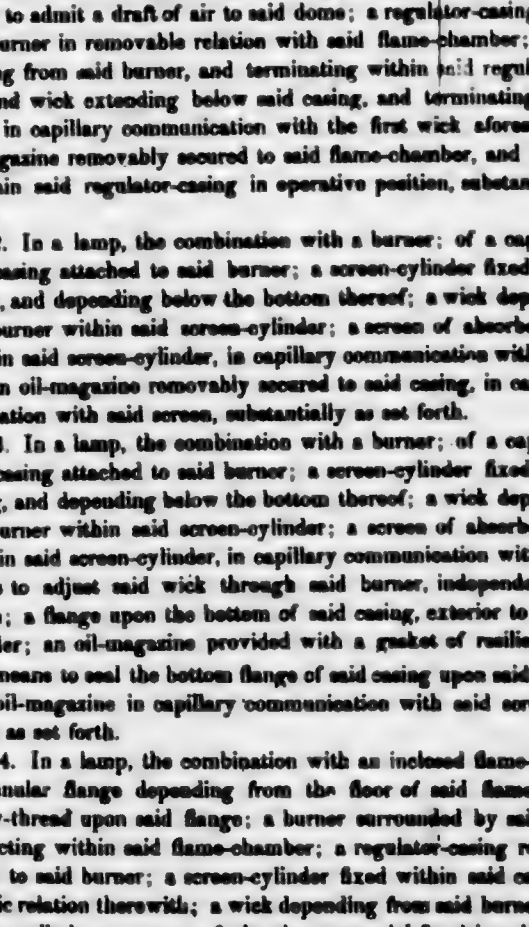
7. In an acetylene-gas generator, the combination with a water-chamber, of a carbid-chamber fixed above the water chamber, a wick-tube in fixed relation with said two chambers, a wick in said tube, a water-outlet in the top of said wick-tube within said carbid-chamber, an outlet at the bottom of said wick-tube, opening to the atmosphere, and arranged so that said wick may be withdrawn therefrom, a removable plug arranged to normally close the bottom opening of said tube, and a valve arranged to control the flow of water from said water-chamber to said wick-tube, substantially as set forth.

8. In an acetylene-gas generator, the combination with a water-chamber, of a carbid-chamber fixed above the water-chamber, a wick extending from said water-chamber within said carbid-chamber, a removable carbid-cartridge fitted to said carbid-chamber and provided with a neck arranged to inclose the upper extremity of said wick, and a valve arranged to control the flow of water from said water-chamber through said wick to said cartridge, substantially as set forth.

9. In an acetylene-gas generator, the combination with a water-chamber, of a carbid-chamber fixed above the water-chamber, a wick extending from said water chamber within said carbid-chamber, a removable and reversible carbid-cartridge fitted to said carbid-chamber, and provided at each end with a neck arranged to alternately inclose the upper extremity of said wick, and a valve arranged to control the flow of water from said water-chamber through said wick to said cartridge, substantially as set forth.

10. In an acetylene-gas generator, a carbid-chamber, a water-chamber, a wick extending from said water-chamber within said carbid-chamber, a rotary valve surrounding said wick, and arranged to control the supply of water thereto, an opening through said valve, arranged so that said wick may be withdrawn therefrom, a removable plug for said opening, and an operating-handle for said valve, substantially as set forth.

698,070. CARRIAGE-LAMP. EDWIN M. ROSENBLUTH, Philadelphia, Pa. Filed May 14, 1901. Serial No. 60,140. (No model.)



Claim.—1. In a lamp, the combination with an inclosed flame-chamber; of a draft-dome projecting within said chamber from the floor thereof; a burner surrounded by, and projecting through the top of said dome; means to admit a draft of air to said dome; a regulator-casing secured to said burner in removable relation with said flame-chamber; a wick depending from said burner, and terminating within said regulator-casing; a second wick extending below said casing, and terminating within the latter, in capillary communication with the first wick aforesaid; and an oil-magazine removably secured to said flame-chamber, and arranged to maintain said regulator-casing in operative position, substantially as set forth.

2. In a lamp, the combination with a burner; of a capillary-regulator casing attached to said burner; a screen-cylinder fixed within said casing, and depending below the bottom thereof; a wick depending from said burner within said screen-cylinder; a screen of absorbent material fixed in said screen-cylinder, in capillary communication with said wick; and an oil-magazine removably secured to said casing, in capillary communication with said screen, substantially as set forth.

3. In a lamp, the combination with a burner; of a capillary-regulator casing attached to said burner; a screen-cylinder fixed within said casing, and depending below the bottom thereof; a wick depending from said burner within said screen-cylinder; a screen of absorbent material fixed in said screen-cylinder, in capillary communication with said wick; means to adjust said wick through said burner, independently of said screen; a flange upon the bottom of said casing, exterior to said screen-cylinder; an oil-magazine provided with a gasket of resilient material; and means to seal the bottom flange of said casing upon said gasket, with said oil-magazine in capillary communication with said screen, substantially as set forth.

4. In a lamp, the combination with an inclosed flame-chamber; of an annular flange depending from the floor of said flame-chamber; a screw-thread upon said flange; a burner surrounded by said flange and projecting within said flame-chamber; a regulator-casing removably secured to said burner; a screen-cylinder fixed within said casing, in concentric relation therewith; a wick depending from said burner within said screen-cylinder; a screen of absorbent material fixed in said cylinder, in capillary communication with said wick; a circumferential flange extending laterally from said casing, and abutting against said depending annular flange; a flange upon the bottom of said casing, exterior to said screen-cylinder; an oil-magazine having a screw-threaded neck; a flange

within said neck; and a gasket upon said flange opposed to the bottom flange upon said casing, substantially as set forth.

5. In a lamp of the class described; the combination with a burner; of a capillary regulator consisting of an upper casing-section secured to said burner; a lower casing-section telescopically fitted to said upper section; a screen of absorbent material; means to fix said screen in said lower section; and a wick depending from said burner in capillary communication with said screen, substantially as set forth.

6. In a lamp, the combination with a burner; of a capillary-regulator casing attached to said burner; a screen-cylinder fixed within said casing, and obliquely elongated below the bottom thereof; a wick depending from said burner within said screen-cylinder; a screen of absorbent material fixed in said screen-cylinder in capillary communication with said wick; and an oil-magazine removably secured to said casing in capillary communication with said screen, substantially as set forth.

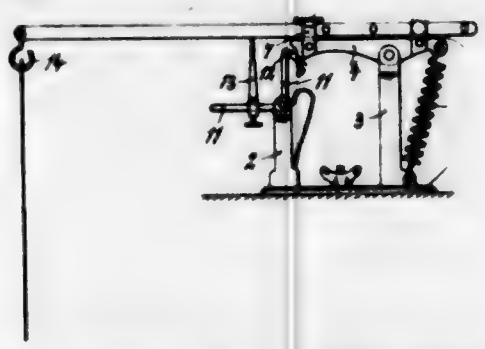
7. In a lamp, the combination with a burner; of a capillary-regulator casing attached to said burner; a screen-cylinder fixed within said casing and obliquely elongated below the bottom thereof; a wick depending from said burner within said screen-cylinder; a screen comprising a tube of absorbent textile material arranged to form a floor in said cylinder in capillary communication with said wick; means to secure said absorbent tube below the bottom of said casing upon the elongated side of said screen-cylinder; and an oil-magazine removably secured to said casing in capillary communication with said screen through said extension thereof, substantially as set forth.

8. In a lamp, the combination with a burner; of a capillary-regulator casing attached to said burner; a screen-cylinder formed of perforated sheet metal fixed within said casing and depending below the bottom thereof; a wick depending from said burner within said screen-cylinder; a screen of absorbent material fixed in said screen-cylinder in capillary communication with said wick; and an oil-magazine removably secured to said casing in capillary communication with said screen, substantially as set forth.

9. In a lamp, the combination with a burner; of a capillary-regulator casing attached to said burner; a screen-cylinder fixed within said casing; a wick depending from said burner within said screen-cylinder; a screen of absorbent material fixed in said screen-cylinder in capillary communication with said wick; a flange upon the bottom of said casing exterior to said screen-cylinder; an oil-magazine provided with an opening in its top; an annular flange within said opening inclined downwardly toward the center of said oil-magazine; a gasket fitted upon said annular flange and similarly inclined; and means to seal the bottom flange of said casing upon said gasket, with said oil-magazine in capillary communication with said screen, substantially as set forth.

10. In a lamp, the combination with a burner; of a wick depending therefrom; a capillary-regulator casing attached to said burner and surrounding said wick; a perforated screen-cylinder fixed within said casing; a screen of absorbent textile material stitched to said screen-cylinder and forming a floor therein in capillary communication with said wick; and an oil-magazine in capillary communication with said screen, substantially as set forth.

698,071. APPARATUS FOR USE IN ANGLING. RUDOLF R. F. RYEN, Christiania, Norway. Filed Nov. 29, 1901. Serial No. 84,114. (No model.)

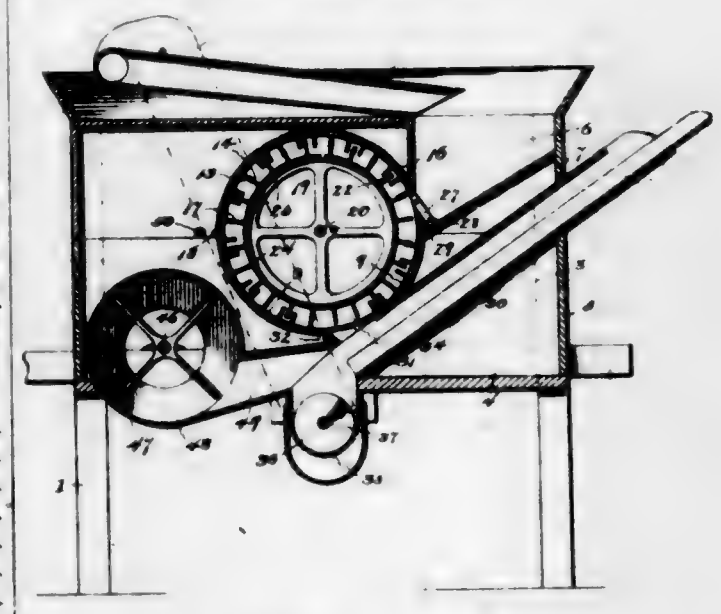


Claim.—1. An apparatus for use in angling comprising a standard or support, a rocking lever pivotally connected thereto, means for applying tension to one end of said lever, retaining means for holding the other end depressed against said tension, a fishpole connected with said rocking lever to have limited movement thereon, and connections whereby said limited movement will operate to release said retaining means, substantially as described.

2. In combination, a standard or support, a rocking lever carried thereby, a spring exerting tension on one end of said lever, a pawl suitably pivoted and adapted to engage the opposite end of said rocking lever, a fishpole connected to said rocking lever to have limited movement relatively to the same and connections whereby said limited movement operates to release the pawl, substantially as described.

3. In combination, a standard, a rocking lever carried thereby, a spring exerting tension on said rocking lever, a fishpole connected to said rocking lever to have limited movement relative to the same, a spring-pressed pawl adapted to engage the free end of the rocking lever, said pawl having an angular tail and a stop or trigger connected to said tail and extending up in proximity to the fishpole when set, substantially as described.

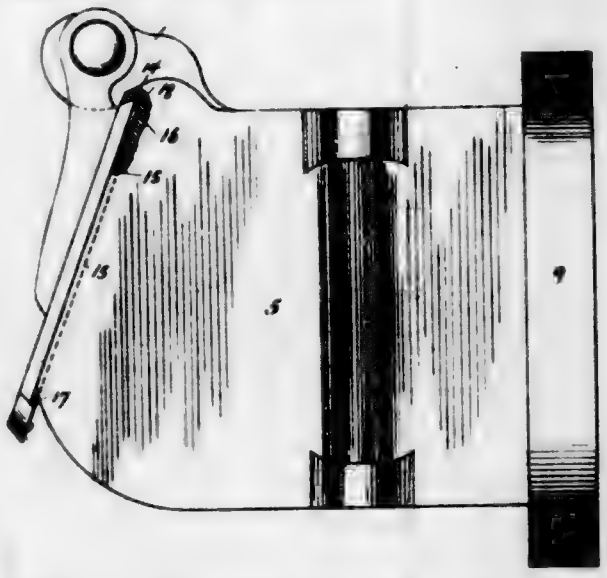
698,072. PEA-HULLER. JOHN M. SANDERS, Dalton, Ga. Filed Dec. 1, 1899. Serial No. 738,823. (No model.)



Claim.—1. In a pea-huller, the combination with the casing, of an interior cylindrical toothed hulling-concave provided with a side feed-opening and a bottom discharge-opening, an inclined inclosed discharge-chute extending beneath and beyond said discharge-opening, a screen arranged at the lower end of said discharge-chute, a conveyer working over the screen, a return-conveyer associated with the one working over the screen, and a fan having its casing provided with a blast-spout disposed at one side of the screen and arranged to direct a blast over the screen and its conveyer, and through the discharge-chute past the discharge-opening of the concave.

2. In a pea-huller, the combination with the hulling mechanism, of the casing having at one bottom corner a receiving-pocket, a discharge-chute extending over said pocket and in communication with the discharge-outlet of the hulling mechanism, a blast device arranged to direct the blast into the chute at the lower end thereof, a detachable bottom-section removably fitting in said chute and extending the full length thereof, said bottom-section being so arranged as to provide for uncovering said receiving-pocket.

698,073. JOURNAL-BOX. WILLIAM E. SHARP, Chicago, Ill., assignor of one-half to George B. Robbins, Hinsdale, Ill. Filed July 15 1901. Serial No. 68,360. (No model.)



Claim.—1. A journal-box, the top wall of which is provided with a projecting boss overhanging its outer end and further provided with an acute-angled groove formed in and transversely of said top wall beneath and behind said boss, in combination with a lid pivoted in said boss and

closing the open end of said box, said lid having its upper edge beveled to snugly fit said groove when the lid is closed, substantially as described.

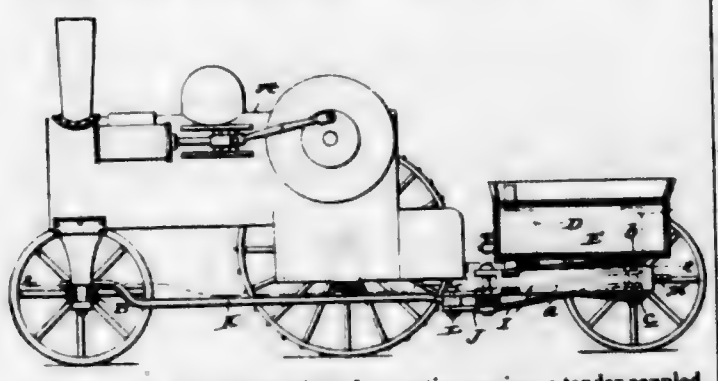
2. A journal-box, the top wall of which is provided with a projecting boss overhanging its outer end and with an acute-angled groove formed in and transversely of said top wall beneath and behind said boss, said box further having the outer edges of its side and top walls interiorly rabbeted or countersunk to form broken joints with the lid, in combination with a lid pivoted in said boss and having its upper edge beveled to snugly fit said acute-angled groove, and also having the side and top margins of its inner face rabbeted or countersunk to fit the broken joints of corresponding edges of the box, substantially as described.

3. A journal-box having an integral overhanging boss formed on the outer end of its top wall, said boss having a pocket or recess formed in the inner and under side thereof, which recess has a flat front wall in line with the inner face of the lid when the latter is closed, in combination with a lid pivoted in said boss and a flat closing-spring secured to the inner face of the lid, the inner or upper end of said spring projecting into said recess or pocket and contacting the flat wall thereof when the lid is closed, substantially as described.

4. A journal-box having an integral overhanging boss formed on the outer end of its top wall, said boss having a rounded front and lower face and being further provided with a pocket formed in the inner and under side thereof, said pocket having a straight wall which is parallel with the plane of the lid when the latter is closed, in combination with a lid pivoted in said boss and a flat spring seated in the inner face of the lid flush therewith, the inner or upper end of said spring projecting into said pocket and engaging the straight wall thereof to hold the lid closed, substantially as described.

5. A journal-box having a projecting boss and a lid-seat formed at the outer end of its containing-walls, and also having an acute-angled groove cut transversely in and across the under side of the outer end of its upper wall, in combination with a lid consisting of a plain flat plate the margins of the inner face whereof are suitably shaped to fit the seat of the box and the upper edge whereof is beveled to snugly fit said acute-angled groove, a pivot-bolt passing eccentrically through said boss, and a pair of hinge-lugs fast on the outer face of the lid at their upper ends embracing said boss and pivotally mounted on the ends of said bolt, substantially as described.

698,074. TENDER FOR TRACTION-ENGINES. ULYSSES A. SHIREY, Lincoln, Nebr. Filed Dec. 14, 1901. Serial No. 85,930. (No model.)

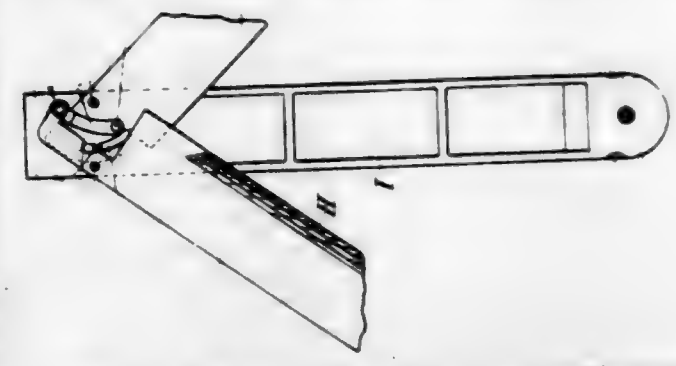


Claim.—1. The combination of a traction-engine, a tender coupled thereto and having spindles fulcrumed at an intermediate point of their length so as to swing in a horizontal plane and bearing traveling and supporting wheels, an equalizing-bar disposed at a point intermediate of the spindles of the tender and the front axle of the engine, and fulcrumed at an intermediate point of its length so as to swing horizontally, connections intermediate of said equalizer-bar and the inner arms of the spindles, and connections intermediate of said bar and the front axle of the engine.

2. A tender for traction-engines and the like comprising a body made up of a longitudinal central beam, cross rods or bars at the rear thereof, and braces interposed between the ends of said bars and the forward portion of the beam, spindles having enlargements at an intermediate point of their length interposed between and pivotally connected to the cross-bars of the body, wheels on the outer arms of the spindles, an equalizer-bar fulcrumed on the longitudinal central beam of the body, and connections between said bar and the inner arms of the spindles.

3. The combination of a traction engine, a tender comprising a body coupled to the traction-engine, spindles fulcrumed at an intermediate point of their length on the body, traveling and supporting wheels on the outer arms of the spindles, an equalizing-bar fulcrumed on the body so as to swing horizontally, rods connecting the inner arms of the spindles and the equalizing-bar, and extending in advance of the latter, and rods connecting the extended portions of the first-named rods and the axle of the traction-engine.

698,075. COMBINED SET-SQUARE AND BEVEL. ANDREW C. SMITH, Los Angeles, Cal. Filed Mar. 6, 1901. Serial No. 50,117. (No model.)



Claim.—1. The combined set-square and bevel, wherein two pivoted blades are carried in a stock having straight and parallel sides, one of said blades having a circular segmental slot therein, the other of said blades having the upper part, at the side inward from its pivot removed, that is to say, recessed, and a set or clamping screw with a pinching-nut passing through said stock, through said segmental slot in one of the blades and through the space or recess formed at the upper part of the other blade, the two blades being connected together at their upper ends by a link, having movable connections to the upper part of each blade, said link being so shaped that when one of its edges comes into contact with the pivot-pin of that blade wherein the segmental circular slot is formed, and the upper end of the circular segmental slot comes in contact with the clamping-screw, both of said blades are prevented from being moved farther around on their pivots, or are limited in their angular movement upon said pivots, substantially as hereinbefore described.

2. The combined set-square and bevel, wherein are two pivoted blades carried in a stock, having straight and parallel sides, one of said blades having a circular segmental slot, whose length is such that, when the blade is moved to its upper limit of a right angle relatively with the stock, the upper end of said segmental slot comes in contact with the clamping-screw; the other of said blades having its upper part, at the side inward from its pivot, so recessed that the clamping-screw passes through the stock of the instrument, through the recessed part of the lower blade and through the segmental slot in the other blade, the two blades being connected together at their upper ends by a link having movable connections to the upper part of each blade, all operating together substantially as herein described.

3. The combined set-square and bevel, wherein are two pivoted blades carried in a stock having straight and parallel sides, one of said blades having a circular segmental slot therein, the other of said blades having the upper part, at the side inward from its pivot recessed, a clamping-screw with a pinching-nut, said clamping-screw passing through said stock, through the space or recess at the upper part of one blade and through the segmental slot in the upper part of the other blade, the link connecting the upper parts of the blades together, said link being so shaped that when one of the blades has been raised to its limit of movement, one of the edges of said link comes in contact with one of the pivots, thereby setting the limit or range of angular movement of the blades, substantially as hereinbefore described.

4. In a set-square and bevel, the combination of a straight parallel-sided stock, two blades, each blade being movable upon a separate pivot, the link connecting the blades together and operating in conjunction with the pivot-pin of one of the blades and the slot whose upper end comes in contact with the clamping-screw, so as to limit the range of angular movement of both of the blades, the clamping screw and nut for tightening the parts of the instrument together at any required angular position, all operating in the manner and for the purposes substantially as hereinbefore described.

5. As constituting a set-square and bevel, the combination of a straight parallel-sided stock, two blades, each blade being movable upon a separate pivot, the circular segmental slot in the upper end of one of the blades, the upper end of which slot comes in contact with the clamping-screw, thereby limiting the range of angular movement of both of the blades, the clamping screw and nut for tightening the parts of the instrument together in any required angular positions and the link connecting the upper parts of the blades together, all operating together in the manner and for the purposes substantially as hereinbefore described.

6. As constituting a set-square and bevel, the combination of a straight parallel-sided stock, two blades, each blade being movable upon a separate pivot and respectively constructed with a segmental slot in the upper part of one of the blades and a recess in the upper part of the other blade, the movable link connecting the blades together, said link being so constructed that when one of its sides or edges comes into contact with one of the pivots of the instrument, the limit or range of angular movement of the blades is thereby fixed or determined, all operat-

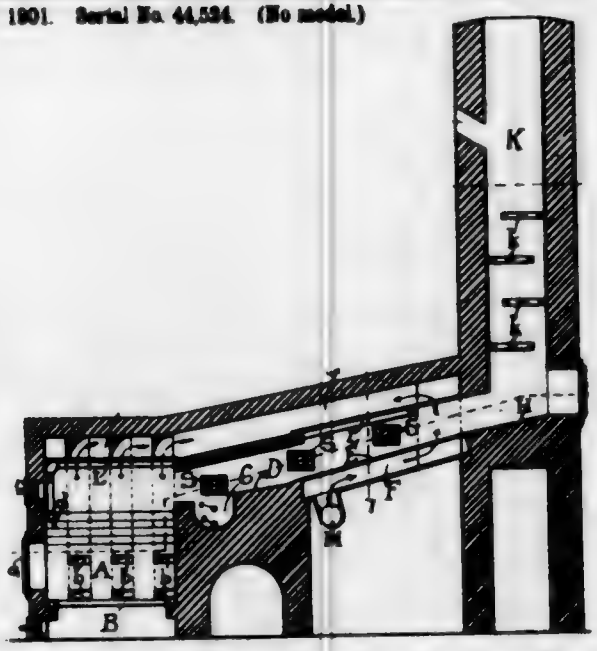
ing together in the manner and for the purposes substantially as hereinbefore described.

7. The combination of the straight, parallel-sided stock, the slotted blade at one end of said stock, the clamping screw and nut for securing said slotted blade in any required angular position in said stock, the two blades at the opposite end of the stock pivoted near to the edges thereof, one of said blades being constructed with a segmental circular slot, the other of said blades being cut out or recessed at the upper end thereof to admit of the passage of the clamping-screw through the upper part of the said blades and through the said stock, the clamping screw and nut, the link connecting said blades movably, the whole operating in the manner and for the purposes substantially as hereinbefore described.

8. As constituting a set-square and bevel, the combination of a straight parallel-sided stock, the slotted blade at one end of said stock, the clamping screw and nut for securing said slotted blade in any required angular position in said stock, two blades pivoted at the opposite end of said stock, each blade being movable upon a separate pivot, the circular segmental slot in the upper end of one of the blades, the upper end of which slot comes in contact with the clamping-screw, thereby limiting the range of angular movement of both of the blades, the clamping screw and nut for tightening the parts of the instrument together in any required angular positions and the link connecting the upper parts of the blades together, all operating together in the manner and for the purposes substantially as hereinbefore described.

9. As constituting a set-square and bevel, the combination of a straight parallel-sided stock, the slotted blade at one end of said stock, the clamping screw and nut for securing said slotted blade in any required angular position in said stock, two blades pivoted at the opposite end of said stock, each blade being movable upon a separate pivot and respectively constructed with a segmental slot in the upper part of one of the blades and a recess in the upper part of the other blade, the movable link connecting the blades together, said link being so constructed that when one of its sides or edges comes in contact with one of the pivots of the instrument, the limit or range of angular movement of the blades is thereby fixed or determined, all operating together in the manner and for the purposes substantially as hereinbefore described.

698,076. ROASTING, SMELTING, AND MATTING FURNACE. WILLIAM D. C. SPIKE and JAMES T. JONES, Tacoma, Wash. Filed Jan. 24, 1901. Serial No. 44,534. (No model.)



Claim.—1. In a roasting, smelting and matting furnace, the combination with the combustion-chamber, and smoke-stack, of the metal-well, melting-hearth and roasting-hearth located adjacent to each other and communicating one with another and located between the combustion-chamber and smoke-stack, and the preliminary-roasting means, consisting of a number of tilting grate-bars located one above the other in the smoke-stack at opposite sides of the stack, the inner ends of the grate-bars along one side of the stack extending over the bars projecting from the other side and adapted when tilted to discharge their contents onto the opposite set of grate-bars, and the inner ends of both sets of bars terminating short of the adjacent wall of the stack to cause the products of combustion to pass in a zigzag course through the stack and around the grate-bars, substantially as described.

2. In a roasting and smelting furnace, the combination with the smoke-stack, the combustion-chamber having air-flues leading thereinto, and the metal-well, melting-hearth and roasting-hearth, located adjacent to each other and communicating one with another and located between the combustion-chamber and smoke-stack, of the blast-flue lying above and extending from the roasting-hearth to the combustion-chamber and discharging into the air-flues of said chamber, and an air-flue extending beneath the roasting-hearth and in communication with the blast-flue which lies above said hearth, substantially as described.

3. In a roasting and smelting furnace, the combination with the combustion-chamber provided with grate-bars and having air-flues leading thereinto at multiple points above the grate-bars, said points arranged at different levels, of the roasting-hearth, and the blast-flue extending from the bottom, around the sides, and over the top of the roasting-hearth to the combustion-chamber and discharging into the flues leading into the combustion-chamber, substantially as described.

4. In a roasting and smelting furnace, the combination with the combustion-chamber provided with grate-bars and having air-flues leading thereinto above the grate-bars, and the roasting-hearth, of the air-blast flue extending from over the roasting-hearth to the combustion-chamber and discharging into the air-flues of said chamber, and the steam-pipes lying above the roasting-hearth and combustion-chamber and extending from one to the other and discharging into the combustion-chamber, substantially as described.

5. A roasting and smelting furnace, comprising the combustion-chamber having air-flues opening into it, and the smoke-stack, the metal-well, melting-hearth and roasting-hearth located between the combustion-chamber and smoke-stack, the preliminary-roasting means consisting of the tilting grate-bars located one above the other in the smoke-stack, the air-blast flue lying both below and above the roasting-hearth and extending over the combustion-chamber and discharging into the air-flues of the same, and the steam-pipes lying over the roasting-hearth and the combustion-chamber and discharging into said chamber, substantially as described.

698,077. MIRROR-FRAME. PETER H. STAFF, Terre Haute, Ind. Filed May 22, 1901. Serial No. 61,473. (No model.)



Claim.—As a new article of manufacture, the mirror-frame, consisting of the framework *a*, subdivided by two or more impervious walls *s* into two or more air-spaces *s*, the blocks *i* attached to the inner walls *c* of *a* and adapted to hold in place the impervious walls *s*, the cut-away and recessed face or front wall *b*, adapted to receive the mirror-glass *e*, and provided with the connecting air-vents *r* and *r'*, adapted to constitute a continuous air passage or vent to the air-space immediately behind the glass from the free air immediately in front of said glass, the tube *o*, provided with the flange *u* and the wire screen *t*, and the door or check *v*, affixed to the flange *u*, by means of the pivot *p*, all substantially as described and for the purpose set forth.

698,078. ACETYLENE-GAS GENERATOR. MOTT T. STEVENS, Wahpeton, N. D. Filed Apr. 13, 1901. Serial No. 55,735. (No model.)

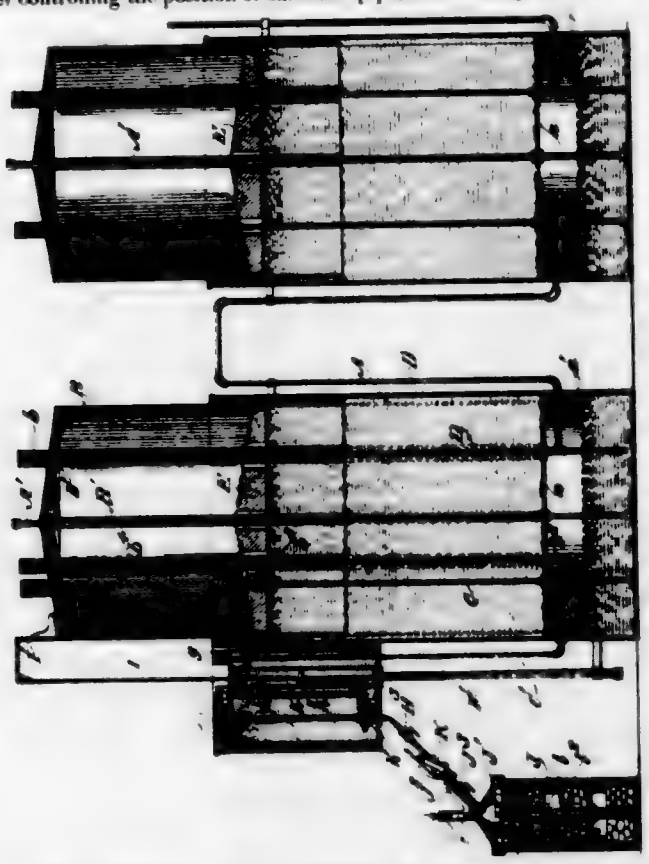
Claim.—1. The combination of the gasometer, a water-supply chamber, and a generator; with a pipe for conducting gas from the chamber to the gasometer, a pipe for conducting water from the chamber to the generator and gas from the generator to the chamber, devices for admitting water from said chamber into said generator-pipe, and means actuated by the rise and fall of the gas-holder controlling the operation of said devices, for the purpose and substantially as described.

2. The combination of the gasometer, a water-supply and gas-cooling chamber attached thereto, and a generator below the said chamber; and a pipe for conducting gas from the chamber to the gasometer, a pipe for conducting water from the chamber to the generator and gas from the generator to the chamber; with devices within the chamber for admitting water therefrom into said generator-pipe, and means for controlling the operation of the water-supply devices actuated by the rise and fall of the gas-holder, for the purpose and substantially as described.

3. The combination of a gasometer, a water-supply chamber and a generator; with a pipe connecting the generator with said chamber for conducting water from the chamber to the generator and gas from the generator to the chamber, and a pipe for conducting gas from said chamber to the gasometer, a movable feed-pipe within said chamber connected to said generator-pipe, and means operated by the gasometer for moving said feed-pipe, substantially as described.

4. The combination of a gasometer, a water-supply and gas-cooling chamber and a generator; with a pipe connecting the generator with said chamber for conducting water from the chamber to the generator and gas from the generator to the chamber, and a pipe for conducting gas from said chamber to the gasometer, a hinged feed-pipe within said chamber

connected to said pipe, and a vertically-movable rod connected to the gasometer controlling the position of said feed-pipe, substantially as described.



5. The combination of the gasometer, the generator, and a water-supply chamber; with a pipe connecting said gasometer to said chamber, means for admitting water from the chamber into said pipe, controlled by the gasometer; an inverted gas-trapping vessel in said chamber inclosing the water and gas inlet and outlet pipes, and a pipe for conducting gas from the interior of said vessel to the gasometer, substantially as described.

6. The combination of the gasometer, the generator, a water-supply chamber, a pipe connecting said gasometer to said chamber, and a movable feed-pipe for admitting water from the chamber into said pipe; with a vertically-movable rod actuated by the gasometer adapted to control the position of said pipe; an inverted gas-trapping vessel in said chamber inclosing the water-feed pipe, and a pipe for conducting gas from the interior of said vessel to the gasometer, substantially as described.

7. The combination of the gasometer, the generator, and the water-supply chamber, an inverted gas-trapping vessel in said chamber, a pipe for conducting gas from the interior of said vessel to the gasometer, a pipe connected with the generator and leading into the interior of said vessel, a movable water-feed pipe within said vessel, and devices actuated by the gas-holder of the gasometer controlling the rise and fall of said feed-pipe, for the purpose and substantially as described.

8. The combination of the gasometer, the generator, and the water-supply chamber, an inverted gas-trapping vessel in said chamber, a pipe for conducting gas from the interior of said vessel to the gasometer, a pipe connected with the generator and leading into the interior of said vessel, a hinged water-feed pipe within said vessel connected to said generator-pipe, and a vertically-movable rod connected to and actuated by the gas-holder of the gasometer extending into said vessel and controlling the rise and fall of said feed-pipe.

9. The combination of the gasometer, the water-chamber, and the generator; with a detachable pipe connection between the generator and water-chamber through which water is admitted to the generator and gas to the chamber, the water-supply devices within the chamber, and means actuated by the holder of the gasometer, controlling the water-supply to the gasometer, substantially as described.

10. The combination of the gasometer, the water-chamber, and the generator, and a detachable pipe connection between the generator and water-chamber through which water is admitted to the generator and gas to the chamber; with water-feed pipe within the chamber, and a vertically-movable rod connected to and actuated by the holder of the gasometer, said rod controlling the position of the feed-pipe, and a pipe for conducting gas from the water-chamber to the gasometer, substantially as described.

11. The combination of the water-supply chamber, and generator, and a detachable pipe connection between said chamber and generator through which pipe water is admitted directly from the chamber to the generator and through which pipe gas is returned from the generator through the chamber; with the water-feed-regulating devices controlled by the generation of gas, substantially as described.

12. The combination of the water-supply chamber, the generator, and the detachable pipe connection between said chamber and generator through which pipe water is admitted directly from the chamber to the generator and through which pipe gas is returned from the generator through the chamber; with the movable water-feed pipe, and means, controlled by the generation of gas, for raising and lowering said feed-pipe and thereby stopping or starting the water-feed to generator, substantially as described.

13. The combination of the water-supply chamber, the gasometer, and the generator, a pipe connecting the generator with the chamber through which water is conducted to the generator and gas to the chamber, said pipe having a detachable section or coupling intermediate the chamber and generator, and a pipe for conducting gas from said chamber to the gasometer; with a hinged water-feed pipe, and a rod connected to and actuated by the holder of the gasometer, for raising or lowering said feed-pipe, for the purpose and substantially as described.

14. The combination of the water-supply chamber, the gasometer, and the generator, a pipe connecting the generator with the chamber through which water is conducted to the generator and gas to the chamber, said pipe having a detachable section or coupling intermediate the chamber and generator, and a valve for closing said pipe to prevent escape of gas from the chamber when the generator is disconnected; with a pipe for conducting gas from said chamber to the gasometer, a hinged water-feed pipe within said chamber, and a vertically-movable rod connected to and actuated by the holder of the gasometer, for raising or lowering said feed-pipe, for the purpose and substantially as set forth.

15. The combination of a gasometer, a water-supply and gas cooling chamber, a generator and a pipe connecting the generator and water-chamber, a movable water-feed pipe within said chamber, and a rod connected to the gasometer and having a bend within the chamber, said bend having a sliding engagement with an eye connected with said feed-pipe, substantially as described.

16. The combination of a gasometer, a water-supply and gas trapping and cooling chamber, a generator and a pipe connecting the generator with the water-chamber, a feed-tube in said chamber having a hinge or swing joint connection to said pipe, an arm connected to said tube, and a rod connected to the gasometer having a bend within the water-chamber slidably engaged with and adapted to actuate said arm, substantially as described.

17. The combination of the water-supply chamber, and gasometer connected therewith, and a feed-pipe in said chamber adapted to supply water to said generator; with an inverted gas-trapping vessel in said chamber having a depending water-sealed tube, an arm connected to the feed-pipe projecting into said tube and a rod passing through said tube having a bend engaging said arm, substantially as described.

18. The combination of a generator, a water-supply and gas-cooling chamber, communicating therewith, and a detachable gasometer communicating with said chamber, and with the generator through said chamber for the purpose and substantially as described.

19. The combination of a gasometer, a gas-cooling and water-supply chamber and a generator; a pipe connecting the generator with said chamber, a movable feed-pipe within said chamber connected to said generator-pipe, and means operated by the gasometer for moving said feed-pipe, with pipes for conducting gas from the gasometer to the point of utilization, substantially as described.

693,079. TRUNK-STRAP. ORVILLE A. STONEMAN, Norfolk, Va., assignor of one-half to Matthew J. W. White, Norfolk, Va. Filed May 14, 1901. Serial No. 60,163. (No model.)



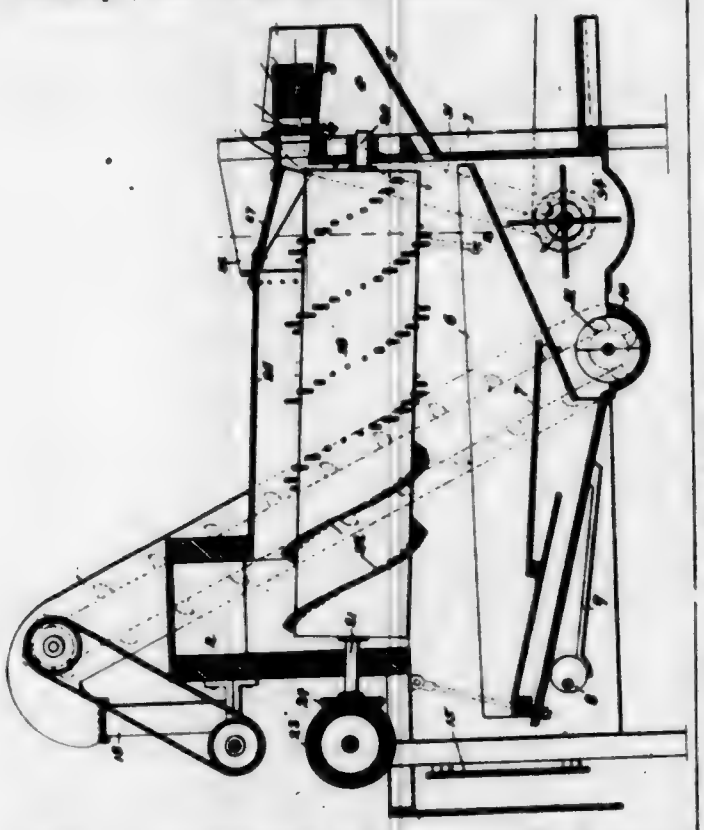
Claim.—1. In a trunk-strap, a fastener for the ends thereof comprising a fixed member having a shoulder near its outer end and having an opening in the said shoulder, a second member pivoted to the inner end of the fixed member and adapted to close against the shoulder thereof and having side portions to embrace the sides of the fixed member, and a lock applied to the outer end of the pivoted member and adapted to abut against the said shoulder of the fixed member and adapted to have its latch-bolt enter the opening thereof, substantially as set forth.

2. A trunk-strap fastener comprising a fixed member having a loop

at one end, spaced extensions at its opposite end and a transverse slot at a point between its ends, a pivoted member having a key-operated lock at one end, spaced extensions at its opposite end overlapping the spaced extensions of the fixed member and a transverse slot between its ends to register with the transverse slot of the fixed member, a rod pivotally connecting the overlapped portions of the said extensions and adapted to lie in the fold at one end of the strap, and a bar supported at its ends in portions of the pivoted member and arranged to come between the transverse slots of the two members when closed and to lie in the fold at the opposite end of the strap, substantially as set forth.

3. A fastener for securing and drawing the end portions of a trunk-strap together, the same consisting of a fixed member having a loop and a shouldered portion at one end and having a transverse slot and projecting arms at the opposite end, a pivoted member comprising longitudinal bars and a plate joined at its edges to the outer edges of the longitudinal bars and having a transverse slot intermediate of its ends, the longitudinal bars being extended beyond the inner end of the plate and overlapping the aforementioned arms, a pintle rod or bar connecting the overlapping ends of the arms and longitudinal bars, a cross-bar located opposite the slot in the plate of the pivoted member and adapted to come opposite the transverse slot of the fixed member when the members are closed, and a lock applied to the outer end of the pivoted member and adapted to abut against and interlock with the shouldered end portion of the fixed member, substantially as set forth.

693,080. CORN-SHELLER. SAMUEL STROUP, Lincoln, Nebr. Filed May 9, 1901. Serial No. 59,449. (No model.)

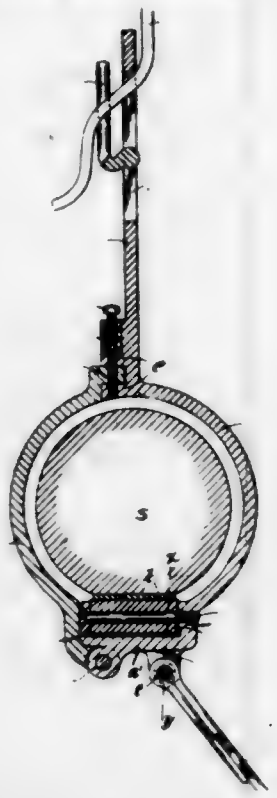


Claim.—1. In a corn-sheller, the combination of a main frame, a shelling-cylinder mounted therein, a concave arranged to coact with the shelling-cylinder, a shoe disposed below the cylinder and concave, a cob-rack arranged to receive the cobs as they pass from the discharge end of the cylinder, and provided at its opposite ends with walls containing gratings, a fan casing or chamber having its discharge disposed toward the shoe and in a direction away from the cob-rack, conduits leading from said gratings to the opposite ends of the fan casing or chamber and a fan in the casing or chamber for drawing dust from the cob-rack and blowing dust, chaff and the like off the shoe.

2. The corn-sheller described comprising the main frame, the shelling-cylinder mounted therein, the concave arranged over the cylinder, the box connected to the rear end of the concave, the apron hinged at its forward end and movable in the box toward and from the shelling-cylinder, and having a rearwardly and laterally extending arm, a coiled spring interposed between and connected to said arm and the main frame, a cob-rack arranged to receive the cobs as they pass from between the apron and cylinder, and provided at its opposite ends with walls containing gratings, a shoe arranged below the cylinder and concave, a fan casing or chamber, a fan or blower therein, and conduits leading from the gratings in the walls on the cob-rack to the opposite ends of the fan casing or chamber.

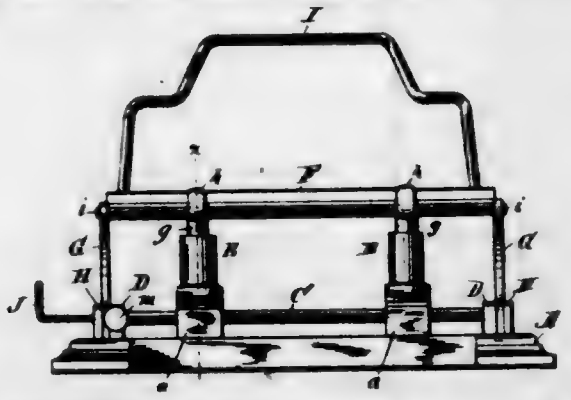
3. In a corn-sheller, the combination of a main frame, a shelling-cylinder mounted therein, a concave arranged to coact with the shelling-cylinder, a cob-rack arranged to receive the cobs as they pass from the discharge end of the cylinder, a spring-pressed apron movable toward and from the cylinder at the discharge end thereof, a shoe arranged below the cylinder and concave, a fan casing or chamber arranged to discharge against the shoe, one or more conduits leading from the cob-rack to the fan casing or chamber, and a fan in said casing for drawing dust from the cob-rack and blowing dust, chaff and the like from the shoe.

698,081. THILL-TUG. HENRY G. TAYLOR, Seattle, Wash. Filed June 3, 1901. Serial No. 62,555. (No model.)



Claim.—In a tug or shaft-support a pair of jaws, one of said jaws having a strap formed integral therewith, a pair of lugs formed integral with said jaw, a casing formed integral with the other end of said jaw, a shaft in the sides of the casing, the other of said jaws being pivotally secured to the under side of said casing, said jaw inclosing one side of said casing and engaging the shaft journaled in said sides, the upper end of said jaw carrying a lug engaging between said first-named lugs carried by the other jaw, and a spring-pressed locking-pin operating through all of said lugs for securing the jaws, substantially as described.

698,082. PERFORATOR. FRED W. TOBEY, Cincinnati, Ohio, assignor to the Globe-Wernicke Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Nov. 10, 1900. Serial No. 36,110. (No model.)



Claim.—1. In a perforator, the combination of a rigid rectilineal reciprocating punch, a guide and die for the same, a roller upon which said punch has its actuating-bearing, an eccentric bearing for said roller, and an operating-handle for the roller by which it can be turned to reciprocate the punch, whereby all parts of the punch move in a straight line when actuated, substantially as described.

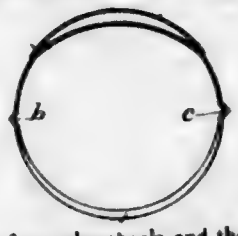
2. In a perforator, the combination of rigid rectilineal reciprocating punches, guides and dies for the same having relative adjustment toward and from each other, a roller upon which said punches have their actuating-bearings, an eccentric bearing for said roller at each end, and an operating-handle for the roller by which it can be turned to reciprocate the punches, whereby all parts of the punches move in a straight line when actuated, substantially as described.

3. In a perforator, the combination of a rigid rectilineal reciprocating punch, a guide and die for the same, a roller upon which said punch has its actuating-bearing by means of an encompassing ring, an eccentric bearing for said roller, and an operating-handle for the roller arranged opposite to the eccentric bearing and by which it can be turned either forward or backward to effect the punching, substantially as described.

4. In a perforator, the combination of rigid rectilineal reciprocating punches, guides and dies for the same having relative adjustment toward and from each other, a roller upon which said punches have their actuating-bearings, an eccentric bearing for said roller at each end, and an operating-handle for the roller arranged opposite to the eccentric bearing and by which it can be turned either forward or backward to effect the punching, substantially as described.

5. In a perforator of the character described, the combination of the base A, the punch-frames E carried and adjustable on said base, the punches *f* guided in said frames, the roller F passed through rings *h* rigidly connected to said punches, the arms G pivoted to the base and also pivoted eccentrically to the roller F and the operating-handle I connected to the roller, substantially as described.

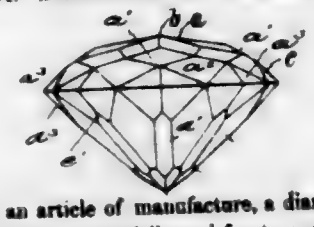
693,083. TIRE FOR VEHICLES. JOSEPH R. TOURDON, Bagnols-sur-Cèze, France. Filed Sept. 24, 1901. Serial No. 76,384. (No model.)



Claim.—1. A tire for cycle-wheels and the like, made of suitable metal formed with two rolled rims hammered and soldered interiorly together throughout their whole circumference forming a tightly-closed crown and then each crown or rim formed of sectional arcs of circles soldered to each other, substantially as described.

2. A tire for cycle-wheels and the like, made of suitable metal formed with two rolled rims hammered and soldered interiorly together throughout their whole circumference forming a tightly-closed crown, pinching spring-blades secured to the band thereby providing for a greater elasticity, substantially as described.

693,084. DIAMOND. DAVID C. TOWNSEND, New York, N. Y. Filed Apr. 4, 1901. Serial No. 54,341. (No model.)



Claim.—1. As an article of manufacture, a diamond, or other precious stone having a series of quadrilateral facets, *a*, meeting in the center, at an elevation to form an apex, a series of quadrilateral facets *a'*, surrounding the first-mentioned series, a second series of quadrilateral facets a^2, surrounding the facets *a'* and extending to the girdle, and triangle girdle-facets a^3 filling the space between the points of the facets a^2 and the girdle, substantially as specified.

2. As an article of manufacture, a diamond, or other precious stone, having its top or upper face suitably cut and its bottom or lower face formed with a series of pentagonally-shaped facets, meeting in the center and forming an apex, a series of oblong facets and a series of pointed facets radiating from the pentagonally-shaped facets, said oblong facets and pointed facets being alternately arranged and extending toward the girdle, and a series of facets surrounding the elongated facets and the pointed facets and extending toward the girdle.

3. As an article of manufacture, a diamond, or other precious stone, having its upper face formed with a series of quadrilateral facets, meeting in the center and forming an apex, and a series of quadrilateral facets and triangle facets, surrounding the first series of facets and extending toward the girdle, and its bottom or lower face formed with a series of pentagonally-shaped facets, meeting in the center and forming an apex, a series of oblong facets and a series of pointed facets radiating from the pentagonally-shaped facets, said oblong facets and pointed facets being alternately arranged and extending toward the girdle, and a series of facets surrounding the elongated facets and the pointed facets and extending toward the girdle.

693,085. PISTON. SAMUEL TRETHEWEY, Pittsburg, Pa. Filed Feb. 7, 1901. Serial No. 46,309. (No model.)

Claim.—1. In pistons; the combination of front and back plates; an annular packing, and an eccentric spring set-ring bearing against the entire inner surface of said packing.



2. In pistons; the combination of front and back plates; an annular packing consisting of two split rings of L-shaped cross-section, and a split set-ring bearing against the entire inner surface of said packing-ring.

3. In pistons; the combination of front and back plates; an annular packing, and a split spring set-ring bearing against the entire inner surface of said packing and having at its inner edges annular recesses, substantially as and for the purpose set forth.

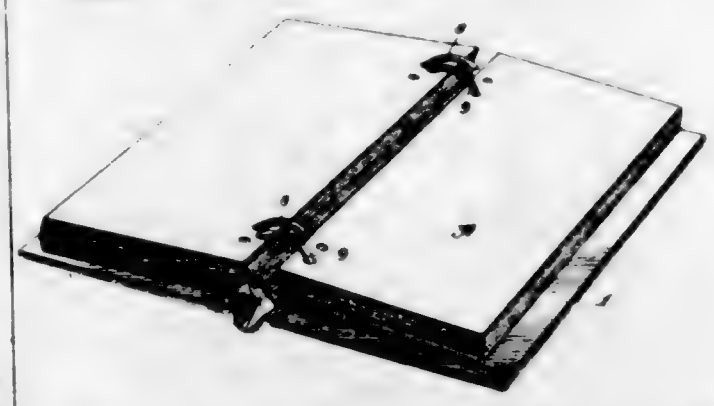
4. In pistons; the combination of front and back plates; an annular packing having its front and rear edges indented, and a split spring set-ring adapted to bear against the entire inner surface of said packing.

5. In pistons; the combination of front and back plates; an annular packing consisting of two split rings having their outer edges indented, and a split set-ring adapted to bear against the entire inner surface of said packing.

6. In pistons; the combination of front and back plates; an annular packing having its front and rear edges indented, and a split spring set-ring adapted to bear against the entire inner surface of said packing and having at its inner edges annular recesses, substantially as and for the purpose set forth.

7. In pistons; the combination of front and back plates; a packing consisting of two set-rings; an annular recess in one of said rings; an annular lip on the other of said rings adapted to register with said recess, and a split spring set-ring adapted to bear against the entire inner surface of said packing.

698,086. TEMPORARY BINDER. EMORY A. TRUSSELL, St. Louis, Mo., assignor to the Sieber & Trussell Manufacturing Company, St. Louis, Mo., a Corporation. Filed Jan. 14, 1901. Serial No. 43,148. (No model.)



Claim.—1. In a temporary binder, the combination of covers, tabs carried by said covers and having swelled edges, and a hinged sheet-holding frame having pocket members adapted to receive said tabs, substantially as described.

2. In a temporary binder, the combination of a pair of covers, tabs attached to said covers, said tabs being provided with swelled edges; and a sheet-holding frame comprising members containing pockets having contracted mouths and adapted to receive the swelled edges of said tabs, and curved prongs adapted to receive the sheets to be held, substantially as described.

3. In a temporary binder, the combination of a two-part sheet-holding frame, covers, flexible tabs carried by said covers and adapted for connection to said sheet-holding frame and having their free ends adapted for movement to the opposing member of said frame; said covers being arranged to fulcrum on the members of the sheet-holding frame at the forward edges thereof to effect movement of said frame and carry the free ends of the arched prongs inwardly, substantially as described.

4. In a temporary binder, covers, and sheet-holding frame composed of two parts arranged together, flexible tabs by which said covers are attached to the rear of said frame, arched prongs carried by said frame, said covers being arranged to fulcrum on the prongs forward of the tabs for controlling the closing of the said sheet-holding frame substantially as described.

5. In a temporary binder, the combination of a pair of covers, tabs attached to said covers, a sheet-holding frame having pocket containing members hinged together, and adapted to receive said tabs, and prongs carried by said frames, the inner ends of said prongs having flattened

sides and being split and bent outwardly to form diverging arms located within the pockets of said members, substantially as described.

698,087. SOCKET FOR INCANDESCENT ELECTRIC LAMPS. JOHANNES W. H. UYTENBOGAART, Utrecht, Netherlands. Filed May 2, 1901. Serial No. 58,535. (No model.)

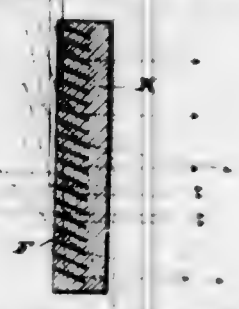


Claim.—1. In a socket for electric incandescent lamps, the combination of a helical spring and means for retaining the same loosely within the socket, and a pair of lugs on the lamp-stem to screw into said spring in the manner and for the purpose substantially as described.

2. In a socket for electric incandescent lamps the combination of an inwardly-turned flange at the mouth of the socket, a helical spring within said socket and retained by said flange, said spring being free to rotate, recesses in the said flange and lugs on the stem of the lamp adapted to be passed through said recesses and engage the spring in the manner and for the purpose substantially as described.

3. In a socket for electric incandescent lamps, the combination of a spring loosely located with the socket and serving as a screw-thread to guide the lugs of the lamp-stem into proper engagement with the socket-contacts, and a central spring-pressed contact-pin having a spring sufficiently strong to hold the lamp just above the bottom plate of the socket when the same has been screwed home substantially as described.

698,088. ILLUMINATING STRUCTURE. FRANK L. O. WADSWORTH, Williams Bay, Wis., assignor to William A. Bond, trustee, Chicago, Ill. Filed Apr. 1, 1898. Serial No. 676,140. (No model.)



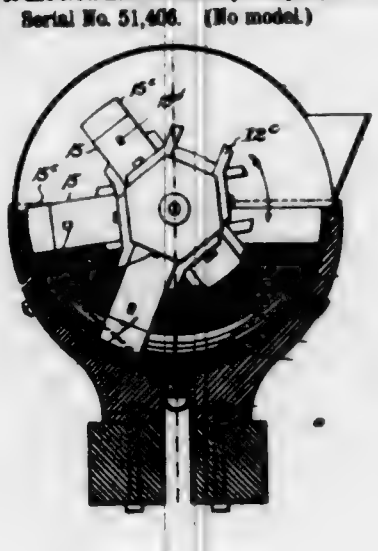
Claim.—1. An illuminating structure consisting of a block of glass provided with one or more reflecting-plates embedded therein at an angle to the face thereof, substantially as set forth.

2. An illuminating structure consisting of a block of glass containing a series of separated reflecting-plates embedded therein, to change the direction of light in passing through the block, substantially as set forth.

3. An illuminating structure consisting of a block of glass having a series of thin metallic films embedded therein and constituting reflecting elements and each having upper and lower reflecting-faces, to change the direction of light in passing through the block, substantially as described.

4. An illuminating structure consisting of an integral block of transparent material, inclosing thin reflecting-strips having upper and lower reflecting-faces, to change the direction of light in passing through the block, substantially as set forth.

698,089. PULVERIZING-MILL. CHARLES WALLACE, Denver, Colo., assignor to the New Era Machinery Company, Denver, Colo. Filed Mar. 15, 1901. Serial No. 51,406. (No model.)

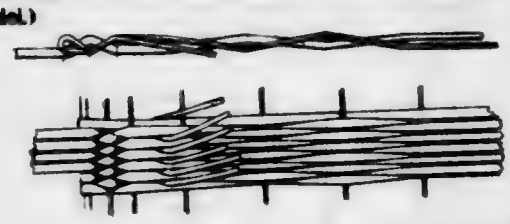


Claim.—1. In a pulverizing-mill the combination with a suitable mortar or casing, of a rotary stamp-holder, stamps slidably mounted therein, and means mounted on the stamp-holder for supporting a stamp above the pulverizing-bed of the mortar.

2. In a pulverizing-mill the combination with a suitable mortar or casing, of a prism-shaped rotary yoke journaled therein and provided with openings, stamps located in said openings in which they are normally adapted to slide, and means mounted on a journal of the yoke for locking a stamp against movement.

3. In a pulverizing-mill the combination with a suitable mortar or casing, of a rotary prism-shaped yoke or stamp-holder, provided with openings and having hollow journals, whose openings communicate with the adjacent stamp-openings of the yoke, stamps located in said openings in which they are normally adapted to slide, each stamp adjacent the journal having a recess, and a pin located in the opening of each journal and adapted to enter the recess of the adjacent stamp whereby the latter is locked from sliding movement.

698,090. STRAW MATTING. WILLIAM WATTIE, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Jan. 19, 1901. Serial No. 43,939. (No model.)



Claim.—1. A straw matting comprising filling-straws and the usual warp cords or threads, an auxiliary or supplemental thread or cord parallel to and between the selvage and next adjacent warp cord or thread, and a turn-in thread parallel to the auxiliary or supplemental thread or cord, the smaller ends of the filling-straws being passed around and under the selvage warp cord or thread and under and over the auxiliary and turn-in threads, respectively.

2. A straw matting comprising filling-straws and the usual warp cords or threads, an auxiliary or supplemental thread or cord parallel to and between the selvage and next adjacent warp cord or thread, and a turn-in thread parallel to the auxiliary or supplemental thread or cord, the smaller ends of the filling-straws being passed around and under the selvage warp cord or thread and under and over the auxiliary and turn-in thread, respectively, the said turned-in end being bound and held in place by the next succeeding pick of straw.

3. A straw matting comprising filling-straws and the usual warp cords or threads, an auxiliary or supplemental thread or cord between the selvage and next adjacent warp cord or thread, and a turn-in thread parallel to and adjacent the auxiliary or supplemental thread or cord, the smaller ends of the filling-straws being passed around and under the selvage warp cord or thread and under and over the auxiliary and turn-in thread, respectively, the turned-in end of the filling-straw being free from interweaving with the usual warp cords or threads between the selvages.

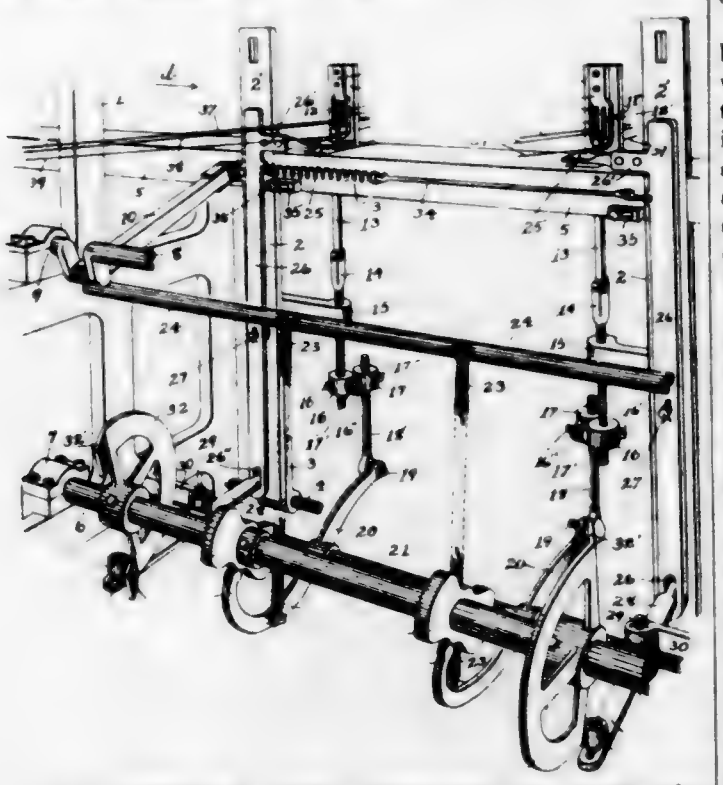
4. A straw matting comprising filling-straws and the usual warp cords or threads, a fine auxiliary or supplemental thread or cord between the selvage and next adjacent warp cord or thread, and a turn-in thread parallel to and adjacent the auxiliary or supplemental thread or cord, the smaller ends of the filling-straws being passed around and under the selvage warp cord or thread and under and over the auxiliary and turn-in thread, respectively, the turned-in end of the filling-straw being free from interweaving with the usual warp cords or threads between the selvages.

698,091. LOOM FOR MAKING STRAW MATTING. WILLIAM WATTIE, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Nov. 19, 1901. Serial No. 82,869. (No model.)

Claim.—1. Mechanism for making a selvage edge on straw matting, &c., consisting of a needle for holding the turn-over thread, which thread engages and turns in the projecting small end of the filling-straw, means for guiding said thread, and means for guiding the selvage-cord and a supplemental binder-thread adjoining said cord, and means for operating said needle, to move it downwardly, inwardly, and upwardly, and downwardly, outwardly, and upwardly, substantially as shown and described.

2. In mechanism for making a selvage edge on straw matting, &c., a needle which holds the turn-over thread, which thread engages and turns in the projecting small end of the filling-straw, a guide through which said thread extends, a guide for the selvage-cord and a supplemental binder-thread adjoining said cord, and means for operating the needle, to carry the turn-over thread downwardly, inwardly, and upwardly, and turn in

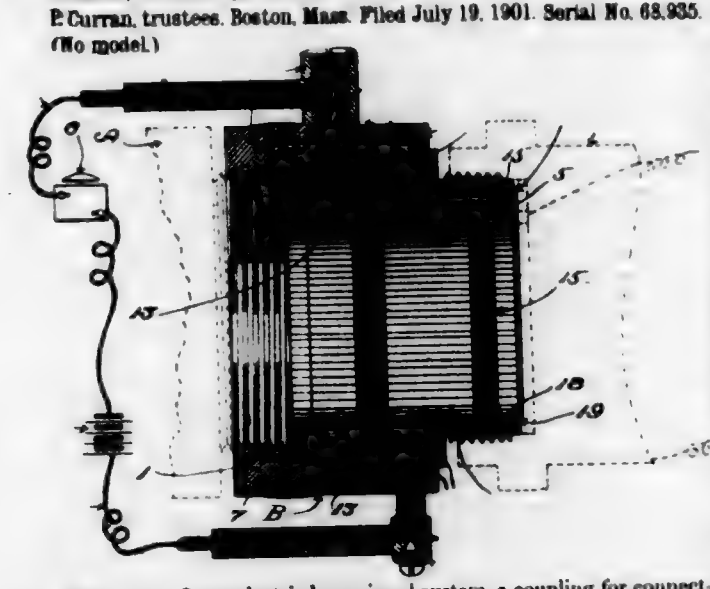
the small end of the filling-straw and bring it upon the under surface of the matting, substantially as shown and described.



3. In mechanism for making a selvage edge on straw matting, &c., a needle for holding the turn-over thread, which thread engages and turns in the projecting small end of the filling-straw, a guide for said thread, a guide for the selvage-cord and for a supplemental binder-thread adjoining said cord, and means for communicating a vertical and an oscillating motion to said needle, substantially as shown and described.

4. In mechanism for making a selvage edge on straw matting, &c., a needle for holding the turn-over thread, which thread engages and turns in the projecting small end of the filling-straw, a guide for said thread, a guide for the selvage-cord and for a supplemental binder-thread adjoining said cord, and means for communicating a vertical and an oscillating motion to said needle, said means consisting of a cam and intermediate connections to said needle, for communicating a vertical motion to the needle, and a second cam and intermediate connections, for communicating an oscillating motion to said needle, substantially as shown and described.

693,092. ELECTRIC HOSE-SIGNAL SYSTEM. GEORGE G. WHITE, Medford, Mass., assignor to himself and Franklin K. Young and Michael P. Curran, trustees, Boston, Mass. Filed July 19, 1901. Serial No. 68,935. (No model.)



Claim.—1. In an electric hose-signal system, a coupling for connecting the hose to the engine comprising two tubular shells and a joint of insulating material which unites said shells and insulates them from each other, one of the said shells being adapted for connection with an engine and the other shell being adapted for connection with the hose, substantially as described.

2. In an electric hose-signal system, a coupling for connecting the hose to the engine comprising two tubular shells and a joint of insulating material which unites said shells and insulates them from each other, one of the said shells being adapted for connection with an engine, the other shell being adapted for connection with the hose, a flanged insulating-ring in the end of said second shell and a contact-ring which extends part way of the length of said insulating-ring and lying flush with the interior of the coupling and having a flange on the outer end which partially laps over the end of said insulating-ring, substantially as described.

3. In an electric hose-signal system, a coupling for connecting the hose to the engine comprising two tubular shells and an insulating-joint which unites the two shells and insulates them from each other, one of said two shells being adapted for connection with an engine, and the other being adapted for connection with the hose, a contact-ring in the mouth of said second shell and an insulating-ring between said contact-ring and said shell, a wire leading from said contact-ring by an insulated passage through said second shell and through said insulating-joint to an electric signal, and another wire electrically connected with said second shell and leading therefrom through a battery to said signal, substantially as described.

4. In an electric hose-signal system, a coupling for connecting the hose to the engine comprising two tubular shells, an insulating-joint which unites the two shells, each of said shells having formed in their inner ends a dovetail groove and recesses in said grooves, said insulating-joint being in form of a ring with dovetail wings on both sides which fit in said grooves and having also bosses which fit in said recesses, substantially as described.

5. In an electric hose-signal system, a coupling for connecting the hose to the engine, comprising two tubular shells, an insulating-joint which unites the two shells, each of said shells having formed in their inner ends a dovetail groove and recesses in said grooves, said insulating-joint being in form of a ring with dovetail wings which fit in said grooves and having also bosses which fit in said recesses, an insulating-ring set into the hose-connecting end of said coupling and a contact-ring set into said insulating-ring and insulated thereby from the shell of said coupling, an insulated passage leading from said contact-ring through the shell on the hose-connecting end of said coupling and through the said insulating-joint, an electric battery, an electric line leading from said hose-connecting end of said coupling to said battery and an electric line leading from said contact-ring through said insulated passage to said battery, and an electric signal in said line, substantially as described.

6. In an electric hose-signal system, a coupling for connecting the hose to the engine comprising two tubular shells and an insulating-joint which unites the two shells, each of said shells having formed in their inner ends a dovetail groove and recesses in said grooves, said insulating-joint being in form of a ring with dovetail wings which fit in said grooves and having also bosses which fit in said recesses, a contact-ring set into the hose-connecting end of said coupling and insulated from said second shell, an insulated tubular passage leading from said contact-ring through said shell and through said insulating-joint, a tubular cup set into the side of said coupling and having therein an insulating-tube connecting with said passage where it leads from the insulating-joint, an electric wire leading from said contact-ring through said passage and into said insulating-tube, another electric wire leading out of said cup and in contact with said first wire, and an insulated pressure device by which said wires are held in contact with each other, substantially as described.

7. In an electric hose-signaling system, a coupling for connecting the hose to the engine, terminals connected with said coupling and wires leading therefrom to the battery and signal, the tubes connected with said coupling through which the said wires pass to protect and support them, substantially as described.

693,093. BUNCHER ATTACHMENT FOR MOWERS. JAMES P. WHEELER, Perry township, Ind., assignor of one-half to Augustin Boice, Indianapolis, Ind. Filed Apr. 10, 1901. Serial No. 55,158. (No model.)

Claim.—1. In a buncher, the combination with a pair of side frames, of an adjustable connection between the forward ends of said frames, a rake-bar journaled in the rear end of said frames, and means for rotating said rake-bar.

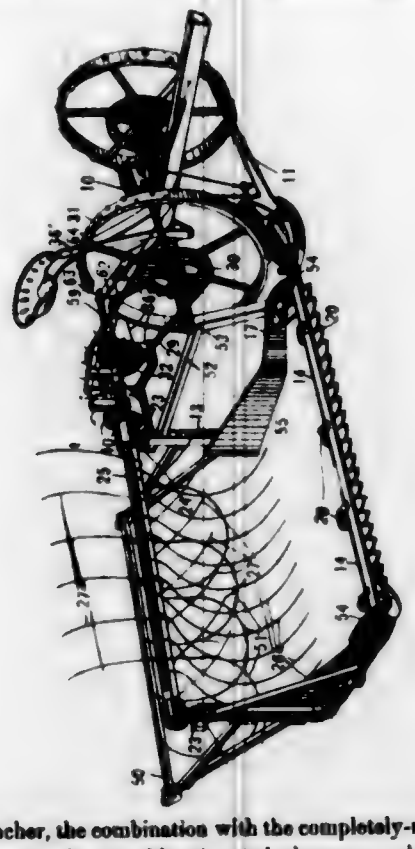
2. In a buncher, the combination with a pair of bearings, of a rake-bar journaled therein, a pair of side frames one pivotally connected to each bearing, and means for rotating the rake-bar.

3. In a buncher, the combination with a pair of bearings, of a rake-bar revolubly mounted therein, a pair of side frames, a vertical pivotal connection between the rear end of each frame and one of the bearings, and an adjustable connection between the forward ends of the side frames.

4. In a buncher, the combination with a rake-bar carrying a series of rake-teeth, of a series of packer-teeth secured to said bar behind the rake-teeth, means for rotating the rake-bar, and a series of spring-teeth 51 mounted to the rear of the rake-teeth and extending downward, forward and upward between the rake-teeth, substantially as and for the purpose set forth.

5. In a buncher, the combination with the completely-rotatable rake-bar, of a driving-clutch rotatably mounted thereon, a clutch-lever pivotally mounted upon said bar, means for throwing the lever into engagement with the clutch, and means for automatically withdrawing the

lever from the clutch immediately upon a complete rotation of the rake-bar.



6. In a buncher, the combination with the completely-rotatable rake-bar, of a driving-clutch rotatably mounted thereon, a clutch-engaging member mounted upon said bar, means for throwing the clutch-engaging member into engagement with the driving-clutch, and a cam formed to engage the clutch-engaging member after it has been thrown into engagement with the driving-clutch and maintain it in engagement with the driving-clutch until the rake-bar makes a complete rotation and then automatically withdraw the clutch-engaging member from the driving-clutch.

7. In a buncher, the combination with the rotatable rake-bar, of a driving-clutch rotatably mounted thereon, a clutch-lever pivotally mounted upon said bar, means for throwing the lever into engagement with said clutch, a cam, and a spring arranged to normally maintain the lever in engagement with said cam, substantially as and for the purpose set forth.

8. In a buncher, the combination with the mower, of a rake-bar and support therefor, means for rotating said rake-bar, and an adjustable ball-and-socket connection between the end of the rake-bar and the frame of the mower.

9. In a buncher, the combination with the mower, of a pair of side frames, a rake-bar revolubly mounted thereon, a driving-gear carried by said rake-bar, a clutch mechanism between said gear and rake-bar, a driving-gear carried by one of the mower-wheels, an axial pin carried by said second driving-gear and projecting immediately above a portion of one of the side frames, and connections between the driving-gears.

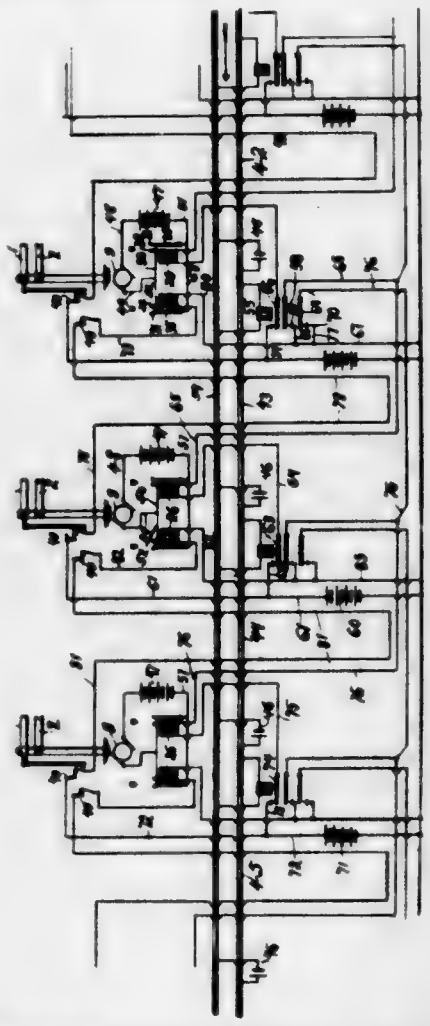
10. In a buncher, the combination with the mower, of a pair of side frames, a rake-bar revolubly mounted thereon, a driving-gear carried by said rake-bar, a clutch carried by said gear, a clutch-lever pivotally mounted upon the rake-bar, means to throw said lever into engagement with the clutch, means for automatically withdrawing the lever from the clutch, a driving-gear carried by one of the mower-wheels, an axial pin carried by the second driving-gear and projecting immediately above a portion of one of the side frames, and connections between the driving-gears.

11. In a buncher, the combination with a pair of bearings, of a rake-bar journaled therein, a pair of side frames carrying said bearings, means for swinging one of said frames upon its bearing so as to vary the distance between the forward ends of the side frames, and means for rotating the rake-bar.

693,094. SIGNAL AND SIGNALING-CIRCUIT. JOSEPH A. WILSON, Westfield, N. J., assignor to the Hall Signal Company, a Corporation of Maine. Filed Aug. 13, 1900. Serial No. 26,703. (No model.)

Claim.—1. In a signaling device, the combination of a signal, a motor for operating it, connections between the motor and the signal including a clutch and a detachable portion for making and breaking the connection between the motor and signal, means for actuating the clutch, and means automatically actuated by the signal for detaching the detachable portion from operative position and means for automatically replacing it therein, whereby a break in the connection between the motor and signal will be automatically made and closed by the signal as it moves to its different positions.

2. In a signaling device, the combination of a signal adapted to move from one position to another and adapted to assume a predetermined position and to return thereto when released from its other or set position, a motor for moving the signal to its set position, connections between the motor and the signal, including a clutch and a detachable portion for making and breaking the connection between the motor and the signal, means for actuating the clutch, means automatically actuated by the signal for detaching the detachable portion from operative position as the signal reaches its set position and means for automatically replacing such portion in operative position as the signal returns to its predetermined position.



3. In a signaling device, the combination of a signal adapted to move from one position to another and biased to assume a predetermined position and to return thereto when released from its other or set position, a motor for moving the signal to its set position, connections between the motor and the signal, including a clutch and a detachable portion for making and breaking the connection between the motor and the signal, means for actuating the clutch, means automatically actuated by the signal for detaching the detachable portion from operative position as the signal reaches its set position, means for automatically replacing such portion in operative position as the signal returns to its predetermined position, and means for holding the signal in its set position and for releasing it therefrom.

4. The combination in a signaling device, of two signals, a motor for operating said signals, connections between the motor and each of said signals, each connection including a clutch, one of said sets of connections containing a detachable portion for making and breaking the connection between the motor and the signal operated through said set of connections, means for actuating each clutch and means automatically actuated by one of the signals for detaching the detachable portion from operative position or replacing it therein, whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal.

5. The combination in a signaling device, of two movable signals, a motor for operating said signals, an operating-belt for each signal, gearing connecting the motor with each operating-belt, a detachable portion in the gearing connecting with one of the operating-belts for making and breaking the connection between the motor and said operating-belt without affecting its connection with the other operating-belt, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal.

6. The combination in a signaling device, of two movable signals adapted to move from one position to another and biased to assume a pre-

determined position, an operating-belt for each signal, a motor for driving the belts in one direction, gearing connecting the motor with each operating-belt, a detachable portion in the gearing connecting with one of the operating-belts for making and breaking the connection between the motor and said operating-belt without affecting its connection with the other operating-belt, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, whereby when a clutch is united with its belt, the latter may be driven to move its signal in one direction and when the clutch is disunited from the belt, it may return with its signal to their starting-point independently of the belt and whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal.

7. The combination in a signaling device, of two movable signals adapted to move from one position to another and biased to assume a predetermined position, an operating-belt for each signal, a motor for driving the belts in one direction, gearing connecting the motor with each operating-belt, means for preventing the belts from moving backward, a detachable portion in the gearing connecting with one of the operating-belts for making and breaking the connection between the motor and said operating-belt without affecting its connection with the other operating-belt, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, whereby when a clutch is united with its belt, the latter may be driven to move its signal in one direction and when the clutch is disunited from the belt, it may return with its signal to their starting-point independently of the belt and whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal.

8. The combination in a signaling device, of two movable signals adapted to move from one position to another and biased to assume a predetermined position, an operating-belt for each signal, a motor for driving the belts in one direction, gearing connecting the motor with each operating-belt, a detachable portion in the gearing connecting with one of the operating-belts for making and breaking the connection between the motor and said operating-belt without affecting its connection with the other operating-belt, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, whereby when a clutch is united with its belt, the latter may be driven to move its signal in one direction and when the clutch is disunited from the belt, it may return with its signal to their starting-point independently of the belt and whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal, and means for automatically throwing out the motor when either signal has made a predetermined movement.

9. The combination in a signaling device, of two movable signals adapted to move from one position to another and biased to assume a predetermined position, an operating-belt for each signal, a motor for driving the belts in one direction, gearing connecting the motor with each operating-belt, a detachable portion in the gearing connecting with one of the operating-belts for making and breaking the connection between the motor and said operating-belt without affecting its connection with the other operating-belt, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, whereby when the clutch is united with its belt, the latter may be driven to move its signal in one direction and when the clutch is disunited from the belt, it may return with its signal to their starting-point independently of the belt, and means, automatically actuated by one of the signals, when moved by the motor to its set position, for moving the detachable portion so as to break the connection between the motor and its operating-belt, and means for automatically restoring the detachable portion to its original position when the said signal returns to its original position, and whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal.

10. The combination in a signaling device, of two movable signals, a motor for operating said signals, operating-belts, one for each signal, adapted to be driven from the motor independently of each other, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal.

11. The combination in a signaling device, of two movable signals adapted to move from one position to another and biased to assume a predetermined position, operating-belts, one for each signal, adapted to be driven from the motor independently of each other, a motor for driving the belts in one direction, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, whereby when a clutch is united with its belt, the latter may be driven to move its signal in one direction and when the clutch is disunited from the belt, it may return with its signal to their starting-point independently of the belt and whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal.

12. In railway signaling, the combination of a series of home and distant signals arranged in pairs, each pair comprising a home and a distant signal, a motor for each of said pairs adapted to be operatively connected with either of the signals of said pair and when thus connected to operate said signal one way, devices for holding each signal in its set position, means for returning the signals to their original position when released by the holding devices, motor-circuits for each motor, one for each signal, a series of track-circuits controlled by the train, three circuits controlled by each track-circuit and intervening between it and the means for moving, holding and releasing the home signals, one of said circuits operating, when controlled by said track-circuit, to put to danger the home signal immediately in the rear of the track-circuit, another operating, when thus controlled, to continue in clear position if it has already cleared the home signal next in advance of said track-circuit, and the third of said circuits operating, when thus controlled, to clear the home signal next but one in advance of said track-circuit, when the track guarded by said home signal is unoccupied, and two circuits controlled by each home signal, and intervening between it and the means for moving, holding and releasing two distant signals, one of said circuits adapted when thus controlled by a home signal to put to danger or continue at danger the distant signal of the same pair when the home signal itself goes to danger, and the other of said circuits adapted when controlled by said home signal to clear the distant signal of the pair of signals next in the rear, when said home signal is itself cleared, whereby the home and distant signals will be automatically operated and each pair of home and distant signals will be operated by a single motor.

13. In railway signaling apparatus, the combination of two movable signals, a motor for operating said signals, an operating-belt for each signal, gearing connecting the motor with each operating-belt, a detachable portion in the gearing connecting with one of the operating-belts for making and breaking the connection between the motor and said operating-belt without affecting its connection with the other operating-belt, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, magnets, one for each clutch, controlled by a train to open and close the said clutches, whereby the signals may be automatically operated from one motor without interference with each other.

14. In railway signaling apparatus, the combination of two movable signals, a motor for operating said signals, an operating-belt for each signal, gearing connecting the motor with each operating-belt, a detachable portion in the gearing connecting with one of the operating-belts for making and breaking the connection between the motor and said operating-belt without affecting its connection with the other operating-belt, means controlled by a train to place said portion in operative position to make connection between the motor and operating-belt, means for automatically detaching said portion to break said connection, a clutch connected to move with each signal and arranged to be united with and disunited from its operating-belt, magnets, one for each clutch, controlled by a train to open and close the said clutches, whereby the signals may be automatically operated from one motor without interference with each other.

15. The combination in a signaling device, of two signals, a motor adapted when operatively connected with either signal to positively move the said signal one way, connections between the motor and each of said signals, one of said sets of connections containing a detachable portion for making and breaking the connection between the motor and the signal operated through said set of connections, means automatically actuated by one of the signals for detaching such portion from operative position and for replacing it therein, whereby the motor may be connected with or disconnected from one signal without affecting its connection with the other signal, means for holding the signals in the positions into which they have been moved by the motor and for returning them to their original positions, all so arranged that both signals may be operated by the same motor without interference one with the other.

693,095. FIRE-ESCAPE. ARTHUR H. ANDREWS, Elmira, N. Y.

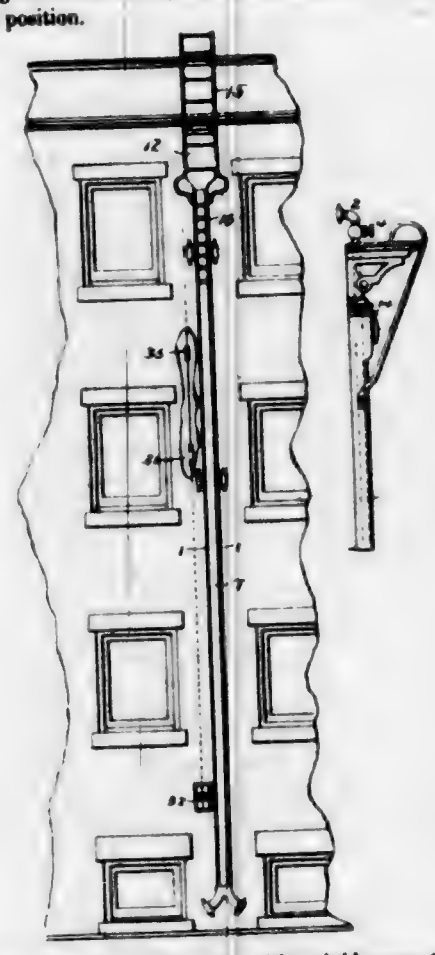
Filed Sept. 19, 1900. Serial No. 30,512. (No model.)

Claim.—1. In a fire-escape, the combination with a stand-pipe and a casing inclosing the same, said stand-pipe constituting a support for the front of the casing, of a folding ladder normally folded and inclosed in the casing, means for holding the ladder folded and inclosed in the casing and means for releasing said holding means.

2. In a fire-escape, the combination of a ladder comprising a rigid support, side bars, rungs pivotally connected at their ends to the side bars and hinged together between their ends and pivoted to said rigid support at their central hinged point, means for holding the side bars elevated and means for releasing said holding means.

3. In a fire-escape, the combination of a casing comprising parallel side plates, a front plate spaced therefrom, a ladder comprising side bars, rungs pivotally connected at their ends to the side bars, hinged at their

center and pivotally connected to the inner face of the front plate, means adapted to hold the side bars and rungs folded behind the front plate and means for releasing the ladder and permitting the side bars and rungs to fall into operative position.



4. In a fire-escape, the combination with a rigid support, of a ladder having its rungs hinged centrally and connected at the hinged center of the rungs to the rigid support, a flexible device connected to the upper ends of the side bars of the ladder, means for securing the flexible device in its highest position and hence holding the side bars raised and close together, and means adapted to be operated from one of a number of points for releasing the flexible device.

5. In a fire-escape, the combination of a folding ladder, a trip adapted to hold the ladder folded, a sheave having means thereon for releasing the trip to permit the ladder to unfold, a flexible device secured to the sheave, wound around the same and passed through the building to which the fire-escape is connected, a counterweight and a flexible device connecting the weight and sheave and wound around the latter in the opposite direction to the first-mentioned flexible device for retaining the trip-releasing means in normal position, so that when the first-mentioned flexible device is given a pull, the sheave will be rotated against the resistance of the weight and caused to release the ladder-holding trip.

6. In a fire-escape, the combination of a folding ladder adapted to be connected to a building, a trip adapted to hold the ladder folded, a sheave having means thereon for operating the trip to release the ladder and permit it to unfold, a flexible connection connected to the sheave, wound around the same and held taut, a flexible device wound on the sheave in the opposite direction, a weight attached to said flexible device, and fusible links on the first-mentioned flexible connection adapted to be destroyed by the heat of a fire to permit the weight to revolve the sheave and release the trip from the ladder.

7. In a fire-escape, the combination with a folding ladder, a chain secured to the ladder, a trip adapted to hold the chain in position to maintain the ladder folded, of a gong, a trip for the gong, and means on the chain for operating the last-mentioned trip to sound the gong.

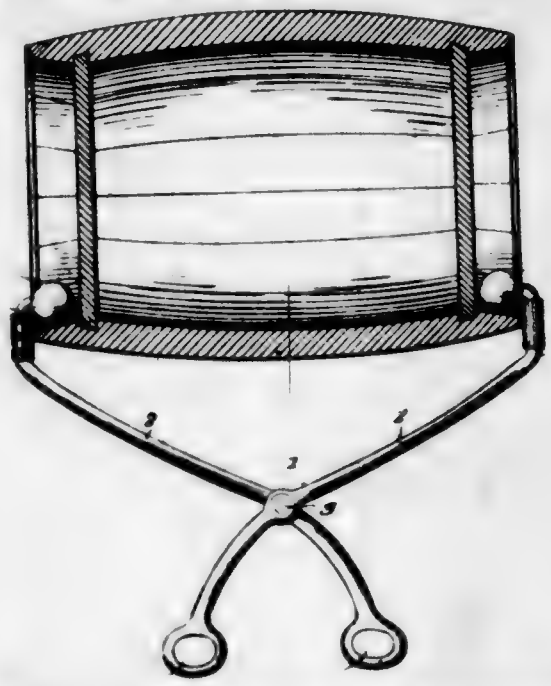
8. In a fire-escape, the combination with a folding ladder, a chain adapted to be elevated and hold the ladder in its folded position and a ring on the free end of the chain, of a pivoted rod on which the ring is disposed, a trip adapted to hold the rod in position to maintain the ring thereon and means for operating the trip to release the rod and permit the ring to be freed therefrom by the weight of the ladder unfolding itself.

698,096. COOKING STOVE OR RANGE. EDGAR W. ANTHONY, Brookline, Mass., assignor to Smith and Anthony Company, Boston, Mass., a Corporation of Massachusetts. Filed Aug. 22, 1901. Serial No. 73,067. (No model.)

Claim.—In a stove or range the combination of the lower shelf B with the upper shelf C supported along its back edge by the back D and at its front edge at the center of its length by the support E, the said support being borne by the front edge of the shelf B to which it is attached and extending forward or outward therefrom, having its upper edge curved within the outer edge of the shelf C which rests thereon.



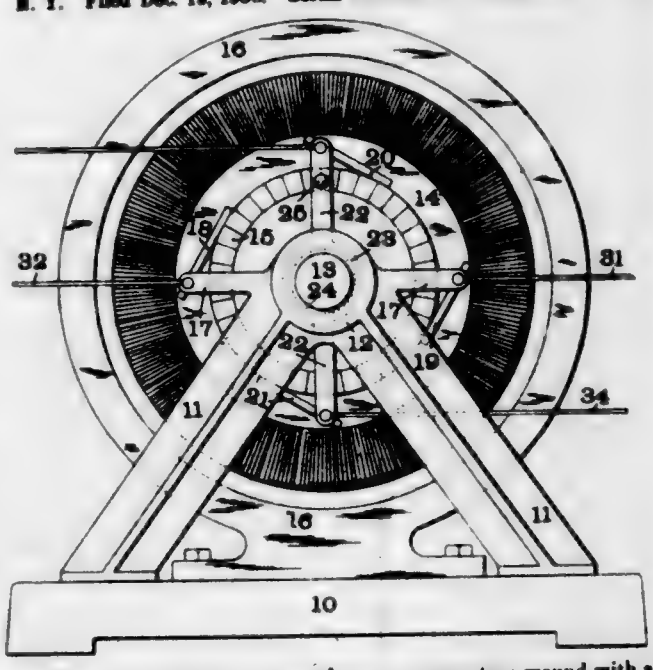
698,097. BARREL-TONGS. CHESTER M. BALDWIN, Bronson, Mich., assignor of one-half to James H. Shaw, Bronson, Mich. Filed Nov. 6, 1901. Serial No. 81,230. (No model.)



Claim.—1. A pair of barrel-tongs carrying revoluble spheres constituting chime-engaging members, and revoluble sleeves or rollers disposed substantially at right angles to the axis of rotation of the spheres, and constituting rim-engaging members.

2. A pair of barrel-tongs comprising two pivotally-connected levers, one terminal of each of which is provided with a handle, and the other terminal with two bearings disposed substantially at right angles to each other, a revoluble sleeve mounted on one bearing, and a ball mounted on the other bearing.

698,098. ROTARY TRANSFORMER. ROYAL E. BALL, New York, N. Y. Filed Dec. 19, 1900. Serial No. 40,335. (No model.)

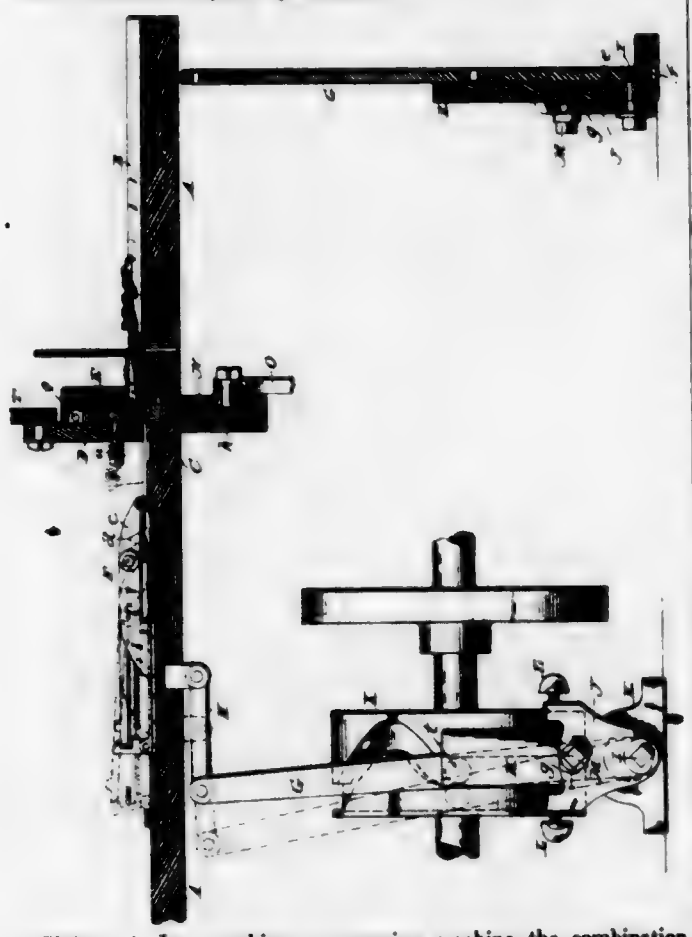


Claim.—1. In a rotary transformer, an armature wound with a coi for both primary and secondary currents, a plurality of commutator-segments connected at intervals to said coil, primary brushes conveying current from an outside source to said armature through said commutator, secondary brushes conducting current from said armature, and means independent of said armature for producing rotation between said commutator and brushes.

2. In a rotary transformer, a rotatable core wound with a coil for both primary and secondary current, a plurality of commutator-segments connected at intervals to said coil, primary brushes conveying current from an outside source to said coil through said commutator, secondary brushes conducting current from said coil, and separate means for rotating said core.

3. In a rotary transformer, a rotatable core wound with a coil for both primary and secondary currents, a commutator the segments of which are connected at intervals to said coil, primary brushes bearing upon said commutator and conveying current from an outside source to said coil, secondary brushes bearing upon said commutator and conducting current from said coil, and separate means for rotating said core.

693,099. WRAPPING-MACHINE. ADOLPH BAYLER, Brooklyn, N. Y., assignor to Thomas Adams, Sr., Brooklyn, N. Y. Filed June 14, 1901. Serial No. 64,822. (No model.)



Claim.—1. In a packing or wrapping machine, the combination with a trough or guide for the wrapper-strip, of nippers or gripping devices movable toward and from said trough; a vibratory lever connected with and serving to give motion to said nippers; a cam for imparting vibratory motion to said lever; and an adjustable fulcrum for the lever whereby the path and range of movement of the lever may be varied.

2. In combination with a trough or guide for a wrapper-strip, a cutting device arranged in the path of said strip and serving to determine the position of the forward end of the strip; nippers movable toward and away from the trough or guide; a vibratory lever connected with and serving to move said nippers; a cam for vibrating said lever; and an adjustable pivot for said lever, comprising a supporting-block, a circular member rotatable in the supporting-block, and a pivot-pin eccentrically mounted in said rotary block, substantially as and for the purpose set forth.

3. In a machine for wrapping merchandise, the combination of a wrapper-guide; nippers movable toward and from said guide and serving to draw the wrapper-strip therefrom; a vibratory lever connected with and serving to move the nippers; a cam adapted and arranged to vibrate said levers; a post or standard provided with a circular seat; a yoke provided with a circular boss to fit the seat in the standard, and with separated arms or ears; adjusting-screws carried by said ears and arranged to bear against opposite sides of the standard; and a pivot-pin eccentrically mounted in the circular boss of the yoke, substantially as and for the purpose set forth.

4. In combination with a suitable bed or support, and with a trough or guide for a wrapper-strip; nippers F movable toward and from said guide; a vibratory lever G connected with and serving to move said nippers; a cam X for vibrating said lever; a standard K provided with a circular opening; a yoke J provided with a circular hub or boss *e* to fit said opening, and with perforated ears; screws L applied to said ears and arranged to bear against the standard K; a pivot-pin I passing eccentrically through the circular hub or boss *e*; and a clamping or binding screw M passing through the yoke and into the standard K.

5. In a wrapping-machine, the combination of a guide for a wrapper-strip; a cutter arranged across the path of said strip; nippers movable toward and from said cutter; a lever for moving said nippers; and an adjustable fulcrum for said lever whereby the throw or path of said lever, and consequently of the nippers, may be varied according to variations in the length or condition of the wrapper-strip.

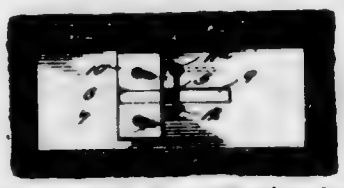
6. In a wrapping-machine, the combination of a suitable bed or support provided with a pathway or guide for a wrapper-strip; and a cutter for said strip, comprising an upper blade or member, a lower blade or member, and a pressure-plate carried by the upper member and held thereto by spring-pressure, substantially as and for the purpose set forth.

7. In a wrapping-machine, the combination with a bed or wrapper-support; of a cutter, comprising vertical guides, upper and lower cutting members carried by said guides, and a pressure-plate carried by one of the cutter members and adapted to direct the other cutter member into and to hold it in close facewise contact with the companion cutter member.

8. In a wrapping-machine, the combination with a suitable bed or support; of slotted posts or standards *k* provided with brackets or projections *l*; guiding rods or stems *n* extending from the brackets to the bed; cutter D having perforated ears to fit said stems; lever Q fulcrumed in one of the standards *k* and guided by the other; and a coacting cutter-blade, all substantially as shown and described.

9. In a wrapping-machine, the combination of a bed or table; nippers for advancing a wrapper-strip a predetermined distance over said table; a lever connected with the nippers and serving to move the same; a cam for actuating said lever; an adjustable fulcrum for the lever; a cutter arranged across the path of the wrapper-strip, and comprising an upper and a lower member; a pressure-plate carried by one of said members and serving to hold the two cutters in close contact; levers Q and U and connecting-rod W for actuating the upper cutter member; elbow-lever O for actuating the lower cutter member; and a cam wheel or disk P for imparting motion to the levers O and U.

698,100. DUSTER FOR CLEANING WALLS, &c. GERTRUDE M. BELL, Germantown, Pa. Filed Oct. 10, 1901. Serial No. 78,249. (No model.)



Claim.—1. In a dust-brush, the combination of a supporting device having an angular end, a brush-head having a socket adapted to receive said angular end, a plate disposed over said socket and adapted to engage said supporting device, and means for clamping said supporting device against said plate.

2. In a dust-brush, the combination of a supporting-rod having an angular end, a brush-head having a socket adapted to receive said angular end, a clip-plate disposed over said socket and angular end of the supporting-rod, and a locking-rod for clamping the supporting-rod against the edge of said clip-plate.

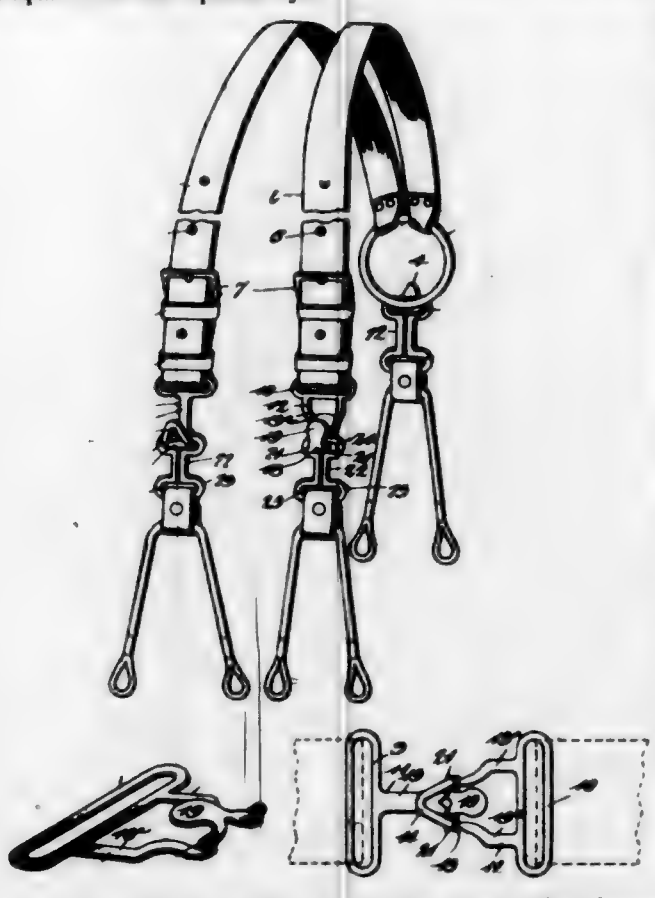
3. A dust-brush comprising a head having a socket therein, a supporting-rod having an angular end adapted to be inserted in one end of said socket, a plate attached to the outer face of said head over one end of said socket, a locking-rod pivotally connected to the outer face of said head and adapted to extend transversely across said socket, and means for holding said locking-rod firmly in position to clamp the supporting-rod between the clip-plate and said locking-rod.

698,101. INTERCHANGEABLE SUSPENDERS AND BELT. HOWARD J. BLOOMER, Norwalk, Conn. Filed Feb. 16, 1901. Serial No. 47,483. (No model.)

Claim.—1. In a device of the class set forth, the combination with a hanger having a reduced seat, of a connecter constructed of resilient metal carrying a suspender-end having a centrally transversely separable resilient flat metal eye to spring over a portion of said hanger and loosely engage the said seat, said eye having a shank extending centrally therefrom to a closed eye of a longitudinal extent equal to the said separable eye.

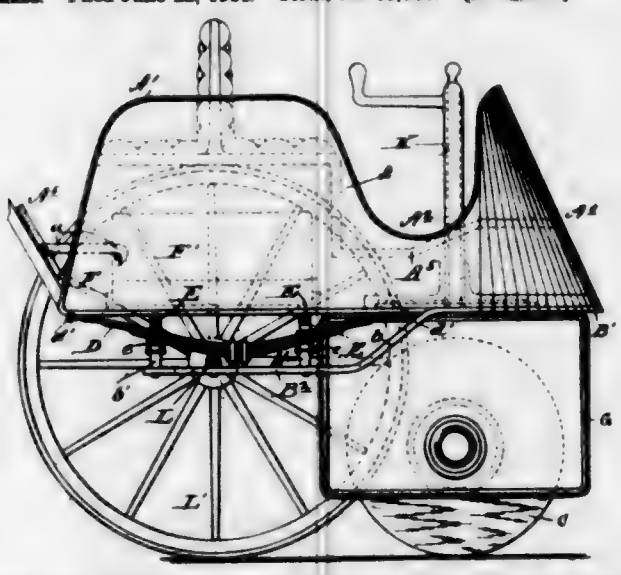
2. In a device of the class set forth, the combination of suspender-straps convertible into a belt, hangers having hooks or bills to separably interlock and provided with reduced seats at the bases thereof and portions adjacent said seats of greater longitudinal distance than the latter, connecters constructed of resilient sheet metal carrying suspender-ends and having centrally transversely separable resilient flat metal eyes to spring over the bills or hooks of said hangers and loosely engage the said

seats, said eyes having shanks extending centrally therefrom to closed eyes at the opposite extremities, said closed eyes having a longitudinal extent equal to the said separable eyes.



3. A suspender-end comprising a connecting device, a loop depending therefrom, and an attaching member consisting of a piece of doubled flexible material secured at its ends and top edge and having a central longitudinally-extending slot engaged by said loop and provided with transversely-extending buttonholes at the opposite extremities.

693,102. MOTOR-VEHICLE. WILLIAM BOWKER, Sr., Waltham, Mass. Filed June 22, 1901. Serial No. 65,580. (No model.)



Claim.—1. The combination with the vehicle-body, the rear axle and parallel side bars secured near their rear ends to said axle, of parallel longitudinal springs secured at their middles to the said side bars under and secured to the sides of the body, transverse springs secured at their ends to said side bars at opposite sides of the axle and a platform or box carried by said transverse springs within the sides of the vehicle-body.

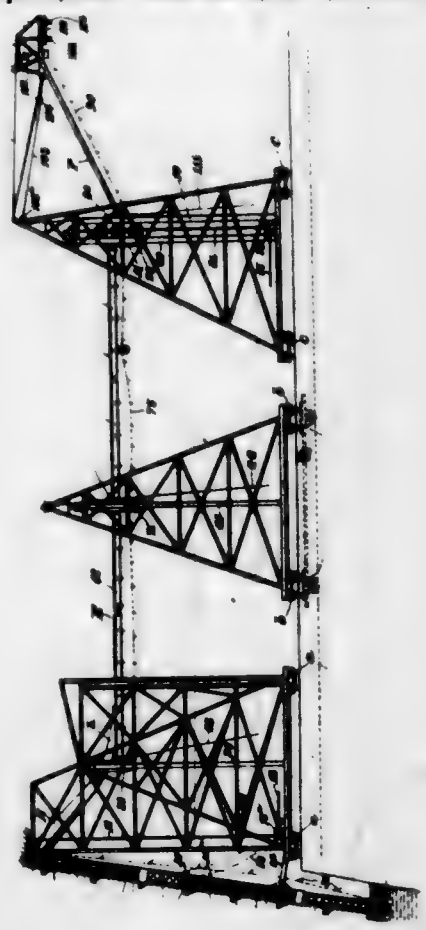
2. The combination with a rear axle, the parallel side bars secured thereto and each having three lugs, longitudinal body-supporting springs secured at their middles to the middle lugs, and transverse battery-supporting springs secured at their ends to the other lugs.

3. The combination with the yoke-like frame, and the rear axle secured to the rear ends thereof, of the longitudinal springs secured at their middles to said side bars and supporting the vehicle-body at their ends, the transverse springs secured at their ends to the side bars in front and rear of the axle and a battery box or support mounted on top of said transverse springs.

4. The combination with a vehicle-body having parallel sides, of a yoke-like frame secured at its front under the front of the body, offset downwardly and having the side bars extended rearwardly under the sides of the body, the rear wheel-carrying axle secured to said rearwardly-extending side bars, longitudinal springs secured at their ends to the body and at their middles to the said side bars, transverse bowed springs shackled at their ends to said side bars and a battery-support mounted on said transverse springs within the body.

5. The yoke-like frame downwardly offset between its ends, and provided at the rear end of each of the side bars with three spring-attaching lugs; the middle lugs being adapted for longitudinal springs and the outer lugs having transversely-apertured ears for the ends of transverse springs.

698,108. PILING-MACHINE. DANIEL J. BROPHY, Montreal, Canada. Filed Apr. 13, 1901. Serial No. 55,784. (No model.)



Claim.—1. In a piling apparatus or system, the combination of an elevator mechanism, a substantially horizontal conveyer mechanism, load-transfer means bridging the space between the elevator and conveyer mechanisms whereby a load is automatically shifted from the elevator to the conveyer mechanism, and load-delivery mechanism arranged to receive the load from said conveyer mechanism, substantially as and for the purposes set forth.

2. In a piling apparatus or system, the combination of towers, a substantially horizontal conveyer mechanism supported thereon, an elevator mechanism on one of said towers, load-transfer mechanism bridging the space between the elevator mechanism and said conveyer mechanism, and means for vertically adjusting the conveyer mechanism, substantially as set forth.

3. In a piling apparatus or system, the combination of towers, a substantially horizontal conveyer mechanism, means whereby said conveyer mechanism may be raised or lowered with relation to the towers, and an elevator mechanism arranged to deliver its load to said conveyer mechanism, substantially as set forth.

4. In a piling apparatus or system, the combination of towers, a substantially horizontal conveyer mechanism, means for adjusting said conveyer mechanism vertically, an elevator mechanism arranged to discharge its load from different heights, and transfer means bridging the space between the elevator and conveyer mechanisms, substantially as set forth.

5. In a piling apparatus or system, the combination of an elevator mechanism arranged to discharge its load from different heights, a conveyer mechanism adjustable vertically and normally occupying a position below the point of discharge from the elevator mechanism, and adjustable transfer means bridging the space between the discharge of the elevator mechanism and said conveyer mechanism, as and for the purposes set forth.

6. In a piling apparatus or system, the combination of an elevator mechanism arranged to discharge from different heights, a substantially horizontal conveyer mechanism arranged for vertical adjustment, an inclined chute bridging the space between the elevator and conveyer mech-

anisms, and means for adjusting said chute to occupy an operative relation to the elevator and conveyer mechanisms, substantially as set forth.

7. In a piling apparatus or system, an elevator mechanism having a series of driving devices determining the points of discharge of the elevator, and a suitable carrier adapted to be lengthened or shortened and to be operatively arranged to either of said driving devices, in combination with a mechanism arranged below the point of discharge from the elevator, and a chute bridging the space between the conveyer and the point of discharge of the elevator, substantially as described.

8. In a piling apparatus or system, an elevator mechanism comprising an extensible frame, a shaft carried by one member of said frame, a series of shafts on the other frame member, and a suitable carrier operatively fitted to certain of the shafts, in combination with a conveyer, and transfer devices bridging the space between the point of discharge of the elevator and said conveyer, substantially as described.

9. In a piling apparatus or system, an elevator mechanism comprising an extensible frame having its members slidably fitted together and provided with suitable means whereby one frame member may be lengthened or shortened with respect to the other frame member, an idler-shaft carried by the lower frame member, a series of shafts on the upper frame member, and a suitable carrier adapted to be operatively fitted to certain of said shafts, in combination with a conveyer mechanism, and transfer devices between said conveyer and the point of discharge of the elevator, substantially as described.

10. In a piling apparatus or system, an elevator mechanism comprising an extensible frame having its members slidably fitted together, threaded shafts supported on one frame member and operatively connected to the other frame member, a worm-shaft mounted on one frame member and geared to said threaded shafts and provided with operating means, an idler-shaft carried by the lower frame member, a series of shafts on the upper frame member, and a suitable carrier operatively fitted to certain of said shafts, in combination with a conveyer mechanism, and suitable transfer devices bridging the space between the conveyer mechanism and the points of discharge of the elevator, substantially as described.

11. In a piling apparatus or system, an elevator mechanism comprising a suitable frame, a series of driving-shafts, a primary driving-shaft, gearing operatively connecting certain of said driving-shafts with said primary driving-shaft, and suitable conveyer-chains operatively fitted to certain of the shafts, in combination with a conveyer mechanism, and a chute between the elevator and the conveyer, substantially as described.

12. In a piling apparatus or system, the combination of an elevator mechanism, a conveyer mechanism, and a transfer-chute having an adjustable section which is operatively disposed to the conveyer mechanism, substantially as described.

13. In a piling apparatus or system, the combination of an elevator mechanism having points of discharge at different heights, a conveyer mechanism adjustable vertically with respect to its supports, and a flexible chute bridging the space between the elevator and the conveyer and equipped with means whereby said chute may be raised or lowered to maintain an operative relation to the elevator and the conveyer, substantially as described.

14. In a piling apparatus or system, the combination of an elevator having a rigid frame and points of discharge at different heights, slides fitted to said elevator-frame, a chute pivoted to said slides, means for raising and lowering the slides and correspondingly adjusting the chute, and a conveyer in operative relation to the chute, substantially as described.

15. In a piling apparatus or system, the combination of an elevator-frame, an elevator thereon, a suspended conveyer, an inclined chute slidably supported on the elevator-frame and having a flexible section arranged to ride upon said suspended conveyer, and means for adjusting said chute, substantially as described.

16. In a piling apparatus or system, the combination of an extensible elevator, a vertically-adjustable conveyer normally occupying a substantially horizontal position, and vertically-adjustable load-transfer mechanism bridging the space between the elevator and the conveyer, substantially as described.

17. In a piling apparatus or system, the combination of an elevator, a conveyer having a number of individually-operable members all traveling in the same direction, a chute between the elevator and conveyer, and work-deflecting means disposed in the path of the discharge from the elevator and shiftable across the chute, to alternately direct the work to the different members of said conveyer mechanism, substantially as described.

18. In a piling apparatus or system, the combination of an elevator, a conveyer having separate traveling members, a chute between said elevator and the conveyer, means for adjusting the conveyer and the chute individually, and work-deflecting means mounted on and adjustable with the chute and disposed in the path of discharge from the elevator, and shiftable across the chute, for directing the work to different members of said conveyer, substantially as described.

19. In a piling apparatus or system, the combination of an elevator, a conveyer, an inclined chute having a jointed adjustable section and arranged for the chute to receive the load from the elevator and for its adjustable section to overhang the conveyer, and suitable devices connected to different portions along the length of the chute for suspending and adjusting the latter, substantially as described.

20. In a piling apparatus or system, the combination of a tower having an elevator-driving shaft, an elevator-frame hung for adjustment with said shaft and its axis in motion, means whereby the angle of the conveyer-frame to the tower may be varied, an elevator mechanism supported by the frame and adapted to be driven from said elevator-shaft, a conveyer slidably supported by the tower, and transfer devices between the elevator and said conveyer, substantially as described.

21. In a piling apparatus or system, the combination of a group of towers, vertically-adjustable carriages on said towers, a conveyer mechanism supported by said carriages and adjustable vertically therewith, and an elevator mechanism arranged to deliver its load to said conveyer, substantially as described.

22. In a piling apparatus or system, the combination of a group of towers, each provided with vertical guides, a series of carriages fitted slidably to the guides of said towers, a horizontal conveyer supported on the carriages and arranged for adjustment vertically thereon, an elevator mechanism, and a transfer device between said elevator and said conveyer, substantially as described.

23. In a piling apparatus or system, the combination of a group of towers, means whereby one tower of the group may be shifted out of operative position with respect to the other remaining towers, a conveyer mechanism supported by said towers, an elevator mechanism, and transfer devices between the elevator and said conveyer, substantially as described.

24. In a piling apparatus or system, the combination of a group of towers each having a vertically-adjustable carriage, a sectional conveyer-trough having its members suspended by said carriages between the towers, a continuous conveyer mounted on the carriages and extending partially through said trough, an elevator mechanism, and transfer devices between the elevator and said conveyer, substantially as described.

25. In a piling apparatus or system, the combination of a group of towers each having a vertically-adjustable carriage, suspension-cables spanning the spaces between the towers and attached to the carriages thereof, a sectional trough or casing having its members attached to the cables and disposed in overlapping relation, the idler and driving shafts on certain of said carriages, a continuous conveyer mechanism fitted to the shafts and extending between said towers, and an elevator mechanism arranged to discharge its load to the conveyer, substantially as described.

26. In a piling apparatus or system, the combination of a group of towers, a substantially horizontal conveyer-trough suspended from said towers and provided with a longitudinal division-ridge, a continuous conveyer mechanism having members operatively disposed with relation to the trough and on opposite sides of the division-ridge therein, and an elevator mechanism arranged to discharge its load to said conveyer, substantially as described.

27. In a piling apparatus or system, the combination of a group of towers, a vertically-slidable carriage on each tower, an idler-shaft on one carriage, a driving-shaft on the other carriage, an endless conveyer mechanism supported by said carriages and operatively related to the driving and idler shafts, means for propelling the conveyer-driving shaft at all points of adjustment of its carriage, and an elevator mechanism arranged to discharge its load to said conveyer, substantially as described.

28. In a piling apparatus or system, the combination of towers, a series of carriages vertically adjustable therein, means for individually adjusting said carriages with relation to the towers, a conveyer mechanism supported by the carriages and adjustable therewith, means for driving said conveyer mechanism at all points of the adjustment of the carriages, and an elevator mechanism arranged to discharge its load to the conveyer, substantially as described.

29. In a piling apparatus or system, the combination of towers, a conveyer mechanism, a boom projecting from one of the towers, means whereby the boom is slidably and pivotally mounted on one tower, and a delivery-conveyer supported by and adjustable with the boom and arranged to receive the load from the first-named conveyer, substantially as described.

30. In a piling apparatus or system, the combination of towers, an elevator on one tower, a boom projecting from another tower, a primary load-conveyer extending between the elevator and the boom, and a delivery-conveyer mounted on the boom and arranged to receive the load from the primary conveyer, substantially as described.

31. In a piling apparatus or system, the combination of towers, a conveyer mechanism mounted for vertical adjustment thereon, an elevator mechanism for loading the conveyer, a boom projecting from one of the towers, means for bodily shifting the boom up or down to maintain

an operative relation to the conveyer mechanism, and a delivery-conveyer mounted on the boom and arranged to receive the load from the first-named conveyer, substantially as described.

32. In a piling apparatus or system, the combination of towers, a conveyer supported thereon, means for loading said conveyer, a boom projecting from one of the towers, a delivery-conveyer mounted on the boom and arranged to receive the load from the first-named conveyer, and a discharge mechanism operatively related to the boom and the conveyer thereon and arranged to properly position the load previous to dropping the same, substantially as described.

33. In a piling apparatus or system, the combination of a boom, a conveyer thereon, a discharge mechanism operatively related to said conveyer for receiving the load therefrom, said discharge mechanism having elements arranged to automatically position the load previous to discharging the same, as and for the purposes set forth.

34. In a piling apparatus or system, the combination with a boom, and means for delivering a load thereto, of a delivery-conveyer supported on the boom and arranged to receive the load from the first-described means, and a discharge mechanism mounted on the boom in adjustable relation thereto, and occupying normally an operative position with reference to the conveyer, said discharge mechanism having elements operable to automatically arrange the load in a horizontal position, and to automatically discharge the load immediately following the proper disposition thereof, as and for the purposes set forth.

35. In a piling apparatus or system, the combination of a boom, means for conveying a load thereto, a delivery-conveyer supported by the boom and operatively related to the first-described conveyer means, a discharge mechanism adjustably mounted on the boom and having elements arranged to be opened automatically by the weight of the load, and means for adjusting said discharge mechanism to occupy a horizontal position at all points of adjustment of the boom, substantially as described.

36. In a piling apparatus or system, the combination of a boom, means for conveying a load thereto, a delivery-conveyer mounted on the boom for adjustment therewith, means for adjusting said boom, a discharge mechanism supported on the boom in operative relation to the delivery-conveyer thereon, and means for adjusting the discharge mechanism irrespective of adjustment of the boom, substantially as described.

37. In a piling apparatus or system, the combination of a boom, means for conveying a load thereto, a delivery-conveyer on the boom, and a transfer device between the first-named conveyer and the delivery-conveyer, whereby the load will be carried from one conveyer to the other positively, substantially as described.

38. In a piling apparatus or system, the combination of a boom, a conveyer for transporting a load thereto, a delivery-conveyer supported by the boom and arranged contiguous to the first-named conveyer, and a revoluble drum occupying an operative relation to the first-named conveyer and arranged to automatically transfer the load therefrom to, and upon, the delivery-conveyer, as set forth.

39. In a piling apparatus or system, the combination of a boom, a conveyer for transporting a load thereto, a delivery-conveyer supported by the boom, a discharge mechanism having trap-doors disposed in operative relation to the delivery-conveyer, and means whereby said trap-doors are automatically actuated, substantially as described.

40. In a piling apparatus or system, the combination of a boom, a conveyer for transporting a load thereto, a delivery-conveyer on said boom, a discharge mechanism having trap-doors operatively related to the delivery-conveyer, and an automatically-releasable latch mechanism for maintaining the trap-doors in their closed operative positions, substantially as described.

41. In a piling apparatus or system, the combination with a boom and a delivery-conveyer thereon, of a discharge mechanism mounted on the conveyer and comprising trap-doors normally in operative relation to the conveyer means, means for locking the trap-doors in their closed position and adapted to be released by the deposit of the load thereon, and means for returning said doors to their closed positions immediately following the discharge of the load therefrom, substantially as described.

42. In a piling apparatus or system, the combination with a delivery-conveyer, a discharge mechanism having hinged doors, and load-actuated locking devices for normally holding the doors in their closed positions, substantially as described.

43. In a piling apparatus or system, the combination with a conveyer, of a discharge mechanism having a trap-door, and a load-actuated latch mechanism arranged to maintain the trap-door in operative relation to the conveyer, substantially as described.

44. In a piling apparatus or system, the combination with a conveyer mechanism, of a trap-door arranged to receive the load from the conveyer mechanism, and means for maintaining said trap-door in its operative position, whereby the load will be properly disposed previous to its discharge from the trap-door, substantially as described.

45. In a piling apparatus or system, the combination with a conveyer, of a discharge device having a load-actuated latch mechanism, and a transfer-drum arranged to shift the load from the conveyer to the discharge device without releasing the latch mechanism until the load shall have been fully imposed upon the discharge device, substantially as described.

46. In a piling apparatus or system, the combination with a conveyer, of a hinged trap-door, a counterpoise operatively related to said trap-door, and a load-actuated latch mechanism to normally maintain the trap-door in operative relation to the conveyer, substantially as described.

47. In a piling apparatus or system, the combination with a delivery-conveyer having individually-operable members, of a discharge mechanism provided with individually-hinged doors arranged to swing outwardly on the deposit of the load thereon from said conveyers, and means whereby the trap-doors are maintained in their operative relations to said conveyer, substantially as described.

48. In a piling apparatus or system, the combination with a delivery-conveyer having individually-operable members, of a discharge mechanism having hinged trap-doors adjacent to said conveyer, a counterpoise for each trap-door, load-actuated latch devices for maintaining the trap-doors in their closed position, and a transfer device between the conveyer and said trap-doors, substantially as described.

49. In a piling apparatus or system, the combination of towers, carriages mounted thereon, a conveyer mechanism supported by the carriages, and a boom mounted on one of said carriages for adjustment therewith and capable of an independent movement, substantially as described.

50. In a piling apparatus or system, the combination with a carriage, and a conveyer mechanism, of a boom having means for transferring the load, and means whereby said boom may be given an endwise movement with respect to the carriage, substantially as described.

51. In a piling apparatus or system, the combination with a carriage, and a conveyer mechanism, of a boom mounted on said carriage to be capable of a swinging movement in a vertical plane and of an endwise movement to the carriage, and means supported by the boom to receive the load from the conveyer, substantially as described.

52. In a piling apparatus or system, the combination of towers, carriages thereon, a conveyer supported by the carriages, a pivoted boxing mounted in one of the carriages, a boom slidable in said boxing and arranged to turn therewith in a vertical plane, means for adjusting the boom, and a conveyer supported on the boom, substantially as described.

53. In a piling apparatus or system, the combination of towers, vertically-movable carriages thereon, a conveyer supported by the carriages, two conveyer-driving shafts individually mounted in one of said carriages, and one of said shafts having operative connection with said conveyer, a boom mounted in said carriage having the shafts, a delivery-conveyer operatively related to the boom and having connection with the other of said conveyer-driving shafts, and means whereby the two conveyer-driving shafts may be propelled at all points of the adjustment of the carriage or of the boom, substantially as described.

54. In a piling apparatus or system, the combination with a conveyer mechanism, of means for supporting the same in an elevated position, a load-conveying elevator arranged to deliver to said elevated conveyer mechanism, and a load-discharge mechanism arranged to receive from the conveyer mechanism and having a yieldable load-detaining door arranged in the path of the load operable to properly position the load before releasing or dropping the same, substantially as described.

55. In a piling apparatus or system, the combination with an elevated conveyer mechanism, of an automatic load-discharge mechanism situated in operative relation to said conveyer mechanism and having a yieldable load-retaining door arranged to momentarily retain and to position the load before finally discharging the same, substantially as described.

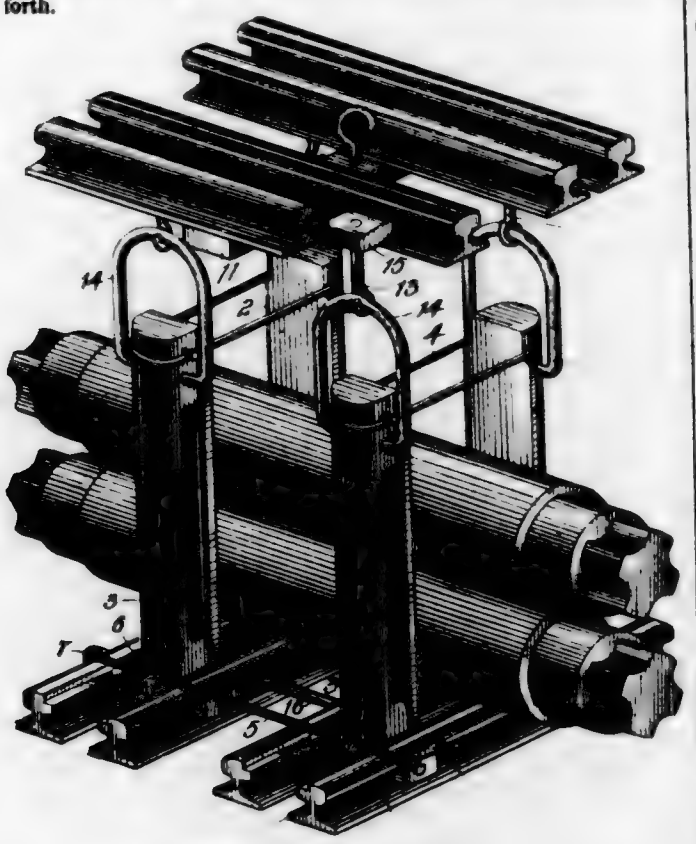
693,104. CRATE FOR ROLLS. JOHN F. BUDER, Canonsburg, Pa. Filed Feb. 13, 1901. Renewed Nov. 22, 1901. Serial No. 83,301. (No model.)

Claim.—1. A portable rack for rolls, having in combination, a supporting member, a pair of posts secured to the supporting member and adapted to retain the rolls in position one upon the other and on the supporting member, one of the posts being pivoted to the supporting member and adapted to be turned down into alinement therewith, substantially as set forth.

2. A portable rack for rolls, having in combination, supporting members and two pairs of posts secured to the supporting members and adapted to retain the rolls one upon the other and on the supporting members, one pair of posts being pivotally connected to the supporting members and adapted to be turned down into alinement therewith, substantially as set forth.

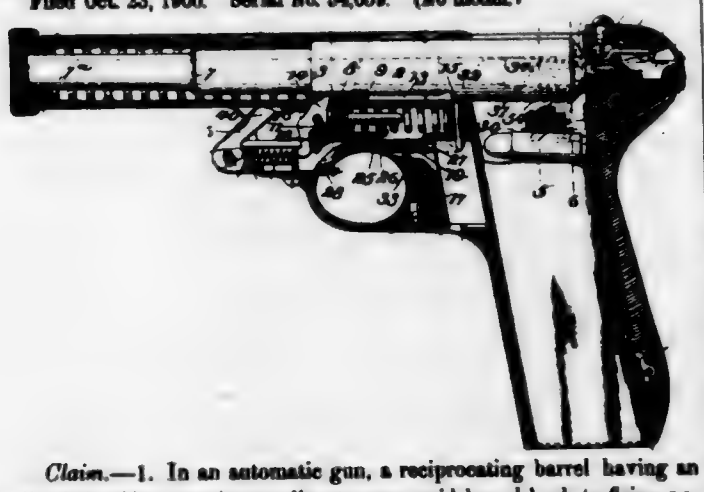
3. A rack for rolls having in combination two supporting members adjustably connected together, and two pairs of posts secured to the supporting members and adapted to retain the rolls in position, one pair of posts being pivotally connected to the supporting members, substantially as set forth.

4. The combination of two roll-supporting members adjustably connected together, two pairs secured to the supporting members and adapted to retain the rolls in position, one pair of posts being pivotally connected to the supporting members, a lifting-frame and hooks adjustably mounted on the frame and adapted to engage the retaining-posts, substantially as set forth.



693,105. AUTOMATIC GUN. ANDREW BURGESS, Owego, N. Y.

Filed Oct. 23, 1900. Serial No. 34,059. (No model.)



Claim.—1. In an automatic gun, a reciprocating barrel having an inclined shoulder, a spring tending to press said barrel back to firing position, and a removable ring in the frame and surrounding the barrel and provided with a beveled rear surface against which the inclined shoulder of the barrel engages to cause a wedging contact and slight detention of the barrel, all combined substantially as described.

2. In a gun of the character described, a reciprocating barrel, a piston-head having longitudinal movement substantially parallel with the barrel, the striker and firing-pin connected to said piston, a spring acting to press the piston forward, and a lever hung in the frame, operatively engaged by the barrel in its forward movement, and engaging the piston to move the same and the striker rearward, and means for holding the striker back, all combined substantially as described.

3. In a gun of the character described, a reciprocating barrel, a piston-head having longitudinal movement substantially parallel with the barrel, the striker and firing-pin connected to said piston, a spring pressing the piston forward, a lever hung in the frame, engaged by the barrel in its forward movement and engaging the piston to press the same back, means for holding the striker back, and means for releasing the same for firing the gun, all combined substantially as described.

4. In an automatic gun, a reciprocating barrel, the piston pressed by a spring and moving in a line substantially parallel with the barrel and means for pressing it back by the barrel movement, a sliding trigger-piece in proximity to the said piston, a sear carried by the trigger-piece and engaging the piston to hold the same retracted, and a stop acting on the trigger to thereby hold the lock and its connected parts in cocked position, all combined substantially as described.

5. In a gun as described, a reciprocating barrel, piston, and firing-pin, connected and coacting substantially as described, a sliding trigger-piece and a spring to press the same forward, a sear carried by the trigger-piece and engaging the piston as described, and a movable foil which serves when in proper position as an operating-abutment against which the sear may bear when the foil is held, all combined substantially as described.

6. In a gun as described, the reciprocating barrel, piston-head, and firing-pin, coacting as described, a sliding trigger-piece and a spring to press it forward, a sear pivoted to the trigger and extending toward the foil, and a foil movable in the frame, but fixed by the barrel when in firing position, whereby the foil acts to trip the sear only when the barrel is closed and trigger pulled, all combined substantially as described.

7. In an automatic gun, the reciprocating barrel, the piston and connected firing-pin pressed forward by a spring and moving in a line substantially parallel with the reciprocating barrel, a lever acted on by the barrel and engaging the piston to move the same back, a sliding trigger in proximity to the piston and carrying a sear by which connection is made to the piston, and a stop acting to limit the forward movement of the mainspring, and a spring to rebound the parts to half-cock position, all combined.

8. In a gun as described, the combination of a reciprocating barrel, a piston pressed forward by the mainspring and means for moving the piston back by the barrel movement, a longitudinally-sliding trigger and a sear pivoted thereto in position to interlock with said piston, a foil operatively engaged by the barrel as described to serve as an abutment for the sear, and stops acting on the trigger to stop it in its half-cock or full-cock position, all substantially as described.

9. In a gun as described a reciprocating barrel, and firing-pin, piston and trigger, each supported in the frame to have longitudinal movement therein, a dog connected to the trigger and extending into proximity with the barrel, and means operated on by the barrel, by which the forward movement of the barrel actuates the dog to throw the trigger forward, all substantially as described.

10. In a gun as described, a reciprocating barrel, piston, and firing-pin, a trigger sliding in the frame, and a dog connected to the trigger and in one position actuated by the barrel to throw the trigger forward, and means for holding the dog out of operative position.

11. In a breech-loading gun, the recoil-shield cut away to leave an abutment near the edge of the cartridge-shell, the reciprocating barrel, the reciprocating striker, and a longitudinally-movable cartridge-extractor actuated by said striker, whereby the rearward movement of the extractor rocks the cartridge-shell on said abutment as a fulcrum, and thereby ejects the shell, substantially as described.

12. The combination of a gun having a magazine-receptacle, a box-magazine adapted to such receptacle, a follower in the magazine and a detaining-cord or equivalent by which the follower is held in depressed position, and means on the gun for severing the cord by the breech-opening movement, substantially as described.

13. The combination with the magazine having a retaining-cord to hold the follower depressed, of the longitudinally-movable barrel having a cutting-surface which engages and severs said cord as the barrel moves.

14. In a breech-loading gun as described, a box-magazine and a follower therein, a detent which engages the second cartridge below the top, and a carrier acting to lift the top cartridge while succeeding cartridges are held down by the said detent, all combined substantially as described.

15. In a gun as described, a reciprocating barrel, a box-magazine and a follower therein, a detent engaging the second cartridge below the top, a carrier which lifts the top cartridge as described and has incline engagement with the barrel at the backward movement of the barrel, said carrier engaging the detent to release the cartridge therefrom as the carrier falls, in combination substantially as described.

16. In a gun as described, the carrier pivoted in the frame and having elastic side arms provided with projections to extend over the body of the cartridge, notches to inclose the head or flange of the cartridge, and inclines at the front, combined with the reciprocating barrel inclined at its rear, to engage, depress, and open the carrier-arms as the barrel moves back, substantially as described.

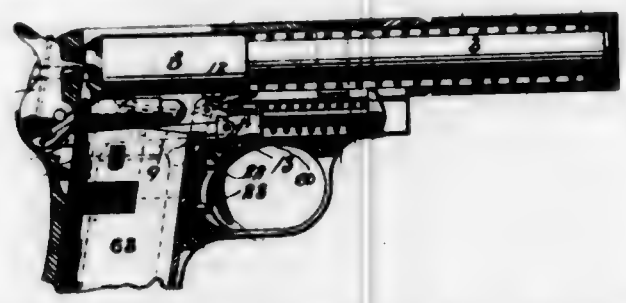
693,106. AUTOMATIC GUN. ANDREW BURGESS, Owego, N. Y.

Filed May 23, 1901. Serial No. 61,541. (No model.)

Claim.—1. In an automatic gun, the combination of a longitudinally-reciprocating barrel, a connection to the hammer, a plurality of sears engaging said hammer connection, an abutment carried by the barrel by which one of these sears is detached, and a trigger and connections whereby the other sear may be disengaged, all combined.

2. In a gun as described, the combination with a reciprocating barrel, of the reciprocating piston and means for moving the same, a sear engaging said piston, a trigger and a coupling-piece whereby the trigger is engaged with the sear, or released therefrom, substantially as described.

3. In an automatic gun, the combination with the reciprocating barrel, a firing device, and a sear having engagement therewith to hold the gun cocked, of a trigger having a coupling-piece connected thereto for connection with the sear, and a movable stop in the frame by which said coupling-piece may be released from the sear, substantially as described.



4. In a gun as described, the sliding barrel, piston, and sear engaging said piston, the trigger pivoted on the pivot of said sear, springs bearing to rock both sear and trigger forward, a coupling-hook pivoted to the trigger and a spring bearing said hook into engagement with the sear, and a movable abutment in the frame, which by its position may disengage said coupling-hook from the sear or otherwise, substantially as described.

5. In an automatic gun, the combination of a reciprocating barrel and a movable check-piece on the stock, under control of the thumb of the hand which grasps the stock to fire the gun, whereby the check-piece may be moved to stop the barrel movement.

6. In an automatic gun, the combination of a reciprocating barrel, a pivoted check-piece on the stock under control of the thumb of the hand that fires the gun, and a spring to hold the check-piece in adjusted position.

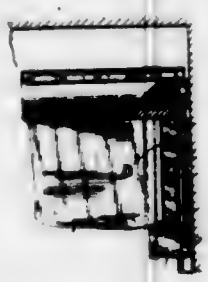
7. In an automatic gun, the combination of a reciprocating barrel, a check-piece pivoted to the stock in position to be moved by the thumb of the hand grasping the stock, a spring connected to said check-piece, and a button on the stock against either side of which the spring may bear.

8. In an automatic gun, the combination with the reciprocating barrel, of the magazine, jaws pivoted to the magazine and extending upward and constructed to embrace the top cartridge above and below its center, means for lifting the jaws, and inclines on said jaws, which by the engagement of the barrel depress the jaws, and springs between the jaws and magazine by which the jaws are closed.

9. In a gun as described, the stock having a magazine-receptacle, a magazine in said stock and vertically movable in direct line therein, and the hammer or other movable part of the firing mechanism having a pawl which engages the magazine and lifts the same positively, all combined.

10. In a gun as described, the stock having a magazine-receptacle, the magazine therein, a spring operating to lift the magazine in the stock, and a reciprocating barrel and positively-acting mechanism connected therewith coacting with the spring.

693,107. CURTAIN. LEONARD S. BURROWS, Chicago, Ill. Filed Oct. 19, 1900. Serial No. 33,545. (No model.)

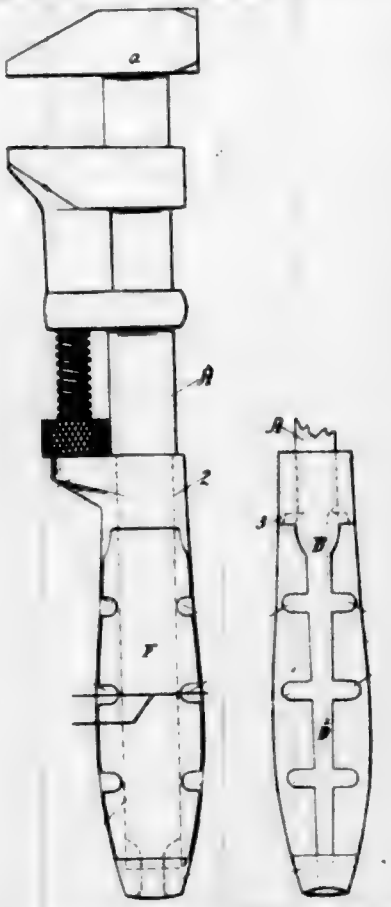


Claim.—1. The combination with a curtain having a perforated binding along its edges, of a coiled spring run into the perforations, a roller upon which the curtain is mounted and suitably-supported slotted tubular guides, in which the coiled spring runs as the curtain is raised or lowered; substantially as described.

2. The combination with a curtain-roller and a curtain having a perforated flexible metallic binding along the edge thereof, a coiled spring run in the perforations and slotted tubular guides adapted to receive and guide the coiled spring; substantially as described.

3. The combination with a curtain-roller, of a curtain running thereon provided along its edges with a binding having a series of elongated perforations arranged lengthwise longitudinally of the curtain, a coiled spring run into said perforations along said edges, and suitable tubular guides for said spring; substantially as described.

693,108. CONSTRUCTION OF WRENCH-HANDLES. FRANK L. COES, Worcester, Mass., assignor to Loring Coes & Company, Incorporated, Worcester, Mass., a Corporation of Massachusetts. Filed Nov. 23, 1901. Serial No. 83,406. (No model.)



Claim.—1. A wrench-handle comprising a metal central frame with wooden side plates seated thereon; said frame being provided at its edges with projecting integrally-formed inwardly-bent fingers that engage in circumferential recesses formed on the opposite edges of said side plates, substantially as set forth.

2. The handle-frame provided at each of its edges with a plurality of projecting fingers disposed at intervals between the collar-rim and end piece, in combination with side plates having circumferentially-disposed recesses into which said fingers are clasped with inward curvature.

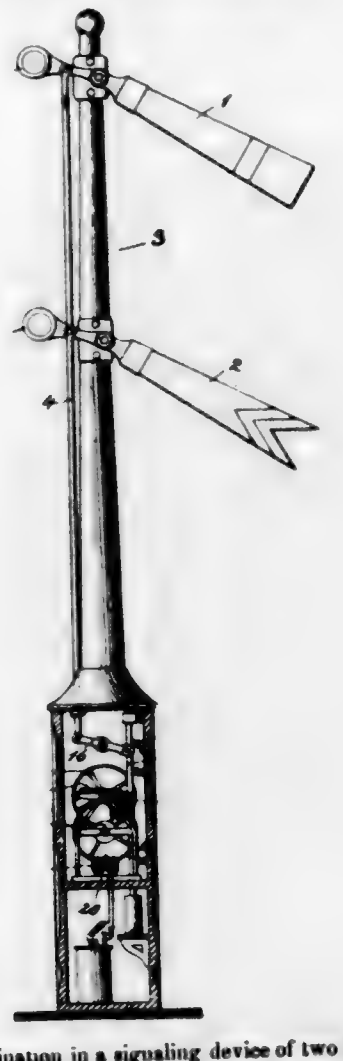
3. In a wrench, the combination, of a handle-frame comprising a collar portion with screw-bearing step and ferrule-rim, longitudinal edge bars united by a web bridging the bar-space, and provided with a series of projecting inwardly-bent curved fingers at the opposite edges all integrally formed or cast in a single piece, the wrench-bar having a shank fitting within said frame, and the non-metallic side plates seated on said frame and having at their edges curved recessed surfaces embraced by the inwardly-bent ends of said fingers.

693,109. SIGNAL-OPERATING APPARATUS. CLARENCE W. COLEMAN, Chicago, Ill., assignor to the Hall Signal Company, a Corporation of Maine. Filed Oct. 24, 1900. Serial No. 34,140. (No model.)

Claim.—1. The combination in a signaling device of two signals, a motor for moving said signals successively into set position, connections between the motor and each of said signals, one of said sets of connections containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from one of its signals, one latch adapted to be controlled by a train upon the track, means for automatically causing the two latches to be disconnected from each other when their signal has been moved into set position to permit the motor to move the other signal thereafter into its set position, and a catch for engaging the first latch to hold its signal in set position, whereby one signal may be operated independently of the other by the same motor.

2. The combination in a signaling device of two signals, a motor for moving said signals successively into set position, connections between the motor and each of said signals, one of said sets of connections containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from one of its signals, one latch adapted to be controlled by a train upon the track and the other latch adapted to be held against the first-mentioned latch when the signal is to be moved by the motor into set position and to be withdrawn therefrom at the close of such movement, means for automatically causing the two latches to be disconnected from each other when their signal has been moved into set position to permit the motor to move the other signal thereafter into its set position, and a catch for engaging the first

latch to hold its signal in set position, whereby one signal may be operated independently of the other by the same motor.



3. The combination in a signaling device of two signals, a motor for moving said signals successively into set position, connections between the motor and each of said signals, one of said sets of connections containing two latches adapted to engage with or be disconnected from each other to connect the motor with or to disconnect it from one of its signals, one latch adapted to be controlled by a train upon the track, means for positively holding the other latch against the first-mentioned latch when the signal is to be moved by the motor into set position, means for positively withdrawing it from such engagement at the close of such movement, and a catch for engaging the first latch to hold its signal in set position, whereby one signal may be operated independently of the other by the same motor.

4. The combination in a signaling device of two signals, a motor for moving said signals successively into set position, connections between the motor and each of said signals, one of said sets of connections containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from one of its signals, one latch adapted to be controlled by a train upon the track, means for positively holding the other latch against the first-mentioned latch when the signal is to be moved by the motor into set position, means for automatically causing the two latches to be disconnected from each other when their signal has been moved into set position to permit the motor to move the other signal thereafter into its set position, and a catch for engaging the first latch to hold its signal in set position, whereby one signal may be operated independently of the other by the same motor,

5. The combination in a signaling device of two signals, a motor for moving said signals successively into set position, connections between the motor and each of said signals, one of said sets of connections containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from one of its signals, one latch adapted to be controlled by a train upon the track and the other latch adapted to be held against the first-mentioned latch when the signal is to be moved by the motor into set position, means for positively withdrawing it from such engagement at the close of said movement, and a catch for engaging the first latch to hold its signal in set position, whereby one signal may be operated independently of the other by the same motor.

6. The combination in a signaling device of two signals, a motor for moving said signals successively into set position, connections between the motor and each of said signals, one of said sets of connections containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from one of its signals, one latch adapted to be held against the other latch when the signal is to be moved by the motor into set position and to be withdrawn therefrom at the close of such movement, a catch for engaging the other latch to hold its signal in set position, and means controlled by the train on the track to hold the latter latch in engagement with the other latch and with the catch or to disconnect it therefrom, whereby one signal may be operated independently of the other by the same motor.

7. The combination in a signaling device of two signals, a motor for moving said signals successively into set position, connections between the motor and each of said signals, one of said sets of connections containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from one of its signals, means for automatically causing the two latches to be disconnected from each other when their signal has been moved into set position to permit the motor to move the other signal thereafter into its set position, a catch for engaging one latch to hold its signal in set position, means controlled by the train on the track to release said latch from the catch to permit said signal to return to its normal position, whereby one signal may be operated independently of the other by the same motor.

8. The combination in a signaling device of two signals, a motor for moving said signals into set position, connections between the motor and each of said signals, said connections having a common operating part, driven by the motor, a latch mounted thereon, another latch adapted to be connected with one of the signals and to engage with the latch on the common operating part, means controlled by the train on the track for energizing the motor and for operatively connecting the said latches together when the signal is to be moved into set position, a catch for engaging the latch connected with the signal to hold the latter in set position, means controlled by a train on the track to release the latch from the catch, a latch adapted to be operatively connected with the other signal and when thus connected adapted to be engaged and moved by the common operating part to move its signal to set position, and means controlled by a train on the track for operatively connecting the latch with the signal, whereby one signal may be operated independently of the other by the same motor.

9. The combination in a signaling device of two signals, a motor for moving said signals into set position, connections between the motor and each of said signals, said connections having a common operating part, driven by the motor, a latch mounted thereon, another latch adapted to be connected with one of the signals and to engage with the latch on the common operating part, means for energizing the motor and for operatively connecting the said latches together when the signal is to be moved into set position, means for automatically causing the two latches to be disconnected from each other when their signal has been moved into set position to permit the motor to move the other signal thereafter into its set position, a catch for engaging the latch connected with the signal to hold the latter in set position, means for releasing the latch from the catch, a latch adapted to be operatively connected with the other signal, and when thus connected adapted to be engaged and moved by the common operating part to move its signal to set position, and means for operatively connecting the latch with the signal, whereby one signal may be operated independently of the other by the same motor.

10. The combination in a signaling device of two signals, a motor for moving said signals into set positions, connections between the motor and each of said signals, said connections having a common operating part, driven by the motor, a latch mounted thereon, another latch adapted to be connected with one of the signals and to engage with the latch on the common operating part, means controlled by the train on the track for energizing the motor and for operatively connecting the said latches together when the signal is to be moved into set position, means for positively holding the latch mounted on the common operating part in engagement with the other latch, while the signal is being moved into set position, means for positively withdrawing the latch from engagement with the signal-latch at the close of each movement, a catch for engaging the latch connected with the signal to hold the latter in set position, means controlled by a train on the track to release the latch from the catch, a latch adapted to be operatively connected with the other signal and when thus connected adapted to be engaged and moved by the common operating part to move its signal to set position, and means controlled by a train on the track for operatively connecting the latch with the signal, whereby one signal may be operated independently of the other by the same motor.

11. The combination in a signaling device of a signal, a motor for moving the signal into set position, connections between the motor and the signal containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from the signal, means for controlling one latch adapted to cause said latch to operatively engage with the other latch when the signal is to be moved into set position and not to operatively engage with it when the signal is not to be set, and the other latch adapted to be held against the first-mentioned latch when the signal is to be moved by the motor into set

position and to be withdrawn therefrom at the close of such movement, whereby the signal and motor will be operatively connected only while the signal is being moved into set position.

12. The combination in a signaling device of a signal, a motor for moving the signal into set position, connections between the motor and the signal containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from the signal, means for controlling one latch adapted to be automatically actuated by a track-circuit to cause said latch to operatively engage with the other latch when the signal is to be moved into set position and not to operatively engage with it when the signal is not to be set, and the other latch adapted to be held against the first-mentioned latch when the signal is to be moved by the motor into set position and to be withdrawn therefrom at the close of such movement, whereby the signal and motor will be operatively connected only while the signal is being moved into set position.

13. The combination in a signaling device of a signal, a motor for moving the signal into set position, connections between the motor and the signal containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from the signal, means controlling one latch adapted to cause said latch to operatively engage with the other latch when the signal is to be moved into set position and not to operatively engage with it when the signal is not to be set, and the other latch adapted to be held against the first-mentioned latch when the signal is to be moved by the motor into set position and to be withdrawn therefrom at the close of such movement, a catch for engaging the latch connected with the signal to hold the signal in set position, and means for releasing the said latch from the catch when it is desired to permit the signal to return to its original position, whereby the signal and motor will be operatively connected only while the signal is being moved into set position and whereby the signal will be held in set position until released.

14. The combination in a signaling device of a signal, a motor for moving the signal into set position, connections between the motor and the signal containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from the signal, one latch adapted to be controlled by a train upon the track, and the other latch adapted to be held against the first-mentioned latch when the signal is to be moved by the motor into set position and to be withdrawn therefrom at the close of such movement, and a catch for engaging the latch, connected with the signal, to hold the signal in set position.

15. The combination in a signaling device of a signal, a motor for moving the signal into set position, connections between the motor and the signal containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from the signal, means for positively holding one latch against the other latch when the signal is to be moved by the motor into set position, means for positively withdrawing it from such engagement at the close of such movement, and a catch for engaging the latch connected with the signal to hold the signal in set position.

16. The combination in a signaling device of a signal, a motor for moving the signal into set position, connections between the motor and the signal containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from the signal, one latch adapted to be held against the other latch when the signal is to be moved by the motor into set position and to be withdrawn therefrom at the close of such movement, and a catch for engaging the latch connected with the signal to hold the signal in set position, and means controlled by the train on the track to hold the latter latch in engagement with the other latch and with the catch or to disconnect it therefrom.

17. The combination in a signaling device of a signal, a motor for moving the signal into set position, connections between the motor and the signal containing two latches adapted to engage with or be disconnected from each other to connect the motor with or disconnect it from the signal, means controlling one latch adapted to cause said latch to operatively engage with the other latch when the signal is to be moved into set position and not to operatively engage with it when the signal is not to be set, and the other latch adapted to be held against the first-mentioned latch when the signal is to be moved by the motor into set position and to be withdrawn therefrom at the close of such movement, a catch for engaging the latch connected with the signal to hold the signal in set position, and means controlled by a train on the track to release said latch from the catch to permit the signal to return to its normal position.

18. The combination in a signaling device of a signal, a motor for operating it, connections between the motor and the signal consisting of a wheel having one or more lugs on its side, a movable arm concentrically mounted with the said wheel and connected with the signal, a latch carried on said arm, electrical means controlled by a train on the track for causing said latch to operatively engage with or be disengaged from a lug on said wheel, means for preventing the wheel from backward rotation and means controlled by a train on the track for energizing the motor and means for automatically deënergizing the motor when the signal has been moved to set position.

19. The combination in a signaling device of a signal, a rotary power-wheel for moving the signal into set position, an arm mounted concentrically with the power-wheel and connected with the signal, a latch and a magnet for controlling the same, both mounted upon the said arm, a projection from the power-wheel adapted to make contact with the latch as the wheel rotates, means for preventing backward rotation of the power-wheel, means controlled by a train on the track for energizing or deënergizing said magnet to cause the said latch and projection to operatively engage with or be disconnected from each other, means controlled by the train on the track for causing the power-wheel to rotate and for automatically stopping it when the signal has reached its set position.

20. The combination in a signaling device of a signal, a motor for operating it, connections between the motor and the signal including a power-wheel adapted to be driven by the motor, a movable arm concentrically mounted with the said wheel and connected with the signal, a latch carried on said arm, a projection on the power-wheel adapted as the wheel rotates to make contact with the said latch, and means for causing said latch to operatively engage with or be disengaged from said projection, whereby motion may or may not be transmitted from the power-wheel to the signal to move it into set position or to leave it unaffected by the rotation of the power-wheel.

21. The combination in a signaling device of a signal, a motor for operating it, connections between the motor and the signal including a power-wheel adapted to be driven by the motor, a movable arm concentrically mounted with the said wheel and connected with the signal, a latch carried on said arm, a projection on the power-wheel adapted as the wheel rotates to make contact with the said latch, means controlled by a train on the track for causing said latch to operatively engage with or be disengaged from said projection, whereby motion may or may not be transmitted from the power-wheel to the signal to move it into set position or to leave it unaffected by the rotation of the power-wheel, means controlled by a train on the track for actuating the motor to move the signal to set position, and means for deënergizing the motor when the signal has been moved into set position.

22. In an electrically-controlled apparatus for converting rotary motion into rectilinear motion to move a signal or other object into set position, the combination of a power-wheel, a rectilinearly-moving rod connected with the signal, a lever having pivotal connections with said rod and mounted concentrically with the power-wheel and adapted when connected with the power-wheel to rotate with it, means for connecting and disconnecting said lever and power-wheel and a magnet mounted upon said lever and rotatable therewith for controlling said connecting and disconnecting means.

23. In an electrically-controlled apparatus for converting rotary motion into rectilinear motion to move two signals or other objects into set positions independently of each other, the combination of a power-wheel, a rectilinearly-moving rod for each signal or other object connected therewith, a lever having pivotal connections with each rod and mounted concentrically with the power-wheel, and when connected with the latter, rotatable therewith, a clutch carried by each lever for connecting and disconnecting its lever and the power-wheel and a magnet mounted upon said lever and rotatable therewith for controlling each clutch, whereby the two signals or other objects may be moved by the power-wheel into set position independently of each other.

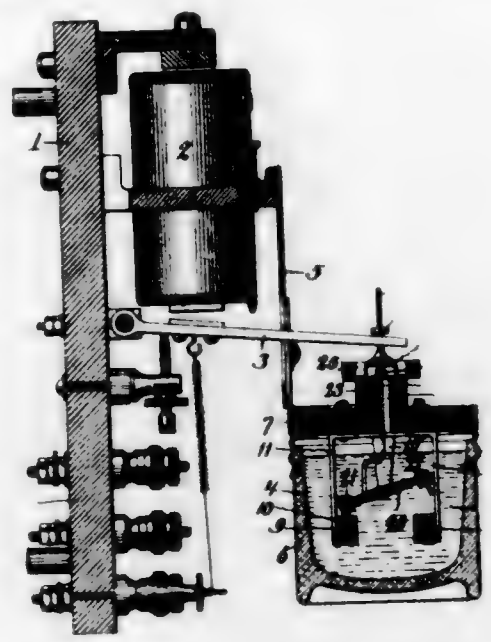
693,110. ELECTRIC-CIRCUIT CONTROLLER. CLYDE J. COLEMAN, New York, N. Y., assignor to the Hall Signal Company, a Corporation of Maine. Filed Nov. 24, 1900. Serial No. 37,564. (No model.)

Claim.—1. A circuit-controller including in combination a cup designed to hold a body of mercury as one contact; an immersion-point as the other contact, said contacts being so arranged that they may be brought together and separated to close and open the circuit; and a closed vessel designed to contain a suitable liquid to envelop said contacts and having a liquid-sealed vent-orifice.

2. A circuit-controller including in combination a cup containing a body of mercury as one contact; an immersion-point as the other contact, said contacts being so arranged that they may be brought together and separated to close and open the circuit; and a closed vessel containing a suitable liquid to envelop said contacts and having a liquid-sealed vent-orifice.

3. A circuit-controller including in combination a cup designed to hold a body of mercury as one contact; an immersion-point as the other contact, said contacts being so arranged that they may be brought together and separated to close and open the circuit; and a closed vessel

designed to contain a suitable liquid to envelop said contacts and having a mercury-sealed vent-orifice.



4. A circuit-controller including in combination a cup designed to hold a body of mercury as one contact; an immersion-point as the other contact, said contacts being so arranged that they may be brought together and separated to close and open the circuit; and a closed vessel designed to contain a suitable liquid to envelop said contacts and having a mercury-sealed vent-orifice leading from the interior of said vessel above the liquid therein.

5. A circuit-controller including in combination a cup designed to hold a body of mercury as one contact; an immersion-point as the other contact, means for bringing together and separating said contacts to close and open the circuit; and a closed vessel designed to contain a suitable liquid to envelop said contacts and having a liquid-sealed vent-orifice.

6. A circuit-controller including in combination a cup designed to hold a body of mercury as one contact; an immersion-point as the other contact; a closed vessel designed to contain a suitable liquid to envelop said contacts and having a liquid-sealed vent-orifice; one of said contacts being stationary and the other movable within said vessel so that said contacts may be brought together and separated to close and open the circuit, said movable contact having an actuating connection extending outside the liquid vessel through its vent-orifice.

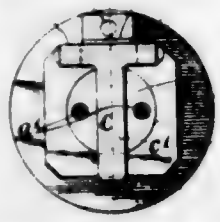
7. A circuit-controller including in combination a vessel designed to contain a suitable liquid and comprising an insulating-cap and a readily-detachable body portion, said cap having a liquid-sealed vent-orifice; a cup designed to hold a body of mercury as one contact and supported by said cap within the body of said vessel; an immersion-point within said vessel and constituting the other contact and arranged to move into and out of contact with the mercury to close and open the circuit, said immersion-point having a connection extending through the vent-orifice of said cap; said contacts being arranged and designed to be enveloped by the liquid in said vessel.

8. A circuit-controller including in combination a vessel containing a suitable liquid and having a vent-orifice in its top; a liquid seal for said orifice comprising an annular cup containing a sealing liquid and a vertically-movable cap having its side wall immersed in the sealing liquid of the cup intermediate the side walls thereof; a cup containing mercury as one contact and supported within the vessel from the top thereof; an immersion-point movable into and out of the mercury to close and open the circuit; and an actuating connection for the immersion-point extending from within the vessel out through the vent-orifice and liquid seal, and secured to the cap of the liquid seal, the contacts being immersed in the liquid contained in said vessel.

9. In a signaling system for railways, the combination of a signal; a signal-circuit therefor containing a pair of contacts, the arrangement being such that when the contacts are open the signal will go to danger and when they are closed the signal may go to safety, said contacts including a body of mercury and an immersion-point, whereby in case of lightning on the signal-circuit, fusion of the contacts will be prevented and the signal will be thus enabled to go to danger at the proper time, a closed vessel having a liquid-sealed vent-orifice and containing a suitable liquid in which the contacts are immersed.

10. A circuit-controller including in combination a vessel designed to hold a body of mercury as one contact, an immersion-point as the other contact, means for bringing the contacts together and for separating them to close and open the circuit, and a vessel for holding the said contact-points designed to contain a suitable liquid to envelop said contacts.

693,111. LOCKING DEVICE FOR AXLE-NUTS. MARTIN CONRAD, Chicago, Ill. Filed May 11, 1901. Serial No. 59,716. (No model.)

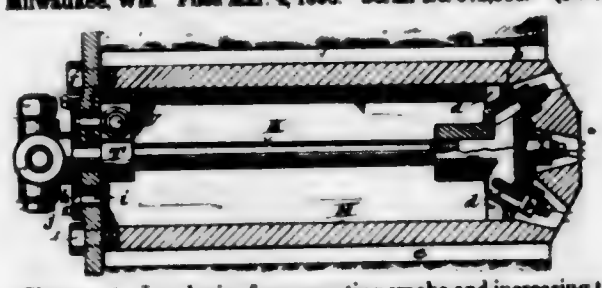


Claim.—1. The combination with an axle provided with a screw-threaded projection at its end to receive an axle-nut, of an axle-nut having interior screw-threads to engage those on the axle, a latch hinged to the nut at one side thereof and adapted to extend across the outer face of the nut and the end surface of the axle, and interlocking parts on the outer end of the screw-threaded projection on the axle and on said latch located at a distance from the center of the axle and adapted for engagement with each other when the latch is closed against the face of the nut.

2. The combination with an axle provided with a screw-threaded projection at its end adapted to receive an axle-nut, and an axle-nut having interior screw-threads fitting those of the projection of the axle, of a latch hinged to the nut at one side thereof and adapted to extend across the outer face of the nut and the end surface of the projection of the axle, and interlocking parts on the outer end of the axle and on the said latch, said interlocking parts being adapted for engagement with each other in a plurality of angular positions of the nut upon the axle.

3. The combination with an axle provided with a screw-threaded projection to receive an axle-nut and provided with a lag-screw, the head of which projects beyond said screw-threaded projection, and an axle-nut having interior screw-threads adapted to engage those on the projection of the axle, of a latch hinged to the nut at one side thereof and adapted, when closed, to extend over the outer face of the nut and the end of the axle, said latch being provided with a socket adapted to receive the head of the lag-screw, and said socket having a plurality of notches, whereby the head of the lag-screw may be engaged therewith in a plurality of positions of the nut upon the axle.

698,112. SMOKE-PREVENTING DEVICE. GEORGE M. CONWAY, Milwaukee, Wis. Filed Mar. 4, 1898. Serial No. 672,533. (No model.)



Claim.—1. In a device for preventing smoke and increasing the combustion of fuel in furnaces, the combination of a casing arranged exterior to said furnace but having one end projecting therein above the fire-bed, said inner end having openings therethrough, and the other end of said casing being closed but provided with a series of draft-openings therethrough; a steam-pipe extending longitudinally within said casing, toward the inner end thereof; and adapted to discharge steam through said openings in the inner end of said casing; a valve-casing exterior to the closed outer end of said casing, a three-way valve within said valve-casing; a valve-controlled pipe leading from a source of steam-supply to said valve-casing; a steam-outlet pipe leading therefrom; a damper-plate loosely mounted on the exterior projecting end of the first-named steam-pipe between the closed outer end of the casing and the adjacent face of the valve-casing, and having holes therethrough adapted to register with the draft-openings through said closed outer end of the said casing; substantially as described.

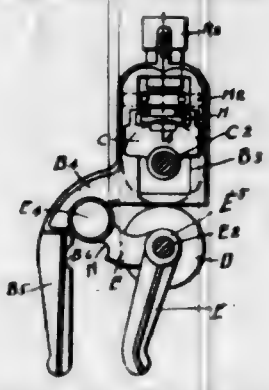
2. The combination with a furnace having a hole in one wall thereof, of a perforated front plate closing said hole in the wall, a casing located in said hole and having an open outer end secured to said front plate and supported by said front plate which constitutes a closure therefor, and having an opening in its inner end, a steam-pipe extending longitudinally into said casing through an opening in said front plate, and adapted to discharge steam through said openings in the inner end of the casing, a damper-plate mounted to turn on said steam-pipe adjacent said front plate and having perforations adapted to register with the perforations in the front plate, substantially as described.

3. The combination with a furnace having a hole in one wall thereof, of a perforated front plate closing said hole, an open-ended casing located in said hole in the furnace-wall, said open end being secured to said front plate which constitutes a closure therefor, a steam-pipe extending through a hole in said front plate into said casing and supported by front plate, and adapted to discharge steam through an opening or openings in the

inner end of said casing, a valve-casing on said pipe outside said front plate, a damper-plate loosely mounted on said pipe between said valve-casing and said front plate which valve-casing and plate hold the damper in proper position, and having perforations therethrough adapted to register with the perforations in the front plate, substantially as described.

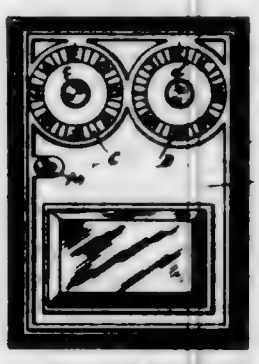
4. The combination with a furnace having a hole in one wall thereof, of a perforated front plate secured to the outside face of the wall and closing said hole in the wall, an elongated casing located in said hole and having an open outer end detachably secured to said front plate which constitutes a closure therefor, and having air-openings in its inner end, a steam-pipe extending longitudinally into said casing through an opening in said front plate, an injector-head on said pipe having nozzles adapted to direct steam through said openings in the casing, means for supporting said head in the casing with the nozzles opposite said openings in the casing end, a damper-plate mounted to turn on said steam-pipe adjacent said front plate and having perforations adapted to register with the perforations in the front plate, substantially as described.

698,113. WRINGER. JAMES M. COOK, Cincinnati, Ohio. Filed Feb. 7, 1900. Serial No. 4,355. (No model.)



Claim.—In a wringer, two rolls, an upper and a lower one, each capable of being depressed, a frame provided with uprights having guideways for the upper roll, an arm B^4 springing from each upright and a vertical extension B^3 therefrom provided with a recess B^6, an arm E pivoted to each arm B^4, and carrying at E^5 the shaft E^2 of the lower roll, and having the recess N on its under forward side, adjoining the pivot E^4, said recess N being located opposite the recess B^6, in the extension B^3, and said arm E having the downward extension E^3, substantially as and for the purposes specified.

698,114. KEYLESS LOCK. ALBERT P. CORBIN, New Britain Conn., assignor to Corbin Cabinet Lock Company, New Britain, Conn., a Corporation of Connecticut. Filed July 9, 1901. Serial No. 67,694 (No model.)



Claim.—1. In a keyless lock two or more dials, gears operated thereby, tumblers corresponding in number to the number of gears, said tumblers being revolubly mounted on the same stud, teeth formed about the peripheries of said tumblers whereby a tumbler is moved by its corresponding gear and dial, a slot formed in the periphery of each tumbler, the sliding lock-bolt provided with a stump, said stump being adapted to enter the recesses in all the tumblers when said recesses register with one another and lie in the path of movement of said stump, all substantially as described and for the purpose set forth.

2. In a keyless lock in combination the dials having operating-handles, and stems projecting from their rear faces, gears mounted on the dial-stems, means for varying the angular relation of said gears with respect to said dials, a corresponding number of gears revolubly mounted on the same stud, each of the first-mentioned gears meshing with one of the gears on the dial-stems, slots in the peripheries of the revolubly-mounted gears, the sliding lock-bolt, and the stump carried thereby and adapted to cooperate with the slots in the revolubly-mounted gears whereby the bolt may be retracted when said slots register with one another and lie in the path of movement of the stump.

698,115. KNEE-PROTECTOR FOR STOCKINGS. ISSACHAR COHEN, Glencove, N. Y. Filed July 14, 1900. Serial No. 23,563. (No model.)



Claim.—1. A knee-protector consisting of a tube of textile fabric longitudinally and continuously ribbed from end to end and each end provided with a selvage.

2. A knee-protector consisting of a tube of textile fabric longitudinally ribbed from end to end and gradually tapering or decreasing in circumference from its middle portion to its two ends, and each end provided with a selvage.

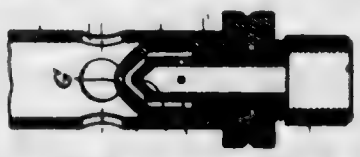
3. A knee-protector consisting of a tube of textile fabric longitudinally ribbed from end to end with the ribs finer or narrower at one end portion, and each end provided with a selvage.

4. A knee-protector consisting of a tube of textile fabric longitudinally and continuously ribbed from end to end with the ribs finer or narrower at one end portion, and each end provided with a selvage.

5. A knee-protector consisting of a tube of textile fabric longitudinally ribbed from end to end with the ribs finer and narrower at the end portions, and each end provided with a selvage.

6. A knee-protector consisting of a tube of textile fabric longitudinally and continuously ribbed from end to end with the ribs finer and narrower at the end portions, and each end provided with a selvage.

698,116. ADJUSTABLE GAS OR FLUID CHECK. HENRY C. DANFORTH, Philadelphia, Pa. Filed June 10, 1901. Serial No. 63,911. (No model.)



Claim.—1. In combination in an adjustable check, an outer shell having a perforated head, an inner shell mounted in said outer shell and having a perforated head, a shoulder formed upon said inner shell, a plurality of openings below said shoulder and means for adjusting the position of said shoulder relatively to the head of said outer shell, substantially as described.

2. In combination, forming an adjustable check, an inner and an outer shell, means for vertical adjustment of said shells relatively to each other, an aperture in the head of the outer shell, an aperture in the head of the inner shell, the aperture of the inner being smaller than and concentric with the aperture of the outer shell, a shoulder on the inner shell and a plurality of openings in the inner shell below said shoulder, substantially as described.

3. In combination in an adjustable check, an outer thimble-shaped shell provided with an aperture at its apex an inner cylindrical shell mounted in said outer shell and provided with an aperture at its apex, said aperture being smaller than and concentric with the aperture in the outer shell, a shoulder formed upon the head of the inner shell, a plurality of openings in the head of said inner shell below said shoulder, and means for lowering or raising said outer shell relatively to the inner, whereby said shoulder may be withdrawn from or brought into contact with the inner surface of the head of said outer shell, substantially as described.

698,117. BIT. FRANCIS H. DAVIS, Newburgh, and COLEMAN A. TERRY, New York, N. Y. Filed Sept. 22, 1900. Serial No. 30,814. (No model.)



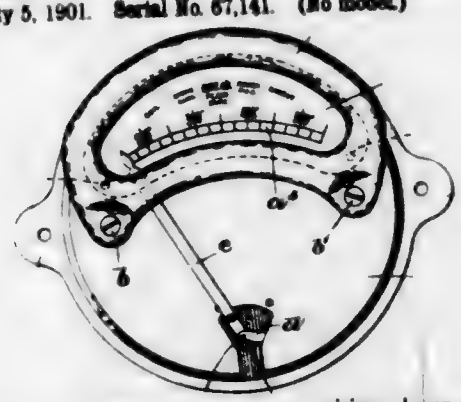
Claim.—1. A bit comprising a tubular body portion having an elongated groove in its wall and having holes in the grooved portions, each hole being in shape, a right-angle triangle having the base disposed horizontally and its side disposed vertically.

2. A bit, comprising a tubular body having a spiral groove in its wall, and having a series of triangular holes in the grooved portion, the sides of all the triangles disposed in planes parallel with the axis of the bit and the bases of said triangles disposed horizontally.

3. A bit comprising a tubular body having external elongated grooves and also having internal elongated grooves coincident with and corresponding in dimensions to the external grooves and holes in said grooved portion.

4. A bit comprising a tubular body having external and coincident internal spiral grooves, and having triangular holes in the grooved portions, the bases of the triangular holes being at right angles to the axis of the bit, substantially as and for the purpose set forth.

693,118. OVEN-THERMOMETER. GEORGE J. DAY, Boston, Mass. Filed July 5, 1901. Serial No. 67,141. (No model.)



Claim.—1. An oven-thermometer comprising a lever, a pointer connected to a free end of said lever, a toggle comprising two rods hinged together and bearing at one end against said lever, and an expansion-rod bearing against the knuckle of said toggle at a right angle to the plane of the outer ends of the toggle-rods, whereby when said rod is expanded, the toggle is straightened and the said lever is actuated to move the pointer.

2. An oven-thermometer comprising a casing, a lever, a pointer connected to said lever, and expansion-rods completely within said casing and directly connected together and one of them engaged with said lever, said rods being compounded whereby when they are expanded, they impart to the lever at the point of engagement a movement greater than the combined expansion of said rods.

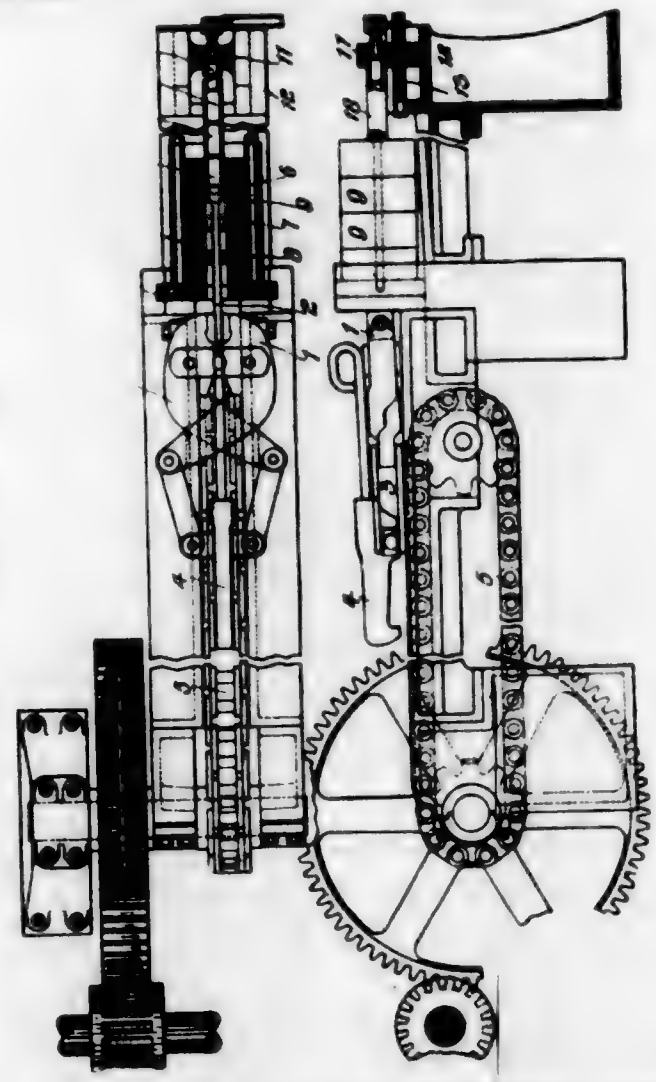
3. An oven-thermometer comprising a casing, a lever, a pointer connected thereto, a plurality of expansion-rods completely within said casing and connected together at their inner ends, one of said rods forming part of a toggle and bearing at its outer end against the lever and the others of the said rods bearing at their outer ends against fixed abutments.

4. An oven-thermometer comprising a spring-tensioned lever rigidly secured at one end, a pointer connected to the free end of said lever, expansion-rods forming a toggle and bearing at one end against the lever, and at the other end against a fixed abutment, and an expansion-rod bearing at one end against the fixed abutment and at the other end against said toggle.

5. An oven-thermometer comprising a casing, a spring-lever rigidly secured at one end and stiffened throughout its length except near its said rigidly-secured end, an expansion-rod bearing against the stiffened portion of said spring, and a pointer connected to the free end of said lever.

693,119. DRAWING TUBES. SAMUEL E. DIESCHER, Pittsburg, Pa. Filed Jan. 10, 1901. Serial No. 42,773. (No model.)

Claim.—1. In a machine for drawing tubes, the combination of a series of two or more dies, a mandrel passing through the dies, means for holding the mandrel stationary and means for pulling a tube through the dies and along the mandrel, whereby the tube is subjected to transverse reduction and longitudinal tension while being operated on, substantially as set forth.



2. In a machine for drawing tubes the combination of a series of two or more dies, a mandrel extending through the dies, means for holding the mandrel stationary relative to the dies and means for applying a tensional strain to the tubes while being acted on by the dies and mandrel, substantially as set forth.

3. In a machine for drawing tubes, the combination of a series of two or more dies, a mandrel extending through the dies, said mandrel having progressively smaller reducing or operative portions, means for holding the mandrel stationary relative to the dies and means for applying a tensional strain to the tube while being acted on by the dies and mandrel, substantially as set forth.

4. In a machine for drawing tubes the combination of a series of two or more dies, a sectional mandrel, each section being of less diameter than the preceding section, means for holding the mandrel stationary relative to the dies and means for applying a tensional strain to the tube while being acted on by the dies and mandrel, substantially as set forth.

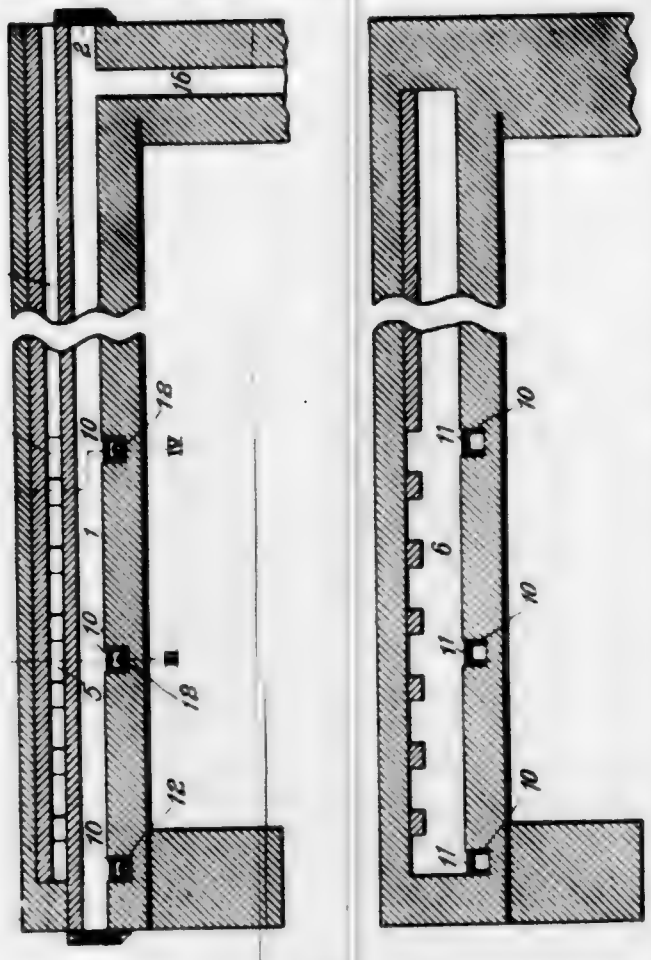
5. In a machine for drawing tubes, the combination of a series of two or more dies and a mandrel provided with longitudinal and transverse passages for feeding material into the tube being drawn and permitting its escape therefrom, substantially as set forth.

698,120. HEATING-FURNACE. SAMUEL DIESCHER, Pittsburg, Pa., assignor to Samuel Diescher & Sons, Pittsburg, Pa., a copartnership of Pennsylvania. Filed May 20, 1901. Serial No. 61,054. (No model.)

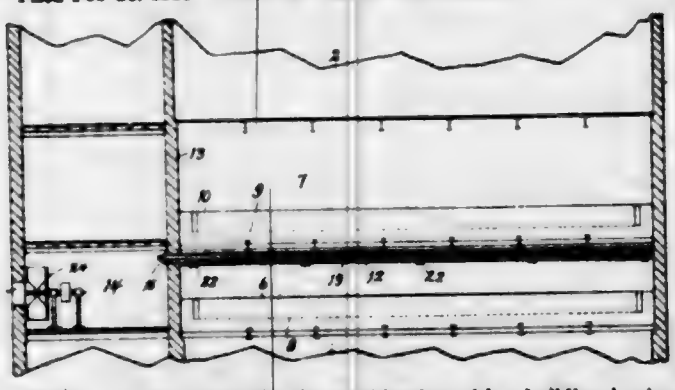
Claim.—1. A furnace having in combination a heating-chamber having oppositely-arranged charging and discharging openings, a series of fire boxes or chambers arranged below the floor of the heating-chamber and provided with openings at an angle to a straight line passing through the charging and discharging openings for the passage of heat and products of combustion into the heating-chamber, and burners arranged in the fire boxes or chambers, substantially as set forth.

2. A furnace having in combination a heating-chamber having charging and discharging openings at its ends, air-flues extending along the top and sides of the heating-chamber, a series of two or more slotted fire boxes or chambers arranged transversely of the heating-chamber and below the

floor thereof, valved ports connecting the ends of the fire-boxes with the air-flues, and burners arranged in the fire-boxes, substantially as set forth.



693,121. MALT-KILN. JOHN F. DORNFELD, Milwaukee, Wis. Filed Feb 20, 1901. Serial No. 48,069. (No model.)



Claim.—1. In a malt-kiln, the combination with a building having upper and lower perforated malting-floors through which heated air is adapted to pass, of an air-conduit arranged beneath the upper malting-floor, said conduit provided with a discharge-opening, means for feeding cool air into the conduit at certain times and for discharging admitted air from the conduit, said discharged air adapted to commingle with the air which has passed through the malt contained on the lower malting-floor before said air passes through the upper malting-floor, means for shutting off the admission of air into the conduit and for controlling the discharge-opening of the conduit, and means for adjusting the discharge-opening in order to regulate the amount of air issuing out of said opening.

2. In a malt-kiln, the combination with a building having upper and lower perforated malting-floors through which heated air is adapted to pass, of an air-conduit arranged beneath the upper malting-floor, said conduit provided with a discharge-opening, means for feeding cool air into the conduit at certain times and for discharging said admitted air from the conduit, in order to commingle with the air which has passed through the malt contained on the lower malting-floor before said air passes through the upper malting-floor, means for shutting off the admission of air into the conduit, a valve for controlling the discharge-opening of the conduit, and means for adjusting said valve in order to regulate the amount of air issuing out of the opening.

3. In a malt-kiln, the combination with a building having upper and lower perforated malting-floors, and through which floors air at a certain temperature is adapted to pass, of an air-conduit arranged beneath the upper malting-floor, said conduit provided with a discharge-opening, means for feeding cool air into the conduit at certain times and for discharging said admitted air from the conduit, in order to commingle with the air which has passed through the malt contained on the lower malting-floor before said air passes through the upper malting-floor, means for shutting off the admission of air into the conduit, a valve for controlling the discharge-opening of the conduit, and a screw-stem on which the valve is carried, one end of said stem engaging the threaded opening of a bar extending lengthwise of the valve-opening and on the inside of the pipe

4. In a malt-kiln, the combination with a building having upper and lower perforated malting-floors through which heated air is adapted to pass, of an air-conduit arranged beneath the upper malting-floor, said conduit provided with a discharge-opening, means for feeding cool air into the conduit at certain times and for discharging said admitted air from the conduit, in order to commingle with the air which has passed through the malt contained on the lower malting-floor before said air passes through the upper malting-floor, means for shutting off the admission of air into the conduit, and a valve for controlling the discharge-opening of the conduit, said valves being of an inverted-V shape in order to act as a deflector for the air passing out of said openings.

5. In a malt-kiln, the combination with a building having upper and lower perforated malting-floors through which heated air is adapted to pass, of conduits arranged beneath the upper malting-floor, said conduits each provided with an open end, and in its length with a discharge-opening, a pivoted valve at the open end of each conduit, and mechanism connected to all of said several valves and adapted, when operated, to simultaneously turn the valves to open position in order to admit a quantity of cool air into the conduits, said air adapted to pass out of the pipes through the discharge-openings thereof.

6. In a malt-kiln, the combination with a building having one or more perforated malting-floors therein through which heated air is adapted to pass, of a series of pipes arranged beneath a malting-floor, each of said pipes having an open end, and provided longitudinally with a discharge-opening, adjustable valves for regulating the discharge-openings of the pipes, and means for regulating the air to the open ends of the pipes.

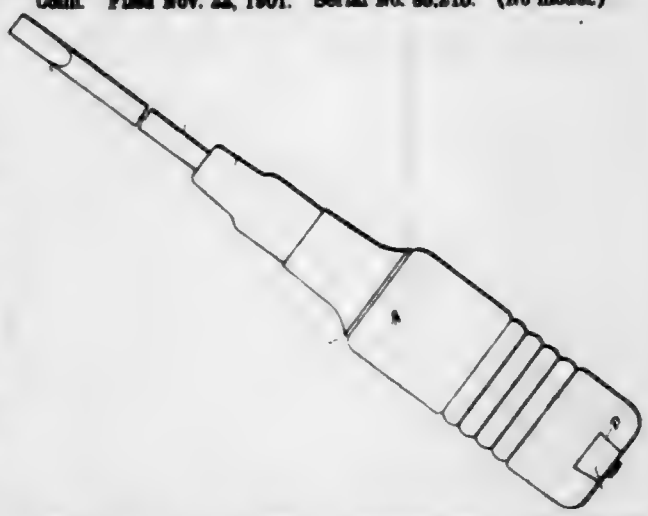
7. In a malt-kiln, the combination with a building having a perforated malting-floor through which floor heated air is adapted to pass, of an air-conduit arranged beneath the malting-floor, said conduit provided longitudinally with a discharge-opening, and also with a drip channel or channels, means for feeding cool air into the conduit at certain times, and for discharging said admitted air from the conduit in order to commingle with all the heated air throughout the kiln before it passes through the malting-floor above, and means for shutting off the admission of air into the conduit.

693,122. GARMENT-SUPPORTER. JOHN S. DORSEY, Langdon, D. C. Filed Dec. 18, 1901. Serial No. 86,384. (No model.)



Claim.—The within-described garment-supporter, comprising the outer spring-tongue, bent at its upper portion and extending downward, forming the back thereof, said portion or back bent at its lower end and extending obliquely upward and again bent into a downward-extended plate, provided with gripping portions adapted to yield in attaching and detaching the supporter, substantially as described.

693,128. SCREW-DRIVER, &c. WILLIAM W. FAIRCHILD, Tracy, Conn. Filed Nov. 22, 1901. Serial No. 83,215. (No model.)

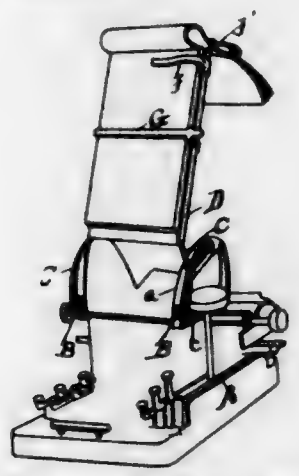


Claim.—1. A screw-driver, or kindred tool, comprising a handle having a longitudinal hole extending through it, a transverse groove in its outer end, a socket located in said groove and means for securing it therein, an opening in said socket in line with the hole in the handle, and

a tool having a shank adapted to be passed into said handle, said tool having a tapered, angular end adapted to pass into the opening in the socket, substantially as described.

2. A screw-driver, or kindred tool, comprising a handle having a longitudinal hole extending through it, a transverse undercut groove in its outer end, a socket located in said groove and means for securing it therein, an opening in said socket in line with the hole in the handle and secured to said handle, and a tool having a shank adapted to be passed into said handle, said tool having a tapered, angular end adapted to pass into the opening in the socket substantially as described.

693,124. COPY-HOLDING DEVICE FOR TYPE-WRITERS. ELWOOD W. FORNEY, Galena, Kans., assignor of one-half to Louis K. Moeller and William L. Crockett, Galena, Kans. Filed Jan. 24, 1901. Serial No. 44,627. (No model.)



Claim.—1. In a copy-holding device, for type-writers, the combination of a tablet; an arm or bail hinged on said tablet with a horizontal pivot; an attaching means for attaching said device to a type-writer; a hinge between said attaching means and said arm or bail, said hinge being in a horizontal plane when attached to a type-writer; and means for locking the device in an upright position.

2. In a copy-holding device for type-writers, the combination of a tablet; a bail hinged on said tablet; a catch for engaging said bail and locking it with said tablet; an attaching means for attaching the said device to the type-writer; and a hinge between said attaching means and said bail.

3. In a copy-holding device for type-writers, the combination of the tablet, D; the bail, C, hinged on said tablet; a catch-lever, E, having the hook-lever, *e*, for engaging said bail; attaching-blocks, B; and a hinged connection between said attaching-blocks and said bail.

698,125. TRAIN-PIPE COUPLING. JOSEPH E. FORSYTH, Chicago, Ill., assignor of one-fourth to Thomas L. Parker, Chicago, Ill. Filed Nov. 12, 1900. Serial No. 36,291. (No model.)

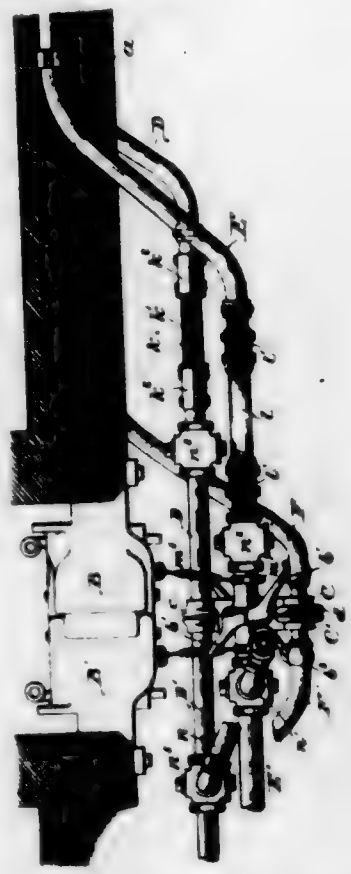
Claim.—1. In a train-pipe coupling, an integrally-formed movable coupling-head having steam and air passages whose orifices lie in the same vertical plane, a soft yielding air-expanded gasket at the air-passage orifice, and having a transverse outer bearing-surface, and a yielding steam-actuated diaphragm at the steam-passage orifice, equipped with a comparatively hard packing-ring having a transverse outer bearing-surface, said gaskets being adapted to form a tight joint with corresponding gaskets of a companion coupling-head under longitudinal pressure between coupling-heads, substantially as described

2. In a train-pipe coupling, the combination of a yieldingly-held coupling-head, comprising a central perforated pipe-head, forwardly-projecting inclined guide-arms supported therefrom, and two additional pipe-heads, one supported above the other below said first-named pipe-head, soft yielding gaskets for said central head and one of the other heads, annular air-passages e^3 being provided in the rear of said gaskets, a relatively hard gasket for the remaining pipe-head, and a fluid-held diaphragm supporting said last-named gasket, substantially as described.

3. In a train-pipe coupling, a coupling-head having annular recesses, an annular diaphragm secured at a shoulder of one of said recesses, an annular ring secured to the inner margin of said annular diaphragm, and a packing-ring fitting upon said ring and projecting from the outer surface of said diaphragm, substantially as described.

4. In a train-pipe coupling, a coupling member having a perforated pipe-head, an annular recess at the outer face of said pipe-head, an annular diaphragm f^2, a retaining-ring f^4, and a forwardly-projecting packing-ring of relatively hard material carried by said diaphragm near its inner margin, substantially as and for the purpose set forth.

5. In a train-pipe coupling, a coupling member having a perforated pipe-head, an annular recess at the outer face of said pipe-head, an annular diaphragm f^2, a retaining-ring f^4, rings f^3, f^1 forming a binding for the inner margin of said diaphragm, and a packing-ring f^5 secured to the ring f^3, substantially as described.



6. In a train-pipe coupling, the combination of an integrally-formed coupling member provided with pipe-heads *b*, *c* and *d*, diagonally opposite horns b', b^3 having at their bases shoulders p^3 separated by convex surfaces *p*, and having, also, at their bases inner concave surfaces p', one junction between each horn-base and convex surface *p* lying in substantially the same vertical plane and suitable gaskets for said pipe-heads, substantially as described.

7. In a train-pipe coupling, the combination of a coupling member, a central pipe-head *b* provided with an air-actuated gasket *e*, a pipe-head *c* vertically above and supported from a head *b* and provided with an air-actuated gasket *e*, a pipe-head *d* vertically below the head *b* and provided with a diaphragm-actuated packing-ring f^5, and diagonally opposite guide-arms b', b^3 provided with interlocking surfaces for engaging a duplicate coupling member and preventing relative movement between the coupling members, except in the direction of longitudinal separation, substantially as and for the purpose set forth.

8. In a train-pipe coupling, the combination of a coupling-head, a metallic train-pipe joined thereto and formed with a loop imparting elasticity to the train-pipe and permitting longitudinal movement of said head, and a spring interposed at said loop and reinforcing the resilience of the pipe, substantially as and for the purpose set forth.

9. In a train-pipe coupling, the combination of a coupling-head, a train-pipe connected therewith and formed with a loop imparting elasticity to the pipe and permitting longitudinal movement of said head, spring-retainers connected with said pipe at the neck of said loop, and a spring interposed between said retainers, substantially as and for the purpose set forth.

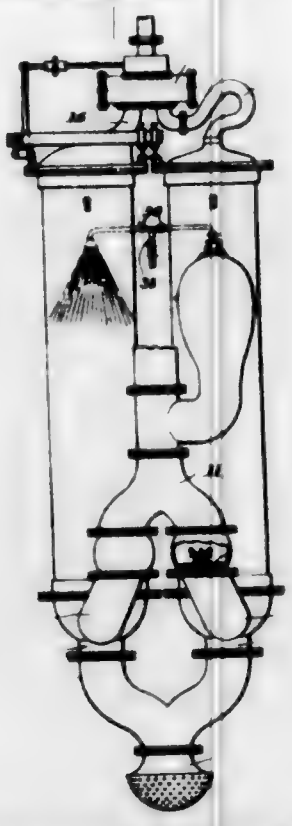
10. In a train-pipe coupling, a movable coupling-head having steam and air passages whose orifices are in the same vertical plane, a soft yielding air-expanded gasket at the air-passage orifice having a transverse outer bearing-surface, a steam-actuated diaphragm at the steam-passage orifice equipped with a comparatively hard packing-ring having a transverse outer bearing-surface, said gaskets being adapted to form a tight joint with corresponding gaskets of a companion coupling-head under longitudinal pressure between coupling-heads, substantially as described.

11. In a train-pipe coupling, a coupling-head having annular recesses, an annular diaphragm secured at the shoulder of one of said recesses, and a packing-ring secured to the outer face of said diaphragm near the inner margin thereof, substantially as described.

698,126. STEAM-PUMP. FELIX FREYBOLD, Washington, D. C. Filed Sept. 21, 1901. Serial No. 76,028. (No model.)

Claim.—1. The combination with a pair of pump-cylinders having water inlet and discharge openings, and steam-inlet openings, of valve

mechanism arranged to admit steam alternately to said cylinders, and connections between said mechanism and both cylinders whereby the combined movement of both cylinders, caused by expansion and contraction, will be transmitted to said mechanism.



2. The combination with a pair of pump-cylinders having water inlet and discharge openings and steam-inlet openings, of valve mechanism arranged to admit steam alternately to said cylinders, and means for operating said mechanism comprising an operating-lever connected to both cylinders, and connections between said lever and valve mechanism.

3. The combination with a pair of pump-cylinders having water inlet and discharge openings and steam-inlet openings, of valve mechanism arranged to admit steam alternately to said cylinders, and means for operating said mechanism comprising an operating-lever having one end connected at adjacent points to both cylinders and having its opposite end connected to said valve mechanism.

4. The combination with a pair of pump-cylinders having water inlet and discharge openings and steam-inlet openings, of valve mechanism arranged to admit steam alternately to said cylinders, and means for operating said mechanism comprising an operating-lever, laterally-yielding connections between one end of said lever and both cylinders, and connections between the opposite end of said lever and the valve mechanism.

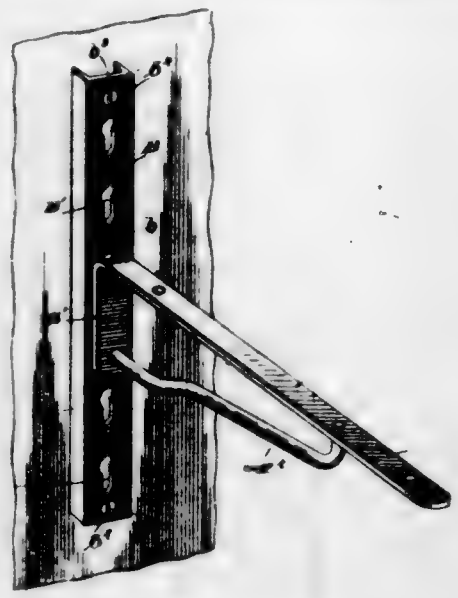
5. The combination with a pair of pump-cylinders having water inlet and discharge openings and steam-inlet openings, of valve mechanism arranged to admit steam alternately to said cylinders, and means for operating said mechanism comprising an operating-lever, a pair of thin metal blades connecting one end of said lever with both cylinders, and connections between the opposite end of said lever and the valve mechanism.

6. The combination with a pair of pump-cylinders having water inlet and discharge openings and steam-inlet openings, of a valve-casing rigidly connected to one of said cylinders, a flexible steam connection between said casing and the other cylinder, valve mechanism within said casing adapted to admit steam alternately to said cylinders, and connections between said mechanism and both cylinders, whereby the combined movement of both cylinders, caused by expansion and contraction, will be transmitted to said valve mechanism.

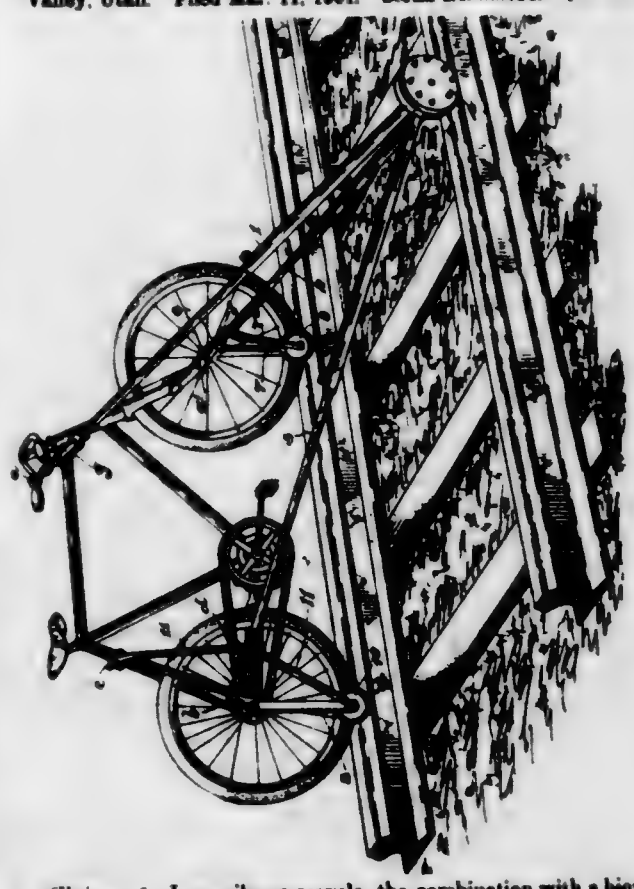
698,127. ADJUSTABLE BRACKET. PAUL H. GARDNER and FRANK E. VAN DOORN, Quincy, Ill. Filed Oct. 4, 1901. Serial No. 77,543. (No model.)

Claim.—1. The combination of a supporting-bar provided with key-hole-slots, and a bracket consisting of a metal bar bent to form horizontal and vertical arms, a brace-bar secured to the outer end of said horizontal part and to the lower part of said vertical arm, said brace-rod extending through and projecting from said vertical arm so as to form a projecting stud, and a headed stud attached to the upper part of said vertical arm.

2. The combination of a supporting-bar having a flat central part or web and marginal rearwardly-extending flanges, and provided with key-hole-slots in said central part or web, and a bracket consisting of a bar bent to form horizontal and vertical arms, a brace-rod attached at its ends to the said horizontal and vertical arms, said rod extending through and projecting from said vertical arm, so as to form a projecting stud, and a headed stud attached to the upper part of said vertical arm, said studs being adapted for engagement with said keyhole-slots of the supporting-bar.



698,128. RAILWAY-VELOCIPEDE. CHARLES GORNEMAN, Cedar Valley, Utah. Filed Mar. 11, 1901. Serial No. 50,738. (No model.)



Claim.—1. In a railroad-bicycle, the combination with a bicycle, of a frame detachably connected thereto and carrying a supporting-wheel, and a horizontally-disposed flange-roller depending below the supporting-wheel, substantially as described.

2. In a railroad-bicycle, the combination with a bicycle, of a frame connected thereto and carrying a supporting-wheel, the outer ends of the bars of the frame being secured to the axle of the supporting-wheel, a depending hanger carrying a flange-roller for the supporting-wheel, said roller being disposed slightly from the horizontal to insure a downward rolling tendency to the same, substantially as described.

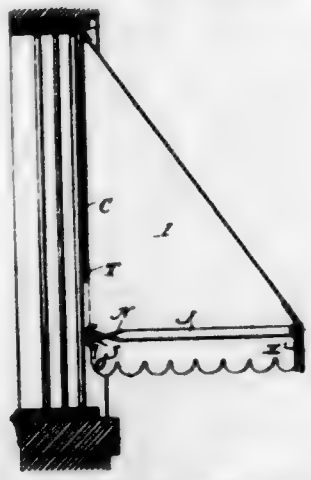
3. The combination with a bicycle, of a frame composed of three transverse bars, two of which are detachably connected to the front and rear forks of the bicycle respectively and the third detachably connected to upper bar of the frame and extending into engagement with the handle-bar to prevent the front wheel of the bicycle from turning, a supporting-wheel carried by the frame, a plate to which all three of the bars are connected, said plate having a depending hanger and a horizontal flange-wheel journaled thereon, and guide-wheels supported from the front and rear forks of the bicycle, substantially as described.

4. In a railroad-bicycle, the combination with a bicycle having guide-wheels suspended from its frame, of a frame connected thereto, said frame consisting of transverse bars detachably secured at one end to the bicycle-frame, a plate secured to the other ends of the bars, an axle carried by

said plate, a supporting-wheel provided with a flanged rubber tire journaled on said axle, a flange-wheel suspended from the plate, and means whereby the flange-wheel is caused to keep the supporting-wheel in contact with the top of the track, substantially as specified.

5. In a railroad-bicycle, the combination with a bicycle, of a frame comprising converging, telescoping, transverse bars detachably secured thereto, said frame carrying a supporting-wheel and a depending flange-roller, the latter being disposed slightly from the horizontal to insure a downward rolling tendency to hold the supporting-wheel in contact with the rail, substantially as described.

693,129. AWNING. FRANCIS J. HAGE, Sr., Goldsboro, N. C. Filed Dec. 11, 1900. Serial No. 39,506. (No model.)



Claim.—1. An awning comprising a covering, a frame attached to the lower end of the covering, yielding attaching members carried by the ends of said frame, coacting attaching members adapted to be secured to the window-frame, an elevating-rope adapted to be attached to the window-frame, and attaching means carried by said rope to engage the upper end of the covering, and the screw-eyes through which the said rope passes, substantially as described.

2. An awning comprising a covering, a frame secured to the lower end of the covering, spring-arms carried by the ends of the frame, projections adapted to be secured to the window-frame and to extend between said spring-arms, an elevating-rope adapted to be carried by the window-frame and attaching means carried by said rope and adapted to engage the upper end of the covering, and the screw-eyes through which the said rope passes, substantially as shown and described.

3. An awning comprising a covering, a frame carried by the lower end of said covering, spring-arms carried by the ends of said frame and provided with finger portions, plates adapted to be secured to the window-frame and formed with headed projections to extend between the spring-arms, an elevating-rope adapted to be carried by the window-frame and attaching means carried by said rope and adapted to engage the upper end of said covering, and the screw-eyes through which the said rope passes, substantially as described.

693,130. MACHINE FOR FORMING GLASSWARE. JONATHAN HALEY and HARRY H. BRIDGEWATER, Akron, Ohio, assignors to the Akron Glass & Machinery Company, Akron, Ohio, a Corporation of Ohio. Filed Aug. 18, 1899. Serial No. 727,719. (No model.)

Claim.—1. The combination of a press-mold, a cam for elevating said mold, the cam being formed with a part concentric with its axis to hold the mold at rest in an operative position, a vertically-movable plunger and means to depress the plunger while the mold is at rest.

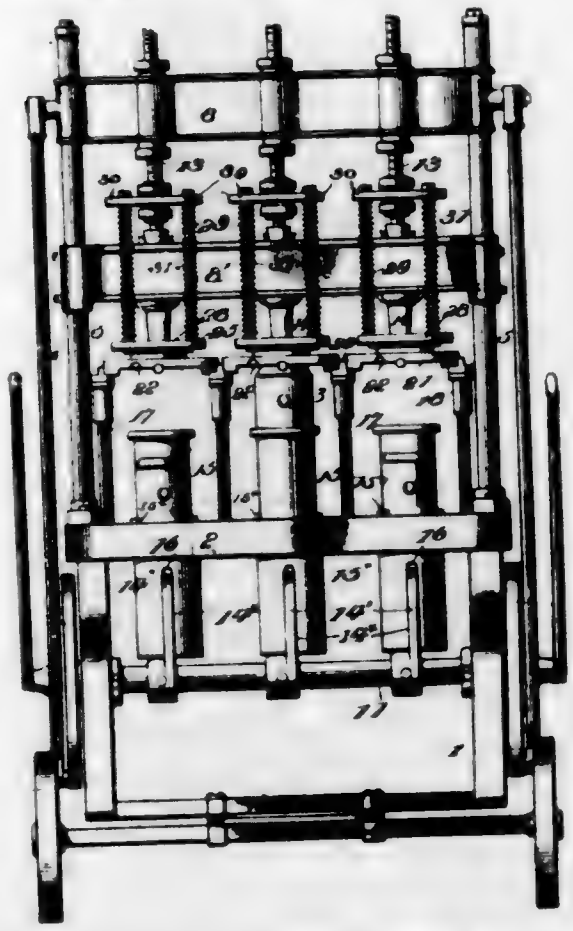
2. The combination of a press-mold, a neck-mold, a plunger, and means for moving the press-mold to the neck-mold to partially form the neck of the article and subsequently moving the plunger to the neck-mold and press-mold to initially form the interior of the article.

3. The combination of a press-mold, a neck-mold, a plunger, a cam for moving the press-mold to the neck-mold, and means for subsequently depressing the plunger to the neck-mold and press-mold, said cam and plunger-operating mechanism being controlled and operated by a single lever.

4. In combination, a press-mold, and a neck-mold adapted for cooperation therewith, said neck-mold having depending extensions adapted to embrace the article below the neck, whereby the article is rigidly supported when suspended solely from the neck-mold.

5. The combination of a neck-mold carrying the partially-formed article, a finishing-mold, means for elevating said finishing-mold to embrace the partially-formed article, and blowing apparatus automatically set in operation by the elevation of the finishing-mold.

6. The combination of a neck-mold carrying the partially-formed article, a finishing-mold, means for elevating said finishing-mold to embrace the partially-formed article, and blowing apparatus automatically set in operation by the elevation of the finishing-mold, and automatically shut off in the lowering of the finishing-mold.



7. The combination of a neck-mold carrying the partially-formed article, a finishing-mold, means for elevating said finishing-mold to embrace the partially-formed article, and suitable blowing apparatus, automatically controlled by the operation of the finishing-mold.

8. The combination of a press-mold, a sectional neck-mold, a plunger, and means for moving the press-mold to the neck-mold to lock the sections of the neck-mold together and partially form the neck of the article, and subsequently moving the plunger to the neck-mold and press-mold to initially form the interior of the article.

9. In combination, a press-mold, a neck-mold adapted for coöperation therewith, said neck-mold having depending extensions adapted to embrace the article below the neck, and means for elevating the press-mold to embrace the neck-mold extensions, said press-mold being chamfered to insure registry with said extensions.

698,181. PIANO-ACTION. HENRY M. HAMILTON, New York, N. Y. Filed Jan. 11, 1901. Serial No. 42,838. (No model.)

Claim.—1. In a piano-action, the combination of a hammer, means for moving the hammer and a fixed back-check with which said hammer coöperates in its movement back from the string before the hammer reaches the normal position.

2. In a piano-action, the combination of a hammer, a checking-abutment fixed to said hammer, means for moving the hammer and a fixed back-check with which the checking-abutment coöperates in the movement of the hammer back from the string and before the hammer reaches the normal position.

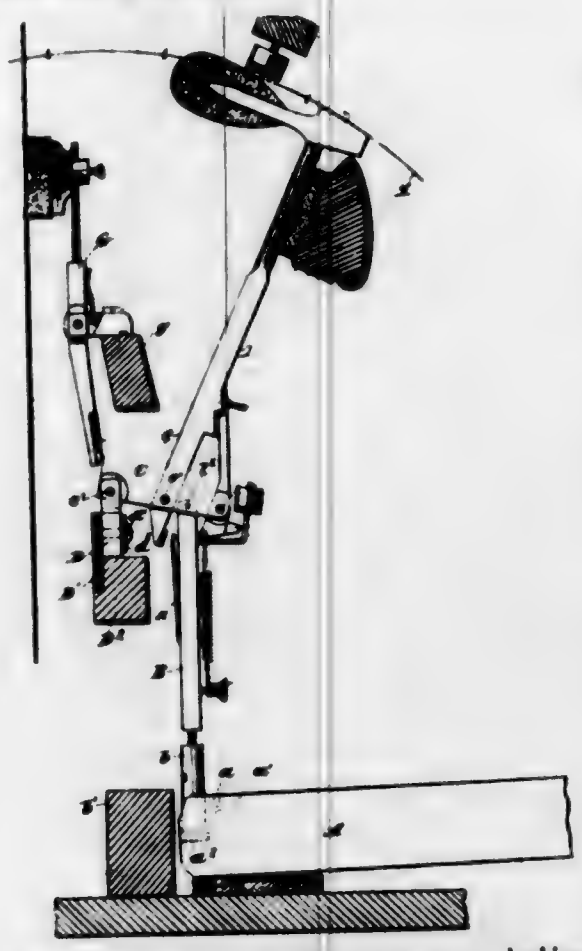
3. In a piano-action, the combination of a hammer, a checking-abutment forming part of the hammer-head, means for moving the hammer and a fixed back-check with which the checking-abutment coöperates in the movement of the hammer back from the string and before the hammer reaches the normal position.

4. In a piano-action, the combination of a hammer, means for moving the hammer in the direction of its operative stroke on one arc and permitting its return to the normal position on another arc for at least a portion of its return movement.

5. In a piano-action, the combination of a pivoted hammer, means for moving the hammer in the direction of its operative stroke on one pivotal center and permitting its return to the normal position on another pivotal center for at least a portion of its return movement.

6. In a piano-action, the combination of a hammer, means for moving the hammer in the direction of its operative stroke on one arc and permitting its return to the normal position on another arc for at least a portion of its return movement, said arcs being at an angle to each other.

7. In a piano-action, the combination of a hammer, a fixed back-check coöperating therewith, means for moving the hammer freely past the back-check in the direction of the operative stroke of said hammer and for permitting the hammer-head to contact with the back-check during the return stroke of said hammer.



8. In a piano-action, the combination of a hammer, a checking-abutment fixed to the hammer-head, a fixed back-check coöperating therewith, means for moving the hammer freely past the back-check in the direction of the operative stroke of said hammer and for permitting the checking-abutment on the hammer-head to contact with the back-check during the return stroke of said hammer.

9. In a piano-action, the combination of a hammer, a hammer-butt pivoted to said hammer and means for moving the hammer and hammer-butt together in the direction of the operative stroke and for permitting the hammer to return for at least a portion of its stroke independently of the hammer-butt.

10. In a piano-action, the combination of a hammer-butt pivoted to its support and a hammer pivoted to said hammer-butt and adapted to move independently thereof throughout a portion of the stroke of said hammer, whereby the hammer may move on different arcs during a single complete stroke thereof.

11. In a piano-action, the combination of a key, a hammer, intermediate means between the hammer and the key, said intermediate means comprising a plurality of pivotally-connected parts and being disconnected from the key, but bearing thereon, and a spring both ends of which are secured to said intermediate means at points at a distance from a pivot-joint connecting parts of said intermediate means.

12. In a piano-action, the combination of a key, a hammer, a pivoted extension-piece connected at its upper end with the hammer, said extension-piece being disconnected from but bearing upon the key, and a spring, one end of which is secured to the said extension-piece, while its other end has a connection with the hammer-carrying member at a distance from the pivot of the extension-piece.

13. In a piano-action, the combination of a key, a pivoted hammer-carrying member, an extension-piece pivoted to said member and disconnected from the key, but bearing thereon, and a spring having one end secured to the extension-piece and the other connected with the hammer-carrying member operatively at a distance from the pivot of the extension-piece.

14. In a piano-action, the combination of a key, a hammer, a jack coöperating with said hammer and a single spring for operating said jack and restoring said hammer and key to the normal position.

15. In a piano-action, the combination of a key, a hammer, a jack coöperating with said hammer, a single spring for operating said jack and restoring said hammer and key to the normal position and means for adjusting the tension of said spring.

16. In a piano-action, the combination of a key, a hammer, a jack coöperating with said hammer, a single spring for operating said jack and returning said hammer and key to the normal position said spring being carried by movable portions of the action and means for changing the positions of the points of connection of said spring with relation to each other by the operation of the action.

17. In a piano-action, the combination of a jack, a spring connected to said jack and to another movable portion of the action, one of the parts to which the spring is connected bearing against the rear end of the key and means for moving the parts to which the spring is connected in the operation of the action, so as to vary the position of the ends of the spring with relation to each other and thereby effect the tension of the spring on the jack and to restore jack, hammer and key to the normal position.

18. In a piano-action, a key having a depression therein for the reception of a portion of the action and an opening in a wall of the key which communicates with the depression, whereby the key may be withdrawn without removing any other portion of the action.

19. In a piano-action, a key having a depression with a sloping front wall therein for the reception of a portion of the action.

20. In a piano-action, the combination of a key having a depression therein, a portion of the action seated within said depression, a lateral opening in the key which communicates with the depression, whereby the key may be withdrawn without removing any other portion of the action and means for preventing the accidental displacement, through the lateral opening, of the portion of the action contained in the depression.

21. In a piano-action, the combination of a hammer having a hammer-butt pivoted to the hammer-shank, a jack pivoted to the hammer-butt, an extension-piece operated by the key and operatively connected to the hammer-butt and a "breaking button" carried by the extension-piece and adapted to coöperate with the jack.

22. In a piano-action, the combination of a hammer having a hammer-butt pivoted to the hammer-shank, a jack pivoted to the hammer-butt, an extension-piece operated by the key and operatively connected to the hammer-butt, a "breaking-button" carried by the extension-piece and adapted to coöperate with the jack and a damper controlled by the hammer-butt.

23. In a piano-action, the combination of a hammer having a hammer-butt pivoted to the hammer-shank, a jack pivoted to the hammer-butt, an extension-piece operated by the key and operatively connected to the hammer-butt and a spring connected at one end to the extension-piece and at the other end to the jack.

24. In a piano-action, the combination of a hammer having a hammer-butt pivoted to the shank of the hammer at one point and to a hammer-rail at another point, a jack pivoted to the hammer-butt, an extension-piece operated by the key and operatively connected to the hammer-butt, a "breaking-button" carried by the extension-piece and adapted to coöperate with the jackot and a back-check for said hammer whereby the hammer will move toward the string around the pivot of the hammer-butt and will return toward the back-check around the pivot which unites the hammer to the hammer-butt.

25. In a piano-action, a fixed support, a hammer-carrying member pivoted thereto, an extension-piece pivoted to said member and engaging one of the piano-keys, and a spring one end of which is secured to the said extension-piece while its other end is operatively connected with the hammer-carrying member.

26. In a piano-action, a fixed support, a hammer-carrying member pivoted thereto, an extension-piece pivoted to said member and engaging one of the piano-keys, and a spring one end of which is secured to the said extension-piece while its other end is operatively connected with the hammer-carrying member, at a greater distance from the pivot of said member than the extension-piece.

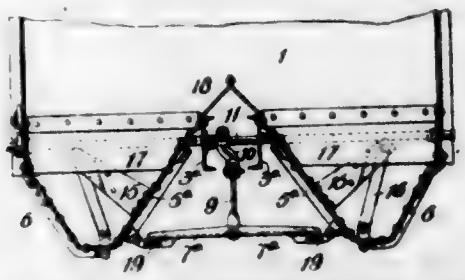
27. In a piano-action, a fixed support, a hammer-butt pivoted thereto, a hammer pivoted to the butt, an extension-piece likewise pivoted to the butt and engaging one of the piano-keys, a jack pivoted to the butt at a greater distance from the butt-pivot than the extension-piece, and arranged to temporarily hold the hammer against independent pivotal movement, and a spring one end of which is secured to the jack at a distance from its pivot, while its other end is secured to the extension-piece.

28. In a piano-action, a fixed support, a hammer-butt pivoted thereto, a hammer pivoted to the butt, an extension-piece likewise pivoted to the butt and engaging one of the piano-keys, a jack pivoted to the butt and arranged to temporarily hold the hammer against independent pivotal movement, and a spring one end of which is secured to the jack at a distance from its pivot, while its other end is secured to the extension-piece.

698,182. CAR. AXEL HEDDEN, Allegheny, Pa. Filed Dec. 3, 1900. Serial No. 38,536. (No model.)

Claim.—1. In a hopper-car, the combination of floor-plates inclining from the ends of the car toward a discharging opening or hopper located midway of the length of the car, channel-bars forming intermediate lon-

gitudinal sills and arranged to support the floors adjacent to the hopper, and doors hinged to the channel-bars to swing laterally of the car, and mechanism for operating said doors simultaneously, substantially as set forth



2. A hopper-car having in combination, floors inclined from the ends toward the center of the car, longitudinal sills consisting of channel-bars forming supports for the floors intermediate of the sides of the car, a ridge supported by the channel-bars, transverse ridges extending from the channel-bars to the sides of the car, discharge hoppers or openings located on opposite sides of the longitudinal ridge, doors pivoted to the car so as to swing laterally of the same and mechanism arranged along the transverse ridges for simultaneously operating the doors, substantially as set forth.

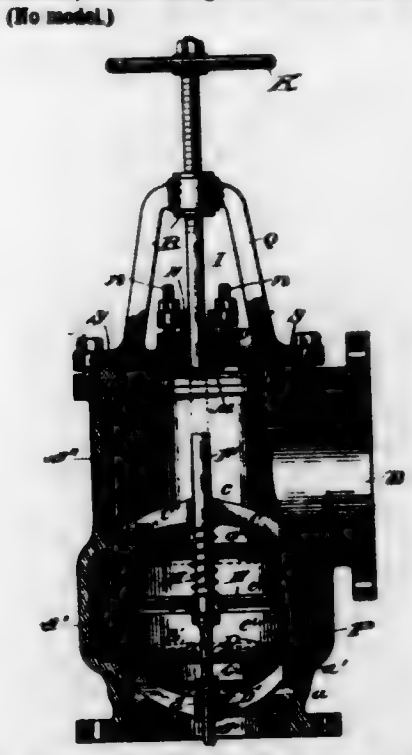
3. A hopper-car having in combination floors inclined to the discharge openings or hoppers, doors pivotally mounted on opposite sides of the hoppers or openings so as to swing laterally of the car, mechanism for shifting the inner doors and arms rigidly secured to the inner door and loose connections from said arms to the outer doors, substantially as set forth.

4. A hopper-car having in combination floors inclined to the discharge opening or hopper, and doors pivotally mounted on opposite sides of the hopper, one of said doors having side and bottom portions arranged at an angle to each other, substantially as set forth.

5. A hopper-car having in combination, floors inclined to a center discharge opening or hopper, doors pivotally mounted on opposite sides of the hopper or opening so as to swing laterally of the car, mechanism for shifting one of said doors and arms rigidly secured to one door and loose connections from said arms to the other door, substantially as set forth.

6. A hopper-car having in combination, floors inclined to a center discharge opening or hopper, doors pivotally mounted on opposite sides of the hopper, said doors having side and bottom portions at an angle to each other and plates extending from the inclined floors down alongside of the ends of the doors, substantially as set forth.

698,133. AUTOMATIC DUPLEX CHECK AND STOP VALVE. FRANK HENNEBÜHLE, South Chicago, Ill. Filed May 4, 1901. Serial No. 58,802. (No model.)



Claim.—1. A valve, comprising a casing having an inlet for connecting with the boiler, an outlet for joining with the main or feed pipe, a valve-chamber joining the inlet and outlet portions, said chamber having a valve-seat communicating with the outlet, and a valve-seat communicating with the inlet, a valve shiftably held within said chamber adapted to automatically close onto either of said seats by the varying fluid-pressure against it in either direction, for the purposes specified.

2. A valve, comprising two communicating chambers A' A^2, the opening therebetween having a valve-seat, the chamber A^2, having a laterally-projecting outlet for connecting with the main, the chamber A' having a valve-seat adjacent its inlet or boiler-connecting end, a valve held within the chamber A', away from either valve-seat by the balanced fluid-pressure on its opposite sides and adapted to shift to engage either seat by the varying pressure on either side, as specified.

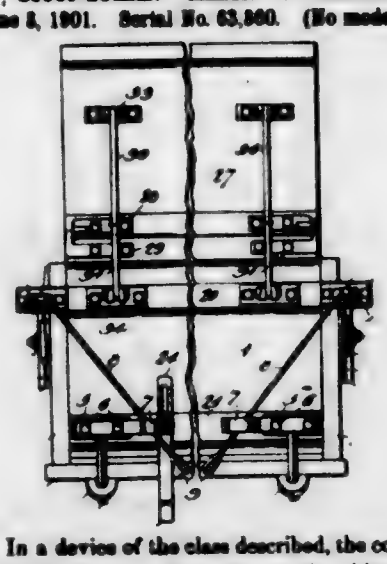
3. A valve comprising a casing, having two communicating chambers, one of which has an inlet, the other an outlet, a valve shiftably held within the inlet-chamber, adapted to alternately close the inlet to said chamber, or the opening between it and the outlet-chamber, to be held up against the said opening by boiler-pressure, and manually-operated means for forcing said valve away from the said outlet-opening, and against its boiler-pressure, for the purposes described.

4. The combination with the casing, having an inlet-chamber and an outlet-chamber, the two chambers communicating, a shiftable stem, having attached means for alternately closing off the inlet-chamber to the outlet-chamber or to the boiler, by the varying fluid-pressures from opposite directions, said stem and its attached closure means being spring-pressed in the direction of the inlet to the valve-casing, as set forth.

5. The combination with the casing, having an inlet-chamber A', an outlet-chamber A^2, an opening joining the two chambers, having a valve-seat, a stem slidably mounted within the casing having attached closure means for engaging the valve-seat, a spring for forcing the stem and its closure member normally in the direction of the inlet end of the casing, and a second spring for holding said closure member off the entrance to the inlet-chamber, all being arranged substantially as shown and described.

6. The herein-described improvements in valves, comprising the following elements in combination, a casing having an inlet-chamber A' and an outlet-chamber A^2, in communication with each other, the skeleton frames C' D', having the valve-seats C and D, and central guide members *c* and *d*, the cap and yoke, detachably mounted over the chamber A^2, the screw-spindle I, carried by the yoke and cap, and adjustable within the upper or outlet chamber A^2, the stem F, slidably mounted in the guides *c* and *d*, the disk E, mounted on the stem F, and having its upper and lower faces fitted to engage the seats D and C, the spring H, and the spring G, all being arranged substantially as shown and for the purposes described.

698,184. SCOOP-BOARD. MARTIN W. HEYENGA, near Linden, Ill. Filed June 8, 1901. Serial No. 63,860. (No model.)



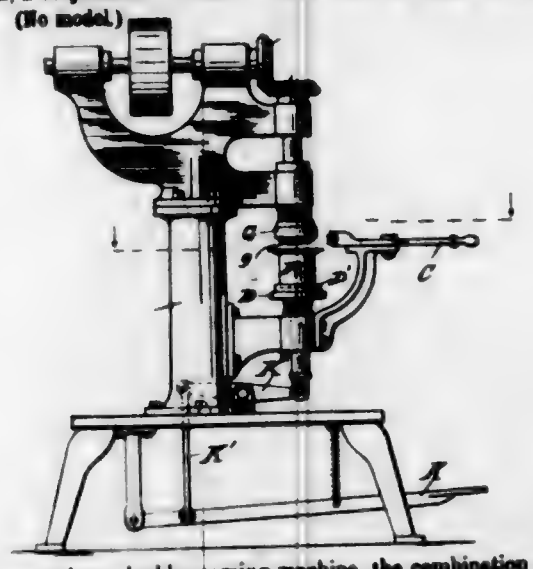
Claim.—1. In a device of the class described, the combination with a wagon-body, of an end-gate, an extension-section hinged to the end-gate and adapted to form a continuation thereof to provide a platform, a rack supported by the end-gate and the extension-section, and means for supporting the end-gate and the extension-section in position for forming a platform, substantially as described.

2. In a device of the class described, the combination with a wagon-body, of an end-gate, an extension-section hinged to the end-gate at the top thereof and adapted to form a continuation of the same, means for supporting the end-gate, and a folding brace connected with the end-gate and with the extension-section and adapted to support the latter and capable of permitting the same to swing downward, substantially as described.

3. In a device of the class described, the combination with a wagon-body, of an end-gate, an extension-section hinged to the end-gate at the top thereof, arms extending from the end-gate, and the folding braces composed of sections hinged together at their adjacent ends and pivoted at their outer ends to the arms of the end-gate and to the extension-section, substantially as described.

4. In a device of the class described, the combination of a wagon-body having eyes at its bottom, an end-gate provided with arms detachably engaging the eyes, the beveled block secured to the bottom of the body, and the depending hook or catch arranged to engage the block when the end-gate is swung downward, whereby the arms are retained in the eyes, substantially as described.

693,185. DOUBLE-SEAMING MACHINE. JOHN G. HODGSON, Maywood, Ill., assignor to Automatic Vacuum Canning Company, Chicago, Ill., a Corporation of Illinois. Filed June 28, 1901. Serial No. 66,352. (No model.)

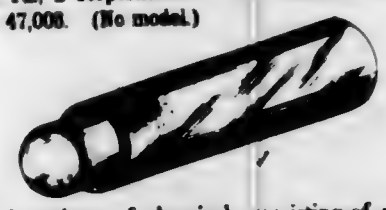


Claim.—1. In a double-seaming machine, the combination with a seaming head and tools, of a pair of rotary can-holder chucks or disks furnished with projecting centers to inwardly curve or collapse a portion of the heads of the can from their normal position at the time the upper head is double-seamed thereto, substantially as specified.

2. The combination with a seaming-head and seaming-tool, of a pair of rotating can-holder chucks or disks, for clamping the can between them, provided with convex centers to inwardly curve or collapse a portion of the heads of the can from their normal position at the time it is hermetically sealed by double-seaming, substantially as specified.

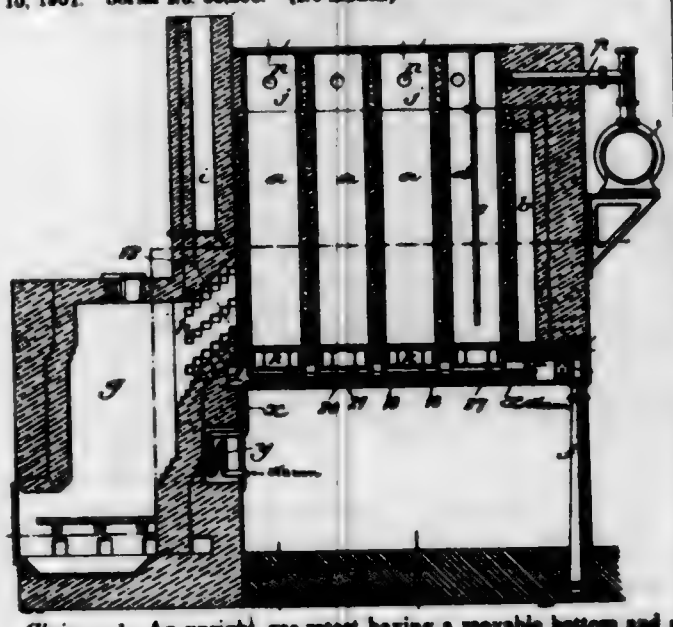
3. The combination with a seaming head and tool, of a lower rotary can-holder chuck and an upper rotary can-holder chuck, one of said can-holder chucks having a projecting center to inwardly curve or collapse a portion of the head of the can from its normal position against which it bears, substantially as specified.

693,186. PHOTOGRAPHIC PACKAGE. FREDERICK W. HUMPHREYS, Germantown, Pa., assignor to Wayne Chemical Company, Germantown, Pa., a Corporation of New Jersey. Filed Feb. 12, 1901. Serial No. 47,008. (No model.)



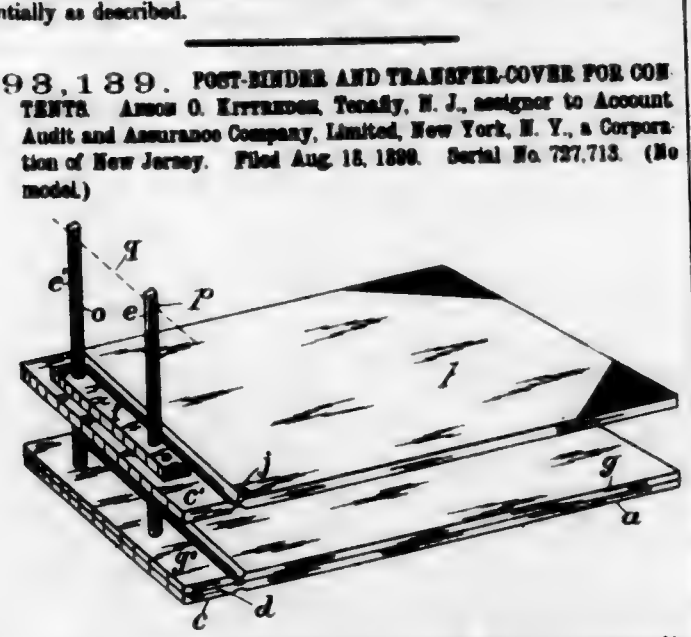
Claim.—A package of chemicals consisting of a cylindrical body having the same cross-section throughout its length and open at one end, said body containing a powder, and a closed capsule inserted in said open end and also containing a powder, substantially as described.

693,187. APPARATUS FOR THE MANUFACTURE OF ILLUMINATING-GAS. CHARLES W. INSELL, New York, N. Y. Filed May 15, 1901. Serial No. 60,298. (No model.)


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placing the filled paper envelop in antiseptic liquids which will not soften the ligature therein, and are adapted to pass through the pores of the paper and reach the ligature therein, removing the filled envelop from said liquids, drying it, and inclosing it in a close-texture paper envelop, substantially as described.

693,139. POST-BINDER AND TRANSFER-COVER FOR CONTENTS. ARNOS O. KITTREDGE, Tenafly, N. J., assignor to Account Audit and Assurance Company, Limited, New York, N. Y., a Corporation of New Jersey. Filed Aug. 18, 1899. Serial No. 727,713. (No model.)



Claim.—1. In a transfer-binder, the combination of a binding-file composed of a lower base with a hinged end carrying a pair of filing-rods extending at right angles therefrom and with eyes or perforations in their upper ends, a perforated bottom cover adapted to slide upon said filing-rods, rest upon the base, and receive papers upon it which are filed on the rods, a top perforated cover likewise adapted to fit over the filing-rods upon the papers filed thereon, and a cleat secured to said top cover.

2. In a post-binder, the combination, with the base *a*, and the posts *e*, *e'*, projected therefrom, and provided each with a passage through the top to admit a cord, of the sleeves *r* adapted to fit over the posts while the papers are filed, as and for the purpose set forth.

3. In a transfer-binder, the combination of a binding-file composed of a lower base with a hinged end carrying a pair of filing-rods extending at right angles therefrom and with eyes or perforations in their upper ends, a perforated bottom cover adapted to slide upon said filing-rods, rest upon the base, and receive papers upon it which are filed on the rods, a top perforated cover likewise adapted to fit over the filing-rods upon the papers filed thereon, and means upon the top cover for securing the ends of the cord thereto.

693,140. MOUTH-MIRROR. WILLIAM E. KNIGHT, Ostrander, Ohio. Filed June 15, 1901. Serial No. 64,712. (No model.)



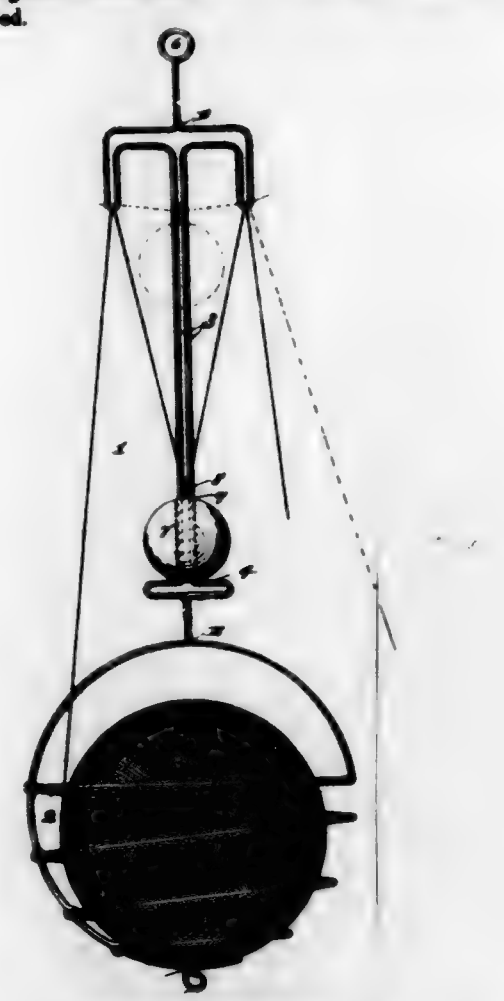
Claim.—A mouth-mirror comprising a handle, a resilient clamp secured thereto and a circular mirror fitting within the clamp, the latter extending only part way around the mirror to permit the mirror to be inserted and withdrawn.

693,141. TWINE-HOLDER. CHARLES J. LIPPOLD, Washington, D. C. Filed June 21, 1901. Serial No. 65,526. (No model.)

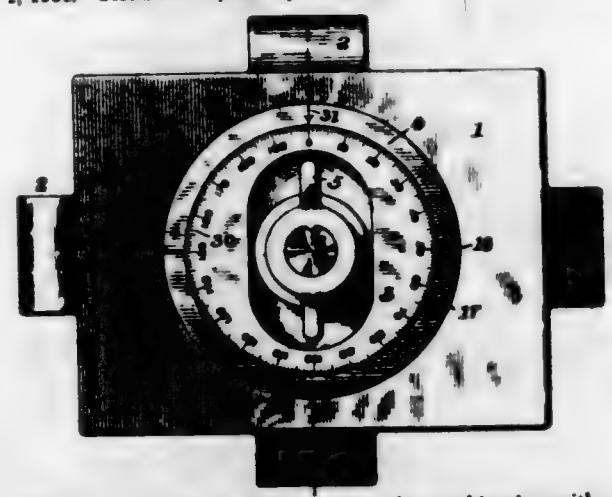
Claim.—1. As an article of manufacture a twine-holder composed of a single piece of wire, a spiral basket formed by one end thereof, guide-rods formed by the wire intermediate those two ends, twine-guides formed by said wire above said guide-rods, a suspending-ring formed by said wire above said twine-guides, a reinforcement for said basket formed by the other end of said wire, substantially as described.

2. A twine-holder composed of a single piece of wire combining a basket formed by one end of said wire, guide-rods, above said basket, twine-guides above said guide-rods, a suspending-ring above said twine-guides, a weight adapted to travel on said guide-rods, a reinforcement for said basket formed by the other end of the wire, substantially as described.

3. In a twine-holder the combination of a basket formed by a series of spirals, guide-rods formed thereon, and integral therewith above said basket, twine-guides above said guide-rods, means for suspending said holder, a weight adapted to travel on said guide-rods, one of said guide-rods being carried down whereby the same forms a reinforcement for said basket by turning once around each circle of said spiral basket, substantially as described.



698,142. SAFE. HARVEY C. LOWRIE, Denver, Colo. Filed Oct. 1, 1901. Serial No. 77,946. (No model.)



Claim.—1. In a safe or strong box, the combination with a circular door and its casing, of locking-lugs movable around the peripheral line of said door, projections adapted to coöperate with said lugs for securing said door in its casing, and means for moving said lugs singly to their proper positions of adjustment for releasing them from engagement with said projections, substantially as described.

2. In a safe or strong box, the combination with a circular door and its casing, of locking-lugs movable around the peripheral line of said door and adapted to be moved into and out of alinement with each other, projections coöperating with said lugs for securing said door in its casing, and means for moving said lugs singly to their proper positions for releasing them from engagement with said projections, substantially as described.

3. In a safe or strong box, the combination with a circular door and its casing, of locking-lugs movable in planes parallel with each other around the peripheral line of said door and adapted to be moved into and out of alinement with each other, and projections adapted to coöperate with said lugs for securing said door in its casing, substantially as described.

4. In a safe or strong box, the combination of a circular door and

its casing, of locking-lugs movable in parallel planes around the peripheral line of said door, projections adapted to coöperate with said lugs for securing said door in its casing, and means whereby said lugs may be moved into and out of alinement with each other and into and out of engagement with said projections, substantially as described.

5. In a safe or strong box, the combination with a circular door and its casing, of locking-lugs movable around the peripheral line of said door, one or more of said lugs being movable independently of the others, projections adapted to coöperate with said lugs for securing said door to its casing, and means whereby all of said lugs may be moved into or out of engagement with said projections by movements of said independently-movable lug or lugs, substantially as described.

6. In a safe or strong box, the combination of a circular-door casing, rings movable in said casing around the opening formed thereby, lugs on said rings projecting into said opening, a circular door provided with projections adapted to be engaged by said lugs, a pin or projection on said door and similar pins or projections on said rings, whereby the latter may be moved to any desired position by rotating said door, substantially as described.

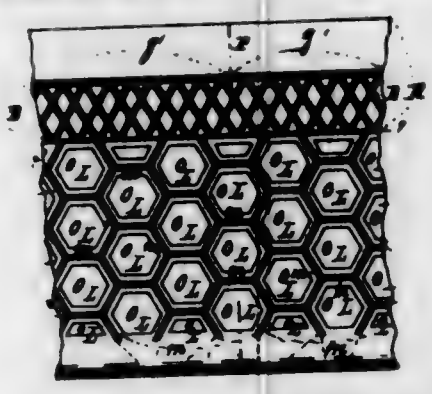
7. In a safe or strong box, the combination of a circular-door casing, grooves in said casing, rings movable in said grooves having lugs projecting toward the center of said casing, a circular door having projections adapted to be engaged by said lugs, and means whereby said lugs may be moved into or out of alinement with each other by rotating said door, substantially as described.

8. In a safe or strong box, the combination of a circular-door casing, rings movable in said casing having lugs projecting toward the center thereof, a circular door having annular projections adapted to engage with said lugs, said projections being cut away to afford one or more passage-ways for said lugs, and means for moving said rings for placing said lugs into or out of alinement with each other by rotating said door, substantially as described.

9. In a safe or strong box, the combination with a circular door and its casing, of locking-lugs movable in parallel planes around the peripheral line of said door, projections adapted to be engaged by said lugs for securing said door to its casing, a pin or pins movable with each of said lugs, said pins being adapted to engage with a pin movable with the next adjacent lug, means for moving one of said lugs, and means for varying the location of one or more of said pins with respect to the lug with which it moves, substantially as and for the purpose described.

10. In a safe or strong box, the combination of a circular door and its casing, of locking-lugs movable around the peripheral line of said door, projections adapted to engage with said lugs for securing said door in its casing, a dial on said door, a pin movable with said door, adapted to move said lugs, and means for changing the location of said pin with respect to said dial, substantially as described.

693,143. METALLIC STAIR-TREAD. FREDERICK M. MAHONY, Troy, N. Y., assignor to the Mahony Manufacturing Company, Troy N. Y. Filed Jan. 4, 1901. Serial No. 42,069. (No model.)



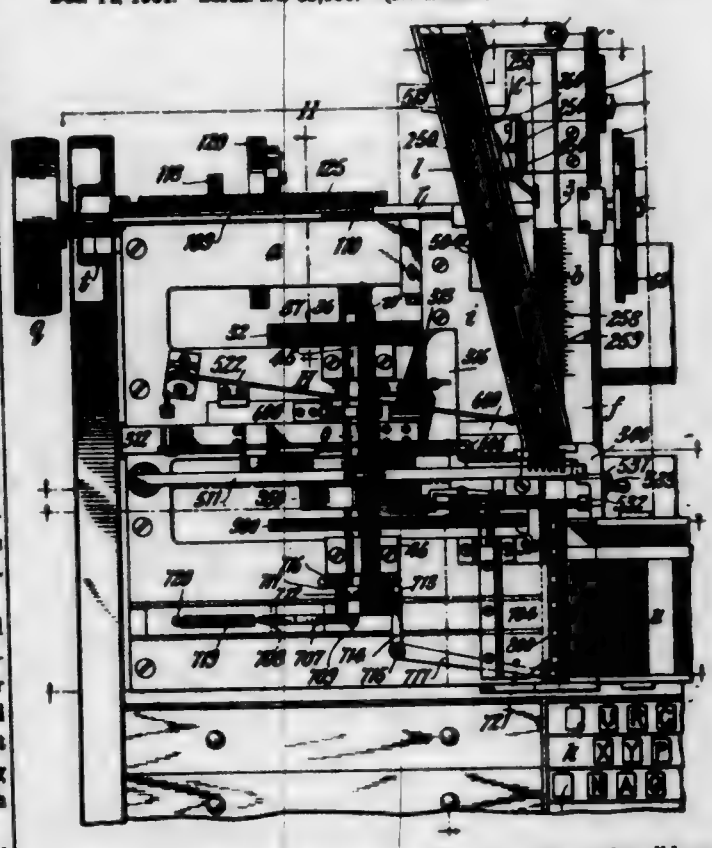
Claim.—A stair-tread having a smooth rear part, a honeycombed front part provided with recesses for receiving lead and an intermediate part grooved in diamond pattern and having two transverse grooves *g'* separating said pattern from said front part and rear part substantially as set forth.

693,144. ELECTRICALLY-HEATED APPARATUS. VICTOR MONATH, Vienna, Austria-Hungary. Filed Apr. 16, 1901. Serial No. 56,122. (No model.)



Claim.—An electrically-heated apparatus comprising a frame *c* having inner ledges *d* below the upper edges of its walls, a non-heat-conducting slab *b* resting upon said ledges and between said walls and hollowed out on its upper surface, and a plate *a* to be heated resting in the hollow of the slab *b*, the said slab and plate being provided in their meeting faces, with registering grooves forming receptacles to receive the resisting-bodies *e* through which to pass the electric current, substantially as described.

698,145. MACHINE FOR JUSTIFYING TYPE. FRANK MCCLINTOCK, Mount Vernon, N. Y., assignor to the Empire Machine Corporation, a Corporation of New Jersey. Filed July 20, 1900. Renewed Dec. 14, 1901. Serial No. 86,938. (No model.)



Claim.—1. The combination of a sliding plate, arranged to slide vertically in suitable ways, in the end plate; space-bar-elevating plate attached to and sliding vertically with the same a spring attached at one end to the end plate, and at the other to the sliding plate, whereby the latter is normally held in a raised position; a bent lever attached at one end to the sliding plate, and pivoted at the other end to the frame; and means substantially as described, for intermittently actuating the lever and drawing down the plate.

2. The combination of a sliding plate arranged to slide vertically in suitable ways in the end plate; space-bar-elevating plate, attached to and sliding vertically with the same; a spring attached at one end to the end plate and at the other to the sliding plate, whereby the latter is normally held in a raised position; a lever attached at one end to the sliding plate and pivoted at the other end to the bed-plate; an arm carried on the lever, carrying a roller; a disk mounted on a sleeve rotating loosely on the driving-shaft, carrying on its surface a cam-groove in which the said roller travels; and means substantially as described, for causing the sleeve and the disk to rotate with the driving-shaft.

3. The combination of a sliding plate arranged to slide horizontally in suitable ways on the end plate; a sliding space-bar driver attached thereto at one end; a bent lever pivoted to the frame attached thereto at the other end; a spring attached at one end to the bent lever and at the other end to the bed-plate, whereby the sliding plate is normally held in an advanced position; a roller on the shorter end of the lever; a cam on the driving-shaft on the periphery of which the roller slides; and means substantially as described, for disengaging the connection between the cam and the driving-shaft, whereby the space-bar driver may be actuated at the proper time with respect to the space-bar-elevating mechanism.

4. The combination of a plate arranged to slide horizontally on the end plate; a sliding space-bar driver attached thereto at one end; a bent lever pivoted to the frame-plate, attached at one end to the sliding plate; a spring connected at one end with the bent lever and at the other end to the frame-plate, whereby the sliding plate is constantly kept in an advanced position; a roller on the shorter end of the lever; a cam on the driving-shaft on the periphery of which the roller slides; and means substantially as described, for disengaging the connection between the cam and the driving-shaft, whereby the space-bar driver may be actuated at the proper time with respect to the space-bar-elevating mechanism.

5. The combination with the bed-plate of the machine, of a movable end plate, a space-bar-elevating slide, a space-bar-inserting slide, and de-

vices for adjusting the end plate with reference to the bed-plate, substantially as described.

6. The combination with the bed-plate of the machine, of a movable end plate attached to an arm moving in a suitable way in the bed-plate, a space-bar-elevating slide and a space-bar-inserting slide, both actuated by suitable mechanism; and adjusting-screws at either end for adjusting the end plate with reference to the bed-plate, substantially as described.

7. The combination of a sliding plate, arranged to slide vertically in suitable ways in the end plate; an elevating-plate attached to and sliding vertically with the same; a spring attached at one end to the bed-plate and at the other to the sliding plate, whereby the latter is normally held in a raised position; a bent lever attached at one end to the sliding plate, and pivoted at the other end to the frame; a sliding plate arranged to slide horizontally in suitable ways on the bed-plate; a sliding space-bar driver attached thereto at one end, a bent lever pivoted to the frame attached thereto at the other end; a spring attached at one end to the bent lever, and at the other end to the bed-plate, whereby the sliding plate is normally held in an advanced position; a loose collar rotating on the driving-shaft; a disk mounted on the collar, and rotating therewith, provided on its surface with a cam-groove; an arm attached to the actuating-lever of the elevating mechanism; a roller, carried on said arm actuated by the movement of the cam in the disk; a cam on the other end of said sleeve; a roller on the shorter end of the space-bar-driving lever, actuated by the movement of said cam; a cog-wheel attached to a driving-shaft; a dog upon the face of the rotating disk arranged to engage the cog-wheel, and cause the disk in the cam to rotate when the dog is released; a pivoted lever engaging the tail of the dog; a spring for throwing the dog into engagement when the pivoted lever is released, and a key mechanism for tripping the pivoted lever at the proper instant; a spring for restoring the same, and a spring-brake impinging against the periphery of the disk for retarding the movement of the same at the proper instant, the relation of the various elements being so timed to each other that the space-bar-driving mechanism operates at the proper instant.

8. A tapering, wedged-shaped space-bar, slotted substantially throughout its length, and indented upon its lower surface for a certain distance to a certain extent, and for a short distance at the inner end to a less extent.

9. The combination with the line-holder and space-bars, of an adjustable brush arranged to be adjusted toward and from the line-holder, the bristles of which engage with the rear ends of the space-bars after insertion in the line-holder and prevent them from shifting from their normal position at right angles to the line of type.

10. The combination with the line-holder of a beveled plate arranged to engage with a slot upon its face; spring devices for throwing the plate constantly forward so as to hold the line-holder, and retard its downward motion; and adjusting devices for controlling the pressure upon the plate, substantially as described.

11. The combination with the line-holder of a vertical plate beveled at the rear end as shown; a rod upon which the same slides horizontally in the bed-plate at right angles to the line-holder; a spring at the end of the rod for throwing the same constantly forward and a thumb-screw whereby the tension upon the spring may be controlled.

12. The combination of a line-holder for receiving and containing a line of type having a fixed end wall and an adjustable line-stop which may be fixed at any desired point, and provided with a longitudinal opening through its side wall, and having a slot cut in its front face so as to permit it to slide upon the projecting head of the reciprocating line-bunter.

13. The combination of a line-holder for receiving and holding a line of type having a fixed end wall and an adjustable line-stop which may be fixed at any desired point, and provided with a longitudinal opening through its side wall, and a rib extending longitudinally along such longitudinal opening, and having a slot cut in its front face so as to permit it to slide upon the projecting head of the reciprocating line-banter.

14. The combination of a traveling line-holder adapted to receive a line of type and temporary space-bars and having suitable stops to limit the length of the line; means for assembling types therein; a rapidly-revolving cam for advancing the individual types as fast as they are assembled; and mechanism for inserting space-bars into the line which is so timed as to always operate in unison with said cam, whereby the space-bars will always be made to enter the line without striking either the types or the cam.

15. The combination of a vertical frame-plate; a traveling line-holder moving thereon upon a suitable track; a rapidly-rotating cam for advancing the individual types as fast as they are assembled thereby causing the line-holder to move downward on the track; a shaft rotating in bearings in a movable plate to which said cam is attached; gear-wheels whereby the rotation of the main shaft is imparted at an accelerated speed to the cam-shaft, and devices for adjusting the position of the plate and the cam mechanism, in relation to the type-chute.

16. The combination of a vertical frame-plate; a traveling line-holder; an upper track on the frame-plate on which the line-holder travels in one direction; a return track or way below and parallel with the first track, upon which the line-holder travels in the opposite direction; a slide adapted to move along a groove in the frame-plate, and having a hook thereon, adapted to engage the line-holder; a cord and weight for causing the downward movement of said slide, and means for returning the slide and weight to their upper normal position.

17. The combination of a frame-plate; a traveling line-holder; an upper track on the frame-plate, upon which the line-holder travels in one direction; a return track or way below and parallel with the first track, upon which the line-holder travels in the opposite direction; a slide adapted to move along a groove in the frame-plate, and having a hook thereon adapted to engage the line-holder; a cord attached to said plate having one weight permanently secured thereto; a second weight resting on the first; a stop adapted to arrest the descent of the second weight, at a suitable point, thereby preventing its further action in drawing down the slide; and means for returning the slide and weights to their upper normal position.

18. The combination of a frame-plate; a line-holder arranged to travel upon an upper track on the frame-plate in one direction, a return track or way below and parallel with the first track upon which the line-holder travels in the opposite direction; a slide adapted to move along the groove in the frame-plate; devices substantially as described connected therewith, whereby the slide is caused to engage with and move the line-holder; a cord attached to said slide, having one weight permanently secured thereto, a second weight resting on the first, a stop adapted to arrest the descent of the second weight at the suitable point, thereby preventing its further action in drawing down the slide; a second cord attached at one end to said slide; a grooved pulley to which the other end of said cord is attached; a grooved cam carried on the face of the pulley; a cord attached to the point of the cam arranged to be wound up by the movement thereof; a compressed-air chamber, the piston of which is connected with the cord attached to the cam; a key-lever for actuating the valve of the compressed-air cylinder; a spring device actuated by the key-lever for holding the valve of the air-chamber open, and a tripping device actuated by the slide for closing the valve at the proper instant.

19. The combination with the opening in the bed-plate, through which the space-bars drop into the returning-channel; of a movable cover; and devices actuated automatically from the justifying-shaft, which open and close the cover at the proper instant.

20. The combination with the opening in the bed-plate, through which the space-bars drop into the returning-channel; of a sliding plate arranged to close the same; springs for keeping the same normally closed, and a pivoted lever arranged to be actuated by a suitable cam on the justifying-shaft, for opening the same at the proper instant.

21. The combination of a plate sliding in suitable ways upon the side plate; a plate attached thereto onto which the line-holder is advanced; a forked lever pivoted to the side plate; a weight carried on the lower end of the lever; a link connecting the shorter fork of the lever with the sliding plate, a pin on the side of the longer fork of the lever on and projecting into the path of the line-holder, and a suitable endless-chain mechanism which advances the line-holder, whereby when the line-holder impinges against the pin, the plate is moved downward, and the weight raised and the line-holder permitted to pass from the lower way onto the plate and when the line-holder has passed the pin the plate and line-holder are raised by the force of the weight.

22. The combination of temporary spreading spacing devices inserted between types in a line; means for driving the foremost spacing device its full distance into the line and for causing all except said foremost spacing device, to be progressively driven in to spread the line; and means for thereafter replacing said spacing devices with ordinary spaces.

23. The combination of means for inserting temporary spreading spacing devices between types as they are assembled in line; means for driving the foremost spacing device its full distance into the line and for causing all except said foremost spacing device, to be progressively driven in to spread the line; means for limiting the amount of expansion; and means for replacing said spacing devices with ordinary spaces.

24. The combination of means for inserting temporary spreading spacing devices between types as they are assembled in line; means for driving the foremost spacing device its full distance into the line and for causing all except said foremost spacing device, to be progressively driven in to spread the line; means for replacing the spacing devices with space-blanks; means for delivering the line thus justified onto a galley.

25. The combination of means for inserting temporary spacing devices in a line of type while being assembled between confining walls; means for causing said spacing devices to be progressively advanced through the line such a distance that each successive space-bar shall eventually be advanced substantially the same distance; means for replacing said

spacing devices with space-blanks, and means for removing the line thus justified onto a galley.

26. The combination of a line-holder for holding and limiting the length of a line of type; wedge-shaped space-bars for expanding the line; means for progressively driving in the space-bars to substantially the same final position so as to expand the line to the limit of the line-holder; and means for removing the space-bars successively and replacing them with ordinary spaces.

27. The combination of a suitable holder for holding and limiting the length of a line of type; means whereby wedge-shaped or tapering space-bars instead of ordinary spaces, are inserted between the words during the operation of assembling the line in the line-holder; means for driving the foremost spacing device its full distance into the line and for causing all except said foremost spacing device, to be progressively driven in to spread the line; and means for removing the space-bars successively and replacing them with ordinary spaces.

28. The combination of the line-holder; the wedge-shaped or tapering space-bars inserted therein; means for driving the foremost space-bar its full distance into the line and for causing all except said foremost space-bar, to be progressively driven in to spread the line; and means for successively withdrawing the space-bars from the line.

29. The combination of a holder for holding and limiting the length of a line of type; means whereby wedge-shaped or tapering space-bars are inserted into the line between the words during the operation of assembling in the line-holder; means for progressively driving in the space-bars so as to expand the line to fill out the line-holder; means for successively removing the space-bars; means for inserting in the line of type, instead of the space-bars as each is removed, ordinary spaces of a thickness equal to or next less than the thickness of a space-bar which has been last removed, at the point where it entered the line; and means for driving in the foremost remaining space-bar in advance of the others such a distance as will properly apportion the excess of fractional spacing throughout the line whenever a space has been inserted of less than proper thickness.

30. The combination of a line-holder for holding and limiting the length of a line of type; means whereby wedge-shaped or tapering space-bars are inserted into the line between the words during the operation of assembling in the line-holder; means for progressively driving in the space-bars so as to expand the line to fill out the line-holder; means for successively removing space-bars; means for inserting in the line of type, instead of the space-bars as each is removed, ordinary spaces of a thickness equal to or next less than the thickness of the space-bar which has been last removed, at the point where it enters the line; and means for driving in the foremost remaining space-bar in advance of the others, such a distance as will properly apportion the excess fractional spacing throughout the line, whenever a space has been inserted of less than proper thickness, and for repeating this operation until the entire line is justified.

31. The combination of a suitable line-holder for holding and limiting the length of a line of type; means whereby wedge-shaped or tapering space-bars are inserted into the line between the words during the operation of assembling in the line-holder; means for progressively driving in the space-bars so as to expand the line to fill out the line-holder; means for successively removing the space-bars; means for inserting in the line of type, instead of the space-bars as each is removed, ordinary spaces equal to or next less in thickness than the thickness of the space-bar which has been last removed, at the point at which it had entered the line; means for driving in the foremost remaining space-bar in advance of the others such a distance as will properly apportion the excess fractional spacing throughout the line, whenever a space has been inserted of less thickness than the thickness of the removed space-bar at the point at which said space-bar entered the line, and for repeating this operation until the entire line is justified; and means for removing the justified line from the line-holder and delivering it upon a suitable galley.

32. The combination of a line-holder, traveling on a suitable track or way, containing the line of type in which wedge-shaped or tapering space-bars are inserted; a primary space-bar driver having a projecting shoulder adapted to drive in the foremost space-bar in the line; a secondary space-bar driver, connected therewith; suitable spring devices whereby the force exerted by the secondary space-bar driver upon the ends of the space-bars may be regulated, and means for actuating both space-bar drivers at the same time, substantially as described.

33. The combination of a line-holder, traveling on a suitable track or way, containing the line of type in which wedge-shaped or tapering space-bars are inserted; a primary space-bar driver, having a projecting plate attached thereto arranged to drive in the foremost space-bar in the line; a secondary space-bar driver, composed of a plate pivoted thereto; suitable spring devices whereby the force exerted by the secondary space-bar driver upon the ends of the space-bars may be regulated, and means for actuating both space-bar drivers at the same time, substantially as described.

34. The combination of a line-holder traveling on a suitable way or track, containing a line of type in which wedge-shaped or tapering space-bars are inserted; a slide moving in suitable ways upon the bed-plate; the front face of which is substantially parallel with the ends of the space-bars; a supplemental plate attached to the side of the slide, and projecting beyond the front face of the plate for driving in the former space-bar; a plate pivoted at one end of the slide, for the purpose of progressively driving in the space-bars, means substantially as described, whereby the force exerted by the plate on the ends of the space-bars, may be regulated and means for actuating the mechanism, substantially as described.

35. The combination of a line-holder traveling on a suitable way or track, containing a line of type in which wedge-shaped or tapering space-bars are inserted; a slide moving in suitable ways upon the bed-plate; a plate attached to said slide, the front face of which is substantially parallel with the ends of the space-bars; a plate pivoted at one end of said plate, for the purpose of progressively driving in the space-bars, means substantially as described, whereby the force exerted by the plate on the ends of the space-bars may be regulated; and means for actuating the mechanism, substantially as described.

36. The combination of a movable space-rack, divided longitudinally into compartments, containing spaces of the different sizes used; devices connected with the space-rack for bringing the compartment containing the space which is to be inserted in the line directly over the point at which it is to be inserted; a space-ejecting bar adapted to eject a single space from any one of the space-compartments, and to engage with the devices upon the space-rack, so as to produce the desired results; and means for actuating the space-ejecting bar.

37. The combination of a movable space-rack divided longitudinally into compartments containing spaces of the different sizes used; a slotted front plate on said space-rack having beveled partition-walls; a space-ejecting bar having its lower edge beveled and adapted to eject a single space from any one of the space-compartments, and means for actuating the space-ejecting bar.

38. The combination of a line-holder, traveling on a suitable track or way, containing the line of type in which wedge-shaped or tapering space-bars are inserted; a primary space-bar driver having a projecting shoulder adapted to drive in the foremost space-bar in the line; a secondary space-bar driver, connected therewith; suitable spring devices whereby the force exerted by the secondary space-bar driver upon the ends of the space-bars may be regulated; means for actuating the combined space-bar driver, substantially as described; means for successively removing the space-bars; a movable rack, divided longitudinally into compartments, containing spaces of the different sizes used; devices connected with the space-rack for bringing the compartment containing the space which is to be inserted in the line directly over the point at which it is to be inserted after the removal of each space-bar; a space-ejecting bar adapted to eject a single space from any one of the space-compartments, and to engage with the devices upon the space-rack, so as to produce the desired results; and means for actuating the space-ejecting-bar.

39. The combination of a space-rack divided longitudinally into compartments containing spaces of the different sizes used; a slotted front plate on said space-rack having beveled partition-walls; a space-ejecting bar having its lower edge beveled; a pivoted space-selecting lever, adjustable longitudinally and secured to the space-bar-driving slide; means for throwing the free end of said lever out of engagement with the space-rack; and means for causing the space-rack to reciprocate toward its normal position.

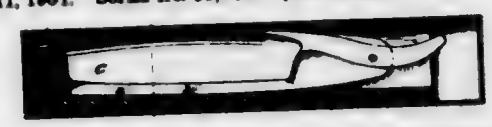
40. The combination of a movable space-rack, divided longitudinally into compartments each containing spaces of the different sizes used; a slotted front plate on said space-rack, having partition-walls beveled at the top; a space-ejecting bar arranged to slide between the partition-walls, having its opposite lower edge correspondingly beveled; a space-selecting lever pivoted to the justifier-slide adjustable longitudinally with respect to the space-rack; a stud on the justifying-shaft for throwing the free end of the lever out of engagement with the space-rack at the proper instant; a weight and cord whereby the space-rack is caused to reciprocate toward its normal position; a pivoted lever engaging with and actuating the space-ejecting bar; a cam on the justifying-shaft, and a weight connected with the lever for actuating the same at the proper instant.

41. The combination of a traveling line-holder adapted to receive a line of type and temporary space-bars, having a permanent end wall, and an adjustable line-stop to determine and limit the length of the line which may be fixed at any desired point; means for assembling types and temporary space-bars in said line-holder; and means for advancing the line-holder while the types are being assembled therein.

42. The combination with the hunter mechanism driven from the justifying-shaft of the machine; of a relieving device placed between the hunter and the actuating mechanism, for the purposes of relieving the strain upon the hunter when an obstruction is met with.

43. The combination with the bunter mechanism driven from the justifying-shaft of the machine; of a sliding bar arranged to slide in suitable ways on the bed-plate; a bent arm attached at one end to a sleeve on the actuating mechanism on the justifying-shaft and provided with a pin at the other end, arranged to slide in a slot in the slide; and a spring connected at one end with the bent arm and at the other end with the slides, whereby the bunter is caused to be actuated, except at such times as an obstruction is met with.

693,146. MEANS FOR PRESERVING AND RENDERING SHARP CUTTING EDGES, &c. OSCAR NEWHOUSE, San Francisco, Cal. Filed May 11, 1901. Serial No. 59,747. (No model.)

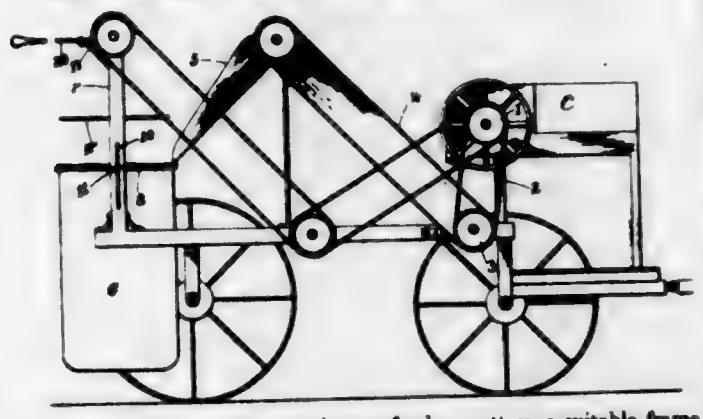


Claim.—1. The combination with a holder for a cutting-blade of a magnet arranged to be opposite the cutting edge of the blade, substantially as described.

2. The combination with a magnet, of means for holding a cutting edge of a blade in proximity to the magnet and in the plane thereof, substantially as described

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693,147. HAY-BAGGING MACHINE. BRUCE PADDOCK, Lansing, Mich. Filed May 4, 1901. Serial No. 58,801. (No model.)



Claim.—In a bagging attachment for hay-cutters, a suitable frame, slotted standards forming part of the same, means for adjustably securing a bag between the standards, a shaft carried at the upper ends of the standards, means for rotating said shaft, bevel gear-wheels feathered to said shaft and movable along the same, a vertical screw mounted below said wheels, a terminal pinion carried by the screw and engaging either one of the said gear-wheels, a shifting lever for bringing one or the other of the gear-wheels into engagement with the pinion, a perforated plunger reciprocating along said screw, and depending guide-bars passing through the plunger, the parts operating substantially as, and for the purpose set forth.

698,148. PROCESS OF TREATING ORES. ELIZABETH B. PARNELL, Carshalton, England. Filed Jan. 3, 1898. Serial No. 665,381. (No specimens.)

Claim.—1. In the treatment of refractory ores, the process which consists in subjecting them to the action of chromic acid and then roasting them.

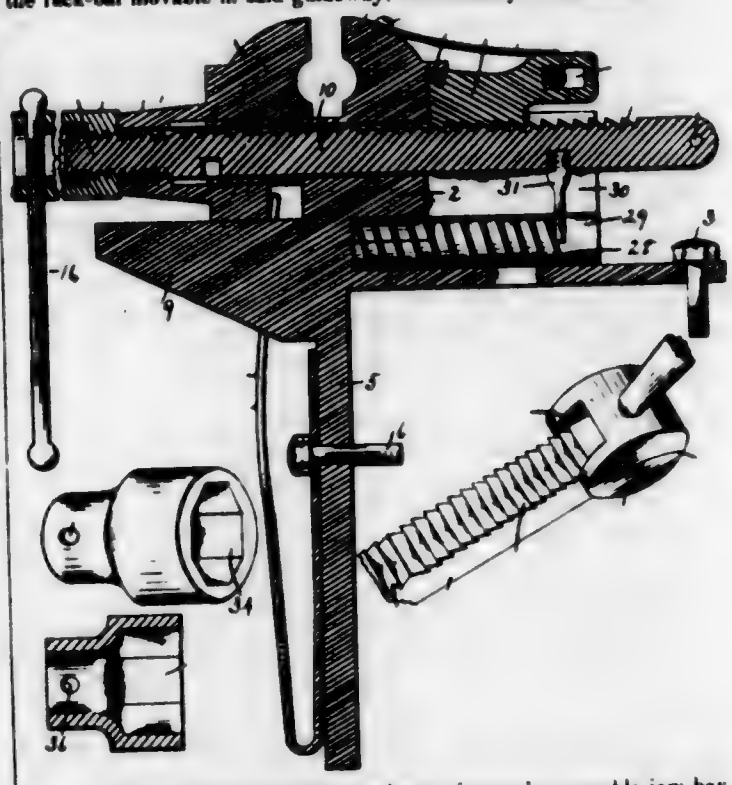
2. A process of treating refractory ores which consists in first oxidizing them, then roasting them, and then boiling them in water under pressure.

693,148. VISE. WILLIAM P. PHENIX, Lubbock, Tex. Filed June 5, 1901. Serial No. 63,246. (No model.)

Claim.—1. The herein-described vise having a stationary and movable jaw, the former being provided with an extension for supporting the movable jaw; a rack-bar having oppositely-disposed teeth upon opposite sides of its transverse center; a detent carried by one of said jaws; means to hold said jaws normally open and additional means substantially as described for forcing said jaws tightly in engagement with each other or in engagement with any interposed object, all combined substantially as specified and for the purpose set forth.

2. The combination with a stationary jaw and a movable jaw having portions slidable one over the other, of a rack-bar having oppositely-disposed teeth upon opposite sides of its transverse center, a controlling device engaging a threaded end of the rack-bar, a pivoted toothed detent carried by the stationary jaw to engage the teeth of the rack-bar, means for holding said detent in operative position and means engaging the detent for limiting its movement substantially as described.

3. The combination with a stationary jaw and a movable jaw having portions slidable one over the other, of a rack-bar having oppositely-disposed teeth upon opposite sides of its transverse center, a controlling device engaging a threaded end of the rack-bar, a pivoted toothed detent carried by the stationary jaw to engage the teeth of the rack-bar, means for holding said detent in operative position and means engaging the detent for limiting its movement, the stationary jaw having its body portion formed with a slotted guideway and a downwardly-depending stem carried by the rack-bar movable in said guideway, substantially as described.



4. The combination with a stationary jaw and a movable jaw having portions slidable one over the other, of a rack-bar having oppositely-disposed teeth upon opposite sides of its transverse center, a controlling device engaging a threaded end of the rack-bar, a pivoted toothed detent carried by the stationary jaw to engage the teeth of the rack-bar, means for holding said detent in operative position and means engaging the detent for limiting its movement, the stationary jaw having its body portion formed with a slotted guideway and a downwardly-depending stem carried by the rack-bar movable in said guideway, and a spring acting upon said stem to normally hold the rack-bar inward, substantially as described.

5. The combination with the stationary jaw having a horizontal body portion with longitudinal bore and longitudinally-disposed slotted guideway, of a movable jaw, a rack-bar passed through both of said jaws, means for operating the rack-bar, and a stem depending from the rack-bar and movable through said slotted guideway and a spring within said bore and acting upon the lower end of said stem which projects into said bore through the guideway all substantially as shown and described.

693,150. BUTTONHOLE-BOUQUET HOLDER. CARROLL POTTER, Philadelphia, Pa. Filed Nov. 1, 1901. Serial No. 80,773. (No model.)



Claim.—1. A buttonhole-bouquet holder, comprising a member having a raised part of resilient material and having flattened ends, and provided at the union of said raised part and the ends with inwardly-directed points or spurs, substantially as described.

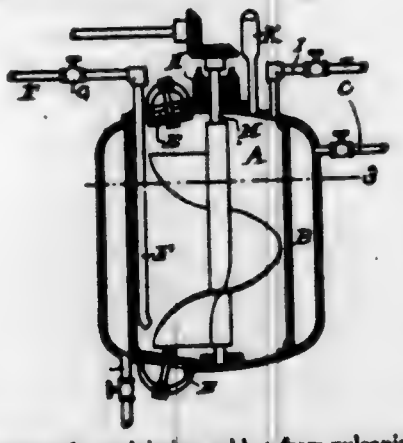
2. A buttonhole-bouquet holder, comprising a member having a raised part of resilient material and having flattened ends, and provided at the union of said raised part and the ends with inwardly-directed points or spurs, said points or spurs being hardened or tempered, substantially as described.

3. A buttonhole-bouquet holder, comprising a bowed member having its ends flattened and provided with points or spurs struck up from the bowed part and extending inwardly in respect to the latter, substantially as described.

693,151. PROCESS OF RECLAIMING RUBBER FROM VULCANIZED-RUBBER WASTE. RAYMOND B. PRICE, Chicago, Ill. Filed Apr. 11, 1901. Serial No. 56,374. (No specimens.)

Claim.—1. The process for reclaiming rubber from vulcanized-rubber waste, which consists in placing the finely-divided waste in a vessel

and subjecting it to the direct action of a previously-superheated fluid other than air in the presence of maintained pressure.

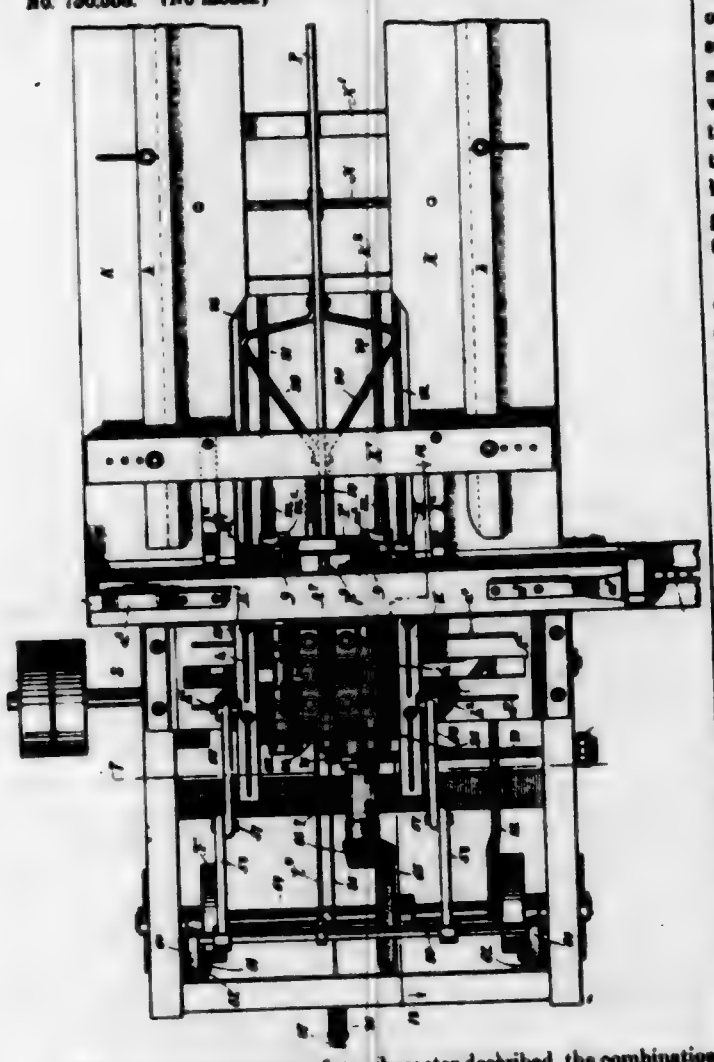


2. The process for reclaiming rubber from vulcanized-rubber waste which consists in placing the finely-divided waste in a vessel and subjecting it to the direct action of a previously superheated fluid other than air in the presence of maintained pressure and agitating the mass while subjected to such action.

3. The process for reclaiming rubber from vulcanized-rubber waste which consists in immersing the finely-divided waste in a liquid and subjecting said liquid to the direct action of a previously-superheated fluid in the presence of maintained pressure.

4. The process for reclaiming rubber from vulcanized-rubber waste, which consists in immersing the finely-divided waste in a bath containing matter acting to separate the sulfur from the rubber, and subjecting such bath to the direct action of a previously-superheated fluid in the presence of maintained pressure.

698,152. MACHINE FOR MAKING SLAT AND-WIRE FABRIC. JOSEPH REID, Jr., Hebron, Ind., assignor to the Hercules Woodenware Company, Chicago, Ill., a Corporation. Filed Sept. 15, 1899. Serial No. 730,553. (No model.)



Claim.—1. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles, of mechanism for turning said spindles alternately in opposite directions, comprising two gear-wheels and means for driving them continuously in opposite directions, suitable gearing between said gear-wheels and said spindles, and a clutch for causing said gearing to be driven alternately by said oppositely-moving gear-wheels.

2. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles, of mechanism for turning said spindles alternately in opposite directions comprising two gear-wheels and means for driving them continuously in opposite directions, a shaft to which one of said gear-wheels is fixed and upon which the other of said gear-wheels is revolubly mounted, clutch mechanism upon said shaft, means for causing said clutch mechanism to engage either of said gear-wheels, and suitable connecting mechanism between said clutch mechanism and said spindles.

3. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles, of mechanism for turning said spindles alternately in opposite directions, comprising two gear-wheels and means for driving them continuously in opposite directions, a shaft whereon one of said gear-wheels is fixed, a sleeve mounted on said shaft and whereon said other gear-wheel is loosely mounted, a clutch mechanism connected to said sleeve, suitable gearing connecting said clutch mechanism with said spindles, and suitable means for causing said clutch mechanism to alternately engage said gear-wheels.

4. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles, of mechanism for turning said spindles alternately in opposite directions, comprising two gear-wheels and means for driving them continuously in opposite directions, a shaft whereon one of said gear-wheels is fixed, a sleeve loosely mounted upon said shaft and having the other gear-wheel revolubly mounted thereon, suitable gearing connecting said sleeve with said spindles, a clutch fixed to said sleeve and arranged intermediate said gear-wheels, and mechanism for causing said clutch to alternately engage said gear-wheels.

5. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles, of mechanism for turning said spindles alternately in opposite directions, comprising two gear-wheels and means for driving them continuously in opposite directions, clutch-wheels connected to said gear-wheels, a shaft whereon said gear-wheels are mounted, a clutch comprising a pivoted bracket having oppositely-disposed arms adapted to alternately engage the corresponding clutch-wheels, means for causing said clutch to engage either of said gear-wheels, and suitable connecting mechanism between said clutch and said spindles.

6. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles, of mechanism for turning said spindles alternately in opposite directions, comprising two gear-wheels and means for driving them continuously in opposite directions, clutch-wheels connected with said gear-wheels, a clutch arranged intermediate the gear-wheels and provided with oppositely-disposed arms to engage the respective clutch-wheels, spring mechanism for shifting said arms and latch mechanism for arresting said clutch and holding said arms out of engagement with the clutch-wheels, and suitable connecting mechanism between said clutch and said spindles.

7. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles, of mechanism for turning said spindles alternately in opposite directions, comprising two gear-wheels and means for driving them continuously in opposite directions, a shaft whereon said gear-wheels are mounted, individual clutch-wheels connected to said gear-wheels, a sleeve mounted upon said shaft and having one of said gear-wheels revolubly mounted thereon, a clutch fixed to said sleeve and located intermediate the gear-wheels, said clutch comprising a projecting arm, a bracket pivotally connected to said arm and having rollers adapted to engage with the individual clutch-wheels, suitable spring mechanism between said clutch-arm and said bracket, a suitable latch for arresting the movement of said clutch-arm and bracket, means for shifting said latch to release the clutch, and suitable connecting mechanism between the clutch and the twisting-spindles.

8. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles, of mechanism for turning said spindles alternately in opposite directions, comprising two gear-wheels and means for driving them continuously in opposite directions, suitable gearing between said gear-wheels and said spindles, a clutch for causing said gearing to be driven alternately by said oppositely-moving gear-wheels, and a locking device to hold the parts stationary when the clutch is out of action.

9. In apparatus of the character described, the combination with one or more wire-twisting spindles having a central opening or openings through which the main wire or wires will pass and having an eccentric opening or openings through which the tie wire or wires will pass, and pusher mechanism for moving the slats away from said spindles and cam mechanism for operating said pusher mechanism, said cam mechanism being constructed to impart a forward movement to the pusher mechanism while the spindle is at rest and to impart a slight additional forward movement to said pusher mechanism during the revolution of the spindle to prevent the overlapping of the tie wire or wires upon the main wires.

10. In apparatus of the character described, the combination with one or more wire-twisting spindles, of pushers for moving the slats away

from said spindles, and cam mechanism for operating said pushers, said cam mechanism being constructed to impart a forward movement to said pushers while the spindle is at rest and to impart a slight additional forward movement to the pusher during the revolution of the spindle.

11. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles and stationary bearings wherein said spindles are mounted, of mechanism for moving the slats away from said spindles comprising sliding pushers located upon opposite sides of said spindles, a cross-bar connected with said sliding pushers for reciprocating the same, and suitable cam mechanism for imparting a forward-and-backward movement to said cross-bar to actuate said pushers.

12. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles and stationary bearings wherein said spindles are mounted, of sliding pusher-bars for moving the slats away from said spindles, a cross-bar and adjustable connections uniting said cross-bar to said sliding pusher-bars, and pivoted levers connected to said cross-bar, and cams engaging the lower ends of said pivoted levers.

13. In apparatus of the character described, the combination with revoluble wire-twisting spindles, of a feed-table having cut-away spaces to admit the free ends of said spindles, said feed-table having a bearing-surface between the spindles, and a presser-bar extending over said spindles and over said feed-table.

14. In apparatus of the character described, the combination with one or more revoluble wire-twisting spindles having arms projecting from their ends and with means for revolving said spindles, of mechanism for feeding slats between the arms or jaws of said spindles, mechanism for moving the slats laterally from between said spindle arms or jaws, a dummy and means for moving the same between said spindle arms or jaws, and means for throwing the slat-feed out of action when the dummy is inserted between the spindle-jaws.

15. In apparatus of the character described, the combination with a revoluble wire-twisting spindle having projecting jaws or arms, of a pusher located adjacent said spindle and adapted to move the slats laterally from between the spindle-jaws, and a dummy and means for moving said dummy between the spindle-jaws and into the path of said pusher whereby said dummy will be moved laterally by the pusher from between the jaws of the spindle.

16. In apparatus of the character described, the combination with dummy mechanism for forming the spaces between the mats, of means for throwing said dummy mechanism into action, comprising a part adapted to engage the dummy mechanism, and means whereby said part is actuated by a positively-moving part of the machine.

17. In apparatus of the character described, the combination with dummy mechanism for forming the spaces between the slats, of means for throwing said dummy mechanism into action, comprising a tripper-bar extending beneath the finished mat, and shifter mechanism connected with a positively-moving part of the machine for actuating said tripper-bar.

18. In apparatus of the character described, the combination with dummy mechanism for forming the spaces between the slats, of means for throwing said dummy mechanism into action, comprising a tripper-bar extending beneath the finished mat, and shifter mechanism for actuating said tripper-bar, comprising spring mechanism for imparting an initial movement to said tripper-bar, and mechanism connected with a positively-moving part of the machine for completing the movement of said tripper-bar.

19. In apparatus of the character described, the combination with revoluble wire-twisting spindles, of pushers located at the sides of said spindles and adapted to move the slats in lateral direction, dummies, and means for moving said dummies in the paths of said pushers whereby said dummies will be moved laterally by the pushers.

20. In apparatus of the character described, the combination with dummy mechanism for forming the spaces between the slats, of means for throwing said dummy mechanism into action, comprising a part adapted to engage said dummy mechanism, means whereby said part is shifted to throw the dummy mechanism into action, said means being connected with a positively-moving part of the machine, and means for throwing the slat-feeding mechanism out of action when the dummy mechanism is thrown into action.

21. In apparatus of the character described, the combination with dummy mechanism for forming the spaces between the slats, of means for throwing said dummy mechanism into action, comprising a tripper-bar extending beneath the finished mat, and shifter mechanism comprising a part connected to said tripper-bar and a bell-crank lever adapted to engage said part when the latter is moved into the path of said lever, said bell-crank lever being connected with a positively-moving part of the machine.

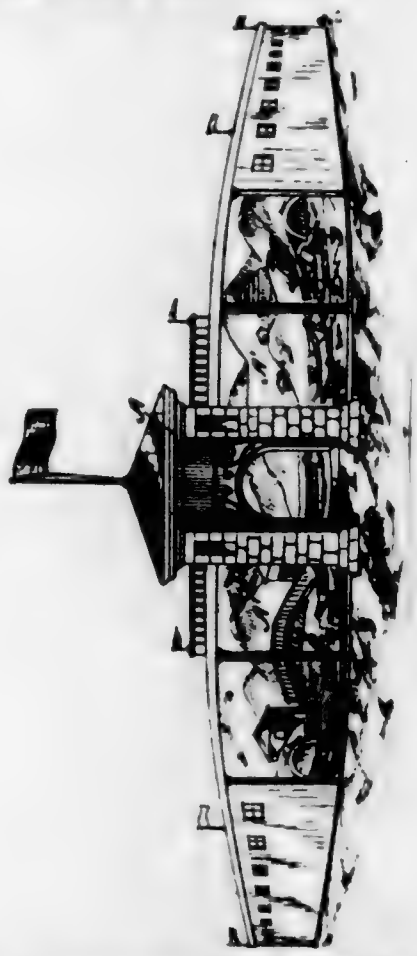
22. In apparatus of the character described, the combination with a revoluble wire-twisting spindle and with slat-feeding mechanism for advancing slats across and in front of said spindle, of means for throwing said slat-feeding mechanism out of action comprising a tripper-bar extending beneath the finished mat, and shifter mechanism connected with a positively-moving part of the machine for actuating said tripper-bar.

23. In apparatus of the character described, a wire-twisting spindle having a central aperture for the main wire, and having two forwardly-projecting arms, one of said arms having an aperture concentric with the spindle-aperture for the main wire and the other of said arms having an eye for the binding-wire.

24. In apparatus of the character described, a wire-twisting spindle having a central aperture for the main wire and having two projecting arms, one of said arms having an aperture concentric with the spindle-aperture and having its inner face formed with a guard-rib for the main wire and the other of said arms having an eye at its outer end and having a guide-channel for the tie-wire on its outer face.

25. In apparatus of the character described, a wire-twisting spindle having a central aperture for the main wire, two forwardly-projecting arms, one of said arms having in its end an aperture concentric with said spindle-aperture, and the other of said arms being provided with an aperture for the tie-wire and being somewhat shorter than the arm through which the main wire passes.

698,153. MARINE CAROUSEL. HARRY C. RICHARDSON, Cincinnati, Ohio, assignor of one-half to Fred Rea, Cincinnati, Ohio. Filed Mar. 28, 1901. Serial No. 52,577. (No model.)



Claim.—1. In a device of the kind described, the combination with a waterway having a driving-cable arranged therein and imparting motion to a driven cable also arranged therein, and the boats traveling in the waterway and connected to the driven cable, substantially as shown and described.

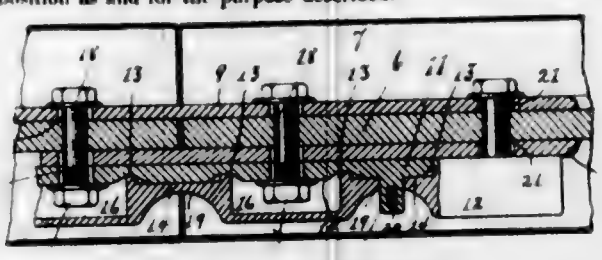
2. In a device of the kind described, the combination with a continuous waterway, of a driving-cable traveling along the bottom of said waterway, a driven cable located also in the waterway and driven by the driving-cable, the boats, and the rods connecting said boats and driven cable, substantially as shown and described.

3. In a device of the kind described, the combination of a waterway, of the pulleys journaled in the bottom thereof a driving-cable passing around said pulleys and imparting motion thereto, a driven cable passing around the said pulleys and moved thereby, the boats, and means for connecting said boats to the driven cable, substantially as shown and described.

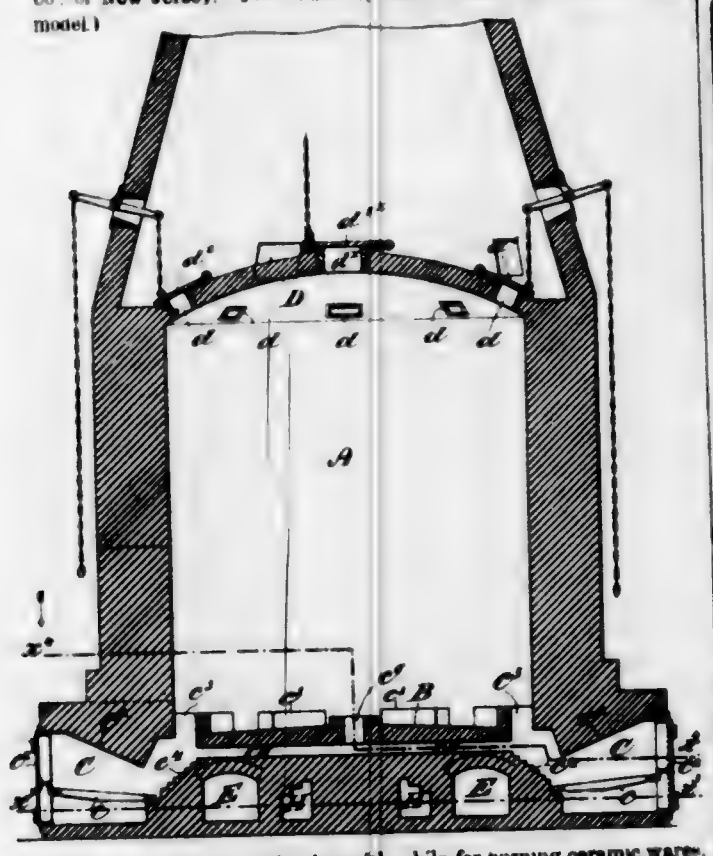
698,154. NUT-LOCK. FRED W RIECK and EDWARD W. RUCK, St. Louis, Mo. Filed Mar. 5, 1901. Serial No. 49,691. (No model.)

Claim.—In a nut-lock, bolt and nut protector, the combination with rail and fish-plates, of bolts run through coinciding apertures of the rail and fish-plates, a washer-plate through which the bolts protrude, said washer-plate having a series of transverse depressions forming seats and

corresponding thickened portions, bolt-like projections formed with the alternate thickened sections having transverse slots, a casing having internal rectangular spaces to receive the nuts of the bolts and the thickened portions of the washer-plates, the edges of the casing lying in the depressions or seats of the washer-plate, and wedge-pins run through the slots of the bolt-like projections of the washer-plate for retaining the casing in position as and for the purpose described.



693,155. KILN FOR CERAMIC WARES. WILLIAM E. RIVERS, Oldbridge, N. J., assignor to the Old Bridge Enameled Brick and Tile Co., of New Jersey. Filed June 9, 1898. Serial No. 682,994. (No model.)



Claim.—1. The combination with a kiln for burning ceramic wares, of a furnace therefor having its crown inclined downward toward its inner end, a grate also inclined downward toward its inner end but at a less angle than the crown, whereby the gas-outlet is contracted, an ash-box under said grate, a main gas-outlet inclined upward, and an upright flue c^3 and a horizontal flue c^4, branching from the upper end of said gas-outlet, substantially as set forth.

2. A circular kiln for burning ceramic wares, having a series of furnaces about the same with gas-flues c^3 c^4 leading therefrom into the oven A, a large annular flue E, below the flues c^3, with radial flues F leading therefrom to as many chimney-flues, a lesser annular flue H, within the space circumscribed by the flue E, radial flues I, connecting the flues E and H, and flues or passages a, for downdraft, extending through the floor from the oven A to the flues E and H, substantially as set forth.

693,156. PHARMACEUTICAL IMPLEMENT. MARX F. ROCHESTER, Ingleside, Md. Filed Mar. 28, 1901. Serial No. 53,231. (No model.)

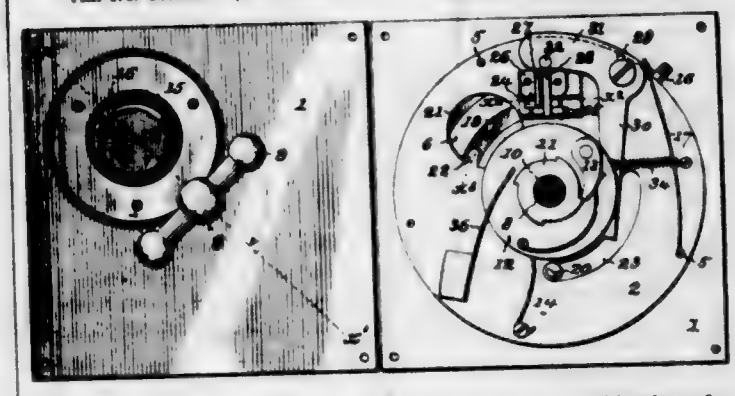


Claim.—1. A pharmaceutical instrument comprising an imperforate concave-convex blade, and a perforated concave-convex blade provided with a funnel-shaped extension, an elongated handle for each of said blades, said handles having a hinged connection and being adapted to be folded together.

2. In a device of the character described, the combination with an imperforate concavo-convex blade, and a perforated concavo-convex blade: of an elongated handle projecting from each blade and hinged together, whereby the two blades may be folded one upon the other, so that their edges meet.

3. In a device of the character described, the combination with an imperforate concavo-convex blade, and a perforated concavo-convex blade: of an elongated handle projecting from each blade, and hinged together whereby the two blades may be folded one upon the other, so that their edges meet; and longitudinally-extending flanges on the respective handles for the purpose described.

693,157. COIN-CONTROLLED MECHANISM. ALVAH C. ROEBUCK and FRANK MCMILLAN, Chicago, Ill., assignors to Enterprise Vending Machine Company, a Corporation of Illinois. Filed July 27, 1901. Serial No. 69,892. (No model.)



Claim.—1. In a coin-operated mechanism, the combination of a movable coin-carrier provided with a coin-receiving orifice and a stop lug or projection, a stationary front plate or cover for said coin-carrier, means for operating said carrier, and a detector-lever having one arm arranged in the path of the coin-receiving orifice aforesaid, and the other arm in the path of the stop-lug aforesaid, substantially as set forth.

2. In a coin-operated mechanism, the combination of a movable coin-carrier provided with a coin-receiving orifice and a stop lug or projection, a stationary front plate or cover for said coin-carrier, means for operating said carrier, a detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

3. In a coin-operated mechanism, the combination of a movable coin-carrier provided with a coin-receiving orifice and a stop lug or projection, a stationary front plate or cover for said coin-carrier, means for operating said carrier, a detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever, the said stud having a head on its outer end arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

4. In a coin-operated mechanism, the combination of a movable coin-carrier provided with a coin-receiving orifice and a stop lug or projection, a stationary front plate or cover for said coin-carrier, means for operating said carrier, a detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever, the said stud having a beveled head or point at its outer end arranged in the path of the coin-receiving orifice, substantially as set forth.

5. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, means for operating said carrier, and an angular detector-lever having one arm arranged in the path of the coin-receiving orifice aforesaid, and the other arm in the path of the stop-lug aforesaid, substantially as set forth.

6. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, means for operating said carrier, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

7. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, means for operating said carrier, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever, the said stud having a head on its outer end arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

8. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, means for operating said carrier, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever, the said stud having a beveled head or point at its outer end arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

9. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, a handled operating-shaft secured to said carrier, and an angular detector-lever having one arm arranged in the path of the coin-receiving orifice aforesaid, and the other arm in the path of the stop-lug aforesaid, substantially as set forth.

10. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, a handled operating-shaft secured to said carrier, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

11. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, a handled operating-shaft secured to said carrier, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever, the said stud having a head on its outer end arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth

12. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, a handled operating-shaft secured to said carrier, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever, the said stud having a beveled head or point at its outer end arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

13. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving-orifice, housing-plates at opposite sides of the carrier having entrance and exit orifices for the coin, means for operating said carrier, and a pawl or dog pivoted to one of the housing-plates and adapted to engage behind the coin contained in the carrier and prevent the return of said carrier until the coin is discharged therefrom, substantially as set forth.

14. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice, housing-plates at opposite sides of the carrier having entrance and exit orifices for the coin, a handled operating-shaft secured to said carrier, and a spring-pawl on one of the housing-plates adapted to engage behind the coin contained in the carrier and prevent the return of said carrier until the coin is discharged therefrom, substantially as set forth.

15. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a segmental cavity, housing-plates at opposite sides of the carrier having entrance and exit orifices for the coin, means for operating the carrier, and a curved prong fixed on one side of the housing-plates with its curved end projecting into such segmental cavity to deflect the coin out of such cavity as the carrier nears the end of its active movement, substantially as set forth.

16. In a coin-operated mechanism, the combination of a movable coin-carrier provided with a coin-receiving orifice, a stationary front plate or cover provided with an entrance orifice for the coin, and a spring-dog moving in said front plate at the margin of said orifice with its point adapted to engage outside the coin after an insertion of the same, substantially as set forth.

17. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice, a stationary front plate or cover provided with an entrance-orifice for the coin, means for operating the carrier, and a spring-dog moving in said front plate at the margin of said orifice with its point adapted to engage outside the coin after an insertion of the same, substantially as set forth.

18. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice, a stationary front plate or cover provided with an entrance-orifice for the same, a handled operating-shaft secured to said carrier and a spring-dog moving in said front plate at the margin of said orifice with its point adapted to engage outside the coin after an insertion of the same, substantially as set forth.

19. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, a handled operating-shaft secured to said carrier and adapted to oscillate the same in one direction a spring for moving the carrier in the opposite direction, and an angular detector-lever having one arm arranged in the path of the coin-receiving orifice aforesaid, and the other arm in the path of the stop-lug, aforesaid, substantially as set forth

20. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, a handled operating-shaft secured to said carrier and adapted to oscillate the same in one direction. a spring for moving the carrier in the opposite direction, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

21. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, a handled operating-shaft secured to said carrier and adapted to oscillate the same in one direction, a spring for moving the carrier in an opposite direction, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever, the said stud having a head on its outer end arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

22. In a coin-operated mechanism, the combination of an oscillatory coin-carrier provided with a coin-receiving orifice and a stop-lug, a stationary front plate or cover for said coin-carrier, a handled operating-shaft secured to said carrier and adapted to oscillate the same in one direction, a spring for moving the carrier in an opposite direction, an angular detector-lever having one arm arranged in the path of the stop-lug aforesaid, and a lateral stud on the other arm of said lever, the said stud having a beveled head or point at its outer end arranged in the path of the coin-receiving orifice aforesaid, substantially as set forth.

23. In a coin-operated mechanism, the combination of stationary front and rear plates arranged in separated relation and provided with entrance and exit orifices arranged in separated relation on a common plane, an oscillatory carrier-disk arranged between said plates and provided with a coin-receiving orifice arranged on the common plane aforesaid, means for oscillating said carrier-disk, means for limiting the oscillation of said disk, the same comprising a stud on the disk and a segmental slot in the rear plate, and a detector-lever pivoted to the rear plate with one arm arranged in the path of the coin-orifice of the disk, and the other arm arranged in the path of a stud on said disk, substantially as set forth.

24. In a coin-operated mechanism, the combination of stationary front and rear plates arranged in separated relation and provided with entrance and exit orifices arranged in separated relation on a common plane, an oscillatory carrier-disk arranged between said plates and provided with a coin-receiving orifice arranged on the common plane aforesaid, means for limiting the oscillation of said disk, an operating-shaft for the vending mechanism, a ratchet-wheel on said shaft, an operating ratchet-dog, and a handled operating-shaft carrying said carrier-disk and said dog, substantially as set forth.

693,158. ROTARY FEEDING MECHANISM. ALVAH C. ROE [ROCK] and FRANK McMILLAR, Chicago, Ill., assignors to Enterprise Vending Machine Company, a Corporation of Illinois. Filed Sept. 6, 1901 Serial No. 74,492. (No model.)

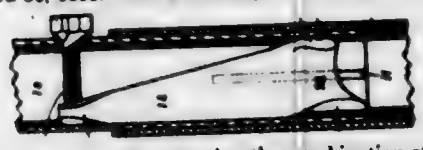


Claim.—1. In a feeding mechanism for measuring quantities of granular material, the combination of a supply-hopper, a receiving-chamber, an interposed feeding-wheel having peripheral pockets or chambers, a tapering and curved guard-plate at one end of the bottom opening of the supply-hopper to constitute a tapering throat for the same, and a yielding throat-piece arranged at the narrow end of said tapering throat to yieldingly contact with that portion of the length of the feeding-wheel left uncovered by the guard-plate, substantially as set forth.

2. In a feeding mechanism for measured quantities of granular material, the combination of a supply-hopper, a receiving-chamber, an interposed feeding-wheel having peripheral pockets or chambers, a pair of tapering and curved guard-plates arranged in opposed relation in the bottom opening of the supply-hopper to constitute a tapering throat for the same, and a yielding throat-piece arranged at the narrow end of said ta-

pering throat to yieldingly contact with that portion of the length of the feeding-wheel left uncovered by the guard-plates, substantially as set forth.

693,159. **MEANS FOR EXPANDING THE TUBES OF BICYCLE PARTS AND SECURING SAME.** VICTOR E. RUBARGER, Dayton, Ohio. Filed Oct. 30, 1899. Serial No. 735,312. (No model.)



Claim.—1. In a tube-expander, the combination of a tube having a series of slots therein, a lever within said tube carrying curved faces on opposite sides of its end adjacent said slotted portion of said tube, said curved faces conforming substantially to the bore of said tube and engaging said tube at different points in the length of said lever, the upper end of said lever being less in thickness than the diameter of the bore of said tube, and means for bodily moving said lever about its fulcrum-point and laterally with reference to the axis of said tube, substantially as specified.

2. In a tube-expander, the combination of a tube having a slot therein, a lever fulcrumed within said tube, the fulcrum-axis of said lever being substantially at right angles to the length of said tube, curved portions engaging the bore of said tube within the length of said slot, and means for moving one end of said lever laterally with reference to said tube thus moving said curved portions outward to expand said tube, substantially as specified.

3. A tube-expander consisting of a lever having thick and thin opposite ends, bearing-faces on opposite sides of said thick end, said lever having a fulcrum-axis intersecting the plane of one of said bearing-faces, and means for connecting an operating member to said thin end of said lever, substantially as specified.

4. A tube-expander consisting of a lever having faces on opposite sides of one end adapted to engage the walls of the tube, said faces being at different points in the length of said lever, one of said faces being substantially rocker-shaped, and the fulcrum-axis of said lever being at said substantially rocker-shaped surface, substantially as specified.

5. A tube-expander consisting of a lever having curved faces on opposite sides of one end and extending lengthwise of said lever, said faces being at different points in the length of said lever, said lever having a relatively narrow opposite end, and an opening in said relatively thin end at an angle to the length of said lever, substantially as specified.

6. In a tube-expander, the combination of a tube, bearing members within a tube and adapted to contact with opposite sides of the bore of said tube, a lever between and actuating said bearing members having one end extending beyond said bearing members, and means for oscillating said lever about the axis transverse to the longitudinal axis of said tube to effect or release the binding action of said bearing parts, substantially as specified.

7. In a tube-expander, the combination of a tube, a lever within said tube, curved portions connected to said lever at different portions in its length, said curved portions being adapted to fit the bore of said tube, means for operating said lever within said tube, the operating end of said lever being thinner than the diameter of the bore of said tube, and a projection from the bore of said tube for fixing the point of contact between one of said curved faces and the bore of said tube, substantially as specified.

8. In a tube-expander, the combination of a tube, a lever within said tube, and fulcrumed on an axis substantially at right angles to the length of said tube, curved portions upon opposite sides of one end of said lever, and at different points in the length of said lever, said curved portions being adapted to fit within the bore of said tube, and a projection for fixing the point of contact between one of said faces and the bore of said tube, substantially as specified.

9. In a tube-expander, the combination of a tube, a lever within said tube, curved portions upon opposite sides of one end of said lever, and at different points in the length of said lever, said curved portions being adapted to fit within the bore of said tube, a recess in one of said curved portions, a projection from the bore of said tube and occupying said recess, and means for bodily moving said lever substantially at right angles to the axis of said tube, substantially as specified.

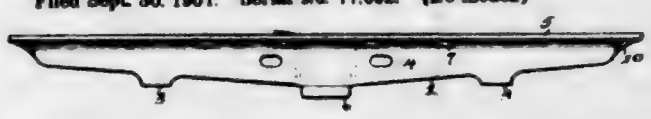
10. In a tube-expander, the combination of a tube, a lever within said tube, and fulcrumed on an axis substantially at right angles to the length of said tube, curved portions upon opposite sides of one end of said lever, and at different points in the length of said lever, said curved portions being adapted to fit within the bore of said tube, an opening through said tube at an angle to the bore of said tube, said opening being adjacent the end of said lever opposite that end having said curved portions, and an operating member at substantially right angles to the axis of said tube and passing through said opening and connecting with said lever, whereby said lever within said tube may be operated from a point without said tube, substantially as specified.

11. In a tube-expander the combination of a tube, a lever within said tube, curved portions upon opposite sides of one end of said lever, and fitting within the bore of said tube, an opening through the side of said tube adjacent the end of said lever opposite that end having said curved portions, a headed screw passing through said opening and engaging with a screw-threaded opening in said adjacent end of said lever, for operating said lever from a point without said tube, said end of said lever having said opening therethrough being narrower than said curved ends permitting said narrow end of said lever to be moved laterally within said tube, substantially as specified.

12. The combination with two telescoping tubular parts, the inner tube projecting from the other of a thin and thick ended clamping-lever extending longitudinally within said parts and bearing at its thick end against opposing portions thereof to cause said parts to bind on each other, an operating member for oscillating said lever about an axis transverse to the tubular parts to effect or release said binding action, said operating member passing through an opening in the wall of said inner tubular part, at a point beyond the other tubular part and loosely connecting with the thin end of said lever, said opening being of different diameters and engaging a portion of said operating member of substantially corresponding different diameters, substantially as specified.

13. The combination with two telescoping tubular parts, of a clamping-lever extending longitudinally within said parts and bearing against opposing portions thereof to cause said parts to bind on each other, and means for oscillating said lever about an axis transverse to the tubular parts to effect or release the binding action, substantially as described.

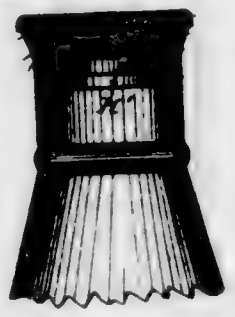
698,160. **BODY-BOLSTER FOR RAILWAY-CARS.** MOSES B. SCHAFFER, St. Louis, Mo., assignor to Daniel Hagan, Philadelphia, Pa. Filed Sept. 30, 1901. Serial No. 77,092. (No model.)



Claim.—1. A cast car-bolster having its walls curved for the purpose of avoiding undue strains in casting the bolster.

2. A body-bolster for railway-cars, consisting of a bottom and sides which are curved outwardly and the upper edges are provided with openings to receive bolts, ledges formed integral with the under side of said curved extensions to provide flat bearing-surfaces for the bolt heads or nuts, an integral web connecting the sides of the bolster at the center, braces 12 connecting said webs with the sides within the bolster, projecting flanges 8 integral with the outer side of the bolster and adapted to be attached to the draft members, and center and side bearings formed on the under side of the bolster, substantially as specified.

693,161. **BOTTLE-CLOSURE.** JOHN SCHIM, Anderson, Ind., assignor of one-half to Frank R. Myers, St. Louis, Mo. Filed May 15, 1901. Serial No. 60,335. (No model.)



Claim.—A bottle or jar closure substantially as herein described, comprising the bottle having its neck provided at its upper end with an outwardly-extending lip forming a broad flat surface for the flange of the cap and the gasket, and having a groove within its neck near its upper end, the seal-strip bent in circular form and fitting in the neck of the bottle with its ends abutting and fitting over and having a portion extending into the groove of the bottle-neck, the cap having a depending stem portion provided with a spiral rib or thread turning into the seal, and having a flange extending laterally over the seal and the gasket lapping the joint between the seal and bottle-neck and resting upon the seal and on the broad flat surface of the bottle-neck and between the same and the flange of the cap, substantially as set forth.

698,162. **HOT-AIR SYRINGE.** ADOLPH W. SCHRAMM and EDWARD R. WILFORD, Philadelphia, Pa., assignors to Electro Dental Manufacturing Company, Philadelphia, Pa., a Corporation of New Jersey. Filed May 15, 1901. Serial No. 60,338. (No model.)

Claim.—1. The combination in a hot-air syringe, of a hollow handle, a casing inclosing the air-heating chamber and containing an electric heating-coil, a plug interposed between the handle and said air-heating chamber, and having disconnected passages therein, and a sleeve movable on said plug and having a chamber for opening communication between the passages of the plug.



2. The combination in a hot-air syringe, of a hollow handle, a casing inclosing the air-heating chamber and containing an electric heating-coil, a plug interposed between the handle and said air-heating chamber, and having disconnected passages therein, and a rotatable sleeve surrounding said plug and having a chamber for opening communication between the passages of the plug.

3. The combination in a hot-air syringe, of the hollow handle, a casing containing an air-heating chamber with electric heating-coil therein, a plug interposed between the handle and said air-heating chamber and having disconnected passages therein, electric conductor-terminals, of a circuit including the heating-coil and a sleeve movably mounted on the plug and having a chamber for connecting the passages thereof and a bar for connecting said electric terminals.

4. The combination in a hot-air syringe, of the hollow handle, a casing containing an air-heating chamber with electric heating-coil therein, a plug interposed between said handle and air-heating chamber and having disconnected passages therein, electric conductor-terminals, of a circuit including the heating-coil and a sleeve rotatable on the plug and having a chamber for connecting the passages thereof and a bar for connecting said electric terminals.

5. The combination in a hot-air syringe, of a hollow handle, a casing containing an air-heating chamber and having an electric heating-coil therein, a plug interposed between the air-heating chamber and the handle and forming part of an air-controlling valve and also part of one of the electric conductors for the heating-coil.

6. The combination in a hot-air syringe, of a hollow handle, a casing containing an air-heating chamber and having an electric heating-coil therein, a plug interposed between said air-chamber casing and the handle and constituting part of the air-valve, and also part of one of the electrical conductors for the heating-coil, and a sleeve movably mounted on said plug and constituting the other part of the air-valve and also a circuit making and breaking switch.

7. The combination in a hot-air syringe, of a hollow handle, a casing containing an air-heating chamber and having an electric heating-coil therein, a spring-finger mounted upon said air-chamber casing and constituting one of the terminals of an electric circuit containing the heating-coil, a similar spring-finger mounted upon the handle and constituting the other terminal of said circuit, and an insulating-sleeve movably mounted between the air-chamber casing and the handle and having a bar which by the movement of the sleeve is carried into and out of contact with said spring-terminals.

8. The combination in a hot-air syringe, of a hollow handle, a casing containing an air-heating chamber and having an electric heating-coil therein, a spring-finger mounted on the air-chamber casing and constituting one of the terminals of the circuit containing the heating-coil, a similar spring-finger mounted upon the handle and constituting the other terminal of said circuit, a plug interposed between the air-chamber casing and the handle and having disconnected air-passages therein, and a sleeve movably mounted on said plug and having a chamber for connecting the air-passages of the same and a bar for making and breaking connection between said spring-terminals.

9. The combination in a hot-air syringe, of a hollow handle, of insulating material, a casing containing an air-heating chamber and having an electric heating-coil therein, a sleeve of insulating material forming part of said casing, a spring-contact finger mounted on said insulating-sleeve and constituting one of the terminals of the circuit containing the heating-coil, a spring-contact finger mounted upon the insulating-handle and constituting the other terminal of said circuit, and an insulating-sleeve movably mounted between the insulating-handle and the insulating-sleeve of the air-chamber casing and having a bar constituting a circuit making and breaking switch, said movable insulating-sleeve inclosing the spring-terminals so as to prevent access thereto from the outside of the instrument.

10. The combination in a hot-air syringe, of a hollow handle of insulating material, a casing inclosing an air-heating chamber and having an electric heating-coil therein, an insulating-sleeve forming part of said air-chamber casing a contact device mounted on said insulating-sleeve and forming one of the terminals of the circuit containing the heating-coil, a contact device mounted on the insulating-handle and forming the other terminal of said circuit, a plug interposed between the insulating-handle and the insulating-sleeve of the air-chamber casing and having disconnected air-passages therein, and an insulating-sleeve surrounding said plug and constituting a means for controlling the flow of air through the syringe, and also surrounding, and provided with means for making and breaking connection between, the terminals on the insulating-handle and on the insulating-sleeve of the air-chamber casing.

11. The combination in a hot-air syringe, of a hollow handle, a flexible air-conveying pipe attached thereto, a hollow insulating-block having projecting hollow plugs with binding-posts thereon, and flexible electrical conductors passing through the flexible air-pipe, and electrically connected, one to one of said plugs and the other to the other of the same.

12. The combination of a hot-air syringe having an air-passage with electric heating-coil therein, circuit-terminals for said heating-coil, and a movable element constituting an air-valve and a circuit making and breaking switch, the distance between the fixed and movable passages of the valve being less than the distance between the fixed and movable members of the switch when the valve is closed, to cause the flow of air before the closing of the circuit.

13. The combination in a hot-air syringe, of a hollow handle, a casing containing an air-heating chamber and having an electric heating-coil, a plug interposed between said hollow handle, and air-chamber casing and having disconnected passages therein, circuit-terminals for said heating-coil, and a sleeve movably mounted upon said plug and having a channel for connecting the passages of the latter, and a bar for connecting the circuit-terminals, the distance between the channel and passages being less than that between the bar and the circuit-terminals, whereby communication between the air-passages will be established before the bar makes contact with the circuit-terminals.

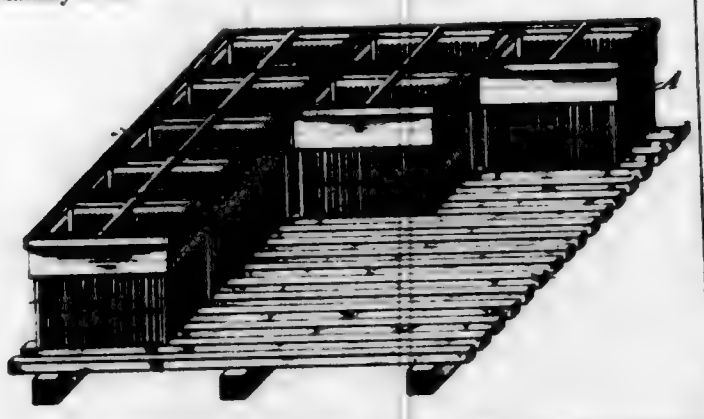
14. The combination in a hot-air syringe, of a hollow handle, a casing containing an air-heating chamber and having an electric heating-coil therein, a plug interposed between said hollow handle and air-chamber casing and having disconnected passages therein, circuit-terminals for said heating-coil, and a sleeve partially rotatable around said plug and having a channel for connecting the passages of the latter, and a bar for connecting the circuit-terminals, the distance between the channel and passages being less than that between the bar and the circuit-terminals, whereby communication between the air-passages will be established before the bar makes contact with the circuit-terminals.

698,163. HOP-DRYING BOX. JAMES W. SEAVEY, Eugene, Oreg.
Filed June 27, 1901. Serial No. 66,204. (No model.)

Claim.—1. A hop-drying box, consisting of a box, the side walls of which are formed of stripe or rods, the upper part of said side walls being solid and the box being open at the top, and hinged shelves at the interior of said box and dividing the same into several superposed sections, substantially as set forth.

2. A hop-drying box, formed at its bottom and lower portions of the sides of stripe or rods, the upper part of the side walls being made solid,

interior hinged shelves dividing the box in several sections, and a projecting strip at the outside of the box and covered with suitable packing, substantially as set forth.



3. A hop-drying box, the bottom and side walls of which are formed of strips or rods separated from each other so as to permit access of air into the box, hinged shelves arranged in the box so as to divide the same into superposed sections, interior strips for supporting said shelves, the upper section of the box being provided with solid side walls, transverse strips connecting the walls of the upper section of the box, and cloth-covered strips extending around the upper end of the drying-box, substantially as set forth.

698,164. TENSION DEVICE FOR LOOM-SHUTTLES. HOWARD K. SEITZ and CHARLES H. HANNIGAN, Glenrock, Pa. Filed Aug. 14, 1901. Serial No. 72,062. (No model.)



Claim.—1. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted upon the spindle, a collar rotatable with the bobbin, a spring having a frictional engagement with the collar, and a yielding connection between an intermediate portion of the spring and the spindle.

2. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted upon the spindle, a collar rotatable with the bobbin, a spring having a frictional engagement with the collar, and yielding connection between the spring and spindle, said connection having a detachable engagement with the spring.

3. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted on the spindle, a collar arranged at one side of the bobbin and rotatable therewith, an expansible spring having its expansible portion in frictional engagement with the inner face of the collar, and a tension-spring connecting the spindle and the friction-spring.

4. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted thereon, a casing connected to the bobbin and rotatable therewith, an expansible friction-spring located within the casing and having its expansible portion bearing against the same, and a tension-spring connected to the spindle and the friction-spring.

5. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted thereon, a casing connected at one side to the bobbin and rotatable therewith, said casing being provided with an annular collar, a hub located within the casing and fixed with relation to the spindle, an expansible spring having its expansible portion in direct frictional engagement with the inner face of the collar, and a coiled tension-spring arranged within the casing and yieldably connecting the hub and friction-spring.

6. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted on the spindle, a casing connected at one side to the bobbin and having its other side open, said casing being rotatable with the bobbin and provided with an annular collar, a hub located within the casing and rotatable with the spindle, an expansible spring having a frictional engagement with the inner face of the collar, a coiled tension-spring arranged within the casing and yieldably connecting the hub and friction-spring, and a cap covering the open side of the casing and detachably secured thereto.

7. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted on the spindle, a casing connected at one side to the bobbin and rotatable therewith, said casing being provided with an annular collar, a hub located within the casing and rotatable with the spindle, said hub having a shoulder upon its periphery, an expansible circular spring having a frictional engagement with the inner face of the collar and provided with a hook, and a coiled tension-spring arranged within the casing and having terminal hooks that respectively engage the shoulder of the hub and the hook of the friction-spring.

8. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted on the spindle, a collar arranged at one side of the bobbin and rotatable therewith, an expansible spring having a frictional engagement with the inner face of the collar, and a tension-spring connecting the spindle and an intermediate portion of the friction-spring.

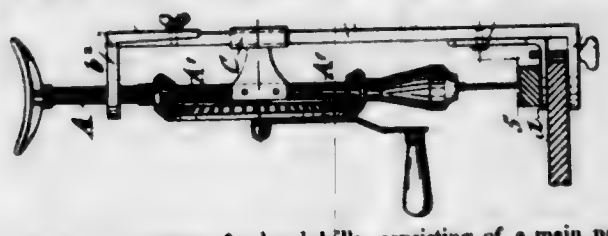
9. In a tension device of the class described, the combination with a spindle, of a bobbin rotatably mounted on the spindle, a collar arranged at one side of the bobbin and rotatable therewith, an expansible spring having a frictional engagement with the inner face of the collar, and a tension-spring having detachable connections at its ends with the spindle and an intermediate portion of the friction-spring.

698,165. STOCK-WEANER. ALBERT M. SHANNON and WILLIAM BOBBITT, Laporte, Tex. Filed Nov. 18, 1901. Serial No. 82,742. (No model.)



Claim.—A stock-weaner, consisting of a fender having a recess at its upper edge, the walls of which are slitted to form tongues, a wire frame having a bowed portion around which said tongues are bent, and being provided with inwardly projecting eyes to engage the nostrils of the animal, and with laterally-projecting arms around which the upper edge of the fender is bent, substantially as set forth.

698,166. SUPPORT FOR HAND-DRILLS. FRANK P. SHEE, New York, N. Y. Filed Oct. 28, 1901. Serial No. 80,054. (No model.)



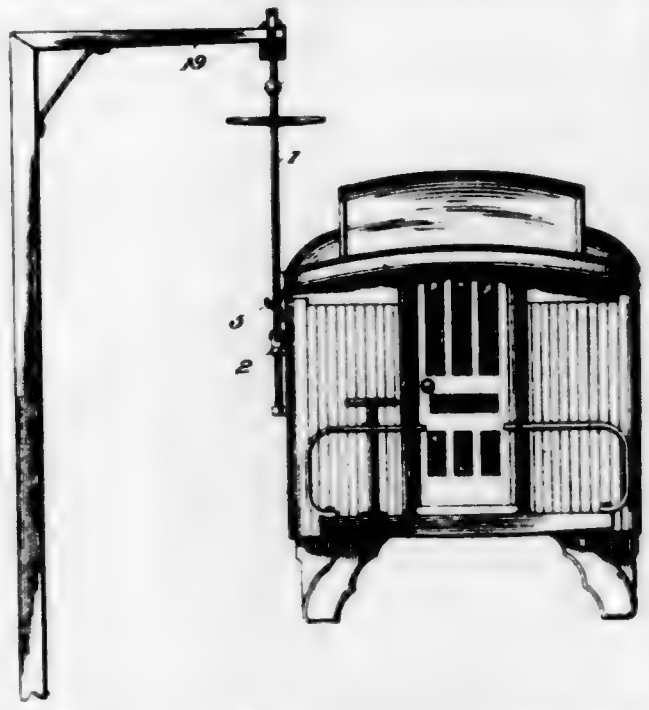
Claim.—A support for hand-drills, consisting of a main piece, a holder supported permanently thereon and provided with a rectangular opening, said main piece having an angular lower end, an angular adjustable clamping-piece guided on the lower end of the main piece, a clamping-screw passing through the lower end of the main piece and the clamping-piece, and an angular piece having an aperture at its outer end for engaging the threaded spindle of the hand-drill, and having an aperture adjacent its bend for receiving the pin provided at the end of said main piece and secured to the main piece by a clamping-screw, substantially as set forth.

698,167. APPARATUS FOR DELIVERING MAIL FROM CARS. ROBERT L. SLAGLE and EDWIN F. PYWELL, Washington, D. C., assignors to the Automatic Railway Mail Pouch Company, Washington, D. C., a Corporation of South Dakota. Filed May 21, 1901. Serial No. 61,277. (No model.)

Claim.—1. The combination with a receiver mounted adjacent to a railway-track and movable with and divergently from a train on such track, said receiver having jaws facing the direction of approach of a train, of a mail-pouch, a rope or chain secured thereto, means attached to a car for holding such rope in line with the jaws of the receiver so that it will engage with the latter, and means on the rope for engaging the receiver when the rope and pouch have been removed from the car whereby the pouch will be held suspended from the receiver, as set forth.

2. The combination with a receiver mounted adjacent to a railway-track and movable with and divergently from a train on such track, said receiver having jaws facing the direction of approach of a train, of a mail-pouch, a rope or chain secured thereto, a ball on such rope or chain, and

means attached to a car for holding such ball in line with and above the jaws of the receiver so that the ball will be removed by the receiver from the holding means as such receiver travels with a train, as set forth.



3. The combination with a receiver mounted adjacent to a railway track and movable with and divergently from a train on such track, said receiver having jaws facing the direction of approach of a train, of a mail-pouch, a rope or chain secured thereto, a ball on such rope or chain, and a bar secured to the side of a car for supporting such ball in line with and above said jaws so that the latter will remove said ball from said bar in the passing of a train and hold the pouch suspended by the rope or chain, as set forth.

4. The combination with a receiver mounted adjacent to a railway-track, and movable on an inclined plane and with the train on such track, said receiver having jaws facing the direction of approach of a train, of a mail-pouch, a rope or chain secured thereto, a ball on the free end of such rope, a support secured to the side of a car for holding such ball in line with the jaws of the receiver so that as the support engages the receiver and the latter moves with the car the ball will be withdrawn from the support and means on the receiver for retaining such ball with the mail-pouch suspended by its rope, substantially as set forth.

5. The combination with a receiver mounted adjacent to a railway-track and movable with and divergently from a train on such track said receiver having jaws facing the direction of approach of a train, of a mail-pouch, a rope secured thereto, a ball on the outer end of said rope, a bar removably secured to a railway-car for holding such ball above and in line with said jaws so that as the receiver is engaged by said bar and travels with the car the ball will be withdrawn from the bar and the pouch will be suspended by its rope, substantially as set forth.

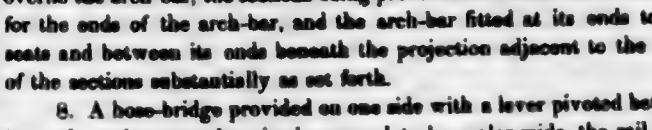
6. The combination with the wheeled receiver having horizontally-disposed jaws of V form, and yielding holding means near the vertex of said jaws, of a mail-pouch having a rope secured thereto, a ball on such rope, a bar secured to the side of the car designed to engage said yielding means and the vertex of the jaws the latter removing said ball from said bar as the latter withdraws from said jaws, substantially as set forth.

7. The combination with the wheeled receiver having horizontally-disposed jaws of V form, and a plate-spring within said jaws near the vertex thereof, of a mail-pouch, a rope secured thereto, a ball fast on the free end of such rope, a bar secured to one side of a car for holding such ball above the latter in line with and above the vertex of the jaws, said bar being designed to engage said spring so that as the bar clears the latter the ball will be held thereby, and a holding-bracket for the mail-pouch secured to the car, substantially as set forth.

8. The combination with a car having keeper-plates adjacent to its side door, of a two-part bar removably held by said keeper-plates, a mail-pouch, a holding-bracket therefor, a rope secured to such pouch, a ball on such rope designed to be held above the car by said bar, and a receiver movable with and divergently from such car designed to be engaged by said bar and remove the ball, rope and pouch in the passing of the car, substantially as set forth.

9. The combination with the car, the keeper-plates, the bar composed of two parts pivotally united, and the spring-plate for holding said parts in their different positions, of the bracket for supporting a mail-pouch, the mail-pouch, the rope secured thereto, the ball on such rope designed to be supported by said bar, the keeper on said bar for engaging and loosely holding said rope, and the receiver with which said bar is designed to engage for effecting the removal of the ball therefrom and the pouch from its supporting-bracket, substantially as set forth.

698,168. HOSE-BRIDGE. DE CALVUS SMITH, Colebrook, Ohio. Filed Nov. 8, 1901. Serial No. 81,237. (No model.)



Claim.—1. The hose-bridge consisting of the sections rounded on their upper surfaces and hinged together at the crown of the bridge and provided between their meeting ends with an opening for the passage of the hose, said sections being provided at their opposite edges with depending portions to lap alongside the rail and also with the laterally-projecting arm provided with the adjustable supporting devices for steadying the bridge in position, the lever pivoted between its ends to the bridge and having its lower arm arranged to bear against the side of the rail and its upper arm provided with a device for forcing it outwardly from the bridge, the arch-bar, and devices on the bridge for engagement by said bar whereby the bar will prevent the breaking down of the bridge at its hinge-joint substantially as set forth.

2. A hose-bridge composed of the hinged sections provided on their opposite sides with the laterally-projecting arms and having said arms provided with supporting devices resting upon the ground substantially as set forth.

3. A hose-bridge composed of the two sections hinged together at their meeting ends at the crown of the bridge and an arch-bar applied to said sections and adapted to prevent the breaking down of the hinge-joint of the bridge substantially as set forth.

4. A hose-bridge composed of the sections hinged together at their meeting ends at the crown of the bridge, and a supporting device applied to said bridge and extending past the hinge of the sections and adapted to prevent the breaking down thereof at its hinge-joint substantially as set forth.

5. A hose-bridge provided with a lever for binding against the rail said lever being pivoted to the bridge and movable longitudinally across its pivot, and a straining device for operating said lever substantially as set forth.

6. A hose-bridge composed of two sections, rounded on its upper side, and having the sections hinged together at the crown of the bridge and provided in their meeting ends with notches combining to form an opening for the passage of the hose, substantially as set forth.

7. The combination of the bridge-sections hinged together at their meeting ends and provided at such ends with an opening for the hose, a lateral projection adjacent to the hinge of the sections and adapted to overlie the arch-bar, the sections being provided near their ends with seats for the ends of the arch-bar, and the arch-bar fitted at its ends to said seats and between its ends beneath the projection adjacent to the hinge of the sections substantially as set forth.

8. A hose-bridge provided on one side with a lever pivoted between its ends and arranged at its lower end to bear alongside the rail and a straining device operating between the upper end of the lever and the bridge whereby to press the lower end of the lever firmly against the rail substantially as set forth.

9. The combination of the bridge-sections, the hinge-pintle by which said sections are connected, and the arch-bar overlapping said pintle when the parts are applied for use substantially as set forth.

10. The combination with the bridge-sections hinged together at the crown of the bridge and provided with lateral arms and supporting devices to rest upon the ground, of the arch-bar for preventing said bridge from breaking down at its hinge-joint substantially as set forth.

693,169. BLANK FOR PAPER BOXES. HARRY B. SMITH, New York, N. Y. Filed Sept. 12, 1899. Serial No. 730,232. (No model.)

Claim.—1. A paper-box blank formed from a single sheet, comprising a body portion having the corners thereof cut away at an angle to the sides and ends respectively of said body portion and provided with integral side and end flaps, the maximum length of said flaps being slightly less than the maximum length and width respectively of the body portion of the blank, so that when said flaps are folded into position for the formation of the box the adjacent edges of the side and end flaps will abut or meet at the said angular corners of the box, but not overlap, substantially as described.

2. A paper-box blank formed from a single sheet, comprising a body portion having the corners thereof cut away at an angle to the sides and ends respectively of said body portion and provided with integral side and end flaps, said flaps being scored or creased transversely at the points intersected by the ends of the cut-away corners, the maximum length of said flaps being slightly less than the maximum length and width re-

spectively of the body portion of the blank, so that when said flaps are folded up in position for the formation of the box the adjacent edges of the side and end flaps will abut or meet at the said angular corners of the box but not overlap, substantially as described.



3. A paper-box blank for forming boxes having angular corners, comprising a body portion having the corners thereof cut away on a compound angle to the sides and ends respectively of the said body portion and provided with integral side and end flaps, the maximum length of said flaps being slightly less than the maximum length and width respectively of said body portion of the blank, so that when said flaps are folded up into position for the formation of the box the adjacent edges of the side and end flaps will abut or meet at the said angular corners of the box but not overlap, substantially as described.

4. As a new article of manufacture, a paper box formed from a single blank, said blank comprising a body portion having the corners thereof cut away, and provided with integral side and end flaps, the maximum length of said flaps being slightly less than the maximum length and width respectively of the body portion of the blank, said flaps being folded up in position for the formation of the box so that the adjacent edges thereof will abut each other at the said cut-away corners but not overlap, and means for fastening the said abutting ends of the flaps together, substantially as described.

5. As a new article of manufacture, a paper box formed from a single blank, said blank comprising a body portion having the corners thereof cut away, and provided with integral side and end flaps, the maximum length of said flaps being slightly less than the maximum length and width respectively of the body portion of the blank, said flaps being folded up in position for the formation of the box so that the adjacent edges thereof will abut each other at the said cut-away corners but not overlap, and fastening means covering the said abutting edges of the flaps and secured to the latter on opposite sides, substantially as described.

6. As a new article of manufacture, a paper box formed from a single blank, said blank comprising a body portion having the corners thereof cut away, and provided with integral side and end flaps, the maximum length of said flaps being slightly less than the maximum length and width respectively of the body portion of the blank, said flaps being folded up in position for the formation of the box so that the adjacent edges thereof will abut each other at the said cut-away corners but not overlap, and metallic corner-clips covering the said abutting edges of the flaps and having portions thereof embedded in the said flaps to hold the parts intact, substantially as described.

7. As a new article of manufacture, a paper box formed from a single blank, said blank comprising a body portion having the corners thereof cut away at an angle to the sides and ends respectively of said body portion and provided with integral side and end flaps, the maximum length of said flaps being slightly less than the maximum length and width respectively of the body portion of the blank, said flaps being folded up in position for the formation of the box so that the adjacent edges thereof will abut each other at the said angular corners but not overlap, and means for fastening the said abutting ends of the flaps together, substantially as described.

8. As a new article of manufacture, a paper box formed from a single blank, said blank comprising a body portion having the corners thereof cut away at an angle to the sides and ends respectively of said body portion and provided with integral side and end flaps, the maximum length of said flaps being slightly less than the maximum length and width respectively of the body portion of the blank, said flaps being folded up in position for the formation of the box so that the adjacent edges thereof will abut each other at the said angular corners but not overlap, and fastening means covering the said abutting edges of the flaps and secured to the latter on opposite sides, substantially as described.

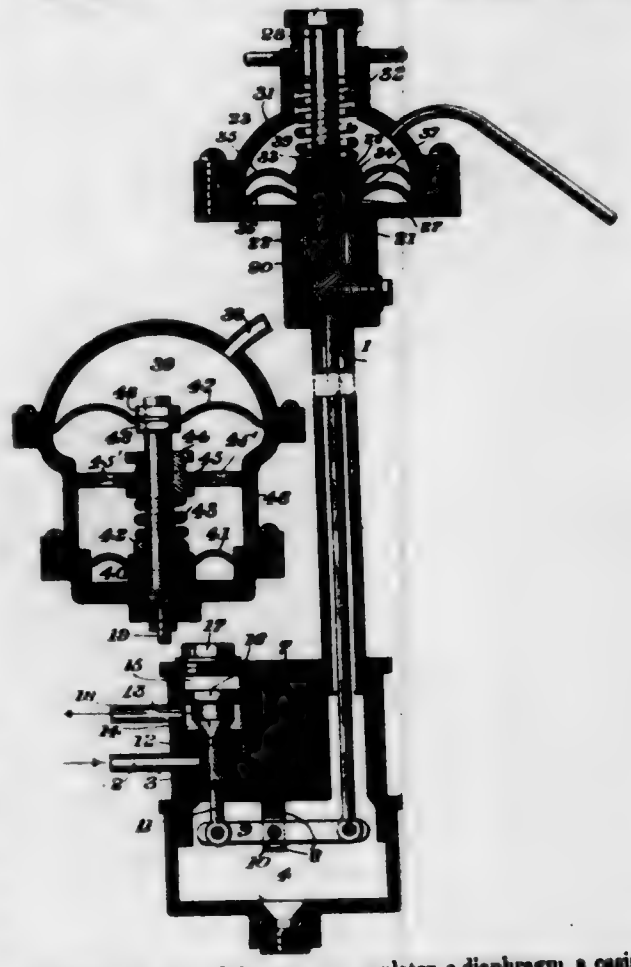
9. As a new article of manufacture, a paper box formed from a single blank, said blank comprising a body portion having the corners thereof cut away at an angle to the sides and ends respectively of said body portion and provided with integral side and end flaps, the maximum length of said flaps being slightly less than the maximum length and width respectively of the body portion of the blank, said flaps being folded up in position for the formation of the box so that the adjacent edges will abut each other at the said angular corners but not overlap, and metallic corner-clips covering the said abutting edges of the flaps and having portions thereof embedded in the said flaps to hold the parts intact, substantially as described.

10. A box formed from a single blank, comprising a body portion having cut-away corners and integral side and end flaps, the combined length of all of said flaps not exceeding the circumference of said body portion of the blank, so that when said flaps are folded up into position for the formation of the box the adjacent edges thereof will not overlap each other, and means for securing the said adjacent edges of the flaps together.

11. A box formed from a single blank, comprising a body portion having the corners thereof cut away at an angle to the sides and ends respectively of said body portion and provided with integral side and end flaps, the combined length of all of said flaps not exceeding the circumference of the said body portion of the blank, so that when said flaps are folded up into position for the formation of the box the adjacent ends thereof will not overlap each other, and means for securing the said adjacent ends of the flaps together.

12. A box-blank comprising a body portion having the corners thereof cut away at an angle to the sides and ends respectively of said body portion and provided with integral side and end flaps, the combined length of all of said flaps not exceeding the circumference of the said body portion of the blank, so that when said flaps are folded up into position for the formation of a box the adjacent edges thereof will not overlap each other.

693,170. FLUID-PRESSURE REGULATOR. HARPER F. SMITH, Philadelphia, Pa. Filed Oct. 31, 1901. Serial No. 80,628. (No model.)



Claim.—1. In a fluid-pressure regulator, a diaphragm, a casing below said diaphragm, inlet and outlet ports to said casing, a valve intermediate said ports above the inlet-port, an air-chamber extended upwardly from said casing, a partial closure for the upper end of said air-chamber, a lever pivotally mounted in said casing and connected with the valve, and a connection between said lever and partial closure and movable with the latter.

2. In a fluid-pressure regulator, a casing, a diaphragm above the same, inlet and outlet ports to the casing upon different levels, a valve in said casing intermediate said ports and above the inlet, an air-chamber extending upward from the casing, a liquid seal in the lower portion of

said casing, a lever pivoted within the said casing and pivotal connections between the lever and valve and diaphragm whereby when the diaphragm moves in one direction the valve is moved in the opposite direction.

3. In a fluid-pressure regulator, a casing having inlet and outlet ports on different levels and a liquid seal in its lower portion, a valve in said casing above the inlet and intermediate said ports, a diaphragm above said casing, an air-chamber extended upward from the casing to the diaphragm-chamber, a reciprocatory partial closure for the upper end of the air-chamber, movable means within the casing carrying said valve, and a connection between said means and the said partial closure and located in said air-chamber to move the diaphragm in one direction as the valve is moved in the opposite direction.

4. In a fluid-pressure regulator, a casing, having inlet and outlet ports upon different levels and the seal-chamber in its lower portion, an air-chamber extended upward from the top of the casing and seal-chamber and a diaphragm-chamber located above the casing, a diaphragm in said diaphragm-chamber, a valve in the casing above the inlet-port and intermediate the said ports, and a connection between the valve and diaphragm the said connection being located in said seal-chamber and air-chamber.

5. In a fluid-pressure regulator, a casing having inlet and outlet ports upon different levels, and a seal-chamber in the lower portion of said casing beneath the inlet and outlet, a valve in said casing intermediate said ports, an air-chamber extended upwardly from the casing above the top of the seal in said casing, and a connection between said valve and diaphragm embodying a partial closure for the upper end of the air-chamber.

6. In a fluid-pressure regulator, a casing with a seal-chamber therein, inlet and outlet ports upon different levels upon one side of said casing, a valve fitted to a seat between the inlet and outlet above the inlet, a projection from the casing within the seal-chamber, an air-chamber extended upward from the top of said casing, a lever pivoted on said projection and pivotally connected with the valve, a partial closure for the upper end of the air-chamber, a diaphragm-chamber mounted on the upper end of the air-chamber, a diaphragm therein, and connected with said partial closure, and a connection between said partial closure and the said lever.

7. In a fluid-pressure regulator, a casing comprising in the one structure a seal-chamber, a casing for a valve and a connection for an air-chamber, inlet and outlet ports to said casing upon different levels, a valve in said casing above the inlet-port and intermediate the same and the outlet, a diaphragm-chamber located above said casing and valve, the air-chamber connecting the casing and diaphragm-chamber, a diaphragm in the diaphragm-chamber, and a connection intermediate the diaphragm and seal chamber with the valve.

8. In a fluid-pressure regulator, a casing having inlet and outlet ports, a valve in said casing above the inlet and intermediate said ports, a liquid seal in the lower portion of said casing, a diaphragm-chamber, an air-chamber connecting the same with the casing, a plurality of independent diaphragms in said chamber, means connecting said diaphragms and serving as a partial closure for the upper end of the air-chamber, and a connection between said partial closure and the valve.

9. In a fluid-pressure regulator, the casing having a liquid seal, and inlet and outlet ports on different levels and a valve in said casing above the inlet and intermediate said ports, an air-chamber leading from the casing above the seal, a diaphragm-chamber mounted on the air-chamber above the said casing and valve, a plurality of diaphragms disposed at a distance apart within said diaphragm-chamber, a connection between said diaphragms and valve and a vent from the space above the upper diaphragm and extended away from the same to discharge escaping liquid hydrocarbon in case of rupture of the diaphragm and destruction of the air-chamber.

10. In a vapor-burner, a reservoir, a burner, a governor intermediate said burner and reservoir, a valve in said governor and located above the inlet-port of the latter and between the inlet and outlet, a seal in the lower portion of said governor, an air-cushion, disposed above said seal and acting directly thereon, and a connection from said governor to the burner below the air-cushion.

11. In a vapor-burner, a governor having in its lower portion a liquid seal, a plurality of upwardly-extending members one being adapted to contain air and the other to contain hydrocarbon, an inlet for the latter, a valve-seat above said inlet, a discharge-passage above said valve-seat, a diaphragm-chamber suitably supported, a diaphragm contained within said chamber, a rocking lever located in said seal and fulcrumed upon a suitable support, a connection from said valve to said lever on one side of the fulcrum and a connection from said diaphragm to said lever on the opposite side of its fulcrum, said air-chamber being closed at its upper end.

12. In a vapor-burner, a governor having in its lower portion a liquid seal, a plurality of upwardly-extending members closed at their upper ends, one being adapted to contain air and the other to contain hydrocarbon, an inlet-port for the latter, a valve-seat above said inlet-port, a discharge-passage above said valve-seat, a diaphragm-chamber suitably supported, a rocking lever, a diaphragm, connection from said valve to said lever on one side of its fulcrum and a connection from said diaphragm to said lever on the opposite side of its fulcrum, in combination with an extension on the upper portion of said diaphragm-chamber, a tension device located within said extension and means for adjusting said tension device.

13. In a vapor-burner, a governor having in its lower portion a liquid seal, a plurality of upwardly-extending members one being adapted to contain air and the other to contain hydrocarbon, an inlet-port for the latter, a valve-seat above said inlet-port, a discharge-passage above said valve-seat, a diaphragm-chamber suitably supported, a diaphragm contained within said chamber, a rocking lever in said seal-chamber and fulcrumed on a suitable support, a connection from said valve to said lever on one side of its fulcrum, and a connection from said diaphragm to said lever on the opposite side of its fulcrum, in combination with an extension on said diaphragm-chamber, a hollow nut adjustably secured in the upper portion of said extension, an inner extension adapted to move in unison with said diaphragm and guided within said nut, and a spring intermediate said diaphragm and nut and guided in said extension of the chamber.

14. The combination of a reservoir for hydrocarbon, a drip-chamber into which said reservoir discharges, a governor adapted to receive the hydrocarbon from said drip-chamber, an inlet-port for said governor, a discharge-port for the latter, a valve intermediate said inlet-port and discharge-port adapted to seat downwardly, a seal in the lower portion of said governor, an air-cushion above said seal, vaporizing devices to which the hydrocarbon is conducted from said governor, a burner, and a pipe leading from said vaporizing devices to said burner.

15. In a fluid-pressure regulator, a governor-casing having a liquid seal in its lower portion and a plurality of upwardly-extending members one being adapted to contain air and the other to contain hydrocarbon, an inlet-port and an outlet-port to said casing upon different levels and the valve above the inlet and intermediate the inlet and outlet, an air chamber connected with one of said members, and extended upwardly therefrom, a diaphragm-chamber mounted on the upper end of the air-chamber above the said casing and valve, a diaphragm in said chamber means for varying the tension on said diaphragm and a connection between the diaphragm and the valve.

16. In a fluid-pressure regulator, a governor having in its lower portion a liquid seal, a plurality of upwardly-extending members, one being adapted to contain air and the other to contain hydrocarbon, an inlet-port for the latter, a valve-seat above said inlet-port, a discharge-passage above said valve-seat, a diaphragm-chamber supported above said governor and valve, a plurality of diaphragms contained within said chamber, means for adjusting the tension on said diaphragms, a rocking lever in the seal-chamber, a connection upon one side thereof with the valve and a connection upon the other side of the fulcrum of the lever with the diaphragms, said connection passing through the air-chamber.

17. In a fluid-pressure regulator, a casing having a dydrocarbon seal in its lower portion, inlet and outlet ports therefor upon different levels, a valve controlling one of said ports and fitted to a seat intermediate said ports, said valve being located above the inlet, an air-chamber connected with the casing at a higher level than the inlet, a partial closure for the upper end of the air-chamber, a diaphragm-chamber, a diaphragm therein movable with said partial closure and a connection between said partial closure and valve.

18. In a fluid-pressure regulator, the combination of a casing forming a liquid seal in its lower portion, inlet and outlet ports for said casing upon different levels, a valve for controlling the flow between the inlet and outlet, located above the inlet and between the inlet and outlet, an air-chamber at a higher level than said valve and connected with the casing, the air in said air-chamber being controlled by the seal and shut off from communication with the inlet and outlet by said seal, the inlet and outlet both being in communication with said seal-chamber.

19. In a fluid-pressure regulator, a casing with a liquid-seal chamber in its lower portion, inlet and outlet ports for said casing upon different levels, a valve for controlling the flow between both of said ports, located above the inlet and intermediate the inlet and outlet, an air-chamber communicating with and extended above the said casing and valve, the connection with the casing being above the seal-chamber and above the highest level of the seal and shut off from communication with the inlet and outlet ports by said seal.

20. In a fluid-pressure regulator, a casing having upwardly-extending members upon opposite sides of a liquid seal in the lower portion of said casing, inlet and outlet ports, the inlet-port communicating directly with said seal, a valve located above the inlet and intermediate the inlet and outlet, and an air-chamber connected directly with one of said members and extended upwardly therefrom.

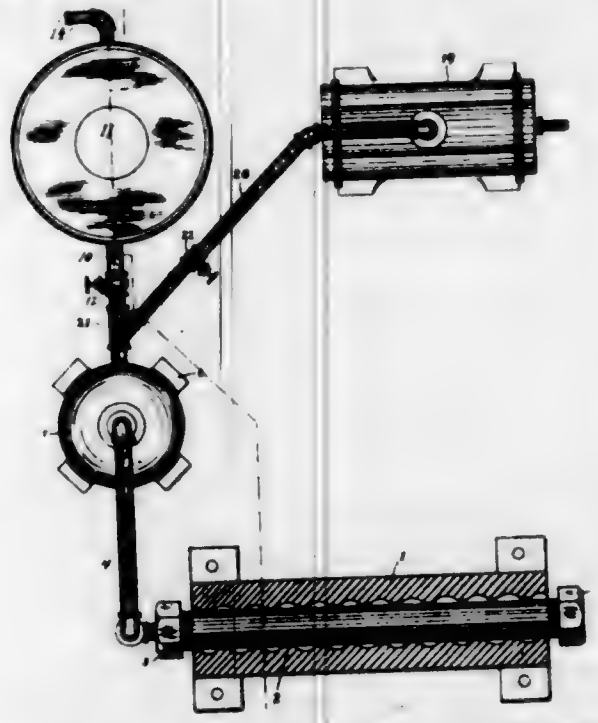
21. In a fluid-pressure regulator, a casing having upwardly-extending members upon opposite sides of a liquid seal in the lower portion

thereof, inlet and outlet ports communicating with said seal upon different levels through one of said members, a valve in said member above the inlet-port and intermediate the two ports, and an air-chamber extended upwardly from the other member and supporting a diaphragm-chamber, and a diaphragm in said chamber connected with said valve.

22. In a fluid-pressure regulator, a casing having a liquid seal in its lower portion and upwardly-extending members from opposite sides thereof, inlet and outlet ports, the inlet-port communicating directly with said seal upon different levels upon the same side of the casing, a valve intermediate the two ports and above the inlet, an air-chamber connected with the member upon the opposite side of the casing, a rocking lever in the seal-chamber and a diaphragm connected with the said lever whereby the movement of the diaphragm in one direction moves the valve in the opposite direction to control the flow between both of said ports.

23. In a fluid-pressure regulator, a casing having top and bottom portions, the former being formed with independent upwardly-extending members, and the latter with a seal-chamber in communication with both of said members, inlet and outlet ports communicating with one of said members, a valve-seat in said member intermediate said ports, a valve located above the inlet and fitted to said seat, and an air-chamber extended upward from the other of said members and supporting a diaphragm operatively connected with said valve.

693,171. APPARATUS FOR FORMING HOLLOW OR TUBULAR ARTICLES OF IRREGULAR SHAPE. JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,539. (No model.)



Claim.—1. In apparatus for shaping hollow metal articles, the combination with suitable dies for inclosing a hollow blank, of means for introducing air under pressure into said blank, and other means for thereafter further compressing said air by hydraulic pressure.

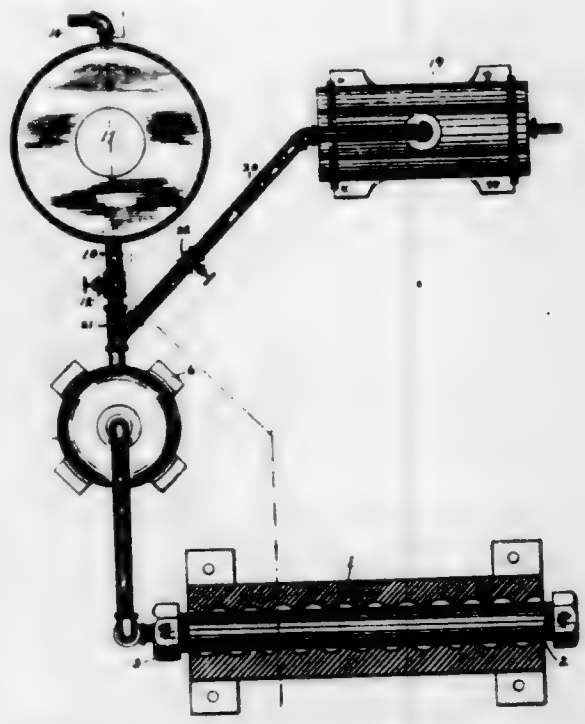
2. In apparatus for shaping hollow metal articles, the combination with suitable dies for inclosing a hollow blank, of a source of compressed air and controllable connections from the same to the interior of the blank, a source of hydraulic pressure and controllable connections from the same to the air connections, said connections having a considerable capacity between the tubular blank and the accumulator.

3. In apparatus for shaping hollow metal articles, the combination with suitable dies for inclosing a hollow blank, of a reservoir, connections from the same to the hollow blank, an air-compressor and a hydraulic accumulator, suitable connections from the same to the reservoir, and cut-off valves in said connections.

4. In apparatus for shaping hollow metal articles, the combination with suitable dies for inclosing a hollow blank, of a reservoir, connections from the top of the same to the interior of said blank, an air-compressor, connections from the same to the receiving-tank, a hydraulic accumulator, connections from the same to the bottom of the receiving-tank, and suitable cut-off valves in the connections from the air compressor and accumulator to the reservoir.

5. In apparatus for shaping hollow metal articles, the combination with suitable dies for inclosing a hollow blank, said dies comprising a stationary part and one or more movable parts, of a source of compressed air and controllable connections from the same to the interior of the blank, a source of hydraulic pressure and controllable connections between the same and a body of compressed air in the tubular blank.

693,172. METHOD OF FORMING HOLLOW OR TUBULAR ARTICLES OF IRREGULAR SHAPE. JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,540. (No specimens.)

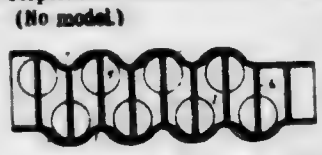


Claim.—1. The method of shaping hollow or tubular metal articles which consists in inclosing a hollow blank in suitable dies, subjecting the same interiorly to air at the desired pressure, and then further compressing said air by hydraulic pressure applied directly against said compressed air.

2. The method of shaping hollow metal articles which consists in heating a hollow or tubular blank, inclosing the same in suitable dies, subjecting the same interiorly to air at the desired pressure, and then further compressing said air by hydraulic pressure applied directly against said compressed air.

3. The method of shaping hollow metal articles which consists in inclosing a hollow blank in suitable dies, subjecting the same interiorly to compressed air at the desired pressure, and then further compressing said air by hydraulic pressure applied directly against said compressed air, the said blank being subjected to external pressure simultaneous with the internal pressure.

693,173. APPARATUS FOR SHAPING HOLLOW OR TUBULAR ARTICLES OF IRREGULAR SHAPE. JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,541. (No model.)



Claim.—1. A mandrel for use in shaping wrought-metal headers or other tubular articles of irregular outline longitudinally, the same comprising a rigid destructible support corresponding in shape to the article to be formed, and adapted to be inserted in the tube and have the latter pressed thereupon.

2. A mandrel for use in shaping wrought-metal headers or other tubular articles of irregular outline longitudinally, the same comprising a rigid destructible support provided with transverse corrugations, and adapted to be inserted in the tube and have the latter pressed thereupon.

3. A mandrel for use in shaping wrought-metal headers or other tubular articles of irregular outline longitudinally, the same comprising a rigid destructible support provided with oblique transverse corrugations on its upper and lower faces, and adapted to be inserted in the tube and have the latter pressed thereupon.

4. A mandrel for use in shaping wrought-metal headers or other tubular articles of irregular outline longitudinally, the same comprising a rigid hollow body corresponding in shape to the article to be formed and provided with rigid internal supports to strengthen the same.

5. A mandrel for use in shaping wrought-metal headers or other tubular articles of irregular outline longitudinally, the same comprising a

rigid hollow body corresponding in shape to the article to be formed and provided with internal transverse webs.

6. A mandrel for use in shaping wrought-metal headers or other tubular articles of irregular outline longitudinally, the same comprising a rigid hollow cast-metal body corresponding in shape to the article to be formed and provided with internal transverse supports.

7. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a hollow cast-metal body having upper and lower corrugated faces, and internal transverse supports extending between said corrugated faces.

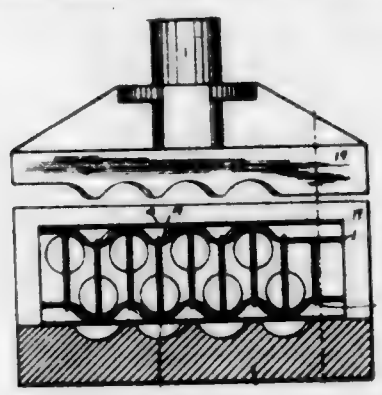
8. In apparatus for shaping wrought-metal headers or other tubular metal articles of irregular outline longitudinally, the combination of suitable forging means, and a mandrel comprising a rigid support corresponding in shape to the article to be formed and adapted to be inserted in the tube and have the latter pressed down thereupon by the forging means.

9. In apparatus for shaping wrought-metal headers or other tubular metal articles, the combination of top and bottom dies provided with transverse corrugations, and a mandrel comprising a rigid support having transverse corrugations corresponding to the corrugations of the top and bottom dies, and adapted to be inserted in the tube and have the latter pressed thereupon by the dies.

10. In apparatus for shaping wrought-metal headers or other tubular articles, the combination with suitable top, bottom and side dies, the top die and one side die being movable, and a mandrel comprising a rigid support adapted to be inserted in the tube and have the latter pressed thereupon by the dies.

11. In apparatus for shaping wrought-metal headers or other tubular articles, the combination with corrugated top and bottom dies and plain-faced side dies, the top die and one of the side dies being movable, of a mandrel comprising a rigid support having its top and bottom faces corrugated to correspond to the top and bottom dies, and its side faces plain, and adapted to be inserted in the tube and have the latter pressed down thereupon by the dies.

693,174. METHOD OF FORMING HOLLOW OR TUBULAR ARTICLES. JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,542. (No specimens.)



Claim.—1. The method of forming wrought-metal tubular articles provided with a longitudinal diaphragm, which consists in supporting a shaped diaphragm longitudinally within the tube and then pressing the walls of the latter against the edges of the diaphragm to cause the latter to firmly engage said walls.

2. The method of forming wrought-metal tubular articles of irregular outline longitudinally provided with a longitudinal diaphragm, which consists in supporting the shaped diaphragm longitudinally within the tube and then pressing the walls of the latter against the edges of the diaphragm to cause the latter to embed themselves in said walls.

3. The method of forming wrought-metal tubular-articles of irregular outline longitudinally provided with a longitudinal diaphragm, which consists in heating a section of tube, inserting therein a shaped diaphragm and supporting the same longitudinally in the tube, and then pressing the walls of the latter against the edges of the diaphragm to cause the latter to embed themselves in said walls.

4. The method of forming wrought-metal tubular articles provided with a diaphragm, which consists in taking a shaped diaphragm provided with edge projections, supporting the same within the tube, and then pressing the walls of the latter against the edges of the diaphragm to cause the projections on the latter to embed themselves in said walls.

5. The method of forming wrought-metal tubular articles provided with a diaphragm, which consists in taking a shaped diaphragm with edge projections, supporting the same within the tube, and then pressing the walls of the latter against the edges of the diaphragm to cause said projections to penetrate said walls and be upset on the outside thereof.

6. The method of forming wrought-metal tubular articles provided with a diaphragm, which consists in supporting a shaped diaphragm within the tube and supporting the tube on the interior, and then pressing the walls of the tube while so internally supported against the edges of the diaphragm whereby the said article is shaped and the edges of the diaphragm caused to embed themselves in the walls thereof.

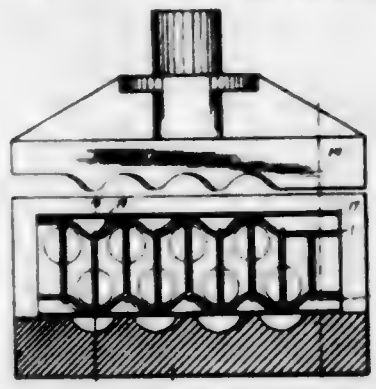
7. The method of forming wrought-metal tubular articles provided with a diaphragm, which consists in taking a squared tube, heating the same, inserting a shaped diaphragm therein, and supporting said tube on the interior, and then while so interiorly supported pressing the walls thereof against the edges of the diaphragm whereby the article is shaped and the diaphragm firmly secured therein.

8. The method of forming wrought-metal tubular articles provided with a diaphragm, which consists in taking a diaphragm having sinuous edges provided with projections on their concave portions, supporting the same within the tube, and then pressing the walls of the latter against the edges of the diaphragm to cause the edge projections thereof to embed themselves in said walls.

9. The method of forming wrought-metal tubular articles provided with a diaphragm, which consists in taking a diaphragm having sinuous edges provided with projections on their concave portions, supporting the same within the tube, and then pressing the walls of the latter against the edges of the diaphragm to cause said projections to penetrate said walls and be upset on the outside thereof.

10. The method of forming wrought-metal tubular articles provided with a diaphragm, which consists in taking a diaphragm with steps or jogs, supporting the same within the tube, and then pressing the walls of the latter against the edges of the diaphragm to cause the latter to embed themselves in said walls.

693,175. APPARATUS FOR FORMING HOLLOW OR TUBULAR ARTICLES. JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,543. (No model.)



Claim.—1. In apparatus for forming wrought-metal tubular articles having a diaphragm, the combination of a support adapted to be inserted in the tube and constructed to support the diaphragm in place, and dies adapted to press on the exterior of the tube, shape the same, and press the walls thereof onto the edges of the diaphragm.

2. In apparatus for forming wrought-metal tubular articles having a diaphragm, the combination of a support comprising longitudinal sections adapted to receive the diaphragm therebetween and support the same in place in the tube, and dies adapted to press on the exterior of the tube, shape the same, and press the walls thereof onto the edges of the diaphragm.

3. In apparatus for forming wrought-metal tubular articles having a diaphragm, the combination of a mandrel provided with transverse corrugations and adapted to be inserted in the tube and constructed to support the diaphragm in place, and dies provided with corresponding corrugations adapted to press on the exterior of the tube, shape the same, and press the walls thereof onto the edges of the diaphragm.

4. In apparatus for forming wrought-metal tubular articles having a diaphragm, the combination of a mandrel of serpentine form adapted to be inserted in the tube and constructed to support the diaphragm in place, and dies provided with corrugations corresponding to the form of the mandrel and adapted to press on the exterior of the tube, shape the same, and press the walls thereof onto the edges of the diaphragm.

5. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a rigid support composed of longitudinal sections adapted to receive the diaphragm between them and hold the same in place in the tube, and constructed so as to be removed from the article after it is shaped.

6. A mandrel for use in forming wrought metal tubular articles having a diaphragm, the same comprising a rigid destructible support composed of longitudinal sections adapted to receive the diaphragm between them and hold the same in place in the tube.

7. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a rigid destructible support of ser-

pentine form composed of longitudinal sections adapted to receive the diaphragm between them and hold the same in place in the tube.

8. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a hollow body provided with internal transverse supports, and composed of longitudinal sections adapted to receive the diaphragm between them and hold the same in place in the tube.

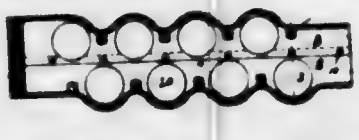
9. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a hollow destructible body having corrugated upper and lower faces, and provided with internal transverse supports extending between the corrugated faces, said body being composed of longitudinal sections adapted to receive the diaphragm between them and hold the same in place in the tube.

10. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a hollow cast-metal body provided with transverse internal supports, and composed of longitudinal sections adapted to receive the diaphragm between them and hold the same in place in the tube.

11. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising longitudinal sections having stepped or jogged meeting faces adapted to receive the diaphragm between them and hold the same in place in the tube.

12. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a rigid destructible support of serpentine form, and composed of two longitudinal sections having stepped or jogged meeting faces adapted to receive the diaphragm between them and hold the same in place in the tube.

693,176. WROUGHT-IRON HEADER. JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,544. (No model.)



Claim.—1. A wrought-metal boiler-header of serpentine form provided with a longitudinal diaphragm secured to the corrugated walls of said header.

2. A wrought-metal boiler-header of serpentine form, the corrugations thereon extending at an angle across the face thereof, and a longitudinal diaphragm in said header secured to the corrugated walls thereof.

3. A wrought-metal boiler-header provided with a diaphragm having its edges seated in the metal composing the walls of said header.

4. A wrought-metal boiler-header provided with a diaphragm having edge projections which are embedded in the walls of the header.

5. A wrought-metal boiler-header of serpentine form provided with a longitudinal diaphragm having edge projections on the concave portions of its edges, which projections are embedded in the walls of the header.

6. A wrought-metal boiler-header provided with a longitudinal diaphragm secured to opposite side walls of said header and forming a tie between said walls.

7. A wrought-metal boiler-header provided with a longitudinal diaphragm having edge projections which extend through said walls and are upset on the outside thereof.

8. A wrought-metal boiler-header of serpentine form provided with a longitudinal diaphragm secured to the corrugated walls thereof, and with an integral cone at one end

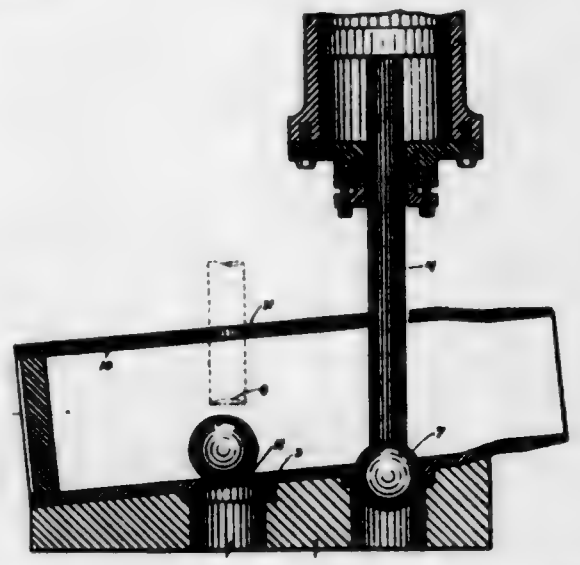
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693,177. APPARATUS FOR FLANGING HOLES IN TUBULAR ARTICLES. JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,545. (No model.)

Claim.—1. In apparatus for flanging wrought-metal tubular bodies provided with holes in their opposite side walls, the combination of a die or support having a recess therein, a separate body or implement adapted to be inserted in said tubular body and placed over a hole in one of the side walls thereof, and a plunger adapted to be inserted through a hole in the opposite side wall and force the body or implement through the hole over which it is placed.

2. In apparatus for flanging wrought-metal tubular bodies provided with holes in their opposite side walls, the combination of a die or support having a recess therein, a ball adapted to be inserted in the tubular body and placed over a hole in one of the side walls thereof, and a plunger adapted to be inserted through a hole in the opposite side wall and force the ball through the hole over which it is placed.

3. In apparatus for flanging wrought-metal tubular bodies provided with holes in their opposite side walls, the combination of a die or support having a recess therein, a ball adapted to be inserted in the tubular body and placed over a hole in one of the side walls thereof, and a plunger provided with a concave end adapted to be inserted through a hole in the opposite side wall and force the ball through the hole over which it is placed



4. In apparatus for flanging wrought-metal tubular bodies provided with holes in their opposite side walls, the combination of a die or support having a recess therein, a ball having one flat side and adapted to be inserted in the tubular body and placed over a hole in one of the walls thereof, and a plunger adapted to be inserted through a hole in the opposite side wall and force the ball through the hole over which it is placed.

5. In apparatus for flanging wrought-metal tubular bodies provided with holes in their opposite side walls, the combination with a die or support having a recess therein and a die-cavity around said recess, of a separate body or implement adapted to be inserted in the tube and placed over a hole in one of the side walls thereof, and a plunger adapted to be inserted through a hole in the opposite side wall and force the body or implement through the hole over which it is placed.

6. In apparatus for flanging holes in wrought-metal tubular bodies, the combination with an internal support or die having recesses therein, a plunger, and a separate body or implement adapted to be forced by said plunger through the holes in the walls of the tubular body.

7. In apparatus for flanging holes in wrought-metal tubular bodies the combination with an internal support or die having recesses, a plunger, and a ball adapted to be forced by said plunger through the holes in the walls of the tubular body into the recesses in the support or die.

8. In apparatus for flanging holes in wrought-metal tubular bodies, the combination with a bed die or support provided with recesses, of an internal support or die having openings, a plunger, and a separate body or implement adapted to be forced by the plunger through the holes in the walls of the tubular body.

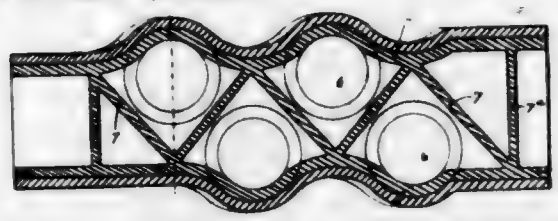
9. In apparatus for flanging holes in tubular wrought-metal bodies, the combination of a bed die or support having recesses, an internal die or support having openings, a plunger, and a ball adapted to be forced by said plunger through the holes in the walls of the tubular body and through the openings in the internal die and into the recesses in the bed die or support

10. In apparatus for flanging holes in wrought-metal tubular bodies, the combination with a bed die or support provided with recesses, of an internal die or support having openings, die-cavities formed around the openings in said bed die and internal support, of a plunger, and a separate body or implement adapted to be forced by the plunger through the holes in the walls of the tubular body and into the openings in said bed die and internal support.

11. In apparatus for flanging holes in wrought-metal tubular bodies, the combination of a die or support having a plurality of recesses therein, a corresponding series of plungers mounted to reciprocate together, and a corresponding number of separate bodies or implements adapted to be inserted in said tubular body and forced by the plungers through the holes in the walls thereof.

12. In apparatus for flanging holes in wrought-metal tubular bodies, the combination of a die or support having an inclined supporting-face and a plurality of recesses therein, a corresponding series of plungers of varying length to correspond to the inclined face of the die or support, a reciprocating cross-head carrying said plungers, and a series of separate bodies or implements corresponding in number to the plungers and adapted to be inserted in the tubular body and forced by the plungers through the holes in the walls thereof.

693,178. **APPARATUS FOR FORMING HOLLOW OR TUBULAR ARTICLES OF IRREGULAR SHAPE.** JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,546. (No model.)



Claim.—1. A mandrel for use in forming wrought-metal tubular articles, the same comprising a rigid support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, and capable of being then removed from said tube, said mandrel having apertures formed in the side faces thereof

2. A mandrel for use in forming wrought-metal tubular articles, the same comprising a rigid support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, and to be then removed therefrom, said mandrel having apertured side faces and being provided with transverse corrugations on the upper and lower faces thereof.

3. A mandrel for use in forming wrought-metal tubular articles, the same comprising a rigid destructible support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel having apertured side faces.

4. A mandrel for use in forming wrought-metal tubular articles, the same comprising a rigid support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, and to be then removed from the same, said mandrel being provided with openings extending through the same.

5. A mandrel for forming wrought-metal tubular articles, the same comprising a hollow destructible body provided with rigid internal supports to strengthen the same, and adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel having apertured side faces.

6. A mandrel for use in forming wrought-metal tubular articles, the same comprising a hollow cast-metal body provided with interior transverse supports, and having alining openings in its opposite side walls.

7. A mandrel for use in forming wrought-metal tubular articles, the same comprising a hollow cast-metal body having upper and lower corrugated faces, and internal transverse supports extending between said faces, the side walls of said mandrel being provided with alining openings.

8. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a rigid support composed of longitudinal sections adapted to receive a diaphragm between them, and hold the same in place in the tube and have the latter pressed thereupon and to be then removed therefrom, said mandrel having apertured side faces.

9. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a rigid destructible support composed of longitudinal sections adapted to receive the diaphragm between them, and to be inserted in the tube and have the latter pressed thereupon, said mandrel having apertured side faces.

10. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a rigid support composed of longitudinal sections adapted to receive the diaphragm between them, and to be inserted in the tube and have the latter pressed thereupon, and to be then removed from the tube, said mandrel being provided with transverse openings passing through the same.

11. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a hollow body provided with internal transverse supports and composed of longitudinal sections adapted to receive the diaphragm between them and to be placed in the tube and have the latter pressed thereupon and capable of being then removed therefrom, said mandrel having alining openings in its opposite side walls.

12. A mandrel for use in forming wrought-metal tubular articles having a diaphragm, the same comprising a hollow cast-metal body with transverse internal supports, and composed of longitudinal sections adapted to receive the diaphragm between them, said mandrel being formed with alining openings in its opposite side walls.

13. A mandrel for use in forming wrought-metal tubular articles, the same comprising a hollow cast-metal body provided with interior transverse struts between its upper and lower faces, and having alining openings in its opposite side walls.

14. In apparatus for forming wrought-metal tubular articles, the combination with a mandrel comprising a rigid support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel having apertured side faces, of a bed die or support, and a plunger or similar flanging-tool.

15. In apparatus for forming wrought-metal tubular articles, the combination with a mandrel comprising a rigid support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel having apertured side faces, of suitable forming-dies adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel having recessed side faces, of suitable forming-dies adapted to press the tube upon the mandrel, a supporting die and plunger adapted to flange the metal around the holes in the side walls of the tube.

16. In apparatus for forming wrought-metal tubular articles, the combination with a mandrel comprising a rigid support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel being provided with transverse openings, of a bed die or support with recesses therein, and a plunger or similar flanging-tool.

17. In apparatus for forming wrought-metal tubular articles, the combination with a mandrel comprising a rigid destructible support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel having apertured side faces, of a supporting bed or die, and a plunger or similar flanging-tool.

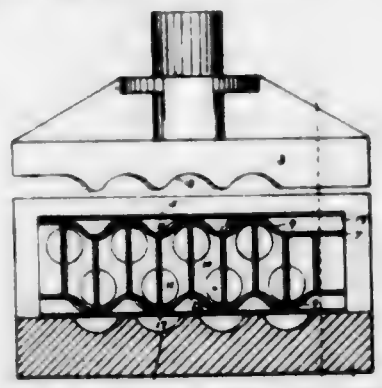
18. In apparatus for forming wrought-metal tubular articles, the combination with a mandrel comprising a rigid destructible support of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel being provided with transverse openings of a supporting bed or die provided with openings, and a plunger or similar flanging-tool.

19. In apparatus for use in forming wrought-metal tubular articles, the combination with a mandrel comprising a hollow body provided with rigid internal supports to strengthen the same and with alining openings in its opposite sides, of a bed die or support provided with apertures, a plunger, and a separate body adapted to be forced by said plunger through the openings in the walls of the tube in order to flange the same.

20. In apparatus for forming wrought-metal tubular articles, the combination with a mandrel comprising a destructible hollow rigid body of the desired form adapted to be inserted in the tube and have the latter pressed thereupon, said mandrel having alining openings formed in its opposite walls, of a bed die or support provided with recesses, a plunger, and a flanging device separate from the plunger and adapted to be forced by the same through the openings in the walls of the tube to flange the same.

21. In apparatus for forming wrought-metal tubular articles, the combination with a mandrel comprising a hollow cast-iron body having transverse struts extending between its upper and lower faces and provided with alining openings in its side walls, of a bed die or support provided with apertures, a plunger, and a flattened ball adapted to be forced by the plunger through the holes of the side walls of the tube to flange the same.

693,179. **METHOD OF SHAPING WROUGHT-METAL TUBULAR ARTICLES OF IRREGULAR SHAPE.** JAMES P. SHEDDON, Barberton, Ohio, assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,548. (No model.)



Claim.—1. The method of shaping tubular wrought-metal articles of varying cross-section longitudinally, which consists in heating a tube rectangular in cross-section, and then subjecting the same exteriorly on opposite side faces for the full width thereof to pressure in opposition to an internal support, whereby the remaining side walls are upset and the article shaped.

2. The method of forming wrought-metal tubular articles, which consists in heating a tube rectangular in cross-section, supporting said tube on the interior at alternately-opposite points, and then while so interiorly supported pressing the intervening portions of the top and bottom walls of said tube inward for the full width of said walls, whereby the side walls are upset and the article shaped.

3. The method of shaping tubular wrought-metal articles of varying cross-section longitudinally, which consists in taking a tube rectangular in cross-section which is larger in one dimension than the finished article, heating the same, supporting said tube on the interior, and then subjecting the same exteriorly on opposite side faces for the full width thereof

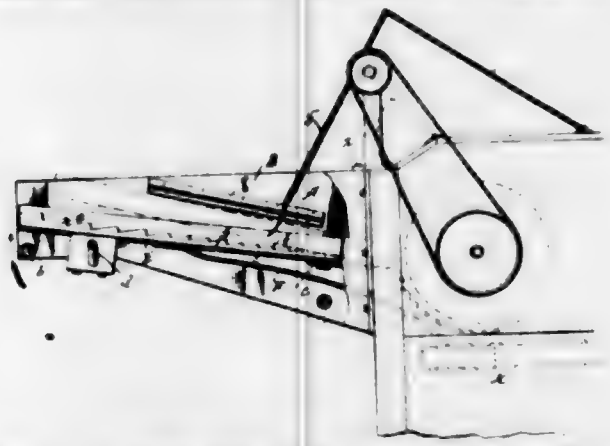
to pressure in the direction of its excessive dimension, whereby the remaining side walls are upset and the article shaped.

4. The method of forming wrought-metal tubular articles of varying cross-section longitudinally, which consists in heating a tube rectangular in cross-section, supporting the same on the interior, and while so interiorly supported pressing the top and bottom walls of said tube inward for the full width thereof, whereby the side walls are upset, and then subjecting said side walls to external pressure against an internal support whereby they are smoothened and the metal properly distributed.

5. The method of shaping wrought-metal tubular articles of varying cross-section longitudinally, which consists in heating a tube rectangular in cross-section, supporting the same on the interior, and while so interiorly supported subjecting the said tube alternately to pressure on its top and bottom faces for the full width thereof, and to pressure on the side walls, whereby the side walls are progressively upset and the metal therein smoothened out and properly distributed.

6. The method of shaping wrought-metal tubular articles of varying cross-section longitudinally, which consists in heating a tube rectangular in cross-section, supporting the same internally and confining the side walls of the tube internally and externally, and then pressing portions of the top and bottom walls inward for the full width thereof, whereby the side walls of the tube are upset and the article shaped.

698,180. THRESHING-MACHINE. SIDNEY SOUTHWORTH, Charlotte, Mich. Filed Dec. 22, 1900. Serial No. 40,723. (No model.)



Claim.—In a feeding device for threshing-machines, the combination of a movable feed-board, provided with apertures and with strips extending lengthwise the feed-board said strips being serrated with teeth that are large at the outer end and which gradually diminish in size toward the cylinder end, a seed-conductor located below and secured to the apertured feed-board and arranged to deliver seed under the concave of the threshing-machine, and reciprocating forks arranged to reach toward the feed-board and to push back and upward a part of the straw, thereby loosening the straw and allowing loose seeds to drop through the straw to and through the feed-board onto the conductor, substantially as described.

698,181. MOTOR-VEHICLE FRAME. JOHN L. SPENCER, Elmira Heights, N. Y., assignor of one-half to Le Roy Tabor, Elmira, N. Y. Filed Aug. 8, 1901. Serial No. 71,340. (No model.)



Claim.—1. A vehicle-frame comprising front and rear axles and two reaches connecting said axles, said reaches at one end being journaled in stationary sleeves set upon the axles at right angles thereto, and at the other end being provided with coupling-heads joined to the axles by pin connections set parallel to the axles, similar coupling devices being placed in reverse order on the respective reaches.

2. A vehicle-frame comprising front and rear axles and two straight reaches connecting said axles, said reaches at one end being journaled in stationary sleeves set transversely upon the axles in alinement with the reaches and at the other end being provided with coupling-heads joined to the axles by pin connections set parallel to the axles, similar coupling devices being placed in reverse order on the respective reaches.

3. A vehicle-frame comprising front and rear axles and two reaches connecting said axles, said reaches at one end being journaled in sleeves rigidly set upon the axles in a transverse position thereto with brace-bars running from the inner ends of the sleeves to the axles and rigidly connected therewith, and at the other end being provided with coupling-heads and brace-bars joined to the axles by pin connections set parallel to the axles and in alinement with one another, similar coupling devices being placed in reverse order on the respective reaches.

698,182. BELT-TIGHTENING TOOL. HERMAN W. STONE, Jr., Morris, Minn. Filed Nov. 13, 1900. Serial No. 36,407. (No model.)



Claim.—1. A belt-tightening device comprising a pair of plates, one of which engages the other to hold the same against relative movement, and a single member for effecting the release of the plates, for moving them in opposite directions, and for effecting their reëngagement at a different point.

2. A belt-tightening device comprising a pair of plates, one of which directly engages the other to hold the same against relative movement, and a tightening-lever directly engaging each of said plates to move them laterally for the purpose of effecting their disengagement, to thereafter move the plates longitudinally to tighten the belt, and finally, to effect the reëngagement of the plates at a different point.

3. A tightener comprising a pair of plates provided with coöperating retaining means, and a tightening-lever having terminal engagement with one plate and provided with a plain bearing-face engaged by the other plate, whereby the movement of the lever from one angular position will effect the disengagement of the plates and will thereafter move the plates in opposite directions, and in a reverse angular position will cause one of the plates to advance along the inclined bearing-face to effect the reëngagement of the plates at an advanced point.

4. A tightener comprising a female plate provided with a series of openings, a male plate provided with a lateral projection designed to engage said openings, and also provided with a slot, and a tightening-lever passed through the slot and having a plain bearing-face sustaining the strain upon the male plate and provided with a terminal beak engaging an opening in the female plate, whereby the initial movement of the lever will cause the male plate to recede from the female plate to effect the withdrawal of the projection, and whereby the reëngagement of said projection is effected by such movement of the lever as will establish a reverse angular relation of the bearing-face to cause the male plate to approach the female plate.

5. A tightener comprising a female plate provided with a series of openings, an angular male plate provided with a curved end having a retaining-stud extending toward the female plate, said male plate being provided with a slot, and a tightening-lever provided with a terminal beak engaging an opening in the female plate and having a plain bearing-face opposed to the end wall of the slot of the male plate and terminating in a shoulder designed to limit the movement of the male plate in one direction.

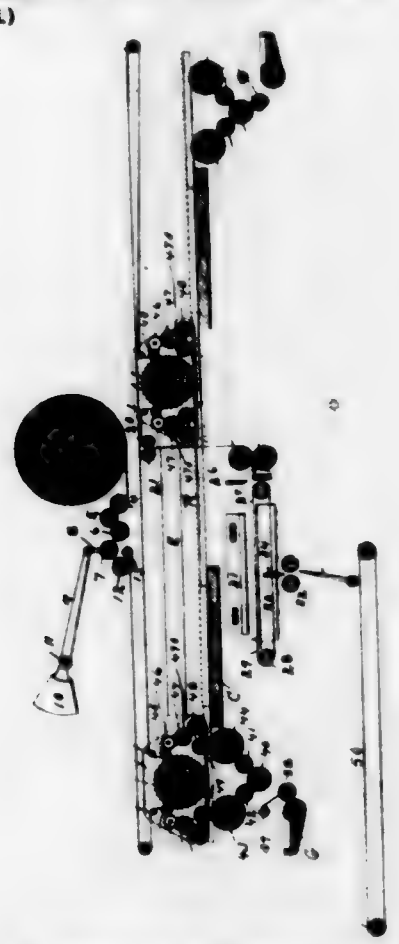
6. A tightener comprising a pair of plates provided with coöperat-

ing retaining means, a tightening-lever arranged to move the plates both laterally and longitudinally to cause the tightening of a belt and to effect the disengagement and reëngagement of the retaining means, and means carried by the lever for limiting the lateral movement of one of the plates.

7. The combination with a pair of plates, of a tightening-lever designed to constitute the sole tightening member and provided with a beak for engagement with one of said plates, and with a plain bearing-surface terminating in a shoulder designed to limit the lateral movement of the other plate.

8. A belt-tightening device comprising a pair of plates disposed for direct engagement with each other, and a tightening device engaging one plate and having a plain face in engagement with the other plate, said face being disposed at an angle to cause said last-named plate to slide upon said face to effect the disengagement of the plates during the initial movement of the device, and said face being disposed at a different angle during the final movement of the tightening device to cause the reëngagement of the plates at a different point.

693,183. PRINTING-PRESS. JOHN H. STONEBRATE, Brooklyn, N. Y., assignor, by mesne assignments, to the Campbell Printing Press & Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Sept. 22, 1892. Renewed July 1, 1901. Serial No. 67,010 (No model.)



Claim.—1. The combination in a printing-press of a stationary form-bed, a traveling carriage carrying an impression-cylinder coacting with the form-bed, a form-inking roller mounted in the carriage at each side of the impression-cylinder, and a single ink supplying mechanism comprising independent distributing devices arranged to supply ink to each of said form-rollers when the impression-cylinder is over the inking apparatus.

2. The combination in a printing-press of a form-bed, a traveling impression-cylinder coöperating therewith, a form-roller mounted on each side of the impression-cylinder, a single inking apparatus mounted at one end of the bed and containing two distributing-cylinders arranged to supply ink to both said form-rollers when the impression-cylinder is off impression toward the inking apparatus.

3. The combination in a printing-press of a form-bed, a traveling impression-cylinder coöperating therewith, a form-roller mounted on each side of said impression-cylinder, two distributing-cylinders arranged at one end of said bed, and a single ink-fountain arranged to supply ink to both of said distributing-cylinders, the whole so arranged that said form-rollers will take ink from said distributing-cylinders when the impression-cylinder is off the form-bed.

4. The combination in a printing-press of a form-bed, a traveling impression-cylinder coöperating therewith, a dropping form-roller and a distributing-roller mounted at each side of the impression-cylinder, an ink-supplying apparatus arranged at one end of the bed, and means whereby said dropping-rollers will leave their distributing-rollers and obtain ink from said ink-supplying device when the impression-cylinder is off impression.

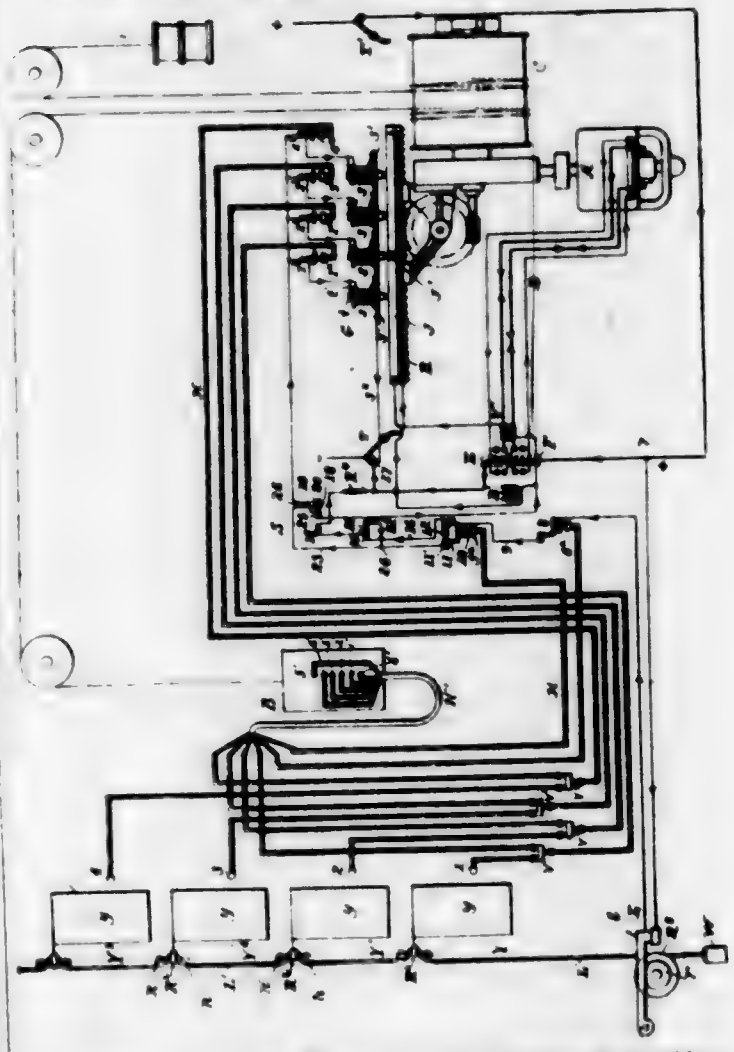
5. The combination in a printing-press of a form-bed, a traveling impression-cylinder coöperating therewith, form-rollers and distributing-rollers mounted at each side of said impression-cylinder, an ink-supplying device for said form-rollers arranged at one end of said bed, and means whereby said form-rollers will leave their distributing-rollers, and take ink from the supplying apparatus when the impression-cylinder is off impression.

6. The combination in a printing-press of a form-bed, a traveling impression-cylinder coacting therewith, two form-rollers and a distributing-roller arranged at each side of said impression-cylinder, an ink-supplying device for both of said sets of form-inking rollers arranged at one end of the bed, and means whereby one of the form-rollers of each set will leave its distributing-roller and take a supply of ink from the supplying apparatus when the impression-cylinder is off impression.

7. The combination in a printing-press of two form-beds, a traveling impression-cylinder coacting with each form-bed, a plurality of form-inking rollers arranged at each side of each of said cylinders, an inking apparatus comprising two distributing-cylinders, and means for supplying ink to said distributing-cylinders arranged at one end of each of said beds, and means whereby one of the form-rollers at each side of each impression-cylinder will take ink from the distributing-cylinders.

8. The combination in a printing-press of two form-beds arranged in horizontal planes, a traveling carriage carrying an impression-cylinder coacting with each of said form-beds, a form-roller arranged at each side of each impression-cylinder, and an inking apparatus comprising two distributing-cylinders, and means for supplying ink to said distributing-cylinders arranged at the outer end of each of said beds.

693,184. ELECTROPNEUMATIC CONTROL SYSTEM FOR ELEVATORS. AUGUST SUNDH, Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J., a Corporation of New Jersey. Filed Sept. 20, 1901. Serial No. 76,126. (No model.)



Claim.—1. In a controlling apparatus for elevators, the combination with a motor, car, and stations, of pneumatic devices and connections for calling and sending the car from one station to another operating in conjunction with the electrical motor-controlling means, substantially as described.

2. In an apparatus for controlling elevators, the combination with a motor, and its electrical controlling means, of a pneumatically-controlled floor-controller connected to said controlling means substantially as described.

3. In an apparatus for controlling elevators, the combination with a motor, and its reversing-switch, of a pneumatically-controlled floor-controller connected to said reversing-switch, substantially as described.

4. In an apparatus for controlling elevators, the combination with a motor, car, and stations, of electrical controlling means for the motor, a floor-controller connected to said controlling means, and pneumatic means connected to the car and stations for controlling the operation of the floor-controller, substantially as described.

5. In an apparatus for controlling elevators, the combination with a motor, car, and stations, of electrical controlling means for the motor, a floor-controller connected to said controlling means, and pneumatic means connected to the stations for controlling the operation of the floor-controller, substantially as described.

6. In an apparatus for controlling elevators, the combination with a motor, car, and stations, of electrical controlling means for the motor, a floor-controller connected to said controlling means, and pneumatic means connected to the car for controlling the operation of the floor-controller, substantially as described.

7. The combination with a motor, car, and stations, of electrical controlling means for the motor controlled by pneumatic means connected to the car and stations, substantially as described.

8. The combination of stations, a car, an electric motor for operating the same, and pneumatic means connected to the car and stations for controlling said motor, substantially as described.

9. In an elevator, the combination with a motor, car, and stations, of electrical controlling means for the motor controlled by pneumatic means connected to the stations, substantially as described.

10. The combination with a motor, car, and stations, of electrical circuits, switches therein controlling said motor, and pneumatic means connected to the car for controlling the operation of said switches, substantially as described.

11. In an apparatus for controlling elevators, the combination with a motor, car, and stations, of controlling means for the motor, pneumatic devices for the floors or stations, pneumatic devices on the car corresponding to the floors or stations, pneumatic connections between the devices on the car and the corresponding devices at the stations, and common pneumatic connections therefrom to said motor-controlling means, substantially as described.

12. In an apparatus for controlling elevators, the combination with a motor, of a reversing-switch, a floor-controller, circuits connected to the floor-controller and switch, and pneumatic operating devices and connections for controlling said circuits, substantially as described.

13. In an apparatus for controlling elevators, the combination with a motor, car, and stations, of a reversing-switch for the motor, a floor-controller, circuits connecting the floor-controller and reversing-switch, and pneumatic operating devices and connections connected to the floors or stations and car for controlling said circuits, substantially as described.

14. In an apparatus for controlling elevators, the combination with an elevator-motor, of pneumatic push-buttons for the floors or stations, pneumatic push-buttons on the car corresponding to the several floors or stations, with pneumatic connections including the push-buttons and the controlling devices of the motor for controlling the operation of the motor, substantially as set forth.

15. In an apparatus for controlling elevators, the combination with an elevator-motor, of a set of pneumatic push-buttons for the floors or stations, a set of pneumatic push-buttons on the car corresponding to the several floors or stations with pneumatic connections including the push-buttons and the controlling devices of the motor for controlling the operation of the motor, and means for preventing the subsequent control of the motor from one set of push-buttons after it has been operated from the other set, substantially as set forth.

16. In an apparatus for controlling elevators, the combination with an elevator-motor, of pneumatic push-buttons for the floors or stations, pneumatic push-buttons on the car corresponding to the several floors or stations, with pneumatic connections including the push-buttons and the controlling devices of the motor for controlling the operation of the motor, and means for preventing the subsequent control of the motor from a floor or station after it has been operated from the car and stopped, substantially as set forth.

17. In an apparatus for controlling elevators, the combination with a motor for operating the car in either direction, of a pneumatic push-button for each floor or station, pneumatic push-buttons on the car corresponding to the several floors or stations, controlling circuits and devices for the motor, and pneumatic controlling connections between the push-buttons and the controlling devices of the motor, so arranged that when any push-button is operated, circuits are completed and the motor operated to bring the car to the station corresponding to the push-button, substantially as set forth.

18. In an apparatus for controlling elevators, the combination with a motor for operating the car in either direction, a pneumatic push-button for each floor or station, pneumatic push-buttons on the car corresponding to the several floors or stations, controlling circuits and devices for the motor, and pneumatic controlling connections between the push-buttons and the controlling devices of the motor, so arranged that when any push-button is operated, the controlling-circuits are completed and the motor operated to bring the car to the station corresponding to the push-button, and means for preventing subsequent interference with the operation of the motor after it is started, substantially as set forth.

19. In an apparatus for controlling elevators, the combination with the motor for operating the car in either direction, of a pneumatic push-button for each floor or station, pneumatic push-buttons on the car corresponding to the several floors or stations, controlling-circuits and devices for the motor, and pneumatic controlling connections between the push-buttons and the controlling devices of the motor, so arranged that when any push-button is operated, the controlling-circuits are completed and the motor operated to bring the car to the station corresponding to the push-buttons, and means for preventing the subsequent control of the motor from a floor or station, both before and after the motor has come to rest, after it has been operated from the car, substantially as set forth.

20. In an elevator, a controlling device comprising a flat contact-strip connected to a moving part of the apparatus and having an insulated portion, contacts movable relative to the strip in a direction substantially perpendicular thereto, means for causing said contacts to impinge directly upon said strip, means for withdrawing them out of contact therewith, and for normally holding them out of contact, and auxiliary means for moving said contacts out of contact with the strip, in case contact is not promptly broken, substantially as set forth.

21. In an elevator, a control device comprising a flat contact-strip having an insulated portion, contact-pieces movable relative to the strip in a direction substantially perpendicular thereto, normally out of contact therewith but adapted to impinge directly thereon, means for moving said contact-pieces into contact with the strip, and means on the strip for breaking contact in case of emergency, substantially as set forth.

22. In an elevator, a floor controller or controlling device comprising a contact-strip connected to a moving part of the apparatus and having an insulated portion, armatures having contacts movable relative to the strip in a direction substantially perpendicular thereto, normally out of contact therewith, but adapted to impinge directly thereon, electromagnets controlling the operation of said armatures, and auxiliary means on the strip for breaking contact, substantially as set forth.

23. In an elevator, a floor controller or controlling device comprising a contact-strip connected to a moving part of the apparatus and having an insulated portion, armatures having contacts movable relative to the strip in a direction substantially perpendicular thereto, normally out of contact therewith, but adapted to impinge directly thereon, electromagnets controlling the operations of said armatures, and auxiliary circuit-breaking means consisting of hubs on the strip for moving the contacts out of contact with the strip, substantially as set forth.

24. In an apparatus for controlling elevators, the combination with the car, the motor and supply-mains therefor, of a safety-circuit between the mains controlled from the car, and in turn controlling circuits, in parallel to said safety-circuit, the said parallel circuits including electroreceptive devices controlling the operation of the motor-starting devices, substantially as set forth.

25. In an apparatus for controlling elevators, the combination with the car, the motor and supply-mains, of a normally open safety-circuit controlled from the car, and controlling normally open circuits containing controlling devices and normally closed contacts adapted to prevent interference after the motor has started, said controlling devices controlling circuits including the motor-starting devices, substantially as set forth.

26. In an apparatus for controlling elevators, the combination of the car, its operating-motor and supply-mains therefor, of a safety-circuit between the mains controlled from the car and including a safety-magnet, circuits, including controlling-magnets, controlled by said safety-magnet, and circuits including motor-starting devices controlled by said controlling-magnets, substantially as set forth.

27. In an apparatus for controlling elevators, the combination of the car, its operating-motor and supply-mains therefor, of a safety-circuit between the mains controlled from the car and including a safety-magnet and a circuit-closing magnet, circuits, controlled by said safety and circuit-closing magnets, said circuits including controlling-magnets controlling the starting and stopping and direction of rotation of the motor, substantially as set forth.

28. In an apparatus for controlling elevators, the combination with the car, its operating-motor and supply-mains, of a normally open safety-circuit controlled from the car, said safety-circuit including an electromagnet for operating normally open contacts of parallel circuits, the said parallel circuits including normally closed contacts and other normally open contacts controlled from the car and also including electroreceptive devices, said safety-circuit including one winding of a safety-magnet con-

trolling the operation of the normally closed contacts of said parallel circuits, and circuits controlled by said electroreceptive devices, in parallel to said parallel circuits and including another winding of said safety-magnet and the devices for starting the motor and for controlling its direction of rotation, substantially as set forth.

29. The combination with an elevator-car, its operating-motor and supply-mains, of a normally open circuit controlling normally open contacts of a second circuit including other normally open contacts and normally closed contacts and also including controlling devices controlling a third circuit containing the motor-starting devices, said normally closed contacts being controlled by both the first and third circuits, substantially as set forth.

30. The combination with an elevator-car, its operating-motor and controlling-circuits, of a normally open safety-circuit controlling a second normally open circuit in parallel thereto including controlling devices and normally closed contacts, said normally closed contacts being controlled by the joint operation of said safety-circuit and a third circuit controlled by said controlling devices, substantially as set forth.

31. In an apparatus for controlling elevators, the combination with a car and its motor, of controlling means for the motor comprising a circuit controlling a second circuit in parallel thereto, said second circuit including normally closed contacts and controlling devices controlling a third circuit bridging said normally closed contacts, and means included in both the first and third circuits for controlling said normally closed contacts of the second circuit, substantially as set forth.

32. In an apparatus for controlling elevators, the combination with the car, its motor and supply mains, of a safety-circuit, a circuit controlled thereby and including controlling-switches and devices controlling the starting and stopping of the motor, and means for cutting said controlling-switches out of circuit after the motor has started to prevent interference, substantially as set forth.

33. In an elevator-controlling apparatus, the combination with the car and electric motor and its connections, of a safety-circuit, a circuit controlled thereby and including normally closed contacts and also including controlling-switches and devices controlling the starting and stopping of the motor, and means for opening said normally closed contacts to cut out said controlling-switches to prevent interference, substantially as set forth.

34. In apparatus for controlling elevators, the combination with the elevator-motor and its connections, of a safety-circuit, a circuit controlled thereby and including normally closed contacts and also including controlling-switches and devices controlling other circuits including the starting devices of the motor, and means controlled by said other circuits and the safety-circuit, for operating the normally closed contacts to cut out the controlling-switches after the car has started, to prevent interference, substantially as set forth.

35. In an apparatus for controlling elevators, the combination with the car, its motor and electrical connections therefor, of a circuit including normally open switches, also normally closed contacts and controlling devices, a safety-circuit containing means for maintaining said normally closed contacts open after they have been initially opened, and circuits controlled by said controlling devices including motor-operating devices and also including means for initially opening said normally closed contacts thereby preventing interference, substantially as set forth.

36. In an electropneumatic apparatus for controlling elevators, the combination with a car and its motor, of a pneumatically-controlled safety-circuit which controls circuits including controlling devices and also normally open and normally closed switches, pneumatic means for operating said normally open switches, other circuits including motor-controlling means controlled by said controlling devices, and means included in the safety-circuit and said other circuits for operating said normally closed switch to prevent interference, substantially as set forth.

37. In an electropneumatic apparatus for controlling elevators, the combination with the car and its motor, of a pneumatically-controlled safety-circuit, controlling-circuits containing controlling devices and also normally-open and normally closed switches, pneumatic means for operating said normally open switches, other circuits including motor-controlling means, controlled by said controlling devices, and means in said other circuits for initially opening said normally closed switch, and means in the safety-circuit for maintaining it open after the car has stopped, substantially as set forth.

38. The combination with the car, stations, motor and its controlling devices, of a set of pneumatic push-buttons on the car, a set of pneumatic push-buttons for the floors or stations, pneumatic connections between the push-buttons and motor-controlling devices, and means in said connections for preventing an impulse from one of a set of buttons reaching those of the other set, substantially as set forth.

39. The combination with the car, stations, motor and its controlling devices, of a set of pneumatic push-buttons on the car, a set of pneumatic push-buttons for the floors or stations, pneumatic connections between the push-buttons and motor-controlling devices, and valves in said connections for preventing an impulse from one set of buttons reaching those of the other, substantially as set forth.

40. In an elevator, the combination with the car and motor, of controlling-circuits for the motor, and mechanical means connecting the well-doors for controlling said controlling-circuits, substantially as set forth.

41. In an elevator, the combination with the car and motor, of controlling-circuits for the motor, and mechanical means connecting the well-doors whereby when any door is opened the circuit is broken, substantially as set forth.

42. In an elevator, the combination with the car and motor, of controlling-circuits for the motor, a switch in the controlling circuits, and mechanical means connecting said switch and the well-doors, whereby when any door is opened and closed the controlling-circuit is broken and made, substantially as set forth.

43. In an elevator, the combination with a car and motor, of controlling-circuits for the motor, a switch in the controlling-circuits, and mechanical connection between said switch and the well-doors whereby when any door is opened the controlling-circuit is broken, substantially as set forth.

44. In an elevator, the combination with the car and motor, of controlling-circuits for the motor, a switch in the controlling-circuits, and means connecting said switch with the well-doors whereby when any door is opened, the controlling-circuit is broken, substantially as set forth.

45. In an elevator, an electrical controlling device for determining the travel of the car, comprising a contact-piece connected to a moving part of the apparatus, an insulated portion on said contact-piece, a plurality of contacts adapted to impinge upon said contact-piece, and means for regulating the length of time a contact is in electrical connection with the contact-piece, substantially as set forth.

46. In an elevator-control apparatus, an electrical controlling device for determining the travel of the car comprising a contact-piece moving proportionately to the travel of the car and connected to the motor-controlling circuits, a plurality of contacts corresponding to a floor or station, adapted to make contact with the contact-piece and also connected to the motor-controlling circuits, and means for regulating the length of time electrical connection is maintained between a contact and the contact-piece, substantially as described.

47. In an electropneumatic apparatus for controlling elevators, the combination with the car, the motor and supply-mains therefor, of a pneumatically-controlled safety-circuit between the mains, in turn controlling in conjunction with pneumatic means, circuits in parallel with said safety-circuit, said parallel circuits including electroreceptive devices controlling the operation of the motor-starting devices, substantially as set forth.

48. In an electropneumatic apparatus for controlling elevators, the combination with the car, the motor and supply-mains, of a normally open safety-circuit controlled by pneumatic means, normally open circuits jointly controlled by pneumatic means and by said safety-circuit, the said normally open circuits containing controlling devices and also normally closed contacts adapted to be opened after the motor has started to prevent interference, and the said controlling devices controlling circuits including the motor-starting devices, substantially as set forth.

49. In an apparatus for controlling elevators, the combination with the car, the motor and supply-mains, of a safety-circuit across the mains, and means for controlling the same, the said safety-circuit controlling normally open circuits including controlling devices and normally closed contacts for preventing interference after the motor has started, and the said controlling devices controlling circuits including the motor-starting devices, substantially as set forth.

50. In an apparatus for controlling elevators, the combination with the car, the motor and supply-mains therefor, of a safety-circuit between the mains, means for controlling the same, the said safety-circuit in turn controlling circuits in parallel with the same, and the said parallel circuits including electroreceptive devices controlling the operation of the motor, substantially as set forth.

51. In an electropneumatic apparatus for controlling elevators, the combination with the car, the motor and supply-mains, of a safety-circuit across the mains controlled by pneumatic means from the car, normally open circuits jointly controlled by pneumatic means from the car and said safety-circuit, the said normally open circuits containing controlling devices and also containing normally closed contacts adapted to prevent interference after the motor is started, and the said controlling devices controlling circuits including the motor-starting devices, substantially as set forth.

52. In an electropneumatic device for controlling elevators, the combination of the car, its operating-motor and supply-mains therefor, of a safety-circuit controlled by pneumatic means and including a safety-magnet, circuits including controlling-magnets jointly controlled by pneumatic means and said safety-magnet, and circuits including motor-starting devices controlled by said controlling-magnets, substantially as set forth.

53. In an electropneumatic apparatus for controlling elevators, the combination with the car and its operating-motor and supply-mains there-

for, of a safety-circuit controlled pneumatically from the car and including a safety-magnet and a circuit-closing magnet, and circuits jointly controlled by pneumatic means and by said safety and circuit-closing magnets, the said circuits including controlling-magnets controlling the operation of the motor, substantially as set forth.

54. In an electropneumatic apparatus for controlling elevators, the combination with the car, its operating-motor and supply-mains, of a normally open safety-circuit pneumatically controlled from the car, said safety-circuit including an electromagnet for operating normally open contacts of parallel circuits, the said parallel circuits including normally closed contacts and other normally open contacts controlled pneumatically from the car and stations, and also electroreceptive devices, said safety-circuits also including one winding of a safety-magnet controlling the operation of the normally closed contacts of said parallel circuits, and circuits controlled by said electroreceptive devices, in parallel with said parallel circuits and including another winding of said safety-magnet and the devices for starting the motor and for controlling its direction of rotation, substantially as set forth.

55. The combination with an elevator-car, its operating-motor and supply-mains, of a normally open pneumatically-controlled circuit controlling normally open contacts of a second circuit including other normally open pneumatically-controlled contacts and normally closed contacts and also including controlling devices controlling a third circuit containing the motor-starting devices, the said normally closed contacts being conjointly controlled by both the first and third circuits, substantially as set forth.

56. The combination with an elevator-car, its operating-motor and controlling-circuits, of a normally open pneumatically-controlled safety-circuit controlling a second circuit in parallel therein including normally open pneumatically-controlled contacts, controlling devices and normally closed contacts, the said normally closed contacts being controlled by the joint operation of said safety-circuit and a third circuit controlled by said controlling devices, substantially as set forth.

57. In an electropneumatic apparatus for controlling elevators, the combination with the car, its motor and electrical connections therefor, of a circuit including normally open switches, also normally closed contacts and controlling devices, pneumatic means for controlling the said normally open switches, a pneumatically-controlled safety-circuit containing means for maintaining said normally closed contacts open after they have been initially opened, and circuits controlled by said controlling devices including motor-operating devices, and also including means for initially opening said normally closed contacts, thereby preventing interference, substantially as set forth.

58. In an apparatus for controlling elevators, the combination with the motor for operating the car, of controlling-circuits and connections including a reversing-switch and a floor-controller, the floor-controller comprising a flat contact connected with the moving part of the apparatus, and having an insulated portion, contacts adapted to impinge upon said flat contact and to be withdrawn therefrom, and means for actuating said contacts, substantially as set forth.

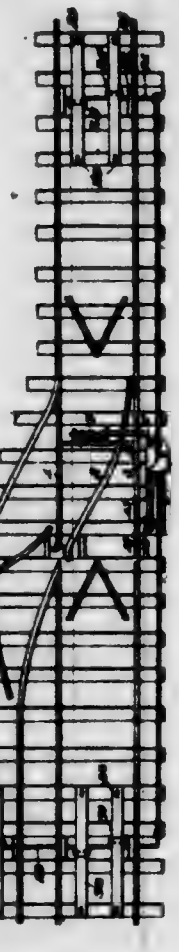
59. In an apparatus for controlling elevators, the combination with the motor for operating the car, of controlling-circuits and connections including a reversing-switch and a floor-controller, said floor-controller comprising a movable contact having an insulated portion, normally open contacts adapted to be brought into electrical connection with said movable contact and to slide thereon, and means for actuating said contact, substantially as set forth.

698,185. SWITCH-THROWING DEVICE. PETER L. SWARE, Conemaugh, Pa. Filed Oct. 17, 1901. Serial No. 78,997. (No model.)

Claim.—1. In a switch, the combination with the movable switch-tongues having a bridle connected thereto, of depressible actuating-bars, each composed of two sections hinged together at their meeting ends, said bars being arranged in pairs between the rails of the track, the other ends of each of said sections having slots therein, headed pins carried by the ties for engagement in said slots, means for mounting said bars whereby when one bar is depressed the other bar will be raised, a bell-crank carried by the bridle, a connection between said bell-crank and said means, spring-pressed locking means connected to said connection, and means for actuating said bars from a moving train or car, substantially as described.

2. In a switch, the combination with the movable switch-tongues having a bridle connected thereto, of depressible actuating-bars arranged in pairs at each end of the side track, each of said actuating-bars being composed of two sections hinged at their one ends and having slots formed in their other ends with headed pins operating in the slots, each pair of said bars being mounted on oppositely-disposed bell-cranks, a connection between said bell-cranks, and said bridle, a plate having a spring-pressed locking device pivotally mounted thereon, and a connection between the bell-cranks of the bars on the opposite end of the main tracks and the side track with the first-named connection for engaging said locking device, substantially as described.

3. In a switch, the combination with the main and the side track and movable switch-tongues connected to a bridle, of actuating-bars arranged in pairs at opposite ends of the main track and one pair in the side track, each of said bars comprising two sections hinged together at their one ends and having slots in their other ends, headed pins carried by the cross-ties and engaging in said slots, oppositely-disposed bell-cranks upon which each of said pair of bars are mounted, a bell-crank connected to said bridle, connections between said oppositely-disposed bell-cranks on the side and main tracks and said bell-crank, a spring-pressed pivoted locking device, a dog carried thereby, a bushing carried by the said locking device for engagement with said dog, and means for actuating said bars from a moving train or car, substantially as described.



698,186. MANDREL FOR SHAPING HOLLOW OR TUBULAR WROUGHT-METAL ARTICLES. FRED D. SWEET, Pittsburg, Pa., assignor, by mesne assignments, to the Stirling Company, Jersey City, N. J., a Corporation of New Jersey. Filed Apr. 12, 1901. Serial No. 55,508. (No model.)



Claim.—1. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a body composed of a series of transverse sections and means for immovably securing said sections together to form a rigid body, said mandrel being adapted to be inserted in the tube and have the latter pressed thereupon and to be then removed therefrom.

2. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a body provided with a curved or sinuous face and composed of a series of sections and means for immovably securing said sections together to form a rigid body, said mandrel being adapted to be inserted in the tube and have the latter pressed thereupon and to be then removed therefrom.

3. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a body provided with oblique transverse corrugations and composed of a series of sections, and means for immovably securing said sections together to form a rigid body, said mandrel being adapted to be inserted in the tube and have the latter pressed thereupon and to be then removed therefrom.

4. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a body having a curved or sinuous face, said body being composed of a series of sections the meeting faces of which are parallel to the tangents to the points where the concave curves

merge into the convex curves, and means for securing said sections together.

5. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a serpentine body composed of a series of sections the meeting faces of which are parallel to the tangents to the points where the concave curves of the body merge into the convex curves, and means for securing said sections together.

6. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a serpentine body provided with oblique corrugations and composed of a series of sections the meeting faces of which are parallel to the tangents to the points where the concave curves of the body merge into the convex curves, and means for securing said sections together.

7. A block for a sectional mandrel for use in shaping wrought-metal headers or other tubular bodies, the same being of substantially rectangular shape and having one side formed on concave and convex meeting curves, and two straight sides which are parallel to the tangents drawn through the meeting-points of the convex and concave curves on the first-named side.

8. A block for a sectional mandrel for use in shaping wrought-metal headers or other tubular articles, the same having flat parallel side faces and being substantially rectangular in shape, and having one side formed on concave and convex meeting curves, and two straight sides which are parallel to the tangents drawn through the meeting-points of the convex and concave curves on the first side, and which are oblique or at an angle to the parallel side faces of said block.

9. A block for a sectional mandrel for use in shaping wrought-metal headers or other tubular articles, the same being of substantially rectangular shape and having one side formed on concave and convex meeting curves, and two straight sides which are parallel to the tangents drawn through the meeting-points of the convex and concave curves on the first side, said block being provided with an opening passing therethrough for receiving a tie-rod.

10. A block for a sectional mandrel for use in shaping wrought-metal headers or other tubular articles, the same being of substantially rectangular shape and having one side formed on concave and convex meeting curves, and two straight sides which are parallel to the tangents drawn to the meeting-points of the convex and concave curves on the first-named side, said block being provided with a recess for receiving a hook for withdrawing the same from the tube.

11. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a body having a curved or sinuous face, said body being composed of a series of sections, said sections being divided at the middle of the concave-curved portions of the face of the body and the meeting faces of said sections being parallel to the tangents to the points where the concave curves merge into the convex curves, and means for securing said sections together.

12. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a body having a curved or sinuous face, said body being composed of a series of sections, the meeting faces of which are parallel to the tangents to the points where the concave curves merge into the convex curves, and a tie-rod passing through said sections for removably securing the same together.

13. A mandrel for use in shaping wrought-metal headers or other tubular articles, the same comprising a body composed of a series of transverse sections provided with alining openings, and a tie-rod passing through said openings for rigidly securing said sections together.

14. A mandrel for use in shaping wrought-metal headers or other tubular articles provided with a diaphragm, the same comprising two longitudinal sections each composed of a series of blocks, means for immovably securing said blocks together, and means for uniting said longitudinal sections at their ends.

15. A mandrel for use in shaping wrought-metal headers or other tubular articles provided with a diaphragm, the same comprising two longitudinal sections provided with transverse corrugations, each section composed of a series of blocks, means for immovably securing said blocks together, and means for uniting said longitudinal sections at their ends.

16. A mandrel for use in shaping wrought-metal headers or other tubular articles provided with a diaphragm, the same comprising two longitudinal sections, each having a curved or sinuous face and composed of a series of blocks the meeting faces of which are parallel to the tangents to the points where the concave curves merge into the convex curves, means for securing said blocks together, and means for uniting said longitudinal sections at their ends.

17. A mandrel for use in shaping wrought-metal headers or other tubular articles having a diaphragm, the same comprising two longitudinal sections of serpentine form, said sections being composed of a series of blocks the meeting faces of which are parallel to the tangents to the points where the concave curves of the body merge into the convex curves, means for immovably securing said blocks together, and means for uniting said longitudinal sections at their ends.

693,187. COMBINED DOOR BUFFER AND CATCH. FRANK L. TERRELL, Swanton, Nebr. Filed July 10, 1901. Serial No. 67,781. (No model.)



Claim.—1. In a combined buffer and catch for doors, the combination, of a block having a forwardly-projecting guide-arm, a spring-catch having its hook portion depending below the guide-arm, and a spring-buffer at the inner end of the guide-arm, substantially as shown and described.

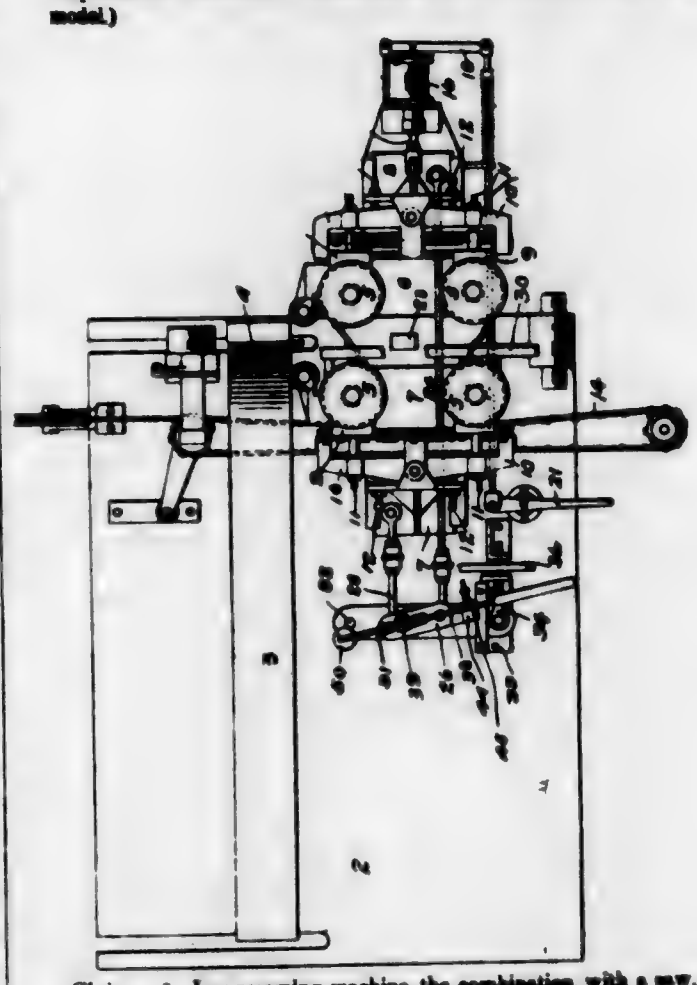
2. In a buffer and catch for doors, the combination, of a block having a guide-arm projecting forwardly therefrom, a spring-plate attached to the block and having a hook portion extended below the under side of the guide-arm, a buffer-plate slidable below the arm at the inner end thereof, and a spring interposed between the buffer-plate and block, substantially as shown and described.

3. In a buffer and catch for doors, the combination, of a block having a guide-arm projecting forwardly therefrom, a buffer-plate having a rod projecting through a hole in the block, and a helical spring mounted upon the rod and interposed between the plate and block; together with a spring-catch having its hook portion located in front of the buffer-plate, substantially as shown and described.

4. In a buffer and catch for doors, the combination, of a block having a guide-arm projecting forwardly therefrom, said guide-arm being provided with transverse slots, a flat spring secured to the rear end of the block and curved over the guide-arm, the free end of said spring being passed downward and upward through the slots, and a cross-bar at the forward end of the spring; together with a buffer-plate having a supporting-rod, and a spring interposed between said plate and the block, substantially as shown and for the purpose set forth.

5. In a combined buffer and catch for doors, a block having a guide-arm projecting forwardly from the upper end thereof, said guide-arm being provided with transverse slots presenting a cross-bar, a flat spring secured to the rear end of the block and having its forward or free end extended over the guide-arm and passed under the cross-bar to form a hook portion depending below said guide-arm, a cross bar or head at the free end of the spring or catch, a buffer-plate slidably mounted below the guide-arm, and a spring interposed between said buffer-plate and block, substantially as shown and described.

693,188. RESAWING DEVICE. EDWIN R. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Aug. 10, 1901. Serial No. 71,631. (No model.)



Claim.—1. In a resawing-machine, the combination, with a saw, of two sets of feed-rolls, movable brackets whereon said feed-rolls are sup-

ported respectively, a sway-bar pivoted at a point intermediate to its ends, rods connecting the ends of said bar and said brackets respectively, means for moving the pivot of said bar to center the saw with respect to said rolls, a suitable steam-cylinder provided with a piston and connected to one of said brackets, and a valve normally open to allow steam to enter said cylinder behind said piston, whereby said rolls will be held toward each other with a yielding pressure, substantially as described.

2. The combination, with the saw, of two sets of feed-rolls, brackets supporting said rolls, a pivoted sway-bar connected with each of said brackets, and means for changing the pivotal point of said sway-bar to coincide with its point of connection with one of said brackets, substantially as described.

3. The combination, with the saw, of two sets of feed-rolls, brackets supporting said rolls, a pivoted sway-bar connected with each of said brackets, means for changing the pivotal point of said sway-bar to coincide with its point of connection with one of said brackets, and a suitable steam-cylinder provided with a piston that is connected to one of said brackets, substantially as described.

4. The combination, with the feed-rolls and brackets, of the pivoted sway-bar connected with said brackets, the bridge-tree upon which said sway-bar is supported, the movable pivots, either one of which is adapted to connect said sway-bar to said bridge-tree and one coinciding with the point of connection of said bar to one of said brackets, and means for moving said pivots, substantially as described.

5. In a resawing-machine, the combination, with a saw, of feed-rolls, movable brackets whereon said rolls are supported, a sway-bar pivoted at a point intermediate to its ends, means connecting said ends respectively with said brackets, a bridge-tree whereon said sway-bar is supported, said tree being pivoted at one end, and means for adjusting its opposite end to move the pivot of said sway-bar toward or from the saw, for the purpose specified.

6. The combination, with the movable brackets and the feed-rolls carried thereby, of the pivoted sway-bar connected with each of said brackets, movable pivots either of which is adapted to connect said sway-bar with said bridge-tree and one coinciding with the point of connection of said bar to one of said brackets, and a lever for operating said pivots, substantially as described.

7. The combination, with the bridge-tree, of the sway-bar pivoted thereon, the feed-rolls and their movable supports connected with said bar, the pivoted lever, the pivot-pins connected with said lever, and means for locking said lever, substantially as described.

8. The combination, with the sway-bar, and pivot-pins, of the rolls and their movable supports connected with said bar, the movable lever 38, the upright 44, the studs 49, the bar 45 arranged upon said studs, and springs engaging said bar, substantially as described.

9. In a resawing-machine, the combination, with a saw, of feed-rolls arranged in pairs upon each side of the saw, movable supports for said rolls, a bar having its ends connected respectively with said supports and pivoted at an intermediate point to said ends, and means for changing the pivotal point of said bar to correspond with its point of connection with one of said supports, substantially as described.

10. In a resawing-machine, the combination, with a saw, of brackets provided on each side of the same, feed-rolls carried by said brackets, a cylinder having its piston connected with said brackets for simultaneously moving them toward or from said saw, a valve for said piston, an operating-lever, a rod connecting said lever and valve, and a spring provided on said rod and normally holding said valve in an open position, whereby steam is normally admitted to one side of the piston and tends to move said rolls and brackets toward the plane of the saw but permits them to yield as the lumber is fed to the saw, substantially as described.

11. In a resawing-machine, the combination, with a saw, of two sets of feed-rolls, movable brackets whereon said feed-rolls are supported respectively, a sway-bar pivoted at an intermediate point to its ends, means connecting the ends of said bar and said brackets respectively, a suitable steam-cylinder having a piston connected to one of said brackets, and a valve normally open to allow steam to enter said cylinder behind said piston, whereby said rolls will be held toward each other with a yielding pressure, substantially as described.

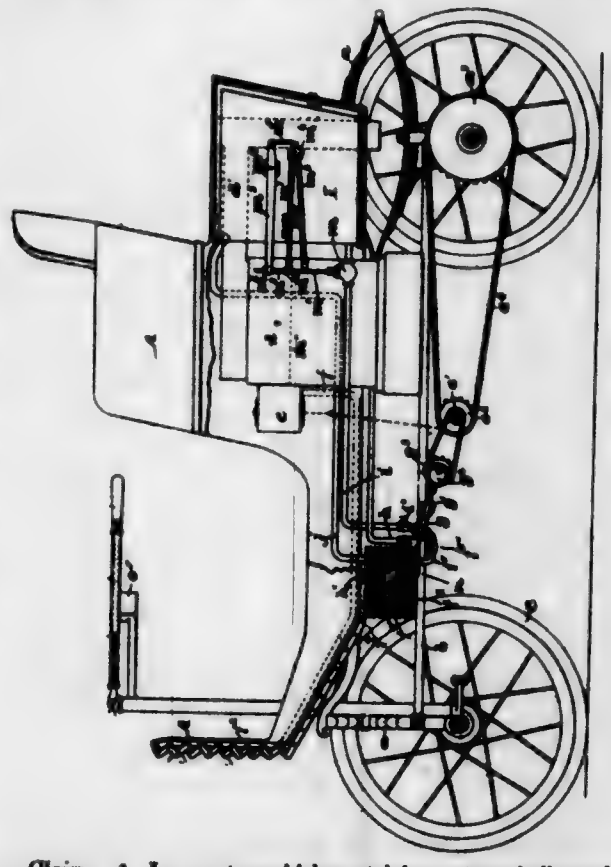
12. In a resawing-machine, the combination, with a saw, of the feed-rolls, movable supports whereon said rolls are arranged, a member having connections respectively with said supports and pivoted at an intermediate point, a fluid-pressure motor having a piston connected with one of said supports, and means for normally allowing pressure to enter said motor behind said piston whereby said rolls will be held toward each other with a yielding pressure.

13. In a resawing-machine, the combination, with a saw, of the feed-rolls, movable supports whereon said rolls are arranged, a member having connections respectively with said supports and pivoted at an intermediate point, a suitable steam-cylinder having a piston connected to one of said supports, and a valve normally open to allow steam to enter said cylinder behind said piston, whereby said rolls will be held toward each other with a yielding pressure.

698,189. PAPER-COATING PROCESS. ALEXANDER THOMSON, College Hill, Ohio. Filed Oct. 22, 1901. Serial No. 79,671. (No specimens.)

Claim.—The improved process of coating paper which consists, first, in applying to the surface of the paper a mixture of coating material and waterproof glue, second, brushing the coated surface, third, drying the coated and brushed paper, and fourth, calendering the coated brushed and dried paper in the presence of and under exposure to steam.

698,190. BOILER-FEEDER FOR MOTOR-VEHICLES. WILLIAM L. TOBEY, Winthrop, Mass. Filed Feb. 7, 1901. Serial No. 46,342. (No model.)



Claim.—1. In a motor-vehicle containing a steam-boiler and a condenser, a feed device having a plurality of sources of supply, one of which is supplied from said condenser and the other from a source independent of said condenser, and means governed by the water-level within the boiler to automatically control the supply of feed-water through said sources to said pump.

2. In a motor-vehicle the combination of an engine, a boiler, a condenser, a boiler-feed device having a plurality of sources of supply, one supplied by said condenser and the other from a source independent thereof, and two deliveries for said pump, one of which is normally open, and the other of which communicates with said boiler.

3. In a motor-vehicle the combination with a boiler, a feed device having a plurality of sources of feed-supply, and means governed by the water-level within the boiler for regulating the relative quantity of feed-water supply through said sources of feed-supply.

4. A motor-vehicle provided with an engine, a boiler therefor, its feed-pump, having a single delivery to said boiler and a plurality of sources of supply, said pump drawing principally through one source of supply, and means responsive to changes in the water-level within said boiler to regulate the amount of water drawn through the other of said sources of supply.

5. A motor-vehicle provided with an engine, a boiler therefor and its feed-pump, provided with a single delivery and a plurality of sources of supply with means responsive to changes in the water-level within said boiler to automatically cause one source of supply to make up the deficiency of another, thereby to maintain constantly the required capacity of the pump.

6. A motor-vehicle provided with an engine, a boiler therefor and its feed-pump having a normally open discharge independent of the pump-delivery, with means responsive to changes in the water-level within said boiler to govern the quantity of water delivered by said pump through said delivery.

7. A motor-vehicle provided with an engine, a boiler therefor and its feed-pump, having a source of feed-supply, a check-valve interme-

diate said source and said pump, an air-discharge between said pump and said source and independent of the normal pump-delivery, and means responsive to changes in the water-level within said boiler to regulate the quantity of water delivered by said pump through its said delivery

8. A motor-vehicle provided with an engine, a boiler therefor and a feed-pump having an air-discharge pipe independent of the pump-delivery and through which water is normally discharged when the pump is working at the required capacity and delivering also through its said delivery, air being discharged through said discharge-pipe when air accumulates within the pump, and means responsive to changes in the water-level within said boiler to regulate the delivery of said pump.

9. A motor-vehicle provided with an engine, a boiler therefor, its feed-pump, means responsive to changes in the water-level within the said boiler to regulate the supply by said pump, and an air-discharge for said pump through which contents of the pump are discharged at each stroke thereof.

10. A motor-vehicle provided with an engine, a boiler therefor, its feed-pump, means responsive to changes in the water-level within the said boiler to regulate the supply by said pump, and an open discharge for said pump through which contents of the pump are discharged at each stroke thereof.

11. In a motor-vehicle an engine, a boiler, a feed-pump therefor having a plurality of sources of supply, and a discharge-pipe independent of the main delivery-pipe of said pump and through which a part of the contents of the pump is discharged at each stroke of the latter for the purpose described.

12. In a motor-vehicle the combination with an engine, its boiler, a condensing apparatus connected with the exhaust for said engine, and a feed-water-supply tank, of a boiler-feed device connected with said condenser and said boiler-feed tank, and means whereby said boiler-feed device draws from said condenser and said tank in varying relative proportions to maintain the water-level within said boiler.

13. In a motor-vehicle the combination with an engine, its boiler, a condensing apparatus connected with the exhaust for said engine, and a feed-water-supply tank, of a boiler-feed device connected with said condensing apparatus and said tank and means governed by the water-level within said boiler and controlling the supply from said water-tank to said feed device.

14. In a motor-vehicle the combination wtih an engine, its boiler, a condensing apparatus, a feed-water tank, and a chamber or hot-well receiving the discharge from said condensing apparatus, of a boiler-feed device drawing from said chamber and delivering into said boiler, a connection between said tank and said pump and a vapor-outlet for said chamber.

15. In a motor-vehicle the combination with an engine, its boiler, a condensing apparatus, a feed-water tank, and a chamber or hot-well receiving the discharge from said condensing apparatus, of a boiler-feed device drawing from said chamber and delivering into said boiler, a connection between said tank and said pump and a discharge-pipe from said pump entering said chamber.

16. In a motor-vehicle the combination with an engine, its boiler, a condensing apparatus, a feed-water tank, and a chamber or hot-well receiving the discharge from said condensing apparatus, of a boiler-feed device drawing from said chamber and delivering into said boiler, a connection between said tank and said pump, a vapor-outlet for said chamber, and a discharge-pipe for said pump entering said chamber.

17. In a motor-vehicle, an engine, its boiler, a condensing apparatus connected with the exhaust for said engine, a feed-water-supply tank, a boiler-feed device connected with said condenser and said boiler-feed tank, and means whereby said boiler-feed device draws from said condenser and said tank in varying relative proportions to maintain the water-level within said boiler.

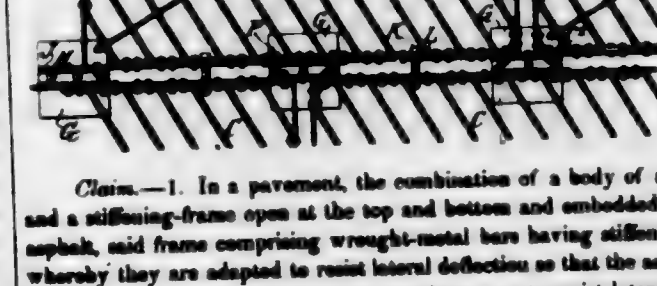
18. In a motor-vehicle, an engine, its boiler, a condensing apparatus connected with the exhaust for said engine, a feed-water-supply tank, a boiler-feed device connected with said condensing apparatus and said tank and means governed by the water-level within said boiler and controlling the supply from said water-tank to said feed device.

19. In a motor-vehicle, an engine, its boiler, a condensing apparatus, a feed-water tank, a chamber or hot-well receiving the discharge from said condensing apparatus, a boiler-feed device drawing from said chamber and delivering into said boiler, a connection between said tank and said pump and a vapor-outlet for said chamber.

20. In a motor-vehicle, an engine, its boiler, a condensing apparatus, a feed-water tank, a chamber or hot-well receiving the discharge from said condensing apparatus, a boiler-feed device drawing from said chamber and delivering into said boiler, a connection between said tank and said pump and a discharge-pipe from said pump entering said chamber.

21. In a motor-vehicle, an engine, its boiler, a condensing apparatus, a feed-water tank, a chamber or hot-well receiving the discharge from said condensing apparatus, a boiler-feed device drawing from said chamber and delivering into said boiler, a connection between said tank and said pump, a vapor-outlet for said chamber, and a discharge-pipe for said pump entering said chamber.

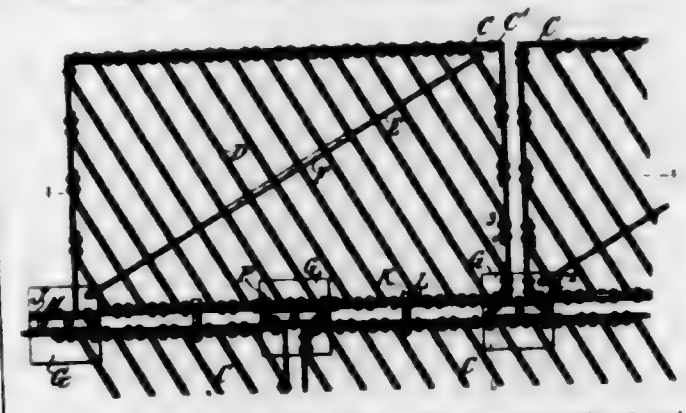
698,191. TOY BOWLING-ALLEY. MELCHIOR ULMER, New York, N. Y. Filed Aug. 30, 1901. Serial No. 73,854. (No model.)



Claim.—1. A toy bowling-alley, consisting of a rectangular board, two followers, one at each of the front corners of said board, follower-boxes for said followers, a field of pins on said board at the front of the same, cushions, one at each of the rear corners of said board, a cushioned end between said corner-cushions, said corner-cushions being composed each of a convex forward portion and a concave rear portion merging into said cushioned end and a ball of less diameter than the width of either follower-box, adapted to be thrown therefrom, substantially as set forth.

2. In a toy bowling-alley, the combination, with a board, and a field of pins at the front of said board, of a cushioned rear wall at the opposite end of the board, and corner-cushions also at the opposite end of the board at each end of said rear wall and composed each of a convex forward portion and a concave rear portion merging into said rear wall, substantially as set forth.

698,192. PAVEMENT. HENRY G. VOLKHAR, New York, N. Y. Filed May 16, 1901. Serial No. 60,521. (No model.)



Claim.—1. In a pavement, the combination of a body of asphalt and a stiffening-frame open at the top and bottom and embedded in said asphalt, said frame comprising wrought-metal bars having stiffening-ribs whereby they are adapted to resist lateral deflection so that the asphalt is divided into substantially independent sections so as to resist lateral transmission of vertical pressures on said asphalt

2. In a pavement, the combination of a body of asphalt, and a stiffening-frame open at the top and bottom and embedded in said asphalt, said frame comprising wrought-metal bars having stiffening-ribs whereby they are adapted to resist lateral deflection so that the asphalt is divided into substantially independent sections so as to resist lateral transmission of vertical pressures on said asphalt, and said frame being below the surface of said asphalt whereby said independent sections have a common continuous surface.

3. In a pavement, the combination of a body of asphalt, and a stiffening-frame open at the top and bottom and embedded in said asphalt, said frame comprising side bars, end bars and internal bars, the latter being of wrought metal and having stiffening-ribs, whereby they are adapted to resist lateral deflection so that the asphalt is divided into substantially independent sections so as to resist lateral transmission of vertical pressures on said asphalt.

4. In a pavement, the combination of a body of asphalt, and a stiffening-frame open at the top and bottom and embedded in said asphalt, said frame comprising side bars, end bars and internal bars, the latter being of wrought metal and having stiffening-ribs whereby they are adapted to resist lateral deflection so that the asphalt is divided into substantially independent sections so as to resist lateral transmission of vertical pressures on said asphalt, and braces between said internal bars for bracing the same transversely.

5. In a pavement, the combination of a body of asphalt, and a stiffening-frame open at the top and bottom and embedded in said asphalt, said frame comprising side bars, end bars and internal bars, the latter running crosswise of the side bars and being bent at their ends parallel to said side bars, and said bent ends being fastened to said side bars.

6. In a pavement, the combination of a body of asphalt, and a stiffening-frame embedded therein, said frame comprising plain side bars and

end bars and additional internal wrought-metal bars O having tongues M and grooves N whereby said bars are stiffened against lateral deflection so as to resist lateral transmission of vertical pressures on said asphalt and are interlocked with said asphalt so as to resist relative vertical movement of said frame and said asphalt.

7. In a pavement, the combination of a body of asphalt, and a stiffening-frame embedded therein, said frame comprising plain side bars and end bars and additional internal bars O running crosswise of the side bars and being bent at their ends parallel to said side bars, and said bent ends being fastened to said side bars, said bars O having tongues M and grooves N whereby said bars are strengthened against lateral deflection so as to resist lateral transmission of vertical pressures on said asphalt and whereby said bars are interlocked with said asphalt so as to resist relative vertical movement of said frame and said asphalt.

8. In an asphalt pavement, the combination of an asphalt body and a stiffening-frame embedded therein, said frame being open at the top and bottom and comprising side and end bars, diagonal internal wrought-metal bars connecting said side and end bars, and a diagonal tie-rod arranged transversely of said internal bars, said bars having stiffening-ribs whereby they are adapted to resist lateral deflection so that the asphalt is divided into substantially independent sections so as to resist lateral transmission of vertical pressures on said asphalt.

9. In an asphalt pavement, the combination of an asphalt body, complete self-contained stiffening-frames open at the top and bottom and embedded in said asphalt body below the surface thereof, the adjacent frames being detachably connected to each other.

10. In an asphalt pavement, the combination of a concrete base, an asphalt top layer, a series of frames embedded in said asphalt side by side, and anchors fastened to said frames at adjacent edges thereof and embedded in said concrete base.

11. In an asphalt pavement, the combination of an asphalt body, a frame therein, and an anchor for said frame comprising an anchor-plate, means for supporting said frame above said anchor-plate, and means for attaching said frame to said anchor-plate above the latter

12. In an asphalt pavement, the combination of an asphalt body, a frame therein, and an anchor for said frame comprising an anchor-plate G, a connecting-plate H adapted for attachment to said frame, and a supporting-plate adapted to support said frame above said plate.

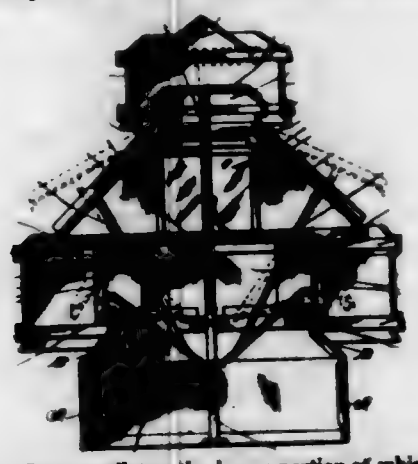
13. An anchor for use in anchoring frames in pavements or the like comprising an anchor-plate, means for supporting said frame above said plate, and means for attaching said frame to said anchor-plate above the latter.

14. An anchor for use in anchoring frames in pavements or the like comprising an anchor-plate, means for supporting said frame above said plate, and means attached to said plate and adapted for attachment to said frame.

15. An anchor for use in anchoring frames in pavements or the like comprising an anchor-plate, a connecting-plate and a supporting-plate adapted to support a frame above said anchor-plate.

16. In an asphalt pavement, the combination of an asphalt body, complete self-contained stiffening-frames embedded therein below the surface thereof, and breaking joints with each other, and an anchor attached to each of three frames at their meeting-point.

698,193. VENTILATOR. HENRY W. WALBRIDGE, Philadelphia, Pa. Filed May 14, 1901. Serial No. 60,207. (No model.)



Claim.—1. In a ventilator, the lower portion of which is composed of vertical walls, openings formed through these vertical walls, valves pivoted in said walls and adapted to open or close said openings, the upper portion of said ventilator formed of pyramidical shape, openings formed through two faces of this pyramidical portion, valves pivoted to the framework and adapted to open or close these openings, a central rod passing upward through suitable guideways in the ventilator, connections between all of the valves and this central rod so that when said rod is pushed upward the valves will be opened, openings formed through the other two faces of the pyramidical portion, glass adapted to cover said openings, an opening opening upward through the top of the ventilator, a valve connected to the central rod adapted to open and close said opening, substantially as described and for the purpose specified.

2. In a ventilator, a rectangular structure the lower portion of which is composed of vertical walls, openings formed through each of the four vertical walls, valves pivoted in these vertical walls and adapted to open or close the opening, a flange extending outward from the vertical walls below the openings, a recess formed in the lower edge of these valves and adapted to embrace said flange when the valves are closed, a central rod extending up through the center of the ventilator, suitable guideways for guiding this rod, a collar secured to the rod, four links, one end of each of which is pivoted to said collar, the other end of each of said links being pivoted to each of the four valves, the upper part of the framework of the ventilator being of pyramidical formation, openings formed through two faces of this pyramidical portion, valves pivoted to the framework and adapted to open or close said openings, grooves formed in the framework of the ventilator into which the ends of the valves are adapted to rest when said valves are closed, two links, one end of each being pivoted to each of the last-named valves, the other end of the links each pivoted to one of the links connecting the collar with the lower valves, openings formed through the remaining faces of the pyramidical portions, glass adapted to be inserted in said openings, an opening formed through the top of the ventilator, a valve secured to the central rod and adapted to open and close said opening, means for holding the central rod in any position it is placed, substantially as described and for the purpose specified.

3. In a ventilator, a rectangular structure, the lower portion of which is composed of vertical walls, openings formed through each of the four vertical walls, valves pivoted in these vertical walls and adapted to open and close the opening, an opening formed through the upper part of the ventilator adapted to open upward, a central rod, a valve secured upon the upper end of said central rod and adapted to open or close the upper opening, means whereby the other valves of the ventilator are opened and closed by the movement of the central rod, a shield adapted to surround the lower portion of the ventilator in which the lower valves are placed, a shield adapted to surround the upper portion of the ventilator so as to protect the upper opening horizontally, a hood arranged above the upper opening and adapted to protect said opening vertically, substantially as described and for the purpose specified.

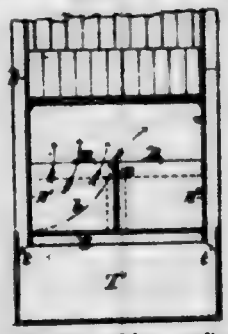
698,194. SNAP-HOOK. EMIL WEBER and FRANK C. FREY, Baker City, Oreg. Filed June 15, 1901. Serial No. 64,760. (No model.)



Claim.—1. A snap-hook comprising a bored shank having an integral loop at one end and beveled adjacent to said loop to form cam-surfaces, and formed at its opposite end with an extension; and a hook consisting of a rod curved at one end to form a hook adapted to bear against said extension, and bent at its opposite end to form a stop-lug adapted when turned to ride upon one or the other of the cam-surfaces of the shank.

2. A snap-hook, comprising a shank formed with a longitudinal bore, and beveled at one end to form cam-surfaces and having an extension and laterally-projecting shoulders at its opposite end; and a hook proper extending through the shank, curved at one end to form the hook and bent at its opposite end to form a stop-lug having a cam-face.

698,195. AIR-SUPPLY TO LIQUID VAPORIZING, COOLING, AND AERATING APPARATUS. WILLIAM H. WHEELTHAN, New York, N. Y. Filed July 17, 1900. Serial No. 23,891. (No model.)



Claim.—1. The combination with a cooling-tower open at the top and provided at its upper end with a liquid distributing or spraying apparatus, of a lower compartment open on all sides for the admission of air from without, and through which the liquid passes after treatment; a plurality of radial partitions extending outwardly from the center of said

lower compartment; and a liquid-drain connecting said partitions, through or along which the treated liquid passes to a receiving-compartment below.

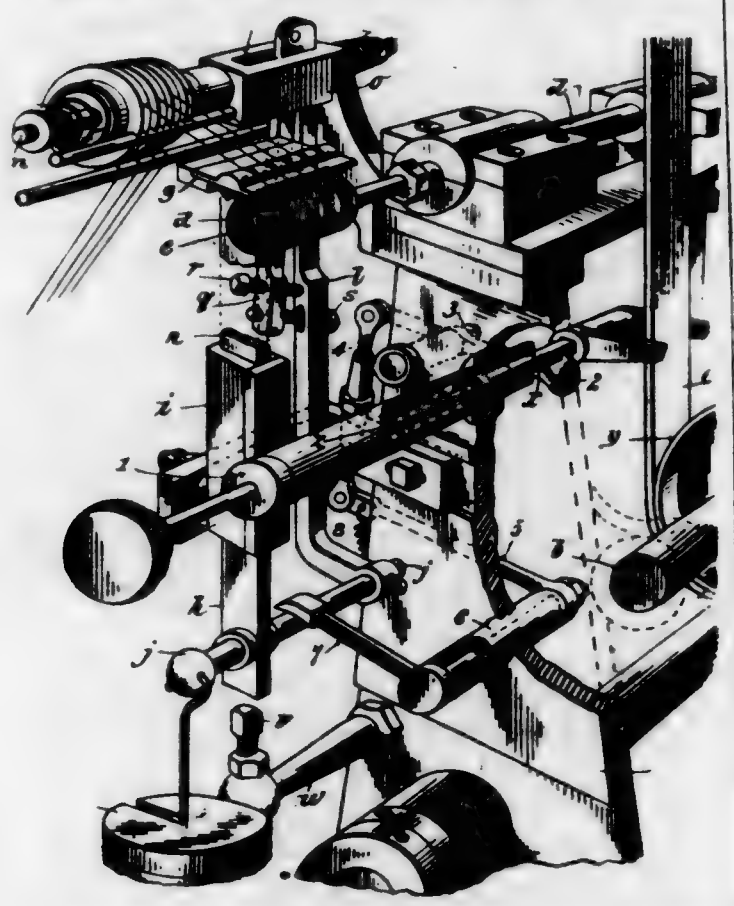
2. The combination with a cooling-tower open at the top and provided at its upper end with a liquid distributing or spraying apparatus, of a lower compartment open on all sides for the admission of air from without, and through which the liquid passes after treatment, and a plurality of radial partitions extending outwardly from the center of said lower compartment and rising vertically from the connecting liquid-drain to a height above the top of the surrounding air-openings, substantially as set forth.

3. The combination with a cooling-tower open at the top and provided at its upper end with a liquid distributing or spraying apparatus, of a lower compartment open on all sides for the admission of air from without, and through which the liquid passes after treatment, a plurality of radial partitions extending outwardly from the center of said lower compartment and a plurality of inclined liquid-drains down or through which the treated liquid passes to the receiving-compartment below and up which the air or wind passes to reach the apparatus above as and for the purposes set forth.

4. In a water-cooling tower, the combination with a reservoir at the base, of an inclosing shell elevated above the reservoir and between which parts there is an opening and radially-placed baffle-plates extending across the tower, the said baffle-plates extending up into the shell and down into the reservoir to prevent the passage of through-currents of air, substantially as specified.

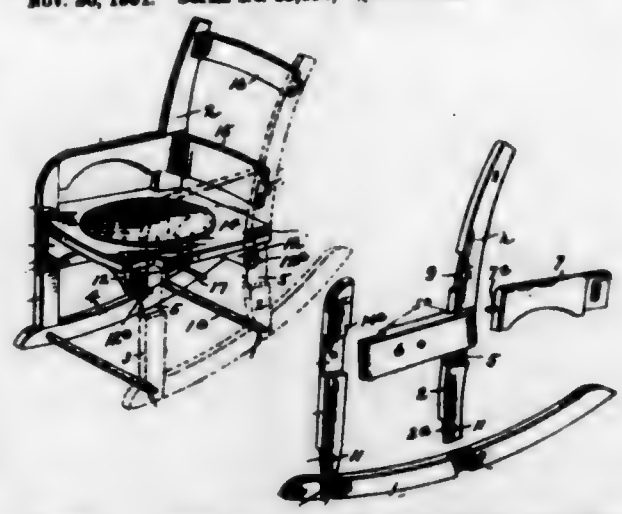
5. In a water-cooling tower, the combination with an inclosing shell and a reservoir beneath and below the same and between which there is an annular space communicating with the interior of the shell at its lower end, of means for conveying the circulating water to the tower, means for distributing and ejecting said circulating water within and into the tower and stationary fixed means extending axially across the tower for preventing said circulating water being diverted from the prescribed limits of the tower during its descent through the open space between the lower part of the shell and top of the reservoir, substantially as set forth.

693,196. THREAD-WINDING MACHINE. PETER J. WESTHAL, Holyoke, Mass. Filed Mar. 6, 1901. Serial No. 50,063. (No model.)



Claim.—In a thread-winding machine, a spindle on which the thread is wound, a thread-guide bearing on the thread being wound, and adapted to be raised vertically by the building up of the thread on said spindle; a tension device consisting of a series of disks held yieldingly together, an arbor on which said disks are supported, and a support for the arbor, there being a slot through the latter and said support; a wedge connected with said thread-guide and entering said slots, whereby the movement of said guide vertically will move said wedge and impart endwise movement to said arbor to diminish the pressure whereby said disks are held together, substantially as described.

698,197. KNOCKDOWN CHAIR. FRANKLIN WHITE, Landover, Md., assignor of one-half to Charles B. White, Landover, Md. Filed Nov. 20, 1901. Serial No. 83,087. (No model.)

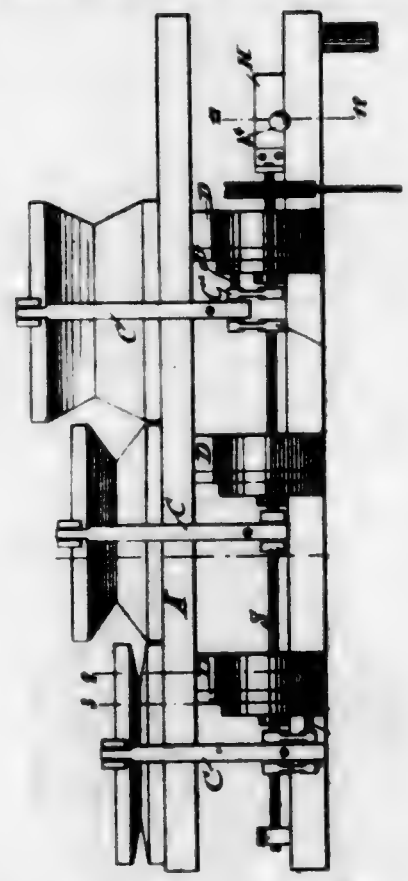


Claim.—1. In a chair the combination with a seat of four legs, of cross-bars fitting apertures in the inner sides of said legs, side bars fitting notches in the outside of said legs and extending at right angles to said cross-bars, tie-rods passing through apertures in said side bars and a turnbuckle mounted on said tie-rods, substantially as described.

2. In a chair the combination with a seat of four legs, of side bars fitted in notches in the outer sides of said legs, cross-bars fitting apertures traversing said legs and said side bars, tie-rods passing through apertures in said side bars, and a turnbuckle connecting said tie-rods, substantially as described.

3. In a chair the combination with four legs, of side bars fitting notches in the outer sides of said legs, rockers bearing notches and engaging the inner sides of said legs, rounds fitting apertures traversing said rockers and said legs, cross-bars fitting apertures traversing said legs and said side bars, and means connecting said side bars to lock the chair together, substantially as described.

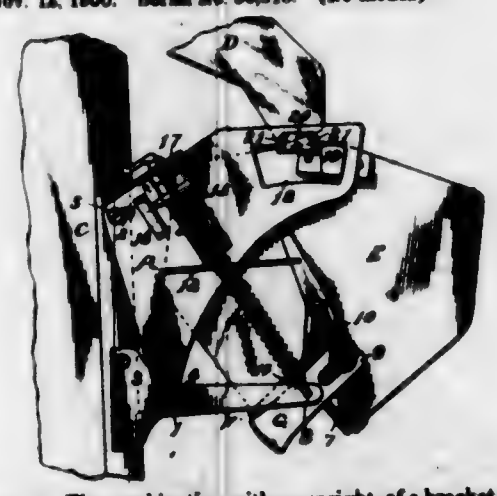
693,198. PNEUMATIC MOTOR. JOSEPH WIENER, Brooklyn, N. Y., assignor of one-half to Karl Fink, New York, N. Y. Filed Dec. 6, 1900. Renewed Nov. 14, 1901. Serial No. 82,221. (No model.)



Claim.—1. The combination, with a plurality of stationary valve-chests, a suction-chest connected therewith, and an equivalent number of pneumatics also connected with the valve-chests, of a crank-shaft connected with the movable members of the pneumatics and passing through the valve-chests, and rotary valves fixed at suitable intervals apart on said shaft and working each on one face of each of the valve-chests, said valves and valve-chests being constructed to alternately admit air and shut it off from the pneumatics, substantially as set forth.

2. The combination, with a plurality of stationary valve-chests, each constructed with suitable openings, a suction-chest connected directly with one of the said openings, and an equivalent number of pneumatics connected directly with the other of said openings, of a crank-shaft connected with the movable members of the pneumatics and passing through the valve-chests, and rotary valves on said shaft, working each on one face of each of the valve-chests, each valve being provided with an air-inlet opening and constructed with a recessed inner face, substantially as set forth.

698,199. GRAIN-WEIGHER. DANIEL WILDS, Washington, Iowa. Filed Nov. 12, 1900. Serial No. 36,315. (No model.)



Claim.—1. The combination with an upright, of a bracket supported thereon at its lower end and provided with a curved elongated slot struck from the center of support of said bracket, a set-screw operating in said slot for adjusting the lateral position of the bracket, a grain-weighing hopper sustained from said adjustable bracket, the hopper having a lug thereon which projects into the slot in the bracket, and a plate adjustably secured on the bracket to regulate the downward movement of the lug prior to the tilting of the hopper.

2. The combination with an upright, of a bracket supported thereon at its lower end and provided with a curved elongated slot struck from the center of support of said bracket, a set-screw operating in said slot for adjusting the lateral position of the bracket, a grain-weighing hopper sustained from said adjustable bracket, said hopper having a lug thereon which projects into the slot in the bracket and a plate pivoted to the bracket and means for adjusting the position of said plate on its pivot.

3. The combination with a bracket having a slot therein, of a tilting hopper sustained thereby, the hopper having a lug which projects into the slot in the bracket, and a plate pivoted to the bracket and means for adjusting its position on its pivot.

4. The combination with a bracket, of a tilting hopper sustained thereby, the hopper having a lug which projects into the plane of the plate, and a plate pivotally connected with the bracket, this plate having a slot curved in the arc of a circle struck from the pivot as a center, and means in the slot for setting the plate whereby the position of its ends is regulated to determine the movement of the lug on the hopper with respect thereto.

5. The combination with a bracket, of a tilting hopper sustained thereby, the hopper having a lug which projects into the plane of the bracket, and a plate pivotally connected with the bracket, this plate having a pair of slots, on opposite sides of the pivot curved in the arc of a circle struck from the pivot as a center and means in these slots for setting the plate whereby the position of its ends is regulated to determine the movement of the lug on the hopper with respect thereto.

6. The combination with an adjustable bracket, a hopper sustained thereby and a gate, of an oscillating arm pivoted to the hopper and connected with the gate for swinging the latter and a steady-rod pivotally connected with the adjustable bracket and oscillating arm.

7. The combination with a bracket and a hopper pivotally sustained thereby, of a gate for closing the opening in the lower end of the hopper, said gate having a fork on one end, an oscillating arm pivoted to the hopper and provided with an antifriction-roller which enters and operates in said fork and a steady-rod pivotally connected with the bracket and arm.

8. The combination with a support, a bail hinged thereto, a rod in the free end of the bail, a hopper adapted to rock on this rod as a center, and a spring for sustaining the outer end of the bail and the hopper, of a gate pivoted to the rod, and means for swinging the gate with the lateral movements of the hopper.

9. The combination with a support, a bail pivotally connected with a suitable support, and a rod sustained on the outer end of the bail, of a hopper pivotally supported at its lower end on said rod, a gate pivotally supported on the rod, an oscillating arm loosely connected with said gate and pivotally connected with the hopper whereby to shift the gate back and forth, and a steady-rod pivotally connected with the support and the arm.

10. The combination with a support, a bail pivotally connected with a suitable support, and a rod sustained on the outer end of the bail, of a hopper pivotally supported at its lower end on said rod, a gate pivotally supported on the rod, an oscillating arm loosely connected with said gate and pivotally connected with the hopper whereby to shift the gate back and forth, a steady-rod pivotally connected with the support and the arm, a spring connected with the rod carried at the outer end of the bail and means for adjusting the tension of the spring.

11. The combination with plates having holes therein, a bail pivotally connected with the plates, a bracket pivoted at the same point or center at which the bail is pivoted, said bracket having an elongated curved slot in an arc described with the said pivot as a center and a set-screw for regulating the lateral adjustment of said bracket on the pivot, of a rod supported on the outer end of the bail, a spring for sustaining said outer end, a hopper pivoted at its lower end on said rod a gate pivoted to said rod, an oscillating lever for operating the gate and a steady-rod pivotally connected with the bracket and arm.

12. The combination with plates having holes therein, a bail pivotally connected with the plates, a bracket pivoted at the same point or center at which the bail is pivoted, said bracket having an elongated curved slot in an arc described with the said pivot as a center and a set-screw for regulating the lateral adjustment of said bracket on the pivot, of a rod supported on the outer end of the bail, a spring for sustaining the outer end, a hopper pivoted at its outer end on said rod, a gate pivoted, an oscillating arm or lever for operating the gate, a steady-rod pivotally connected with the bracket and arm, said hopper having a lug thereon which projects through a slot in the bracket, and a plate pivoted to the bracket at the center of said slot and provided with two slots in the arc of a circle of which the pivot is the center and set-screws in said slot for adjusting the plate.

698,200. STORE-GOODS LIFTER. FRANK P. WILKIN, Salt Lake City, Utah. Filed July 6, 1901. Serial No. 67,272. (No model.)

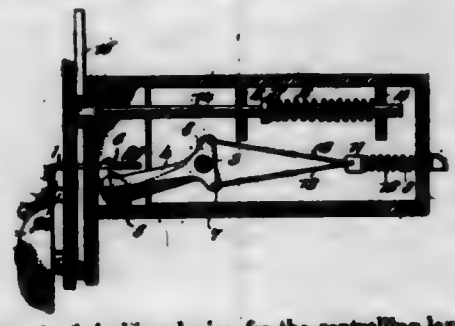


Claim.—1. A store-goods lifter, comprising a pole having upper, lower, and intermediate collars, the latter having an apertured lug or ear, crossed levers pivoted at their point of crossing to the upper collar, and provided at their upper ends with grasping-jaws, an operating-rod passed through said apertured ear, links connecting the upper end of the rod with the lower ends of said crossed levers, a spring on the rod between said apertured ear and links to force the rod upwardly and hold the jaws open, and a hand-lever pivoted to the lower collar and connected to the lower end of the rod; substantially as described.

2. A store-goods lifter, comprising a pole, levers mounted on the upper portion of the pole, and provided with grasping-jaws, an operating-rod operatively connected at its upper end to said jaws, a collar mounted on the lower end of the pole, and provided with a lug or ear on its side opposite to the said grasping-jaws, a hand-lever provided with arms straddling the pole and pivoted to the said lug or ear, the said lever being provided on its upper end with a lug or ear connected to the lower end of the rod; substantially as described

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698,201. AUTOMOBILE-LOCK. JOHN F. WILSON, Jetmore, Kans. Filed June 11, 1901. Serial No. 64,067. (No model.)



Claim.—1. A locking device for the controlling-lever of a motor, comprising a bolt adapted for engagement with said lever, a sliding frame

carrying said bolt, a series of locking-latches carried by the frame, a rod with which said latches are designed to engage, and means for causing a swinging movement of the latches, substantially as specified.

2. A lock for the controlling-lever of a motor for an automobile or the like, comprising a casing, a frame mounted to slide in said casing, a locking-bolt carried by said frame and adapted for engagement with the lever, a series of swinging latches carried in said frame, a bar mounted in the casing with which said latches are designed to engage, and draw-rods extended through the front wall of the frame and having connection with the latches, substantially as specified.

3. A lock for the lever of an automobile, comprising a fixed casing, a frame mounted to slide in said casing, a shaft extended across said frame, a series of latches mounted to swing on said shaft and having hook ends and having arms extended upward and downward relatively to the shaft, draw-rods, link connections between said draw-rods and arms of the latches, a bar mounted in the casing with which the latches are designed to engage, and a bolt carried by the frame and adapted for engagement with the lever, substantially as specified.

4. In an automobile, a lock for the controlling-lever, comprising a casing, a frame mounted to slide in the casing, a series of latches mounted to swing in the frame, draw-rods having link connection with said latches, springs for forcing the draw-rods inward, a bar mounted in the casing and adapted for engagement with said latches, and a spring-pressed locking-bar for the lever carried by said frame, substantially as specified.

5. In an automobile, a locking device for the motor-controlling lever, comprising a casing, a frame mounted to slide in the casing, a series of latches mounted to swing in the casing and having hook ends, draw-rods having link connections with said latches, a locking-bar carried by the frame and adapted for engagement with the controlling-lever, and an alarm actuated by a movement of the bar supported in the casing, substantially as specified.

6. In a lock, a sliding frame, a series of locking-latches mounted to rock in said frame, one independently of another, each of said latches having an upwardly-extending arm and a downwardly-extending arm, a draw-rod for each latch, a link having connection with the draw-rod and adapted for connection with either one of the arms of its latch, a locking-bar with which latches may be engaged, and a locking-bolt carried by the frame, substantially as specified.

7. A lock, comprising a sliding frame, a spring-yielding locking-bolt carried by the frame, locking-latches carried by the frame, a fixed part with which the latches are adapted to engage, and means for releasing the latches from said fixed part.

698,202. CYCLE. RUDOLF WITTHAUS, Brooklyn, N. Y. Filed Mar 29, 1900. Serial No. 10,690. (No model.)



Claim.—1. A cycle-frame having a tubular seat-post frame and a front branch each having its lower end flattened into semicircular shape, the flat sides of said semicircular ends of the seat-post and front branch being arranged in juxtaposition and secured together, substantially as described.

2. A headpiece made of a single piece of metal bent into tubular form and having its edges doubled inward into the tube and flanged substantially as described.

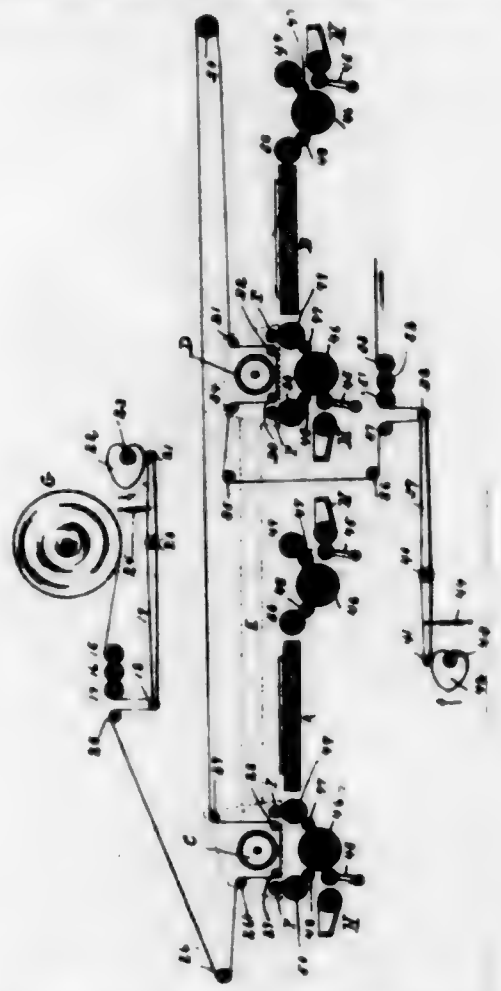
3. A cycle-frame having its frame branches each formed from a single piece bolted directly to one another, the front and intermediate branches being bent to form a bearing or crank-hanger substantially as described.

4. A cycle-frame having its steering-fork formed of two sections of flat or sheet metal, each section integrally comprising the lower or wheel-bearing part, the swiveling or intermediate part and the top or handle-bar-carrying part, said lower part having its face or flat portion facing toward or in the plane of the wheel, its intermediate portion channeled or tube-shaped and its top part bent or placed out of the plane of the wheel-bearing part substantially as described.

5. A tubular connection 17 having lips bent into the interior thereof and a frame-piece 1 made to sit between the lips substantially as described.

6. A headpiece with a tubular lug having portions bent or lapped toward one another into the lug or tube to form a firm or rigid bolt-support at said lug substantially as described.

698,208. PRINTING-MACHINE. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press & Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Apr. 6, 1893. Renewed July 3, 1901. Serial No. 67,014. (No model.)



Claim.—1. The combination in a web-printing press of a form-bed, an impression-cylinder coacting therewith, means for intermittently shifting the web relatively to the impression-cylinder, and means for separating the web and the impression-cylinder when the shift takes place.

2. The combination in a web-perfecting printing-press of two form-beds, an impression-cylinder coacting with each form-bed, means for intermittently shifting the web relatively to the impression-cylinders, and means for separating the web and impression-cylinders when the shift takes place.

3. The combination in a web-printing press of a form-bed, a traveling impression-cylinder coacting therewith, means for intermittently shifting the web relatively to the impression-cylinder, and means for separating the web and the impression-cylinder, when the feed takes place.

4. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, means for intermittently shifting the web relatively to the impression-cylinders, and means for separating the web and the second impression-cylinder when the feed takes place.

5. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, means for intermittently shifting the web relatively to the impression-cylinders, and means for separating the web and impression-cylinders when the feed takes place.

6. The combination in a web-printing press of a form-bed, a traveling impression-cylinder coacting therewith, means for intermittently shifting the web when the impression-cylinder is off the form in either direction, and means for separating the web and the impression-cylinder, when the impression-cylinder is off the form in either direction.

7. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, means for intermittently shifting the web when the impression-cylinders are off the forms in either direction, and means for separating the web and the second impression-cylinder, when the second impression-cylinder is off the form on the second bed in either direction.

8. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, means for inter-

mittently shifting the web when the impression-cylinders are off the form-beds in either direction, and means for separating the web and the impression-cylinders when the feed takes place.

9. The combination in a web-printing press of a form-bed, a traveling impression-cylinder coacting therewith, guides for leading the web under the impression-cylinder, means for intermittently shifting the web, and means for moving the web away from the impression-cylinder, and slightly slacking the web as the feed takes place.

10. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, guides for leading the web under each impression-cylinder, means for intermittently shifting the web, and means for separating the web and the second impression-cylinder, and slightly slacking the web as the feed takes place.

11. The combination in a web-printing press of a form-bed, a traveling impression-cylinder coacting therewith, guides for directing the web under the impression-cylinder, means for intermittently shifting the web when the impression-cylinder is off the form in either direction, and means for separating the web and the impression-cylinder, and slightly slacking the web as the feed takes place.

12. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, guides for directing the web under each impression-cylinder, means for intermittently shifting the web when the impression-cylinders are out of engagement with the forms in either direction, and means for separating the web and the second impression-cylinder, and slightly slacking the same, as the feed takes place.

13. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, guides for leading the web under each impression-cylinder, means for intermittently shifting the web, and means for separating the web and each impression-cylinder, and slightly slacking the web as the feed takes place.

14. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, guides for leading the web under each impression-cylinder, means for intermittently shifting the web when the impression-cylinders are off the forms in either direction, and means for separating the web and each impression-cylinder and slightly slacking the web as the feed takes place.

15. The combination in a web-printing press of a form-bed, a traveling carriage carrying an impression-cylinder coacting with the form-bed, guides for directing a web under the impression-cylinder, and means carried by the carriage, adapted to hold the web in contact with the impression-cylinder, while the impression cylinder coacts with the forms, and to move the web clear of the impression-cylinder when the impression-cylinder is not in contact with the forms.

16. The combination in a web-printing press of two form-beds, a traveling carriage carrying an impression-cylinder coacting with each of said form-beds, and means carried by the carriage adapted to hold the web in contact with the second impression-cylinder when the second impression-cylinder is in engagement with its form, and to move the web out of engagement with the impression cylinder when the impression-cylinder is not in engagement with its form.

17. The combination in a web-printing press of a form-bed, a traveling carriage carrying an impression-cylinder coacting with the form-bed, guides for directing the web under the impression-cylinder, means for intermittently shifting the web when the impression-cylinder is off the form upon the bed in either direction, and means carried by the carriage adapted to hold the web in contact with the impression-cylinder, while the impression-cylinder engages the form, and to move the web clear of the impression-cylinder when the feed takes place.

18. The combination in a web-printing press of two form-beds, a traveling carriage carrying an impression-cylinder coacting with each form-bed, guides for directing the web under each impression-cylinder, means for intermittently shifting the web when the impression-cylinders are out of engagement with the forms in either direction, and means carried by the carriage adapted to hold the web in contact with the second impression-cylinder, while the second impression-cylinder engages its form, and to move the web clear of the impression-cylinder when the feed takes place.

19. The combination in a web-printing press of two form-beds, a traveling carriage carrying an impression-cylinder coacting with each form-bed, means for intermittently shifting the web when the impression-cylinders are out of contact with the forms in either direction, and means carried by the carriage adapted to hold the web in contact with the impression-cylinders during the printing operation, and to move the web away from the impression-cylinders when the feed takes place.

20. The combination in a web-printing press of the form-bed, the traveling carriage carrying the impression-cylinder coacting with the form-bed, means for moving the web away from the impression-cylinder when the impression-cylinder is not in engagement with the forms, and an actuating mechanism for this means, consisting of vertically-movable frames, and guides having cams adapted to impart a vertical motion to these frames, as the carriage travels.

21. The combination in a web-printing press of the form-bed, the traveling carriage carrying an impression-cylinder coacting with the form-bed, the guides for directing the web under the impression-cylinder, the vertically-movable frames mounted on the carriage, and means for moving the web clear of the impression-cylinder when the impression-cylinder is not in contact with the form, this means being actuated from the vertically-movable frames carrying rolls as 59 bearing on guideways 60, which guideways 60 have cams at each end of the bed.

22. The combination in a web-printing press of the form-bed, the traveling carriage carrying an impression-cylinder coacting with the form-bed, the guides 32 and 33 for directing the web under the impression-cylinder, the guides 32 and 33 being mounted in pivoted arms, and means for moving said pivoted arms so that the web will be clear of the impression-cylinder when the impression-cylinder is out of contact with the form in either direction.

23. The combination in a web-printing press of a form-bed, a traveling carriage carrying an impression-cylinder coacting with the form-bed, the pivoted arms 63 and 64 carrying the guides or rollers 32 and 33, which guides are adapted to direct the web under the impression-cylinder, and means for actuating these pivoted arms consisting of the sliding frames having rollers bearing on guides which have cams, said frames being connected to the pivoted arms.

24. The combination in a web-printing press of the form-bed, the traveling carriage carrying an impression-cylinder coacting therewith, the arms 63 and 64 journaled or pivoted on the shaft of the impression-cylinder, said arms carrying guides or rollers 32 and 33 adapted to direct the web under the impression-cylinder, and means for actuating said arms consisting of the vertically-movable frames K, which frames K have rollers 59, and guideways having cams adapted to impart the proper vertical motion to said frames, as the carriage travels.

25. The combination in a web-printing press of a form-bed, a traveling carriage carrying an impression-cylinder coacting therewith, the arms 63 and 64 hung on the shaft of the impression-cylinder, and carrying guides or rollers 32 and 33, adapted to direct the web under the impression-cylinder, and the vertically-movable frames K connected by links as 65 and 66 to the pivoted arms, said frames carrying rollers 59, the rollers 59 engaging a suitable guideway as 60, which has cams 61 at the ends of the bed, whereby the rollers 32 and 33 will be moved for the purpose described.

26. The combination in a printing-press of a form-bed, a traveling carriage carrying an impression-cylinder coöperating therewith, and form-inking rollers at each side of the impression-cylinder, two rotating ink-drums arranged at each end of the bed, a distance apart substantially equal to the distance between said form-rollers, and means for supplying ink thereto, whereby a full charge of ink will be supplied to both form-inking rollers as the carriage reverses in either direction.

27. The combination in a web-printing press of two form-beds, a traveling carriage carrying an impression-cylinder coacting with each form-bed, and form-rollers arranged at each side of each impression-cylinder, two rotating ink-drums arranged at each end of each bed, each set of drums being a distance apart substantially equal to the distance between the form-inking rollers at each side of one of the impression-cylinders, and means for supplying ink to said drums, the whole so arranged that a full charge of ink will be given to all the form-rollers as the carriage reverses in either direction.

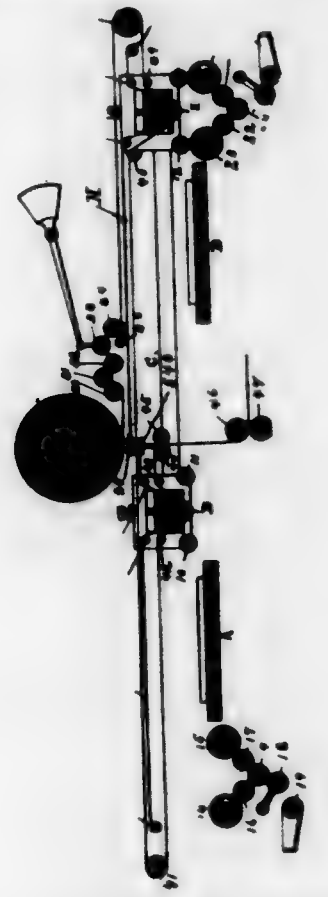
698,204. IMPRESSION MECHANISM FOR PRINTING-PRESSES.

HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press & Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Oct. 31, 1892. Renewed July 3, 1901. Serial No. 67,015. (No model.)

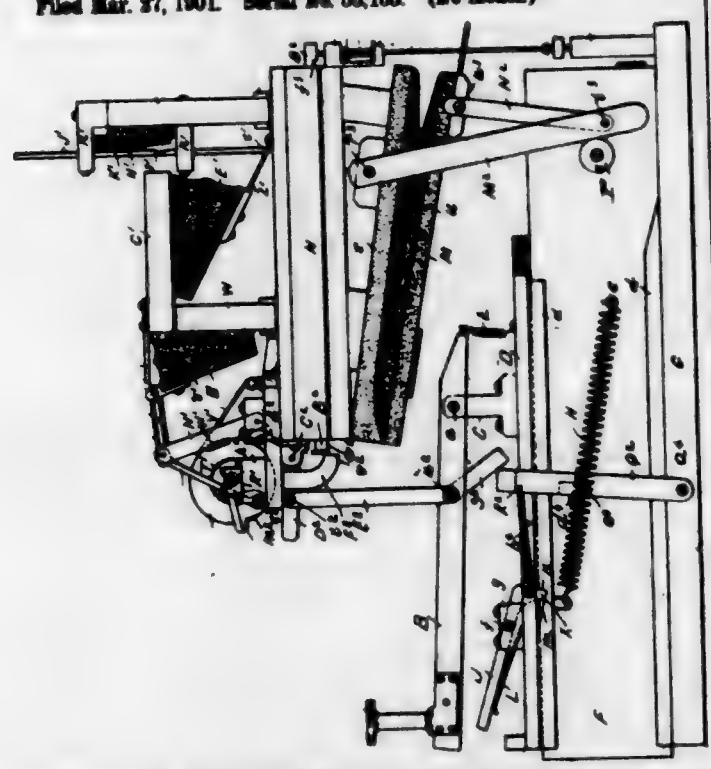
Claim.—1. In a web-printing press, the combination of a stationary form-bed, a traveling carriage, a non-rotative impression member arranged to make one impression on both its forward and backward movements over the bed, a web-manipulating mechanism, and a blanket interposed between the impression member and the web to be printed, said blanket being mounted to move around the impression member in one direction while the carriage is traveling forward, and to move around the impression member in the opposite direction when the carriage is moving backward.

2. In a printing-press, the combination of two stationary form-beds, a traveling carriage, a non-rotative impression member mounted in the carriage for each of said beds, said impression members being arranged to take an impression with both their forward and backward movements, and a blanket arranged to move around an impression member in one direction when the carriage is moving forward, and around said impression member in the opposite direction when the carriage is moving backward.

3. In a web-printing press, the combination of a stationary form-bed, a traveling carriage, a non-rotative impression member mounted therein and arranged to make an impression on both its forward and backward movements, guides for directing a web down to and up from said impression member, a blanket, guides for directing the blanket down to and up from an impression member, and means for supporting the blanket at its ends beyond the range of movement of the impression member, so that the blanket will move around the surface of the impression member in one direction when the carriage is moving forward, and around the surface of the impression member in the opposite direction when the carriage is moving backward.



693,205. CASH-REGISTER. FLINT W. WRIGHT, Worcester, Mass. Filed Mar. 27, 1901. Serial No. 53,105. (No model.)



Claim.—1. In a cash-register, in combination, a key, a drawer arranged to be released by the operation of the key, a bellows operated by the movement of the drawer, a wind-chest, an indicating bar or device, a pneumatic for operating the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, means connected with said key for opening and closing the valve, and all combined and arranged together for operation substantially as described.

2. In a cash-register, in combination, a key, a drawer released thereby, a bellows operated by the movement of the drawer, a wind-chest, a registering device, a pneumatic for operating the registering device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, means connected with said key for opening and closing the valve, and all combined and arranged together for operation substantially as described.

3. In a cash-register, in combination, a key, a drawer released thereby, a bellows operated by the movement of the drawer, a wind-chest, an indicating bar or device, a pneumatic for operating the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, means for opening and closing the valve, a registering device, a pneumatic for operating the registering device, an air-passage leading from the wind-chest to the latter pneumatic, a valve to the latter air-passage, means connected with said key for opening and closing the latter valve, all combined and arranged together for operation substantially as described.

4. In a cash-register, a key, a drawer arranged to be released by the operation of the key, a stop pivoted to the key and arranged to swing forward and backward and means for moving the stop as the drawer is moved inward to be closed.

5. In a cash-register, a key, a drawer arranged to be released by the operation of the key, a downwardly-projecting arm pivoted to the key, an arm pivoted to a support in position to bear against the swinging arm and means attached to the drawer to abut against the arm as the drawer is closed to press the arm against the swinging arm and move it back out of the way to allow the downward movement of the key.

6. In a cash-register, in combination, a key, a drawer arranged to be released by the operation of the key, a bellows, an arm pivoted by one end to a support, a link pivoted by one end to the other end of the arm, and by its other end to the movable board of the bellows, an abutment or stop on the drawer in position to bear against the arm and move it back and close the bellows as the drawer is moved back into its closed position.

7. In a cash-register, in combination, a key, a bellows operated by the movement of said key, a wind-chest, an indicating device, a pneumatic for operating the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, a sliding bar in the wind-chest arranged to operate the valve and means connected with the key for operating the sliding bar all combined and arranged together for operation substantially as described.

8. In a cash-register, in combination, a key, a bellows operated by the movement of said key, a wind-chest, a registering device, a pneumatic for operating the registering device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, a sliding bar in the wind-chest arranged to operate the valve and means connected with the key for operating the sliding bar all combined and arranged together for operation substantially as described.

9. In a cash-register, in combination, a key, an indicating device, a pneumatic for operation of the indicating device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, a sliding bar in the wind-chest arranged to operate the valve, a swinging bar arranged to move and operate the sliding bar, and connected to the key for operation thereof.

10. In a cash-register, a key, a bellows, a wind-chest, an air-passage leading therefrom, a valve to the air-passage, a sliding bar in the wind-chest provided with means to open and close the valves, means connected to the key to operate the sliding bar, a vertical sliding rod controlled by a spring with which the sliding bar is arranged to engage, and means connected to the bellows for releasing the spring-rod.

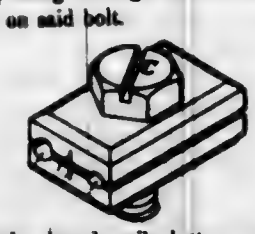
11. In a cash-register, an indicating bar or device arranged to be moved up and down and a pneumatic arranged to engage therewith to hold the indicating device in its upper position and to be disengaged therefrom as air is exhausted from the pneumatic.

12. In a cash-register, a key, a bellows, a wind-chest, air-passages leading therefrom, a valve to each air-passage, a sliding bar in the wind-chest provided with means to open and close the valves, an arm pivoted to a support having one end in position to engage with the sliding bar, and an arm connecting the first arm to the key for operation thereof by the key.

13. In a cash-register, in combination, a key, a bellows, a wind-chest, a registering device, a pneumatic for operating the registering device, an air-passage leading from the wind-chest to the pneumatic, a valve to the air-passage, an indicating device, a pneumatic for operating the indicating device, an air-passage leading from the wind chest to the pneumatic, a valve to this air-passage, a sliding bar in the wind-chest arranged to operate the valves, a bar arranged to move and operate the sliding bar and connected to the key for operation thereof.

693,206. WIRE-CONNECTOR. HOMER W. WYCKOFF, Chicago, Ill. Filed May 6, 1901. Serial No. 58,841. (No model.)

Claim.—1. In a device of the class described, the combination with two metal plates or blocks having opposing faces, each said face having two grooves of different cross-sections opposite similar grooves in the other face, of a screw-bolt passing through the two plates to clamp them together, and a lock-nut on said bolt.



2. In a device of the class described, the combination with two metal faces or blocks having opposing plates, each said face having two grooves of different cross-sections registering with the grooves in the other face, of a screw-bolt passing through the two plates to adjustably clamp and hold them together.

3. In a device of the class specified, the combination with two metal plates with opposing faces, said faces having two grooves of different cross-sections formed therein, of wires in said grooves, a screw-bolt to clamp said plates upon the wires to electrically connect and mechanically hold the wires.

4. In a wire-connector, the combination with two metal plates or blocks having opposing faces, each said face having two grooves of different cross-sections registering with the grooves in the other face, of means to clamp said plates together.

5. In a wire-connector, the combination with two metal plates or blocks having opposing faces, each said face having two grooves of different cross-sections registering with the two grooves in the other face, of a screw-bolt passing through one of said plates and threading into the other to clamp said plates together.

6. In a wire-connector, the combination with two metal plates or blocks having opposing faces, each said face having two grooves of different cross-sections registering with the grooves in the other face, said plates being reversible in position so that the grooves will accommodate wires of different sizes or of the same size, and means to clamp the plates together.

7. In a wire-connector, the combination with two metal plates or blocks having opposing faces, each said face having two parallel grooves of different cross-sections registering with the grooves in the other face, said plates being centrally apertured with reference to the grooves, of a bolt extending through said apertures, whereby the plates may be clamped together in reverse positions to connect wires of the same size or of different sizes.

8. In a wire-connector, the combination with metal plates or blocks having registering grooves of different cross-sections in their opposing faces, of a bolt extending through one plate or block and threading into the other to clamp them together, and a lock-nut upon the threaded end of the bolt, said bolt being provided with means to prevent the lock-nut from being removed from the bolt.

9. In a wire-connector, the combination with two metal plates or blocks having opposing faces, each face having two grooves of different cross-sections registering with the grooves in the other face, of two wires in said grooves, and means to clamp said plates or blocks upon said wires.

10. In a wire-connector, the combination with two metal plates or blocks having opposing faces, each face having two grooves of different cross-sections registering with the grooves in the other face, of a bolt passing through said plates, and a nut upon said bolt.

11. The combination of two metallic plates with opposing faces and a screw-bolt passing through one of the plates and into the other to clamp the plates together upon wires placed between them, each of the opposing faces of the plates having two grooves, registering with the grooves in the other plate and cut to different depths measured with respect to a plane through the center lines of the wires when the plates are clamped tightly upon two wires of different diameters lying in the registering grooves.

12. The combination of two metal plates with opposing faces, two wires of different diameters and means of clamping the plates together upon the wires, each of the opposing faces of the plates having two grooves for the reception of the wires registering with the grooves in the other plate and of different depths measured with respect to the plane of the center lines of the two wires, substantially as described.

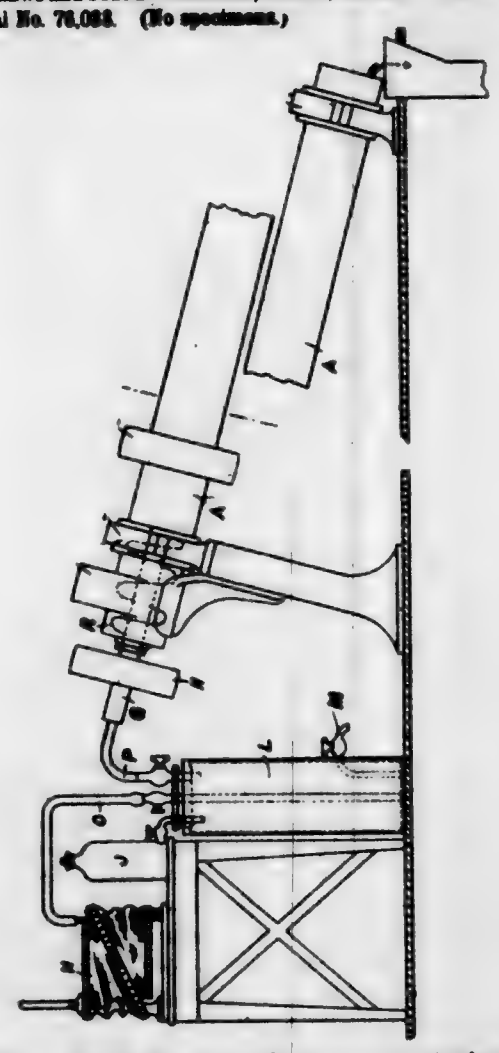
13. The combination with two metal plates with opposing faces, the opposing face of each plate grooved with two grooves for the reception of wires, said grooves registering with grooves in the other plate and being cut to within different distances of the outside face of the same plate in which the grooves are cut, and means for clamping the plates together.

14. In a wire-connector, the combination with two metal plates or blocks having opposing faces with registered grooves, each plate or block having two grooves so formed in its opposed face that the surface of one groove is differently disposed than the surface of the other with respect to the outer face of the block lying diametrically opposite said opposed face, of means to clamp said plates together.

15. In a wire-connector, the combination with two metal plates or blocks having opposing faces, each face having two grooves registering with grooves in the other face, of two wires of different cross-sections in said grooves, and means to clamp the plates together.

16. In a wire-connector, the combination with two metal plates or blocks having opposing faces each with two registering grooves for the reception of wires, of a screw-bolt passing through the two plates to clamp the plates together, said grooves in each plate being so formed that one groove is differently disposed than the other with reference to a plane at right angles to the center line of said bolt, when the plates are clamped tightly upon the wires.

698,207. PROCESS OF AGING AND BLEACHING FLOUR. JOHN ANDREWS and SYDNEY ANDREWS, Belfast, Ireland. Filed Sept. 21, 1901. Serial No. 76,083. (No specimens.)



Claim.—1. The improvement in the process of aging and bleaching flour, which consists in passing the same in a state of fine division through an atmosphere containing a small regulated quantity of gaseous nitrogen peroxid.

2. The improved process of aging and bleaching flour which consists in bringing it into intimate contact with and uniformly exposing it to an atmosphere containing a small quantity of gaseous nitrogen peroxid, substantially as set forth.

3. The improvement in the process of aging and bleaching flour which consists in gradually supplying to nitric acid, a material capable of taking from it one atom of oxygen and bringing the resulting gas into intimate contact with the flour, substantially as described.

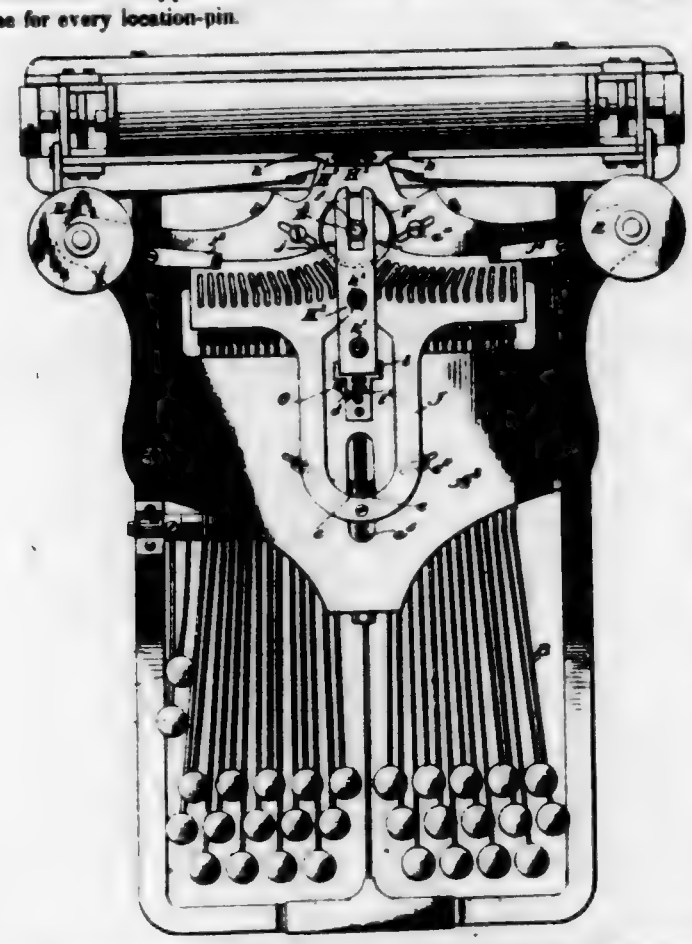
4. The improvement in the process of aging and bleaching flour which consists in gradually adding nitric acid and ferrous sulfate together in solution, and bringing the gas which results therefrom into intimate contact with the flour, substantially as described.

698,208. TYPE-WRITER. FRANK H. ARMSTRONG, Auburn, N. Y. Filed Nov. 25, 1901. Serial No. 83,648. (No model.)

Claim.—1. The combination with the location-pins and the key-levers operatively connected therewith, of a longitudinally-movable carriage actuated from the key-levers, a type-wheel mounted on the carriage, and a horizontally-movable location plate or arm also mounted on said carriage operatively connected to the type-wheel and provided with a series of inclined slots one in the vertical path of every location-pin.

2. The combination with the location-pins and the key-levers operatively connected therewith, of a longitudinally-movable carriage acta-

ated from said key-levers, a type-wheel mounted on the carriage, and a horizontally-vibrating location-plate pivoted to the carriage, operatively connected to the type-wheel and provided with a series of angular slots one for every location-pin.



3. The combination with the location-pins and the key-levers operatively connected therewith, of a longitudinally movable carriage actuated from said key-levers, a type-wheel mounted on the carriage, centering or locking devices for the type-wheel when in its printing position, and a horizontally-movable location plate or arm mounted on the carriage, operatively connected to the type-wheel and provided with a series of angular slots one for every location-pin and in the vertical path thereof.

4. The combination, with the transverse row of vertical location-pins, the key-levers operatively connected at their rear ends with said pins and provided with depending slotted arms, and a series of vertically-swinging carriage-operating levers provided with arms having pins or lugs engaging the slots in the key-levers, of a longitudinally-movable carriage having a cross-bar in the path of all of said carriage-operating levers, a type-wheel mounted on the carriage, and a location-plate also mounted on the carriage, connected with the type-wheel and provided with slots in vertical alinement with the location-pins.

5. The combination with the reciprocating type-wheel carriage having a cross-bar, of a series of key-levers having depending arms provided in their rearwardly-projecting ends with inclined slots, and a series of rearwardly-swinging levers pivoted at their lower ends, bearing at their upper portions against the said cross-bar and provided therebelow with lateral pins entering said inclined slots.

6. The combination with the transverse row of vertical location-pins and the key-levers operatively connected therewith, of a longitudinally-reciprocating carriage actuated from the key-levers, a type-wheel mounted on the carriage, a location arm or plate provided with a series of individual angular slots for the location-pins and geared to the type-wheel, means for locking or centering the type-wheel when in its printing position and means for centering the location-plate in its return to its normal position.

7. The combination with the key-levers, of an L-shaped cross-bar provided with horizontal and vertical apertures in its vertical and horizontal members respectively, and springs extending through the horizontal apertures and operatively connected therebeyond to the respective key-levers beyond their fulcrum-points and the front ends of the springs being bent down and entering said vertical apertures.

8. The combination with the location-pins and the key-levers for operating them, of a longitudinally-reciprocating carriage actuated from said key-levers and having a cross-bar provided with antifriction-wheels, bearing upon an overlying portion of the machine-frame, a type-wheel mounted on the carriage, a horizontally-oscillating location plate or arm pivoted to the carriage geared to the type-wheel and provided with a series of individual angular slots for the location-pins, and antifriction-wheels or rollers on the carriage upon which said location-plate rests.

9. The combination with the transverse line of vertical location-pins and their operating key-levers, of a longitudinally-reciprocating carriage actuated from said key-levers, a horizontally-oscillating location-plate pivoted at its front end to the carriage, geared at its rear end to the type-wheel and provided near its rear end with a series of longitudinally-disposed angular slots one for every location-pin; the slots inclining in opposite directions from the middle of the plate or arm and also decreasing in angularity therefrom.

10. The combination with the reciprocating carriage, the rotary and vertically-movable type-wheel thereon having annular series of characters or signs, the key-levers and intermediate connections between the key-levers and the type-wheel and carriage for reciprocating the carriage and rotating the type-wheel to bring its characters to the printing-point, of means for elevating the type-wheel to bring the desired series up to the printing-plane, including a vertically-reciprocating slide having an arm overhanging the type-wheel and in sliding connection therewith and an auxiliary key-lever operatively connected with the lower end of the slide.

11. In a type-writer of the character described, the combination with the rotary type-wheel, having annular series of characters and mechanism for rotating and propelling the wheel into printing position, of mechanism for elevating the type-wheel comprising a vertical key-actuated slide having an arm overhanging the type-wheel and in sliding connection therewith, a lug on the vertical slide, a stop or latch device movable into and out of the path of the said lug to regulate the height to which the slide may move and means for actuating said stop or latch device.

12. In a type-writer of the class described, the combination with the rotary type-wheel having annular series of characters and mechanism for rotating and propelling the wheel into printing position, of mechanism for elevating the type-wheel comprising a vertical slide operatively connected with the type-wheel and provided with an operating key-lever and a lug or projection, a second key-lever adapted to depress the first key-lever, a vertical rock-shaft operatively connected with the second key-lever and having a lateral latch-arm at its upper end in the path of the lug on the slide; whereby the depression of the first lever will raise the slide till its lug strikes the latch to bring the middle series of characters into the printing-plane and the depression of said second lever will throw the latch away from the lug and further depress the first lever and thereby raise the slide and type-wheel to bring the lowest series of characters into the printing-plane where it may be held by allowing the latch-arm to snap under the lug on the slide.

13. In a type-writer of the class described, the combination with the rotary type-wheel having annular series of characters and mechanism for rotating and propelling the type-wheel into printing position, a vertical slide operatively connected with the type-wheel and provided with an operating key-lever, and a lug or projection, a notched guide-bracket for the slide, a second key-lever having a lateral finger overlying the first-named key-lever, and a vertical rock-shaft operatively connected with the said second key-lever and provided at its upper end with a lateral latch-arm projecting through the bracket-slot into the path of the lug on the vertical slide for the purpose set forth.

14. In a type-writer of the class described the combination with the type-wheel and the vertically-reciprocating slide connected therewith for raising it and provided with a lug or projection and a key-lever for operating the slide, of a notched bracket in which the slide is guided, a screw passed through the bracket to take up lost motion of the slide, a second key-lever having a projection overlying the first-named key-lever, and a vertical rock-shaft actuated from said second key-lever, and provided at its upper end with a lateral latch-arm projecting through the bracket-notch into the path of the lug or projection on the slide.

15. In a type-writer, the combination with the type-wheel having an annularly-grooved hub on its upper end and a key-operated slide provided with a horizontal sectional adjustable arm on its upper end, the upper member of said arm having a forked end entering the said annular groove, two screws securing the two members of the arm together and a transverse rib or projection between the meeting faces of said two sections intermediate of said two screws; whereby the type-wheel may be adjusted to make its characters print full and even.

16. The combination with the reciprocating carriage provided with a vertical spindle, a type-wheel loose on the spindle, and provided with an operating-gear, a series of vertical location-pins, a slotted location-arm mounted on the carriage and having teeth meshing with said operating-gear to rotate the type-wheel, and a series of key-levers operatively connected with the carriage and location-pins, of a vertically-movable slide extending up through bearings in the frame and through an opening in the location-arm and provided at its upper end with a horizontal arm in sliding connection with the type-wheel and a key-lever for actuating the slide to raise the type-wheel.

17. The combination with the reciprocating carriage provided with a vertical spindle, a type-wheel mounted loosely thereon, a rotary hub provided with an operating-gear and a vertical arm in sliding connection with the type-wheel, a series of vertical location-pins, a slotted location-arm mounted on the carriage and having teeth meshing with said operating-gear, and a series of key-levers operatively connected with the said

location-pins and carriage, of auxiliary key-levers, a slide actuated from key-lever and connected with the type-wheel for elevating it and a latch mechanism connected with the other key-lever for regulating the movement of the said slide.

18. The combination with the type-wheel carriage and key-levers for actuating it, a rotary and vertically-movable type-wheel mounted on said carriage, of means for rotating the type-wheel when the carriage is thrown by the key-lever, an auxiliary key-lever-actuated mechanism for raising the type-wheel and a second auxiliary key-lever-actuated mechanism for regulating the amount of vertical adjustment of the type-wheel by the first auxiliary key-lever mechanism; the key-lever of the second auxiliary mechanism being in operative relation with the key-lever of the first auxiliary mechanism to impart a further movement to it for the purpose described.

19. The combination with the location-pins and the key-levers operatively connected therewith, of a longitudinally-reciprocating carriage having a longitudinal bar and a transverse bar actuated from the key-levers, a frame-plate overlying the carriage and provided with a plurality of adjustable slides on its under side at opposite sides of said rod and grooved rollers carried by the slides and between which said carriage-rod is guided, a type-wheel on the carriage and a horizontally-movable location-plate mounted on the carriage operatively connected with the type-wheel and having slots for the location-pins.

20. The combination with the type-wheel and its notched centering or locking disk or wheel, of a yoke-like line-gage provided on its base with a centering or locking lug to coöperate with said centering or locking disk.

21. In a type-writer the herein-described line-gage forked to straddle the printing-point and having the upper edges of its arms on the base-line of the printing-plane.

22. In a type-writer the herein-described line-gage formed with an attaching-base, upwardly-extending arms, a central boss and a type-wheel-locking lug of hardened steel secured in said boss.

23. A type-writer comprising the frame or base, the transverse series of vertical location-pins, the key-levers connected therewith, the reciprocating carriage actuated from the key-levers, a frame-plate overlying the carriage, a type-wheel mounted on the rear end of the carriage, a location-plate pivoted to the front end of the carriage, geared at the rear edge to the type-wheel, and provided with a series of individual angular slots for the said location-pins, arms projecting from the frame-plate over the rear portion of the location-plate to hold it down, a vertical slide slidingly connected to the type-wheel, upper and lower transverse adjusting-screws engaging the slide and means for operating the slide.

698,209. LOCOMOTIVE LEONARD ATWOOD, Philadelphia, Pa. Filed Jan. 31, 1901. Serial No. 44,062. (No model.)

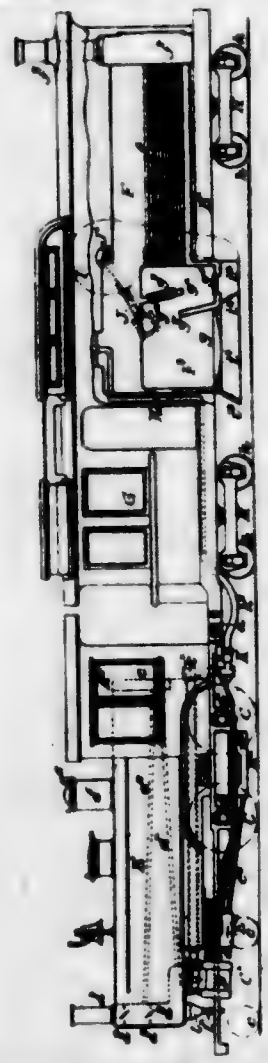
Claim.—1. The combination in a locomotive made in two sections coupled together, the one section having the frame carrying the driving-wheels and supporting the water-tank, cylinders mounted on the frame and having their pistons connected to the driving-wheels, condensing-tubes in the water-tank communicating with the exhaust-steam passages from the cylinders, and a boiler carried by an independent car and coupled to the cylinders, substantially as described.

2. The combination in a locomotive made in two sections coupled together, one section carrying the boiler and the fire-box, the other section having the driving mechanism, driving-wheels, steam-cylinders and water-tank mounted thereon, means for connecting the steam-cylinders to the boiler, and an exhaust-chamber coupled to the cylinders, a stack, flues in the water-tank, and valves or dampers so arranged that the steam may either pass directly through the steam-chamber to the stack or through the flues, substantially as described.

3. The combination in a locomotive of two sections coupled together, one section having a low frame, a boiler carried on said frame, the fire-box of said boiler extending between the members of said frame, a stack on one end of the boiler, steam-cylinders and driving-wheels carried on the other section, a water-tank mounted on the frame of said section, a stack thereon, a pipe coupling the said cylinders to the boiler, tubes extending through the water-tank and communicating with said second stack, valves or dampers for directing the exhaust-steam either through the tubes in the water-tank or directly to said stack thereon and a damper for cutting off the passage of steam to the stack, substantially as described.

4. The combination of a frame, driving-wheels mounted on said frame, steam-cylinders also mounted on the frame and connected to the driving-wheels, a water-tank mounted on the frame and having two depending portions, tubes in each portion and circulating-tubes connecting the portions, an exhaust-steam chamber communicating with the cylinders, and condensing-tubes in the water-tank communicating with the said steam-chamber, substantially as described.

5. The combination in a locomotive, of a frame, driving-wheels on the frame, cylinders also on the frame connected to the driving-wheels, a water-tank carried by the frame and having a chamber for the exhaust-steam communicating with the cylinders, and a stack communicating with the exhaust-steam chamber, a chamber at the opposite end of the tank, two sets of tubes extending from one steam-chamber to the other, a valve or damper in the first steam-chamber so that the steam exhausting can be either passed directly to the stack or indirectly through the tubes in the water-tank, substantially as described.



6. The combination in a locomotive, of a frame, driving-wheels on the frame, cylinders also on the frame connected to the driving-wheels, a water-tank carried by the frame and having a chamber for the exhaust-steam communicating with the cylinders, and a stack communicating with the exhaust-steam chamber, a chamber at the opposite end of the tank, two sets of tubes extending from one steam-chamber to the other, a valve or damper in the first steam-chamber so that the steam exhausting can be either passed directly to the stack or indirectly through the tubes in the water-tank, with a flue at the stack for cutting off the exhaust of steam, substantially as described.

7. The combination in a locomotive, of a frame, driving-wheels on the frame, cylinders also on the frame connected to the driving-wheels, a water-tank carried by the frame and having a chamber for the exhaust-steam communicating with the cylinders, and a stack communicating with the exhaust-steam chamber, a chamber at the opposite end of the tank, two sets of tubes extending from one steam-chamber to the other, a valve or damper in the first steam-chamber so that the steam exhausting can be either passed directly to the stack or indirectly through the tubes in the water-tank, with a flue at the stack for cutting off the exhaust of steam, and a receiving-pocket depending from the exhaust-steam chamber to receive the water of condensation, substantially as described.

698,210. RAILROAD-TRACK STRUCTURE. VICTOR ABGREEN and WILLIAM SELFRIDGE, Philadelphia, Pa.; said William Selfridge executor of Edward Samuel, deceased. Filed Nov. 21, 1896. Serial No. 613,085. (No model.)

Claim.—1. The combination in a crossing structure, of the rails forming said structure, a diamond-shaped plate mounted in that portion of the structure where the rails would cross each other, said diamond-shaped plate having flangeways cut therein forming four diamond-shaped projections, substantially as described.

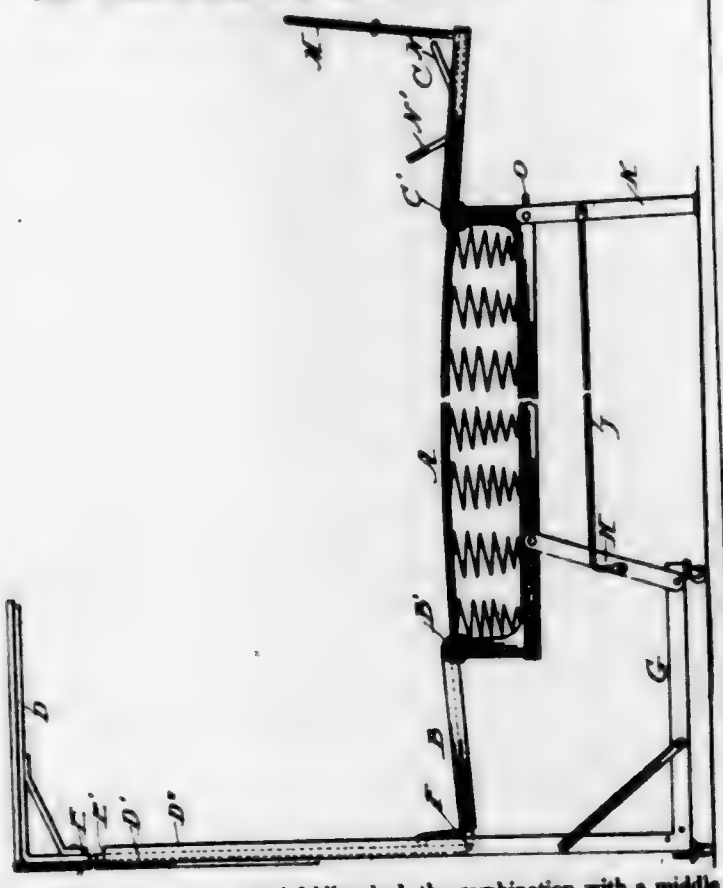
2. The combination in a crossing structure, of the rails forming said structure, a cast-metal joint-block by which the rails are secured together, a cavity in the said joint-block, a hard-metal center plate mounted within said cavity and having flangeways forming four diamond-shaped projections, substantially as described.

3. The combination in a crossing structure, of the rails forming said structure, the ends of the rails being cut at an angle, a cast block by which the rails are secured together, a diamond-shaped cavity formed in the block and by the rails, with a diamond-shaped hard-metal plate mounted in said cavity and having flangeways cut therein, substantially as described.



4. As a new article of manufacture, a diamond-shaped hard-metal center plate for a crossing, having flangeways cut therein, forming four diamond-shaped projections, substantially as described.

693,211. FOLDING BED. LEVI H. BACHARD, Chicago, Ill., assignor of one-half to William J. Garvy, Chicago, Ill. Filed July 30, 1898. Serial No. 687,315. (No model.)



Claim.—1. In a metal folding bed, the combination with a middle section A pivotally mounted to fold crosswise of the bed, of end sections B C pivoted to the said middle section at a point above the frame-pieces A', of the middle section, and a flexible mattress A^4 attached to the end sections and adapted to be drawn taut when the bed is opened, said mattress then being held in a position above the level of the frame-pieces A', whereby a free and unobstructed spring edge is provided at both sides of the middle portion of the bed, substantially as described.

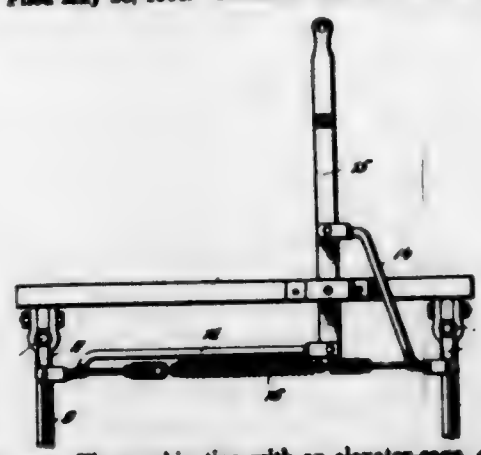
2. In a metal folding bed, the combination with the middle section A pivoted to fold crosswise of the bed substantially to a vertical position, the said middle section being provided with standards A^3 and coiled springs A^3, of sections B C pivoted to the said standards above the plane of the frame-pieces A' of the middle section, and a woven-wire mattress A^4 secured to said end sections and adapted to be drawn taut over the springs A^3 above the level of the frame-pieces A', whereby a free and unobstructed spring edge is provided at both sides of the middle section, substantially as described.

3. In a folding bed, the combination with a pivoted section A adapted to fold substantially to a vertical position, of a section B pivoted to the section A within the point of the latter's pivotal mounting, whereby said section B is automatically folded or unfolded with regard to the section A as the latter section is moved toward or from the vertical to close or open the bed, grooved standards D^6 mounted at the end of section B, a movable canopy, rods supporting the canopy and passing within the standards, and fingers upon the section B of the bed-body extending within the grooved standards adapted to actuate the canopy when the bed is operated, substantially as described.

4. In a folding bed, the frame forming the head of the bed, in combination with the bed-body formed lengthwise of sections pivotally secured together and mounted so that when open the bed-body lies with its head toward said frame, and a spring-mattress mounted at the ends of the bed-body and held thereby above the frame-pieces of the middle section so as to present a free and unobstructed spring edge at each side of the bed, substantially as described.

5. In a folding bed the combination of the grooved standards and frame forming the head of the bed, the canopy having the extension-rods which slide in grooves in the standards and support said canopy, the bed-body formed lengthwise of sections pivotally secured together and mounted so that when open it lies with its head toward said frame and its sides open and unobstructed, fingers upon the head-section of the bed-body which extend into the grooves in the standards and are adapted to move the extension-rods and canopy upward when the bed is being opened, and the pivoted headpiece L^2 adapted as set forth to serve as a locking device when the bed is open and to hold the bedding in position when the bed is to be closed, substantially as described.

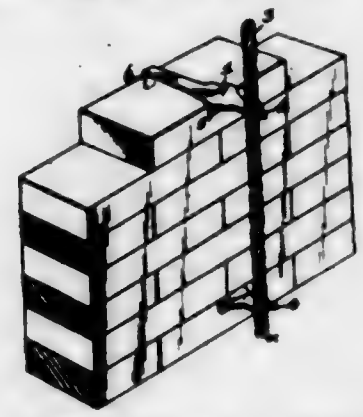
693,212. ELEVATOR-GEAR. WILLIAM M. RAINBRIDGE, Elkton, Colo. Filed May 28, 1901. Serial No. 62,234. (No model.)



Claim.—1. The combination with an elevator-cage, of dogs pivotally hung thereon, a hand-lever fulcrumed on the cage, arms pivotally connected with the hand-lever at opposite sides of the fulcrum thereof and having connection respectively with the dogs, and a retractile spring extending between the dogs and tending to draw them toward each other into inactive position.

2. The combination with an elevator-cage, of rock-shafts mounted thereon, dogs carried by the rock-shafts and depending therefrom, cranks connected with the rock-shafts, a hand-lever fulcrumed on the elevator-cage, arms pivotally connected with the hand-lever at opposite sides of the fulcrum thereof, and a retractile spring connected with the cranks and tending to draw the dogs together, whereby to hold them in active position.

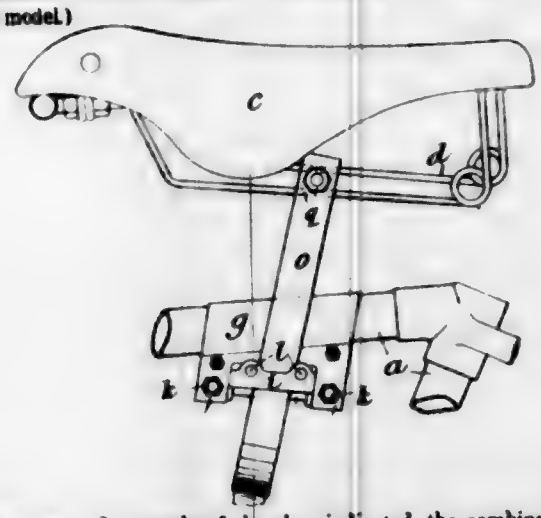
698,213. ANCHOR-FASTENER FOR LIGHTNING-CONDUCTORS. CARL BAJOHR, St. Louis, Mo. Filed Dec. 4, 1901. Serial No. 84,630. (No model.)



Claim.—1. The improved fastener for lightning-conductors, comprising a body made of non-corrosive metal and having a socket at its outer end for the reception of the conductor and provided upon its body with projections or shoulders adapted to engage the wall in which said fastener is to be embedded, substantially as specified.

2. The improved fastener for lightning-conductors, consisting of the body 1, having the socket 2 and arms 4 at its outer end, the flange or projection 6 at its inner end and the flange or projection 5 intermediate of said socket and said flange 6, as and for the purpose specified.

693,214. BICYCLE DRIVING MECHANISM. JAMES BAKER, Melbourne, Victoria, Australia. Filed July 9, 1901. Serial No. 67,649. (No model.)



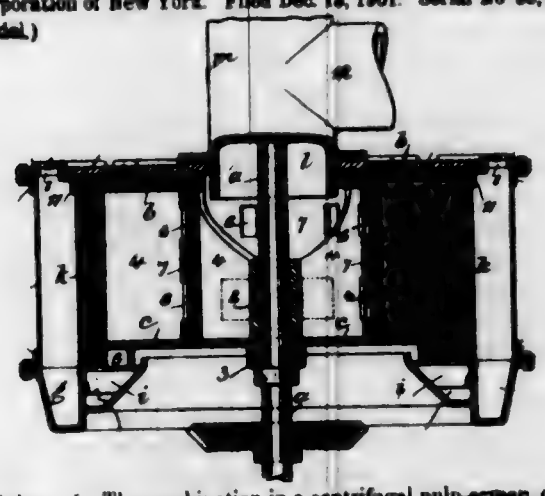
Claim.—1. In a cycle of the class indicated, the combination with the frame thereof, and driving mechanism therefor; of a guide-frame having two pairs of roller-bearings at right angles to one another, a clip for holding said guide-frame in position, ears for securing said frame to said clip, a rod passing through said guide-frame, a saddle upon said rod, and means connecting said rod to the driving mechanism, substantially as described.

2. In a cycle of the class indicated, a rod having a fork at its upper end, a saddle supported on said fork, and means for guiding said fork; of a crank-shaft having a pedal on one end and a crank *s* on the other end to which the said rod is pivoted, and a pedal-crank connected to the crank *s*, substantially as described.

3. In a cycle of the class indicated, the combination with the frame thereof; of a guide-frame having two pairs of roller-bearings at right angles to one another, a clip for holding said guide-frame in position, a rod having a fork at the upper end, said fork passing through said guide-frame, a saddle supported upon said fork, and a crank to which said rod is connected, substantially as described.

4. In a cycle of the class indicated, the combination with the frame thereof; of a guide-frame having two pairs of roller-bearings at right angles to one another, a clip for holding said guide-frame in position, a rod having a fork at the upper end, said fork passing through said guide-frame, a saddle supported upon said fork, a crank-shaft having a pedal-crank at one end and a crank *s* on the other end to which the said rod is pivoted, and a pedal-crank connected to said crank *s*, substantially as described.

693,215. CENTRIFUGAL PULP-SCREEN. JAMES H. BAKER, GEORGE F. SHEVLIN, and FREDERICK H. BAKER, Saratoga Springs, N. Y., assignors to Baker and Shevlin Company, Saratoga Springs, N. Y., a Corporation of New York. Filed Dec. 13, 1901. Serial No. 85,794. (No model.)

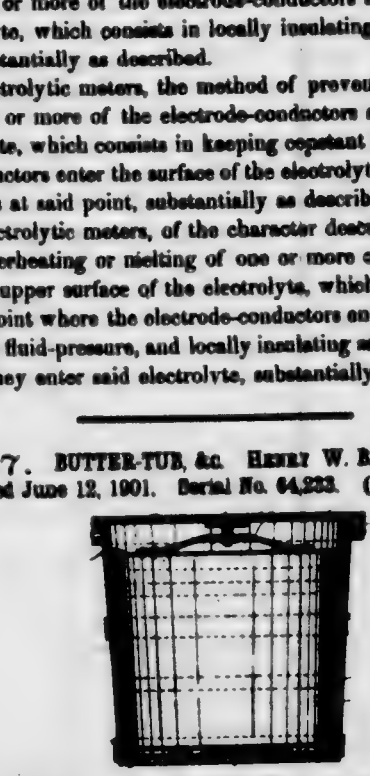


Claim.—1. The combination in a centrifugal pulp-screen, of devices for supplying the pulp or paper-stock, devices for acting upon the same, a segmental casing and a cover therefor and screen-plates within the casing acting to separate the fibers from the pulp, and means for permitting the pent-up air or pressure between the screen-plates and casing to escape through the cover whereby currents of air are established upward through the machine, substantially as and for the purposes set forth.

2. In a centrifugal pulp-screen, the combination with a power-shaft and centrifugal devices mounted thereon, and a cylinder and inlet-pipe to the machine, of segmental screen-plates, a segmental casing outside of the screen-plates, a cover to which the screen-plates and casing are connected, said cover having openings therein between the vertical planes of the screen-plates and casing and open-work metal plates or gratings fitting said openings, substantially as set forth.

3. In a centrifugal pulp-screen, the combination with a power-shaft and centrifugal devices mounted thereon and a cylinder and inlet-pipe to the machine, of segmental screen-plates, a segmental casing outside of the screen-plates a cover to which the screen-plates and casing are connected, said cover having curved openings therein between the vertical planes of the screen-plates and casing and flanged edges surrounding said openings spaced at a slight distance from the edges of the openings, and curved open-work metal plates or gratings fitting over said openings and within said edges, substantially as specified.

693,216. ELECTROLYTIC ELECTRICITY-METER. CHARLES O. BASTIAN, London, England. Filed Oct. 14, 1901. Serial No. 78,606. (No model.)



Claim.—1. In electrolytic meters, the method of preventing overheating or melting of one or more of the electrode-conductors, at the upper surface of the electrolyte, which consists in preventing the access of air or other gases to said conductors at said point, substantially as described.

2. In electrolytic meters, the method of preventing overheating or melting of one or more of the electrode-conductors at the upper surface of the electrolyte, which consists in locally insulating said conductors at said point, substantially as described.

3. In electrolytic meters, the method of preventing overheating or melting of one or more of the electrode-conductors at the upper surface of the electrolyte, which consists in keeping constant the point where the electrode-conductors enter the surface of the electrolyte, and insulating the said conductors at said point, substantially as described.

4. In electrolytic meters, of the character described, the method of preventing overheating or melting of one or more of the electrode-conductors at the upper surface of the electrolyte, which consists in keeping constant the point where the electrode-conductors enter the surface of the electrolyte, by fluid-pressure, and locally insulating said conductors at the point where they enter said electrolyte, substantially as described.

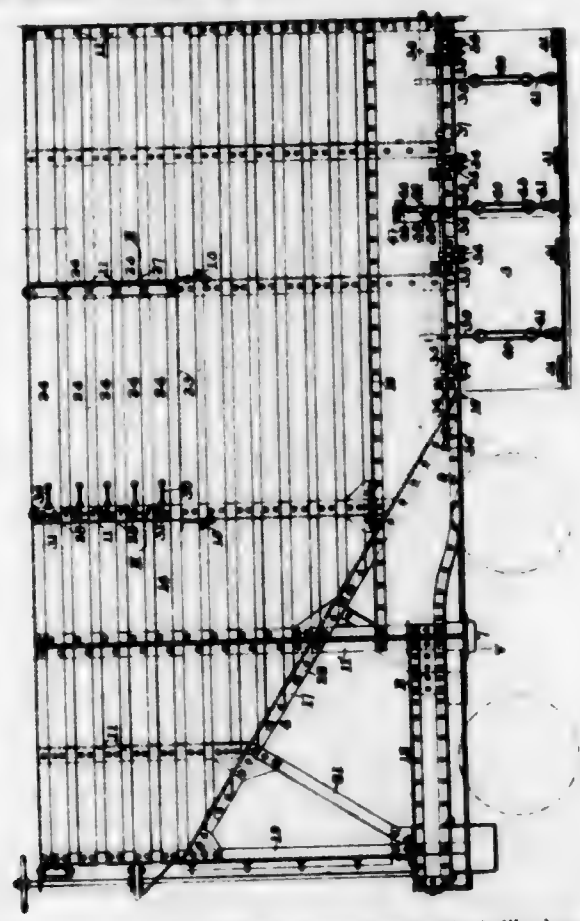
693,217. BUTTER-TUB, &c. HENRY W. BELDSMEIER, St. Louis, Mo. Filed June 12, 1901. Serial No. 64,223. (No model.)

Claim.—1. In a butter-tub or the like, a main body, a removable lining mounted in the main body with air-spaces around the lining, a re-

movable cover for the lining, a removable cover for the main body, means of securing the body-cover rigidly in position and adjustable means of securing the lining and lining-cover rigidly in position, said means being adjustable after the body-cover is secured in position, substantially as specified.

2. In a butter-tub or the like, a main body, a removable lining mounted in the main body with air-spaces around the lining, a removable cover for the lining, a removable cover for the main body, means of securing the body-cover rigidly in position and adjustable means of securing the lining and lining-cover rigidly in position, said means being adjustable after the body-cover is secured in position, said means consisting of a screw seated in the lining-cover in alinement with an opening in the body-cover and a plate fixed on said screw to engage the body-cover, substantially as specified.

693,218. STEEL CAR. ARTHUR B. BELLOWS, Pittsburg, Pa. Filed Mar. 28, 1900. Serial No. 10,467. (No model.)



Claim.—1. A steel car having a central longitudinal sill, plate-girder sides extending above the bottom, vertical strengthening members for said sides extending above the same and serving as stakes, and a superstructure connected thereto; substantially as described.

2. A car having a longitudinal sill with a sectional end spliced to the body of the sill at a point between the body-bolster and its end; substantially as described.

3. A car having at the side a plate-girder with an end portion detachably fixed to the body of the plate-girder at a point between the body-bolster and the end; substantially as described.

4. A car having at its side a plate-girder, the marginal flanged sections being applied thereto with the attached portions on one face of the girder, and a strengthening-piece fixed to the other face of the girder and extending beyond the upper flanged section; substantially as described.

5. A car having in its superstructure cross-braces, and belt-rails extending between the same, constituting a supporting-frame; substantially as described.

6. A car having a door composed of sliding slats, slideways at one of the vertical stakes of the car between which the slats may slide, and fastening devices on a stake at the position of the end of the slats when closed; substantially as described.

7. A car having a door composed of sliding slats, slideways at one of the vertical stakes of the car between which the slats may slide, and fastening devices on a stake at the position of the other end of the slats when closed, said slats having handles at one end, and stop-shoulders at the other end; substantially as described.

8. In a drop-door for cars, the combination with a lifting-lever, a ratchet and pawl, means for disengaging the ratchet when the door is closed, and an upholding-latch; substantially as described.

9. A drop-door for cars, in combination with a lifting shaft or crank, a ratchet and pawl, means arranged to disengage the pawl when the door is closed, and a fastening device or latch for the door; substantially as described.

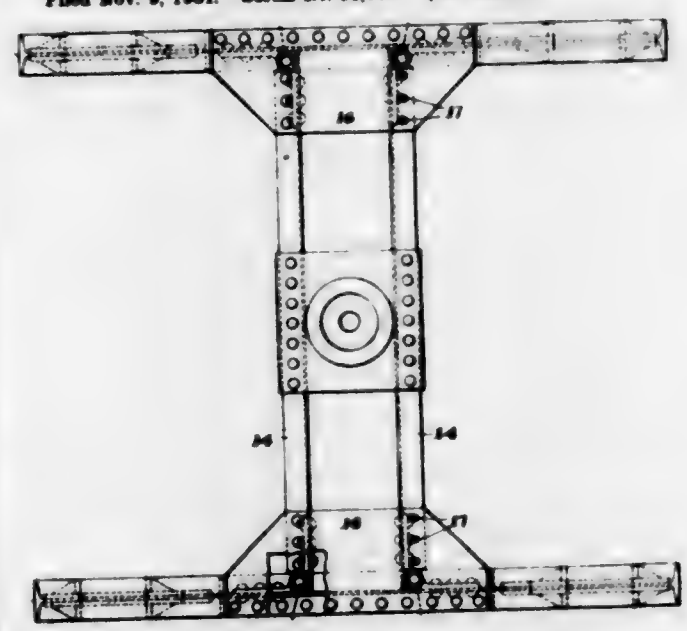
10. A drop-door for cars, in combination with a lifting shaft or crank, a ratchet and pawl, means arranged to disengage the pawl when the door is closed, a fastening device or latch for the door, and means for upholding the pawl; substantially as described.

11. A car having a flat bottom for at least a portion of its length, a series of horizontal doors in said flat bottom, a series of lifting-levers and links for said doors, and a series of hoods on the interior of the car arranged to protect the said mechanism; substantially as described.

12. A steel car having a center sill and substantially vertical sides, and a plurality of doors arranged on each side of the sill extending from the edge of the sill to the outer vertical side of the car and constituting throughout their length the entire horizontal floor of the car, said doors being hinged on axes extending lengthwise of the car, and lifting mechanism engaging the outer end portions of the doors; substantially as described.

13. A car having a longitudinal center sill, a plurality of doors arranged on each side of the sill and constituting throughout their length the entire longitudinal floor of the car, and a lifting-shaft above the level of the door when closed, said shaft being located in the lower outer portion of the car-body, and connected to the outer end portions of the doors, substantially as described.

698,219. TRUCK-FRAME. ARTHUR B. BELLOWS, Pittsburg, Pa. Filed Nov. 9, 1901. Serial No. 81,669. (No model.)



Claim.—1. A truck side frame containing an I-beam forming the central body portion, said I-beam having the lower parts of its end portions cut away and removed, the upper parts and top flanges of said end portions being bent to form pedestal parts; substantially as described.

2. A truck side frame containing an I-beam, the lower parts of whose end portions are cut away and removed, the upper parts and top flanges of the end portions being bent to form U-shaped pedestal parts, and pedestals secured within said parts; substantially as described.

3. A truck having side frames and a connecting-transom, the connections between the transom and the side frames being flexible or hinged in a vertical direction to allow horizontal movement of the one part relatively to the other; substantially as described.

4. A truck having a transom composed of a plurality of rolled shapes each having a flexible connection with the side frame; substantially as described.

5. A truck-frame having a transom with hinged connections between them and the side frames, and connecting-plates between the transom and side frames arranged to allow relative movement of these parts; substantially as described.

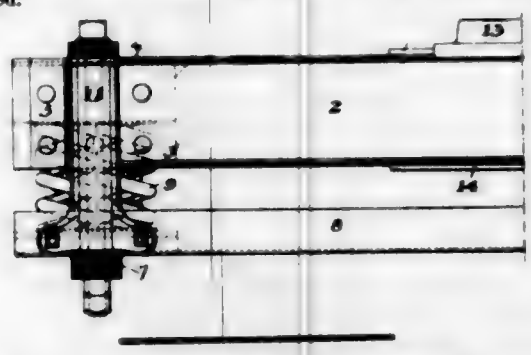
698,220. TRUCK-BOLSTER. ARTHUR B. BELLOWS, Pittsburg, Pa. Filed Nov. 9, 1901. Serial No. 81,670. (No model.)

Claim.—1. A truck-bolster having its body formed of flanged rolled shapes, the exterior flanges being cut away from the ends of the shapes, and exterior vertical guides secured to the webs of the shapes at the cut-away portions; substantially as described.

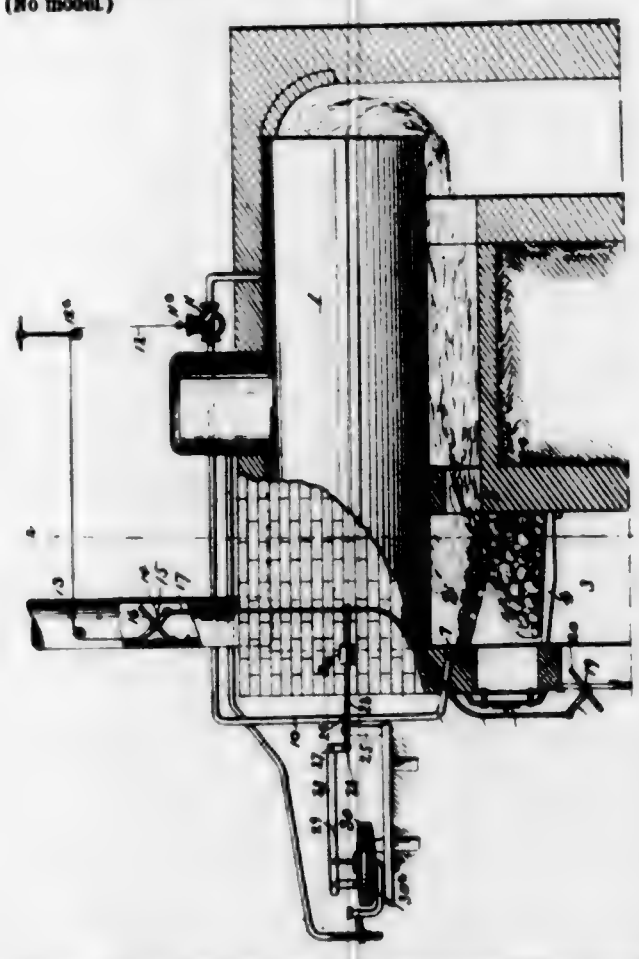
2. A truck-bolster body formed of two I-beams with their exterior flanges cut back from the ends and exterior vertical guides secured at the cut-away portions, the inner lower flanges also being cut away, and a spring-bearing seat secured between the ends of the shapes; substantially as described.

3. A truck-bolster comprising a pair of I-beams connected by a bot-

tom plate, the outer flanges of said beams being cut away at their end portions, vertically-extending angles secured to the end portions of the web, the inner lower flanges being cut away at the ends, and a spring-bearing seat secured between the end portions of the webs; substantially as described.

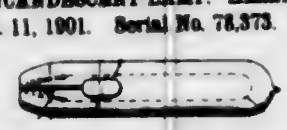


693,221. AUTOMATIC STEAM-PRESSURE REGULATOR. DAVID P. BLOUNT, Norfolk, Va. Filed July 19, 1901. Serial No. 68,867. (No model.)



Claim.—The combination with a boiler and furnace, of a spray mounted in said furnace and connected to the boiler by a pipe provided with a spring constructed to normally hold said valve closed, a damper mounted in the smoke-stack on a shaft provided with a crank-arm, a flexible member connecting said crank-arm and said valve, a damper mounted in the front of the ash-pit on a shaft bearing a crank-arm, a connecting-rod connecting said crank-arms, a lever having its long arm connected to said connecting-rod, a pressure-regulator connected to said boiler, and means for connecting said pressure-regulator to said lever, substantially as described.

693,222. INCANDESCENT LAMP. HERMAN BOEHM, Youngstown, Ohio. Filed Oct. 11, 1901. Serial No. 78,373. (No model.)

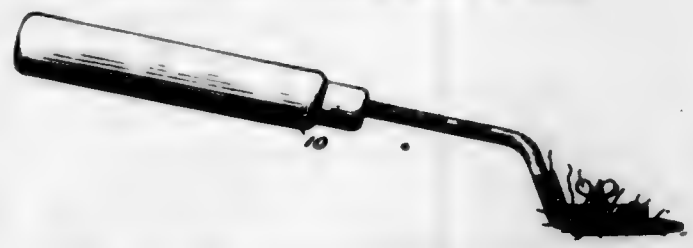


Claim.—1. An incandescent lamp-bulb having recesses in its sides, leading-in wires extended into such recesses, and contact-plates for holding the wires, such plates being located within the recesses, as set forth.

2. An incandescent lamp-bulb having in its sides grooves or indentations extending from one end, and leading-in wires extended through and held in said grooves or indentations, as set forth.

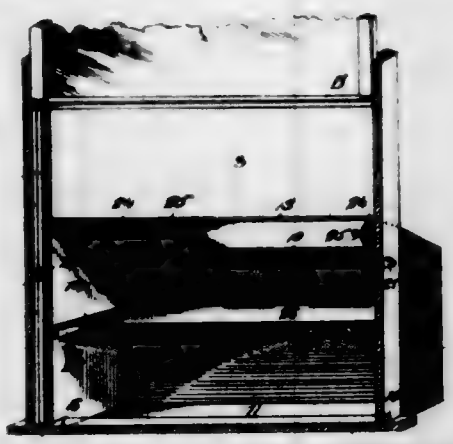
3. An incandescent lamp-bulb having recesses in its sides, and grooves or indentations extending from one end to and terminating in said recesses, leading-in wires extended through said grooves or indentations, and contact-plates in said recesses holding the ends of said leading-in wires, as set forth.

693,228. HORSE CLIPPER. MATHIAS BOHNERT, San Francisco, Cal. Filed May 2, 1901. Serial No. 58,448. (No model.)



Claim.—In a clipper, the combination with a stationary cutter-plate, an internally-screw-threaded squared boss formed on the upper surface thereof, a handle having a footpiece with a squared boxed opening therein so as to render the same independently detachable and adjustable on the squared boss, a movable cutter mounted to reciprocate longitudinally on said stationary cutter, a pin with a free independent upper end on said movable cutter, of a second movable handle having a footpiece with an opening therein, a threaded bolt secured fixedly at its lower end to the threads of the boss and passing through the opening of the foot-plate, said plate of said movable handle having openings therein whereby to adjust the same on the free end of said pin of said movable cutter-plate, and a thumb-screw on the upper end of said fixed threaded bolt of the boss for connecting the said foot-plates of the handles and cutter-plates of the combs together, substantially as specified.

693,224. WINDOW ATTACHMENT FOR PROTECTING FOOD. ALEXANDER BOLLER, New York, N. Y. Filed May 20, 1901. Serial No. 61,055. (No model.)



Claim.—1. A protective box for food, comprising a front panel, top and bottom panels hinged to corresponding edges of the front panel, and side panels also hinged to the front panel at the ends thereof, whereby the side panels may be adjusted to accommodate the article to window-frames of different sizes, and clamps carried by the side sections, adapted for engagement with projections from a window-frame, as described.

2. A protective box for food and the like, comprising a front panel, top and bottom panels respectively hinged to corresponding portions of the front panel, side panels hinged to the ends of the front panel, segmental wings carried by the upper portions of the side panels and adapted for engagement with the under face of the top panel, means for adjustably holding the wings in the said position, and clamps carried by the inner portions of the side sections and adapted for attachment to extensions from a window-frame, as set forth.

3. In a protective box for food, &c., the combination, with a front panel, a bottom panel and a top panel, the bottom and top panels being hinged respectively to the bottom and top edges of the front panel, of side panels hinged to the ends of the front panel, the said side panels being of greater width than the width of the bottom panel, each side panel being provided with a recess in its bottom at its forward edge, segmental wings pivoted to the upper edges of the said panels and arranged for engagement with the under face of the top panel, buttons pivoted to the top panel, engaging with the said wings, and clamps pivotally attached to the inner edges of the side panels, said clamps being adapted for engagement with extensions from a window-frame, as set forth.

693,225. HYDROCARBON-BURNER. GEORGE A. BONELLI, Kingman, Ariz. Filed Mar. 5, 1901. Serial No. 49,772. (No model.)

Claim.—1. A hydrocarbon-burner, comprising a plurality of burners, and a combined gas generator and spreader approximately flat and having its periphery arranged in a vertical plane, the opposite sides tapering toward the periphery, the said gas generator and spreader extending between the burners and the openings of the latter extending in the direction of the sides of the generator and spreader, for the flames of the

burner to heat said generator and spreader and thereby insure vaporization of the liquid fuel and cause the flame issuing from the burners to spread separately and to be united at the edge of the generator and spreader, as set forth.



2. A hydrocarbon-gas burner comprising a combined gas generator and spreader approximately flat and semicircular in shape and having its opposite sides tapering toward its periphery, the said periphery being arranged in a vertical plane, a plurality of burners, between which the generator and spreader extend, the said burners being arranged to direct the flames upon the tapering sides of the generator and spreader to heat the same and thereby insure vaporization of the liquid fuel and cause the flame issuing from the burners to spread separately and to be united along the edge of the generator and spreader, and a valve for closing the fuel-supply to said combined generator and spreader, as set forth.

3. A hydrocarbon-burner, comprising a gas-generator approximately semicircular in shape and having flat sides tapering toward the periphery, the periphery being arranged in a vertical plane, the said generator being formed with an interior circumferential passage for the fuel, and a central passage leading from the circumferential passage, a casing carrying said generator and connected with a fuel-supply, and burners extending from opposite sides of said generator and opening into the said central passage, the said burners being arranged to direct their flames against the sides of the gas-generator to spread the flames lengthwise of the generator and to cause the flames to meet and join along the periphery of the generator, as set forth.

4. A hydrocarbon-burner, comprising a gas generator and spreader approximately flat and semicircular in shape, and formed with an interior circumferential passage and a central passage leading from the top of the circumferential passage, and burners secured to the sides of said gas generator and spreader and opening into said central passage, said burners having angular slots extending in the direction of the flat sides of said gas generator and spreader, as set forth.

5. A hydrocarbon-burner, comprising a gas generator and spreader approximately flat and semicircular in shape and formed with interior circumferential passage and a central passage, burners secured to the sides of said gas generator and spreader and opening into said central passage, said burners having angular slots extending in the direction of the flat sides of said gas generator and spreader, a casing into which screws the hollow threaded shank of the generator and spreader, the shank opening into the bottom of the circumferential passage, and a valve controlling the inlet of the liquid fuel to said casing, as set forth.

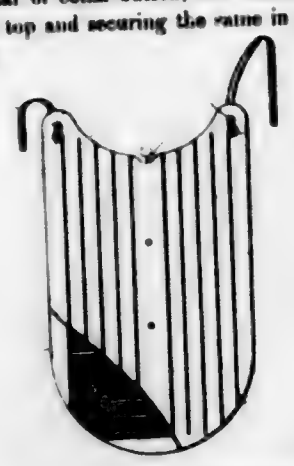
6. A hydrocarbon-burner comprising a gas-generator approximately flat and semicircular in shape and formed with an interior continuous circumferential passage, and a central passage leading from the top of the circumferential passage and terminating above the lower portion of said circumferential passage, a casing carrying said generator and connected with a liquid-fuel supply, the said casing communicating with the lower portion of the circumferential passage in the generator, burners extending from opposite sides of said generator and having their openings arranged to direct the flames against the sides of the generator, and a valve controlling the inlet of the fuel to said casing as set forth.

693,226. BOSOM-PAD FOR SHIRTS. LIBBEAY M. BRYAN, Cincinnati, Ohio. Filed May 29, 1899. Serial No. 718,627. (No model.)

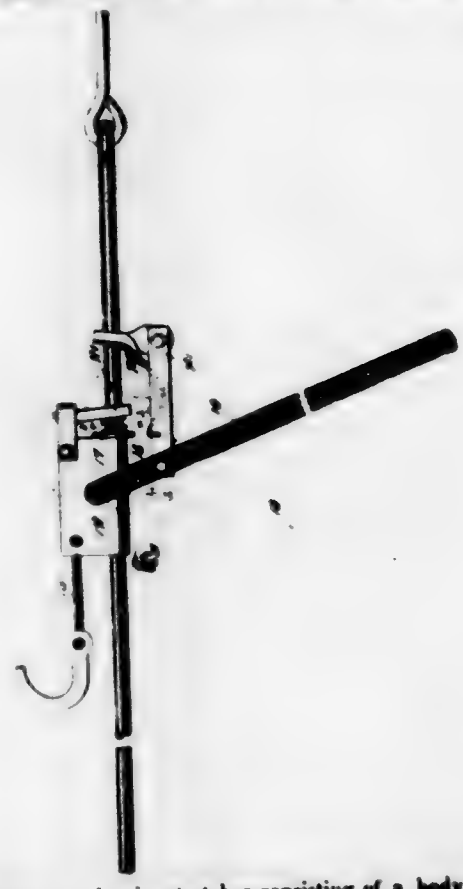
Claim.—1. As an article of manufacture, a false bosom for shirts comprising a layer of material formed in imitation of a shirt-bosom, and provided with a notch in its upper edge for engagement with the collar-button to hold the bosom against lateral displacement when in position, and tapes secured to said layer and adapted to be passed about the neck of the wearer, substantially as set forth.

2. As an article of manufacture, a false bosom for shirts comprising a plurality of interchangeable reversible layers of material, means for detachably securing said layers of material together, and means for securing the bosom to the wearer, substantially as set forth.

3. As an article of manufacture a false bosom for shirts consisting of a plurality of layers of material each formed in imitation of a shirt-bosom and having a concave top edge adapted to conform to varying sizes of neckbands and having at the center of said top edge a notch whereby the layers may slide beneath the head of the collar-button and the walls of the notch bear against the pin thereof so that the layers may be readily adjusted and retained to a correct position and removed without disturbing the collar or collar-button, and means for connecting said layers together at the top and securing the same in position for use, substantially as set forth.



693,227. WIRE-STRETCHER. WALTER X. BRANNON, Dry Fork, Tex. Filed June 21, 1901. Serial No. 65,454. (No model.)



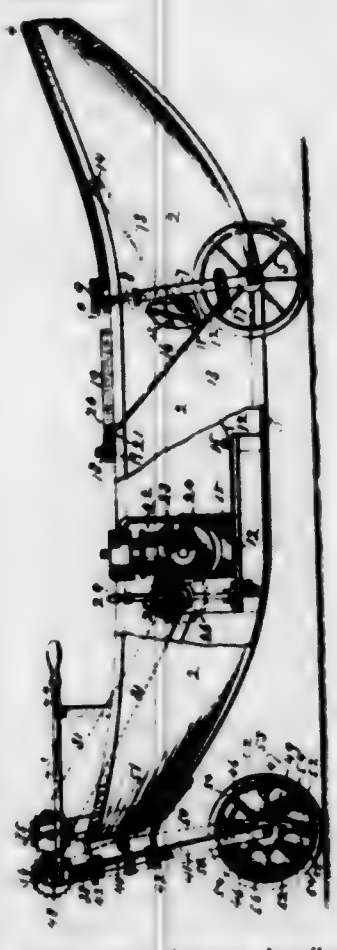
Claim.—1. A wire-stretcher consisting of a body-bar adapted for connection to the end of a wire to be stretched, a block mounted to slide on the body-bar, a guide-loop connected with one end of said block, a post-gripping device carried at the other end of said block, a lever pivoted to the sliding block between the ends of the latter, a link pivoted to said lever, locking and actuating arms mounted for sliding and gripping engagement upon the body-bar, the actuating-arm being attached to the said link and the free end of the locking-arm engaging the loop on the said sliding block, and a spring on the body-bar, between the sliding block and the locking arm, substantially as described.

2. In a wire-stretcher, a body-bar adapted for attachment to one end of a wire to be stretched, a block held to slide on the body-bar, a hook pivotally connected with one end of said sliding block, a loop pivoted to the opposite end of said sliding block, a spring-controlled locking-arm mounted to slide on the body-bar and grip the same, the free end of said locking-arm extending through the loop on the sliding block, a lever pivoted to the sliding block at a point between the pivoted hook and the loop, a link connected at one end with said lever, and a spring-controlled actuating-arm pivoted to the other end of said link and having sliding and gripping engagement with the body-bar, the locking and actuating arms having inclination in opposite directions.

3. In a wire-stretcher, the combination, with a body-bar having means for attachment to an end of a wire to be stretched, a block mounted to slide on the body-bar, a hook having a link connection with one end of the block, a guide-loop located at the opposite end of the block, a locking-arm having an aperture through which the body-bar passes, the free end of the locking-arm entering the said guide-loop of the block, a washer

loosely mounted on the body-bar and engaging that end of the block at which the loop is located, and a spring coiled around the body-bar and bearing against the said washer, and the apertured portion of said locking-arm, of a lever pivoted upon said block, a link pivoted to said lever, and a spring-controlled actuating-arm pivoted to said link, the actuating-arm being provided with an aperture through which the body-bar passes, the locking and actuating arms being normally inclined in opposite directions, as and for the purpose specified.

698,228. BOAT ADAPTED TO BE PROPELLED ON LAND OR IN WATER. SAMUEL T. BRITTAIN, Boston, Mass. Filed July 18, 1901. Serial No. 68,736. (No model.)



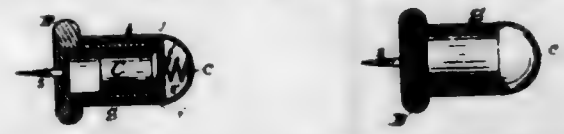
Claim.—1. In a boat of the character described, in combination with the hull, the wheel 46 provided with a traction-tire for use on land and with paddles and mechanism for operating them for use in water, the rotative frame 40, 41 supporting the wheel, brackets extending from the stern and supporting said frame, the yoke 38 and shaft 37 supported thereby, the sprocket-wheels 48 and 49 on the shaft 37 and the driving-shaft of the wheel respectively, the gear-wheel 36 mounted on the shaft 37 and provided with convex teeth, the shaft 33 supported by the boat and provided with the gear-wheel 35 formed with concave teeth, steering mechanism connected with the yoke 38, a suitable motive power supported by the boat, and mechanism intermediate of the shaft 33 and said power for imparting rotation to the former, substantially as described.

2. In a boat of the character described, the combined paddle-wheel and steering-wheel 46 provided with a traction-tire for use on land, the radial pivots 53, the paddles 52 of substantially the shape described and supported by said pivots, the pins 55 extending at substantially right angles from the paddles, the pin 60 extending into the path of the pins 55 and substantially radially with the wheel, the sleeve or clutch 59 supporting said pin 60, mechanism for operating said sleeve or clutch from the boat, means for supporting the paddle-wheel at the stern of the boat, mechanism for rotating said wheel, and mechanism for steering the same, substantially as set forth.

3. In a boat of the character described, a combined traction, paddle and steering wheel connected with and near the stern of the boat, mechanisms for rotating said wheel and operating it as a rudder, the wheels 5 on opposite sides of the boat near its bow, swinging frames connecting said wheels of the boat, a locking mechanism holding said wheels normally down, and means whereby said wheels can be swung up when the boat is in the water, substantially as described.

4. In a boat of the character described, a combined traction, paddle and steering wheel connected with and near the stern of the boat, mechanisms for rotating said wheel and operating it as a rudder, the wheels 5 on opposite sides of the boat near its bow, the rod 10 supported by the boat, the frames 7, 8 rigid with said rod and supporting the wheels, the arms 11 rigid with said rod, mechanisms for swinging said arms, the slideways 18 on the boat, the arms 16 extending from the frames 7, 8 and provided with slides moving in the slideways, and means for locking said arms when the wheels are down, substantially as set forth.

698,229. EXPLOSIVE FIRE-ALARM. CHARLES E. BUELL, North Plainfield, N. J. Filed Apr. 18, 1901. Serial No. 56,374. (No model.)



Claim.—1. A thermally-actuated apparatus having a charge of explosive material within a containing member, a primer for firing said charge, that is excluded from the surrounding atmosphere and is adapted to be exploded by heat transmitted through the excluding medium; a second primer upon the exterior of the member that contains the first-named primer, means for sealing the last-named primer from the surrounding atmosphere that is adapted to be ruptured by heat to expose said primer to the surrounding atmosphere, and a supporting device for suspending the said apparatus in an apartment.

2. An alarm device consisting of a body, means for securing said body to the wall and furniture of an apartment, an explosive charge adapted to be inserted in said body after the body has been secured in position, and a primer for said charge that is sealed from the surrounding atmosphere, and adapted to be fired by heat transmitted through the sealing medium.

3. An alarm device having a confined explosive charge, an easily-fired primer that is confined with said charge and adapted to be fired by heat transmitted through the confining medium, and that is adapted to set off said charge when acted upon by the heat of an incipient fire, means for excluding the surrounding atmosphere from said charge and said primer that serves to secure said charge and confined primer in position and is provided with a member that is removable by the heat of an incipient fire, and a means for suspending said alarm device in an apartment.

4. The combination with the body B, of an alarm apparatus, of the supporting member s, adapted to be secured to its support before the body B, is charged, an easily-fired cartridge C, comprising a detonating charge of explosive and a more-easily-fired primer within said cartridge that is adapted to be fired by heat transmitted through the shell of the cartridge which thus constituted is adapted to be inserted in said body, a primer i, for hastening the firing of said cartridge, and a cap S, for securing said cartridge in the body B, and for normally excluding the surrounding atmosphere from said primer that is adapted to be ruptured and removed by the heat of an incipient fire

5. An alarm apparatus comprising a body of ductile metal, means for suspending said body to the walls and furniture of an apartment, a charge of explosive in a metal shell inserted in said body, a primer for said charge that is inclosed therewith and adapted to be ignited by transmitted heat, an ignitible primer adhered to the exterior of said metallic shell and adapted to be ignited by heat without contact of flame, and a shell-like cover provided with shoulders and adapted to be secured to said body to hold said cartridge during the period of explosion.

6. An alarm apparatus having a body that is provided with means for suspending said body to the walls and furniture, of an apartment, a cartridge inserted in said body, a primer within said cartridge, an igniting-primer adhered to the exterior of said cartridge, means for excluding the igniting-primer from the surrounding air said excluding member being removable by transmitted heat without contact of flame, and a device for securing the said cartridge in said body.

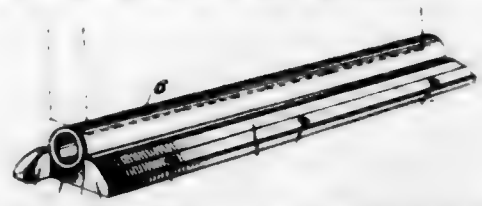
7. An alarm apparatus comprising a body B, adapted to be secured to the walls and furniture of an apartment, a cartridge C, adapted to be inserted in the secured body, an inclosed primer for said cartridge, and a shell S, adapted to be screwed upon said body for securing the said cartridge in said body, that is provided with a cap that is removable by heat.

8. A cartridge for heat-actuated alarms comprising a charge of detonating explosive adapted to be ignited and fired by transmitted heat without the contact of flame, a primer of more-easily-ignited explosive in communication with said charge, an igniting-primer in operative relation to the explosive primer, and means for excluding the said charge and primers from the surrounding atmosphere that comprises a member adapted to be removable by transmitted heat without the contact of flame.

9. An alarm device comprising a supporting member and an explosive charge secured to the supporting member, and a primer for said charge that is sealed from the surrounding atmosphere and is adapted to be fired by heat transmitted through the sealing medium.

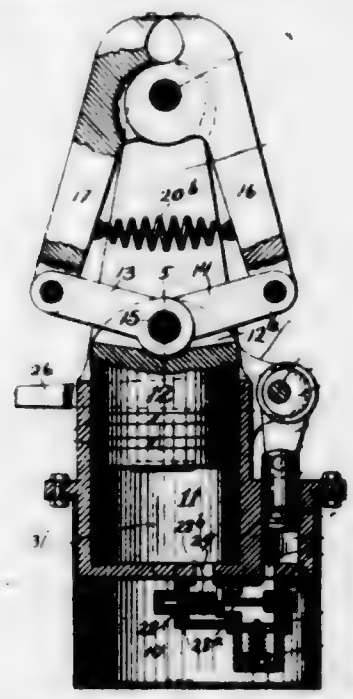
10. An alarm device that comprises a supporting member, an explosive charge secured to the supporting member, and inclosed from the surrounding atmosphere, and an easily-fired primer in communication with said charge, and that is sealed from the surrounding atmosphere, and is adapted to be fired by heat transmitted through the sealing medium for firing the explosive charge.

693,230. WEATHER-STRIP. DAVID H. BURKEY, Allegheny, Pa. Filed Nov. 15, 1901. Serial No. 82,343. (No model.)



Claim.—A weather-strip comprising an integral metal strip grooved throughout its length on its upper face, a packing arranged in the bottom of said groove throughout the entire length thereof, a heavy rubber tube fitted in said groove with its bottom engaging the upper face of the packing, the side walls of said groove engaging the sides of said rubber tube and securing the same by frictional contact therewith, substantially as described.

693,231. DEVICE FOR SEVERING BOLTS, RIVETS, &c. FRANCIS A. CARTER, Chicago, Ill. Filed Apr. 24, 1901. Serial No. 57,197. (No model.)



Claim.—1. A manually-operated and self-contained hydraulic cutting device or machine of a portable character, and adapted for shearing or cutting bolts, rivets, or the like, and involving in its construction suitable cutting members and hand-actuated power-supplying devices and a fluid-reservoir, and hydraulic-pressure devices adapted and arranged to communicate power and motion from said hand-actuated power devices to said cutting members, a port or passage being provided for returning fluid from the hydraulic-pressure devices to the said reservoir, and the machine or device thus constructed and operated being adapted for manual manipulation as a tool or implement for performing the aforesaid work.

2. In a device adapted for manual operation as a tool or implement for cutting bolts, rivets, or the like, the combination of cutting members, a hand-actuated force-pump, a fluid-reservoir having a valved passage communicating with said force-pump, hydraulic-pressure devices adapted and arranged to communicate power and motion from said hand-operated pump to said cutting members, said pump having a valved passage communicating with said hydraulic-pressure devices, the valve between the pump and reservoir opening when the valve between the pump and hydraulic-pressure devices closes, and the valve between the pump and hydraulic-pressure devices opening when the valve between the pump and reservoir closes, whereby fluid may be drawn from the reservoir into the pump and then forced from the latter into the hydraulic-pressure devices, and a port or passage whereby the fluid is returned from the hydraulic-pressure devices to the said reservoir.

3. In a self-contained device adapted for manual manipulation as a tool or implement for cutting bolts, rivets, or the like, the combination of cutting members, a hand-pump, a reservoir adapted to contain fluid and having a passage through which the latter is drawn into said pump, a piston and cylinder, a passage through which said fluid is forced from said pump into said cylinder, suitable power-transmitting connection between said piston and said cutting members, and a return port or passage for returning the fluid from said cylinder to said reservoir.

4. A self-contained device adapted and designed to be manually operated and manipulated as a tool or implement for cutting bolts, rivets, or the like, comprising relatively movable cutting members, a casing or body upon which said cutting members are suitably mounted, a swinging or vibratory hand-lever suitably mounted upon said casing or body structure and adapted for supplying the power for operating said cutting members, and hydraulic-pressure devices involved in the construction of said casing or body structure and adapted and arranged to communicate power and motion from said hand-lever to said cutting members, the said hydraulic-pressure devices involving a plurality of fluid-chambers with connecting-passages to permit the fluid to circulate and pass from one chamber to the other.

5. A manually-operated and self-contained machine or device of the character and for the purpose specified, comprising a pair of pivoted jaws, a toggle device for actuating said jaws, a vibratory hand-lever, and suitable power-transmitting connection between said lever and said toggle device, whereby the motion of said lever is transmitted or communicated to said jaws, substantially as described.

6. A machine or device for cutting metal, comprising a pair of pivoted cutting-jaws, a toggle device adapted and arranged for actuating said jaws, a cam suitably mounted and arranged for rotation, and power-transmitting connection between said cam and said toggle device, whereby a rotation of said cam will cause said toggle device to actuate said jaws, substantially as described.

7. A machine or device of the character and for the purpose set forth, comprising suitable cutting members, a toggle device for operating said cutting members, a rotary cam, a hand-lever for rotating said cam, and suitable hydraulic-pressure devices arranged intermediate of said cam and said toggle device, said hydraulic-pressure devices being adapted to communicate power and motion from said cam to said toggle device, substantially as described.

8. In a manually-operated and self-contained machine or device for cutting bolts, rivets, and other like metal articles, the combination of a portable base, a pair of pivoted cutting-jaws supported by said base, a toggle device for actuating said jaws, a hand-lever also carried by said base, and suitable hydraulic devices arranged intermediate of said hand-lever and said toggle device, said base being adapted to provide a reservoir for supplying liquid to said hydraulic-pressure devices, and the latter being adapted to communicate power and motion from said lever to said toggle devices, substantially as described.

9. A manually-operated and self-contained machine or device of the character and for the purpose specified, comprising a suitable base or body structure adapted to provide a support for a hand-lever and a pair of pivoted cutting-jaws, suitable hydraulic-pressure devices arranged intermediate of said lever and said jaws, said hydraulic-pressure devices being adapted to communicate power and motion from said lever to said jaws, a chamber or reservoir in said base adapted to supply liquid to said hydraulic-pressure devices, and a suitable duct or passage for returning the liquid from said pressure devices to said chamber or reservoir, substantially as described.

10. A machine or device for cutting metal, comprising suitable cutting means, a cylinder and piston for operating said means, a force-pump for supplying liquid-pressure to said cylinder, means for operating said pump, a chamber or reservoir for supplying liquid to said pump, and a return duct or passage leading from said cylinder to said reservoir, whereby the liquid forced into said cylinder is returned to said reservoir, substantially as described.

11. A manually-operated and portable machine or device for cutting bolts, rivets, and other like articles, comprising a pair of pivoted cutting-jaws, a toggle device for actuating said jaws, a piston for operating said toggle device, a cylinder inclosing said piston, a hand-operated force-pump for forcing liquid into said cylinder, a reservoir for supplying liquid to said force-pump, a return duct or passage for conducting the liquid back from said cylinder to said reservoir, and a relief port or duct also leading from said cylinder to said reservoir, substantially as described.

12. In a manually-operated and self-contained machine or device of the character and for the purpose specified, the combination of a pair of pivoted cutting-jaws, a toggle device for actuating said jaws, a piston for actuating said toggle device, a cylinder inclosing said piston, a force-pump for forcing liquid into said cylinder, a hand-lever and cam for operating said force-pump, a suitable reservoir for supplying liquid to said force-pump, and one or more return ducts or passages for conducting the liquid back from said cylinder to said reservoir, substantially as described.

13. In a rivet or bolt cutting machine or device, the combination of a pair of relatively movable cutting-jaws, a manually-operated force-pump, a hydraulic-pressure device arranged to receive liquid from said force-pump and adapted to operate said cutting-jaws, a reservoir for supplying liquid to said force-pump, and one or more return ducts or passages for conducting the liquid back from said pressure device to said reservoir, substantially as described.

14. In a manually-operated and self-contained machine or device of the character and for the purpose specified, the combination of cutting-jaws, a spring adapted and applied for normally holding said jaws apart, a vibratory hand-lever, and power-transmitting connection adapted and

arranged to communicate power and motion from said hand-lever to said jaws, substantially as described.

15. In a manually-operated and self-contained cutting device, the combination of a pair of pivoted jaws, a spring adapted for holding said jaws normally apart, a toggle device adapted and arranged for actuating said jaws, a vibratory hand-lever, and hydraulic-pressure devices arranged intermediate of said hand-lever and said toggle device, said pressure devices being adapted and arranged to communicate power and motion from said lever to said toggle device, so as to actuate said jaws, substantially as described.

16. In a manually-operated and self-contained cutting device adapted for use in cutting bolts, rivets, or other like articles, the combination of a hydraulic-pressure device and a manually-operated force-pump associated together on a suitable base or body structure, a pair of relatively movable cutting-jaws, and power-transmitting connection between said hydraulic-pressure device and said jaws, whereby power and motion applied to said force-pump are communicated to said relatively movable jaws, substantially as described.

17. In an apparatus of the class described, the combination with a pair of cutting-jaws pivoted together, of lever-arms formed integrally therewith, toggle-levers between the ends of said arms, a spring also between said arms to draw them together and open the jaws, a hydraulic cylinder located in line with the said arms and jaws, a piston in said cylinder directly connected with said toggle-lever, a reservoir attached to the cylinder for the fluid, a force-pump to take the fluid from said reservoir and force it into the cylinder to act upon the piston, said cylinder having exhaust-ports to empty the same back into the reservoir.

18. In an apparatus of the class described, the combination with a pair of cutting-jaws pivoted together, of lever-arms formed integrally therewith, toggle-levers between the ends of said arms, a spring also between said arms to draw them together and open the jaws, a hydraulic cylinder located in line with the said arms and jaws, a piston in said cylinder directly connected with said toggle-lever, a reservoir attached to the cylinder for fluid, a force-pump within the reservoir to charge the cylinder, and means for emptying the contents of the cylinder back into the reservoir.

19. In an apparatus of the class described, the combination with a pair of cutting-jaws pivoted together, of lever-arms formed integrally therewith, toggle-levers between the ends of said arms, a spring also between said arms to draw them together and open the jaws, a hydraulic cylinder located in line with the said arms and jaws, a piston in said cylinder directly connected with said toggle-lever, a reservoir surrounding the lower or outer end of the cylinder in which fluid is adapted to be stored, a force-pump within the reservoir to force the liquid normally therein into the cylinder, means to allow the fluid to escape from the cylinder back into the reservoir.

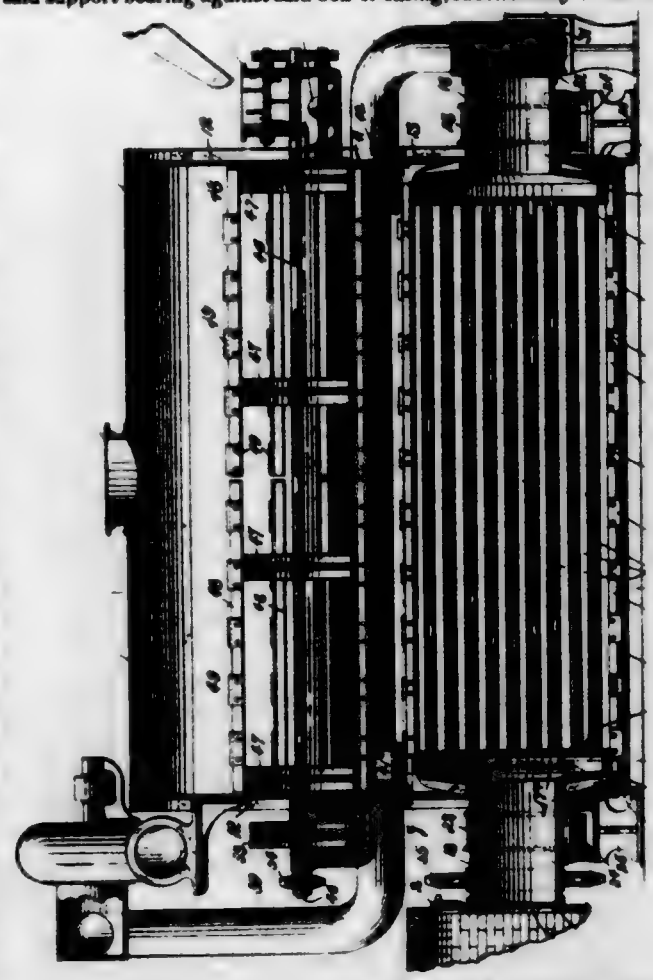
20. The combination with cutting-jaws, of a power-cylinder, a piston within the cylinder connected with the jaws, a reservoir about one end of the cylinder, a supplemental cylinder at one side of the other cylinder, a piston in said supplemental cylinder, a valve-casing on the lower end of said cylinder also within the reservoir and having valves therein and communicating openings or ports leading to the two cylinders, and means for operating said piston in the supplemental cylinder to force liquid through the valve-casing into the other cylinder.

21. The combination with cutting-jaws, of a cylinder-casting suitably bored for a main power-cylinder and a supplemental cylinder, and having a flange formed upon it intermediate its ends, a piston in said main cylinder connected with the said jaws, a cylindrical or cup-like reservoir adapted to be secured to said flange, and means operative within the supplemental chamber to force liquid from the reservoir into the main power-cylinder.

693,232. DRIER. CHARLES H. CASPER, Newark, N. J. Filed June 5, 1901. Serial No. 63,204. (No model.)

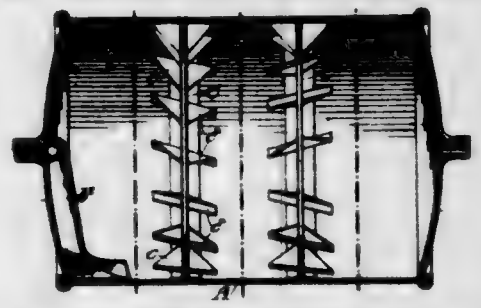
Claim.—1. In a heater, a drum, a pair of circular plates integral with pipes running in bearings, a series of tubes connecting said plates and communicating with said pipes, a hot-air box or casing on the end of one of said pipes, a hot-air feeding-pipe on the end of the other pipe, shoulders or flanges bearing against the ends of said pipes, a standard for said hot-air casing, an upright arm or arms on said standard, and adjusting-screws bearing on said casing, to adjust the joints of the hot-air pipes, substantially as set forth.

2. In a heater, a casing, a drum, a rotating heater comprising a pair of circular plates integral with pipes running on roller-bearings outside the casing, a series of tubes connecting said plates and communicating with said pipes, a set of angle-irons connecting the peripheries of said plates, and supporting the agitating-plates and buckets a hot-air pipe feeding one end of the rotating heater, and provided with an internal flange and gasket or washer, a hot-air box or casing on the other end of said heater, provided with an internal flange and a gasket, a standard supporting said hot-air box and provided with an upright support and an adjusting-screw in said support bearing against said box or casing, substantially as set forth.



3. In a drier, a drum, a revolving heater and agitator in said drum, a hot-air box on one end of said heater, a hot-air pipe feeding the other end of the heater, the feed-pipe and box being provided with flanges and gaskets, a standard for supporting the hot-air box, and means on the standard for adjusting the joints, substantially as set forth.

698,233. DRYING-CYLINDER. RICHARD U. CHADWICK, Philadelphia, Pa. Filed June 5, 1901. Serial No. 63,250. (No model.)



Claim.—1. A drying-cylinder in combination with a curved conduit for removing water from the interior of the cylinder, the said conduit having in it drainage-openings provided with deflectors whereby water is prevented from passing through said openings when the cylinder is rotated, substantially as described.

2. A drying-cylinder revolubly supported on tubular trunnions, closed curved conduits connected to one of the trunnions and constructed to collect and remove water from the cylinder, said trunnion being provided with means to prevent communication between the conduits, said means extending to the outer or discharge end of the trunnion, substantially as described.

3. A drying-cylinder revolubly supported on tubular trunnions, closed conduits curved in opposite directions connected to one of the trunnions and constructed to collect and remove water irrespective of the directions of rotation of the cylinder, said trunnion being constructed to prevent communication between the conduits to the outer or discharge end of said trunnion, substantially as described.

4. A drying-cylinder having tubular trunnions, curved conduits within the cylinder communicating with one of said trunnions, said conduits being joined, a section common to both being provided with a partition extending through the trunnion to the outer or discharge end of the same, whereby water is prevented from flowing from one conduit to the other as the cylinder is revolved, substantially as described.

5. A drying-cylinder supported on tubular trunnions, one of said trunnions being divided to form two channels, a closed curved conduit

connected to each of said channels, said conduits curving in opposite directions and being constructed to collect and remove water from the cylinder irrespective of the direction of rotation of said cylinder, substantially as described.

6. A drying-cylinder having within it a stiffening-ring provided with openings for the passage of water, relatively short inclined vanes extending on both sides of said stiffening-ring, said vanes being constructed to guide water toward and through said openings, with means for finally removing water from the cylinder, substantially as described.

7. A drying-cylinder having within it a stiffening-ring, openings therethrough to allow of the passage of water, inclined vanes for said openings extending on both sides of the stiffening-rings constructed to guide water toward and through the same, a number of said vanes being inclined oppositely to the others whereby water is delivered through the openings in the ring irrespective of the direction of rotation of the cylinder, substantially as described.

8. A drying-cylinder having within it a stiffening-ring provided with openings for the passage of water, inclined vanes extending on both sides of the stiffening-ring, constructed to guide water toward and through said openings, said vanes being secured to the inside surface of the cylinder as well as to said stiffening-rings, and being placed at relatively frequent intervals along the entire circumference of the ring, thereby acting as lateral stays to said ring, substantially as described.

698,284. PIPE THIMBLE OR INSULATOR. WILLIAM B. CHOATE, Aurora, Ill. Filed May 14, 1900. Serial No. 16,641. (No model.)



Claim.—1. A thimble for pipes consisting of an inner and an outer flanged sleeve, one of such sleeves having interrupted spiral ribs, and the other of such sleeves having a yielding lug that is adapted to engage with said ribs, substantially as and for the purpose described.

2. A thimble for pipes, consisting of an inner and an outer flanged sleeve, one of such sleeves having interrupted spiral ribs forming parts of a plurality of spirals, and the other of such sleeves having a lug that is adapted to engage such ribs, substantially as and for the purpose described.

3. A thimble for pipes, consisting of an inner and an outer flanged sleeve, one of such sleeves having interrupted spiral ribs forming parts of a plurality of spirals, such interruptions being in line with each other, and the other of such sleeves having a lug that is adapted to engage such ribs, substantially as and for the purpose described.

4. A thimble for pipes, consisting of an inner and outer flanged sleeve, one of such sleeves having interrupted spiral ribs forming parts of a plurality of spirals, and the other of said sleeves having a spring-lug that is adapted to engage such ribs, substantially as and for the purpose described.

5. A thimble for pipes, consisting of an inner and an outer flanged sleeve, one of such sleeves having interrupted spiral ribs forming parts of a plurality of spirals, such interruptions being in line with each other, and the other of such sleeves having a spring-lug that is adapted to engage said ribs, substantially as and for the purpose described.

698,285. PILING. ARARA B. CLARK, New York, N. Y. Filed May 31, 1901. Serial No. 62,500. (No model.)

Claim.—1. A pile consisting of metallic walls provided with a cap and a point, a passage for fluid material, and tongue-and-groove devices for interlocking with adjacent piles, substantially as described.

2. A pile consisting of metallic walls and provided with a point and a cap, a chamber in said pile for fluid material and having a filling and a discharge orifice, and a tongue on one vertical edge and a groove on the other vertical edge of said pile for interlocking with the vertical edges of adjacent piles, substantially as described.

3. A pile consisting of metallic walls, bracing between said walls, a space for fluid material between said bracing having a filling and a discharging orifice, a cap and shoe, and a tongue on one vertical edge and a groove on the other vertical edge of the pile for interlocking with the vertical edges of adjacent piles, substantially as described.

4. A pile consisting of metallic walls with metal bracing, a passage for fluid material provided with a filling and a discharge opening, a cap and a shoe, and a groove on one vertical edge and a tongue on the other vertical edge for interlocking with the vertical edges of adjacent piles, substantially as described.

5. The combination in a pile of metallic walls braced within, a chamber in said pile fo. fluid material, and a shoe beveled to one edge whereby as the pile is driven it is forced against its adjacent pile, substantially as described.



6. A hollow pile characterized by the following elements, walls braced within, a cap on the upper end of said walls, a shoe on the lower end of said walls beveled toward one edge so as to force the pile against its adjacent pile when driven, and devices on the vertical edges of the pile adapted to interlock with the vertical edges of the adjacent piles, substantially as described.

693,286. PUMP. HUDSON S. CLARK, Sigourney, Iowa. Filed Oct. 26, 1901. Serial No. 80,066. (No model.)



Claim.—1. The improvement in pumps herein described consisting of the pump-tube having the two upturned inlet-pipes arranged diametrically opposite each other and on opposite sides of the pump-tube, and the perforated diaphragm composed of the central portion consisting of the sections adjustable upon each other at their inner edges and recessed in said edges forming the openings to fit around the pump-tube and inlet-pipes, means connecting said sections of the central portion, the outer sections having a hinged connection with the central portion, and the springs extending between the central portion and the hinged sections and adapted to permit the yielding of the hinged section either up or down substantially as set forth.

2. In a pump a diaphragm perforated for the passage of the water and consisting of a central section having openings for the passage of the pump-tubes and spring-actuated sections hinged at their inner edges to the central portion substantially as set forth.

3. The combination with the pump-tube and its inlet pipe or pipes and the casing, of the perforated diaphragm fitted within the casing and around the pump-tube and inlet-pipe below the inlet-openings of the inlet-pipe substantially as set forth.

4. The combination with the pump-tube of a perforated diaphragm fitting around the same and having its outer sections yieldingly supported whereby they can pass obstructions within the well-casing substantially as set forth.

5. A diaphragm for use in wells and provided with openings formed partially in opposite separable sections and means for connecting such sections and securing same upon the pump-tube substantially as set forth

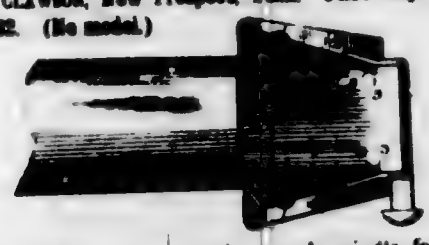
6. The combination of the central diaphragm portion composed of separable plate-sections recessed in their adjacent edges whereby to fit the pump-tubing, the outer sections hinged to the central portion, and the

spring-plate extending transversely over or across the central and hinged portions substantially as set forth.

7. The combination of the pump-tube, its inlet-pipes, and the perforated diaphragm having its central portion separated into sections to fit on opposite sides of the pump-tube and inlet-pipes, and means for connecting said sections together substantially as set forth.

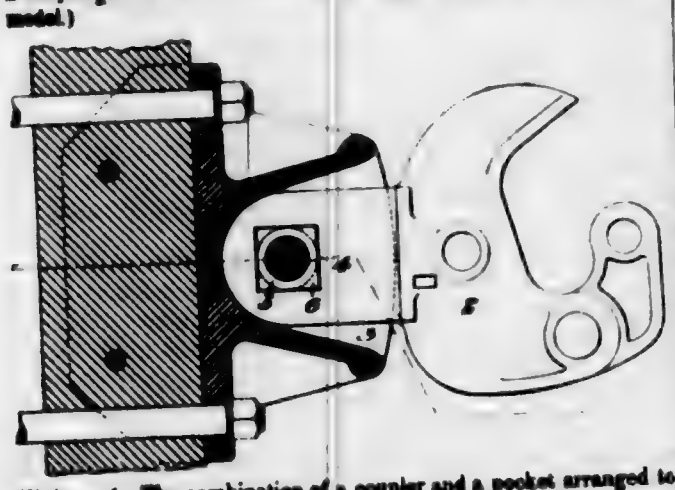
8. The combination with the pump-tube and its inlet-pipes, of a strainer-diaphragm fitting around the pump-tube and inlet-pipes below the inlet ends of the latter substantially as set forth.

693,287. WHEEL-ATTACHING DEVICE. JESSE S. CLAWSON and JOHN C. CLAWSON, New Prospect, Tenn. Filed July 8, 1901. Serial No. 67,562. (No model.)



Claim.—The combination with an axle-spindle formed with diametrically opposite notches, of a hub-attaching device comprising a cap bored to fit upon the spindle, and formed with diametrically opposite beveled seats, spring-plates secured at their inner ends upon said seats and beveled at their outer ends to fit the notches, and a pair of oppositely-disposed angle-arms secured to the outer ends of the spring-plates, and provided with heads at their free ends.

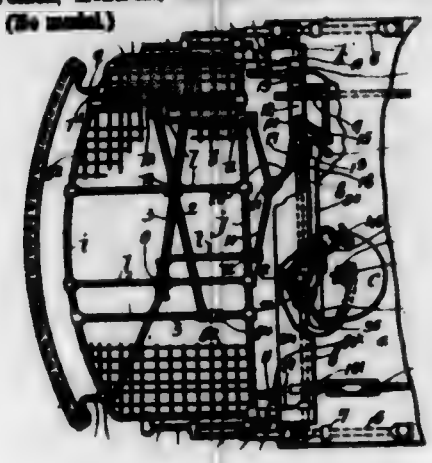
693,288. CAR-COUPLING. WALTER E. COFFIN, Cleveland, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed Oct. 5, 1900. Serial No. 32,110. (No model.)



Claim.—1. The combination of a coupler and a pocket arranged to receive the coupler-shank, a pivot-pin and a bushing fitting in the pivot-hole of the coupler and having an angular portion fitting a corresponding socket or recess, said angular portion being adapted to hold the bushing from turning during normal operation, but permitting it to be turned and adjusted to present a new wearing-surface.

2. The combination of a coupler and a pocket arranged to receive the coupler-shank, a pivot-pin and a bushing fitting in the pivot-hole of the coupler and having an angular portion fitting a corresponding socket or recess, said angular portion being constituted by a head on a bushing fitting an angular countersunk hole in the coupler.

698,289. AUTOMATIC MOTOR-CAR LIFE-SAVER. GEORGE O. E. CONWAY, Stonefield, Canada, assignor of one-half to Reuben Henry Wolden, Montreal, Canada. Filed Feb. 13, 1901. Serial No. 47,183. (No model.)



Claim.—1 A universal swinging frame attached to a motor-car suspending a horizontal feeler-bar, that recoils from obstruction the recoil of said feeler-bar acting directly on the switch-off and reversing spindles thereby regulating and controlling the electric current as applied to motor-car propulsion, said oscillating feeler-bar by the same recoil action releasing and immediately applying the brakes by means of a combined self-adjustable friction-pulley sheave attached rigidly to the axle of the motor-car.

2. The combination with a car of a cranked rod extending horizontally and transversely of the front of said car, bearings carried by the car and supporting said horizontal rod, a horizontal frame; a pair of arms connected rigidly at their upper ends to the ends of said horizontal rod and pivotally connected at their lower ends to the rear of said horizontal frame; a vertical rod intersecting the cranked portion of the horizontal rod near one end of said cranked portion, a crank formed in said vertical rod in position to engage said horizontal crank and being of less radius than said horizontal crank and a crank-handle on the upper end of said vertical rod, substantially as described and for the purpose set forth.

3. The combination with a car of a cranked rod extending horizontally and transversely of the front of said car, bearings carried by the car and supporting said horizontal rod, a horizontal frame; a pair of arms connected rigidly at their upper ends to the ends of said horizontal rod and pivotally connected at their lower ends to the rear of said horizontal cranked portion of the horizontal rod near the frame; a vertical rod intersecting one end of said cranked portion a crank formed in said vertical rod in position to engage said horizontal crank and being of less radius than said horizontal crank, a yielding bar extending transversely and in front of said frame, a pair of bearings upon said frame, a pair of sliding rods guided in said bearings and connected at their forward ends to said yielding bar, a lever-arm connected rigidly to said vertical rod and means for connecting said yielding bar to said lever-arm, substantially as described and for the purpose set forth.

4. The combination with a car of a cranked rod extending horizontally and transversely of the front of said car, bearings carried by the car and supporting said horizontal rod; a horizontal frame; a pair of arms connected rigidly at their upper ends to the ends of said horizontal rod and pivotally connected at their lower ends to the rear of said horizontal frame; a vertical rod intersecting the cranked portion of the horizontal rod near one end of said cranked portion a crank formed in said vertical rod in position to engage said horizontal crank and being of less radius than said horizontal crank; a yielding bar extending transversely and in front of said frame, a pair of bearings upon said frame, a pair of sliding rods guided in said bearing and connected at their forward ends to said yielding bar, a lever-arm connected rigidly to said vertical rod, means for connecting said sliding rods to said lever-arm and compensating means for distributing throughout said yielding bar the pressure upon any one point thereof, substantially as described and for the purpose set forth.

5. The combination with a forwardly and backwardly movable frame and movable supports supporting said frame in its forward position, of a pair of sliding rods carried by said frame longitudinally thereof and projecting beyond the front thereof, a bar carried on the front ends of said sliding bars and extending transversely of said frame, a pair of compensating levers crossing one another about midway of their length, a loop loosely connecting said levers together at their point of intersection, a pivotal connection between one end of each of said levers and a rigid part of the frame, means for pivotally connecting the free ends of said levers to said sliding rods with a sliding connection transversely of said sliding rods and means for connecting said sliding rods to said movable supports substantially as described and for the purpose set forth.

6. The combination with a forwardly and backwardly movable frame and movable supports supporting said frame in its forward position, of a pair of sliding rods carried by said frame longitudinally thereof and projecting beyond the front thereof, a bar carried on the front ends of said sliding bars and extending transversely of said frame, the rear ends of said sliding rods being curved, a second pair of sliding rods having their forward ends curved, a harness-bar rigidly connecting the rear ends of said second pair of sliding rods together, a pair of loops inclosing the inner and outer curved ends of said first and second pairs of sliding rods respectively and each loop being connected to the frame by a sliding connection, a pair of compensating levers crossing one another about midway of their length, a loop loosely connecting said levers together at their point of intersection, a pivotal connection between one end of each of said levers and a rigid part of the frame and the free ends of said levers projecting through said pair of loops, and means for connecting said harness-bar to said movable supports, substantially as described and for the purpose set forth.

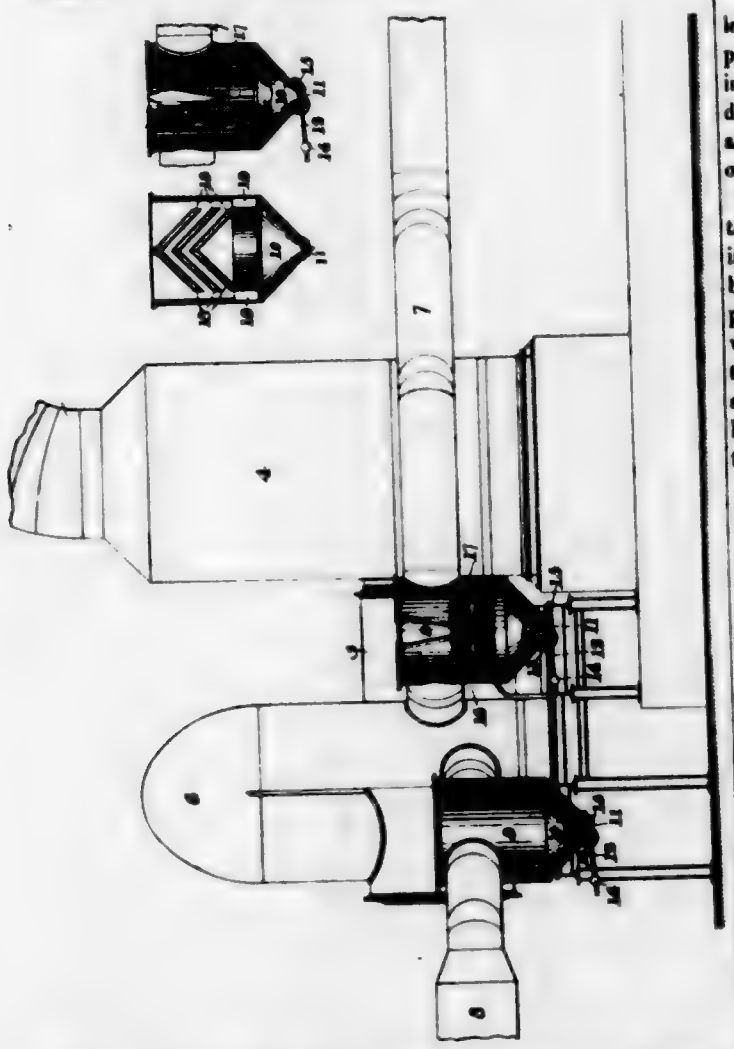
7. The combination with the vertical controller-shaft of an electric car, of a part projecting beyond the front of the car, means for yieldingly connecting said part to the car, a pinion mounted rigidly upon said controller-shaft, a quadrantal rack interiorly gear-toothed and intermeshing with said pinion and means for operatively connecting said yielding part

to said quadrantal gear, substantially as described and for the purpose set forth.

8. The combination with a sheave and rotary rim fixed on the axle of a car, having a lever connection with the projecting feeler-bar, a drop-chain that is drawn not wound, said chain at one end attached to brake lever-arm the other end suspended in bridle, by the depression caused by the projecting of feeler-bar in front of car, said chain being dropped on rotating rim, and applying the brakes, when the feeler-bar is struck as described and set forth.

9. The combination with a car-axle of automatic brake mechanism comprising a yielding part means for mounting said yielding part at the front of the car a pair of disks mounted rigidly upon the axle adjacent to one another, an annular flange formed upon the inside of each disk at the periphery thereof, said annular flanges being collectively of less width than the distance between said disks to provide a space between them, a pair of diametrically oppositely arranged eccentrics formed integrally with said axle between said disk, a pair of levers bearing upon said eccentrics at their inner ends and projecting between and beyond said flanges adjacent to one another, means for fulcruming said levers inside of said flanges, a band encircling said flanges and connected at its ends to the projecting ends of said levers, an annulus freely encircling said flanges and band and interiorly recessed to receive the ends of said levers a series of sprocket-teeth formed integral with the exterior of said annulus a pair of annular flanges formed integral with the exterior of said annulus one on each side of said series of sprocket-teeth, a lever fulcrumed to the under side of the car, and having its rear end extending over said sprocket-toothed annulus a length of chain carried by said rear end of said lever, means for connecting said chain to the brake-beam, and means for operatively connecting the forward end of said lever to said yielding part, substantially as described and for the purpose set forth.

693,240. FURNACE-VALVE AND DUST-CATCHER. GEORGE G. CRAWFORD, Braddock, Pa. Filed Nov. 26, 1900. Serial No. 37,777. (No model.)



Claim.—1. In a dust-catcher, an inclosed dust-chamber having an intermediate depending partition formed of plates secured together in general V form with an open top thereto, an inlet-pipe entering the side of the chamber opposite to the partition, an outlet-pipe leading from the opposite side of the chamber, both said pipes being of smaller diameter than the chamber, the lower portion of the chamber having sloping sides, and a removable closure arranged to discharge solid deposits from the lower end of the chamber; substantially as described.

2. A dust-catcher having a depending partition with inclined ribs thereon, and an inlet-pipe arranged to direct the gases against the face of the partition; substantially as described.

3. A dust-catcher having a depending partition provided with ribs or flanges inclined upwardly from both sides to central ridges or apices forming ridges thereon, and an inlet-pipe entering the side of the dust-chamber opposite the partition; substantially as described.

4. A combined water-sealing valve and dust-catcher comprising an inclosed chamber, an intermediate depending partition therein, an inlet-pipe entering one side of the chamber opposite the partition, an outlet-pipe leading from the opposite side, both of said pipes being of smaller diameter than the chamber, a removable closure forming a part of the bottom of the chamber and arranged to drop away and leave an opening in the bottom for the discharge of solid deposits therefrom when used as a dust-catcher, and means for feeding water into the chamber to a level above the lower end of the partition when using the device as a valve; substantially as described.

5. A combined water-sealing valve and dust-catcher, comprising a vertical inclosed chamber with a central depending partition extending downwardly a part of the depth of said chamber, an inlet-pipe entering one side of the chamber opposite to the partition and above its lower end, an outlet-pipe leading from the other side of the chamber, said chamber having sloping sides in its lower portion, a removable closure at the lower end of the chamber arranged to drop solid deposits therefrom when used as a dust-catcher, and a water-inlet pipe between the lower edge of the partition and the level of the inlet-pipe; substantially as described.

6. The combination with a blast-furnace, of a dust-catcher connected thereto, a pipe leading from the dust-catcher and a combined valve and dust-catcher located therein and having a greater cross-sectional area than said pipe, means for feeding water into the chamber to a level sufficient to seal the device against the flow of gas therethrough when used as a valve, and an adjustable closure forming part of the bottom of said chamber and arranged to drop away and leave an opening in the bottom for the discharge of the dry material; when used as a dust-catcher; substantially as described.

7. The combination with a dust-catcher of a blast-furnace, of a pipe leading therefrom, a dust-catcher located in said pipe and having a depending partition therein, a fluid-outlet consisting of a removable closure in the lower end of the dust-catcher, said closure being also arranged to discharge solid deposits from the chamber when used as a dust-catcher, and a fluid-inlet arranged to supply water at a level above the lower end of the partition; substantially as described.

8. In a blast-furnace system, a blast-furnace, a dust-catcher, a down-take leading from the top of the furnace to the dust-catcher, a pipe leading from said dust-catcher to a device for consuming the gas, and a combined valve and dust-catcher located in said pipe and having a depending partition, a removable closure forming a part of the bottom of said device, and arranged to drop away and leave an opening in the bottom for the discharge of dry material therefrom when used as a dry-dust catcher, and a pipe arranged to supply fluid to the chamber to a level above the lower end of the partition, enabling the device to act as a valve; substantially as described.

693,241. MACHINE FOR MAKING METAL TAGS. FREDERICK C. CROWE, Chicago, Ill. Filed Sept. 28, 1901. Serial No. 76,317. (No model.)

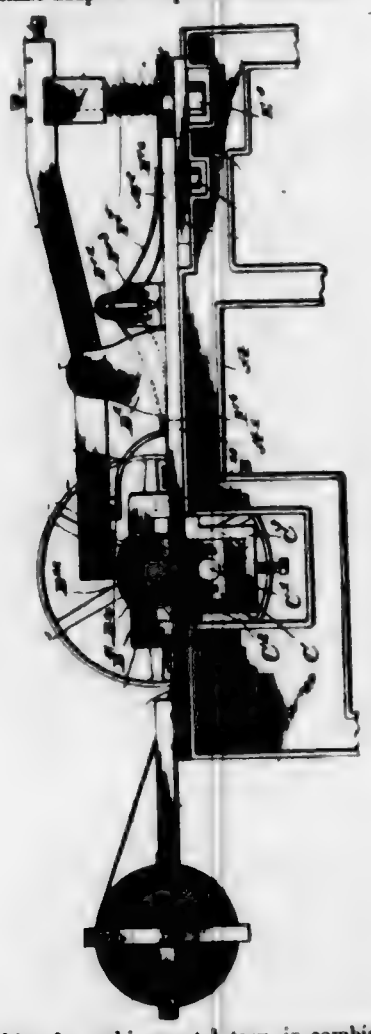
Claim.—1. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; a shear; a cam on said rotatable shaft; a rock-shaft journaled on said frame intermediate the design-roll and the shear; an arm fixed to said rock-shaft extending into the path of said cam; and a second arm fixed on said rock-shaft adapted to operate said shear.

2. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; and means for actuating said shear by the rotation of said shaft.

3. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; a rock-shaft for operating said shear; and a cam on said rotatable shaft for moving said rock-shaft.

4. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; two guide-posts on said support-

ing-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; a cam on said rotatable shaft; a rock-shaft; an arm fixed to said rock-shaft extending into the path of said cam; and a second arm fixed on said rock-shaft adapted to operate said shear.



5. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a shear; means for rotating the design-roll and for actuating the shear; and a compensating device for the metallic ribbon from which the tags are made, located in the path of said ribbon between the design-roll and the shear, which compensating device comprises an upright bracket and a vertically-adjustable rod over which the metallic ribbon runs.

6. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; means for adjusting the anvil-roll toward and from said design-roll; a spool for carrying the metallic ribbon from which the tags are to be made; a guide for directing said ribbon between said design-roll and said anvil-roll; a shear for cutting said ribbon into tag lengths; and a compensating device for controlling the presentation of the metallic ribbon to the shear.

7. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a cam fixed on said shaft; a design-roll adapted to be rotated by said shaft; an anvil-roll; two bearing-yokes for holding said design-roll from upward movement; means for adjusting said anvil-roll toward and from said design-roll; a rock-shaft having an arm extending into the path of said cam; a shear; said rock-shaft also having an arm adapted to operate said shear; and a compensating device for the metallic ribbon from which the tags are to be made, located in the path of said ribbon between the design-roll and the shear.

8. In a machine for making metal tags, in combination, a supporting-frame; a bed; a rotatable shaft journaled on said bed, said shaft having a wing-cam fixed thereon, also having an axial recess in its inner end; a shaft secured in said recess; two yokes secured to the frame for holding said last-mentioned shaft from upward movement; a design-roll fixed on said last-mentioned shaft; an anvil-roll rotatably mounted in the supporting-frame; means for adjusting the anvil-roll toward and from the design-roll; a shear on said supporting-frame; a spring for holding the upper die elevated; a rock-shaft mounted upon the supporting-frame, said rock-shaft having one arm projecting into the path of said cam, and a second arm for actuating said shear; and a compensating device for the metallic ribbon from which the tags are to be made, which compensating device comprises an upright bracket and a vertically-adjustable rod over which the metallic ribbon runs in its passage from the design-roll to the shear.

9. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; and means for operating said shear and for rotating the design-roll.

10. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; two guide-posts on said supporting-frame; a head adapted to move vertically upon said guide-posts; coil-springs surrounding said guide-posts for yieldingly supporting said head; a shear-die fixed in said head; a corresponding shear-die supported on the frame; a cam on said rotatable shaft; a rock-shaft; an arm fixed to said rock-shaft extending into the path of said cam; and a second arm fixed on said rock-shaft adapted to operate said shear.

11. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a base-block mounted on the supporting-frame; means for adjusting the base-block longitudinally of said frame; two guide-posts extending upward from said base-block; coil-springs surrounding said upright posts; a head adapted to move vertically upon said guide-posts; a shear-die fixed in said head; a corresponding shear-die supported by said base-block; a rock-shaft adapted to operate said shear; a cam for moving said rock-shaft; and means for rotating the design-roll and said cam.

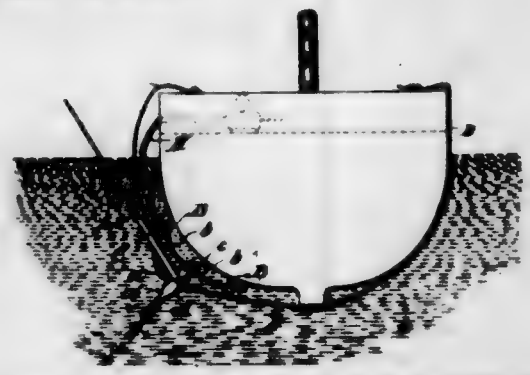
12. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a shear; means for rotating the design-roll and for actuating the shear; and a compensating device for the metallic ribbon from which the tags are to be made, which compensating device comprises an upright bracket and a vertically-adjustable compensating rod over which the metallic ribbon runs in its passage from the design-roll to the shear.

13. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a shear; a spring for holding the shear elevated; a rotatable cam; a rock-shaft journaled on said frame intermediate the design-roll and the shear; an arm fixed to said rock-shaft adapted to engage said cam; and a second arm fixed to said rock-shaft adapted to operate said shear.

14. In a machine for making metal tags, in combination, a supporting-frame; a design-roll; an anvil-roll; a guide for passing the metallic ribbon from which the tags are to be made between said rolls; a shaft for rotating the design-roll; a cam fixed on said shaft; a shear; a rock-shaft having an arm adapted to engage said cam and a second arm adapted to operate said shear; a compensating device in the path of said metallic ribbon between the rolls and the shear, which compensating device comprises an upright bracket and a vertically-adjustable rod; and means for rotating said first-mentioned shaft.

15. In a machine for making metal tags, in combination, a supporting-frame; a rotatable shaft journaled thereon; a design-roll adapted to be rotated by said shaft; an anvil-roll; means for adjusting the anvil-roll toward and from said design-roll; two yokes for holding the design-roll from upward movement; means for adjusting said yokes longitudinally of said shaft; a guide on each of said yokes for holding the metallic ribbon from which the tags are to be made between said rolls; a guide on the supporting-frame for directing said ribbon to said rolls; a spool for supporting said ribbon; a shear; a rock-shaft; an arm fixed on said rock-shaft; a rotatable cam for moving said arm; a second arm fixed on said shaft for operating said shear; and a compensating device for the metallic ribbon, located in the path of said ribbon between the design-roll and the shear.

693,242. APPARATUS FOR CLEANING BOTTOMS OF SHIPS. ROBERT S. CULPEPPER, Houston, Tex., assignor of two-thirds to Abnus B. Kerr and Ira M. Bryce, Houston, Tex. Filed Nov. 7, 1901. Serial No. 81,373. (No model.)



Claim.—1. A cleaning device for ships' sides and bottoms, having a jet-nozzle opening in opposite direction to the operating-face of the

cleaning device to hold the latter by reactionary effect up to its work substantially as described.

2. A cleaning device for ships' sides and bottoms, having a jet-nozzle opening in opposite direction to the operating-face of the cleaning device to hold the latter up to its work, and means for moving the cleaning device over the ship's surface substantially as described.

3. A cleaning device for ships' sides and bottoms, consisting of two separated brushes, arms supporting the same, a hollow body portion connected to said arms and having a hose-coupling and a discharge-nozzle pointed in opposite direction to the cleaning-face of the brushes substantially as described.

4. A cleaning device for ships' bottoms comprising two separated bearing-surfaces, and a reactionary jet-nozzle between them pointed in opposite direction to the face of the bearing-surfaces substantially as described.

698,243. METHOD OF CHIPPING GLASS. JOHN L. DAWES and WILLIAM F. HULL, Pittsburg, Pa.; said Hull assignor to said Dawes. Filed Apr. 13, 1901. Serial No. 55,777. (No specimens.)

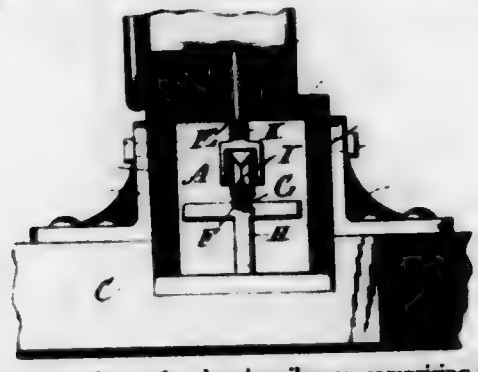
Claim.—1. The method of chipping glass, consisting in securing paper thereto, applying a coating to the paper, applying an ink-transfer to the coating, removing the paper except beneath the inked portions, and then sand-blasting and applying the glue coating; substantially as described.

2. The method of treating glass, consisting in securing paper thereto by a sticky compound, applying a transfer to the paper, removing the paper and its sticking compound in the parts to be chipped, and then sand-blasting and applying the glue compound; substantially as described.

3. The method of chipping glass, consisting in applying a sticky coating to the glass, applying a paper to the sticky coating, coating the paper, applying a transfer over the paper coating, removing the paper and coatings to expose the glass in the parts to be chipped, and then sand-blasting and applying a glue coating; substantially as described.

4. The method of chipping glass, consisting in applying a sticky coating, laying a sheet of paper over the coating, applying a coating of whiting compound to the paper, applying a transfer to the coating of whiting, washing away the paper and coating except beneath the inked portions, and then sand-blasting and applying a glue coating and removing the paper and compound; substantially as described.

698,244. ELECTRIC-RAILWAY CONSTRUCTION. FRANK P. DEER, Baltimore, Md. Filed Sept. 11, 1901. Serial No. 75,068. (No model.)



Claim.—A conductor for electric railways, comprising in combination with the inverted-L-shaped rail-sections, the recessed ties, the base-plates seated in said recesses and on which said rails are supported, the conductor and T-shaped supports therefor, resting on said base-plates and the angle-plates secured to the upper surfaces of the ties, and to the outer faces of said rail-sections and holding the latter securely in place, substantially as shown and described.

698,245. SHOE-POLISHER. WILLIAM R. DEER, Baltimore, Md., assignor to M. W. Gatch, Cincinnati, Ohio. Filed Oct. 12, 1901. Serial No. 78,443. (No model.)



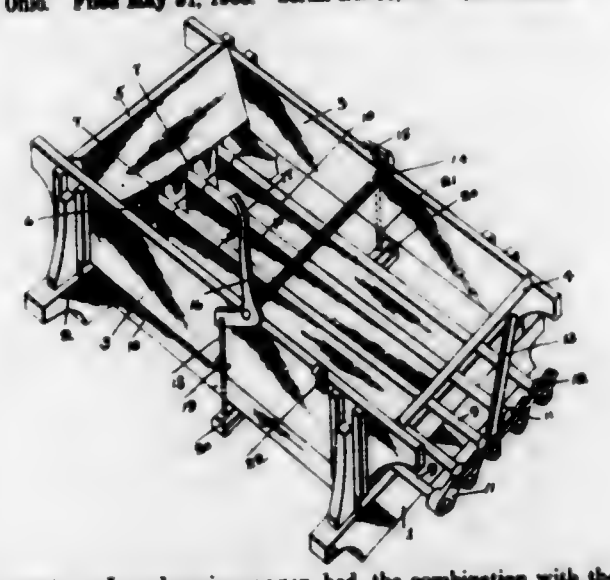
Claim.—1. In a polisher, the combination with a rigid block or body having a cushion permanently attached to one face thereof, of a loop or clip near one end of said block or body, a transverse locking-latch hinged at one end to said block or body near the other end thereof, and a doubled or folded strip of flexible material removably attached to said block or body by the said loop or clip (over which said strip is folded) and said locking-latch, said strip being arranged to cover the said cushion.

2. In a polisher, the combination with the block or body provided with a permanently-attached cushion and with a transverse groove near one end of said block or body, of a clip pivotally attached to the said block or body near the other end thereof, a transverse locking-latch hinged or loosely attached at one of its ends to the said block or body near the said transverse groove and provided with a locking-bend, a hook or catch for locking the said latch in place, and a flexible strip or cover for the said cushion removably attached to the said block or body by means of the said clip and locking-latch.

3. In a polisher, the combination with a rigid block or body A provided near one end with a transverse undercut or inclined grooved *c*, of the cushion B permanently secured to one face of said rigid block or body, a wire clip *b* pivotally attached to the block or body near the other end thereof, a transverse locking-latch D hinged or loosely attached at one of its ends to the block or body and provided at or near its other end with a U-shaped bend *g* and a finger-piece *h* beyond said bend, a pivoted hook or catch *e* for securing said locking-latch in place, and a flexible cover for the said cushion removably attached to the block or body by means of said clip and locking-latch.

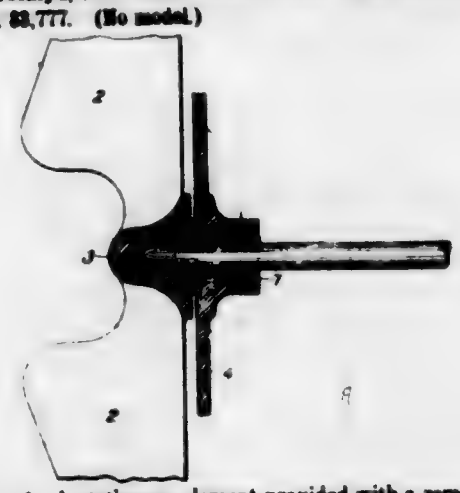
4. In a polisher, the combination with a rigid block or body having a cushion permanently attached at one face thereof, of a loop or clip at or near one end of said block or body, a transverse locking-latch at or near the other end thereof, and a doubled or folded strip of flexible material removably attached to said block or body by the said loop or clip and said locking-latch, said strip being arranged to cover the said cushion.

698,246. DUMPING-WAGON. JAMES E. DIXON, Richmonddale, Ohio. Filed May 31, 1900. Serial No. 18,545. (No model.)



Claim.—In a dumping-wagon bed, the combination with the bed-frame, parallel floor-sections 10 journaled in said bed-frame, said sections having bearing extensions 9, arms fixed on said bearing extensions, one of said arms being extended to form a lever and a bar 12 jointedly connecting said arms, of a bar 20 extending beneath said floor-sections and supported from said bed and means for raising and lowering said bar, substantially as specified.

698,247. BUSHING FOR CENTRIFUGAL PUMPS. JOSEPH EDWARDS, Brooklyn, N. Y. Filed June 13, 1898. Renewed Nov. 26, 1901. Serial No. 83,777. (No model.)

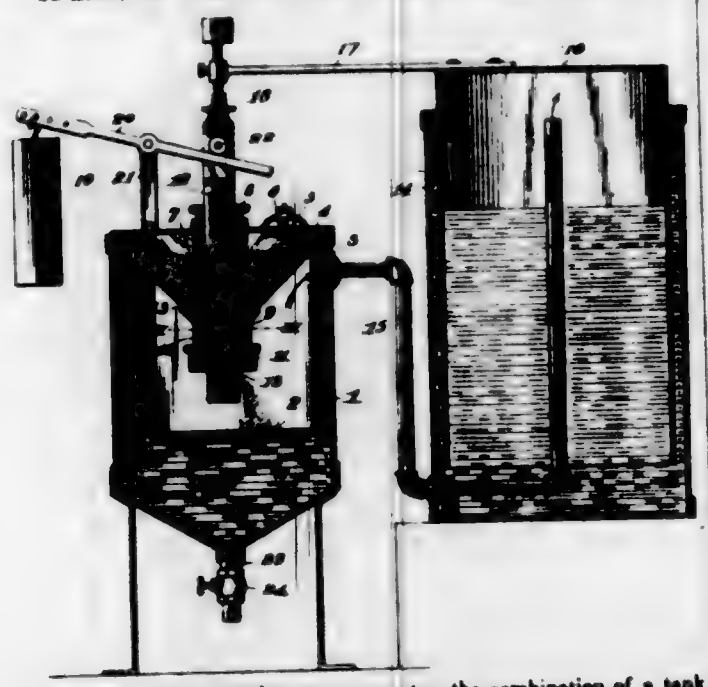


Claim.—1. A stationary element provided with a removable bushing prevented against rotation therein, a movable element and a rigid sleeve upon the latter constructed to rotate within said bushing to con-

fine the wear to said sleeve and bushing and prolong the serviceability of said elements.

2. A stationary element, a bushing having clutch engagement therewith to prevent the rotation of the latter within the former, a movable element and a sleeve rotating with said movable element within said bushing whereby said sleeve and bushing will prevent injury to said elements by receiving all of the wear.

693,248. ACETYLENE-GAS GENERATOR. ALFRED C. EISNITZER, St. Louis, Mo. Filed Jan. 2, 1901. Serial No. 41,840. (No model.)



Claim.—In an acetylene-gas generator, the combination of a tank provided with a water-chamber, a carbid-receptacle, a vertically-slidable valve or carrier arranged to slide through said carbid-receptacle, and provided with a series of apertures extending diagonally and downwardly therethrough, and means for moving said valve up and down to convey the carbid deposited in said apertures from said receptacle to said water-chamber, substantially as described.

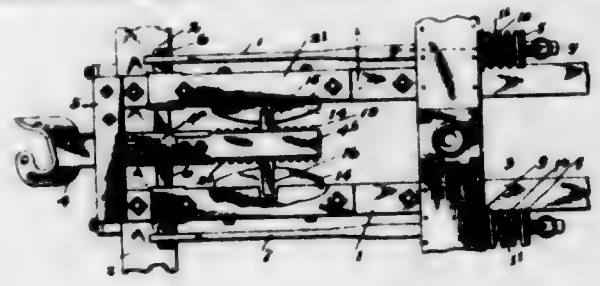
693,249. WAISTBAND-ADJUSTER. WALTER S. EVANS, North Adams, Mass. Filed Aug. 26, 1901. Serial No. 73,206. (No model.)



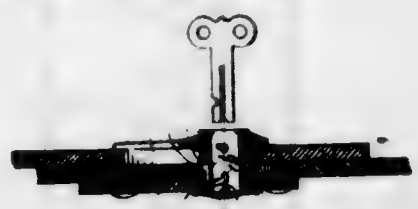
Claim.—A pair of trousers provided with a hip-pocket and having a cut-away portion in its under side at the hips thereof, a flap secured to the outer side seam of the trousers to occupy and fill the space formed by the cut-away portion and extending downwardly to form a partial lining for the hip-pocket, a waistband divided at the hip portions of the trousers, means for adjustably connecting the ends of the waistband, and a hook carried by the flap and adapted to engage the waistband to prevent the sagging of the flap, substantially in the manner described.

693,250. DRAFT-RIGGING. CHARLES A. PERSALD and GEORGE GALLEY, Columbus, Ohio. Filed Apr. 6, 1901. Serial No. 54,574. (No model.)

Claim.—In a draft-rigging, the combination with parallel longitudinal draft-timbers 1, a draw-bar having its shank portion extending between said timbers and provided with a frame-like extension 4^b, of brackets 14 secured to the inner sides of the timbers 1, a bar 16 extending through the draw-bar extension and engaging recesses in said brackets, springs arranged on opposite sides of said bar 16 within said extension, a transverse bar 6 passing through slotted openings in said timbers 1 and in the draw-bar shank, draft-rods 7, engaging the ends of said bar 6 and passing through the transom or sill 3 and springs arranged between the ends of said rods 7 and the rear side of said transom, substantially as specified.



693,251. BAG-LOCK. WILLIAM A. PINE, Brooklyn, N. Y., assignor of one-fourth to Rolland Thompson, New York, N. Y. Filed Nov. 9, 1901. Serial No. 81,712. (No model.)



Claim.—1. A fastener for mail-bags comprising a tubular shell attached to the body of a mail-bag, having therein a rotatable cylinder provided with a projecting finger on its outer end, and locking mechanism within said cylinder, in combination with a flap on said locking-cylinder, said slot being so located as to receive the finger therein only when the cylinder is unlocked, as set forth.

2. A lock for mail-bags or similar articles, comprising a tubular shell open at both ends integral with a base-plate, having interiorly oppositely disposed detents, in combination with an interior rotatable cylinder provided at its forward projecting end with a finger, a bell-crank lever within said cylinder hinged within a recess, one limb of said lever having a nib to engage with the detents of the outer shell and a nib to enter the notch of a key on its other side, and the other end of said lever having a nib to engage with the key, and a spring to normally keep the bell-crank lever in engagement with the detents in the outer shell, as set forth.

693,252. BRICK-KILN. JONATHAN P. S. PEIRCE, Newton, Mass. Filed Feb. 7, 1901. Serial No. 46,320. (No model.)

Claim.—1. A brick-kiln comprising inclosing walls provided at their top with a receiving-plate, a cover or crown composed of suitable fireproof material terminating adjacent to but not resting on said walls, and having metal beams extending beyond said fireproofing material and resting on said receiving-plate, and a sealing medium closing the joint around the top of the walls between said cover and said walls.

2. A kiln having walls provided at the top thereof with a support for a cover, combined with a cover having a body portion of fireproof material extending normally adjacent but not in contact with said support, and means for supporting said cover in said position, whereby a space is left between said fireproof material and said support adapted to hold a movable sealing medium for sealing the kiln-chamber air-tight along the joint between the cover and kiln-walls.

3. A brick-kiln comprising a wall, a roof, and a lining, said roof having at its under side a fireproof protection, said lining being independent of said wall and terminating short of said fireproof roof protection, and said roof and wall having coöperating bearing-surfaces for sustaining the roof movable on the wall.

4. A brick-kiln comprising a wall, a roof, and a lining, said roof having its under side provided with a fireproof protection, said lining being independent of said wall and terminating short of said fireproof roof protection, said roof and wall having coöperating bearing-surfaces for sustaining the roof movable on the wall, and a space between the end of said roof-fireproofing and said wall for the reception of a sealing medium for sealing the said opening between the roof and the lining.

5. A brick-kiln comprising a wall and a roof resting on said wall, said roof having its under side protected by fireproofing terminating short of contact with the wall, leaving a space between the end of said roof-fireproofing and said wall for the reception of a sealing medium for seal-

ing the kiln-chamber air-tight, and means extending beyond said fireproofing for carrying the weight of the roof, said carrying means being provided with rollers bearing on the walls for permitting free expansion and contraction of the roof without liability of disturbing the walls.



6. A brick-kiln comprising an inclosing wall, a roof, said roof being provided on its under side with a fireproofing construction, means for sealing all around the roof at the joint between the roof and walls, and means for permitting said roof to expand and contract independently of said wall, said means including contacting metallic surfaces between the top of the wall and the edge of the cover.

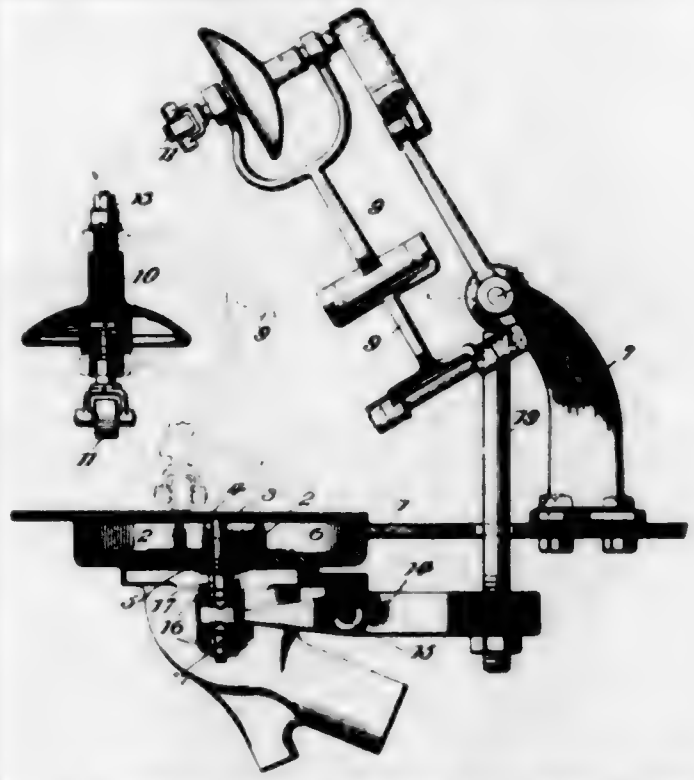
7. A brick-kiln comprising inclosing walls, a cover or crown composed of suitable fireproofing material terminating adjacent to but not resting on said walls, and having metal beams extending beyond said fireproofing material and resting on said walls, and a sealing medium for sealing the joint between said crown and said walls and maintaining the joint closed irrespective of expanding and contracting movement of the crown over said walls.

698,253. CIGAR-WRAPPER-CUTTING MACHINE. GEORGE H. FOLLOWS, Cincinnati, Ohio, assignor to the Miller, Du Brul & Peters Manufacturing Company, Cincinnati, Ohio, a Corporation of Ohio. Filed June 8, 1901. Serial No. 63,761. (No model.)

Claim.—1. A machine for cutting out wrappers from tobacco-leaf, comprising an air-suction table; a tool coöperating with said table to cut out the wrapper, supported above the table, having freedom of horizontal movement relatively to the table, also having a vertical axis of rotation upon which it turns in its support, and impinging the tobacco-leaf at a point in the line of its said vertical axis; and a guide conforming to the outline of the wrapper to be cut, engaging the tool in the vertical line of its turning axis and positively directing its turning movement, as well as the direction of its travel relatively to the table, and keeping its transverse axis at all times normal to the edge of the wrapper being cut.

2. A machine of the type described for cutting wrappers from tobacco-leaf, comprising an air-suction table, a guide conforming to the wrapper to be cut, a tool-support having freedom of horizontal movement over the table, and a tool coöperating with the table to cut a leaf, having a rotary bearing in said support and a non-rotating bearing in the guide: the bearing in the guide, the bearing in the support, and the point of impingement of the tool with the tobacco-leaf all being substantially in the vertical axis of the tool.

3. A cigar-wrapper-cutting machine embodying a cutting-table having means for holding a tobacco-leaf thereon by air-suction; a tool-support mounted to have freedom of horizontal movement over said table; a guide supported above the table having a track conforming to the outline of the wrapper to be cut; a tool rotatable upon a vertical axis, on said tool-support, engaging the guide and caused to follow the same; a rotating part mounted in the lower end of the tool upon a horizontal axis in the vertical line of the axis upon which the tool rotates; and means carried by the said tool engaging the said track at a plurality of points in the line of travel; preventing the tool rotating upon its vertical axis relatively to the track and keeping the horizontal axis normal to the path of travel



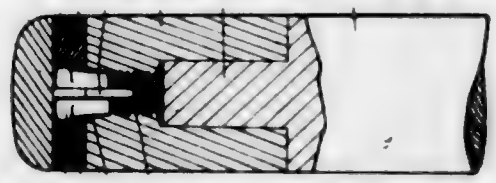
4. In a cigar-wrapper-cutting machine, the combination of a cutting-table having air-suction means for holding a tobacco-leaf thereto, a floating tool coöperating with said table to cut out a wrapper from said leaf having a rotary operating end in the vertical line of its axis, and means for defining the path of said floating tool, consisting of the guide having a downwardly-presented groove conforming in outline to the wrapper to be cut, and a plurality of rollers or pins on the upper end of said tool entering the groove and alined therein and thereby preventing the tool from turning on its vertical axis relatively to the groove in which it is confined, and holding the axis of its operating end normal to the path in which it travels.

5. In combination with a cigar-wrapper cutting and rolling table having a cutting-die, and a depressible platen within said die, a coöperating tool above the table, a movable tool-support upon which the tool is moved into and out of working position in relation to the platen and a support for said depressible platen, having connection with the movable tool-support through which it is moved to raise the platen and permit its depression as the tool moves away from and into its operative position, whereby the platen affords a rigid support when rolling the wrapper upon the bunch.

6. In combination with a cigar-wrapper cutting and rolling table, having a cutting-die and a depressible platen therein, a tool coöperating with the die to cut the wrapper and movable into operative position for cutting and out of such position to leave the table unobstructed for rolling, a supporting-lever for said platen fulcrumed beneath the table, and holding the platen rigid when rolling the wrapper, and a cam on the tool-support, moving said supporting-lever in the direction to raise the platen as the tool moves out of operative position.

7. In a cigar-wrapper-cutting machine the combination of a table, a die having a depressible platen, a tool that coöperates with said die, a horizontal rock-shaft upon which the tool is mounted to swing vertically out of operative position, a supporting-lever for said platen fulcrumed beneath the table, a vertical thrust-rod on the end of said lever, and a cam on the horizontal shaft engaging the thrust-rod as the tool rises, for the purpose set forth.

698,254. BILLIARD-CUE TIP. HERMAN A. FOLSOM, Springfield, Mass. Filed June 26, 1901. Serial No. 66,061. (No model.)

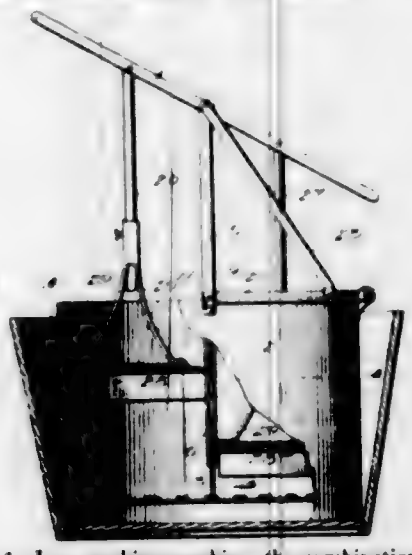


Claim.—1. A billiard-cue, a suitable bolster on the tip end thereof, a tip-securing head consisting of a shank fixedly secured in the bolster, a head on the shank upstanding above the end of the bolster, said head consisting of outwardly-springing portions; combined with a leather tip

for the cue, a metal plate secured to the under side thereof, there being a tapered socket in said plate, the entrance of which is of smaller area than the area of said head portions, substantially as described.

2. The combination in a billiard-cue, of a metal head consisting of a shank, a head thereon divided longitudinally into several normally outwardly-springing portions, inwardly tapering toward the cue, means for securing the shank fixedly in the end of the cue with the head portions thereof projecting beyond said end, a leather tip, a metal plate secured to the under side of the latter, there being a socket in said plate having tapered sides for receiving said head portions, and means of engagement between the walls of said socket and said head portions consisting of a shoulder on the side of the socket, and a projection on the side of the head portions, substantially as described.

698,255. WASHING-MACHINE. BYRLES FAY, Flint, Ohio. Filed May 25, 1901. Serial No. 61,907. (No model.)



Claim.—1. In a washing-machine, the combination with a casing, of a slat bottom in the casing, a sliding partition in said casing and terminating a short distance above the bottom, standards projecting from said casing, means carried by said partition and engaging the standards for locking the said partition in a predetermined adjustment, and reciprocating plungers one on each side of the partition.

2. In a washing-machine, the combination with a receptacle, of a sliding partition in said receptacle, supporting-bars pivotally secured to said receptacle, standards connected to the supporting-bars and to which the partition is adjustably secured, an oscillating lever carried by the standards and plungers carried by the lever, said standards and plungers being adapted to be thrown back through the medium of the supporting-bars so that access may be gained to the interior of the receptacle.

3. In a washing-machine, the combination with a receptacle, of supporting-bars pivotally secured to said receptacle and extending along the upper edge thereof, standards projecting from said supporting-bars, cleats whereby the standards are adapted to engage the top of said receptacle, an oscillating lever carried by the standards, and plungers carried by said lever and adapted to operate in the receptacle for the purpose described.

698,256. CHUCK. ZACHRY T. FOWBLER, Philadelphia, Pa., assignor to North Brothers Manufacturing Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Feb. 27, 1901. Serial No. 49,135. (No model.)



Claim.—1. The combination of a hub having an external screw-thread, a carrier having a cavity at its rear end, a block mounted in the cavity, springs carried by the carrier and held in position by the block, a screw confining the carrier and block to the hub, jaws mounted on the end of the carrier and engaged by the springs, with a shell screwed onto the threaded hub and bearing against the jaws, substantially as described.

2. The combination in a chuck, of a hub having an external screw-thread, a carrier secured to the hub, said carrier having a recess at its rear end and having a series of cavities united to the recess by slots, springs mounted in the cavities and extending through the slots into the recess, a block in the recess tending to hold the springs in position, said springs having lips at their rear ends engaging the carrier, jaws at the end of the carrier with which the opposite ends of the springs engage, and a shell mounted on the screw-threaded portion of the hub and bearing against the jaws, substantially as described.

3. The combination in a chuck, of a hub having an external screw-thread, a carrier, a block, a screw confining the carrier and block to the hub, springs mounted in slots in the carrier, jaws bearing against the end of the carrier and recessed, pins extending across the recess of each jaw, the springs extending into the recess back of the pins, with a shell mounted on the screw-threaded portion of the hub and engaging the jaws, substantially as described.

4. The combination of a spindle having a screw-threaded end, a shell with a ring, a jaw-carrier, jaws attached thereto, springs acting to normally keep said jaws open, and means for operatively connecting the jaw-carrier and the spindle, substantially as described.

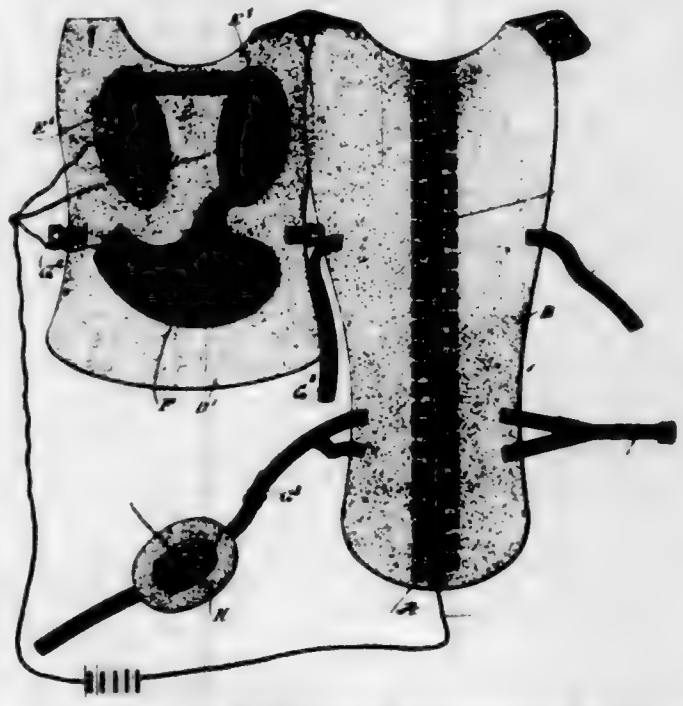
5. The combination of a spindle having a screw-threaded end, a shell with a ring, a cylindrical jaw-carrier, jaws attached thereto, springs acting to normally keep said jaws open, and a bolt for operatively connecting the jaw-carrier and the spindle, substantially as described.

6. The combination of a spindle having a screw-threaded end, a shell, a ring, a jaw-carrier having in it a cavity, jaws, springs entering the said cavity and acting on said jaws, a piece in the cavity engaging the springs and means for operatively connecting the jaw-carrier and the spindle passing through said piece, substantially as described.

7. The combination with a chuck of a movable cylindrical jaw-carrier having in it a cavity, slots in said carrier, jaws, springs in the slots extending into the cavity in the carrier, and a piece in said cavity engaging said springs, substantially as described.

8. The combination of a spindle having a screw-threaded end, a shell with a ring, a jaw-carrier, jaws and springs for the same, said spindle normally acting on the springs to keep the jaws in an open position, substantially as described.

693,257. ELECTRICAL DEVICE FOR THE TREATMENT OF DISEASES. WILLIAM J. GAVIGAN, New York, N. Y. Filed Nov. 19, 1901. Serial No. 82,820. (No model.)



Claim.—1. An electrical device for the treatment of diseases of the human body, comprising a flexible spinal-cord electrode arranged for uninterrupted contact with the spinal cord approximately throughout the length thereof, a flexible electrode for application to the human body at or near the part of the human body showing the symptoms of the disease, and a source of electrical energy connected with the said electrodes, as set forth.

2. An electrical device for the treatment of diseases of the human body, comprising a fabric back, a fabric front, means for fastening the back and front to the human body, a flexible spinal-cord electrode secured on the said back and arranged for uninterrupted contact with the spinal cord approximately throughout the length thereof, a flexible electrode on the said front and arranged for contact with the human body at or near the seat of the disease, and a source of electrical energy connected with the said electrodes, as set forth.

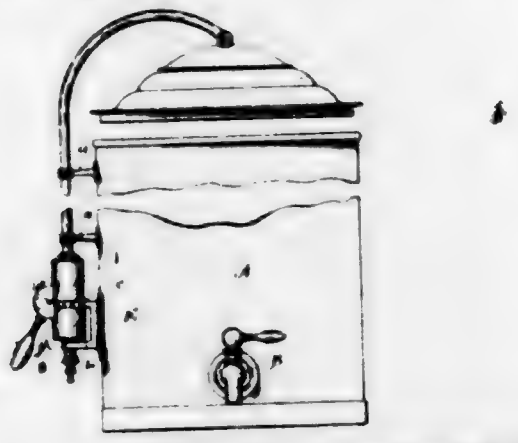
3. An electrical device for the treatment of diseases of the human body, comprising a fabric back, a fabric front, means for fastening the back and front to the human body, a flexible spinal-cord electrode secured on the said back and arranged for uninterrupted contact with the spinal cord approximately throughout the length thereof, and a flexible electrode on the said front and arranged for contact with the human body at or near the seat of the disease, the said front electrode being shaped to correspond approximately to the shape of the afflicted organ, as set forth.

4. An electrical device for the treatment of diseases of the human

body, provided with a spinal-cord electrode consisting of a flexible strip of sheet metal, and integral flanges extending sidewise therefrom, as set forth.

5. An electrical device for the treatment of diseases of the human body, provided with a spinal-cord electrode consisting of a flexible strip of sheet metal, and integral flanges extending sidewise therefrom and arranged alternately on opposite sides of the strip, as set forth.

698,258. **VESSEL-COVER RECIPROCATING AND OSCILLATING MECHANISM.** JOHN GIBSON, Hartwell, Ohio, assignor to the John Van Range Company, Cincinnati, Ohio, a Corporation. Filed Oct. 17, 1901. Serial No. 78,938. (No model.)



Claim.—1. In a vessel having a lid, a rod from which said lid is suspended, journals at one side of the vessel in which said rod is supported, a sleeve resting on one of said journals, a lever pivoted to said sleeve, rack mechanism between said lever and rod for raising and lowering the same, and means for turning said rod on its axis when in the raised position, substantially as specified.

2. In a vessel having a lid, a rod from which said lid is suspended, journals at one side of the vessel in which the rod is supported, a sleeve resting on one of said journals and provided with a slot, a lever pivoted to said sleeve, rack-and-pinion mechanism between said lever and rod whereby said rod is raised and lowered, and a lug projected from the vessel into a longitudinal groove in the sleeve, whereby the rack of said mechanism and rod may be rotated when the rod is in raised position, substantially as specified.

3. In a vessel having a lid, a bent rod from which said lid is suspended, a sleeve provided with a slot around the rod, a lever pivoted thereto, a rack-sleeve having a longitudinal groove and attached to the rod within the sleeve, a rack-segment on the lever engaging the rack-sleeve, and a lug projecting from the vessel through the slot in the sleeve and into the said groove in the rack-sleeve, substantially as specified

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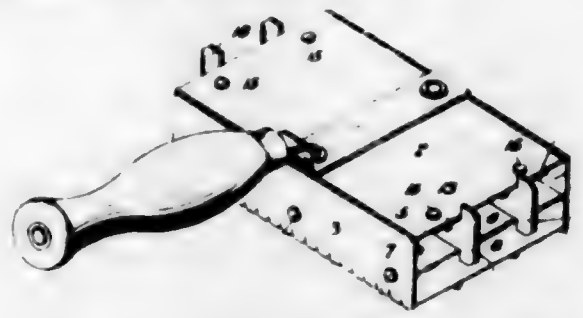
698,259. **CURRYCOMB.** JOSEPH E. GILBERT, Dansville, Mich., assignor of one-half to Estella F. Gilbert, Dansville, Mich. Filed June 25, 1901. Serial No. 65,962. (No model.)



Claim.—1. In a currycomb, the combination with a frame, and transverse toothed bars thereon, of a plurality of scraper-blades held together in pairs, sundry of the scraper-blades having diagonal slots therein, guide-bars loosely engaging said slots and held at their ends in the outer toothed bars, and means for moving the scraper-blades endwise.

2. In a currycomb, the combination with a frame of substantially U shape, a handle, and a bracket on a transverse bar of said frame, and a plurality of toothed cross-bars held spaced on the frame by their ends, of a series of like scraper-blades held together in pairs by integral back-bone-plates, the edges of the scraper-blades engaging opposite sides of the toothed bars near their teeth, all of the scraper-blades having similarly-trending opposite diagonal slots near the ends thereof, guide-bars held at their ends in outer toothed bars and loosely engaging the slots of the scraper-blades, a spacing-plate whereon all the scraper-blades are secured, a rockable lever adapted for manipulation and engaging a keeper-loop on the spacing-plate, and a spring adapted to elevate the scraper-blades above the teeth of the cross-bars.

698,260. **CURRYCOMB.** ROBERT T. GILLESPIE, Rochester, Pa. Filed Mar. 9, 1901. Serial No. 50,445. (No model.)



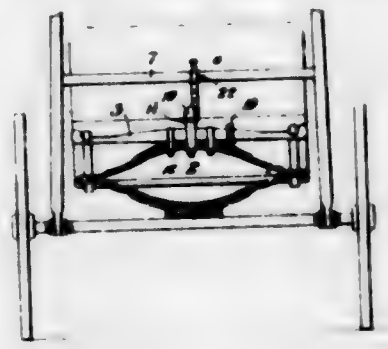
Claim.—1. A currycomb consisting of a plate forming its top and sides, a transverse perforated shelf below the top having downwardly-extending inclosing ends, such top, sides and shelf forming an air-space, intermediate comb members projecting downwardly from the transverse perforated shelf, and air-guiding deflectors between the top and the transverse perforated shelf, substantially as set forth.

2. A currycomb consisting of a plate forming its top and sides, the sides terminating in comb-teeth; a transverse perforated shelf provided with downwardly-turned ends forming an open-ended space, intervening supplemental comb members secured to the transverse shelf, and an intervening brace member connecting the top with the transverse shelf, provided with outwardly-extending wing portions projecting beyond the ends of the comb, substantially as set forth.

3. A currycomb consisting of a plate forming its top and sides, the sides terminating in comb-teeth; a transverse perforated shelf provided with downwardly-turned ends forming an open-ended space, intervening supplemental comb members secured to the transverse shelf, and an intervening brace member connecting the top with the transverse shelf, provided with outwardly-extending wing portions, projecting beyond the ends of the comb, and extending below and above the top and the transverse shelf, respectively, substantially as set forth.

4. A currycomb consisting of a plate forming its top and sides, the sides terminating in comb-teeth; a transverse perforated shelf provided with downwardly-turned ends forming an open-ended space, intervening supplemental comb members secured to the transverse shelf, and an intervening brace member connecting the top with the transverse shelf, provided with outwardly-extending wing portions, projecting beyond the ends of the comb, and extending below and above the top, and the transverse shelf, respectively, such wing members formed of backwardly-turned extensions of the brace members, substantially as set forth.

693,261. **THILL-SUPPORT.** ROBERT T. GILLESPIE, Rochester, Pa. Filed May 13, 1901. Serial No. 59,972. (No model.)

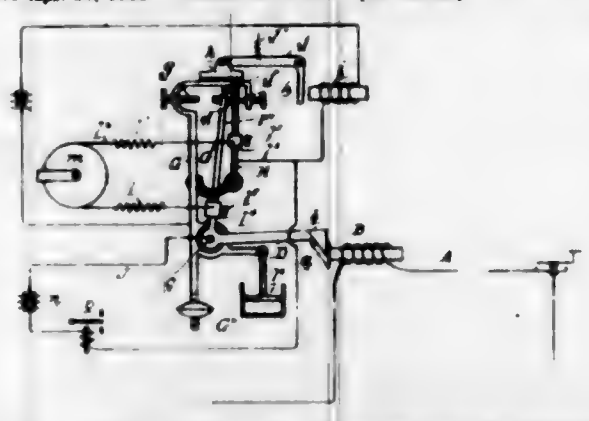


Claim.—1. In combination with a supporting-bracket and a bufling device mounted upon the cross-bar of a vehicle; a supporting-arm adjustably mounted in the bracket provided with a bearing extension adapted to fit under the cross-bar of the thills, and a pivoted spring-controlled dog adapted to engage the supporting-arm and to hold it in an erect position, substantially as set forth.

2. In combination with a supporting-bracket, a bufling device and a spring-clip mounted on the cross-bar of a vehicle; a supporting-arm mounted in the bracket provided with a bearing extension, a holding-point, and a locking-recess; and a spring-controlled locking-dog adapted to enter the recess to hold the supporting-arm fixedly in position, substantially as set forth.

3. In combination with a supporting-bracket, a bufling device, and a spring-clip mounted on the cross-bar of a vehicle; an extensible supporting-arm mounted in the bracket provided with a bearing extension, a holding-point, and a locking-recess; and a spring-controlled locking-dog adapted to enter the recess to hold the supporting-arm fixedly in position, substantially as set forth.

693,262. SELF-ADJUSTING ELECTROMAGNETIC CIRCUIT CLOSING MECHANISM. GEORGE W. GILLESPIE, London, Canada. Filed Apr. 27, 1901. Serial No. 57,743. (No model.)



Claim.—1. The combination with an electromagnetic motor and a counter-tension device, of a circuit-closer connected for actuation to said motor and counter-tension device, and means operating upon a variation in the magnetic force acting upon said circuit-closer for effecting a proportional change in said counter-tension device, whereby substantially the same differential force is maintained in each of a series of adjustments.

2. The combination with an electromagnetic motor and a counter-tension device, of a circuit-closer connected for actuation with said motor and counter-tension device, and means operating upon a variation of the magnetic force acting upon said circuit-closer, for shifting the latter proportional in relation to said motor and counter-tension device whereby substantially the same differential force is exerted thereon in each of a series of positions of adjustment.

3. The combination with an electromagnetic motor adapted to vary the amplitude of its movement corresponding to variations in the strength of the operating-current, of a counter-tension device, a circuit-closer connected for actuation with said motor and counter-tension device and adapted to be operated by less than the normal movement thereof, and means operating upon an abnormal movement of said motor for shifting the position of said circuit-closer whereby the same differential force will be exerted thereon in each of a series of positions of adjustment for the purpose described.

4. The combination with an electromagnet and a pivotal armature therefor, of a circuit-closer comprising a movable contact connected to said armature, a coöperating contact, a pivotal arm to which said coöperating contact is connected having its axis of rotation coincident with that of said armature, means for temporarily holding said arm in different positions of adjustment, and means for releasing said arm upon the closing of said circuit-closer and for effecting an adjustment thereof while unlocked upon a variation in the movement of said armature.

5. The combination with an electromagnetic motor and a counter-tension device, of a circuit-closer connected for actuation with said motor and counter-tension device and adapted to be actuated by a fraction of the movement thereof, and means operable during the remainder of said movement for automatically adjusting the counter tension acting upon said circuit-closer relative to the magnetic pull exerted thereon.

6. The combination with an electromagnetic motor and a counter-tension device, of a circuit-closer connected for actuation with said motor and counter tension and adapted to be operated by a fraction of the movement thereof and means for automatically adjusting the counter tension acting upon said circuit-closer proportionately to the amplitude of the remainder of said movement.

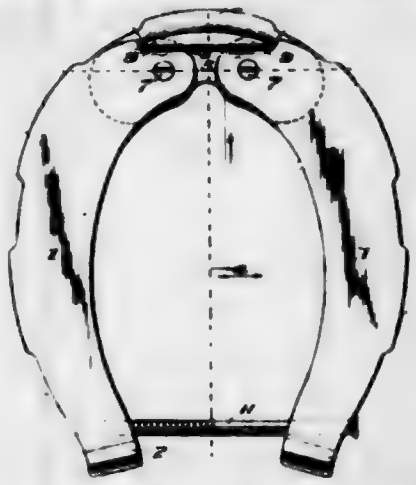
7. The combination with an electromagnetic motor and a counter-tension device, of a circuit-closer connected for actuation with said motor and counter tension, and means operated while said circuit-closer is closed for adjusting said counter tension corresponding to variations in strength in the magnetic pull, said adjustment being maintained after said circuit-closer is opened.

8. The combination with an electromagnetic motor and a counter-tension device, of a circuit-closer connected for actuation with said motor and counter tension, being adapted to be closed by a fraction of the movement thereof and to remain closed during the remainder of said movement, and means operating during the interval of closure for automatically adjusting said counter tension proportionate to the amplitude of said remainder of the movement.

9. The combination with an electromagnetic motor and a counter-tension device, of a circuit-closer comprising a movable member adapted to be actuated by the differential force of said motor and counter tension, a coöperating contact a carrying member for yieldingly holding said coöperating contact said carrying member being under tension to move toward said movable contact, but held from movement during a fraction of the movement of the latter and until it has closed with said coöperating contact, means for releasing said carrying member when said contacts are closed to permit of an adjustment, and a stop for limiting said adjustment relative to said movable contact whereby an abnormal movement of the latter will effect a counter adjustment of said carrying member and said coöperating contact.

10. The combination with an electromagnet, a pivotal armature therefor, a pivotal member having a coincident axis of rotation and having stops between which said armature is adapted to play, a contact carried by said armature, a coöperating contact pivotally secured to said pivotal member, a third contact against which said coöperating contact is normally held fixedly secured to said pivotal member and arranged between said stops, an electromagnetic lock for said pivotal member having its operating-circuit closed through said coöperating contact and third contact, a second electric circuit adapted to be closed through said movable contact and coöperating contact, and counter-tension means for said armature and pivotal member adapted when said electromagnet is deënergized to hold said armature against one of said stops and hold its contact separated from said coöperating contact; for the purpose described.

693,263. SAILLESS HORSESHOE. MAX GOLDBERG, Santa Clara, Cuba. Filed Dec. 10, 1901. Serial No. 85,402. (No model.)

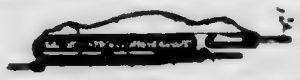


Claim.—1. In a horseshoe and in combination with clamping shoe parts, a seat-forming plate to which the shoe parts are pivoted, having as integral parts an abutment standing crosswise mediately of the length of the plate, a wall projecting from the toe edge of the plate crossing and joining said abutment, and a calk projecting from said abutment and wall, constructed and arranged to form a housing and support for the pivoted ends of the shoe parts, and means for binding the latter when in use.

2. In a horseshoe and in combination with clamping shoe parts, a seat-forming plate to which the shoe parts are pivoted, having an integral vertical toe-wall and a calk forming a shouldered recess to receive and support the pivoted ends of the shoe parts, and means for binding the latter when in use.

3. In a horseshoe and in combination with clamping shoe parts, a seat-forming plate to which the shoe parts are pivoted, having as integral parts an abutment, a toe-wall crossing said abutment, a calk forming an extension of the toe-wall, these three parts comprising a walled housing and support for the pivoted ends of the shoe parts, and a binder-plate forming an extension of the calk, and means for binding the shoe parts when in use.

693,264. CHATELAINE-BAG HOOK. MARCUS T. GOLDSMITH, New York, N. Y. Filed Dec. 5, 1901. Serial No. 84,728. (No model.)



Claim.—1. A chatelaine-bag hook, provided with a hook proper, the rear shank of which is formed with a resilient prong normally extending from the face of the rear shank in a forward and upward direction, and a slide movable lengthwise on the rear shank and arranged for inclosing the said prong, as set forth.

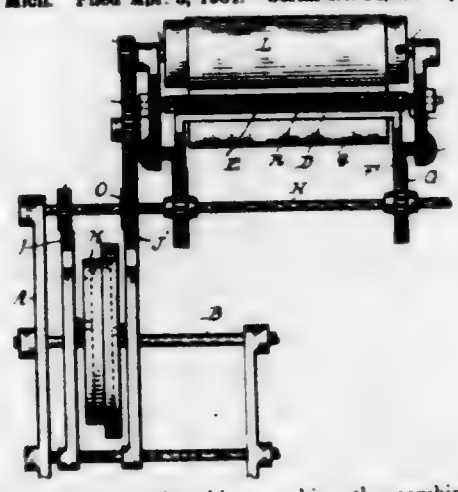
2. A chatelaine-bag hook, provided with a hook proper, the rear shank of which is provided with a guideway extending lengthwise of the shank, a prong integral with the rear shank and projecting from the face thereof in an upward and forward direction, and a slide movable on the said guideway and under the control of the wearer, the slide being arranged to inclose the said prong, as set forth.

3. A chatelaine-bag hook, provided with a hook proper, the rear shank of which is provided with a guideway extending lengthwise of the shank, a prong integral with the rear shank and projecting from the face thereof in an upward and forward direction, a slide movable on the said guideway, and a handle on the slide and projecting upward to the top of the hook, the said handle being under the control of the wearer to move

the slide up and down for inclosing the free end of the prong or to disengage the said free end, as set forth.

4. A chatelaine-bag hook, provided with a hook proper, the rear shank of which is provided with a guideway extending lengthwise of the shank, a prong integral with the rear shank and projecting from the face thereof in an upward and forward direction, a slide movable on the said guideway, a handle on the slide and projecting upward to the top of the hook, the said handle being under the control of the wearer to move the slide up and down for inclosing the free end of the prong or to disengage the said free end, and means for limiting the sliding movement of the said slide on the guideway, as set forth.

693,265. CIGAR-BUNCHING MACHINE. ALEXANDER GORDON, Detroit, Mich. Filed Apr. 8, 1901. Serial No. 54,831. (No model.)



Claim.—1. In a cigar-bunching machine, the combination with a bunching-table, a bunching-roll and an apron, of a differentially-yielding presser adapted to bear against the bunch adjacent to said roll with a greater pressure at the ends than at the center thereof whereby a tapering shape is imparted to the bunch.

2. In a cigar-bunching machine, the combination with the apron and coöperating means for forming a closed pocket therein and rolling the bunch, of a flexible bar extending longitudinally of and in adjacence to said pocket and contained bunch and laterally pressed thereagainst.

3. In a cigar-bunching machine, the combination with apron and coöperating means for forming a closed pocket therein and rolling the bunch, of a laterally-spring-pressed flexible bar extending longitudinally of and bearing against said pocket and contained bunch during the operation of rolling.

4. In a cigar-bunching machine, the combination with a frame, a reciprocating bunching-table, the roll and the apron adapted to coöperate to roll the bunch upon said table in a pocket in said apron and in adjacence to said roll, of a coil-spring extending across said frame parallel to and in rear of said roll and above the plane of said table, whereby in the rolling of the bunch said spring will exert a yielding pressure thereagainst.

5. In a cigar-bunching machine, the combination with a reciprocating bunching-table, the roll and the apron, of a coil-spring supported at its ends and extending across said frame parallel to and in rear of said roll and above the plane of said table, and an intermediate connection to said spring permitting of free vertical movement thereof but preventing rearward movement.

6. In a cigar-bunching machine, the combination with the reciprocating table and the bunching-apron connected at one end to said table, of a driven reel to which the opposite end of said apron is attached, said reel being provided with an adjustment for altering the slack in said apron, comprising an outer sleeve to which the apron is attached and means for adjustably locking said sleeve to the inner driven member.

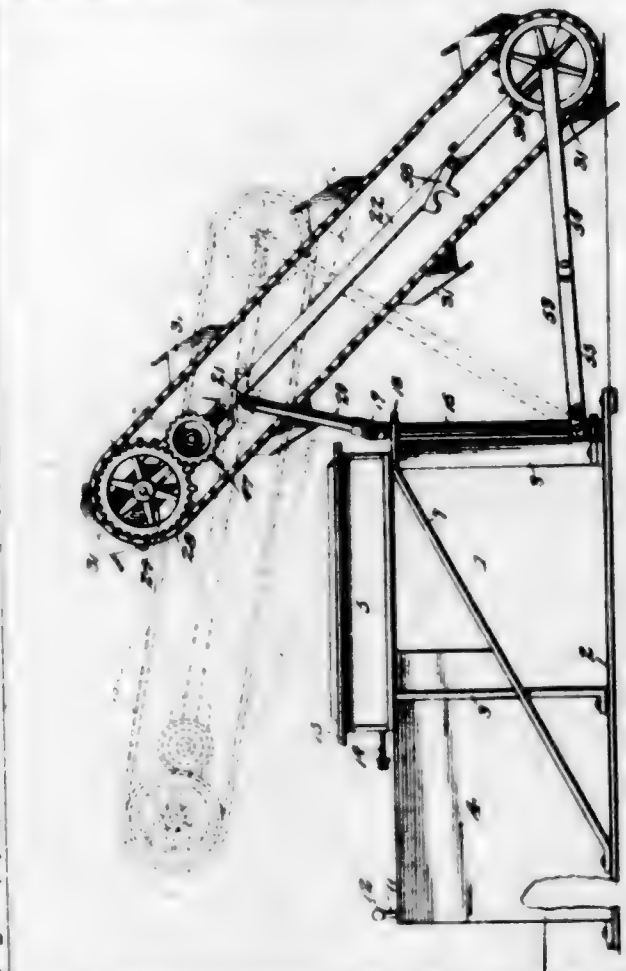
693,266. EXCAVATOR. WILLIAM M. GROSH, Ogden, Utah. Filed Apr. 24, 1901. Serial No. 57,230. (No model.)

Claim.—1. In an excavator, the combination with a frame or stand, of a crane adapted to swing on a vertical axis, an elevator comprising an endless series of buckets and mounted on the crane, means for raising and lowering the elevator-frame, and a swinging brace for supporting the lower portion of the elevator.

2. In an excavator, the combination with a supporting frame or stand, of a horizontally-swinging crane, an elevator adjustably mounted thereon, a cross-head carried by the crane, and a feed-screw journaled in the elevator-frame and having a threaded engagement with said cross-head.

3. In an excavator, the combination with a supporting frame or stand, of a horizontally-swinging crane journaled therein, an elevator supported on said crane and comprising an endless series of buckets, and a feed-screw for bodily raising and lowering the elevator.

4. In an excavator, the combination with a supporting stand or frame, of a horizontally-swinging crane journaled therein, an elevator slidingly mounted with respect to said crane, and means for raising and lowering the elevator and sliding the same with respect to the crane.



5. In an excavator, the combination with a supporting stand or frame, of a horizontally-swinging crane comprising a vertical shaft, a supporting-shaft carried thereby, an elevator-frame having an endless series of buckets, a cross-head journaled upon said supporting-shaft, and means connected with said cross-head for raising and lowering the elevator.

6. In an excavator, the combination with a supporting stand or frame, of a horizontally-swinging crane, a cross-head pivotally mounted on said crane, an elevator-frame slidingly connected with said cross-head and comprising an endless series of buckets, and a feed-screw journaled in the elevator-frame and having a threaded engagement with said cross-head.

7. In an excavator, the combination with a supporting frame or stand, of a horizontally-swinging crane, a cross-head pivotally mounted thereon, an elevator having a sliding engagement with said cross-head and comprising an endless series of buckets, a feed-screw having a threaded engagement with said cross-head and journaled in the elevator-frame, means for rotating said feed-screw, and feed-screw-reversing mechanism.

8. In an excavator, the combination with a supporting frame or stand, of a horizontally-swinging crane, a cross-head pivotally mounted thereon an elevator having a sliding engagement with said cross-head and comprising an endless series of buckets, a feed-screw journaled in the elevator-frame and having a threaded engagement with the cross-head, a beveled gear-wheel on said feed-screw, a counter-shaft having pinions slidable into and out of engagement with said wheel, and means for shifting one or the other of said pinions into and out of engagement with the wheel on the feed screw.

9. In an excavator, the combination with a frame or stand, of a horizontally-swinging crane, a cross-head pivotally mounted thereon, an elevator slidingly connected with the cross-head, a feed-screw journaled in the elevator-frame and having a threaded engagement with said cross-head, a beveled gear-wheel on the feed-screw, a counter-shaft, beveled pinions slidingly mounted on said shaft, means for moving said pinions into and out of engagement with the beveled wheel on the feed-screw, and means for normally holding said pinions out of engagement with the beveled wheel.

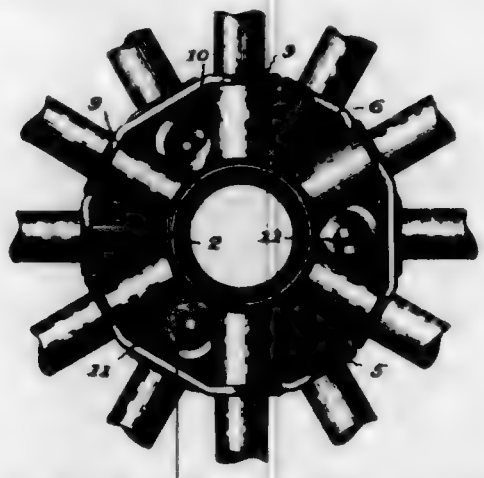
10. In an excavator, the combination with a frame or stand, of a horizontally-swinging crane, an elevator mounted thereon and capable of being bodily raised and lowered, shafts at the ends of the elevator-frame carrying sprocket-wheels, an endless chain of buckets running on said sprocket-wheels, and a swinging brace receiving the shaft at the lower end of the elevator and pivotally connected to the vertical shaft of the crane.

11. In an excavator, the combination with a frame or stand, of a

horizontally-swinging crane, an elevator comprising an endless series of buckets and having a sliding engagement with the crane, means for raising and lowering the elevator, and a latch for holding the elevator in its raised position.

12. In an excavator, the combination with a frame or stand, of a horizontally-swinging crane, a cross-head pivotally mounted thereon and provided with grooves in its opposite sides, an elevator-frame comprising parallel side bars having flanges which work in the grooves of the cross-head, and means for sliding the elevator-frame relatively to the cross-head.

698,267. WHEEL-HUB. PHILIP M. GUNDLACH and JOHN P. GUNDLACH, Belleville, Ill. Filed Aug. 27, 1900. Serial No. 28,181 (No model.)



Claim.—1. In a wheel-hub, the combination of a pair of hub-sections formed with half-sockets, the open sides of which face outward, the one series of which are staggered with relation to the other, removable caps or closure-pieces for such sockets united together in pairs by a connecting-web, and obliquely-arranged bolts for securing the cap or closure-pieces in place and for drawing the two main hub-sections together, substantially as set forth.

2. In a wheel-hub, the combination of a pair of hub-sections formed with half-sockets, the open sides of which face outwardly to permit of the insertion of a reinforce-washer beneath the spoke end when required, a removable cap or closure-piece for said sockets, a socket-sleeve receiving the adjacent ends of the respective hub-sections, and means for drawing the two main hub-sections together, substantially as set forth.

3. In a wheel-hub, the combination of a pair of hub-sections formed with half-sockets, the open sides of which face outward, the one series of which are staggered with relation to the other, a removable cap or closure-piece for said sockets a socket-sleeve receiving the adjacent ends of the respective hub-sections, and means for drawing the two main hub-sections together the same comprising a series of obliquely-arranged bolts, substantially as set forth.

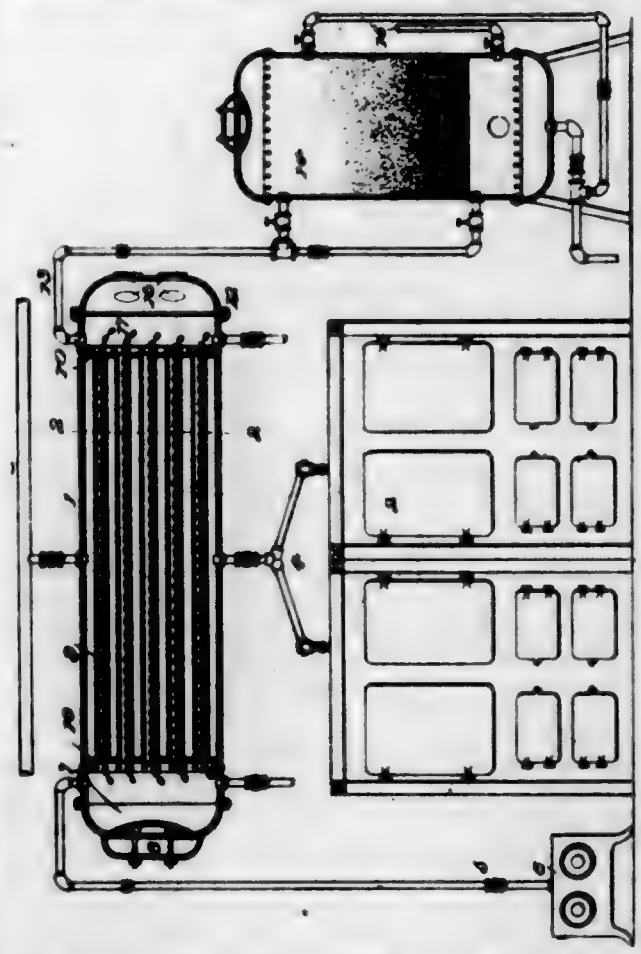
4. In a wheel-hub, the combination of a pair of hub-sections formed with open-sided sockets that face outwardly, inwardly-extending bracing-ribs for said sockets, a removable open-sided closure-cap for such sockets, a socket-sleeve provided with notches in its opposite edges and adapted to receive the adjacent ends of the respective hub-sections, and means for drawing the two main hub-sections together, substantially as set forth.

5. In a wheel-hub, the combination of a pair of hub-sections formed with open-sided sockets that face outwardly, inwardly-extending bracing-ribs for said sockets, a removable open-sided closure-cap for such sockets, a socket-sleeve provided with notches in its opposite edges and adapted to receive the adjacent ends of the respective hub-sections, and means for drawing the two main hub-sections together, the same comprising a series of obliquely-arranged bolts, substantially as set forth.

698,268. FEED-WATER HEATER AND PURIFIER. THOMAS GUMMING, Pittsburg, Pa. Filed Nov. 24, 1900. Renewed Dec. 10, 1901. Serial No. 85,378. (No model.)

Claim.—1. The combination with a superheating steam-chamber, and means for supplying live steam thereto, of a feed-water pipe entering the said chamber at one end and leading from the other end thereof, a series of water-tubes within said chamber, and a series of removable metallic bodies located in said tubes and designed to be removed therefrom when incrustation forms on such bodies, as set forth.

2. The combination with a superheating steam-chamber having normally closed openings in one of its ends, and means for supplying live steam to such chamber, of a feed-water pipe entering the said chamber at one end and leading from the other end thereof, a series of water-tubes within said chamber, and a series of removable metallic bodies located in such tubes, said bodies being designed to be removed through said openings when incrustation forms thereon, as set forth.



3. The combination with a superheating steam-chamber having normally closed openings in one of its ends, headers in said chamber, and water-tubes supported by said headers, of a feed-water pipe entering said chamber at one end, a second pipe leading from the other end of said chamber, and a series of removable metallic bodies located in said tubes and designed to be removed therefrom when incrustation forms thereon, as set forth.

4. The combination with a boiler or boilers, and an overhead steam-main, of a steam-chamber horizontally disposed above said boiler or boilers and intermediate of the latter and said main, pipes connecting said steam-chamber with said boiler or boilers and the steam-main, a feed-water pipe extending into said steam-chamber at one end thereof, headers in said chamber, water-tubes mounted in said headers, and a series of removable metallic bodies located in said tubes and designed to be removed therefrom when incrustation forms on them, as set forth.

698,269. FISH-HOOK. JAMES B. HALL, Cleveland, Ohio. Filed May 9, 1901. Serial No. 59,404. (No model.)



Claim.—1. In a fish-hook, a shaft, a lure fixedly mounted thereon, and a hook rotatably mounted on said shaft between the front and rear ends of the lure all of said hooks being disposed within the length of the lure, as set forth.

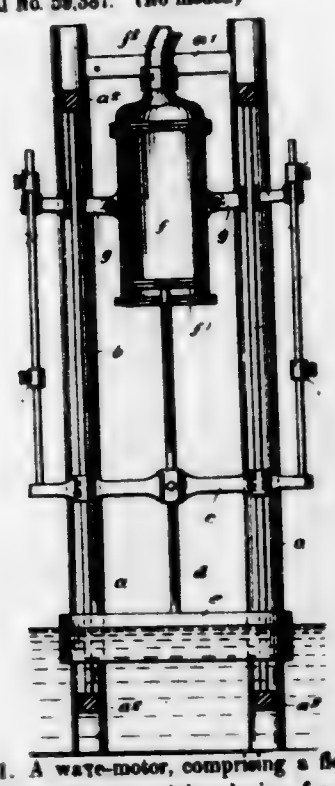
2. In a fish-hook, a shaft, a lure fixedly secured thereto, hooks rotatably mounted at the front of the lure and rearward and disposed in relation to the rear of the forward end thereof, as set forth.

3. In a fish-hook, a shaft, a lure fixedly secured thereto, hooks rotatably mounted on the shaft between the head and tail of the lure, and hooks rotatably mounted on the shaft at the front end of the lure and extended backward and disposed in relation to the rear of the front end of the lure, as set forth.

4. In a fish-hook, a shaft, a lure thereon, and hooks at the front and between the front and rear of the lure, said hooks being all disposed between the front and rear ends of the lure, as set forth.

5. In a fish-hook, a shaft, a lure thereon and divided toward its rear end, a plate rotatable on the shaft between the divided portions of the lure, and hooks carried by said plate and terminating between the front and rear ends of the lure and hooks at the front end and disposed between the front end of the lure and the first-mentioned hooks, as set forth.

698,270. WAVE-MOTOR. RICHARD H. HANNAH, Ontario, Cal., assignor of one-half to James Hannah, San Pedro, Cal. Filed May 9, 1901. Serial No. 59,387. (No model.)



Claim.—1. A wave-motor, comprising a float, means for utilizing the movement thereof, and sustaining devices for said means, the sustaining devices being actuated from the float automatically to adjust themselves to the elevation of the water.

2. In a wave-motor, the combination of a support, a float, means for utilizing the movement thereof, sustaining devices for said means, the sustaining devices comprising clutches working with the support, and tappets actuated from the float for actuating the clutches to permit the adjustment of the said means for utilizing the movement of the float.

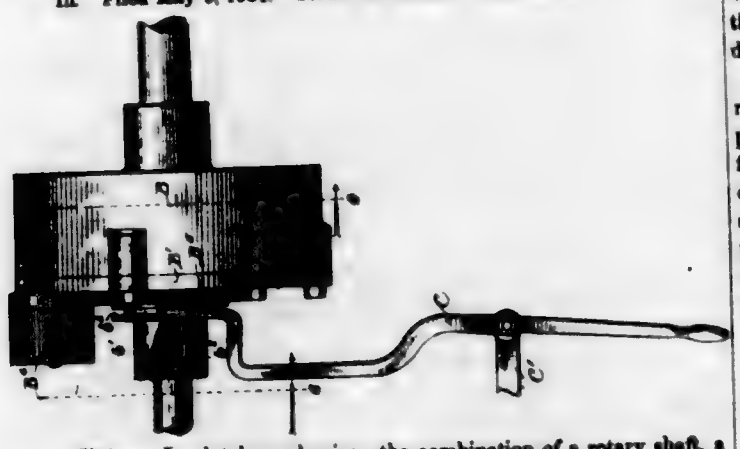
3. In a wave-motor, the combination of a support, a float, a cylinder, a rod connected with the float, a piston working in the cylinder and connected with the rod, a clutch for adjustably sustaining the cylinder, and a tappet actuated from the rod and working with the clutch, for the purpose specified.

4. In a wave-motor, the combination of a support, a float, a cylinder, a piston working therein, a rod connecting the piston with the float, an arm pivoted on the cylinder and having a clutch working with a part of the support adjustably to sustain the cylinder, and a tappet actuated from the clutch and working with the arm, for the purpose specified.

5. The combination of a support, a float, a cylinder, a piston, a rod connecting the piston to the float, a guide-rod held on the support, an arm pivoted on the cylinder and having a clutch working on the guide-rod, a cross-head attached to the piston-rod, and a tappet sustained on the cross-head and working with the arm of the cylinder, for the purpose specified.

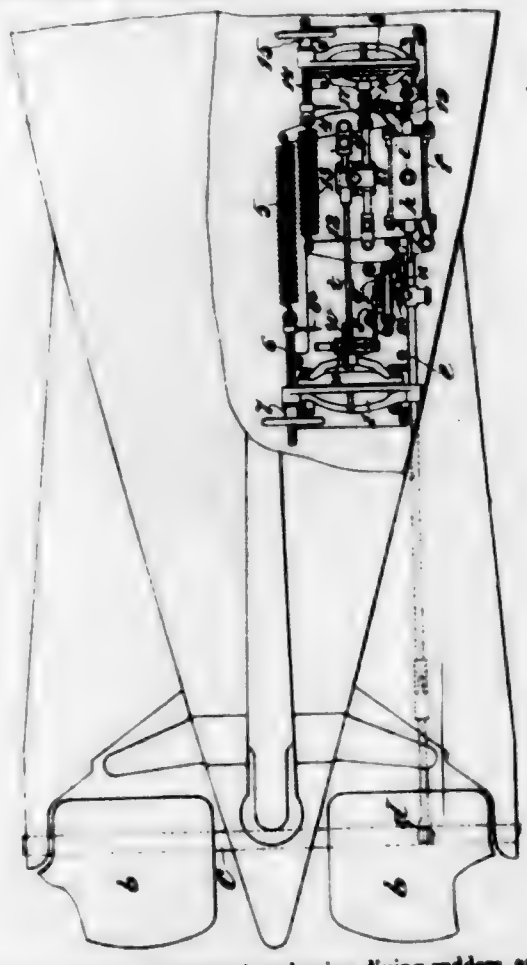
6. The combination of a support, comprising a guide-rod, a cylinder, an arm pivotally mounted thereon and having a clutch working with the guide-rod, a float, a rod connected thereto, a piston carried by the float-rod and working in the cylinder, a cross-head attached to the float-rod, a rod carried by the cross-head, and tappets fastened to the cross-head rod at opposite sides of the cylinder-arm, the tappets working with said arm, for the purpose specified.

693,271. CLUTCH MECHANISM. JOHN HARDING, Jr., Chicago, Ill. Filed May 9, 1901. Serial No. 59,502. (No model.)



Claim.—In clutch mechanism, the combination of a rotary shaft, a rotary pump carried thereby, a rotary casing provided with a pump-chamber and a fluid-circuit, a removable face-plate for said casing provided externally with a sleeve or hub having a spiral groove, a shiftable gear-sector mounted on said hub and having groove-engaging means, a valve controlling said circuit and equipped with a pinion engaging said gear-sector and means for shifting said gear-sector, substantially as described.

698,272. AUTOMATIC DIVING MECHANISM FOR SUBMARINE BOATS. JOHN P. HOLLAND, Newark, N. J. Filed Aug. 13, 1901. Serial No. 71,853. (No model.)



Claim.—1. A submarine boat having diving-rudders, an engine for operating the same, means for automatically controlling said engine to bring the said rudders to steady at a predetermined depth, and means for automatically shifting said rudders to an upward inclination at a predetermined depth in order to cause the diving boat to follow a path of reverse curvature, for the purpose set forth.

2. A submarine boat having an engine for operating its diving-rudders, a diaphragm device for automatically controlling said engine to bring the said rudders to steady, and a diaphragm device controlling said engine automatically and momentarily at a predetermined depth for shifting the diving-rudders quickly to an upwardly-inclined position, in order to change the curvature of the path of the boat, for the purpose specified.

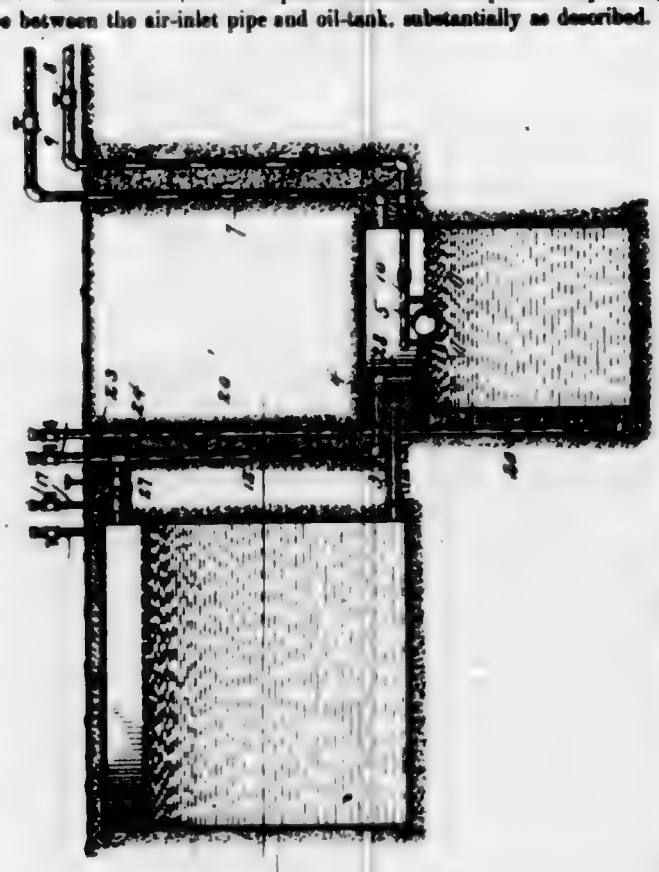
3. In a submarine boat, the combination with the diving-rudder, the diving-engine and its main valve, the piston-rod of said engine being connected with said rudder for operating it, the main diaphragm device, and intermediate floating levers which control the said main valve normally in diving, of means for throwing up the diving-rudders above the axis of the boat at a predetermined depth of submersion, to reverse the curvature of the descending path of the boat, said means comprising an auxiliary valve for the diving-engine, for modifying the action of the main valve thereof, an auxiliary diaphragm mechanism, and mechanism between said diaphragm and auxiliary valve, whereby the former controls the latter.

4. In a submarine boat, the combination with the diving rudder or rudders, the diving-engine and its valve, the floating levers, and the diaphragm device which controls the rudders normally in diving, of means for throwing the diving-rudders up above the axis of the boat at a predetermined point in the submersion, to reverse the curvature of the descending path, said means comprising an auxiliary valve 20, its stem 19, the auxiliary diaphragm device, and the double knuckle-lever 16, one member of which is coupled to said stem 19 and the other to the rod of the said auxiliary diaphragm device, substantially as set forth.

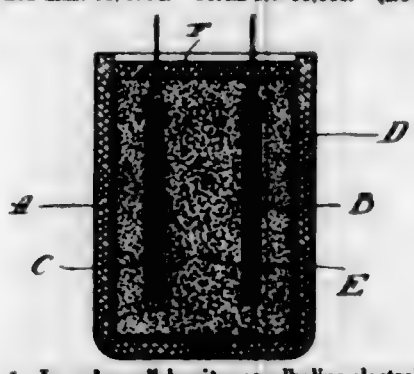
693,273. CARBURETER. FREDERICK W. JERVIS, Baltimore, Md., assignor to William Henry Jervis, Clinton, Canada. Filed Aug. 3, 1901. Serial No. 70,782. (No model.)

Claim.—A gas-machine comprising a carbureter, an oil-tank adapt-

ed to supply the carbureter, an oil-feed connection between the oil-tank and carbureter, a pressure-equalizing pipe connecting the upper portions of the oil-tank and carbureter, an inlet communicating with said pressure-equalizing pipe and adapted to have pressure applied therethrough to the carbureter, a residue-discharge pipe connected to the lower portion of the carbureter, and a stop-cock located in the pressure-equalizing pipe between the air-inlet pipe and oil-tank, substantially as described.



698,274. VOLTAIC CELL. WOOLSEY M. JOHNSON, Cambridge, Mass., assignor of one-fourth to Charles Frederick Johnson, Hartford, Conn. Filed Mar. 30, 1901. Serial No. 53,600. (No model.)

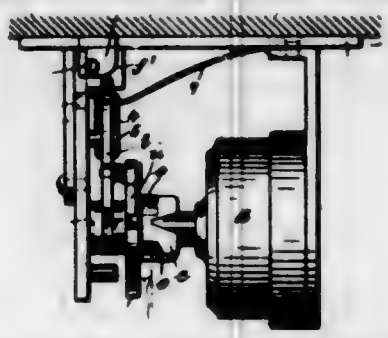


Claim.—1. In a dry cell having an alkaline electrolyte, a zinc electrode, a salt which forms with zinc a soluble double salt in alkaline solution and an electrode of oxidized copper gauze.

2. A dry cell having an alkaline electrolyte, a zinc electrode, a salt which forms with zinc, a soluble double salt in alkaline solution and an electrode consisting of several layers of oxidized copper gauze.

3. A voltaic cell comprising an electrode of zinc B, an electrode of oxidized copper gauze C, an alkaline electrolyte, the said cell being hermetically sealed, substantially as shown and described.

698,275. ELECTRIC SWITCH. JAMES JOHN and JAMES JOHN, Jr., Brooklyn, N. Y. Filed May 31, 1901. Serial No. 62,544. (No model.)



Claim.—1. In a ceiling-switch the combination with a base, a rotary switch and a support therefor, of means independent of the switch for engaging the button of said switch and means acting through the aforesaid means for opening and closing the switch, substantially as specified.

2. A ceiling switch comprising a base, a complete rotary switch of well-known form; a support therefor, a revoluble disk independent of the switch, means connected to said disk and extending therefrom to engage the button of the said switch, and means for progressively revolving the said disk, whereby the switch is opened and closed, substantially as specified.

3. In a ceiling-switch, the combination with a base, a rotary switch and a support therefor, of means adapted to engage the button of said switch, means to operate the aforesaid means to open and close the switch and means for holding both the aforesaid operative means in connection with the switch-button, substantially as specified.

4. In a ceiling-switch, the combination with a base, a rotary switch and a support therefor, of means adapted to engage the button of said switch, means to operate the aforesaid means to open and close the switch, means for holding both the aforesaid operative means in connection with the switch-button, and means for automatically moving and holding both the operative means from the switch-button when the means for holding the said operative means in position with the switch-button are released, substantially as specified.

5. In a ceiling-switch, the combination with a base, a rotary switch and support therefor of a hinged plate connected to the said base, means attached to the said hinged plate to engage the button of said switch, means to operate the aforesaid means to open and close the switch, means also attached to the said hinged plate to hold the same and the parts connected therewith in position in relation to the switch-button, substantially as specified.

6. In a ceiling-switch, the combination with a base, a rotary switch and support therefor, of a hinged plate connected to the said base, means attached to the said hinged plate to engage the button of said switch, means to operate the aforesaid means to open and close the switch, means also attached to the said hinged plate to hold the same and the parts connected therewith in position in relation to the switch-button, and means for automatically swinging and holding the hinged plate and the parts connected therewith away from the switch-button when the last-named means are released, substantially as specified.

7. In a ceiling-switch, the combination with a base, a rotary switch and a support therefor, of a hinged plate, a circular boss integral therewith, a revoluble notched disk having a hub secured to said boss, means connected to the said disk and adapted to engage the button of said switch, means also connected to the said boss to revolve the said disk and thereby open and close the switch, means for locking the said hinged plate and parts connected therewith in position, and means for automatically swinging and holding the said hinged member and the parts connected therewith away from the switch-button when the said locking means are released, substantially as specified.

8. In a ceiling-switch, the combination with a base, a rotary switch and a support therefor, of a hinged plate, a circular boss integral therewith, a revoluble notched disk having a hub secured to said boss, studs connected to the disk and adapted to engage the button of said switch, means also connected to the said boss to revolve the said disk and thereby open and close the switch, means for locking the said hinged plate and parts connected therewith in position, and means for automatically swinging and holding the said hinged member and the parts connected therewith away from the switch-button when the said locking means are released, substantially as specified.

9. In a ceiling-switch, the combination with a base, a rotary switch and a support therefor, of a hinged plate, a circular boss integral therewith, a revoluble notched disk having a hub secured to said boss, studs connected to the disk and adapted to engage the button of said switch, a sleeve fitting over the said hub of the said disk, an arm integral with the said sleeve, a pawl connected to said arm and adapted to engage the notches of said disk, a cord attached to said arm whereby the arm may be drawn down, means for returning the arm to its normal position after being drawn down, means for locking the said hinged plate and parts connected therewith in position, and means for automatically swinging and holding the said hinged member and the parts connected therewith away from the switch-button, when the said locking means are released, substantially as specified.

10. In a ceiling-switch, the combination with a base, a rotary switch and a support therefor, of a hinged plate, a circular boss integral therewith, a revoluble notched disk having a hub secured to said boss, studs connected to the disk and adapted to engage the button of said switch, a sleeve fitting over the said hub of the said disk, an arm integral with the said sleeve, a pawl connected to said arm and adapted to engage the notches of said disk, a cord attached to said arm whereby the arm may be drawn down, a spring for returning the arm to its normal position after being drawn down, means for locking the said hinged plate and parts connected therewith in position, and means for automatically swinging and holding the said hinged member and the parts connected therewith away

from the switch-button, when the said locking means are released, substantially as specified.

11. In a ceiling-switch, the combination with a base, a rotary switch and a support therefor, of a hinged plate, a circular boss integral therewith, a revoluble notched disk having a hub secured to said boss, studs connected to the disk and adapted to engage the button of said switch, a sleeve fitting over the said hub of the said disk, an arm integral with the said sleeve, a pawl connected to said arm and adapted to engage the notches of said disk, a cord attached to said arm whereby the arm may be drawn down, a spring for returning the arm to its normal position after being drawn down, a bar pivoted to the hinged plate and adapted to wedge with the base to hold the hinge-plate and connected parts in position, and means for automatically swinging and holding the said hinged member and the parts connected therewith away from the switch-button when the said locking means are released, substantially as specified.

12. In a ceiling-switch, the combination with a base, a rotary switch and a support therefor, of a hinged plate, a circular boss integral therewith, a revoluble notched disk having a hub secured to said boss, studs connected to the disk and adapted to engage the button of said switch, a sleeve fitting over the said hub of the said disk, an arm integral with the said sleeve, a pawl connected to said arm and adapted to engage the notches of said disk, a cord attached to said arm whereby the arm may be drawn down, a spring for returning the arm to its normal position after being drawn down, a bar pivoted to the hinged plate and adapted to wedge with the base to hold the hinge-plate and connected parts in position, and a spring for automatically swinging and holding the said hinged plate and parts connected therewith away from the switch-button when the said wedge-bar is released, substantially as and for the purposes set forth.

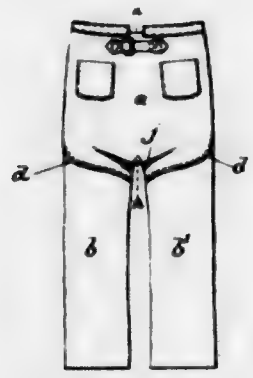
13. The combination with a rotary switch of ordinary form and a support therefor in an elevated position, of a rotary device engaging the switch-button, means engaging the rotary device automatically moved in one direction and forcefully actuated in the opposite direction to impart a progressive movement to the rotary device in one direction only, and a support therefor, substantially as specified.

14. The combination with a rotary switch of ordinary form and a support therefor in an elevated position, of a revoluble notched disk and devices for connecting the same to the button of the switch, a swinging arm and spring-actuated pawl carried thereby and engaging the disk for turning the same progressively, a flexible hanging device by which the arm is forcefully moved in one direction and a spring for automatically returning the arm to the normal position, and a support therefor, substantially as specified.

15. The combination with a rotary switch of ordinary form and a support therefor in an elevated position, of a revoluble notched disk and devices for connecting the same to the button of the switch, a swinging arm and spring-actuated pawl carried thereby and engaging the disk for turning the same progressively, a flexible hanging device by which the arm is forcefully moved in one direction and a spring for automatically returning the arm to the normal position and a swinging support therefor, a locking device for holding the support in a fixed operative position and a spring for throwing the parts out when released, substantially as specified

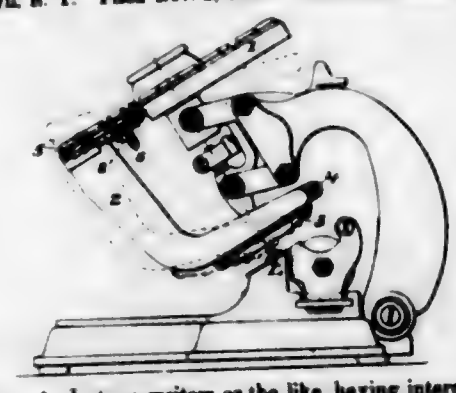
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698,276. OVERALL. SIMON KLAVINSKY, Baltimore, Md. Filed Dec. 9, 1901. Serial No. 85,135. (No model.)



Claim.—The herein-described nether garment, comprising two leg portions, b, b', wholly separated from each other except for a short length below the fly-opening at the front; and a one-piece back or seat portion, a, whose side edges, c, are approximately on the vertical line of the hips, and have a curve, d, at each hip portion and reverse curves, e, forming a semicircular crotch portion, a', the central part of said crotch portion being joined to the opposite side edges, g', of the legs below the fly-opening to form a crotch-bridge, h, whereby a baggy fullness, j, is produced in the seat at the rear of the crotch, as and for the purpose set forth.

698,277. KEYBOARD FOR TYPE-WRITERS. FRANK LAMBERT, Brooklyn, N. Y. Filed Nov. 2, 1901. Serial No. 80,841. (No model.)



Claim.—1. In type-writers or the like, having interchangeable sets of type, a keyboard bearing two groups of characters forming together a complete set of characters corresponding to one set of type, one of said groups forming a relatively permanent part of said keyboard and the other group being removable to permit of interchanging the characters on the keyboard to correspond to the interchange of the sets of type.

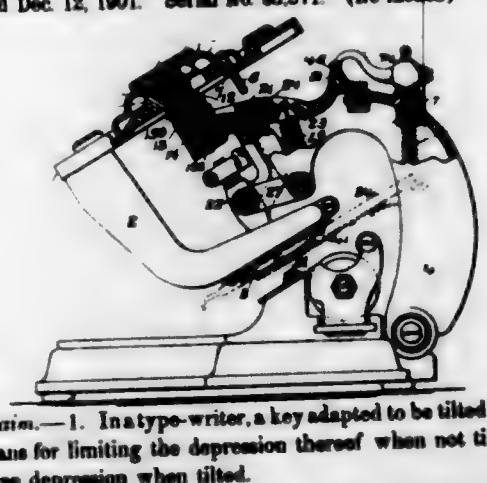
2. In a type-writer, a multiple key, a series of interchangeable differing type-blocks adapted to be actuated thereby, and a series of interchangeable differing plates, the said key being provided with a group of characters forming a permanent part of the said key, and each of said plates being provided with a group of characters and adapted to be made temporarily a part of said multiple key, whereby the characters on said multiple key may be made to correspond to the type on the type-block used.

3. In a type-writer, a multiple key having thereon characters divided into two groups, one of said groups being a relatively permanent part of said key and the other group being removably mounted thereon.

4. In a type-writer, a multiple key having thereon characters divided into two groups, one of said groups being a relatively permanent part of said key and the other group being removably mounted thereon, and means for holding said removable group in position on said key.

5. In a type-writer, a multiple key having thereon characters divided into two groups, one of said groups being a relatively permanent part of said key and the other being removably mounted thereon, and means for holding said removable group in a predetermined position relative to the permanent group on said key.

698,278. TYPE-WRITER. FRANK LAMBERT, Brooklyn, N. Y. Filed Dec. 12, 1901. Serial No. 85,571. (No model.)



Claim.—1. In a type-writer, a key adapted to be tilted and depressed, and means for limiting the depression thereof when not tilted, but allowing a free depression when tilted.

2. In a type-writer, the combination of a tilting key and movable support therefor, and means for limiting the motion of said support when the key is not tilted, but allowing a free motion when the key is tilted.

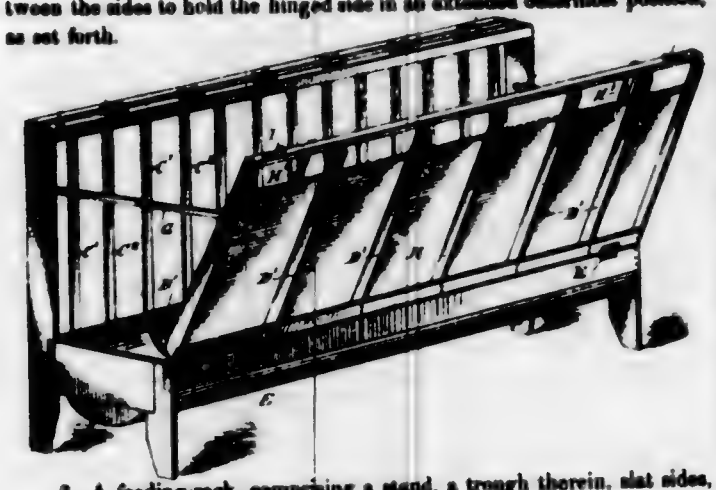
3. In a type-writer, a key adapted to be tilted and depressed, and a device acting, when in its normal position, as a stop to limit the depression of the key, but adapted to be moved from its normal position by the tilting of said key, thus allowing further depression of the latter.

4. In a type-writer, a tilting key, a movable support therefor, and a device, acting, when in its normal position, as a stop to limit the motion of said support, but adapted to be moved from its normal position by the tilting of said key, thus allowing further motion of said support.

698,279. FEEDING-RACK. SAMUEL L. LAMOREUX, Titonka, Iowa. Filed Oct. 3, 1901. Serial No. 77,393. (No model.)

Claim.—1. The combination, in a feeding-rack, of a stand, a trough removably supported on the stand, a slatted side extending upwardly from the stand, and disposed in a plane at one side of the trough, and an adjustable side hinged in a plane on the opposite side of the trough, the space between the sides and above the trough being unobstructed.

2. A feeding-rack, comprising a stand, a trough therein, slat sides, of which one is fixed to the stand and the other is hinged thereto, and adapted to extend in either an inclined outward position or into an inclined inward position relative to the fixed side, and a folding brace between the sides to hold the hinged side in an extended outermost position, as set forth.



3. A feeding-rack, comprising a stand, a trough therein, slat sides, of which one is fixed to the stand and the other is hinged thereto, and adapted to extend in either an inclined outward position or into an inclined inward position relative to the fixed side, a folding brace between the sides to hold the hinged side in an extended outermost position, and a back board removably held on the said hinged side, as set forth.

4. A feeding-rack, comprising a stand, slat sides, of which one is fixed to the stand, and the other is hinged thereto and adapted to extend in either an inclined outward position or into an inclined inward position relative to the fixed side, a folding brace between the sides to hold the hinged side in an extended outermost position, and a trough removably held on the sides of the stand between the lower ends of the slat sides, as set forth.

5. A feeding-rack, comprising a stand, a feed-trough on the stand, and the slat sides, of which one is fixed on the stand and extends approximately in a vertical direction and the other side is hinged to the stand and is adapted to swing into an inwardly and upwardly inclined position relative to the fixed side, and a back portion supported removably on the adjustable slatted side, as set forth.

6. A feeding-rack, comprising a stand, a feed-trough supported removably on the stand, the slatted sides, of which one is fixed on the stand and extends approximately in a vertical direction and the other side is hinged to the stand and is adapted to swing into an inwardly and upwardly inclined position relative to the fixed side, and a back board for removable connection with the said hinged side at the inside thereof, as set forth.

7. A feeding-rack, comprising a stand, a feed-trough on the stand, and sides, of which one is fixed on the stand and extends approximately in a vertical direction and the other side is hinged to the stand and is adapted to swing into an inwardly and upwardly inclined position relative to the fixed side, the said trough having transverse partitions, and the hinged side having spaced slats in transverse alinement with the said partitions, as set forth.

8. A feeding-rack, comprising a stand, a trough thereon provided with transverse partitions, and sides, of which one is fixed and provided with adjustable slats, and the other extends upwardly and inwardly to rest with its upper end on the upper end of the fixed side, the said inclined side having spaced slats in alinement with transverse partitions in the said trough, as set forth.

698,280. ARCH. LOUIS LANE, Toledo, Ohio. Filed Oct. 22, 1901. Serial No. 80,273. (No model.)

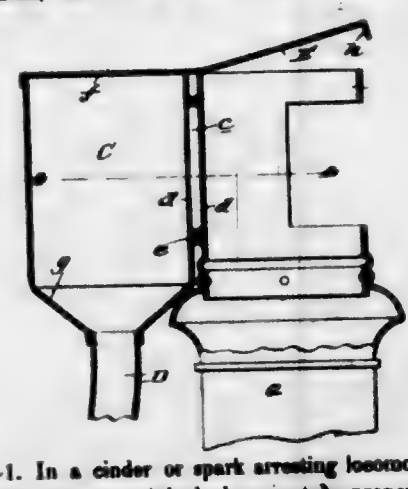


Claim.—1. An arch, comprising abutments, bearing-irons on said abutments, dowels with which the rear sides of the irons engage, an arch-plate mounted on said bearing-irons, the said plate being corrugated in the direction of its curve, and a concrete-arch ring, substantially as specified.

2. An arch, comprising abutments arch-plates resting on the abutments and extended at their upper ends to the center of the arch, and a key connection between said upper ends, and engaging with the upper and under side of the plates, substantially as specified.

3. An arch, comprising abutments, arch-plates springing from said abutments, the said plates being corrugated in the direction of their curve, a key-bar arranged between the upper ends of the plates, and plates secured to said bar and engaging against the upper and under surfaces of the arch-plates, substantially as specified.

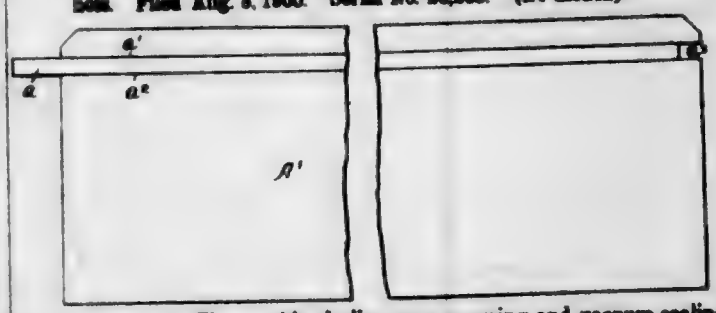
698,281. CINDER OR SPARK ARRESTER. SYLVESTER L. LANGDON, Magnolia, Miss. Filed Dec. 5, 1901. Serial No. 84,815. (No model.)



Claim.—1. In a cinder or spark arresting locomotive uptake, the combination of a hollow, upright body or uptake proper open at its upper end, and having closed sides, and also having an opening in its front, a receiver disposed in rear of and communicating with the hollow body or uptake proper, and a cap disposed over the upper end of the hollow body or uptake proper and resting in a plane above the sides and front of said body or uptake proper.

2. A cinder and spark arrester for locomotives comprising an upright hollow body open at its lower and upper ends and having an opening in its forward side, an upright receiver disposed in rear of and connected to and communicating with the hollow body, and having a dished bottom, a pipe communicating with the receiver and depending from the dished bottom, a wall forming the top of the receiver, and a cap forming a continuation of said wall; said cap extending forwardly and upwardly from the rear portion of the upper end of the body so as to rest over and above the same, and terminating at its forward edge in a depending flange.

698,282. VACUUM-SEALED AND SEAMED KEY-OPENING CAN. BERNARD H. LARKIN, River Forest, Ill., assignor to the Automatic Vacuum Canning Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 8, 1900. Serial No. 26,208. (No model.)



Claim.—1. The combined slip-cover, seaming and vacuum-sealing key-opening can, consisting in a can-body A furnished with a tongued tearing-strip *a*, and provided with an internal upright fold *d* in the stock of the can-body, said fold projecting above the lower score of the tearing-strip, and having a smooth upper edge, a cover H having inner and outer flanges h' h^2, and annular channel *h*, furnished with a packing-ring *g*, said can-body having at its upper edge a flange, turn or roll mechanically secured or united to said cover, said cover being also sealed and secured to said can-body by a vacuum or atmospheric pressure seal, and said can-body having a slip-cover-flange portion a^1 projecting above the upper score of the tearing-strip, and adapted to tightly fit, when the tearing-strip is removed, said upright fold *d* of the can-body, substantially as specified.

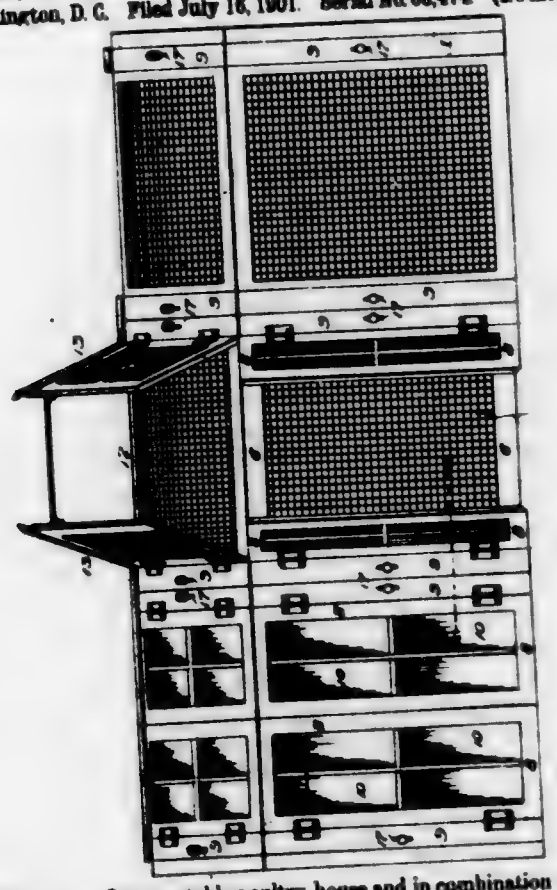
2. The combined vacuum-sealed and mechanically sealed or seamed key-opening can consisting in a can-body provided with an outwardly-turned seaming flange or roll at its upper end forming also a smooth seat

or bearing for a packing and provided with a tongued tearing-strip below said seaming-flange, a cover having inner and outer flanges and a packing between said flanges and sealed and secured to said can-body by a vacuum or atmospheric seal, said cover having its outer flange crimped or turned under said external seaming flange or roll on the can-body and mechanically sealing or seaming the cover on the can, substantially as specified.

3. The combination in a vacuum-sealed and mechanically sealed or seamed can, of a can-body having an external seaming flange or roll at its upper end and forming also a smooth seat or bearing for a packing, of a cover having a packing and a packing seat or channel and sealed and secured to said can-body by a vacuum or atmospheric pressure seal compressing and holding compressed the packing and provided with an external downturned seaming-flange having its lower portion crimped or turned under the said seaming flange or roll on the can-body, substantially as specified

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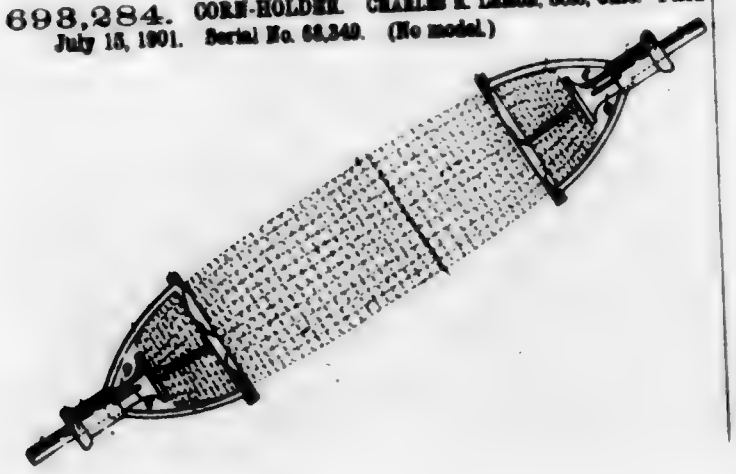
693,283. PORTABLE POULTRY-HOUSE. GEORGE C. LATHROP, Washington, D. C. Filed July 16, 1901. Serial No. 68,474. (No model.)



Claim.—1. In a portable poultry-house and in combination with the battens surrounding the vertical walls, of a screen-frame 12 fitting and closing the space between the battens, in the roof and vertical walls, cleats, secured to the screen-frame, glazed shutters 13 hinged to the cleats and means for securing the shutter-carrying cleats to the wall-frames, whereby to provide interchangeable frames adapted for the openings for the roof and for the sides of the house.

2. In a portable poultry-frame and in combination with battens surrounding the vertical walls, of a screen-frame filling and closing the space between the battens in the roof and vertical walls, cleats secured to the screen-frame, glazed shutters hinged to the cleats and eyepins secured to the vertical wall-frames and passing through the cleats whereby the screen-frame, the glazed shutters and the cleats are removably pinned to the frame-walls.

693,284. CORN-HOLDER. CHARLES R. LEMON, Scio, Ohio. Filed July 15, 1901. Serial No. 68,349. (No model.)



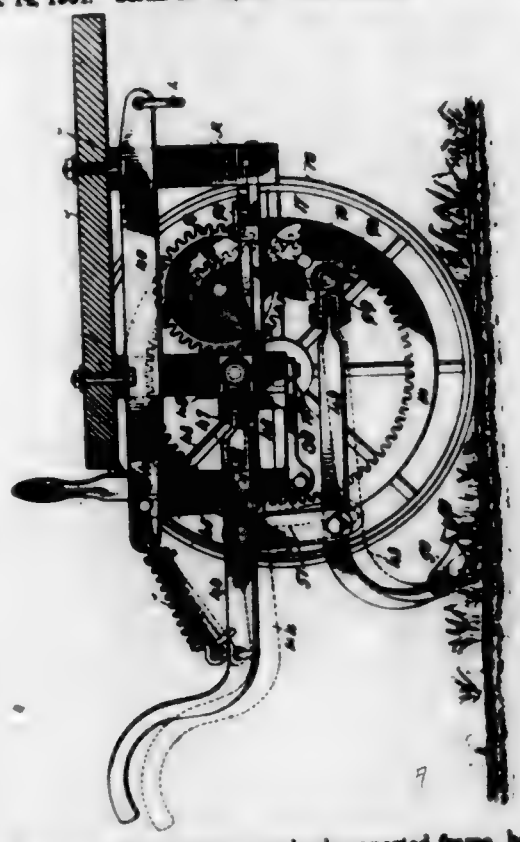
Claim.—In a corn-holder, the combination of a casing, ribs carried by said casing, a ring carried by said ribs, a fork carrying said casing, a sleeve in which said fork is slidingly secured, and means to limit the movement of said fork within said sleeve, all parts being arranged and operating substantially as described.

693,285. FENCE POST AND BRACE. LORIN L. LESLIE, Hillsdale, Mich. Filed Oct. 24, 1901. Serial No. 79,777. (No model.)



Claim.—In a fence-post, an angular body portion of molded cement, in combination with angle-bars embedded therein, the sides of said angle-bars being provided at either end with notches pointing away from the center of the bar and forming tongues, and the sides and tongues separated by the tongues being bent inwardly substantially as described.

693,286. WEEDER. WILLIAM D. LLOYD, Flakville, Tex. Filed Sept. 14, 1901. Serial No. 75,380. (No model.)



Claim.—1. In a weeder, a wheel-supported frame, handles having lateral and vertical movement and connected with the said frame, beams connected with the handles, capable of lateral and vertical movement, hoes carried by said beams, and a driving connection between the said beams and the supporting-wheels of the frame, the said driving connec-

tion comprising gearing and crank-disks, whereby the said beams are given a rotary reciprocating movement, as described.

2. In a weeder, a wheel-supported frame, the supporting-wheels of the frame being provided with internally-toothed gears, handles carried by the said frame, which handles have vertical and lateral movement, tension devices adapted to exert upward pressure, connecting the handles with the extensions from the frame, trains of gearing operating in connection with the internally-toothed gears of the driving-wheels, crank-disks operated by the said trains of gearings, beams carried by the wrist-pins of the crank-disks, said beams being capable of vertical and lateral movement, and a connection between the beams and the said handles, and hoes carried by the rear end portions of the beams, as described.

3. In a weeder, a wheel-supported frame, the supporting-wheels of said frame being provided with internally-toothed gears, handles carried by the said frame, which handles have vertical and lateral movement, tension devices adapted to exert upward pressure, connecting the handles with extensions from the frame, trains of gearing operating in connection with the internally-toothed gears of the driving-wheels, crank-disks operated by the said trains of gearing, beams carried by the wrist-pins of the crank-disks, the said beams being capable of vertical and lateral movement, a connection between the beams and the said handles, hoes carried by the rear end portions of the beams, the said hoes inclining forward and outward in opposite directions, and a shifting mechanism for the trains of gearing, as and for the purpose decribed.

4. In a weeder, the combination, with a wheel-supported frame, each supporting-wheel turning loosely upon its axle, an internally-toothed gear secured to each supporting-wheel, beds formed upon the frame adjacent to each axle, shafts carried by extensions from the said beds, each shaft being provided with a crank-disk at its inner end and a pinion between its ends, shifting plates mounted upon the said beds, means for moving the said shifting plates, shafts carried by the shifting plates, pinions carried by the shafts on the shifting plates, arranged to mesh with the teeth of the gears secured to the supporting-wheels, and a gear secured to each shaft carried by a shifting plate, which gears are adapted to engage with the pinions supported by the beds on which the shifting plates have movement, of links pivoted to the frame, capable of up-and-down movement, handles pivotally connected with the links and capable of lateral movement, tension devices connected with the handles and with extensions from the frame, links pivoted on the wrist-pins of the crank-disks, capable of up-and-down movement, beams pivoted to the said links, capable of lateral movement, hoes carried by the said beams, and link connections between the beams and handles, as described.

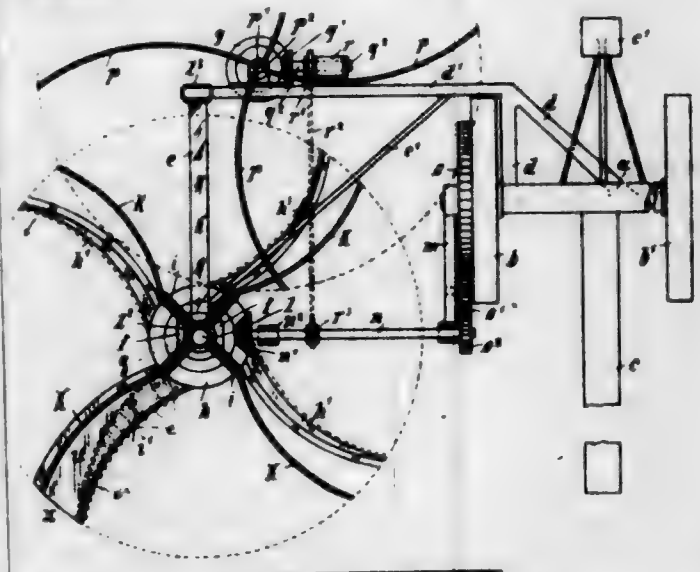
5. In a weeder, the combination, with a wheel-supported frame, each supporting-wheel turning loosely upon its axle, an internally-toothed gear secured to each supporting-wheel, beds formed upon the frame adjacent to each axle, shafts carried by extensions from the said beds, each shaft being provided with a crank-disk at its inner end and a pinion between its ends, shifting plates mounted upon the said beds, means for moving the said shifting plates, shafts carried by the shifting plates, pinions carried by the shafts on the shifting plates, arranged to mesh with the teeth of the gears secured to the supporting-wheels, and a gear secured to each shaft carried by a shifting plate, which gears are adapted to engage with the pinions supported by the beds on which the shifting plates have movement, of links pivoted to the frame, capable of up-and-down movement, handles pivotally connected with the links and capable of lateral movement, tension devices connected with the handles and with extensions from the frame, links pivoted on the wrist-pins of the crank-disks, capable of up-and-down movement, beams pivoted to said links, capable of lateral movement, hoes carried by the said beams, link connections between the beams and handles, locking devices for the shifting plates, and pivoted arms arranged to limit the upward movement of the said handles, as set forth.

6. In a weeder, a wheel-supported frame, laterally and vertically moving handles connected with the frame, beams connected with the handles capable of lateral and vertical movement and a driving connection between the beams and the supporting-wheels of the frame, through which driving connection the beams have imparted thereto a rotary reciprocating movement, as described.

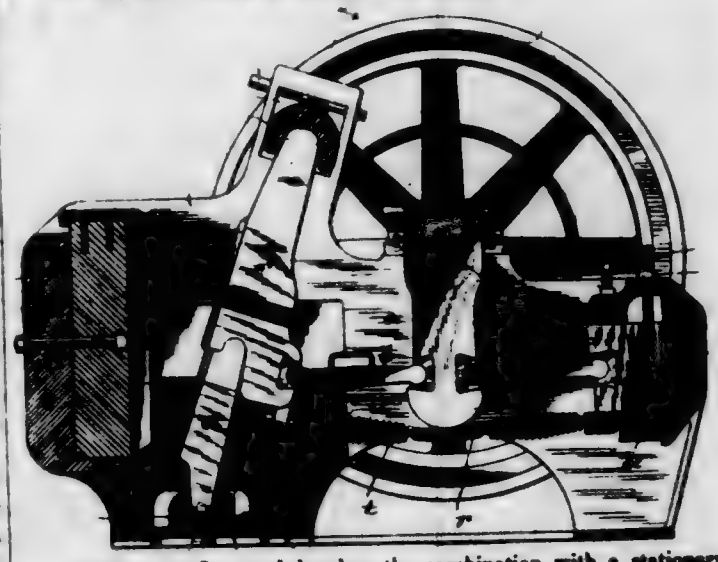
693,287. MOWING-MACHINE. ANNA VON LOEPER, Rostock, Germany. Filed Oct. 30, 1899. Serial No. 735,273. (No model.)

Claim.—1. The combination, in a mowing-machine, of a knife-head A, with one or more cutters or knives A', each of which is furnished with a protecting device consisting of an arm i' which carries elastic plates or teeth i, such protecting device being carried by the knife-head A and situated below its knife A', the knives and their protecting devices being fastened to the knife-head A, and rotating with it, all substantially as set forth.

2. The combination, in a mowing-machine, of a knife A', with a protecting device consisting of a part i', connected to the under part of the knife and constituting the back of the comb, and comb-teeth i, these teeth projecting somewhat beyond the cutting edge of such knife and situated underneath same, the knife and the protecting device moving together, as described.



693,288. ROCK-BREAKER. GEORGE LOWRY, Tiffin, Ohio. Filed Nov. 22, 1899. Serial No. 737,934. (No model.)



Claim.—1. In a rock-breaker, the combination with a stationary jaw, of a vibrating jaw comprising a lower section supported and fulcrumed at its lower end, an upper section supported by the lower section and having a bearing upon the upper edge of said lower section, said upper section also being provided with a bearing and fulcrum at its upper edge, and means for operating said vibrating jaw, substantially as described.

2. In a rock-breaker, the combination with a stationary jaw, of a sectional vibrating jaw comprising an upper section provided with a bearing upon said lower section, means for supporting said vibrating jaw, and means for operating the same, substantially as described.

3. In a rock-breaker, the combination with a stationary jaw, of a vibrating jaw composed of two sections placed edge to edge and one resting upon the other, both of said sections being adjustable, substantially as described.

4. In a rock-breaker, the combination with a stationary jaw, of a vibrating jaw composed of two sections placed edge to edge and one resting upon the other, the opposite edges of said sections having socket-bearings and means for adjusting said bearings, substantially as described.

5. In a rock-breaker, the combination with a stationary jaw, of a vibrating jaw composed of two sections placed edge to edge and one resting upon the other, an adjustable yoke provided with a socket for the reception of the upper edge of one of said sections and a foot-block provided with a socket for the reception of the lower edge of the other section, substantially as described.

6. In a rock-breaker, the combination with a stationary jaw, of a vibrating jaw composed of two sections placed edge to edge and one resting upon the other, an adjustable yoke provided with a socket to receive the upper edge of one of said sections, an adjustable foot-block provided with a socket to receive the lower edge of the other section and a wedge interposed between said block and a stationary portion of the machine, substantially as described.

7. In a rock-breaker, the combination with a stationary jaw, a vibrating jaw and means for operating the same, of a retractile spring-chain connected at its ends, respectively, with said jaw and a stationary portion

of the machine, said chain when expanded being adapted to be engaged by the means operating the vibrating jaw, substantially as described.

8. In a rock-breaker, the combination with a stationary jaw, a vibrating jaw, a crank-shaft and means connecting said shaft with the vibrating jaw for operating the same, of a retractile spring secured at its ends respectively to said jaw and a stationary portion of the machine and means actuated by said shaft to engage said spring when extended, substantially as described.

9. In a rock-breaker, the combination with a stationary jaw, a sectional vibrating jaw, a crank-shaft and means connecting said shaft with the vibrating jaw for operating the same, of a retractile spring-chain connected at its ends respectively to one section of the vibrating jaw and a stationary portion of the frame of the machine and means operated by said shaft to engage the said chain when expanded, substantially as described.

10. In a rock-breaker, the combination with a stationary jaw, of a sectional vibrating jaw comprising upper and lower sections movably jointed together, said sectional jaw being fulcrumed at its upper and lower edges, a crank-shaft, an arm depending from said shaft and substantially parallel with the vibrating jaw, toggle-levers extending between a stationary portion of the machine and the vibrating jaw, substantially at right angles to said jaw, the end of one of said toggle-levers being provided with a bearing against said vibrating jaw at a point opposite the bearing between the upper and lower sections of said jaw, said toggle-levers being operated by said arm to operate said vibrating jaw, substantially as described.

11. In a rock-breaker, the combination with a stationary jaw, of a vibrating jaw, a crank-shaft, an arm depending from said shaft substantially parallel with the vibrating jaw, toggle-levers extending between a stationary portion of the machine and the vibrating jaw substantially at right angles to said jaw, said arm being pivotally connected with one of said toggle-levers and said levers being socketed at their inner ends in one another and at their outer ends being respectively socketed in the vibrating jaw and a stationary portion of the machine, substantially as described.

12. In a rock-breaker, the combination with a stationary jaw, of a sectional vibrating jaw comprising upper and lower sections movably jointed together, rocker-bearings for the upper and lower horizontal edges of said jaw, and means for operating said vibrating jaw by articulating the upper and lower sections thereof upon each other, substantially as described

13. In a rock-breaker, the combination with a stationary jaw, of a sectional vibrating jaw comprising upper and lower sections movably jointed together, of supports for the upper and lower ends of said jaw, bearings for said vibrating jaw against said supports, and means for operating said vibrating jaw, substantially as described.

14. In a rock-breaker, the combination with a stationary jaw, of a sectional vibrating jaw comprising upper and lower sections movably jointed together, adjustable supports for the upper and lower ends of said vibrating jaw, bearings for the ends of said vibrating jaw against said supports, and means for operating said vibrating jaw, substantially as described.

15. In a rock-breaker, the combination with a stationary jaw, of a vibrating jaw comprising a lower section and an upper section, a bearing between the adjacent edges of said upper and lower sections, a support for said lower section, a bearing for the upper part of said upper section, and means for operating said vibrating jaw, substantially as described.

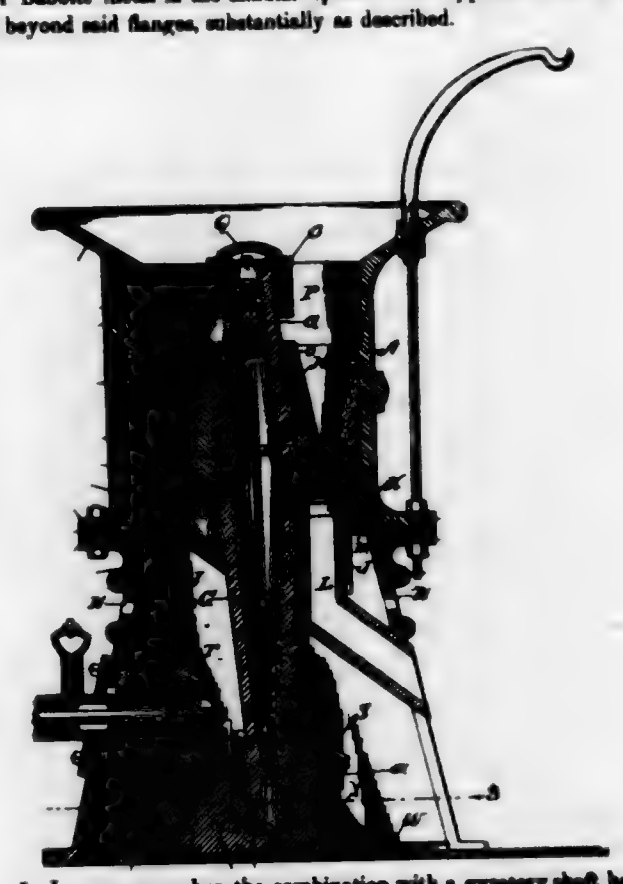
698,289. STONE-CRUSHER. GEORGE LOWRY, Tiffin, Ohio. Filed May 14, 1900. Serial No. 16,652. (No model.)

Claim.—1. In a stone-crusher, the combination with the casing, the gyratory shaft and the crusher-head, of a crushing-ring longitudinally adjustable in said casing, a chute provided with a horizontal external flange, an internal annular shoulder on the casing on which said flange rests and screw-bolts threaded through said flange and forming an adjustable seat for the crushing-ring, substantially as described.

2. In a stone-crusher, the combination with the casing, the gyratory shaft and the crusher-head, of a crushing-ring longitudinally adjustable in said casing, a chute provided with a horizontal external flange, an internal annular shoulder on the casing on which said flange rests, and an adjustable seat carried by said flange, for the crushing-ring.

3. In a stone-crusher, the combination with the casing, a gyratory shaft and the crusher-head, of a crushing-ring longitudinally adjustable in said casing, a chute provided with a horizontal external flange, an internal annular shoulder on the casing on which said flange rests, an adjustable seat carried by said flange, for the crushing-ring, and means for retaining said ring in fixed position on its seat.

4. In a stone-crusher, the combination with a gyratory shaft having a tapering body portion, of a crusher-head having a correspondingly-tapering axle-opening therethrough and provided with annular flanges on the inner periphery thereof, said flanges closely fitting the shaft, of a filling of Babbitt metal in the annular spaces at the opposite ends of said head beyond said flanges, substantially as described.



5. In a stone-crusher, the combination with a gyratory shaft having a tapering portion, of a crusher-head having a correspondingly-tapering axle-opening therethrough and internal annular flanges on said head closely fitting on said shaft, said shaft being provided with annular grooves above and below said flanges and a filling of Babbitt metal in the annular spaces at opposite ends of said head, substantially as described

6. In a stone-crusher, the combination with a gyratory shaft, a power-shaft carried by the frame of the crusher, an eccentric bearing for the lower end of said shaft, and operating mechanism mounted on said bearing and normally connected with said power-shaft, of a foot-block in which said bearing is stepped, having a sliding connection with the base of the machine, and means for securing the same in position, the movement of said block disconnecting the power connections.

7. In a stone-crusher, the combination with the gyratory shaft, means for operating the same and an eccentric bearing for the lower end thereof, of a foot-block in which said bearing is stepped, said bearing being removably seated in and having an interlocking connection with the base of the machine and a key for locking the same in position, substantially as described.

8. In a stone-crusher, the combination with a gyratory shaft, the eccentric bearing and the crown-gear keyed thereto, of the foot-block in which said bearing is stepped, guides for said block, an abutment on one side thereof in interlocking connection therewith, and a key on the opposite side thereof for holding the same against said abutment whereby said block carrying the bearing is removably secured in fixed position and may be drawn out through an opening in the side of the machine-base, substantially as and for the purpose described.

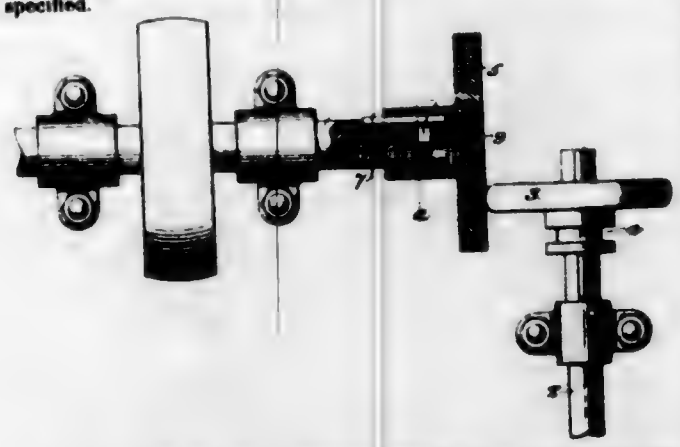
9. In a stone-crusher the combination with a gyratory shaft, of a crusher-head of greater internal diameter at its ends than the body of said shaft, projecting flanges upon one of said members closely fitting the periphery of the other member, the annular spaces between the flanges and the ends of the crushing-head being open at their outer ends, and a filling of Babbitt metal in said annular spaces, at the opposite ends of said head, substantially asdescribed.

698,290. POWER-TRANSMITTING MECHANISM. WILLIAM H. LUCAS, Philadelphia, Pa., assignor to himself, Frederick H. Gleen, and John P Mathieu, Philadelphia, Pa., trading as Lucas and Gleen Machine Works, a Firm. Filed Oct. 7, 1899. Serial No. 732,966. (No model.)

Claim.—1. The combination in a power-transmitting and speed-regulating device, of a pair of shafts at a right angle to each other, a pair of disks carried by said shafts, one disk having face contact with the periphery of the other, a hub on said face-contact disk, receiving the end of one of the shafts and having sliding connection therewith, but prevented from rotating thereon, and an adjusting-screw passing through the center of the disk and accessible from the face of the same, substantially as specified.

2. The combination in a power-transmitting and speed-regulating

device, of a pair of shafts at a right angle to each other, a pair of disks carried by said shafts, one disk having face contact with the periphery of the other, a hub on said face-contact disk, receiving the end of one of the shafts and having sliding connection therewith, but prevented from rotating thereon, and a spring interposed between the shaft and a bearing within the hub, and serving to project the disk on the shaft, substantially as specified.



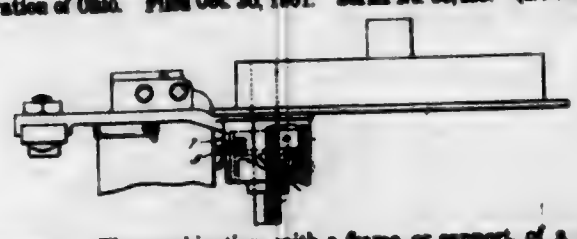
3. The combination in a power-transmitting and speed-regulating device, of a pair of shafts at a right angle to each other, a pair of disks carried by said shafts, one disk having face contact with the periphery of the other, a hub on said face-contact disk, receiving the end of one of the shafts and having sliding connection therewith, but prevented from rotating thereon, and a spring contained within a recess in the end of the shaft, and having a bearing within the hub, said spring serving to project the disk on the shaft, substantially as specified.

4. The combination in a power-transmitting and speed-regulating device, of a pair of shafts at a right angle to each other, a pair of disks carried by said shafts, one disk having face contact with the periphery of the other, a hub on said face-contact disk, receiving the end of one of the shafts and having sliding connection therewith, but prevented from rotating thereon, a spring contained within a recess in the end of the shaft and serving to project the disk thereon, and a screw passing through the center of the disk and accessible from the face of the same, said screw serving to regulate the tension of the spring, substantially as specified.

5. The combination in power-transmitting and speed-regulating devices, of a pair of shafts at right angles to each other, a pair of disks carried by said shafts, one of said disks being longitudinally adjustable upon its shaft and having face contact with the periphery of the other disk, a spring contained in a recess in the end of the shaft which carries the face-contact disk, a block free to slide in said recess and bearing upon the spring, and a set-screw engaging with the disk and block and serving to adjust the latter, substantially as specified.

6. The combination in power-transmitting and speed-regulating devices, of a pair of shafts at right angles to each other, a pair of disks carried by said shafts, one of said disks being longitudinally movable on its shaft and having face contact with the periphery of the other disk, a spring contained in a recess in the end of the shaft which carries said face-contact disk, a nut bearing upon said spring, and a screw-stem carried by the disk and engaging said nut, substantially as specified.

698,291. BALL-BEARING. DANIEL LOTH, Springfield, Ohio, assignor to the Thomas Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed Oct. 20, 1901. Serial No. 80,463. (No model.)



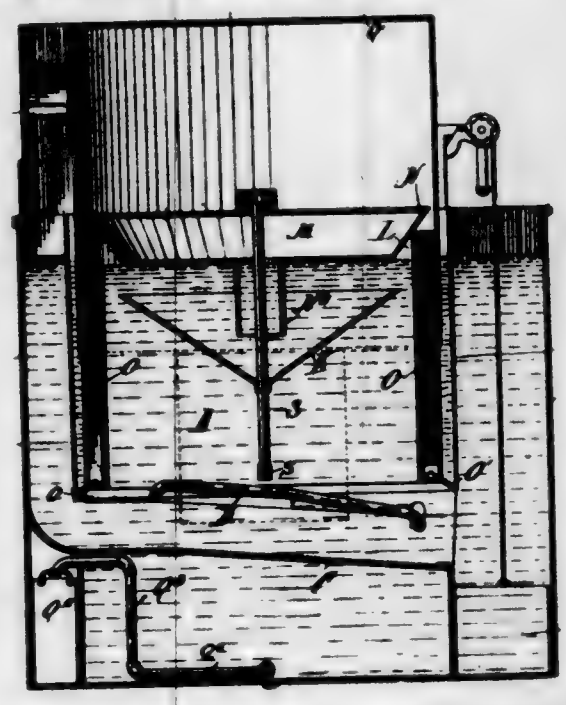
Claim.—1. The combination, with a frame or support, of a collar thereon provided with an inclined slot, a sleeve fitting within the collar, a projection extending through said slot, said sleeve having a ball-raceway, means for fixing said sleeve within the collar, balls located within the raceway, and a shaft provided with a cone to bear against the balls, substantially as described.

2. The combination, with a frame or support, of a collar thereon provided with an inclined slot, a sleeve fitting and movable within the collar, a screw threaded into the sleeve and extending through the slot, said sleeve being provided with a ball-raceway, balls located within the raceway, and a shaft provided with a cone bearing against the balls, substantially as described.

3. The combination with a frame or support, of a collar thereon provided with an inclined slot, a sleeve fitting and movable within the collar, a screw threaded into the sleeve and extending through the slot in the collar, said sleeve being provided with a ball-raceway, balls located in said raceway, a shaft provided with a cone to bear against the balls, and a set-screw threaded through the collar and impinging on the sleeve, substantially as described.

4. The combination, with a frame or support, of a collar thereon provided with an inclined slot, a sleeve fitting and movable within the collar, a projection extending through the slot therein, said sleeve being provided with a cup-seat, a bearing-cup fitting tightly within said seat and provided with a raceway, balls located in said raceway, a shaft provided with a cone to bear against said balls, and means for fixing the sleeve within the collar, substantially as described.

698,292. GAS-HOLDER. ELMER P. MACKUSICK, New York, N. Y., assignor of one-half to George Vickery Foster, New York, N. Y. Filed Aug. 23, 1900. Serial No. 28,201. (No model.)



Claim.—1. A gas-holder having a gas-bell, a water-tank having two concentric chambers into the outer one of which the bell extends, a hollow cover for the inner chamber and opening into the same below the normal water-line thereof, a gas communication between the chambers and an escape or safety-pipe leading from the interior of said cover to the outside, as set forth.

2. A gas-holder having a gas-bell, a water-tank having two concentric chambers into the outer one of which the bell extends, a hollow cover for the inner chamber and opening into the same below the normal water-line thereof, a gas communication between the chambers, an escape or safety pipe leading from the interior of said cover to the outside, and a cone-shaped deflector below the opening of the said cover, as set forth.

3. A gas-holder provided with a water-tank having two concentric chambers, a gas-bell arranged to rise and fall in the outer chamber, a cover for the inner chamber and forming therewith a gas-chamber in the upper part of the same, said cover being independent of the bell, and a condensation-chamber arranged between the chambers of the water-tank, and having an annularly-arranged circuitous conduit opening at one end into the gas-chamber adjacent to the cover and at its other end into the bell, both the inlet and outlet of the condensing-chamber being at the top of the same, as set forth.

4. A gas-holder provided with a water-tank having two concentric chambers, a gas-bell arranged to rise and fall in the outer chamber, a cover for the inner chamber and forming therewith a gas-chamber in the upper part of the same, said cover being independent of the bell, and a condensation-chamber arranged between the concentric chambers and having an annularly-arranged circuitous conduit opening at one end into the gas-chamber adjacent to the cover, and at its other end into the bell, both the inlet and outlet of the condensing-chamber being at the top of the same, and a discharge-passage between the inlet and outlet of the conduit and opening at one end into the bell and connecting at its other end with the gas-supply, as set forth.

5. A gas-holder provided with a water-tank having two concentric chambers, a gas-bell arranged to rise and fall in the outer chamber, a cover for the inner chamber and forming in the upper part thereof a gas-chamber, said cover being independent of the bell, and a condensation-chamber arranged between the said concentric chambers and having a circuitous conduit opening at one end into the gas-chamber and at its other end into the bell, said conduit being formed by a series of vertical

channels connected with each other alternately at top and bottom, as set forth.

6. A gas-holder provided with a water-tank having two concentric chambers, a gas-bell arranged to rise and fall in the outer chamber of the tank, a cover for the inner chamber and forming therewith a gas-chamber, said cover being independent of the bell, an annular condensation-chamber arranged between the said chambers and having a circuitous conduit opening at one end into the gas-chamber, and at its other end into the bell, said conduit being formed by a series of annularly-arranged vertical channels connected with each other alternately at top and bottom, and means for carrying off the water of condensation from the condensation-chamber, as set forth.

7. A gas-holder provided with a water-tank having two concentric chambers, a cover for the inner chamber and forming in the upper part thereof a gas-chamber, a gas-bell arranged to rise and fall in the outer chamber, and an annular condensing-chamber between the two chambers of the tank and having a continuous channel opening at one end into the said chamber and at the other end into the bell, said channel being formed by partitions arranged at angles to one another and formed with notches alternately at their upper and lower ends, as set forth.

8. A gas-holder provided with a water-tank having two concentric chambers, a cover for the inner chamber, said cover having beveled sides and forming in the upper part of the said inner chamber a gas-chamber, a gas-bell arranged to rise and fall in the outer chamber, and an annular condensing-chamber provided with a series of vertical partitions arranged at angles to one another and formed with notches alternately at their upper and lower ends, said partitions forming a continuous channel which opens at one end into the said gas-chamber and at its other end into the bell, as set forth.

9. A gas-holder provided with a water-tank having two concentric chambers, a cover for the inner chamber and forming therewith a gas-chamber, a bell arranged to rise and fall in the outer chamber, and an annular condensing-chamber arranged between the said chambers and provided with a series of vertical partitions arranged at angles to one another and formed with notches alternately at their upper and lower ends, said partitions forming a continuous circuitous channel which opens at one end into the gas-chamber and at its other end into the bell, and a discharge-passage arranged between the inlet and outlet of the channel and opening at one end into the bell and connected at its other end with the gas-supply for the burners, as set forth.

10. A gas-holder having a water-tank, a bell, an annular condensation-chamber secured to the tank at the inside and spaced from the wall of the same so as to divide the tank into two portions, and a hollow cover having an inclined side secured to the condensation-chamber to close the inner portion of the tank and to form with the said chamber a gas-receiving chamber opening into the same, substantially as shown and described.

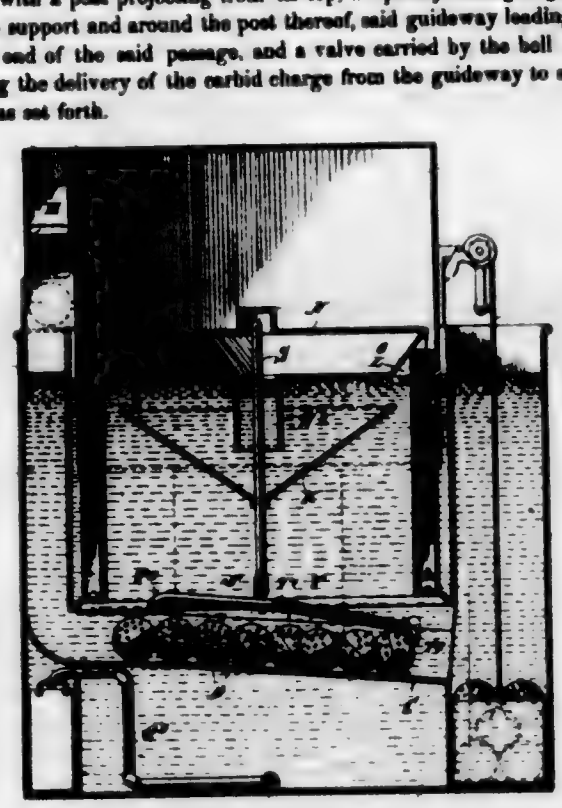
11. A gas-holder having a water-tank, a bell, an annular condensation-chamber secured to the tank at the inside and spaced from the wall of the same, a hollow cover having an inclined side secured to the condensation-chamber to close the inner portion of the tank and to form with the said chamber a gas-receiving chamber opening into the same, said cover having in its bottom a downwardly-extending pipe, and an air-pipe leading from the interior of the cover through the said pipe to the outer air as set forth.

12. A gas-holder having a water-tank, a bell, an annular condensation-chamber secured to the tank at the inside and spaced from the wall of the same, a hollow cover having an inclined side secured to the condensation-chamber to close the inner portion of the tank and to form with the said chamber a gas-receiving chamber opening into the same, said cover having in its bottom a downwardly-extending pipe, a cone-shaped deflector below the cover and into which opens the pipe of said cover, and an air-pipe leading from the interior of said cover through its pipe to the outer air, as set forth.

13. A gas-holder having a water-tank, a bell, an annular condensation-chamber secured to the tank at the inside and spaced from the wall of the same, a hollow cover having an inclined side secured to the condensation-chamber to close the inner portion of the tank, and to form with the said chamber a gas-receiving chamber opening into the same, said cover having in its bottom a downwardly-extending pipe, a cone-shaped deflector below the cover and into which opens the pipe of said cover, and an air-pipe leading from the interior of said cover through its pipe to the outer air, said air-pipe forming a support for the said deflector, as set forth.

698,293. ACETYLENE-GAS GENERATOR. ELMER P. HAGGERTY, New York, N. Y., assignor of one-half to George V. Foster, New York, N. Y. Filed Mar. 14, 1901. Serial No. 51,675. (No model.)

Claim.—1. A gas-generator, comprising a water-tank having an inclined submerged support for a carbid charge, a vertical passage at one side of the tank and leading into the same above the said support, said passage being filled with water from the tank, a gas-bell adapted to rise and fall in the tank, a support arranged at one side of the tank and provided with a post projecting from its top, a spirally-arranged guideway on the support and around the post thereof, said guideway leading to the upper end of the said passage, and a valve carried by the bell for controlling the delivery of the carbid charge from the guideway to said passage, as set forth.



2. A gas-generator having a water-tank with an inclined submerged support for the charge, a vertical passage leading to said support and filled with water from said tank, a gas-bell adapted to rise and fall in said water-tank, an inclined guideway leading to the upper end of said passage, and a cut-off valve for controlling the charges passing from the guideway into the passage, said cut-off valve comprising a platform fixed on the tank, and vertical plates fixed to the bell and between which extends said platform, the plates having apertures at different levels, one of the apertures being adapted to register with the lower end of the inclined guideway, to allow a charge to pass from the guideway to the platform and the other being arranged to allow a charge to roll from the platform into said passage, as set forth.

3. A gas-generator having a water-tank, a submerged inclined support in the tank for the charges, a passage leading to the upper end of the support, a lever having front and rear cross-arms and mounted at about its center to swing over said support, one cross-bar of the lever being adapted to engage the carbid charges near the discharge end of the support to hold them thereon, and the other bar to swing down between the last two rows of charges on the support to retain the last row thereon, and means connected with said lever and extending to the outside of the tank, for manipulation by the operator, as set forth.

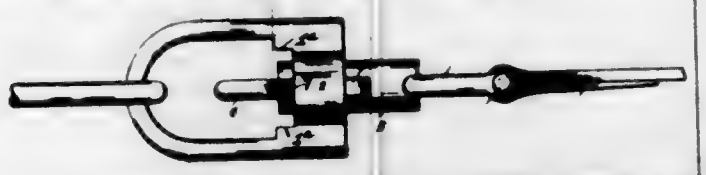
4. In a gas-generator, the combination with a tank, a vertical passage at one side of the tank and leading into the said tank at its lower end, and a bell mounted to rise and fall in the tank, of an inclined guideway leading to the upper end of the vertical passage, and a valve for controlling the delivery of the charges from the guideway to the passage, said valve comprising a platform secured to the tank and vertical and spaced plates secured to the bell and between which the platform projects, said plates having apertures at different levels, as and for the purpose set forth.

5. A gas-generator, comprising a tank having an inclined platform arranged above its bottom and provided with a vertical passage at one side of the tank, and leading at its lower end into the same above the platform, a bell in the tank, a spiral guideway leading to the upper end of the passage, a valve for controlling delivery of the charges from the guideway to the passage, said valve consisting of a platform on the tank and vertical plates on the bell and between which the platform extends, the plates being provided with apertures at different levels, a pivoted retaining and releasing device above the platform for alternately engaging with its ends the charges to retain and release them, a well on the side of the tank and into which the spent charges pass, and an elevating device in the said tank, as set forth.

698,294. STRAP-COUPLING. WILLIAM H. HALLIDAY, Harlem, N. D. Filed Dec. 22, 1900. Serial No. 40,516. (No model.)

Claim.—1. A strap-coupling comprising a link formed with a socket having a central aperture and side recesses, a hollow shank formed with diametrically opposite radial openings, a head on said shank having shoulders adapted to pass through the side recesses, and a strap-attaching

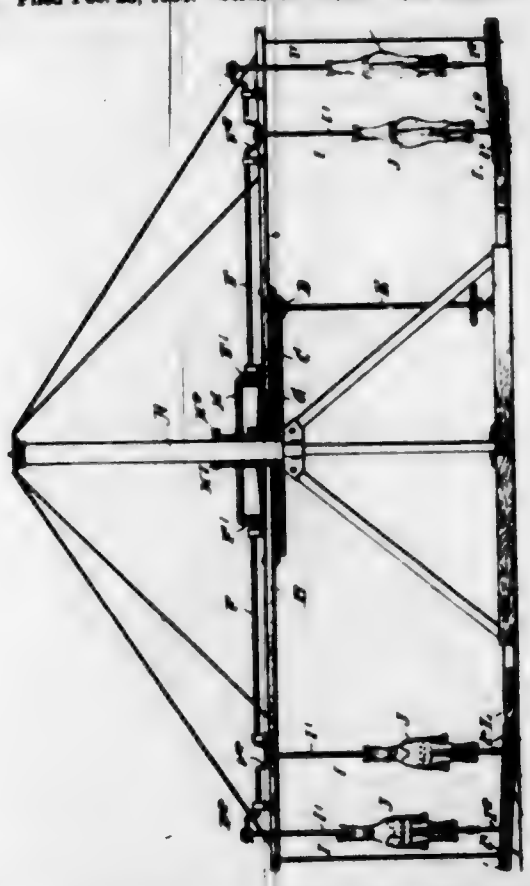
means, and a spring located within the shank and projecting through the radial openings for locking the shank and seating the head.



2. A strap-coupling comprising a link formed with a socket having a central aperture, side recesses, and shoulders on the inner side of the socket, a hollow shank formed with diametrically opposite radial openings, a head on said shank having shoulders adapted to pass through the side recesses and the shoulders of the link, a strap-attaching means, and a spring located within the shank and projecting through the radial openings, for locking the shank and seating the head between the shoulders of the link.

3. A strap-coupling comprising a link formed with a socket having a central aperture, side recesses and segmental recesses, a hollow shank formed with diametrically opposite radial openings, a head on said shank having shoulders adapted to pass through the side recesses, a strap-attaching means, and a spring located within the shank and projecting through the radial openings for locking the shank and seating the head.

698,295. MERRY-GO-ROUND. WILLIAM F. MASCHKE, Brooklyn, N. Y. Filed Feb. 25, 1901. Serial No. 48,695. (No model.)



Claim.—1. A merry-go-round having a support for seats and made in parts telescoping one another, a bearing in one of the parts, for slidably receiving the other part, said bearing having internal recesses for a lubricant, and external ridges for engaging the inner surface of the part containing the bearing, as set forth.

2. A merry-go-round having a support for seats made in parts telescoping one another, and a bearing in one of the parts, for slidably receiving the other part, said bearing being formed with internal recesses for a lubricant and open at the top and bottom, the lower end receiving the sliding part and the upper end being arranged to receive the lubricant, as set forth.

3. In a merry-go-round, the combination with a platform, a revoluble frame above the platform, a crank-shaft mounted in the frame, and means for operating the crank-shaft, of a seat-support formed of telescoping sections, one section being secured to the crank-shaft and the other having radially-sliding movement on the platform, as set forth.

4. In a merry-go-round, the combination with a platform having radial openings, a revoluble frame above the platform, shafts mounted in the frame and each provided with a plurality of cranks, and means for operating the said shafts, of seat-supports formed of telescoping sections, the upper sections of which are secured to the cranks of the shafts, and a bar connecting the lower sections of the supports and fitted to slide in the openings of the platform, as set forth.

698,296. CURTAIN-FIXTURE. WILLIAM R. MATTHEWS, Ferndale, Cal. Filed Oct. 12, 1899. Renewed Dec. 24, 1901. Serial No. 87,067. (No model.)

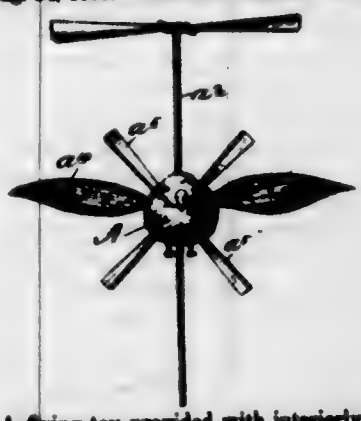


Claim.—1. A curtain-fixture comprising the two sections or bars overlapped and slidable upon each other at their inner ends and adapted at their outer ends to embrace and engage the window-casing, the bracket having a base portion embracing the overlapped portions of the bars, and the clamp binding the base in position on the overlapped bars and binding said bars together in clamping engagement with the window-casing substantially as set forth.

2. In a curtain-fixture substantially as described the combination of the bars arranged at their outer ends to engage the opposite edges of a window-casing and lapping each other at their inner ends for adjustable connection, and the bracket and its clamp by which to secure the bracket to the bars and bind the bars in position to clamp the window-casing substantially as set forth.

3. The combination with the window-casing having one edge square and its opposite edge rounded, the bars overlapped at their inner ends and provided at their outer ends one with a curved and hooked portion to engage the curved edge of the casing and the other with tooth to bind in the square edge of the casing, the bracket having a base embracing the overlapped ends of the said bars, and the screw for binding the bracket in place on the bars and for binding the bars together all substantially as and for the purposes set forth.

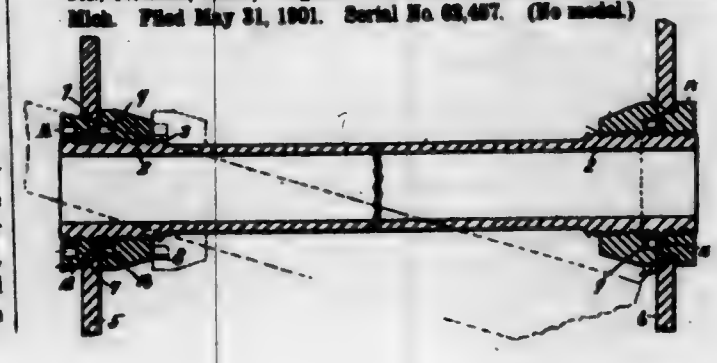
698,297. AERIAL TOY. GEORGE W. MELVILLE, Washington, D. C. Filed Aug. 24, 1899. Serial No. 728,341. (No model.)



Claim.—1. A flying toy provided with interiorly-disposed gearing adapted to operate ascensional and projectile propellers, means for communicating motion to such gearing, and means adapted to remain inoperative during ascension, but to automatically operate during descent to retard the fall of the object, substantially as described.

2. A flying toy in form to represent a bird, and provided with wings adapted, when the toy ascends, to lie against the sides of the body portion of the toy, and when the toy descends, to open out and thus retard descent, a frame secured within the body, shafts journaled in the frame and arranged at right angles to each other, each shaft carrying a miter-gear, the two in intermesh, an ascensional propeller carried by one of the shafts, and a projectile-propeller carried by the other shaft, substantially as described.

698,298. REMOVABLE BOILER-FLUE. GEORGE W. MIDDLETON, Corunna, Mich., assignor of one-half to Joseph J. Serr, Corunna, Mich. Filed May 31, 1901. Serial No. 62,457. (No model.)

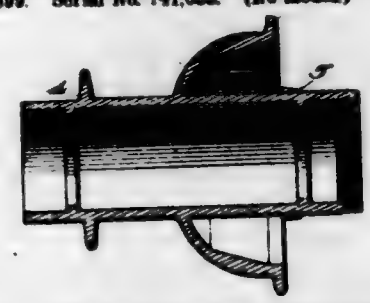


Claim.—1. In a removable boiler-flue, the combination with the heads of the boiler having apertures therethrough of greater diameter than the flue, which apertures are provided with an outwardly-beveled margin, the flue upset and threaded at its opposite ends, collars screwed upon the flue and adapted to bear against the inner face of the boiler-heads around the flue-opening and conical nuts adapted to screw onto the outer threaded ends of the flue and engage in the beveled openings in the boiler-head.

2. In a boiler-flue, the combination of the boiler-heads having apertures therein to receive the ends of the flue, which apertures are of larger diameter than the flue, a flue threaded at both ends, a collar on each end of the flue adapted to screw longitudinally upon the threaded portion thereof and bear against the inner face of the boiler-head around the flue-opening, nuts upon the outer ends of said flue adapted to screw into the opening of the boiler-head around the flue, said nuts having a concave in the face thereof around the flue-opening, and a compressible gasket, or washer, lying in the concave in said nuts and surrounding each of the threaded ends of the flue and adapted to be compressed by said nuts.

3. The combination of the boiler-heads, having outwardly-beveled apertures therethrough, a flue threaded at its opposite ends and adapted to project through said apertures, adjustable collars upon the flue within the boiler and adapted to bear against the inner face of the boiler-heads around the flue-opening and conical nuts screwed onto the outer ends of the flue and entering and engaging the beveled wall of the opening in the boiler-head therearound.

693,299. BICYCLE. ALEXANDER P. MORROW, Elmira, N.Y. Filed Dec. 26, 1899. Serial No. 741,633. (No model.)

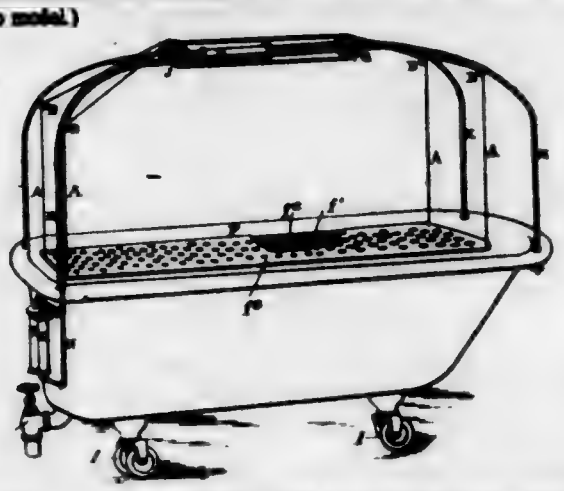


Claim.—1. A bicycle-hub having a fixed hollow overhanging annular brake-flange intermediate its ends; and an annularly-arranged beveled friction-surface on the hub adjacent to the overhanging flange and concentric with said brake-flange.

2. A bicycle-hub comprising an exterior sleeve or cylinder formed at one end, with an integral overhanging flange and adjacent to its opposite end with an annular spoke-flange; and an interior sleeve extending through the exterior sleeve and fixed therein.

3. A bicycle-hub comprising a sleeve or hollow cylinder formed with an integral overhanging annular brake-flange, having an upturned spoke-rim, a series of annularly-disposed beveled friction-teeth adjacent to said brake-flange, and an annularly-disposed spoke-flange adjacent to the other end of the sleeve and concentric with the overhanging brake-flange.

693,300. LIFTER AND CARRIER FOR BATH-TUBS, &c. CAROLINE MÜLLER, New Orleans, La. Filed June 20, 1901. Serial No. 65,343. (No model.)



Claim.—1. The combination with a movable tub or receptacle for the invalid, of a frame mounted above said tub or receptacle, pulleys carried by said frame, a platform, ropes or cords running over said pulleys and connected to said platform and means for varying the distance between the pulleys to raise or lower the platform, substantially as described

2. The combination with a movable tub or receptacle for the invalid, of a frame mounted above said tub or receptacle, pulleys carried by said frame, a platform, ropes or cords running over said pulleys and connected to said platform, a cylinder and piston interposed between said pulleys, and means for supplying fluid-pressure to said cylinder, substantially as described.

3. The combination with a movable tub or receptacle for the invalid, of a frame mounted above said tub or receptacle, pulleys carried by said frame, a platform, ropes or cords running over said pulleys and connected to said platform, a cylinder and piston interposed between said pulleys, and a hand-pump for supplying fluid-pressure to said cylinder, substantially as described.

4. The combination with a tub, mounted on rollers, for the invalid, of a frame mounted above said tub or receptacle, pulleys carried by said frame, a platform composed of a framework of rods of metal covered with a wire fabric and a perforated rubber mat above the same, ropes or cords running over said pulleys and connected to said platform and means for varying the distance between the pulleys to raise or lower the platform, substantially as described.

5. The combination with a tub, mounted on rollers, for the invalid, of a frame mounted above said tub or receptacle, pulleys carried by said frame, a platform composed of a framework of rods of metal covered with a wire fabric and a perforated rubber mat above the same, ropes or cords running over said pulleys and connected to said platform, a cylinder and piston interposed between said pulleys, and means for supplying fluid-pressure to said cylinder, substantially as described.

6. The combination with a tub, mounted on rollers, for the invalid, of a frame mounted above said tub or receptacle, pulleys carried by said frame, a platform composed of a framework of rods of metal covered with a wire fabric and a perforated rubber mat above the same, ropes or cords running over said pulleys and connected to said platform, a cylinder and piston interposed between said pulleys, and a hand-pump for supplying fluid-pressure to said cylinder, substantially as described.

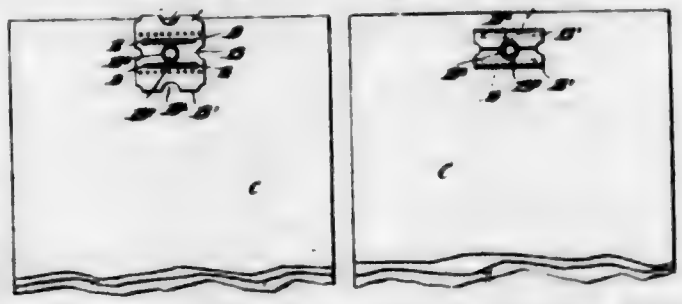
698,301. LETTER-FILE. FRANK MCINTYRE, New York, N. Y., assignor to Eagle Pencil Company, New York, N. Y. Filed Dec. 5, 1901. Serial No. 84,847. (No model.)



Claim.—1. A letter-file, comprising a standard having a suitable supporting-base, a closely-coiled spiral spring secured at its upper end to the standard, and a controlling-rod, connected at its lower end to the base of the spring, and mounted in, and adapted to slide lengthwise in bearings in the standard, as and for the purposes hereinbefore set forth.

2. In a letter-file, a tubular standard, a closely-coiled spiral spring attached at its upper end to a bracket laterally projecting from the upper end of the standard, a controlling-rod mounted and adapted to slide lengthwise in the tubular standard, and a cross-pin or connecting-piece which is attached to the base of the spring and to the lower end of the rod, and projects through a longitudinal slot in the standard, substantially as and for the purposes hereinbefore set forth.

698,302. PAPER-FASTENER. ROBERT MCMAHON, New York, N. Y. Filed Aug. 21, 1901. Serial No. 72,757. (No model.)



Claim.—1. A paper-fastener comprising two members, of which one is provided with pins for passing through the papers and for engaging the other member, the said members having registering apertures for the passage of a seal-ribbon, and flaps on the other member for conceal-

ing and locking the pins without covering the registering apertures, as set forth.

2. A paper-fastener, comprising a front member having a plurality of pins, a rear member having apertures for the passage of the pins, and flaps extending integrally from the said rear member for folding over the pins to conceal and lock the pins in place, the rear member having a boss for guiding the pins into a bent position, as set forth.

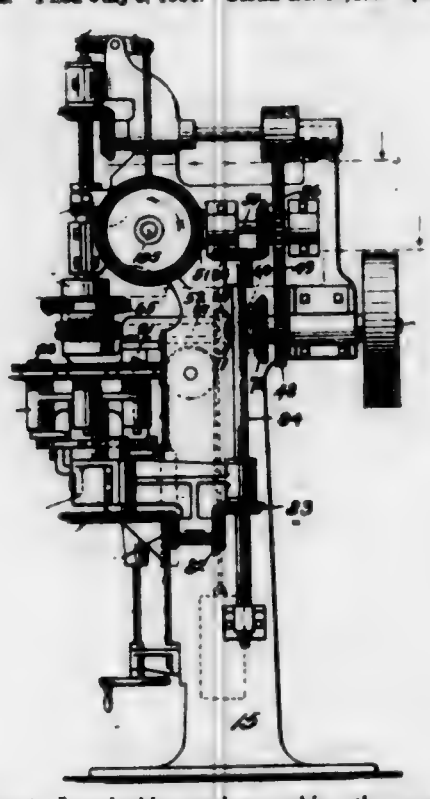
3. A fastener comprising a member provided with pins and with a ribbon-receiving aperture, and another member provided with perforations arranged similarly to the pins on the first-named member and also provided with a ribbon-receiving opening, whereby the members may be assembled for the pins to pass through the perforated member and the ribbon-openings of the two members are brought into registering relation.

4. A fastener comprising two members each having a ribbon-aperture, and means for positively locking or uniting said members together, whereby the apertures in said members may be brought into registration and adapted to receive a fastening-ribbon.

5. A fastener comprising a member having pins and a ribbon-opening, another member provided with apertures and with a ribbon-opening, and bendable flaps projecting from the last-named member and having notches arranged, in the bent positions of the flaps, to lie coincident with the ribbon-opening in the member.

6. A fastener comprising a member having pins projecting from diagonal corners thereof, and also having a ribbon-aperture, another member provided with pin-apertures and with a ribbon-aperture, and flaps on the last-named member adapted to be individually bent into locking engagement with the ends of said pins when the latter are bent onto the last-named member.

693,303. AUTOMATIC DOUBLE-SEAMING MACHINE. EDWIN NORTON, New York, N. Y., and JOHN S. HODGSON, Maywood, Ill., assignors to Automatic Vacuum Canning Company, Chicago, Ill., a Corporation of Illinois. Filed July 8, 1901. Serial No. 67,460. (No model.)



Claim.—1. In a double-seaming machine, the combination with an intermittently-rotating can-holder turret or table provided with a series of rotating can-holder chucks or disks, of an opposing rotating and reciprocating can-holder chuck, and a continuously-rotating tool-carrier provided with double-seaming tools or rollers, substantially as specified.

2. In a double-seaming machine, the combination with an intermittently-rotating turret or table, having a series of rotatable can-holder chucks or disks, an upper rotating and reciprocating can-holder chuck or disk, and a continuously-rotating tool-carrier provided with a series of sets of double-seaming tools or rollers, substantially as specified.

3. In a double-seaming machine, the combination with an intermittently-rotating turret or table, having a series of rotatable can-holder chucks or disks, an upper rotating and reciprocating can-holder chuck or disk, a continuously-rotating tool-carrier provided with a series of double-seaming tools or rollers, can-ejector disks in said can-holder chucks on said rotating turret or table, and a stationary cam for operating said can-ejector disks, substantially as specified.

4. In a double-seaming machine, the combination with an intermittently-rotating turret or table, having a series of rotatable can-holder chucks or disks, an upper rotating and reciprocating can-holder chuck or disk, a continuously-rotating tool-carrier provided with a series of double-seaming tools or rollers, can-ejector disks in said can-holder chucks on said rotating turret or table, a stationary cam for operating said can-ejector disks, and a can-discharging arm, substantially as specified.

5. In a double-seaming machine, the combination with an intermittently-rotating turret or table, having a series of rotatable can-holder chucks or disks, an upper rotating and reciprocating can-holder chuck or disk, a continuously-rotating tool-carrier provided with a series of double-seaming tools or rollers, can-ejector disks in said can-holder chucks on said rotating turret or table, and a stationary cam for operating said can-ejector disks, said upper can-holder chuck having a can-ejector disk and means for operating said upper can-holder chuck and ejector-disk, substantially as specified.

6. The combination with an intermittently-rotating can-holder turret or table having a series of rotatable can-holder chucks provided with can-ejector disks, a stationary cam for operating said can-ejector disks, an upper rotating and reciprocating can-holder chuck, and a tool-carrier furnished with double-seaming tools or rollers, substantially as specified.

7. The combination with a set of double-seaming tools or rollers, of an upper rotating and reciprocating can-holder chuck and an opposing lower, rotatable can-holding chuck provided with a countersunk rubber or elastic pad to receive the can, substantially as specified.

8. In a double-seaming machine, the combination with a set of double-seaming tools or rollers, of an upper rotating and reciprocating can-holder chuck, and an intermittently-rotating can-holder turret or table, provided with a series of can-holder chucks, and means for intermittently rotating and locking said turret or table in position, substantially as specified.

9. In a double-seaming machine, the combination with a set of double-seaming tools or rollers, of an upper rotating and reciprocating can-holder chuck, and an intermittent-rotating can-holder turret or table, provided with a series of can-holder chucks and means for intermittently rotating and locking said turret or table in position, comprising a Geneva stop movement or gear, substantially as specified.

10. The combination with a rotary table provided with can-holder chucks or disks having brake flanges or surfaces, brakes secured to said turret or table, an upper rotating and reciprocating chuck or disk, and springs holding said lower chuck or disk normally in contact with said brakes, substantially as specified.

11. In a double-seaming machine the combination with seaming-tools, of an upper rotating and reciprocating can-holder chuck, a lower rotating can-holder chuck having a brake flange or surface, a brake engaging the same, the depression of the upper chuck to clamp the can relieving the brake from the lower chuck, substantially as specified.

12. In a double-seaming machine the combination with seaming-tools, of an upper rotating and reciprocating can-holder chuck, a lower rotating can-holder chuck having a brake flange or surface, a brake engaging the same, the depression of the upper chuck to clamp the can relieving the brake from the lower chuck, and a spring normally locking the lower chuck in engagement with said brake, substantially as specified.

13. In a double-seaming machine, the combination with an intermittently-rotating can-holder turret or table provided with a series of rotating can-holder chucks or disks, of an opposing rotating and reciprocating can-holder chuck, a continuously-rotating tool-carrier provided with double-seaming tools or rollers, a horizontally-adjustable slide upon which the tool-carrier is mounted, means for adjusting the tool-carrier vertically, a worm and gear for rotating the tool-carrier, and a shaft having a flexible connection or coupling for communicating motion thereto and permitting the necessary vertical adjustment, substantially as specified.

14. The combination with an intermittently-rotating turret or table, provided with a series of rotating can-holder chucks or disks, of a rotating tool-carrier supported independently of said chuck provided with a set of double-seaming tools, substantially as specified.

15. The combination with a movable carrier having a series of rotating can-holder chucks, of a movable tool-carrier having a series of sets of double-seaming tools thereon, substantially as specified.

16. The combination with a movable carrier having a series of can-holder chucks, of a rotating tool-carrier provided with a series of sets of double-seaming tools or rollers, substantially as specified

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693,304. BURIAL-VAULT. GEORGE B. OKEY, Indianapolis, Ind., assignor to the Okey Burial Vault Company, Indianapolis, Ind., a Corporation of Indiana. Filed May 23, 1901. Serial No. 61,343. (No model.)

Claim.—1. A burial-vault consisting of a number of mating sections each having a rigid frame embedded therein, and means for connecting said rigid frames so as to form a continuous rigid frame extending around all sides of the vault when the parts are assembled.

2. A burial-vault consisting of mating sides and bottom, means for

securing said parts together from the inside, a seal covering said securing means, a cover, and a seal filling the joint between said cover and sides.



3. A burial-vault consisting of mating sides and bottom, means for securing said parts together from the inside, a seal covering said fastening means, a cover, means for securing said cover to the sides, and a seal filling the joint between said cover and sides.

4. A burial-vault consisting of mating sides and bottom, means for securing said parts together from the inside, a plastic covering for said fastening means, a cover, means for securing said cover to the sides, and a plastic filling sealing the joint between said cover and the sides.

5. A burial-vault consisting of mating bottom and sides, a groove formed along each inner corner, one or more angle-straps mounted in each of said corners and connecting said sides and bottom, a sealing-filling mounted in said grooves after the parts are secured together, a cover, means for securing said cover to the sides, and a sealing-filling mounted in the joint between said cover and sides.

6. A burial-vault consisting of a series of slabs formed of plastic material and each having one or more metallic bars embedded therein, a lip extending from the edges of each slab, means mounted in each inner corner for securing the metallic bars of adjacent slabs together, a plastic covering for such means, a cover, and means for sealing said cover in position.

7. A burial-vault consisting of a series of slabs formed of plastic material and each having one or more metallic bars embedded therein, a lip extending from the edges of each slab, means mounted in each inner corner for securing the metallic bars of adjacent slabs together, a cover, and means for sealing said cover in position.

8. A burial-vault consisting of a series of slabs formed of plastic material and each having one or more metallic bars embedded therein, and means for connecting adjacent portions of such metallic bars when assembling the slabs.

9. An embedded frame for the cover of a burial-vault, said frame consisting of a pair of arched transverse members, longitudinal members connecting said arched members, an intermediate arched member connecting the longitudinal members, between said pair of arched members, a third longitudinal member connecting the end arched members and passing upon one side of the intermediate arch, and a strap secured at its ends to said third longitudinal member and passing upon the opposite side of said intermediate arch.

10. An embedded frame for the cover of a burial-vault, said frame consisting of a pair of transverse members, longitudinal members connecting said transverse members, an intermediate transverse member connecting the longitudinal members between said pair of transverse members, a third longitudinal member connecting the said pair of transverse members and passing upon one side of the intermediate member, and a strap secured at its ends to said third longitudinal member and passing upon the opposite side of the said intermediate member.

11. A cover for a burial-vault, consisting of two sections, the adjacent ends of said sections being formed one with a pair of lips, one lip at a greater depth from the top than the other, and the other section being provided with a single lip arranged to mate with the lowermost lip of the first section, the arrangement being such that a seal-receiving groove is formed between the adjacent edges of the sections the bottom of said groove being cut off from the interior of the cover by the lowermost lip.

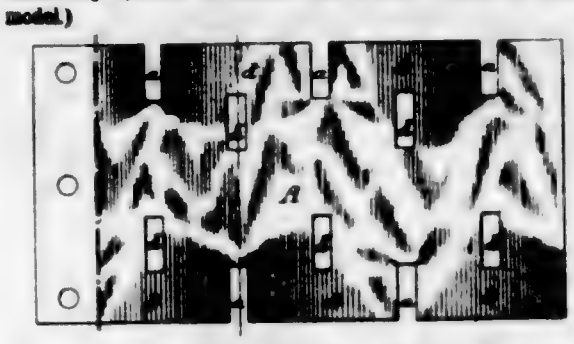
698,805. DAUBER FOR HOLDING AND APPLYING PASTE OR LIQUID SUBSTANCES. GEORGE G. PARVIS, Camden, N. J. Filed June 7, 1901. Serial No. 63,610. (No model.)



Claim.—1. A dauber for holding and applying paste and liquid substances comprising a sheet-metal holder having a flat base, a flange projecting from one face of said base, formed with a straight cylindrical portion of a diameter larger than that of said base, a semicircular rim on said flange, a pad fast to the opposite face of said base, and a handle partially encircled and held by said semicircular rim.

2. A dauber for holding and applying paste and liquid substances comprising a cylindrical sheet-metal holder having a flat base, a flange projecting from one face of said base, formed with a straight cylindrical portion of a diameter larger than the diameter of said base, a semicircular rim on said flange, said cylindrical portion being joined to said semicircular rim and to said base by conical portions, a pad fast to the opposite face of said base, and a handle partially encircled and held by said semicircular rim.

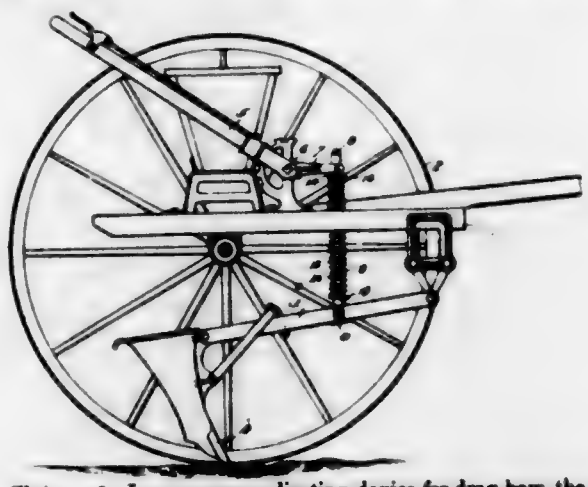
698,806. STONE-SAW. JAMES PEDGOVER, Philadelphia, Pa. Filed July 9, 1900. Renewed Jan. 9, 1902. Serial No. 89,099. (No model.)



Claim.—1. A stone-saw comprising a blade having a series of recesses in the edge of the same and teeth formed between said recesses, each of said teeth projecting in a curved line from the sides of said recesses alternately on opposite sides of the blade, substantially as described.

2. A stone-saw comprising a blade having a plane body portion and an edge portion provided with curved projections formed on opposite sides of the same, said edge portion having also a series of recesses whereby teeth are formed, said curved projections springing from the plane portion of the blade, substantially as and for the purpose set forth.

698,807. PRESSURE-REGULATOR FOR DRAG-BARS. CHARLES H. PELTON, Springfield, Ohio. Filed Oct. 31, 1901. Serial No. 80,608. (No model.)



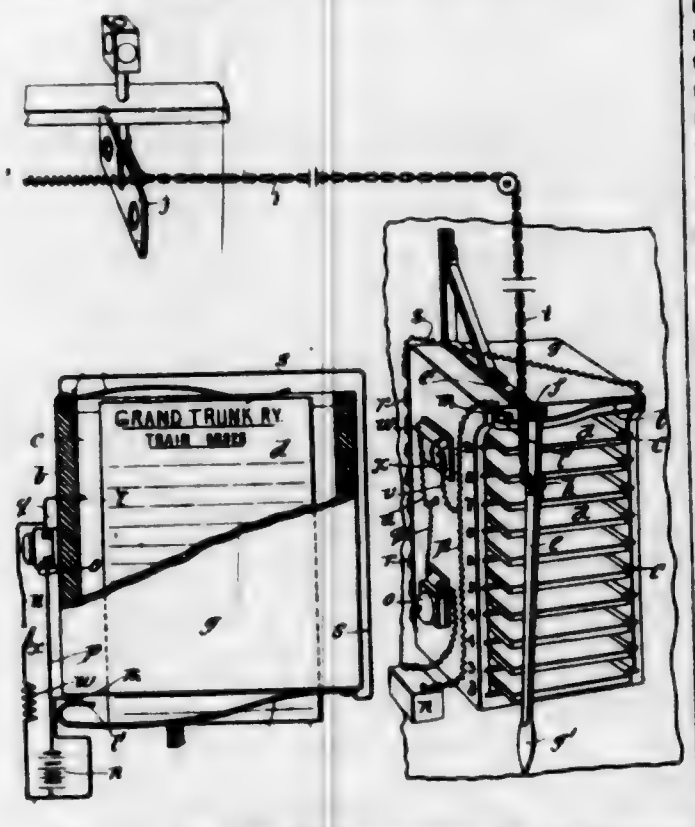
Claim.—1. In a pressure-adjusting device for drag-bars, the combination, with a frame, drag-bars pivoted thereto at their forward ends and provided with furrow-opening devices, and a rock-shaft mounted on the frame and provided with an operating-lever and with an arm for each drag-bar, of a connecting-link pivoted to the drag-bar, an upper abutment mounted to slide on said link and pivotally connected to the corresponding arm of the rock-shaft, means on said link for limiting the upward motion of said upper abutment, a coiled spring encircling the link, and bearing against the upper abutment at its upper end, and a vertically-ad-

justable lower abutment on each link, comprising a disk-shaped body having an open-mouthed slot to fit the link, and a hook-shaped portion extending upward from said body, said link being provided with a plurality of apertures, with any one of which said hook-shaped portion may be engaged, substantially as described.

2. In a structure of the character described, the combination, with a drag-bar, a pressure-transmitting link pivoted thereto, and a pressure-spring coiled around said link, said link being provided with a plurality of apertures, of an abutment for the lower end of said spring, comprising a disk-shaped body having an open-mouthed slot, and a hook-shaped portion extending upward from said disk-shaped body and having a vertical portion, a horizontal portion, and a downward projection on the end of said horizontal portion, substantially as described.

3. In a structure of the character described, an abutment for the upper end of the pressure-spring, comprising a body portion slotted to fit the link and having formed thereon a shoulder against which the end of the spring abuts, and parallel lugs extending downward from said shoulder and having a slot or space between them to receive and fit upon the link, the outer surfaces of said lugs being rounded to fit within the coil of the spring, substantially as described.

693,808. SIGNAL SYSTEM. EDWARD PETERSON, St. Hilaire, Canada. Filed July 5, 1901. Serial No. 67,182. (No model.)



Claim.—1. The combination of a train-order box adapted to contain a series of order-blanks, removable means for retaining said train-order blanks against displacement, and means for operating a signal device while an order-blank is out of place.

2. The combination with a semaphore, of an order-blank-supporting device, a lever extending across and retaining the order-blanks in said device, and means for operatively connecting said lever to said semaphore to cause the semaphore to move to danger when the lever is moved away from the device.

3. The combination with a semaphore, of an order-blank box having a series of receptacles, a lever extending across said receptacles and retaining the order-blanks in same, and means for operatively connecting said lever to said semaphore to cause the semaphore to move to danger when the lever is moved away from the receptacles substantially as and for the purpose set forth.

4. The combination of a box having a series of shelves parallel to one another a bar extending transversely of said shelves; an electric contact upon each of said shelves; an electric battery; a wire connecting one pole of said battery to said electric contacts; an electric contact adjacent to said bar; a wire connecting the opposite pole of said battery to said last-mentioned electric contact; a contact normally out of engagement with said last-mentioned contact and movable with said bar to make contact with said last-mentioned contact when the bar is closed in adjacent to the shelves, and a wire connecting said movable contact to the first-mentioned pole of the battery, substantially as described and for the purpose set forth.

5. The combination with a semaphore-actuating lever, of means for operating a signal device when the semaphore fails to respond to its actuating-lever, said means consisting of an electric circuit including said signal device and having two breaks, one of said breaks being normally open and the other normally closed; means for closing said normally open break, and means for opening said normally closed break simultaneously when the lever is moved to actuate the semaphore; and means for again closing said last-mentioned break and with it the circuit when the semaphore fails to respond to its lever, for the purpose set forth.

6. The combination with a semaphore-actuating lever of means for operating a signal device when the semaphore fails to respond to its actuating-lever, said means consisting of a pair of electrical contacts one normally in engagement with the other; a contact-breaker; said semaphore-lever being adapted when down to retain said contact-breaker between said pair of contacts; an electrical contact adjacent to said lever when the latter is in its last-mentioned position; an electrical contact normally out of contact with said last-mentioned contact and movable with said lever into and out of contact therewith; means electrically connecting the electrical contact movable with the lever to one of said pair of contacts; an electric battery one terminal whereof is electrically connected to the contact adjacent to said lever and the other terminal whereof is electrically connected to the other contact of said pair and a signal device included in the circuit thus formed, for the purpose set forth.

7. The combination with a semaphore-actuating lever of means for operating a signal device when the semaphore fails to respond to its actuating-lever, said means consisting of a stationary electrical contact, a movable electrical contact normally engaging said first-mentioned contact; a contact-breaker; said semaphore-lever being adapted when down to retain said contact breaker between said stationary and movable contacts; a stationary electrical contact adjacent to said lever when the latter is in its last-mentioned position; an electrical contact normally out of contact with said last-mentioned contact and movable with said lever into and out of contact therewith; means electrically connecting said stationary contacts together; means electrically connecting said movable electrical contacts together; an electric battery one terminal whereof is electrically connected to said stationary contacts, and the other terminal whereof is electrically connected to said movable contacts; and a signal device included in the circuit thus formed, for the purpose set forth.

8. The combination with a series of electrical contacts arranged a short distance from one another; a second series of electrical contacts normally engaging said first-mentioned series of contacts; a contact-breaker; a movable bar extending across the spaces between said first-mentioned series of electrical contacts and adapted, when adjacent to said contacts to retain said contact-breakers between said first and second mentioned series of contacts; a single electrical contact adjacent to said bar when the latter is in its last-mentioned position; an electrical contact normally out of contact with said last-mentioned contact and movable with said bar into and out of contact therewith; means electrically connecting said first-mentioned series of and said single contacts together; means electrically connecting said second-mentioned series of and single movable electrical contacts together; an electric battery one terminal whereof is electrically connected to said first-mentioned series of contacts, and the other terminal whereof is electrically connected to said contact movable with the bar; and a signal device included in the circuit thus formed, for the purpose set forth.

9. The combination of a box having a series of metallic shelves parallel to one another a bar extending transversely of said shelves; an electric contact normally bearing upon each of said shelves; an electric battery; a wire connecting one pole of said battery to said yielding electric contact; an electric contact adjacent to said box; a wire connecting the opposite pole of said battery to said last-mentioned electric contact; an electric connection between said contact and shelves; a contact normally out of engagement with said last-mentioned contact and movable with said bar to make contact with said last-mentioned contact when the bar is closed in adjacent to the shelves, and a wire connecting said movable contact to the first-mentioned pole of the battery, and a shunt-circuit including a resistance device, said battery, said bell and a normally open switch, substantially as described and for the purpose set forth.

10. The combination with a semaphore-actuating lever, of a train-order box having a series of contact-shelves parallel to one another and extending transversely of said box, the front and rear sides of said box being open; a series of spring-contacts located at the rear of the box and normally bearing upon and effecting electrical contact with said contact-shelves; a contact-piece upon the front edge of the box; a spring-contact normally out of contact with said contact-piece; an electric battery; an electric bell; a wire leading from one pole of said battery to one terminal of said bell; a wire leading from the other terminal of said bell and connected to each of said contact-shelves; a wire leading from the opposite pole of said battery to the contact-piece upon the front of the box; a wire leading from the spring-contact at the front of the box and electrically connected to each of the spring-contacts at the rear of the box.

said box being located behind and in close proximity to the semaphore-lever substantially as described and for the purpose set forth.

11. The combination with a semaphore-actuating lever, of a train-order box having a series of contact-shelves parallel to one another and extending transversely of said box, the front and rear sides of said box being open; a series of spring-contacts located at the rear of the box and normally bearing upon and effecting electrical contact with said contact-shelves; a contact-piece upon the front edge of the box; a spring-contact normally out of contact with said contact-piece; an electric battery; an electric bell; a wire leading from one pole of said battery to one terminal of said bell; a wire leading from the other terminal of said bell and connected to each of said contact-shelves; a wire leading from the opposite pole of said battery to the contact-piece upon the front of the box; a wire leading from the spring-contact at the front of the box and electrically connected to each of the spring-contacts at the rear of the box and a normally open short-circuit device connecting the second and third mentioned wires, said box being located behind and in close proximity to the semaphore-lever, substantially as described and for the purpose set forth.

693,309. TROLLEY-HEAD. DOUGLAS A. PETER, Duluth, Minn., assignor of one-fourth to Hansen Smith, Duluth, Minn. Filed May 7, 1901. Serial No. 59,171. (No model.)



Claim.—1. A trolley-head, comprising in its construction, means for supporting a trolley-wheel, and means for permitting said wheel to follow its trolley-wire, comprising an intermediate member forming an extension of the trolley-pole pivotally secured to the wheel-supporting means, springs governing said pivotal means and a swivel connection between said intermediate member and the trolley-pole for permitting a partial rotation of said pivotal means about the longitudinal axis of the trolley-pole, substantially as described.

2. A trolley-head, comprising in its construction a fork, an ice-remover carried by said fork, means for permitting said remover to follow a trolley-wire comprising a member pivoted to the said fork and swiveled to the trolley-pole so as to turn about the longitudinal axis of the pole, said member forming an extension of said pole, the said fork being also adapted to carry a trolley-wheel, substantially as described.

3. The combination with a trolley-head, of means carried thereby for removing ice from a trolley-wire, comprising lugs carried by the fork of said head, an arm pivoted to said lugs, and a block or enlarged portion at the outer end of said arm provided with a concaved, corrugated face adapted to contact with said wire, when in operation, whereby said ice will be removed therefrom, and means for connecting the fork with the trolley-head so as to have a pivoted action and a swivel action, the construction being such that when said block is thrown out of operation the said arm will be folded downward and lie longitudinally of said head, substantially as described.

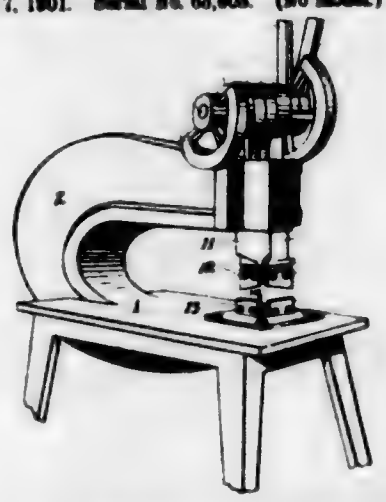
4. A trolley-head, comprising in its construction a fork for supporting a trolley-wheel, a wheel carried thereby, means for maintaining said wheel normally centrally of the arms of said fork and at the same time permitting a lateral movement of the wheel, and means for permitting the fork to have a lateral pivoted motion and a rotary movement about its longitudinal axis, substantially as described.

5. A trolley-head comprising in its construction a trolley-wheel fork, provided with curved shoulders near its lower end, means for permitting lateral movement of said fork, comprising a bifurcated member pivoted to said fork, the upper ends of the arms of said bifurcated member being curved to register with the said curved shoulders, and downwardly-extending springs secured to the sides of said fork and inclosing the sides of said bifurcated member, whereby the same will be held normally in line with said fork, but may be moved laterally against the pressure of said downwardly-extending springs, and means for permitting a rotary movement of said fork, substantially as described.

6. A trolley-head, comprising in its construction a trolley-wheel fork, means for permitting a lateral movement of said fork, comprising a pivoted member secured to said fork, and means for permitting a partial rotary movement of said fork, comprising a tube fitted over the lower end of said pivoted member, a spring-controlled lug secured to the lower end of said pivoted member and playing in a slot in the wall of said tube, and means for securing said head to a trolley-pole, substantially as described.

7. A trolley-head, comprising in its construction a trolley-wheel fork, means for permitting a lateral movement of said fork, comprising a pivoted member secured thereto, and means for permitting a rotary movement of said fork, comprising a tube adapted to surround the upper end of a trolley-pole and to have its upper end passed over the lower end of said pivoted member, the said tube being formed with an elongated slot in its wall, a lug secured to the lower end of said pivoted member and extending through said slot, and a sleeve-spring secured to said tube and passing about the same and having its ends pressed against the opposite sides of said lug, whereby said tube and pivoted member will be normally in line, and means for normally holding said pivoted member and fork in line, substantially as described.

693,310. SHEAR-PUNCH. THEODORE P. PHILIPPI, St. Louis, Mo. Filed June 7, 1901. Serial No. 63,603. (No model.)



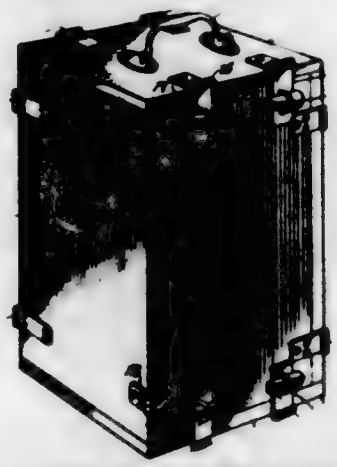
Claim.—1. In a shear-punch, a pair of juxtaposed movable blades having their cutting edges disposed in planes making an angle with one another and intersecting in a common line or vertex, the cutting edges of the blades making an angle with each line of intersection, a stationary blade for each movable blade, and mechanism for imparting an independent reciprocating motion to the movable blades, substantially as set forth.

2. In a shear-punch, a pair of juxtaposed blades placed at right angles to each other, and means for independently reciprocating said blades, substantially as set forth.

3. In a shear-punch, a pair of juxtaposed movable blades placed at right angles to one another; a stationary blade for each movable blade, and mechanism for imparting an independent reciprocating motion to the movable blades, substantially as set forth.

4. A shear-punch comprising a suitable bed-plate, an arm projecting over the same, a rock-shaft carried by the free end of the arm, a sleeve passed over the said shaft, an eccentric secured to the rock-shaft at a point adjacent to the end of the sleeve, a similar eccentric secured to the sleeve, plungers depending loosely from the eccentrics, shear-heads to which the plungers are pivotally secured, blades at the lower ends of the shear-heads, the blades being secured at an angle to one another, the cutting edges of the blades inclining downward from the line of intersection of the planes in which the blades are disposed, substantially as set forth.

693,311. SHIPPING-BOX. ADA E. PIPER, Buffalo, N. Y. Filed Oct. 3, 1901. Serial No. 77,387. (No model.)



Claim.—1. A shipping-box, comprising four side boards hinged together, a top board hinged to one of the side boards, a handle on the top board, a bottom board hinged to one of the side boards, hasps on one of the side boards, staples on one of the side boards for engaging with said hasps, hasps on the top and bottom boards, and staples on said side board with which said last-named hasps engage, substantially as specified.

2. A shipping-box having four side boards hinged together, a top board hinged to one of the side boards, a bottom board hinged to one of the side boards, hasps on one of the side boards, staples on one of the side boards for engaging with said hasps, hasps on the top and bottom boards,

and staples on said side boards with which said last-named hasps engage the several boards being of equal thickness, substantially as specified.

698,312. SAW. ROBERT E. PENDEXTER, Indianapolis, Ind. Filed Dec. 5, 1901. Serial No. 84,831. (No model.)

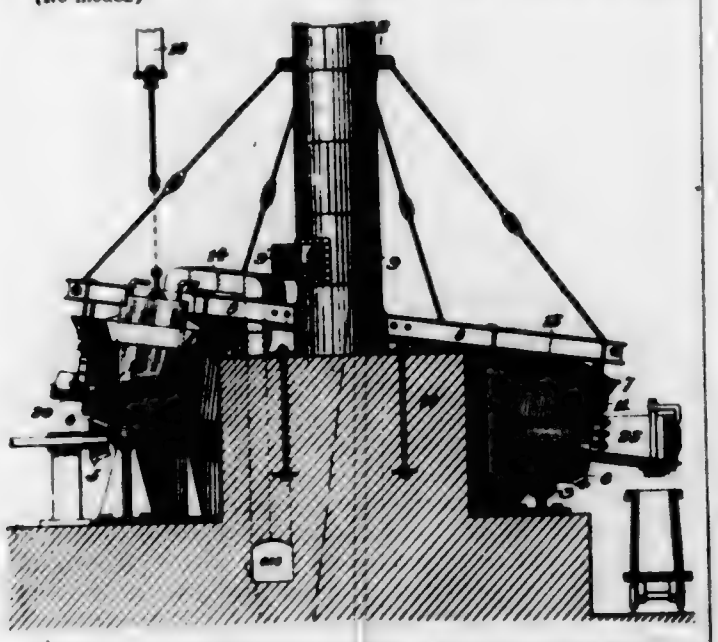


Claim.—1. A saw the teeth whereof are arranged in groups with a drag-tooth between said groups, the first tooth of each group following said drag-tooth being a chisel-tooth, and said chisel-tooth being followed by ordinary cutting-teeth.

2. A saw having teeth arranged in groups with a drag-tooth between adjacent groups, a deep gullet on each side of said drag-tooth, and a chisel-tooth as the first tooth of the group following each of said drag-teeth, substantially as set forth.

3. A saw having its teeth arranged in groups with a drag-tooth between adjacent groups, the first tooth of each group following the drag-tooth being a chisel-tooth and slightly longer than said drag-tooth, substantially as set forth.

693,313. TREATING ORES OR SIMILAR MATERIALS. JOHN A. POTTER, Cleveland Ohio. Filed May 16, 1899. Serial No. 717,043 (No model.)



Claim.—1. A rotary furnace having a body of annular form, and a roof covering at least a portion of said annular body, said roof being hollow and having inlets for gas and air, and downwardly-directed ports; substantially as described.

2. A rotary furnace having a body of annular form, provided with dams forming different chambers therein, and a stationary roof covering at least a portion of the annular body; substantially as described.

3. A rotary furnace having a body of annular form with radial dams and a hollow roof over the furnace and having air and gas inlets and downwardly-directed ports; substantially as described.

4. A rotary furnace having a body of annular form arranged in inclined position, and a hollow roof covering at least a portion of said body, and having air and gas inlets, and downwardly-directed ports; substantially as described.

5. A furnace having an annular body, and stationary roof, means for rotating the body, a charging-opening leading into the body, and having partitions at both sides thereof, said furnace having an inlet for combustible fuel, and a stack-outlet; substantially as described.

6. A furnace having an annular body, and stationary roof, means for rotating the body, a charging-opening leading into the furnace, and having partitions at both sides thereof, said furnace having an inlet for combustible fuel, and a stack-outlet, said stack being in proximity to the charging-opening and the fuel-inlet being at a more remote point; substantially as described.

7. A furnace having a body of annular form, means for rotating the same, a stationary roof, dams dividing the chambers into compartments, and tap-holes in said compartments; substantially as described.

8. A furnace having a body of annular form, means for rotating the same, a stationary roof, and tap-holes at intervals around the body; substantially as described.

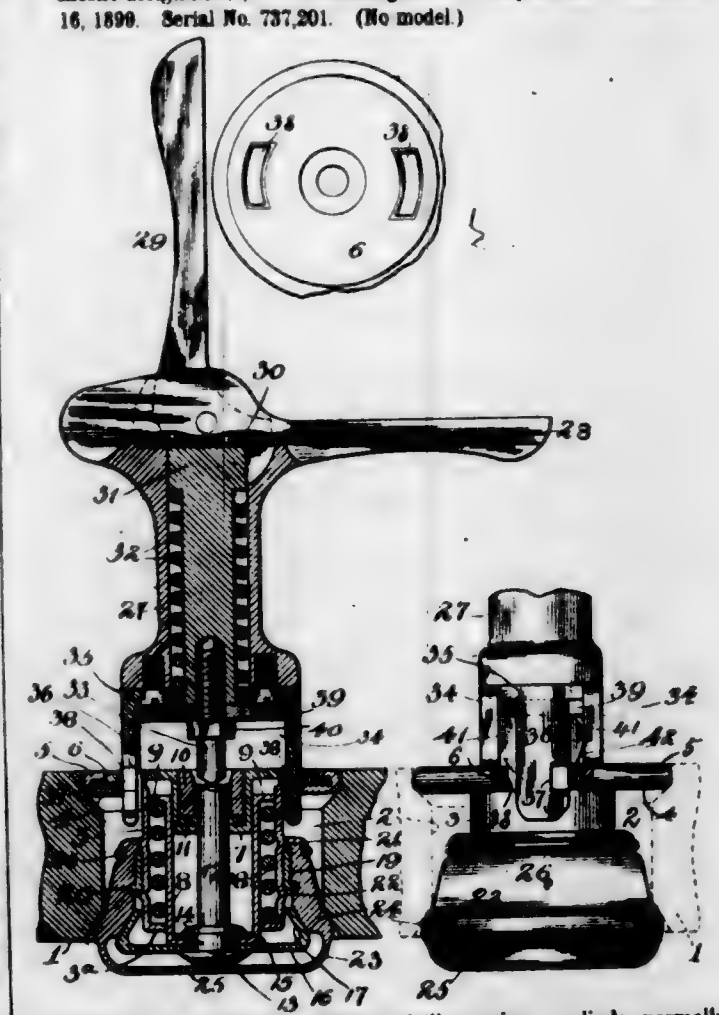
9. A furnace having a body of annular form, mechanism for rotating the same, and a relatively stationary roof, said roof being hollow and having downwardly-directed ports and said furnace having air-inlets; substantially as described.

10. A furnace having a body of annular form, means for rotating the same, a stationary roof, and tap-holes at intervals around the body, said furnace-body being inclined; substantially as described.

11. A furnace having an annular body, means for rotating the same a stationary hollow roof having downwardly-directed ports, air-inlet ports and an outlet-flue leading through the roof to a stack; substantially as described.

12. A furnace having a body of annular form, mechanism for rotating the same, a relatively stationary roof having a hollow portion with downwardly-directed ports, air-inlet ports, a stack-flue leading through the roof, and a partition arranged to prevent short-circuiting from the ports to the stack-flue; substantially as described.

693,314. BUNG. SIMON SCHLANGEN, Chicago, Ill., assignor, by mesne assignments, to the Schlangen Co., a Corporation. Filed Nov. 16, 1899. Serial No. 737,201. (No model.)



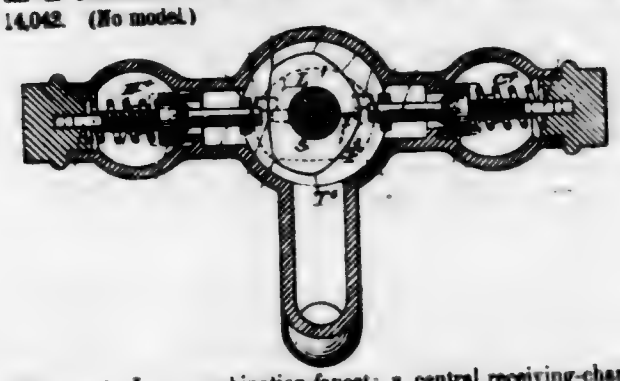
Claim.—1. A bung comprising a shell or casing, a cylinder normally spring-pressed therein, a plate secured to the shell and having a cylindrical portion received by such cylinder and forming a guide and stuffing-box, an expanding ring or plate having an upwardly-turned flange, an

elastic member secured at its top to the shell and normally expanded against the bung-opening and a rod or plunger secured both to the cylinder and ring and passing through such stuffing-box.

2. A bung comprising a shell or casing, a cylinder normally spring-pressed therein, a top plate 6 secured to the margin of the shell and having a hollow inwardly-extending cylindrical portion received by said cylinder, an expanding-ring having a marginal upturned flange, a rod secured both to the cylinder and ring and, an elastic member consisting of a cup or sack of elastic material, secured at its top to the shell or casing and adapted to be normally expanded to seat by contact of such flange against its sides and to be unseated when such rod and ring are forced inward against the bottom of such sack.

3. A bung comprising a shell 3, a cylinder 8 having flange 9, a spring 18 abutting respectively the bottom of the shell and such flange, a top plate 6 having a cylindrical portion 7 received by cylinder 8, packing 11, a packing-nut screwing in such portion 7 to hold the packing, a ring 16 having a flange 17, a rod 12 secured to the plate 16 and bottom of cylinder 8 and extending through such packing and its nut and an elastic cup or sack having thickened sides 24 and thin bottom portion 25, said top plate having slots for the reception of a key.

693,315. COMBINATION-FAUCET. GUSTAVE A. SODERLUND, Somerville, Mass., assignor of two-thirds to Ella J. Soderlund and Oscar L. Soderlund, Medford, Mass. Filed Apr. 23, 1900. Serial No. 14,042. (No model.)



Claim.—1. In a combination-faucet; a central receiving-chamber having a discharge-nozzle, and valvular connections with the hot and cold water supply pipes; hot and cold water valve-chambers provided with valve-seats, adapted to receive valves, which in opening move away from the said central receiving-chamber, each of said chambers having two openings beside the valve-opening, that is, an inlet water-supply, and a screw-plugged opening large enough to admit of the placing and adjusting the water-valve; and a bisymmetrical cam adapted to operate said valves, substantially as and for the purpose set forth.

2. In a combination-faucet; a central receiving-chamber having a discharge-nozzle, and valvular connections with the hot and cold water supply pipes; hot and cold water valve chambers provided with valve-seats, adapted to receive valves, which in opening move away from the said central receiving-chamber, said valve-chambers having screw-plugged openings large enough to receive, from the exterior, the hot and cold water valves; said hot and cold water valves; having stems extending in both directions from the valve and adapted to act as guides, their outer ends being squared and adapted to fit loosely in recesses made in the end plugs; said end plugs; and a bisymmetrical cam adapted to operate said valves, substantially as and for the purpose set forth.

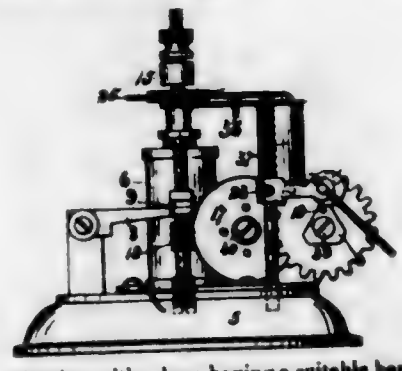
3. In a combination-faucet a central receiving-chamber having a discharge-nozzle and valvular connection with hot and cold water pipes; valves adapted to open and close said hot and cold water pipes; a cam adapted to operate said valves, mechanism for operating said cam, and a spring adapted to frictionally hold said cam in any position in which it is set, substantially as and for the purpose set forth.

698,316. PROCESS OF PURIFYING SEWAGE. LEBERECHT TRALLS, Charlottenburg, Germany, assignor to Eduard Burmeister, Hamburg Germany. Filed Nov. 14, 1900. Serial No. 36,451. (No specimens.)

Claim.—The process herein described of purifying sewage, which consists in adding to the same a mixture containing calcium carbonate and calcium hydrate in approximately equal proportions, in sufficient quantity, according to the pollution of the liquid, to produce in the same a heavy precipitate of large flakes leaving the supernatant liquid clear, substantially as set forth.

698,317. AUTOMATIC CHROMATROPE. GEORGE WELLS, Montreal, Canada. Filed Apr. 4, 1901. Serial No. 54,382. (No model.)

Claim.—1. The combination with a base having suitable bearings in the center thereof for a pivotal point, and a standard to one side of the center, of a spindle turning on the pivotal point and journaled in a projecting arm from the standard, a pair of disks at its outer end, a worm-gear intermediate of the length of the spindle designed to operate a toothed wheel at intervals, and a cam fixedly attached to one face of the toothed wheel, designed to raise and lower a rod carrying at its top end a retarding-ring, as and for the purpose specified.



2. The combination with a base having a suitable bearing in the center thereof for a pivotal point and provided with a standard to one side of the center, of a spindle with its inner end forming the pivotal point, and journaled toward its outer end in a projecting arm from the standard, a pair of disks revolving with the spindle at its outer end, a toothed wheel, a worm-wheel, a worm on the spindle intermediate of its length meshing with a worm-wheel and designed to operate the toothed wheel at intervals, a cam fixedly attached to one face of the toothed wheel, a rod, a ring carried at the outer end and at right angles thereto, and a spiral spring encircling the said rod between the ring at its outer end and a projecting arm from the rod intermediate of its length, as and for the purpose specified.

3. The combination with a base provided with an adjustable bearing in the center thereof for a pivotal point, and a standard to one side of the center, of a disk with a plurality of perforations, revolving with a spindle journaled in a projecting arm from the standard and turning on a pivotal point in the adjustable bearing in the base, a second disk loosely journaled on the said spindle, immediately under the aforesaid disk, a toothed wheel, a worm-gear intermediate of the length of the spindle designed to operate the toothed wheel at intervals, a cam fixedly attached to one face of the toothed wheel, and a rod encircled toward its upper end by a spiral spring, and having its upward and downward movement controlled by the cam, as and for the purpose specified.

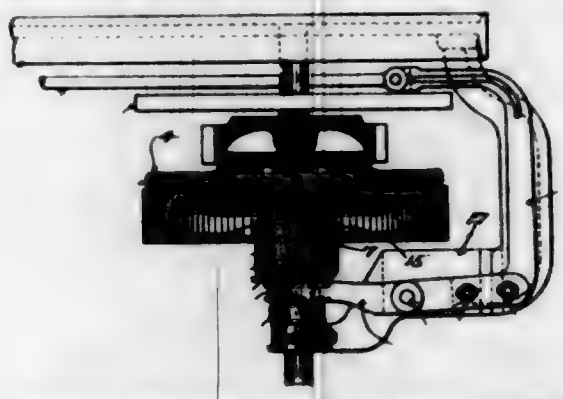
4. The combination with a base provided with an adjustable pivotal point bearing in the center thereof, a standard to one side of the center, and a projecting arm from the top of the said standard, of a spindle turning on a pivotal point, a disk fixedly attached to its upper end, a second disk loosely journaled immediately beneath the outer disk, a retarding-ring surrounding a collar immediately inside the second disk attached to the outer end of a rod with an inner and outer movement, a worm-wheel provided with a plurality of projecting points set radially from the center in one of its faces, a worm on the spindle and intermediate of its length meshing therewith, a toothed wheel with a cam fixedly attached to its face, and an eccentric journaled at the outer end of an arm projecting from the aforesaid rod, and designed to abut the cam at all times, as and for the purpose specified.

5. The combination with a base having an adjustable bearing for a pivotal point in the center, a standard to one side of the center, and a projecting arm at the top end of the said standard, of a spindle journaled in the projecting arm, a pair of disks designed to revolve at the top thereof, the bearing in the center of the base, a rod placed parallel to the spindle, a ring carried at the upper end of the rod for raising and lowering one of the disks, and means for operating this rod at intervals from the spindle, as and for the purpose specified.

6. The combination with a base having suitable bearings in the center thereof for a pivotal point, and a standard to one side of the center, of a spindle turning on a pivotal point in the bearings in the base and journaled in a projecting arm from the standard, and provided with a disk toward its upper end loosely journaled thereon, a disk fixedly attached to the spindle and having a plurality of perforations immediately overtopping the aforesaid disk, a worm-wheel having points projecting radially from its center, a toothed wheel designed to be operated by the said projecting points, a rod, a ring carried at the top end of the rod and encircling a collar on the spindle, a projecting arm located intermediate of the length of the rod, and provided with an eccentric journaled at the outer end thereof, and a spiral spring around the upper end of the rod, and designed to hold the said eccentric wheel against the cam on the toothed wheel, as and for the purpose specified.

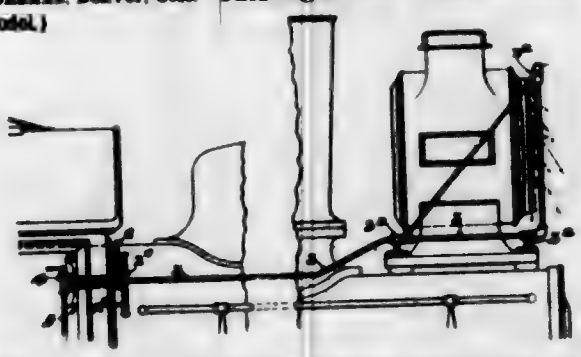
698,318. CLUTCH. HENRY BARDSLEY, Providence, R. I., assignor to Crompton & Knowles Loom Works, Providence, R. I., a Corporation of Rhode Island. Filed Oct. 14, 1901. Serial No. 78,520. (No model.)

Claim.—1. The combination with the shaft, of the improved clutch comprising, essentially, coacting clutch members, the expanding pair of cam-disks mounted concentrically with relation to said shaft between a relatively fixed abutment thereon and the said clutch members, the movable actuator provided with cams in operative engagement with the cam-disks whereby to turn said cam-disks relatively to each other, and the shipper to move said actuator, substantially as described.



2. The combination with the shaft, of the improved clutch comprising, essentially, coacting clutch members, the expanding pair of cam-disks mounted concentrically with relation to said shaft between a shoulder thereon and the said clutch members, the movable actuator provided with the bonnet surrounding said cam-disks and furnished with the cams in operative engagement with the said cam-disks whereby to turn said cam-disks relatively to each other, and the shipper to move said actuator, substantially as described.

693,319. LOCOMOTIVE-HEADLIGHT CLEANER. DAVID H. FOREMAN, Denver, Colo. Filed Aug. 24, 1901. Serial No. 73,154. (No model.)



Claim.—1. In an apparatus for cleaning the outer surface of transparent devices, the combination with a source of compressed air, of means connected with the air source, mounted in proximity to the transparent device, and having outlets disposed in varying planes and arranged to discharge the air across the face or exterior surface of the glass at different angles for the purpose set forth.

2. In a locomotive-headlight cleaner, the combination with a source of compressed fluid, of a perforated pipe arranged in proximity to the lens or glass of the light, but not obscuring its rays, the perforations of the pipe being disposed in varying planes to deliver jets of fluid across the outer surface of the lens or glass at different angles, a conduit leading from the fluid source to said perforated pipe, and a controlling-valve connected with the pipe and accessible to the engine-man without leaving the cab.

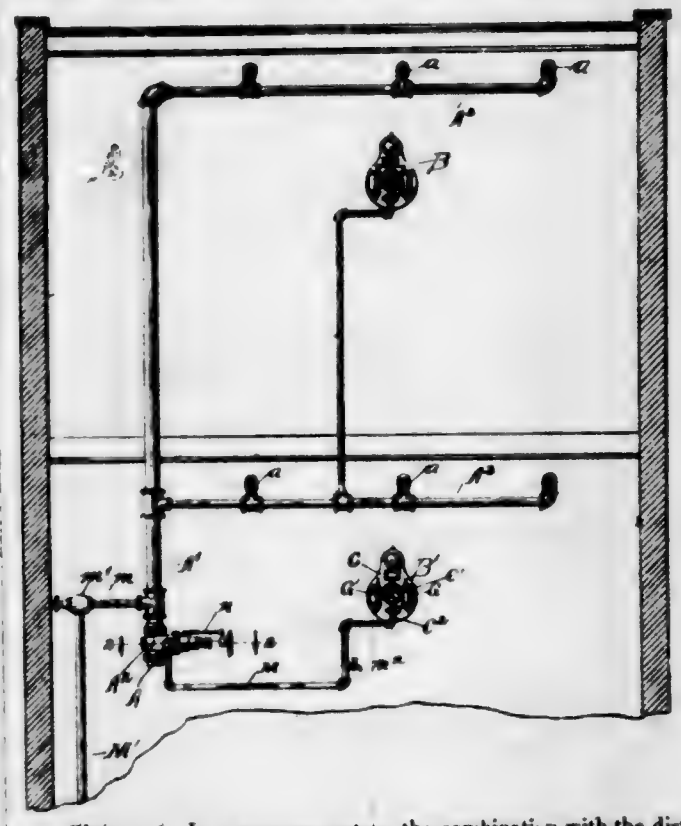
3. In a locomotive-headlight cleaner, the combination with a source of compressed fluid, of a pipe arranged part way around the glass or lens of the light, and in suitable proximity thereto, but not obscuring its rays, the said pipe being connected with a fluid source, and provided with orifices arranged in varying planes to deliver fluid-jets across the face or outer surface of the glass or lens at different angles for the purpose set forth.

4. In an apparatus for cleaning the outer surface of transparent devices, the combination with a source of compressed air, of means connected with said air source and having a suitable outlet, said means being located to direct the air across the outer surface of the transparent device, and arranged so as not to obscure the rays of light passing therethrough.

5. In a locomotive-headlight cleaner, the combination with a source of compressed fluid, of a pipe connected with said fluid source, arranged in proximity to said headlight, and perforated in varying planes causing the fluid-jets to be delivered across the outer surface of the glass or lens at different angles.

6. In a locomotive-headlight cleaner, the combination with a source of compressed fluid, of a perforated pipe mounted in suitable proximity to the headlight, and a conduit leading from the source of fluid to said perforated pipe, the tubular hand-rail of the locomotive forming a part of said conduit.

693,320. VALVE AND ALARM. FRANK GRAY, Chicago, Ill. Filed July 13, 1899. Serial No. 723,671. (No model.)



Claim.—1. In a pressure system, the combination with the distributing-pipes and main valve, of a relief-pipe closed off so long as the main valve is fully open, pressure-controlled alarm mechanism to which said relief-pipe leads, and means actuated in the closing movement of the main valve whereby said relief-pipe is opened to the pressure of the system.

2. In a pressure system, the combination with the distributing-pipes and main valve, of a relief-pipe closed off so long as the main valve is fully open, alarm mechanism operated both by a rise and a fall in pressure, to which said relief-pipe leads, means whereby said pipe is packed with a pressure above zero but less than the pressure of the system, and means actuated in the closing movement of the main valve whereby said relief-pipe is opened to the pressure of the system.

3. In a pressure system, the combination with the distributing-pipes and main valve, of a relief-pipe closed off so long as the main valve is fully open, pressure-controlled alarm mechanism at all times in connection with said pipes to be operated by variation of pressure therein, pressure-controlled alarm mechanism to which said relief-pipe leads, and means operated in the closing movement of the main valve whereby said relief-pipe is opened to the pressure of the system.

4. In a pressure system, the combination with the distributing-pipes and main valve, of alarm mechanism pipe-connected with said distributing-pipes and operated by either rise or fall of pressure, and a relief-valve opened in the incipient closing movement of the main valve.

5. In an electric alarm, the combination of a pressure-gage, an alarm-circuit, a double contact constantly connected with one side of the circuit and adjustable bodily around the axis of the pointer of said gage, an opposing contact connected with the other side of said circuit, and means whereby the circuit is closed by movement of the gage-spindle in either direction.

6. In an electric alarm, the combination of a pressure-gage, an alarm-circuit, a gapped contact-disk mounted upon and adjustable around the spindle which carries the pointer, and connected to one side of the circuit, and a stationary contact connected to the other side of the circuit.

7. In an electric alarm, the combination of a pressure-gage, an alarm-circuit, a gapped contact-disk mounted upon and adjustable around the spindle which carries the pointer, and having knife-edges each side of the gap, a stationary contact consisting of two opposing springs with counter-setting contact-points mounted on a fixed part of the gage, and leads connecting the disk with one side of the circuit and the stationary contact with the other side.

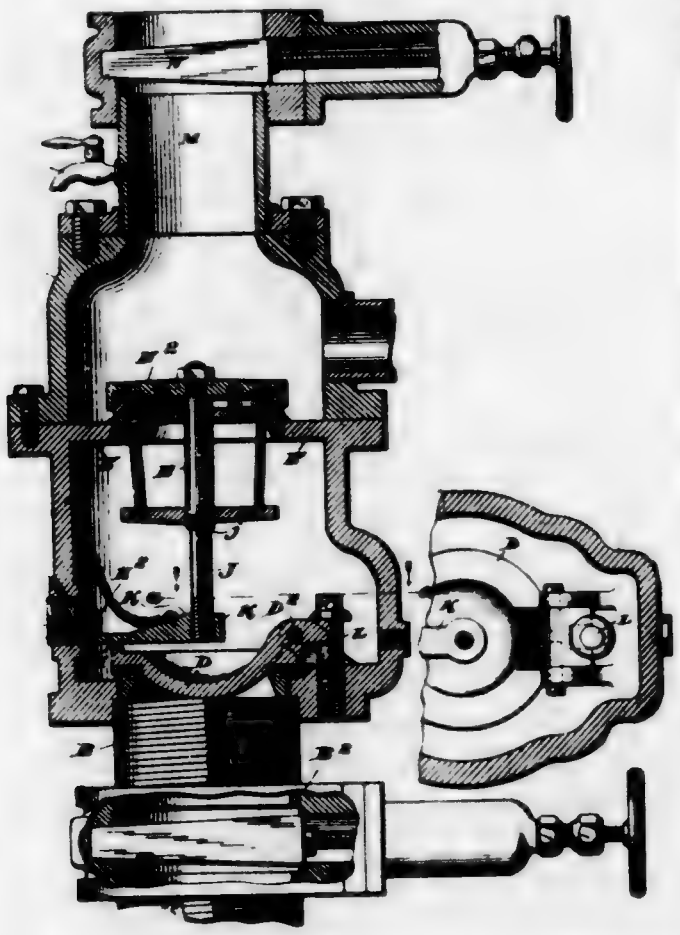
8. In an electric alarm, the combination of a pressure-gage, the insulated contact-post forming an extension of its spindle, the gapped contact-disk adjustable thereabout and moving therewith, the connecting-spring resting on said post, and the stationary contact secured to a fixed part of the gage.

9. In an electric alarm the combination, of a pressure-gage, an alarm-circuit, a rotatable post connected with the spindle of the gage and insulated therefrom, this post carrying a pointer and also a double-contact device adjustable bodily around the post, means constantly connecting the post with one side of the circuit, a stationary contact connected to the

other side of the circuit, whereby the circuit will be closed by the double-contact device upon a movement of the gage-spindle in either direction.

10. In an electric alarm, the combination of a pressure-gage, an alarm-circuit, a double-contact device mounted on the gage-spindle and bodily adjustable independently thereof and the gage-pointer, means connecting this double contact with one side of the circuit, and an opposing contact connected to the other side of the circuit and adapted to close the circuit upon a movement of the gage-spindle in either direction.

693,321. VALVE. FRANK GRAY, Chicago, Ill. Filed Feb. 14 1899. Serial No. 705 504. (No model.)



Claim.—1. In a valve apparatus for dry-pipe fire-extinguisher systems, an upper and lower valve, the former exposed to the air-pressure and the latter exposed to the water-pressure, and a lever, one arm of which is normally in contact with the upper valve member and the other arm separably engaged with the lower valve member and an adjacent stationary part to hold it closed, the movement of the upper valve member, upon reduction of air-pressure, causing a separation between the upper and lower valve members and the said lever whereby the lower valve member is released.

2. In a valve apparatus for dry-pipe fire-extinguishers, an upper valve and a lower valve, the former exposed to the air-pressure and the latter exposed to the water-pressure, and an elbow-lever, one arm of which is normally in contact with the upper valve member and the other arm separably engaged with the lower valve member and with the valve-casing to hold it closed, the movement of the upper valve member, upon reduction of air-pressure, causing a separation between the two valves and the elbow-lever whereby the lower valve member is released.

3. In a valve apparatus for dry-pipe fire-extinguisher systems, an upper and lower valve, the former exposed to the air-pressure and the latter exposed to the water-pressure, a rod extended from said upper valve member and an elbow-lever, one arm of which is normally in contact with the said rod and the other arm separably engaged with the valve-casing and the lower valve member to hold it closed, the movement of the upper valve member, upon reduction of air-pressure, causing a separation between the lower valve member and the elbow-lever whereby the lower valve member is released.

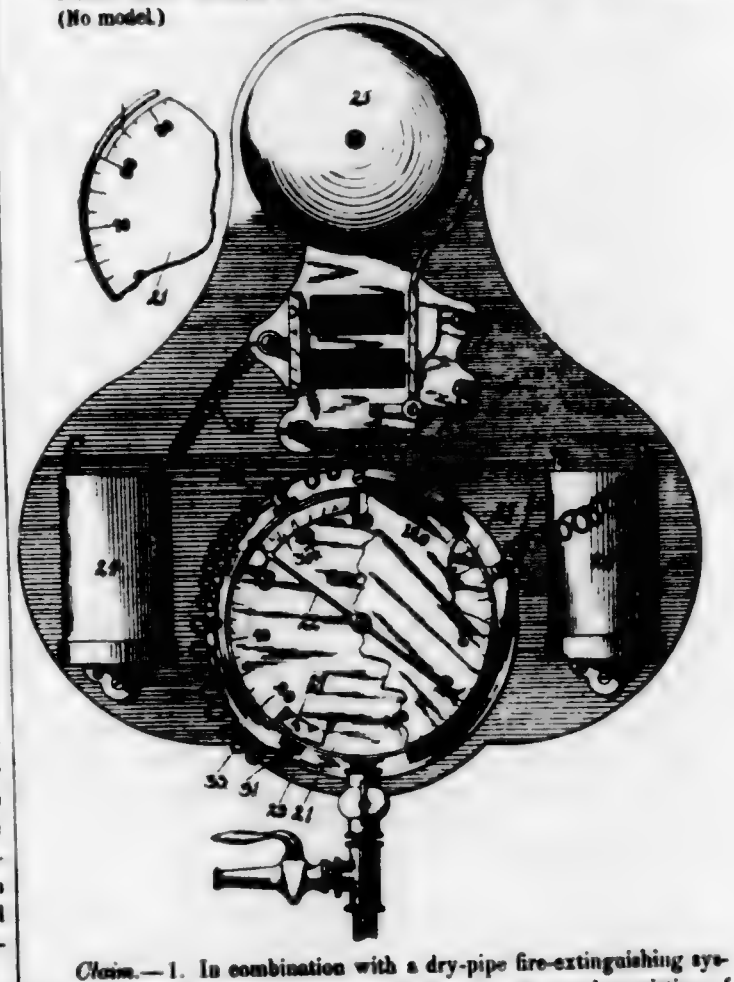
4. In a hinged valve, an adjusting device adjacent to the hinge of the valve and engaging said valve to set the same on its seat, at this point, locking means engaging said valve approximately opposite to the hinge and means for adjusting the locking means to set the valve on its seat at this point.

5. In a valve apparatus for dry-pipe fire-extinguishing systems, the combination of a dry-pipe valve exposed to the air-pressure tending to close it, a shut-off or cut-off valve above the dry-pipe valve and a release-opening between the two said valves for the air-pressure whereby the operativeness of the dry-pipe valve may be tested without permitting the water to pass through said valve into the sprinkler-pipe.

6. In a valve apparatus for dry-pipe fire-extinguisher systems, a valve-casing, an upper valve exposed to the air-pressure, a lower valve exposed to the water-pressure, means for locking the lower valve closed consisting of an elbow-lever having its upright arm in engagement with the upper valve and its lateral arm in engagement with the lower valve, the extremity of this lateral arm extending laterally beyond the valve, and a lug or stop on the valve-casing separably engaging said extremity.

7. In combination, a valve-casing, a lower valve, an upper valve adapted to be held closed by pressure from above, and means for locking the lower valve consisting of an elbow-lever, one arm of which is separably in contact with the upper valve and the other arm of which is in separable engagement with the lower valve and with the valve-casing, to hold the lower valve closed, and a device, as a chain, for loosely connecting the locking member to the valve-casing at a point between the two valves, for the purpose set forth.

693,322. ALARM FOR FIRE-EXTINGUISHING SYSTEMS. FRANK GRAY, Chicago, Ill. Filed June 11, 1897. Serial No. 640,359. (No model.)



Claim.—1. In combination with a dry-pipe fire-extinguishing system, of an alarm apparatus connected to the dry pipes and consisting of means for causing a preliminary alarm upon the escape of the air and a subsequent or final alarm upon introduction of the water into the dry pipes, for the purpose set forth.

2. In combination with a fire-extinguishing system of the dry-pipe order, of an alarm apparatus connected to the dry pipes thereof and consisting of means for sounding an alarm upon escape of air from the dry pipes and means for sounding a subsequent continuous alarm upon introduction of water into the dry pipes, for the purpose set forth.

698,323. CHAIR. GEORGE A. GIFFEN, Volcano, Cal., administrator of Robert Rodgers, deceased. Filed Aug. 15, 1901. Serial No. 72,321. (No model.)

Claim.—1. A bent-wood chair having its back and seat frames, and front and rear legs integral and cut from a single stock.

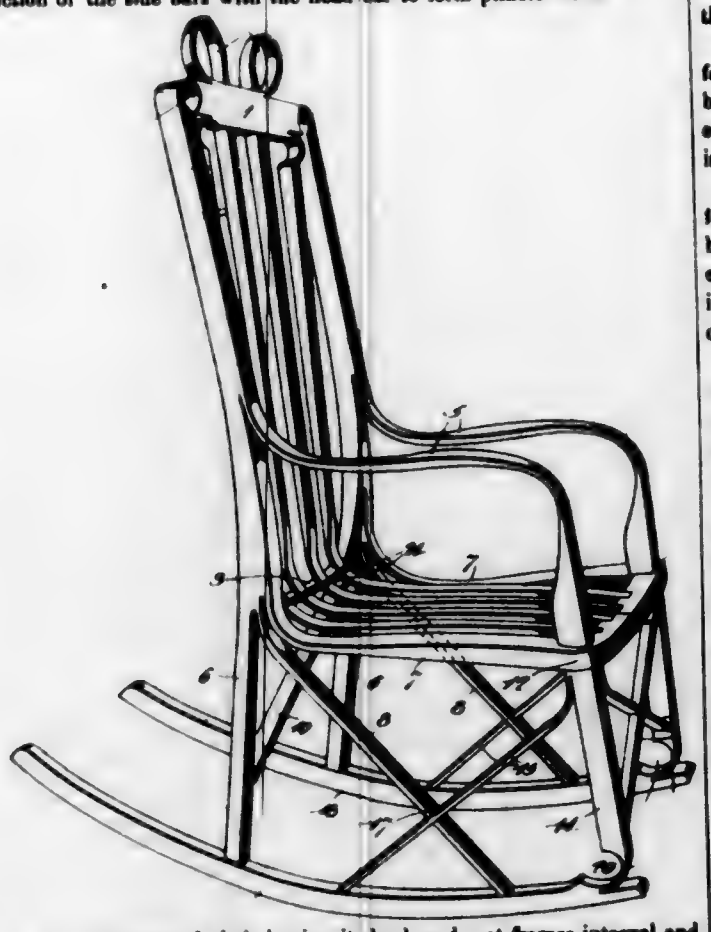
2. A bent-wood chair having its back and seat frames, side arms and front and rear legs integral and cut from a single stock.

3. A bent-wood chair having its back and seat frames, its front and rear legs, and its side arms integral and cut from a single stock, the front legs being formed as extensions of the side arms.

4. A bent-wood chair having its back and seat frames and its legs integral and formed from a single stock of which the head-bar of the back-frame forms the center.

5. A bent-wood chair having its back and seat frames and front and rear legs integral and formed from a single stock of which the head-bar

of the back-frame forms the center, and of which the side bars of the back-frame form continuations, the stock being recessed at the points of junction of the side bars with the head-bar to form pliable webs.



6. A bent-wood chair having its back and seat frames integral and formed from a single stock, and side arms integrally connected with the side bars of the back-frame.

7. A bent-wood chair having its back and seat frames integral and formed from a single stock, and seat-fillers also integral with said stock.

8. A bent-wood chair having its back and seat frames integral and formed from a single stock, and also having back-fillers integral with said stock.

9. A bent-wood chair having its back and seat frames integral and formed from a single stock, and also having back and seat fillers, one of which is formed as an extension of the other, and also integral with said stock.

10. A bent-wood chair having its back and seat frames integral and formed from a single stock, and also having back and seat fillers integral with and struck from said stock at the upper end of the back-frame.

11. A bent-wood chair having its back and seat frames integral and formed from a single stock, and outer and intermediate back and seat fillers also integral with said stock and struck respectively from the inner and outer sides thereof.

12. A bent-wood chair having its back and seat frames integral and formed from a single stock which is reduced in width at opposite sides of its center to form integral back and seat fillers.

13. A bent-wood chair having its back and seat frames integral and formed from a single stock which is reduced in thickness at opposite sides of its center to form integral side arms.

14. A bent-wood chair having its back and seat frames integral and formed from a single stock which is reduced in thickness at the junction of the back and seat frames to form integral rear legs.

15. A bent-wood chair having its back and seat frames integral and formed from a single stock which is reduced in thickness at intermediate points to form integral side arms intersecting the seat-frame and extended below the frame thereof to form integral front legs, said stock being also reduced at the junction of the back and seat frames to form integral rear legs.

16. A bent-wood chair having its back and seat frames integral and formed from a single stock which is reduced at intermediate points to form integral side arms extended below the plane of the seat-frame to form front legs, and also reduced at the junction of the back and seat frames to form legs, the portion of the stock forming said front and rear legs being further reduced to form intersecting side braces.

17. A bent-wood chair having its back and seat frames integral and formed from a single stock which is reduced in thickness at the junction of the back and seat frames to form rear legs, and is reduced in width at an adjacent point to form a rear seat-bar.

18. A bent-wood chair having its back and seat frames integral and formed from a single stock of which the seat side bars are extensions of the back side bars and of which the front seat-bar consists of extensions of the seat side bars, one side member of the stock being reduced in width to form a rear seat-bar which is extended transversely and connected with the opposite side member.

19. A bent-wood chair having its back and seat frames integral and formed from a single looped stock of which the side bars form the side bars of back and seat frames and are extended transversely at their front ends to form the front seat-bar, one of said side members being reduced in width to form a rear seat-bar.

20. A bent-wood chair having its back and seat frames integral and formed from a single looped stock of which the side bars form the side bars of back and seat frames and are extended transversely at their front ends to form the front seat-bar, one of said side members being reduced in width to form a rear seat-bar, and both of said side members being reduced in thickness to form rear legs and side braces.

21. A bent-wood chair having its back and seat frames integral and formed from a single stock of which the side members are reduced in thickness at opposite points to form side arms and front legs, and are further reduced in thickness at their opposite points to form rear legs and side braces.

22. A bent-wood chair of integral construction having a stock divided longitudinally to form elements integral and connected with the stock and respectively forming back and seat frames, and front and rear legs.

23. A bent-wood chair of integral construction consisting of a stock divided longitudinally to form elements integral and connected with the stock, and respectively forming back and seat frames, front and rear legs, side arms, and braces.

24. A bent-wood chair having its back and seat frames integral and formed from a single looped stock of which the side bars are divided longitudinally to form integral elements connected with the main stock, and constituting front legs and rockers.

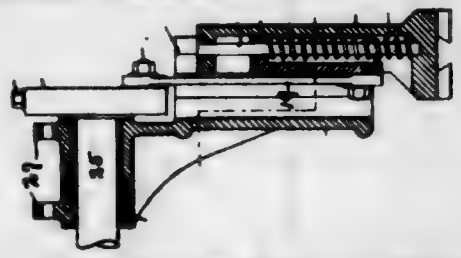
25. A bent-wood chair having its back and seat frames integral and formed from a single looped stock of which the side bars are divided longitudinally to form integral elements connected with the main stock, and constituting side arms, front legs and rockers.

26. A bent-wood chair having its back and seat frames, its front and rear legs, and rockers integral and formed from a single stock.

27. A bent-wood chair having its back and seat frames integral and formed from a single looped stock of which the side members are divided longitudinally to form elements which respectively constitute rear legs, and continuous side arms, front legs and rockers.

28. A bent-wood chair having its back and seat frames integral and formed from a single looped stock reduced to form integral elements constituting rear legs and side braces, also reduced to form side arms, front legs and rockers, said front legs also being reduced to form side braces intersecting the first-named side braces.

698,834. POWER-HAMMER. ARTHUR W. JOHNSON, Chicago, Ill., assignor to Louis A. Johnson, Chicago, Ill. Filed Apr. 30, 1900. Serial No. 14,797. (No model.)



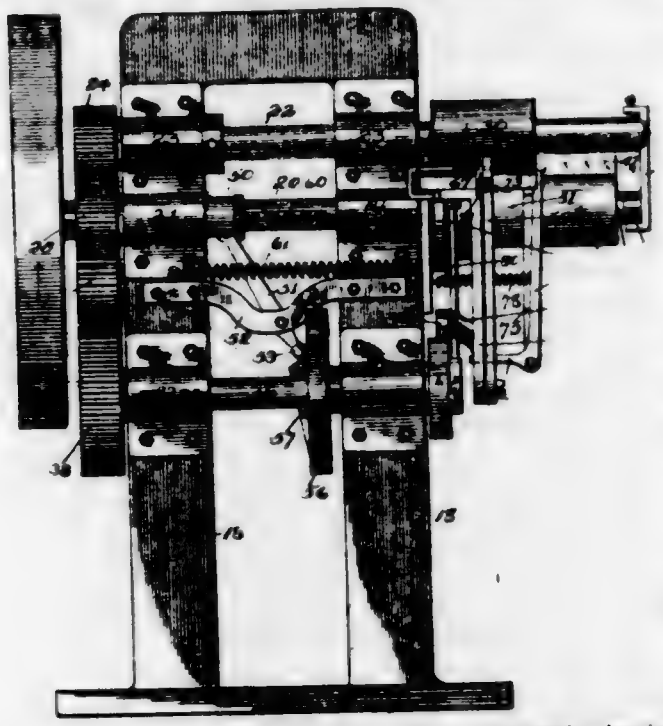
Claim.—1. The combination with a hammer-frame provided with vertical guides, of a ram arranged to slide in said guides and provided with an interior chamber, three parallel rods supported by said ram within said chamber and arranged so that they form the three corners of a triangle, a cross-head mounted upon said rods and arranged so that one end of said cross-head is guided by two of said rods and the opposite end by the third rod, and springs mounted upon said rods and interposed between the guided ends of said cross-head and the more remote ends of said chamber, substantially as described.

2. The combination with a hammer-frame provided with vertical guides and a chamber in the rear of said guides, a crank mounted upon said frame over said guides, and a connecting-rod extending from said crank to the interior of said chamber, of a ram arranged to slide in said guides and provided with a longitudinal chamber adjacent to the chamber in said frame, three parallel rods supported within the chamber of said ram and arranged in the form of a triangle, a cross-head mounted upon said rods and arranged so that one end of said cross-head is guided on two of said rods and the opposite end upon the third rod, springs mounted upon said rods and interposed between the guided parts of said cross-head and the more remote ends of the chamber within said ram, and a

pin extending from the rear face of said cross-head into the chamber within said frame whereby said cross-head is operated by said crank and said connecting-rod.

3. In a power-hammer, the combination with a ram provided with a longitudinal chamber, longitudinal guides within said chamber, a longitudinal cross-head within said guides and arranged to be guided by said guides at its two ends, and springs inserted between the guided ends of said cross-head and the remote ends of the chamber whereby the said springs overlap and pass each other substantially as described, of a crank and a connecting-rod for operating said cross-head, and means for adjusting the length of the crank whereby the stroke of said cross-head may be varied.

693,325. MACHINE FOR MAKING CAN-BODIES. GEORGE P. LEIGER, Chicago, Ill., assignor to himself and Lewis Benedict, Chicago, Ill. Filed Nov. 18, 1901. Serial No. 82,706. (No model.)



Claim.—1. The combination with a roller provided with a longitudinal groove, of a coacting tucking-blade adapted to register with said groove when said roller is rotated, and means apart from the groove for changing the inclination of said tucking-blade relative to its support, causing it to enter said groove substantially in the line of the projection of said groove into said roller, substantially as described.

2. The combination with a roller having a longitudinal groove projected into said roller at an acute angle with a tangent to the surface of said roller in the line of its rotation, of a coacting tucking-blade adapted to register and coact with said groove as said roller rotates, and means apart from the groove for changing the inclination of said tucking-blade relative to its support, causing it to enter said groove substantially in the line of the projection of said groove into said roller, substantially as described.

3. The combination with a roller having a longitudinal groove, of a coacting axially-supported member, a tucking-blade carried by said coacting axially-supported member, movable relative thereto, and adapted to register and coact with said groove as said roller rotates, means for rocking said tucking-blade to cause the same to enter said groove substantially in the line of the projection of said groove into said roller, and means for driving said roller and said coacting member, substantially as described.

4. The combination with a roller having a longitudinal groove, of a coacting roller, a tucking-blade carried by said second roller movable relative thereto and adapted to register and coact with said groove as said rollers rotate, means for rocking said tucking-blade to cause the same to enter said groove substantially in the line of the projection of said groove into said first roller, and means for driving said rollers, substantially as described.

5. The combination with a roller having a longitudinal groove projected into said roller at an acute angle with a tangent to said roller in the line of its rotation, of a coacting axially-supported member, a tucking-blade carried thereby, and movable relative thereto and adapted to register and coact with said groove as said roller rotates, means for rocking said tucking-blade to cause the same to enter said groove substantially in the line of the projection of said groove into said roller, and means for driving said roller and axially-supported member, substantially as described.

6. The combination with a roller having a longitudinal groove, of a coacting roller, a rock-shaft mounted in said coacting roller, a tucking-blade carried by said rock-shaft and adapted to register and coact with said groove with each rotation of said rollers, means for rocking said rock-shaft to cause the said tucking-blade as said rollers are rotated to enter the said groove substantially in the line of the projection of said groove into said first roller, and means for driving said rollers, substantially as described.

7. The combination with a roller having a longitudinal groove projected into said roller at an acute angle with a tangent to said roller in the direction of its rotation, of a coacting roller, a rock-shaft mounted in said coacting roller, a tucking-blade carried by said rock-shaft and adapted to register and coact with said groove with each rotation of said rollers, means for rocking said rock-shaft to cause the said tucking-blade as said rollers are rotated to enter the said groove substantially in the line of the projection of said groove into said first roller, and means for driving said rollers, substantially as described.

8. The combination with a roller having a longitudinal groove projected into said roller at an acute angle with a tangent to said roller in the direction of its rotation, of a coacting roller, a rock-shaft mounted in said coacting roller, a tucking-blade carried by said rock-shaft and adapted to register and coact with said groove with each rotation of said rollers, means for rocking said rock-shaft to cause the said tucking-blade as said rollers are rotated to enter the said groove substantially in the line of the projection of said groove into said first roller, a projecting offset on the surface of said second roller immediately ahead of said tucking-blade and adapted to press the rear end of a sheet of metal carried around said first-named roller closely against said roller, and means for driving said rollers, substantially as described.

9. The combination with a roller having a longitudinal groove in its surface, and a coacting tucking-blade adapted to register with said groove and enter the same with each rotation of said roller, of a second roller of slightly-smaller diameter than said first roller and on the same axial line therewith, means for pushing a cylinder of metal formed by said first roller and said tucking-blade from said first roller upon said second roller, and a seam-presser adapted to press the interlocked seams formed by said first roller and said tucking-blade firmly together against said second roller, substantially as described.

10. The combination with a roller having a longitudinal groove in its surface, and a coacting tucking-blade adapted to register with said groove and enter the same with each rotation of said roller, of a second roller of slightly-smaller diameter than said first roller and on the same axial line therewith, means for pushing a cylinder of metal formed by said first roller and said tucking-blade from said first roller upon said second roller, a rotary seam-presser adapted to coact with said second roller to press the interlocked seams formed by said first roller and said tucking-blade firmly together against said second roller, and means for rotating said roller and said seam-presser, substantially as described.

11. The combination with a roller having a longitudinal groove projected into its surface at an acute angle with a tangent to said roller in the direction of its rotation, a coacting tucking-blade adapted to register with and enter said groove with each rotation of said roller, and mechanism adapted to cause said tucking-blade to enter said groove substantially in the line of the projection of said groove into said roller, of a second roller upon the same axial line as said first roller, rotating therewith, and having a portion of its periphery flattened, means adapted to push a completed metal cylinder, with interlocked side seams formed by said first roller and said tucking-blade, off said first roller upon said second roller, with its seam lying over the flattened portion thereof, a rotating seam-presser adapted to coact with said second roller and press said interlocked seam closely together against said flattened surface, and means for driving said rollers, said tucking-blade and said seam-presser, substantially as described.

12. The combination with a roller having a longitudinal groove projected into its surface at an acute angle with a tangent to said roller in the direction of its rotation, a coacting tucking-blade adapted to register with and enter said groove with each rotation of said roller, and mechanism adapted to cause said tucking-blade to enter said groove substantially in the line of the projection of said groove into said roller, of a second roller upon the same axial line as said first roller, rotating therewith, and having a portion of its periphery flattened, a reciprocating sleeve bearing against said first roller, means for reciprocating said sleeve, whereby a cylindrical sheet metal can with an interlocked side seam, formed by said first roller and said tucking-blade, may be freed from said first roller and delivered to said second roller, a rotating seam-presser adapted to coact with said second roller and press said interlocked seam closely together against said flattened surface, and means for driving said rollers, said tucking-blade and said seam-presser, substantially as described.

13. The combination with a roller having a longitudinal groove in its surface projected into said roller at an acute angle with a tangent to said roller in the direction of its rotation, a coacting tucking-blade adapted to register with said groove and enter the same at each rotation of said roller, and means for causing said tucking-blade to enter said groove substantially in the line of its projection into said roller, of a second roller of slightly-smaller size than said first roller, mounted upon the same axial

line as said first roller, rotating therewith, and having a portion of its periphery flattened, said flattened portion being provided with a longitudinal recess in register with the groove in said first roller, a reciprocating sleeve embracing said first roller and bearing against the same, means for reciprocating said sleeve once for every two revolutions of said roller, whereby a can-body with interlocking side seams formed by said first roller and said tucking-blade may be pushed from said first roller upon said second roller with its seam in alinement with the recess on the flattened surface of said second roller, a seam-presser adapted to coact with said second roller over its flattened portion and to press the interlocked side seam of a can-body firmly together over said longitudinal recess, and means for driving said rollers and said seam-presser, substantially as described.

14. The combination with a roller having a longitudinal groove in its surface projected into said roller with an acute angle with a tangent to said roller in the direction of its rotation, a coacting tucking-blade adapted to register with said groove and enter the seam at each rotation of said roller, and means for causing said tucking-blade to enter said groove substantially in the line of its projection into said roller, of a second roller of slightly-smaller size than said first roller, mounted upon the same axial line as said first roller, rotating therewith, and having a portion of its periphery flattened, said flattened portion being provided with a longitudinal recess in register with the groove in said first roller, a reciprocating sleeve embracing said first roller and bearing against the same, means for reciprocating said sleeve once for every two revolutions of said roller, whereby a can-body with interlocking side seams formed by said first roller and said tucking-blade may be pushed from said first roller upon said second roller with its seam in alinement with the recess on the flattened surface of said second roller, a seam-presser adapted to coact with said second roller over its flattened portion and to press the interlocked side seam of a can-body firmly together over said longitudinal recess, a tension-lever mounted upon and carried by said sleeve and adapted when said sleeve is brought to the inward limit of its motion to press against a can-body being formed upon said first roller and hold the same closely thereto, and means for driving said rollers and said seam-presser, substantially as described.

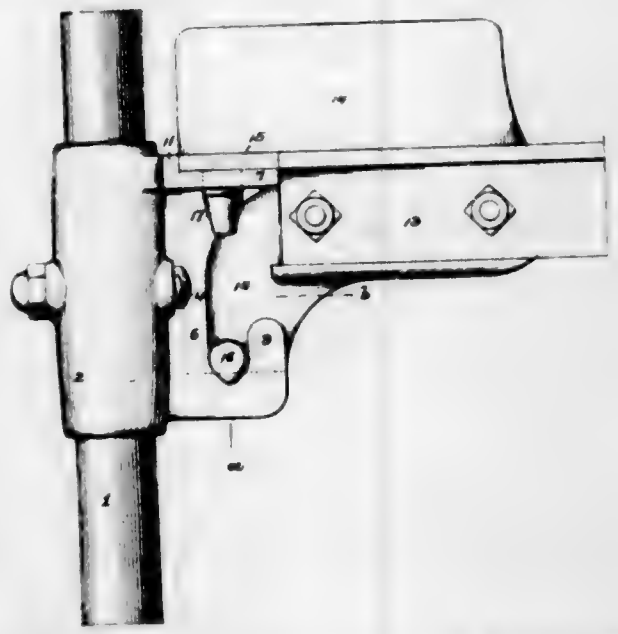
15. The combination with rotary can-body-forming, seam-forming and interlocking devices, of a feeding-table adapted to receive sheets of metal preparatory to their being fed to said rotary can-body-forming mechanism, and provided with side stops adapted to engage and aline a sheet of metal when one side is pressed against said side stops, a lever adapted to engage the other side of a sheet of metal and when moved to bring the sheet against said alining-pins, means for operating said lever, a second lever adapted when moved to engage the rear end of a sheet of metal when alined upon said feeding-table and to feed the same at suitable intervals to said can-body-forming mechanism, and means for operating said second lever at suitable intervals, substantially as described.

16. The combination with rotary can-body-forming, seam-forming and interlocking devices, of a feeding-table adapted to receive sheets of metal preparatory to their being fed to said rotary can-body-forming mechanism, and provided with side stops adapted to engage and aline a sheet of metal when one side is pressed against said side stops, a lever adapted when moved to engage one edge of a sheet of metal laid upon said feeding-table and bring the sheet against said alining-pins, and provided with a notch at its upper end adapted to engage the upper surface of a sheet of metal and hold it yieldingly upon said feeding-table, means for operating said lever at suitable intervals, a second lever adapted when moved to engage the rear end of a sheet of metal alined against said stops and to forward the same to said can-body-forming mechanism, means for operating said second lever at suitable intervals, a third lever having its upper end projecting over said feeding-table and provided with a set-screw, and adapted when moved to bring said set-screw down upon the upper surface of a sheet of metal on said feeding-table and press the same against said feeding-table while the forward edge of said sheet of metal is being first engaged by said can-body-forming devices, and means for operating said third lever at suitable intervals, substantially as described.

693,826. FASTENER FOR METALLIC BEDSTEADS. WILLIAM A. LIPPHARD, Harrisburg, Pa., assignor of one-half to Harry L. Dougherty, Philadelphia, Pa. Filed Nov. 30, 1901. Serial No. 84,225. (No model.)

Claim.—1. The combination in a fastening for metallic bedsteads, of the post-clamp having a projecting vertical web with perforated horizontal flange and hooked lower portion, and the side-rail bracket having a projecting flange with depending pin for entering the opening in the flange of the clamp-web, and a headed pin for engagement with the hooked portion of said web, substantially as specified.

2. The combination in a fastening for metallic bedsteads, of the post-clamp having a projecting web with perforated horizontal flange and vertical rib on the outer side, with a side-rail bracket having an edge bearing against said rib and having a laterally-projecting flange with depending pin entering the opening in the lateral flange of the clamp-web, and a laterally-projecting headed pin for engagement with the lower portion of said web, substantially as specified.



3. The combination in a fastening for metallic bedsteads, of a post-clamp having a projecting vertical web with vertical rib on the outer side of the same, and an inwardly-projecting perforated horizontal flange with vertical rib at its clamp end and the side-rail bracket having an edge bearing against the vertical rib of the web, a laterally-projecting headed pin engaging with the lower portion of said web, and a laterally-projecting flange having edge bearing against the rib on the flange of the web and a depending pin entering the opening in said flange, substantially as specified.

4. The combination in a fastening for metallic bedsteads, of the post-clamp having a web with outer vertical rib and lower horizontal rib and provided with inwardly-projecting perforated flange, and the side-rail bracket having an edge bearing against the vertical rib of the web, and a bottom bearing upon the horizontal rib of the same, said bracket also having an inwardly-projecting headed pin for engaging with a projecting portion of the web, and an inwardly-projecting flange with depending pin for entering the opening in the perforated flange of said web, substantially as specified.

5. The combination in a fastening for metallic bedsteads, of a post-clamp having a projecting web with vertical outer rib, horizontal lower rib and inwardly-projecting horizontal flange with vertical rib at its clamp end, and the side-rail bracket having an edge bearing against the vertical rib of the web and a bottom bearing against the horizontal rib of the same, said bracket also having an inwardly-projecting headed pin for engaging with the projected portion of the web, and an inwardly-projecting flange having an edge bearing against the vertical rib on the flange of the web, and a depending pin for entering the opening in said flange, substantially as specified.

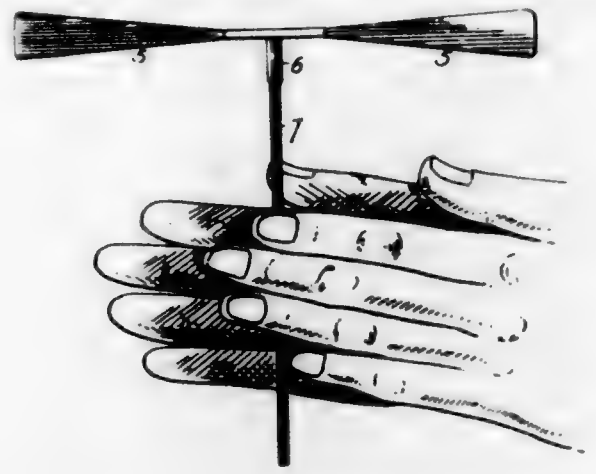
6. The combination in a fastening for metallic bedsteads, of the post-clamp having a projecting web with outer vertical rib, lower horizontal rib, hooked lower end and inwardly-projecting horizontal flange with vertical rib at its clamp end, and the side-rail bracket having an edge bearing against the vertical rib of the web, a bottom bar bearing against the lower rib of the same, an inwardly-projecting headed pin engaging the hooked lower portion of the web, and an inwardly-projecting flange having an edge bearing against the vertical rib on the flange of the web and a depending pin for entering the opening in said flange, substantially as specified.

693,827. FLYING TOY. LYNN B. MATTESON and MARSHALL P. MCARTHUR, Cripplecreek, Colo., assignors to the Butterfly Manufacturing Company, Cripplecreek, Colo. Filed July 22, 1901. Serial No. 69,324 (No model.)

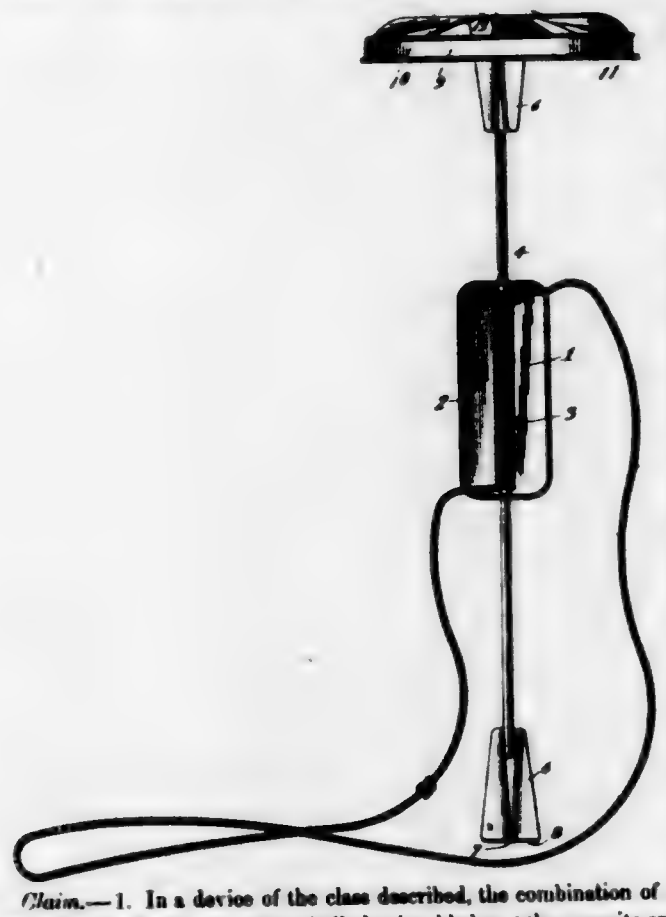
Claim.—1. In a flying toy the combination of two metal wings suitably inclined and connected by a narrow central part having flanges, and a ferrule provided with projections which are grasped by the flanges whereby the ferrule is securely connected with the wings, and a stem having one extremity inserted in the ferrule, the arrangement being such that as the stem is rotated in the proper direction, the toy will rise in the atmosphere.

2. In a flying toy, the combination of a pair of wings stamped from an integral piece of metal and oppositely inclined for the purpose stated, the said wings having a narrow intermediate part which connects them, a metal ferrule forming a socket for the stem, the ferrule having projec-

tions, means for connecting the projections of the ferrule with the central part between the wings, and a stem inserted in the ferrule.



693,328. FLYING-TOP. ALFRED W. MORGAN, Urbana, Ill., assignor of one-half to Frank Girty, administrator of George I. Girty, deceased. Filed Feb. 18, 1901. Serial No. 47,798. (No model.)



Claim.—1. In a device of the class described, the combination of a rotatable longitudinally-movable spindle having blades at the opposite extremities with sockets therein, a holder through which the spindle moves, a continuous doubled cord engaging the spindle to have one portion wind thereon when another portion is unwinding, the cord moving through opposite portions of the holder, and a flier having stop devices to loosely contact with the blades and engage the sockets in the latter, the doubled cord in its operation limiting the rotation of the spindle and causing the flier to be thrown off the latter.

2. A flier having a surrounding rim and upper radial blades, the rim being in the form of a depending band in a plane at a right angle to the blades and the latter provided with depending angularly-disposed wings at their outer extremities to direct the air-currents to the lower edge of the band, the said wings extending downwardly inside of the band from the upper edge of latter to near the lower edge of the same, and an operating device with which said flier is adapted to engage.

3. In a device of the class described, the combination of a rotatable longitudinally-movable spindle having blades on the opposite extremities with sockets therein, and a flier having centrally-located stop devices to contact with the blades and a pin or post to loosely engage the sockets of the blades.

4. In a device of the character set forth, the combination of a rotatable longitudinally-movable spindle having blades on opposite extremities for reversible use, the blades being increased in width toward their outer ends and provided with central sockets, and a flier to engage either blade having oppositely-arranged stop devices and a depending pin or post between them to loosely and removably engage the blades.

5. A flier having a rim and upper radial blades with a portion of their side edges formed with an upper convex flare and also provided with depending angularly-disposed wings at their outer extremities extending downwardly close to the lower edge of the said rim to deflect the air-currents beneath the latter, the center of the flier having oppositely-disposed stop devices and a central depending pin or post, and an operating device with which the said flier is adapted to engage.

6. A top-spinning device, consisting of a block or holder, a rod endwise movable within a longitudinal channel therein, and having at one end an extended lateral portion opposite ends of which are rigidly affixed to the rod, said lateral portion having an opening therein to receive the pin on a top, and a cord wound upon said rod within said channel, substantially as described.

7. A top-spinning device, consisting of a block or holder, a rod endwise movable therein, and having at its end an extended lateral portion, with opening to receive the pin on a top and braced at both ends to the rod, a cord wound upon the rod within the block holder, means for guiding the rod at the ends of the block holder, and means for turning the cord laterally at the ends of the block holder as set forth.

8. A top-spinning device, consisting of a block or holder, with a longitudinal channel, a rod endwise movable in said channel while being rotated, said rod having at each end an extended lateral portion braced to the rod at each end, and having opening to receive the pin on a top, means at the ends of the block holder for guiding the rod, a cord wound upon the said rod within the channel of the block holder, and means at the ends of the block holder for turning the cord at substantially a right angle to the length of the rod, as set forth.

9. A top-spinning device, consisting of a block holder, a rod endwise movable therein simultaneously with its rotation and having at each end an extended lateral portion with both ends thereof braced to the rod with a central opening to receive the pin on a top, means at the ends of the block holder for guiding the rod, a cord wound upon the rod within the channel of the block holder, and means for preventing overwrapping of the cord, as set forth.

10. A top-spinning device, consisting of a block holder, a rod endwise movable therein simultaneously with its rotation and having at its end an extended lateral portion braced to the rod at opposite ends, and having a central opening to receive the pin on a top, a cord wound upon the rod within the block holder, rod-guiding means on the ends of the block holder, and lateral passages through the sides of the block between said guiding means and the end of the block for causing the cord to turn laterally and thus prevent its overwrapping as set forth.

11. In a top-spinning device a rod or shaft having at its end a holder with opening to receive the pin on a top, and a lateral portion braced at its opposite ends to the rod or shaft, as set forth.

12. A top-spinning device, consisting of a block, a rod rotatable therein and endwise movable simultaneously with its rotation and having at its end an extended lateral portion braced at both ends to the rod, and having central opening to receive the pin on a top, a cord wound upon the rod within the block, and means on the block for turning the cord at substantially a right angle to the length of the rod, as set forth.

13. A flying-top having a ring, a top portion depending holding lugs and wings all formed from a single integral piece of material, said ring being disposed at substantially right angles to the top and the latter disposed wholly above the upper edge of the ring, substantially as described.

14. A flying-top having its ring, top portion and wings all of a single piece of material with the top portion above the upper edge of the ring, and provided centrally with a pin and lugs independent thereof to engage upon opposite sides of a holder, as set forth.

15. A flying-top having a ring portion, a top portion disposed above the upper edge of said ring portion, a central pin and lugs upon opposite sides thereof, as set forth.

16. A flying-top having a ring portion, a curved top portion disposed above the upper edge of the ring portion, wings extending from the top portion and lugs projecting centrally from the top portion with a pin substantially parallel with the lugs and projected below the lower edge of the ring portion, as set forth.

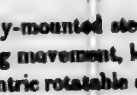
17. A flying-top, comprising in a single element a substantially vertical ring portion with beaded lower edge, a rounded top, wings with their lower edges terminating within the area of the ring portion and lugs extending at substantially right angles from the center of the top portion, as set forth.

18. A flying-top formed of a single piece of material and comprising a substantially vertical ring portion, a top portion, with lugs and wings having portions separated from the ring portion and extended downward within the latter and terminating within the area of said ring portion, as set forth.

19. The flying-top herein described, comprising the substantially vertical ring portion, having beaded lower edge, a curved top portion disposed above the upper edge of the ring portion, and having wings and legs all formed of a single piece of material, and a centrally-disposed pin extending substantially parallel with the ring portion and projected beyond the edge thereof, as set forth.

20. In a top-spinning device, a rod or shaft having a terminal blade for engaging a top, said blade being reduced in width from its outer end toward its inner end and consisting of a blank of sheet metal folded upon itself, with the extremity of the rod or shaft held between its folds.

693,329. PROJECTILE. CARL E. NEUBAUER, Buhl, Minn., assignor of one-half to Herman Krause and Marcus L. Fay, Virginia, Minn. Filed Apr. 30, 1901. Serial No. 56,154. (No model.)



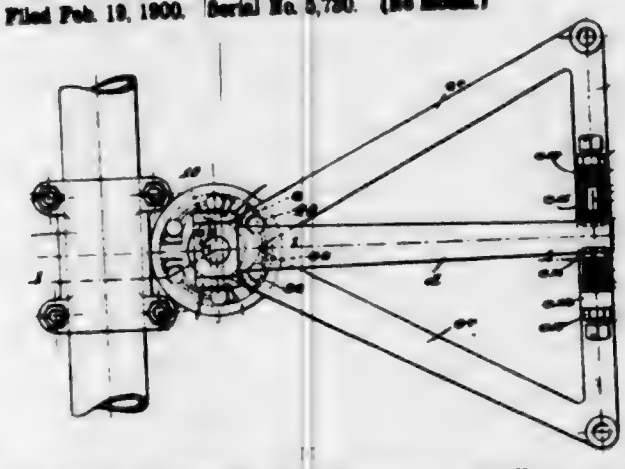
Claim.—1. A projectile having a chamber open at its rear end and a sealed opening leading from said chamber, and a device for closing said rear open end.

2. A projectile having a chamber containing a narcotic, a device for permanently closing said chamber and a hole leading from said chamber having a temporary seal.

3. A projectile having a chamber containing a narcotic, a device for permanently closing said chamber and a hole leading from said chamber having a temporary seal, said seal being expelled when the projectile strikes home.

4. A projectile having a chamber containing a narcotic, a device for permanently closing said chamber and a hole leading from said chamber having a temporary seal, said seal being expelled by the compression of the projectile.

693,330. STEERING DEVICE FOR MOTOR-VEHICLES. OTTO F. PERSSON, Lynn, Mass., assignor to Elihu Thomson, Swampscott, Mass. Filed Feb. 19, 1900. Serial No. 5,730. (No model.)



Claim.—1. Pivotally-mounted steering-wheel spindles, a controller therefor having a swinging movement, locking means, comprising a fixed annular member, a concentric rotatable double-cam member having a rigidly-attached radial arm, a plurality of oppositely-acting locking-dogs interposed between the members, springs to maintain them operative, a device concentric with the cam member to render one or other dog inoperative, a radial arm on said device, one of said arms being operatively connected with the spindles and the other with the controller, and means on one arm to limit movement of the other relative thereto, relative movement of the arms releasing the cam member, and movement in unison rotating the cam member to change the position of the spindles.

2. Pivotally-mounted steering-wheel spindles, a controller therefor having a swinging movement, locking means comprising a rotatable hub having a pair of opposite cam-faces and a rigidly-attached radial arm, a fixed inclosing ring, rolls interposed between the cam-faces and ring, springs to move said rolls into locking position, an arm pivoted concentrically with the hub and having a releasing projection interposed between the rolls, one arm being operatively connected with the spindles and the other with the controller, and means on one arm to limit relative movement of the other and to normally center the releasing projection between the rolls, steering movement of the controller causing relative movement of the arms to release the cam-hub, and subsequently moving the arms in unison to rotate said hub and change the position of the wheel-spindles.

3. Pivotally-mounted steering-wheel spindles, each having an arm extended at an angle thereto, locking means comprising a fixed and a rotatable double-cam member, a plurality of interposed oppositely-acting locking-dogs interposed between them and normally maintained in operative position, a radial arm rigidly connected with the movable member, a releasing device to render one or the other dog inoperative and having an attached arm, connections between one of said arms and the spindle-arms, a manually-operative controller operatively connected with the other arm, and adjustable means on one arm to yieldingly limit movement of the other arm relatively thereto, and to normally maintain the releasing device inoperative, steering movement of the controller unlocking and permitting movement of the rotative cam member in one direction to thereby change the position of the spindles.

4. Pivotally-mounted steering-wheel spindles, a manually-operated controller therefor having a swinging movement to steer, a fixed ring, an inclosed hub having a plurality of pairs of opposite cam-faces, and a radial projection between each pair, and an attached arm, pairs of rolls interposed between the ring and each pair of cam-faces, springs to normally maintain the rolls operative, a series of connected segmental projections interposed respectively between each two rolls and having an attached arm, the wheel-spindles being operatively connected with one and the controller with the other of said arms, and means to permit a predetermined relative movement of one arm relatively to the other, and to normally place the releasing segments in inoperative position, steering movement of the controller in either direction releasing one set of rolls and permitting rotation of the cam-hub in the same direction by continued movement of the controller, to change the position of the wheel-spindles.

5. Pivotally-mounted steering-wheel spindles, a controller therefor having a swinging movement, locking means, comprising a fixed annular member, a concentric rotatable double-cam member having a rigidly-attached arm, a plurality of oppositely-acting locking-dogs interposed between the said members, springs to maintain them normally operative, a releasing device to render one or other of the dogs inoperative, an actuating-arm connected with said releasing device, one arm being operatively connected with the spindles and the other with the controller, and adjustable oppositely-located yielding stops on one arm to engage the other arm and permit a limited yielding relative movement thereof and also serving to normally center the releasing device relatively to the dogs, relative movement of the arms releasing the cam member, and movement in unison rotating said member to change the position of the spindles

6. A steering-axle, wheel-spindles pivotally mounted thereon, a controller, a self-locking friction-clutch having its fixed portion rigid with the axle, a movable member, and a releasing member, one of said members being operatively connected with the wheel-spindles and the other member with the controller, and means to permit a limited relative movement of said members to release the clutch, subsequent movement of said members acting through said means to swing the spindles independently of the clutch.

7. A steering-axle, wheel-spindles pivotally mounted thereon, a controller, a self-locking clutch having its fixed portion rigid with the axle, a movable member, a releasing member, one being operatively connected with the adjacent wheel-spindle and the other with the controller, and means to permit a limited relative movement of said members to release the clutch, subsequent movement of said members acting through said means to swing the spindles independently of the clutch.

8. A steering-axle, wheel-spindles pivotally mounted thereon and connected to swing together, a controller therefor, a self-locking clutch applied to one of said spindles, to maintain it normally locked relatively to the axle, and a releasing device operated by the controller, to release the clutch when desired, and connections between the controller and the spindles, to swing the latter independently of the clutch when the same is released.

693,331. DRAFT-RIGGING. WILLIAM M. PIPER, Allegheny, Pa. Filed Nov. 26, 1900. Renewed June 29, 1901. Serial No. 66,527. (No model.)

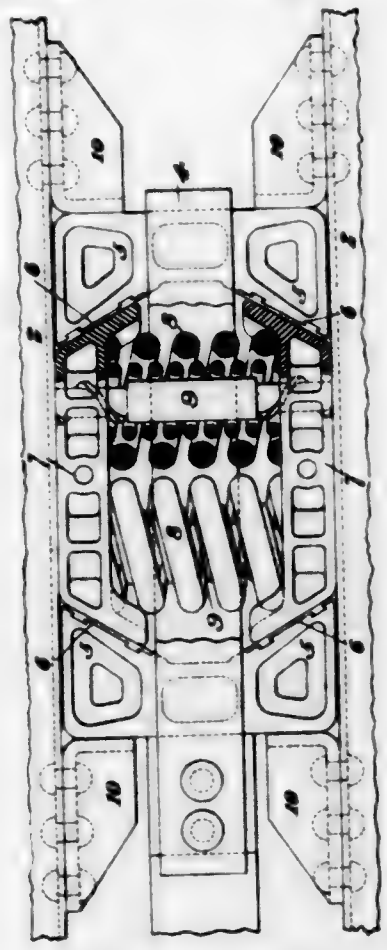
Claim.—1. The combination with a longitudinally-movable bar, of a transversely-extending block actuated thereby and having inclined surfaces, oppositely-located blocks movable toward and from each other, and actuated by the transverse block, a screw device arranged to be rotated by the blocks in their movement toward or from each other, and means for returning the blocks to their normal position when the pressure is relieved; substantially as described.

2. The combination with a longitudinally-movable bar, of oppositely-arranged spring-pressed blocks arranged to be moved toward and from each other by pressure on the bar, and an oppositely-screw-threaded rod connecting the blocks; substantially as described.

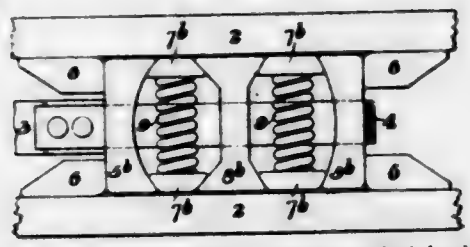
3. In a draft-rigging, a longitudinally-movable bar, having a strap inclosing transversely-extending blocks, each having oppositely-directed inclines, oppositely-located spring-pressed blocks movable toward and from the axis of the draw-bar, and actuated by the transverse blocks, and an oppositely-screw-threaded rod connecting the spring-pressed blocks; substantially as described.

4. In a draft-rigging, a longitudinally-moving draw-bar having transverse blocks secured to and actuated thereby, said blocks having oppositely-directed inclines, spring-pressed blocks arranged to be moved inwardly toward each other by endwise movement of the draw-bar, and

an oppositely-screw-threaded rod connecting the spring-pressed blocks; substantially as described.



693,332. DRAFT-RIGGING. WILLIAM M. PIPER, Allegheny, Pa. Filed Jan. 16, 1901. Renewed Sept. 12, 1901. Serial No. 75,174. (No model.)



Claim.—1. In a draft-rigging, a transverse block having curved inclined faces, and spring-pressed wedge-blocks, having similarly-curved inclines coacting therewith; substantially as described.

2. In draft-riggings, a pair of end followers and an intermediate follower, at least one of which has curved inclined faces, and two pairs of wedge-blocks movable toward and from each other between the followers and having curved faces coacting with the above-named curved faces; substantially as described.

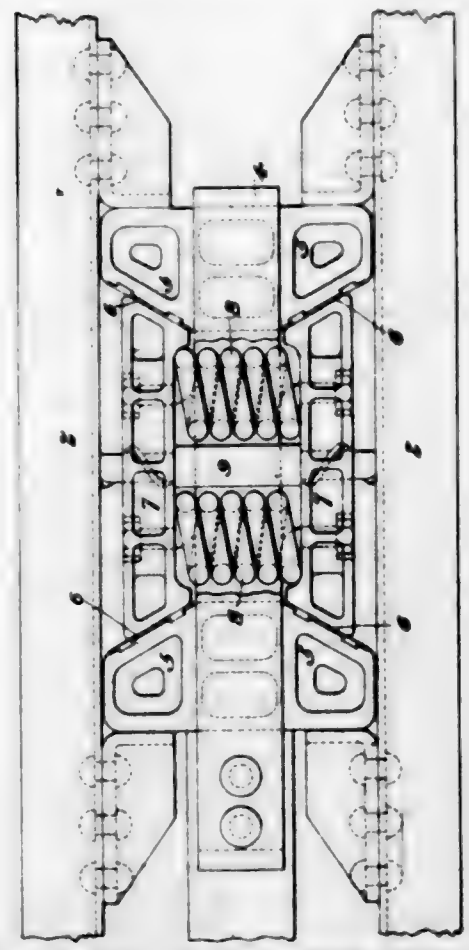
3. In a draft-rigging, a pair of end followers having inner curved faces, an intermediate follower having opposite inclined faces, and two pairs of oppositely-located spring-pressed wedge-blocks coacting with the above-named faces of the followers and arranged to move toward and from each other transversely of the draw-bar axis; substantially as described.

693,333. DRAFT-RIGGING. WILLIAM M. PIPER, Allegheny, Pa. Filed Nov. 26, 1900. Renewed Aug. 17, 1901. Serial No. 72,418. (No model.)

Claim.—1. The combination with a longitudinally-movable bar, of oppositely-located blocks arranged to move toward and from each other on opposite sides of the draw-bar axis, a tension-spring between the blocks arranged to hold them in place, and mechanism connected with the bar and arranged to force the blocks apart under strains exerted through the bar; substantially as described.

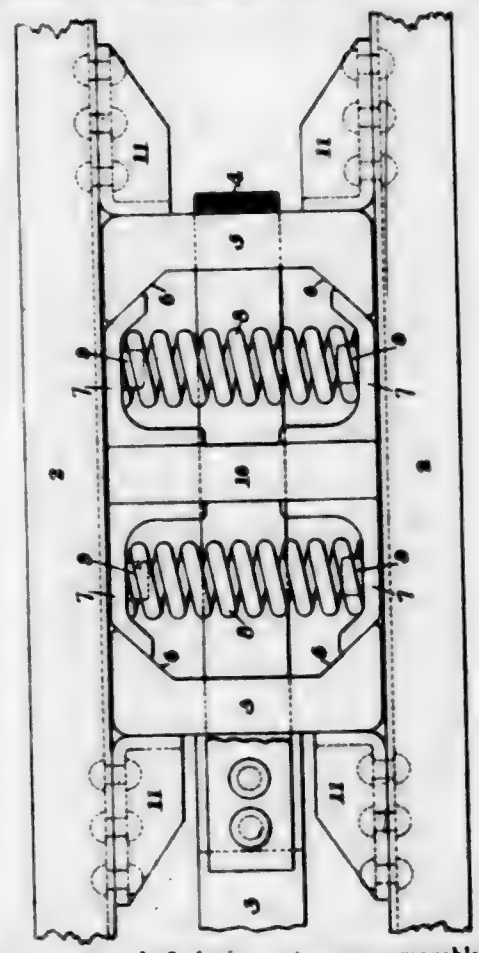
2. In a draft device, a draw-bar having transversely-extending blocks with inclined faces, and oppositely-located blocks on either side of the draw-bar axis having springs between them, and arranged to move from each other against the resistance of the said intermediate springs, the transverse blocks being arranged to force apart the spring-pressed blocks under buffing or pulling strain; substantially as described.

3. In a draft-rigging, a draw-bar having transversely-extending blocks with oppositely-inclined faces, oppositely-located spring-pressed blocks arranged to be moved apart under strain upon the draw-bar, and a screw-threaded shaft connecting the latter blocks; substantially as described.



4. The combination with a longitudinally-movable bar, of blocks located on opposite sides thereof and arranged to move toward and from the draw-bar axis, a spring interposed between said blocks and normally holding them in their inner position, and mechanism connected with the bar arranged to force the blocks apart on their buffing or pulling strain substantially as described.

693,334. DRAFT-RIGGING. WILLIAM M. PIPER, Allegheny, Pa. Filed Jan. 16, 1901. Renewed Aug. 17, 1901. Serial No. 72,419. (No model.)



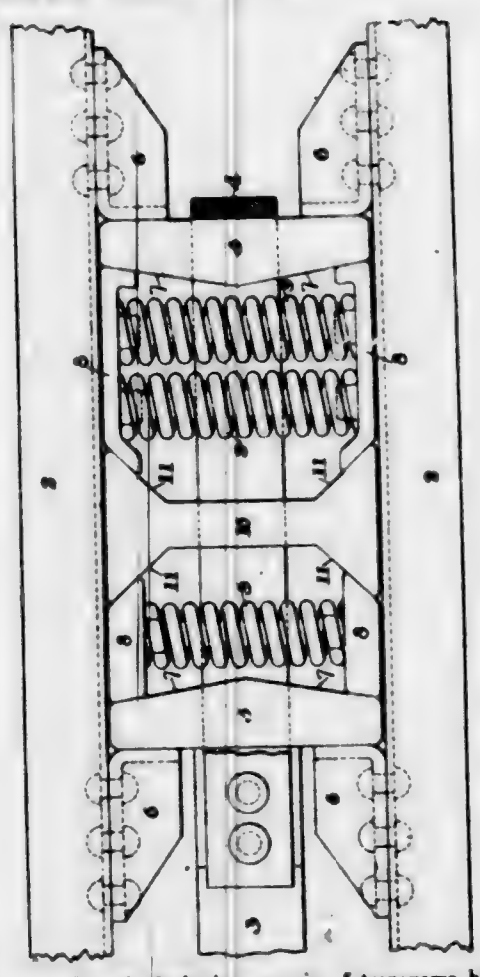
Claim.—1. In a draft-rigging, a transverse movable block having inclined surfaces, a pair of blocks having inclined surfaces coacting therewith and movable toward and from each other, a flat-face transverse fol-

lower bearing upon flat opposite end faces of the pair of movable blocks, and a spring to retain a pair of blocks in their normal position; substantially as described.

2. In a draft-rigging, a pair of transversely-extending blocks, and an intermediate transverse follower between them, at least one of said parts having inclined actuating faces, pairs of blocks arranged to move toward and from each other, and having inclined faces coacting with the inclined faces before mentioned, and having also flat transverse friction-faces, and springs arranged to hold the pairs of blocks in normal position; substantially as described.

3. A draft-rigging having two sets of spring-pressed friction-block devices, a yoke surrounding said devices, and a spacer-block between the devices and secured to the yoke, said spacer-block being arranged to actuate one set of blocks before the yoke acts upon the second set; substantially as described.

693,335. DRAFT-RIGGING. WILLIAM M. PIPER, Allegheny, Pa. Filed Jan. 16, 1901. Renewed Aug. 17, 1901. Serial No. 72,420. (No model.)



Claim.—1. In a draft-rigging, a pair of transverse blocks having oppositely-inclined faces, the faces of one block being inclined in the same direction as, and at a less angle than, those of the other block, and spring-pressed wedge-blocks bearing on said faces; substantially as described.

2. In a draft-rigging, a plurality of transverse movable followers having inclined faces, and sets of spring-pressed wedge-blocks movable toward and from each other, and having inclined faces coacting with those of the transverse blocks or followers, the inclined face of one follower being in the same direction as, and at a less angle than, those of the other follower, the springs being interposed between the wedge-blocks; substantially as described.

3. In a draft-rigging, a pair of transverse blocks having oppositely-inclined faces, the faces of one block being inclined in the same direction as, and at a less angle than, those of the other block, and spring-pressed wedge-blocks bearing on said faces, at least a part of said inclines having curved faces; substantially as described.

693,886. AMMUNITION-CASE. WESLEY RHODES, Philadelphia, Pa., assignor of nine-sixteenths to George P. Wilson and George T. Turner, Philadelphia, Pa. Filed Dec. 18, 1900. Serial No. 40,305. (No model.)

Claim.—1. As a new article of manufacture, an ammunition-case, consisting of a bottom or base section, a top ring-section, a shell or casing proper of asbestos to which the top and bottom sections are secured, and a detachable cover adapted to the top ring-section, substantially as described.

2. As a new article of manufacture, an ammunition-case, consisting of a bottom or base section, a top ring-section, both of which are filled or lined with asbestos, a shell or casing proper of asbestos to which the top and bottom sections are secured, a support for said shell or casing, and a detachable cover adapted to the top ring-section, substantially as described.



3. As a new article of manufacture, an ammunition-case, consisting of a bottom or base section, a top ring-section, each of said sections having annular flanges, a shell or casing proper of asbestos to which the top and bottom sections are secured, the ends of said shell being disposed between the flanges of said sections, and a detachable cover adapted to the top ring-section, substantially as described.

4. As a new article of manufacture, an ammunition-case of the character described for holding loaded shells, consisting of the bottom or base section, the top ring-section, both of which are filled or lined with asbestos, a guiding and supporting block of asbestos for the ends of the shells carried by the bottom section, a detachable cover adapted to the top ring-section, a shell or casing proper of asbestos suitably supported and interposed between the top and bottom sections, and a guiding-ring perforated for the passage of the shells fitting the inner wall of the casing near the top of the same, substantially as described.

693,337. BAND-MILL. EDWIN R. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Nov. 8, 1901. Serial No. 81,581. (No model.)

Claim.—1. The combination, in a band-mill, with an upper band-wheel and its shaft, of a fluid-pressure motor located outside the band-mill base, and oscillating-lever connections provided between said shaft and said motor for raising or lowering said shaft to apply tension to the saw or relieve the same when said motor is operated.

2. The combination, in a band-mill, with an upper band-wheel and its shaft, of a fluid-pressure motor, oscillating-lever connections provided between said shaft and said motor for raising or lowering said shaft when said motor is operated, and a counterbalance mechanism connected with said band-wheel and shaft and adapted to support and balance the same when the pressure is removed from said motor.

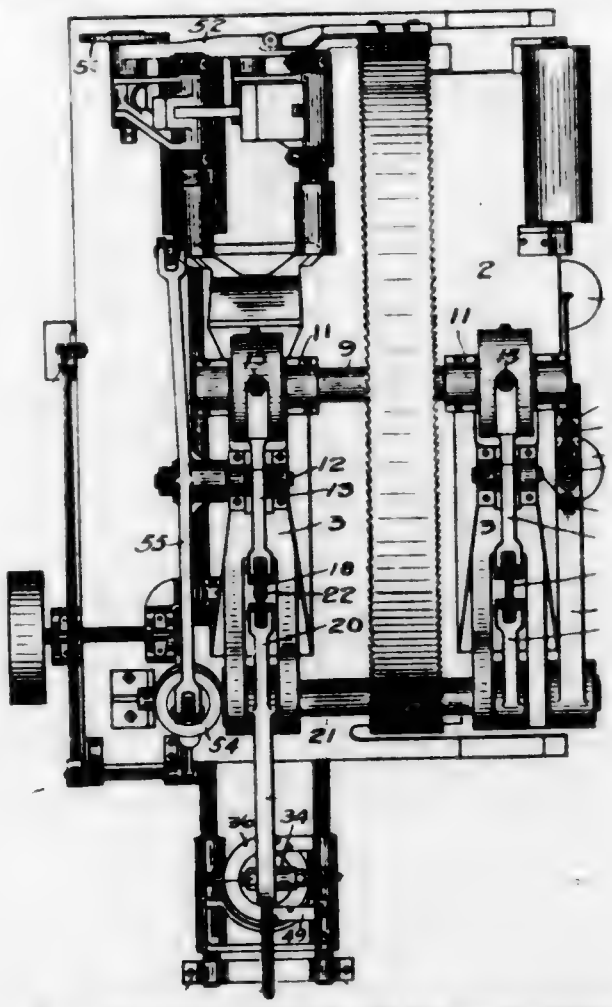
3. The combination, in a band-mill, with an upper band-wheel and its shaft, of a fluid-pressure motor, suitable connections provided between said shaft and motor for raising or lowering said shaft when said motor is operated to apply tension to the saw or relieve the same, and means for adjusting said motor with respect to said shaft connections.

4. The combination, in a band-mill, with the upper band-wheel and its shaft, of a fluid-pressure motor, suitable lever connections provided between said shaft and motor for moving said shaft to apply tension to the saw or relieve the same, means for adjusting said motor with respect to its shaft connections to adapt it for the tension desired and the pressure of the fluid at the motor, and a counterbalance mechanism connected with said band-wheel and adapted to hold the same in its raised position when the fluid-pressure is cut off from the motor.

5. The combination, in a band-mill, with an upper band-wheel and its shaft, of a steam-engine, suitable lever connections provided between said shaft and the piston of said engine for moving said shaft vertically to apply tension to the saw or relieve the same, and a counterbalance mechanism connected with said wheel and shaft and adapted to balance the same when steam is shut off from said engine.

6. The combination, in a band-mill, with the upper band-wheel and its shaft, of rocking arms arranged above said shaft and having suitable

connections therewith to raise or lower said shaft when said arms are rocked, a steam-engine, and suitable connections provided between said rocking arms and the piston of said engine.



7. The combination, in a band-mill, with the upper band-wheel and its shaft, of rocking arms provided above said shaft, a rock-shaft, arms secured thereon, means connecting said rock-arms with said band-wheel shaft and with said rock-shaft arms, whereby when said arms are oscillated said shaft will be raised or lowered, a lever provided on said rock-shaft, a steam-cylinder having its piston connected with said lever, and a counterbalance mechanism provided on said rock-shaft.

8. The combination, in a band-mill, with the upper band-wheel and its shaft, of a rock-shaft, a lever secured thereon, operative connections provided between said lever and said band-wheel shaft for raising or lowering said shaft to put the saw under tension or relieve the same when said lever is operated, and a steam-cylinder having its piston adjustably connected with said lever, for the purpose specified.

9. The combination, in a band-mill, with the upper band-wheel and its shaft, of an oscillating lever, operative connections provided between said lever and said band-wheel shaft for raising or lowering said shaft when said lever is oscillated, a fluid-pressure motor, means adjustably supporting said motor, and an adjustable connection provided between said motor and said lever.

10. The combination, in a band-mill, with the upper band-wheel and its shaft, of an oscillating lever provided with a slot, operative connections provided between said lever and the band-wheel shaft for raising or lowering said shaft to put the saw under tension or relieve the same, a fluid-pressure motor, means adjustably supporting said motor, and means adjustably connecting said motor with said slot.

11. The combination, in a band-mill, with the upper band-wheel and its shaft, of an oscillating lever, operative connections provided between said lever and said shaft for raising or lowering the shaft to tension the saw or relieve the same when said lever is oscillated, a steam-cylinder, sleeves whereon said cylinder is pivoted, means adjustably supporting said sleeves, and an adjustable connection provided between said cylinder-piston and said lever.

12. The combination, in a band-mill, with the upper band wheel and its shaft, of an oscillating lever provided with a longitudinal slot, means connecting said lever and said shaft for raising or lowering said shaft to tension the saw or relieve the same when said lever is oscillated, a steam-cylinder, parallel bars, sleeves mounted on said bars and pivotally supporting said cylinder and an adjustable connection provided between said cylinder-piston and said slot.

13. The combination, in a band-mill, with the upper band-wheel and its shaft, of a rock-shaft, arms secured thereon, operative connections provided between said arms and said band-wheel shaft for raising or lowering said shaft to tension the saw or relieve the same when said rock-shaft is operated, a lever secured on said shaft, a steam-cylinder, means adjustably supporting said cylinder to permit the movement of the same toward or from said band-wheel, a valve for controlling the admission of steam to the lower end of said cylinder, an air-valve provided near the upper end of said cylinder, and an adjustable connection provided between said cylinder-piston and said lever.

14. The combination, in a band-mill, with an upper band-wheel and its shaft, of a rock-shaft, arms secured thereon, operative connections provided between said arms and said shaft for operating said shaft to put the saw under tension or relieve the same, a counterbalance-lever provided on said shaft, a counterbalance-frame depending from said lever and straddling the shaft of the lower band-wheel, and suitable weights carried by said frame.

15. The combination, in a band-mill, with upper and lower band-wheels and their shafts, of a rock-shaft, arms secured thereon, rocking arms provided above said upper-band-wheel shaft, operative connections provided between said rocking arms and said rock-shaft arms and said upper-band-wheel shaft for raising or lowering said shaft, a counterbalance-lever 23 secured on said rock-shaft at the front of the mill, a counterbalance-frame 27 suspended on said lever and having legs 28 depending beside and straddling said lower-band-wheel shaft, and weights suspended on said legs, substantially as described.

16. In a band-mill, the combination, with the base provided with upright brackets, of the upper and lower band-wheels, vertically-sliding columns supported in bearings in said brackets and carrying the shaft of the upper band-wheel, rocker-arms provided on said brackets and provided at one end with curved or quadrant faces having flexible connections with said columns, a rock-shaft, arms secured thereon, rods connecting said arms with the ends of said rocker-arms opposite said curved faces, one of said rods being adjustable, a lever provided on said rock-shaft, and a steam-cylinder having its piston adjustably connected with said lever.

17. In a band-mill, the combination, with the base provided with upright brackets, of the upper and lower band-wheels and their shafts, vertically-sliding columns guided by said brackets and carrying the shaft of the upper wheel, rocker-arms supported upon said brackets above said columns and provided with curved faces at one end having flexible connections with said columns, a rock-shaft, arms secured thereon, means connecting said arms and the ends of said rocker-arms opposite said curved faces, a lever provided on said rock-shaft, a steam cylinder movable toward or from said rock-shaft and having its piston adjustably connected with said lever.

18. In a band-mill, the combination, with a base provided with upright brackets, of upper and lower band-wheels and their shafts, vertically-sliding columns guided by said brackets and carrying the shaft of the upper band-wheel, rocker-arms supported on said brackets above said columns and provided at one end with curved or quadrant faces having flexible connections with said columns, a rock-shaft, arms secured thereon, means connecting said arms with the ends of said rocker-arms opposite said quadrant faces, a counterbalance lever and weight provided on said rock-shaft, a slotted lever secured on said shaft, a pivoted cylinder slidably supported outside said base and adapted to be moved toward or from the same, and means adjustably connecting the piston of said cylinder with said slotted lever, substantially as described.

19. In a band-mill, the combination, with a base provided with upright brackets, of the upper and lower band-wheels and their shafts, vertically-sliding supports provided on said brackets for the shaft of the upper wheel, rocker-arms supported on said brackets above said upper band-wheel shaft and having flexible connections at one end therewith, a rock-shaft, arms secured thereon, means connecting said arms with the ends of said rocker-arms opposite said flexible connections, a slotted lever secured on said rock-shaft, an adjustable cylinder having its piston adjustably connected with said slotted lever, a counterbalance-lever secured on said rock-shaft at one end thereof at the front of the mill, a weight-frame suspended on said counterbalance-lever and having legs depending into the saw-pit and straddling the shaft of the lower band-wheel, and suitable weights provided on the legs, substantially as described.

20. In a band-mill, the combination, with the base, of the upper and lower band-wheels and their shafts, vertically-sliding supports for the upper-band-wheel shaft, an oscillating lever, operative connections provided between said lever and the supports of the upper wheel-shaft, an oscillating adjustable steam-cylinder, and means adjustably connecting the piston of said cylinder with said lever.

21. In a band-mill, the combination, with a base, of the upper and lower band-wheels and their shafts, vertically-sliding supports for the upper band-wheel shaft, an engine having a reciprocating piston, and a lever mechanism connected with said upper band-wheel shaft and adjustably attached to said piston.

22. The combination, in a band-mill, with an upper band-wheel and its shaft, of a reciprocating engine having it piston connected with said

shaft for raising or lowering it to put the saw under tension or relieve the same, and a counterbalance mechanism connected with said wheel and shaft and adapted to support the same when said engine is inoperative.

693,388. RIVET-CLENCHING CAP. JUDSON L. THOMSON, Clayton, N. Y. Filed Jan. 27, 1900. Renewed July 1, 1901. Serial No. 66,741. (No model.)



Claim.—1. A clenching-cap for pronged rivets, comprising a central anvil portion formed to outwardly deflect the prongs of the rivet, and a flange overhanging the anvil portion and integral therewith and provided with separated openings to receive the deflected portions of the prongs.

2. A clenching-cap for pronged rivets, comprising a central anvil portion formed to outwardly deflect the prongs of the rivet, and a flange overhanging the anvil portion and integral therewith and provided with separated prong-receiving openings, the cap being of elliptical form to position the openings.

3. A rivet having a head provided with a flange formed to present an inclined or beveled surface, and with a crevice or recess under said flange, and a hard, wear-resisting facing carried over the head and flange, and extending into the crevice or recess, substantially as and for the purposes set forth.

693,389. FIGURE TOY. RALPH TILTON, New York, N. Y., assignor to John A. Barnes, New York, N. Y. Filed May 23, 1901. Serial No. 61,594. (No model.)



Claim.—1. A figure toy comprising a card having an aperture therein, a human figure composed of flexible material mounted thereover, and secured to the face of said card by portions of the body thereof, and means to flexibly operate the unattached portions of said figure, for the purpose set forth.

2. A figure toy comprising a card having an aperture therein, a human figure composed of flexible material mounted over said aperture and secured to the face of said card by portions of the body thereof, and a strip of material attached to the under side of the unattached portion of said figure and passing through said aperture, as and for the purpose set forth.

3. A figure toy comprising a card having an aperture therein, a human figure composed of flexible material mounted over said aperture and secured to said card at the head and feet, and a strip of flexible material secured to the under side of the body portion of said figure and extending through said aperture, as and for the purpose set forth.

4. A figure toy comprising a card having an aperture therein, a human figure mounted thereover and secured to said card at the head and feet, and a strip of flexible material secured to the under side of the body portion of said figure, and passing through said aperture, said card being embossed beneath the upper part of the body of said figure, as and for the purpose set forth.

693,340. ADJUSTABLE INCLINE OR TRANSFER. ALONZO J. TULLOCK, Leavenworth, Kans., RALPH MODJESKI, Chicago, and BYRON B. CARTER, Hinsdale, Ill. Filed Aug. 2, 1899. Serial No. 725,840. (No model.)

Claim.—1. The combination of a vertically-adjustable bridge-span, towers adjacent thereto, means to raise and lower said bridge-span and means to secure said bridge-span to said towers in desired vertical adjustment, substantially as described.

2. The combination of a vertically-adjustable bridge-span, towers adjacent thereto, guides on said towers which are engaged by rigid portions of said bridge-span, means to raise and lower said bridge-span and means to secure said bridge-span to said towers, substantially as described.

3. The combination of a vertically-adjustable bridge-span, towers adjacent thereto, a hydraulic jack or jacks applied to said bridge-span and adapted to raise and lower the same and means to secure said bridge-span to said towers in desired vertical adjustment, substantially as described.

4. The combination of a bridge-span, towers adjacent thereto, vertical guides on the towers which are engaged by rigid portions of said bridge-span, a hydraulic jack or jacks applied to said bridge-span and adapted to raise and lower the same and means to secure said bridge-span to said towers, substantially as described.

5. The combination of a bridge-span, towers adjacent thereto, heads fitted to and longitudinally movable in guides or ways formed in said towers, means to lock or secure said heads to said towers, links connecting said heads with said bridge-span and means to raise and lower said bridge-span, substantially as described.



6. The combination of a bridge-span, towers adjacent thereto, heads fitted to and longitudinally movable in guides or ways formed in said towers, locking-blocks carried on said heads, teeth thereon which are adapted to engage said teeth on the towers, means to advance and retract said locking-blocks to engage the teeth thereon with and to disengage said teeth from the teeth on said towers, links connecting said heads with said bridge-span and means to raise and lower said bridge-span, substantially as described.

7. The combination of a bridge-span, towers adjacent thereto, heads fitted to and longitudinally movable in guides or ways formed in said towers; teeth formed in the sides of said towers, pawls pivoted to said heads, teeth on which are adapted to engage said teeth on the towers, means to impart pivotal movement to said pawls to effect engagement and disengagement of the teeth on said pawls with the teeth on the towers, links connecting said heads with said bridge-span and means to raise and lower said bridge-span, substantially as described.

8. The combination of a bridge-span, towers adjacent thereto, heads fitted to and longitudinally movable in guides or ways formed in said towers, teeth formed in the sides of said towers, pawls pivoted to said heads, teeth on which are adapted to engage said teeth on the towers, toggles applied to said pawls, means to flex and straighten said toggles, links connecting said heads with said bridge-span and means to raise and lower said bridge-span, substantially as described.

9. The combination of a bridge-span, towers adjacent thereto, heads fitted to and longitudinally movable in guides or ways formed in said towers, teeth formed in the sides of said towers, pawls pivoted to said heads, teeth on which are adapted to engage said teeth on the towers, means to advance and retract said pawls to effect engagement and disengagement of the teeth thereon with the teeth on the towers, means to secure said pawls in advanced and retracted positions and to release them, links connecting said heads with said bridge-span and means to raise and lower said bridge-span, substantially as described.

10. The combination with a bridge-span and means to raise and lower the same, of towers adjacent to said bridge-span, heads fitted to and longitudinally movable in guides or ways in said towers, teeth on said towers, pawls pivoted to said heads, teeth on which are adapted to engage said teeth on said towers, toggles applied to said pawls, means to flex and straighten said toggles, arms adapted to lock said toggles in flexed position, means to trip said arms and links connecting said heads with said bridge-span, substantially as described.

11. The combination with a bridge-span and means to raise and lower the same, of towers adjacent to said bridge-span, heads fitted to and longitudinally movable in guides or ways formed in said towers, links connecting said heads with said bridge-span, teeth formed in the sides of said towers, pawls pivoted to said heads, teeth on which are adapted to engage said teeth on the towers, toggles applied to said pawls, yokes in which the pivot-pins of said toggles are carried, shanks on said yokes which engage guides in the supporting-heads, locking-arms secured to said toggle-pins, lever-arms likewise secured to said toggle-pins, operating-ropes secured to said lever-arms and stops adapted to limit the movement of said locking-arms, substantially as described.

12. The combination of a bridge-span, towers adjacent thereto, hydraulic jacks, heads secured to the piston-rods of said jacks, said heads being fitted to and longitudinally movable in guides or ways formed in said towers, links which connect said heads with said bridge-span and means to lock or secure said heads firmly to said towers, substantially as described.

13. The combination of a bridge-span, towers adjacent thereto, guide-surfaces formed on said towers which are engaged by rigid portions of said bridge-span, hydraulic jacks, heads secured to the piston-rods of said jacks, said heads being fitted to and longitudinally movable in ways or guides formed on said towers, links which connect said heads with the bridge-span and means to lock or secure said heads firmly to said towers, substantially as described.

14. The combination with a load, of a head to which said load is connected, a tower, guides thereon to which said head is fitted and along which it is movable, means to impart movement to said head longitudinally of said guides and means to secure said head to said tower, said means comprising teeth on said tower, locking-blocks on said head, teeth thereon adapted to engage the teeth on said tower and means under the control of the operator to advance and retract said locking-blocks to effect engagement and disengagement of the teeth thereon with the teeth on said tower, substantially as described.

15. The combination with a load, of a head to which said load is connected, a tower, guides thereon to which said head is fitted and along which it is movable, means to impart movement to said head longitudinally of said guides and means to lock or secure said head to said tower, said means consisting of teeth on said tower, pawls pivoted to said head, teeth thereon adapted to engage the teeth on said tower, means under the control of the operator to impart pivotal movement to said pawls to effect engagement and disengagement of the teeth thereon with the teeth on said tower, substantially as described.

16. The combination with a load, of a head to which said load is connected, a tower, guides thereon to which said head is fitted and along which it is movable, means to impart movement to said head longitudinally of said guides and means to lock or secure said head to said tower, said means comprising teeth on said tower, pawls pivoted to said head, teeth thereon adapted to engage the teeth on said tower, toggles applied to said pawls and means under the control of the operator to flex and straighten said toggles, substantially as described.

17. The combination with a load, of a head to which said load is connected, a tower, guides thereon to which said head is fitted and along which it is movable, means to impart movement to said head longitudinally of said guides and means to lock or secure said head to said tower, said means consisting of teeth on said tower, pawls pivoted to said head, teeth thereon adapted to engage the teeth on said tower, means under the control of the operator to advance and retract said pawls to effect engagement and disengagement of the teeth thereon with the teeth on said tower and means to secure said pawls in advanced and retracted position and to release them, substantially as described.

18. The combination with a load, of a head to which said load is connected, a tower, guides thereon to which said head is fitted and along which it is movable, means to impart movement to said head along said guides and means to lock or secure said head to said tower, said means consisting of teeth on said tower a pawl or pawls pivoted to said head, teeth thereon adapted to engage the teeth on the tower, toggles applied to said pawl or pawls, means under the control of the operator to flex and straighten said toggles, an arm adapted to lock said toggles in flexed position and means to trip said arm, substantially as described.

19. The combination with a load, of a head to which said load is connected, a tower, guides thereon to which said head is fitted and along which it is movable longitudinally, means to impart movement to said load lengthwise of said guides and means to lock or secure said head to said tower, said means consisting of teeth formed on said tower, a pawl or pawls pivoted to said head, teeth thereon adapted to engage the teeth on said tower, a toggle applied to said pawl or pawls, a yoke in which the pivot-pin of said toggle is carried, a shank on said yoke which is fitted to a guide in said head, a locking-arm secured to said toggle-pin, a lever-arm likewise secured to said toggle-pin, an operating-rope secured to said lever-arm and a stop adapted to limit the movement of said lever-arm, substantially as described.

698,341. HAND-OILER. JOHN B. WALKER, Bessemer, Ala., assignor of two-fifths to Ed. Frost Nordman and Oscar B. Randle, Bessemer, Ala. Filed July 1, 1901. Serial No. 66,717. (No model.)



Claim.—In a hand-oiler, the combination with an oil-reservoir, of a discharge-spout extending from the lower end of the reservoir and projecting above the upper end thereof, an upright air-pump barrel located longitudinally upon the outer face of the reservoir and spaced from the same, constituting a handle, a valved connection between the upper end of the barrel and the upper end of the reservoir, a plunger slidably mounted within the barrel and having an operating-stem projecting from the lower end thereof, a valve controlling the passage-way through the discharge-spout and having an operating-stem, the outer end of which is located contiguous to the upper end of the pump-barrel, and a catch arranged at the lower end of the pump-barrel and adapted to be engaged by the plunger-stem to hold the latter within the barrel.

698,342. MACHINE FOR MAKING METALLIC SPOKES, &c. GEORGE T. WARWICK, Springfield, Mass. Filed May 28, 1900. Serial No. 718,781. (No model.)

Claim.—1. A carrier having an intermittent motion, combined with a mechanism for threading a wire or rod, and a second mechanism for heading the rod or wire at the same time that it is being threaded, substantially as shown.

2. A carrier having an intermittent motion, and a mechanism for threading one end of the rod or wire held by the carrier, combined with a heading mechanism, and a mechanism for imparting to the wire a positive rotary motion of its own, substantially as described.

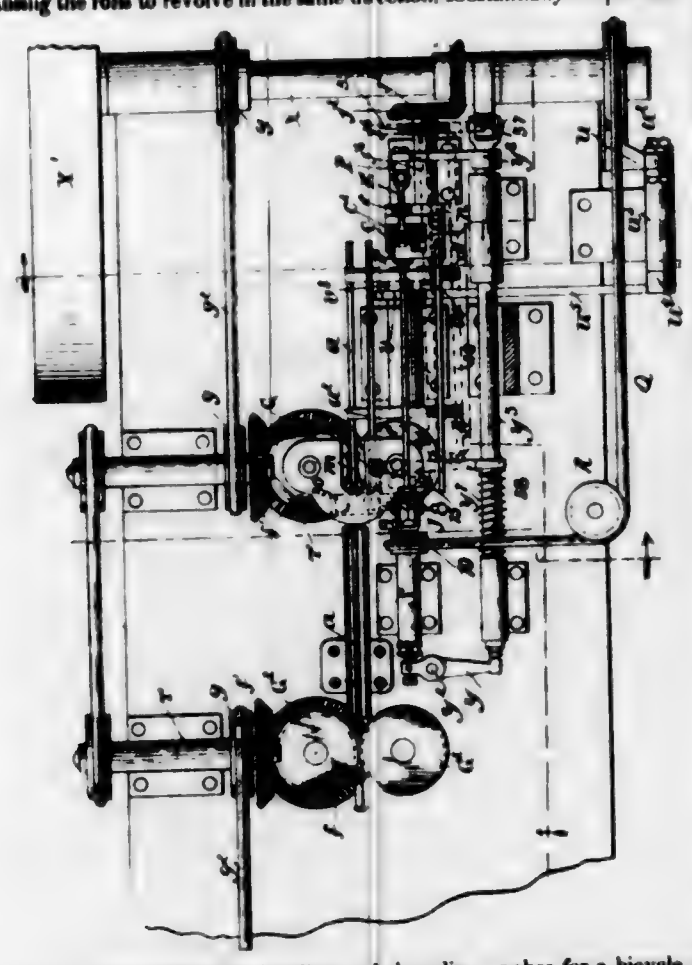
3. A carrier having an intermittent motion, a mechanism for threading one end of the rod or wire carried by the carrier, a mechanism for heading the opposite end of the wire from the one that is being threaded, and a mechanism for imparting to the wire or rod a positive rotary motion of its own, combined with the drawing-rolls to which the headed and threaded wire or rod is delivered by the carrier, substantially as set forth.

4. A carrier having an intermittent motion, a mechanism for threading one end of the rod or wire carried by the carrier, and a mechanism for opening and closing the threading mechanism, a heading mechanism, and a mechanism for imparting to the heading mechanism a reciprocating motion, combined with a separate mechanism for imparting to the rod or wire a positive rotary motion of its own, substantially as specified.

5. A carrier having an intermittent motion, a mechanism for threading the wire or rod carried by the carrier, and a heading mechanism, combined with a mechanism for imparting to the heading mechanism an endwise movement, and a separate mechanism for causing the rod or wire to positively rotate, substantially as shown.

6. The supporting-frame, an oppositely-arranged pair of levers E E pivoted thereon, a spring for drawing the ends of the levers toward each other when left free to move, a cam operating between the adjacent ends of the levers, for separating such ends and causing approaching move-

ments of their opposite ends, and a mechanism for operating the cam, combined with pivotally-mounted yokes or frames which are acted upon by said levers, threading-rolls journaled in the yokes, and mechanism for causing the rolls to revolve in the same direction, substantially as specified.



7. In a machine for heading and threading spokes for a bicycle, a mechanism for causing the rod or wire to positively rotate while it is being operated upon by the heading and threading mechanisms, substantially as described.

8. In a machine for making spokes, an automatic mechanism for feeding blanks, a heading mechanism at one side or end of said feeder, and a threading mechanism at the other, to the threading and heading actions of which the said feeder presents the successive rods or blanks.

9. In a machine for making spokes, an automatic feeding mechanism, a heading mechanism at one side of the feeder and a thread-forming mechanism at the other side combined with a set of drawing and elongating rolls.

10. In a machine for making metallic wheel-spokes, a hopper, a carrier, a heading device, a threading mechanism, and a pair of elongating-rolls, arranged in peripheral proximity and having a space across their working faces and combined for operation, for the purposes set forth.

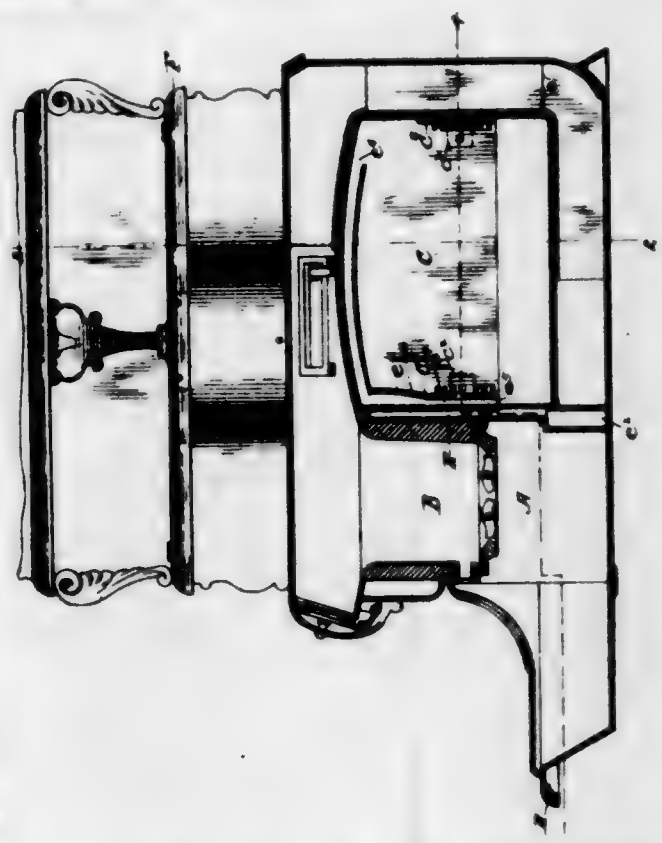
693,348. COOKING STOVE OR RANGE. EDGAR W. ANTHONY, Brookline, Mass. Filed Dec. 13, 1900. Serial No. 39,687. (No model.)

Claim.—1. In a cooking stove or range, a side plate having a shallow chamber upon its inner side provided with inclined walls with a sheet-metal oven having a bottom, top and sides and open at its back, slightly larger than the inner end of said chamber and of a shape to fit into the same, and connections between said side plate and the oven for drawing the sheet-metal oven into said chamber until its inner edge or portions thereof are brought into close contact with the inclined walls of the chamber, as and for the purposes set forth.

2. In a cooking stove or range, a sheet-metal oven having its bottom, top and sides of a single piece of metal, a cast-metal door-frame having a flange, means for connecting said flange with one end of the oven, a side plate having a shallow chamber upon its inner side provided with inclined walls and adapted to receive the rear edge of the oven, and means for attachment of the oven thereto, whereby the rear edge of the oven will be caused to engage said inclined walls and make a tight joint therewith, as and for the purposes described.

3. In a cooking stove or range provided with a side plate having a shallow chamber on its inner side provided with inclined walls, an oven having its bottom, top and sides of one piece of sheet metal and open at the back, lugs attached to its rear edge, means for attaching said lugs to said side plate and an end plate, and means whereby said end plate is held in place against said lugs and causes the close engagement of the top, bottom and sides of the oven with the inclined walls of said shallow chamber, as described.

4. The combination in a cooking stove or range of a flue interposed between the front wall of the oven and the ash-pit wall and connected with the outer air, a circulating passage or flue in the oven along its front wall and beneath its top having an inlet opening from the oven, an outlet opening into the oven, the said flues being connected by holes or passages in the front wall of the oven.



5. In a cooking stove or range, an oven having a circulating-flue opening along the side of the oven toward the fire-pot and some distance removed from the bottom thereof, then extending along said side to within a short space of the top of the oven, then along the top and opening again into the oven at a point a short distance removed from its rear side diagonally across from the first-named opening, with a means for admitting air into the said flue to allow the same to mingle with the hot air of the oven rising into the said flue through the bottom opening, and to pass up through the said flue, and be distributed from the rear opening into the oven thus creating a continuous circulation therein.

6. In a cooking stove or range, an oven having sheet-metal sides, top and bottom, a door-casing to which one end of the sheet-metal oven is attached, an angular, cast-metal flue-forming plate secured to said door-casing in a manner to form a flue or passage between it and the front wall and top of the oven and having a lug at its inner end, a cast-metal plate attached to the rear side wall of the oven having at its inner end a lug, the side plate of the stove having a shallow chamber with inclined walls, the inner end of which chamber is slightly smaller than the oven and means for drawing the oven toward and attaching it to said side plate and for fastening the door-frame to the stove side.

7. In a cooking stove or range an oven, a plate located therein and forming in connection with that side of the oven toward the fire-box of the stove, and with the top of the oven, a circulating flue or passage, said flue or passage being increased in width where the wall of the oven is most liable to become overheated, and being provided with means whereby the outer air is fed into it at said widest portion, as and for the purposes described.

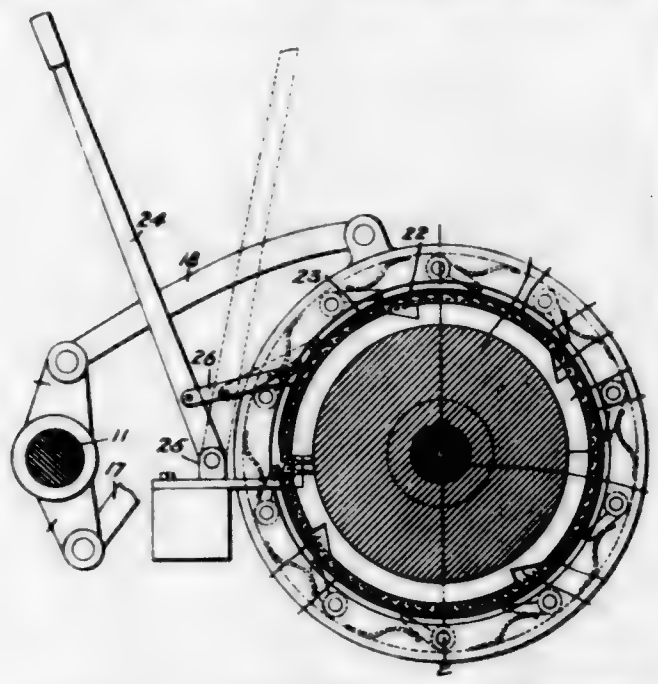
8. In a cooking stove or range a side plate having a shallow chamber provided with inclined walls on its inner side, a sheet-metal oven having bottom, top and sides adapted to engage at its rear edge the inclined walls of said shallow chamber, means for holding it in engagement therewith, an end plate located within the walls of said oven, and means whereby it is retained in close proximity with the inner side of said side plate but separated therefrom, a plate located within said oven and forming in conjunction with the side of the oven next the fire-box and the top of the oven, a circulating flue or passage, said passage being connected with the outer air, all as set forth.

9. The combination in a stove or range of a plate or the like having a recessed edge extending from a shoulder at one corner of the said plate along the front, and continuing around the opposite corner of the plate along the side, with an ornamental band or rim fitting into said recessed edge, the same consisting of two longitudinal sections, the one section fitting into the front recess extending from the shoulder and corner aforesaid to the said opposite corner, and there so combining with the other

section fitting into the side recess as to form a design which conceals in whole or in part the joint between them.

10. The combination in a stove or range of a plate or the like, and a band or rim having the longitudinal sections H, H' to form the sides of the edge of said plate, the same being united to each other and to the corner of said plate and shaped at their abutting edges A and A^2 to form a design which conceals in whole or in part the joint between them.

693,844. PAWL-AND-RATCHET MECHANISM. RUBEN F. BARKER, Marinette, Wis., assignor of one-half to Michael Corry, Marinette, Wis. Filed Aug. 20, 1901. Serial No. 72,667. (No model.)



Claim.—1. In a pawl-and-ratchet mechanism, in combination, a shaft, a ratchet-wheel mounted thereon, pawls coöperating with the wheel, an elastic band engaging the pawls, and means for varying the diameter of the band.

2. In a pawl-and-ratchet mechanism, in combination, a shaft, a ratchet-wheel fixed thereon, pawls coöperating with the wheel, a stationary band encircling the wheel and having cam-faces on its periphery, an expansible band encircling the wheel and engaging the pawls and having cam-faces bearing on the cam-faces of the stationary band, and means for oscillating the expansible band.

3. In a pawl-and-ratchet mechanism, in combination, a shaft, a ratchet-wheel mounted thereon, pawls coöperating with the ratchet-wheel, a pair of bands encircling the wheel and having mutually-engaging cam-faces, one of such bands being expansible and engaging the pawls, and means for moving such bands relatively circumferentially.

4. In a pawl-and-ratchet mechanism, in combination, a ratchet-wheel having a circumferential channel in its face, two sets of pawls each engaging teeth on one side of the channel and overlapping the latter, two bands within the channel and having mutually-engaging cam-faces, one of such bands being expansible and engaging the pawls, and means for relatively moving the two bands circumferentially.

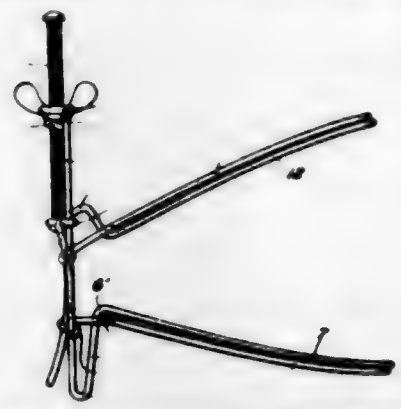
5. In a pawl-and-ratchet mechanism, in combination, a ratchet-wheel having its face circumferentially channeled, two sets of pawls coöperating with the ratchet-teeth on opposite sides of the channel and overlapping the latter, a band located within the channel and having peripheral cam-faces and a fixed anchorage, an expansible band encircling the fixed band and bearing upon its cam-faces and engaging the pawls, and a hand-lever attached to the expansible band.

6. In a ratchet mechanism, in combination, a shaft, a ratchet-wheel mounted thereon, pawls coöperating with the wheel, a stationary member, an expansible band encircling the wheel and engaging the pawls, and coacting means between the stationary member and the band for expanding the latter when oscillated.

7. In a ratchet mechanism, in combination, a shaft, a ratchet-wheel mounted thereon, pawls coöperating with the wheel, a stationary member, an expansible band encircling the wheel and engaging the pawls, and coacting cam-faces between the stationary member and the band for expanding the latter, when oscillated.

698,845. VAGINAL SPECULUM. ALBERT J. BEARER, New Kensington, Pa., assignor to Charles A. Schilling, Pittsburg, Pa. Filed Mar. 26, 1901. Serial No. 52,941. (No model.)

Claim.—1. A vaginal speculum composed of wire, consisting of separate interfitting and intersecting looped jaw members, with an adjusting-screw mounted in one of the members and provided with a cross-bar adapted to engage and to move both of the members, substantially as set forth.

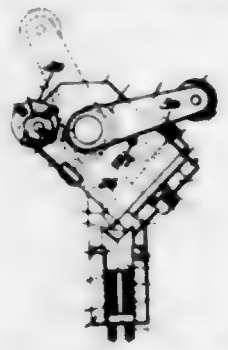


2. A vaginal speculum composed of wire, consisting of separate upper and lower interfitting and interacting looped jaw members, one of such members having curved guiding-arms interfitting with the other member whereby the outer ends of the jaws are caused to separate in a greater degree than inner ends, and means for adjusting the jaws toward and from each other, substantially as set forth.

3. A vaginal speculum composed of wire consisting of a lower jaw portion provided with a vertical frame having an upper bearing for an adjusting-screw, an upper jaw member having a frame portion interfitting and interacting with such lower jaw and frame, and an adjusting-screw passing through the bearing in the frame, provided with a nut and having a cross-bar engagement with the interfitting frame portion of the jaw, substantially as set forth.

4. A vaginal speculum composed of wire consisting of a lower jaw portion provided with a vertical frame having an upper bearing for an adjusting-screw, an upper jaw member having a downwardly-extending outwardly-curved frame portion interfitting and interacting with such lower jaw and frame, and an adjusting-screw passing through the bearing in the frame, provided with a nut and having a cross bar engagement with the interfitting frame portion of the jaw, substantially as set forth.

693,846. TOOL HOLDER. ARTHUR H. BEDWORTH and JOHN A. BEDWORTH, Boston, Mass., assignors of one-third to F. S. Webster Company, Boston, Mass.; New York, N. Y.; Chicago, Ill., and London, England, a Corporation of Maine. Filed Mar. 28, 1901. Serial No. 53,291. (No model.)



Claim.—1. In a device of the class described, a tool-carrier movable toward and from the work, a guide upon which the tool-carrier slides, a cam rotatably mounted on one of said members and in operative engagement with a seat in the other, to positively move the tool-carrier on its guide, an actuator rigidly secured to and to rotate the cam, and means mounted on the tool-carrier and coöperating with the actuator to vary the movement of the tool-carrier toward the work.

2. In a device of the class described, a tool-carrier movable toward and from the work, a guide upon which the tool-carrier slides, a cam rotatably mounted on one of said members and in operative engagement with a seat in the other, to positively move the tool-carrier on its guide, an actuator rigidly secured to and to rotate the cam, a fixed stop to limit the movement of the actuator in one direction, and an adjustable stop to control its movement in the opposite direction, said adjustable stop being mounted on the tool-carrier.

3. In a device of the class described, a tool-carrier movable toward and from the work, a guide upon which the tool-carrier slides, a cam rotatably mounted on one of said members and in operative engagement with a seat in the other, to positively move the tool-carrier on its guide, means to adjust the guide in the direction of movement of the tool-carrier and to hold it in adjusted position, and an actuator rigidly secured to and to rotate the cam and thereby move the tool-carrier on the guide toward and from the work.

4. In a device of the class described, a tool-carrier movable toward

and from the work, a guide upon which the tool-carrier slides, said guide having a cam-seat in its face, a cam mounted on the tool-carrier, and in operative engagement with the seat, to positively move the tool-carrier in either direction, a swinging handle secured to and to rotate the cam, a fixed stop to limit movement of the handle to retract the tool-carrier, an eccentrically mounted stop-disk to limit its movement in the opposite direction, and a locking device to hold said stop-disk in adjusted position.

5. In a tool-holder of the class described, a movable tool-carrier, a guide on which it moves, an adjusting-screw rotatably mounted on the guide and engaging a threaded seat in the tool-holder, to adjust the guide longitudinally, and means to clamp the guide in adjusted position.

6. In a tool-holder, a work-rest including two independent, yieldingly-supported and self-adjusting jaws arranged side by side and independently movable in parallelism, and means to maintain the jaws in their self-adjusted position.

7. In a tool-holder, a guide, a work-rest mounted therein and including a plurality of longitudinally and independently slidable jaws arranged side by side, spring-operated means to effect movement of the latter into adjustment relative to the work, and means to clamp the work-rest in adjusted position in the guide.

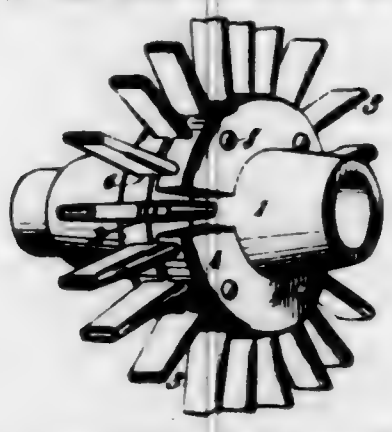
8. In a tool-holder, a self-adjusting work-rest, an adjustable back-stop for the work-rest, and an independent clamping device to clamp the work-rest in adjusted position.

9. In a tool-holder, a work-rest including two independent self-adjusting jaws, an adjustable back-stop for each jaw, and a clamping device to clamp the jaws in adjusted position.

10. In a tool-holder, a guide, a work-rest comprising two jaws independently movable therein, a spring for each jaw, to move it against the work, a back-stop adjustable behind each jaw when adjusted, and means to clamp the jaws in the guide in adjusted position.

11. In a device of the class described, a self-adjusting work-rest, and an overhanging guide, a tool-carrier movable on the guide, and means to positively move the tool-carrier toward and from the work-rest, and independently of the latter.

698,347. METALLIC WHEEL-HUB. WILLIAM H COLLERS, Sr., Allegheny, Pa. Filed Jan. 28, 1901. Serial No. 45,099. (No model.)



Claim.—1. A metal wheel-hub having stems or projections formed integral therewith upon which the wheel-spokes are fitted, and a pair of collars mounted upon the hub, each of which fits around a part of the spokes for securing them to the stems or projections.

2. A metal wheel-hub having stems or projections formed integral therewith upon which the wheel-spokes are fitted, and a pair of grooved collars mounted upon the hub for securing the spokes to the stems or projections.

3. A metal wheel-hub having stems or projections formed integral therewith upon which the wheel-spokes are fitted, a pair of collars mounted upon the hub for securing the spokes to the stems or projections, and means extending through the said collars for connecting them together.

4. A metal wheel-hub having stems or projections formed integral therewith upon which the wheel-spokes are fitted, a pair of collars, each of which is grooved on the inner face and surrounding said spokes for securing the latter to said stems or projections, and means for connecting said collars together.

693,348. ROTARY ENGINE. DAVID M. DEARING, Denver, Colo., assignor to Guilford S. Wood, Denver, Colo., and Henry P. Dearing, Sandstone, Mich. Filed Nov. 15, 1897. Renewed Dec. 13, 1901. Serial No. 86,812. (No model.)

Claim.—1. In a rotary engine, the combination with a rim having cylindrical grooves at the interior of its ends and an interior active face between them, plates closing the ends of the rim, and disks carried by the inner faces of the plates and themselves provided with cam-grooves absolutely parallel with said active face; of a core concentric with the rim and provided with inlets and outlets for the active agent, cylinder-heads carried by the core and having pins engaging said cam-grooves for the purpose set forth, and flanges secured to the ends of the core, their outer edges traveling in the groove in the rim and their bodies standing between the core and the disks and having slots for the passage of said pins, substantially as set forth.



2. In a rotary engine, the combination with a shaft, a core thereon having radial chambers as well as outlets and inlets for the fluid agent, cylindrical flanges of greater diameter than the core and secured to its ends, packing in their outer edges, cylinder-heads reciprocating within said chambers, and packing along their outer edges between said flanges, of a rim surrounding the core and having concentric grooves at its ends within which the flange-packing works and an interior active face between the grooves and with which the cylinder-packing coacts, piston-heads in said active face consisting of packing set in the rim and screws for adjusting it, and means substantially as described for causing the cylinder-heads to advance and recede in conformity with the shape of the active face as the rim and core rotate the one with respect to the other, as set forth.

3. In a rotary engine, the combination with a hollow shaft mounted in supports, a rim loose on the shaft and having an interior active face with a plurality of piston-heads, a core fast on the shaft and having a plurality of cylinder-heads, and means for causing them to coact with said active face; of outlets leading from the steam-spaces between the active face and the periphery of the core, two sets of inlet-ducts leading from said spaces on respectively opposite sides of the cylinder-heads to individual openings arranged in one plane through said shaft, a rotatable hollow spindle within the shaft having ports adapted to register with either set, and a source of fluid-supply to the core of the spindle, as and for the purpose set forth.

4. In a rotary engine, the combination with a rim having an active face, piston-heads therein, a core within the rim, and cylinder-heads in the core coacting with said face; of inlet and outlet ducts through the core, cut-off plates for the former sliding in the core, rings carried by the rim and having cam-grooves engaging the extremities of said cut-off plates, and a source of fluid-supply through the shaft, as and for the purpose set forth.

5. In a rotary engine, the combination with a rim having an active face, piston-heads therein, a core within the rim, and cylinder-heads coacting with said face; of inlet and outlet ducts, cut-off plates for the former sliding in the core, rings carried by the rim and having cam-grooves engaging said plates, these plates being also provided with concentric slots, set-screws taking through such slots and engaging the end plates of the rim, and a source of fluid-supply to the inner ends of the inlet-ducts, as and for the purpose set forth.

6. In a rotary engine, the combination with a rim having piston-heads in its active face, a core having a plurality of cylinder-heads coacting with said face and located out of diametrically opposite position, and outlets for the steam-spaces; of rings adjustably attached to the end plates of the rim and having cam-grooves, inlet-ducts for the steam-spaces, and independent cut-off plates across these ducts and within the core, the extremities of each plate traveling in its own cam-groove, as and for the purpose set forth.

7. In a rotary engine, the combination with a rim and a core member, one having an active face with piston-heads therein, and the other having cylinder-heads coacting with said face and inlets and outlets; of cut-off plates moving across the inlets, rings having cams for causing the movements of said plates, rods connecting the latter so as to cause their simultaneous movement, a collar to which one plate is connected, and a lever for moving the collar, as and for the purpose set forth.

8. In a rotary engine, the combination with rim and core members, one having an active face with piston-heads therein, and the other having cylinder-heads coacting therewith, and also having inlets and outlets of cut-off plates moving across certain of said inlets while the others are permanently open, cams connected so as to move in unison and engaging the ends of said plates to cause cut-off at proper times, and a lever connected with the cams for permitting temporary inlet of the fluid agent, as and when desired.

9. In a rotary engine, the combination with a rim having an interior active face with piston-heads therein, end plates secured to the rim,

a core within the rim having cylinder-heads coacting with said face and provided with inlet and outlet ducts, cut-off plates across the inlet-ducts, and flanges at the ends of the core; of rings standing between the end plates and flanges and provided with cam-grooves engaging the ends of said cut-off plates, and means for attaching the rings to the end plates, as and for the purpose set forth.

10. In a rotary engine, the combination with a rim having an interior active face with piston-heads therein, end plates secured to the rim, a core within the rim having cylinder-heads coacting with said face and also provided with inlet and outlet ducts, and cut-off plates across the inlet-ducts; of disks secured to the end plates and having cam-grooves, connections between such grooves and the cylinder-heads, rings surrounding the disks and also having cam-grooves engaging the cut-off plates, and means for adjustably securing the rings to the end plates, as and for the purpose set forth.

11. In a rotary engine, the combination with a hollow shaft, a core fast thereon and having cylinder-heads, outlets leading from both sides of the heads, inlets leading also from both sides thereof to two sets of individual openings into said shaft, and cut-off plates sliding in the core across the inlets; of a rim mounted on the shaft and having an active face carrying piston-heads and with which said cylinder-heads coact, rings having cams engaging the ends of said plates, the rings moving relatively to the core, a spindle within the shaft leading the active agent from a suitable source to its inlet-ports, and means for turning the spindle to throw its ports out of communication with one or both sets of ducts, as and for the purpose set forth.

12. In a rotary engine, the combination with the rim and core members, one having an active face with piston-heads therein, and the other having cylinder-heads coacting therewith, and also having inlets and outlets; of cut-off plates moving across the inlets, means for moving them at proper times, a collar connected with both such plates, and a lever for shifting the collar to temporarily interrupt the cut-off, as and for the purpose set forth.

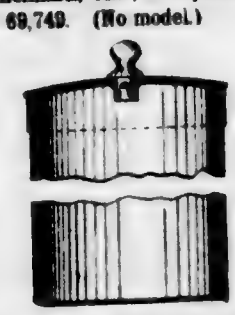
13. In a rotary engine, the combination with the rim and core members, one having an active face with piston-heads therein, and the other having cylinder-heads coacting therewith, inlets and outlets for each cylinder-head, and a cut-off plate across certain of the inlets and provided with holes twice the width of the inlet-ducts; of means for reciprocating the plates at proper times to produce the cut-off of the fluid agent, and means for shifting the plates to bring their holes permanently across said ducts so that such cut-off may be interrupted, as and for the purpose set forth.

14. In a rotary engine, the combination with the rim and core members, one having an active face with piston-heads therein, and the other having cylinder-heads coacting therewith, inlet and outlet ducts for each head and on each side thereof, a valve for admitting the fluid agent to whichever side of the heads is desired, and cut-off plates across certain of the inlets, each provided with a hole for each inlet-duct which hole is twice the width of the duct and which two holes stand out of alinement; of means for reciprocating the plates at proper times to produce a cut-off in the inlet-duct in use, and means for shifting the plates so as to bring one or the other hole permanently across its duct, whereby the reciprocation is not interrupted but the inlet is caused to remain open, as and for the purpose set forth.

698,849. DENTIFRICE. MORDECAI H. FLETCHER, Cincinnati, Ohio, assignor to the Vegetol Company, Cincinnati, Ohio, a Corporation of Ohio. Filed June 2, 1899. Serial No. 719,052. (No specimens.)

Claim.—A composition of matter embodying a relatively large proportion of cereal matter and a smaller proportion of sodium borate and potassium chlorate, ground and mixed into a powder, adapted to be used in the mouth as a dentifrice and thereby, through action of the saliva, to produce detergent and antiseptic effects, substantially as set forth.

693,350. PACKAGE FOR TOOTH-POWDER OR LIKE PREPARATIONS. MORDECAI H. FLETCHER, Cincinnati, Ohio, assignor to the Vegetol Company, Cincinnati, Ohio, a Corporation of Ohio. Filed July 26, 1901. Serial No. 69,749. (No model.)

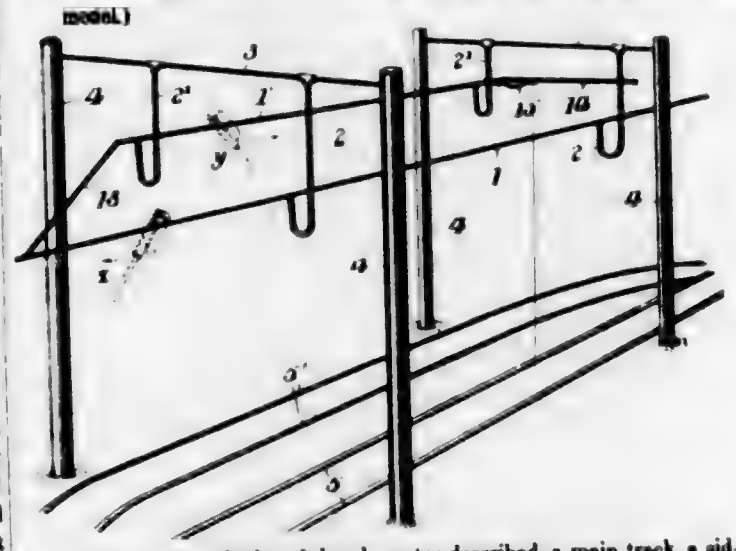


Claim.—1. In a package of the character indicated, the combination of a cover, an inner rotatable valve-disk, and a compressible packing-disk interposed between the cover and valve-disk and having its marginal edges exposed and capable of being directly confined between the upper edges of the body portion and the under surface of the cover.

2. In a package of the character indicated a centrally-perforated cover, centrally-perforated compressible packing-disk of substantially the same diameter as the cover, a valve-disk below the cover and centrally perforated and having a flange surrounding the perforation, in combination with a spindle passing through the central perforations of the cover, packing-disk and the valve-disk, said flange being compressed into the spindle to unite the parts, substantially as specified.

3. In a package of the character indicated, the combination of the cover, the compressible packing-disk on the under side thereof, and extending to the outer wall, the valve-disk below the packing-disk, and of less diameter whereby the marginal edges of the packing-disk are exposed and permitted to seat directly upon the upper edge of the box, and a spindle passing through each of said disks and having a flange c^2 to bear upon the outside of the cover, said valve-disk having a flange surrounding its central opening adapted to be compressed into the spindle to unite the parts.

698,851. OVERHEAD-TROLLEY ELECTRIC RAILWAY. BERT D. GILSON, Alexandria, Ind. Filed June 3, 1901. Serial No. 62,962. (No model.)



Claim.—In a device of the character described, a main track, a siding therefor, posts arranged in pairs on opposite sides of the track and siding, cross-rods connecting the posts of each pair, a main trolley-wire suspended by gooseneck hangers from the cross-rods and located centrally over the main track, a supplementary trolley-wire also suspended by gooseneck hangers from the cross-rods but located centrally over the siding and at a greater elevation than the main trolley-wire, a gravity-switch pivoted at one end of the supplementary trolley-wire and having its end flattened with depending side flanges to normally engage the main trolley-wire, a similar-shaped switch pivoted at the other end of the supplementary trolley-wire, a spring holding said second-named switch normally elevated, in combination with a spring-pressed trolley-arm, a yoke thereon having depending arms embracing the trolley-wire, and a trolley-wheel journaled in the yoke and bearing on the top of the trolley-wire, said trolley-wheel being adapted to ride upon the first-named switch when the car takes the siding and to descend to the main trolley-wire by the second-named switch when the car returns to the main track.

693,352. SELF-CLOSING GAS-BURNER. WOLF GLOU and ISIDOR GLOU, Scranton, Pa. Filed Sept. 12, 1900. Serial No. 29,855. (No model.)



Claim.—1. The herein-described automatic opening and closing device for gas-burners comprised in a thermostat constructed from a bimetallic strip attached to the upper end of a jet-tube and extending radially therefrom, the said strip recurved at a short distance from the vicinity of the flame and bent backward so as to extend longitudinally along said jet-tube, in combination with a horizontal sliding pin, a valve in the lower part of said jet-tube arranged to be operated by the horizontal sliding pin and arranged to impinge on the lower end of the metallic strip aforesaid for the purpose of transmitting action of the thermostat to the valve, substantially as specified.

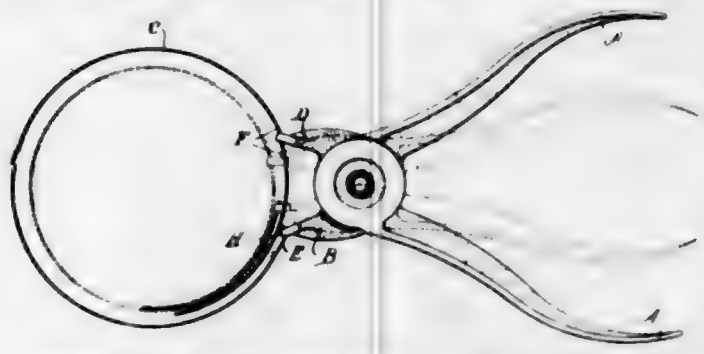
2. In a gas-burner the combination with a jet-tube and valve of a bimetallic strip having one end secured at the upper portion of said jet-tube, and the other end bent over and extending downward substantially parallel to the side thereof, and forming an upwardly-projecting loop extending into the vicinity of the flame, the said downward-extending end engaging with a horizontal sliding pin extending through the walls of the jet-tube and arranged to tilt the valve thereof, the valve arranged to be tilted by the horizontal sliding pin aforesaid, and means for holding the said valve normally closed, substantially as specified.

3. In a closing device for gas-jets the combination with the jet-tube of a diaphragm having a central aperture or passage-way, a valve-lid covering the same, and a stem to said lid extending through the aperture and fitted with an elongated spiral coil having its base resting on the diaphragm aforesaid opposite the said lid and designed to normally hold the lid closed, a sliding pin extending out through the walls of said jet-tube and having its inner end in contact with the stem, and a thermostat arranged to actuate said sliding pin for tilting said lid when the gas is lighted, substantially as specified.

4. In a closing device for gas-jets, a jet-tube and valve, the said jet-tube having an opening in its side, and a horizontal sliding pin extending therethrough, the inner end of said pin adapted to tilt a valve-lid, a stem to said valve-lid arranged in contact with said sliding pin, the valve-lid arranged to be tilted by the said horizontal sliding pin, a thermostat adapted to actuate said sliding pin by pressure on it from without, and a guard-ring encircling the tube in the vicinity of said sliding pin, and adapted to guard the thermostat from disadjustment, substantially as specified.

5. The herein-described self-closing device for gas-burners comprised in a jet-tube, a bimetallic strip secured to the upper end of the said jet-tube, and having a loop extending into the vicinity of the flame, and an arm extending downwardly along the said jet-tube and arranged to engage with a sliding pin extending through the walls thereof, a sliding pin extending through the walls of the jet-tube and adapted to engage with the said downwardly-extending arm, a valve-stem connected with an opening and closing valve and arranged to engage with the inner end of said sliding pin, a valve controlled by said valve-stem and held normally closed by means of an elongated coiled spring, an elongated coiled spring secured at its small end to said valve-stem, and its large end resting on the diaphragm of the valve, a diaphragm having an aperture or passage-way through which said valve-stem extends, the said aperture being arranged to be closed by the lid controlled by said stem, together with a guard-ring extending around and including the downwardly-extending arm of the thermostat, all arranged for joint operation as and for the purpose described.

698,358. CAN-HOLDER. JAMES B. ERWIN, Milwaukee, Wis. Filed Apr. 8, 1901. Serial No. 54,774. (No model.)



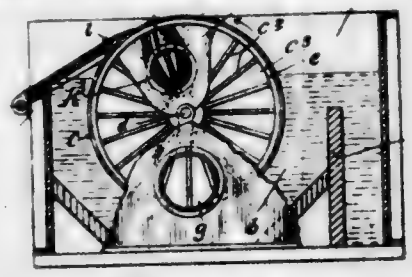
Claim.—1. In a can-holder, the combination of two crossed levers, pivotally connected together at the point of intersection, the short arms of said levers being respectively provided with recessed lugs, for the reception of the respective ends of a clamping-band; a clamping-band provided at its respective ends with recessed edges, adapted to engage in the recessed edges of said lugs, whereby the ends of said clamping-band may be readily coupled with the short arms of said levers, substantially as set forth.

2. In a can-holder, the combination with the short arm B, provided with recessed lugs H, with one end of the clamping-band C having notches in its edges; and with the opposite arm D provided with recessed lugs K, with the opposite end of said clamping-band C, provided in its edges with a plurality of angular recesses J for the reception of said lugs K.

693,854. PAPER-MAKING MACHINE. HOWARD PARKER, Bellows Falls, Vt. Filed June 22, 1900. Serial No. 21,187. (No model.)

Claim.—1. In a paper-making machine, the combination with a tank for the pulp, and a rotary perforated roll mounted therein; of means for picking up, partially drying, and delivering the pulp in a web, and a doctor hinged at one end to a support and having its other end standing in operative relation to the roll.

2. In a paper-making machine, the combination with a tank for the pulp, and a rotary perforated roll mounted therein; of means for creating suction within the roll above and below the level of the pulp, means for interrupting this suction at a point above said level, and a doctor having its edge standing in operative relation to the roll just beyond the point in the direction of rotation where said interruption occurs



3. In a paper-making machine, the combination with a tank for the pulp, and a rotary perforated roll mounted therein; of means for creating suction within the roll above and below the level of the pulp, means for creating air-pressure within the roll at a point above the level of the pulp, and a doctor having its edge standing in operative relation to the roll just beyond the point in the direction of rotation where said air-pressure occurs.

4. In a paper-making machine, the combination with a tank for the pulp, and a rotary perforated roll mounted therein; of means for causing the pulp to adhere to the surface of the roll, means for producing air-pressure within the roll at a point above the level of the pulp, and a doctor having its edge standing in operative relation to the roll just beyond the point in the direction of rotation where said air-pressure occurs.

5. In a paper-making machine, the combination with a tank for the pulp, and a rotary roll therein comprising a perforated shell and a series of radial webs forming compartments; of means for creating suction within certain of said compartments, means for interrupting this suction at a point above the level of the pulp, and a doctor standing in operative relation to the upper portion of the roll.

6. In a paper-making machine, the combination with a tank for the pulp, and a rotary roll therein comprising a perforated shell and a series of radial webs forming compartments; of means for creating suction within certain of said compartments, means for producing air-pressure within certain of the compartments above the level of the pulp, and a doctor resting upon the top of the roll.

7. In a paper-making machine, the combination with a tank for the pulp, and a rotary roll therein comprising a perforated shell and a series of radial webs forming compartments; of means for causing the pulp to adhere to the surface of the roll, means for producing air-pressure within certain of the compartments at a point above the level of the pulp, and a doctor standing in operative relation to the top of the roll.

8. In a paper-making machine, the combination with a tank for the pulp, and a rotating roll therein having a perforated shell and a series of radial webs forming compartments open at the end; of a main chamber registering with the end of the shell, packing surrounding the chamber and said end, means for producing suction in such chamber, a smaller chamber passing through the main chamber at one point and isolated therefrom, and means for producing air-pressure in this smaller chamber, all as and for the purpose set forth.

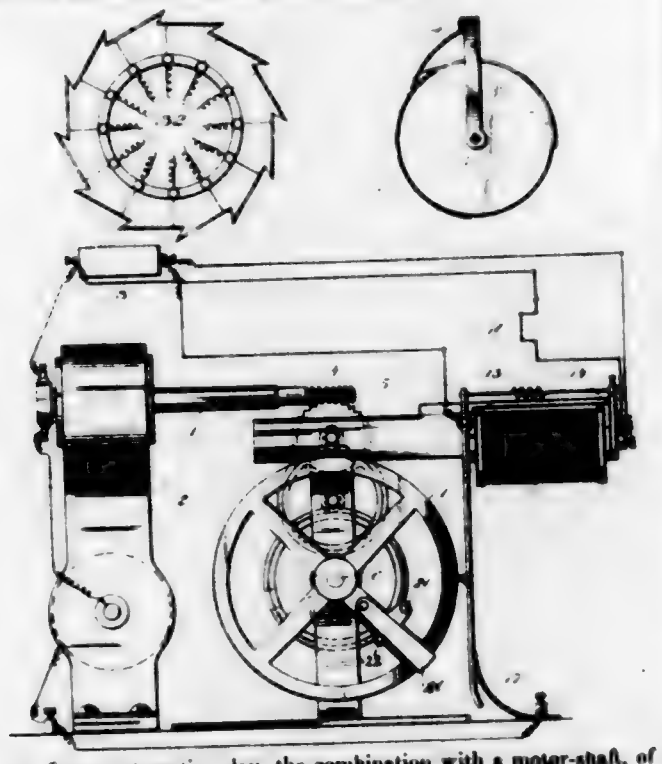
9. In a paper-making machine, the combination with a tank for the pulp, and a rotating roll therein having a perforated shell and a series of radial webs forming compartments open at the end; of an exhaust-chamber registering with the end of the shell, means for producing an exhaust therein at points above and below the level of the pulp, a smaller chamber passing through the exhaust-chamber and communicating with certain of said compartments while they are above the level of the pulp, and means for producing pressure in this smaller chamber, as and for the purpose set forth.

10. In a paper-making machine, the combination with a tank for the pulp, and a rotating roll therein having a perforated shell and a series of radial webs forming compartments open at the end; of a chamber registering with the end of the shell and permitting the outlet of water at the bottom, a smaller chamber opening through the larger and communicating with the roll-compartments at a point above the level of the pulp, and means for producing air-pressure in this smaller chamber.

11. In a paper-making machine, the combination with a tank for the pulp, and a perforated rotating roll therein; of means for causing the pulp to adhere to the roll, means for producing air-pressure within the roll at a point where the web of pulp is to be delivered therefrom, and means just beyond this point in the direction of rotation for positively deflecting said web from the surface of the roll.

693,855. ELECTRICAL DISTRIBUTER. CALVIN J. SPRINGER, Somerville, Mass. Filed Oct. 16, 1900. Serial No. 33,286. (No model.)

Claim.—1. In an automatic relay, the combination with a motor shaft, of a second shaft driven thereby, a train of gearing between said shafts, a commutator arranged concentric to said driving-shaft, a contact-brush carried by said driving-shaft, a wheel fixed on the driving-shaft and formed with a peripheral notch, an armature pivotally supported adjacent to said notch and provided with a lug or projection adapted to enter said notch, an electromagnet controlling said armature, a contact-spring against which the free end of the armature is adapted to bear to close the motor-circuit, and means for energizing the electromagnet.



2. In an automatic relay, the combination with a motor-shaft, of a second shaft driven thereby, a train of gearing between said shafts, a commutator concentric with said driving-shaft, a contact-brush carried by said driving-shaft, a wheel fixed upon the driving-shaft and having a peripheral notch, an armature located adjacent to said wheel and provided with a lug or projection adapted to enter said notch, an electromagnet for controlling the armature, a pivotally-secured guard on said wheel adapted to cover the notch therein, and means for energizing the electromagnet.

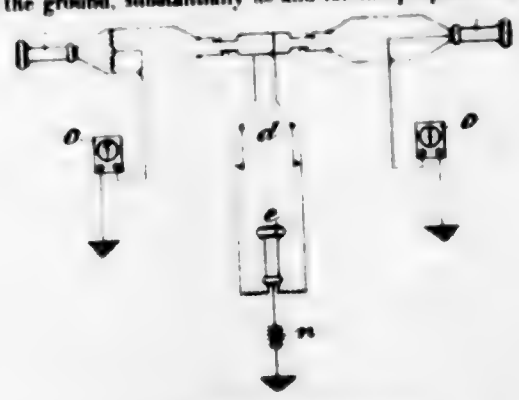
3. In an automatic relay, the combination with a power-shaft, of a second shaft driven thereby, a train of gearing between said shafts, a commutator concentric to said driving-shaft, a contact-brush carried by the driving-shaft, a wheel fixed on said driving shaft and formed with a peripheral notch, a guard for said notch comprising an arm pivotally secured to the wheel and extending across the periphery thereof, and stop-pins to limit the movement of said arm, an armature pivotally adjacent to said wheel and provided with a lug or projection adapted to enter the notch in the wheel, an electromagnet for controlling said armature, a contact-spring against which the free end of the armature is adapted to bear, and means for energizing the electromagnet.

4. In an automatic relay, the combination with a fixed commutator, one or more contacts of which are in a circuit with an electrically-operated device, of a rotary brush adapted to successively close said circuits through the contacts, a notched wheel revoluble with the brush, an armature normally engaging the notch and thereby adapted to lock the brush and wheel against revolution, a spring adapted to project the armature into engagement with the notch, a magnet to the armature, a motor for the brush and wheel, and means whereby the armature is attracted to the magnet and disengaged from the wheel and a circuit, including the motor, is formed.

5. In an automatic relay, the combination with a motor-shaft, of a second shaft driven thereby, a commutator, an electrically-operated device in circuit with one or more contacts of the commutator, a brush operated by the driven shaft and adapted to close said circuits successively, a wheel revoluble with the brush, an armature adapted to engage the wheel, an electromagnet controlling said armature, a contact-spring against which the free end of the armature is adapted to bear to free the wheel and close the motor-circuit, and means for energizing the electromagnet.

693,356. TELEPHONE SYSTEM. FRANS B. STAFSING, Stockholm, and CARL RENTZ, Klippan, Sweden. Filed July 16, 1900. Serial No. 23,815. (No model.)

Claim.—The combination in a telephone system, of an operator's circuit, a switch between said circuit and the line, a source of electric currents connected between a neutral point of the said operator's circuit inside the said switch and the ground, a subscriber's circuit, and a current-indicator connected between a netural point of the said subscriber's circuit and the ground, substantially as and for the purpose set forth.



693,357. TABLE. EMIL TYDEN, Hastings, Mich. Filed Feb. 18, 1901. Serial No. 47,740. (No model.)

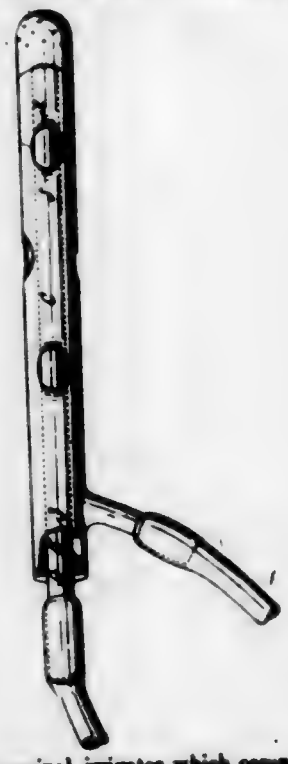


Claim.—1. In a table, a plurality of top-sections in combination with a cleat element joining such sections and screws set through the cleat element into the top-sections respectively; said cleat element having the screw-holes counterbored or enlarged for a substantial distance back from the surface which abuts on the joined sections.

2. In a table, in combination with a plurality of its sections forming the top, a cleat element joining such sections, and screws set through the cleat element into the sections respectively, said cleat element having the holes for the screws taking into the top-sections except one counterbored or enlarged for a substantial distance back from the surface abutting on the joined sections, and the screw-holes taking into the remaining section adapted to afford bearing for the screws throughout the whole extent of the latter in such cleat element.

3. In a table, in combination with a plurality of sections forming the top, an edgewise cleat or joining-bar extending crosswise of the abutting edges of the top-sections, and screws set through the edgewise cleat into the respective sections of the top; the cleat having the screw-holes deeply counterbored or enlarged from the edge next to the joined sections, substantially as and for the purpose set forth.

693,358. VAGINAL IRRIGATOR. HENRIETTA W. WHITLAKE, Los Angeles, Cal. Filed June 25, 1896. Serial No. 684,510. (No model.)



Claim.—1. A vaginal irrigator which comprises an outer tube, an inner tube and a head; the walls of the outer and inner tubes being thin

and the diameters of the tubes being such that a chamber is formed between the outer and inner tubes; the walls of the head being thick and forming a closure for one end of such chamber and having a cavity which forms a laterally-enlarged continuation of the bore of the inner tube; perforations being provided through the end wall of the head, laterally and endwise, and being of extreme fineness and of comparatively great length as set forth for the purpose of producing a frictional resistance to reduce the size of the streams issuing through said perforations; and a tube through which liquid may be forced into the inner tubes for producing hydro-static pressure in the cavity of the head to force the liquid out laterally, obliquely and endwise, in streams of extreme fineness, but of considerable force; and the outer tube being furnished with comparatively large side inlets and with a discharging-tube; the end of the cavity between the outer and inner tubes being closed opposite the head and the outer tube and head forming a slender straight cylinder, substantially as and for the purpose set forth.

2. A vaginal irrigator which comprises an outer tube, an inner tube and a head; the walls of the outer and inner tubes being thin and the diameters of the tubes being such that a chamber is formed between the outer and inner tubes; the walls of the head being thick and forming a closure for one end of such chamber and having a cavity which forms a laterally-enlarged continuation of the bore of the inner tube; perforations being provided through the end wall of the head, laterally and endwise, and being of extreme fineness and of comparatively great length as set forth for the purpose of producing a frictional resistance to reduce the size of the streams issuing through said perforations; and a tube through which liquid may be forced into the inner tubes for producing hydrostatic pressure in the cavity of the head to force the liquid out in streams of extreme fineness, but of considerable force; and the outer tube being furnished with comparatively large side inlets and with a laterally-projecting tube c' to serve as a discharging-tube and also as a handle for manipulating the instrument; the end of the cavity between the outer and inner tubes being closed opposite the head by wall c'', and the outer tube and head forming a slender straight cylinder, substantially as and for the purpose set forth.

REISSUES.

11,967. BOOT OR SHOE. EDWARD ROCHE, Providence, R. I. Filed May 31, 1901. Serial No. 62,491. Original No. 634,583, dated Oct. 10, 1899.



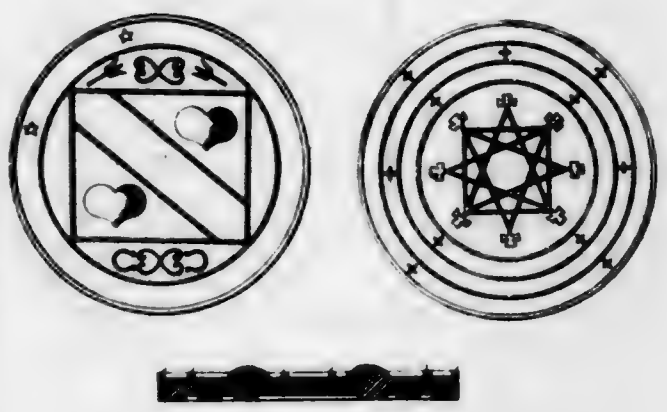
Claim.—1. In a boot or shoe an insole structure comprising overlapping members, the innermost one of which extends the full length of the shoe and is loose from the ball of the shoe to the heel, and the outermost one of which extends from the heel to the ball of the shoe, this outermost portion together with that portion of the innermost member which extends from the ball to the toe of the shoe constituting the foundation of the shoe; and a plate-spring between said loose portion of the inner member of the insole structure and the other member thereof curved from the heel to the ball to conform with the natural arch of the foot, the forward end of the said spring being free to slide between the members of the insole structure where they break joint, substantially as and for the purpose described.

2. In a boot or shoe an insole structure comprising overlapping members, the outermost one of which together with the forward portion of the other constitutes the foundation for the shoe, that portion of the innermost member which extends from the ball to the heel being loose; and a curved spring beneath the said loose portion resting at the rear upon the seat of the heel with which it conforms and to which it is fastened, and arched from the heel to the ball to conform with the natural arch of the foot, the forward end of said spring being free to slide back and forth between the two members of the insole structure where they break joint, substantially as described.

3. In a boot or shoe an insole structure comprising overlapping members, the outermost one of which together with the forward portion of the other constitutes the foundation for the shoe, that portion of the innermost member which extends from the ball to the heel being loose; a curved spring beneath the said loose portion resting at the rear upon the seat of the heel; and a bearing-plate for the forward end of the spring, substantially as described.

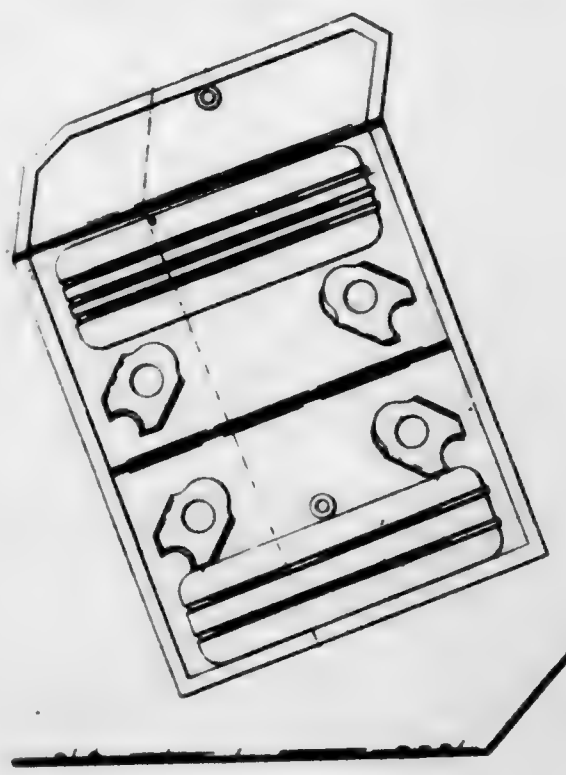
DESIGNS.

35,703. MEDAL. MINNIE C. WILBURN, Denver, Colo. Filed Dec. 9, 1901. Serial No. 85,286. Term of patent 14 years.



Claim.—The design for a medal as herein shown and described.

35,704. NEEDLE-CASE. JULIUS T. ROSENHEIMER, New York, N. Y. Filed Dec. 24, 1901. Serial No. 87,134. Term of patent 3½ years.



Claim.—The design for a needle-case, substantially as herein shown and described.

35,705. BUTTON-ENGAGING ATTACHMENT FOR SHIRT-WAISTS. RICHARD T. CLARKE, Columbus, Ohio. Filed Nov. 29, 1901. Serial No. 84,141. Term of patent, 7 years.



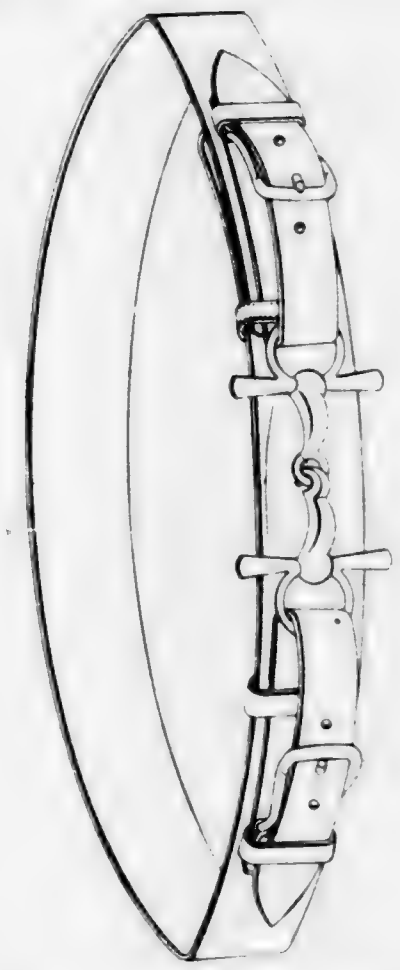
Claim.—The design for a button-engaging attachment for shirt-waists, as herein shown and described.

35,706. APPAREL-BELT. FRANKLIN A. LUCK, Chicago, Ill. Filed Jan. 15, 1902. Serial No. 89,926. Term of patent 3½ years.



Claim.—The design for an apparel-belt, as herein shown and described.

35,707. WAIST-BELT. HENRY J. GAISMAR, New York, N. Y. Filed Jan. 13, 1902. Serial No. 89,634. Term of patent 3½ years.



Claim.—The design for a waist-belt substantially as herein shown and described.

35,708. BANDAGE. MINNA WERSCH, Brooklyn, N. Y. Filed Aug 17, 1901. Serial No. 72,453. Term of patent 7 years.



Claim.—The design for a bandage, substantially as herein shown and described.

35,709. SHOE-SHANK. JOHN S. BUSEY, Brooklyn, N. Y. Filed Dec. 28, 1901. Serial No. 87,625. Term of patent 7 years.



Claim.—The design for a shoe-shank as herein shown and described.

35,710. SCREW. GUSTAVE STICKLEY, Syracuse, N. Y. Filed Oct. 28, 1901. Serial No. 80,339. Term of patent 14 years.



Claim.—The design for a screw as herein described and shown.

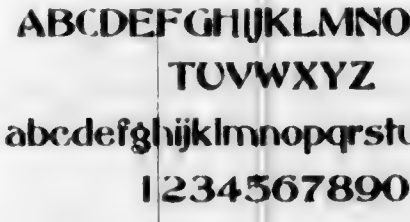
35,711. FONT OF TYPE. BERNE NADALL, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed May 17, 1901. Serial No. 60,774. Term of patent 14 years.

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Claim.—The design for a font of printing-type, substantially as shown and described.

35,712. FONT OF TYPE. JOSEPH W. PHINNEY, Medford, Mass., assignor to the American Type Founders' Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 8, 1902. Serial No. 88,564. Term of patent 14 years.



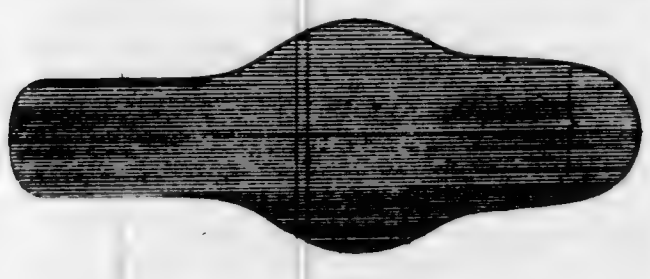
Claim.—The design for a font of type as herein shown and described.

35,713. AUTOMOBILE-FRAME. GEORGE T. TURNER, Philadelphia, Pa. Filed Jan. 2, 1902. Serial No. 88,253. Term of patent 7 years.



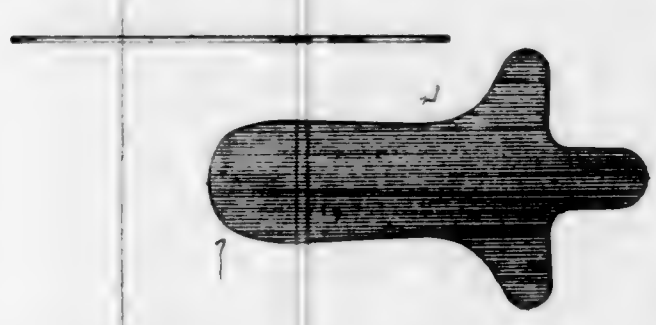
Claim.—The design for an automobile-frame substantially as herein shown and described.

35,714. BLANK FOR SPECULA. CHARLES J. PILLING, Lansdown, Pa., assignor to George P. Pilling and Charles J. Pilling, Philadelphia, Pa., copartners trading as George P. Pilling & Son. Filed Jan. 16, 1902. Serial No. 90,095. Term of patent 7 years.



Claim.—The design for a blank for a single-bladed speculum, substantially as shown and described.

35,715. BLANK FOR SPECULUM-BLADES. CHARLES J. PILLING, Lansdown, Pa., assignor to George P. Pilling and Charles J. Pilling, Philadelphia, Pa., copartners trading as George P. Pilling & Son. Filed Jan. 16, 1902. Serial No. 90,094. Term of patent 7 years.



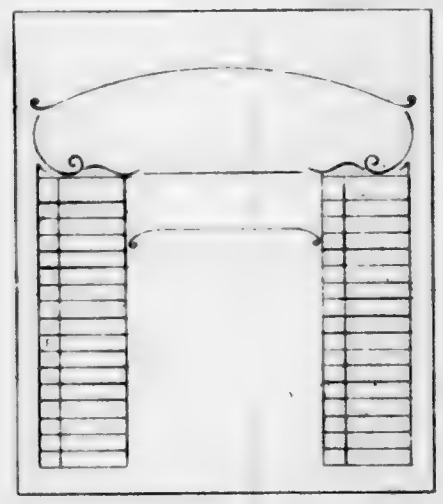
Claim.—The design for a blank for the lower blade of a vaginal speculum substantially as shown and described.

35,716. BLANK FOR SPECULUM-BLADES. CHARLES J. PILLING, Lansdown, Pa., assignor to George P. Pilling and Charles J. Pilling, Philadelphia, Pa., copartners trading as George P. Pilling & Son. Filed Jan. 16, 1902. Serial No. 90,097. Term of patent 7 years.



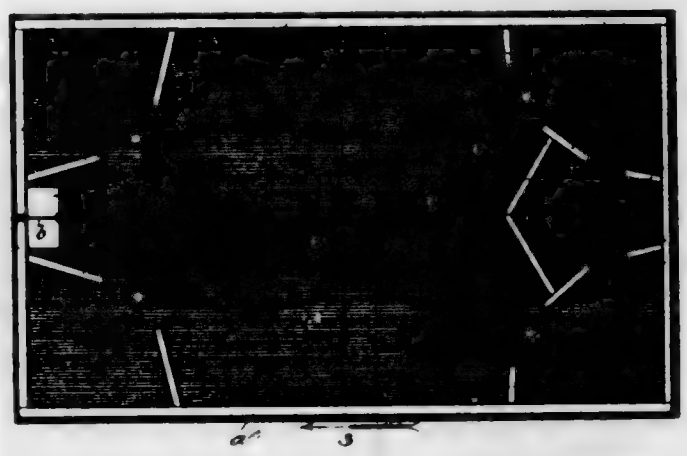
Claim.—The design for a blank for a trivalvular speculum-blade, substantially as shown and described.

35,717. RECORD-SHEET. FRANK W. DAVENPORT, Providence, R. I. Filed Jan. 6, 1902. Serial No. 88,706. Term of patent 7 years.



Claim.—The design for a record-sheet, as herein shown and described.

35,718. GAME-BOARD. JOHN J. SHERMAN, Jr., Chicago, Ill. Filed Jan. 6, 1902. Serial No. 88,702. Term of patent 14 years.



Claim.—The design for a game-board as herein shown and described.

35,719. GRID-BAR FOR COTTON OPENERS AND LAPPERS. ABEL T. ATHERTON, Bayside, R. I. Filed Dec. 26, 1901. Serial No. 87,379. Term of patent 7 years.



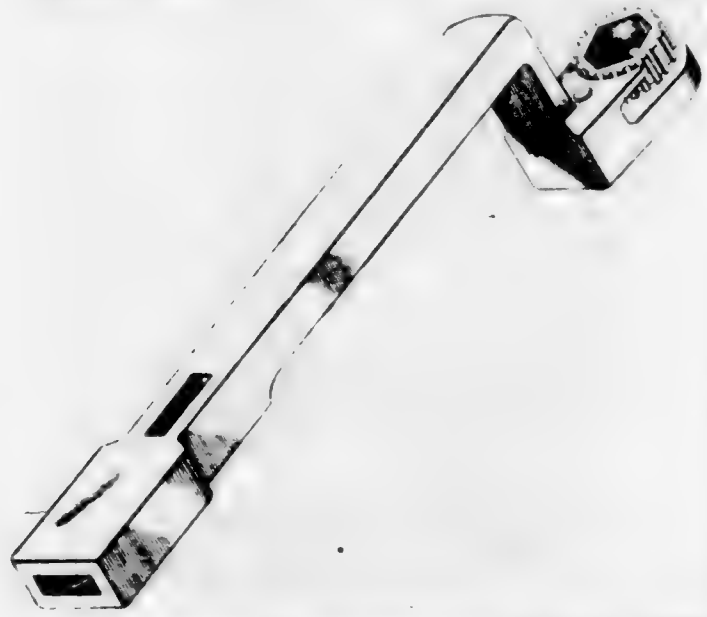
Claim.—The design for a grid-bar for cotton openers and lappers, herein shown and described.

35,720. LIMB-CUTTER OR BRANCH-TRIMMER AND HATCHET. MESROPE DAVID, ZAKAR DAVID, HARRY DAVID, and PAUL DAVID, Brockton, Mass. Filed Dec. 11, 1901. Serial No. 85,498. Term of patent 14 years.



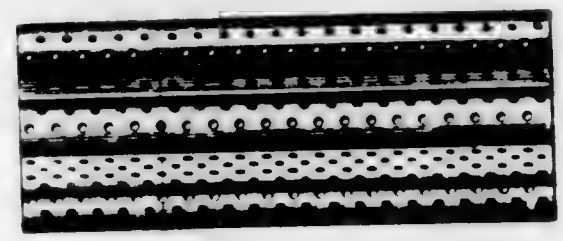
Claim.—The design for a limb-cutter or branch-trimmer, and hatchet, as herein shown and described.

35,721. THRESHING-MACHINE-CYLINDER TOOL. JOHN PARKRATZ, Kansas City, Mo. Filed Dec. 24, 1901. Serial No. 87,136. Term of patent 14 years.



Claim.—The design for a threshing-machine-cylinder tool, substantially as herein shown and described.

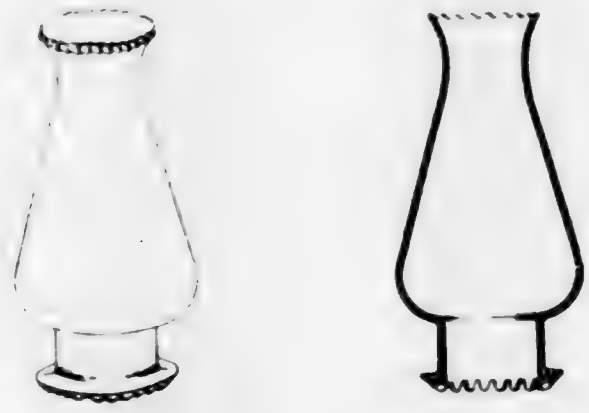
35,722. INTERIOR FRAME FOR FILTERS. HENRY L. ENGEL, Hoboken, N. J., assignor to James Reilly Repair and Supply Company, Jersey City, N. J., a Corporation of New Jersey. Filed Jan. 2, 1902. Serial No. 88,251. Term of patent 14 years.





Claim.—The design for an interior frame for filters, substantially as shown and described.

35,723. LAMP-CHIMNEY. ROBERT D. JAMISON, Detroit, Mich. Filed Nov. 18, 1901. Serial No. 82,786. Term of patent 14 years.



Claim.—The design for a lamp-chimney as herein shown and described.

35,724. TRAY OR HOLDER FOR SOAP. JANET G. WALKER, Liverpool, England. Filed Dec. 5, 1901. Serial No. 84,840. Term of patent 7 years.



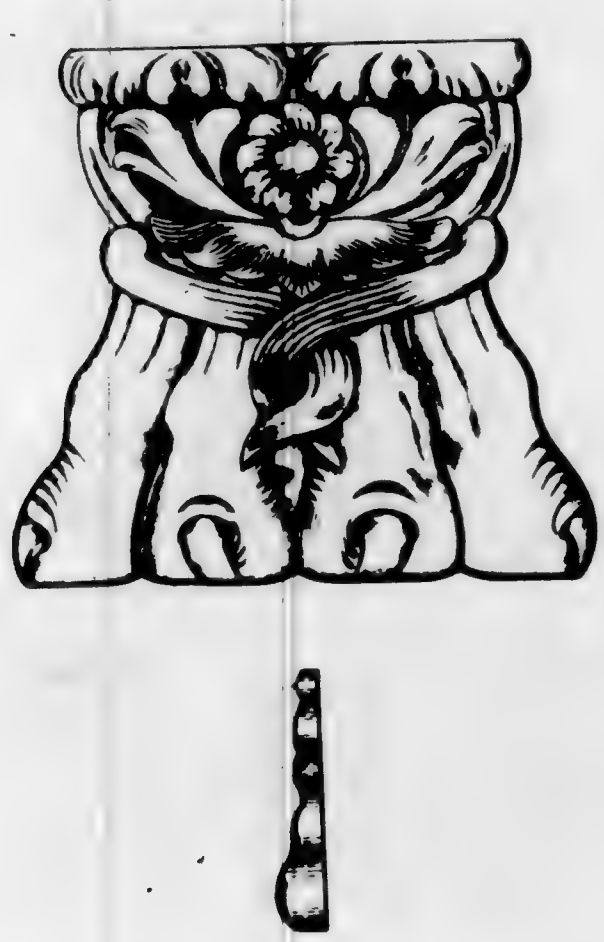
Claim.—The design for soap tray or holder substantially as described and shown in the accompanying drawings.

35,725. SHOE-STORE SEAT. HARMONEY W. PROULX, Holyoke, Mass. Filed Dec. 23, 1901. Serial No. 87,043. Term of patent 7 years.



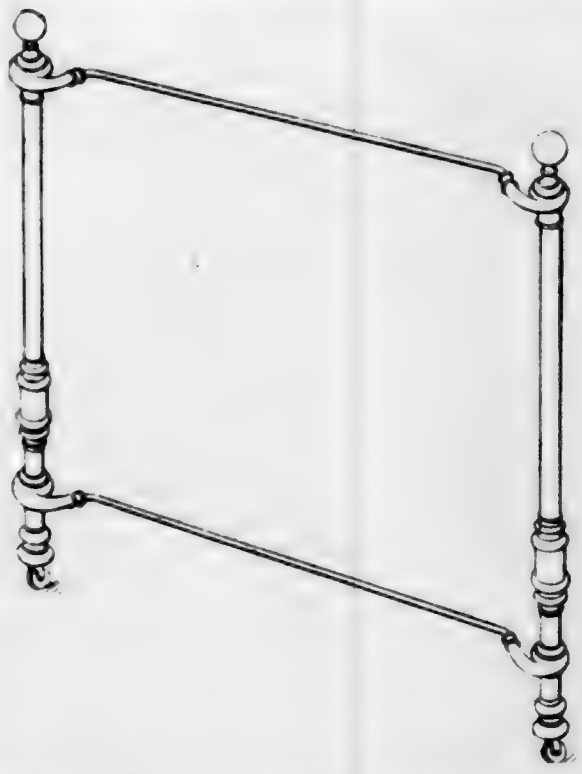
Claim.—The design for a shoe-store seat, substantially as herein shown and described.

35,726. LEG FOR COUCHES. AXEL E. OLSON, Chicago, Ill., assignor to S. Karpen & Bros., Chicago, Ill., a Copartnership. Filed June 17, 1901. Serial No. 64,966. Term of patent 3½ years.



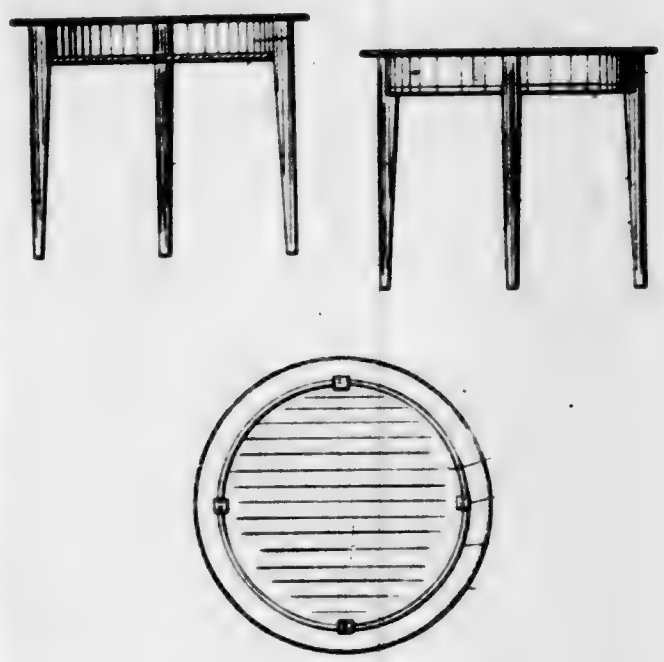
Claim.—The design for a leg for couches, substantially as herein shown and described.

35,727. FRAME FOR BED ENDS. EDWARD J. BARCALO, Buffalo, N. Y. Filed Jan. 13, 1902. Serial No. 89,632. Term of patent 7 years.



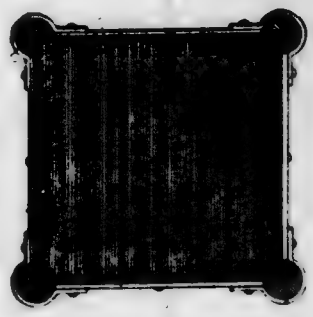
Claim.—The design for a frame for a bed end, substantially as herein shown and described.

35,728. TABLE. JOHN W. ESTES, St. Louis, Mo. Filed Dec. 12, 1901. Serial No. 85,701. Term of patent 14 years.



Claim.—The design for a table, substantially as herein shown and described.

35,729. GARBAGE-CAN. JULIAN ALVARO BURCH and LESTER EDWIN LEE, Chicago, Ill. Filed Dec. 30, 1901. Serial No. 87,853. Term of patent 7 years.

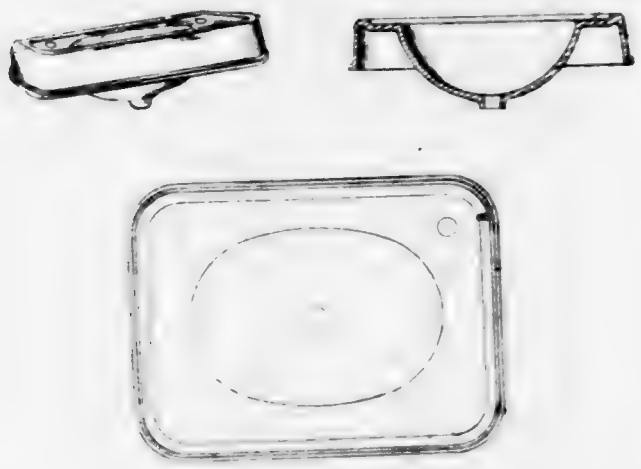


35,729.



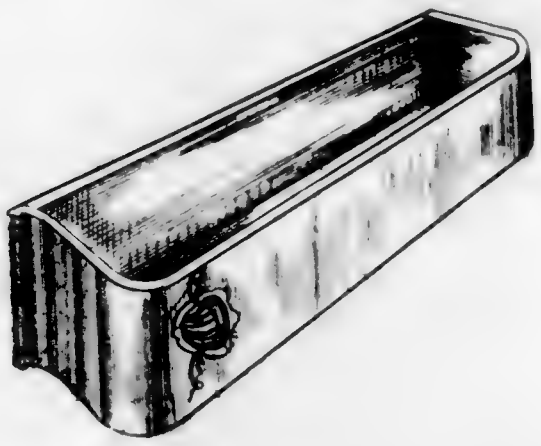
Claim.—The design for a garbage-can, substantially as herein shown and described.

35,730. LAVATORY. FRANCIS J. TORRANCE, Allegheny, Pa., assignor to Standard Sanitary Manufacturing Company, Allegheny, Pa., a Corporation of Pennsylvania. Filed Oct. 10, 1901. Serial No. 78,276. Term of patent 7 years.



Claim.—The design for a lavatory as herein shown and described.

35,731. DRAWER FOR CABINETS. THEODOR KUNDTZ, Lakewood, Ohio. Filed Dec. 17, 1901. Serial No. 86,318. Term of patent 7 years.



Claim.—The design for a drawer substantially as herein shown and described.

35,732. SEWING-MACHINE CABINET. THEODOR KUNDTZ, Lakewood, Ohio. Filed Dec. 17, 1901. Serial No. 86,317. Term of patent 7 years.



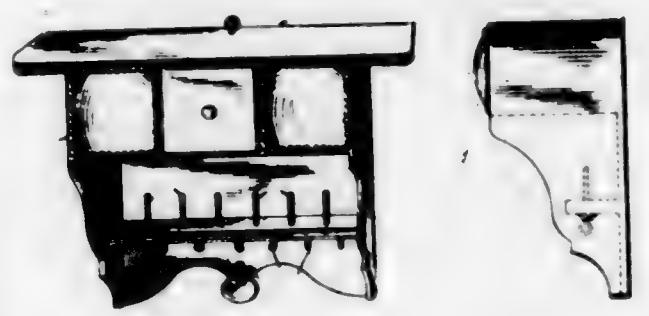
Claim.—The design for a sewing-machine cabinet substantially as herein shown and described.

35,733. TOP FOR SEWING-MACHINE CABINETS. THEODOR KUNDTZ, Lakewood, Ohio. Filed Dec. 16, 1901. Serial No. 86,045. Term of patent 7 years.



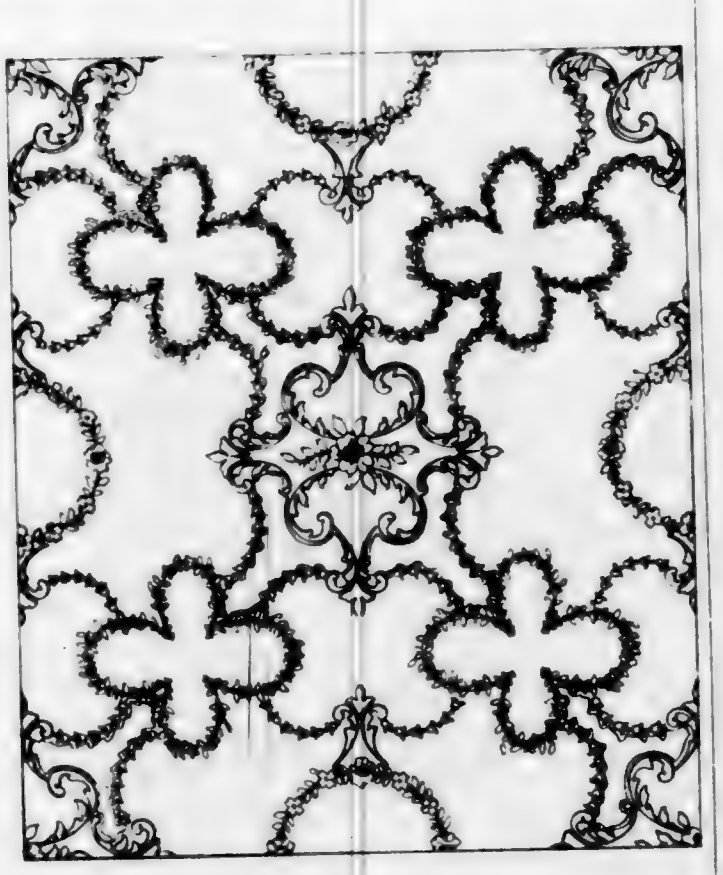
Claim.—The design for the top of a sewing-machine cabinet substantially as herein shown and described.

35,734. CLOCK-SHELF AND SEWING-CABINET. CHRISTIAN SCHEER, Tiffin, Ohio. Filed Jan. 15, 1902. Serial No. 89,925. Term of patent 3½ years.



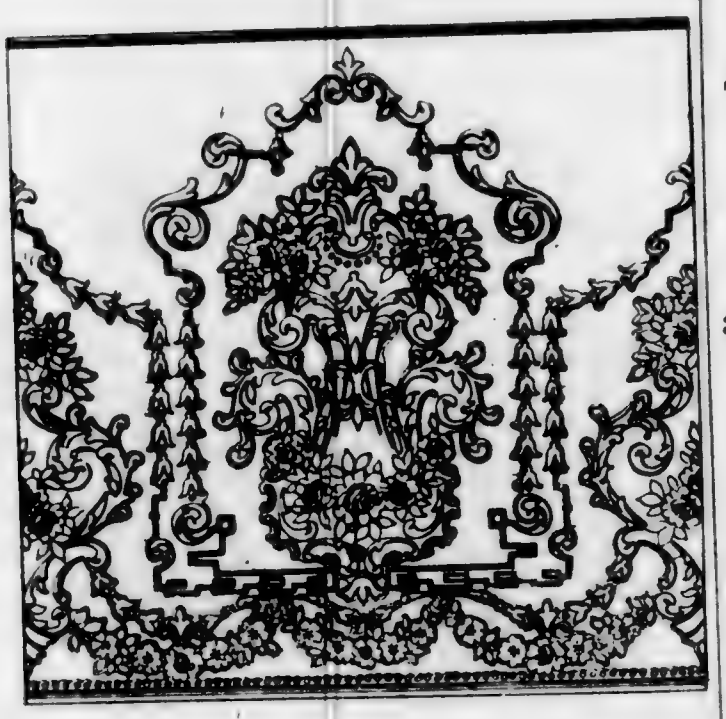
Claim.—The design for a clock-shelf and sewing-cabinet, substantially as herein shown and described.

35,735. WALL-PAPER. NICHOLAS A. MCMANUS, New York, N. Y., assignor to Ithaca Wall Paper Mills, a Corporation of New York. Original application filed Jan. 4, 1902. Serial No. 88,474. Divided and this application filed Jan. 10, 1902. Serial No. 89,242. Term of patent 3½ years.



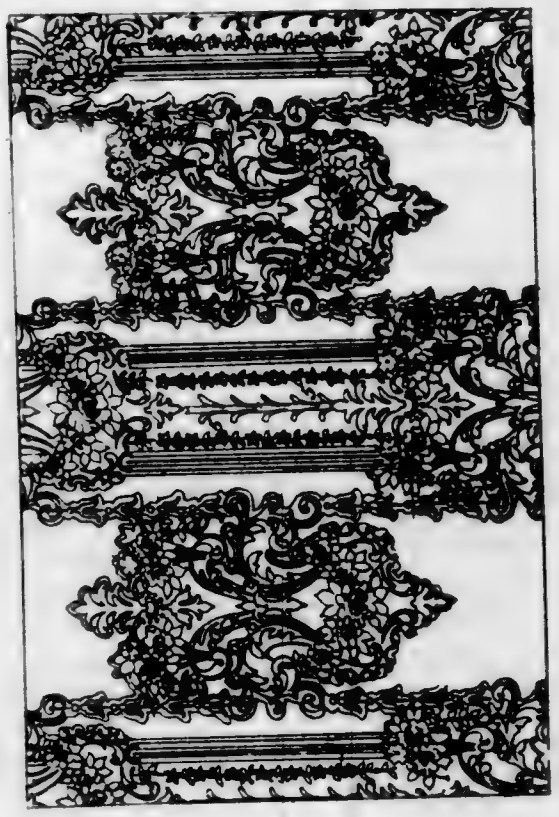
Claim.—The design for wall-paper as herein shown and described.

35,736. WALL-PAPER. NICHOLAS A. MCMANUS, New York, N. Y., assignor to Ithaca Wall Paper Mills, a Corporation of New York. Filed Jan. 10, 1902. Serial No. 89,241. Term of patent 3½ years.



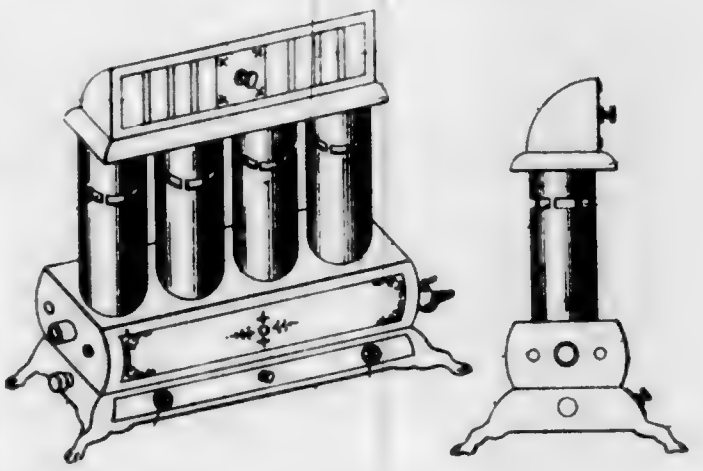
Claim.—The design for wall-paper as herein shown and described.

35,737. WALL-PAPER. NICHOLAS A. MCMANUS, New York, N. Y., assignor to Ithaca Wall Paper Mills, a Corporation of New York. Filed Jan. 4, 1902. Serial No. 88,474. Term of patent 3½ years.



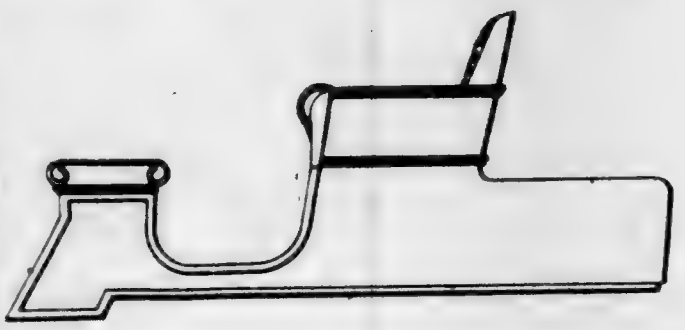
Claim.—The design for wall-paper herein shown and described.

35,738. GAS-STOVE. WILLIAM J. SCHWARZ, Brooklyn, N. Y. Filed Jan. 8, 1902. Serial No. 88,934. Term of patent 7 years.



Claim.—The design for a gas-stove as herein shown and described.

35,739. VEHICLE-BODY. CHARLES F. PUTNAM, Fitchburg, Mass. Filed Dec. 16, 1901. Serial No. 86,167. Term of patent 14 years.



Claim.—The design for a vehicle-body, as herein shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 11, 1902.

37,770. GOLD-PLATED AND CHEAP GRADES OF JEWELRY. J. Solinger & Co., Providence, R. I. Filed Jan. 14, 1902.

ADAMANTINA

Essential feature.—The word "ADAMANTINE." Used since January 1, 1900.

37,771. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. Philadelphia Watch-Case Co., Riverside, N. J. Filed Jan. 6, 1902.



Essential feature.—The representation of an arm and hand, the latter clutching or holding a mallet or hammer, and surrounded by a frame or border. Used since 1889.

37,772. GARMENT-FASTENERS. Parker Novelty Company, New York, N. Y. Filed Dec. 31, 1901.

NOTTAHOOK

Essential feature.—The word "NOTTAHOOK." Used since November 21, 1900.

37,773. SHEETINGS. Hermann Norden, New York, N.Y. Filed Nov. 26, 1901.



Essential feature.—The representation of a hawk upon a branch. Used since October 28, 1901.

37,774. WAISTS. Sahlin Corset Co., Chicago, Ill. Filed Jan. 2, 1902.

GOOD LUCK

Essential feature.—The words "GOOD LUCK." Used since December 14, 1901.

37,775. CORSETS. Royal Worcester Corset Co., Worcester, Mass. Filed Jan. 2, 1902.

CASINO

Essential feature.—The word "CASINO." Used since August 10, 1901.

37,776. HOSIERY AND GLOVES. Goodman Bros., New York, N. Y. Filed Jan. 2, 1902.

TRIUMPH

Essential feature.—The word "TRIUMPH." Used since 1890.

37,777. HOSIERY. Pilling & Madeley, Philadelphia, Pa. Filed Jan. 10, 1902.

QUAKERESS

Essential feature.—The word "QUAKERESS." Used since November 1, 1890.

37,778. TROUSERS. David Present, New York, N. Y. Filed Jan. 3, 1902.

Nufangl

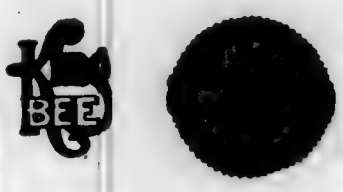
Essential feature.—The word "NUFANGL." Used since November 1, 1900.

87,779. BOOTS AND SHOES. MORTON SAMUELS, Baltimore, Md. Filed Apr. 13, 1901.

SERVICE

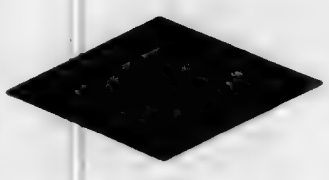
Essential feature.—The word "SERVICE." Used since November 10, 1900.

87,780. MEN'S AND BOYS' SHOES. J. K. ORR SHOE CO., Atlanta, Ga. Filed Oct. 15, 1900.



Essential feature.—The words "KING BEE" used in connection with a red seal. Used since April 1, 1900.

87,781. WATERPROOF FABRIC FOR ROOFING AND BELTING. THE LINCOLN WATERPROOF CLOTH CO., Boundbrook, N. J. Filed Dec 5, 1901.



Essential feature.—A diamond-shaped figure. Used since 1900.

87,782. ROOFING-FELT. J. A. & W. BIRD & CO., Boston, Mass Filed Dec. 27, 1901.



Essential feature.—A ram's head inclosed by a ring. Used since December 12, 1901.

87,783. ASPHALTUM. HARRINGTON BROWN, Los Angeles, Cal. Filed Jan. 2, 1902.



Essential feature.—The words "SOUTHERN CROSS" and the representation of a cross in a leaning position with a star in each of the four points of the cross. Used since March, 1900.

87,784. INSECT-EXTERMINATORS IN LIQUID FORM. RICHARD B. HOLWOOD, Plainfield, N. J. Filed Jan. 6, 1902.

King-Nomo-Bug

Essential feature.—The compound words "KING-NOMO BUG. Used since October 15, 1901

87,785. CERTAIN NAMED TOILET PREPARATIONS AND SOAP. MIRONA B. HUBBERT, Syracuse, N. Y. Filed Nov. 21, 1901.

MIRO-DENA

Essential feature.—Three figures on the representation of a crest—i. e., a goat with fish's tail, a dragon facing the goat, and a fleur-de-lis between them—accompanied by the hyphenated word "MIRO-DENA." Used since March 1, 1901.

87,786. PROPRIETARY MEDICINES. JOHN J. LEDWITH, Newark, N. J. Filed Jan. 6, 1902.

NPC

Essential feature.—The letters "N. P. C." Used since December, 1901.

87,787. PROPRIETARY MEDICINES. JOHN J. LEDWITH, Newark, N. J. Filed Jan. 6, 1902.

CERATINE

Essential feature.—The word "CERATINE." Used since December, 1901.

87,788. REMEDIES FOR LA GRIPPE, COLDS, AND HEADACHE. BROMO CHEMICAL COMPANY, Salt Lake City, Utah. Filed Jan. 3, 1902.

BROMO-LAX.

Essential feature.—The word "BROMO=LAX." Used since November 1, 1901.

87,789. REMEDY FOR CERTAIN NAMED DISEASES. RUDOLPH F. KOVACIC, Allegheny, Pa. Filed Apr. 5, 1901.



Rudolph F. Kovacic

Essential feature.—The portrait of the registrant and a facsimile of his signature. Used since December. 1900

87,790. REMEDY FOR CERTAIN NAMED DISEASES. URIAS B. KLINE, Reamstown, Pa. Filed Oct. 25, 1901.

The Lion of Diseases
IS LED BY A CHILD



Essential feature.—The words "THE LION OF DISEASES IS LED BY A CHILD" and the representation of a lion led by a child. Used since January, 1892.

87,791. REMEDY FOR CERTAIN NAMED DISEASES. JOHN C. KYLES, Coffee Springs, Ala. Filed Jan. 6, 1902.



Essential feature.—A three-quarter length portrait of the registrant. Used since December 27, 1901.

87,792. COD-LIVER OIL. FRANK W. WARD, Memphis, Tenn. Filed Dec. 24, 1901.

Gadu-Clein

Essential feature.—The compound word "GADU-OLEIN." Used since October, 1886.

87,793. MEDICINAL PREPARATIONS CONTAINING MALT EXTRACT. THE MALTINE COMPANY, Brooklyn, N. Y. Filed Dec. 30, 1901.

MALTINE

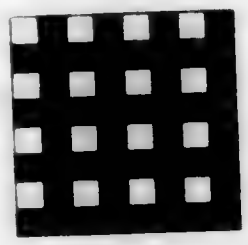
Essential feature.—The word "MALTINE." Used since July 17, 1874.

87,794. WHISKIES. HILBERT BROTHERS, San Francisco, Cal. Filed Oct. 29, 1901.

H.B.

Essential feature.—The letters "H. B." Used since 1894.

87,795. TEA AND COFFEE. CECIL D. GREEN, St. Louis, Mo. Filed Oct. 14, 1901.



Essential feature.—The representation of a series of squares formed of solid colors and oblique parallel lines arranged and colored in imitation of the Rob Roy Macgregor plaid. Used since May, 1898.

87,796. TOBACCO, CIGARS, AND CIGARETTES. JOHN GEORGE GRANT, Hampstead, England. Filed Nov. 15, 1901.

VIGORO

Essential feature.—The word "VIGORO." Used since January, 1901.

87,797. ANIMAL-FOOD. COLUMBIAN STOCK FOOD CO., Detroit, Mich. Filed Nov. 25, 1901.



Essential feature.—A series of eccentric circles annularly arranged side by side, each circle having an animal-head therewithin, the series of eccentric circles arranged about a central space bordered by the arcs of the adjacent annularly-arranged circles. Used since November 22, 1901.

87,798. TYPE-WRITERS. HENRY D. CAREY, New York, N. Y. Filed Jan. 14, 1902.

PAN-AMERICAN.

Essential feature.—The compound word "PAN-AMERICAN." Used since May, 1899.

87,799. INCANDESCENT MANTLES FOR GAS OR VAPOR BURNERS. THE STILLWELL LIGHT COMPANY, Camden, N. J., and Philadelphia, Pa. Filed Aug. 6, 1901.

Solux

Essential feature.—The word "SOLUX." Used since July 15, 1901.

87,800. WINDMILLS, PUMPS, TOWERS, TANKS, AND CYLINDERS. R. D. MARCY MFG. CO., Bluffton, Ind. Filed Jan. 16, 1902.



RED CROSS

Essential feature.—The representation of a red cross or the words "RED CROSS," singly or in combination. Used since March 1, 1900.

LABELS

REGISTERED FEBRUARY 11, 1902.

8,953.—*Title:* "HOME BRAND." (For Canned Salmon.) GRIGGS, COOPER & Co., St. Paul, Minn. Filed January 16, 1902.

8,954.—*Title:* "HOME BRAND." (For Canned Lobster.) GRIGGS, COOPER & Co., St. Paul, Minn. Filed January 16, 1902.

8,955.—*Title:* "MALT PEPSIN." (For Chewing-Gum.) THE LIDWELL GUM Co., Kansas City, Mo. Filed January 20, 1902.

8,956.—*Title:* "ESSEX BRAND CONDENSED MILK." (For Condensed Milk.) HIRES CONDENSED MILK COMPANY, Malvern and Philadelphia, Pa. Filed January 17, 1902.

8,957.—*Title:* "TISSERA'S TEA-BU-ETS." (For Compressed Teas.) V. L. TISSERA, Chicago, Ill. Filed January 18, 1902.

8,958.—*Title:* "SPLIT ROCK." (For Mineral-Spring Water.) ROEWEKAMP BROS., Oshkosh, Wis. Filed January 16, 1902.

8,959.—*Title:* "KUDROS." (For a Beverage.) A. M. HELLMAN & Co., St. Louis, Mo. Filed December 30, 1901.

8,960.—*Title:* "STEEPLECHASE." (For Whisky.) MAX WEISBERG, Buffalo, N. Y. Filed January 15, 1902.

8,961.—*Title:* "GRID IRON CLUB RYE WHISKEY." (For Rye Whisky.) VINCENT W. POWER and PATRICK J. DRURY, Washington, D. C. Filed September 9, 1901.

8,962.—*Title:* "PROOF MARK." (For Cigars.) SCHMIDT & Co., New York, N. Y. Filed January 13, 1902.

8,963.—*Title:* "VIS VITAE." (For a Hair-Restorative.) NORA E. SMITH, Battlecreek, Mich. Filed December 27, 1901.

8,964.—*Title:* "HARIFOAM VEGETABLE SHAMPOO TONIC AND DANDRUFF CURE." (For Tonic and Dandruff Cure.) CHILDS DRUG Co., Lexington, Ky. Filed January 18, 1902.

8,965.—*Title:* "KARLSBADER HAIR REGENERATOR." (For Hair-Regenerator.) JOHN MRAZAY, Philadelphia, Pa. Filed January 10, 1902.

8,966.—*Title:* "TAR HEEL TONIC AND BLOOD PURIFIER." (For Medicine.) CHARLES D. HIGGINS, Greensboro, N. C Filed January 8, 1902.

8,967.—*Title:* "SIEMPRA VIVA." (For a Medicinal Preparation.) RIO GRANDE MEDICINE COMPANY, San Antonio, Tex. Filed January 12, 1901.

8,968.—*Title:* "ANTIGIA." (For Medicine.) JOHN F. GIBBONEY, Richmond, Va. Filed Jannary 17, 1902.

8,969.—*Title:* "AKINS DROPSY CURE." (For Dropsy Cure.) WILLIAM AKINS & SONS, Graysville, Ga. Filed January 15, 1902.

PRINTS

REGISTERED FEBRUARY 11, 1902.

462.—*Title:* "ORIENTAL RUG WEAVING." (For Rugs and Carpets.) NATHANIEL K. DAVIDYAN, Philadelphia, Pa. Filed December 7, 1901.

463.—*Title:* "HOYT'S 5¢ COLOGNE." (For Cologne.) E. W. HOYT AND Co., Lowell, Mass. Filed January 18, 1902.

464.—*Title:* "HOYT'S 10¢ COLOGNE." (For Cologne.) E. W. HOYT AND Co., Lowell, Mass. Filed January 18, 1902.

465.—*Title:* "ARMOUR'S STAR." (For Cured Meats.) ARMOUR & Co., Chicago, Ill. Filed January 17, 1902.

466.—*Title:* "LIEBIG'S." (For Beef-Tea.) LIEBIG EXTRACT COMPANY, New York, N. Y. Filed January 17, 1902.

467.—*Title:* "BALANCED RATIONS FOR FEEDING BEET PULP." (For Feeds and Feeding Stuffs.) NATIONAL STARCH COMPANY, New York, N. Y. Filed January 21, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

BLACKMAN *v.* ALEXANDER.

Decided January 23, 1902.

1. INTERFERENCE—SUPPRESSION OF IRREGULAR TESTIMONY—RULES STRICTLY ENFORCED.

The rules in regard to the taking of testimony in interferences must be strictly complied with unless informalities are waived by agreement of counsel. To warrant suppressing irregular depositions, it is not necessary to show actual fraud.

2. SAME—SAME—FAILURE OF NOTARY TO COMPLY WITH RULES.

Where the notary's certificate does not state that the depositions were read by or to the witnesses before being signed and the notary did not seal the depositions and forward them to this Office, as required in the rules, but left them with the attorney for the party in whose behalf they were taken and they were forwarded to this Office by the attorney some months subsequently, *Held* that the depositions will not be accepted.

3. SAME—SAME—WAIVER OF INFORMALITIES BY COUNSEL.

Where in support of a request that irregularly-taken depositions be accepted it is alleged that counsel for the opposing party waived his right of objection on account of informalities, *Held* that the burden is upon the moving party to establish the fact.

PETITION and motion.

WOOD FLOORING.

Application of John J. Blackman filed January 14, 1901, No. 43,141. Application of Samuel Alexander filed October 25, 1900, No. 34,260.

Mr. Francis H. Richards for Blackman.
Messrs. Seymour & Earle for Alexander.

ALLEN, *Commissioner:*

This case comes up on a petition by Alexander that the testimony and exhibits filed in his behalf in the above-entitled interference be received and accepted and upon a motion by Blackman that such testimony be suppressed on account of irregularity.

The testimony referred to was taken before a notary public who went abroad in August, 1901, and who has not yet returned to this country. The testimony was not sealed up and forwarded to this Office by the notary, as required by the rules, but was left by her with the attorney for Alexander, who retained it until some time in December, 1901, when he sealed it and forwarded it to this Office, together with a petition that it be accepted. In support of his motion to suppress counsel for Blackman calls attention to a further irregularity in the testimony, which consists in the failure of the notary to state in her certificates to the depositions that the depositions were read by or to the witnesses before being signed, as required by the rules. As indicating that they were not in fact read by the witnesses, attention is called to a letter from counsel for Alexander, dated August 1, 1901, stating that he was sending to Alexander the last page of his deposition for signature. The inference from this is strong that Alexander did not have his entire deposition before him when he signed it and emphasizes the failure of the notary to state that he read the deposition before signing it.

It is clear that the rules have not been compiled with in presenting Alexander's testimony, and it is a well-settled rule both in the courts and in this Office that the rules in regard to evidence of this kind must be strictly complied with unless informalities are waived by agreement of counsel. The rules are general and must be enforced without regard to the question whether there is a showing or suggestion of fraud in the particular case.

If the irregular testimony on behalf of Alexander is accepted, it must be upon the conclusion contended for by him that counsel for Blackman by his conduct waived the informalities referred to. It seems that in August, 1901, Blackman's counsel was W. H. Blodgett and that notwithstanding the fact that he knew that the notary before whom Alexander's testimony was being taken was going abroad during that month he insisted upon postponing the cross-examination of Alexander until September. It is stated in affidavits filed that Blodgett assured Alexander that the departure of the notary would not interfere with the filing of the testimony taken. This conduct by Blodgett is what is relied upon as showing that he consented to the retention of the testimony by counsel for Alexander and that it should be forwarded by him instead of by the notary. Blodgett is no longer connected with the case, and no affidavit by him upon the subject has been presented.

The conclusion that Blodgett waived the informalities does not follow from his conduct. If Alexander was to be cross-examined after the departure of the notary, it must have been apparent to all parties that it would have to be before another notary and that the first notary's work was completed. The testimony already taken could then have been sealed up and forwarded to the Office, and there is nothing in Blodgett's conduct as stated

inconsistent with the theory that he supposed this would be done.

The burden was upon Alexander to show that such an agreement existed, and he has not sustained it. It would seem that he might have obtained an affidavit from Blodgett upon the subject. The strict application of the rule that testimony must be regularly taken may seem harsh in a particular case; but it is a salutary rule and must either be enforced or abolished.

The petition is denied, and the motion by Blackman is granted.

MCDERMOTT v. HILDRETH.

Decided January 30, 1902.

1. PRELIMINARY STATEMENT—AMENDMENT OF.

Where one of the parties to an interference who has made a *bona fide* mistake in the preparation of his preliminary statement not due to his own negligence moves promptly to amend before testimony has been taken, if no additional burden or expense will be thrown upon the opposing party the amendment upon a proper showing of the facts may be admitted.

2. SAME—SAME—DILIGENCE.

After testimony has been taken an amendment to set back the dates set forth in the preliminary statement is open to suspicion and will be received only upon a clear showing of mistake, and, further than this, the moving party must be free from negligence and must show the utmost diligence in seeking to correct this mistake. (Citing *Henderson* v. *Noakes*, 59 O. G., 1431.)

3. SAME—MISTAKE—DILIGENCE.

When in making a preliminary statement a party was aware of the facts, but not of the force and effect that these facts might have, a failure to ascertain the true character of his previous acts shows negligence from which he has no relief. (Citing *Franklin* v. *Morton* v. *Cooley*, 95 O. G., 2063; *Thomas* v. *Trissell*, 97 O. G., 1598.)

APPEAL on motion.

COILER-HEAD.

Application of Henry McDermott filed August 22, 1900, No. 27,683. Patent granted Charles L. Hildreth January 16, 1900, No. 641,389.

Mr. Gardner W. Pearson and *Mr. James L. Norris* for McDermott.

Mr. Channing Whitaker and *Messrs. Macleod, Calver & Randall* for Hildreth.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Interferences denying McDermott's motion to amend his preliminary statement.

The original statements were approved November 3, 1900. McDermott's testimony-in chief was closed May 14, 1901, and Hildreth's was closed July 8, 1901. No rebuttal testimony was taken for McDermott, and the time for the same expired August 1, 1901. On October 12, 1901, the present motion was brought, and it is alleged in support thereof that Hildreth in his evidence has—

* * * clearly shown his intention of relying, for the date of his reduction to practice, upon a device which is different either from the device described or shown in the drawings of his patent or McDermott's application.

That McDermott constructed a device similar to the one named above at an earlier date than Hildreth, but did not regard it as coming within the issue of this case at the time he filed his preliminary statement.

That it does come within said issue if the Patent Office decides that the terms "rabbet" and "rabbeted" have the broad meaning claimed by the experts for Hildreth, and he asks to be put on an equality with Hildreth by filing the accompanying amended preliminary statement.

Said amended preliminary statement varies from the original only in giving an earlier date for the construction of a full-sized machine.

McDermott in his original statement says—

* * * that he has never built a full-sized machine and the invention has not been operated or used.

It is the desire and the endeavor of this Office to issue a patent to the one who is entitled to it, and it is essential in the accomplishment of this object that all the facts necessary for a correct determination of the questions which may arise should be before it. To this end it is permitted to a party to an interference to amend his preliminary statement whenever it is clear that the ends of justice demand it. However, in the determination of this question the rights of both parties are to be considered.

If, therefore, one who has made a *bona fide* mistake in the preparation of his statement not due to his own negligence moves promptly to amend before testimony has been taken, where no additional burden or expense will be thrown upon the opposing party, the amendment upon a proper showing of the facts may be admitted. (*May* v. *Merker*, 85 O. G., 150.) If, however, the case has so far advanced that testimony has been taken, each party relying on the other's statement for the dates which must be overcome, an amendment to set back these dates is open to suspicion and will be received only upon a clear showing of mistake, and, further than this, the moving party must be free from negligence and must show the utmost diligence in seeking to correct this mistake. (*Henderson* v. *Noakes*, 59 O. G., 1431.)

Applying these principles to the present case, it is clear that McDermott when he made his original statement was aware of what he had done before. There was no error in his mind as to the facts; but he was not aware of the force and effect which these facts might have. Under these circumstances it is clear that he did not use the utmost care in the preparation of his original statement. Then was the time for him to ascertain the true character of his previous acts. His failure to do this shows negligence on his part, from which he can have no relief. (*Franklin* v. *Morton* v. *Cooley*, 95 O. G., 2063; *Thomas* v. *Trissell*, 97 O. G., 1598.) In addition to this it appears from the record that he became aware of the interpretation which might possibly be put upon his earlier acts upon the completion of Hildreth's testimony; but it was not until long afterward that the present motion was brought. No excuse is offered for this lack of diligence nor does any appear.

It must be held that McDermott by his negligence and lack of diligence has lost whatever right he may have had to amend his statement.

The decision of the Examiner of Interferences is accordingly affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

TYLER v. KELCH.

Decided January 7, 1902.

1. INTERFERENCE—PRIORITY—PRESUMPTION DUE TO DELAY.

Where T. did not file his application for a patent until fourteen months after K.'s application was filed, although he knew of K.'s application and claim to the invention, *Held* that the presumption is in favor of K., and the burden is upon T. to prove his case by full and satisfactory evidence.

2. SAME—PATENT GRANTED ONLY TO REAL INVENTOR—RIGHT CANNOT BE SURRENDERED TO ANOTHER.

The sole and original inventor of a device cannot part with his right to a patent and give a valid claim to some one else as inventor by a surrender or concession in favor of that other party. The patent must disclose the real inventor, and the issue thereof must be founded upon his right as such inventor.

3. SAME—INTEREST IN A PATENT MAY BE TRANSFERRED, BUT NOT RIGHT AS INVENTOR.

An interest in the proceeds of a patent may be transferred by contract; but the interest so acquired is not the right or interest of an inventor upon which a patent can be obtained.

4. SAME—EVIDENCE—ACTION CONTRARY TO ORDINARY LAWS OF HUMAN CONDUCT.

Where T. executed a release to K. of all claim to the invention for the sum of $75 and alleges in his testimony that this release was of his right as the true inventor and not of a mere pecuniary interest in the invention and it appears that the invention is a very valuable one, *Held* that to accept T.'s statement would be to indulge a supposition contrary to all rational conduct of men understanding the nature of the business in which they were engaged.

5. SAME—SAME—EMPLOYER AND EMPLOYEE.

Where it is shown that T. constructed the first machine embodying the invention and delivered it to K. when finished and it is alleged on behalf of K. that T. was merely employed to embody K.'s idea and the evidence shows that K. had a conception of the invention before T.'s alleged date of conception, *Held* that K. is the prior inventor. The decision of the Commissioner of Patents affirmed.

Mr. Richard J. McCarty for the appellant.

Mr. H. A. Toulmin and *Mr. L. S. Bacon* for the appellee.

ALVEY, *J.*:

This is an appeal in a matter of interference from the Patent Office. The subject-matter of the supposed interference is a fare-register to be used upon cars and other conveyances of passengers. The machine as described in the respective claims for patent is quite complicated; and the issue of interference, as made in the Patent Office, is presented in seven counts; and they are as follows:

1. In a fare-register, the combination of groups of fare-registering wheels, each group having its own classification of fares, a rotatable fare-indicator to exhibit each class of fares, indicator-wheels to exhibit the number of passengers, differential plates to concurrently actuate each series of registering-wheels and a fare-indicator, and means for simultaneously actuating said plates and the indicator-wheels.

2. In a fare-register, the combination of groups of fare-registering wheels, each group having its own classification of fares, a rotatable fare-indicator to exhibit the fares of each class, indicator-wheels to exhibit the number of passengers, differential plates to concurrently actuate each group of registering-wheels and a fare-indicator, and an operating-lever to simultaneously actuate said differential plates and indicator-wheels.

3. In a fare-register, the combination of groups of fare-registering-wheels, each group registering a separate class of fares, a rotatable fare-indicator for each class of fares, differential plates pivotally connected and operating concurrently to actuate each group of fare-registering wheels and their respective indicator, and a single member for imparting variable movements to said plates.

4. In a fare-register, the combination of groups of fare-registering wheels, each group adapted to register a distinct class of fares, a rotatable fare-indicator to exhibit the fares of each specific class of registering-wheels, differential plates movable concurrently to actuate each group of fare-registering wheels and fare-indicator, an oscillating shaft, means thereon for locking each fare-indicator in an exposed position, and means for simultaneously imparting variable movements to said differential plates.

5. In a fare-register, the combination of groups of fare-registering wheels, each group having a specific class of fares, a fare-indicator movable in a horizontal plane to expose the fares of each group of said registering-wheels, variably-movable plates to concurrently actuate a group of registering-wheels and a fare-indicator, and means for simultaneously actuating said plates.

6. In a fare-register, the combination of fare-registering wheels assembled in groups, a fare-indicator to exhibit the fares of each group, the said fare-indicator having a blank space and a space upon which the fare is inscribed which are adapted to be exposed alternately, an oscillating shaft, means thereon for simultaneously locking one fare-indicator in an exposed position and for releasing another to expose the blank space thereon, pivotally-connected plates imparting variable movements which actuate a group of fare-registering wheels and a fare-indicator, and means for imparting such variable movements to said plates.

7. In a fare-register, the combination with groups of fare-registering wheels, of a platen having two perpendicular sides with openings therein, cams movable in said openings to elevate said platen, and means for locking the cam-shaft against movement.

According to the record, Kelch, the senior party, filed his application on April 1, 1898, which was allowed to become forfeited by non-payment of fees; but the same was renewed February 17, 1899. On May 17, 1899, Tyler, the junior party, filed his application, it being nearly fourteen months after the original application of Kelch was filed. It is further shown by the record that Kelch made an assignment of his entire interest in the invention described, to Wilfred I. Ohmer, and that after making such assignment he died, July 13, 1899, and that his assignee is now conducting this interference. Tyler, the junior party, also assigned his claim to the invention in question to John F. Ohmer; and both assignments were made before the declaration of interference, and the contest of the interference is, therefore, in reality between the respective assignees.

The preliminary statement on the part of Wilfred I. Ohmer, the assignee of Kelch, was made by Mrs. Kelch, the administratrix of her deceased husband, and in that statement she alleges under oath, that she is the widow and the administratrix of Kelch, the party who filed the claim and made application for a patent thereon. She alleges upon information and belief that the invention in issue was conceived by Kelch in April, 1897, and was disclosed to others in April or May, 1897: that he made sketches which he showed to others in September, 1897; that with the assistance of a mechanic, Kelch made a model of his invention between December, 1897, and May, 1898; and that, during the latter period, Kelch reconstructed the model himself. That during October and November, 1898, Kelch made partial working drawings, and between November, 1898, and March, 1899, he made a commercial machine embodying the invention in issue in this interference.

In the preliminary statement filed by Tyler, he alleges conception of the invention in issue, and the making of drawings of it, in October, 1897, and he alleges disclosure to others in January, 1898, and also the embodiment of the invention in a full-sized working machine in February or March, 1898.

The real question is, as developed in the evidence, not which of two independent inventors of the device in question has priority, but which one of two individual claimants was the real inventor of the device described in the issues. Both parties are conceded to have furnished some evidence tending to show connection with the invention, but which of them was the real original inventor of the device, is the question.

There was a considerable volume of testimony taken, and the testimony produced by the respective parties is not in all respects free from conflict. The evidence has been very carefully examined and compared by all three of the tribunals of the Patent Office. First, by the Examiner of Interferences, then by the Board of Examiners-in-Chief, consist-

ing of two members; and, lastly, by the Commissioner of Patents. The Commissioner, on appeal to him, and from whose judgment this appeal is taken concurred with the ruling of the Examiner of Interferences, and reversed the ruling of the Board of the Examiners-in-Chief, and awarded priority to Kelch as the real inventor. Was he right in that conclusion?

We have very carefully read and considered the evidence contained in the record; and we have also carefully considered the several reviews of that evidence as contained in the opinions delivered by the different tribunals in the Patent Office; and with the convictions produced in our minds, we shall not undertake to go over the evidence in detail, and thus repeat it for the fourth time. The question presented is mainly one of fact only; and in such case, where it is apparent that the facts have all been fully and fairly treated by the tribunals below, and the question is as to which or what conclusion is proper, there is no practical good resulting from a restatement of evidence. We shall content ourselves, therefore, in stating the general conclusions resulting from the evidence, and which to us seem to be quite controlling in the disposition of the case.

In the first place, it must be observed and borne in mind, that Kelch was the party who first made application for a patent, thereby becoming senior party, and as such entitled to the benefit of a constructive reduction to practice, and, by that means, making a *prima facie* case as against Tyler the subsequent applicant. Such being the position of the parties upon the record, the *onus* of proof was assumed by Tyler, who did not file his application until nearly fourteen months after that of Kelch had been filed, though he was, according to his own admission, all the time fully aware of the fact of the claim made by Kelch, and that application had been made by the latter for a patent thereon. This condition of the record requires full and satisfactory proof on the part of Tyler to overcome the presumption in favor of Kelch.

To meet and discharge this *onus* of proof, Tyler, testifying in his own behalf, states that he conceived the invention in October, 1897; that he disclosed the conception to others about the middle of October and at several times thereafter, and among those to whom the disclosure was made was Kelch. That about October 15, 1897, he made drawings of his invention, two of which are shown in evidence as Exhibits A and B. He also stafes that he made other drawings which he turned over to Kelch: that in January, 1898, he showed Kelch the two exhibit drawings and gave him blueprints of them. Two parts of a model are shown as Exhibits C and D. He also states that, during February and March, 1898, he made a full-sized working machine, and turned it over to Kelch: that this was done about the last of March or the first of April, 1898. That he has never demanded its return, nor has it in fact been returned. He says that he delayed applying for a patent of the invention for the reason that it was not as perfect as he would like to have had it, and for the further reason that he was dissatisfied with his position with the John F. Ohmer Register Company, and he deemed it expedient to hold off until he was perfectly sure of his position with them.

As explanatory of his relations with John F. Ohmer, the present assignee of the claim, and his relations with Kelch, and the reason for placing his invention in the possession of the latter to enable him to apply for a patent therefor, Tyler, testifying after the death of Kelch, states as follows:

> Mr. Kelch came to my house some time during the month of January, 1898, and asked me to go in with him on an invention of some kind, so that we could make some money. We talked over various things, and decided on nothing. I told him that I already had a fare-register invented, and that I had the drawings made. He asked to see it, and I showed it to him. He was very much pleased with it, and he asked me if there was not some way that he could go in with me. I told him that there was not any way that he could assist me in inventing the register, because it was all completed, and that I had an agreement with Mr. Ohmer that all inventions pertaining to street-car fare-registers was to be assigned to him, and I could not go in with him as joint inventor, and neither could I take out an invention on the register myself without assigning it to Mr. Ohmer, and that would not benefit him at all. He then asked me to let him have the register, and he would make an improvement as a joint inventor, and would take out a patent. I told him that I could not do that; so then he asked me to let him have the blue-prints, and take out a patent in his own name. I explained to him that it would not be legal, that he was not the inventor of the machine; and he did not seem to think that it amounted to very much, so I agreed to let him have the blue-prints and what of models I had, or part of the models. I gave him the blue-prints and part of the models. He afterward made an application.

So far as this statement of Tyler embraced the conversation with and declarations of Kelch in regard to the alleged transaction between them, and now in controversy, it was objected to as being inadmissible, Kelch having died before the testimony was taken. The objection was certainly well taken; though it does not in any manner affect the result, whether the conversations and declarations of Kelch be considered in or out of the case.

Tyler further stated in his testimony, that there was an understanding between himself and Kelch—

> that he (Kelch), if he secured a patent on the invention was to offer it for sale to John F. Ohmer; that Kelch seemed to think that it did not make "very much difference who signed the papers, just so they were signed;" that a money consideration of $75 passed between them; that Kelch was by the arrangement between them supposed to have the right to make sale to Ohmer, and that he, Tyler, was not to share any of the proceeds of the sale.

In this connection there was brought out, on cross-examination of Tyler, the fact that he had executed, after the application made by Kelch, the following receipt or release to the latter, for money paid to Tyler for some claim or interest in respect of the fare-register:

> In consideration of the sum of one dollar to me in hand paid, the receipt of which I hereby acknowledge, I do hereby release and surrender to Wallace M. Kelch, all interest or claim I may have in the fare-register upon which application for patent has been made by said William M. Kelch, April 1, 1898, Serial No. 676,078.
>
> Signed at Dayton, Ohio, this 27th day of June, 1898.
>
> (Signed) HIRAM TYLER.

In determining what interest or claim is referred to in this release, we are virtually required to determine the real nature and subject-matter of the contest between the parties. It is contended by Tyler that the interest and claim referred to in this release was and is his interest and claim in the invention in issue, as sole original inventor of the fare-register mentioned. The release, however, does not so declare. If it were true, as he contends, that he was and is the sole original inventor of the device in issue, then it would be very clear, there

could be no valid claim by Kelch, and the claim made by him, or by his representative, would constitute no foundation upon which a patent could issue in his name as the real inventor, when in fact he was not such, though he had bought and paid for the surrender or concession by the real and true inventor. The patent must disclose the real inventor, and the issue thereof must be founded upon his right as such inventor, and not upon the claim of some other person. But it does not follow that some other person than the true inventor may not have, by contract, an interest in the proceeds of the patent, in consideration of mechanical labor and skill applied in the construction of a machine, or the making of models or drawings upon which practical machines may be constructed. Such interest in the patent may be acquired by contract, but the interest so acquired is not the right or interest of an inventor upon which a patent can be obtained. (*Collar Co.* v. *Van Dusen*, 23 Wall., 563-4; *Blakeney* v. *Goode*, 30 Ohio St., 350.) And such would appear to have been the nature of the interest or claim of Tyler in the invention of the fare-register referred to in the release, as shown by the circumstances of the case. The invention was one of considerable complexity, requiring more than ordinary inventive genius to be successful in the work, and, if successful in operation, must be of great value. Such an invention would hardly have been disposed of by the sole original inventor for the small sum of $75, after he had reduced the invention to practice, and made a full-sized working machine for its operation. To suppose such a transaction to have occurred between Tyler and Kelch, both of whom are shown to have been inventors, would be to indulge a supposition contrary to all rational conduct of men understanding the nature of the business in which they were engaged. Assuming the parties to have been honest in the transaction, it is difficult to conclude that the interest or claim referred to in this release could have been the interest and claim, of the sole original inventor of the fare-register, as Tyler now claims it to have been. Such claim, however, would seem to be wholly incongruous with the real facts of the case.

Tyler, however, would have us believe that the transaction referred to in the release was a mere sham, adopted for the purpose of deceiving and misleading John F. Ohmer, to whom he was under contract obligations in regard to inventions that he might make of the character in question. In other words, that he entered into the transaction with Kelch collusively, in order to avoid applying for a patent in his own name, as the real inventor, because, if he did so apply, John F. Ohmer would at once assert h s right to the invention under the prior contract, and that he, Tyler, would realize nothing from the invention. This story is not credible. If he was the real inventor, as he now claims to be, why was he willing to *release and surrender* all his interest and claim in the invention for the small sum of $75, under what he describes to be the collusive sale to Kelch? He says, in his testimony, that he was not to share in any of the proceeds of sale. It may be very true, that, after he received the $75, and executed the release, all claim that he may have had in the profits of the patent for the mechanical skill and labor applied in the making a model of the invention, may have been, and was no doubt, satisfied and extinguished. But the attempt to support the claim to the invention by the testimony given by himself, carries with it a strong impeachment of the whole story told by him, and no part of it can be accepted as reliable, except where it may be found to be corroborated by independent evidence. And the evidence produced by him to corroborate his statement, and to sustain his claim to the invention in issue, is far from satisfactory, when compared with the evidence in support of the claim of Kelch.

It is an undisputed fact that Tyler constructed and had in his possession a machine or model, the first physical embodiment of the invention. This machine was delivered over to Kelch, and after some changes or modifications therein made by Kelch himself, it was made the subject of the application filed by Kelch on April 1, 1898. It is contended on the part of the representative of Kelch that this construction of the model or machine by Tyler was not the execution and working out of his own conception or invention, but that Tyler was simply a mechanic employed by Kelch to construct the model for him, in accordance with the invention which he, Kelch, had originated and explained to Tyler.

The evidence is quite conclusive of the fact that Kelch conceived the invention in April or May, 1897, nearly six months before it is claimed or pretended that there was any conception of the invention by Tyler; that the disclosure of the invention was made by Kelch immediately or shortly after the conception by him, to several persons. He disclosed the invention to Thomas Carney in May, 1897; to Morris Pursell some time between May and December, 1897; and that he borrowed drawing instruments of Joseph M. Kelley, in December, 1897, and made drawings of the invention at that time. The testimony of all these witnesses is very explicit, especially that of Thomas Carney; and there is no attempt to impeach or question their veracity or good faith. Then it is shown by the testimony of Pursell and of Mrs. Kelch, the widow, that Tyler was employed by Kelch as a mechanic to construct the model of the invention, and that they supplied money to Kelch to pay Tyler while he was at work on the machine. Pursell also states that he furnished to Kelch the brass type to be used in the construction of the model, and Tyler admits that such type were received and used by him in the construction of the machine. These two witnesses had the fullest opportunity of knowing what was going on as between Kelch and Tyler, and the testimony of Mrs. Kelch is positive and direct to the fact. The Commissioner has well said, that there is nothing in Tyler's testimony, nor in his whole record, which is incompatible with the evidence adduced on behalf of Kelch, to show that

Tyler was in Kelch's employment in constructing this model, save and except only the statement of Tyler that the invention was of his own conception or origination; and this statement of Tyler the Commissioner did not accept as reliable.

In regard to the release from Tyler to Kelch, to which we have referred, the Commissioner laid no special stress upon it, in arriving at his conclusion: He says, what is very true, that Tyler puts conflicting interpretations upon it. But whatever interpretation is given to it, according to the opinion of the Commissioner, it comes at too late a date and does not tend to any conclusion which would overthrow the testimony which shows Kelch to have conceived and disclosed the invention in May, 1897, at the latest, and to have hired Tyler to construct a model in January, 1898. Whatever effect, says the Commissioner, may be attributed to this paper is more than balanced by Tyler's long delay in making his application—approximately fourteen months after the Kelch application—and his silence during that time when he knew that Kelch's application was pending before the Office; and further, says the Commissioner—

> this release is not incompatible with the theory of Kelch's position as the employer of Tyler.

The Commissioner agreeing with the Examiner of Interferences, but disagreeing with the conclusion of the Examiners-in-Chief in holding Tyler to be entitled to priority, reversed the latter ruling, and awarded priority of invention to Kelch; and in that conclusion and judgment we entirely concur.

We therefore affirm the ruling and judgment of the Commissioner of Patents, and direct a copy of the record and of this opinion to be transmitted to the Commissioner of Patents to be recorded, etc.

U. S. Circuit Court of Appeals—Second Circuit.

ROWE *v.* BLODGETT & CLAPP CO.

Decided November 14, 1901.

1. DESIGNS—HORSESHOE-CALK—MECHANICAL UTILITY—INVALID.
   Design Patent No. 26,587, granted February 2, 1897, to Allen H. Rowe for a horseshoe-calk, *Held* invalid because the shape of the device was designed merely to enhance its mechanical utility and not for the purpose of display or ornament.
2. SAME—"USEFUL"—APPEARANCE—WORKS OF ART AND DECORATION.
   Design patents refer to appearance, not functional utility, and their object is to encourage works of art and decoration which appeal to the eye, to the esthetic emotions, to the beautiful. The term "useful" in relation to designs means adaptation to producing pleasant emotions.
3. SAME—ATTRACTIVE APPEARANCE—DESIGN NOT A TRADE-MARK.
   Where there is nothing attractive about the appearance of a design and its shape does not appeal in any way to the eye or serve to commend the article to purchasers, except to indicate that it is the product of the patentee, *Held* that it is not patentable. Designs cannot be considered as trade-marks.

APPEAL from the Circuit Court of the United States for the District of Connecticut.

STATEMENT OF THE CASE.

This cause comes here upon appeal from a decree of the circuit court, district of Connecticut, dismissing the bill. (103 Fed. Rep., 873.) The suit is for infringement of United States Design Patent No. 26,587, granted February 2, 1897, to Allen H. Rowe for "design for a horseshoe-calk." The design "consists in the configuration of the device as [therein] described. When viewed in side elevation, the calk is divided into a cylindrical threaded upper portion, with a distinct groove between this portion and the square base. Below the base the body portion tapers into the form substantially of a truncated cone. On each side of the base its surface is oblong in general outline, its lower boundary-line, however, having a downward-projecting curved part at about the center of the side."

Mr. H. E. Hart for the appellant.

Mr. L. P. Waldo Marvin for the apellee.

Before WALLACE and LACOMBE, Judges.

PER CURIAM:

Several defenses were urged, but Judge Townsend at circuit held as follows:

> I decide this case upon the broader ground that patents for designs are intended to apply to matters of ornament, in which the utility depends upon the pleasing effect imparted to the eye, and not upon any new function. The advantage claimed by complainant for the increased flat surface afforded by the curved line, which is the essential feature of his patent, is to enhance the mechanical utility of the calk by thus making a stouter shoulder, which would not so readily become bruised out of shape, and which, therefore, could be more easily removed with a wrench, when worn, from the shoe. It is significant, in this connection, that the patentee first applied for this essential feature of downward-projecting curved lines on the sides of the base, as a mechanical invention, which application was rejected, and that he then attempted to cover the same feature by a design patent. Design patents refer to appearance, not utility. Their object is to encourage works of art and decoration which appeal to the eye, to the esthetic emotions, to the beautiful. A horseshoe-calk is a mere bit of iron or steel, not intended for display, but for an obscure use, and adapted to be applied to the shoe of a horse for use in snow, ice, and mud. The question an Examiner asks himself while investigating a device for a design patent is not "What will it do?" but "How does it look?" "What new effect does it produce upon the eye?" The term "useful," in relation to designs, means adaptation to producing pleasant emotions. There must be "originality and beauty. Mere mechanical skill is not sufficient." (2 *Northrup* v. *Adams*, 2 Ban. & A., 567; Fed. Cas. No. 10,328; approved in *Smith* v. *Saddle Co.*, 63 O. G., 912; 148 U. S., 679; 13 Sup. Ct., 708; 37 L. Ed., 606; *ex parte Parkinson*, [1871,] Dec. Com. Pat., 251.)

We prefer to rest our affirmance on concurrence with these views. The practice of the Patent Office in issuing design patents seems not to have been uniform. Prior to 1871 it was "not only liberal, but lax," until in a carefully-considered opinion Commissioner Leggett (*ex parte Parkinson*, C. D., [1871,] 251) conformed it to a construction of the law which subsequently found approval in the cases above cited. In another case, in 1873, (*in re Seaman*, 4 O. G., 691,) the same Commissioner indicated the test to be applied by Examiners when an article of manufacture is presented with request for a design patent:

> Is its form, without reference to the function of the article, intended to be ornamental, and is the article itself a thing which may, for any practical purpose, have a merely ornamental configuration, and therefore have, in that sense, sufficient utility to warrant the grant of a patent?

It would seem from the patent in suit that this test is no longer applied and that the practice of the Office has again become "not only liberal, but lax."

There is nothing in the record to indicate that there is anything attractive about the appearance of the complainant's calk or that the downward-projecting curved lines appeal in any way to the eye or serve to commend the article to purchasers, except for the suggestion that seeing those lines they will know the calk on which they appear is the product of the patentee and not of some other maker; but the designers of articles of manufacture not otherwise entitled to receive design patents cannot justify the issuance of such patents on any theory that the design is a trade-mark.

The decree of the circuit court is affirmed, with costs.

Patents Nos. 693,359 to 693,822.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 98.—No. 7. TUESDAY, FEBRUARY 18, 1902. Price—$5 per year.

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Designs	28	No. 35,740 to No. 35,767,	inclusive.
Trade-Marks	35	No. 37,801 to No. 37,835,	inclusive.
Labels	9	No. 8,970 to No. 8,978,	inclusive.
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Total issue	543		

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama			Nevada		
Arizona Territory	1		New Hampshire	9	
Arkansas	1		New Jersey	22	2
California	12		New Mexico Territ'y		
Colorado	5		New York	72	11
Connecticut	17		North Carolina	3	
Delaware			North Dakota	2	
District of Columbia	7	1	Ohio	31	1
Florida	3		Oklahoma Territ'y		
Georgia	1		Oregon	3	
Hawaii Territory			Pennsylvania	51	3
Idaho			Porto Rico		
Illinois	50	6	Rhode Island	5	
Indian Territory			South Carolina	2	
Indiana	5		South Dakota		
Iowa	11		Tennessee	2	
Kansas	5		Texas	13	
Kentucky	4	1	Utah		
Louisiana	2		Vermont	1	
Maine	4		Virginia	6	
Maryland	3	2	Washington	3	
Massachusetts	34	5	West Virginia	2	
Michigan	6	6	Wisconsin	9	2
Minnesota	10		Wyoming	1	
Mississippi			U. S. Navy		
Missouri	9		Total to citizens of the United States	429	40
Montana	1				
Nebraska	1				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria			Mexico		
Austria-Hungary	4		Netherlands		
Barbadoes			Newfoundland		
Belgium	4		New South Wales		
Bermuda			New Zealand	1	
Brazil			Norway		
Canada	8		Queensland		
Cape Colony			Roumania		
Chile			Russia		
China			Scotland		
Colombia			South African Republic		
Cuba			South Australia		
Denmark	1		Spain		
Egypt			Sweden	1	
England	18	2	Switzerland	1	
France	5	1	Turkey in Asia		
Germany	20	3	Victoria		
Guatemala			Western Australia		
Haiti					
India			Total to citizens of foreign countries	63	6
Ireland					
Italy					

Payment of Patent Fees.

Rule 207. All payments of money required for Office fees must be made in specie, Treasury notes, national-bank notes, certificates of deposit, post-office money-orders, or certified checks. Money-orders and checks should be made payable to the "Commissioner of Patents." Payment may also be made to the Treasurer, or to any of the assistant treasurers of the United States, or to any of the depositaries, national banks, or receivers of public money, designated by the Secretary of the Treasury for that purpose, who shall give the depositor a receipt or certificate of deposit therefor. *This receipt or certificate of deposit shall, in case of payment of final fees, be deposited in the mail for transmission to the Patent Office, within six months from the allowance of the application.* Money sent by mail to the Patent Office will be at the risk of the sender. Letters containing money should be registered. In no case should money be sent with models.

Rule 208. The weekly issue closes on Thursday, and the patents of that issue bear date as of the third Tuesday thereafter. If the final fee in any application is not paid on or before Thursday, the patent will not go to issue until the following week.

Withdrawal of Applications from Issue Files.

After the notice of allowance of an application is given, the case will not be withdrawn from issue on account of any mistake or change of purpose of the applicant or of his attorney, nor for the purpose of enabling the inventor to procure a foreign patent, nor in any other case, without the approval of the Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 11, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Jan. 24	Jan. 21	109
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Jan. 22	Jan. 20	173
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Jan. 20	Jan. 30	216
253	X. Carriages and Wagons	Jan. 18	Jan. 28	109
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Jan. 18	Jan. 22	169
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Jan. 14	Jan. 28	222
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 13	Jan. 20	194
213	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Jan. 13	Jan. 28	188
281	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Jan. 13	Jan. 28	295
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Jan. 13	Jan. 28	138
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Jan. 13	Jan. 28	127
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Jan. 13	Jan. 28	189
102	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 13	Jan. 27	192
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Jan. 13	Jan. 27	157
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 13	Jan. 24	170
123	XXIX. Wood-Working Machines, Coopering and Roofing.	Jan. 13	Jan. 22	151
246	I. Tillage, etc., and Fences	Jan. 13	Jan. 20	165
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Jan. 13	Jan. 16	126
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Jan. 13	Jan. 11	163
90	IV. Civil Engineering, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Jan. 13	Jan. 11	273
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Jan. 11	Jan. 27	246
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Jan. 11	Jan. 24	164
	Between one and two months.			
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Jan. 10	Jan. 23	233
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Jan. 7	Jan. 28	156

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
122	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Jan. 6	Jan. 22	197
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 6	Jan. 13	349
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Jan. 3	Jan. 15	291
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Jan. 2	Jan. 22	204
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec. 30	Dec. 16	397
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Dec. 16	Dec. 20	338
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Dec. 14	Dec. 9	489
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Dec. 13	Dec. 13	407
93	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 12	Nov. 25	367
	Between two and three months.			
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 7	Jan. 20	262
248	XVIII. Steam-Engineering, etc	Dec. 6	Dec. 8	401
129	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 18	Jan. 11	425

Total number of applications awaiting action.....8,812

Under one month.			
*Designs	Jan. 20	Jan. 28	165
†Trade-Marks	Jan. 24	Jan. 31	118
‡Labels and Prints	Feb. 6	Feb. 6	11

Prohibiting Changes in Office Papers.

(ORDER NO. 1,455.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 4, 1902.

It is hereby ordered that no erasures be made or any note, interlineation, or other mark in pencil or otherwise, except by formal amendment duly signed, in the body or written portions of the specification or of any other paper filed in an application for patent.

It is further directed that no change be made by any person in any record of this Office without the written approval of the Commissioner of Patents.

Attorneys, employees of the Patent Office, and all others will be held to strict accountability for any violation of this order.

F. I. ALLEN,
Commissioner.

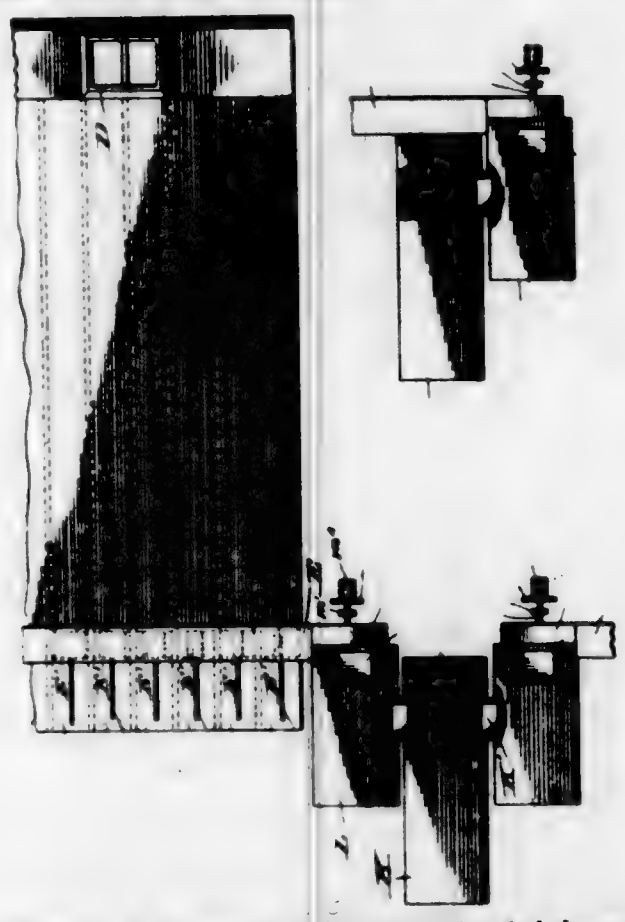
Renewal of Forfeited Applications.

Attention is called to section 4,897, Revised Statutes, relating to the renewal of allowed applications forfeited through failure to pay the final fee within six months from the date of allowance. The law requires the petition for renewal to be signed by the *inventor, discoverer*, or *assignee* and that the same be filed in this Office within two years after the allowance of the original application. If the inventor be dead, the petition must be signed by the administrator or executor; if insane, by the guardian, conservator, or legal representative. *It will not be accepted if signed by the attorney.* (Form 12, page 64, Rules of Practice, should be used.)

PATENTS

GRANTED FEBRUARY 18, 1902.

693,359. BRICK-DRIER. John W. Arbogon, Chicago, Ill., assignor of one-half to Patrick J. Sexton, Chicago, Ill. Filed Sept. 3, 1901. Serial No. 74,182. (No model.)



Claim.—1. In an apparatus of the character described, the combination with a plurality of tunnels, of a flue extending transversely across the tops of said tunnels near one end thereof, passage-ways interposed between said tunnels and said flue the walls of said passage-ways supporting the flue above the tunnels, rotary dampers located entirely within and controlling the passage-ways between the bottom of said flue and the tops of each of said tunnels, a chimney surmounting and communicating with said tunnels near the ends thereof opposite said flue, and means for supplying hot air to said flue, substantially as described.

2. In an apparatus of the character described, the combination with a plurality of tunnels, of outwardly-swinging doors closing the front ends of said tunnels, a flue extending transversely across the tops of said tunnels near the front ends thereof, passage-ways interposed between each of said tunnels and said flue the walls of said passage-ways supporting the flue above the tunnels, rotary dampers located entirely within and controlling the passages between the bottom of said flue and tops of each of said tunnels, a chimney surmounting and communicating with said tunnels near the rear ends thereof, a damper controlling the communication between the chimney and each tunnel, vertically-sliding doors closing the rear ends of said tunnels, and means for supplying hot air to said flue, substantially as described.

3. In an apparatus of the character described, the combination with a plurality of tunnels, of a flue extending transversely across the tops of said tunnels, passage-ways interposed between each of said tunnels and said flue the walls of said passage-ways supporting the flue above the tunnels, rotary dampers horizontally located within said passage-ways and controlling the communication between said flue and each of said tunnels, a chimney communicating with said tunnels near the ends thereof opposite said flue, a damper controlling the communication between the chimney and each tunnel, and means for supplying hot air to said flue, substantially as described.

4. In an apparatus of the character described, the combination with a plurality of tunnels, of a flue communicating with said tunnels, a damper controlling the communication between the flue and each tunnel, a chimney communicating with the tunnels, a furnace having a fire-box at one end and an opening through the other end communicating directly with said flue, a blower located in alinement with said flue and adjacent to said opening and adapted to rotate in a plane transverse to the furnace and longitudinal with respect to the flue, substantially as described.

5. In an apparatus of the character described, the combination with a plurality of tunnels, of doors closing the front and rear ends of each of said tunnels, a flue communicating with said tunnels, a damper controlling the communication between said flue and each of said tunnels, a chimney communicating with said tunnels a damper controlling the communication between said chimney and each of said tunnels, tracks extending through each tunnel, passage-ways located below and between the tracks in each tunnel, a furnace having a fire-box at one end and an opening through the other end communicating directly with said flue, and a blower located adjacent to said opening and in alinement with said flue said blower adapted to rotate in a plane transverse to the furnace and longitudinal with respect to the flue, substantially as described.

6. In an apparatus of the character described, the combination with a plurality of tunnels, of outwardly-swinging doors closing the front ends of said tunnels, a flue extending transversely across the tops of said tunnels near the front ends thereof, dampers controlling passages between the bottom of said flue and tops of each of said tunnels, a chimney surmounting and communicating with said tunnels near the rear ends thereof, a damper controlling the communication between the chimney and each tunnel, vertically sliding doors closing the rear ends of said tunnels, a furnace having a fire-box at one end and an opening through the other end communicating directly with said flue, and a blower located adjacent to said opening and in alinement with said flue said blower adapted to rotate in a plane transverse to the furnace and longitudinal with respect to the flue, substantially as described.

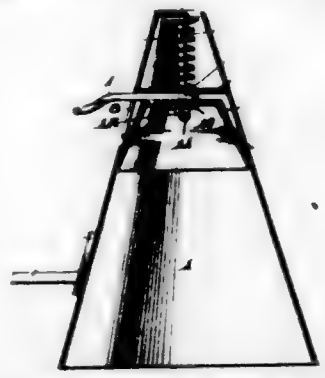
7. In an apparatus of the character described, the combination with a drier, of a flue communicating with said drier, a furnace having a fire-box at one end and an opening through the other end communicating directly with said flue, a blower located adjacent to said opening and in alinement with said flue and adapted to rotate in a plane transverse to the furnace and longitudinal with respect to the flue, and a second furnace adjacent to and parallel with the first furnace and communicating therewith at a point intermediate of its ends whereby said blower may deliver hot air to said flue from either of said furnaces, substantially as described.

8. In an apparatus of the character described, the combination with a drier, of a flue communicating with said drier, a furnace having oil-burners at one end and an opening at its other end communicating with said flue, a blower interposed between said furnace and said flue, and a second furnace adapted to consume coal communicating with said first furnace between its ends whereby said blower may deliver hot air to said flue from either of said furnaces, substantially as described.

9. In an apparatus of the character described, the combination with a drier, of a flue communicating with said drier, a furnace having an opening communicating with said flue, a blower located outside of said furnace and adjacent to said opening and adapted to draw hot air from said furnace and force the same into said flue, a shaft supporting at one end said blower and being supported by bearings located on the opposite side of said blower from said furnace, substantially as described.

10. In an apparatus of the character described, the combination with a main furnace, auxiliary furnaces adjacent to and on either side of said main furnace and communicating therewith at points intermediate of the ends of said auxiliary furnaces, flues connected to each of said auxiliary furnaces, blowers located between said flues and said auxiliary furnaces, and driers connected to said flues whereby said blowers may deliver hot air to said driers from said main furnace or said auxiliary furnaces, substantially as described.

693,360. ICE-CREAM DISHER. WILLIAM G. BAHL, Pittsburg, Pa. Filed June 21, 1901. Serial No. 65,451. (No model.)



Claim.—1. In a disher of the character described, the combination of a cone-shaped mold, a partition formed in the apex of said mold, a spring-pressed rod extending through said partition, a cup-shaped cap secured to said rod, an operating-handle attached to said rod extending through said cone-shaped mold, and a handle rigidly secured to said mold, substantially as herein shown and described.

2. In an ice-cream disher, the combination with a cone-shaped mold having an inverted-T-shaped slot formed therein, a partition formed in the apex of said mold, a spring-pressed rod extending through said partition, a cup-shaped cap secured to said rod, an operating-handle attached to said rod extending through said inverted-T-shaped slot, and a handle rigidly secured to said mold, all parts being arranged and operating substantially as herein shown and described.

693,361. DRESS AND SKIRT ADJUSTER. THOMAS BAMFORD, St. Joseph, Mo. Filed Aug. 17, 1900. Serial No. 27,225. (No model.)

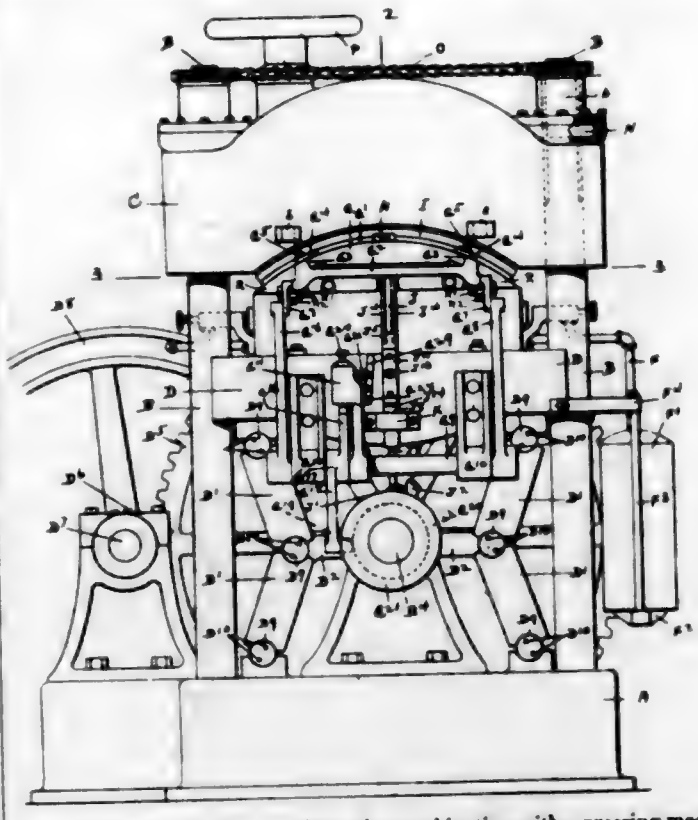


Claim.—A skirt-adjuster comprising resilient lengths of coiled wire having covering means and connected at the front and rear for application over the shoulders of the wearer, the said lengths extending from the shoulders below the waist-line at the rear, and cords freely slidable through the said lengths of covered wire and each formed with rear attaching branches, having terminal attaching devices, the front ends of the cords having pull devices thereon and normally located within easy reaching distance.

693,362. EMBOSSING-MACHINE. FRANK H. BANCROFT, Gardner, Mass., assignor of one-half to Henry M. Rich, Gardner, Mass. Filed Aug. 28, 1899. Serial No. 728,680. (No model.)

Claim.—1. In an embossing-machine the combination of a pair of pressing members, of a shelf for supporting the work in alinement with said pressing members, a reciprocating feeder moving in a line parallel with said shelf, and a pair of detachable plates attached to the opposite sides of said feeder and overlapping the opposite edges of said shelf, substantially as described.

2. In an embossing-machine, the combination with a pair of pressing members and a reciprocating feeder of a driving-shaft, connecting mechanism between said shaft and said feeder, consisting of a cam G^{21}, a rocking frame actuated by said cam and comprising the arm G^{18} and an arm G^{16} having a curved surface G^{17} and a notch G^{14}, a rock-shaft G^{9}, an arm G^{11} attached to said rock-shaft, a sliding spring-actuated pin G^{12} engaging said notch by which the motion of the rocking frame is imparted to said rock-shaft, a latching mechanism by which said sliding pin is held out of engagement with said notch, arms G^{8} attached to said rock-shaft, and links G^{7} between said arms and said feeder, substantially as described.



3. In an embossing-machine, the combination with a pressing mechanism having a reciprocating member and comprising a pair of pressing-surfaces of a die forming one of said pressing-surfaces, a lifting mechanism arranged to engage the embossed work and move the same in a line obliquely to the face of the die and means for actuating said lifting mechanism, substantially as described.

4. In an embossing-machine the combination with a reciprocating feeder and a pressing mechanism comprising a reciprocating member and an embossing-die forming one of the pressing-surfaces; of means for lifting the work out of an engagement with the die and moving it out of registration with the die, in advance of the reciprocating movement of the feeder, substantially as described.

5. In an embossing-machine, the combination with a pressing mechanism comprising a reciprocating member and an embossing-die forming one of the pressing-surfaces, of means for releasing the embossed piece from the die, and a yielding connection between the releasing mechanism and the driving power, substantially as described.

6. The combination with fixed and reciprocating pressing-surfaces, an embossing-die forming one of said pressing-surfaces, of a finger sliding in ways obliquely to the face of said die, a rocking segment by which said finger is moved, an actuating-cam and an intermediate lifter between said cam and segment, whereby said segment is rocked to slide said finger above the face of the die and a cam by which the motion of said segment and finger is reversed, substantially as described.

7. In an embossing-machine, the combination with a pressing mechanism, comprising fixed and reciprocating members, of a die carried by the reciprocating member and a friction device held in the fixed member, whereby a frictional resistance is imparted to the work as it is fed to the pressing mechanism, substantially as described.

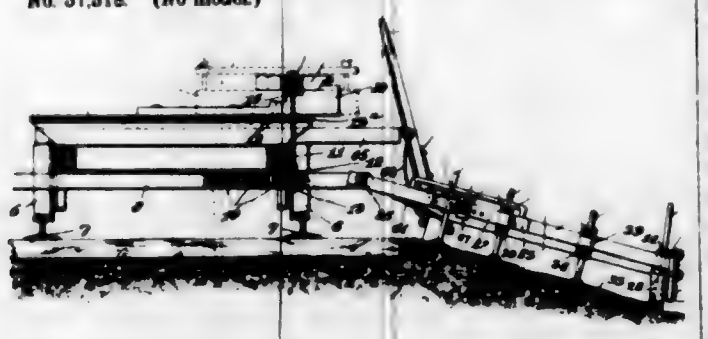
8. In an embossing-machine, the combination with a pressing mechanism and a feeding mechanism by which the work is fed to said pressing mechanism, of a spring-actuated plate held by the pressing mechanism and in advance of the movement of said feeding mechanism, whereby a frictional resistance is imparted to the work as it is fed to the pressing mechanism, substantially as described.

9. In an embossing-machine comprising a pressing mechanism having a reciprocating member and a die carried thereby, of a heating apparatus for heating said die, a shelf carried by said reciprocating member, and a fuel-supplying reservoir supported on said shelf, substantially as described.

10. In an embossing-machine, the combination of a supporting-stand, a fixed pressing member held by said stand, a movable pressing member moving in vertical ways, a pair of toggle-joint levers by which said movable member is actuated, a shaft journaled between said toggle-joint levers, eccentrics carried by said shaft, intermediate connecting mechanism between said eccentrics and said toggle-joint levers, a gear on said shaft, a pinion engaging said gear, a driving-shaft carrying said pinion and a belt-pulley on said driving-shaft, substantially as described.

11. The combination with the pressing members, of a pair of toggle-joint levers, a shaft operatively connected with said levers and journaled between them, a cam on one end of said shaft, a feeding mechanism operated by said cam, a gear on the opposite end of said shaft, and means for rotating said shaft, substantially as described.

693,368. **WEED-CUTTING AND BALLAST-DRESSING APPARATUS.** VICTOR BERFORD, Tara, Canada. Filed Nov. 22, 1900. Serial No. 37,318. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-beam having means for adjusting the same in a vertical path with respect to said frame, a carrying-frame foldably connected to said beam and adjustable vertically therewith, a gang of subsoil weed-cutters mounted on said carrying-frame, a sod-line cutter supported by the frame beyond the weed-cutters, and a dresser-bar also supported by the frame and arranged to travel in rear of the gang of weed-cutters, as and for the purposes set forth.

2. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-beam mounted thereon for vertical adjustment, means for vertically adjusting said carrying-beam to predetermined positions, a carrying-frame hinged to the carrying-beam and extending outwardly from the wheeled frame and adapted to be folded upwardly over and upon said wheeled frame, a gang of subsoil weed-cutters mounted on the carrier-frame, a sod-line cutter disposed beyond the gang of weed-cutters, and a dresser-bar arranged to trail after the gang of weed-cutters, substantially as described.

3. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-beam connected to the wheeled frame for adjustment in either a vertical or a horizontal direction thereon, means for adjusting the beam in a vertical direction, means for adjusting the beam in a horizontal direction, a carrying-frame connected with said beam to be extended therewith beyond the wheeled frame and to be raised therewith, as desired, and operating devices mounted on the carrying-frame, substantially as and for the purposes described.

4. In an apparatus of the class described, the combination with a wheeled frame, of a carrier, a carrying-frame arranged at an angle to, and connected with, said carrier, a gang of subsoil weed-cutters attached to the carrying-frame in staggered order, a sod-line cutter disposed at one side of the weed-cutters, and a dressing-bar in rear of said weed-cutters, substantially as described.

5. In an apparatus of the class described, the combination with a wheeled frame, and a carrier mounted thereon, of a carrying-frame connected with and disposed at an angle to said carrier, a gang of weeding-hoes attached to the carrying-frame in staggered order, each weeding-hoe having a shank which is clamped in place for adjustment relatively to the carrying-frame, a sod-line cutter disposed beyond the gang of weeding-hoes, and a dresser-bar arranged to travel after the weeding-hoes; substantially as described.

6. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-frame connected thereto, a gang of weeding-hoes, certain of which are mounted on said carrying-frame, means substantially as described, whereby the innermost hoe of the gang may be shifted at will relatively to the wheeled frame, a sod-line cutter disposed beyond the gang of weeding-hoes, and a dresser-bar arranged to travel in rear of the weeding-hoes, as and for the purposes set forth.

7. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-frame connected therewith, an adjustable arm connected to the carrying-frame and carrying a weeding-hoe, means for shifting said arm and the hoe thereon at will, other weeding-hoes mounted on the carrying-frame and occupying a staggered relation to one another and to the shiftable weeding-hoe described, a sod-line cutter at one side of the gang of weeding-hoes, and a dresser-bar arranged to trail after the weeding-hoes, as and for the purposes described.

8. In an apparatus of the class described, the combination with a wheeled frame, of a carrier mounted thereon, means whereby the carrier may be adjusted in vertical or horizontal planes, a carrying-frame having a hinged connection with the carrier, a gang of weeding-blades disposed in staggered order on the carrying-frame and arranged for one blade to overlap the path of a preceding blade, each blade being carried by a shank which is adjustably mounted on the frame, a sod-line cutter at one side of the gang of weeding-hoes, and a dresser-bar arranged to travel after the weeding-hoes, substantially as set forth.

9. In an apparatus of the class described, the combination with a wheeled frame, and a carrying-frame, of an adjustable arm pivoted on said carrying-frame and having a lever connected thereto, a gang of weeding-hoes one of which is clamped on the pivoted arm, and the other hoe or hoes clamped to the carrying-frame, a sod-line cutter at one side of the gang of weeding-hoes, and a dresser-bar arranged to travel in rear of the weeding-hoes, substantially as set forth.

10. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-frame provided with a hinge member, an arm pivoted to said hinge member and extending rearwardly from the frame, a guide-bar attached to the frame and embracing said arm, a lever fastened to the arm, a gang of hoes, certain of which are attached to the frame and with the innermost hoe attached to the pivoted arm, a sod-line cutter beyond the weeding-hoes, and a dresser-bar in rear of the weeding-hoes, substantially as described.

11. In an apparatus of the class described, the combination with a wheeled frame, and a carrier thereon, of a frame connected with the carrier and extending outwardly therefrom, a bar connected adjustably to the outer end of said frame and supporting a ground-wheel, a stay-rod attached to said outwardly-extending frame and to the wheeled frame, a gang of weeding-hoes mounted on said outwardly-extending frame, a sod-line cutter, and a dresser-bar, as and for the purposes described.

12. In an apparatus of the class described, the combination with a wheeled frame, and a carrying-frame extending outwardly therefrom, of a gang of weed-cutters mounted adjustably on the frame and adapted to be withdrawn from service, a sod-line cutter mounted on the outer portion of said carrying-frame, and a dresser-bar arranged to trail in rear of the weed-cutters, as and for the purposes described.

13. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-frame extending outwardly therefrom, a sod-line cutter angular in cross-section and provided with an upstanding shank, means for clamping said shank adjustably to said carrying-frame, a gang of weed-cutters mounted on the frame, and a dresser member trailing after the weed-cutters, substantially as described.

14. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-frame connected therewith and provided with a rearwardly-extending arm, a gang of weed-cutters mounted adjustably on the frame and adapted to be withdrawn from service, an angular sod-line cutter arranged for its vertical member to lie substantially parallel with said frame-arm, means whereby the sod-line cutter is mounted on said arm of the frame, and a dresser-bar arranged to travel in rear of the weed-cutters, as set forth.

15. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-frame connected therewith, a gang of weed-cutters mounted adjustably on the frame and adapted to be withdrawn from service, an inclined dresser member connected with said carrying-frame, and a sod-line cutter mounted on the carrying-frame beyond the weed-cutters, as set forth.

16. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-frame connected therewith and provided with a ground-wheel, a gang of weed-cutters mounted on the frame and adapted to be withdrawn from service, a dresser member arranged at one side of the carrying-frame and disposed in a rearwardly and inwardly inclined position with relation to the wheeled frame, means for connecting the dresser member to the carrying-frame, and a sod-line cutter disposed beyond the weed-cutters, substantially as described.

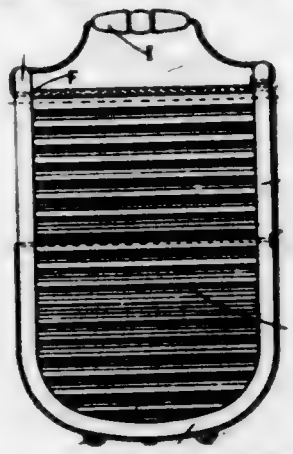
17. In an apparatus of the class described, the combination with a wheeled frame, of a carrying-frame connected therewith, a dresser member arranged at an angle to the wheeled frame and having its outer portion connected to the carrying-frame, a stay-rod connected to the inner portion of said dresser member, a gang of weed-cutters mounted on said carrying-frame in advance of the dresser member, and a sod-line cutter supported on the carrying-frame at one side of the weed-cutters, substantially as described.

18. In an apparatus of the class described, the combination with a wheeled frame, of a carrier-beam, keepers for maintaining said carrier-beam in position beneath the wheeled frame, a lever mounted on the wheeled frame and having a rod connected with the carrier-beam, means for supporting the lever at predetermined positions and adjusting the carrier-beam vertically, an outwardly-extending frame connected with the carrier-beam, and one or more operating devices mounted on said last-named frame, substantially as described.

19. In an apparatus of the class described, the combination with a wheeled frame, of a lever connected thereto, a carrier-beam having a series of perforations, a rod connected to the lever and adjustably attached to the carrier-beam, an outwardly-extending frame connected to the car-

rier-beam, and one or more operating devices on said outwardly-extending frame, substantially as described.

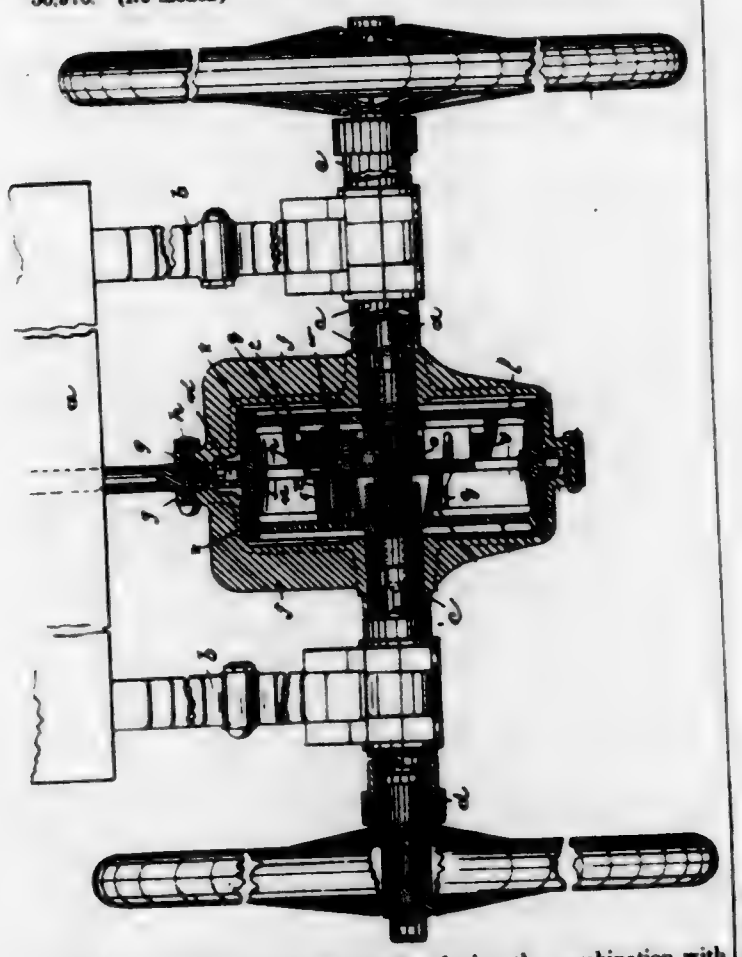
693,364. WASHBOARD. MARY E. BINGAMAN, New York, N. Y. Filed Nov. 6, 1899. Renewed July 27, 1901. Serial No. 69,869. (No model.)



Claim.—1. In a washboard, a frame having the lower end curved and forming a U shape, a panel serving as a rubbing-plate and secured within the frame, and projections at the lower curved end adapted to prevent lateral inclination, substantially as stated.

2. In a washboard, a frame having the lower end curved and forming a U shape and having a groove in the inner side of the frame, and a rubbing-plate within the frame in engagement with the groove, a wire having one end secured in one side of the frame about the middle of length portion of the rubbing-plate, and is disposed through the frame and across and in contact with the rear surface of the rubbing-plate, and through the opposite side of the frame, thence downwardly on the outside of the frame and around the convex bottom portion and upwardly on the opposite side to the top portion thereof where the wire passes through the side of the frame, and again across to and through the opposite side of the frame at the top of the rubbing-plate, which is attached thereto, thence upwardly and again across to the opposite side of the frame where the end is secured, the wire serving to support, and to hold the rubbing-plate in position in the groove, and as a handle for the washboard, substantially as stated.

693,365. POWER-TRANSMITTING AND BRAKING DEVICE. JOHN C. BLEVNEY, Newark, N. J. Filed Mar. 13, 1901. Serial No. 50,970. (No model.)



Claim.—1. In a power-transmitting device, the combination with the wheels and axles, of brake-wheels fixed to the adjacent inner ends of said axles, said brake-wheels having spurs formed thereon, one wheel having an interior series and the other an exterior series of spurs, and an intermediate driving-wheel with brake-flanges and compound pinions engaging the spurs, a brake-strap adapted to engage said brake-wheels and driving-wheel and means for transmitting power to said driving-wheel, substantially as set forth.

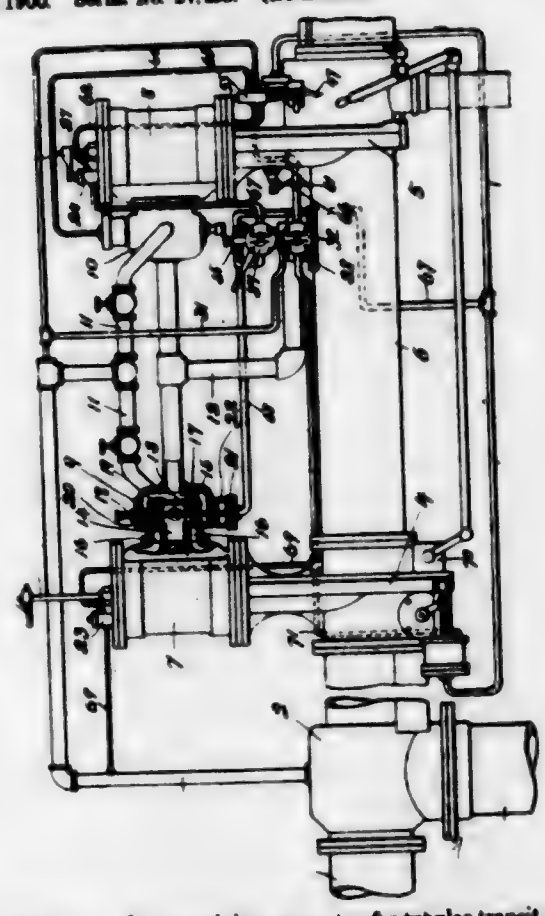
2. In a power-transmitting device, the combination with the vehicle-wheels and their axles, of brake-wheels fixed to the inner ends of said axles, said brake-wheels having spurs formed thereon in annular series, the series of one wheel being at a greater distance from the axis of rotation than the series of the other wheel, an intermediate driving-wheel having surfaces to be engaged by a brake-strap and having bearings for compound pinions, said compound pinions having each a large and a small member, one to engage one of said series of spurs and the other, the other series of spurs, and brake-straps adapted to engage both the brake-wheels and driving-wheel, substantially as set forth.

3. In a power-transmitting device, the combination with the wheels and axles, of a power-transmitting wheel independent of the said axles and adapted to be clutched thereto whereby power may be transferred from said transmitting-wheel to said axles, of a brake-wheel having its peripheral braking-surface corresponding or coinciding with a peripheral surface of said power-transmitting wheel, and a brake-strap overlapping and adapted to engage both said transmitting-wheel and brake-wheel, substantially as set forth.

4. In a power-transmitting device, the combination with the wheels and axles and a power-transmitting wheel adapted to receive power from a motor, of a brake-wheel attached to one of said axles and a brake-strap adapted to enter into braking engagement with both said power-transmitting wheel and brake-wheel at one and the same time, substantially as set forth.

5. In a power-transmitting device, the combination with the axles, of a toothed power-transmitting wheel having at opposite sides flanges, and having bearings to receive gearing by which power is transmitted from said power-transmitting wheel, of brake-wheels, at opposite sides of said power-transmitting wheel, having braking-surfaces and coöperating gearing-teeth, and intermediate gearing engaging the teeth of the power-transmitting wheel and the teeth of the brake-wheels, and brake-straps engaging both the power-transmitting wheel and the brake-wheel to stop rotation, substantially as set forth.

693,366. GENERAL CLASS OF TUBULAR DESPATCH SYSTEMS AND ESPECIALLY TO RECEIVING APPARATUS FOR INTERMEDIATE STATIONS. BRYANT H. BLOOD, New York, N. Y. Filed Aug. 20, 1900. Serial No. 27,455. (No model.)



Claim.—1. In a receiving apparatus for tubular transit systems, the combination with a receiving-chamber, pneumatically-operated gates therefor, and a main air-pressure supply for operating said gates, of a governing and controlling system consisting of pneumatically-operated valve mechanisms for said main air-pressure supply, an auxiliary air-supply for operating said valve mechanisms, an excess-pressure valve mech-

anism, a trip-finger valve mechanism and insurance valve mechanisms, said excess-pressure, trip-finger and insurance valve mechanisms so disposed and constituted as to render each function of the machine absolutely dependent upon the consummation of the preceding function, substantially as described.

2. In a receiving apparatus for tubular transit systems, a receiving-chamber, a gate at either end thereof, pneumatic operating mechanism for said gates, pneumatically-operated controlling-valves for said pneumatic operating mechanism, an excess-pressure valve for controlling said controlling valves, and a trip-finger valve mechanism for returning said before-mentioned parts to their normal positions, substantially as described.

3. In a receiving apparatus for tubular transit systems, a receiving-chamber, entrance and exit gates therefor, pneumatic operating mechanism for said gates, pneumatically-operated controlling-valves for said pneumatic operating mechanism, an excess-pressure valve mechanism for operating said entrance-gate-controlling valve, a valve operated by the movement of said entrance-gate for operating said exit-gate-controlling valve, and a trip-finger valve mechanism for returning said before-mentioned parts to their normal positions, substantially as described.

4. In a receiving apparatus for tubular transit systems, a receiving-chamber, entrance and exit gates therefor, pneumatic operating mechanism for said gates, an air-supply for said operating mechanism, controlling means for said air-supply, pneumatic operating mechanism for said controlling means, an air-supply for said last-mentioned operating mechanism, an excess-pressure valve mechanism for controlling said last-mentioned air-supply, and a trip-finger valve mechanism for returning said before-mentioned parts to their normal positions, substantially as described.

5. In a receiving apparatus for tubular transit systems, a receiving-chamber, pneumatically-operated entrance and exit gates therefor, pneumatically-operated valves for said gates, an air-supply, an excess-pressure valve mechanism for admitting to and exhausting air-pressure from said entrance-gate-valve-operating mechanism, a valve operated by the movement of said entrance-gate adapted to admit air-pressure to said exit-gate-valve-operating mechanism, and a trip-finger mechanism for returning said before-mentioned parts to their normal position, substantially as described.

6. In a receiving apparatus for tubular transit systems, a receiving-chamber, pneumatically-operated entrance and exit gates therefor, pneumatically-operated valves for said gates, an air-supply, an excess-pressure-valve-operating mechanism for admitting to and exhausting air-pressure from said entrance-gate valve, a trip-finger valve for admitting air-pressure to and exhausting said exit-gate-valve-operating mechanism, a trip-finger mechanism for throwing said trip-finger valve, means governed by said excess-pressure valve for returning said trip-finger valve, means governed by said trip-finger valve for returning said excess-pressure valve, and insurance-valves, substantially as and for the purpose set forth.

7. In a receiving apparatus for tubular transit systems, in combination with a receiving-chamber, entrance and exit gates therefor, of an excess-pressure valve mechanism adapted to control said entrance-gate, insurance-valves adapted to insure the complete operation of said gates before permitting a succeeding operation, a trip-finger valve for controlling said exit-gate, locking and releasing means for said excess-pressure and trip-finger valves, said trip-finger valve adapted to control said excess-pressure-valve-releasing means, and said excess-pressure valve adapted to control said trip-finger-valve-releasing means, substantially as described.

8. In an excess-pressure-valve mechanism for tubular despatch systems, in combination with a chamber in which said excess pressure is generated, an excess-pressure valve seated in the walls, or passage leading therefrom, of said chamber and adapted to be raised by said excess pressure, a stem for said valve, a spring tending to seat said valve, a balance-pressure chamber, the normal pressure from the line admitted to which balances the normal pressure in said first chamber, a locking and releasing mechanism for said valve, a lug upon said stem adapted to contact with and raise an auxiliary pressure-valve, with the raising of said excess-pressure valve, and means whereby said stem and lug may be turned out of alinement with said auxiliary pressure-valve to allow of the raising by hand of said excess-pressure valve alone, substantially as described.

9. In an excess-pressure-valve mechanism for tubular despatch systems, in combination with an excess-pressure valve, a stem therefor, means on said stem for raising an auxiliary pressure-valve, mechanism whereby said stem and means thereon may be rotated out of alinement with said auxiliary pressure-valve to allow of the raising of said excess-pressure valve alone, a lever for raising said excess-pressure valve, a lug or projection adapted to prevent the movement of said lever until said stem and means thereon have been rotated out of alinement with said auxiliary pressure-valve, substantially as described.

10. In combination with an excess-pressure valve of the character described, a stem therefor and a lug upon said stem for raising an auxiliary valve, of a hand-lever for raising said excess-pressure valve pivoted upon a revolable bracket, the movement of said bracket adapted to revolve said stem and lug out of alinement with said auxiliary valve and the excess-pressure valve adapted to be raised on the depression of said lever when so revolved, said hand-lever normally held raised by a spring and a stationary lug adapted to prevent the depression of said lever and consequent raising of the excess-pressure valve until the stem and lug have been so revolved out of alinement with said auxiliary valve, substantially as described.

11. In an excess-pressure valve for tubular transit systems, in combination with a receiving-chamber, a valve, a valve-chamber, a passage-way between said valve-chamber and receiving-chamber, a seat in said passage-way for said valve, said valve cylindrical in form and adapted to reciprocate within a cylinder located above said chamber, a spring normally tending to seat said valve, communicating means between said cylinder and the line through which normal pressure from the line is admitted to said cylinder balancing the normal pressure in said receiving-chamber and means for locking said valve in and releasing the same from its raised position, substantially as described.

12. In combination with an excess-pressure valve of the character described, a locking and releasing mechanism consisting of a shoulder on said valve, a pin mounted in the casing of said valve substantially at right angles thereto, a flexible diaphragm rigidly attached to said pin and adapted to reciprocate the same, a casing for said diaphragm, said pin projecting without said casing and provided with means for hand operation, a spring normally tending to throw said pin in engagement with said valve, an adjustable tension device for said spring and a port in the casing of said diaphragm, substantially as described.

13. In a machine of the character described, an auxiliary pressure-valve consisting of a barrel, a valve-piston, said valve-piston projecting below said barrel, upper and lower annular recesses in said barrel, a projecting upper portion of said valve-piston projecting without the barrel and provided with adjusting-nuts and means for hand operation, a spring normally tending to cause said valve-stem to assume its lower position, said upper annular recess opening communication between two ports when said valve-piston is in its lower position and closing the same when the valve-piston is raised, said lower annular recess opening communication between two ports when said valve-piston is raised and closing the same and opening communication between one of said ports and an exhaust-port when said valve-piston falls, and a locking and releasing mechanism for said valve-piston, substantially as described.

14. In combination with an auxiliary pressure-valve and a pneumatic locking and releasing device therefor, an air-pressure supply, means for conducting said air-pressure to said locking and releasing mechanism and from thence to said auxiliary pressure-valve, said valve being closed in its upper position but open in its lower position allowing said air-pressure to pass through, substantially as and for the purpose set forth.

15. In a machine of the character described, a trip-finger valve having a barrel, a valve-piston, two annular recesses in said piston, one of said recesses opening communication between two ports when said piston is in its lower position and between one of said ports and an exhaust-port when said piston is in its upper position, the other recess opening communication between two ports when said piston is in its upper position and between one of said ports and an exhaust-port when said piston is in its lower position, said piston projecting below and above said barrel, the upper end thereof provided with adjusting-nuts which also serve as a means of hand operation and a spring normally tending to hold said piston in its lower position, substantially as described.

16. In a trip-finger valve mechanism, in combination with a reciprocating valve, a pivoted trip-finger, a crank or eccentric thereon, a pin on said crank, a hand operating-lever for said finger, a link journaled on said pin adapted to be thrown into and out of alinement with said valve, a spring nominally tending to draw said link into alinement with said valve, a piston working in a cylinder and provided with a piston-rod, said piston-rod suitably connected to said link and adapted to throw the same out of alinement with said valve when air-pressure is admitted to said piston, substantially as described.

17. In combination with a gate-operating cylinder, piston and piston-rod, an insurance-valve, said valve adapted to be opened by being depressed, a spring normally tending to close said valve, said piston-rod projecting without the head of said cylinder and provided with a lug, said lug being adjustably mounted thereon and adapted to contact and depress said valve on the closing of the gate, substantially as described.

18. In receiving apparatus for tubular transit systems, the combination with a receiving-chamber, an entrance-gate for said chamber, an exit-gate for said chamber, pistons and cylinders for operating said gates, a main air-pressure supply for said cylinders, of a pilot-valve for admitting and exhausting said main air-pressure supply to and from either side of said entrance-gate piston, means normally causing said pilot-valve to assume a position maintaining said entrance-gate in an open position, pneumatic pilot-valve-shifting mechanism designed to shift said pilot-valve to its other position to close said entrance-gate, a pilot-valve for admitting and exhausting said main air-pressure supply to and from either side of said exit-gate piston, means normally causing said pilot-valve to assume

a position maintaining said exit-gate in a closed position, pneumatic pilot-valve-shifting mechanism designed to shift said pilot-valve to its other position to open said exit-gate, an auxiliary air-supply pipe for conveying air under pressure to said exit-gate pneumatic pilot-valve-shifting mechanism, a normally closed valved in said pipe, means upon the movable member of said entrance-gate for opening said latter valve upon the complete closure of said entrance-gate, an excess-pressure valve in said receiving-chamber designed to be raised by an increase of pressure above the normal line-pressure, an auxiliary supply-pipe for conveying air under pressure to said entrance-gate pneumatic pilot-valve-shifting mechanism, a normally closed valve in said latter pipe designed to be opened by and upon the raising of said excess-pressure valve, substantially as described.

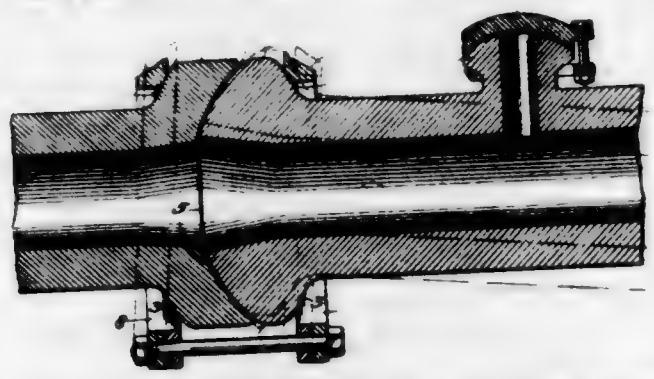
19. In receiving apparatus for tubular transit systems, the combination with a receiving-chamber, an entrance-gate and an exit-gate for said receiving-chamber, an auxiliary cushioning-chamber, auxiliary-cushioning-chamber-operating means and pneumatic controlling means for said two gates, of a common operating air-pressure supply for said auxiliary-cushioning-chamber-operating means and said exit-gate-controlling means, said common operating air-pressure supply controlled by said entrance-gate, substantially as described.

20. In receiving apparatus for tubular transit systems, the combination with a receiving-chamber, an entrance-gate and an exit-gate for said receiving-chamber, an auxiliary cushioning-chamber, auxiliary-cushioning-chamber-operating means, a trip-finger mechanism, returning means for said trip-finger mechanism, of a common returning air-pressure supply controlled by said exit-gate, substantially as described.

21. In receiving apparatus for tubular transit systems, the combination with a receiving-chamber of a normally open entrance-gate, means for closing said entrance-gate actuated by the excess pressure produced by an entering carrier, a normally closed exit-gate, means actuated by said entrance-gate to open said exit-gate upon the complete closure of said entrance-gate and a trip-finger without said exit-gate designed to be actuated by the carrier, a valve actuated by said trip-finger, an air-pressure supply designed to be admitted by said valve to mechanism for returning said several parts to their normal positions to actuate the same, substantially as described.

22. In receiving apparatus for tubular transit systems, the combination with a receiving-chamber, gates for said chamber and a system of pneumatically operated and controlled devices for actuating said gates, of a balanced excess-pressure valve communicating with said chamber, a valve controlling the air-pressure to said pneumatically operated and controlled devices, said valve actuated by said excess-pressure valve, a system of pneumatically operated and controlled devices for returning said parts to their normal positions, a trip-finger, a valve actuated by said trip-finger controlling the air-pressure to said latter pneumatically operated and controlled devices and a device actuated by the complete return to normal of the last of said pneumatically operated and controlled devices designed to return said latter valve to its normal position, substantially as described.

693,367. PIPE-JOINT. HOMER BROOKE, Jersey City, N. J. Filed Dec 6, 1899. Serial No. 739,353. (No model.)



Claim.—1. A pipe-joint, the same consisting of two pipe-sections, one of which is provided with an integrally-formed flange having a concave abutting surface, and the other pipe-section is provided with an integrally-formed flange having a convex abutting surface, the rear surface of each of said flanges being inclined toward the abutting surfaces, and means, independent of said flanges, whereby said flanges are maintained in fluid-tight abutment permitting of radial movement of each of the pipe-sections relatively to the other, substantially as specified.

2. A pipe-joint, the same consisting of two pipe-sections, one of which is provided with an integrally-formed flange having a concave abutting surface, and the other pipe-section is provided with an integrally-formed flange having a convex surface, the rear surface of each of said flanges being inclined toward the abutting surfaces, and independent separable flanges encircling the pipe-sections, the interior diameters of said flanges being greater than the inclosed pipe-section, and less than the diameter of the outer periphery of the integrally-formed flanges, said independent flanges being secured together to maintain the pipe-section flanges in fluid-tight abutment permitting of radial movement, substantially as specified.

3. A pipe-joint, the same consisting of two pipe-sections, one of which is provided with an integrally-formed flange having a concave abutting surface, and the other is provided with an integrally-formed flange having a convex abutting surface, one of said abutting surfaces being provided with a plurality of independent recesses arbitrarily shaped and disposed, and means, independent of said flanges, whereby said flanges are maintained in fluid-tight abutment permitting of radial movement of the pipe-sections relatively to each other, substantially as specified.

4. A pipe-joint, the same consisting of two vitreous pipe-sections, one of which is provided with an integral vitreous flange having a concave ground abutting surface and the other with an integral vitreous flange having a convex ground abutting surface, and means independent of said flanges whereby said flanges are maintained in fluid-tight abutment permitting of radial movement of each of the pipe-sections relatively to the other, substantially as described.

5. A pipe-joint, the same consisting of two vitreous pipe-sections, one of which is provided with an integral vitreous flange having a concave ground abutting surface and the other with an integral vitreous flange having a convex ground abutting surface, and means, independent of said flanges, whereby said flanges are maintained in fluid-tight abutment permitting of radial movement of each of the pipe-sections relatively to the other, the line of force exerted by said securing means passing through the abutting surfaces of said vitreous flanges, substantially as specified.

6. A pipe-joint, the same consisting of two vitreous pipe-sections, one of which is provided with an integral vitreous flange having a concave ground abutting surface, and the other with an integral vitreous flange having a convex ground abutting surface, the rear surface of each of said flanges being inclined toward the abutting surfaces, and independent separable flanges encircling the pipe-sections, the interior diameter of said flanges being greater than the inclosed pipe-sections and less than the diameter of the outer periphery of the vitreous flange, said independent flanges being secured together to maintain the vitreous flanges in fluid-tight abutment permitting of radial movement, substantially as specified.

7. A pipe-joint, the same consisting of two vitreous pipe-sections, one of which is provided with an integral vitreous flange having a concave ground abutting surface and the other with an integral vitreous flange having a convex ground abutting surface, the rear surface of each of said flanges being inclined toward the abutting surfaces, and independent separable flanges encircling the pipe-sections, the interior diameter of said flanges being greater than the inclosed pipe-sections and less than the diameter of the outer periphery of the vitreous flanges, said independent flanges being secured together to maintain the vitreous flanges in fluid-tight abutment permitting of radial movement, the line of force exerted by said separable securing-flanges passing through the abutting surfaces of said vitreous flange, substantially as specified.

693,368. SAFETY-POCKET. ROBERT R. BROWN, Maywood, Ill. Filed Oct. 27, 1900. Serial No. 34,542. (No model.)

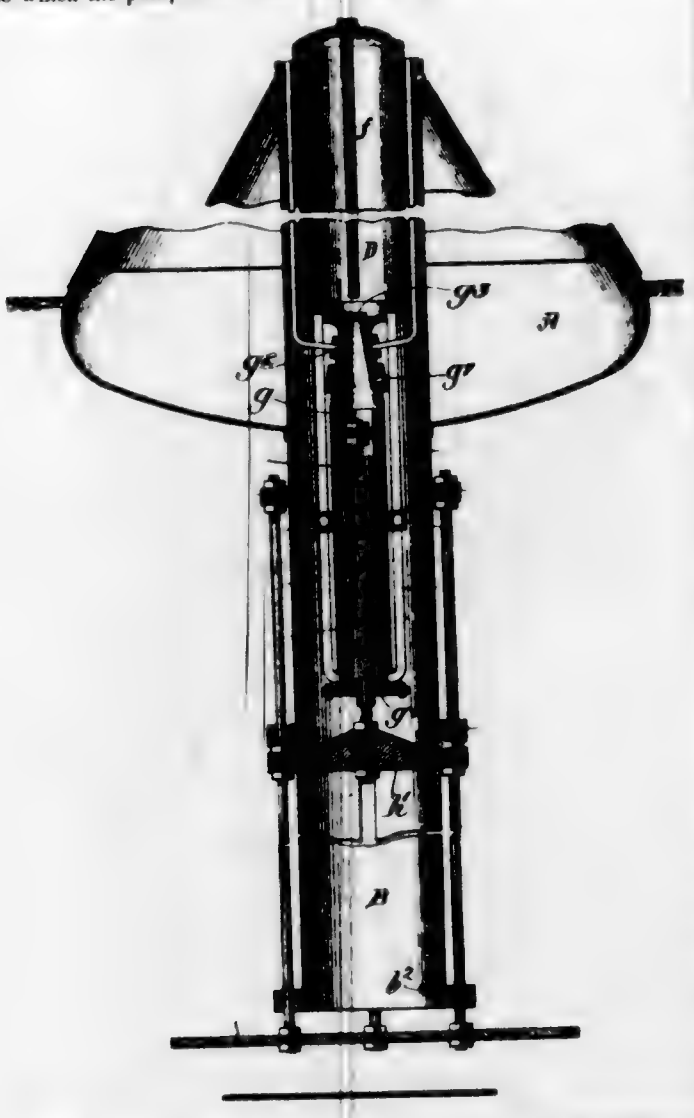


Claim.—A safety-pocket consisting of a casing provided with means for facilitating its attachment to wearing-apparel and a hinged lid at the front side, this lid extending from one end of the casing to near its other end, a partition-wall in the casing coincident with this latter end of the lid, this wall being vertically divided and one part being carried by the main casing and the other part by the lid, whereby when the lid is closed a closed alarm-chamber is formed at the end of the casing beyond the partition, an alarm-bell in this chamber, a spring-actuated clapper, and an operating latch or hook attached to the lid part of said partition, as and for the purposes set forth.

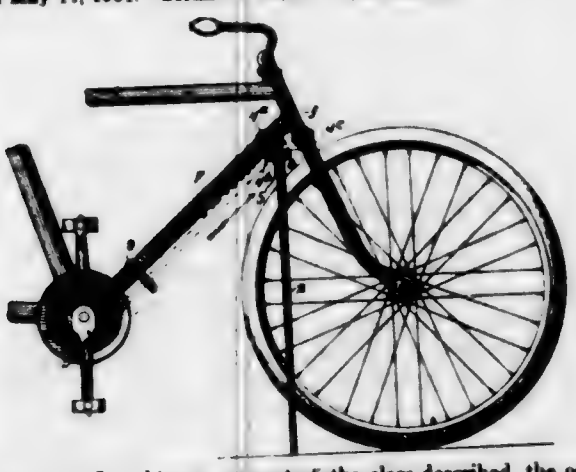
698,369. WAVE-MOTOR. WILLIAM S. BRYANT, Cohasset, Mass. Filed July 20, 1900. Serial No. 24,294. (No model.)

Claim.—1. The wave-motor above described made up of a reservoir; a pump with both air and water inlets for forcing both water and air into that reservoir; and a buoy and platform relatively movable by waves whose relative motion actuates the pump.

2. In combination, a buoy; a tube depending from that buoy; a platform; a cage extending from the platform and telescoping with the tube of the buoy; a pump whose cylinder and piston are moved relatively by the relative motion of the buoy and platform; and a reservoir into which the pump forces both water and air.



693,870. BICYCLE-SUPPORT. HUGH BURNET, Victoria, Canada. Filed May 17, 1901. Serial No. 60,716. (No model.)



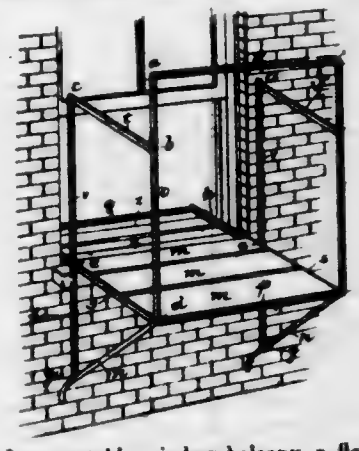
Claim.—1. In a bicycle-support of the class described, the combination with support-legs of the attachment-piece 4 bent to partially encircle the tubular frame of the bicycle; downwardly-turned parallel sides 4^b; the clamping-screw 5 through such sides; the apertures 6 through the forward end of the sides 4^b; the slit *f* from the aperture; outwardly-inclined sides 4^c from the lower edge of the apertures; the shouldered strut 7 and the stops 8, substantially as described.

2. In a bicycle-support of the class described, the combination with an attachment clamped to the frame of the machine having downwardly-turned parallel sides, apertures through the forward end, and outwardly-angled sides below such apertures; the slit *f* from the aperture; the spring 3 fulcrumed in the apertures having a coil 3^b in the center and downwardly-turned ends 3^a, exterior to the sides, on which are secured the legs 2; means for stopping them at their extreme downward limit and sustaining them along the frame when not in use.

3. In a bicycle-support of the character described, the combination with a supporting member adapted to straddle one of the tubular bars of the bicycle-frame, said supporting member having registering apertures in its opposite sides, said members having outwardly-bent portions, and supporting-legs having a cross portion adapted to engage the registering apertures in the aforesaid support, substantially as shown and for the purposes described.

4. As a new improvement for the purposes specified, a supporting means for bicycles, comprising in combination; a body having a clip member for securing it to the bicycle-frame, said body having straight sides 4^b, said sides having apertures 6 and slits *f*, communicating with the said apertures, divergingly-extending members 4^c, a brace-rod for holding the diverging members separated, and a spring member having laterally-bent portions to engage the apertures 6 in the supporting member and terminating in downward divergingly-extending leg members 2, said members being arranged to lie upon the members 4^c, the cross-bar 8 having its ends projected beyond the members 4^c to form stops for the said legs, all being arranged substantially as shown and for the purposes described.

693,371. WINDOW-BALCONY. DAVID BUTLER, Border City, N. Y. Filed July 16, 1901. Serial No. 68,552. (No model.)



Claim.—1. In a portable window-balcony, a floor-frame, a guard-frame pivoted to the outer end of said floor-frame, a brace pivoted under said floor-faame, and means pivoted to said floor-frame to cause the free ends of said guard-frame and said braces to simultaneously swing toward each other, substantially as shown and described.

2. In a portable window-balcony, the side rods of the floor-frame interior of the window notched correspondingly, a lock consisting of a U-shaped piece of metal having a bolt therethrough adapted to seat in said notches, a bolt adapted to press against the bottom of the side rod, and a wedge-shaped piece secured in said U-shaped piece, substantially as shown and described.

3. In a portable window-balcony, a frame constructed to support a floor, and adapted to project through a window, braces extending downwardly pivoted to the outer part of the frame, a guard-frame pivoted to the front of said floor-frame, a lever pivoted on each side of said floor-frame, an arm connecting each lever with the brace on the corresponding side of the floor-frame, an arm connecting the lever with the guard-frame, and means to prevent said frame from slipping outwardly, substantially as shown and described.

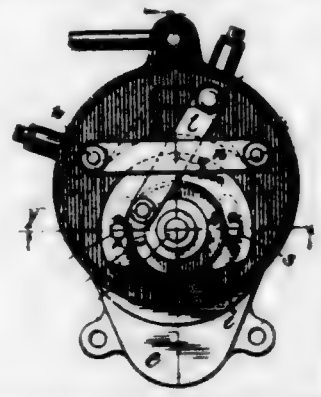
4. In a portable window-balcony, a floor-frame having side rods made of angle-iron to support the floor of the balcony, a guard-frame pivoted to the outer end of said floor-frame, a brace pivoted to each side rod, a lever pivoted to each side rod, an arm connecting the upper end of each lever with the guard-frame, an arm connecting the lower end of the lever with the brace, the inner end of each side rod notched on its upper edge, and a lock adapted to seat in said notches to prevent said balcony slipping outwardly, substantially as shown and described.

5. In a portable window-balcony, a frame having side rods made of angle-iron to support floor-boards and adapted to project through a window, a brace pivoted to each side rod and swinging downwardly, a guard-frame pivoted to the front of said frame, a lever pivoted on each side of said floor-frame, an arm connecting each lever with the brace on the corresponding side of said floor-frame, an arm connecting the lever with the guard-frame, notches on the floor-frame, and locks adapted to bear in said notches to prevent outward slipping of the balcony consisting of U-shaped pieces of metal carrying bolts to impinge in said notches and against the bottom of each side rod, and a wedge-shaped piece fixedly secured between the arms of said U-shaped member, substantially as shown and described.

693,372. CIRCUIT-BREAKER FOR ELECTRIC IGNITERS FOR EXPLOSIVE-ENGINES. FERDINAND E. CANDA, New York, N. Y. Filed Apr. 14, 1900. Serial No. 12,829. (No model.)

Claim.—1. In a circuit-breaker, the combination, with a cam adapted to cause vibration of a vibratory follower, and means for operating the cam, of a vibratory follower therefor, and a second vibrator adapted to be set in vibration by said follower when the latter is actuated, and to make

and break contact with said follower in such vibration, whereby a succession of sparks may be produced, each time the follower is operated.



2. In a circuit-breaker, the combination, with a rotary cam adapted to cause vibration of a vibratory follower, and means for operating the cam, of two spring vibrators, one forming a follower for the cam and arranged to be set in vibration thereby, and the other adapted to be set in vibration by said spring-follower when so actuated, and to make and break contact with said follower in such vibration, whereby a succession of sparks may be produced, each time the follower is operated.

3. In a circuit-breaker, the combination, with a rotary cam adapted to cause vibration of a vibratory follower and means for operating the cam of two intersecting leaf-springs one forming a follower for the cam and arranged to be set in vibration thereby, and the other adapted to be set in vibration by said first spring when it is so actuated, and to make and break contact therewith in its vibration, whereby a succession of sparks may be produced, each time the follower is operated.

4. In a circuit-breaker, the combination, with a rotary cam adapted to cause the vibration of a vibratory follower, and means for operating the cam, of a pivoted support, a vibratory follower for the cam, carried by said support, and a second vibrator adapted to be set in vibration by said follower when the latter is actuated, and to make and break contact with said follower in such vibration, whereby a succession of sparks may be produced, each time the follower is operated, and means for moving said support about its pivot, thereby varying the point at which the follower is operated.

5. In a circuit-breaker, the combination, with a rotary cam having a groove adapted to receive a shoe of a follower, said cam being arranged to actuate such follower, of a spring-follower, provided with a shoe riding in such groove, and means, operated by said follower when set in motion by said cam, for controlling an electric circuit.

6. In a circuit-breaker, the combination, with a rotary cam having in one side a face-groove adapted to receive a shoe of a follower, said cam being adapted to cause vibration of such follower, of a vibratory follower having a shoe riding in said groove, and a vibrator adapted to be set in vibration by said follower when the latter is actuated, and to make and break contact with said follower in such vibration, whereby a succession of sparks may be produced, each time the follower is operated.

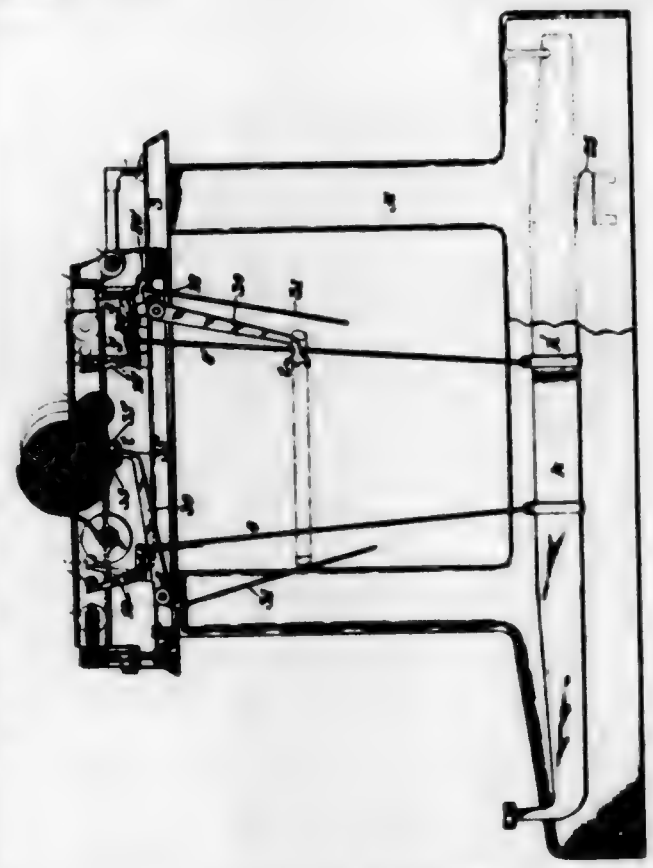
698,378. KEY-OPERATED MACHINE. CHARLES S. CHAMPION, Hartford, Conn., assignor to Francis H. Richards, Hartford, Conn. Filed Dec. 31, 1897. Serial No. 664,314. (No model.)

Claim.—1. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of separably-operable shifting means attached to separate moving parts for moving said platen transversely to its line of travel different distances in the same direction, and stops controlling such positions of the platen.

2. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of separably-operable shifting means attached to separate moving parts for moving said platen transversely to its line of travel from a normal position different distances in the same direction, and stops controlling such positions of the platen.

3. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of separably-operable shifting means attached to separate moving parts for moving said carriage transversely to its line of travel from a normal position different distances in the same direction; stops controlling such positions of the platen; and retracting means for returning said platen from either of such other positions to its normal position.

4. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of separably-operable shifting means attached to separate moving parts for moving said platen transversely to its line of travel from a normal position different distances in the same direction; stops controlling such positions of the platen; and a retracting-spring for normally returning the platen to its first-mentioned position.



5. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of a pair of separately-operable shifting devices attached to separate moving parts for moving said platen transversely to its line of travel different distances in the same direction from a normal position thereof, and stops controlling such positions of the platen.

6. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of a pair of separately-operable key-actuated shifting devices attached to separate moving parts for moving said platen transversely to its line of travel different distances in the same direction from a normal position thereof, and stops controlling such positions of the platen.

7. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of separately-operable key-actuated shifting-levers attached to separate moving parts for shifting said platen transversely to its line of travel different distances in the same direction from a normal position thereof, and stops controlling such positions of the platen.

8. In a key-operated machine, the combination, with a traveling carriage, and with means for imparting a traveling movement to said carriage, of a platen supported on said carriage and shiftable transversely thereof; separably-operable shifting means attached to separate moving parts for moving said platen transversely to the carriage different distances in the same direction; and stops controlling such positions of the platen.

9. In a key-operated machine, the combination, with a traveling carriage movable between two extreme positions and with means for imparting a traveling movement to said carriage, of a platen supported on said carriage and shiftable transversely thereof; separably-operable shifting means attached to separate moving parts for moving said platen transversely to the carriage at any point in the movement of the carriage and different distances in the same direction; and stops controlling such positions of the platen.

10. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of a key-controlled type having three type characters thereon disposed in a line transverse to the printing-line of the platen; separably-operable shifting means attached to separate moving parts for moving said platen transversely to its line of travel different distances in the same direction to bring the printing-line thereof opposite the corresponding character of the type; and stops controlling such positions of the carriage.

11. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for

imparting a traveling movement to said platen, of a pair of stops controlling two different transverse positions of said platen; a sliding stop movable into and out of action and controlling a third transverse position of the platen; and shifting means for moving said platen to any one of said three positions.

12. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of a pair of stops controlling two different transverse positions of said platen; a key-operated sliding stop movable into and out of action and controlling a third transverse position of the platen; and shifting means for moving said platen to any one of said three positions.

13. In a key-operated machine, the combination, with a traveling platen shiftable transversely to its direction of travel, and with means for imparting a traveling movement to said platen, of a pair of stops controlling two different transverse positions of said platen; shifting means for moving said platen to any one of its different transverse positions; and a sliding stop controlled by said shifting means and movable into and out of action and controlling a third transverse position of the platen.

14. In a key-operated machine, the combination, with a traveling carriage, and with means for imparting a traveling movement to said carriage of a platen-carrier supported on said carriage and shiftable transversely thereof; a platen on said platen-carrier; a pair of stops controlling two different transverse positions of said platen-carrier; a sliding stop movable into and out of the path of the platen-carrier and controlling a third transverse position of the platen-carrier; and shifting means for moving said platen-carrier to any one of said three positions.

15. In a key-operated machine, the combination, with a traveling carriage, and with means for imparting a traveling movement to said carriage, of a platen-carrier supported on said carriage and shiftable transversely thereof; a platen on said platen-carrier; a pair of stops controlling two different transverse positions of said platen-carrier; a pair of separately-operable shifting devices for moving said platen-carrier to either one of two transverse positions thereof; and a shiftable stop controlled by one of said shifting devices and movable into and out of the path of the platen-carrier and controlling a third transverse position of said platen-carrier.

16. In a key-operated machine, the combination, with a carriage, of a platen-carrier supported on said carriage and shiftable transversely thereof; a platen on said platen-carrier; a pair of stops for limiting the extreme movements of the platen-carrier in opposite directions; a shiftable stop movable into and out of the path of the platen-carrier between one of said pairs of stops and the platen-carrier; and shifting means for actuating said shiftable stop.

17. In a key-operated machine, the combination, with a carriage, of a platen-carrier supported on said carriage and shiftable transversely thereof; a platen on said platen-carrier; a pair of stops for limiting the extreme transverse movements of the platen-carrier in opposite directions; a shiftable stop movable into and out of the path of the platen-carrier between one of said pair of stops and the platen-carrier; retracting means normally tending to return the platen-carrier into engagement with the other of said pair of stops; and shifting means for actuating said shiftable stop.

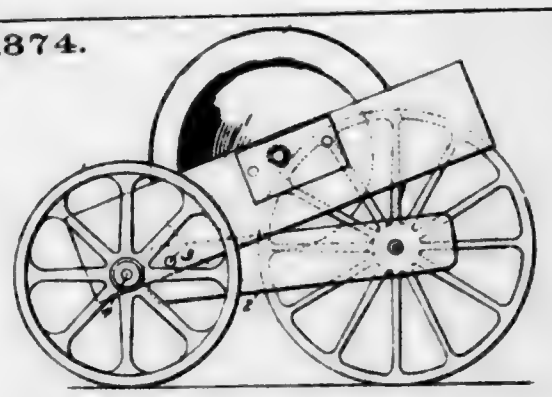
18. In a key-operated machine, the combination, with a carriage, of a platen-carrier supported on said carriage and shiftable transversely thereof; a platen on said platen-carrier; a pair of stops for limiting the extreme movements of the platen-carrier in opposite directions; a reciprocatory stop movable into and out of the path of the platen-carrier between one of said pair of stops and the platen-carrier and of sufficient weight to return to its normal position after being actuated; and shifting means for actuating said reciprocatory stop.

19. In a key-operated machine, the combination, with a carriage, of a platen-carrier supported on said carriage and shiftable transversely thereof; a platen on said platen-carrier; a pair of stops for limiting the extreme transverse movements of the platen-carrier in opposite directions; a vertically-reciprocatory stop in contact with one stop of said pair and movable into and out of the path of the platen-carrier between said last-mentioned stop and the platen-carrier; and shifting means for actuating said shiftable stop.

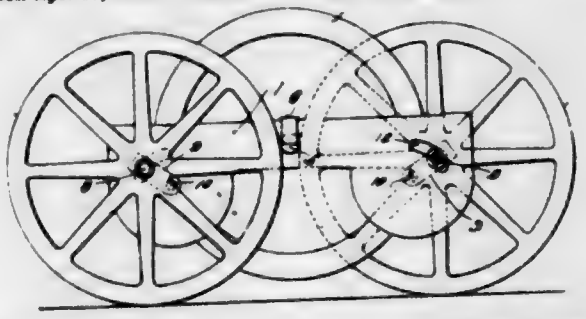
693,874. LOCOMOTIVE TOY. DAVID P. CLARK, Dayton, Ohio. Filed Sept. 27, 1900. Serial No. 31,218. (No model.)

Claim.—A locomotive toy comprising a two-part frame, one section of which is provided with running-wheels at its front end and with an inertia-wheel and its axle mounted therein rearward of said running-wheels, the other section being pivoted at its front end to the first-mentioned section and having rearward thereof running-wheels mounted on it, the axle of the inertia-wheel lying between the two pairs of running-wheels, whereby pressure on the frame will cause said axle to press at an angle on the rims of the running-wheels of the last-mentioned section, substantially as described.

693,874.



693,875. LOCOMOTIVE TOY. DAVID P. CLARK, Dayton, Ohio. Filed Apr. 11, 1901. Serial No. 55,282. (No model.)



Claim.—1. A locomotive toy comprising a supporting-frame, an inertia-wheel having an axle mounted in bearings in said frame, ground or running wheels supporting said frame, and pivoted arms connecting one pair of said running-wheels with said frame, whereby, when downward pressure is exerted on the frame, the peripheries of said running-wheels will be forced into contact with the inertia-wheel axle, substantially as described.

2. A locomotive toy comprising a supporting-frame, and an inertia-wheel provided with an axle mounted in bearings in said frame, in combination with ground or running wheels supporting said frame, and pivoted arms connecting one pair of said running-wheels with said frame, said pivoted arms being rigidly connected to move in unison, whereby, when downward pressure is exerted on said frame, said running-wheels will be forced against the inertia-wheel axle, substantially as described.

3. A locomotive toy comprising a supporting-frame, and an inertia-wheel provided with an axle mounted in bearings in said frame and extending laterally beyond said frame, in combination with ground or running wheels supporting said frame, and pivoted arms connecting one pair of said running-wheels with said frame, said frame being provided with curved slots, and said running-wheels being provided with an axle having its bearings in said pivoted arms and extending through the slots in the frame, the wheels being mounted on the ends of said axle outside of said frame and being arranged to contact with the inertia-wheel axle when said frame is depressed, substantially as described.

4. A locomotive toy comprising a frame, an inertia-wheel provided with an axle mounted in bearings in said frame, ground or running wheels mounted in pairs on axles located on opposite sides of said inertia-wheel axle, and pivoted arms connecting said ground or running wheels with said frame, whereby, when said frame is depressed, the pairs of running-wheels will bear with equal force on opposite sides of the inertia-wheel axle, substantially as described.

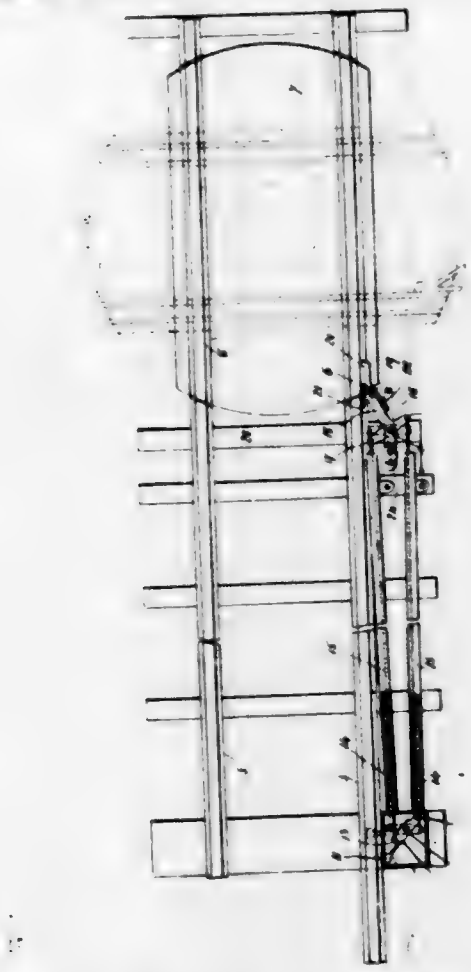
5. A locomotive toy comprising a frame, and an inertia-wheel having an axle mounted in bearings in said frame and extending laterally beyond the same on each side, in combination with two running-wheel axles located on opposite sides of the inertia-wheel axle, pivoted arms connecting each running-wheel axle with the frame, said frame being provided with curved slots through which the running-wheel axles extend, and running-wheels mounted on the projecting ends of said axles outside of the frame, and adapted to bear on opposite sides of the inertia-wheel axle when the frame is depressed, substantially as described.

6. A locomotive toy comprising a frame, an inertia-wheel having an axle mounted in bearings in said frame and extending beyond the same at each side, two running-wheel axles located on opposite sides of said inertia-wheel, each running-wheel axle having its bearings in a pair of rigidly-connected arms pivoted to the inside of the frame between said running-wheel axle and the inertia-wheel axle, said running-wheel axles extending through curved slots in the frame, and running-wheels mounted on the projecting ends of said axles and adapted to bear on opposite sides of the inertia-wheel axle when the frame is depressed, substantially as described.

7. In a locomotive toy of the character described, the combination, with a frame, and running-wheels supporting the same, of an inertia-wheel having an axle mounted in bearings in said frame and projecting beyond

the same, said frame being provided with outwardly and downwardly extending projections over the ends of the inertia-wheel axle, which serve as guards and as stops to limit the longitudinal movement of said axle, substantially as described.

693,376. RAILWAY SIGNAL APPARATUS. SAMUEL F. CLOUSER, Brooklyn, N. Y. Filed Mar. 23, 1899. Renewed July 19, 1901. Serial No. 68,963. (No model.)

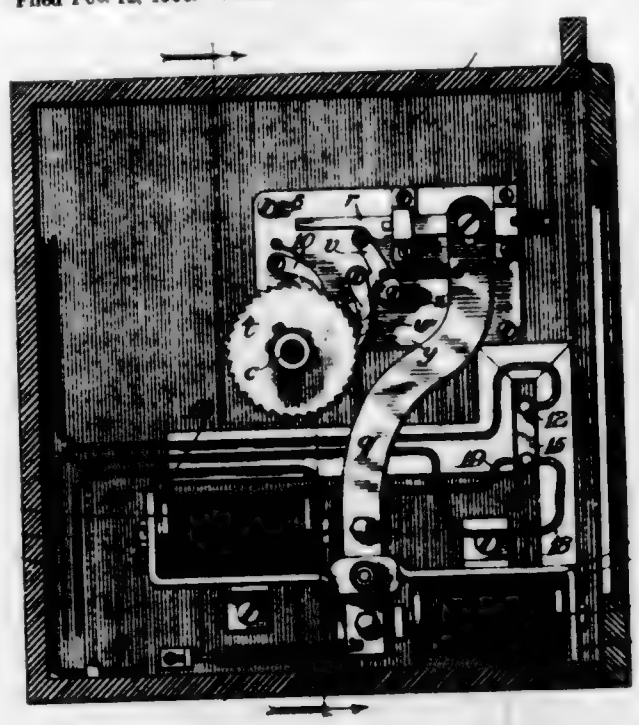


Claim.—1. A railway signal apparatus adapted to be operated by a movable portion of the track mounted on a pivotal support and adapted to turn in a horizontal plane, comprising a support pivoted adjacent to the track at a predetermined distance from said movable portion thereof, said support comprising a lever, one end of which is adapted to be thrown over the adjacent rail of the track, another lever pivotally supported adjacent to the movable portion of the track, said levers being in operative connection at each side of their pivotal supports, and an operating device connected with the movable portion of the track, and provided with two arms or projections, one of which is longer than the other, said arms or projections being adapted to turn said last-named lever in both directions, substantially as shown and described.

2. A railway signal apparatus adapted for use in connection with a movable portion of a track and consisting of a casing arranged adjacent a fixed portion of a track, a lever mounted therein and having one end portion capable of oscillation into a position above said fixed track portion, another lever mounted adjacent said movable track portion and provided with a projecting arm, both of said levers being operatively supported approximately centrally, and the ends of each lever being connected operatively with the ends of the other lever, said movable track portion being provided with a bracket secured to one of the rails thereof and provided with a shorter arm which approximately parallels said rail, and a longer arm at an angle therewith, which bracket operates in connection with a pin fixed to the arm of said lever which is mounted adjacent said movable track portion, to swing said last-named lever in both directions whereby a torpedo placed upon one end of said lever adjacent the fixed portion of said track, may be swung above and retracted from said fixed track portion, substantially as shown and described.

3. In a railway signal apparatus adapted for use in connection with a movable portion of a track, and comprising a first pivoted member mounted adjacent a fixed portion of a track, and adapted to hold a torpedo and to throw the same over said track portion, and a second pivoted member operatively connected therewith, and mounted adjacent said movable track portion and provided with a pin or stud; a bracket secured to one of the rails of said movable track portion and provided with a short arm which approximately parallels the adjacent track and with a long arm which projects at an angle thereto, said pin or stud being arranged to operate in connection with and between said arms, and to be moved thereby to pivotally move said first member, substantially as shown and described.

693,377. STATION-INDICATOR. ARTHUR COPE, Chicago, Ill. Filed Feb. 18, 1901. Serial No. 47,825. (No model.)



Claim.—1. In a station-indicator, the combination of a rotatable head, a plurality of indicating-plates pivoted thereto, two ratchet-wheels oppositely arranged secured to such head, a vibrating lever provided with a spring-pressed pawl engaging with one of the ratchets to move it in a forward manner and with a detent engaging the other ratchet to limit the forward movement, a reciprocating slide in engagement with a vibrating lever, electromagnetic-actuated mechanisms arranged to operate the vibrating lever and therethrough the other parts and means for automatically closing and breaking the electric circuit, substantially as described.

2. In a station-indicator, the combination of a rotatable head, a plurality of indicating-plates pivoted thereto, two ratchet-wheels oppositely arranged secured to said head, a vibratable lever provided with a pawl engaging one ratchet-wheel to move it forwardly and with a detent engaging the other ratchet-wheel to limit the forward movement, a reciprocating slide to operate the vibratable lever, an armature-lever in engagement with said slide to operate the same, and electromagnets for operating said armature-lever, substantially as described.

3. In a station-indicator, the combination of a rotatable head, a plurality of indicating-plates pivoted thereto, two ratchet-wheels oppositely arranged secured to such head, a vibratable lever provided with a spring-pressed pawl engaging one ratchet-wheel to rotate the parts in a forward direction and with a detent engaging the other parts to limit the forward movement, a pivoted armature-lever provided at one end with a reciprocating slide to contact the vibratable lever and operate the parts, two electromagnets arranged at each side of the pivot on the armature-lever to vibrate it in one direction, and a spring connected with such armature-lever to vibrate it in the opposite direction, substantially as described.

693,378. TRIPLE SALT AND METHOD OF MAKING SAME. EMIL COURANT, Berlin, Germany. Filed Aug. 15, 1899. Serial No. 727,297. (No specimens.)

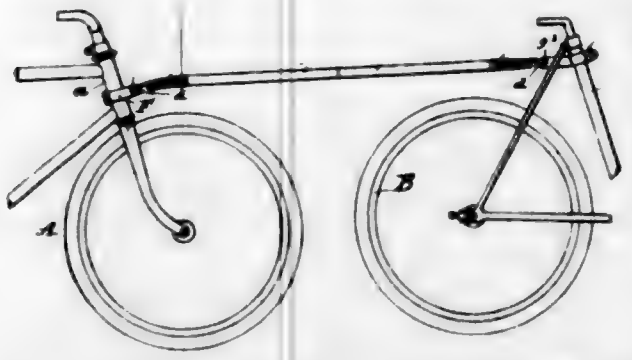
Claim.—1. As a new article of manufacture a triple salt containing a double cyanid and consisting of a combination of a cyanid of a metal of the alkaline groups with a cyanid of another metal and a salt, other than cyanid, of the said metal of the alkaline groups, substantially as described.

2. The process herein described of producing a triple salt with a double cyanid, said process consisting in causing a metal oxid to react with cyanids of a metal of the alkaline groups and subjecting the product to the action of an acid, substantially as described.

693,379. BICYCLE-COUPLING. GEORGE R. C. DAVIS, Manchester, N. H., assignor of one-half to John Champoux, Manchester, N. H. Filed Aug. 8, 1900. Serial No. 26,230. (No model.)

Claim.—1. As a means of coupling two bicycles one forward of the other, a bar or tube provided at its ends with extensions formed of helically-bent spring-wire, suitable hooks rigidly attached or formed integral one at the free end of each helical extension, and bands adapted for at-

tachment one to each bicycle and having each a socket to which the hooked end of either helical extension may be firmly secured.



2. As a means of coupling two bicycles one forward of the other, a sectional bar or tube the adjacent ends of said sections being connected by a threaded plug, flexible extensions formed of helically-bent spring-wire and secured one to each outer end of said coupling-bar, a suitable hook formed integral with or rigidly attached to the free end of each helical extension, and a metal band adapted for attachment to each bicycle and provided with a socket to which the hook of either helical extension may be firmly attached.

693,380. VEHICLE-WHEEL. CLAUDE DÉGRANGE, Lyons, France. Filed June 26, 1899. Serial No. 721,799. (No model.)



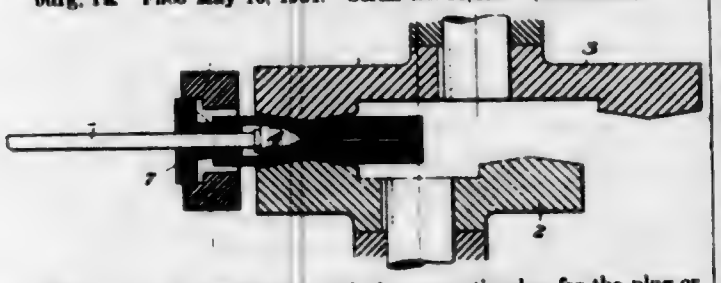
Claim.—1. As a new and useful article of manufacture, a spoke for a vehicle-wheel having a saw cut in one end, a web inserted in said saw cut and having a plate formed on or secured to the edge thereof and resting against the side of the spoke, the said plate and spoke being of equal thickness, whereby the edges of the plate will be flush with the edges of the spoke, and a bolt or screw securing said plate to the spoke, substantially as set forth.

2. As a new and useful article of manufacture a spoke for a vehicle-wheel having a tenon formed on one end thereof and said tenon being provided with a recess in its end extending longitudinally thereof, a reinforcing-web situated in said recess and extending into the spoke beyond the point of juncture between said tenon and the spoke proper, and a plate carried by the edge of said web and secured to the side of the spoke, the edges of said plate being flush with the edges of the tenon, substantially as set forth.

3. As a new and useful article of manufacture a spoke for vehicle-wheels having one end provided with a saw cut extending through both sides thereof, separate webs inserted in said saw cut from opposite sides of the spoke, a plate formed on the edge of each of said webs and having its edges flush with the edges of the spoke and means for clamping said plates and the spoke together, substantially as set forth.

4. A wheel having wooden-spoke sockets in combination with wooden spokes each provided in its end with a saw cut, a reinforcing-web inserted in said saw cut and extending outwardly beyond the point of juncture between the spoke and the socket, one edge of each of said webs being provided with a plate of not greater width than the thickness of the spoke, whereby the wooden part of the spoke will come in immediate contact with the wooden walls of the socket, and means for clamping said plate and web to the spoke, substantially as set forth.

693,881. GUIDING DEVICE FOR TUBE-MILLS. WILLIAM DICKS, Beaverfalls, Pa., assignor of one-half to George H. Baxter, Pittsburg, Pa. Filed May 16, 1901. Serial No. 60,492. (No model.)



Claim.—1. In combination with the supporting-bar for the plug or point of a piercing-mill; a bushing slidingly mounted on the bar and provided with a tapered extension adapted to enter the hollow billet and to slide with it along the bar.

2. In combination with the supporting-bar for the plug or point of a piercing-mill; a bushing slidingly mounted on the bar, adapted to support the end of the hollow billet in alinement with the bar and to slide with it along the bar.

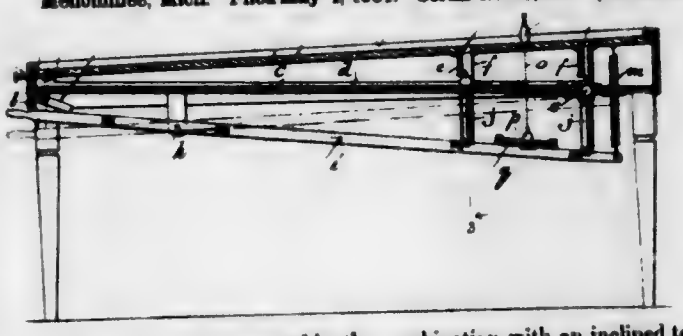
3. A device for the purpose described comprising a circular tapered bushing adapted to slide upon the bar supporting the plug or point, and to enter the hollow billet.

4. In combination with the disks or rolls of a piercing-mill, a plug or point and the supporting-bar therefor, a tapered bushing slidingly mounted on the bar, adapted to enter the hollow billet.

5. In combination with the disks or rolls of a piercing-mill, a plug or point, a supporting-bar therefor, and a guiding-frame; a tapered bushing slidingly mounted upon the bar, adapted to be inserted in the guiding-frame, and to enter the hollow billet.

6. In combination with the disks or rolls of an enlarging or expanding mill, a plug or ball, a supporting-bar therefor, and a guiding-frame; a tapered bushing slidingly mounted upon the bar and adapted to be inserted in the guiding-frame, and to enter the hollow billet.

698,382. GAME-TABLE. RICHARD F. DOWNEY, Menominee, Mich., assignor to the Automatic Portable Bowling Alley Company, Menominee, Mich. Filed May 4, 1901. Serial No. 58,699. (No model.)



Claim.—1. In a game-table, the combination with an inclined top, having side and end rails, and formed with a series of openings through said top adjacent to the higher end thereof, and a series of other openings adjacent to the lower end of said top; of a flooring or support beneath said top, inclined in the opposite direction, and formed with openings therethrough in line with those in the higher end of said top, and a series of runways leading from beneath the openings at the lower end of said top to points in line with the openings at the opposite end; a series of open-ended vertically-disposed tubes, communicating with the last-named openings in the said top and flooring, and having lateral openings communicating with said runways; a longitudinal frame pivotally suspended beneath said flooring and having plugs loosely connected thereto and arranged for vertical movement within said tubes; and a series of balls of proper diameter to travel through the openings and tubes described.

2. In a game-table, the combination with an inclined top, having side and end rails, and formed with a series of openings, through said top adjacent to the higher end thereof, and a series of other openings adjacent to the lower end of said top; of a flooring or support beneath said top, inclined in the opposite direction, and formed with openings therethrough in line with those in the higher end of said top, and a series of runways leading from beneath the openings at the lower end of said top to points in line with the openings at the opposite end; a series of open-ended vertically-disposed tubes, communicating with the last-named openings in the said top and flooring, and having lateral openings communicating with said runways; a longitudinal frame pivotally suspended beneath said flooring, and having a lever at its rear end, and a counterbalancing-spring at its front end; a gravity-pawl for engaging and locking said lever; a spring-controlled slide supported beneath the openings at the rear end of said top; a series of plugs loosely connected to said pivotally-suspended frame, and arranged for vertical movement within said tubes; and a series of balls of proper diameter to travel through the openings and tubes described.

3. In a game-table, the combination with a top having side and end rails, and formed with a series of openings through said top adjacent to one end thereof, of a frame pivotally supported beneath said top, and carrying a series of trays or supporting-surfaces in line with and beneath said openings in the top; a series of pins, having cords secured to their under surfaces which cords pass through said openings, and a series of weights attached to the free ends of said cords.

4. In a game-table, the combination with an inclined top, having side and end rails, and formed with series of openings through the said top, at the opposite ends thereof; a series of runways arranged beneath said top and inclined in opposite direction thereto, each runway extending from a point beneath one of the rear openings to a point beneath one of the front openings in said top; open-ended vertical tubes connecting the

front ends of the runways with said front openings in the top, and having lateral openings communicating with said runways; a frame pivotally suspended beneath said runways, and having plugs loosely connected thereto arranged for travel below and through said tubes; and a series of balls of proper diameter to travel through the openings and tubes described.

693,383. WAIST, SKIRT, AND BELT HOLDER. LEONARD A. EBERT, Louisville, Ky. Filed Mar. 27, 1901. Serial No. 53,057. (No model.)

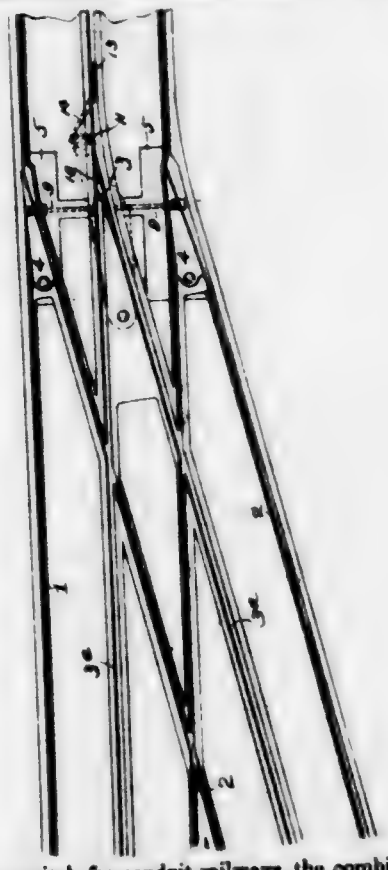


Claim.—1. In a combined waist, skirt and belt holder, the combination of a body portion made of sheet metal or other suitable substance, and a hook on each end of the upper edge, a hook on each end of the lower edge, all bent over on the same side of the body portion and not pointed but rounded and thus adapted to engage loops on waist and skirt, and a hook on the middle of the upper edge adapted to engage a belt bent over on the side of the body portion opposite to the aforesaid hooks, substantially as specified.

2. In a combined waist, skirt and belt holder, the combination of a sheet-metal body portion, a hook on each of its four corners, all on the same side of said body portion integral with or attached thereto and not pointed but rounded and thus adapted to engage loops on waist and skirt, and an ornamental hook for holding the belt on the side of said body portion opposite to the aforesaid hooks and integral with or permanently attached to said body portion, all for the purpose and substantially as specified.

3. In a combined waist skirt and belt holder, the combination of a sheet-metal body portion 1 and two hooks 3 and 4 disposed one on each end of the upper edge of body portion 1, and extending downward, two hooks 5 and 6 disposed, one on each end of the lower edge of body portion 1 and extending upward and nearer together than hooks 3 and 4, said hooks 3, 4, 5 and 6 all bent over on the same side of body portion 1, and a broad and ornamented hook 2 disposed on the middle of the upper edge of body portion 1, and somewhat higher than hooks 3 and 4 and bent over on the side of body portion 1 opposite to all the other hooks, substantially as and for the purpose specified.

693,384. RAILROAD-SWITCH. MATTHEW S. FARMER, Washington, D. C. Filed Nov. 25, 1901. Serial No. 83,584. (No model.)



Claim.—1. In a switch for conduit-railways, the combination with two switch-points, a yoke connecting same whereby they move in unison and a rod projecting inwardly toward the conduit-slot from each switch-point, of a guiding-tongue located at the juncture of the main and turnout slots and adapted to engage the inwardly-projecting rods whereby the switch-points are moved by the movement of the guiding-tongue.

2. In a switch for conduit-railways, the combination with the main rails, turnout-rails and switch-points, of a depending yoke connecting the two switch-points, a guiding-tongue located at the juncture of the main and turnout slots, rods located on opposite sides of the guiding-tongue and adapted to be moved by the latter to shift the switch-points and an actuating-arm connected to said tongue and adapted to be shifted by contact with a device carried by the car.

3. The combination with two switch-points connected to move in unison, of a guiding-tongue located between said switch-points and sliding rods located on opposite sides of the tongue and adapted to, be engaged thereby for shifting the point-rails.

4. In a switch for conduit-railways, the combination with switch-points connected to move in unison and a guiding-tongue for closing either the main or turnout slot, of a sliding rod interposed between each switch-point and the guiding-tongue, whereby lateral movements of the latter are transmitted to the switch-points.

5. The combination with switch-points, a sectional yoke connecting the points whereby they are caused to move in unison and an inwardly-projecting rod for each switch-point, of a guiding-tongue located intermediate the ends of said rods and an actuating-arm located below said tongue and connected thereto and adapted to be engaged by a device projecting from the car.

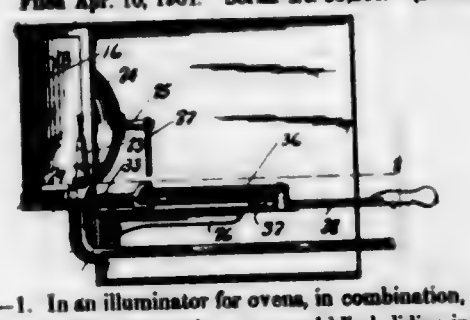
6. In a switch for conduit-railways, the combination with switch-points, a guiding-tongue and means whereby the points are simultaneously operated by the lateral movements of the tongue, of a support carried by the car and a vertically-movable trip-arm carried by said support.

7. In a switch for conduit-railways, the combination with switch-points, a guiding-tongue and means whereby the points are simultaneously shifted by the lateral movements of the guiding-tongue, of an actuating-arm secured to the guiding-tongue, a vertically-movable trip-arm carried by the car and adapted to engage the actuating-arm and means for shifting the position of the trip-arm.

8. In a conduit-railway the combination with a movable switch-point, a pivoted plow-guiding tongue located at the juncture of the main and turnout slots and means for connecting the tongue and switch-point, of a shifting-arm carried by the car and adapted to be adjusted to engage the edge of the plow-guiding tongue and positively shift the switch-point, substantially as set forth.

9. In a conduit-railway the combination with two movable switch-points, a pivoted plow-guiding tongue located at the juncture of the main and turnout slots and means for connecting the tongue with both switch-points, of a shifting-arm carried by the car and adapted to be adjusted to engage either edge of the plow-guiding tongue and positively and simultaneously shift both switch-points, substantially as set forth.

693,385. BAKER'S-OVEN ILLUMINATOR. JOHN FAULDS, Chicago, Ill. Filed Apr. 10, 1901. Serial No. 55,209. (No model.)



Claim.—1. In an illuminator for ovens, in combination, a casing, an illuminating agent within the casing, a curved blind sliding in front of the illuminating agent, a lever connected to the blind and having its pivot within the casing and concentric with the blind, a pusher-bar, and a connection between the pusher-bar and the lever for moving the blind from in front of the illuminating agent and into the casing.

2. In an illuminator for ovens, in combination, a casing, an illuminating agent within the casing, a pair of curved blinds sliding in front of the illuminating agent, levers connected to the blinds and having a common pivot back of the illuminating agent and concentric with the blinds, a pusher-bar, and connections between the pusher-bar and the levers for moving the blinds into the casing and back of the illuminating agent.

3. In an illuminator for ovens, in combination, a casing, an illuminating agent within the casing, a pair of sliding curved blinds in front of the illuminating agent, levers connected to the sliding blinds and pivoted back of the illuminating agent, rods connected to the levers, and a sliding bar for operating the rods whereby the blinds are moved into the casing and back of the illuminating agent.

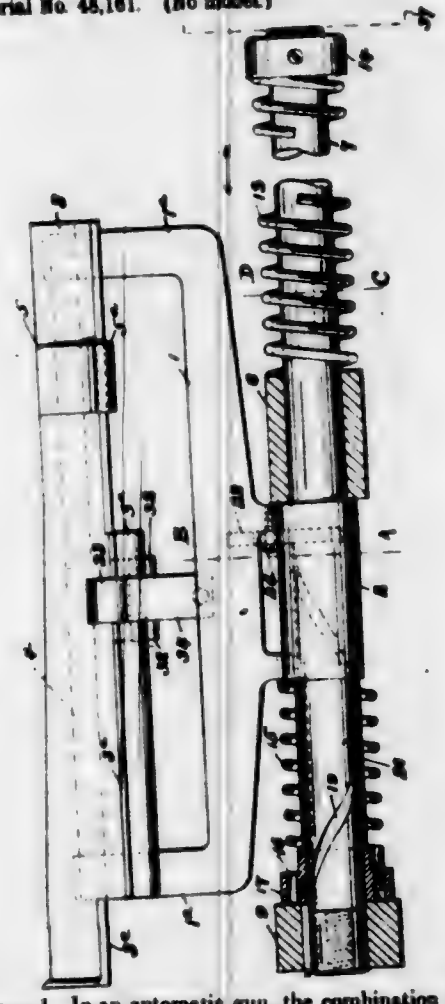
4. In an illuminator for ovens, in combination, a casing having a pair of semicircular extensions, an illuminating agent within the casing, a pair of curved blinds sliding between the extensions, a bracket within the casing, a pusher-bar sliding on the bracket, bell-crank levers pivoted to the bracket and operating the blinds, and a pair of crossed rods connected to the blinds and pivoted to opposite sides of the pusher-bar.

5. In an illuminator for ovens, in combination, a casing having a pair of semicircular extensions provided with guides on their adjacent

faces, an illuminating agent within the casing, a pair of curved blinds sliding between the extensions and in the guides thereof, a bracket within the casing, a pusher-bar sliding on the bracket, bell-crank levers pivoted to the bracket and operating the blinds, and rods connected to the blinds crossing each other and pivoted to opposite sides of the pusher-bar.

6. In an illuminator for ovens, in combination, a casing adapted to be placed in the wall of an oven and having a chamber projecting into the oven, an illuminating agent within the chamber, a reflector at the rear of said chamber, a mica window at the front of said chamber, a pair of sliding blinds interposed between the mica window and the interior of the oven, a bracket located within the casing, a pair of bell-crank levers connected to the sliding blinds and pivoted to the bracket, rods connected to the bell-crank levers, and a sliding bar guided on the bracket and connected to the rods for sliding the blinds.

698,386. CARTRIDGE-CARRIER MECHANISM FOR AUTOMATIC GUNS. FRANK M. GARLAND, New Haven, Conn. Filed Feb 20, 1901. Serial No. 48,161. (No model.)



Claim.—1. In an automatic gun, the combination with a longitudinally-movable rod engaged by the barrel in its recoil; of a transversely-movable cartridge-carrier rotatably mounted thereon; of spring mechanism connected therewith; and means actuated by the movement of the said rod for varying the tension of said spring mechanism so that the said spring mechanism will actuate the cartridge-carrier in either direction according to the direction of movement of said rod.

2. In an automatic gun, the combination with a longitudinally-movable rod having a peripheral groove therein; of a rotatably-mounted cartridge-carrier; of spring mechanism surrounding said rod and having connection with said cartridge-carrier; and means having connection with said spring mechanism and said peripheral groove for varying the tension of said spring mechanism, whereby the movement of said rod will actuate the aforesaid cartridge-carrier in either direction through said spring mechanism.

3. In an automatic gun, the combination with a longitudinally-movable, non-rotatable rod having peripheral spiral grooves therein; of a cartridge-carrier rotatably mounted upon said rod; a collar having a detent entering said spiral groove; and a coil-spring having connection at one end with the aforesaid carrier and at the other end with said collar.

4. In an automatic gun, the combination with a non-rotatable rod having a peripheral groove therein; of means for imparting a longitudinal movement to said rod; a collar having a detent connected therewith and entering the said peripheral groove; a coil-spring having connection with the said collar at one end and a movable part at the other end, the said spring being so held by the said collar that the movement of the said rod in either direction winds and unwinds the said spring.

5. In an automatic gun, the combination with a longitudinally-movable carrier-rod; of a transversely-movable carrier mounted thereon; a collar upon said rod; a coil-spring having connection at one end with said collar and at the other end with the said carrier; and means whereby the said carrier may be actuated in either direction from the said rod through the said coil-spring and collar.

6. In an automatic gun, the combination with a longitudinally-movable carrier-rod; of a transversely-movable carrier mounted thereon; a collar upon said rod; a coil-spring having connection at one end with said collar and at the other end with said carrier; means whereby the said carrier may be actuated in either direction from the said rod through the said coil-spring and collar; and latch mechanism for holding said carrier in its outward position.

7. In an automatic gun, the combination with a longitudinally-movable carrier-rod; of a transversely-movable carrier mounted thereon; a collar mounted upon and rotated by the movement of said rod; a coil-spring having connection at one end with said collar and at the other end with said carrier; and mechanism surrounding one end of said rod for moving the same in one direction.

8. In an automatic gun, the combination with a longitudinally-movable carrier-rod 7; of a carrier-frame 1 having a tray 3 connected therewith; a spring-collar 17 mounted upon said carrier-rod and rotated thereby; coil-spring 15 having connection at one end with said spring-collar and at the other end with said carrier; latch 30 and coil-spring 13.

9. In an automatic gun, the combination with a longitudinally-movable carrier-rod having trip-recesses therein; a transversely-movable carrier having a pawl connected therewith which is adapted to enter said trip-recess and limit the movement of said rod in one direction; a coil-spring for actuating the said carrier; means connected with the gun-barrel for moving the said carrier-rod in one direction; and a coil-spring surrounding one end of said rod for moving the same in the opposite direction.

10. In an automatic gun, the combination with a longitudinally-movable carrier-rod engaged by the barrel in its recoil having a circumferential recess in one side thereof and axial recesses leading from either end of said circumferential recess; a transversely-movable carrier mounted thereon and having a pawl connected therewith which is adapted to enter said trip-recess and limit the movement of said rod in one direction; and a coil-spring surrounding said rod for moving the same in counter-recoil direction.

11. In an automatic gun, the combination with a longitudinally-movable carrier-rod engaged by the barrel in its recoil having a circumferential recess in one side thereof and axial recesses leading from either end of said circumferential recess, said axial recesses being inclined and running out from the bottom of the said circumferential recess to nothing on the surface of the rod; a transversely-movable carrier mounted thereon and having a pawl connected therewith which is adapted to enter said trip-recess and limit the movement of said rod in one direction; and a coil-spring surrounding said rod for moving the same in counter-recoil direction.

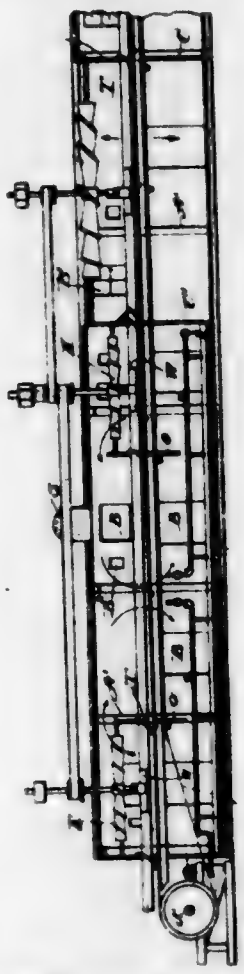
693,387. TOBACCO DRYING, COOLING, AND ORDERING MACHINE. JAMES D. GOODWIN, Richmond, Va., assignor to the Cardwell Machine Company, Richmond, Va., a Corporation of Virginia. Filed June 15, 1901. Serial No. 64,732. (No model.)

Claim.—1. In a tobacco-handling apparatus, the combination with a casing divided into drying, cooling and ordering sections, and a foraminous conveyer traveling through said sections successively for conveying tobacco therethrough, of an independent heating-chamber opening into the casing at independent points below the conveyer, a blower for maintaining a circulation of air through the chamber and casing, a regulated vent-opening in the casing above the conveyer, a regulated fresh-air-induction opening in the heating-chamber and a partition in the casing below the conveyer and between the openings connecting the casing with the heating-chamber, whereby the air is caused to pass through the conveyer and tobacco carried thereby in opposite directions in its circulation through the casing and heating-chamber; substantially as described.

2. In a tobacco-handling apparatus, the combination with a casing divided into drying, cooling and ordering sections and a foraminous conveyer traveling through said sections successively for conveying the tobacco therethrough, of an independent heating-chamber, a duct leading from said chamber to the casing on one side of the conveyer, a blower for forcing the air from said chamber through said duct, ducts having regulating-valves leading from the casing on both sides of the conveyer to the heating-chamber, a partition between the duct leading into the casing and the duct leading from said casing on the same side of the conveyer, a regulated venting-aperture in the casing and a regulated fresh-air-induction aperture for supplying fresh air to the heating-chamber; substantially as described.

3. In a tobacco-handling apparatus, the combination with a casing divided into drying, cooling and ordering sections a foraminous conveyer traveling through said sections successively for conveying the tobacco

therethrough, fans for maintaining a circulation through the conveyer and tobacco carried thereby in the cooling and ordering sections and a moisture-supplying mechanism in the ordering-section, of a heating-chamber, a duct leading therefrom to the drying-section below the conveyer, a blower for forcing the air from the heating-chamber through said duct, a duct leading from the casing below the conveyer to the heating-chamber, a partition in the casing below the conveyer between said ducts, a fresh-air-induction opening and doors for regulating the same in the heating-chamber and venting-ducts in the casing above the conveyer near opposite ends of the section and valves for regulating said ducts; substantially as described.



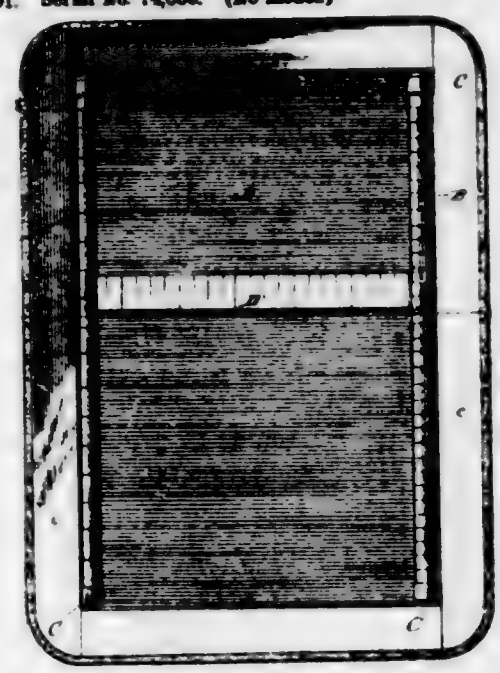
4. In a tobacco-handling apparatus, the combination with the casing divided into drying, cooling and ordering sections, a foraminous conveyer traveling through said sections and means for maintaining a circulation of air in the drying and cooling sections, of subpartitions in the ordering-section having openings at top and bottom of the same and through which subpartitions the conveyer passes, and whereby the ordering-section is divided into subsections, means for maintaining a circulation of air in said subsections through the conveyer in opposite directions and a moisture-supplying mechanism in said ordering-section; substantially as described.

5. In a tobacco-handling apparatus, the combination with the casing divided into drying, cooling and ordering sections, a foraminous conveyer traveling through said sections and means for maintaining a circulation of air in the drying and cooling sections, of subpartitions in the ordering-section having openings at top and bottom of the same and through which subpartitions the conveyer travels and whereby the ordering-section is divided into subsections, air-forcing mechanism for maintaining air-circulation through the conveyer in the central subsection in one direction and through the conveyer in the end subsections in the opposite direction, and a moisture-supplying mechanism in the ordering-section below the conveyer; substantially as described.

6. In a tobacco-handling apparatus, the combination with the casing divided into drying, cooling and ordering sections, a foraminous conveyer traveling in said sections and means for maintaining a circulation of air in the drying and cooling sections, of subpartitions in the ordering-section having openings at top and bottom of the same and through which subpartitions the conveyer travels and whereby the ordering-section is divided into subsections, fans located in the end subsections and both operating to force the air into the central subsection on the same side of the conveyer whereby the air is caused to pass through the conveyer in one direction in the end subsections and in the opposite direction in the central subsection, and a moisture-supplying apparatus in the ordering-section below the conveyer; substantially as described.

7. In a tobacco-handling apparatus, the combination with the casing divided into drying, cooling and ordering sections independent means for maintaining a circulation of air in each of said sections and a foraminous conveyer traveling through said sections successively for carrying tobacco therethrough, of a moisture-supplying apparatus for the ordering-section embodying atomizing-pipes in the section below the conveyer, steam-pipe connections with said atomizing-pipes for supplying steam thereto and water-pipes extending into said steam-pipe connections and discharging in the direction of travel of steam in said pipes, whereby back pressure is prevented and a full water-supply for atomization insured; substantially as described.

693,388. SLATE. WILLIAM F. HAHN, Pensacola, Fla. Filed Aug. 31, 1901. Serial No. 74,006. (No model.)



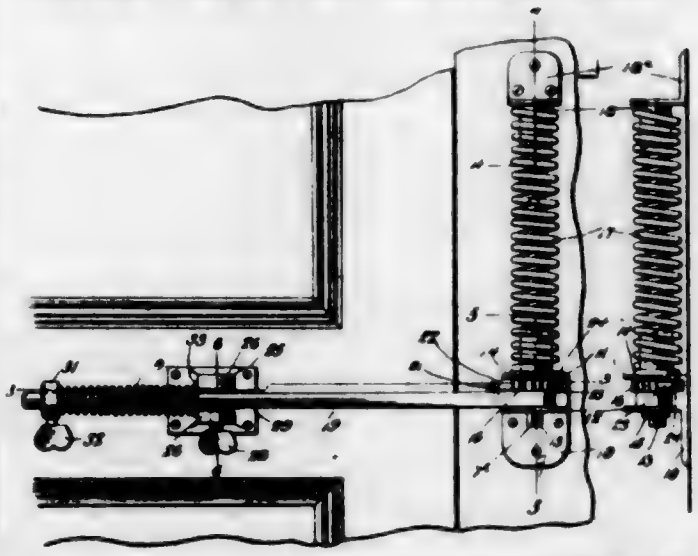
Claim.—1. The combination with a slate of slotted guides, fasteners for the said guides and a straight-edge or ruler held by the guides; the fasteners being constructed to engage the longitudinal edges of the slate and be received by the kerfs of the side bars or strips thereof, substantially as specified.

2. The combination with a slate; of the holders having the loop to straddle the longitudinal edges of the slate and be held thereon by the side strips of the frame, and also having the curls to receive the guides, and a straight-edge or ruler held by the guides, substantially as specified.

3. The combination with a slate, of slotted guides arranged parallel on the face of the slate, holders for said guides having one end bent or looped to straddle the longitudinal edges of the slate, and the side bars or strips of the slate-frame receiving such holders in their kerfs or grooves, substantially as specified.

4. A slate having a frame, slotted guides arranged on the face of the slate adjacent to opposite edges thereof, a straight-edge or ruler having its ends arranged in the slots of the guides, and holders for the guides interposed and held between the slate and its frame.

693,389. DOOR-SPRING. WILLIAM HARSHOVE, Montreal, Canada, assignor of one-fourth to Breadalbane Campbell Maclean, Montreal Canada. Filed Feb. 1, 1901. Serial No. 45,569. (No model.)



Claim.—1. A door-spring of the class described comprising a jamb-bracket adapted to be secured in a stationary position on a door-jamb, a spring-actuated arbor journaled in said jamb-bracket, a single ratchet secured fast to said arbor and disposed adjacent to said jamb-bracket, a sin-

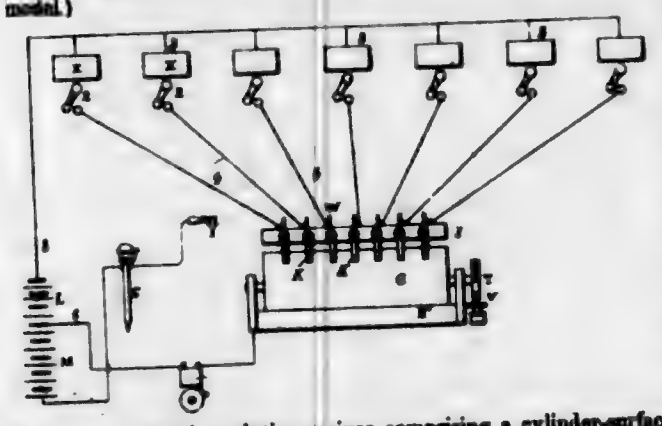
gle continuous door-rod loosely fitted on the arbor, a pawl 23 pivoted to the jamb-bracket and arranged to engage with said ratchet and occupying a stationary relation at all times to the door-rod, another pawl 21 pivoted to and movable with said door-rod and engaging normally with said ratchet, and means adapted to loosely and detachably connect said door-rod to a door, whereby the pawl 23 may be engaged with the ratchet and the door-rod and its pawl 21 may be manipulated by hand to place under tension the spring of said arbor, as set forth.

2. A door-spring of the class described comprising a jamb-bracket provided with offstanding plates, a spring-actuated arbor having a cylindrical portion journaled in said plates and an angular portion arranged in a plane between said plates, a single ratchet disposed between the plates and fitted to the angular part of the arbor to be fast therewith, a single door-rod fitted loosely on the cylindrical part of the arbor and adapted, under certain conditions, to turn loosely thereon, a pawl 23 pivoted to one of the bracket-plates and adapted to engage with the ratchet, another pawl 21 pivoted to the door-rod to move therewith and engaging normally with the ratchet, and means adapted to loosely connect said door-rod to a door, substantially as described.

3. A door-spring of the class described comprising a jamb-bracket, a spring-actuated arbor mounted therein, a door-bracket provided with offstanding plates arranged to form an intermediate space which opens through the outer end of the bracket and one of said plates having a threaded opening, a friction-roller journaled in said door-bracket at the closed inner side of the space therein, a single straight door-rod connected with the arbor to be actuated thereby and fitted loosely in the door-bracket to occupy the intermediate space and to lie between the friction-roller and the plane of the threaded opening in said door-bracket, and an adjusting-screw 28 arranged at right angles to the length of the door-rod and having a pointed end 29 disposed in coöperative relation to the door-rod, whereby the adjusting-screw may be retracted and the door-rod may be withdrawn by lateral adjustment from the door-bracket or said screw may be adjusted to confine the door-rod in the bracket or said screw may tightly impinge the door-rod to make the latter fast with the bracket, substantially as described.

4. A door-spring of the class described comprising a jamb-bracket, a spring-actuated arbor mounted therein, a door-bracket having a rod-receiving space which opens through the outer end thereof, a single straight door-rod connected operatively to said arbor and extending through said space of the door-bracket and withdrawable therefrom by a lateral adjustment, means for slidably confining the door-rod in the door-bracket, a washer fitted on a projecting portion of the door-rod and bearing against the door-bracket, a cushion-spring also fitted on said portion of the rod and seated against the washer, a collar independent of the door-bracket and adjustably fitted on the said portion of the rod and engaging with the outer end portion of the spring, and a clamping-screw mounted on the collar and impinging the rod, substantially as described.

693,390. ELECTRIC SIGNALING APPARATUS. FELIX B. HER zog, New York, N. Y. Filed Oct. 19, 1896. Serial No. 216,682. (No model.)



Claim.—1. An electrolytic receiver comprising a cylinder-surface and a bath-reservoir coöperating with a portion only of the surface.

2. An electrolytic receiver, comprising a cylinder-surface, a fixed circuit-terminal and a progressive feed device, operating to partially rotate the cylinder at each unit of operation.

3. In combination with a separate wire for each of several different substations, an annunciator comprising a record-surface and a series of electrodes connected to those different wires and arranged in a group; means for causing the electrode corresponding to a substation, upon the closure of its circuit thereat, to mark the surface in a position predetermined for each electrode; an audible signal; and a manual feed constructed to change the position of the electrodes with respect to the surface; whereby an operator at the annunciator-station is notified that an electrode has made a mark and is enabled to feed the surface so that all the electrodes may be in a position to make a fresh mark at the subsequent operation.

4. An annunciator comprising a series of electrolytic terminals connected to different substations and coöperating with an endless belt or cylinder surface constructed and arranged to receive the electrolytic marks when corresponding circuits are closed at their respective substations; a feed constructed so that it will rotate a given unit of surface under the electrodes a second time, and means for causing the marks made by an operation to disappear prior to the complete rotation of the surface; whereby the apparatus is adapted to work continuously.

5. A telegraphic receiving instrument comprising a cylinder-surface; an element constructed to mark it and connected to and controlled through an operated circuit to a distant station; a feed constructed so that it will rotate a given unit of surface into position to be subsequently marked a second time; and a means for causing the marks to disappear automatically prior to that time; whereby the apparatus is adapted to work continuously.

6. A circuit-controller, comprising a marking-point, a circuit-closer, and adjusting devices; the whole coöperating so that pressure on the marking-point will control the circuit-closer.

7. A record-surface; a recording device—as a pencil-point—with a handle, constructed and attached to other parts of the mechanism at a controlling-station so that it may be moved in any direction in the plane of the record-surface as well as perpendicularly thereto; a circuit-controlling switch including an element constructed to be movable with respect to a part of the handle; guiding devices coöperating to produce such operation during the perpendicular motion of the handle in one direction; and a device—as a spring—constructed and operating to return the element at the reversal of the perpendicular motion of the handle.

8. A record-surface; a recording device—as a pencil-point—with a handle constructed and attached to other parts of the mechanism at a controlling-station so that it may be moved in any direction in the plane of the record-surface as well as perpendicularly thereto; a circuit-controlling switch constructed to close the circuit by the pressure of the point on the surface during the act of recording and including an element constructed to be movable with respect to a part of the handle; and a device—as a spring—constructed to reopen the circuit upon the removal of the pressure; together with a magnet and circuit connections through which it is controlled by way of the switch; all coöperating so that the magnet can be controlled as a result of the act of pressing the recording-point upon the surface.

9. A record-surface; a recording device with a handle coöperating with other parts of the mechanism at the controlling-station and constructed so that it may be moved in the plane of the surface, and a switch including two parts carried by the handle and constructed to coöperate one with the other in the act of switching; together with electrical connections of the switch with other parts of the system; and means for manipulating both switch and recording device by the handle; the whole constructed and arranged so that an operator requires only one hand to switch or record.

10. A record-surface; a recording device with a handle constructed and arranged to be movable both in the plane of the surface and up and down; and a circuit-controlling switch including as an element a yielding contact constructed and arranged to be controlled by the up-and-down motion of the handle.

11. A record-surface; a recording device—as a pencil-point—with a handle coöperating with other parts of the mechanism at the controlling-station and constructed so that it may be moved in the plane of the surface and also perpendicularly thereto; a switch including two elements together with adjunctive devices and connections; all coöperating so that the relative positions of the switch elements are controlled by the perpendicular motion of the pencil but not by the motion along the plane.

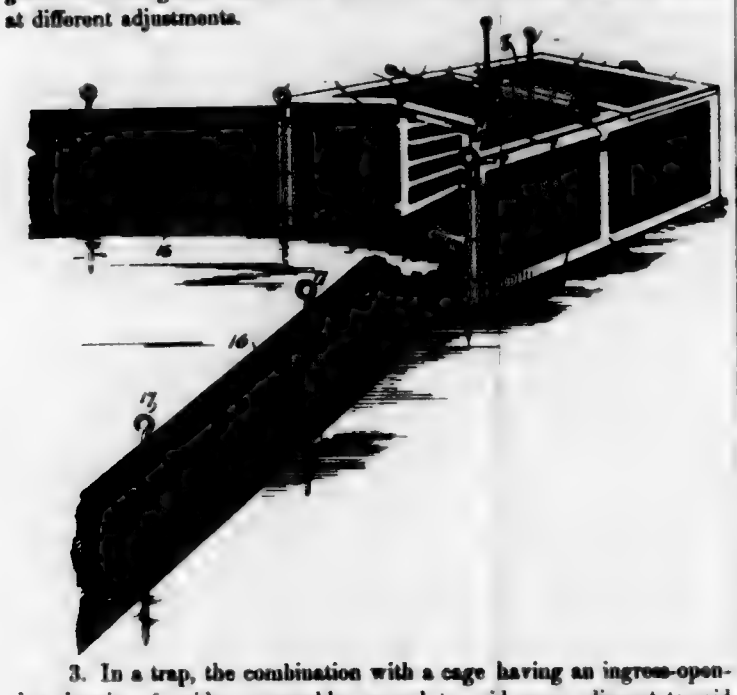
12. A signaling system comprising a number of signal-transmitters on separate circuits, each including a controlling-magnet, an independent high-resistance annunciator for each circuit, and battery beyond the annunciator, the whole so organized that the normal strength of current is sufficient to operate the annunciator, but not sufficient to operate the transmitter-controlling magnet.

13. A signal system comprising a number of signal-transmitters, each including a controlling-magnet and each being in a circuit, an independent high-resistance annunciator for each circuit, and a battery beyond the annunciator, the whole so organized that the normal strength of current which operates the controlling-magnet of a transmitter, is insufficient to operate or affect any other at the same time.

698,891. TRAP. WILLIAM J. HOLLAND, Erie, Tex. Filed June 27, 1901. Serial No. 66,260. (No model.)

Claim.—1. In a trap, the combination with a cage having an ingress-opening therein, of hinged guides converging inwardly from said ingress-opening and removable fastening-rods for locking the said guides in place at different adjustments.

2. In a trap, the combination with a cage having an ingress-opening therein, of guides having pointed inner ends and converging inwardly from said ingress-opening and fastening-rods pivotally connecting said guides to the cage and removable rods for locking the said guides in place at different adjustments.

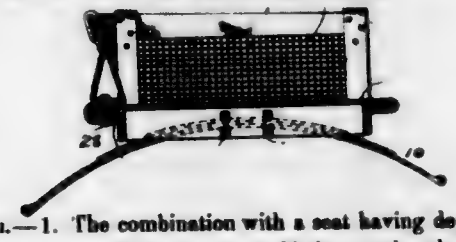


3. In a trap, the combination with a cage having an ingress-opening therein, of guides removably secured to said cage adjacent to said opening, rods for locking said guides in place and an adjustable platform located below said guides, substantially as set forth.

4. In a trap, the combination with a cage having an ingress-opening therein, of a platform within said cage adjacent to base of the cage and pivoted at the base of said opening, adjusting-rods secured to the free inner end of said platform and adjustable guides on opposite sides of the ingress-opening and above said platform.

5. In a trap, the combination with a cage having an ingress-opening, movable wings connected to the outside of said cage on opposite sides of said opening and removable pins for securing said wings at any desired adjustment, of guides pivoted to the cage on opposite sides of the opening and projecting inwardly into the cage and adjustable devices engaging said guides for locking them in place.

698,392. WAGON-SEAT. WILLIAM J. HOLLAND, Era, Tex. Filed July 18, 1901. Serial No. 68,632. (No model.)



Claim.—1. The combination with a seat having depending flanges at its ends and a semi-elliptical spring, of bolts securing the seat and spring together and other bolts passing through the depending flanges of the seat and securing the seat thereto.

2. The combination with a seat-frame having depending end flanges and springs under said frame adjacent to said end flanges and bolts securing the springs to said end flanges.

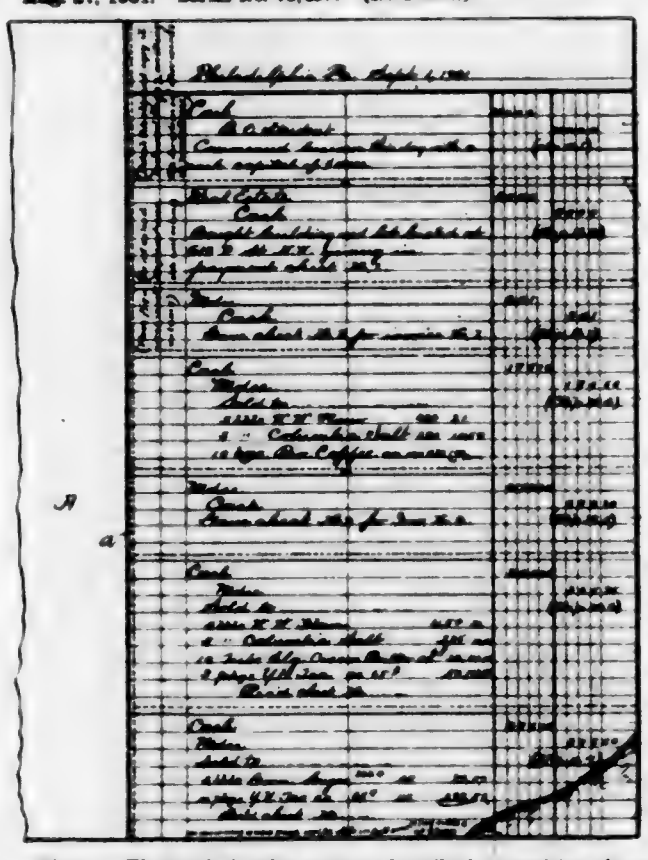
3. In a wagon-seat, the combination of brackets spaced apart, depending links pivoted to said brackets, a semi-elliptical spring pivoted at its ends to the depending links, a seat-frame mounted on said spring and a flange depending from the seat-frame and disposed alongside the spring, and bolts passing through said depending flange and securing the spring thereto.

4. In a seat, the combination with a frame and a seat-plate thereon, of a series of posts secured to the frame, each post having a transverse opening at its upper end and a top rail secured in the transverse openings of the posts.

5. In a seat, the combination with a frame and a seat-plate thereon, of a series of posts secured to the frame, each post having a lug at its bottom passing through the frame and upset at its free end, each post also having a slot or recess at its upper end, a top rail mounted in the slots or recesses of the posts and transverse fastening devices passing through said posts and top rail.

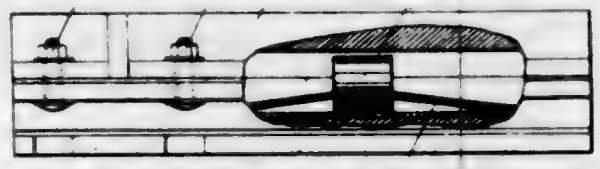
6. The combination with a seat-frame, flanges depending from said frame near the ends thereof, and springs, of blocks disposed in the angles formed by the frame and depending flanges, bolts passing through the frame, blocks and springs and other bolts passing through the depending flanges and said blocks.

698,393. BOOK. ROBERT S. HOOKLAND, Philadelphia, Pa. Filed Aug. 27, 1901. Serial No. 73,460. (No model.)



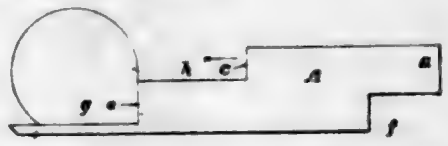
Claim.—The book for the purpose described comprising the cover, the plurality of ordinary leaves, and the illustrative leaf arranged in advance of the ordinary leaves; the said illustrative leaf being divided by a longitudinally-disposed line of perforations and crosswise lines of perforations into detachable slips, and the said slips being provided on their faces with printed forms of entries of different kinds and instructions appropriate to the character of the book.

698,394. SECTIONAL-CONDUCTOR ELECTRIC RAILWAY. KARL HORA, Pardubitz, Austria-Hungary. Filed Mar. 6, 1901. Serial No. 50,041. (No model.)



Claim.—In an electric railway, the combination of a closed conduit, a conductor extending therethrough, rings of magnetic material through which said conductor passes at intervals, the under side of said rings being covered by insulating material, and a magnet carried by the car for lifting the rings into contact with the top of the conduit.

698,395. DEVICE FOR BLOWING BUBBLES. PETER D. HORTON, Newark, N. Y., assignor of two-thirds to John M. Espenscheid, Newark, N. Y., and John Cooper, New York, N. Y. Filed Sept. 20, 1901. Serial No. 75,955. (No model.)



Claim.—1. A device for blowing bubbles, consisting of a single piece having a longitudinal chamber near one end, and two independent air passages or ducts through the body, one leading into said chamber the outlet of the other duct being in line with the blown bubble for the purpose of detaching the same, substantially as shown and described.

2. A device of the kind described consisting of a body in one piece, having a bubble-chamber near one end, a detaching-duct leading from one end and an air-duct parallel therewith leading into the chamber from the other end of the body, the latter being formed to have cross-sections of different sizes all rectangular, substantially as set forth and shown.

3. A device of the kind described consisting of a body formed with a bubble-chamber, and parallel air-ducts one leading into the chamber and the other terminating in line with the blown bubble, the body having the form of a notched or indented parallelepipedon, substantially as shown and described.

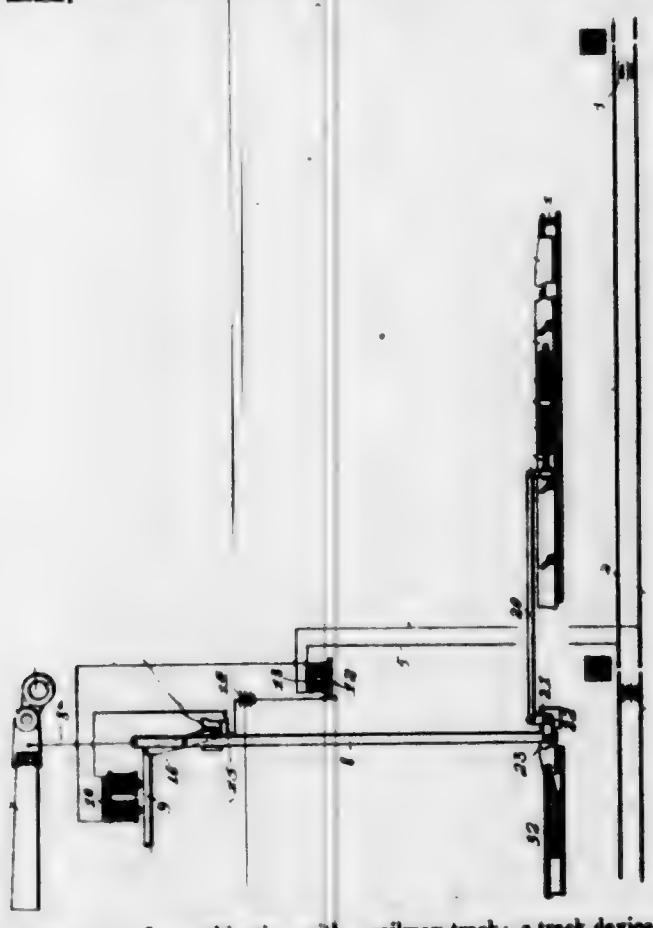
4. A device for blowing bubbles, consisting of a body formed with a bubble-chamber, and air-ducts parallel for their entire length, one leading into the chamber and the other terminating in line with the blown bubble, the body being formed to have cross-sections of different areas, all rectangular and having a common horizontal dimension or width, substantially as shown and set forth.

5. A bubble-blower having a body formed with a bubble-chamber near one end, and a floor or ledge extending lengthwise of the body beyond said chamber, and an air-duct leading from the opposite end of the body into the bubble-chamber and an independent parallel duct disposed above said ledge, substantially as and for the purpose specified.

6. A device for blowing bubbles consisting of a body having a longitudinal bubble-chamber, and a floor or ledge extending beyond the mouth of said chamber with the plane of its upper or operating surface in line with the bottom line of the chamber, and an air-duct leading from the opposite end of the body into the chamber, substantially as shown and described.

7. A device of the kind described, consisting of a body having a bubble-chamber near one end, and air-ducts leading from the opposite end of the body one into the bubble-chamber, and the other opening out above the bubble-chamber and parallel therewith and with the other duct, and a deflector integral with the body above the bubble-chamber for the current of air above said chamber, substantially as shown and described.

693,396. AUTOMATIC RAILWAY APPLIANCE. SLAUGHTER W. HUFF, Baltimore, Md. Filed Jan. 17, 1898. Serial No. 666,969. (No model.)



Claim.—1. In combination with a railway-track; a track device, a mounting therefor to convert vertical depression into a longitudinal thrust, a rod for transmitting the thrust, extending longitudinally of the track device, a projection on the track device through which said rod works longitudinally, and springs on opposite sides of said projection and through the medium of which motion is imparted to the rod in opposite directions; substantially as herein explained.

2. In combination with a railway-track; a track device having bearings thereon which convert transverse movement of the track device into a longitudinal thrust, a projection on the track device, a longitudinally-reciprocating rod having an intermediate enlargement working in said projection, springs on said rod on opposite sides of the projection, spring-caps abutting said enlargement, and jam-nuts on the ends of said rod for setting up and holding said springs; substantially as and for the purposes set forth.

3. In combination with a railway-signal; a track device, mountings for said track device which convert vertical movement into a longitudinal thrust, connections through which said longitudinal thrust is transmitted to the signal, a detent for said signal, a return-spring acting longitudinally upon said track device, returning it upward by a longitudinally-imposed force, and a spring interposed in the connections between the track device and signal, and which is compressed by the action of the return-spring when the signal is held by the detent, whereby power is stored up in said interposed spring to actuate the signal when the latter is released; substantially as explained.

4. In combination with a railway-track; a track device having angularly-arranged bearings which transform vertical into longitudinal movement, a rod arranged longitudinally of the track device through which said movement is transmitted to perform work, springs through which movement is imparted to said rod in opposite directions, and a return-spring for the track device of strength sufficient to compress one of the transmitting-springs and store up work therein when the transmitting-rod opposes the return of the track device; substantially as herein explained.

5. In combination with an elongated track device provided with a series of parallel angularly-arranged slots; blocks 36 secured to the rails, pins 35 inserted in said blocks and having enlargements 40 providing bearings for the track device, and having projecting threaded ends to receive jam-nuts for holding the track device in place; substantially as herein explained.

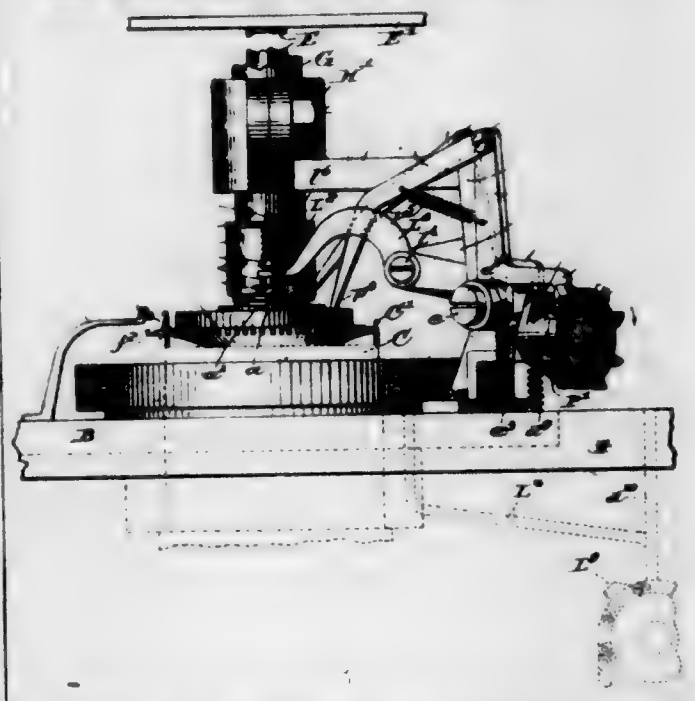
6. In combination with a track; a track device adjacent thereto and provided with a series of angularly-set slots, blocks forming guides for said track device, pins inserted in said blocks and affording bearings for the angularly-arranged slots, and nuts upon the protruding ends of said pins; substantially as and for the purposes set forth.

7. In combination with a signal, a crank-arm swinging upon a fixed pivot and having controlling connection with said signal for holding it in set position; said connection being at a point in the crank-arm which brings the opposing force approximately in line with the fixed pivot when the signal is set, whereby the load is imposed mainly upon said pivot, and a detent engaging said crank-arm; substantially as herein explained and for the purpose set forth.

8. The combination of a signal, operating connections for moving said signal to and from danger position, and a retaining device comprising a crank-arm swinging upon a fixed pivot, a connection between said crank-arm, and the signal-operating connection which moves to a point approximately in line with the fixed pivot when the signal is set, and a detent for said crank-arm; substantially as and for the purposes set forth.

9. The combination of a swinging signal, a vertically-reciprocating rod controlling said signal, a crank-arm swinging in a vertical plane upon a fixed pivot, and with which said rod is connected at a point which is nearly in the vertical line of the fixed pivot when the signal is set, and an electromagnet-armature opposed endwise to the side of the said crank-arm; substantially as and for the purposes set forth.

693,397. TUCKING AND WELTING ATTACHMENT FOR KNITTING-MACHINES. WARREN D. HUSE and LEON C. HUSE, Laconia, N. H., assignors of one-third to Walter L. Huse, Laconia, N. H. Filed Feb. 4, 1901. Serial No. 46,003. (No model.)



Claim.—1. In a knitting-machine, the combination of a dial-needle plate carrying needles, a dial-cam plate provided with a needle-actuating cam movable on said dial-cam plate, and pattern-controlled devices including a switch-plate carrying a movable switch for moving said cam into retracted position so that the needles shall be caused to move only a part of their full reciprocation and to thereafter return said cam to its projected position to move the needles their full reciprocation.

2. In a knitting-machine, the combination of dial and cylinder needles and dial and cylinder cams for operating said needles in the production of ribbed work, pattern-controlled means including a switch-plate carrying a pivoted switch for changing the position of the dial-cam to cause the dial-needles to reciprocate only a part of their full knitting stroke to have thread laid thereon without shedding their loops in the formation of tuck-stitch, and to thereafter return said dial-cam to position for giving the dial-needles their full knitting stroke to continue ribbed work.

3. In a knitting-machine, the combination of a thread-guide, dial and cylinder needles and cams for operating the cylinder-needles, a dial-cam for operating the dial-needles, pattern-controlled means for moving the dial-cam to cause the dial-needles to reciprocate only a part of their full knitting stroke to have thread laid thereon without shedding their loops, pattern-controlled means independent of the first-mentioned pattern-controlled means to thereafter place said dial-cam in position with respect to the thread-guide that the dial-needles will neither knit nor have thread laid thereon, both of said pattern-controlled means being thereafter actuated to return the dial-cam to position to give full knitting stroke to the dial-needles and to return the cam to position with respect to the thread-guide that the dial-needles will take thread and knit in completion of the welt.

4. In a knitting-machine, the combination of a stationary dial-needle plate, a dial-cam plate loosely superposed thereon, cylinder-needles and cam-cylinder for operating them, a locking device for locking the dial-cam plate to rotate with the cam-cylinder, and a pattern-controlled trip for disengaging the locking device to permit the dial-cam plate to remain stationary with the dial-needle plate for a part revolution of the cam-cylinder.

5. In a knitting-machine, the combination of a thread-guide, dial and cylinder needles and cams for operating them in the production of ribbed work, pattern-controlled means for changing the position of the dial-cam with respect to the needles to cause the dial-needles to reciprocate only a portion of their full stroke and have thread laid thereon without shedding their loops, a second pattern-controlled means independent of said first-mentioned pattern-controlled means to thereafter turn the dial-cam away from the thread-guide so that the dial-needles shall neither take thread nor knit, both of said pattern-controlled means being thereafter simultaneously actuated to return the dial-cam to full operative position with respect to the needles and to return the dial-cam to position with respect to the thread-guide that the dial-needles will take thread and knit in completion of the welt.

6. In a knitting-machine, a dial-needle plate carrying dial-needles, a dial-cam plate, a dial-cam carried by said plate and adapted to slide thereon, a switch-plate having operative engagement with the dial-cam and provided with a switch and a pattern-controlled actuator for moving the switch-plate and its switch to throw the dial-cam radially when moved in one direction and to be movable in the opposite direction without imparting movement to the dial-cam.

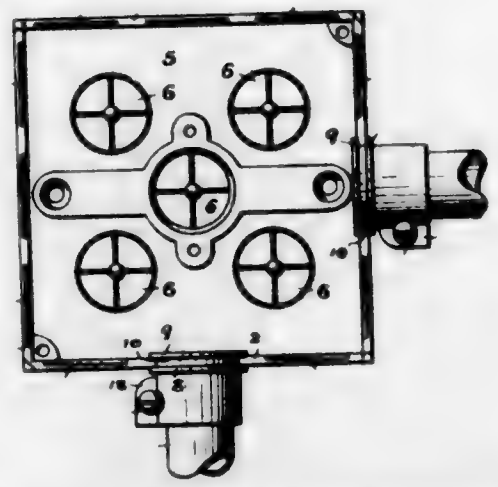
7. In a knitting-machine, a dial-needle plate carrying dial-needles, a dial-cam plate provided with slots, a dial-cam having pins projecting through said slots, a switch-plate having a cam-switch for engagement with one of said pins to slide the dial-cam on the dial-cam plate when moved in one direction only, and pattern-controlled means for operating the switch-plate.

8. In a knitting-machine, a needle-cylinder, a cam-cylinder, means for operating the latter, a dial-needle plate carrying dial-needles, a dial-cam plate having a dial-cam slidingly mounted thereon, said dial-cam plate being loosely mounted with respect to the dial-needle plate, a locking device for locking the dial-cam plate to rotate with the cam-cylinder, a switch-plate for sliding the dial-cam on the dial-cam plate, an actuator for turning the dial-cam plate with respect to the cam-cylinder, and pattern-controlled means for operating said switch-plate and actuator.

9. In a knitting-machine, a thread-guide, a needle-cylinder, a cam-cylinder, means for operating the latter, a dial-needle plate carrying dial-needles, a dial-cam plate having a dial-cam slidingly mounted thereon, a switch-plate carrying a pivoted cam-switch for sliding said cam on said cam-plate into two positions, one to cause the dial-needles to take thread and knit in conjunction with the cylinder-needles for the production of ribbed work, and the other to cause the dial-needles to take thread but not cast their loops while the cylinder-needles continue to knit a plain web in the formation of tuck-stitch, and pattern-controlled means for operating the switch-plate at desired times.

10. In a knitting-machine, a thread-guide a needle-cylinder, a cam-cylinder, means for operating the latter, a dial-needle plate carrying dial-needles, a dial-cam plate having a dial-cam slidingly mounted thereon, a switch-plate for sliding said cam on said cam-plate into two positions, one to cause the dial-needles to take thread and knit in conjunction with the cylinder-needles for the production of ribbed work, and the other to cause the dial-needles to take thread but not cast their loops while the cylinder-needles continue to knit a plain web in the formation of tuck-stitch, an actuator for turning the dial-cam plate into two positions with respect to the thread-guide, one such that the dial-needles shall be operated at a point adjacent the thread-guide and the other at a point remote from said guide, and pattern-controlled means for operating the switch-plate and dial-cam-plate actuator in the production of a welt.

693,398. CONDUIT-BUSHING. HENRY ILL, Newark, N. J. Filed Nov. 23, 1901. Serial No. 83,378. (No model.)



Claim.—1. A conduit-bushing, made independent from and adapted to be separably connected with an outlet-box, comprising, a main body having a central duct for the reception of electric wires, means on said main body for securing the one end of said body in an opening in such outlet-box, a pipe-receiving sleeve connected with said body capable of expansion and contraction, and means connected with said sleeve for contracting the same about the end of an inserted conduit-pipe and thereby securing the end of the pipe in a fixed position in said sleeve substantially and for the purposes set forth.

2. A conduit-bushing, made independent from and adapted to be separably connected with an outlet-box, comprising, a main body having a central duct for the reception of electric wires, means on said main body for securing the one end of said body in an opening in such outlet-box, a slotted pipe-receiving sleeve connected with said body capable of expansion and contraction, and a clamping device on said sleeve located in juxtaposition to said slot for clamping the said sleeve in a fixed position about the end of a conduit-pipe, substantially as and for the purposes set forth.

3. A conduit-bushing, made independent from and adapted to be separably connected with an outlet-box, comprising, a main body having a central duct for the reception of electric wires, means on said main body for securing the one end of said body in an opening in such outlet-box, a slotted pipe-receiving sleeve connected with said body capable of expansion and contraction, a pair of perforated ears connected with said sleeve, said ears being arranged on opposite sides of said slot, and one of the perforations in one of said ears being provided with a screw-thread, and a screw in said perforated ears, substantially as and for the purposes set forth.

4. A conduit-bushing, made independent from and adapted to be separably connected with an outlet-box, comprising, a main body having a central duct for the reception of electric wires, means on said main body for securing the one end of said body in an opening in such outlet-box, said central duct having a flaring mouth and an internally-arranged annular shoulder against which the end of a conduit-pipe can be arranged, a pipe-receiving sleeve connected with said body capable of expansion and contraction, and means connected with said sleeve for contracting the same about the end of the inserted conduit-pipe and thereby securing the end of the pipe in a fixed position in said sleeve, substantially as and for the purposes set forth.

5. A conduit-bushing, made independent from and adapted to be separably connected with an outlet-box, comprising, a main body having a central duct for the reception of electric wires, means on said main body for securing the one end of said body in an opening in such outlet-box, said central duct having a flaring mouth and an internally-arranged annular shoulder against which the end of a conduit-pipe can be arranged, a slotted pipe-receiving sleeve connected with said body capable of expansion and contraction, and a clamping device on said sleeve located in juxtaposition to said slot for clamping the said sleeve in a fixed position about the end of the conduit-pipe, substantially as and for the purpose set forth.

6. A conduit-bushing, made independent from and adapted to be separably connected with an outlet-box, comprising, a main body having a central duct for the reception of electric wires, means on said main body for securing the one end of said body in an opening in such outlet-box, said central duct having a flaring mouth and an internally-arranged an-

nular shoulder against which the end of a conduit-pipe can be arranged, a slotted pipe-receiving sleeve connected with said body capable of expansion and contraction, a pair of perforated ears connected with said sleeve, said ears being arranged on opposite sides of said slot, and one of the perforations in one of said ears being provided with a screw-thread, and a screw in said perforated ears, substantially as and for the purposes set forth.

7. A conduit-bushing, comprising, a main body having a central duct for the reception of electric wires, a pair of externally-arranged shoulders on said main body, said shoulders forming an annular groove between them, a pipe-receiving sleeve connected with said body capable of expansion and contraction, and means connected with said sleeve for contracting the same about the end of an inserted conduit-pipe and thereby securing the end of the pipe in a fixed position in said sleeve, substantially as and for the purposes set forth.

8. A conduit-bushing, comprising, a main body having a central duct for the reception of electric wires, a pair of externally-arranged shoulders on said main body, said shoulders forming an annular groove between them, a slotted pipe-receiving sleeve connected with said body capable of expansion and contraction, and a clamping device on said sleeve located in juxtaposition to said slot for clamping the said sleeve in a fixed position about the end of a conduit-pipe, substantially as and for the purposes set forth.

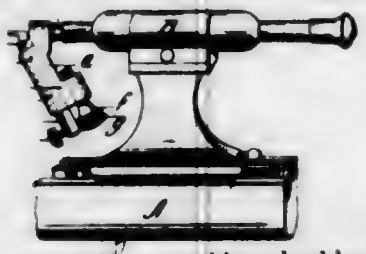
9. A conduit-bushing, comprising, a main body having a central duct for the reception of electric wires, a pair of externally-arranged shoulders on said main body, said shoulders forming an annular groove between them, a slotted pipe-receiving sleeve connected with said body capable of expansion and contraction, a pair of perforated ears connected with said sleeve, said ears being arranged on opposite sides of said slot, and one of the perforations in one of said ears being provided with a screw-thread, and a screw in said perforated ears, substantially as and for the purposes set forth.

10. A conduit-bushing, comprising, a main body having a central duct for the reception of electric wires, said central duct having a flaring mouth, and an internally-arranged annular shoulder against which the end of a conduit-pipe can be arranged, a pair of externally-arranged annular shoulders on said main body, said shoulders forming an annular groove between them, a pipe-receiving sleeve connected with said body capable of expansion and contraction, and means connected with said sleeve for contracting the same about the end of the inserted conduit-pipe and thereby securing the end of the pipe in a fixed position in said sleeve, substantially as and for the purposes set forth.

11. A conduit-bushing, comprising, a main body having a central duct for the reception of electric wires, said central duct having a flaring mouth, and an internally-arranged annular shoulder against which the end of a conduit-pipe can be arranged, a pair of externally-arranged annular shoulders on said main body, said shoulders forming an annular groove between them, a slotted pipe-receiving sleeve connected with said body capable of expansion and contraction, and a clamping device on said sleeve located in juxtaposition to said slot for clamping the said sleeve in a fixed position about the end of the conduit-pipe, substantially as and for the purposes set forth.

12. A conduit-bushing, comprising, a main body having a central duct for the reception of electric wires, said central duct having a flaring mouth, and an internally-arranged annular shoulder against which the end of a conduit-pipe can be arranged, a pair of externally-arranged annular shoulders on said main body, said shoulders forming an annular groove between them, a slotted pipe-receiving sleeve connected with said body capable of expansion and contraction, a pair of perforated ears connected with said sleeve, said ears being arranged on opposite sides of said slot, and one of the perforations in one of said ears being provided with a screw-thread, and a screw in said perforated ears, substantially as and for the purposes set forth.

693,399. **TOOL-HOLDER.** CHARLES H. JENKINS, Lebanon, N. H., assignor of one-half to Frank B. Kendrick and William F. Davis, Lebanon, N. H., partners under firm-name of Kendrick and Davis. Filed May 25, 1901. Serial No. 61,870. (No model.)



Claim.—1. A tool-holder, comprising a head having a tool-socket, and an adjusting-screw fixed in said head, combined with a tool arranged and adapted to slide in said tool-socket, and a pin or projection carried by said tool and engaging said adjusting-screw.

2. A tool-holder comprising a head having a tool-socket, and an adjusting-screw fixed in said head and provided with a circumferential groove, combined with a tool arranged and adapted to slide in said tool-socket and provided with a projecting pin engaging the groove in the adjusting-screw.

3. A tool-holder comprising a head having a tool-socket provided with a longitudinal slot, and an adjusting-screw fixed in said head and provided with a circumferential groove, combined with a tool arranged and adapted to slide in said tool-socket, a set-screw arranged in said tool and engaging said slot, and a projecting pin also arranged in said tool and adapted to engage the groove in the adjusting-screw.

4. A tool-holder comprising a head having a tool-socket, a longitudinal slot in said socket, provided with beveled edges, and an adjusting-screw fixed in said head and provided with a circumferential groove, combined with a tool arranged and adapted to slide in said tool-socket, bevel-headed set-screws secured in said tool and adapted to engage the beveled edges of said slot, and a projecting pin carried by said tool and adapted to engage the groove in said adjusting-screw.

5. A tool-holder comprising a head having a tool-socket, a longitudinal slot in said socket provided with beveled edges, and an adjusting-screw fixed in said head and provided with a circumferential groove, combined with a tool arranged and adapted to slide in said tool-socket, bevel-headed set-screws secured in said tool and adapted to engage the beveled edges of said slot and a screw-pin carried by said tool and adapted to engage the groove in the adjusting-screw.

6. A tool-holder comprising a head having a tool-socket provided with a longitudinal slot, combined with a tool arranged and adapted to slide in said socket, and a set-screw carried by said tool and engaging said slot, whereby the tool may be readily inserted and held in said socket and quickly and easily removed therefrom.

7. A tool-holder comprising a head having a tool-socket and a longitudinal slot in said socket, provided with beveled edges, combined with a tool arranged and adapted to slide in said socket, and a bevel-headed screw carried by said tool and engaging the beveled edges of said slot, whereby the tool may be readily inserted and held in said socket and quickly and easily removed therefrom.

693,400. **EXTENSION-FOOTWEAR.** WILLIAM JOCHIMSEN, New York, N. Y. Filed Apr. 6, 1901. Serial No. 54,681. (No model.)



Claim.—1. As an improvement in extension-footwear, the herein-described device, comprising an upper plate or member and a lower plate or member which are connected at their forward ends and are spaced apart at their rearward ends, said upper plate or member being formed to fit the sole of the foot and being provided at its rearward end with a counter arranged to receive the heel of the foot, said upper plate or member being also provided at the sides of its forward end with upwardly-projecting counters arranged to receive the ball of the foot, and an upper connected with one of said plates or members and extending above said upper plate or member whereby it may be secured across the instep portion of the foot.

2. As an improvement in extension-footwear, the herein-described device, comprising an upper plate or member and a lower plate or member which are connected at their forward ends and are spaced apart at their rearward ends, said upper plate or member being formed to fit the sole of the foot, a resilient element interposed between said plates or members at their forward point of connection, and an upright support interposed between said plates or members at their rearward spaced ends, and an upper connected with one of said plates or members and extending above said upper plate or member whereby it may be secured across the instep portion of the foot.

3. As an improvement in extension-footwear, the herein-described device, comprising, an upper plate or member and a lower plate or member which are connected at their forward ends, said upper plate or member being formed to fit the sole of the foot of the wearer, a counter secured to said upper plate or member at the rearward end thereof and arranged to receive the heel of the foot, and counters secured to the respective sides of the forward end of said upper plate or member and arranged to receive the ball of the foot, said upper plate or member being also provided at its forward end with a toe-piece, and an upper secured to

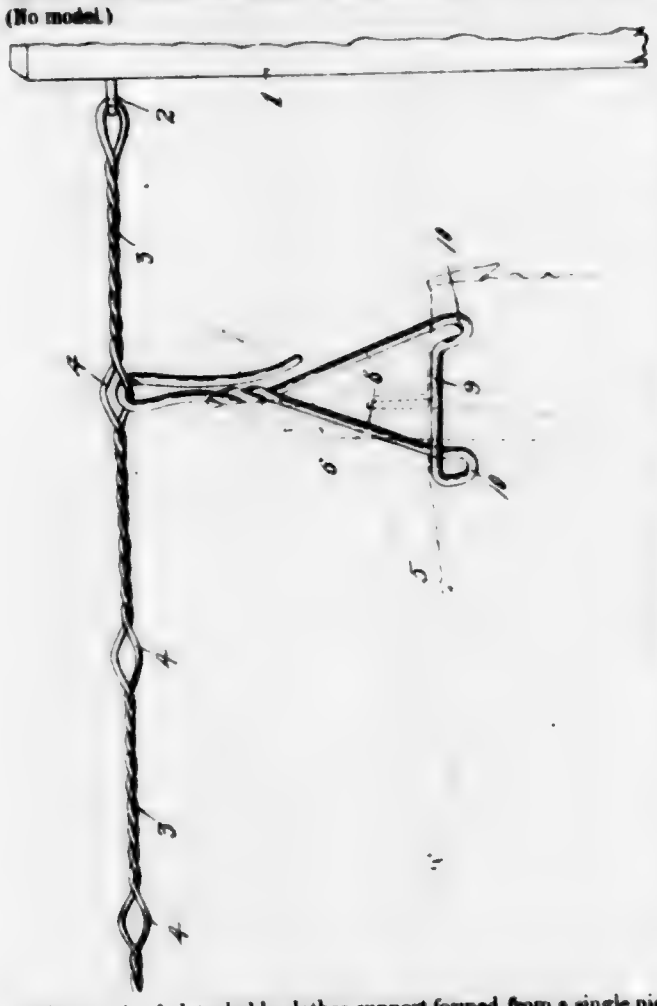
one of said plates or members and extending above said upper plate or member whereby it may be secured across the instep portion of the foot.

4. As an improvement in extension-footwear, the herein-described device, comprising an upper plate or member and a lower plate or member which are connected at their forward ends by means of an interposed resilient element and are spaced apart at their rearward ends by means of an upright rod or support upon which the upper plate or member directly rests, said upper plate or member being formed to fit the sole of the foot and being provided at its rearward end with a counter arranged to receive the heel of the foot, said upper plate or member being also provided at the sides of its forward end with upwardly-projecting counters arranged to receive the ball of the foot, and said lower plate or member being provided forwardly of the forward end of said upper plate or member with a toe-piece.

5. As an improvement in extension-footwear, the herein-described device, comprising an upper plate or member and a lower plate or member which are connected at their forward ends and are spaced apart at their rearward ends by means of an upright rod or support upon which the rearward end of said upper plate or member directly rests, said upper plate or member being formed to fit the sole of the foot and being provided with a counter arranged to receive the foot, and said lower plate or member being provided forwardly of the forward end of the lower plate or member with a toe-piece.

6. As an improvement in extension-footwear, the herein-described device, comprising an upper plate or member and a lower plate or member which are connected at their forward ends by means of a resilient element which is interposed between said upper plate or member and said lower plate or member and which are spaced apart at their rearward ends by means of an upright rod or support upon which the rearward end of said upper plate or member directly rests, and an upper connected with one of said plates or members and extending above said upper plate or member whereby said upper may be secured across the instep portion of the foot, the entirety being adapted when fitted to a foot to be inserted within a shoe of normal construction.

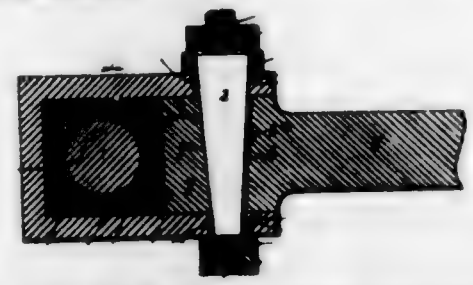
693,401. CLOTHES-LINE AND DETACHABLE SUPPORT. HARMAN R. JOHNSON, Braddock, N. D. Filed Oct. 5, 1901. Serial No. 77,855. (No model.)



Claim.—1. A detachable clothes-support formed from a single piece of wire bent to afford the hook 7, diverging arms 8, transverse section 9 and depending loops 10.

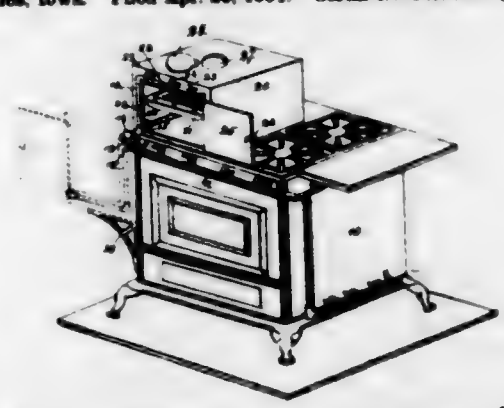
2. The combination with a clothes-line having loops or eyes at intervals, of a plurality of detachable clothes-supporting brackets, each of which brackets has a hook for detachably securing the same to the eyes or loops of said line and is provided with a transverse portion to which the clothes are adapted to be pinned, substantially as described.

693,402. TAKE-UP DEVICE FOR CRANK-PIN CONNECTIONS. JOSEPH E. JOHNSON, Meriden, Conn. Filed Dec. 16, 1901. Serial No. 86,078. (No model.)



Claim.—The combination with a tapering take-up pin provided at its respective ends with threaded stems, of a connecting-rod formed with a tapering hole for the reception of the said take-up pin, a crank-pin, a two-part box therefor, a strap inclosing the said box and having its ends formed with tapered openings which receive the respective ends of the take-up pin which bears upon their walls at points opposite its bearing upon the walls of the said hole formed in the head of the connecting-rod, a check-nut applied to the stem at the larger end of the take-up pin, and a take-up nut applied to the threaded stem at the smaller end of the take-up pin, and held against rotation, substantially as set forth.

693,403. VAPOR-BURNING STOVE. SIMON B. KEPPER, Des Moines, Iowa. Filed Apr. 26, 1901. Serial No. 57,624. (No model.)



Claim.—1. The combination, with a reversible oven, of a burner at its interior and a detachable partition in the oven between the burner and the central portion of the oven, whereby when the oven stands with the burner near its upper end, the flame from the burner may enter the oven unimpeded, as required for broiling, and when reversed the partition inserted to form an inclosed oven above the burner.

2. The combination, with a reversible oven, of a series of brackets on the sides of its interior, and a reversible partition formed to operate as a drip-pan capable of detachable support on any of said series of brackets, and a burner in the interior of the oven, for the purposes stated.

3. The combination, with vapor-burning stoves, of an auxiliary oven hinged to the stove, to be capable of standing on top of the stove or of being reversed and supported at the side of the stove, a burner on the interior of said oven, and a detachable partition between the burner and the central portion of the oven, whereby, when the oven stands on top of the stove, the partition may be removed and the flame from the burner enter the oven, as required in broiling, and when the oven is swung to the side of the stove, the partition may be inserted above the burner, to provide an inclosed oven for baking.

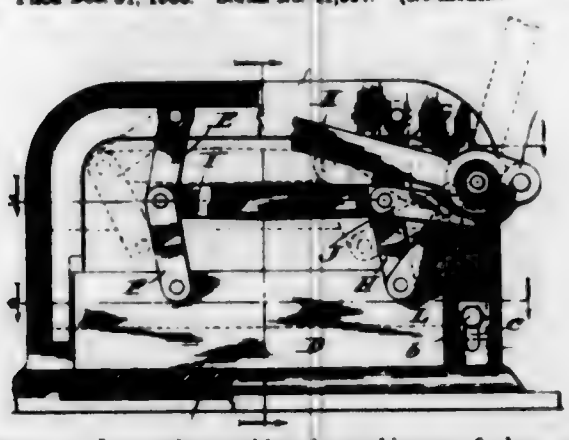
4. The combination, with vapor-burning stoves, of an auxiliary oven hinged to the stove, to be capable of standing on top of the stove or of being reversed and supported at the side of the stove, a burner on the interior of said oven, and a detachable partition between the burner and the central portion of the oven, a gas-supply pipe fixed to the stove, a gas-supply pipe fixed to the oven, and a hinge-joint at the juncture of these pipes, said hinge being in line with the pivotal point of the oven, whereby, when the oven stands on top of the stove the partition may be removed and the flame from the burner enter the oven as required in broiling and when the oven is swung to the side of the stove, the partition may be inserted above the burner, to provide an inclosed oven for baking.

5. The combination, with a vapor-burning stove, of an auxiliary oven hinged to the stove in such manner that in one position the top of the oven may extend in the same plane as the top of the stove and in line therewith, to form a shelf and in its other position the oven may rest upon the top of the stove, one or more burners on the interior of said oven, and a supply-pipe fixed to the stove, a supply-pipe fixed to the oven and connected with said burners, and a hinge-joint connecting said pipes and in line with the pivotal point of the oven.

6. The combination, with a vapor-burning stove, of an oven having

an opening 27 and a cover therefor, a series of brackets 32 on its interior, a reversible and detachable drip-pan supported in said brackets, burners 23 on the interior of the oven, hinges for connecting the oven with the stove, a supply-pipe fixed to the stove, a second supply-pipe fixed to the oven, a hinge-joint for connecting them, hinges for connecting the oven with the stove, said latter hinges being in line with the hinge-joint in the supply-pipe, substantially as, and for the purposes stated.

698,404. CUTTING-MACHINE. EDWARD H. KIMBALL, Glencoe, Ill. Filed Dec. 31, 1900. Serial No. 41,697. (No model.)



Claim.—1. In a cutting-machine, the combination of a base, a frame mounted thereon, a knife suspended from said frame by a pair of toggles, a link connecting the knuckles of said pair of toggles, an operating-lever pivoted to said frame and adapted to articulate said toggles, and means for moving said knife in a direction to give a shear cut, substantially as described.

2. In a cutting-machine, the combination of a base, a frame mounted thereon, a knife suspended from said frame by a toggle-joint, a link pivotally attached to said frame and also pivotally attached to said knife, and means mounted upon said frame for articulating said toggle, whereby said knife will have a movement to give a shear cut, substantially as described.

3. In a cutting-machine, the combination of a base, a frame mounted thereon, a knife suspended from said frame by a pair of toggles, a link connecting the knuckles of said pair of toggles, a supplemental link pivotally attached to said frame and also pivotally attached to said knife, and an operating-lever pivoted to said frame and adapted to articulate said toggles, whereby said knife will have a movement to give a shear cut, substantially as described.

4. In a cutting-machine, the combination of a base, a frame mounted thereon, a knife suspended from said frame by a pair of toggles, a link connecting the knuckles of said pair of toggles, a supplemental link pivotally attached to said frame and also pivotally attached to said knife, an operating-lever pivoted to said frame and connected by a link with the knuckle of one of said toggles, whereby said knife will have a movement to give a shear cut, substantially as described.

5. In a cutting-machine, the combination of a base, a frame adjustably mounted thereon, a pair of toggles pivoted at their upper ends to said frame, a knife pivotally attached to the lower ends of said toggles, a link connecting the elbows of said pair of toggles, an operating-lever adapted to articulate said toggles, and a supplemental link having pivotal connection with said frame and with said knife, whereby said knife will have a movement to give a shear cut, substantially as described.

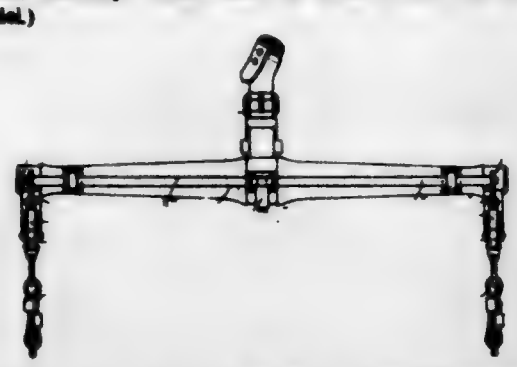
6. In a cutting-machine, the combination of a base, a frame mounted thereon, a knife suspended from said frame by a plurality of toggles, an operative connection between the elbows of said toggles, means mounted upon said frame for articulating said toggles, means for moving said knife in a direction to give a shear cut, and vertical guides for said knife formed within said frame, substantially as described.

7. In a cutting-machine, the combination of a base, a cutting-block carried thereby, a frame mounted thereon, a knife suspended from said frame by a plurality of toggles, an operative connection between the elbows of said toggles, means mounted upon said frame for articulating said toggles, means for moving said knife in a direction to give a shear cut, and vertical guides for said knife within said frame, substantially as described.

8. In a cutting-machine, the combination with a frame; a knife suspended from said frame by a pair of toggles; and an operating-lever and connections for articulating said toggles, whereby said knife will be given a vertical movement; of means connected to said frame and to a single point on said knife for controlling the path of movement of the knife.

9. In a cutting-machine, the combination with a frame; a knife suspended from said frame by a pair of toggles; and an operating-lever and connections for articulating said toggles; of a link pivoted to said frame in juxtaposition to the pivot-point of said lever and having its opposite end pivotally connected to the knife coincident with the pivot-point of the near member of the toggle, whereby said knife will be given a shear movement under the action of the lever.

698,405. SPLINTER-BAR FOR VEHICLES. ANNA KUHRINK, Posen, Germany. Filed June 25, 1900. Serial No. 21,586. (No model.)



Claim.—1. In vehicles, a splinter-bar provided with cases carrying revoluble holders having intermeshing toothed wheels, a rod passing between said holders and terminating in an enlarged head, and means for revolving said holders whereby the rod may be released, all arranged as set forth.

2. In vehicles a splinter-bar provided with cases carrying revoluble holders, a rod passing between said holders and terminating in an enlarged head a spring-actuated plate pressing said head in contact with the holders, and means for revolving said holders whereby the rod will be released, all combined as set forth.

698,406. SETTING-TOOL. JAMES KYDD, McPherson, Kans. Filed Apr. 3, 1901. Serial No. 54,212. (No model.)



Claim.—1. A device of the class described, comprising two jaws pivotally connected about midway of their length, a spring normally acting to keep the forward ends of the jaws separated, guiding-blocks carried by and projecting inwardly from the rear portions of said jaws, a conical, non-rotatable operating device 15 having a diametral slot for the passage of said guiding-blocks, and a handle or pole secured to said operating device, substantially as specified.

2. A device of the class described, comprising two jaws pivotally connected about midway of their length, the adjacent clamping-faces of the forward portions of said jaws being provided with a series of arcuate grooves extending throughout the width of the jaws, said grooves being of different radii, a sliding, non-rotatable wedge engaged between the jaws at the opposite side of the pivot-point, an operating handle or pole secured to said wedge, and means for normally maintaining the forward portions of said jaws in open position, substantially as specified.

3. A device of the class described, comprising jaws pivotally connected, the jaws at one side of the pivot having grooves in their inner faces to receive an article to be placed and having other grooves leading from the first-named grooves outwardly through the sides of the jaws, a wedge disposed slidably between the jaws at the opposite side of the pivot and having a slot therethrough and extending longitudinally thereof, blocks carried by the jaws and engaging the slot to limit the movement of the wedge, said wedge having a socket to receive a handle for manipulating the device and operating the wedge, and means for holding the engaging portions of the jaws normally and yieldably separated.

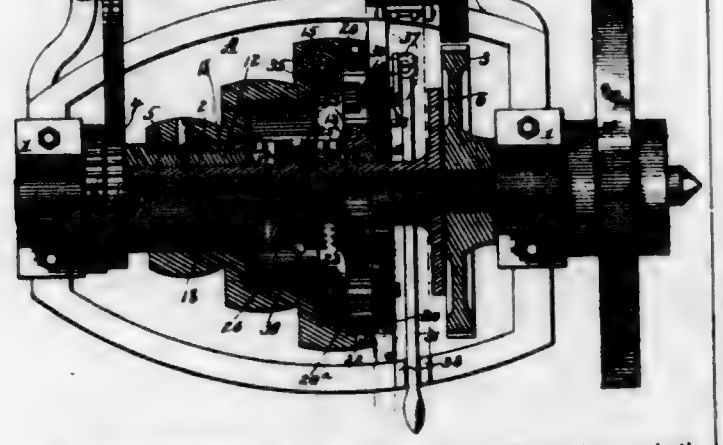
698,407. REVERSING MECHANISM. CHARLES S. LADOFFEE, Washington, D. C. Filed July 9, 1897. Serial No. 644,036. (No model.)

Claim.—1. The combination with the spindle of a lathe or similar machine, a driven pulley and gear-wheel journaled concentrically with said spindle, said pulley having a mutilated internal gear, and devices operatively connected with the gear-wheel to convert the continuous rotary motion of the pulley into reciprocating rotary motion of the spindle.

2. A lathe or similar machine comprising a head-stock, and a spindle journaled therein, standards disposed in the head-stock and constructed to revolubly support a driven pulley and a gear-wheel.

3. A machine comprising a revoluble spindle journaled in its head-stock, said head-stock provided with projecting bosses, a driven pulley and gear-wheel journaled on said bosses and clutch mechanism arranged between said pulley and gear-wheel.

4. The combination with a spindle, of a pulley concentric therewith having removable internal tooth-sections, a gear concentric with the spindle, a single pinion permanently interposed between the gear and tooth-section and a pair of intermediate pinions adapted to be thrown into or out of mesh with the teeth of the gear and tooth-section whereby, when in engagement with these teeth to automatically reverse the spindle with each half-revolution.

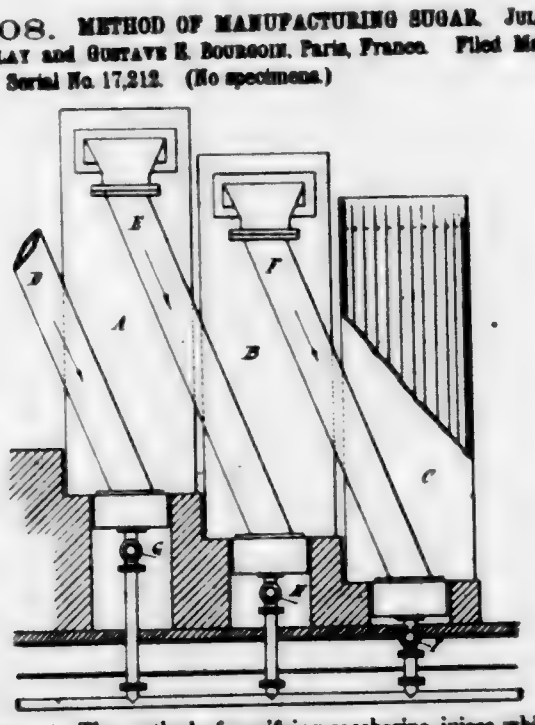


5. The combination with the head-stock of a lathe having a spindle journaled therein and a loose sleeve having a disk on one end and a gear-wheel on its opposite end and a loose pulley having a bearing concentric with the sleeve, a differential gear, the disk or flange being adapted to be coupled on a gear-wheel fixed upon the spindle to become part thereof and the gear when the disk is uncoupled to mesh with the differential gear journaled in arms projecting from the head-stock.

6. The combination of a lathe or similar machine having a spindle journaled in its head-stock and a driven loose pulley, an internal gear, clutching devices, a loose gear-wheel having clutching devices on one side of its hub, intermediate gear-wheels between said loose gear-wheel and the internal gear, a standard erected in close proximity to the free opening of the pulley for supporting the intermediate gear-wheels and a gear-wheel upon the spindle.

7. The combination with the head-stock of a lathe or similar machine, of two standards mounted thereon and having oppositely-disposed hollow bosses at their free ends, a shaft passing through said bosses, a loose pulley mounted on the boss of one standard, a gear mounted on the boss of the other standard, a clutch between said pulley and gear and means for transmitting motion to said shaft, substantially as set forth.

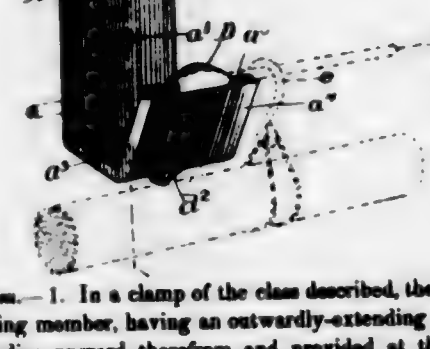
693,408. **METHOD OF MANUFACTURING SUGAR.** JULES H. LAVOLLAY and GUSTAVE R. BOURGOIN, Paris, France. Filed May 19, 1900. Serial No. 17,212. (No specimens.)



Claim.—1. The method of purifying saccharine juices which consists in maintaining in suspension therein a powdered mixture of a manganate of an alkali-earth metal and calcium fluorid and simultaneously passing an electric current therethrough.

2. The method of purifying saccharine juices which consists in maintaining in suspension therein a powdered mixture of a manganate of an alkali-earth metal and calcium fluorid, simultaneously passing an electric current therethrough and finally stirring through the mass so treated a powdered carbonate of an alkali-earth metal.

693,409. **RIB-KNITTED PILE FABRIC.** GEORGE A. LEIGHTON, Manchester, N. H., assignor to Leighton Machine Company, Manchester, N. H. Filed Apr. 4, 1901. Serial No. 54,260. (No model.)



Claim.—1. A knitted fabric composed of different threads, one of which is manipulated or interknitted to form a regularly-ribbed foundation fabric such as described, the other thread being interknitted to present a series of knitted loops at one side only of the ribbed fabric, said knitted loops lying between adjacent knitted wales of the rib-knitted fabric.

2. A knitted fabric composed of different threads, one of which is manipulated or knitted to form a regularly-ribbed foundation fabric such as described, the other thread being interknitted to present longitudinal wales at one surface of the fabric and between the wales of the ribbed fabric, said thread being napped.

3. A knitted fabric composed of a regularly-ribbed knitted foundation such as described, and a second or pile thread interknitted with itself at each course to present knitted loops at one side of, and between adjacent wales of the ribbed fabric, the pile-thread being prevented from being withdrawn from the fabric by interknitting the same with itself as described.

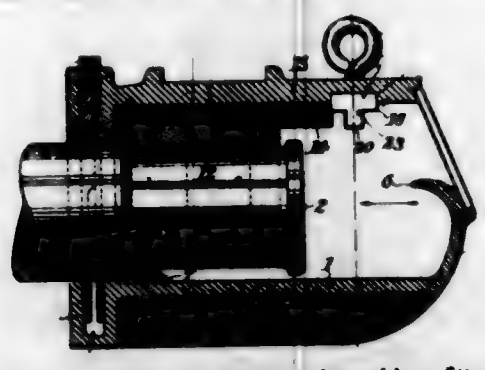
693,410. **SUSPENSION-CLAMP FOR ELECTRIC CONDUCTORS.** SYLVESTER S. LEONARD, Chicago, Ill. Filed Oct. 12, 1901. Serial No. 78,396. (No model.)

Claim.—1. In a clamp of the class described, the combination with a supporting member, having an outwardly-extending portion and a portion extending upward therefrom and provided at the top of said upwardly-extending portion with a cable-seat, of a rigid clamping-hook upon one side of said upwardly-extending portion, said hook being so recurved and grooved at its end as to form a second cable-seat registering with that upon the supporting member, the recurved end of said hook being rounded in the portion opposite said upwardly-extending portion; substantially as described.

2. In a device of the class described, the combination with a supporting member having an outwardly-extending portion and a portion extending upward from the outer end thereof, and provided with a seat upon its top, of a clamping-hook, resting against said upwardly-extending portion and forming a seat at the top thereof, said hook being rounded upon the side opposite the upwardly-extending portion, and being provided with means for drawing the clamping portion down upon the cable; substantially as described.

3. The combination with a member, A, adapted for attachment to a suitable support and extending outward at a^3, and upward at a^4, and having a cable-seat, a^5, in the top of the portion, a^4, and a suitable perforation in the portion, a^3, of the hook, D, provided with a flat side resting upon the portion, a^4, the upper end forming a seat; d, rounded sides opposite the seat and the portion, a^4, and a shank extending through the perforation and provided with a clamping-plate; substantially as described.

698,411. JOURNAL-BOX. GEORGE W. LEWIS, Portsmouth, Va., assignor of one-half to Camillus Albert Nash, Norfolk, Va. Filed Oct. 30, 1901. Serial No. 80,553. (No model.)



Claim.—1. A stop-key or gib, for a journal-box, fitted to slide in openings in said box, and provided with a stop-lug on one end adapted to prevent the entire withdrawal of said stop-key or gib, and a movable locking-pin permanently attached to said stop-key or gib and adapted to engage a portion of the box to lock the said key or gib in place, and to be disengaged from the box to permit the withdrawal of the key or gib, substantially as described.

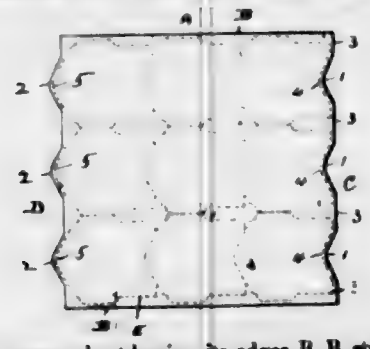
2. A journal-box, provided with openings in its side walls, combined with a stop-key or gib fitted to slide in said openings, and provided with a stop-lug on one end adapted to enter and pass through one of said openings and to engage a closed portion of the other of said openings to prevent the entire withdrawal of said stop-key or gib, and a locking-pin movably fitted to the other end of said stop-key or gib and adapted to engage a portion of the box to lock said stop-key or gib in place, and to be disengaged therefrom to permit the withdrawal of the stop-key or gib, substantially as described.

3. A journal-box, provided with openings in its side walls, and an ear adjacent one of said openings and closing a portion thereof, combined with a stop-key or gib fitted to slide in said openings and provided with a stop-lug on one end, adapted to enter and pass through one of said openings and to engage the closed portion of the other of said openings to prevent the entire withdrawal of said stop-key or gib, and a locking-pin movably fitted to the other end of said stop-key or gib, and adapted to engage the said ear to lock the said stop key or gib in place, and to be disengaged therefrom to permit the withdrawal of said stop-key or gib, substantially as described.

4. A journal-box, provided with openings in its side walls, and a perforated ear adjacent one of said openings and closing a portion thereof, combined with a stop-key or gib fitted to slide in said openings, and provided with a stop-lug on one end adapted to enter and pass through one of said openings and to engage the closed portion of the other of said openings to prevent the entire withdrawal of said stop-key or gib, there being a countersunk hole or perforation in the other end of said stop-key or gib, and a locking-pin movably arranged in said countersunk hole or perforation, and provided with a head or enlargement adapted to fit said countersunk hole or perforation and to enter said perforated ear, whereby said locking-pin may be engaged with and disengaged from said ear, and permanently retained in said stop-key or gib, substantially as and for the purpose described.

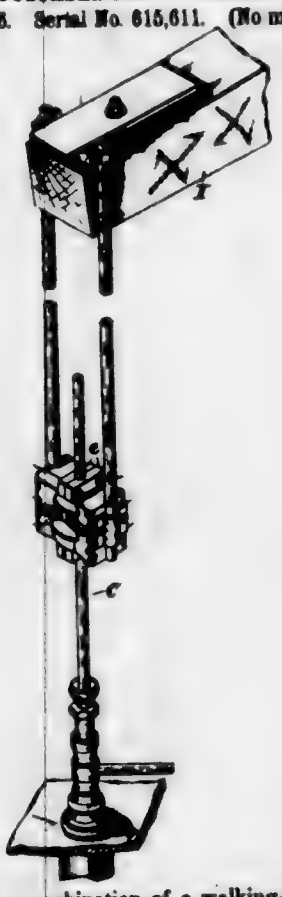
5. A stop-key or gib, having a stop-lug at one end and a countersunk hole at its other end, combined with a journal-box having openings in opposite sides corresponding in shape with the lug end of the key or gib, a laterally-projecting ear on one side of the box partly closing one of said openings, and a locking-pin permanently applied to said key or gib and adapted to be engaged with and disengaged from said ear, substantially as described.

698,412. PAPER SHEET FOR ENVELOP-BLANKS. JAMES LOGAN, Worcester, Mass. Filed Sept. 23, 1900. Serial No. 31,354. (No model.)



Claim.—A paper sheet having its edges B, B, straight and parallel, its edge C wavy and sinuous, with indentations 1, 1, and the opposite edge D parallel with edge C and having projections 2, 2, corresponding in extent and shape with the indentations 1, 1, on edge C, the paper cut on each side of the indentation on straight lines 3, 3, and at right angles with the edges B, B, thus permitting the sheet to be registered by means of suitable gages against two adjacent edges.

698,413. ADJUSTABLE GRIP. CHAUNCEY F. LUPKIN, Lima, Ohio. Filed Dec. 14, 1896. Serial No. 615,611. (No model.)



Claim.—1. The combination of a walking-beam, journal, rods depending from said journal and adjustably connected to a grip, and said grip consisting of a fixed jaw provided with a tapering hole upon each side of the rod to be gripped and a movable jaw provided with corresponding side grooves, and bolts seated in said tapering holes and side grooves for securing said jaws together to grip and hold a polish-rod, substantially as set forth.

2. In an adjustable grip for polish-rods, a fixed jaw having a depression and groove in one side to receive the movable jaw and polish-rod, respectively, and having a tapering hole extending through said jaw on each side of said polish-rod and at right angles thereto, and a movable jaw having a groove to receive the polish-rod, and having a groove upon each side of said movable jaw, bolts adapted to take into said tapering holes and side grooves, and nuts upon said bolts, a polish-rod and walking-beam and means to connect and secure said grip and walking-beam together, substantially as set forth.

3. The combination of a walking-beam, a journal mounted on the outer end thereof, depending rods, adjustably secured to each end of said journal, adjustable gripping mechanism secured to and supported by said rods, said gripping mechanism consisting of a main jaw provided with tapering holes, and a movable jaw provided with side grooves, and bolts and nuts for securing said jaws together to grip and hold a smooth polish-rod, and to disconnect the same therefrom when desired, substantially as and for the purpose set forth.

4. In an adjustable grip for polish-rods, a fixed jaw having a vertical groove in each end, a cap for each end, each cap being provided with a groove upon its inner surface and adapted to register with the vertical groove upon the end of the fixed jaw, bolts upon each side of said vertical grooves for securing said fixed jaw and caps together to grip holding-pipes, said holding-pipes, a movable jaw and means for securing said jaws together to grip a polish-rod, substantially as set forth.

5. The combination of a walking-beam, journal, connecting pipes or rods depending therefrom, an adjustable grip consisting of a fixed jaw provided with tapering or elongated holes and a movable jaw provided with side grooves and means for securing said jaws together to grip a polish-rod, and supplemental grips consisting of blocks secured together by bolts taking through them, said supplemental grips being immediately above and below said main grip, substantially as set forth.

6. The combination in an adjustable grip for polish-rods, of a fixed jaw and a movable jaw adapted to be secured together upon a polish-rod to grip the same or be released therefrom by locking-bolts adapted to take over said jaws and through side grooves in one jaw and tapering or elongated holes in the other jaw at each side of the polish-rod whereby a more uniform and powerful grip is obtained, substantially as set forth.

7. The combination of a walking-beam, journal, pipes connected thereto, means consisting of a cap and bolts for adjustably securing each pipe to the respective ends of the fixed jaw of the grip by frictional engagement, said fixed jaw, a movable jaw, and means for securing said jaws together to grip a polish-rod, substantially as set forth.

693,414. MEANS FOR DELIVERING AND REGISTERING TICKETS OR CHECKS. ALBERT MARSH, London, England. Filed Oct. 26, 1899. Serial No. 734,874. (No model.)



Claim.—1. A delivery apparatus for tickets or checks, comprising a magazine containing the tickets, a lock upon the lower end of the said magazine closing a delivery-aperture when the magazine is out of delivering position, racks on the inner sides of the magazine, a weight-rest upon the checks having spring-arms engaging the racks, a casing on which the magazine is fitted having means by which the lock of the magazine may be opened when in position, an ejecting-plate in the said casing operating through a slot in the magazine to eject the lowest ticket or check, and counting mechanism connected to the ejecting-piece, substantially as and for the purposes specified.

2. In a delivery apparatus for tickets or checks, the combination with a magazine containing the tickets having a lock upon its lower end normally closing the delivery-aperture, internal racks and a weight with arms engaging the said racks and resting upon the tickets, of a casing receiving the magazine upon its upper side, a lock-operating device on the casing by which the lock may be opened when the magazine is in position, a sliding ejecting-plate carried by the said casing adapted to eject the lowest ticket through a slot in the magazine, a spring returning the ejector when released, counting mechanism placed within the casing, a ratchet-wheel actuating the counting mechanism, an arm with pin engaging the ratchet-wheel and an extension on the ejecting-plate operating the said arm and through it the counting mechanism, substantially as and for the purposes specified.

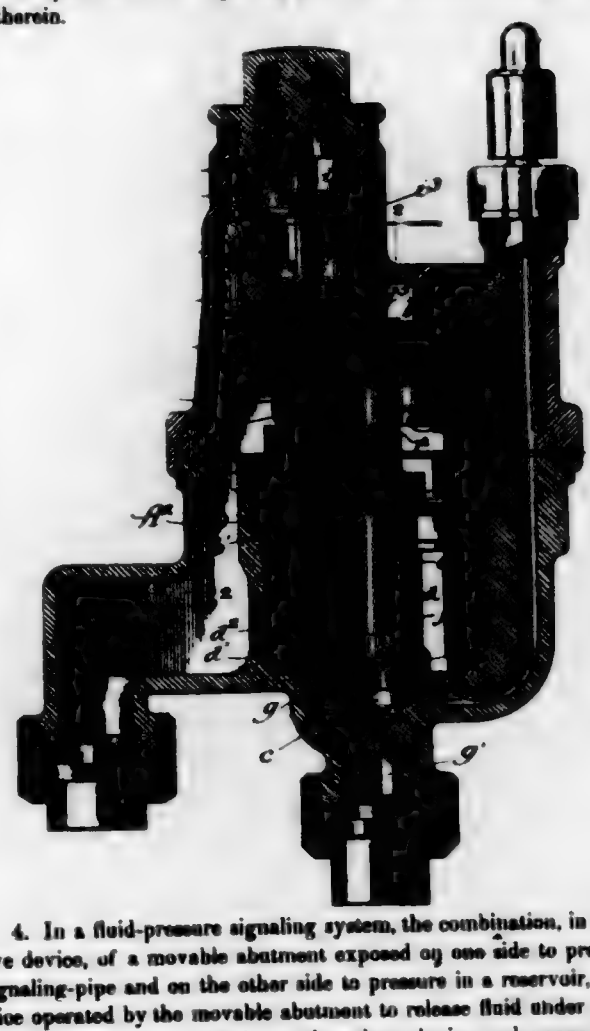
3. In a delivery apparatus for tickets, the combination with a magazine containing the tickets and means for ejecting the same, of a counting apparatus having a ratchet-wheel and a pawl-lever engaging the ratchet-wheel, a spring upon the said lever, electrical contact-piece upon the end of the spring, a second contact carried by the casing of the apparatus, electrical connections to the contacts, and an arm upon the ejecting mechanism bearing upon the spring adapted when the ejecting part is moved to press back the spring, bring the electrical contacts together to give a signal, and operate the pawl-arm, substantially in the manner described and shown and for the purposes specified.

693,415. FLUID-PRESSURE SIGNAL-VALVE. HARRY R. MASON, Chicago, Ill., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed June 12, 1900. Serial No. 20,010. (No model.)

Claim.—1. In a fluid-pressure signaling system, the combination, with a signal valve device operative by variations of pressure on opposite sides of a movable abutment, of means separate from, but actuated by, the movable abutment, for quickly releasing fluid from one side of the abutment to the other to counteract such variations.

2. In a fluid-pressure signaling system, the combination, in a signal valve device, of a movable abutment exposed on one side to pressure in a signaling-pipe and on the other to pressure in a reservoir, a valve device operated by the movable abutment to supply fluid under pressure to a whistle or other alarm device, and means separate from, but actuated by, the movable abutment, for quickly releasing fluid under pressure from the reservoir to the train-pipe side of the abutment so as to reduce the reservoir-pressure and to counteract reductions of pressure in the train-pipe.

3. In a fluid-pressure signaling system, the combination, in a signal valve device, of a movable abutment exposed on one side to pressure in a signaling-pipe and on the other side to pressure in a reservoir, a valve device operative by the abutment, on a reduction of pressure in the signaling-pipe, to release fluid under pressure from the reservoir to a whistle or other alarm, and means separate from, but actuated by, the movable abutment, whereby the reservoir may be connected with the signaling-pipe so that both sides of the abutment will be exposed to the same variations of pressure in the signaling-pipe after the first reduction of pressure therein.



4. In a fluid-pressure signaling system, the combination, in a signal valve device, of a movable abutment exposed on one side to pressure in a signaling-pipe and on the other side to pressure in a reservoir, a valve device operated by the movable abutment to release fluid under pressure from the reservoir to a whistle or other alarm device, and means separate from, but actuated by, the movable abutment, for suddenly equalizing the pressures on both sides of the movable abutment.

5. In a fluid-pressure signaling system, the combination, in a signal valve device, of a movable abutment exposed on one side to pressure in a signaling-pipe and on the other side to pressure in a reservoir, valve mechanism operated by the movable abutment to release fluid under pressure from the reservoir to a whistle or other alarm device and means separate from, but actuated by, the movable abutment, for releasing fluid from the reservoir to the signaling-pipe.

6. In a fluid-pressure signaling system, the combination with a signal valve device provided with valve mechanism interposed between a signaling-pipe and a signaling-reservoir, and subject on its opposite sides to pressure therefrom, respectively, and normally closing an outlet to the signal, and movable from normal position to open said outlet under pressure from the said reservoir when the signaling-pipe pressure falls under a signaling impulse, of a normally closed passage extending between the signaling-pipe and signaling-reservoir, and valve mechanism, governing said passage actuated, under strong signaling impulses in the signaling-pipe, to open said passage, to subject rebounding impulses following the direct signaling impulse to the modifying effect of the volume of signaling-reservoir air, and then close said passage, substantially as and for the purpose set forth.

7. In a fluid-pressure signaling system, the combination with a signal valve device provided with piston-actuated valve mechanism interposed between a signaling-pipe and a signaling-reservoir, and subject on its opposite sides to pressure therefrom, respectively, and normally closing an outlet to the signal, and movable from normal position to open said outlet under pressure from the said reservoir when the signaling-pipe pressure falls under a signaling impulse, of a normally closed passage extending between the signaling-pipe and signaling-reservoir, and valve mechanism, governing said passage, actuated, under strong signaling impulses in the signaling-pipe, to open said passage, to subject both sides of the piston of the piston-actuated valve mechanism simultaneously to the force of rebounding impulses following the direct signaling impulse, and then close said passage, substantially as and for the purpose set forth.

8. In a fluid-pressure signaling system, the combination with a signal valve device provided with valve mechanism interposed between a signaling-pipe and a signaling-reservoir, and subject on its opposite sides to pressure therefrom, respectively, and normally closing an outlet to the signal, and movable from normal position to open said outlet under pressure from the said reservoir when the signaling-pipe pressure falls under a signaling impulse, of a normally closed supplemental passage extending between the signaling-pipe and signaling-reservoir, and quickly open-

ing and slowly closing valve mechanism governing said passage, actuated under signaling impulses in the signaling-pipe to open and then close said passage, substantially as and for the purpose set forth.

9. In a fluid-pressure signaling system, the combination with a signal valve device provided with piston-actuated valve mechanism interposed between a signaling-pipe and a signaling-reservoir, and subject on its opposite sides to pressure therefrom, respectively, and normally closing an outlet to the signal, and movable from normal position to open said outlet under pressure from the said reservoir when the signaling-pipe pressure falls under a signaling impulse, of a normally closed supplemental passage extending between the signaling-pipe and signaling-reservoir, and valve mechanism governing said passage, in the path of the said piston-actuated valve mechanism, and actuated by movement of the said piston-actuated valve mechanism to open and then close said passage, substantially as and for the purpose set forth.

10. In a fluid-pressure signaling system, the combination with a signal valve device provided with piston-actuated valve mechanism interposed between a signaling-pipe and a signaling-reservoir, and subject on its opposite sides to pressure therefrom, respectively, and normally closing an outlet to the signal, and movable from normal position to open said outlet under pressure from the said reservoir when the signaling-pipe pressure falls under a signaling impulse, of a normally closed supplemental passage extending between the signaling-pipe and signaling-reservoir, self-closing supplemental-passage valve mechanism, in the path of the said piston-actuated valve mechanism, actuated by movement of the said piston-actuated valve mechanism to open said passage, and return retarding means for the supplemental-passage valve mechanism for yieldingly resisting the closing movement thereof, substantially as and for the purpose set forth.

11. In a fluid-pressure signaling system, the combination with a signal valve device provided with piston-actuated valve mechanism interposed between a signaling-pipe and a signaling-reservoir, and subject on its opposite sides to pressure therefrom, respectively, and normally closing an outlet to the signal, and movable from normal position to open said outlet under pressure from the said reservoir when the signaling-pipe pressure falls under a signaling impulse, of a normally closed supplemental passage extending between the signaling-pipe and signaling-reservoir, supplemental-passage valve mechanism, in the path of the said piston-actuated valve mechanism, actuated by movement of the said piston-actuated valve mechanism to open said passage, a spring operating to resist the opening and assist the closing of the supplemental-passage valve mechanism, and return retarding means for the supplemental-passage valve mechanism for yieldingly resisting the closing movement thereof, substantially as and for the purpose set forth.

12. In a fluid-pressure signaling system, the combination, with a signal valve device, operative by variations of pressure on opposite sides of a movable abutment, of means for establishing communication between the opposite sides of the abutment when it is operated to make a signal, and for independently closing such communication.

13. In a fluid-pressure signaling system, the combination, with a signaling-pipe and a signal valve device, operative by variations of pressure on opposite sides of a movable abutment, of a signaling-reservoir, means actuated by the movable abutment for establishing communication between the reservoir and the signaling-pipe, and for independently closing the communication after a return movement of the abutment.

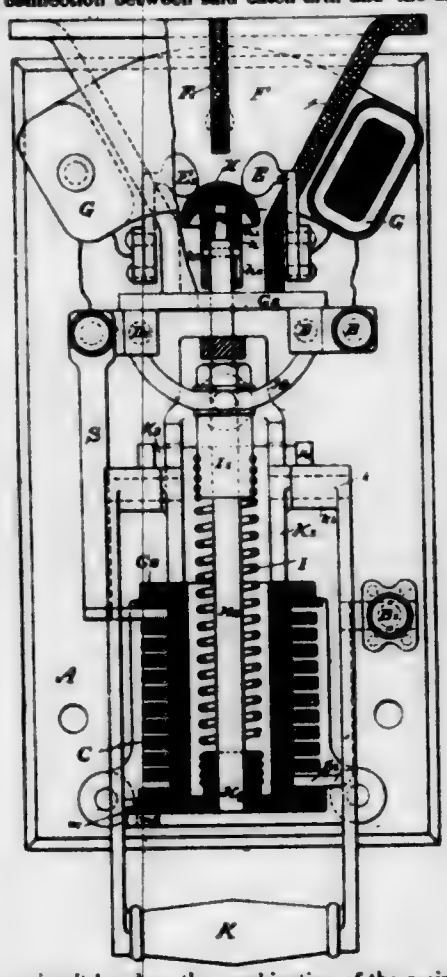
693,416. **CIRCUIT-BREAKER.** FRANK A. MERRICK and JOSEPH D. FORBES, Johnstown, Pa., assignors to the Lorain Steel Company, a Corporation of Pennsylvania. Filed Nov. 9, 1899. Serial No. 736,253. (No model.)

Claim.—1. The combination of a chamber having side and bottom walls of refractory material, fixed contacts extending into said chamber through its side walls, a movable contact extending into the chamber through its bottom wall, a division-plate of non-conducting material within said chamber adjacent to the fixed contacts, and means for producing a magnetic field in the said chamber.

2. In a circuit-breaker, the combination of fixed main and auxiliary contacts and a plunger carrying main and auxiliary contact-bridging pieces, the main contact-bridging piece being fixed to said plunger, and the auxiliary contact-bridging piece movably sleeved thereon, and means whereby both the said piece and the plunger have limited independent movement.

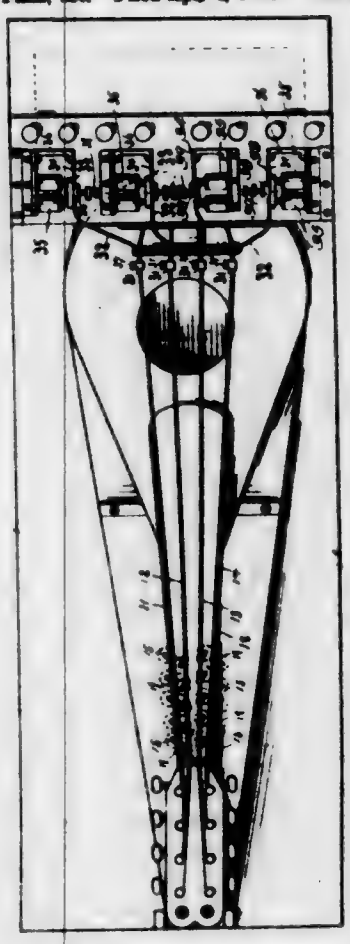
3. In a circuit-breaker, the combination with main and auxiliary contacts, and a plunger carrying main and auxiliary contact-bridging pieces, the latter being sleeved upon the upper end of said plunger, a spring interposed between the said piece and the plunger, and a pin-and-slot connection between said piece and the plunger.

4. In a circuit-breaker, the combination with the plunger which carries the movable contacts, of a magnet-coil in the main circuit, an armature-lever, a spring acting upon said lever in opposition to said coil, a bifurcated hand-lever embracing said coil and having an arm which engages a projection on said plunger, a spring acting upon said plunger in opposition to said lever, a pivoted catch-arm engaging the handle-arm of said lever, and a connection between said catch-arm and the armature-lever.



5. In a circuit-breaker, the combination of the reciprocating rod or plunger which carries the movable contacts, the spring for actuating the said plunger in one direction, the hand-lever for actuating the same in the opposite direction, the magnet-coil, the armature-lever at one end of said coil, the pivoted catch-arm at the opposite end of said coil arranged to engage and lock the hand-lever, and a connection between the armature-lever and said catch-arm.

698,417. **SELF-PLAYING MANDOLIN.** ALEXANDER I. MITCHELL, Rumford Falls, Me. Filed Apr. 4, 1901. Serial No. 54,367. (No model.)

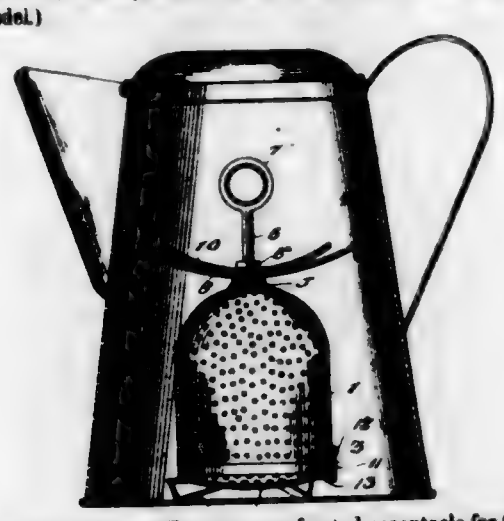


Claim.—1. The combination with a musical instrument and its strings, of an electromagnet, its armature, a string-depressing finger connected with the armature and disposed to engage and depress the string, a second electromagnet and its armature, a plectrum operatively connected with the armature and disposed to vibrate a string, a battery for each magnet, and a circuit-closer including a member common to each battery.

2. The combination with a musical instrument and its strings of an electromagnet and its armature, a string-depressing finger connected with the armature for operation thereby, a second electromagnet and its armature, a plectrum connected with the second armature for operation thereby and disposed in operative relation to the string to vibrate it, a battery for each magnet, a separate contact-point for the circuit of each magnet, and a circuit-closing device common to both batteries and magnets and adapted for engagement with the contact-points simultaneously.

3. The combination with a musical instrument and its strings, of string-depressing fingers for each string, an electromagnet having an armature connected with each finger for operating it, a plectrum for each string, an electromagnet for each plectrum and having an armature operatively connected with its respective plectrum, a battery with which all of the finger-operating magnets are connected in multiple, a separate battery with which all of the plectrum-operating magnets are connected in multiple, a contact-point for each of the magnets, and a circuit-closer common to both batteries and provided one for each finger-operating magnet, the contacts of the finger-operating magnets being disposed each adjacent to a contact of a plectrum-operating magnet for engagement of them both by the circuit-closer.

93,418. COFFEE OR TEA POT ATTACHMENT. WALTER R. MONTGOMERY, Shreveport, La. Filed June 4, 1901. Serial No. 63,151. (No model.)



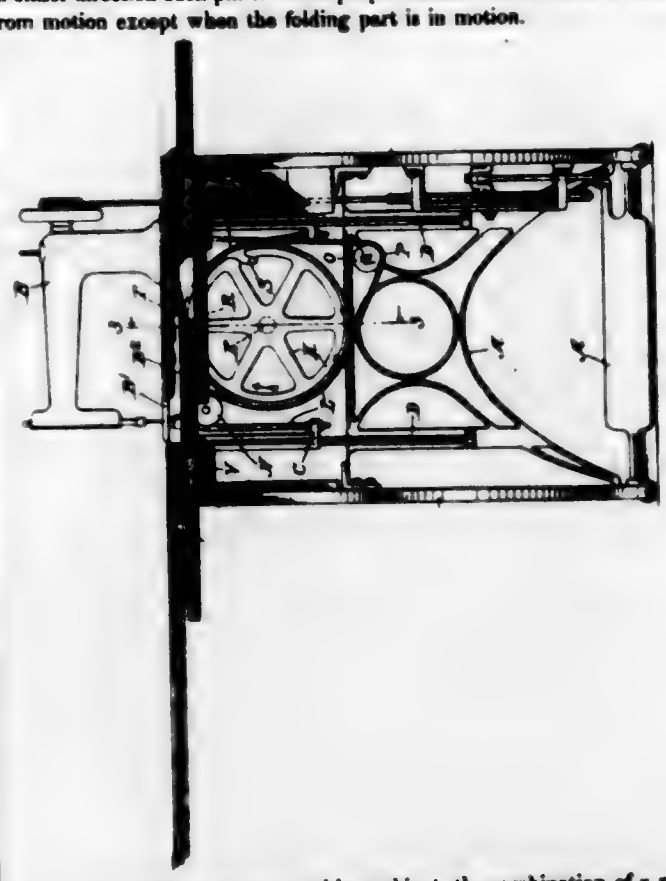
Claim.—In a tea or coffee pot, a perforated receptacle for the charge of tea or coffee open at the lower end, a closure for said open end of the receptacle with means for detachably connecting it to said receptacle, downwardly-projecting feet on said closure adapted to support the receptacle above the surface upon which it rests, a rod secured in and extending vertically above the top of said receptacle and providing a handle for said receptacle, transverse spring-plates mounted on the said rod above the top of the receptacle and provided with extended curved extremities to engage the interior of the pot, a shorter plate held on said spring-plates to regulate the resiliency of the latter, and a movable holding device mounted on the rod and bearing against the said shorter plate.

693,419. FOLDING SEWING-MACHINE TABLE. ALBERT MORLEY, Chicago, Ill., assignor to Stephen M. Sutherland, trustee, Chicago, Ill. Filed Apr. 27, 1901. Serial No. 57,736. (No model.)

Claim.—1. In a folding sewing-machine cabinet, the combination of a movable head with a folding part, connections between the two whereby the motion of the folding part causes the head to rise or lower as the case may be, and an additional or separate locking device which automatically prevents the head from moving except when such folding part is in motion, and which is connected with the folding part so that the first motion of the latter positively disengages the interlocking parts.

2. In a folding sewing-machine cabinet the combination of a movable head with a folding part, and connections between the two whereby when the folding part is moved, the head is moved, such connections containing a rotatable part, and a locking device associated with such rotatable part and adapted to prevent the head from moving except when the folding part is in motion.

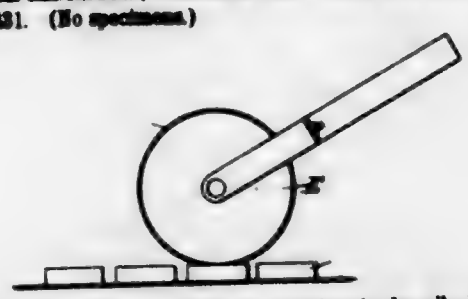
3. In a folding sewing-machine cabinet, the combination of a movable head with a folding part, and connections between the two whereby, when the folding part is moved, the head is moved, such connections containing a rotatable part, and lugs on such rotatable part projecting in opposite directions and forming each a V-shaped socket, and a pin associated with the head, so that when the folding part is at the limit of its motion in either direction such pin is in the proper socket, and the head is locked from motion except when the folding part is in motion.



4. In a folding sewing-machine cabinet, the combination of a movable sewing-machine head with a wheel and chains which connect the sewing-machine head to the wheel, a folding part and connections therefrom to the wheel, so that the latter is rotated when the folding part is moved, a pin associated with the head, lugs making V-shaped slots on the wheel, the pin and the lugs rotated so that when the folding part is at the limit of its motion in either direction, the pin and lug engage so as to lock the head in position.

5. In a folding sewing-machine cabinet, the combination of a forward-swinging leaf composed of one fixed and two hinged and folding sections with a movable head, a loose connection between the movable head and the lower folding section of the leaf, and a stop on the lower part of the leaf to engage a fixed part of the sewing-machine frame.

693,420. PROCESS OF GLAZING TILE. HERMAN C. MUELLER and KARL LANGENBECK, Zanesville, Ohio. Filed Jan. 31, 1901. Serial No. 45,431. (No specimens.)



Claim.—1. The process of glazing tile herein described which consists in pasting the pieces of tile to a base, second applying glazing material to the surfaces of the tile, and third placing the base containing the tile in the kiln for firing.

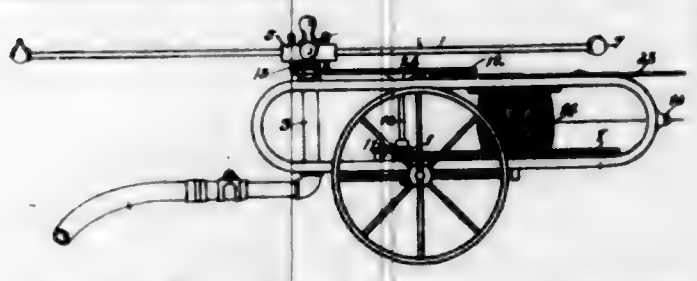
2. The process of glazing tile herein described which consists in pasting the pieces of tile to a base made of a material which is disintegrated by the heat of a kiln, second applying the glazing material to the faces of the tile, and third placing the base containing the tile in the kiln for firing.

693,421. TRAVELING LAWN-SPRINKLER. ARTHUR MUNCH, St. Paul, Minn. Filed Oct. 13, 1900. Serial No. 32,915. (No model.)

Claim.—1. In a lawn-sprinkler of the class described, the combination with a carrying-frame provided with suitable supporting-wheels, of a sprinkler-head rotatably mounted upon said frame, and having means for connection with a hose, a reel arranged adjacent thereto, a toothed disk connected with said reel, and means carried by said head for actuating said disk.

2. In a lawn-sprinkler of the class described, the combination with a carrying-frame provided with suitable supporting-wheels, of a sprinkler-head rotatably mounted upon said frame, and having means for connec-

tion with a hose, a reel rotatably mounted in said frame, mechanism interposed between said head and reel, said mechanism being intermittently actuated by said head to actuate said reel.



3. In a traveling lawn-sprinkler of the class described, the combination with a frame provided with suitable supporting-wheels, of a sprinkler-head rotatably mounted upon said frame, means for connecting said head with a hose, a reel rotatably mounted upon said frame, an operative connection between said head and reel, and means for throwing said head and reel out of connection.

4. In a traveling lawn-sprinkler of the class described, the combination with a frame provided with suitable supporting-wheels, of a sprinkler-head rotatably supported by the frame, means for connecting said head with a source of water-supply, a reel mounted upon the frame, operative connection between said head and reel, and means for varying the relative speed of said head and reel.

5. In a traveling lawn-sprinkler of the class described, the combination, with the frame, provided with suitable supporting-wheels of a sprinkler-head rotatably supported upon said frame and provided with discharge-nozzles, means for connecting said head with a supply of water, a cable connecting said frame with a relatively immovable object, and adjustable means actuated by the head in its rotation to wind up the cable, as and for the purpose set forth.

6. In a traveling lawn-sprinkler of the class described, the combination, with the frame provided with suitable supporting-wheels, of a sprinkler-head rotatably supported by the frame and provided with discharge-nozzles, means for connecting the head with a source of water-supply, a reel mounted upon the frame, a cable mounted upon the reel and connected with a relatively immovable object outside the frame, a toothed disk connected with the reel, and projecting pins carried by the head and adapted in the rotation of the head to engage the disk and actuate the reel.

7. In a traveling lawn-sprinkler of the class described, the combination, with a carrying-frame provided with suitable supporting-wheels, of a sprinkler-head rotatably supported by the frame and provided with discharge-nozzles, means for connecting the head with a supply of water under pressure, a reel rotatably carried by the frame, an operative connection between the head and reel, whereby the reel is rotated as the head is rotated, a flexible connection between said reel and a series of posts, said flexible connection passing around inclined pulleys upon certain of said posts, and means carried by said frame for lifting said connection from said pulleys, in the manner and for the purpose set forth.

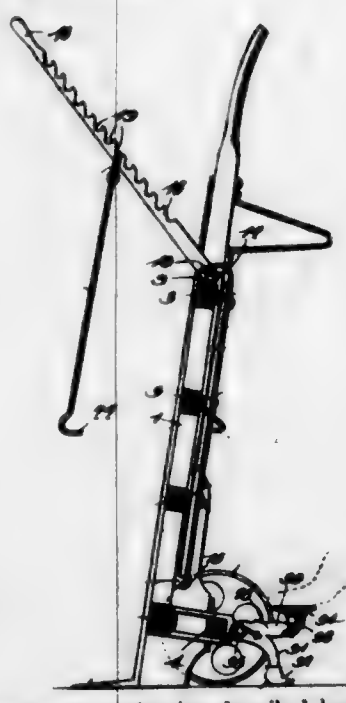
8. In a traveling lawn-sprinkler of the class described, the combination, with a carrying-frame provided with suitable supporting-wheels, of a sprinkler-head rotatably supported upon said frame, a gear connected with said cable, an adjacent shaft provided with a pinion engaging with said gear, a disk carried by said shaft, and pins carried by said head engaging with said disk, as and for the purpose set forth.

9. In a traveling lawn-sprinkler of the class described, the combination, with a carrying-frame provided with suitable supporting-wheels, of a sprinkler-head having rotatable support upon said frame and provided with suitable discharge-nozzles, means connecting said sprinkler-head with a hose, a reel of cable rotatably supported upon said frame, a gear connected with said reel, a shaft provided with a pinion engaging said gear, a toothed disk carried by the shaft, pins carried by the head and engaging the teeth of the disk, and means for automatically raising the shaft in the travel of the machine to carry said pinion out of engagement with said gear.

10. In a traveling lawn-sprinkler of the class described, the combination, with a carrying-frame provided with suitable supporting-wheels, of a sprinkler-head rotatably supported by said frame and provided with suitable discharge-nozzles, means for connecting said head with a hose, a reel rotatably supported by said frame and connected by a cable with a relatively immovable object outside the frame, an operative connection between said reel and driving-head, and a slide carried by the frame in a position to abut against said immovable object in the travel of the sprinkler and to be thereby actuated to carry the operating mechanism out of engagement with said reel.

693,422. HAND-TRUCK. EVERETT J. MURPHY, Alvarado, Va. Filed July 23, 1901. Serial No. 69,429. (No model.)

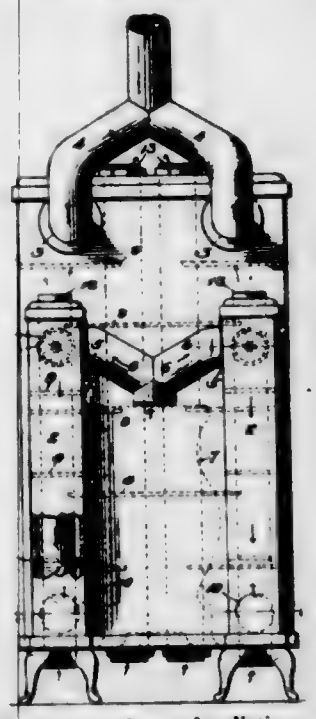
Claim.—1. A truck having longitudinally-disposed guideways on its rear under side provided at their outer ends with bearing-seats, in combination with a lever adapted to be housed between said guideways and having trunnions engaging said guideways and adapted to be seated in said bearing-seats to form the fulcrum for the lever, a ring adjustable on the said lever, and a rod connected to the said ring for the purpose set forth, substantially as described.



2. A hand-truck of the class described having a pivoted foot-lever on its rear side for the purpose set forth, said foot-lever having an engaging foot and a pivoted pedal, a spring to normally elevate said foot-lever, and a spring to maintain said pedal in a horizontal position when said foot-lever is upturned, substantially as described.

3. An attachment for hand-trucks comprising a bracket adapted to be secured on the rear side of a truck-frame, and slotted to receive the axle of the truck, a foot-lever pivoted to said bracket and having an engaging foot, and a pedal, whereby said foot-lever may be depressed, for the purpose set forth, substantially as described.

693,423. HEAT RADIATING AND TEMPERING SCREEN-DRUM FOR STOVES. JOSIAH R. MCCOY, Marshalltown, Iowa. Filed Aug. 18, 1900. Serial No. 27,312. (No model.)



Claim.—1. A heat tempering and radiating screen-drum comprising a vertically-disposed main section and vertically-disposed laterally-extending wings joined thereto, said main section and wings having communicating, continuous flues, said wings having inlet connections, for the combustion-chamber of a stove, and said main section having an outlet connection for a flue or chimney, whereby the smoke, heated air and products of combustion pass from the stove through the communicating radiating-flues in said main section and wings of said heat radiating and tempering screen-drum before being discharged into the chimney or flue, said screen drum having valved openings between the upper portions of the

main and wing sections thereof to confine the draft between the stove and flue or chimney through the upper portions of the said screen-sections, substantially as described.

2. A heat tempering and radiating screen-drum comprising a vertically-disposed main section and vertically-disposed laterally-extending wings joined thereto, said main section and wings having communicating, continuous flues, said wings having inlet connections, for the combustion-chamber of a stove, and said main section having an outlet connection for a flue or chimney whereby the smoke, heated air and products of combustion pass from the stove through the communicating, radiating flues in said main section and wings of said heat radiating and tempering screen-drum before being discharged into the chimney or flue, said screen-drum having valved openings between the upper portions of the main and wing sections thereof, to confine the draft between the stove and flue or chimney through the upper portions of the screen-sections, and said main section and lateral wing-sections being further provided with air-flues communicating with the outer air, to conduct air through said flues and heat the same by internal radiation, the said air-flues not communicating with the interior of said screen-drum, or with the draft-flues therein, substantially as described.

693,424. CHEESE-CUTTER. ANDERSON MCINTOSH, Wallace, Canada. Filed June 15, 1901. Serial No. 64,636. (No model.)



Claim.—1. In a cheese-cutter comprising a base, an upper supporting-bar, a vertical guide between the base and said supporting-bar, a traveler confined in said vertical guide and having a knife arranged to cut a cheese at the rind thereof, a cutter-wire, and means for moving the cutter-wire in a path at right angles to the operation of the traveler and the knife, as set forth.

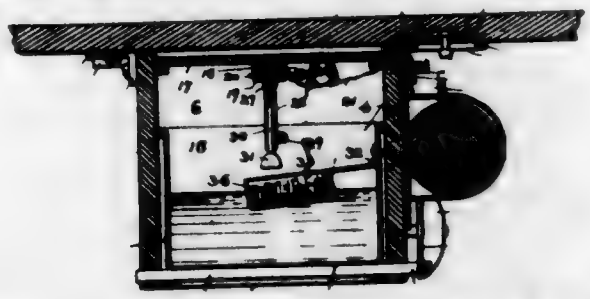
2. A cheese-cutter comprising a base, a supporting-bar, upper and lower cutter-bars, a cutter-wire stretched between the cutter-bars, and cutting-knives carried by said cutter-bars, substantially as described.

3. A cheese-cutter comprising a base, a cutter-bar slidably fitted to the base and provided with an offstanding arm, another cutter-bar connected adjustably to the arm of the first-mentioned bar, a cutter-wire attached to and stretched between the cutter-bars, and a rind-cutter guided to travel in a path at right angles to the cutter-wire, substantially as described.

4. A cheese-cutter comprising a base, an adjustable supporting-bar, a cutter-wire having an offstanding arm, another cutter-bar slidably fitted to said arm and operatively connected thereby to the first-named cutter-bar and adapted to travel therewith, a cutter-wire attached between the cutter-bars and connected to one of them, and means mounted on the other cutter-bar and having the cutter-wire connected thereto for varying the operative length of the same.

5. A cheese-cutter comprising a base, the posts, one of which is provided with a slot, a traveler fitted in said slotted post and provided with a crust-cutting knife, a cutter-wire, and means for moving the cutter-wire in a radial path on the base, substantially as described.

693,425. OVERFLOW-ALARM. ALBERT NICOLET, Newark, N. J. Filed Aug. 20, 1901. Serial No. 72,666. (No model.)



Claim.—1. In an overflow-alarm, the combination, with an alarm and source of electrical energy, of a slidably-arranged receptacle adapted to receive water, a float in said receptacle, a tubular rod suspended above the said receptacle, so as to be capable of oscillation in a vertical plane when brought in contact with the edge of said receptacle, a second rod in said tubular rod, and means connected therewith for securing said second rod in its adjusted position in said tubular rod, all arranged to make electrical contact with said float, when the water reaches a predetermined height, for establishing an electric circuit through an alarm, substantially as and for the purposes set forth.

2. In an overflow-alarm, the combination, with an alarm and source of electrical energy, of a slidably-arranged receptacle adapted to receive water, a float in said receptacle, a tubular rod pivotally suspended above the said receptacle, so as to be capable of oscillation in a vertical plane when brought in contact with the edge of said receptacle, a second rod in said tubular rod, and means connected therewith for securing said second rod in its adjusted position in said tubular rod, and a weight attached to said second rod, arranged to make electrical contact with said float, when the water reaches a predetermined height, for establishing an electric circuit through an alarm, substantially as and for the purposes set forth.

3. In an overflow-alarm, the combination, with a slidably-arranged metal receptacle adapted to receive water, of a float in said receptacle, an arm secured at one end to said float, and at the other end said arm being pivotally secured to a side of the said receptacle, the said arm being a good conductor of electricity, and a rod pivotally suspended above the said receptacle, so as to be capable of oscillation in a vertical plane when brought in contact with the edge of said receptacle, with which the first float-arm is adapted to make electrical contact, when the water reaches a predetermined height, for establishing an electric circuit through an alarm, substantially as and for the purposes set forth.

4. In an overflow-alarm, the combination, with a slidably-arranged metal receptacle adapted to receive water, of a float in said receptacle, an arm secured at one end to said float, and at the other end said arm being pivotally secured to a side of the said receptacle, the said arm being a good conductor of electricity, a tubular rod suspended above the said receptacle, so as to be capable of oscillation in a vertical plane when brought in contact with the edge of said receptacle, a second rod in said tubular rod, and means connected therewith for securing said second rod in its adjusted position in said tubular rod, all arranged to make electrical contact with the said float-arm, when the water reaches a predetermined height, for establishing an electric circuit through an alarm, substantially as and for the purposes set forth.

5. In an overflow-alarm, the combination, with a metal receptacle adapted to receive water, of a float in said receptacle, an arm secured at one end to said float, and at the other end said arm being pivotally secured to a side of the said receptacle, the said arm being a good conductor of electricity, a tubular rod pivotally suspended above the said receptacle, a second rod in said tubular rod and means connected therewith for securing said second rod in its adjusted position in said tubular rod, and a weight attached to said second rod, all arranged to make electrical contact with the said float-arm, when the water reaches a predetermined height, for establishing an electric circuit through an alarm, substantially as and for the purposes set forth.

6. In an overflow-alarm, the combination, with a supporting-frame, an electric alarm and a source of electrical energy on said frame, of a receptacle slidably arranged in said frame, and adapted to receive water and means for establishing an electrical contact between the said receptacle and said frame for actuating the alarm, when the water in said receptacle has reached a predetermined height, consisting, essentially, of a float in said receptacle, and a rod pivotally suspended above the said receptacle and the float therein, and arranged to make electrical contact with the said float, the said float and said rod being in circuit with the source of electrical energy and the said electric alarm, substantially as and for the purposes set forth.

7. In an overflow-alarm, the combination, with a supporting-frame, an electric alarm and a source of electrical energy on said frame, of a receptacle slidably arranged in said frame, and adapted to receive water, and means for establishing an electrical contact between the said receptacle and said frame for actuating the alarm, when the water in said receptacle has reached a predetermined height, consisting, essentially, of a float in said receptacle, and a tubular rod pivotally suspended in the said supporting-frame and above the said receptacle and float therein, a second rod in said tubular rod and means connected therewith for securing said second rod in its adjusted position in said tubular rod, the said second rod being adapted to make electrical contact with the said float, the said float and said rod being in circuit with the source of electrical energy and the said electric alarm, substantially as and for the purposes set forth.

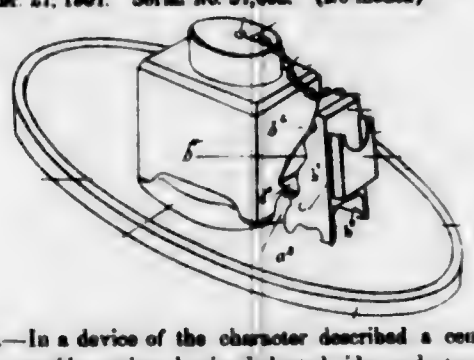
8. In an overflow-alarm, the combination, with a supporting-frame, an electric alarm and a source of electrical energy on said frame, of a receptacle slidably arranged in said frame, and adapted to receive water, and means for establishing an electrical contact between the said receptacle and said frame for actuating the alarm, when the water in said re-

ceptacle has reached a predetermined height, consisting, essentially, of a float in said receptacle, an arm secured at one end to said float, and at the other end said arm being pivotally secured to a side of said receptacle, the said arm being a good conductor of electricity, a tubular rod suspended above the said receptacle, a second rod in said tubular member, and means connected therewith for securing the rod in its adjusted position in said tubular rod, the said second rod being adapted to make electrical contact with the said float-arm, the said parts all being arranged in circuit with the source of electrical energy and the said electric alarm, substantially as and for the purposes set forth.

9. In an overflow-alarm, the combination, with a supporting-frame, an electric alarm and a source of electrical energy on said frame, of a receptacle slidably arranged in said frame, and adapted to receive water, and means for establishing an electrical contact between the said receptacle and said frame for actuating the alarm, when the water in said receptacle has reached a predetermined height, consisting, essentially, of a float in said receptacle, an arm secured at one end to said float, and at the other end said arm being pivotally secured to a side of said receptacle, the said arm being a good conductor of electricity, a tubular rod suspended above the said receptacle, a second rod in said tubular member, and means connected therewith for securing the rod in its adjusted position in said tubular rod and a weight upon the lower end of the said second rod adapted to make electrical contact with the said float-arm, the said parts all being arranged in circuit with the source of electricity and the electric alarm, substantially as and for the purposes set forth.

10. In an overflow-alarm, the combination, with a supporting-frame, a source of electricity and an electric alarm on said frame, of a metallic receptacle on said frame, and a contact-making rod in said frame upon which the said receptacle is removably placed, and means connected with said rod and the said receptacle for establishing a complete electric circuit through said receptacle, the rod, the electric source and the electric alarm, substantially as and for the purposes set forth.

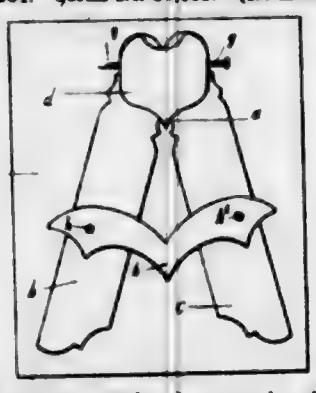
693,426. DESK FURNITURE. ERNEST OLDENBUSCH, Hoboken, N. J., assignor to Kronheimer and Oldenbusch Company, a Corporation. Filed Apr. 27, 1901. Serial No. 57,692. (No model.)



Claim.—In a device of the character described a central section, two counterpart side sections having indented sides and a tongue extending up outside thereof substantially as shown and described.

2. In a device of the character described two sheet-metal members having counterpart indented edges and a spring extending up outside of such edges substantially as shown and described.

698,427. EASEL. ERNEST OLDENBUSCH, Hoboken, N. J., assignor to Kronheimer and Oldenbusch Company, a Corporation of New York. Filed Apr. 27, 1901. Serial No. 57,693. (No model.)



Claim.—1. In a device of the character described, the combination of a back plate having an aperture, a socket member projecting through such aperture, a hinge-plate having a strip along its sides folded over at right angles, a pintle passing through the said socket and bent-over sides of the hinge-plate, a supporting-brace one end of which is inserted between the socket and hinge-plate substantially as shown and described.

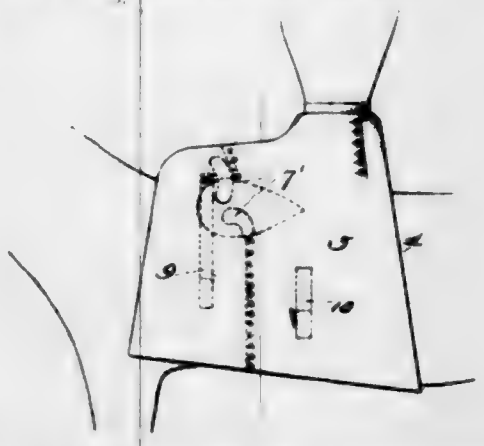
2. In a device of the character described, the combination of a back plate, a socket member attached to the back plate, a hinge-plate, a pintle passing through the socket and hinge-plate, and a supporting-brace, one end of which is inserted between the pintle and hinge-plate, substantially as shown and described.

3. In a device of the character described, the combination of a back plate, a socket, a hinge-plate having a downwardly-projecting portion, a pintle and a supporting-brace the upper end thereof lying between the hinge-plate and the pintle substantially as shown and described.

4. In a device of the character described, the combination of a back plate, an elongated horizontal socket, a hinge-plate, a pintle, a supporting-brace and means for retaining the supporting-brace, substantially as shown and described.

5. In a device of the character described, a back plate, an elongated horizontal socket, a hinge-plate, a pintle and a supporting-brace of sheet metal having shoulders on the outer edge near the top, which supporting-brace is inserted between the hinge-plate and socket, substantially as shown and described.

693,428. RIDING-HABIT. JACOB A. ONDRAK, New York, N. Y. Filed July 8, 1901. Serial No. 67,531. (No model.)



Claim.—A riding-habit skirt having a horizontal ovate opening, an opening normally closed by spring-buttons and sockets arranged above and intersecting the ovate opening, a plait or seam with a row of buttons extending vertically from the bottom of the skirt and also intersecting the ovate opening, and the elastic straps with free end loops, one of which is connected to the skirt adjacent to the normally closed opening to permit of detaching the fastenings therefrom, the other strap being connected to the skirt in an inclined position from the first-mentioned strap and on the opposite side of the ovate opening so as to assist said strap in disconnecting the normally closed opening, substantially as specified.

693,429. FIREPROOF CONSTRUCTION. WILLIAM ORR, Trenton, N. J., assignor to the New Jersey Wire Cloth Company, Trenton, N. J., a Corporation of New Jersey. Filed Nov. 6, 1900. Serial No. 35,622. (No model.)



Claim.—1. A floor or similar construction comprising beams, sheets of reticulated metal extending longitudinally of the beams and of such width that the span between adjacent beams is covered by a single sheet and having rods extending transversely to the beams and forming a part of the sheets and projecting from the opposite edges of the sheets of reticulated metal, and a filling of concrete or similar plastic material between said beams, substantially as described.

2. A floor or similar construction comprising beams, sheets of reticulated metal extending longitudinally of the beams and of such width that the span between adjacent beams is covered by a single sheet and having rods extending transversely to the beams and forming a part of the sheets and projecting from the opposite edges of the sheets of reticulated metal, and a filling of concrete or similar plastic material between said beams and in which the reticulated metal is entirely embedded, substantially as described.

3. A floor or similar construction comprising beams, sheets of reticulated metal extending longitudinally of the beams and of such width that the span between adjacent beams is covered by a single sheet and having rods extending transversely to the beams and forming a part of the sheets and projecting from the opposite edges of the sheets of reticulated metal, said rods being hooked over the tops of the beams to form tie-rods between the beams, and a filling of concrete or similar plastic material between said beams, substantially as described.

4. The combination with beams, of sheets of reticulated metal ex-

tending longitudinally of the beams and of such width that the span between adjacent beams is covered by a single sheet and having rods extending transversely to the beams and forming a part of the sheets and projecting from the opposite edges of the sheets of reticulated metal, said rods being hooked over the tops of the beams to form tie-rods between the beams, and a filling of concrete or similar plastic material between said beams and in which the reticulated metal is entirely embedded, substantially as described.

5. The combination with beams, of sheets of reticulated metal extending longitudinally of the beams and of such width that the span between adjacent beams is covered by a single sheet and having rods extending transversely to the beams and forming a part of the sheets and projecting from the opposite edges of the sheets of reticulated metal, said rods being hooked over the tops of the beams to form tie-rods between the beams, and a filling of concrete or similar plastic material between said beams and in which the reticulated metal is entirely embedded, said reticulated metal having a mesh of such size as to permit concrete or similar plastic material to be filled through the metal onto a centering below the metal, substantially as described.

6. The combination with beams, of sheets of reticulated metal extending longitudinally of and between the beams and of such width that the span between adjacent beams is covered by a single sheet and consisting of strands extending longitudinally of the beams with rods forming a part of the sheets and extending transversely to the beams and secured to the longitudinal strands and hooked around the beams, substantially as described.

7. The combination with beams, of sheets of reticulated metal extending longitudinally of and between the beams and of such width that the span between adjacent beams is covered by a single sheet and consisting of strands extending longitudinally of the beams and formed of crossed or twisted wires with rods extending transversely of the beams and between the wires of the longitudinal strands and hooked around the beams, substantially as described.

8. An article of manufacture consisting of building material formed of a sheet of reticulated metal of such width as to cover the span between beams or other supports with which it is to be used and having supporting-rods woven therein or secured thereto and projecting beyond the sheet and adapted to be hooked around the supports to hold the reticulated metal in place, substantially as described.

9. An article of manufacture consisting of building material formed of a sheet of reticulated metal of such width as to cover the span between beams with which it is to be used having cross supporting-rods woven therein or secured thereto and projecting beyond the sheet and adapted to be hooked over the flanges of adjacent beams to support the reticulated metal and form tie-rods between the beams, substantially as described.

10. An article of manufacture consisting of building material formed of a sheet of reticulated metal of such width as to cover the span between beams or other supports with which it is to be used having supporting-rods woven therein or secured thereto and projecting beyond the sheet for securing the latter in place, said reticulated metal being of such mesh as to permit concrete or similar plastic material to be filled in from above through the meshes, substantially as described.

11. An article of manufacture consisting of building material formed of longitudinal strands and cross supporting-rods secured to said strands and projecting beyond the sheet, substantially as described.

12. An article of manufacture consisting of building material formed of longitudinal strands consisting of twisted or crossed wires and cross supporting-rods inserted between the wires of the strands and projecting beyond the sheet, substantially as described.

13. The combination with the beam A, of the offsetting-clip I consisting of a single piece of metal bent to form a body 3 extending longitudinally of the beam and arms 4 extending transversely to and below the beam with U-shaped portions 5 adapted to embrace the flange of the beam and support the clip, substantially as described.

14. The combination with beam A, of the offsetting-clip I consisting of a single piece of metal bent to form a body 3 extending longitudinally of the beam, arms 4 extending transversely to and below the beam with U-shaped portions 5 adapted to embrace the flange of the beam and support the clip, and vertical arms 6 for offsetting the body of the clip below the beam, substantially as described.

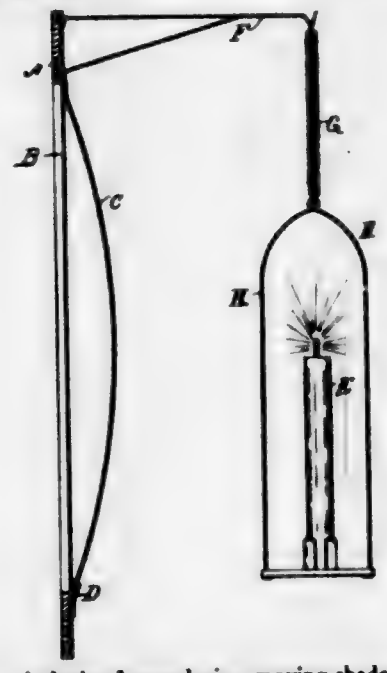
15. The combination with beam A, of a series of clips I on opposite sides of the beam, said clips consisting of a single piece of metal bent to form a body 3 extending longitudinally of the beam, arms 4 extending transversely to and below the beam with U-shaped portions 5 adapted to embrace the flange of the beam and support the clip, vertical arms 6 for offsetting the body of the clip below the beam, and reticulated metal H extending below and about the beams and offset therefrom by the clips, substantially as described.

16. The combination with beams A and a fireproof floor construction between the beams, of a series of clips I on opposite sides of the beams, each of said clips consisting of a single piece of metal bent to form a body 3 extending longitudinally of the beam, arms 4 extending transversely to and below the beam with U-shaped portions 5 adapted to embrace the flange of the beam and support the clip, vertical arms 6 for offsetting the body of the clip below the beam, reticulated metal H extending from said floor downward and about the bottoms of the beams and offset from the beams by said clips, and plastic material on said metal, substantially as described.

17. Offsetting-clip I consisting of a single piece of metal bent to form a body 3 and arms 4 extending transversely to the body with U-shaped portions 5 at the ends of the arms adapted to embrace the flange of a beam, substantially as described.

18. Offsetting-clip I consisting of a single piece of metal bent to form a body 3 and arms 4 extending transversely to the body with U-shaped portions 5 at the ends of the arms adapted to embrace the flange of a beam, and vertical arms 6 for offsetting the body of the clip below the beam, substantially as described.

698,430. AUTOMATIC MOVING SHADOW-PICTURE. FREDERICK W. OSBORN, Milwaukee, Wis. Filed June 26, 1901. Serial No. 66,057. (No model.)



Claim.—1. A device for producing moving shadow-pictures, comprising a translucent screen; a figure conforming in outline to the picture desired to be represented upon the screen, located upon the rear side of, and wholly or in part at a slight distance from, said screen; means for directing rays of light upon the rear side of said figure and screen; and means for changing the relative position of said rays of light and said figure to each other, whereby the shadow of said figure upon the screen will be caused to move, and its appearance changed and varied in size and shape, as set forth.

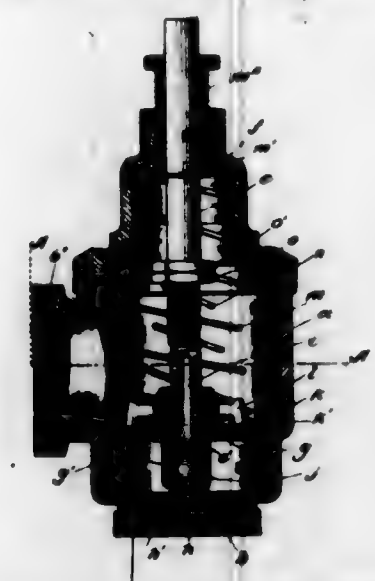
2. A device for producing automatically moving shadow-pictures, comprising a translucent screen; an opaque figure, representing the outlines of the person or thing which it is desirous to reproduce upon the screen, suspended in a curved concave-convex position in rear of said screen; a light located in rear of said figure and screen; and means for automatically moving said light and changing its relative position to said figure, as set forth.

3. In a device for producing automatic moving shadow-pictures, the combination of a frame A; translucent screen B secured at its marginal edges to said frame; a flexible figure C suspended at its upper end from the upper side of said screen, and means for holding the same in a curved position in rear of said translucent screen, by the engagement of its lower end against the lower side of said frame; a light or taper E; a supporting-bracket F; a flexible elastic connection G; and hangers H, all substantially as and for the purpose specified.

693,431. AIR-RELIEF VALVE. MILLARD P. OSBOURN, Camden, N. J., assignor to Warren Webster and Company, a Corporation of New Jersey. Filed Sept. 11, 1901. Serial No. 75,002. (No model.)

Claim.—1. A triple-acting air-relief valve consisting of a valve-body having a thoroughfare for the passage of air under normal conditions, and a larger thoroughfare for the passage of air under abnormal conditions, an automatic valve-piece to control said normally acting thoroughfare by the differential pressure, and double-acting valve devices controlled by the differential pressure to control said larger thoroughfare and to open it to the passage of air when the normal differential is destroyed by an excess or deficiency of pressure on either side.

2. An air-relief valve consisting of a valve-body having a thoroughfare for the passage of air under normal conditions and a larger normally closed thoroughfare for the passage of air under abnormal conditions, an automatic valve-piece to control said normally acting thoroughfare by the differential pressure therein, an automatic valve-piece to control said larger thoroughfare and open it upon an excess of pressure on the inlet side, and an automatic valve-piece also controlling said larger thoroughfare and partially opening it on a deficiency of pressure on the inlet side.



3. An air-relief valve consisting of a valve-body having a thoroughfare for the passage of air under normal conditions and a larger normally closed thoroughfare for the passage of air under abnormal conditions, an automatic valve-piece to control said normally acting thoroughfare by the differential pressure therein, an automatic valve-piece to control said larger thoroughfare and open it upon an excess of pressure on the inlet side, and an automatic valve-piece also controlling said larger thoroughfare and partially opening it on a deficiency of pressure on the inlet side, and means to independently adjust the tension of the automatic valve devices controlling said larger thoroughfare.

4. An air-relief valve, consisting of a valve-body having a normally closed thoroughfare, double-acting automatic valve devices to control said thoroughfare and open it to the passage of air when the normal differential is destroyed by an excess or deficiency of pressure on either side, said valve devices being provided with a small thoroughfare for the passage of air under normal conditions, and an automatic valve-piece for controlling said small thoroughfare by the differential pressure therein.

5. An air-relief valve, consisting of a valve-body having a thoroughfare, two valve-pieces each partially closing said thoroughfare and controlled by the differential pressure therein to partially open said thoroughfare respectively when there is an excess or deficiency of pressure on the inlet side, said valve being further provided with a small thoroughfare for the passage of air under normal conditions, and an automatic valve-piece to control said small thoroughfare by the differential pressure therein.

6. An air-relief valve, consisting of a valve-body having a thoroughfare, two valve-pieces each partially closing said thoroughfare and controlled by the differential pressure therein to partially open said thoroughfare respectively when there is an excess or deficiency of pressure on the inlet side, said valve being further provided with a small thoroughfare for the passage of air under normal conditions, and an automatic valve-piece to control said small thoroughfare by the differential pressure therein, and means to independently control the tension of said valve-pieces which control said normally closed thoroughfare.

7. An air-relief valve consisting of a valve-body having a thoroughfare, a valve-piece partially closing said thoroughfare and controlled by the differential pressure therein to open when there is an excess of pressure on the inlet side, a second valve-piece normally closing the remaining portion of said thoroughfare and controlled by the differential pressure therein to open when there is a deficiency of pressure on the inlet side and provided with a small normally acting thoroughfare for the passage of air when said valve-pieces are closed, and an automatic valve-piece to control said small thoroughfare by the differential pressure therein.

8. An air-relief valve consisting of a valve-body having a thoroughfare, the valve-piece *k* opening toward the discharge side and partially closing said thoroughfare, the valve-piece *g* closing the remaining portion of said thoroughfare and opening toward the inlet side, said piece *g* being provided with a small thoroughfare for the normal escape of air, and an automatic valve to control said small thoroughfare by the differential pressure therein.

9. An air-relief valve consisting of a valve-body having a thoroughfare, the valve-piece *k* opening toward the discharge side and partially closing said thoroughfare, a spring *n* normally retainining said piece *k* closed, the valve-piece *g* closing the remaining portion of said thoroughfare and opening toward the inlet side, said piece *g* being provided with a small thoroughfare for the normal escape of air, the spring *n* normally retaining said piece *g* closed, and an automatic valve to control said small thoroughfare by the differential pressure therein.

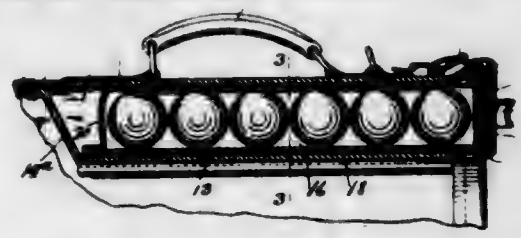
10. An air-relief valve consisting of a valve-body having a thoroughfare, the valve-piece *k* opening toward the discharge side and partially closing said thoroughfare, the valve-piece *g* closing the remaining portion of said thoroughfare and opening toward the inlet side, said piece *g* being provided with a small thoroughfare for the normal escape of air, the movable stem *e* carried by said piece *g*, the spring *n* between the stem *e* and the valve-piece *k*, and an automatic valve to control said small thoroughfare by the differential pressure therein.

11. An air-relief valve consisting of a valve-body having a thoroughfare, a movable stem within said valve-body, a valve-piece carried by said stem and partially closing said thoroughfare, a second valve-piece closing the remainder of said thoroughfare, a spring between said stem and the second valve-piece, said valve being provided with a small normally open thoroughfare for the passage of air when said valve-pieces are closed, and an automatic valve-piece to control said small thoroughfare by the differential pressure therein.

12. An air-relief valve consisting of a valve-body having a thoroughfare, a movable stem within said valve-body, a valve-piece carried by said stem and partially closing said thoroughfare, a second valve-piece closing the remainder of said thoroughfare, a spring between said stem and the second valve-piece, said valve being provided with a small normally open thoroughfare for the passage of air when said valve-pieces are closed, and an automatic valve-piece to control said small thoroughfare by the differential pressure therein, a spring *m* bearing at one end upon the second-mentioned valve-piece, and an adjustable thimble m^3 carried by the valve-body and bearing on the other end of said spring.

13. An air-relief valve consisting of a valve-body having a thoroughfare, an annular valve-piece *k* fitting within and partially closing said thoroughfare, a spring *m* bearing on said valve-piece *k*, a valve-piece *g* fitting within the annular piece *k*, the movable stem *e* carrying said piece *k* and the stem *e*, said valve-piece being provided with a small thoroughfare for the passage of air when said pieces *g* and *k* are closed and an automatic valve-piece *j* to control said small thoroughfare by the differential therein.

698,482. GOLF-BAG. RICHARD W. OWEN, Chicago, Ill. Filed Mar. 18, 1901. Serial No. 51,743. (No model.)



Claim.—1. A bag for holding golf-clubs having an internal pocket, the mouth of which opens through the mouth of the bag, and a removable ball-receptacle housed within the pocket.

2. In a bag for holding golf-clubs, in combination, a bag, a pocket located within the bag, the mouth of which opens through the mouth of the bag, and a removable ball-receptacle housed within the pocket.

3. In a bag for holding golf-clubs, in combination, a bag, a pocket located within the bag, and a removable ball-receptacle housed within the pocket, the receptacle having a contracted opening the wall of which is flexible.

4. In a bag for holding golf-clubs, in combination, a bag, a pocket located within the bag, and a removable ball-receptacle adapted to slide and be housed within the pocket, the receptacle having a contracted opening the wall of which is flexible.

5. In a bag for holding golf-clubs, in combination, a bag, a pocket located within the bag, and a removable ball-receptacle adapted to slide and be housed within the pocket, the receptacle having a longitudinal contracted opening provided with flexible side walls.

6. In a bag for holding golf-balls, in combination, a bag, a pocket located within the bag and the mouth of which opens through the mouth of the bag, and a ball-receptacle adapted to slide and be housed within the pocket and being provided with a pull-strap and a strap adapted to be passed under the pull-strap for securing the receptacle in the pocket.

7. In a bag for holding golf-clubs, in combination, a bag, a pocket located within the bag and the mouth of which opens through the mouth of the bag, an elongated ball-receptacle adapted to slide and be housed within the pocket and being provided with a pull-strap, the receptacle having a longitudinal contracted opening, the side walls of which are flexible, and a strap adapted to be passed under the pull-strap for securing the receptacle in the pocket.

8. A receptacle for golf-balls, having an opening of less width than the diameter of the balls to be contained therein, and the wall of which is flexible to permit of the passage of the balls.

9. A receptacle adapted to hold a plurality of golf-balls, and having an elongated opening of less width than the diameter of the balls to be contained therein, the walls of the opening being flexible to permit of the passage of the balls

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693,433. POLE-CLIMBER. WILL R. OWENS, Billings, Mont. Filed July 27, 1901. Serial No. 69,956. (No model.)

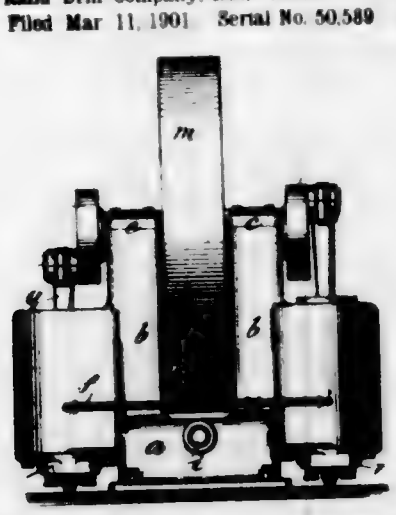


Claim.—1. In a pole-climber the combination with the guide-bars, of an adjustable spur or spike bar arranged between the guide-bars, the upper and lower cross-strips attached to the said guide-bars, the straps connected to said cross-strips, and a chain connected to one of the guide-bars for the purpose of connecting the guide-bars to the foot, substantially as described.

2. In a pole-climber the combination with the guide-bars, one of which is grooved, said guide-bars being provided with means for attachment to the leg, and a bar carrying a spike or spur, said bar having a tongue adapted to engage the grooved guide-bar and provided with means for engaging the opposite guide-bar for the purpose of holding the spur and bar in its adjusted position, substantially as described.

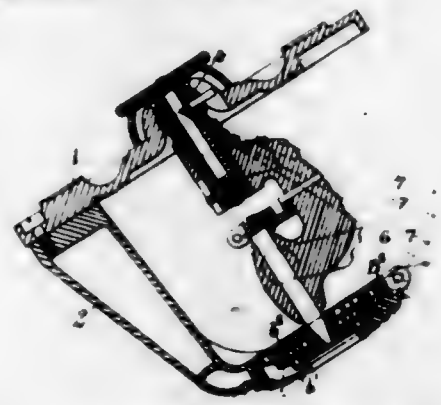
3. In a pole-climber the combination with the guide-bars connected at their upper and lower ends and provided with means for attachment to the leg, one of said bars being grooved longitudinally, the other bar having a series of horizontal notches, and the spur-bar having a spur or spike at its lower end, and a leaf-spring rigidly attached to the spur-bar, the end of said spring being adapted to engage one of a series of notches produced in the side bar, substantially as and for the purpose described.

693,434. COMPRESSOR. FREDERICK W PARSONS, Elmira, N. Y., assignor to Rand Drill Company, New York, N. Y., a Corporation of New York. Filed Mar 11, 1901. Serial No. 50,589. (No model.)



Claim.—The combination in a compressor with a base, two standards uprising therefrom and having bearings at their upper ends, and two vertical cylinders arranged one on the outside of each of the said standards, the said cylinders, standards, and base being in one integral casting, of a shaft mounted in the said standard-bearings, a fly-wheel secured upon the shaft and arranged between the said bearings, crank-pins carried by the shaft and arranged one on the outside of each of the said standards, pistons in the said cylinders, connecting-rods connecting the said crank-pins with the said pistons, and an inlet and outlet for the fluid acted upon in said cylinders.

698,435. TYPE-WRITER. EUGENE R. PASTRE, Brooklyn, N. Y. Filed Mar. 5, 1901. Serial No. 49,690. (No model.)



Claim.—1. A type-block for type-writers formed in two pieces or sections, one of which has a stepped face and the other a spherical face with type thereon.

2. In a type-writer, the combination of a type-block formed in two sections, each of which has a lateral flange, and a supporting-ring for said type-block with which the flanges of the said parts rest.

3. In a type-writer, the combination of a type-block, formed in sections, a supporting-ring therefor and a pin passing through said block and ring for preventing relative rotary movement between the type-block sections and supporting-ring.

4. A type-block for type-writers formed in two pieces or sections, one of which has a stepped face and the other a spherical face with type thereon, and means for joining together the two pieces or sections.

5. A type-block for type-writers having a stepped face and a face having printing characters comprising a plurality of pieces suitably joined together to form the type-block.

6. A type-block for type-writers formed in two pieces, a ring-shaped support for said type-block, the inner surface of which is of a varying width, and a collar portion provided for each piece which corresponds with a portion of the varying inner surface of said support.

7. A type-block for type-writers formed in two pieces or sections, one of which has a step-face and the other a spherical face with type thereon, and means to register one of the said pieces in proper relation with the other.

8. A type-block for type-writers formed in two pieces or sections, one of which has a stepped face and the other a spherical face with type thereon, means to register one of the said pieces in proper relation with the other, and strengthening-ribs provided for one or both of said pieces or sections.

693,436. WATER-BOTTLE STOPPER. WALTER H. PERKINS, Waterbury, Conn., assignor to the Waterbury Mfg. Co., Waterbury, Conn., a Corporation. Filed Oct. 10, 1901. Serial No. 78,220. (No model.)



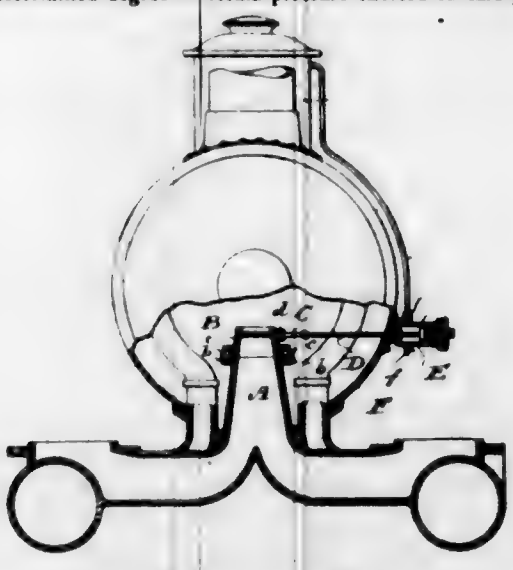
Claim.—1. In a water-bottle stopper, the combination with a threaded sheet-metal body formed at its upper end with an outwardly-turned annular flange, and at its lower end with an inwardly-turned annular flange, of a hollow sheet-metal cap larger in diameter than the diameter of the said body, formed with a knurled edge and formed at its lower end with an inwardly-turned annular flange which is secured to the said outwardly-turned annular flange at the upper end of the said body which enters the said hollow cap for the fastening of the two said flanges together, and a disk adapted to partially enter into the lower end of the said body and formed in its edge with an annular groove for the reception of the edge of the inwardly-turned annular flange located at the lower end of the said body.

2. In a water-bottle stopper, the combination with a threaded sheet-metal body formed at its lower end with an inwardly-turned annular flange, of a disk adapted to be partially entered into the lower end of the said body and formed in its edge with an annular groove for the reception of the said flange by which it is retained in place, and a cap applied to the upper end of the said body and closing the same and adapted to be seized for operating the same.

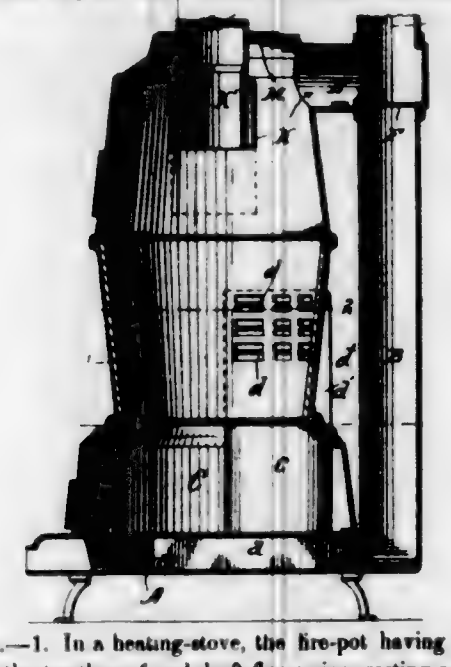
693,437. AUTOMATIC DRAFT-CONTROLLER. CHARLES T PFEIFFER, Milwaukee, Wis. Filed Jan. 10, 1901. Serial No. 42,721. (No model.)

Claim.—The combination of a steam exhaust-nozzle, a horizontal slide-gate arranged in conjunction with the nozzle to govern its outlet area, a cylinder arranged and connected to be supplied with steam at

boiler-pressure, a piston in the cylinder ahead of its steam-inlet, a rod connecting the gate and piston through a stuffing-box in a cylinder-head, and a spring between the piston and other cylinder-head compressible under a predetermined degree of steam-pressure exerted on said piston.



693,438. HEATING-STOVE. CHARLES C. PFEIFFER, Louisville, Ky. Filed May 23, 1901. Serial No. 61,530. (No model.)



Claim.—1. In a heating-stove, the fire-pot having openings at its sides below the top thereof, and draft-flue casings resting against the sides of the fire-pot and forming with the fire-pot downdraft-flues beginning below the top of the fire-pot and extending downward to the base of the stove, the designated elements and their necessary adjuncts in combination to cooperate, substantially as described.

2. In a heating-stove, the combination of the fire-pot having grated side openings below its top, and draft-flue casings resting against the fire-pot and forming the top and outer covering of the downdraft-flues, said flues having downward extensions through the ash-pit and opening into the base of the stove, substantially as described.

3. In a heating-stove, the combination of the fire-pot having openings at each side and near the rear part of the stove, casings over these openings forming with the fire-pot downdraft-flues, which flues are continued in the form of flattened or concavo-convex pipes down through the ash-box and near the rear corners thereof, said flues opening into the lower chamber of the stove near the rear corners thereof, substantially as described.

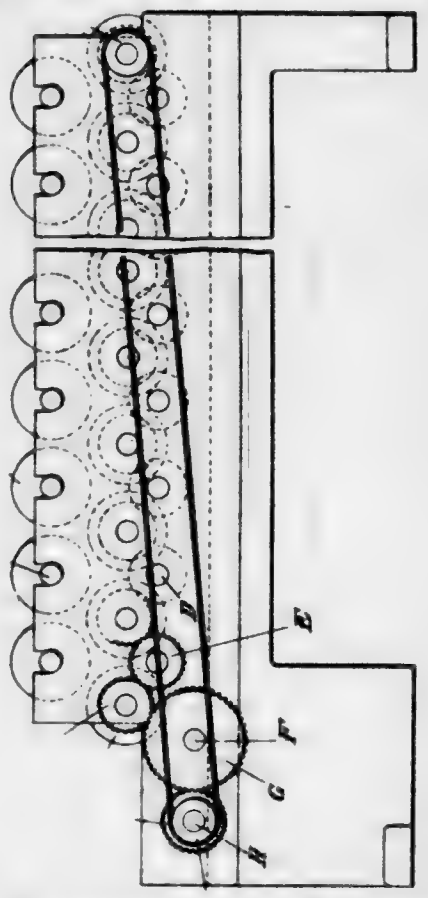
4. In a heating-stove, the combination of a fire-pot with openings below its top and downdraft-flues extending from said openings down through the ash-pit and into the base of the stove, and a telescopic air-supply tube extending from the top of the stove down nearly to the top of the fire-pot, said air-tube having air-supply openings at its upper end, substantially as described.

5. In a heating-stove, a fire-pot having side openings at each side and below the top thereof, a downdraft-flue cover at each side of the fire-pot, the flue formed by said cover and fire-pot body being closed at its top below the top of the fire-pot, opening downward and covering said fire-pot openings, down-flues leading from said fire-pot flues into the base-chamber of the stove, side flues leading forward and a central flue leading backward in said base, and a pipe leading up from the central base-flue to the chimney, all combined substantially as described.

6. In a heating-stove, a fire-pot having a grated passage in its side walls, a downdraft-flue, closed at its top, and attached to the fire-pot at its edges at the sides of said passage, so as to receive the gases which pass through said grating, a down-flue forming a continuation of said down-flue on the fire-pot, and means for supplying air for combustion at the top of the fire-pot, all combined.

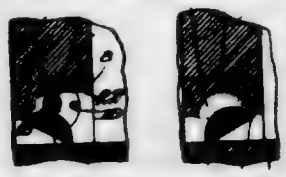
7. In a heating-stove, the fire-pot having side openings, down-flues connected to said side openings below the top of the fire-pot, and a damper controlling gas-escape from the down-flue, an extensible telescopic air-pipe leading from the top of the stove to near the top of the fire-pot, and a grating at the top of said air-pipe, all combined.

693,439. DEVICE FOR SHAPING CIGAR-BUNCHES. EMANUEL PINKO, New York, N. Y. Filed Jan. 23, 1901. Serial No. 44,460. (No model.)



Claim.—In a bunch-forming machine the combination of a series of rolls, a second series placed opposite the intervals between the first, mechanism for positively rotating said first-mentioned series, and means whereby the rolls of the second series may be raised and lowered, substantially as described.

693,440. DOOR. CHARLES H. POPE, Brockton, Mass. Filed May 2, 1900. Serial No. 15,189. (No model.)



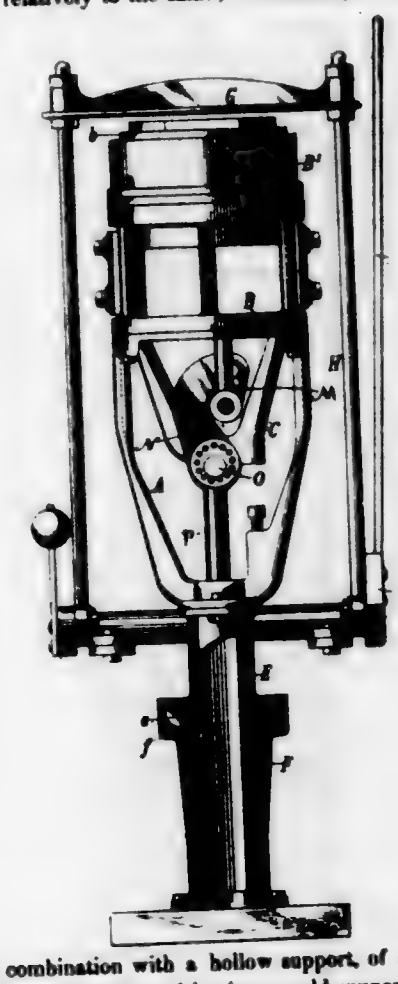
Claim.—1. A door having a groove curvilinear in cross-section in its lower edge, a strip fitted to said groove, the inner edge of the strip having a pivotal connection with the door, means to normally hold said strip in place in the groove, one corner of the door being cut away above the strip, a projection on the door-frame adapted to enter said cut-away portion as the door is closed and contacting with the upper side of the strip to thereby depress the same.

2. A door and its frame, the door having a bar or strip, means to hold the bar or strip above the lower edge of said door when the same is open, a screw provided with a roll to engage said bar or strip, a plate longitudinally slotted to receive said screw, and a nut engaged by the screw.

693,441. MACHINE FOR MAKING SAND MOLDS. HENRY E. PRIDMORE, Chicago, Ill. Filed Nov. 15, 1894. Serial No. 528,861. (No model.)

Claim.—1. In a molding-machine, a swinging presser-plate and a stop secured thereto and arranged to contact with the exterior of the flask and position the plate relatively to the same, substantially as described.

2. In a molding-machine, a swinging presser-plate, and an adjustable stop secured thereto and arranged to contact with the flask and position the plate relatively to the same; substantially as described.



3. The combination with a hollow support, of a molding-machine revolubly supported therein and having a mold-support and sand-pressing mechanism carried thereon, and means for locking the machine at different points in its circle of rotation; substantially as described.

4. In combination with the flask, in a molding-machine, a platen carried upon arms loosely pivoted upon a crank, a stop to limit the movement of the platen when it is swung from the machine, and a stop on the platen to engage the flask when the platen is swung over the flask, substantially as and for the purpose specified.

5. In combination with a molding-machine and a cylindrical base having a peripheral flange with bosses thereon, a pot to receive the base having a diameter at its bottom substantially the same as that of the base, a flange at the top to receive the flange of the base, and recesses in the flange corresponding with the bosses on the base, substantially as and for the purpose specified.

698,442. ATTACHMENT FOR COLLARS. GEORGE A. REDHEAD, Washington, D. C. Filed Mar. 15, 1901. Serial No. 51,375. (No model.)



Claim.—1. A device for holding the body and inner band portion of a turn-down collar separated comprising a portion to extend up between the body and the band of said collar to separate them and a holding portion for detachably embracing the extreme lower edge of the inner band portion, and directed inwardly and upwardly in relation to the said band, substantially as described.

2. The combination with a turned-down collar, of an attachment adapted to be secured thereto for holding the body and band separated, said attachment comprising a base portion and a vertical loop portion adapted to be inserted between the body and band of the collar, substantially as described.

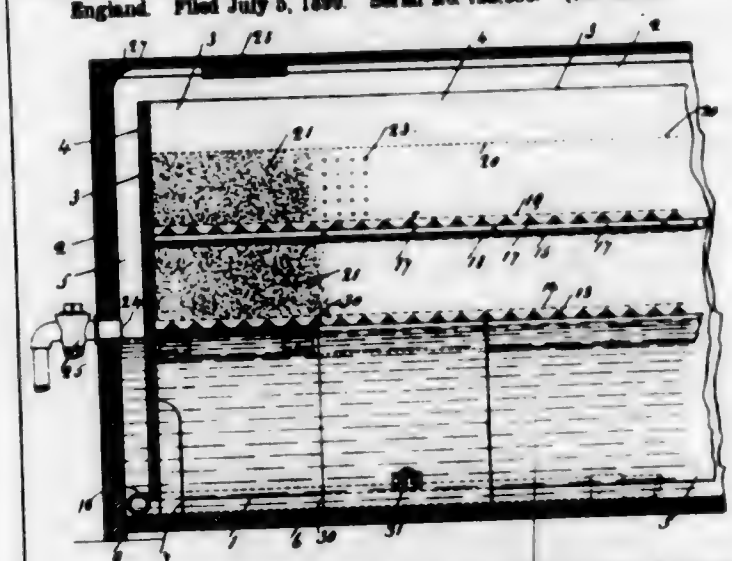
3. The combination with a turned-down collar, of an attachment having a portion for detachably engaging the band thereof and a portion extending between the body and band to hold the same separated, substantially as described.

4. A device for holding the body and inner band portion of a turn-down collar separated comprising a loop portion opening downwardly and adapted to fit between the body and the band and an extension to reach up within the band to hold the device in place, substantially as described.

5. The combination with a turned-down collar, of an attachment having a clamping portion and a vertically-arranged loop portion adapted to be inserted between the band and body of the collar, said loop portion opening downwardly and the clamping portion opening upwardly, substantially as described.

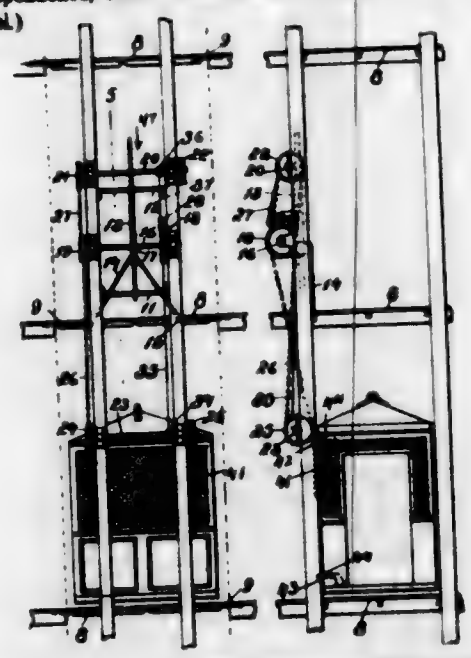
6. The combination with a turned-down collar, of an attachment comprising a base portion having means for engaging the edge of the band of the collar, a central clamping member and a loop portion, one member of said loop coacting with the clamping member, substantially as described.

698,443. APPARATUS FOR DYEING. JOHN RHODES, Bradford, England. Filed July 5, 1899. Serial No. 722,859. (No model.)



Claim.—The combination with the vat 2 and inner vessel 3 having a perforated false bottom, of the doors 30 substantially as described.

698,444. ELEVATOR-CLOSING DEVICE. WILLIAM A. ROBINSON, Independence, Iowa. Filed June 11, 1901. Serial No. 64,168. (No model.)



Claim.—1. An elevator-closing device comprising a carriage having thereon a vertical rack in combination with cross-shafts on the guideway, above and below each floor, a sprocket-wheel and a pinion on each shaft, said pinion engaging said rack, an intermediate shaft having a sprocket-wheel and a central toothed pinion, and sprocket-chains connecting said wheels, and a pair of swinging doors, and links between and hinged to said doors and rack-bar, as set forth.

2. An elevator-closing device, comprising a carriage with a vertical rack thereon, a horizontal shaft above and below the floor each shaft having a pinion at one end to engage with said rack, a sprocket-wheel on the opposite end of each shaft, an intermediate shaft having a sprocket-wheel in alinement therewith, and sprocket-chains connecting said wheels, a pair of downwardly-swinging doors and links hinged between said doors and rack-bar, and a toothed pinion on said intermediate shaft, an escapement-lever coacting therewith and means for operating same by the movement of the carriage, as set forth.

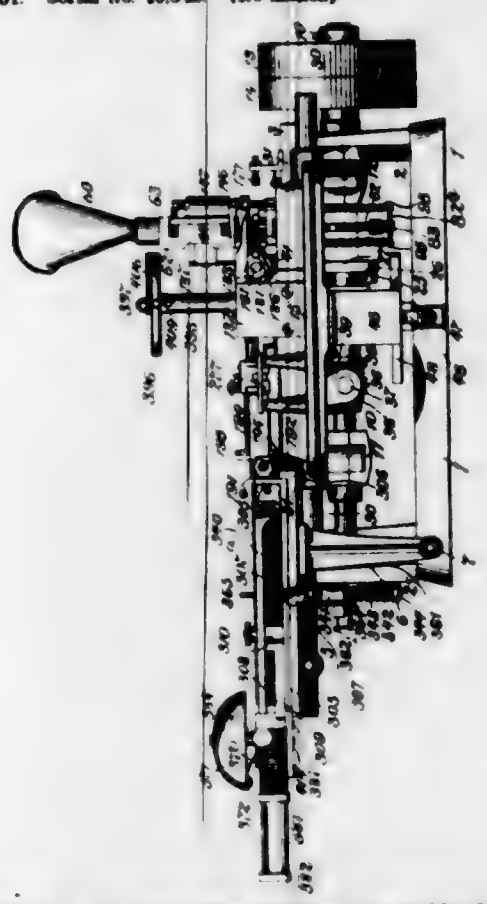
3. An elevator-closing device comprising a carriage having a rack thereon, a horizontal shaft above and below each floor, each shaft having a pinion at one end to engage with said rank, a sprocket-wheel on the opposite end of each shaft, in combination with a cross-shaft on the guide-

ways having a toothed wheel, and sprocket-chains connecting said wheels, an escapement-lever coacting therewith, a fulcrumed lever above and below the floor connected by rods with opposite sides of said escapement-lever, and fingers on a carriage in engagement with said fulcrumed levers, as set forth.

4. An elevator-closing device comprising a carriage having a rack thereon, a horizontal shaft above and below the floor, each shaft having a pinion at one end to engage with said rack, a sprocket-wheel on the opposite end of each shaft, in combination with a cross-shaft on said guideways, having a toothed wheel, and sprocket-chains connecting said wheels, an escapement-lever coacting therewith, said lever having hinged pawls and springs, a fulcrumed lever above and below the floor connected by rods with opposite sides of said escapement-lever, and fingers on a carriage, the upper one of which operates the fulcrumed levers on its upward movement and the lower finger on its downward movement, as set forth.

5. An elevator-closing device comprising in combination, a carriage with a rack thereon, a cross-shaft on the guideways above and below each floor, a pinion on one end of each shaft in engagement with said rack, and a sprocket-wheel on the other end, an intermediate cross-shaft, having thereon a sprocket-wheel, and sprocket-chains connecting said wheels, a central pinion and toothed pinion on the intermediate cross-shaft, a vertically-movable rack in engagement with said central pinion, an escapement-lever coacting with the toothed pinion, a lever fulcrumed on each of the upper and lower shafts, a rod from each fulcrumed lever to the escapement-lever, and hinged fingers on the carriage in engagement with said fulcrumed levers, as herein set forth.

698,445. TYPE-SETTING MACHINE. ALBAN V. ROCKWICH, Brooklyn, N. Y., assignor to Joseph D. Baucus, New York, N. Y. Filed Feb. 8, 1901. Serial No. 46,542. (No model.)



Claim.—1. In a type-setting machine, the combination of a type-chute, guideways extending transversely of the chute, the slide valves or gates operating in said guideways, a double-armed pivoted lever engaging the slide-valves, an operating-cam, and a reciprocating rod or bar connected with said double-armed lever and operated by said cam, substantially as set forth.

2. In a type-setting machine, the combination of a type-chute formed with a flaring opening at its lower end, suitable type engaging and determining devices supported beneath the lower end of the chute, and a type-lifting device mounted beneath the type engaging and determining devices, substantially as set forth.

3. In a type-setting machine, the combination of a type-chute, a type-lifting plunger supported beneath the chute, and a socket or casing supporting the plunger and formed with a flaring opening at its upper end, substantially as set forth.

4. In a type-setting machine, the combination of a type-chute having a flaring opening at its lower end, suitable type engaging and determining devices arranged beneath the chute, a socket or casing having a flaring upper end arranged beneath the type engaging and determining devices, and a type-lifting plunger supported in said socket or casing, substantially as and for the purpose set forth.

5. In a type-setting machine, the combination of a type-chute having a flaring opening at its lower end, traps or gates in said chute, suitable type-engaging feelers supported beneath the chute, a socket or casing having a flaring open upper end supported beneath the feelers, and a type-lifting plunger arranged in said socket or casing, substantially as and for the purpose set forth.

6. In a type-setting machine, the combination of a type-chute having a flaring open lower end, a socket or casing supported beneath the chute, and formed with a flaring open upper end, movable gates or sections forming parts of the lower end of the chute and the upper end of the socket or casing, means for intermittently moving said sections into opening position, and a type-lifting plunger supported in said socket or casing, substantially as set forth.

7. In a type-setting machine, the combination of means for directing type into the machine, with a type limiting and lifting plunger, a supporting and operating lever connected with said plunger through suitable means, a cam operating said lever, and an adjustable fulcrum for said lever, substantially as set forth.

8. In a type-setting machine, the combination of a type engaging and lifting plunger, an operating-cam, a lever suitably connected with said plunger and operated by said cam, a fulcrum-rod to which said lever is journaled, an adjustable support for said fulcrum-rod, and means for feeding type into operative relation with the plunger, substantially as set forth.

9. In a type-setting machine, the combination of a type-chute, with a type-lifting plunger supported beneath the chute, an operating-cam, a lever suitably connected with the plunger and operated by said cam, a fulcrum-rod to which said lever is journaled, an adjustable post having screw-threaded engagement with said rod, and means for confining the post in operative relation to the rod, substantially as set forth.

10. In a type-setting machine, the combination of a type-chute, a type-lifting plunger supported beneath the chute, means for raising and lowering the plunger, and an adjustable stop for limiting the upward movement of the plunger, substantially as set forth.

11. In a type-setting machine, the combination of a type-chute, a type-lifting plunger supported beneath the chute, a rod or pitman connected with the plunger, suitable operating means connected with said rod or pitman for raising and lowering the plunger, a lug projecting from said rod or pitman and a screw-stop threaded into said lug and adapted to engage a stationary part of the machine for limiting the upward movement of the plunger, substantially as set forth.

12. In a type-setting machine, the combination of a type-chute, suitable type-engaging feelers mounted beneath the chute and adapted to support a type in upright position and limit its upward movement, a type-lifting plunger mounted beneath the feelers, means for operating the feelers to cause them to first open to allow a type to pass through them to the plunger, and then close to engage and place the type in upright position upon the plunger, and suitable operating means for the plunger arranged to lower the plunger away from the type while the feelers are placing the type in upright position and afterward raise the type through the feelers, substantially as and for the purpose set forth.

13. In a type-setting machine, the combination of a type-chute, suitable type sustaining and limiting feelers mounted beneath the type-chute, means for opening and closing the feelers, a spring-actuated type-lifting plunger supported beneath the feelers, an operating-lever suitably connected with the plunger, and a cam controlling said lever and formed with a low portion to allow the raising of the plunger, an intermediate portion to hold the plunger normally in lowered position, and a short high portion to momentarily lower the plunger away from the type during the type-straightening operation of the feelers, substantially as and for the purpose set forth.

14. In a type-setting machine, the combination of a type-chute, spring-pressed type-feelers mounted beneath the type-chute, a vertically-movable yoke arranged to operate the feelers, a rod supporting said yoke, an operating-lever, an adjustable screw carried in one arm of said lever and engaging said supporting-rod, and a cam operating said lever, substantially as set forth.

15. In a type-setting machine, the combination of a rigid block or casting in which is formed a type-chute, a suitable hollow frame having an open side mounted beneath the chute, spring-pressed type-feelers mounted in said frame, a sliding yoke supported adjacent to said frame and adapted to close its open side, a spring-pressed type-feeler mounted in said sliding yoke, means for operating said feelers, a spring seated in a suitable recess in the block or casting and engaging the yoke to hold it normally closed, means for intermittently moving the yoke into open position, and a type-carrier, as set forth.

16. In a type-setting machine, the combination of a block or casting, a type-chute formed in said block or casting, a frame supported beneath the chute, a sliding yoke mounted upon the block or casting adjacent to

the frame, spring-pressed feelers mounted upon the frame and yoke, means for operating the feelers, a movable section forming part of the lower end of the type-chute, a type-lifting plunger supported beneath the type-feelers, a socket or casing supporting the plunger, a movable section forming part of the upper end of the plunger socket or casing, means of engagement between the sliding yoke and the movable sections of the type-chute and plunger socket or casing, a spring seated in a suitable recess in the block or casting and engaging the yoke to hold it normally closed, means for intermittently moving the yoke and engaged movable sections into open position, and a type-writer, as set forth.

17. In a type-setting machine, the combination of means for supplying type to the machine, and means for carrying the successive type through the machine, with two independent type-lifting plungers arranged to engage and raise the type at different points in the machine, independent supporting and operating levers suitably connected with the independent plungers, independent adjustable fulcrums for said levers, and means for operating said levers, substantially as set forth.

18. In a type-setting machine, the combination of a reciprocatory feed bar or frame, a type reversing or tumbler carrier having a shaft which is rotatably mounted upon said feed bar or frame, a spring retaining said carrier in normal position, a segment-gear and an eccentric pin or lug mounted upon the shaft of the tumbler-carrier, a stationary rack-bar with which said segment-gear is adapted to mesh for reversing the tumbler-carrier, a cam bar or track with which the eccentric pin or lug engages for holding the tumbler-carrier in reversed position, and a stop or projection adapted to engage the projecting end of a type held by the tumbler-carrier and start the reversal of the carrier and throw the segment-gear into mesh with the rack, substantially as set forth.

19. In a type-setting machine, the combination of a reciprocatory support, a tubular head mounted upon said support, a tumbler-carrier having a supporting-shaft which is journaled in said tubular head, a spiral spring surrounding the shaft of the tumbler-carrier within the tubular head and having one end secured to said shaft, a collar surrounding said shaft and adjustably mounted in the tubular head, to which collar the other end of said spring is attached, means for securing the collar in the desired adjusted position for regulating the tension of the spring, and means for reversing the position of the tumbler-carrier in its support, substantially as set forth.

20. In a type-setting machine, the combination of means for carrying type through the machine, and the type-race through which the type are passed, with a type-turning shuttle forming one side of the type-race, springs engaging the type-shuttle and holding it in operative position with a yielding pressure, and means for adjusting the pressure of the springs, substantially as and for the purpose set forth.

21. In a type-setting machine, the combination of means for carrying type through the machine, and a rigidly-mounted type-sill, with a type-turning shuttle, an adjustable support upon which said shuttle is movably mounted and by which it is held in operative relation to the type-sill, and suitable springs interposed between the shuttle and its adjustable support, substantially as set forth.

22. In a type-setting machine, the combination of means for carrying type through the machine, a rigidly-mounted type-sill, a type-turning shuttle, a shuttle-supporting block adjustable toward and away from the type-sill, means for securing said supporting-block in the desired adjusted position, means for movably mounting the shuttle upon said supporting-block, and springs interposed between the shuttle and its supporting-block, substantially as set forth.

23. In a type-setting machine, the combination of a rigidly-mounted type-sill forming one wall of the type-race a shuttle-supporting block adjustable toward and away from the type-sill, means for securing said block in the desired adjusted position, a type-turning shuttle, telescoping guide rods and tubes projecting from the shuttle and its supporting-block, by which the shuttle is movably mounted upon the block, spiral springs mounted upon said telescoping tubes and rods and engaging the shuttle and supporting-block for pressing the shuttle toward the type-sill with a yielding pressure, and means for carrying the type between the shuttle and type-sill, substantially as set forth.

24. In a type-setting machine, the combination of a type-race, a yieldingly-mounted type-turning shuttle forming one wall of the type-race and adapted to yield in a horizontal plane, pins or lugs supported beneath and just clear of the shuttle in position to resist any downward strain of the shuttle, and means for carrying type through the machine, substantially as set forth.

25. In a type-setting machine, the combination of a rigidly-mounted type-sill, a horizontally-yielding type-turning shuttle supported in operative relation to said sill to form therewith a type-receiving race, and a brace or stop resting above and just clear of the shuttle to resist any upward strain thereon, and means for carrying type through the machine, as set forth.

26. In a type-setting machine, the combination of a rigidly-mounted type-sill, a horizontally-yielding type-turning shuttle supported in operative relation thereto, an arm or brace projecting over the shuttle, an adjustable stop carried by said arm or brace and adapted to resist any upward strain upon the shuttle, and means for carrying type through the machine, substantially as set forth.

27. In a type-setting machine, the combination of a rigidly-mounted type-sill, a horizontally-yielding type-shuttle supported in operative relation thereto, pins or lugs mounted beneath and just free of the shuttle to resist any downward strain upon the shuttle, a brace or limiting-stop supported above and just free of the shuttle to resist any upward strain thereon, and means for carrying type through the machine, substantially as set forth.

28. In a type-setting machine, the combination of a rigidly-mounted type-sill, a horizontally-yielding type-turning shuttle supported in operative relation thereto, a type-lifting plunger mounted beneath the sill and shuttle and adapted to raise the type in the race formed by said sill and shuttle, a brace or limiting-stop supported above and just free of the shuttle to resist any upward strain thereon, and means for carrying type through the machine, substantially as set forth.

29. In a type-setting machine, the combination of a type-race formed of a rigid wall and a sectional yielding wall, one section of said yielding wall consisting of a friction plate or block, a supporting-block adjustable toward and away from the rigid wall of the type-race, springs interposed between said friction plate or block and its supporting-block, and means for carrying type through the type-race, substantially as set forth.

30. In a type-setting machine, the combination of a type-race having a rigid wall and a yielding wall, the rigid wall of which is formed of an adjustably-mounted type-sill, means for securing said type-sill in the desired adjusted position, and means for carrying type through the machine, substantially as set forth.

31. In a type-setting machine, the combination of a type-race, a rigid type-sill forming one wall of said type-race, an arm or block to which said sill is secured, said arm or block having an elongated opening or slot through it, a support for said arm or block, a securing-screw passing through the elongated opening or slot of said arm or block into the support, an adjusting-screw threaded into said arm or block and extending into the elongated opening or slot to engage the securing-screw and determine the adjusted position of the arm or block and the type-sill supported thereby, and means for carrying type through the type-race, substantially as set forth.

32. In a type-setting machine, the combination of a type-race, and means for turning type upon their longitudinal axes therein, with a reciprocating type-carrier comprising spring-pressed jaws, the type-engaging face of the rear one of the jaws being curved forwardly, means for reciprocating said type-carrier, and means for operating the jaws, substantially as set forth.

33. In a type-setting machine, the combination of a type-race through which type are adapted to be successively passed, means for turning type upon their longitudinal axes in the type-race, and a type-carrier comprising two spring-pressed jaws, means for limiting the extent of opening one of said jaws, and means for operating said type-carrier, substantially as set forth.

34. In a type-setting machine, the combination of a type-race, means for turning type upon their longitudinal axes in the type-race, and a type-carrier having two spring-pressed jaws, a rod projecting from the carrier-body through one of said jaws, an adjustable tubular nut mounted upon said rod, and a spring surrounding said rod within the nut and engaging the nut and said carrier-jaw, and means for operating the type-carrier, substantially as set forth.

35. In a type-setting machine, the combination of a type-race, means for turning type upon their longitudinal axes in the type-race, a type-carrier, a type-engaging shoulder formed on the carrier-body, a type-engaging jaw mounted upon the carrier-body and having its operative face projecting beyond the type-engaging shoulder of the carrier-body when the jaw is in closed position, and means for operating the type-carrier, substantially as set forth.

36. In a type-setting machine, the combination of a type-race, means for turning type upon their longitudinal axes, a type-carrier, a type-engaging shoulder formed upon the carrier-body, a pair of spring-pressed jaws mounted upon the carrier-body, one of said jaws having a curved type-engaging face which slightly overlaps or projects beyond the type-engaging shoulder of the carrier-body, and means for operating said type-carrier, substantially as set forth.

37. In a type-setting machine, the combination of a type-race, means for turning type upon their longitudinal axes, a type-carrier having a type-engaging shoulder on the carrier-body, spring-pressed type-engaging jaws, and means for intermittently and positively closing the rear one of said jaws, with proper relation to the operation of the type-turning means, substantially as set forth.

38. In a type-setting machine, the combination of a type-race, means for turning type upon their longitudinal axes, a type-carrier having spring-pressed type-engaging jaws, a heel projecting from one of said jaws, a

cam-bar with which said heel engages for intermittently and positively closing said jaw, and means for operating the type-carrier, substantially as set forth.

39. In a type-setting machine, the combination of a type-race, means for turning type upon their longitudinal axes, a type-carrier having a type-engaging shoulder upon the carrier-body, spring-pressed type-engaging jaws upon the carrier-body, one of said jaws having a type-engaging face which projects beyond the type-engaging shoulder of the carrier-body, a heel projecting from said type-engaging jaw, a cam-bar with which said heel engages for intermittently and positively closing said jaw, and means for operating the type-carrier, substantially as set forth.

40. In a type-setting machine, the combination of a type-race, and means for carrying type through the type-race, with a type-turning device constructed and arranged to turn a type upon its longitudinal axis, and adapted to be operated by the presentation of a plain face of a type toward it, and an independent type-turning device also constructed and arranged to turn a type upon its longitudinal axis, and adapted to be operated by the presentation of the nicked face of a type toward it, substantially as set forth.

41. In a type-setting machine, the combination of a type-race, and means for conveying type through the race, with a plurality of independent type-turning devices constructed and arranged to independently and successively turn a type upon its longitudinal axis, and each device adapted to be operated by the presentation of a plain face of a type toward it, and an independent type-turning device constructed and arranged to turn a type upon its longitudinal axis, and adapted to be operated by the presentation of the nicked face of a type toward it, substantially as and for the purpose set forth.

42. In a type-setting machine, the combination of a type-race, and means for carrying type therethrough, with a type-turning device comprising a type-engaging dog and a type-actuated controlling-rib suitably connected with the dog and adapted to force the dog into engagement with a corner of the type when a plain face of the type engages the rib, and an independent type-turning device comprising a ribbed finger, having a type-engaging shoulder of approximately the same height as the rib, which shoulder is adapted to engage the corner of the type when the rib enters a nick of the type, but which is prevented from engaging the type when the rib engages a plain face of the type, substantially as set forth.

43. In a type-setting machine, the combination of a type-race, and means for conveying type therethrough, with a movable type-turning device comprising a ribbed finger having a type-engaging shoulder of approximately the same height as the rib and adapted to be moved into engagement with the type and transversely of the type while it is in engagement, said type-engaging shoulder being adapted to engage a corner of the type when the rib enters a nick of the type, and is prevented from engaging the type when the said rib engages a plain face of the type, substantially as set forth.

44. In a type-setting machine, the combination of a type-race, and means for carrying type therethrough, with a type-turning device comprising a support movable transversely of the type-race and a finger pivoted upon said support and formed with a type-engaging shoulder and a nick-engaging rib, and means for operating said type-turning device, substantially as set forth.

45. In a type-setting machine, the combination of a type-race, and means for carrying type therethrough, including a suitable reciprocating body, with a type-turning device comprising a bar longitudinally movable in said body, a spring-pressed type-engaging finger pivoted upon said bar and formed with a nick-engaging rib and a type-engaging shoulder, and means for operating said type-turning device, substantially as set forth.

46. In a type-setting machine, the combination of a type-race, a type-carrier adapted to pass type through said race, and a type-turning device mounted upon said type-carrier and including a type-engaging finger formed with a nick-engaging rib and a type-engaging shoulder, substantially as set forth.

47. In a type-setting machine, the combination of a type-race, and a type-carrier having spring-pressed type-engaging jaws which are adapted to pass the type successively through said race, the rear one of which jaws is formed with a forwardly-curved hook, with a type-turning device mounted upon said carrier and comprising a longitudinal movable bar and a finger pivoted upon said bar and formed with a nick-engaging rib and a type-engaging shoulder, substantially as set forth.

48. In a type-setting machine, the combination of a type-race, and a type-carrier provided with spring-pressed type-engaging jaws, with a longitudinal movable bar mounted in the carrier-body, a type-turning finger having a nick-engaging rib and a type-engaging shoulder and pivotally mounted upon said bar, a spring tending to throw said pivoted finger toward one of the carrier-jaws, a heel projecting from said finger, and a cam-groove cut in the carrier-body with which said heel engages for controlling the action of the type-turning finger, means for operating the type-carrier, and means for intermittently moving said bar in the carrier-body, substantially as set forth.

49. In a type-setting machine, the combination of a suitable frame, suitable means for setting type, a removable galley formed with an undercut recess in its under face, and a locking-cam mounted upon the machine-frame and adapted to be projected into the recess of the galley and securely lock the galley in place, substantially as set forth.

50. In a type-setting machine, the combination of a suitable frame, means for setting type, a removable galley adapted to rest upon the frame and formed with an undercut circular recess in its lower face, a locking-cam mounted upon an operating shaft or bar, a bar in the frame in which said cam shaft or bar is rotatably and longitudinally movable, and a recess in the frame into which the locking-cam can be withdrawn, substantially as and for the purpose set forth.

51. In a type-setting machine, the combination of a suitable frame having a cam-receiving recess, a galley-locking cam supported within said recess and formed with an undercut locking-face and with a limiting-shoulder, a pin or lug in said recess with which said limiting-shoulder of the cam is adapted to engage, and a removable galley adapted to rest upon the machine-frame and formed with an undercut recess in its lower face with which the locking-cam is adapted to engage, substantially as set forth.

52. In a type-setting machine, the combination of suitable means for setting type, and a galley formed with a dovetail groove in its upper face, with an adjustable galley-wall formed with a rib having an undercut shoulder at one side and adapted to engage in the dovetail groove of the galley, said rib having a cut-out portion, a movable block or section set in said cut-out portion of the rib and formed with an undercut shoulder projecting oppositely from the undercut shoulder of the rib, and a clamp-screw and nut connected with said movable block and adapted to clamp the movable galley-wall in the desired adjusted position, substantially as set forth.

53. In a type-setting machine, the combination of means for setting type, with a type-receiving galley having walls which diverge slightly from its receiving end, substantially as and for the purpose set forth.

54. In a type-setting machine, the combination of means for setting type, with a type-receiving galley having walls which diverge slightly from its type-receiving end, and a galley friction-block engaging the side walls of the galley and adapted to support the composed type, substantially as set forth.

55. In a type-setting machine, the combination of means for setting type, and a type-galley, with a galley friction-block having a spring-pressed plunger at one end and an adjustably-mounted block provided with a clamping device by which it may be secured in the desired adjusted position, substantially as set forth.

56. In a type-setting machine, the combination of means for setting type, a galley adapted to receive the successive lines of type, a cut-off device adapted to advance the lines of type into the galley, a depressible rule dividing the galley from the type-race, a rod projecting beneath the machine-frame, a yoke mounted upon said rod and supporting the rule, a spring confined upon said rod and supporting the yoke, and means for automatically and intermittently operating the line cut-off and the rule, substantially as set forth.

57. In a type-setting machine, the combination of means for setting type, a galley adapted to receive the lines of type, and a line-advancing cut-off device comprising a plate mounted upon a suitable yoke, a spring holding said cut-off plate normally in retracted position, a rock-shaft, rock-arms projecting from said rock-shaft and engaging the yoke of the cut-off plate at two widely-separated points, and means for intermittently operating said rock-shaft, substantially as set forth.

58. In a type-setting machine, the combination of means for setting type, a suitable line cut-off, a controlling device for the line cut-off, a signal-bell, and a striker mechanism for said bell consisting of a spring-hook mounted upon the cut-off-controlling device, and a spring-hook carrying the bell-striker and mounted upon a stationary part of the machine in position to be engaged by the hook of the controlling device, substantially as set forth.

59. In a type-setting machine, the combination of means for setting type, a line-cut-off device, and controlling means for the line-cut-off device including a sliding bracket which is adapted to release the line cut-off, line-feeling rods passing through said sliding bracket into the path of the advancing line of type, and means for securing the line-feeling rods in any desired adjusted position upon the sliding bracket, substantially as set forth.

60. In a type-setting machine, the combination of means for setting type, a line-feeling device, an indicator-shaft, a gear upon said indicator-shaft, a rack-bar meshing with said gear and suitably connected with the line-feeler, a thrust-bearing for said indicator-shaft, and an indicator-finger mounted upon said shaft, substantially as set forth.

61. In combination with a type-setting machine, an indicator suitably actuated by an operative part of the machine, and a removable dial-

plate over which the indicator is adapted to travel, substantially as set forth.

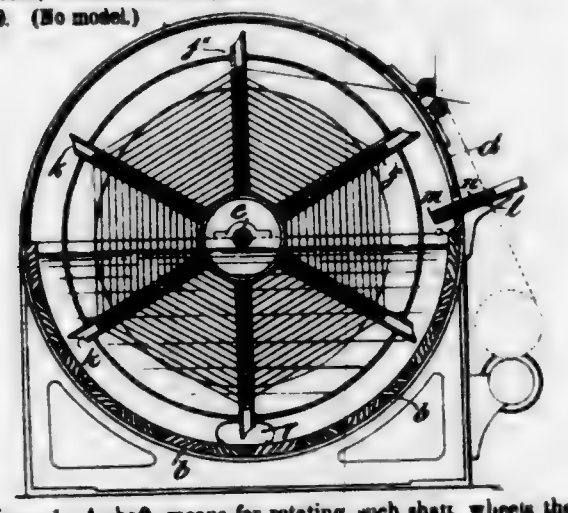
62. In a type setting machine, the combination of a suitable base-frame having posts or standards projecting therefrom, a suitable bed-plate carrying the operative parts of the machine and hinged at its rear edge to the rear posts or uprights of the base-frame, and resting at or near its front edge upon the forward posts or uprights of the base-frame, substantially as set forth.

63. In a type-setting machine, the combination of a suitable base, a bed-plate carrying the operative parts of the machine and hinged to said base at its rear edge, a galley-supporting plate mounted upon said bed-plate, and a bracing-arm secured to the galley-supporting plate and projecting down into engagement with the base-frame, substantially as set forth.

64. In a type-setting machine, the combination of a suitable base-frame, a bed-plate carrying the operative parts of the machine and supported above the base-frame, an auxiliary carrier-frame mounted upon the bed-plate and adapted to be reciprocated transversely thereof, a bracket-arm projecting downward from said auxiliary carrier-frame, an antifriction-roller journaled in said bracket-arm, and a bracket mounted upon the base-frame upon which said antifriction-roller rests and reciprocates, substantially as set forth.

65. In a type-setting machine, the combination of a suitable bed-plate carrying the operative parts of the machine, an auxiliary carrier-frame mounted upon the bed-plate, a reciprocating carrier-bar mounted in the auxiliary frame, type-carriers mounted upon said carrier-bar, a bracket-arm projecting from the auxiliary frame and formed at its end with a horizontal guide-yoke, and a bracket-arm projecting from the reciprocating carrier-bar and engaging and sliding in the horizontal guide-yoke, substantially as set forth.

693,446. APPARATUS FOR DYEING, &c. JAMES A. SACKVILLE, Pendleton, Manchester, England. Filed Sept. 24, 1901. Serial No. 76,339. (No model.)



Claim.—1. A shaft, means for rotating such shaft, wheels thereon having grooves and a frame in such relation thereto as to allow the spokes to pick up loose rods on the said frame, as and for the purposes set forth.

2. In apparatus for use in the treatment of textile fabrics a rotary shaft, means for driving such shaft, wheels thereon, having grooves or recesses and the grooves of one wheel directly opposite the grooves of the other wheel; a series of rods with enlarged ends adapted to fit into the grooves of the said wheels and an inclined frame, upon which the said rods are placed and by gravitation fed to the lower ends thereof, substantially as and for the purposes herein set forth.

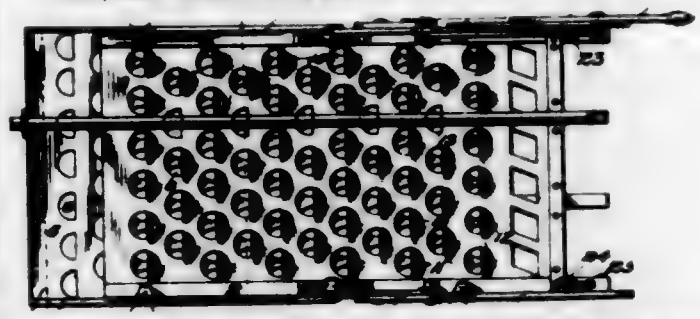
3. An inclosed casing, a shaft and set of grooved wheels therein, means for rotating the shaft and wheels, loose rods with enlarged ends supported by the wheels, a piece of fabric in spiral form upon the said rods; an opening in the casing side; a set of tanks and a pump for supplying liquors to the said casing and returning such liquors to their respective tanks, substantially as set forth.

4. In combination, a casing, a rotary structure therein and a frame for holding bars, said rotary structure being arranged to pick up the said bars in the rotation of the structure, said bars being superposed in radial rows on said structure, substantially as described.

5. In combination, a casing and a rotary body having grooves and bars having enlarged heads fitted to the said grooves, said bars being spaced apart by the enlarged heads resting against each other, substantially as described.

6. A length of fabric in batch form, rods with enlarged ends in each fold or lap, a frame with grooves into which the ends of the said rods project, means for holding the fabric taut while in the frame, a holder for receiving the said frame an inclosed casing within which the said holder is axially mounted and means for rotating the holder, admitting and withdrawing liquor substantially as set forth.

693,447. GRAIN-SCREEN. JOHN SACORA, DeKalb, Ill. Filed Feb. 8, 1900. Renewed Aug. 19, 1901. Serial No. 72,581. (No model.)



Claim.—1. A screen consisting of an upper frame and a lower frame, each of which is provided with a screen-plate having registering apertures, the lower screen-frame being formed with longitudinal slots, plates extending through said slots and having their lower ends passed into the side pieces of the lower screen-frame and their upper ends bent over the side pieces of the upper screen-frame, a slot formed in the end of one of the side pieces of the lower frame, a bolt extending through said slot, through the upper plate, and through an angular plate fastened to the lower screen-plate and provided with a washer and nut, lugs secured to the side pieces of the upper screen-frame, a crank-shaft, links connecting the lugs with the crank-shaft, a pivoted lever, and a link connecting one of the cranks and said pivoted lever, substantially as set forth.

2. A screen-plate having tongues struck up therefrom to form apertures, said tongues being bent back and resting against the body of the plate and thence bent upwardly, substantially as and for the purpose set forth.

693,448. SPINNING-TOP. GERTRUDE V. SANBORN, Chicago, Ill. Filed Dec. 12, 1901. Serial No. 85,718. (No model.)

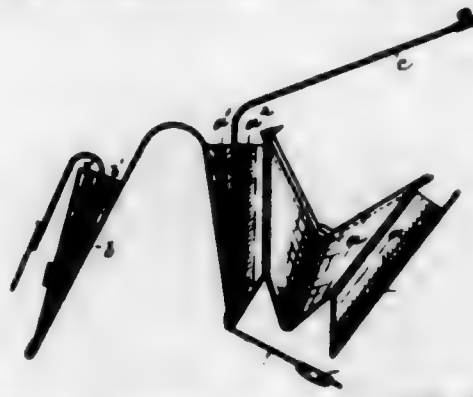


Claim.—1. In a spinning-top, a body portion, a stem suitably mounted therein, a plate or disk mounted on said stem, a spring suitably connected to said stem and plate respectively, and means for causing the engagement or disengagement of said plate and the body of the top, as and for the purpose set forth.

2. In a spinning-top, the combination with a body, a spinning-stem, a spring mounted on said stem, a disk or plate having a lug or projection formed therein, said spring being connected at one end to said stem and at the other end to said plate or disk, and a cooperating lug or projection connected to said body portion, all combined and arranged as and for the purpose set forth.

3. A spinning-top comprising a body portion having a lug or projection formed therein, a stem mounted in said body portion for slight longitudinal movement, a disk loosely mounted upon said stem and provided with a cooperating lug or projection, a spring mounted upon said stem and connected respectively to said stem and disk or plate, all combined and arranged as and for the purpose set forth.

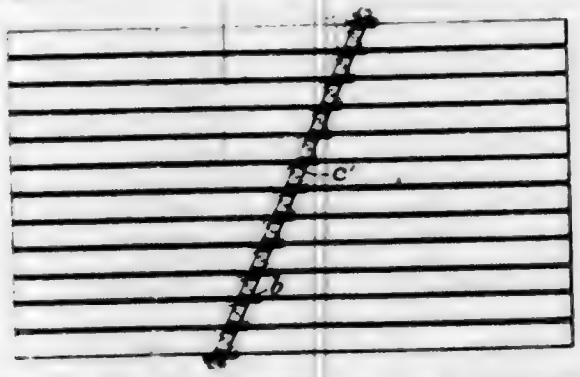
693,449. COMBINATION POCKET-BOOK. MAX SCHEUER, New York, N. Y. Filed Sept. 23, 1901. Serial No. 76,164. (No model.)



Claim.—A combination pocket-book provided with a number of pockets, an inner cover that forms a partition within the rearmost of said pockets, means for locking said inner cover to the front of the pocket-book, and an outer cover secured to the same end of the pocket-book as

the inner cover and adapted to fold over the same, substantially as specified.

693,450. PACKING OR DISPLAYING ARTICLES. ERNST H. SCHMIDT, London, England. Filed July 12, 1901. Serial No. 68,088. (No model.)



Claim.—1. In a displaying or packing device, the combination with a series of loops arranged side by side and adapted to receive articles between them, said loops being of sufficient diameter to project beyond the outer faces of said articles, of a locking device extending through said loops transversely of and in front of the said articles, substantially as described.

2. In a displaying or packing device, the combination with a series of loops arranged side by side and adapted to receive articles between them, said loops being of sufficient diameter to project beyond the outer faces of said articles, of a removable locking device extending through said loops transversely of and in front of said articles, substantially as described.

3. In a displaying or packing device, the combination with a series of loops of elastic material arranged side by side and adapted to receive articles between them, said loops being of sufficient diameter to project beyond the outer faces of said articles, and a locking device extending through said loops, transversely of and in front of said articles, substantially as described.

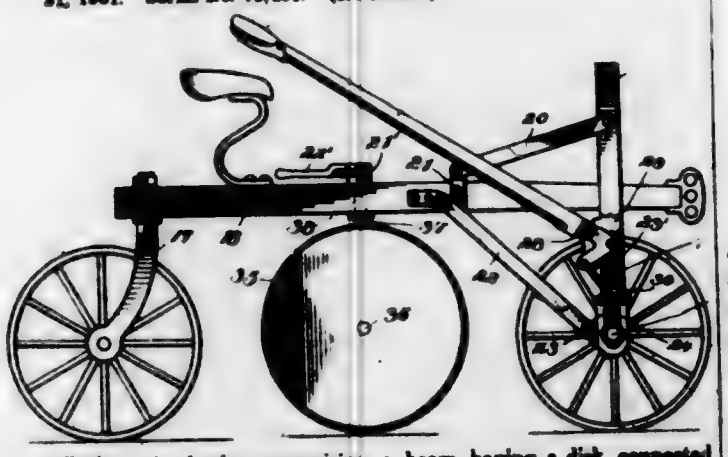
4. In a displaying or packing device, the combination with a series of loops arranged side by side and adapted to receive articles between them, said loops being of sufficient diameter to project beyond the outer faces of said articles, of a locking-bar extending through said loops transversely of and in front of said articles and provided with corrugations to engage said loops, substantially as described.

5. In a displaying and packing device, the combination with a backing, of a series of loops secured thereto and adapted to hold articles between them, said loops projecting from said backing beyond the outer faces of the articles to be retained and a locking device, adapted to be passed through said loops transversely of and in front of said articles, substantially as described.

6. In a displaying and packing device, the combination with a series of loops formed of a single piece of material in the form of a continuous spiral, and adapted to receive articles between said loops, said loops being of a sufficient diameter to project beyond the front faces of said articles and a locking device passing through said loops transversely of and in front of said articles, substantially as described.

7. In a displaying or packing device, the combination with two series of loops, each forming a continuous spiral, one of said spirals being a right-hand coil and the other a left-hand coil and a locking device passing through the loops of each coil in front of the articles held between said loops, substantially as described.

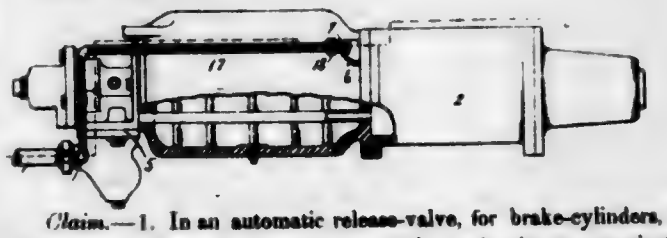
693,451. PLOW. WILLIE H. C. SCHUBERT, Britt, Iowa. Filed Oct. 31, 1901. Serial No. 79,881. (No model.)



Claim.—1. A plow comprising a beam having a disk connected thereto for adjustment in a horizontal plane, an axle having supporting-wheels, rods connected to the axle and having pivotal connection with the beam, arms connected to the beam, and extending at opposite sides thereof and below the axle, and levers pivoted to the axle and connected to the arms for raising and lowering the latter to tilt the beam and therewith the disk in opposite directions.

2. A plow comprising an arched axle provided with supporting-wheels, a beam having a disk connected thereto for adjustment in a horizontal plane, braces connected to the arch and having pivotal connection with the beam, arms connected to the beam and extending at opposite sides thereof and having fingers directed upwardly at opposite sides of the axle, and levers pivoted to the axle and having connections with the fingers to adjust the arms and tilt the beam and therewith the disk.

693,452. AUTOMATIC RELEASE FOR BRAKE-CYLINDERS. GEORGE B. SEWELL, Detroit, Mich. Filed Apr. 13, 1901. Serial No. 55,619. (No model.)

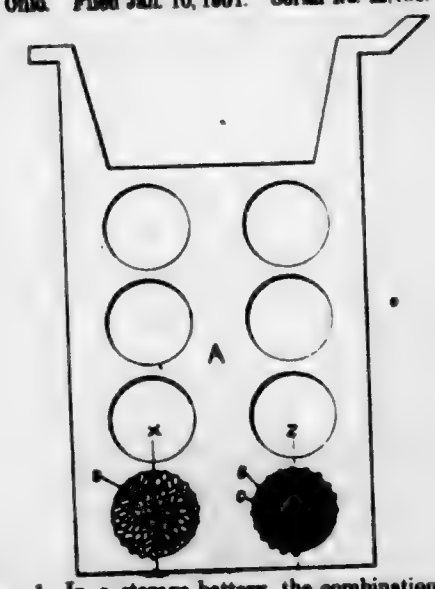


Claim.—1. In an automatic release-valve, for brake-cylinders, the combination with the brake-cylinder, of the train-pipe communicating with said cylinder having an air-valve therein which controls the passage of air to said cylinder, means connected with the train-pipe and the brake-cylinder independently of said controlling-valve operated automatically by a diminution of pressure in the train-pipe to release the air from the brake-cylinder.

2. In an automatic release-valve for brake-cylinders, the combination of a brake-cylinder, an auxiliary reservoir connected thereto, a train-pipe to supply air under pressure to said auxiliary reservoir, an air-valve controlling the passage of air from the train-pipe to said reservoir, means connected with the train-pipe and with said cylinder independently of said air-controlling valve, said means being automatically actuated by a discharge of air from the train-pipe to allow of a gradual escape of air from the brake-cylinder and effect a release of the brakes.

3. In an automatic release for brake-cylinders, the combination of a brake-cylinder, a train-pipe for supplying air to said cylinder, a valve controlling the passage of air to the cylinder from the train-pipe, an auxiliary pipe connecting the brake-cylinder and train-pipe, a valve located at the cylinder end of said auxiliary pipe, the chamber of said valve communicating at one end with said auxiliary pipe through an opening of relatively large area and at the other end communicating with the cylinder through an opening of greatly restrictive area.

693,453. SECONDARY-BATTERY PLATE. WILLIAM L. SILVEY, Dayton, Ohio. Filed Jan. 10, 1901. Serial No. 42,769. (No model.)



Claim.—1. In a storage battery, the combination of a corrugated conducting-strip with an external covering for the strip of a mixture of oxid of lead, powdered metallic lead and a liquid, said covering for the strip filling the grooves between the corrugations and presenting practically uniform parallel sides, the strip thus made being wound into a spiral plug and inserted into a conductor-plate, as set forth.

2. In a storage battery, the combination of a corrugated conducting-strip with an external covering for the strip of a mixture of oxid of lead, powdered metallic lead and a liquid, said covering for the strip filling the grooves between the corrugations and presenting practically uniform par-

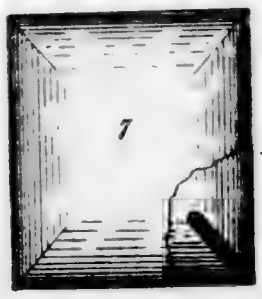
allel sides, the strip thus made being wound into a spiral plug and inserted into a conductor-plate, said filled plugs projecting beyond the faces of the plate, as set forth.

3. In a storage battery, the combination of a corrugated conducting-strip with an external covering for the strip of a mixture of oxid of lead powdered metallic lead and a liquid, said covering for the strip filling the grooves between the corrugations and presenting practically uniform parallel sides, the strip thus made being wound into a spiral plug, pickled, and subsequently inserted into a conductor-plate, as set forth.

4. The combination of a battery-plate having holes therein, a corrugated strip having its corrugations filled with active material whereby the filled strip has a practically uniform thickness, said filled strip being subsequently wound into a spiral to form a button and inserted in the plate.

5. In a storage battery, the combination of a corrugated conducting-strip with an external covering for the strip of a mixture of oxid of lead and powdered metallic lead, said covering filling the grooves between the corrugations and presenting practically uniform parallel sides, the strip thus made being wound into a spiral plug, pickled, and subsequently inserted into a conductor-plate, as set forth.

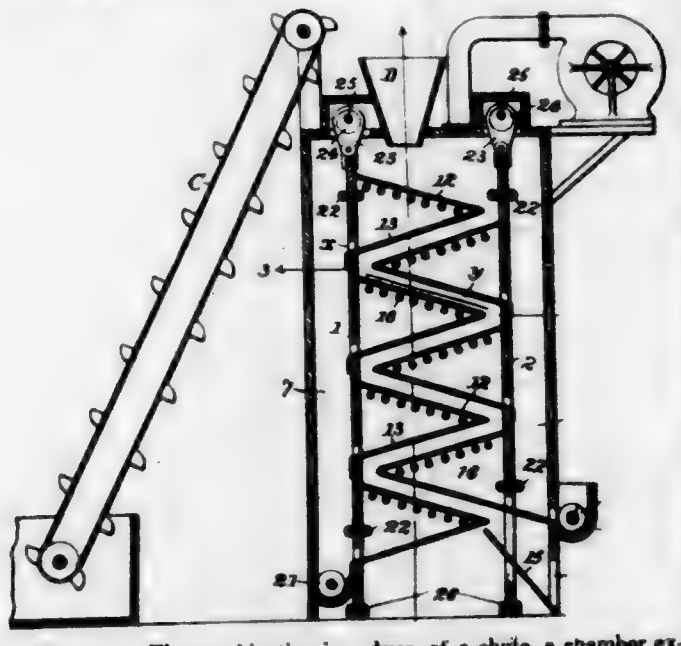
693,454. SHAM PILLOW. HENRY P. SHODGRASS, Wheeling, W. Va. Filed June 22, 1901. Serial No. 65,687. (No model.)



Claim.—1. A sham pillow, comprising a rectangular frame, braces extending diagonally across the corners thereof, a central strip extending from one side of said frame to the opposite side thereof, an upright supported on the said strip at the middle thereof, diagonally-extending brace-arms mounted on the top of said upright, an inner covering, provided with V-shaped slots in the corners thereof, having its edges secured to the sides of said rectangular frame, adhesive strips binding the edges of said slots, and an outer covering, all substantially as and for the purposes set forth and described.

2. In a sham pillow, the combination with a rectangular frame, of an upright mounted thereon, diagonally-extending brace-arms secured on the top of said upright, an inner covering secured on said rectangular frame, said covering provided with substantially V-shaped slots in the corners thereof adapted to facilitate the folding downward of the edges thereof, adhesive strips connecting and binding the edges of said slots, and an outer cloth covering, substantially as and for the purposes set forth and described.

693,455. DRIER FOR COTTON OR OTHER MATERIALS. JOHN C. W. STANLEY, London, England. Filed Mar. 11, 1901. Serial No. 50,636. (No model.)

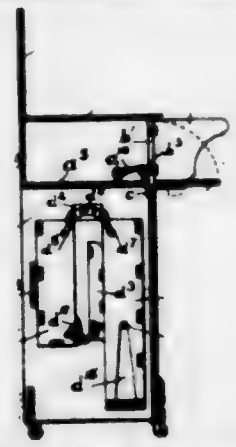


Claim.—1. The combination in a drier, of a chute, a chamber exterior of the chute and communicating therewith through a series of openings, a series of perforated platforms supported within the chute, a series of imperforate inclined plates supported respectively below the respective perforated platforms, said inclined plates leading at their lower ends to the said openings, means for feeding the material to be dried onto the upper platform, and means for causing said material to move to and over the successive platforms, substantially as set forth.

2. The combination in a drier, of a chute, a chamber exterior of the chute and communicating therewith through a series of openings, a series of parallel perforated platforms extending from one wall of the chute to nearly the opposite wall, a series of inclined plates extending from said opposite wall to deflect the material to be dried to the successive platforms, a series of inclined imperforate plates supported respectively below the said perforated platforms, said inclined imperforate plates leading at their lower ends to said openings, means for feeding the material to be dried to the upper platform, and means for causing said material to move from the platforms to the deflecting-plates, successively, substantially as set forth.

3. The combination in a drier, of a chute having vertical opposite sides, a series of inclined perforated platforms extending from each side nearly to the opposite side with inclined imperforate plates extending back from the outer edges of the perforated platforms to their respective supporting sides, passages for the escape of material from the imperforate plates, and means for agitating the sides supporting the perforated platforms, substantially as set forth.

698,456. COMBINED DRESSER AND BED. CHARLES F. STREET, Cincinnati, Ohio. Filed Apr. 13, 1900. Serial No. 12,676. (No model.)



Claim.—1. In a combined dresser and bed a case consisting of side pieces a dresser-top supported upon the side pieces and a base-board connecting the side pieces, pivots upon the interior of the sides, a front piece hinged to the top edge of the base-board so that it may be swung to a vertical position to close the front of the case and to a horizontal position to form the support for a mattress-frame, a piece hinged near each side of the front piece near its top edge so that they may be swung inward to form ornamental panels when the front piece is closed and outward to form legs to support the front piece in its horizontal position, and a mattress-frame swinging upon the pivots in the sides of the case so that in its lowered position it rests upon the front piece and composed of separate pieces hinged together so as to be folded up to swing into the case, substantially as shown and described.

2. In a combined dresser and bed, a case consisting of side pieces, a dresser-top supported upon the side pieces and a base-board connecting the side pieces, pins or pivots upon the interior of the sides, a front piece hinged to the top edge of the base-board to be swung to a vertical position to close the front of the case and to a horizontal position to form the support for a mattress-frame and having a recess in its upper edge, a shelf-door hinged to the horizontal edge of the recess so as when closed to lie flush with front piece, a piece hinged to each of the other two edges of the recess so as to lie flat against the shelf-door in the closed position, in the open position to be braced apart by the shelf-door and in the horizontal position of the front piece to act as legs to support it, and a mattress-frame swinging upon the pivots in the sides of the case so as in its lowered position to rest upon the front piece and composed of separate pieces hinged together so as to be folded together to swing into the case, substantially as shown and described.

3. In a combined dresser and bed the case consisting of side pieces, a dresser-top upon top of the side pieces, a base-board connecting them and beneath the dresser-top a vertical back piece and a horizontal partition forming a stationary compartment, pivots upon the interior of the sides, a front piece hinged to the base-board to close the front of the case when in a vertical position and to support a mattress-frame when in a horizontal position and having a recess in its upper edge, a shelf-door hinged to the longitudinal edge of the recess so as to lie flush with the front piece when closed, a piece hinged to each of the other two edges of the recess so as to lie flat against the shelf-door when closed and to be

braced apart by the shelf-door when it is swung down to act as legs to support the front piece in its horizontal position, and a mattress-frame rotatable upon the pivots to rest upon the front piece when horizontal and hinged so as to be folded up and swung into the case upon the pivots, substantially as shown and described.

4. In a combined dresser and bed the case consisting of the sides, the dresser-top supported thereon, and the base-board connecting them, a compartment beneath the dresser-top, a front piece hinged to the base-board to be swung to a vertical position to close the case and to a horizontal position to support a mattress-frame and having a recess in its upper edge, a shelf-door hinged to the longitudinal edge of the recess to be flush with the front piece when closed, a piece hinged to each of the other two edges of the recess to lie flat against the shelf-door when it is closed and to be braced apart by it when it is opened, to act as legs for the front when it is horizontal, a brace secured to the under edge of each of said pieces extending through a slot between the shelf-door and front piece and terminating in a lug to bear against the inner face of the front piece to brace the piece when it is swung outward and to support the door-shelf in its horizontal position and a mattress-frame rotatably connected to the sides of the case to rest upon the front piece when it is horizontal and to be swung into the case when it is closed by the front piece, substantially as shown and described.

5. The combination of a case with a front piece hinged thereto so as to swing to a vertical position to close the case and to a horizontal position to support a mattress-frame, means for supporting the front piece in the horizontal position, pivots upon the interior of the case, a mattress-frame with ways in its sides to pass the pivots, the sides of the frame consisting of two end pieces and a central piece, a headpiece, hinges connecting each end piece to the central piece and hinges coupling the headpiece to the outer end of the frame so that the frame rests flat upon the front piece in the horizontal position and the headpiece and frame may be folded over upon each other to be swung into the case, substantially as shown and described.

693,457. CARPET-RACK. ALVIN S. STRICKLER and WILLIAM H. STRICKLER, Keokuk, Iowa. Filed Sept. 13, 1899. Serial No. 730,323. (No model.)

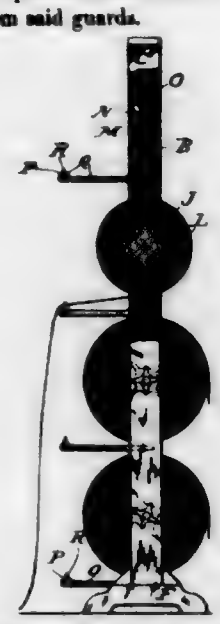


Claim.—In a cabinet or rack for displaying carpets and the like, the combination of a suitable framework or support; bearings carried thereby; a spindle adapted to hold a roll of carpet or the like, said spindle comprising two tapering pins provided with longitudinally-extending ribs or flanges, guards H at the outer ends of said pins, stud-axles I formed adjacent to each guard, and a power-wheel adapted to be mounted upon one section of the spindle.

693,458. CARPET-RACK. ALVIN S. STRICKLER and WILLIAM H. STRICKLER, Keokuk, Iowa. Filed Sept. 13, 1899. Serial No. 730,323. (No model.)

Claim.—1. A spindle or support for a roll of carpet or the like, comprising two members of like form; and means carried by said members for causing them to interlock as they are brought to position and to leave a space intermediate their opposing faces for the reception of the inner end of the carpet-roll, whereby the inner end of the carpet may be clamped between them, substantially as described.

2. A spindle or support for a roll of carpet or the like, comprising two members of like form; means carried by said members for causing them to interlock as they are brought to position and to leave a space intermediate their opposing faces for the reception of the inner end of the carpet-roll, whereby the inner end of the carpet may be clamped between them; guards formed upon the outer ends of said members; and stud-axles extending out from said guards.



3. A spindle or support for a roll of carpet or the like, comprising two members of like form, each member having fingers or arms H formed at one end; hooks I adapted to pass between the arms or fingers H and to overlap the body of the opposite member; and stud-axles K extending out from the ends of the members.

4. A spindle or support for a roll of carpet or the like, comprising two members of like form, each member having a flat face, a rib G extending longitudinally of the member, arms H formed at one end of the member, and a hook I extending out from the flat face near the outer end of the member; a guard J; and a stud-axle extending out from the said guard.

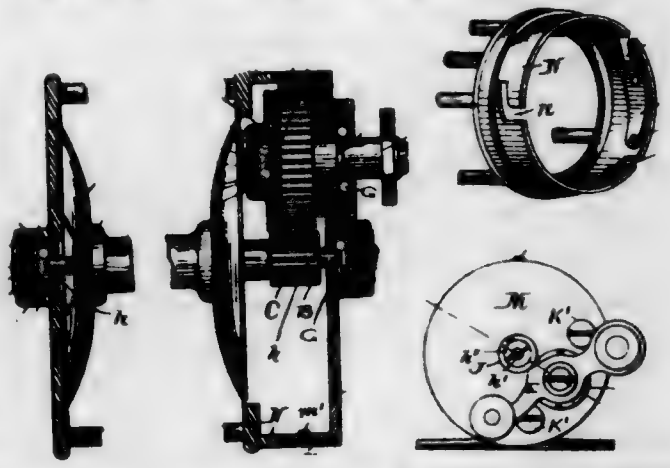
5. A spindle or support for a roll of carpet or the like, comprising two members of like form adapted to interlock as they are passed in from opposite ends of a roll of carpet, and to embrace or clamp the inner end of the carpet; and a hand-wheel mounted upon the spindle.

6. A spindle or support for a roll of carpet or the like, comprising two members; and means for interlocking said members with a space left intermediate their opposing faces, whereby the inner end of the carpet may be clamped between them as the parts are brought to position, substantially as described.

7. In a cabinet or rack for displaying carpets and the like, the combination of an open frame or support, provided with a series of openings in its front face; means for holding a roll of carpet exposed to view within the frame; independent pins or arms fitting within the openings of said frame; and a guard-bar carried by said arms.

8. In a cabinet or rack for displaying carpets and the like, the combination of an open frame or support provided with a series of openings in its front face; means for holding a roll of carpet exposed to view in said frame; independent pins Q fitting within said openings, said pins being provided with sockets in their outer ends; and a removable guard-bar carried by said arm.

693,459. FISH-REEL. WILLIAM S. SUTTON, Belvidere, Ill. Filed Aug. 27, 1900. Serial No. 28,096. (No model.)



Claim.—1. The fish-reel provided with ball-bearings at each end of the reel-shaft and ball-bearings at each end of the crank-shaft, the crank-shaft and its bearings and one of the bearings of the reel-shaft being connected to a removable head, which in turn is connected to the framework

of the reel by means of a bayonet-joint formed in the cylindrical part of the head, said removable head being furnished with a spring-detent, all substantially as specified, whereby said head may be easily and quickly removed and applied to said framework, and will be brought to a positive position when applied, and will be locked by the detent against accidental displacement.

2. The fish-reel provided with ball-bearings on the reel-shaft and ball-bearings on the crank-shaft and having a removable head which carries one of the bearings of the reel-shaft and also the crank-shaft and its bearings, the ball-cup of the crank-shaft bearings being provided with an internal collar and an external ring-nut between which the balls are held, substantially as specified.

3. In a ball-bearing fish-reel having a removable head to which is attached one of the reel-shaft bearings and upon which is attached a crank-shaft and its bearing, and the gearing on the crank-shaft, the ball-cup for the outer bearing of the crank-shaft provided with an internal collar and an external ring-nut between which and the collar the head is clamped for securing said bearing to the head, substantially as specified.

4. The fish-reel provided with a removable cylindrical head fitting on a cylindrical part and provided with a bayonet-joint between the reel and the head, and a spring-detent between said head and reel, substantially as specified.

693,460. LAMP-SHADE. SHIRO TAKARA, Boston, Mass. Filed June 24, 1901. Serial No. 65,735. (No model.)

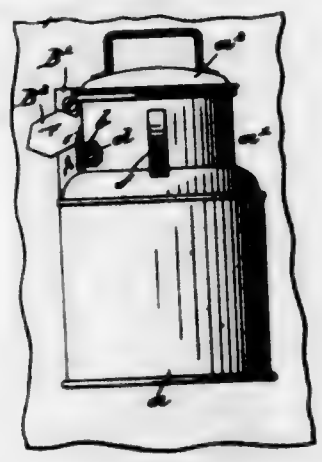


Claim.—1. A lamp-shade, having its shade-surface composed of ribs and panels, a longitudinal pocket being provided in each rib, a longitudinal edge of an adjacent panel being bent into interlocked engagement with the pocket of the adjacent rib, and means applied to said longitudinal edge and distinct from said rib for maintaining said panel and rib permanently in their interlocked relation.

2. A lamp-shade, having its shade-surface composed of ribs and panels, said ribs having longitudinal pockets in their under sides, one longitudinal edge of a panel being bent back on itself and interlocked with the adjacent rib, and a longitudinal edge of the contiguous panel being secured to the back of the panel thus interlocked.

3. A lamp-shade, having its shade-surface composed of ribs and panels, said ribs having longitudinal pockets in their under sides, one longitudinal edge of a panel being bent back on itself and interlocked with the adjacent rib, a longitudinal edge of the contiguous panel being secured to the back of the panel thus interlocked, and a ring and band, the upper ends of said panels and ribs being clamped between said ring and band.

693,461. DEVICE FOR PREVENTING THEFT OR TAMPERING WITH MILK CANS, BOTTLES, OR THE LIKE. CHARLES F. TILLSENS, Kensington, and ROMEO A. BARBIERI, Port Richmond, Pa. Filed Nov. 12, 1901. Serial No. 81,960. (No model.)

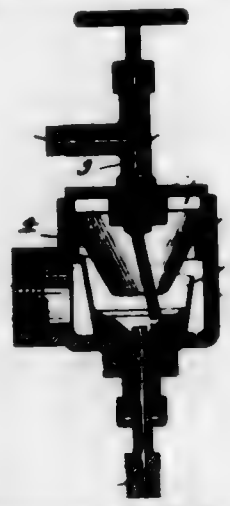


Claim.—1. In a device of the character described, the combination with the can or receptacle, of a tube united to said receptacle and adapted to traverse a door or other fixed part of the house, means located on the interior of the house for locking the tube to the door, a bolt carried by and traversing the tube and adapted to control the locking means, and means controlled by the turning of the bolt for releasing the locking means from said tube.

2. In a device of the character described, the combination with the can or receptacle, of a tube united to said receptacle, a door or other fixed part of the house adapted to be traversed by the inner end of said tube, a latch secured on the interior of the door and adapted to lock the tube to the door, a bolt adapted to turn within the tube and projecting beyond the inner end of said tube, means adapted to be inserted in the outer end of said tube to turn the bolt, and means controlled by the turning of the bolt for releasing the latch from the tube.

3. In a device of the character described, the combination with a can and its lid, of a tube united to the can, means for securing said tube to a fixed part of the house, a bolt turning in said tube and controlling said means, and a mechanism controlled by said bolt for locking the lid to the can.

693,462. COMBINED CARBURETER AND GASOLENE-REGULATOR. JOHN C. TITUS, Marion, Ohio. Filed Aug. 28, 1901. Serial No. 73,550. (No model.)



Claim.—1. The combination, substantially as set forth, of a hollow carburetor-body having a horizontal outlet, a gasolene-cup disposed in the base of said body and having its rim disposed inwardly away from the wall of the body and having a rim portion at and as high as said outlet, a top to said body having a portion projecting down thereinto and concentrically within said gasolene-cup and having a funnel-shaped air-opening vertically through it, a gasolene-nozzle arranged to deliver into said gasolene-cup, and a valve to control the flow through said nozzle.

2. The combination, substantially as set forth, of a hollow carburetor-body having a horizontal outlet, a gasolene-cup disposed in the base of said body, a top to said body having a portion projecting down into the body and concentrically within said gasolene-cup and having a funnel-shaped air-opening vertically through it, a gasolene-nozzle arranged to deliver into said gasolene-cup, and a valve to control the flow through said nozzle, the rim of said gasolene-cup where it surrounds the base of said air-opening being higher at the portion toward the outlet from the carburetor-body.

3. The combination, substantially as set forth, of a hollow carburetor-body having a horizontal outlet, a gasolene-cup disposed in the base of said body and having its rim disposed inwardly away from the wall of the body and having a rim portion at and as high as said outlet, a top to said body having a portion projecting down thereinto and concentrically within said gasolene-cup and having a funnel-shaped air-opening vertically through it, a gasolene-nozzle arranged to deliver into said gasolene-cup, and a valve for controlling the flow of air through said funnel-shaped air-opening.

4. The combination, substantially as set forth, of a hollow carburetor-body having a horizontal outlet, a gasolene-cup disposed in the base of said body and having its rim disposed inwardly away from the wall of the body and having a rim portion at and as high as said outlet, a top to said body having a portion projecting down thereinto and concentrically within said gasolene-cup and having a funnel-shaped air-opening vertically through it, a gasolene-nozzle arranged to deliver into said gasolene-cup, and a register-valve at the upper end of said funnel-shaped air-opening.

5. The combination, substantially as set forth, of a hollow carburetor-body having a horizontal outlet, a gasolene-cup disposed in the base of said body and having its rim disposed inwardly away from the wall of the body and having a rim portion at and as high as said outlet, a top to said body having a portion projecting down thereinto and concentrically within said gasolene-cup and having a funnel-shaped air-opening vertically through it, a gasolene-nozzle arranged to deliver into said gasolene-cup, and an overflow-pipe projecting upward from the floor of said gasolene-cup.

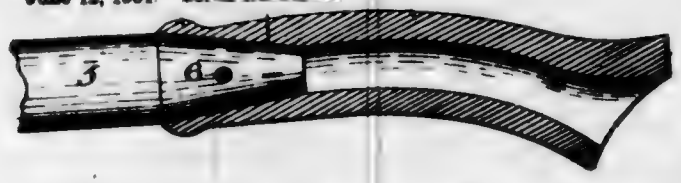
6. The combination, substantially as set forth, of a hollow carburetor-body having a horizontal outlet, a gasolene-cup disposed in the base of said body, a top to said body having a portion projecting down thereinto and concentrically within said gasolene-cup and having a funnel-shaped opening vertically through it, a gasolene-nozzle arranged to deliver into said gasolene-cup, and an overflow-pipe projecting upwardly from the floor of said gasolene-cup and vertically adjustable therein.

7. The combination, substantially as set forth, of a hollow carburetor-body having a side outlet, a gasolene-cup disposed therein and hav-

ing a nose projecting through and secured to the floor thereof, an overflow-pipe screwed vertically upward in said nose and projecting into said gasolene-cup, a cap secured to said body and having a funnel-shaped air-opening projecting downwardly and concentrically into said gasolene-cup, a gasolene-valve disposed axially above said top piece, and a gasolene-nozzle connected with said valve and projecting downwardly through said air-opening into said gasolene-cup and deflecting to the side of said overflow-pipe.

8. The combination, substantially as set forth, of a hollow carbureter-body having a side outlet, a gasolene-cup disposed therein and having a nose projecting through and secured to the floor thereof, an overflow-pipe screwed vertically upward in said nose and projecting into said gasolene-cup, a cap secured to said body and having a funnel-shaped air-opening projecting downwardly and concentrically into said gasolene-cup, a gasolene-valve disposed axially above said top piece, a ported top piece in said cap at the top of said funnel-shaped air-opening, and a register-valve disposed over said top piece.

698,468. AX-HELVE GRIP. CYRUS W. TODD, Orwell, Vt. Filed June 12, 1901. Serial No. 64,536. (No model.)



Claim.—1. In combination with an ax-helve made of a straight piece, a detachable grip constituting an extension of the helve for a greater part of the gripping portion thereof, said grip consisting of a single piece of integral portions, said grip in itself forming a complete handhold, said grip being curved down along its longitudinal upper and lower edges and merging at its end into a circumferentially-flared butt, and a means for securing the grip to the helve.

2. In combination with an ax-helve made of a straight piece, a detachable grip constituting an extension of the helve for a greater part of the gripping portion thereof, said grip consisting of a single piece of integral portions, said grip forming in itself a complete handhold, said grip being curved down along its longitudinal upper and lower edges and merging at its end into a circumferentially-flared butt, said grip having at its outer end a plane surface the middle of which is substantially alined with the central longitudinal axis of the helve, said plane surface extending at right angles to said axis and a means for securing the grip to the helve.

698,464. BURNER FOR LAMPS. HARRY S. TOMPKINS, Newark, N. J. Filed Apr. 5, 1901. Serial No. 54,504. (No model.)



Claim.—1. In a burner, a wick-spindle comprising a hollow shaft and a spindle-rod therein, one of said parts being held against longitudinal movement and having a wick-raising spur-wheel fast on itself, and the other sliding telescopically on the first and being keyed to rotate therewith.

2. In a burner, the combination with a wick-raising spur-wheel, of a spindle-rod passing through said wheel and being keyed to rotate therewith, but having an independent longitudinal movement, and stop means preventing disconnection of said spindle-rod and spur-wheel.

3. In a burner, the combination with a wick-raising spur-wheel, of a spindle rod or shaft for said spur-wheel which is capable of independent longitudinal movement, and means connecting said spur-wheel and spindle-rod to always rotate in unison.

4. In a burner, the combination with a spur-wheel adapted to engage the wick, of a hollow shaft and a spindle-rod sliding longitudinally in said hollow shaft and keyed thereto, and means for limiting the sliding of the spindle-rod, substantially as set forth.

5. In a burner, a curved support *g* surrounding the wick-tube inside the walls of the burner, a hollow shaft having bearings in the walls of said curved support, a spur-wheel fast on said shaft and working at opposite edges in slits in the wick-tube and curved support, and a longitudinally-sliding spindle-rod keyed in said hollowed shaft against independent rotation, substantially as set forth.

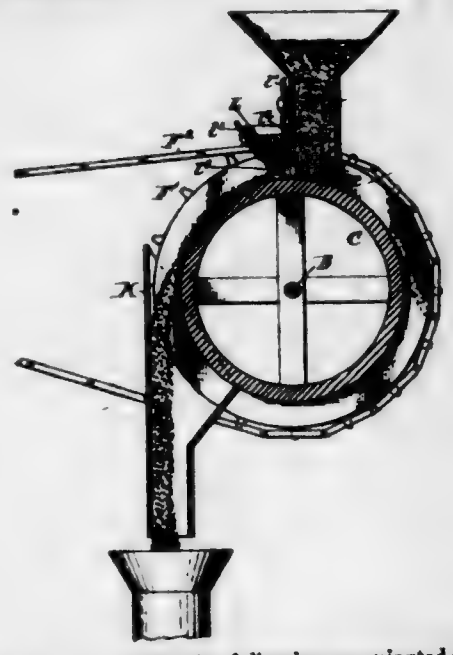
6. In a burner, a supporting cylinder *g* between the wick-tube and walls of the burner, a hollow shaft having bearings in said cylinder and carrying a fixed spur-wheel and having a longitudinal slot in one side and a spindle-rod sliding longitudinally in said hollow shaft and having at its outer end a finger-piece and at its inner end a lug projecting into the slot of the hollow shaft, substantially as set forth.

7. The combination of a burner, and a wick-spindle telescopically adjustable to different lengths, said burner having a seat or recess and the wick-spindle having a peripheral projection adapted to engage said seat or recess when the spindle is pushed in to prevent rotation.

8. The combination with a burner, of a telescopic wick-spindle having an angular finger-piece at its outer end the wall of the burner having a correspondingly-shaped recess or aperture to receive said finger-piece when the spindle is pushed in, and prevent turning.

9. The combination with a burner, of a telescopic wick-spindle having an angular head or finger-piece, and a recess or seat being formed on the outer wall of the burner, and adapted to receive one edge of the finger-piece when pushed in, while the other edge remains exposed to permit withdrawal.

698,465. MACHINE FOR DELIVERING COMMINUTED SOLIDS. LEE TREADWELL, Portsmouth, N. H. Filed May 28, 1901. Serial No. 62,266. (No model.)



Claim.—1. In a machine for delivering comminuted solids, the combination of a bin, provided with a discharge-orifice, an even-surfaced conveyer movable with relation to the discharge-orifice and placed so near thereto that the surface of the conveyer when in motion retards the normal flow of solids from the bin, a storage-chamber at the side of the discharge-orifice, having a discharge-opening to the conveyer of less normal delivery capacity than the bin-orifice, the storage-chamber being so placed that the conveyer-surface passes under it after leaving the discharge-orifice of the bin.

2. In a machine for delivering comminuted solids, the combination of a bin, provided with a discharge-orifice, an even-surfaced conveyer, movable with relation to the discharge-orifice and placed so near thereto that the surface of the conveyer when in motion retards the normal flow of solids from the bin, a storage-chamber at the side of the discharge-orifice, having a discharge-opening to the conveyer, a gate for the discharge-opening of the storage-chamber whereby the relative delivery capacity of the bin to the conveyer and the storage-chamber to the conveyer may be regulated, the storage-chamber being so placed that the conveyer-surface passes under it after leaving the discharge-orifice of the bin.

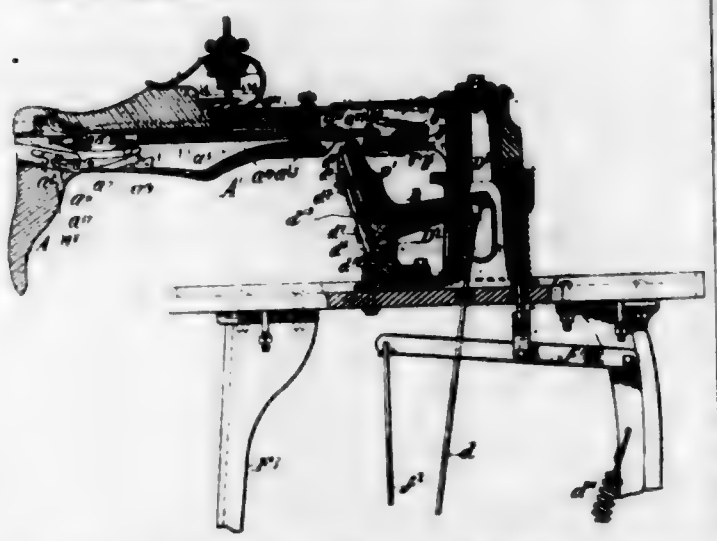
3. In a machine for delivering comminuted solids, the combination of a bin, a discharge-chute therefor, a storage-chamber at the side of the discharge-chute, the latter provided with an opening into the storage-chamber, means for regulating the size of the said opening, an opening from the storage-chamber, means for regulating the size thereof, and an even-surfaced conveyer, movable with relation to the discharge-chute and storage-chamber, and placed so near to both that the surface of the conveyer when in motion retards the flow of solids from the discharge-chute and storage-chamber.

4. In a machine for delivering comminuted solids, the combination of a bin provided with a discharge-orifice, an even-surfaced conveyer movable with relation to the discharge-orifice and placed so near thereto that the surface of the conveyer when in motion retards the normal flow of solids from the bin, and a storage-chamber at the side of the discharge-orifice, provided with a discharge-opening to the conveyer, substantially as described.

5. In a machine for delivering comminuted solids, the combination of a bin provided with a discharge-orifice, an even-surfaced conveyer movable with relation to the discharge-orifice and placed so near thereto

that the surface of the conveyer when in motion retards the normal flow of solids from the bin, and a vertically-adjustable storage-chamber at the side of the discharge-orifice, provided with a discharge-opening to the conveyer, substantially as described.

693,466. **BOOT-TREEING MACHINE.** ABEL D. TYLER, Jr., Brockton, Mass., assignor, by mesne assignments, to Mawhinney Last Company, a Corporation of Massachusetts. Filed Oct. 26, 1900. Serial No. 34,445. (No model.)



Claim.—1. In a treeing-machine, the combination of a tree-carrier with a tree-leg having a back piece operatively connected therewith; a back-piece distender; a spring against the tension of which the back-piece distender is moved to move the back piece away from the tree-leg; and means for automatically arresting the movement of the back piece away from the tree-leg and retaining the back piece in any of its positions in relation to the tree-leg; and means for locking said carrier in a stationary position during the treeing operation.

2. In a treeing-machine, the combination of a tree-carrier with a tree-leg having a back piece operatively connected therewith; a back piece distender comprising a reciprocating rod and a spring against the tension of which the back-piece distender is moved to move the back piece away from the tree-leg; means for automatically locking the reciprocating rod at the limit of whatever reciprocation may be given to said rod during the distending operation; and means for locking said carrier in a stationary position during the treeing operation.

3. In a tree-carrier formed to receive a tree-leg, the combination of a tree-carrier support; a mechanism for actuating the back-piece-distending mechanism of a tree-leg when the tree-leg is mounted in the tree-carrier, said actuating mechanism being movable to move said distending mechanism to move the back piece away from the tree-leg, with means under the control of the operator for moving said actuating mechanism; means for automatically locking said actuating mechanism whenever the desired amount of movement for effecting the said distention is reached; and means for locking said carrier in a stationary position on its support during the treeing operation.

4. In a boot or shoe tree, the combination of a tree-leg having, at its bottom portion, an upwardly and forwardly slanted wall extending to a transverse wall which extends back from the front edge of the tree-leg; a back piece operatively connected with the tree-leg; a spring which presses the back piece toward the tree-leg; a back-piece distender which moves the back piece rearwardly against the tension of said spring; means for operatively connecting a tree-foot to the tree-leg; and a tree-foot having a rear end which slants from the bottom of the tree-foot upwardly and forwardly to the top of the tree-foot, and containing within itself the shank portion of the complete tree.

5. In a boot or shoe tree, the combination of a tree-leg having an obtuse-angle recess for reception of the correspondingly-shaped rear end portion of the tree-foot; a tree-foot, the rear end and top of which form an obtuse angle; means for operatively connecting the tree-leg and tree-foot; a back piece operatively connected with the tree-leg; a spring which presses the back piece toward the tree-leg; and a back-piece distender which moves the back piece rearwardly against the tension of said spring.

6. In a boot or shoe tree, the combination of a tree-leg having a transverse wall extending rearwardly from its front edge and a thence downwardly and rearwardly extending wall; a tree-foot containing within itself the sole and shank portion of the apparatus; means for operatively connecting the tree-leg and tree-foot; a back piece; means for operatively connecting the tree-leg and back piece; a spring which presses the back piece toward the tree-leg; and a back-piece distender which moves the back piece rearwardly against the tension of said spring.

7. In a boot or shoe tree, the combination of a tree-leg; a tree-foot; a back piece; a spring which presses the back piece toward the tree-leg; a back-piece distender which moves the back piece rearwardly against the tension of said spring; the tree-foot being movable up and down on the tree-leg and, when adjusted from a higher to a lower position thereon, moving downwardly and simultaneously receding; means for holding the tree-foot in its higher position; and means for holding it in its lower position.

8. In a boot or shoe tree, the combination of a tree-leg; a tree-foot movable up and down on the tree-leg; a back piece; a spring which presses the back piece toward the tree-leg; means for operatively connecting the back piece to the tree-leg; a back-piece distender which moves the back piece rearwardly against the tension of said spring; and means for operatively connecting the tree-foot with the tree-leg; the rear end of the tree-foot slanting upwardly and forwardly from its bottom; and the path of said rear end, when the tree-foot is moved, being in approximate parallelism with the rear side of the heel portion of the back piece.

9. In a boot or shoe tree, the combination of a tree-leg having its shin and thence-upwardly-extending part and its web integral, the front face of the web being provided with a lengthwise-extending stationary rib, and being slanted downwardly and rearwardly to the bottom of the web from a transverse shoulder which extends rearwardly from the front edge of the tree-leg at the bottom of the shin portion thereof; with a back piece; a spring which presses the back piece toward the tree-leg; means for operatively connecting the back piece to the tree-leg; a back-piece-distending mechanism, which moves the back piece rearwardly against the tension of said spring; and a one-piece tree-foot having a groove vertically of its rear end and a catch member within said groove, near the upper end thereof; the rear end of the tree-foot being of the same length as the web; and the tree-foot having a top surface which bears against said shoulder below the shin part of the tree-leg; means for engaging said catch member to lock the tree-foot against the front face of the web and against said shoulder; and means for engaging said catch member to hold the tree-foot in its lower position on the tree-leg; the bottom of the web, and the bottom of the one-piece tree-foot being in line and forming forward of the back piece, when the tree-foot is in its highest position, a continuous bottom which conforms to and continuously supports the inner side of the boot or shoe sole forwardly of its heel portion to the toe thereof, during the treeing operation.

10. In a boot or shoe tree, the combination of a tree-leg having its shin and thence-upwardly-extending part and its web integral, the front face of the web being provided with a lengthwise extending stationary web, and being slanted downwardly and rearwardly to the bottom of the web from a transverse shoulder which extends rearwardly from the front edge of the tree-leg, at the bottom of the shin portion thereof; with a back piece; a spring which presses the back piece toward the tree-leg; a back-piece-distending mechanism which moves the back piece rearwardly against the tension of said spring; and a one-piece tree-foot having vertically of its rear face a groove to receive said stationary rib and provided with a catch member near its upper end; means to engage said catch member to hold the tree-foot in its highest position; and means to engage said catch member to hold the tree-foot in its lowest position.

11. In a treeing-machine, the combination of tree-carrier with a plurality of trees mounted in said carrier and therein rotatable on their lengthwise axes; a vertical journal supporting said carrier which is rotatably mounted thereon; means for automatically locking said carrier on its journal; a slide-plate in said carrier for each tree therein mounted; each tree comprising a tree-leg; a tree foot; a back-piece-distending mechanism connected with a slide-plate; each distending mechanism comprising a spring against the tension of which the back piece is moved away from the tree-leg; means for automatically locking each slide-plate at any position in its movement which causes the distending operation of the said distending mechanism; means for locking the tree-foot in a higher position on the tree-leg; means for holding the tree-foot in a lower position on the tree-leg; and a slide-plate-actuating mechanism common to all the slide-plates, and under the control of the operator.

12. In a treeing-machine, the combination of tree-carrier with a plurality of trees mounted in said carrier and therein rotatable on their lengthwise axes; a vertical journal supporting said carrier which is rotatably mounted thereon; means for automatically locking said carrier on its journal; a slide-plate in said carrier for each tree therein mounted; each tree comprising a tree-leg; a tree-foot; a back-piece-distending mechanism connected with a slide-plate; each distending mechanism comprising a spring against the tension of which the back piece is distended; means for automatically locking each slide-plate at any position in its movement which causes the distending operation of the said distending mechanism; means for locking each tree-foot in a higher position on the tree-leg; and a slide-plate-actuating mechanism common to all the slide-plates, and under the control of the operator; said actuating mechanism and slide-plate comprising mechanisms which cooperate to effect the au-

tomatic locking of each slide-plate when the slide-plate is moved to effect the distending operation; and which, on another movement of said actuating mechanism, coöperate to unlock said slide-plates.

13. In a boot or shoe tree, the combination of a tree-leg having a tree-foot socket with a back piece; means for coupling the tree-leg and back piece; means for moving the back piece away from the tree-leg; a tree-foot having in its rear wall a vertical groove and a catch member therein; a catch for said catch member, the catch being pivoted to the tree-leg between the ends of the tree-leg; means for moving the catch to interlock with said catch member; and a hooked rib rigid on the tree-leg and projecting from the front face of said socket into the groove of the tree-foot, said rib having a hook end extending part way toward the outer end of the catch; the rear face of the tree-foot, at each side of said groove, bearing on an integral downwardly-projecting web of the tree-leg.

14. In a boot or shoe tree, the combination of a tree-leg having a tree-foot socket with a back piece; means for coupling the tree-leg and back piece; means for moving the back piece away from the tree-leg; a tree-foot having a vertical groove in its rear surface and a catch member therein; a catch for said catch member, the catch being pivoted to the tree-leg between the ends of the tree-leg; means for moving the catch to interlock with said catch member; and a hooked rib rigid on the tree leg and projecting from the front face of said socket into said groove of the tree-foot, said rib having a hook end extending part way toward the outer end of the catch; the rear face of the tree-foot, at each side of said groove, bearing on an integral, downward extension of the tree-leg; and said integral downward extension sloping downwardly and rearwardly from the top wall of said socket to a point rearward of the shank portion of the tree-foot.

15. In a boot or shoe tree, the combination of a lengthwise-chambered tree-leg having a socket for a tree-foot, a stationary rib projecting from the front face of the socket, a recess for a back piece, and a fixed hook in the rib of the socket for the tree-foot; a pivoted catch projecting into said socket in line with said hook, and having a tailpiece within the chamber of the tree-leg; a tree-foot having a vertical groove in its rear face and a catch member in said groove; a back piece having its inner portion provided with an open-slotted tang formed with projections; a projection from the tree-leg, said projection being formed with inclined grooves to permit the passage of the projections on said tang; and a lengthwise-reciprocating back-piece distender mounted in said tree-leg and having a cam-surface, the back-piece distender engaging a cam-surface on the back piece to move the same away from the tree-leg and the cam-surface of the distender engaging said tailpiece to lock the tree-foot; and a tension mechanism for the back piece.

16. In a boot or shoe tree, the combination of a lengthwise-chambered tree-leg having a tree-foot socket; a tree-foot and mechanism for locking and unlocking the tree-foot, with a back piece which comprises an open-slotted tang; a projection on the tree-leg above the inner end of the back piece; a tension mechanism for the back piece; and means for moving the heel part of the back piece away from the tree-leg; said tang having inward projections near the mouth of its slot and the projection from the tree-leg having grooves which extend from near the tree-leg and are inclined rearwardly to permit the passage of said projections.

17. In a boot or shoe tree the combination of a lengthwise-chambered tree-leg with a lengthwise-reciprocating back-piece distender mounted therein, the tree-leg and distender having a coöperating connection, and the distender being provided at its rear side with an antifriction-roll and at its front side with a cam-surface; a back piece having on the inner surface of its heel portion a recess formed with a rearwardly-inclined surface against which the antifriction-roll works to move the back piece outwardly, and the back piece having an open-slotted tang; a projection on the tree-leg adapted to receive said open-slotted tang to effect a detachable union of the back piece with the tree-leg; a tension mechanism for the back piece; a tree-foot and means for locking a tree-foot on the tree-leg; the cam-surface of the distender coöperating with said tree-foot-locking mechanism.

18. In a boot or shoe tree, the combination of a tree-leg having a tree-foot socket provided with a hooked rib projecting from the front face of said socket and connected with the tree-leg by a tongue-and-grooved connection; a pivoted catch having its upper end within the tree-leg and its front end projecting toward said hook and inwardly curved; the catch and upper part of said rib having a tongue-and-grooved connection.

19. The combination with a lengthwise-chambered tree-leg; a back piece; a tree-foot; means for holding the back piece in operative relation to the tree-leg; and means for locking the tree-foot on the tree-leg, and means for moving the back piece away from the tree-leg; of a tree-holder having a chambered tree-carrying arm; means for coupling said arm and tree-leg; a slide-plate mounted in and reciprocating lengthwise of said arm; a connection between said slide-plate and the means for moving the back piece and for locking the tree-foot; means under the control of the operator for moving said slide-plate and connections inwardly; means for locking said slide-plate automatically in any of its different positions; said means, comprising a pawl pivoted on said slide-plate; a rack-plate fast on said arm; and means to keep the pawl in engagement with said rack; means for automatically unlocking said slide-plate; and means for automatically returning said slide-plate to its starting position.

20. The combination of a tree-carrying arm with a slide-plate mounted therein and adapted to reciprocate lengthwise thereof and to be connected to a tree; a spring against the tension of which the slide-plate is moved away from the tree-carrying end of the arm; a rack-plate fast on said arm; a slide-bar mounted in said slide-plate; a pawl pivoted to said slide-bar; means for keeping the pawl in engagement with the rack-plate; a pusher under the control of the operator for pushing said slide-plate away from the outer end of said arm and to hook the slide-plate in desired position by engagement of said pawl and rack; means for automatically returning said pusher to position of rest; said pusher being provided with means which, at its next contact with said slide-plate, automatically moves said slide-bar to release the pawl from the rack and permit the return of the slide-plate to starting position.

21. The combination of a tree-carrying arm with a slide-plate mounted therein and adapted to reciprocate lengthwise of said arm; the slide-plate having a projection for connection with a boot or shoe tree and also a reciprocating bar mounted in said slide-plate lengthwise thereof; a spring engaging said slide-plate; a rack on the arm; a pawl pivoted on said bar; means for keeping the pawl in working position with relation to the rack; a movable ratchet-wheel carrier, under the control of the operator: a rotary ratchet-wheel rotatively mounted in said carrier and having alternating peripheral recesses and solid peripheral parts; an automatically-acting push-pawl for said ratchet-wheel; the ratchet-wheel being rotated intermittently by contact with said pawl, when said slide-plate is not in contact with said ratchet-wheel; a projection on said reciprocating bar, received in one of said recesses in said ratchet-wheel; said carrier being movable away from said slide-plate and its bar without unlocking the slide-plate; and the ratchet-wheel, as the carrier moves back, being turned to bring a solid part thereof against said projection to move said slide-bar inwardly in relation to the slide-plate itself and thereby unlock the pawl from the rack-plate and permit the slide-plate to return to starting position.

22. The combination of a tree-carrying arm; a slide-plate mounted therein and having means for connecting it with a tree mounted in said arm; means for locking the shoe-plate in different positions in said arm; means for automatically unlocking said slide-plate; a bell-crank lever; a treadle, treadle-rod and return-spring for said lever; a ratchet-wheel rotatively mounted on said lever, in the path of said slide-plate and having alternating peripheral recesses and solid peripheral parts; a push-pawl carried by said lever; a rod attached to said push-pawl; a spring to keep the push-pawl in working position with relation to the ratchet-wheel; the end of said rod engaging an abutment to move the rod in its upward rectilinear movement; a spring to retract the rod and pawl; said solid parts of the ratchet-wheel engaging the unlocking mechanism to operate the same, and the recesses of the ratchet-wheel permitting the lever-arm which carries the ratchet to be moved against the slide to push the same into a locked position without contact with the unlocking mechanism.

23. The combination of a tree-carrier having a hub and a plurality of chambered tree-carrying arms with a journal on which the hub is rotatively mounted; a hub-locking mechanism under the control of the operator; coöperating stop-forming abutments between the hub and journal frame; and a lever and mechanism carried thereby for coöperation with mechanism contained in each arm, said lever projecting above the under sides of said arms; the inner sides of the arms being recessed on the under side to permit the arms to pass over the upper end of said lever and contained mechanism; the locking device holding an arm in adjusted position with the lever mechanism in the chamber of the arm.

693,467. LIFTING-BRIDGE. MONTGOMERY WADDELL, New York, N. Y. Filed Oct. 1, 1901. Serial No. 77,181. (No model.)

Claim.—1. In a bascule-bridge, a counterweight and a guideway for the same fixed on said bridge and extending upward from near the center of movement of said bridge when the same is closed.

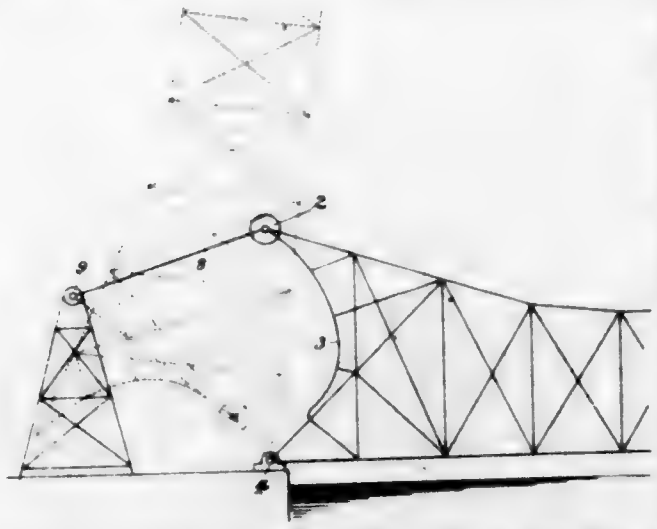
2. In a bascule-bridge, a counterweight, a guideway for said counterweight on said bridge extending upward from near the center of movement of said bridge when the same is closed and means attached outside of said bridge for directing the movement of said counterweight upon said guide.

3. In a bascule-bridge, a counterweight, a guideway therefor on the bridge and a flexible cable anchored outside of the bridge for limiting the movement of said counterweight upon said guide.

4. In a bascule-bridge, a counterweight, means fixed to said bridge for guiding said counterweight, and a flexible cable coöperating to support said counterweight.

5. In a bascule-bridge, a counterweight, a guideway therefor fixed to the bridge, a flexible cable attached to said counterweight and anchored

outside of the bridge and a pulley on the bridge over which said cable passes.



6. In a bascule-bridge, a movable-pulley counterweight and a guideway fixed to said bridge for guiding said counterweight.

7. In a bascule-bridge, a counterweight, a flexible cable attached to said counterweight at one end and anchored at the other end and a guiding means for said counterweight fixed to the bridge making a varying angle with said cable during movement of the bridge.

8. In means for raising bascule-bridges, an anchorage, a connecting device rotatably fixed thereto for transmitting the operating strain and power-transmitting means attached to the end of said connecting device directly tending to make said end travel along a predetermined path on said bridge.

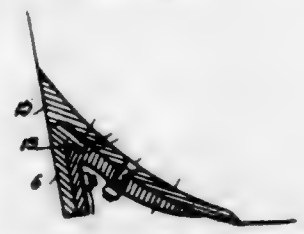
9. In a means for raising bascule-bridges, a rack on the bridge, a traveling gear-wheel engaging therewith, a motor for turning said gear and means anchored pivotally outside of said bridge carrying said gear.

10. In a means for raising bascule-bridges, a rack on the bridge, a traveling gear-wheel engaging therewith, a pivoted operating-arm carrying said gear-wheel, a motor outside of said bridge and transmitting means between said motor and gear-wheel carried by said operating-arm.

11. In a bascule-bridge, a counterweight, a guideway therefor, two pulleys on said bridge and a flexible cable passing over said pulleys and attached to said counterweight and to an anchorage outside of said bridge at its two ends respectively.

12. In a bascule-bridge, a counterweight, a guideway therefor, two pulleys on the bridge, a pivoted operating-arm and a flexible cable passing over said pulleys attached at one end to said counterweight and at the other end to said operating-arm.

693,468. PLOW. CHAPIN WAGNER, Indianapolis, Ind. Filed Oct. 5, 1901. Serial No. 77,728. (No model.)



Claim.—1. In a plow, the combination of a standard having a gain in its front edge, with a landside having at its front end a laterally-extending flange bearing on the said gained front edge of the standard, substantially as described.

2. In a plow, the combination of a standard having a gain and a tongue in its front edge, with a landside having at its front end a laterally-extending flange bearing on the said gained front edge of the standard, said flange having a groove formed therein, to receive the said tongue of said standard and thereby interlock the front edge of the standard and the front end of the landside, substantially as described.

3. In a plow, the combination of a standard having a gain and a tongue in its front edge, with a landside having at its front end a laterally-extending flange bearing on the said gained front edge of the standard, said flange having a groove formed therein, to receive the said tongue of said standard and thereby interlock the front edge of the standard and the front end of the landside, said groove and tongue being correspondingly beveled to form a dovetailed joint between said flange and said gained edge of the standard, substantially as described.

4. In a plow, the combination of a standard having a gain in its landside-face, and an overhanging flange over said gain, said flange having a descending bevel, with a landside fitting in said gain and having its upper edge beveled to correspond with said beveled flange of said standard to form a dovetail or wedge joint between said standard-flange and said landside, substantially as described.

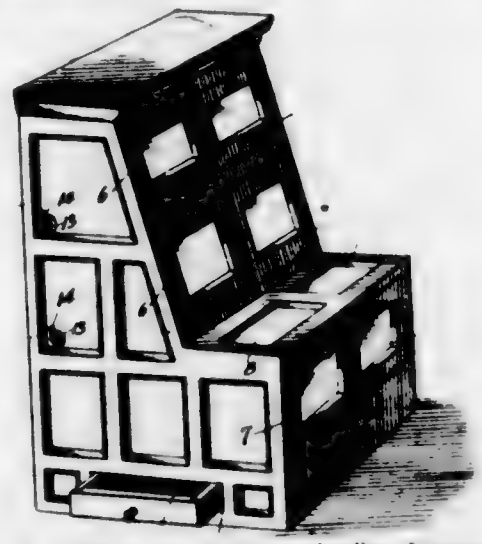
5. In a plow, the combination of a standard having a gain in its front edge, a gain in its landside-face, and an overhanging flange over said last-mentioned gain, with a landside in said landside-gain and bearing under said flange, said landside having a laterally-extending flange at its front end, fitting in and engaging said gain in the front edge of said standard, whereby the landside and standard are interlocked to prevent the landside from moving upwardly or rearwardly on the standard, substantially as described.

6. In a plow, the combination of a standard having a gain in its front edge, a gain in its landside-face, and an overhanging flange over said last-mentioned gain, with a landside in said landside-gain and bearing under said flange, said landside having a laterally-extending flange at its front end, fitting in and engaging said gain in the front edge of said standard, whereby the landside and standard are interlocked to prevent the landside from moving upwardly or rearwardly on the standard, and a point overlapping the joint between said standard and said landside-flange, said point having a flange bearing on the front edges of said standard and said landside, substantially as described.

7. In a plow, the combination of a standard having a gain in its front edge, a gain in its landside-face, and an overhanging flange over said last-mentioned gain, with a landside in said landside-gain and bearing under said flange, said landside having a laterally-extending flange at its front end, fitting in and engaging said gain in the front edge of said standard, whereby the landside and standard are interlocked to prevent the landside from moving upwardly or rearwardly on the standard, and a point overlapping the joint between said standard and said landside-flange, said point having a flange bearing on the front edges of said standard and said landside, said point and said landside having angular abutting shoulders at the lower front corner of said landside, substantially as described.

8. In a plow, the combination of a standard having a projecting tongue, with a point secured on the standard and having a lug on its under side to engage the front and under sides of said tongue, and thereby form an interlocked connection between said point and standard, substantially as described.

693,469. TOBACCO-CASE. WILLIAM H. WAGNER and GEORGE H. SAFTERS, Albany, Wis. Filed June 13, 1901. Serial No. 64,459. (No model.)



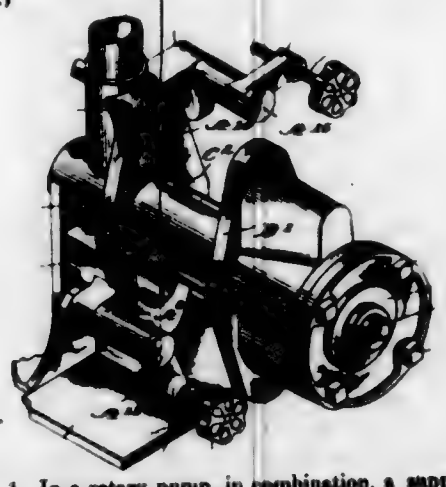
Claim.—1. A tobacco-case, having a plurality of superposed compartments, of which the bottom of the lowermost compartment is provided with perforations, and the bottoms of the other compartments have externally-controlled valves, and a liquid-receptacle located below the perforate bottom of the lowermost compartment.

2. A compartment tobacco-case having a moistening means in the bottom thereof, and bottom partitions for upper compartments having the rear edge portions cut off longitudinally to form elongated valves which are exteriorly operative to open and close communication between the upper compartments and the lower moistening means, the meeting edges of the valves and the bottom partitions being reversely beveled to form flush joints.

3. A compartment tobacco-case, having a plurality of horizontal partitions dividing the case into superposed compartments, the lowermost partition being perforate and located adjacent to the bottom of the case, doors for the respective compartments, a removable liquid-receptacle below the perforate partition, each of the other partitions having a back rocking section, the meeting edges of the partition-sections being beveled to form an overlapped joint, the back edge of the rocking section fitting snugly the back of the case and also beveled to correspond with the front edge of the section, and rotatable journals carried by opposite ends of the rock-

ing section, projected through the adjacent sides of the case, and provided with external handles.

698,470. ROTARY PUMP. GEORGE A. WALKER, Chicago, Ill., assignor to the Creamery Package Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 27, 1901. Serial No. 57,733. (No model.)



Claim.—1. In a rotary pump, in combination, a supporting-frame having a face-plate with intake and discharge openings therein; a pump-cylinder having a face-plate with intake and discharge ports, which ports are adapted to coincide with the openings in the face-plate of said supporting-frame; a head for said cylinder; a bearing-bushing in said cylinder-head; a rotatable shaft journaled in said supporting-frame and in said bearing bushing; a pump-head secured to said shaft, which pump-head comprises vanes slidably mounted in openings extending through said pump-head; and pivotal arms having screws for detachably securing the complete cylinder to said supporting-frame.

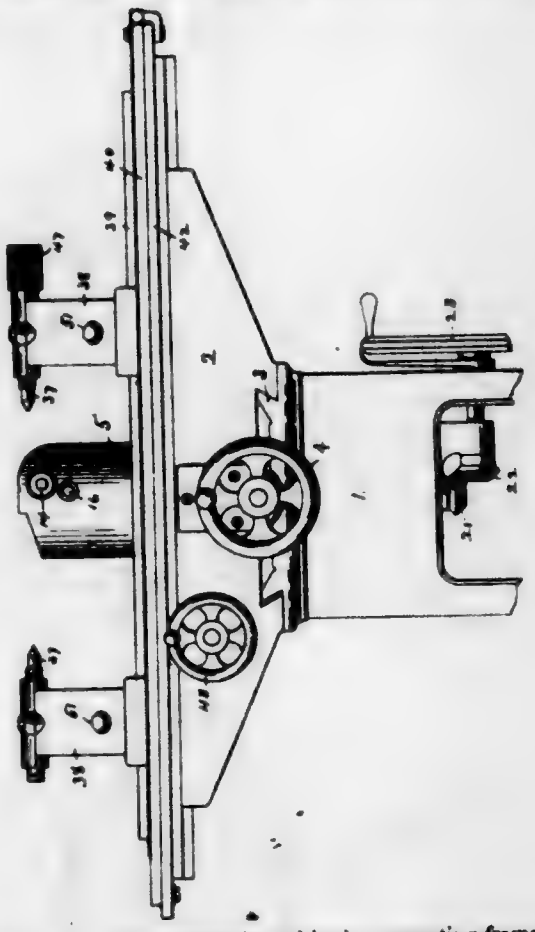
2. In a rotary pump, in combination, a supporting-frame having a face-plate with intake and discharge openings therein, which openings communicate with intake and discharge pipes; a rotatable pump-head journaled in said supporting-frame; a pump-cylinder; two pockets adjacent to said cylinder, and having communication with the interior thereof, one of said pockets also having communication with the intake-opening and the other with the discharge-opening in the supporting-frame; and means on the supporting-frame adapted to detachably secure the complete cylinder to said supporting-frame.

3. In a rotary pump, in combination, a supporting-frame having a face-plate with intake and discharge openings therein, which openings communicate with intake and discharge pipes; a rotatable pump-head journaled in said supporting-frame; a pump-cylinder having a face-plate adapted to lie in contact with the face-plate upon the supporting-frame; two pockets upon opposite sides of said cylinder, formed integral therewith and communicating with the interior thereof, one of said pockets also communicating with the intake-opening and the other pocket with the discharge-opening in the supporting-frame; and two arms pivotally mounted upon the supporting-frame adapted to hold the complete cylinder in engagement with the face-plate of the supporting-frame.

4. In a rotary pump, in combination, a supporting-frame having a face-plate with intake and discharge openings therein, which openings communicate with intake and discharge pipes secured to said supporting-frame; a shaft rotatably mounted in said supporting-frame and extending from said face-plate intermediate with the intake and discharge openings; a pump-head secured to said shaft; a pump-cylinder having a face-plate adapted to engage the face-plate of the supporting-frame; two pockets upon opposite sides of said cylinder, formed integral therewith and communicating with the interior thereof, one of said pockets also communicating with the intake-opening and the other with the discharge-opening in said supporting-frame; a head for said cylinder; a bearing-bushing in said cylinder-head for said shaft; and two arms pivotally secured to said supporting-frame, having hand-screws adapted to impinge upon the reverse side of said face-plate to hold said face-plate of the cylinder in firm contact with the face-plate of the supporting-frame.

5. In a rotary pump, in combination, a supporting-frame having a face-plate substantially lozenge shape, with intake and discharge openings near the extremities thereof, which openings communicate with intake and discharge pipes; a rotatable shaft journaled in said supporting-frame and projecting through an opening near the center of said face-plate; a pump-cylinder having a face-plate coinciding substantially with the face-plate of the supporting-frame; two pockets adjacent to said cylinder and formed integral therewith, which pockets have communication with the interior of the cylinder, one of said pockets also having communication with the intake-opening and the other pocket with the discharge-opening in the face-plate of the supporting-frame; guide-pins for holding said cylinder in position with relation to the face-plate of said supporting-frame; a head for said cylinder; a bearing-bushing in said cylinder-head; and two arms pivotally mounted upon the supporting-frame and having hand-screws for impinging upon the rear face of the face-plate of the cylinder for detachably securing said cylinder to said supporting-frame.

698,471. GRINDING-MACHINE. OAKLEY S. WALKER, Worcester, Mass. Filed Aug. 18, 1900. Serial No. 27,396. (No model.)



Claim.—1. The combination with the supporting-framework, of a shell capable of a vertical adjustment on said framework and also capable of turning about a vertical axis, an adjusting-screw coincident with the axis of said shell, by which said shell is vertically adjusted, an arbor journaled in said shell and a grinding-wheel carried in said arbor, substantially as described.

2. The combination in a grinding-machine of a revolving arbor, and a grinding-wheel carried by said arbor, a frame supporting said arbor and capable of being turned about an axis at right angles to the axis of said arbor, a belt-pulley carried by said arbor, and an idle pulley for maintaining the driving-belt with the center line of its driving side coincident with the axis of rotation of said supporting-frame, substantially as described.

3. The combination of the rotating shell 5, a grinding-wheel arbor journaled therein, said shell being capable of turning about an axis at right angles to the axis of said arbor, a belt-pulley on said arbor, a pulley journaled on a fixed stud in position to wrap the driving-belt on said driving-pulley and to receive the belt in a plane coincident with the axis of said shell and a pulley by which the direction of the belt is reversed, substantially as described.

4. The combination with a head and an arbor journaled therein, said head being capable of turning about an axis at right angles to the axis of said arbor, a driving-pulley on said arbor to receive a driving-belt, an idle pulley by which the belt is wrapped around said driving-pulley, and a second idle pulley by which the direction of the belt is changed, substantially as described.

5. The combination of a head and an arbor journaled therein, said head being capable of turning about an axis at right angles to the axis of said arbor, a driving-belt, an idle pulley by which the belt is wrapped around said driving-pulley, a second idle pulley by which the direction of the belt is changed, and means for vertically adjusting said head independently of the position of said second idle pulley, substantially as described.

6. The combination with a revolving arbor and a belt-pulley carried thereon, of a pulley on a fixed stud in position to wrap the belt on said driving-pulley, a pulley by which the direction of the belt is changed and means for exerting a pulling strain on the latter pulley to take up the slack in the belt, substantially as described.

7. In a grinding-machine the combination with a grinding-wheel, of a plate capable of a longitudinal movement past the grinding-wheel, of a table pivotally connected with said plate, whereby it is capable of being rocked thereon, and means carried by said table in its rocking move-

ment for adjustably holding said table in position, substantially as described.

8. The combination with the plate 42, table 40 pivoted thereon, of slots 52 and 53, bolts 54 and 55, clamping-plates 56 and 57, washer 58, lugs 61, 62, adjusting-screws 59 and 60 and an arm 63, whereby the said table is adjusted on its pivotal connection with said plate, substantially as described.

9. In a grinding-machine, the combination with a screw-threaded work-supporting center and a screw-threaded sleeve holding said center, of a screw-threaded collar engaging both said sleeve and said center and having its screw-threads of different pitch, whereby said center is moved longitudinally in its sleeve by the rotation of said collar, substantially as described.

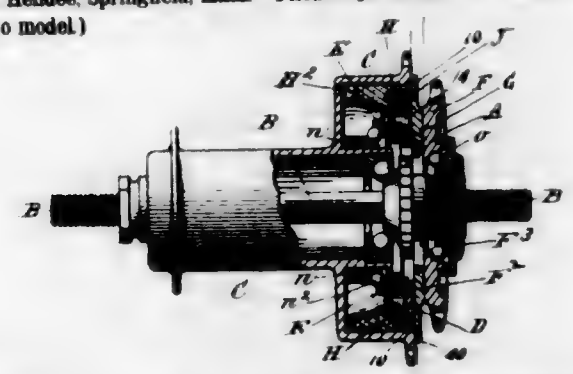
10. The combination of the vertically-adjustable frame 70, a jaw 69 held in said frame, and screws 75 and 76 by which said jaw is adjusted to bear evenly upon the work, substantially as described.

11. The combination of a hollow or tubular supporting-head, an arbor journaled therein and provided with a driving-pulley, and a pair of idle pulleys journaled within said tubular head, substantially as described.

12. The combination of a tubular head, an arbor journaled therein and provided with a driving-pulley, an idle pulley supported by said head by which the belt is wrapped around said driving-pulley, a second idle pulley by which the direction of the belt is changed, a support for said second idle pulley within said tubular head, and having a spline connection therewith, substantially as described.

693,472. COASTER AND BRAKE MECHANISM FOR CYCLES.

GEORGE T. WARWICK, Springfield, Mass., assignor of one-half to George M. Hendee, Springfield, Mass. Filed May 21, 1900. Serial No. 17,355. (No model.)



Claim.—1. In a driving mechanism for a bicycle or other vehicle, in combination, a rotary driver, as a sprocket-wheel, the hub of the wheel to be driven, and a fixed axle about which the driven wheel turns, a support-ring normally free or disconnected from the axle and from the wheel-hub, a clutch part pivotally mounted on said ring, engaged and actuated by the sprocket-wheel, whereby a propulsive force on the driver-sprocket establishes and maintains a connection for power transmission through such engagement member between the sprocket or driver and the wheel to be driven.

2. In a driving and free-coaster mechanism for a bicycle or other vehicle, in combination, a rotary power element or driver, as a sprocket-wheel, a part to be rotatably driven, as the wheel-hub, and a fixed part or axle about which the latter turns, a supporting-ring normally free relatively to the axle and the driven wheel, the shiftable engagement member mounted on, and also having an independent movement relatively to, the ring, having a slot or recess between the opposite walls of which engages a projection which is on, and has a revoluble movement with, the driver-sprocket, for the purpose set forth.

3. In a driving mechanism for a bicycle, or other vehicle, in combination, a rotary power element, or driver-sprocket, the wheel to be rotatably driven, having a flanged internally-toothed hub, a fixed axle, about which the driven wheel turns, the supporting-ring, the pawl or engagement member mounted on the ring, and also having a movement independently relatively thereto, and provided with a toothed extremity, and a projection of the driver having an actuating engagement with the said pawl, for the purpose set forth.

4. In a driving free-coaster and brake mechanism for cycles, in combination, a wheel to be driven, an axle or fixed part about which it rotates, a rotatable driver, normally free relatively to the axle and the driven wheel, a braking device adapted to bind against the driven wheel, a supporting-ring located within the hub of the driven wheel, and normally free and disconnected from the axle and the said driven wheel, a shiftable engagement member mounted on and also movable relatively to said supporting element and engaged and controlled by the driving element for connecting the driving to the driven wheel, on a forward pressure of the driver, and for insuring a release of such connection on a release of the propulsive force on the driver, means controlled by the driver at the cessation of its propulsive force for locking the supporting element to the axle, and a part carried by the driver for forcing, on a reversed thrust imparted thereto, the braking device into engagement with the driven wheel, as set forth.

5. In a mechanism of the character described, the combination with the fixed axle, the wheel-hub rotatable thereabout, and the sprocket-wheel, loosely rotatably mounted relatively to the axle and unaffixed to the hub, a hub-engagement member, and the supporting-ring E therefor, located within the hub of the driven wheel, and normally loose relatively to both the said hub and the axle, on which said engagement member has a connection, and relatively to which it has a motion to engage and disengage the hub, and means for causing an engagement between the driving-wheel and said hub-engaging member, whereby such member serves as a connecting medium between the driven wheel and the hub, and whereby the said support necessarily turns in unison therewith.

6. In a mechanism of the character described, in combination, a rotary driver, a wheel to be driven, an axle about which it turns, the driver being normally free relatively to both the driven wheel and axle, a supporting member E unattached to the driven wheel and axle, a pawl mounted on said support member and having an independent movement relatively thereto and adapted to engage and disengage the driven wheel, a part on the driver, engaging and actuating the pawl, a dog mounted on, and movable relatively to, said support member E, with which part the rotary driver engages.

7. In a mechanism of the character described, in combination, a rotary driver, a wheel to be driven, an axle about which it turns, the driver being normally free relatively to both the driven wheel and axle, a supporting member E unattached to the driven wheel and axle, a pawl mounted on said support member and having an independent movement relatively thereto and adapted to engage and disengage the driven wheel, a part of the driver, engaging and actuating the pawl, a dog mounted on, and movable relatively to, said support member E, with which a part of the rotary driver engages for placing it while the driver is under a forward strain, out of engagement with the axle, and for insuring its axle engagement on the release of such driving force, a brake or binding device, having a part thereof connected to the support E, and a member of the rotary driver for engaging same and placing it in engagement with the driven wheel on a reversed thrust of the rotary driver.

8. In a mechanism of the character described, in combination, a fixed axle or wheel support, the wheel to be driven, rotatable thereabout, a rotary driver, a support member E unattached to the axle and the driven wheel, a pawl pivoted thereon and also movable relatively thereon, and engaged by a part of the rotary driver, means for locking said support against rotation on the release of the driving force of the rotary driver, a brake device also pivoted to the said support member and actuated by the rotary driver, and a secondary device actuated by the rotary driver at the initial part of its driving thrust for crowding the brake device which is connected to said support E in to bind with the driven wheel, whereby a certain resistant for the action of the pawl relatively to the support and the hub is acquired.

9. In a coaster and brake mechanism, in combination, a wheel-hub, and a driving wheel or sprocket mounted to rotate freely relatively to the hub, a support-ring freely mounted adjacent the hub, a brake-ring adapted for expansion mounted on said supporting-ring, an abutment for constituting a resistance between a portion of the brake-ring and the support-ring, a device actuated by the forward pressure of the driver mounted on the support-ring, for engaging the driver and hub, and a part of the driver arranged relatively to the brake-ring, and adapted to operate on a reversed motion of the driver-wheel relatively to the hub to expand the brake-ring.

10. In a mechanism of the character described, the combination with the axle, the hub of the driven wheel rotatable thereabout, and provided with the internal series of teeth 10, and the sprocket-wheel loosely mounted relatively to the axle and the hub, the support-ring E, the pawl or engagement member D pivotally mounted for swinging movement on the support-ring and also movable bodily in unison with the ring, and having in one member thereof the slot or recess 13, and having its other member toothed, or serrated, as shown, a stud *a* projecting from the sprocket-wheel and engaging in said recess and operating by the motion of the sprocket-wheel to cause the engagement and disengagement of the pawl D.

11. In a mechanism of the character described, in combination, the axle B having the toothed wheel A fixed thereon, the hub of the wheel to be driven rotatable about the axle, the sprocket-wheel loosely mounted relatively to both, the axle and the hub, the support-ring E located adjacent and unattached to the hub and having the engagement member D mounted thereon and also having pivotally mounted thereon the swinging part, or dog, G provided with teeth and having the cam-slot 15, these studs *a* and *b* mounted on the sprocket-wheel and respectively engaging the pawl D and the cam-slotted dog G, the split brake-ring having a part thereof an anchorage or abutment against a projection of the supporting-ring, and a stud also mounted on the sprocket-wheel and operating against

a portion of the brake-ring to expand the same on a reverse thrust being imparted to the sprocket-wheel, substantially as described.

12. In a coaster and brake mechanism for a cycle, in combination, the axle having the toothed portion A, the hub of the wheel to be driven rotatably about the axle, the sprocket-wheel A loosely mounted relatively to both the axle and hub and provided with the studs or extensions *a*, *b*, *c*, and *k*, the support-ring E having the pawl D pivotally mounted thereon and having the slot 13 in which engages said stud *a*, the engaging member or dog G pivotally mounted on the ring and having the cam-slot 15 in which engages said stud *b*, the brake-ring having a portion anchored to the ring and having an opposite portion engaged by said stud *c*, the spring J anchored to the ring, and having a portion thereof in engagement with the brake-ring and having a cam-surface *m* with which engages the aforesaid stud *k*, all substantially as and for the purposes set forth.

13. In a coaster and brake mechanism for a cycle, in combination, the fixed axle 13 having the cone F^3 thereon, the hub of the wheel to be driven provided with the cup-shaped extremity provided therein with the cone *n*, the sprocket-wheel loosely mounted and having between it and the aforesaid cone F^3 a series of balls, the supporting-ring E mounted within the cup-shaped extremity of the hub and having between it and the aforesaid cone *n* a series of balls, the pawl D and the dog G pivotally mounted on said support-ring, the brake-ring H having by a portion thereof a connection with said ring, and the spring J also mounted on the support-ring and having an engagement with the brake-ring, and the four actuating-studs *a*, *b*, *c*, and *k* mounted on the sprocket-wheel and respectively engaging the pawl, dog, brake-ring, and spring, for the purposes set forth.

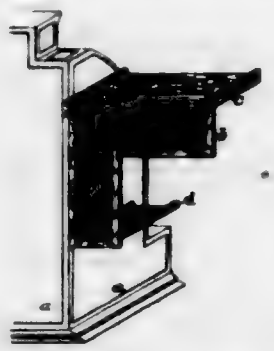
14. In a coaster and brake mechanism, for a cycle, in combination, the fixed shaft or axle B, the hub of the wheel to be driven mounted for rotation thereabout and provided with the cup-shaped end, constructed with teeth, the support-ring E located within said cup-shaped part of the hub and having mounted thereon a pawl movable in unison with the support-ring and also having a movement independently thereof to engage and disengage an internal part of the hub, a sprocket or driving wheel of the device loosely mounted relatively to the axle and the hub, and provided with the stud *a* having an engagement with the said pawl, the plate or section F^3 having a perforation through which said stud engages and beyond which it presses said plate closing the opening within the cup-shaped end of the hub, substantially as described.

15. In a mechanism of the character described, in combination, the axle B, the hub having the cup-formed extremity, the support-ring E located within said extremity and normally movable relatively to the hub, the engaging member D mounted on the ring and having a movement of its own independently thereof, a device movably mounted on the ring and adapted to engage and disengage the axle, the expanding brake-ring which by portions thereof has an anchorage against the ring, and the spring J also having a part thereof engaged with the ring, the sprocket-wheel F loosely mounted relatively to the axle on the hub, having the four studs *a*, *b*, *c*, and *k*, the detachable section or plate F^3 located next within the sprocket serving to close the opening within the cupped end of the hub and having perforations 42 through which the aforesaid studs pass to their respective engagements with the said pawl, dog, or locking device, brake-ring, and spring, substantially as described.

16. In the mechanism herein described, in combination, the axle B, having as a fixture thereof the circularly-arranged series of teeth A, the hub of the wheel to be driven rotatable about the axle and provided with the cup-shaped extremity provided with internal teeth 10 and also the internally-located cone *n*, the support-ring E located within the cupped end of the hub between which and said cone *n* are a series of balls, the pawl D having the pivot 12 connecting it and the support-ring and provided with the slot, 13, also constructed with the abutment-hub 16 concentric with said pivot 12, and having its engaging extremity formed with serrations, or teeth, the locking-dog G pivotally connected to the support-ring and having the cam-slot 15 and adapted to engage the said teeth A of the axle, the expanding brake-ring located within the cupped end of the hub, having one end thereof in abutment against said part 16 and having in another part thereof the slot c^2, the spring device J pivotally connected to the support-ring and provided with the cam-surface *m*, the sprocket-wheel loosely mounted to turn about the axle outside of and freely relatively to the hub and provided with the studs *a*, *b*, *c*, and *k* arranged as described, for the purposes set forth.

693,478. SHELF FOR CASH-REGISTERS. SAMUEL WHEELER, Peekskill, N. Y. Filed May 11, 1901. Serial No. 59,731. (No model.)

Claim.—1. A cash-register having a shelf attached thereto, consisting of a bracket hinged to the register, a shelf hinged to the top of the bracket, a jointed brace hinged to the bracket and to the shelf, and a shelf hinged to the lower inside part of the bracket, the shelves adapted to be folded upon the inside of the bracket, and the bracket and shelves adapted to be folded against the side of the cash-register, substantially as herein described.



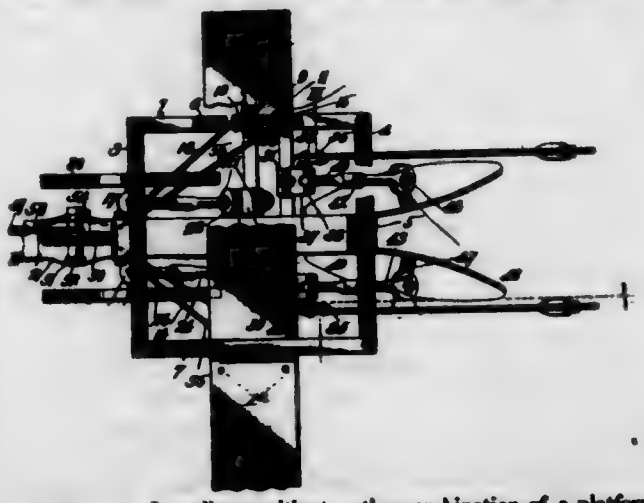
2. A cash-register having a shelf attached thereto consisting of a hinge-plate secured to the register, a bracket hinged to the said hinge-plate, a top shelf hinged to the top of the bracket, a jointed brace pivoted to the shelf and to the bracket, a bottom shelf hinged to the lower inside part of the bracket, and a stop to steady the shelf, all adapted to fold together against the side of the register as herein shown and described.

3. A cash-register having a shelf attached thereto, consisting of a hinge-plate secured to the register, a bracket vertically hinged to said hinge-plate, a shelf hinged to the top of the said bracket and adapted when in place for use to extend beyond the face of the bracket, a jointed brace hinged to the shelf and bracket, and a shelf hinged to the lower inside part of the bracket, the shelves adapted to fold upon the inside of the bracket and the whole adapted to fold against the side of the cash-register the shelves being between the bracket and the side of the register substantially as herein set forth.

4. A cash-register having a shelf attached thereto comprising a bracket vertically supported on the side of the register, a shelf hinged to and adapted to rest on the top edge of said bracket as shown, being held in place by a hinged brace, the shelf adapted to be folded against the inner side of the bracket and the whole adapted to fold against the side of the register, substantially as herein set forth.

5. A cash-register having a shelf attached thereto comprising a bracket removably hinged to the side of the register, a shelf hinged to the top and adapted to rest on the top edge of the bracket, a hinged brace to support the shelf in position, the shelf adapted to fold upon the inner side of the bracket and be folded against the register in the manner shown, or the whole adapted to be removed from the register, substantially as herein set forth.

693,474. LISTER-CULTIVATOR. AUSTIN M. WESTON, Kansas City, Mo. Filed May 2, 1901. Serial No. 58,436. (No model.)



Claim.—1. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, cultivating appliances carried by said last-named bar, a lever, and means to secure the same at the desired point of adjustment, and a link or links connecting said lever with said hinged bar, substantially as described.

2. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, cultivating appliances carried by said hinged bar and embodying pivoted plow-beams, breakable pins supporting said plow-beams rearward of their pivotal point, a lever, and means to secure the same at the desired point of adjustment, and a link or links connecting said lever with said hinged bar, substantially as described.

3. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, sleeves mounted on the hinged bar, arms projecting from said sleeves, cultivating appliances secured to said sleeves, embodying plow-beams pivoted to the sleeve-arm, breakable pins uniting said arms and plow-beams rearward of the pivotal point of the latter, a lever, and means to secure the same at the desired point of adjustment, and a link or links connecting said lever with said hinged bar, substantially as described.

4. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, sleeves mounted on the hinged bar, and provided with vertical bearings and with vertical grooves, and disk-carrying arms embodying vertical portions extending through said bearings and provided with ribs to engage certain of said grooves, substantially as described.

5. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to said frame and underlying the platform, a non-rotatable bar suspended from said frame, arms supported from said bar and provided with carrying-wheels, a companion transverse bar hinged to the first-named bar, sleeves mounted on the hinged bar, and provided with vertical bearings and with vertical grooves, angle-arms engaging said bearings and provided with ribs engaging certain of said grooves, arms rotatably secured to the lower ends of the angle-arms and provided with rosettes at their lower ends, and disk-carrying arms provided with rosettes engaging and adjustably secured to those of the last-named arms, substantially as described.

6. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, hangers depending from said frame at opposite sides of the tongue, a bar secured non-rotatably in said hangers, braces uniting the hangers with the tongue, sleeves adjustably clamped on said bar between the hangers and provided with rosettes at their front ends, and wheel-carrying arms provided with rosettes at their upper ends engaging and clamped to the rosettes of said sleeves, substantially as described.

7. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, hangers depending from said frame at opposite sides of the tongue, a bar secured non-rotatably in said hangers, braces uniting the hangers with the tongue, sleeves adjustably clamped on said bar between the hangers and provided with rosettes at their front ends, wheel-carrying arms provided with rosettes at their upper ends engaging and clamped to the rosettes of said sleeves, a second bar hinged to the first-named bar, sleeves adjustably mounted on said second bar, cultivating appliances carried by said sleeves, a lever mounted on the tongue and provided with devices to secure it at the desired point of adjustment, and a link or links connecting said lever with said hinged bar, substantially as and for the purpose described.

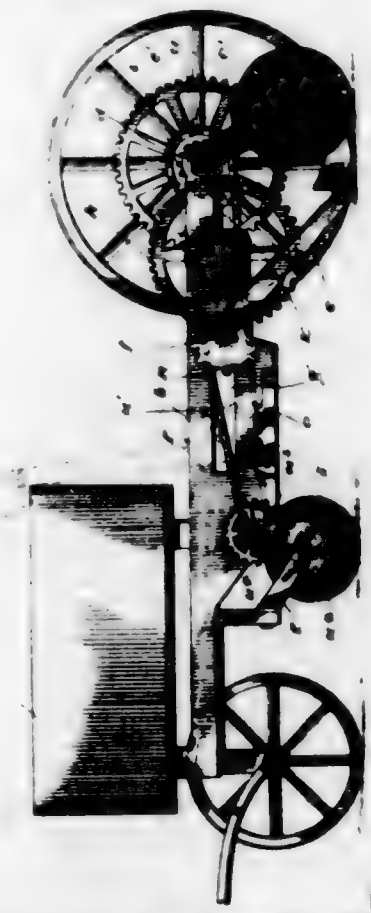
8. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, a transverse bar suspended from said frame and suitably braced from the tongue, downwardly and forwardly sloping arms adjustably supported from said bar so as to swing laterally at their front ends, and wheels carried by said arms, substantially as described.

9. In a lister-cultivator, the combination of a platform, a frame movable thereon, a tongue secured rigidly to the frame and underlying the platform, a transverse bar suspended from said frame and suitably braced from the tongue, downwardly and forwardly sloping arms adjustably supported from said bar so as to swing laterally at their front ends, and embodying an upper portion and a lower portion the latter being adjustably carried by the former, and carrying-wheels connected to the lower portion of said arm, substantially as described.

10. In a lister-cultivator, the combination of a platform, a frame movable thereon a tongue secured rigidly to the frame and underlying the platform, a transverse bar suspended from said frame and suitably braced from the tongue, and downwardly and forwardly sloping arms, adjustably supported from said bar so as to swing laterally at their front ends, and embodying an upper portion and a lower portion the latter being adjustably carried by the former, and provided with a rosette at its lower end, and embodying also a laterally-projecting portion having a rosette engaging and clamped to that of the last-named portion, and provided also with carrying-wheels, substantially as described.

693,475. STREET-SWEEPER. ZENAS WHITTEMORE, Morton, Pa. Filed June 20, 1901. Serial No. 65,233. (No model.)

Claim.—1. In a street-sweeper, the combination with the rotating brush, of a pan arranged close to and extending under the body of the brush, and means to reciprocate said pan to and from the brush and to elevate it after it has been moved away from the brush.



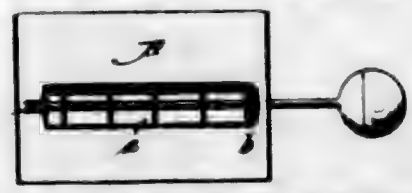
2. In a street-sweeper, the combination with the rotating brush, of a pan arranged close to and extending under the body of the brush, a rocking frame carrying said pan, and means to reciprocate said frame and to rock it upon its axis.

3. In a street-sweeper, the combination with the rotating brush, of a pan arranged close to and extending under the body of the brush, a rocking frame carrying said pan, segmental gears carried by said frame, toothed racks engaged by said gears and means to reciprocate said gears over said racks, whereby a backward and upward movement is imparted to said frame and pan.

4. In a street-sweeper, the combination with a wheeled vehicle and the rotating brush carried thereby, of a pan arranged close to and extending under the body of the brush, a rocking frame carrying said pan, means to reciprocate said frame and to rock it upon its axis, and power-transmitting connections between said means for reciprocating the frame and the running-gear of the vehicle.

5. In a street-sweeper, the combination of a wheeled vehicle provided with a receptacle for sweepings, a rotating brush, a pan arranged close to and extending under said brush, and means to move said pan backward away from said brush and then upward to discharge its contents into the receptacle.

693,476. WICK-TUBE. WILLIAM E. WILDER, Gardner, Mass. Filed Feb. 14, 1900. Serial No. 5,169. (No model.)



Claim.—1. In a wick-tube, a housing adapted to contain the spindle of a wick-raiser and an elongated bearing extending longitudinally at the end of said housing and integral therewith and having a U-shaped recess with a closed end and an open side toward the wick-space, substantially as described.

2. In a wick-tube, a housing adapted to contain the spindle of a wick-raiser and having partial bearings for the spindle located within the wick-tube and integral with the housing forming an elongated surface adapted to receive the pressure from one side of the spindle only, the opposite side being open to the wick-space, thus preventing binding of the spindle, substantially as described.

3. In a wick-tube, a housing adapted to contain the spindle of the wick-raiser with a perforation in one end of the housing through which the spindle passes and a partial bearing along one side of said perforation

for the spindle, said bearing being elongated and integral with the housing and open toward the wick-space, substantially as described.

698,477. PIANO-PEDAL. MAX G. WITTMAN, Jonesboro, Ark. Filed May 11, 1901. Serial No. 59,560. (No model.)



Claim.—1. A piano having its lower front panel provided with vertical slots, and pedal-rods arranged back of the slots within the piano, in combination with the pedals vertically adjustable on the rods and moving in the slots and having their outer ends exposed outside the piano.

2. A piano having its lower front panel provided with vertical slots, and toothed pedal-rods arranged back of the slots within the piano and supported for vertical movement, in combination with pedals having means for engaging the teeth of the pedal-bars to hold the pedal at the desired adjustment and moving in the slots and having their outer ends exposed outside the piano.

3. A piano having its lower front panel provided with vertical slots, and toothed pedal-rods mounted back of and in alinement with the slots within the piano, in combination with pedals having spring-actuated bolts to engage the teeth of the rod and moving in the slots and having their outer ends exposed outside the piano.

4. A piano having its lower front panel provided with vertical slots, and pedal-rods mounted back of the slots within the piano and provided with notches the walls of which are straight, in combination with pedals carrying bolts having straight ends engaging the notches, the pedals moving in the slots and the coaction between the straight surfaces of the notches and the bolts operating to hold the pedals against lateral movement.

5. A piano having its lower front panel provided with vertical slots, toothed pedal-rods mounted back of the slots within the piano, pedals on the rods, means carried by the pedals for engaging the teeth of the rods, stops arranged above the rods to limit their vertical movement, and pedal projections within the piano having openings engaged by the lower ends of the pedal-rods.

6. A piano having its lower front panel provided with vertical slots, toothed pedal-rods mounted back of the slots within the piano, pedals on the rods, means carried by the pedals for engaging the teeth of the rods, stops arranged above the rods to limit their vertical movement, and pedal projections within the piano having square openings to be engaged by the similarly-shaped lower ends of the pedal-rods.

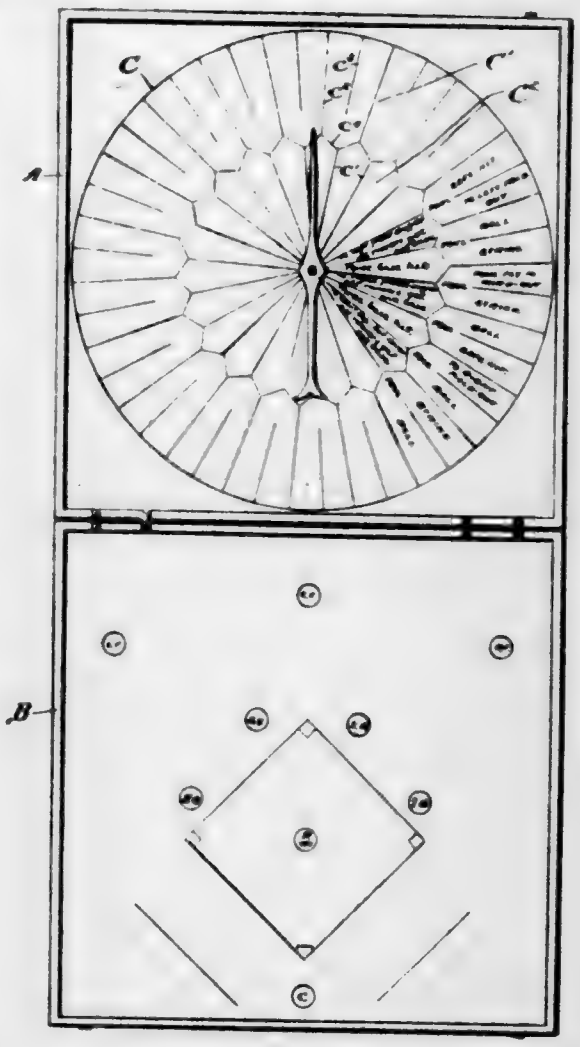
7. A piano having its lower front panel provided with vertical slots, toothed pedal-rods mounted back of the slots within the piano, and having their lower ends reduced to present square pintles, pedals mounted for movement on the rods, and carrying means for engaging the teeth thereof, stops arranged above the pedal-rods to limit their upward movement, and pedal projections within the piano and having square openings to be engaged by the square pintles of the pedal-rods.

8. An attachment for pianos comprising a pedal-rod provided on one side with teeth the faces of which are undercut, the spaces between the teeth forming notches, in combination with a pedal carrying a spring-pressed bolt having at one end an enlarged flattened head to engage the notches between the teeth and at the other end a finger-hold.

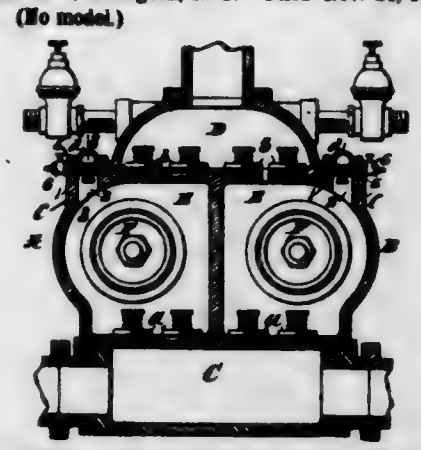
698,478. GAME-BOARD. EDWARD F. WOODRUFF, Palmer, S. C. Filed Nov. 13, 1901. Serial No. 82,156. (No model.)

Claim.—1. In a game of the class described, a dial comprising inner and outer concentric circles, radially-extending lines on said inner circle forming spaces bearing designations, radially-extending lines on said outer circle arranged centrally of the lines of the inner circle, shorter lines intermediate of said centrally-arranged lines and a rotary pointer having its point arranged to travel over the outer circle, substantially as described.

2. In a game of the class described, a dial comprising inner and outer concentric circles, radially-extending lines on said inner circle forming spaces bearing designations, radially-extending lines on said outer circle arranged centrally of the lines of the inner circle, shorter lines intermediate of said centrally-arranged lines, designations at the inner extremities of said shorter lines, and a rotary pointer having its point arranged to travel over the outer circle, substantially as described.



698,479. CYLINDER-CHARGING VALVE FOR PUMPS. CHAS. C. WORTHINGTON, Irvington, N. Y. Filed Nov. 21, 1896. Serial No. 612,945. (No model.)



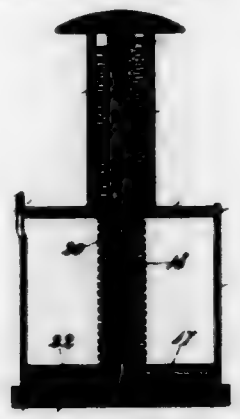
Claim.—1. The combination with the pump-cylinder A having ports 2 communicating with the cylinder-compartments at the top of the cylinder, of charging-chamber *d* separate from the force-chamber mounted on the cylinder above said ports, charging-pipe 3 connecting with said chamber for supplying liquid for charging the pump, charging-valves 1 controlling communication between the charging-chamber and ports 2, and air-relief valves permitting the escape of air from the top of the cylinder, substantially as described.

2. The combination with the pump-cylinder A having ports 2 communicating with the cylinder-compartments at the top of the cylinder, of charging-chamber *d* mounted on the cylinder above said ports and charging-valves 1 controlling communication between the charging-chamber and ports 2, and air-relief valves opening from inside said charging-valves, substantially as described.

698,480. STAMP-AFFIXING DEVICE. WILLIAM WRIGHT, New York, N. Y. Filed Apr. 16, 1901. Serial No. 56,062. (No model.)

Claim.—1. A stamp-affixing device, comprising a casing open at the bottom and having a removable top piece, provided with a central vertical tubular member, a plunger mounted in said casing and provided with a shaft passing upwardly through said tubular member, a spring mounted on said shaft and bearing on said plunger and provided with a

bearing at the top of said tubular member, a detachable cap for said tubular member connected with the top of said shaft, and means whereby the removable top piece of the casing is provided with a slight vertical movement, substantially as shown and described.



2. A stamp-affixing device, comprising a casing open at the bottom and provided in one side near the top thereof with vertical slots or openings and at the opposite side with a spring-tongue having a vertical slot or opening, a detachable top piece provided at one side with pins adapted to enter the first-named slots or openings and at the opposite side with a pin adapted to enter the slot or opening and said spring-tongue, said top piece being also provided with a vertically-arranged tubular member, a plunger mounted in said casing and provided with a shaft which passes upwardly through said tubular member, a pin secured to the tubular member extending into the same adjacent to the top, a spring mounted on said shaft and bearing on said plunger at one end and at the top of said tubular member on the pin secured to such tubular member, said shaft being also provided with a detachable cap for said tubular member, substantially as shown and described.

698,481. WIND-WHEEL. OSCAR J. ZIEGLER, Freeport, Ill., assignor to Stover Manufacturing Company, Freeport, Ill., a Corporation of Illinois. Filed Jan. 4, 1902. Serial No. 88,469. (No model.)



Claim.—1. In a wind-wheel for windmills, in combination, a hub, an outer wheel-frame formed of bents comprising parallel pieces—curved, edgewise, in form of segments of a circle—secured together by means of double knees, and double braces having apertures between them, an inner wheel-frame formed of bents comprising parallel pieces—curved, edgewise, in form of segments of a circle of less diameter than the outer wheel-frame—secured together by means of double knees, and double braces having apertures between them, spokes, securing the outer and inner wheel-frames together, and to the hub by their furcated ends, and bats, inserted into the apertures between the double braces of the outer and inner wheel-rims, substantially as and for the purpose specified.

2. In combination, a hub A, provided with radial semimortises A^2 A^2, to receive the inner ends of the spokes of the wheel, an outer wheel-frame formed of bents B comprising parallel pieces B'—curved, edgewise, in form of segments of a circle—secured together by means of double knees B^2, and double braces B^3 having apertures B^4 between them, an inner wheel-frame formed of bents C comprising parallel pieces C'—curved, edgewise, in form of segments of a circle of less diameter than the outer wheel-frame—secured together by means of double knees C^2, and double braces C^3 having apertures C^4 between them, furcated spokes D, securing the outer and inner wheel-frames together and themselves secured, by their furcations D^2 D^2, to the semimortises A^2 A^2 in the hub A, substantially as and for the purpose specified.

693,482. METALLURGICAL PROCESS. EDWARD G. ACHESON, Buffalo, N. Y. Filed Oct. 14, 1899. Serial No. 733,635. (No specimens.)

Claim.—1. The method herein described of reducing ores, which consists in mixing pulverized ore with graphite as the sole conducting and reducing agent, both in a dry state, coating the particles of ore with graphite, and passing an electric current through the mass of such coated particles, thereby heating it to a point sufficient to effect reduction of the ore.

2. The method herein described of reducing ores, which consists in mixing pulverized ore with sufficient graphitic carbon as the sole conducting and reducing agent, to reduce the ore, both in a dry state, coating the particles of ore with the graphitic carbon and passing an electric current through the mass of such coated particles, thereby heating it to a point sufficient to effect reduction of the ore.

3. The method herein described of reducing ores, which consists in mixing pulverized ore and graphitic carbon in the theoretical proportions necessary for the reduction of the ore, coating or partially coating the particles of ore with the graphitic carbon, and passing an electric current through the mass of such coated particles, thereby heating it to a point sufficient to effect reduction of the ore.

693,483. CAR-HAUL. ALFRED M. ACKLIN, Pittsburg, Pa. Filed Oct. 21, 1901. Serial No. 79,332. (No model.)



Claim.—1. A device for moving or controlling the movement of cars, comprising an endless chain, so arranged that a portion of said chain will move cars in one direction, while another portion is moving or controlling the movement of other cars in the opposite direction, and the portion of said chain traveling in one direction being substantially beneath that portion traveling in the opposite direction.

2. A device for moving or controlling the movement of cars, comprising a continuously-running endless chain, so arranged that a portion of said chain will move cars in one direction, while another portion is moving or controlling the movement of other cars in the opposite direction, said cars having automatic and temporary connection or engagement with said chain.

3. A device for moving or controlling the movement of cars, comprising an endless chain, so arranged that a portion of said chain will automatically move the cars in one direction, while another portion is automatically moving or controlling the movement of other cars in the opposite direction, and the portions of said chain carrying the last-named cars being substantially beneath the portion carrying the first-named cars.

4. A device for moving or controlling the movement of cars, comprising an endless chain, so arranged that a portion of said chain will automatically move the cars in one direction, while another portion is moving or controlling the movement of other cars in the opposite direction, and hooks on each side of said chain for engaging the cars moving in both directions.

5. A device for moving or controlling the movement of cars, consisting of a single chain adapted to engage the cars for moving the same along an uphaul-track and for moving or controlling the movement of the cars along a downhaul-track, and the portion of said chain carrying the last-named cars being substantially beneath the portion carrying the first-named cars.

6. A device for moving or controlling the movement of cars, consisting of a single chain having hooks thereon adapted to engage with the

cars for moving the same along an uphaul-track and for moving or controlling the movement of the same along a downhaul-track, and the portion of said chain carrying the last-named cars being substantially beneath the portion carrying the first-named cars.

7. A device for moving or controlling the movements of cars, consisting of a single chain having rigid hooks thereon adapted to engage with the cars for moving the same along an uphaul-track and for moving or controlling the movement of the car along a downhaul-track, and the portion of said chain carrying the last-named cars being substantially beneath the portion carrying the first-named cars.

8. A device for moving or controlling the movements of cars, consisting of a single chain having hooks on one side thereof for engaging with the cars to move the same along an uphaul-track, and hooks upon the opposite side of said chain for engaging with the cars to move or control the movement of the same along a downhaul-track, and the portion of said chain carrying the last-named cars being substantially beneath the portion carrying the first-named cars.

9. A device for moving or controlling the movements of cars, consisting of a single chain having rigid hooks on one side thereof for engaging with the cars to move the same along an uphaul-track, and rigid hooks on the opposite side of said chain for engaging with the cars to move or control the movement of the same along a downhaul-track, and the portion of said chain carrying the last-named cars being substantially beneath the portion carrying the first-named cars.

10. A device for moving or controlling the movements of cars, consisting of a single chain having rigid hooks thereon adapted to engage with the car for moving the same along an uphaul-track and for moving or controlling the movement of the car along a downhaul-track, and pivoted hooks on said chain adapted to extend beyond the rigid hooks and engage with the car to control the movement of the same along the downhaul-track.

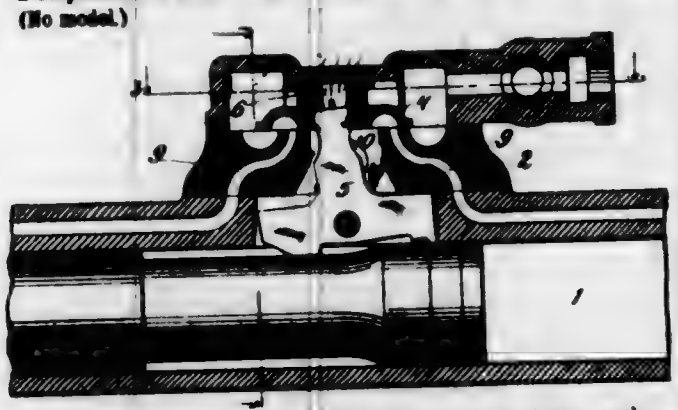
11. A device for moving or controlling the movements of cars, consisting of a single chain having rigid hooks on one side thereof for engaging with the car to move the same along an uphaul-track, rigid hooks on the opposite side of said chain for engaging with the cars to move or control the movement of the same along a downhaul-track, and pivoted hooks on the side of said chain containing the second-named rigid hooks adapted to extend beyond second-named rigid hooks for engaging with the car to control the movement of the same along the downhaul-track.

12. As a new article of manufacture, a chain having rigid hooks extending beyond both sides of the same, and pivoted hooks extending on one side of said chain extending beyond said rigid hooks.

13. As a new article of manufacture, a chain having rigid hooks on one side thereof, and pivoted hooks on the opposite side thereof.

14. As a new article of manufacture, a chain having rigid hooks on both sides of the same, and pivoted hooks on one side thereof.

693,484. VALVE-BALANCING DEVICE. ROBERT L. AMBROSE, Tarrytown, N. Y., assignor to Rand Drill Company, New York, N. Y., a Corporation of New York. Filed Mar. 11, 1901. Serial No. 50,598. (No model.)



Claim.—1. The combination with a valve-chest having ports therein, and a reciprocating slide-valve controlling said ports, said slide-valve having a laterally-extending boss, and having a lateral orifice extending therethrough and through the said boss, of a non-metallic flexible flanged ring, mounted on said boss, said ring free to move on said boss in a direction transverse of the reciprocating movement of said valve.

2. The combination with a valve-chest having ports therein, a valve-seat and a fixed bearing-surface opposite said valve-seat, of a reciprocating slide-valve in engagement with the said seat, and controlling said ports, said valve having a laterally-extending boss and having a lateral orifice extending therethrough and through the said boss, and a non-metallic flexible flanged ring mounted on said boss, said ring free to move on said boss in a direction transverse of the reciprocating movement of said valve, and the flanged portion of said ring adapted to bear against and slide upon said fixed bearing.

3. In a rock-drill, the combination with a cylinder and a piston therein, of a valve-chest having ports, a reciprocating slide-valve controlling said ports, said slide-valve having a laterally-extending boss, and having a lateral orifice extending therethrough and through said boss, a rocker or tappet adapted to engage, and be operated by, said piston, and having one arm thereof fitted to the said lateral orifice in the said valve, there being a port or passage provided between the side of the said rocker-arm and the inner wall of the said orifice to which the rocker-arm is fitted, and a pressure-balancing ring mounted upon the said boss, said ring free to move on said boss in a direction transverse of the reciprocating movement of said valve.

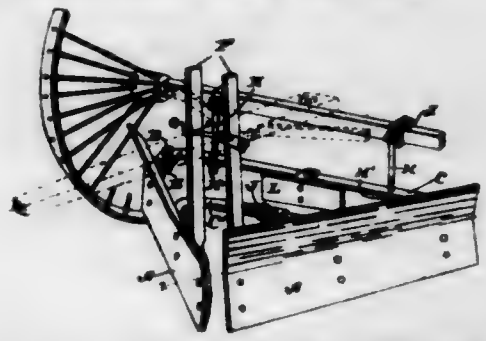
693,485. ALIMENTARY PRODUCT AND METHOD OF MAKING SAME. EDWARD W. AYRES, Washington, D. C.; Sallie Peyton Ayres executrix of said Edward W. Ayres, deceased. Filed Nov. 7, 1901. Serial No. 81,462. (No specimens.)

Claim.—1. The improved process for the manufacture of an alimentary, cereal product, which consists in cooking and properly preparing the cereal for flaking, mixing malt and pepsin with the cereal, flaking the cereal, maintaining the flakes at a temperature suitable for the action of the malt and pepsin and simultaneously subjecting the flakes to a current of dry air, and then cooking the flakes.

2. The improved process for the manufacture of an alimentary, cereal product, which consists in, first, soaking the cereal; second, cooking the cereal; third, cooling the cooked cereal; fourth, curing or drying the cereal; fifth, mixing malt and pepsin with the cereal; sixth, flaking the grains of cereal; seventh, maintaining the flakes at a temperature from 135° to 145° Fahrenheit and simultaneously subjecting them to a current of dry air, and, eighth, cooking the flakes, substantially as described.

3. The new alimentary, cereal product in the form of thin crisp flakes, impregnated with both malt and pepsin, the flakes containing a maximum of dextrine and peptones, as described.

698,486. RIDGE-BREAKER. ROBERT BALDRIDGE, Covina, Cal. Filed May 1, 1901. Serial No. 58,235. (No model.)



Claim.—1. In a device to remove ridges made for irrigating purposes, the combination with suitable running-gear of two side scrapers provided with upright supports F, adapted to be clamped one on either side of the tongue of the running-gear; means to clamp the upright supports to the tongue; a front brace, composed of two members projecting inwardly from the side scrapers, one member projecting over and along the other member, the upper member being provided with a longitudinal slot K; a hole in the lower member; a screw-threaded bolt in said hole and in said slot; a rear brace pivotally connected at either end to the side scrapers; a central vertical scraper on said rear brace and carried thereby; and supporting-rods extending from the rear brace to connections with the axle of the running-gear, substantially as shown and described.

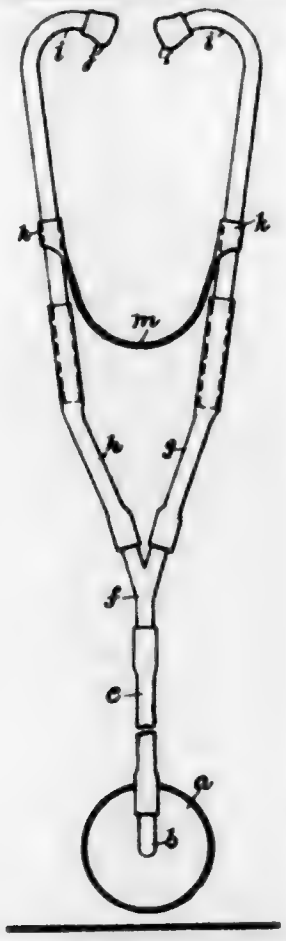
2. Means to remove ridges made on irrigable ground, comprising three scrapers, adapted to be secured to a cultivator, or other running-gear; two of the scrapers adapted to be clamped to the tongue of the cultivator in advance of the other scraper, one on either side of the tongue, at an angle thereto, and being spaced apart at their forward ends, as shown, the side scrapers having a depression along the longitudinal center thereof, and being adjustable as to angle; a brace extending from one forward scraper to the other; a third scraper vertically mounted upon and carried by said brace.

698,487. STETHOSCOPE. ROBERT C. M. BOWLES, Boston, Mass. Filed Nov. 8, 1901. Serial No. 81,570. (No model.)

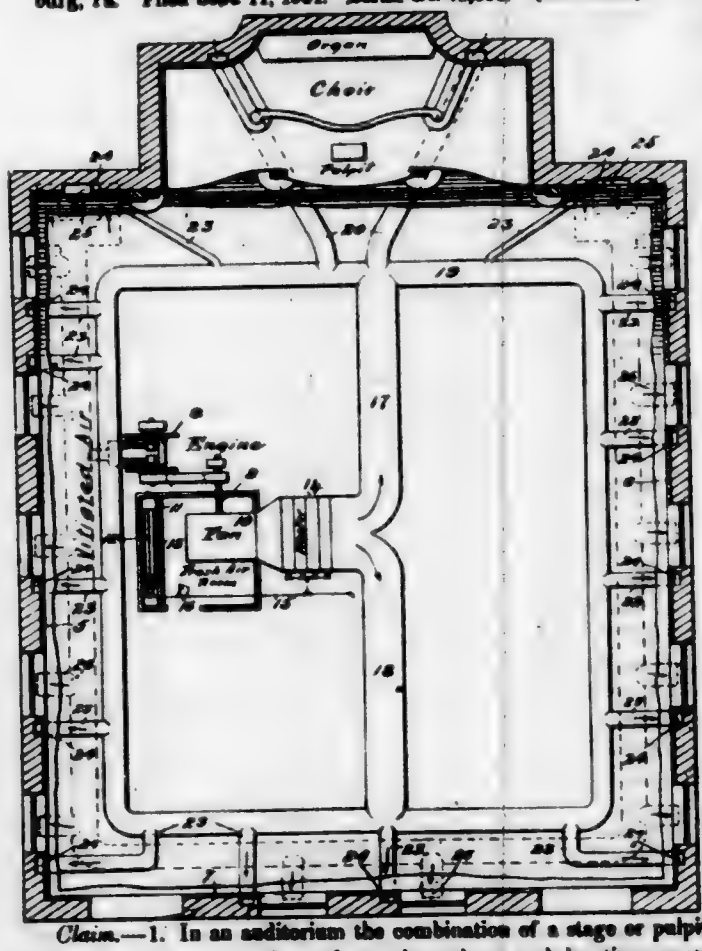
Claim.—1. In an instrument of the class described, the combination with rigid ear-tubes bent at one end, of flexible tubes into which the opposite ends of said ear-tubes are inserted, sockets engaging said ear-tubes intermediate their bent ends and the said flexible tubes and in which the said ear-tubes are rotatable and longitudinally movable, and a spring connecting said sockets, substantially as described.

2. In an instrument of the class described, the combination with a rigid Y-shaped tube *f*, the flexible tubes *h*, *g*, connected therewith, the rigid ear-tubes *c*, *d*, made straight for the greater portion of their length and

having one end bent and their opposite ends inserted into the flexible tubes *h*, *g*, rigid sockets *k* engaging the straight portion of the ear-tubes intermediate the flexible tubes *h*, *g*, and the bent ends of said ear-tubes, and in which said ear-tubes are rotatable and longitudinally movable, and a spring connecting said sockets, substantially as described.



693,488. MEANS FOR REFLECTING AND DISTRIBUTING SOUND AND VENTILATING AUDITORIUMS. THOMAS BOYD, Pittsburg, Pa. Filed Sept. 11, 1901. Serial No. 75,086. (No model.)



Claim.—1. In an auditorium the combination of a stage or pulpit, as a location for a source of sound, openings above such location, means for producing a forced current of air and aqueous vapor, conduits connecting such means with the openings, and openings for withdrawing vitiated air from the auditorium near the floor, substantially as described.

2. In an auditorium, the combination of a stage or pulpit for the location of a source of sound, openings above such location, means for producing a forced current of warm air and aqueous vapor, conduits connecting such means with the openings, and openings for withdrawing vitiated air from the auditorium near the floor, substantially as described.

3. In an auditorium, the combination of a stage or pulpit for the location of a source of sound, hard walls, located behind said source of sound, openings above said source of sound, means for producing a forced current of air and aqueous vapor, conduits connecting such means with the openings, and openings for withdrawing vitiated air from the auditorium near the floor, and soft walls located in front of and above the source of sound, substantially as described.

4. In an auditorium, the combination of a stage or pulpit for the location of a source of sound, hard walls located behind said source of sound, openings above said source of sound, means for producing a forced current of warm air and aqueous vapor, conduits connecting such means with the openings, and openings for withdrawing vitiated air from the auditorium near the floor, and soft walls located in front of and above the source of sound, substantially as described.

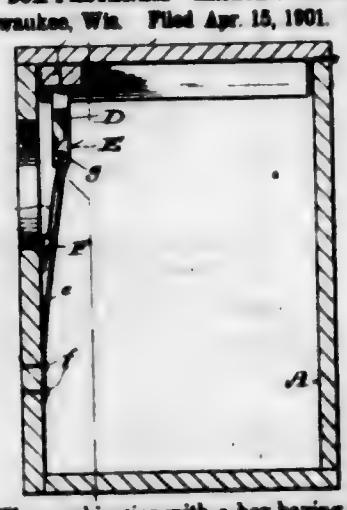
5. In an auditorium the combination with a rostrum as a location of a source of sound, of hard-surfaced walls for reflecting sound, opposing soft walls for absorbing it, means for forcing currents of air commingled with aqueous vapor into the auditorium in the neighborhood of and above the location of the source of sound, and openings for discharging it near the floor, substantially as described.

6. In an auditorium the combination with a rostrum as a location of a source of sound, of hard-surfaced walls for reflecting sound, opposing soft walls for absorbing it, means for forcing currents of warm air commingled with aqueous vapor into the auditorium in the neighborhood of and above the location of the source of sound, and openings for discharging it near the floor, substantially as described.

7. In an auditorium the combination with a rostrum as a location of sound, of hard-surfaced walls adapted to vibrate and placed behind the location of the source of sound, opposing soft walls located in front of the location of the source of sound, means for forcing currents of air into the auditorium in the neighborhood of and above the location of the source of sound, and openings for discharging it near the floor, substantially as described.

8. In an auditorium the combination with a rostrum as a location of a source of sound, of hard-surfaced walls adapted to vibrate and placed behind the location of the source of sound, opposing soft walls, located in front of the location of the source of sound, means for forcing currents of warm air into the auditorium in the neighborhood of and above the location of the source of sound, and openings for discharging it near the floor, substantially as described.

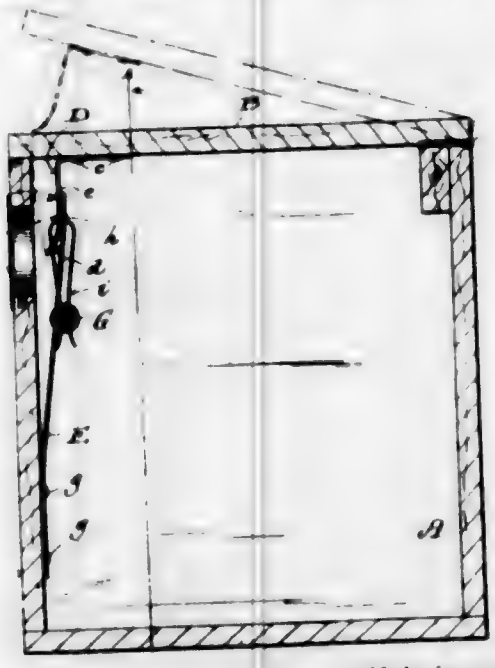
693,489. BOX-FASTENER. ARTHUR C. BRENCKLE and WALTER A. ASHER, Milwaukee, Wis. Filed Apr. 15, 1901. Serial No. 55,841. (No model.)



Claim.—1. The combination with a box having a hinged cover, and a hand-hole in its front wall, of a catch secured to and depending from said cover back of said hand-hole, a spring-latch secured within said box and in engagement with said catch, the latter and the latch having transverse registering holes therethrough, and a wire seal passed through said registering openings, the latch, catch, and seal being all within the box, but accessible through the hand-hole in the front wall of the latter.

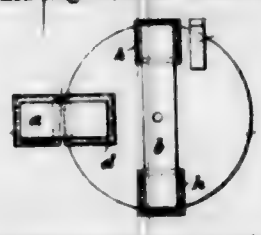
2. The combination with a box, having a cover hinged to the rear wall thereof, and the front wall of said box being formed with a wholly-open hand-hole extending therethrough, of a doubled metallic strap, forming an open-loop catch, secured to and projecting vertically from the said cover, at a point back of said front wall, and the said loop-straps having transverse perforations therethrough; a latch comprising a beveled head with a transverse perforation therethrough, and a spring-shank secured to the inner side of the front wall of the box and projecting upward and backward for engagement with said loop-catch, and a wire seal passed through the registering transverse openings in the loop-straps and latch-head, the latch, catch and seal being all within the box, back of the hand-hole, but accessible therethrough.

698,490. BOX-FASTENER. ARTHUR C. BRENCKLE and WALTER A. ASHER, Milwaukee, Wis. Filed June 8, 1901. Serial No. 63,701. (No model.)



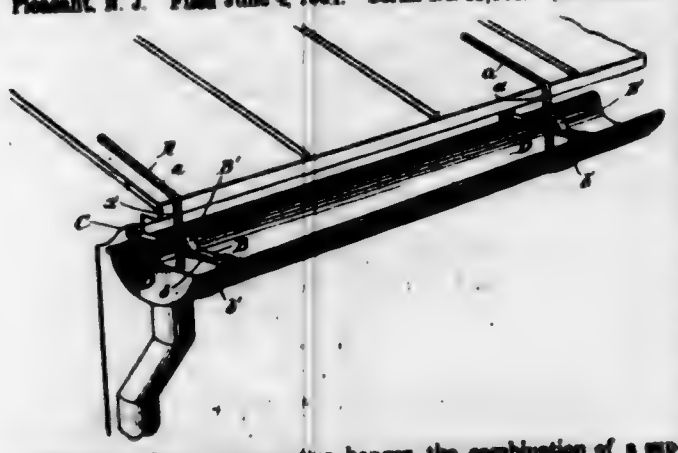
Claim.—The combination with a box, provided with a cover, and a hand-hole in its front wall; of an interior catch secured to and depending from said cover back of said hand-hole, and provided with a slot therethrough, and a hole beneath said slot; an upwardly and rearwardly extending spring, secured at its lower end to the inner side of said front wall of the box and having a forwardly-projecting bent upper end for engagement with the slot in the catch, and a hole beneath said upper end in line with the lower hole in the said catch; and a wire seal passed through the registering holes in the catch and latch-spring, the latch, catch and seal being all within the box, but accessible by hand through the hand-hole in the front wall of the latter.

698,491. ALTERNATING-CURRENT-MOTOR METER. HERMANN BROCKHAT, Berlin, Germany, assignor to Max Levin, Berlin, Prussia, Germany. Filed Aug. 17, 1900. Serial No. 27,146. (No model.)



Claim.—An alternating-current-motor meter, comprising two alternating-current fields independent and displaced in their phases relatively to one another, the one field having two separate windings acting in aggregation, consisting of a thick primary winding of only a few turns inserted in the main circuit, and a secondary winding of many turns but almost non-inductive inserted together with the winding of the other alternating field, which possesses high self-induction, between the two points of the circuit between which the energy to be measured is consumed, substantially as described.

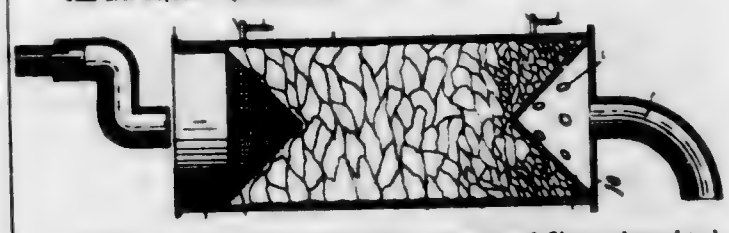
698,492. EAVES-TROUGH HANGER. CORNELL E. BROWN, Point Pleasant, N. J. Filed June 4, 1901. Serial No. 63,161. (No model.)



Claim.—1. In an eaves-gutter hanger, the combination of a supporting-rod, an adjustable holder held by said rod, a brace-arch formed integral with said holder, and lugs formed upon the said holder, substantially as shown and described.

2. In an eaves-trough hanger, the combination of a hanger-rod, comprising an oblique portion, a vertical section depending therefrom, notches formed upon one side of the said vertical portion, a holder adjustably connected to the said hanger, the said holder comprising a horizontal section having a perforation at one end thereof, and a semicircular section formed integral with the horizontal portion at the end opposite the perforation, the said semicircular portion having a screw-threaded perforation to register with the perforation in the horizontal section, a screw for engaging the said perforations and adjustably securing the free ends of the said sections, a brace-arch formed integral with the holder, and antirattling-lugs formed upon the under side of the said horizontal section, all arranged substantially as shown and described.

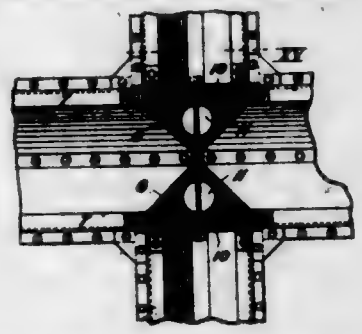
698,493. RAIN-WATER STRAINER AND FILTER. JACOB BURGER and CHRISTIAN C. KEMP, Randall, Kans. Filed July 13, 1901. Serial No. 68,169. (No model.)



Claim.—1. A portable rain-water strainer and filter, adapted to be adjustably suspended to the outer wall of a building, comprising a body portion, extending ears secured thereto, depending lugs carried by said ears, a removable rim or sleeve mounted on the top end of the body of the filter, a strainer carried by said sleeve, and means for conducting the water in the filter, and means for the discharge of the water from the filter, substantially as described.

2. A portable rain-water strainer and filter, adapted to be adjustably secured to the outer wall of a building, comprising a body portion, ears carrying depending lugs secured to said body, a rim or sleeve carrying a strainer mounted on the top end thereof, an inverted-cone-shaped strainer, resting on the bottom of the body portion, a filtering substance filling the body portion below the top strainer and above the bottom strainer, and means for conducting the water to the filter and means for the discharge thereof from the filter, substantially as described.

698,494. BUILDING CONSTRUCTION. CYRUS M. CARNAHAN, Allegheny, Pa. Filed Oct. 27, 1900. Serial No. 34,612. (No model.)



Claim.—1. In building construction a framework consisting of hollow structural members having oppositely-disposed bearing portions with intermediate narrower portions, and having continuous interior communication, substantially as set forth.

2. In building construction a framework consisting of composite structural members having oppositely-disposed bearing portions with intermediate narrower portions, and provided with continuous hollow interior air-passages framed together so as to establish such continuous interior communicating passages throughout the structure, substantially as set forth.

3. In building construction, a framework consisting of composite structural members having oppositely-disposed bearing portions with intermediate narrower portions, and provided with continuous hollow interior air-passages framed together so as to establish such continuous interior communicating passages throughout the structure, and provided with inlet and outlet openings in the members, substantially as set forth.

4. In building construction, a framework consisting of hollow structural members composed of rolled sections, having outwardly-disposed portions and inwardly-extending meeting portions incorporated together, whereby interior communicating passages are provided, for the purpose set forth.

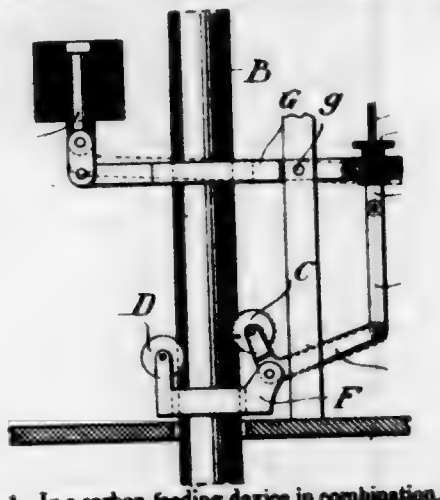
5. In building construction, a framework consisting of hollow structural members composed of rolled sections, having outwardly-disposed portions and inwardly-extending meeting portions incorporated together, whereby interior communicating passages are provided, with means for connecting the members, for the purpose and in the manner set forth.

6. In building construction, a framework composed of posts, girders, &c., comprising composite structural members of rolled metal, having oppositely-disposed bearing and strain supporting portions and intermediate meeting portions incorporated together, whereby interior communicating passages are provided, with means for connecting the members, for the purpose and in the manner set forth.

7. In building construction, composite structural members composed of sides having oppositely-extending bearing-faces, meeting flanges and an intermediate connecting portion incorporated to provide a building-framework and having interior communicating passages, substantially as set forth.

8. In building construction, composite structural members composed of rolled members, having intervening connecting portions, a central plate member, means for incorporating the parts together to provide a building-framework, and communicating interior passages throughout the structure, substantially as set forth.

693,495. CARBON-FEEDING DEVICE. CHARLES R. CHAPIN, Greenwich, and WALTER R. PATCHIN, Bridgeport, Conn.; said Patchin assignor to said Chapin. Filed May 4, 1901. Serial No. 58,712. (No model.)



Claim.—1. In a carbon-feeding device in combination, a carbon-rod movable downward by gravity, a guideway for the same including a plurality of rollers adapted to hold said rod between them and being movable longitudinally of the same, one of said rollers being carried on a pivoted elbow-lever whereby the same is movable laterally of said rod to release the same when the arc-circuit is opened, an overweighted lever connected to said arm and adapted to fall by its own weight and move said roller into engagement with said rod to hold and also raise the same, and an electromagnet in a shunt around the arc adapted to raise said lever when the arc-circuit is opened and move said roller away from said rod to release said rod and allow the same to fall.

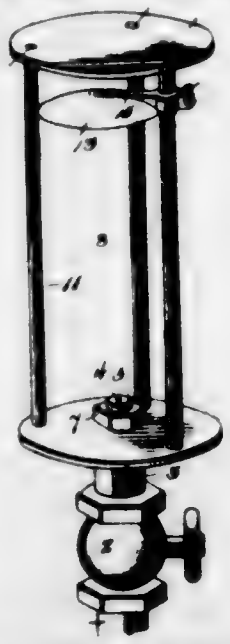
2. In an arc-lamp carbon-feeding device in combination a carbon-rod, a holder for the same through which said rod passes loosely, said holder being movable up and down with said rod, an elbow-lever pivoted to said holder and carrying a roller pivoted on one of its arms, an overweighted pivoted lever connected with the other arm of said elbow-lever and adapted to fall by its own weight and cause said roller to clutch said rod and raise said holder and rod, and an electromagnet in shunt around the arc and adapted to raise said weighted lever and release said clutch when said arc is broken.

3. In an arc-lamp carbon-feeding device in combination a carbon-rod, a holder for the same through which said rod passes loosely, said holder being movable up and down with said rod, an elbow-lever pivoted to said holder and having an upwardly-projecting arm, a roller pivoted on said arm, an overweighted pivoted lever connected with the other arm of said elbow-lever and adapted to fall by its own weight and rock said elbow-lever and thereby cause said roller to clutch said rod and raise said holder and rod, and an electromagnet in shunt around the arc and adapted to raise said weighted lever and release said clutch when said arc is broken.

4. In an arc-lamp carbon-feeding device in combination a carbon-rod, a holder for the same through which said rod passes loosely, said holder being movable up and down with said rod, an elbow-lever pivoted to said holder and having an upwardly-projecting arm carrying a roller pivoted thereon, a stationary roller also carried on said holder, said rod being located between said two rollers, an overweighted pivoted lever connected with the other arm of said elbow-lever and adapted to fall by its own weight and cause said roller to clutch said rod between said two rollers and raise said holder and rod, and an electromagnet in shunt around the arc and adapted to raise said weighted lever and release said clutch when said arc is broken.

5. In an arc-lamp carbon-feeding device in combination a carbon-rod, a holder for the same through which said rod passes loosely, said holder being movable up and down with said rod, a lever pivoted to said holder and carrying a roller, an overweighted pivoted lever connected with one arm of said first lever by a longitudinally-adjustable connection and adapted to fall by its own weight and cause said holder to clutch said rod and raise said holder and rod, and an electromagnet in shunt around the arc and adapted to raise said weighted lever and release said clutch when said arc is broken.

693,496. SPRAYING DEVICE. CHARLES T. CHILDERS, Galesburg, Ill. Filed June 27, 1901. Serial No. 66,278. (No model.)



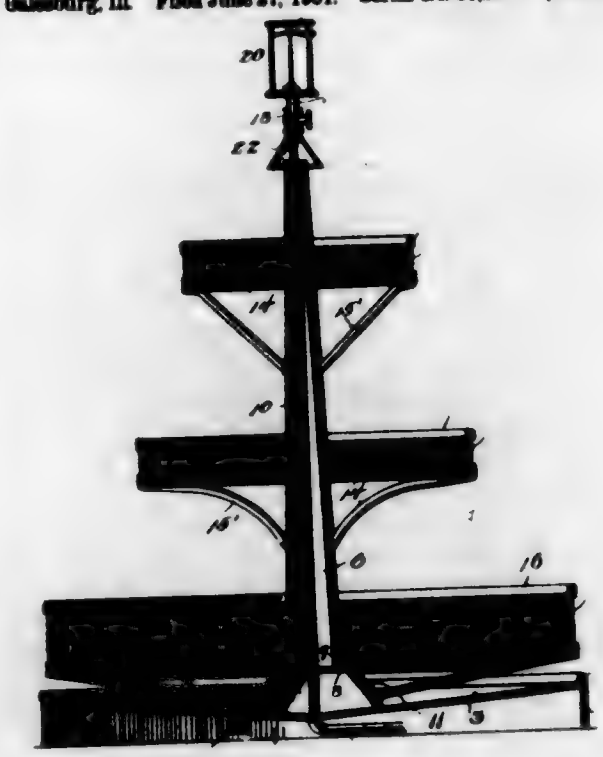
Claim.—1. A spraying device comprising a jet-nipple, an open distributing-cage consisting of spaced end plates and a plurality of tie-rods connecting the same, clamping means for detachably binding one of said plates to the nipple, and an adjustable impact-plate arranged within the cage and having an adjustable connection with one of the tie-rods.

2. A spraying device comprising a jet-nipple having a threaded nozzle portion, an open distributing-cage consisting of spaced end plates and a plurality of tie-rods connecting the same, one of said plates fitting over the threaded nozzle portion, and a binding-nut also engaging said threaded nozzle portion and the end plate fitting thereover.

3. A spraying device comprising a jet-nipple, an open distributing-cage supported by said nipple and having a rod member, and an adjustable impact-plate arranged inside of the cage and having a support adjustably engaging said rod member.

4. A spraying device comprising a jet-nipple an open distributing-cage supported by said nipple and extending beyond the same, said cage having a rod member, and a concaved impact-plate located within the cage and having a holding-arm provided with a clip adjustably engaging said rod member.

693,497. REVOLVING DISPLAY-STAND. CHARLES T. CHILDERS, Galesburg, Ill. Filed June 27, 1901. Serial No. 66,279. (No model.)

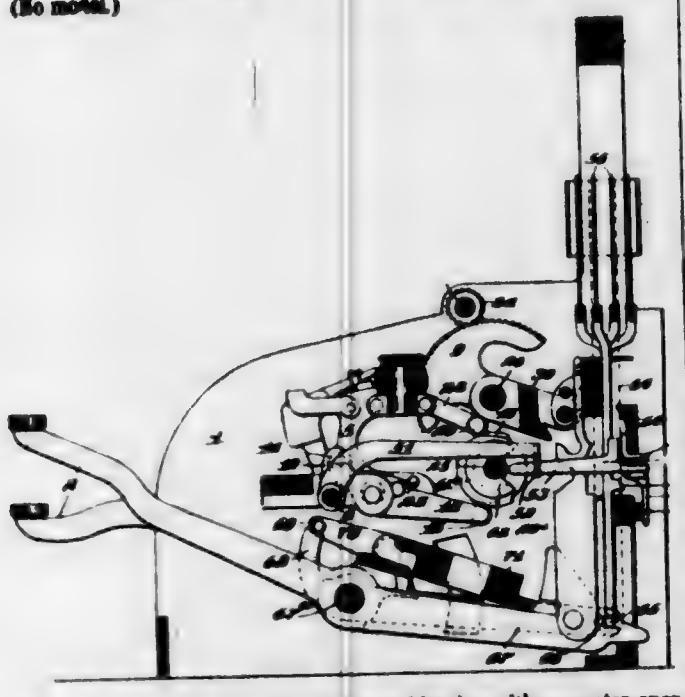


Claim.—1. In a display-stand, a supporting-base provided at its upper side with a drain-basin and also having a central tubular standard, a revolving sleeve turning upon said standard and having a protected bearing at its lower end, a plurality of foraminous shelves concentrically arranged upon the sleeve within the vertical plane of the drain-basin, a water-supply pipe extending longitudinally through the standard, and a spraying device sustained on the upper end of the water-pipe and located above the top of the standard.

2. In a display-stand, a supporting-base provided at its upper side with a drain-basin, and also having a central tubular standard, a revolving sleeve turning upon said standard and having a protected bearing at its lower end, a plurality of foraminous shelves concentrically arranged upon the sleeve within the vertical plane of the drain-basin, a spraying device located at the upper end of the standard and a conical deflector-shield interposed between the spraying device and the top ends of the standard and the sleeve.

3. In a display-stand, a supporting-base having a central standard provided at the bottom with a conical bearing-step and at the upper end of said step with an annular bearing-shoulder, a revolving sleeve turning upon the standard and provided with an interior rest-shoulder working over said bearing-shoulder and also provided below the rest-shoulder with a conical shield fitting over said conical bearing-step, and shelves fitted upon the sleeve.

698,498. CASH-REGISTER. JOSEPH P. CLEAL, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed May 25, 1900. Serial No. 17,978. (No model.)



Claim.—1. In a cash-register, the combination with a counter-operating mechanism, of a plurality of independent counters arranged to cooperate therewith, a series of indicators, and means for preventing the exposure of the indicators when one of said counters is operated.

2. In a cash-register, the combination with a counter-operating mechanism, of a plurality of independent counters arranged to coöperate therewith, a shifting-rod for bringing one or the other of the counters into operative relation with the operating mechanism, a series of indicators and a device controlled by said rod for preventing an exposure of the indicators whenever said rod is adjusted to bring a particular one of the counters into engagement with the operating mechanism.

3. In a cash-register, the combination with a counter-operating mechanism, of a plurality of independent counters arranged to coöperate therewith, shifting devices for bringing one or the other of the counters into operative relation with the operating mechanism, a series of indicators, and means for preventing an exposure of the indicators when a particular one of said counters is brought into operative relation with the operating mechanism.

4. In a cash-register, the combination with a counter-operating mechanism, of a series of indicators, a plurality of independent counters, adjusting means for bringing the desired counter into operative relation with the operating mechanism, devices for retaining the indicators in position to show the amount of the transaction registered and devices operated by the adjusting means for rendering the indicator-retaining means inoperative.

5. In a cash-register, the combination with a counter-operating mechanism, of a series of indicators, a plurality of independent counters arranged to be brought into operative relation with said operating mechanism, means for preventing the exposure of the indicators when a certain one of said counters is operated, and a key for establishing operative connection between the operating mechanism and the desired counter.

6. In a cash-register, the combination with a counter-operating mechanism, of a series of indicators, a plurality of independent counters, means for holding the indicators in exposed positions and devices for rendering said means inoperative when a certain one of said counters is actuated.

7. In a cash-register, the combination with a counter-operating mechanism, of a series of indicators, a normally inoperative counter, means for setting said counter for operation, and devices for preventing a disclosure of the indicators when said counter is operated.

8. In a cash-register, the combination with a counter-operating mechanism, of a series of indicators, a series of keys for operating said indicators, means for setting said counter for operation and devices for preventing a disclosure of the indicators when said counter is operated.

9. In a cash-register, the combination with a series of keys, a counter-operating mechanism coöperating therewith, a series of indicators also coöperating with said keys, a "cost-counter" and a "selling price" counter and means for preventing the disclosure of the indicators when the cost-counter is operated.

10. In a cash-register, the combination with a counter-operating mechanism, of a normally inoperative "cost-counter" and a normally operative "selling-price" counter, a series of amount-indicators, means for rendering the cost-counter operative and the "selling-price" counter inoperative and devices controlled by said means for preventing an exposure of the indicators.

11. In a cash-register, the combination with a counter-operating mechanism, of a series of independent counters mounted on movable frames and arranged respectively to be thrown into connection with the operating mechanism, a key for adjusting said counters for operation as above, a series of indicators, and means set by the operation of the key for preventing an exposure of the indicators.

12. In a cash-register, the combination with a counter-operating mechanism, of a plurality of independent counters arranged to coöperate therewith, a series of indicators, a series of keys for moving said indicators, indicator-holding means arranged to coöperate with the indicators only when one of the counters is being operated and means arranged to hide the indicators while being set.

13. In a cash-register, the combination with a counter-operating mechanism, of a series of independent counters, a series of indicators, means for holding the indicators in set positions, shifting devices for the counters, mechanism operated by said devices for rendering the indicator-holding means inoperative, and a movable flash arranged to hide the indicators while being set.

14. In a cash-register, the combination with a series of keys, of a series of indicators, a flash for said indicators and means intermediate the keys and flash whereby the latter is fully and positively raised upon the initial movement of any one of the keys and positively locked in such raised position until the final movement of the key.

15. In a cash-register, the combination with a series of keys, of a series of indicators, a flash for said indicators, and means intermediate the keys and the flash whereby the latter is fully and positively raised upon the initial movement of any one of the keys and lowered by the final movement of said key; said flash remaining stationary during the intermediate movements of the keys.

16. In a cash-register, the combination with a counter-operating mechanism, of a plurality of independent counters arranged to coöperate therewith, a series of indicators and means for exposing the indicators when one of said counters is operated, but not when the other is operated.

17. In a cash-register, the combination with an operating mechanism and a counter coöperating therewith at will, of a series of indicators and means for preventing the exposure of the indicators when said counter is operated.

18. In a cash-register, the combination with a series of keys, of a series of indicators, a movable member common to said keys, a flash for the indicators, operating cam-levers for the flash and devices carried by the common member and engaging said levers.

19. In a cash-register, the combination with a series of keys, of a series of indicators arranged normally to be exposed by said keys, a special key, and means for preventing the exposure of the indicators when the special key is operated.

20. In a cash-register, the combination with a counter-operating mechanism, of a plurality of independent counters, a shifting device for said counters, a series of indicators, an indicator-latch, a movable operating-bar mounted on said latch, devices for operating said bar to rock the latch and means mounted on the shifting device for adjusting said bar.

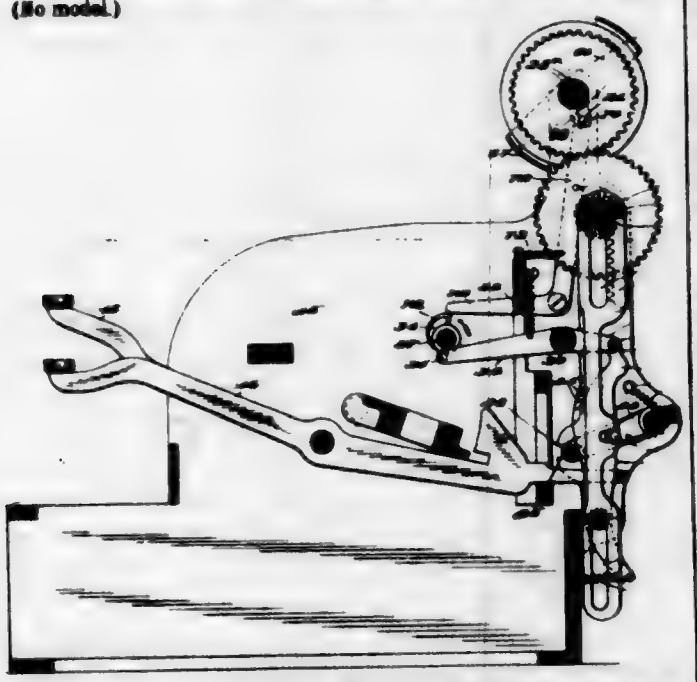
21. In a cash-register, the combination with a counter-operating mechanism, of a plurality of independent counters, a shifting device for said counters, a series of indicators, an indicator-latch, a movable operating-bar mounted on said latch, a cam for operating said bar to rock the latch and an arm mounted on the shifting device for adjusting said bar to engagement with the cam.

22. In a cash-register, the combination with a counter-operating mechanism, of a plurality of independent counters, a shifting device for said counters, a series of indicators, an indicator-latch, means operated by the shifting device for setting the latch for a special operation and devices for releasing said means and allowing them to return to normal position after the operation of the machine.

23. In a cash-register, the combination with a series of amount or value keys, a counter-operating mechanism and a series of indicators actuated by the keys, of a plurality of independent counters coöperating with the counter-operating mechanism, means for exposing the amount-indicators of the recorded transaction when one of the counters is operated but not when the other counter is operated.

24. In a cash-register, the combination with a counter-operating mechanism, of a series of indicators, a normally inoperative counter, means for setting said counter so that it will be operated by the operating mechanism and devices for hiding the indicators when said counter is operated.

693,499. CASH-REGISTER. JOSEPH P. CLEAL, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed May 25, 1900. Serial No. 17,977. (No model.)



Claim.—1. In a cash-register, the combination with a series of operating-keys, of indicators, slidable rack-bars for operating said indicators, movable frames operated by the keys and connected to said rack-bars and having positive and return movements and means arranged to be operated by the keys for arresting the frames on their return movements.

2. In a cash-register, the combination with a series of operating-keys, of indicators, rack-bars for operating said indicators, a series of movable frames connected to said rack-bars, a series of pivoted levers having graduated stop-shoulders for supporting the movable frames and means mounted on the keys for operating said levers.

3. In a cash-register, the combination with a series of operating-keys, of indicators, rack-bars for operating said indicators, a series of movable frames connected to the rack-bars and having a positive and return movement arranged to be operated by the keys and a series of pivoted stop-levers arranged to be moved by the keys to arrest the movable frames on their return movements.

4. In a cash-register, the combination with a series of operating-keys, of indicators, rack-bars for operating said indicators, a series of movable frames arranged to be operated by the keys so as to have positive and return movements and to operate the rack-bars and a series of independent graduated stops arranged to be moved by the respective keys into coöperative relation with the movable frames to arrest the latter upon their return movements.

5. In a cash-register, the combination with a series of operating-keys, of indicators, rack-bars for operating said indicators, a series of movable frames connected to said rack-bars, a series of movable independent stops arranged to be actuated by the keys and coöperating with said frames, and means for temporarily holding the stops in their set positions independently of the keys.

6. In a cash-register, the combination with a series of operating-keys, of rotary indicators, rack-bars for operating said indicators, pivoted frames connected to said rack-bars and arranged to be operated by the keys and given positive and return movements, and means set by the keys for arresting said frames upon their return movements.

7. In a cash-register, the combination with a series of operating-keys, of indicators, rack-bars for operating said indicators, movable frames connected to said rack-bars and arranged to have positive and return movements, a series of pivoted levers having graduated shoulders adapted to arrest said frames upon their return movements, and projections mounted on the keys and arranged to rock said levers on their pivots.

8. In a cash-register, the combination with a series of operating-keys, of indicators, rack-bars for operating said indicators, movable frames connected to said rack-bars, a series of pivoted levers having graduated shoulders adapted to arrest said frames, means for operating said levers from the keys, and devices for holding the levers in their set positions independently of the keys.

9. In a cash-register, the combination with a series of operating-keys, of indicators, gears for setting said indicators, springs connected to said gears and arranged to be put under tension when the same are operated, rack-bars for operating said gears, movable frames connected to said bars and arranged to be operated by the keys, and graduated devices normally in inoperative position and adapted to be operated by the keys and moved into positions to engage said frames.

10. In a cash-register, the combination with a series of operating-keys, of a series of rotary indicators, racks and gearing for operating said indicators, a series of pivoted frames connected to said racks and arranged to have positive and return movements, a series of pivoted levers having graduated projections arranged to arrest said frames upon their return movements, and projections mounted on the keys for operating said levers.

11. In a cash-register, the combination with a series of indicators, of a series of operating rack-bars, a series of pivoted frames connected to said rack-bars, and arranged to be operated by the keys, a series of graduated levers arranged to be set by the keys to arrest the frames, a pivoted frame for retaining the levers in their set positions and means connected to the movable parts of the machine for rocking said arresting-frame.

12. In a cash-register, the combination with a series of operating-keys, of a series of indicators, a series of gears for operating said indicators, a series of springs for returning said gears, a series of rack-bars meshing with said gears, a series of movable frames connected to said rack-bars and arranged to be operated by the keys, a series of pivoted levers having graduated shoulders for arresting said frames and a latching-frame for said levers.

13. In a cash-register, the combination with a series of pivoted key-levers, of a rotary indicator, a movable frame arranged to be elevated by said keys, means connecting said frame to the indicator, and a series of independently-movable stops arranged to be operated by the keys to arrest the frame in its descending movement.

14. In a cash-register, the combination with a series of operating-keys, of a rotary indicator, a movable frame common to all of said keys and arranged to be moved forward thereby a uniform distance upon each operation, means connecting the frame to the indicator and graduated devices arranged to be set by the keys for arresting the frame at the proper point in its return movement.

15. In a cash-register, the combination with a series of operating-keys, of indicators, slidable rack-bars for operating said indicators, movable frames connected to said rack-bars, pivoted levers having graduated stop-shoulders, and arranged to be operated by the keys, and a pivoted latch-frame coöperating with said levers.

16. In a cash-register, the combination with a series of operating-keys, of indicators, movable frames having positive and return movements, means positively connecting said frames and indicators, and a series of pivoted levers arranged to be operated by the keys and having graduated stop-shoulders adapted to arrest said frames at the desired points in their return movements.

17. In a cash-register, the combination with a series of operating-keys, of indicators, a series of movable frames connected to said indicators, a series of graduated stop-levers operated by the keys, and arranged to arrest the movable frames, a pivoted spring-drawn frame for temporarily holding the levers in their set positions, and means connected to the movable parts of the machine for tripping said frame.

18. In a cash-register, the combination with a series of operating-keys, of indicators, a series of movable frames connected to said indicators, a series of graduated stop-levers operated by the keys and arranged to arrest the movable frames, and a pivoted frame for temporarily holding the levers in their set positions independently of the keys.

19. In a cash-register, the combination with a series of operating-keys, of indicators, a series of movable frames having positive and return movements, means connecting said frames and indicators and a series of graduated stop-levers operated by the keys and arranged to arrest the movable frames during their return movements.

20. In a cash-register, the combination with a series of operating-keys, of indicators, a series of movable frames, means connecting said frames and indicators, a series of graduated stop-levers operated by the keys and arranged to arrest the movable frames and means for temporarily holding the levers in their set positions independently of the keys.

21. In a cash-register, the combination with a series of operating-

keys, of indicators, movable frames having positive and return movements and arranged to be elevated by the keys, means connecting said frames and indicators, a series of pivoted levers having graduated stop-shoulders for arresting said frames during their return movements and projections on the keys arranged to operate said levers.

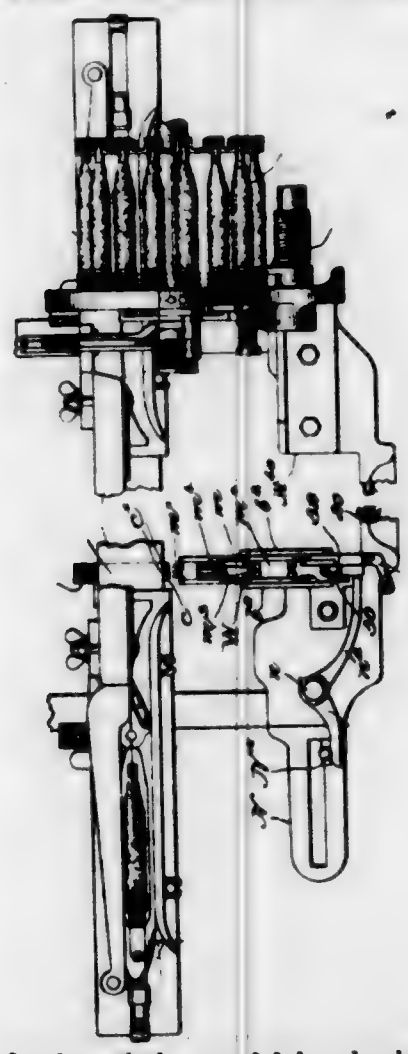
698,500. SOLDERING DEVICE. WILLIAM H. CRANE and EDWARD T. HOLTON, Binghamton, N. Y. Filed Apr. 27, 1901. Serial No. 57,768. (No model.)



Claim.—1. In a device of the kind described, the combination with a soldering-iron having a hollow or tubular extension perforated as described, a sleeve surrounding the said hollow or tubular portion, a collar having a central opening, and a return-flame opening beneath the said central opening, the oil-pipe fitted into the central opening and having a perforated burner or nipple fitted therein, and a handle attached to the collar, substantially as set forth.

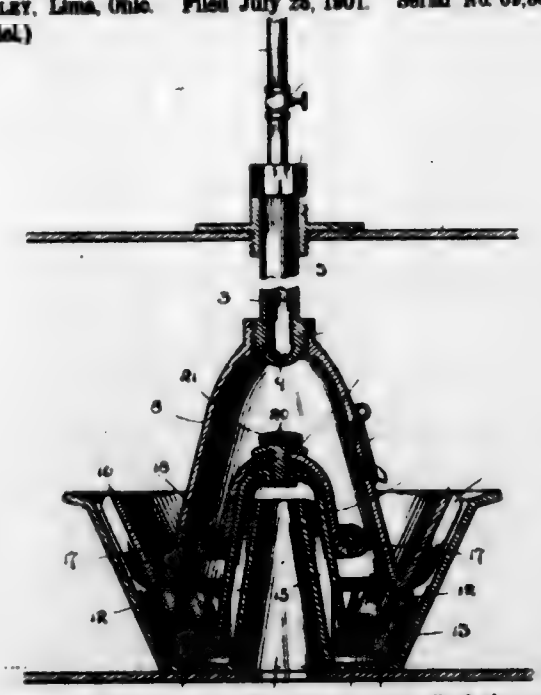
2. In a device of the kind described, the combination with a soldering-iron having the soldering-iron head and the hollow or tubular extension, the collar having a centrally-threaded opening, the return-flame opening, and the air-supply openings produced therein, said collar also having an upwardly-projecting lug or extension, the handle attached to the said lug and extension, the oil or vapor pipe fitted in the central threaded opening, the perforated burner or nipple fitted in the end of the said pipe and projecting into the hollow or tubular portion of the iron, and the sleeve connecting the head of the iron and the collar, said sleeve having perforations in the bottom, a vent in the top and the protecting-hood arranged above said vent, substantially as and for the purpose described.

698,501. WEFT-FORK CLEARER FOR LOOMS. DAVID W. DEERY, Warrenville, S. C., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Sept. 12, 1901. Serial No. 75,146. (No model.)



Claim.—In a loom, the lay, a weft-fork, and a clearer mounted on the front of the lay opposite the weft-fork, said clearer comprising a plurality of upturned fingers separated at their upper ends and adapted to pass between the tines of the fork, to clear the latter of weft as the lay moves back.

698,502. OIL-BURNER. BENJAMIN G. DEVOR and CHARLES W. DAILEY, Lima, Ohio. Filed July 26, 1901. Serial No. 69,865. (No model.)



Claim.—1. In a device of the character described, the combination with an oil-chamber; of a plurality of wick-supports carried thereby, an adjustable dome or hood suspended over the supports, and a feed-tube communicating with and supporting the dome.

2. In a device of the character described, the combination with an oil-chamber having a hollow upwardly-projecting and concentrically-arranged tube for the admission of air, a plurality of wick-supports carried thereby, a dome arranged over said supports, and a feed-pipe communicating therewith and adapted to adjust the dome toward and away from the wick-supports.

3. In a device of the character described, the combination with an oil-chamber, provided with a concentrically-arranged air-inlet at its bottom, a wick-support provided with an upwardly and outwardly flaring flange arranged adjacent the walls of the oil-chamber, a dome suspended over the support, and a feed-tube communicating with said dome and adapted to adjustably support the same.

4. In a device of the character described, the combination with an oil-chamber having a concentric air-inlet, a bell-shaped wick-support surrounding said inlet, a feed-tube arranged above the support and adapted to feed oil upon the same, and an adjustable hood carried by said pipe and surrounding the support.

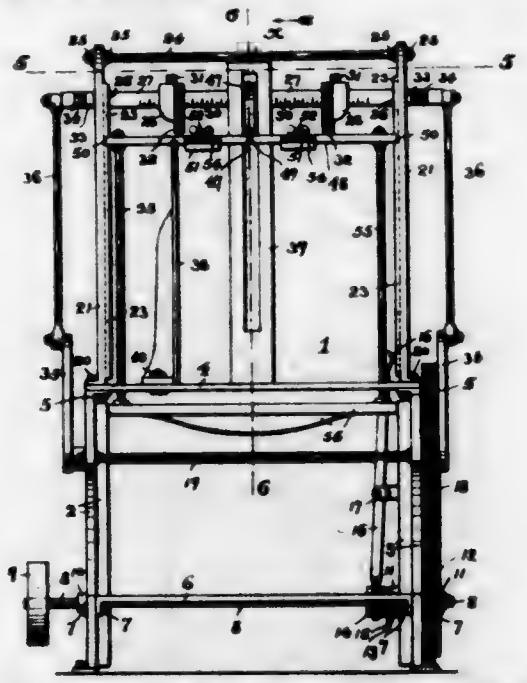
5. In a device of the character described, the combination with an oil-chamber having an upwardly-projecting and concentrically-arranged tubular flange projecting from its bottom to form an air-inlet, ribs arranged on the outer walls of said flange, a bell-shaped wick-support carried thereby and resting on the ribs, means for supplying oil to the wicks, and an adjustable hood arranged above the support and surrounding the same.

698,508. PAPER-CUTTING MACHINE. LADISLAUS DUDÁSCH, Newark, N. J. Filed Sept. 24, 1901. Serial No. 76,367. (No model.)

Claim.—1. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism, consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods between said cross-bars, and a weight or weights on said bar 48, substantially as and for the purposes set forth.

2. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism, consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or

weights slidably and adjustably arranged upon said bar 48, substantially as and for the purposes set forth.



3. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged upon said bar, means for securing the cutter or cutters in their adjusted positions on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and the cross-bar and cutter or cutters thereon following in consecutive order, substantially as and for the purposes set forth.

4. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism, consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights on said bar 48, substantially as and for the purposes set forth.

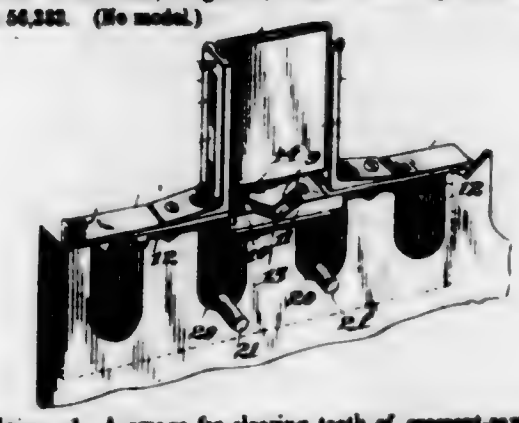
5. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of vertically-arranged guides on said table, a laterally-extending cross-bar connected with said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on said bar, and a holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism, consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights slidably and adjustably arranged upon said bar 48, substantially as and for the purposes set forth.

6. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of a pair of adjustably-arranged guide-posts on said bed against which a stack of paper can be placed, a pair of vertically-extending uprights on said bed provided with slots forming guides, a laterally-extending cross-bar slidably arranged in said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on said bar, and holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, substantially as and for the purposes set forth.

7. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of a pair of adjustably-arranged guide-posts on said bed against which a stack of paper can be placed, a pair of vertically-extending uprights on said bed provided with slots forming guides, a laterally-extending cross-bar slidably arranged in said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on the said bar and holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and of the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights on said bar 48, substantially as and for the purposes set forth.

8. In a paper-cutting machine, the combination, with a bed or table and standards therefor, of a pair of adjustably-arranged guide-posts on said bed against which a stack of paper can be placed, a pair of vertically-extending uprights on said bed provided with slots forming guides, a laterally-extending cross-bar slidably arranged in said guides, mechanism for causing a vertical and reciprocatory motion of said cross-bar, a cutter or cutters slidably arranged on said bar, means for securing the cutter or cutters in their adjusted positions on said bar and holding mechanism for retaining the paper to be cut in place, the movements of the holding mechanism and the cross-bar and cutter or cutters thereon following in consecutive order, and the said holding mechanism consisting, essentially, of a pair of cross-bars 48 and 56, connecting tie-rods 55 between said cross-bars, and a weight or weights slidably and adjustably arranged upon said bar 48, substantially as and for the purposes set forth.

698,504. COMBINED SAW SET, GAGE, SWAGE, AND JOINTER. AUSTIN B. EDMONDS, Ridgefield, Wash. Filed Apr. 18, 1901. Serial No. 56,282. (No model.)



Claim.—1. A swage for clearing teeth of crosscut-saws having its swaging-face formed at an obtuse angle, and adapted to fit between the two points of a clearing-tooth in operation and thus operate upon both of said points simultaneously, and equally.

2. A device of the character described, comprising a body having a slotted plate or anvil, a die coöperating with the anvil to swage the drag-teeth of a saw, guides in which the die is mounted to reciprocate, said guides being provided with a gage, and a pointer on the die coöperating with said gage to indicate the extent of movement of the die, substantially as set forth.

3. A device of the character described, comprising a body or gage provided with an anvil composed of relatively movable sections having correspondingly slotted and beveled meeting ends forming a longitudinal slot, and a V-shaped recess, means for adjusting the parts or sections of the anvil, and a die-block having a V-shaped die coöperating with said slot and recess, substantially as set forth.

4. A device of the character described, comprising a gage-plate provided with a bearing-flange, an adjusting-screw for clamping a file against said flange, a series of screw-threaded openings formed in said gage-plate, and pins adjustably mounted in said openings to engage the teeth of a saw and support the device thereon, substantially as set forth.

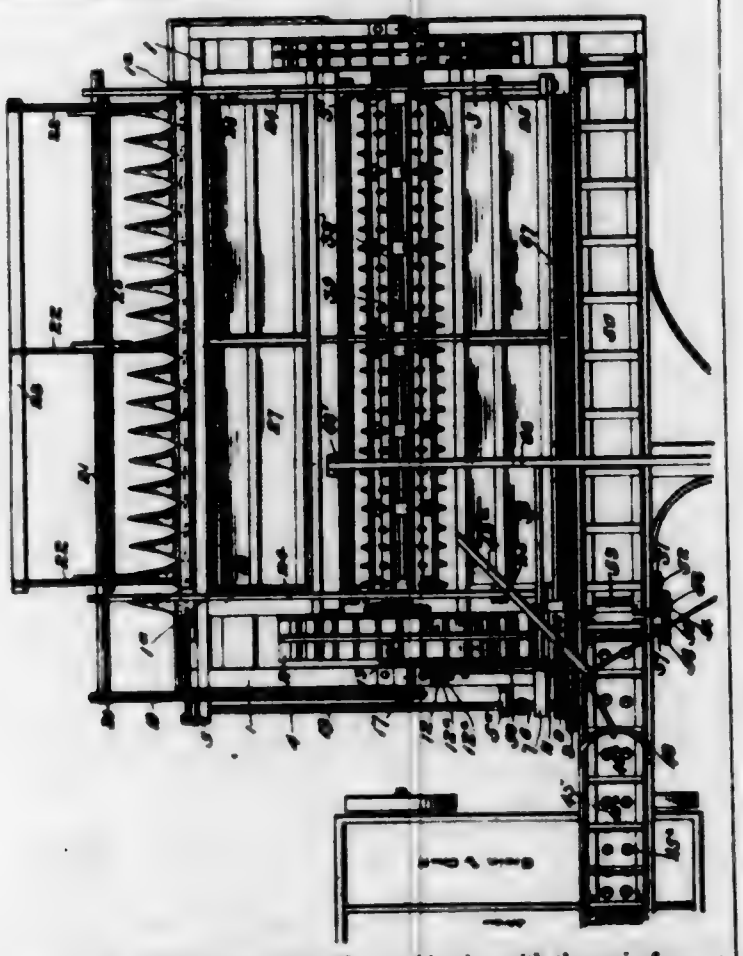
5. In a device of the character described, the combination of a gage-plate provided with guides, a two-part anvil adjustably mounted on the gage-plate at the base or below the guides and having a longitudinal slot and a V-shaped transverse recess, set-screws for adjusting the parts of the anvil, a die-block mounted to reciprocate in said guides and provided with a V-shaped die coöperating with said slot and recess in the anvil, an indicator on the die-block coöperating with the gage on the guides to indicate the extent of movement of the die, and means for holding the die-block away from the anvil, substantially as set forth.

698,505. THRESHING-MACHINE. JAMES R. ELDER and FRED L. ELDER, Dayton, Wash. Filed Jan. 21, 1901. Serial No. 44,210. (No model.)

Claim.—1. In a threshing-machine, the combination with the frame a transverse bar thereon, and a fender mounted below said bar, of an endless carrier, the toothed and slotted concave, the transverse conveyer, the longitudinal conveyer, the grain and chaff elevator, and the straw-elevator, substantially as specified.

2. In a threshing-machine, the combination with the frame, the transverse and longitudinal conveyers, of a grain and chaff elevator, a straw-elevator adjustably connected with the grain and chaff elevator, and means secured to the straw-elevator whereby to give the grain and chaff elevator and the straw-elevator the proper elevations and inclinations, substantially as specified.

3. In a threshing-machine, the combination with the supporting-frame, a front endless carrier, a toothed threshing-cylinder in the rear of said front endless carrier, an adjustable toothed and slotted concave beneath said threshing-cylinder, of a transversely-disposed grain-conveyer beneath said concave, an upwardly-inclined carrier in rear of said concave, an endless horizontal carrier connected with the rear of said supporting-frame and means for operating the same, and an inclined straw and grain separating carrier coacting with said horizontal carrier and adjustably connected to a support rising from the main frame of the machine, substantially as specified.



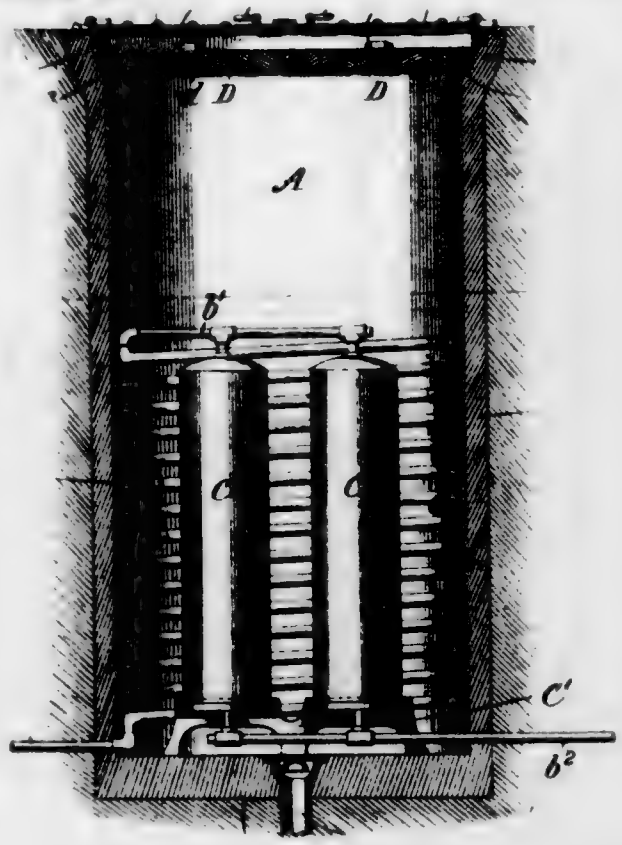
4. In a threshing-machine, the combination with the main frame, a front endless carrier, a toothed threshing-cylinder, in the rear of said endless carrier, and an adjustable toothed slotted concave hinged beneath said toothed threshing-cylinder, of an upwardly-inclined carrier in rear of said concave and a transversely-disposed grain-conveyer beneath said concave, substantially as specified.

698,506. WATER-COOLING APPARATUS. CARL A. FALK, Brooklyn, N. Y., assignor to The J. L. Mott Iron Works, New York, N. Y. Filed Sept. 20, 1901. Serial No. 75,858. (No model.)

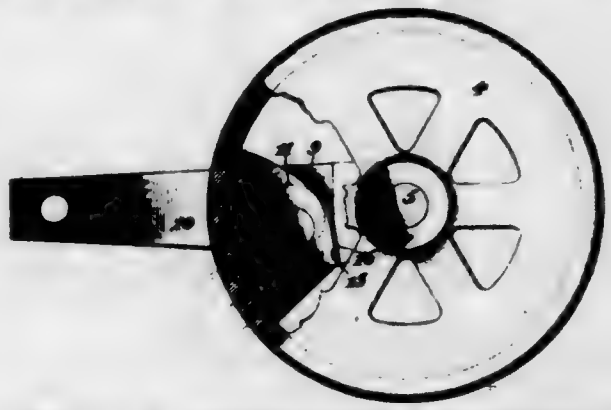
Claim.—1. In a water-cooling apparatus, the combination with a casing or well, of a coil of pipe arranged around the wall of said well, a reservoir in said well, within said coil, spaces being provided between the reservoir and the coil for cooling material, an inlet-pipe connected to the coil, an outlet-pipe connected to the lower part of the reservoir, and a connection between the top of the reservoir and said coil, and a closing device for the upper end of said well, substantially as described.

2. In a water-cooling apparatus, the combination with a casing or well adapted to be placed under ground, of a circular coil of pipe arranged around the wall of said well, a plurality of reservoirs in said casing or well, within said coil, spaces being provided between the reservoirs and the coil for cooling material, a water-supply pipe connected to said coil, an outlet-pipe connected to the bottom portions of each of said reservoirs, a connection from said coil to the top portion of each of said reservoirs and a closure for the upper portion of said well or casing, substantially as described.

3. In a water-cooling apparatus, the combination with the well or casing adapted to be placed under ground and having its upper end rectangular in cross-section, of a removable non-conducting cover fitting the upper end of said casing, a movable protecting-cover engaging said casing above the non-conducting cover, and arranged flush with the surface of the ground, a coil of pipe within said casing arranged adjacent to the wall thereof, a plurality of reservoirs located in said casing within said coil, spaces being provided between said reservoirs and said coil for cooling material, an inlet-pipe connected to the lower end of said coil, a connection between the upper end of said coil and the upper end of each reservoir, an outlet-pipe connected to the lower end of each reservoir and a draining-pipe connected to the bottom of said well or casing, substantially as described.



693,507. FRICTION-CLUTCH. GUY H FARMAN, Denver, Colo. Filed June 7, 1901. Serial No. 63,621. (No model.)



Claim.—1. In combination, a wheel, an arm journaled to rotate about a point, a lever, a stub-shaft thereon and journaled in one end of said arm, a cam secured to the stub-shaft and a shoe on said cam, whereby when said lever is rotated with respect to the arm, the shoe is moved to or from said wheel, substantially as described.

2. In combination, a wheel, an arm journaled at one end to rotate about a point and provided with an offset, a lever, a stub-shaft thereon journaled in the other end of said arm, a cam on the stub shaft and a shoe on the cam, whereby the rotation of said lever in one direction will cam the shoe against the wheel and in the other direction against the offset, substantially as described.

3. In combination, a wheel having a suitable rim, a shaft secured to the wheel, an arm journaled at one end on said shaft and provided with an offset, a lever provided with a stub-shaft journaled in the other end of said arm, a cam on the stub-shaft, a shoe on the cam having a convex engaging face adapted to engage the inner periphery of the wheel-rim, whereby when the lever is moved in one direction will cam the shoe against the inner periphery of the wheel-rim and when moved in an opposite direction cam the shoe against the offset, substantially as described.

4. In combination, an operating-shaft, a wheel secured thereto, an arm loose on the shaft with an offset, a lever provided with a stub-shaft journaled in the free end of said arm, a cam on the stub-shaft, a shoe having a curved engaging face and a straight abutting face, whereby the movement of the lever in one direction will cam the shoe against the wheel-rim to move said wheel with the lever and when said lever is moved in the opposite direction cause the straight face of the shoe to engage the offset, substantially as described.

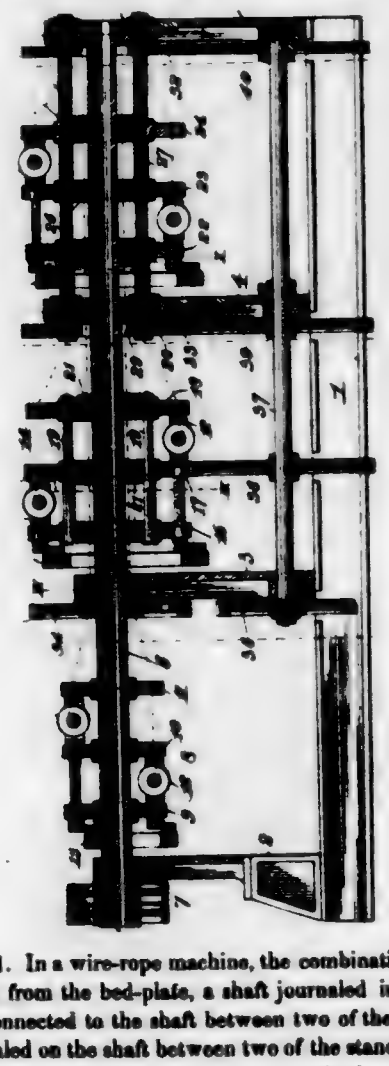
693,508. GROOVE-CUTTER. HEINRICH W. A. FETTE, Altona-Ottensen, Germany. Filed July 3, 1901. Serial No. 67,367. (Model.)

Claim.—1. A groove-cutter provided with a number of longitudinally-extending arms, and intervening grooves, the arms being separated from each other at their ends and provided with three cutting edges, substantially as specified.



2. A groove-cutter provided with a number of longitudinally-extending arms having one straight edge and one curved edge to form intervening grooves, the ends of the arms being separated from each other to form an inner cutting edge upon each arm, substantially as specified.

698,509. WIRE-ROPE MACHINE. EDWARD P. FREDERICK, St. Louis, Mo. Filed Apr. 11, 1901. Serial No. 55,319. (No model.)



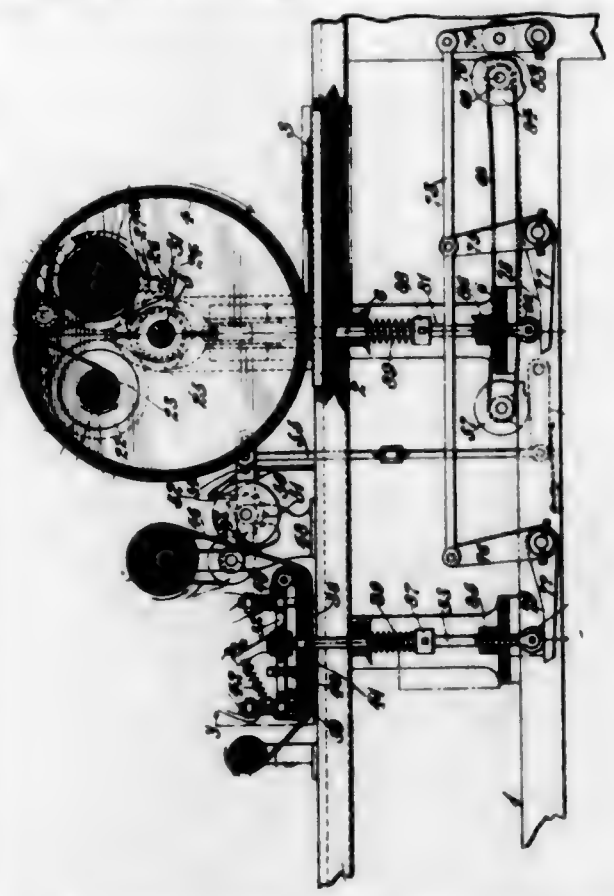
Claim.—1. In a wire-rope machine, the combination of a bed-plate, standards rising from the bed-plate, a shaft journaled in the standards, a flier directly connected to the shaft between two of the standards, a second flier journaled on the shaft between two of the standards, a third flier journaled on the shaft between two of the standards, a gear connection between said counter-shaft and the fliers that are journaled on the first-mentioned shaft, and a gear connection between the first-mentioned shaft and the counter-shaft, substantially as set forth.

2. In a wire-rope machine, the combination of a hollow shaft, a flier rigidly secured to the shaft, perforated bushings through which the wires from said flier pass, standards in which said bushings are journaled, a second flier mounted on said shaft by interposed perforated bushings through which the wires from the first-mentioned flier pass, a third flier mounted on said shaft through interposed perforated bushings through which the wires from the first-mentioned flier pass, perforated bolts extending through the last-mentioned flier and through which the wires from the second-mentioned flier pass, a counter-shaft, a gear connection between the second and third mentioned fliers and said counter-shaft, and a gear connection between said counter-shaft and the first-mentioned shaft, substantially as set forth.

698,510. WIPING DEVICE FOR PRINTING-MACHINES. WILLIAM FULLARD, Colwyn, Pa., assignor of one-half to William R. Weber, Wyncote, Pa. Filed Mar. 7, 1901. Serial No. 50,165. (No model.)

Claim.—1. In a plate-printing machine, a wiping device, and means for turning the device in the same direction as the line of movement of the plate during the wiping operation, whereby the surplus ink is removed and a full supply of ink is pressed into the lines of the plate.

2. In a plate-printing machine, a wiping device, means for turning the same in the same direction as the line of movement of the plate during the wiping operation, and at a different speed from the movement of the plate, and means for presenting a new surface at each wiping.



3. In a printing-machine, a wiping device, means for turning the device in the same direction as the line of movement of the plate during the wiping operation, whereby the surplus ink is removed and a full supply of ink is pressed into the lines of the plate and a second wiping device which is stationary.

4. In a printing-machine, a wiping device, means for turning the same in the same direction as the line of movement of the plate during the wiping operation, whereby surplus ink is removed and a full supply of ink is pressed into the lines of the plate, a suitable material on the exterior of said wiping device, means for moving said material thereon in order to present a new surface at each wiping, a second wiping device, suitable material thereon, and means for moving the material on the second wiping in order to present a new surface.

5. In a printing-machine, a wiping device, means for turning the same, suitable material passed around the exterior of said wiping device, a roll carrying said material, and a second roll adapted to receive the material from the first-mentioned roll, and means for intermittently operating said rolls.

6. In a printing-machine, a wiping device, and means for turning the device in the same direction as the line of movement of the plate during the wiping operation, whereby surplus ink is removed and a full supply of ink is pressed into the lines of the plate, and at a different speed from the movement of the plate.

7. In a wiping device for a plate-printing machine, a frame, a plate pivotally attached at one end thereto, means for adjusting the free end of said plate with respect to said frame, and means for holding said free end of said plate and said frame together.

8. In a wiping device for a printing-machine, a frame, a plate secured thereto, cushioning material on the face of said plate, and means for automatically preserving the tension of said cushioning material.

9. In a printing-machine, a wiping device consisting of a frame, arms pivoted thereto, means for adjusting said arms with respect to said frame, cushioning material on said arms, and means for automatically preserving the tension of said cushioning material.

10. In a printing-machine, a drum, suitable wiping material thereon, rods supporting said drum, a second wiping device, rods supporting the same, bars adapted to contact with said rod, a rod common to said arms and means for operating said rod to move said arms, whereby the said drum and second wiping device are raised and lowered.

11. In a printing-machine, a drum, cushioning material thereon, suitable wiping material adapted to pass beneath said cushioning material, rolls engaging with said wiping material, a ratchet suitably connected with one of said rolls, a pawl engaging with said ratchet and connected with a lever, a roll secured to said lever and a cam adapted to operate said roll to move said pawl.

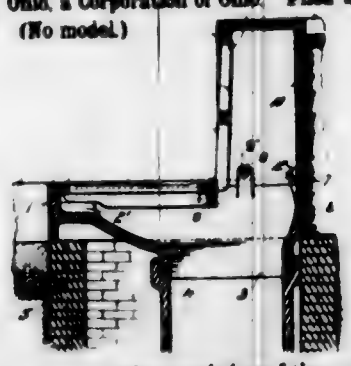
12. In a plate-printing machine, a wiping device and means for moving the same in the same direction as the line of movement of the plate

during the wiping operation, whereby the surplus ink is removed and a full supply of ink is pressed into the lines of the plate.

13. In a printing-machine, a wiping device consisting of a frame, arms pivoted thereto, means for adjusting said arms with respect to said frame, cushioning material on said arms, and a yielding device for automatically preserving the tension of the cushioning material.

14. In a plate-printing machine, a wiping device, means for turning the same in the same direction as the line of movement of the plate during the wiping operation, and at a different speed from the movement of the plate.

698,511. SEWER-INLET. WILLIAM H. GARRETT and HENRY C. PAULY, Springfield, Ohio, assignors to the Hennessey Foundry Company, Springfield, Ohio, a Corporation of Ohio. Filed Sept. 16, 1901. Serial No. 75,427. (No model.)



Claim.—1. A sewer-inlet consisting of three members; first, a rectangular body portion flush with the street-pavement, having vertical sides and inclosing a bowl provided with a circular outlet, said body portion being provided with a rabbeted seat around its upper edge; second, a box-like upper portion resting in the rabbeted seat of the body, open at the front and bottom and flush with the curb; said upper portion having the edge of its front opening provided with an outwardly-contracting seat, and, third, an integral grate having a horizontal part fitting in the rabbeted seat of the body in front of the box-like upper portion, and an upright part fitting in the opening in the front of the said box-like upper portion and engaging the outwardly-contracting seat of the same from the rear, substantially as described.

2. A sewer-inlet consisting of three main parts or members; first, a rectangular body portion flush with the street-pavement, having vertical sides and inclosing a bowl provided with an eccentric circular outlet, said body portion being provided with a rabbeted seat around its upper edge and with upwardly-extending lugs on the interior of its back and sides, and inwardly-projecting lugs on its sides; second, a box-like upper portion resting in the rabbeted seat of the body and between the internal lugs thereof, having a beveled opening at the front and open at the bottom, and flush with the curb, being provided with extensions over the same at its ends; and, third, a grate having a horizontal portion fitting in the rabbeted seat of the body in front of the box-like portion and resting on the internal lugs of the body, and an upright part beveled to fit in the beveled opening in the front of the said box-like upper portion, substantially as described.

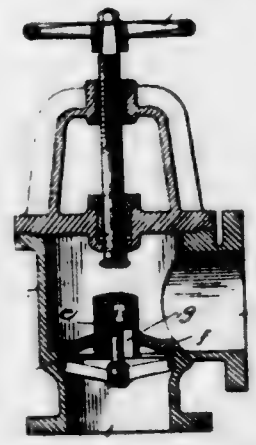
693,512. CREAM-SEPARATOR. WILLIAM J. GOULD, Argentine, Kans., assignor of one-half to Wm. S. Weyer, Kansas City, Mo. Filed Sept. 14, 1901. Serial No. 75,490. (No model.)



Claim.—1. A cream-separator, comprising a can having an inverted conical bottom formed with a radially-extending trough, a faucet secured in the side of the can with its stem registering with said trough, a cooling cylinder supported within the can and provided with a discharge-tube which occupies said trough and detachably engages the faucet-stem, and a valve or plug controlling the discharge from said cooling-cylinder through said tube, substantially as described.

2. In a cream-separator, the combination of the can, provided with a discharge-faucet, the can-cover having a central neck-opening, upwardly-converging spring-arms therein, and a foraminous crown above said arms, and an inner can suitably supported and free to be moved laterally at its lower end and having a discharge-tube adjustably engaging the faucet; said inner can also having its upper end centered in the neck-opening by said spring-arms, substantially as described.

698,513. SAFETY-VALVE FOR STEAM-BOILERS. CHARLES GUILLAND, Pittsburg, Pa. Filed June 10, 1901. Serial No. 63,960. (No model.)

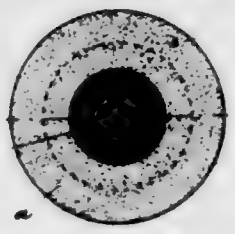


Claim.—1. A non-return valve comprising a seat, a valve having a lower flange exposed to the steam-pressure and a stationary abutment or piston forming a support and guide for said valve substantially as described.

2. A non-return valve comprising a valve-seat, a stationary piston centrally supported upon a solid stem and a valve having a cylindrical central chamber fitting the piston, with a lower flanged part exposed to the steam-pressure, substantially as described.

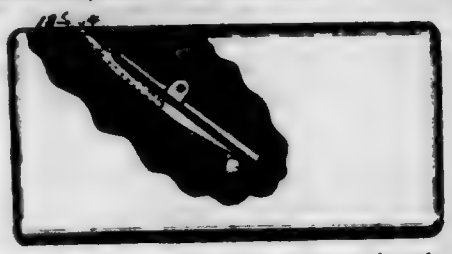
3. A non-return valve, comprising a valve-seat, a central stationary piston having an upturned hollow or recessed end forming a cushion and a valve having a central cylindrical portion fitting over the piston, substantially as described.

698,514. ADHESIVE FASTENER. ALBERT HABERSTROH, Boston, Mass. Filed Nov. 4, 1901. Serial No. 81,083. (No model.)



Claim.—The herein-described adhesive fastener, consisting of two members attached together, one of which members is annular and the other of which is preferably solid, the face of one of said members being coated with a rubber or similar cement, and the face of the other member being coated with gum-arabic or similar moisture-solvent material substantially as and for the purpose set forth.

698,515. COIN-RECEPTACLE. FRED H. HALEY, Westchester, Pa. Filed Nov. 25, 1901. Serial No. 83,525. (No model.)



Claim.—1. A chute provided with an internal cavity and a movable member loosely contained within said cavity, the upper and both side walls of said cavity being inclined and designed to deflect the movable member from said cavity, substantially as described.

2. A chute provided with an internal cavity and a movable member of greater diameter than that of said chute loosely contained within said cavity, the upper and both side walls of said cavity being inclined

and designed to deflect the movable member from said cavity, substantially as described.

3. A chute provided with an internal cavity having an uninterrupted inclined wall inclosing the upper end and both sides of said cavity designed to deflect a movable member normally loosely contained within said cavity from said cavity when said chute is moved from its normal plane or position therein, substantially as described.

4. A chute provided with an internal cavity and a movable member loosely contained within said cavity, said cavity being of sufficient capacity to contain said member without protrusion of said member within said chute, the upper and both side walls of said cavity being inclined and designed to deflect the movable member from said cavity, substantially as described.

5. A chute provided with an internal cavity and a movable member of greater diameter than said chute loosely contained within said cavity, said cavity being of sufficient capacity to contain said member without protrusion of said member within said chute, the upper and both side walls of said cavity being inclined and designed to deflect the movable member from said cavity, substantially as described.

6. A chute provided with an internal cavity having an uninterrupted inclined wall inclosing the upper end and both sides of said cavity designed to deflect a ball of greater diameter than said chute normally loosely contained within said cavity from said cavity when said chute is moved from its normal plane or position therein, substantially as described.

7. A chute provided with an internal cavity, a movable member loosely contained within said cavity and a pivoted guard-plate between said cavity and the entrance to said chute, one end of said guard-plate closing said chute when its opposite end opens the same, substantially as described.

8. The combination with a chute consisting of a stationary body portion and a pivoted guard-plate of one or more cavities in and adjacent the inner end of said stationary body portion and a movable member or members loosely contained within said cavity or cavities, substantially as described.

9. The combination with a stationary chute of a pivoted guard-plate normally gravitating to open the entrance and close the exit to said chute but adapted to be shifted by the weight of and offer no obstruction to an entering object, said guard-plate adapted to gravitate to close said entrance and open said exit when said chute is caused to assume an abnormal position, an internal cavity or cavities in said chute adjacent said exit, a movable member or members normally contained within said cavity or cavities, the upper and both side walls of said cavity or cavities inclined and adapted to deflect said movable member or members from said cavity or cavities to close said exit simultaneously with the opening thereof by the gravitation of said guard-plate when said chute is caused to assume an abnormal position, substantially as described.

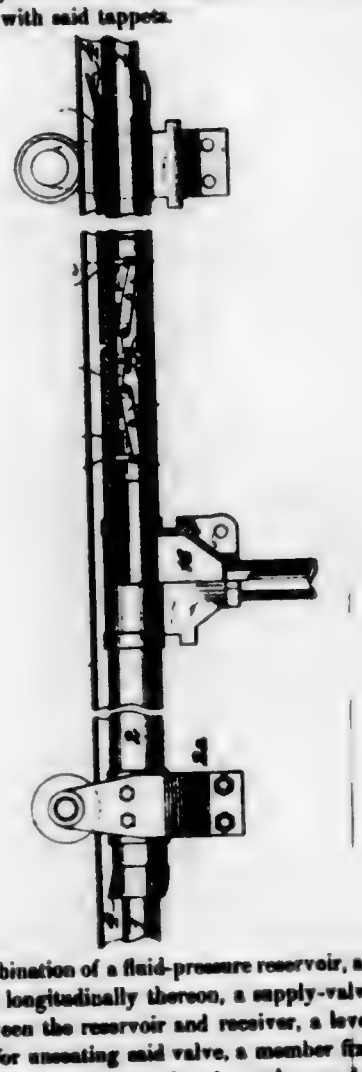
10. The combination with a stationary chute of a pivoted guard-plate normally gravitating to open the entrance and close the exit to said chute but adapted to be shifted by the weight of and offer no obstruction to an entering object, said guard-plate adapted to gravitate to close said entrance and open said exit when said chute is caused to assume an abnormal position, an internal cavity or cavities in said chute, a ball or balls normally loosely contained within said cavity or cavities, an uninterrupted inclined wall inclosing the upper end and both sides of said cavity or each of said cavities adapted to deflect said ball or balls from said cavity or cavities to close said exit simultaneously with the opening thereof by the gravitation of said guard-plate when said chute is caused to assume an abnormal position, substantially as described.

698,516. MEANS FOR TRANSMITTING FLUID UNDER PRESSURE. WILLIAM S. HALSEY, Pittsburg, Pa. Filed Aug. 30, 1900. Serial No. 28,508. (No model.)

Claim.—1. The combination of a fluid-pressure reservoir, a receiver surrounding and movable longitudinally thereon, a supply-valve seating over a port in the reservoir, a lever system mounted in the reservoir and coupled to said valve, tappets connected to said lever system, and extending through the shell of the reservoir on the side thereof farther from the supply-valve, and a bearing-surface fixed to the receiver in position to contact with said tappets.

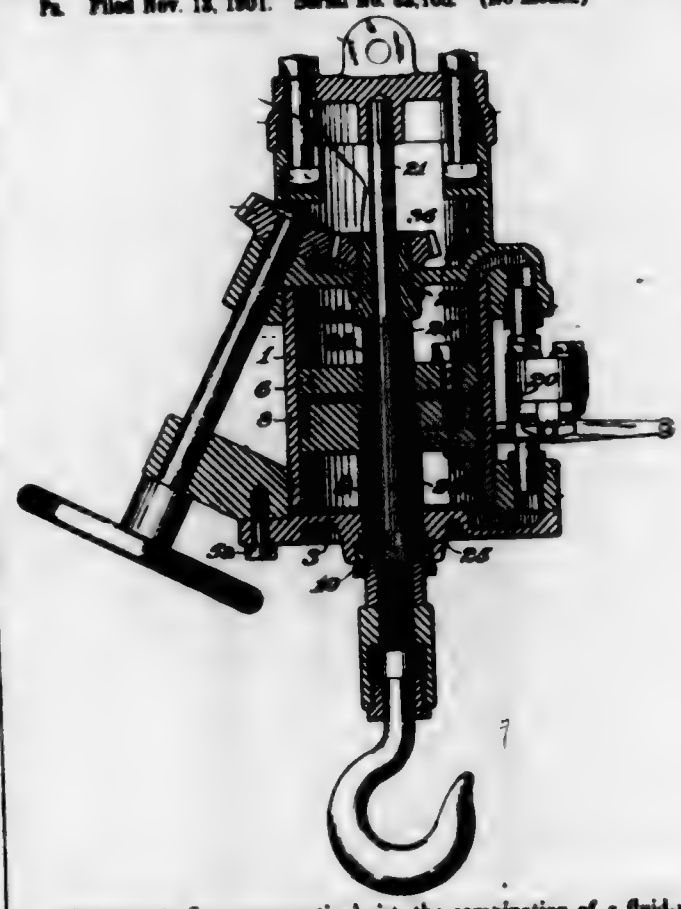
2. The combination of a fluid-pressure reservoir, a receiver surrounding and movable longitudinally thereon, a supply-valve seating over a port in the reservoir, a lever system mounted in the reservoir and coupled to said valve, tappets connected to said lever system, and extending through the shell of the reservoir on the side thereof farther from the supply-valve, and a curved bearing-face of substantially greater width than the diameter of the tappets and fixed to the receiver in position to contact with said tappets.

3. The combination of a fluid-pressure reservoir, a receiver surrounding and movable longitudinally thereon, a supply-valve seating over a port in the reservoir, a double-armed valve-lever pivoted thereto, double-armed tappet-levers, each fulcrumed in the reservoir, and adapted to abut against one end of the valve-lever, tappets coupled to said tappet-levers and extending through the shell of the reservoir on the side thereof farther from the supply-valve, and a bearing-surface fixed to the receiver in position to contact with said tappets.



4. The combination of a fluid-pressure reservoir, a receiver surrounding and movable longitudinally thereon, a supply-valve controlling communication between the reservoir and receiver, a lever system mounted in the reservoir for unseating said valve, a member fixed to the receiver, on the side of the axis thereof farther from the supply-valve, for actuating said lever system, a fixed track or runway, and suspending-brackets connected to the receiver and provided with wheels traversing on said runway.

698,517. PNEUMATIC HOIST. WILLIAM S. HALSEY, Pittsburg, Pa. Filed Nov. 12, 1901. Serial No. 82,105. (No model.)



Claim.—1. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapt-

ed to be connected to a load, means for admitting and releasing fluid to and from the cylinder, a regulating-screw fixed to, and movable longitudinally with, the piston, a nut engaging the regulating-screw and rotatable by the traverse thereof, means for preventing rotation of the piston, and means for controlling the speed of rotation of the nut.

2. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a tubular piston-rod fixed to said piston and projecting through a packed opening in one end of the cylinder, means for admitting and releasing fluid to and from the cylinder, a regulating-screw fixed to the piston-rod, a tubular nut fitting freely in the piston-rod, and surrounding and engaging the thread of the regulating-screw, means for preventing rotation of the piston, and means for controlling the speed of rotation of the nut.

3. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and adapted to be connected to a load, means for admitting and releasing fluid to and from the cylinder, a regulating-screw fixed to, and movable longitudinally with, the piston, a nut engaging the regulating-screw and rotatable by the traverse thereof, means for preventing rotation of the piston, a manually-operable shaft journaled on the cylinder, and gearing connecting said shaft with the regulating-screw.

4. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a rod fixed to said piston and projecting through a packed opening in one end of the cylinder, means for admitting and releasing fluid to and from the cylinder, a head closing the end of the cylinder opposite that through which the piston-rod passes, a nut journaled in said head and passing freely through the piston, a regulating-screw fixed to the piston and engaging said nut, a shaft journaled laterally on the cylinder, gearing connecting said shaft with the nut, means for manually operating and controlling said shaft, and means for preventing rotation of the piston.

5. In a pneumatic hoist, the combination of a fluid-pressure cylinder, a piston fitting therein, a tubular piston-rod fixed to said piston and projecting through a packed opening in one end of the cylinder, means for admitting and releasing fluid to and from the cylinder, a tubular regulating-screw fixed to the piston-rod, a rod fixed to the cylinder and extending into the bore of the regulating-screw, a key in said rod engaging a keyway in the regulating-screw, a tubular nut fitting freely in the piston-rod, and surrounding and engaging the thread of the regulating-screw, and means for controlling the speed of rotation of said nut.

693,518. **GLAZIER'S TOOL.** GEORGE W. HAMILTON, Chicago, Ill. Filed June 8, 1901. Serial No. 63,769. (No model.)



Claim.—1. A glazier's tool comprising a handle and a base, the ends of said base being essentially V-shaped, and a double-ended blade attached to said base, the ends being V-shaped and sharpened, substantially as described.

2. A glazier's tool comprising a handle, a base, the ends of said base being V-shaped and the blade having V-shaped cutting edges, said blade being adjustably attached to the base, substantially as shown and described.

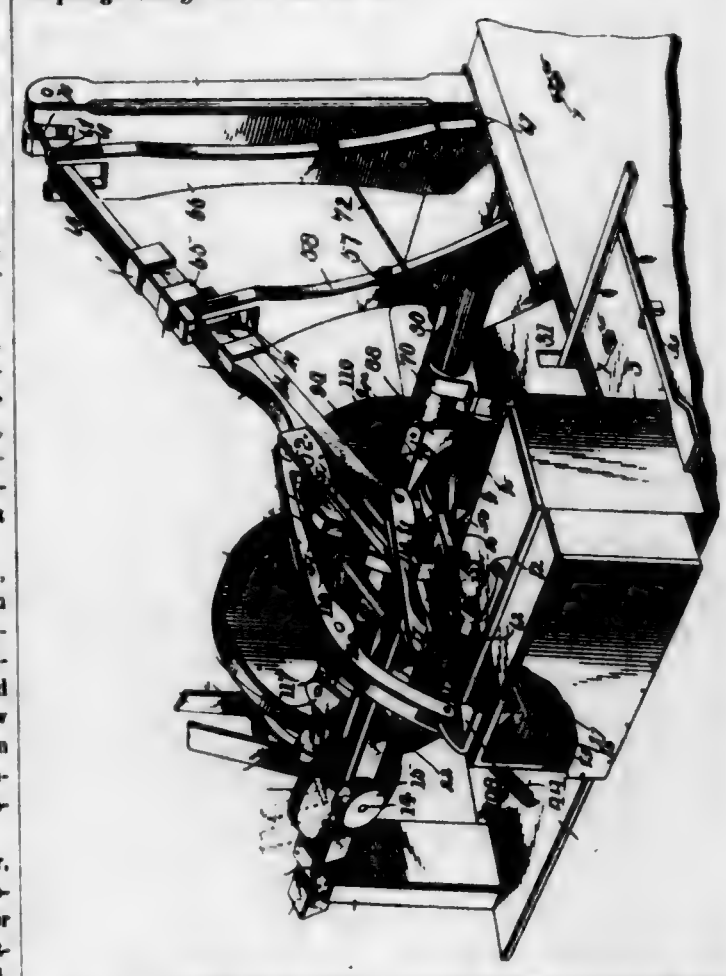
3. A glazier's tool comprising a handle having a putty-knife at the upper end, and a base at the lower end, said base having V-shaped ends and being slotted longitudinally at the center, and a blade having V-shaped cutting edges at each end and a bolt adapted to connect the blade to the base, substantially as described.

693,519. **BOX-HINGING MACHINE.** DANIEL HILL, Keene, N. H. Filed Sept. 6, 1901. Serial No. 74,580. (No model.)

Claim.—1. In a box-hinging machine, means for holding a box and lid in coöperative relation, means for drilling openings in the lid and the box, and means operating independently of the drilling means for seating a hinge in the said openings.

2. In a box-hinging machine, means for holding a box and lid in cooperative relation, a drill for forming an opening in the lid and the box, means for seating a hinge in the said openings, and means for bending the terminals of the hinge members to present prongs.

3. In a box-hinging machine, means for holding a box and lid in cooperative relation, a drill for forming an opening in the lid and the box, means for seating a hinge in the said openings, means for bending the terminals of the hinge members to present prongs, and means for forcing the prongs through the lid and the box.



4. In a box-hinging machine, means for holding a box and lid in cooperative relation, a drill for forming an opening in the lid and the box, means for seating a hinge in the said openings, means for bending the terminals of the hinge members to present prongs, means for forcing the prongs through the lid and the box; and means for clenching the ends of the prongs into the said parts.

5. In a box-hinging machine, a drill having lateral movement to bring it opposite the work to be done and forward movement to cause it to effect boring of openings through the box members, a hinge-carrier movable to position in line with the openings made, and means for forcing the hinge from the carrier into the said openings.

6. In a box-hinging machine, a drill adapted for lateral and forward movement, a hinge-carrier movable to position in line with the openings made, and a plunger coacting with the carrier to force the hinge therefrom and seat it in the said openings.

7. In a box-hinging machine, the combination with means for holding a box and lid in coöperative relation, of the following elements each operating automatically and in the sequence named: a drill for forming an opening in the lid and in the box-body, a hinge-carrier to bring a hinge opposite the openings, a plunger to seat the hinge in the openings, means for bending the terminals of the hinge members at right angles to their length to present prongs, means for forcing the prongs through the lid and the box, and means for clenching the prong ends into the said parts of the box.

8. In a box-hinging machine, the combination of means for holding a box and lid in coöperative relation, means for forming an opening in the box and lid, means for presenting a hinge opposite the openings made, means for seating the hinge in the said openings, means for bending the terminals of the hinge members at an angle to their length to present prongs, means for forcing the prongs through the lid and the box, and means for clenching the prong ends into the said parts of the box.

9. In a box-hinging machine, means for holding a box and lid in cooperative relation, a laterally and forwardly movable drill, a forwardly-movable hinge-carrier and plunger coacting therewith, and laterally and vertically movable pliers.

10. In a box-hinging machine, means for holding a box and lid in coöperative relation, a laterally and forwardly movable drill, a forwardly-movable hinge-carrier and plunger coacting therewith, laterally and vertically movable oppositely-operable pliers, and hammer and clenching mechanism.

11. In a box-hinging machine, means for holding a box and lid in coöperative relation, a drill adapted for lateral and forward movement, a hinge-carrier movable to position in line with the openings made, means for seating a hinge in the openings, and means for bending the terminals of the hinge members to present prongs.

12. In a box-hinging machine, means for holding a box and lid in coöperative relation, a drill adapted for lateral and forward movement, a hinge-carrier movable to position in line with the openings made, means for projecting a hinge from the carrier and seating it in the said openings, means for bending the terminals of the hinge members to present prongs, means for forcing the prongs through the lid and the box, and means for clenching the ends of the prongs into the said parts.

13. In a box-hinging machine, a drill for forming an opening in the lid and the box, means for seating a hinge in the said openings, means for bending the terminals of the hinge members to present prongs, means for forcing the prongs through the lid of the box, and anvils against which the points of the prongs are forced, thereby to effect bending and clenching of the said points.

14. In a box-hinging machine, a support for holding the box lid and body at right angles to each other, in combination with a drill disposed at an angle to the support and operating to drill an opening through the box-lid and the box-body, means for seating a hinge in the said openings with its joints between the meeting edges of the lid and the box, and means for firmly securing the terminals of the hinge to the lid and to the box-body.

15. In a box-hinging machine, means for holding a box and lid in coöperative relation, a drill and means for moving the drill laterally to boring position, in combination with means operating automatically to project the drill into the work, to withdraw it therefrom, and to return it to its normal position.

16. In a box-hinging machine, a laterally-movable drill and means operating automatically to project it into the work, to withdraw it therefrom and to return it to its normal position, in combination with means operating automatically and independently of the drill to insert a hinge in the openings formed by the drill.

17. In a box-hinging machine, a laterally-movable drill and means operating automatically to project it into the work, to withdraw it therefrom, and to return it to its normal position, in combination with means operating automatically to insert a hinge in the openings formed by the drill, and to seat and clench the terminals of the hinge members within the lid and the box.

18. In a box-hinging machine, the combination with a laterally and forwardly movable drill, of forwardly-movable hinge feeding and seating mechanism, laterally and vertically movable mechanism for bending the terminals of the hinge members into prongs, rocking means for driving the prongs through the lid and the box, and stationary means for clenching the ends of the prongs into the parts of the box.

19. In a box-hinging machine, means for holding a box and lid in coöperative relation, a frame, a laterally-movable drill carried thereby and disposed at right angles thereto, a rotary disk carrying a cam projection, and a rock-lever operatively connected with the drill-frame and having a part arranged in the path of the cam projection.

20. In a box-hinging machine, means for holding a box and hinge in coöperative relation, a drill, a supporting-frame therefor and movable at right angles thereto, a rotary disk carrying a cam projection, a rock-lever operatively connected with the drill-frame and having a part arranged in the path of the cam projection, a pivoted arm carried by the frame and having one end operatively connected with the drill-carrier, and a second rock-lever operatively connected with the other end of the arm and having a part arranged in the path of movement of a second cam projection on the disk.

21. In a box-hinging machine, means for bending the terminals of the hinge members at right angles to each other, comprising two pairs of pliers, one lever of each of which is mounted for swinging movement in a horizontal plane, and each of the other levers mounted for movement in a vertical plane, the forward ends of the latter levers, by coaction with projections carried by the forward ends of the first-named levers, effecting bending of the hinge terminals, a rotary disk carrying on one side a cam projection, and on the other side a pin, a rock-lever having one member arranged in the path of the cam projection and the other member connected by interposed mechanism with the swinging levers, whereby upon rocking, the lever will impart lateral movement to the pairs of pliers, a rock-lever having a part in the path of the said pin, and connections between the latter rock-lever and the vertically-movable levers whereby to cause bending of the ends of the hinge-terminals.

22. In a box-hinging machine, the combination with a drill, of a hinge-carrier comprising a plate supported at an angle coincident with that of the drill, a tube carried by the lower end of the plate in which the hinge-blank is placed, and means for moving the hinge-carrier to and from the work, comprising a hinged support having its upper end operatively connected with the plate, a rotary disk carrying a cam projection, and a rock-lever having one end arranged in the path of the said projection, and its other end operatively connected with the said support.

23. In a box-hinging machine, the combination with a drill, of a hinge-feeder and hinge-seater comprising a fixed support disposed at an angle coincident with that of the drill, a plate mounted for sliding movement on the support, a tube carried by the lower end of the plate in which the hinge-blank is placed, a second plate mounted upon the tube-carrying plate and adapted for movement independent thereof, a plunger carried by the second plate and adapted to enter the said tube to force the hinge-blank therefrom, means for projecting the hinge-feeder and hinge-seater, comprising two hinged supports operatively connected with the respective plates, a disk bearing a cam projection, two pivoted rock-levers, the outer ends of which are arranged in the path of the said projection, and the inner ends of which are operatively connected with the two hinged supports, and means connecting with the plunger-carrying plate to effect automatic return of the two plates.

24. In a box-hinging machine, a combined clamp and anvil, comprising a pivoted arm, one end of which carries the anvil and the other end a head, and a rotary disk normally bearing against the head to hold the anvil depressed, and provided with a recess into which the head will spring to permit the anvil to rise and thus release the box.

25. In a box-hinging machine, the combination of a drill, a hinge feeding and seating device, and oppositely-operable pliers for bending the terminals of the hinge into prongs.

26. In a box-hinging machine, the combination of a drill, means for automatically projecting the same into position for operation, automatically-operating means for seating a hinge in the openings formed by the drill, automatically-operating means for bending the terminals of the hinge into prongs, and automatically-operating means for forcing the prongs through the appropriate portions of the box and for clenching the same.

27. In a box-hinging machine, means for holding a box and lid in coöperative relation, a drill for forming an opening in the lid and the box, means for inserting a hinge in the openings made, and laterally shiftable pliers for bending the terminals of the hinge to present prongs.

28. In a box-hinging machine, means for holding a box and lid in coöperative relation, a drill for forming openings in the box and the lid, means for conveying a hinge into alinement with the openings made, and means for projecting the hinge into the opening, in combination with means for bending the terminals of the hinge to present prongs, and for forcing the prongs through the parts of the box and clenching the same.

29. In a box-hinging machine, means for holding a box and lid in coöperative relation, a drill for forming openings in the parts, a carrier for conveying a hinge to the openings made, an independently-operable plunger for projecting a hinge from the carrier into the opening, and means for automatically returning the carrier and the plunger to their normal positions.

30. In a box-hinging machine, means for holding a box and lid in coöperative relation, a pair of pliers normally disposed to one side of the work-holding means, and having its plier-bearing ends normally separated, and in combination with means operating automatically to shift said ends laterally to bring them into operative position and vertically to close the same, and then to return the pliers to their normal position.

31. In a box-hinging machine, a two-part box-support, one of which is fixed and the other movable, in combination with a combined clamp and anvil coöperating with the fixed part and comprising a pivoted arm, one end of which carries the anvil and the other end a head, and means for bringing the anvil into and moving it out of engagement with the box to be operated upon.

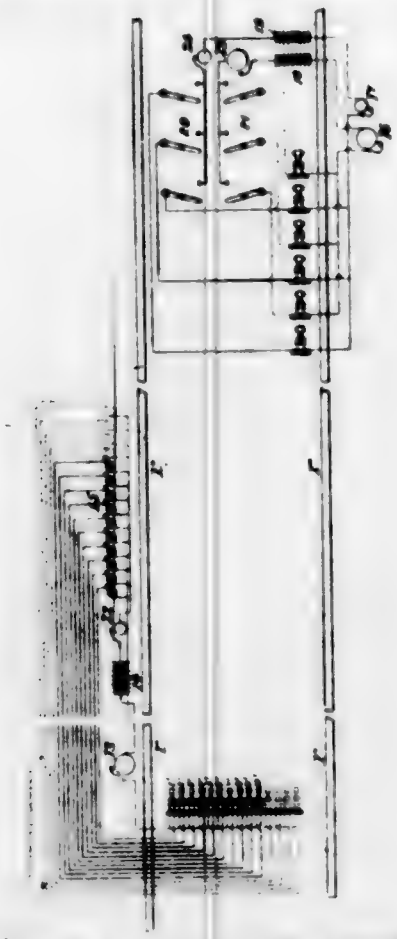
32. In a box-hinging machine, means for holding a box and lid in coöperative relation, a drill adapted for lateral and forward movement, a hinge-carrier movable to position in line with the openings made, a plunger coacting with the carrier to force the hinge therefrom and seat it in the said openings, and laterally-movable pliers for bending the terminals of the hinge to present prongs.

33. In a box-hinging machine, the combination with means for holding a box and lid in coöperative relation, of the following elements each operating automatically and in sequence named: a laterally and forwardly movable drill for forming an opening in the lid and in the box-body, a reciprocatory hinge-carrier to present a hinge opposite the openings made, a reciprocatory plunger to force the hinge from the carrier and to seat it in the said openings, laterally and vertically movable pliers for bending the terminals of the hinge members at right angles to their length to present prongs, hammers for forcing the prongs through the lid and the box, and anvils for clenching the prong ends into the said parts of the box.

693,520. RAILWAY ELECTRIC SIGNALING APPARATUS. WASHINGTON HUME, London, England. Filed May 28, 1901. Serial No. 62,276. (No model.)

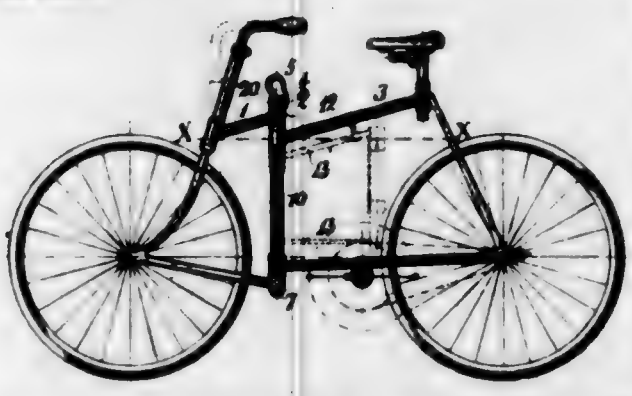
Claim.— 1. Railway signaling apparatus consisting of pivoted levers or triggers spaced apart across the track, an electric circuit or circuits, with suitable terminals between the tracks, means for energizing said circuits, sliding bars each carrying two contacts adapted to make contact with said terminals, train-number annunciators corresponding with the pivoted levers or triggers and located at a signal box or station, electrical connections between one of the terminals of each pair and one terminal

of the corresponding train-annunciator, an audible signaling device located at said signal box or station, an audible signaling device located in proximity to said pivoted levers or triggers, said audible signaling devices being in circuit with the second terminal of each pair of terminals and with the second terminal of each of said train-number annunciators, and a bar or projection mounted in a prearranged position on the vehicle whose approach is to be notified, so as to depress the lever or trigger and so complete the circuit between the corresponding pairs of terminals in passing over such pivoted lever or trigger, substantially as described.



2. Railway signaling apparatus comprising pivoted levers or triggers spaced apart one behind the other across the track, an electric circuit or circuits with suitable terminals between the tracks, means for energizing said circuits, sliding bars each carrying two contacts adapted to make contact with said terminals, corresponding switches located at a signal box or station, electrical connections between each of said pairs of terminals and said switches, audible signaling devices of different tones placed alongside the rail in circuit, adapted to be operated by the closing of the circuits between the pairs of terminals, and one or more bars or projections carried by a traveling vehicle, adapted to depress the pivoted levers or triggers so as to connect and close a circuit between the successive pairs of terminals, substantially as described and for the purpose specified.

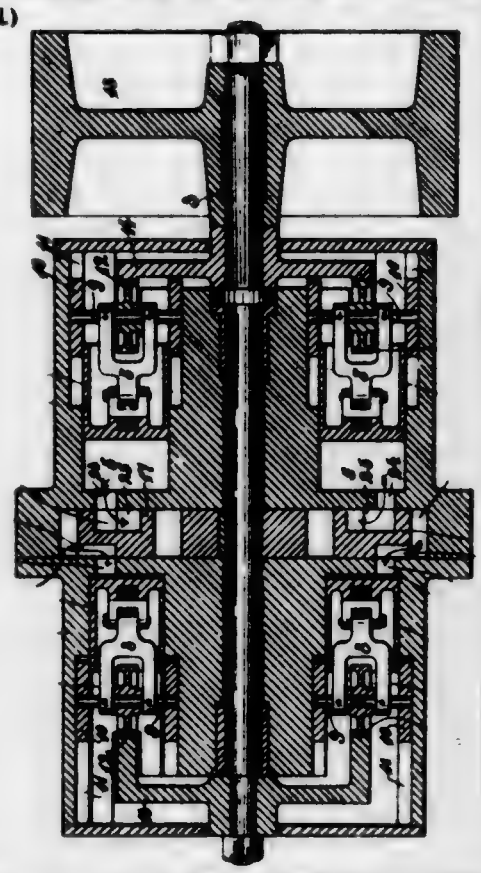
698,521. SEPARABLE AND REVERSIBLE CYCLE. FREDERIK IBSÖY, Copenhagen, Denmark. Filed Feb. 13, 1901. Serial No. 47,160. (No model.)



Claim.—1. In combination with two cycle-frame sections having tubular parts adapted to be arranged in line with each other, a pin adapted to pass through the said parts for uniting the said sections and having at its lower end a head or knob which is flattened at the sides, one of the frame-sections being provided with an opening of similar shape, in order that the said head or knob after passing down through the said opening may be used to lock or unlock the frame at will by turning the said pin substantially as set forth.

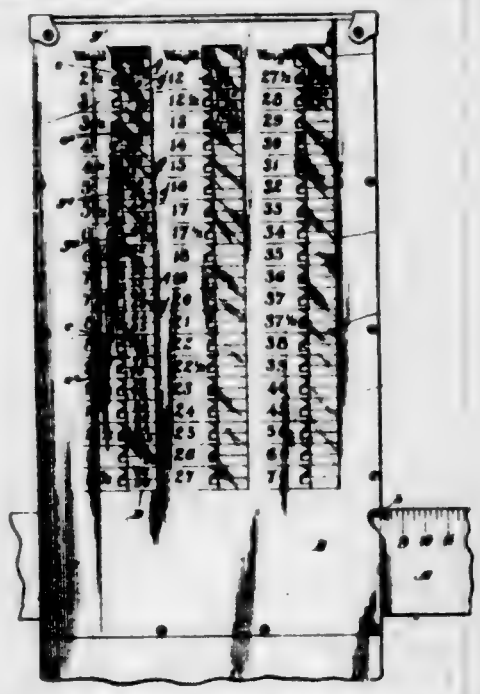
2. In a folding cycle-frame, the combination of an axle and shaft having a nut formed on its end, with the wheel on said axle, the frame-section which carries them, the other wheel and axle, the other frame-section in which they are mounted and which is provided with a screw-threaded part engaging the said nut when the two frame-sections are folded together and a connecting pin or rod on which the two frame-sections are united for folding, substantially as set forth.

698,522. STEAM-ENGINE OR THE LIKE. FRANS J. E. JOHANSSON, Stockholm, Sweden. Filed Feb. 28, 1901. Serial No. 49,364. (No model.)



Claim.—In a steam-engine, the combination, of a driving-shaft, cam-drums secured to said shaft, two sets of high and low pressure steam cylinders arranged axially around said shaft, pistons for said cylinders, the pistons of each set of cylinders engaging with one of said cam-drums, and distributing-valves common to both sets of cylinders, substantially as and for the purpose set forth.

698,528. COMPUTING-POISE FOR SCALES. MATTHIAS F. KNOX, Nashville, Tenn. Filed Apr. 9, 1901. Serial No. 54,975. (No model.)



Claim.—1. The combination with a slidable poise, of a computing-band, spools in operative communication with the band disposed at separated points within the poise, and on opposite sides of the beam adapted to be moved with the poise, and means for imparting a rotary motion to the spools to effect the travel of the band from one to the other thereof when the poise is slid back and forth, substantially as described.

2. The combination with a scale-beam provided with a toothed rack, of a computing-poise slidably mounted on said beam, a spool journaled in said poise at one side of said beam, a spool journaled in said poise at the other side of said beam and opposite said first-named spool, a computation-indicating band secured to and adapted to be wound upon said spools and a gear connected to one of said spools and geared to said toothed rack on the scale-beam, substantially as described.

3. The combination with a scale-beam provided with a toothed rack, of a poise slidable thereon, a plurality of computation-indicating bands in said poise, spools for each band to which the same is secured and upon which it is adapted to be wound, a gear connected to one of said spools and geared to said toothed rack, and a train of gearing connecting said spools for driving all of said bands, substantially as described.

4. The combination with a scale-beam provided with a toothed rack, of a poise slidable thereon, and having separated bearing-plates therein, a spool journaled in said bearing-plates at one side of said beam, a spool journaled in said bearing-plates at the opposite side of said beam and opposite said first-named spool, a computation-indicating band connected to said spools, a gear secured to the journal of one of said spools below the lower bearing-plate, and a train of gears connecting said spools located between the upper bearing-plate and the top of the poise for operatively connecting the spools, substantially as described.

5. In a computing-poise, the combination with a ribbon or band provided with a series of computations arranged in pairs, means for carrying and operating the band within the poise, and a corresponding series of index-pointers arranged in pairs of differentiating configurations carried by the poise, substantially as described.

6. In a computing-poise, the combination with a computation-indicating band, of spools on which said band is wound, means for driving one of said spools, and gearing instrumentalities intermediate the spools for variably driving the other spool, substantially as and for the purpose set forth.

7. In a computing-poise, the combination with a beam on which the poise slides, a computation-indicating band, vertically-disposed spools on opposite sides of the beam within the poise on which said band is adapted to be wound, and an operative communication between the end of one of the spools and the scale-beam for revolving the spools when the poise is slid back and forth, substantially as described.

8. In a computing-poise the combination with a plurality of computation-indicating bands, of a reeling mechanism for each band comprising a plurality of spools, means for driving one of said spools, and driving mechanism for connecting said driven spool to the other of said spools for variably driving said other spools, substantially as described.

9. In a computing-poise, the combination with a computation-indicating band, of spools on which the same is wound, means for driving one of said spools, and means for driving the other of said spools variably, including scroll-gears, substantially as described.

10. In a computing-poise, the combination with a plurality of computation-indicating bands, of spools upon which the bands are adapted to be wound, means of driving one of said spools to cause the travel of the bands, and a variable driving mechanism for the other spools, said drive mechanism being operated by said driven spool, substantially as described.

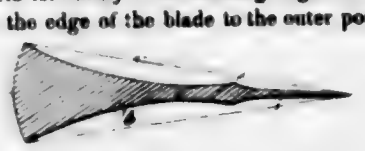
11. The combination with a scale-beam provided with a toothed rack, of a computing-poise slidable thereon, a plurality of computation-indicating bands, a series of spools on one side of said scale-beam, a series of spools on the other side of said scale-beam, operative communication between the spools and bands, means for driving one of said spools on one side by the toothed rack, a variable drive mechanism for the spools on the other side of said scale-beam operated by said driving-spool, substantially as described.

12. In combination with a fixed part, a part movable bodily on said fixed part, and computation-indicating instrumentalities within the movable part adapted to be operated and conveyed thereby, comprising an indicating-band, spools onto which the band is wound, and means for rotating the spools at different speeds, substantially as and for the purpose described.

13. In combination with a fixed part, a part movable bodily on said fixed part, and computation-indicating instrumentalities within the movable part adapted to be conveyed thereby, comprising an indicating-band, spools onto which the band is wound, means in communication with the fixed part for driving one of the spools and means for variably driving the other of said spools, substantially as described.

693,524. RAZOR. GEORGE W. KORN, Little Valley, N. Y. Filed June 27, 1901. Serial No. 66,196. (Model.)

Claim.—A razor provided with a longitudinal rib extending between its back and the cutting edge and nearer to the cutting edge than to the back, the razor having concave surfaces which begin at the back and extend forward to the said rib, and a second set of concave surfaces which extend from the rib forwardly to the cutting edge, the rib being within lines drawn from the edge of the blade to the outer portions of the back.



693,525. SELF-HANDLING NAIL-CABINET. JOHN D. LEEB, Braggville, Me. Filed Jan. 12, 1901. Serial No. 42,961. (No model.)



Claim.—1. In a cabinet of the character described, the combination of a rectangular body, a bottom held therein, transverse partitions arranged within said body forming compartments therein, supplemental partitions movably held to the said transverse partitions, and means for holding the supplemental partitions in an elevated position, thus providing a temporary communication between the supplementary compartments, and chutes communicating with the compartments all arranged substantially as shown and described.

2. In a cabinet of the character described, the combination of a rectangular casing, division-plates fixedly held within said casing, grooves formed in the said plates supplemental division-plates adapted to slide within said grooves, and means for holding the said supplemental division-plates in an elevated position, chutes arranged on the front of the casing and having divisions arranged in alinement with the said division-plate of the casing, and means for controlling the outlets of the said chutes all arranged substantially as shown and described.

3. In a cabinet of the character described, the combination, of a casing, an obliquely-arranged bottom formed therein, transverse partitions held in the casing, and having a plurality of grooves formed in the opposite sides thereof the ends of the said casing also having grooves arranged in alinement with the grooves in the said partitions, and slides or partitions adapted to fit in the said grooves, and means for holding said slides or partitions in an elevated position, and chutes arranged upon the front of said casing all arranged substantially as shown and described.

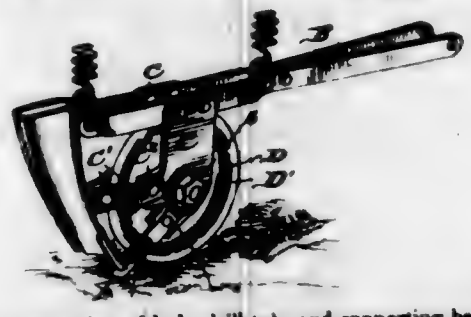
4. In a nail-cabinet the combination of a rectangular casing, transverse partitions held therein, grooves formed in the inner sides of the end of said casing and on the opposite sides of the partitions supplemental partitions held to slide in the said grooves and being shorter than the transverse partitions, which permits them to be raised and lowered in the said grooves, hooks secured to the top of the supplemental partitions for holding the latter in a raised position, substantially as shown and described.

5. In a cabinet of the character described, the combination of a casing, chutes held upon the front of said casing, doors for controlling the outer ends of the chutes, said doors consisting of a downwardly and rearwardly extending portion, guide-rods depending from the rear end of the rearward portion and being of a greater length than the downwardly-extending portion of the door, a cross-bar connecting the lower ends of the said rods, needle-points held upon the cross-bar, and extending into the chutes whereby when the door is raised the needle-points will be correspondingly raised into the chutes, thereby cutting off the supply from the casing and a handle held on the door, all arranged substantially as shown and described.

693,526. GRAIN-DRILL, DISK, AND HOE. CHARLES W. LOVE, New Athens, Ohio. Filed July 13, 1901. Serial No. 68,247. (No model.)

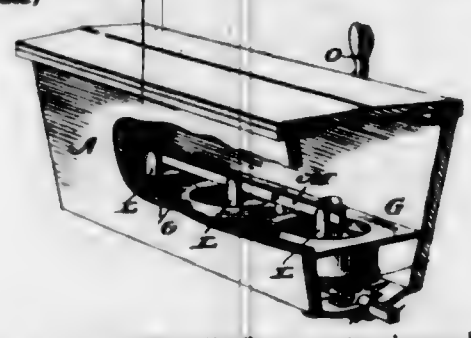
Claim.—1. The combination with a drill-tube having a bifurcated tooth or hoe, of a colter-disk arranged in advance of the drill-tube and adjacent thereto, and a cutter-bar secured at its upper end, and having its lower end arranged in the bifurcation of the drill hoe or tooth, substantially as described.

2. The combination with the drill-tube having the bifurcated tooth or hoe, of the journal-brackets connected with the said drill-tube, the colter-disk arranged between the journal-brackets, and the cutter bar or arm secured at its upper end to one of the brackets and the lower end of said bar resting in the bifurcation of the tooth or hoe, substantially as described.



3. The combination with the drill-tube and supporting-beams, of the journal-brackets attached to the said beams, the colter-disk journaled between said brackets, the bracket-arms connecting the drill-tubes and bracket, the bifurcated hoe or tooth, and the cutter bar or arm attached to one of the journal-brackets, the lower end of said bar or arm resting in the bifurcation of the tooth or hoe, substantially as set forth.

693,527. DRILL AND FERTILIZER-DISTRIBUTER. CHARLES W. LOVE, New Athens, Ohio. Filed July 15, 1901. Serial No. 68,449. (No model.)



Claim.—1. In a fertilizer-distributer, a rotary hopper having a bottom formed with a series of openings, said openings having curved sides and gradually tapering, the narrow end of one opening being adjacent to the broad end of the next adjacent opening, substantially as and for the purpose described.

2. In a fertilizer-distributer, the combination with a rotary hopper, of a stationary cap located within the hopper, and a hinged plate attached to the said cap whereby the amount of material fed from the hopper can be regulated.

3. In a device of the kind described, the combination with a rotary hopper, of a stationary cap having a door hinged thereto, said door or plate being adjustable for the purpose of regulating the amount of material fed through the hopper-bottom.

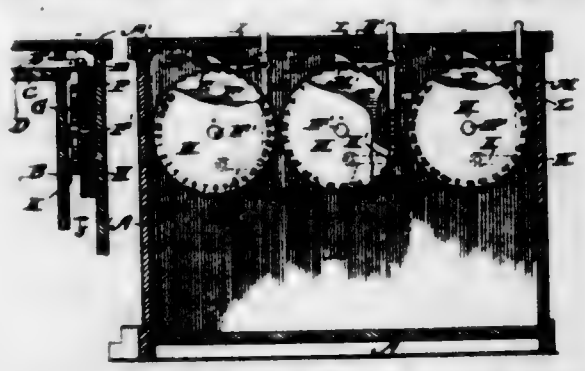
4. In a device of the kind described, the combination with a stationary bed-plate apertured as described, of a hopper rotating upon said bed-plate and having openings in the bottom, a stationary cap arranged within the hopper, a door hinged to the said cap or shell and provided with means for adjusting the same whereby the amount of material fed from the hopper through the apertured bed-plate can be regulated.

5. In a device of the kind described, the combination with the apertured bed-plate, of the rotary hopper having openings in the bottom, the stationary cap arranged within the hopper, the hinged door connected to the said cap or shell, the elbow-lever and operating-rod attached thereto, substantially as shown and described.

6. In a device of the kind described, the combination with the apertured bed-plate, of the rotary hopper arranged thereon and having openings in the bottom, a stationary cap arranged within the hopper, a door hinged to the open side of said stationary cap or shell, the elbow-lever connected to the said door or plate, the operating-rod, the rock-shaft and operating-lever, all arranged and adapted to operate substantially as shown and described.

693,528. TOY BANK. JOHN G. MAYER, HARVEY F. KING, and FRED S. MAYER, Hazen, Pa. Filed Apr. 13, 1901. Serial No. 55,754. (No model.)

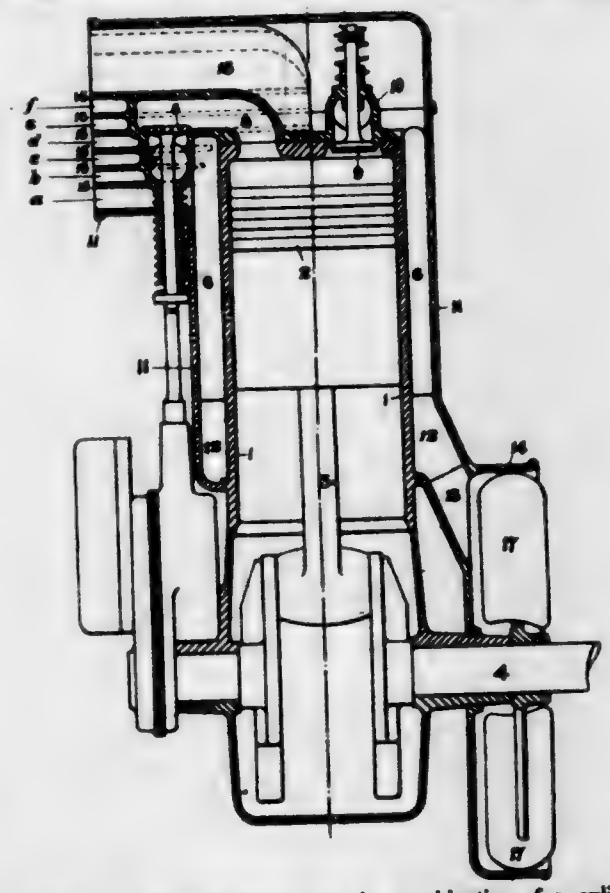
Claim.—1. In a registering-bank the combination with the receptacle slotted as described, of the pivoted lever having a sliding arm connected therewith adapted to be operated by the passage of the coin, a pawl carried upon the free end of the lever and normally held in engagement with the ratchet-disk suitably journaled within the receptacle and carrying an indicating-dial, said ratchet-disk having a spring for returning it to its initial position, a locking pin or stud for holding said disk against reverse movement, a pusher-rod for releasing the said pin or stud, and the tripping-lever for releasing the pawl, said tripping-lever being operatively connected to the pusher-rod, and means for normally holding the pusher-rod in an elevated position, substantially as and for the purpose described.



2. In a device of the kind described, the combination with a registering-disk and pawl for operating the same, of the arm K carrying the locking pin or stud, the spring-actuated pusher-rod connected to the arm K and the tripping-lever also connected to the pusher-rod and adapted to release the pawl, substantially as shown and described.

3. In a device of the kind described, the combination with the registering-disk having a convolute spring connected therewith and operated by means of a pawl and ratchet, the arm K carrying the locking pin or stud K', a spring-actuated pusher-rod L connected to the arm K and normally held in an elevated position, the lever M pivotally connected to the pusher-rod adjacent to its upper end and having a finger at its free end adapted to engage and release the pawl from engagement with the ratchet-disk, substantially as and for the purpose described.

693,529. COOLING EXPLOSIVE-MOTORS. THOMAS MYERS, New York, N. Y. Filed Feb. 14, 1901. Serial No. 47,972. (No model.)

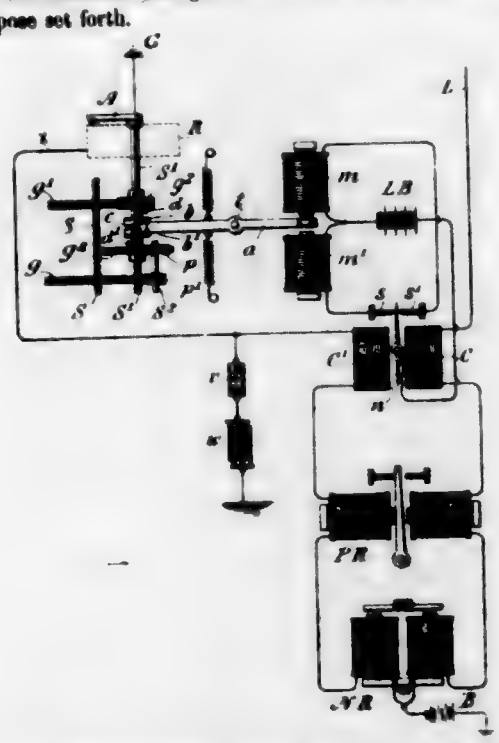


Claim.—In an explosive-motor, the combination of a cylinder, a plurality of ribs extending longitudinally upon the same, a jacket surrounding the cylinder and provided with an air-inlet near the exhaust, an annular space arranged between the jacket and the cylinder surrounding the lower part of the latter below the ribs, a fan mounted upon the crank-shaft to rotate therewith, a casing for said fan, and a passage communicating from the aforesaid annular space to said fan-casing; together with ribs upon the head of the cylinder surrounding the exhaust-passage, said ribs being arranged to deflect a current of air into the passage existing between the various longitudinal ribs.

693,530. MULTIPLEX-TELEGRAPH CIRCUIT. LAURENCE A. MCCARTHY, Brooklyn, N. Y. Filed Apr. 24, 1901. Serial No. 57,184. (No model.)

Claim.—1. In a multiplex-telegraph circuit having a main and an

artificial line, the combination of a controlling instrument, the coils of which are inserted in said main and artificial lines, a local circuit, and magnets, in said local circuit, with a rheostat having an automatically-rotated brush-arm, said rheostat forming the artificial line, all substantially as and for the purpose set forth.



2. In a multiplex-telegraph circuit having a main and an artificial line, the combination of a controlling instrument, the coils of which are inserted in the main and artificial lines, a needle, responsive to an unequal strength of current passing through said coils, and limit-stops to said needle, with a local circuit, the local magnets in said local circuit, an armature responsive to a current passing through either of said local magnets, and the automatically-rotated contact-brush and resistance-coils, said brush and coils forming said artificial line, all substantially as and for the purpose set forth.

3. In a multiplex-telegraph circuit having a main and an artificial line, the combination of a controlling instrument, the coils of which are inserted in said main and artificial lines, a needle, responsive to an unequal strength of current passing through said coils, limit-stops to said needle, and a local circuit, with local magnets, an armature for said local magnets, and the automatically-rotated brush-arms and stationary resistance-coils, said brush-arms and stationary coils forming said artificial line, all substantially as and for the purpose set forth.

4. In a multiplex-telegraph circuit, the combination of the automatically-rotated brush-arms, with the stationary resistance-coils, said brush-arms and coils forming the artificial line, the local magnets and forked armature, and a controlling instrument, for said local magnets, the coils of said controlling instrument being inserted in the main and artificial lines, all substantially as and for the purpose set forth.

5. In a multiplex-telegraph circuit, the combination of stationary resistance-coils, and the automatically-rotated brushes for said coils in the artificial line, with an automatically-rotated brush-arm, local magnets and armature, a local circuit, and a controlling instrument, the coils of which are inserted in the main and artificial lines, all substantially as and for the purpose set forth.

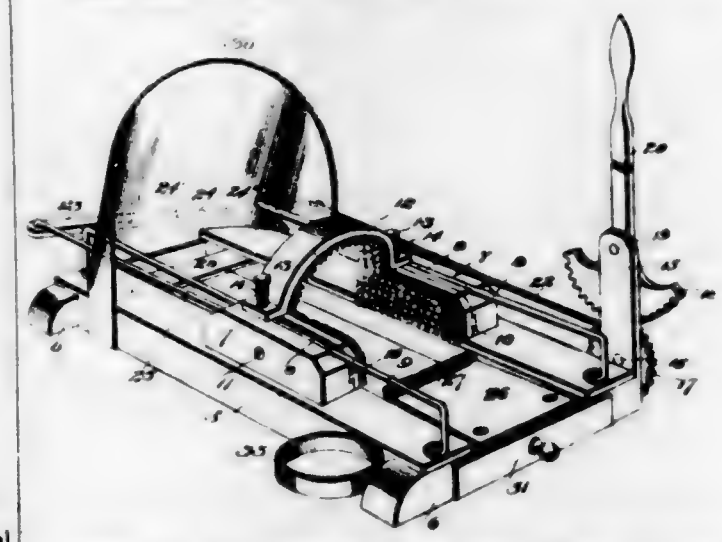
6. In a multiplex-telegraph circuit, the combination of the resistance-coils, the rotary shaft and the contact-brushes, for said coils, said coils and brushes forming the artificial line, the gear-wheels, mounted loose on said rotary shaft, the clutch-wheel, keyed to said rotary shaft, the local magnets and forked armature, said armature to coöperate with and move said clutch-wheel lengthwise and against either one or the other of said gear-wheels, with the local battery and the controlling instrument, the coils of which are inserted in the main and artificial lines, all substantially as and for the purpose set forth.

7. In a multiplex-telegraph circuit, the combination of an automatic rheostat, having a contact-arm capable of being rotated by a motor, and controlled by electromagnets in a local circuit, said rheostat forming the artificial line, with a controlling instrument the coils of which are connected in the main and artificial lines, and the needle of which is responsive to an unequal strength of current passing through said coils, all substantially as and for the purpose set forth.

8. In a multiplex-telegraph circuit, the combination of resistance-coils R, rotary brush-arm A, shaft S', single-toothed wheel *a*, and resistance-coils R', brush-arm A', said resistance-coils and brush-arms forming the artificial line, and toothed wheel *a'* with armature *a*, local magnets *m m'*, needle *n*, and coils C, and C', all substantially as and for the purpose set forth.

9. In a multiplex-telegraph circuit, the combination of an automatic rheostat, having contact-arms capable of being rotated by a motor, and controlled by electromagnets in a local circuit, with the controlling instrument, the coils of which are connected in the main and artificial lines and the needle of which is responsive to an unequal strength of current passing through said coils, the receiving instruments and the condensers, all substantially as and for the purpose set forth.

693,531. SHOE CLEANING AND POLISHING MACHINE. ENRICK C. MCKEE and THURSTON MATHENY, Lubrig, Ohio. Filed Aug. 30, 1901. Serial No. 73,845. (No model.)



Claim.—1. In a device of the class described, the combination of the base, guides arranged above said base and parallel therewith, brush-carrying frames slidable on the base and having upper grooved faces for the reception of the guides, brushes detachably secured in said brush-carrying frames, a yieldable upper brush connected to and movable with the brush-carrying frames, foot-supports, and mechanism for reciprocating the brushes, substantially as specified.

2. In a device of the class described, the combination of the base, brushes guided thereon, an operating-lever having at its lower end a toothed segment, a pinion intermeshing with said segment, a crank-pin on said pinion, a rock-lever pivoted intermediate of its length, a connecting-rod extending between one end of said lever and the crank-pin, and a connecting-rod extending between the opposite end of said lever and the brushes, substantially as described.

3. In a device of the class specified, the combination with an open rectangular base, of guiding-rods 9, brush-carrying frames 7 slidable on the base and having upper grooved faces for the reception of the rods 9, a curved upper brush 12 extending between the brush-frames 7, springs 14 acting to depress said curved brush, an operating-lever operably connected to the brush-carrying frame, a dust-shield at one end of the machine, and supports carried by the base for the reception of the shoe or boot to be cleaned

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693,532. RECEPTACLE OR CASING FOR VENDING-MACHINES, &c. HENRY H. PULVER, Rochester, N. Y., assignor to the Pulver Chemical Company, Rochester, N. Y., a Corporation of New York. Filed Jan. 17, 1901. Serial No. 43,572. (No model.)



Claim.—1. The combination with a support, a receptacle mounted thereon and having a sliding panel and locking devices between the re-

ceptacle and support capable of disengagement only when the panel is removed, of a second removable panel adapted to cover or protect the contents of the receptacle, movable at an angle to the sliding panel and coöperating with and locked by the sliding panel when the latter is in position.

2. The combination with a support, a receptacle mounted thereon and having two relatively movable and engaging panels, constituting a portion of the exterior of the receptacle, one preventing the independent operation of the other, of securing devices for one of the panels and locking devices for securing the receptacle to the support operable only when one of the panels is moved from normal locked position.

3. The combination with a receptacle having the flanges and the sliding panel or cover having the flanges engaged therewith and movable thereon, of a support and securing devices between the support and receptacle, concealed by the panel and detachable by the relative movement of the support and receptacle and a locking device for the panel.

4. The combination with a support, a receptacle mounted thereon, having a movable panel and locking devices between the receptacle and support capable of disengagement only when the panel is removed, of a second movable panel constituting a portion of the exterior of the receptacle adapted to cover or protect the contents thereof and secured in position by the first-mentioned panel or cover.

5. The combination with the support having the hooked engaging projections thereon, of the receptacle having the apertures for the projections and the cover or panel movable on the receptacle and adapted when in place to coöperate with the support and prevent the disengagement of the receptacle.

6. The combination with the bracket having the integral hooked projections and a lug extending in a plane parallel therewith, of the receptacle coöperating with the projections and the cover or panel sliding on the receptacle and coöperating with the lug to lock the receptacle in place.

7. The combination with the supporting-bracket embodying the integral hooked projections and the lugs extending in planes parallel therewith, of the receptacle having the slots for the lugs and brackets and the movable panel or cover on the receptacle coöperating with the lugs on the bracket to prevent the relative movement of the bracket and receptacle when the panel is in place.

8. The combination with a supporting-bracket having the integral hooked projections, the lugs and the flange extending over them, of the receptacle having the flange thereon and the slots for the lugs and projections and the cover or panel sliding on the receptacle and coöperating with the lugs on the bracket.

9. The combination with the receptacle having a removable panel locked to the receptacle by a movement in one direction parallel therewith, of a removable panel or cover interlocked with the receptacle by a movement at an angle to that of the first-mentioned panel and locking devices between the two panels for preventing relative movement.

10. The combination with the casing having two open sides extending at an angle and a brace at the end of said open sides, of two removable panels or covers engaging with the said casing and locked thereto by their longitudinal movements on the casing and a locking device for securing said panels to each other and to the brace when in position.

11. The combination with the casing having two adjacent open sides extending at an angle, and provided with the flanges at the sides, of the two panels adapted to close said open sides having flanges engaging those on the casing when moved longitudinally, and locking devices between the proximate edges of the panels when in position to close the casing.

12. In a receptacle, the combination of the rear and side panels, the latter having the flanges at the top and one end of the front portion and the brace connecting their upper ends, the removable front and top panels having flanges coöperating with the first-mentioned panels and engaged therewith by a longitudinal movement, and locking devices between the removable panels for preventing their relative movement when in position.

13. The combination with the rear and side panels, the latter having the flanges at the lower portion of the front thereof and also having the flanges at the top, of the removable front panel having the flanged or headed edges coöperating with the side panels, the brace at the top of its side panels, the removable top panel having the flanges at the edges, and a locking device coöperating with the proximate edges of the removable panels and with the brace.

14. The combination with the support, the bracket 12 thereon having the projections 11, the bracket 13 having the projections 15, projections 17 and flange 16, of the receptacle having the slots 8, 9, and 10, for engaging the projections in the bracket and the movable panel on the receptacle adapted to engage the projections 17.

15. In a receptacle such as described, the combination with a panel having an opening provided with the flanges at the edges thereof, of the yoke extending beneath the flanges and across the ends of the aperture and a removable frame engaging the yoke on opposite sides of the aperture.

16. In a receptacle such as described, the combination with a panel having an opening provided with the flanges at the edges thereof, of the yoke extending beneath the flanges and across the ends of the aperture, a removable frame having the ears engaging the yoke on opposite sides of the aperture and the glass arranged between the frame and panel.

17. In a receptacle such as described, the combination with a panel having the aperture and the inwardly-turned flanges at the edges thereof, of the rods secured in the side flanges and extending near the ends of the aperture, and a glass-frame arranged within the casing and engaging the rods at the ends of the aperture.

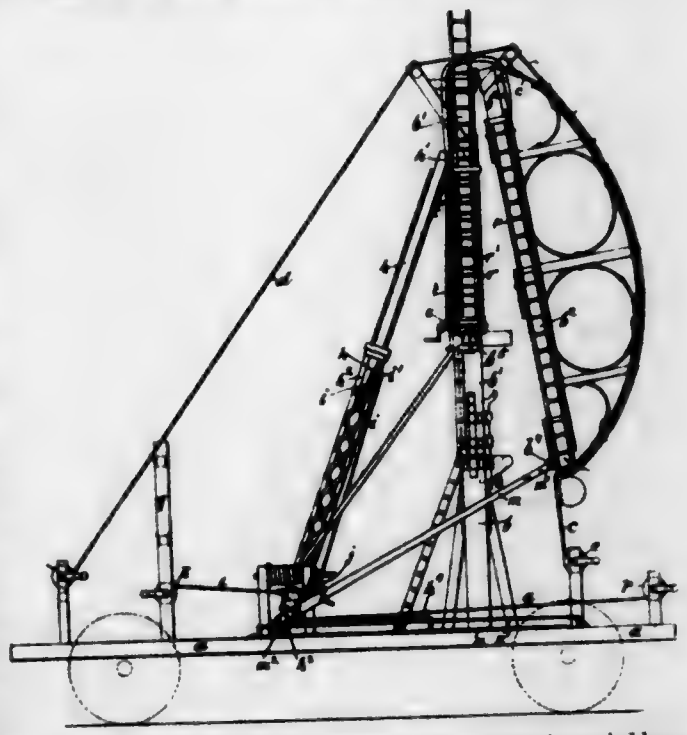
18. In a receptacle such as described, the combination with a panel having the aperture and the inwardly-turned flanges at the opposite edges thereof, of the rods secured in the side flanges and extending near the ends of the aperture and the glass-frame having the flanges at the ends coöperating with the rods at the ends of the aperture.

19. In a receptacle such as described, the combination with a panel having an aperture therein, the glass-containing frame arranged on the inner side of the panel having the glass-holding flanges and the securing-flanges formed therewith, and means at the ends of the aperture in the panel for engaging and holding the securing-flanges of the frame.

20. The combination with the panel having an aperture therein and the flanges at opposite sides thereof, of a glass-holding frame having securing-flanges at the ends thereof, and a continuous yoke or wire extending through the flanges on the panel and engaging the securing-flanges on holding-frame.

21. The combination with the panel having the aperture therein, of the glass-holding frame arranged at the inner side of the panel having the integral bars 36, the flanges 37 and 38 at the sides and ends, respectively, and connecting devices between the flanges 38 and the panel.

698,588. FIRE-ESCAPE. HENRY SPERLING, Jersey City, N. J.
Filed June 19, 1901. Serial No. 65,093. (No model.)



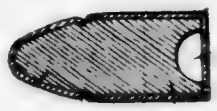
Claim.—1. A fire-escape composed of upper and lower ladder-sections hinged together, ropes and winches for raising the sections; combined with auxiliary raising means consisting of an extensible post to engage the lower section and sliding rods to engage the upper section, whereby the ropes and winches are relieved of excessive strain, substantially as specified.

2. A fire-escape composed of upper and lower ladder-sections hinged together, means for raising the sections, auxiliary raising means to relieve the first-named means of excessive strain, said auxiliary raising means consisting of a telescopic sliding post hinged to the lower section, and sliding rods removably engaged by the upper section, and means to right the post and rods.

3. A fire-escape having a platform, two hinged ladder-sections mounted thereon, means for raising and keeping the position of the lower section, guide-rails secured to the platform, sliding rods having rollers at one end to engage the rails and adapted to removably engage the upper ladder-sections at their other ends, and means on the platform for raising the upper sections and righting the rods, substantially as specified.

4. In a fire-escape, the combination of two hinged ladder-sections, ropes and winches for raising the sections, sliding rods to removably engage the upper section, rollers journaled in the rods, rails to confine the rollers, and winches for raising the rods, substantially as described.

693,534. COMPOUND BULLET. LESLIE R. TAYLOR, Selly Oak, England. Filed Jan. 23, 1900. Renewed July 9, 1901. Serial No. 67,688. (No model.)



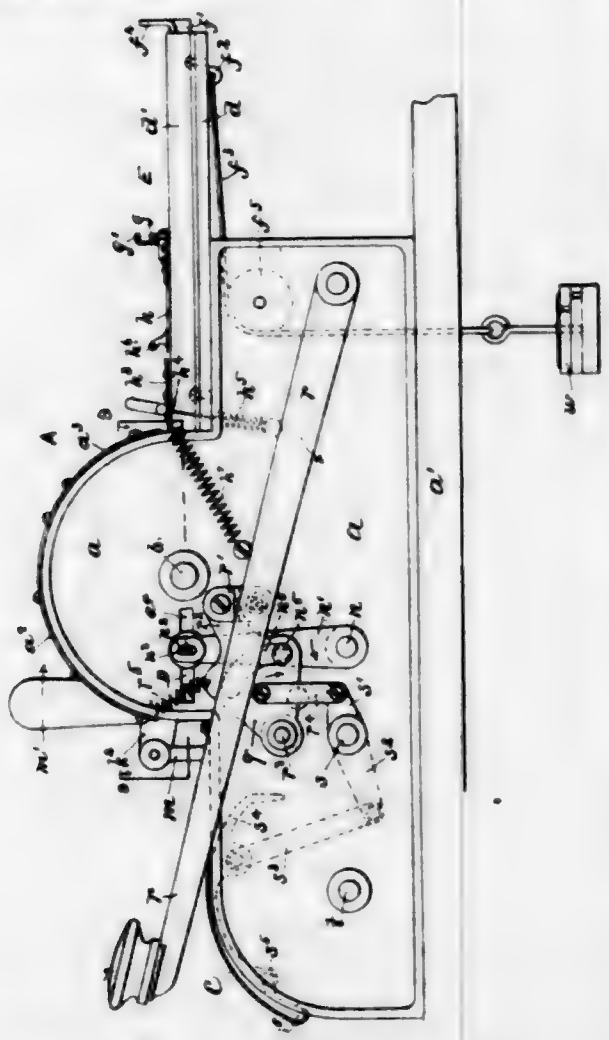
Claim.—1. A compound bullet having a shell incasing a core with an air-chamber between a part of the shell and a part of the core, substantially as described.

2. A compound bullet having a shell incasing a core with an air-chamber between the rear part of the core and the rear part of the shell, substantially as described.

3. A compound bullet having a divided shell incasing a core with an air-chamber between a part of the shell and a part of the core, substantially as described.

4. In compound bullets, the combination of divided envelop entirely incasing the lead core, and an air-chamber formed in the rear of the bullet by means of the lead core not entirely filling up the rear of the envelop, substantially as described.

693,585. CIGAR-BUNCHING MACHINE. GEORGE H. TINGLEY, Providence, R. I., assignor to the United States Cigar Manufacturing Company, Providence, R. I., a Corporation of Maine. Filed Apr. 19, 1901. Serial No. 56,009. (No model.)



Claim.—1. In a cigar-bunching machine, the combination of an intermittingly-revoluble cylinder B provided with a series of peripheral charging-pockets, independently-movable ejectors forming the bottom of said pockets, means for feeding the tobacco or fillers into the pockets, a clearer h^4 in close proximity to the pocket being charged and bearing yieldingly upon the tobacco or fillers, a suitably mounted and actuated apron and roll located contiguous to the said cylinder and opposite the point where the charges are fed into the pockets, a stationary knife for shearing off surplus fillers projecting beyond the last-charged pocket, a curved shield or guard forming a cover for the filled pockets, and means for actuating the ejectors successively at substantially the same instant that the forward charged pocket is exposed below said guard, whereby the corresponding charge of fillers is discharged into the die or bight formed in said apron, which latter is adapted to cover the charge with a binder and transform it into a bunch, substantially as described.

2. In a cigar-bunching machine, the combination with a revoluble charging-cylinder B, having a series of pockets b^3 formed in its periphery and guided spring-pressed ejectors c forming the bottom of said pockets and provided with end arms and projecting pins c^3, of two oppositely-arranged slidable cross-heads D each having a groove or opening therein located in the path of and adapted to receive said pins c^3, and means, substantially as described, for simultaneously actuating said cross-heads, whereby the corresponding ejector is forced outwardly to discharge the charge of fillers from its pocket, substantially as described.

3. In a cigar-bunching machine, the combination with the revoluble charging-cylinder B having a series of filler-receiving pockets b^3 formed in its periphery, and means, substantially as described, for discharging the charges of fillers from the pockets, of a feeding-trough in direct communication with the pockets, one at a time, a weighted feed-plate and plunger having a flexible connection with the weights thereon adapted to force the fillers into the pocket of any desired pressure, a stationary knife adapted upon revolving the cylinder to shear off any surplus tobacco projecting from the charged pocket, and the spring-pressed bar or clearer h^4 located at the mouth of said trough adapted to bear yieldingly upon the fillers in the trough and at the same time form a clearer or scraper to the knife, substantially as described.

4. In a cigar-bunching machine, the combination with a revoluble cylinder provided with a series of charging-pockets, of a feeding-trough into which the fillers are placed, a plate slidably mounted in said trough, a catch or stop for limiting the movement of the plate, and a spring-pressed or yielding plunger s hinged or jointed to the plate, whereby the plunger is adapted to automatically yield or swing sidewise so as to maintain a substantially equal pressure upon the column of fillers in the trough, substantially as described.

5. In a cigar-bunching machine, a suitably-mounted shaft, a charging-cylinder secured thereto, a notched wheel k secured to said shaft, an operating-lever having a driving-dog p indirectly connected therewith and in engagement with said wheel, whereby the cylinder is capable of being intermittently rotated, and a spring-pressed locking-dog p' arranged to engage said wheel to maintain the cylinder in its normal or charging position; the rear ends of said dogs being extended, whereby the driving-dog in its rearward movement rides upon the locking-dog and releases the latter from the wheel, preparatory to again rotating the cylinder, substantially as described.

6. In a cigar-bunching machine, the combination with the revoluble cylinder B provided with charging-pockets, and the filler-receiving trough communicating with said pockets, of a weight-actuated plate f mounted in said trough having a yielding or swinging plunger s adapted to press directly against the fillers in the trough, a lid or cover h for closing the feed-opening in the trough, and a yielding bar or clearer h^4 forming the upper portion of the mouth of the trough adapted to bear directly on the fillers, substantially as described and for the purpose set forth.

7. In a cigar-bunching machine, the combination with the cylinder B, having filler-receiving pockets b^3 and ejectors c forming the bottom of said pockets, and the bunch-forming roll and its apron C, of the operating-lever w' and the mechanism connected therewith whereby the cylinder may be rotated so as to present the next succeeding pocket in position, the working lever r and mechanism connected therewith adapted to force said ejectors outwardly in a successive manner to discharge the charge of fillers from the respective pockets onto the said apron, substantially as described.

8. In a cigar-bunching machine, the combination of the cylinder B provided with a series of peripherally-arranged charging-pockets adapted to receive the fillers, means for intermittingly rotating the cylinder, a corresponding series of radially-arranged spring-pressed ejectors forming the bottom of said pockets mounted within the cylinder and having lateral projections extending through slotted openings formed in its end walls, and mechanism, consisting of suitably actuated and controlled cross-heads D, substantially as described, arranged to engage said projections, whereby the ejectors are forced outwardly in a successive manner to discharge the fillers from the pockets.

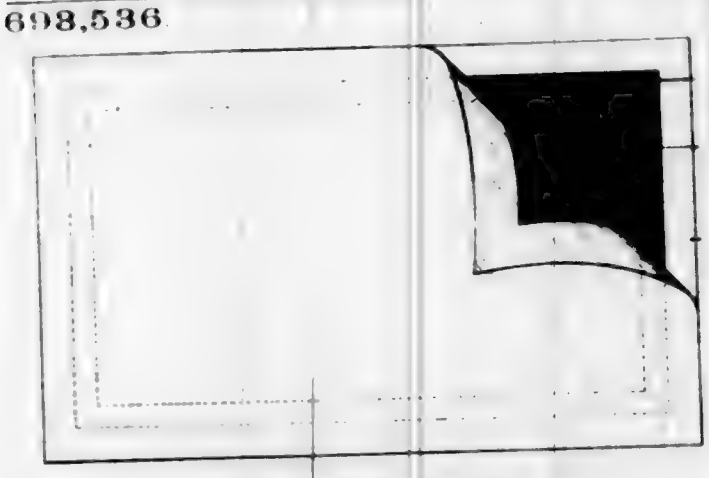
698,586. STICKY FLY-PAPER. EDWARD F. BAKER, Passaic, N. J. Filed July 24, 1901. Serial No. 69,427. (No model.)

Claim.—1. As an article of manufacture, sticky fly-paper consisting of two sheets of suitable material having between them an adhesive and a confining border for the adhesive distinguished in color from said adhesive, substantially as described.

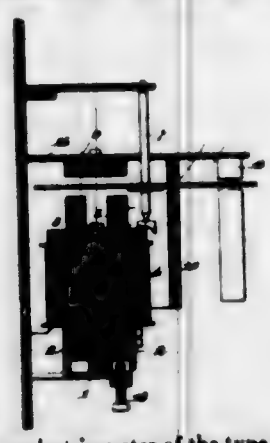
2. As an article of manufacture, sticky fly-paper consisting of two transparent sheets of suitable material having between them an adhesive and a confining border for the adhesive distinguished in color from said adhesive, substantially as described.

3. As an article of manufacture, sticky fly-paper consisting of two sheets of suitable material having between them an adhesive and a confining border for the adhesive, said sheets being appreciably transparent and the border being relatively conspicuously colored so that the border is outwardly visible, substantially as described.

698,536.



693,537. ALTERNATING-CURRENT ELECTRIC METER. EMILE BATAULY, Geneva, Switzerland. Filed Mar. 15, 1901. Serial No. 51,229. (No model.)



Claim.—1. In an electric meter of the type described, the combination with an actuating-magnet, a rotating armature and a permanent retarding or brake magnet, of a magnetic bridge or diverter extending between the cores of the actuating-magnet, substantially as and for the purposes set forth.

2. In an electric meter of the type described, the combination with an actuating-magnet, a rotating armature and a permanent retarding or brake magnet, of a magnetic bridge or diverter extending between and inclosing the cores of the actuating-magnet, substantially as and for the purposes set forth.

3. In an electric meter of the type described, the combination with an actuating-magnet, a rotating armature and a permanent retarding or brake magnet, of a magnetic bridge or diverter extending between and inclosing the cores of the actuating-magnet and with free air-spaces surrounding said cores, substantially as and for the purposes set forth.

4. In a meter of the type described, the combination with the actuating-magnet having divided or split cores, shunt-coils on said cores, series coils on one or more of the split portions of said cores, and a rotating armature, of a magnetic bridge or diverter extending between said cores, substantially as set forth.

5. In a meter of the type described, the combination with the actuating-magnet having divided or split cores, shunt-coils on said cores, series coils on one or more of the split portions of said cores, and a rotating armature, of a magnetic bridge or diverter extending between said cores between the shunt and series coils, substantially as set forth.

6. In a meter of the type described, the combination with the actuating-magnet having divided or split cores, shunt-coils on said cores, series coils on one or more of the split portions of said cores, and a rotating armature, of a magnetic bridge or diverter extending between said cores and inclosing the same, substantially as set forth.

7. In a meter of the type described, the combination with the actuating-magnet, shunt and series coils thereon, and an armature, of a magnetic bridge or diverter extending between and inclosing said cores, said bridge or diverter being cut away to reduce its inductive capacity, substantially as set forth.

8. In a meter of the type described, the combination with the actuating-magnet, shunt and series coils thereon, and a disk armature pivotally mounted at one side of said magnet, of a metal shield inclosing the magnet and having a slit through which the disk armature extends, and a permanent magnet coöperating with the disk armature outside of said shield, said shield being open-sided to permit inspection of the armature and magnet, substantially as set forth.

9. In a meter of the type described, the combination with the actuating-magnet, shunt and series coils thereon, and a disk armature pivotally mounted at one side of said magnet, of a metal shield inclosing the magnet and having a slit through which the disk armature extends, a permanent magnet coöperating with the disk armature outside of said shield, and a metallic shield on the other side of said permanent magnet for protecting the same from outside influences, substantially as set forth.

10. In a meter of the type described, the combination with an actuating-magnet, shunt and series coils thereon, and an armature coöperating with said magnet, of a stationary armature on the opposite side of said rotating armature, and a supplemental or auxiliary armature adjustable with respect to the stationary armature, substantially as set forth.

693,538. CALIPERS. HANS BUSE, Bothfield, Germany. Filed Oct. 18, 1901. Serial No. 79,061. (No model.)

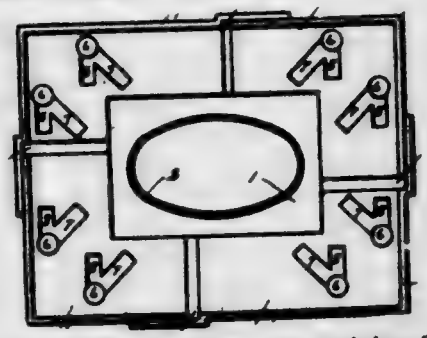


Claim.—1. In calipers provided with two graduated arms each composed of links and provided with means for holding the same when extended at right angles to each other, and a third movable arm provided with elastic means for engaging and disengaging the same with one of the other arms and keeping the same at right angles thereto, substantially as described.

2. In calipers provided with two graduated arms each made of links and means for holding the arms at right angles to each other, of a third movable arm adapted to be held at right angles to one of the other arms by means of a plate-spring fixed on one side of the third arm and having two of its side edges turned over to form beveled flanges which will enable the third arm to slide easily over the uneven joints of the links of the arm, with which it is engaged.

3. In calipers provided with two graduated arms each made of links and means for holding the arms at right angles to each other, of a third movable arm adapted to be held at right angles to one of the other arms by means of a plate-spring fixed on one side of the said third arm and having inwardly-projecting teeth on either edge forming a guide for keeping the movable arm at right angles with the arm with which it is in engagement.

693,539. ADJUSTABLE CHIMNEY-TOP. CHARLES E. BURRIS, Wichita, Kans. Filed Dec. 4, 1899. Serial No. 739,187. (No model.)



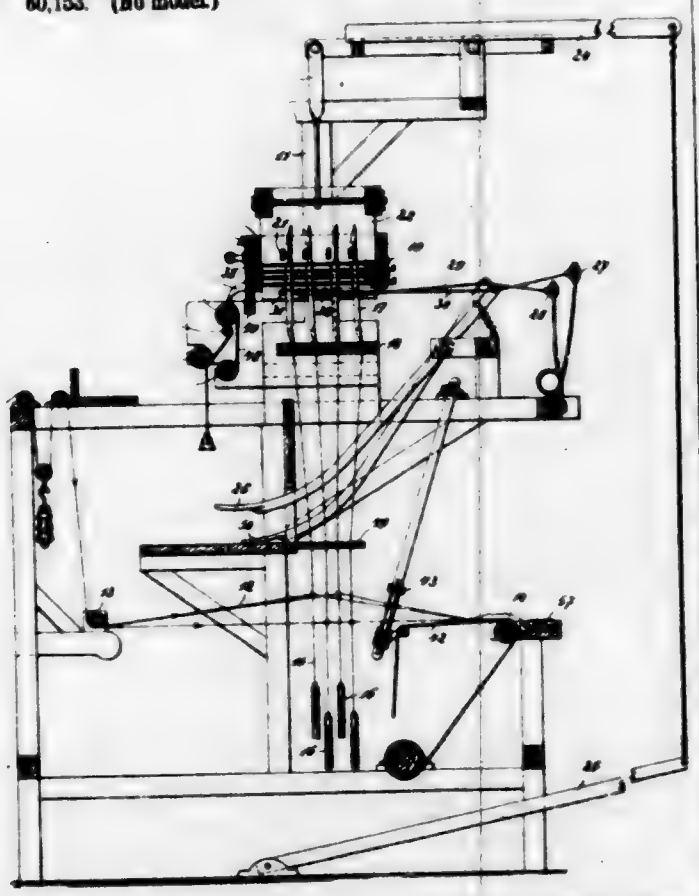
Claim.—1. An adjustable chimney-top consisting of a metallic plate having a central opening, metallic corner-plates having a downwardly extending flange, V-shaped slots cut in said corner-plates, and bolts for adjustably securing said corner-plates to said metallic plates.

2. An adjustable chimney-top consisting of a metallic plate having a central opening, a flange extending upward and surrounding said opening, metallic corner-plates having a flange extending downward from the outer edge thereof, V-shaped slots cut in said corner-plates, and bolts for adjustably securing said corner-plates to said metallic plate.

3. An adjustable chimney-top consisting of a metallic plate having

a central opening with an upwardly-extending flange surrounding said opening, adjustable corner-plates adjustably secured to the under side of the four corners of said metallic plate, two of said plates having depressed portions adapted to lap over the ends of the two corresponding plates, flanges extending down from the outer edges of said adjustable plates, and a means of adjustably securing said adjustable plates to said metallic plates.

693,540. JACQUARD MECHANISM FOR LOOMS. RUDOLF CHWALLA, Vienna, Austria-Hungary. Filed May 14, 1901. Serial No. 60,153. (No model.)



Claim.—1. In a loom, the combination of lifters for raising and lowering the warp-threads, lifter-elevating means, controlling devices for said lifters adapted to move them into and out of operative position relatively to said elevating means, a pattern, and a selecting member for said controlling devices adjustable relatively to the pattern, substantially as described.

2. In a loom, the combination of lifters for raising and lowering the warp-threads, lifter-elevating means, controlling devices for said lifters adapted to move them into and out of operative position relatively to said elevating means, a pattern, and sliding selecting members for said controlling devices adjustable with reference to the pattern, substantially as described.

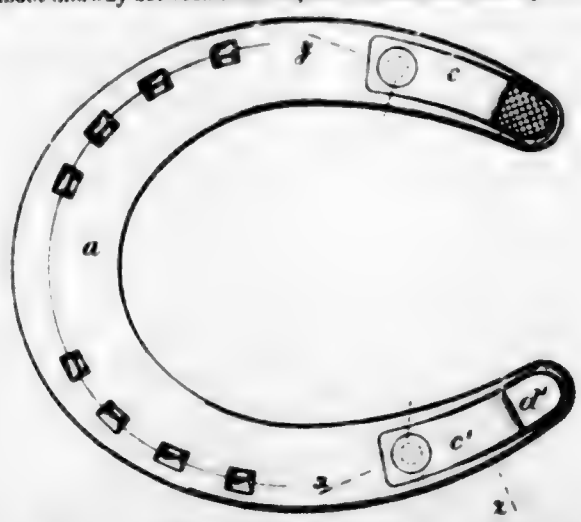
3. In a loom, the combination of lifters for raising and lowering the warp-threads, lifter-elevating means, controlling devices for said lifters adapted to move them into and out of operative position relatively to said elevating means, a pattern, and a movable stop for said controlling devices adjustable with reference to said pattern, said controlling devices being movable through the plane of movement of said stop, substantially as described.

4. In a loom, the combination of lifters for raising and lowering the warp-threads, lifter-elevating means, needles controlling said lifters and adapted to move them into and out of operative position relatively to said elevating means, a pattern, and movable needle-stops adjustable with reference to said pattern, said needles being movable through the plane of movement of said stops, substantially as described.

5. In a loom, the combination, with lifters for raising and lowering the warp-threads, lifter-elevating means, and rows of needles controlling the positions of said lifters relatively to the lifter-elevating means, of a movable needle-stop, said needles being movable through the plane of movement of said needle-stop, substantially as described.

693,541. SPRING-HEELED HORSESHOE. DANIEL CRUISE, New York, N. Y., assignor to himself, and Erasmus Jones and John A. Jones, Yonkers, N. Y. Filed Apr. 28, 1899. Renewed July 19, 1901. Serial No. 68,966. (No model.)

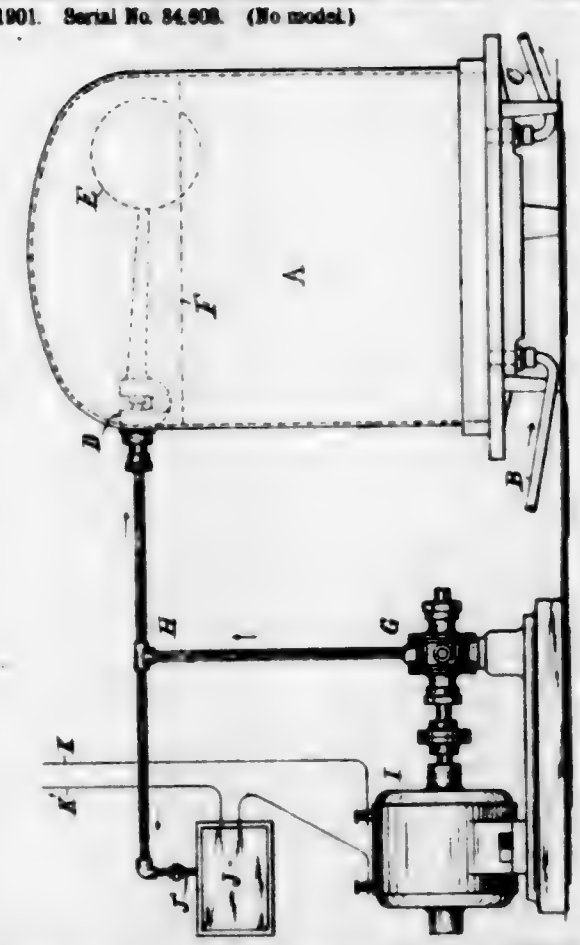
Claim.—1. As a new article, a horseshoe having open-ended channels along in the outer face of the shoe near the ends, each channel having a flat portion and an inclined portion causing the shoe to taper toward the ends, and yielding plates in the channels, the plates being thinnest about midway between their respective ends, substantially as set forth.



2. As a new article a horseshoe having open-ended channels along in the outer face of the shoe near the ends, the base of each channel having a flat portion and an inclined portion causing the shoe to taper toward the ends, yielding plates and rivets for securing the same in the channels, the said plates being tapering toward the respective ends and heaviest adjacent to the rivets and provided with integral calks at the ends, said plates being thinnest about midway between the rivets and the calks, substantially as and for the purposes set forth.

3. As a new article a horseshoe having channels along in the outer face of the shoe near the ends, the base of each channel having a flat portion and an inclined portion causing the shoe to taper toward the ends, yielding plates and rivets for securing the same in the channels, the said plates being tapering toward the respective ends and heaviest adjacent to the rivets and provided with integral calks at the ends, said plates being convex on the inner surface and elliptical in cross-section about midway between the rivets and the calks, substantially as and for the purposes set forth.

693,542. AUTOMATIC SHUT-OFF FOR ELECTRIC PUMPS. JOHN H. FOX and CHRISTOPHER M. LOWTHER, New York, N. Y. Filed Dec. 4, 1901. Serial No. 84,608. (No model.)



Claim.—1. In an electric-pump regulator, the combination, with a tubular coil connected with the pressure-pipe of the pump, of a pivoted switch-lever, a weighted arm adapted to move such switch-lever, and connections from the tubular coil to such weighted arm to oscillate it at a given pressure.

2. In an electric-pump regulator, the combination, with a switch-lever movable freely upon a pivot with a weighted arm jointed to such pivot, and dogs to convey the movement of the arm to the switch-lever,

of a tubular coil having its inlet connected with the pressure-pipe of the pump, and having its extremity connected with an extension of the weighted arm to actuate the same, substantially as herein set forth.

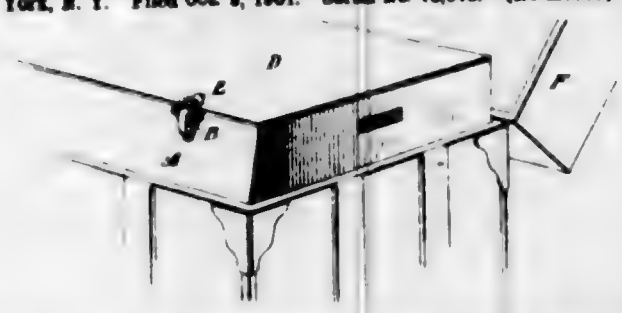
3. In an electric-pump regulator, the combination, with a switch-lever movable freely upon a pivot with a weighted arm jointed to such pivot, and dogs to convey the movement of the arm to the switch-lever, of a tubular coil having its inlet connected with the pressure-pipe of the pump, a multiplying-lever having its short arm linked to the free end of the tubular coil, and its long end linked to a short extension of the weighted arm, whereby the expansion of the coil operates to shift the switch-lever.

4. In an electric-pump regulator, the combination, with a switch-lever having an insulating-hub, of a stud to support such hub movably, the plate c^4 connected with the circuit-wire, the spring c^3 upon the switch-lever to bear on such plate, adjustable dogs upon the hub, the weighted arm *a* pivoted upon the stud to strike against the dogs, the tubular coil L having its inlet connected with the pressure-pipe of the pump, and connections from the free end of the coil to the weighted arm to oscillate the same for moving the switch-lever.

5. In an electric-pump regulator, the combination, with a switch-lever movable freely upon a pivot with a weighted arm jointed to such pivot, and dogs to convey the movement of the arm to the switch-lever, of a tubular coil having its inlet connected with the pressure-pipe of the pump, a multiplying-lever having its short arm linked to the free end of the tubular coil and its long arm linked to a short extension of the weighted arm, and the spring *g* extended by the expansion of the coil and operating upon the multiplying-lever to reverse the movement of the weighted arm when the tubular coil contracts.

6. In an electric-pump regulator, the combination, with a tubular coil connected with the pressure-pipe of the pump, of a pivoted switch-lever, a weighted arm adapted to move such switch-lever, and connections from the tubular coil to such weighted arm to oscillate it at a given pressure, such connections affording a small lost motion to compensate for pulsations of the pumping device and corresponding vibrations of the tubular coil.

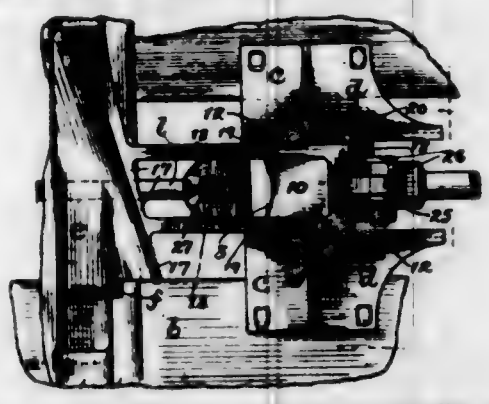
693,543. TRUNK-TRAY FIXTURE. DAVID GOLDSMITH, New York, N. Y. Filed Oct. 9, 1901. Serial No. 78,075. (No model.)



Claim.—1. A trunk-tray fixture comprising a carrier adapted to be secured to a trunk-tray, a hook hinged thereto, the bill of said hook projecting inwardly and being adapted to overstand the trunk-tray cover, means to hold the hook in position over the trunk-tray cover or lid, substantially as and for the purpose described.

2. A trunk-tray fixture, comprising a carrier adapted to be secured to a trunk-tray, a hook hinged to said carrier, the bill of said hook projecting inwardly and being adapted to overstand the trunk-tray cover, a spring held by the carrier and adapted to bear against the hook to yieldingly hold it in the operative position.

693,544. DERAILING DEVICE. STANLEY W. HAYES, Wellesley, Mass., and THEODORE R. LUTZ, Galion, Ohio. Filed Nov. 23, 1901. Serial No. 83,461. (No model.)



Claim.—1. A derailing device of the character indicated, comprising a stand having a guideway, and a wheel-derailing block provided with an arm having a member engaging the aforesaid guideway, and the trend of the said guideway and the arrangement of the parts being such that the derailing-block is placed in an operative or inoperative position according as its arm is actuated along the aforesaid guideway in the one or the other direction.

2. A derailing device of the character indicated, comprising the following: a stand adapted to be rendered stationary and provided with parallel guideways having, respectively, two upwardly-converging portions 13 and 14 meeting at their upper ends, and a wheel-derailing block having an arm extending longitudinally of the guideways and provided with laterally-projecting members arranged in line and engaging the aforesaid guideways, and means for actuating the said arm longitudinally, substantially as and for the purpose set forth.

3. A derailing device of the character indicated, comprising a stand adapted to be rendered stationary and having two parallel guideways arranged a suitable distance apart laterally, and a wheel-derailing block having an arm extending between and longitudinally of the guideways and provided with two laterally-projecting members arranged in line at opposite sides, respectively, of the arm, and the trend of the said guideways and the arrangement of parts being such that the derailing-block is placed in an operative or inoperative position according as its aforesaid arm is actuated along the aforesaid guideways in the one or the other direction.

4. A derailing device of the character indicated, comprising the following: a stand adapted to be rendered stationary and provided with a guideway *d* having a portion 15 thereof arranged in a horizontal plane and two inclined portions 13 and 14 converging upwardly and meeting at their upper ends with one of the said inclined portions connecting at its lower end with the inner end of the horizontally-arranged portion, and a wheel-derailing block having an arm extending alongside of the said guideway and provided with two laterally-projecting members 19 and 20 arranged a suitable distance apart longitudinally of the arm and engaging the said guideway, and means for actuating the said arm longitudinally, substantially as and for the purpose set forth.

5. A derailing device of the character indicated, comprising the following: a stand adapted to be rendered stationary and provided with parallel guideways and a wheel-derailing block having an arm extending longitudinally of the guideways and provided with two laterally-projecting members arranged in line at opposite sides, respectively, of the said arm and engaging and adapted to travel along the aforesaid guideways during the actuation of the said derailing-block, and means for holding the outer or free end of the arm down during the actuation of the said block, and the trend of the aforesaid guideways and the arrangement of parts being such that the block is placed in an operative or inoperative position according as its aforesaid arm is actuated in the one or the other direction.

6. A derailing device of the character indicated, comprising the following: a stand adapted to be rendered stationary and provided with two parallel guideways arranged a suitable distance apart laterally and comprising, respectively, a portion arranged in a horizontal plane and inclined portions, and a wheel-derailing block having an arm extending between and longitudinally of the aforesaid guideways and provided with two laterally-projecting members arranged in line at opposite sides, respectively, of the said arm and adapted to travel in engagement with and along the inclined portions of the said guideways during the actuation of the said derailing-block, which arm has two other laterally-projecting members arranged in line at opposite sides, respectively, of the said arm and engaging and adapted to travel along the horizontal portion of the guideways, and means for actuating the said arm longitudinally, all relatively arranged and operating substantially as and for the purpose set forth.

7. A derailing device of the character indicated, comprising a stand adapted to be rendered stationary and comprising two upright walls arranged a suitable distance apart laterally and connected together at the bottom and having two parallel guideways formed in the different walls, respectively, and a wheel-derailing block having an arm extending between and longitudinally of the aforesaid walls and provided with means engaging the aforesaid guideways, and the trend of the said guideways and the arrangement of parts being such that the derailing-block is placed in an operative or inoperative position according as the aforesaid arm is actuated in the one or the other direction.

8. A derailing device of the character indicated, comprising a wheel-derailing block having a laterally-projecting arm provided with two roc connections arranged a suitable distance apart longitudinally of the arm, and means for guiding the shank during the actuation of the block, substantially as and for the purpose set forth.

9. The combination, with a rail of a railway-track, of a derailing device arranged at a side of the rail and comprising the following: a stationary stand having two walls arranged a suitable distance apart longitudinally of and a suitable distance from the said side of the rail and provided with guideways, a wheel-derailing block having an arm extending longitudinally of and between the aforesaid walls and having members

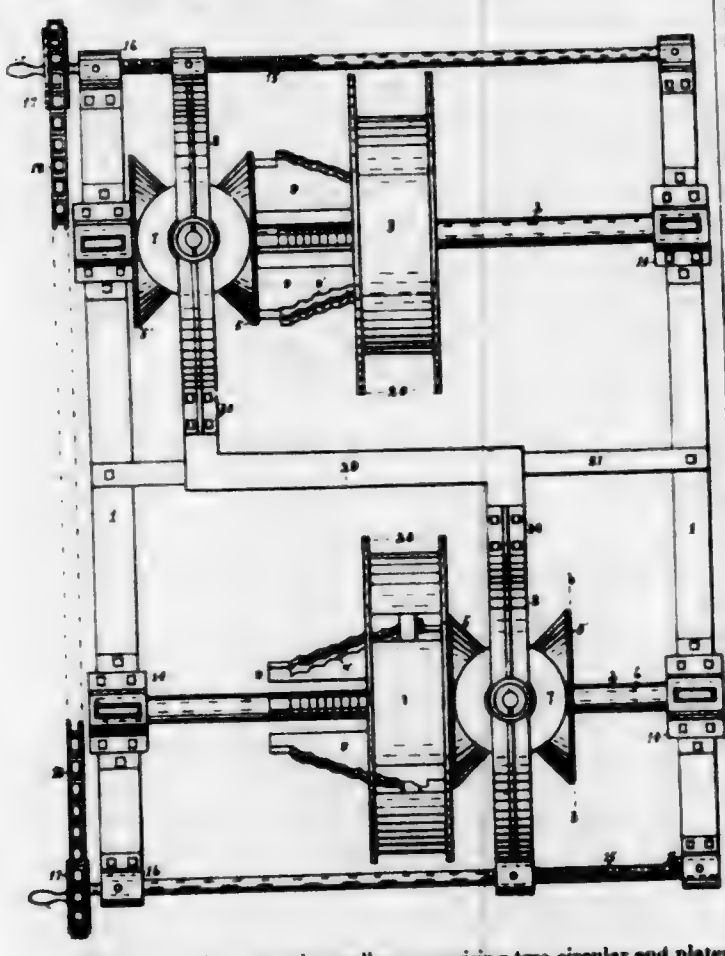
engaging the said guideways, which arm has an ear at its outer or free end, and has another ear nearer the rail, and the trend of the aforesaid guideways and the arrangement of parts being such that the derailing-block is placed in an operative position upon the rail, or removed from the rail according as the aforesaid arm is actuated longitudinally in the one or the other direction.

10. The combination, with a rail of a railway-track and a pair of ties extending in under and instrumental in supporting the said rail, of a derailing device comprising the following: a stand mounted upon and secured to the said ties, which stand has its central portion depressed between the ties and is provided with two guideways arranged at opposite sides, respectively, of the said depressed portion and extending longitudinally of the ties, a wheel-derailing block having a shank or arm extending longitudinally of the aforesaid walls and provided with members engaging the said guideways and means for actuating the said arms longitudinally, and the trend of the aforesaid guideways and the arrangement of parts being such that the derailing-block is placed in an operative or inoperative position according as the aforesaid arm is actuated in the one or the other direction.

11. The combination, with a rail of the railway-track and a wheel-derailing block rendered inoperative or operative according as it is actuated upon or from the said rail, of a bar alongside of the web of and secured to the rail, which bar is provided with a seat arranged below the sweep of the derailing-block and in position to afford bearing to the said block when the block is in its operative position.

12. The combination, with a rail of a railway-track and a wheel-derailing block which is rendered operative or inoperative according as it is actuated upon or from the said rail, of a bar arranged alongside of the web of and secured to the rail, which bar is provided, in its upper end, with a recess whose bottom wall is arranged to form a seat for the aforesaid block when the latter is in its operative position, and whose opposite end walls form abutments arranged to prevent displacement of the said block longitudinally of the rail in opposite directions, respectively, when the block is in its aforesaid operative position.

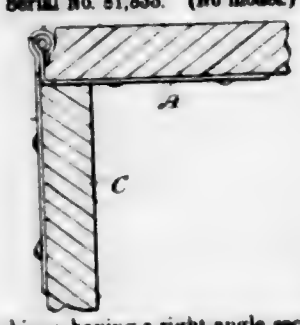
693,545. EXPANSION-PULLEY. PETER JACOBSEN, Neenah, Wis. Filed July 5, 1901. Serial No. 67,085. (No model.)



Claim.—1. An expansion-pulley comprising two circular end plates having corresponding radial slots therein, a series of pulley-rim segments, each one being provided with an arm having tenons adapted to enter and slide in said slots, each arm being provided with an antifriction-roller suitably mounted for revolution, and a collar, or similar body adapted to be slidingly mounted upon the same shaft as said pulley and to enter the aforesaid radial slots, and having arms, one for each pulley-segment, extending therefrom in a direction parallel with said shaft, said arms being provided upon their outer edges with alternately-arranged horizontal and inclined spaces which are adapted to engage corresponding spaces upon the pulley-arms and to expand the diameter of said pulley when said sliding arms are moved horizontally in one direction, and said sliding arms being also provided with alternately-arranged spaces adapted to be engaged by the roller aforesaid and to contract the diameter of said pulley when said sliding arms are moved in the reverse direction, substantially as described.

2. In an expansion-pulley composed of a series of rim-segments having each an arm radially arranged for sliding upon a suitable support and being provided with an antifriction-roller suitably mounted for revolution, a device for expanding and contracting the diameter of said pulley, consisting of a body adapted to be slidingly mounted upon the same shaft as said pulley, and having a series of arms, one for each pulley-arm, arranged parallel with said shaft and having their outer edges formed of alternately-arranged horizontal and inclined spaces adapted to engage corresponding spaces upon the pulley-arms and to expand the diameter of said pulley when said sliding arms are moved in one direction, said sliding arms being also provided with spaces alternately arranged and adapted to be engaged by the aforesaid roller and to thereby contract the diameter of said pulley when said sliding arms are moved in the reverse direction, substantially as described.

698,546. HINGE. CHARLES M. JOHNSON, Milwaukee, Wis., assignor, by direct and mesne assignments, of one-half to Charles H. Coakley, William P. Coakley, and Stephen S. Cramer, Milwaukee, Wis. Filed Nov. 11, 1901. Serial No. 81,833. (No model.)



Claim.—1. A hinge having a right-angle section and a straight section one of which has a knuckle in engagement with a rounded edge and a slot of the other, the plane of the joint end of the angular section being parallel to the straight section and the remainder of said angular section at a right angle to said straight section when the hinge is closed.

2. A hinge having a right-angle section and a straight section one of which has an open knuckle engageable with a rounded edge and a slot of the other against a shoulder of same in line with its slot, the plane of the joint end of the angular section being parallel to the straight section and the remainder of said angular section at a right angle to said straight section when the hinge is closed.

698,547. GUNPOWDER. FREDERICK W. JONES, Barwick, near Ware, England. Original application filed Dec. 6, 1898, Serial No. 698,413. Divided and this application filed Apr. 19, 1900. Serial No. 13,536. (No specimens.)

Claim.—1. As a new article of manufacture, a granulated gelatinized gunpowder in which each separate grain is provided with a continuous adhering coating or shell composed of cohering solid particles of a waxy substance that is comparatively slow burning and having a melting-point above 150° Fahrenheit lying wholly upon the surface of the grain and entirely surrounding it, and an outer glaze of powdered graphite, substantially as and for the purpose hereinbefore specified.

2. As a new article of manufacture, a granulated gelatinized gunpowder in which each separate grain is provided with a continuous adhering coating or shell composed of cohering solid particles of carnauba-wax lying wholly upon the surface of the grain and entirely surrounding it, and an outer glaze of powdered graphite, substantially as and for the purpose hereinbefore specified.

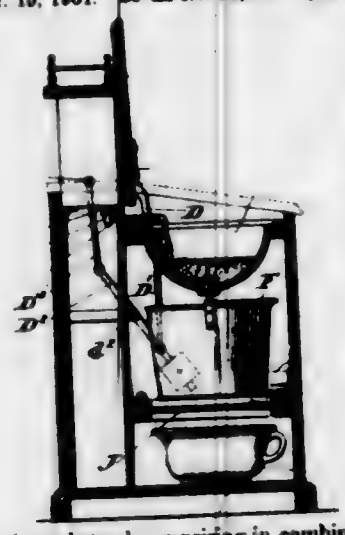
698,548. METHOD OF TREATING GUNPOWDER. FREDERICK W. JONES, Barwick, near Ware, England. Original application filed Dec. 6, 1898, Serial No. 698,413. Divided and this application filed Apr. 19, 1900. Serial No. 13,537. (No specimens.)

Claim.—1. The method of treating granulated gelatinized gunpowder for the purpose of delaying the passage of ignition from grain to grain, consisting in mixing together a quantity of the powder-grains and a quantity of a waxy coating material in a dry and finely-divided condition, and subjecting the commingled materials to agitation together, and forming by their attrition and the cohesion of abrasions a continuous coating or shell of the required thickness of the waxy material upon and around each powder-grain, substantially as hereinbefore specified.

2. The method of treating granulated gelatinized gunpowder for the purpose of delaying the passage of ignition from grain to grain, consisting in mixing together a quantity of the powder-grains and a quantity of dry finely-divided carnauba-wax and subjecting the commingled materials to agitation together, and forming by their attrition and the cohesion of abrasions a continuous coating or shell of the required thickness of the waxy material upon and around each powder-grain, substantially as hereinbefore specified.

3. The method of treating granulated gelatinized gunpowder for the purpose of delaying the passage of ignition from grain to grain consisting in mixing together a quantity of the powder-grains and a quantity of a waxy coating material in a dry and finely-divided condition, and subjecting the commingled materials to agitation together, and forming by their attrition and the cohesion of abrasions a continuous coating or shell of the required thickness of the waxy material upon and around each powder-grain, and then tumbling the coated powder with powdered graphite and thereby providing each grain with an outer glaze of graphite, substantially as hereinbefore specified.

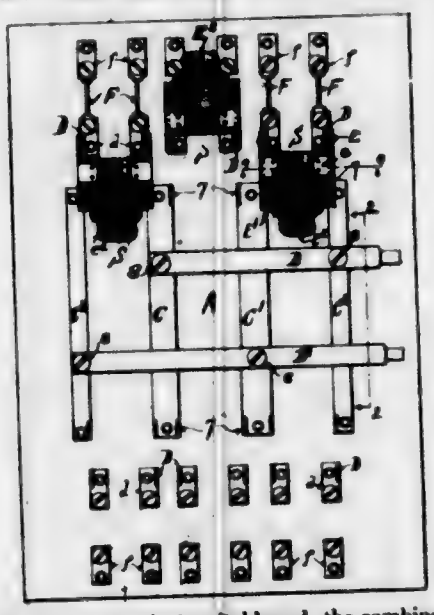
693,549. PORTABLE WASHBASIN. JOHN J. KELLOGG, Media, Pa. Filed Apr. 13, 1901. Serial No. 55,567. (No model.)



Claim.—1. A washstand comprising in combination with a cabinet having a hinged lid or cover, of a sliding reservoir, suitably guided in said cabinet, weighted levers D^2 pivoted to the cabinet at or near the center having connecting-levers extending from the weighted end to the hinged lid or cover and connecting-levers at the opposite ends fulcrumed to the sliding reservoir, substantially as specified.

2. A washstand comprising in combination with a cabinet having a hinged cover, a movable reservoir, fixed guides for said reservoir, a weighted rocking lever D^2 pivoted to the cabinet, a connecting-lever interposed between the weighted end of the lever D^2 and the hinged cover of the cabinet and a lever interposed between the opposite ends of the weighted lever and the movable reservoir substantially as specified.

693,550. ELECTRICAL SWITCH MECHANISM. HUBERT KRANTZ, Brooklyn, N. Y. Filed May 8, 1901. Serial No. 59,343. (No model.)



Claim.—1. In an electrical switchboard, the combination of hinged switches carrying spring-clips with cross-bars having at their opposite ends contact-lugs, each a single blade, formed in one with and bent up from the body of the cross-bar, substantially as described.

2. In an electrical switchboard, the combination of a bus-bar with a cross-bar connected to the bus-bar and having at its opposite ends contact-lugs, each being a single blade, formed in one with and bent up from the body of the cross-bar, and switches having clips to contact with said blades, substantially as described.

3. In an electrical switchboard, the combination of four switches with a bus-bar and a cross-bar connected to the bus-bar, said cross-bar having four contact-lugs for said four switches, each such lug being a single blade in one with and bent up from the body of the bar.

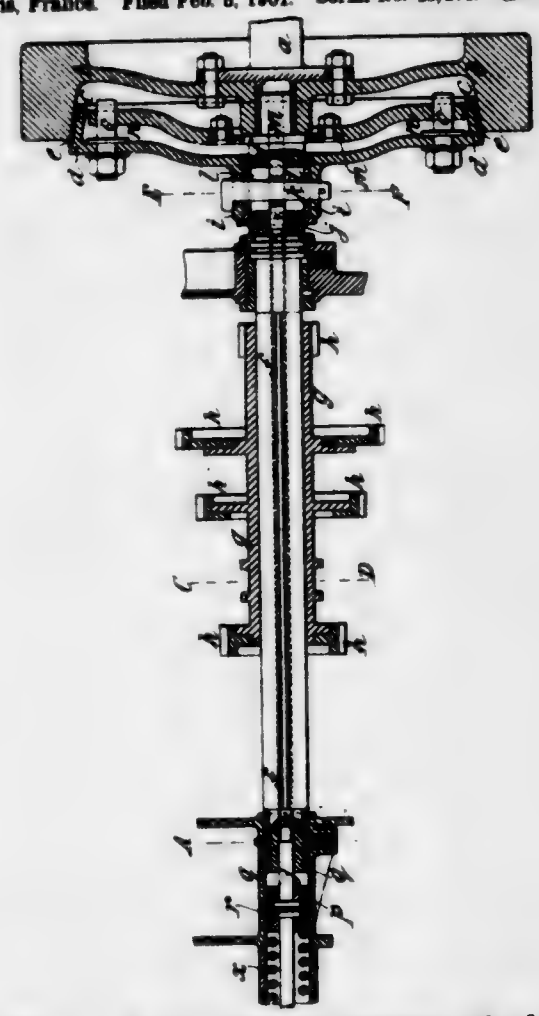
4. An electrical jack-switch, comprising an insulating base-plate carrying hinging-lugs, each a single blade in one with and bent up from its base-piece, contact-lugs also each of a single blade in one with its base-piece, in combination with the hinged part of the switch comprising an insulating-block carrying spring-clips, to make the hinge connections with said hinging-lugs at one end and to make contact with said contact-lugs at the other end, substantially as described.

5. The combination of the hinging and contact lugs of a jack-switch with the hinged part consisting of an insulating-block having secured to each of its opposite edges two plates between their hinging and contact ends, each pair of plates forming spring-clips, substantially as and for the purpose described.

6. The combination of the hinging and contact lugs of a jack-switch with the hinged part consisting of an insulating-block having secured to its opposite edges plates with wings bent over and secured to said block between the hinging and contact ends of said plates, the latter having ends projecting beyond the insulating-block for connection with the hinging and contact lugs.

7. The combination of the hinging and contact lugs of a jack-switch with a hinged part, consisting of an insulating-block having secured to each of its opposite edges a pair of plates, one of said plates having wings to embrace the other plate and also the edge of the insulating-block to secure the plates to the latter, substantially as described.

693,551. CONE-CLUTCH. ARTHUR C. KRIEG, Paris, France, assignor to Sté. Ame. des Anciens Etablissements Panhard et Levassor, Paris, France. Filed Feb. 8, 1901. Serial No. 46,471. (No model.)

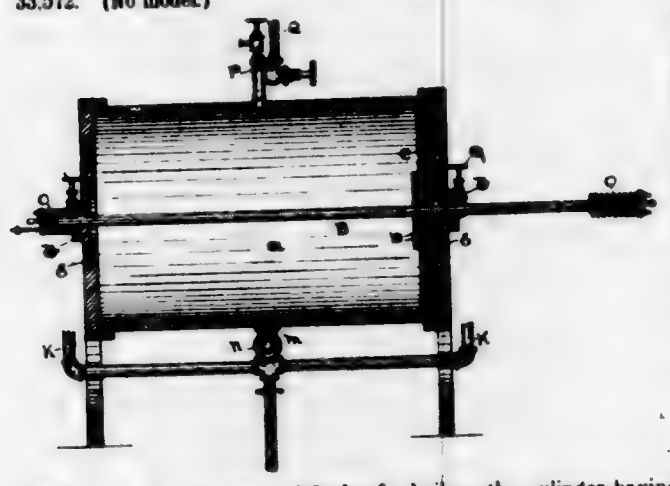


Claim.—1. In a cone-clutch, the combination with a fixed cone and power-shaft, of a movable cone and driven shaft, means for connecting said driven shaft with said movable cone at a point near the circumference of said movable cone, whereby the frictional resistance to further movement of the movable cone relatively to the driven shaft is reduced to a minimum, an operating-rod passing through said shaft, a slot *l* in said shaft, and a key *k* connected to said operating-rod and passing through said slot *l* freely so as to have some play and to avoid friction at this point and connected to said movable cone.

2. In a cone-clutch, the combination with a fixed cone and power-shaft, of a movable cone and driven shaft, means for connecting said driven shaft with said movable cone at a point near the circumference of said movable cone whereby the frictional resistance to further movement of the movable cone relatively to the driven shaft is reduced to a minimum, comprising arms projecting from said shaft and engaged near their outer ends by said movable cone, and an operating-rod passing through said shaft, a slot *l* in said shaft, and a key *k* connected to said operating-rod and passing through said slot *l* freely so as to have some play and to avoid friction at this point and connected to said movable cone.

3. In a cone-clutch, the combination with a fixed cone and power-shaft, of a movable cone and driven shaft, means for connecting said driven shaft with said movable cone at a point near the circumference of said movable cone whereby the frictional resistance to further movement of the movable cone relatively to the driven shaft is reduced to a minimum, comprising arms projecting from said shaft and engaged near their outer ends by said movable cone, an operating-rod passing through said shaft, a slot *l* in said shaft, and a key *k* connected to said operating-rod and passing through said slot *l* freely so as to have some play and to avoid friction at this point and connected to said movable cone, and a spring *x* for moving said operating-rod to bring said cones into and out of engagement.

698,552. COMPOUND-FEEDER FOR STEAM-BOILERS. WILLIAM D. LABADIE, South Bend, Ind. Filed Oct. 19, 1900. Serial No. 33,572. (No model.)



Claim.—1. In a compound-feeder for boilers, the cylinder having recesses formed in the inner sides of its two heads, a piston placed therein and provided with jam-nuts which fit the recesses in the inner sides of the heads, a piston-rod which extends through both heads of the cylinder and to which the said piston is secured, and suitable buffers applied to opposite ends of the piston-rod, combined with suitable inlet and outlet pipes provided with valves, and a cock for admitting and discharging air, substantially as described.

2. A compound-feeder for boilers consisting of a cylinder provided with a compound-supply pipe and compound-discharge pipes, a piston-rod extending longitudinally through the cylinder and carrying a piston, cushioning-springs mounted on each end of the piston-rod and steam-inlet pipes attached to the cylinder to admit steam for reciprocating the piston and piston-rod, substantially as described.

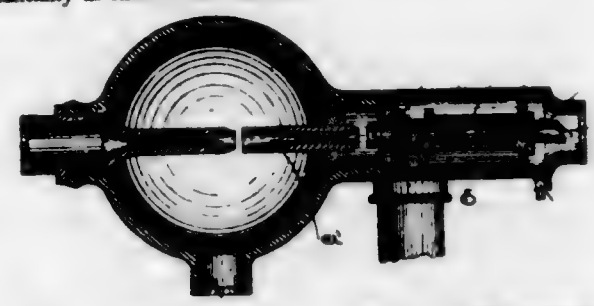
3. A compound-feeder for boilers consisting of a cylinder, a piston-rod extending through both ends of the cylinder and carrying a piston adapted to reciprocate in the cylinder, pipes connected with the ends of the cylinder to admit steam and reciprocate the piston, pipes connected with the end of the cylinder for discharging the compound, and a steam-discharge pipe connected to the side of the cylinder at the bottom thereof, substantially as described.

4. In a compound-feeder for boilers, a cylinder provided with a pipe P which serves to admit the compound; to discharge air from the cylinder, and to admit air after the compound has been discharged from the cylinder; combined with a piston-rod carrying a piston adapted to reciprocate in the cylinder, suitable steam-inlet pipes and compound-discharge pipes, and a steam-discharge pipe, substantially as described.

698,553. INJECTOR. WILLIAM D. LABADIE, South Bend, Ind., assignor of one-half to Joseph G. Duck, Milwaukee, Wis. Filed Feb. 6, 1901. Serial No. 46,213. (No model.)

Claim.—1. In an injector, the combination with a water-receiving chamber having steam-injecting tubes therein, of a communicating chamber having a nozzle mounted therein provided with an annular groove, a spring-pressed valve slidably mounted in said groove and adapted to cut off connection with the chamber.

2. In an injector, the combination with a water-receiving chamber provided with steam-injecting tubes, of a communicating chamber having an overflow-pipe connected therewith and a nozzle provided with a sliding spring-pressed valve normally closed to cut off communication with the chamber and overflow-pipe, but adapted to be opened by the force of the water, means upon the nozzle to prevent the backward flow of water to the injector and means to relieve the back pressure from the boiler, substantially as shown and described.



3. In an injector, a chamber carrying steam-injecting tubes, and another chamber connected thereto carrying a nozzle, a valve pivotally hung upon the end of said nozzle, and a petcock attached to the shell of the chamber adjacent said valve, substantially as described.

4. In an injector, the combination with a water-receiving chamber having steam-injecting tubes therein, of a communicating chamber having an overflow-pipe connected therewith, and a nozzle provided with a sliding spring-pressed valve normally closed to cut off communication with the chamber and the overflow-pipe, a removable check-valve pivotally hung within the overflow-pipe, means upon the nozzle to prevent the backward flow of water to the injector, and means to relieve the back pressure from the boiler, substantially as described.

5. In an injector, the combination with a water-receiving chamber having steam-injecting tubes therein, of a communicating chamber having an overflow-pipe connected therewith, and provided with integral hooked bearings, a check-valve pivotally hung upon the hooked bearings and adapted to be detached therefrom, a nozzle mounted in the communicating chamber and provided with a spring pressed valve to control the flow of water to the chamber and overflow-pipe, substantially as described.

698,554. SCARIFICATOR FOR SURGICAL USE. LEWIS G. LANGSTAFF, Brooklyn, N. Y. Filed June 11, 1901. Serial No. 64,112. (No model.)



Claim.—1. A scarificator consisting of a ring having a handle projecting laterally from it and an elastic needle-holder projecting across it from one side thereof, and one or more needles longitudinally adjustable in said holder, substantially as herein described.

2. A scarificator consisting of a substantially flat ring having a handle projecting laterally from it and having projecting across it from one side thereof a tongue which constitutes a needle-holder for holding needles in fixed positions approximately perpendicular to the face of the ring itself, substantially as herein described.

3. A scarificator consisting of a strip bent to form three parts, viz: a ring, a terminal handle projecting outwardly from said ring and a terminal tongue which projects inwardly across said ring and is slit and corrugated to form a needle-holder, substantially as herein described.

698,555. LIGHTNING-CONDUCTOR. ACHILLE LELONG, Villers Poteries, Belgium. Filed Nov. 1, 1901. Serial No. 80,732. (No model.)



Claim.—A lightning-conductor comprising a conducting-wire connected at its upper end to a conducting-body provided with a series of spikes, and at its lower end to a spiral copper coil having a series of projecting spikes, substantially as described.

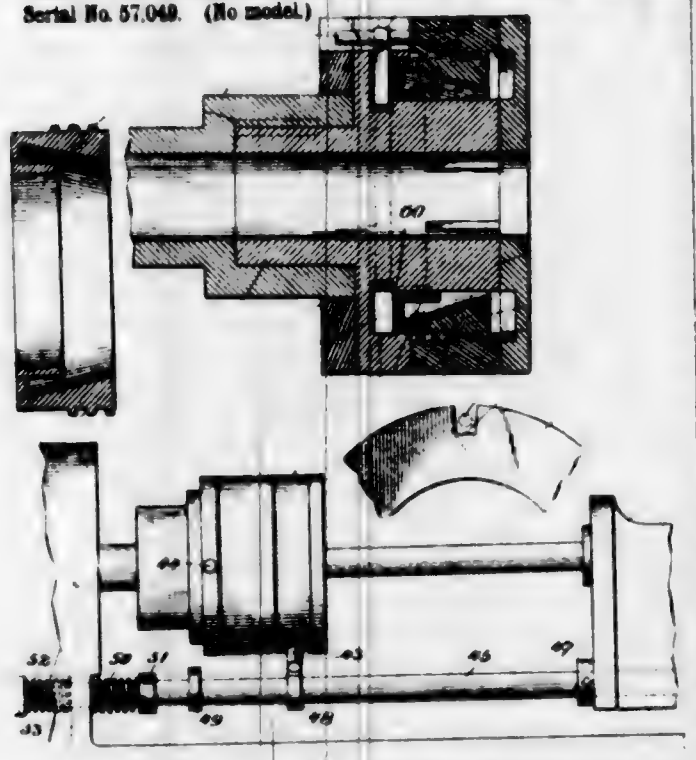
698,556. COMPOSITION FOR CLEANING AND POLISHING. PHILIP LEVI, New York, N. Y. Filed Oct. 24, 1901. Serial No. 79,801. (No specimens.)

Claim.—1. The herein-described composition of matter, consisting of distilled water, paraffin-oil, coal-oil, butter of antimony, and a coloring of alkanet-root, substantially as and for the purpose specified.

2. The herein-described composition of matter, consisting of distilled water fourteen gallons, paraffin-oil eighty gallons, coal or refined

carbon oil six gallons, butter of antimony two pounds, alkanet-root ten pounds, and oil of mirbane as desired, substantially as and for the purpose specified.

698,557. SCREW-CUTTING DIE-HEAD. POTTER F. MAINES, Philadelphia, Pa., assignor, by direct and mesne assignments, of two-thirds to Meyer Schamberg, Philadelphia, Pa. Filed Apr. 23 1901. Serial No. 57,049. (No model.)



Claim.—1. In a die-head, in combination with the stock and cutting-dies arranged therein, a laterally-movable die-ring keyed on said stock, an inner annular flange formed thereon, an inclined face on the inner diameter of the main body of the die-ring forming a circular groove between said flange and said inclined inner face, said flange adapted to engage inclined tongues formed in the cutting-dies, as and for the purpose substantially as described.

2. In a die-head, a laterally-movable die-ring adapted to be keyed upon the stock, the inner face of the ring having an inwardly-projecting flange forming an annular recess between the face of the inner flange and the inner face of the main body of the die-ring, the said inner face of the ring being inclined and diminishing in diameter from the base of the recess, said flange being adapted to engage inclined tongues formed in the cutting-dies of the die-head, substantially as described.

3. In a die-head, the combination with the stock, of a die-receiving section, a series of radially-disposed guide-slots provided therein, angularly-slotted cutting-dies adapted to said guide-slots, a die-ring keyed to said die-receiving section having an inclined inner wall adapted to bear against the inclined ends of the cutting-dies and an upwardly-extending annular flange formed in the die-ring adapted to engage the angular or inclined tongue formed in each of the cutting-dies, and an outer ring confined against the die-head having interior screw-threads adapted to engage screw-threads provided upon the outer periphery of the die-ring for imparting lateral movement to the die-ring in either direction, substantially as described.

4. In a die-head, a laterally-movable die-ring having an inwardly-projecting annular flange and positively-guided cutting-dies with angularly-disposed slots provided in said cutting-dies forming an inclined tongue in each of the cutting-dies adapted to the said flange of the die-ring for moving the dies in an outward direction, the inner surface of the main body of the said die-ring being inclined and adapted to bear against the inclined ends of the cutting-dies for moving the dies in the opposite direction, substantially as described.

5. In a die, the combination with the stock, of a die-receiving section having a series of radially-disposed guide-slots provided therein, cutting-dies adapted to said guide-slots having angularly-disposed slots provided in said cutting-dies, a die-ring keyed to said die-receiving section having an inclined inner wall adapted to bear against the inclined ends of the cutting-dies, and inwardly-extending annular flange formed in the die-ring adapted to engage the angular or inclined slots formed in the cutting-dies, a retaining-plate secured upon the die-receiving section, an outer ring confined between the die-head and the said retaining-plate having screw-threads upon the inner surface of said ring adapted to engage with screw-threads provided upon the outer periphery of the die-ring for imparting lateral movement to the die-ring in either direction, and means for rotating said outer ring, substantially as described.

6. In a die-head, the combination with the stock, of a die-receiving section, a series of radially-disposed slots provided therein, cutting-dies adapted to said slots, a die-ring keyed on the die-holding section, an inclined interior wall formed in the said die-ring adapted to bear against the similary-inclined walls of the cutting-die, an annular flange formed on one side of the die-ring and extending inwardly, an inclined slot formed in the cutting-die adapted to be engaged by the said annular flange, exterior threads formed on the die-ring, an outer ring having interior threads adapted to engage the threads of the die-ring and means for turning the said outer ring to feed the die-ring laterally in either direction, for the purpose described.

7. In an automatically-operated die-head, the combination with the stock, of cutting-dies arranged therein, a laterally-movable die-ring keyed on the said stock, a connection between the die-ring and each of the cutting-dies whereby upon the lateral movement of the die-ring the cutters are caused to open or close, screw-threads provided on the exterior of the die-ring, an outer ring having interior screw-threads adapted to engage the threads on the die-ring, an annular flange extending inwardly from one side of the die-ring adapted to engage a laterally-extending tongue provided in the cutting-dies, a spiral spring secured at one end to the stock and at its other end to the outer threaded ring, and means for holding the outer ring in a set position under tension until it is automatically released by the action of the lathe-carriage, substantially as described.

8. The combination with the die-head, of a die-holding section having radially-disposed slots provided therein, cutting-dies adapted to said slots, a die-ring keyed to the die-holding section, connections between the said die-ring and each of the cutting-dies whereby upon the lateral movement of the said die-ring the cutting-dies are either opened or closed, threads provided upon the exterior of the die-ring, an outer ring having interior threads adapted to engage the threads on the die-ring, a retaining-plate for holding the outer ring against lateral movement, an annular flange extending inwardly from one side of the die-ring adapted to engage a laterally-extending tongue provided in the cutting-dies, a spiral spring secured at one end to the stock and at its other end to the outer ring adapted to throw the said ring and open the dies, and means for adjusting the position of the said outer ring to regulate the movement of the cutting-dies, substantially as described.

9. The combination with the stock, of radially-disposed slots formed therein, cutting-dies adapted to said slots, a die-ring keyed to the die-holding section, connections between the said die-ring and each of the cutting-dies whereby upon the lateral movement of the said die-ring the cutting-dies are either opened or closed, threads formed on the exterior of the die-ring, an outer ring having interior threads adapted to engage the threads of the die-ring, a retaining-plate for holding the outer ring against lateral movement, a spiral spring secured at one end to the stock and at its other end to the outer ring, a recess provided in the surface of the stock-section adjacent to the outer ring, a pin secured to the outer ring and projecting through the recess and an adjusting-ring threaded on the lathe-carriage having a recess adapted to receive the end of the pin and hold it in a fixed position until the die-head is withdrawn from its holder, substantially as described.

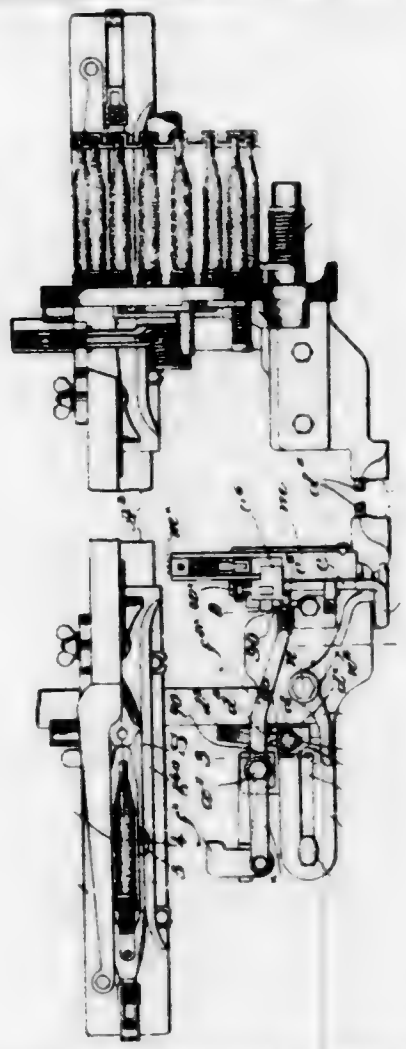
10. In a die-head, the combination with the stock, of a die-receiving section, a series of radially-disposed guide-slots provided therein, angularly-slotted cutting-dies adapted to said guide-slots, a die-ring keyed to said die-receiving section having an inclined inner wall adapted to bear against the inclined ends of the cutting-dies and an inwardly-extending annular flange formed in the die-ring adapted to engage the angular or inclined tongue formed in each of the cutting-dies, and an outer ring confined against the die-head having interior screw-threads adapted to engage screw-threads provided upon the outer periphery of the die-ring for imparting lateral movement to the die-ring in either direction, a spiral spring secured at one end to the stock and at its other end to the outer threaded ring, and means for holding the outer ring in a set position under tension until it is automatically released by the action of the lathe-carriage, substantially as described.

698,558. FILLING-SUPPLYING LOOM. ALIDA M. MARCOUX, Milford, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Filed Oct. 7, 1901. Serial No. 77,795. (No model.)

Claim.—1. In a loom provided with automatic filling-supplying mechanism, a controlling member therefor rendered inoperative by the presence and operative by substantial absence of filling in the shuttle, a device actuated by or through starting of the loom to automatically render said member inoperative, and a moving part of the loom to subsequently relieve the controlling member from control of said device.

2. In a loom provided with automatic filling-supplying mechanism, a controlling member therefor rendered inoperative by the presence and operative by substantial absence of filling in the shuttle, means operated by starting of the loom to automatically render said controlling member inoperative, and separate means to subsequently release said member from the control of the first-mentioned means.

3. In a loom provided with automatic filling-supplying mechanism, a controlling member therefor rendered inoperative by the presence and operative by substantial absence of filling in the shuttle, self-locking means actuated by starting of the loom to automatically render said controlling member inoperative, and a moving part of the loom to subsequently unlock said means and release the said member from control thereby.



4. In a loom provided with automatic filling-supplying mechanism, a controlling member therefor rendered inoperative by the presence and operative by substantial absence of filling in the shuttle, a device actuated by starting of the loom to render the controlling member inoperative and retain it in such position, and means to release said device after the loom has started and thereby relieve the said member from control thereof.

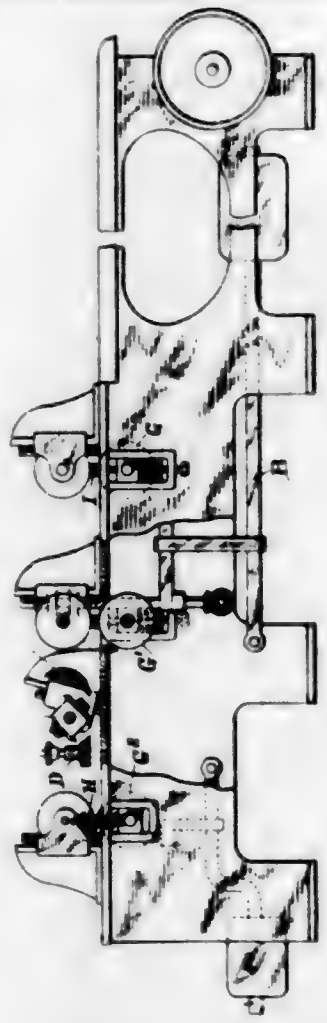
5. In a loom provided with automatic filling-supplying mechanism, controlling means therefor, including a member rendered inoperative by the presence and operative by predetermined exhaustion of the filling in the shuttle, a shipper, a dog actuated by movement of the shipper to running position to render said member inoperative, a catch to lock the dog when so actuated, and means to automatically unlock the dog after the loom has started and thereby relieve said member from the control thereof.

6. In a loom provided with automatic filling-supplying mechanism, controlling means therefor, including a member moved into inoperative position by filling-induced movement of the feeler, a feeler intermittingly moved by or through the filling in the shuttle until said filling is exhausted to a predetermined extent, a device operated by starting of the loom to act through the feeler and render said member inoperative, and a moving part of the loom to automatically release the feeler from control by the dog when filling-induced movement of said feeler is established.

7. In a loom provided with automatic filling-supplying mechanism, controlling means therefor, including a member moved into inoperative position by filling induced movement of the feeler, a feeler intermittingly moved by or through the filling in the shuttle until said filling is exhausted to a predetermined extent, a shipper, a self-locking dog, operated by movement of the shipper to running position to act upon the feeler and render said member of the controlling means inoperative, and means to automatically unlock the dog, and thereby relieve the feeler from its control when filling-induced movement of the feeler is established.

698,559. PLANER-BED. EDWARD C. HERRICK, East Saginaw, Mich. Filed Aug. 20, 1901. Serial No. 72,708. (No model.)

Claim.—In a woodworking or like machine, the combination with the bed thereof provided with transverse openings, of rolls mounted in said openings, rolls mounted above said lower rolls and preponderating the latter in pressure against the lumber, and springs joining said upper and lower rolls to insure constant and regular engagement of the lumber by both upper and lower rolls, and to decrease the friction between the lumber and the bed of the machine substantially as set forth.



698,560. SHEET-METAL I-BEAM. EDMOND MOLLOY, Philadelphia, Pa. Filed Aug. 1, 1900. Serial No. 25,493. (No model.)



Claim.—1. A sheet-metal I-beam composed of two pieces of stiffer material, having wound completely around the same a single sheet of sheet material, each of said pieces, thus enveloped, forming a flange of said beam, and the middle portion of the said sheet extending between the flanges, and both end portions of said sheet extending parallel with said middle portion to form the web, substantially as described.

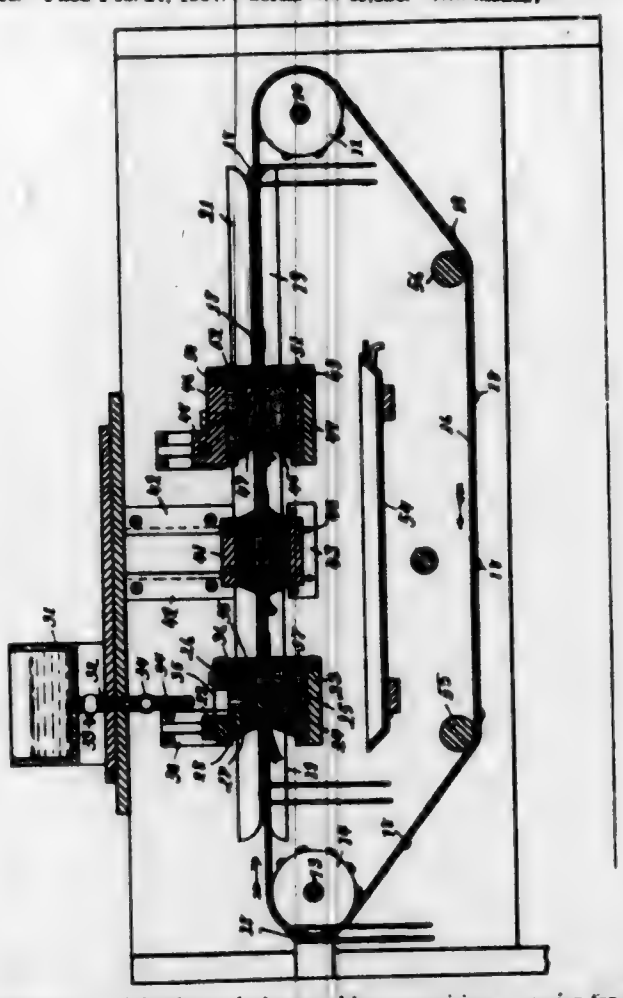
2. A partition composed of a series of I-beams consisting of end pieces of stiffer material having completely wound around both a single sheet of sheet material, each piece with the sheet material wrapped around same forming one of the flanges of the beam, and the middle portion of said sheet extending between said flanges to form the web together with the side portions of said sheet, which lie adjacent to said middle portion, and slabs extending from the web portion of one beam, to the web portion of the next and fitting tightly against said web portions; substantially as described.

3. A sheet-metal I-beam, composed of two pieces of stiffer material, having wound completely around both of them a single sheet of sheet material, each of said pieces thus enveloped, forming a flange of said beam, and the middle portion of said sheet extending between the flanges, and both side portions of said sheet extending parallel with the said middle portion, and lying on either side thereof, substantially as described.

4. A sheet-metal I-beam, composed of two pieces of stiffer material, having wound completely around the same a single sheet of sheet material, each of said pieces thus enveloped, forming a flange of said beam, the middle portion of said sheet extending between the flanges and the two end portions each extending parallel with and on opposite sides of the said middle portion, and part of the distance only between the said flanges, said middle portion having a double bend therein, whereby each

portion of the middle portion of said sheet lies substantially in the line of the extension of the said side pieces: substantially as described.

693,561. LEATHER-COLORING MACHINE. WILLIAM H. MOORE, Salem, Mass., assignor to Moore Leather Machine Company, Kittery, Me. Filed Feb. 27, 1901. Serial No. 49,096. (No model.)



Claim.—1. A leather-coloring machine comprising a carrier for the skins which is adapted to convey them while doubled, two pads which are relatively stationary with respect to said carrier, said pads being arranged one above the other with their faces pressed together and one of said pads being movable with respect to the other, so that they may automatically separate to permit the carrier to pass therebetween, means for supplying a suitable liquid to said upper pad, and means for driving said carrier so that it will conduct the skins between said pads.

2. A leather-coloring machine comprising two stationary pads having faces which are pressed together, a carrier comprising a rod and means for conducting the same between said pads, means for permitting the faces of said pads to automatically separate as said rod passes between said pads, and means for supplying a suitable coloring liquid to said pads.

3. A machine of the class described comprising two pads, one of which is fixed and the other of which is pivoted so that it may swing into and out of engagement with the fixed pad, one of said pads being arranged directly over the other, means for supplying a suitable liquid to the upper pad, and means for drawing a skin between said pads while it is doubled.

4. A machine of the class described comprising a fixed support, a pad carried on the upper side thereof, a pivoted support having a pad secured to the under side thereof and resting on said first-named pad, a pair of endless belts, a cross-bar which is secured to each of said belts, means for driving said belts and causing said bar to pass between said pads, and means for supplying a suitable liquid to said pads, whereby a skin may be drawn doubled between said pads.

5. A leather-coloring machine comprising two flat-faced stationary pads having their faces pressed together, means for supplying a suitable liquid to said pads, two endless belts, a series of parallel cross-bars connecting said belts, means for driving said belts so that said bars will be carried between said pads, and means for permitting one of said pads to move away from the other as the bars pass between them.

6. A leather-coloring machine comprising a pair of stationary pads having their faces pressed together, means for supplying a suitable liquid to said pads, a pair of endless chains, a series of parallel bars secured at their ends to said chains, means for driving said chains and for causing the same to carry said bars between said pads, a pair of blades having rounded edges, one of said blades being fixed and having its edge arranged in close proximity to the path of said bars beyond the pads, the other blade being movable, means which act constantly to move the edge of the latter into engagement with the edge of said fixed blade, and means for causing said movable blade to move away from said fixed blade as said bars pass between them.

7. A leather-working machine comprising a carrier consisting essentially of a pair of endless belts, one or more bars which are secured at their ends to said belts, means for driving said belts, guiding-supports for one side of each belt which are adapted to cause said bars to travel in a predetermined path, a fixed blade having its edge arranged closely adjacent the path of said bars and on the side thereof next said supports, a movable blade which is appositely arranged to said fixed blade and is normally in the path of said bars, and means connected to said movable blade which are adapted and arranged to engage a part of said carrier and move said latter blade away from said fixed blade and outside of the path of said bars each time a bar passes thereby.

8. A leather-coloring machine comprising a carrier consisting essentially of a pair of endless belts having one or more bars which are secured at their ends to said belts and means for driving the latter, guiding-supports for one side of each belt which are adapted to cause said bars to travel in a predetermined path, a fixed pad having its face arranged closely adjacent the path of said bars and on the side thereof next said supports, a movable pad which normally has its face pressed against said fixed pad, and means connected to said movable pad which are adapted to engage a part of said carrier and move said latter pad away from said fixed pad and outside the path of said bars, each time a bar passes between said pads.

9. A machine of the class described comprising a fixed support, a pad carried thereby, a movable support, a pad carried thereby which rests on said first-named pad, a blade having a dull or smooth edge carried by each support, the edges of said blades being adapted to engage each other when said pads are in engagement, a pair of endless chains, a series of parallel bars secured at their ends to said chains, means for driving said chains and for causing the same to carry said bars between said pads and blades, said means comprising a guiding-support for one side of each chain which is arranged on a level with the blade of said fixed support, and a lifting-finger carried by said movable support which is adapted to engage each bar as it is about to pass between said blades, whereby said movable support will be lifted and said blades will be separated to permit the passage of each bar.

10. A leather-coloring machine comprising a carrier which extends across the machine and over which the skins may be hung, means for driving said carrier in a predetermined path, means for applying a suitable liquid to the surface of the skins as they are carried thereby, a pair of relatively stationary blades having smooth edges which are normally arranged in close proximity to each other, means for automatically separating said blades as said carrier passes between them, and for causing them to engage the skins as they are drawn between the blades, and means for spreading the liquid over the surface of the skins after they have been drawn between the blades.

11. A machine of the class described comprising a pair of endless chains, means for driving the same, a series of bars which are connected at their ends to said chains, said bars being flat on one side and curved on the other, a pair of blades having smooth edges one of which is fixed and the other movable, means for holding the edges of said blades together, means for guiding said bars so that their flat sides will pass close to the edge of said fixed blade, a finger connected to said movable blade which is adapted to engage the curved side of each bar in advance of its passage between said blades and to lift said movable blade, and means for applying a suitable liquid to a skin as it is carried by one of said bars.

12. A machine of the class described comprising two fixed supports, pads carried on the upper sides of said supports, two pivoted supports having pads secured to the under sides thereof which rest on the pads of said fixed supports, respectively, means for supplying a suitable liquid to one of said upper pads, a pair of chains having a series of bars connected thereto at their ends, means for driving said chains and for guiding said bars so that they will pass between both pairs of pads, and from the one to which the liquid is applied to the other.

13. A machine of the class described comprising a pair of stationary pads, means for supplying a suitable liquid to said pads, a pair of rubber-covered blades of comparatively non-resilient material, means for causing said blades to engage opposite sides of a skin, means for drawing a skin between said pads and between said blades while the latter are in engagement with said skin.

14. A machine of the class described comprising a lower support, a pad which is secured to the upper side thereof, an upper support having a pad on its lower side, one or more passages through said upper support, means for supplying a suitable liquid to said passages, and means for drawing a skin between said pads while it is doubled.

15. A leather-coloring machine comprising two stationary pads having broad faces which are normally pressed into engagement with each other, one of said pads being arranged above the other, means for sup-

plying a suitable liquid to the upper pad so that the lower pad may be supplied therefrom, a carrier comprising a bar and means for conducting the same between said pads, and means for permitting the faces of said pads to automatically separate as said bar passes between them and then to engage the surface of the skin as it is drawn between them.

16. A leather-coloring machine comprising two stationary pads having broad flat faces which are normally pressed together, means for supplying a suitable liquid to each pad, a carrier comprising a bar and means for conducting the same between said pads, and means for permitting the faces of said pads to automatically separate as said bar passes between them and then to engage the surface of the skin as it is drawn between them.

693,582. CLAMP FOR METAL BEDSTEADS. WILLARD A. MORRISON and FRED L. BRYANT, Chicago, Ill. Filed June 24, 1901. Serial No. 65,790. (No model.)



Claim.—1. In a bedstead, the combination with an upright or post, of a side rail, a clamp adapted to engage said upright or post and comprising two jaws or members hingedly connected together at the outer edges, the inner end of one of said members being rigidly secured to the side rail, and a clamping device for forcing inward the inner end of the other jaw or member, whereby the side rail is securely clamped to the post or upright and lost motion is eliminated, substantially as described.

2. In a bedstead, the combination with the end pieces each comprising a pair of uprights or posts suitably connected together, of a pair of side rails, a clamp at each end of each of said side rails adapted to engage the respective uprights or posts, and each comprising two jaws or members hingedly connected together at the outer edge, the inner end of one of said members being rigidly secured to the side rail and a clamping device for forcing inward the inner end of the other jaw or member, substantially as described.

693,563. SPREADER-CLIP FOR HAMMOCKS. ISAAC R. PALMER, Middletown, Conn. Filed July 25, 1901. Serial No. 69,661. (No model.)



Claim.—1. The combination with the hammock-body provided with a pocket and a spreader located within the pocket, of a clip adapted to span the end and extend over the sides of the spreader, the said clip being formed of malleable metal whereby its parts, extending over the sides of the spreader, may be forced into operative adjustment to clamp the wall of the pocket between it and the spreader, substantially as set forth.

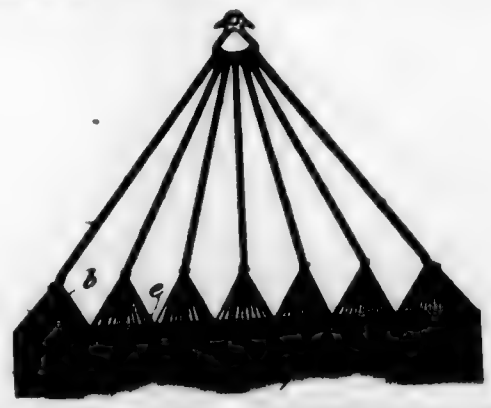
2. The combination with the spreader-pocket in the hammock-body, a spreader located therein and a suspension-cord leading over the end of the spreader, of a clip comprising a body portion arranged to span the end of the spreader and clamp the suspension-cord between it and the end of the spreader and with side portions arranged to extend over the sides of the spreader and clamp the pocket-wall between it and the spreader, substantially as set forth.

693,564. HAMMOCK. ISAAC R. PALMER, Middletown, Conn. Filed Aug. 10, 1901. Serial No. 71,596. (No model.)

Claim.—1. The combination with the hammock-body provided with suspension-loops at its end and a spreader extending across the body of the hammock, of a suspension-cord engaged with the suspension-loops at the edge of the hammock and extended to and engaged with the spreader, the said suspension-cord serving to lock the spreader in position relative to the body of the hammock, substantially as set forth.

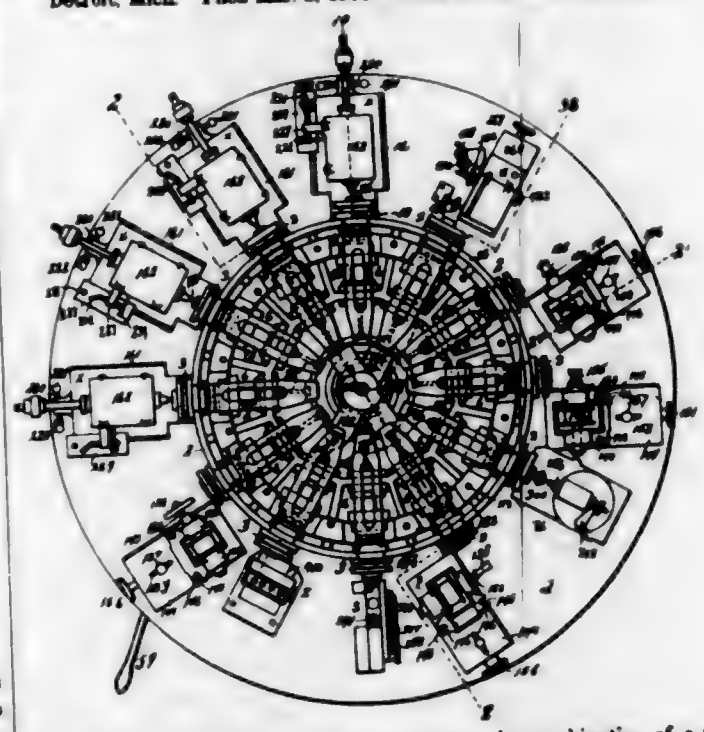
2. The combination with the hammock-body provided with suspension-loops and a spreader having its ends housed in pockets, of suspension-cords engaged with the suspension-loops and extended at the opposite edges of the hammock down to and engaged with the opposite ends of the spreader, substantially as set forth.

3. The combination with a hammock-body provided with a spreader-pocket and the spreader located in the pocket, of the cords fastened to the ends of the spreader and extending along the face of the spreader exterior to the wall of the spreader-pocket whereby the spreader is clamped to the wall of its pocket, substantially as set forth.



4. The combination with the body of the hammock, provided with a spreader-pocket and a spreader located in the pocket and provided with holes through its ends, of suspension-cords extending through the holes in the ends of the spreader and along the face of the spreader exterior to the wall of the spreader-pocket whereby the spreader is clamped to the wall of its pocket against longitudinal displacement within the pocket and the strain of the hammock-load is received upon the spreader, substantially as set forth.

693,565. BUTTON-MAKING MACHINE. WILLIAM A. PENDRY, Detroit, Mich. Filed Mar. 2, 1901. Serial No. 49,606. (No model.)



Claim.—1. In a button-making machine, the combination of a rotatable turret having a step-by-step movement, hollow rotatable reciprocatory mandrels, a sleeve within each of said mandrels provided with clamping-jaws to hold the button-blanks, means to hold the sleeve in longitudinally-fixed position, a reciprocatory push-rod within said sleeve to eject the blanks, means to release said jaws at desired intervals, a pulley upon said mandrel, a friction-pulley to drive the pulley upon the mandrel, and means to vertically adjust the position of the friction-pulley relative to the pulley upon the mandrel.

2. In a button-making machine, the combination of a rotatable turret having a step-by-step movement, hollow rotatable reciprocatory mandrels, a sleeve within each of the mandrels provided with clamping-jaws to hold the button-blanks, means to hold the sleeve in longitudinally-fixed position, a reciprocatory push-rod within said sleeve to eject the blanks, means to release said jaws at desired intervals, a pulley upon said mandrel, a friction-pulley to drive the pulley upon the mandrel, a vertically-adjustable yoke to carry the friction-pulley, means to hold the yoke in adjusted position, and means to drive the friction-pulley.

3. In a button-making machine, the combination of a rotatable turret having a step-by-step movement, a stationary table, hollow rotatable reciprocatory mandrels carried by said turret, a vertically-adjustable friction-pulley carried by said table to actuate the mandrel, and means to drive said friction-pulley.

4. In a button-making machine, the combination of a rotatable turret, a stationary table, a mandrel provided with a reciprocatory push-rod,

a push-pin to actuate the push-rod an upright rotatable shaft, a horizontally-rotatable cam upon the shaft to actuate the push-pin, a flange or collar about said cam against which the push-pin impinges, and means to retract the push-pin and the push-rod.

5. In a button-making machine, the combination of a rotatable turret, a stationary table, a reciprocatory mandrel, a horizontally-reciprocatory draw-plate to actuate the mandrel, and a horizontally-rotatable cam to actuate the draw-plate.

6. In a button-making machine, the combination with a rotatable turret, of a stationary table, a reciprocatory mandrel provided with a number-plate, a horizontally-reciprocatory draw-plate to engage the number-plate to actuate the mandrel, a rotatable shaft, and a horizontally-rotatable cam upon said shaft to actuate the draw-plate.

7. In a button-making machine, the combination with a rotatable turret, of a stationary table, a rotatable shaft, a rotatable reciprocatory mandrel provided with a number-plate, a horizontally-reciprocatory draw-plate engaging said number-plate to actuate the mandrel, an additional draw-plate to actuate the first-named draw-plate, a horizontally-rotatable cam upon said shaft to actuate the additional draw-plate, and means to retract the mandrel and said draw-plates.

8. In a button-making machine, the combination with a stationary table, of a grinding or buffing device constructed with a rotatable shaft provided with an internal elongated recess toward one end thereof, a spindle engaged with said shaft within said recess, an independent rod carried by said spindle, a buffing or grinding wheel mounted upon said rod, said spindle constructed cone-shaped at its outer end, and the adjacent end of the shaft constructed with a conical seat.

9. In a button-making machine, the combination with a stationary table, of a grinding or buffing device constructed with a rotatable shaft provided with an internal elongated recess toward one end thereof, a spindle engaged with said shaft within said recess, an independent rod passing through said spindle, a buffing or grinding wheel mounted upon the outer end of said rod, said spindle constructed cone-shaped at its outer extremity, and the adjacent end of the shaft constructed with a conical seat, the inner end of said rod constructed with a conical head, and the inner end of the spindle constructed with a corresponding seat for said head.

10. In a button-making machine, the combination with a stationary table, of a grinding and buffing device constructed with a rotatable shaft provided with an internal elongated recess toward one end thereof, a spindle adjustably engaged with said shaft within said recess, a rod engaged within said spindle to carry a grinding or buffing wheel, said spindle constructed cone-shaped at its outer end, the adjacent end of the shaft constructed with a conical seat, and means to adjust said spindle longitudinally of said shaft.

11. In a button-making machine, the combination with a stationary table, a grinding or buffing device provided with a rotatable shaft having an internal elongated recess toward one end thereof, a spindle adjustably engaged with said shaft within said recess, a rod within said spindle, a buffing or grinding wheel upon said rod, conical caps upon said rod at each end of said wheel, the extremities of the wheel being correspondingly formed, and means to hold said caps.

12. In a button-making machine, the combination with a stationary table, a grinding or buffing device provided with a rotatable shaft having an internal elongated recess toward one end thereof, a spindle adjustably engaged with said shaft within said recess, a rod within said spindle, a buffing or grinding wheel upon said rod, conical caps upon said rod at each end of said wheel, the extremities of the wheel being correspondingly formed, means to hold said caps, and means to aline the wheel into position for work.

13. In a button-making machine, the combination with a stationary table, of a reciprocatory slide, a shaft having its bearings supported upon said slide, a buffing or grinding wheel carried by said shaft, and a thrust-bearing to prevent end motion of the shaft.

14. In a button-making machine, the combination with a stationary table, of a reciprocatory slide, a grinding or buffing device carried by said slide, a bell-crank to actuate said slide, and a cam to actuate said bell-crank, and means to adjust the connection of the bell-crank with the slide.

15. A drilling device having in combination an oscillatory bed, a reciprocatory cylinder carried upon said bed, a rotatable cylinder carried by the reciprocatory cylinder, and means to prevent endwise movement of the rotatable cylinder in the reciprocatory cylinder.

16. A drilling device having in combination an oscillatory and reciprocatory cylinder, and a rotatable cylinder carried by the first-named cylinder, said cylinders having a synchronous oscillatory movement.

17. A drilling device having in combination a grinder, two drills interchangeable in position to bring the drills alternately to the grinder and to the work, and means to drop the grinder away from working position and restore the grinder into working position.

18. A drilling device having in combination a stationary table, an oscillatory bed upon said table, a reciprocatory cylinder upon said bed, and a rotatable cylinder carried by the reciprocatory cylinder, said bed forming a guideway to the base of the reciprocatory cylinder.

19. A drilling device having in combination a stationary table, an oscillatory bed, a reciprocatory cylinder carried by said bed, a rotatable cylinder within the reciprocatory cylinder, and means to drive said rotatable cylinder, said means oscillatory with said bed.

20. A drilling device having in combination a stationary table, an oscillatory bed, a reciprocatory cylinder carried by said bed, a toothed rotatable cylinder within the reciprocatory cylinder, a pinion to drive the rotatable cylinder, a gear to drive said pinion, and a bearing to carry said gear, said bearing oscillatory with said bed.

21. A drilling device having in combination a stationary table, an oscillatory bed, a reciprocatory cylinder carried by said bed, a gear to drive said rotatable cylinder, a bearing to carry said gear, bolts uniting said bearing to the oscillatory bed, said bearing oscillatory with said bed, one of said bolts forming the fulcrum upon which said bed oscillates.

22. A drilling device having in combination a stationary table, an oscillatory bed, a reciprocatory cylinder carried by said bed, a rotatable cylinder within the reciprocatory cylinder, a pinion to drive the rotatable cylinder, a gear to drive said pinion, and means to prevent endwise movement of said gear, said gear oscillatory with said bed.

23. A drilling device having in combination a stationary table, an oscillatory bed, a reciprocatory cylinder carried by said bed, a toothed rotatable cylinder within the reciprocatory cylinder, a pinion to drive the rotatable cylinder, a gear to drive said pinion, a bearing to carry said gear, bolts uniting said bearing to the oscillatory bed, one of said bolts forming the fulcrum on which said bed oscillates, said table provided with an arc-shaped slot through which the other of said bolts travels to keep said bearing in alinement with the bed.

24. A drilling device having in combination a rotatable cylinder, a hollow mandrel carried by the cylinder, a drill-holder within the mandrel, and a drill-rod within the holder, said mandrel being slotted and said holder provided with a key to engage said slot, said holder provided with a chuck to engage the adjacent end of the drill-rod, and means to clamp the chuck upon the drill-rod.

25. A drilling device having in combination a rotatable cylinder, a hollow mandrel carried by the cylinder, a drill-holder within the mandrel, a drill-rod carried in said holder, said drill-holder provided at one end with a chuck and with a collar at the opposite end, a nut over said collar having a threaded engagement with said mandrel whereby the drill-holder will be advanced, and means to bind the chuck upon the drill-rod when the drill-holder is advanced.

26. A drilling device having in combination a rotatable cylinder, hollow mandrels carried by said cylinder each provided with a drill-holder, drill-rods engaged with said drill-holders, a feed-screw to advance the drill-rods, a worm-gear, a star-wheel carried by said worm, and mechanism driven by said worm to actuate the feed-screw.

27. A drilling device having in combination a reciprocatory cylinder, a rotatable cylinder carried by said reciprocatory cylinder, hollow mandrels carried by said cylinder, drill-holders carried by said mandrels, drill-rods carried by the drill-holders, a worm-gear, a star-wheel carried by said worm-gear, said reciprocatory cylinder provided with a device projecting into the path of the star-wheel to rotate the star-wheel to revolve the feed-screw and advance the drill-rods.

28. A drilling device having in combination a reciprocatory cylinder, a rotatable cylinder carried by the reciprocatory cylinder, hollow rotatable mandrels carried by the cylinder, drill-holders within said mandrels and rotatable therewith, drill-rods carried by said drill-holders, a feed-screw, a yoke engaging said feed-screw constructed with bushings rotatable within the yoke and slidable upon the drill-holders, a key engaging the bushing with the drill-holder, and serving as a pusher to advance the corresponding push-rod.

29. A drilling device having in combination a reciprocatory cylinder, a rotatable cylinder carried by the reciprocatory cylinder, hollow rotatable mandrels carried by the cylinder, drill-holders within said mandrels and rotatable therewith, drill-rods carried by said drill-holders, a feed-screw, a yoke engaging said feed-screw constructed with bushings rotatable within the yoke and sliding upon the drill-holders, a key engaging the bushing with the drill-holders serving as a pusher to advance the corresponding push-rod, and means to prevent end movement of the key in the bushing.

30. A drilling mechanism having in combination an oscillatory bed, a rotatable cylinder carried thereby, a reciprocatory cylinder, drilling devices carried by the rotatable cylinders, and a screw to oscillate the oscillatory bed.

31. A drilling device having in combination a rotatable cylinder, hollow rotatable mandrels carried by said cylinder, slotted drill-holders carried by said mandrels and drill-rods carried by said holders, sliding collars upon said drill-holders constructed to prevent the buckling of the drill-rods, a yoke, a feed-screw engaged with the yoke to advance the drill-

rods, bushings carried by said yoke, said bushings rotatable within the yoke and sliding upon the drill-holders and keyed thereto, said bushings when in contact with said collars, forcing said collars along with the movement of the bushings.

32. A drilling device having in combination a sharpening device, an oscillatory bed, a reciprocatory cylinder upon said bed, a rotatable cylinder within the reciprocatory cylinder, and drilling devices carried by the rotatable cylinder, said sharpening device carried by said oscillatory bed.

33. A drilling device having in combination a sharpening device, an oscillatory bed, a reciprocatory cylinder upon said bed, a rotatable cylinder within the reciprocatory cylinder, and drilling devices carried by the rotatable cylinder, said sharpening device carried by said oscillatory bed, a cam-plate carried by the oscillatory bed to cause a vertical movement of the sharpening device, and means to adjust the vertical movement of the sharpening device.

34. A drilling device having in combination an oscillatory bed, a reciprocatory cylinder thereupon, a rotatable cylinder within the reciprocatory cylinder constructed with orifices on its periphery, a bolt carried by the reciprocatory cylinder to engage said orifices, and a cam to actuate said bolt, whereby the rotatable cylinder may be locked in position.

35. In a button-making machine, the combination of a stationary table, rotatable cylinders having a reciprocatory movement thereupon and provided with drilling mechanism, a cam, a bell-crank lever engaging the cam, and a link connecting the bell-crank lever with the rotatable cylinder to move said cylinder to and from the work.

36. In a button-making machine, the combination with oscillatory rotatable drilling mechanism, of a rigid driving-shaft to rotate said mechanism, said mechanism having an oscillatory movement without interfering with said driving-shaft.

37. In a button-making machine, the combination with oscillatory rotatable drilling mechanism, of a gear to rotate said mechanism provided with an elongated hollow trunnion, and a driving-shaft passing freely through said trunnion, whereby said trunnion may be oscillated without interfering with said driving-shaft.

38. The reversing mechanism herein set forth having in combination a vertical rotatable spindle, an elongated bearing carrying said spindle, a thimble upon the upper end of said bearing rotatable with said spindle, and a button-blank-holding device carried by said thimble.

39. The reversing mechanism herein set forth having in combination a vertical rotatable spindle, a plug detachably engaged upon the upper end of said spindle and rotatable therewith, an elongated bearing carrying said spindle, a thimble upon the upper end of said bearing engaged with said plug, and jaws provided with spring-arms connected with said thimble.

40. In a button-making machine, the combination of a stationary table, a rotatable turret, means to give to the turret a step-by-step movement, a series of hollow rotatable reciprocatory mandrels carried by said turret, a pulley upon the mandrel, a friction-pulley to drive the pulley upon the mandrel, a vertically-adjustable yoke to carry the friction-pulley, means to drive the friction-pulley, a sleeve within each of said mandrels provided with clamping-jaws to hold the button-blanks, means to hold the sleeve in longitudinally-fixed position, a reciprocatory push-rod within said sleeve, means to release said jaws at desired intervals, a push-pin to actuate the push-rod, a rotatable shaft, a cam upon said shaft to actuate the push-pin, a collar about said cam against which the push-rod impinges, means to retract the push-pin and the push-rod, a draw-plate to actuate the mandrels, a cam upon said shaft to actuate the draw-plate, and means to hold the mandrels in stationary position at stated intervals.

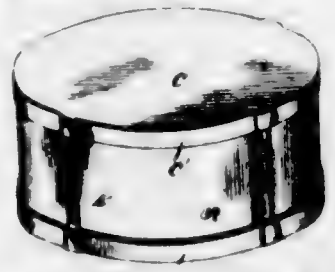
41. In a button-making machine, the combination of a stationary table, a grinding and buffing device having a reciprocatory engagement upon said table, said device constructed with a rotatable shaft provided with an elongated recess toward one end thereof, a spindle adjustably engaged within said recess, a rod carried by said spindle, a buffing or grinding wheel carried by said rod, said shaft constructed with a seat at its outer end, and said spindle with a corresponding portion intermediate of its extremities to engage said seat, and means upon said rod at each end of the wheel to hold the wheel in position.

42. In a button-making machine, drilling mechanism embodying in combination a table, of an oscillatory bed upon said table, a reciprocatory cylinder upon said bed, a rotatable cylinder carried by the reciprocatory cylinder, a grinding device oscillatory with said bed, rotatable mandrels carried by the rotatable cylinder interchangeable in position to bring the drills alternately to the grinding device and to the work, means to move the grinding device toward and from the work, driving mechanism oscillatory with said bed to drive the rotatable cylinder, a rigid driving-shaft to drive said mechanism, said bed having an oscillatory movement without interfering with said driving-shaft.

43. In a button-making machine, the combination of an oscillatory bed, a support therefor, a reciprocatory cylinder upon said bed provided with a hub, a grinding device oscillatory with said bed, said grinding device embodying a shaft provided with a grinding-wheel, an elongated bearing for said shaft having a sliding engagement in said hub, means to rotate said shaft, a cam-plate carried by the oscillatory bed, an arm carried by said bearing engaged with the cam-plate to reciprocate said bearing, whereby the grinding-wheel will reciprocate with the reciprocation of the reciprocatory cylinder.

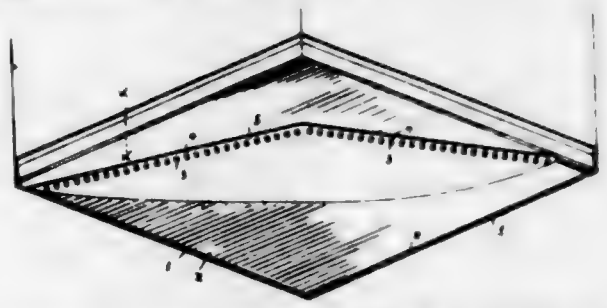
44. In a button-reversing mechanism, the combination of a reciprocatory support, a vertical rotatable spindle, an elongated bearing carried by said support and carrying said spindle, a thimble on the upper end of said bearing, a button-holding device carried by said thimble, a plug detachably engaging said thimble with the upper end of said spindle and rotatable with the spindle, and a reciprocatory spindle advanceable toward and from the button-holding device.

693,566. CHEESE-BOX. DANIEL M. ROBINS, Toledo, Ohio. Filed June 26, 1901. Serial No. 66,106. (No model.)



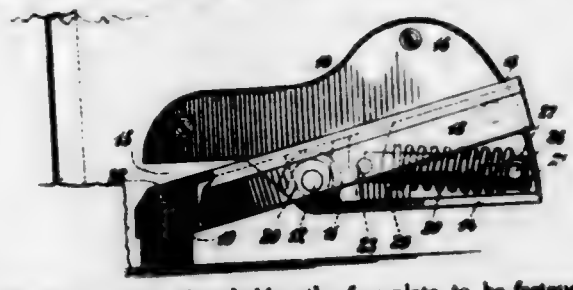
Claim.— As a new article of manufacture, a cheese-box composed of a metallic strip adapted to be bent in cylindrical form to form the body of the box, the ends of said strip adapted to be secured together so as to be easily removed one from the other for the purpose of allowing the box to be knocked down in shipping, metallic covers adapted to cover and close each end of the body, annular flanges formed with the cover adapted to fit over the outside of the body, pliable metallic straps secured to the inner surface of said flanges, loops secured to the body of the box through which the ends of said straps are adapted to be inserted and bent back upon themselves for the purpose of retaining the covers in position, substantially as and for the purpose set forth.

693,567. CARPET-FASTENER. HENRY C. ROEMER, Toledo, Ohio. Filed June 8, 1901. Serial No. 62,694. (No model.)



Claim.— In a carpet-fastener, the combination of strips 1, provided with bights 2, and perforations 2', and extending the entire length and width of the room along each side and end, with the clips 3, provided with bights 4, and perforations 3', and secured at intervals around the entire carpet as shown and described.

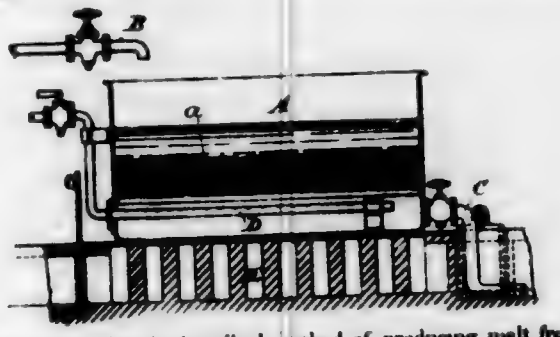
693,568. DOOR-HOLDER. ALBERT J. ROSENTRETER, Boonton, N. J., assignor to Joseph Bardsley, Montclair, N. J. Filed July 17, 1901. Serial No. 68,501. (No model.)



Claim.—1. In a door-holder, the face-plate to be fastened to the door, and the lever 13 pivotally secured at a point intermediate its ends to said face-plate and being normally horizontally disposed in line with said face-plate, combined with the pins 23, 25, respectively, carried by said lever and face-plate, the rod 27 pivotally engaging said pins and adapted to slide on one of them, and the compressed coiled spring normally horizontally disposed and engaging at one end said rod and at the other end one of said pins and adapted to operate by its expansive force to bind said lever in its respective positions; substantially as set forth.

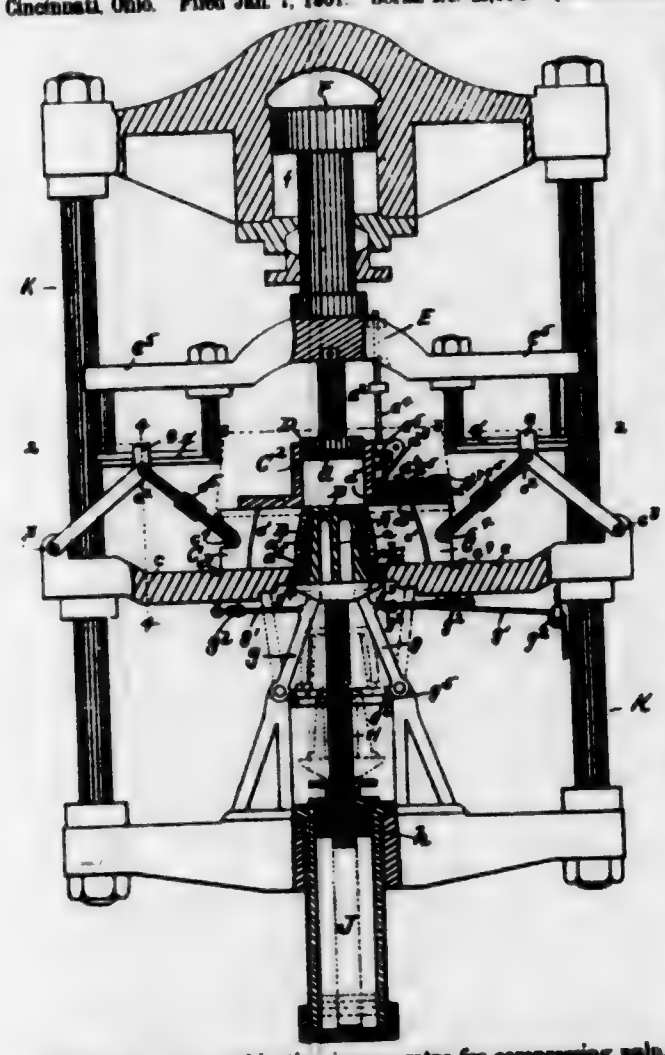
2. In a door-holder, the face-plate to be fastened to the door and having the hub 11 near its lower edge, the horizontally-disposed lever pivotally secured at a point intermediate its ends and adapted at one end to be brought into engagement with the floor, and the pivot-pin 12 for securing said lever to said face-plate, said lever having the top 17, front 18 and transverse hub 20, and said pin extending through said front 18, hub 20, hub 11 and face-plate, combined with the pins 23, 25, respectively, carried by said lever and face-plate, the rod 27 pivotally engaging said pins and adapted to slide on one of them, and the compressed coiled spring normally horizontally disposed and engaging at one end said rod and at the other end one of said pins, and adapted to operate by its expansive force to bind said lever in its respective positions; substantially as set forth.

698,569. METHOD OF MALTING RICE. Eugene C. Schrottky, Dresden, Germany. Filed Nov. 8, 1901. Serial No. 81,090. (No specimens.)



Claim.—The herein-described method of producing malt from rice which consists in subjecting unshelled rice alternately and repeatedly to steeping in water and to exposure to air at a temperature of from about 35° to 38° centigrade.

698,570. PULP-COMPRESSION APPARATUS. George E. Shaw, Cincinnati, Ohio. Filed Jan. 7, 1901. Serial No. 42,354. (No model.)



Claim.—1. The combination in apparatus for compressing pulp, of a central mandrel or core, conforming to the inside surface of the article to be manufactured; plunger-compartments provided with plungers having faces conforming to the outside surface of the article; a motor; slide-blocks connected with the motor; and toggle-joints connected with the slide-blocks, having one of their links given a stationary pivotal bearing, and the other link a pivotal bearing in the plunger, substantially as and for the purpose set forth.

2. The combination in apparatus for compressing pulp, of a central mandrel or core, conforming to the inside surface of the article to be manufactured; plunger-compartments provided with plungers having faces conforming to the outside surface of the article; a motor; slide-blocks connected with the motor; and toggle-joints connected with the slide-blocks, having one of their links given a stationary pivotal bearing, and the other link a pivotal bearing in the plunger; and means for adjusting the length of the plunger-connected link of the toggle-joints, substantially as and for the purpose set forth.

3. The combination in apparatus for compressing pulp, of a mandrel having its outer surface conforming to the inside inverted surface of the article to be formed; a piston-rod carrying the mandrel from below and provided with a piston and cylinder for reciprocating the mandrel vertically; a cylinder, piston and piston-rod located immediately above the mandrel, and adapted to be actuated to reciprocate the piston-rod; a plunger-compartment located above the mandrel; a plunger on the upper piston-rod operating in said compartment to compress the contents thereof against the top of the mandrel; a series of radiating compartments surrounding the mandrel; plungers in said compartments operating to compress the contents thereof against the sides of the mandrel; and a connection between the upper piston and the plungers for reciprocating them toward and away from the mandrel, substantially as and for the purpose set forth.

4. The combination in apparatus for compressing pulp, of a mandrel having its outer surface conforming to the inside inverted surface of the article to be formed; a piston-rod carrying the mandrel from below, and provided with a piston and cylinder for reciprocating the mandrel vertically; a cylinder, piston and piston-rod located immediately above the mandrel and adapted to be actuated to reciprocate the piston-rod; a plunger-compartment located above the mandrel; a plunger on the upper piston-rod operating in said compartment to compress the contents thereof against the top of the mandrel; a series of radiating compartments surrounding the mandrel; plungers in said compartments operating to compress the contents thereof against the sides of the mandrels; toggle-joints having a pivotal bearing in the plungers and a stationary bearing, and slide-blocks carried by the upper piston-rod and connected with the apex of the toggle-joints, substantially as and for the purpose set forth.

5. In a mandrel for pulp-compression apparatus, the combination of a rigid internal core with a covering for the core made in three or more sections, one of which sections is wedge-shaped to permit its movement inwardly, substantially as and for the purpose set forth.

6. In a mandrel for pulp-compression apparatus, the combination of a rigid internal core having at its bottom a supporting-flange, and at its top, notches; a covering for the core adapted to rest on the supporting-flange and made in three or more sections, one of which sections is wedge-shaped to permit its movement inwardly; and lugs on the sections adapted to engage the notches in the core, substantially as and for the purpose set forth.

7. The combination of the vertically-movable mandrel-core a; the covering a' consisting of sections a^3, a^3 and a^4; the stripping-ring g^3 and the receiving-table g^5, adapted to engage ring g^3 and strip covering a' from the core, substantially as and for the purpose set forth.

8. In a vertically-disposed compression-compartment for pulp-compression apparatus; the combination of a downwardly-acting compression-plunger; a draining-face for the plunger, passages adapted to convey the liquid passing through the draining-face to the portion of the compartment above the plunger; a port in the compression-compartment; means for throwing the port into communication with the upper portion of the compartment when the plunger has nearly reached the end of its compression-stroke; a plug normally locked in position to close the port; a spring tending to withdraw the plug to open the port; and means connected with the compression-plunger, adapted to release the plug when the plunger has nearly reached the end of its compressive stroke, substantially as and for the purpose set forth.

9. The combination of the vertically-movable table G; mandrel-core a carried by table G; covering a' on core a; piston A and cylinder J for reciprocating table G; props for locking table G in position; stripping-ring g^3 and receiving-table g^5, adapted to engage ring g^3 and strip covering a' from the core, substantially as and for the purpose set forth.

10. The combination in pulp-compression apparatus of a vertically-movable mandrel, mounted on a fluid-actuated piston, with means for rigidly locking the mandrel in position independently of the piston, substantially as and for the purpose set forth.

11. The combination in pulp-compression apparatus, of a vertically-movable mandrel mounted on a fluid-actuated piston; swing-props adapted to engage the mandrel and rigidly lock it in position, and means for swinging the arms out of operative position, substantially as and for the purpose set forth.

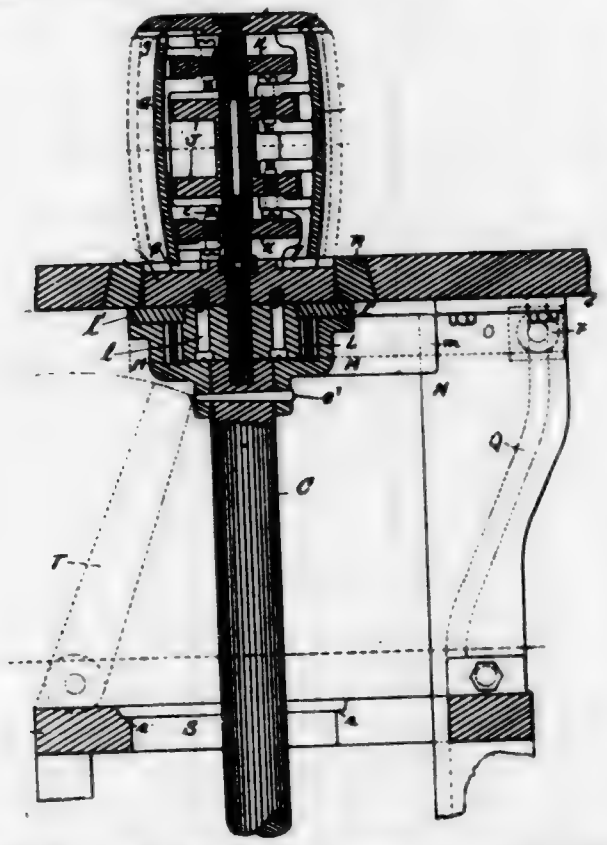
12. In a vertically-disposed compression-compartment for pulp-compression apparatus, the combination of a downwardly-acting compression-plunger; a draining-face on the plunger; passages adapted to convey the liquid passing through the draining-face to the portion of the compartment

above the plunger; a port in the compression-compartment near the bottom; a plug normally closing the port; and means connected with the plunger adapted to withdraw the plug after the face of the plunger has passed the port, substantially as and for the purpose set forth.

13. In a vertically-disposed compression-compartment for pulp-compressing apparatus, the combination of a downwardly-acting compression-plunger, tightly fitting its compartment at its face, and smaller than the compartment above the face; a draining-face on the plunger; an annular draining-groove in the plunger just behind the face, communicating with the drain-channels in the face, and with the space between the smaller portion of the plunger and its compartment; a port in the compression-compartment near the bottom; a plug normally locked in position to close the port; a spring tending to withdraw the plug to open the port; and means connected with the compression-plunger adapted to release the plug when the annular groove registers with the port, substantially as and for the purpose set forth.

14. In a vertically-disposed compression-compartment for pulp-compressing apparatus, the combination of plunger D having a draining-face communicating with channel d; port d'; channel d^2; plug d^3 carrying arm d^4; spring d^7; bell-crank lever e^2 and rod e^4, substantially as and for the purpose set forth.

693,571. COLLAPSIBLE MANDREL FOR PULP-COMPRESSING APPARATUS. GEORGE B. SHAW, Cincinnati, Ohio. Filed Sept. 9, 1901. Serial No. 74,818. (No model.)



Claim.—1. The combination in a collapsible mandrel of sections forming the sides of the mandrel and mounted to move toward and away from the center; stationary internal cams for operating the sections toward and away from the center and means for rotating the sections to cause the cams to draw the sections in or expand them, substantially as specified.

2. The combination in a collapsible mandrel of top and base plates connected together; radiating slots in the plates; side sections of the mandrel mounted to slide under the influence of said slots; stationary internal cams for moving the sections toward and away from the center upon rotation of the sections and means for rotating the sections, substantially as specified.

3. The combination in a collapsible mandrel, of top and base plates connected together; radiating slots in the plates; side sections of the mandrel mounted to slide under the influence of said slots; stationary internal cam-plates having substantially spiral-shaped slots; pins carried by said sections engaging said slots, and means for rotating said sections, substantially as specified.

4. The combination in a collapsible mandrel, of top and base plates connected together; radiating slots in the plates; side sections of the mandrel mounted to slide under the influence of said slots; stationary internal cam-plates having substantially spiral-shaped slots; pins carried by said sections engaging said slots; a pinion attached to the base-plate; a rack-bar engaging said pinion; a guide adapted to reciprocate the rack-bar upon reciprocation of the mandrel; and means for reciprocating the mandrel, substantially as specified.

5. The combination in a collapsible mandrel, of top and base plates connected together; radiating slots in the plates; side sections of the mandrel mounted to slide under the influence of said slots; stationary internal cam-plates having slots circular in shape at their outer portions and curving inwardly at their inner portions; pin connections between the mandrel-sections and the slots, and means for rotating the mandrel-sections, substantially as specified.

6. The combination in a collapsible mandrel, of top and base plates connected together; radiating slots in the plates; side sections of the mandrel mounted to slide under the influence of said slots; stationary internal cam-plates having slots circular in shape at their outer portions and curving inwardly at their inner portions; pin connections between the mandrel-sections and the slots; a pinion attached to the base-plate of the mandrel; a rack-bar meshing with the pinion; a guide connected with the rack-bar and adapted to reciprocate it upon the reciprocation of the mandrel; and means for reciprocating the mandrel, substantially as specified.

7. The combination in a collapsible mandrel, of top and base plates connected together; narrow and wide side sections of the mandrel having lugs sliding in radiating slots in the top and base plates, and having their meeting edges cut in planes parallel to the slots of the respective narrow sections; means for drawing the narrow sections inwardly; and means for drawing the wide sections inwardly after the narrow sections have been drawn out of the way, substantially as specified.

8. The combination in a collapsible mandrel, of top and base plates connected together; narrow and wide side sections of the mandrel having lugs sliding in radiating slots in the top and base plates, and having their meeting edges cut in planes parallel to the slots of the respective narrow sections; a cam-plate having slots circular in shape for a short distance at their outer ends and substantially spiral-shaped at their inner ends, and having a comparatively long throw; pin connections between the narrow sections of the mandrel and the slots; a cam-plate having slots circular in shape for a considerable distance at their outer ends and substantially spiral-shaped at their inner ends having a comparatively small throw; pin connections between the wide sections and the latter slots, and means for actuating the cam, substantially as specified.

9. The combination in a collapsible mandrel, of top and base plates connected together; narrow and wide side sections of the mandrel having lugs sliding in radiating slots in the top and base plates and having their meeting edges cut in planes parallel to the slots of the respective narrow sections; a cam-plate having slots circular in shape for a short distance at their outer ends and substantially spiral-shaped at their inner ends having a comparatively long throw; pin connections between the narrow sections of the mandrel and the slots; a cam-plate having slots circular in shape for a considerable distance at their outer ends and substantially spiral-shaped at their inner ends having a comparatively small throw; pin connections between the wide sections and the latter slots; a pinion attached to the base-plate of the mandrel; a rack-bar meshing with the pinion; a guide connected with the rack-bar and adapted to reciprocate the rack-bar upon reciprocation of the mandrel; means for reciprocating the mandrel, and means for preventing rotation of the cams, substantially as specified.

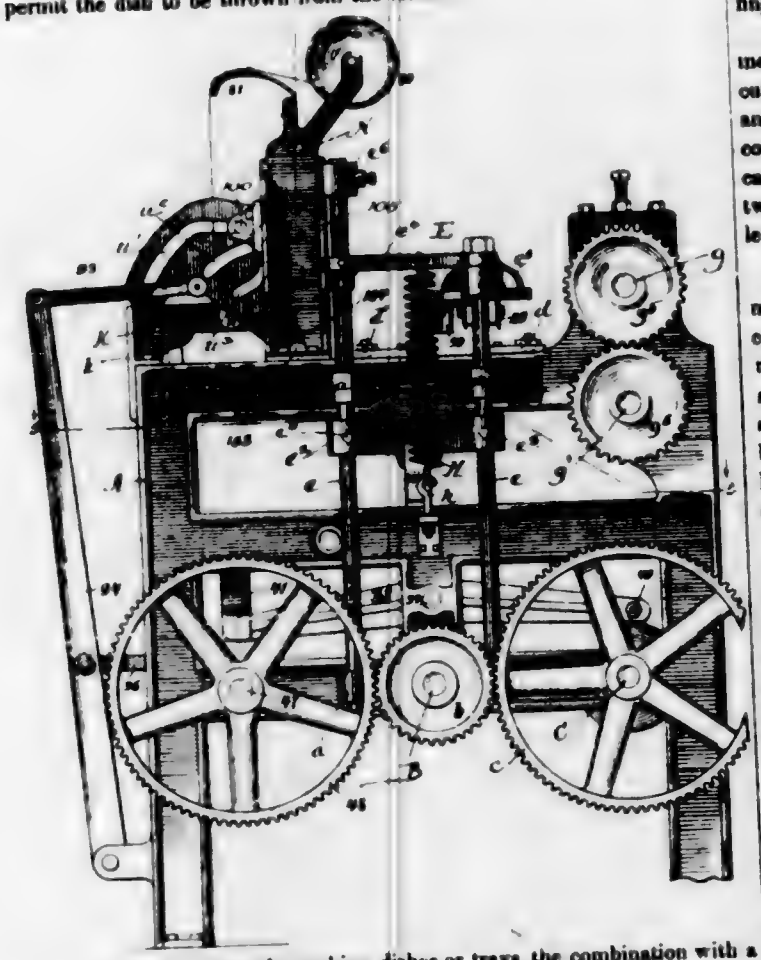
693,572. MACHINE FOR MAKING DISHES OR TRAYS. LOUIS S. SHEAR, Chicago, Ill. Filed Oct. 30, 1901. Serial No. 80,501. (No model.)

Claim.—1. In a machine for making dishes or trays, the combination with mechanism for folding the blank, of a pivotally-sustained former whereon the blank is folded, said former having a restricted movement from a position beneath said plunger, to a point where the dish will be thrown from the former, mechanism for imparting oscillatory movement to said former, said former being provided with inclined sides, whereon the sides of the dish will be formed, means for engaging one of the sides of the dish, and holding the dish during a part of the travel of the former, and mechanism for shifting said means, to release the dish and permit the dish to be thrown from the former.

2. In a machine for making dishes or trays, the combination with a plunger for folding the blank, of a pivotally-sustained former, whereon the blank is folded, said former having a restricted movement from a position beneath said plunger to a point where the dish will be discharged from the former, mechanism for imparting oscillatory movement to said former, said mechanism comprising an arm whereby said former is sustained, a cam and a lever connected with said former and shifted by said cam, said former being provided with inclined sides, whereon the sides of the dish will be formed, means for engaging one of the sides of the dish, and holding the dish during a part of the travel of the former, and mechanism for shifting said means, to release the dish and permit the dish to be thrown from the former.

3. In a machine for making dishes or trays, the combination with a plunger for folding the blank, of a pivotally-sustained former, whereon the

blank is folded, said former having a restricted movement from a position beneath said plunger to a point where the dish will be discharged from the former, mechanism for imparting oscillatory movement to said former, said mechanism comprising an arm whereby said former is sustained, a cam, a shaft whereon said cam is secured, and a lever provided with a bifurcated terminal which straddles said shaft and connected with said former and shifted by said cam, said former being provided with inclined sides, whereon the sides of the dish will be formed, means for engaging one of the sides of the dish, and holding the dish during a part of the travel of the former, and mechanism for shifting said means, to release the dish and permit the dish to be thrown from the former.



4. In a machine for making dishes or trays, the combination with a plunger for folding the blank, of a pivotally-sustained former, whereon the blank is folded, said former having a restricted movement from a position beneath said plunger to a point where the dish will be discharged from the former, mechanism for imparting oscillatory movement to said former, said mechanism comprising an arm whereby said former is sustained, a cam, a shaft whereon said cam is secured, a lever, provided with a bifurcated terminal which straddles said shaft, and connected with said former and shifted by said cam, and a spring for shifting said former in one direction, said former being provided with inclined sides, whereon the sides of the dish will be formed, means for engaging one of the sides of the dish, and holding the dish during a part of the travel of the former, and mechanism for shifting said means, to release the dish and permit the dish to be thrown from the former.

5. In a machine for making dishes or trays, the combination with a plunger for folding the blank, of a pivotally-sustained former whereon the blank is folded, said former having a restricted movement from a position beneath said plunger to a point where the dish will be discharged from the former, mechanism for imparting oscillatory movement to said former, a finger for holding the dish on the former and mechanism for shifting said finger.

6. In a machine for making dishes or trays, the combination with a plunger for folding the blank, of a pivotally-sustained former whereon the blank is folded, said former having a restricted movement from a position beneath said plunger to a point where the dish will be discharged from the former, mechanism for imparting oscillatory movement to said former, a finger for holding the dish on the former, and means for holding said finger away from the former during the operation of said plunger, and for shifting said finger against the dish during a part of the travel of said former.

7. In a machine for making dishes or trays, the combination with a plunger for folding the blank, of a pivotally-sustained former whereon the blank is folded, said former having a restricted movement from a position beneath said plunger to a point where the dish will be discharged from the former, mechanism for imparting oscillatory movement to said former, a finger for holding the dish on the former, mechanism for shifting said finger, said mechanism comprising a cam, a shifter-bar actuated by said cam and connected with said finger, and a spring connected with said mechanism, and for shifting said finger in one direction.

8. In a machine for making dishes or trays, the combination with a plunger for folding the blank, of a pivotally-sustained former whereon the blank is folded, said former having a restricted movement from a position beneath said plunger to a point where the dish will be discharged from the former, mechanism for imparting oscillatory movement to said former, said mechanism comprising a cam and suitable connections between said cam and said former, a finger for holding the dish on the former, and mechanism for shifting said finger, said mechanism comprising a shifting-bar, actuated by said cam and a spring for shifting said finger in one direction.

9. In a machine for making dishes or trays, the combination with mechanism for intermittently advancing a web of flexible material, of a cutter support or carrier, one or more knives carried by said support, mechanism for shifting said support in one direction, said shifting mechanism comprising a cam, a horizontally-arranged long lever, actuated by said cam, a horizontally-arranged short lever, a vertical link extending between and connecting said levers, and a connection between said short lever and said cutter-support, and mechanism for forming the dish.

10. In a machine for making dishes or trays, the combination with mechanism for intermittently advancing a web of flexible material, of a cutter support or carrier, one or more knives carried by said support, mechanism for shifting said support in one direction, said shifting mechanism comprising a cam, a horizontally-arranged long lever, actuated by said cam, a horizontally-arranged short lever, a vertical link extending between and connecting said levers, and a connection between said short lever and said cutter-support, a spring for shifting said support in the other direction and mechanism for forming the dish.

11. In a machine for making dishes or trays, the combination with mechanism for intermittently advancing a web of flexible material, of a cutter support or carrier, one or more knives carried by said support, mechanism for shifting said support in one direction, said shifting mechanism comprising a cam, a horizontally-arranged long lever actuated by said cam, a horizontally-arranged short lever, a link extending between and connecting said levers, a connection between said short lever and said cutter-support, a spring arranged to force the cutter-support in that direction in which the cutting of the web is effected, and mechanism for forming the dish.

12. In a machine for making dishes or trays, the combination with mechanism for intermittently advancing a web of flexible material, of slitters, trimmer-knives, a pair of rolls extending transversely across the web, to guide and flatten the web, a knife, for severing the blank from the web, and arranged adjacent said rolls, mechanism for operating said knives and slitters and mechanism for forming the dish.

13. In a machine for making dishes or trays, the combination with mechanism for intermittently advancing a web of flexible material, of slitters, trimmer-knives, a pair of rolls extending transversely across the web, a knife for severing the blank from the web, and arranged adjacent said rolls, another pair of rolls extending transversely across the web and arranged adjacent the slitters, mechanism for operating said knives and cutters, and mechanism for folding the blank.

14. In a machine for making dishes or trays, the combination with mechanism for intermittently advancing a web of flexible material, of slitters, trimmer-knives, a pair of rolls extending across the web to guide and flatten the web, a knife for severing the blank from the web, and arranged adjacent said rolls, mechanism for driving said pair of rolls, mechanism for operating said knives and slitters and mechanism for forming the dish.

15. In a machine for making dishes or trays, the combination with mechanism for intermittently advancing a web of flexible material, of slitters, trimmer-knives, a pair of rolls extending transversely across the web, a knife for severing the blank from the web, and arranged adjacent said rolls, another pair of rolls extending across the web and arranged adjacent the slitters, mechanism for driving both pairs of rolls, mechanism for operating said knives and cutters, and mechanism for folding the blank.

16. In a machine for making dishes or trays, the combination with mechanism for forming the dish, of mechanism for forming and driving a staple through the overlapping blank portions, said stapling mechanism comprising a sliding frame, a wire-bender, a staple-driver and an anvil, mechanism for operating said parts of the stapling mechanism, said operating mechanism comprising a cam-plate pivotally secured to said sliding frame and means engaging the cam-plate to effect the shift of the pivot of said cam-plate and the longitudinal shift of said sliding frame, and mechanism for oscillating said cam-plate.

17. In a machine for making dishes or trays, the combination with mechanism for forming the dish, of mechanism for forming and driving a staple through the overlapping blank portions, said stapling mechanism comprising a sliding frame, a wire-bender, a staple-driver and an anvil,

mechanism for operating said parts of the stapling mechanism, said operating mechanism comprising a cam-plate pivotally secured to said sliding frame and having cam-slots therein for operating the wire-bender and said driver, and means engaging the cam-plate to effect the shift of the pivot of said cam-plate and the longitudinal shift of said sliding frame, and mechanism for oscillating said cam-plate.

18. In a machine for making dishes or trays, the combination with mechanism for forming and driving a staple through the overlapping blank portions, said stapling mechanism comprising a sliding frame, a wire-bender, a staple-driver and an anvil, mechanism for operating said parts of the stapling mechanism, said operating mechanism comprising a cam-plate pivotally secured to said sliding frame, and a fixed stud engaging the cam-plate to effect the shift of the pivot of said cam-plate, and the longitudinal shift of said sliding frame, and mechanism for oscillating said cam-plate.

19. In a machine for making dishes or trays, the combination with mechanism for forming and driving a staple through the overlapping blank portions, said stapling mechanism comprising a wire-bender, a staple-driver, an anvil, and a sliding frame, mechanism for operating said parts of the stapling mechanism, said operating parts comprising a cam-plate pivotally secured to said sliding frame, and having cam-slots therein for operating the wire-bender and said driver, a fixed stud, another cam-slot in said cam-plate into which said stud is extended to engage the cam-plate to effect the shift of the pivot of said cam-plate and the longitudinal shift of said frame, and mechanism for oscillating said cam-plate.

20. In a machine for making dishes or trays, the combination with mechanism for forming the dish, of mechanism for forming and driving a staple through the overlapping blank portions, said stapling mechanism comprising a sliding frame, a wire-bender, a staple-driver and an anvil, mechanism for operating said parts of the stapling mechanism, mechanism for feeding wire to the stapling mechanism, said feed mechanism comprising a pair of rolls sustained by said sliding frame, a dog held against longitudinal movement, and means wherewith said dog will engage and whereby the rolls will be advanced by the shift of the rolls during the operation of the stapling mechanism, and mechanism for shifting said frame and operating the stapling mechanism.

21. In a machine for making dishes or trays, the combination with mechanism for cutting the blank and mechanism for forming the dish, of mechanism for forming and driving a staple through the overlapping portions of the blank, and clencher mechanism having a part in the path of movement of a part of the cutter mechanism.

22. In a machine for making dishes or trays, the combination with a pivotally-sustained former, mechanism for folding the blank, and mechanism for forming and driving a staple, of a clencher mechanism carried by said former, mechanism for imparting an oscillatory movement to said former, and means for operating the clencher mechanism, said means comprising a movable part sustained independently of the former and a part carried by the former and engaged by said movable part.

23. In a machine for making dishes or trays, the combination with mechanism for cutting the blank, mechanism for folding the blank, a pivotally-sustained former and mechanism for forming and driving the staple through the overlapping portions of the blank, of a clencher mechanism carried by the former, and comprising a part in the path of movement of a part of the cutter mechanism, and mechanism for oscillating said former.

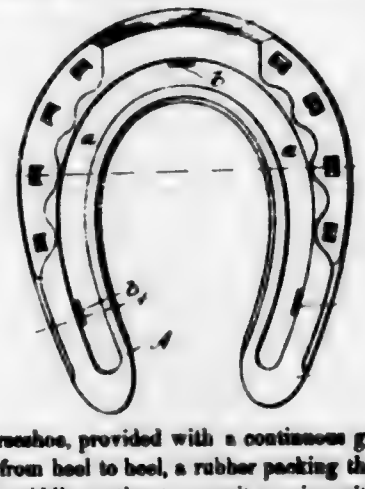
24. In a machine for making dishes or trays, the combination with an oscillating arm, a former carried by said arm, and mechanism for shifting said former, of a vertically-reciprocating frame, a cutter mechanism, mechanism for operating said cutter mechanism and shifting said frame, mechanism for forming and driving a staple, and a clencher mechanism, carried by said arm, and movable therewith, and carrying an abutment extending into the path of said reciprocating frame and shifted thereby.

693,573. ELASTIC-TREAD HORSESHOE. MARTIN J. SCHOTT, Brooklyn, N. Y., assignor to the Expanding Tread Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 13, 1901. Serial No. 51,672. (No model.)

Claim.—1. In a horseshoe, provided with a groove in the under surface, an elastic packing fitted in said groove, and plates secured to the side wall of the packing, with means for securing said plates to the shoe, substantially as shown and described.

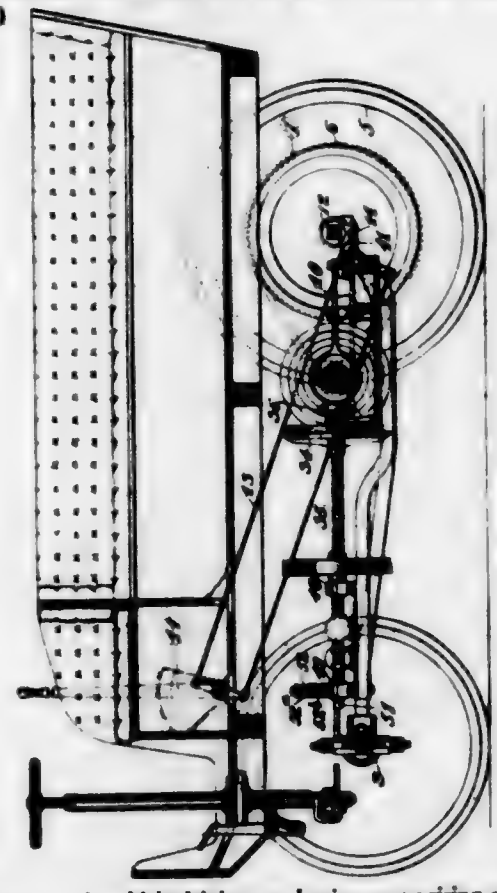
2. In a horseshoe, provided with a groove in the under surface, an elastic packing fitted in said groove, and plates secured to the side wall of the packing, with prongs on the plates and slots in the base of the groove through which said prongs are inserted and clenched to hold the packing in the groove, substantially as shown and described.

3. In a horseshoe, provided with a continuous groove in the under surface running from heel to heel, a continuous rubber packing therefor cut away or diminished on its outer face at its middle portion to permit curving without buckling to prevent its being torn from the groove, and means for securing said packing in place, substantially as shown and described.



4. In a horseshoe, provided with a continuous groove in the under surface running from heel to heel, a rubber packing therefor cut away or diminished at its middle portion to permit curving without buckling, and plates secured to the side walls of the packing, with prongs on the plates and slots in the base of the groove through which said prongs are inserted and clenched to hold the packing in the groove, substantially as shown and described.

693,574. VEHICLE-DRIVING MECHANISM. PAUL STERNEVEDT, Glenview, Ill. Filed Dec. 23, 1901. Serial No. 86,949. (No model.)



Claim.—1. A vehicle-driving mechanism comprising a fixed axle, a pair of driving-wheels rotatably mounted upon said axle, a driving-shaft, flexible driving connections between said wheels and said shaft, a motor-shaft, having its axis at right angles with said driving-shaft, and a driving-frame carrying said driving-shaft and motor-shaft, and supported at one of its ends upon said axle, and at the other spring-supported from the vehicle-frame, substantially as described.

2. A vehicle-driving mechanism comprising a fixed axle, a pair of driving-wheels rotatably mounted upon said axle, a driving-shaft, flexible driving connections between said wheels and said shaft, a motor-shaft having its axis at right angles with said driving-shaft, and a driving-frame carrying said driving-shaft and motor-shaft, and supported at one of its ends upon said axle, and at the other spring-supported from the vehicle-frame, and beveled driving-gears between said motor-shaft and driving-shaft, substantially as described.

3. A vehicle-driving mechanism comprising a fixed axle, a pair of driving-wheels rotatably mounted upon said axle, a driving-shaft, flexible driving connections between said wheels and said shaft, a motor-shaft, having its axis at right angles with said driving-shaft, and a driving-frame carrying said driving-shaft and motor-shaft, and supported at one of its ends upon said axle, and at the other spring-supported from the vehicle-frame, beveled driving-gears between said motor-shaft and driving-shaft, and levers controlling friction-clutch mechanisms for determining the action of said beveled gears, substantially as described.

4. A vehicle-driving mechanism comprising a fixed axle, a pair of driving-wheels rotatably mounted upon said axle, a driving-shaft, flexible driving connections between said wheels and said shaft, a motor-shaft, having its axis at right angles with said driving-shaft, and a driving-frame carrying said driving-shaft and motor-shaft, and supported at one of its ends upon said axle, and at the other spring-supported from the vehicle-frame, beveled driving-gears between said motor-shaft and driving-shaft, and cam-actuated levers for governing the operation of said beveled gears, substantially as described.

5. In a vehicle-driving mechanism the combination of a driving-shaft, comprising an inner rod, a sleeve surrounding said rod, bearings for said rod, and bearings for said sleeve within said rod-bearings, driving mechanism for said sleeve, said driving mechanism comprising a plurality of gears mounted upon said sleeve, and adapted to have engagement therewith by means of friction-clutches, and means for throwing said friction-clutches, substantially as described.

6. In a vehicle-driving mechanism the combination of a driving-shaft, comprising an inner rod, a sleeve surrounding said rod, bearings for said rod, and bearings for said sleeve within said rod-bearings, driving mechanism for said sleeve, said driving mechanism comprising a plurality of gears mounted upon said sleeve, and adapted to have engagement therewith by means of friction-clutches, and means for throwing said friction-clutches, the bearings for said sleeve and said rod being formed in a driving-frame, substantially as described.

7. In a vehicle-driving mechanism the combination of a driving-shaft, comprising an inner rod and a sleeve surrounding said rod, gearing mounted upon said sleeve for driving the same, a motor-shaft engaging said gearing, means for controlling the operation of said gearing, said driving-shaft, motor-shaft, and operating means, all being carried by the driving-frame, substantially as described.

8. In a vehicle-driving mechanism the combination of a driving-shaft, comprising an inner rod and a sleeve surrounding said rod, gearing mounted upon said sleeve for driving the same, a motor-shaft engaging said gearing, means for controlling the operation of said gearing, said driving-shaft, motor-shaft, and operating means, all being carried by the driving-frame, said driving-frame being mounted about a fixed axle at one end and spring-supported at the other end, substantially as described.

698,575. HAND-SHEARS FOR CUTTING METALS OR OTHER HARD MATERIALS IN SHEETS. GEORGES THUILLIER, Nogent-en-Bassigny, France. Filed Dec. 10, 1900. Serial No. 39,312. (No model.)

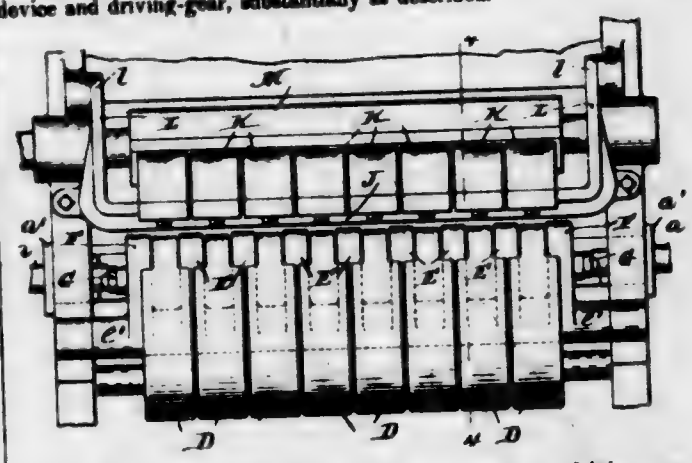


Claim.—1. Hand-shears for cutting metals and other materials in sheets, composed of two symmetrical cutting-blades provided with operating-arms and articulated in the manner of ordinary shear-blades, in which each of the blades is curved longitudinally and has a transverse section of such approximately lenticular form as to present on the inner face a surface curved outward directly from the cutting edge and so to have its greatest thickness situated in a direction at an inclination in relation to the plane of cut perpendicular to the axis of articulation of the blades, substantially as and for the purpose specified.

2. Hand-shears for cutting metals and other hard materials in sheets, composed of two symmetrical cutting-blades provided with operating-arms and articulated in the manner of ordinary shear-blades, in which each of the blades is curved longitudinally and has a transverse section of such approximately lenticular form as to present on the inner face a surface curved outward directly from the cutting edge and so to have its greatest thickness situated in a direction at an inclination in relation to the plane of cut perpendicular to the axis of articulation of the blades, and in which both the handles are raised and offset laterally from the cutting-plane on the side of the upper blade, substantially as and for the purpose specified.

698,576. PLANING-MACHINE. WILLIAM O. VIVARTTAS, Weehawken, N. J., assignor to H. B. Smith Machine Company, Smithville, N. J., a Corporation of New Jersey. Filed June 8, 1901. Serial No. 63,699. (No model.)

Claim.—1. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of independent limited vertical movement without affecting said driving connection and adapted to engage and lift said driving-gear when its vertical movement exceeds said limit, a tension device engaging each feed-roll section and normally holding it in its lowest position, and a vertically-movable support upholding said tension device and driving-gear, substantially as described.



2. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of limited independent vertical movement without affecting said driving connection and adapted to engage and lift said driving-gear when its vertical movement exceeds said limit, supporting-bars pivoted on the machine-frame, a connection between said driving-gear and said bars whereby the latter upholds the former, and pivoted tension-arms sustained by said supporting-bars and acting upon said feed-roll sections to normally hold them in their lowest positions.

3. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of limited independent vertical movement without affecting said driving connection and adapted to engage and lift said driving-gear when its vertical movement exceeds said limit, supporting-bars pivoted on the machine-frame, a connection between said driving-gear and said bars whereby the latter upholds the former, pivoted tension-arms sustained by the supporting-bars, and rollers engaged by said tension-arms, said rollers engaging the feed-roll sections, substantially as described.

4. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of limited independent vertical movement without affecting said driving connection and adapted to engage and lift said driving-gear when its vertical movement exceeds said limit, supporting-bars pivoted on the machine-frame, a connection between said driving-gear and said bars whereby the latter upholds the former, a shaft connecting the free ends of said supporting-bars, tension-arms (corresponding in number to the feed-roll sections) pivoted on said shaft, rollers (corresponding in number to the tension-arms) engaged respectively by said tension-arms, said rollers engaging the feed-roll sections respectively, and equalizing-bars pivoted on the same axis as the supporting-bars and having bearings on said shaft, said equalizing-bars extending in the same general direction as the tension-arms and arranged alternately with respect thereto, substantially as described.

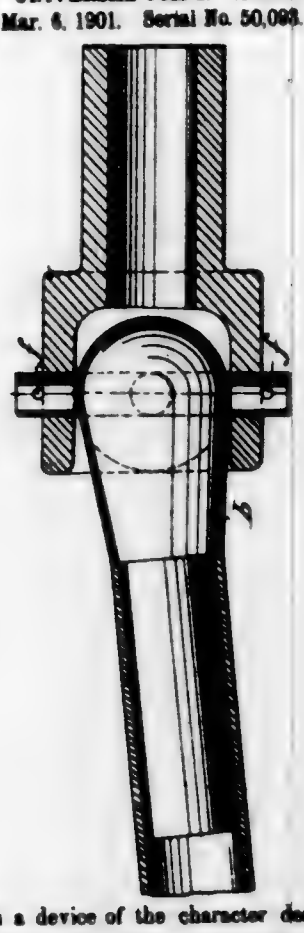
5. In a woodworking-machine, in combination, a driving-gear, a feed-roll composed of independent sections in driving engagement with the driving-gear and capable of limited independent vertical movement without affecting said driving connection, a roller engaging each roll-section, a tension-arm pivoted at one end and saddling each roller, pivoted supporting-bars sustained on the machine-frame and sustaining at their free ends the said tension-arms, and a connection between the supporting-bars and the driving-gear, whereby when the vertical movement of any of the roll-sections exceeds said limit, it will raise said supporting-bars on their fulcrums and consequently raise the driving-gear, substantially as described.

6. In a woodworking-machine, in combination, the spur-driver A, shaft *a*, roll-shells B, rollers C, weighted arms D, rock-bars F, rock-bars E, journal-boxes *a'* on shaft *a*, and links G, the roll-shells being driven by the spur-driver, the rollers resting respectively upon the top of the roll-shells, the tension-arms being pivoted and sustained by the rock-bars, and saddling and resting upon the rollers, the rock-bars being pivoted on the machine-frame, and the links connecting the rock-bars F and the journal-boxes, substantially as described.

7. In a woodworking-machine, in combination, a driving-shaft, a spur-driver thereon, a feed-roll composed of independent sections, each roll-section surrounding the spur-driver and having an annular shell provided with inward projections adapted to be engaged by the teeth of the spur-driver, there being a substantial clearance between the spur-driver

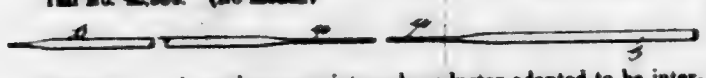
and the roll-shells, whereby each roll-section is in driving engagement with the spur-driver and capable of limited independent vertical movement, and a vertically-movable support upholding the spur-driver, whereby when the movement of any roll-section exceeds said limit the spur-driver is lifted bodily.

693,577. UNIVERSAL JOINT. ALEXIS VIVINUS, Brussels, Belgium. Filed Mar. 6, 1901. Serial No. 50,093. (No model.)



Claim.—In a device of the character described, the combination with a hollow cylindrical socket secured to one end of a shaft-section, of a rounded head secured to a second shaft-section, the said head having a slot formed in one end thereof, the walls of said slot being flat, the said slot extending entirely through said head, a spherical segment adapted to operate in said slot, each side of said segment being perfectly flat, the said segment having recesses formed on opposite sides thereof, pins secured in said head on opposite sides thereof for engagement in the said recesses of the segment, the said segment having a recess formed diametrically therethrough, a pivot-pin secured in said recess and to the said socket, and pins secured transversely through each end of said pivot-pin, substantially as described.

693,578. CONDUCTOR FOR ELECTROMAGNETIC INDUCTION APPARATUS. HENRY H. WATT, Chicago, Ill. Filed Jan. 12, 1901. Serial No. 42,959. (No model.)



Claim.—1. A continuous or integral conductor adapted to be interlinked with a magnetic circuit, formed in alternate lengths of large and small cross-section, substantially as set forth.

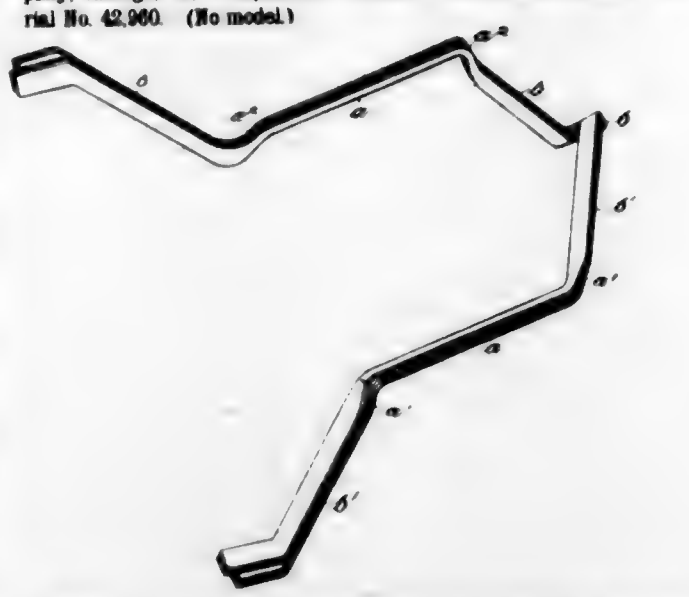
2. The combination with magnetic material arranged in a magnetic circuit, of an electric conductor interlinked therewith, said conductor being formed integrally in alternate lengths of large and small cross-section, the finer lengths being disposed in active relation to the magnetic circuit, and the heavier lengths serving as low-resistance connectors between the active portions, and occupying space in which no magnetic condition need be maintained, substantially as set forth.

3. A continuous or integral conductor for the windings of electrical machines, having alternate active and connecting portions, the active portions being smaller in cross-sectional area than the connecting portions, substantially as set forth.

4. In a dynamo-electric machine, the combination with the armature-core, of inductors or active conductors crossing the same and subjected to the magnetic field, and connecting portions uniting the inductors formed integrally therewith, but of greater cross-sectional area, substantially as herein set forth.

5. An inductor-coil for dynamo-electric machines having active portions *a a* and connector portions *b b* formed integrally with said active portions, but larger in cross-section, whereby the conductivity of the coil is increased by the larger mass of the connector portions, substantially as set forth.

693,579. WINDING FOR DYNAMO-ELECTRIC MACHINES. HENRY H. WATT, Chicago, Ill., assignor to the Western Electric Company, Chicago, Ill., a Corporation of Illinois. Filed Jan. 12, 1901. Serial No. 42,960. (No model.)



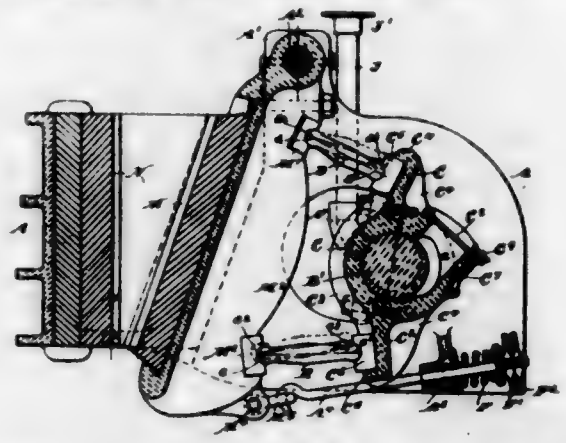
Claim.—1. An armature-winding for dynamo-electric machines, comprising looped bars of copper each having the central portions *a a* of the arms cut down, substantially as shown, and spread apart to form two inductor-bars of diminished cross-section, said inductor-bars being united by the massive connector portions *b'*, substantially as set forth.

2. An armature-winding for dynamo-electric machines, comprising two bars of copper having the central portions *a a* thereof cut down to form two inductor-bars of diminished cross-section, and heavy end connectors formed integrally with said inductor-bars and uniting them, one of said bars having the bends a^2 a^2 where it widens into the connecting portions, whereby clearance is provided for between such connecting portions and the connectors of other loops which cross them, substantially as set forth.

3. An armature-winding for dynamo-electric machines, comprising a looped bar of copper having the central portions *a a* of the arms cut away, substantially as shown, to form inductor-bars of diminished cross-section, the remaining parts being bent diagonally from the inductor-bars, one of the arms of the loop being bent substantially straight and the other arm having double bends a^2 a^2 where the inductor-bar formed by that arm widens out into connector portions, substantially as set forth.

4. An armature-winding for dynamo-electric machines, comprising a looped bar of copper having the central portions *a a* of the arms cut away at angles *a' a'* and spread apart one on either side of the loop *b*, to form parallel inductor-bars of diminished cross-section, one of the arms of the loop being bent diagonally at the points where the inductor-bar formed thereby widens into the connector portions, and the other arm being also bent diagonally and having additional bends a^2 a^2, substantially as set forth.

693,580. ROCK-CRUSHER. WILLIAM R. YOUNG, Brooklyn, N. Y. Filed May 31, 1901. Serial No. 62,525. (No model.)



Claim.—1. In a rock-crusher of the character set forth, a movable jaw, a shaft and an eccentric thereon, an eccentric-block loosely mounted on the latter, oppositely-extending arms on said block, and thrust-plates extending from said arms to said jaw, all combined substantially as herein specified.

2. In a rock-crusher, a frame and fixed jaw therein, a swing-jaw carried on a shaft in said frame, a main shaft in rear of said swing-jaw and having an eccentric thereon, in combination with an eccentric-block inclosing said eccentric and having oppositely-extending arms thereon, a thrust-block carried by each of said arms, and thrust-plates extending

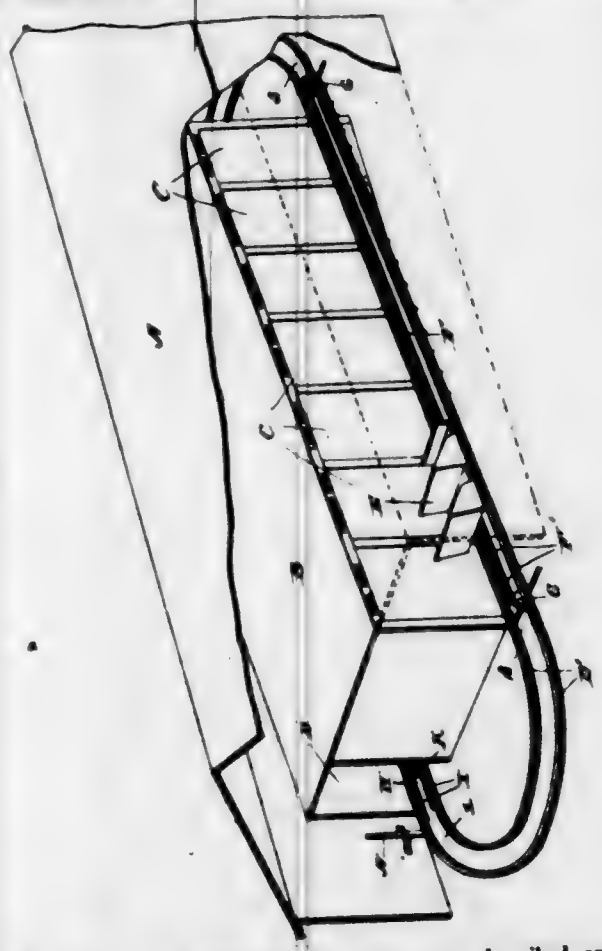
therefrom to correspondingly-separated thrust-blocks on said swing-jaw, all substantially as herein specified.

3. In a rock-crusher of the character set forth, a swing-jaw, a thrust-block on the latter near the line of oscillation, a thrust block carried by said jaw at a distance from the first, a main shaft in rear of said jaw, an eccentric, an eccentric-block thereon having oppositely-extending arms, and thrust-plates extending from the latter to said thrust-blocks, the said eccentric-block mounted loosely on said eccentric whereby said eccentric-block may move relatively to said eccentric as required in equalizing the difference in lengths of arc described by said thrust-blocks, all combined and arranged to serve substantially as herein specified.

4. In a rock-crusher, a frame, a fixed jaw N, the shaft A^2 and swing-jaw M thereon, and the thrust-blocks $M' M^2$ on said swing-jaw, in combination with a main shaft B, eccentric B' thereon, eccentric-block C and its oppositely-extending arms $C' C^2$, thrust-blocks $C^3 C^4$ carried by said arms, the thrust-plates D and E between said arms and swing-jaw, and a spring-rod and its spring serving to retract said swing-jaw, all substantially as herein specified.

5. In a rock-crusher, the frame A open at the rear end, a fixed jaw, a swing-jaw, an eccentric and eccentric-block thereon having the oppositely-extending arms $C' C^2$ and the recess *c* and cover C^5 for the latter, in combination with thrust-plates extending from said arms to said swing-jaw, all substantially as herein specified.

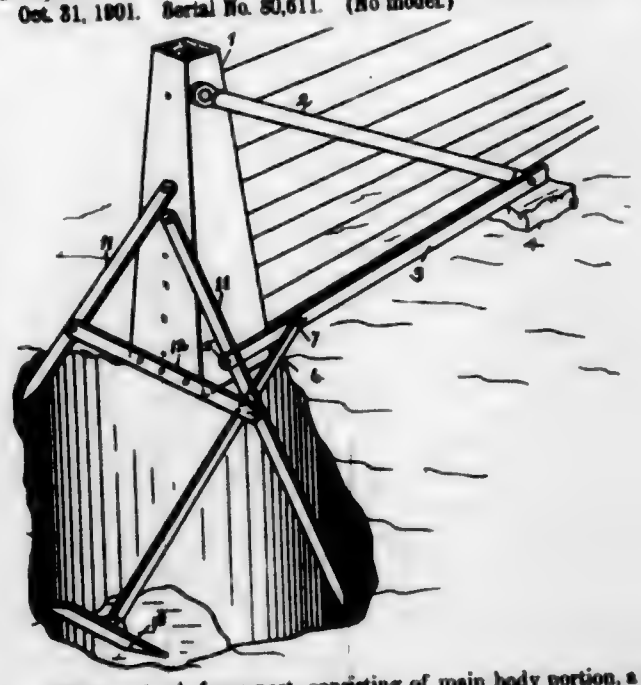
698,581. AMUSING APPARATUS. JOHN P. RIDDLE, McKeesport, Pa. Filed Nov. 7, 1901. Serial No. 81,466. (No model.)



Claim.—1. In an apparatus of the character described, an outer building, a covering for the protection of the apparatus, an inner structure, said inner structure consisting of a series of mining exhibits, a passage extending longitudinally through the inner structure at the rear of the exhibits, an endless track extending through said passage and passing around in front of or through the mining exhibit, an endless link belt arranged between the tracks and extending from one end of the exhibits to the other, sprocket-wheels around which said chain passes, cars adapted to run upon the track, said track declining from the starting point to the beginning of the link belt, then gradually ascending to the end of the link belt and from that point ascending to the starting-point, braking mechanism located near the starting-point for stopping the cars, substantially as and for the purpose specified.

2. An amusement apparatus consisting of a series of mining exhibits, a tunnel or dark passage arranged in the rear of the exhibit, an endless track extending through the tunnel and around in front of or through the mining exhibits, said track declining from the starting-point to the beginning of the exhibits then gradually ascending to the end of the exhibits, said track then declining from this point to the starting-point, cars adapted to run upon the track, means for gradually carrying the car slowly up the incline by or through the mining exhibits, braking mechanism for stopping the car near the starting-point, substantially as and for the purpose specified.

698,582. FENCE-POST. JOHN J. BOYLE, Columbus, Ind. Filed Oct. 31, 1901. Serial No. 80,611. (No model.)

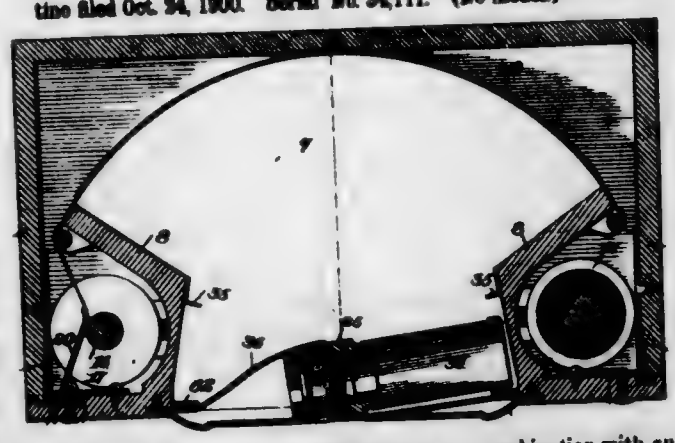


Claim.—1. A fence-post, consisting of main body portion, a brace-bar secured to said portion, near its upper end; a horizontal brace-bar, pivotally connected to the free end of said first bar, and secured to the main body portion near the ground, and a ground-brace pivotally connected to the horizontal brace-bar, near its connection to the main body portion of the post, substantially as and for the purpose set forth.

2. A fence-post, consisting of a main body portion, a brace-bar secured to said portion, near its upper end; a horizontal brace-bar, pivotally connected to the free end of said first bar, and secured to the main body portion near the ground, and a ground-brace pivotally connected to the horizontal brace-bar, near its connection to the main body portion of the post, angular braces secured to the post and extending into the ground and a cross-iron connecting said braces, and secured to the post, substantially as and for the purpose set forth.

3. A fence-post brace consisting of a bar, 2, provided at one end with means whereby it can be secured to a post, a bar, 3, pivotally secured to the other end of the first bar, said bar, 3, being provided at its opposite end with means for securing it to a post, and a ground-brace, or bar, pivotally secured to bar 3, near the opposite end, substantially as and for the purpose set forth.

698,588. SHUTTER FOR PHOTOGRAPHIC CAMERAS. FRANK A. BROWELL, Rochester, N. Y., assignor to the Eastman Kodak Company, Rochester, N. Y., a Corporation of New York. Original application filed July 25, 1900, Serial No. 24,800. Divided and this application filed Oct. 24, 1900. Serial No. 34,111. (No model.)



Claim.—1. In a photographic shutter, the combination with an oscillatory apertured shutter member, of a pivoted lever connected thereto, a spring connected to the lever, a movable member connected to the opposite end of the spring and capable of a movement to opposite sides of the pivot of the lever, a catch for holding the parts with the spring under tension, spring-latches for automatically engaging and holding the shutter member from operation, and connections between the movable member and the latches for holding one of the latter out of operative position.

2. In a photographic shutter, the combination with an oscillatory shutter member, a reversible operating-spring for throwing the shutter in opposite directions alternately, and a catch for retaining the spring under

tension and when tensioned to move the shutter member in either direction, of two automatically-engaging latches for retaining the shutter member after actuation by the motor, and means for moving one of the latches out of operative position when the operating-spring is tensioned to move the shutter member in either direction.

3. The combination with the oscillatory apertured shutter member, the pivoted lever connected thereto, the operating-spring connected to the lever, and the reversible arbor connected to the spring, of a catch for retaining the shutter member, latches for automatically engaging and holding the shutter member after being moved by the spring, and means on the arbor for holding one of the latches out of engaging position when said arbor is moved to tension the spring, and throw the shutter in either direction.

4. The combination with the arbor having the pinion and the tube thereon, the pivoted lever having the rack engaging the pinion, of the reversible setting-arbor, and means for securing it, the operating-spring connected to the setting-arbor and to the lever, the catch for engaging and holding the lever, latches adapted to automatically engage and hold the tube-arbor, and the arm on the setting-arbor for holding one of the latches out of operative position when the spring is placed under tension.

5. In an exposing device for panoramic cameras, a lens and its holder provided with a light-confining tube, means for swinging the lens-holder in opposite directions, and a locking device under the control of the lens-holder swinging means for temporarily locking the lens-holder at the limits of its swinging movement.

6. In an exposing device for panoramic cameras, a lens, and light-directing chamber pivotally mounted to swing together in opposite directions, means for swinging the lens and light-directing chamber to effect an exposure during the opposite swinging movements, and means for automatically locking the lens and light-directing chamber at both ends of each swinging movement.

7. The combination with the pivoted lens-tube having the lens therein, and the lever connected thereto, of the oscillatory arbor having the handle, catch devices for engaging and holding the handle, an arm on the arbor and a spring arranged between it and the tube-lever and means for holding the tube against the tension of the spring.

8. The combination with the pivoted lens-tube having the lens therein, and the lever connected thereto, of the oscillatory arbor, the yielding operating-handle thereon, the holding-plate engaged by the latter, the two arms on the arbor, the spring connecting one arm with the tube-lever, and latch mechanism for engaging and holding the lens-tube controlled by one arm on the arbor.

9. The combination of the pivoted lens-tube having the pinion thereon, the oscillatory arbor, the lever journaled loosely on the arbor having the rearwardly-extending portion and the gear-segment engaging the pinion, the arm secured rigidly to the arbor, the spring connecting said arm with the rear portion of the lever, latch mechanism for holding the lens-tube after actuation in either direction controlled by the movement of the arbor, means for holding the arbor, and a catch for holding and releasing the lens-tube.

10. The combination with the pivoted oscillatory lens-tube having the lens therein, of a reversible setting-arbor, a spring connection between it and the tube, the operating-handle on the arbor having the engaging lug, the spring between the handle and arbor, the plate having the notches with which the lug on the handle engages and means for holding and releasing the lens-tube.

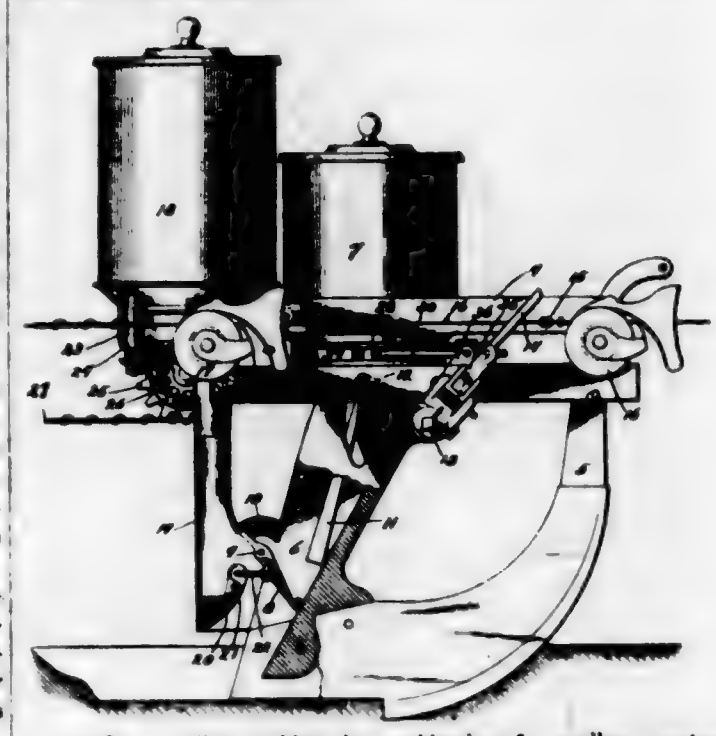
11. The combination with the pivoted oscillatory lens-tube having the lens therein, of the reversible setting-arbor having the yielding setting-arm provided with the engaging lug, a spring connection between the arbor and tube, means for holding and releasing the lens-tube, and the plate arranged beneath the setting-arm having the notches in its under side with which the lug on the arm is adapted to be engaged.

693,584. SEEDING-MACHINE. WILLIAM T. M. BRUBAKER, Bradley, Ill., assignor to The David Bradley Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed June 9, 1900. Serial No. 19,762. (No model.)

Claim.—1. In a seeding-machine, the combination of a seed-tube, a fertilizer-tube, a spring-controlled pivoted check-valve in said seed-tube, a pivoted check-valve in said fertilizer-tube, a link connecting said valves, and a reciprocating plunger adapted to engage one of said valves to operate the same, and thereby simultaneously operate the other of said valves.

2. In a seeding-machine, the combination of a seed-tube, a fertilizer-tube, a pivoted check-valve in said seed-tube, a pivoted check-valve in said fertilizer-tube, a spring bearing upon the upper end of one of said valves to hold the same normally closed, a link connected to such valve intermediate its ends and to the upper end of the other valve, and a reciprocating plunger adapted to engage one of said valves to operate the same and thereby simultaneously operate the other of said valves.

3. In a seeding-machine, the combination of a seed-tube, a fertilizer-tube, a spring-controlled pivoted check-valve in said seed-tube, a check-valve in the fertilizer-tube, a link connecting said valves, a check-rower attachment and a plunger operated thereby and adapted to engage said valve in the seed-tube to open the same and thereby simultaneously open the valve in the fertilizer-tube.



4. In a seeding-machine, the combination of a seedbox, a rotary valve, a pivotally-mounted traveling pawl, and a rock-shaft directly connected with said pawl, said pawl being adapted to engage said valve for rotating the same.

5. In a seeding-machine, the combination of a seedbox, a rotary valve, a swinging arm, a pawl pivoted to said arm, and a rock-shaft directly connected with said pawl, said pawl being adapted to engage said valve for rotating the same.

6. In a seeding-machine, the combination of a seedbox, a rotary valve, a swinging arm, a pivoted pawl carried by said arm, means connected with said pawl for swinging said arm toward the valve, and means for retracting said arm, said pawl being adapted to engage said valve for rotating the same.

7. In a seeding-machine, the combination of a seedbox, a rotary valve, a pivoted arm, a spring connected with said arm and with the frame of the machine, a pawl pivoted to said arm, and a rock-shaft directly connected with said pawl, said pawl being adapted to engage said valve for rotating the same.

8. In a seeding-machine, the combination of a seedbox, a rotary valve, an arm 32, a pawl pivoted to said arm, a rock-shaft having an arm 36, said pawl 30 having an arm 34, a connecting device connecting said arms 34 and 36, said pawl being adapted to engage pins carried by said valve for rotating the same, and a spring 40 connected with said arm 32 and with the frame of the machine, substantially as described.

9. In a seeding-machine, the combination of a machine-frame, a seedbox, a rotary disk valve supported in said seedbox, said valve having a number of perforations 29 adapted to register with a seed-tube, pins 37 projecting from said valve, a detent 41 adapted to engage said pins to prevent reverse movement of said valve, a rock-shaft 13 having an arm 36, an arm 32 pivoted at one end to a suitable support, a spring 40 connected to the frame of the machine and to said arm 32, and a pawl 30 pivoted to said arm 32 and having an arm 34 connected with said arm 36, said pawl 30 having a fork at its free end, said fork being adapted to to receive the pins 37, substantially as described.

693,585. ILLUMINATED AREA-SPANNING PAVEMENT. PRESTON M. BRUBAKER, Lebanon, Ill. Filed May 22, 1901. Serial No. 61,366. (No model.)



Claim.—1. In a pavement or the like, lenses, lateral flanges upon said lenses, the adjacent flanges of neighboring lenses abutting to produce the under pavement surface between the lenses, there being a space formed by the said abutting flanges and the side walls of the lenses and

opening upon the upper surface of said lenses, and means for binding said lenses together located in said space; substantially as described.

2. The combination with removable supports, of lenses supported thereabove by imperforate legs, said legs abutting against each other and being provided with lateral flanges at their lower edges which are designed to contact with corresponding flanges on adjacent rows of glasses; substantially as described.

3. The combination with a lens having depending walls at its side edges, of outwardly-projecting flanges at the lower edges of said side walls, and ribs near the upper edges of said side walls; substantially as described.

4. The combination with lenses formed with depending side walls arranged to contact with each other, said side walls having outwardly-extending flanges contacting with corresponding flanges on adjacent glasses so as to form a recess of some depth for the reception of cement, a strengthening bar or plate arranged between the side walls of the lenses and embedded in said cement, and cross-ribs of cement between the lenses of a row; substantially as described.

5. The combination with glasses G comprising a lens portion from which depend side walls g', said side walls having base-flanges g^2 and ribs g^3, said glasses being arranged in parallel rows so as to form deep spaces for the reception of cement between parallel rows of glasses, and relatively shallow spaces between the lenses of a row, and strengthening plates or bars embedded in the cement placed in the deep spaces; substantially as described.

6. The herein-described glass comprising a body portion formed with depending walls flush with the side edges of the body portion, the lower edges of said walls having lateral flanges, and horizontally-arranged ribs near the upper ends of said side walls; substantially as described.

7. The herein-described glass comprising a body portion having depending side walls, and a partition between said side walls formed with an inclined face for deflecting the transmitted rays of light; substantially as described.

8. In an area-spanning pavement, the combination with lenses having depending walls contacting with each other, whereby the under surface of the pavement is composed entirely of glass, deep ribs of cement between the lenses, metallic bars or plates embedded in said deep ribs, and relatively shallow cross-ribs; substantially as described.

9. The combination with two adjacent pavement-panels whose contiguous edges are beveled to form contacting portions, of a bent metal strip whose edges are embedded in the adjacent edges of the panels; substantially as described.

10. In a pavement or the like, a panel having its edge formed of a material of the nature of concrete, said edge being reduced in thickness, whereby when said panel expands against the adjacent pavement-section said reduced edge will be mashed or crumbled; substantially as described.

11. The herein-described expansion-joint, which consists in embedding a bent metal strip in adjacent edges of two panels, and providing a groove above said strip for the reception of a semifluid material; substantially as described.

12. The combination with a removable mold I for forming beveled edges on adjacent panels, and a bent metal strip J having laterally-extending portions designed to be embedded in the cement forming the panels; substantially as described.

13. The combination with contiguous edges of panels whose line of division is formed by oppositely beveling the contiguous edges thereof, and a bent metal plate having laterally-projecting portions embedded in the adjacent edges of the panels at points intermediate the beveled faces thereof; substantially as described.

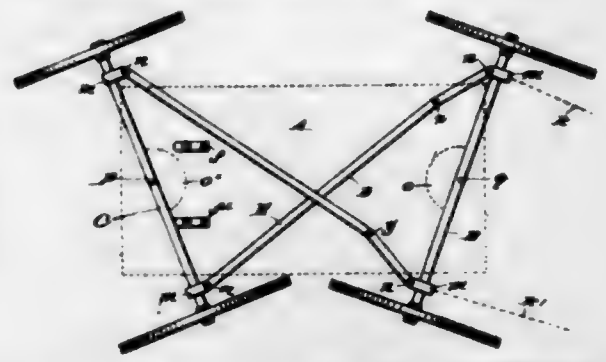
14. The combination with an area-spanning pavement composed of lenses and cement, strengthening-bars H embedded in the cement, said pavement being divided into panels by grooving the upper and lower faces thereof between two rows of lenses, the grooves weakening the cement at this point, and a bent metal strip embedded in the contiguous edges of the panels and located between those grooves; substantially as described.

15. In an area-spanning pavement, the combination with the lens-glasses G, substantially as described, of cement between said glasses, strengthening metallic bars or plates H embedded in said cement, and bent metal plates J; substantially as described.

16. In a pavement, a plurality of lenses having depending walls at their side edges, outwardly-projecting flanges at the lower edges of said side walls, the said flanges of contiguous lenses projecting toward each other, and ribs near the upper edges of said side walls; substantially as described.

17. In a pavement, a plurality of lenses, each lens having a body portion formed with depending walls flush with the side edges of said body portion, the lower edges of said walls having lateral flanges, and horizontally-arranged ribs near the upper ends of said side walls, the said flanges of contiguous lenses projecting toward each other; substantially as described.

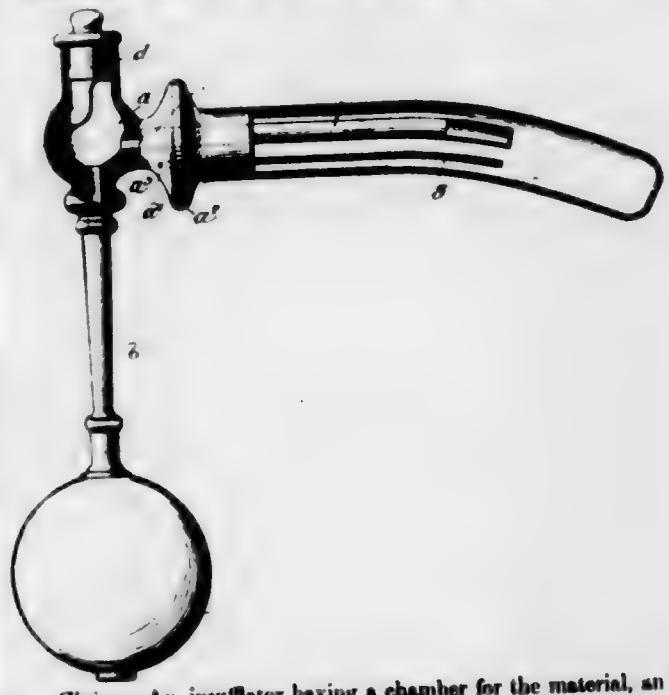
693,586. CARRIAGE-GEAR. ARELO B. BRYANT, Kingston, Canada. Filed Mar. 28, 1901. Serial No. 53,259. (No model.)



Claim.—1. In a double-swinging carriage or vehicle gear having both front and rear axles movable, bars or rods connecting the ends of the front axle with the diagonally opposite ends of the rear axle, so bent or curved as to cross each other without contact and provided with links or buckles to take up surplus strain, in combination with blocks upon the axles made, by welding or otherwise, in one integral piece therewith, and adapted for attachment of both bars and shafts, and with brackets or stops attached to the vehicle or frame so as to limit the swinging motion of the axles and prevent all contact of either front or rear wheel tires with the vehicle, all substantially as and for the purposes described.

2. In a carriage-gear, a bracket or stop attached so as to limit the swinging motion of the axles and prevent any contact between the tires of the wheels and the body or frame of the vehicle, substantially as shown.

693,587. INSUFFLATOR. EUGENIA C. CAMPBELL, San Francisco, Cal. Filed Nov. 11, 1901. Serial No. 81,994. (No model.)



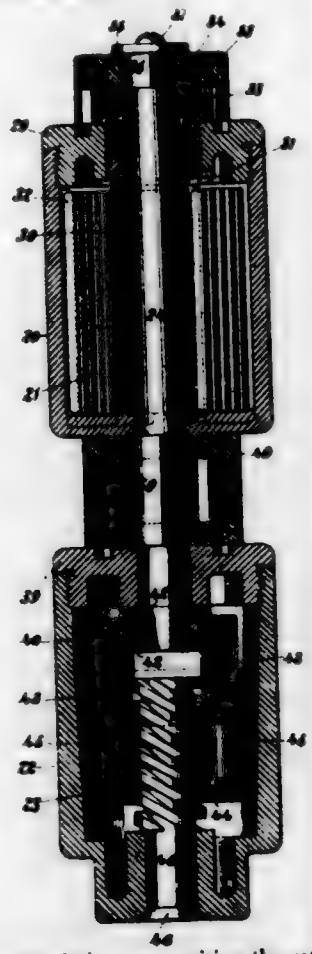
Claim.—An insufflator having a chamber for the material, an air-bulb connected with the chamber, a blow-tube leading from the chamber, an air-tube for supplying air to the blow-tube for the inflation of the bulb, and a speculum-tube inclosing the air and blow tubes.

693,588. COMBINED DOOR CHECK AND CLOSER. EDWARD CLIFF, Newark, N. J. Filed Aug. 20, 1901. Serial No. 72,636. (No model.)

Claim.—1. A door check and closer comprising the casing 20 affording a spring-chamber, the spring therein, the casing 22 affording a cylinder for the checking liquid, the piston within said cylinder, and the spindle operatively connected with said spring and said piston, combined with leaves for securing the opposing sections of the apparatus to the adjacent vertical portions of the door and its jamb with said spindle on the pivot-line of the door, whereby during the opening and closing of the door that section of the apparatus connected with the door will be compelled to rotate and thereby effect the movement of said piston; substantially as set forth.

2. A door check and closer comprising the casing 20 affording a spring-chamber, the spring within said chamber, the casing 22 affording a cylinder for the checking liquid, the threaded stem within and rigid with said cylinder, and the piston within said cylinder and having a threaded bore to engage said threaded stem, combined with the spindle extending into said casings and connected with said spring, the guide connected

with said spindle and, by a sliding union, with said piston, and means for securing said casings and spindle to the door and door-casing respectively, said means comprising leaves extending from said casings and spindle and adapted for disposal intermediate the edges of the door and its casing or frame; substantially as set forth.



3. A door check and closer comprising the rotary casing 20 affording a spring-chamber, the spring therein, the rotary casing 22 affording a cylinder for the checking liquid, the piston within said cylinder, and means operatively connecting said piston with said cylinder whereby during and due to the axial turning of said cylinder the said piston may be operated, combined with the spindle connected with said spring, and the leaves connected with said casings and spindle; substantially as set forth.

4. A door check and closer comprising the casing 20 affording a spring-chamber, the spring within said chamber, the casing 22 affording a cylinder for the checking liquid, the threaded stem within and rigid with said cylinder, and the piston within said cylinder and having a threaded bore to engage said threaded stem, combined with the spindle extending into said casings and connected with said spring, the guide connected with said spindle and, by a sliding union, with said piston, the sleeve connected with said spindle intermediate said casings, the leaf rigid with said sleeve, and the leaf rigid with said casings; substantially as set forth.

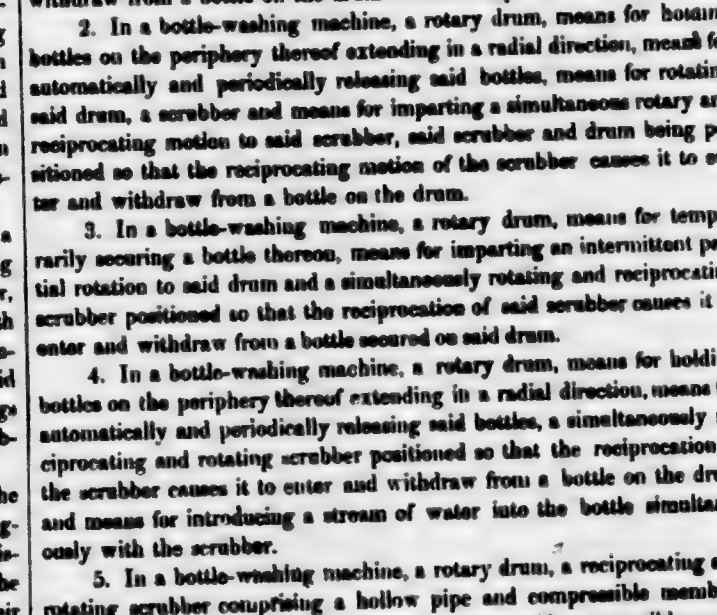
5. A door check and closer comprising the vertical casing 20 affording a spring-chamber, the spring therein, the vertical casing 22 affording a cylinder for the checking liquid, and the vertically-acting piston within said cylinder, combined with the spindle extending into said casings and connected with said spring, the leaves connected with said casings and spindle, and means operatively connecting said spindle with said piston whereby during and due to the axial turning of said spindle the said piston may be operated in a vertical direction; substantially as set forth.

6. A door check and closer comprising the casing 20 affording a spring-chamber, the spring within said chamber, the casing 22 affording a cylinder for the checking liquid, and the piston within said cylinder, combined with the spindle extending into said casings and connected with said spring, means operatively connecting said cylinder, piston and spindle whereby upon the axial turning of either said cylinder or spindle said piston will be compelled to operate, and leaves secured to said casings and spindle and adapted for connection with the door and its casing; substantially as set forth.

7. A door check and closer for double-acting doors comprising the casings 20, 22, for each side of the door and respectively forming the spring-chambers and liquid-cylinders, the springs within said chambers, the pistons within said cylinders, and the spindles extended into said casings, the casings at one side of the door being capable of axial rotation upon their spindle, and the spindle at the other side of the door being capable of axial turning within its casings, which are stationary when in use, combined with means connected with the rotary cylinder for compelling the operation of its piston, means connected with the rotary spindle for compelling the operation of its piston, the securing-leaves connected with said casings at each side of the door, and the leaf 55 connecting said spindles and being independent of said securing-leaves and said casings; substantially as set forth.

8. A door check and closer comprising an apparatus affording a spring-chamber and liquid-cylinder, the spring within said chamber, and the piston within said cylinder, combined with the spindle operatively connected with said piston, the sleeve on said spindle within said spring-chamber and to which said spring is connected, the recessed wheel on the upper end of said sleeve, the removable cap keyed upon the upper end of said spindle and adapted to cover and engage said recessed wheel, and means for connecting said spindle and said apparatus to the door and door-casing respectively; substantially as set forth.

693,589. **BOTTLE-WASHING MACHINE.** CHARLES A. COLE, Poland, Me. Filed June 13, 1901. Serial No. 64,352. (No model.)



Claim.—1. In a bottle-washing machine, a rotating drum, means for holding bottles on the periphery thereof extending in a radial direction, means for automatically and periodically releasing said bottles, and a scrubber adapted to have a reciprocating motion and positioned to enter and withdraw from a bottle on the drum at each reciprocation.

2. In a bottle-washing machine, a rotary drum, means for holding bottles on the periphery thereof extending in a radial direction, means for automatically and periodically releasing said bottles, means for rotating said drum, a scrubber and means for imparting a simultaneous rotary and reciprocating motion to said scrubber, said scrubber and drum being positioned so that the reciprocating motion of the scrubber causes it to enter and withdraw from a bottle on the drum.

3. In a bottle-washing machine, a rotary drum, means for temporarily securing a bottle thereon, means for imparting an intermittent partial rotation to said drum and a simultaneously rotating and reciprocating scrubber positioned so that the reciprocation of said scrubber causes it to enter and withdraw from a bottle secured on said drum.

4. In a bottle-washing machine, a rotary drum, means for holding bottles on the periphery thereof extending in a radial direction, means for automatically and periodically releasing said bottles, a simultaneously reciprocating and rotating scrubber positioned so that the reciprocation of the scrubber causes it to enter and withdraw from a bottle on the drum and means for introducing a stream of water into the bottle simultaneously with the scrubber.

5. In a bottle-washing machine, a rotary drum, a reciprocating and rotating scrubber comprising a hollow pipe and compressible members secured to the end thereof, a sleeve surrounding said compressible members when the scrubber is drawn back, a yielding receiver at the end of said sleeve to receive the mouth of a bottle on the drum, all positioned so that the reciprocation of the scrubber causes it to enter and withdraw from the bottle.

6. In a bottle-washing machine, a rotary drum, a series of bottle-holding jaws spaced apart circumferentially around said drum and means for opening and closing said jaws, each set of jaws diametrically opposite each other acting simultaneously and alternately to the set at right angles thereto.

7. In a bottle-washing machine, a rotary drum provided with bottle-holders, a simultaneously rotating and reciprocating scrubber positioned to enter and withdraw from a bottle supported in said holders at each reciprocation of the scrubber, means for introducing a stream of water into the bottle simultaneously with the scrubber and a brush adapted to reciprocate and rotate in contact with the outside of a bottle thus held and means for projecting a stream of water upon the outside of the bottle.

8. In a bottle-washing machine, a rotary drum provided with bottle-holding jaws and means for imparting a periodical quarter-rotation to said drum, means for holding the jaws normally against the bottle when the bottle is in a horizontal position and means for opening the jaws to receive and discharge the bottle when in a vertical position.

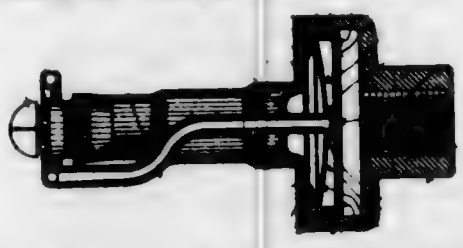
9. In a bottle-washing machine, a suitable supporting-frame, a rotary drum provided with bottle-holding jaws on the periphery thereof adapted to hold bottles projecting therefrom in a radial direction, means for automatically operating said jaws to clamp or release the bottles, and a bottle-washing device consisting of a reciprocating and rotating pipe carrying on one end a scrubber consisting of flexible spring-arms, a stationary sleeve adapted to receive and compress the yielding scrubber-arms as the scrubber is drawn back and means for imparting a limited reciprocating motion to said sleeve.

10. In a bottle-washing machine, a rotary drum provided with bottle-holding devices, a simultaneously reciprocating and rotating pipe provided with a scrubber composed of spring-arms tending to spread apart, a sleeve surrounding said pipe and adapted to have an independent reciprocating motion, an outside rotary sleeve carrying a reciprocating and rotating scrubber and a reciprocating pipe adapted to discharge a stream of water contiguous to said last-named scrubber.

11. In a bottle-washing machine, a rotary drum, means for holding bottles on the periphery thereof, means for automatically and periodically releasing said bottles, a simultaneously rotating and reciprocating scrubber, a reciprocating sleeve concentric with said scrubber, said sleeve having on one end a receiver, means for reciprocating said sleeve and receiver independently of the scrubber to bring said receiver against the mouth of a bottle held on the drum, and means for reciprocating the scrubber into and out of the bottle through said sleeve and receiver.

12. In a bottle-washing machine, a rotary drum, a series of bottle-holding jaws mounted thereon, means for opening and closing said jaws, means for washing the inside and the outside walls of bottles held in said jaws, means for discharging bottles from said jaws, a series of rotating receptacles adapted to receive and support the bottles bottom up, as they are discharged from the jaws, means for rotating said receptacles periodically, a brush adapted to wash the bottom of the bottles and means for imparting a rotary and vertically-reciprocating motion to said brush.

693,590. **GAS-BURNER.** JOSHUA CRANE, JR., Westwood, Mass. Filed June 26, 1901. Serial No. 66,093. (No model.)



Claim.—1. In a burner, the combination of a burner-tube, a support therefor, a thermally-operated valve for controlling the flow through said burner-tube, a pipe leading from the operating mechanism of said valve into proximity to the burner-tip, and an annular heating-chamber surrounding said tip and formed by an integral extension of said pipe, having its extremity closed and brazed to the intermediate portion of the pipe, whereby the said extremity is both hermetically sealed and secured from displacement.

2. In a burner, the combination of a burner-tube, a disk on which the same is mounted, a diaphragm-chamber below the disk, and a pipe leading upward from the diaphragm-chamber fitting a hole in the disk and extending into proximity to the tip of the burner-tube, whereby the said disk is caused to support or steady the lower end of the said pipe and diaphragm-chamber.

3. In a burner, the combination of a burner-tube, a disk supporting the same, a cup having a rabbeted edge receiving the disk and a turned-over rim to secure the disk in place, and a packing interposed between the cup and disk.

4. In a burner, the combination of a burner-tube, a disk, a cup to which the disk is attached, a valve within the cup, adapted to move toward and from the disk, and an annular packing the outer margin of which is interposed between the cup and disk while the inner margin extends between the valve and disk.

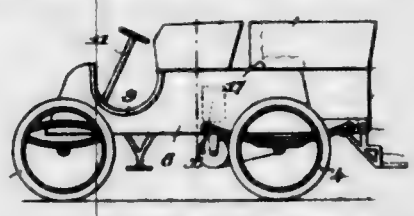
5. In a burner, the combination of a burner-tube, a disk, a cup to which the disk is attached, a diaphragm-chamber located within the cup, a pipe leading from a point in proximity to the flame of the burner through the disk, and affixed to the diaphragm of the diaphragm-chamber, whereby the latter is centrally supported, and an annular packing the outer margin of which is interposed between the cup and disk while the inner margin extends between the disk and diaphragm-chamber.

6. In a burner, the combination of a burner-tube, a valve for controlling the flow of gas therethrough, and actuating means for automatically opening and closing said valve, including a concave spring-metal diaphragm subjected to thermally-affected fluid-pressure on its convex side, said diaphragm having its marginal portion secured and being self-recovering upon decrease of the aforesaid fluid-pressure.

7. In a burner, the combination of a burner-tube, a valve for controlling the flow of gas therethrough consisting of a movable chamber, and having one wall thereof formed by a concave spring-metal diaphragm secured at its margin, and a pipe leading from a point in proximity to the burner-flame to the said chamber, the said diaphragm receiving said pipe at its center and being self-recovering upon decrease of pressure within the diaphragm-chamber.

8. In a burner, the combination of a burner-tube, a valve for controlling the flow of gas therethrough consisting of a movable chamber having an inturned flange, and having one wall thereof formed by a concave spring-metal diaphragm, and a pipe leading from a point in proximity to the burner-flame to the said chamber, the said spring-metal diaphragm receiving said pipe at its center, having the marginal portion thereof affixed to said inturned flange, and being self-recovering upon decrease of pressure within the diaphragm-chamber.

693,591. **AUTOMOBILE.** GEORGE O. DRAPER, Hopedale, Mass. Filed Aug. 2, 1901. Serial No. 70,609. (No model.)



Claim.—1. In an automobile, running-gear, and a body supported thereon, said body having transversely-extending seat and foot-rest portions which project beyond the main portion of the body on each side thereof and extend over the wheels of the vehicle.

2. A body for an automobile having the seat and foot-rest portions thereof extending transversely of the body and projected beyond the main portion of the body on each side thereof, said projecting portions of the seat and foot-rest being adapted to extend over the wheels.

3. An automobile having a suitable running-gear, a body suitably supported thereon, the seat and foot-rest of the body having overhanging portions extending beyond the body on each side thereof, the overhanging portions of the foot-rest extending over the front wheels and serving as mud-guards.

4. An automobile having a suitable running-gear, a body suitably supported thereon, the seat and foot-rest of the body having overhanging portions extending beyond the body on each side thereof, combined with a steering device located centrally of the seat.

5. In an automobile, a body inclosing driving mechanism, a movable rear compartment extending over said body and provided with an entrance-opening on one side thereof, and having seats on the other sides thereof.

6. In an automobile, a body containing driving mechanism and having a transversely-extending front seat, a movable rear compartment extending over said body and provided with seats, and a rest supporting said compartment in its secondary or inoperative position, said transversely-extending front seat and the rear compartment both being wider than the main portion of the body.

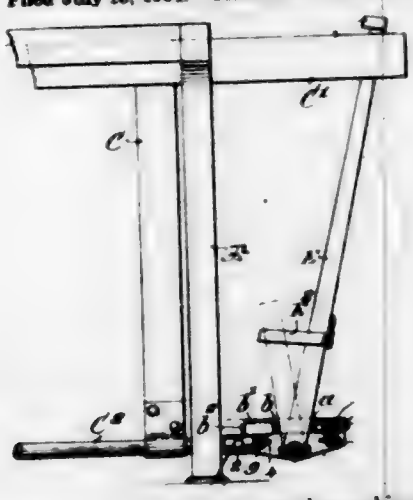
7. In an automobile, a body containing driving mechanism, said body having a front seat extending transversely of the body and overhanging the latter on each side thereof, and a rear compartment hinged to the said body and provided with a seat, said rear compartment being independent from the front seat.

8. An automobile-body having a rear extension, a rear compartment having seats and hinged to said extension, said compartment when in its operative position resting on and covering the rear portion of the body.

9. An automobile-body having a rear extension, steps suitably suspended therefrom, a rear compartment hinged to the extension and in its

operative position resting on the top of the body and in its inoperative position resting on the steps, said compartment having a rear entrance-opening and seats on the front and sides thereof.

698,592. PICKER-MOTION FOR LOOMS. DANIEL DURKIN, Manville, R. I. Filed July 15, 1901. Serial No. 68,293. (No model.)

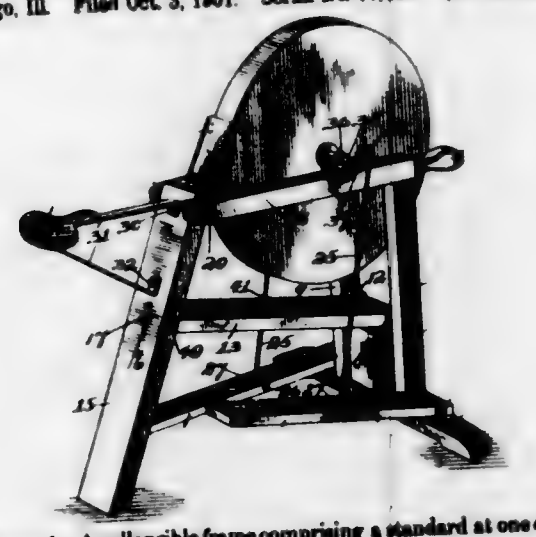


Claim.—1. In a picker-motion for looms, the combination of a rocker-shaft, a casting secured to said rocker-shaft to move therewith, a freely-mounted picker-stick fulcrumed on said casting and two disconnected buffers also mounted on the said casting independent of the picker-stick and one on each side of the said picker-stick adjacent the fulcrum thereof and adapted to act upon said picker-stick only near the end of its inward and outward strokes to arrest the movement thereof, the said fulcrum of the freely-mounted picker-stick being adjustable between the disconnected buffers.

2. In a picker-motion for looms, the combination of a rocker-shaft, a casting secured to said rocker-shaft to move therewith, two disconnected buffers also mounted on said casting and separately adjustable toward and away from each other, and a freely-mounted picker-stick independent of said disconnected adjustable buffers and fulcrumed on said casting between the same, and means affording adjustment of the fulcrum of said picker-stick between the independent adjustable buffers, said buffers acting upon the picker-stick adjacent its fulcrum and only near the end of the inward and outward strokes to arrest the movement thereof.

3. In a picker-motion for looms, the combination of a rocker-shaft, a casting secured to said rocker-shaft to move therewith and provided with a series of three slots, two buffers independently mounted in the end slots of the series and adjustable toward and from each other, and a picker-stick adjustably mounted in the center slot of the series and between the two adjustable buffers, said buffers acting upon the picker-stick adjacent its fulcrum and near the end of the inner and outer strokes to arrest the movement thereof.

698,593. PORTABLE GRINDSTONE. CHARLES H. FERGUSON, Chicago, Ill. Filed Oct. 3, 1901. Serial No. 77,410. (No model.)



Claim.—1. A collapsible frame comprising a standard at one end and a pair of standards at the opposite end, a pair of side bars each pivotally secured at one end and removably secured at the other end, said side bars being supported upon said standards, and a brace pivotally secured at one end and detachably secured at its opposite end and extending between the oppositely-located end standards, substantially as specified.

2. A collapsible frame comprising a rear standard, a pair of front standards, a pair of side bars pivoted upon opposite sides of said rear standard and bearing near their other ends upon the upper ends of said front standards and detachably connected to said front standards, and a brace pivotally secured at one end between the pair of standards and removably secured at the other end to the rear standard, substantially as specified.

3. In a collapsible supporting-frame, the combination with a rear standard, of a pair of front standards, a pair of side bars extending from the upper end of said rear standards to the upper ends of the front standards, said side bars being pivotally connected in place at one end and detachably connected in place at the other end, a block between said pair of standards, and a brace pivotally secured at the upper end of said block and removably secured at its other end to the opposite standard, substantially as specified.

4. In a collapsible supporting-frame, the combination with a rear standard, of a pair of front standards, a pair of side bars extending from the rear standard to the front standards, said side bars being pivotally connected to the rear standard and removably connected to the front standards, a brace pivotally connected at one end between the front standards and removably connected at its other end to the rear standard, a treadle pivoted at the side of one of the forward standards, a pitman connected therewith, and a shaft suitably supported and provided with a crank to which the pitman is adapted to be connected, substantially as specified.

5. In a collapsible supporting-frame for a grindstone, the combination with front and rear standards, of a pair of bars connecting the front and rear standards and adapted to have a grindstone revolubly mounted thereon, and being also adapted to be disconnected from one end of the frame and turned to lie parallel with the opposite end, a brace connecting the front and rear standards and adapted to be disconnected from one end of the frame and turned to lie parallel with the opposite end, and means for supporting a grindstone for shipping or storing purposes between the said front and rear standards and their attached parts when the frame is in a collapsed condition, substantially as specified.

6. In a collapsible supporting-frame for a grindstone, the combination with a pair of front standards and a rear standard, of a pair of side bars pivotally attached to the rear standard and removably connected to the pair of front standards, and a brace pivotally secured in place at one end between the pair of front standards and having its other end provided with a tenon adapted to pass through an opening in the rear standard, and having an opening between its ends adapted to receive one end of a grindstone-shaft, whereby a crate may be formed for a grindstone by placing the said front and rear standards and their attached parts, when the frame is in a collapsed condition, on opposite sides of a grindstone and the grindstone-shaft supported by passing its ends through the openings in the rear standard and the brace, substantially as specified.

7. A collapsible frame comprising a rear standard, a pair of front standards, means for connecting said standards together at their upper ends, and a brace pivotally secured at one end between the pair of standards and removably secured at its other end to the rear standard, substantially as specified.

8. A collapsible frame comprising a rear standard, a pair of front standards, means for connecting the said standards together at their upper ends, and a brace extending between said standard and pair of standards and pivoted in place at one end between said pair of standards, and provided on its opposite end with a tenon adapted to enter an opening in said rear standard, substantially as specified.

9. In a grindstone-frame, the combination of a water-guard having formed therewith at its lower end a narrow tongue, a support against which the rear face of such tongue is adapted to rest, and a bolt passing through such tongue and into said support, whereby said guard can be adjusted by bending said tongue, substantially as specified.

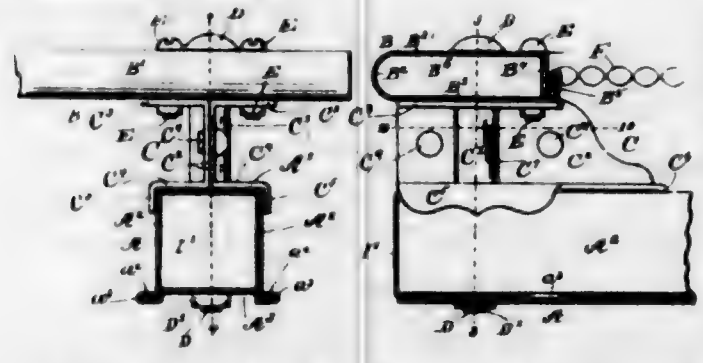
10. In a collapsible supporting-frame for a grindstone, the combination with front and rear standards, of grindstone-supporting bars connecting said front and rear standards, said bars being removably secured in place, a brace also removably secured in place and extending between and connected to said front and rear standards, said brace provided with an opening, and one of said standards provided with an opening, each of said openings adapted to receive one end of a grindstone-shaft whereby a crate may be formed for the grindstone by placing said standards when the frame is in a collapsed condition on opposite sides of the grindstone and the grindstone-shaft inserted through the said openings, substantially as specified.

698,594. BED-BOTTOM. ORRIN G. FRANCE, Buffalo, N. Y. Filed Apr. 29, 1901. Serial No. 57,350. (No model.)

Claim.—1. In a bed-bottom frame, the combination of an end rail consisting of a piece of sheet metal folded upon itself and having its bottom flattened and having its edges bent to form overlapping flanges substantially perpendicular to said bottom, and bolts for forcing the upper and lower walls of said rail toward each other, substantially as described.

2. In a bed-bottom frame, the combination of an end rail consisting of a piece of sheet metal folded upon itself and having its edges bent to

form overlapping flanges, bolts for forcing the upper and lower walls of said rail toward each other, and end-closers inserted into the ends of said rail, substantially as described.



3. In a bed-bottom frame, the combination of an end rail consisting of a piece of sheet metal folded upon itself and having its edges bent to form overlapping flanges, bolts for forcing the upper and lower walls of said rail toward each other, and sheet-metal end-closers inserted into the ends of said rail, substantially as described.

4. In a bed-bottom frame, the combination of an end rail consisting of a piece of sheet metal folded upon itself and having its edges bent to form overlapping flanges, bolts for forcing the upper and lower walls of said rail toward each other, and sheet-metal end-closers consisting of an upright portion and horizontal wings extending laterally from the edges of said upright portion, substantially as described.

5. In a bed-bottom frame, the combination of an end rail consisting of a piece of sheet metal folded upon itself and having its edges bent to form overlapping flanges, bolts for forcing the upper and lower walls of said rail toward each other, and end-closers having an upright portion rounded at one end and provided with lateral wings, substantially as described.

6. In a bed-bottom frame, the combination with a side rail and an end rail, of a connecting member interposed between said side rail and end rail and having a horizontal portion resting on said side rail, flanges extending downward over the sides of said side rail, and lugs extending into the upper face of said side rail, substantially as described.

7. In a bed-bottom frame, the combination of a side rail, an end rail, and a connecting member interposed between said side rail and said end rail and having a horizontal portion resting on said side rail, flanges extending down the sides of said side rail, and horizontal wings having holes for receiving bolts, substantially as described.

8. In a bed-bottom frame, the combination of a side rail, an end rail, and a connecting member interposed between said rails and having a flat portion resting upon said side rail, flanges extending downward over the sides of said side rail, wings having holes for receiving bolts, and lugs extending into the upper face of the side rail, substantially as described.

9. In a bed-bottom frame, the combination of a side rail, an end rail, and a connecting member interposed between said rails and having a horizontal portion extending across said side rail and having lateral flanges extending downward over the sides of said side rail, and lugs extending into the upper face of the side rail, and a central opening, and a bolt extending through said rails and through said opening, substantially as described.

10. In a bed-bottom frame, the combination of a side rail, an end rail, and a composite connecting member interposed between said rails and having a horizontal portion extending across the upper face of the side rail and having flanges extending downward over the sides of the side rail, and having lugs extending into the upper face of the side rail, substantially as described.

11. In a bed-bottom frame, the combination of a side rail, an end rail, and a composite connecting member interposed between said side rail and said end rail and having a horizontal portion resting on said side rail, flanges extending down the sides of said side rail, and horizontal wings having holes for receiving bolts, substantially as described.

12. In a bed-bottom frame, the combination with the side rail and end rail of a composite connecting member interposed between said rails and having a flat portion resting upon said side rail, flanges extending downward over the sides of said side rail, wings having holes for receiving bolts, and lugs extending into the upper face of the side rail, substantially as described.

13. In a bed-bottom frame, the combination with a side rail and an end rail, of a composite connecting member interposed between said rails and having a horizontal portion extending across said side rail and having lateral flanges extending downward over the sides of said side rail, and lugs extending into the upper face of the side rail, and a central opening, and a bolt extending through said rails and through said opening, substantially as described.

14. In a bed-bottom frame, the combination with a side rail and an end rail, of a sheet-metal connecting member interposed between said rails and having a horizontal portion extending across the upper face of the side rail, and having wings provided with holes for receiving bolts, substantially as described.

15. In a bed-bottom frame, the combination with a side rail and an end rail, of a sheet-metal connecting member interposed between said rails and extending horizontally across the upper face of the side rail and having wings with holes for receiving bolts, and having a vertical opening extending through the body of said member, and a bolt extending through said rails and member, substantially as described.

16. A blank for forming connecting members for bed-bottom frames, substantially as herein described, said blank consisting of sheet metal, and having a portion adapted to be bent to form a flange to extend over the side of the side rail and having another portion adapted to become a foot and having another portion adapted to become a wing, and having an aperture for receiving a bolt, and having another portion adapted to be bent to constitute a lug to extend into the upper face of the side rail, substantially as described.

17. A blank for forming connecting members for bed-bottom frames, substantially as herein described, said blank consisting of a plate of sheet metal comprising the parallel portions, 1, 2, 3, and 4, and an end portion, 5, and having suitable apertures for bolts or rivets, substantially as described.

18. A blank for forming connecting members for bed bottom frames, substantially as herein described, said blank consisting of a plate of sheet metal comprising the parallel portions, 1, 2, 3, and 4, and having suitable substantially circular apertures for receiving bolts or rivets, and having an elongated aperture extending across the part, 2, substantially as described.

19. A blank for forming connecting members for bed-bottom frames, substantially as herein described, said blank consisting of a plate of sheet metal comprising the parallel portions 1, 2, 3, 4, and an end portion, 5, and having suitable substantially circular apertures for receiving bolts or rivets, and having an elongated aperture extending across the part, 2, substantially as described.

20. A connecting member for a bed-bottom frame, said member comprising two pieces having suitably-joined upright portions, C^2, horizontal portions, C^3, and vertical flanges, C^5, extending downward over the portions, C^4, and having lateral wings, C^2, and depending lugs, C^6, substantially as described.

21. A connecting member for a bed-bottom frame, said member comprising two pieces having suitably-joined upright portions, C^2, horizontal portions, C^4, and vertical flanges, C^5, extending downward from the portions, C^4, and having lateral wings provided with vertical bolt-holes, substantially as described.

22. A connecting member for bed-bottom frames, said member comprising a horizontal foot portion having depending flanges, a vertical portion rising from said foot portion, and lateral wings at the upper portion of said vertical portion, and an opening extending centrally through said connecting member, substantially as described.

23. In a bed-bottom frame, a composite metallic connecting member consisting of a vertical tube and a pair of pieces each having a vertical portion and an upper and a lower lateral portion, substantially as described.

24. In a bed-bottom frame, the combination with a side rail and an end rail, of a connecting member located between said side rail and said end rail, and having lateral flanges extending downward over the sides of said side rail, and having an upright portion, and lateral wings at the top of said upright portion, and having a central opening extending through said connecting member and a tubular part seated within said opening, and a bolt extending through said rails and said tubular part, substantially as described.

25. In a bed-bottom frame, a rail consisting of two pieces of sheet metal, one of said pieces forming the top and sides of said rail and having at its lower edges lateral flanges, and another piece of sheet metal constituting the bottom of said rail and extending upward between said sides and having lateral folded flanges extending around and over the first-mentioned flanges, substantially as described.

26. In a bed-bottom frame, a rail consisting of two pieces of sheet metal, one of said pieces forming the top and sides of said rail and having at its lower edges lateral flanges, and another piece of sheet metal constituting the bottom of said rail and having lateral folded flanges extending around and over the first-mentioned flanges, and said top and bottom having each a bolt-hole in the same vertical line, a vertical reinforcing-tube within said rail and in line with said hole, substantially as described

27. In a bed-bottom frame, a rail consisting of two pieces of sheet metal, one of said pieces forming the top and sides of said rail and having at its lower edges lateral flanges, and another piece of sheet metal constituting the bottom of said rail and having lateral folded flanges extending around and over the first-mentioned flanges, said top and bottom having each a bolt-hole in the same vertical line and a vertical reinforce-

ing-tube located within said rail in line with said holes and an end-closer, substantially as described.

28. In a bed-bottom frame, a rail consisting of two pieces of sheet metal, one of said pieces forming the top and sides of said rail and having at its lower edges lateral flanges, and another piece of sheet metal constituting the bottom of said rail and having lateral folded flanges extending around and over the first-mentioned flanges, said top and bottom having each a bolt-hole in the same vertical line and a vertical reinforcing-tube and an end-closer combined with said reinforcing-tube, substantially as described.

29. In a bed-bottom frame, the combination with a hollow rail consisting of suitably-joined, longitudinally-extending pieces of sheet metal and having bolt-holes located one above the other, of a vertical reinforcing-tube located transversely within said rail in line with said holes, substantially as described.

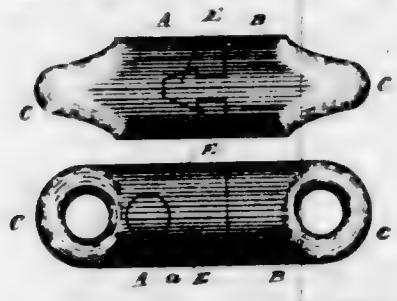
30. In a bed-bottom frame, the combination with a hollow rail consisting of suitably-joined, longitudinally-extending pieces of sheet metal and having bolt-holes located one above the other, of a vertical reinforcing-tube located within said rail in line with said holes and an end-closer combined with said tube, substantially as described.

31. In a bed-bottom frame, the combination with an end-closer comprising the parts, I', I², I², of a reinforcing-tube, I, substantially as described.

32. In a bed-bottom frame, the combination of a hollow side rail, a reinforcing-tube located transversely within said rail, a connecting member comprising a reinforcing-tube, an end rail, and a bolt extending through said end rail and said reinforcing-tubes, substantially as described.

33. In a bed-bottom frame, a sheet-metal rail, a bolt, D, extending through said rail, and a reinforcing-piece, H, located lengthwise within said rail and extending around said bolt, substantially as described.

698,595. COUPLING. JAMES L. FRAZIER, Peoria, Ill. Filed July 13, 1900. Renewed Jan. 2, 1902. Serial No. 88,090. (No model.)



Claim.—1. A coupling of the character described composed of two portions, one having a dovetailed groove, the other a tongue to correspond therewith and engage such groove, locking means in the side of the portion having the dovetailed groove, the same being arranged at right angles to the tongue and adapted to lock with the same by means of a groove in the end of said tongue whereby the two portions are prevented from separating, as set forth.

2. A coupling of the character described comprising two portions, one having a groove, the other a tongue to engage said groove, and a spring-actuated locking means in the grooved portion at right angles to the tongue, the same being adapted to engage the latter when the two body portions are interlocked and adapted when pressure or a direct thrust is applied thereto against its spring to release the tongue whereby the body portion may be separated substantially as set forth.

3. A coupling for the purpose herein described, consisting of two portions, one having a groove cut entirely through it, at one end, a tongue at one end of the other portion adapted to enter said groove from either side and arranged to prevent separation when under stress or strain longitudinally, and locking means for engaging the tongue to prevent movement thereof, in either direction laterally within said groove substantially as set forth and described.

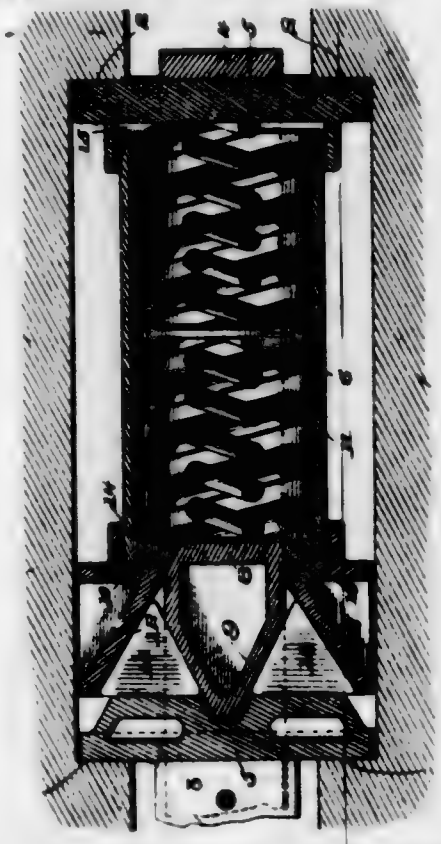
4. A coupler of the character described consisting of two portions, one having a groove, the other a tongue to engage said groove, a notch in the tongue, and a catch in the side of the grooved portion at right angles to the tongue for engaging the notch substantially as set forth and for the purpose described.

5. A coupler for the purposes set forth arranged for attachment to cables, consisting of two body portions, one having a groove, the other a tongue corresponding in form with that of the said groove and adapted to engage with such groove, a spring-catch in the body portion having the groove and a notch in the tongue adapted to be engaged by said catch substantially as set forth and for the purposes described.

6. A coupler for the purposes described arranged for attachment to cables and the like, consisting of two body portions, one having a groove therein, the other a tongue or projection to engage with such groove, a notch in the tongue, a catch consisting of a finger-piece having a stem, a disk on the opposite end of the stem the same adapted to engage with the said notch in the tongue and a spring for normally keeping the disk in engagement with the notch all substantially as set forth and described.

7. A coupling for the purposes set forth consisting of two body portions A and B, an eye C in the outer end of each, a dovetailed groove D in the portion A, a tongue E on the portion B for engaging such groove, a notch F in said tongue, a catch in the said portion A adapted to move at right angles to the said tongue and groove, which consists of a stem *b* having a button *a* and a disk *c* at its outer and inner ends respectively, the latter to enter the groove D and engage the notch F of the tongue E when the latter is seated in the groove and a spring for keeping the said catch normally raised within the said groove D as set forth and for the purposes described.

698,596. DRAFT AND BUFFING RIGGING. RICHARD D. GALLAGHER, Jr., New York, N. Y., assignor to Standard Coupler Company, New York, N. Y., a Corporation of New Jersey. Original application filed Aug. 28, 1901, Serial No 73,287. Divided and this application filed Dec. 5, 1901. Serial No. 84,803. (No model.)



Claim.—1. In an apparatus designed to take up draft and buffing strains applied to opposite ends thereof through the medium of a pressure-transmitting member, the combination of a yielding pressure-resisting member, a follower at one end of said yielding member and having inclined friction-faces, a longitudinally-movable secondary pressure-transmitting member having inclined friction-faces with connections between said secondary pressure-transmitting member and pressure-transmitting member whereby the former is moved longitudinally under strains in one direction, a stop for arresting its movement under strains in the opposite direction, a follower-plate and wedge-blocks located in the chambers between the inclined friction-faces and the follower-plate; substantially as described.

2. In an apparatus of the class described, the combination of a secondary pressure-transmitting member having inclined friction-faces and movable in one direction with means for holding it against movement in the opposite direction, a follower having inclined friction-faces and movable in a direction opposite to the direction of movement of the secondary pressure-transmitting member, a yielding pressure-resisting member coöperating with the follower, wedge-blocks located between said inclined friction-faces on the follower and secondary pressure-transmitting member, a follower-plate coöperating with said wedge-blocks and means for holding the follower-plate against movement away from the follower, whereby under strains applied to the follower-plate in one direction or to the secondary pressure-transmitting member in the opposite direction, the wedge-blocks will be moved transversely and the follower moved in a direction to compress the yielding member; substantially as described.

3. In an apparatus of the character specified, the combination of the following instrumentalities, to wit; oppositely-located followers movable toward each other but held against movement away from each other, a follower located adjacent one of said follower-plates and having inclined friction-faces, a spring confined between said follower and the opposite follower-plate, a secondary pressure-transmitting member located between

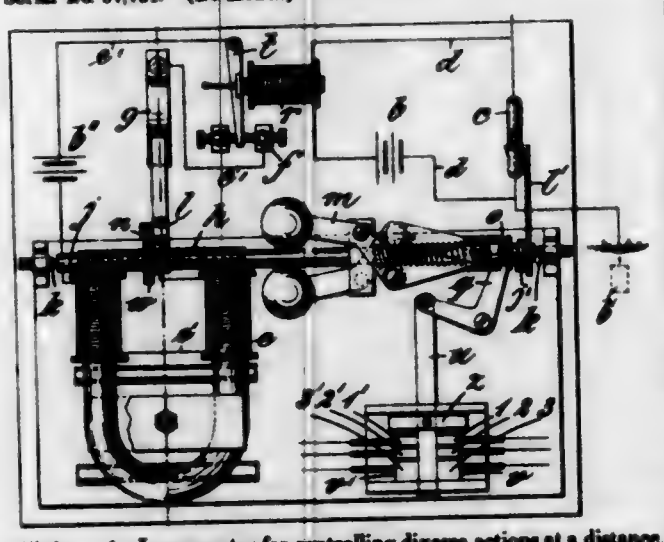
said plates and having inclined friction-faces, wedge-blocks located between the follower-plate and friction-faces on the follower and secondary pressure-transmitting member, respectively, and means whereby the opposite follower-plate and secondary pressure-transmitting member may be advanced in unison and the spring compressed from opposite ends, and whereby the advance of the follower-plate adjacent the follower, will compress the spring from one end; substantially as described.

4. In a draft-rigging the combination of follower-plates movable toward each other, a secondary pressure-transmitting member located between and engaging one of the same and having inclined friction-faces adjacent the other of said plates, a follower located adjacent the latter plate and having inclined friction-faces thereon, wedge-blocks located in the chamber between said plate and inclined faces whereby upon inward movement of either of said plates the follower will be moved in one direction, and a spring confined between said follower and the opposite follower-plate; substantially as described.

5. In a draft and buffing rigging, the combination with follower-plates movable toward each other, stops for limiting their outward movement, and a follower located adjacent one of said plates, and having inclined friction-faces, of a spring confined between said follower and the opposite plate, a secondary pressure-transmitting member surrounding said spring and having inclined friction-faces at one end and adapted to engage the plate at the opposite end, and wedge-blocks located in the chambers formed by the inclined faces on the follower and secondary transmitting member and the follower-plate at that end of the device, whereby inward movement of either plate will move the follower in a direction to compress the spring; substantially as described.

6. In a draft and buffing rigging, the combination with oppositely-located follower-plates, and a secondary pressure-transmitting member in the form of a casing interposed between and adapted to be moved by one of said plates and having at one end internal inclined friction-faces, of a follower mounted to move in said secondary pressure-transmitting member and having inclined friction-faces, said faces, the faces on the said member and the plate at that end forming angular chambers, wedge-blocks located in said chambers and a spring confined between the follower and plate at the opposite end of the device; substantially as described.

698,597. APPARATUS FOR CONTROLLING ACTIONS AT A DISTANCE. JOHN GARDNER, Fleetwood, England. Filed Dec. 30, 1901. Serial No. 87,731. (No model.)



Claim.—1. In apparatus for controlling diverse actions at a distance, a device for transmitting etheric undulations at a variable rate from the control-station, a receiving-circuit in the receptor including a coherer, a battery and a relay, a decoherer, a motor, a motor-control circuit opened and closed by the relay, a centrifugal governor driven by the motor, diverse local circuits having contiguous terminals, and a circuit-closer operated by the centrifugal governor and adapted to open and close the local circuits separately or in plurality, substantially as set forth.

2. In apparatus for controlling diverse actions at a distance, a device for transmitting etheric undulations at a variable rate from the control-station, a receiving-circuit in the receptor including a coherer a battery and a relay, a motor, a motor-control circuit opened and closed by the relay, a centrifugal governor driven by the motor, diverse local circuits having contiguous terminals, and a circuit-closer operated by the governor to open and close the local circuits separately or in plurality, substantially as set forth.

3. In a receptor in which diverse actions are controlled from a distance by etheric undulations, a receiving-circuit including a coherer a battery and a relay, a decoherer, a motor, a motor-control circuit opened and closed by the relay, a centrifugal governor driven by the motor, diverse local circuits having contiguous terminals, and a circuit-closer operated by the centrifugal governor and adapted to open and close the local circuits separately or in plurality, substantially as set forth.

4. In a receptor in which diverse actions are controlled from a distance by etheric undulations, a receiving-circuit including a coherer a battery and a relay, a motor, a motor-control circuit opened and closed by the relay, a centrifugal governor driven by the motor, diverse local circuits having contiguous terminals, and a circuit-closer adapted to open and close the local circuits separately or in plurality, substantially as set forth.

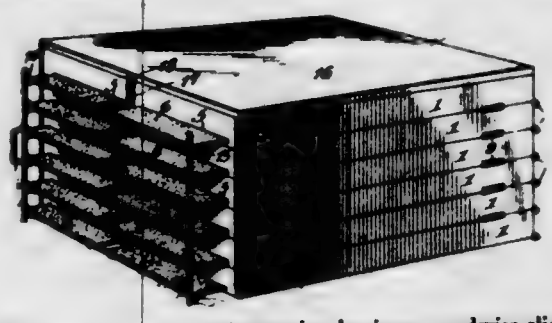
5. In a receptor in which diverse actions are controlled from a distance by etheric undulations, a motor, a motor-control circuit a receiving-circuit, a relay in said receiving-circuit arranged to open and close the motor-control circuit, a centrifugal governor driven by the motor, diverse local circuits having contiguous terminals, and a circuit-closer adapted to open and close the local circuits separately or in plurality, substantially as set forth.

6. In a receptor in which diverse actions are controlled from a distance by etheric undulations, a motor, a motor-control circuit a receiving-circuit, a relay in said receiving-circuit arranged to open and close the motor-control circuit, a centrifugal governor driven by the motor, and a sliding part connected with the governor and adapted to open and close diverse local circuits, substantially as set forth.

7. In a receptor in which diverse actions are controlled from a distance by etheric undulations, a centrifugal governor, a ratchet-wheel and pawl for driving the same, an electromagnet having a movable armature, an arm attached to said armature and carrying said pawl, a magnet-circuit opened and closed by said arm, a battery in the magnet-circuit, a receiving-circuit and a relay in the receiving-circuit operating to additionally open and close the magnet-circuit, substantially as set forth.

8. In a transmitter by means of which diverse actions are controlled at a distance by etheric undulations, means for periodically producing the undulations so that there may be in different units of time, different sums of the periods of transmission, the said means comprising a segment having part of its periphery conductive and part non-conductive, a contact-spring capable of being moved upon the periphery of the segment and a rotated crank reciprocating the spring through a connecting-rod, substantially as described.

698,598. EGG-PRESERVING APPARATUS. HUGH GLACKEN Conroe, Tex. Filed July 20, 1901. Serial No. 69,129. (No model.)



Claim.—1. An egg-turning device, having an endwise-slidable and flexible turning-strip formed of oil-cloth, the oiled surface of which is constructed to form a bearing-surface, and its opposite face being provided with a coating of adhesive material, and a surface layer of sand.

2. An egg-turning device having an endwise-slidable and flexible turning-strip formed of oil-cloth, the oiled surface of which is constructed to form a bearing-surface and its opposite face being provided with a coating to form a frictional egg-engaging surface.

3. In a device of the character described, the combination with a plurality of endwise-movable egg-turning strips, of rods connecting the corresponding ends of adjacent strips, and an operating device having an intermediate handle and laterally-projected hooks for detachable engagement with the respective rods of the egg-turning strips.

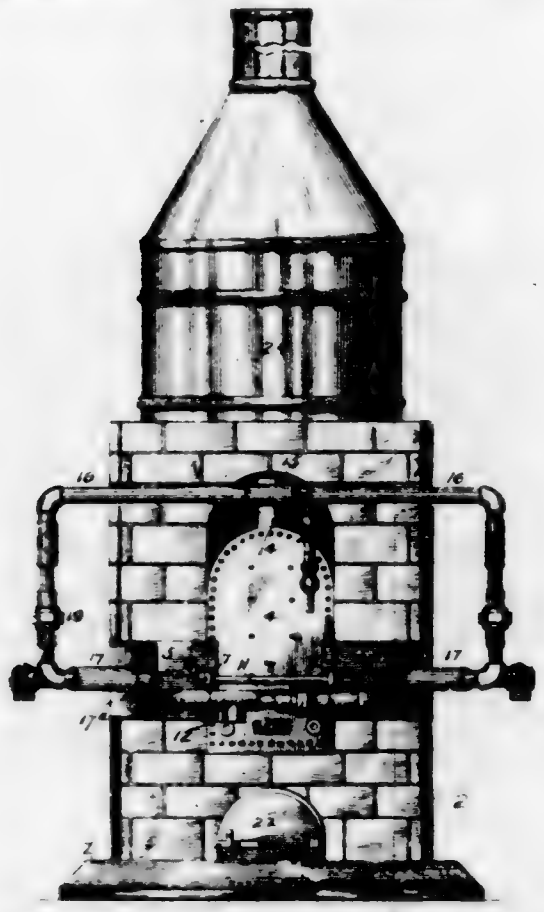
4. In a device of the character described, the combination of a plurality of superposed egg-containers, endwise-movable egg-turning strips within the respective containers and projected outwardly in opposite directions through the opposite ends thereof, eyes provided upon the opposite ends of the strips, rods passed through the corresponding eyes of adjacent strips and provided with opposite terminal eyes, and an operating device consisting of opposite upright rods having intermediate handles and laterally-projected hooks constructed for detachable engagement with the terminal eyes of the respective transverse rods.

5. A device of the character described, having endwise-movable egg-turning strips which are disposed side by side and in substantially horisontal alinement, terminal eyes provided upon opposite ends of the strips, and rods passed through the eyes of adjacent strips at corresponding ends thereof, whereby said strips are connected for simultaneous movement.

6. A device of the character described comprising a plurality of su-

perposed sections, each of which has a closed bottom and an open top, a cover for the uppermost section, and opposite helical springs having terminal hooks for engagement with the cover and the body of the lowermost section.

693,599. LIMEKILN. WILLIAM GLEASON, South Glens Falls, N. Y. Filed May 4, 1901. Serial No. 58,788. (No model.)



Claim.—1. The combination with an angular kiln having a series of radial openings in its corners, a series of injectors projecting into said openings so as to all discharge toward the center of the kiln and means for supplying oil and steam to said injectors.

2. The combination with an angular kiln, of burner-tubes projecting radially through the corners of the kiln, a steam-pipe communicating with each burner-tube and an oil-supply pipe arranged to discharge in rear of the outlet of the steam-pipe and enter the burner-tube with the steam.

3. The combination with an angular kiln having radial openings in its corners, of injectors entering said radial openings, means for supplying oil to the injectors, a boiler located in one wall of the kiln and heated thereby and steam-pipes connecting the boiler and injectors.

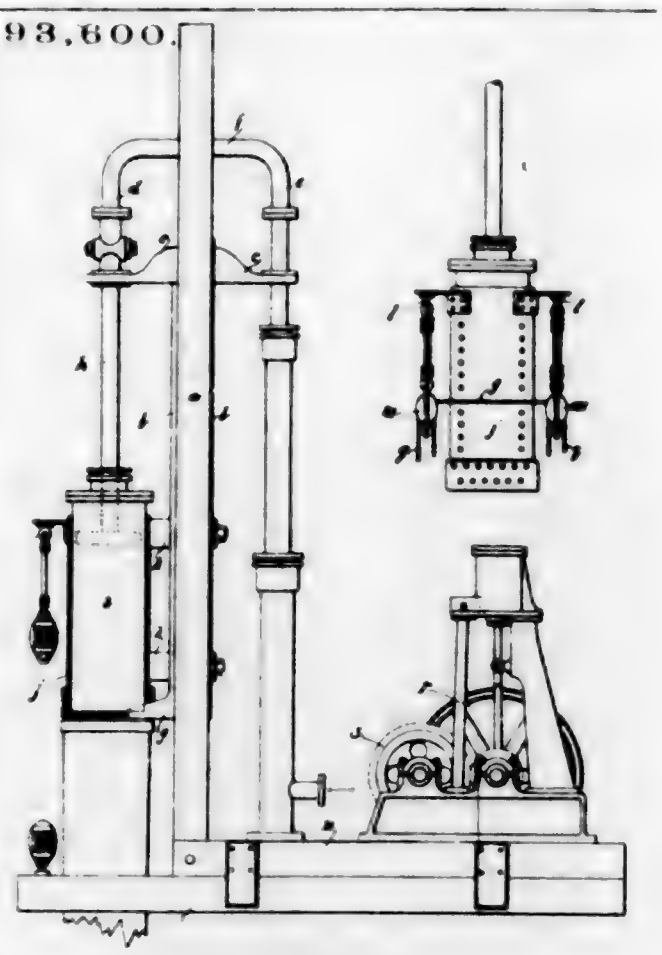
4. The combination with a kiln, of a water-jacketed burner-tube in said kiln, means for permitting a continuous flow of water through the jacket, and means for supplying oil to the burner.

5. The combination with an angular kiln, of water-boxes in the corners thereof, supply and escape pipes connecting said boxes, and burner tubes projecting through said boxes.

6. The combination with an angular kiln, of water-boxes in the corners thereof, supply and escape pipes connecting said boxes, injectors, burner-tubes communicating with the injectors and projecting through the water-boxes, and oil-supply devices for said injectors, a boiler in the wall of the kiln and steam connection between the boiler and injectors.

7. In a kiln, the combination with an outer wall of stone, and an inner wall of fire-brick terminating near the top of the stone wall, of a capring on the top of the brick wall, an approximately conical combustion-chamber and smoke-stack on said ring, a trough-shaped bottom in said kiln and a draw-hole door in the front of the kiln at the bottom thereof to permit the removal of the lime.

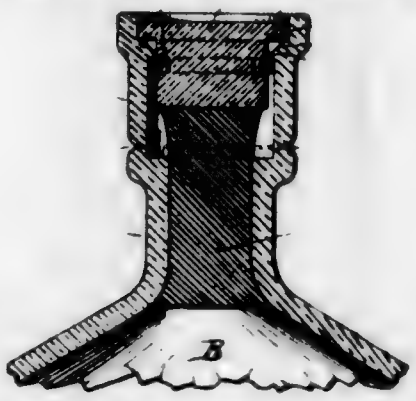
693,600.



693,600. STEAM PILE-DRIVER. JOHANNES GRAPENGETER, Hamburg, Germany. Filed Dec. 10, 1900. Serial No. 39,433. (No model.)

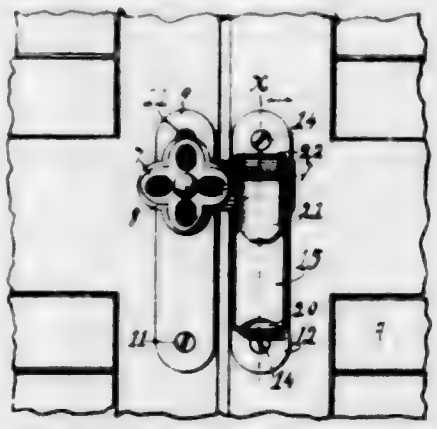
Claim.—A steam pile-driver having a ram-block in shape of a steam-cylinder placed in a casing which is set upon the pile to be driven and receives the strokes of said steam-cylinder, against its bottom, in combination with rope connection of tackles with different pulleys between the casing and the foundation of the pile-driver and with a drum of the engine, whereby a continuous pressure is exerted upon the pile through the casing in the longitudinal direction of the pile.

693,601. NON-REFILLABLE BOTTLE. CLARENCE F. HEATH, Providence, R. I., assignor of one-half to Edward E. Dodge, Saylesville, R. I. Filed Oct. 28, 1901. Serial No. 80,335. (No model.)



Claim.—In a non-refillable bottle, the combination with a head provided with an internal circumferential ledge near its top, of an annular shoulder below said ledge having a beveled upper face, a plug having a circumferential shoulder seated on the aforesaid ledge and a lower external circumferential groove, and a circular metallic ring seated in the latter groove engaging the lower face of the annular shoulder.

693,602. LOCK. FREDRICK A. HICKSON, Atlanta, Ga. Filed Aug. 10, 1901. Serial No. 71,626. (No model.)



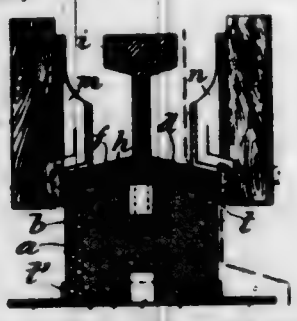
Claim.—1. The combination in locks, of a bolt adapted to swing on one of the members which are to be locked together; a box-shaped keeper open at one end to receive the said bolt and adapted to be fastened to the other of the said members; a latch pivoted in the said box

and having a hook to engage the said bolt; a second latch pivoted in the box and having a foot fitted to rest by gravity as a brace between its pivot and the first-named latch; the second latch being also fitted to swing out of the path of the said first latch; and a third latch also pivoted in the said box and having one short arm and one long arm, the short arm being adapted to extend as a brace from the pivot of this latch to the first-named latch when the long arm of this third latch hangs normally, and further adapted to swing the said short arm out of the path of the said first-named brace by the act of raising the long arm, substantially as described.

2. In locks, a bolt pivoted to swing; a keeper for this bolt; a hook-latch for the bolt and two locking-latches for the hook-latch pivoted in the keeper-box; one of the said locking-latches having a long foot and hung to swing over forward and the other locking-latch having a brace to engage the said hook-latch and adapted to swing under and forward to release the said hook-latch, substantially as described.

3. In locks, a bolt pivoted to swing; a keeper for this bolt; a hook-latch for the bolt and two locking-latches for the hook-latch all pivoted in the keeper-box; the two locking-latches being hung in line of each other and arranged as described whereby the raising of the long arm of one locking-latch will push the other locking-latch and with it the hook-ing-latch into service, and the normal falling of the said long arm will locate the short arm of the said one locking-latch as a second lock to the said hook-latch.

693,603. **THIRD-RAIL INSULATOR FOR ELECTRIC RAILWAYS.** CHARLES M. HOWE, Baltimore, Md., assignor of one-half to Harold P. Brown, Montclair, N. J. Filed July 24, 1901. Serial No. 69,463. (No model.)



Claim.—1. The combination with a block of insulating material, of a rail-receiving cap, the insulating-block and the cap having a dovetailed or undercut connection arranged to secure the parts together against relative displacement both laterally and longitudinally, substantially as set forth.

2. The combination with a block of insulating material of a base for supporting the block, the insulating-block and the base having a dovetailed or undercut connection arranged to secure the parts together against relative displacement both laterally and longitudinally, substantially as set forth.

3. The combination with a block of insulating material, of a cap-plate and base-plate, the said cap and base plates each having a dovetailed or undercut connection with the block of insulating material to hold the parts assembled, substantially as set forth.

4. The combination with a block of insulating material having an undercut socket therein, of a bearing-plate provided with malleable-metal walls projecting therefrom adapted to enter the socket for locking the bearing-plate and insulating-block together, substantially as set forth.

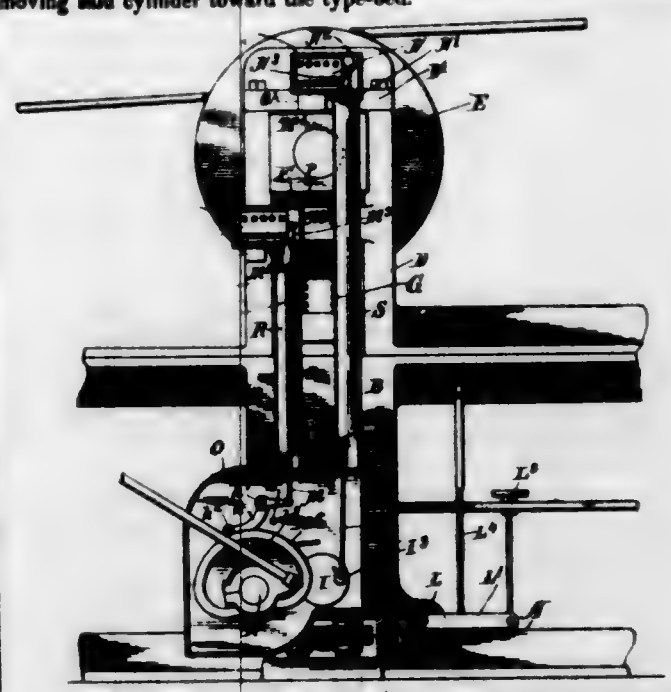
5. The combination with a block of insulating material, of a cap-plate for receiving the third rail, the said cap-plate having ears provided with vertically-elongated slots, means for locking the cap to the insulating-block, guard-boards and means for locking the guard-boards to the said ears to permit the rail and guard-boards to move relatively to the insulator, substantially as set forth.

6. The combination with a block of insulating material, of means for suspending a conductor-bar on the side of the block between the cap and base, the said cap-plate being provided with means for supporting guard-boards in a position other than vertical and the said cap and base plates being also provided with means for attaching them to the insulator-block, substantially as set forth.

693,604. **REGISTER.** HOMER W. HOWE, Chicago, Ill. Filed Jan 26, 1901. Serial No. 44,320. (No model.)

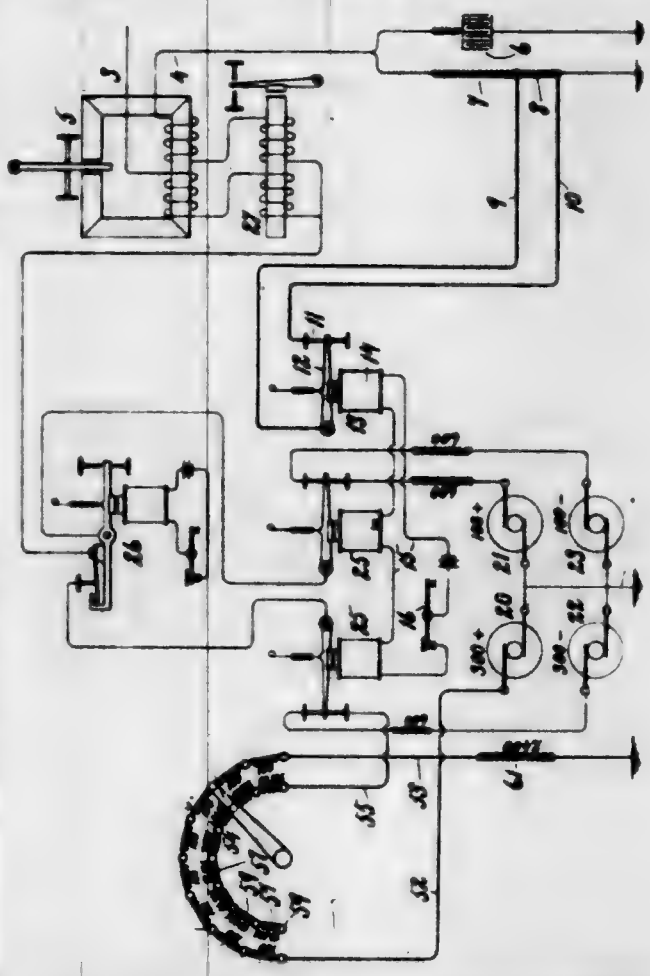
Claim.—1. In a printing-press, the combination with a continuously-movable part which actuates one of the principal elements of the press, and an intermittingly-movable part which is connected with another principal element of the press, of a registering device actuated by said continuously-movable part, and a second registering device actuated by said intermittingly-movable part.

2. In a printing-press, the combination with a reciprocatory type-bed, a rotative impression-cylinder, and means for moving said cylinder toward and from the said bed, of a registering device which is connected with and actuated by said bed or its actuating mechanism, and a second registering device which is connected with and actuated by the means for moving said cylinder toward the type-bed.



3. In a printing-press, the combination with a continuously movable part which actuates one of the principal elements of the press, and an intermittingly-movable part which is connected with another principal element of the press, of a registering device actuated by said continuously-movable part, a second registering device which is connected with said intermittingly-movable part, and a casing or inclosure surrounding both of said registering devices and the moving parts through which they are connected with said continuously and intermittingly movable parts of the press.

693,605. **TELEGRAPH.** FERNAND E. D'HUMY, Boston, Mass. Filed Oct. 14, 1901. Serial No. 78,525. (No model.)



Claim.—1. In a telegraph system, a main line, an artificial line, a polarized receiver, pole-changing means, and current-supplying means, arranged substantially as described, and means having provisions automatically to increase the resistance of the artificial line when a positive pole is placed to line and to decrease said resistance when a negative pole is placed to line.

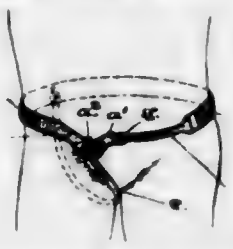
2. In a telegraph system, a main line, an artificial line, a polarized receiver, and pole-changing means, arranged substantially as described, an added resistance in the artificial line, and a switch connected to open and close synchronously with the periods of the pole-changing means and arranged to cut in and cut out said added resistance.

3. In combination, a resistance-conductor, a second resistance-conductor, and a movable device having a series of predetermined positions in which it connects a series of points of the first resistance-conductor with a series of points of the second resistance-conductor, the arrangement being such that the joint resistance of the two portions of the first resistance-conductor on opposite sides of the tap-point added to the resistance of the second resistance-conductor on one side of the tap-point is substantially a constant quantity in all of said positions of the movable device.

4. In a duplex telegraph system, a sending and receiving wire having a sectional resistance divided by a series of tap-points, a grounded wire having a sectional resistance similarly divided, means to send current impulses through said grounded wire, and a movable device having provisions for tapping the sending and receiving wire from different points in its resistance onto the grounded wire at different points of the latter's resistance.

5. In a telegraph system, a main line, an artificial line, and a polarized receiver, arranged substantially as described, independent sources of positive and negative current, pole-changing means to connect said sources alternately with the line, and a resistance device interposed between the positive source and the pole-changing means and so arranged as to act permanently to reduce the line-voltage from the positive source below the line-voltage from the negative source, said device including a sending connection between the positive source and the pole-changing means, and a leak branching to ground from said connection.

698,606. **HERNIAL TRUSS.** ANDREW HUNTER, San Francisco, Cal. Filed Feb. 18, 1901. Serial No. 47,754. (No model.)



Claim.—1. The herein-described truss, comprising a waist-belt formed of an inelastic front strap and an elastic back strap, the front strap having a depressed middle portion and upwardly-curved ends; the convex plate secured to the front strap, and securing the strap to the pad, an angular loop standing perpendicularly out from the curved plate, and a thigh-strap attached thereto, and a pad attached to the convex back of the curved plate on the center line thereof.

2. In a truss for the relief of hernia, a waist-belt consisting of an inelastic front strap and an elastic back strap, a curved plate having the front strap attached thereto and the angular loop projecting perpendicularly from the concaved face of the curved plate and a thigh-strap attached to said loop in combination with a pad having a rounded or convex bearing-face and a flat back, and a fastening rigidly securing the curved plate to the flat back.

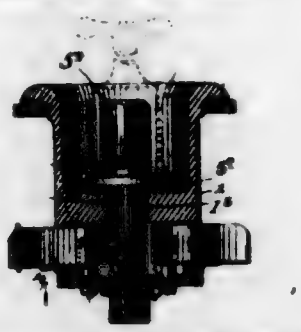
698,607. **BOX-FASTENER.** CHARLES M. JOHNSON, Milwaukee, Wis., assignor, by direct and mesne assignments, of one-half to Charles H. Coakley, William F. Coakley, and Stephen S. Cramer, Milwaukee, Wis. Filed Nov. 4, 1901. Serial No. 81,081. (No model.)



Claim.—1. A box-fastener comprising a keeper consisting of a plate provided with an outer protuberance and an upper right-angle flange having a longitudinal slot, and a latch consisting of a right-angle strip having its vertical or tongue portion provided with a longitudinal slot and an apertured outer lateral ear, the keeper and latch being respectively attachable to a wall and swing-lid of a box in such relative positions that the tongue of said latch is engageable with the flange-slot and outer protuberance of said keeper, the wire or strap of an ordinary metallic seal being engageable with the latch-ear and keeper protuberance.

2. A box-fastener comprising a keeper consisting of a plate provided with an outer protuberance and an upper right-angle flange having a longitudinal slot and depending forward lip, and a latch consisting of a right-angle strip having its vertical or tongue portion provided with a longitudinal slot and an apertured ear struck up therefrom adjacent to the slot, the keeper and latch being respectively attachable to a wall and swing-lid of a box in such relative positions that the tongue of said latch is engageable with the flange-slot and outer protuberance of said keeper, the wire or strap of an ordinary metallic seal being engageable with the latch-ear and keeper protuberance.

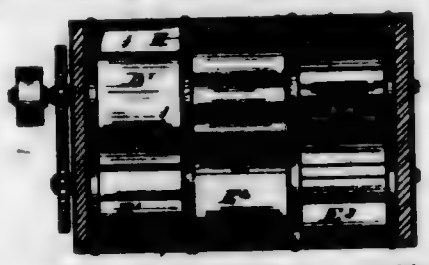
698,608. **BUNG.** FREDERICK KELLERS, Jersey City, N. J. Filed Sept. 6, 1901. Serial No. 74,501. (No model.)



Claim.—1. A bung comprising a shell having a flange near one end and a socket at the same end, a stem journaled in said shell and having its operative end located in said socket, a pair of arms alined with openings in the opposed wall of the shell adapted to be withdrawn within the same and projected therefrom, a disk connected with said stem, and pins on opposite sides of said stem connecting said disk with said arms for operating the latter, substantially as described.

2. A bung comprising a shell having a flange near one end, a socket at the same end, a chamber near the other end and a bearing portion between said socket and chamber, a stem journaled in said bearing portion and having its operative end located in said socket and its opposite end in said chamber, a pair of arms located in said chamber, the walls of said chamber having openings for the passage of said arms, a disk connected with said stem to be rotated thereby, and pins on opposite sides of said stem connecting said disk and arms, substantially as described.

698,609. **ROTARY PUMP OR FORCE-BLAST BLOWER.** JOEL KIRKWOOD, Maxey, Ind., assignor of one-half to Omer Stevens, New Salem, Ind. Filed Apr. 11, 1901. Serial No. 55,626. (No model.)



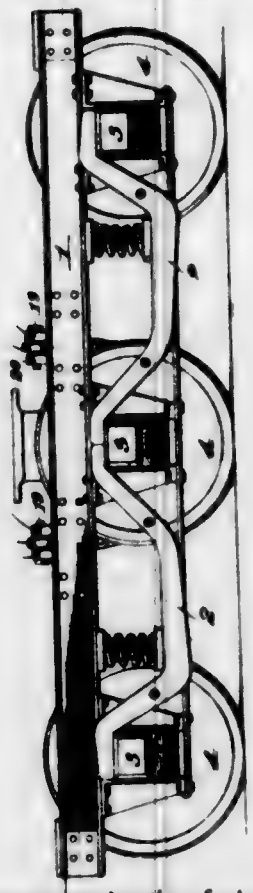
Claim.—1. The herein-described pump comprising a cylinder containing two communicating segmental cylindrical chambers and induction and eduction ports communicating with said chambers, a plurality of pairs of rotative pistons having pockets with openings thereto approximating one-fourth of the circumferential area of the piston, packing rings or disks of less diameter than the greatest diameter of the pistons separating the pistons from each other, and segmental rings extending from the walls of the case to the packing-rings and approximately of same area as that of the end of the pocket.

2. A cylinder having segmental cylindrical bores made on two centers, pistons with pockets mounted in pairs in said segmental bores, said bores emptying into chambers at top and bottom common to both having ingress and egress ports, into which chambers all of the pistons enter at each revolution thereof in order to take air or the like from the common chamber below and discharge it into a common chamber above, rings or disks partially separating the ends of adjacent pistons and flanges approximating quadrants of circles extending from the inside walls of the cylinder to the rings.

698,610. **CAR-TRUCK.** PETER M. KLINE, Elizabeth, N. J. Filed Dec. 12, 1901. Serial No. 85,618. (No model.)

Claim.—1. In a car-truck, the combination of a truck-frame, open frames secured to the sides of the truck-frame over the center wheels of the truck, bars extending across the truck-frame and secured to the sides

thereof, a frame fitting between said bars and secured at its ends to said open frames, and bolster-supporting springs suspended from said bars and said frame that fits between the bars, substantially as set forth.



2. In a car-truck, the combination of a truck-frame, open frames secured to the sides of the truck-frame over the center wheels of the truck, bars extending across the truck-frame and secured to the sides thereof, a frame fitting between said bars and secured at its ends to said open frames, and bolster-supporting springs suspended from said bars and said frame that fits between the bars by means of links with which the springs have swinging connections and which are pivotally connected to the bars and frame, substantially as set forth.

3. In a car-truck, the combination of a truck-frame, open frames secured to the sides of the truck-frame over the center wheels of the truck, a frame secured to said open frames, and bolster-supporting springs connected to the frame that is secured to the open frames, substantially as set forth.

698,611. CAR. PETER M. KLINE, Elizabeth, N. J., assignor to John Stephenson Company, Elizabeth, N. J., a Corporation of New Jersey. Filed Oct. 14, 1901. Serial No. 78,630. (No model.)

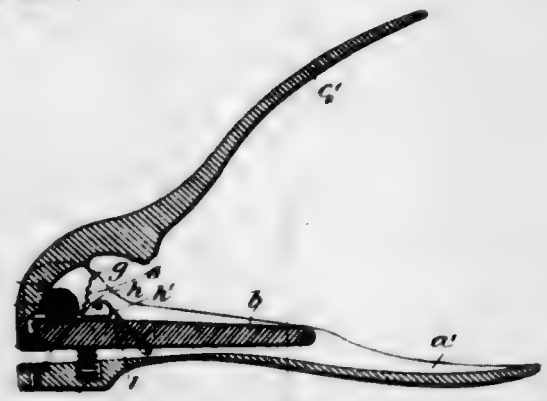


Claim.—1. In a car in combination with a window having upper and lower meeting sashes, a casing for the lower sash in the side panel, a casing for the upper sash in the car-roof between the outer roof-sheathing and the inner roof-lining, and car-posts having guides for said sashes, the lower one straight and the upper one inclined, the latter adapted to guide the upper sash through an inclined path to its position in the roof-casing, substantially as set forth.

2. In a car, the combination of a side panel having a window-casing, a window-section adapted to occupy the same, a car-roof having a window-casing, and a window-section adapted to occupy the same, the said roof-casing having inclined guides for the upper window-sections.

3. In a car, the combination of a side panel having a window-casing, a window-section adapted to occupy the same, a car-roof having a window-casing, and a window-section adapted to occupy the same, the said roof-casing having inclined fixed guides and curved spring-guides.

698,612. SEAL-PRESS. ALEXIS KRAL, New Haven, Conn., assignor to the Keystone Seal & Press Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 13, 1902. Serial No. 89,457. (No model.)



Claim.—1. A seal-press comprising a pair of jaws pivoted together and terminating in handles, one of said jaws being provided with a die and the other with a cam, a spring-actuated die-carrying bar located between the said jaws and handles, a series of ratchet-teeth carried by the cam-jaw and a spring-actuated ratchet-pawl mounted on the die-jaw, the said pawl being under the control of the cam-jaw to be thrown out of operative position as the dies approach the limit of their closing movement and under the control of the die-carrying bar to be thrown into operative position as the dies approach the limit of their opening movement.

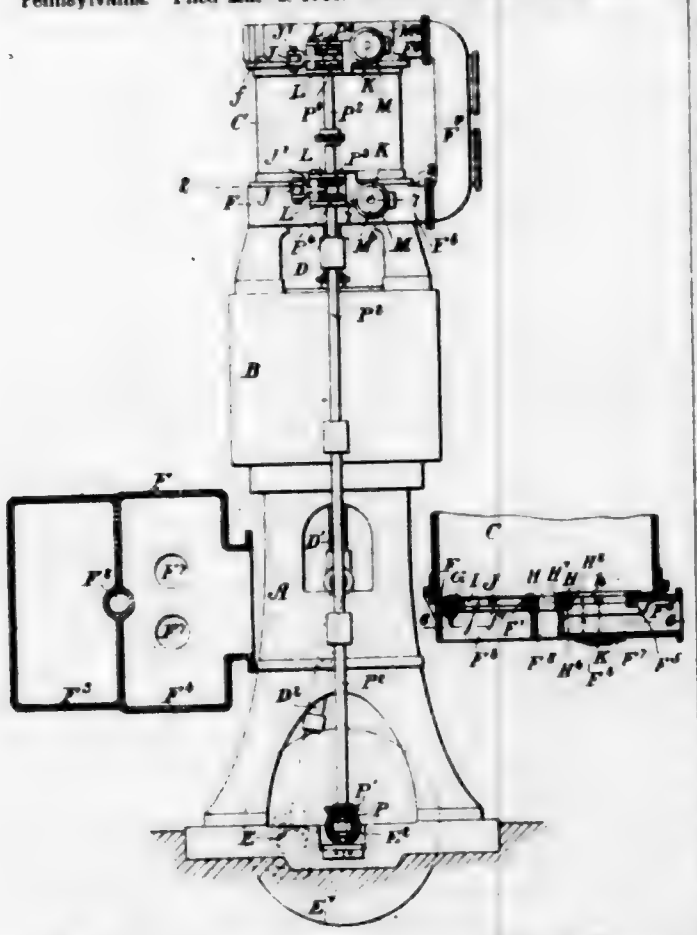
2. A seal-press comprising a die-carrying jaw, a cam-jaw pivoted to the die-jaw and provided with a series of ratchet-teeth, means for opening the jaw, a pawl pivoted to the die-jaw, a spring for holding the pawl both in and out of operative position and a spring-actuated die-carrying bar movable between the die and cam jaws, and means for throwing the pawl out of operative position as the dies approach the limit of their closing movement, the said pawl being under the control of the said die-carrying bar to be thrown into operative position as the dies approach the limit of their opening movement.

698,618. CAP. DAVID LICHTENSTEIN, New York, N. Y. Filed Mar. 20, 1901. Serial No. 51,960. (No model.)



Claim.—A cap, consisting of a body, a protector extending continuously around said body at the inside of the same, the front portion of said protector being of less width than the side and rear portions of the same, a reinforcing-strip secured to said body at the inside of the same, a lining covering said reinforcing-strip, and a connecting-band of flexible material extending continuously around the cap-body at the inside of the same, and composed of two plies attached at one edge to said protector, one ply at each side of the same, and at the other edge to said reinforcing-strip and lining, substantially as set forth.

693,614. VALVE-ACTUATING MEANS FOR BLOWING-ENGINES. CARL O. LINDROTH, Philadelphia, Pa., assignor to the Southwark Foundry & Machine Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Mar. 8, 1900. Serial No. 7,833. (No model.)



Claim.—1. In a blowing-engine, the combination with the rod of a sliding air-admission valve of a three-armed pivoted actuating-lever J J^2 J^3 pivotally attached by its arm J' to the valve-rod and having on its arms J^2 J^3 cam contacting faces or rollers j^2 j^3 arranged in parallel planes but equidistant from the pivot of the lever, a positively-driven rotating spindle P^3 and cams P^2 P^1 secured on said spindle so as to act respectively on the cam-rollers j^2 j^3, the cams and cam-rollers being so formed and arranged as to maintain contact between each cam and its roller through the revolutions of the cams.

2. In a blowing-engine, the combination with the rod of a sliding air-admission valve of a three-armed adjustably-pivoted actuating-lever J' J^2 J^3 pivotally attached by its arm J' to the valve-rod, and having on its arms J^2 J^3 cam contacting faces or rollers j^2 j^3 arranged in parallel planes but equidistant from the pivot of the lever, a positively-driven rotating spindle P^3 and cams P^2 P^1 secured on said spindle so as to act respectively on the cam-rollers j^2 j^3, the cams and cam-rollers being so formed and arranged as to maintain contact between each cam and its roller throughout the revolutions of the cams.

3. In a blowing-engine, the combination with the rod of a sliding air-admission valve of a three-armed adjustably-pivoted actuating-lever J' J^2 J^3 pivotally attached through adjustable mechanism by its arm J to the valve-rod, and having on its arms J^2 J^3 cam contacting faces or rollers j^2 j^3 arranged in parallel planes but equidistant from the pivot of the lever, a positively-driven rotating spindle P^3 and cams P^2 P^1 secured on said spindle so as to act respectively on the cam-rollers j^2 j^3 the cams and cam-rollers being so formed and arranged as to maintain contact between each cam and its roller throughout the revolutions of the cams.

693,615. SWIMMING APPLIANCE. FERDINAND MINKUS, New York, N. Y. Filed Sept. 12, 1900. Renewed June 25, 1901. Serial No. 65,996. (No model.)



Claim.—1. A swimming appliance, consisting of a suitable body, a shaft passing therethrough, pulleys on said shaft, straps wound in opposite directions upon said pulleys, two bevel-gears loose upon said shaft, a clutch mechanism adapted to place the shaft in engagement with one of said gears on movement of the shaft in one direction, and with the other on movement of the shaft in the other direction, a common bevel-pinion with which both said gears are in mesh, a propeller, and means for transmitting the motion of said bevel-pinion to the propeller, substantially as set forth.

2. A swimming appliance, consisting of a suitable body, a shaft passing therethrough, pulleys on said shaft, straps wound in opposite directions upon said pulleys, two ratchet-wheels having teeth oppositely arranged secured to said shaft, two bevel-gears loose upon said shaft and carrying each a pawl engaging with one of said ratchet-wheels, a common bevel-pinion with which said bevel-gears are in mesh, a propeller, and means for transmitting the motion of said bevel-pinion to the propeller, substantially as set forth.

3. In a swimming appliance, a power-shaft, a sleeve rotatable on said shaft, a spring secured to said sleeve and shaft, pulleys, one on the shaft and one on the sleeve, operating-straps wound on said pulleys, and means for coupling said sleeve and shaft so as to render the same relatively immovable, substantially as set forth.

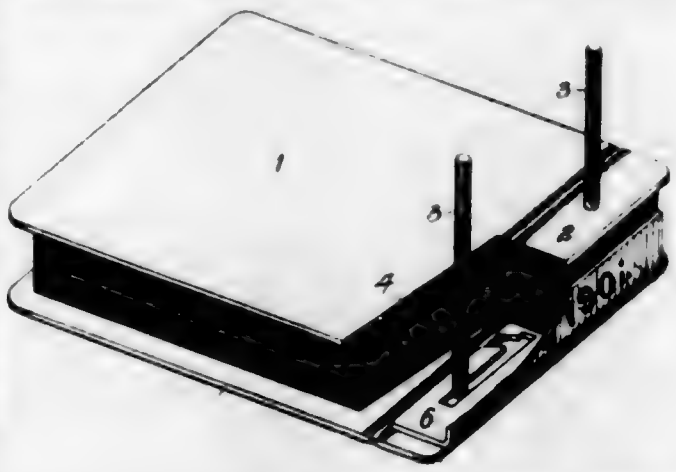
4. In a swimming appliance, a suitable body, means for securing the same to the swimmer, a propeller mounted on said body at an angle corresponding approximately to the angle of inclination of a swimmer in the water, power mechanism in said body for operating said propeller, and operating-straps connected with said power mechanism, substantially as set forth.

5. In a swimming appliance, a suitable body having two water-tight compartments of a capacity rendering the entire appliance buoyant, one of said compartments being permanently closed, power and propeller shafts extending through a wall of the other compartment, said shafts being corrugated at those portions adjacent to the walls of said compartment, and water-tight corrugated bearings in said walls for said shafts for rendering said compartment normally water-tight, substantially as set forth.

6. A swimming appliance, consisting of a body composed of two compartments, one permanently closed and of a capacity rendering the entire appliance buoyant, and suitable power mechanism in the other compartment, said compartment being provided with water-tight bearings for the shafts of said mechanism, substantially as set forth.

7. In a swimming appliance, the combination, with the body of the same, of a strap at the rear end of said body adapted to pass around the swimmer for securing the appliance thereto, and shoulder-hooks secured to said body, substantially as set forth.

693,616. TITLE-PLATE FOR BINDERS. CHARLES F. MORRHOFF, Oak Station, Pa. Filed June 29, 1901. Serial No. 66,483. (No model.)

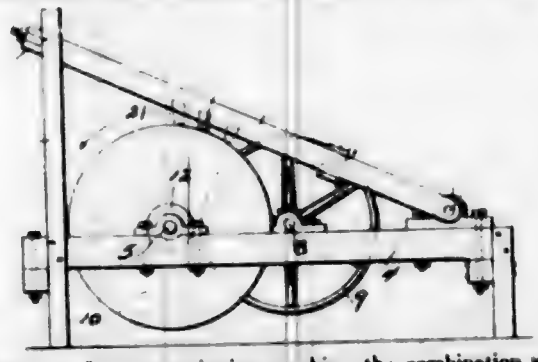


Claim.—1. The combination of a temporary binder and a title or designating plate, consisting of two portions formed integral with and arranged at an angle to each other, one of said portions forming the back of the binder and adapted to serve as a support for the title, &c., and means for detachably securing the other portion to the binder without separating the parts of the binder, substantially as set forth.

2. The combination of a temporary binder, having pins or projections and a title-plate consisting of portions arranged at an angle to each other, one of said portions being provided with slots having entering portions so formed as to require both lateral and longitudinal movements of the plate when securing the same in position and the other portion extending across the rear end of the binder and serving as a support for the title or designation, substantially as set forth.

3. The combination of a temporary binder provided with pins or projections and a title-plate provided with a flange having longitudinal slots, said slots having angularly-arranged entering portions or mouths substantially as set forth.

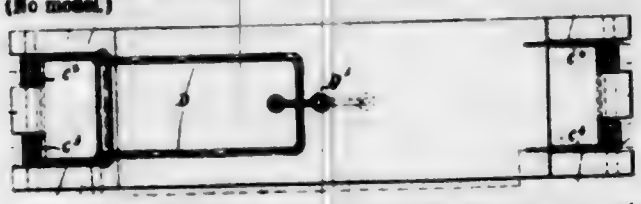
693,617. STONE-RIPPING MACHINE. MICHAEL J. O'CONNOR, Hartford, Conn. Filed Sept. 28, 1901. Serial No. 76,955. (No model.)



Claim.—1. In a stone-ripping machine, the combination with the main frame, of the shaft mounted to rotate therein and adapted to have the stone secured thereon to rotate therewith, means for rotating said shaft, a ripper-frame mounted on said main frame and adapted to move relative thereto, and a ripper-blade provided with a tooth and secured in said ripper-frame at right angles to said shaft; substantially as and for the purpose described.

2. In a stone-ripping machine, the combination with the main frame, of the shaft mounted to rotate therein and adapted to have the stone secured thereon to rotate therewith, means for rotating said shaft, a ripper-frame mounted on said main frame and adapted to move relative thereto, a plurality of ripper-blades each provided with a tooth and secured in said ripper-frame at right angles to said shaft, and means for adjusting said ripper-blades transversely of the ripper-frame and securing them in any desired position of adjustment; substantially as described.

698,618. GARMENT-SUPPORT. WILLIAM F. PARDEE and EDWARD BLOOMER, Syracuse, N. Y. Filed June 6, 1900. Serial No. 19,235. (No model.)



Claim.—1. In a garment-support, the combination of opposite elongated clamping-bars having their lengthwise edges disconnected for permitting the insertion of the garment between said edges, and independently-moving springs supported by the end of one clamping-bar, and connected to opposite portions of the end of the other clamping-bar, substantially as and for the purpose described.

2. In a garment-support, the combination of opposite elongated clamping-bars having their lengthwise edges disconnected for permitting the insertion of the garment between said edges, and independently-moving springs supported by the end of one clamping-bar and pivotally connected to opposite portions of the ends of the other clamping-bar, substantially as and for the purpose specified.

3. In a garment-support, the combination of opposite elongated clamping-bars having their lengthwise edges disconnected for permitting the insertion of the garment between said edges, and having opposite portions of corresponding end edges formed with inwardly-extending cut-outs, and independently-movable springs arranged in the cut-outs of one clamping-bar and formed with separated arms projecting into the cut-outs of the other clamping-bar and pivotally connected to said other clamping-bar, substantially as and for the purpose set forth.

4. In a garment-support, the combination of a clamping-bar, a second clamping-bar having one end connected to one end of the first clamping-bar, a movable member having one end pivotally connected to the opposite end of the first clamping-bar and engaged with the second clamping-bar, and means connecting the movable member and one of the clamping-bars for holding said movable member in operative position, substantially as and for the purpose described.

5. In a garment-support, the combination of a clamping-bar, a second clamping-bar having one end connected to the first clamping-bar, a substantially rigid movable member having one end connected to the first clamping-bar, said member being lapped upon the second clamping-bar, and means connecting the movable member and one of the clamping-bars for holding said movable member in operative position, substantially as and for the purpose set forth.

6. In a garment-support, the combination of a clamping-bar, a second clamping-bar having one end connected to the first clamping-bar, a substantially rigid movable member having one end pivotally connected to the first clamping-bar, and a movable locking member supported by the second clamping-bar for holding said movable member in operative position, substantially as and for the purpose described.

7. In a garment-support, the combination of separable clamping-bars, means for forcing one end of one clamping-bar toward the other bar, a spring connected to the opposite end of one clamping-bar, and a movable member pivotally connected to said spring and cooperating with the other clamping-bar, substantially as and for the purpose specified.

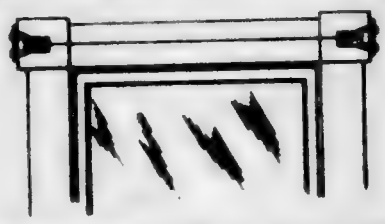
8. In a garment-support, the combination of separable clamping-bars, means for forcing one end of one clamping-bar toward the other bar, a spring pivotally connected to the opposite end of one clamping-bar, a movable member connected to said spring and lapped upon the other clamping-bar, and means for holding the movable member in operative position, substantially as and for the purpose set forth.

9. In a garment-support, the combination of separable clamping-bars, independently-movable springs for forcing different portions of one of the ends of one clamping-bar toward the other clamping-bar, independently-movable springs connected to different portions of the opposite end of one clamping-bar, and a movable member pivotally connected to the latter springs and to the other clamping-bar, substantially as and for the purpose described.

10. In a garment-support, the combination of separable clamping-bars, independently-movable springs for forcing different portions of one of the ends of one clamping-bar toward the other clamping-bar, independently-movable springs connected to different portions of the opposite end of one clamping-bar, a movable member pivotally connected to the latter springs and lapped upon the other clamping-bar, and means for holding the movable member in position, substantially as and for the purpose specified.

11. In a garment-support, the combination of a clamping-bar having each of its opposite ends provided with a plurality of cut-outs and grooves leading from the inner sides of the cut-outs, a second clamping-bar of less length than the first clamping-bar arranged between said cut-outs, springs supported in the cut-outs of the first clamping-bar and having yielding arms movable in the corresponding grooves, the arms movable in the grooves in one end of the first clamping-bar being pivoted independently to the second clamping-bar, a movable member pivoted to the other spring-arms and lapped upon the second clamping-bar, and a locking member supported by the second clamping-bar and engaged with the movable member, substantially as and for the purpose set forth.

693,619. SHADE AND CURTAIN HANGER. JOHN PFEIFER, Springfield, Ohio. Filed Mar. 21, 1901. Serial No. 52,158. (No model.)



Claim.—1. The combination with the side pieces having slots therein, of frames having arms projecting through said slots, lugs formed on said arms to engage the opposite sides of said side pieces, and means between said frames to tighten and lock said lugs to the side pieces, substantially as specified.

2. The combination with the side pieces having longitudinal slots therein, of frames having arms projecting through said slots with lugs formed thereon to engage opposite sides of said side pieces, whereby the parts may be adjusted to the depth of the window-casing, and means between said frames to tighten and lock said lugs to the side pieces, substantially as specified.

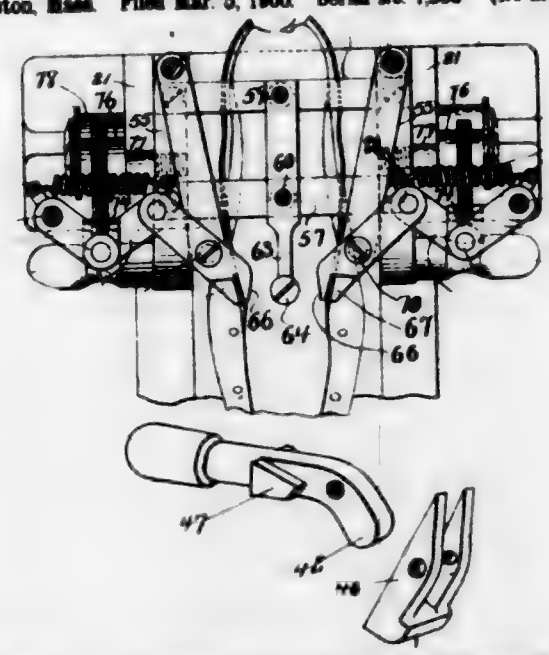
3. The combination with the side pieces having slots therein, of frames having arms projecting at an angle to their planes through said slots, leaving a space under said arms adjacent to said side pieces to avoid the molding of the window-casing, lugs on said arms to engage opposite sides of said side pieces, and means between said frames to tighten and lock said lugs to the side pieces, substantially as specified.

4. The combination with the interlocking frames and side pieces, said frames having longitudinal slots therein, of shade-holders slidingly mounted in the slots of the frames, their bases being formed to rest on the window-casing and engage the under side of said frames, and means connecting said frames and engaging said shade-holders outside of said frames to tighten said shade-holders in their adjusted position, substantially as specified.

5. The combination with the side pieces having longitudinal slots therein and bosses at their rear ends, of frames carrying shade-holders adjustably mounted therein with their bases formed to rest on the window-casing and engage the under side of said frames, arms on said frames projecting at an angle to the plane of said frames and to said side pieces and having interlocking lugs to engage the opposite sides of said side pieces through the slots in same, a pin in the outer end of one of said frames and a spool with a ratchet and pawl for same at the outer end of the

other frame, and a cord extending from said pin to said spool passing through each of said shade-holders, whereby said frames and shade-holders and side pieces are adjusted and tightened in place, substantially as specified.

693,620. **PULLING-OVER MACHINE.** ALBERT F. PRESTON, East Boston, Mass. Filed Mar. 5, 1900. Serial No. 7,350. (No model.)



Claim.—1. A machine of the character described comprising oppositely-arranged pincers, mechanism for operating said pincers simultaneously, and mechanism for causing said pincers to pull successive portions of the edge of the upper over the sole, in lines either at right angles or oblique to the median line of the said shoe, as desired.

2. A machine of the character described comprising two pincers arranged to grip both edges of the upper at opposite points, means for operating said pincers, and mechanism for causing said pincers to pull over the two edges of the upper successively at points farther and farther removed from the end of the partially-formed shoe, said mechanism including a shoe-support movable in a line transverse to the lines of pull of the pincers, and also adapted to swing about an upright axis.

3. A machine of the character described comprising oppositely arranged and acting pincers, a support for the partially-formed shoe, provisions whereby said shoe may be positioned with its median line either perpendicular or oblique to the lines of pull of the pincers, and means whereby the said support and pincers are moved longitudinally of the shoe relatively to each other, after each operation of the pincers.

4. A machine of the character described comprising oppositely arranged and acting pincers for grasping opposite edges of the upper, a support for the partially-formed shoe, movable longitudinally and transversely of the median line of the shoe-sole in a plane substantially parallel to that of the sole, and means for moving the support between the pincers, whereby said pincers may be caused to grasp and pull over the upper at successive points farther and farther removed from the end of the shoe.

5. A machine of the character described comprising two pincers arranged to grip the opposite side edges of the upper, and means for causing said pincers to pull over successive portions of said edges, and provisions including a yielding support for the last movable with respect to the pincers for equalizing the strain on the said edges.

6. A machine of the character described comprising pincers arranged to grip the opposite side edges of the upper, and means for causing said pincers to pull over successive portions of said edges, and provisions including a yielding shoe-support movable with respect to said pincers for pulling the said opposite edges of the upper to the same extent over the side edges of the sole irrespective of the contour of said sole.

7. A machine of the character described comprising pincers for simultaneously grasping the opposite side edges of the upper to pull over successive portions of said side edges farther and farther removed from the end of the last, means for actuating said pincers and provisions whereby the jaws of the pincers are movable in lines perpendicular to the sole to follow the face of the said sole.

8. A machine of the character described comprising pincers for simultaneously grasping the opposite side edges of the upper, provisions whereby the pincers and the partially-formed shoe are movable longitudinally of said shoe relatively to each other, and mechanism for actuating said pincers, said mechanism having means for permitting the pincers to yield in lines perpendicular to the sole and thereby maintaining the jaws of the pincers at a certain distance from the face of the sole.

9. A machine of the character described comprising oppositely-arranged pivoted pincers for grasping the opposite edges of the upper, said pincers lying substantially parallel to the plane of the sole and longitudinally of the median line of the sole, and means for closing and moving the jaws of said pincers toward the median line of the sole of the shoe, whereby the pincers when operated move in a plane substantially parallel to the sole of the shoe.

10. A machine of the character referred to comprising a pincer for grasping the edge of an upper, arranged parallel to the plane of the sole, said pincer having one of its jaws extended longitudinally of the median line of the sole and pivoted at its end on a relatively stationary fulcrum, and means connected to the other jaw for closing said jaws and swinging said pincer bodily about said fulcrum in a plane parallel to the plane of the sole.

11. A machine of the character described comprising a support, a pincer arranged longitudinally of the sole and substantially parallel to the plane of the said sole, said pincer having one jaw rearwardly extended and fulcrumed on said support, and a toggle connected to the rear end of the other jaw and to a stationary pivot, said toggle being thereby adapted to close said jaws and swing said pincer bodily about the fulcrum for the elongated jaw transversely of the sole.

12. A machine of the character described comprising a support for the partially-formed shoe, pincers for engaging opposite portions of the edges of the upper, and a tilting head for supporting said pincers, said tilting head being maintained in position by the sole of the shoe on the support.

13. A machine of the character described comprising a support for the partially-formed shoe, pincers for engaging opposite portions of the edges of the upper, a movable head for supporting said pincers and adapted to rest upon the sole of the shoe, to follow the face thereof and means for moving said head and shoe-support one relatively to the other, in lines longitudinal of the shoe.

14. A machine of the character described comprising a support for the partially-formed shoe, pincers for engaging opposite portions of the edges of the upper, a tilting head for supporting said pincers, and means for advancing said shoe-support under said head whereby said pincers may be caused to grasp successive portions of the said edges of the upper, farther and farther removed from the end of the shoe.

15. A machine of the character described comprising a support for the partially-formed shoe, pincers for engaging opposite portions of the edges of the upper, a head for supporting said pincers, and mechanism for alternately operating said pincers and feeding the shoe relatively to the pincers.

16. A machine of the character described comprising a support for the partially-formed shoe, pincers for engaging opposite portions of the edges of the upper, means for actuating said pincers to draw the edges of the upper toward each other, said shoe-support being moved in lines longitudinal of the shoe relatively to the pincers, and being capable of a rotative movement relatively to said pincers, whereby said pincers may operate in lines oblique to the median line of the sole.

17. A machine of the character described comprising a base, a head on said base, oppositely-arranged pincers pivoted on said head, a shoe-support mounted to slide on said base to cause the pincers to engage successive portions of the edges of the upper, and means for alternately actuating the pincers and the shoe-support.

18. A machine of the character described comprising a base, a shoe-support movable along said base, a head movably mounted on said base and arranged above said shoe-support whereby it may rest upon the shoe, pincers mounted on said head and having their jaws movable toward the median line of the shoe on the support, and means for alternately operating said pincers and feeding said shoe-support.

19. A machine of the character described comprising a base, a head, oppositely-arranged pincers on said head adapted to grip opposite edges of the upper, and a shoe-support adapted to yield to the action of the pincers.

20. A machine of the character described, comprising a base, a head, oppositely-arranged pincers on said head adapted to grip opposite edges of the upper, and a shoe-support on which a shoe may be loosely supported, said support being adapted to permit the shoe to yield in the line of least resistance when the pincers are operated.

21. A machine of the character described comprising a base, a support on which the partially-finished shoe may loosely rest to yield to the action of the pincers, pincers, a head for said pincers, and provisions whereby said head holds the shoe on the said support, said head and said support being movable one with respect to the other in lines longitudinal of the shoe.

22. A machine of the character described comprising a shoe-support, means for gripping the upper at the end of the shoe to square the toe-cap on the last, two oppositely-arranged pincers, and means for causing said pincers to pull over the opposite edges of the upper at points farther and farther removed from the gripping means.

23. A machine of the character described comprising pulling-over

devices, means for steadying the end of the shoe, and means on a portion of which the pulling-over devices are mounted for steadying the body of the shoe.

24. A machine of the character described comprising oppositely-arranged pincers, a head for supporting said pincers, a slide carrying a shoe-support, and a post on said slide carrying a gripper for the end of the shoe-upper.

25. A machine of the character described comprising two oppositely-acting pincers, adapted to pull over successive portions of the side edges of the upper, and means for squaring the end of the upper, said means and said pincers being movable one with respect to the other in lines longitudinal of the shoe.

26. A machine for lasting boots and shoes having a non-yielding gripper for grasping the end of the upper during the lasting operation, a holddown which operates the gripper, and a pintle on which said gripper and holddown are both fulcrumed.

27. A machine for the manufacture of boots and shoes having a standard, a yielding support for the toe end of the shoe, a holddown pivoted on said standard for forcing the shoe against said support, and a jaw operated by the holddown and coacting with the standard for positively grasping the upper to prevent it from yielding.

28. A machine for lasting boots and shoes having a yielding support for the toe end of the shoe and non-yielding mechanism for permanently gripping the toe end of the upper during the lasting operation and forcing the shoe against said yielding support to stretch the upper longitudinally.

29. A machine for the manufacture of boots and shoes having a non-yielding gripper for the end of the upper, a non-yielding holddown movable with respect to said gripper, and means whereby one of said elements is operated positively by the other.

30. A machine for the manufacture of boots and shoes having a gripper for the end of the upper, a holddown movable with respect to said gripper, and projections on said holddown for operating said gripper.

31. A pulling-over machine comprising the following instrumentalities, to wit: oppositely-disposed pincers adapted to engage and stretch the upper of a partially-formed shoe; a support for said pincers; a support for the last on which the said shoe is placed; one of said supports being movable with respect to the other and being likewise movable about a center of motion; and means for actuating said pincers; said instrumentalities being combined, whereby after each actuation of the pincers to stretch the upper, the last-support may be moved to cause the pincers to engage the upper at other points, and said last may be positioned obliquely with respect to the line of pull of the pincers.

32. A pulling-over machine comprising the following instrumentalities, to wit: oppositely-disposed pincers adapted to engage and stretch the upper of a partially-formed shoe; a support for said pincers; a support for the last on which the said shoe is placed; one of said supports being movable with respect to the other; means for actuating said pincers; said instrumentalities being combined, whereby after each actuation of the pincers to stretch the upper, the last-support may be moved to cause the pincers to engage the upper at other points; and means whereby the operative portions of the pincers rise and fall to follow the curved face of the sole, as one support is moved relatively to the other.

33. A pulling-over machine comprising a support, oppositely-disposed pincers on said support adapted to stretch the upper of a partially-formed shoe upon a last, and a slide on said support carrying a support for the last and partially-formed shoe, said slide being movable with respect to said stretching-pincers whereby after each actuation of the stretching-pincers, the last and partially-formed shoe may be moved to cause said pincers to engage the upper at other points farther from the end of the shoe, said slide being likewise movable to position the shoe obliquely with respect to the line of pull of the pincers.

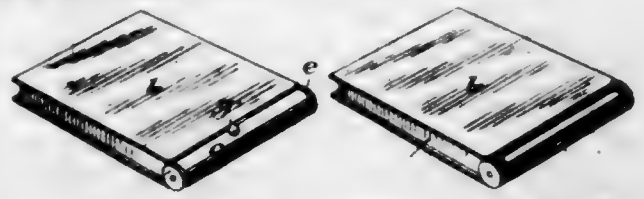
34. A pulling-over machine comprising the following instrumentalities, to wit: oppositely-disposed pincers adapted to engage and stretch the upper of a partially-formed shoe; a support for said pincers; a support for the last on which the said shoe is placed, said support being provided with a standard to engage the last, and with a gripper to engage the upper at the toe end of the shoe, one of said supports being movable with respect to the other; and means for actuating said pincers.

35. A pulling-over machine comprising a base, a vertically-movable head on said base, pincers on said head whereby they are able to follow the curved face of a sole, and a slide movable relatively to said head and having means for receiving a last thereon.

36. A pulling-over machine having a pair of oppositely-disposed pincers, means for operating said pincers, a support for said pincers, and a second support having gripping means for gripping and squaring the toe-cap at the end of the upper, one of said supports being movable with respect to the other.

693,621. POCKET-CASE FOR CIGARS OR CIGARETTES. BARNET RAPAPORT, New York, N. Y. Filed Jan. 29, 1901. Serial No. 45,201. (No model.)

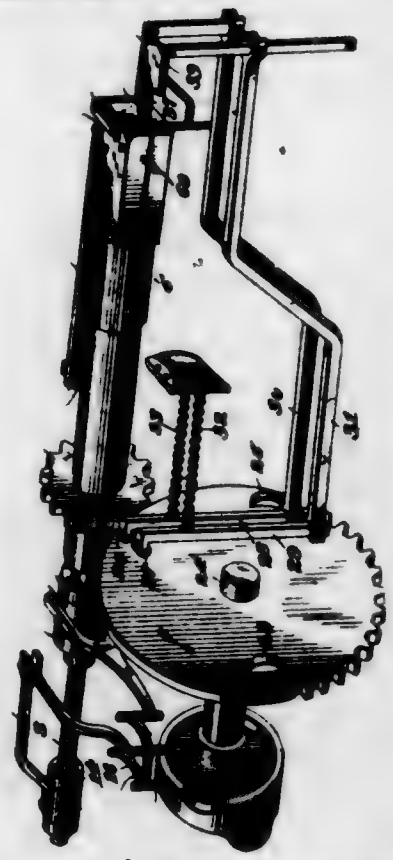
Claim.—1. A pocket-case for cigars or cigarettes comprising a flat box portion for receiving the articles in a single line therein, the said box portion having an open end, a cover for the box portion, a rocking hollow cylindrical distributer mounted in the open end of the body portion independently of the cover, the said distributer having an open side communicating with its interior and arranged to be brought into communication with the interior of the box when in one position and into communication with the exterior thereof when in another position and a spring-actuated follower located within the case in position to feed the articles one by one into the distributer, substantially as set forth.



2. A pocket-case for cigars or cigarettes comprising a flat box portion arranged to receive the articles in a single line therein, a removable cover for the box portion, a rotary distributer mounted in one end of the box portion independently of the cover for removing the articles one by one from the interior of the case and spring-actuated presser-arms arranged to engage the articles to keep them in alinement when the cover is in its closed position and under the control of the cover to swing outwardly when the cover is open, substantially as set forth.

3. A pocket-case for cigars or cigarettes comprising a box portion, a distributer located in position to remove the articles one by one therefrom, a sliding cover for the box portion, a spring-actuated follower and a guide-rod for the follower carried by the cover, substantially as set forth.

698,622. KNOTTING MECHANISM FOR BAG-STRINGING MACHINES. JAMES V. RICHARDSON, Farmville, Va.; W. H. Richardson administrator of said James V. Richardson, deceased. Filed Dec. 26, 1900. Serial No. 41,140. (No model.)



Claim.—1. The combination with string-supplying means, of a knotting mechanism comprising a rotatable knotter-head, a slotted cap or plate fastened to the end of said knotter-head, grippers or fingers passing through said cap, a rotatable and slidable tube carrying said grippers, string receiving and clamping mechanism secured to the knotter-head, a slidable rod within said rotatable and slidable tube adapted to operate said receiving and clamping mechanism, substantially as described.

2. The combination with string-supplying means of a knotting mechanism comprising a rotatable knotter-head, string receiving and clamping mechanism, attached to the knotter-head, grippers or fingers projecting from the knotter-head, means for rotating the knotter-head, and a cap or plate secured to the outer end of the knotter-head, a corner of which is elongated and turned inwardly, substantially as and for the purposes described.

3. The combination with string-supplying means of a knotting mech-

anism comprising a rotatable knotter-head, an outer tube secured thereto, a rotatable and slidable inner tube, a rotatable and slidable rod in the inner tube, grippers carried by the head, string-clamping mechanism connected to and operated by the slidable rod, substantially as described, and for the purposes set forth.

4. The combination with an outer rotatable tube, of an inner slidable tube, a knotter-head coupled to said outer tube, grippers attached to one end of the inner tube, two fixed collars on the inner tube, a loose collar between the fixed collar, a lever engaging the loose collar, means for rocking the lever, thereby moving said inner tube longitudinally, and means for rotating said outer tube before moving said inner tube longitudinally, substantially as described.

5. A knotting mechanism comprising in combination a hollow knotter-head having cam-guides in its interior, grippers slidably secured in the knotter-head, having projections engaging said cam-guides, an inner tube carrying said grippers, string receiving and clamping means, a rotatable and slidable rod within said inner tube adapted to operate said receiving and clamping means, and means for rotating the knotter-head, substantially as described.

6. A knotting mechanism comprising in combination a hollow knotter-head, an outer tube, an inner tube, grippers carried thereby, a rod within said outer tube, and string receiving and clamping mechanism operated thereby, of an intermittent gear-wheel secured to said outer tube, a driving-shaft, an intermittent gear on said shaft engaging the intermittent gear-wheel to rotate it, substantially as described.

7. The combination with the knotter-head and grippers, and means for operating them, of the arm or lever 39 located in front of the grippers, means for operating said arm to press the string on the grippers against the knotter-head, and the bar 40 actuated by the arm 39, substantially as described.

8. In a knotting-machine, the combination of a knotter-head, string-supplying means, string receiving and clamping means, an outer tube secured to said knotter-head, inner tube carried therein, grippers secured to said inner tube, a rod within said inner tube, means for rotating the knotter-head, outer tube, inner tube and rod, and means for sliding said inner tube and rod longitudinally substantially as described.

9. In a knotting-machine, the combination with a rotatable knotter-head of string-supplying means, string-receiving mechanism, a rotatable tube and rod within said rotatable knotter-head, grippers secured to said tube, a loose collar secured to said rod, intermediate two fixed collars and operating means, substantially as described.

693,623. PLACKET-CLOSER. GEORGE W. ROMAINE, New York, N. Y. Filed Sept. 9, 1901. Serial No. 74,777. (No model.)

Claim.—1. A placket-closer in which is comprised a plate of metal having a transverse curved or bent portion and provided with a longitudinal slot extending through the curved or bent portion of the plate and open at one end and constricted near its center, in combination with a button or stud adapted and arranged to engage in said slot, substantially as shown and described.

2. In a placket-closer, a plate of metal having a transverse curved or bent portion and a longitudinal slot extending through the bent or curved portion of the plate and open at one end, constricted near its center, and enlarged at the extremity opposite to the opening, in combination with a button or stud adapted and arranged to engage in the slot in the plate, substantially as shown and described.

3. In a placket-closer the combination with a stud, of a catch device with which the stud engages having a longitudinal slot, the opposite sides of the slot being throughout a portion of their course curved or bent in a substantially similar manner, whereby they remain substantially parallel with each other, while the course of the slot is diverted, substantially as set forth.

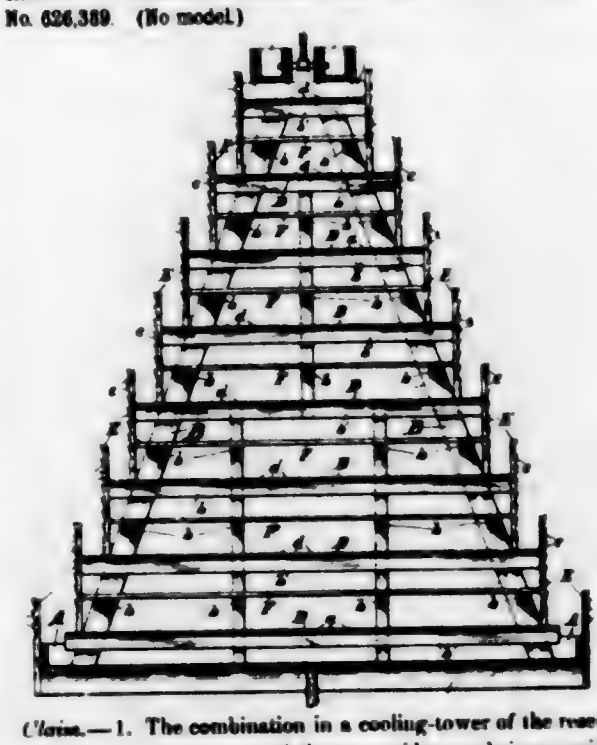
4. In a placket-closer the combination with a stud, of a catch device with which the stud engages having a longitudinal slot formed therein, the portions of the plate in which the opposite ends of the slot are formed being in substantially the same plane and the intermediate slotted portion of the plate being bent out of such plane, substantially as set forth.

693,624. TWIN ENVELOP. JACOB SALLADE, Milton, Pa., assignor of one-half to Benjamin F. Johnson, Richmond, Va. Filed Nov. 15, 1901. Serial No. 82,446. (No model.)



Claim.—1. The within-described duplex envelop having two intersecting lines of perforations—one line dividing the pair, the other line crossing the dividing-line and terminating alike at the edge on each side of the dividing-line in forming contiguous separable corners, a gummed line closing each envelop at the dividing-line of perforations and at the joining of the separable corners.

698,625. TOWER FOR COOLING AND CONDENSING WATER. HERMAN B. SCHMIDT, Cincinnati, Ohio. Filed Mar. 8, 1897. Serial No. 626,389. (No model.)



Claim.—1. The combination in a cooling-tower of the reservoir for the cool water, the tower erected thereon, said tower being provided with a series of shelves each shelf having a series of interstices to pass the water falling upon it to the shelf beneath in thin streams or jets, the interstices in each shelf being arranged at an angle to those in the adjacent shelf or shelves, the tank or tanks supported above the upper shelf to distribute the water to be cooled in thin streams thereon, and means such as shown to direct a current of air against and through the finely-divided jets or spray of water falling from one shelf to the other, substantially as shown and described.

2. The combination of the reservoir for the cooled water, the cooling-tower erected therein, said tower being provided with a series of shelves, each shelf having a series of interstices to pass the water falling upon it to the shelf beneath in thin streams or jets, the interstices in each shelf being arranged at an angle to those in the adjacent shelf or shelves, inwardly-inclined deflecting-strips upon opposite sides of each shelf to deflect the air against and through the thinly-divided jets or sprays of water falling from one shelf to the other, distributing-tanks supported above the upper shelf to distribute the water to be cooled in thin streams thereon, wings such as described for conveying the water to be cooled to the distributer, substantially as shown and described.

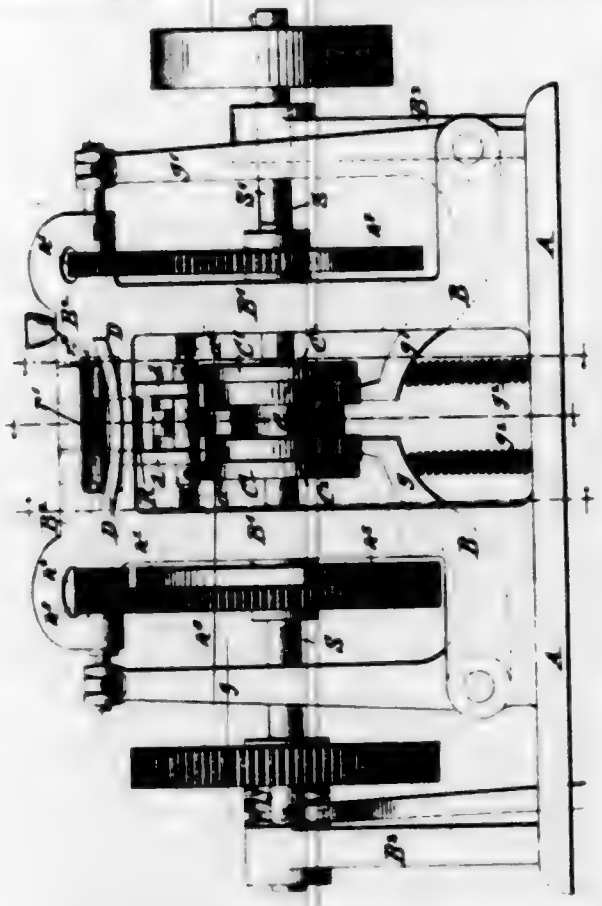
3. The combination of the reservoir, the cooling-tower erected therein, said tower being provided with a series of shelves formed of boards having interstices or open spaces between their adjacent edges, the boards in each shelf being arranged substantially at right angles to the boards in the shelf or shelves adjacent to it, inwardly-inclined deflecting-strips arranged upon the opposite sides of each shelf to deflect the air downward against and through the finely-divided jets or sprays of water in its passage through the tower, distributing-tanks supported above the upper shelf to distribute the water in thin streams or jets thereon, means such as described for supplying said tank or tanks with the water to be cooled, and means for withdrawing the water from the reservoir when cooled, substantially as shown and described.

698,626. CIGAR-MACHINE. HANS A. SCHNEEKLOTH, New York, N. Y. Filed Mar 27, 1901. Serial No. 53,073. (No model.)

Claim.—1. In a cigar-machine, the combination, with a concave feed-table for the wrapper, of guide-rollers, one at the ingoing end of the wrapper, the other at some distance back of the same, an oscillating bunch-supporting roller below said guide-rollers, means for intermittently oscillating said roller for dropping the bunch, and a vertically-reciprocating plunger for feeding the bunch into the space between said rollers, said plunger being also provided with a roller, substantially as set forth.

2. In a cigar-machine, the combination of front and rear guide-rollers for the bunch, a bunch-supporting roller below the same, a vertically-

reciprocating plunger provided with a roller for feeding the bunch into the space between said guide-rollers, a concave feed-table for the wrapper, rotary spindles in line with the axis of the bunch and provided with slitted sockets for taking up and rolling the wrapper around the bunch, and means for imparting intermittent rotation to said spindle substantially as set forth.



3. In a cigar-machine, the combination, with front and rear guide-rollers for the bunch, of a bunch-supporting roller below the same, a vertically-reciprocating plunger provided with a roller for conducting the bunch into the space between said rollers, a rotary tubular spindle provided with a slitted socket at one end for engaging the butt-end of the wrapper, a rotary spindle provided with a slitted socket for engaging the tip end of the wrapper arranged in line with the tubular spindle and the bunch, an interior spindle within said tubular spindle provided with a socket for engaging the butt-end of the bunch, a concave feed-table for the wrapper, and means for rotating the spindles at the proper time for placing first the butt-end and lastly the tip end of the wrapper around the bunch, substantially as set forth.

4. In a cigar-machine, the combination, with front and rear guide-rollers, of a bunch-supporting roller between and below said guide-rollers, a vertically-reciprocating plunger having a guide-roller for conducting the bunch into the space between said rollers, a concave feed-table for the wrapper, means for wrapping said wrapper around the bunch, and means for oscillating the lower bunch-supporting roller so as to drop the cigar after the wrapper is placed around the same, substantially as set forth.

5. In a cigar-machine, the combination, with front and rear guide-rollers, of a bunch-supporting roller below said guide-rollers, a vertically-reciprocating plunger provided with a roller for feeding the bunch into the space between said rollers, a rotary spindle in line with the bunch and provided with a socket for the butt-end of the bunch, a rotary spindle provided with a slitted socket for the tip end of the bunch, in line with the butt-spindle, a tubular spindle inclosing the butt-spindle and provided with a slitted socket extending beyond the butt-socket, means for laterally reciprocating the butt-spindles and the tip-spindle, and means for rotating first the interior butt-spindle and the tip-spindles while the outer butt-spindle is stationary, and then rotating both butt-spindles while the tip-spindles remain stationary, so as to apply the wrapper from the butt-end toward the tip end around the bunch, substantially as set forth.

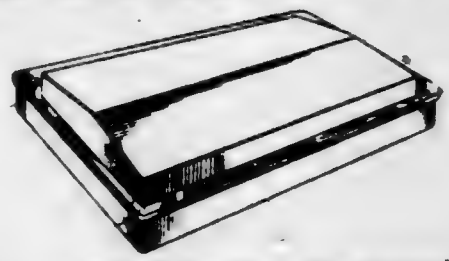
6. In a cigar-machine, the combination with the front and rear guide-rollers, of a bunch-supporting roller below said guide-rollers, a vertically-reciprocating plunger provided with a roller for feeding the bunch into the space between said guide-rollers, a butt-spindle and a tip-spindle located axially in line with each other and with the bunch, a tubular spindle surrounding the butt-spindle and provided with a socket extending beyond the socket of the interior butt-spindle, means for reciprocating simultaneously the butt and tip spindles at the proper time for applying them to and releasing them from the bunch, means for rotating said butt and tip spindles at the proper time so as to place the wrapper around the bunch from the butt toward the tip end of the same, and means for oscillating the bunch-supporting roller for dropping the bunch, substantially as set forth.

7. In a cigar machine, the combination, with front and rear guide-rollers, of a bunch-supporting roller below said guide-rollers, a vertically-reciprocating plunger provided with a roller for feeding the bunch into the space between said rollers, means for applying the wrapper around the bunch, means for oscillating the bunch-supporting roller after the wrapper has been applied to the bunch, a shelf supported on the arms of the oscillating bunch-supporting roller for receiving the cigar, and a pusher device for removing the cigar from the shelf during the backward motion of the oscillating roller, substantially as set forth.

8. In a cigar-machine, the combination, with front and rear guide-rollers, of a bunch-supporting roller below said guide-rollers, a vertically-reciprocating plunger provided with a roller for feeding the bunch into the space between said rollers, means for applying the wrapper around the bunch, means for oscillating the bunch-supporting roller after the wrapper has been applied to the bunch, a shelf supported on arms of the bunch-supporting roller, a stationary butt-trimming knife in front of the butt-end of the bunch at right angles thereto and adapted to trim the butt-end of the cigar during the forward motion of the oscillating roller, and a pusher device adapted to clear the trimmed cigar during the backward motion of the bunch-supporting roller, substantially as set forth.

9. In a cigar-machine, the combination, with front and rear guide rollers, of a bunch-supporting roller below said guide-rollers, means for shifting the position of the bunch-supporting roller to one side, a vertically-reciprocating plunger provided with a roller for feeding the bunch into the space between said rollers, means for feeding and placing the wrapper around the bunch from the butt toward the tip end of the same, and means for applying paste to the tip end of the wrapper while said tip end is applied to the tip of the bunch, substantially as set forth.

693,627. MEAT-CUTTING BLOCK. MORRIS T. SHARP, Mount Vernon, Ohio. Filed May 13, 1901. Serial No. 60,111. (No model.)



Claim.—1. A meat-cutting block comprising a pan and a block removably contained therein and of smaller horizontal dimensions than the pan and supported above the bottom thereof, the operative surface of the block extending above the rim of the pan and being hipped or convexed.

2. A meat-cutting block, comprising a pan, a cutting-block removably contained therein, and marginal supporting-feet carried by the block, projected below and outwardly from the same, said feet resting upon the bottom of the pan and also against the marginal edge thereof, whereby the block is supported above the bottom of the pan, and a marginal space is provided between the marginal edges of the block and the pan.

3. A meat-cutting block, comprising a substantially rectangular pan having an upstanding marginal rim, a cutting-block contained therein and having a convexed upper face, and opposite cross-bars secured to the opposite end portions of the bottom of the block, and provided with terminal and lateral outwardly-directed projections occupying the respective corners of the pan.

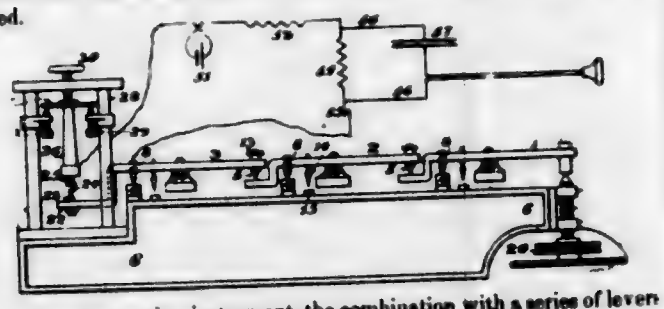
4. A meat-cutting block, comprising a substantially rectangular pan having an upstanding marginal rim, and a cutting-block slightly smaller in size than the pan and contained therein, the upper face of the block being convexed, and supporting-feet carried by the block and projected at the corners thereof and below the bottom of the block, said feet occupying the respective corners of the pan in engagement with the bottom and sides thereof, whereby the block is supported above the bottom of the pan, and a marginal space is provided between the marginal edges of the block and the pan.

693,628. MEASURING INSTRUMENT. PHILIP E. SHAW, Nottingham, England. Filed Dec. 2, 1901. Serial No. 84,472. (No model.)

Claim.—1. In a measuring instrument the combination of a fine-threaded screw with a series of levers actuated by the screw, a movable measuring-point carried by the last of the series of levers, a fixed measuring-point, an electric circuit the terminals of which are respectively connected with said measuring-points, and an indicator for indicating the making and breaking of the circuit, substantially as herein set forth.

2. In a measuring instrument, the combination with a series of levers each pivotally mounted on a knife-edge bearing, the movement of one of said levers being communicated to the others, of a finely-threaded screw

having fixed thereon a graduated wheel, the said screw being arranged to shift the position of the first lever and through the latter the other levers, a movable measuring-point carried by the free end of the last lever of the series, a stationary measuring-point arranged opposite the movable measuring-point, means for adjusting the stationary point relatively to the movable point, an electric circuit the terminals of which are connected to the respective measuring-points, and an indicator included in said circuit for indicating the make and break of the circuit caused by bringing together and separating the said measuring-points, substantially as described.



3. In a measuring instrument, the combination with a series of levers each having fixed thereon a block provided on its under side with two knife-edges, fulcrum-blocks on which the knife-edges rest, casings surrounding the upper edges of the fulcrum-blocks and forming oil-cups for oiling said blocks and knife-edges, the longer end of each lever resting on the shorter end of the preceding lever, a fine-threaded screw for moving the first lever on its fulcrum, a graduated wheel fixed on the screw, a movable measuring-point carried by the free end of the last lever, a frame arranged above the movable measuring-point, a stationary measuring-point mounted on said frame and opposite the movable measuring-point, adjusting-screws for adjusting the stationary measuring-point toward and from the movable measuring-point, an electric circuit the terminals of which are respectively connected to said measuring-points, and a telephone-receiver included in said circuit for giving audible notice when the measuring-points are brought together and separated, substantially as described.

4. In a measuring instrument, the combination with a series of levers so arranged that the movement of the first lever is transmitted throughout the series, of a fine-threaded screw for moving the first lever on its fulcrum, a graduated wheel fixed on said screw, a movable measuring-point carried by the free end of the last of the series, a stationary measuring-point arranged opposite the movable measuring-point, an electric circuit the terminals of which are formed by said measuring-points, a telephone-receiver included in said circuit, and a yieldingly-suspended frame for supporting the parts, substantially as described.

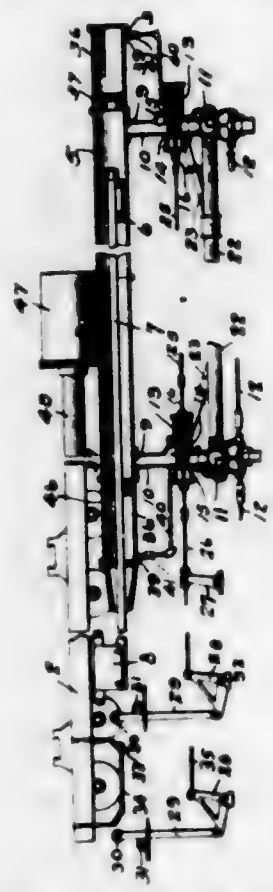
5. In a measuring instrument, the combination with a series of levers so arranged that the movement of the first lever is transmitted throughout the series, of a fine-threaded screw for moving the first lever on its fulcrum, a graduated wheel fixed on said screw, a movable measuring-point carried by the free end of the last of the series, a stationary measuring-point arranged opposite the movable measuring-point, a casing inclosing said parts, an electric circuit the terminals of which are formed by said measuring-points, a telephone-receiver included in said circuit, a yieldingly-suspended frame for supporting the instrument, means for turning the screw from without the inclosing casing, a fixed tank containing a viscous fluid arranged beneath one end of said casing, and a cylinder pendent from the corresponding end of the cylinder and partially immersed in said fluid, substantially as described.

6. In a measuring instrument, the combination with a series of levers so arranged that the movement of the first lever is transmitted throughout the series, of a fine-threaded screw for moving the first lever on its fulcrum, a graduated wheel fixed on said screw, pointers pendent from the levers, index-plates arranged beneath the pointers, a movable measuring-point carried by the free end of the last lever of the series, a stationary measuring-point arranged opposite the movable measuring-point, an electric circuit the terminals of which are formed by said measuring-points, a telephone-receiver included in said circuit, a box inclosing the instrument, a yieldingly-suspended frame supporting the box, and means for actuating the screw from the exterior of the box, substantially as described.

7. In a measuring instrument, the combination with a series of levers so arranged that the movement of the first lever is transmitted throughout the series, each of said levers being fulcrumed nearer one end than the other, cups containing oil on the shorter ends of the levers, pins carried by the longer ends of the levers, each pin resting on the bottom of the oil-cup carried by the preceding lever, a movable measuring-point carried by the free end of the last lever of the series, a stationary measuring-point arranged opposite the movable measuring-point, an electric circuit the terminals of which are formed by said measuring-points, a telephone-receiver included in said circuit, a box inclosing the instrument, a yieldingly-suspended frame supporting the box, and means for actuating the screw from the exterior of the box, substantially as described.

8. In a measuring instrument, the combination with a movable measuring-point, of a stationary measuring-point arranged opposite the movable measuring-point, a screw for moving the movable measuring-point, an indicator actuated by the movement of the screw for indicating the extent of movement of the movable measuring-point, an electric circuit the terminals of which are formed by the said measuring-points, and an electrical indicator included in said circuit for indicating when said measuring-points are brought into contact and separated, substantially as described.

693,629. **MEANS FOR AUTOMATICALLY CONTROLLING SAW-MILL-CARRIAGES.** EDWIN R. THOMAS, St. Paul, and JOHN R. LOCKWOOD, Minneapolis, Minn. Filed Aug. 12, 1901. Serial No. 71,734. (No model.)



Claim.—1. The combination, with a carriage of a fluid-pressure cylinder and its piston, valves within control of the operator for admitting fluid-pressure to each end of the cylinder, and means interposed between said cylinder and valves and actuated by the movement of the carriage for automatically shutting off the passage of fluid from said valves to the cylinder and depriving the operator of power to move the carriage.

2. The combination, with a carriage of a fluid-pressure cylinder and its piston, valves therefor within control of the operator, pipes connecting said valves with said cylinder, means provided in said pipes for shutting off the passage of fluid from said valves to said cylinder, and means provided at each end of the carriage-track to be actuated by the carriage for operating said shutting-off means, whereby the operator will be deprived of power to move the carriage, substantially as described.

3. The combination, with a carriage of a fluid-pressure cylinder and its piston, valves connected with said cylinder and within control of the operator, means interposed between said valves and cylinder for shutting off the passage of fluid thereto, means governed by the movement of the carriage for operating said shutting-off means, and passages normally closed by said shutting-off means and opened by the movement of the same for conducting the fluid around said valves to said cylinder, substantially as described.

4. The combination, with a carriage, of a steam-cylinder and its piston, valves within control of the operator through which steam is admitted to each end of said cylinder, pipes connecting said valves with said cylinder, slide-valves provided in said pipes, means connected with said valves and projecting into the path of the carriage when near the limit of its travel in either direction for operating said valves to shut off the steam from said cylinder-valves to the cylinder, and by-pipes leading around said cylinder-valves and normally closed by said slide-valves for admitting steam to the cylinder when said slide-valves are operated.

5. The combination, with a carriage of a cylinder and piston, valves connected with said cylinder, a steam-supply pipe, valve-casings provided between said cylinder-valves and said cylinder, slide-valves therein having annular grooves 15 and 20, said grooves 15 normally registering with the steam-passages from said cylinder-valves to the cylinder, bridges 21 provided between said grooves 15 and 20, pipes 23 connecting said steam-supply pipe and said grooves 20, steam ducts or passages normally closed

by said bridges 21 and opened by the movement of said slide-valves to allow the steam to flow from said grooves 20 into the cylinder, and means connected with said slide-valves and actuated by the movement of said carriage when near the limit of its stroke in either direction for operating said slide-valves.

6. The combination, with a carriage of a steam-cylinder and its piston, free or flying pistons provided in each end of said cylinder and having a limited sliding movement therein, valves connected with said cylinder, a steam-supply pipe, and pipes connecting said supply-pipe with said cylinder between its heads and said free pistons, substantially as described.

7. The combination, with a carriage of a steam-cylinder and its piston, free or flying pistons provided in each end of said cylinder, inclined or beveled shoulders between which and said heads said pistons are freely slidable, valves connected with said cylinder, a steam-supply pipe, and pipes connecting said supply-pipe with said cylinder between its heads and said pistons, substantially as described.

8. The combination, with a carriage of a cylinder and its piston, flying pistons provided in each end of said cylinder, cylinder-valves, pipes connecting said valves with said cylinder, a steam-supply pipe, valve-casings provided between said cylinder-valves and said cylinder, sliding valves in said casings provided with means for normally permitting the passage of steam from said cylinder-valves to said cylinder and shutting off the same when operated, steam-chambers provided in said valves, steam-passages communicating with said chambers and said cylinder when said valves are operated, pipes connecting said steam-chambers with said supply-pipe and with the cylinder between its heads and said flying pistons, and means connected with said sliding valves and actuated by the log-carriage when near the limit of its movement in either direction, substantially as described.

9. The combination, with a carriage of a steam-cylinder and its piston, steam-feed for said cylinder-valves, pipes connecting said valves with said cylinder, sliding valves interposed between said cylinder and cylinder-valves, and adapted to shut off the flow of steam to both sides of the piston simultaneously, vertically-movable bars provided respectively near the ends of the log-carriage track, means connecting said bars with said sliding valves, and means provided on the carriage for actuating said bars to operate said sliding valves.

10. The combination, with a carriage of a steam-cylinder and its piston, cylinder-valves, pipes connecting said valves with the cylinder, a steam-pipe, sliding valves interposed between said cylinder-valves and said cylinder, said sliding valves being provided with steam-chambers, by-pipes connecting said steam-supply pipe with said steam-chambers, steam-passages leading from said chambers to said cylinder and closed when said sliding valves are in their normal position, and means projecting into the path of the carriage to be actuated thereby for operating said sliding valves to shut off the flow of steam through said cylinder-valves, substantially as described.

11. The combination, with a cylinder and piston, of a steam-supply having pipe connections with said cylinder on each side of said piston, valves normally controlling the admission of steam to said cylinder from said supply, by-pass pipes, means normally permitting the passage of steam through said pipe connections to the cylinder and closing said by-pipes, and means for automatically operating said closing means to open said by-pipes and close the passage from said valves, substantially as described and for the purpose specified.

12. The combination, with a carriage, of a fluid-pressure cylinder and its piston, valves within control of the operator and connected with said cylinder upon each side of the piston and through which the fluid-pressure is normally admitted to said cylinder, cut-off valves interposed between said cylinder-valves and said cylinder, and means connected with said cut-off valves and adapted to be actuated by said carriage at a certain predetermined point in its travel to operate said cut-off valves and shut off the passage of fluid through said cylinder-valves and allow it to enter said cylinder simultaneously upon each side of the piston, whereby the operator will be deprived of power to move the carriage.

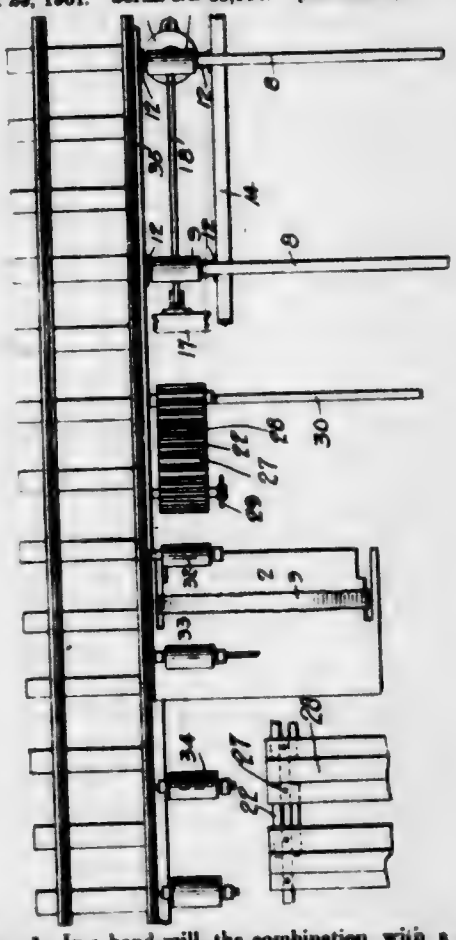
13. The combination, with a carriage, of a steam-feed cylinder and its piston, valves connected with said cylinder upon each side of the piston and within control of the operator for normally admitting steam alternately to each end of the cylinder, and valves interposed between said cylinder-valves and the cylinder and adapted to be actuated by the carriage when passing a certain predetermined point in its travel to shut off the passage of steam through said cylinder-valves and allow it to enter both ends of the cylinder simultaneously.

14. The combination, with a carriage, of a steam-feed cylinder and its piston, rotary cylinder-valves connected with the steam-supply and with said cylinder upon opposite sides of the piston, said valves being within control of the operator for normally admitting and exhausting steam from said cylinder; cut-off valves interposed between said rotary valves and said cylinder and having independent connections with said steam-supply and with said cylinder and adapted to close the passage from said rotary valves to said cylinder, and means connected with said cut-off valves and operated by the carriage when near the limit of its travel in each direction for actuating said cut-off valves to cut out said rotary valves and admit steam to said cylinder on both sides of the piston simultaneously.

15. The combination, with a carriage, of a steam-feed cylinder and its piston, free or flying pistons provided in each end of said cylinder and having a limited sliding movement therein, a steam-supply pipe, cylinder-feed valves within control of the operator and connected with said cylinder between said flying pistons, cut-off valves interposed between said cylinder-valves and said cylinder and having independent connections with the steam-supply and with said cylinder between its heads and said flying pistons, and means connected with said cut-off valves and adapted to be operated by said carriage at certain predetermined points of its travel for operating said cut-off valves to shut off the flow of steam from said cylinder-valves to the cylinder and allow it to pass through said independent connections thereto, substantially as described.

16. The combination, with a carriage, of a steam-feed cylinder and its piston, a steam-supply, cylinder-valves connected therewith, and with each end of the cylinder and within control of the operator for normally admitting steam to said cylinder, cut-off valves provided between said cylinder-valves and the cylinder and connected with said steam-supply and with said cylinder and adapted when actuated to shut off the passage of steam from said cylinder-valves to the cylinder and open said independent connections to admit steam to both sides of the piston simultaneously, and means connected with said cut-off valves and adapted to be actuated by the carriage at certain predetermined points of its travel, whereby when the carriage passes either of said points the operator will be automatically deprived of power to operate the carriage until said cut-off valves are returned to their normal position.

693,630. LUMBER-CONVEYER FOR DOUBLE-CUTTING BAND-MILLS. EDWIN E. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Nov. 29, 1901. Serial No. 83,997. (No model.)



Claim.—1. In a band-mill, the combination, with a saw, log deck and carriage, one or more idle rolls between the said deck and carriage, means for raising and lowering said rolls, in their raised position said rolls being on a level substantially with the carriage head-blocks and adapted to act as skids over which the logs are rolled from the deck to the carriage and in their depressed position said rolls acting as supports for the lumber that falls from said carriage.

2. In a double-cutting band-mill, the combination, with the saw, log deck and carriage, of toothed lumber-conveying means provided between said saw and deck and whereon the lumber falls that is cut on the backward or return movement of the carriage, and idle rolls provided between said deck and carriage and on substantially the same level with said lumber-conveying means, said rolls serving as skids over which the logs are

rolled from the deck to the carriage and as supports for the ends of the lumber that fall upon said lumber-conveying means.

3. The combination, with the saw, log deck and carriage, of lumber-conveying means provided between said saw and deck and whereon the lumber falls that is cut on the backward or return movement of the carriage, said conveying means being below the level of the carriage head-blocks, idle rolls provided between said deck and carriage and normally on substantially the same level with said lumber-conveying means and serving as supports for the ends of the lumber that fall upon said conveying means, and means for raising said rolls to a point on a level with the carriage head-blocks to serve as skids whereon the logs are rolled from the deck to the carriage.

4. In a double-cutting band-mill, the combination, with the saw, log deck and carriage, of a lumber-conveying belt provided between said saw and deck and below the level of the carriage head-blocks and whereon the lumber falls that is cut on the backward or return movement of the carriage, and vertically-movable idle rolls provided between the log deck and carriage and normally on substantially the same level with said lumber-conveying means to serve as supports for the ends of the lumber that fall thereon, said rolls when raised being on a level substantially with the carriage head-blocks and serving as skids over which the logs are rolled from the deck to the carriage.

5. In a double-cutting band-mill, the combination, with the saw, log deck and carriage, of lumber-conveying means provided between the saw and deck whereon the lumber falls that is cut on the backward or return movement of the carriage, idle rolls provided between the deck and carriage, vertically-movable frames wherein said rolls are supported, means for raising and lowering said frames, said rolls in their depressed position being substantially on a level with said lumber-conveying means and adapted to support the lumber thereon, and in their raised position being substantially on a level with the carriage head-blocks and acting as skids whereon the logs may be rolled from the deck to the carriage.

6. In a double-cutting band-mill, the combination, with the saw, log deck and carriage, of a lumber-conveyer provided between the saw and deck below the level of the carriage head-blocks and whereon the lumber falls that is cut on the return or backward movement of the carriage, idle rolls provided between the deck and carriage and normally on a level with said lumber-conveyer to aid in supporting the lumber thereon, means for raising said idle rolls to a point substantially on a level with the carriage head-blocks where they will serve as skids on which the logs may be rolled from the deck to the carriage, and a lumber-guiding means provided between said rolls and lumber-conveyer and said carriage.

7. In a double-cutting band-mill, the combination, with a saw, log deck and carriage, of a toothed lumber-conveyer provided between said saw and deck and below the level of the carriage head-blocks and whereon the lumber falls that is cut on the backward or return movement of the carriage, idle rolls provided between said deck and carriage and normally on a level with said lumber-conveyer to support the ends of the lumber thereon, and means for raising said idle rolls upon a level substantially with the carriage head-blocks where they will serve as skids on which the logs may be rolled from the deck to the carriage.

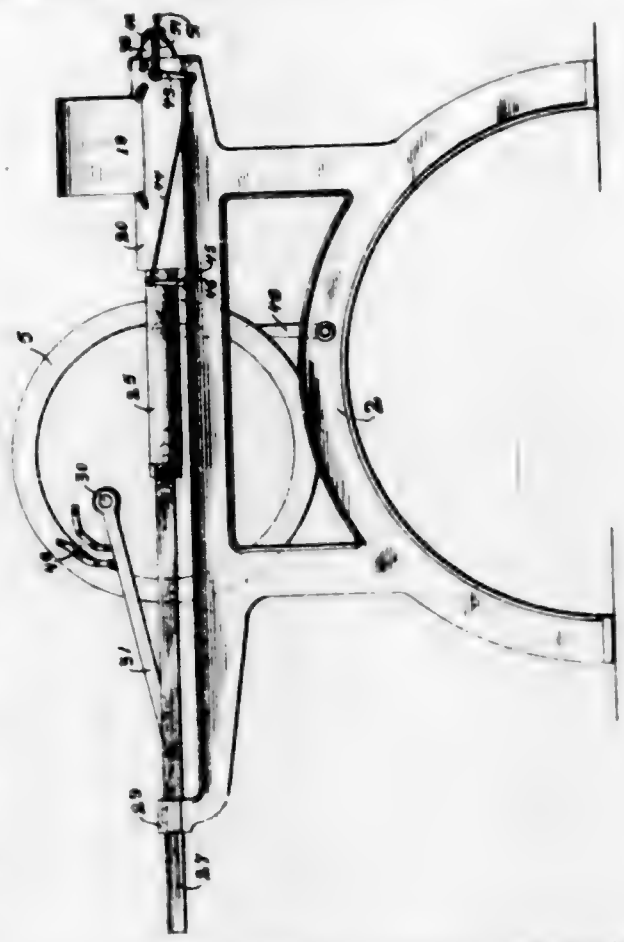
8. In a band-mill, the combination, with a saw, log deck and carriage, of one or more idle rolls between said deck and carriage, vertically-movable frames whereon said rolls are supported, means for raising and lowering said frames, said rolls in their raised position being on a level substantially with the carriage head-blocks, and adapted to act as skids over which the logs are rolled from the deck to the carriage and in their depressed position serving as supports for the lumber that falls from said carriage.

9. In a band-mill, the combination, with a saw, log deck and carriage, of one or more supports provided between said deck and carriage, means for raising and lowering said supports, in their elevated position said supports being on a level substantially with the carriage head-blocks and adapted to act as skids over which the logs are rolled from the deck to the carriage and in their depressed position said supports being adapted to receive the lumber that falls from said carriage.

10. In a double-cutting band-mill, the combination, with a saw, log deck and carriage, a lumber-conveying means provided between said saw and deck and whereon the lumber falls that is cut upon the backward or return movement of the carriage, movable supports provided between said deck and carriage and normally on substantially the same level with said lumber-conveying means, means for raising or lowering said supports, in their raised position said supports being adapted to act as skids over which the logs are rolled from the deck to the carriage and in their depressed position said supports being adapted to receive the ends of the lumber that falls upon said lumber-conveying means.

693,631. MACHINE FOR MOLDING POPCORN-BALLS. CRAIG L. TILDEN and EDWARD J. BENDER, Minneapolis, Minn. Filed July 20, 1901. Serial No. 69,011. (No model.)

Claim.—1. In a machine for making corn-balls, the combination, with a barrel having corn receiving and discharge openings, of a reciprocating plunger, a hinged cap normally closing said discharge-opening and coöperating with said plunger to compress and form the ball, and means for intermittently operating said cap to uncover said discharge-opening and allow the ejectment of a ball, substantially as described.



2. In a machine for making corn-balls, the combination, with a barrel having corn receiving and discharge openings, of a reciprocating plunger having a cup-shaped recess in its end, a hinged cap also having a cup-shaped recess and normally closing said discharge-opening and coöperating with said plunger to compress and form the ball, and means for intermittently operating said cap to uncover said discharge-opening to permit the completed ball to be ejected, substantially as described.

3. In a machine for making corn balls or cakes, the combination, with a barrel having corn receiving and discharge openings, of a reciprocating plunger, an auxiliary plunger carried thereby, a pivoted cap normally closing said discharge-opening and coöperating with said plunger to compress and form the ball, means for intermittently operating said cap to uncover said discharge-opening and permit the ball to be ejected, and pivoted means for operating said auxiliary plunger to disengage the completed ball from the plunger proper, substantially as described.

4. In a machine for making corn-balls, the combination, with a barrel having corn receiving and discharge openings, of a reciprocating plunger having a cup-shaped recess in its end, an auxiliary plunger operating through the bottom of said recess, means for actuating said auxiliary plunger to disengage the ball from the plunger proper when it begins its return stroke, a pivoted cap normally closing said discharge-opening, and coöperating with said plunger to compress and form the ball, and means for intermittently operating said cap to uncover said discharge-opening and allow the ball to be ejected, substantially as described.

5. In a machine for making corn-balls, the combination, with a barrel having corn receiving and discharge openings, of a reciprocating plunger having a cup-shaped recess in its end, an auxiliary plunger operating through the bottom of said recess, means for operating said auxiliary plunger when the plunger proper has completed its inward stroke, a swinging cap having a cup-shaped recess to normally close said discharge-opening and coöperating with said plunger to compress and form the ball, a discharging-plunger carried by said cap, means pivoted on a different center from said cap for actuating said plunger when the cap is being moved to uncover the discharge-opening, and means for intermittently operating said cap to uncover said opening and permit the ejectment of the corn-ball, substantially as described.

6. In a machine for making corn-balls, the combination, with a barrel having corn receiving and discharge openings, of a reciprocating plunger, a hinged cap normally closing said discharge-opening and coöperating with said plunger to compress and form the ball, means for locking said cap when closed, and means for intermittently opening said cap to

uncover said discharge-opening and permit the completed ball to be ejected, substantially as described.

7. In a machine for making corn balls or cakes, the combination, with a barrel having receiving and discharge openings, of a feed-belt adapted to deliver the mixed corn and molasses to said barrel, a plunger reciprocating within said barrel, a cap or cover normally closing said discharge-opening and coöperating with said plunger to mold and compress the corn, means for operating said plunger, and means for intermittently operating said cap to uncover said discharge-opening and permit the ejectment of a completed ball, substantially as described.

8. In a machine for making corn-balls, the combination, with a molding and compressing chamber, of a reciprocating plunger operating therein, said chamber having receiving and discharge openings, a feed-belt adapted to deliver the mixed corn and molasses to said chamber, means for closing said discharge-opening and coöperating with said plunger to form and compress the ball, auxiliary relieving-plungers provided in said plunger proper and said closing means, and means for intermittently operating said closing means to uncover said discharge-opening and permit the ejectment of a completed ball, substantially as described.

9. In a machine for making corn-balls, the combination, with a barrel having receiving and discharge openings, of a reciprocating plunger therein, a cap normally closing said discharge-opening, auxiliary relieving-plungers provided in said plunger proper and in said cap, a fly-wheel having cam-grooves on its faces, a pitman connecting said plunger and said fly-wheel, and operative connections provided between said auxiliary plungers respectively and said cam-grooves, whereby when the plunger proper has nearly completed its stroke and said cap is operated to open the discharge-opening said auxiliary plungers will be actuated to eject the completed ball, substantially as described.

10. The combination, with a barrel, of a plunger reciprocating therein, an auxiliary plunger 32 provided within said plunger proper and operating lengthwise of the same, an arm 35 provided on said auxiliary plunger, an antifriction-roller 36, a fly-wheel, a pitman connecting said wheel and said plunger proper, and a cam-groove provided on said wheel in position to engage said antifriction-roller at a certain predetermined point in the revolution of said wheel, substantially as described.

11. In a machine of the class described, the combination, with a barrel having receiving and discharge openings, of a cap pivoted over said discharge-opening, a U-shaped rod 41 slidably connected with said cap and adapted to lock the same in its closed position, means for actuating said rod to unlock said cap and open the same to uncover said discharge-opening, substantially as described.

12. In a machine of the class described, the combination, with a molding and compressing chamber having a discharge-opening, of a pivoted cap normally closing said opening, an auxiliary plunger carried by said cap, a U-shaped rod 54 whereon said plunger is supported, a U-shaped rod 41 slidably connected with said cap and having a common pivot with said rod 54, and means for actuating said rod 41 to operate said cap and uncover said discharge-opening, substantially as described.

13. In a machine of the class described, the combination, with a barrel having receiving and discharge openings, of a pivoted cap having a cup-shaped recess normally closing said discharge-opening, a relieving-plunger operating through the bottom of said cup-shaped recess, a U-shaped rod 54 whereon said plunger is mounted, a U-shaped rod 41 slidable in a curved slot in said cap and having common pivots with said rod 54, means for operating said rod 41 to open said cap and uncover said discharge-opening, the pivots of said cap and said U-shaped rods being on different centers, whereby as said cap is swung open said plunger will be actuated to eject the ball from said recess, substantially as described.

14. In a machine of the class described, the combination, with a molding and compressing chamber, of a hopper having a discharge-opening communicating with said chamber, a feed-belt provided in the bottom of said hopper and adapted to deliver the mixed corn and cooked molasses to said opening, and a blade provided near said opening and adapted to scrape over the surface of said belt, for the purpose specified.

15. In a machine for making corn-balls, the combination, with a barrel having corn receiving and discharge openings, of a reciprocating plunger, a hinged cap normally closing said discharge-opening and coöperating with said plunger to compress and form the ball, an auxiliary plunger provided in said cap, means pivoted on a different center from said cap for operating said auxiliary plunger, and means for intermittently operating said cap, substantially as described and for the purpose specified.

16. In a machine for making corn-balls, the combination, with a barrel having receiving and discharge openings, of a reciprocating plunger thereon, a pivoted cap normally closing said discharge-opening, auxiliary relieving-plungers provided in said plunger proper and in said cap, means for operating the auxiliary plunger in said plunger proper when it is near the limit of its movement, means pivoted on a different center from said cap for operating this auxiliary plunger while said cap is being swung open, and means for intermittently operating said cap, substantially as described.

17. In a machine of the class described, the combination, with a barrel having receiving and discharge openings, of a cap hinged at its upper side over said discharge-opening, means for locking said cap in its closed position, and means for intermittently operating said locking means to unlock said cap and open the same, substantially as described.

18. In a machine of the class described, the combination, with a barrel having receiving and discharge openings, of a feed-belt for delivering the mixed corn and molasses to said barrel, a cap hinged over said discharge-opening, a reciprocating plunger operating within said barrel and coöperating with said cap to form the ball, auxiliary relieving-plungers provided in connection with said reciprocating plunger and said cap, and means for locking the said cap during the formation of the ball and unlocking the same to discharge the completed ball, substantially as described.

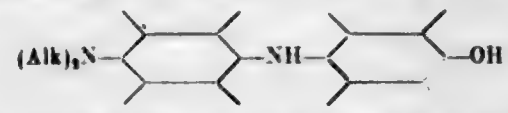
19. In a machine of the class described, the combination, with a hopper, of a feed-belt operating in the bottom of the same, a molding-barrel having a discharge-opening and communicating with said hopper and into which the mixed corn and molasses is fed by said belt, and means coöperating within said barrel to compress and form the corn-ball, substantially as described.

20. In a machine of the class described, the combination, with a hopper, of a feed-belt operating in the bottom of the same, a molding-barrel having a discharge-opening and communicating with said hopper and into which the mixed corn and molasses is fed by said belt, a hinged cap normally closing the discharge-opening in said barrel, and a reciprocating plunger coöperating with said cap to form the corn-balls, substantially as described.

21. In a machine for making corn-balls, the combination, with a hopper, of a feed-belt operating in the bottom of the same, a molding-barrel having a discharge-opening and communicating with said hopper and into which the mixed corn and molasses is fed by said belt, a hinged cap normally closing said discharge-opening, a reciprocating plunger coöperating with said cap to form the corn-ball, and auxiliary and relieving plungers provided in connection with said cap and reciprocating plunger, substantially as described and for the purpose specified.

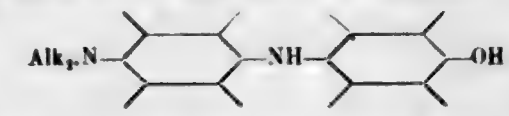
698,632. BLUE SULFUR DYE AND PROCESS OF MAKING SAME. ARTHUR WEINBERG and RICHARD HERZ, Frankfort-on-the-Main, Germany, assignors to Leopold Cassella & Co., Frankfort-on-the-Main, Germany. Filed Jan. 5, 1901. Serial No. 42,212. (Specimens.)

Claim.—1. The process of producing pure blue sulfur dyestuffs by heating paradialkylamido paraoxydiphenylamin of the constitution



with sulfur and alkaline sulfids and isolating the pure color from the crude melt by dissolving it in water, precipitating with acids, redissolving the precipitate in diluted mineral acids, filtering the thus-obtained solution of the pure leuco compound and oxidizing the same substantially as described.

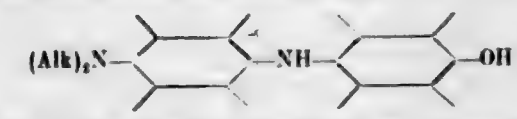
2. The new blue coloring-matter hereinbefore described derived from paradialkylamido paraoxydiphenylamin of the constitution



which in a dry state is a dark-blue bronzy powder dissolving in concentrated sulfuric acid with a blue color, easily soluble in solutions containing caustic alkalies or alkaline sulfids and dyeing unmordanted cotton from those solutions bright-blue shades fast to light, acids, washing and chlorin, substantially as described.

698,633. PROCESS OF MAKING BLUE SULFUR DYE. ARTHUR WEINBERG and RICHARD HERZ, Frankfort-on-the-Main, Germany, assignors to Leopold Cassella & Co., Frankfort-on-the-Main, Germany. Filed Aug. 24, 1901. Serial No. 73,177. (Specimens.)

Claim.—1. The process of producing pure blue sulfur dyestuffs by heating para-dialkylamido-para-oxydiphenylamin of the constitution

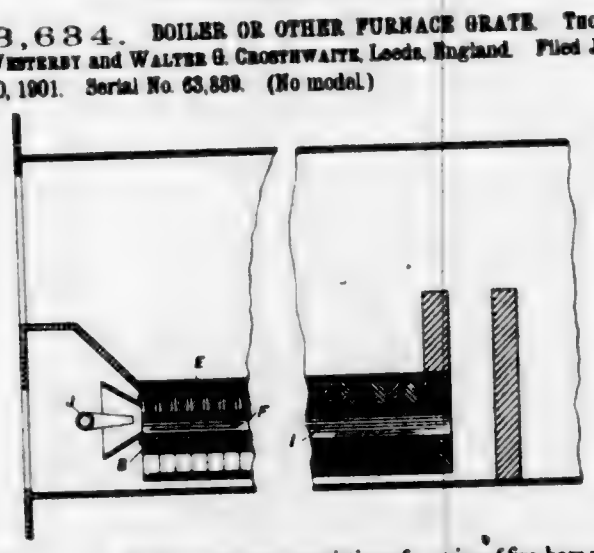


with sulfur and alkaline sulfids and isolating the pure color from the crude melt by precipitating an aqueous solution of the latter with chlorids of metals which form soluble sulfids.

2. The process of isolating the pure blue dyestuffs from the melt obtained from para-dialkylamido-para-oxydiphenylamin, sulfur and alkaline

sulfids, by precipitating the aqueous solution of the crude melt with calcium chlorid, redissolving the precipitate by means of sodium sulfid and sodium carbonate, filtering the solution thus obtained, and precipitating the pure dyestuff from the solution with common salt.

693,684. BOILER OR OTHER FURNACE GRATE. THOMAS WESTERBY and WALTER G. CROSTHWAITE, Leeds, England. Filed June 10, 1901. Serial No. 63,889. (No model.)



Claim.—1. The furnace-grate consisting of a series of fire-bars placed close together side by side, and having transverse registering apertures which form air-conduits extending from front to rear of the furnace, and having also upwardly-expanding air-passages extending from said conduits and formed by recesses in the contiguous sides of the bars, whereby the air can freely reach the fuel along practically the entire length of the bars, substantially as described.

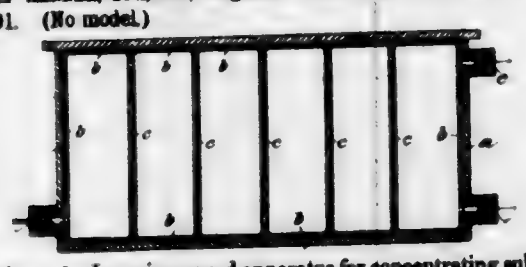
2. A furnace-grate having fire-bars transverse to the axis of the furnace, said fire-bars having air-conduits parallel to the axis of the furnace and pierced through them for conveying forced or natural draft, said fire-bars having fan-shaped recesses in their sides at intervals communicating directly with the aforesaid air-conduits whereby the air is forced through the bars, abstracting heat therefrom, and rises up between the bars into the furnace, substantially as described.

3. In furnace-grates, fire-bars having sectional conduits registering with those in the next bar passing transversely through the bar at a point where the bar is at its fullest width so that each bar touches the next at this point but has a portion cut away immediately above such conduit, leaving a space between the bars of fantail-like form, the broadest part being at the orifice on the surface of the bars and the narrowest at the orifice from the conduit.

4. In furnace-grates, fire-bars transverse to the axis of the furnace provided with air-conduits pierced through all the bars successively in a direction parallel with the axis of the furnace and the conduits of all the bars registering with each other when in place, and forming when the bars are in place a passage for forced or other draft, said fire-bars being provided with fan-shaped spaces between them opening out to these conduits, while closed to the ash-pit, such spaces being wider in the direction of the axis of the furnace at the conduits and gradually narrowing in its direction as they approach the fuel-surface of the bars, but at the same time widening out rapidly in a plane at right angles to the axis of the conduit whereby the spaces through which ashes can fall at the fuel-surface of the bars are very narrow, while their entire area is approximately equal to the much broader openings in the conduits.

5. In a furnace, a series of transverse fire-bars having conduits cut through the entire series of the bars, and spaces in the sides of the bars open from the fuel-surface to these conduits, but closed below whereby the air is prevented from entering the ash-pit but goes up freely through the narrow spaces between the bars into the furnace and openings from one or more of these conduits into the bridge whereby the forced draft of the conduits can be supplied both to the furnace and to the bridge while the ash-pit remains open.

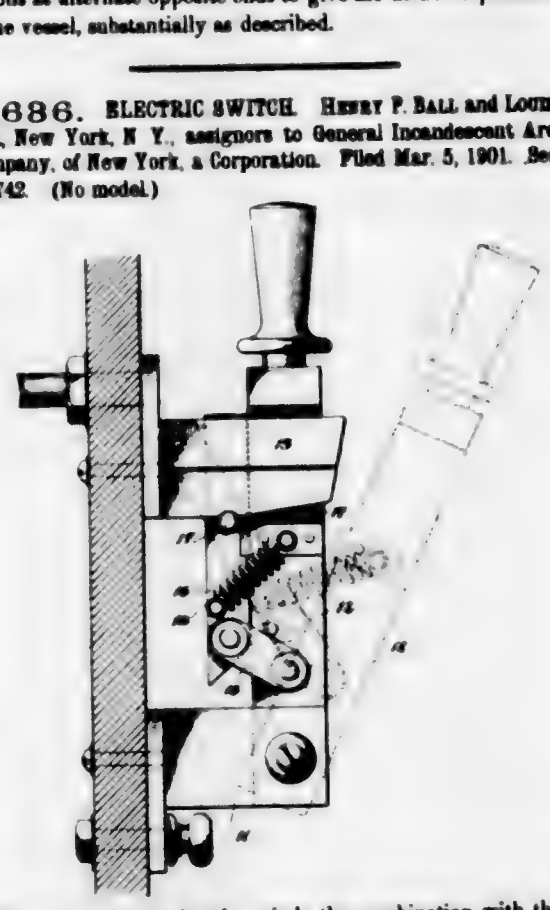
698,685. APPARATUS FOR CONCENTRATING SULFURIC ACID. ADOLF ZANNER, Brussels, Belgium. Filed Oct. 26, 1901. Serial No. 80,091. (No model.)



Claim.—1. In an improved apparatus for concentrating sulfuric acid, the combination of a cast-iron vessel, plates of earthenware completely covering the inner surfaces of the said vessel, a layer of water-glass and asbestos between the metal surfaces and plates and a plurality of perforated acid-proof cross-walls within said vessel securing said plates in place and covering the joints therebetween, substantially as described.

2. In an improved apparatus for concentrating sulfuric acid, the combination of a cast-iron vessel, a cast-iron cover on said vessel, inlet and outlet pipes entering said vessel, plates of earthenware completely coating the inner surfaces of the said vessel, cover and pipes, a layer of water-glass and asbestos between said plates and metal surfaces and a plurality of acid-proof cross-walls covering the joints between the plates and having perforations at alternate opposite ends to give the acid a serpentine course within the vessel, substantially as described.

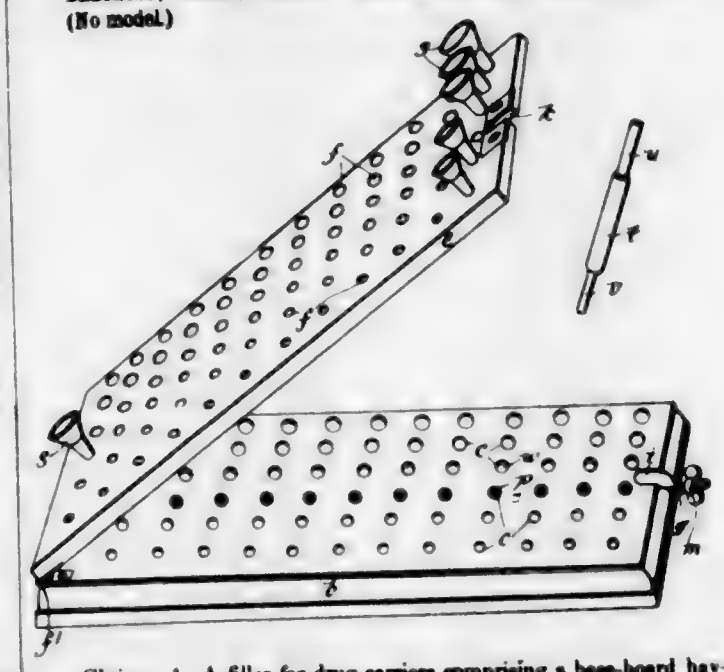
693,686. ELECTRIC SWITCH. HENRY P. BALL and LOUIS WIETNER, New York, N. Y., assignors to General Incandescent Arc Light Company, of New York, a Corporation. Filed Mar. 5, 1901. Serial No. 49,742. (No model.)



Claim.—1. In an electric switch, the combination with the spring-clip plates, of a pivoted knife-blade, a link pivoted to said knife-blade, a second knife-blade pivoted to said link, and a spring between the first and second knife-blades.

2. In an electric switch, the combination with spring-clip plates having an inclined plane formed on their lower surface, of a pivoted knife-blade, a second knife-blade pivotally connected to the first knife-blade, pivoted rollers on said second knife-blade adapted to engage said inclined planes of the said spring-clip plates, and a spring device between said first and second knife-blades.

698,637. FILLER FOR CAPSULES, WAFERS, &c. ARTHUR R. BRETHOUR, Ottawa, Canada. Filed Feb. 19, 1901. Serial No. 48,023. (No model.)



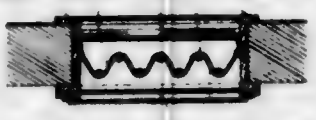
Claim.—1. A filler for drug-carriers comprising a base-board having a series of rows of sockets, the sockets of each row being of different

size than the sockets of the other rows, a capping-board having a series of rows of guiding-openings of less diameter than and registering with the said sockets, said guiding-openings serving to support funnels, and means detachably connecting said capping-board to the base-board, substantially as described and for the purpose set forth.

2. A filler for drug-carriers comprising a base-board *b* having a series of rows of sockets *c*, the sockets of each row being of different size than the sockets of the other rows, said base-board also having a series of openings *d* in line with said sockets; a capping-board *e* having a series of rows of guiding-openings *f* of less diameter than and registering with the sockets *c*; said guiding-openings serving to support funnels; hinges permanently retaining one end of said capping-board continually in the same proximity to one end of the base-board and against lateral movement parallel to said base-board, and means for detachably connecting the opposite ends of said boards together, substantially as described and for the purpose set forth.

3. A filler for drug-carriers comprising a base-board *b* having a series of rows of sockets *c*, the sockets of each row being of different size to the sockets of the other rows, said base-board also having a series of openings *d* in line with said sockets; a capping-board *e* having a series of rows of guiding-openings *f* corresponding to and registering with the sockets *c*; hinges connecting said capping-board to the base-board, the opposite ends of said boards being correspondingly slotted; a screw-bolt *g* pivotally connected at one end in the slot in the base-board; and a thumb-nut *m* taking upon said screw-bolt, substantially as described and for the purpose set forth.

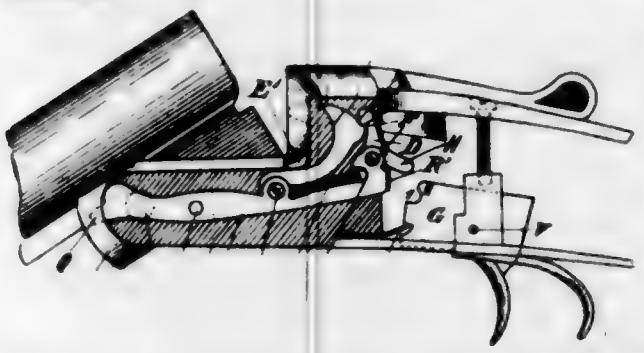
693,638. DEVICE FOR REMOVING NOXIOUS IMPURITIES FROM THE AIR OF ROOMS. CARL BREUER, Friedenau, Germany. Filed Nov. 20, 1900. Serial No. 37,175. (No model.)



Claim.—1. A device for removing noxious gases from the air of a room, consisting of a casing set in the outer wall of the room, a diaphragm of colloidal substance, such as caoutchouc provided in said casing, and guards for protecting said diaphragm, substantially as set forth.

2. A device for removing noxious gases from the air of a room, consisting of a casing set in the outer wall of the room, a diaphragm of caoutchouc provided therein and formed with undulatory cross-sectional surfaces, louver-boards secured to the exterior side of the casing, and a screen-guard provided on the interior side of the casing, substantially as set forth.

698,689. CONCEALED-HAMMER BREAKDOWN GUN. CHAS P. CLÉMENT, Liége, Belgium. Filed Mar. 28, 1901. Serial No. 53,354. (No model.)

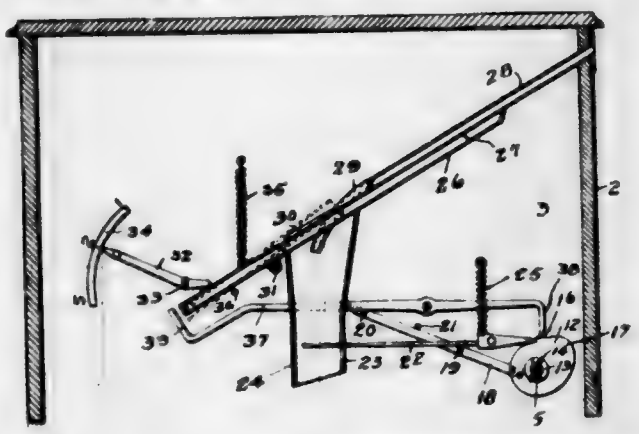


Claim.—1. In a gun-lock for breakdown guns, the combination with a swinging bar pivotally supported in the gun-stock and longitudinal thereof and the rear end of which is adapted to be raised by the breaking down of the gun, of a spring-actuated hammer pivotally connected with said bar rearwardly of its pivotal support, a cross-bar ranging forwardly of and over said hammer, a spring-actuated sear pivotally connected with the rear end of said pivoted bar and adapted to engage said hammer and a trigger-plate which said sear is also adapted to engage, substantially as shown and described.

2. In a gun-lock for breakdown guns, the combination with a swinging bar pivotally supported in the gun-stock and longitudinal thereof and the rear end of which is adapted to be raised by the breaking down of the gun, of a spring-actuated hammer pivotally connected with said bar rearwardly of its pivotal support, a cross-bar ranging forwardly of and over said hammer, a spring-actuated sear pivotally connected with the rear end of said pivoted bar and adapted to engage said hammer and a trigger-plate which said sear is also adapted to engage, said trigger-plate being also provided with a spring by which the front end thereof is normally thrown upwardly, substantially as shown and described.

3. In a breakdown gun a bar pivoted longitudinally of the stock beneath the rear end of the barrel and the front end of which is adapted to be engaged and depressed by the breaking down of the barrel, a hammer pivotally connected with said bar rearwardly of its said support, a stationary cross-bar located above and rearwardly of the pivotal connection with the hammer, a mainspring located between the rear end of said pivoted bar and said hammer, a sear pivotally connected with the rear end of said bar and adapted to engage said hammer, a trigger-plate mounted rearwardly of said sear and which said sear is also adapted to engage and a spring for raising the forward end of the trigger-plate.

693,640. COIN-ACTUATED MECHANISM FOR NEWSPAPER-DELIVERY BOXES. WILLIAM S. CONNER, Minneapolis, Minn., assignor of one-fourth to Charles T. Glasser, Minneapolis, Minn. Filed Apr. 29, 1901. Serial No. 57,867. (No model.)



Claim.—1. The combination, with a coin-chute having a slot in its bottom, of a second chute underlapping the first-named chute and into which pennies fall through said slot, a chute adapted to receive the coins from both said first and second named chutes and a switch device provided in connection with said second-named chute, for the purpose specified.

2. The combination, with a coin-chute having a slot in its bottom, of a second chute underlapping the first-named chute and adapted to receive the coins that fall through said slot, a third chute to receive the coins from both said first and second named chutes, a pivoted switch device provided in connection with said second-named chute, a scale having marks or numerals representing coins of different denominations, and an indicator-hand adapted to move over said scale and to actuate said pivoted switch device, for the purpose specified.

3. The combination, with a coin chute, of a second coin-chute beneath the same to receive coins therefrom, a pivoted switch device provided in connection with said second-named chute, means for adjusting said switch device, a locking-lever provided in the path of the coin falling through said second-named chute, and a reciprocating device adapted to be released by the movement of said lever, substantially as described.

4. The combination, with a chute 28 having a slot in its bottom, of a chute 26 beneath said slot, a chute 24 adapted to receive coins from both said chutes 28 and 26, a switch device, means for operating the same, a pivoted lever provided near said switch device and means for tilting said lever.

5. The combination, with a rock-shaft, of a disk thereon, a pivoted lever normally locking said disk and shaft, a coin-chute, a pivoted switch device actuated by a coin from said chute, and a second lever actuated by the movement of said disk to permit the discharge of a coin after actuating said switch device, substantially as described.

6. The combination, with a rock-shaft and a disk mounted thereon having a shoulder or projection and a cam-face, of a locking-lever normally engaging said shoulder, a coin-chute adapted to direct a coin upon the free end of said lever, a second lever adapted to be operated by the engagement of said cam-face, and a switch device adapted to direct a coin upon said second lever, substantially as described.

7. The combination, with a rock-shaft, of a disk thereon having a shoulder 16 and a cam-face 17, a pivoted lever 22 normally engaging said shoulder, a spring 25, a lever 37 adapted to be engaged by said cam-face, means carried by said disk for preventing downward movement of said levers until said shaft is rocked, and coin-chutes adapted to deposit coins upon said levers, for the purpose specified.

8. The combination, with a rock-shaft, of a disk mounted thereon having a shoulder 16 and the cam-face 17, a pivoted lever 22 normally engaging said disk, a spring 25, a pivoted lever 37 adapted to be engaged by said cam-face when said shaft is rocked, means carried by said disk for limiting the downward movement of said levers, a coin-chute adapted to deliver a coin upon said lever 22, and a switch adapted to receive coins from said coin-chute and direct them against said lever 37, for the purpose specified.

9. The combination, with a coin-chute, of an adjustable chute section forming a continuation of said chute, means for adjusting said chute-section, a locking-lever whereon the coins are discharged from said coin-chute, a second lever adapted to receive coins from said chute-section, and means for operating said levers to discharge the coins, substantially as described.

10. The combination, with a coin-switch, of an indicator-hand for operating the same, a spring normally holding said switch in its raised position, a scale representing different denominations of coins over which said indicating-hand is movable, and a receiving-chute adapted to deliver coins to said switch, substantially as described.

11. The combination, with a rock-shaft, of the disk 6 having slots 7 thereon, rack-bars one at a time engaging said slots, a spring-actuated disk loosely mounted on said shaft and having lugs 13, a pin provided in said shaft between said lugs and having a limited movement before engaging the same, and means for normally locking said disk, substantially as described.

12. The combination, with a coin-chute, of a pivoted member adapted to be moved by the weight of the first coin deposited in the chute, a lever preventing the discharge of said first coin, and locking devices provided in the path of the coins discharged from said coin-chute, substantially as described.

13. The combination, with a coin-chute, of a movable switch device, means for adjusting the same with respect to the discharge-opening of said chute, a rock-shaft, a disk thereon, means for normally locking said disk and operated by the weight of a coin to release the same, and means for preventing the discharge of a coin held by said switch device until said disk is rocked, substantially as described.

14. The combination, with a coin-chute, of adjustable means in alinement therewith to receive a coin therefrom, said adjustable means being adapted to be tilted out of alinement with said chute by the weight of the first coin therefrom, means for retaining the coin in said adjustable means, a locking device actuated by the weight of the second coin from said chute, and means for operating said retaining means and said locking device to discharge the coins, substantially as described.

15. The combination, with a coin-chute, of a tilting chute-section, means for adjusting said section into alinement with said chute to receive a coin therefrom, said section being adapted to be tilted by the weight of the first coin falling therein to move its receiving end out of alinement with said chute, means for retaining the coin in said section, a locking device adapted to be actuated by the weight of the second coin from said chute, and means for operating said retaining means and said locking device to discharge the coins held thereby, substantially as described.

16. The combination, with a coin-chute, of a locking-lever adapted to be actuated by the weight of a coin falling thereon, a rock-shaft, a disk provided on said shaft and normally locked by said lever, and means controlled by the movement of said disk for limiting the movement of said lever when a coin falls thereon, substantially as described.

17. The combination, with a coin-chute, of a locking-lever adapted to be actuated by the weight of a coin falling thereon, a rock-shaft, a disk thereon having a notch to receive said locking-lever, means controlled by the movement of said disk for preventing the movement of said lever past a certain predetermined point and the discharge of the coin therefrom until said shaft and disk are rocked, substantially as described.

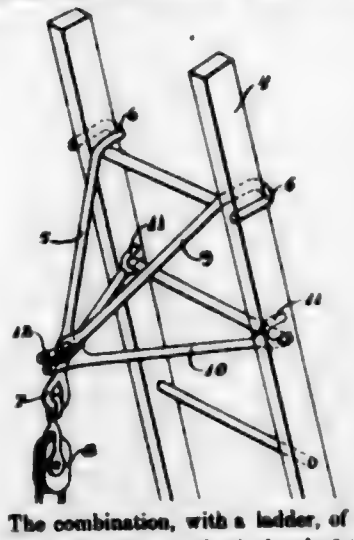
18. The combination, with a coin-chute, of a pivoted switch member operated by the movement of the first coin, a lever to prevent the premature discharge of said coin, and means released by the second coin to operate said lever, substantially as described.

19. The combination, with a coin-chute, of a locking-lever operated by the discharge of a coin from said chute, a disk released by the movement of said lever, a switch device for diverting the first coin deposited in the chute to prevent the operation of said lever, and means for preventing the discharge of said first coin until said lever is operated by the second coin, substantially as described.

20. The combination, with a coin-chute, of a pivoted switch device, means for adjusting said device with respect to the discharge-opening in said chute, said switch device being adapted to be operated by the weight of the first coin deposited in the chute, means for preventing the discharge of said first coin, a locking device adapted to be actuated by the weight of the second coin deposited in said chute, and means for operating said preventing means and said locking device to discharge the coins held thereby, substantially as described.

21. The combination, with a coin-chute having a slot in its bottom, of a second chute underlapping the first named and into which the pennies fall through said slot while the larger coins pass over the same, means for retaining the coins in said second chute, a locking device adapted to be actuated by the weight of the coins falling from said chutes, and a switch device provided in connection with said second-named chute and operated by the first coin falling therein, substantially as described and for the purpose specified.

698,641. STAGING BRACKET OR SUPPORT. HARRY R CRAMER, Minneapolis, Minn. Filed July 26, 1901. Serial No. 69,741. (No model.)



Claim.—1. The combination, with a ladder, of the arms or legs 5 and 9 pivotally connected and having hooked ends 6 to clasp the ladder-rails, an eye provided on one of said arms, and a V-shaped brace having forks 11 to engage the ladder-rung below said hooked ends, and a fork 12 to straddle one of said arms between said eye and its hook, substantially as described.

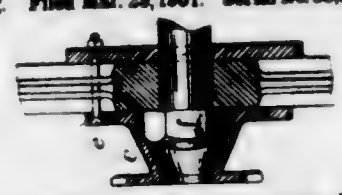
2. A staging-bracket, comprising legs adapted to rest upon the ladder-rung and having outwardly-turned ends to clasp the rails thereof, said legs being pivotally connected to permit adjustment of the bracket to ladders of different width, and a block-and-tackle attachment provided on said bracket near the pivotal connection of its legs, substantially as described.

3. A V-shaped staging-bracket, comprising legs 5 and 9 adapted to rest upon a ladder-rung and having outwardly-turned ends to clasp the rails thereof, said legs being pivotally connected to permit adjustment of the bracket to ladders of different width, a block-and-tackle attachment provided near the pivotal connection of said legs, and a brace adapted to be placed between the ladder and said block-and-tackle attachment.

4. The combination, with a ladder, of a V-shaped bracket, comprising legs 5 and 9 adapted to rest upon the ladder-rung and having hooked ends to clasp the rails thereof, said legs being pivotally connected to permit the adjustment of the bracket to ladders of different width, a block-and-tackle attachment provided on said bracket near the pivotal connection of said legs, and a V-shaped brace adapted to engage the ladder-rung below said hooked ends and having a fork to straddle the apex of of said bracket, substantially as described.

5. The combination, with a ladder, of a V-shaped bracket, comprising legs adapted to rest upon a ladder-rung and having means for engaging the rails thereof, said legs being pivotally connected to permit the adjustment of said bracket to ladders of different width, and a block-and-tackle attachment provided on said bracket near the pivotal connection of its legs, substantially as described.

693,642. SPEEDING ATTACHMENT FOR MILLS. JOHN W. CUSHING, San Francisco, Cal., assignor of one-half to George R. Elliott, Baker City, Oreg. Filed Mar. 29, 1901. Serial No. 53,525. (No model.)



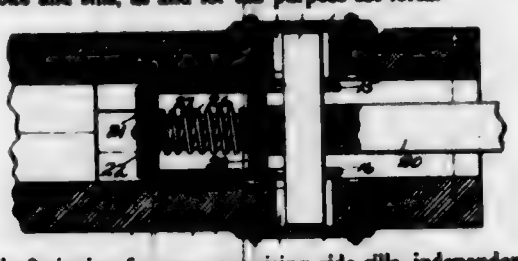
Claim.—1. As a speeding attachment for mills, the combination of a sprocket-wheel having a hollow base and flange, said base being adapted to provide space for the end of the mill-shaft; and means for clamping said sprocket to the balance-wheel of the mill, substantially as described.

2. As a speeding attachment for mills, the combination of a sprocket-wheel having a hollow base and flange, said base being adapted to provide space for the end of the mill-shaft, and a plate comprising two interlocking sections adapted to encompass said shaft end; and means for clamping the parts on the balance-wheel, substantially as described.

3. In an accelerating-gearing, the combination with the balance-wheel of the sprocket-wheel having a hollow, conical base and flange, the clamping-plate comprising two interlocking, perforated sections encompassing said shaft on the rear side of said balance-wheel, and bolts for clamping said parts to the said balance-wheel, substantially as described.

693,648. DRAFT-RIGGING FOR CARS. WILLIAM H. EMERICK, Chicago, Ill. Filed May 24, 1901. Serial No. 61,673. (No model.)

Claim.—1. A draft-rigging for cars comprising side sills, independent counterpart castings mounted upon the opposed sides or faces of said sills, said castings provided with shoulders and having coöperating longitudinally-extending seats or ways in the opposed faces thereof, follower-plates arranged to be received between said castings and operating between said shoulders, the ends of said plates extending into and working in said seats or ways, springs interposed between said plates, a draft-yoke loosely seated between said castings and arranged to straddle said plates, a coupler-arm and a removable key for connecting said coupler-arm to said draft-yoke and sills, as and for the purpose set forth.

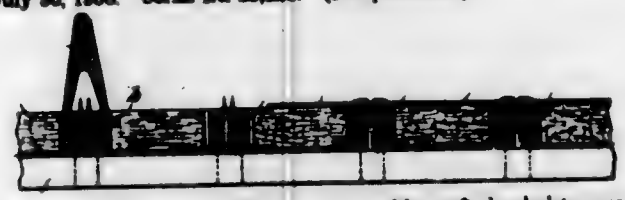


2. A draft-rigging for cars comprising side sills, independent counterpart castings mounted upon the opposed faces of said sills and having longitudinal ways or seats formed in the opposed faces thereof, follower-plates arranged to be loosely received between said castings and having their ends extending and working in said ways or seats, springs interposed between said follower-plates, a draft-yoke loosely mounted between said castings and arranged to straddle said plates, a coupler-arm, said coupler-arm, draft-yoke and sills being provided with registering slots or openings, and a locking-key adapted to be removably received in said openings, as and for the purpose set forth.

3. A draft-rigging for cars comprising side sills having elongated longitudinally-extending slots or openings, counterpart castings mounted on the opposed faces of said sills, a coupler-arm having an opening therethrough, a draft-yoke loosely mounted between said castings and having the sides thereof received in longitudinal seats formed in the opposed faces of said counterpart castings, a locking key or pin passing through said coupling-arm and draft-yoke and having its ends received in the elongated slots in said sills, and yielding means interposed between said draft-yoke and casting, as and for the purpose set forth.

4. A draft-rigging for cars comprising side sills, independent counterpart castings mounted thereon and provided with longitudinally-extending seats or ways on the opposed faces thereof, said casting also provided with shoulders arranged to project into said seats or ways, a draft-yoke having its sides received in the seats or ways in said castings, a coupling-arm, a removable key for locking said arm to said yoke and sills, follower-plates extending transversely between said castings and having their ends received in said seats or ways and adapted to be engaged by said yoke when moved in one direction and by said coupling-arm when moved in the other direction, and a spring-buffer mounted in said castings and between said plates, said shoulders limiting the movement of said plates, as and for the purpose set forth.

693,644. UPHOLSTERY. ALFRED FREMONT, Chicago, Ill. Filed July 30, 1900. Serial No. 25,223. (No specimens.)



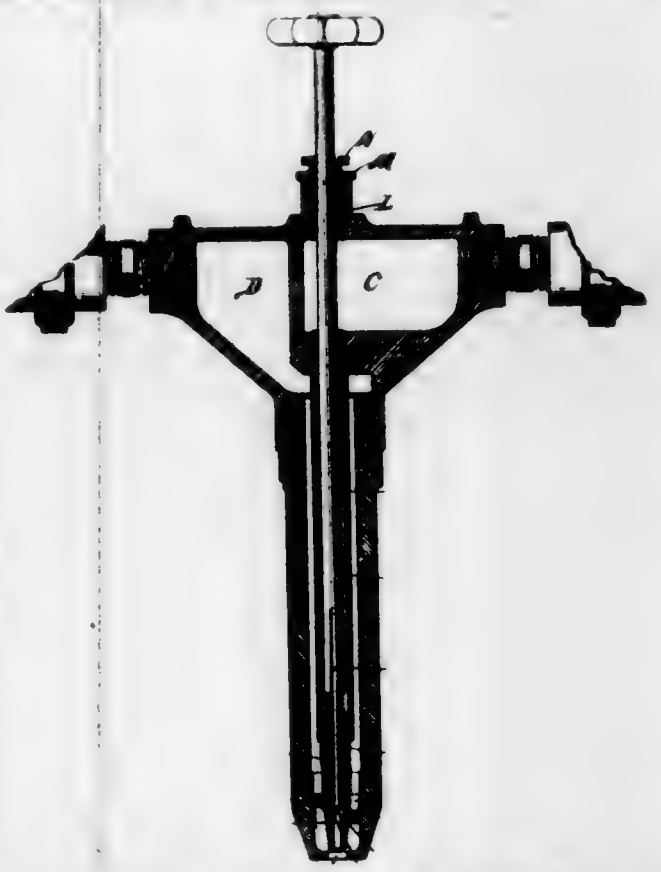
Claim.—1. A prepared filler for use in making tufted upholstery composed of a sheet of fibrous material provided with perforations arranged in predetermined order in the pattern to be produced in the cushion.

2. A prepared filler for use in making tufted upholstery composed of a web of fibrous material provided with perforations arranged in the pattern to be produced, and means to preserve the arrangement of the perforations.

3. A prepared filler for use in making tufted upholstery comprising an upper and lower layer of comparatively compact fibrous material, and an intermediate layer of loose material, the upper and lower layers perforated at intervals corresponding to the pattern to be produced in the finished cushion.

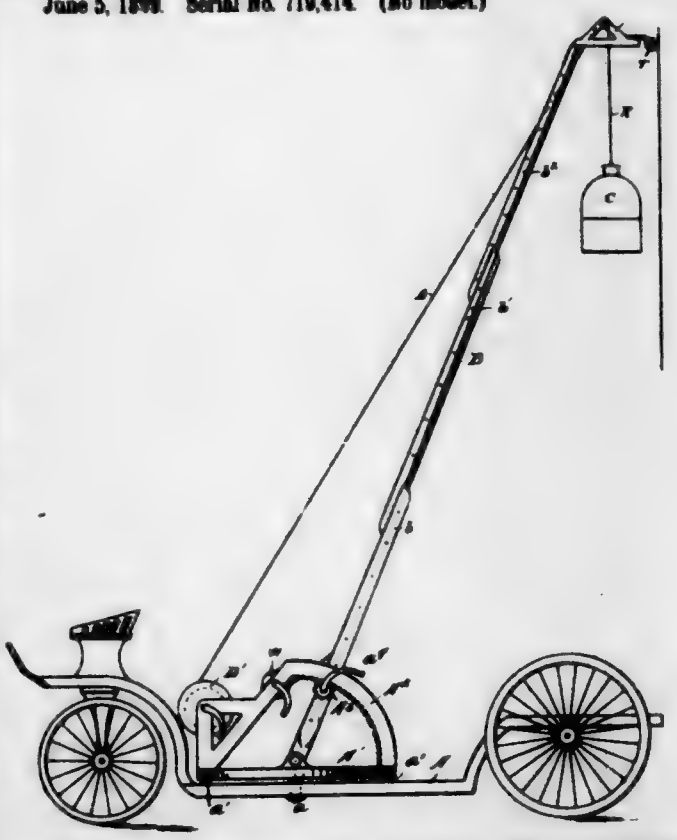
693,645. NEEDLE-VALVE INJECTOR. VICTOR GRETTER, Chicago, Ill. Filed May 31, 1901. Serial No. 62,486. (No model.)

Claim.—1. An injector comprising in combination a body portion provided with chambers, a nozzle, a tube provided with a plug having internal screw-threads and a valve-seat, said tube and nozzle having between them a passage connecting one of said chambers with the outlet of the nozzle, a valve-stem passing through the tube and of a diameter providing an annular surrounding passage connecting the other chamber with the outlet of the nozzle and screw-threaded in the plug, a needle-valve on the end of the stem opposing the seat in the plug, and grooves in the stem terminating next the point of the valve and forming passages connecting the passage surrounding the stem with the outlet of the plug when the valve is off its seat, substantially as described.



2. An injector comprising in combination a body portion, a nozzle, a valve-stem, a needle-valve on the end thereof, a plug provided with an internal seat for the valve and secured to the tube, external spiral wings on the plug fitting the walls of the nozzle, screw-threads upon the valve-stem fitting said plug, and a grooved duct in the stem terminating next the point of the valve, said stem, tube, plug and nozzle having a common axis and of diameters respectively providing for annular passages between the stem and tube and the tube and the nozzle, substantially as described.

693,646. FIRE-ESCAPE. JOHN W. GROFF, Albion, Mich. Filed June 5, 1899. Serial No. 719,414. (No model.)



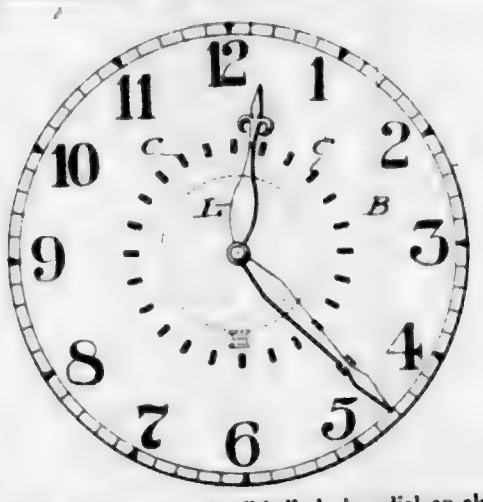
Claim.—1. The combination of an extension-ladder, means for supporting it, means for causing it to extend, a framework carried at the upper extremity of the ladder by a pivotal joint and adapted to automatio-

ally adjust itself to the side of a building a cage suspended from said framework with the side facing the building in substantially a parallel plane with the adjustable face of the framework, and means for raising and lowering the cage independently of the means for raising and lowering the ladder, substantially as described.

2. The combination of an extension-ladder, means for causing it to extend, a pivoted framework carried to the top of said ladder, a cage suspended from said framework, means for raising and lowering the cage independently, and for raising and lowering the ladder, and adjusting-rollers projecting from and carried by the framework, substantially as described.

3. The combination of an extension-ladder, a cage adapted to be raised and lowered from its upper end, means for raising and lowering it independently of the means for raising and lowering the ladder, a truck upon which the ladder is mounted, means for horizontally revolving the foot of the ladder upon said truck, and means whereby the face of the cage is at all times enabled to adjust itself automatically parallel with the front of the building against which said ladder may be raised and adjusted, substantially as described.

693,647. AUTOMATIC CALL-BELL CLOCK. WILLIAM A. HIRSCHFIELD, Philadelphia, Pa. Filed Sept. 5, 1901. Serial No. 74,351. (No model.)



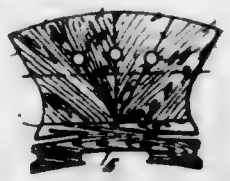
Claim.—1. In an automatic call-bell clock, a dial, an alarm, a plug, a connection for said plug and alarm, electrodes on the front of said dial between the center and circumference, plates on the rear of said dial continuous of said electrodes, each plate being provided with an opening for the insertion of said plug, said clock, alarm and plug being in an electric circuit, and an electrode on the hand of said clock directly carried by the same.

2. In an automatic call-bell clock, a dial, an alarm, a plug, a connection for said plug and alarm, electrodes on the front of said dial, an electrode directly on the hand of the clock, and plates on the rear of said dial connected with said electrodes, each of said plates having an opening for the insertion of said plug, said clock, alarm and plug being in an electric circuit.

3. In an automatic call-bell clock, a dial, an alarm, a plug, a connection for said plug and alarm, electrodes on the front of said dial between the center and circumference, plates on the rear of said dial connected with said electrodes, each of said plates having an opening for the insertion of said plug, said clock, alarm and plug being in an electric circuit, and an electrode carried directly by the minute-hand of the clock.

4. In an automatic call-bell clock, a dial, an alarm, a plug, a connection for said plug and alarm, an electrode directly carried by the hand of the clock, and electrodes on the front of the dial between the center and circumference thereof, and plates on the back of the dial having openings, said plates being connected with said electrodes, and said plug being adapted to be placed in either of said openings the clock, alarm and plug being in an electric circuit.

693,648. BRIDGE FOR VIOLINS OR SIMILAR INSTRUMENTS. ARTHUR HURLEY, Tondu, England. Filed July 23, 1901. Serial No. 69,452. (No model.)

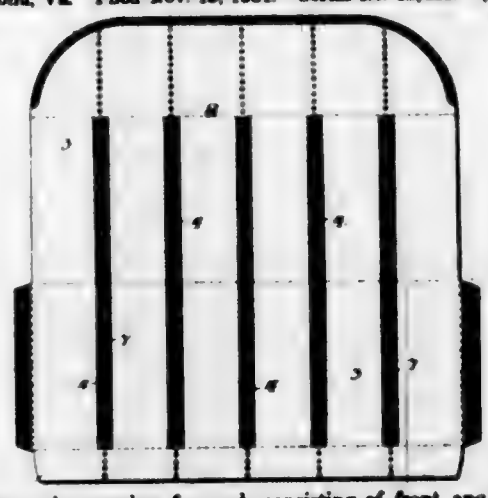


Claim.—1. A bridge for a violin or similar instrument composed of top and bottom portions of wood, the grain of the bottom portion running horizontally while the grain of the top portion converges toward the center of the bottom portion, substantially as shown and described.

2. A bridge for violins or similar instruments, comprising a bottom portion composed of wood, the grain of which runs horizontally, and a top portion composed of wood, and of separate pieces so arranged that the grain thereof converges toward the center of the bottom portion, substantially as shown and described.

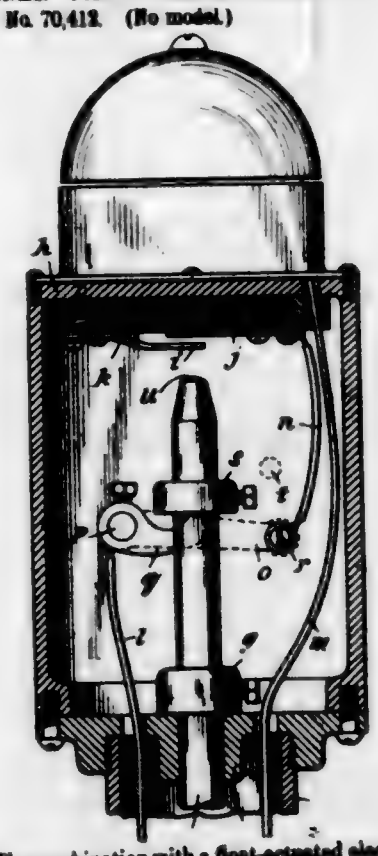
3. A bridge for violins and similar instruments, composed of top and bottom portions of wood, the grain of the wood of the bottom portion being arranged horizontally and the top portion being composed of separate pieces secured together and to the bottom portion, and the grain of the wood of which converges toward the center of the bottom portion, substantially as shown and described.

693,649. COMPARTMENT-ENVELOP. BENJAMIN F. JOHNSON, Richmond, Va. Filed Nov. 15, 1901. Serial No. 82,413. (No model.)



Claim.—An envelop for seeds consisting of front and back folds, gummed lines uniting them into compartments, the front fold having the sealing-flap, the back fold having a pull-tongue standing free from the ends of the gummed lines along the sealing-flap and forming when raised a continuous funnel along the receiving ends of the compartments and when turned down reinforcing the sealing-flap, and lines of perforations bisecting the gummed lines and extending through the pull-tongue and the sealing-flap as shown and described.

698,650. AUTOMATIC SIGNAL APPARATUS FOR LIQUID-HOLDING TANKS. JOHN R. JOHNSON, Brooklyn, N. Y. Filed July 31, 1901. Serial No. 70,412. (No model.)



Claim.—The combination with a float-actuated electric-signal circuit-closer, of a circuit-breaking switch to interrupt the signals in advance of the recession of the float, and means to be automatically actuated by the reverse motion of the float to reset the switch preparatory for the successive operation.

698,651. AUTOMATIC TRAIN-ROBBER-INTERCEPTING APPARATUS. JOSEPH S. JOHNSON, New York, N. Y. Filed Sept. 9, 1901. Serial No. 74,806. (No model.)

Claim.—1. The combination with the end of a car-body, also with the car-platform and means adapted for constituting the stationary jaw of a gripping device, of a movable gripping-jaw mounted on said car suitably for coacting with said stationary jaw, a spring or springs for actuating said gripping-jaw, means for setting said movable jaw-actuating spring or springs under tension, a movable false platform on the main platform and means for tripping and releasing said gripper-jaw spring through the instrumentality of said false platform.



2. The combination with the end of a car-body, also with the car-platform and means adapted for constituting the stationary jaw of a gripping device, of a movable gripping-jaw mounted on said car suitably for coacting with said stationary jaw, a spring or springs for actuating said gripping-jaw, means for setting said movable jaw-actuating spring or springs under tension, a movable false platform on the main platform and means for tripping and releasing said gripper-jaw spring through the instrumentality of said false platform, and means to prevent recoil of the expanded spring for retaining the object caught.

3. The combination with the end of a car-body, also with the car-platform and means adapted for constituting the stationary jaw of a gripping device, of a movable gripping-jaw mounted on said car suitably for coacting with said stationary jaw, a spring or springs for actuating said gripping-jaw, means for setting said movable jaw-actuating spring or springs under tension, a movable false platform on the main platform and means for tripping and releasing said gripper-jaw spring through the instrumentality of said false platform, means to prevent recoil of the expanded spring for retaining the object caught, said retaining means consisting of pawls pivoted to the springs near their extremities, and ratchet-bars carried on the end of the car-body, said pawls carried in slideways along the rack-bars to control the engagement of the pawls with said rack-bars.

4. The combination with the end of a car-body, also with the car-platform and means adapted for constituting the stationary jaw of a gripping device, of a movable gripping-jaw mounted on said car suitably for coacting with said stationary jaw, a spring or springs for actuating said gripping-jaw, means for setting said movable jaw-actuating spring or springs under tension, a movable false platform on the main platform and means for tripping and releasing said gripping-jaw spring through the instrumentality of said false platform, means to prevent recoil of the expanded spring for retaining the object caught, said retaining means consisting of pawls pivoted to the springs near their extremities, and ratchet-bars carried on the end of the car-body, said pawls carried in slideways along the rack-bars to control the engagement of the pawls with said rack-bars and means to release the pawls from the rack-bars preparatory to setting the gripping-jaw consisting of the bell-cranks pivoted on the pawl-bars, and having trunnion-pivots in the slideways, and connected by cords with the drum of the crank-shaft.

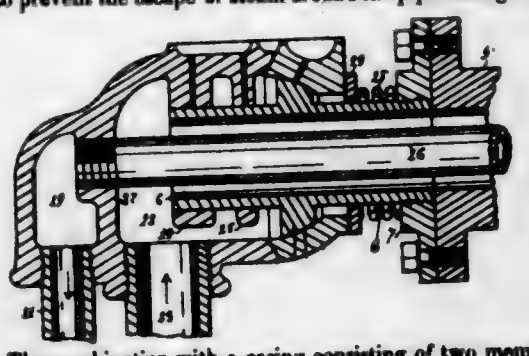
5. The combination with the gripping-jaw and its operating-springs, of the pawl-and-ratchet devices for preventing recoil of the gripping-jaw springs, bell-crank devices for releasing the pawls from said ratchets, crank-shaft drum and cords for actuating the bell-cranks, drum and cord for retracting the gripping-jaw, said drum geared with the crank-shaft, and a clutch for permitting independent action of the pawl-releasing mechanism prior to the operation of the jaw-retracting devices.

6. The combination with the gripping-jaw and its operating-springs, of the pawl-and-ratchet devices for preventing recoil of the gripping-jaw springs, bell-crank devices for releasing the pawls from said ratchets, crank-shaft drum and cords for actuating the bell-cranks, drum and cord for retracting the gripping-jaw, said drum geared with the crank-shaft, a clutch for permitting independent action of the pawl-releasing mechanism prior to the operation of the jaw-retracting devices, and the compensating springs in the drum and bell-crank-connecting cords.

698,652. SAFETY PACKING-BOX. JOHN A. KELLER, Hamilton, Ohio. Filed Nov. 30, 1901. Serial No. 84,260. (No model.)

Claim.—1. The combination with a stationary casing consisting of two members inclosing a steam-chamber, springs arranged to yieldingly clamp them together of a rotative pipe communicating with the interior of the chamber through an opening formed in one member of the casing and means to prevent the escape of steam from the casing around the pipe through the opening

2. The combination with a stationary casing consisting of two members separably clamped together by means of springs, of a rotative pipe communicating through an opening formed in the wall of the casing with its interior, and a spherical packing-box between the pipe and said wall adapted to prevent the escape of steam around the pipe through the opening.



3. The combination with a casing consisting of two members separably clamped together by means of springs and inclosing a steam-pressure chamber between them, of a rotative pipe leading from said chamber through the wall of one of said members and journaled in a bearing formed within the other member and whereon said member is movable longitudinally, and a packing-box arranged to prevent the escape of steam around the pipe from the chamber.

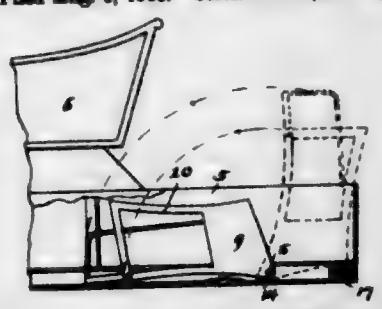
4. The combination with a casing consisting of two members separably clamped together by means of springs and inclosing a steam-chamber, of a rotative pipe communicating through the wall of the casing with the chamber, a resisting-collar on the pipe within the chamber, and a seat therefor on the inner surface of said wall to prevent the leakage of steam around the pipe, whereby the casing automatically separates under a predetermined pressure of steam within the chamber by overcoming the clamping force of the springs.

5. The combination with a stationary casing consisting of two members forcibly maintained in contact by means of adjustable spring mechanism and containing a steam-pressure chamber, of a rotative steam-pipe communicating with the interior of said chamber through an opening in the wall of the casing, a resisting-collar on the pipe within the chamber, a seat for the rotation of the collar thereon and formed within the wall concentric with said opening therein, and a spring arranged without the casing to maintain said collar forcibly in contact with said seat.

698,653. PROCESS OF DYEING SULFUR COLORS. ADOLF KERTESS, Frankfort-on-the-Main, Germany, assignor to Leopold Cassella & Co., Frankfort-on-the-Main, Germany. Filed May 4, 1901. Serial No. 58,805. (No specimens.)

Claim.—The process of treating cotton fiber dyed with sulfur colors and subjected afterward to the action of acids with solutions of acetates substantially as described.

698,654. FOLDING VEHICLE-SEAT. CHARLES F. KIMBALL, Chicago, Ill. Filed Aug. 6, 1900. Serial No. 26,017. (No model.)



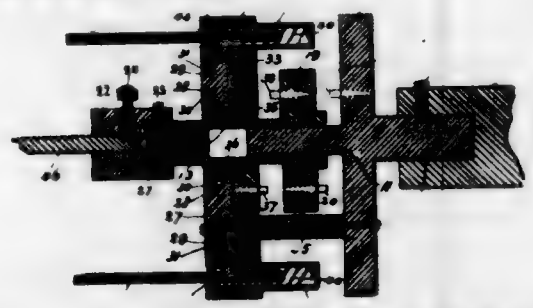
Claim.—1. The combination with a vehicle box or body, of a folding seat therefor comprising standard members having relatively wide upper and lower supporting end portions, pivotally mounted within the vehicle-body in parallel relation to move together upon a pivot-axis extending through lower corner portions of said standards, a seat-body pivotally mounted between said seat-standards upon an axis extending through the forward portion of the seat and corresponding corner portions of the seat-standards, and a support upon said standards adapted to hold the seat in horizontal position when extended, said seat being adapted to fold into a position between the plate-like standards and the latter being adapted to fold downwardly into position within the vehicle-box.

2. The combination with a vehicle box or body, of a folding seat therefor comprising a pair of plate-like standards pivotally mounted in parallel relation within and at opposite sides of the vehicle-box upon a pivotal axis extending through the lower front corner portions of said standards, the rear lower portions of said standards being adapted to rest in upright position upon an underlying fixed support whereby the standards are held firmly in upright position but may be tilted forwardly, a seat-

body pivotally mounted between the upper ends of said standards upon an axis extending through the front upper corner portions of the standards and corresponding portion of the seat, said axis being located well in front of the central transverse line of the seat, whereby the latter tends to tilt backwardly and downwardly when loaded, and a transverse support extending between the rear portions of said standards in position to support the seat horizontally when the standards are in upright position, said seat being adapted to fold forwardly upon its pivotal axis into a position between and substantially in register with the seat-standards and the latter being adapted to tilt forwardly to lie longitudinally within the vehicle-box, substantially as described.

3. The combination with a vehicle-box provided along its lower longitudinal sides with sill members, as 16, and a transverse sill member as 17, of a pair of standards, as 10, mounted upon said longitudinal sill members upon pivot-axes extending transversely to the box or body, as 14, and adapted to rest at their lower ends upon said transverse sill member, and a seat, as 7, pivotally mounted between the upper ends of said standards upon an axis located adjacent to the side margins of said standards, and a support extending between said standards adapted to hold the seat in operative position when the standards are erect, said seat being adapted to fold into position between, and substantially in register with, said standards and the latter being adapted to fold downwardly, with said seat therebetween, within the box, substantially as described.

698,655. AUTOMATIC REVERSING TAPPING ATTACHMENT FOR LATHES. ADOLF KLEIN, New York, N. Y. Filed Apr. 10, 1901. Serial No. 55,165. (No model.)



Claim.—1. A lathe provided with the usual longitudinally-movable lathe-head and revoluble chuck, a plate connected with said head and provided with a forwardly-directed shank, a sleeve mounted on said shank and provided at its rear end with a circular head adapted to engage said plate and at its front end with a tool-holder, an annular plate connected with said first-named plate, a gear-wheel supported thereby and through which said sleeve passes, a larger gear-wheel also supported by said plate and inclosing said first-named gear-wheel, and operating in connection therewith, the first-named gear-wheel being smaller than and arranged eccentrically in the larger gear-wheel, said smaller gear-wheel and said circular head being adapted to engage, and spring-operated devices for connecting the larger or outer gear-wheel with the chuck, substantially as shown and described.

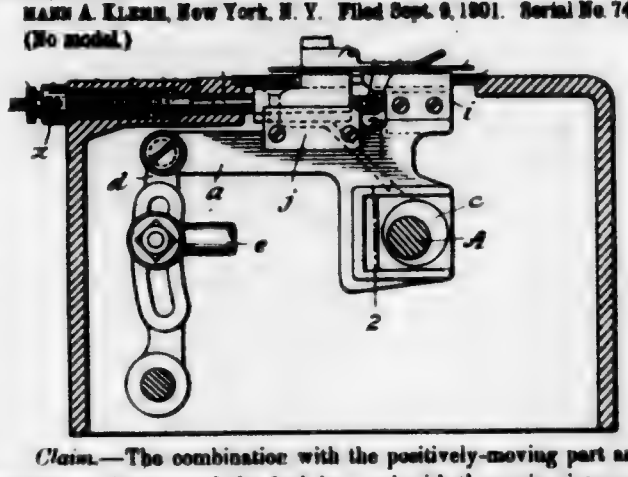
2. An apparatus of the class described, comprising a support, a tool-holder longitudinally movable thereon and provided at one end with a head adapted to engage said support, and at the opposite end with a device for holding a tool, a circular support between the ends of the tool-holder and connected with the first-named support, a large gear-wheel mounted thereon and provided with an internal gear, a smaller gear-wheel also mounted on said circular support and arranged eccentrically in the first-named gear-wheel, and adapted to be operated thereby and also adapted to engage the head of the tool-holder which passes therethrough, substantially as shown and described.

3. A device of the class described adapted for use in connection with a lathe, comprising a plate adapted to be connected with the longitudinally-movable lathe-head, a longitudinally-movable member connected with said plate and provided at one end with a head adapted to engage said plate and at the opposite end with a tool-holder, a circular support connected with said plate and through which said longitudinally-movable member passes, a small gear-wheel mounted on said longitudinally-movable member and held in position by said circular plate, a larger gear-wheel inclosing the first-named gear-wheel and arranged eccentrically thereto and also held in position by said circular support, and spring-operated devices connected with the larger gear-wheel and adapted to engage the chuck-head of the drill, said smaller gear-wheel being also adapted to engage the head of the longitudinally-movable member, substantially as shown and described.

4. An attachment for lathes comprising a support adapted to be connected with the longitudinally-movable lathe-bed, a tool-holder longitudinally movable on said support, a revoluble chuck, and devices for turning the tool in the same direction as and more rapidly than the chuck, substantially as shown and described.

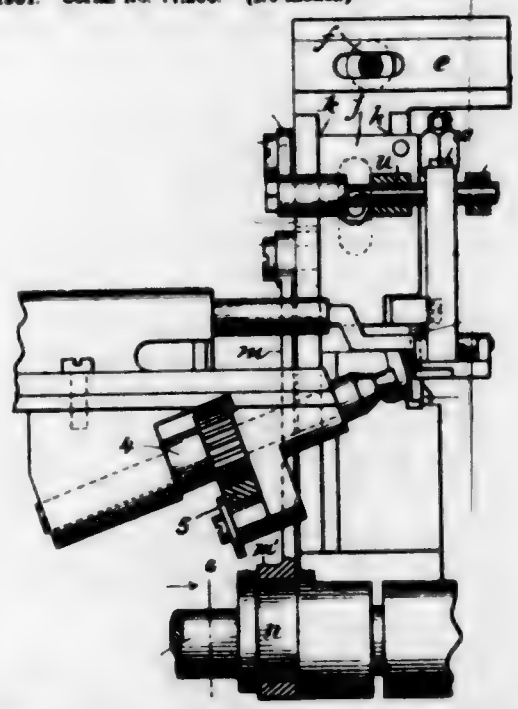
5. The combination with a lathe provided with a longitudinally-movable lathe-head and a revoluble chuck of a longitudinally-movable tool-holder mounted between the lathe-head and the chuck, and devices operating in connection with the tool-holder, and the chuck for turning the tool-holder in the same direction and more rapidly than the chuck, substantially as shown and described.

698,656. FEED MECHANISM FOR SEWING-MACHINES. HERMANN A. KLEMM, New York, N. Y. Filed Sept. 9, 1901. Serial No. 74,726. (No model.)



Claim.—The combination with the positively-moving part and the variably-moving part of the feed-dog, and with the spring intermediate of said parts for causing the variable movement, of the plunger acting on said movable part in opposition to the action of the intermediate spring, the plunger-actuating spring, said spring having greater power than the intermediate spring, and the adjusting-nut, said nut adapted to limit the action of the plunger on the variably-moving part of the feed-dog, also to allow positive connection of the two parts of the feed-dog by the plunger, and also to allow positive unlimited movements of the two parts together.

698,657. ADJUSTABLE TRIMMING ATTACHMENT FOR SEWING-MACHINES. HERMANN A. KLEMM, New York, N. Y. Filed Oct. 2, 1901. Serial No. 77,290. (No model.)



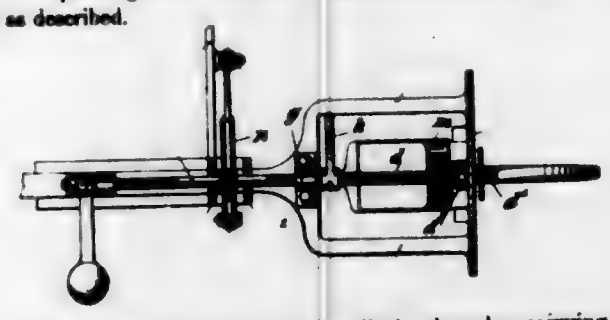
Claim.—1. In a sewing-machine having an upper and lower trimming-cutter adjustable laterally to the feed-line, the combination with said cutters, and the stitch-forming elements, of a presser-foot having a thread-loop-controlling finger and being adjustable with the cutters, and means connecting the presser-foot and adjustable cutters whereby both are adjusted simultaneously.

2. The combination with the laterally-adjustable trimming-cutters, and with the presser-bar, of the presser-foot, thread-controlling finger carried by said foot, presser-foot-carrying staff, said staff being laterally adjustable on said bar, and the arm and pin connecting the staff and the cutter-support.

698,658. AUTOMATIC COUPLING FOR RAILWAY-CARRIAGES. GEORG LACHAY, Uj-Kigyós, Austria-Hungary. Filed July 31, 1901. Serial No. 70,332. (No model.)

Claim.—1. In a device of the character described, the combination with a draw-bar, of a pair of horizontal rods mounted one on each side thereof, a disk carried by one of said rods and engaging said draw-bar, a

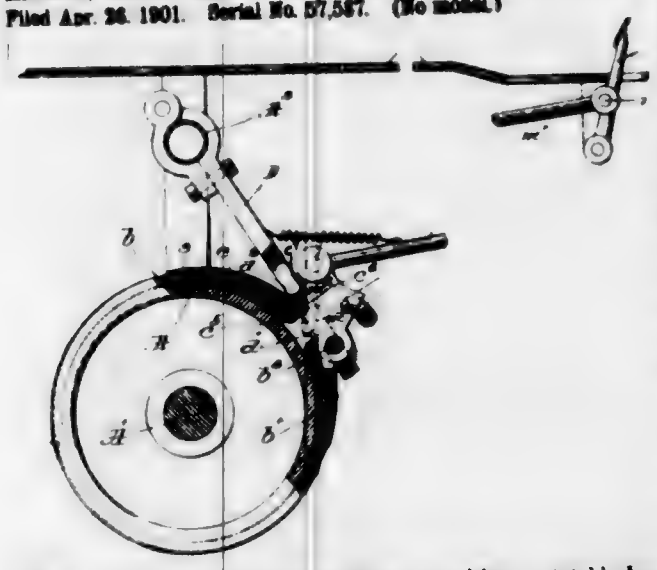
draw-head, carried by said rod and projecting beyond said disk, said disk having a vertical slot formed therein diametrically opposite said draw-head, a toothed sector carried by each of said rods, said sectors intermeshing whereby both rods are operated in unison, a fork carried by the other of said rods to the rear of said disk and in alinement with the vertical slot therein, said rod carrying the draw-head having a portion thereof square in cross-section, a lever slidably mounted on said square portion, means for operating said lever, and a weight carried by said rod, substantially as described.



2. In a device of the character described, a draw-bar carrying a rod on each side thereof, a disk carried by one of said rods and having a vertical slot therein in alinement with the other of said rods, a triangularly-shaped draw-head carried by the said first-named rod, toothed intermeshing sectors carried by said rods, a fork *m*, carried by the said second-named rod, a lever slidably mounted on said first-named shaft for operating said shaft, a lever carried by the frame, a slotted link connected to said levers, and a weight carried by the first-named rod, substantially as described

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698,659. DOUBLE-ACTING BAND-BRAKE. ALFRED LA FRANCE, Marlboro, Mass., assignor of one-half to S. R. Simonds, Marlboro, Mass. Filed Apr. 26, 1901. Serial No. 57,587. (No model.)



Claim.—1. A double-acting band-brake comprising a rotatable drum, a surrounding expansible shoe having normally separated ends, a fixed member provided with a slot through which both ends of the expansible shoe are extended, the opposite ends of said slot constituting back-stops against which one or the other of the ends of the shoe may bear, and means for drawing together the ends of said shoe, said means including a member pivotally mounted directly upon one end of the shoe and in sliding engagement with the other end thereof, one of said ends, when the brake is applied, bearing against one of said back-stops when the drum is rotating in one direction, and the other end of said shoe bearing against the other back-stop when the drum is rotating in an opposite direction.

2. A double-acting band-brake comprising a rotatable drum, a surrounding expansible shoe having normally separated ends, means to draw the ends toward each other to tighten the shoe upon the drum, a cam to positively separate the ends when said means is released, and fixed back-stops to coöperate with one or the other end of the shoe according to the rotation of the drum, when the brake is set.

3. A double-acting band-brake comprising a rotatable drum, a surrounding split friction-ring, means to contract the friction-ring upon the drum, and a fixed back-stop member interposed between said means and the circumference of the drum, to coöperate with and positively hold one or the other side of the ring according to the direction of rotation of the drum, when the brake is set, said back-stop member having an opening through which the ends of the ring are extended.

4. A double-acting band-brake comprising a rotatable drum, a surrounding split friction-ring, an actuating-lever pivotally mounted on one end of the ring to coöperate with a fulcrum on the other end, to contract the ring upon the drum, and fixed means between the drum and the actuating-lever, having a slot through which the ends of the ring are extended, the ends of the slot acting to engage and positively hold one or the other end of the ring according to the direction of rotation of the drum, when the ring is contracted.

5. A double-acting band-brake comprising a rotatable drum, a surrounding split friction-ring, an actuating-lever pivotally mounted on one end of the ring to coöperate with a fulcrum on the other end, to contract the ring upon the drum, a cam on said lever to separate the ends of the ring when the lever is released, and fixed means to positively hold one or the other side of the ring according to the direction of rotation of the drum, when the ring is contracted.

6. A double-acting band-brake comprising a rotatable drum, a surrounding split friction-ring having an external shoulder on each end, means to contract the ring upon the drum, and a fixedly-mounted bar having a longitudinal slot through which the ends of the ring extend, the shoulder of one or the other end coöperating with the adjacent end of the slot according to the direction of rotation of the drum, when the ring is contracted.

7. A double-acting band-brake comprising a rotatable drum, a surrounding split friction-ring having an external shoulder on each end, a stirrup mounted on one end of the ring, an actuating-lever extended through the stirrup and pivotally mounted on the other end of the ring, and a fixedly-mounted bar having a longitudinal slot through which the shouldered ends of the ring extend, one or the other end of the slot forming a back-stop for the shoulder of the adjacent end of the ring according to the direction of rotation of the drum, when the actuating-lever is rocked to contract the ring upon the drum.

698,660. PAPER-CUTTER. WILLIAM H. LAMONT, Prophetstown, Ill. Filed Sept. 14, 1901. Serial No. 75,413. (No model.)

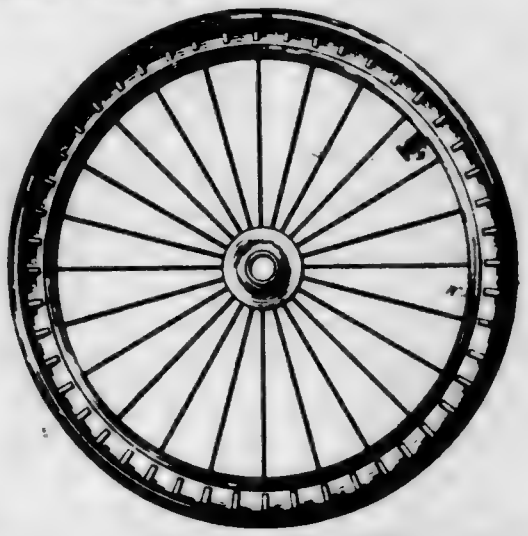


Claim.—1. In a paper-cutter, in combination, a frame comprising two spring-arms, one of said arms being provided with a cutting-groove; and a cutting-disk rotatably mounted upon the other one of said arms, the edge of said cutting-disk being adapted to enter said groove.

2. In a paper-cutter, in combination, a frame comprising two spring-arms, one of said arms being provided with a cutting-groove; a box-loop formed in the other of said arms; and a cutting-disk rotatably mounted within said box-loop, the edge of said cutting-disk being adapted to enter said groove.

3. In a paper-cutter, in combination, a frame comprising two spring-arms, one of said arms being provided with a cutting-groove having a slit in its lower portion; a box-loop formed in the other of said arms; a shaft journaled in the walls of said loop; and a cutting-disk mounted upon said shaft, the cutting edge of said disk being adapted to enter said cutting-groove.

698,661. VEHICLE-TIRE. JOHN F. LOBER, Pittsburg, Pa. Filed July 12, 1901. Serial No. 68,074. (No model.)



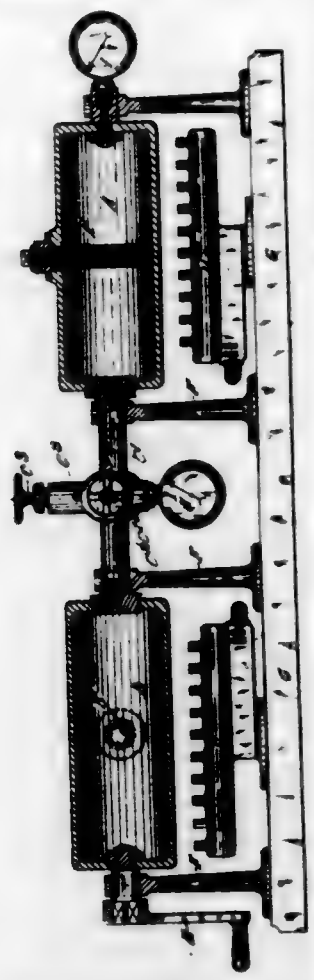
Claim.—1. A vehicle-tire comprising a hollow inflatable body portion triangular in cross-section, and a wide tread portion connected to the outer end of said triangular body, substantially as shown and described.

2. A vehicle-tire comprising a hollow inflatable body portion triangular in cross-section, a wide tread portion connected to the outer end of said body portion, and bracing-webs extending from the tread to the body portion of the tire, substantially as shown and described.

3. A vehicle-tire comprising a hollow inflatable body portion trian-

gular in cross-section, a wide tread portion connected to the outer end of said triangular body portion, said tread portion extending laterally beyond either side of said body portion, and bracing-webs between the projecting sides of the tread to the sides of the triangular body portion, substantially as shown and described.

693,662. PROCESS OF OBTAINING COFFEE SUBSTITUTES. HIRAM S. MAXIM, London, England. Filed Oct. 15, 1900. Serial No. 33,121. (No specimens.)



Claim.—1. A process of obtaining coffee substitutes, which consists in heating the substance that is to serve as the substitute to a temperature sufficiently high to drive off the contained moisture and cause it to assume a porous condition, keeping the porous substitute isolated from the atmosphere until the admission of the coffee-vapors and afterward admitting thereto the gaseous products derived from coffee-berries, for the purpose specified.

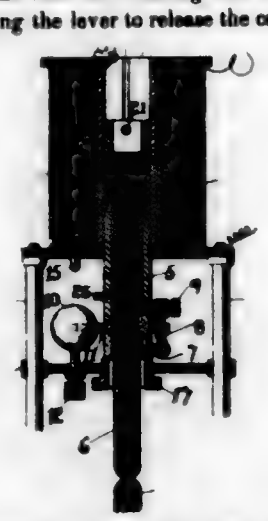
2. A process of obtaining coffee substitutes, which consists in heating a suitable grain to a temperature sufficiently high to drive the contained moisture into the atmosphere and to cause said grain to assume a porous condition, keeping the porous grain isolated from the atmosphere until the admission of the coffee-vapors, and admitting to said porous grain the gaseous products derived from heated coffee-berries, substantially as described.

3. A process of obtaining coffee substitutes which consists in heating a suitable grain to a temperature sufficiently high to drive the contained moisture into the atmosphere and to cause said grain to assume a porous condition, keeping the porous grain isolated from the atmosphere until the admission of the coffee-vapors, and after said porous grain has cooled, admitting thereto the superheated gaseous products derived from roasting coffee-berries substantially as described.

4. A process of obtaining coffee substitutes, which consists in heating a suitable grain to a temperature sufficiently high to drive off the contained moisture into the atmosphere, and to cause said grain to assume a porous condition, keeping the porous grain isolated from the atmosphere until the admission of the coffee-vapors, subsequently withdrawing from the pores of said grain any air which may have unintentionally gained access thereto, and then admitting to said porous grain the gaseous products derived from coffee-berries substantially as described.

698,663. ELECTRIC-ARC LAMP. SVEND M. MEYER, Brooklyn, N. Y., assignor of one-half to Frank C. Kohart, Brooklyn, N. Y. Filed May 2, 1901. Serial No. 59,359. (No model.)

Claim.—1. In an electric-arc lamp, the combination with a solenoid, of a hollow core therefor adapted to carry the upper carbon of the lamp, a lever pivoted to said core, a projection on said lever passing through an opening in the core into position to engage said carbon, a weight connected to said lever for effecting said engagement, and an adjustable stop for tripping the lever to release the carbon to effect the feed.



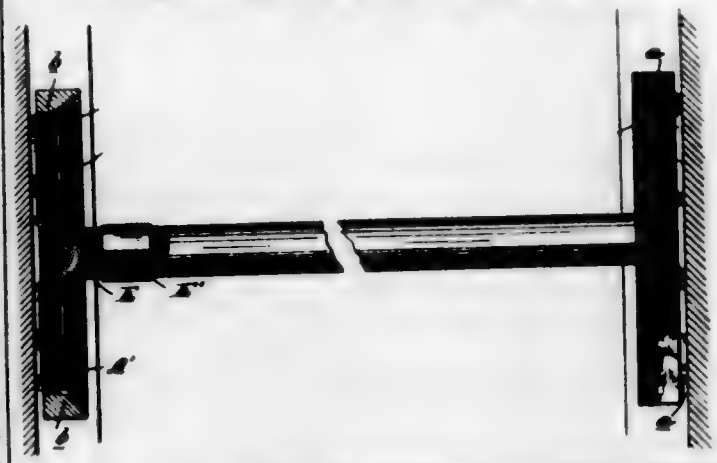
2. In an electric-arc lamp, the combination with a solenoid, of a hollow core therefor adapted to carry the upper carbon of the lamp, a lever pivoted to said core, a projection on said lever passing through an opening in the core into position to engage said carbon, a weight connected to said lever for effecting said engagement said lever being of iron whereby it may be attracted by the core to assist the weight in holding the carbon and to act against the weight in the release of the carbon, and means for tripping the lever to release the carbon.

3. In an electric-arc lamp, the combination with the solenoid, of the hollow core therefor, a clutch-lever carried on said core, a weight for actuating said lever, an adjustable stop for said weight and an adjustable stop for the core, substantially as set forth.

4. In an electric-arc lamp, the combination with the solenoid, of a hollow core therefor, a clutch-lever carried on said core, a weight for actuating said lever, a stop on the core for limiting the upward movement thereof, a stop limiting the upward movement of the weight, and an adjustable stop for tripping said lever to feed the carbon substantially as set forth.

5. A coil for an electromagnet or solenoid consisting of one or more layers of wire which together with the convolutions or turns thereof are insulated by a porous substance consisting of a paste of infusorial earth, substantially as set forth.

698,664. HOLDING-FIXTURE FOR SPRING-ACTUATED SHADES. JOSEPH H. MILAM, Washington, D. C., assignor to Curtain Supply Company, Jersey City, N. J., and Chicago, Ill., a Corporation of New Jersey. Filed May 25, 1901. Serial No. 61,894. (No model.)



Claim.—1. In a holding device for spring-actuated shades, the combination with a stick, of a friction-spring at the end of the stick having oppositely-arranged elongated flat friction-engaging surfaces and a crimp between the surfaces.

2. In a holding device for spring-actuated shades, the combination with a stick, of a friction device carried by the end of the stick consisting of elongated substantially flat spring portions and an intermediate inwardly-extending connecting portion the normal tendency of the flat portions being to project outward.

3. The combination with a shade-stick, of a head having a contracted opening secured to said stick, a spring friction device carried by said head and adapted to project slightly without the opening therein, and means for adjusting the tension of the spring friction device, substantially as described.

4. The combination with a shade-stick, of yieldable friction-heads, and means for varying the length of the stick to adjust the tension of the friction-heads, substantially as described.

5. In a holding device for spring-actuated shades, the combination with a stick, of a hollow head carried thereby, and provided with an opening at one side, an elongated spring within the head having an engaging portion adapted to project slightly without the opening therein at a point intermediate of the ends thereof, and means for adjusting the tension of the spring.

6. A holding device for shades, comprising a hollow head, a friction-spring carried by said head having an intermediate contacting surface, and means engaging the ends of the spring to prevent the withdrawal of the same from the head, substantially as described.

7. A friction-head for shade-holding fixtures comprising a spring having a depressed central portion, and elongated substantially straight portions extending in opposite directions from said depressed central portion.

8. A friction-head for shade-holding fixtures comprising a shell opening outwardly, and a metallic spring held within said shell and adapted to project at opposite ends slightly beyond the plane of the outer surface thereof.

9. A shade-holding fixture comprising oppositely-disposed elongated yieldable heads, a divided stick connected thereto, and an adjustable device connected to the adjacent ends of said division adapted to regulate the tension of said yieldable heads, substantially as described.

10. In combination with suitable guiding-grooves, a shade-holding fixture comprising a stick adapted to be carried by a shade, elongated yieldable friction-heads at the opposite ends of said stick exerting a constant pressure in said grooves, and adjustable means for regulating the degree of such pressure without withdrawing the fixture from its grooves, substantially as described.

11. A holding device for shades, comprising a head, a friction-spring carried by said head having an intermediate contacting surface, and means engaging the respective ends of the spring to prevent the same springing away from the head, substantially as described.

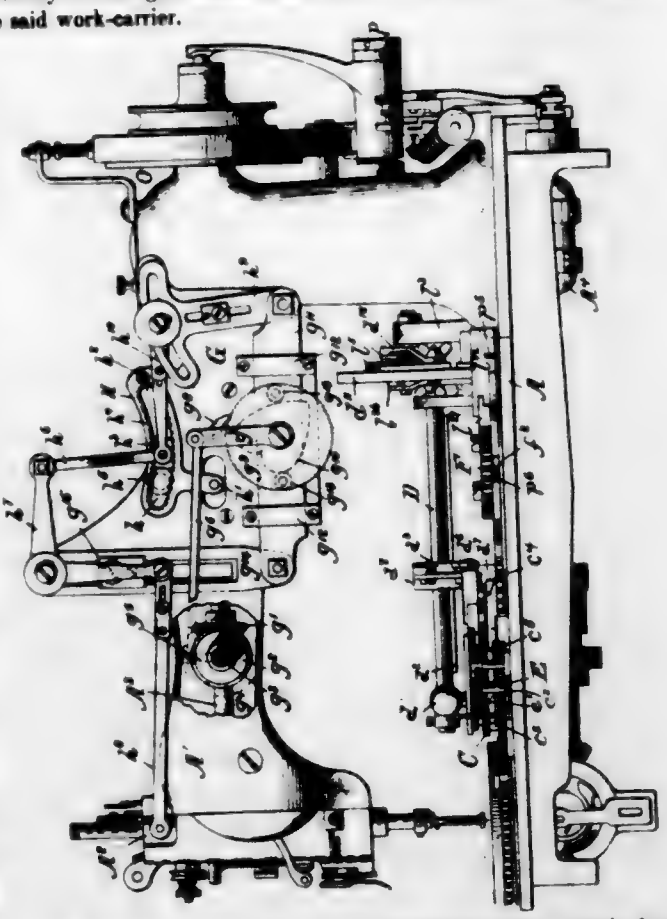
693,665. REGISTERING-MAGAZINE FOR FIREARMS. AMBRO J. NORTHCRAFT, St. Louis, Mo. Filed Nov. 5, 1901. Serial No. 81,204. (No model.)



Claim.—The improved firearm-register, comprising the elongated cylindrical magazine 1 adapted to contain the loads end to end therein and extending substantially the full length of the gun-barrel, the rod 2 mounted within one end of said magazine, the spring 3 mounted in the opposite end of said magazine and bearing directly against one end of said rod, a graduated scale 6 upon the exterior of said cylindrical magazine, and a pointer 5 attached to said rod adjacent the end thereof upon which said spring bears, said cylindrical magazine having a slot 4 through which said pointer projects, substantially as specified.

698,666. AUTOMATIC EMBROIDERY OR ORNAMENTAL-STITCH MACHINE. WILLIAM H. PARKER, Brooklyn, N. Y. Filed May 18, 1899. Serial No. 717,892. (No model.)

Claim.—1. The combination in a sewing-machine having a stitch-forming mechanism, of a work-carrier, means adapted automatically to reciprocate and rotate the said work-carrier, and means adapted automatically to change laterally the reciprocating and rotating position of the said work-carrier.



2. The combination in a sewing-machine having a stitch-forming mechanism, of a work-carrier, means adapted to rotate and reciprocate the said work-carrier, and adjustable means adapted automatically to change the reciprocating and rotating position of the said work-carrier.

3. The combination in a sewing-machine having a stitch-forming mechanism, of a work-carrier, adjustable means adapted automatically to rotate the said work-carrier, adjustable means adapted automatically to reciprocate the said work-carrier, and adjustable means adapted automatically to change laterally the reciprocating and rotating position of the said work-carrier.

4. The combination in a sewing-machine having a stitch-forming mechanism, of a work-carrier, means adapted to rotate and reciprocate the said work-carrier, means adapted automatically to change the reciprocating and rotating position of the said work-carrier a predetermined number of times with respect to a rotation or a portion of a rotation of the said work-carrier.

5. In a sewing-machine, the combination of a needle and its operating parts, a work-carrier, means adapted to rotate the work-carrier so as to move the work across the path of the needle, means adapted to reciprocate the work-carrier across the path of the needle, and means adapted to automatically vary the reciprocating movement of the said work-carrier relative to the needle.

6. The combination in a sewing-machine having a stitch-forming mechanism, of a work-carrier, means adapted to rotate the said work-carrier, means adapted to reciprocate the said work-carrier embodying a cam, a disk, a crank-pin attached to said disk, means intermediate the crank-pin and the cam whereby when the disk is rotated the position of the said cam is changed with respect to the stitch-forming mechanism, and means for rotating the disk.

7. The combination in a sewing-machine having a stitch-forming mechanism, of a frame adapted to reciprocate between stationary bearings, means adapted to feed the work mounted on the said frame, means adapted to reciprocate the said frame embodying an actuating ratchet-wheel also mounted on the said frame, and means adapted to automatically change the reciprocating position of the frame in the direction in which the same reciprocates.

8. The combination in a sewing-machine having a stitch-forming mechanism, of a frame mounted to reciprocate, means for feeding the work mounted on said frame, a ratchet-wheel mounted on said frame, means whereby when said ratchet-wheel is actuated said frame is reciprocated, an oscillating shaft, a traveler on said shaft, and means for moving the same longitudinally of the shaft, a connection between the said traveler and aforesaid ratchet-wheel whereby the said ratchet-wheel is actuated.

9. The combination in a sewing-machine having stitch-forming mechanism, of a work-carrier, means for reciprocating the work-carrier comprising a ratchet-wheel which is mounted and adapted to reciprocate with the work-carrier, a vibrating piece adapted to be reciprocated, means intermediate the piece and the ratchet-wheel whereby the ratchet-wheel is

operated from the movement of the piece, and means between the work-carrier and the piece whereby the piece is reciprocated from the movement of the work-carrier.

10. The combination with a sewing-machine having a vertically-reciprocating and laterally-vibrating needle-bar and complemental stitch-forming mechanism, of means adapted automatically to increase and decrease the extent of the vibrations of the said needle-bar, means adapted automatically to move laterally the vibrating position of the said needle-bar, a work-carrier, means adapted to rotate the said work-carrier, means adapted to reciprocate the said work-carrier, and means adapted automatically to move laterally the reciprocating position of the said work-carrier.

11. The combination with a sewing-machine having a vertically-reciprocating and laterally-vibrating needle-bar and complemental stitch-forming mechanism, of means adapted automatically to increase and decrease the extent of the lateral vibrations of the said needle-bar, means adapted automatically to move laterally the vibrating position of the said needle-bar, a work-carrier, means adapted to rotate the said work-carrier, means adapted automatically to reciprocate the said work-carrier, means adapted automatically to increase and decrease the extent of the reciprocations of the said work-carrier, and means adapted automatically to move laterally the reciprocating and rotating position of the said work-carrier

12. The combination with a sewing-machine having a vertically-reciprocating and laterally-vibrating needle-bar and complemental stitch-forming mechanism, of means adapted automatically to move laterally the vibrating position of the said needle-bar, a work-carrier, means adapted to rotate the said work carrier, means adapted to reciprocate the said work-carrier, and means adapted to move laterally the rotating and reciprocating position of the said work-carrier a predetermined number of times with respect to a predetermined number of lateral movements of the vibrating position of the needle-bar.

13. The combination with a sewing-machine having a vertically-reciprocating and laterally-vibrating needle-bar and complemental stitch-forming mechanism, of a cam, means whereby when said cam is actuated the working position of the vibrating needle is moved laterally, means for actuating said cam, a second cam, and means for operating the same, a work-carrier reciprocated by said second cam, a crank-pin, means for operating said crank-pin, and means operated through the movements of the said crank-pin adapted to move laterally the reciprocating position of the said work-carrier.

14. In combination in a sewing-machine, stitch-forming mechanism, feeding mechanism comprising a reciprocating work-carrier, means for changing the reciprocating position of the said work-carrier comprising the rack e^4, the tooth-lever F, the gear f^6 and the connection between the same and the tooth-lever F, the rack l^{20} adapted to engage the gear f^6 and means for reciprocating the rack l^{20}.

15. The combination with a sewing-machine having stitch-forming mechanism, of feed mechanism comprising a rotating work-carrier adapted to be reciprocated, means for reciprocating the said work-carrier, a ratchet-wheel and means for operating the same, and means comprising a train of gearing intermediate the ratchet-wheel and the work-carrier whereby the reciprocating position of the work-carrier is automatically changed.

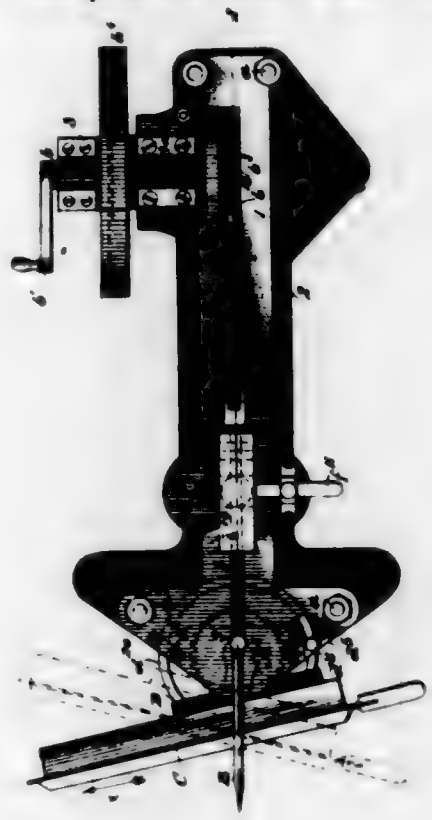
16. In a sewing-machine, a needle and means for reciprocating it, a work-carrier, means for operating the work-carrier so as to move the work in a plane substantially at right angles to the plane in which the needle reciprocates, means for producing a relative vibrating or jogging movement between the needle and the work-carrier, means for producing a relative progressive step-by-step movement between the needle and the work-carrier, and means for simultaneously varying the amplitude of the said relative jogging movement and the amplitude of the steps of the said relative progressive movement.

17. In a sewing-machine, a vertically-reciprocating and laterally-vibrating needle bar or holder, a needle carried by the said needle-bar, a work-carrier, means for operating the said work-carrier so as to move the work substantially at right angles to the lateral movements of the needle, means for reciprocating the work-carrier substantially in the same direction in which the needle moves laterally, and means for automatically varying the amplitude of the said reciprocation of the work-carrier.

18. In a sewing-machine, a needle and means for operating it, a work-carrier, means for producing a relative rotary movement between the needle and the work-carrier, an oscillating shaft, a device operated from the movement of the said shaft for producing a relative reciprocating movement between the needle and the work-carrier, and means for automatically moving the said device laterally and thereby varying the amplitude of the reciprocating movement between the needle and the work-carrier.

19. In a sewing-machine, a needle and means for operating it, a work-carrier mounted and adapted to be reciprocated and rotated in a horizontal plane, a shaft extending in a horizontal plane and adapted to oscillate in a vertical plane, a traveler mounted and adapted to move in a horizontal plane and in the same direction in which the work-carrier is adapted to reciprocate, means intermediate the traveler and the work-carrier whereby when the aforesaid shaft is oscillated the work-carrier and traveler are reciprocated, and means for oscillating the aforesaid shaft.

693,667. SAW-SHARPENING MACHINE. RUBEN P. PHELPS, Waco, Tex. Filed Apr. 29, 1901. Serial No. 58,085. (No model.)



Claim.—1. The combination with the saw-carrier, and the main frame; of the main drive-shaft, the master gear-wheel b^4, the disks b^3 b^5, geared with the master-wheel, the disk b^5, having a cam b^6, the frame b^{15}, pivotally mounted upon the main frame, said frame b^{15} having an arm b^{16}, the adjustable wedge b^{11}, mounted on the arm to coöperate with the cam b^6, and the pivotal link b^7, joining the file-holder with the disk b^3, all being arranged substantially as shown and for the purposes described.

2. The combination with the reciprocally-movable file, its supporting-frame and means for tilting said frame to raise the file at predetermined intervals; of the saw-holder, said holder including a carrier movable transversely to the file, said carrier having a rack portion, a gear for imparting motion to the said rack, and means for turning the gear in reverse directions, said means being coöperatively joined with the file-operating drive mechanism and including adjustable devices for regulating the turn of the operating-gear, connected with the saw-carrier rack, substantially as shown and for the purposes described.

3. The combination in a machine of the character described, with the reciprocally-movable file, and the means for operating it, and for swinging it out of engagement with the saw, on its backward movement; of the saw-holder, said holder including a carrier movable transversely of the file, said holder having a rack portion, the spindle E, the gear e^3, engaging the rack portion, said spindle having two ratchet-wheels e e, the teeth of which project in alternate directions, the plunger-rod having a pair of pawls, one for each ratchet-wheel e, means for shifting the plunger to engage with either one of the said ratchets, and devices coöperating with the main drive-shaft for imparting a forward thrust to the plunger-rod at predetermined intervals, for the purposes specified.

4. The combination with the reciprocally-movable and swinging file, and means for imparting such movements thereto, said means including the master gear-wheel b^4, and the saw-holder, said holder including the reversible movable saw-carrier, having a rack member; of the gear e^3, two ratchet-wheels e e, coöperating with the said gear e^3, the disk b^3, having a wrist-pin b^9, the plunger-rod f, said rod carrying two pawls, one for each ratchet-wheel e, supports for the said rod, means for adjusting the said rod in the said bearings in a longitudinal direction, a spring device for moving the rod to its backward position, the inner end of the said rod being formed to engage with the wrist-pin b^9, on the disk b^3, substantially as shown and described.

5. The combination with the main frame, the reciprocally-held file, means for lifting it from engagement with the saw at predetermined intervals, the saw-holder, said holder including a carrier c, having a rack-face c^3, the spindle E, gear e^3, and the ratchet-wheels e; of the post f^3, projected from the base of the frame, and having axial movement, the post

f^5, having movement on an arc, whose center is the axis of the post f^3, means for setting the post f^3, to its adjusted positions, the rod f, reciprocating in the posts f^3 and f^5, said rod carrying a cross-head f^{10}, adapted to be engaged by the wrist-pin b^3, on the disk b^2, a spring f^9 for moving the rod f in one direction, the pawls F F, and the stops f^6, and the spring f^7, all being arranged substantially as shown and described.

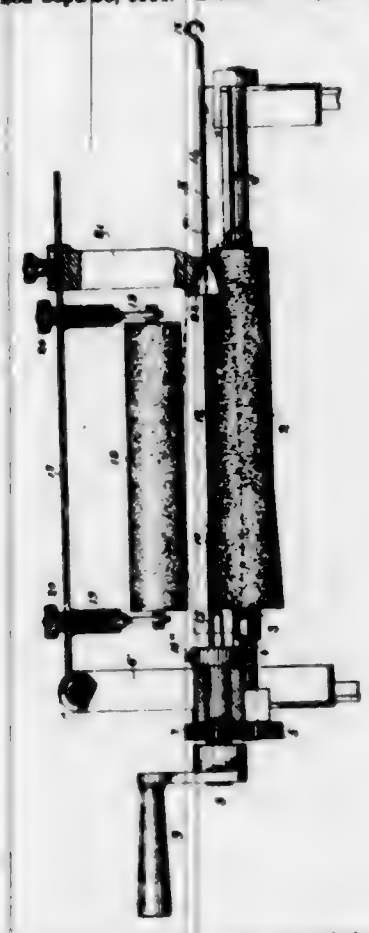
698,668. CHAIN-JACK. HENRY S. PHILLIPS, Laredo, Tex. Filed June 21, 1901. Serial No. 65,490. (No model.)



Claim.—1. A chain-jack for replacing the bearings or brasses of journal-boxes of car-wheel-truck frames, consisting of a chain, an arch-bar hook attached to one end of said chain for connecting the latter to one of the arch-bars of the car-truck, and a wheel-hook attached to the other end of said chain and conforming to the shape of the tread and tread-flange of a car-wheel and provided with a downwardly and outwardly extending inclined shank for causing the lifting of the journal-box in a vertical manner when the jack is operated.

2. A jack for replacing the bearings or brasses of journal-boxes of car-wheel-truck frames, consisting of a chain, a hook attached to one end of said chain for connecting it to one of the arch-bars of the truck-frame, a reducing device adapted to be mounted upon said hook, and a wheel-hook having a downwardly and outwardly extending shank secured to the other end of said chain and constructed to conform to the shape of the tread and tread-flange of a car-wheel for gripping said tread and tread-flange and further adapted to have the free end of said hook engage the web of the wheel when the hook is in its gripping position, said downwardly and outwardly extending shank of the hook adapted to cause the elevation of the journal-box in a vertical manner when the jack is operated, substantially as herein shown and described and for the purpose specified.

698,669. CIGAR-WRAPPING MACHINE. JOHN J. RYAN, San Jose, Cal. Filed Sept. 30, 1901. Serial No. 77,084. (No model.)



Claim.—1. A cigar-wrapping machine consisting of a table or support having a central opening, bunch-supporting rollers in said opening, a slidable and slotted wrapper-supporting gage-plate, a pivoted arm carrying a pressure-roller and movable in relation to the first-named rollers, a tip-former movable on this arm and adjustable in relation to the gage-plate, a tucker and means whereby the tucker and rollers are turned in unison.

2. In a cigar-wrapping machine, the combination of a pair of horizontal rollers, a wrapper-supporting plate above said rollers, said plate having a cigar-shaped opening, a cavity in said plate adjacent to the narrowed end of said opening, said cavity in the form of the segment of a cone, said plate and rollers disposed in relation to each other so that a bunch laid in said slot will be supported by the rollers while the tip will conform to the segmental portion of said plate, said plate adjustable to varying lengths of cigars, and means for retaining the bunch in place upon the rollers.

3. In a cigar-wrapping machine, the combination of a table or support, having an opening, a graduated slotted plate slidable in said opening, a projection on the lower side of the plate adjacent to the narrowed end of the slot in the form of the depressed segment of a cone, a pair of bunch-supporting rollers in said opening, a revoluble tucker at one end of the rollers, said tucker so disposed that the arc of its revolution is essentially tangential to the rollers, and a pressure-roller movable in relation to the bunch-supporting rollers.

4. In a cigar-wrapping machine, the combination of a table, an opening therein, bunch-supporting rollers in said opening, a slotted gage-plate slidable in said opening and above said rollers, a tip-former on said plate, a revoluble tucker, a pivoted arm carrying a pressure-roller and movable in relation to the bunch-rollers, and a tip-former movable on said arm in relation to the former on the gage-plate.

5. In a cigar-wrapping machine, the combination of a support, a pair of horizontal bunch-supporting rollers mounted in the table, a slidable gage-plate adapted to support a wrapper and having a slot or opening through which a portion of the rollers is exposed, an arm pivotally supported at one end above the rollers and provided with pendent resilient trunnion-supports, and a pressure-roller mounted in last-named supports and disposed centrally over the pair of rollers

6. The combination in a cigar-wrapping machine of a pair of revoluble bunch-supporting rollers, a slotted wrapper-supporting gage-plate slidable thereon, a tip-former on said plate, a superposed pressure-roller, and a second superposed tip-former movable in relation to the tip-former on the plate.

7. The combination in a cigar-wrapping machine of a pair of revoluble bunch-supporting rollers, a slotted wrapper-supporting gage-plate slidable thereon, a tip-forming section on said plate, a superposed pressure-roller, a tucker revoluble in the space between said rollers, and a second tip-forming section adjustable to the position of the first forming-section.

8. The combination in a cigar-wrapping machine of a pair of horizontal revoluble bunch-supporting rollers, a graduated slidable wrapper-supporting gage-plate, a tip-former on said plate, a pivoted arm, a roller carried by said arm and adapted to hold the bunch upon the first-named rollers, a tip-former movable on said arm in the same direction as the gage-plate, and graduations upon the arm corresponding to the graduations on said plate.

9. A cigar-wrapping machine consisting in combination of a table, an opening therein, removable rollers in said opening, a slotted plate movable in said opening and in the plane of the surface of the table, whereby cigar-bunches are adapted to be received in the slot of said plate, and to be supported upon the rollers, a tip-former on said plate, graduations on the plate whereby the latter is adjustable to varying lengths of cigars, a superposed resiliently-supported pressure-roller, a tucker revoluble in the space between the rollers and an arm upon which a second tip-former is slidable in relation to the tip-former on the plate, and graduations upon this arm corresponding to the graduations on said plate.

698,670. DISAZO WOOL DYE AND PROCESS OF MAKING SAME. KARL SCHIRMACHER, Soden, Germany, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany, a Corporation. Filed Nov. 29, 1901. Serial No. 84,091. (Specimens.)

Claim.—1. The herein-described process for the manufacture of a disazo dyestuff which consists in tetrazotizing ortho-para-diamidophenol-ortho-sulfonic acid and in combining it with two molecular proportions of beta-naphthol, substantially as set forth.

2. As a new product, the disazo dyestuff derived from tetrazotized ortho-para-diamidophenol-ortho-sulfonic acid and beta-naphthol, being soluble with difficulty in water to a blue solution, dyeing wool brown shades which become black on subsequent treatment with bichromate.

698,671. COMBINED MOP AND BRUSH HOLDING MEANS. PHILIPP SCHMIDT, Chicago, Ill. Filed Aug. 15, 1901. Serial No. 72,101. (No model.)

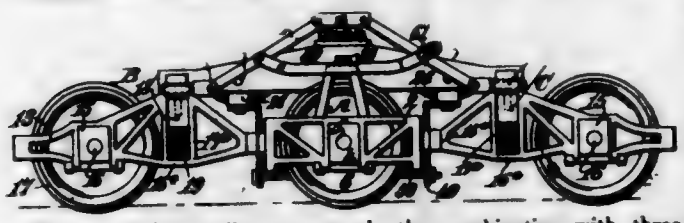
Claim.—1. In a mop or brush holding means, a headpiece having two apertures, a slotted socket adapted to be slipped onto the headpiece, and a spring-rod locking member pivotally mounted on the socket and adapted to frictionally engage it when moved to a locked position, and having hook ends to engage the two apertures in the headpiece, for the purposes specified.

2. In a mop or brush holding means, as described, the combination with a headpiece having a solid central part and an aperture at each side thereof; of a socket-piece slotted to slip onto the solid part of the headpiece, said socket having oppositely-projecting studs or pintles, and a locking device attached to the socket formed of a single spring-rod member bent upon itself to form side portions, said portions having eyes to engage the socket-pintles and inturned hook ends to engage the apertures in the headpiece, the folded end of the locking member terminating in a finger-piece, and adapted to frictionally engage the socket when moved up to a locking position, substantially as and for the purposes described.



3. As an improvement in mops and brushes, a headpiece, having means for attaching a mop or brush, said headpiece having a pair of apertures, in combination with a socket member adapted to detachably engage the headpiece, and a locking device attached to the socket having hooks to engage and interlock with the apertures in the headpiece, for the purposes described.

693,872. RAILWAY-CAR TRUCK. FRANCIS F. SHAFFER, Cumberland, Md. Filed Oct. 22, 1901. Serial No. 79,599. (No model.)



Claim.—1. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of a frame or platform supported at its ends on the end sections and having both an oscillating and an endwise-sliding movement on the latter, and means carried by said frame or platform centrally over the central section for pivotally supporting the car, substantially as described.

2. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected centrally to the central section, of a car-supporting frame or platform supported at its ends on the end sections at points intermediate the wheels of the central and end sections and substantially one-third nearer the wheels of the end sections than the wheels of the central section, whereby the weight of the car is equally distributed on the wheels of all three sections, the ends of said car-supporting frame or platform having both an oscillating and endwise-sliding movement on the end sections, substantially as described.

3. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected at their adjacent ends centrally to the central section, of bolsters carried by and yieldingly supported on the end sections between the wheels of the end and central sections, and a car-supporting frame movably supported at its opposite ends on said bolsters, substantially as described.

4. In a railway-car truck, the combination with three wheeled sections, the inner ends of the end sections being supported on and pivotally connected centrally to the central section, of bolsters carried by and yieldingly supported on the end sections between the wheels of the end and central sections, and a car-supporting frame or platform movably supported at its opposite ends on said bolsters and provided centrally with means for pivotally connecting said frame or platform to the car, substantially as described.

5. In a railway-car truck, the combination with three wheeled sections, the central section being provided centrally with a hollow boss or boxing vertically slotted on its ends, of rods or pins attached to the inner ends of the end sections and each provided with a cup-shaped head, said rods or pins loosely resting in said slots and the cup-shaped heads loosely resting in the boss or boxing, and an antifriction-ball disposed between the concave faces of said cup-shaped heads, substantially as described.

6. In a railway-car truck, the combination with three wheeled sections, the central section being provided centrally with a hollow boss or boxing vertically slotted on its ends, and a brass removably fitted in said boss or boxing and having a concave upper face, of rods or pins attached to the inner ends of the end sections and each provided with a cup-shaped head, said rods or pins loosely resting in said slots and the cup-shaped heads loosely resting in the boss or boxing and on the brass, and an antifriction-ball disposed between the concave faces of said cup-shaped heads, substantially as described.

7. In a railway-car truck, the combination of three wheeled sections, the end sections being flexibly connected centrally to the central section, and the wheels of each section being each mounted on an independent axle, substantially as described.

8. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected centrally to the central section, and the wheels of each section being each mounted on an independent axle, of a car-supporting frame or platform movably supported at its ends on the end sections at points intermediate the wheels of the end and central sections, substantially as described.

9. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected centrally to the central section, and the wheels of each section being mounted on an independent axle, of a car-supporting frame or platform movably supported at its ends on the end sections at points intermediate the wheels of the end and central sections, and a pivotal support for the car carried centrally by said frame or platform, substantially as described.

10. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected at their inner ends to the central section, of bolsters carried by the end sections between the wheels of the end and central sections, springs on which said bolsters rest, and a car-supporting frame or platform movably supported at its opposite ends on said bolsters, substantially as described.

11. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of housings carried by the end sections between the wheels of the end and central sections, springs arranged in said housings, bolsters fitted in the housings and resting on said springs, said bolsters being vertically movable in the housings, and a car-supporting frame or platform movably supported at its opposite ends on said bolsters, substantially as described.

12. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of housings carried by the end sections between the wheels of the end and central sections, springs arranged in said housings, bolsters fitted at their ends in the housings and resting on said springs, said bolsters being vertically movable in the housings, bolts passing vertically through the housings and loosely through the bolsters, and a car frame or platform movably supported at its opposite ends on said bolsters, substantially as described.

13. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of bolsters carried by the end sections between the wheels of the end and central sections, a car-supporting frame or platform movably supported at its opposite ends on said bolsters, and having both an oscillating and endwise-sliding movement thereon, and a pivotal connection for the car yieldingly and centrally supported on said frame or platform, substantially as described.

14. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of bolsters carried by the end sections between the wheels of the end and central sections, a car-supporting frame or platform comprising two longitudinal and parallel beams rigidly connected together and movably supported at their ends on the bolsters, a pillow-beam yieldingly supported between said beams, and a pillow-block supported on the pillow-beam and provided with a pedestal on which the car is pivotally mounted, substantially as described.

15. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of bolsters carried by the end sections between the wheels of the end and central sections, a car-supporting frame or platform comprising two longitudinal and parallel beams rigidly connected together and movably supported at their ends on the bolsters, hangers pendent from said beams, springs carried by said hangers, a pillow-beam arranged between said beams and seated on said springs, and a pillow-block fixed centrally on the pillow-beam, and provided with a pedestal on which the car is pivotally mounted, substantially as described.

16. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of bolsters carried by the end sections between the wheels of the end and central sections, a car-supporting frame or platform comprising two longitudinal and parallel beams rigidly connected together and movably supported at their ends on the bolsters, hangers pendent from the ends of said beams, springs carried by said hangers, a pillow-beam seated at its ends on said springs and comprising two metallic plates rigidly united at their ends and center by connecting-webs, a pillow-block fixed on the central web, and a car-supporting pedestal fixed in the pillow-block and

having a concave recess in its upper end in which the king-bolt of the car is stepped, substantially as described.

17. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of bolsters carried by the end sections, a car-supporting frame or platform comprising two longitudinal and parallel beams rigidly connected together and movably supported at their ends on the bolsters, hangers pendent from the ends of said beams, springs carried by said hangers, a pillow-beam seated at its ends on said springs and comprising two metallic plates rigidly united at their ends and center by connecting-webs, a pillow-block fixed on the central web, a cross-brace rigidly connected at its ends centrally to the parallel beams of the supporting frame or platform and centrally apertured, said cross-brace extending over the top of the pillow-block, and a car-supporting pedestal fixed in the pillow-block and projecting through the aperture in the cross-brace, substantially as described.

18. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of bolsters carried by the end sections and provided on their upper sides with concave sockets, shoes rotatably seated in said sockets and each consisting of an approximately U-shaped body portion having a pendent pintle rotatably seated in one of said sockets, and a car-supporting frame or platform provided with longitudinal beams the ends of which are slidably mounted in said shoes, substantially as described.

19. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of bolsters carried by the end sections and provided on their upper sides with concave sockets, shoes rotatably seated in said sockets and each consisting of an approximately U-shaped body portion provided with a recess on its upper side between its vertical walls to form an oil-receptacle, and provided on its under side with a pendent pintle rotatably seated in one of said sockets, and a car-supporting frame or platform provided with longitudinal beams the ends of which are slidably mounted in said shoes, said beams being provided on their under sides with projections that are movably seated in the recesses in the shoes, substantially as described.

20. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of bolsters carried by the end sections between the wheels of the end and central sections, a car-supporting frame or platform comprising two longitudinal and parallel beams rigidly connected together and movably supported at their ends on the bolsters, a pillow-beam yieldingly supported between said beams and provided centrally with a pivot-rest for the car, arms pendent from said frame or platform and projecting below and in front and rear of the central section, and a tie-rod extending underneath the central section and fixed at its ends in said pendent arms, substantially as described.

21. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of a car-supporting frame or platform movably supported at its ends on the end sections and provided centrally with a pivot-support for the car, of toggle-levers arranged on each side of the truck and connected at their ends with the end sections of the truck, said toggle-levers at their centers being arranged to engage the under side of the car on opposite sides of the longitudinal center thereof, whereby when the end sections assume angular positions relatively to the central section in rounding a curve, the toggle-lever on the inner side of the curve will be partially folded and operate to raise the corresponding side of the car, while the other toggle-lever will be spread out and lower its corresponding side of the car, substantially as described.

22. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of a car-supporting frame or platform movably supported at its ends on the end sections and provided centrally with a pivot-support for the car, of toggle-levers arranged on each side of the truck and connected at their ends with the end sections of the truck, said toggle-levers at their centers being arranged to engage the under side of the car on opposite sides of the longitudinal center thereof, and links loosely connecting together the arms of each pair of toggle-levers, substantially as described.

23. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of a car-supporting frame or platform movably supported at its ends on the end sections and provided centrally with a pivot-support for the car, of toggle-levers arranged on each side of the truck and connected at their ends with the end sections of the truck, said toggle levers at their centers being arranged to engage the under side of the car on opposite sides of the longitudinal center thereof, and links each pivotally connected at one end to one member of the toggle-levers and connected by a pin-and-slot connection to the other member thereof, substantially as described.

24. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of a car-supporting frame or platform movably supported at its ends on the end sections and provided centrally with a pivot-support for the car, of toggle-levers arranged on each side of the truck and connected at their ends with the end sections of the truck, said toggle-levers at their centers being arranged to engage the under side of the car on opposite sides of the longitudinal center thereof, and arms loosely connected to the upper ends of said toggle-levers and to the car-supporting frame, substantially as described.

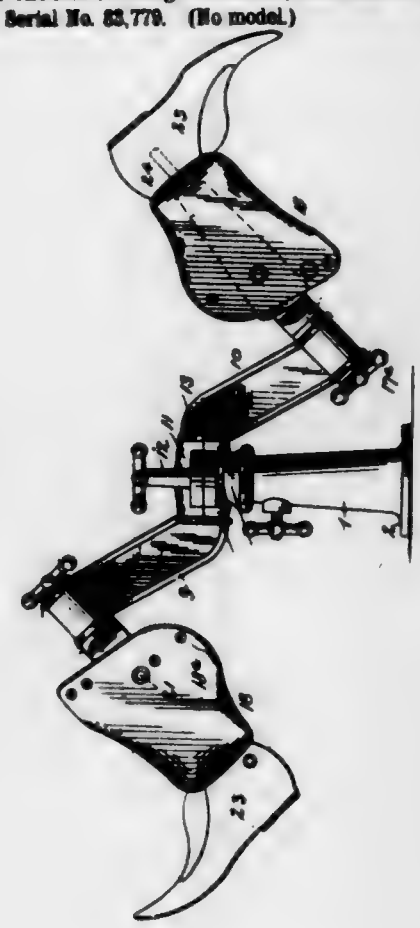
25. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of a car-supporting frame or platform movably supported at its ends on the end sections and provided centrally with a pivot-support for the car, of toggle-levers arranged on each side of the truck and connected at their ends with the end sections of the truck, said toggle-levers at their centers being arranged to engage the under side of the car on opposite sides of the longitudinal center thereof, and arms each pivoted at one end to the said frame or platform and at the other end adjustably connected to the upper end of one of the toggle-levers, substantially as described.

26. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of a car-supporting frame or platform movably supported at its ends on the end sections and provided centrally with a pivot-support for the car, toggle-levers arranged on each side of the truck and connected at their ends with the end sections of the truck, said toggle-levers at their centers being arranged to engage the under side of the car on opposite sides of the longitudinal center thereof, and arms each detachably pivoted at one end to the said frame or platform and adjustably connected at the other end to the upper end of one of the toggle-levers, substantially as described.

27. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected to the central section, of a car-supporting frame or platform movably supported at its ends on bolsters carried by the end sections and provided centrally with a pivot-support for the car, said bolsters being provided near their ends with vertical sockets, sleeves provided intermediate their ends with pintles journaled in said sockets, toggle-levers arranged on each side of the truck and provided at their ends with pivoted heads having rods or pins slidably fitted in said sleeves, said toggle-levers at their centers being arranged to engage the under side of the car on opposite sides of the longitudinal center thereof, substantially as described.

28. In a railway-car truck, the combination with three wheeled sections, the end sections being flexibly connected centrally to the central section, of a car-supporting frame or platform movably supported at its ends on the end sections at points intermediate the wheels of the end and central sections, a pivotal support for the car carried centrally by said frame or platform, and supports for the sides of the car supported at their ends by the end sections, substantially as described.

698,678. **WORK-SUPPORT.** JOHN T. SUMMERS, Laurelhill, N. Y., assignor of one-half to George C. Meakim, Laurelhill, N. Y. Filed Nov. 26, 1901. Serial No. 83,779. (No model.)



Claim.—1. In a work-support, the combination with a standard, of a Z, having parallel arms and mounted with its stem at right angles to said standard and free to rotate, means for clamping said stem against rotation, arms extending substantially at right angles to the arms of said Z, and means mounted on said arms for clamping and holding a last, substantially as described.

2. In a work-support, the combination with a longitudinally-apertured standard, a spindle revolubly mounted in said aperture, a Z mounted with its stem at right angles to said standard and free to rotate, arms extending at right angles to the arms of said Z, and free to rotate about their longitudinal axes, and means mounted on said arms for clamping a last, substantially as described.

3. In a work-support, the combination with a longitudinally-apertured standard, a spindle revolubly mounted in said aperture, means for clamping said spindle, a Z with its stem revolubly mounted at right angles to said standard, means for clamping said stem against rotation, arms extending at right angles to the arms of said Z, and revolubly mounted in apertures therein, means for clamping said arms against rotation, and means mounted on said arms, for clamping a last, substantially as described.

4. The combination with an arm bearing a pin, of a last mounted on said pin, plates mounted on each side of said arm to form jaws which engage said last, said plates being curved transversely to engage said last both front and rear to hold it from tilting, and a bolt extending transversely said plates and fitted with a thumb-screw, substantially as described.

5. In a work-support, the combination with a standard, of a Z having parallel arms and mounted on said standard with its stem free to rotate, arms extending substantially at right angles to the said arms of said Z, and means mounted on each of said last-mentioned arms to hold a last, substantially as described.

698,674. CLEANING DEVICE FOR BOTTLES OR THE LIKE. CORA M. THOMAS, Farmington, N. H. Filed May 6, 1901. Serial No. 58,957. (No model.)



Claim.—1. In combination, the shank or handle, an arm pivotally connected to the lower end thereof, means for adjusting said arm to any desired inclination in relation to the shank, and means for locking the arm in its adjusted position, substantially as described.

2. In combination, the shank or handle, an arm pivotally connected to the lower end thereof, a rod having its lower end pivotally connected with the arm and extending up in proximity to the upper end of the handle whereby said arm may be adjusted to any desired angle, and means whereby the upper end of the rod may be locked at any desired adjustment, substantially as described.

3. In combination the shank or handle, an arm pivotally connected to the lower end thereof, a rod seated in a guideway in said handle and having its lower end pivotally connected with the said arm, an outwardly-extending spring portion at the upper end of said rod, and a looped portion encircling the handle and adapted to engage any one of a series of notches therein, substantially as described.

698,675. DOOR-OPERATING DEVICE. FRED W. TOBEY, Cincinnati, Ohio, assignor to the Globe-Wernicke Company, Cincinnati, Ohio, a Corporation. Filed June 13, 1901. Serial No. 64,458. (No model.)

Claim.—1. In combination with a case, a door therefor and an operating-roller, of a flexible strap connected at one end to the door and at its other end surrounding said roller, and means carried by the strap to permit of increasing the tension thereof.

2. In combination with a case, a door and an operating-roller, of a strap connected to the door and surrounding the roller, and a loop carried by the strap to permit of increasing the tension thereof without removing the roller.



3. In combination with a case, an operating-roller and a door, of a means engaging with the roller for connecting it to the door, and means carried by said connecting means to permit of increasing the tension thereof without its removal from the roller.

698,676. STORAGE-BATTERY SEPARATOR. GEORGE M. WILLIS, Chicago, Ill. Filed Aug. 10, 1901. Serial No. 71,557. (No model.)



Claim.—1. A separator for storage batteries, composed of glass unwoven fabric having asbestos threads passed among the fibers for binding the same, substantially as described.

2. A separator for storage batteries, composed of glass-wool and binding-threads of insulating material passed among the fibers of the glass-wool to form therewith an unwoven fabric, substantially as described.

3. A separator for storage batteries, composed of glass-wool and binding-threads passed among the fibers of the glass-wool to form therewith an unwoven fabric, substantially as described.

4. A separator for storage batteries, composed of glass fibers formed into an unwoven fabric.

5. A pair of separators for storage-battery use, made of glass fibers formed into an unwoven fabric, the said separators being united to form a container for a battery-plate, substantially as described.

6. A pair of separators for storage-battery use, composed of glass-wool and binding-threads passed among the fibers of the glass-wool to form therewith an unwoven fabric, the said separators being united to form a container for a battery-plate, substantially as described.

7. A pair of separators for storage-battery use, composed of glass-wool and binding-threads of insulating material passed among the fibers of the glass-wool to form therewith an unwoven fabric, the said separators being united to form a container for a battery-plate, substantially as described.

8. A pair of separators for storage-battery use, made of glass fabric united to form a receiving-envelop for a battery-plate, the fibers of the fabric having asbestos threads for binding the same, substantially as described.

9. A separator for storage batteries, composed of glass-wool having binding-threads passed through the fibers thereof to form the said wool into an unwoven fabric, fibers of the glass-wool extending to the exterior so as to be interposed between the binding-threads and the battery-plate to be separated, whereby the binding-threads are prevented from contacting with the battery-plate, substantially as described.

10. A separator for storage batteries, composed of glass fibers and binding-threads of different material from the glass fibers passing among the glass fibers to bind and maintain the same in the required shape, substantially as described.

11. A separator for storage batteries, composed of glass fibers and asbestos binding-threads passing among the glass fibers to bind and maintain the same in the required shape, substantially as described.

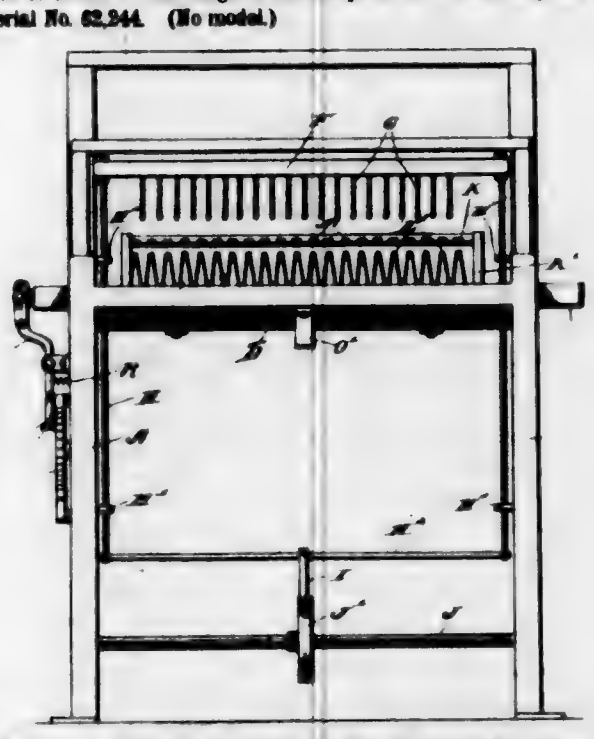
12. A separator for storage batteries, composed of unwoven glass fibers and having binding-threads of different material from the glass fibers for maintaining the said fibers in shape, substantially as described.

13. A separator for storage batteries, composed of unwoven glass fibers and having binding-threads of insulating material for maintaining the said fibers in shape, substantially as described.

14. A separator for storage batteries, composed of unwoven glass

fibers and having binding-threads of asbestos for maintaining the said fibers in shape, substantially as described.

693,677. LOOM. JOHN WILLIS, Philadelphia, Pa., assignor of one-half to Lewis A. Etherington, Philadelphia, Pa. Filed May 23, 1901. Serial No. 62,244. (No model.)



Claim.—1. In a loom, the combination with a heddle or harness of ordinary construction, an open-top reed carried by the lathe, said reed being composed of a series of arches through which the main warp-threads are threaded, a series of vertically-reciprocating needles through which one set of the auxiliary warp-threads are threaded, a series of laterally-reciprocating needles through which the other set of auxiliary warp-threads are threaded, both of said sets of needles being carried by the lathe, substantially as described and for the purpose specified.

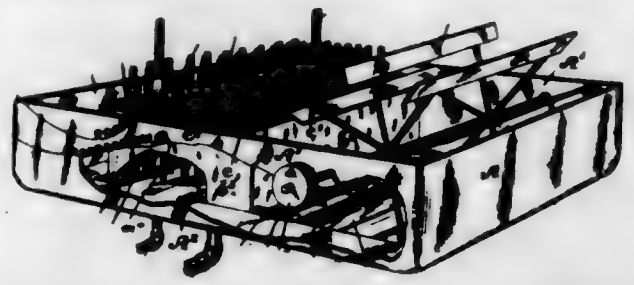
2. In a loom, an open-top reed consisting of a series of arches through which the main warp-threads are threaded, a series of vertically-reciprocating needles adapted in their reciprocating movement to pass between the arches of the reed, a series of horizontally-disposed needles, laterally-reciprocating needles, eyes formed in the ends of both sets of needles through which are adapted to be threaded certain auxiliary warp-threads, both sets of needles and reed adapted to be carried by the lathe, as and for the purpose specified.

3. In a loom, an open-top reed carried by the lathe, said reed consisting of a series of arches secured in the cross-bar, the main warp-threads adapted to be threaded through said arches, a series of vertically-reciprocating needles through the eyes of which are adapted to be threaded one set of auxiliary warp-threads, said vertical needles arranged directly above the reed and adapted in their downward movement to enter between the arches of the reed, a series of laterally-reciprocating horizontal needles, through the eyes of which are threaded the other set of auxiliary warp-threads, said horizontal needles adapted to lie directly over the arches of the reed and pass between the vertical needles as said vertical needles descend, both sets of needles adapted to be carried by the lathe, means for causing the vertical needles to reciprocate, means actuated by the motion of the lathe for causing the horizontal needles to reciprocate laterally, substantially as described and for the purpose specified.

4. In a loom, the combination of an open-top reed, substantially as shown and described, carried by the lathe, a series of vertically-reciprocating needles also carried by the lathe with a series of laterally-reciprocating needles carried by the lathe, said laterally-reciprocating needles adapted to be reciprocated in one direction a predetermined distance and back again to their previous position, means actuated by the movement of the lathe for reciprocating the horizontal needles, interchangeable means for controlling and regulating the distance the said needles are to reciprocate, substantially as described and for the purpose specified.

698,678. MACHINE FOR PRODUCING CHLORIN GAS AND CAUSTIC SODA FROM COMMON SALT. GEORGE M. WILSON, Sault Ste. Marie, Canada. Filed Sept. 20, 1901. Serial No. 75,990. (No model.)

Claim.—1. In a machine for electrically decomposing common salt into its constituent parts, the combination with a rectangular metal chamber open at the top, and having recesses in its bottom for a portion of the width of the chamber, of an inner cell with non-conducting sides and a carbon cover-plate, a plurality of electrodes protruding therethrough, a paddle-wheel journaled in the sides of the outer chamber in proximity to one end of the outer chamber, suitable means of feeding liquids to the chamber and cell, and means for retaining the same at a certain level, as and for the purpose specified.

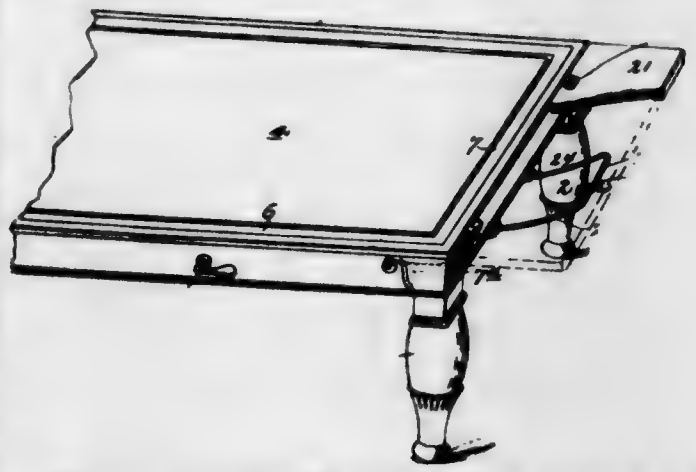


2. The combination with a rectangular metal chamber open at the top, and having recesses in its bottom, of an inner cell with non-conducting sides and a carbon cover-plate, a plurality of electrodes protruding therethrough, a feed-pipe provided at its lower end with minor distributing-tubes, an overflow-pipe, and means outside the inner cell of circulating a fluid in the bottom of the outer chamber through the inner cell, as and for the purpose specified.

3. The combination with a rectangular metal chamber open at the top, and having a plurality of recesses in the bottom thereof, of an inner cell having non-conducting sides with two of the latter located centrally over parallel recesses in the bottom, a carbon cover-plate, a plurality of electrodes protruding therethrough, a distributing feed-pipe, an overflow-pipe, for the inner cell, a paddle-wheel journaled in the metal sides of the outer chamber and located directly over and in one of the recesses in the bottom, a suitable water-supply pipe, and a discharge-pipe, for the outer chamber, as and for the purpose specified.

4. In combination, an outer metal chamber provided with parallel recesses laterally arranged in its bottom, a paddle-wheel journaled in the sides thereof in proximity to one end of the chamber, a water-supply pipe, an overflow-pipe, an inner cell with non-conducting sides, two of the latter being located centrally over recesses in the bottom of the outer chamber, a carbon cover-plate, a plurality of electrodes protruding therethrough, a feed-pipe and an overflow-pipe, in the inner cell, as and for the purpose specified.

698,679. COMBINED BILLIARD AND DINING TABLE. CHARLES M. ANDERSON, Minneapolis, Minn. Filed Oct. 3, 1901. Serial No. 77,496. (No model.)

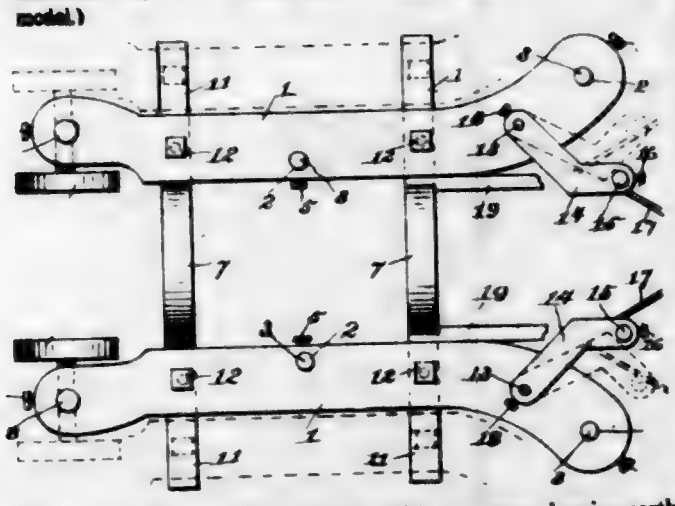


Claim.—1. In a device of the class described, the combination with a table, of a vertically-adjustable rim, slotted plates bearing guides mounted adjacent to said rim, bolts passing through said rim and engaging said slotted plates, said bolts being provided with nuts sliding in said guides, which serve to hold said nuts against turning in unison with said bolts, substantially as described.

2. In a device of the class described, the combination with a table of a vertically-adjustable rim, of a ratchet-bar mounted on said table, an apertured plate mounted within recesses in the under side of said rim, levers passing through the aperture in said plate and bearing a pawl engaging said ratchet-bar, said lever being arranged to be displaced outwardly to disengage said pawl, and a spring bearing on said lever to restore it to its initial position, substantially as described.

3. In a table of the class described, the combination with a vertically-adjustable rim, of a ratchet-bar rigidly mounted on said table, an apertured plate mounted within a recess in the under side of said rim, a lever mounted in said recess within said aperture and bearing a rounded head provided with a pawl engaging said ratchet, the face of said head being arranged to bear on said rack-bar when said lever is displaced outwardly, thereby disengaging said pawl from said ratchet-bar, and a spring bearing on said lever, substantially as described.

698,680. STRADDLE-ROW CULTIVATOR. MARSHALL L. BALL, Elizabeth City, N. C. Filed Aug. 1, 1901. Serial No. 70,531. (No model.)

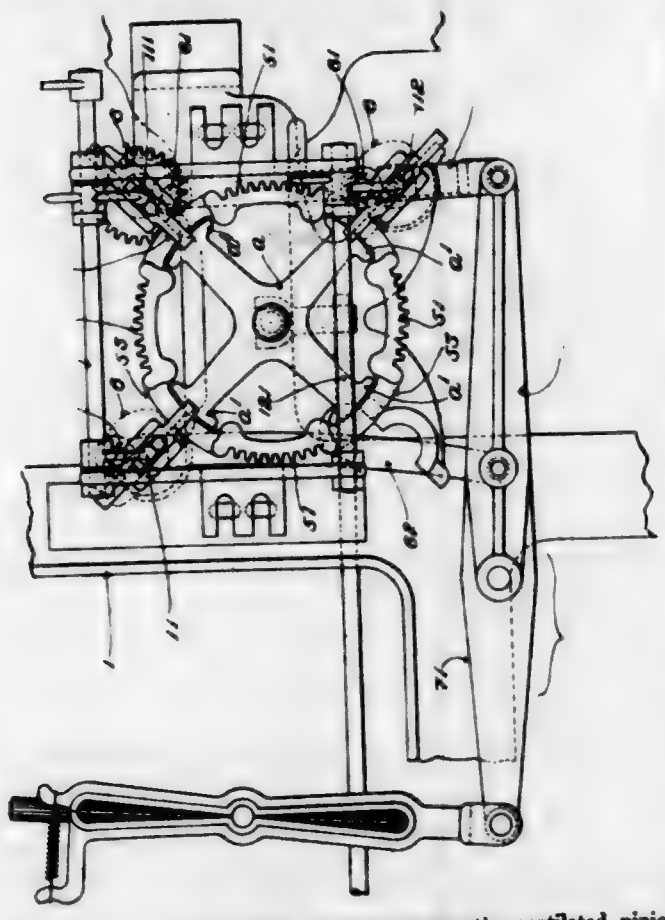


Claim.—1. The combination of the cultivator-beams bearing earth-treating devices, and an angular hanger for each beam comprising a pivoted long arm, and a short arm extending rearwardly from the long arm and carrying earth-treating devices to work the soil between the earth-treating devices of the beams.

2. In a cultivator, the combination of the cultivator-beams having earth-treating devices, an angular hanger pivoted to each beam and projecting inwardly therefrom and carrying earth-treating devices adapted to be swung back and forth between the beams to work the soil to and from the object under cultivation.

3. In a cultivator, the combination, with the cultivator-beams, of the angular hangers having a portion pivoted to and extending at an angle rearwardly from the beams, and another portion projecting rearwardly from the pivoted portion and bearing earth-treating devices adapted to be swung on said pivot.

698,681. SHUTTLE-BOX-OPERATING MECHANISM FOR LOOMS. HENRY BARDSLEY, Providence R. I., assignor to Crompton & Knowles Loom Works, Providence, R. I., a Corporation of Rhode Island. Filed Nov. 18, 1901. Serial No. 82,618. (No model.)



Claim.—1. In combination, the master-gear, the mutilated pinion and its motion-transmitting connections, weft-detector devices and means under operative control of said weft-detector devices whereby operative relations between the master-gear and pinion are disestablished on the occurrence of the predetermined condition of the weft, substantially as described.

2. In combination, the master-gear, the mutilated pinion and its motion-transmitting connections, weft-detector devices, and means under operative control of said weft-detector devices whereby engagement of said mutilated pinion by said master-gear to actuate the former is prevented on the occurrence of the predetermined condition of the weft or filling, substantially as described.

3. In a loom, an organized mechanism comprising, essentially, in combination, a master-gear and a mutilated pinion having starting-teeth which are adapted to be shifted into engaging position to occasion the actuation of the said pinion, pattern connections to control such shift, weft-detector devices, and means under operative control of said weft-detector devices whereby said starting-teeth are caused to occupy an inoperative position to thereby prevent the actuation of the pinion, substantially as described.

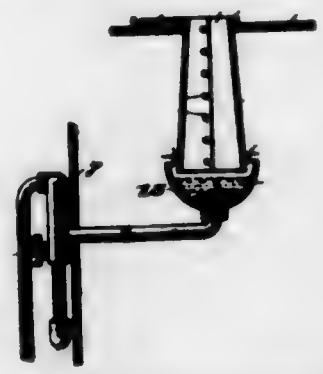
4. In combination, the master-gear, the mutilated pinion, and its diametrical lever, pattern connections in control of said lever, weft-detector devices, and means under operative control of said weft-detector devices whereby engagement of said lever by said master-gear is prevented on the occurrence of the predetermined condition of the weft or filling, substantially as described.

5. In combination, the master-gear, the mutilated pinion and its diametrical lever, pattern connections in control of said lever, the disengager coacting with said lever, and weft-detector devices, in operative control of said disengager whereby engagement of said lever by said master-gear is prevented on the occurrence of the predetermined condition of the weft or filling, substantially as described.

6. In combination, the master-gear, the mutilated pinion and its diametrical lever, pattern connections in control of said lever, the disengager at the side of said master-gear, and weft-detector devices having operative connections with said disengager whereby to move the same laterally, substantially as described.

7. In combination, the master-gear, the mutilated pinion and its diametrical lever, pattern connections in control of said lever, the disengager at the side of said master-gear and rotating in unison therewith, and weft-detector devices having operative connections with said disengager whereby to move the same laterally, substantially as described.

698,682. HYDROCARBON-BURNER. JOHN M. BENCH and LUKE P. BENCH, Norwood, Ohio. Filed Apr. 27, 1901. Serial No. 57,768. (No model.)



Claim.—1. A burner comprising a cup or receptacle for containing fuel-oil, said cup having raised edge walls and having means for supplying liquid fuel to it, a draft-tube extended above the cup or receptacle and having a central draft-flue, said draft-tube having its lower end arranged within the cup or receptacle but spaced away from the edge walls thereof to provide an opening for the entry of air for the combustion of the fuel within the cup or receptacle, and means for maintaining the fuel within the cup or receptacle at a level below the lower edge of the draft-tube, substantially as set forth.

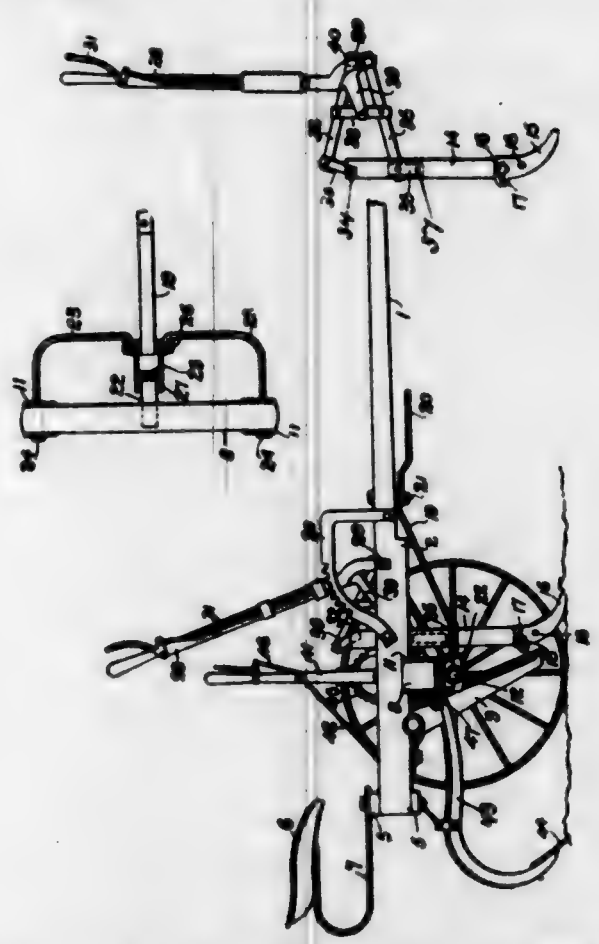
2. A burner comprising a cup or receptacle for liquid fuel having raised edge walls and provided with means for supplying fuel to it, a draft-tube extended above the cup or receptacle and having a central draft-flue, and having its lower end arranged within the cup or receptacle but spaced away from the edge walls thereof to provide an opening for the entry of air for the combustion of the fuel within the cup or receptacle, said draft-tube being formed from a sheet of soft copper rolled into conical form and having its edges lapped one over the other and rivets passed through said lapped edges, substantially as set forth.

3. The combination of a heater having a fire-box, a plate extended across the fire-box and formed with an opening, a draft-tube having a contracted upper end passed through the opening in the plate and formed with a flange one side of which rests upon the plate at one edge of the opening, a slide on the plate and on which the other side of said flange is rested, a cup or receptacle having raised edge walls within which the lower end of the draft-tube is held, and means for supplying liquid fuel to said cup or receptacle, substantially as set forth.

4. The combination of a cup or receptacle having a fuel-opening in its bottom, a draft-tube extended above the cup or receptacle, fuel-supply pipe connected to the lower part of the cup or receptacle and connected

to a fuel-tank, a valve controlling the fuel-supply pipe, a member having connection with and extended above the fuel-supply pipe and an overflow-pipe connected with said member in line with the fuel-level in the cup or receptacle, substantially as set forth.

698,683. CORN OR COTTON PLANTER. JOSEPH L. BOYD and JOHN GILLIS, Williamson county, Tex., assignors of one-third to W. M. Land, Williamson county, Tex. Filed June 3, 1901. Serial No. 62,817. (No model.)

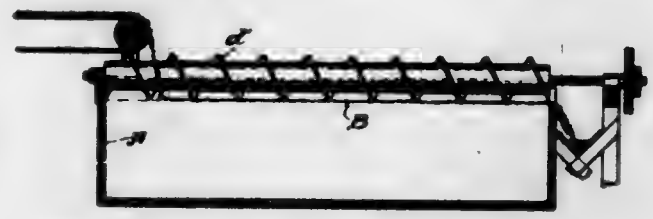


Claim.—1. In a cotton and corn planter, the combination with the main frame, consisting essentially of horizontal timbers to which the tongue is connected, an inclined seed-chute securely fastened to the timbers, rear coverers movably mounted, a leverage mechanism for adjusting said coverers, a front opening-plow, a footpiece carrying it, a lever for adjusting the position of the footpiece, and connections between said lever and the footpiece consisting essentially of an upper rod fastened to a short piece which is pivoted to the upper end of the footpiece, a lower rod likewise fastened to a short piece pivoted to the footpiece, two connections between said rods, an end one and a middle one, a projection on the lower end of the lever that is pivoted to the middle connection, and a bolt passing through the end connection and likewise passing through the lower end of the lever, substantially as described.

2. The combination with the main frame, the seed-chute, the coverers, the main supporting-wheels and the axle therefor, of a forward plow, a footpiece for carrying it consisting essentially of parallel bars, a rectangular box in the main frame through which the footpiece passes, a rectangular frame below the main frame serving as a guide and sustaining device for the footpiece, stay-rods for said lower rectangular frame, an operating-lever pivoted to the main frame for adjusting vertically the position of the footpiece, and a plurality of connecting-pieces interpivoted to each other for connecting the lower end of said operating-lever with the footpiece, substantially as described.

3. The combination with the main frame, the seed-chute, the adjustable coverers, and the wheels and their axle, of the footpiece, the adjustable support on the lower end thereof for the opening-plow, the guide in the main frame for the footpiece, the guide below the main frame for the footpiece, the operating-lever for adjusting the position of the footpiece vertically, and means connecting said operating-lever to the footpiece consisting essentially of an upper strip 32, a short piece 33 to which the piece 32 is attached, said piece 33 being pivoted to the upper end of the footpiece, a lower piece 35, a piece 36 to which the piece 35 is attached, said piece 36 being pivoted to the footpiece, a middle connection 38 attached to the pieces 32 and 35, an end piece 40 attached to the pieces 32 and 35 by means of loose pivots, a rigid connection on the lower end of the operating-lever which is pivoted to the middle piece 36, and a pivot for the end of the operating-lever which pivot passes through the connection 40, substantially as described.

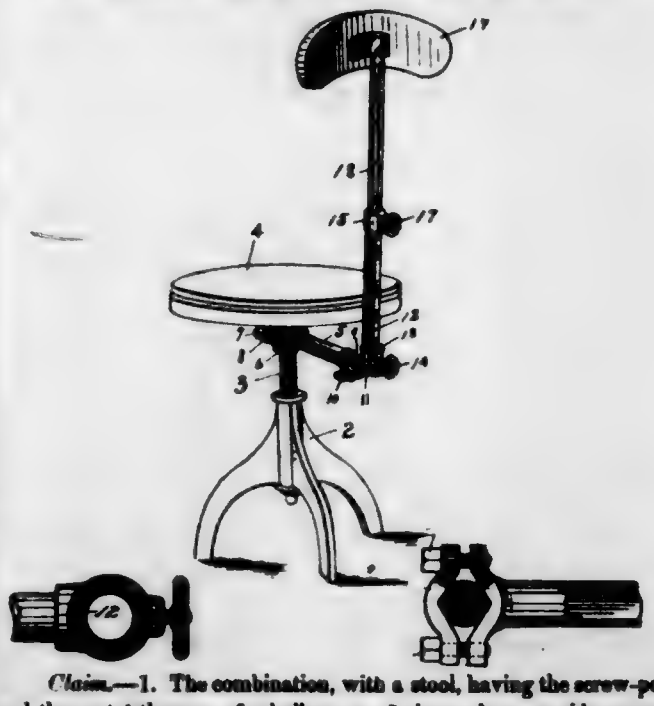
698,684. APPARATUS FOR SEPARATING CLEAN FROM REFUSE CHIPS IN THE MANUFACTURE OF WOOD-PULP. THEODORE P. BURGESS, Berlin, N. H., assignor to the Burgess Sulphite Fibre Company, Boston, Mass., a Corporation of Maine. Filed May 15, 1899. Serial No. 716,840. (No model.)



Claim.—1. An apparatus for separating clear chips from refuse chips, comprising a tank of liquid to receive a floating layer of mixed chips, and propellers acting to push the floating layer of chips in a horizontal plane over the surface of the liquid in one general direction, the said propellers having their propelling-surfaces arranged in a staggered or spiral manner, whereby the chips are moved relatively to one another and the floating layer broken up in practically all directions.

2. An apparatus for separating clear chips from refuse chips, comprising a tank of liquid to receive a floating layer of mixed chips and a stirring device having its body removed from the surface of the liquid and having arms which engage said chips whereby said floating layer of chips is broken up in practically all directions.

698,685. BACK FOR STOOLS. GEORGE L. CASE, Minneapolis, Minn. Filed Feb. 27, 1900. Serial No. 6,664. (No model.)



Claim.—1. The combination, with a stool, having the screw-posts 3 and the seat 4 thereon, of a hollow arm 5 clamped upon said screw-post, a stud 9 slidable in said arm, means for locking said stud therein, a socket provided at the outer end of said stud, a tube 12 vertically slidable therein, means for locking said tube in said socket, a standard 18 telescoping with the upper end of said tube, means for locking said standard in said tube, and a back plate or rest provided on said standard, substantially as described.

2. The combination, with a stool having a threaded post or screw and a seat thereon, of a standard having a horizontal portion secured to said screw and an upright portion projecting above said seat, and a plate forming a back or rest secured to said upright portion, said plate being curved with its rounded or convex face toward the front of the stool and its ends in the rear of the plane of its middle portion, whereby free movement of the back of the person seated on the stool is permitted.

3. The combination, with a stool having a screw-post 3 and a revoluble seat 4 thereon, of a stud 9 supported upon said post and horizontally adjustable, an upright tube 12 adjustably supported on the outer end of said arm, a standard 18 telescoping with said tube and adjustably supported therein, and a back plate or rest having a convex face provided on said standard, substantially as described.

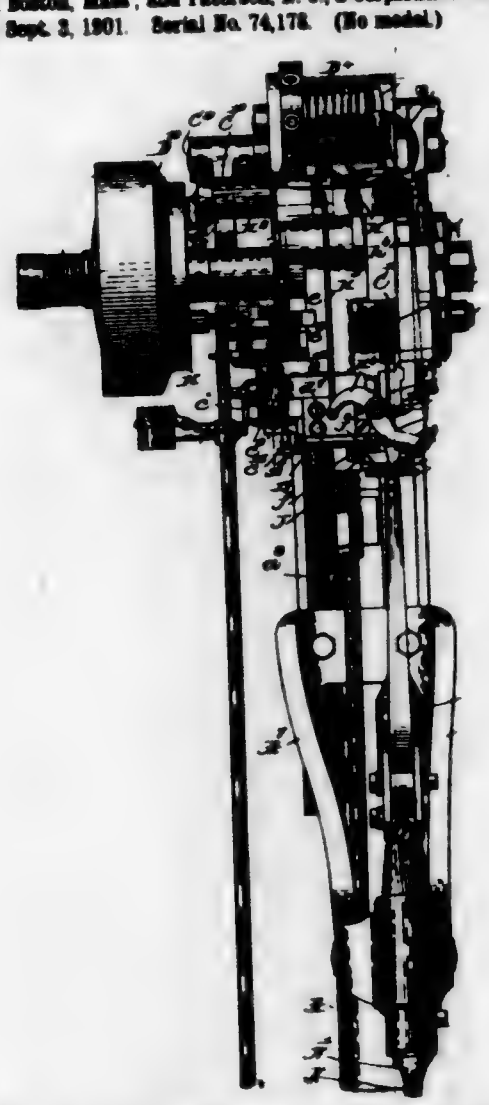
4. The combination, with a stool, of the hollow arm 5 supported beneath the seat portion, a stud slidable in said arm and having a socket at its outer end, a tube 12 vertically slidable in said socket and means for adjustably locking the same therein, the standard 18 telescoping with said tube, means for locking said standard in said tube and a back plate or rest provided on said standard, substantially as described.

5. The combination, with a stool, of a sliding stud supported beneath

the seat portion thereof, means for locking said stud, a tube adjustably supported at the outer end of said arm, a support or standard telescoping therewith, and a back plate or rest having a rounded or convex face provided on said standard, substantially as described.

6. The combination, with a stool having a threaded post or screw and a seat thereon, of an arm vertically adjustable on said screw, a standard carried by said arm, and a back plate or rest provided on said standard, substantially as described.

693,686. MACHINE FOR INSERTING FASTENINGS. LOUIS A. CASSRAIN, Winchester, Mass., assignor to United Shoe Machinery Company, Boston, Mass., and Paterson, N. J., a Corporation of New Jersey. Filed Sept. 3, 1901. Serial No. 74,178. (No model.)



Claim.—1. In a machine for securing together layers of material means for forming a cut in the stock, a driver, means for actuating it to insert a fastening in said cut and means for closing said cut over the fastening.

2. In a machine for securing together layers of material, means for forming a cut in the stock, means for inserting a fastening in said cut, means for closing said cut and means for clamping the stock during said cutting, inserting and closing operations.

3. In a machine for securing together layers of material, a work-support, a presser-foot, means for changing the relative positions of said work-support and presser-foot to clamp and release the stock, means for forming a cut in the stock, means for inserting a fastening in said cut and means for closing said cut, said cutting, inserting and closing operations all taking place while the stock is clamped between the work-support and the presser-foot.

4. In a machine for securing together layers of material, stock-feeding mechanism, means for forming a cut in the stock, means for inserting a fastening in the cut and means for closing the cut, said cutting, inserting and closing operations all taking place between two consecutive operations of the stock-feeding mechanism.

5. In a machine for securing together layers of material, a work-support, a presser-foot, means for changing the relative positions of said work-support and presser-foot to clamp and release the stock, stock-feeding mechanism, means for forming a cut in the stock, means for inserting a fastening in said cut and means for closing said cut, said cutting, inserting and closing operations all taking place while the stock is clamped between the work-support and the presser-foot and between two consecutive operations of the stock-feeding mechanism.

6. In a machine for securing together layers of material, stock-feeding mechanism, means for forming a cut in the stock, means for inserting a fastening in the cut and independent means for closing the cut, said inserting and closing operations taking place between two consecutive operations of the stock-feeding mechanism.

7. In a machine for securing together layers of material, means for inserting fastening material, means for forming in the stock an opening to receive the fastening material, a movable device for engaging the stock and forcing it over the fastening material and means for actuating said device.

8. In a machine for securing together layers of material, means for inserting fastening material, a work-support and presser-foot, means for changing the relative positions of said work-support and presser-foot to clamp and release the stock, means for forming in the stock an opening to receive the fastening material, a movable device for closing said opening and means for actuating said closing device; said opening, inserting and closing operations all taking place while the stock is clamped between the work-support and the presser-foot.

9. In a machine for securing together layers of material, stock-feeding mechanism, means for inserting fastening material, means for forming in the stock an opening to receive the fastening material, a movable device for closing said opening and means for actuating said closing device; said opening, inserting and closing operations all taking place between two consecutive operations of the stock-feeding mechanism.

10. In a machine for inserting fastenings, means to form openings in the stock, mechanism for inserting fastenings in said openings, and a movable device for closing the openings to conceal the fastenings.

11. A machine for inserting metallic fastenings comprising a device to form an opening in the stock, a driver to insert a fastening in said opening and means to force the stock together to conceal the fastening.

12. In a machine for securing together layers of material, a device to form openings in the stock, mechanism for inserting independent fastenings in said openings entirely below the surface of the stock, and a movable device for forcing the stock over the fastenings.

13. In a machine for securing together layers of material, a device to form an opening in the stock to receive fastening material, means for actuating said device intermittently to enter and withdraw from the stock, a driver for inserting fastening material in said opening and means for forcing the stock over the fastening material.

14. In a machine for securing together layers of material, a device to form an opening in the stock and raise a lip above the surface of the stock, means for actuating said device intermittently to enter and withdraw from the stock thereby forming a plurality of openings, a driver, and means for actuating the driver to insert fastenings in said separate openings.

15. In a machine for securing together layers of material, a device to form an opening in the stock to receive fastening material, means for actuating said device intermittently to enter and withdraw from the stock thereby forming a plurality of openings, means for inserting fastening material in said openings and independent means to force the stock over the fastening.

16. In a machine for securing together layers of material, a device to form an opening in the stock to receive fastening material, means for actuating said device intermittently to enter and withdraw from the stock, means for inserting fastening material in said opening, a movable device for engaging the stock and forcing it over the fastening material and means for actuating said device.

17. In a machine for securing together layers of material, a device to form an opening in the stock to receive fastening material, means for actuating said device intermittently to enter and withdraw from the stock thereby forming a plurality of openings, means for inserting fastening material in said separate openings below the surface of the stock, a movable device for closing said openings over the fastening material and means for actuating said closing device.

18. In a machine for inserting fastenings, a device to form an opening in the stock to receive fastenings, said device raising a lip on the stock adjacent to the opening, means for actuating said device intermittently to enter and withdraw from the stock, and independent means for inserting a fastening in said opening.

19. A machine for securing together layers of material comprising a cutting device, means for actuating said device to form in the stock a plurality of cuts and raise a lip on the stock adjacent to each cut, means for inserting fastenings in said cuts, and means for engaging said lips and forcing them over the fastenings.

20. In a machine for inserting fastenings, means for forming a cut in the stock and raising a lip above the surface of the stock, a driver, and means for actuating it to insert a fastening in said cut below said lip.

21. In a machine for inserting fastenings, means for forming a cut in the stock and raising a lip above the surface of the stock, and means for driving a fastening in said cut below said lip and entirely below the surface of the stock.

22. In a machine for securing together layers of material, a cutting

device, means for actuating said cutting device to form in the stock a plurality of cuts, means for inserting fastening material in said cuts, and means independent of the fastening material to force the stock over the fastening material.

23. In a machine for securing together layers of material, a cutting device, means for actuating said device to form in the stock a plurality of cuts, means for inserting fastening material in said cuts, an independent device to close the cuts and means for actuating said device to force the stock over the fastening material immediately after the insertion of the fastening material therein and before the insertion of fastening material in the next cut.

24. In a machine for securing together layers of material, a cutting device, means for actuating said cutting device to form in the stock separate cuts, leaving the stock between the cuts untouched, means for inserting independent fastenings in said separate cuts, one fastening in each cut, a device to close the cuts over the fastenings and means for actuating said device to close each cut immediately after the insertion of the fastening therein and before the insertion of the next fastening.

25. In a machine for securing together layers of material, means for forming in the stock a plurality of openings to receive the fastening material, means for inserting fastening material in said openings, a movable device for engaging the stock to force it over the fastening material, and means for actuating said device.

26. In a machine for securing together layers of material, means for forming in the stock a plurality of independent openings to receive fastening material, means for inserting independent fastenings in said openings, one fastening in each opening, a movable device for forcing the stock over the fastening, and means for actuating said device.

27. In a machine for securing together layers of material, a driver, means for actuating the driver to insert fastening material in an opening in the stock and means for closing the stock over said opening.

28. In a machine for securing together layers of material, means for inserting fastening material in an opening in the stock, a movable device for engaging the stock and forcing it over the fastening material, and means for actuating said device.

29. In a machine for securing together layers of material, means for inserting fastening material in a series of separate disconnected openings and independent means to force the stock over said openings after the fastening material has been inserted.

30. In a machine for securing together layers of material, a driver, means for actuating the driver to insert fastening material in a series of openings, a movable device to engage the stock and force it over the fastening material, and means for actuating said device.

31. In a machine for securing together layers of material, means for inserting independent fastenings in a series of openings, a separate fastening in each opening, a device to close the opening and means for actuating said device to close the stock over each opening immediately after the insertion of the fastening therein and before the insertion of a fastening in the next opening.

32. In a machine for securing together layers of material, means for inserting fastening material, a cutting device for forming in the stock a cut to receive the fastening material, said cutting device being arranged to raise the stock on each side of the cut, a closing device and means for actuating said closing device to force together and press down said raised portions of stock.

33. In a machine for securing together layers of material, means for inserting fastening material, a cutting device for forming in the stock an opening to receive the fastening material, said cutting device being arranged to raise the stock on each side of the opening, and a closing device having its end V-shaped to engage said raised portions of the stock and force them together.

34. In a machine for securing together layers of material, a driver, means for actuating the driver to insert fastenings in an opening in the stock, a device for closing the opening, a presser-foot for bearing on the face of the stock, said presser-foot being shaped at its lower end to receive and guide said closing device, and means for actuating said closing device after a fastening has been inserted.

35. In a machine for securing together layers of material, a driver, a device to form an opening in the stock under the driver, a device to close such opening in the stock while still under the driver and a presser-foot having a passage for the driver, said presser-foot being shaped to permit the operation of said cutting device and said closing device under the driver, and means for actuating said cutting device and said closing device whereby they are made operative at different times.

36. In a machine for securing together layers of material, a device for closing an opening in the stock and a presser-foot for bearing on the face of the stock, said presser-foot being shaped at its lower end to receive and guide said closing device, said presser-foot and said closing device being so shaped relatively that the closing device is made to travel in a substantially straight line in the plane of the bottom of the presser-foot.

37. In a machine for making and inserting metallic fastenings, a wire-guideway and an independent curver to bend the wire after it is delivered from said guideway combined with means to form from said wire a fastening with a curved shank or body.

38. In a machine for making and inserting metallic fastenings, a wire-guideway and an eccentric stud arranged to curve the wire delivered from said guideway.

39. In a machine of the class described, a shaper to bend wire in the production of a fastening and a device, carried by said shaper, for curving the wire.

40. In a machine of the class described, a shaper and a bender arranged for bending wire to form a fastening with a hook-shaped head, the bender being grooved to guide the head of the fastening.

41. In a machine of the class described, a driver, and means for actuating the driver to insert fastenings, mechanism for lifting the driver, and a device for raising the driver after the fastening has been inserted and prior to the operation of the driver-lifting mechanism.

42. In a machine of the class described, a device to form an opening in the stock, a driver, means for actuating the driver to insert fastenings in said opening, a device to close the opening, and means to raise the driver out of the way of said closing device.

43. In a machine of the class described, a device to form an opening in the stock, a driver, driver-lifting mechanism, means for actuating the driver to insert fastenings in said opening, a device to close the opening, and an auxiliary driver-lifting mechanism to raise the driver out of the way of the closing device.

44. In a machine for securing together layers of material, mechanism for forming a cut in the stock, means for inserting a fastening in said cut, means for closing said cut, and means for adjusting said cutting mechanism to vary the depth of cut.

45. In a machine for securing together layers of material, a device to form an opening in the stock for receiving and concealing fastening material, means for actuating said device intermittently to enter and withdraw from the stock, means for inserting fastening material in said opening, and means for adjusting said device to vary the depth of the cut.

46. In a machine for inserting fastenings, a device for forming a cut in the stock, a driver for inserting a fastening in said opening, and means for closing said opening, the cutting device being withdrawn from the stock when the opening is under the driver, the fastening being then inserted and the opening being closed while it is still under the driver.

47. In a machine of the class described, a wire-guide composed of a bar having a groove to receive wire, and a detachable and reversible steel block having a plurality of grooves, and a plurality of cutting edges, either of said grooves being adapted to be alined with the groove of the bar.

48. In a machine of the class described, a bender, combined with a coöperating anvil having a bender-protecting groove in line with one corner of the bender, to obviate dulling of said bender by contact with said anvil.

49. In a machine of the class described, cutting mechanism including a movable cutter having its acting edge at an acute angle to the direction of feed of the work, means to move said cutter to feed a fastening into position to be driven, and a driver having its side nearest said movable cutter in a plane substantially parallel to the edge of said cutter.

50. In a machine of the class described, a wire-feed wheel, a coöperating pressure-wheel, to bear upon the wire in opposition to the feed-wheel, said pressure-wheel having a split hub to afford a yielding support therefor.

51. In a machine of the class described, a feed-wheel, a coöperating pressure-wheel, and a rotatable, yielding support for and on which the pressure-wheel is eccentrically mounted.

52. In a machine for inserting fastenings, means for forming in the stock a plurality of cuts and raising a lip adjacent to each cut above the surface of the stock, and means for inserting fastenings in said cuts below said lips.

53. In a machine for inserting fastenings, means for forming in the stock a plurality of separate disconnected cuts and raising a lip adjacent to each cut above the surface of the stock, and means for inserting a fastening in each of said cuts below said lip and entirely below the surface of the stock.

54. In a machine for inserting fastenings, means to form an opening in the stock and raise a lip on the stock adjacent to the opening, means to insert a fastening in said opening below said lip, and stock-feeding mechanism, said opening being formed and the fastening being inserted in the opening between two consecutive operations of the stock-feeding mechanism.

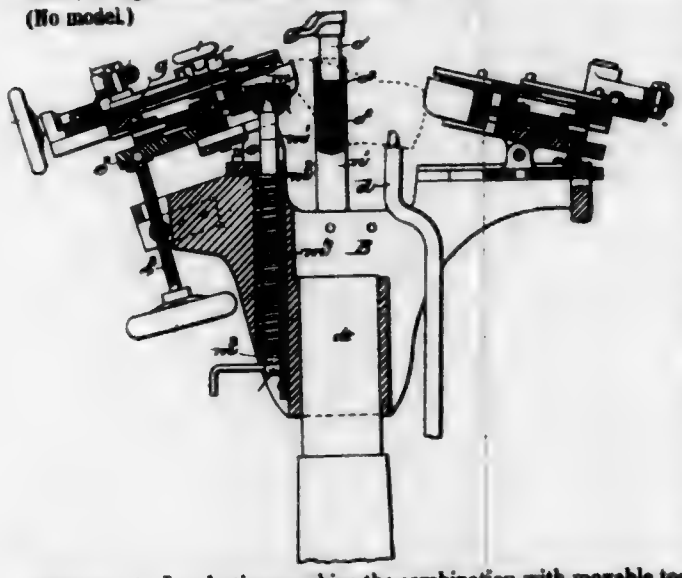
55. In a machine for inserting fastenings, a device to form an opening in the stock and raise a lip on the stock adjacent to the opening, means for actuating said device intermittently to enter and withdraw from the stock, means for inserting fastening material in said opening below said lip, and stock-feeding mechanism, said opening being formed and the fa-

tening being inserted in the opening between two consecutive operations of the stock-feeding mechanism.

56. In a machine for inserting fastenings, a work-support, a presser-foot, means for changing the relative positions of said work-support and presser-foot to clamp and release the stock, means for forming an opening in the stock and raising a lip on the stock adjacent to the opening, and means for inserting a fastening in said opening below said lip, the opening being formed and the fastening being inserted while the stock is clamped between the work-support and the presser-foot.

57. In a machine for inserting fastenings, a work-support, a presser-foot, means for changing the relative positions of said work-support and presser-foot to clamp and release the stock, a device for forming an opening in the stock and raising a lip on the stock adjacent to the opening, means for actuating said device intermittently to enter and withdraw from the stock, and means for inserting a fastening in said opening below said lip, the opening being formed and the fastening being inserted in the opening while the stock is clamped between the work-support and the presser-foot.

693,687. LASTING-MACHINE. RICHARD H. CHAMBERLIN, Abington, Mass., assignor to the Tackless Shoe Machinery Company, Boston, Mass., a Corporation of Maine. Filed July 22, 1901. Serial No. 69,213. (No model.)



Claim.—1. In a lasting-machine the combination with movable toe-lasting devices and means to operate the same of a vertically-sliding spring-supported toe-rest, treadle-operated means independent of said toe-rest for depressing the latter through the medium of the last, and other and independent means for depressing said toe-rest.

2. In a lasting-machine the combination with movable toe-lasting devices and means to operate the same of a vertically-sliding spring-supported toe-rest, means independent of said toe-rest for depressing the latter through the interposition of the last, and other means for depressing said toe-rest without the interposition of said last.

3. In a lasting-machine a vertically-sliding spring-supported toe-rest, a treadle-operated depressor for the same to operate through the interposition of a last, and independent means directly connected with said toe-rest to depress the latter without the interposition of said last.

4. In a lasting-machine a vertically-sliding spring-supported toe-rest provided with a handle by which to depress the same, and a treadle-operated toe-rest depressor operating through the interposition of a last upon said toe-rest.

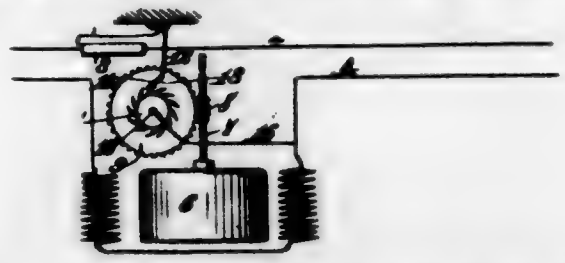
5. In a lasting-machine a spring-supported toe-rest and depressing means therefor comprising a treadle-operated tubular rod, a last-depressor having its shank received within said tubular rod, a spring tending normally to expel said shank from said rod, and locking means to engage said shank on said rod, for the purpose described.

6. In a lasting-machine a spring-supported toe-rest and depressing means therefor comprising a treadle-operated tubular rod, a last-depressor having its shank received within said tubular rod, a spring tending normally to expel said shank from said rod, and automatic locking means to engage said shank on said rod, for the purpose described.

7. In a lasting-machine a spring-supported toe-rest and depressing means therefor comprising a treadle-operated tubular rod, a last-depressor having its shank received within said tubular rod, a spring tending normally to expel said shank from said rod, and automatic ratchet-locking means to engage said shank on said rod, for the purpose described.

8. In a lasting-machine, a spring-supported vertically-movable toe-rest, means directly connected therewith for depressing the same, independent treadle means also for depressing said toe-rest through the interposition of a last, said treadle-operated depressing means and said toe-rest reciprocating in fixed substantially vertical lines, and lasting devices to operate upon a last supported in part by said toe-rest, said lasting devices being adjustable relative to said toe-rest to meet the roll and swing of a last thereon.

698,688. ELECTRIC METER. CHARLES T. CLAYPOOLE, Sioux City, Iowa. Filed Jan. 6, 1902. Serial No. 88,002. (No model.)



Claim.—1. In an electric meter, a movable part operated by a flow of current through the meter, a contact device operated by said movable part, a fuse in one of the line-wires, a shunt-circuit between the line-wires connected to one of the same beyond said fuse and including said contact device, and means automatically thrown into operation by a reverse movement of said contact device for closing said shunt-circuit, as and for the purpose set forth.

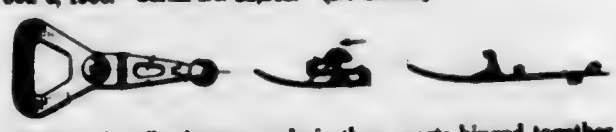
2. In an electric meter, a movable part operated by a flow of current through the meter, a contact device operated by said movable part, a fuse in one of the line-wires, a shunt-circuit between the line-wires connected to one of the same beyond said fuse and including said contact device, and a trip or dog adapted to be engaged by said contact device upon a reverse movement of the latter for closing said shunt-circuit, as and for the purpose set forth.

3. In an electric meter, a movable part operated by a flow of current through the meter, a contact device operated by said movable part, a fuse in one of the line-wires, a shunt-circuit between the line-wires connected to one of the same beyond said fuse and including said contact device, and a pivotally-mounted trip or dog having an insulated portion lying normally in engagement with said contact device, and having an uninsulated portion adapted to be engaged by said contact device, during the reverse movement of the latter, for closing said shunt-circuit, as and for the purpose set forth.

4. In an electric meter, a movable part operated by a flow of current through the meter, a toothed wheel, adapted to be rotated by said movable part, a fuse in one of the line-wires, a trip or dog having an insulated portion normally lying in engagement with the teeth of said wheel and having an uninsulated portion electrically connected with said fuse, and a normally open shunt-circuit including the uninsulated portion of said trip or dog, the connection between the same and said fuse, and said toothed wheel, the teeth of said wheel being adapted to engage the uninsulated portion of said trip, for closing said shunt-circuit during the reverse movement of said wheel, as and for the purpose set forth.

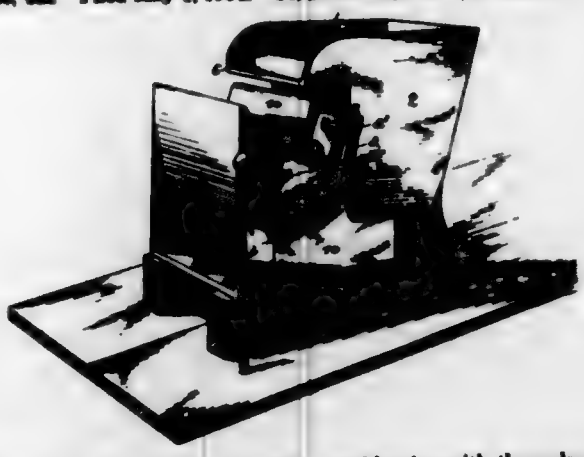
5. In an electric meter, a movable part operated by a flow of current through the meter, a shaft, a worm-wheel secured to said shaft but insulated therefrom, a worm connected with said movable part and meshing with said worm-wheel, a ratchet-wheel secured to said shaft having the teeth thereof extending in a direction opposite the normal direction of movement of said wheel, a fuse in one of the line-wires, a trip or dog pivotally supported from the meter-casing, having an insulated portion normally lying in contact with the teeth of said ratchet-wheel, and having an uninsulated portion in electrical contact with said fuse, and a shunt-circuit between the line-wires including the uninsulated portion of said trip or dog, the connection between the same and said fuse, said ratchet-wheel and said shaft, the uninsulated portion of said trip being adapted to be engaged by the teeth of said ratchet-wheel for closing said shunt-circuit upon the reverse movement of said ratchet-wheel, as and for the purpose set forth.

698,689. COLLAR-BUTTON. EDWARD W. CRAMPTON, Worcester, Mass., assignor of one-half to D. P. Thomas, Worcester, Mass. Filed Oct. 6, 1900. Serial No. 32,262. (No model.)



Claim.—A collar-button made in three parts hinged together, and comprising a main part or body having a post thereon provided with a side extension on its end, an intermediate part hinged to the main part by a square hinge to leave a space therebetween for the shirt-band when folded, said intermediate part provided with an opening through which the post extends, and an end part having a hollow rounded head and a lip within the head to engage the side extension on the post, said end part being hinged to the intermediate part by a square hinge to leave a space therebetween for the ends of the collar when folded.

698,690. ORE OR PULP SAMPLER. WILLIS G. DOOD, San Francisco, Cal. Filed May 1, 1901. Serial No. 58,271. (No model.)



Claim.—1. In a pulp-sampler, the combination with the pulp-accumulating hopper, of the overflow-chamber which receives the pulp discharged from the hopper, a swinging reservoir located at one side of the overflow-chamber, said reservoir having its interior divided into compartments, siphon-outlet for each compartment of the reservoir, a water-supply for alternately delivering water to the respective compartments, a cup or collecting device interposed between the hopper and overflow-chamber, said cup or device being connected with and actuated by the oscillatory movement of the reservoir whereby the same is caused to move at given intervals through the flowing body of pulp as discharged from the hopper.

2. The combination with an oscillatory reservoir having interior compartments, of a siphon-outlet for each compartment of the reservoir, of means for alternately supplying water to the respective compartments, and a cup or sample-collecting device arranged below the stream of pulp, said cup or device being actuated by the oscillatory movement of the reservoir so as to alternately move back and forth through the stream of pulp at regular intervals.

698,691. CAR-DOOR FASTENER. CHARLES R. DOE, Mount Pleasant, Iowa. Filed Jan. 11, 1901. Serial No. 42,886. (No model.)



Claim.—1. The combination with a car having side and end doors, of a locking device for one door, an actuator for said locking device disposed out of operative relation with the side door, but exposed for actuation at the side doorway, connections extending along the side and end of the car structure and operatively connecting the actuator with the locking device, and a retaining device for the actuator carried by a fixed part of the car structure and accessible through the side doorway when the side door is in the open position.

2. The combination with a car having side and end doors, of a locking device for one of said doors, an actuator for the locking device and provided with a handle disposed out of operative relation with the other door, but exposed for actuation at the other doorway, and a retaining device carried by a fixed part of the car structure and operatively related to the handle of the actuator.

3. The combination with a car provided with side and end doors, of a hasp member carried by one door, a locking member mounted in the adjacent wall of the car, an actuator located upon another wall of the car and extending between the other doorway and the locking member, and retaining means for said actuator, said retaining means being independent of the other door but disposed to have access thereto controlled by said door.

4. The combination with a car provided with side and end doors, of a hasp member carried by the end door, a keeper disposed for engagement with the hasp member, a locking-lever supported by the car structure for engagement with the hasp member and keeper, and a rock-shaft operatively connected to the locking-lever and provided with a handle disposed adjacent to the side door.

5. The combination with a car having side and end doors and door-posts, of a locking-lever arranged to lock the end door, a rock-shaft provided with a crank at one end having connection with the locking-lever and provided at its opposite end with a handle located at the side door-post, and a retaining device carried by said post and disposed in the path of movement of the handle.

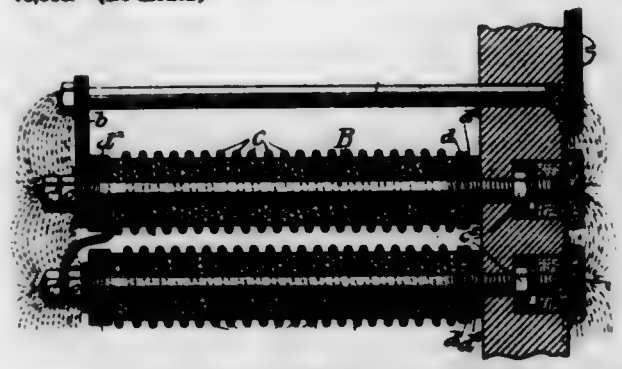
6. The combination with a car having side and end doors and door-posts, of a locking-lever arranged to lock the end door, a rock-shaft provided with a crank connected to the locking-lever, and with a handle exposed at the side doorway of the car, and a pin removably mounted in one of the side door-posts and serving as a retaining device for the handle.

7. The combination with a car provided with side and end doors, of a projection carried by the end door, a locking-lever supported upon the end wall of the car structure for engagement with the projection, a rock-shaft extending along one side of the car and operatively connected with the locking-lever, and a handle on said rock-shaft exposed for actuation at the side doorway of the car.

8. The combination with a car having side and end doors, of a locking device for the end door and an actuator for said device, said actuator being out of operative relation with the side door, but exposed for actuation at the side doorway, and connecting devices extending along the side and end of the car and operatively connecting the locking device and actuator.

9. The combination with a car having side and end doors, of a locking-lever disposed to engage and retain the end door, reactive means for moving the locking-lever to its engaging position, and an actuator operatively connected to the locking-lever and exposed for actuation at the side doorway but out of operative relation with the side door.

698,692. RESISTANCE-COIL. ARTHUR C. EASTWOOD, Cleveland, Ohio, assignor to the Electric Controller and Supply Company, Cleveland, Ohio, a Corporation of Ohio. Filed Sept. 26, 1901. Serial No. 76,660. (No model.)



Claim.—1. In a resistance-coil the combination of a body of insulating material, turns of resistance material wound thereon, and a rod of magnetic material extending through said body electrically connected to the turns of resistance material, with contact-plates also in circuit with the said coil and within the magnetic field passing through said rod when a current flows through the coil, substantially as described.

2. The combination in a resistance-coil, of a core of magnetic material, a coil of resistance material surrounding the same and contact-pieces electrically connected to the coil and to the core, said pieces being within the magnetic field set up from the said core when a current flows through the coil, substantially as described.

3. A series of resistance-coils, contact-pieces therefor placed within the magnetic field of a current passing through said coils, the lines of force of said field breaking any arc formed between said contact-pieces, substantially as described.

4. The combination in a resistance-coil of a body of insulating material, a rod of magnetic material passing therethrough, a contact-plate electrically connected to said rod, and a coil of resistance material wound on the body of insulating material also electrically connected to the rod, the contact-plate being within the field of the current passing through the coil and the rod, substantially as described.

5. A series of resistance-coils, each coil being provided with a core of magnetic material to which it is electrically connected, a contact-plate on each core, adjacent cores and their contact-plates being placed relatively near to each other whereby the magnetic field produced when a current passes through one of the coils extends within the space between adjacent contact-plates, substantially as described.

6. The combination of a tube of insulating material, a rod of magnetic material passing therethrough, a contact-plate fastened to the end of the rod, turns of resistance material wound on the said tube, and a metal plate electrically connected to the rod, one end of the coil of resistance being connected to the plate, said plate being within the magnetic field set up through the rod when a current passes through the coil, substantially as described.

7. The combination of a core of magnetic material, a slab of insulating material through which said core passes, a coil of wire wound on the core and having one of its ends electrically connected to the same, means for clamping the core with its parts to the slab, and a contact-piece detachably connected to an end of the core, the said piece being removable independently of all parts of the coil and core, substantially as described.

8. A resistance-coil wound around a core of magnetic material and connected electrically to said core at one end of the same, a contact-plate also electrically connected to the same end of the rod and means at the other end of said rod for making connection to another coil, the said magnetic core serving to direct the magnetic field when a current flows through the coil of resistance material, substantially as described.

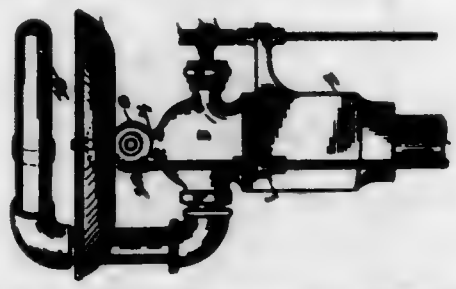
9. The combination of a slab of insulating material, a resistance-coil having a core of magnetic material to which one of its ends is electrically connected, means for clamping said coil to said slab of insulating material, means for connecting the other end of the coil to an adjacent coil and a contact-plate electrically connected to one end of the said core and within the magnetic field set up where a current passes through the coil, substantially as described.

698,698. MUSICAL SKIPPING-ROPE. CHARLES W. EDWARDS, St. Thomas, England. Filed Oct. 31, 1901. Serial No. 79,296. (No model.)



Claim.—The combination with the handle of a skipping-rope provided with an annular groove near one end, a rope, a ring attached to one end of the rope and engaging said groove; of a shaft carried by said handle and provided with a gear, a music-box journaled on said shaft and having its rotary barrel provided with a meshing gear, and a guide-eye carried by said music-box through which the rope passes, substantially in the manner described.

698,694. FLASH-LAMP. ARCHIBAS R. FARMER, St. Louis, Mo. Filed June 10, 1901. Serial No. 63,966. (No model.)



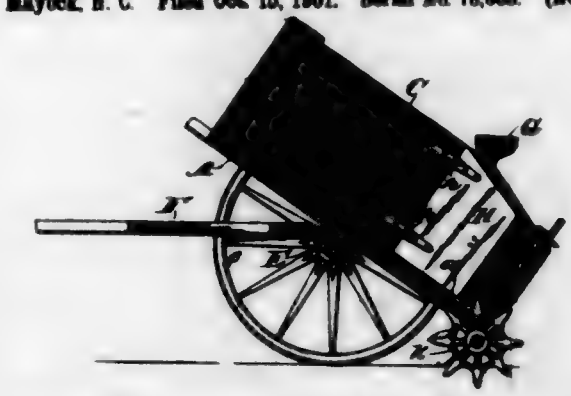
Claim.—1. A flash-burner, consisting of a burner-head having divergent passages formed therein, one of said passages forming a central burner, a burner connected to another of said passages and extending around the said central burner, and an independent valve located in each of said passages whereby the fuel can be made to flow into either or both of the said burners, substantially as specified.

2. A flash-burner, consisting of a burner-head having divergent passages formed therein, one of said passages forming a central burner, a tubular burner leading from another of said passages and being bent into circular form around the central burner, said valves located in said passages whereby the fuel can be made to flow into either or both of the said burners, substantially as specified.

3. A flash-burner, consisting of a burner-head, a nozzle leading from said burner-head and forming a burner, suitable tubular connections leading from the burner-head, a burner carried by said tubular connections and extending around the said nozzle, and valves for controlling the flow of the fuel so that either or both of the burners can be used at will, substantially as specified.

4. A flash-burner, consisting of a burner-head, a burner connected thereto, a pipe leading from the burner-head, a burner connected to said pipe and extending around the first-mentioned burner, and means for controlling the flow of fuel into said burners, so that either can be used independently of the other, or both used at the same time, substantially as specified.

693,695. MANURE-DISTRIBUTING CART. JOHN R. FAULK, Mayock, N. C. Filed Oct. 15, 1901. Serial No. 78,685. (No model.)



Claim.—1. In a manure-spreader, the combination of a dumping-body, with a spud-wheel journaled on the rear end thereof and adapted to both directly support the rear end of body when the same is dumped, and also to feed manure from the cart, substantially as described.

2. In a manure-spreader, the combination of the body having a slot in its bottom at the rear end thereof; with a spud-wheel journaled in said slot adapted to directly support the body when the cart is dumped and to feed manure from the cart and spud or fork the ground, substantially as described.

3. In a manure-spreader, the combination of the body having a contracted rear end, and a slot in the bottom of the cart at the rear end thereof; with a wheel journaled in said slot having a series of radial spuds and adapted to directly support the body when the cart is dumped and to also feed manure from the cart and spud or fork the ground, substantially as described.

4. In a manure-spreader, the combination of the body having a bottom provided with a slot in its rear end, and side walls converging toward the slot, and opposite deflectors within the body in front of the slot; with a single spud-wheel working in said slot, having a series of radially-projecting spuds, said wheel being adapted to directly support the rear end of the body when the latter is dumped, substantially as described.

5. The combination of the axle and shaft, the body attached to the axle having a bottom provided with a slot in its rear end, side walls converging toward the slot and a slotted end-gate; with the wheel working in said slot, and journaled on a shaft attached to the body, said wheel having a series of radially-projecting spud-arms connected to a central hub, and connected together near their outer ends, said wheel being adapted to directly support the rear end of the body when the latter is dumped, and to feed the manure from the body substantially as and for the purpose set forth.

693,696. FASTENING DEVICE FOR ENVELOPS. FELIX T. PERHAMDES, New Orleans, La., assignor of one-half to Edward Octave Ducros, New Orleans, La. Filed May 14, 1901. Serial No. 60,156. (No model.)



Claim.—1. A fastening device for envelops comprising two parts, one of which is adapted to be secured to the back of the envelop and the other to the folding flap, one of said parts comprising a box or casing open at one end and provided with a backwardly-directed spring-hook, said box or casing being also provided with two projecting parallel members which extend beyond the open end thereof and by means of which the said box or casing is secured to a portion of the envelop, and the other part of the device being yoke-shaped in form, and one side thereof being longer than the other and provided with a slot or opening, said yoke-

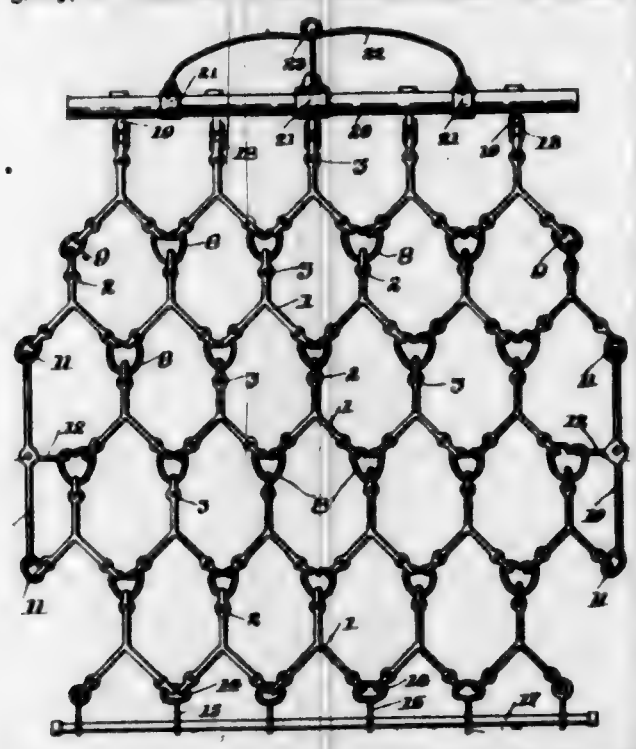
shaped device being adapted to be connected with another portion of the envelop, substantially as shown and described.

2. A fastening device for envelops composed of two separate blanks, one of said blanks being oblong in form and adapted to be folded to form a yoke-shaped device, one side of which is longer than the other and provided with a slot or opening, and the separate sides of which are provided with holes which register and the other blank being composed of a body portion provided at one side with a projecting tongue and opposite said tongue with an extension or arm having a hole formed therein, said body portion being also provided at one side and at right angles to said tongue with an extension having an arm which projects in line with said tongue and which is provided with a hole and at the opposite side with another extension, said parts of said blank being adapted to be folded so as to form a box or casing open at one side and provided with a backwardly-directed spring-hook and with two parallel projecting arms or members which extend beyond the open end thereof and are provided with holes which register, substantially as shown and described.

698,697. METHOD OF CREOSOTING WOOD, &c. CHARLES S. FRIEDMAN, Philadelphia, Pa., assignor to Edgar A. Bancroft, trustee, Chicago, Ill. Filed Dec. 24, 1901. Serial No. 87,093. (No specimens.)

Claim.—The method of creosoting wood or other materials which consists in emulsifying creosote at proper temperature with a viscid vehicle having a glue base and suitable chromium salt to react thereon, and after thorough admixture to complete the so-called emulsion, forcing the same into the interstices of the substance under treatment, substantially as described.

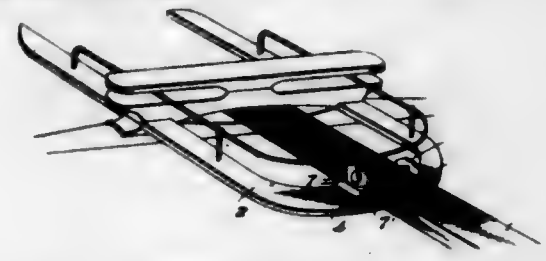
698,698. HARROW. JOSEPH FURRER and FRANK FURRER, Allegheny, Pa. Filed Nov. 12, 1901. Serial No. 81,962. (No model.)



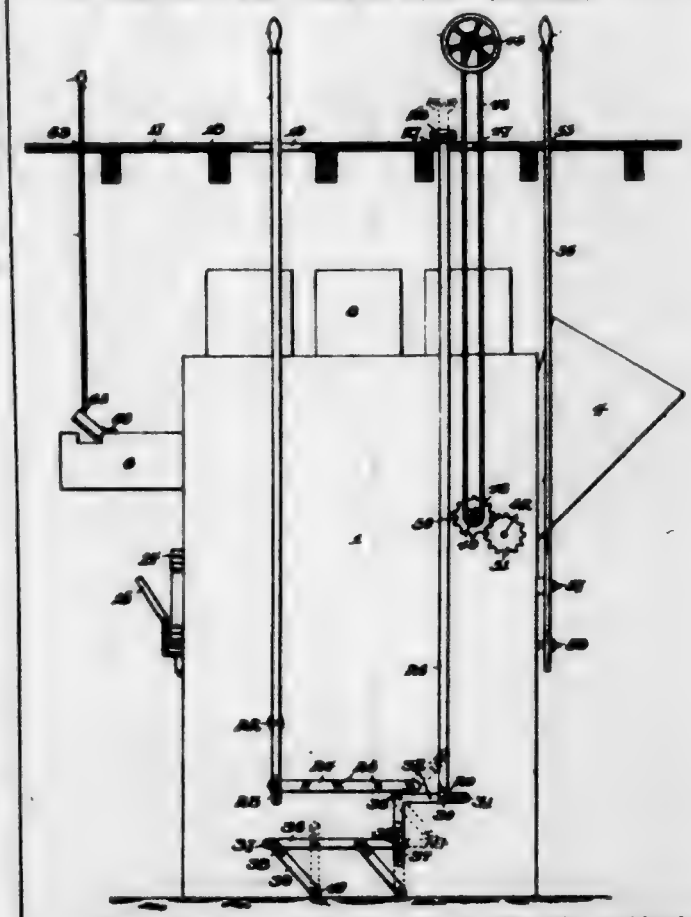
Claim.—A harrow comprising a series of rows of spider-like sections, each section having three arms with a tooth carried in each of said arms, the ends of said arms having links connected to each other, the outside lower arms of the first row being connected to the outside upper arms of the second row, a link-bar having eyes at its ends, said link-bar having one of said eyes connected to the lower outside arms of said second row and its other end connected to the lower outside arms of the fourth row, a short inwardly-extending shank carried by said link-bar and secured to the outside lower arm of the third row and to the upper arm of the fourth row, a tooth carried by the link-bar adjacent to the shank, the lower arms of the last row having links secured thereto, said links carrying eyebolts, and a drag-bar secured in said eyebolts, substantially as described.

698,699. ANTIFRICTION CHAFE-IRON. JOSIAH B. GASTON, South Pass, Wyo. Filed Sept. 10, 1901. Serial No. 74,906. (No model.)

Claim.—The combination with the reach and sway bar or circle of a running-gear, of an antifriction chafe-iron comprising a frame made in a single piece having a bottom adapted to lie against the bottom of the reach and uprights adapted to lie against the sides of the reach and with their extremities extending an appreciable distance above the reach, said uprights each having a pair of integral separated projections, bolts extending through each pair of projections parallel to the reach, antifriction-rollers located between the projections on opposite sides of the reach and journaled loosely on the bolts aforesaid, said antifriction-rollers having their lower portions extending below the bottom of the frame and affording a bearing for the sway bar or circle, and a bolt passing through apertures or perforations in the portions of the uprights which extend above the reach, said bolt extending transversely of the reach above the same and constituting the sole means for fastening the frame to the reach and adapted for securing it adjustably thereto by causing the uprights to bind or clamp against the sides of the reach.

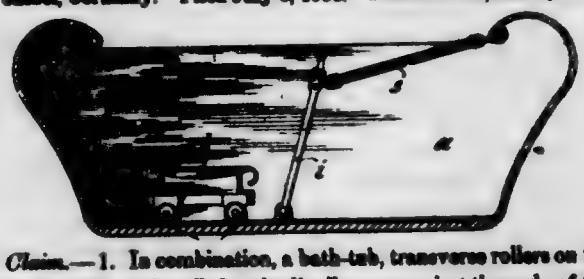


698,700. SLACK-COAL HEATER. EDWIN B. GOELITZ, Carnegie, Pa. Filed Feb. 8, 1901. Serial No. 46,537. (No model.)



Claim.—In a device of the character described, the combination of a casing, an ash-pit, a pair of trap-doors forming the bottom thereof, tongued engaging faces on opposite sides of said doors adapted to engage and lie flush with one another, shafts secured to each of said trap-doors, a reciprocating lever projecting above the floor, a handle secured to the upper end thereof, a bifurcated lower end on said lever, a bell-crank pivotally connected to the casing, said bell-crank having the extremities of its arms slotted, said bifurcated end of said lever having one of said arms secured in said bifurcation, a pin engaging said bifurcated end and operating in said slot, a lever secured transverse to said operating-lever, a pin carried by one end of said lever, said pin engaging in the slot formed in the arm of said bell-crank, arms having one of their ends rigidly connected to the shaft, the other ends of said arms being slotted, and pins carried by said lever and adapted to engage in said slots, substantially as described.

698,701. BATH-TUB. HEINRICH GOSSMANN, Wilhelmshöhe, near Cassel, Germany. Filed July 6, 1901. Serial No. 67,232. (No model.)

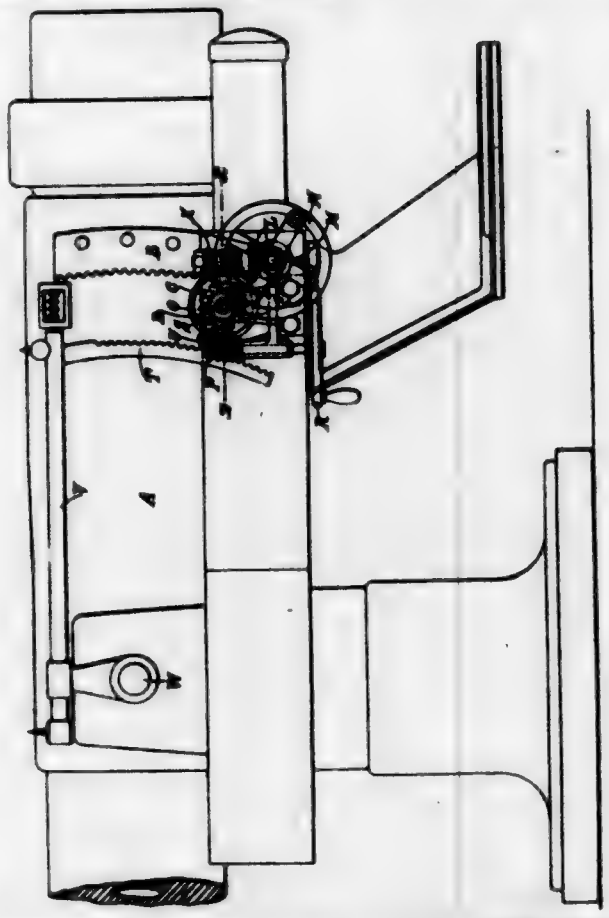


Claim.—1. In combination, a bath-tub, transverse rollers on the bottom inside of the tub, rails longitudinally arranged at the ends of the roll-

ers to secure their journals, a seat mounted on the rollers, and guide-rollers at the sides of the seat to prevent lateral displacement, substantially as described.

2. In combination, a bath-tub, transverse rollers on the bottom inside of the tub, rails longitudinally arranged at the ends of the rollers to secure their journals, a seat mounted on rollers, guide-rollers at the sides of the seat to prevent lateral displacement, springs secured at one end of the tub, and handles secured to the opposite ends of the springs within reach of the occupant of the seat, substantially as described.

698,702. ELEVATING AND SIGHT-ADJUSTING GEAR FOR ORDNANCE. HUBERT H. GRENFELL, Hants, England. Filed July 15, 1901. Serial No. 68,396. (No model.)



Claim.—1. The combination with a gun and its mounting of pivoted sights, elevating-gear controlling said sights and gun together, other elevating-gear controlling the gun alone, an epicyclic train connecting these two gears, and means for actuating said train from either end, substantially as described.

2. The combination with a gun and its mounting of pivoted sights, two sets of gears for controlling the elevation of the gun and sights, hand-wheels for actuating said gears, and an epicyclic train of wheels connecting said gears, whereby they can be operated separately or together, substantially as described.

3. The combination with a gun and its mounting of pivoted sights, two sets of gears for controlling the elevation of the gun and sights, means for actuating said gears, an epicyclic train connecting said gears, a worm and worm-wheel at each end of the epicyclic train whereby as either worm is operated the train rolls on the corresponding stationary terminal gear so that the train may be operated from either end alone, or from both ends simultaneously, substantially as described.

698,703. FERRO-CHROME COLOR AND PROCESS OF MAKING SAME. ALBERT HAAGEN, Cologne, Germany. Filed May 11, 1901. Serial No. 59,226. (No specimens.)

Claim.—1. The herein-described process of producing ferro-chromic coloring-matters, which consists in bringing into reaction an acid chromium compound, a compound of iron and an alkali, substantially as set forth.

2. The herein-described process of producing ferro-chromic coloring-matters, which consists in forming an alkaline solution of a chromium salt, and subjecting said solution to the action of a soluble compound of iron, substantially as set forth.

3. As a new coloring-matter, a double salt of iron and chromium, derived from an acid chromium compound, a compound of iron and an alkali, said coloring-matter containing a high percentage of a chromium compound and potassium and being of a brilliant chrome-yellow color, substantially as set forth.

698,704. MAILING-ENVELOP. ALBERT HARRINGTON, Boston, Mass. Filed Nov. 4, 1901. Serial No. 80,991. (No model.)

Claim.—1. An envelop having its flap and its back provided with a non-hardening cement, for detachably connecting the flap to the back.

2. The combination with the back and flap of an envelop, of a disk of non-hardening cement connected to the flap, and a disk of non-hardening cement connected to the back and adapted to engage the disk of the flap for detachably connecting the back and flap together.

3. An envelop provided with a flap having an opening, a back provided with an opening, a disk of non-hardening cement attached to the outer face of the flap and adapted to project through the opening, a disk of non-harding cement secured to the inner face of the back and adapted to project through the opening thereof, said disks of cement adapted to engage each other for detachably connecting the back and flap together.

698,705. ELECTRIC-ARC LAMP. JOHN A. HEANY, Philadelphia, Pa., assignor to the Toter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va., a Corporation of West Virginia. Filed July 12, 1901. Serial No. 67,809. (No model.)



Claim.—1. In an electric-arc lamp, a globe and a roof-plate forming a substantially air-tight receptacle wherein the carbons are adapted to be consumed, a series of posts or uprights projecting upward from and supporting said roof-plate, an upper and a lower plate connected to and supported by said posts, a tube forming a guide for the upper carbon and extending between the upper and lower plates and within the posts, a solenoid-coil supported by the posts above said upper plate, and a resistance-coil supported by said posts intermediate of the two plates, substantially as and for the purposes described.

2. In an electric-arc lamp, a solenoid-coil, a tube around which the coil is located, a core fitting snugly in the tube, a rod depending from said core, a clutch-plate perforated to permit of the passage of one of the carbons, said plate pivotally connected at one side to the lower end of said rod, a sleeve loosely supported on said rod and having at its lower end prongs or projections engaging the clutch-plate beyond its pivotal connection with the rod, a spring normally tending to depress the sleeve and a guide-post for the free side of said clutch-plate, substantially as and for the purposes described.

3. In an electric-arc lamp, a globe, a roof-plate closing the upper end of said globe, a skeleton framework extending upward from said roof-plate and detachable therefrom, said framework comprising a series of posts or uprights, plates detachably secured to said posts or uprights near respectively the upper and lower extremities thereof, a tube forming the

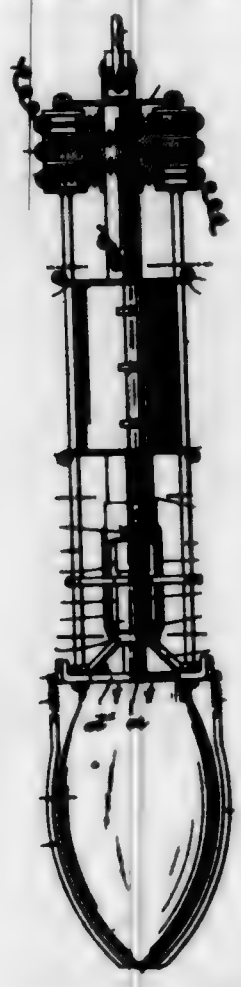
guide for the upper carbon and connecting said plates, said tube lying within the posts or uprights, a solenoid-coil adapted to be detachably connected with the upper extremity of each of said posts, and a solenoid-core controlling the feeding of the carbons, said core adapted to traverse the solenoid-coil above the uppermost plate of the framework.

4. In an electric-arc lamp, a disk forming part of an air-tight receptacle in which the carbons are adapted to be consumed, rods secured to said disk and supporting at their upper extremities a solenoid-coil and a solenoid-core, plates carried by said rods adapted to brace the same, and slots arranged in said bracing-plates to receive said rods and to be brought by said slots into and out of engagement therewith by a slight movement thereof, substantially as and for the purposes described.

5. In an electric-arc lamp, a solenoid-core and a skeleton frame, arms connecting said core with said frame and slots arranged in said arms to engage said frame, and nuts adapted to clamp said arms to said frame, substantially as and for the purposes described

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698,706. ELECTRIC-ARC LAMP. JOHN A. HEANY, Philadelphia, Pa., assignor to the Tator-Heany Developing Company, Charleston, W. Va., and Philadelphia, Pa., a Corporation of West Virginia. Filed Oct. 3, 1901. Serial No. 77,268. (No model.)



Claim.—1. In an electric-arc lamp, a fixed and a movable carbon, a solenoid-coil, a clutch device, consisting of two pivoted members, whereof one portion forms the core for said coil, and whereof the other forms gripping-jaws for the movable carbon, a dash-pot comprising a chamber within which is adapted to be moved a piston by means of said clutch device, with which it is in pivotal connection, said chamber provided with a plug having an opening and channel-ways leading therefrom, a ball adapted to seat in said opening and said chamber as so arranged adapted to permit of the entrance of air by a slow movement of said movable carbon and piston and to check or cut off the air by any sudden movement of said movable carbon and piston.

2. In an electric-arc lamp, a fixed and a movable carbon, a solenoid-coil adjustably mounted in the lamp, a clutch device, whereof one portion forms the core for said solenoid-coil and whereof the other portion forms the gripping-jaws for said movable carbon, a dash-pot connected with one of the pivots of said clutch device, and comprising a piston-chamber, wherein a piston is adapted to be afforded a range of movement, the stem of which carries a cap adapted to move along said chamber, a plug in one end of said chamber provided with an opening and channel-ways, and a ball adapted to seat in said opening, substantially as and for the purposes described.

3. In an electric-arc lamp, a fixed and a movable carbon, a casing surrounding said movable carbon, said movable carbon held under yielding action within said casing and adapted to be afforded a range of movement therein, a solenoid-coil, a clutch device, consisting of two members pivoted together, one portion of which forms the core for said solenoid-coil, and whereof the other portion forms the gripping-jaws for said movable carbon, a dash-pot, consisting of a chamber within which is adapted to move a piston, the stem whereof carries a cap movably back and forth on the exterior of said chamber, a plug mounted in said chamber and provided with openings and channel-ways, and a ball adapted to be seated in said openings, substantially as and for the purposes described.

4. In an electric-arc lamp, a fixed and a movable carbon, a solenoid-coil adjustable in the lamp, a clutch device, consisting of two members pivoted together, whereof the upper semitubular members form the core for said solenoid-coil, and whereof the lower gripping-jaw members are adapted to engage the movable carbon, and a mechanical dash-pot consisting of a chamber provided with a piston having a stem carrying a hood fitting over said chamber and slidable thereon, and a plug in the lower portion of said chamber and provided with an opening and with channel-ways therefrom, and a ball adapted to seat in said opening, substantially as and for the purposes described.

5. In an electric-arc lamp, a fixed and a movable carbon, a casing surrounding said movable carbon, means for holding said carbon within said casing, a clutch device, consisting of two pivotal members, whereof the upper members of magnetic material form the core for said solenoid-coil, and whereof the lower members of non-magnetic material form gripping-jaws for the movable carbon, and a dash-pot in movable connection with said clutch device, comprising a chamber provided with a piston, the stem of which carries a cap movable on said chamber, and the bottom of said chamber provided with an opening and with channel-ways extending therefrom and in which opening is adapted to seat a ball, substantially as and for the purposes described.

6. In an electric-arc lamp, a fixed and a movable carbon, a casing surrounding said movable carbon, means for holding said carbon within said casing, a series of standards, regulating resistance-coils fixed thereto, a solenoid-coil adjustably mounted on said standards so as to regulate the amperage of the lamp without change of said regulating resistance of the lamp, a clutch device, consisting of two pivotal members, whereof the upper members of magnetic material form the core for said solenoid-coil and whereof the lower members of non-magnetic material form gripping-jaws for the movable carbon, and a dash-pot having a piston in pivotal connection with said clutch device, said pot in the bottom having an opening and channel-ways leading therefrom and in which opening is adapted to seat a ball.

7. In an electric-arc lamp, a fixed and a movable carbon, an air-tight receptacle in which the carbons are adapted to be consumed, a solenoid-coil adjustably mounted in the lamp, and its core provided with a clutch device pivotally supporting and controlling a piston-chambered dash-pot provided with a check-valve, and means mounted in the lamp for spreading the jaws of said clutch device to release the same from contact with said movable carbon, substantially as and for the purposes described.

8. In an electric-arc lamp, a fixed and a movable carbon, a solenoid-coil adjustably mounted in the lamp, and its core provided with a clutch device having projecting limbs forming gripping-jaws for the movable carbon, and said device pivotally supporting and controlling a dash-pot having a piston and a check-valve, and means whereby contact of the gripping-jaws of the clutch device is adapted to free the same from contact with said movable carbon, substantially as and for the purposes described.

9. In an electric-arc lamp, a fixed and a movable carbon, an air-tight receptacle in which the carbons are adapted to be consumed, a resistance-coil, a solenoid-coil and its core consisting of semitubular members provided with a clutch device having depending limbs forming gripping-jaws for contacting with the movable carbon and said clutch device pivotally supporting and controlling the action of a piston-chambered dash-pot having a check-valve in the bottom thereof and a cone-shaped skeleton spreading device wherewith the jaws of said clutch are adapted periodically to contact, substantially as and for the purposes described.

10. In an electric-arc lamp, a fixed and a movable carbon, a resistance-coil, a solenoid-coil adjustable in the lamp to provide for changes of the amperage of the lamp without necessary change of the regulating resistance of the lamp, a combined solenoid-core and clutch device adapted to control the movable carbon, and a dash-pot with a ball check-valve in said pot and adapted in conjunction with said device to prevent chattering of the carbons, and means to permit of the periodic release of the jaws of said clutch device from contact with said movable carbon, substantially as and for the purposes described.

11. In an electric-arc lamp, a fixed and a movable carbon, a resistance-coil, an adjustable solenoid-coil, a combined solenoid-core and clutch device adapted to control the movable carbon mounted in a casing under tension yet permitted a sliding movement in said casing, a dash-pot with a check-valve adapted in conjunction with said device to prevent chattering of the carbons, and means for releasing the clutch device from con-

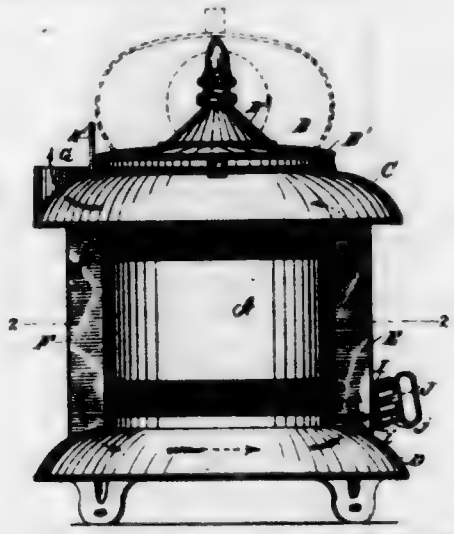
tact with the movable carbon in establishing the arc of the lamp, substantially as and for the purposes described.

12. In an electric-arc lamp, a fixed and a movable carbon, a series of standards, a regulating resistance-coil fixed to said standards, a solenoid-core arranged within said standards, a solenoid-coil adjustably secured to said standards and surrounding said core, said coil adapted to be raised and lowered on said standards in respect to said fixed regulating resistance and solenoid-core to adjust the amperage of the lamp without change in said fixed regulating resistance of the lamp.

13. In an electric-arc lamp, a fixed and a movable carbon, a series of standards, a regulating resistance-coil fixed to said standards, a solenoid-coil adjustably secured to said standards so as to permit of the raising and lowering of the same thereon in respect to said fixed regulating resistance to adjust the amperage of the lamp without change in said fixed regulating resistance of the lamp and a clutch device consisting of two pivotal members, whereof the upper members of magnetic material form the core for said solenoid-coil, and whereof the lower members of non-magnetic material form gripping-jaws for the movable carbon and a dash-pot having a piston in pivotal connection with said clutch device, said pot in the bottom having an opening and channel-ways extending therefrom and in which opening is adapted to seat a ball.

14. In an electric-arc lamp, a fixed and a movable carbon, a series of standards, a regulating resistance-coil fixed to said standards, a solenoid-core arranged within said standards, a solenoid-coil adjustably secured to said standards and surrounding said core, said coil adapted to be raised and lowered on said standards in respect to said fixed regulating resistance and core to adjust the amperage of the lamp without change in said regulating resistance of the lamp, and a dash-pot connected with said core and arranged so as to permit of the entrance of air by a slow movement of said movable carbon and core and to check or cut off the air by any sudden movement of said movable carbon and core.

698,707. STOVE. WILLIAM HEUKRHAFF, Sedalia, Mo. Filed July 3, 1901. Serial No. 67,029. (No model.)

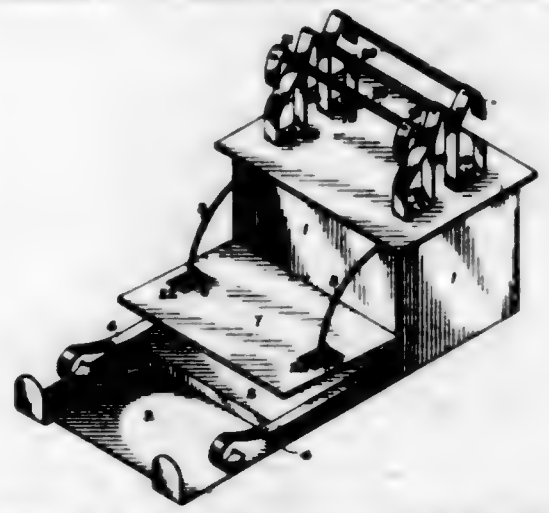


Claim.—1. The improvement in stoves herein described, consisting of the body A, the chambers C and D encircling said body at its upper and lower ends, respectively, the flue E connecting said chambers and opening at its opposite ends thereinto, the air-tube I extending through the flue E and opening at its inner end into the body of the stove and provided at its outer end with the openings *i*, the damper J operating in the tube I and provided with openings *j* which may be adjusted into and out of register with the openings *i*, the flue F discharging at its lower end into the chamber D at a point remote from the flue E, the body of the stove being provided with openings *f* and *f'* opening respectively into the flue F and the chamber C, and the damper H movably supported and arranged to control the openings *f* and *f'*, and the lid fitted to the body of the stove, substantially as set forth.

2. The combination in a stove of the body, the circulating-chambers encircling the same at its respective ends, one of said chambers being provided with an offtake and with an opening communicating with the body of the stove, a connecting-flue extending between the chambers, and a flue discharging into the chamber opposite that provided with the offtake, such flue being provided with an opening communicating with the body of the stove, and a valve movable to positions to close such opening or the opening which leads from the circulating-chamber into the body of the stove, substantially as set forth.

3. The combination of the stove-body, the upper circulating-chamber having an opening arranged to establish communication with the body of the stove, the lower circulating-chamber, a flue connecting said upper and lower chambers, a feed-flue connected with the lower chamber and having an opening arranged to establish communication with the body of the stove and a valve arranged in one position to close said opening and in its other position to close the opening between the upper chamber and the body of the stove substantially as set forth.

698,708. PAPER-HOLDING STRUCTURE. ULYSSES G. HILLMAN, Woodstown, N. J. Filed May 3, 1901. Serial No. 58,662. (No model.)



Claim.—1. The combination in a structure of the character described, of a casing, an extended base carried thereby, a front extension carried by said base adapted to receive a pile of papers, a depressible shelf carried by the casing and serving also to receive the papers, fingers for holding such papers to the shelf, and means located within the casing for raising said fingers when said shelf is depressed.

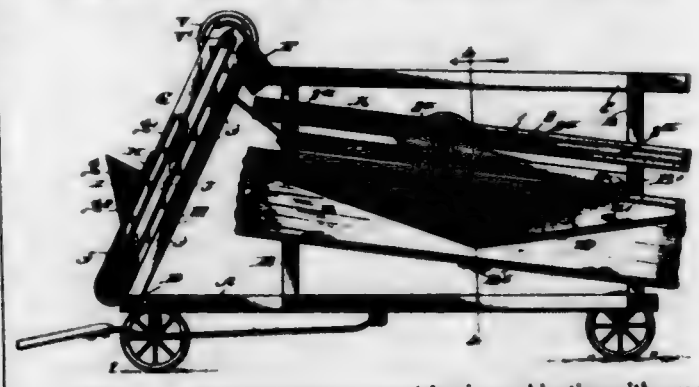
2. The combination in a structure of the character described, of a casing, a depressible shelf carried thereby, holding members normally in contact with said shelf, mechanism within the casing for raising said holding members when the shelf is depressed, and an extension carried by said casing providing for the reception of papers.

3. The combination in a structure of the character described, of the casing, a depressible shelf carried by said casing, arms carrying said shelf pivoted within the casing, fingers coacting with said shelf, supports for said fingers pivotally mounted in the structure, means for holding the fingers in contact with the shelf, and a connection between the shelf-supporting arms and the finger-supports whereby said fingers will be raised as the shelf is depressed.

4. The combination in a structure of the character described, of the casing, a depressible shelf carried thereby, arms pivoted within the casing and supporting said shelf, a series of fingers coacting with said shelf and normally held in contact with the same, bell-crank levers pivotally mounted within the casing and carrying said fingers, means for supporting said bell-crank levers whereby the shelf and fingers will be maintained in contact with each other, and a lever connecting the shelf-supporting arms and said bell-crank levers whereby the fingers will be raised as the shelf is depressed.

5. The combination in a structure of the character described, of the base or other suitable support, a depressible shelf carried thereby, said shelf being pivoted at one end to the base, movable fingers also pivoted to the base and contacting with the shelf, said fingers being provided near the pivot-point of the shelf, and a connection between said shelf and the fingers whereby the latter will be moved up and away from the shelf when said shelf is depressed.

698,709. ORE-SEPARATING MACHINE. JOHN C. HOOPER, Portland, Oreg. Filed Apr. 24, 1901. Serial No. 57,317. (No model.)

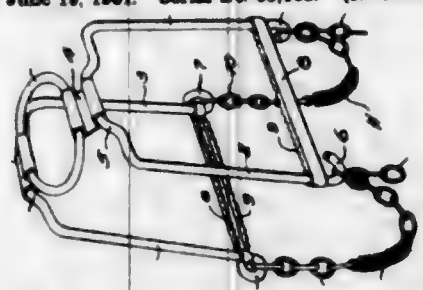


Claim.—1. An ore-separator, comprising in combination with a supporting-frame and a screen-frame shakably mounted on said supporting-frame; of a second screen-holding frame shakably mounted on the supporting-frame, independently of the first screen-frame, said second frame having its bottom inclined downward from the opposite ends, a bellows-

section W^3 under each inclined bottom portion, having valved blast discharges through said bottom, said sections W^3 W^3 having a hinged connection, and means for imparting a simultaneous shaking motion to the screen-frames, and compressing the two bellows-sections, for the purposes described.

2. The combination with the main frame, and the screen-carrying frame W, having inwardly-discharging valved openings in the bottom; of the hinged bellows-sections Z, including the two hinged members w^2 w^2, the drive-shaft, having a crank, and a swinging and extensible link connecting the hinged part of the sections Z with the crank on the drive-shaft, all being arranged substantially as shown and for the purposes described.

698,710. BROOM ATTACHMENT. MARY B. HUGHES, Chicago, Ill. Filed June 19, 1901. Serial No. 65,163. (No model.)



Claim.—1. A broom attachment comprising a pair of clamp members hinged together, means for attaching said members to opposite sides of a broom, a hook secured to one of said members, and a chain secured to the other member adapted to engage said hook and thereby control the relative distance between said members.

2. A broom attachment comprising a ring, a pair of forked members hinged at opposite points of said ring, each of said members having a toothed bar connecting its arms near their extremities, a loop or eye at the end of each of the arms of one of said members, a hook at the end of each of the arms of the other member, and a chain secured to each of said eyes and having links of a size suitable to receive said hooks.

3. A broom attachment comprising a ring, a pair of forked members hinged at opposite points of said ring, each of said members having a toothed bar connecting its arms near their extremities, a loop or eye at the end of each of the arms of one of said members, a hook at the end of each of the arms of the other member, and a chain secured to each of said eyes and having links of a size suitable to receive said hooks, each of said chains having a spring connecting two of its links.

4. A broom attachment comprising a ring, a pair of clamp members hinged at opposite points of said ring, each of said members having a toothed bar at its end, and an extensible tie connecting each of the extremities of one of said bars with the corresponding extremity of the other bar.

5. A broom attachment comprising a pair of clamp members hinged together at their upper ends, means at said upper ends for attaching said members to opposite sides of a broom, each of said members having at its lower end a toothed bar, and an extensible tie connecting each of the extremities of one of said bars with the corresponding extremity of the other bar.

698,711. UMBRELLA-STICK. FLETCHER C. HULL, Norwalk, Ohio. Filed Mar. 20, 1900. Serial No. 9,439. (No model.)



Claim.—1. A tubular umbrella-stick of malleable metal, having a lower end extension drawn "down" into a reduced cross-sectional area, in combination with a handle having a socket or sleeve adapted to receive said extension, substantially as set forth.

2. A tubular umbrella-stick having a lower end extension drawn "down" into a reduced cross-sectional area, the walls of said reduced extension being thickened, in combination with a handle having a socket or sleeve adapted to receive said extension, substantially as specified.

3. A tubular umbrella-stick having a lower end extension drawn "down" into a reduced cross-sectional area, in combination with a handle having a sleeve or socket extending beyond said handle and adapted to receive said reduced extension of the umbrella-stick, substantially as set forth.

698,712. DETACHABLE UMBRELLA-HANDLE. FLETCHER C. HULL, Norwalk, Ohio. Filed Mar. 26, 1900. Serial No. 10,237. (No model.)



Claim.—1. The combination with a detachable handle, having a sleeve and an attached rivet arranged within and transversely of said sleeve, of a staff having slots in the end thereof adapted to engage with said rivet and means for the retention of said handle upon said staff, substantially as shown and described.

2. A staff having slots in the end thereof in combination with a detachable handle, a sleeve having an attached rivet arranged within and transversely of said sleeve and adapted to engage with the slots in the staff, substantially as shown and described.

3. A staff having slots in the end thereof, a spring having a boss projecting through the wall of the staff in combination with a handle, a sleeve having a slot to receive said boss and a rivet arranged within and transversely of said boss to engage with the slots in the staff, substantially as shown and described.

4. The combination with a staff, a spring, a boss projecting through the wall of said staff and having beveled edges, of a detachable handle, a sleeve having a slot in the exposed end thereof and an attached rivet arranged therein, substantially as shown and described.

5. In an article, substantially such as herein described, a detachable handle, a sleeve, one end of which projects beyond the end of the handle and having a transverse rivet arranged interiorly of said sleeve and is slotted, the walls of which are cut away, in combination with a staff and means for locking the staff to the sleeve, said sleeve adapted to partially inclose said staff, substantially as shown and described.

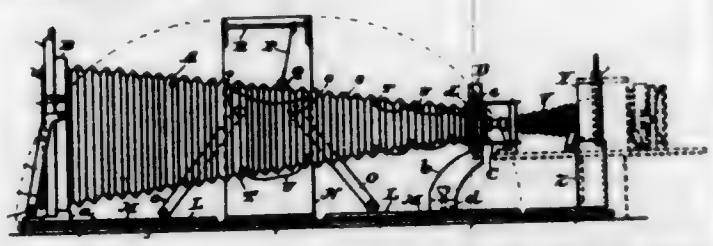
6. In an article substantially as herein described, the combination of a tubular staff or rod, the semi-elliptic or bowed spring, with its ends adapted to bear and freely slide on said staff or rod, upon its inside, and having a central boss upon its convexity projecting through a slot in said staff or rod, and a handle having a projecting sleeve provided with a slot adapted to be engaged by said boss, substantially as set forth.

7. In an article substantially as herein described, the combination of a tubular staff or rod, the semi-elliptic or bowed spring, with its ends adapted to bear and freely slide on said staff or rod, upon the inside, and having a central boss upon its convexity projecting through a slot in said staff or rod, and a handle having a projecting sleeve provided with a slot adapted to be engaged by said boss, said sleeve having an internal cross pin or rivet intermediately of its ends and said staff or rod having coincident notches at its lower end adapted to engage said cross pin or rivet, substantially as set forth.

698,718. DEVICE FOR ENLARGING NEGATIVES. GEORGE B. HUTCHINGS, Galveston, Tex. Filed Feb. 26, 1901. Serial No. 48,895. (No model.)

Claim.—1. In combination, the rectangular frame having hinged front and back, tracks on said front and back and the bottom of the frame, front and rear bellows-supporting frames slidably mounted on said track, a bellows extending between said frames, a longitudinal rod on said rectangular frame, and a connection from the central portion of the bellows slidably engaging said rod, substantially as described.

2. In combination, the box having its front and back sides open, a front and a back hinged to the bottom of the box and adapted to form therewith a flat support for the bellows and to fold up to close said sides, standards slidably carried by said support, and a bellows carried by said standards, said front and back each comprising hinged sections, the outer sections being adapted to drop down into a vertical plane out of the way when the bellows-support is adjusted inward upon the inner section, substantially as described.



3. In combination, the box having two opposite sides open and an open top, a hinged front and a hinged back adapted to fold down to form a bellows-support, said front and back each comprising a plurality of sections, a top-closing section hinged to the edge of the front, all of said sections having hinge connections permitting the sections to swing down into vertical position, locking devices, bolts across the joints of some of the sections for holding them against folding and bellows-supports slidably carried by said sections, substantially as described.

4. In combination with the frame and the elongated bellows, of retracting devices carried by said bellows whereby one portion may be retracted without affecting the other part, substantially as described.

693,714. PAPER-HOLDER FOR ENLARGING-CAMERAS. GEO. B. HUTCHISON, Galveston, Tex. Filed Sept. 27, 1901. Serial No. 76,767. (No model.)



Claim.—1. A paper-holder for enlarging-cameras, comprising an open frame, a paper-holding back, and a slide for closing the front, substantially as described.

2. The combination with an open frame having a removable back and a slide closing the front, of a pair of successively-acting flaps seated in grooves in one side of said frame, and a sliding panel opposite said flaps having grooves to receive the edges of the flaps, substantially as described.

3. The combination, with an open frame having a removable back and a slide closing the front, of a pair of successively-acting flaps seated in grooves on one side of the frame, and a panel located opposite said flaps, said panel having dovetailed ends engaging corresponding channels in the sides of the frame, substantially as described.

693,715. CURTAIN-POLE. JULIUS JACOBY, Mifflintown, Pa. Filed Feb. 25, 1899. Serial No. 706,844. (No model.)

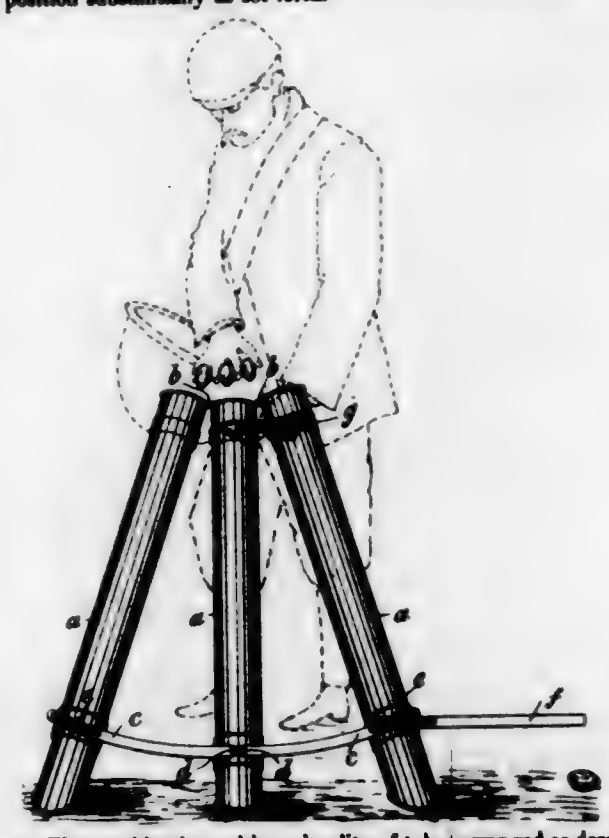


Claim.—A device of the kind described comprising in combination a pole A having a longitudinal recess B in the bottom thereof, the plates C secured to the pole upon opposite sides of the groove, said plates being provided with barbs or prongs C' at their outer ends, their inner ends being bent back upon themselves, the rollers D adapted to travel upon the said reinforced edges, the axle D' uniting the rollers, a loop or hook E, suspended from the axle, and adapted to travel between the plates, substantially as shown and described.

698,716. APPARATUS FOR PLANTING POTATOES OR SEEDS. CECIL L. JERVIS, Newark, England. Filed Dec. 2, 1901. Serial No. 84,488. (No model.)

Claim.—1. Apparatus for planting potatoes and seeds, consisting of a plurality of tubes, the upper ends of which adjoin each other and the lower ends of which are separated a distance equal to the desired spacing out, substantially as set forth.

2. The combination, with a plurality of tubes arranged as described, of flexible connections between the upper ends of said tubes and means for regulating and fixing the lower ends of said tubes in their desired separated position substantially as set forth.



3. The combination, with a plurality of tubes arranged as described, of an adjustable gage, whereby to determine the position or distance the next planting should be from the potatoes or seeds already planted, substantially as set forth.

4. The combination of a plurality of sets of tubes arranged as described, each set being flexibly connected to the next set and provided with means whereby to permit of adjustment to the desired distance apart of the trenches, substantially as set forth.

693,717. WEEDER. ANDREW JOHNSON, Chicago, Ill. Filed Aug. 12, 1901. Serial No. 71,766. (No model.)



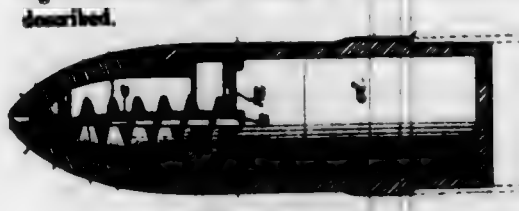
Claim.—1. A weeder comprising a handle having a cluster of prongs projecting from one end, and a member for detaching the weeds from the prongs, movable longitudinally thereof and having an extension provided with a sleeve longitudinally slidable on the handle for operating said member.

2. A weeder comprising a handle having a cluster of prongs projecting from one end, a sleeve longitudinally slidable on said handle a considerable distance from said prongs, and an extension secured to said sleeve and acting between said prongs longitudinally thereof for detaching the weeds from the prongs.

698,718. PROJECTILE AND FUSE. LEOPOLD JULIO, San Francisco, Cal. Filed Sept. 21, 1901. Serial No. 76,094. (No model.)

Claim.—1. The combination with a hollow projectile having a hole

in its nose; of a spring-seated valve held closed upon said hole and bearing on its inner side a charge of metallic potassium or its equivalent as described.



2. The combination with a hollow projectile having a hole in its nose, and an air-vent in rear of the same; of a spring-seated valve held closed upon said front hole and bearing on its inner side a charge of metallic potassium or its equivalent as described.

3. A hollow projectile made in two parts and separated by a partition into a rear compartment for high explosive and a front compartment containing a piece of potassium and a waterproof-powder composition, and means for preventing the oxidation of the potassium when in flight through the air, and igniting it by contact with the water substantially as shown and described.

4. A potassium-capsule constructed as a valve, combined with a projectile having a hole in the same, said capsule forming a valve for closing said hole and means for holding said valve to its seat in a yielding manner substantially as described.

5. As a new article of manufacture a potassium-capsule consisting of a cup-shaped metal shell adapted to form a valve and containing on the inside a potassium pellet inclosed in an envelop of fibrous material saturated with a non-oxidising liquid substantially as described.

6. The combination of a hollow projectile having a transverse partition with an opening through it, and a screw-threaded and detachable nosepiece with a hole in the end, a potassium-capsule forming a valve fitting in the end of the nosepiece and closing the opening in the same, a spring interposed between said capsule-valve and the transverse partition, and a central stem mounted on the transverse partition and carrying a water-proof explosive powder substantially as described.

698,719. LOCK. OSCAR KATTENHORN, San Antonio, Tex., assignor of one-half to William W. Johnson, San Antonio, Tex. Filed Oct. 11, 1901. Serial No. 78,267. (No model.)



Claim.—1. In a lock of the character described, the combination, with a pivoted bolt, of a circular tumbler having a portion of one face cut away or flattened, the edge being left circular, a concavo-convex spring applied to such tumbler, a tumbler-spindle having a knob, and means for locking the tumbler, substantially as shown and described.

2. In a lock of the character described, a tumbler, which is circular in form, having a portion of one face cut away, the edge being left intact, as shown and described.

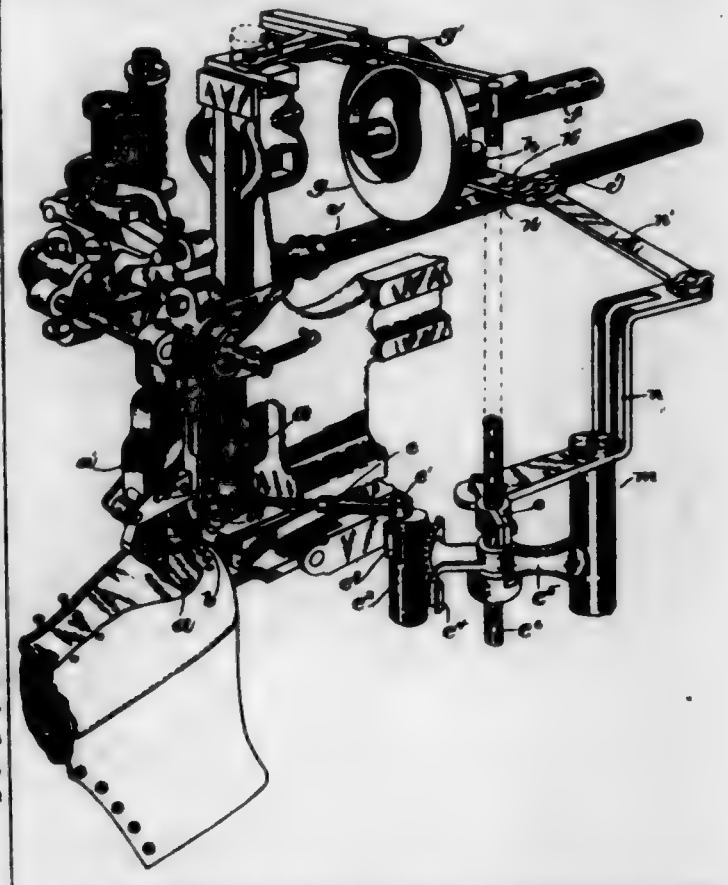
3. In a lock of the character described, a ratchet-wheel having a smooth place for the beginning of the combination, a dog to operate against such ratchet-wheel and a spring to hold such dog in position; the teeth on such ratchet-wheel and the dog being so shaped as to enable the said wheel to be turned either to the right or to the left; and means of fastening such ratchet-wheel onto the axle carrying the tumbler; the purpose of such ratchet-wheel, dog, &c., being to communicate the combination either by hearing or by touch, substantially as set forth.

4. In a lock of the character described, the combination, with the casing, and pivoted bolt, of a tumbler, which is circular and has a portion of one face cut away, a concavo-convex spring bearing upon the tumbler, a spindle whereon the tumbler and spring are mounted rotatably, a ratchet-wheel fixed on the spindle and having a portion of its periphery smooth, and a pivoted dog which engages such wheel, all arranged and operating as shown and described.

5. In a lock of the character described, the combination, with casing, pivoted bolt-spindle, a circular tumbler cut away on one face, a spring acting on the tumbler and a ratchet-wheel fixed on the spindle and having one side flattened, of a pivoted spring-pushed dog having a V-shaped head adapted to engage the ratchet and thus permit the latter to be rotated in either direction, whereby the combination is communicated either by touch or hearing, as specified.

698,720. LASTING-MACHINE. MICHAEL F. KELLEY, Brockton, Mass. Filed May 14, 1900. Serial No. 16,562. (No model.)

Claim.—1. A machine of the character referred to, comprising pincers, operating mechanism for moving the pincers longitudinally toward and from the insole as held by the operator and laterally toward and from the edge of the inner sole, and means for making said operating mechanism partially inoperative to discontinue one of said movements and prevent the pincers from grasping the upper.



2. A machine of the character referred to, comprising pincers, a two-part operating mechanism therefor, one of said parts moving the pincers longitudinally toward and from the insole as held by the operator, and the other to move the pincers laterally toward and from the edge of the insole, and means for making one of said parts inoperative, whereby the pincers are prevented from grasping the upper.

3. A machine of the character referred to, comprising pincers, a two-part operating mechanism therefor, one of said parts moving the pincers longitudinally toward and from the position in which the insole is held by the operator, while the other moves the pincers laterally toward and from the edge of the insole, and means for making the last-mentioned part inoperative to discontinue the lateral movement of the pincers without affecting their longitudinal movement.

4. A machine of the character referred to, comprising pincers reciprocated longitudinally toward and from the work, mechanism for moving the pincers laterally, and means for disconnecting the pincers from said mechanism without affecting the longitudinal movement of the pincers.

5. A machine of the character referred to, comprising pincers, a two-part operating mechanism therefor, one of said parts moving the pincers longitudinally while the other moves the pincers laterally, tacking mechanism organized to supply either longer or shorter tacks at will, and including a tack-feeding controller, and connections between said controller and a member of one of the parts of said operating mechanism, whereby one of the movements of the pincers is discontinued when the controller is operated to supply the shorter tacks, and resumed when the controller is operated to supply the longer tacks.

6. A machine of the character referred to, comprising pincers reciprocated toward and from the work, a reciprocatory shaft for moving said pincers laterally to engage the upper and draw it over on the insole, a rotary cam, a roll carried by said shaft, tacking mechanism including a tack-feed controller, and connections between said roll and controller, whereby the roll is moved into and out of engagement with the cam when said controller is operated.

7. A machine of the character referred to, comprising pincers reciprocated toward and from the work, a reciprocatory shaft for moving said pincers laterally to engage the upper and draw it over on the insole, a rotary cam, a movable lever on said shaft, a roll carried by said lever and movable thereby into and out of the path of the cam, tacking mechanism including a tack-feed controller, and connections between said lever and controller, whereby the roll is moved into and out of engagement with the cam when said controller is operated.

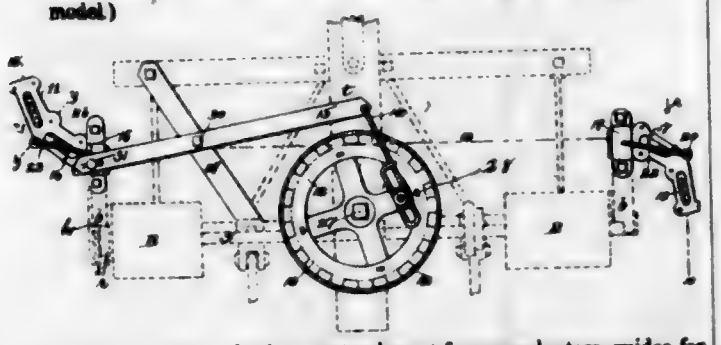
8. A machine of the character referred to, comprising pincers, a shaft *c* for actuating the pincers, a cam *g*, a lever *h* carried by the shaft *c* and normally parallel therewith, a roll *h'* movable into and out of the path

of the cam *g*, and means for moving said roll, whereby said pincers may be entirely disconnected from said shaft.

9. A machine of the character referred to, comprising pincers, a shaft *c* for actuating the pincers, a cam *g*, a lever *h* carried by the shaft *c* and having a roll *h'* movable into and out of the path of the cam *g*, and a hand-lever connected to the said lever *h* for actuating it, whereby said roll may be moved out of the path of said cam to disconnect said pincers from said shaft *c*.

10. A machine of the character referred to comprising pincers, operating mechanism for moving said pincers longitudinally and laterally to engage and pull the upper, tacking mechanism organized to supply either longer or shorter tacks at will and including a tack-controller, and connections between said controller and said operating mechanism, whereby one of the described movements of said pincers is discontinued when the controller is operated to supply the shorter tacks.

698,721. CHECK-ROW ATTACHMENT FOR CORN-PLANTERS. ROBERT S. KIRKPATRICK, Des Moines, Iowa, assignor to H. S. Butler, Des Moines, Iowa. Filed Aug. 24, 1900. Serial No. 27,892. (No model.)



Claim.—1. In a check-row attachment for corn-planters, guides for the measuring-wire, and leaf-springs attached to said guides adapted to bear against and produce a tension in said wire.

2. In a check-row attachment for corn-planters, a measuring-wheel secured to the corn-planter, a V-shaped circumferential groove therein, a smooth measuring-wire, a guide at each side of the corn-planter, a friction device attached to said guides to produce a tension in said measuring-wire.

3. In a check-row attachment for corn-planters, a smooth wire adapted to be stretched across the field to be planted, a guide for said wire at each side of the corn-planter, a measuring-wheel pivoted to the corn-planter, the rim thereof formed of sheet metal, alternate sections of said rim pressed in opposite directions to form a circumferential groove to receive said wire, and means for connecting said measuring-wheel with the seed-dropping mechanism of the corn-planter.

4. A check-row attachment, for corn-planters, consisting of a smooth wire 10, a measuring-wheel 12, the guides 11 and 13 provided with the leaf-springs 16 and 17 attached thereto, the link 14 and the lever 15 connecting the measuring-wheel with the seed-dropping mechanism of the corn-planter.

5. In a check-row attachment for corn-planters adapted for use with a smooth wire, angular guides for said wire, a succession of rollers therein and leaf-springs attached to said guides and adapted to bear against the wire.

6. In a check-row attachment for corn-planters adapted for use with a smooth wire, angular guides for said wire, a succession of rollers therein, and a spring attached to the casing of each of said guides and bearing against said wire.

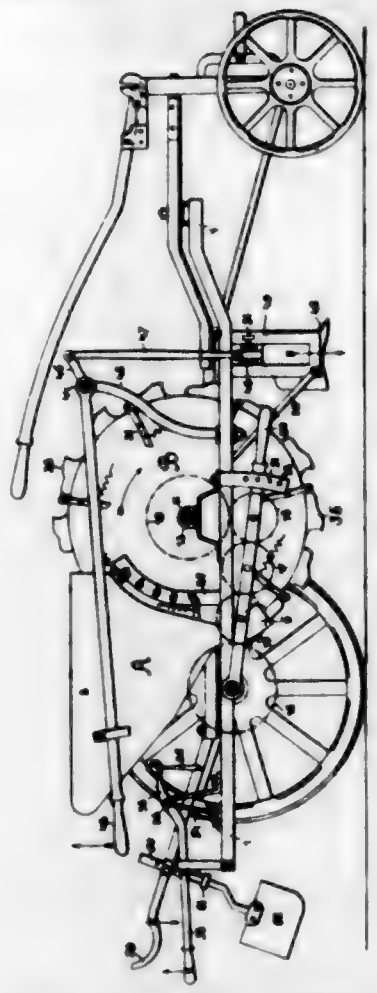
7. In a check-row attachment for corn-planters, an angular guide pivoted to each side of the frame, an arm attached to each side of said frame, and a spring connecting the arm and guide on each side of said frame.

8. In a check-row attachment for corn-planters, an angular guide pivoted to each side of the frame, an upwardly-curved arm attached to each side of said frame, and a spring connecting the arm and guide on each side of said frame.

9. In a check-row attachment for corn-planters, adapted for use with a smooth wire, angular guides, a succession of rollers therein, a tension device attached to said guides, means for keeping said guides in a substantially horizontal position, a measuring-wheel formed with a rim of sheet metal cut radially, the sections between said radial cuts bent alternately in opposite directions from the plane of said rim.

10. In a check-row attachment for corn-planters, a smooth wire adapted to be stretched across the field to be planted, a measuring-wheel pivoted to the corn-planter, the rim of the measuring-wheel being formed of sheet metal, alternate sections of said rim being pressed in opposite directions to form a circumferential groove to receive said wire, means for connecting said measuring-wheel with the seed-dropping mechanism of the corn-planter, a guide for said wire on each side of said measuring-wheel, and yielding pressure devices connected with the guides and arranged to apply a tension to said wire on opposite sides of said wheel.

698,722. SEEDING-MACHINE. VACLAV KOREIS and JOSEF KREBL, Alt-Buntslau, Austria-Hungary. Filed Feb. 8, 1900. Serial No. 4,577. (No model.)



Claim.—1. In a potato seeding and planting machine, the combination with a seedbox, of a rotating part provided with means for extracting seeds from the seedbox, means concentric with the said rotating part provided with compartments arranged to receive the seeds from the rotating part after they have been taken from the seedbox, and means for conveying the seeds from the said compartments to the furrow, substantially as set forth.

2. In a potato-seeding machine, the combination with a seedbox, of a disk provided with seed-scoops arranged to receive the seeds from the box and discharge them at a given point, said disk having a rim divided into compartments adapted to receive the seeds discharged by the scoops and convey them to the point from which they are dropped into the furrow, substantially as set forth.

3. In a potato-seeding machine, the combination with a seedbox, of a disk provided with a plurality of seed-scoops arranged to receive the seeds from said box and convey them to a predetermined point, means for discharging the seeds at such point, and means carried by the disk for conveying the seeds from such point of discharge to the point from which said seeds are dropped into the furrow, substantially as set forth.

4. In a potato-seeding machine, the combination with the seedbox of a disk provided with scoop devices arranged to receive seeds from said box, and convey them to a predetermined point, a rim situated within the circle described by the said scoop devices and divided into compartments adapted to receive the seeds discharged by the scoop devices, and means for retaining the seeds in such compartments until a predetermined point of discharge is reached, and then allowing them to fall into the furrow, substantially as set forth.

5. In a potato-seeding machine, the combination with the seedbox of a revolving disk provided with a plurality of seed-scoops, each of said scoops being provided with a movable bottom, and means for imparting to said movable bottoms a vibratory motion, substantially as set forth.

6. In a potato-seeding machine, the combination with a seedbox, of a seeding-disk provided with a series of seed-scoops adapted to enter the said seedbox and extract seeds therefrom, means arranged within the scoops for removing superfluous seeds from said scoops, and means for distributing said seeds regularly in the furrows, substantially as set forth.

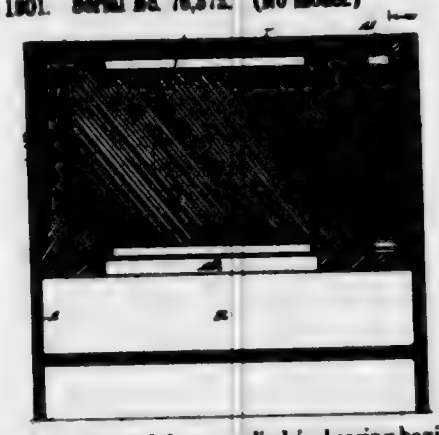
7. In a potato-seeding machine, the combination with the seed-distributing disk, of a plurality of seed-scoops carried by said distributing-disk, each of said scoops being provided with a movable bottom, and a

spring-held lever operatively connected thereto, and means for imparting to said lever a vibratory motion, substantially as set forth.

8. In a potato-seeding machine, the combination with a rotating seeding-disk, of a seed-scoop carried thereby, said scoop having a movable bottom, a two-armed lever pivoted to said disk, connections between one end of said lever and the movable bottom, devices extending into the path of the other arm to move the same in one direction, and spring devices for moving said arm in the opposite direction, substantially as set forth.

9. In a potato-seeding machine, the combination with the frame, the wheels, a seedbox, a seeding-wheel, and its driving-shaft, of a gear carried by the driving-wheel, a pinion carried by the said shaft, idlers for communicating motion from the gear-wheel to the pinion, means for throwing said idlers into and out of mesh with said pinion, and means for holding in fixed position the said idlers in the positions to which they may be moved, whereby a pinion of larger or smaller size may be employed in order to change the speed of the driving-shaft, substantially as set forth.

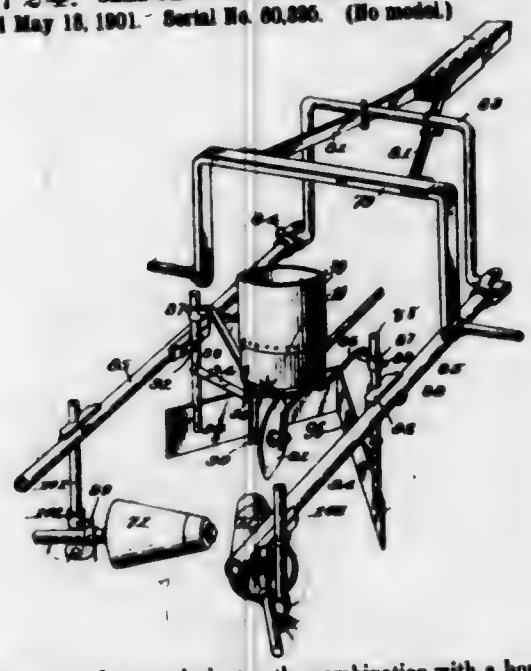
693,723. MATCH-BOX. GRANT LAW, Centerpoint, W. Va. Filed Sept. 24, 1901. Serial No. 76,372. (No model.)



Claim.—1. In a match-box, a cylindrical casing having a discharge-slot formed therein, a removable head in one end of said casing, said head and the opposite end of the casing having bearings formed therein, a fluted wheel rotatably secured in said bearings, ratchet-teeth carried by said wheel, a lever pivotally mounted in a slot provided therefor in said casing and having its free end extending beyond the casing, a spring-pressed pawl secured to the under side of said lever and engaging said ratchet-teeth, substantially as described.

2. In a match-box, a cylindrical casing having a discharge-slot formed therein, a head in one end of said casing, a frame connected to the ends of the casing, a fluted wheel rotatably mounted in said casing, ratchet-teeth carried by one end of said wheel, a lever pivotally mounted in a slot provided therefor in said casing, the free end of the lever extending beyond the casing and carrying a spring-pressed pawl, a gong mounted upon the periphery of said casing, the casing having a slot formed therein adjacent to said gong, and a spring-pressed tapper one end of which is secured to the inner face of the casing, said tapper having a shoulder engaging the ratchet-teeth, and having its other end extending through said slot, substantially as described.

693,724. SEED-PLANTER. WILLIAM H. LEDBETTER, Dallas, Tex. Filed May 18, 1901. Serial No. 60,895. (No model.)



Claim.—1. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles having inclined side walls, substantially as described.

2. In a seed planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles having parallel side walls inclined downwardly and rearwardly relatively to the direction in which the seed-dropping ring rotates, substantially as described.

3. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles having inclined side walls and upwardly and inwardly inclined inner end walls, substantially as described.

4. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring eccentrically mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles having inclined side walls and upwardly and inwardly inclined inner end walls, rotary stirrer-arms carrying spring-shoes arranged to sweep over said seed-slots, and means for rotating the seed-dropping ring and stirrer-arms in opposite directions, substantially as described.

5. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring eccentrically mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles having upwardly and inwardly inclined inner end walls, rotary stirrer-arms eccentrically mounted above the seed-dropping ring and carrying spring-shoes arranged to sweep over said seed-slots, and means for rotating the seed-dropping ring and stirrer-arms in opposite directions, substantially as described.

6. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring eccentrically mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles, said seed-dropping ring being arranged to project through one side of the hopper, rotary stirrer-arms eccentrically mounted above the seed-dropping ring and carrying spring-shoes arranged to sweep over said seed-slots, and means for rotating the seed-dropping ring and stirrer-arms in opposite directions, substantially as described.

7. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring eccentrically mounted in the bottom of the hopper and projecting through the rear side of the latter, said seed-dropping ring being provided on its periphery with radial seed slots or receptacles, rotary stirrer-arms concentrically mounted in the hopper above the seed-dropping ring and carrying spring-shoes arranged to sweep over said seed-slots, and means for rotating the seed-dropping ring and stirrer-arms in opposite directions, substantially as described.

8. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring eccentrically mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles, of a conical disk concentrically mounted in the hopper above the seed-dropping ring and provided with radial stirrer-arms provided with spring-shoes arranged to sweep over the seed-slots, and means for rotating the seed-dropping ring and the conical disk in opposite directions, substantially as described.

9. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring eccentrically mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles, of a vertically-movable conical disk concentrically mounted in the hopper above the seed-dropping ring and provided with radial stirrer-arms having fixed on some of them spring-shoes arranged to sweep over the seed-slots, a spring operating to normally hold down the conical disk, and means for rotating the seed-dropping ring and conical disk in opposite directions, substantially as described.

10. In a seed-planter, the combination with a hopper and a base therefor, of a rotary seed-dropping ring eccentrically mounted in the bottom of the hopper and provided on its periphery with radial seed slots or receptacles, of a vertically-movable conical disk supported above but out of contact with the seed-dropping ring and provided with radial stirrer-arms having fixed thereon spring-shoes arranged to sweep over the seed-slots, a spring operating to normally hold down the conical disk, and means for rotating the seed-dropping ring and conical disk in opposite directions, substantially as described.

11. In a seed-planter, the combination with a hopper and a base therefor, of a rotary disk eccentrically mounted in the bottom of the hopper, a seed-dropping ring surrounding and detachably connected to said disk and provided on its periphery with radial seed slots or receptacles, rotary stirrer-arms concentrically mounted in the hopper above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, and means for rotating the seed-dropping ring and stirrer-arms in opposite directions, substantially as described.

12. In a seed-planter, the combination with a hopper and a base therefor, of a rotary disk eccentrically mounted in the bottom of the hop-

per and provided at its edge with projecting tongues, a seed-dropping ring surrounding said disk and provided at its inner edge with recesses in which said tongues fit, said seed-dropping ring being provided on its periphery with radial seed slots or receptacles, rotary stirrer-arms concentrically mounted in the hopper above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, and means for rotating the seed-dropping ring and stirrer-arms in opposite directions, substantially as described.

13. In a seed-planter, the combination with a hopper and a base therefor, of a rotary disk eccentrically mounted in the bottom of the hopper and provided with a beveled periphery, projecting tongues on the periphery of the disk, a seed-dropping ring surrounding said disk and beveled on its inner edge and resting on the beveled edge of the disk, said ring having formed on its inner edge recesses in which the tongues fit and provided on its periphery with radial seed slots or receptacles, rotary stirrer-arms concentrically mounted in the hopper above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, and means for rotating the seed-dropping ring and stirrer-arms in opposite directions, substantially as described.

14. In a seed-planter, the combination with a hopper and a base therefor, of a fixed circular boss disposed eccentrically in the bottom of the hopper, a vertical shaft journaled eccentrically in said boss and projecting centrally into the hopper, a disk supported rotatably about the boss, a seed-dropping ring surrounding and detachably connected to the disk and provided on its periphery with radial seed slots or receptacles, stirrer-arms mounted on the shaft above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, and means for rotating the shaft and seed-dropping ring in opposite directions, substantially as described.

15. In a seed-planter, the combination with a hopper and a base therefor, of a fixed circular boss eccentrically disposed in the bottom of the hopper, a vertical shaft journaled eccentrically in said boss and projecting centrally into the hopper, a disk supported rotatably about the boss and provided on its under side with a beveled gear, a washer fastened over the boss to hold the gear-disk down, a seed-dropping ring surrounding and detachably connected to the disk and provided on its periphery with radial seed slots or receptacles, stirrer-arms mounted on the shaft above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, a beveled gear fixed on the lower end of the shaft, and a beveled driving gear-wheel disposed between the gearing with the beveled gears on the disk and shaft, substantially as described.

16. In a seed-planter, the combination with a hopper and an annular base therefor, of a cross-bar straddling the base and having formed thereon a circular boss eccentrically disposed in the bottom of the hopper, a vertical shaft journaled eccentrically in said boss and projecting centrally into the hopper, a disk supported rotatably about the boss and provided on its under side with a beveled gear, a seed-dropping ring surrounding and detachably connected to the disk and provided on its periphery with radial seed slots or receptacles, stirrer-arms mounted on the shaft above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, a beveled gear fixed on the lower end of the shaft, and a beveled driving gear-wheel disposed between and gearing with the beveled gears on the disk and shaft, substantially as described.

17. In a seed-planter, the combination with a hopper and an annular base therefor provided with a depending cup-shaped housing or casing, of a cross-bar straddling the base and having formed thereon a circular boss eccentrically disposed in the bottom of the hopper, a vertical shaft journaled in said boss and projecting centrally into the hopper, a disk supported rotatably about the boss and provided on its under side with a beveled gear, a seed-dropping ring surrounding and detachably connected to the disk and provided on its periphery with radial seed slots or receptacles, a conical disk mounted on the shaft above the seed-dropping ring and operating to stir and work the seed into the seed-slots, a beveled gear fixed on the lower end of the shaft, and a beveled driving gear-wheel disposed between and gearing with the beveled gears on the disk and shaft, substantially as described.

18. In a seed-planter, the combination with a hopper and an annular base therefor, of a fixed circular boss eccentrically disposed in the bottom of the hopper, a vertical shaft journaled eccentrically in said boss and projecting centrally into the hopper, a disk supported rotatably about the boss and provided on its under side with a beveled gear, a seed-dropping ring surrounding and detachably connected to the disk and provided on its periphery with radial seed slots or receptacles, a conical disk movably mounted on the shaft above the seed-dropping ring and provided with radial stirrer-arms carrying spring-shoes, a pin loosely passing through the conical disk and through a vertical slot in the shaft, a spring arranged to bear on the upper end of the conical disk, and means for rotating the conical disk and seed-dropping rings in opposite directions, substantially as described.

19. In a seed-planter, the combination with an annular base provided at its forward edge with a crescent-shaped flange, of a cylindrical hopper mounted eccentrically on said base, a seed-dropping ring rotatably arranged over said base and provided at its periphery with radial seed slots or receptacles, stirrer-arms arranged concentrically in the hopper above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, and means for rotating the stirrer-arms and seed-dropping ring in opposite directions, substantially as described.

20. In a seed-planter, the combination with an annular base provided at its forward edge with an upwardly-projecting crescent-shaped flange and recessed at its rear edge, of a cylindrical hopper mounted eccentrically on said base and cut away on its rear lower edge above the recessed portion of the base, a seed-dropping ring rotatably arranged over said base and provided on its periphery with radial seed slots or receptacles, stirrer-arms arranged concentrically in the hopper above the seed-dropping ring and carrying shoes constructed to sweep over the seed-slots, and means for rotating the stirrer-arms and seed-dropping ring in opposite directions, substantially as described.

21. In a seed-planter, the combination with an annular base provided at its forward edge with an upwardly-projecting crescent-shaped flange and recessed at its rear edge, of a cylindrical hopper mounted eccentrically on said base and cut away at its lower rear edge above the recessed portion of the base, a seed-dropping ring rotatably arranged over said base and projecting at its rear edge through the cut-away portion of the hopper, said ring being provided at its periphery with radial seed slots or receptacles, a vertically-adjustable gate for closing the cut-away portion of the hopper, stirrer-arms arranged concentrically in the hopper above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, and means for rotating the stirrer-arms and seed-dropping ring in opposite directions, substantially as described.

22. In a seed-planter, the combination with an annular base provided at its forward edge with an upwardly-projecting crescent-shaped flange having upturned lugs on its periphery and recessed at its rear edge, of a cylindrical hopper mounted on said base and fitted at its lower edge between the said lugs and flange, said hopper being cut away at its lower rear edge above the recessed portion of the base, a seed-dropping ring rotatably arranged over said base and projecting at its rear edge through the cut-away portion of the hopper, said ring being provided at its periphery with radial seed slots or receptacles, stirrer-arms arranged concentrically in the hopper above the seed-dropping ring and carrying shoes arranged to sweep over the seed-slots, and means for rotating the stirrer-arms and seed-dropping ring in opposite directions, substantially as described.

23. In a seed-planter, the combination with an annular base provided at its forward edge and at one side with upwardly-projecting flanges, of a cylindrical hopper mounted on said base and cut away at its rear lower edge above the recessed portion of the base, a seed-dropping ring rotatably arranged over said base and projecting at its rear edge through the cut-away portion of the hopper, said ring being provided at its periphery with radial seed slots or receptacles, stirrer-arms arranged concentrically in the hopper above the seed-dropping ring and carrying shoes constructed to sweep over the seed-slots, and means for rotating the stirrer-arms and seed-dropping ring in opposite directions, substantially as described.

24. In a seed-planter, the combination with a hopper and a base therefor, of a rotatable seed-dropping ring arranged eccentrically in the bottom of the hopper and projecting rearward thereof and provided at its periphery with radial seed slots or receptacles, a reel journaled in the rear of the hopper and provided with forwardly-projecting arms adapted to successively pass through the seed-slots, and means for causing said reel to rotate in unison with the seed-dropping ring, substantially as described.

25. In a seed-planter, the combination with a hopper and a base therefor, of a rotatable seed-dropping ring arranged eccentrically in the bottom of the hopper and projecting rearward thereof, said ring being provided on its periphery with radial seed slots or receptacles, a reel journaled on a horizontal support in rear of the hopper and provided with forwardly-projecting arms adapted to successively pass through the seed-slots, and mechanism for communicating rotary motion from the seed-dropping ring to the reel, substantially as described.

26. In a seed-planter, the combination with a hopper and a base therefor, of a rotatable seed-dropping ring arranged eccentrically in the bottom of the hopper and projecting rearward thereof, said ring being provided on its periphery with radial seed slots or receptacles, a reel journaled on a horizontal support in rear of the hopper and provided with forwardly-projecting arms adapted to successively pass through the seed-slots, and a spur-wheel fixed to rotate with the reel and its arms being arranged to successively engage the seed-slots in the seed-dropping ring, substantially as described.

27. In a seed-planter, the combination with a hopper and a base therefor, of a rotatable seed-dropping ring arranged eccentrically in the bottom of the hopper and projecting rearward thereof, said ring being pro-

vided at its periphery with radial seed slots or receptacles, a spur-wheel journaled on a horizontal support in rear of the hopper and having arms arranged to successively engage the seed-slots and punch the seed down and out of the slots, substantially as described.

28. In a seed-planter, the combination with a hopper and a base therefor, of a rotatable seed-dropping ring arranged eccentrically in the bottom of the hopper and projecting rearward thereof, said ring being provided at its periphery with radial seed slots or receptacles, a horizontal journal in rear of the hopper and at an angle to the radius thereof, a spur-wheel journaled on said journal and having arms arranged to successively engage the seed-slots, a reel fixed on the axis of the spur-wheel, and forwardly-projecting arms carried by the reel and arranged to successively pass downward through the seed-slots, substantially as described.

29. In a seed-planter, the combination with a hopper and a base therefor, of a rotatable seed-dropping ring arranged eccentrically in the bottom of the hopper and projecting rearward thereof, said ring being provided at its periphery with radial seed slots or receptacles, a horizontal journal projecting rearwardly from the hopper and at an angle to the radius of the latter, a spur-wheel journaled on said journal and having arms arranged to successively engage the seed-slots, a reel fixed on the axis of the spur-wheel, and forwardly-projecting brushes fixed on the ends of the arms of the reel and arranged to successively pass downward through the seed-slots, substantially as described.

30. In a seed-planter, the combination of a hopper, seed-dropping mechanism arranged in the bottom of the hopper, sifting mechanism arranged in the hopper above the seed-dropping mechanism, and means for actuating the seed dropping and sifting mechanism, substantially as described.

31. In a seed-planter, the combination of a hopper, rotary seed-dropping mechanism arranged in the bottom of the hopper, a vertical shaft arranged centrally in the hopper, rotary sifting mechanism fixed on the shaft above the seed-dropping mechanism, and means for rotating said shaft and sifting mechanism, substantially as described.

32. In a seed-planter, the combination of a hopper, rotary seed-dropping mechanism arranged in the bottom of the hopper, a screen fixed in the upper part of the hopper, a vertical shaft in the center of the hopper and projecting through said screen, stirrer-arms fixed on the shaft above the screen, and means for rotating the shaft and seed-dropping mechanism, substantially as described.

33. In a seed-planter, the combination with a cultivator, of a seed-dropping mechanism carried by the cultivator-beams, and two conical rollers arranged in rear of the seed-dropping mechanism, said rollers being disposed at an angle to each other with their smaller ends adjacent to one another, substantially as described.

34. In a seed-planter, the combination with a cultivator, of a seed-dropping mechanism carried by the cultivator-beams, and two conical rollers arranged in rear of the seed-dropping mechanism, said rollers being disposed at an angle to each other with their smaller ends adjacent to one another, one end of one of the rollers being arranged in advance of the corresponding end of the other roller, substantially as described.

35. In a seed-planter, the combination with a cultivator, of a seed-dropping mechanism carried by the cultivator-beams, and two conical rollers arranged in rear of the seed-dropping mechanism, said rollers being arranged at an angle toward each other in the direction of the line of draft, the smaller end of one of the rollers being disposed in advance of the corresponding end of the other roller, substantially as described.

36. In a seed-planter, the combination with a cultivator-frame, of a seed-dropping mechanism carried by the beams thereof, two conical rollers arranged in rear of the seed-dropping mechanism, said rollers being disposed at an angle to one another with the smaller end of one roller disposed in advance of the corresponding end of the other roller, and means for adjusting said rollers both angularly and horizontally, substantially as described.

37. In a seed-planter, the combination with a cultivator-frame, of a seed-dropping mechanism carried by the frame, two conical rollers arranged in rear of the seed-dropping mechanism, said rollers being disposed at an angle to one another with the smaller end of one roller disposed in advance of the corresponding end of the other roller, and means for adjusting the angle of said rollers, substantially as described.

38. In a seed-planter, the combination with a cultivator-frame, of a seed-dropping mechanism carried by the beams of the cultivator, two approximately horizontal spindles pendent from the beams in rear of the seed-dropping mechanism and disposed at an angle to one another, and conical rollers journaled on said spindles, each of said rollers comprising two frusto-conical shells screwed together, the larger shell being journaled on its spindle, substantially as described.

39. A covering-roller for seed-planters, consisting of two frusto-conical shells screwed together at their meeting ends, the larger shell being centrally provided with a longitudinal sleeve constructed for the reception of a spindle, and the smaller shell being closed at its outer end, substantially as described.

693,725. BROILER. EDWIN A. LELAND, Great Barrington, Mass., assignor to Frank H. Wright, Great Barrington, Mass. Filed July 11, 1901. Serial No. 67,577. (No model.)

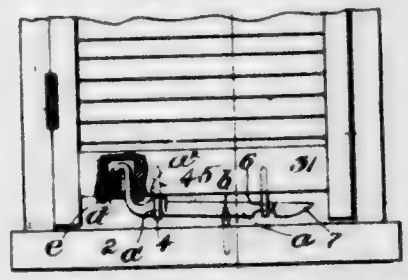


Claim.—1. The combination with a confining-rim, an upwardly-flanged plate placed in said rim with a space between the flange of the plate and the upper part of the rim, and a grill placed above the plate and higher than the upper edges of the rim and the flange of the plate, of a drip-pan interposed between the plate and the grill, and a covering-shell which has an outlet for vapors and gaseous products of combustion, as described.

2. The combination with a confining-rim, an upwardly-flanged dish-shaped plate placed in said rim with a space between the flange of the plate and the upper part of the rim, a grill placed above the plate and higher than the upper edges of the rim and the flange of the plate, and a covering-shell which has an outlet for vapors and gaseous products of combustion, of a drip-pan interposed between the grill and the plate with an air-space between the bottom of the drip-pan and the concave surface of the plate for tempering the transmission of heat to the drip-pan, as described.

3. The combination with a confining-rim, a removable covering-shell having an outlet-opening and placed above and around the rim, and a dish-shaped upwardly-flanged plate placed in said rim with a space between the flange of the plate and the upper part of the rim, of a drip-pan supported by the dish-shaped plate with an air-space between its bottom and the concave upper surface of said plate, of a removable grill, constructed with means for supporting the grill above the drip-pan at a height greater than the upper edges of the rim, the flange of the dish-shaped plate, and the sides of the drip-pan, as described.

698,726. WINDOW-BLIND FASTENER. WILLIAM MARTIN, Salem, Mass., assignor of one-half to Edward J. Sweeney and Michael Coughlin, Salem, Mass. Filed June 1, 1901. Serial No. 62,752. (No model.)



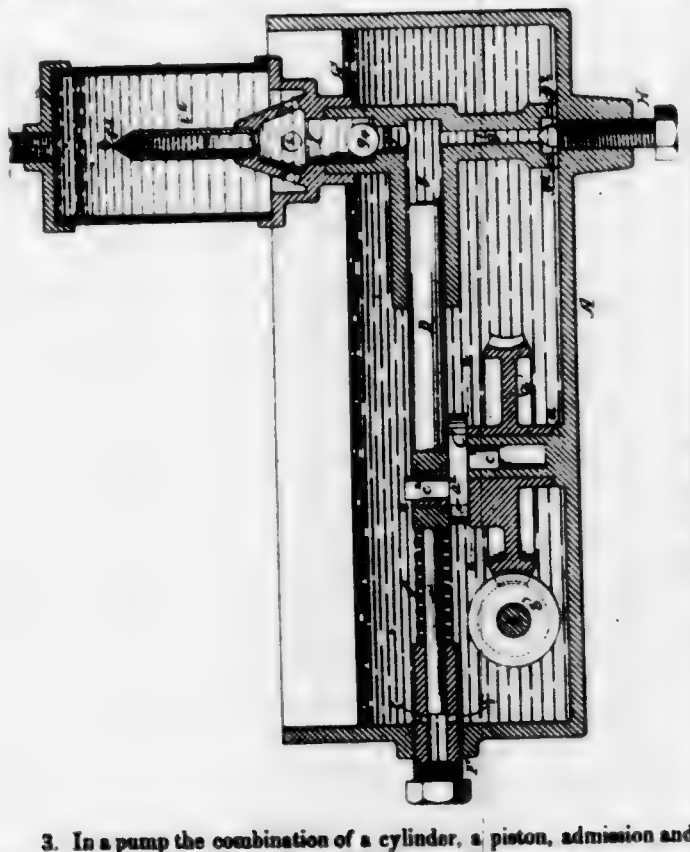
Claim.—1. The improved window-blind fastening comprising, essentially, the eyepiece adapted to constitute a pivotal support, the lever fitting within and filling the eye, having the notch or seat engaging with said eyepiece to prevent displacement, and adapted to extend lengthwise of the lower cross-bar of the blind, and the combined stop and retainer adapted to be engaged by the said lever, substantially as described.

2. The improved window-blind fastening comprising, essentially, the eyepiece adapted to constitute a pivotal support, the lever fitting within and filling the eye, having the notch or seat engaging the eyepiece to prevent displacement, and adapted to extend lengthwise of the lower cross-bar of the blind, the spring acting upon said lever, and the combined stop and retainer, substantially as described.

698,727. OIL-PUMP. WILHELM A. MAYBACH, Cannstadt, Germany, assignor to Daimler Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Mar. 28, 1901. Serial No. 53,345. (No model.)

Claim.—1. The combination in a pump, of a cylinder, a piston, means for operating the pump, a rotatable piece connected thereto, a reciprocating piece engaged by said rotatable piece and engaging the piston whereby it is caused to accomplish its forward or pressure-stroke in a relatively shorter time than that required for its suction-stroke, an inlet and an outlet passage to the cylinder, and an automatic valve in the outlet-passage, the inlet-passage being smaller in section than the outlet-passage and thereby allowing the pump to operate without an automatic valve in the same, substantially as described.

2. The combination in a pump, of a cylinder, a piston, means for operating the pump, a rotatable piece connected thereto, a reciprocating piece engaged by said rotatable piece and engaging the piston whereby it is caused to make its pressure-stroke in relatively less time than that required by its suction-stroke, an inlet and an outlet passage to the cylinder and an automatic valve in the outlet-passage, the inlet-passage being provided with means for varying the quantity of fluid discharged on said pressure-stroke and being smaller in section than the outlet-passage thereby allowing the pump to operate without an automatic valve in said inlet-passage, substantially as described.



3. In a pump the combination of a cylinder, a piston, admission and outlet passages to said cylinder, said admission-passage at all times freely communicating with the fluid-containing portion of the cylinder, means for varying the cross-sectional area of the admission-passage, continuously-rotating driving mechanism, a reciprocating piece connected to the piston and mechanism connecting said piece with the driving mechanism whereby the piston is caused to accomplish its travel in one direction in a relatively different time from that required for its travel in the opposite direction, substantially as described.

4. The combination of a cylinder, a piston operating therein, a crank connected to said piston, mechanism independent of the crank but constructed to periodically engage the same for turning it, and a spring arranged to be compressed during the suction-stroke of the piston and to move the piston on its pressure-stroke independently of the turning mechanism, substantially as described.

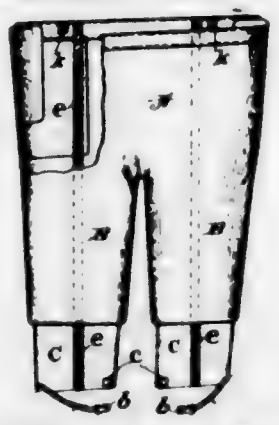
5. The combination of a cylinder, a plunger having a rearwardly-extended portion, a guide for the same, and a spring on said extended portion, an enlarged section on the rear of the plunger, having in it a slot, a block therein, a crank having a pin constructed to engage the block, with detachable means for turning the crank, the said spring being compressed by said turning means during a part of the revolution thereof and expanding to move the plunger independently of the turning means during the remainder of the revolution of said means, substantially as described.

6. In a pump the combination of a cylinder, a plunger therein, mechanism turning at a uniform rate for operating the pump, a crank movably attached to the plunger and detachably connected to the said operating means, the plunger being moved by the operating mechanism during its suction-stroke, and having means whereby it is moved independently of said mechanism during its discharge-stroke, substantially as described.

7. The combination in a pump for moving a fluid of a cylinder, a piston, an outlet-passage leading from the cylinder, a check-valve therein, a passage for the admission of fluid to the cylinder, said passage being at all times open to the same and of a cross-section relatively less than that of the outlet-passage, mechanism for reciprocating the piston, and a continuously-rotating device detached from the piston but constructed to periodically engage the same, with a device constructed to cause said piston to accomplish its pressure-stroke in a less time than that occupied by its suction-stroke substantially as described.

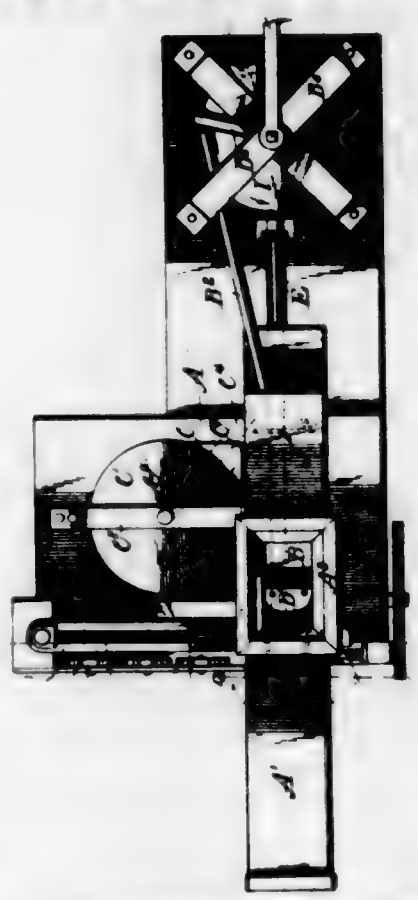
8. The combination of a cylinder, an inlet and an outlet thereto, a plunger having a slotted and a guiding section, a block constructed to be reciprocated in the slotted section, a crank for moving said block, a driving-wheel for the pump and a connection between said wheel and the crank, a spring on the guiding-section of the plunger, the same acting to separate the connection between the wheel and the crank once in every revolution thereof and piping connected to the cylinder for conducting the fluid pumped to the desired points, substantially as described.

698,728. **TROUSERS.** ISIDOR R. MAYER, Louisville, Ky. Filed Jan. 24, 1901. Serial No. 44,590. (No model.)



Claim.—An improved article of manufacture consisting of a pair of knee-trousers having connected to their front lower edges depending upwardly and inwardly foldable flaps, flap folding and holding connections attached to the lower inner side of the flaps and extending up through said legs and provided at their upper ends with attaching means at the inner side of the waistband, substantially as described.

693,729. **BALING-PRESS.** WARREN MILLER, Murphysboro, Ill. Filed Nov. 16, 1901. Serial No. 82,560. (No model.)



Claim.—1. In a baling-press, a plunger and driving means therefor, a wire-reel, a feeding-needle for the wire, a wire-twister, a driving-shaft for said needle and twister, and means carried by said reel for controlling the driving of said shaft from the plunger-driving means; substantially as specified.

2. In a baling-press, a plunger and driving means therefor, a wire-reel, a feeding-needle for the wire, a wire-twister, a driving-shaft for said needle and twister, a latch-releasing arm carried by said reel, means for moving said shaft longitudinally, and a latch disposed in the path of said arm for holding said shaft against longitudinal movement; substantially as specified.

3. In a baling-press, a plunger and power-shaft therefor, a wire-reel, a feeding-needle for the wire, a wire-twister, a driving-shaft for said needle and twister, a latch-releasing arm carried by said reel, means for moving said shaft longitudinally, a latch disposed in the path of said arm for holding said shaft against longitudinal movement, a driving-wheel upon

the plunger power-shaft adapted to rotate the driving-shaft for said needles and twisters, and a cam projection upon said wheel adapted to shift the needle-driving shaft out of contact with said wheel; substantially as specified.

4. In a baling-press, a plunger and power-shaft therefor, a wire-reel, a feeding-needle for the wire, a wire-twister, a driving-shaft for said needle and twister, a latch-releasing arm carried by said reel, means for moving said shaft longitudinally, a latch disposed in the path of said arm for holding said shaft against longitudinal movement, a driving-wheel upon the plunger power-shaft adapted to rotate the driving-shaft for said needles and twisters, a cam projection upon said wheel adapted to shift the needle-driving shaft out of contact with said wheel, wire-holding wheels, and means driven from the twisting mechanism for actuating said wheels; substantially as specified.

5. In a baling-press, a plunger, a driving means therefor, a wire-reel, means for holding the free end of the wire, a wire-needle adapted to travel across said press, twisting-fingers at the opposite side of said press from said reel, and means driven from the plunger power-shaft for successively actuating said needles and said twisting-fingers; substantially as specified.

6. In a baling-press, a plunger, a driving means therefor, a wire-reel, means for holding the free end of the wire, a wire-needle adapted to travel across said press, twisting-fingers at the opposite side of said press from said reel, a driving-shaft provided with a crank-wheel to operate said needles and having a portion of its surface provided with teeth for actuating said holding and twisting fingers subsequent to the first movement of the needle, a spring for shifting said shaft toward the plunger-driving means, a latch for retaining said shaft against such shifting movement, and an arm carried by the wire-reel for releasing said latch; substantially as specified.

7. In a baling-press, a plunger, a driving means therefor, a wire-reel, means for holding the free end of the wire, a wire-needle adapted to travel across said press, twisting-fingers at the opposite side of said press from said reel, a driving-shaft provided with a crank-wheel to operate said needles and having a portion of its surface provided with teeth for actuating said holding and twisting fingers subsequent to the first movement of the needle, a spring for shifting said shaft toward the plunger-driving means, a latch for retaining said shaft against such shifting movement, an arm carried by the wire-reel for releasing said latch, a lever adapted to shift said shaft against said spring to throw the same out of gear, and means carried by the plunger-driving means for automatically operating said lever in the rotation of the shaft; substantially as specified.

8. In a baling-press, a plunger, a driving means therefor, a wire-reel, means for holding the free end of the wire, a wire-needle adapted to travel across said press, twisting-fingers at the opposite side of said press from said reel, a driving-shaft provided with a crank-wheel to operate said needles and having a portion of its surface provided with teeth for actuating said holding and twisting fingers subsequent to the first movement of the needle, a driving-wheel for said shaft, a spring for shifting said shaft toward the plunger-driving means, a latch for retaining said shaft against such shifting movement, an arm carried by the wire-reel for releasing said latch, a lever adapted to shift said shaft against said spring to throw the same out of gear, means carried by the plunger-driving means for automatically operating said lever in the rotation of the shaft, a segmental section of driving-teeth carried by the wheel upon the plunger-driving means, a gear upon said driving-shaft for engaging said teeth, a laterally-movable spring projected into the path of longitudinal movement of said gear, and a projection carried by the wheel upon the plunger-driving shaft for shifting said spring; substantially as specified.

9. In a baling-press, a wire-carrying needle having a fixed jaw and movable jaw pivoted thereto, and means for closing said jaws to sever the wire held thereby at one extreme of the movement of the needle; substantially as specified.

10. In a baling-press, a wire-carrying needle comprising a fixed jaw and movable jaw pivoted thereto and provided with a tapered end, and a stop-pin adapted to engage projections from the movable jaw to limit the movement thereof; substantially as specified.

11. In a baling-press, a wire-holding device comprising a fixed recessed plate secured to the press, a rotatable toothed wheel adapted to travel over said recess, and a reciprocating bar having a projection to engage the wheel for intermittently rotating said wheel; substantially as specified.

12. In a baling-press, a wire-holding device comprising a fixed recessed plate, a rotatable toothed wheel adapted to travel over said recess, a sliding bar actuated by a driving-gear, a projection carried by said bar to engage the teeth of said wheel, and a spring for restoring said bar to its normal position; substantially as specified.

13. In a baling-press, a wire-reel and wire carried thereby, a traveling needle, a cutter-plate at one extreme of the needle movement, a holding device upon one side of said plate, a twisting device upon the opposite side thereof, and means for driving all of said parts whereby a loop of wire carried by the needle may be severed, one portion thereof held and the other twisted to form a bale-tie; substantially as specified.

14. In a baling-press, a traveling needle device, a twisting device, a driving-shaft for said needle and twisting device provided with a shoulder, a crank-wheel upon said shaft for driving said needle and provided with a series of teeth for driving said twister, a latch-spring for holding said shaft out of engagement with the driving means therefor, a spring for shifting said shaft into engagement with said driving-wheel, a wire-reel, and an arm carried thereby for releasing said latch-spring from said shoulder; substantially as specified.

15. In a baling-press, a traveling needle device, a twisting device, a driving-shaft for said needle and twisting device provided with a shoulder, a crank-wheel upon said shaft for driving said needle and provided with a series of teeth for driving said twister, a latch-spring for holding said shaft out of engagement with the driving means therefor, a spring for shifting said shaft into engagement with said driving means, a wire-reel, an arm carried thereby for releasing said latch-spring from said shoulder, a power-wheel having a series of teeth for driving said shaft during a portion of its rotation, a shift-lever adapted to shift said shaft out of engagement with said wheel, and a projection carried by said wheel for engaging said lever; substantially as specified.

16. In a baling-press, a plunger and driving means therefor, a power-wheel carried by said means, a wire-reel, a traveling needle adapted to carry wire across the press, a holding-wheel for retaining the free end of the wire, a twisting device adapted to engage a portion of the wire carried by the needle, and a driving device for actuating said needles in one direction, and for driving said holding and twisting devices in the return movement of the needle; substantially as specified.

17. In a baling-press, a plunger and driving means therefor, a power-wheel carried by said means, a wire-reel, a traveling needle adapted to carry wire across the press, a holding-wheel for retaining the free end of the wire, a twisting device adapted to engage a portion of the wire carried by the needle, a driving device for actuating said needles in one direction, and for driving said holding and twisting devices in the return movement of the needle; a cutter-plate adapted to sever the wire carried by the needle, means carried by said power-wheel for throwing the driving means for said needle, holding, and twisting devices out of driving relation, and means for restoring said shaft into driving relation with said power-wheel; substantially as specified.

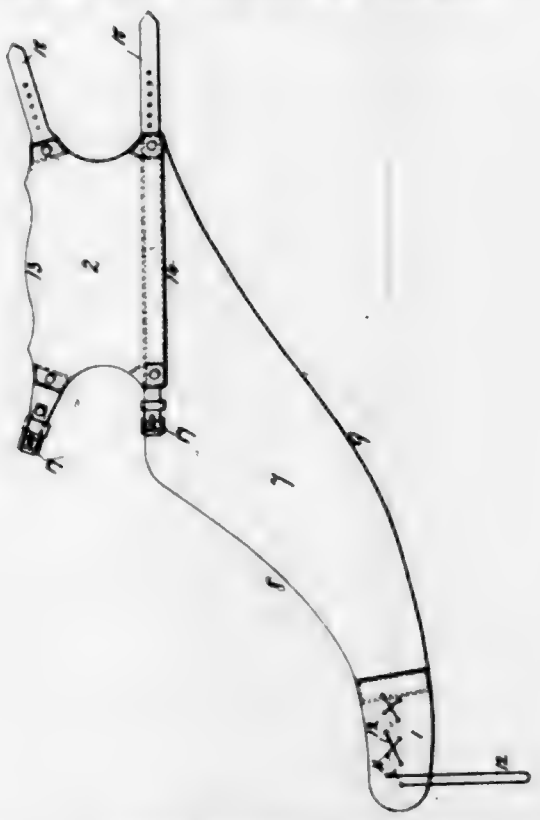
18. In a baling-press, a plunger and driving means therefor, a power-wheel carried by said means, a wire-reel, a traveling needle adapted to carry wire across the press, a holding-wheel for retaining the free end of the wire, a twisting device adapted to engage a portion of the wire carried by the needle, a driving device for actuating said needle in one direction and for driving said holding and twisting devices in the return movement of the needle, a cutter-plate adapted to sever the wire carried by the needle, means carried by said power-wheel for throwing the driving means for said needle, holding, and twisting devices out of driving relation, means for restoring said shaft into driving relation with said power-wheel, a latch-spring for holding said shaft out of gear, and an arm carried by the axis of the wire-reel for releasing said spring at each rotation of the reel; substantially as specified.

19. In a baling-press, a plunger and driving means therefor, a power-wheel carried by said means, a wire-reel, a traveling needle adapted to carry wire across the press, a holding-wheel for retaining the free end of the wire, a twisting device adapted to engage a portion of the wire carried by the needle, a driving device for actuating said needle in one direction and for driving said holding and twisting devices in the return movement of the needle, a cutter-plate adapted to sever the wire carried by the needle, means carried by said power-wheel for throwing the driving means for said needle, holding, and twisting devices out of driving relation, means for restoring said shaft into driving relation with said power-wheel, a latch-spring for holding said shaft out of gear, an arm carried by the axis of the wire-reel for releasing said spring at each rotation of the reel, a pinion upon said driving-shaft, a spring-arm between said pinion and power-wheel, and means carried by said power-wheel for shifting said arm out of the path of said pinion; substantially as specified.

20. In a baling-press, a plunger and driving means therefor, a power-wheel carried by said means, a wire-reel, a traveling needle adapted to carry wire across the press, a holding-wheel for retaining the free end of the wire, a twisting device adapted to engage a portion of the wire carried by the needle, a driving device for actuating said needle in one direction and for driving said holding and twisting device in the return movement of the needle, a cutter-plate adapted to sever the wire carried by the needle, means carried by said power-wheel for throwing the driving means for said needle, holding, and twisting devices out of driving relation, means for restoring said shaft into driving relation with said power-wheel, a latch-spring for holding said shaft out of gear, an arm carried by the axis of the wire-reel for releasing said spring at each rotation of

the reel, a pinion upon said driving-shaft, a spring-arm between said pinion and power-wheel, means carried by said power-wheel for shifting said arm out of the path of said pinion, a driving-gear for said twisting device, a counter-shaft having a pinion meshing with said gear, a pinion in mesh with the teeth on said needle-driving device, a sliding bar for actuating said holding-wheel, and a projection carried by said last-mentioned pinion for operating said sliding bar; substantially as specified.

693,730. LEG-GUARD. JOHN MITCHELL, Ponsonby, New Zealand. Filed Jan. 26, 1901. Serial No. 44,880. (No model.)

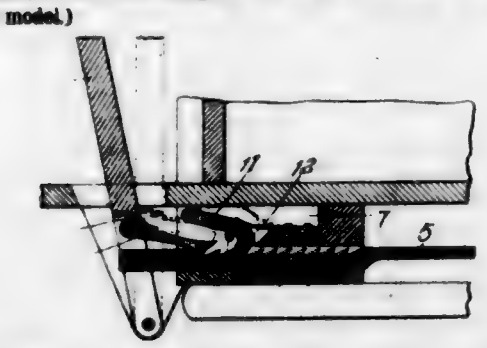


Claim.—1. A leg-guard comprising a lower horizontal tongue or member, adapted at its free end to be secured to a boot or shoe and encircle the wearer's ankle, an upper horizontal band or member having means to secure its ends together in rear of the wearer's leg under the knee, and an intermediate strip or member extending from the lower portion of said upper member and gradually tapering therefrom to the inner end of the said lower member or tongue; substantially as described.

2. A leg-guard comprising a lower horizontal tongue or member adapted at its free end to be secured to a boot or shoe and encircle the wearer's ankle, an upper horizontal band or member having means to secure its ends together in rear of the wearer's leg under the knee, and provided with a knee-protector extending from its upper portion, and the intermediate strip or member extending from the lower portion of said upper band and gradually tapering as at 8, 9, to the inner end of said lower tongue or member; substantially as described.

3. A leg-guard comprising a lower horizontal tongue-like ankle-encircling member 1, provided with eyelets and a lacing-cord to connect it with the eyelets of a boot or shoe, an upper horizontal band or member 2, provided with means at its ends for securing them together in rear of the wearer's leg under the knee, and provided with an upper continuation 20, having a kneeling-pad 21, and the intermediate strip or member 7 connecting the members 1, 2, and gradually tapering from the upper band down to the tongue, as shown at 8, 9; substantially as described.

693,731. BRAKE MECHANISM FOR VEHICLES. GEORGE F. MOORE, West Wilkinsburg, Pa. Filed May 31, 1901. Serial No. 62,532. (No model.)



Claim.—1. A brake mechanism for vehicles having in combination, a rod connected at one end to the brake-shaft, a series of rearwardly-projecting teeth connected to said rod, an operating-lever, a hook mounted on the lever and adapted to engage said teeth, and a retaining-hook adapted to engage said teeth, said hooks extending rearwardly or in the direction of pull on the brake-rod from their pivotal supports, substantially as set forth.

2. A brake mechanism for vehicles having in combination a rod having one end connected to the brake-shaft, a series of rearwardly-projecting teeth connected to said rod, a brake-lever, a hook pivotally mounted on the lever, a pivotally-mounted retaining-hook, and a pin or abutment for forcing the lever-hook against the retaining-hook and forcing the latter out of engagement with the teeth on the pull movement of the lever, substantially as set forth.

693,732. BAR MIXING-GLASS. HENRY MORGAN, Cripplecreek, Colo., assignor of one-half to John O'Riley, Cripplecreek, Colo. Filed Sept. 27, 1901. Serial No. 76,790. (No model.)



Claim.—1. A bar mixing-glass, comprising a mixing vessel provided internally with a hinge, and a strainer loosely pivoted upon said hinge.

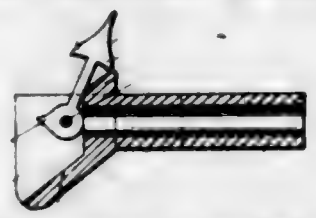
2. A bar mixing-glass, comprising a mixing vessel provided internally with a hinge, a strainer loosely mounted upon said hinge, and a spring for normally pressing said strainer into a predetermined position.

3. A bar mixing-glass, comprising a mixing vessel provided with an aperture, a hinge, a screw passing through said aperture for securing said hinge inside of said vessel, and a semicircular strainer mounted upon said hinge and bent into conformity with the internal shape of said mixing vessel.

4. A bar mixing-glass, comprising a glass mixing vessel provided with an aperture, a hinge, a screw passing through said aperture for securing said hinge inside said vessel, a semicircular strainer mounted upon said hinge and bent into conformity with the internal shape of said vessel, an L-shaped spring for normally pressing said strainer against the internal surface of the vessel, and a substantially V-shaped guard adjacent to said spring.

5. As an article of manufacture, a member provided with a hinge, means for securing said member to the interior of a glass, a strainer mounted upon said hinge, and a spring engaging said member and said strainer.

693,733. CAR-COUPLING. SUSAN P. MOULTON, Salem, Mass. Filed July 1, 1901. Serial No. 66,072. (No model.)



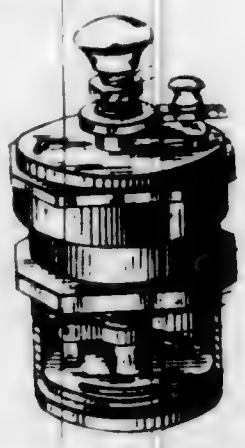
Claim.—1. In a car-coupling, the combination, with a draw-head provided with a socket at its front end, of a double hook pivoted in the said socket and provided with a stop on its shank which bears against the rear end of the socket and supports the hook clear of the bottom of the socket, substantially as set forth.

2. In a car-coupling, the combination, with a draw-head provided with a socket at its front end having an upwardly and rearwardly inclined bottom, of a double hook pivoted in the said socket and provided with a stop on its shank which bears against the rear end of the socket and supports the hook clear of the bottom of the socket, substantially as set forth.

693,734. AUTOMATIC OIL-FEED CUP. GEORGE A. HAUFFE, Halifax, Canada. Filed Dec. 28, 1900. Serial No. 41,074. (No model.)

Claim.—1. The combination with an oil-cup having a cap with an

axially-projecting sleeve having a threaded portion and an opening through the cap to one side of the center thereof, of a plate having a bearing on said sleeve adapted to cover said opening, an arm threaded on the sleeve above said plate and an adjustable device interposed between the arm and plate, substantially as described.

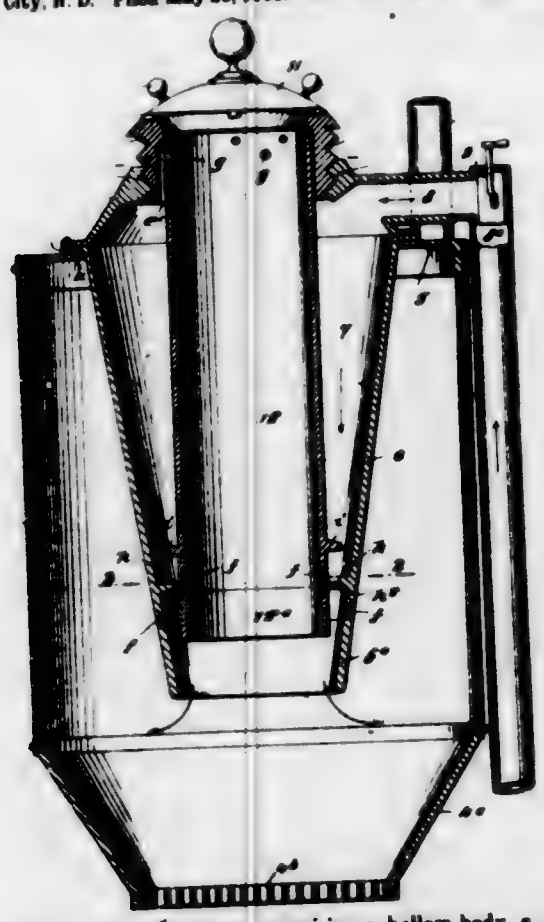


2. In an oil-cup the combination with the cup portion thereof, of a circular upright projection from the lid circumferentially threaded toward its upper end, and having a central threaded orifice leading into the cup, and a stopple suitably faced on its under side, and swinging laterally from the said upright projection, an arm with a threaded orifice at its inner end designed to turn on the upper portion of the aforesaid projection, a set-screw extending through the outer end of the arm and reaching to the lower-arm, as and for the purpose specified.

3. In an oil-cup, the combination with the cup portion thereof, of a disk surrounding a raised valve-seat, and provided with concentric slots, an upright projection from said disk having a valve pivotally swung, and having its under side suitably faced where it rests on the valve-seat, and means for regulating the movement of the valve, as and for the purpose specified.

4. In combination with an oil-cup having a cup with an axially-projecting sleeve having a threaded portion and an opening through the cap to one side of the center thereof, a closure adapted to cover said opening, an arm threaded on the sleeve and a set-screw passing through the arm and having adjustable engagement with the closure, for holding the latter on said opening.

693,735. MAGAZINE HEATING-STOVE. JONATHAN W. NOXON, Valley City, N. D. Filed May 29, 1901. Serial No. 62,363. (No model.)



Claim.—1. A heating-stove, comprising a hollow body, a fire-pot attached to the lower end of the hollow body, a downwardly-converging hot-air chamber hung in an opening in the top wall of the hollow body, an air-induction pipe opening into the upper portion of the hot-air chamber, a valve in said pipe, a fuel-magazine having a headpiece thereon adapted to screw through a threaded opening in the top of the hot-air chamber, a cover-plate on the magazine, adapted to interlock with the headpiece of the magazine for its rotatable movement, and an air-controlling device formed partly on the magazine and partly on the air-chamber wall, adapted to be graduated in opening or be closed by rotation of the magazine.

2. In a heating-stove of the character described, the combination with the supported air-chamber, and the air-supply therefor, of the vertically-adjustable magazine, and the air-controlling device between the magazine and air-chamber, said device being regulated by adjustment of the magazine in the top of the air-chamber.

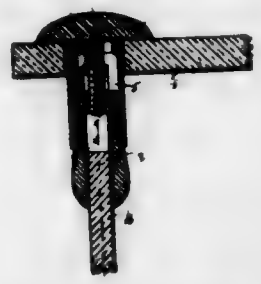
3. In a heating-stove of the character described, the combination with the pendently supported, coniform air-chamber in the stove-body, the air-supply pipe therefor, the valve in said pipe, and the draft-pipe on the stove-body, of the magazine held pendent in the air-chamber, the screw-threaded headpiece secured on the top of the magazine and engaging a threaded opening in the top of the air-chamber, the air-passage between the headpiece and wall of the magazine, the removable cover for the magazine, means for locking said cover upon the headpiece of the magazine, handholds on the cover for its rotatable movement, and the air-controlling device partly on the air-chamber wall and partly on the magazine, said device being controlled by vertical adjustment of the magazine.

4. In a heating-stove of the character described, the combination with the hollow body, and a hot-air chamber pendent therein, of a fuel-magazine having a coarse-threaded engagement with the apertured top of the hot-air chamber, a removably-secured cap on the fuel-magazine which is adapted for manipulation whereby to raise or lower the magazine, and an air-controller device controlled by adjustment of the magazine.

5. In a heating-stove of the character described, the combination with the supported hot-air chamber and the vertically-adjustable fuel-magazine therein, of the air-controlling device, comprising an annular flange on the inner surface of the hot-air chamber, having an air-passage formed by reduction of a portion of its free edge, and a radial flange projected from the fuel-magazine above the annular flange, said radial flange being controlled in adjustment toward or from the annular flange by vertical movement of the fuel-magazine.

6. In a heating-stove of the character described, the combination with the supported hot-air chamber, the screw-cut annular headpiece engaging a threaded opening in the top of said air-chamber, and a magazine hung from the headpiece, of a cover-plate jointed upon the upper end of the annular headpiece, ribs on the cover-plate engaging within grooves in the edge of the headpiece, and handholds projected from the cover-plate.

693,736. FASTENER FOR GLASS SHOW-CASES. PEDER OLSEN, Minneapolis, Minn., assignor of one-half to Paul M. Hoftad, Minneapolis, Minn. Filed Nov. 14, 1901. Serial No. 82,297. (No model.)

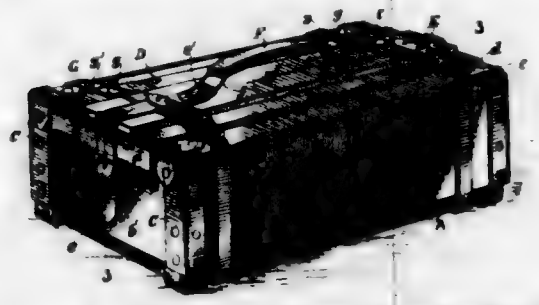


Claim.—1. In a show-case, the combination, with the side or end panel, of a top plate, said top plate provided with an opening adapted to receive a retainer, a binding-section adapted to be inserted through said opening and to receive the edge of said end or side panel, a clamping section or yoke adapted to be passed through said opening in said top plate and to receive said binding-section, the head of said clamping-section provided with an opening, a threaded opening in said first-named section coinciding with said opening in the clamping-section, and a retainer or button provided with a shank adapted to be passed through said opening in said clamping-section and screwed into said threaded opening in said binding-section, whereby as said button is turned said shank is screwed into said threaded opening drawing said binding-section up into said clamping-section, said retainer or button provided with a flaring head adapted to form a bearing on said top plate at the sides of the opening therethrough, substantially as described.

2. The combination, with a section or yoke 4, having a threaded opening in its head, of a yoke 5 adapted to receive the same, and a button having a shank threaded and adapted to pass through an opening in said yoke 5 and be screwed up into said opening of the yoke 4, substantially as described.

3. The combination, with a yoke 4 provided with a threaded bearing in its head and having flaring sides, of a yoke 5 adapted to receive said yoke 4 and to compress the same therein, said yoke 5 also provided with an opening in its head coinciding with said opening in the yoke 4, and a button having a threaded shank adapted to operate in said openings or bearings in said yokes, substantially as described.

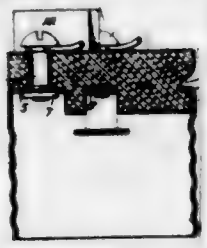
693,737. TELESCOPIC TRAVELING-BAG. EDWIN U. PHILLIPS, Portland, Oreg., assignor to Modern Telescope Company, Portland, Oreg., a Corporation of Oregon. Filed June 28, 1901. Serial No. 66,409. (No model.)



Claim.—1. In a telescopic bag or case, the combination with the outer section, said section having a longitudinally-extending opening and having the usual end reinforce-pieces C, and a closure member, adapted to fit over said opening, and having turned-down ends to project over the ends of the outer section, between the corner-pieces C, whereby said closure member is held from lateral movement when fitted to its closure position, and means connected with the closure member for strapping the two sections, and the closure member together, substantially as shown and described.

2. The hereinbefore-described traveling-telescope, consisting of an inner section, an outer section adapted to telescopically engage the inner section, said outer section having a longitudinally-extending opening on its top part, a closure member consisting of a flat body adapted to fit over the said opening, and having its ends bent at right angles to extend over the ends of the top, a handle-strap connected to the closure member extended lengthwise thereof, and a fastening-strap extended transversely of the telescope fixedly connected to the top of the outer section adjacent one side of the closure member, fixedly connected to the said closure member at a point adjacent its fixture with the top, passed over the closure member under the handle-strap, and having a buckle connection at the other side of its fixed connection, all being arranged substantially as shown and for the purposes described.

693,738. ELECTRIC-LAMP SOCKET. JOHN D. PIERCE, Philadelphia, Pa. Filed Jan. 4, 1901. Serial No. 42,126. (No model.)



Claim.—1. The combination in an electric-lamp socket, of a base-block having a lateral recess in one side, with a metallic shell having an inwardly-bent flange engaging with said recess, an opposing flange, and means for securing said opposing flange to the base-block, substantially as specified.

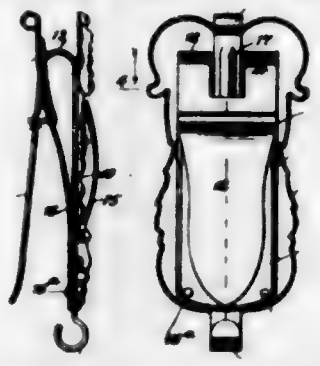
2. The combination in an electric-lamp socket, of a base-block having a lateral recess in one side, with a metallic shell having an inwardly-bent flange engaging with said recess, an opposing flange, and means for securing said flange to the base-block, said means serving as a binding-post for one of the conducting-wires, substantially as specified.

3. The combination in an electric-lamp socket, of the base-block having a lateral recess in one side of the same, a metallic shell having inwardly-projecting top flanges one of which engages with said recess, the other bearing against the under side of the block, and means for securing said second flange to the under side of the block, substantially as specified.

4. The combination in an electric-lamp socket, of the base-block having a transverse groove or recess therein, with a spring-finger having a portion contained in said recess and a projecting portion adapted to contact with the terminal on the head of the lamp, and a screw passing through the block and engaging with the spring-finger in the recess, the head of the said screw being on the back of the block and adapted to secure in place one of the conducting-wires, substantially as specified.

5. The combination in an electric-lamp socket, of a base-block having a lug projecting above the surface of the block on the back of the same, a metallic shell, and a spring contact-finger, with fastening-screws for said shell and finger also projecting above the back surface of the block on the opposite sides of the lug thereon, and serving to confine the conducting-wires, substantially as specified.

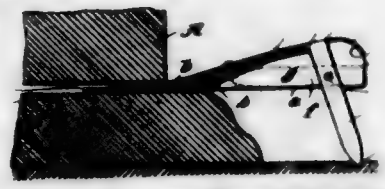
693,739. CHATELAINE-HOOK. LOUIS S. PRAHAR, Brooklyn, N. Y. Filed Dec. 6, 1901. Serial No. 84,923. (No model.)



Claim.—1. A chatelaine-hook, consisting of a body formed of a front member, a rear member and an arched connecting member provided with a slot, one member being provided with a channel, a spring-tongue having its lower end secured to the lower end of the opposite member of the body and provided with lugs, spurs or teeth at its upper end, which spurs, lugs or teeth normally enter the said channel, the tongue terminating at a point within the body, and a handle secured to the central portion of the upper end of the tongue, said handle being of less width than the tongue and projecting through the slot in the connecting member of the body, as set forth.

2. A chatelaine-hook consisting of a body formed by a front member, a rear member and an arched connecting member provided with a slot, the rear member being provided with a transverse channel near its upper end, a spring-tongue having its lower end secured to the lower end of the front member of the body and terminating within the body, lugs, spurs or teeth at the upper end of the tongue, and located opposite the said channel, being adapted to enter the same, and a handle of less width than the tongue secured to the central portion of the upper end of the tongue, which handle is curved between its ends and extends through the slot of the connecting member of the body, as set forth.

693,740. DOOR-SECURER. EDWIN P. RAEYNER, San Diego, Cal. Filed July 30, 1901. Serial No. 70,345. (No model.)



Claim.—1. A door-securer, comprising a body tapered toward one end, recessed on the lower side near the thick end thereof, a prop-leg pivoted to fold in the recess or be disposed at an angle to the body, and a keeper-spring on the upper side of the body, that by engagement with an end of the prop-leg will hold said leg upright.

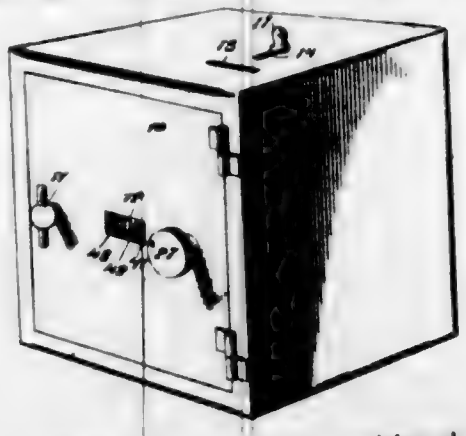
2. A door-securer, comprising an elongated wedge-shaped body, recessed in the lower side near its thick end, leaving parallel side walls, the top wall of said recess being removed to form an abutment-shoulder near the front end of the recess, a keeper-spring secured on the body near one end, and extended forwardly and downwardly over the shoulder and open top of the recess at its front end, and a prop-leg pivoted in the recess between the ends of said leg, the upper end thereof when upright entering an aperture in the keeper-spring and contacting with the abutment-shoulder, the body of the prop-leg being foldable in the recess so as to dispose the pointed end of said leg rearward in said recess.

693,741. SAVINGS-BANK. ARTHUR C. KNICKEL, Union Hill, N. J. Filed Feb. 21, 1901. Serial No. 48,308. (No model.)

Claim.—1. In a registering savings-bank, a coin-receiving wheel provided with a pocket adapted to hold a coin, a sliding bottom for the pocket, and a series of teeth carried by the sliding bottom of the pocket at the outer face of the wheel, for the purpose specified.

2. In a registering savings-bank, a coin-receiving wheel provided with a peripheral pocket, a spring-controlled sliding bottom for the pocket, and teeth carried by the sliding bottom, including a single tooth and a set of teeth separated from each other and adapted for the purposes described.

3. In a registering savings-bank, a frame or casing, a coin-receiving wheel mounted to revolve in the casing and provided with a peripheral pocket provided with a sliding bottom, a series of registering-wheels mounted to revolve independently in the frame, a timed connection between the disks or wheels, and means whereby through the sliding bottom of the said pocket coins of different sizes cause the rotation of the different registering-wheels when the coin-receiving wheel is revolved.



4. In a registering savings-bank, a coin-receiving wheel provided with a pocket having a sliding section, a series of independently-mounted registering wheels or disks, driving devices for the registering wheels or disks, and rows of teeth, differing in number, which teeth are connected with the sliding section of the coin-receiving wheel, the said teeth being brought into engagement with the respective driving devices of the registering wheels or disks by the action of different-sized coins upon the sliding section of the coin-receiving wheel.

5. In a registering savings-bank, a coin-receiving wheel provided with a pocket having a sliding section, a series of independently-mounted registering wheels or disks, driving devices for the registering wheels or disks, rows of teeth, differing in number, which teeth are connected with the sliding section of the coin-receiving wheel, the said teeth being brought into engagement with the respective driving devices of the registering wheels or disks by the action of different-sized coins upon the sliding section of the coin-receiving wheel, means for operating one disk from the other at certain times, and means for preventing the units-wheel from turning when the other registering-wheels are revolved, which means are partially carried by the coin-receiving wheel and partially by the units registering-wheel, as described.

6. In registering savings-banks, a coin-receiving wheel having a peripheral pocket, and a sliding section operated by a coin when in said pocket, teeth carried in spaced rows by the said sliding section of the coin-receiving wheel, and a series of registering-wheels independently mounted, indicating units, tens and hundreds, each wheel being provided with one or more driving-gears, adapted to be engaged at different times by one or the other of the said rows of teeth, the engagement being effected with the driving-gears of the different registering-wheels by the action of coins of different sizes on the sliding section of the coin-receiving wheel.

7. In a registering savings-bank, a coin-receiving wheel having a peripheral pocket, and a sliding section operated by a coin when in said pocket, teeth carried in spaced rows by the said sliding section of the coin-receiving wheel, a series of registering-wheels independently mounted, indicating units, tens and hundreds, each wheel being provided with one or more driving-gears adapted to be engaged at different times by one or the other of the said rows of teeth, the engagement being effected with the driving-gears of the different registering-wheels by the action of coins of different sizes on the sliding section of the coin-receiving wheel, a timed connection between the various wheels, whereby one may be turned by the other, and pawls and detents regulating the movements of the registering-wheels.

8. In a registering savings-bank or similar device, a coin-receiving wheel, a series of independently-mounted registering-wheels representing units, tens and hundreds, means for turning the said registering-wheels by the action of different-sized coins entering the coin-receiving wheel, a timed connection between the registering-wheels, whereby one registering-wheel may impart movement to the other, a regulating device for the registering-wheels, and a latch operated by one of the registering-wheels at a certain point in the revolution of said wheel, for the purpose described.

693,742. SHOE-CLEANING MACHINE. WILLIAM RICHARDSON, Colfax, Wash. Filed Apr. 11, 1901. Serial No. 55,358. (No model.)

Claim.—1. A shoe-cleaning machine, comprising a frame provided with two standards, a revolnble brush mounted between said standards, a cleaner for normally engaging the surface of the brush, and a locking device secured to one of said standards for detachably securing said cleaner.

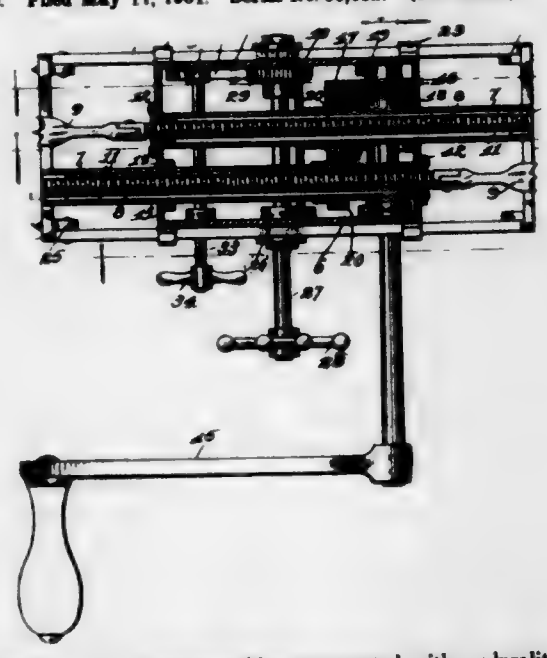
2. A shoe-cleaning machine, comprising a frame provided with two standards, a movable brush mounted between said standards, a cleaner for normally engaging the surface of the brush, and a locking device secured to one of said standards, and slidably engaging said cleaner, whereby the same is rendered adjustable toward and from the brush.



3. A shoe-cleaning machine, comprising a frame, a shaft journaled therein, and provided with a cross-pin, a brush having a groove to receive said pin, and a removable locking device to hold the brush.

4. A shoe-cleaning machine, comprising a frame, a plate secured thereto and provided with an opening, a tubular sleeve rigidly secured in said opening and practically integral with said plate, a revoluble shaft journaled in said sleeve and provided at one of its ends with a cleaner and at the other with a crank-arm, said sleeve abutting said crank-arm and bracing the shaft substantially throughout the entire length thereof, a locking device secured to the frame, and a U-shaped scraper the ends whereof are slidably engaged by said locking device.

693,743. BORING-MACHINE. RAYMOND W. ROWLEY, St. Louis, Mo. Filed May 17, 1901. Serial No. 60,652. (No model.)



Claim.—1. A boring-machine constructed with a plurality of drill-holders projecting in opposite directions, means for simultaneously revolving said drill-holders, and means for clamping the machine between two adjacent timbers.

2. A boring-machine constructed with a plurality of drill-holders, means whereby one or more of said drill-holders are simultaneously fed outwardly in opposite directions, and means for simultaneously revolving and feeding outwardly said drill-holders, substantially as specified.

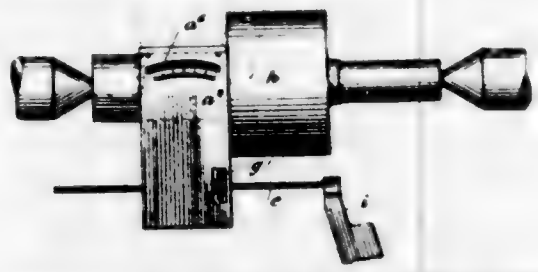
3. A boring-machine constructed with a plurality of drill-holders, means whereby one or more of said drill-holders are simultaneously fed outwardly in opposite directions, means for simultaneously revolving and feeding outwardly said drill-holders, and means for clamping the machine between two adjacent timbers.

4. A boring-machine constructed with a plurality of drill-holders, means whereby one or more of said drill-holders are simultaneously fed outwardly in opposite directions, means for simultaneously revolving and feeding outwardly said drill-holders, means for clamping the machine between two adjacent timbers, and means for locking the clamping devices after the machine has been clamped in position.

5. A boring-machine constructed with a plurality of drill-holders, means whereby one or more of said drill-holders are simultaneously fed outwardly in opposite directions, means for simultaneously revolving and feeding outwardly said drill-holders, means for clamping the machine between two adjacent timbers, means for locking the clamping devices after the machine has been clamped in position, and means for releasing the locking devices.

693,744. GAGE. CLARENCE M. SEARS, Betsford, Conn. Filed Oct. 15, 1901. Serial No. 78,731. (No model.)

Claim.—1. The combination of a frame, an indicator, a clutch connected thereto, a member on which the clutch is slidably mounted, and means for adjusting the clutch on the said member.

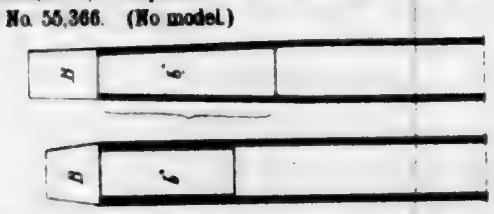


2. The combination of a frame, an indicator, a clutch connected thereto, a member slidably engaged with the clutch, a spring pushing the clutch one way, and means for adjusting the clutch against the spring.

3. The combination of a frame, an indicator, a clutch in the form of a yielding collar connected with the indicator, a gage-rod fitting friction-tight and removably in the clutch and means for adjusting the clutch on the gage-rod.

4. The combination of a frame, an indicator, a clutch connected thereto, a rod engaged with the clutch, a spring pushing the clutch in one direction, and a hollow screw loosely receiving the rod and engaging the clutch to force it against the spring, said screw working in the frame.

693,745. **UMBRELLA-TIP.** WILLIAM S. SEYMOUR, Philadelphia, Pa., assignor to Pennsylvania Tube Company, Philadelphia, Pa., and Camden, N. J., a Corporation of New Jersey. Filed Apr. 11, 1901. Serial No. 55,366. (No model.)



Claim.—1. The combination of a metallic tube forming the stick of an umbrella, a tip-piece having a head resting against the end of the tube, a shank within the tube, and a ferrule mounted on the tube, the ferrule and tip being secured to the tube by swaging whereby the metal of the shank is displaced and the tube and ferrule contracted, substantially as described.

2. The combination of a metallic tube forming an umbrella-stick, a tip-piece having a head and shank, the shank fitting within the tube, the tube being secured to the tip-piece by swaging, and a ferrule mounted on the tube back of the head of the tip-piece, substantially as described.

3. The combination of a metallic tube forming an umbrella-stick, a tip-piece having a head and shank, the head resting against the end of the tube and the shank mounted within the tube, a sleeve mounted on the tube and extending beyond the end of the shank, the said parts being secured together by swaging so as to form a shoulder back of the end of the shank, said shoulder taking, with the end of the tube, the thrust of the tip-piece, substantially as described.

4. The combination in an umbrella-tube, of a metallic tubular stick, a tip-piece having a head and shank, the head resting against the end of the tube and the shank within the tube, a ferrule mounted on the tube and extending from the end of the tube to a point beyond the shank, the said parts being secured together by swaging so as to displace the metal of the shank and to contract the tube and ferrule, whereby a shoulder is formed back of the shank and the outer surface of the ferrule is on a line with the tip and the outer surface of the tube, substantially as described.

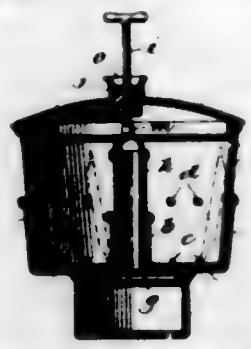
5. The combination in an umbrella-tip, of a butt-joint metallic tube, a tip-piece having a head and shank, the said shank being mounted within the tube, a ferrule mounted on the tube, a shoulder within the tube back of the shank of the tip-piece, said shoulder taking, with the end of the tube, the thrust of the tip-piece, substantially as described.

698,746. **DISH-WASHING MACHINE.** EDGAR SHAW, Swampscott, Mass. Filed Sept. 7, 1901. Serial No. 74,662. (No model.)

Claim.—1. A dish-washer comprising a dish-holding pan and a water-holding pan separable from each other, and means for forcing water from the latter up into the former and connected with the dish-holding pan so as to be removed with it from the water-holding pan.

2. A dish-washer comprising a dish-holding pan and a water-holding pan separable from each other, the latter having a cylindrical depression or well, a piston adapted to reciprocate in said well, and a hollow piston rod or tube extending from said piston into the dish-holding pan, means being provided whereby raising the dish-holding pan will carry with it the said piston and tube.

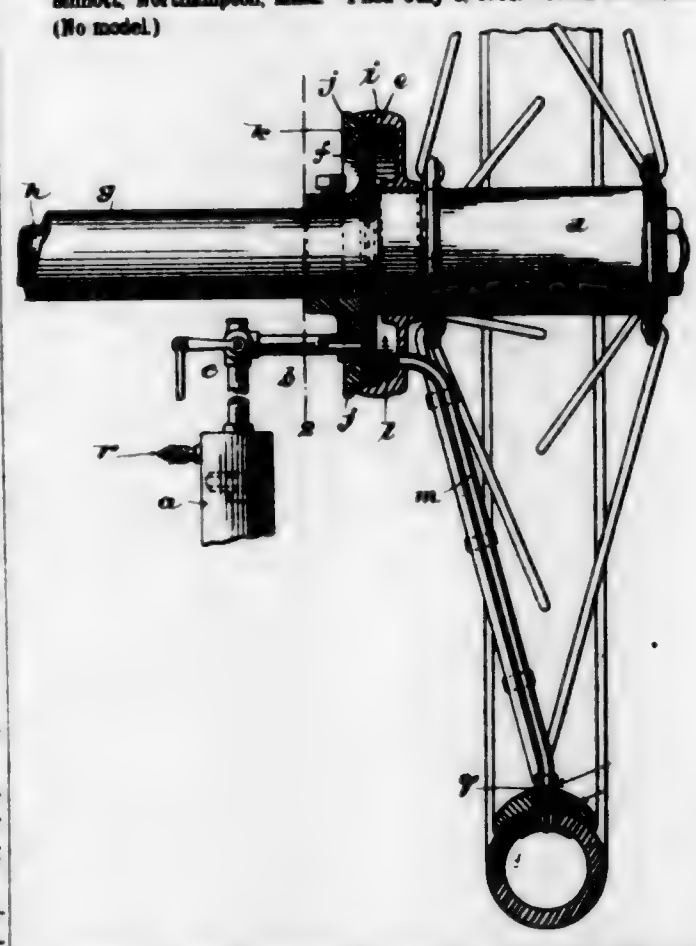
3. A dish-washer comprising a lower pan having a cylindrical depression or well for water, an upper pan adapted to removably fit and be supported by the lower pan and having a perforated bottom and means for supporting dishes, a hollow rod or tube extending through said bottom and having a piston adapted to work in said well, a cover for the upper pan, and means extending through the cover for reciprocating the piston, the said piston and its operating means being supported so as to be removed with the upper pan.



4. A dish-washer comprising a water-holding pan having a cylindrical well or depression, a dish-receiving pan removably fitted in the water-holding pan and having a central opening in its bottom, a piston-rod guide surrounding said opening, a cover fitted to the upper pan and having a central opening surrounded by a socket, a piston adapted to reciprocate in the well of the lower pan and having a hollow piston-rod fitted to said guide, a handle extending from said piston-rod up through the opening of the cover, and a compressible handle-guide inserted in the socket of the cover and longitudinally apertured to receive and guide the handle.

5. A dish-washer comprising a liquid-holding cylinder having at its upper end a pan-receiving seat, a dish-receiving pan formed at its lower portion to fit the said seat, and having a piston-rod guide in its bottom, a cover for said pan having a handle-guide alined with said piston-rod guide, a piston having a sliding fit in said cylinder, and a tubular piston-rod having a sliding fit in the piston-rod guide and provided with a handle having a sliding fit in said handle-guide, the said tubular rod forming a conduit extending through the piston and adapted to conduct water from the cylinder to the upper portion of the pan.

698,747. **TIRE-INFLATING DEVICE FOR VEHICLES.** MICHAEL M. SIBBOTT, Northampton, Mass., assignor of one-half to John William Sinnott, Northampton, Mass. Filed July 8, 1901. Serial No. 67,453. (No model.)

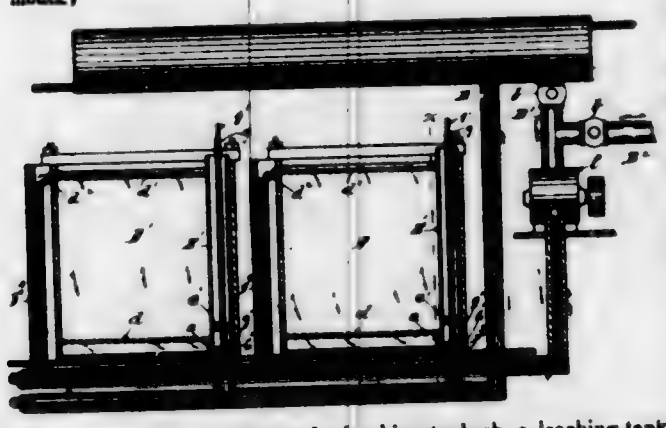


Claim.—1. In a self-propelled vehicle, the combination with the hub of a wheel thereof, of an annular chamber thereon rotatable therewith having one open side; an annular head fixed on a stationary part of the vehicle for closing the open side of said chamber, an air-compressing de-

vice on the vehicle and an inflatable tire on the wheel; a pipe from the compressing device communicating with said chamber through said head, a pipe from said chamber communicating with the said tire, a check-valve in said last-named pipe, substantially as described.

2. The combination with the hub of the wheel of a self-propelled vehicle, of the casing *e*, the stationary head *f*, and means for hermetically sealing the edge of the latter in said casing, whereby said casing constitutes a chamber for air under pressure; an air-compressing device for supplying air to said chamber, and a conduit from said chamber to the tire of a wheel of the vehicle, substantially as described.

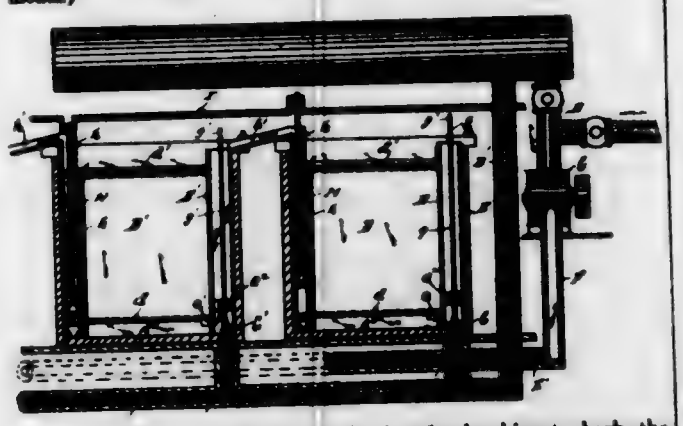
693,748. APPARATUS FOR LEACHING TANBARK. EDWARD P. SMITH, Bradford, Pa. Filed June 14, 1901. Serial No. 64,601. (No model.)



Claim.—1. In a mechanism for leaching tanbark, a leaching-tank, a perforated false bottom and a perforated removable cover therein, a heating-tank above the leaching-tank, a pipe leading from the heating-tank into the leaching-tank under the false bottom thereof, a pump, a return-pipe leading to said pump from the bottom of the leaching tank, and also connecting with an overflow from the top of said leaching-tank, a pipe leading from said pump to said heating-tank, and plugs for shutting off the connections of said pipes with the leaching-tank, substantially as and for the purpose set forth.

2. In a mechanism for leaching tanbark, a series of leaching-tanks, perforated false bottoms, and perforated removable tops therein, a heating-tank above said leaching-tanks a pipe leading from said heating-tank under the bottoms of said series of leaching-tanks, a branch connecting said pipe with each leaching-tank of said series, a shut-off plug in each leaching-tank for closing the branch pipe leading thereto, a pump, a return-pipe extending under the bottoms of said series of leaching-tanks and connecting with the suction of said pump, a branch pipe connecting each of said tanks with said return-pipe, a shut-off plug in each leaching-tank for closing the branch pipe leading therefrom to said return-pipe, a pipe leading from an overflow in each tank of said series to said return-pipe, and a pipe leading from the discharge of said pump to said heating-tank, substantially as and for the purpose set forth.

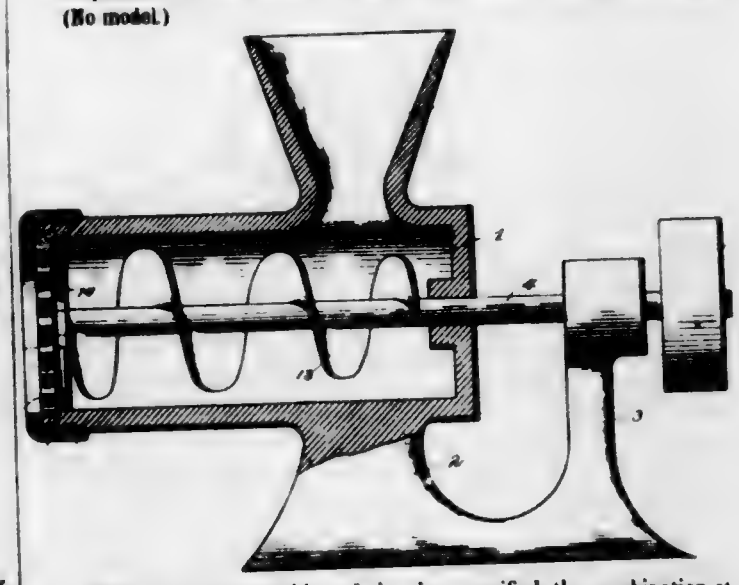
693,749. APPARATUS FOR LEACHING TANBARK. EDWARD P. SMITH, Bradford, Pa. Filed June 14, 1901. Serial No. 64,602. (No model.)



Claim.—1. In a system and mechanism for leaching tanbark, the combination of a tank, a perforated false bottom and a perforated removable cover therein, a heater above said tank, a pipe leading from said heater into said tank under the false bottom therein, a return-pipe communicating with said tank, vertical boxes and shut-off plugs therein for cutting off communication with said inlet and return pipes, and a well and pump in said tank, substantially as and for the purpose set forth.

2. In a system and mechanism for leaching tanbark, the combination of a series of leaching-tanks, perforated false bottoms, and perforated removable covers therein, pipes under said tanks adapted to communicate therewith, vertical boxes and shut-off plugs for cutting off communication between said tanks and pipes, wells and pumps therein in said tanks, and spouts from the pumps to boxes leading to the bottoms of adjacent tanks, substantially as and for the purpose set forth.

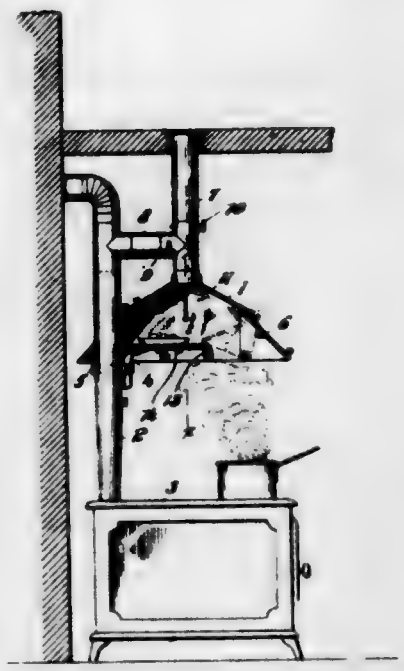
693,750. APPARATUS FOR PREPARING MATERIAL FOR USE IN STORAGE BATTERIES. EDWARD W. SMITH, Philadelphia, Pa., assignor to the Electric Storage Battery Company, Philadelphia, Pa., a Corporation of New Jersey. Filed Sept. 26, 1900. Serial No. 31,162. (No model.)



Claim.—1. In a machine of the class specified, the combination of a perforated plate, and revoluble propeller-blades having overhanging working edges, which push the material through the perforations in the plate, substantially as described.

2. In a machine of the class specified, the combination of two concentric plates or disks, whereof one is provided with small and the other with large openings, said second plate acting as a support for the first, and revoluble propeller-blades having overhanging working edges, which push the material through the openings in the plates, substantially as described.

693,751. ATTACHMENT FOR STOVES. JOHN H. SOEHREN and CHARLES J. ROELF, Everly, Iowa. Filed Apr. 20, 1901. Serial No. 56,668. (No model.)



Claim.—1. An attachment for stoves, comprising a hood, having an opening at one side through which the smoke-pipe of a stove may pass, a loop connected to the hood, a loop engaging with the smoke-pipe and with which the first-named loop connects, a pipe connection between the hood and the smoke-pipe, a valve in the upper portion of the hood, and a door at the front of the hood, substantially as specified.

2. An attachment for stoves, comprising a hood, having an opening at one side through which the smoke-pipe of a stove may pass, a loop attached at its upper end to the hood and engaging at its lower end with the front side of the smoke-pipe, a loop attached to the first-mentioned loop and engaging around the stovepipe, a pipe extending upward from the hood, a pipe connection between the latter pipe and the smoke-pipe,

a valve in said pipe connection, a valve in the upwardly-extending pipe above said connection, and a valve below said connection, substantially as specified.

3. An attachment for stoves, comprising a hood having a door at its front, a loop connected to the rear portion of the hood, and engaging the smoke-pipe of a stove, a second loop attached to the first-mentioned loop and engaging the smoke-pipe, and a pipe leading from said hood, substantially as specified.

693,752. ELECTRIC COIL. WILLIAM SPENCER, Jr., Schenectady, N. Y. Filed Dec. 26, 1901. Serial No. 87,243. (No model.)



Claim.—1. A compound coil comprising an inner and an outer coil, the inner coil consisting of a series of windings spaced apart and connected at their terminals, substantially as specified.

2. A compound coil comprising an inner and an outer coil, the inner coil consisting of a series of coiled metal plates spaced apart, a connection between the inner ends of the several plates, and a connection between the outer ends of the several plates, substantially as specified.

3. A compound coil, consisting of an outer or shunt coil, an inner coil comprising a series of coiled plates and spaced from the inner surface of the outer coil, connections between the inner ends of said plates, and connections between the outer ends of said plates, the several plates being spaced apart, substantially as specified.

4. In an electric device, an outer or shunt coil, an inner coil consisting of a series of plates spaced apart, the said inner coil having its ends terminating inward of the ends of the outer coil, connections between the inner ends of the inner coil-plates, connections between the outer ends of said plates, and blocks of insulating material arranged between the inner coil and the outer coil, substantially as specified.

698,753. FRUIT-CLIPPER. GEORGE W. STARRETT, Columbus, Ohio. Filed May 23, 1901. Serial No. 62,268. (No model.)



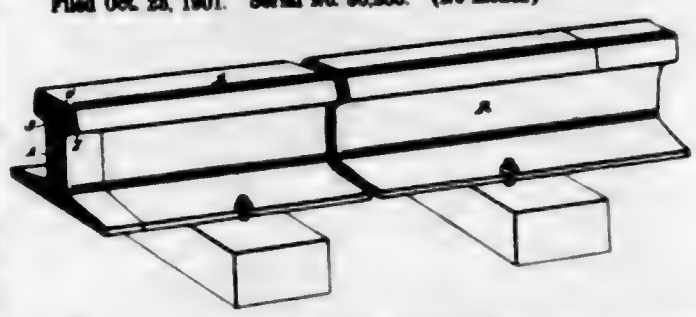
Claim.—1. In a fruit-clipper, a cutter comprising a two-part split spring ring or thimble the sections of which are provided with angular flanges fastened flatwise together, a stationary cutting-blade fixedly connected to said flanges, a pivoted cutting-blade connected to the fixed blade and provided with a laterally-extending flange forming a thumb-piece, and a blade-opening spring connecting the fixed and pivoted blades and having one terminal thereof bearing against the thumb-piece, substantially as described.

2. In a fruit-clipper, a cutter comprising a two-part split spring ring or thimble, the sections of which are provided with angular flanges extending obliquely with respect to the finger-opening in the thimble or ring and secured flatwise together, a fixed cutting-blade rigidly connected to said flanges, a movable cutting-blade pivotally connected to the fixed blade and provided with a laterally-projecting flange along its outer edge which forms a thumb-piece, and a blade-opening spring having one end connected with the fixed blade and the other end connected with the pivoted blade, substantially as described.

3. In a fruit-clipper, the combination with a self-adjusting spring ring or thimble comprising sections having parallel flanges set at an oblique angle to the plane of the ring and fastened flatwise together, of a fixed blade rigidly connected to said flanges, a movable blade pivoted to the fixed blade and arranged to operate upon the inner side of the fixed blade or that side adjacent to the operator, and a blade-opening spring having one end connected with the pivoted blade and the other end connected to the fixed blade adjacent to and in rear of the pivotal connection of the blades, substantially as described.

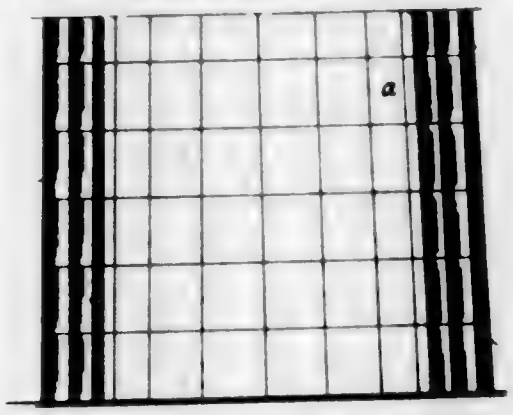
4. In a fruit-clipper, the combination with a ring or thimble, of a fixed blade rigidly connected therewith, a movable blade pivotally connected to the fixed blade and provided along its outer edge with a laterally-projecting flange forming a thumb-piece, and a blade-opening spring connected at one end to the fixed blade and extending lengthwise of the pivoted blade, said spring passing through a guide and under the flange or thumb-piece with the end secured in an opening at or near the end of the blade, substantially as described.

698,754. COMPOUND RAIL. EMIL G. STEIL, Pittsburg, Pa. Filed Oct. 23, 1901. Serial No. 80,235. (No model.)



Claim.—A compound rail comprising two sections having equal web and base sections with the web and base sections having flat plain inner engaging faces, the entire tread being carried by one of said sections and having a groove with right-angular walls formed on its under face, the other of said sections carrying a web having right-angular walls for engagement in said groove, an outwardly-projecting flange carried by the said last-named section below said flange, and a filling of lead between the walls of both said flanges and the tread of the rail, substantially as described.

698,755. CHIMNEY. GEORGE STEHL, New York, N. Y. Filed Aug. 20, 1901. Serial No. 72,606. (No model.)



Claim.—1. A chimney formed of filled blocks tongued and grooved together and a mantle for said blocks substantially as described.

2. A chimney formed of blocks and provided with mantle sections or slabs having tongues made to enter or be secured in the joints between the blocks substantially as described.

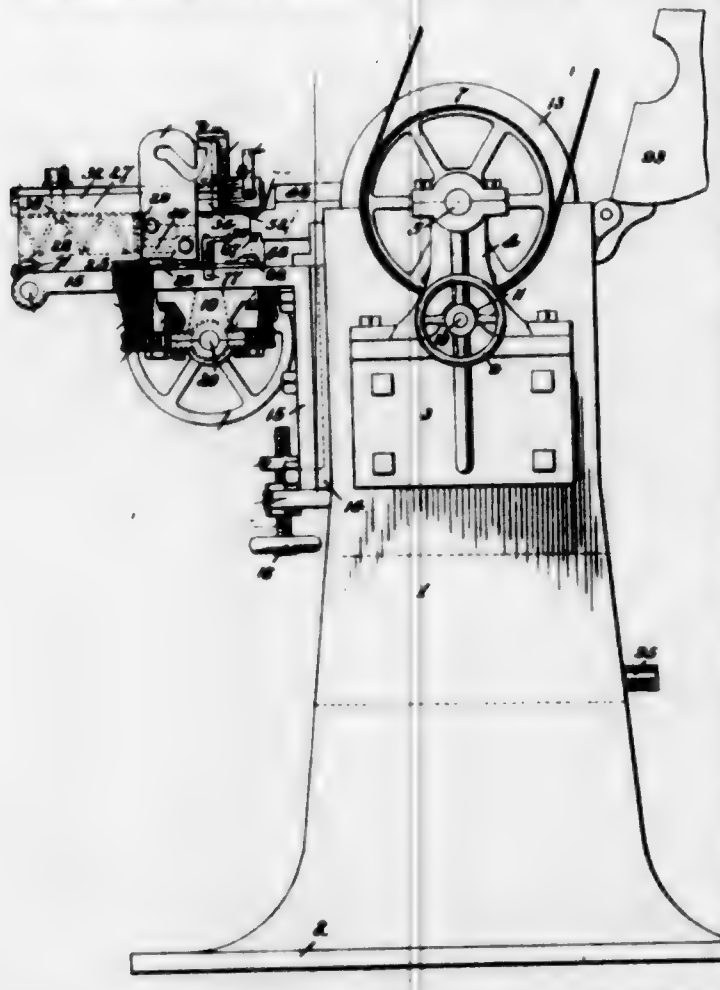
3. A chimney formed of filled blocks tongued and grooved together, and mantle sections or slabs having at their lower edges tongues made to be secured between the blocks, each section having its lower edge made to lap or form a downwardly-extended joint or seam with the next lower slab substantially as described.

698,756. MACHINE FOR FINISHING KNIFE-BLADES. ALONZO L. SWEET, Norwich, Conn. Filed June 7, 1901. Serial No. 63,557. (No model.)

Claim.—1. In a machine for grinding knife-blades in combination, a grinding medium, a knife-carrier and means for reciprocating the same to move the blade along the grinding medium and means for moving the carrier to shift the knife laterally in relation to said reciprocating movement to bring first one side and then the other side of the knife-blade against the grinding medium, substantially as described.

2. In a machine for grinding knife-blades, in combination two grinding devices, a knife-carrier and means for reciprocating the carrier to move the knife-blade across the grinding devices and means for oscillating the carrier to bring the blade into position to be ground by one device and then the other, substantially as described.

3. In a machine for grinding knife-blades in combination a grinding-wheel, a knife-carrier, a holder for pressing the blade of the knife against the wheel and means for automatically placing the blade of the knife in the holder and removing the same therefrom, substantially as described.



4. In combination in a knife-grinding machine, two grinding-wheels, a knife-carrier, a knife-blade holder for each wheel, and means for automatically placing the blade in one holder and for automatically transferring the same to the other holder, substantially as described.

5. In combination in a knife-grinding machine, two grinding-wheels, a knife-holder for each wheel, a carriage with means for reciprocating and oscillating the same, a chuck secured to the carriage and means for controlling the chuck to raise and lower the same whereby the knife-blade is placed in and removed from said holders, substantially as described.

6. In combination, a grinding device, a knife-carrier, a knife-blade holder and means for reciprocating the carrier and a coupling between the carrier and holder for reciprocating the latter with the former, substantially as described.

7. In combination, two grinding devices, a single knife-carrier, a knife-blade holder for each grinding device, and a device on the carrier adapted to engage either holder and means for reciprocating and oscillating the carrier, substantially as described.

8. In combination, two grinding devices, a knife-carrier, a knife-holder for each device, a fixed guide for each holder, means for reciprocating the carrier, means for oscillating the same to bring the carrier first into alinement with one holder and then the other, and a connection on the carrier adapted to engage either holder, substantially as described.

9. In combination, a grinding device, a knife-carrier, a chuck-casing, means for raising and lowering the chuck-casing, a knife-holder having a seat for the blade of the knife, the edge of the holder forming a guide to said seat, jaws in said casing for gripping the knife and means for yieldingly supporting the jaws to permit the same to swing in a horizontal plane, substantially as described.

10. In combination, a grinding device, a knife-carrier, a knife-holder having a seat for the blade, the edge of the holder forming a guide thereto, a chuck-casing, means for raising and lowering said casing and gripping-jaws pivoted in the casing and springs interposed between the wall of the casing and the jaws, substantially as described.

11. In combination, oppositely-arranged grinding-wheels with means for rotating the same, a single knife-carrier with means for reciprocating the same, a guide-bar for each wheel, said bars being located between said wheels, a knife-blade holder guided on each bar, and means for changing the knife-blade from one holder to the other at the end of a full stroke of the carriage, substantially as described.

12. In combination, a grinding device with means for operating the same, a knife-carrier, means for reciprocating and oscillating the same, means for holding the knife-blade, and means for adjusting said carrier and operating means and said blade-holding means in relation to the grinding device, substantially as described.

13. In combination, a base-column, a grinding device supported thereby with means for operating the same, a plate adjustably supported on said column and a knife-carrier and operating means therefor carried by said plate, substantially as described.

14. The combination with a column and grinding means carried thereby, of a plate adjustably supported on said column, and a knife-carrier with means for reciprocating and oscillating the same and knife-blade-holding means supported on said plate, substantially as described.

15. In combination, two grinding devices, a reciprocating carriage with means for operating the same, a knife-holder operated thereby, a guide for said carriage and means for oscillating the guide, substantially as described.

16. In combination, two grinding devices, a carriage, a screw with means for rotating the same, a connection between the carriage and screw whereby the latter is reciprocated by the rotation of the former, a knife-holder secured to the carriage and a guiding device for the carriage with means for oscillating the same, said guiding device containing said screw, substantially as described.

17. In combination, two grinding devices, a carriage with means for reciprocating the same, a blade-holder for each grinding device having a seat for the knife-blade, a chuck for holding the knife moving with the carriage and slidably connected thereto to have independent movement, means for oscillating the carriage and means for automatically raising and lowering the chuck, substantially as described.

18. In combination, two grinding devices, a carriage with means for reciprocating the same, a blade-holder for each grinding device having a seat for the knife-blade, a chuck for holding the knife moving with the carriage and slidably connected thereto to have independent movement, means for oscillating the carriage, projections on the chuck and fixed inclined guides adapted to engage said projections during the movement of the carriage to raise and lower the chuck, substantially as described.

19. In combination, two grinding devices, a carriage with means for reciprocating the same, a guiding device for the carriage, means for oscillating the same to shift the carriage laterally, a blade-holder for each grinding device having a seat for the blade, a chuck having a sliding connection to the end of the carriage, plates secured to the forward end of the carriage, said plates having inclined guide-slots therein and projections on the chuck coöperating therewith in the reciprocatory movement of the carriage to raise and lower the chuck, substantially as described.

20. In combination, two grinding devices with means for operating the same, a carriage, a main drive-shaft, a drive-pulley, clutch mechanism for connecting the pulley to the shaft, means operated from the drive-shaft for reciprocating the carriage, a guiding device for the carriage, means for oscillating the same, driven from said shaft, mechanism for controlling the clutch, said oscillating guiding device coacting therewith to throw said clutch out, substantially as described.

21. In combination, two grinding-wheels, with means for rotating the same, a carriage, a knife-holder carried thereby for reciprocating the carriage, a guiding device for the carriage, means for oscillating the same driven from said shaft, a drive-pulley, clutch mechanism interposed between the pulley and the shaft, an arm having an engagement with the clutch mechanism to throw the same in or out, a reciprocating shaft, a connection between the shaft and said arm for controlling the latter from the shaft, a stop on the shaft, a spring, a device interposed between the spring and stop adapted to be held in the path of the oscillating guide, said spring being adapted to press said interposed device against the stop to shift the shaft and hold in the clutch, said oscillating guide striking the interposed device at the end of its movement in one direction whereby the said device and the reciprocating shaft are shifted against the tension of the spring and the clutch thrown out, substantially as described.

22. In combination, two grinding-wheels, with means for rotating the same, a carriage, a knife-holder carried thereby for reciprocating the carriage, a guiding device for the carriage, means for oscillating the same driven from said shaft, a drive-pulley, clutch mechanism interposed between the pulley and the shaft, an arm having an engagement with the clutch mechanism to throw the same in or out, a reciprocating shaft, a connection between the shaft and said arm for controlling the latter from the shaft, a stop on the shaft, a lever also mounted thereon, a device carried thereby held in the path of the oscillating guide when the lever is up, a spring for holding the lever up and for pressing the same against the stop, said oscillating guide in its movement striking said device to move the same and the reciprocating shaft against the tension of the spring whereby the clutch is thrown out and the machine stopped, said lever being adapted to be actuated manually to carry said device out of the path of the oscillating device, whereby the spring will again throw in the clutch, substantially as described.

23. In combination, two grinding wheels, a carriage, a knife-holder fixed thereto, a drive-shaft, means driven therefrom for reciprocating the

carriage, a guiding device for the carriage, means driven from said shaft for oscillating said device from a central position to one side and then back to the other and again to said central position during the period the carriage is making two complete forward and back reciprocations, a drive-pulley, clutch mechanism interposed between the same and the shaft, a device held under tension in the path of the oscillating guide, said device having controlling means for shifting the clutch, said oscillating guide striking and moving the device on its final return to said central position whereby the clutch is thrown out and held out, means for manually moving the device out of the oscillating guide, and means for shifting the device to throw in the clutch when said device is moved out of the path of the guide, said guide automatically holding the device out of its path during the first portion of its oscillatory movement, substantially as described.

24. In combination, two grinding-wheels, a carriage, a knife-holder fixed thereto, a drive-shaft, means driven therefrom for reciprocating the carriage, a guiding device for the carriage, means driven from said shaft for oscillating said device from a central position to one side and then back to the other and again to said central position during the period the carriage is making two complete forward and back reciprocations, a drive-pulley, clutch mechanism interposed between the same and the shaft, a device held under tension in the path of the oscillating guide, said device having controlling means for shifting the clutch, said oscillating guide striking and moving the device on its final return to said central position whereby the clutch is thrown out and held out, means for manually moving the device out of the path of the oscillating guide, and means for shifting the device to throw in the clutch when said device is moved out of the path of the guide, said guide automatically holding the device out of its path during the first portion of its oscillatory movement, said shifting means for the device returning the same to its position into the path of the oscillating device at the completion of the first part of the oscillatory movement of the guiding device, substantially as described.

25. In combination, two grinding-wheels, a carriage, means for reciprocating the same and oscillating device providing a guide for the carriage and means for giving said device its oscillatory movement comprising a main drive-shaft, a disk, connection between the disk and said device, and means for rotating the disk driven from the main shaft, substantially as described.

26. In combination, two grinding-wheels, a main drive-shaft, a carriage, means for reciprocating the same, driven from said shaft, a pivoted guiding device for the carriage, and means for intermittently oscillating the same on its pivot comprising a disk, a link connection from the face thereof to the guiding device, and clutch mechanism between said disk and drive-shaft with means for throwing the same in and out, substantially as described.

27. In combination, a grinding device, blade-holding means, a carriage, a main drive-shaft, means driven from said shaft, for reciprocating the carriage, a connection between the carriage and said holding means for reciprocating the latter in unison with the former, a chuck for the knife secured to the carriage, a pivoted guiding device for the carriage and means for oscillating said device comprising a disk, a link connection between said disk and guiding device, a clutch between the main shaft and said disk for rotating the latter and means for throwing said clutch in and out to give said disk an intermittent movement, said means being controlled by said knife-blade-holding means, substantially as described.

28. In combination, two grinding-wheels, a carrier, a knife-holder carried thereby, a knife-blade holder for each wheel, means for guiding the same, a main drive-shaft, means for reciprocating the carrier and blade-holders therefrom, a guiding device for the carrier and means for oscillating the same to transfer the blade from one holder to the other, said means comprising a disk, a link connection pivotally secured at one end eccentrically of the disk and at its opposite end to said device, a supplemental shaft driven from the main shaft, a clutch connection between the supplemental shaft and the said disk, a reciprocating bar carrying means for releasing said clutch and means carried by the bar coacting with said blade-holders for controlling the bar, substantially as described.

29. In combination, two grinding-wheels, a carrier, a knife-holder carried thereby, a knife-blade holder for each wheel, means for guiding the same, a main drive-shaft, means for reciprocating the carrier and blade holders therefrom, a guiding device for the carrier and means for oscillating the same to transfer the blade from one holder to the other, said means comprising a disk, a link connection pivotally secured at one end eccentrically of the disk and at its opposite end to said device, a supplemental shaft driven from the main shaft, a ratchet fixed thereto, a spring-pressed dog carried by the disk normally held in engagement with the ratchet, a reciprocating bar, stops carried thereby located on opposite sides of the disks, a tail on said dog, one of said stops being always in the path of said tail whereby said dog will be tilted out of engagement with the ratchet when it strikes said stop and the disk disconnected therefrom, means on the disk coacting with said stops to arrest the rotary movement of the disk when the dog is tilted, pins depending from the blade-holders, a connection between the holders whereby the same are reciprocated in unison, and detents pivoted to the bar, one of said detents coacting with the pin on one of the holders on each rearward reciprocation of the holders, whereby said bar is shifted on each rearward reciprocation of the holders to free the stop then in engagement with the tail of the dog and to move the oppositely-arranged stop in the path of the same, substantially as described.

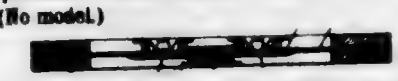
30. In a grinding-machine, two grinding-wheels, a carrier for the article to be ground, means for oscillating the same to bring said article into contact with one wheel and then the other, a main water-supply pipe, branch pipes leading therefrom to said grinding-wheels, a cock controlling the supply from the main pipe to the branch pipes and means interposed between the cock and the oscillating means for controlling the latter, substantially as described.

31. In a grinding-machine, a hollow supporting-column, grinding-wheels supported thereon, mechanism for holding and controlling the article to be ground also supported thereon, a water-feed, synclinal walls extending between the interior walls of the column forming therewith a drip-chamber and an outlet therefor, substantially as described.

32. In combination, a grinding-wheel, a supporting-bracket, a shaft carrying said wheel, and means for shifting the shaft axially comprising a handle swiveled on said shaft and means interposed between the same actuated by the movement thereof for converting the rotation thereof into a reciprocating movement and imparting the same to said shaft, substantially as described.

33. In combination, a grinding-wheel, a shaft carrying the same, a bracket having bearings therefor, interposed bushings, one of said bushings having a threaded portion, a ratchet-wheel having a corresponding threaded portion engaging the same said wheel abutting the bracket, means for holding the latter bushing against rotation, a swiveled handle, a detent carried thereby for coupling the same to said ratchet-wheel, and a nut threaded on said shaft abutting said bushing, substantially as described.

693,757. STORAGE BATTERY. WILLIAM TAYLOR, Philadelphia, Pa., assignor to the Electric Storage Battery Company, Philadelphia, Pa., a Corporation of New Jersey. Filed July 28, 1900. Serial No. 25,128. (No model.)



Claim.—A support for the active material or material to become active of a battery-plate, which comprises a thin sheet of lead torn or punctured to form a series of openings from which project tangs or prongs each having its point bent inward in respect to the sheet and the portions of the sheet adjacent to the perforations being offset from the points of the tangs or prongs, substantially as described.

698,758. UMBRELLA-SUPPORT. HORACE H. THAYER, Erie, Pa. Filed Oct. 26, 1901. Serial No. 80,043. (No model.)

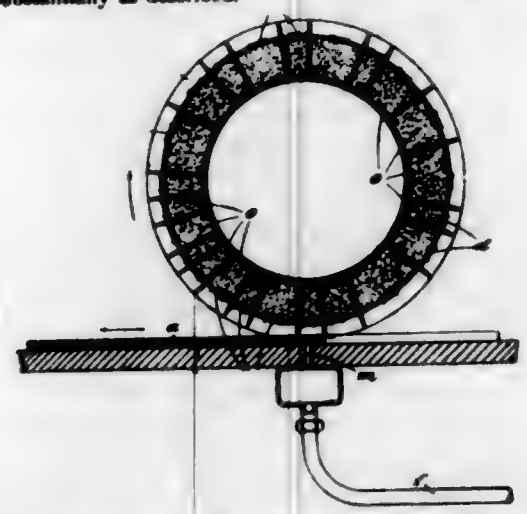


Claim.—1. The combination in a shade-holder for baby-carriages, of a fixed arm secured to the carriage, a shade-supporting arm, a fixed collar and a loose sleeve on the rear end of said shade-supporting arm, teeth on said collar and sleeve adapted to engage each other, a cylindrical toothed end on the rear end of said sleeve engaging a semicircular recess in the fixed arm secured to the carriage, and a thumb-nut on the shade-supporting arm, for securing the parts in place, substantially as set forth.

2. The combination in a shade-supporting arm for a baby-carriage, of an arm adapted to be secured to the handle-bar of such carriage, a movable arm to which a shade is attached, a transverse cylindrical serrated joint between the fixed arm and a loose sleeve on the shade-supporting arm, a fixed collar on the shade-supporting arm, serrations thereon adapted to engage serrations on the end of the loose sleeve, a spiral spring between said collar and sleeve, and a thumb-nut on the shade-supporting arm adapted to clamp said joints together substantially as and for the purpose set forth.

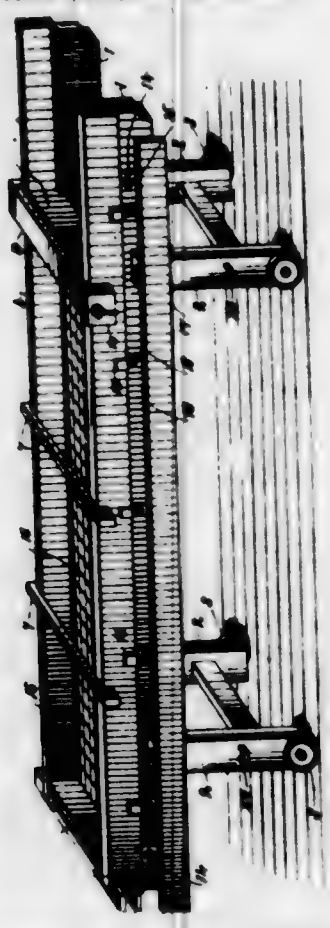
698,759. APPARATUS FOR PRODUCING COLOR PATTERNS IN LINOLEUM OR LIKE MATERIALS. CARL TÖRJE, Delmenhorst, Germany. Filed Nov. 5, 1901. Serial No. 81,260. (No model.)

Claim.—1. Apparatus for producing a colored pattern upon linoleum and like material consisting of a rotatable drum, radial chambers therein, said chambers containing coloring-matter, a porous outside wall covering said chambers and means for transferring the coloring-matter from the chambers to the material to be colored while the drum is being rotated, substantially as described.



2. Apparatus for producing a colored pattern upon linoleum and like material, consisting of a rotatable drum, separate radial chambers therein, said chambers containing coloring-matter, outside porous walls covering the chambers, back-pressure valves located in said walls and suction means for drawing the coloring-matter out of the chambers and into the material to be colored while the drum is being rotated, substantially as described.

698,760. BUTTER-CUTTER. IRA B. WALKER, Etna, Cal. Filed Oct. 18, 1901. Serial No. 79,115. (No model.)



Claim.—1. In a butter-cutting device, a table comprising adjustable or movable plates of equal widths formed in the top of the table, removable side boards for the table, means for adjusting the side boards vertically, clamping devices for the side boards, a removable end board, a gate adjustable between the side boards, a clamping device for said gate, and a cutter adapted for connection with the table, substantially as specified.

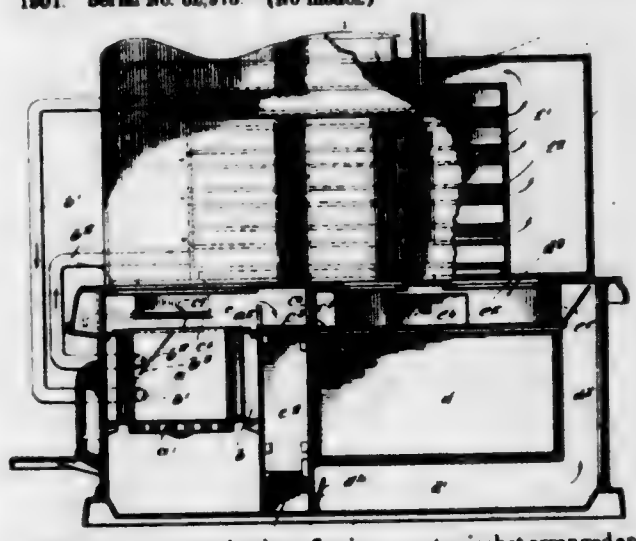
2. A butter-cutter, comprising a table having side rails, plates movable on said side rails, the several plates being of equal width, side boards removably connected to the side rails, clamping-bars for said side boards, an end board removably connected to the side boards, a gate adjustable between the side boards, a clamping device for said gate, a slide-rail at one side of the table, and a cutting device movable along said slide-rail, substantially as specified.

3. A butter-cutter, comprising a table having side rails, plates removably connected to said side rails, side boards, an end board, clamping-bars for the side boards and end board, a gate adjustable between the side boards, and a clamp for said gate, consisting of a bar extended across the side boards, hinged blocks on the ends of the bar, a bolt for passing through openings in said blocks, and a clamping-nut on the bolt, substantially as specified.

4. A butter-cutter, comprising a table, a cutter consisting of a frame, wires connecting with opposite rails of said frame, handles connecting the opposite rails, a plate with which one of said rails has hinge connection, and a slide-bar on the table on which said plate is designed to move, substantially as specified.

5. In combination with a table, a cutter comprising a frame adapted for swinging connection with the table, wires connected at one end to one side rail of the frame, tightening pins or screws on the opposite side rail with which said wires connect and a slide-bar on the table on which the cutter is designed to move, substantially as specified.

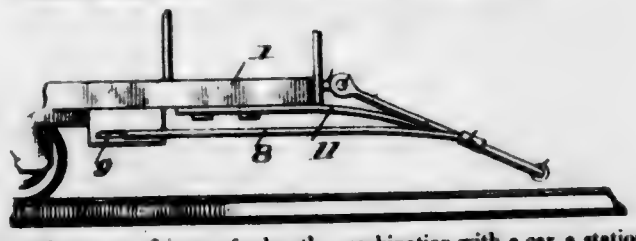
698,761. STOVE. EDWARD E. WALTERS, Lehighton, Pa., assignor of one-half to Benjamin A. Mink, Lehighton, Pa. Filed June 3, 1901. Serial No. 62,973. (No model.)



Claim.—1. A stove having a fire-box, a water-jacket arranged around it, means in the water-jacket to form a continuous passage passing around the fire-box, a water-boiler, connections between the ends of said passage in the water-jacket and the water-boiler to provide for the circulation of water from the boiler into the water-jacket and back to the boiler, said boiler comprising a shell with fire-tubes passing through it, a casing inclosing the boiler and having an outlet for the products of combustion, means forming passages carrying the draft from the fire-box into the end of the casing and through the water-tubes or into the side of the casing past the boiler, and dampers controlling said passages.

2. A stove having a grate, a water-jacket arranged above it, a fire-box removably set inside of the water-jacket, ribs fastened to the outside of the fire-box and engaging the water-jacket to space the fire-box therefrom, the fire-box having a flange at its upper edge, the flange projecting outward over the fire-box and being perforated to allow for the circulation of air between the fire-box and water-jacket, a water-boiler in communication with the water-jacket, said boiler comprising a shell with fire-tubes passing through it, a casing inclosing the boiler and having an outlet for the products of combustion, means forming passages for carrying the draft from the fire-box into the end of the casing and through the boiler-tubes or into the side of the casing past the boiler, and dampers controlling said passages.

698,762. CAR-FENDER. WILLIAM J. WARD, Pittsburg, Pa. Filed Jan. 15, 1902. Serial No. 89,894. (No model.)



Claim.—1. In a car-fender, the combination with a car, a stationary shaft secured to the forward end thereof, a series of links carrying a shaft, a frame, a flexible sleeve secured to the forward end of the frame, and a spring secured to the under face of the car-body engaging said links to normally elevate the forward portion of the frame, substantially as described.

2. In a car-fender, the combination with a car, a shaft secured to the forward end thereof, a series of links forming a hinge connection with said shaft, a shaft connected to the lower end of said links, forming a hinge

connection therewith, a frame connected to said last-mentioned shaft, a flexible sleeve secured to the forward portion of said frame, slotted guides secured to said car, and the ends of said frame slidably connected in said guides, all parts being arranged and operating substantially as described.

693,763. GAS-SEPARATOR. MORRIS L. WARNER and WILLARD D. WARNER, Hudson, Mich. Filed Apr. 4, 1900. Serial No. 11,525. (No model.)



Claim.—In a gas system, the combination with a gas-main having its lower extremity interiorly threaded, of a hollow plug having a threaded coupling-ring surrounding its upper end and screwed into the gas-main, a removable head screwed into the upper end of the plug and pierced by a depending inlet-pipe discharging exclusively at its lower end within the plug, and a longitudinally-adjustable discharge-pipe passed through the lower end of the plug and extended above the exclusive point of discharge of the inlet-pipe to seal the discharge-opening of the inlet-pipe without permitting gas to escape from the main.

693,764. JEWELRY-SECURER. GEORGE W. WASHBURN, New York, N. Y.; Charles Irving Washburn executor of said George W. Washburn, deceased. Filed Apr. 16, 1901. Serial No. 56,077. (No model.)

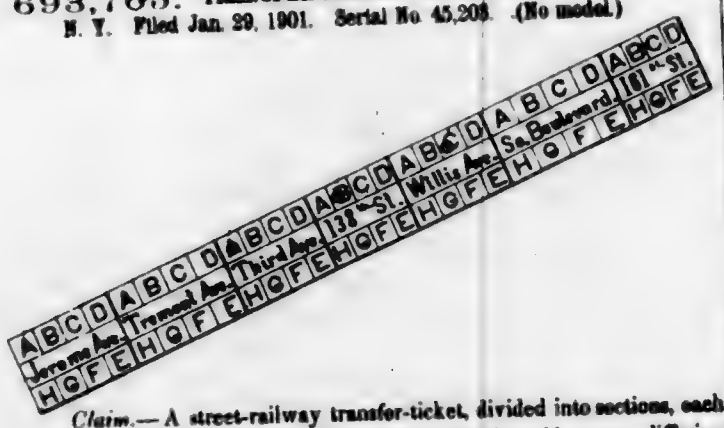


Claim.—1. A securer for automatically fastening a scarf-pin or other article of jewelry having a pin-tongue or the like, such securer comprising a frame having one edge closed and provided with an entrance-cup in line with said edge, and having sides parallel with each other provided with holes near the opposite edge, a spring-tongue having lugs within said holes, and having a biting end opposed to the inner wall of said closed edge of the frame, a fulcrum beneath said spring-tongue near said lugs, and means for retracting the spring-tongue

2. The combination, in a securer for scarf-pins and like articles of jewelry, of a frame closed at one edge and having sides, parallel with each other, provided with holes near its opposite edge and slotted at an intermediate point, a spring-tongue having lugs within said holes and having a biting end opposed to the inner wall of said closed edge of the frame, and a slotted bar through which said biting end of the spring-tongue extends, and which is guided by the slots in the sides of the frame.

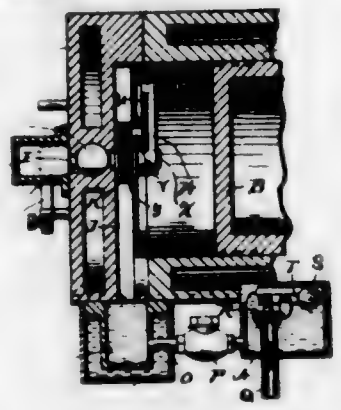
3. The combination, in a securer for scarf-pins and like articles of jewelry, of a frame closed at one edge and having sides, parallel with each other, provided with holes near its opposite edge and slotted at an intermediate point, a spring-tongue having lugs within said holes and having a biting end opposed to the inner wall of said closed edge of the frame, a slotted tongue-depressing bar through which said biting end of the spring-tongue extends, the ends of said bar protruding through the slots in the sides of the frame, and notched lugs on the sides of the frame opposed to said protruding end of the tongue-depressor, substantially as hereinbefore specified.

693,765. TRANSFER-TICKET. MORGAN WASHBURN, New York, N. Y. Filed Jan. 29, 1901. Serial No. 45,208. (No model.)



Claim.—A street-railway transfer-ticket, divided into sections, each section containing the name of a railway-line, the said names differing in the several sections, and indices arranged along the side of each section, the indices being repeated in the several sections, the several sections being non-separable, whereby the ticket is issued and taken up as a whole.

693,766. APPARATUS FOR CONVERTING FUEL INTO POWER. GEORGE J. WEBER, Kansas City, Mo. Filed Feb. 17, 1899. Serial No. 705,769. (No model.)



Claim.—1. In a gas-engine, the combination with the cylinder, of a fuel-receptacle, means for heating the said receptacle, a cooling-jacket around the said receptacle, and a dipper adapted to alternately enter the fuel-receptacle and the cylinder, substantially as described.

2. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a liquid-fuel receptacle, means for conveying the liquid fuel therefrom into the cylinder in a liquid form, a vaporizing-chamber normally disconnected but adapted to be connected with the cylinder, means by which the compressed air in the cylinder forces the liquid fuel into the vaporizing-chamber in a finely-divided state and means for igniting the mixed air and fuel, substantially as described.

3. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a liquid-fuel receptacle, a dipper which alternately enters the fuel-receptacle and the cylinder for conveying the fuel from the receptacle into the cylinder in the liquid form, a vaporizing-chamber, a passage connecting the cylinder with the vaporizing-chamber across the path of the dipper, and means for opening and closing the said passage, substantially as described.

4. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a liquid-fuel receptacle, means for conveying the fuel therefrom into the cylinder, a vaporizing-chamber, a passage connecting the cylinder with the vaporizing-chamber, a valve controlling the said passage, and means for igniting the mixed air and fuel, substantially as described.

5. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a liquid-fuel receptacle, a dipper adapted to convey fuel from the receptacle into the cylinder, a vaporizing-chamber, a passage connecting the cylinder with the vaporizing-chamber, a valve controlling the said passage, and means for igniting the mixed air and fuel, substantially as described.

6. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a vaporizing-chamber, a passage connecting the vaporizing-chamber with the cylinder, a fuel-receptacle, a dipper, means for reciprocating the dipper from the fuel-receptacle across the said passage, and a valve controlling the opening and closing of said passage, substantially as described.

7. In a gas-engine, the combination with the cylinder provided with suitable inlet and exhaust ports, of the piston, a fuel-receptacle, a dipper, means for moving the dipper alternately into the fuel-receptacle and the cylinder, a vaporizing-chamber adjacent to the cylinder, and means by which the vaporizing-chamber is connected with the cylinder when the dipper has reached the proper position in the cylinder, substantially as described.

8. In a gas-engine, the combination with the cylinder, of the piston, a vaporizing-chamber normally disconnected from the cylinder, means for connecting the cylinder with the vaporizing-chamber, for the passage of compressed air from one to the other, a dipper, means for placing the dipper in contact with the compressed air during such passage, a fuel-receptacle adapted to contain a fuel-supply and to receive the dipper therein, and means for maintaining the fuel-supply at a given level, substantially as described.

9. In a gas-engine, a fuel-dipper comprising a body provided with an opening therethrough, and one or more swinging plates located in the said opening, substantially as described.

10. In a gas-engine, a fuel-dipper comprising a body provided with an opening therethrough, and one or more hinged plates provided with interstices, substantially as described.

11. In a gas-engine, the combination with the cylinder, of a fuel-re-

ceptacle, a dipper reciprocatively mounted in the cylinder and adapted to enter the fuel-receptacle, a rock-shaft provided with a crank-arm, a link connecting the dipper with the crank-arm, and means for rocking the shaft, substantially as described.

12. In a gas-engine, the combination with the cylinder, of a dipper reciprocatively mounted in the cylinder, a rock-shaft, means for reciprocating the dipper when the shaft is rocked, substantially as described.

13. In a gas-engine, the combination with the cylinder-head provided on its inner face with ways, of a dipper reciprocatively mounted in said ways, a vaporizing-chamber upon the outside of the head, a passage from the vaporizing-chamber to the path of the dipper, a valve controlling said passage, a rock-shaft extending through the head and provided with an inner and an outer crank-arm, and a link connecting the dipper with the inner crank-arm, substantially as described.

14. In a gas-engine, the combination with the cylinder, of means for compressing air therein, means for bringing fuel into the cylinder, a vaporizing or igniting chamber located outside the cylinder, a passage connecting the cylinder and said vaporizing-chamber, and means by which a portion of the compressed air is allowed to escape from the cylinder through the said passage into the vaporizing-chamber, substantially as described.

15. In a gas-engine the combination with the cylinder, of means for compressing air therein, a vaporizing-chamber, a passage connecting the vaporizing-chamber with the cylinder, means for opening and closing the said passage, a fuel-dipper provided with an opening therethrough for receiving the fuel, and means for moving the dipper in the cylinder so that the opening in the dipper may be brought in register with the said passage, substantially as described.

16. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a vaporizing-chamber, a passage connecting the vaporizing-chamber with the cylinder, means for opening and closing the said passage, a fuel-dipper comprising a body provided with an opening therethrough, one or more plates provided with interstices mounted in the said opening, and means for so moving the dipper as to bring the said opening in the dipper in register with the said passage, substantially as described.

17. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a vaporizing-chamber, a passage connecting the vaporizing-chamber with the cylinder, means for opening and closing the said passage, a fuel-dipper comprising a body provided with an opening therethrough, one or more swinging plates mounted in the said opening, and means for so moving the dipper as to bring the said opening in the dipper in register with the said passage, substantially as described.

18. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a vaporizing-chamber, a passage connecting the said chamber with the cylinder, means for opening and closing the said passage, a fuel-receptacle, a fuel-dipper comprising a body with an opening therethrough, a swinging plate mounted in the said opening, and means for so moving the dipper from the fuel-receptacle into the cylinder as to bring the said opening therein in register with the said passage, substantially as described.

19. In a gas-engine, the combination with the cylinder, of means for compressing air therein, a vaporizing-chamber, a passage connecting the said chamber with the cylinder, a valve controlling the said passage, a fuel-receptacle, a fuel-dipper reciprocatively mounted in the cylinder and adapted to enter the fuel-receptacle, the dipper being provided with an opening therethrough adapted to be brought into register with the said passage, and a perforated swinging plate mounted in the said opening and resting normally at right angles to the said opening, substantially as described.

693,767. LOOSE-LEAF LEDGER. ALMON V. WELLS, Washington, D. C. Filed Nov. 1, 1901. Serial No. 80,820. (No model.)



Claim.—1. A book having leaves with elongated keepers along their inner edges, combined with bails extended through said keepers and swinging outwardly when the book is opened.

2. A book having leaves with vertical slots along their edges, combined with bails extended through said slots and swinging outwardly when the book is opened.

3. A book having leaves with elongated keepers along their inner edges, combined with hinged bails extended through said keepers, and devices for locking or releasing the ends of the bails.

4. A book having leaves with elongated keepers along their inner edges, combined with bails extended through said keepers, and coupling devices for connecting the bails for an equal and reversed movement.

5. A book having leaves with elongated keepers along their inner edges, combined with bails securing said leaves and journaled in the back of the book, wings at the top and bottom of the leaves, and a frame for the same locked in place by the protrusion of the bails therethrough.

6. The combination with a book having detachable leaves, with elongated keepers along their inner edges and hinged bails working therein, of a leaf-evener arranged at the end of the leaves.

7. The combination with a book having detachable leaves; of a leaf-evener arranged at the end of the leaves and having a lip adapted to be caught between the leaves of the book at the middle of the thickness of the same.

8. A book having detachable leaves, and a bail securing the same arranged transversely to the leaves, swiveling spools connected to the bails, a frame receiving the spools, and pockets for receiving said frames located in the inner edge of the covers of the book.

9. A book having detachable leaves, and a bail securing the same arranged transversely to the leaves, swiveling spools detachably connected to the bails, a frame receiving the spools, locking-bolts for locking the bails in the spools, and a longitudinally-arranged rod with key end connected to and operating the locking-bolts.

10. A book having detachable leaves, and transverse bails securing the same, swiveling spools detachably connected to the bails, a longitudinally-arranged frame receiving said spools and having locking-bolts and a parallel operating-rod for the same, said frame being bisected transversely on one side to give it spring action, and the book-covers having pockets along their inner edges adapted to receive the expansible frame.

11. A loose-leaf book, comprising a swinging bail, and sheets anchored thereto and having a longitudinal crease or hinging-line in each sheet outside of said anchorage-point substantially as described.

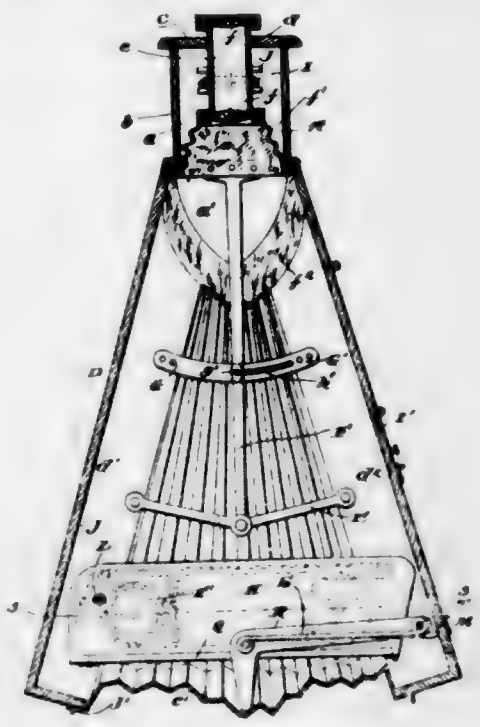
12. A loose-leaf book having its back portion made of two telescopic metal sections, each having inwardly-pointing transverse tongues, and a rocker-back having transverse channels to receive the tongues, and set-screws for adjustably locking the parts together substantially as described

13. In a book of the kind described, the combination with the swinging anchorage-bails; of one or more thumb-sheets of tenacious material made wider than the leaves of the book and arranged about the middle of the book to bear the stress of strain in opening the book substantially as described.

14. In a book of the kind described, the combination with the swinging anchorage-bails; of one or more thumb-sheets of tenacious material made wider and shorter than the book-page and having one end pivotally anchored to one bail and the other end slotted and embracing the other bail substantially as described.

15. In a book of the kind described the swinging anchorage-bail made extensible in its length, and combined with the adjustable book-sections substantially as described.

698,768. CAMERA. FREDERICK A. WIGGINS, Salem, Oreg. Filed Dec. 13, 1900. Serial No. 39,752. (No model.)



Claim.—1. In a camera, a case comprising box-shaped sections adapted to be swung apart, and flexible material connecting said sections, a holder for rolls of film arranged in the case and connected in a hinged manner to one of the box-shaped sections thereof, and a spring interposed between the holder and the other box-shaped section, substantially as and for the purpose set forth.

2. In a folding camera, a case comprising cheek-pieces, box-shaped sections connected in a hinged manner to the cheek-pieces and adapted to be swung apart, and flexible material connecting the cheek-pieces and the box-shaped sections; in combination with a lens-box arranged and adapted to move between the cheek-pieces and the forward ends of the box-shaped sections, means intermediate of the box-shaped sections and the lens-box for moving the latter by the former, a holder for rolls of film arranged in the case and connected in a hinged manner to one of the box-shaped sections thereof, and a spring interposed between the holder and the other box-shaped section, substantially as specified.

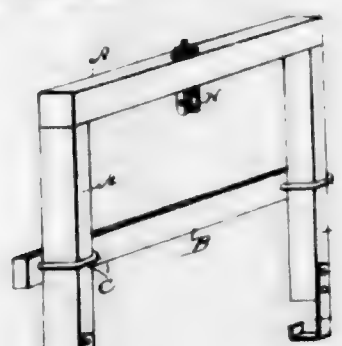
3. In a folding camera, a case comprising cheek-pieces, box-shaped sections connected in a hinged manner to the cheek-pieces, flexible material connecting the cheek-pieces and the box-shaped sections, and a bellows interposed between the box-shaped sections; in combination with a lens-box, arranged and adapted to move between the cheek-pieces and the forward ends of the box-shaped sections, toggle-levers interposed between and connected to the box-shaped sections, thrust-rods interposed between and connected to the toggle-levers and the lens-box, and straps G G' connected to the box-shaped sections, the straps G' having curvilinear slots receiving projections on the strape G.

4. In a camera, a case comprising box-shaped sections adapted to be swung apart, a bellows connecting said sections together, a carrier for rolls of film arranged in the case and connected in a hinged manner to one of the box-shaped sections thereof, bell-crank levers fulcrumed at the apices of their angles on the carrier, and at their outer ends on the case-section opposite to that to which the carrier is connected in a hinged manner, and a spring or springs interposed between and connected to the fulcrums of the levers.

5. In a camera, the combination with a case comprising sections adapted to be swung apart and a bellows connecting said sections together; in combination with a shaft journaled in one of the case-sections and having a pinion, a carrier mounted to swing on said shaft, a roll-holder arranged in the carrier and having lug-journals, a short shaft journaled in the roll-holder, and having a portion of angular form in cross-section, a gear on said short shaft intermeshed with the pinion, a ratchet on the short shaft arranged to be engaged by a pawl on the holder, and film-rolls adapted to be arranged in the holder and engaged by the lug-journals and short shaft thereof, substantially as specified.

6. In a camera, the combination with a case comprising sections adapted to be swung apart, and a bellows connecting said sections together; of a shaft journaled in one of the case-sections and having a pinion, a carrier mounted to swing on said shaft, a roll-holder removably arranged in the carrier and having lug-journals and also having a hinged section, a short shaft journaled in said hinged section, and having a portion of angular form in cross-section, a gear on said short shaft intermeshed with the pinion, a ratchet on the short shaft arranged to be engaged by a pawl on the holder, and film-rolls adapted to be removably arranged in the holder, and engaged by the lug-journals and short shaft thereof, substantially as specified.

698,769. APPARATUS FOR LOADING MANURE &c. ON WAGONS. ALEXANDER F. WOODS, Murphy, Iowa. Filed Oct. 24, 1901. Serial No. 79,796. (No model.)



Claim.—1. A pulley-bearer composed of two uprights, a fixed cross-piece at the tops of the uprights, a cross-piece adjustable at the central portions of the uprights, fixed hooks at the lower ends of the uprights and a pulley attached to the central portion of the fixed cross-piece at the top of the frame, in combination with the holster and box of a wagon, for the purposes stated.

2. An apparatus for loading manure, &c., on a wagon, comprising a wagon having a box and the rear end of the floor of the box adapted to be placed in contact with the ground, a frame composed of two uprights having hooks at their lower ends, a cross-piece fixed to the tops of the uprights, a cross-piece adjustably connected with the uprights, a pulley-bearer connected with the fixed cross-piece at the top of the uprights, a rope or cable extended over the pulley and means for hitching a horse to its front end, a scraper and means for detachably connecting the scraper with the rear end of the cable, arranged and combined to operate in the manner set forth for the purposes stated.

698,770. RURAL-DELIVERY MAIL-BOX. JAMES E. WRIGHT and LEWIS J. EDWARDS, Omaha, Nebr. Filed Aug. 24, 1901. Serial No. 73,199. (No model.)



Claim.—1. A mail-box having a number of separate mail-compartments, a series of small doors closing said compartments at one of their ends for the use of the renters of the boxes, a single door closing the other ends of the boxes for the use of the postman, laterally-swinging outer storm-doors for concealing and guarding the series of small doors, and an inner storm-door adapted to be turned down to a horizontal position between said outer storm-doors, and supports upon the outer storm-doors for said inner storm-door, substantially as set forth.

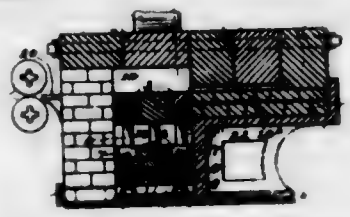
2. A mail-box containing a vending apparatus for the sale of stamps and the like, with means permitting of the adjustment of said apparatus so as to be accessible to the general public or to the users of the box alone, substantially as described.

3. A mail-box provided with a door giving access thereto, a wall of said box having an opening, and a chamber or compartment communicating with the doorway and opening, combined with a vending apparatus for the sale of stamps and the like, the same being adjustable so as to be accessible either through the door or opening, substantially as described.

4. A mail-box comprising an inclosing casing having a slot for the deposit of mail-matter therein, a series of interior individual lock-boxes, each being open at the back and having an independent door at the front, a compartment for the reception of mail-matter to be collected which is deposited therein through said slot, a second compartment open at the front and at the exterior through an opening in a wall of the box, a stamp-vending apparatus occupying said compartment and adjustable so as to face the open end of said compartment or the opening in the wall of the box, a door at the front of the casing for concealing and guarding the doors to the individual lock-boxes and the vending mechanism and adapted to be opened only by the users of said lock-boxes, laterally-swinging outer storm-doors at the back of the casing, and an inner door at the back of the casing for closing the open ends of the individual lock-boxes and the compartment in which mail is deposited for collection, said door being adapted to be turned down to a horizontal position between said storm-doors, substantially as described.

5. A mail-box having compartments, outer storm-doors, supports upon the storm-doors, and an inner door guarding the compartments and hinged so as to be turned down to rest upon said supports, substantially as described.

698,771. FURNACE. THOMAS V. ALLIS, Bridgeport, Conn., assignor, by mesne assignments, to the International Tin Plate Corporation, a Corporation of New Jersey. Filed July 8, 1900. Serial No. 22,918. (No model.)



Claim.—A furnace adapted to heat packs of plates attached to guiding-strips longer than such packs, consisting of a heating-chamber for such

packs and an auxiliary chamber connected with and opening out of said pack-heating chamber and having a reduced vertical sectional area for the accommodation of said guiding-strips, for the purpose set forth.

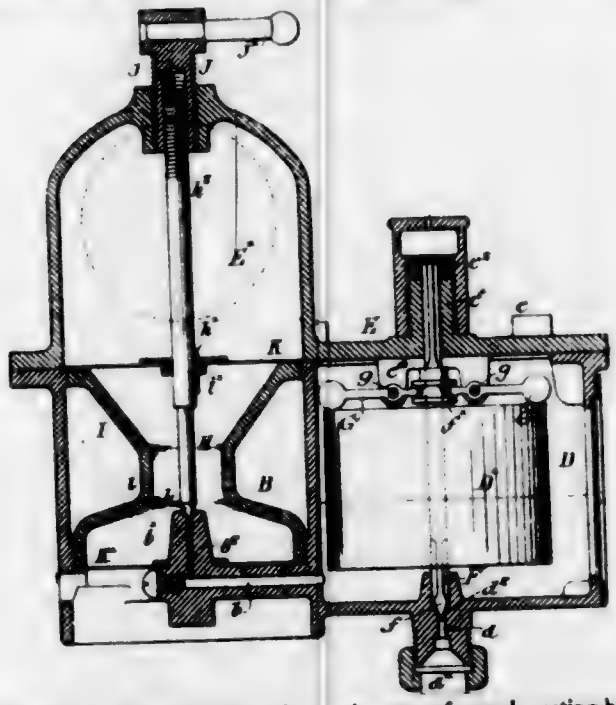
698,772. MOP-HOLDER. ISAAC H. ANDERSON, Bettie, Tex. Filed Oct. 31, 1901. Serial No. 80,646. (No model.)



Claim.—1. The combination with a mop-head, comprising clamping-bars, one of said bars being formed with a diagonal socket in its upper edge, of a handle adapted to have a shank to fit in said socket, and means for clamping the bars together whereby the mop material and handle are simultaneously clamped into position, substantially as set forth.

2. The combination with a mop-head comprising bars, one of which is provided at its upper edge with diagonally-extending divergent sockets, of a handle having diverging shanks to engage said sockets, and bolts and nuts for clamping the bars together and thereby binding the shanks of the handle in their sockets, substantially as set forth.

698,773. CARBURETER FOR EXPLOSIVE-ENGINES. ARTHUR F. BARDWELL, Mount Vernon, N. Y., assignor to the Daimler Manufacturing Company, Long Island City, N. Y., a Corporation of New York. Filed Oct. 20, 1900. Serial No. 33,718. (No model.)

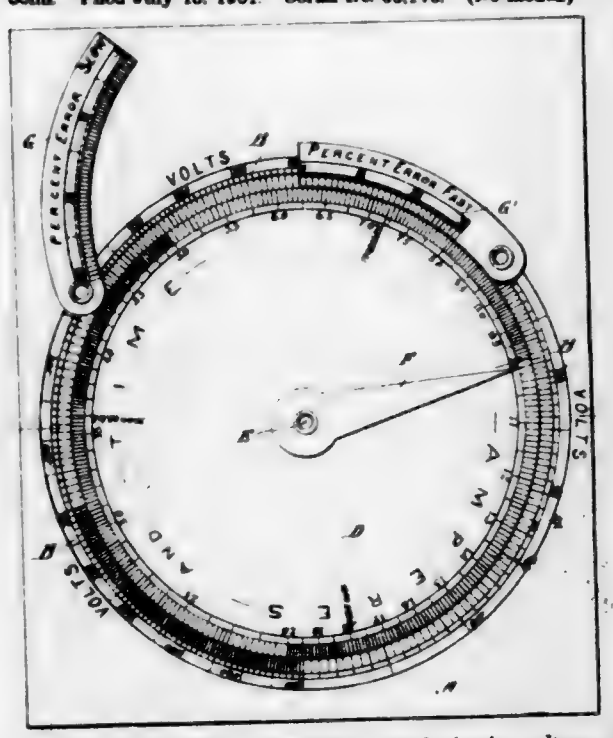


Claim.—1. The combination in a carbureter, of a single casing having two chambers therein, one a gasolene-chamber, the other a carbureting-chamber, a passage forming communication between the two, a detachable bushing in the carbureting-chamber having a contracted neck, a cap-plate covering both chambers, a valve-stem carried by the cap-plate and controlling the flow of gasolene to the carbureter-chamber, and an automatic valve in the gasolene-chamber guided by the casing and the cap-plate, substantially as described.

2. The combination of a casing divided into two chambers, one a gasolene-receiving chamber, the other a carbureting-chamber, a passage forming communication between the gasolene-chamber and the carbureting-chamber, a detachable bushing having a contracted neck and flared at its upper end, a valve-seat at the lower portion of the neck, a cap-plate, a screw-valve carried by the cap-plate and guided by the bushing, said valve being arranged to rest upon said seat and controlling the flow of liquid from the gasolene-chamber to the carbureting-chamber, substantially as described.

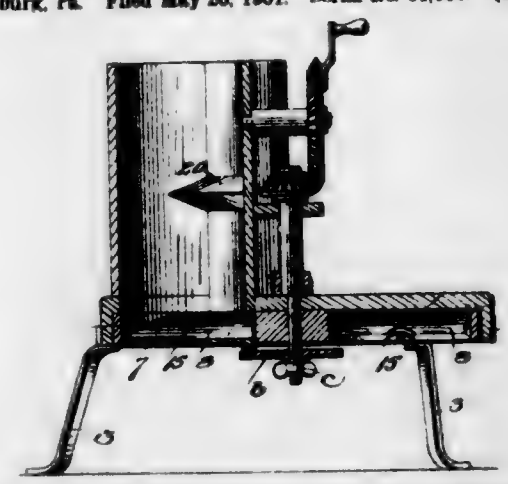
3. The combination of a carbureter, a casing having two chambers, one a gasolene-receiving chamber, the other a carbureting-chamber, an inlet-opening in the bottom of the gasolene-chamber, a cap-plate covering both of said chambers, a valve to control the flow of liquid in the gasolene-chamber, said valve being guided at its lower end in the casing and at the upper end in the cap-plate, a float, levers pivoted to the cap-plate and engaging the stem of the valve, said levers being controlled by the float, a bushing having a reduced neck, a passage forming communication between the gasolene-chamber and the carbureting-chamber, said passage ending at the lower portion of the neck in the said bushing, a valve carried by the cap-plate and arranged to control the passage of fluid through said passage into the carbureter, substantially as described.

698,774. CALCULATOR. ARMAND T. BEAUREGARD, Stamford, Conn. Filed July 13, 1901. Serial No. 68,170. (No model.)



Claim.—A calculator, comprising a fixed circular voltage graduation logarithmically indicating the voltages, a rotatable disk concentric to the said voltage graduation and having an ampere and time graduation logarithmically indicating the amperes and time, a pointer movable on the disk independent of the latter, and a percentage-scale movably arranged to overlie the voltage graduation and indicating the logarithmic values plus or minus one hundred.

698,775. FRUIT OR VEGETABLE CUTTER. ISRAEL BECK, Philipsburg, Pa. Filed May 20, 1901. Serial No. 61,086. (No model.)

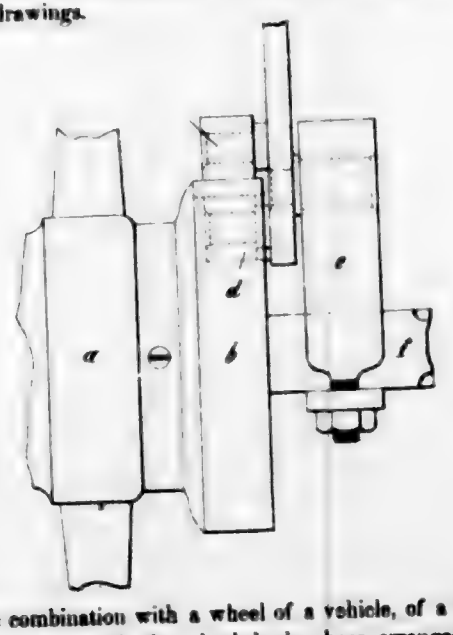


Claim.—In a fruit or vegetable cutter, the combination with the main frame and a hopper mounted thereon, of a rotary cutter-disk provided with cutter-blades, throat-plates hinged to said cutter-disk and provided on their under sides with inclined lugs, and a suitably-mounted swiveled arm adapted to engage said lugs with its ends, and a nut for clamping said rotary or swinging arm in adjusted position, substantially as set forth.

698,776. BRAKE FOR VEHICLES. GASTON H. DE BERLY and EUGÈNE G. RAMBIER, Paris, France. Filed Nov. 1, 1901. Serial No. 80,801. (No model.)

Claim.—1. In brakes for velocipedes, motor-driven, and other vehicles, the combination of a sleeve or plate carried by the hub or spokes of the wheel of the vehicle, a lever pivoted from the axle or other part of the vehicle and carrying two rollers to act upon the sleeve or plate, by the operation of the lever, and adapted to obviate friction, to obtain a progressive grip, and thus effect the complete stoppage of the vehicle,

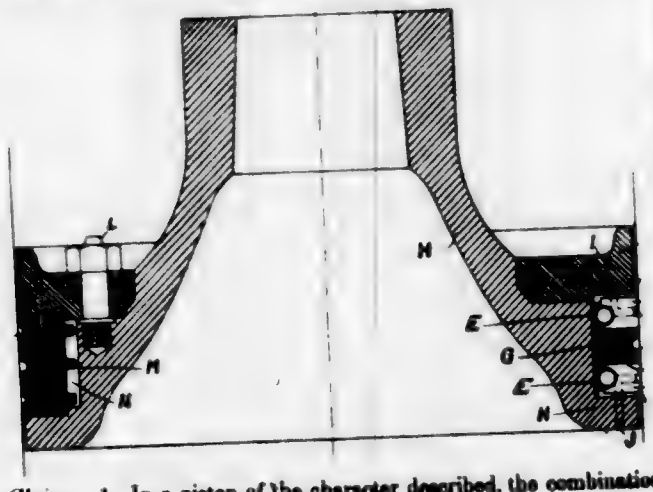
substantially as and for the purposes described with reference to the accompanying drawings.



2. The combination with a wheel of a vehicle, of a circular member mounted to turn with the wheel, brake-shoes arranged at the inner and outer faces of said member, and a lever pivoted to a fixed part of the vehicle and carrying said brake-shoes, the lever when moved on its pivot in either direction applying the brake-shoes to the inner and outer faces of the member.

3. The combination with a vehicle-wheel, of a member mounted to turn with the wheel, rollers forming brake-shoes arranged at the inner and outer faces of said member, a fixed support carried by the vehicle, and a lever carrying said rollers at one side thereof and pivoted to said support, the lever turning on its pivot to apply the rollers to the inner and outer faces of said member.

693,777. STEAM OR OTHER PISTON. EDWIN BERRY, Oxton, Birkenhead, England, assignor to John Storey, Liverpool, England. Filed Nov. 1, 1901. Serial No. 80,764. (No model.)



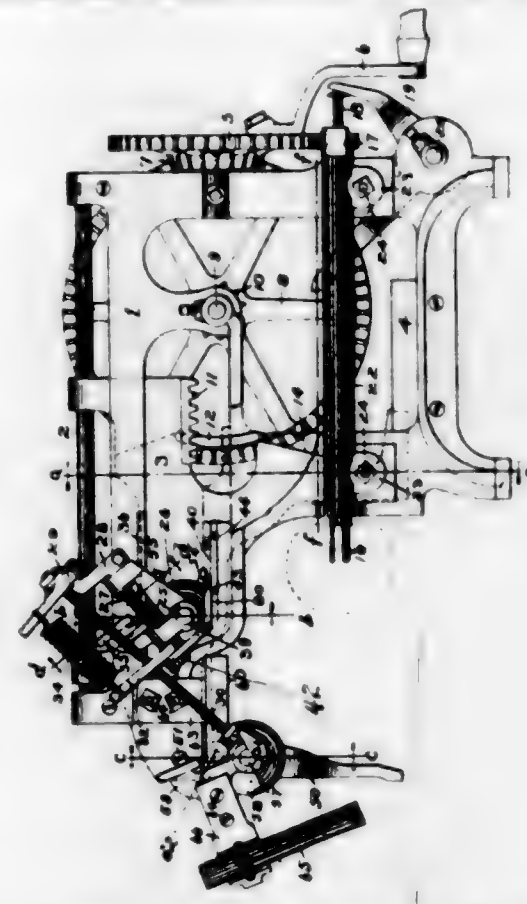
Claim.—1. In a piston of the character described, the combination with the body of the piston, of split packing-rings mounted thereon, a solid unsplit ring between the split rings, springs between the adjacent ends of the split rings pressing said rings circumferentially outward against the cylinder, and springs in the solid ring pressing the split rings laterally, the body of the piston and the rings being provided with holes or passages leading from the face of the piston to the rubbing-surface of the split ring whereby steam passing through said passages will counterbalance the outward spring-pressure and thus lubricate and considerably reduce or nullify friction, substantially as described.

2. In a piston of the character described, the combination with the split rings, of a solid ring between them, the body of the piston provided with a groove, and pins or feathers on the rings fitting into said groove, whereby the rings are prevented from turning, substantially as described.

698,778. PARING AND CORING MACHINE. WILLIAM H. BOUTELL, Rochester, N. Y. Filed Mar. 23, 1898. Renewed Aug. 2, 1901. Serial No. 70,690. (No model.)

Claim.—1. In a paring-machine, the combination with the main frame, the rotary wheel mounted thereon having the mutilated pinion and the rib thereon, of the reciprocating carriage on the frame having the rack, and the ribs or projections arranged on opposite sides of the center of rotation of the wheel and operated upon successively by a single rib on the wheel to cause the reciprocation of the carriage in opposite directions at different speeds, substantially as described.

2. In a paring-machine, the combination with the main frame, the rotary wheel mounted thereon, having the mutilated pinion and the rib thereon concentric with the axis, of the reciprocating carriage on the frame having the rack and the ribs or projections arranged on opposite sides of the center of the wheel, the space between the proximate ends of said ribs being less than the length of the rib on the wheel, whereby the carriage will be operated in opposite directions by the continued rotation of the wheel and at different speeds when moved in one direction and held by the rib on the wheel when moved outward, substantially as described.



3. In a paring-machine, the combination with the frame, the fork-shaft thereon, the core-doffer, the lever for actuating the latter, and the wheel mounted on the frame having the mutilated gear, the rib concentric with the axis of the wheel and the pin, of the carriage mounted on the frame carrying paring devices thereon, and having the rack and the ribs on opposite sides of the axis of the wheel with which latter the rib on the wheel coöperates simultaneously, whereby the carriage will be operated in opposite directions at different speeds and held in its outward position, and the core-doffer operated by the rotation of the wheel in one direction, substantially as described.

4. In a paring-machine, the combination with the main frame and the carriage reciprocating thereon, of the paring-head rotatable on the carriage having the paring-knife thereon and coöperating projections between the paring-head and frame for causing the rotation of the paring-head, at a variable speed during the reciprocation of the carriage whereby a more rapid rotary movement is imparted to the paring-head during the operation upon the ends of the fruit.

5. In a paring-machine, the combination with the frame and the carriage reciprocating thereon, of the paring-head rotatable on the carriage having the paring-knife, and the long and short teeth coöperating with corresponding surfaces on the frame for causing the rotation of the head at a variable speed during the reciprocation of the carriage, substantially as described.

6. In a paring-machine, the combination with the frame having the recess and the teeth on opposite sides thereof, of the carriage, the paring-head rotatable thereon, having the knife, the projection or tooth coöperating with the recess on the frame and the relatively shorter teeth coöperating with those on the frame for rotating the head at greater speed at the ends of its rotation, substantially as described.

7. In a paring-machine, the combination with the frame, having the recess 40, the ways at the sides thereof, and the projections 43 and 44 out of line with said ways, of the carriage, the paring-head thereon having the tooth 39 coöperating with the ways and recess, and the relatively shorter teeth 41 and 42, substantially as described.

8. In a paring-machine, the combination with the main frame and the rotary fruit-fork, of the reciprocating carriage, the rotatable paring-head thereon, having the paring-knife movable longitudinally and rotarily of the fork, and connections, substantially as described between the head and frame consisting of the long and short teeth coöperating with corresponding surfaces on the frame for causing the more rapid rotation of the

head when the knife is moved toward the fork and longitudinally of the axis thereof.

9. In a paring-machine, the combination with the main frame and the rotary fruit-fork, of the reciprocating carriage, the rotatable paring-head thereon, the pivoted knife-arm and the knife movable radially of the paring-head, and coöperating long and short projections and recesses arranged on the head and frame respectively for causing the rotation of said head at greater speed, when the knife-arm is moved toward the fork and longitudinally of the axis thereof.

10. In a paring-machine, the combination with the main frame, and the rotary fork, of the reciprocating carriage, the rotatable paring-head thereon, the pivoted knife-arm having the knife and movable radially of the head, and coöperating teeth between the head and frame for causing the more rapid rotation of the head when near the extremes of its movement, thereby preventing reparing of the ends of the fruit.

11. In a paring-machine, the combination with the main frame having the teeth 38 thereon, of the carriage movable on the frame, the rocking head pivoted on the carriage and reciprocating with the latter as it is moved on the frame having the gear engaging the teeth on the frame to revolve the head upon its pivot and throw the paring-knife into and out of engagement with the fruit, and the paring-head having the paring-knife and pivoted on the rocking head.

12. In a paring-machine, the combination with the main frame and the carriage movable thereon, of the rocking head pivoted on the carriage, the adjustable stop, as 55, for limiting the movement of said head, the paring-head on the rocking head and connections between the frame and rocking head for operating the latter.

13. In a paring-machine, the combination with the main frame, of the reciprocating carriage thereon, the rocking head pivoted on the carriage, connections between it and the frame for causing its rocking movement, and an adjustable stop between said head and the carriage for limiting the movement of the former in one direction.

14. In a paring-machine, the combination with the main frame, having the teeth, as 38, and the reciprocating carriage thereon, of the rocking head pivoted on the carriage having the gear-teeth, as 37, the paring-head mounted on the rocking head, and the adjustable stop, as 55, on the carriage for limiting the movement of the rocking head in one direction.

15. In a paring-machine, the combination with the main frame, having the teeth, as 38, and the bearing-surface, as the rib 36, thereon, of the reciprocating carriage, the pivoted rocking head having the teeth engaging the teeth on the main frame, the shoe engaging the bearing-surface, and paring devices carried on said rocking head.

16. The combination with the main frame, and the vertically-adjustable bracket 63 thereon, having the teeth 62, of the reciprocating frame and paring devices mounted thereon, the corer-head pivoted on the carriage and having the gear 61 coöperating with the teeth 62 on the bracket.

17. The combination with the main frame, and the vertically-adjustable bracket 63 thereon, having the teeth 62 and the surface 60, of the reciprocating frame and paring devices mounted thereon, the corer-head pivoted on the carriage and having the gear 61 coöperating with the teeth 62 on the bracket and the arm coöperating with the surface 60.

18. The combination with the main frame, the carriage movable thereon, the fork-shaft, and paring devices on the carriage, of the fruit doffer-arm, the corer pivoted upon and supported by the doffer-arm, adjustable connections between the doffer-arm and the carriage whereby both parts may be simultaneously adjusted relatively to the fork-shaft and means on the frame for turning the corer on its pivot.

19. The combination with the main frame, of the fork-shaft, the bearing-sleeve therefor, having the split ends, and securing-bolts passing through said ends and serving to secure the sleeve to the frame and adjust the bearings for the shaft.

20. The combination with the main frame, of the fork-shaft, the bearing-sleeve therefor, having the lugs formed integral therewith upon opposite ends, and split part way through said lugs, and the bolts passing through said split lugs and the frame and serving to adjust the bearing and secure the sleeve to the frame, substantially as described.

21. In an apple-parer, a frame, a carriage movable thereon, a knife supported by the carriage, and means for controlling the knife to give it a more rapid movement in paring the ends of the fruit than when paring the bilge.

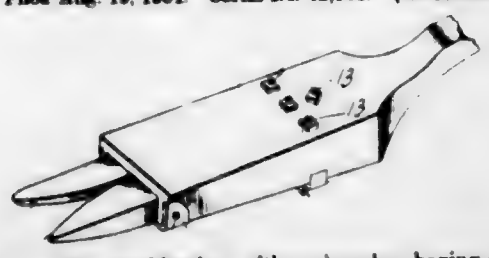
22. In an apple-parer, a frame, a carriage movable thereon, a knife, a swinging knife-frame having two projections at different distances from its axis, and cam-grooves with which said projections successively coöperate to vary the speed of the knife in paring.

23. In a paring-machine, the combination with the frame, the reciprocating carriage having the recess 40 and the rounded projections at the sides thereof, of the carriage, the rotary paring-head thereon having a tooth adapted to enter the recess in the frame, and the teeth curved to correspond to and coöperating with the rounded projections on the frame.

24. The combination with the frame, having the recess therein, and curved projections at opposite sides thereof, of the carriage, the rotary paring-head thereon having the projection adapted to enter the recess in the frame, and the teeth thereon curved to correspond to and coöperate with the projections on the frame at the sides of the aperture.

25. In a paring-machine, the combination with a frame having the recess 40, the ways at the sides thereof, and the curved projections 43 and 44 out of line with said ways, of the carriage, the paring-head thereon having a tooth 39 coöperating with the ways and recess, and the teeth 41 and 42 curved to fit over the projection.

698,779. CLAW-BAR. ABRAHAM BRAMINGTON, Mount Carmel, Pa. Filed Aug. 19, 1901. Serial No. 72,575. (No model.)



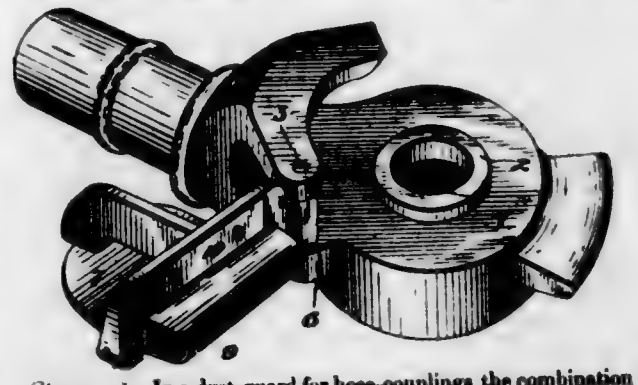
Claim.—The combination with a claw-bar having a recessed or chambered head, of a bail pivoted upon a horizontal pivot to the forward end of said chambered or recessed head, jaws pivoted, by vertical pivots, to said bail and having horizontally-projecting shanks which are located within the chambered or recessed head, a spring for forcing the inner ends of said shanks apart, and a spreader-head carried by said head and projecting downwardly into said chamber or recess within the path of movement of the shanks of said jaws, substantially as set forth.

698,780. POCKET-PROTECTOR. ALBERT BRAUN, Allegheny, Pa. Filed Dec. 18, 1900. Serial No. 40,330. (No model.)



Claim.—In a device of the character described, the combination of a substantially flat rectangular spring lying in the same plane throughout the entire length thereof, said spring having a single pair of apertures formed at its extremities, two substantially flat rectangular spring-sections, each of which is substantially one-half the length of said first-named spring, each of which sections lies in the same plane throughout its entire length, a hinged connection between said spring-sections at their inner ends, the outer ends of said sections having a single pair of apertures formed therein registering with the apertures of the first-named spring, the said sections and spring adapted to be secured between the lining and the material of the pocket, threads secured through the said registering apertures and the lining, said thread forming a hinged connection at the extremities of the said parts and securing the device to the pocket, substantially as described.

698,781. DUST-GUARD FOR HOSE-COUPLINGS. JOEL H. BROWN, Junction, Ariz. Filed Sept. 10, 1901. Serial No. 74,923. (No model.)

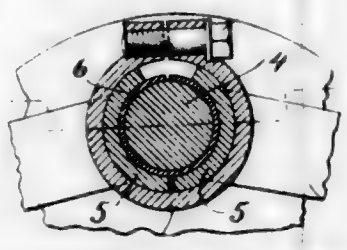


Claim.—1. In a dust-guard for hose-couplings, the combination with the coupling-head, of an arm pivotally secured thereto and provided with a rearwardly and downwardly projecting stop-finger, a spring shield-plate secured to said arm and having a horizontal portion adapted to engage the gasket of the coupling-head, the rear end of said shield being limited in its movement with respect to the arm by the said stop-finger, substantially as set forth.

2. In a dust-guard for hose-couplings, the combination with the coupling-head, of an arm pivoted to the stop-pin of said head and provided with a rearwardly and downwardly projecting stop-finger and with stop-shoulders in a plane above the lower end of the stop-finger, and a shield consisting of a plate having a bowed laterally-projecting portion and a vertical flange, the latter of which is secured to the arm, and the horizontal portion of which is adapted to engage the stop shoulders and finger and beheld in firm contact with the gasket of the coupling-head, the bowed

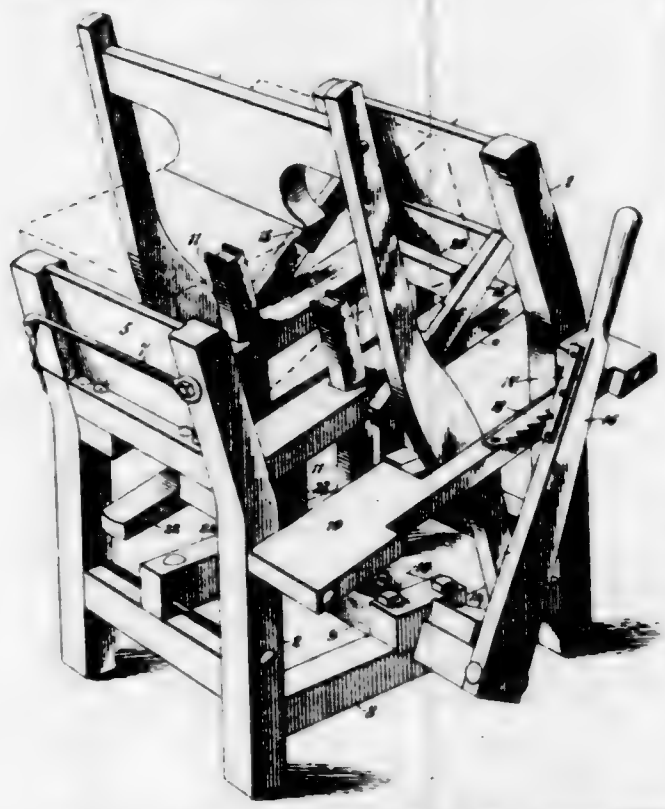
portion of said plate serving to guide it over said gasket, substantially as set forth.

693,782. ENGINE. HERBERT H. BUFFUM, Abington, Mass. Filed Aug. 7, 1901. Serial No. 71,170. (No model.)



Claim.—In a crank-pin bearing, the combination of a crank-pin, a contractible bushing loosely surrounding the same, pitmen having segmental bearing portions embracing said bushing, a contractible retainer surrounding said bearing portions, and adjusting means for contracting the diameter of said retainer, the arrangement being such that the contraction of said retainer also effects the inward adjustment of the bearing-shoes and bushing with respect to the crank-pin.

693,783. SHINGLE-PACKER. FRANK CAMPBELL, Haynesville, Me., assignor of one-third to Frank A. Peabody, Houlton, Me. Filed Oct. 25, 1901. Serial No. 79,941. (No model.)



Claim.—1. A shingle-packer comprising a frame, having inclined bed-rails, upper corner-posts having portions extended above the bed-rails and at right angles thereto, a headboard attached to said upward extensions, lower corner-posts having portions extended above the bed-rails and at right angles thereto, the upward extension of one lower post being mounted to swing, a footboard removably held between the upward extensions of the lower post, means for locking the swinging portion of the post, an upper presser-bar, a lower presser-bar, and means for operating said bars, substantially as specified.

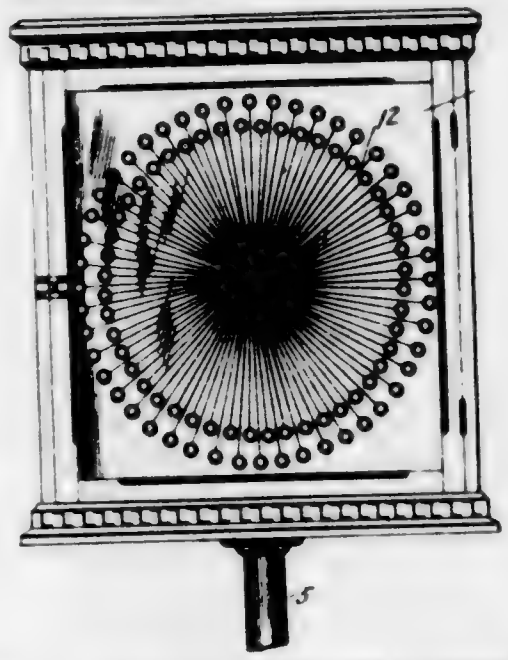
2. A shingle-packer comprising a frame having inclined bed-rails, upper corner-posts having portions extended above the bed-rails and at right angles thereto, a headboard attached to said upward extensions, lower corner-posts having portions extended above the bed-rails and at right angles thereto, the upward extension of one lower post being mounted to swing, a footboard removably held between the upward extensions of the lower post, means for locking the swinging portion of the post, an upper presser-bar, a lower presser-bar, means for operating said bars, and an ejector for moving packed shingles from the packer, substantially as specified.

3. A shingle-packer, comprising a frame, inclined bed-rails in said frame, a headboard extended above said rails, a removable footboard, a rock-shaft mounted in the frame and having oppositely-extended crank portions, presser-bars connected to crank portions of the shaft and movable through openings in the bed-rails, an upper presser-bar, arms extended from said upper presser-bar to connection with others of said crank portions and arranged to swing toward the outlet end of the packer, and an operating-lever connected with the rock-shaft, substantially as specified.

4. A shingle-packer, comprising a frame, inclined bed-rails in the upper portion of said frame, a headboard, a removable footboard, side guides mounted to swing on the bed-rails, lower presser-bars, an upper presser-bar, and means for operating the upper and lower presser-bars simultaneously in opposite directions, substantially as specified.

5. A shingle packer, comprising a frame, inclined bed-rails in said frame, upper and lower pressing-bars, and an ejector comprising a cross-head and a lever on which the cross-head is carried, substantially as specified.

693,784. TRANSFER-BOARD FOR TELEPHONE OR TELEGRAPH CIRCUITS. ALBERT R. CRAMER, Centralia, Mo. Filed July 25, 1901. Serial No. 69,672. (No model.)



Claim.—1. A transfer board provided with an opening and terminals for wires arranged concentric therewith, combined with transfer wires extending through said opening and provided with means for engaging said terminals, whereby the wires extend radially from said opening and either wire may be engaged with either of said terminals at will, substantially as described.

2. A transfer-board provided with an opening and a circular row of terminals concentric with the opening, combined with transfer-wires extending through said opening and provided with means for engaging said terminals, whereby the wires extend radially from said opening and either wire may be engaged with either of said terminals at will, substantially as described.

693,785. GATE. ABSALOM CLAY, Appalachia, Va. Filed Oct. 3, 1901. Serial No. 77,431. (No model.)

Claim.—1. The combination of a support provided at the top with a horizontal casing having an interior track and open at one end, a gate suspended from the said track and arranged to slide longitudinally thereof, an oscillating lever arranged in an upright position and fulcrumed at its lower end, an approximately horizontal connecting-rod pivoted at its outer end to the upper end of the lever and extending from the same into the open end of the casing and connected with the gate, and a rock-shaft arranged beneath the connecting-rod and provided with a depending arm located between the support and the lever and connected with the latter, substantially as described.

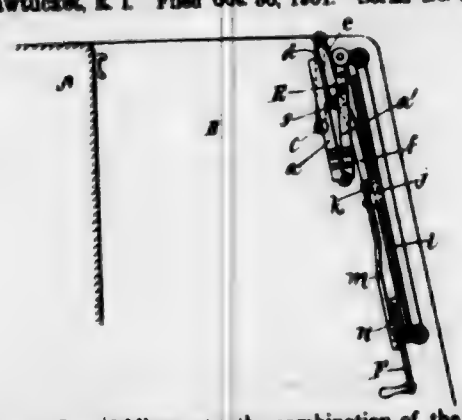
2. The combination of a support, a sliding gate, an upright oscillating lever fulcrumed at its lower end at one end of the support and arranged to oscillate in a plane in alinement with the plane of the gate, an approximately horizontal connecting rod or bar extending from the lever to the gate, a rock-shaft extending from opposite sides of the gate and located below the connecting rod or bar and between the lever and the gate, and provided with an arm and a link connecting the arm with the lever, said link and arm being located between the lever and the gate, substantially as described.

3. The combination of a support, a sliding gate, a fixed arm 12 extending from the support, an upright lever fulcrumed at its lower end on the fixed arm 12, a connecting rod or bar extending from the upper end of the lever to the gate, a rock-shaft extending longitudinally of the roadway and provided at its ends with suitable arms or handles and having a centrally-arranged arm located between the support and the lever, and a link connecting the central arm of the rock-shaft with the lever at a point between the ends thereof, substantially as described.

693,785.



693,786. FOLDING GATE FOR RAILWAY-CARS. NICHOLAS H. COLWELL, Pawtucket, R. I., assignor to R. Bliss Manufacturing Company, Pawtucket, R. I. Filed Oct. 30, 1901. Serial No. 80,547. (No model.)



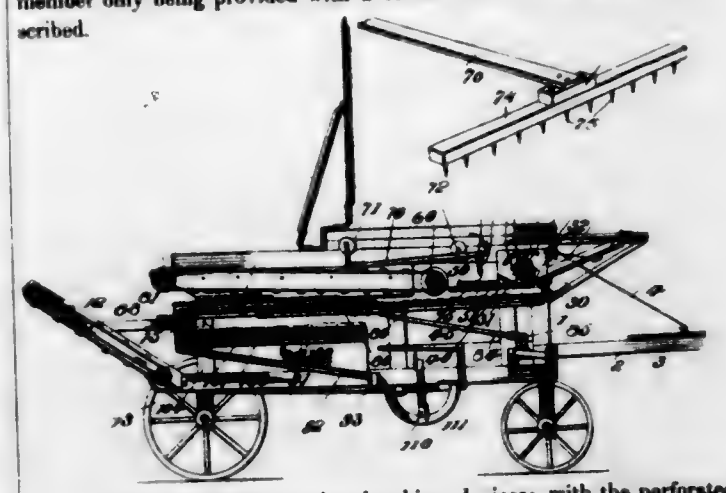
Claim.—1. In a folding gate, the combination of the hinged gate-sections *a* and *a'*, with the offset lever E, journaled in the section *a*, and having an outer arm *e*, an inner arm *f* and the connecting-bar *g*, the link *d*, connecting the outer arm *e*, with the gate-section *a'*, the slide *j*, jointed to the inner arm *f*, the hand-lever F and the link *m*, provided with the stop projection, adapted to limit the movement of the hand-lever, substantially as described.

2. In a folding gate, the combination of the hinged gate-sections *a* and *a'*, the offset lever E, journaled in the gate-section *a* at a point outside of the median line of the said gate-section, and having an outer arm *e*, located beyond the horizontal edge of the gate, an actuating inner arm *f*, and the connecting-bar *g*, with the link *d*, pivoted to the gate-section *a'*, at a point outside of the median line of the gate-section, and connecting the said gate-section with the outer end of the arm *e* of the lever, substantially as described.

698,787. THRESHING-MACHINE. WILLIAM H. CONOVER and JOHN W. MILLS, Birds, Ill. Filed May 10, 1900. Serial No. 16,129. (No model.)

Claim.—1. In a threshing-machine, the combination with the casing, blocks secured within the sides thereof and having grooves, and a cylinder whose shaft is journaled through the blocks; of the main concave rigidly secured to the blocks, and a supplemental concave mounted in the grooves of the blocks with its front edge in contact with the rear edge of the main concave and its body provided with a slot, substantially as described.

2. In a threshing-machine, the combination with the casing, blocks secured within the sides thereof and having grooves, and a cylinder whose shaft is journaled through the blocks; of the main concave rigidly secured to the blocks, and a supplemental concave in two members interchangeably mounted one at a time in said grooves and both longitudinally slotted, one member only being provided with a series of teeth, substantially as described.



3. The combination of the threshing devices; with the perforated grate, the open endless belt-and-slat straw-carrier, a rake comprising a bar and a toothed cross-head at the end of said bar immediately above the grate, a revolving crank-shaft to which the bar is directly connected adjacent to the head, and a freely-suspended rock-shaft from which the bar is supported at its other end whereby said rake-head is given a circular sweep over the grate while the rear end of the bar is free to oscillate.

4. In a machine for the purpose described, the combination with the threshing devices moving at a relatively low speed, and the grate having large countersunk openings through its body; of a rake having a toothed head at its front end moving over said grate, an open endless belt-and-slat straw-carrier in rear of the grate, and a grain-pan beneath the grate and straw-carrier.

693,788. RAIL-JOINT. HARRY T. DENMORE, Knoxville, Pa. Filed Mar. 19, 1901. Serial No. 51,849. (No model.)

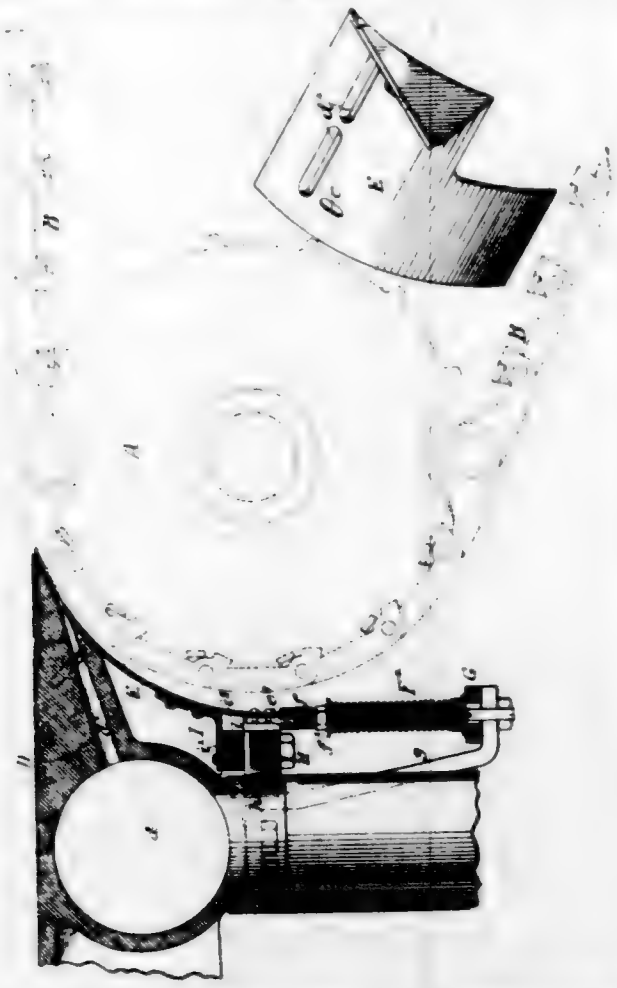


Claim.—In a rail-joint, the combination of rails having apertures formed in the web thereof, of a chair comprising an integral flat base, an upwardly-extending flange made integral with one side of said chair, the inner wall of said flange being concave and adapted to engage the top and sides of the rail-base and lie flush therewith, a brace-bar substantially triangular in cross-section made integral with the other side of said chair, the inner wall of said brace-bar being at an angle to the base of the chair, and adapted to engage the other side of the said rail-base, the said brace-bar extending to a point beneath the center of the rail-web, a fish-plate, inwardly-extending lugs or pins formed integral with the inner face thereof and adapted to engage in the said apertures of the rail-web, said inner face being flat and engaging the entire surface of the rail-web, the upper and lower faces of said fish-plate converging, said upper face being of less width than the lower face and adapted to engage the under face of the tread throughout the entire surface thereof, the said lower face of said fish-plate adapted to engage the entire surface of the upper face of the rail-base, the outer face of said fish-plate being flat throughout the entire surface thereof, and in alinement with the outer face of the rail-tread and adapted to be engaged by the entire inner surface of the brace-bar, the outer lower faces of the said flange and brace-bar being at an acute angle to the chair-base, and spikes adapted to engage said faces and the railties, substantially as described.

698,789. STAIR-LIFT. JAMES M. DODGE, Philadelphia, Pa., assignor to the Stair Lift Company, Camden, N. J., a Corporation of New Jersey. Filed Oct. 26, 1901. Serial No. 80,117. (No model.)

Claim.—1. The combination of a moving stair-lift or platform, the fixed portion of the stair-lift such as the fixed platform, with a movable stop-motion device mounted between the moving portion and the fixed portion, said stop-motion device being adapted for connection with means

for stopping the movement of the moving portion when the stop-motion device is actuated, substantially as described.



2. The combination of the moving stair-lift or platform, a fixed platform, a plate mounted between the moving stair-lift and the fixed platform, electric contact-plates so mounted as to be moved into contact when the stop-motion plate is forced down, substantially as described.

3. The combination of the carrying portion of a moving stair-lift, a platform, a curved stop-motion plate mounted between the fixed platform and the moving portion of the stair-lift, a spring for holding the plate in its normal position, a contact-block carried by the fixed portion of the machine, and a contact-block carried by the stop-motion plate, the terminals being adapted for connection with a stop mechanism controlling the movement of the moving portion of the stair-lift, substantially as described.

4. The combination of a moving stair-lift or platform, a fixed platform, a stop motion plate mounted between the fixed platform and the movable portion of the stair-lift, and a side stop-motion plate at the side of the fixed platform, substantially as described.

5. The combination of a moving stair-lift or platform, a fixed platform, a series of stop-motion plates, each independently supported between the fixed and moving portions, substantially as described.

6. The combination of a moving stair-lift or platform, a fixed platform, a stop-motion plate mounted between the fixed and movable portions, said plate having ribs or projections on its face next the moving portion, substantially as described.

7. The combination of a moving stair-lift or platform, a fixed platform, a series of curved stop-motion plates mounted between the moving portion and the fixed portion, each plate being independently supported and having ribs or grooves in its face next the moving portion, substantially as described.

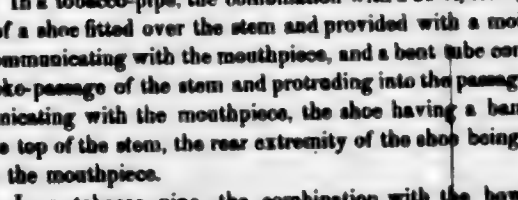
8. The combination of a moving stair-lift or platform, a head-wheel therefor, a fixed platform at the head-wheel, a stop-motion plate between the fixed and moving portions, a spring tending to keep the plate in its normal position, a bracket on said plate, a contact carried thereby, a fixed bar, and a contact thereon in line with the contact of the plate, substantially as described.

9. The combination of a moving stair-lift or platform, a head-wheel therefor, a fixed platform at the head-wheel, a stop-motion plate between the fixed and moving portions, ribs thereon, a spring tending to keep the plate in its normal position, a bracket on said plate, a contact carried thereby, a fixed bar, a contact thereon in line with the contact of the plate, and means for holding the stop-motion plate to the fixed platform, substantially as described.

10. The combination of a fixed platform having a curved face, a head-wheel, a conveyer arranged to pass around said head-wheel in close proximity to the fixed platform, a series of curved stop-motion plates arranged to slide on the fixed platform between the conveyer and said platform, a rod adjustably secured to each plate, a spring mounted on the rod, a fixed bar on which the spring rests, a fixed plate, contacts thereon, a bracket on each stop-motion plate, and contacts thereon in line with the fixed contacts, substantially as described.

11. The combination of a fixed platform, a head-wheel and a conveyer, a stop-motion plate arranged to slide on the fixed platform between it and the conveyer, an air-blast pipe at the fixed platform, passages leading from said pipe, and openings in the stop-motion plates in line with the passages, substantially as described.

693,790. TOBACCO-PIPE. TIMOTHY DUGGAN, Denver, Colo. Filed May 16, 1901. Serial No. 60,595. (No model.)



Claim.—1. In a tobacco-pipe, the combination with a bowl, a stem, and a mouthpiece, the stem being cut away at the bottom, of a shoe fitted over the stem, provided with a band extending over the top of the stem, and curved below its cut-away portion to form a passage, the said shoe being provided with a receptacle located in its lower portion and communicating with said passage, the rear extremity of the shoe being threaded to receive the mouthpiece, the receptacle in the shoe being in communication with the mouthpiece and bowl, substantially as described.

2. In a tobacco-pipe, the combination with the bowl, stem and mouthpiece, of a shoe applied to the stem and having a moisture-receptacle whose entrance is located forward and below the rear extremity of the stem-opening, said receptacle communicating with the mouthpiece-opening, and a bent smoke-conduit connected with the stem at one extremity and communicating with the stem-opening, its opposite extremity protruding into the passage leading to the moisture-receptacle, the bend of the conduit being located between the mouthpiece and the stem, whereby the moisture is prevented from passing to the bowl, the passage leading to the moisture-receptacle being larger than the bent smoke-conduit which protrudes thereinto, to permit the return of the smoke and the passage of the moisture.

3. In a tobacco-pipe, the combination with the bowl, stem and mouthpiece, of a shoe fitted over the stem, and having a receptacle in its lower portion communicating with the mouthpiece, and a bent tube connected with the stem at one extremity, its opposite extremity protruding into the shoe whose opening is larger than the tube, the bend of the tube being between the smoke-passage of the mouthpiece and the smoke-passage of the stem.

4. In a tobacco-pipe, the combination with a bowl, stem, and mouthpiece, of a shoe fitted over the stem and provided with a moisture-receptacle communicating with the mouthpiece, and a bent tube connected with the smoke-passage of the stem and protruding into the passage of the shoe communicating with the mouthpiece, the shoe having a band extending over the top of the stem, the rear extremity of the shoe being threaded to receive the mouthpiece.

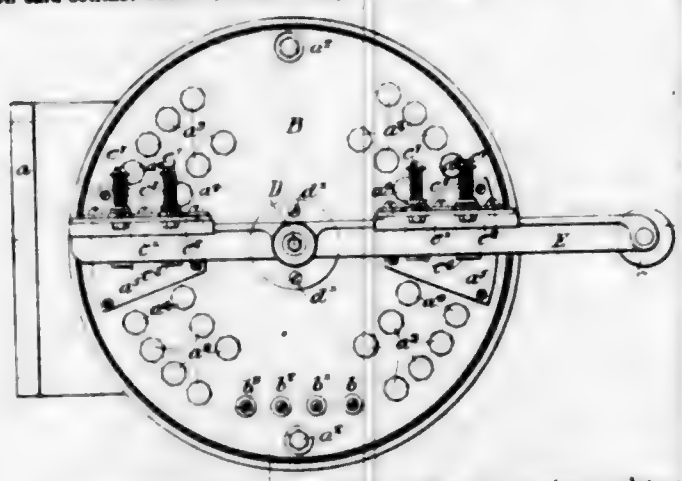
5. In a tobacco-pipe, the combination with the bowl, stem and mouthpiece, of a shoe attached to the stem, having a moisture-receptacle, in its lower portion, communicating with the mouthpiece, the said shoe having a plate extending across the rear extremity of the stem and provided with an opening registering with the stem-opening, a tube screwed into the stem-opening and having a shoulder engaging the plate on the shoe whereby the latter is locked in place, and a bent tube connected with the first-named tube, and protruding forwardly into the shoe-opening below the stem, the said opening being larger than the tube to allow the smoke and moisture to pass therethrough.

698,791. ELECTRIC CONTROLLER. ARTHUR C. EASTWOOD, Cleveland, Ohio, assignor to Electric Controller & Supply Company, Cleveland, Ohio, a Corporation of Ohio. Filed Oct. 21, 1901. Serial No. 79,430. (No model.)

Claim.—1. In an electric controller, the combination of a casing, a plate of insulating material thereon, resistance units mechanically attached thereto, contact-buttons on the plate electrically and mechanically connected to said resistance units, an operating-lever carrying contact-fingers pivoted to the plate, said fingers being insulated from said operating-lever and connected to each other in pairs and means for limiting the motion of the operating-lever, substantially as described.

2. The combination in an electric controller of a casing, a plate of insulating material carried thereby, contact-buttons on the plate, units of

resistance electrically connected to the said contact-buttons, an operating-lever carrying metallic finger-holders, means for insulating said holders from the lever, fingers pivoted to the said holders and constructed to bear upon the contact-buttons, with means for causing said fingers to press upon said contact-buttons, substantially as described.



3. The combination in an electric controller of a casing, a plate of insulating material carried thereby, contact-buttons on the plate, units of resistance electrically connected to the said contact-buttons, an operating-lever carrying metallic finger-holders, means for insulating said holders from the lever, L-shaped fingers pivoted to the said holders having one end constructed to bear upon the contact-buttons and carried by the holders, having springs placed to bear against the other end of said fingers, substantially as described.

4. The combination of a plate of insulating material, an operating-lever mounted on one face thereof, contact-fingers carried by said lever but insulated therefrom, contact-buttons on the plate and resistance-coils electrically and mechanically connected to the contact-buttons and extending from the face of said plate opposite to that having the contact-buttons, substantially as described.

5. In an electric controller, the combination of a plate of insulating material having upon it contact-buttons, an operating-lever carrying contact-fingers constructed to engage said buttons and resistance units connected to the contact-buttons, said units performing the double function of resistance-coils and blow-magnets, substantially as described.

6. In an electric controller, the combination of a plate of insulating material having upon it contact-buttons, an operating-lever carrying contact-fingers constructed to engage said buttons and resistance units having cores of magnetic material electrically and mechanically connected to the contact-buttons, said contact-fingers being in a magnetic field from the resistance units when the controller is in operation, substantially as described.

7. In an electric controller, the combination of a plate of insulating material, resistance units mounted on said plate at right angles to the plane thereof and carried solely by said plate, said units being symmetrically placed in groups on arcs of two concentric circles, contact-buttons mechanically and electrically attached to the resistance units, an operating-arm and contact-fingers carried thereby, said fingers being connected to establish electrical connection between two groups of contact-buttons similarly located on arcs of the inner and outer concentric circles, substantially as described.

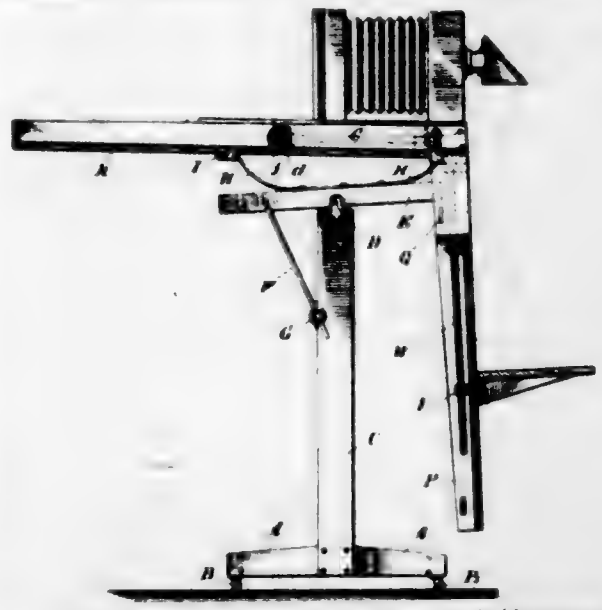
8. In an electric controller, the combination of a plate of insulating material, units of resistance, contact-plates, dead-blocks and a spindle all carried by said plate and rigidly fixed thereto, an operating-arm carried by and revoluble about said spindle, contact-fingers on the operating-arm electrically connected in pairs, a metallic casing surrounding the resistance units and carrying the insulating-plate, lugs on said casing ninety degrees apart, two diametrically opposite screws in the plate of insulating material placed to engage any two diametrically opposite of said lugs, substantially as described.

693,792. PHOTOGRAPHIC STAND. HARRY D. FARQUHAR, Brooklyn, N. Y., assignor to E. & H. T. Anthony & Company, New York, N. Y., a Corporation of New York. Filed Apr. 16, 1901. Serial No. 56,045. (No model.)

Claim.—1. A photographic apparatus embodying a suitably-supported base-board, springs attached centrally to the edges of the base-board and having upwardly-extending ends, a frame for sustaining the camera supported on said upwardly-extending ends of the springs, a slideway rigidly connected to said frame at approximately right angles thereto and a table on said slideway.

2. A photographic apparatus embodying a suitably-supported and tiltable base-board, a frame for sustaining the camera, spring-supported on the base-board, a slideway rigidly connected to said frame at approximately right angles thereto, and an adjustable table on said slideway.

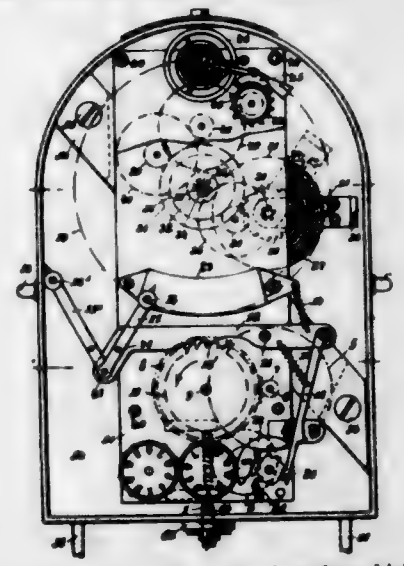
3. A photographic apparatus embodying a horizontally-extending and suitably-supported base-board, springs supported on opposite edges of the base-board, a frame for sustaining the camera supported on said springs, a slideway rigidly connected to the said frame at approximately right angles thereto, a table vertically adjustable in said slideway, and means accessible to the hands of the operator for adjusting said table.



4. A photographic apparatus embodying a suitably-supported and adjustable base-board, a frame for sustaining the camera, spring-supported on said base-board and longitudinally adjustable on said springs, a slideway rigidly connected to said frame at approximately right angles thereto, and an adjustable table on said slideway.

5. A photographic apparatus embodying a frame for sustaining the camera, springs for the support of said frame, means to adjust the frame on the springs, a slideway rigidly connected to said frame at approximately right angles thereto, and a table supported by and adjustable in said slideway.

698,793. SPEED RECORDER AND REGISTER FOR VEHICLES. CARL FRANCKE and HEINRICH SCHWABACHER, Berlin, Germany. Filed Mar. 18, 1901. Serial No. 51,649. (No model.)



Claim.—1. A speed recorder and register for vehicles, comprising a revoluble dial, a pivoted lever provided with a tooth on its under side, a marker carried by the free end of the lever and engaging the dial, a toothed wheel below the lever and with which the tooth of the lever engages, means for operating the toothed wheel from one of the movable parts of a vehicle, a distance-measuring device, and a pawl and ratchet for operating the measuring device from the said lever, as set forth.

2. A speed recorder and register for vehicles, comprising a revoluble dial, a pivoted and spring-pressed lever provided with a tooth on its under side, a marker carried by the free end of the lever, a toothed wheel below the lever and with which the tooth of the lever engages, means for operating the toothed wheel from a movable part of a vehicle, a distance-measuring device provided with a ratchet-wheel, and a pivoted and spring-pressed pawl carried by the end of the lever opposite that carrying the marker, and engaging the ratchet-wheel of the measuring device, as set forth.

3. In a speed recorder and register for tramway-cars and other vehicles, the combination with a dial having an exterior and an interior scale, of pencils adapted to come into contact with one or the other of said scales, substantially as hereinbefore described and for the purpose set forth.

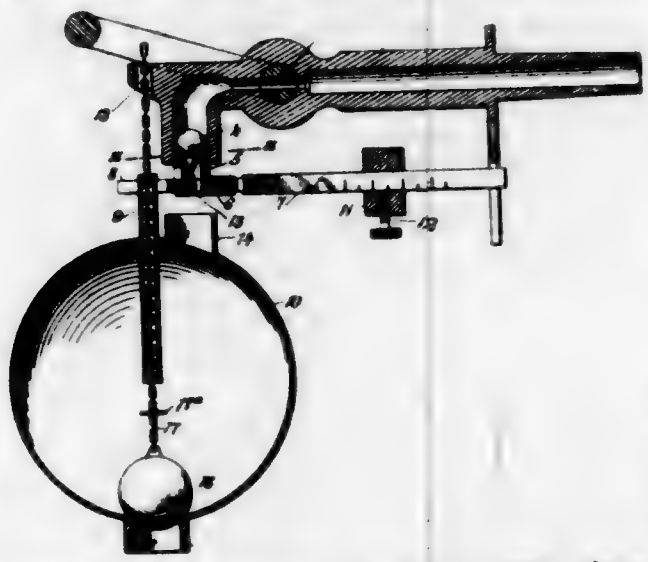
4. A speed recorder and register for vehicles, comprising a movable registering-surface having a plurality of divisions or scales, means for driving said surface, a marking apparatus movable in a plane parallel with the registering-surface and adapted to be moved into engagement with either of said scales, and mechanism operated by one of the rotating parts of the vehicle for changing the position of the marker periodically within the division or scale with which it temporarily engages.

5. A speed recorder and register for vehicles, comprising a movable registering-surface having a plurality of divisions or scales, a marker in permanent engagement with the registering-surface and movable in a plane parallel with the same, mechanism for operating the said marker, and means operated by one of the rotating parts of the vehicle for actuating the marker-operating mechanism alternately in opposite directions every time the vehicle has run a predetermined distance.

6. In combination with a recorder and register of the type described, a device for detachably fastening same to the vehicle, consisting of a box with an open front and serving as holder for the apparatus, a lid adapted to cover said box, the turnable hooks of said lid being brought in and out of engagement with pins attached to the box by a swinging bow, the said lid being secured in its closed position by a clamp which overlaps the cover with a hook-like catch and which can be secured to the box by a seal, a lock or the like.

7. A speed recorder and register for vehicles, comprising a registering mechanism operated by a clockwork and by a rotating part of the vehicle, an open-front box in which said mechanism is contained, a lid for covering said box, pivoted hooks carried by the lid and adapted to lock it to the box, a swinging bow for operating said hooks, and a clamp for holding the bow and lid in the closing position.

698,794. LIQUID-WEIGHING MACHINE. WILLIAM W. GEORGE, Winchester, Ky., assignor of one-half to Cornelius B. George, Winchester, Ky. Filed July 31, 1901. Serial No. 70,383. (No model.)



Claim.—1. A liquid-measuring apparatus comprising a faucet, a plug-valve in the faucet, a valve in the outlet end of the faucet, a scale-beam mounted to swing relatively to the faucet, means carried by said scale-beam for moving the last-named valve to open position, a receiving vessel having an inlet and an outlet, a valve for the outlet of said receiving vessel, and a connection between the said valve and the plug-valve, substantially as specified.

2. A liquid-measuring apparatus, comprising a faucet, a plug-valve in the faucet, a handle for operating the plug-valve, a valve in the outlet end of the faucet, a scale-beam mounted to swing relatively to the faucet, means carried by said scale-beam for moving the last-named valve to open position, a receiving vessel having an inlet and an outlet, a valve for the outlet of said receiving vessel, and connection between said valve and the handle of the plug-valve, substantially as specified.

3. In a measuring apparatus, a faucet, a plug-valve in said faucet, a handle for said plug-valve, a valve in the outlet end of the faucet, a scale-beam mounted to swing relatively to the faucet, a finger carried by said scale-beam for moving the last-named valve to open position, a receiving vessel supported by the scale-beam and having an inlet and outlet, a valve for said outlet, and a connection between said valve and the handle of the plug-valve, substantially as specified.

4. In a liquid-measuring apparatus, a faucet, a plug-valve in said faucet, a handle attached to said plug-valve, a valve for controlling the outlet end of the faucet, a tube having connection with said outlet end and forming a seat for the last-named valve, a scale-beam pivoted to said tube, a receiving vessel, a tube extended from the scale-beam into said receiving vessel, said receiving vessel having an inlet below the outlet of the faucet and having an outlet at its lower portion, a valve for said outlet of the receiving vessel, and a chain extended from said valve through the supporting-tube and connected with the plug-valve handle, substantially as specified.

5. A liquid-measuring apparatus comprising a faucet, a plug-valve in said faucet, a handle extended from the plug-valve, said faucet having a forward projection provided with an opening, a scale-beam mounted to swing relatively to the faucet, a valve in the outlet end of the faucet, a finger carried by the scale-beam for moving the said valve to open position, a tube connected to the scale-beam, a receiving vessel supported by said tube and into which the tube extends, the said receiving vessel having an inlet and an outlet, a valve for the outlet of the receiving vessel, a chain extended from said valve through the tube and through the opening in the projection of the faucet, and connecting with the plug-valve handle, substantially as specified.

698,795. RESPIRATORY APPARATUS. ERICH GIEBELER, Berlin, Germany, assignor to Sauerstoff-Fabrik Berlin, G. M. B. H., Berlin, Germany. Filed May 9, 1900. Serial No. 16,029. (No model.)



Claim.—A respiratory apparatus comprising an air-tight bag having a partition dividing it into two chambers, one for the oxygen and the other for the exhaled gas, a pipe communicating with the oxygen-chamber and a second pipe communicating with the exhaling-chamber, a rectangular piece attached to the outer ends of said pipes and forming a joint between the same, valves in said rectangular piece, the valve in the branch connected with the oxygen-chamber being adapted to permit the outlet of gas from that chamber and the one in the branch connected with the exhaling-chamber being adapted to permit the admission of gas into that chamber, a forked piece arranged on said rectangular piece adapted to be put into the nostrils, a cylinder being adapted to contain material for absorbing carbonic-acid gas and pipes connecting said cylinder with the inhaling and exhaling chambers, whereby the gas exhaled into the exhaling-chamber can pass from thence into the inhaling-chamber by way of the cylinder containing the carbonic-acid-gas-absorbing material and will be freed from carbonic-acid gas in such passage.

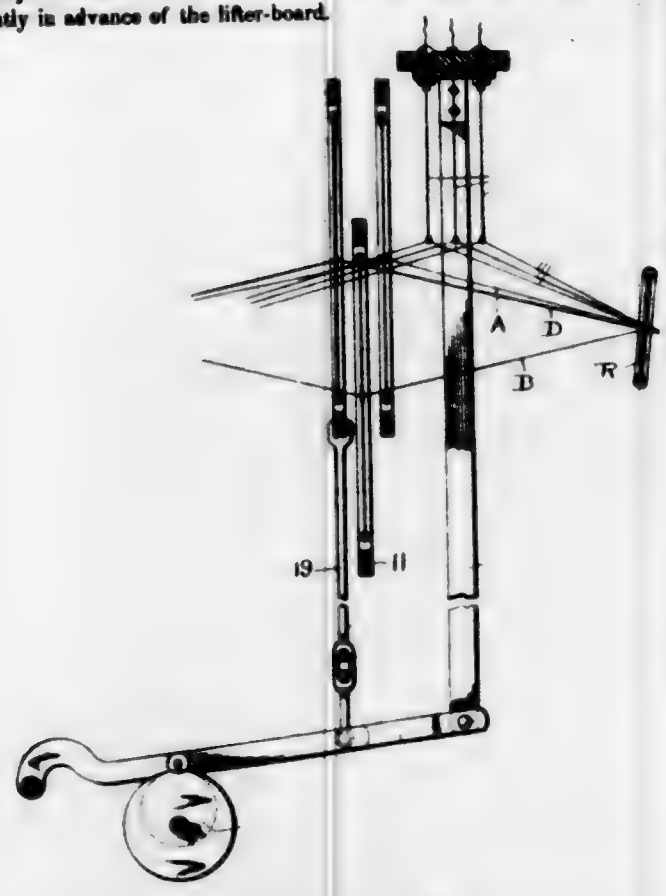
698,796. HARNESS-OPERATING MECHANISM FOR LOOMS. WALTER B. HARDING, Palmer, Mass., assignor to Matthew J. Whittall, Worcester, Mass. Filed May 18, 1901. Serial No. 60,860. (No model.)

Claim.—1. In a carpet-loom, the combination of the lifter-board for raising the worsted facing-threads, a stuffer-frame for introducing stuffer-threads which lie with the worsted threads not brought to the surface of the completed fabric, and means for raising and lowering the stuffer-frame independently of the lifter-board.

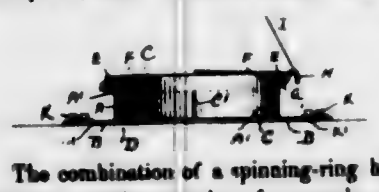
2. In a carpet-loom, the combination of the lifter-board for raising the worsted facing-threads, a stuffer-frame for introducing stuffer-threads which lie with the worsted threads not brought to the surface of the completed fabric, and operating connections for raising the lifter-board slightly in advance of the stuffer-frame, and for lowering the stuffer-frame slightly in advance of the lifter-board.

3. In a carpet-loom, the combination of the lifter-board for raising the worsted facing-threads, a stuffer-frame for introducing stuffer-threads which lie with the worsted threads not brought to the surface of the fabric, and cams connected to operate said parts, so that the lifter-board will rise slightly in advance of the stuffer-frame and so that the stuffer-frame will descend slightly in advance of the lifter-board.

4. In a carpet-loom, the combination of the lifter-board for raising the worsted facing-threads, a stuffer-frame for introducing stuffer-threads which lie with the worsted threads not brought to the surface of the fabric, cams connected by levers and links to operate the lifter-board, and box-cams set to act at a slight interval behind the lifter-board cams, and having flattened descending curves, and being connected through levers and links to operate the stuffer-frame, so that the lifter-board will rise slightly in advance of the stuffer-frame, and the stuffer-frame will descend slightly in advance of the lifter-board.



693,797. SPINNING-RING. DAVID HARRINGTON, Worcester, Mass. Filed Sept. 11, 1900. Serial No. 29,732. (No model.)



Claim.—1. The combination of a spinning-ring having a track on its outer periphery for a rotating traveler, of an annular traveler inclosing said track and capable of rotating thereon, a hook, or eye, on one side of said traveler to engage the yarn, and a counterweight on the opposite side of said traveler, substantially as described.

2. A spinning-ring traveler capable of a rotary movement and having a hook, or eye, on one side to engage the yarn, and provided on its opposite side with means to counterbalance the centrifugal force of said hook, or eye, substantially as described.

3. The within-described annular traveler for ring-spinning, consisting of a wire bent at its central section to form a hook H, and twisted at H′ and H², and bent to form circular sides H³ H³, substantially as described.

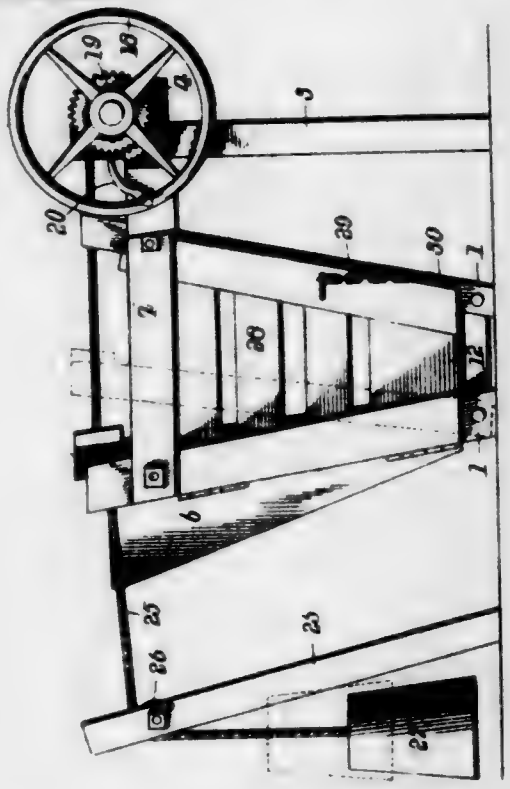
4. A spinning-ring, composed of two telescopic sections, one of which has an outwardly-extending flange between which and the adjacent edge of the other section an external groove is formed to receive and guide a traveler.

5. In a spinning-ring, the combination of two telescopic sections, one of said sections being adapted to be fixed to the rail of a spinning-frame and the other section being frictionally held by said fixed section and removable therefrom, an exterior flange at the upper edge of said removable section with a portion of the periphery of said removable section exposed to the action of a rotating traveler whereby the wear incident to the rotation of the traveler is confined to said removable section, substantially as described.

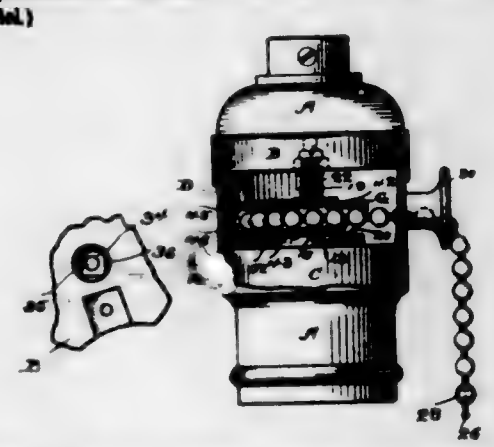
6. The combination in a spinning-ring of an outer section A, provided with an exterior flange B and an interior flange D, an inner section C, having an exterior flange E raised above the edge A′ of the section A, substantially as described.

693,798. BRANDING-CHUTE. JOHN HERRYOTT, Albany, Tex. Filed Sept. 26, 1901. Serial No. 76,622. (No model.)

Claim.—In a branding-chute, a stationary inclined side wall comprising posts having side rails secured thereto, a drop side wall comprising posts and side rails, said drop-wall tapering upwardly, straps pivotally secured to the end posts of the drop side wall and the end posts of the stationary wall, stationary vertical uprights in alinement with the posts of said stationary side wall and located away therefrom, cross-bars rigidly secured to each of said posts of the stationary inclined side wall and to each of said vertical uprights at their upper ends, a shaft journaled to the rear faces of said vertical uprights carrying a hand-wheel and a ratchet, a pawl carried by one of said cross-bars for engagement with said ratchet, an inclined stationary upright located adjacent to but away from said drop-wall with a pulley mounted in its upper end, a cord connected to said shaft and passing through said side wall to which it is rigidly secured, said cord passing over the pulley in said inclined upright and having a weight connected to its end, a pair of stationary inclined posts located one at each end of the drop-wall of the chute, a triangular strip carried by one of the posts of the drop side wall, and a gate hinged to one of said stationary inclined posts below the cross-bar connected to said post, substantially as described.



693,799. PULL-SOCKET. HARVEY HUBBELL, Bridgeport, Conn., assignor to the Hubbell, Grier Electric Company, Bridgeport, Conn., a Corporation of New York. Filed July 24, 1901. Serial No. 69,566. (No model.)



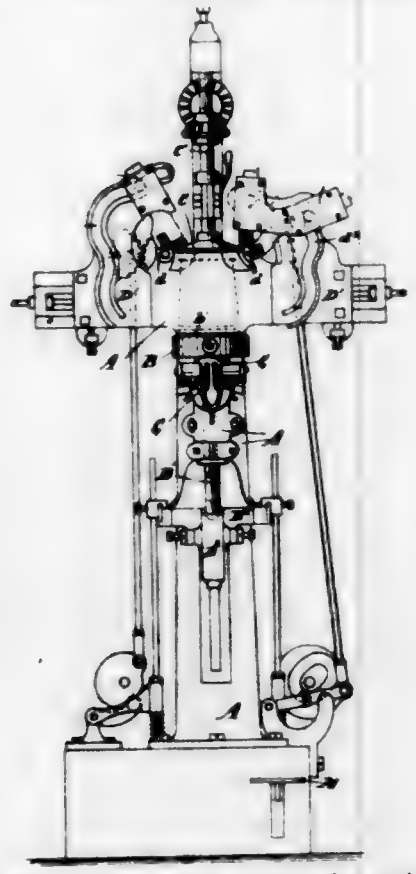
Claim.—1. The insulating operating-wheel H comprising insulating-plates 42 and 43 and metallic plate 44 having notch 46.

2. In a device of the character described the combination with a chain having projections and reduced portions, of an insulating operating-wheel consisting of two insulating-plates secured to a metal strip lying edgewise between them so as to form a groove to receive the chain, one end of the strip being turned outward to form a socket to receive a projection and having a notch to receive a reduced portion of the chain.

3. In a device of the character described the combination with an upper insulating-block having an angular socket 34, a pin having an angular head engaging said socket and an insulating operating-wheel adapted to oscillate on the pin, of a lower insulating-block having a screw extending upward through it and provided with a socket 38, a spring 37 in

said socket upon which the pin rests and a spring 22, one end of which is attached to the head of the pin and the other to the insulating operating-wheel, so that when the head is disengaged from the socket 34 the pin may be turned in either direction to adjust the tension of spring 22, spring 37 acting to seat the head in the socket and retain spring 22 at the desired adjustment.

698,800. COMBINED DOUBLE-SEAMING AND EDGE-ROLLING MACHINE. BERNARD H. LARKIN, River Forrest, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 22, 1900. Serial No. 33,925. (No model.)



Claim.—1. In a metal-seaming machine, the combination with a pair of can-holder chucks or disks, of seaming-tools, sliding tool-holders, rocking heads and cams for seaming the can-head to the can-body at one end thereof, of edge-rolling tools journaled on the lower can-holder chuck, to roll the lower edge of the can-body, and means for stopping or arresting the rotation of the lower can-holder chuck during such edge-rolling operation, and mechanism for operating said stopping or arresting means by the upward movement of the lower can-holder chuck, substantially as specified.

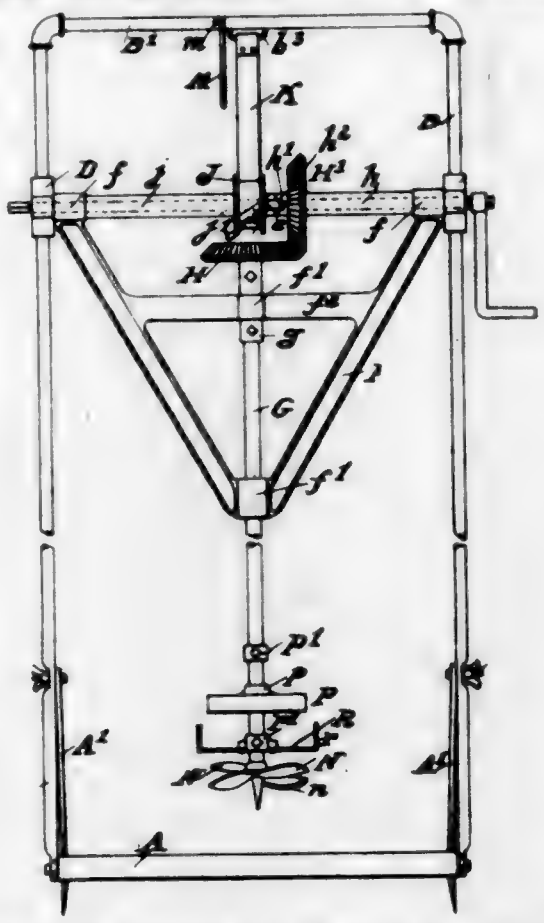
2. In a seaming-machine, the combination with rotary can-holder chucks or disks, of seaming-tools and mechanism for operating the same to seam the can-head to the can-body at one end thereof, edge-rolling tools on the lower can-holder disk for edge-rolling of the lower end of the can-body, and a pair of braking or gripping jaws to stop or arrest the rotation of the lower chuck-spindle, and means for closing said jaws by the upward movement of the lower chuck-spindle, substantially as specified.

3. In a seaming-machine, the combination with rotary can-holder chucks or disks, of seaming-tools and mechanism for operating the same to seam the can-head to the can-body at one end thereof, edge-rolling tools on the lower can-holder disk for edge-rolling the lower end of the can-body, a pair of braking or gripping jaws to stop or arrest the rotation of the lower chuck-spindle, and provided with cams or projections to cause said gripping-jaws to be closed by the upward movement of the chuck-spindle, substantially as specified.

4. In a seaming-machine, the combination with rotary can-holder chucks or disks, of seaming-tools and mechanism for operating the same to seam the can-head to the can-body at one end thereof, edge-rolling tools on the lower can-holder disk for edge-rolling the lower end of the can-body, a pair of braking or gripping jaws to stop or arrest the rotation of the lower chuck-spindle, provided with cams or projections to cause said gripping-jaws to be closed by the upward movement of the chuck-spindle, and movable cams or dogs engaging the cams or projections on the gripping-jaws, to cause said jaws to be closed by passing said dogs on their upward movement but not on their downward movement, substantially as specified.

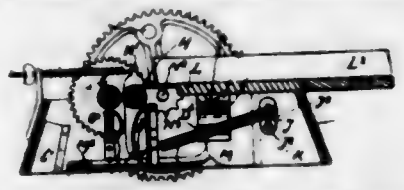
5. In a seaming-machine, the combination with rotary can-holder chucks or disks, of seaming-tools and mechanism for operating the same to seam the can-head to the can-body at one end thereof, edge-rolling tools on the lower can-holder disk for edge-rolling the lower end of the can-body, a pair of braking or gripping jaws to stop or arrest the rotation of the lower chuck-spindle, provided with cams or projections to cause said gripping-jaws to be closed by the upward movement of the chuck-spindle, movable cams or dogs engaging the cams or projections on the gripping-jaws, to cause said jaws to be closed by passing said dogs on their upward movement but not on their downward movement, and further cams or dogs to cause said gripping-jaws to be closed to again stop the rotation of the lower spindle to permit the cams to be placed therein, substantially as specified.

693,801. POST-HOLE DIGGER. RICHARD L. LEAVERTON, Springfield, Ill. Filed Apr 27, 1901. Serial No. 57,828. (No model.)



Claim.—In a post-hole auger, the combination of an auger-shaft, concavo-convex blades secured on said shaft, bits pivoted to turn on the under side of said auger-blades, each of said bits having two beveled blades of different lengths, and stops on the under side of said concavo-convex blades adapted to permit the turning of said beveled blades in one direction and serving to prevent the turning of said beveled blades in the opposite direction, as set forth.

698,802. HAIR-PICKER. FRANCIS HACKE, San Francisco, Cal. Filed May 7, 1901. Serial No. 59,166. (No model.)



Claim.—1. A picker of the kind described, comprising means for feeding the material to be picked, fixed grates on each side of the line of feed of said material between which said material may pass from said mechanism, a comb adapted to be thrust through said grates and any material passing therebetween, and means for operating the comb, substantially as described.

2. A picker of the kind described, comprising feeding means for the material to be picked, fixed grates located one on each side of the line of feed, a comb adapted to be thrust through said grates and any material passing therebetween, and means for operating the comb, substantially as described.

3. A picker of the kind described, comprising feed-rolls for the material to be picked, means for operating the rolls, fixed grates located adjacent each side of the line of feed from the rolls, a reciprocating oscillating comb adapted to be thrust through said grates, and means for operating the comb, substantially as described.

4. A picker of the kind described, comprising means for feeding the material to be picked, oppositely-disposed grates arranged out of the path

of the material discharged from the feeding means, a comb mounted independently of the grates adapted to be thrust through both grates and any material therebetween, and means for operating the comb, substantially as described.

5. A picker of the kind described, comprising rollers adjustable in relation to each other and arranged to feed the material to be picked, means for operating said rollers, oppositely-curved grate-bars between which the fed material passes, an oscillatory reciprocating comb moved at greater speed than said rollers and acting to pull the material therefrom through said grate-bars, and means for operating the comb, substantially as described.

6. A picker of the kind described, comprising self-adjusting feed-rolls for the material to be picked, means for operating the rolls, oppositely-disposed separated grates guiding the material therefrom, a pivotally mounted comb adapted to be thrust into said material through said grates, guides along which the pivots of said comb can slide, and means for operating the comb, substantially as described.

7. A picker of the kind described, comprising feed mechanism, grates between which the material to be picked may pass from said mechanism, a comb adapted to act in conjunction with the grates upon the material fed therethrough, actuating means for the comb, and means for adjusting said actuating means to vary the sweep of the comb, substantially as described.

8. A picker of the kind described, comprising feed mechanism for the material to be picked, grates between which said material is fed by said mechanism, an oscillatory comb adapted to be reciprocated through said grates, adjustable guides for said comb to accommodate it to the length of the material to be operated upon by the machine, and means for operating the comb, substantially as described.

9. A picker of the kind described, comprising feeding means, grates between which the material to be picked passes from said feeding means, a comb adapted to operate on said material through the grates, means for operating the comb, a fan, means for operating the fan, and a tube M operating to direct a blast of air from the fan onto the picked material as it leaves the grates, substantially as described.

10. A picker of the kind described, comprising feeding means, oppositely-disposed curved grate-bars adjacent said feeding means, a comb adapted to be thrust through the grate-bars, and means for operating the comb, substantially as described.

11. A picker of the kind described, comprising rotary feeding means for material to be operated upon, oppositely-disposed curved grate-bars adjacent said feeding means, a comb adapted to be thrust through the grate-bars, and means for operating the comb to pull the material away from the feeding means, substantially as and for the purpose described.

12. A picker of the kind described, comprising feeding means for the material to be picked, a grate adjacent the line of feed from said feeding means but out of the path thereof, a comb adapted to be thrust through said grate, the teeth of the comb extending in the same general direction as the body thereof, and means for operating the comb, substantially as described.

693,808. MACHINE FOR SOLDERING OR UNITING SEAMS OF SHEET-METAL CANS. EDWIN NORTON, Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Sept. 10, 1900. Serial No. 29,573. (No model.)

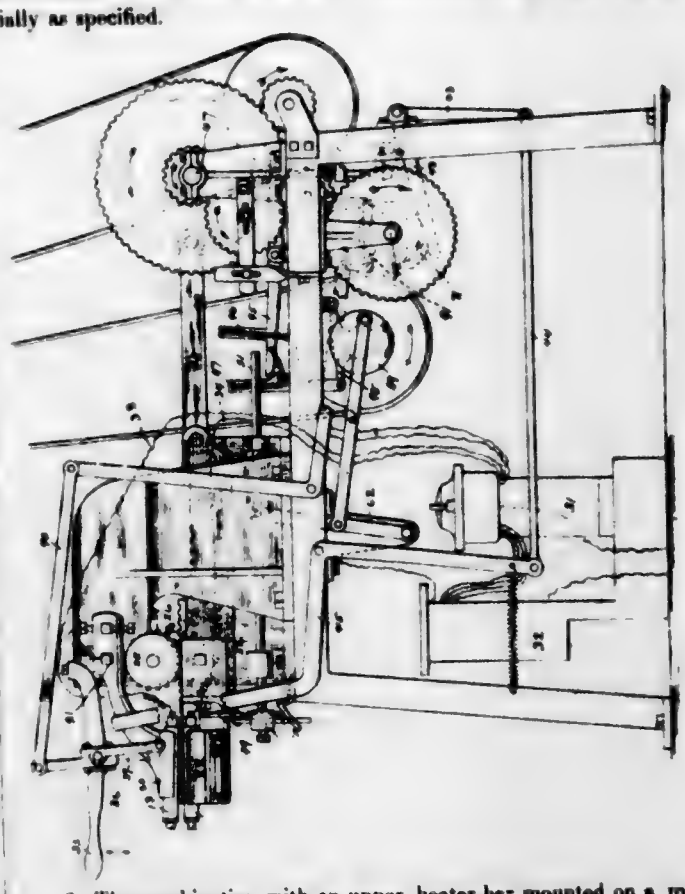
Claim.—1. In a machine for uniting together the parts or folds of a seam or joint of tin-plate, or other sheet metal having a soft fusible metal coating, the combination with a pair of heater-bars between which the parts of the seam to be united may be clamped or embraced, and a pair of electric heaters for heating said bars, whereby the proper extent and degree of heat may be applied for forming perfect joints with certainty and uniformity and without injuring the stock, substantially as specified.

2. The combination of a pair of hollow heater-bars adapted to embrace the parts of a metal seam between them, and a pair of electric heaters or carbons inside said heater-bars, whereby the proper extent and degree of heat may be applied for forming perfect joints with certainty and uniformity and without injuring the stock, substantially as specified.

3. The combination with a pair of hollow heater-bars adapted to embrace the parts of a metal seam between them, a pair of electric heaters or carbons inside said heater-bars, whereby the proper extent and degree of heat may be applied for forming perfect joints with certainty and uniformity and without injuring the stock, and a seam-compressing roller, substantially as specified.

4. The combination with a pair of hollow heater-bars adapted to embrace the parts of a metal seam between them, a pair of electric heaters or carbons inside said heater-bars, a seam-compressing roller, one of said heater-bars and said roller having a reciprocating motion in respect to each other, substantially as specified.

5. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar carried by a reciprocating slide, electric heaters inside said heater-bars, and a seam-compressing roller, substantially as specified.



6. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn over which a can-body may be passed, electric heaters inside the heater-bars, means for holding the heater-bars in contact with the seam and means for automatically releasing or separating the heater-bars to secure uniformity of the heating or fusing operation, substantially as specified.

7. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, means for closing the upper heater-bar upon the seam and automatically releasing or separating the same from contact therewith, substantially as specified.

8. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, means for closing the upper heater-bar upon the seam and automatically releasing or separating the same from contact therewith, and a seam-compressing roller coöperating with the lower heater-bar, substantially as specified.

9. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, means for closing the upper heater-bar upon the seam and automatically releasing or separating the same from contact therewith, and electric heaters inside said heater-bars, substantially as specified.

10. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, means for closing the upper heater-bar upon the seam and automatically releasing or separating the same from contact therewith, electric heaters inside said heater-bars, and a seam-compressing roller coöperating with the lower heater-bar, substantially as specified.

11. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, means for closing the upper heater-bar upon the seam and automatically releasing or separating the same from contact therewith, electric heaters inside said heater-bars, a seam-compressing roller coöperating with the lower heater-bar, and a can-body ejector or extractor, substantially as specified.

12. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, and a seam-compressing roller coöperating with the lower heater-bar, substantially as specified.

13. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, a reciprocating slide carrying the horn, and a seam-compressing roller, substantially as specified.

14. The combination with an upper heater-bar mounted on a movable arm, of a lower heater bar mounted on a horn, a seam-compressing roller coöperating with the lower heater-bar, and a can-body ejector, substantially as specified.

15. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, a reciprocating slide carrying the horn, a seam-compressing roller, and a can-body ejector, substantially as specified.

16. The combination with an upper heater-bar mounted on a movable arm, of a lower heater-bar mounted on a horn, a reciprocating slide carrying the horn, a seam-compressing roller, a can-body ejector, and mechanism for automatically operating said parts, substantially as specified.

17. The combination with a pair of heater-bars, of a pair of electric heaters inside said heater-bars, whereby the proper extent and degree of heat may be applied for forming perfect joints with certainty and uniformity and without injuring the stock, and means for compressing the folds or parts of the seam after the tin coating thereof has been fused, substantially as specified.

18. The combination with a pair of heater-bars, of a pair of electric heaters inside said heater-bars, whereby the proper extent and degree of heat may be applied for forming perfect joints with certainty and uniformity and without injuring the stock, means for compressing the folds or parts of the seam after the tin coating thereof has been fused, and a device for automatically ejecting the can-bodies, substantially as specified.

19. The combination with a pair of heater-bars, of a pair of electric heaters inside said bars, and means for automatically releasing or separating the heater-bars, substantially as specified.

20. The combination with a pair of heater-bars, of a pair of electric heaters inside said bars, means for automatically releasing or separating the heater-bars, and a seam-compressing roller, substantially as specified.

21. The combination with a pair of hollow heater-bars, of a pair of electric-heater carbons inside said bars, and metal caps electrically connected to said carbons at each end, one of said caps being insulated from said heater-bar and the other not, substantially as specified.

22. The combination with a pair of hollow heater-bars, electric-heater carbons inside said bars, a seam-compressing roller, and a can-body ejector, means for automatically releasing or separating the upper heater-bar from the lower heater-bar, means for automatically reciprocating the lower heater-bar, and means for automatically operating the can-body ejector, substantially as specified.

23. The combination with a pair of heater-bars adapted to embrace the parts of a metal seam between them, and an electric heater or carbon inside one of said bars, whereby the proper extent and degree of heat may be applied for forming perfect joints with certainty and uniformity and without injuring the stock, substantially as specified.

24. The combination with a pair of heater-bars adapted to embrace the parts of a metal seam between them, and means for automatically releasing or separating the heater-bars to secure uniformity of the heating or fusing operation, substantially as specified.

693,804. MACHINE FOR AUTOMATICALLY SWEATING OR UNITING WITHOUT SOLDER THE SIDE SEAMS OF SHEET-METAL CAN-BODIES.

EDWIN NORTON and ARTHUR P. KENNEDY, Maywood, Ill., assignors, by mesne assignments, to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Sept. 10, 1900. Serial No. 29,574. (No model.)

Claims.—1. The combination with a movable carrier or table, of a series of pairs of heater-bars mounted thereon, electric heaters inside said bars, a pair of contact or collector rings on said carrier, a series of movable arms upon which the upper heater-bars are mounted, a series of horns upon which the lower series of heater-bars are mounted, a reciprocating seam-compressing roller, a reciprocating can-body ejector, a cam or track for elevating the upper heater-bars, and a support for the outer end of each of said horns in turn while under action of the seam-compressing roller, substantially as specified.

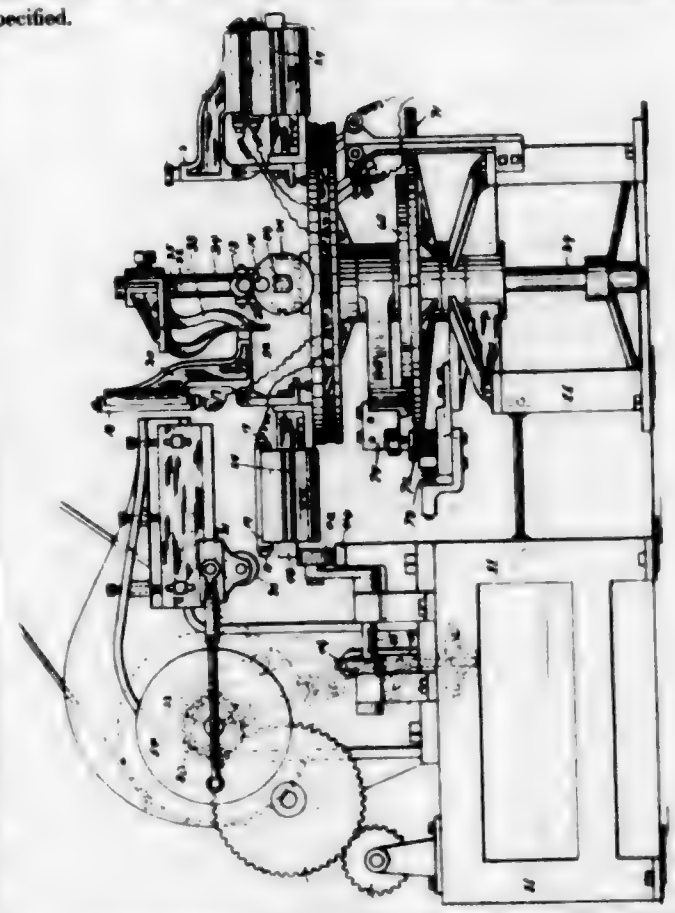
2. The combination with a movable carrier, a series of horns mounted thereon, a series of lower heater-bars secured to said horns, a series of upper heater-bars, and a series of movable arms to which said upper heater-bars are secured, substantially as specified.

3. The combination with a movable carrier, a series of horns mounted thereon, a series of lower heater-bars secured to said horns, a series of upper heater-bars, a series of movable arms to which said upper heater-bars are secured, and a stationary cam or track for lifting or raising the upper heat-bar-carrying arms, substantially as specified.

4. The combination with a movable carrier, a series of horns mounted thereon, a series of lower heater-bars secured to said horns, a series of movable arms to which said upper heater-bars are secured, and a seam-compression roller mounted upon a reciprocating slide, substantially as specified.

5. The combination with a movable carrier, a series of horns mounted thereon, a series of lower heater-bars secured to said horns, a series of upper heater-bars, a series of movable arms to which said upper heater-bars are secured, a seam-compression roller mounted upon a reciprocating slide, and a support for the outer end of each horn in turn while being operated upon by the seaming-roller, substantially as specified.

6. The combination with a movable carrier, a series of horns mounted thereon, a series of lower heater-bars secured to said horns, a series of upper heater-bars, a series of movable arms to which said upper heater-bars are secured, and a reciprocating can-body ejector, substantially as specified.



7. The combination with a movable carrier, a series of horns mounted thereon, a series of lower heater-bars secured to said horns, a series of movable arms to which said upper heater-bars are secured, a seam-compression roller mounted upon a reciprocating slide, and a can-body ejector mounted upon a reciprocating slide, substantially as specified.

8. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, and a series of electric heaters or carbons inside said bars and electric contacts or connections for the heaters, substantially as specified.

9. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, and contact or collector rings on said carrier and with which said electric heaters or carbons are connected in multiple, substantially as specified.

10. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, and contact or collector rings on said carrier and with which said electric heaters or carbons are connected in multiple, the upper heater-bars of each pair being secured to movable arms on said carrier, substantially as specified.

11. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, and contact or collector rings on said carrier and with which said electric heaters or carbons are connected in multiple, the upper heater-bars of each pair being secured to movable arms on said carrier, and a cam or track for lifting or raising said arms, substantially as specified.

12. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, and contact or collector rings on said carrier and with which said electric heaters or carbons are connected in multiple, the upper heater-bars of each pair being secured to movable arms on said carrier, a cam or track for lifting or raising said arms, and a seam-compressing device, substantially as specified.

13. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, and electric contacts or connections for the heaters, and a seam-compressing device, substantially as specified.

14. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, and electric contacts or connections for the heaters, a seam-compressing device, and a can-body ejector, substantially as specified.

15. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, contact or collector rings on said carrier and with which said electric heaters or carbons are connected in multiple, the upper heater-bars of each pair being secured to movable arms on said carrier, a seam-

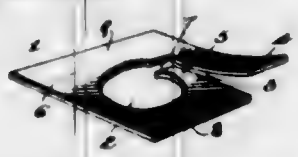
compressing roller and a reciprocating slide upon which it is mounted, substantially as specified.

16. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, contact or collector rings on said carrier and with which said electric heaters or carbons are connected in multiple, the upper heater-bars of each pair being secured to movable arms on said carrier, a cam or track for lifting or raising said arms, a seam-compressing roller and a reciprocating slide upon which it is mounted, substantially as specified.

17. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, contact or collector rings on said carrier and with which said electric heaters or carbons are connected in multiple, the upper heater-bars of each pair being secured to movable arms on said carrier, a cam or track for lifting or raising said arms, a seam-compressing roller and a reciprocating slide upon which it is mounted, and a reciprocating can-body ejector, substantially as specified.

18. The combination with a movable carrier, of a series of pairs of heater-bars mounted thereon, a series of electric heaters or carbons inside said bars, a series of horns on said carrier to which the lower heater-bars of each pair are secured, a seam-compressing roller, a reciprocating slide upon which said roller is mounted, and a device engaged by the horn for setting said reciprocating seam-compressing-roller-carrying slide in operation, substantially as specified.

698,805. NUT-LOCK. THOMAS M. PRICE, Itasca, Tex., assignor of one-half to Jay S. Richard, Itasca, Tex. Filed May 18, 1901. Serial No. 60,598. (No model.)



Claim.—A nut-lock comprising a base-washer having a bolt-receiving opening therethrough, said washer having a straight slit extending into the base from one edge to a point in line with the opposite edge of the bolt-receiving opening and extending from said point in a straight line into the opening at said opposite edge, thereby forming a pair of oppositely-projecting tongues 4 and 5, the outer tongue 4 being offset and arranged at an inclination to the remainder of the washer, the inner tongue 5 being located inside of the outer tongue, said inner tongue and the portion 8 of the washer between its base and the opposite edge of said washer being offset and arranged at an inclination to the remainder of the washer and being furthermore offset on the opposite side to the tongue 4, whereby, when the washer is placed upon a fish-plate the outer tongue 4 and the portion 9 of the washer between its base and the opposite edge of the said washer will be raised above said fish-plate and constitute a locking-tongue that extends the length of two sides of the washer, said inner tongue 5 comprising a broad bearing-foot at its free terminal, and a contracted spring-shank between the terminal foot and its base.

698,806. AUTOMATIC MEANS FOR REGULATING BRAKE-SHOES. WILLIAM H. SAUVAGE, Denver, Colo., assignor of one-half to Chrestus A. Tripp, Denver, Colo. Filed Dec. 5, 1900. Serial No. 38,848. (No model.)

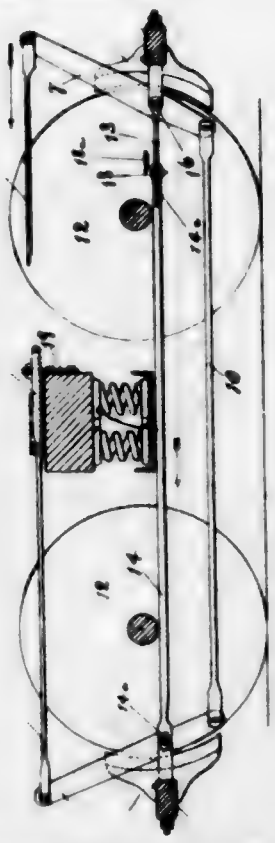
Claim.—1. The combination with brake mechanism, of a connection between the brake-beams, comprising two frictionally-held telescoping parts, said connection being arranged to take up the superfluous slack as the braking force is applied, and at the same time hold the parts in the adjusted position after the braking force ceases to act.

2. The combination with brake mechanism, of means for automatically retaining the brake-shoes at a predetermined distance from the car-wheels, said means comprising a two-part frictionally-held connection between the brake-beams, the two parts being in axial alinement and normally acting as an integral device, but arranged to move to take up and hold the slack when necessary.

3. The combination with brake mechanism, of means for automatically taking up the superfluous slack as the braking force is applied, comprising a connection between the brake-beams consisting of two telescoping frictionally-held parts, and a ratchet-rod connected with the fulcrum of the dead truck-lever and allowing it to move as the brakes are released, to compensate for the limited movement of the fulcrum-point of the live truck-lever, and a dog engaging the ratchet-rod for holding the dead truck-lever in the adjusted position.

4. The combination with brake mechanism, of a connection between the brake-beams comprising two frictionally-held telescoping parts, one of the said parts being slotted, and a pin passed through the said slot for fastening the part to the brake-beam.

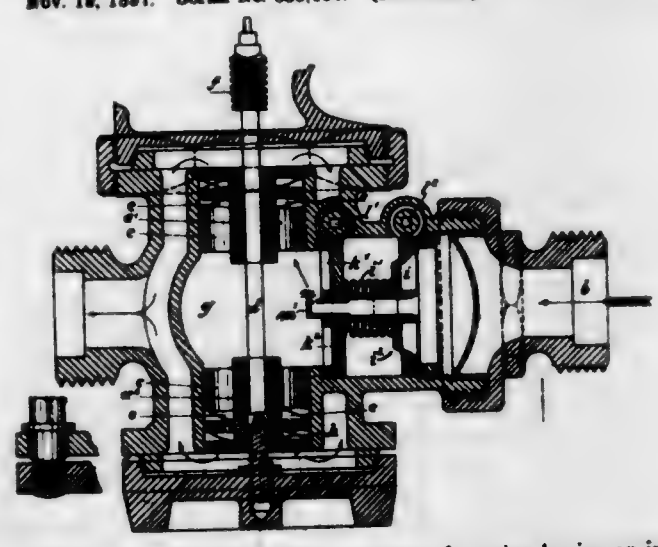
5. The combination with brake mechanism, of a two-part telescopic connection between the brake-beams, for taking up the superfluous slack, a frictional connection between the two telescopic parts, the arrangement being such that the two parts normally act as an integral device but are allowed to move to take up and hold the slack when necessary, one of the said parts being slotted, and a fastening device passing through said slot to permit the brake-shoes to move a predetermined distance from the wheels when the braking force is released.



6. The combination with brake mechanism, of a bar connected with one brake-beam, and a rod connected with the other brake-beam, the bar being hollow a portion of its length to receive the rod and take up the slack as the braking force is applied, the rod and the bar being in axial alinement, and a frictional connection between the two parts whereby they normally act as an integral device but are allowed to move to take up and hold the slack when necessary.

7. The combination with brake mechanism, of a bar connected with one brake-beam, and a rod connected with the other brake-beam, the bar being hollow a portion of its length to receive the rod and take up the slack as the braking force is applied, and a clamping device applied to the hollow, open extremity of the bar which is slotted, to regulate the friction between the parts whereby they are maintained in the adjusted position after taking up the slack.

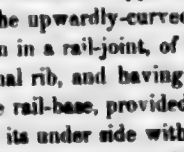
698,807. TURBINE FOR WATER-METERS. JOSEPH SCHMITZ, Cologne, Germany, assignor to Emil Zaum, Cologne, Germany. Filed Nov. 19, 1897. Serial No. 659,197. (No model.)



Claim.—1. The combination in a meter of a casing having an inlet, with a pair of perforated disks, a worm for adjusting said disks during the operation of the meter, a pair of perforated helicoidal turbines having each a channeled body and a helicoidal head, a shaft on which the turbines are mounted, and an intermediate inlet-chamber with which the channeled bodies of the turbines communicate, substantially as specified.

2. The combination in a meter of a casing with a rotatable valve having a hollow shaft, a pair of adjustable perforated disks mounted upon said shaft, and a pair of perforated helicoidal turbines within the casing, substantially as specified.

698,808. RAIL-JOINT. WILLIAM H. SHIPE and JOSEPH P. GLEASON, Scottdale, Pa. Filed Aug. 10, 1901. Serial No. 71,637. (No model.)



Claim.—1. The combination substantially as herein described, of the rails, the joint devices comprising the chair having a base-plate and provided at one side with the wing to fit in the hollow of the rails, and at its opposite side with a seat portion curved in cross-section depressed at its lower edge below the outer side of the base-plate and curving thence upwardly and inwardly and opening toward the opposite wing and having its free edge slightly inturned, the base of the rail being arranged to extend slightly within the hollow of the said seat portion, and the key provided at its outer edge with a rib to fit within the seat portion of the chair and having in the inner side of said rib a longitudinal groove to receive the outer edge of the base of the rail, said key being provided in its upper side with a longitudinal groove to receive the inturned edge of the seat portion and having a web extending inwardly beyond said groove and bearing upon the base of the rail, substantially as set forth.

2. The combination of the chair having a seat portion for the key provided with a free edge, and the key provided in its upper side with a groove to receive the edge of the seat portion and in its under side with a groove to receive the edge of the rail-base, substantially as set forth.

3. The chair having a base-plate provided at one side with a seat portion to receive the key and the key having at its outer edge a rib to fit in said seat portion, and provided in its upper side with a longitudinal shoulder for abutment by the edge of the seat portion, substantially as set forth.

4. In a rail-joint, the combination of the chair having a base-plate and provided at one side thereof with a curved portion which dips below the level of the base and curves thence upwardly and inwardly, the rail fitted to the chair and the key having a curved portion corresponding to that of the chair and provided in its upper side with a longitudinal groove to receive the edge of the upwardly-curved portion of the chair.

5. The combination in a rail-joint, of the key provided at its outer edge with the longitudinal rib, and having the inwardly-projecting web portion to bear upon the rail-base, provided in its upper side with a longitudinal groove and in its under side with the longitudinal groove, and the chair having a seat portion to receive said key, substantially as set forth.

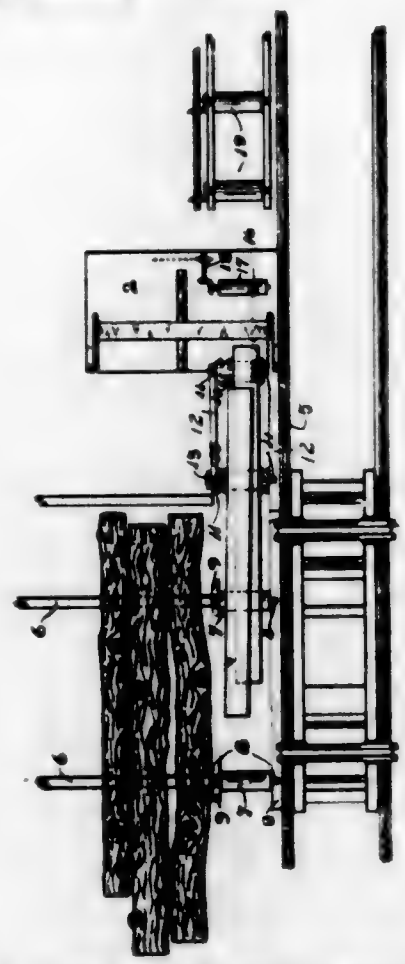
698,809. LUMBER-CONVEYER FOR DOUBLE-CUTTING BAND-MILLS. EDWIN R. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn. Filed Aug. 20, 1901. Serial No. 72,649. (No model.)

Claim.—1. In a band-mill, the combination, with the saw, log-deck and carriage, of one or more idle rolls interposed upon stationary supports between the deck and carriage and on a level substantially with the top of the log-skids and the carriage head-blocks, and upon which the logs are rolled from the deck to the carriage, substantially as described.

2. In a double-cutting band-mill, the combination, with the saw, log-deck and carriage, of lumber-conveying means provided between said saw and deck, and whereon the lumber falls that is cut on the backward or return movement of the carriage, and idle rolls provided upon stationary supports between said deck and carriage and on substantially the same level with said lumber-conveying means and the carriage head-block, substantially as described and for the purpose specified.

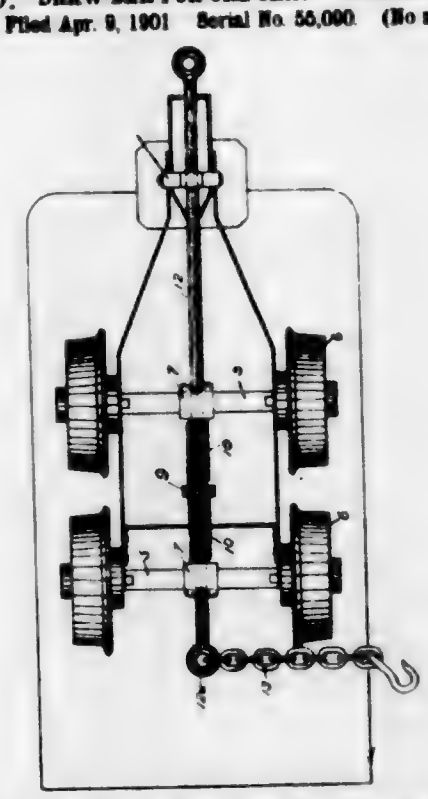
3. In a double-cutting band-mill, the combination, with the saw, log-deck and carriage, of one or more revolving spiked rolls provided between said saw and deck, idle rolls provided upon stationary supports between said deck and carriage, parallel with said spiked rolls, and said spiked and idle rolls being on a level substantially with the top of the head-blocks and the log-skids, as described, and whereon the lumber falls that is cut on the return movement of the carriage, substantially as described.

4. In a double-cutting band-mill, the combination, with a saw, the log-deck and carriage, of a revolving spiked roll provided near said saw, a similar revolving roll provided near the log-deck parallel with said first-named roll, said rolls being on a level substantially with the log-deck and the carriage head-blocks, idle rolls provided upon stationary supports between said log-deck and carriage and forming a continuation of the log-skids and on substantially the same level therewith, and the carriage head-blocks and on which idle rolls the logs are rolled from the deck to the carriage, substantially as described.



5. In a double-cutting band-mill, the combination, with the saw, log-deck and carriage, of lumber-conveying means provided between said saw and deck and whereon the lumber falls that is cut on the backward or return movement of the carriage, and idle rolls provided between said deck and carriage and on substantially the same level with said lumber-conveying means and the carriage head-blocks, said rolls serving as skids over which the logs are rolled from the deck to the carriage and as supports for the ends of the lumber that fall upon said lumber-conveying means, substantially as described.

698,810. DRAW-BAR FOR ORE-CARS. GEORGE E. TEDAL, Denver, Colo. Filed Apr. 9, 1901. Serial No. 55,090. (No model.)



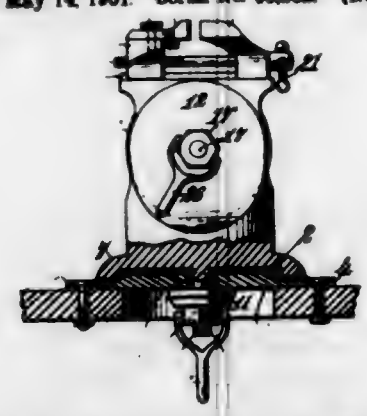
Claim.—1. The combination with the axles and boxes mounted thereon, of a draw-bar slidable in the boxes, a stop on the draw-bar between the axles, and a coil-spring mounted on the draw-bar and interposed between the said stop and each box, the arrangement being such that the car may be pulled by applying power to either extremity of the draw-bar.

2. The combination with the axles, of a draw-bar slidably mounted on the axles, a stop on the draw-bar, between the axles, and a coil-spring located between the stop and each axle, whereby the stop acts on one spring to move the car in one direction and on the other spring to move the car in the opposite direction.

3. The combination with the car-axles, of boxes secured thereto and provided with openings, a draw-bar engaging said openings and slidable in the boxes, a stop fast on the draw-bar, and a coil-spring interposed between the stop and each box.

4. The combination with the car-truck, of a draw-bar slidable on the truck, and provided with a stop, a coil-spring surrounding the draw-bar on each side of the stop, stops on the truck, engaging the opposite extremity of each spring, and a bracket mounted on the truck near one end of the car and forming a guide for the draw-bar.

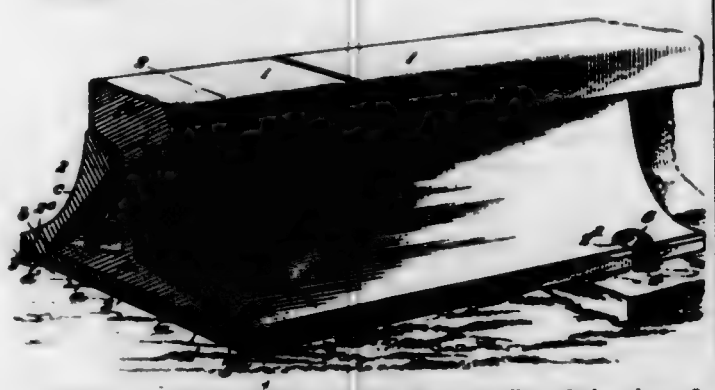
693,811. **BENCH-VISE.** CHANDLER I. YONGE, Tampa, Fla., assignor of two-thirds to John C. Griswell and Theodore Lesley, Tampa, Fla. Filed May 14, 1901. Serial No. 60,202. (No model.)



Claim.—1. In a vise, a base-plate having a ridge on its upper face, a base mounted upon said base-plate, provided with a recess to receive said ridge, and capable of horizontal adjustment upon the said base-plate, vertically-extending means connected to said base for securing it in its adjusted position upon said base-plate, a pair of upwardly-extending ears integral with said base, a supporting-plate pivotally mounted in said ears, provided in one side with a series of recesses and capable of being adjusted to various vertical planes, means connected to one of said ears, extending through the same and engaging in said supporting-plate for securing it in its adjusted position, a fixed jaw secured to said supporting-plate, a longitudinally-adjustable sliding jaw formed of two sections and suitably connected to said supporting-plate, means for longitudinally adjusting said sliding jaw, and means for adjusting one of the sections of the said sliding jaw in relation to said fixed jaw, substantially as herein shown and described.

2. In a vise, a base capable of horizontal adjustment, vertically-extending means for securing said base in its adjusted position, a spanner connected to said vertical adjusting means for releasing the same, a fixed and sliding jaw connected to said base and capable of being adjusted in various vertical planes, a spring-actuated means for securing said jaws in their adjusted position, said sliding jaw formed in two sections, means for adjusting one of the sections of the sliding jaw in relation to said fixed jaw, and means for longitudinally adjusting said sliding jaw in relation to said fixed jaw.

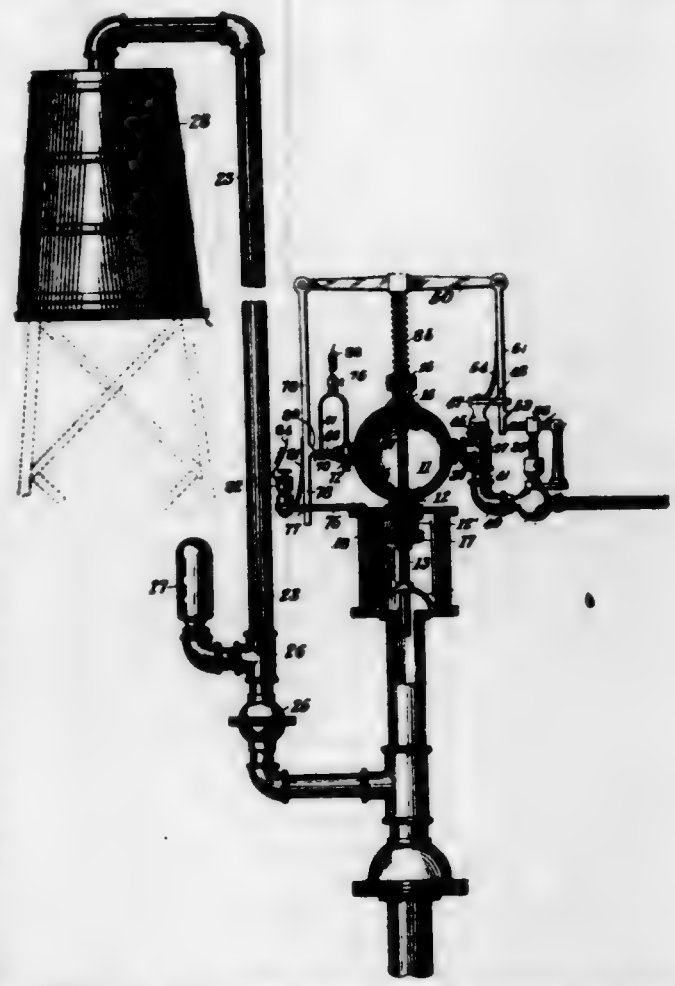
693,812. **RAIL-JOINT.** ADDISON BARR, Martins Ferry, Ohio, assignor of three-fourths to Eugene J. A. Drennen and Elmer R. Moore, Martins Ferry, Ohio. Filed June 21, 1901. Serial No. 65,504. (No model.)



Claim.—1. The combination with the two rails; of the plates 2, each consisting of a base *a*, an integral upwardly and inwardly inclined member *c*, the opposing ends of the base portions *a*, having interlocking means, the upper ends of the members *c* being beveled to snugly fit against the under face of the rail-heads, as set forth.

2. The hereinbefore-described improvement in rail-joints, consisting in combination with the two rail ends and the ties, a pair of opposing straddle plates 2 2, each consisting of a base *a*, adapted to extend under the rail-base, an integral portion *c*, curved up from the base *a*, and having a longitudinal recess to receive the outer edge of the rail-flange, said portion *c* being projected upward from the base inwardly at an angle of approximately forty-five degrees, its upper end being beveled to snugly bear against the lower face of the rail-head, and means for interlooking the two plates 2, said plates having spike-receiving notches, all being arranged substantially as shown and for the purposes described.

693,813. **LIQUID-ELEVATING SYSTEM.** DAVID P. BURDON, Jacksonville, Fla., assignor of one-half to William Clarke and William F. Clarke, Jacksonville, Fla. Filed Mar. 8, 1900. Serial No. 7,844. (No model.)



Claim.—1. In a liquid-forcing system, the combination with a suction-pipe, and an eduction-pipe, of a vacuum-cylinder, an explosion-chamber in communication with said cylinder, a fluid-actuated valve adapted normally to close communication between the chamber and the cylinder and to be moved by the explosion to its open position, a valve mechanism operatively connected to the chamber and controllable by movement of the fluid-actuated valve to admit a charge to the explosion-chamber, and an igniting mechanism also controlled by said valve and arranged to explode a charge or mixture admitted to a chamber, as set forth.

2. In a liquid-forcing system, the combination of an explosion-chamber, a subjacent vacuum-cylinder, suction and eduction pipes in communication with the cylinder, means for admitting an explosive charge to the explosion-chamber, igniting mechanism, and a valve operatively related to the explosion-chamber for actuation by the explosion therein and having connection with the charge-admission mechanism and with the igniter to actuate the latter immediately subsequent to the feed of the charge to the explosion-chamber, as set forth.

3. In a liquid-forcing system, the combination of an explosion-chamber, a vacuum-cylinder in communication therewith, suction and eduction pipes in communication with said cylinder, a charge-controlling valve communicating with the explosion-chamber a back-pressure valve between the explosion-chamber and the charge-admission valve, an igniter mechanism, and a fluid-actuated valve controlling the communication between the cylinder and the chamber and having operative connections with the charge-admission valve and the igniter, whereby the movement of the first-mentioned valve serves to effect the admission of a new charge and its ignition in quick succession.

4. In a liquid-forcing system, the combination of an explosion-chamber, a vacuum-cylinder, suction and eduction pipes, a charge-admission valve connected with the explosion-chamber, a piston valve controlling

the communication between the chamber and the cylinder and exposed to the pressure of a gaseous fluid generated within said chamber for actuation thereby, operative connections between the piston valve and the charge-admission valve, and an igniter mechanism, as set forth.

5. In a fluid-forcing system, the combination of an explosion-chamber, a vacuum-cylinder, suction and eduction pipes, a charge-admission valve connected with the explosion-chamber, a piston-valve controlling the communication between the chamber and cylinder exposed to fluid-pressure generated within the explosion-chamber for actuation by the explosion and having positive connections with the charge-admission valve, a back-pressure valve between the explosion-chamber and the charge-admission valve and operable by the pressure and suction within the explosion-chamber, and an igniter mechanism, as set forth.

6. In a fluid-forcing system, the combination of an explosion-chamber, a vacuum-cylinder, suction and eduction pipes, a piston-valve having a cross-arm, a charge-admission valve communicating with the explosion-chamber, a lever connected with the stem of the charge-admission valve, and the lifting-rod pivoted to the cross-arm and having a toe-piece in operative relation to said lever, as set forth.

7. In a fluid-forcing system, the combination of an explosion-chamber, a vacuum-cylinder, suction and eduction pipes, a piston-valve normally closing the communication between the chamber and cylinder, a charge-admission valve connected to the chamber, fixed and movable contacts within said explosion-chamber, a slidable element for actuating the movable contact, and connections between the slidable element and the piston-valve, as set forth.

8. In a liquid-forcing system, an explosion-chamber provided with an insulated bushing, a slidable element contained within the bushing and having a movable contact, a stationary contact, and a spring mounted on the bushing and coöperating with the slidable element to normally withdraw the movable contact from the stationary contact, in combination with a vacuum-cylinder, suction and eduction pipes, means for admitting an explosive charge to the chamber, a piston-valve disposed for actuation by the explosion, and a movable element connected with the piston-valve and arranged for engagement with the slidable contact element, as set forth.

9. In a liquid-forcing system, an explosion-chamber provided with an insulated bushing, a wear-sleeve within the bushing, means for making a tight joint between the bushing and sleeve and the shell of the explosion-chamber, a slidable pin having a cam-head and a contact, a stationary contact in the path of the slidable pin, and a yoke-spring fastened at one end and engaging at its other end with the slidable pin, combined with a vacuum-cylinder, a piston-rod having a piston-valve, an arm movable with said rod, another rod pivoted to the valve-arm and provided with a projection in operative relation to the cam-head of the slidable pin, means for admitting an explosive charge to the chamber, and suction and eduction pipes, as set forth.

10. In a liquid-forcing system, a vacuum-cylinder, an explosion-chamber surmounting said cylinder and provided at one end with a nipple and at its other end with a stuffing-box, and a valve-rod passing through the nipple and the stuffing-box and having a packed valve adapted to be seated against the nipple, combined with means for admitting an explosive charge to the chamber, an igniter mechanism, connections between the igniter, the charge-admission means, and the rod of the piston-valve, and suction and eduction pipes, as set forth.

11. In a liquid-forcing system, the combination of a vacuum-cylinder, a suction-pipe having a foot-valve, an eduction-pipe coupled to the suction-pipe and likewise provided with a check-valve, of an explosion-chamber coupled to the eduction-pipe, means for admitting an explosive charge to the explosion-chamber, an igniter mechanism, and a common operating means for the igniter mechanism, and a charge-admission mechanism, substantially as and for the purposes described.

12. In a liquid-forcing apparatus, the combination with an explosion-chamber, and induction and eduction pipes, of a valve controlling the communication between the explosion-chamber and said pipes and disposed for actuation by the explosion, and means operated by said valve for charging the explosion-chamber and for igniting the charge.

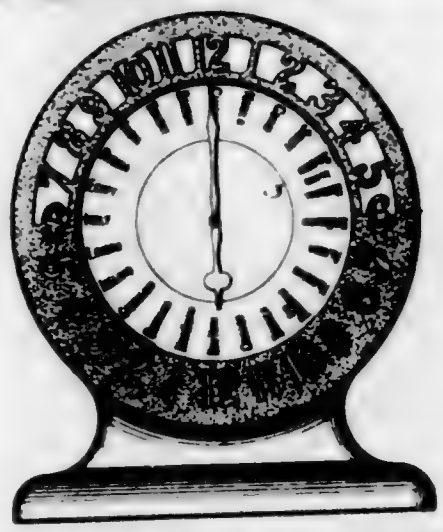
13. In a liquid-forcing apparatus, the combination with an explosion-chamber, and induction and eduction pipes, of a piston-valve normally closing the communication between the explosion-chamber and said pipes and designed to be operated in one direction by the explosion, means for effecting the retraction of the piston-valve immediately after the explosion, and means operated by said retractile movement of the valve for charging the explosion-chamber and for igniting the charge in quick succession.

14. In a liquid-forcing apparatus, the combination with an explosion-chamber, and a subjacent vacuum-cylinder, of an induction-pipe communicating with the vacuum-cylinder and provided with a check-valve, an eduction-pipe communicating with the induction-pipe at a point between the valve and the vacuum-cylinder, said eduction-pipe being provided with a check-valve seating in an opposite direction from the valve in the induction-pipe, a piston-valve normally closing the communication between the explosion-chamber and the vacuum-cylinder and disposed to be opened by the force of the explosion, and charging and ignition devices in operative relation with the explosion-chamber and having operative relation to the piston-valve for successive actuation thereby.

15. In a liquid-forcing apparatus, the combination with an explosion-chamber, a vacuum-cylinder, an induction-pipe and an eduction-pipe, of a piston-valve normally closing the communication between the explosion-chamber and vacuum-cylinder and having its valve-stem extended above the explosion-chamber, reactive mechanism for retracting the piston-valve, a charge-admission valve disposed at one side of the explosion chamber, an ignition device disposed at the opposite side thereof, a cross head connected to the upper end of the valve-stem, and operating members connected to the opposite ends of the cross-head to effect the successive actuation of the charge-admission mechanism and the ignition device during the retraction of the piston-valve.

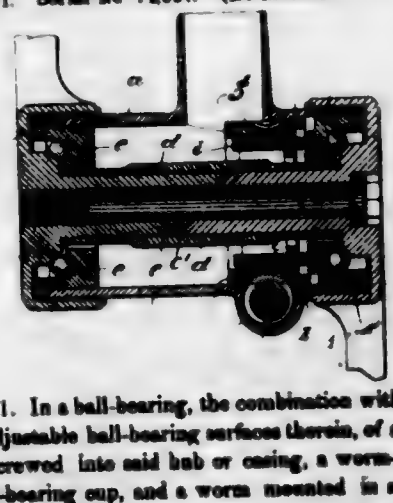
16. In a liquid-forcing apparatus, the combination with an explosion-chamber, and induction and eduction pipes provided with oppositely-opening valves, of a valve controlling the communication between the explosion-chamber and said pipes and disposed for actuation by the explosion, and means operated by said valve for charging the explosion-chamber and for igniting the charge, and an elevated receiving-reservoir in communication with the eduction-pipe.

693,814. GEOGRAPHICAL CLOCK. CHARLES R. DAVIS, New York, N. Y., assignor of one-third to Henry D. Harrower, New York, N. Y. Filed June 2, 1900. Serial No. 18,910. (No model.)



Claim.—The combination with time mechanism, of a disk of transparent or translucent material adapted to rotate with the hour-hand thereof, and having denoted thereon characters representing various localities throughout the world, a stationary ring of opaque material having the twenty-four hours of the day denoted thereon, certain of the said hours being represented by characters cut through the said ring, and certain others of the said hours being represented by characters having the material of which the ring is composed cut away around them, and means for illumination arranged behind the said ring and the said transparent or translucent disk.

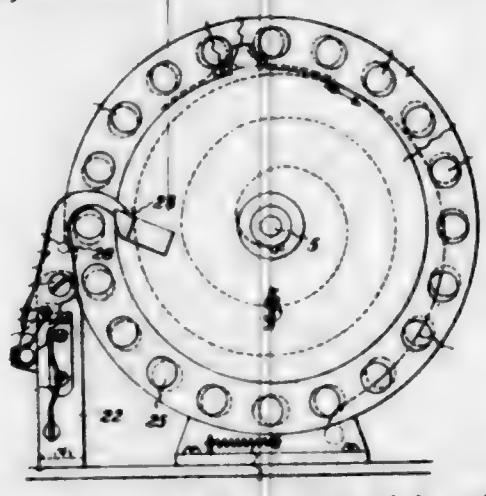
693,815. BALL-BEARING. FRIEDRICH KRONER, Minden, Germany, assignor to Hoppe & Homann, Minden, Germany, a Firm. Filed Sept. 7, 1901. Serial No. 74,697. (No model.)



Claim.—1. In a ball-bearing, the combination with a hub or casing and two non-adjustable ball-bearing surfaces therein, of an adjustable ball-bearing cup screwed into said hub or casing, a worm-wheel connected with said ball-bearing cup, and a worm mounted in said hub or casing and gearing with said worm-wheel, the said hub or casing completely inclosing all said parts and serving as a housing therefor, substantially as described.

2. A ball-bearing for cycles and other uses, comprising a casing or hub, two outer ball-bearing cups having central tubular extensions, a bolt connecting said cups, two inner ball-bearing cups one of which is screwed into the casing or hub, a worm-wheel rotatably movable but incapable of longitudinal movement in the casing behind said cup, a worm for operating said worm-wheel and a connection between the latter and the ball-bearing cup, substantially as described.

698,816. CASH-REGISTER. HERMAN HAHN, San Francisco, Cal., assignor to the Acme Cash Register Company, San Francisco, Cal., a Corporation of California. Filed Mar. 15, 1900. Serial No. 8,896. (No model.)



Claim.—1. In a device of the nature indicated, the combination with a shaft adapted to be rotated, and a projection connected thereto and extending radially therefrom, of a suitable mechanism to rotate the shaft in one direction, a dog to engage a part connected to said shaft and hold the shaft in its normal position, a series of pins forming keys circularly arranged in the front wall of the casing and adapted to extend into the path of the said projection, said pins having an inclined surface on their inner ends, a releasing member to disengage the dog from said part connected to said shaft and consisting in a disk-like member having a series of openings corresponding in number to the said pins, and the one wall of the said openings being in the path of and slightly out of line with the said pins to be moved into line by the same when moved into the path of the said projection, and thereby cause the said releasing member to move the said dog, an indicating device bearing characters indicative of amounts and connected to move with the said shaft, and a resetting mechanism to rotate the shaft to its normal position; substantially as described.

2. In a device of the nature indicated, the combination with a shaft adapted to be rotated, and a projection connected thereto and extending radially therefrom, of a suitable mechanism to rotate the shaft in one direction, a dog to engage a part connected to said shaft and thereby lock the same, a series of pins forming keys circularly arranged in the front wall of the casing and adapted to extend into the path of the said projection, said pins having an inclined surface on their inner ends, a disk loosely mounted on the shaft and having a series of perforations corresponding in number to the said pins and slightly out of line therewith to be entered by the pins moving the said disk and the perforations into line, means whereby said disk in its movement disconnects said dog from said part carried by said shaft and said dog is then permitted to fall into position to again lock said shaft, an indicating device bearing characters indicative of amounts and connected to move with the said shaft, and a resetting mechanism to rotate the shaft to its normal position; substantially as described.

3. In a device of the nature indicated, the combination with a shaft adapted to be rotated, and a projection connected thereto and extending radially therefrom, of a suitable mechanism to rotate the shaft in one direction, a part carried by said shaft to move therewith, a dog to engage the said part, a series of pins forming keys circularly arranged in the front wall of the casing and adapted to extend into the path of the said projection, said pins having an inclined surface on their inner ends, a disk loosely mounted on the shaft and having a series of perforations corresponding in number to the said pins and slightly out of line therewith to be entered by the pins moving the said disk and the perforations into line, said disk being provided with a cam-shoulder, an arm pivotally mounted and extended beside the said dog and set in the path of the said cam-shoulder on the disk to be moved thereby, a spring-actuated pin extending from the said dog in the path of the said arm, and means for withdrawing the said pin when the dog has been moved to disengage the said part on the shaft, an indicating device bearing characters indicative of amounts and connected to move with the said shaft, and a resetting mechanism to rotate the shaft to its normal position; substantially as described.

4. In a device of the nature indicated, the combination with a shaft adapted to be rotated, and a projection connected thereto and extending radially therefrom, of a suitable mechanism to rotate the shaft in one direction, a series of pins forming keys circularly arranged in the front wall of the casing and adapted to extend into the path of the said projection, said pins having an inclined surface on their inner ends, a disk loosely mounted on the shaft and having a series of perforations corresponding in number to the said pins and slightly out of line therewith to be entered by the pins moving the said disk and the perforations into line, a projection set out from each of the said pins, a series of connected cams loosely mounted in front of the said projections and adapted to pass under the same to throw the pins outwardly, an operating mechanism to partially rotate the said cams to pass under the said projections, an indicating device bearing characters indicative of amounts and connected to move with the said shaft, and a resetting mechanism to rotate the shaft to its normal position; substantially as described.

698,817. CARD-CLOTHING. CHARLES MILLS and ROBERT W HUNTER, Newton, Mass., assignors to the Saco & Pettee Machine Shops, Newton, Mass., a Corporation of Massachusetts. Filed Jan. 12, 1901. Serial No. 43,042. (No model.)



Claim.—1. As a means for stretching card-clothing and holding it stretched, a metal stretcher and holder of substantially the shape of the clothing, adapted to be applied to its back surface, having extending from it near each edge a line of engaging prongs which are adapted to engage the edges of the clothing and to be separated from each other in stretching the clothing and to be held apart by said metal stretcher and holder.

2. The combination of card-clothing with a metal stretcher and holder applied to the back surface of the clothing, having extending from it parallel with each edge a line of engaging prongs which engage the edges of the clothing, are separated from each other in stretching it and are held apart by the said stretcher and holder.

3. The combination of card-clothing with a metal stretcher and holder applied to the back surface of the clothing, having a line of prongs parallel with each edge thereof which enter the edges of the clothing from the back side thereof, are clenched outwardly therein and are separated and held apart by said metal stretcher and holder.

4. As a means for stretching card-clothing and holding it stretched, a concave stretching and holding plate, having a line of prongs parallel with each edge, integral therewith and extending from the concave side of the plate.

5. The combination of card-clothing with a metal stretcher and holder, the same comprising a concave plate having prongs extending from near each edge thereof which engage the edges of the clothing simultaneously with the flattening of the plate and which prongs are turned outward and clenched in said edges and whereby the plate and clothing are attached to each other and the clothing stretched as simultaneous operations.

6. The combination of card-clothing with a stretcher and holder applied to the back of the card-clothing, having fastening-prongs near each edge and holes adjacent to said fastening-prongs, the said clothing engaging said plate by means of said prongs and the edges of said holes, the prongs being turned to force the clothing against the edges of said holes, the said stretcher and holder also serving to stretch and hold stretched the clothing.

7. The combination of card-clothing and a metal holder having lines of prongs to engage the edges of the clothing and holes adjacent to said prongs, the said prongs entering the edges of the clothing and turned therein to force the clothing against the edges of the holes of the holder and into the holes thereof, whereby the clothing is fastened to the holder by the prongs, by the edges of the plate about the holes and by portions of the clothing which enter the holes.

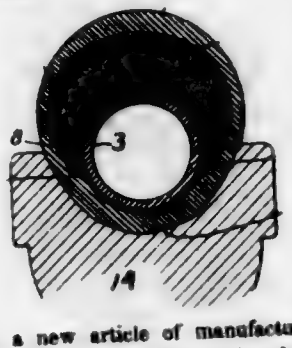
8. The combination of card-clothing, a stretcher or holder applied to the back surface of the clothing, having two lines of prongs which enter the edges of the clothing and are turned outward therein, separated and held separated by the holder, a flat against which said stretcher and holder bear, and clips fastening the clothing, stretcher and holder and flat together.

9. The combination of card-clothing, a metal stretcher and holder, having two lines of prongs which enter the edge of the clothing, are turned outward therein, are separated and held separated by the stretcher and holder, a flat, and clips to fasten the clothing, holder and stretcher

and flat together, bind the edges thereof and force the clothing against the prongs and stretcher and holder.

10. In a means for stretching card-clothing and holding it stretched a stretcher and holder having a line of prongs parallel with each edge, integral therewith and extending from the side of the stretcher and holder against which the inner surface of the clothing is adapted to come into contact, lines of holes in said stretcher and holder contiguous to the prongs and means in said stretcher and holder for separating the lines of prongs and holes from each other.

693,818. **PNEUMATIC TIRE.** WILLIAM F STEARNS, Cambridge, and WILLIAM L. HAIMES, Boston, Mass., assignors, by mesne assignments, to Punctnot Tire Company, Camden, N. J., and Philadelphia, Pa., a Corporation of New Jersey. Filed Aug. 17, 1901. Serial No. 72,324. (No model.)



Claim.—1. As a new article of manufacture, a crescent-shaped puncture-resisting pad for pneumatic tires, said pad comprising a crescent-shaped-pad casing and a fibrous filling therein, combined with a pair of V-shaped, churn-resisting ribs of elastic material, each edge and the thereto-adjacent marginal portions of the crescent-shaped-pad casing being mounted in the V of one of said ribs.

2. As a new article of manufacture, a crescent-shaped puncture-resisting pad for pneumatic tires, said pad comprising a crescent-shaped-pad casing and a fibrous filling therein, combined with a pair of V-shaped churn-resisting ribs of elastic material, each edge and the thereto-adjacent marginal portions of the crescent-shaped-pad casing being mounted in the V of one of said ribs; said filling being made of long-staple crinkled cotton.

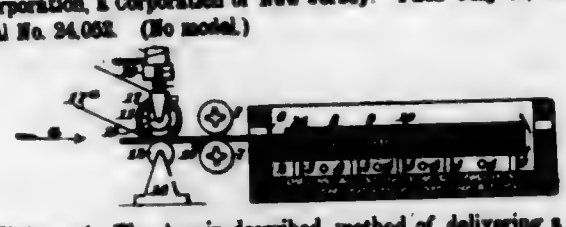
3. As a new article of manufacture, a crescent-shaped puncture-resisting pad for pneumatic tires, said pad comprising a crescent-shaped-pad casing and a fibrous filling therein, combined with a pair of V-shaped churn-resisting ribs of elastic material, each edge and the thereto-adjacent marginal portions of the crescent-shaped-pad casing being mounted in the V of one of said ribs; said filling being made of long-staple crinkled cotton, the fibers whereof are arranged in approximate parallelism whereby an increased effective compactness of the filling is obtained.

4. In a pneumatic tire, the combination of a suitable outer sheath having a tread-surface; a puncture-resisting pad comprising a fibrous filling; an inflatable air-tube; the pad being mounted between the outer wall portion of the air-tube and the tread portion of the sheath; and a wrapping encircling the air-tube of the pad; the opposed walls of the air-tube and pad being of inherently-unrestrained expansibility toward the filling, and vulcanized together; and the opposed walls of said air-tube and pad being vulcanized together, whereby the sheath, air-tube and pad are held in permanent relative positions, one to the other; and whereby the wrapped walls of the air-tube and pad are relatively non-expansible while the opposed walls thereof are freely expansible, when the air-tube is inflated and compresses the filling.

5. In a pneumatic tire, the combination of a suitable outer sheath having a tread-surface; an interior, inflatable air-tube; a crescent-shaped puncture-resisting pad comprising a fibrous filling; V-ribs of elastic material in the V's of which the respective edges and marginal portions of the pad are mounted; said pad being mounted between the outer surface of the air-tube and the opposed wall of the sheath with said V-ribs extending in opposite directions on each side of the felly-line of the tire; and a winding encircling the air-tube and the pad; the opposed wall portions of the air-tube and pad being of inherently-unrestrained expansibility in the direction of the tread of the tire, and vulcanized together; and the opposed surfaces of the air-tube and sheath being vulcanized together; and the opposed surfaces of the sheath and pad being vulcanized, whereby the pad is compressed when the air-tube is inflated without producing air-filled, bulbous projections of the air-tube toward the concave wall of the pad, and whereby rupture of the tire at or near said felly-line is minimized.

6. As a new article of manufacture, a pneumatic tire, comprising a suitable outer sheath; a puncture-resisting pad having a suitable fibrous filling; an air-tube; the pad being mounted between the air-tube and tread side of the sheath; and, along each edge and thereto-adjacent margins of the pad, a pair of elastic strips united to said margins and, inwardly from said edge united to each other, whereby the pad is provided with ribs which resist strains tending to rupture the tire at or near such side portions of the tire as are opposed to said united strips.

698,819. **METHOD OF FEEDING PACKS OF THIN METAL STRIPS FROM HEATING-FURNACES.** THOMAS V. ALLEN, Bridgeport, Conn., assignor, by mesne assignments, to the International Tin Plate Corporation, a Corporation of New Jersey. Filed July 18, 1900. Serial No. 24,052. (No model.)

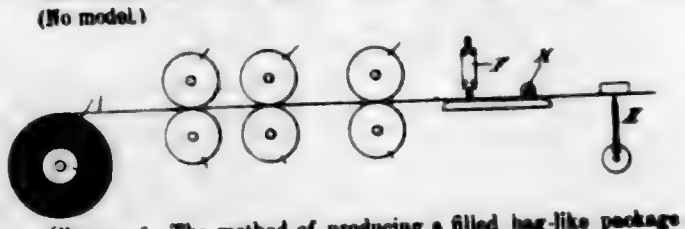


Claim.—1. The herein-described method of delivering a pack of metal strips from a heating-furnace to reduction-rolls adjacent thereto, which consists in securing a leading-strip to said pack, which leading-strip is of less thickness than said pack before reduction, and projecting such leading-strip out of the furnace and between said reduction-rolls so that said pack may be drawn into the bight of said rolls through the medium of said leading-strip as described and for the purpose set forth.

2. The method of delivering a pack of metal strips from a heating-furnace to reduction-rolls adjacent thereto, which consists in temporarily securing a leading-strip to said pack which leading-strip is relatively thinner than such pack before reduction, and projecting such leading-strip through the discharge-opening of the furnace and between the reduction-rolls where it will remain passive until said pack is ready for reduction when said leading-strip is made the medium for withdrawing said pack from the furnace into the bight of said reduction-rolls, as described and for the purpose set forth.

3. The method of delivering a pack of metal strips from a heating-furnace to reduction-rolls, which consists in temporarily securing a leading-strip to said pack, which leading-strip is of less thickness than said pack before reduction, projecting said leading-strip through the discharge-opening of said furnace and between said reduction-rolls, said leading-strip also being of less thickness than the opening between said reduction-rolls before the said pack is reduced, as described and for the purpose set forth.

693,820. **METHOD OF MAKING AND FILLING BAGS.** ADELBERT M. BAYNE, Chicago, Ill. Filed May 11, 1901. Serial No. 59,751. (No model.)



Claim.—1. The method of producing a filled bag-like package of powdery or granular substance, which consists in forming bagging material into a long tube of the proper cross-section, closing one end thereof, filling a proper charge of material into the closed end of the tube, and then sewing the tube above such charge and severing the tube above such seam.

2. The method of producing a filled bag-like package of powdery or granular substance, which consists in forming bagging material into a long tube of the proper cross-section by folding the material on itself and stitching the two folded portions together, closing one end of the tube, filling a proper charge of material into the closed end of the tube, and then closing the tube above such charge and severing the tube above such closure.

3. The method of producing a filled bag-like package of powdery or granular substance, which consists in forming bagging material into long tubes of the proper cross section by folding the two edges toward the middle, then sewing the folded portions together, then cutting them apart to form two tubes of bagging material, then closing one end of one of such tubes, then filling a proper charge of material into the closed end of the tube, and then closing the tube above such charge and severing the tube above such closure.

4. The method of producing a filled bag-like package of powdery or granular substance, which consists in forming bagging material into long tubes of the proper cross-section by folding the two edges of the strip of bagging material together at the middle of such strip of bagging material, sewing the two edges down upon the material and severing the material between the two edges by a single operation to form the two tubes of bagging material, closing one end of one of such tubes, then filling a proper charge of material into the closed end of the tube, and then closing the tube above such charge and severing the tube above such closure.

5. The method of producing a filled bag-like package of powdery or

granular substance, which consists in forming bagging material into a long tube of the proper cross-section, closing one end thereof, filling a proper charge of material into the closed end of the tube, then stitching the tube at two separated points above such charge of material, one closure to form the top closure of one bag, the other closure to form the bottom closure of the next bag.

6. The method of producing a filled bag-like package of powdery or granular substance, which consists in forming bagging material into a long tube of the proper cross-section, closing one end thereof, filling a proper charge of material into the closed end of the tube, then closing the tube at two separated points above such charge of material, one closure to form the top closure of one bag, the other closure to form the bottom closure of the next bag, and severing the tube at a point between the said two closures.

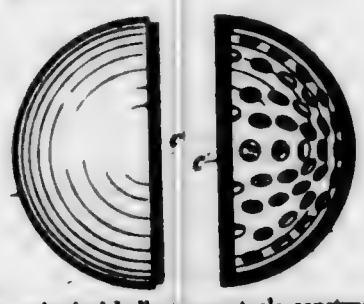
7. The method of producing a filled bag-like package of powdery or granular substance, which consists in forming bagging material into a long tube of the proper cross-section, closing one end thereof, filling a proper charge of material into the closed end of the tube, then collapsing the sides of said tube together just above the charge, and then stitching the same at such collapsed part to form the top of the bag.

8. The method of producing a filled bag-like package of powdery or granular substance, which consists in forming bagging material into a long tube of the proper cross-section, closing one end thereof, filling a proper charge of material into the closed end of the tube, then collapsing the sides of said tube together just above the charge, then stitching the same at such collapsed part to form the top of the bag, and simultaneously stitching the tube at the point of collapsing, but above the other closure to form the bottom of the next bag.

9. The method of producing a filled bag-like package of powdery or granular substance, which consists in forming bagging material into a long tube of the proper cross-section, closing one end thereof, filling a proper charge of material into the closed end of the tube, then collapsing the sides of said tube together just above the charge, then stitching the same at such collapsed part to form the top of the bag, and simultaneously stitching the tube at the point of collapsing, but above the other closure to form the bottom of the next bag, and severing the tube at the point of such collapsing between the two closures.

10. The method of producing a filled bag-like package of powdery or granular substance, which consists in printing the desired matter on the bagging material, then forming bagging material into a long tube of the proper cross-section, closing one end thereof, filling a proper charge of material into the closed end of the tube, and then stitching the tube above such charge and severing the tube above such closure.

698,821. DEVICE FOR PLAYING GAMES OF CHANCE. PAUL F. DE FORD, Pasadena, Cal. Filed Jan. 29, 1901. Serial No. 45,256. (No model.)

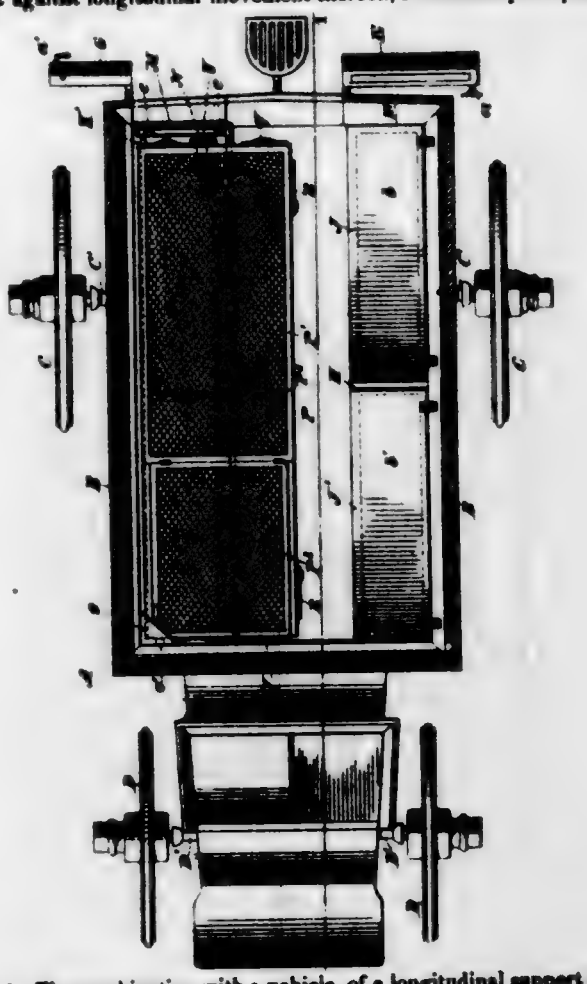


Claim.—The spherical hollow receptacle constructed in two hemispheres united by an equatorial joint; so that the receptacle can be opened and closed, and whose interior portion consists of as many circular recesses or holes as can be conveniently formed therein, whereinto balls, contained within the hollow spherical receptacle fall, when the said receptacle is rolled upon any surface, and which recesses or holes are marked with numbers or their equivalents for indicating a score, all in the manner and for the purposes substantially as hereinbefore described.

698,822. AMBULANCE-COACH. MARY A. CRANE, New York, N. Y. Filed Dec. 7, 1901. Serial No. 85,006. (No model.)

Claim.—1. The combination with a vehicle, of a support therein, a cot adapted to be supported thereon longitudinally for its entire length, and transversely for a portion of its width, and retaining means whereby to secure said cot against transverse and longitudinal movement upon said support, substantially as specified.

2. The combination with a vehicle of a longitudinal support therein, of a cot adapted to rest upon said support, retaining means arranged upon said support, means carried by said cot adapted to coöperate with the means arranged upon said support whereby to secure said cot against transverse movement thereon, means arranged within said vehicle adapted to retain one end of said cot, and a locking device provided at the other end of said cot adapted to engage said support whereby to secure said cot against longitudinal movement thereon, substantially as specified.



3. The combination with a vehicle, of a longitudinal support therein, a retaining device provided in one end thereof above said support, an engageable device arranged in said support near its other end, parallel guides arranged upon the surface of said support, a cot having rollers upon its under side adapted to roll upon said support between said parallel guides, and a locking device carried by said cot at its lower end adapted to engage the device in the support whereby to secure said cot in position upon said support, substantially as specified.

4. The combination with a vehicle having a door E and hinged end section G, of a longitudinal support therein, parallel guides upon the upper surface of said support, a retaining device arranged in said vehicle-body adjacent to the upper end of said support, a device and a roller arranged in the lower end of said support, a cot having rollers arranged upon its under side adapted to work upon the surface of said support between said parallel guides, and a hook member provided at the lower edge or foot of said cot adapted to coöperate and engage with the device in the lower end of said support whereby to secure said cot in position thereon, substantially as specified.

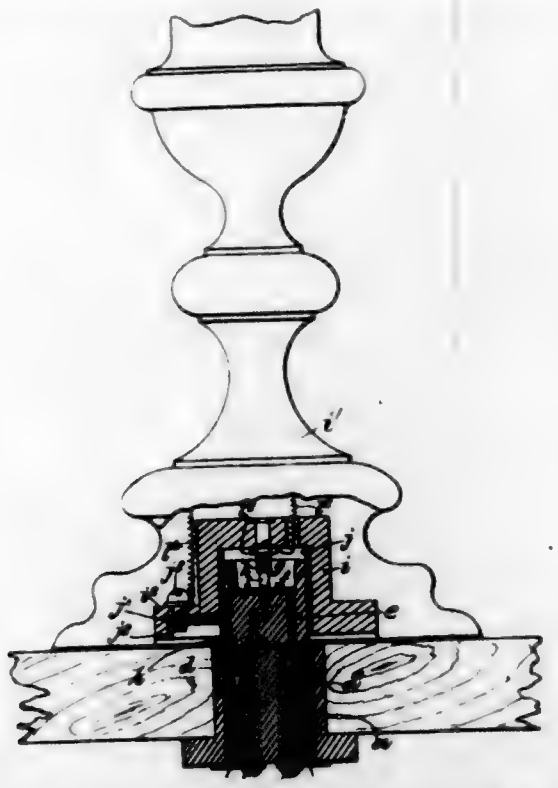
5. The combination with a vehicle having a door E and hinged end section G adjacent thereto, of a longitudinal support therein, parallel guides upon the upper surface of said support, a retaining device arranged in one corner of said vehicle-body adjacent to the upper end of said support, a device and a roller arranged at the lower end of said support, a cot having folding legs at its sides adjacent to its head and foot, rollers arranged upon its under side adapted to work upon said support intermediate the guides thereon, and a hook member provided at the lower edge of said cot, all coöperating to secure and maintain said cot in position upon said support, substantially as specified.

REISSUES.

11,968. ELECTRIC CONTACT OR CURRENT-TAKING DEVICE. ERNEST GERAL and EMILE AUDIBER, Paris, France, assignors, by mesne assignments, to National Electric Improvement Company, New York, N. Y., a Corporation of New Jersey. Filed Aug. 9, 1901. Serial No. 71,537. Original No. 663,750, dated Dec. 11, 1900.

Claim.—1. The combination with a plurality of electric conducting masses adapted to be connected respectively with the positive and negative poles of a generator and mounted in a table or other suitable support, of a connecting-block having conducting projections thereon adapted to penetrate the said masses, contacts connected respectively to said projections and mounted on separate portions of said block, a socket in the base of a translating device adapted to receive said block, and contacts

on said socket piece adapted to engage the contacts of the connecting-block and suitably connected to the conductors leading to said translating device.



2. The combination of a plurality of electric conducting masses adapted to be connected respectively with the positive and negative poles of an electric generator and mounted in a table or other suitable support, of an insulating connecting-block having conducting projections thereon adapted to penetrate said masses, contact devices, one embracing said block and the other seated in a recess in the upper end thereof, a socket in the base of a translating device adapted to receive said block, a sleeve in said socket connected with one of the conductors leading to said translating device and adapted to engage the contact device embracing said block, and a yieldingly-mounted contact on said socket, connected with the other conductor leading to said translating device and adapted to engage the contact device seated in the recess in said block.

3. The combination of a support having penetrable electric conductors, an external cylindric insulating-block having two conducting projections extending below its under side, one adapted to enter each of said penetrable conductors, and also having upon its exterior two separate electrical contacts in communication with said projections, and an internal cylindric part adapted to fit snugly around and so engage firmly with said externally-cylindric block and having internal conductors for engaging with the external conductors of said block.

11,969. ELECTRIC CONTACT OR CURRENT-TAKING DEVICE. ERNEST GRELL and EMILE AUDIGER, Paris, France, assignors, by mesne assignments, to National Electric Improvement Company, New York, N. Y., a Corporation of New Jersey. Filed Aug. 9, 1901. Serial No. 71,528. Original No. 663,750, dated Dec. 11, 1900.



Claim.—1. The combination of a plurality of electric parallel conducting masses laid at substantially uniform distances apart in the grooves of a table or other support and constituting pairs, the whole number of said strips being connected alternately to the positive and negative poles of an electric generator, an insulating connecting-block, a pair of conducting projections secured thereto and adapted to penetrate two of said masses, and separate contacts suitably connected to each of said projections.

2. In combination, a connecting-block, penetrating conducting means attached to said block, and electric conducting-strips arranged at substantially uniform distances apart, and composing a number of pairs, and adapted to be in communication with a source of electrical supply, and arranged with the negative strips parallel with the positive strips, said strips adapted to receive throughout their length said penetrating means for forming an electrical circuit and securing said block thereto.

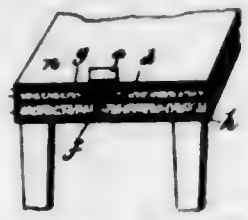
3. The combination of a plurality of electrical parallel conducting-strips mounted at substantially uniform distances apart upon a table or other support, and adapted to be connected to the positive and negative poles of an electric generator, and arranged so that the positive strips will be parallel with the negative strips, a connecting-block, and penetrating conducting projections attached to said block for engaging said strips for forming an electrical circuit and securing said block thereto.

4. In an electrical contact or current-taking device, penetrable conducting-strips arranged at substantially uniform distances apart over a large surface of a suitable support, and means for penetrating said strips for forming an electrical circuit and securing thereto at any point throughout the length of any two, a lamp or other illuminating device.

5. The combination with a support, of conducting masses carried thereby, and adapted to be connected, respectively, to the positive and negative poles of a source of electricity, said masses being spaced with substantial uniformity and sustaining a parallel relation, and adapted to have connection to a translating device at any point, and so arranged upon the support that translating devices may be arranged side by side close together in at least two directions transverse to one another at all portions of the support traversed by said masses, and conducting projections to penetrate the masses and place the translating device or devices in circuit.

6. The combination of a number of electric parallel conductors arranged without delineating any design, adapted to be connected alternately to the positive and negative poles of a source of electricity, and arranged upon a support in numbers sufficient and near enough together to permit of electric translating devices being engaged close together and side by side with said conductors, lengthwise of said conductors, or side by side transversely of the length of said conductors, so that the translating devices may be arranged to delineate letters, figures and other irregular forms, and conducting projections for penetrating said conductors to place the translating devices in circuit.

11,970. ELECTRIC CONTACT OR CURRENT-TAKING DEVICE. ERNEST GRELL and EMILE AUDIGER, Paris, France, assignors, by mesne assignments, to National Electric Improvement Company, New York, N. Y., a Corporation of New Jersey. Filed Aug. 9, 1901. Serial No. 71,529. Original No. 663,750, dated Dec. 11, 1900.



Claim.—1. The combination with a plurality of electric conductors adapted to be connected respectively with the positive and negative poles of an electric generator, mounted one above the other on a table or other support and separated by a layer of insulating material, and a layer of easily-penetrable insulating material on the top of said table or support above said conductors, of a connecting device having projections thereon terminating at different levels and adapted to be inserted through said layer or penetrable insulating material to respectively engage said conductors, and insulating material on that portion of one of said projections which passes through the upper conductor.

2. The combination of a support covered by conducting-sheets, one outside the other, an insulating-sheet between the conducting-sheets, and means comprising two projecting contacts of different lengths and each adapted to penetrate one of the conducting-sheets for placing a translating device in circuit at any point on the support, the longer of said contacts being electrically separated from the outer conducting-sheet.

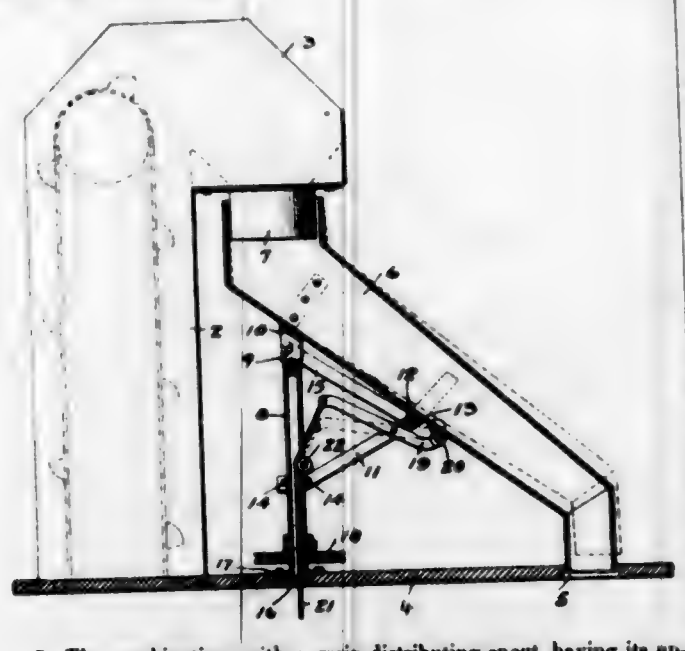
3. The combination of a support covered by superimposed conducting-sheets, a layer of insulating material interposed between said sheets, and means comprising two downwardly-extending contacts of different lengths and each adapted to penetrate one of the conducting-sheets for placing a translating device in circuit at any point of the support, the longer of said contacts being electrically separated from the upper conducting-sheet.

11,971. DISTRIBUTING-SPOUT FOR GRAIN-ELEVATORS. JAMES J. GREEN, Minneapolis, Minn. Filed May 20, 1901. Serial No. 61,180. Original No. 649,724, dated May 15, 1900.

Claim.—1. The combination, with a grain-distributing spout, having its upper end connected with a grain-discharge opening and its lower end fitted into a bin-opening, of an upright rotatable standard, whereon said spout is pivotally supported and adapted to swing horizontally therewith and vertically thereon, a fork provided on said standard and supporting the lower portion of said spout, and a lever pivoted on said fork and having one arm in engagement with the under side of said spout and its opposite arm connected with a rope or cord, to permit the operator at a distance, to lift the lower end of said spout away from the bin-opening, substantially as described.

2. The combination, with a grain-distributing spout having its upper end connected with a grain-discharge opening and its lower end fit-

ted into a bin-opening, of an upright rotatable standard whereon said spout is pivotally supported and adapted to swing horizontally therewith and vertically thereon, a lever 19 pivoted beneath said spout and having a roller 20 at one end to engage the under surface of said spout and roll over the same, and a cord connected to the opposite end of said lever to permit the operator at a distance to lift said spout out of a bin-opening, substantially as described.



3. The combination, with a grain-distributing spout having its upper end connected with a grain-discharge opening and its lower end fitted into a bin-opening, of an upright rotatable standard, whereon said spout is pivotally supported and adapted to swing horizontally therewith and vertically thereon, a fork 11 secured on said standard and supporting the lower portion of said spout, a brace 15 connecting said fork and said standard, a lever 19 pivoted on said fork and having one arm in engagement with the under side of said spout, and a cord connected to the other arm of said lever to permit the operator at a distance to lift the lower end of said spout out of a bin-opening, substantially as described.

4. The combination, with a grain-distributing spout having its upper end connected to a grain-discharge opening and its lower end fitted into a bin-opening, of an upright rotatable standard whereon said spout is pivotally supported and adapted to swing horizontally therewith and vertically thereon, a lever pivotally supported beneath said spout and having one arm in engagement with the under side of said spout and adapted to move over the same, and a cord connected to the opposite arm of said lever to permit the operator to lift the lower end of said spout out of a bin opening, substantially as described.

5. The combination, with a grain-distributing spout having its upper end connected with a grain-discharge opening and its lower end fitted into a bin-opening, of a standard whereon said spout is pivotally supported and adapted to swing horizontally and vertically, an arm having a fork or yoke to support and guide the lower portion of said spout while permitting vertical movement thereof, and means independent of said yoke for raising said spout.

6. The combination, with a grain-distributing spout having its upper end connected with a grain-discharge opening and its lower end fitted into a bin-opening, of a standard whereon said spout is pivotally supported and adapted to swing horizontally and vertically, an arm provided on said standard, a yoke carried by said arm wherein the lower portion of said spout is removably supported, suitable bracing means for said arm, and means for tilting said spout vertically in said yoke, substantially as described.

7. The combination, with a grain-distributing spout having its upper end connected with a grain-discharge opening and its lower end fitted into a bin-opening, of a standard whereon said spout is pivotally supported and adapted to swing horizontally and vertically, an arm 11 secured to the lower portion of said standard and having a forked or yoke-shaped end to receive said spout, a brace 15 connecting said arm and the upper portion of said standard and forming therewith a triangular bracing-support for the lower portion of the spout, and means for lifting said spout in said yoke, for the purpose specified.

11,972. LACING-HOOK. FRED H. REED, Elmira, N. Y. Filed Nov. 19, 1901. Serial No. 82,990. Original No. 650,481, dated May 29, 1900.

Claim.—1. A rigid lacing-hook provided with an elastic bearing-surface to receive the lacing and permit of expansion and contraction between opposite hooks.

2. A lacing-hook containing an elastic bearing-surface between its base and head to receive the lacing and permit of expansion and contraction between opposite hooks.



3. A lacing-hook containing a spring-actuated member between its base and head to receive and form an elastic or yielding bearing-surface for the lacing for the purpose of permitting expansion and contraction between opposite hooks.

4. A lacing-hook having a spring member extending from its shank to its outer part and adapted to directly receive lacing wound about the hook, whereby an elastic bearing is provided for the purpose of permitting expansion and contraction between opposite hooks.

5. A lacing-hook having a spring member extending from its shank to its outer part and adapted to directly receive lacing wound about the hook, said member having side arms connected by a cross-bar.

6. A lacing-hook having a spring member extending from its shank to its outer part and adapted to directly receive lacing wound about the hook, said member having side arms connected by a cross-bar, and a recess in the outer part of the hook to receive said cross-bar.

7. A lacing-hook having a spring member extending from its shank to its outer part and adapted to directly receive lacing wound about the hook, said member being provided with a spring-coil located in the hook-shank.

8. A lacing-hook having a spring member extending from its shank to its outer part and adapted to directly receive lacing wound about the hook, said member having a coil in the hook-shank, and an extension beyond the coil to bear on the shank and hold the spring to its work.

9. A lacing-hook having a spring member extending from its shank to its outer part and adapted to directly receive lacing wound about the hook, said member being provided with a rounded guard to prevent chafing the lacing.

10. A lacing-hook having a spring member extending from its shank to its outer part and adapted to directly receive lacing wound about the hook, said spring having a rounded guard integral with the spring-arms.

DESIGNS.

35,740. WATCHCASE. CHARLES L. DEPOLLIER, Brooklyn, N. Y., assignor to Dubois Watch-Case Company, Brooklyn, N. Y., a Corporation of New York. Filed Dec. 19, 1901. Serial No. 86,618. Term of patent 7 years.



Claim.—The design for a watchcase, substantially as herein shown and described.

35,741. SOLITAIRE-GEM SETTING. ALFRED H. WITTSTEIN, Chicago, Ill., assignor to Schrader-Wittstein Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 7, 1901. Serial No. 71,272. Term of patent 7 years.



Claim.—The design for a solitaire-setting for gems, as herein shown and described.

35,742. SOLITAIRE-GEM-SETTING FINGER-RING. CHARLES T. WITTSTEIN, Chicago, Ill., assignor to Schrader-Wittstein Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 7, 1901. Serial No. 71,274. Term of patent 14 years.



Claim.—The design for a solitaire-gem-setting finger-ring; as herein shown and described.

35,743. SOLITAIRE-GEM-SETTING FINGER-RING. CHARLES T. WITTSTEIN, Chicago, Ill., assignor to Schrader-Wittstein Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 7, 1901. Serial No. 71,275. Term of patent 7 years.



Claim.—The design of a solitaire-gem-setting finger-ring, as herein shown and described.

35,744. SOLITAIRE-GEM-SETTING FINGER-RING. CHARLES T. WITTSTEIN, Chicago, Ill., assignor to Schrader-Wittstein Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 7, 1901. Serial No. 71,276. Term of patent 7 years.



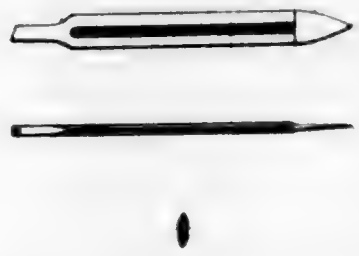
Claim.—The design for a solitaire-gem-setting finger-ring, as herein shown and described.

35,745. SOLITAIRE-GEM-SETTING FINGER-RING. CHARLES T. WITTSTEIN, Chicago, Ill., assignor to Schrader-Wittstein Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 7, 1901. Serial No. 71,277. Term of patent 14 years.



Claim.—The design of a solitaire-gem-setting finger-ring, as herein shown and described.

35,746. MANICURE-BLADE. ALLISON N. CLARK, Plainville, Conn. Filed Jan. 7, 1902. Serial No. 88,803. Term of patent 14 years.



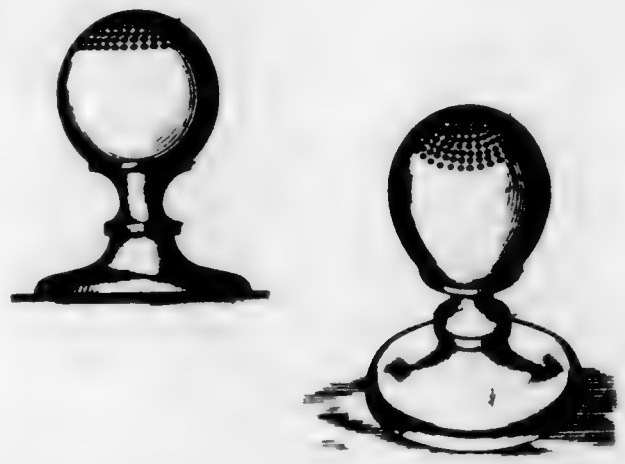
Claim.—The design for a manicure-blade as herein shown and described.

35,747. PURSE-TOP OR SIMILAR ARTICLE. SIDNEY A. KELLER, New York, N. Y., assignor to Marcus T. Goldsmith, New York, N. Y. Filed Jan. 25, 1902. Serial No. 91,284. Term of patent 7 years.



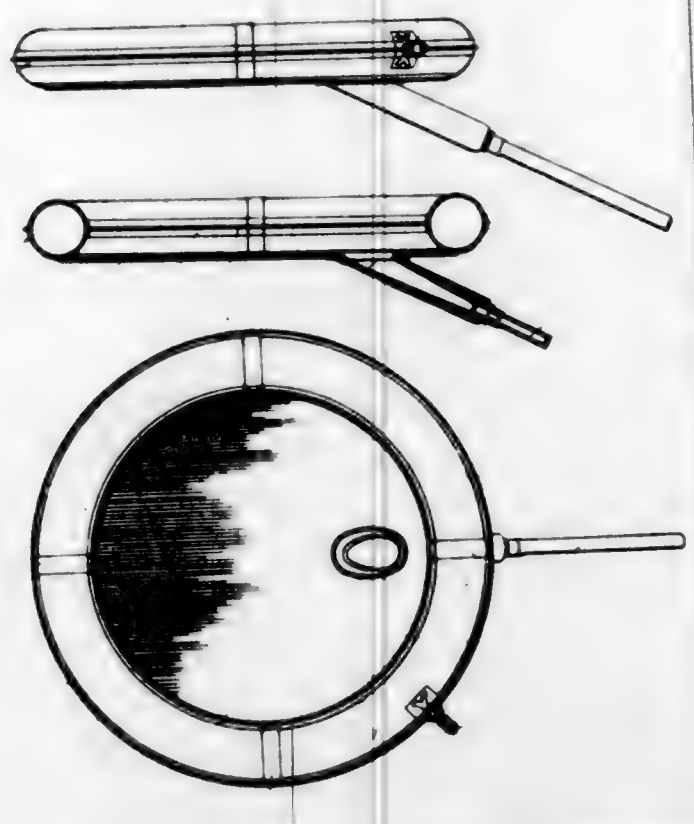
Claim.—The design for a purse-top or similar article, as herein shown and described.

35,748. JEWELRY-DISPLAY STAND. WILLIAM J. DRAIN, Jr., Philadelphia, Pa. Filed Jan. 20, 1902. Serial No. 90,590. Term of patent 3½ years.



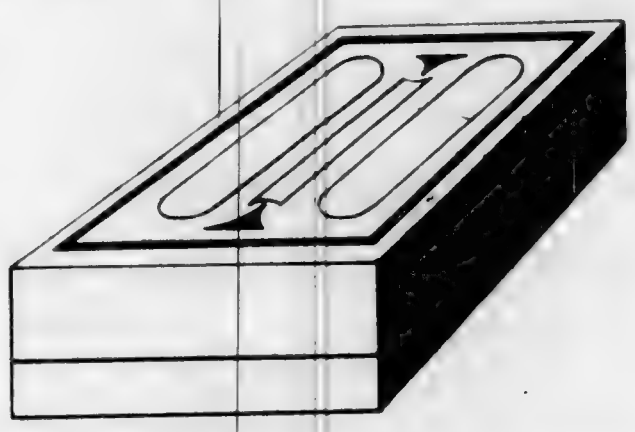
Claim.—The design for a display-stand, substantially as described and as shown in the accompanying drawings.

85,749. SURGICAL RUBBER PAD. WILLIAM P. RICHARDS, Union City, Tenn. Filed July 22, 1901. Serial No. 69,338. Term of patent 14 years.



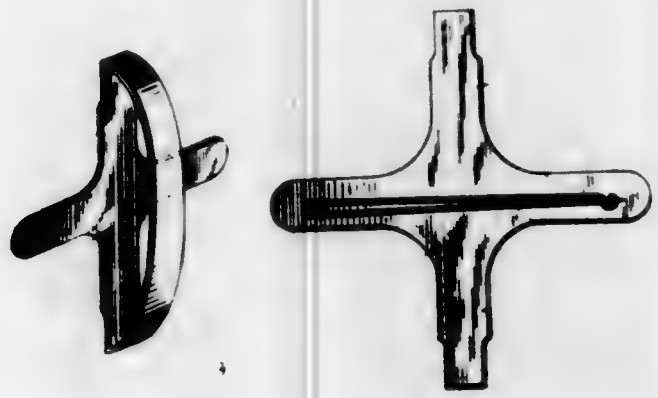
Claim.—The design for a surgical rubber pad as herein shown and described.

85,750. PLAYING-CARD BOX. HENRY J. ALTHAM, New York, N. Y. Filed Oct. 22, 1901. Serial No. 79,604. Term of patent 3½ years.



Claim.—The design for a playing-card box as herein shown and described.

85,751. BELT-HOLDER. THOMAS CAMPBELL, Irwin, Pa. Filed Jan. 6, 1902. Serial No. 88,709. Term of patent 7 years.



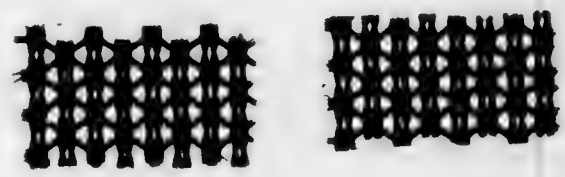
Claim.—The design for a belt-holder, as herein shown and described.

85,752. HOSE-SUPPORTER. FRANK A. FREEMAN, Philadelphia, Pa. Filed Oct. 15, 1901. Serial No. 78,758. Term of patent 14 years.



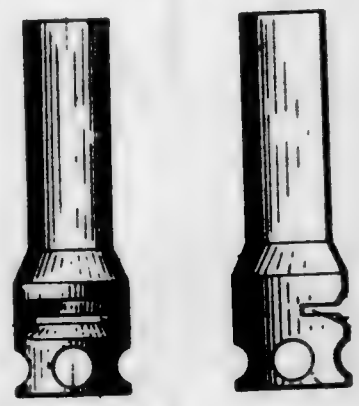
Claim.—The design for a hose-supporter substantially as herein shown and described.

85,753. HAMMOCK FABRIC. ISAAC E. PALMER, Middletown, Conn. Filed Jan. 20, 1902. Serial No. 90,589. Term of patent 14 years.



Claim.—The design for a hammock fabric, substantially as herein shown and described.

85,754. BUNSEN-BURNER MIXING-TUBE. TOWNSEND SWEET, Gloucester City, N. J., assignor to Welsbach Light Company, Gloucester City, N. J., a Corporation of New Jersey. Filed Sept. 30, 1901. Serial No. 77,170. Term of patent 14 years.



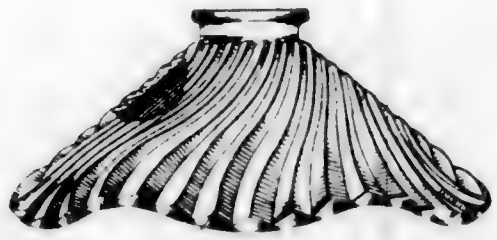
Claim.—The design for a Bunsen-burner mixing-tube, as herein shown and described.

85,755. REFLECTOR FOR ARTIFICIAL LIGHTS. OTIS A. HYGATT, New York, N. Y. Filed June 3, 1901. Serial No. 63,045. Term of patent 7 years.



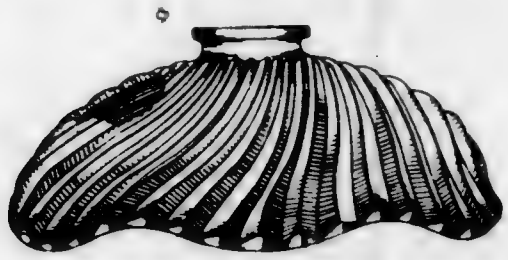
Claim.—The design for a transparent reflector for artificial lights, as shown and described.

35,756. REFLECTOR FOR ARTIFICIAL LIGHTS. OTIS A. MYGATT, New York, N. Y. Filed June 3, 1901. Serial No. 63,049. Term of patent 7 years.



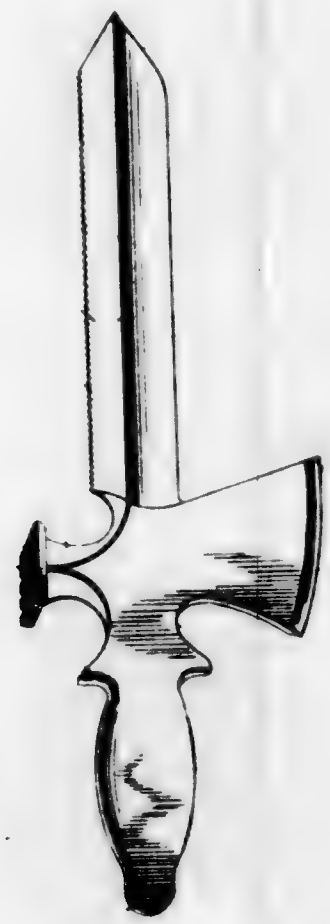
Claim.—The design for a transparent reflector for artificial lights, having the body in the form of a frustum of a hollow cone covered on its outside by prisms arranged spirally, the inner face being smooth, the edge scalloped and beaded, and the cone surmounted by a plain ring, substantially as shown and described.

35,757. REFLECTOR FOR ARTIFICIAL LIGHTS. OTIS A. MYGATT, New York, N. Y. Filed June 10, 1901. Serial No. 64,055. Term of patent 7 years.



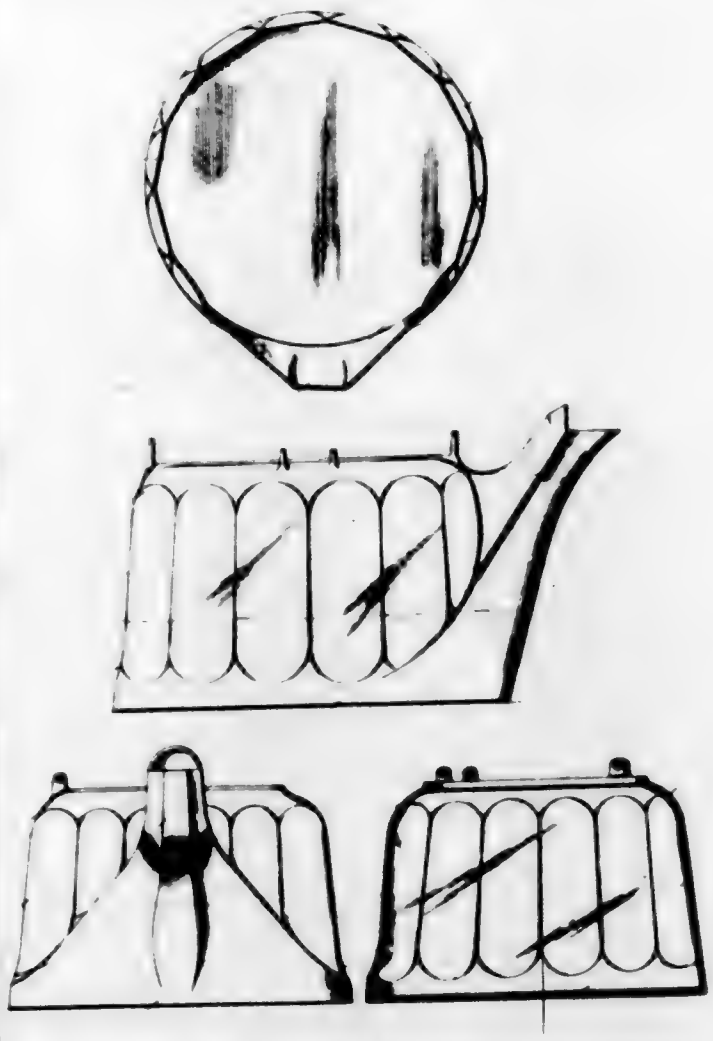
Claim.—The design for a reflector for artificial lights, as shown and described.

35,758. BUTCHER'S TOOL. WILLIAM H. MOFFITT, Lexington, N. C. Filed Dec. 14, 1901. Serial No. 85,993. Term of patent 14 years.



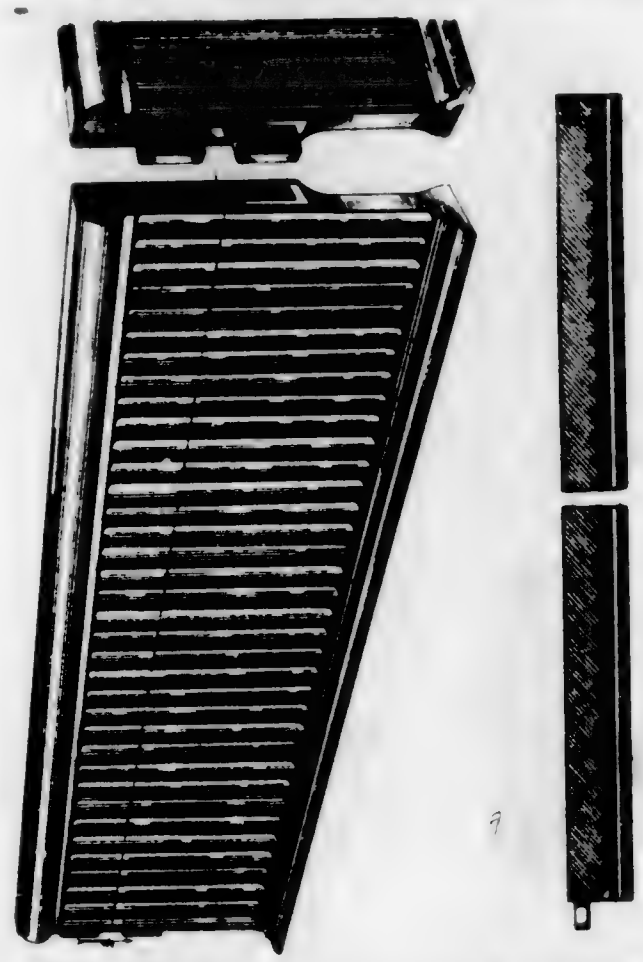
Claim.—The design for a butcher's tool, as herein shown and described.

35,759. VESSEL. BERNARD P. WAGNER, Sidney, Ohio. Filed Dec. 31, 1901. Serial No. 87,974. Term of patent 14 years.



Claim.—The design for a vessel, as herein shown and described.

35,760. METALLIC CURB. JOHN H. HARRISON, Ottawa, Kans., assignor to the Capital Iron Works, Topeka, Kans., a Corporation of Kansas. Filed Jan. 4, 1902. Serial No. 88,472. Term of patent 14 years.



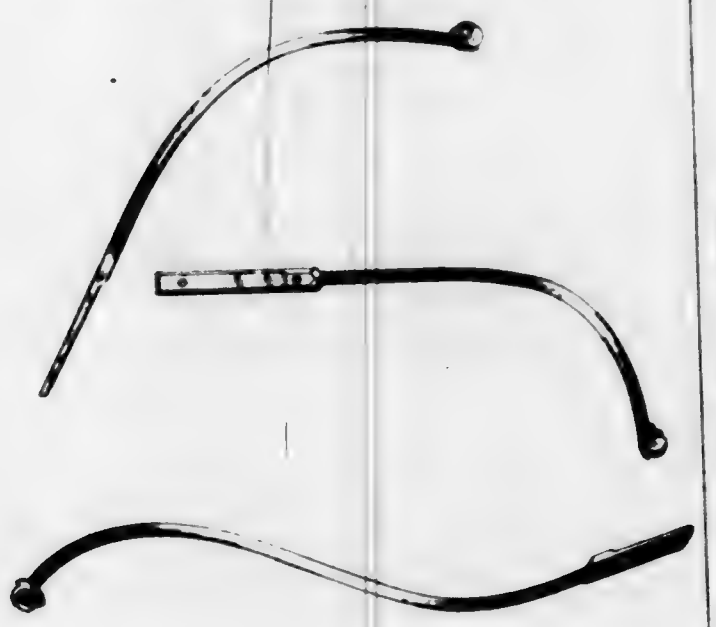
Claim.—The design for a curb, as herein shown and described.

35,761. REIN-SUPPORT. THEODORE H. MATHIAS, Milwaukee, Wis. Filed Dec. 23, 1901. Serial No. 87,087. Term of patent 14 years.



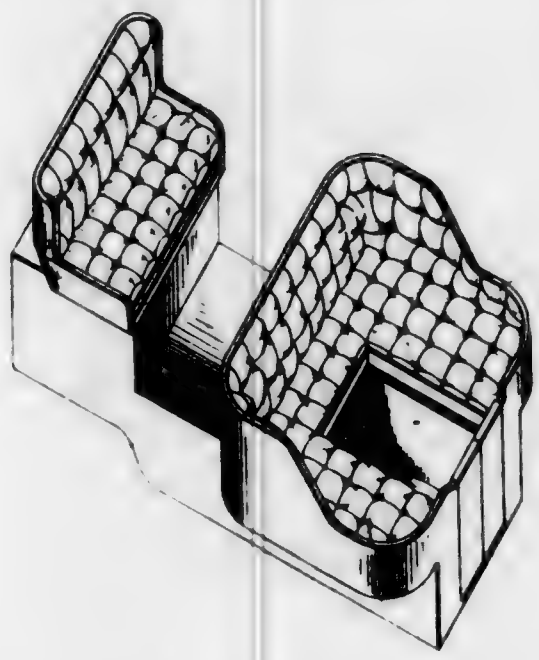
Claim.—The design for a rein-supporter, as herein shown and described.

35,762. BRACE FOR CARRIAGE RUNNING-GEAR. ROSANNA D. WOODFORD, Cortland, N. Y. Filed Aug. 21, 1901. Serial No. 72,858. Term of patent 7 years.



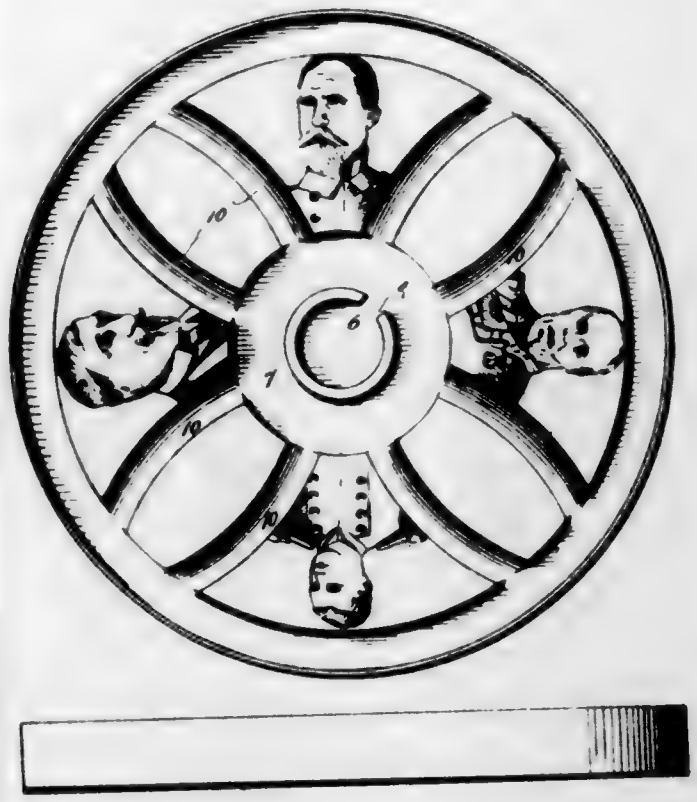
Claim.—The design for a brace for carriage running-gear as herein shown and described.

35,763. VEHICLE-BODY. WINFIELD S. ROGERS, Keene, N. H. Filed Jan. 24, 1902. Serial No. 91,137. Term of patent 7 years.



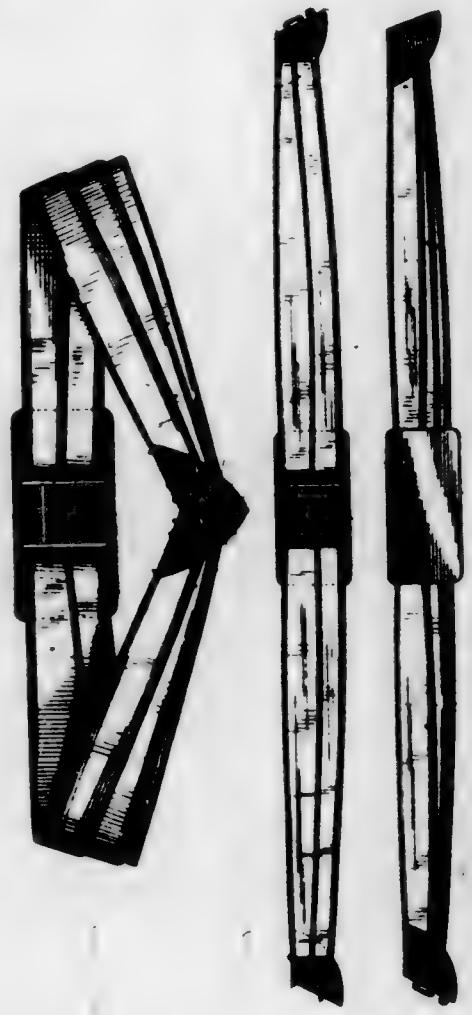
Claim.—The design for a vehicle-body, substantially as herein shown and described.

35,764. PUZZLE-BOARD. THOMAS C. WASHINGTON, Brookland, D. C. Filed Dec. 16, 1901. Serial No. 86,463. Term of patent 14 years.



Claim.—The design for a puzzle-board, substantially as herein shown and described.

35,765. BELT. ISAAC LEWENTHAL, New York, N. Y., assignor to Royal Metal Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 21, 1901. Serial No. 86,861. Term of patent 7 years.



Claim.—The design for a belt, substantially as herein shown and described.

85,766. BELT-BODY OR SIMILAR ARTICLE. ISAAC LEWENTHAL, New York, N. Y., assignor to Royal Metal Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 21, 1901. Serial No. 86,862. Term of patent 7 years.

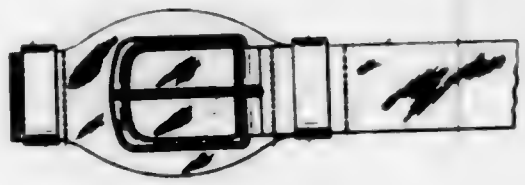


Claim.—The design for a belt-body or similar article, substantially as herein shown and described.

85,767. BELT. HUGO C. KRAUSE, Chicago, Ill., assignor of three fourths to Max Bineman, Nathan Bineman, and Joseph W. Kaiser, Chicago, Ill. Filed Oct. 9, 1901. Serial No. 78,141. Term of patent 3½ years.







Claim.—The design for a belt as shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 18, 1902.

87,801. SILK-WARP FABRICS FOR DRESS GOODS AND LININGS. TH. MIEHAU & Co., Paris, France, and New York, N. Y. Filed Jan. 18, 1902.

MOTO

Essential feature.—The word "MOTO." Used since December 1, 1901.

87,802. TROUSERS. LOUIS D. LEVY, New York, N. Y. Filed Nov. 21, 1901.



Essential feature.—The representation of a draped female figure. Used since June 1, 1901.

87,803. CERTAIN NAMED BOOKS. C. L. DRESSLER & Co., Chicago, Ill. Filed Jan. 18, 1902.

FEMINOLOGY

Essential feature.—The word "FEMINOLOGY." Used since August 31, 1901.

87,804. TOYS AND DISPLAY-TRAYS OR CARRIERS FOR TOYS. ERVIN W. BEISER, Brooklyn, N. Y. Filed Jan. 17, 1902.

EUREKA

Essential feature.—The word "EUREKA." Used since February or March, 1899.

87,805. GAME-BOARDS. WILLIAM FULD, Baltimore, Md. Filed Jan. 22, 1902.

DID
U.C.BILLIE

Essential feature.—The words "DID U. C. BILLIE?" Used since December 21, 1899.

87,806. PARLOR GAME. WILLIAM FULD, Baltimore, Md. Filed Jan. 22, 1902.

ORACLE

Essential feature.—The word "ORACLE." Used since February 1, 1892.

87,807. COATINGS FOR CHOCOLATE AND CONFECTIONERY. HENRY H. OTTMAN, Philadelphia, Pa. Filed Jan. 10, 1902.

GLACE INE

Essential feature.—The word "GLACEINE." Used since October 27, 1894.

87,808. PRESERVED FISH. SEACOAST PACKING Co., Chicago, Ill., and Eastport, Me. Filed Jan. 7, 1902.

SEAQUADS

Essential feature.—The word "SEAQUADS." Used since November 1, 1900

37,809. WHEAT-FLOUR. LEITHAN MILL COMPANY, La Crosse, Wis. Filed Jan. 6, 1902.

FROMLAX

Essential feature.—The word "FROMLAX." Used since November 1, 1901.

37,810. WHEAT-FLOUR. LEITHAN MILL COMPANY, La Crosse, Wis. Filed Jan. 6, 1902.

TOPLUK

Essential feature.—The word "TOPLUK." Used since November 1, 1901.

37,811. CEREAL FOOD. CLARENCE G. VARY, Battlecreek, Mich. Filed Jan. 21, 1902.

TRYABITA

Essential feature.—The word "TRYABITA." Used since January 1, 1902.

37,812. CORN-OIL, CORN-OIL CAKE, AND MEAL, INCLUDING GERM-MEAL. NATIONAL STARCH COMPANY, New York, N. Y. Filed Nov. 2, 1901.

DIAMOND

Essential feature.—The word "DIAMOND." Used since 1897.

37,813. GLUTEN FEED. NATIONAL STARCH COMPANY, New York, N. Y. Filed Nov. 13, 1901.

QUEEN

Essential feature.—The word "QUEEN." Used since March, 1901.

37,814. MEAL, INCLUDING GLUTEN-MEAL. NATIONAL STARCH COMPANY, New York, N. Y. Filed Nov. 13, 1901.

KING

Essential feature.—The word "KING." Used since 1894.

37,815. TEA, COFFEE, COCOA, AND CHOCOLATE. THE HARA-WATTEE TEA CO., LD., London, England. Filed Jan. 6, 1902.

LATARIBA

Essential feature.—The word "LATARIBA." Used since September 9, 1901.

37,816. ALE. FRANK JONES BREWING CO., LIMITED, London, England, and Boston, Mass. Filed Feb. 4, 1901.



Essential feature.—The word "HOMESTEAD." Used since January 24, 1901.

37,817. WHISKY. EDWARD J. GRIER, Washington, D. C. Filed Mar. 23, 1900.

Oronoco

Essential feature.—The word "ORONOCO." Used since October 15, 1895.

37,818. REMEDY FOR DISEASES OF THE MOUTH AND THROAT. THE OZO REMEDY COMPANY, New Brighton, Pa. Filed July 16, 1901.



Essential feature.—The name "OZOLINE," a monogram of the letters "O Z O," and a cloud-effect background. Used since November 1, 1899.

37,819. REMEDY FOR A CERTAIN NAMED DISEASE. HOSS MAYES, Princeton, Ky. Filed Nov. 14, 1901.



Essential feature.—The letters "F R" in monogram form. Used since November 14, 1901.

87,820. RESOLVENT PILLS. POTTER DRUG & CHEMICAL CORPORATION, Boston, Mass. Filed Dec. 11, 1901.

CUTICURA

Essential feature.—The word "CUTICURA." Used since 1878.

87,821. ARTIFICIAL LURES. GEORGE H. BURTH, Worcester, Mass. Filed Apr. 12, 1901.

IRRESISTIBLE

Essential feature.—The word "IRRESISTIBLE." Used since May, 1896.

87,822. ARTIFICIAL FUEL. RANDALL SYNTHETICAL COAL CO., Boston, Mass. Filed Jan. 18, 1902.

SYNTHETICAL

Essential feature.—The word "SYNTHETICAL." Used since March 13, 1901.

87,823. CARPET-SWEEPERS. BISSELL CARPET SWEEPER CO., Grand Rapids, Mich. Filed Jan. 16, 1902.

Cyco Ideal

Essential feature.—The words "CYCO IDEAL." Used since January 1, 1901.

87,824. CARPET-SWEEPERS. BISSELL CARPET SWEEPER CO. Grand Rapids, Mich. Filed Jan. 18, 1902.

Cyco

Essential feature.—The word "CYCO." Used since January 1, 1884.

87,825. FLEXIBLE METAL PIPES. METALLSCHLAUCHFABRIK PFORZHEIM, (vorm. HOR. WITZENMANN,) G. M. B. H., Pforzheim, Germany. Filed Aug. 26, 1901.

87,825.



Essential feature.—The pictorial representation of a three-headed snake winding its body around a tree and spouting vapor from one head, water from another, and fire from the third. Used since February 6, 1901.

87,826. PORTABLE AND STATIONARY FILTERS. CELLER FILTER WERKE GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG, Celle, Germany. Filed Nov. 26, 1901.

Tubipor

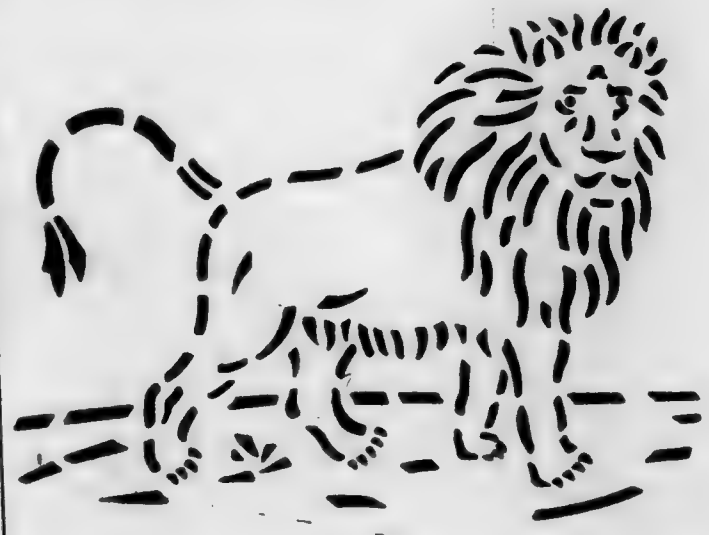
Essential feature.—The word "TUBIPOR." Used since August, 1901.

87,827. CERTAIN NAMED SANITARY APPLIANCES. THE SUMNER & GOODWIN COMPANY, Boston, Mass. Filed Jan. 2, 1902.

TRYMETRIK

Essential feature.—The word "TRYMETRIK." Used since July 1, 1901.

87,828. WASHING-MACHINES. ERNST H. HUNNEFELD, Cincinnati, Ohio. Filed Jan. 16, 1902.



Essential feature.—The representation or figure of a lion. Used since January 2, 1902.

87,829. CERTAIN NAMED CUTLERY AND HARDWARE AND SURGICAL INSTRUMENTS. MAX KLAAS, New York, N. Y. Filed Dec. 20, 1901.

CRANE

Essential feature.—The word "CRANE." Used since 1896.

87,830. CERTAIN NAMED CUTLERY AND HARDWARE AND SURGICAL INSTRUMENTS. MAX KLAAS, New York, N. Y. Filed Dec. 20, 1901.



Essential feature.—The picture of a pair of cranes. Used since 1896.

87,831. HYDRAULIC ROUNDABOUTS. THE AQUARAMA COMPANY, New York, N. Y. Filed Jan. 20, 1902.

AQUARAMA

Essential feature.—The word "AQUARAMA." Used since May, 1900.

87,832. HYDRAULIC ROUNDABOUTS. THE AQUARAMA COMPANY, New York, N. Y. Filed Jan. 20, 1902.

THE OLD MILL

Essential feature.—The words "THE OLD MILL." Used since April, 1900.

87,833. SAWS AND SPRINGS. J. H. RIEMLS & CIE., Augsburg, Germany. Filed Aug. 24, 1901.



Essential feature.—The representation of a winged anchor with two serpents entwined around the vertical shaft and the top crowned by a fir-cone. Used since 1890.

87,834. VEHICLE-TIRES. NEW YORK BELTING & PACKING CO., LTD., New York, N. Y. Filed Jan. 13, 1902.

LONG DISTANCE

Essential feature.—The words "LONG DISTANCE." Used since July 1, 1901.

87,835. SANITARY CASTINGS. ESSEX FOUNDRY, Newark, N. J. Filed Jan. 2, 1902.



Essential feature.—The letters "S X" and the representation of a crucible containing molten metal. Used since July 1, 1901.

PHOTO-LITH. WASHINGTON, D.C. THE NORRIS PETERS CO.

LABELS

REGISTERED FEBRUARY 18, 1902.

8,970.—*Title:* "CARTER'S NATIONAL BANK INK." (For Ink.) THE CARTER'S INK COMPANY, Boston, Mass. Filed January 28, 1902.

8,971.—*Title:* "KNIGHT'S CONSUMPTION, BRONCHITIS, ASTHMA CURE." (For Medicine.) ALEXANDER KNIGHT, Watertown, N. Y. Filed January 27, 1902.

8,972.—*Title:* "DYS-PEP-CIDE." (For a Medical Compound.) C. D. VOORHEES, Sonestown, Pa. Filed January 27, 1902.

8,973.—*Title:* "ANIMALS." (For Macaroni.) C. F. MUELLER & Co., Jersey City, N. J. Filed January 24, 1902.

8,974.—*Title:* "MALT-TOO." (For Food Preparation.) MALT-TOO FLAKE FOOD CO., LTD., Battlecreek, Mich. Filed January 27, 1902.

8,975.—*Title:* "PERFUMOL." (For Breath-Perfume.) THE PERFUMOL COMPANY, Battlecreek, Mich. Filed January 25, 1902.

8,976.—*Title:* "BUSY BEE." (For Cigars.) ED. DE BAUERNFEIND and CHARLES BLESSE, Jacksonville, Ill. Filed January 27, 1902.

8,977.—*Title:* "APERIENT ELK SPLITS." (For Beverages.) ANDREW LOHR BOTTLING CO., Cairo, Ill. Filed October 14, 1901.

8,978.—*Title:* "CALORIC PUNSCH." (For Punch.) B. LINDQVIST & Co., Chicago, Ill. Filed January 27, 1902.

PRINTS

REGISTERED FEBRUARY 18, 1902.

468.—*Title:* "CLOTHING." (For Clothing.) WILLIAM C. BOTH, Chicago, Ill. Filed January 27, 1902.

469.—*Title:* "PRISCILLA." (For Skirt-Fasteners.) THE GOODSPEED MFG. COMPANY, Ann Arbor, Mich. Filed January 24, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE DIAMOND INK COMPANY.

Decided February 7, 1902.

1. TRADE-MARKS—ANTICIPATION—FACSIMILES—STATEMENT OF ESSENTIAL FEATURE.

Where the facsimile of an applicant's trade-mark and the facsimile of a prior registered mark are so similar as to cause confusion in the trade between them, *Held* that registration should be refused notwithstanding the fact that the parties refer to different parts of the mark as constituting the essential features.

2. SAME—ESSENTIAL FEATURES.

The essential features of a trade-mark in use are those predominent and controlling features which would be impressed upon the minds of purchasers and by which they would remember and identify the mark, and a statement of essential features in the application merely calls attention to those features without in any case changing that which in fact constitutes the mark.

3. SAME—SAME—STATEMENT SHOULD INCLUDE ALL.

Since the rule requires a statement of the essential features of the mark, the Office should exercise care in requiring a statement of all of those features of the mark shown which are in fact essential.

4. SAME—LIMITING REGISTRATION TO FEATURES DESIRED—SHOWING.

If a party's registration is intended to be limited to certain features which have been separately used as a trade-mark, he should show only those features.

ON appeal.

TRADE-MARK FOR INKS AND WRITING FLUIDS.

Application for registration filed May 20, 1901, No. 63,424.

Mr. H. G. Underwood for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register as a trade-mark for inks a mark the essential feature of which is said to be "the conventional representation of a diamond or lozenge shaped figure."

It is stated in the description that—

this trade-mark has generally been arranged as shown in the accompanying *facsimile*, wherein the word "Diamond" is shown in ornamental capital letters with the diamond-shaped figure below—

but that "the word 'Diamond' may be omitted."

Registration was refused in view of a prior mark registered by the Thaddeus Davids Company, No. 31,232, February 8, 1898, the *facsimile* of which consists of a diamond-shaped figure and the words "Black Diamond." The registrant states that the diamond-shaped figure may be omitted and that the essential feature of the mark consists of the words "Black Diamond."

The question for determination is: Are the marks so similar as to be likely to cause confusion in the trade?

Considering the *facsimiles* alone, there is undoubtedly such similarity. The appellant raises the question, however, whether the marks can be considered similar when the registrant disclaims as essential what the applicant claims as essential and the applicant disclaims as essential what the registrant claims as essential. It is possible that the courts would hold a party bound by his disclaimer and that he could not under his registration hold as an infringer a person who used only those features of his mark which he states are not essential, and in that case this applicant and the registrant could each use the alleged essential features of its own mark without infringing the other's registered mark. On the other hand, each party states that its mark is used, although not always, as shown in the *facsimile*, and it would seem that the only purpose of disclosing all of the features is to secure some kind of protection upon the mark as a whole. Those *facsimiles* being substantially the same, this Office has before it two parties claiming the right to use the same mark, and it cannot recognize the right of both. Two marks the *facsimiles* of which are so similar as to cause confusion should not be registered. If a party's registration is intended to be limited to certain features which have been separately used as a trade-mark, he should show only those features. The showing of other features either gives him protection upon them or leads to confusion.

The difficulty in the present case has arisen from what seems to have been a misunderstanding of the rule requiring a statement of essential features in a trade-mark application. A party is entitled to register only those marks which have actually been used, and the essential features of a mark in use are those which would be impressed upon the minds of purchasers and by which they would remember and identify the marks. A statement of the essential features merely calls attention to those predominant and controlling features and cannot in any case have the effect of changing that which in fact constitutes the mark. The question whether a feature is essential is one of fact, as is also the question whether it is the only arbitrary and dis-

tinctive feature of the mark which would be impressed upon the mind of the purchasing public. Since the rule requires a statement of the essential features of the mark, the Office should exercise care in requiring a statement of all of those features of the mark shown, which are in fact essential. In the present case the word "Diamond" is undoubtedly as prominent and essential a feature of the mark disclosed as the representation of a diamond.

It is held that since the *facsimiles* of the marks are so similar as to cause confusion registration was properly refused, and the action of the Examiner of Trade-Marks is therefore affirmed.

SUTTER *v.* MCDONNELL *v.* JOLLY *v.* NEFF.

Decided February 7, 1902.

1. INTERFERENCE—REOPENING TO TAKE MORE TESTIMONY—FAILURE TO PRESENT BEST EVIDENCE.

Where a party through mistake or ignorance failed to present his best evidence, the interference will not be reopened thereafter merely to permit him to strengthen his case.

2. SAME—SAME—SAME—EXPERIMENTAL CONDUCT OF CASE.

A practice which would allow a contestant to experimentally conduct his case to a probable failure and then permit him after consultation and with competent assistance to make further endeavors to show what he could and should have earlier shown with such assistance would be contrary to all well-established rules and legal principles.

3. SAME—SAME—IDENTIFICATION OF EXHIBITS.

Where a party moves that he be allowed to introduce and identify certain exhibits referred to in the testimony on his behalf and there is nothing in the testimony to show that the exhibits were present or even in existence at the time, *Held* that the motion involves merely reopening the interference to strengthen a showing which was complete, but weak, and that it will not be granted.

ON petition.

BEET-HARVESTERS.

Application of Isaac M. Sutter filed September 13, 1900, No. 29,950. Application of John B. McDonnell filed August 9, 1900, No. 26,335. Application of Charles L. Jolly filed May 31, 1900, No. 18,537. Application of Oziel H. Neff filed January 25, 1900, No. 2,761.

Messrs. C. A. Snow & Co. for Sutter.

Messrs. Williamson & Merchant for McDonnell.

Messrs. Dewey, Strong & Co. and *Mr. T. Walter Fowler* for Jolly.

Mr. Ira C. Koehne and *Messrs. Church & Church* for Neff.

ALLEN, *Commissioner:*

This is a petition by Sutter from the decision of the Examiner of Interferences denying his motion for permission and time within which to take additional testimony necessary to identify and introduce in evidence in the above-entitled interference several existing exhibits referred to in the testimony of the several witnesses examined in his behalf.

Sutter's testimony-in-chief was filed in the Office on June 28, 1901, and on July 1, 1901. It appears from the record that after the setting of times for taking testimony Sutter's attorneys were informed that he could not employ C. A. Snow & Co. to take the testimony in his behalf "owing to the great distance from Washington to California," and, furthur, that he "had selected a competent attorney here to take the required testimony."

The testimony was accordingly taken by one Mark H. Farrar, an attorney-at-law, who had received such information from C. A. Snow & Co. as he would require for this purpose. After the testimony was filed in the Office it was discovered by C. A. Snow & Co. that the exhibits referred to therein had not been introduced in evidence. Accordingly the present motion was brought October 17, 1901.

An examination of the testimony on behalf of Sutter shows that the witnesses stated that they saw at various times drawings, sketches, and machines relating to beet-harvesters made by Sutter; but those drawings and machines were not introduced in evidence. Their absence is not due to a mere failure to formally introduce them and have them marked by the notary, since they do not seem to have been present at the time of the examination, and there is nothing to show that they were produced for the inspection of the witnesses or of opposing counsel. In fact, there is nothing in the testimony taken to show that the drawings and sketches were in existence at that time. This motion, therefore, does not involve merely placing of record formally evidence actually produced at the time, but involves reopening the case to permit the taking of new testimony to strengthen evidence which was complete, but which is regarded as weak in certain particulars.

While it is unfortunate for Sutter if he has better evidence that he failed to produce it at the proper time, the rule is well settled that cases will not be reopened merely because a party has through mistake or ignorance failed to present his best evidence. The rights of the other parties to the interference must be considered, and it would undoubtedly work a hardship to them to reopen this interference for the taking of further testimony by Sutter.

It was said under similar circumstances in *Estes v. Gause*, (88 O. G., 1336:)

> There is no allegation of newly-discovered evidence, since it is clear and practically admitted that the evidence was known and accessible to Estes at the time that his testimony was taken. The only apparent excuse for his failure to introduce it at that time is that he did not realize its importance. While this is unfortunate for Estes, it is clearly no valid excuse, since a similar allegation could be made by every defeated party who wishes to strengthen his case. To reopen interferences upon such allegations would make it impossible to bring any case to a conclusion.

The circumstances in the present case are also similar to those in the case of *Donnellan v. Berry*, (87 MS. Dec., 386.) In this latter case it was said:

> A practice which would allow a contestant to experimentally conduct his own case to a probable failure and then permit him, after consultation and with competent assistance, to make further endeavors to show what he could and should have earlier shown with such assistance, would be contrary to all well-established rules and legal principles.

With much greater force does this reason apply to the present case, where the testimony was taken under the direction of a competent attorney-at-law.

The testimony on behalf of Sutter after having been taken was on file in this Office for more than three months before this motion to take further testimony was filed. There was therefore a lack

of diligence in discovering the alleged mistake and in attempting to have it corrected.

The petition is denied.

B. A. CORBIN & SON COMPANY *v.* MILLER, KOHLHEPP, GIESE AND COMPANY.

Decided February 8, 1902.

1. TRADE-MARKS—INTERFERENCE IN FACT—REPRESENTATION OF AN OWL.

Where one party uses the picture of an owl and the words "We Never Sleep" as a trade-mark on ladies' and children's shoes and the other uses a picture of the head and upper part of an owl with the words "Owl Shoe" as a trade-mark for men's and boys' shoes, *Held* that the essential feature of each is the owl and that there is an interference in fact.

2. SAME—THE SAME CLASS OF MERCHANDISE—SHOES FOR MEN AND WOMEN.

Substantially the same mark cannot be registered to two parties for two classes of goods which are so closely related that when bearing the same mark the public would be deceived and suppose that they were the product of the same manufacturer. *Held* that shoes for men, women, and children are so closely related.

3. SAME—INTERFERENCE—ISSUE—ESSENTIAL FEATURES.

The issue in a trade-mark interference must comprise the essential features of the mark as applied to the same class of goods, and what constitutes the essential features is not to be decided from the applicant's statement, but is one of fact.

APPEAL on motion.

TRADE-MARK FOR SHOES.

Application of B. A. Corbin & Son Company filed July 22, 1901, No. 63,823. Trade-mark No. 34,402, registered April 3, 1900, Miller, Kohlhepp, Giese and Company.

Messrs. Crosby & Gregory for B. A. Corbin & Son Company.

Mr. E. G. Siggers for Miller, Kohlhepp, Giese and Company.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks denying a motion by Miller, Kohlhepp, Giese and Company to dissolve the above-entitled interference.

The motion is based upon the following grounds:

1. That no interference in fact exists.

2. That there has been such irregularity in the declaration of the interference as to preclude a proper determination of the question of priority.

This interference was declared between the registered trade-mark of Miller, Kohlhepp, Giese and Company, consisting, as shown, of the representation of an owl perched on a branch, with the words "We Never Sleep" arranged above it and the letters "M. K. G. & Co." below it, and the mark of the applicants, B. A. Corbin & Son Company, consisting of the representation of the head and upper part of the body of an owl arranged within a double circle, with the words "Owl Shoe" between the inner and outer circles and below the head.

That the registered trade-mark and the mark for which registration is sought are so similar in appearance that the public would be deceived if the two marks were applied to the same class of goods cannot be questioned. (See the decision in *ex parte Kingan and Company, Limited*, 97 O. G., 2085.) Registrants limit the use of their mark to shoes for ladies and children, while applicants seek registration of their mark for shoes for men, boys, and youths.

In view of their specific statements as to the kind of goods to which the marks are to be applied it is urged by applicants that there is no interference in fact—

because the two marks are different and furthermore the specific classes of goods claimed by the respective parties are different.

The question raised by the first of these reasons is disposed of above. As to the second reason it may be said that in general the same question is presented as when the question of infringement is to be considered—that is, will the public be deceived? Are the classes of goods so closely related that when bearing the same mark one would suppose that they are the product of the same manufacturer? In the present case these questions must be answered in the affirmative. Undoubtedly any one seeing the trade-mark consisting, essentially, of an owl applied to men's, women's, and children's shoes would suppose them to be the product of the same maker. If one of these classes of shoes is found to be of special excellence, the same degree of excellence will be looked for in the others. It must be held, therefore, that the classes of goods to which the trade-marks now under consideration are applied are the same. There is therefore an interference in fact between these marks.

The second ground for the motion for dissolution is that there has been irregularity in the declaration—

which irregularity consisted in making the issue broader than the claims of the respective parties.

The issue is stated by the Examiner to be "the representation of an owl for shoes."

As to this second ground for the motion it may be said that the strict rules which are followed in interferences between applications for patents are not wholly applicable to interferences between trade-marks. Thus the issue in the former case must be limited to what is claimed by the respective parties, while in the latter case it must comprise the essential features of the mark as applied to the same class of goods. What the essential features are is not to be decided from applicants' statement thereof, but from an inspection of the marks, to determine "that which would strike the public mind as its most essential feature." (*Ex parte Kingan and Company, Limited*, *supra*, and the cases cited therein.) So, also, of the classes of goods to which the mark is applied, the question whether or not different specific articles are of the same class is a question of fact to be determined in each case as pointed out above.

In the present case, since the essential feature of the two marks, the representation of an owl, is the same and since the class of goods to which they are applied is the same, it is held that there was no irregularity in declaring the interference.

The decision of the Examiner of Trade-Marks is affirmed.

DECISIONS OF THE U. S. COURTS.

Court of Appeals of the District of Columbia.

GEDGE v. CROMWELL.

Decided January 7, 1902.

1. INTERFERENCE—BURDEN OF PROOF—APPLICANT AGAINST PATENTEE.

Where an applicant is placed in interference with a previously-granted patent, the burden is upon him to show beyond a reasonable doubt that he is the first and original inventor of the matter in controversy.

2. SAME—PRIORITY OF INVENTION—EMPLOYER AND EMPLOYEE—IMPROVEMENTS UPON THE DETAILS.

Where G. had a patent upon wire-reels, granted in 1891, and in 1897 C. by contract undertook in subordination to G. and for the benefit of his invention to make improvements upon that reel and perfect its details, the profits to be equally divided between them, *Held* that whatever improvements were made are to be regarded as the invention of G. (*Agawam* v. *Jordan*, 7 Wall., 583; *Milton* v. *Kingsley*, 7 D. C. App., 531.)

3. SAME—SAME—SAME—EMPLOYER THE REAL INVENTOR.

The rule is that one who by way of partnership or contract or in any other empowers another person to make experiments upon his own conception for the purpose of perfecting it in its details is entitled to the ownership of such improvements in the conception as may be suggested by such other person. The second person is not in law to be regarded as an independent and original inventor.

4. SAME—CONTRACT TO IMPROVE INVENTION—BURDEN OF PROOF UPON EMPLOYEE.

Where C.'s company by contract agreed to make improvements upon G.'s patented reel, *Held* that it was incumbent upon C. to show beyond a reasonable doubt that what he did was his own invention and not that of G.

5. SAME—ORIGINALITY OF INVENTION—PROOF OF DISCLOSURE.

Where C.'s company agreed to improve G.'s reels and it appears that G. made disclosures to one member of C.'s company, *Held* that it was not necessary to show disclosure to C. in person, since he was chargeable with the notice to his firm.

Mr. George B. Parkinson for the appellant.

Messrs. Bakewell & Bakewell for the appellee.

MORRIS, *J.*:

This is an appeal from the Acting Commissioner of Patents in an interference case, wherein the subject-matter of controversy is the right of priority of invention in an improvement in rod-reels. The subject of invention is thus stated by the Patent Office:

1. A rod-reel having a friction-wheel secured to the driven shaft, a vertically-movable friction-ring having the same axis as and arranged to connect with and be driven by the said wheel, hook-shaped fingers arranged to receive the rod, and connections between the fingers and the friction-ring arranged to move them in and out upon its vertical movement.

2. A rod-reel having a friction-wheel secured to a driven shaft, a vertically-movable friction-drum arranged to contact with the friction-wheel and be driven thereby, a friction brake-wheel arranged to contact with the friction-drum and raise and lower it, and means for moving the brake-wheel vertically.

3. A rod-reel having a series of outwardly-movable hook-fingers, a brake arranged to stop the rotation of the reel, and actuating connections between the brake and the hook-fingers arranged to retract the hook-fingers whenever the brake is applied.

For this invention the appellee John C. Cromwell holds a patent which was issued to him on November 7, 1899, based upon an application which he had filed on November 24, 1898. The appellant Burton H. Gedge did not file his application until April 25, 1900, after information had reached him of the issue of the patent to Cromwell. He then copied in his application the claims of the patent, and with his application filed a request to be placed in interference with Cromwell. Accordingly the present interference was declared.

In his preliminary statement the appellee Cromwell alleged that he had conceived the invention on or about July 20, 1897; disclosed it to others on or about July 24, 1897; made drawings of it on the last-mentioned day, and continued from time to time thereafter to make such drawings; on or about January 14, 1898, constructed and completed a full-sized rod-reel in accordance with the invention, which rod-reel was put into successful operation about February 5, 1898; and thereafter made and put into successful operation several other reels embodying the same invention.

The appellant Gedge in his preliminary statement alleged that he had conceived the invention set forth in the second count or issue of the declaration of interference before January 1, 1891; that prior to said date he had made sketches thereof and disclosed the same to others; that prior to June 1, 1896, he had conceived and disclosed the inventions set forth in the first and third counts or issues of the declaration of interference; that prior to April 20, 1897, he had disclosed said inventions to William Garrett, of Cleveland, Ohio, and illustrated them by sketches; that, on or about April 26, 1897, he had entered into a contract with the Garrett-Cromwell Engineering Company, of Cleveland, Ohio, a partnership consisting of said William Garrett and John C. Cromwell, the senior party to this interference, by which contract the said company undertook, upon terms therein specified, to enter upon the manufacture and sale of wire-rod reels, embodying the invention described and claimed in Letters Patent issued to the appellant on September 1, 1891, for a machine for coiling wire rods, to perfect said machine in its details, and to introduce it into all rod-mills which the said Garrett-Cromwell Engineering Company should have a chance to build; that on or about May 12, 1898, he had authorized the said Garrett-Cromwell Engineering Company to contract with the Oliver Wire Company, of Pittsburg, Pa., for installing in the factory of this latter six wire-rod reels, made in accordance with the said Letters Patent and improvements thereon; that, on or about the same day (May 12, 1898), he had been informed by said Garrett-Cromwell Engineering Company that the contract with said Oliver Wire Company had been closed; that thereupon, at the request of said Garrett, he had sent to the Garrett-Cromwell Engineering Company a drawing embodying all the inventions recited in the declaration of interference; that under said contract the said Garrett-Cromwell Engineering Company had proceeded to construct full-sized machines, embodying not only the invention set forth in the Letters Patent of September 1, 1891, but also the improvements stated in the issues of the declaration of interference and disclosed in the drawings sent to that company by the appellant; that these mills had gone into operation some time between July 1, 1898, and August 15, 1898; that the appellant himself had seen these rod-reels in successful operation in the Oliver Wire Company's establishment on or about October 1, 1898; that they em-

bodied the inventions in interference; and that the appellant had been informed and believed that since that time the Garrett-Cromwell Engineering Company had manufactured and sold similar rod-reels in large numbers.

In support of their respective allegations the parties took testimony, of which a large part was documentary, consisting of correspondence between the appellant, on the one side, and the Garrett-Cromwell Engineering Company, William Garrett, and John C. Cromwell, on the other, during the period from April 15, 1897, to January 12, 1898. Upon this testimony the Examiner of Interferences in the Patent Office held that the appellant Gedge was entitled to judgment of priority of invention; or rather he held that the case presented a question of originality rather than of priority of invention, and that Cromwell had derived the invention from Gedge. The Board of Examiners-in-Chief reversed this decision, and found in favor of Cromwell; and the Assistant Commissioner of Patents, who sat in the place of the Commissioner, affirmed the decision of the Board. From the decision of the Acting Commissioner the case now comes here on appeal.

The appellant has the burden of proof upon him, both as the junior applicant, and as against an adversary holding a patent for the disputed invention, to show beyond a reasonable doubt that he is the first and original inventor of the matter in controversy; and the burden would seem to be increased in this court by the fact that he comes here with two decisions of the Patent Office adverse to him. And yet, notwithstanding all this, we have no hesitation in holding that he was the first and only inventor in this case, and that the Examiner of Interferences in the Patent Office was right in awarding to him judgment of priority of invention.

It is unnecessary for us to analyze the testimony at any length. This has been done very fully and very fairly by all three of the tribunals of the Patent Office; and their analysis is contained in the record. A fourth abstract would serve no useful purpose, especially inasmuch as we rest our decision on a few salient facts, in reference to which there is no controversy.

It is conceded, and it could not well have been denied, that the invention here in controversy, and for which the appellee has a patent, is no more than an improved form of the invention covered by the previous patent issued to the appellant in 1891. It is conceded, or at least there can be no reasonable doubt whatever of the fact, that, if the appellee made the improved invention here in controversy, as he claims to have made it, on and after July 20, 1897, the inducement to him to make it was the contract entered into by the appellant with the appellee's company nearly three months before that time, on April 26, 1897. That contract was not formally reduced to writing; but the evidence of it is in writing, and is to be found in the correspondence on and before the last-mentioned date between the appellant and the Garrett-Cromwell Engineering Company.

In this correspondence it was repeatedly urged upon the appellant by the Garrett-Cromwell Engineering Company, as an inducement to the appellant to accept the division of profits proposed by the company, that the company would "take hold," as the expression was, of this reel, would "perfect it in some of its details," and would introduce it into every rod-mill which the company would have a chance to build; and further, that, because the reels, as they were then working at Anderson, Ind., where they were first introduced, would "have to be entirely remodeled, and new drawings and new designs in every detail would have to be made, which would entail a great trouble and expense" upon the company, therefore the offer made by the company of an equal division of the profits was a fair one. And the contract between the parties was upon these precise terms. It was conceded that the Gedge reels, as then in operation, were somewhat imperfect; and it was part of the contract that the Garrett-Cromwell Engineering Company should seek by experiment to remove the difficulties and to remedy the imperfections, and so to improve the operative character of the machine as to obviate the existing objections thereto. This experimentation it was the special province of the appellee Cromwell to make, because he was the expert and the mechanical engineer of the partnership, and his partner Garrett had the charge only of the business and financial operations of the firm.

By virtue of this contract, therefore, Cromwell, the appellee, undertook, and engaged himself to the appellant, technically for the benefit of the appellant and financially for the equal benefit of the appellant and the appellee's firm, to "remodel" the appellant's reel, and to perfect it in its details. It is claimed on the one side and denied on the other, that the appellant furnished suggestions and sketches for such improvements. This, of course, if proved, would be important; but we do not regard the fact as necessary for the determination of the case. The conceded fact is that the appellee Cromwell, by the contract which has been stated, undertook, in subordination to Gedge and for the benefit of the latter's invention, to make improvements on that invention and to perfect it in its details. Now, it is difficult to conceive a situation in which the principle of the decision of the Supreme Court of the United States in the case of *Agawam Company* v. *Jordan*, (7 Wall., 583, 602,) would be more appropriate than in that which is here disclosed. There the Court said:

> No one is entitled to a patent for that which he did not invent unless he can show a legal title thereto from the inventor or by operation of law; but where a person has discovered an improved principle in a machine, manufacture, or composition of matter, and employs other persons to assist him in carrying out that principle, and they, in the course of the experiments arising from that employment, make valuable discoveries ancillary to the plan and preconceived design of the employer, such suggested improvements are in general to be regarded as the property of the party who discovered the original improved principle, and may be embodied in his patent as part of his invention.

Such also was the holding of this court in the much misunderstood case of *Milton* v. *Kingsley*, (7 D. C. Appeals, 531, 537,) in which, upon the au

thority of the case of *Agawam Co.* v. *Jordan* and *Curtis on Patents*, we said:

> We regard it as well-settled law that, when one, who has conceived the principle or plan of an invention, employs another to perfect the details, and to realize his conception, and the employee devises new and valuable improvements in the original conception or invention, the improvements belong to the employer and not to the employee.

The question is not one of partnership, or of general fiduciary relationship – for there may be partnership and fiduciary relationship for one purpose and not for another; but it is one of fiduciary employment in the special subject-matter of invention. The rule is that one, who, by way of partnership, or contract, or in any other, empowers another person to make experiments upon his own conception for the purpose of perfecting it in its details, is entitled to the ownership of such improvements in the conception as may be suggested by such other person. And we do not understand that the exceedingly liberal policy of the Patent Office in the allowance of independent patents for minute improvements is to be regarded as contravening this rule. Independent inventors may not come within the scope of the rule.

It is very clear to us, therefore, under the circumstances of this case, that, if the appellee originated and devised the alleged improvements made by him upon the conception of the appellant, and did not receive them from the communications of the appellant to him or to his partner, Garrett, which it would not be unreasonable to assume as the fact, yet his improvements, under what we must regard as the settled principle of the law, must be held to inure to the benefit of the appellant. And this conclusion is greatly strengthened by the course of conduct of the appellee himself.

The alleged conception of the invention by the appellee was of the date of July 20, 1897. There is an apparent vacuum about this time, from June 22, 1897, to May 2, 1898, in the correspondence between Gedge and the Garrett-Cromwell Engineering Company, as given in the record, due possibly to the fact that Garrett, the senior partner of this company, was absent in Europe from about the beginning of August, 1897, to the latter part of April, 1898. But soon after this last-mentioned date the correspondence, if it had been interrupted, was resumed, and was continued with much regularity until January 12, 1899. Yet not once during all this time, notwithstanding that the so-called Gedge reels were put in the Oliver Company Mills in Pittsburg, and apparently also in the mills in Kentucky and Alabama, and that Gedge had been repeatedly called on by the Garrett-Cromwell Engineering Company to send needed materials for them, and in the correspondence the reels were always designated as Gedge reels, not once did Cromwell assert any right of his own in the premises, or claim to have made any invention independent of that of Gedge; and never once was there any intimation of any kind by either partner of the Garrest-Cromwell Engineering Company to Gedge that the appellee Cromwell had invented anything of his own, or was working upon any such invention. Cromwell's application for a patent was filed on November 24, 1898. Gedge had quite recently written several letters to the company soliciting information, which appears to have been withheld from him, relative to the mills into which his reel had been introduced by the company. Under date of the very next day, November 25, 1897, the appellee Cromwell, for the Garrett-Cromwell Engineering Company, wrote to him this letter:

> DEAR SIR: Your favor of the 23d inst. received. Our Mr. Garrett, who has been personally attending to the reel matter, is confined to his bed with something like an attack of pneumonia. We will lay your letter before him for reply as soon as he is able to attend to business again.
>
> Yours truly,
>
> (Signed) GARRETT-CROMWELL ENGINEERING COMPANY,
> By J. C. CROMWELL, per J. S.

The writer of this letter was remarkably silent as to the fact that he was at that very time claiming in the Patent Office what he knew that Gedge also claimed, and which was the same construction that had been put into the Oliver mills as Gedge's invention. It may be that this silence was not intended as a fraudulent attempt to defeat the rights of the appellant; but under the circumstances it was not good faith.

Gedge was again compelled to write for information on December 16, 1898; and finally, under date of January 6, 1899, the Garrett-Cromwell Engineering Company, by William Garrett, the senior partner, addressed a letter to him in which that company for the first time repudiated his rights, and refused further to recognize him in the matter. The statements contained in this letter are in more than one instance in direct antagonism to statements previously made by the company in the course of the correspondence; and contain no sufficient excuse for their violation of their agreement.

Cromwell, of course, was bound by the action of his firm in the premises. It is very plain that he was not only chargeable with constructive notice, through his partnership relation with Garrett, of all that was done, but that he had actual knowledge of all the proceedings and participated in them. The suggestion in argument that he and Garrett were partners for the purpose of the construction of reels and other similar devices, and not for the purpose of making or perfecting inventions, does not require serious consideration. The contract between his company and Gedge distinctly and specifically provided that his company, and therefore necessarily that he, as the engineer member of it, would remodel the machine and perfect the invention in its details; and it was not competent for him, either in morals or in law, thereafter to claim as his own what he had undertaken to do for another. The patent law does not require that one, who contracts to experiment on the conception of another and to devise improvements upon it, should be regarded as an independent and original inventor.

The appellant Gedge claims that he communicated to Garrett his conception and sketches of all the devices now in controversy; and we think that the proof sustains his claim. Under the circumstances it would be unnecessary to show by actual proof that Garrett communicated these to Cromwell; for Cromwell would be chargeable with notice of them. But whether Cromwell had knowledge of them or not, or even if the testimony leaves it doubtful whether there was any such communication to Garrett, it was incumbent upon Cromwell, in view of the relations of his firm to Gedge, to show beyond a reasonable doubt that what he did was his own invention and not that of the appellant. This he has not done.

We are of the opinion that it was error in the Acting Commissioner to determine the issues in favor of the appellee; and we are of opinion that the appellant Burton H. Gedge is entitled to judgment of priority of invention. The decision of the Acting Commissioner will therefore be reversed.

The clerk of the court will certify this opinion, and the proceedings in the cause in this court, to the Commissioner of Patents according to law.

ERRATUM.

The first page of the illustrated portion of this number bears at the head the date March 25, instead of February 25.

The date should be February 25.

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Abstract
Abstract

Patents Nos. 693,823 to 694,341.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Trade-Marks	46—No. 37,836 to No.	37,881, inclusive.
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Reissues	None.	
Total issue	594	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	----	Nevada	1	----
Arizona Territory	----	----	New Hampshire	2	----
Arkansas	----	----	New Jersey	20	4
California	15	----	New Mexico Territ'y	2	----
Colorado	6	----	New York	68	20
Connecticut	17	----	North Carolina	----	1
Delaware	2	----	North Dakota	----	----
District of Columbia	4	1	Ohio	40	2
Florida	----	----	Oklahoma Territ'y	1	----
Georgia	4	----	Oregon	----	----
Hawaii Territory	----	----	Pennsylvania	47	5
Idaho	2	----	Porto Rico	----	----
Illinois	45	4	Rhode Island	2	----
Indian Territory	----	----	South Carolina	1	----
Indiana	11	1	South Dakota	3	----
Iowa	11	----	Tennessee	2	----
Kansas	8	----	Texas	5	1
Kentucky	6	1	Utah	----	----
Louisiana	----	----	Vermont	6	----
Maine	1	----	Virginia	4	----
Maryland	6	----	Washington	4	----
Massachusetts	37	5	West Virginia	3	----
Michigan	21	3	Wisconsin	14	1
Minnesota	13	5	Wyoming	----	----
Mississippi	3	----	U. S. Navy	----	----
Missouri	10	3	Total to citizens of the United States	451	57
Montana	----	----			
Nebraska	2	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	----	----	Mexico	----	----
Austria-Hungary	3	----	Netherlands	1	----
Barbadoes	----	----	Newfoundland	----	----
Belgium	1	----	New South Wales	----	----
Bermuda	----	----	New Zealand	2	----
Brazil	1	----	Norway	----	----
Canada	4	----	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile	----	----	Russia	2	----
China	----	----	Scotland	3	1
Colombia	----	----	South African Republic	----	----
Cuba	----	1	South Australia	1	----
Denmark	----	----	Spain	----	----
Egypt	----	----	Sweden	6	----
England	24	4	Switzerland	1	----
France	5	----	Turkey in Asia	----	----
Germany	22	----	Victoria	2	----
Guatemala	----	----	Western Australia	----	----
Haiti	----	----			
India	----	----	Total to citizens of foreign countries	80	6
Ireland	2	----			
Italy	----	----			

Disclaimer.

684,340.—*Malcolm H. Baker*, New York, N. Y. Improvement in Regulating Device for Arc-Lamp Circuits. Patent dated October 8, 1901. Disclaimer filed February 14, 1902, by the assignee, the *Manhattan General Construction Company*, of New York, N. Y.

Enters its disclaimer—

To that part of the specification and claims which is identified as follows, to wit:

The construction illustrated in Figure 5 of the drawings and described in the specification and claims in the following words:

"Fig. 5 illustrates diagrammatically my improved regulating-coil in connection with a single arc-lamp.

"I may apply my regulating reactance-coil to a single lamp structure as well as to a circuit including a series of arc-lamps. In Fig. 5 I illustrate such an application. The regulating-coil is in this instance placed in series with the carbons—that is to say, it is connected up in the main circuit of the lamp. Its action is precisely the same as has already been described in connection with a series of lamps in circuit.

"3. In an alternating-current arc-lamp, a regulating reactance-coil in series with the carbons, the said coil having a moving part adapted, when moved to different positions by the magnetic pull of the coil, to cause varying choking effects in the coil, the moving part being acted upon by a force opposing the magnetic pull, which force is so adjusted throughout its effective range of operation as to balance the magnetic pull when the moving part is in positions adapted to produce constant current.

"5. In an arc-lamp, a pair of carbons and a regulating reactance-coil in series therewith, the said coil having a moving part adapted to increase the choking effect in the coil, a pivoted lever connected to the moving part and a weight on the lever, the connection between the moving part and the lever being made at a critical angle, whereby the varying effects of the weight and the magnetic pull of the coil cause varying choking effects which are adapted to maintain the current constant."

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 18, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Jan. 29	Jan. 27	127
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Jan. 27	Feb. 6	206
253	X. Carriages and Wagons	Jan. 27	Feb. 5	98
340	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Jan. 25	Feb. 1	162
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Jan. 21	Feb. 4	168
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Jan. 21	Jan. 27	190
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 20	Feb. 4	193
213	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Jan. 20	Feb. 4	150
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Jan. 20	Feb. 4	146
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Jan. 20	Feb. 4	149
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Jan. 20	Feb. 4	187
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Jan. 20	Feb. 4	158
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 20	Feb. 4	172
123	XXIX. Wood-Working Machines, Coopering and Roofing.	Jan. 20	Feb. 4	156
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Jan. 20	Feb. 4	207
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Jan. 20	Feb. 3	356
246	I. Tillage, etc., and Fences	Jan. 20	Jan. 30	156
30	IV. Civil Engineering, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Jan. 20	Jan. 29	261
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Jan. 20	Jan. 20	165
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Jan. 18	Feb. 5	225
108	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 18	Feb. 5	196
261	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Jan. 18	Feb. 4	223
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Jan. 18	Feb. 4	256
	Between one and two months.			
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Jan. 15	Feb. 5	165

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Jan. 15	Feb. 1	172
128	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Jan. 13	Jan. 31	200
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 8	Jan. 18	262
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Jan. 3	Jan. 15	294
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec. 24	Dec. 19	390
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Dec. 21	Dec. 20	359
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Dec. 20	Dec. 16	459
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Dec. 19	Dec. 6	382
	Between two and three months.			
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Dec. 14	Dec. 17	507
248	XVIII. Steam-Engineering, etc	Dec. 12	Dec. 17	422
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 9	Jan. 23	257
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Nov. 30	Jan. 15	443

Total number of applications awaiting action.....8,829

Under one month.			
*Designs	Jan. 27	Jan. 27	143
†Trade-Marks	Jan. 28	Feb. 4	124
‡Labels and Prints	Feb. 14	Feb. 13	18

Disclaimer.

684,165.—*Malcolm H. Baker*, New York, N. Y. IMPROVEMENT IN METHOD OF REGULATING ELECTRIC CIRCUITS. Patent dated October 8, 1901. Disclaimer filed February 14, 1902, by the assignee, the *Manhattan General Construction Company*, of New York, N. Y.

Enters its disclaimer—

To that part of the specification identified as follows, to wit:

To the construction illustrated in Figure 5 of the drawings and described in the specification in the following words:

"Fig. 5 illustrates diagrammatically my improved regulating-coil in connection with a single arc-lamp.

"I may apply my regulating reactance-coil to a single-lamp structure as well as to a circuit including a series of arc-lamps. In Fig. 5 I illustrate such an application. The regulating-coil is in this instance placed in series with the carbons—that is to say, it is connected up in the main circuit of the lamp. Its action is precisely the same as has already been described in connection with a series of lamps in circuit."

Attorneys' Use of Assignment Records.

It has been brought to my attention that certain attorneys and other persons have made use of the assignment records to obtain the addresses of persons having applications pending before this Office, in order to send them letters and circulars offering to secure foreign patents or to transact other business which it may be presumed the attorneys of record in such applications are competent and willing to do. Such use of the assignment records is not a proper or legitimate use. These records are not open to the public for any such purpose.

It is hereby ordered that any attorney or other person who is known to make such use of the assignment records of this Office will be denied access thereto.

PATENTS

GRANTED MARCH 25, 1902.

693,828. AIR-GUN. WALTER R. BENJAMIN, St. Louis, Mo. Filed Sept. 11, 1901. Serial No. 75,096. (No model.)



Claim.—1. In an air-gun, the combination with a projectile-barrel and an air-reservoir, of a valve controlling the escape of air to the barrel, a spring-poised self-cocking hammer disposed to operate the valve, and a trigger for operating said hammer.

2. In an air-gun, the combination with a projectile-barrel and an air-reservoir, of a valve controlling the escape of air to the barrel, a spring-poised self-cocking hammer disposed to operate the valve, and a trigger operatively connected to the hammer to move it to its raised or cocked position, said trigger being arranged to release the hammer at one limit of its movement and thereby permit the hammer to spring back beyond its normal position and deliver a sharp blow to the valve.

3. In an air-gun, the combination with a projectile-barrel and an air-reservoir, of a valve controlling the escape of air to the barrel, a spring-hammer disposed to open the valve, a trigger for operating the hammer, and means for effecting an operative connection between the trigger and hammer during the movement of the trigger in one direction, and not otherwise.

4. In an air-gun, the combination with a projectile-barrel, an air-reservoir, and a controlling-valve, of a spring-urged hammer for operating the valve, a trigger for operating the hammer, and a movable member carried by one of said elements to effect an operative connection between the trigger and hammer when the trigger is moved in one direction, and to permit the return of the trigger to its normal position independently of the hammer.

5. In an air-gun, the combination with a projectile-barrel, an air-reservoir and a controlling-valve having an extended stem, of a spring-hammer disposed to strike a sharp blow upon the stem to open the valve, a pivoted trigger, a pivoted arm mounted on the hammer in the path of the trigger, and means for supporting the pivoted arm in its proper position to effect an operative connection between the trigger and hammer when the former is moved in one direction.

6. In an air-gun, the combination with a projectile-barrel, an air-reservoir and means for controlling the escape of air to the projectile-barrel, of a shiftable magazine for the reception of a number of projectiles, and means operated by the shifting of the magazine for transferring the projectiles to the projectile-barrel.

7. In an air-gun, the combination with a projectile-barrel, an air-reservoir, and means for controlling the escape of air to the projectile-barrel, of a magazine shiftably mounted upon the projectile-barrel and arranged to hold a number of projectiles, said projectile-barrel and magazine being provided with openings arranged to be moved into and out of coincidence by the shifting of the magazine.

8. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir, and means for controlling the escape of air to the barrel, of a shiftable magazine for the reception of a number of projectiles and provided with a feed-opening arranged to be brought into coincidence with the breech-opening of the projectile-barrel by the shifting of the magazine, and means for preventing the escape of more than a single projectile from the magazine to the projectile-barrel when the feed and breech openings are brought into coincidence through the movement of the magazine.

9. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir and means for controlling the escape of air to the projectile-barrel, of a shiftable magazine for the reception of a number of projectiles and provided with a feed-opening normally disposed out of coincidence with the breech-opening of the projectile-barrel, a breech-gate movable with the magazine and normally closing the breech-opening, and means for preventing the escape of more than a single projectile from the magazine when the feed and breech openings are brought into coincidence by the movement of the magazine.

10. In an air-gun, the combination with a projectile-barrel, an air-reservoir and means for controlling the escape of air to the projectile-barrel, of a shiftable magazine for the reception of a number of projectiles and arranged to supply said projectiles, one at a time, to the projectile-barrel through the movement of the magazine in one direction, and means for automatically returning the magazine to its normal position.

11. In an air-gun, the combination with a projectile-barrel, an air-reservoir and means for controlling the escape of air to the projectile-barrel, of a shiftable magazine designed for the reception of a number of projectiles and arranged to feed said projectiles, one at a time, to the projectile-barrel through the movement of the magazine, and means for feeding the projectiles one at at time, to a position for delivery to the projectile-barrel upon the next movement of the magazine.

12. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir and means for controlling the escape of air to the projectile-barrel, of a shiftable magazine provided with a feed-opening arranged to be brought into coincidence with the breech-opening through the movement of the magazine, and an automatic cut-off device arranged to permit a single projectile to drop to a position opposite the feed-opening when the magazine is retracted.

13. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir, and means for controlling the escape of air to the projectile-barrel, of a shiftable magazine provided with a feed-opening designed to be brought into coincidence with the breech-opening through the movement of the magazine, a cut-off arranged to prevent the passage of more than a single projectile to the projectile-barrel, and means for automatically operating the cut-off through the movement of the magazine.

14. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir, and means for controlling the escape of air to the projectile-barrel, of a shiftable magazine provided with a feed-opening arranged to be brought into coincidence with the breech-opening by the movement of the magazine in one direction, a cut-off disposed to prevent the escape of more than a single projectile to the projectile-barrel, means for automatically moving the cut-off to its operative posi-

tion when the magazine is moved to supply a projectile to the projectile-barrel, and means for moving the cut-off to its inoperative position when the magazine is retracted, the last-named movement of the cut-off serving to permit another projectile to be presented in position for delivery to the projectile-barrel.

15. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir and means for controlling the escape of air to the barrel, of a shiftable magazine provided with a feed-opening designed to be brought into coincidence with the breech-opening through the movement of the magazine, a spring-arm provided with a check-finger constituting a cut-off to prevent more than a single projectile from escaping to the projectile-barrel, an arm extending from said spring, means for retracting the magazine, and a cam arranged in the path of said arm to effect the retraction of the finger when the magazine reaches the limit of its retractile movement.

16. In an air-gun, the combination with a projectile-barrel, an air-reservoir and means for controlling the escape of air to the barrel, of a magazine comprising an apertured feed-tube, an outer casing defining an enlarged receptacle for the projectiles, and means for feeding the projectiles one at a time from the feed-tube to the projectile-barrel.

17. In an air-gun, the combination with a projectile-barrel, an air-reservoir and means for controlling the escape of air to the barrel, of a magazine for the reception of a number of projectiles, said magazine comprising a feed-tube having openings permitting the escape of projectiles from the feed-tube to the magazine proper and from the latter back to the feed-tube, said projectile-barrel and feed-tube being provided with openings designed to be brought into coincidence, and a cut-off device extended into the feed-tube to prevent the escape of more than a single projectile from the feed-tube to the projectile-barrel.

18. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir and means for controlling the escape of air to the projectile-barrel, of a magazine shiftably mounted upon the projectile-barrel and comprising an outer casing and a feed-tube, said feed-tube being provided with a feed-opening and with other openings for establishing communication with the feed-tube and the magazine proper, a magazine-retracting spring bearing against one end of the magazine to urge the latter in one direction, and cut-off mechanism automatically operated by the movement of the magazine to effect the feed of the projectiles one at a time, from the feed-tube to the projectile-barrel.

19. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir, and means for controlling the escape of air to the barrel, of a magazine provided with an inclined end wall and with a feed-opening located at the end of said wall, means for bringing the feed-opening of the magazine into coincidence with the breech-opening of the projectile-barrel, and means for preventing more than a single projectile from escaping to said barrel.

20. In an air-gun, the combination with a projectile-barrel provided with a breech-opening, an air-reservoir, and means for controlling the escape of air to the barrel, of a magazine provided with an inclined end wall and with a feed-opening disposed opposite said inclined wall, and an automatically-operated cut-off device arranged to prevent more than a single projectile from escaping to the projectile-tube and to subsequently permit another projectile to drop upon the inclined wall of the magazine.

21. In an air-gun, the combination with the pump-barrel, of a valved diaphragm defining at opposite sides thereof a pump cylinder and an air-reservoir, a plunger within the pump-cylinder, a valve located at one end of the plunger, and a by-pass formed in the wall of the pump-cylinder to relieve the compression in advance of the plunger.

22. In an air-gun, the combination with the pump-barrel, a projectile-barrel, and means for controlling the escape of air to the projectile-barrel, of a valved diaphragm in the pump-barrel, a plunger in the outer end of the said barrel, a cup-valve upon one end of the plunger, and a swell located in the wall of the pump-barrel adjacent to the diaphragm and constituting a by-pass for relieving the compression in advance of the plunger.

23. In an air-gun, the combination with a pump-barrel, of a valved diaphragm constituting a division between the pump-cylinder and the reservoir formed by the opposite end portions of the pump-barrel, a slotted plunger within the pump-cylinder, a transversely-disposed stop-pin engaging the slot in the plunger, a projectile-barrel, and means for controlling the escape of air from the reservoir to the projectile-barrel.

24. In a device of the character described, the combination with the pump-barrel, of a valved diaphragm comprising a lined gasket fitted into the barrel, and a valve comprising a plug secured within the opening of the diaphragm and having a flexible skirt seated against one end of the lining.

693,824. SEAT-SPIDER. HARRY W. BOLLES, Port Washington, Wis. Filed Mar. 14, 1901. Serial No. 51,092. (No model.)

Claim.—1. A seat-spider comprising a spreader the body portion of which is provided with transverse grooves and beyond the same with shoulders, the latter constituting the outer walls of the grooves, and sheet-metal spider-arms fast on the end shoulders and resting within said grooves and adapted to be attached at their ends to a seat.

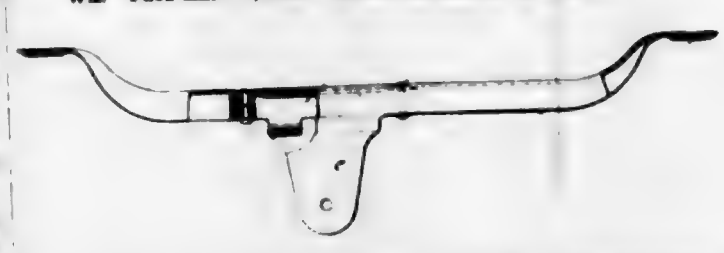


2. A seat-spider comprising a spreader, the body portion of which is provided with play-slots for stop-ears of a tilt-seat standard, transverse grooves interrupting the slots and end shoulders constituting outer walls of the grooves; sheet-metal spider-arms on the end shoulders and engaging the grooves, and means rigidly connecting the said spider-arms and said shoulders.

3. A seat-spider comprising a spreader the body portion of which is provided with transverse grooves and end shoulders the latter constituting outer walls of the grooves and being highest and thickest at their extremities and centers; sheet-metal spider-arms on the spreader-shoulders and engaging within the grooves, and means rigidly connecting the arms and said shoulders.

4. A seat-spider comprising a cast-metal spreader the body portion of which is provided with transverse grooves and beyond the same with end shoulders, the latter constituting the outer walls of the grooves, and sheet-metal spider-arms conforming to and secured upon the said end shoulders and at their inner sides resting in said grooves and adapted to be attached at their ends to a seat.

698,825. SEAT-SPIDER. HARRY W. BOLLES, Port Washington, Wis. Filed Mar. 14, 1901. Serial No. 51,093. (No model.)



Claims.—1. A seat-spider comprising a spreader, a pair of sheet-metal arms curved in cross-section having integral depending pivot-ears, and means by which the arms are fastened to said spreader.

2. A seat-spider comprising a cast-metal spreader, a pair of sheet-metal arms curved in cross-section having integral depending pivot-ears, and means by which the arms are fastened to said spreader.

3. A seat-spider comprising a spreader the body portion of which is provided with transverse grooves and end shoulders, sheet-metal and semi-tubular arms fast on the spreader-shoulders and engaging the grooves, and pivot-ears depending from the arms.

4. A seat-spider comprising a spreader the body portion of which is provided with play-slots for stop-ears of a tilt-seat standard, transverse shoulders at the ends of the body portion and intermediate grooves, said end shoulders constituting outer walls of the grooves; sheet-metal spider-arms fast on the spreader-shoulders and having their inner edges resting within the grooves, and pivot-ears depending from the arms.

5. A spider-arm for chair-spiders, said arm being formed of sheet metal and having a depending integral pivot-ear, and adapted at its ends for attachment to a chair-seat and between its ends for attachment to a chair-spreader.

6. As an article of manufacture, a sheet-metal spider-arm, for chair-spiders, the same being semitubular or curved in cross-section, having one of its walls extended to form a pivot-ear and terminating in attaching-ears.

7. A chair-spider, comprising a spreader, provided at its opposite edges with ribs or shoulders convexed in cross-section and spaced from the spreader, and spider-arms semitubular in cross-section and approximating and mounted on the said shoulders.

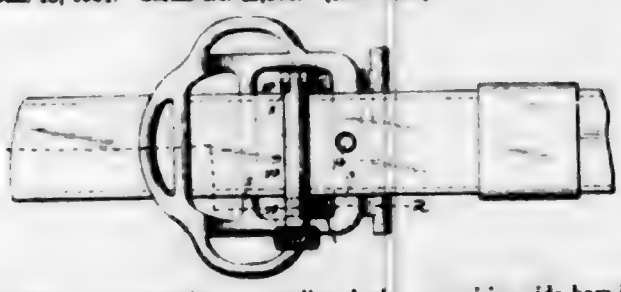
698,826. BRICK FOR BUILDING ARCHES. EDGARD BÜTTNER, Bergisch-Gladbach, Germany. Filed Sept. 18, 1900. Serial No. 30,414. (No model.)

Claim.—An arch formed of intermediate bricks having concave and convex opposite edges with plain sides, and end bricks with plain lower edges and upper edges coinciding with the abutting-edge of the adjacent intermediate brick, substantially as described.

693,826.

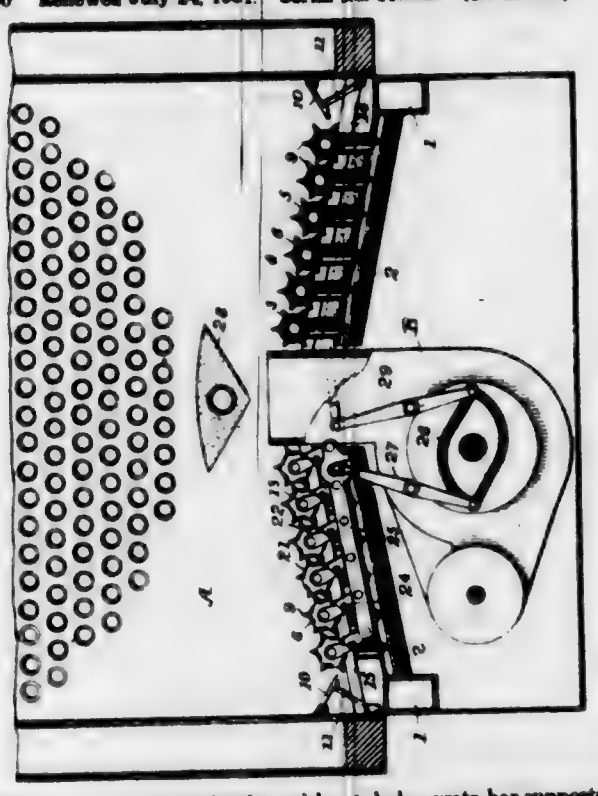


693,827. TRACE-BUCKLE. SAMUEL BOYER, Colfax, Wash. Filed Jan. 15, 1901. Serial No. 43,341. (No model.)



Claim.—A connection or coupling device comprising side bars immovably secured at one end to an end bar and having a clear open space between them, a movable end bar disposed opposite the rigid end bar which holds said side bars, the said movable end bar opening outwardly and closing inwardly in a plane parallel to the plane of the said side bars and pivotally connected at one end to one of the latter bars, the free end of the movable end bar being adapted to pass inside of the side bar opposite that to which the said movable end bar is pivotally attached, and a manually-operative screw removably engaging the free end of the movable end bar and the adjacent side bar, whereby the connection or coupling may be opened when lying in a flat position under pressure or weight to release a strap therefrom.

693,828. GRATE. FRANK BURGER, Fort Wayne, Ind., assignor to himself and Henry M. Williams, Fort Wayne, Ind. Filed Oct. 16, 1900. Renewed July 24, 1901. Serial No. 69,582. (No model.)



Claim.—1. The combination with a tubular grate-bar supported to turn in bearings and provided with longitudinal slotted openings, of an air-supply tube loosely fitted within said bar and provided with perforations in its upper side registering with the uppermost slotted openings in the bar, and means to convey air to the said tube, substantially as set forth.

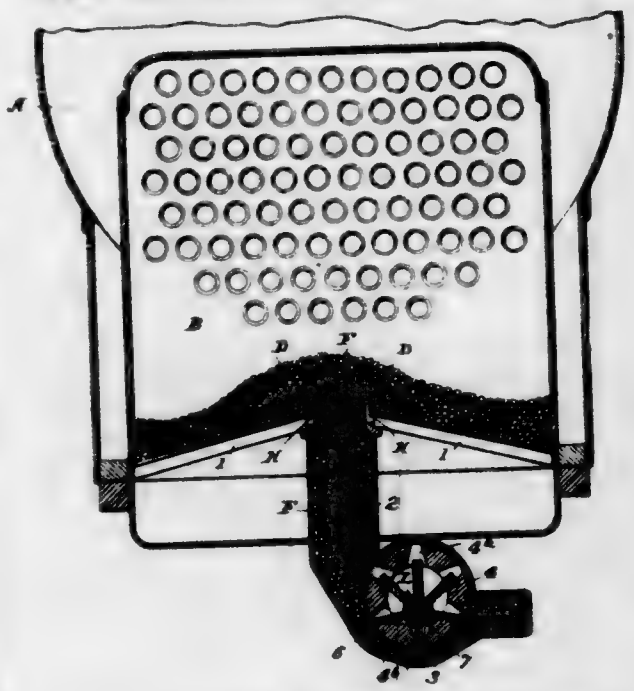
2. The combination with a tubular grate-bar supported in open-top bearings and provided with longitudinal slotted openings, of an air-supply tube loosely fitted within said bar and provided with perforations in its upper side registering with the uppermost slotted openings in the bar, said tube being pivotally supported at its rear end, and means to convey air to the said tube, substantially as set forth.

3. In a furnace, the combination of a fuel-feeder extending centrally and longitudinally thereof, a series of rotatable grate-bars on each side of the feeder and provided with radial projections on their outer surfaces, means to rotate the bars to cause the projections thereon to move the fuel in opposite directions from the feeder, and pivoted plates 10, 10 at the sides of the furnace, substantially as described.

4. In a furnace, a bottom fuel-feeder extending centrally and longitudinally of the furnace, and a deflector 28 above the feeder to deflect the fuel on both sides of the feeder, combined with a series of grate-bars on each side of the feeder onto which the fuel is deflected, each bar being supported to turn in bearings and provided with radial projections, and means to turn the bars in their bearings whereby the projections carry the fuel toward the sides of the furnace, substantially as set forth.

5. In a furnace, the combination of a fuel-feeder extending centrally and longitudinally thereof, a series of rotatable tubular grate-bars on each side of the feeder and provided with longitudinal slotted openings, an air-supply tube loosely fitted within each bar and provided with perforations in its upper side registering with the uppermost slotted openings in the bar, and means to convey air to said tubes, substantially as described.

693,829. FUEL-FEEDING MECHANISM FOR FURNACES. FRANK BURGER and HENRY M. WILLIAMS, Fort Wayne, Ind.; said Burger assignor of one-half of his right to said Williams. Filed May 20, 1899. Renewed July 24, 1901. Serial No. 69,583. (No model.)



Claim.—1. The combination with a fire-box and grate, of a fuel-supply pipe, a stationary shaft, a series of blades loosely mounted on the shaft, and a hollow cylinder eccentrically mounted with respect to the shaft and comprising segments supported in journals at their ends and provided with a number of inwardly-diverging slots, the arrangement being such that as the cylinder rotates the blades will be progressively projected outward and withdrawn through the slots, substantially as described.

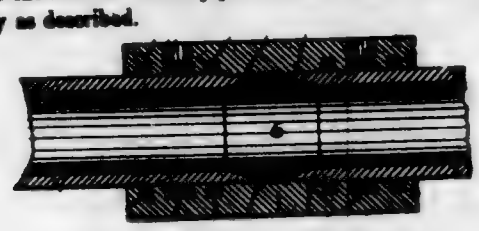
2. The combination with a fire-box and grate, of a fuel-supply pipe, a rotary cylinder provided with blades to force fuel to the supply-pipe, a rotary shaft supported adjacent to the cylinder, means to transmit movement from said shaft to the cylinder, a vibratory lever, a ratchet-and-pawl connection between the lever and shaft, a rod connected at one end to a motor to receive endwise-reciprocating movement and adjustably connected at the other end to said lever, a hand-lever remote from the vibrating lever, and connections between the hand-lever and rod to effect the adjustment of the latter on the vibrating lever, substantially as set forth.

3. The combination with a fire-box and grate, of a fuel-supply pipe, a rotary cylinder provided with blades to force fuel to the supply-pipe, a worm-wheel on the cylinder, a worm-shaft engaging the wheel, a vibratory lever 15, a rod 16 connected at one end to a motor to receive endwise-reciprocating movement and having a sliding connection at its other end to said lever, a ratchet-and-pawl connection between the lever and worm-shaft, a hand-lever remote from the vibrating lever, and connection between the hand-lever and said rod to effect adjustment of the connection between the rod and vibrating lever, substantially as set forth.

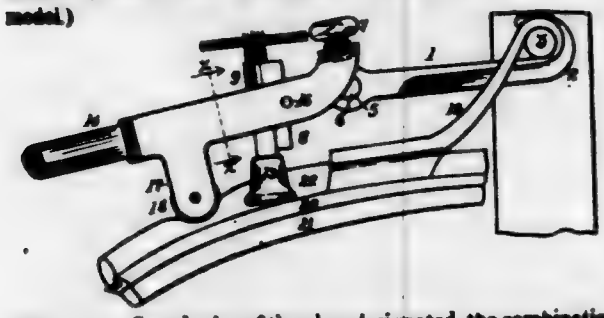
693,830. PIPE-COUPLING. JAMES BURKE, Minneapolis, Minn. Filed Apr. 27, 1900. Serial No. 14,565. (No model.)

Claim.—The combination with a lead or soft metal pipe, of a socket

telescoping with the end of said pipe and provided with an annular channel exposed to the surface of said pipe, solder in said annular channel and annular packings within said socket, on opposite sides of said solder-containing channel, which packings are adapted to closely fit and telescope over the end of said pipe and to serve as dams to prevent the solder from running into the interior of said pipe and out of the end of the coupling, substantially as described.



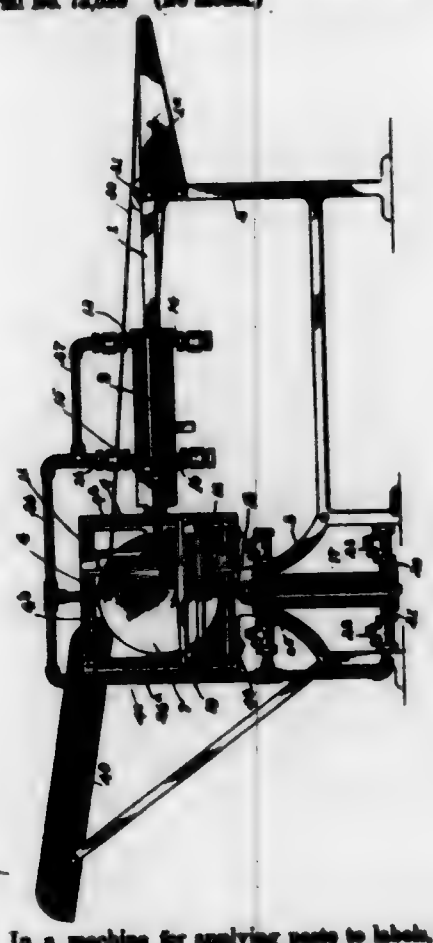
698,881. DEVICE FOR BRINGING TOGETHER THE ENDS OF SOLID RUBBER TIRES IN TIRE-SETTING MACHINES. JOSEPH A. BURROWS, Akron, Ohio. Filed Apr. 20, 1901. Serial No. 57,063. (No model.)



Claim.—1. In a device of the class designated, the combination with an arm adapted to be secured to a fixed object, of the two bars bearing bell-shaped rollers to engage the sides and lower corners of the tire, and a lever pivotally attached to said arm and bearing a roller to press the periphery of said tire adjacent to said bell-shaped rollers, substantially as shown and described.

2. In a device of the class designated, the combination with a lever pivotally attached to an arm, arranged to be anchored against movement with the wheel, of oppositely-disposed bars bearing bell-shaped rollers to engage the opposite sides of the tire, a roller carried by said lever and arranged to press the face of said tire and curved blades anchored against movement with said tire, and arranged to run along the sides and partially under said tire, substantially as and for the purpose specified.

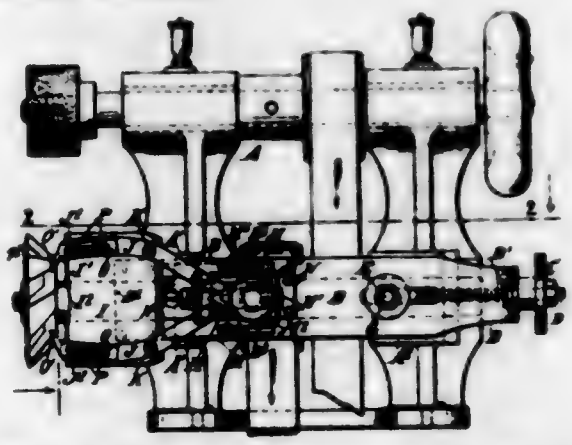
698,882. MACHINE FOR APPLYING PASTE TO LABELS. JOHN W. BUTTERFIELD and BENJAMIN C. SCHMITT, Columbus, Ohio. Filed Aug. 23, 1901. Serial No. 73,520. (No model.)



Claim.—1. In a machine for applying paste to labels, the combination with a framework, a roll journaled therein and means for imparting rotary motion to said roll, of an air-pump operated by the rotation of said roll, a perforated pipe-arm adjacent to the periphery of said roll, air-conducting pipes leading from said air-pump to said perforated pipe-arm and a paste-containing reservoir in which said roll is adapted to turn, substantially as specified.

2. In a machine for applying paste to labels, the combination with a framework, a paste-containing reservoir supported therein, a roll 5 journaled in said framework and running in said reservoir, a roll 31 journaled in the forward portion of said framework and cords running over said rolls, of horizontal and vertical air-pump cylinders 9 and 17 having valve-controlled inlet and outlet openings at opposite ends, a reciprocating piston for each of said pump-cylinders, connections between said pistons and roll 5 whereby the rotation of the latter imparts reciprocating motion to the former, a perforated air-distributing pipe-arm adjacent to the periphery of the roll 5 and pipe connections between said pump-cylinders and said perforated pipe-arm, substantially as specified.

698,888. MACHINE FOR CONCAVING THE BREASTS OF HEELS. JOHN G. BURRILL, Lynn, Mass. Filed Apr. 25, 1901. Serial No. 57,402. (No model.)



Claim.—1. A machine for the purpose stated comprising a cutter-shaft mounted in suitable bearings in the frame of the machine, and a beveling cutter carried by said shaft, a work-rest mounted on said frame and comprising a slidable plate carrying an incline, a shoulder on the frame adapted to contact with said incline, means to adjust said plate toward and from the cutter in a direction parallel with the axis of rotation of the cutter whereby said incline and coöperating shoulder will produce a simultaneous movement at right angles to said axis and maintain the edge of the work-rest parallel to the operative edge of the cutter, and work-centering devices carried by said slidable plate, substantially as described.

2. In a machine for concaving the heel top lift of a shoe or boot the doubly-concaved heel-rest and the rocker-arms thereto pivotally attached, the adjustable shouldered finger-piece having two inclines adapted to contact with the inside edges of the ends J', J', of said rocker-arms, the intermediate plate N having a slot N', and means to retain said finger-piece in a fixed location to confine the positions of the rocker-arms substantially as specified.

3. The combination with the plate I, the rocker-arms J, J, the confining finger-piece restraining said rocker-arms, and the slotted plate N, of the curved slidable plate B, provided at one end with means for the retention of the heel-plate and at the other end with a bifurcation adapted to embrace the circumferential slot in the thumb-nut C, through which said slidable plate is horizontally adjusted to aline with the angle of the blade in proximity to the heel-rest as the cutter rotates, substantially as set forth.

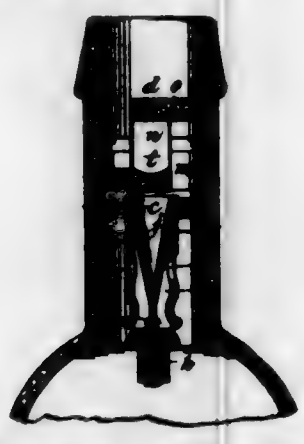
4. The slidable plate having a slot for the reception of the finger-piece provided with two inclines, and a slot to receive means for its lateral flexible support, the attached adjustable incline H, arranged to force outwardly said plate and means forming an integral part of the machine-head to abut against said incline and actuate the slidable plate to a position in alinement with the cutting-angle of each of the revolving blades of the cutter when they are in juxtaposition to the heel-rest as specified.

5. In combination with the slidable plate and its coacting accessories the supporting-flanges A', A', adapted to guide and confine said plate in its horizontal movement, the projection A^3, coacting with the incline and the bearing A^2, forming a fulcrum for the slidable plate substantially as and for the purpose herein set forth.

6. In a heel top-lift breast-concaving machine, the curved slidable plate having a simultaneous compound movement, and means for its adjustment, the adjustable incline imparting lateral movement thereto, the slotted intermediate plate and the duplex inclined finger-piece adjusted therein, the heel-rest plate, the rocker-arms pivoted thereto, and the adjustable extensions connected to the rocker-arms, all forming coöperative

parts of said slidable plate, in combination the bearing forming a fulcrum, the supporting-flanges, the projection intermediate with said flanges coacting with the adjustable incline, the circular implement having a series of integral blades adapted to cut the concave at a predetermined angle in the heel top lift, and means to impart a rotatory motion to the cutting implement substantially as specified.

698,884. NON-REFILLABLE BOTTLE STOPPER. Joseph W. Caley, New Easton, Mass. Filed June 1, 1900. Renewed Jan. 26, 1901. Serial No. 44,822. (No model.)



Claim.—1. In a bottle-stopper, the combination, with a valve-casing having a valve-seat and an open inner end against which a weight may pivot, of a conical valve-plug projecting into the casing from the outer end thereof and terminating near the inner end, and a weight, directly pivoted to the inner end of the valve-plug and having a shoulder which is in close proximity to the valve-casing when said casing is upright, and is arranged to make contact with the casing when the latter is slightly inclined, and then to swing about such point of contact as a fulcrum, thereby tending to draw the valve-plug to its seat, the point of connection of the valve-plug and weight being nearly opposite to the point about which such weight will pivot when the casing is inclined, whereby the direction of pull of the weight upon the valve-plug is substantially axial.

2. In a bottle-stopper, the combination, with a tubular valve-casing open at both ends, having a valve-seat and a flange by which it may be secured in the neck of a bottle, and having openings in its sides for the passage of liquid, of a conical valve-plug projecting into the casing from the outer end thereof and terminating near the inner end, and a weight, directly pivoted to the inner end of the valve-plug and having a shoulder which is in close proximity to the valve-casing when said casing is upright, and is arranged to make contact with the casing when the latter is slightly inclined, and then to swing about such point of contact as a fulcrum, thereby tending to draw the valve-plug to its seat, the point of connection of the valve-plug and weight being nearly opposite the point about which such weight will pivot when the casing is inclined, whereby the direction of pull of the weight upon the valve-plug is substantially axial.

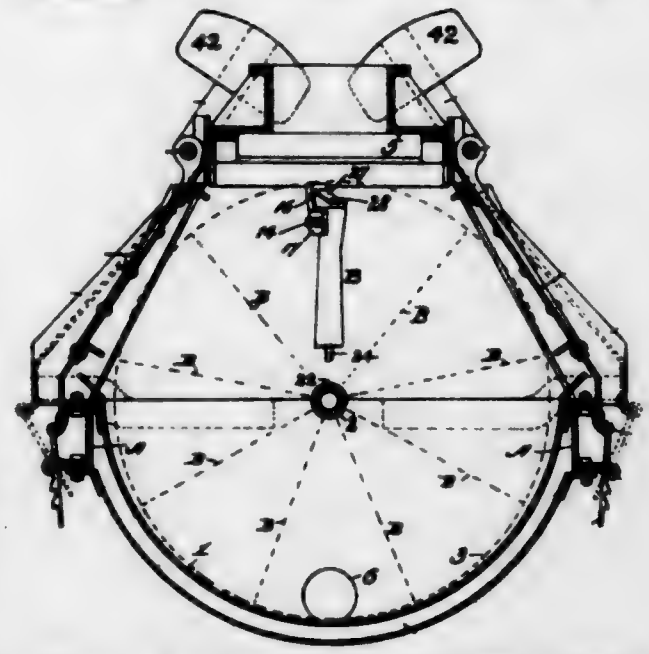
3. In a bottle-stopper, the combination, with a device adapted to be inserted into the neck of a bottle, and having a plurality of key-slots, of keys adapted to fit within said slots and to engage a groove within the neck of a bottle, when the said device is in place therein, thereby preventing the removal of said device, one of the said key-slots being inclined upwardly from the groove and the other inclined downwardly therefrom, so that whether the bottle be upright or inverted, one of said slots is inclined downward relatively to the groove and its key tends to engage the groove in the neck of the bottle.

4. The combination, with a bottle having an internally-grooved neck, of a device adapted to be inserted into said neck and having a plurality of key-slots, and movable keys adapted to fit within said slots and to engage a groove in the neck, thereby preventing the removal of said device, one of the said key-slots being inclined upwardly from the groove and the other inclined downwardly therefrom, so that whether the bottle be upright or inverted one of said slots is inclined downward relatively to the groove and its key tends to engage the groove in the neck of the bottle.

5. A guard for bottles, consisting of a device adapted to be inserted into the neck of a bottle and to be secured in the neck thereof, and having two oppositely-projecting transverse portions each adapted to close one side of the neck of a bottle, said transverse portions being connected by a central portion in which is an aperture for the passage of liquid and in which are also key-slots adapted to contain keys which may engage a groove in the neck of the bottle, one of said key-slots being inclined upwardly from its orifice inward, and the other key-slot being inclined downwardly from its orifice inward.

6. A guard for bottles, consisting of a device adapted to be inserted into the neck of a bottle and to be secured in the neck thereof, and having two oppositely-projecting transverse portions, each adapted to close one side of the neck of a bottle, said transverse portions being connected by a central portion in which is an aperture for the passage of liquid, the bottom wall of such aperture being provided with an upwardly-inclined portion by which instruments inserted through said aperture may be deflected upwardly.

698,885. METHOD OF HEATING MATERIAL. Henry Campbell, Baltimore, Md. Filed May 22, 1901. Serial No. 61,437. (No specimens.)



Claim.—1. In the art of heating material, such as asphalt or sand, the herein-described method which consists in gradually and repeatedly passing flames bodily into and through the mass of the material, and at the same time stirring the material.

2. In the art of heating material, such as asphalt or sand, the herein-described method which consists in gradually and repeatedly passing flames bodily into and through the mass of the material, and at the same time stirring the material and admitting a regulated quantity of air thereto.

3. In the art of heating material, such as asphalt or sand, the herein-described method which consists in supplying to the material in direct contact therewith a volatile oil, gradually and repeatedly passing flames bodily into and through the mass of material, and at the same time stirring the material and causing the combustion of said oil.

4. In the art of heating material, such as asphalt or sand, the herein-described method which consists in inclosing the material, supplying thereto in direct contact therewith a volatile oil, gradually and repeatedly passing flames bodily into and through the mass of the material and at the same time stirring the material and causing the combustion of said oil, and admitting a regulated amount of air to the material.

5. In the art of treating asphalt, the herein-described method which consists in increasing its softness and plasticity by gradually and repeatedly passing a flame bodily into and through the mass of the asphalt, and at the same time agitating the asphalt.

698,886. GAS-BURNER. Howard S. Campbell, Baltimore, Md., assignor of one-third to Charles D. Nicolai, Washington, D. C. Filed Nov. 5, 1900. Serial No. 35,503. (No model.)

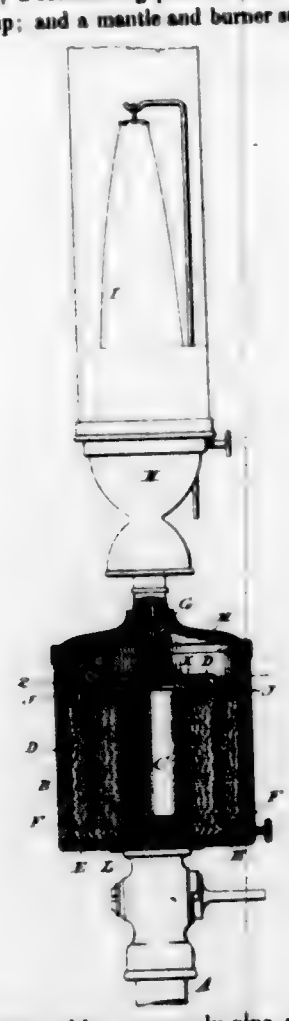
Claim.—1. In combination with a gas-supply pipe, a cup mounted thereon, provided with a tubular shell extending up therein and in communication with the gas-supply pipe; a liquid contained within said cup; a bell mounted within said cup and wholly floated and supported by said liquid; and a burner and mantle carried by said bell.

2. In combination with a gas-supply pipe, a cup mounted thereon and provided with a tubular shell extending upwardly therein; mercury placed within said cup; a float placed within the cup and wholly supported and floated by the mercury; and a burner and mantle supported and carried by the float.

3. In combination with a gas-supply pipe, a cup mounted thereon, provided with an upwardly-extending tubular shell C; mercury placed within said cup; a bell mounted within said cup and extending down into the mercury; floating guides placed intermediate the bell and the tubular shell; and a mantle and burner carried and supported by said bell.

4. In combination with a gas-supply pipe, a cup carried thereby, provided with an upwardly-extending tubular shell C; mercury placed within said cup; a bell mounted within said cup and extending down into the mercury; a floating ring interposed between said tubular shell C and the

inner face of the bell; a second ring placed intermediate the outer wall of the bell and the cup; and a mantle and burner supported by said bell.

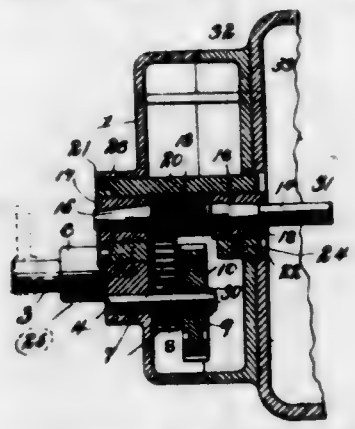


5. In combination with a gas-supply pipe, a cup mounted thereon; mercury placed within said cup; a bell mounted within said cup and extending down into the mercury; means acting intermediate the surface of the mercury and the inner face of the bell to assist the mercury in supporting the bell; and a burner and mantle carried by the bell.

6. In combination with a gas-supply pipe, a cup mounted thereon and provided with an upwardly-extending tubular shell C; mercury contained within said cup; a bell mounted within said cup and extending down into the mercury, the lower end of said bell being turned outwardly, substantially as described; means serving to hold said bell in its proper position with reference to the cup; and a burner and mantle carried by the bell.

7. In combination with a gas-supply pipe, a cup mounted thereon and provided with an upwardly-extending tubular shell C; mercury contained within said cup; a double-wall bell mounted within the cup and extending down into the mercury; and a burner and mantle supported by said bell.

693,837. MOTOR-GEARING. WILLIAM R. CANEDY, Chicago Heights, Ill., assignor to the Canedy Otto Manufacturing Company, a Corporation of Illinois. Filed Dec. 11, 1901. Serial No. 85,524. (No model.)



Claim.—1. The combination with a casing-section and a train of driving-gears supported thereby, of a motor-shaft, a sleeve rigid with the casing-section and surrounding said shaft, said sleeve having a plurality of shaft-bearings therein, and a gear on the shaft between said bearings and engaging with the train.

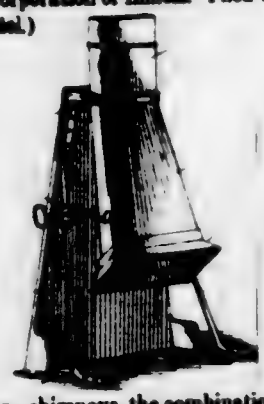
2. The combination with a casing-section and a train of driving-gears supported thereby, of a sleeve rigid with the casing-section, tapered boxes within said sleeve, a shaft in the tapered boxes having tapered portions conforming thereto, and a gear on the shaft engaging with the train on the casing-section.

3. The cylindrical casing-section having a central socket, the detachable sleeve having thimbles at each end and a shaft with a bearing in each thimble, a gear on the shaft between said bearings, and a train of gears supported by the casing-section with which the gear on the shaft engages, all combined.

4. A casing consisting of two parts or sections, a sleeve rigidly held in one section and extending to the other section, a shaft having bearings near each end of said sleeve and a gear between, and a train of gears in operative engagement with the shaft-gear and supported by the casing-section which supports the sleeve, all combined substantially as described.

5. The sleeve 20 having a cut-away central portion and thimbles 21, 22 near the ends, boxes with tapered apertures within these thimbles, a shaft with tapered bearings in the boxes, and set-screws by which the boxes may be retained when adjusted to take up wear or for other purpose, all combined.

698,838. CHIMNEY FOR BLACKSMITHS' FORGES. WILLIAM R. CANEDY, Chicago Heights, Ill., assignor to the Canedy Otto Manufacturing Company, a Corporation of Illinois. Filed Dec. 11, 1901. Serial No. 85,525. (No model.)



Claim.—1. In forge-chimneys, the combination of a fixed pipe, supported and having its lower end some distance above the forge-fire, of a pipe-section hinged thereto and forming a downward continuation of said fixed flue, and means for holding the hinged section in adjusted position relatively to the forge-fire.

2. In a forge-chimney, the combination of a metallic shield, a fixed flue-section supported thereby, with its lower end terminating above the forge-fire, and a movable flue-section forming a downward extension of said fixed flue.

3. In a forge-chimney, a fixed draft-pipe having its lower terminus some distance above the forge-fire, a hinged funnel-section forming a downward extension of said fixed flue, and means for maintaining a closed joint between the hinged and fixed flue-sections.

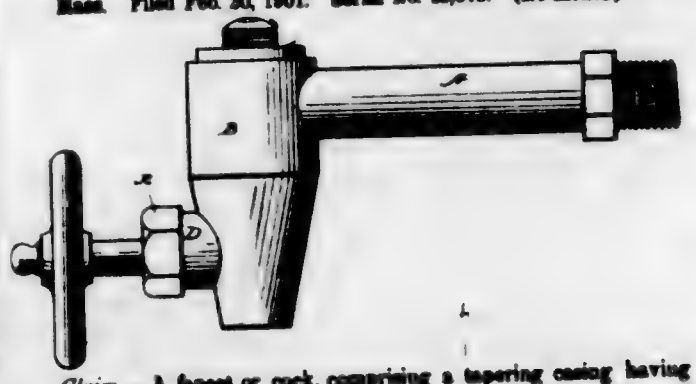
4. In a forge-chimney, a fixed draft-flue having its lower end supported above the forge, a hinged section forming a downward continuation of said flue, and a flaring mouthpiece constructed to slide over said hinged section.

5. The flaring funnel-section having a convex bushing at its upper end, the fixed flue into which said bushing fits, pivots connecting the flue and funnel, and means for holding the funnel in adjusted position, all combined.

6. The combination of a forge-shield and inclined braces connected thereto, lugs projecting from the shield, a flue-pipe connected to said lugs, and a funnel-section pivoted to the flue-pipe, all combined.

7. The combination of a forge-shield, inclined braces connected thereto, a fixed flue-section on the shield, a hinged funnel pendent from the fixed section, and mechanism supported by the braces by which the funnel may be held in adjusted position, all combined.

693,889. FAUCET OR COCK. ALFRED CLARKSON, Fall River, Mass. Filed Feb. 20, 1901. Serial No. 48,073. (No model.)



Claim.—A faucet or cock, comprising a tapering casing having a threaded upper opening and a lower outlet-port; a plug for said threaded

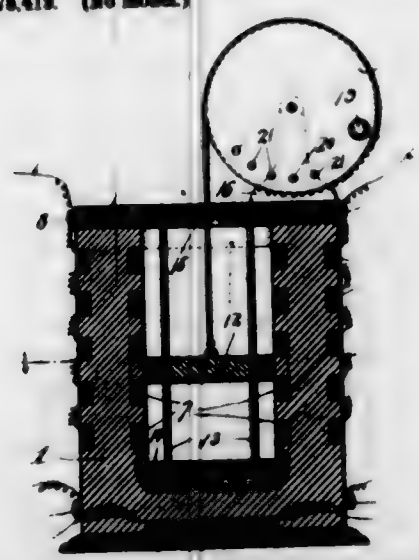
opening; an inlet-pipe communicating with said casing; a valve-seat formed upon the interior of the casing below the inlet-port; a valve, comprising an upper and a lower disk, a series of wings between the disk, and a metal packing-ring below said upper disk, resting upon the seat and said wings extending below the same; a boss upon the forward wall of the casing and having an opening therethrough; a projecting annular ring upon the interior of the casing forming a socket alining with the opening of the boss; a stem having a reduced end fitting in said opening and the socket; a cam carried by said stem within the casing to engage the lower disk of the valve to raise and lower the valve; and a threaded cap fitting upon the boss to hold the stem in position.

698,840. DRAFT-EQUALIZER. JOSHUA J. COX, Wrightsville, Ill. Filed June 3, 1901. Serial No. 62,911. (No model.)



Claim.—In a draft-equalizer, the combination with a pole, of long and short arms secured thereto and consisting of the oppositely-disposed inclined plates secured together at their outer ends and spacing-blocks between said plates near their outer ends, all substantially as shown and described.

693,841. CURRENT-REGULATOR FOR ELECTRIC TRANSFORMERS. FREDERICK S. M. CUTCHEON, St. Paul, Minn. Filed Oct. 12, 1901. Serial No. 78,419. (No model.)



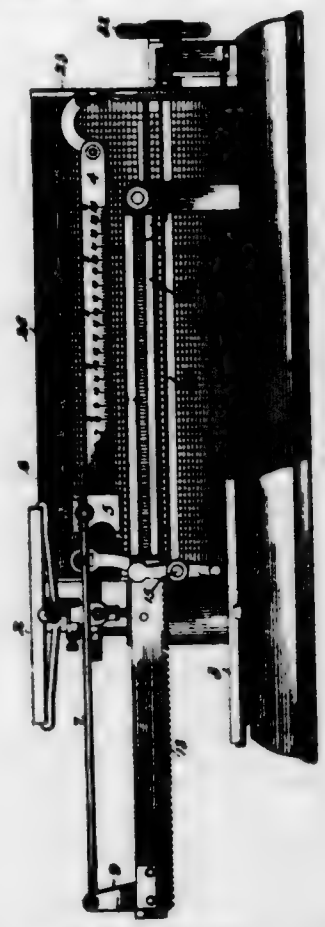
Claim.—1. The combination with the primary and secondary of an electric transformer, of an adjustable armature or bar arranged to variably short-circuit the magnetic field and to cut into and out of action more or less of the component parts of said secondary coil, substantially as described.

2. In an electric transformer, the combination with a U-shaped core, of a primary coil wound on the yoke of said core, a secondary coil wound on the prongs of said core, and an adjustable armature or bar working in the field of said secondary coil and serving to magnetically short-circuit the field of the secondary coil, and, by adjustment, to vary the strength of the said secondary coil, substantially as described.

3. In an electric transformer, the combination with a core, of a primary and secondary coil wound thereon, said secondary being formed by spaced sections, and an adjustable armature or bar working in the field of said primary coil and adapted to magnetically short-circuit the field of the primary coil and cut into and out of action more or less of the sections of said secondary, substantially as described.

4. In an electric transformer the combination with a U-shaped core, of a primary coil wound on the yoke thereof, a secondary coil wound in spaced sections on the prongs of said core, the sections on the two prongs being located in transversely opposite pairs, and an armature or bar working adjustably in the magnetic field of said secondary coil, for magnetically short-circuiting the said field, and adapted by adjustment, to cut into and out of action more or less of the said coil-sections, substantially as described.

698,842. PRICE-SCALE. MARK A. DEEM, Moorepoint, Miss. Filed Oct. 29, 1900. Serial No. 34,793. (No model.)



Claim.—1. In a scale, the combination of a scale-beam, a poise on said beam, a slidable shaft carrying two gears, a rotatable computing-cylinder, a gear attached to said cylinder and adapted to engage one of the gears on said slidable shaft, a rack adapted to be constantly engaged by the other gear of said slidable shaft, and means for connecting said rack to the poise, substantially as described.

2. In a scale, the combination of a scale-beam, a poise on said beam, a plurality of computing-cylinders each having a gear-wheel, a slidable shaft, two gears mounted on said shaft, one of said gears being adapted to engage and be disengaged from a gear of one of the cylinders, a rack adapted to constantly engage the other gear of said shaft, and means for connecting the rack to the poise, substantially as described.

3. In a scale, the combination of a scale-beam, a poise on said beam, a slidable shaft, a bevel-gear and a spur-gear on said slidable shaft, a computing-cylinder, a bevel-gear attached to said cylinder and adapted to be engaged with and disengaged from the bevel-gear on said slidable shaft, a rack adapted to constantly engage the spur-gear on said shaft, means for connecting the rack to the poise, a slotted casing surrounding said computing-cylinder, and a price-scale on the outside of said casing, substantially as described.

4. In a scale, the combination of a scale-beam, a poise thereon, a slidable shaft, two gears on said shaft, a rack constantly in engagement with one of said gears and connected to said poise, and a cylinder adapted to be operatively connected with and disengaged from the other of said gears, whereby said cylinder and poise may be simultaneously rotated and moved horizontally, respectively, substantially as described.

5. In a scale, the combination of a frame, a scale-beam, a poise, a slidable shaft mounted in the frame so as to move horizontally, two gears on said shaft, one a bevel-pinion and the other a broad-faced spur, a rack constantly coöperating with the latter gear and connected to said poise, and a cylinder adapted to be operatively connected with and disconnected from the bevel-gear of said shaft, substantially as described.

6. In a scale, the combination of a frame, a scale-beam, a poise thereon, a slidable shaft, two gears thereon, a rack constantly coöperating with one of said gears and connected to said poise, and a plurality of cylinders capable of rotation as a series about a common axis and individually upon individual axes, and of individual connection with the other of said gears, whereby either of said cylinders and the poise may be simultaneously actuated, substantially as described.

7. In a scale, the combination of a frame, a scale-beam, a poise adapt-

ed to slide thereon, a slidable shaft mounted in horizontal bearings in the frame, a bevel-gear and a broad-faced spur-gear mounted upon said shaft, a rack constantly in engagement with the broad-faced gear and connected to said poise, and a plurality of cylinders rotatably mounted as a series in the frame on a common axis and each capable of independent rotation, and of independent connection with the spur-gear of said shaft, whereby said connected cylinder and the poise may be simultaneously actuated, substantially as described.

8. In a scale, the combination of a scale-beam, a poise adapted to slide thereon, a slidable shaft mounted in the frame, two gears upon said shaft, a rack constantly in engagement with one of said gears and connected to said poise, a rotatable series of computing-cylinders, and a manually-operated rotatable casing mounted on an axis concentric with that of the series of computing-cylinders, whereby any one of said series of cylinders upon the partial rotation of the series may be operatively connected to the bevel-wheel of said shaft and both said cylinder and poise be simultaneously actuated, substantially as described.

9. In a scale, the combination of a scale-beam, a series of computing-cylinders, commonly rotatable as a series, means for rotating one of said cylinders independently of the others, a poise carried by the beam, and means whereby said independently-operated cylinder and the poise may be simultaneously actuated, substantially as described.

10. In a scale, the combination of a frame, a scale-beam, a poise thereon, a plurality of computing-cylinders nested together and revoluble as a series, means for simultaneously adjusting the poise and rotating one of the cylinders independently of the others, a casing surrounding the cylinders having openings or slots to expose said cylinders, and a price-scale adjacent to each opening, substantially as described.

11. In a scale, the combination of a scale-beam, a poise thereon, a plurality of computing-cylinders nested together and commonly revoluble, means for simultaneously adjusting the poise and rotating one of said cylinders independently of the others, a casing surrounding said cylinders having openings or slots, and a price-scale adjacent to each opening of said casing, substantially as described.

12. In a scale, the combination of a scale-beam, a poise on said beam, an adjustable shaft, two gears on said shaft, a plurality of independently-rotating computing-cylinders nested together and adapted to revolve as a series about a common axis, a gear-wheel attached to each of said cylinders and adapted to engage and be disengaged from one of the gears on said shaft, a rack constantly engaging the other gear on said shaft, means for connecting the rack to the poise, a casing surrounding said plurality of computing-cylinders and having openings or slots therein, and a price-scale adjacent to each slot of said casing, substantially as described.

13. In a scale, the combination of a scale-beam, a poise thereon, a plurality of independently-rotatable computing-cylinders nested together each having a bevel-gear attached thereto, said plurality of cylinders being rotatable as a series, a slotted casing surrounding said cylinders, a slidable shaft having a bevel-gear thereon with which the gear of each individual computing-cylinder may be brought into engagement, a broad-faced spur-gear carried by the same shaft, a rack constantly engaging said last-named gear, and a connection between the rack and the poise, substantially as described.

14. In a scale, the combination of a frame, a computing-cylinder, a scale-beam, a poise thereon, a shaft, two gears thereon, a rack, connections between the rack and one of said gears, connections between said cylinder and the other of said gears for simultaneously actuating said poise and cylinder, a casing surrounding said cylinder having an opening or slot therein, and a scale adjacent to the opening of said casing, substantially as described.

15. In a scale, the combination of a frame, a scale-beam, a poise thereon, a shaft, two gears thereon, a rack coöperating with one of said gears and connected to said poise, and a cylinder detached from the scale-beam and mounted in fixed bearings, said cylinder being operatively connected to the other of said gears whereby said cylinder and poise may be simultaneously actuated, substantially as described.

16. In a scale, the combination of a frame, a scale-beam, a poise thereon, a shaft, two gears thereon, a rack coöperating with one of said gears and connected to said poise, and a cylinder releasably connected to the other of said gears, substantially as described.

17. In a scale, the combination of a frame, a scale-beam, a poise thereon, a shaft, two gears thereon, a rack adapted to slide in a fixed frame and coöperating with one of said gears and connected to said poise, and a plurality of cylinders capable of alternate and separable connection with the other of said gears, substantially as described.

18. In a scale, the combination of a computing-cylinder, a scale-beam, a poise thereon, a shaft, two gears thereon, a rack, connections between the rack and one of said gears, connections between said cylinder and the other of said gears for simultaneously actuating said poise and cylinder, a casing surrounding said cylinder having an opening or slot to expose said cylinder, a scale on said casing adjacent to the slot, a computing-chart surrounding said casing, and a fixed scale coacting with said chart, substantially as described.

19. In a scale, the combination of a scale-beam therefor, a poise thereon, a plurality of computing-cylinders nested together, means common to both poise and one of said cylinders for simultaneously actuating both, a casing surrounding said cylinders having openings or slots therein to expose said cylinders, a scale adjacent to each slot, a computing-chart on the outside of said casing, means for rotating said casing, and a fixed scale coacting with said casing, substantially as described.

20. In a scale, the combination of a frame, a scale-beam, a poise thereon, a plurality of computing-cylinders nested together, means carried by the frame for adjusting the poise and rotating one of the cylinders, a casing surrounding the cylinders and having a slot for each cylinder, a scale adjacent to each slot, a surrounding computing-chart on the outside of said casing, and means for rotating said casing, substantially as described.

21. In a scale, a frame, a computing-cylinder, a scale-beam, a poise thereon, a shaft, two gears thereon, a rack, connections between the rack and one of said gears, connections between said cylinder and the other of said gears for simultaneously actuating said poise and cylinder, means for rotating said cylinder, a casing surrounding said cylinder having an opening or slot therein to expose said cylinder, a scale adjacent to said slot, a computing-chart on the outside of said casing, a fixed scale coacting with said casing, and means for rotating said casing, substantially as described.

22. In a scale, the combination of a frame, a scale-beam, a poise thereon, a plurality of computing-cylinders nested together, means common to both the poise and one of said cylinders for simultaneously actuating both, a casing surrounding said cylinders having openings or slots therein to expose said cylinders, a scale adjacent to each of the openings or slots of said casing, a computing-chart on the outside of said casing, a fixed price-scale attached to a backing 47, and means for rotating said casing, substantially as described.

23. A computing-scale having weighing members combined with a series of coacting and rotating computing-cylinders, the first of said series of cylinders having indications thereon beginning at a small unit of weight and at a high rate of price per unit, the intermediate cylinders having thereon indications of higher weights but lower in price, and the last cylinder of said series computing a large number of pounds but at a low price per pound, substantially as set forth.

24. In a computing-scale having upper and lower platforms and weighing members including a beam and a poise thereon, the combination of two disconnected rotating computing-cylinders, one for use with the lower platform and the other with the upper platform, a price-scale adapted for use with each cylinder, and means whereby the poise on said beam and one of said cylinders may be simultaneously moved, substantially as set forth.

25. In a scale, the combination of weighing members including a beam and a poise thereon, with rotary computing mechanism, a rack adapted to slide in a fixed frame parallel with said beam, a connection between the poise and the rack, and a gear operatively connected with said rack whereby the poise and the rotary computing mechanism may be moved simultaneously, substantially as set forth.

693,848. COMPUTING-SCALE. MARK A. DEAN, Moorepoint, Miss. Filed May 14, 1901. Serial No. 60,814. (No model.)

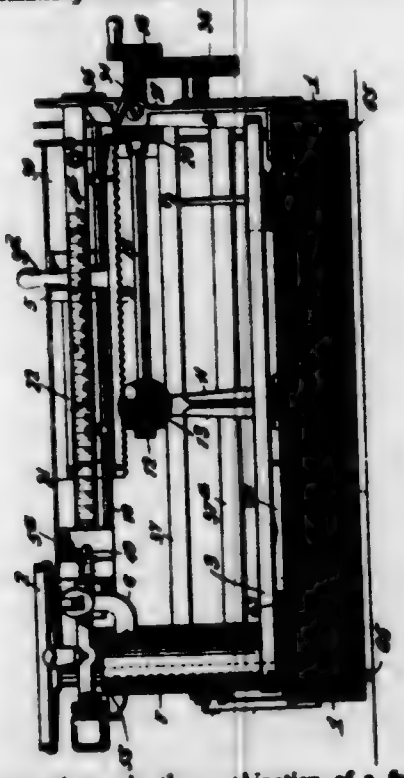
Claim.—1. In a scale, a scale-beam, a poise on said beam, a shaft carrying a spur-wheel and a bevel-wheel, a rack adapted to constantly engage said spur-wheel, a connection between the rack and the poise, and a second shaft carrying a bevel-gear and a spur-wheel, the former engaging the bevel-wheel of said first shaft, combined with a rotary computing mechanism independent of the scale-beam and having gearing adapted to engage the spur-wheel of said second shaft, substantially as set forth.

2. In a scale, a scale-beam, a poise on said beam, a shaft carrying a spur-wheel and a bevel-wheel, a rack adapted to constantly engage said spur-wheel, a connection between the rack and the poise, a second shaft carrying a bevel-gear and a spur-wheel, the former engaging the bevel-wheel of said first shaft, and means for rotating said two shafts combined with a rotary computing mechanism independent of the scale-beam and having gearing adapted to engage the spur-wheel of said second shaft, substantially as set forth.

3. In a scale, a scale-beam, a poise on said beam, a shaft carrying a spur-wheel and a bevel-wheel, a rack adapted to constantly engage said spur-wheel, a connection between the rack and the poise, a second shaft carrying a bevel-gear and a spur-wheel, the former engaging the bevel-wheel of said first shaft, and means for rotating said shafts, combined with a rotary computing mechanism consisting of computing-cylinders geared in pairs and rotatable as a series, a gear of either pair being adapted to engage the spur-wheel of said second shaft, substantially as set forth.

4. In a scale, a combined scale-beam consisting of a main and a tare beam, a poise on each of said beams, that on the tare-beam being

provided with a catch for engaging or locking with the tare-beam at a specified point, a shaft carrying a spur-wheel and a bevel-wheel, a rack adapted to constantly engage said spur-wheel, a connection between the rack and the poise on the main beam, and a second shaft carrying a bevel-gear and a spur-gear, the former engaging the bevel-wheel of said first shaft, combined with a rotary computing mechanism independent of the scale-beam and having gearing adapted to engage the spur-wheel of said second shaft, substantially as set forth.



5. In a computing-scale, the combination of a frame, a standard thereon, a combined scale-beam, having its fulcra on said standard, consisting of a main and a tare beam, a poise on each of said beams, that on the tare-beam being provided with a lock for engaging and locking at a specified point with the tare-beam, a rotary computing mechanism independent of the scale-beam, and means whereby the poise on the main beam may be slid or moved upon the main beam and the computing mechanism rotated simultaneously, substantially as set forth.

6. In a computing-scale, the combination of a main beam, a poise thereon, a pair of intergeared rotary computing-cylinders independent of the main beam, price-scales used with said cylinders, and means whereby the poise on the main beam and the pair of computing-cylinders may be coincidently operated, substantially as set forth.

7. In a computing-scale, the combination of weighing members, including a main beam and a poise thereon, a rotatable casing, two pairs of rotatable computing-cylinders carried within said casing, each pair of said cylinders being geared together so as to revolve coincidently, and means whereby the poise of said main beam may be slid upon its beam and a connected pair of said computing-cylinders simultaneously revolved, substantially as set forth.

8. In a computing-scale, the combination of weighing members including a main beam, a tare-beam and a poise for each, the poise on the tare-beam being provided with a lock for engaging and locking at a specified point with said beam, a rotatable casing, two pairs of rotatable computing-cylinders carried within said casing, each pair of said cylinders being geared together so as to be revolved coincidently, and means whereby the poise of said main beam may be slid upon its beam and a connected pair of computing-cylinders simultaneously revolved, substantially as set forth.

9. In a computing-scale, the combination of weighing members including a main beam and a poise thereon, a slotted rotatable casing, a price-scale parallel and adjacent to each slot, two pairs of rotatable computing-cylinders carried within said casing, each pair of said cylinders being geared together so as to revolve coincidently, and means whereby the poise of said main beam may be slid upon its beam and a connected pair of said computing-cylinders simultaneously revolved, substantially as set forth.

10. In a computing-scale, the combination of weighing members including a combined main beam and tare-beam, a poise on each of said beams, the poise on the tare-beam being provided with a lock for engaging and locking at a specified point with the tare-beam, a rotatable casing, two pairs of computing-cylinders carried within said casing, each pair of said cylinders being geared together so as to revolve coincidently, means whereby the poise of said main beam may be slid upon its beam and a connected pair of said computing-cylinders simultaneously revolved, and means for locking and preventing the rotation of one pair of said internal computing-cylinders when the other pair thereof is in engagement with the poise-moving devices, substantially as set forth.

11. In a computing-scale having an upper and a lower weighing-platform and weighing members including a main beam and a poise thereon, the combination of a pair of rotatable computing-cylinders, one for use with the lower platform and the other with the upper platform, a price-scale adapted for use with each cylinder, and means whereby the poise on the main beam and the pair of computing-cylinders may be simultaneously moved, substantially as set forth.

12. In a computing-scale having an upper and a lower weighing-platform and weighing members including a combined main beam and a tare-beam, a poise on each beam, the combination of a pair of rotatable computing-cylinders, one for use with the lower platform and the other with the upper platform, a price-scale adapted for use with each cylinder, and means whereby the poise on the main beam and a pair of computing-cylinders may be simultaneously moved, substantially as set forth.

13. In a computing-scale, a scale-beam, a poise on said beam, a shaft carrying a spur-wheel and a bevel-wheel, a rack adapted to constantly engage said spur-wheel, a connection between the rack and the poise, a second shaft carrying a bevel-gear and a spur-wheel, the former engaging the bevel-wheel of said first shaft, and means for rotating said shafts, combined with a rotary computing mechanism independent of the scale-beam and comprising a pair of intergeared computing-cylinders adapted to engage the spur-wheel of said second shaft, substantially as set forth.

14. In a scale, a combined scale-beam consisting of a main and a tare beam, a poise on each of said beams, a shaft carrying a spur-wheel and a bevel-wheel, a rack adapted to constantly engage said spur-wheel, a connection between the rack and the poise of the main beam, a second shaft carrying a bevel-gear and a spur-wheel, the former engaging the bevel-wheel of said first shaft, and means for rotating said shafts, combined with a rotary computing mechanism independent of the scale-beam and comprising a pair of intergeared computing-cylinders adapted to engage the spur wheel of said second shaft, substantially as set forth.

15. In a computing-scale, the combination of weighing members including a main beam and a poise thereon, a rotatable casing, intergeared computing-cylinders carried within said rotatable casing, means whereby the poise may be slid upon its beam and said intergeared computing-cylinders simultaneously revolved, and means for locking and preventing the rotation of said intergeared computing-cylinders when not in engagement with the poise-moving devices, substantially as set forth.

16. In a computing-scale having an upper and a lower weighing-platform and weighing members including a main beam and a poise thereon, the combination of a pair of rotatable computing-cylinders, one for use with the lower platform and the other with the upper platform, each of said cylinders being divided by vertical and horizontal intersecting lines, the squares or spaces thus formed at an end of each cylinder being occupied by figures indicating weights, and each having opposite thereto a horizontal row of figures indicative of products multiplied by price, a scale having figures thereon indicating prices in columns parallel to the columns of figures on the cylinder showing the product of weight and price, and means whereby the poise on the main beam and the pair of computing-cylinders may be simultaneously moved, substantially as set forth.

17. In a computing-scale, the combination of weighing members including a main beam and a poise thereon, a rotatable slotted casing having a flattened side, a price-scale parallel and adjacent to each of said slots, said price-scales being situated at the flattened portion of said casing, rotatable computing-cylinders carried within said casing, a pair of said cylinders being geared together so as to revolve coincidently, and means whereby the poise of said main beam may be slid upon its beam and a pair of computing-cylinders simultaneously revolved, substantially as set forth.

18. In a computing-scale, the combination of weighing members including a main beam and a tare-beam, a poise on each of said beams, that on the tare-beam being provided with a lock for engaging and locking at a specified point with the tare-beam, a rotatable cylindrical casing having flattened sides and two slots at each of said flattened sides, and a price-scale parallel and adjacent to each of said slots, two pairs of rotatable computing-cylinders carried within said rotatable cylindrical casing, each pair of said cylinders being geared together so as to revolve coincidently, and means whereby the poise of said main beam by be slid upon its beam and a connected pair of said computing-cylinders simultaneously revolved, portions of the peripheries of said computing-cylinders so revolved being adjacent to the slots in said casing, substantially as set forth.

19. In a computing-scale, the combination of weighing members including a combined main beam and a tare-beam, a poise on each of said beams, that on the tare-beam being provided with a lock for engaging and locking at a specified point with the tare-beam, a slotted rotatable casing, a price-scale parallel and adjacent to each slot of said casing, two pairs of rotatable computing-cylinders carried within said casing, each pair of said cylinders being geared together so as to revolve coincidently,

means whereby the poise of said main beam may be slid upon its beam, and a connected pair of said computing-cylinders simultaneously revolved, means whereby said two pairs of internal cylinders may be locked when not in engagement with the poise-moving mechanism, and means whereby the rotatable casing may be locked during the joint movement of the poise of the main beam and a pair of internal computing-cylinders, substantially as set forth.

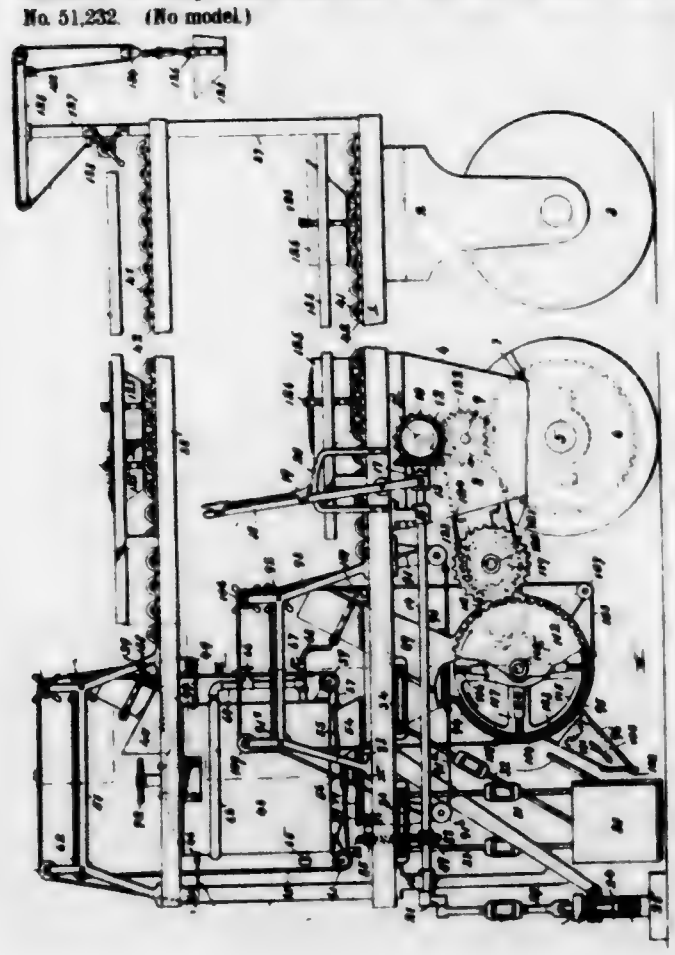
20. In a computing-scale, the combination of weighing members, a rotatable cylindrical casing serving in connection with a fixed price-scale as a computer, said cylindrical casing carrying intergeared computing-cylinders, and exposing the gearing of said cylinders, means for rotating said intergeared computing-cylinders, and means whereby said casing may be locked with and unlocked from said means for rotating said internal computing-cylinders, substantially as set forth.

21. In a computing-scale, a rotatable cylindrical casing 30 having a flange provided with notches and carrying mounted therein intergeared computing-cylinders, said casing further exposing gearing of said internal cylinders, combined with a shaft 16, the outer box-bearing 24 of said shaft having a lip 28, the spur 20 on said shaft, and means whereby said spur 20 may be drawn from and held out of engagement with gearing of said internal cylinders and the lip 28 simultaneously drawn and held from engagement with the notch of a flange of said cylindrical casing, whereby said casing may be rotated upon its axis, substantially as set forth.

22. In a scale, the combination, with weighing members, of a cylindrical casing having peripheral and end charts; a series of computing-cylinders each mounted upon a separate axis within said casing and provided with a peripheral chart, said casing being slotted; a price-scale carried by said casing and arranged parallel with and adjacent to each of said slots; a fixed price-scale arranged parallel with the axis of said casing and adjacent to its peripheral chart; a fixed price-scale arranged parallel to the chart at each end of said casing; means for rotating the casing so as to enable computations to be made by bringing figures upon its peripheral or end charts into proximity with figures upon the respective price-scales; and means for rotating said internal computing-cylinders in order to bring figures on their peripheries into proximity with figures on the respective price-scales carried by said casing so that computations indicated by said internal cylinders may be visible through the slots of said casing, substantially as set forth.

23. In a computating-scale, the combination of a beam, a poise, a slotted rotatable casing, rotatable computing-cylinders carried within said casing, the latter being flattened at places on its periphery between two of said rotatable cylinders, and means for operatively connecting said rotatable cylinders with the poise, substantially as set forth.

693,844. MACHINE FOR PREPARING AND LAYING CONCRETE. JAMES T. DEMPSEY, Kansas City, Kans., assignor of one-half to Patrick W. Carey, Kansas City, Kans. Filed Mar. 15, 1901. Serial No. 51,232. (No model.)



Claim.—1. In a machine of the character described, a cylinder provided with a hopper, a slide door or valve controlling communication between the hopper and cylinder, a slide door or valve controlling the discharge from said cylinder, a pair of wheels or mixers within the cylinder, the shaft of one forming a journal for the other, a gear-wheel mounted rigidly on the shaft of each wheel or mixer, gearing connected to said gear-wheels so as to synchronously turn said shafts in opposite directions, a superstructure, winding-drums and guide-pulleys mounted therein, guide-pulleys supported contiguous to the slide doors or valves, and flexible connections between the opposite ends of said slide doors or valves and said drums, and guided around said pulleys, said connections operating only in conjunction with their respective doors or valves, drums, and pulleys, substantially as described.

2. In a machine of the character described, a horizontal cylinder having a discharge-spout, a valve controlling the passage of material from the cylinder to the spout, agitators within the cylinder, one comprising end portions or wheels having tubular journals mounted in the cylinder and connected together peripherally, and the other consisting of a shaft journaled in said tubular journals, and of square cross-section intermediate thereof, a sleeve fitting snugly on the square portion of said shaft, and provided with outwardly-projecting arms, and means for rotating said agitators in opposite directions simultaneously, substantially as described.

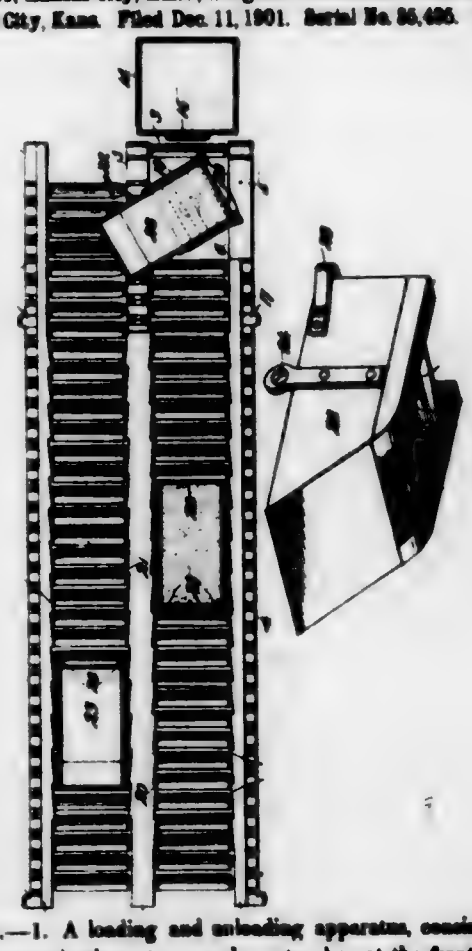
3. In a machine of the character described, a cylinder provided with a discharge-spout, said discharge-spout having its end portions embracing hinged plates, and sliding plates mounted on the hinged plates, substantially as described.

4. In a machine of the character described, a cylinder provided with a discharge-spout, said discharge-spout having its end portions embracing hinged plates, bolts carried thereby, slotted plates mounted slidingly on the bolts, and clamping-nuts engaging said bolts to secure the plates in the desired relation, substantially as described.

5. In a machine of the character described, a cylinder provided with a discharge-spout, the latter having its end portions embracing hinged plates and slide-plates mounted on the hinged plates, and guard-brackets secured to the spout to limit the outward movement of said hinged portions and the sliding plates carried thereby, substantially as described.

6. In a machine of the character described, a horizontal cylinder provided with a superposed hopper, and agitators for thoroughly mixing the contents of the cylinder, and a spout for discharging the mixed contents, a flexible cut-off controlling the point of communication between the cylinder and its spout, curved straps carrying said flexible cut-off, and cables connected to opposite ends of said straps for moving them in opposite directions and thereby opening or closing the cut-off, substantially as described.

693,845. LOADING OR UNLOADING APPARATUS. JAMES T. DEMPSEY, Kansas City, Kans., assignor of one-half to Patrick W. Carey, Kansas City, Kans. Filed Dec. 11, 1901. Serial No. 85,495. (No model.)



Claim.—1. A loading and unloading apparatus, consisting of two passages communicating at one end; a step-bar at the front end of one

passage; and a bucket to travel in said passage toward said end, provided with a depending hook for pivotal engagement with said stop bar, substantially as described.

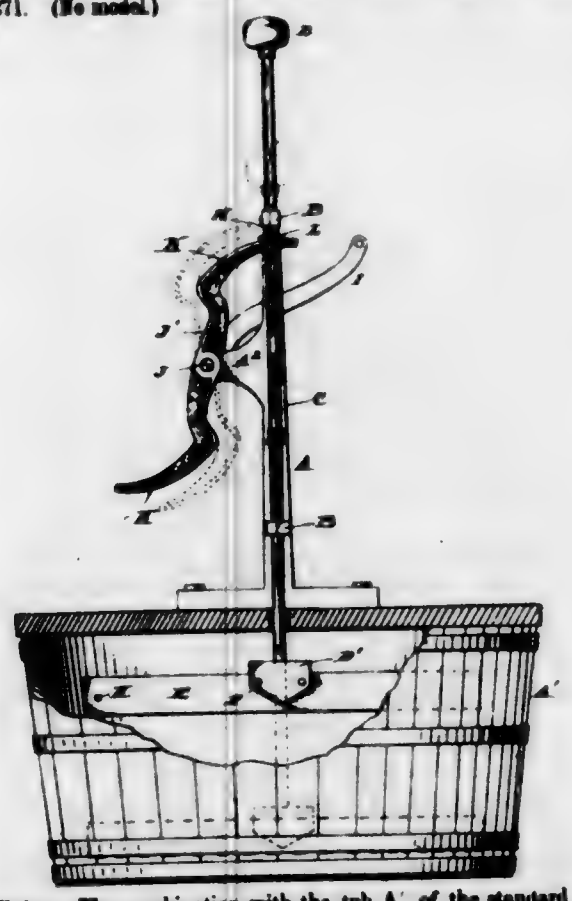
2. A loading and unloading apparatus, consisting of two passages communicating at one end, one of said passages being provided with forwardly-disposed ratchet-teeth, and the other with rearwardly-disposed ratchet-teeth; a stop-bar at the front end of the passage having the forwardly-disposed ratchet-teeth; a bucket mounted to travel forwardly in the passage having the forwardly-disposed ratchet-teeth, and rearwardly in the passage having the rearwardly-disposed ratchet-teeth, and provided with a depending hook for frictional engagement with said stop-bar; and spring-catches for successive engagement with the ratchet-teeth of said passages, substantially as described.

3. A loading and unloading apparatus, comprising a platform consisting of two passages communicating at one end, one passage having a bottom opening at its front or communicating end; a swiveled roller-carrying frame mounted in said opening; a stop-bar at the front end of said passage; and a bucket arranged to travel in said passages and upon said swiveled roller-carrying frame, and provided with a depending hook for engagement with said stop-bar.

4. A loading and unloading apparatus, comprising a pair of passages communicating at their front ends, and having a roller-bottom, the bottom of one passage at its front end being provided with an opening, and the contiguous ends of the rollers at the front end of the other passage being beveled or tapered; a swiveled frame mounted in said opening and provided with rollers; and a bucket to slide upon the roller-bottom of the platform and upon the rollers of said swiveled frame, substantially as described.

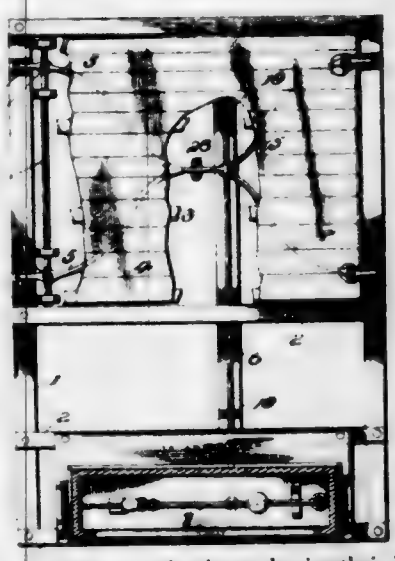
5. A loading and unloading apparatus, comprising a platform, consisting of two passages having roller-bottoms for said passages; upper side rails for said passages, the middle one forming the inner side rail of each passage and terminating short of the front end of the same; a swiveled roller-carrying frame at the front end of one passage; and rollers at the corresponding end of the other passage, tapered at their ends contiguous to said swiveled frame, substantially as described.

693,846. WASHING-MACHINE. HENRY P. DENNIS, ALBERTUS D POTTER, and JOHN H. ELLIS, Peoria, Ill. Filed Feb. 23, 1901. Serial No. 48,271. (No model.)



Claim.—The combination with the tub A', of the standard A, the lid on which the said standard is mounted, the vertical shaft C adapted for vertical movement, bearings B for guiding the same, the dasher on the lower end of said shaft C, the disk L on said vertical shaft, the projection A^3 on the standard A, the horizontal shaft J and its crank mounted on said projection, the cams J' secured to said horizonal shaft and adapted to engage the said disk L on the shaft C, each of said cams consisting of an arm extending substantially straight away from the shaft and each also being formed with a knee extending outward and away from said straight portion at an obtuse angle thereto into the path of the cams and in the direction of revolution thereof and also having a curved extremity K substantially at right angles to said knee and extending back into the path traversed by said cams in such manner that when the crank is turned said knee first meets the disk L and raises and turns the dasher in one direction and when the outer curved extremity meets said disk the dasher is turned in the opposite direction as set forth and for the purpose described.

693,847. PLATFORM-SCALE. AUGUST DOERING, Burt, Iowa, assignor of three-fourths to Wm. K. Ferguson, E. J. Murtagh, and Winfrid P. Jones, Algona, Iowa. Filed Mar. 23, 1901. Serial No. 52,559. (No model.)



Claim.—1. In platform-scales, levers having their inner ends overlapped and provided with pendent pivot-studs, a rock-shaft connected to the platform-levers and having an arm or lever, a shackle connected to said arm or lever and comprising upper and lower plates recessed in their top sides to receive the pendent pivot-studs of the platform-levers, and means for independently adjusting the said plates, substantially as described.

2. In platform-scales, levers having their inner ends overlapped and provided with pendent pivot-studs, a rock-shaft connected to the platform-levers and having an arm or lever carrying a bearing-pin, eyebolts pendent from said bearing-pin, upper and lower plates mounted on the eyebolts and recessed in their top sides to receive the pendent pivot-studs of the platform-levers, and nuts on the eyebolts for independently adjusting the said plates, substantially as described.

3. In platform-scales, platform-levers, a rock-shaft provided with two laterally-projecting arms, a shackle pivotally and adjustably connecting one of said arms to the platform-levers, a scale-beam, a longitudinally-adjustable bar connected with the scale-beam, a yoke carried by said bar, a plate adjustably connected to the yoke, and having a recess in its top, and a pendent pivot-stud on the other arm of the rock-shaft and fitting in said recess, substantially as described.

4. In platform-scales, levers having their inner end portions overlapped and provided with pendent pivot-studs, a platform connection comprising an arm or lever and a shackle connected to said arm or lever and comprising upper and lower plates recessed in their top sides to receive the pendent pivot-studs of the platform-levers, and means for independently adjusting the said plates, substantially as set forth

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693,848. SHOE-TREE. GEORGE F. DUNN, Brockton, Mass., assignor to William B. Arnold, Brockton, Mass. Filed July 25, 1901. Serial No. 69,625. (No model.)

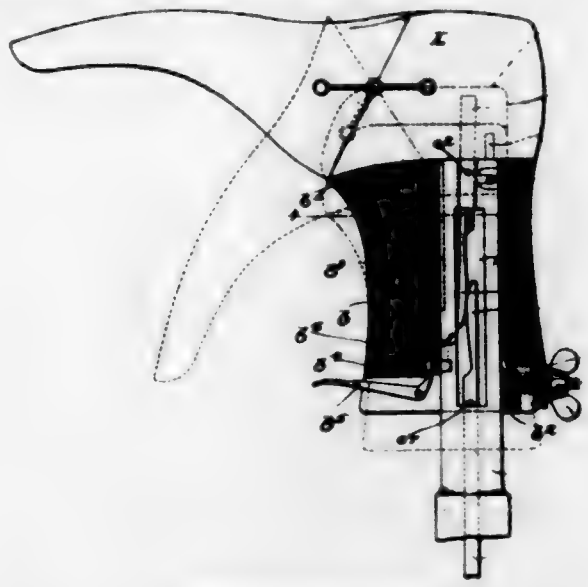
Claim.—1. A shoe-tree, comprising a spindle-support to receive a last, and a body portion or leg part surrounding and movable on said support, means for locking said leg part in operative position, said leg part being movable upwardly into position for supporting said last and downwardly into position permitting the collapsing of the last.

2. A shoe-tree, comprising a spindle-support, a body portion or leg part movable thereon and carrying brasses extending beyond the end of said leg part for embracing a divided last and extending over the hinge-gap of the divided last and beneath the vamp-stitching of the shoe on said last, and means to lock said leg part in operative position.

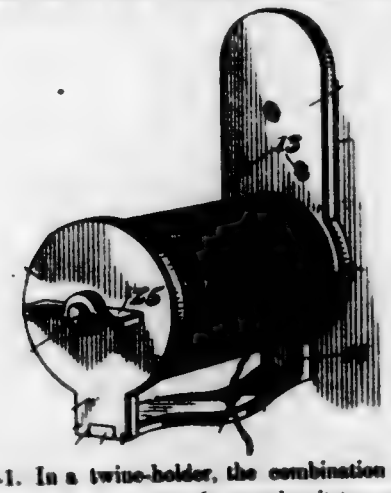
3. A shoe-tree for use with a separate last, said tree having a spindle-support, provided with a spindle for receiving and retaining the last and its shoe, a separate back block adjustable toward and from said spindle-support, and means for moving said back block independently of said spindle and the last carried thereby into fixed alinement with the heel end of the last.

4. A shoe-tree for use with usual hinged lasts, said tree comprising a spindle-support, a body portion or leg part slidingly mounted on said support and movable into position for abutting against the last, and out of

said position for permitting the collapsing of the last, braces carried by and movable with said leg part for covering the joint of the hinged last and affording a smooth ironing surface beneath the vamp of the shoe, said body part extending forwardly into supporting engagement with the fore part of the last when the latter is in extended position, the tree-leg being provided with means at its rear part adjustable into alinement with the rear end of the heel part of the last, means for locking said movable leg part in operative position, and means carried by the spindle-support for locking the last thereon, said latter means comprising a stud extending from the end of the spindle support, a pivoted spindle adjacent said stud, and means for swinging said spindle into and out of parallelism with said stud.



698,849. TWINE-HOLDER. GEORGE H. ELLIOT, Mount Pleasant, Iowa. Filed June 20, 1901. Serial No. 65,550. (No model.)



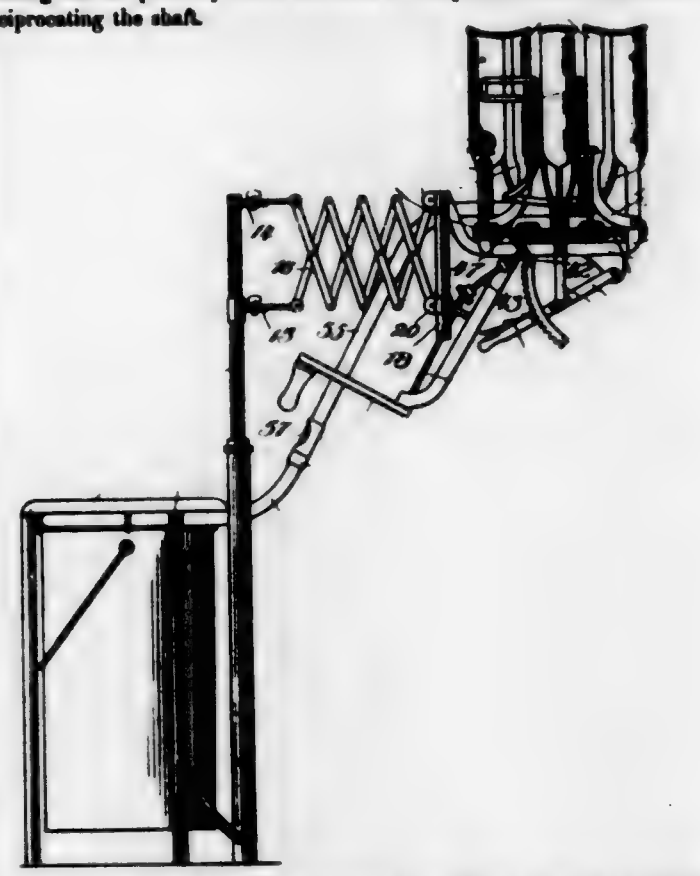
Claim.—1. In a twine-holder, the combination with a base-plate, of means engaging the base-plate for securing it to a wall or similar support, a spindle secured at one end to the base-plate and screw-threaded at its opposite end, a supporting-arm secured at one end to the base-plate and projecting from the same side thereof as the spindle, a friction-disk removably mounted upon the threaded end of the spindle and having a holding-stem that detachably engages the end of the supporting-arm, and a nut screwed upon the threaded end of the spindle and bearing against the friction-disk.

2. In a twine-holder, the combination with a base-plate having an upward extension provided with openings, of a spindle secured at one end to the base-plate and screw-threaded at its opposite end, a supporting-arm secured to the base-plate at the end opposite the upward extension and provided at its other end with a lug, a friction-disk removably mounted upon the threaded end of the spindle and having a holding-stem that is provided with a notch, said notch receiving the lug of the supporting-arm, and a nut screwed upon the threaded end of the spindle and bearing against the friction-disk.

3. In a twine-holder, the combination with a base-plate, of a spindle projecting from an intermediate portion of the base-plate and rigidly secured thereto, an arm projecting from one end of the base-plate upon the same side as the spindle, means for securing the other end of the base-plate to a wall or suitable support, a friction-plate having a movable engagement with the free end of the arm and the spindle, and an adjusting-nut threaded on the free end of the spindle.

698,850. COW-MILKER. ARNO A. EWALD and HERMANN A. EWALD, Elgin, Wis. Filed June 5, 1901. Serial No. 63,261. (No model.)

Claim.—1. A milking device comprising a base having a gear mounted thereon for movement in a horizontal plane, a plurality of milking devices pivoted to the base and each including presser-rolls and a presser-plate adjustable toward and away from the rolls, connections between the rolls and the gear for operating the rolls, a reciprocatory shaft mounted in the base and having a spider having connections with the milking devices and their plates for adjusting the plates and moving the milking devices pivotally when the shaft is reciprocated, and means for reciprocating the shaft.



2. A device of the class described comprising a group of milking devices pivoted for movement of their upper ends toward and away from each other, each milking device including a presser-plate and a presser-roll movable longitudinally thereof, an actuating-gear, a shaft for each milking device operatively connected therewith and having a gear engaged with the actuating-gear, means for rotating the actuating-gear and a single means connected with the milking devices and their presser-plates for adjusting them.

3. A device of the class described comprising a frame having a gear mounted thereon, a plurality of milking devices pivoted to the frame about the gear for movement of their upper ends toward and away from each other, each milking device including an operating-shaft having a globular pinion engaged with the gear, and means for rotating the gear.

4. A device of the class described comprising an annular series of milking devices pivotally mounted for movement of their upper ends toward and away from each other and a single master-gear disposed within the inclosure of the milking devices and in the plane of the centers of pivotal movement thereof and with which all of the milking devices are operatively connected.

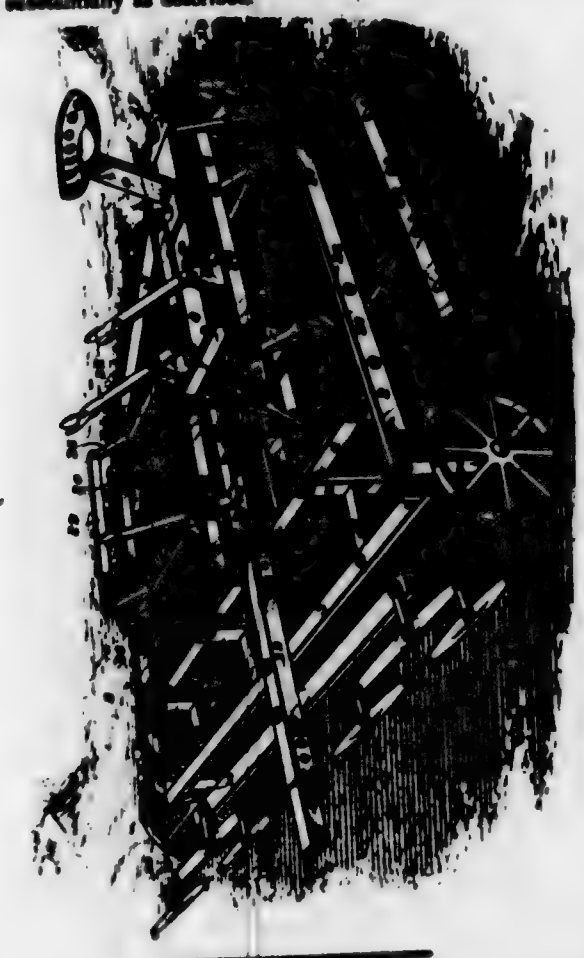
5. A device of the class described comprising an annular series of milking devices each including a presser-plate and presser-rolls for cooperation therewith, the said plate being adjustable toward and away from the rolls and the whole number of milking devices being pivotally mounted for movement of their upper ends toward and away from each other, means for actuating the milking devices and a single means connected with the milking devices for simultaneously moving them pivotally and adjusting their presser-plates toward and away from the rolls.

698,851. RIDING-HARROW. JOSEPH PEABODY, Concordia, Kans. Filed Mar. 7, 1901. Serial No. 50,522. (No model.)

Claim.—1. In a harrow of the class described, a wheeled frame, including side bars, a front cross-bar 3, a cross-bar 4 in rear thereof, hangers 11 having their upper ends attached to the cross-bar 4 and draft-bars having their rear ends secured to the lower portions of the hangers and their front ends secured to the front cross-bar 3, in combination with drag-harrows, means carried by the wheeled frame, to raise and lower them, and flexible draft connections between the drag-harrows and the lower portions of the hangers, substantially as described.

2. In a harrow of the class described, a wheeled frame including side bars, a front cross-bar 3, a cross-bar 4 in rear thereof, a tongue secured to and connecting said cross-bars, hangers 11 having their upper

ends attached to the cross-bar 4 and draft-bars having their rear ends secured to the lower portions of the hangers and their front ends secured to the front cross-bar 3, in combination with drag-harrows, means, carried by the wheeled frame, to raise and lower them, and flexible draft connections between the drag-harrows and the lower portions of the hangers, substantially as described.



693,852. FEEDING MECHANISM FOR SEWING-MACHINES.

WILLIAM C. FREE, Chicago, Ill. Filed July 8, 1901. Serial No. 67,661. (No model.)

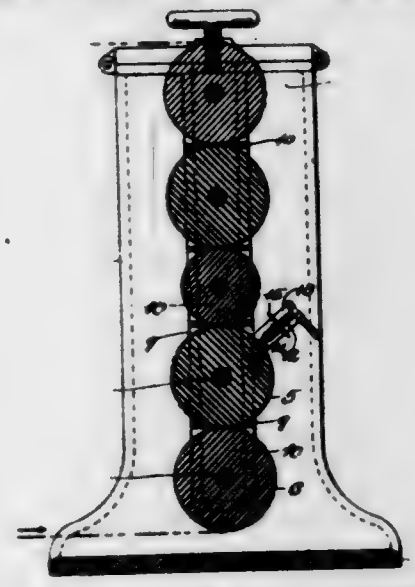


Claim.—1. In a feeding mechanism for sewing-machines, in combination, a driving-shaft, a feed-bar, having a transverse opening therethrough, a rock-shaft-actuating arm, having a transverse rhomb-shaped opening therethrough, a rock-shaft, a crank-arm connecting the rock-shaft with the feed-bar, a crank-arm on the rock-shaft and means for pivotally connecting the same with the rock-shaft-actuating arm, triangular curved eccentrics, mounted upon the driving-shaft, said curved eccentrics being so located and arranged in the openings in the feed-bar and rock-shaft-actuating arm as to act alternately thereon, whereby the horizontal movements of the feed-bar are rendered independent of, and more rapid than, the vertical movements thereof, substantially as and for the purpose specified.

2. In a feeding mechanism for sewing-machines, in combination, a driving-shaft, a feed-bar, having a transverse opening therethrough the upper and lower edges whereof are substantially parallel, a rock-shaft-actuating arm, having a transverse rhomb-shaped opening therethrough, a rock-shaft, a crank-arm connecting the rock-shaft with the feed-bar, a crank-arm and an intermediate link connecting the rock-shaft with the rock-shaft-actuating arm, means for adjusting the connecting-joint between the intermediate link and rock-shaft-actuating arm toward and from the rock-shaft, triangular curved eccentrics, mounted upon the driving-shaft and so located and arranged in the openings in the feed-bar and rock-shaft-actuating arm as to act alternately thereon, whereby the horizontal movements of the feed-bar are rendered independent of, and more rapid than, the vertical movements thereof, substantially as and for the purpose specified.

693,858. CALENDER-ROLL CLEANSER.

JOHN PROSSARD, East Pepperell, Mass. Filed Oct. 25, 1901. Serial No. 79,904. (No model.)



Claim.—1. In a calender-roll cleanser, a supporting-bar, a clamp fast to said supporting-bar, a strip of cleansing material detachably fastened to said bar by said clamp, and means to force said supporting-bar against the periphery of a roll with a spring-pressure.

2. In a calender-roll cleanser, a supporting-bar provided with a slot at each end extending longitudinally thereof, a clamp fast to said bar, and a strip of cleansing material detachably fastened to said bar by said clamp.

3. In a calender-roll cleanser, a supporting-bar provided with a slot at each end extending longitudinally thereof, a strip of cleansing material fast to said bar, and means to engage said supporting-bar above said slots and force the said bar toward a roll with a spring-pressure.

4. In combination, a roll, a supporting-bar, a strip of cleansing material fast to said supporting-bar, a pair of standards each provided with a slot to receive one end of said supporting-bar, and means attached to each of said standards to engage said supporting-bar and force the same toward said roll.

5. In combination, a roll, a supporting-bar, a strip of cleansing material fast to said supporting-bar, a pair of standards each provided with a slot to receive one end of said supporting-bar, and means attached to each of said standards to engage said supporting-bar and force the same toward said roll with a spring-pressure.

6. In combination, a roll, a supporting-bar, a strip of cleansing material fast to said supporting-bar, a pair of standards each provided with a slot to receive one end of said supporting-bar, a lever pivoted to one of said standards adapted to engage one end of said supporting-bar and force the same toward said roll, and means for locking said lever to said standards.

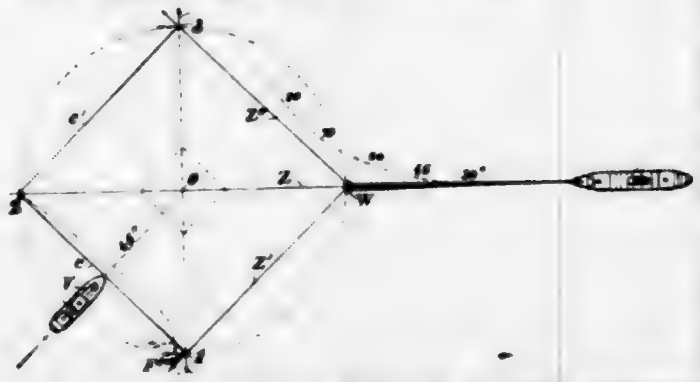
693,854. THREAD-HOLDER FOR SPOOLS.

DANIEL GAMBLE, Ramelton, Ireland. Filed Nov. 12, 1900. Serial No. 36,252. (No model.)



Claim.—The improvements in or connected with thread holders or reels, consisting in an india-rubber ring, of circular form in cross-section, having a spiral groove in its periphery adapted to be placed over a reel.

693,855. APPARATUS FOR PREVENTING COLLISIONS AT SEA. NICOLAS GUERASIMOFF, St. Petersburg, Russia. Filed June 20, 1899. Serial No. 721,253. (No model.)



Claim.—1. The combination with a ship, of a feeler, consisting of an electrically-propelled buoyant body connected with said ship, collision and depth indicating appliances connected with said body, an electrically-operated collision and shoal-water indicator on board ship, controlled by the aforesaid collision and depth indicating appliances, an electric circuit including said appliances and indicator and means for supplying current to the feeler-propeller from aboard ship, for the purpose set forth.

2. The combination with a ship, of a feeler, consisting of an electrically-propelled submerged buoyant body a float connected with said body, an electrically-operated visible signal carried by said float, collision and depth indicating appliances likewise connected with the body, a collision and shoal-water indicator on board ship controlled by said appliances, an electric circuit including said signal, the collision and depth indicating appliances and the collision and shoal-water indicator, and means for supplying current to the feeler-propeller, for the purpose set forth.

3. The combination with a ship, of a feeler, consisting of an electrically-propelled submerged buoyant body a float connected with said body, an electrically-operated visible signal carried by said float, collision and depth indicating appliances likewise connected with the body, a collision and shoal-water indicator on board ship controlled by said appliances, an electric circuit including said signal, the collision and depth indicating appliances and the collision and shoal-water indicator, and means for supplying current to the feeler-propeller, the circuit-leads being united into a cable serving to connect the feeler with the ship, for the purpose set forth.

4. The combination with a ship, of a submerged feeler flexibly connected with and moving in advance of said ship, a depth-indicator flexibly connected with and depending from said feeler, a float likewise connected with said feeler, a signaling device connected with the float, a like device on board ship, and means actuating the last-named signaling device when the feeler or depth-indicator collides with an obstruction, for the purpose set forth.

5. The combination with a ship, of a submerged feeler flexibly connected with and moving in advance of said ship, means for steering the feeler, a depth-indicator flexibly connected therewith and depending therefrom, a float-rod rigidly secured to the feeler, a float mounted to revolve on said rod, a signaling device connected with said float, a like device on board ship, and means actuating the last-named signaling device when the feeler or the depth-indicator collides with an obstruction, for the purpose set forth.

6. The combination with a self-propelling feeler serving the purposes specified and comprising a buoyant body of a frame in which said feeler is mounted to rotate on vertical journals, and means for limiting the amplitude of rotation, for the purpose set forth.

7. The combination with a self-propelling feeler serving the purposes specified and comprising a buoyant body, of a frame in which said feeler is mounted to revolve on vertical journals, and means for locking the feeler against rotation, for the purpose set forth.

8. The combination with a ship, a feeler serving the purposes specified, and a frame in which said feeler is mounted to revolve on vertical journals; of means indicating on board ship the angle of displacement of the feeler on its journals, for the purpose set forth.

9. The combination with a ship, a feeler serving the purposes specified, a frame in which said feeler is mounted to revolve on vertical journals, and a rudder for said feeler; of appliances controlled by said rudder and indicating on board ship the inclination of the feeler relatively to its frame, substantially as and for the purpose set forth.

10. The combination with a ship, a feeler serving the purposes specified, a frame in which said feeler is mounted to revolve on vertical journals, and a rudder for the feeler; of electrically-operated applianoes controlled by said rudder, indicating on board ship the inclination of the feeler relatively to its frame, for the purpose set forth.

11. The combination with a ship, a feeler serving the purposes specified, and a frame in which said feeler is mounted to revolve on vertical journals; of electrically-operated appliances for moving the feeler back into a normal position when displaced on its journals, and for locking said feeler against such displacement, and means on board ship for controlling the operation of said appliances, for the purpose set forth.

12. The combination with a ship, a feeler, a rudder rigidly secured thereto, a frame in which said feeler is mounted to revolve on vertical journals, and means controlled by the rudder indicating on board ship the displacement of the feeler on its journals relatively to its frame, or vice versa; of electrically-operated appliances for moving the feeler back into its normal position when displaced, and a device on board ship for controlling the operation of said appliances, for the purpose set forth.

13. The combination with a ship, three self-propelling feelers, a parallelogram of flexible connections with the feelers at three of the angles and a flexible connection connecting the fourth angle with the ship at the bow, of means for indicating on board ship the deviation in one direction of two of the feelers and the deviation in either direction of the third or leading feeler, and means controllable from aboard ship for correcting such deviations, for the purpose set forth.

14. The combination with a ship, three submerged self-propelling feelers, a luminous floating signal for each feeler, a parallelogram of flexible connections with the feelers at three of the angles, a like connection connecting the fourth angle with the bow of the ship, of means for indicating on board ship deviations of the feelers from their courses, means controllable from aboard ship for correcting such deviations and for directing the course of the feelers, for the purpose set forth.

15. The combination with a ship, three self-propelling feelers, a parallelogram of flexible connections with the feelers at three of the angles, and a flexible connection connecting the fourth angle with the ship at the bow; of means controllable from on board ship, maintaining the feeler at the forward angle in the ship's course, the other two feelers connected to take courses diverging from said ship's course controllable from on board ship and controlling the speed of the feelers, and appliances causing a signal to be given on board when one of the feelers or a connection between two of them meets with an obstruction, for the purpose set forth.

16. The combination with a ship, three self-propelling feelers, a depth-indicator flexibly connected with and depending from each of said feelers, a parallelogram of flexible connections with the feelers at three of the angles thereof, a like connection connecting the fourth angle to the ship at the bow, and flexible connections between the depth-indicators; of means controllable from aboard ship maintaining the feeler at the forward angle in the ship's course, means for maintaining the other two feelers in courses diverging from the ship's course, means controllable from aboard ship controlling the speed of the feelers, and means causing a signal or signals to be given on board when a feeler or depth indicator or a connection between them meets with an obstruction, for the purpose set forth.

17. The combination with a ship, three self-propelling feelers, a depth-indicator flexibly connected with and depending from each feeler, a float-rod rigidly secured to each of said feelers, a float mounted to revolve on the respective rods a signaling device connected with each float, a parallelogram of flexible connections with the feelers at three of the angles thereof, a like connection connecting the fourth angle with the ship at the bow, and similar connections between the depth-indicators; of means controllable from aboard ship for maintaining the feeler at the forward angle of the parallelogram in the ship's course, means maintaining the other two feelers in courses diverging from the ship's course, means controllable from aboard ship controlling the speed of the feelers, means causing a signal or signals to be given aboard ship when a feeler or depth-indicator or a connection between two feelers or depth-indicators meets with an obstruction, and means simultaneously operating the float signaling device, for the purpose set forth.

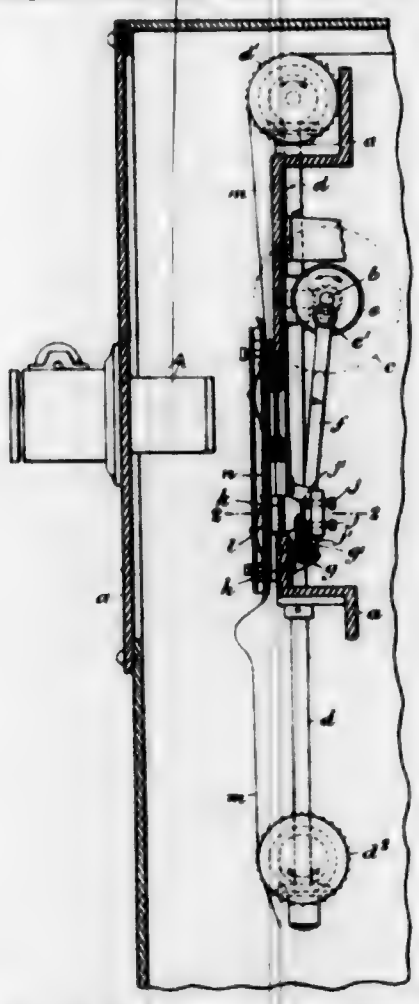
18. The combination with a ship, three self-propelling feelers a parallelogram of flexible connections with the feelers at three of the angles thereof, a like connection connecting the fourth angle with the ship at the bow, means maintaining the feeler at the forward angle in the ship's course, and the other two feelers in courses diverging from said ship's course, appliances controlled by deviations of the feelers from their respective courses causing a signal or signals to be given aboard ship, and appliances controllable from aboard ship causing the feelers to resume their normal courses, for the purpose set forth.

19. The combination with a ship, three self-propelling feelers, a parallelogram of flexible connections with the feelers at three of the angles thereof, a like connection connecting the fourth angle with the ship at the bow, means maintaining the feeler at the forward angle in the ship's course, and the other two feelers in courses diverging from said ship's course, appliances controlled by deviations of the feelers from their respective courses causing a signal or signals to be given aboard ship, and appliances controllable from aboard ship acting on the feeler at the said forward angle to bring the same into its normal course and therethrough the other two feelers, for the purpose set forth.

20. The combination with a ship, of appliances substantially such as described, comprising three feelers connected together and with the ship as set forth; of means on board ship for determining the proper position of the feelers relatively to said ship, means controllable from aboard ship and controlling the advance feeler for bringing the latter and therethrough the other feelers into their proper operative positions relatively to the ship, for the purposes set forth

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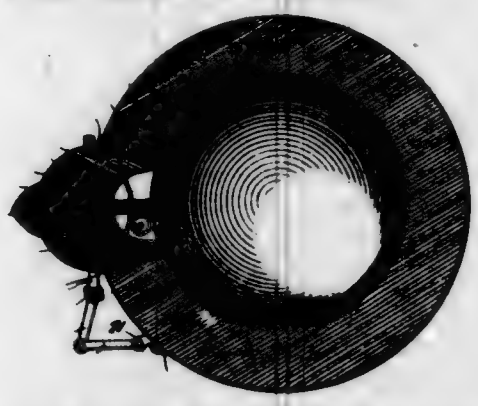
693,856. CINEMATOGRAPH. LADISLAUS E. GRANICHSTAEDTEN, London, England. Filed Aug. 30, 1900. Serial No. 28,534. (No model.)



Claim.—1. In a cinematograph, the combination of a crank, means for continuously rotating it, a connecting-rod on the crank and operated by it, vertical guides, a frame moving vertically therein, a rock-shaft carried by the frame and operated by the connecting-rod, a plate carried by the frame, a wiper on the rock-shaft intermittently moving the plate in one direction and a spring constantly tending to move the plate in the other direction.

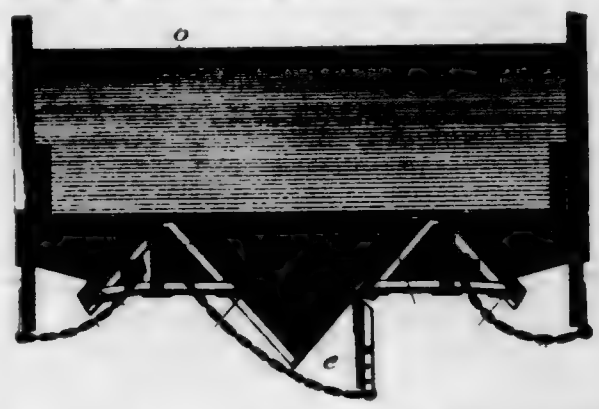
2. In a cinematograph, the combination of a film, means for moving it, a spring-guide plate, *n*, a vertically-reciprocating frame, a pin-carrying plate carried thereby, a rock-shaft, connections between the rock-shaft and the frame for moving it vertically, and devices operated from the rock-shaft for moving the pin-carrying plate toward and from the film.

693,857. SAFE-DOOR. ADOLPH GUSTAFSON, Pueblo, Colo. Filed Feb. 1, 1901. Serial No. 45,619. (No model.)



Claim.—The combination with a safe having a convex face and a door-opening therein, of a door provided with a flange having its face concaved to bear against and closely fit the convex face of the safe and to extend circumferentially beyond the door-opening to seal the same against admission of an explosive, the door having a convex outer face through which extends a counterbore-passage, locking mechanism including a spindle passed through the passage, said spindle having an enlarged portion to fit the counterbore and a head provided with a concaved flange to fit and closely bear against the convex face of the door and to extend circumferentially beyond the passage, thereby sealing the said passage against admission of an explosive, and a hinge suitably associated with the door, substantially as and for the purpose described.

693,858. DUMPING-CAR. HARRY S. HART, Chicago, Ill., assignor to Rodger Ballast Car Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 10, 1901. Serial No. 71,547. (No model.)



Claim.—1. In a car of the class described, the combination of a frame portion, a central hopper-bottom, and two side hopper-bottoms arranged longitudinally of the car and provided with discharging-doors to discharge material between and outside of the tracks, substantially as described.

2. In a car of the class described, the combination of a frame portion, a main hopper-bottom arranged longitudinally of the car at or near the central portion thereof and provided with a discharging-door arranged at its apex to discharge material centrally of the car, a supplementary hopper arranged outside and to each side of the main hopper-bottom and longitudinally of the car and provided with discharge-doors to discharge the material to each side of the car, substantially as described.

3. In a car of the class described, the combination of a frame portion, a main relatively large hopper-bottom arranged longitudinally of the car with its apex arranged at or near the longitudinal center thereof and provided with a discharging-door at or near its apex to discharge material centrally of the car, and relatively smaller hopper-bottoms, one at each side of the main hopper-bottom and provided with discharging-doors for discharging material to each side of the car, substantially as described.

4. In a car of the class described, the combination of a frame portion, a main relatively large hopper-bottom arranged longitudinally of the car with its apex arranged substantially at the longitudinal center thereof, a swinging door in one of its inclined portions to provide for the discharge of material between the supporting-tracks, a supplementary and relatively smaller hopper-bottom arranged at each side of the hopper-bottom and longitudinal of the car composed of a fixed inclined portion forming one side and a swinging portion forming the other side of such hopper-bottom and a discharging-door therefor, substantially as described.

5. In a car of the class described, the combination of a frame portion, a main relatively large hopper-bottom arranged longitudinally of the car with its apex arranged substantially at the longitudinal center thereof, a swinging door in one of its inclined portions to provide for the discharge of material between the supporting-tracks, a supplementary and relatively smaller hopper-bottom arranged at each side of the hopper-bottom and longitudinal of the car composed of a fixed inclined portion forming one side of such hopper-bottom and a swinging portion forming the other side of such hopper-bottom and a discharging-door therefor, and means for holding the discharging-doors in their locked position, substantially as described.

693,859. TRACK-CLEANING DEVICE. FRANK HEDLEY, Chicago, Ill. Filed Dec. 10, 1900. Serial No. 39,334. (No model.)

Claim.—1. A track-cleaning device, comprising a block or casting carrying scrapers, said casting provided with a groove or seat extending longitudinally thereof, a holder for said block or casting, a bolt carried by said holder and arranged to engage in said seat or groove to hold said block against lateral displacement, and means for supporting said holder, as and for the purpose set forth.

2. A track-cleaning device, comprising a block or casting carrying scrapers, a holder for said block or casting, including detachable clamp-jaws arranged to engage the ends of said scraper to support the same, a bolt for clamping said jaws together, said bolt arranged to engage said

casting, and means normally acting to yieldingly press said holder toward the track or rail to be cleaned, as and for the purpose set forth.



3. A track-cleaning device, comprising a block or casting carrying scrapers, a holder including clamp-jaws having flanges arranged to engage underneath the ends of said block or casting to support the same, a bolt for clamping said jaws together, said bolt arranged to engage said casting for preventing displacement thereof in said clamp-jaws, and means for supporting said holder, as and for the purpose set forth.

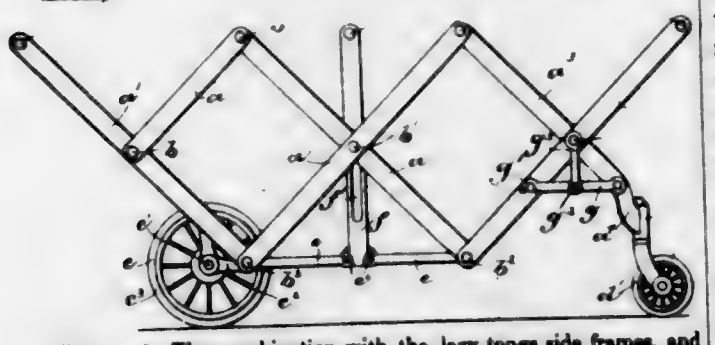
4. A track-cleaning device, comprising a block or casting carrying scrapers, clamping-jaws arranged to form a detachable holder for said block or casting, a spring acting upon said holder and normally operating to press said holder toward the track or rail, and means for supporting said holder against the action of said spring and in position to maintain said scrapers out of contact with the rail, as and for the purpose set forth.

5. A track-cleaning device, including one or more scrapers, clamping-jaws arranged to form a holder therefor, said holder provided with a stem, a guide in which said stem is mounted, a spring arranged to bear on said stem, and a spring carried by said guide and arranged to engage said stem to hold the scraper in position out of contact with the rail, as and for the purpose set forth.

6. A track-cleaning device comprising a scraper, a detachable clamping-support therefor, a guideway in which said support is mounted to slide, a spring bearing on said support, a stud carried by said guideway and arranged to engage said stem when the latter is in raised position to hold the scraper out of operative relation against the action of said spring, and means for locking said stud, as and for the purpose set forth.

7. In a track-cleaning device, the combination of the following elements: a beam or support, a casting carried thereby and having a guideway, a holder having a stem operating in said guideway, a flat or leaf spring carried by said beam and arranged to bear at the free end thereof upon said stem, a crank pin or stud arranged to detachably engage said stem to hold the same in elevated position against the action of said spring, a keeper for locking said pin or stud, and a scraping device carried by said holder, as and for the purpose set forth.

698,860. CASKET-TRUCK. DANIEL B. HIMES, Springfield, Ohio, assignor to the Springfield Metallic Casket Company, Springfield, Ohio, a Corporation of Ohio. Filed Sept. 25, 1901. Serial No. 76,498. (No model.)



Claim.—1. The combination with the lazy-tongs side frames, and cross-rods pivotally connecting said frames, of a vertically-movable frame pivotally connected by links to the lower extremities of the bars of each of said side frames, and having another portion adapted to loosely engage one of said cross-rods to admit of and limit its movement, whereby the lowering of said vertically-movable frame will lock said side frames in their open position from movement in either direction, and the lifting of said vertically-movable frame will unlock and close said side frames into their folded position, substantially as specified.

2. The combination with the horizontal lazy-tongs side frames, cross-rods pivotally connecting said frames, of a vertically-movable frame consisting in part of upright handle-bars having link connections pivoted to the lower extremities of the bars of each side frame, said handle-bars further having vertical slots to engage one of said cross-rods to limit the movement of said vertically-movable frame, whereby the lowering of said vertically-movable frame will lock said side frames in their open position from movement in either direction, and the lifting of said vertically-movable frame will unlock and close said side frames into their folded position, substantially as specified.

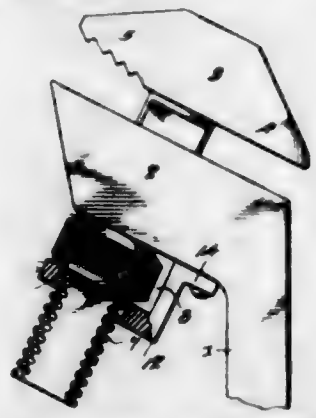
3. The combination with carrying-wheels, their axle, and brackets journaled on said axle, lazy-tongs side frames rigidly attached at one end to said brackets, inwardly-inclined bars at the other end, and a caster-wheel pivoted to each of said bars, of a vertically-movable frame consisting in part of upright handle-bars having link connections pivoted to the lower extremities of the bars of each side frame, said handle-bars further having vertical slots to engage one of said cross rods to limit the movement of said vertically-movable frame, whereby the lowering of said vertically-movable frame will lock said side frames in their open position from movement in either direction, and the lifting of said vertically-movable frame will unlock and close said side frames into their folded position, substantially as specified.

4. The combination with the end caster-bearing bar, and the adjacent bar pivoted thereto, of a stay-rod pivoted to said end bar and detachably connected to said adjacent bar, said rod being also pivotally connected by a link to the pivot of said bars, substantially as specified.

5. The combination with the horizontal lazy-tongs side frames having carrying cross-rods at their upper extremities, of a vertically-movable frame pivotally connected to said side frames and having another portion loosely connected to said side frames, adapted to lock said side frames in their open position, said movable frame having a cross-rod at its upper end, which, when said side frames are in their open position, is in line with said carrying-rods, substantially as specified.

6. The combination with the end caster-bearing bar and the adjacent bar pivoted thereto, of a stay-rod pivoted to said end bar and detachably connected to said adjacent bar, and means to automatically disconnect same by the closing of the side frames, substantially as specified.

698,861. WRENCH. JOHN H. HOBSON, Mattoon, Ill., assignor of one-half to Charles C. Redding, Mattoon, Ill. Filed Oct. 16, 1901. Serial No. 78,862. (No model.)

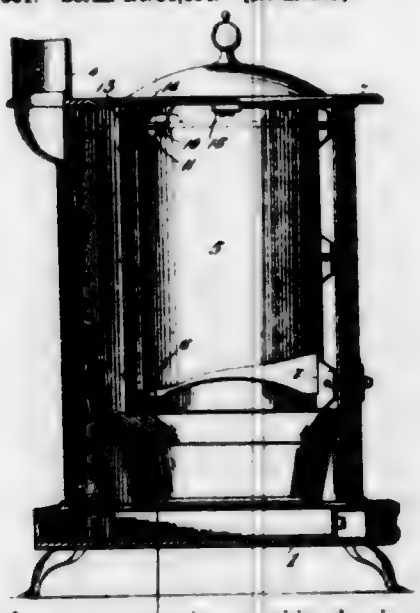


Claim.—1. A wrench comprising a bar provided at its outer end with a stationary jaw extending outward from the shank at an obtuse angle and having a tapered outer end and provided thereat with an engaging face, said jaw being also provided between the engaging face and the bar with an opening arranged at right angles to the said engaging face, the reversible member composed of a threaded shank arranged in the said opening at approximately an acute angle to the bar, and the oppositely-disposed nut and pipe engaging jaws extending from opposite sides of the outer end of the threaded shank and tapered, either of the jaws of the reversible member being adapted to be arranged at the front when the shank is removed from the opening, and a nut engaging the shank, substantially as described.

2. A wrench comprising a bar or member having a stationary jaw extending outward at an obtuse angle and provided with an opening disposed at an angle to the bar or member, the reversible member having oppositely-disposed jaws and provided with a threaded shank removably arranged in the said opening and arranged at an acute angle to the bar or member, a nut engaging the threaded shank, and the L-shaped support or keeper mounted on the stationary jaw and supporting the nut, substantially as described.

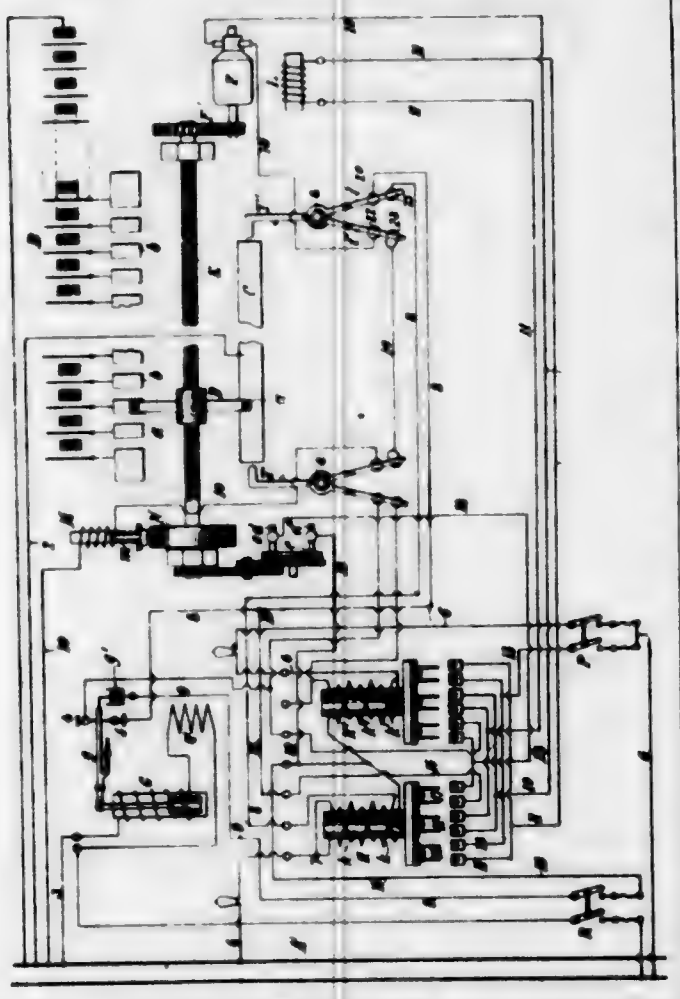
3. A wrench comprising a bar having a stationary jaw provided with an opening, the reversible member provided with a threaded shank and having oppositely-disposed nut and pipe engaging jaws, the threaded shank being removably arranged in the said opening to permit the said member to be detached for arranging either of the jaws at the front, a nut arranged on the threaded shank and provided with a tapered face or end fitting against the stationary jaw and facilitating the rocking movement of the reversible member, and the approximately L-shaped support or keeper secured to the stationary jaw and receiving and supporting the nut and provided with an opening for the threaded shank, substantially as described.

698,862. STOVE. HENRY H. HOLDEN, Port Huron, Mich. Filed Mar. 12, 1901. Serial No. 50,831. (No model.)



Claim.—In a stove, a magazine, a partition therein, a shoulder formed on the inner wall of the magazine, a shutter pivoted on the partition and slidable on the shoulder, a casing forming a passage in communication with the magazine and means for suspending the magazine in the stove.

698,863. AUTOMATIC REGULATOR FOR STORAGE-BATTERY SYSTEMS OF DISTRIBUTION. CHARLES H. HOLDERIETH, Brooklyn, N. Y., assignor to United States Battery Company, New York, N. Y., a Corporation of New York. Filed June 21, 1901. Serial No. 65,386. (No model.)

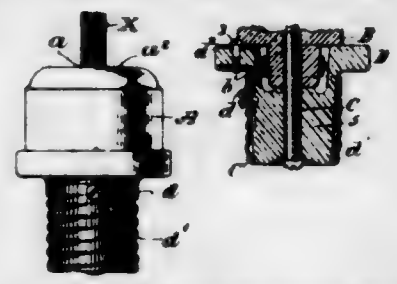


Claim.—1. In a storage-battery-controlling apparatus the combination of a switch for varying the number of cells in circuit, a motor for operating the same, two circuit-controlling magnets for directing current through the motor in opposite directions and normally prevented from operation by being energized, a device responsive to variations in potential between the mains and circuits controlled thereby and adapted when completed to neutralize the two circuit-controlling magnets respectively, and for the purpose set forth.

2. In a storage-battery-controlling apparatus the combination with a switch for varying the number of cells in circuit, and a motor for operating the same, of two motor-circuit-controlling magnets, each having two opposed windings the one in a normally closed circuit the other in a circuit completed through normally open contacts, and a device responsive to variations in potential between the mains for controlling said contacts, substantially as hereinbefore set forth.

3. In a storage-battery-controlling apparatus the combination with a switch for varying the number of cells in circuit, a motor for operating the same, controlling-circuits and means responsive to variations in potential between the mains for making and breaking the same, of contact-levers through which both the motor and controlling circuits are normally completed, the said levers being placed in the path of movement of the switch and near the limits of the same and adapted to be thrown by predetermined movements of the switch and to thereby interrupt their controlling-circuits and by a further movement, the motor-circuit, as set forth.

693,864. ATTACHMENT-PLUG. CHARLES F. HOWES, Cambridge, Mass., assignor to Electric Gas Lighting Company, Boston, Mass., a Corporation of Maine. Filed Apr. 28, 1900. Serial No. 14,725. (No model.)

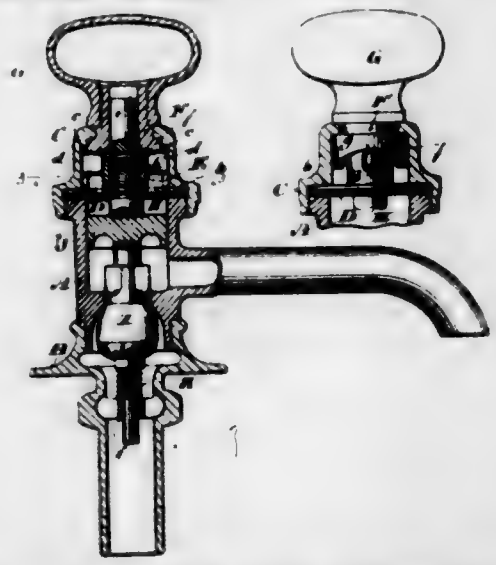


Claim.—1. In an electrical attachment-plug, the combination of the conductor X for the electric wires, the perforated insulating-cover A, the block B having a slot for a plate b^{10} and a reduced extension b; the terminals placed upon the block B for the two circuit-wires x and y; the conducting ring or rim b', plate b^2, screw 1, electrically connected with one of said circuit-wires; the plate b^7 having binding-screws b^6 and b^8, connected with the other circuit-wire; a plate b^{10} perforated to admit a swivel-rod and to receive a screw a^2 and held by the screw b^9; a swiveling block D adapted to encircle the smaller part b of the block B and having circuit connections to constantly maintain an electric continuity of circuit with ring or shell b'; a swivel-rod for connecting the parts B and D and to form part of the electric circuit and electric terminals for connecting externally with the terminals of the structure to which the same is to be connected; all substantially as described.

2. In an electric coupler, in combination with a revolving member, the metal skeleton piece composed of a rim E on the bottom of the revolving member, the connecting-screw 4, a metal rim e' having ear 5 to be connected with screw 4, and metal brushes struck up from the rim e'; substantially as described and shown.

3. In an electric coupler, in combination with the circuit-wires and a proper cover, a swivel-rod, an insulating-block B formed with a diminished projection and having a portion cut away to receive a plate, electric connecting-plates provided with proper binding-screws, a central plate in the cut-away portion of the plug perforated as described and having a binding-screw, and a metallic connecting-piece upon the small portion of the plug B connected with the circuit; substantially as described.

693,865. FAUCET. ALBERT HUCK, Milwaukee, Wis., assignor to Milwaukee Valve Company, Milwaukee, Wis. Filed July 12, 1901. Serial No. 67,938. (No model.)



Claim.—1. A faucet having a flexible diaphragm therein held in connection with the valve-stem thereof by a clamp-nipple, a nipple-fitting cross-head for which guides are provided longitudinally of the faucet-

shell, and a handle restricted to rotatory movement in cam contact with the cross-head arms.

2. A faucet having a flexible diaphragm therein held in connection with the valve-stem thereof by a clamp-nipple, a nipple-fitting cross-head for which guides are provided longitudinally of the faucet-shell, a handle restricted to rotatory movement in cam contact with the cross-head arms, and lubricating material in recesses of said arms opposing the cam-surfaces of the handle.

3. A faucet having a flexible diaphragm therein held in connection with the valve-stem thereof by a clamp-nipple, a nipple-fitting cross-head for which guides are provided longitudinally of the faucet-shell, a handle restricted to rotatory movement in cam contact with the cross-head arms, and a piston on said valve-stem within the spout-section of said shell between the outlet of same and said diaphragm.

4. A faucet having a flexible diaphragm therein held in connection with the valve-stem thereof by a clamp-nipple, a nipple-fitting cross-head for which guides are provided longitudinally of the faucet-shell, a handle restricted to rotatory movement in cam contact with the cross-head arms, a guide for the inner end of said valve-stem, and a spiral spring arranged to surround the aforesaid stem intermediate of the valve and said guide.

5. A faucet having a flexible diaphragm therein held in connection with the valve-stem thereof by a clamp-nipple, a nipple-fitting cross-head for which guides are provided longitudinally of the faucet-shell, a flanged and shouldered sleeve in match fit with the shell-cap and loose on a shank of the cross-head, the flange of this sleeve being concave against the cross-head arms, and a handpiece in screw-thread union with the sleeve against said shell-cap.

6. A faucet having a flexible diaphragm therein held in connection with the valve-stem thereof by a clamp-nipple, a nipple-fitting cross-head for which guides are provided longitudinally of the faucet-shell, a flanged and shouldered sleeve in match fit with the shell-cap and loose on a shank of the cross-head, the flange of this sleeve being concave against the cross-head arms, a handpiece in screw-thread union with the sleeve against said shell-cap, and lubricating material in recesses of said cross-head arms opposed to the concave surfaces of said sleeve.

698,866. CLIP FOR SECURING WIRES TOGETHER. EDWIN M. HULSE and ADOLPH F. SCHRAMM, Columbus, Ohio; said Schramm assignor to said Hulse. Filed Oct. 3, 1901. Serial No. 77,979. (No model.)

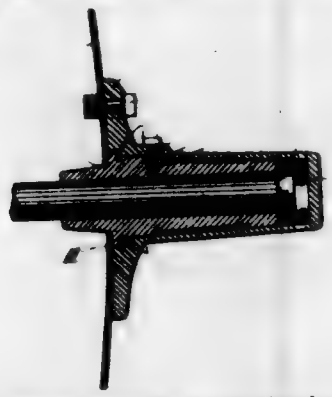


Claim.—1. In a sheet-metal clip for securing wires together, a base or bottom portion, edges thereon adapted to be bent down upon contiguous wires placed on said base or bottom, and a tongue or shoulder struck up out of the base or bottom of said clip intermediate of said edges.

2. A clip comprising a base or bottom 10, tongues 11 and 12 standing on the opposite edges of said base or bottom, and a tongue or shoulder 14 struck upward from said base or bottom between said edges.

3. A clip for securing a curved to a straight wire comprising a base or bottom 10, tongues 11 and 12, standing on opposite edges of said base or bottom, and a shoulder to engage or form a seat for the concave side of the curved wire intermediate of the tongues 11 and 12.

693,867. HARROW-DISK JOURNAL. OMAR E. JOHNSTON, Kansas City, Mo. Filed Nov. 26, 1901. Serial No. 83,737. (No model.)



Claim.—1. A journal, comprising a cap closed at one end, a bushing fitting in and interlocked with said cap and projecting beyond its open end, and a shaft fitting in said bushing and provided with a head interposed between the bushing and the closed end of the cap.

2. A journal, comprising a cap, closed at one end, and provided at its open end with a shoulder, a bushing fitting in and interlocked with said cap and projecting beyond its open end, a washer clamped by said bushing against said shoulder, and a shaft fitting in said bushing and provided with a head interposed between the bushing and the closed end of the cap.

3. A journal, comprising a cap, closed at one end, and provided with a passage, a bushing fitting in and interlocked with said cap, and provided with a passage registering with the cap-passage, a removable bolt closing the cap-passage, and a shaft extending through the bushing and provided with a head interposed between the end of the latter and the closed end of the cap.

4. A journal, comprising a cap closed at one end and provided with a shoulder at its open end, and a passage, a removable plug closing said passage, a bushing fitting in and interlocked with said cap and provided with a flange opposite said shoulder, and with a passage registering with the cap-passage, a washer secured between the shoulder of the cap and the flange of the bushing, and a shaft fitting in said bushing and provided with a head interposed between the ends of the same and the closed end of the cap.

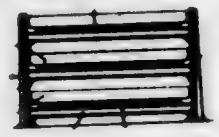
5. The combination of a cap closed at one end and open at the other, a disk secured to the cap at its open end and provided with a central opening in alinement with the hollow of the cap, a bushing fitting in and interlocked with the cap and held therein by the disk, and projecting through the latter, and a shaft journaled in the bushing and provided with a head interposed between the closed end of the cap and the contiguous end of the bushing, substantially as described.

698,868. TOOL. EDGAR O. JOLLEY, Almena, Kans. Filed May 6, 1901. Serial No. 58,969. (No model.)



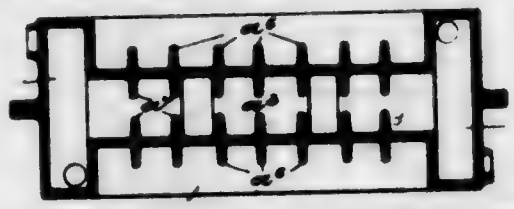
Claim.—A tool comprising a fixed member having an opening extending therein from one end, a sliding member having a shank movable within the opening of the fixed member and having oppositely-toothed portions, dogs secured to the fixed member and extending into the opening thereof and adapted to interlock with the toothed parts of the sliding member, and a pivoted member having a wedge for coöperation with the said dogs to effect a lateral movement of their toothed portions, substantially as set forth.

698,869. WHITE-LEAD DRIER. THOMAS R. KEARNS, New Kensington, Pa., assignor of one-half to Henry M. Gabel, Cincinnati, Ohio. Filed Oct. 14, 1901. Serial No. 78,528. (No model.)



Claim.—In a white-lead drier, the combination, substantially as set forth, of two longitudinal series of columns, a pan extending longitudinally between said two series of columns and having its side rims connected with the inner faces of said columns, beams extending across from one series of columns to another and connecting the columns in pairs and disposed below the pan, and steam-pipes arranged parallel with each other and with the series of columns disposed upon the beams and directly supporting the bottom of the pan.

698,870. STEAM OR WATER HEATING BOILER. JOSEPH KURS and HORACE F. HOSKIN, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,344. (No model.)

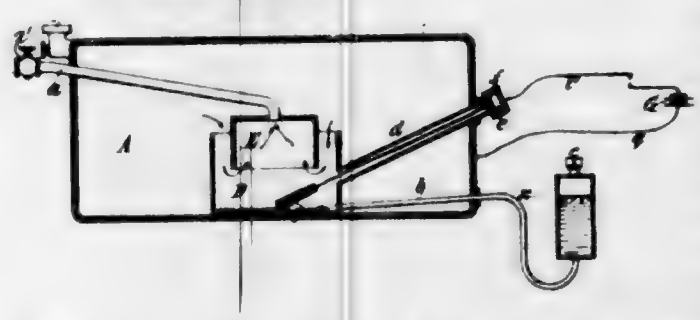


Claim.—1. In a sectional water-heater, a hollow rectangular gallery, a water-chamber projecting from one side of said gallery and converging toward the opposite side of said gallery, a series of splines, ridges

or projections extending on the exterior of said chamber and a corresponding series of splines, ridges or projections formed on the interior of said chamber and the area of the said two series being substantially equal, whereby heat received on the exterior of said chamber is uniformly disseminated in the interior of said chamber.

2. In a sectional water-heater, a hollow rectangular gallery, a water-chamber projecting from one side of said gallery and tapering from both the upper and lower faces of said gallery and joined to the opposite side of said gallery by one or more necks, a series of splines, ridges or projections extending on the exterior of said chamber and a corresponding series of splines, ridges or projections formed on the interior of said chamber and the area of the said two series being substantially equal, whereby heat received on the exterior of said chamber is uniformly disseminated in the interior of said chamber.

693,871. GENERATION OF POWER FROM COMPRESSED AIR. FRANK M. LEAVITT, Brooklyn, N. Y., assignor to E. W. Bliss Company, Brooklyn, N. Y., a Corporation of West Virginia. Filed Dec. 12, 1898. Serial No. 699,006. (No model.)



Claim.—1. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in means controlled by the pressure for heating the compressed air.

2. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in the combination of means controlled by the pressure in said reservoir for feeding a combustible thereinto and means for igniting said combustible in said reservoir.

3. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in the combination of means operated by a reduction of pressure in said reservoir for feeding a combustible thereinto and means for igniting said combustible in said reservoir.

4. In compressed-air propelling mechanism for automobile torpedoes, the combination of means for igniting a combustible within the stored compressed air, with means for introducing a fluid combustible gradually during the run of the engine in proportion to the consumption of the compressed air, said means adapted to suspend its introduction and thereby stop the combustion in case of the stoppage of the engine.

5. In compressed-air propelling mechanism for automobile torpedoes, the combination of means for igniting a combustible within the stored compressed air, with means for introducing a fluid combustible gradually during the run of the engine in proportion to the consumption of the compressed air, said means adapted to suspend its introduction and thereby stop the combustion upon a cessation of fall in pressure, or upon a rise in pressure, of the compressed air.

6. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in the combination of a chamber for holding a combustible charge, said chamber opening into the compressed-air reservoir, means controlled by the pressure in said reservoir for supplying a combustible charge from said chamber to said reservoir, and means for igniting said combustible in said reservoir.

7. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in the combination of a compressed-air reservoir, a chamber for holding a charge of combustible fluid, a pipe leading therefrom into said reservoir, means for igniting said fluid in the reservoir, and means acting as the pressure in the reservoir falls to feed combustible fluid from said chamber into the reservoir at a rate proportional to the fall of pressure therein.

8. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in the combination of a compressed-air reservoir, a chamber for holding a charge of combustible liquid, a pipe leading therefrom into said reservoir, adapted to leave an air-space in said chamber above said liquid, and means for igniting said liquid in the reservoir, whereby as the pressure in the reservoir falls the consequent expansion of the air in said air-space expels the liquid from said chamber into the reservoir at a rate proportional to the fall of pressure therein.

9. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in the combination of a compressed-air reservoir adapted to receive a charge of compressed air and to be disconnected from the source thereof, and a chamber for holding a charge of combustible liquid opening into said reservoir and adapted as air is compressed into said reservoir to admit air to said chamber under equal compression in an air-space above said liquid.

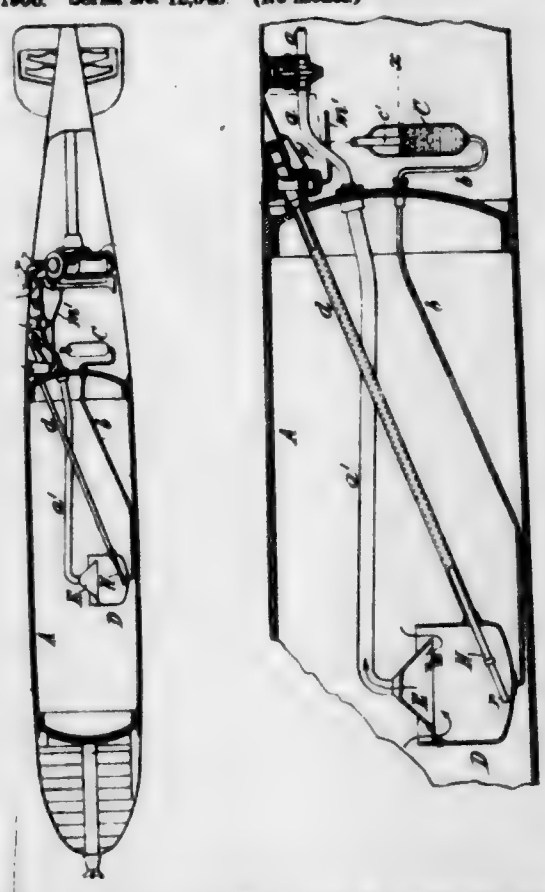
10. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in the combination of a compressed-air reservoir, a motor connected thereto to be driven by compressed air therefrom, means for heating the air at a point in said reservoir and means for conducting air from such point alone to said motor whereby the air which is most highly heated is continually used.

11. In compressed-air propelling mechanism for automobile torpedoes, the described means for increasing the energy of the stored compressed air which consists in the combination of a compressed-air reservoir, a motor connected thereto to be driven by compressed air therefrom, means for igniting and burning a combustible at a point in said reservoir and means for conducting air and the products of combustion from such point alone to said motor whereby the air which is most highly heated is continually used.

12. In compressed-air propelling mechanism for automobile torpedoes, the combination of a heating-receptacle in free communication with the interior of the compressed-air reservoir, means for igniting a combustible therein, means for feeding a fluid combustible gradually thereinto, and a passage for conducting the heated air and products of combustion therefrom to the engine.

13. The combination of a compressed-air reservoir, a motor connected thereto, to be driven by the compressed air therefrom, means for gradually feeding a combustible fluid into said reservoir at a rate proportional to the reduction of pressure therein during the outflow of compressed air, and means for igniting said combustible within said reservoir.

693,872. PROPULSION OF TORPEDOES, &c., BY COMPRESSED AIR. FRANK M. LEAVITT, Brooklyn, N. Y., assignor to E. W. Bliss Company, Brooklyn, N. Y., a Corporation of West Virginia. Filed Apr. 12, 1900. Serial No. 12,545. (No model.)



Claim.—1. In an automobile torpedo, the combination with means for storing fluid under pressure, an engine driven by such fluid, and means for starting the engine upon the launching of the torpedo, of means for heating the fluid supplied to the engine, and means for starting the action of said heating means adapted to be set in operation by the launching of the torpedo.

2. In an automobile torpedo, the combination with means for storing fluid under pressure, an engine driven by such fluid, and means for

starting the engine upon the launching of the torpedo, of a heater in which a combustible is burned for heating the fluid supplied to the engine, an igniter adapted to ignite said combustible, and means set in operation by the launching of the torpedo for operating said igniter.

3. In an automobile torpedo, the combination with means for storing fluid under pressure, an engine driven by such fluid, and a starting-valve for admitting such fluid to the engine on the launching of the torpedo, of a heater in which a combustible is burned for heating the fluid supplied to the engine, an igniter adapted to ignite said combustible, and means set in operation by the opening of said valve for operating said igniter.

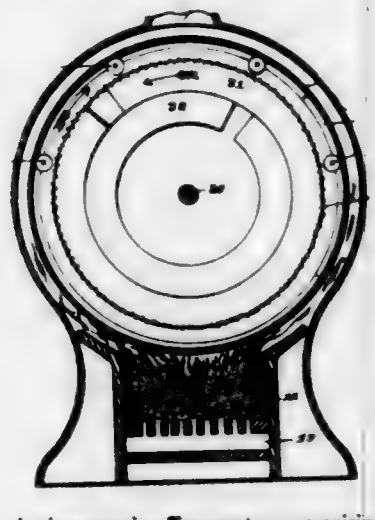
4. In an automobile torpedo the combination with a compressed-air reservoir, an engine, and means for starting the engine upon the launching of the torpedo, of an igniter adapted to ignite a combustible within the body of stored compressed air, and means set in operation by the launching of the torpedo for operating said igniter.

5. In an automobile torpedo the combination with a compressed-air reservoir, an engine, and a starting-valve for admitting compressed air to the engine on the launching of the torpedo, of an igniter adapted to ignite a combustible within the body of stored compressed air, and means set in operation by the opening of said valve for operating said igniter.

6. In an automobile torpedo the combination with a compressed-air reservoir, an engine, and means for starting the engine upon the launching of the torpedo, an igniter adapted to ignite a combustible within the body of stored compressed air and a fluid-pressure device for operating said igniter adapted to receive compressed air upon the launching of the torpedo.

7. In an automobile torpedo the combination with a compressed-air reservoir, an engine, and a starting-valve for admitting compressed air to the engine on the launching of the torpedo, of an igniter adapted to ignite a combustible within the body of stored compressed air and a fluid-pressure device for operating said igniter connected beyond said valve to receive compressed air upon the opening of said valve.

693,873. COFFEE-ROASTER. EDGAR LINABERRY, Des Moines, Iowa. Filed July 12, 1901. Serial No. 68,035. (No model.)



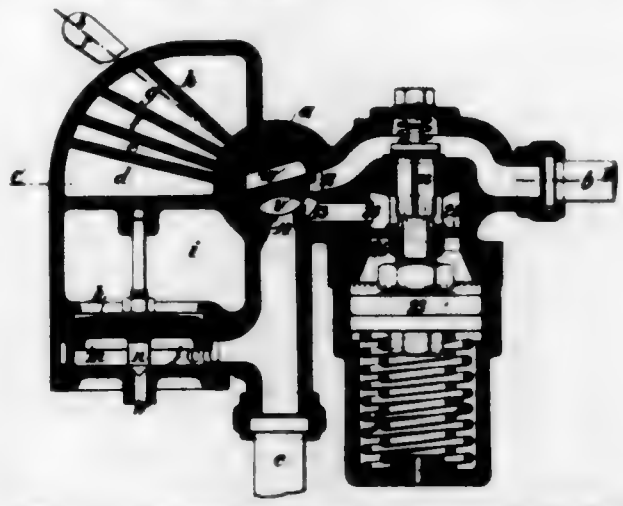
Claim.—1. An improved coffee-roaster, comprising, in combination, a housing, a rotatable cylinder mounted in the housing, and a second rotating cylinder designed to contain coffee, mounted within the first, with a space between them, and capable of rotation in a direction opposite from that of the first one.

2. An improved coffee-roaster comprising, in combination, a housing, a rotatable cylinder mounted in the housing, and a second rotating cylinder designed to contain coffee mounted within the first with a space between them and a wing or rib in the space between the cylinders.

3. An improved coffee-roaster comprising, in combination, a housing, a rotatable cylinder mounted in the housing, and a second rotating cylinder designed to contain the coffee mounted within the first with a space between them and capable of rotation in a direction opposite from that of the first one, and a spiral rib on the inner surface of the outer cylinder for the purposes stated.

4. An improved coffee-roaster comprising, in combination, a housing, a fire-box in the lower portion thereof, a rotatable hub mounted in the rear end of the housing, a belt-wheel on one end of said hub and a cylinder-head on the other end thereof, a sheet-metal cylinder fixed to said head having openings near its rear edge, rollers for supporting the forward end of the said cylinder, a hub secured to the said cylinder, a rotating shaft in said hub capable of turning relative to the hub, a belt-wheel thereon, metal cylinder-heads fixed to said shaft and a cylinder made of netting connected with said heads to operate in the manner set forth for the purposes stated.

698,874. OPERATING MECHANISM FOR COMPRESSED-AIR BRAKES. JOSEPH LIPKOWSKI, Paris, France, assignor to the Société Générale des Freins Lipkowski, Paris, France. Filed Dec. 22, 1900. Serial No. 40,804. (No model.)



Claim.—1. Operating mechanism for compressed-air brakes, comprising a source of air-supply, a general conduit, a valve-controlled opening therefrom to the atmosphere, an auxiliary reservoir and expansion-chambers, means to control said opening by the pressure in the auxiliary reservoir, a cock between the source of supply, and the general conduit and reservoir, and having a notch adapted to connect the source of supply with the general conduit, a mortise adapted to connect the general conduit with the atmosphere, a groove adapted to connect the source of supply with the auxiliary reservoir in its first position and the reservoir with the expansion-chambers in its subsequent positions, another groove to connect the expansion-chambers not connected with the reservoir, with the atmosphere, all substantially as and for the purpose described.

2. Operating mechanism for air-brakes, comprising a train-pipe, an auxiliary reservoir, expansion-chambers, a socket, a single opening from each of the above-named reservoir and chambers to the socket, a source of supply, a diaphragm having a valve adapted to open the train-pipe to the atmosphere, a cock in the socket, having a notch adapted to connect the source of supply with the train-pipe, and a groove, in two parts, one part adapted to connect the auxiliary reservoir with the source of supply and afterward with the expansion-chambers, the second part adapted to open those expansion-chambers not connected with the reservoir to the air, substantially as described.

3. Operating mechanism for air-brakes comprising a train-pipe, an auxiliary reservoir, expansion-chambers, a socket, a single opening from each of the above-named reservoir and chambers to the socket, a source of supply, a diaphragm, having a valve adapted to open the train-pipe to the atmosphere, a cock in the socket, having a notch adapted to connect the source of supply with the train-pipe, and a groove, in two parts, one part adapted to connect the auxiliary reservoir with the source of supply and afterward with the expansion-chambers, the second part adapted to open those expansion-chambers not connected with the reservoir to the air, and a channel *w* adapted to connect the train-pipe with the air substantially as described.

4. Operating mechanism for compressed-air brakes comprising a source of supply, a train-pipe passage, a valve *n* in the train-pipe passage opening direct to the air, a socket and a cock having grooves, said source of supply opening on one side of the socket, and said train-pipe opening substantially at right angles thereto, in combination with a casing on the opposite side of the socket from the source of supply opening divided into compartments, the lowermost compartment comprising an auxiliary reservoir and having a diaphragm to operate said valve, an opening from the reservoir to the socket, the other compartments being radially arranged in the casing above the said reservoir and each having an opening to the socket, substantially as described.

5. Operating mechanism for compressed-air brakes, comprising a socket, a cock, grooves therein, an opening at the top of the socket to the air and at the bottom to the train-pipe, one of said grooves adapted to connect said top opening and train pipe, a source of pressure-supply opening between them, a casing on the side opposite the source of supply and comprising an auxiliary reservoir and radially-arranged superposed chambers, each having an opening to the socket, a diaphragm in the reservoir, and a valve controlled thereby to open the train-pipe to the atmosphere, as and for the purpose described.

698,875. CASTER-SOCKET. WILLIAM LIVINGSTONE, Flushing, N. Y., assignor to himself, and Samuel P. Porter, Brooklyn, N. Y. Filed Jan. 17, 1901. Serial No. 43,675. (No model.)

Claim.—1. A tubular socket for casters provided with a single seam

extending longitudinally thereof and having one end bent transversely to the body of the socket to form an integral track-plate the thickness of the material of which decreases radially outward throughout the entire breadth of the track plate whereby metal is supplied for forming those portions of the track-plate extending beyond the body of the socket.



2. A tubular socket for casters provided with a single seam extending longitudinally thereof and having one end bent transversely to the body of the socket to form an integral track-plate with an upturned outer edge, the thickness of the material of the track-plate decreasing radially outward throughout the entire breadth thereof whereby metal is supplied for forming those portions of the track-plate extending beyond the body of the socket.

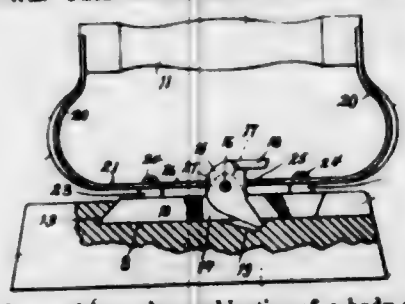
3. A tubular socket for casters provided with a single seam and radial flanges extending longitudinally thereof and having one end bent transversely to form an integral track-plate with an upturned outer edge, the thickness of the material of which track-plate decreases radially outward throughout its entire breadth whereby metal is supplied for forming those portions of the track-plate extending beyond the body of the socket.

4. A tubular socket for casters provided with a single seam and radial flanges extending longitudinally thereof the socket having at one end projections forming engaging members for a caster-pintle and having its opposite end bent transversely to form an integral track-plate with an upturned edge, the thickness of the material of which track-plate decreases radially outward throughout its entire breadth whereby metal is supplied for forming those portions of the track-plate extending beyond the body of the socket.

5. A blank for forming a one-piece caster-socket, said blank being provided with corrugations in one side for forming the track-plate of the socket.

6. A blank for forming a one-piece caster-socket provided with projections at one end to form engaging members for a caster-pintle; and corrugations at the opposite end and in that portion which forms the track-plate of the socket, said corrugations having parallel sides for a portion of their length and tapering sides at the inner extremities of the corrugations, and the blank having lateral projections to form a strengthening-flange along the seam and insure rigidity of the socket.

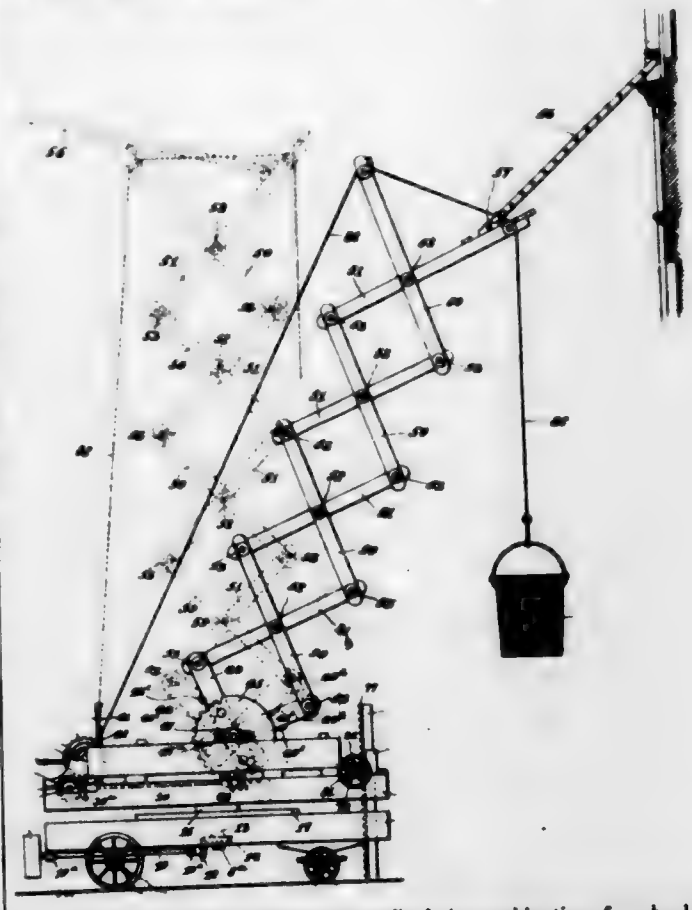
693,876. SAD-IRON. ALEXANDER LUETH, Lakemills, Wis., assignor of two-thirds to William A. Engsberg and Conrad Engsberg, Lakemills, Wis. Filed Jan. 31, 1901. Serial No. 45,439. (No model.)



Claim.—In a sad-iron, the combination of a body portion having a longitudinal mortise in its upper side, said mortise being open at its rear end, a base fitting the mortise of the body, said base provided at an intermediate point with a slot, a plate above and secured to the base and provided with a slot registering with the slot of the base, and also provided with two slits forming a spring-tongue therebetween, and a pivoted catch disposed in the registering slots of the plate and base, and having its lower arm releasably engaging the body, and its upper arm extending above the plate, and one of its edges provided with a shoulder which is adapted to be engaged by the spring-tongue, whereby the lower arm of the catch is held in locked engagement with the body in order to prevent, when the iron is uplifted and tilted, the sliding disengagement of the base from the body of the iron.

698,877. PORTABLE FIRE-ESCAPE TOWER. PETER MACRAE, Escanaba, Mich. Filed June 13, 1901. Serial No. 64,404. (No model.)

Claim.—1. In an apparatus of the class described, the combination with a lazy-tongs tower, of a pivotal shaft on which the lower members of the tower are mounted, gear elements secured fast to different sets of the tower members and adapted to independently or simultaneously actuate the same, adjusting-shafts operatively connected with said gear elements, a single transverse shaft disposed adjacent to said adjusting-shafts and provided with sets of facing gears adapted to mesh separately with gears on the adjusting-shafts, means for rotating the transverse shaft in one direction, and means for individually shifting the adjusting-shafts into meshing relation to either of the sets of gears on the transverse shaft, as and for the purposes described.



2. In an apparatus of the class described, the combination of a wheeled truck, a bed shiftably mounted thereon, a lazy-tongs tower supported by the bed, a prime shaft mounted on the truck, a transverse shaft and a counter-shaft mounted on the bed and driven from the prime shaft, shiftable tower-adjusting shafts mounted on the bed and adapted to be driven individually or collectively from the transverse shaft for raising, lowering or inclining the tower by motion derived from the prime shaft, and bed-adjusting devices having means geared to the counter-shaft and to the truck for swinging the bed and its contained tower on a vertical axis, substantially as described.

3. In an apparatus of the class described, the combination of a pivotal shaft, the worm-gears loosely mounted thereon, a lazy-tongs tower having its lower members loosely mounted on the pivotal shaft and with the different sets of lower members made fast with the worm-gears individually, the worm-shafts loosely supported at one end and operatively connected with the worm-gears, a transverse shaft provided with different sets of facing bevel-gears, and means for shiftably supporting the free ends of the worm-shafts with relation to said facing sets of bevel-gears, substantially as described.

4. In an apparatus of the class described, the combination of a pivotal shaft, worm-gears individually mounted thereon, a tower having its lower members made fast with the worm-gears respectively, a transverse shaft provided with sets of facing gears, cross-bars adjacent to the transverse shaft, shaft-bearings slidably mounted on the cross-bars and having suitable means for individually operating the same, worm-shafts loosely supported at one end, journaled at their other ends in the shiftable shaft-bearings and having intermeshing engagement with the worm-gears, and bevel-gears on the worm-shafts and arranged to be engaged with either bevel-gears of the sets and to be free from engagement therewith, substantially as described.

5. In an apparatus of the class described, the combination of a wheeled truck, a shiftable bed thereon, a prime shaft carried by the truck, a lazy-tongs tower mounted on the bed, the transverse shaft on the bed, the shiftable worm-shafts mounted on the bed and geared to worm-gears on the tower-sections and adapted to be driven by the transverse shaft, a counter-shaft geared to the transverse shaft and to the prime shaft, opposing gears mounted on the truck and a shiftable carriage, and a shaft journaled in the carriage and driven from the counter-shaft and adapted to engage with either of said opposing gears, substantially as described.

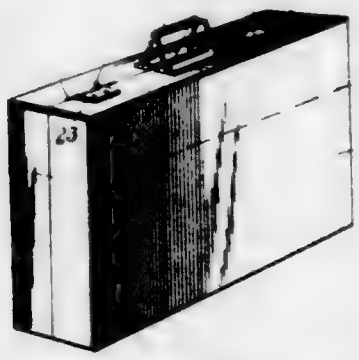
6. In an apparatus of the class described, the combination of a wheeled truck, a bed shiftable thereon, a tower supported by the bed, a prime shaft, a vertical shaft geared to the prime shaft, a counter-shaft driven from the vertical shaft, the fixed gear and the annular rack supported by the wheeled truck, a shiftable carriage supported by the bed, and a shaft driven from the counter-shaft and adapted to be adjusted with the carriage and carry-

ing a gear to engage either with the fixed gear or with the rack, substantially as described.

7. In an apparatus of the class described, the combination of a wheeled truck, a shiftable bed mounted thereon and carrying a tower, a fixed gear on the truck, an internally-toothed rack fixed to the truck, a slidable carriage on the bed, a shaft mounted in the carriage and having a gear arranged to mesh either with the fixed gear or with the annular rack, means for adjusting the carriage, and means for rotating the shaft in the carriage, substantially as described.

8. In an apparatus of the class described, the combination of a wheeled truck, a shiftable bed thereon, a fixed gear on the truck, an internally-toothed rack fixed to the truck, a counter-shaft mounted on the bed and provided with a spline, a tubular shaft engaging with the counter-shaft and its spline and having a bevel-gear, a carriage slidably fitted on the bed and provided with two bearings, one of which supports the tubular shaft, an adjusting-shaft mounted in the carriage and having a bevel-gear which intermeshes with the first-named bevel-gear and provided with a spur-gear arranged to engage either with the rack or with the fixed gear, a lever connected with the carriage, and means for rotating the counter-shaft, substantially as described.

698,878. CARRIER FOR SHEET-MUSIC. ROBERT L. MATTOCK, Chicago, Ill. Filed May 23, 1901. Serial No. 61,561. (No model.)



Claim.—1. A sheet-music carrier comprising an openable case formed of two sections hinged together and a tray in each section between which the sheets of music are held in flat position, and means to cause the trays to yieldingly press together.

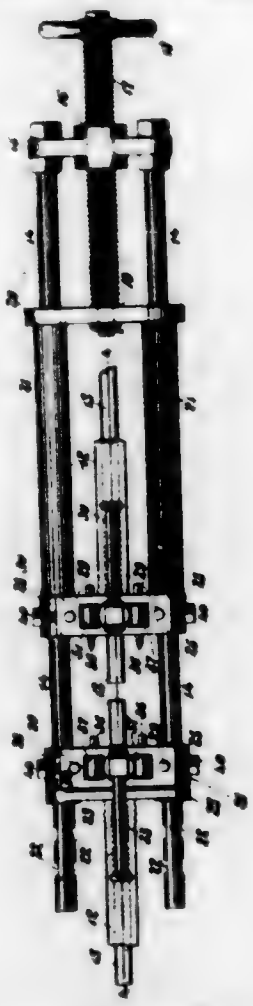
2. A sheet-music carrier comprising an openable case, trays within the same between which the sheets of music are adapted to be held in flat position, means to yieldingly press the trays together, and means extending without the case to release said means.

698,879. APPARATUS FOR SECURING RUBBER TIRES TO WHEELS. GEORGE MEYER, New York, N. Y. Filed Oct. 15, 1900. Serial No. 33,023. (No model.)

Claim.—1. An apparatus for securing rubber tires having an inner band to wheels, comprising clamps adapted to be gripped upon the two ends of said inner band, combined with a frame adapted to engage the outer sides of said clamps for drawing them and the ends of said band toward each other and comprising the longitudinal rods 14 having the cross-bar 15, the sleeves 21 on said rods and having the cross-bar 20, the operating-screw 17 engaging a threaded aperture in one of said cross-bars and connected with the other cross-bar, and means engaging the outer side of one of said clamps, while the said sleeves afford the resistance at the outer side of the other clamp; substantially as set forth.

2. An apparatus for securing rubber tires having an inner band to wheels, comprising clamps adapted to be gripped upon the two ends of said inner band and having the longitudinal sleeves 28 at opposite sides of the wheel, combined with the frame adapted to engage said clamps for drawing them and the ends of said band toward each other and comprising the longitudinal rods 14 passing through said sleeves and connected at one end by a cross-bar, the sleeves 21 on said rods and connected by a cross-bar, the operating-screw 17 engaging a threaded aperture in one of said cross-bars and connected with the other cross-bar, and the removable key engaging said rods 14 at the outer side of one of said clamps, while the said sleeves are at the outer side of the other of said clamps; substantially as set forth.

3. An apparatus for securing rubber tires having an inner band to wheels, consisting of clamps adapted to be gripped upon the two ends of said inner band and composed of the body portion having a jaw 38 to engage one surface of the said band, a movable portion 30, the jaws 37 secured at the opposite sides of the center of said movable portion and adapted at their lower end to engage the other surface of said band, means for moving said movable portion to bind the said jaws against said band, and removable means securing said jaws 37 to said movable portion, combined with means for engaging said clamps and drawing them and the ends of the said inner band toward one another; substantially as set forth.



4. An apparatus for securing rubber tires having an inner band to wheels, consisting of clamps adapted to be gripped upon the two ends of said inner band and composed of the body portion having a jaw 38 to engage one surface of the said band, the jaws 37, 37, having inwardly-turned lower ends to engage the other surface of said band, means for drawing the jaws 37 toward said jaw 38 to grip said band, and removable means securing said jaws 37 so that the parts of the clamp less said jaws may be detached from said band, combined with means for engaging said clamps and drawing them and the ends of said inner band toward one another; substantially as set forth.

5. An apparatus for securing rubber tires having an inner band to wheels, consisting of clamps adapted to be gripped upon the two ends of said inner band and composed of the body portion having a jaw 38 to engage one surface of the said band, the jaws 37, 37, having inwardly-turned lower ends to engage the other surface of said band, the set-screws 40 for limiting the outward movement of said jaws 37 and setting them inward against the band, means for drawing the jaws 37 toward said jaw 38 to grip said band, and removable means securing said jaws 37 so that the parts of the clamp less said jaws may be detached from said band, combined with means for engaging said clamps and drawing them and the ends of said inner band toward one another; substantially as set forth.

6. An apparatus for securing rubber tires having an inner band to wheels, consisting of clamps adapted to be gripped upon the two ends of said inner band and composed of the body portion having a jaw 38 to engage one surface of the said band, the movable portion 30 guided on said body portion, the screw 32 engaging a threaded aperture in said portion 30 and engaging said body portion, the jaws 37, 37, having inwardly-turned lower ends to engage the other surface of said band, and removable pins 36 securing said jaws 37 to said movable portion 30, combined with means for engaging said clamps and drawing them and the ends of said inner band toward one another; substantially as set forth.

7. An apparatus for securing rubber tires having an inner band to wheels, consisting of clamps adapted to be gripped upon the two ends of said inner band and composed of the body portion having a jaw 38 to engage one surface of the said band, the jaws 37, 37, extending through the openings 27 in said body portion and having their lower ends turned inwardly to pass below said jaw 38 and engage the other surface of said band, the bar 30 guided on said body portion and having the openings 35' within which the upper ends of said jaws 37 are pivotally secured, and the operating-screw 32 engaging a threaded aperture in the bar 30 and connected with the said body portion, combined with means for engaging said clamps and drawing them and the ends of said inner band toward one another; substantially as set forth.

8. An apparatus for securing rubber tires having an inner band to wheels, consisting of clamps adapted to be gripped upon the two ends of said inner band and composed of a body portion having a fixed jaw for engaging the upper surface of said band, a pair of movable jaws for engaging the lower surface of said band, means for operating said jaws to grip the said band, and removable means securing said movable jaws so that when desired all parts of said clamp less said movable jaws may be removed from the said band, combined with means for engaging said clamps and drawing them and the ends of said inner band toward one another: substantially as set forth.

698,880. GRATE FOR BOILER-FURNACES. ROBERT MITCHELL, Cincinnati, Ohio. Filed Apr. 11, 1901. Serial No. 55,296. (No model.)



Claim.—1. In a furnace-grate, a downwardly-extending flange provided with bars, a set of levers having pivotal connection with said downwardly-extending flange, an auxiliary lever bars provided with teeth corresponding to the spaces of said grate, said bars being pivotally connected with one end of said levers, the other ends of said set of levers having pivotal connection with the auxiliary lever, whereby the bars may be raised or lowered upon the operation of said levers, substantially as shown and in the manner specified.

2. In a furnace-grate, a downwardly-extending flange provided with bars, a set of levers having pivotal connection with said downwardly-extending flange, the one end of said levers provided with slots, an auxiliary lever also having pivotal connection with said flange, bars provided with teeth corresponding to the spaces between said grate-bars, said bars being pivotally connected with the other end of said set of levers, a pin passing through said auxiliary lever and into the slots of said set of levers, whereby upon the depression of said auxiliary lever the slotted ends of said set of levers will be drawn downwardly and the bars raised, or vice versa, substantially as shown and in the manner described.

3. In a furnace-grate, a downwardly-extending flange provided with bars, a set of levers pivotally connected with said bars, the one end of said levers being forked bars provided with teeth corresponding to the spaces of said grate, and the levers having pivotal connection with the bars, the other ends of said levers having slots, an auxiliary lever pivotally connecting with one of said downwardly-extending bars on the flange, a pin extending through said auxiliary lever and into the slots of said set of levers, prongs secured to the rear end of the auxiliary lever whereby, upon the depression of the auxiliary lever, the set of levers is operated and the prongs brought into contact with the toothed bars to assist in their raising, substantially as shown and described.

4. In a furnace-grate, a downwardly-extending flange provided with bars, a set of levers having pivotal connection with said bars, bars provided with teeth corresponding to the spaces of the grate, said bars having eyes on their lower sides, one end of the levers being forked and provided with rollers which take into said eyes, the other end of said levers provided with slots, an auxiliary lever having pivotal connection with one of said downwardly-extending bars on the flange, a pin secured to the auxiliary lever and extending into the slot of the set of levers, prongs secured to the rear end of the auxiliary lever to be brought into contact with and to assist the raising of said toothed bar upon the operation of said set of levers by the depression of the auxiliary lever, and guides to retain said toothed bar in proper position when raised or lowered, substantially as shown and for the purpose specified.

698,881. HOIST. DAVID H. MORGAN, Cleveland, Ohio. Filed Aug. 12, 1901. Serial No. 71,773. (No model.)

Claim.—1. In a hoist in combination a right-angled frame, one of whose sides is horizontal and the other vertical, a pulley-pivot and pulleys thereon, placed in the right angle of the frame, a support for the frame in the vertical arm of the frame, and a pivot for a cam in the horizontal arm of the frame, ropes over said pulleys and a tackle-block suspended thereon, a rope and a locking-cam pivoted in the horizontal arm so balanced as to swing free of the free end of the rope, when the free end hangs vertically and is slightly drawn, but adapted to engage and lock said free end against the pulley when the free rope end is swung into engagement therewith and permitted to rise slightly, substantially as described.

2. In a hoist, a right-angled frame arranged to hang with one arm vertical and the other horizontal, a pulley-pivot at the right angle and pulleys thereon, a support for the frame in the vertical arm, and a pivot for a cam in the horizontal arm of the frame, a continuous rope over said pulleys, and a tackle-block suspended thereon over which said rope passes, a rope and a locking-cam pivoted in the horizontal arm, arranged to swing free of the free end of the rope when the said end hangs vertically and is slightly drawn, but arranged to engage and lock said free end against the pulley when the rope end is swung into engagement therewith and permitted to rise slightly and a stop-pin placed transversely across said frame behind said cam, substantially as set forth.



3. In a hoist, a frame provided with a plural number of members, secured together at the top two of which are right-angled and arranged to hang with one arm vertical and the other horizontal, a pivot passing through the two angular members at the right angle and through the other member, pulleys on said pivot, a cam-pivot secured in the outward extremities of the horizontal arms, and a cam thereon, a continuous rope about said pulleys, having a free end, a tackle-block supported by said rope, the said cam being arranged to normally hang free from the free end of the rope, but to engage and lock, said free end, when the end is swung into engagement therewith and permitted to rise slightly, and means for preventing the cam from swinging backward beyond a determined limit, substantially as described.

4. In a hoist, the combination with a pulley-frame and pulley pivoted therein, of a horizontal arm projecting from said frame, a cam pivoted in said arm and separated from said pulley, and a rope on said pulley normally out of engagement with said cam but free at one extremity to be manually brought into engagement therewith, substantially as described.

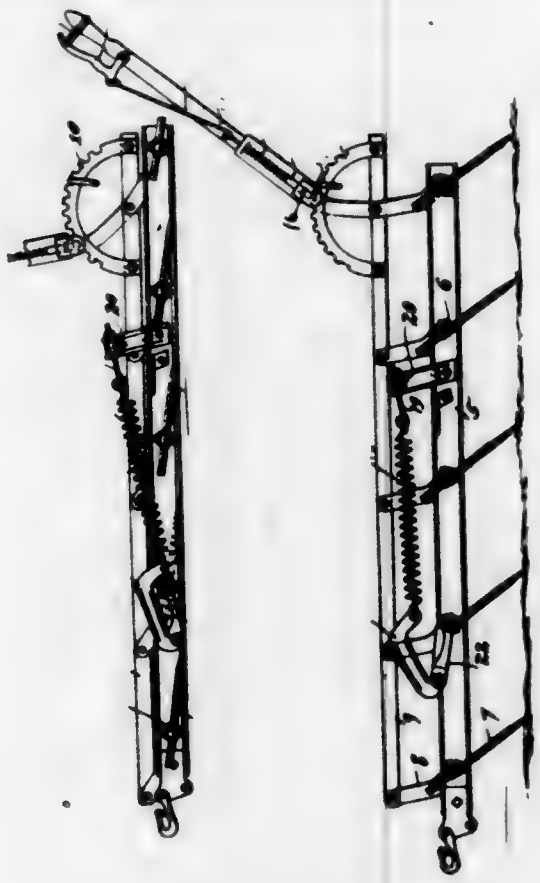
698,882. HARROW. JOSEPH B. MORRISON, Fort Madison, Iowa, assignor to Morrison Manufacturing Company, Fort Madison, Iowa, a Corporation of Iowa. Filed Feb. 21, 1901. Serial No. 48,228. (No model.)

Claim.—1. In a harrow of the class described, the combination with the frame, of a series of connected tooth-bars mounted to rock therein, a crank secured with one of said tooth-bars and a spring connected at one end to the harrow-frame and at the other to the crank, said point of connection being adapted to be moved into line with the axis of the tooth-bar and the point of connection of the spring to the frame, substantially as described.

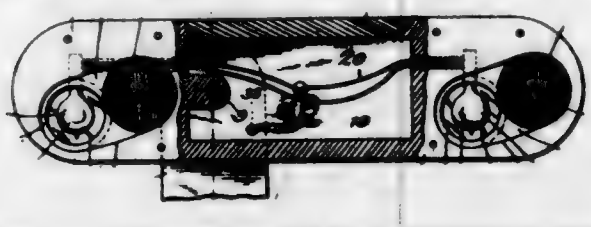
2. In a harrow of the class described, the combination with a rigid main frame, of a series of parallel tooth-bars mounted to rock therein, each of said bars being provided with an upstanding crank-arm projection, a link pivotally connected with the several cranks of the tooth-bars whereby they are connected to move in unison, a notched segment carried by said link, a locking-lever rigidly connected with one of the rocking tooth-bars and arranged to coöperate with said segment, and a coiled contractile spring connected at one end with the rigid frame, and at its opposite end with a crank-arm rigidly mounted upon one of said rocking tooth-bars, substantially as described.

3. In a harrow of the class described, the combination with a rigid main frame, of a series of parallel tooth-bars mounted to rock therein, each of said bars being provided with an upstanding crank-arm projection, a link pivotally connected with the several cranks of the tooth-bars where-

by they are connected to move in unison, a notched segment carried by said link, a locking-lever rigidly connected with one of the rocking tooth-bars and arranged to coöperate with said segment, a coiled contractile spring connected at one end with the rigid frame, and at its opposite end with a bent link, and a crank-arm upon one of said rocking tooth-bars with which said bent link is operatively connected, the relative arrangement of the spring, bent link and crank-arm being such that the spring may be moved into position to exert its tension to either hold the teeth in or out of operative position, substantially as described.



693,883. RAILWAY-SIGNAL. BRICE W. McDOWELL, New York, N. Y. Filed Mar. 23, 1901. Serial No. 52,648. (No model.)



Claim.—1. An improved signal of the class described, comprising a pivoted semaphore, lighting means carried by the same, and a translucent disk slidably carried by the semaphore and arranged to be moved in the movement of the semaphore into the path of light emitted by the lighting means.

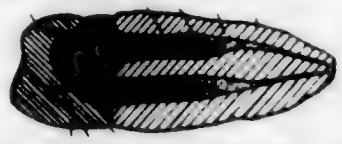
2. An improved signal of the class described, comprising a pivoted semaphore, lighting means carried by said semaphore at each end of the same, and two translucent disks slidably carried by the semaphore and arranged to be moved respectively in the movement of the semaphore into the paths of light emitted by the lighting means at each end of said semaphore.

3. An improved signal of the class described, comprising a pivoted semaphore, lighting means carried by the same, and two translucent disks carried by the semaphore at either side of the lighting means and arranged to be moved in the movement of the semaphore into the path of light emitted by the lighting means.

4. An improved signal of the class described, comprising a movable semaphore, separate lighting means carried by said semaphore at each end of the same, means for jointly energizing said lighting means, and translucent disks slidably carried by the semaphore with respect to both of said lighting means and arranged to be moved in the movement of the semaphore into the paths of light emitted by the said lighting means to "set" the signal.

698,884. ARTIFICIAL TOOTH-CROWN AND PROCESS OF MAKING SAME. EMIL NAGY, Budapest, Austria-Hungary. Filed Jan. 16, 1901. Serial No. 43,449. (No model.)

Claim.—1. The combination with an artificial tooth-crown body of a pair of cramps projecting from the under side thereof, and a pin having its head lying between said cramps and secured thereto



2. An artificial tooth-crown comprising in combination a body, a base on said body molded to fit the exposed end of the root, and to bear equally thereon at all points, and a pin projecting from said base in a direction to enter the cavity of the root.

3. The combination with an artificial tooth-crown body of a base on said body molded to fit the exposed end of the root, cramps projecting from said body into said base and a pin projecting from said base in a direction to enter the cavity of the root, the head of said pin lying between two of the said cramps and being secured thereto by said molded base.

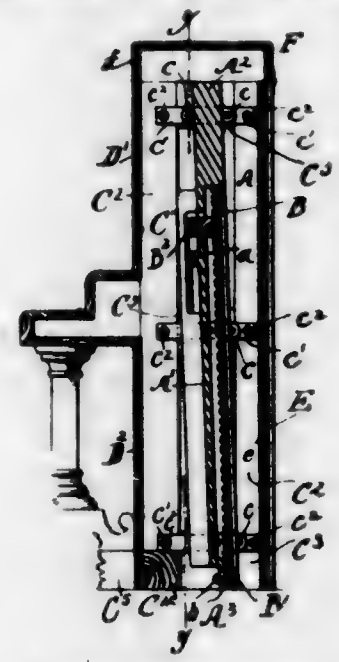
4. In mounting tooth-crowns, the process which consists in fitting the body of the crown to the front edge of the root, leaving a space at the rear between said body and root, inserting a pair of cramps in said body, molding a base on said body to fit the rear portion of the exposed end of the root, and embedding a pin in said cast base in a direction to enter the cavity of the root.

5. In mounting tooth-crowns, the process which consists in molding a base on the body of the crown to fit the exposed end of the root, and embedding a pin in said base in a direction to enter the cavity of the root.

6. In mounting tooth-crowns, the process which consists in fitting the body of the crown to the front edge of the root, leaving a space at the rear between said body and root, and molding a base on said body to fit the rear portion of the exposed end of the root.

7. In mounting tooth-crowns, the process which consists in inserting a pair of cramps in the body of the crown, molding a base on said body to fit the exposed end of the root, and embedding a pin in said cast base in a direction to enter the cavity of the root.

693,885. PIANO. FRANK V. NEUVILLE, New York, N. Y. Filed May 24, 1900. Serial No. 17,792. (No model.)



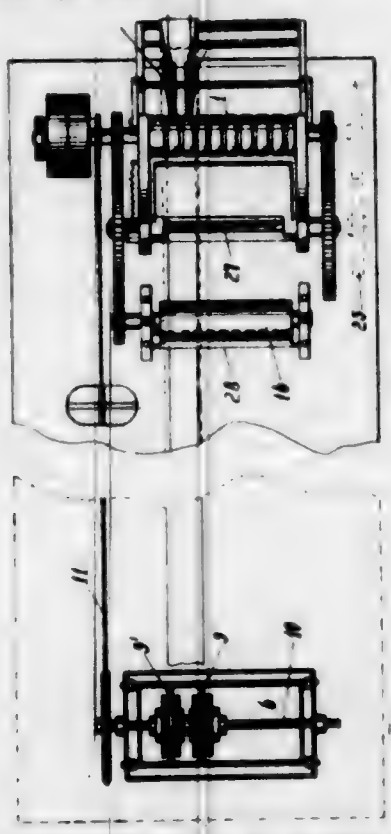
Claim.—1. In a piano, the combination, of the integrally-formed wrest-plank and string-plate, having angular flanges A^3, extending rearwardly therefrom, a sounding-board having apertures B^3, therethrough, to allow waves of sound to pass around the plate, the board having a flange around the edge of its rear surface and being secured by screws threaded into this flange, and the washers surrounding said screws, to prevent direct contact of the board with the plate; with the end frames C', substantially as shown and described.

2. The combination with the frame of a piano, and the sounding-board and string-plate thereof; of the removable backboard E, adapted to slide in the grooves *e* and by easy removal, to afford facility for reaching the interior back of the piano, substantially as shown and described.

3. In a piano, the combination and arrangement of the string-plate A, the sounding-board B, the angular flanges A^3, the screws *b*, and washers *b'*, by which a recess is formed between the string-plate, and the sounding-board, the sounding-board prevented from coming into contact with the string-plate, and the vibrating area of the sounding-board enlarged, all substantially as and for the purpose set forth.

4. In a piano, the combination, of the integrally-formed aluminium wrest-plank and string-plate, having angular flanges A^1, extending rearwardly therefrom, a sounding-board having apertures B^2, therethrough, to allow waves of sound to pass around the plate, the board having a flange around the edge of its rear surface and being secured by screws threaded into this flange, and the washers surrounding said screws, to prevent direct contact of the board with the plate; with the end frames C^*, substantially as shown and described.

698,886. AUTOMATIC MACHINE FOR MAKING PACKING-RINGS. EDGAR O. NEWELL, Glenridge, N. J. Filed Oct. 13, 1900. Serial No. 32,909. (No model.)

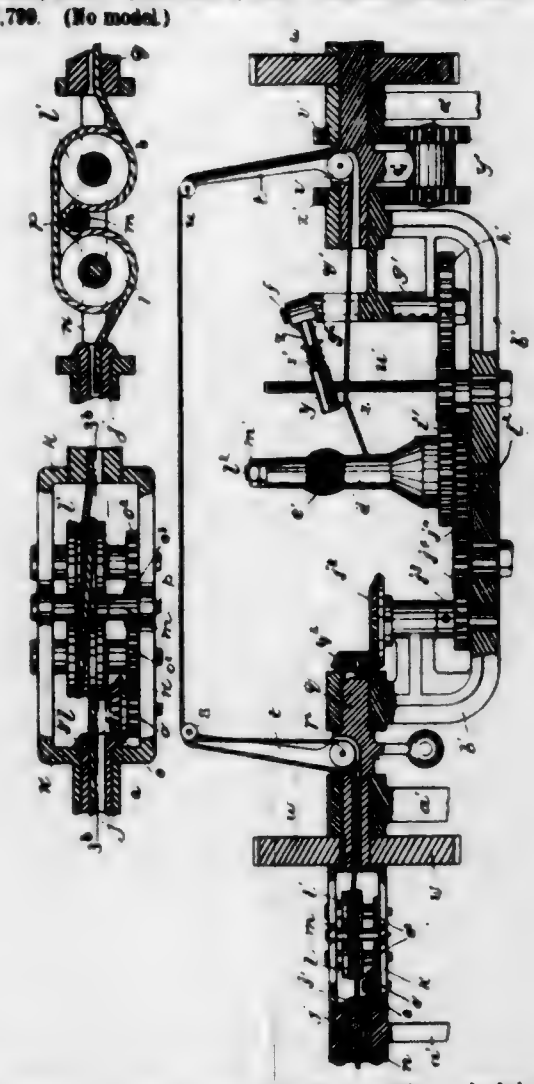


Claim.—1. In a machine of the class described for making packing-rings, the combination of two feed-rollers geared together, one of which being smooth and the other having grooves thereon, whereby the glue-covered folded edge of the paper band for making rings may be pressed flat to said grooved rollers and along the body of the same without flattening the string inclosed in the edge of the fold; with two edge-folding string-inclosing guides; a pair of smooth finishing-rollers geared together and adapted to receive and flatten the said string-inclosed folded edges, and deliver said finished band from the machine; and means for delivering a uniform quantity of liquid glue to and covering a uniform width on each of the edges of said paper band on one side thereof before it passes into the aforesaid guides, substantially as shown and described.

2. In a machine of the class described for making packing-rings, the combination of two feed-rollers geared together, one of which being smooth and the other having grooves thereon, whereby the glue-covered folded edge of the paper band for making rings may be pressed flat to said grooved rollers and along the body of the same without flattening the string inclosed in the edge of the fold; with two edge-folding string-inclosing guides; a pair of smooth finishing-rollers geared together and adapted to receive and flatten the said string-inclosed folded edges, and deliver said finished band from the machine; a knife for cutting the bands located between the said two pairs of rollers, and having means for varying the speed thereof relative to the speed of said feed-rollers, substantially as shown and described.

3. In a machine of the class described for making packing-rings, the combination of two feed-rollers geared together, one of which being smooth and the other having grooves thereon, whereby the glue-covered folded edge of the paper band for making rings may be pressed flat to said grooved rollers and along the body of the same without flattening the string inclosed in the edge of the fold; with two edge-folding string-inclosing guides; a pair of smooth finishing-rollers geared together and adapted to receive and flatten the said string-inclosed folded edges; and deliver said finished band from the machine; and a knife for cutting the bands, located between the said two pairs of rollers and having means for varying the speed thereof relative to the speed of said feed-rollers, and means for delivering a uniform quantity of liquid glue to and covering a uniform width on each of the edges of said paper band on one side thereof before it passes into the aforesaid guides, substantially as shown and described.

698,887. CORD OR ROPE MACHINE. THOMAS W. NORMAN, Boston, Mass. Filed Nov. 4, 1896. Renewed June 8, 1901. Serial No. 63,799. (No model.)



Claim.—1. A cord and rope making machine embodying in its construction a hanging cradle and means therein for taking up and supporting the product of the machine, revoluble arms free of connecting means between their ends, the cradle being provided with hollow journals at its ends upon which journals it is supported, the said cord and rope being adapted to be passed through the said hollow journals in opposite directions to the take-up means, means for revolving the arms in unison, and means carried by said arms for guiding the material acted upon, whereby the latter is carried around the cradle and given a double twist at each revolution of the arms, while the cradle is held in fixed position.

2. A means for balling the product in a cord or rope making machine, embodying in its construction a rotary cop or bobbin, a rotary shaft provided with an inclined pin or pintle, a yarn-guiding finger pivoted at one end upon the inclined pin or pintle, and having its other end free of support or guiding means and provided with a guide-eye, and moreover extended into proximity to the revoluble cop or bobbin, whereby the material led to the cop may be guided thereon in the form of a ball and the lateral movements of the free end of the finger be controlled in accordance with the size or diameter of the ball, substantially as hereinafter set forth.

3. A means for balling the product in a cord or rope making machine, embodying in its construction a rotary cop or bobbin, a rotary shaft provided with an inclined pin or pintle, a yarn-guiding finger pivoted at one end upon the inclined pin or pintle, and having its other end free of support or guiding means and provided with a guide-eye, and moreover extended into proximity to the revoluble cop or bobbin, combined with means for rotating the said cop and shaft, the one slightly out of time with the other to effect the laying of the different layers of cord or rope on different lines on the ball formed on the cop.

4. A cord or rope making machine embodying in its construction a revoluble cop or bobbin and a pivoted vibratory extensible spring-pressed reciprocating finger for guiding the product to be wound or balled upon the cop.

5. A friction device for controlling the tension of winding on, in cord or rope making machines, consisting of a cup-shaped driving means, a plurality of superposed disks or plates arranged in the same, a driven device positively connected with the top or covering plate, and through the latter and the said plurality of superposed disks or plates frictionally connected with the said driving means.

6. A friction device for cord and rope making machines consisting of the driving member and the driven member, combined with a plurality

of disks or plates superposed between said members and means for maintaining a lubricant in connection with said members or disks.

7. A pull-down for cord and rope making machines comprising in its construction two rotary capstans *l l'* of relatively large diameter, and a roller *m* of relatively small diameter, having bodily movement, said small roller being arranged between the capstans, and with the utmost line of its projecting periphery below or within the plane of the utmost lines of the projecting peripheries of the capstans, whereby a cord or rope may be passed about the capstans, and from one to the other without coming into contact with the periphery of the roller, and the rope or cord be also passed about the capstans and roller, may draw the latter down and wedge it between the capstans.

8. A pull-down for cord and rope making machines comprising in its construction two rotary capstans *l l'* of relatively large diameter provided with circumferential grooves in their faces for receiving and guiding the rope or cord, and a roller *m* of relatively small diameter, having bodily movement, said small roller being arranged between the capstans and with the utmost line of its projecting periphery below or within the plane of the utmost lines of the projecting peripheries of the capstans, whereby a cord or rope may be passed about the capstans, and from one to the other without coming into contact with the periphery of the roller, and the rope or cord be also passed about the capstans and roller may draw the latter down and wedge it between the capstans.

9. The combination, in a cord and rope making machine, of mechanism for effecting preliminary work on the material being operated upon and means for completing the said work, of a pull-down arranged between the said mechanism and means to pull down the work from the former and feed it forward to the latter, the said pull-down comprising in its construction two rotary capstans *l l'* of relatively large diameter, and a roller *m* of relatively small diameter, having bodily movement, said small roller being arranged between the capstans, and with the utmost line of its projecting periphery below or within the plane of the utmost lines of the projecting peripheries of the capstans, whereby a cord or rope may be passed about the capstans, and from one to the other without coming into contact with the periphery of the roller, and the rope or cord be also passed about the capstans and roller, may draw the latter down and wedge it between the capstans.

10. A pull-down structure for rope-making machines, the same comprising a pair of positively-driven capstans spaced apart, and a loosely-mounted intermediate roller at least one diametrical half of which is included between a plane embracing the axes of the two capstans and a plane tangential to the peripheries of both of the latter whereby a rope passing between each capstan and the loose roller and straddling the latter will under draft be wedged between the peripheries of the capstans and roller the latter being free to move bodily in and out, substantially as described.

11. A pull-down structure for rope-making machines, the same comprising a pair of positively-driven capstans spaced apart and encircled by grooves of greater width than the depth of their seats, and a loosely-mounted intermediate roller, the rope passing between each capstan and the loose roller and straddling the latter while engaged with the grooves of the capstans whereby under draft it will be gripped between the latter and the loose roller, substantially as described.

12. A pull-down structure for rope-making machines, the same comprising a rotary twisting head or frame and driving means therefor, a pair of positively-driven capstans mounted transversely in said frame and spaced apart, and a loosely-placed roller between the two capstans lightened to reduce force of centrifugal action, the rope or strand passing between each capstan and the loose roller and straddling the latter, substantially as and for the purpose described.

13. In a machine of the character described the combination of alining twisting-shafts having central cord-passages and laterally-projecting arms equipped with cord-guides at their extremities, between which the cord extends without other supports; means for rotating the shafts and arms in unison; and a cradle hung from the twisting-shafts and equipped with cord-holding means, substantially as described.

14. In a machine for balling cord the combination of a rotary spindle on which the ball is made, a vibratory cord-guide located at one side of said spindle to work longitudinally thereof, means for rotating the spindle, and means for vibrating the cord-guide timed to cause the latter to traverse back and forth during one rotation of the spindle, substantially as and for the purpose described.

15. In a machine for balling cord the combination of a rotary spindle on which the ball is made, a vibratory cord-guide located at one side of said spindle to work longitudinally thereof, means for rotating the spindle, means for vibrating the cord-guide timed to cause the latter to traverse back and forth during one rotation of the spindle, and means for increasing the traverse of the cord-guide when the ball reaches its full size, substantially as and for the purpose described.

16. In a machine for balling cord the combination of a rotary spindle on which the ball is made, a vibratory cord-guide located at one side of said spindle to work longitudinally thereof, means for rotating the spindle, means for vibrating the cord-guide timed to cause the latter to traverse back and forth during one rotation of the spindle, and means for automatically increasing the traverse of the cord-guide when the ball reaches its full size, substantially as and for the purpose described.

17. In a machine for balling cord the combination of a rotary spindle on which the ball is made, a swinging arm alongside said spindle and having a cord-guide at its free end, means for rotating the spindle and means for swinging the arm timed to produce a to-and-fro movement thereof during one rotation of the spindle, substantially as and for the purpose described.

18. In a machine for balling cord the combination of a rotary spindle on which the ball is made, an extensible swinging arm alongside said spindle and having a cord-guide at its free end, means for rotating the spindle; and means for swinging the arm timed to produce a to-and-fro movement thereof during one rotation of the spindle, substantially as and for the purpose described.

19. In a machine for balling cord the combination of a rotary spindle on which the ball is made, an extensible swinging arm alongside said spindle and having a cord-guide at its free end, means for rotating the spindle, means for swinging the arm timed to produce a to-and-fro movement thereof during one rotation of the spindle, and means for automatically extending said arm when the ball attains a predetermined size, substantially as and for the purpose described.

20. In a machine for balling cord, the combination of a rotary spindle on which the ball is made, an extensible cord-guiding arm alongside said spindle adapted to move longitudinally thereof and also laterally with respect thereto, means normally maintaining the cord-guiding arm contracted in length, and an abutment arranged to be encountered by said means upon lateral movement of the arm produced by growth of the ball, substantially as and for the purpose described.

21. In a machine for balling cord, the combination of a rotary spindle on which the ball is made, a telescopic spring-distended cord-guiding arm having means normally restraining the spring and including a laterally-projecting member, said arm being mounted to swing longitudinally of the spindle and also laterally with relation thereto; means for rotating the spindle; means for vibrating the arm longitudinally of the spindle; and an abutment for the projecting member of the arm, spring restraining means to encounter when the arm is moved laterally a predetermined extent by the increase in size of the ball.

22. In a machine of the character described, the combination of means for pulling down and supplying or feeding a rope, cord or strand to a take-up mechanism at a fixed rate of speed; a rotary spindle around which the cord is wound; a flier structure receiving the cord axially of itself from the pull-down and delivering the cord axially of itself to the spindle; a spindle-driving gear timed to turn the spindle faster than required to take up the cord; and frictional connecting means between said gear and the spindle whereby the speed of rotation of the latter will automatically comport with changing relations between the diameter of the ball and the rate of cord-supply thereto, substantially as described.

23. In a machine of the character described, the combination of means for pulling down and supplying or feeding a rope, cord or strand to a take-up mechanism at a fixed rate of speed; a rotary spindle around which the cord is wound; a flier structure receiving the cord axially of itself from the pull-down and delivering the cord axially of itself to the spindle; means for revolving the flier structure; a spindle-driving gear; speed-reducing gearing between the flier-driving means and said spindle-driving gear whereby the latter is rotated at a considerably-reduced rate of speed as compared with the speed of rotation of the flier structure; and frictional connecting means between said gear and the spindle whereby the speed of rotation of the latter will automatically comport with changing relations between the diameter of the ball and the rate of cord-supply thereto, substantially as described.

24. In a machine of the character described, the combination of means for pulling down and supplying or feeding a rope, cord or strand to a take-up mechanism at a fixed rate of speed; a rotary spindle around which the cord is wound; a flier structure receiving the cord axially of itself from the pull-down and delivering the cord axially of itself to the spindle; a spindle-driving gear timed to turn the spindle faster than required to take up the cord; frictional connecting means between said gear and the spindle whereby the speed of rotation of the latter will automatically comport with changing relations between the diameter of the ball and the rate of cord-supply thereto; and a rotary cord-guide alongside the spindle and movable longitudinally thereof, said guide being geared to the spindle directly so as to take its motion therefrom with differentiations effected through the frictional connections, substantially as described.

25. In a machine of the character described, the combination of means for pulling down and supplying or feeding a rope, cord or strand

to a take-up mechanism at a fixed rate of speed; a rotary spindle around which the cord is wound; a flier structure receiving the cord axially of itself from the pull-down and delivering the cord axially of itself to the spindle; a spindle-driving gear timed to turn the spindle faster than required to take up the cord; frictional connecting means between said gear and the spindle whereby the speed of rotation of the latter will automatically comport with changing relations between the diameter of the ball and the rate of cord-supply thereto; and a rotary cord-guide alongside the spindle and movable longitudinally thereof, said guide being geared to the spindle directly so as to take its motion therefrom with differentiations effected through the frictional connections and the gearing being timed to produce to-and-fro motion of the guide during one rotation of the spindle.

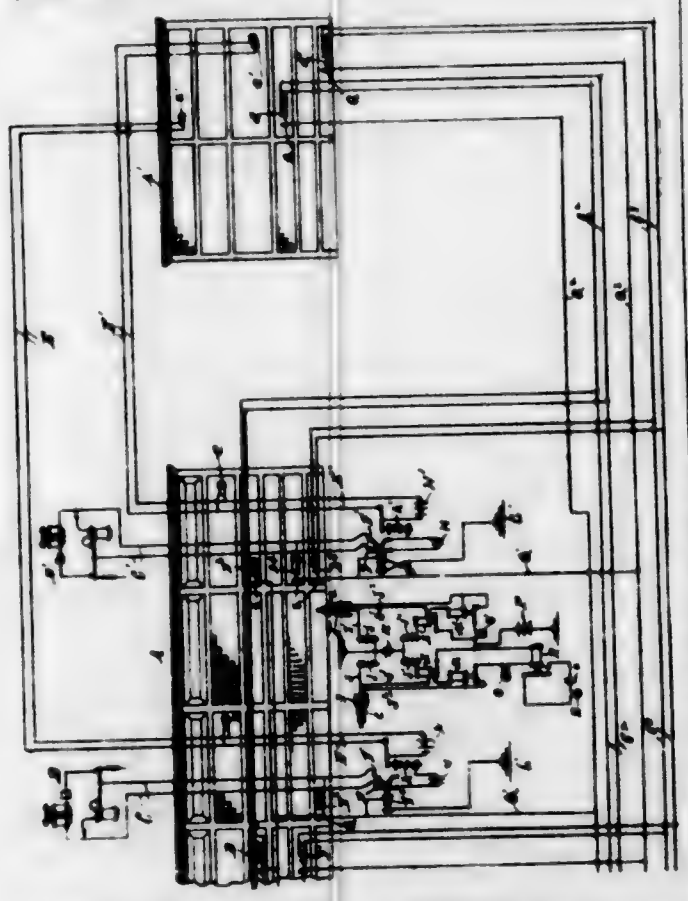
26. A pull-down structure for rope or strand making machines, the same comprising a pair of positively-driven capstans or rolls, spaced apart, and an intermediate roll mounted for bodily movement in or out between the two capstans or rolls, the rope or strand passing between each capstan and the bodily-movable roll and straddling the latter.

693,888. TOBACCO-PIPE. PEHR M. OLSON, Elmlem, Wis. Filed Aug. 14, 1901. Serial No. 72,061. (No model.)



Claim.—A tobacco-pipe having its bowl formed in an upper and a lower communicating chamber, the lower chamber having secured in its bottom a vertical tube with side apertures above and below the bottom, a downwardly-spring-pressed piston in the tube, a rod secured to the piston and provided at the bottom end with a press-button by which the piston may be raised above all the apertures, and means limiting the downward motion of the piston, substantially as and for the purpose set forth.

693,889. TELEPHONE-EXCHANGE SWITCHBOARD SYSTEM. WILLIAM S. PAGA, Erie, Pa., assignor of three-fourths to Peter H. Adams and John Z. Miller, Erie, Pa. Filed Mar. 15, 1901. Serial No. 51,361. (No model.)

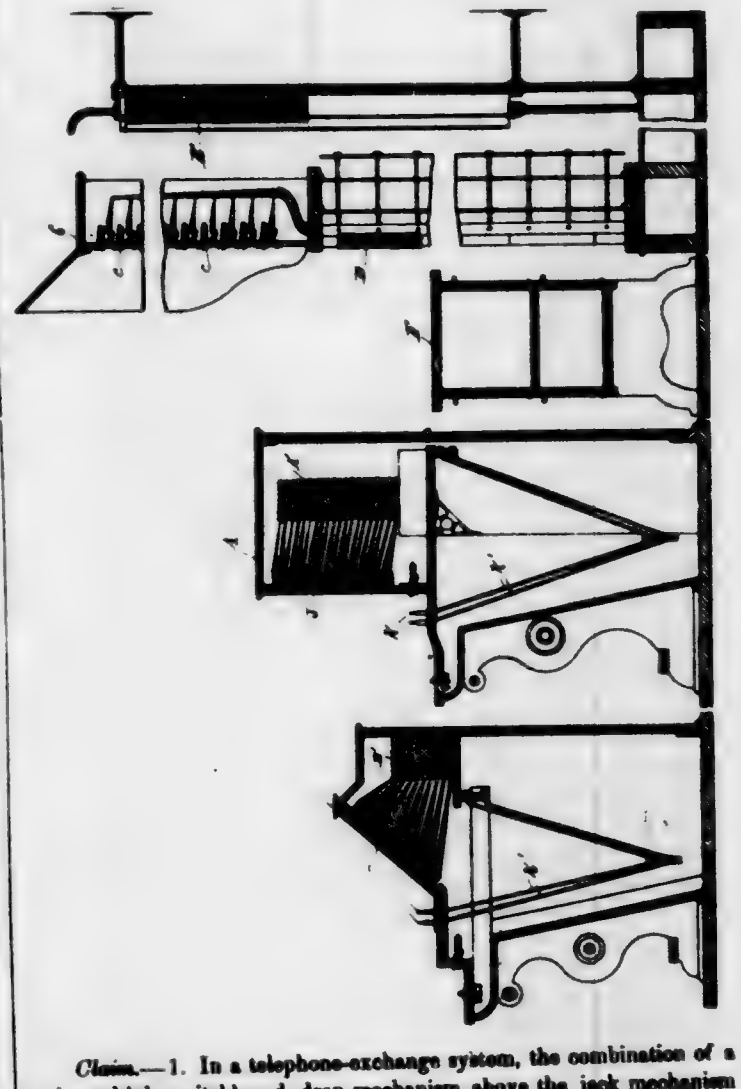


Claim.—1. In a telephone-exchange switchboard system, the combination of a main multiple switchboard, subscribers' and signal circuits leading into said main switchboard, an auxiliary switchboard, and circuits connecting the subscribers' and signal circuits at the main switchboard with the auxiliary switchboard, substantially as and for the purpose set forth.

2. In a telephone-exchange switchboard system, the combination of a multiple switchboard, a common-battery signal mechanism at said switchboard, subscribers' circuits leading to said main switchboard and said signal mechanism, an auxiliary switchboard, and circuits connecting the subscribers' and signal circuits at the main switchboard, with said auxiliary switchboard, substantially as and for the purpose set forth.

3. In a telephone-exchange switchboard system, the combination of a main multiple switchboard, jacks and operators' circuits, a common-battery signal mechanism, circuits connecting subscribers' circuits with said signal mechanism and with the jacks and operators' circuits on said main switchboard, an auxiliary switchboard, a common-battery signal mechanism therein, circuits connecting the signal mechanism and the subscribers' circuits at the main switchboard with signal and subscribers' circuits at the auxiliary switchboard, substantially as and for the purpose set forth.

698,890. TELEPHONE-EXCHANGE SYSTEM. WILLIAM S. PAGA, Erie, Pa., assignor of three-fourths to Peter H. Adams and John Z. Miller, Erie, Pa. Filed Mar. 15, 1901. Serial No. 51,362. (No model.)



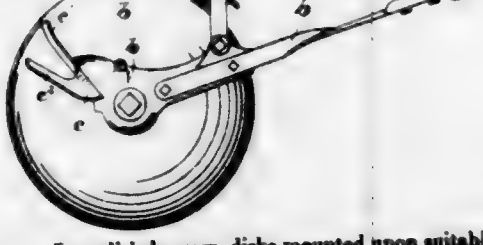
Claim.—1. In a telephone-exchange system, the combination of a main multiple switchboard, drop mechanism above the jack mechanism of said switchboard, subscribers' circuits, and signal-circuits leading into the main switchboard and drop mechanism, an auxiliary switchboard, and circuits connecting the subscribers' and signal circuits at the main switchboard and drop mechanism with the auxiliary switchboard, substantially as and for the purpose set forth.

2. In a telephone-exchange system, the combination of a main multiple switchboard, a drop mechanism above the main switchboard, subscribers' circuits and signal-circuits leading into the drop mechanism and into the main switchboard, an auxiliary switchboard, and circuits connecting the subscribers' circuits and the signal-circuits at the main switchboard with the auxiliary switchboard, substantially as and for the purpose set forth.

3. In a telephone-exchange system, the combination of a main multiple switchboard, a drop mechanism above the main switchboard, subscribers' circuits and signal-circuits leading into the drop mechanism and into the main switchboard, an auxiliary switchboard, and circuits connecting the subscribers' circuits and the drop and signal circuits at the main switchboard with the auxiliary switchboard, substantially as and for the purpose set forth.

4. In a telephone-exchange system, the combination of a main multiple switchboard, a drop-board mechanism at the rear of and above the main switchboard, subscribers' circuits leading into the drop-board and main switchboard, signal-circuits and battery-circuit connected therewith, an auxiliary switchboard in front of the main switchboard, and circuits leading from the drop-board, the signal, the battery and the subscribers' circuits at the main switchboard, into said auxiliary switchboard, substantially as and for the purpose set forth.

698,891. DISK HARROW. FRANK R. PACKHAM and GEORGE P. OATES, Springfield, Ohio, assignors to the Superior Drill Company, Springfield, Ohio, a Corporation of Ohio. Filed Sept. 30, 1901. Serial No. 76,990. (No model.)



Claim.—1. In a disk harrow, disks mounted upon suitable supports connected to the frame of the machine, a scraper connected to each of said supports and adapted to lie in proximity to the convex side of the disk, and a projection also connected to each of said supports extending midway between the adjacent disks, for the purpose specified.

2. In a disk harrow, disks mounted upon suitable supports, a scraper and expeller consisting of a two-pronged device secured to each of said supports, one of said prongs being adapted to lie in close proximity to the convex side of the disk and the other prong adapted to stand substantially midway between the adjacent disks, substantially as specified.

3. In a disk harrow, disks mounted upon suitable supports, a scraper and expeller formed integrally with each other secured to each of said supports, said scraper being adapted to lie in close proximity to the convex side of the disk and conform to the contour thereof, and the expeller being adapted to extend midway between adjacent disks, substantially as specified.

4. In a disk harrow, disks mounted upon suitable supports, and a scraping and expelling device arranged between adjacent disks, the scraping portion of said device being adapted to lie in close proximity to the convex side of one of the adjacent disks and the expelling portion being extended to a point between said disks, substantially as specified.

5. In a disk harrow, a series of disks connected independently of each other to the main frame of the machine and provided with independent pressure devices, a scraping and expelling device arranged between adjacent disks in the series and connected to the supports for said disks so as to rise and fall with the same, substantially as and for the purpose specified.

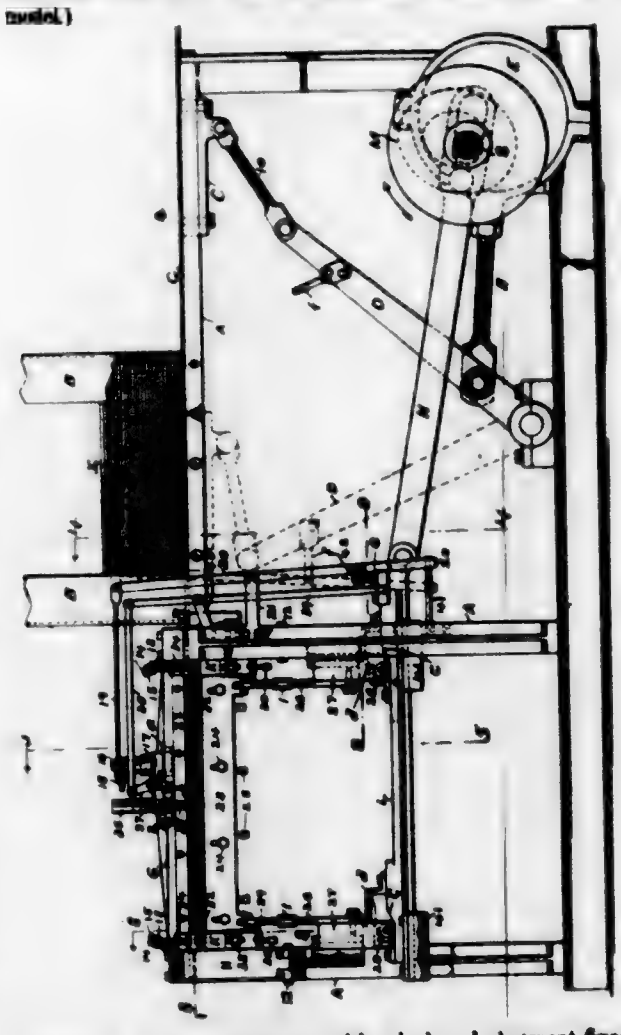
6. In a disk harrow, a series of independent disks mounted upon suitable supports pivotally connected to the frame of the machine so as to rise and fall independently of each other, and an expeller connected to each disk-support so as to move with the same, said expeller being adapted to lie between the adjacent disks, substantially as and for the purpose specified.

698,892. STEP-LADDER AND SHELF COMBINED. CHARLES E. PAGE, Linwood, New Zealand. Filed May 12, 1899. Serial No. 716,570. (No model.)



Claim.—In a step-ladder, the combination of the sides, the rear legs pivotally connected to the sides at their upper ends and provided with a bearing, a shelf pivotally connected to the sides and adapted to be suspended from the pivot-point and to lie flat against the sides when the legs and sides are folded together, the said shelf being formed with a cam-surface on its under face and having a notch, the bearing of the legs being arranged in such relation to the cam-surface as to engage the same and lift the shelf as the sides and legs are separated and to enter the notch when the shelf reaches a horizontal position to lock the parts against further relative movement, substantially as described.

698,898. MACHINE FOR JOINTING STAVES. HENRY U. PALMER, New York, N. Y. Filed May 20, 1901. Serial No. 60,988. (No model.)



Claim.—1. The combination with a bed and abutment fixed relatively to each other flatwise of the stave with space between them for feeding in the stave, of a jointing-knife mounted to cut outward from the inner side of the stave, substantially as described.

2. The combination with a bed and abutment curved transversely to the stave and fixed relatively to each other flatwise of the stave with space between them for feeding in the stave, of a jointing-knife mounted to cut radially outward from the inner side of the stave, substantially as described.

3. The combination with a bed and abutment fixed relatively to each other flatwise of the stave with space between them for feeding in the stave, of jointing-knives for the opposite edges of the stave mounted to cut outward from the inner side of the stave, substantially as described.

4. The combination with a bed and abutment curved transversely to the stave and fixed relatively to each other flatwise of the stave with space between them for feeding in the stave, of jointing-knives for the opposite edges of the stave mounted to cut radially outward from the inner side of the stave, substantially as described.

5. The combination with a bed and abutment curved transversely to the stave and having their opposite side edges inclined radially transversely to the stave and fixed relatively to each other flatwise of the stave with space between them for feeding in the stave, of jointing-knives for the opposite edges of the stave mounted to cut radially outward from the inner side of the stave and along the edges of the bed and abutment, substantially as described.

6. The combination with a bed and abutment curved transversely to the stave and fixed relatively to each other flatwise of the stave with space between them for feeding in the stave, said bed and abutment having side edges curved longitudinally of the stave, of curved jointing-knives for the opposite edges of the stave mounted to cut radially outward from the inner side of the stave and along said edges of the bed and abutment, substantially as described.

7. The combination with a bed and abutment curved transversely to the stave and straight longitudinally and having their opposite side edges inclined radially and curved longitudinally, said bed and abutment being

fixed relatively to each other flatwise of the stave with space between them for feeding in the stave, of curved jointing-knives for the opposite edges of the stave mounted to cut radially outward from the inner side of the stave and along said edges of the bed and abutment, substantially as described.

8. The combination with a bed and abutment curved transversely to the stave and straight longitudinally and having their opposite side edges inclined radially and curved longitudinally, said bed and abutment being fixed relatively to each other flatwise of the stave with space between them for feeding in the stave, of curved jointing-knives for the opposite edges of the stave having straight edges and mounted to cut radially outward from the inner side of the stave and along said edges of the bed and abutment, substantially as described.

9. The combination with an abutment having its opposite side edges inclined radially and curved longitudinally, of curved jointing-knives for the opposite edges of the stave mounted to cut radially outward from the inner side of the stave and along said edges of the abutment, substantially as described.

10. The combination with an abutment curved transversely to the stave and straight longitudinally of the stave and having its opposite side edges inclined radially and curved longitudinally, of curved jointing-knives for the opposite edges of the stave having straight edges and mounted to cut radially outward from the inner side of the stave and along said edges of the abutment, substantially as described.

11. The combination with an abutment made in two parts having relative movement edgewise of the stave, of stave-jointing knives for the opposite edges of the stave having the same relative movement as the two parts of the abutment, and means for pressing said parts of the abutment together under yielding pressure for the jointing action and separating them for the receipt and delivery of staves, substantially as described.

12. The combination with an abutment made in two parts having relative movement edgewise of the stave, of stave-jointing knives and centering devices for the opposite edges of the stave having the same relative movement as the two parts of the abutment, and means for pressing said parts of the abutment and centering devices together under yielding pressure for the jointing action and separating them for the receipt and delivery of staves, substantially as described.

13. The combination with an abutment made in two parts one part being stationary and the other movable toward and from said stationary part edgewise of the stave, of jointing-knives for the opposite sides of the stave, one coacting with the stationary part of the abutment and the other coacting with and carried by the movable part, and means for moving the movable part toward the stationary part under yielding pressure for the jointing action and away from the stationary part for the receipt and delivery of the staves, substantially as described.

14. The combination with an abutment made in two parts one part being stationary and the other movable toward and from said stationary part edgewise of the stave, of jointing-knives for the opposite sides of the stave, one coacting with the stationary part of the abutment and the other coacting with and carried by the movable part, centering devices carried by the movable and stationary parts, and means for moving the movable part toward the stationary part under yielding pressure for the jointing action and away from the stationary part for the receipt and delivery of the staves, substantially as described.

15. The combination with an abutment made in two parts one part being stationary and the other mounted to swing toward and from said stationary part edgewise of the stave, of jointing-knives for the opposite sides of the stave, one coacting with the stationary part of the abutment and the other coacting with and carried by the movable part, and means for moving the movable part toward the stationary part under yielding pressure for the jointing action and away from the stationary part for the receipt and delivery of the staves, substantially as described.

16. The combination with an abutment made in two parts one part being stationary and the other mounted to swing toward and from said stationary part edgewise of the stave, of jointing-knives for the opposite sides of the stave, one coacting with the stationary part of the abutment and the other coacting with and carried by the movable part, centering devices carried by the movable and stationary parts, and means for moving the movable part toward the stationary part under yielding pressure for the jointing action and away from the stationary part for the receipt and delivery of the staves, substantially as described.

17. The combination with a bed and abutment on opposite sides of the stave made in two parts having relative movement edgewise of the stave, of stave-jointing knives for the opposite edges of the stave having the same relative movement as the two parts of the bed and abutment, and means for pressing said parts of the bed and abutment together under yielding pressure for the jointing action and separating them for the receipt and delivery of staves, substantially as described.

18. The combination with a bed and abutment on opposite sides of the stave made in two parts having relative movement edgewise of the stave, of stave-jointing knives and centering devices for the opposite edges of the stave having the same relative movement as the two parts of the bed and abutment, and means for pressing said parts of the bed and abutment and centering devices together under yielding pressure for the jointing action and separating them for the receipt and delivery of staves, substantially as described.

19. The combination with a bed and abutment on opposite sides of the stave made in two parts one part being stationary and the other movable toward and from said stationary part edgewise of the stave, of jointing-knives for the opposite sides of the stave, one coacting with the stationary part of the bed and abutment and the other coacting with and carried by the movable part, centering devices carried by the movable and stationary parts, and means for moving the movable part toward the stationary part under yielding pressure for the jointing action and away from the stationary part for the receipt and delivery of the staves, substantially as described.

20. The combination with a bed and abutment on opposite sides of the stave made in two parts one part being stationary and the other mounted to swing toward and from said stationary part edgewise of the stave, of jointing-knives for the opposite sides of the stave, one coacting with the stationary part of the bed and abutment and the other coacting with and carried by the movable part, and means for moving the movable part toward the stationary part under yielding pressure for the jointing action and away from the stationary part for the receipt and delivery of the staves, substantially as described.

21. The combination with a bed and abutment on opposite sides of the stave made in two parts one part being stationary and the other mounted to swing toward and from said stationary part edgewise of the stave, of jointing-knives for the opposite sides of the stave, one coacting with the stationary part of the bed and abutment and the other coacting with and carried by the movable part, centering devices carried by the movable and stationary parts, and means for moving the movable part toward the stationary part under yielding pressure for the jointing action and away from the stationary part for the receipt and delivery of the staves, substantially as described.

22. The combination with a bed and abutment on opposite sides of the stave, of jointing-knives for the opposite edges of the stave, and feeding mechanism for advancing the stave longitudinally between the bed and abutment, substantially as described.

23. The combination with a bed and abutment on opposite sides of the stave, of jointing-knives for the opposite edges of the stave, feeding mechanism for advancing the stave longitudinally between the bed and abutment, and centering-guides between which the staves are fed in, substantially as described.

24. The combination with a bed and abutment on opposite sides of the stave, of jointing-knives for the opposite edges of the stave, feeding mechanism for advancing the stave longitudinally between the bed and abutment, centering-guides between which the staves are fed in, and means for moving said centering-guides together to center the stave and moving the guides to release the stave, substantially as described.

25. The combination with a bed and abutment on opposite sides of the stave, of jointing-knives for the opposite edges of the stave, feeding mechanism for advancing the stave longitudinally between the bed and abutment, centering-guides between which the staves are fed in, and means for moving said centering-guides together under yielding pressure to center the stave and moving the guides to release the stave, substantially as described.

26. The combination with a bed and abutment on opposite sides of the stave, of jointing-knives for the opposite edges of the stave, feeding mechanism for advancing the stave longitudinally between the bed and abutment, and centering devices on opposite sides of the stave arranged to alternately center the stave for jointing and release the stave, substantially as described.

27. The combination with a bed and abutment on opposite sides of the stave having their opposite side edges inclined radially, of jointing-knives for the opposite edges of the stave mounted to cut radially outward from the inner side of the stave and along the side edges of the bed and abutment, substantially as described.

28. The combination with a bed and abutment on opposite sides of the stave having their opposite side edges inclined radially and curved longitudinally of the stave, of curved jointing-knives for the opposite edges of the stave mounted to cut radially outward from the inner side of the stave and along the side edges of the bed and abutment, substantially as described.

29. The combination with a bed and abutment having their opposite side edges inclined radially, of jointing-knives for the opposite edges of the stave mounted to cut radially along the side edges of the bed and abutment, and feeding mechanism for advancing the staves longitudinally between the bed and abutment, substantially as described.

30. The combination with a bed and abutment having their oppo-

site side edges inclined radially, of jointing-knives for the opposite edges of the stave mounted to cut radially along the side edges of the bed and abutment, feeding mechanism for advancing the staves longitudinally between the bed and abutment, and centering devices for pressing the stave into central position relatively to the knives, substantially as described.

31. The combination with stave-holding mechanism and reciprocating jointing-knives for the opposite edges of the stave, of feeding mechanism for advancing the staves longitudinally to the holding mechanism, substantially as described.

32. The combination with stave-holding mechanism and reciprocating jointing-knives for the opposite edges of the stave, of feeding mechanism for advancing the staves longitudinally to the holding mechanism, and centering devices for centering the staves relatively to the knives, substantially as described.

33. The combination with stave-holding mechanism and reciprocating jointing-knives for the opposite edges of the stave, of feeding mechanism for advancing the staves longitudinally to the holding mechanism, centering-guides between which the staves are fed in, and means for moving said centering-guides together to center the stave and moving the guides to release the staves, substantially as described.

34. The combination with stave-holding mechanism and reciprocating jointing-knives for the opposite edges of the stave, of feeding mechanism for advancing the staves longitudinally to the holding mechanism, centering-guides between which the staves are fed in, and means for moving said centering-guides together under yielding pressure to center the stave and moving the guides to release the stave, substantially as described.

35. The combination with the abutment having the stationary part G′ and movable part G, of centering devices *b* carried by the parts, means for pressing the parts G, G′ and devices together and separating them, and means for reciprocating said devices flatwise of the stave to move the devices away from the stave for the jointing operation and return the devices for centering the stave, substantially as described.

36. The combination with the bed and abutment having the stationary parts F′, G′ and movable parts F, G, of centering devices *b* carried by the parts, means for pressing the parts F, F′ and G, G′ and devices together and separating them, and means for reciprocating said devices flatwise of the stave to move the devices away from the stave for the jointing operation and return the devices for centering the stave, substantially as described.

37. The combination with the bed and abutment having the stationary parts F′, G′ and movable parts F, G, of centering devices *b* carried by the parts, jointing-knives I, means for moving the parts F, G and centering devices toward and from each other, and means for reciprocating said centering devices in the line of movement of the knives, substantially as described.

38. The combination with the bed and abutment having the stationary parts F′, G′, and movable parts F, G, of centering devices *b* carried by the parts, jointing-knives I, means for pressing the parts F, G and centering devices together under yielding pressure and separating the parts, and means for reciprocating said centering devices in the line of movement of the knives, substantially as described.

39. The combination with the bed and abutment having the stationary parts F′, G′, and movable parts F, G, jointing-knives I, and means for pressing the parts F, G and F′, G′ together under yielding pressure and separating the parts, substantially as described.

40. The combination with knife I and slide 23 carrying said knife, of pivoted guides K for said slide, means for adjusting said guides toward and from said knife, and means for adjusting said knife edgewise, substantially as described.

41. The combination with knife I and slide 23 carrying said knife, of pivoted guides K for said slide, stops 34 on said guides, and means for adjusting said guides toward and from said knife, substantially as described.

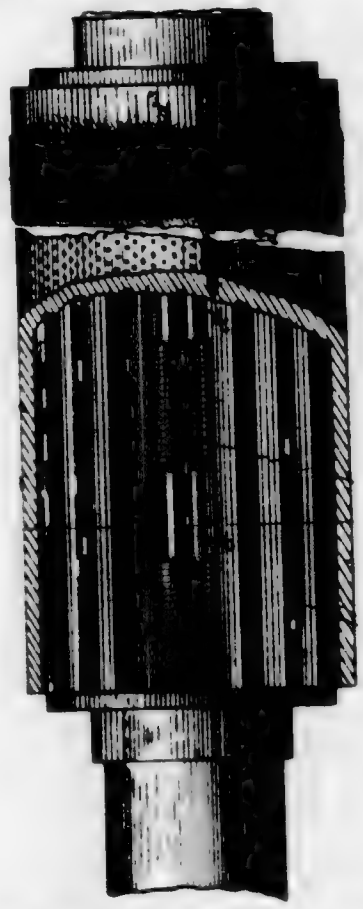
42. The combination with knife I, of pivoted guide K having arm 31, set-screws 30 for adjusting said guide, and slotted-bolt connection 32 for locking said guide, substantially as described.

43. The combination with knife I, of pivoted guide K having arm 31, set-screw 30 for adjusting said guide, and slotted-bolt connection 32 and bolt 33 for locking said guide, substantially as described.

44. The combination with the jointing-knives and centering-guides, of a slide provided with cams for actuating said knives, and connections between said slide and centering devices for moving them ahead of the knives and returning them to position, substantially as described.

693,894. COUCH-ROLL. HOWARD PARKER, Bellows Falls, Vt.
Filed June 16, 1900. Serial No. 20,557. (No model.)

Claim.—1. In a suction-action couch-roll, a hollow cast-metal core with radial webs extending continuously along said core, compartments formed between these webs, a tubular shaft on which said core rotates, longitudinal compartments within said shaft, ports adapted to connect the compartments between the webs with those at the interior of the tubular shaft, and a perforated covering arranged upon the outer ends of said webs, substantially as described



2. In a suction-action couch-roll, a tubular shaft having a web forming longitudinal compartments therein, a core adapted to rotate on said shaft, said core having continuous longitudinal partitions, ports connecting the compartments formed by said partitions with the compartments formed in the tubular shaft, and a perforated shell supported on the ends of the longitudinal partitions and securely attached thereto, substantially as described.

3. A perforated couch-roll comprising a series of radially-disposed cast-metal members forming radial compartments extending longitudinally throughout the length of the roll, ports formed between said members, a tubular shaft having continuous longitudinal compartments, openings through the outer walls of the compartments of the tubular shaft, a perforated metallic shell shrunk upon the outer ends of the radially-disposed members, and means for subjecting the several compartments to a suction action during the rotation of the roll.

4. In combination in a couch-roll, a non-rotary tubular shaft having continuous longitudinal compartments and openings through the outer walls of said compartments, a rotary cast-metal frame comprising radially-disposed members, a perforated metallic shell shrunk upon and borne by said members, continuous longitudinal compartments bounded by the radially-disposed members and the metallic shell, and ports adapted to register with said openings so as to connect the several compartments of the rotary frame with the compartments of the tubular shaft at predetermined periods during the revolution of the rotary member.

5. In combination in a suction-action couch-roll a tubular shaft having a horizontally-disposed web dividing the shaft into two compartments, apertures in the walls of the compartments, a cast-metal frame rotarily mounted with relation to the tubular shaft and having a peripheral shell of non-corrosive metal, and ports connecting the rotary frame and the tubular shaft at predetermined positions during the revolution of the rotary members.

6. In combination in a suction-action couch-roll having a peripheral shell of non-corrosive material and longitudinal compartments located within the shell, a tubular shaft having a horizontally-disposed web dividing it into two compartments, said shaft supporting the shell, ports connecting the compartments within the peripheral shell with those of the tubular shaft at predetermined positions during the revolution of the shell, and a screen attached to the outer surface of the shell.

7. In combination in a suction couch-roll, a tubular shaft having a longitudinal partition, a metal frame provided with partitions supporting a perforated shell of non-corrosive metal, bearings attached to either end of the cast-metal frame, means connecting the compartments of the tubular shaft with the exterior of the shell at predetermined points during the rotation of the latter.

8. In combination in a roll of the class specified comprising a rotary and stationary member, a wire screen applied to the periphery of the ro-

tary member with the wires constituting the filling arranged circumferentially on the periphery and those constituting the warp arranged substantially lengthwise of the roll, and means for retaining the screen on the periphery.

9. In combination in a suction-action couch-roll having longitudinal compartments and a perforated shell inclosing said compartments, a groove formed in the periphery of the shell and lengthwise thereof, a wire screen having one end located in the groove, a rod confining the end of the screen within the groove, means for retaining the rod and screen within the groove so arranged as to permit the fastening of the free end of the screen about the roll.

10. In combination in a roll of the class specified a frame supported upon a tubular shaft and provided with compartments, the tubular shaft, ports connecting the several compartments with the interior of the tubular shaft and a peripheral surface formed by a wire screen applied to the exterior of the surface made up of a system of wires and rings substantially as specified.

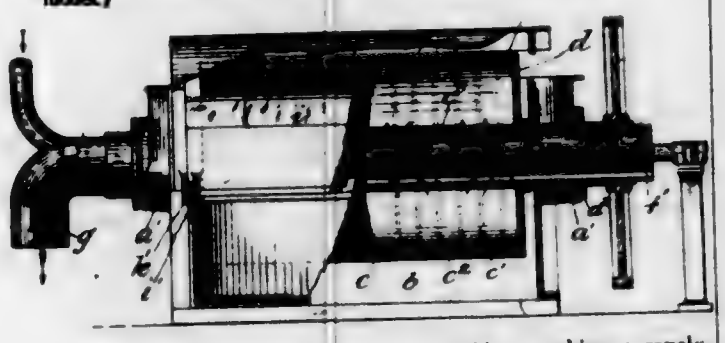
11. In combination in a suction-action couch-roll, a tubular shaft, a rotary frame mounted upon a tubular shaft, and having a series of compartments, ports connecting the compartments of the rotary member with the tubular shaft and means for crowding the tubular shaft against the rotary member in one direction and means for reciprocating one of said parts with relation to the other.

12. In combination in a device of the class specified, a tubular shaft provided with ports and having an unbroken peripheral surface upon one side, a rotary member mounted upon the tubular shaft and having a series of compartments, ports in the rotary member adapted to connect the several compartments with the interior of the tubular shaft at predetermined points during its rotation, means for maintaining a constant and close contact between portions of the tubular shaft and the surface of the rotary member adjacent thereto, and means for reciprocating the rotary member and tubular shaft in relation to each other.

13. In combination in a device of the class specified two members, one rotarily mounted with respect to the other, said rotary member being provided with a series of compartments and having ports connecting said compartments with the interior of the first-named member, and the non-rotary members adapted to have a slight reciprocating motion in relation to the rotary member.

14. In combination in a device of the class specified, two members, one of which is rotarily mounted with respect to the other and has a series of compartments and ports connecting its several compartments with the interior of the non-rotary member, the second member being fixed against rotation relatively to the rotary member but adapted to have a slight reciprocating movement with relation thereto and means for maintaining a forced contact between certain portions of the non-rotary and rotary members.

698,895. MACHINE FOR MAKING PAPER. HOWARD PARKER, Bellows Falls, Vt. Filed June 19, 1900. Serial No. 20,851. (No model.)



Claim.—1. In combination in a paper-making machine, a revolving paper-making roll having a series of continuous longitudinal compartments radially disposed, a shaft on which said roll is supported, means for collecting the stuff on the roll during a portion of its revolution, means for removing liquid from said stuff during another portion of its revolution, and means for delivering said stuff during subsequent portions of its revolution, said three means being independent of each other.

2. In combination in a paper-making machine, a paper-making roll having compartments, and means for rotating it, a tubular shaft centrally arranged with relation to the roll and having a series of compartments formed therein by longitudinal partitions, ports connecting the several compartments of the roll with those of the shaft at points during the rotation of the former, means for collecting the stuff on the roll during a portion of its revolution, means for removing liquid from said stuff, and means for delivering said stuff during subsequent portions of the revolution of the roll.

3. In combination, a tank, a paper-making roll revolving therein and having a hollow core, a series of longitudinal compartments formed within the roll about the hollow core, a tubular shaft arranged within the hollow core and provided with compartments, apertures connecting the several compartments of the roll and tubular shaft respectively during the rotation of the roll, and means for withdrawing the air from certain of the roll-compartments and introducing air simultaneously to other of the compartments of the roll for the purposes specified.

4. In combination in a paper-making machine, a tank, a paper-making roll rotarily mounted in said tank and having a series of compartments, a tubular shaft centrally arranged with relation to the roll and provided with compartments, one of the latter forming a connection to exhaust the air from the compartments of the roll, a second shaft-compartment adapted to receive water collected in said roll-compartments, and a third shaft-compartment adapted to conduct air under pressure to the compartments of the roll as it revolves.

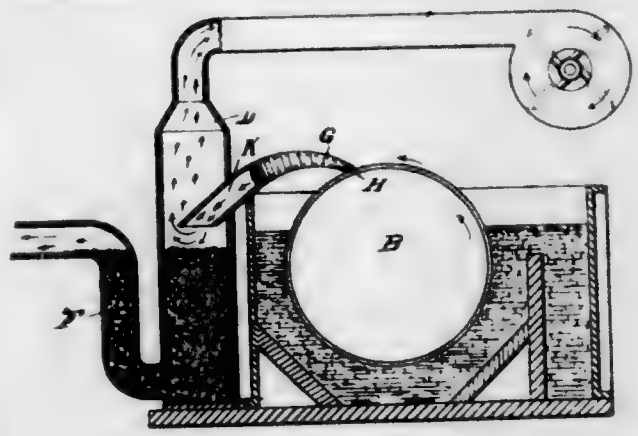
5. In combination, a paper-making roll having a series of substantially radially disposed webs forming compartments, means for exhausting and means for introducing air to the several compartments, and means coincident with the radially-disposed webs for collecting moisture entering the compartments.

6. In combination, a paper-making roll consisting of a metallic frame comprising a core provided with outwardly-extending webs having their outer ends curved to provide pockets adapted to collect moisture, a tubular shaft on which said core revolves, compartments in the revoluble frame and tubular shaft, and ports arranged to subject the said compartments of the revoluble frame to suction and blower action during its revolution.

7. In combination with a paper-making roll consisting of a revoluble frame and having longitudinal compartments, a tubular shaft supporting said revoluble frame and provided at one side with a suction-compartment through which air is exhausted from the compartments of the roll, at the opposite side with a compartment through which air is introduced to the compartments of the roll, and a compartment located between said oppositely-disposed compartments through which water, collected in the several compartments of the roll, is discharged, and ports connecting the several compartments of the shaft with those of the revoluble frame.

8. In combination with a paper-making roll comprising a revoluble frame having compartments, a tubular member centrally arranged with relation to said revoluble frame and provided with three separate longitudinal compartments, one adapted to conduct exhaust-air, another adapted to conduct water, and a third adapted to introduce air to the several compartments of the revoluble frame as it rotates about the tubular member, and ports connecting the compartments of the tubular member with those of the revoluble frame.

698,896. PULP AND PAPER MAKING MACHINE. HOWARD PARKER, Bellows Falls, Vt. Filed June 23, 1900. Serial No. 21,286. (No model.)



Claim.—1. The combination with the tank partly filled with solution, and the roll adapted to pick up the finely-divided particles of solid matter in the solution, of a stationary doctor operated by suction and adapted to remove from the roll the material collected thereon.

2. In combination, the tank partly filled with liquid holding finely-divided particles of pulp in suspension, and the roll immersed therein and adapted to pick up the pulp and form it into a sheet on its periphery, of a doctor operated by suction and adapted to remove the sheet of pulp from the roll, and means for delivering the pulp, when so removed, in condition for further manipulation.

3. In a machine of the class specified, the tank partly filled with liquid holding in suspension finely-divided particles of pulp, a roll revolubly mounted in the tank and adapted to collect the finely-divided particles of pulp on its periphery, and suction-operated means for removing the pulp from the roll, and depositing it in a suitable receptacle, substantially as described.

4. The combination with the tank partly filled with a pulp solution, the roll revolubly mounted in the tank and adapted to pick up the pulp on its periphery, of a stationary suction-operated doctor adapted to re-

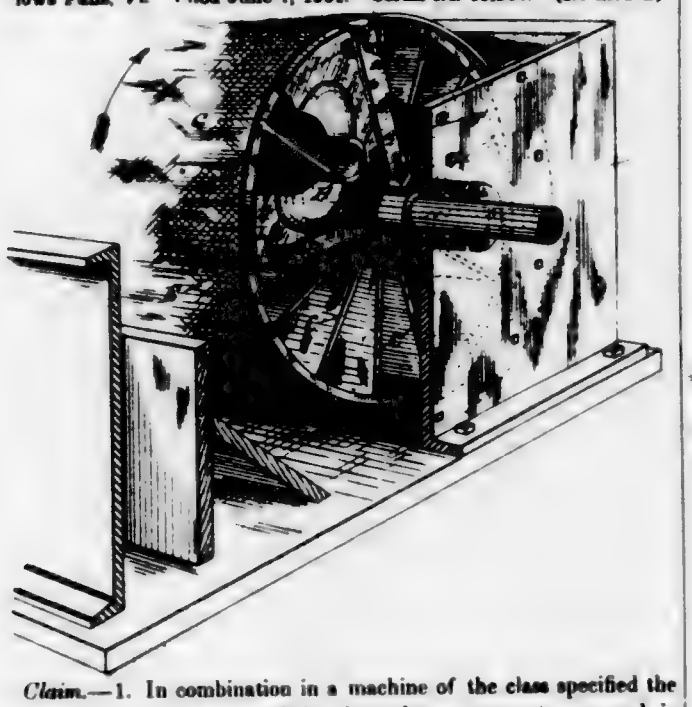
move the pulp from the roll and deposit it in a receptacle and means adapted to deliver the pulp in proper condition to the next step in the series of operations to which it is to be subjected.

5. In a machine of the class specified the tank, solution in said tank, the roll revolubly mounted therein and adapted to form the finely-divided particles of solid matter in the solution in a sheet on its periphery, and suction-operated means for removing the sheet of pulp from the roll, for breaking it up, and depositing it in a suitable receptacle.

6. In a machine of the class specified in combination the tank partly filled with liquid holding finely-divided particles of pulp in suspension, the roll revolubly mounted therein, and the doctor having an orifice located adjacent to the surface of the roll and a reduced rear portion connected with a suction apparatus.

7. In a machine of the class specified, in combination the tank partly filled with liquid holding finely-divided particles of pulp in suspension, the roll revolubly mounted therein, the doctor comprising a snout having an orifice along one edge located adjacent to the surface of the roll and a reduced rear portion extending into a chamber, the chamber connected with a suction apparatus and having near its lower end an outlet for the passage of the pulp, substantially as described.

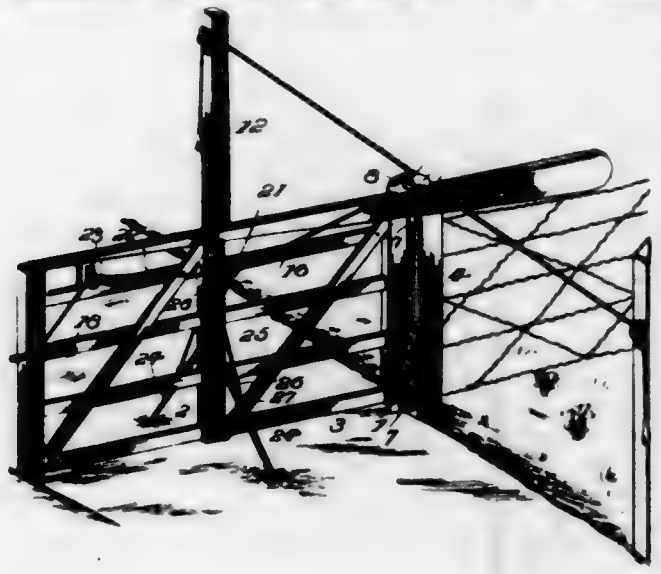
693,897. **PAPER-MAKING MACHINE.** HOWARD PARKER, Bellows Falls, Vt. Filed June 7, 1901. Serial No. 63,507. (No model.)



Claim.—1. In combination in a machine of the class specified the tank, the roll revolubly mounted therein, and compartments arranged in the interior of the roll, a suction apparatus and a stationary plate forming a part of said apparatus arranged to close the ends of part only of the compartments as they pass said plate, substantially as described.

2. The combination in a machine of the class specified with the tank, the roll revolubly mounted therein, and compartments in the interior of said roll, of a stationary plate adapted to close the ends of one or more of the compartments, and springs for holding said plate in position, substantially as described.

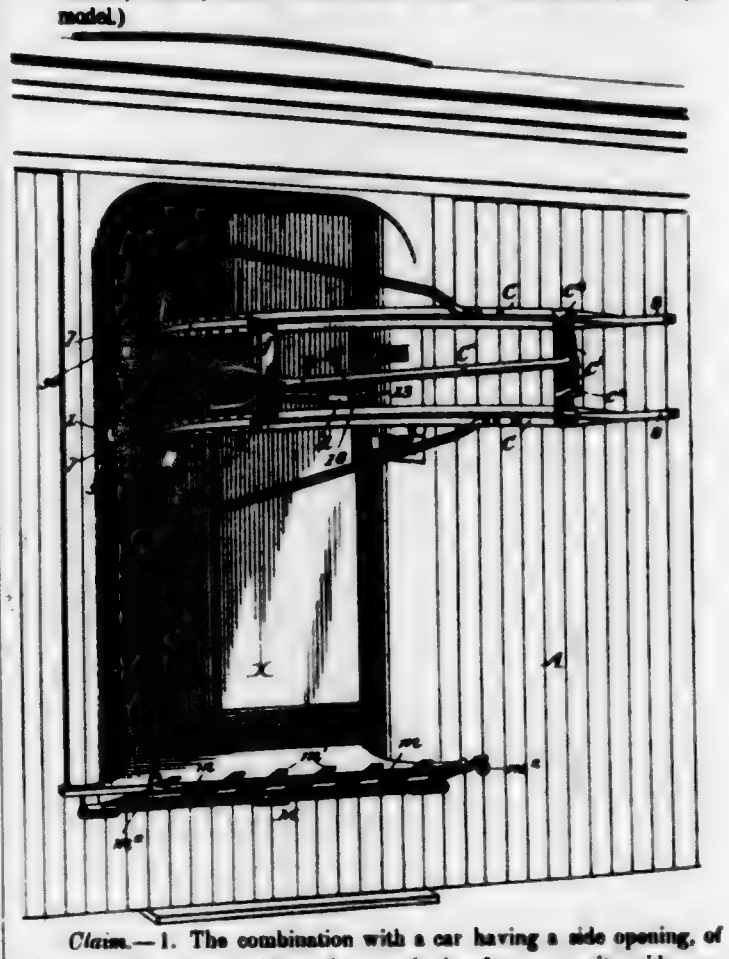
693,898. **GATE.** THEODORE L. PATRICK and LOWREN SPRAGUE, Shabbona, Ill. Filed June 17, 1901. Serial No. 64,908. (No model.)



Claim.—1. The combination with a hinged gate, and a drag-latch pivotally connected thereto and adapted to operate upon the ground, of an operating-wheel mounted at the hinged end of the gate, a flexible connection extending from said wheel to the drag-latch, and a gate-operating cable connected with said wheel, substantially as described.

2. The combination with a hinged gate, a gate-latch carried thereby, and drag-latches pivotally connected to opposite sides of the gate for engagement with the ground, of a gate-operating wheel mounted adjacent to the hinged end of the gate, a gate-operating cable connected with said wheel, and flexible latch-operating connections extending from said wheel to the gate-latch and drag-latches respectively, substantially as described.

698,899. **DEVICE FOR GRIPPING AND DELIVERING MAIL-BAGS.** SIMON R. PATTEN, Omaha, Nebr., assignor of one-half to Alfred Millard, Omaha, Nebr. Filed Sept. 27, 1901. Serial No. 76,201. (No model.)



Claim.—1. The combination with a car having a side opening, of a bar extending across said opening, a gripping-frame opposite said opening, and a detent hinged at one end to the gripper-frame to engage said bar with its other end, the hinges being arranged out of line, substantially as and for the purposes set forth.

2. The combination with a car having a side opening, of a bar extending across said opening, an adjustable stop on said bar, a gripping-frame opposite said opening, and a detent hinged at one end to the gripping-frame to engage said bar and stop with its other end, the hinges being arranged out of line, substantially as and for the purposes set forth.

3. The combination with a car having a side opening, of a bar extending across said opening, a gripping-frame opposite said opening with hinges arranged out of line, and a detent hinged at one end to the gripping-frame to engage said bar with its other end, the hinges being arranged out of line, substantially as and for the purposes set forth.

4. The combination with a car having a side opening, of a gripping-frame hinged to the car at one side of the opening and extending across said opening, and adjustable stops on the hinged end of the frame to limit its opening movement, substantially as described.

5. The combination with a car having a side opening, of a gripping-frame hinged to the car at one side of the opening, lugs projecting from the frame at its hinged end, and set-screws adjustable in said lugs to engage the car at the edge of the opening, substantially as set forth.

6. The combination with a car having a side opening, of a gripping-frame hinged to the car at one side of the opening, and a hand-lever connected to the frame and operative to swing the frame on its hinges, substantially as set forth.

7. The combination with a car having a side opening, of a gripping-frame hinged to the car at one side of the opening, and a hand-lever pivoted to the frame near its hinged end and having a projection beyond its pivot engaging the frame, substantially as and for the purpose set forth.

8. The combination with a car having a side opening, and a door to

close said opening, of a gripping-frame hinged to the car at one side of the opening, a hand-lever pivoted to the frame and operative to swing the frame on its hinges, said lever normally lying out of the path of the door, and a support for said lever to hold the latter in the path of the door, substantially as set forth.

9. The combination with a car having a side opening and a door to close said opening, of a bar extending across said opening, a gripping-frame hinged to the car on one side of the opening, a hand-lever pivoted to the frame and operative to swing the frame on its hinges, said lever normally lying in an inclined plane and resting on said bar out of the path of the door, and an elevated support on the bar to support said lever in the path of the door, substantially as set forth.

10. The combination with a car, of mail-bag-gripping devices, a delivery-rack hinged to the car, means to hold said rack in its elevated position, and means actuated by the gripping devices to release said holding means, substantially as set forth.

11. The combination with a car, of a hinged gripping-frame, a detent to hold said frame in operative position, a delivery-rack hinged to the car, means to hold said rack in its elevated position, and devices actuated by said detent when tripped to release said holding devices, substantially as set forth.

12. The combination with a car, of a hinged gripping-frame, a detent to hold said frame in operative position, a delivery-rack hinged to the car, a pivoted pin on the frame, a chain connected to the rack and engageable with the pin to hold said rack in elevated position, and a lever pivoted on the frame in position to be struck by the detent, and normally engaging said pin to hold the latter in operative position to support the rack, substantially as set forth.

13. The combination with a car having a side opening, of a mail-delivery rack hinged to the car adjacent to said opening, and means to prevent the rack from swinging down into a vertical plane, substantially as set forth.

14. The combination with a car having a side opening, of a mail-delivery rack hinged to the car adjacent to said opening, the front edge of said rack being curved, substantially as and for the purpose specified.

15. The combination with a car having a side opening, of a mail-delivery rack hinged to the car adjacent to said opening, the front edge of said rack being curved, and means to prevent said rack from swinging down into a vertical plane, substantially as set forth.

16. A mail-delivery rack, consisting of a series of longitudinally-extending bars, and a series of cross-bars secured thereto, the outer ends of said cross-bars being curved, substantially as set forth.

17. The combination with a car, of mail-bag-gripping devices, a delivery-rack hinged to the car, means to hold said rack in its elevated position, means actuated by the gripping devices to release said holding means, and an inclined surface independent of the car and rack to receive the mail discharged from the rack, substantially as described.

18. The combination with a car, of a mail-bag-delivery rack hinged thereto, a pivoted pin supported by the car, a pivoted lever also supported by the car in position to engage said pin to hold it in operative position and movable to release the pin to permit the latter to move to inoperative position, and a connection attached at one end to the rack and engageable with the pin to hold the rack in its elevated position, substantially as set forth.

19. A tripping device comprising a support, a pin pivoted on said support and provided with a tailpiece, and a lever pivoted to said support and having a long and a short arm, the short arm engaging the said tailpiece and the long arm offset from the short arm and holding the latter in engagement with the tailpiece by gravity, substantially as set forth.

20. The combination with a car having a side opening, of a mail-delivery rack hinged to the car near the bottom of said opening to project outwardly from the car, releasable devices to hold said rack in a substantially horizontal plane outside the car, and a stop to limit the downward swing of the rack when released, substantially as set forth.

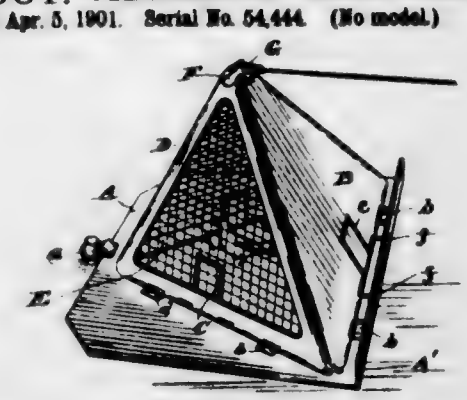
21. The combination with the crane-arms, of the pivoted fingers 30 having plate portions resting against the arms, and friction-plates secured to the arms and overlying the plate portions, substantially as set forth.

693,900. **BREECH-CLOSURE.** HERBERT J. PERRY, Cheshunt, England. Filed June 19, 1901. Serial No. 65,096. (No model.)



Claim.—In a breech-closure the combination with a socket or breech provided interiorly with a plurality of continuously or uninterruptedly threaded portions arranged in a stepped manner and increasing successively in diameter outwardly, of a plug provided with a corresponding number of exterior uninterrupted threads increasing successively in diameter and corresponding to and adapted to engage the separate threads of the socket or breech; the said screw-threads being of the same width.

693,901. **RELEASING-TRAP.** GUSTAVE N. PORTMAN, Peoria, Ill. Filed Apr. 5, 1901. Serial No. 54,444. (No model.)



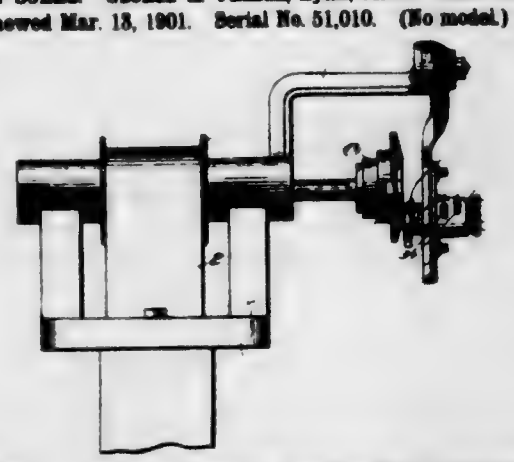
Claim.—1. A trap of the character described consisting of wings hinged to a support and arranged in such a position that when closed together will form a cage, springs on certain of the wings to open them away from one another as described, a wing hinged to said support in the region of the other, a catch thereon for holding the other wings together to form the said cage together with the wing on which said catch is carried, and a spring on the latter wing to move it toward those with which it locks for the purposes set forth and described.

2. A trap of the character described comprising a supporting-bottom, a series of wings hinged thereto, springs on certain of said wings for throwing them outward from the center, a wing hinged to said bottom in the region of the other wings and having a spring to operate it to force it against said other wings, a catch on the latter wing for locking the entire number together and means for withdrawing the wing carrying said catch away from the other wings to liberate them and permit them to fly open as set forth and described.

3. A trap of the character described comprising a bottom, a series of wings of triangular form hinged thereto, their bases forming an equilateral triangle and arranged when brought together to form a cage for the purposes described, springs on two of the wings for throwing them outward and away from each other, and each having a wire screen for the purposes set forth, the third wing also having a spring for forcing it against the first two, a catch on the apex of the latter wing for engaging and holding the said first wings against movement, said third wing adapted to swing on its hinge after liberating the others for the purposes set forth and described.

4. A trap of the character described consisting of the bottom A, wings B, D and E hinged thereto, the latter two being open and provided with a wire-netting for the purposes set forth, a spring on each of the wings as set forth and for the purposes described, a catch F on the wing B for locking all three of the wings together, means for preventing shot entering the trap from behind or beneath the wing B, a detachable hinge connection for the several wings which consists of a hinge-rod *e*, hinge-sections *b b* secured to the bottom A, and a hollow turned lower edge adapted to receive the said hinge-sections *b b* and the spring and all secured together by said rod *e* substantially as set forth and for the purposes described.

693,902. **MACHINE FOR CHAMFERING AND FEATHER-EDGING SOLES.** GEORGE L. PREBLE, Lynn, Mass. Filed Mar. 17, 1898. Renewed Mar. 13, 1901. Serial No. 51,010. (No model.)



Claim.—1. In a machine of the class described, a rotary cutter-head, a gage-carrier located in fixed position in front of and adjacent said head, and independently-adjustable edge-gages mounted on the carrier, for and to

bear upon the edge of the shank and body portions of the sole respectively, whereby the width of the chamfer on the sole can be varied at the shank and body portions thereof as the edge of the sole is moved over said gages one after another, substantially as described.

2. In a machine of the class described, a rotary cutter-head, a gage-carrier in front of and adjacent the head, two sets of side and face gages mounted on the carrier, and means to adjust the sets of gages independently toward or from the axis of rotation of the cutter-head, substantially as described.

3. In a machine of the class described, a rotary cutter-head, a gage-carrier in front of and adjacent the head, two sets of side and face gages mounted on the carrier, means to adjust the sets of gages in a direction substantially radial to the axis of the cutter-head, and independent means to adjust the gages toward and from the face of the head.

4. In a machine of the class described, a gage-carrier, slide-blocks independently movable on said carrier, means to retain them in adjusted position, separate edge and face gages mounted on each block, and means to adjust said gages independently, substantially as described

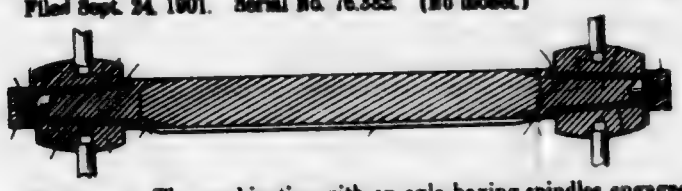
5. In a machine of the class described, a gage-carrier, slide-blocks independently movable on said carrier, means to retain them in adjusted position, separate edge and face gages provided with shanks extended into the blocks, means to move the shanks in or out to adjust the gages, and clamping devices to retain the shanks and their attached gages in adjusted position, substantially as described.

6. In a machine of the class described, a rotary cutter-head, a gage-carrier, an adjustable edge-gage mounted on the carrier and having a convex face to bear on the edge of the sole, an adjacent independent face-gage, to bear on the face of the sole, and means to adjust said gages, substantially as described.

7. A cutter-head having radially-disposed knives mounted upon its face, an edge-guard on the periphery of the cutter-head adjacent the outer end and cutting edge of each knife, and independent means to adjust each of the edge-guards, substantially as described.

8. A radially-slotted cutter-head, knives mounted in the slots thereof, a recess in the periphery of the head adjacent the outer end of each knife, an edge-guard mounted in each recess and having an outturned lip, and means to adjust the guard to elevate the lip thereof relatively to the face of the cutter-head, substantially as described.

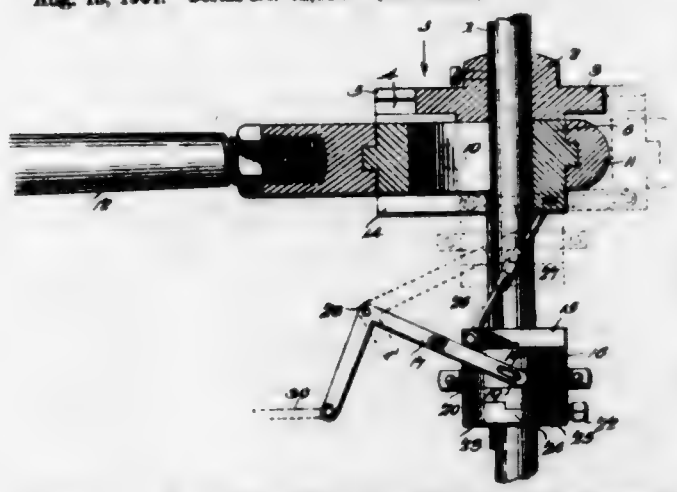
698,903. WAGON-SPINDLE. CALVIN PUTNAM, Anderson, Mo. Filed Sept. 24, 1901. Serial No. 76,382. (No model.)



Claim.—1. The combination with an axle having spindles engaged therewith and provided with hooks, of a single, rigid holding-bar secured flat against the axle and having terminal hooks engaged over the hooks of the spindles to hold the spindles in position.

2. The combination with a spindle having an enlarged inner end provided with an angular flange projecting over and concentric with the reduced portion of the spindle, of a wheel disposed upon the spindle and having a boxing engaged within the flange, and a nut engaged with the spindle and having a flange in which is received the outer end of the boxing.

698,904. REVERSING MECHANISM. CHARLES E. RAINS, Chanute, Kans., assignor of one-half to L. E. Elsten, Chanute, Kans. Filed Aug. 15, 1901. Serial No. 72,180. (No model.)



Claim.—1. In a device of the class specified, the combination of the shaft, an eccentric-support secured thereto, an eccentric carried by the support and adjustable thereon, an adjusting-collar mounted on the shaft and connected to the eccentric, a locking-collar on said shaft, said locking-collar and eccentric forming the two limits of movement of the adjusting-collar and being adapted to receive and interlock with said collar.

2. In a device of the class specified, the combination of the shaft, an eccentric-support secured thereto, a slotted eccentric carried by the support and adjustable thereon, locking-ribs provided on one side or face of the eccentric, an adjusting-collar having clutch-faces at its opposite ends, connecting rods or bars extending between the collar and the eccentric, and adapted to be interlocked between one of the clutching-faces of the collar and the eccentric locking-ribs, and a locking-collar adjustable on the shaft and adapted to be engaged by the opposite clutch-face of the adjusting-collar, substantially as specified.

3. In a device of the class specified, the combination of the shaft 1, an eccentric-support 2 secured to the shaft and provided with guides 3, an eccentric 6 having a diametral slot for the passage of the shaft, adjustable plates 5 secured to the eccentric and having guiding-faces adapted to said guides 3, locking-ribs 14 arranged on the opposite face of the eccentric, an adjustable locking-collar 23 secured on the shaft and having a clutch-face 24, an adjusting-collar 16, having clutch-faces at its opposite ends, an operating-lever 17 adapted to engage with said adjusting-collar, and adjustable connecting bars or rods 26 extending between the adjusting-collar and the eccentric, substantially as specified.

698,905. CONSTRUCTION OF CEILINGS AND WALLS. AUGUST RINCKLAKE, Münster, Germany. Filed June 22, 1898. Serial No. 721,514. (No specimens.)



Claim.—The method of constructing a tant ceiling or wall consisting in extending in the plane of said ceiling or wall, a loose fabric to which plaster is adapted to adhere and in proximity thereto, a wide-meshed net of a fibrous material, adapted to contract when moistened and dried, and applying to said net and fabric moist plaster, substantially as set forth.

698,906. MANUFACTURE OF ARTIFICIAL STONES, TILES, &c. EDUARD ROTT, Dassel, Germany. Filed Oct. 19, 1900. Serial No. 33,645. (No specimens.)

Claim.—1. The process of making artificial-stone compound, which consists in mixing natural clay with cream of lime and subjecting the mixture to steam under pressure, substantially as described.

2. The process of making artificial-stone compound, which consists in mixing fat clay with milk of lime and subjecting the mixture to steam under pressure, substantially as described.

3. The process of making artificial-stone compound, which consists in mixing clay, lime and water to a dough, subjecting the mixture to steam under pressure of not over twenty-five atmospheres, substantially as described.

4. The process of making artificial-stone compound, which consists in mixing clay with thirty per cent. of lime and then adding water to form a dough and subjecting the mixture to steam under pressure of not over twenty-five atmospheres in a closed vessel, substantially as described.

698,907. SAFETY DEVICE FOR ELEVATORS. HAROLD ROWNTREE, Chicago, Ill., assignor to Burdett-Rowntree Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed May 20, 1901. Serial No. 61,018. (No model.)

Claim.—1. In an elevator, safety devices, and means for automatically varying the speed at which the safety devices are actuated, as and for the purpose set forth.

2. In an elevator, the combination of safety devices, and means controllable from the car for varying the speed at which the safety devices are actuated, as and for the purpose set forth.

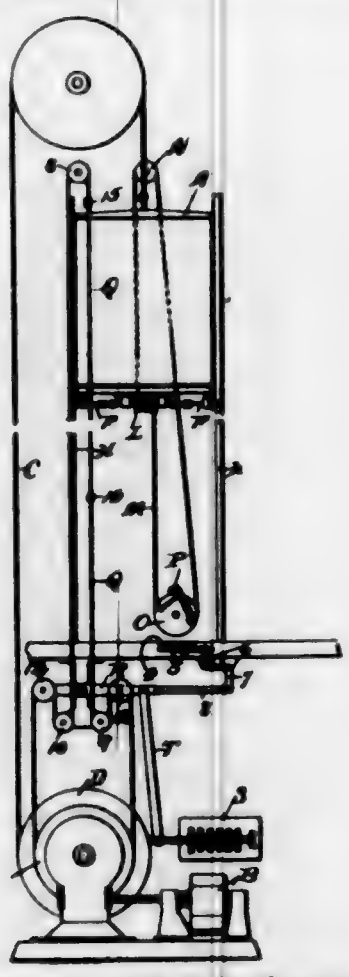
3. In an elevator, the combination of safety devices arranged to be actuated by an undue speed of travel of the car, and means for varying the point at which the safety devices are actuated with reference to the speed of travel of the car, as and for the purpose set forth.

4. In an elevator, a car, safety devices for arresting the car when said car attains an undue speed, and means for automatically varying the point at which the safety devices are actuated according as the speed of the car varies, as and for the purpose set forth.

5. In an elevator, a car, means for controlling the speed of the car, safety devices for arresting the car when it attains an undue speed, and means for varying the point at which the safety appliances operate in corresponding relation to the variation in speed of travel of the car, as and for the purpose set forth.

6. In an elevator, the combination of a car and safety devices there-

for, of means for controlling the speed of travel of the car, and means for correspondingly varying the speed at which the safety devices will be actuated, as and for the purpose set forth.



7. In an elevator, a car, safety devices therefor, means actuated by the speed of travel of the car for throwing the safety devices into action, and means for automatically varying the speed at which the safety devices are actuated, as and for the purpose set forth.

8. In an elevator, a car, safety devices therefor, means actuated by the speed of travel of the car for throwing the safety devices into action, means for controlling the speed of the car, said means operating to automatically vary the point at which the safety devices are operated, as and for the pupose set forth.

9. In an elevator, a car, safety devices for arresting the car when the latter attains an undue speed, means for controlling the speed of the car, and means actuated coincidently with the actuation of said speed-controlling means for varying the speed at which the safety devices will operate, as and for the purpose set forth.

10. In an elevator, a car, safety devices therefor, means for controlling the speed of the car, and means actuated by said speed-controlling means for varying the point at which the safety devices will be actuated, as and for the purpose set forth.

11. In an elevator, a car, safety devices therefor, means for controlling the speed of the car, means for automatically reducing the speed of the car as it nears the end of its travel, and means actuated coincidently with the actuation of said speed-reducing means for varying the speed at which the safety devices will be actuated, as and for the purpose set forth.

12. In an elevator, a car, means controllable from the car for varying the speed of travel thereof, safety devices for arresting the car when it attains an undue speed of travel, and means actuated by said speed-controlling means for varying the point at which the safety devices will be actuated, as and for the purpose set forth.

13. In an elevator, a car, a hoisting-motor therefor, controlling mechanism for said motor, safety appliances for arresting the motor when it attains an undue speed, a control-cable for actuating said controlling mechanism, means for causing said control-cable to travel at a slower speed than the speed of travel of the car, and means actuated coincidently with the actuation of said control mechanism for varying the speed at which said safety appliances operate, as and for the purpose set forth.

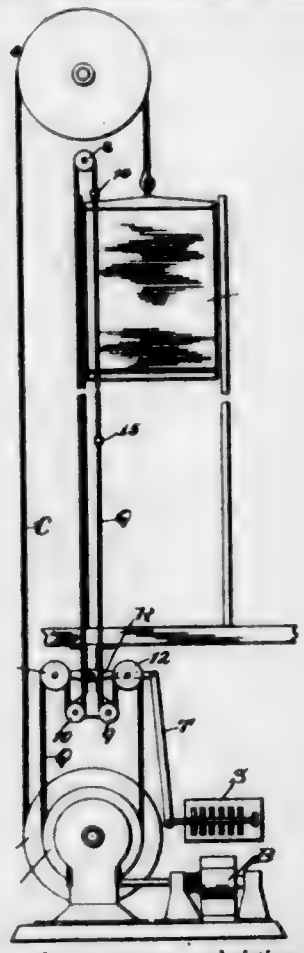
14. In an elevator, a car, a motor therefor, controlling devices for said motor including a running cable, means for imparting a travel to said cable at a slower speed than the speed of travel of the car, means for automatically actuating said cable as the car approaches the limits of its travel, safety appliances, and connections for varying the speed at which said safety appliances operate, said connections being operated by the actuation of said cable, as and for the purpose set forth.

15. In an elevator, a car, a hoisting-motor therefor, controlling devices therefor including a running cable, means for imparting a travel to said cable at a slower speed than the speed of travel of the car, stops mounted on said cable and arranged to be engaged by the car as it approaches the limits of its travel, safety devices for the car, and means actuated from said cable for automatically varying the speed at which said safety devices operate, as and for the purpose set forth.

16. In an elevator, a car, safety devices therefor, means for automatically reducing the speed of travel of the car as it approaches the limits of its movement, and means actuated coincidently therewith for varying the speed at which said safety devices operate, as and for the purpose set forth.

17. In an elevator, a car, safety devices therefor, means for automatically reducing the speed of travel of the car as it approaches the limits of its movement, and means actuated thereby for correspondingly varying the speed at which the safety devices operate, as and for the purpose set forth.

693,908. CONTROLLING MECHANISM FOR ELEVATOR-HOISTING MOTORS. HAROLD ROWNTREE, Chicago, Ill., assignor to Burdett-Rowntree Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Original application filed May 20, 1901, Serial No. 61,018. Divided and this application filed Sept. 9, 1901. Serial No. 74,733. (No model.)



Claims.—1. In an elevator, a car, a hoisting-motor therefor, and means for controlling said motor including a cable, and means for moving said cable at a slower speed than the speed of travel of the car, as and for the purpose set forth.

2. In an elevator, a car, a hoisting-motor, a motor-controlling cable, and means for driving said cable in the same direction with but at a slower speed than the car, as and for the purpose set forth.

3. In an elevator, a car, a hoisting-motor therefor, connections between said motor and car, a control-cable arranged to travel in the same direction as the car but at a different speed, and means controllable by said cable for varying the speed of travel of the car, as and for the purpose set forth.

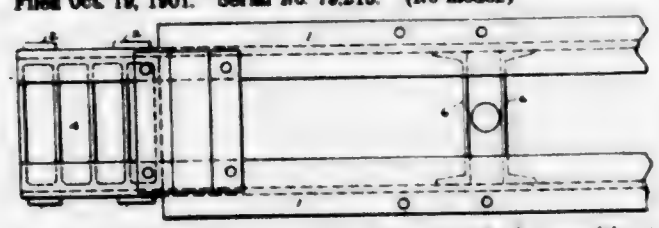
4. In an elevator, a car, a hoisting-motor therefor, a running control-cable, motor-controlling mechanism for controlling the direction and speed of the car, connections between said running control-cable and said motor-controlling mechanism, and means whereby the control-cable runs at a different speed from but in the same direction as the car, as and for the purpose set forth.

5. In an elevator, a car, a hoisting-drum, means for actuating the same, a sheave or pulley mounted on the shaft of said drum but of smaller diameter than said drum, a control-cable operating over said sheave or pulley, moter-controlling devices, and connections between said control-cable and said controlling devices, as and for the purpose set forth.

6. In an elevator, a car, a hoisting-motor therefor, controlling mechanism for said motor including a controller, a rocking lever, connections between said lever and controller, sheaves carried by said lever, a control-cable, fixed guide-sheaves therefor, said cable operating over the pulleys

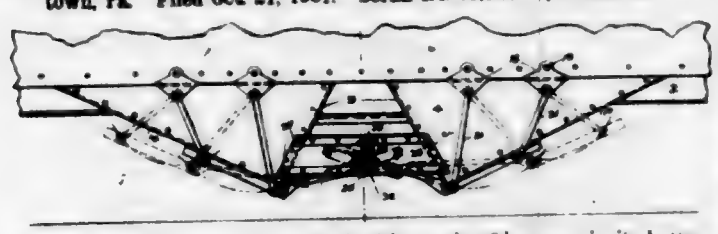
on said lever, and a sheave actuated by said motor for driving said cable at a slower speed from but in the same direction with the travel of the car, as and for the purpose set forth.

693,909. **TRUCK-BOLSTER.** RALPH V. SAGE, Johnstown, Pa. Filed Oct. 19, 1901. Serial No. 79,215. (No model.)



Claim.—An improved bolster of the class described, comprising two I-beams parallel to each other, having their outside flanges at the ends cut away; plates secured on the outside of said ends to serve as guides for the truck-columns; malleable castings secured between the ends of the beams and adapted to receive the bolster-springs; and a pair of channels secured between said beams intermediate the ends of said bolster and adapted to receive the king-pin between them.

693,910. **DOOR FOR HOPPER-CARS.** RALPH V. SAGE, Johnstown, Pa. Filed Oct. 21, 1901. Serial No. 79,341. (No model.)



Claim.—1. In a car provided with a pair of hoppers in its bottom divided in their center longitudinally of the car by the center sill, and having walls extending from each side of said sill to the bottom of said hoppers forming a well in the bottom of each hopper extending upward, said hoppers having transverse openings in their bottom, doors adapted to close said openings, pivoted arms carrying said doors, a rock-shaft extending transversely beneath the car, arms carried by said rock-shaft, and links connecting the said doors with said arms and adapted to move in said wells.

2. In a car provided with a pair of hoppers in its bottom, having openings in their bottoms, doors adapted to close said openings, a rock-shaft between said hoppers, pivoted arms carrying said doors, arms carried by said rock-shaft, links connecting said rock-shaft arms and said doors, and means for operating the same.

3. In hopper-cars, having a plurality of spaced hoppers, doors adapted to close the discharge-openings in said hoppers, arms pivoted at the sides of the car and to the ends of the doors, rock-shafts between each pair of hoppers connected with the door of each of said pair of hoppers, and means to rock said shaft to open and close said doors.

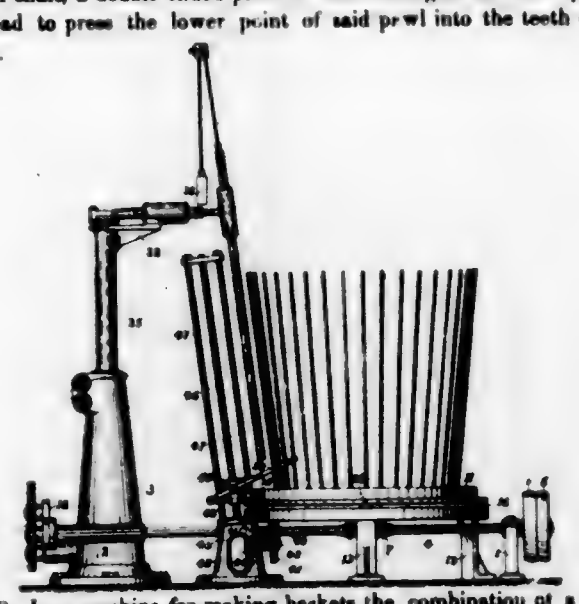
4. In hopper-cars, provided with a series of hoppers extending transversely of the car, doors adapted to close the discharge-openings of such hoppers, arms pivoted to the sides of the car and to the ends of such doors, a rock-shaft extending across beneath the car between each pair of such hoppers, arms carried by such shaft, links connecting said rock-shaft arms with the doors of the hopper on each side of said shaft and means for operating the same.

5. In a car provided with a hopper in its bottom, said hopper having an inclined bottom and an opening therein, a door adapted to close such opening, pivoted arms carrying such door, and a rock-shaft located in proximity to such hopper and connected with said door, said shaft adapted to open and close said door.

693,911. **MACHINE FOR MAKING BASKETS.** OSCAR SCHLEICHER, Heinsberg, Germany. Filed Feb. 4, 1901. Serial No. 46,018. (No model.)

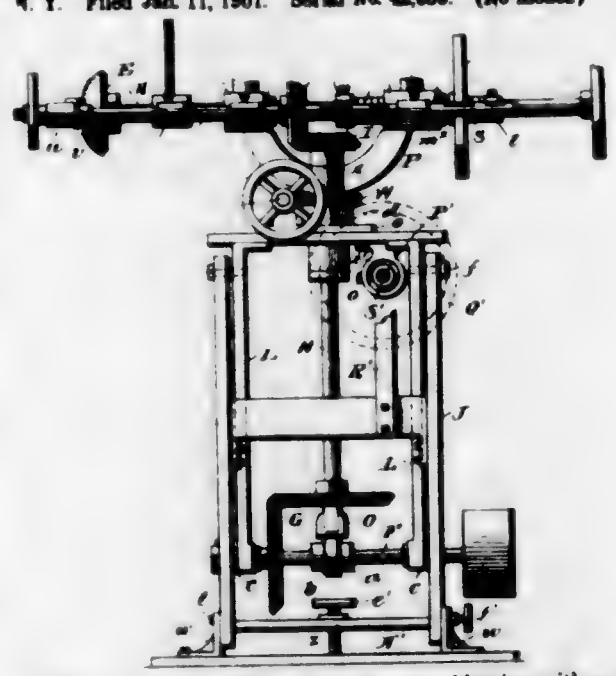
Claim.—1. A machine for making baskets, comprising a rotatory table provided with removable auxiliary iron or steel rods, means for supporting and rotating said table, self-adjusting means for batting down the intertwining material as the work advances, a standard carrying a longitudinally and radially adjustable post, a rotatory shaft therein for imparting motion to the tube guiding the intertwining material around the stakes of the basket, and means for operating these several parts.

2. In a machine for making baskets the combination of a rotating shaft with a rotatory table having a plurality of removable auxiliary iron or steel rods, a worm upon said shaft imparting motion to the worm-wheel of said rotatory table, a frame supporting said table, a spur-wheel upon said rotating shaft meshing with another spur-wheel whose shaft imparts motion to an inclined shaft by means of miter-wheels located in a standard, guide-rods upon said standard parallel with inclined shaft, a traverse sliding upon said guide-rods, a rotating head in said traverse, a batting-iron hinged to said traverse, its pins entering a groove in said head which in rotating actuates said batting-iron, a toothed groove in said inclined shaft, a double-ended pawl in said rotating head, and a spring in said head to press the lower point of said pawl into the teeth of said groove.



3. In a machine for making baskets the combination of a rotatory table, provided with a number of removable auxiliary iron or steel rods, with means for rotating said table, means for imparting motion to an inclined shaft, a head slidingly mounted upon said shaft imparting motion to the batting-iron self-adjusting means within said head, a spur-wheel upon the end of the main driving-shaft, an idler meshing with it and another spur-wheel imparting motion to a vertical shaft, held in a longitudinally and radially adjustable post, by means of miter-wheels, a crank-disk at the end of said vertical shaft actuating a sliding bar guided in a sleeve upon an arm of said adjustable post, a tube in the T-shaped head of said sliding bar, and means to counterbalance said tube.

693,912. **BUFFING-MACHINE.** JOHN M. SELMAYER, Rochester, N. Y. Filed Jan. 11, 1901. Serial No. 42,859. (No model.)



Claim.—1. In a buffing-machine, the combination with an upright shaft, of a revolving buffing-shaft axially mounted thereon and adapted to swing in a plane at right angles thereto, substantially as described.

2. In a buffing-machine, the combination with an upright shaft, of a revolving lengthwise-movable buffing-shaft and clamp axially mounted thereon and adapted to swing in a plane at right angles thereto, substantially as described.

3. In a buffing-machine, the combination with an upright shaft, of a revolving lengthwise-movable and laterally-adjustable buffing-shaft and clamp axially mounted thereon and adapted to swing in a plane at right angles thereto, substantially as described.

4. In a buffing-machine, the combination with an upright revolving shaft, of a revolving lengthwise-movable buffing-shaft and clamp axially mounted thereon and rotated thereby, substantially as described.

5. In a buffing-machine, the combination with an upright revolving shaft, of a revolving lengthwise-movable buffing-shaft and clamp positively driven thereby, means for oscillating said upright shaft and buffing-shaft, and means for rotating said buffing-shaft in a plane at right angles to said upright shaft, substantially as described.

6. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the horizontal buffing-shaft and the clamp, and means for shifting the buffing-shaft and clamp lengthwise, as and for the purposes set forth.

7. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the horizontal lengthwise-adjustable buffing-shaft and the clamp, and the worm and worm-gear for swinging the buffing-shaft about a vertical axis, as and for the purposes set forth.

8. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the horizontal lengthwise adjustable buffing-shaft and clamp, and the screw for adjusting the position of the oscillating frame, as and for the purposes set forth.

9. The combination with the main frame of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the horizontal lengthwise-adjustable buffing-shaft and clamp, the screw for adjusting the position of the oscillating frame, and the worm and worm-gear for swinging the buffing-shaft about a vertical axis, as and for the purposes set forth.

10. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the lengthwise-adjustable buffing-shaft and clamp, the threaded sleeve on the shaft, the nut on the sleeve, and suitable connecting-gearing for revolving the nut by power, as and for the purposes set forth.

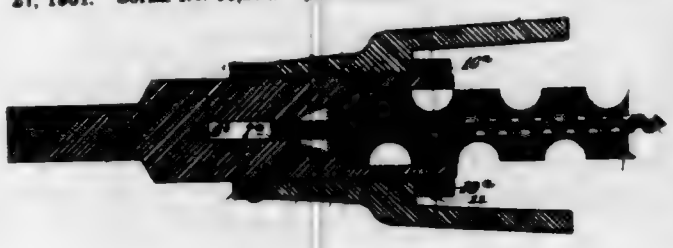
11. The combination with the main frame, of the driving-shaft, the oscillating frame arranged to swing thereon and carrying the upright shaft, the gearing, the lengthwise-adjustable buffing-shaft and clamp, the threaded sleeve on the shaft, the nut on the sleeve, the connecting-gearing, and the pivoted arm carrying the reversing-gears, whereby the nut is revolved positively in either direction, as and for the purposes set forth.

693,913. PERCOLATOR. JOSHUA C. SENEY, Waxahachie, Tex. Filed Mar 21 1901. Serial No. 52,236. (No model.)



Claim.—In a device of the class specified, a foraminous vessel comprising a body and a lid hinged thereto, a spring-catch for holding the two in locked position, a supporting-leg rigidly secured to the bottom of the body, and a lifting-handle rigidly secured to the upper portion of the lid, the whole structure when closed being rigid and adapted for ready insertion into a pot or other vessel, substantially as specified.

698,914. BIT. RILEY A. SHAFER, Bellefontaine, Ohio. Filed June 27, 1901. Serial No. 66,217. (No model.)



Claim.—1. In combination, a stock, bore and counterbore bits held therein, said bits having longitudinal adjustment relative to each other, and a sleeve upon the stock which is rotatable within the sleeve.

2. In combination, a stock, bore and counterbore bits held therein, said bits having longitudinal adjustment relative to each other, a sleeve within which the stock is rotatably mounted, said sleeve having longitudinal adjustment upon the stock.

3. In combination, a stock, a beveled socket in the stock, a counterbore-bit whose shank is adapted to engage said beveled socket, a main bore-bit, and a socket to receive the shank thereof.

4. In combination, a stock, a bore-bit, a counterbore-bit having a beveled screw-threaded shank, and a beveled screw-threaded socket in the stock adapted to receive said shank.

5. In combination, a stock, a counterbore-bit having a beveled split shank, a main bore-bit extending longitudinally and centrally within the counterbore-bit and adapted to be clamped by the said shank, and a beveled socket in the stock adapted to receive said shank.

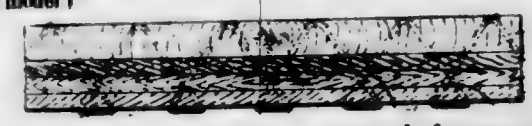
6. In combination, a stock, a bore-bit, a counterbore-bit having a beveled, screw-threaded shank, and a beveled screw-threaded socket in the stock adapted to receive said shank.

7. In combination, a stock, a screw-threaded beveled socket, and a guide-socket, therein, a main bore-bit having a shank adapted to enter the guide-socket, a counterbore-bit having a beveled, screw-threaded split shank adapted to enter the screw-threaded socket and to bind the shank of the main bore-bit.

8. In combination, a stock, adjustable collars thereon, a revoluble sleeve upon the stock, adjustably held between the collars, a socket in the stock, and a bit held in the socket.

9. In combination, a stock, a relatively revoluble sleeve thereon, longitudinally-adjustable collars upon the stock to retain the sleeve, the lower portion of the sleeve being offset outwardly outside of and below the lower collar, and a bit held in stock.

693,915. COMPOUND LUMBER OR STRUCTURE. GODFREY L. SMITH, Newport News, Va. Filed June 22, 1901. Serial No. 65,639. (No model.)



Claim.—1. A compound structure composed of superposed layers of material, the layers having a series of perforations throughout their extent having a direction varying substantially from an angle of ninety degrees, and being secured together by a strand passing through said perforations, substantially as described.

2. A compound structure composed of superposed layers of material, the layers having a series of perforations throughout their extent having a direction at an angle other than ninety degrees, the axes of said perforations being coincident in pairs at the surface of the structure, and a strand passing through said perforations and lying below the surface at the point of coincidence of the axes of the perforations, substantially as described.

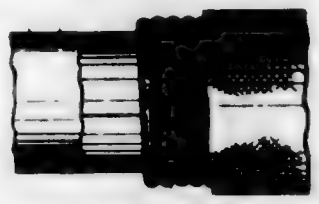
3. A compound structure composed of superposed layers of material, the layers having a series of perforations throughout their extent having a direction at an angle other than ninety degrees, said perforations being spaced apart on one side of the structure and on the other side having their axes coincident in pairs, and a strand passing through said perforations, said strand connecting the perforations on the side of the structure where the perforations are spaced apart and on the opposite side of the structure lying within the apertures formed by the coincidence of the axes of the perforations in pairs, substantially as described.

4. A compound structure composed of superposed layers of material, the layers having a series of perforations throughout their extent having a direction at an angle other than ninety degrees and extending obliquely to a vertical plane through the series of perforations of each "seam" or row, and a strand passing through the series of perforations, substantially as described.

5. A compound structure composed of superposed layers of material, the layers having a series of perforations throughout their extent having a direction at an angle other than ninety degrees, the axes of said perforations being coincident in pairs at the surface of the structure, a strand passing through said perforations and lying below the surface at the point of coincidence of the axes of the perforations, and plugs fitting in the perforations at the point of coincidence to form a smooth surface at such points, substantially as described.

6. A compound structure composed of superposed layers of material, and strands threaded through the several layers at an angle so as to increase the strength against either tensile or shearing strain beyond that of a right-angular cross-section of the strand by presenting an elongated cross-section of the strand to the layers, substantially as described.

693,916. CONDUIT FOR ELECTRIC WIRES. EDWARD D. SPEER and HORACE N. SPEER, New York, N. Y. Filed Oct. 25, 1901. Serial No. 79,993. (No model.)



Claim.—1. A duct for electric wires having a fireproof inner tube of flexible material, a layer of fireproof cord thereon and a cover of fireproof material outside of all, substantially as described.

2. A duct for electric wires having an inner tube composed of a longitudinally-arranged sheet of flexible fireproof material, a waterproof coating on said tube, a layer of fireproof cord on said tube, a fireproof cover outside of the cord, and a waterproof coating on said cover, substantially as described.

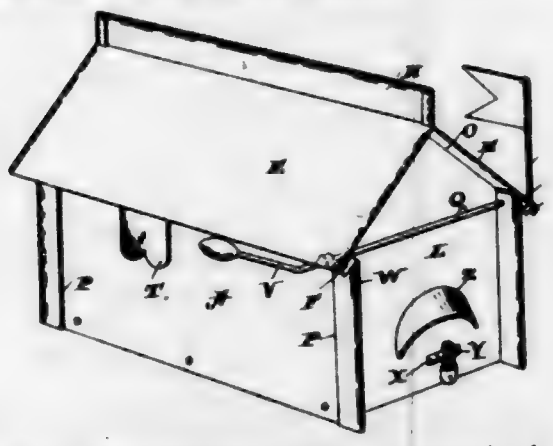
3. A duct for electric wires having an inner tube composed of a fireproof flexible longitudinally-arranged sheet of material, a waterproof coating thereon, a spirally-wound fireproof cord outside of said tube, a fireproof cover outside of said cord, and a waterproof coating on said cover, substantially as described.

4. A duct for electric wires having an inner tube composed of a fireproof flexible longitudinally-arranged sheet of material, a waterproof coating on said tube, rows of fireproof cord on the outside of said tube, a cover on said cord, and a waterproof coating on said cover, substantially as described.

5. In a duct for electric wires, the combination with outer layers of a longitudinally-arranged perforated fireproof inner tube, substantially as described.

6. In a duct for electric wires, the combination of an inner flexible longitudinally-arranged fireproof sheet forming a tube, a layer of cord around outside said tube, and a cover on the cord, substantially as described.

693,917. MAIL-BOX. ALONZO STAHEL, Yorkville, Ill. Filed Mar. 27, 1901. Serial No. 53,106. (No model.)



Claim.—1. The combination with a box or receptacle, of an oscillating shaft passing transversely through the said box and having its ends projecting beyond the outer side of the box, a signal connected with and extending at right angles to one end of the said shaft, and an operating-arm connected with the opposite end of the said shaft and extending at an angle thereto, and stops for limiting the movement of the said shaft when the signal is in its exposed and unexposed positions, substantially as described.

2. The combination with a box or receptacle, of a rock-shaft supported thereby, a signal carried by said shaft, and a weighted arm extending at right angles to said shaft, the shaft adapted to be oscillated by the weighted arm and the weighted arm carried to opposite sides of the axis of said shaft, substantially as described.

3. The combination with a box or receptacle, of a rock-shaft supported thereby and having a screw-threaded end, a signal-supporting arm carried by said shaft and disposed at right angles thereto, a coupling adapted to be positioned on said screw-threaded end of the shaft, a weighted arm attached to said coupling and adapted to extend at right angles to the shaft and signal-supporting arm, and stops for limiting the rocking movement of the shaft in reverse directions, substantially as described.

4. The combination with a box or receptacle, of a rock-shaft supported thereby and formed at one end with a shoulder and a signal-supporting arm disposed at right angles thereto and having its opposite end screw-threaded, a coupling adapted to be positioned on said screw-threaded end, a weighted arm attached to said coupling and adapted to be disposed at right angles to the shaft and signal-supporting arm, and stops for limiting the rocking movement of the shaft in reverse directions, substantially as described.

5. The combination with a box or receptacle having a top projecting beyond the side and end walls thereof, of a rock-shaft mounted at one end of the box, an arm at one end of the shaft and disposed at right angles thereto and carrying a signal and abutting the projecting end of the top and the projecting side thereof when in operative and inoperative positions respectively, means for rocking said shaft, and means for holding said arm against said projecting portions of the top of the box, substantially as described.

6. The combination with a box or receptacle having a swinging door, of a rock-shaft upon which said door swings, a signal carried by said rock-shaft, means for rocking said shaft, and means for holding the signal in operative or inoperative position, substantially as described.

7. The combination with a box or receptacle having a swinging door, of a rock-shaft upon which said door swings, a signal carried by said rock-shaft, locking means for holding said door closed, means for rocking said shaft, and means for holding the signal in operative or inoperative position, substantially as shown and described.

8. A box having top, side and bottom walls formed with coengaging grooves and flanges, said top wall having inwardly-facing grooves at its end edges, and end walls each having one end formed with outwardly-extending flanges to take the grooves of the ends of the top wall, and its sides provided with inwardly-extending grooves to receive the end edges of the side walls, substantially as described.

9. A box having a top wall formed at its side and end edges with inwardly-facing grooves, side walls formed at their upper edges with flanges taking the grooves of the side edges of the top wall and at their lower edges with upwardly-facing grooves, a bottom wall having downwardly-extending flanges at its side edges taking the grooves of the side walls, and end walls having inwardly-facing grooves receiving the end edges of the side walls and outwardly-extending flanges taking the grooves at the end edges of the top wall, substantially as described.

10. The combination with a box or receptacle having a roof with projecting eaves, of a rock-shaft passing transversely through the box below the eaves, one end of the rock-shaft carrying a signal-arm projecting at right angles to the shaft, and the opposite end of the shaft provided with a weighted arm extending at right angles to the shaft and in an opposite direction to the said signal-arm, substantially as described.

11. The combination with a box or receptacle having eaves, of a transversely-arranged rock-shaft passing through the box below the eaves, a signal-arm carried by one end of the rock-shaft and projecting in a direction at right angles thereto, the signal-arm adapted to swing under the eaves when in one position and to swing in front of and abut against the end of the eaves when in the other position, substantially as described.

12. The combination with a box or receptacle having depending eaves, a rock-shaft passing transverse the box at a point below the eaves, one end of the rock-shaft having a signal-arm projecting therefrom and at right angles thereto and at a point adapted to swing under the eaves, the opposite end of the rock-shaft having a weighted lever at a point beyond or outside and adapted to swing free of the said eaves, substantially as described.

693,918. PROCESS OF FORMING BODIES BY ELECTRODEPOSITION. CARL STEINWEG, Lüdenscheid, Germany. Filed July 1, 1901. Serial No. 66,776. (No specimens.)

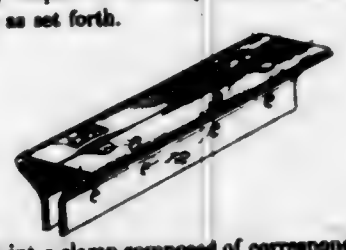


Claim.—A process of forming bodies by electrodeposition, consisting in providing sheet-metal matrices, partially dividing the same in several sections by a series of grooves, electrodepositing the metal upon the smooth surface of the matrix, and tearing out the several sections of the same, substantially as set forth.

693,919. RAIL-JOINT. BENJAMIN F. STEPHENS, Reeves, Tex. Filed June 28, 1901. Serial No. 66,411. (No model.)

Claim.—1. In a rail-joint, a clamp composed of complementary parts, each consisting of a base and a side portion, the base of one of the parts having openings comprising a wide and a narrow portion, and projections applied to the opposite part and comprising hooks and offstanding lips,

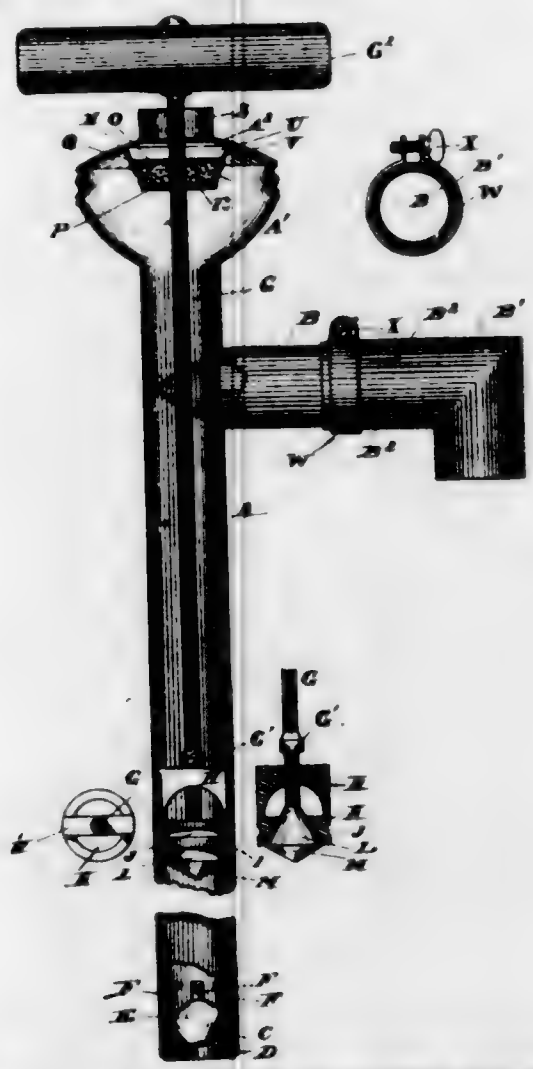
the said lips being adapted to underlap the base provided with the openings, substantially as set forth.



2. In a rail-joint, a clamp composed of corresponding parts each comprising a base and a side portion, the base of one of the parts having openings comprising a wide portion and a narrow portion, the inner edge portion of the base bordering upon the narrow part of the opening being upturned, and projections applied to the base portion of the other part and comprising a shank, a hook and an offstanding lip, the latter being adapted to underlap the upturned portion of the base bordering upon the narrow part of the opening, substantially as and for the purpose set forth.

3. In a rail-joint, a clamp constructed substantially as set forth, the same comprising similarly-formed members, rights and lefts, each member consisting of a base and a side portion, the base of one of the members having a series of openings formed of a wide and a narrow portion and having the inner edge of the narrow part of the opening upturned, and hooked-shaped projections applied to the base portion of the opposite member and formed with offstanding lips which are adapted to underlap the inner edge portion of the base bordering upon the narrow part of the opening, the interlocking of the members being effected by a relatively sliding movement, substantially as set forth.

698,920. PUMP FOR HANDLING HEAVY OILS. FRANK O. STERRETT, Henry, Ill. Filed May 6, 1901. Serial No. 59,049. (No model.)

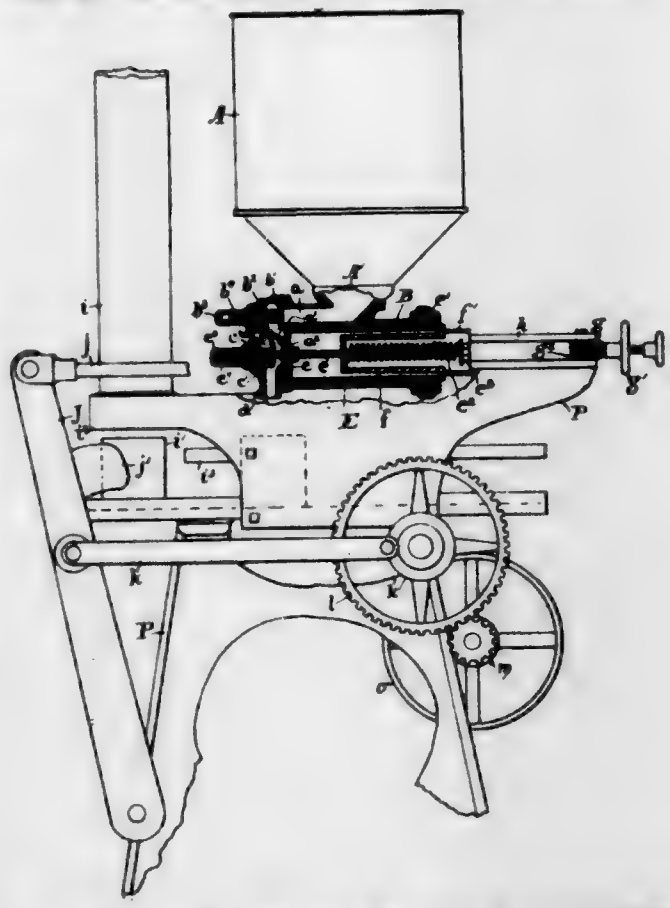


Claim.—1. In a pump of the character described, the combination of the tube A for insertion into the oil, the ball-valve E in the bottom thereof, the valve-stem G within the tube, the valve-block L, M, at the lower end of said stem, the upper surface of said block being a long taper, the flat portion H through which the valve-stem passes, the round portion I at the bottom, the large opening K through the latter, the base G′ on the valve-stem for limiting the vertical movement of the said stem through the plunger, the spout B on the tube for exit of the oil, the head A′ at the top of the tube, the cover A^2 therefor, the portion N secured to said cover A^2 through the bottom of which the valve-stem is made to pass, the packing Q and the cap P for retaining it in place all arranged substantially as described.

2. In a pump for handling heavy oils, the combination of the tube A, an inlet-valve E at the bottom thereof, the valve-stem G, the coned valve-block L, M, on the end of said stem, the plunger H having the large opening K therethrough and the beveled seat in the bottom thereof for the tapered portion L of the valve-block, the boss G′ for limiting the vertical movement of the valve-rod through the said block, the spout B for the exit of the oil, the flaring head A′ at the top of the tube A, the cover A^2 thereof, the depending cup N within the cover through the bottom of which the valve-stem passes, the packing Q in the said portion N, the cap P for holding said packing, the receptacle U above the packing, the catch-basin on top of the cover A^2 and the aperture V in the wall of said receptacle all arranged substantially as set forth.

3. In a pump of the character described, the combination of the tube A, the valve E in the bottom thereof, the spout B, the adjustable extensible portion thereon, the clamp W for securing it in place, the flaring head A′ on the upper end of the tube A, the cover A^2 therefor adapted to screw upon the latter, the depending portion N secured to the said cover A^2, the bottom O therein, the packing Q within the said portion N, the washer R and the cap P for retaining the packing in place, the receptacle U, the aperture V for draining it, and the catch-basin S all arranged substantially as and for the purposes specified.

698,921. CAN-FILLING MACHINE. HENRY R. STICKNEY, Portland, Me. Filed Jan. 28, 1901. Serial No. 44,957. (No model.)



Claim.—1. In a machine for filling cans with condensed milk the combination of a plunger and a cylinder therefor, an inlet-port and an outlet-port at the end of the cylinder, a filling-nozzle connecting with the outlet-port and adjacent thereto a check-valve for closing the outlet-port having a valve-stem in line with the plunger, a bonnet for containing the valve-stem and providing a bearing therefor, a spring for closing the valve and an inward-extending projection adapted to be struck by the end of the plunger to hold the valve open.

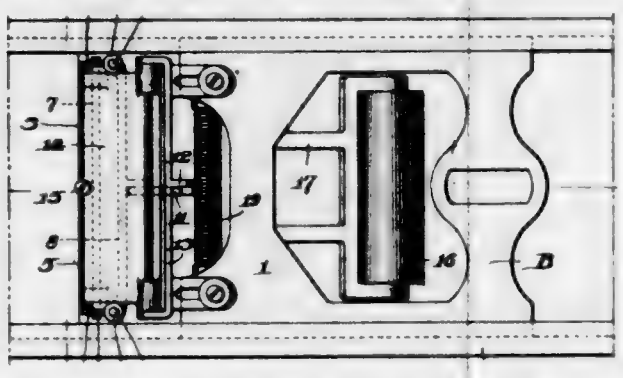
2. In a machine for filling cans, the combination of a cylinder having an inlet and an outlet port, a hollow plunger for said cylinder open at its rear end, a spring-case extending into said plunger from the rear end, a cross-head to which said spring-case is connected, a rod secured axially to the inner end of said plunger and extending through an opening in the spring-case, a spiral spring on said rod impinging against the inner end of the spring-case and the outer end of the rod an adjustable stop for limiting the backward motion of said rod and means for reciprocating said cross-head to impart motion to the plunger.

3. In a machine for filling cans the combination of a cylinder adjustably mounted on the frame of the machine and having an inlet and an outlet port, a hollow plunger for said cylinder open at its rear end, a spring-case extending into said plunger from the rear end, a cross-head to which said spring-case is connected, a rod secured axially to the inner end of said plunger and extending through an opening in the spring-case and the outer end of the rod, an adjustable stop for limiting the backward

motion of said rod, a washer adapted to be inserted between the plunger and the spring-case to hold them apart and means for reciprocating said cross-head to reciprocate the plunger.

4. In a machine for filling cans the combination of a cylinder adjustably mounted on the frame of the machine a plunger therefor inlet and outlet ducts, a filling-nozzle connected with the outlet-duct, a guideway for cans passing beneath said filling-nozzle, a vertical can-spout above said guideway and adapted to drop cans therein, an upright lever fulcrumed below said guideway, an offset on said lever for feeding the cans through said guideway, a connecting-rod at the top of said lever for reciprocating said plunger and means for oscillating said lever.

693,922. FEEDING DEVICE FOR FABRIC-CUTTING MACHINES. CLARENCE STONE, Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, New York, N. Y., a Corporation of New Jersey. Filed June 19, 1901. Serial No. 65,094 (No model.)



Claim.—1. In a feeder for fabric-cutting machines, the combination with the frame or support, of an independent lower jaws horizontally movable thereon, an upper jaw movable vertically toward and from the lower jaw, and a sliding connection between said jaws, substantially as described.

2. In a feeder for fabric-cutting machines, the combination with the frame or support, of an independent lower jaw horizontally movable thereon, a frame or support movable vertically toward and from the lower jaw, a coacting jaw on said latter frame or support, and a sliding connection between said latter frame or support and the lower jaw, substantially as described.

3. In a feeder for fabric-cuttting machines, the combination with the frame or support, of an independently-movable lower jaw thereon, posts on said jaw, a superposed frame movable toward and from said jaw, guides on said frame for the said posts, and a jaw on said frame, substantially as described.

4. In a feeder for fabric-cutting machines, the combination with the frame or support, of an independently-movable lower jaw thereon, a frame or support movable vertically toward and from the lower jaw, a coacting jaw on said latter frame or support, a sliding connection between said frame or support and the lower jaw, a plate or member pivotally connecting the two frames or supports, and a link or lever also pivotally connecting said frames or supports, substantially as described.

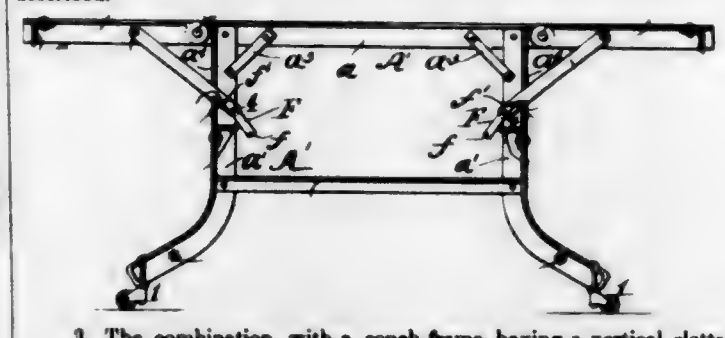
5. In a feeder for fabric-cutting machines, the combination with the frame or support, of an independently-movable lower jaw thereon, a frame or support, a coacting upper jaw pivoted thereon, a sliding connection between said latter frame or support and the lower jaw, a plate or member pivotally connecting the two frames or supports, adjusting means in said plate adapted to bear upon the forward portion of the upper jaw, and a link or lever also pivotally connecting said frames or supports, substantially as described.

6. In a feeder for fabric-cutting machines, the combination with the frame or support, of an independently-movable lower jaw thereon, a frame or support, a coacting upper jaw pivoted thereon, a sliding connection between said latter frame or support and the lower jaw, a plate or member pivotally connecting the two frames or supports, a set-screw in said plate adapted to bear upon the forward portion of the upper jaw, and a link or lever also pivotally connecting said frames or supports, substantially as described.

698,923. COUCH-BEDSTEAD. DAVID C. STORR, New York, N. Y. Filed Mar. 20, 1901. Serial No. 52,019. (No model.)

Claim.—1. As an automatic supporting and releasing device for swinging couch-bed sections, the combination, with a loosely-pivoted bar having a notch therein, and a loosely-pivoted depending trip-pawl on the free end of said bar, the trip-pawl embodying a flat plate having a squared lower end and a beveled upper end, the lower end being heavier and longer than the upper end, of a stop for engaging the said notch and a right-angled surface, for contact with the trip-pawl, substantially as shown and described.

2. An automatic supporting and releasing device for use in connection with couch-bedsteads embodying a couch-frame and swinging sides, comprising a swinging bar having a notch therein for engaging a shoulder, and a swinging trip-pawl on the free end of said bar, said trip-pawl adapted to engage over a right-angled surface and having a short extension to bear against the vertical part of said surface to carry the pawl into position to automatically throw the said rod, substantially as shown and described.



3. The combination, with a couch-frame having a vertical slotted extension comprising a shoulder and a vertical bearing-surface, and a horizontal projection, and a side swinging frame hinged to the couch frame, of a loosely-pivoted notched rod and a swinging trip-pawl on the free end thereof, the trip-pawl embodying a flat plate having a short upwardly-extended part and an elongated lower part, said trip-pawl adapted to engage the horizontal projection and the vertical extension of the frame and throw the notched rod, substantially as shown and described.

698,924. AUTOMATIC SPRINKLER. WILLIAM H. STRATTON, Hartford, Conn. Filed Jan. 8, 1897. Serial No. 618,441. (No model.)



Claim.—1. In combination in a sprinkler, a sprinkler-body having a fluid-way therethrough, a cap secured to the body part and having an opening registering with the fluid-way in the valve-body, a chamber within the cap and between it and the valve-body, a spiral spring located within the chamber, and a frangible stopple seated on said spring and resting against the edge of the opening in the cap.

2. In combination in a sprinkler, a sprinkler-body having a fluid-way therethrough, a cap secured to the body part, a distributer supported in line with the fluid-way and beyond the outlet, a chamber within the cap, a spring located within said chamber, a frangible stopple seated on said spring and closing the opening through the cap, and means for breaking said stopple.

3. In combination in a sprinkler, a sprinkler-body having a fluid-way therethrough, a cap secured to the body part and having an opening registering with the opening in the body part, a chamber within the cap, a spiral spring located within the chamber, a frangible stopple seated on said spring and closing the opening through the cap, and a bursting charge sealed within the stopple and expansive under an extreme increase in temperature without and about the stopple.

4. In combination in a sprinkler, a sprinkler-body having a fluid-way therethrough, a cap secured to the body part, a washer secured between said cap and the body part of the sprinkler, integral arms projecting from the face of the cap, a coiled spring located underneath the washer that limits its outward movement, and a frangible stopple seated on said spring and resting against the edge of the opening in the cap, all substantially as described.

698,925. COMBINED FEED TROUGH AND RACK. ABRAHAM B. SWOPE, Fostoria, Ohio. Filed Dec. 5, 1901. Serial No. 84,744. (No model.)

Claim.—1. A feed-trough comprising a trough proper, a rack having inclined braces fitting in notches in the walls of the trough, transverse braces connecting each pair of inclined braces, an expansible crib secured to the rack, and means for detachably securing the rack in place, substantially as described.

2. A feed-trough, comprising a trough, detachable rack having inclined braces and carrying an expansible crib, and cross-braces connecting each pair of inclined braces and means for preventing longitudinal movement of the inclined braces, substantially as described.

3. A feed-trough, comprising a trough proper having notches in its walls, a rack having inclined and cross braces, the inclined braces resting in the notches in the trough, a crib secured to the inclined braces and ex-

tending above the same, and means for yieldingly supporting the sides of the crib, substantially as described.



4. A feed-trough, comprising a trough proper, having notches in its walls, a detachable rack having inclined braces secured by cross-braces, an expansible crib having yieldingly-connected sides secured to the inclined braces, and means for supporting the trough above the ground, substantially as described.

5. The combination of a feed-trough having notches in its sides, of a removable rack having inclined braces fitting in said notches, a ridge-pole to which said inclined braces are attached, a crib secured to the inclined braces, and means for detachably but rigidly securing the ridge-pole in place, and cross-braces connecting each pair of inclined braces, substantially as described.

6. The combination of a feed-trough having notches in its sides, a removable rack having inclined braces fitting in said notches, a crib carried by said rack, and means for preventing the spreading of the inclined braces, substantially as described.

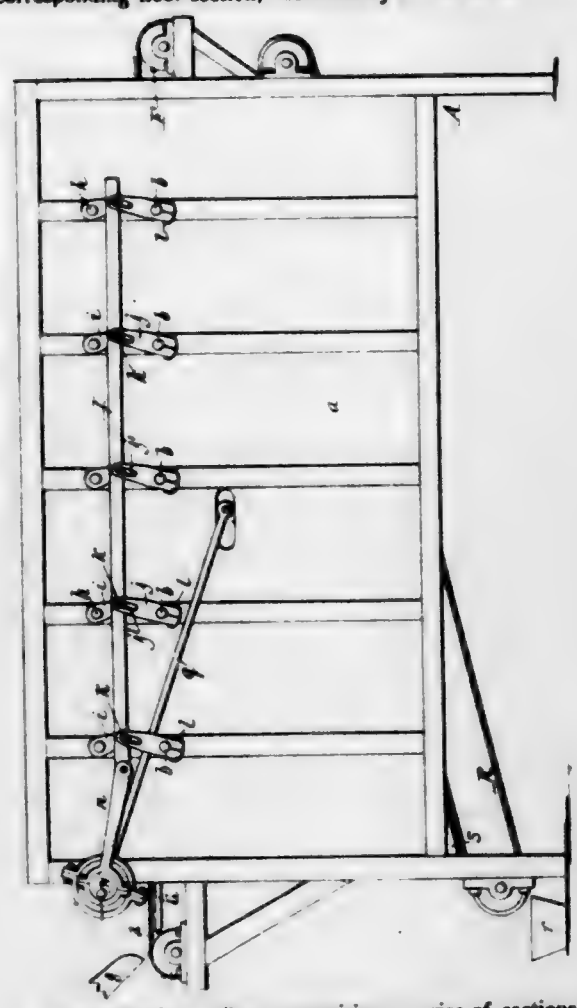
7. The combination of a feed-trough having notches in the upper edges of its sides, a removable rack having inclined braces, a ridge-pole supporting said braces and solid cross-braces secured to either side of the inclined braces, and an expansible crib having flexibly-connected upper edges and hinge connection with the inclined braces, and a guard detachably secured to one end of the trough, substantially as described.

8. The combination of a feed-trough having notches in its upper edges, a removable rack having a ridge-pole, inclined braces and cross-braces, a crib having swinging sides yieldingly connected at their tops and hinged to the inclined braces at their bottom, end posts extending below the trough to be driven into the ground and extending above the trough to firmly but detachably secure the ridge-pole, a guard removably attached to the end of the ridge-pole by cleats, as shown and described.

693,926. MACHINE FOR HULLING GREEN PEAS. ALMER THOMAS, Northeast, Pa., assignor to Albert B. Chapman, Silvercreek N. Y. Filed Feb. 18, 1901. Serial No. 47,739. (No model.)

Claim.—1. In combination, a floor comprising a series of individually-oscillating sections arranged one behind the other, means for oscillating said sections, means for moving the vines and pods over said floor, and a correspondingly-acting series of threshing-beaters arranged over the floor-sections above the path of the vines and pods for delivering blows upon the same while being moved over said floor, substantially as set forth.

2. In combination, a floor comprising a series of sections arranged one behind the other, each section being capable of individual oscillatory movement on a transverse pivot, means for oscillating said sections individually, means for moving the vines and pods over said floor, and threshing-beaters arranged over each floor-section above the path of the vines and pods and having their free striking ends arranged over the free end of the corresponding floor-section, substantially as set forth.



3. In combination, a floor comprising a series of sections arranged one behind the other, each section being capable of individual oscillatory movement on a transverse pivot at its front end, means for oscillating said sections individually, means for moving the vines and pods over said floor, and correspondingly-acting threshing-beaters arranged over each section above the path of the vines and pods and secured at their front ends to a rocking support, substantially as set forth.

4. In combination, a floor comprising a series of sections arranged one behind the other, each section being capable of individual oscillatory movement on a transverse pivot, means for moving the vines and pods over said floor, oscillating correspondingly-acting threshing-beaters arranged over the floor-sections above the path of the vines and pods, and mechanism whereby the floor-sections and the beaters are simultaneously oscillated in opposite directions, substantially as set forth.

5. The combination of a floor for supporting the pea vines and pods, consisting of upwardly-oscillating sections and provided with escape-openings for the hulled peas, an endless carrier whereby the vines and pods are moved over the floor, and oscillating correspondingly-acting threshing-beaters arranged above the floor, substantially as set forth.

6. The combination of a floor for supporting the pea vines and pods, consisting of sections secured to transverse rock-shafts and having escape-openings for the hulled peas, means for moving the vines and pods over said floor, correspondingly-acting threshing-beaters secured to transverse rock-shafts, rock-arms secured to said rock-shafts, and a reciprocating actuating-bar connected with said rock-arms, substantially as set forth.

693,927. OIL-HOLE COVER OR CUP. CHARLES F. TUCKER, Hartford, Conn. Filed Jan. 4, 1901. Serial No. 42,067. (No model.)

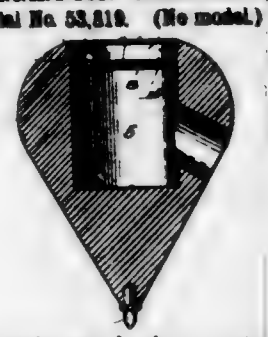


Claim.—1. In combination in an oil cup or cover, a base member with means for attachment in an oil-hole, an attached member having an oil-chamber, an opening through its side wall and a valve therein, and a connection between said members permitting rotary movement only of one of said members.

2. In combination in an oil cup or cover, a base-piece with means for attachment to a structure, an outer member having an oil-chamber, an opening through its side wall and a valve therein, and a flange on the one member inclosed by the inturned edge of the other member and permitting rotary movement only of one of said members.

3. In combination in an oil-cup or cover, a base member with means for attachment in an oil-hole, an attached member having an oil-chamber and an opening through its wall, a connection between said members permitting rotary movement only of one of said members, and a tube extending transversely of said oil-chamber with an oil-port through its wall.

693,928. SPINNING-TOP. GEORGE ULETT, Waltham, Mass. Filed Apr. 1, 1901. Serial No. 53,819. (No model.)



Claim.—1. A spinning-top having a central axial chamber and a transverse opening through the side of the top and leading into the central chamber above the bottom thereof, the said central chamber being larger than the transverse opening whereby a sound-chamber is formed, combined with a whistling device confined in the upper end of said axial chamber, the said whistling device comprising two perforated disks each provided with an annular cylindrical flange, the annular flange of one disk being telescoped into the flange of the other disk.

2. A spinning-top having a central axial chamber of uniform bore, a combined whistle and rattle confined in the upper end of said chamber, and an oblique transverse opening through the side of the top and leading into the chamber above the bottom thereof, said chamber being larger than the transverse opening whereby a sound-chamber is produced.

3. A spinning-top having a central axial chamber, a transverse opening through the side of the top at the lower end of the chamber, and a combined whistle and rattle in the upper end of said chamber.

4. A spinning-top having a central axial chamber, a transverse opening through the side of the top at the lower end of said chamber, a sound-producing device in the upper end of said chamber, said sound-producing device comprising two perforated disks forming between them an air-chamber, and a metallic ball confined in said chamber.

5. A spinning-top having a central axial chamber, a transverse opening through the side of the top at the lower end of said chamber, a sound-producing device in the upper end of said chamber, said sound-producing device comprising two perforated disks forming between them an air-chamber, and a metallic ball confined in said chamber, one of said disks having an annular groove therein and shaped to fit the ball.

6. A spinning-top having a central axial chamber, a transverse opening through the side of the top at the lower end of said chamber, a sound-producing device in the upper end of said chamber, said sound-producing device comprising two perforated disks forming between them an air-chamber, a metallic ball confined in said chamber, one of said disks having an annular groove therein and shaped to fit the ball, and a prong or projection in said groove.

693,929. VEHICLE-WHEEL. CHARLES B. VAN HORN, Detroit, Mich. Filed Feb. 9, 1900. Renewed July 29, 1901. Serial No. 70,180. (No model.)

Claim.—1. In a wheel, spokes formed at their foot portions with flaring parts *q* and tapering parts *r*, the parts *q* overlapping each other at the sides of the parts *r* when the spokes are in position, substantially as described.

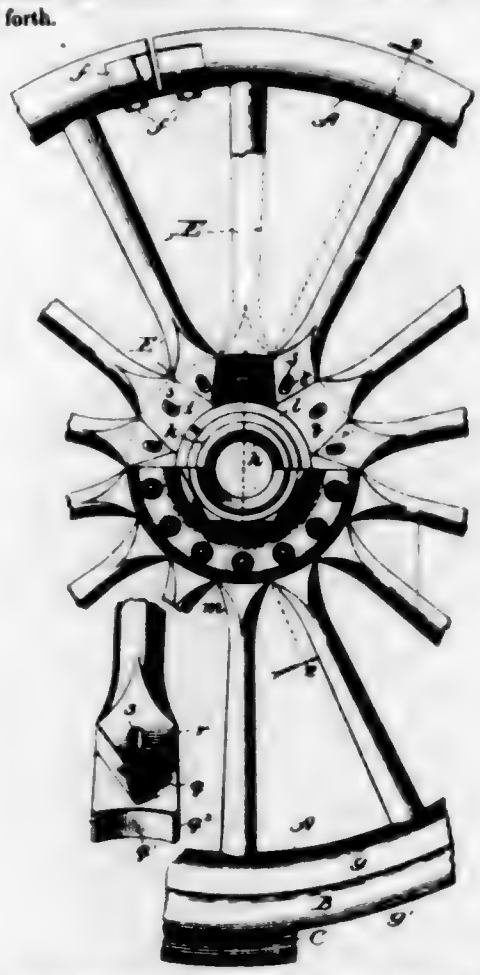
2. In a wheel, spokes formed at their foot portions with flaring parts *q* having chamfered corners and shorter tapering parts *r*, the parts *q* overlapping each other and fitting at their edges against the tapering edges of the parts *r* when the spokes are in position, substantially as described.

3. In a wheel, the combination with the felly, of spokes mutually overlapping and interlocking at their foot portions, and a hub formed of expansible sections operative to expand and tighten the spokes in the felly and clamp the foot portions in their interlocked condition, substantially as described.

4. In a wheel, the combination with the felly, of removable and replaceable spokes mutually overlapping and interlocking at their foot portions, and a hub provided with an expansion-ring, means for expanding the ring against the ends of the spokes, and clamping-plates engaging the opposite sides of their foot portions, substantially as described.

5. In a wheel, the combination with the felly, of spokes mutually overlapping and interlocking at their foot portions and provided with transverse bolt-openings, a hub provided with clamping-plates, for the said foot portions, and bolts passing through the said clamping-plates and openings in the foot portions, substantially as described.

6. In a wheel, the combination with the felly of removable and replaceable spokes provided with tenons engaging sockets in the felly, and mutually interlocking at their foot portions, one of said spokes being adapted to swing laterally, with its tenon in a felly-socket, a limited distance without longitudinal movement, and a hub formed in sections and clamping the spokes in their interlocked condition, substantially as and for the purpose set forth.



7. A wheel provided with hollow metal spokes having integral mutually interlocking and overlapping foot portions, substantially as described.

8. In a wheel, the combination of a hub formed with expansible sections, a hollow metal felly, hollow spokes having integral mutually interlocking and overlapping foot portions, means on the hub for expanding the hub to tighten the spokes against the felly, and means on the hub for clamping the spokes in their interlocked condition, substantially as described.

9. In a wheel, the felly A, formed of metal bent to produce an annular tubular structure having the internal transverse bracing-flange *d*, substantially as described.

10. In a wheel, the felly A, formed of metal bent to produce an annular tubular structure having the internal transverse bracing-flange *d* and provided with spoke-tenon sockets, substantially as described.

11. In a wheel, the felly A formed of metal provided with cylindrical spoke-tenon sockets, and bent to produce an annular tubular structure having the internal transverse bracing-flange *d* and flanges *d'* across the braces of the sockets, substantially as described.

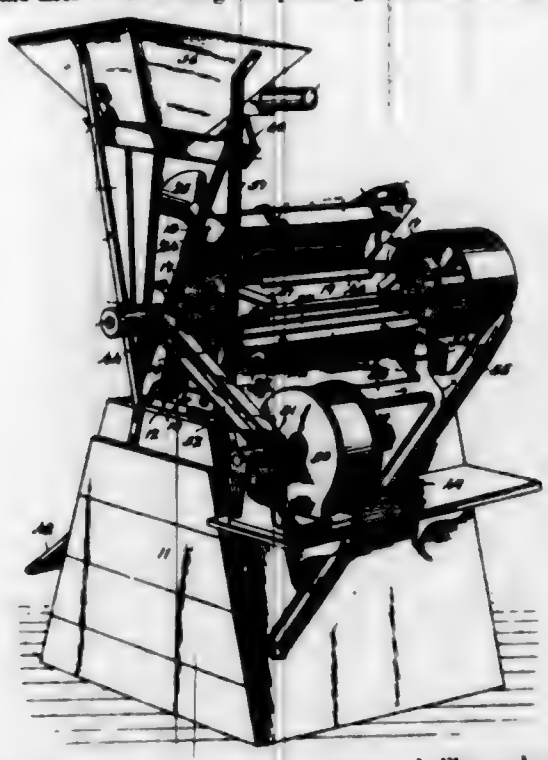
12. In a wheel, the felly A, formed of metal provided with cylindrical spoke-tenon sockets, and bent to produce an annular tubular structure having the internal transverse bracing-flange *d*, and bushings in the said sockets, substantially as described.

13. In a wheel, the felly A, formed of metal bent to produce an annular tubular structure having the flat outer circumferential part *c* and flat sides *b*, and a rim fitting around the part *c* and having flanges *g* embracing the sides *b*, substantially as described.

693,930. RICE HULLING AND POLISHING MACHINE. WILLIAM VAN HOUTEN, Sycamore, and SIMEON F. PREVATT, Nashville, Ga. Filed July 12, 1900. Serial No. 23,367. (No model.)

Claim.—1. In a rice hulling and polishing machine, a hulling and polishing cylinder having a series of longitudinally-disposed hulling and polishing ribs terminating short of the ends of the cylinder and reversely-disposed feed and discharge ribs at and extending inwardly from the ends of the cylinder, arranged obliquely with relation to the hulling and polishing ribs and opposite to the spaces intermediate of the hulling and polishing ribs, the inner ends of said feed-ribs extending past the receiving ends of the hulling and polishing ribs, the inner ends of the discharge-ribs being in the same transverse plane with the discharge ends of the

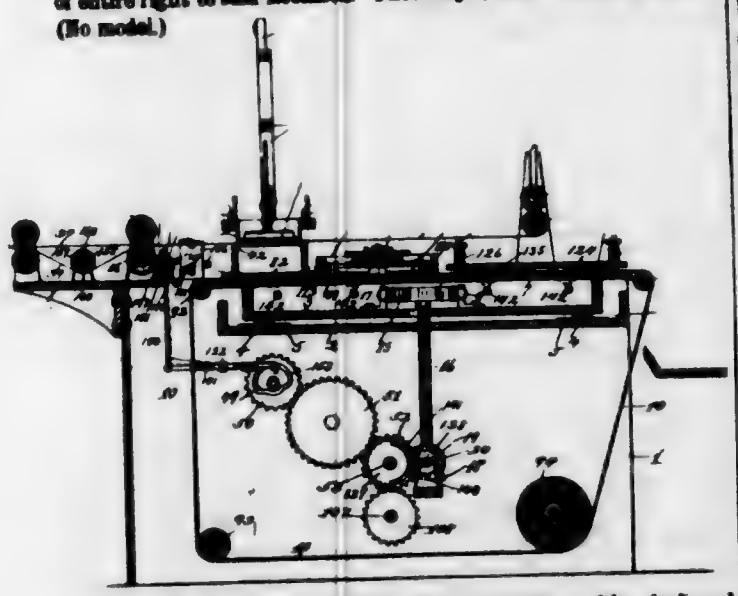
hulling and polishing ribs, the outer ends of said feed and discharge ribs converging to and terminating short of lines which would be formed by extending the axes of the hulling and polishing ribs, substantially as described.



2. In a rice hulling and polishing machine, a hulling and polishing cylinder, having a series of longitudinally-disposed hulling and polishing ribs terminating short of the ends of the cylinder and reversely-disposed feed and discharge ribs at and extending inwardly from the ends of the cylinder, arranged obliquely with relation to the hulling and polishing ribs and opposite to the spaces intermediate of the hulling and polishing ribs, the inner ends of said feed-ribs extending past the receiving ends of the hulling and polishing ribs, the inner ends of the discharge-ribs being in the same transverse plane with the discharge ends of the hulling and polishing ribs, the outer ends of said feed and discharge ribs converging to and terminating short of lines which would be formed by extending the axes of the hulling and polishing ribs, in combination with a casing having feed and discharge openings disposed respectively opposite the feed and discharge ribs, and a blade or knife disposed longitudinally in one side of said casing, and approximate to said cylinder, substantially as described.

3. In a rice-hulling machine, the combination with the hulling mechanism comprising a casing and a cylinder, the said casing having an upper section hinged on one side, and provided on the opposite side with a discharge-spout, a blast-fan having a blast-pipe, and an inclined pipe, the latter open at its upper and lower ends and communicating with the said blast-pipe, and a hopper at the junction of said blast and inclined pipes, said hopper being disposed under the discharge-spout of the hinged upper section of the casing, when the said upper section is closed, substantially as described.

693,931. FOLDING-MACHINE FOR COLLAR-BLANKS, &c. RANSOM D. VIELE and EDWARD M. WALKER, Troy, and THEODORE D. ROBINSON, Albany, N. Y.; said Viele and Walker assignors of one-sixth of entire right to said Robinson. Filed May 4, 1901. Serial No. 58,745. (No model.)



Claim.—1. In a folding-machine, the combination with a bed, and a former subtended by and coöperative with said bed, said bed and former being adapted to clamp between them a blank during the folding operation; of means for inturning the edge of a blank upon the former; and blank-cutting mechanism.

2. In a folding-machine, the combination with blank-cutting mechanism; of a bed, a former subtended by and coöperative with said bed, said bed and former being adapted to clamp between them a blank during the folding operation; a folder; and means for successively operating said cutting and folding mechanisms.

3. In a folding-machine, the combination with blank-cutting mechanism; and means for feeding a web of fabric to said cutting mechanism; of a bed; a former adapted to rest upon said bed and having a former-plate, means for folding the edge of a blank over upon said former-plate; and means for operating said blank cutting and folding mechanisms.

4. In a folding-machine, the combination with a pair of hollow blank-cutting dies; means for operating the dies; and a bed extending beneath the die-aperture; of a former movable through said hollow dies toward and from the bed and coöperating with a subtending portion thereof; and a folder coöperative with said former.

5. In a folding-machine, the combination with a pair of hollow blank-cutting dies; means for operating the dies and a bed extending beneath the die-aperture; of a former movable through said hollow dies toward and from a subtending portion of the bed; means for feeding a web of fabric between said dies; and a folder coöperative with said former.

6. In a folding-machine, the combination with blank-cutting mechanism and mechanism for feeding a web of fabric to said cutting mechanism; of a bed; a former subtended by and coöperative with said bed, and having a former-plate adapted to rest thereupon; means for folding the edge of a blank over upon said former-plate; and means for operating said feeding, cutting, and folding mechanisms successively.

7. In a folding-machine, the combination with a bed; a pair of hollow dies; means for operating the dies; web-feeding rolls on opposite sides of said dies; and means for imparting intermittent movements to said rolls; of a former movable through said hollow dies toward and from said bed; a folder coöperative with said former; and means for moving the former toward and from the bed in the intervals between successive feed movements of said rolls.

8. In a folding-machine, the combination with a bed, a former; and a folder; of a pair of blank-cutting dies; and die-operating levers, each pivotally connected with one, and engageable with the other, of said dies, substantially as described.

9. In a folding-machine, the combination with a bed; a former; and a folder; of blank-cutting mechanism mounted upon said folder.

10. In a folding-machine, the combination with a bed; a former; a folder; and means for producing a relative movement between said bed and folder; of means for automatically feeding a blank laterally between said folder and bed when separated one from the other.

11. In a folding-machine, the combination with a bed; a former; a folder; and means for producing a relative movement between said bed and folder; of a blank-carrier movable laterally in the space between said folder and bed when separated; and means for automatically moving said carrier laterally between said bed and folder, when separated, substantially as described.

12. In a folding-machine, the combination with a bed; a former; a folder; and means for producing a relative movement between said bed and folder; of an endless apron passing between said bed and folder; and means for producing feed movements of said apron.

13. In a folding-machine, the combination with a bed, blank-cutting mechanism; a former; means for moving the former toward and from the bed; a folder; means for producing a relative lateral movement between said former and folder; and means for producing a relative movement between said folder and bed; of a blank-feeding apron passing between said bed and folder; and means for imparting feed movements to said apron.

14. In a folding-machine, the combination with a bed; a pair of hollow, blank-cutting dies; a former movable through said hollow dies toward and from the bed; means for laterally moving said former or folder, one relatively to the other; and means for moving said folder or bed, one toward and from the other; of a blank-feeding apron passing between said bed and folder; and means for imparting feed movements to the apron.

15. In a folding-machine, the combination with mechanism for inturning the edge of a blank; of pressing mechanism adapted to simultaneously engage a plurality of blanks; and means for feeding the folded blanks successively to different positions exposed to the action of said pressing mechanism.

16. In a folding-machine, the combination with a bed; of separate blank-folding and blank-pressing mechanisms coöperative with different portions of said bed, and reciprocatory toward and from the same; and a carrier for transferring folded blanks to the pressing mechanism.

17. In a folding-machine, the combination with a bed and separate blank-folding and blank-pressing mechanisms; of a blank-carrying apron

passing over said bed and superposed thereon beneath both said folding and pressing mechanisms; and means for imparting feed movements to said apron.

18. In a folding-machine, the combination with blank-cutting mechanism; of separate blank-folding and blank-pressing mechanisms; and means for placing, and maintaining during the folding operation, a cut blank in position to be folded, and afterward delivering the folded blank to the pressing mechanism.

19. In a machine of the class described, the combination with a bed; of a blank-pressing plate; a guideway for said plate inclined relatively to the plane of the bed; and means for moving said plate along said inclined guideway toward and from the bed, substantially as described.

20. In a machine of the class described, the combination with a bed: of a plurality of blank-pressing plates; guideways for the several plates convergent toward each other and toward the bed; and means for moving the several plates along their respective guideways.

21. In a folding-machine, the combination with a bed; and a folder; of a former-head provided with slideways in fixed relation to each other; slide-blocks movable in said slideways; block-supported expansible and contractible plates located in a common plane when expanded, and means for causing a contractile movement of one of said blocks and plates in advance of another of said blocks and plates.

22. In a folding-machine, the combination with a bed; and a folder; of a former comprising a former-head provided with a slideway inclined relatively to the plane of the face of the former; a former-block movable in said slideway, and a former-plate connected with said block.

23. In a folding-machine, the combination with a bed; and a folder; of a former comprising a former-head provided with a plurality of slideways, one inclined relatively to another and to the face of the former; former-plates, and plate-supporting slide-blocks movable in said slideways; and means for moving said blocks.

24. In a machine of the class described, the combination with blank-cutting mechanism; and means for feeding thereto a plurality of webs of fabric, one superposed upon another; of pasting mechanism located in the path of one of said webs of fabric; a bed; a former subtended by and cooperative with said bed; and a folder.

25. In a machine of the class described, the combination with blank-cutting mechanism; means for feeding thereto a plurality of webs of fabric, one superposed upon another; and means for folding the cut blanks; of pasting mechanism located in the path of one of said webs; and means for maintaining said webs separated from each other during the pasting operation.

26. In a machine of the class described, the combination with blank cutting mechanism; and means for feeding thereto a plurality of webs of fabric superposed one upon another; of pasting mechanism located in the path of one of said webs; means for maintaining said webs separated from each other during the pasting operation; and a pair of pressure-rolls on opposite sides of the path of said webs between said pasting mechanism and cutting mechanism.

27. In a machine of the class described, the combination with a bed; a former subtended by and coöperative with said bed; and a folder; of blank-printing mechanism.

28. In a machine of the class described, the combination with blank-cutting mechanism; of blank printing mechanism; a bed; a former subtended by and coöperative with said bed; and a folder.

29. In a machine of the class described, the combination with blank-cutting mechanism, and mechanism for feeding thereto a web of fabric; of printing mechanism located in the path of said web; a bed; a former subtended by and coöperative with said bed; and a folder.

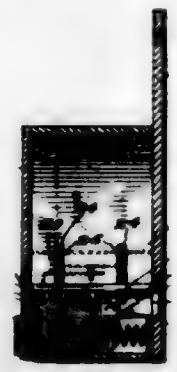
30. In a machine of the class described, the combination with blank-cutting mechanism, and mechanism for feeding thereto a web of fabric; of printing mechanism engageable with said web, means for alternately operating said web feeding and printing mechanisms; a bed; a former subtended by and coöperative with said bed; and a folder.

698,932. STIFFENER FOR LADIES' CLOTHING. PETER G. WAHLEN, Cologne-Ehrenfeld, Germany. Filed Sept. 26, 1901. Serial No. 76,711. (No model.)



Claim.—In combination with a woven-wire band, a cap adapted to be slipped over the ends thereof, formed of an integral piece of metal having integral side flanges, a central inwardly-projecting flap having an aperture therein carried by each side, pins passing through the meshes of said band and secured to each of said side flanges, said central flaps each having an aperture therein above the upper end of the band, substantially as described.

698,933. MATCH-SAFE. JOHN R. WEBB, Newport, W. Va. Filed Aug. 19, 1901. Serial No. 72,542. (No model.)



Claim.—1. A match-safe having a tapering magazine provided at its lower portion with a groove for the reception of a single match, a delivery-finger, means for moving said finger into the groove, means for effecting the movement of said finger for a portion of the length of such groove to project the end of the match beyond the wall of the magazine, and means for moving the finger out of said groove after the match has been projected.

2. A match-safe having a tapering magazine provided at its lower end with a groove for the reception of a single match, an ejecting-finger adapted to be moved vertically to enter said groove through a slot provided in the lower wall or bottom of the magazine, and means for raising and lowering said finger at each operation.

3. In a device of the class specified, a magazine having a match-receiving groove and provided at its bottom with a slot of a length less than the groove, said slot having enlarged end portions and a contracted central portion, a finger adapted to enter said groove through the enlarged portion at one end of the slot and to leave the same through the enlarged portion at the opposite end of said slot, and means for raising and lowering said finger into and out of operative position.

4. In a device of the class specified, a magazine having a match-receiving groove and provided at its bottom with a slot having end enlargements, a transverse pin extending across said slot near the lower portion thereof, a finger-block, an ejecting-finger carried by said block and adapted to enter the match-receiving groove through one of the said end enlargements and eject the match from said groove and to leave said groove through the enlargement at the opposite end of the slot, and means for returning said block to its initial position.

5. In a device of the class specified, a tapering magazine having a bottom discharge-groove, means for ejecting a match from said groove and oppositely-disposed fingers arranged in the walls of the magazine at a point immediately above the groove, with means for moving said fingers toward and from each other to engage and lift all of the matches except the one to be discharged.

6. In a device of the class specified, the combination of the magazine having tapering walls and provided at its bottom with a match-receiving groove and a vertical slot of a length less than the groove, oppositely-disposed fingers arranged above the groove, means for moving said fingers toward and from each other to engage and lift all the matches except the one to be discharged, and a match-ejecting finger adapted to be operated simultaneously with the movement of said fingers.

7. In a device of the class specified, a tapering magazine having a bottom discharge-groove, oppositely-disposed fingers arranged in the walls of the magazine at a point immediately above the groove, a push-block, a spring ejecting-finger carried by said block and normally out of alinement with the groove, means for forcing the finger into the groove when the block is operated, and cams carried by said push-block for operative engagement with said fingers.

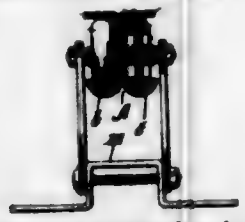
8. In a device of the class specified, a tapering magazine having a bottom discharge-groove, fingers arranged in the opposite walls of the magazine at a point immediately above the bottom, said fingers being formed each of a piece of wire bent to form a central engaging loop and angular end fingers terminating in pivot-eyes, a push-block, cams carried thereby for engagement with said loops, and an ejecting-finger also carried by said block and adapted to enter said bottom discharge-groove and eject a match therefrom.

698,934. CARRIER-TRACK. GUSTAVUS WIDEMAN, Aurora, Ill., assignor to Wilcox Manufacturing Company, Aurora, Ill., a Corporation of Illinois. Filed Aug. 26, 1901. Serial No. 73,373. (No model.)

Claim.—1. In a carrier-track, the combination of two strips of material arranged parallel with each other and each having its lower portion extended outwardly to form a track or way and its upper portion bent at right angles to form a guard.

2. In a carrier-track, the combination of two strips of metal arranged

parallel with each other and each having its lower portion extended outwardly to form a track or way, substantially as specified.



3. In a carrier-track, the combination of two strips of metal arranged parallel with, abutting against each other and each having its lower portion bent or curved outwardly to form a track or way, and means for securing said strips together, substantially as specified.

4. In a carrier-track, the combination of two strips of metal arranged parallel with each other and secured together, each strip being turned at its lower portion to form an outwardly-extending track or way, and also turned at its upper portion to form an outwardly-extending guard over the track or way at the lower portion of the strip, substantially as specified.

5. In a carrier-track, the combination of two strips of material arranged parallel with each other and each having its lower portion extending outwardly in a curved manner to form a track or way and its upper portion bent at right angles to form a guard.

6. In a carrier-track, the combination of two strips of material arranged parallel with each other and each having its lower portion extending outwardly in a curved manner to form a track or way and its upper portion bent at right angles to form a guard, and means for securing the two strips of material together.

698,935. SAFETY ATTACHMENT FOR CARS. CHARLES A. WILLARD, St. Louis, Mo. Filed June 22, 1901. Serial No. 65,672. (No model.)



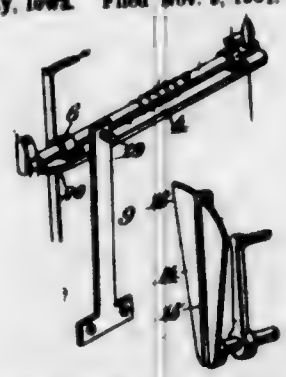
Claim.—1. The combination with a car, of a slidable guard-bar applied to the bottom of the car and capable of inward and outward movement, said bar when moved inward being practically concealed beneath the car, means for operating the bar, and a signal device carried by the outer end of the bar, substantially as described.

2. The combination with a car, of a rigid longitudinally-slidable guard-bar applied to the bottom of the car and movable outwardly and inwardly from and under the end of the latter, and means for operating said bar.

3. The combination with a car, of a rigid longitudinally-slidable guide-bar applied to the bottom of the car and movable outwardly from and inwardly under the end of the latter, electrical means for expelling the bar, and mechanical means for retracting the same.

4. The combination with a car, of a guard-bar mounted to slide longitudinally outwardly and inwardly in relation to the ends of the car, a shiftable lever to which said bar is connected, the lever moving in a plane at an angle to the direction of movement of the bar, a solenoid having a movable portion thereof attached to said lever, a spring also attached to the lever to return it to the normal position, and electrical connections for the parts.

693,936. SAFETY DEVICE FOR ELEVATORS. WILLIAM H. WILSEY, Sioux City, Iowa. Filed Nov. 9, 1901. Serial No. 81,745. (No model.)



Claim.—1. The combination of an elevator-car and its casing having a door-opening, a door, a bar on said door, a yieldable latch for engaging said bar, a controller on said car, and means operative with said latch for holding the controller in a predetermined position when said door is opened or unlocked.

2. The combination of an elevator-car and its casing having an opening, a door for said opening, a bar on said door, a yieldable latch for engaging said bar, a controller on said car, a device movable with the controller, having a groove, and a projection on said latch for entering said groove.

3. The combination of an elevator-car and its casing having a door-opening, a door, a bar on said door mounted for turning movement, a spring-latch for engaging said bar, a controller on the car, and means operative with said latch for holding the controller in a predetermined position.

4. The combination of an elevator-car and its casing having an opening, a door for said opening, a bar on said door, a yieldable latch for engaging said bar, a controller on the elevator-car, and means operative with the controller for preventing the operation of said latch except when the controller is in a certain position.

5. The combination of an elevator-car and its casing having an opening, a door for said opening, a spring-latch for holding said door shut and having a projection, a controller on the car, and a device operative with said controller having a seat to receive said projection.

6. The combination of an elevator-car and its casing having an opening, a door for said opening, a spring-latch automatically movable into position to hold said door, and a controller on said car adapted to be held in a certain position by said yieldable latch.

7. The combination of an elevator-car and its casing having an opening, a door for said opening, a turning bar carried by the door and having a shoulder, a latch for engaging said shoulder to thereby hold the door shut, a controller on said car and means upon said bar for actuating the latch and putting it into a position to secure the release of said door, and to hold said controller.

8. The combination of an elevator-car and its casing having an opening, a door for said opening, a controller on the elevator, a bar on the door mounted for turning movement, a latch adapted to engage said bar to hold the door shut and movable into position to arrest the operation of the controller, and means upon said bar for actuating said latch.

9. The combination of an elevator-car and its casing having an opening, a door for said opening, a controller on said car, a latch for holding the door shut, means operative with the controller for holding the latch against movement except when said controller is at a position to stop the car, a device connected with said controller adapted to be engaged by the latch to thereby block the controller and means extending across the door for holding the latch in position to block said controller.

10. The combination of an elevator car and its casing having an opening, a door for said opening, a spring-latch for holding the door shut, a controller on said car, and means operative with said controller for holding the spring-latch against movement when said controller occupies positions other than that assumed for stopping a car.

11. The combination of an elevator-car and its casing having an opening, a door for said opening, a lever on the car, a rock-shaft for carrying said lever, a member on said rock-shaft having a groove, and a yieldable latch for holding the door shut and having a pin for entering said groove.

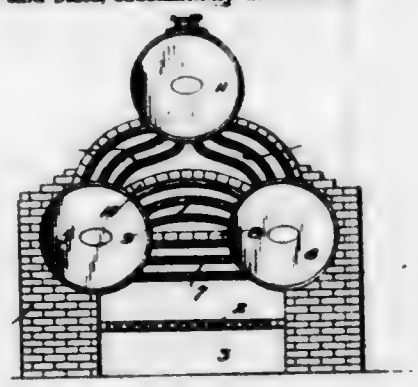
12. The combination of an elevator-car and its casing having an opening, a door for said opening, a bracket on the door, a turning bar supported by said bracket, a yieldable latch for holding the door shut by engaging said bar and the latter serving to actuate the latch to throw it into its ineffective position and said bracket serving to hold the latch in such position, a controller on the car, and means operative with the controller adapted to be engaged by the latch when it is thus actuated.

13. The combination of an elevator-car and its casing having an opening, a door for said opening, a bracket on the door, a turning bar supported by said bracket, a yieldable latch for holding the door shut by engaging said bar and the latter serving to actuate the latch to throw it into its ineffective position and said bracket serving to hold the latch in such position, a controller on the car, means operative with the controller adapted to be engaged by the latch when it is thus actuated, and a coiled spring surrounding said bar and connected thereto and also to the bracket.

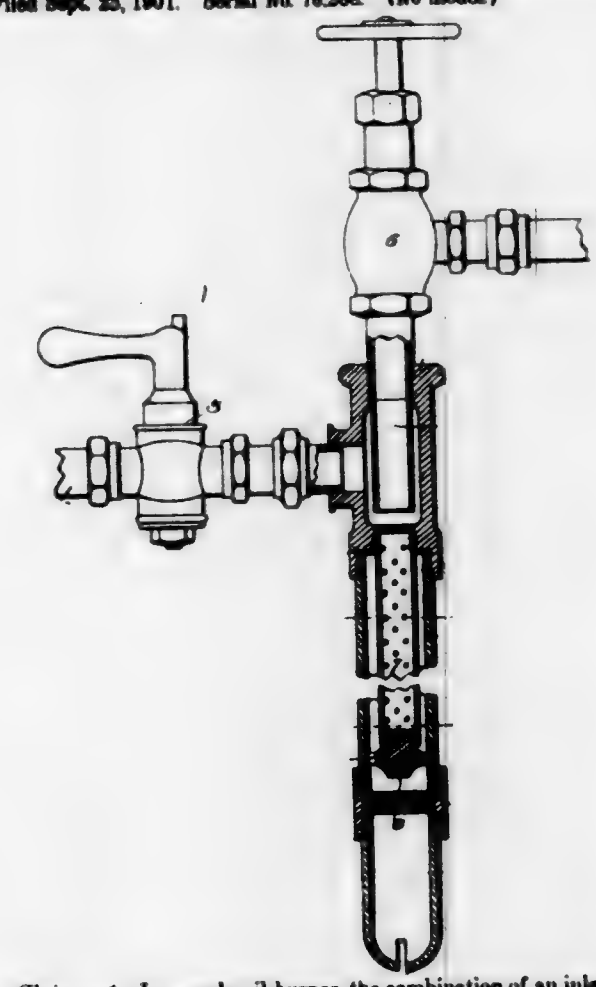
693,937. WATER-TUBE BOILER. WILLIAM WINCHESTER, Halo, Ohio. Filed Oct. 7, 1901. Serial No. 77,869. (No model.)

Claim.—In a water-tube boiler, the combination with the water-drums arranged side by side in a horizontal plane and the steam-drum arranged parallel with the water-drums and at a point above the same and between said water-drums, a fire-chamber, an uptake, two horizontal baffle-plates or deflectors arranged between said horizontally-disposed water-drums to form a tortuous passage from the fire-chamber to the uptake, a bank of horizontally-disposed tubes connecting the water-drums at a point below the lowermost baffle-plate or deflector, a second bank of horizontally-disposed tubes connecting the water-drums at a point above the lowermost baffle-plate or deflector and between said lowermost and upper-

most baffle-plates or deflectors, and a third bank of tubes connected to the lower side of the steam-drum and extending divergently above the uppermost baffle-plate and connected to the upper sides of the water-drums on opposite sides of said plate, substantially as set forth.



693,938. CRUDE-OIL BURNER. GEORGE R. WITT, Fresno, Cal. Filed Sept. 23, 1901. Serial No. 76,288. (No model.)



Claim.—1. In a crude-oil burner, the combination of an inlet-chamber, an oil-feed pipe communicating therewith, a steam-pipe having an injector-nozzle extending into said inlet-chamber, a tubular perforated mixing-chamber leading from the inlet-chamber, and an atomizing-chamber inclosing said mixing-chamber and into which the latter discharges, substantially as described.

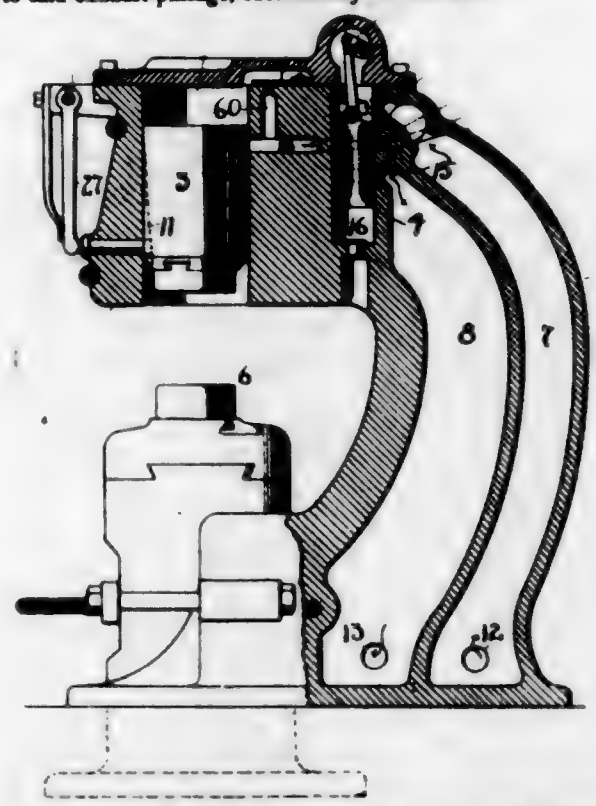
2. In a crude-oil burner, the combination of an inlet-chamber, means to supply oil and steam thereto, a perforated mixing-chamber into which said inlet-chamber discharges, and an atomizing-chamber inclosing said mixing-chamber, and into which the latter discharges, substantially as described.

3. In a crude-oil burner, the combination of an inlet-chamber to which steam and oil are supplied, a perforated tubular mixing-chamber extending from said inlet-chamber, an atomizing-chamber, inclosing said mixing-chamber, and a plug in the outer end of the latter, to center the same in the atomizing-chamber, said plug being channeled for the discharge of commingled steam and atomized oil from the atomizing-chamber, substantially as described.

693,939. PNEUMATIC HAMMER. MELVIN A. YEAKLEY, Cleveland, Ohio, assignor to Williams, White & Co., Moline, Ill. Filed Oct. 12, 1900. Serial No. 32,535. (No model.)

Claim.—1. In pneumatic hammers, a hammer-chamber and a valve-chamber and a valve therein, separate vacuum and pressure passages opening into said valve-chamber and a single passage connecting the valve-chamber with the hammer-chamber, substantially as described.

2. A hammer-chamber and hammer therein, a valve chamber and a valve therein, a single passage connecting said chambers and single pressure and vacuum passages entering the said valve-chamber, and a source of pressure open to said pressure-passage and a sustained exhaust open to said exhaust-passage, substantially as described.



3. In pneumatic hammers, a hammer-chamber and separate pressure and vacuum chambers united therewith by passages, a valve-chamber and a valve located in the line of said passages between the hammer-chamber and the pressure and vacuum chambers, said valve constructed and arranged to open one of said chambers at a time to the hammer-chamber and to close the other, substantially as described.

4. In pneumatic hammers, a hammer-chamber, a valve-chamber and pressure and vacuum chambers having each a single passage entering said valve-chamber and a valve in said valve-chamber constructed to open one of said passages at a time to the hammer-chamber and to close the other, so that only one of said chambers is open at a time to the hammer-chamber, substantially as described.

5. The hammer-chamber and the pressure and vacuum chambers, respectively, a valve-chamber between said chambers and the hammer-chamber, and passages between said several chambers, and a valve in the valve-chamber controlling all said passages and constructed and arranged to establish communication between the hammer-chamber and either of the other chambers at will and to cut out the chamber not used at the time, substantially as described.

6. The hammer-chamber and the separate pressure and vacuum chambers and the passages connecting said several chambers, a valve controlling said passages, a shaft to actuate said valve, and combined hand and treadle mechanism to operate said shaft, substantially as described.

7. The pressure and the vacuum chambers respectively and a single valve controlling the entrance to said chambers and the discharge therefrom, in combination with the hammer-chamber and hammer therein, and mechanism for operating said valve having actuating contact with said hammer, substantially as described.

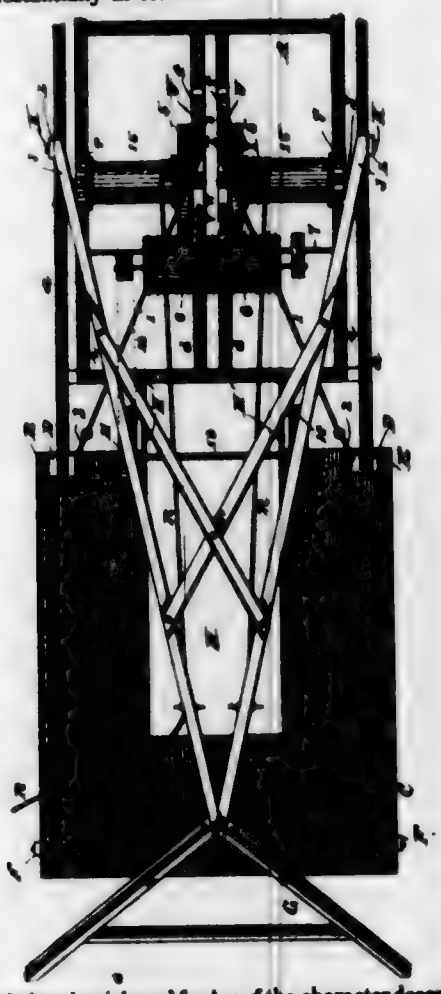
8. In a pneumatic hammer, a hammer-chamber and hammer therein having a vertically-inclined surface and a valve in position to control the pressure and the exhaust from said chamber, in combination with a bolt having sliding engagement with the inclined surface on the hammer, levers actuated by said bolt and operating connections from said levers to said valve, substantially as described.

9. In a pneumatic hammer, a hammer-chamber and a hammer therein, in combination with separate vacuum and pressure chambers, respectively, a passage from each of said chambers to the hammer-chamber above the hammer, and valve mechanism controlling the passage from each of said chambers into the hammer-chamber, substantially as described.

693,940. HOISTING-DERRICK AND HOISTING MECHANISM. AUGUST ZASTROW, Lyons, Kans. Filed Nov. 8, 1900. Serial No. 35,883. (No model.)

Claim.—1. A hoisting-derrick of the character described consisting of the portions G and J, the former resting upon the ground, the latter pivoted to the machine carrying it and having pivotal connection with the said portion G and adapted with the latter portion to be folded over

upon the machine, a platform pivotally hung from the machine carrying the derrick and adapted to be swung upon its pivotal connection to fold over upon the said machine for transportation purposes, an elevating-carrier projecting through the platform substantially as set forth, a hoisting-fork hung from the apex of the derrick immediately above said carrier and means for elevating the fork at will, such means being controlled from the platform substantially as set forth.



2. A hoisting derrick and feeder of the character described, consisting of the portions G and J pivotally connected as shown, the former resting upon the ground, the latter pivoted to the machine carrying it and adapted to be folded over upon the machine for transportation purposes, an elevating-fork loosely hung from the apex of the derrick, a platform pivotally hung from the separator and adapted to be folded upon the said separator by swinging upon the said pivotal support, means for supporting said platform at its outer end, an elevating-carrier projecting through said platform and located immediately beneath the elevating-forks, winding-drums revolubly mounted on the separator substantially in the manner set forth, friction-wheels on the same shaft with the said drums, shiftable bearings for carrying the shafts of the said drums, a friction-wheel adjacent to each drum, a friction-wheel adjacent to each of the first-mentioned friction-wheels, levers for shifting the said shiftable bearings, a lever on the platform for operating each shifting-lever, a connecting-rod between the two levers, springs for normally keeping the friction-wheels separated, a suitable driving mechanism for imparting continual motion to the driving friction-wheel and ropes attached to the elevating-forks and wrapped upon the winding-drum all arranged substantially as and for the purposes set set forth.

3. In a hoisting mechanism of the character described, a derrick consisting of the frame J pivoted at one end to the thresher or other support as set forth, a frame G connected at its upper end to the said frame J for supporting the latter at its free end, the said frame G resting upon the ground, a platform C pivotally attached to the thresher and having a means of support at its outer end, the platform and frame adapted to be connected together, said platform also adapted to swing on its pivotal support to lie upon the thresher, the frames J and G arranged to swing at their points of connection to collapse and fold upon the thresher together with the platform C as set forth and for the purposes described.

4. In a hoisting mechanism of the character described, a derrick consisting of the frame J pivoted at one end to the thresher or other support as set forth, a frame G connected at its upper end to the said frame J for supporting the latter at its free end, the said frame G resting upon the ground, a platform C pivotally attached to the thresher and having a means of support at its outer end, the platform and frame adapted to be connected together, said platform also adapted to swing on its pivotal support to lie upon the thresher, the frames J and G arranged to swing at their points of connection to collapse and fold upon the thresher together with the platform C, an opening in the platform beneath the derrick, a grain-carrier H occupying a position within said opening and adapted for carrying grain to the thresher, said carrier attached at its delivery end to the thresher substantially as set forth.

5. In a hoisting mechanism of the character described, the combination of a thresher, a derrick mounted thereon, the same adapted to fold thereon as set forth, an operator's platform mounted on said thresher and also adapted to be folded thereon in the manner described, a grain-carrier beneath the derrick and projecting into the platform through an opening therefor, the same being arranged to receive grain from the derrick, supporting-pulleys in the top of the derrick above the platform, ropes passing therethrough and each having a grain-fork thereon for lifting the bundles of grain, drums on the thresher for winding the ropes, a shaft for each drum, both shafts being in line with each other, one end of each being journaled in a stationary bearing, the opposite ends of such shafts arranged to shift laterally substantially as set forth, spring-actuated levers located on the operator's platform and connected with the shiftable carriers of the said shafts, a friction-wheel on each of the drum-shafts, a driving-shaft adjacent to and parallel with the drum-shafts, friction-wheels thereon opposite the friction-wheels of the drum-shafts and arranged whereby by operating the levers to shift the drum-shafts the said drum-shaft friction-wheels will be brought into engagement with those of the driving-shaft for the purposes set forth and described.

693,941. MANUFACTURE OF WOOL-PAPER. HANS ELLER, Mannheim, Germany, assignor to the Hoffnungsthaler Papierfabrik A. & R. Goldmacher, Hoffnungsthal, Germany. Filed Oct. 27, 1898. Serial No. 734,974. (No specimens.)

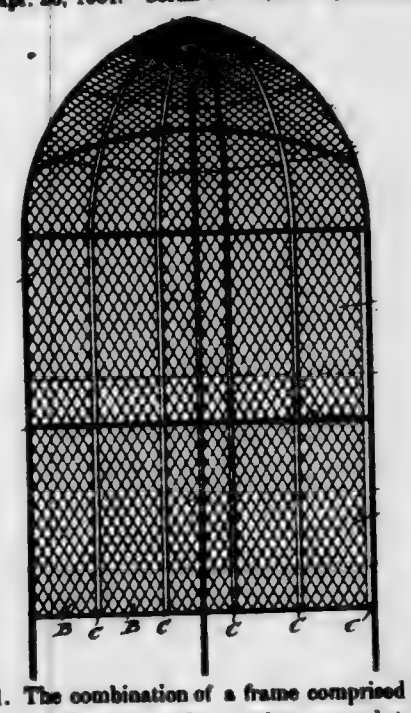
Claim.—The herein-described method of manufacturing paper having rough surfaces and a mottled woolly appearance, which consists in forming a pulp of fine fibrous material, dyeing relatively coarser wood fibers with a free-running color contrasting with the color of the pulp, then mixing said dyed and relatively coarser fibers with the said pulp and transferring some of the color from said fibers to the pulp, and finally converting the mixture into a paper with the coarser fibers projecting from the surfaces thereof, substantially as set forth.

698,942. SOFT-TREAD HORSESHOE. HENRY D. ALEXANDER and HENRY C. WHITE, Canton, Ohio. Filed Dec. 23, 1901. Serial No. 86,875. (No model.)



Claim.—In a soft-tread horseshoe, a metal body or shoe provided with calk-sockets at its heel and toe ends, calks adapted to fit in the sockets and provided with metal plates located in the body of the calks and provided with integral lugs extended flush with the upper faces of the calks, and means for attaching the plates to the metal shoe, substantially as and for the purpose specified.

698,943. WING FOR FLYING-MACHINES. WALTER J. BELL, Los Angeles, Cal., assignor of one-half to Leon F. Moss, Los Angeles, Cal. Filed Apr. 23, 1901. Serial No. 57,072. (No model.)

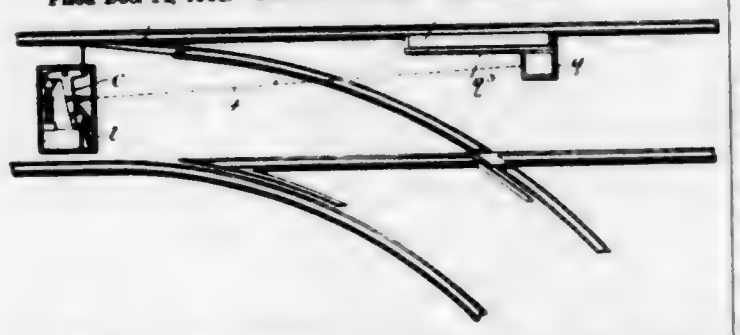


Claim.—1. The combination of a frame comprised of side and end members and intermediate bars, of a netting secured to and extending

over the frame at the upper side thereof, and overlapping valves or shutters hinged to the under side of the frame and contacting in their closing position with the netting.

2. The combination of a transversely-curved frame comprised of side and end members one of the end members being bowed to provide a curved tip, intermediate strengthening-bars, a netting secured to and extending over the frame at the upper side thereof, and a plurality of overlapping valves or shutters hinged at one side to the under side of the frame and adapted to close against the netting.

693,944. STREET-RAILWAY SWITCH. WALTER J. BELL, Los Angeles, Cal., assignor of one-half to Leon F. Moss, Los Angeles, Cal. Filed Dec. 14, 1901. Serial No. 85,985. (No model.)



Claim.—1. The combination of a switch-point, a spring-pressed lever operatively connected therewith, a pivoted ratchet device adapted to be partially rotated by the movement of the lever, a pawl adapted to engage the ratchet to lock the lever in restrained position, an electro-magnet in circuit with the car, and an armature adapted when moved by the magnet to trip the pawl and release the lever.

2. The combination of a switch-throwing lever, a spring connected with one arm of the lever to move it, a pivoted ratchet device operatively engaged by another arm of the lever to partially rotate it, and a spring-pawl normally engaging the ratchet device to lock the lever against movement by its spring, and means for tripping the pawl.

3. The combination of a switch-throwing spring-pressed lever, a pivoted ratchet device having an L-shaped slot and a shoulder, a roller on the lever engaging the slot in the ratchet device whereby the latter is partially rotated by movement of the lever, a spring-pawl normally engaging the shoulder of the ratchet device to lock the lever against movement by its spring, means for tripping the pawl to release the lever, and a curved surface on the ratchet device below the shoulder for restraining the tripped pawl.

4. The combination of a switch-point, a pivoted lever, a bar connected at one end with the point and slotted at its other end for loose connection with an arm of the lever, a bell-crank lever connected to another arm of the lever, a spring connected with the bell-crank lever, means for locking the lever in restrained position, and electric means for releasing the lever, and mechanical means operated by a car for resetting the lever and switch-point.

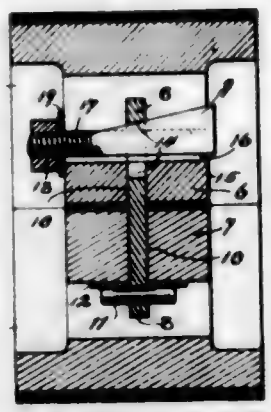
5. The combination of a spring-pressed switch-throwing lever, a pivoted ratchet device engaged and moved by the lever, a spring-pawl normally locking the ratchet device and lever and having a shoulder, a pivoted armature engaging the shoulder on the pawl, and a magnet in circuit with the car for attracting the armature.

6. In combination with a switch-throwing lever, a resetting-lever having rod or cable connection therewith, a crank connected with the resetting-lever, a trip connected with the crank, and a pivoted rail bearing against the trip.

7. In combination with a spring-pressed switch-throwing lever, a resetting-lever having its lower end abutting against a shoulder, an adjustable rod or cable connecting the upper end of the resetting-lever with the switch-throwing lever, a crank on which the resetting-lever is pivoted, a trip connected with the crank, and a pivoted rail bearing on the trip.

693,945. PULLEY. HIRAM H. BOYCE, Chicago, Ill. Filed Jan. 16, 1901. Serial No. 43,458. (No model.)

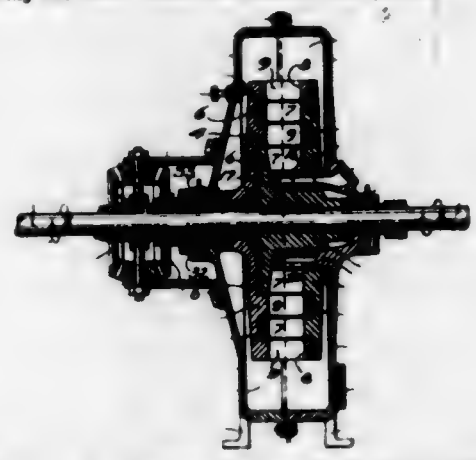
Claim.—1. A pulley comprising a rim; a pair of blocks secured within the rim and having opposite gripping-surfaces for a shaft, one of the blocks having a slot extending through same on one side of its gripping-surface and having a channel for a wedge extending across the block and intersecting the slot transversely of the block; a binding member secured to the other block and extending through said slot; an adjustable wedge seated in said channel, acting between said binding member and the slotted block and having a threaded shank extending transversely of the web of the pulley; a nut on said shank acting against the slotted block and adapted to draw said wedge between said binding member and the slotted block and thereby draw said blocks toward each other; and means connecting said blocks on the opposite side of said gripping-surfaces.



2. A pulley comprising a rim; a pair of blocks secured within the rim and having opposite gripping-surfaces for a shaft, each of said blocks having a slot extending through same on one side of the gripping-surfaces; a binding member extending through both of said slots, having at one end a shoulder bearing against the outside of one of said blocks, and having at the other end a seat for a wedge; a wedge acting between said seat and the adjoining block and having a threaded shank extending transversely of the web of the pulley; a nut on said shank acting against the side of the adjoining block and adapted to tighten said wedge in its seat and thereby draw said blocks toward each other; and means connecting said blocks on the opposite side of said gripping-surfaces.

3. A pulley comprising a rim in two separable sections; a block secured within each section, said blocks forming the web of the pulley and having opposite gripping-surfaces for a shaft, and each of said blocks having the slot for the binding member on each side of said gripping-surfaces; the removable binding members extending through said slots, each having at one end a shoulder bearing against one of the blocks, and having at the other end a seat for a wedge; the wedges acting between said seats and the adjoining block and each having a threaded shank extending transversely of the web of the pulley; and a nut on each of said shanks acting against the side of the adjoining block and adapted to tighten its wedge in its seat and thereby draw said blocks toward each other.

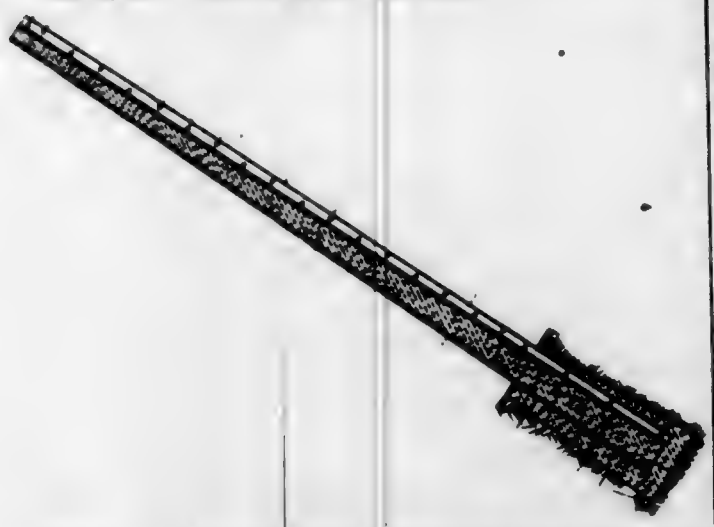
698,946. TURBINE ENGINE. HIRAM H. BOYCE, Chicago, Ill. Filed July 25, 1901. Serial No. 69,666. (No model.)



Claim.—1. In a turbine, the combination of a pair of revoluble wheels each having thereon an annular series of blades, one of said series being located inwardly from the other, the blades of one wheel being concentric with but oppositely disposed to those of the other, one of said wheels having an annular recess on one side of same, and a hollow ring seated in said recess, secured against rotation, and having in its periphery an opening through which a stream of fluid may be caused to flow against said blades, thereby causing said wheels to revolve in opposite directions, a considerable portion of the periphery of said ring being without opening so that the supply of fluid will be cut off from each of the blades of the inner series during a considerable part of each revolution.

2. In a turbine, the combination of a frame; a pair of wheels journaled on a common axis in said frame and revoluble in opposite directions; a series of blade-rings disposed between said wheels and secured alternately to opposite wheels, each of said blade-rings comprising an annular series of blades disposed at an angle to the radial direction, the blades on one wheel being disposed oppositely to those on the other; one of said wheels having an annular recess on one side of same; a hollow ring seated in said recess, secured to said frame and having in its outer periphery an opening through which a stream of fluid may be caused to flow against said blades, thereby causing said wheels to revolve in opposite directions, a considerable portion of the periphery of said ring being without opening so that the supply of fluid will be cut off from each of the blades of the inner series during a considerable part of each revolution.

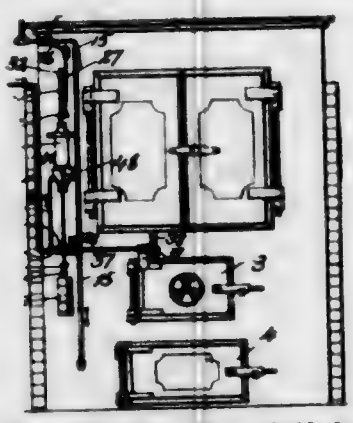
698,947. **FENCE-POST.** EARL M. BUNCH, Dresden, Mich. Filed June 19, 1901. Serial No. 65,184. (No model.)



Claim.—1. A post, comprising a tubular body having an open top and an integral foot portion of a length sufficient to be inserted into the ground and provided with perforations, a tamped cement anchor surrounding the perforate foot portion of the post, hardened liquid cement filling the post from top to bottom thereof, and cement connections between the cement filling and the cement anchor and consisting of portions of cement which have been forced through the perforations in the foot of the post.

2. A post, comprising a tubular body having an open top and an integral foot portion of a length sufficient to be inserted into the ground and provided with perforations, a tamped cement anchor surrounding the perforate foot portion of the post, hardened liquid cement filling the post from top to bottom thereof, and cement connections between the cement filling and the cement anchor and consisting of portions of the filling which have been forced outwardly through the perforations in the foot of the post.

698,948. **AUTOMATIC SMOKE-PREVENTER.** RALPH W. GAVENAUER, St. Paul, Minn. Filed Nov. 24, 1899. Serial No. 738,197. (No model.)



Claim.—1. The combination, with a suitable furnace, of a series of separate tiles arranged along the wall of the furnace and extended above and below the furnace-grate, said tiles having formed in their body between the front and rear faces thereof channels describing substantially an arc of a circle and opening at their lower ends below the grate and at their upper ends above the grate and having transverse grooves formed in the upper portion of their rear faces and with openings between said transverse grooves and said channels, said transverse grooves being adapted to receive a steam-pipe and said openings adapted to receive steam-jet nozzles extending from said steam-pipe so as to inject steam into said arc-shaped channels, substantially as described.

2. In a furnace smoke-preventer, the combination of a pipe leading to the fire-box from a source of supply, a valve in said pipe, said valve comprising a casing having open ends in communication with said pipe, an apertured vertically-disposed partition and an apertured member bearing against said partition and having a stem extending through the side of the casing between its opposite ends, a pressure cylinder containing a piston and having a vertically-moving piston-rod, means connecting the piston-rod with the stem of the valve-apertured member to impart a rotary movement to said member in the reciprocation of the piston-rod, a pressure-supply pipe communicating with said cylinder, a valve in said pipe, a rock-shaft connected with the said valve to move it in both directions and having a member arranged in the path of movement of the furnace-door so as to turn the valve in the cylinder pressure-supply pipe when the door is open, and means for regulating the escape of the pressure agent from the pressure-cylinder, substantially as described.

3. In a smoke-preventer, the combination of a pipe leading to the fire box from a source of supply, a valve in said pipe, said valve comprising a casing having open ends in communication with said pipe, an apertured vertically-disposed partition and an apertured member bearing against said partition and having a stem extending through the side of the casing between its opposite ends, a pressure-cylinder below said valve and provided with a piston having a vertically-movable piston-rod extending through the cylinder-head, a vertically-extending link connecting said piston-rod with said valve-stem, a pipe connecting with said cylinder for supplying a pressure agent to act on said piston, a valve controlling the supply of the pressure agent through the cylinder, means connecting the said valve operatively with the furnace-door whereby said valve will be opened by the opening of the furnace-door, and means for the escape of the pressure agent from the cylinder, substantially as described.

4. In a furnace smoke-preventer, the combination with a pipe leading to the fire-box from a source of supply and provided with a valve comprising a casing having open ends in communication with said pipe, a vertically-disposed apertured partition and an apertured member bearing against said partition and having a stem extending through the side of the casing between its opposite ends and provided with an arm, a pressure-cylinder containing a piston having a rod moving vertically through the cylinder-head, a vertically-arranged link pivotally connected with said piston-rod at one end and at the opposite end having a sliding connection with the arm of said valve-steam, a pressure-supply pipe communicating with said cylinder and provided with a valve, and mechanism operatively connecting said valve with the furnace-door whereby said valve is opened and closed in the movement of said door, substantially as described.

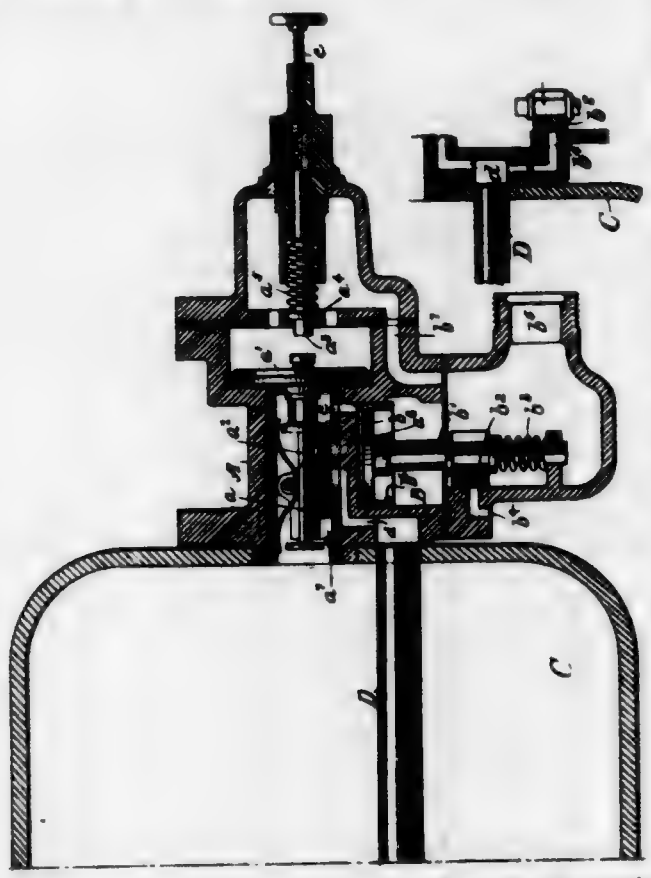
5 In a furnace smoke-preventer, the combination of a pipe leading to the fire-box from a source of supply, a valve in said pipe, a pressure-cylinder provided with a piston and its rod, means connecting the piston with said valve, a pipe connecting with said cylinder for supplying a pressure agent to act on said piston, a valve controlling the supply of the pressure agent to the cylinder, means connecting said valve operatively with the furnace-door, and means for the escape of the pressure agent from the cylinder, and means for predetermining and fixing the period of time for movement of the valve in the pipe leading to the fire-box, said means comprising a valve, a dial and an index-finger located at the discharge from the pressure-cylinder, the dial being so graduated as to time period and relatively to the pressure-cylinder discharge-valve port that upon the adjustment of the index-finger to a given point on the dial-scale the valve in the pipe leading to the fire-box will move for the period of time indicated on the scale-dial by the index-finger, substantially as described.

6. In a furnace smoke-preventer, the combination of a pipe leading to the fire-box from a source of supply, a valve in said pipe, a pressure-cylinder provided with a piston having a connection with said valve, a pipe leading to the said cylinder for supplying a pressure agent to act on said piston, a valve controlling the supply of the pressure agent to the cylinder, means connecting said valve operatively with the furnace-door, a valve for controlling the escape of the pressure agent from the cylinder, and a time-regulator index for predetermining and fixing the period of time for movement of the valve in the pipe leading to the fire-box, said index having a part thereof connected with the valve of the pressure-cylinder to adjust the valve, the index being provided with a scale graduated as to time period and relatively to the pressure-cylinder discharge-valve port that upon the adjustment of the pressure-cylinder discharge-valve to a given point indicated by the index-scale, the valve in the pipe leading to the fire-box will move for the period of time indicated by the given point on the index-scale, substantially as described.

7. In a furnace smoke-preventer, the combination of a pipe leading to the fire-box from a source of supply, a valve in said pipe, a pressure-cylinder provided with a piston having a connection with said valve, a pipe leading to said cylinder for supplying a pressure agent to act on said cylinder, a valve controlling the supply of the pressure agent to the cylinder, means connecting said valve operatively with the furnace-door, and means for predetermining and fixing the period of time for movement of the valve in the pipe leading to the fire-box, said means comprising a casting formed with a dial and provided with a valve carrying an index-finger and located at the discharge to the pressure-cylinder, said casting being formed with a port registering with a port in its valve and provided with means for its attachment to the pressure-cylinder, the dial of the casting being so graduated as to time period and relatively to the pressure-cylinder discharge-valve port that upon adjustment of the index-finger to a given point on the dial scale the valve in the pipe leading to the fire-box will move for the period of time indicated on the scale-dial by the index-finger, substantially as described.

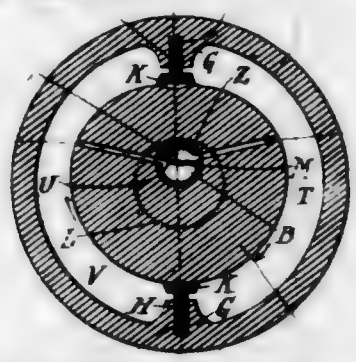
698,949. **AUTOMATIC FLUID-PRESSURE BRAKE.** WILLIAM H. CLARKE, Brooklyn, N. Y. Filed May 24, 1899. Renewed May 21, 1901. Serial No. 61,317. (No model.)

Claim.—1. In a fluid-pressure brake system, the combination with an auxiliary reservoir, and brake-cylinder, of a quick-action train-pipe-discharge valve normally exposed to auxiliary-reservoir pressure on one side and to train-pipe pressure on the other, a service-piston having two lengths of stroke, and means for limiting the movement of said service-piston to its shorter or preliminary traverse in emergency applications of brakes, substantially as described.



2. In a fluid-pressure brake system, the combination of a service-piston having two lengths of stroke with means for limiting the movement of said piston to its first or preliminary traverse, regardless of the amount of reduction of train-pipe pressure, substantially as described.

693,950. **ROTARY FLUID-ENGINE.** JOHN F. COOLEY, Boston, Mass., assignor to Cooley Development Company, Saco, Me., a Corporation of Maine. Filed Aug. 7, 1901. Serial No. 71,133. (No model.)



Claim.—1. In a rotary fluid-engine, a rotary piston, a rotary spacer having fixed partitions bearing on the peripheral curved surfaces of the piston, both piston and spacer mounted on different axes of rotation and rotating in the same direction at relatively constant but different rates of speed, and means for entrance and exit of fluid.

2. In a rotary fluid-engine, a rotary spacer provided with fixed bearing-points, a rotary piston whose curved peripheral surfaces are partitioned off by said spacer and which is in continuous contact with said bearing-points, both spacer and piston rotating in the same direction at relatively constant but different rates of speed, and means for entrance and exit of fluid.

3. In a rotary fluid-engine, a rotary spacer provided with fixed equidistant bearing-points, a rotary piston whose curved peripheral surfaces are partitioned off by said spacer and form with it separate fluid-divisions and which is in continuous contact with said bearing-points, both spacer and piston rotating in the same direction at relatively constant but different rates of speed, and means for entrance and exit of fluid.

4. In a rotary fluid-engine, a rotary spacer provided with fixed bearing-points, a rotary piston whose curved peripheral surfaces are partitioned off by said spacer and which is in continuous contact with said bearing-points, both spacer and piston mounted on different axes of rotation and rotating in the same direction at relatively constant but different rates of speed, and means for entrance and exit of fluid.

5. In a rotary fluid-engine, a rotary spacer provided with fixed equidistant bearing-points, a rotary piston in continuous contact with said bearing-points and forming separate fluid-divisions and located eccentrically to said spacer, both piston and spacer rotating in the same direction at relatively constant but different rates of speed, and means for entrance and exit of fluid.

6. In a rotary fluid-engine, a rotary spacer provided with fixed equidistant bearing-points, a rotary piston in continuous contact with said bearing-points and forming separate fluid-divisions and located eccentrically to said spacer, both piston and spacer rotating in the same direction at relatively constant but different rates of speed—the speed of the piston exceeding the speed of the spacer by such an amount that the terms of their ratio when reduced to their lowest integral numbers differ by unity—and means for entrance and exit of fluid.

7. In a rotary fluid-engine, an axially-rotating cylindrical hollow spacer provided at equal distances upon its inner surface with fixed equidistant bearing-points, a rotary cylindroid piston in continuous contact with said bearing-points and provided with an axis parallel to the axis of said spacer and rotating in the same direction as the spacer at a relatively constant but different rate of speed, which speed of the piston exceeds that of the spacer by such an amount that the terms of their ratio when reduced to their lowest integral numbers differ by unity, and means for entrance and exit of fluid.

8. In a rotary fluid-engine, the combination of two like directional rotary elements caused to move one within the other on parallel fixed axes, at correlatively constant speed rates differing by such an amount that the terms of their ratio when reduced to their lowest integral numbers differ by unity, the element of slow speed having fixed projections whose extremities form bearing-points at equal radial distances from its axis and equally spaced along their circular path of travel, and moving in continuous contact with the element of higher speed whose correlative curved surface is formed to correspond to the path of said extremities, and means for entrance and exit of fluid to and from the partitioned spaces.

9. In a rotary fluid-engine, the combination of two like directional rotary elements caused to move one within the other on parallel fixed axes at correlatively constant speed rates differing by such amount that the terms of their ratio when reduced to their lowest integral numbers differ by unity, the element of slow speed having fixed projections whose extremities form bearing-points at equal radial distances from its axis and equally spaced along their circular path of travel and moving in continuous contact with the element of higher speed, whose curved surface is formed to correspond to the path of said extremities when their number equals the greater of the two terms of the correlative speed ratio when expressed in their smallest integral numbers, means for entrance and exit of fluid, and end plates fastened to one element and contiguous to the other.

10. In a rotary fluid-engine, the combination of two like directional rotary elements caused to move one within the other on parallel positionally-fixed axes at correlatively constant speed rates differing by such an amount that the terms of their ratio when reduced to their lowest integral numbers differ by unity, the element of slow speed having fixed projections whose extremities form bearing-points at equal radial distances from its axis and equally spaced along their circular path of travel, and moving in continuous contact with the element of higher speed whose correlative curved surface is formed to correspond to the path of said extremities when their number equals the greater of the two terms of the correlative speed ratio when expressed in their smallest integral numbers, means for entrance and exit of fluid, end plates fastened to one element and contiguous to the other, and each element provided with geared surfaces which mutually intermesh.

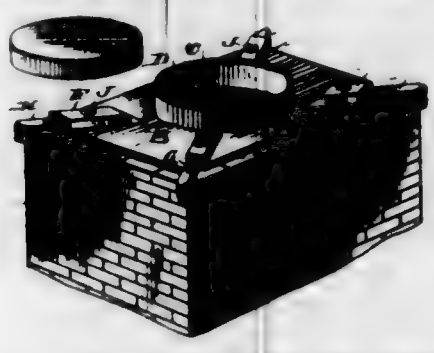
11. In a rotary fluid-engine, the combination of two like directional rotary elements caused to move one within the other on parallel positionally-fixed axes at correlatively constant speed ratios differing by such an amount that the terms of their ratio when reduced to their lowest integral numbers differ by unity, the element of slow speed having fixed projections whose extremities are armed with adjustable wearing-shoes which form bearing-points at equal radial distances from its axis and equally spaced along their circular path of travel and moving in continuous contact with the element of higher speed whose correlative curved surface is formed to correspond to the path of said shoes when their number equals the greater of the two terms of the correlative speed ratio when expressed in their smallest integral numbers, means for entrance and exit of fluid, end plates fastened to one element and contiguous to the other, and each element provided with geared surfaces which mutually intermesh.

12. In a rotary fluid-engine, a rotary piston, a rotary spacer with fixed projections for partitioning off the peripheral curved surfaces of the piston, both piston and spacer mounted on different axes of rotation and rotating in the same direction at relatively constant but different rates of speed, a hollow shaft through which is effected the entrance and exit of the fluid.

13. In a rotary fluid-engine, a rotary piston, a rotary spacer with fixed projections for partitioning off the peripheral curved surfaces of the piston and surrounding the piston, both piston and spacer mounted on different axes of rotation and rotating in the same direction at relatively constant but different rates of speed, and means for entrance and exit of fluid.

14. In a rotary fluid-engine, a rotary piston, a rotary spacer with fixed projections for partitioning off the peripheral curved surfaces of the piston and surrounding the piston, both piston and spacer mounted on different axes of rotation and rotating in the same direction at relatively constant but different rates of speed, a hollow shaft upon which the projection is mounted and through which is effected the entrance and exit of the fluid.

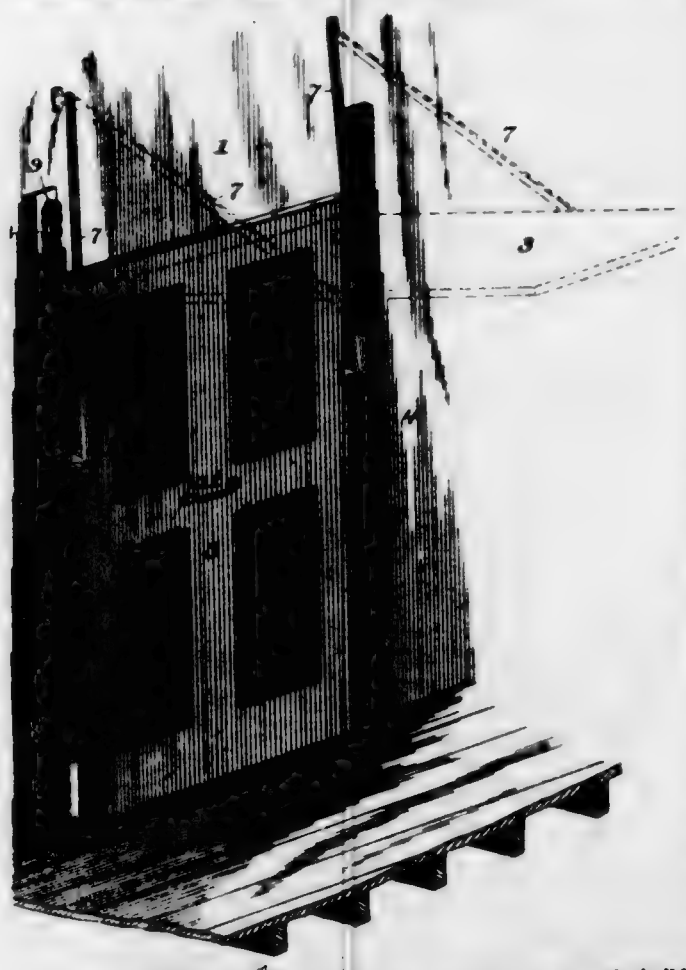
698,951. CHIMNEY-CAP. ALEXANDER T. COX, Scranton, Iowa. Filed May 13, 1901. Serial No. 59,965. (No model.)



Claim.—1. A chimney-cap comprising a flat plate with cleats at the corners, and clamping devices adapted to engage the corners of a chimney and means for adjustably holding said clamping devices in said cleats, as set forth.

2. The combination of a chimney-cap comprising a flat plate with opening and collar about said opening and raised cleats at the corners, with slotted clamping devices adapted to embrace and engage the corners of a chimney and adjustable in said cleats, nuts in the slots of the clamping devices and bolts engaged in said nuts and held in the cleats, all substantially as shown and described.

698,952. WAREHOUSE-DOOR. WILLIAM A. CROSS, Chicago, Ill. Filed Mar. 10, 1900. Serial No. 8,114. (No model.)



Claim.—1. The combination of a door frame or way, vertical slideways at the sides of the same, and extending the height of the doorway, a door having sliding and pivotal connections at its lower end with said slideways, so that the same will maintain engagement with the slideways when the lower end of the door is moved to a point immediately adjacent to the top of the doorway, and a pivot-link pivoted to the door, and to the door-frame above the door, substantially as set forth.

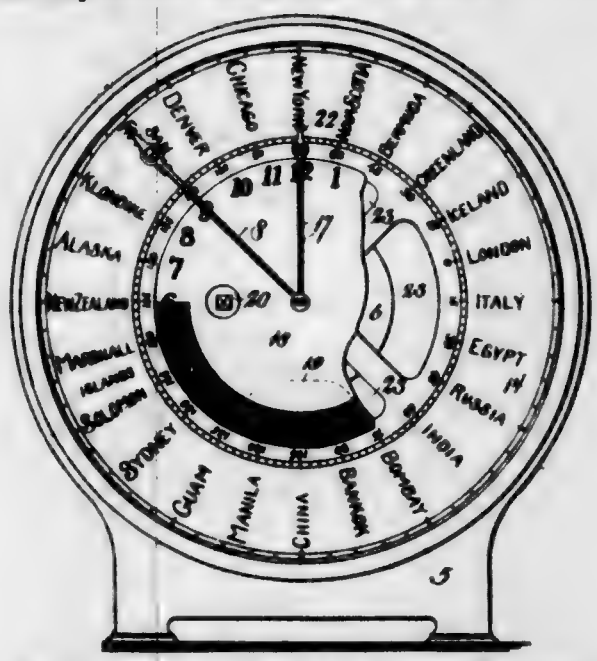
2. The combination of a door frame or way, vertical slideways at the sides of the same, and extending the height of the doorway, a door having sliding and pivotal connections at its lower end with said slideways, so that the same will maintain engagement with the slideways when the lower end of the door is moved to a point immediately adjacent to the top of the doorway, a pivot-link pivoted to the door-frame above the door, and means for counterbalancing the weight of the door, substantially as set forth.

3. The combination of a door frame or way, vertical slideways at the sides of the same, and extending the height of the doorway, a door having sliding and pivotal connections at its lower end with said slideways by means of guide-pintles engaging in said slideways, so that the same will maintain engagement with the slideways when the lower end of the door is moved to a point immediately adjacent to the top of the doorway, and a pivot-link pivoted to the door and to the door-frame above the door, substantially as set forth.

4. The combination of a door frame or way, vertical slideways at the sides of the same, a door having sliding and pivotal connections at its lower end with said slideways by means of guide-pintles engaging in said slideways, and flexible connections passing over elevated pulleys and connected at one end to counterbalance-weights, and at the other end to the lower end of the door, substantially as set forth.

5. The combination with a vertically-swinging door and casing, of a pair of links pivoted to the sides of the door respectively, at one end and to the casing above the door at the other end and a counterbalance connected to the lower edge of the door and pulling upward; substantially as described.

698,958. GEOGRAPHICAL CLOCK. CHARLES E. DAVIS, New York, N. Y., assignor of one-third to Henry D. Harrower, New York, N. Y. Filed May 23, 1900. Serial No. 17,694. (No model.)

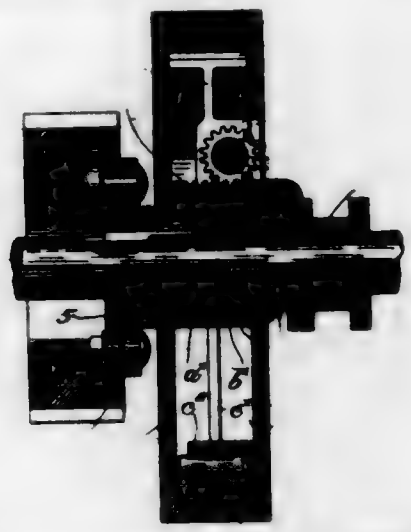


Claim.—The combination with the revoluble hour-sleeve of a time mechanism, of a geographical disk and an hour-indicating hand secured together at their respective hubs by both being fixedly mounted upon the said hour-sleeve, and further connected together by the outer end of the indicating-hand being secured to the face of the disk, and a second disk loosely mounted upon the said hour-sleeve between the said first-named disk and the indicating-hand, and held relatively stationary in such position.

698,954. CLUTCH MECHANISM. CHARLES M. DAY, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 7, 1901. Serial No. 77,833. (No model.)

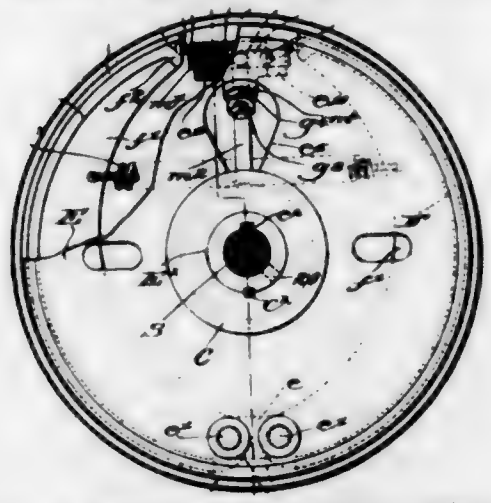
Claim.—1. In apparatus of the class described, a driving member having an annular flange, a disk-like member to be driven, peripherally inclosed by the flange, opposed friction-segments fulcrumed on the disk-like member, to engage symmetrically opposite portions of the inner face of said flange, a rotatable actuator mounted at its center directly on the disk and having oppositely-threaded ends, rocking or tipping bearings mounted on the segments and threaded to receive the ends of the actuator, to separate or draw the segments together when the actuator is rotated in one or the other direction, and means to effect rotative movement of the actuator, to thereby clutch or unclutch said driving and driven members.

2. In apparatus of the class described, a rotatable shaft, a driving member loose thereon having an annular flange, a disk-like member to be driven, fast on the shaft, opposed friction-segments pivotally mounted thereon and inclosed by the annular flange, a rotatable actuator mounted directly on the disk substantially diametrically opposite the pivoted ends of the segments, and having oppositely-threaded ends operatively connected with the free ends of the segments, to separate or draw the same toward each other, rocking or tipping connections between the actuator and segments, and means mounted on the shaft to engage and effect the rotative movement of the controller.



3. In apparatus of the class described, a rotatable shaft, a driving member loose thereon having an annular flange, a member to be driven, fast on the shaft, oppositely-movable friction-segments fulcrumed on the driven member and adapted to coöperate with the flange of the driving member, a rotatable actuator having oppositely-threaded ends mounted directly on the driven member between the free ends of the segments, threaded bearings for said actuator, loosely seated on the segments, rotation of the actuator separating or drawing the said segments together, means to prevent movement of the bearings on the segments in the direction of the length of the actuator and to permit said bearings to tip or rock, and a controller mounted loosely on and movable longitudinally upon the shaft to rotate said actuator, the coöperation of the actuator with its threaded bearings acting to lock the segments in position until the actuator is positively rotated by or through the controller.

698,955. CLUTCH MECHANISM. CHARLES M. DAY, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Oct. 11, 1901. Serial No. 78,296. (No model.)



Claim.—1. In apparatus of the class described, driving and driven members, an annular flange on one, friction-segments fulcrumed on the other member and movable toward and from the flange, to clutch and unclutch said members, respectively, and means mounted on the segment-carrying member to operate the segments, said means comprising a compound toggle connection between the free ends of the segments, said connection including a rocking member and eccentrically-connected toggle-arms, and a controlling device for said connection.

2. In apparatus of the class described, driving and driven members, an annular flange on one, friction-segments fulcrumed on the other member and movable toward and from the flange, to clutch and unclutch said members, respectively, and means mounted on the segment-carrying member to operate the segments, said means comprising a rocker, normally non-alined toggle-arms interposed between the free ends of the segments and the ends of the rocker and eccentrically connected with the latter, and a device to turn the rocker and thereby tend to bring said toggle-arms into alinement to separate the friction-segments.

3. In apparatus of the class described, driving and driven members, an annular flange on one, friction-segments fulcrumed on the other member and movable toward and from the flange, to clutch and unclutch said members, respectively, and means mounted on the segment-carrying member to operate the segments, said means including a rocker interposed between the free ends of the segments, and compression-arms between the latter and the rocker and eccentrically connected with said rocker, rotative movement of the rocker tending to bring the arms into alinement and thereby forcing the segments into operative engagement with the annular flange, to clutch the driving and driven members together.

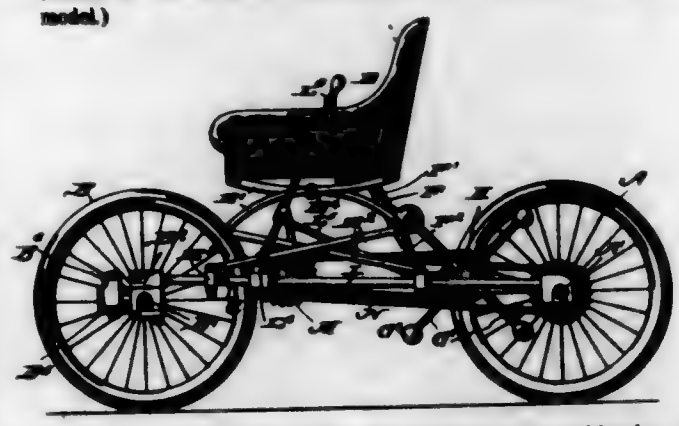
4. In apparatus of the class described, a shaft to be rotated, driving and driven members of a clutch mounted thereon, the driving member being rotatable on the shaft and having an annular flange, the driven member being connected with the shaft to rotate therewith and having its circumference loosely surrounded by the flange, oppositely-movable friction-segments fulcrumed on the driven member and adapted to cooperate with the flange of the driving member, a compound toggle connection between the free ends of the segments and supported by the driven member, said connection including a rocker and toggle-arms eccentrically connected therewith at their inner ends, and means to turn the rocker and thereby operate said connection to separate the segments and force them into operative engagement with the flange of the driving member.

5. In apparatus of the class described, driving and driven members, an annular flange on one, friction-segments fulcrumed on the other member and movable toward and from the flange, to clutch and unclutch said members, respectively, and means mounted on the segment-carrying member to operate the segments, said means comprising a rocker, normally non-alined toggle-arms interposed between the free ends of the segments and the ends of the rocker and eccentrically connected with the latter, a device to turn the rocker and thereby tend to bring said toggle-arms into alinement, and an adjusting device for said means, to compensate for wear.

6. A shaft to be rotated, a clutch thereon comprising driving and driven members, the driving member having an annular flange and being rotatable on the shaft, friction-segments fulcrumed on the driven member at opposite sides of the shaft, said member being fast on the shaft, a rocker fulcrumed on the driven member between the free ends of the segments, toggle-arms seated at their outer ends in said segments and at their inner ends supported by the rocker eccentric to its fulcrum, said toggle-arms being out of alinement, means to turn said rocker and thereby cause the toggle-arms to approach alinement, to separate the segments and force them into operative engagement with the flange of the driving member, and a spring to draw the segments inward.

7. In apparatus of the class described, a driving member having an annular flange, a disk-like driven member loosely inclosed by the flange, friction-segments fulcrumed at their adjacent ends on said driven member and separable at their other ends to engage the flange, a compound toggle connection between the free ends of the segments and supported by the disk-like member, said connection including non-alined toggle-arms, laterally-separable bearings for the inner ends of said toggle-arms, means to control said connection, and an adjusting device to laterally and simultaneously separate said bearings, to compensate for wear.

698,956. VEHICLE PROPULSION MECHANISM. FREDERIC DUQUESNE, Fall River, Mass. Filed June 1, 1901. Serial No. 62,722. (No model.)

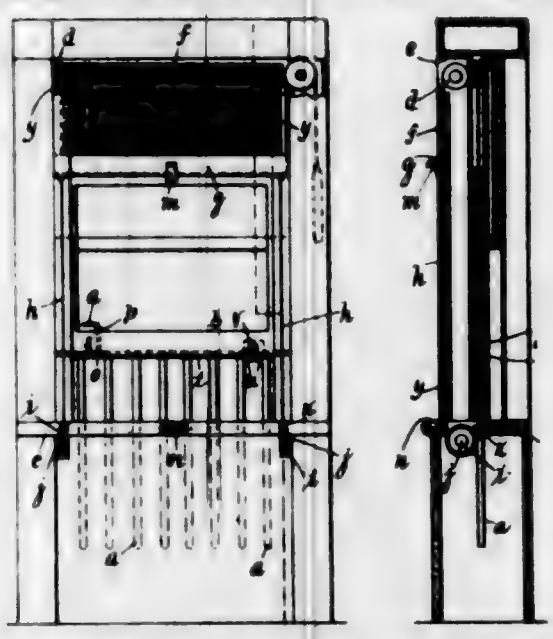


Claim.—1. In a device of the kind described, the combination with the supporting-frame, of the oscillating seat, the rocking arms attached to the said seat and pivotally connected to each other, the cross-arms pivotally connected at their upper ends to the rocker-arms and adjustably connected at their lower ends to the supporting-frame, the adjustable pitman, the crank-shaft and means for transmitting motion of the crank-shaft to the rear axle, substantially as described.

2. In a device of the kind described, the combination with a driving mechanism, including the shaft L and a clutch-section arranged there-

on, sprockets K and M mounted thereon, one of which is normally loose and adapted to be clutched to the shaft, of the brake-lever, the hand-lever and rods for connecting the clutch and brake-lever with the hand-lever, substantially as shown and described.

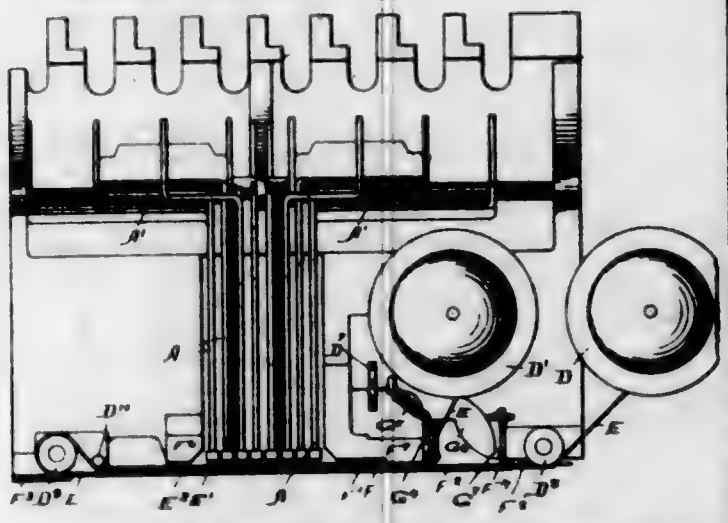
693,957. GUARD AND SHADE ATTACHMENT FOR WINDOWS. THEOPHILE EUPHRAT, Rowayton, Conn., assignor to James A. Logan, Brooklyn, N. Y., and the Euphrat Manufacturing Company, New York, N. Y. Filed Mar. 9, 1901. Serial No. 50,441. (No model.)



Claim.—1. The combination with the lower sash of the self-raising curtain-roller and curtain or screen, pulleys located on fixed pivots at the bottom of the window, cords connecting the lower end of the curtain or screen and the lower rail of said lower sash under the pulleys, thus allowing the curtain to be pulled down independently of the sash to which it is connected, and a passage through the window-sill for the drop of the slack of the cords when the curtain or screen is pulled below the limit of its movement by the sash.

2. The combination with the lower sash of the self-raising curtain-roller and curtain or screen, pulleys located on fixed pivots at the bottom of the window, cords connecting the lower end of the curtain or screen and the lower rail of said lower sash under the pulleys, thus allowing the curtain to be pulled down independently of the sash to which it is connected, and a passage through the window-sill for the drop of the slack of the cords when the curtain or screen is pulled below the limit of its movement by the sash, said pulleys arranged to set into said slots, and the latter arranged for guards to confine the cords on the pulleys.

693,958. DUPLICATE PRINTING MECHANISM FOR ADDING-MACHINES. DORR E. FELT, Chicago, Ill. Filed Aug. 17, 1899. Serial No. 727,490. (No model.)



Claim.—1. A duplicating printing device comprising a single set of type, an ink-ribbon doubled on itself each fold adapted to make an impression on its respective sheet of paper and by the same type, and means for operating the printing mechanism and automatically feeding the paper and inking ribbon.

2. The combination of a paper-feeder for feeding two layers of paper in one direction, a doubled inking-ribbon extending transversely to the direction of movement of the paper and along the printing line or center, one strand of the ribbon lying between the said layers of paper and the other strand outside of one of said layers, means for feeding the said strands in opposite directions transversely to the direction of the paper-feed, a set of printing-type acting at said line or center to print duplicate impressions on said paper, and mechanism for causing an impression by said type.

3. The tabulating or type-writing machine having a single ink-ribbon doubled on itself so that two courses of it will be passing the printing-center at the same time, and also provided with means other than the paper being written upon for separating said courses, substantially as specified.

4. The tabulating or other type-writing machine, having two parallel and closely-associated and automatically-operated ribbons passing the printing-center at the same time, and adapted to make direct impressions upon different sheets or strips of paper, and also having means other than the paper being written upon for temporarily separating the ribbons to admit one of the paper sheets or strips between them, substantially as specified.

5. The tabulating or other type-writing machine, having two parallel and closely-associated ribbons passing the printing-center at the same time, and adapted to make direct impressions upon different sheets or strips of paper, and a guide for one of the ribbons, movable so as to carry its ribbon temporarily away from the other ribbon and thus give entrance for the paper between the ribbons, substantially as specified.

6. The tabulating or other type-writing machine, having two parallel and closely-associated ribbons passing the printing-center at the same time, and adapted to make direct impressions upon different sheets or strips of paper, and also having a guiding device F F′ movable so as to deflect one of the ribbons away from the other and give entrance to the paper between the ribbons, substantially as specified.

7. The tabulating or other type-writing machine, having two parallel and closely-associated and automatically-operated ribbons passing the printing-center at the same time, and adapted to make direct impressions upon different sheets or strips of paper, and also having means for feeding two strips of paper and guiding means for directing one of said strips between the ribbons, substantially as specified.

8. The tabulating or type-writing machine having two parallel or closely-associated ribbons passing the printing-center at the same time, and wherein are combined means for supporting and feeding said ribbons, means other than the paper for temporarily separating said ribbons at the printing-center, means for feeding two strips of paper and means for directing one of said strips between the separated ribbons, substantially as specified.

9. The tabulating or other type-writing machine having two parallel and closely-associated ribbons passing the printing-center at the same time, and wherein are combined means for supporting and feeding said ribbons, means for temporarily separating the ribbons at the printing-center, means for feeding two strips of paper, and guides acting to separate the strips and to direct one strip outside of and the other strip between the ribbons, substantially as specified.

10. The tabulating or other type-writing machine having two parallel and closely-associated ribbons passing the printing-center at the same time, and wherein are combined means for supporting and feeding the ribbons, means for temporarily separating the ribbons at the printing-center, means for feeding the paper, movable guides for separating and directing the paper strips so that one moves outside of and the other between the ribbons, and means for controlling said guides, substantially as specified.

11. The tabulating or other type-writing machine having two parallel and closely-associated ribbons passing the printing-center at the same time, and wherein are combined means for supporting and feeding the ribbons, means for temporarily separating the ribbons at the printing-center, means for feeding the paper, movable guides for separating and directing the paper strips so that one moves outside of and the other between the ribbons, and a lever acting both to cause the separation of the ribbons and the positioning of said guides, substantially as specified.

12. The tabulating or other type-writing machine having two parallel and closely-associated ribbons passing the printing-center at the same time, and wherein are combined means for supporting and feeding the ribbons, means for temporarily separating the ribbons at the printing-center, means for feeding the paper, movable guides for separating and directing the paper strips so that one moves outside of and the other between the ribbons, a lever for positioning both said guides in the same position, a pivoted pawl or latch for locking said lever in its acting position, and means for releasing said pawl, substantially as specified.

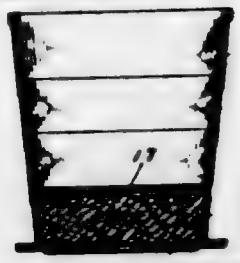
13. The tabulating or other type-writing machine having two parallel and closely-associated ribbons passing the printing-center at the same time, and wherein are combined means for supporting and feeding the ribbons, means for temporarily separating the ribbons at the printing-center, means for feeding the paper, movable guides for separating and directing the paper strips so that one moves outside of and the other be-

tween the ribbons, a lever for positioning both said guides in the same position, a pivoted pawl or latch for locking said lever in its acting position, said pawl being releasable by a second lever included in the means for separating the ribbons, substantially as specified.

14. The combination with the paper-guides G and G', of a lever fast upon the shaft carrying said guides, a second lever attached to the loose guide, and a pawl for locking said last-mentioned lever in one position, said pawl being released by the first-mentioned lever, substantially as specified.

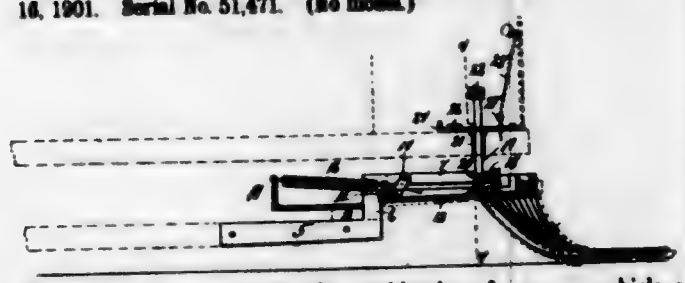
15. The combination of guides G G', the rock-shaft on which they are mounted, the levers F^4 and G^4 and the pawl-locking lever G^4 and released by lever F^4, substantially as specified.

698,959. COMBINED TRAVELER'S DRINKING-CUP AND SHAVING-MUG. CHARLES PIERLEY, Indianapolis, Ind. Filed May 23, 1901. Serial No. 61,545. (No model.)



Claim.—A combined collapsible cup and shaving-mug consisting of the telescopic rings and bottom, with a compartment in the bottom section provided with a tight cover, which will protect the contents of said compartment when the cup is used, and which may be removed to bring the contents of said compartment into free access from the top of said cup, substantially as set forth.

698,960. STREET-CAR FENDER. ALBERT FISCHER, Detroit, Mich., assignor of one-half to Walter Ross, Detroit, Mich. Filed Mar. 16, 1901. Serial No. 51,471. (No model.)



Claim.—1. In a car-fender, the combination of a car, or vehicle, a fender mounted thereon to have a slight vertical and longitudinal movement, an inclined plane upon the fender-frame, a vertically-movable plunger engaging said inclined plane and adapted by its downward movement to depress the fender, and a spring for retracting the fender after being depressed.

2. In a fender, the combination of the car or vehicle, a support mounted on the truck-frame of the car, a fender and frame, links pivoted to said support and to the fender-frame whereby said frame is freely suspended by said links to swing longitudinally of the truck-frame, means for actuating the fender and frame to carry the fender downwardly into contact with the track and hold it in said position and means for retracting the fender-frame when released.

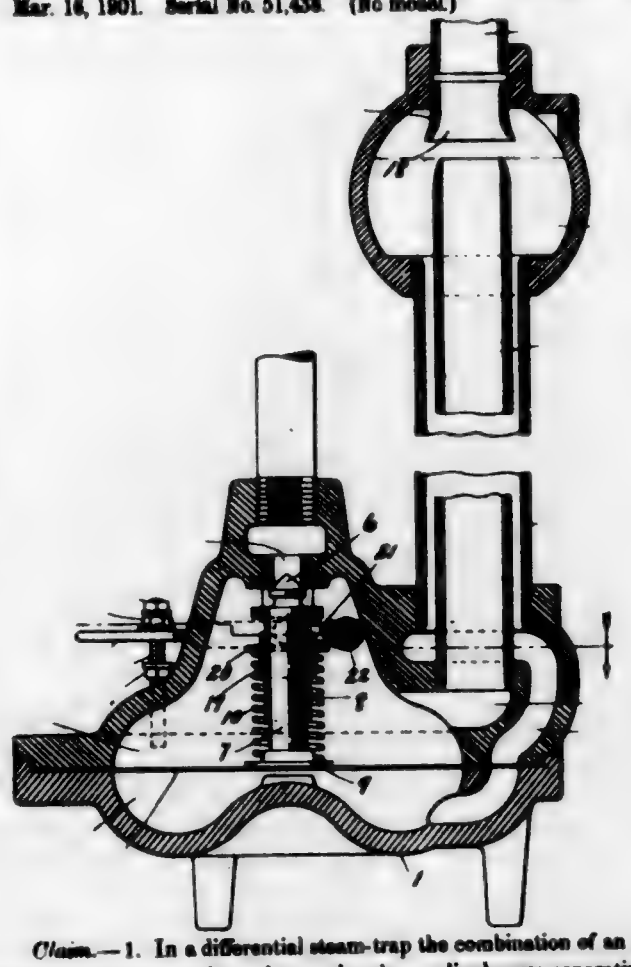
3. In a car-fender, the combination with the truck-frame, of suitable supports mounted on the truck-frame, a movable frame, the fender attached to said movable frame, means connecting said movable frame with said supports to allow of a free swinging movement of said frame and fender longitudinally of the car, means for actuating the frame and fender to depress the latter and means for retracting the fender and frame when released.

4. In a car-fender, the combination with the truck-frame, of suitable supports mounted on the truck-frame, a fender-frame hung from said supports so as to maintain the fender normally adjacent to the track, means connecting the fender-frame to said supports to allow of a slight vertical and horizontal movement of said frame, an inclined plane mounted upon the fender-frame, a vertically-movable plunger engaging said inclined plane, whereby, by a movement of said plunger the fender-frame may be depressed, and means for retracting said fender-frame.

5. In a car-fender, the combination of the truck-frame, the fender, pivoted links connecting the fender with the truck-frame, said links depended vertically and being free to swing from a vertical position in both directions, a spring attached to the fender adapted to normally suspend it above the track, means for forcing the fender downwardly against the action of said spring and means for releasing the fender to permit the spring to raise it from its depressed position.

6. In a car-fender, the combination of a car, a fender-frame mounted thereon to normally swing freely below the platform of the car, means for depressing the fender-frame to carry the fender onto the track and lock the frame and fender against movement, and means for retracting the fender-frame upon its swinging support to carry the fender free from the track and normally maintain it in a condition of free suspension.

698,961. STEAM-TRAP. RICHARD J. FLINN, Boston, Mass. Filed Mar. 18, 1901. Serial No. 51,438. (No model.)



Claim.—1. In a differential steam-trap the combination of an upper chamber having an outlet, a lower chamber, a diaphragm separating the two, an outlet-valve operated by said diaphragm and opened by a preponderance of pressure in the upper chamber, an elevated chamber, a stand-pipe connecting said elevated chamber with the lower diaphragm-chamber, a second stand-pipe connecting said elevated chamber with the upper diaphragm-chamber and having a direct or non-tortuous connection with the latter existing above the level of the diaphragm throughout its length, and a drainage-inlet to the elevated chamber alined with the said second stand-pipe.

2. In a differential steam-trap the combination of a discharge-valve, a stand-pipe adapted to contain a variable column of water whose excess pressure opens said valve, a second stand-pipe adapted to contain a column whose pressure tends to close the valve, and a drainage-inlet alined with the inlet-orifice of the first said pipe and having a flaring orifice overhanging the edge of said pipe and adapted to discharge the drainage-water into the second said pipe during a light flow.

3. In a differential steam-trap the combination of a discharge-valve, a stand-pipe adapted to contain a variable column of water whose excess pressure opens said valve, a second stand-pipe adapted to contain a column whose pressure tends to close the valve, a drainage-inlet alined with the inlet-orifice of the first said pipe and having a flaring orifice overhanging the edge of said pipe and adapted to discharge the drainage-water into the second said pipe during a light flow, and means to vary the distance between said orifices.

4. In a steam-trap the combination of a discharge-chamber having a discharge-orifice, a valve controlling said orifice, means for controlling said valve through the differential action of two columns of water, a spring within the discharge-chamber tending to open said valve, a spring-adjusting device passing through the wall of said chamber to the outside of the trap and movable to alter the pressure of the spring, and an adjustable stop outside of said chamber to limit the movement of said device.

5. In a steam-trap the combination of a discharge-orifice, a valve controlling said orifice, means for controlling said valve through the differential action of two columns of water, a spring tending to open said valve, and a rock-shaft passing outside of the trap and located transversely to the line of movement of the valve, said shaft having an offset oscillatory member adapted to distort the spring by a partial oscillation of the shaft sufficiently to open the valve during the operation of the trap.

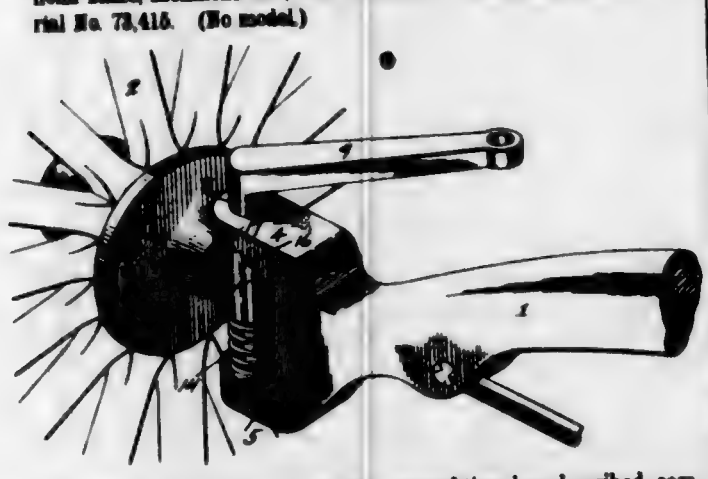
6. In a steam-trap the combination of a discharge-orifice, a valve controlling said orifice, means for controlling said valve through the differential action of two columns of water, a spring tending to open the valve and having one end engaging the valve, a sliding member engaging the opposite end of the spring, and a rock-shaft passing outside of the trap and having within the trap an oscillatory arm engaging said sliding member.

7. In a steam-trap the combination of a discharge-chamber having a discharge-orifice, a valve controlling said orifice, means for controlling said valve through the differential action of two columns of water, a spring within the discharge-chamber tending to open the valve, means extending through the wall of said chamber to the outside of the trap for varying the tension of said spring, and a device outside of said chamber adjustable to permit valve-operating movements of said means, or to lock said means against movement.

8. In a steam-trap the combination of a discharge-orifice, a valve controlling said orifice, means for controlling said valve through the differential action of two columns of water, a spring tending to open the valve and having one end engaging the valve, a sliding member engaging the opposite end of the spring, a rock-shaft passing outside of the trap and having within the trap an arm engaging said sliding member, an arm on said rock-shaft outside of the trap, a fixed threaded spindle adjacent to said outer arm, and nuts on both sides of said arm adapted to screw on said spindle into and out of engagement with the arm.

9. In a steam-trap the combination of a discharge-chamber having a discharge-orifice, a valve controlling said orifice, means for controlling the valve through the differential action of two columns of water, a spring within the discharge-chamber tending to open said valve and externally-operated means for distorting the spring, said means having provisions for increasing and decreasing the pressure of the spring without varying its normal adjustment.

698,962. STEERING-GEAR FOR MOTOR-CARRIAGES. FRANK A. FOX and DAVID F. GRAHAM, Stamford, Conn., assignors to Walter Denholm Blake, Richmond Hill, New York, N. Y. Filed Aug. 27, 1901. Serial No. 73,415. (No model.)



Claim.—1. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel, an axle sustaining the weight of the carriage-body, and inclined or beveled contact bearing-surfaces between said member and said axle ends.

2. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel, said member having an inclined or beveled and projecting top end, and an axle sustaining the weight of the carriage-body and having an inclined or beveled recess receiving said top end of the steering-wheel member.

3. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel, said member being provided with a pointed or approximately A-shaped top end with semi-annular curved and inclined bearing-ways, and an axle sustaining the weight of the body of the carriage and provided with a corresponding A-shaped recess and bearing-ways receiving said corresponding top end of the steering-wheel member.

4. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel, an axle sustaining the weight of the body of the carriage, and a double inclined or beveled contact bearing-surface arranged between said member and the end of said axle and projecting oppositely with respect to the turning axis.

5. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel and embodying a turnable stem, the end of the carriage-axle having vertical bearings for said stem, inclined or beveled horizontal bearing-surfaces between said stem and the axle end, and means for turning said stem.

6. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel and embodying a vertical turnable stem, an axle provided with vertical bearings to receive the stem, a double inclined or beveled horizontal bearing-surface between the stem and axle end, and means of turning the stem.

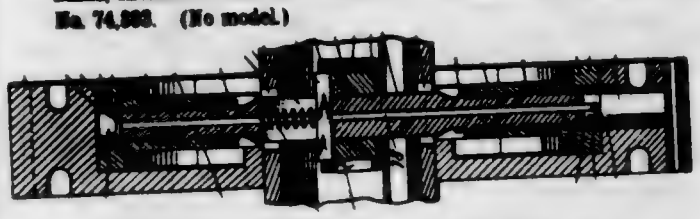
7. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel and embodying a T-head having reduced end portions and a central portion having at the top semi-circular oppositely-inclined surfaces, an axle provided with vertical bearings to receive the reduced ends of the T-head and with bearing-surfaces complementary to said inclined surfaces, and means for turning said T-head.

8. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel and embodying a turnable stem having reduced end portions and a body portion with a pointed or approximately V-shaped top, an axle provided with bracket-arms having openings registering in a vertical plane to receive the end portions of said stem and one of said arms having a recess complementary to said pointed top, and means for turning said stem.

9. An improved steering-gear of the class described, comprising a member in connection with the steering-wheel and embodying a turnable stem having reduced end portions and a body portion with a pointed or approximately V-shaped top, an axle having bifurcated ends provided with bearings to receive said stem and bearing-surfaces complementary to said pointed or V-shaped top, and means for turning said stem.

10. An improved steering-gear of the class described comprising a steering-wheel, a stub-axle provided with pintles of smaller diameter projecting in opposite directions from its inner end and having adjoining one of said pintles a double-inclined surface projecting oppositely to the axis of such pintle, an axle provided with bracket-arms having openings registering in a vertical plane to receive said pintles and a bearing-surface on the lower side on the upper of said arms complementary to said inclined surface, tensional means normally pressing said bearing-surfaces together, and means for turning the stem.

698,963. CLUTCH ADJUSTMENT FOR MOTOR-CARRIAGES. DAVID F. GRAHAM, Springfield, Mass., assignor to Walter Denholm Blake, Richmond Hill, New York, N. Y. Filed Sept. 10, 1901. Serial No. 74,993. (No model.)



Claim.—1. A clutch adjustment mechanism, comprising shoe members, a rotary shaft having a threaded connection with said shoe members, means for operating said shaft, and means for turning the shaft independent of the means whereby it is normally operated.

2. A clutch adjustment mechanism, comprising shoe members, a rotary shaft operatively carrying said shoe members, means for operating said shaft, means for throwing the operating mechanism of the shaft out of engagement therewith, and means for independently turning said shaft, for the purpose set forth.

3. A clutch adjustment mechanism, comprising shoe members, a rotary shaft having a threaded connection with said shoe members, a gear mounted upon said shaft, means for connecting and disconnecting said gear operatively with relation to said shaft, and means for turning said shaft independently of said gear.

4. A clutch adjustment mechanism, comprising shoe members, a rotary shaft operatively connected therewith, a gear mounted upon said shaft, a rack engaging said gear, means for throwing said gear into and out of operative engagement with the shaft, and means for independently turning the shaft.

5. A clutch adjustment mechanism, comprising shoe members, a rotary shaft having a threaded connection therewith, a gear carried by said shaft, a rack engaging said gear, means for throwing said gear into and out of operative connection with the shaft, and means for independently turning the shaft.

6. A clutch adjustment mechanism, comprising shoe members, a rotary shaft operatively connected therewith, a rod operating in a longitudinal bore in said shaft, and a gear having an operative engagement with said rod.

7. A clutch adjustment mechanism, comprising shoe members, a rotary shaft having a threaded connection therewith, a rod slidably operating in a longitudinal bore in said shaft and carrying a cross pin or stud, means for automatically returning said rod to normal position, and a gear carried by the shaft and having a recessed face engaged by said pin or stud, for the purpose set forth.

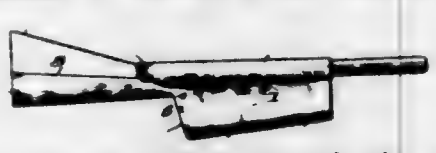
8. A clutch adjustment mechanism, comprising shoe members, a rotary shaft having a threaded connection therewith, and provided with a longitudinal bore-opening at the outer face of the shoe members, a rod

slidably operating in said bore, and a gear carried by the shaft and having an operative engagement with said rod, for the purpose set forth.

9. A clutch adjustment mechanism, comprising a clutch member having an opening or recess in its rim, shoe members adapted to bear against the inner face of said rim, a rotary shaft having a threaded connection with said shoe members and having its ends exposed at the outer face of the same, said shaft being provided with a longitudinal bore-opening at the outer face of the shoe members, a rod slidably operating in said bore, and a gear carried by said shaft and adapted to be operatively engaged with said rod, for the purpose set forth.

10. A clutch-adjustment mechanism, comprising shoe members, a rotary shaft operatively connected therewith, said shaft having a longitudinal bore-opening at both ends at the outer face of the shoe members, a rod extending longitudinally in said bore and having both its ends respectively exposed at the outer face of the shoe members, said rod being adapted to slidebly move, operating mechanism for turning the shaft, means for engaging and disengaging said rod with said operating mechanism, and means for maintaining the rod in normal position.

693,964. MINER'S SQUIB. FREDERICK H. GROSS and ELWOOD GROSS, Plymouth, Pa. Filed Oct. 4, 1901. Serial No. 77,594. (No model.)



Claim.—1. A miner's squib having its match ends sealed by a closure composed of a plurality of fingers assembled by a suitable adhesive material.

2. A miner's squib having two match members disposed on opposite sides of the squib-tube and separated at their point of juncture therewith, and a closure for sealing the match end of the tube, comprising a plurality of fingers permanently assembled by a suitable adhesive material.

3. As a new article of manufacture, a blank for miners' squibs, comprising a body portion carrying at one end two tongues to constitute the match members, and a plurality of fingers adjacent to the base of the tongues to be assembled to constitute a closing-flap.

693,965. REPEATING GUN. BENONI R. HARRINGTON, Oklahoma, Okla. Filed June 19, 1901. Serial No. 65,176. (No model.)



Claim.—1. In a magazine-gun, a cartridge-carrier, means for rotating the same, and a cartridge feeder and ejector having means for locking the carrier against rotation.

2. In a magazine-gun, a rotatable cartridge-carrier, means for rotating the same, and a reciprocatory cartridge feeder and ejector having means for locking the carrier against rotation at the forward limit of the feeder and ejector and for releasing the carrier during the rearward movement thereof.

3. In a magazine-gun, a rotary cartridge-carrier provided with a firing-pin, a longitudinally-movable cartridge feeder and ejector having a part positioned normally to lock the carrier against rotation, and a reciprocatory member operating through interposed mechanism, and upon movement in one direction to release the carrier, eject a cartridge-shell, cock the hammer, and turn the carrier to bring a fresh cartridge in line with the barrel; and, upon movement in the opposite direction, to seat the cartridge in the barrel, turn the carrier to bring the firing-pin opposite the cartridge, lock the carrier against rotation, and bring the ejector into engagement with the rim of the cartridge.

4. In a magazine-gun, a rotary cartridge-carrier provided with a recess at its forward end, in combination with a reciprocatory feeder and ejector having a projection to enter the recess and lock the carrier against rotation at the forward limit only of the feeder and ejector.

5. In a magazine-gun, the combination with a rotary cartridge-carrier provided with a locking-recess, of a reciprocatory feeder and ejector having a part to engage the recess and lock the carrier against rotation, and cartridge-ejecting means which is active only when the locking part is out of engagement with the recess.

6. In a magazine-gun, the combination with a rotary cartridge-carrier, of a feeder and ejector having locking means to engage the carrier to prevent rotation thereof, and also provided with cartridge-ejecting means which is active only when the locking means is out of engagement with the cartridge-carrier.

7. In a magazine-gun, the combination with a rotary cartridge-carrier, of a feeder and ejector having locking means to prevent rotation of the carrier, and cartridge-ejecting means slidably carried by the feeder and ejector and active only when the locking means is released from the carrier.

8. In a magazine-gun, the combination with a rotary cartridge-carrier, of a reciprocatory feeder and ejector having means for locking the carrier at the limit of its forward movement, and cartridge-ejecting means having a longitudinally-slidable connection with the ejector and feeder, and means for interlocking the ejecting means with the feeder and ejector against independent forward movement after the locking means has been disengaged from the carrier.

9. In a magazine-gun, a rotary carrier provided with a recess, in combination with a feeder and ejector having a part to engage the recess to lock the carrier against rotation.

10. In a magazine gun, the combination with a rotary cartridge-carrier, of a reciprocatory feeder and ejector having means to lock the carrier at the forward limit thereof, and cartridge-ejecting means having a slidable connection with the feeder and ejector, the limit of the movement of the ejecting means upon the feeder and ejector being at least equal to the longitudinal movement of the feeder and ejector to disengage the locking means from the cartridge-carrier.

11. In a magazine-gun, the combination with a rotary cartridge-carrier, of a slotted reciprocatory feeder and ejector having means for locking the carrier at the forward limit thereof, and cartridge-ejecting means slidably mounted in the slot, the length of the slot in excess of the length of the ejecting means being at least equal to the length of the movement required to disengage the locking means from the carrier.

12. In a magazine-gun, the combination with a rotary cartridge-carrier, of a reciprocatory feeder and ejector having means for locking the carrier at the forward limit thereof, a shell-feeding device carried by and having an independent movement upon the feeder and ejector and provided with a projection to normally lie across the outer side of the rim of a cartridge, and a spring-actuated ejector member pivoted to the feeder member and located in front of the lateral projection thereof with its free end constructed to engage the inner side of the rim of a cartridge.

13. In a magazine-gun, the combination with a rotary cartridge-carrier, and a reciprocatory hand-grip, of cartridge feeding and ejecting means connected to the hand-grip and provided with means for locking the carrier against rotation when the ejecting means is in position for ejecting a cartridge.

14. In a magazine-gun, a carrier, a rotative rod connected therewith and provided with a circumferential groove and plates carried by the breech-shell and engaging the groove, the plates serving to hold the rod against endwise movement, but permitting free rotary movement thereof.

15. In a magazine-gun, a hollow breech-shell, a carrier arranged therein, a plate mounted for movement in a slot in the breech-shell and carrying a part adapted alternately to cock the hammer and lock the carrier against turning, a two-membered cartridge feeder and ejector carried by the plate and having longitudinal movement independent thereof, one of the members of the feeder and ejector being rigid to feed a cartridge into the barrel and the other member being spring-pressed to engage the cartridge-rim to effect ejection thereof, and a slidable handle to actuate the feeder and ejector.

16. In a magazine-gun, a breech-shell having its forward wall provided with a chamber, a rotary carrier arranged in the shell, a reciprocatory plate having a nose adapted alternately to cock the hammer and to lock the carrier against turning, and a cartridge feeder and ejector carried by the plate and normally housed within the said chamber, the car-

rier being provided on opposite sides with incuts whereby to permit it to pass the said nose when the plate is shifted to different positions.

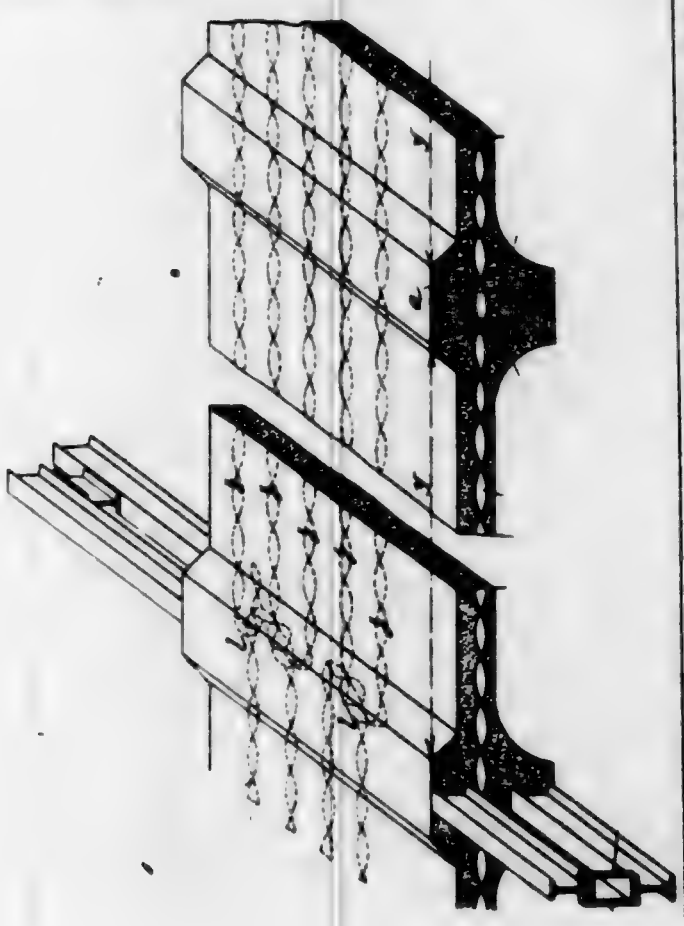
17. In a magazine-gun, the combination of a rotary cartridge-carrier having its forward end provided with a locking-recess, the hammer of firing mechanism, a reciprocatory feeder and ejector having its rear end provided with a hammer-cocking projection working in the path of the hammer and also capable of entering the locking-recess at the forward end of the feeder and ejector to lock the carrier against rotation, and cartridge-ejecting means carried by the feeder and ejector and located in front of the hammer-cocking and carrier-locking projection.

18. In a magazine-gun, the combination with a stock, a hollow breech-shell carried thereby and provided with forward chambers, a gun-barrel in communication with one of the chambers, and a magazine in communication with the other chamber, of a rotary cartridge-carrier mounted in the breech-shell and provided at one side with a cartridge-chamber for alternate alinement with the magazine and the gun-barrel, the opposite side of the carrier being provided with a locking-recess, a firing-pin mounted in an opening formed through the carrier, a rotatable carrier-actuating rod forming a bearing for the carrier and having its forward end projected in advance of the breech-shell and provided with cam-grooves, a reciprocatory hand-grip slidably mounted upon the magazine and provided with a stud or projection working in the cam-grooves to rotate the cartridge-carrier, a rod connected to the hand-grip and having its rear end working within the breech-shell and provided with a locking projection to enter the recess in the carrier at the forward limit of the hand-grip to lock the carrier against rotation, said projection also working in the path of the hammer to cock the same, the intermediate portion of the rod being provided with a longitudinal opening, and cartridge feeding and ejecting means comprising a body slidably mounted in the opening, and having a feed projection to normally lie against the outer side of the rim of a cartridge in the gun-barrel, and also having a pivotal spring-actuated ejector member the free end of which is constructed to lie against the inner side of the rim of a cartridge, and the opening in the rod being of a length to permit of the locking projection being removed from the locking-recess before the ejecting member becomes active.

19. In a magazine-gun, the combination with a rotary cartridge-carrier, of controlling means for rotating the carrier and locking the same against rotation when it is in firing position.

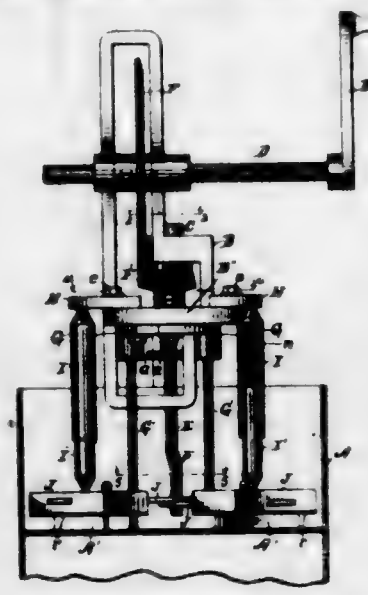
20. In a magazine-gun, the combination of a barrel, a magazine, a rotary cartridge-carrier, and controlling means for rotating the carrier to transfer a cartridge from the magazine to the barrel, and also for locking the carrier against rotation when it is in firing position.

698,966. SYSTEM OF CONSTRUCTION WITH BETON STRENGTHENED BY METAL. HENRICH HENNEL, Brussels, Belgium, assignor to Franz Habrich, Hagen, Germany. Filed May 14, 1901. Serial No. 60,131. (No model.)



Claim.—A new system of construction with beton strengthened by metal comprising the combination of a set of girders arranged in pairs with a space between the members of each pair and quite buried in a block of beton, of intermediate panels of beton, and of metal strengtheners of helically-twisted iron bars passing through between the girders and through said panels and bent back upon themselves in the form of loops, the loops of one panel being engaged by the loops of the adjacent panel, substantially as described.

698,967. VALVE-GRINDING MECHANISM. ABEL HENNING, Ann Arbor, Mich., assignor of two-thirds to Henry W. Douglas, Ann Arbor, Mich. Filed Oct. 31, 1901. Serial No. 80,713. (No model.)



Claim.—1. In a valve-grinder for gas-meters, the combination of a pin C with a coupling for uniting it with a gas-pipe on a meter; a frame B with adjusting-clamp B′ for embracing the said pin C; a horizontal bracket B″; a pair of depending pins G′ secured to the under side of the bracket, B″ by the adjustable bases G; adjustable arms H secured to the top of said bracket B″, having suitable pivot-seats on their under side; a vertical crank-shaft E in the said bracket B″ and driving-gears F, F′, operated by the crank and shaft D′, D; grinding-plates J, J, with pivot-seats on the top thereof; adjustable slotted arms J′, J′, extending from said grinding-plates, the slots of which embrace the downwardly-depending pins G′, G′, and the outer ends of which arms are secured to the crank-shaft E; spring-pressure devices provided with conical pivots at the top and bottom consisting of the tube I and the pin I′ telescoping within the same; and a spring *s* for holding the same normally under tension, placed between the pivot-seats on the arm H and the pivot-seats on the top of the grinding-plate J, all coacting substantially as described for the purpose specified.

2. In a valve-seat-grinding device, the combination of a frame B with means for securing the same to the gas-meter; a horizontal bracket B″; a pair of depending pins G′ secured to the under side of the bracket B″, by the adjustable bases G; adjustable arms H secured to the top of said bracket B″, having suitable pivot-seats on their under side; a vertical crank-shaft E in the said bracket B″ and driving-gears F, F′, operated by the crank and shaft D′, D; grinding-plates J, J, with pivot-seats on the top thereof; adjustable slotted arms J′, J′, extending from said grinding-plates, the slots of which embrace the downwardly-depending pins G′, G′ and the outer ends of which arms are secured to the crank-shaft E; spring-pressure devices provided with conical pivots at the top and bottom consisting of the tube I and the pin I′ telescoping within the same; and a spring *s* for holding the same normally under tension, placed between the pivot-seats on the arm H and the pivot-seats on the top of the grinding-plate J, all coacting substantially as described for the purpose specified.

3. In a valve-seat-grinding device, the combination of the frame B with means for securing the same to the gas-meter; a horizontal bracket secured to the said frame; a downwardly-extending pin secured to the under side thereof; a vertical crank-shaft supported by the said bracket with gears F, F′ for actuating the same; a grinding-plate with pivot seat at the top and a projecting slotted arm, the slot of which embraces the said downwardly-projecting pin, the outer end of which is secured to the said crank-shaft; a spring-pressure device provided with a conical pivot at the top and bottom consisting of the tube I and pin I′ telescoped within the same and forced normally outward by the coiled spring *s* within, all coacting for the purpose specified.

4. In a valve-grinding machine, the combination of a main frame; a downwardly-projecting crank-shaft therefrom; a pin extending down in proximity to said crank-shaft; a plate with a slotted arm to embrace the

said pin and be actuated by the said crank-shaft; and a spring-pressure device for insertion between the said grinding-plate and a fixed part of the frame; and suitable means for actuating the crank-shaft, all coacting for the purpose specified.

5. In a valve-grinding machine, the combination of a suitable stationary frame; a grinding-plate; a spring-pressure device for insertion between the grinding-plate and the frame; and means for oscillating or rotating the grinding-plate, as specified.

693,968. ROUNDABOUT. CHARLES W. HINCHCLIFFE, Lawrence, Mass. Filed June 26, 1901. Serial No. 66,140. (No model.)



Claim.—1. In a roundabout, a series of passenger-carriers, a shaft, a drum, a hub having a series of bars, cables sustained by said bars and connected with said passenger-carriers, means to rotate said shaft and drum to wind said cables and lift the carriers into space, and means to thereafter start said hub with its bars to move said carriers in a circular path.

2. In a roundabout, a series of passenger-carriers, a shaft, a drum, a hub having a series of bars, cables connecting said bars with said passenger-carriers, means to rotate said shaft and drum to wind said cables and lift the carriers into space, and means to couple said hub with said shaft that it and the bars may be rotated in unison with said shaft, to move the carriers in a circular path.

3. In a roundabout, a series of passenger-carriers, a shaft, a drum, a hub having a series of bars, cables connected with said bars and passenger-carriers, means to rotate said shaft and drum to wind said cables and lift the carriers into space, and a locking device operated automatically by one of said cables to couple said hub with said shaft when the passenger-carriers have been elevated to the desired distance, said locking device insuring the rotation of the hub and its arms with said shaft.

4. In a roundabout, a series of passenger-carriers, a hub having a series of bars, cables sustained by said bars and connected with said carriers, a drum, and means to rotate it to wind said cables to lift the carriers that they may be rotated freely in space.

5. In a roundabout, a series of passenger-carriers, a hub having a series of bars, cables sustained by said bars and connected with said carriers, a drum, and means to rotate it to wind said cables to lift the carriers that they may be rotated freely in space, and a rest to receive said carriers and sustain them firmly when passengers are to get in and out.

6. In a roundabout, a passenger-carrier made as a bird having wings, a series of rigid bars, flexible connections between said carriers and the ends of said bars by which the carriers are supported and individually raised, and means to cause said bars to travel in a circular path.

7. In a roundabout, a passenger-carrier having wings, and means to spread said wings and retain them spread while the carriers are in motion and close said carriers when the carriers are permitted to descend to a position of rest.

8. In a roundabout, a passenger-carrier having wings, a weight, and connections between said weight and wings to open said wings as the carrier is lifted into space.

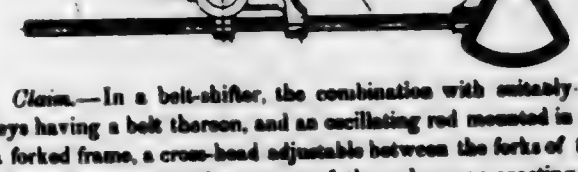
9. In a roundabout, a passenger-carrier composed of a body having a space for passengers and wings at opposite sides said space, and means connected with said wings to close the same on the sides of said body and at the sides of said space to thereby enable passengers to enter the space of said carriers as the latter come to rest.

10. In a roundabout, a passenger-carrier made as a bird having pivoted wings, rods projecting downwardly from said carrier when in motion, and means actuated by said rods to close said wings when the said carrier comes to rest.

11. In a roundabout, a series of passenger-carriers having a series of rods, a series of rigid bars, cables carried by said bars, sheaves connected with said carriers and embraced by said cables, and means to wind said cables to lift said carriers into proper position before starting the bars and the carriers, to move the latter in a circular path.

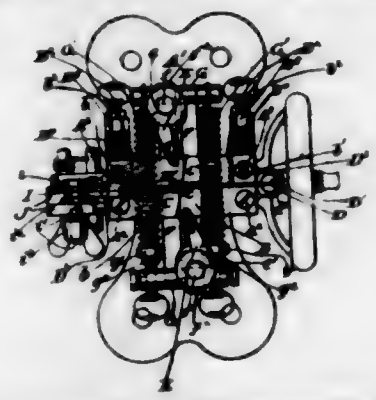
12. In a roundabout, a stationary part, a passenger-carrier composed of a body having a space for passengers and wings at opposite sides of said space, a guided weight having depending rods which, as the carriers come into position of rest meet the stationary part and close said wings upon the bodies of said carriers.

693,969. BELT-SHIFTER. FRANK HIRSCH, Stockholm, Sweden. Filed Aug. 29, 1900. Serial No. 28,477. (No model.)



Claim.—In a belt-shifter, the combination with suitably-arranged pulleys having a belt thereon, and an oscillating rod mounted in bearings, of a forked frame, a cross-head adjustable between the forks of the frame and having a socket for the passage of the rod, means coacting with said socket whereby to render the frame adjustable on said rod, and a loop on said frame for the passage of said belt, substantially as specified.

693,970. SAW-SETTING MACHINE. JOHN HOUT, Schenectady, N. Y. Filed Mar. 11, 1899. Renewed Jan. 20, 1902. Serial No. 90,465. (No model.)



Claim.—1. In a saw-setting machine the combination with a suitable frame, saw-clamping blocks B B', anvils C C provided with similar inclined faces *c* and arranged staggering on said blocks, of crossed levers F F pivoted together at points midway between their opposite ends and provided at their lower ends with toes *f f'* of form described and projected inwardly toward each other, set-hammers E E adapted to be vertically adjusted and fixedly secured on the upper ends of said levers, dual wipers H H of form described mounted on a revolving shaft which is arranged transverse to the lines of movement of the lower arms of said levers, and the adjustable contracting springs G' G' connecting the upper arms of said levers and operating to simultaneously carry said set-hammers with sudden blows against the saw-teeth opposite said anvils, substantially as and for the purposes set forth.

2. In a saw-setting machine, the combination with saw-clamping blocks B B' having a saw-receiving groove between, anvils C C having like inclined faces *c* and located staggering in relation to each other on said blocks and with their adjoining corners at said groove, crossed levers F F pivoted together at about their middle of length and having at their lower ends toes *f f'* described, and set-hammers E E adjustably secured on the upper ends of said crossed levers and having ends *e* of inclination of face corresponding with the inclines of the faces of said anvils, of revolving dual wipers H H of form described and revolving in contact with the toes of said levers, cross-bars G G which are respectively transversely connected to the upper end portions of said levers, adjustable contracting springs G' G' connecting said cross-bars and adjusting-screw mechanism described connecting an end of each of said springs with an end of each of said cross-bars, substantially as and for the purposes set forth.

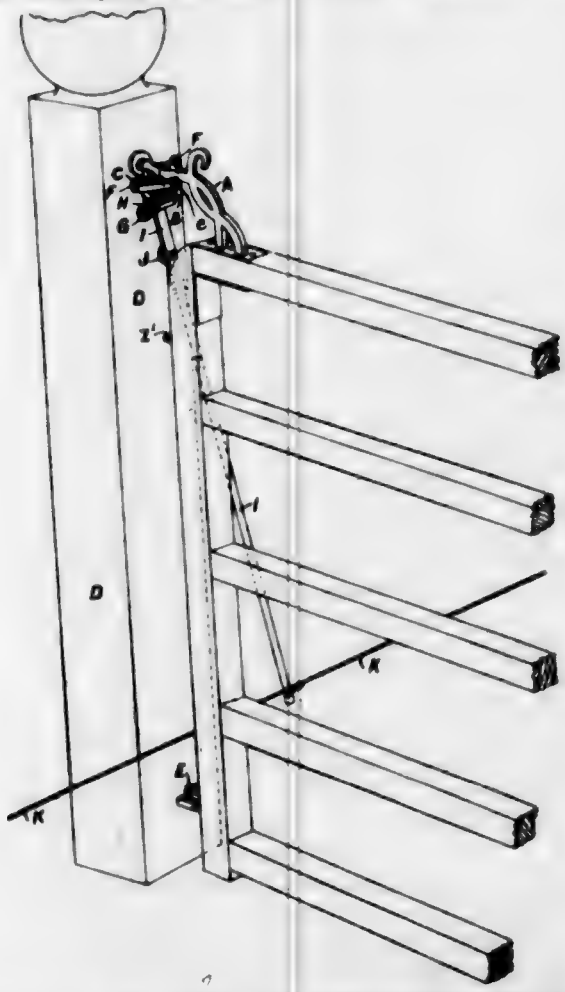
3. In a saw-setting machine, the combination with a suitable frame, stationary clamping-block B, adjustable clamping-block B', adapted to be moved horizontally toward and from said stationary clamping-block and anvils C C described, integral with said blocks and relatively staggering and having like inclinations of faces *c*, of brackets B^3 B^3 supported from said frame, springs B^4 B^4 between said adjustable block and the said brackets, adjusting-screws B^2 B^2 and check-nuts b^2 b^2 for operation, substantially as and for the purposes set forth.

4. In a saw-setting machine, the combination with the crossed levers F F, pivot-pin F' and set-hammers E E carried by the upper ends of said levers and adapted to be adjusted at will horizontally or vertically, of revolving dual cams H H operating with the lower ends of said levers, of cross-bars G G carried by the upper arms of said levers, percussion-springs G' G' between said cross-bars, and mechanism for increasing or lessening, at will the tension of said springs, substantially as and for the purposes set forth.

5. In a saw-setting machine, the combination with a suitable frame, stationary clamping-block B, adjustable clamping-block B' and the vertically-adjustable gage-bar D between the said clamping-blocks and forming a support for a saw, from its back edge, and having its end portions extended outwardly past the respective ends of said clamping-blocks, and suitably supported, of lever J having with its lower end the toe *j'* and its upper end the inclined slot *j*, adjustable pivot *i* adapted to be variously located in the said slotted upper end of the lever, pawl I loosely working on said pivot with its free end riding on the outer end portion of one of said clamping-blocks and vertically over the said vertically-adjustable gage-bar, revolving cam L having an inclined side face revolving in contact with the toe of the lever J, and the reacting spring *k* between the pivot of said lever and the rearward side of the lower arm of the same substantially as and for the purposes set forth.

6. In a saw-setting machine, the combination with the pivoted crossed levers F F, set-hammers E E, carried by said levers, of the cross-bars G G arranged transversely to said levers, of percussion-springs G' G' having each an end secured to one of said cross-bars, of headpieces *g' g'* provided with screw-threaded holes and holding with the opposite ends of said springs, adjusting-screws *g g* working each through a perforation provided in the opposite cross-bars and screwing into said headpieces and mash-nuts g^2 on said screws, substantially as and for the purposes set forth.

693,971. HINGE DEVICE. ROBERT J. IRVING, Port Carlisle, England. Filed Apr. 5, 1900. Serial No. 11,724. (No model.)



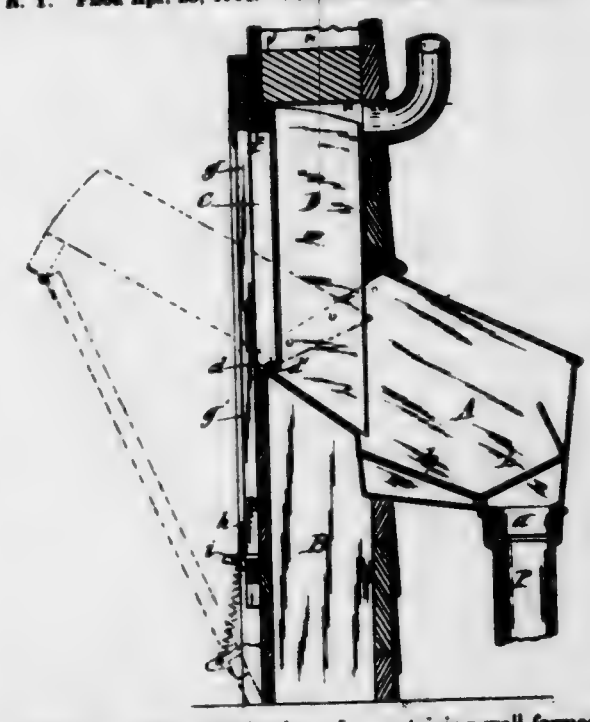
Claim.—1. In a swinging gate, a hinge-bracket having converging slots, a complementary pin member adapted to move in said slots, a similar slotted bracket adapted to engage said pin, and an actuating-lever on which said latter bracket is carried, substantially as described.

2. In a swinging gate, a fixed hinged bracket having converging slots, a lever mounted on a pivot at right angles to the gate, a similar bracket carried by said lever, a hinge-pin engaging both brackets, and means on both sides of said gate to rock said lever, substantially as described.

3. In a swinging gate, in combination with the gate-post, upper and lower pairs of hinges, having members fixed to said post, the fixed member of the upper hinge extending beyond the end of the lower fixed member, one of said members consisting of a bracket having slotted converging arms, a pin on the gate moving in said bracket, a rocking actuating-lever, said lever carrying a bracket similar to said first bracket and adapted to engage said pin, a latch on said gate, and means connected to said lever on both sides of the gate whereby the lever may be rocked in either direction to move the hinge-pin backward and sidewise, substantially as described.

4. In a swinging gate, an actuating-lever therefor, in combination with means for operating said lever consisting of a post, a lever universally pivoted on said post and provided with a counterweight, pulleys mounted on said post and post-lever, a rope or chain passing over said pulleys and connected to the actuating-lever, substantially as described.

693,972. SLOP-DRAIN HOPPER. HILAND H. KENDRICK, Fulton, N. Y. Filed Apr. 25, 1901. Serial No. 57,441. (No model.)



Claim.—1. The combination of a sustaining-wall formed with an opening through it, a hopper extending in one direction from said opening and provided with a discharge-spout, a screen removably seated in said hopper, a removable cover on top of the hopper, a chute hinged to the hopper to swing in the opposite direction from the aforesaid opening, a door connected to said chute to be carried thereby to and from said opening, and a ventiduct leading from said opening as set forth.

2. The combination of a sustaining-wall formed with an opening through it, a hopper extending in one direction from said opening and provided with a discharge-spout, a soil-pipe communicating with said spout, a screen in the hopper, a removable cover on top of the hopper, a chute hinged to the hopper to swing in the opposite direction from the aforesaid opening, and a door hinged in a depending position to the free end of the chute to close the aforesaid opening automatically with the swinging of the hopper as set forth.

3. The combination of a sustaining-wall formed with an opening through it, a hopper extending in one direction from said opening and provided with a discharge-spout, a chute hinged to the hopper to swing in the opposite direction from the aforesaid opening, a door hinged in a depending position to the free end of the chute to close the opening automatically with the swinging of the hopper into said opening, and a spring extending upward from the lower end of said door and connecting the same to the wall to lift the door as set forth.

4. The combination of a sustaining-wall formed with an opening through it, a hopper extending in one direction from said opening and provided with a discharge-spout, a chute hinged to the hopper to swing in the opposite direction from the opening, a door hinged in a depending position to the free end of the chute, an upwardly-forcing spring connecting the lower end of the door to the wall, and a step on the exterior of said door for depressing the door by the foot of the person as set forth.

5. In combination with a sustaining-wall formed with an opening through it, the improved slop-drain hopper having its receiving end ex-

cured in said opening and the main portion of the hopper extending in one direction from the opening and provided with a discharge-spout, a screen seated removably in said hopper, a removable cover on top of the hopper, a chute hinged to the receiving end of the hopper to swing into and out of the aforesaid opening, a door hinged in a depending position to the free end of the chute, an upwardly-forcing spring connecting the lower end of the door to the wall, a step projecting from the door to depress the same by the foot of a person, and a ventiduct extending from the opening in the aforesaid wall as set forth and shown.

693,973. TRANSFORMABLE TRUNK. FRANK E. KNIGHT, Grinnell, Iowa. Filed Dec. 27, 1900. Serial No. 41,219. (No model.)

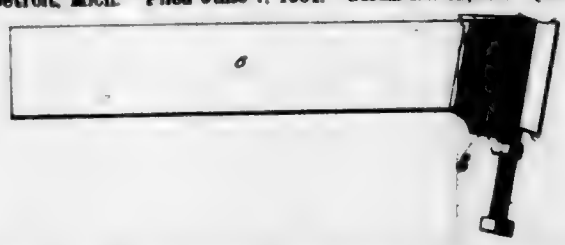


Claim.—1. In a portable trunk a lower portion that is higher at its back than at the front, a top portion fitted on the top of the lower portion, duplex hinges composed of a central portion that is elbow-shaped at one end and has extensions hinged to each end and the extension at the elbow-shaped end fixed to the back of the lower portion of the trunk and the extension at the other end fixed on the front portion of the top, to operate in the manner set forth, for the purposes stated.

2. In a portable trunk, a lower portion that is higher at its back than at the front, a top portion fitted on the top of the lower portion, duplex hinges composed of a central portion that is elbow-shaped at one end and has extensions hinged to each end and the extensions at the elbow-shaped end fixed to the back of the lower portion of the trunk and the extensions at the other ends fixed on the front portion of the top, straight bars and elbow-shaped bars pivotally connected and the ends of the straight bars pivoted to the inside faces and front portions of the mating ends of the lower part of the trunk and the elbow-shaped parts pivoted to the upper rear portions of the same mating ends, to operate in the manner set forth, for the purposes stated.

3. In a portable trunk a lower portion that is higher at its back than at the front, a top portion fitted on the top of the lower portion, duplex hinges composed of a central portion that is elbow-shaped at one end and has extensions hinged to each end and the extensions at the elbow-shaped ends fixed to the back of the lower portion of the trunk and the extension at the other end fixed on the front portion of the top, straight bars and an elbow-shaped bar pivotally connected and the ends of the straight bars pivoted to the inside faces and front portions of the mating ends of the lower part of the trunk and the elbow-shaped parts pivoted to the upper rear portions of the same mating ends, slots in the invertible wooden top, coinciding slots in the overlying parts of the duplex strap-hinges, pins fixed to the central members of said hinges and turn-buttons on the ends of said pins, all arranged and combined to operate in the manner set forth, for the purposes stated.

693,974. LATHE-TOOL. WILLIAM F. KOELLER and HENRY DYER, Detroit, Mich. Filed June 7, 1901. Serial No. 63,547. (No model.)



Claim.—1. In a lathe-tool, in combination, a holder, a socket therein, a blade and a wedge adapted to be held in the socket, said wedge having a lateral projection and means carried by the projection to adjustably support the blade.

2. In a lathe-tool, in combination, a holder, a socket therein, a triangular blade having cutting-corners at both ends, a wedge having a projection, the blade and wedge being held within the socket, and a screw fitted to the projection and adapted to support the blade, the upper end of the screw bearing against the lower end of the blade within its cutting-corners.

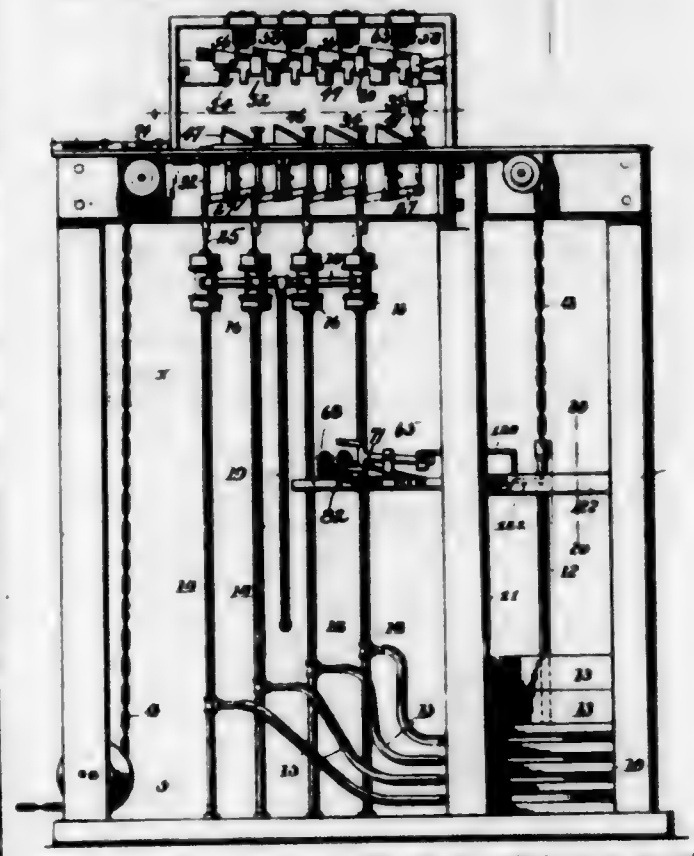
3. In a lathe-tool, in combination, a holder, a socket therein, a blade, a sliding block in the socket adapted to adjustably bind the blade as a wedge and a lateral projection on the block adapted to support the blade as an abutment.

4. In a lathe-tool, in combination, a holder, a socket therein, a blade, a wedge having a projection, and a screw fitted to the projection and adapted to support the blade.

5. In a lathe-tool, in combination, a holder, a socket therein, and a blade comprising a metal block having cutting edges at both ends thereof and a wedge having a projection extending under the lower end of the block and a screw fitted to the projection and adapted to bear against the lower end of the block within the cutting edges.

6. In a lathe-tool, in combination, a holder, a socket therein having a longitudinal front opening, blade-retaining lips at the edges of the opening, a triangular blade in the socket one longitudinal edge of which projects through the opening between the lips, and a wedge between the blade and the back of the socket, said wedge having a projection extending under the lower end of the blade, and a screw fitted to the projection and adapted to support the blade.

693,975. ELECTRICAL OPERATING APPARATUS FOR RAILWAY-GATES. HENRY C. LAVERY, West Superior, Wis. Filed Feb. 15, 1901. Serial No. 47,496. (No model.)



Claim.—1. In an apparatus of the class described, a gate-operating connection, an actuator for said connection comprising means for effecting distinct movements thereof, controlling mechanism acting at intervals upon the actuator to effect its movements, and track devices for causing the operation of the controlling mechanism.

2. In an apparatus of the class described, a gate-operating connection, an actuator for said connection having members arranged to effect distinct movements thereof, controlling mechanism having successively-acting operating devices for the members of the actuator, and track devices for causing an operation of the controlling mechanism.

3. In an apparatus of the class described, a gate-operating connection, an actuator for said connection independent of the track and comprising means for effecting distinct movements of the connection, separate controlling mechanism having successively-acting operating devices for the actuator to effect a gradual closing of the gates, said controlling mechanism also comprising means for operating the actuator to effect a complete opening of the gates as the last axle of the train leaves the crossing, and track instruments for causing an operation of the controlling mechanism.

4. In an apparatus of the class described, a gate-operating connection, an actuator for said connection comprising means for effecting distinct movements thereof, controlling mechanism having successively-acting operating devices for the actuator, and electrical devices controlled from the track, for operating said controlling mechanism.

5. In an apparatus of the class described, a gate-operating connection, an actuator for said connection comprehending a series of actuating devices for successively causing movements of said connection, control-

ling mechanism having successively-acting operating devices for the said actuating devices, and a series of electrical devices associated with the controlling mechanism and in circuit with insulated sections of the track.

6. In an apparatus of the class described, a gate-operating connection, an actuator independent of the track and comprising a series of actuating devices common to said connection and individually and independently rendered active and inactive, controlling mechanism having successively-acting operating devices for the separate actuating devices of the actuator to effect distinct movements of the gate-operating connection, said controlling mechanism also comprising means for operating the separate actuating devices of the actuator to cause the gates to open continuously and completely as the train leaves the crossing, and electrical devices included in circuits with insulated sections of the track and associated with the controlling mechanism.

7. In an apparatus of the class described, a gate-operating connection, an actuator for said connection having members arranged to effect distinct movements thereof, a series of track contact-sections, and controlling mechanism including a series of instruments in circuit with said sections and having successively-acting operating devices for the members of the actuator.

8. In an apparatus of the class described, the gate-arms counterbalanced to normally fall, a gate-operating connection, an actuator for said connection independent of the track and having members arranged to effect distinct movements of the gate-operating connection, and controlling mechanism having successively-acting operating devices for successively operating the members of the actuator to correspondingly relax the gate-operating connection.

9. In an apparatus of the class described, a gate-operating connection, an automatically-controlled actuator for said connection comprehending a series of actuating devices for successively causing movements of said connection, and separate mechanism controlled by the train on the track, and comprising means for successively operating said actuating devices.

10. In an apparatus of the class described, a gate-operating connection, and an actuator independent of the track and comprising a series of automatically-controlled actuating devices common to said connection and individually and independently rendered active and inactive.

11. In an apparatus of the class described, a gate-operating connection, a plurality of successively-operated actuating devices operatively associated with said connection, separate controlling mechanisms for the individual actuating devices, and means for electrically operating said controlling mechanisms.

12. In an apparatus of the class described, a gate-operating connection, an actuator for said connection independent of the track and comprising a plurality of successively-operated actuating devices common to said gate-operating connection, separate controlling mechanisms for the individual actuating devices, and means for automatically operating said controlling mechanism through the medium of the train.

13. In an apparatus of the class described, a gate-operating connection, and an automatically-controlled fluid-pressure actuator therefor comprising means for successively causing distinct movements of said connection.

14. In an apparatus of the class described, a gate-operating connection, a fluid-pressure actuator therefor comprising means for causing distinct movements of the connection, and electrically-operated controlling means for said fluid-pressure actuator.

15. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices common to said gate-operating connection, and electrically-operated controlling means for successively and independently operating each of the separate fluid-pressure actuating devices to effect an intermittent movement of the gate-operating connection.

16. In an apparatus of the class described, a gate-operating connection, a plurality of successively-operated fluid-pressure actuating devices common to the gate-operating connection for causing an intermittent movement of the latter, separate supply and exhaust mechanisms for said actuating devices, and electrical controlling means for said mechanisms.

17. In an apparatus of the class described, a gate-operating connection, a plurality of successively-operated fluid-pressure actuating devices operatively related to said connection for causing an intermittent movement of the latter, separate supply and exhaust mechanisms for said actuating devices, and means, controlled automatically by the movement of the train, for controlling said mechanisms.

18. In an apparatus of the class described, a gate-operating connection, a plurality of successively-operated fluid-pressure actuating devices operatively related to said connection for causing an intermittent movement of the latter, separate supply and exhaust mechanisms for said actuating devices, electrical controlling means for said mechanisms, and means for individually bringing the separate electrical controlling means into play by the movement of the train with reference to the crossing.

19. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices operatively related to said connection for causing an intermittent movement of the latter, electrically-operated controlling means for successively causing the operation of the separate fluid-pressure actuating devices, means for successively bringing the separate controlling means into play, and means for automatically cutting said controlling means out of action.

20. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices operatively related to the said connection for causing an intermittent movement of the latter, electrically-operated controlling means for successively causing the operation of the separate fluid-pressure actuating devices, means for successively bringing the separate controlling means into play, and means for automatically cutting all of the controlling means out of action when the last axle of the train leaves the crossing.

21. In an apparatus of the class described, a gate-operating connection, a plurality of successively-operated fluid-pressure actuating devices operatively related to said connection for causing an intermittent movement of the latter, separate supply and exhaust valves for said actuating devices, adjusting means for the said valves, and electrically-controlled devices for actuating said adjusting means.

22. In an apparatus of the class described, a gate-operating connection, a plurality of superposed fluid-pressure actuating devices operatively related to said connection, and electrically-controlled means for individually operating said devices.

23. In an apparatus of the class described, a gate-operating connection, a plurality of superposed actuating devices operatively related to the gate-operating connection, and automatically-operated individual controlling means for the separate actuating devices.

24. In an apparatus of the class described, a gate-operating connection, a plurality of superposed collapsible fluid-pressure receivers operatively related to the gate-operating connection, and automatically-operated individual controlling means for the said receivers.

25. In an apparatus of the class described, a gate-operating connection, a plurality of fluid-pressure actuating devices operatively related to said connection for causing an intermittent movement of the latter, separate supply and exhaust mechanisms for said actuating devices, said mechanisms including a source of fluid-pressure supply, and supply and exhaust valves, adjusting devices for the valves of said mechanisms, and automatically-controlled operating means for said adjusting devices.

26. In an apparatus of the class described, a gate-operating connection, a plurality of fluid-pressure actuating devices operatively related to said connection, separate supply and exhaust mechanisms, valve-adjusting means, and means partially controlled through the gate-operating connection for operating the said valve-adjusting means.

27. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices operatively related to said connection for causing an intermittent movement of the latter, separate supply and exhaust mechanisms for the actuating devices, valve-adjusting means for said mechanisms, an actuator for said valve-adjusting means, and electrical controlling devices for said actuator.

28. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices operatively related to said connection and comprising means for causing an intermittent movement of the latter, separate supply and exhaust mechanisms for the actuating devices, valve-adjusting means for said mechanisms, an actuator common to the several valve-adjusting means, and electrical controlling devices for said actuator.

29. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices operatively related to said connection, separate supply and exhaust mechanisms for the actuating devices, each supply and exhaust mechanism including a distributing-valve chamber having a pipe connection with an actuating device, a pressure-supply valve and an exhaust-valve, valve-adjusting means for said several mechanisms, and automatically-controlled operating means for the valve-adjusting means.

30. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices operatively related to said connection and comprising means for causing an intermittent movement of the latter, separate supply and exhaust mechanisms for the actuating devices including suitable valves and stems therefor, a valve adjusting lever for the valve-stem of each mechanism, an actuator for said lever, and electrical controlling devices for said actuator.

31. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices for causing an intermittent movement of said operating connection, supply and exhaust mechanisms including valves and stems therefor, an oscillatory valve-adjusting lever for the valve-stem of each mechanism, an actuator for moving said lever in either direction, and electrical controlling devices for said actuator.

32. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices for causing an intermittent movement of said operating connection, supply and exhaust mechanisms

including suitable valves, a valve-adjusting lever for the valve-stem of each mechanism, a traveling actuator for the levers of the several mechanisms, and automatically-operated controlling devices for said actuator.

33. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, supply and exhaust mechanisms including suitable valves, an oscillatory adjusting-lever for the valve-stem of each mechanism, a traveling actuator for the levers of the several mechanisms, said actuator being arranged to move in unison with the gate-operating connection and controlled in its travel thereby, and automatically-operated auxiliary controlling devices for said actuator.

34. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, a supply and exhaust mechanism for each device including suitable valves, an oscillatory adjusting-lever for the stem of each mechanism and having a slotted connection with said stem, an auxiliary actuator connected with each lever, a main actuator for throwing said lever in either direction, and automatically-controlled devices for adjusting the main actuator.

35. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, a supply and exhaust mechanism for each device including suitable valves, an oscillatory adjusting-lever for the stem of each mechanism, each lever being provided with oppositely-located vertically-movable plungers, a traveling actuator adapted to engage the plungers of each lever at either side of the pivotal point of the latter, and automatically-operated controlling devices for said actuator.

36. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, supply and exhaust mechanisms for the actuating devices, separate valve-adjusting means for each of said mechanisms, a traveling actuator arranged to move in unison with the gate-operating connection and common to the several valve mechanisms, and electrical controlling devices for said actuator.

37. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, supply and exhaust mechanisms for said actuating devices, separate valve-adjusting means for each including oppositely-located members, a traveling laterally-swinging actuator for said members, and automatically-operated controlling devices for said actuator.

38. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, supply and exhaust mechanisms for the actuating devices, separate valve-adjusting means for each including oppositely-located members, a traveling laterally-swinging actuator for said members connected for movement with the gate-operating connection, and automatically-operated controlling devices for said actuator.

39. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, supply and exhaust mechanisms for the actuating devices, separate valve-adjusting means for each including oppositely-located members, a traveling laterally-swinging actuator for said members, a guideway for the actuator, means for automatically tripping the actuator from its guideway, and means for automatically readjusting the actuator into its guideway.

40. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, supply and exhaust mechanisms for the actuating devices, separate valve-adjusting means for each including oppositely-located members, a traveling actuator for said members common to the several valve-adjusting means, a guideway for the actuator, means for automatically tripping the actuator from the guideway in the direction of either of the oppositely-located members of any and all of the valve-adjusting means, and means for automatically readjusting the actuator into its guideway.

41. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each including oppositely-located members, a traveling laterally-swinging actuator for said members consisting of separate pivotally-united weight members, a guideway for receiving and holding the unpivoted ends of the actuator, means for automatically releasing the actuator from its guideway in either direction, and means for automatically readjusting the actuator into its guideway.

42. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each including oppositely-located members, a traveling laterally-swinging actuator for said members consisting of separate pivotally-united weight members, a pivotal support for the actuator contiguous to its heel end, a guideway for receiving and holding the unpivoted end of the actuator, and means for automatically releasing the actuator from the guideway in either direction, and a resetting device arranged for engagement by either the longer portion or heel end of the actuator to provide for automatically readjusting the same into its guideway.

43. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each including oppositely-located members, a carriage movable with the gate-operating connection, a laterally-swinging actuator for said members carried by the carriage, a guideway for the actuator, means for automatically tripping the actuator from its guideway, and a resetting device consisting of a series of triangular cam projections arranged at one side of the support for the actuator-carriage and provided with curved edge portions adapted to be engaged by either the long portion or heel end of the actuator.

44. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each including oppositely-located members, a traveling laterally-swinging actuator for said members, a guideway arranged longitudinally of the path of movement for the actuator and provided with a channel and oppositely-disposed drop-openings, automatically-controlled trips for covering and uncovering said drop-openings, and means for automatically resetting the actuator.

45. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each, a traveling laterally-swinging actuator for said adjusting means, a guideway for the actuator provided with a longitudinally-disposed channel, side drop-openings and side entrance-guides, automatically-controlled trips, and resetting means for the actuator.

46. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each, a traveling laterally-swinging actuator for said adjusting means, a guideway for the actuator provided with side drop-openings and side entrance-guides, said entrance-guides upon opposite sides being respectively disposed in opposite directions, electrically-controlled trips for covering and uncovering the drop-openings, and resetting means for the actuator.

47. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each, a traveling laterally-swinging actuator for said adjusting means, a guideway for the actuator provided with side drop-openings and side entrance-guides, said entrance-guides upon opposite sides being respectively disposed in opposite directions and also bearing an alternate relation, electrically-controlled latches having diagonally opposite trips cooperating with openings respectively upon opposite sides of the guideway, and resetting means for the actuator.

48. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each, a traveling actuator for said adjusting means, a guideway for the actuator, a series of armature trip-latches associated with the guideway and having trips cooperating with the drop-openings thereof, a series of controlling-magnets for operating the said latches, means for energizing and deënergizing said magnets, and resetting means for the actuator.

49. In an apparatus of the class described, a gate-operating connection, a series of fluid-pressure actuating devices, valve mechanisms for the actuating devices, separate valve-adjusting means for each, a traveling actuator for said adjusting means, a guideway for the actuator, a series of armature trip-latches associated with the guideway and comprising means for tripping the same in either direction, a series of controlling-magnets for operating the said latches, means for successively energizing said magnets, means for automatically cutting said magnets out of play, and means for automatically resetting the actuator into the guideway.

50. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a plurality of controlling-magnets, individual circuits for the controlling-magnets, and a circuit-controller comprising means for automatically short-circuiting the entire series of controlling-magnets.

51. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a plurality of controlling-magnets, individual circuits for the controlling-magnets, and a circuit-controller comprising means for automatically and simultaneously short-circuiting the entire series of controlling-magnets as the last axle of the train leaves the crossing.

52. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a plurality of controlling-magnets, individual circuits for the controlling-magnets, and a circuit-controller comprising means for breaking the working circuits of all of the controlling-magnets when the train reaches the crossing, and for automatically short-circuiting said magnets when the last axle of the train leaves the crossing.

53. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a plurality of controlling-magnets, individual circuits for the controlling-magnets, and

a circuit-controller comprising separate electromagnetic circuit-closing instruments, one being normally closed and the other normally open, and the working circuits for the controlling-magnets having a return through the normally open instrument to maintain the same in such condition, means for automatically energizing one instrument and deënergizing the other instrument to permit the latter to short-circuit the controlling-magnets.

54. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a plurality of controlling-magnets, individual working circuits for the controlling-magnets, a circuit-controller comprising separate electromagnetic circuit-closing instruments each having an armature contact-lever, means carried by one of said levers for temporarily holding the other in an inactive position, and operating-circuits including both instruments of the circuit-controller.

55. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a plurality of controlling-magnets, individual working circuits for the controlling-magnets, a circuit-controller comprising separate electromagnetic circuit-closing instruments, one of which includes short-circuiting or cut-out connections for all of the controlling-magnets, and an armature-controlled bridge coöperating with said connections, and means for causing the automatic energization and deënergization of the circuit-closing instruments.

56. In an apparatus of the class described, a gate-operating connection, controlling mechanism for said gate-operating connection including a plurality of controlling-magnets, working circuits for the controlling-magnets, a circuit-controller comprising separate electromagnetic circuit-closing instruments each having a swinging contact-lever, means for causing the automatic energization and deënergization of the circuit-closing instruments, and a setting-arm movable with the gate-operating connection and adapted, when the apparatus is inactive, to rest upon the lever of one of said instruments to hold it in an inoperative position.

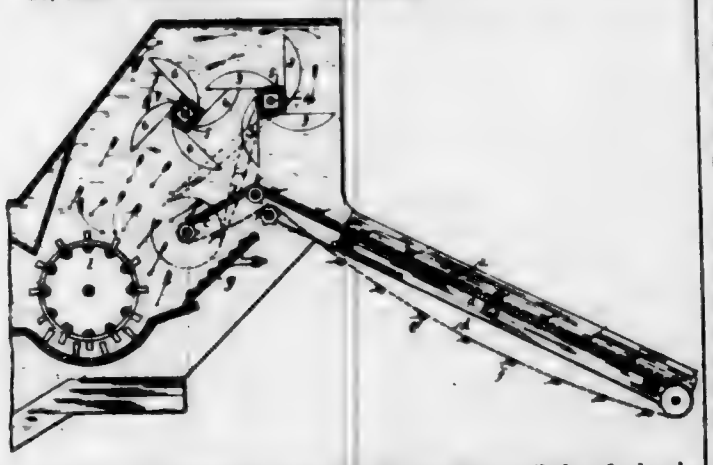
57. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a plurality of controlling-magnets included in regular order in the successive working circuits, circuit-closing devices arranged in the separate working circuits, and means for automatically and separately controlling the said circuit-closing devices to provide for concentrating the supply of electrical energy in the magnet being used.

58. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a plurality of controlling-magnets arranged for successive use in regular order, individual working circuits for the controlling-magnets, a circuit-controller, a signal device, and electrical connections including said signal device to provide for automatically actuating the same.

59. In an apparatus of the class described, gate-operating means, controlling mechanism for the gate-operating means including a traveling member, an alarm-circuit including an electrical signal, and a normally open circuit-closer having a member intermittently actuated by said traveling part of the apparatus.

60. In an apparatus of the class described, gate-operating means, electrical controlling mechanism for the gate-operating means including a plurality of controlling-magnets, a series of insulated track contact-sections in advance of the crossing and in circuit with said controlling-magnets, central track contact-sections arranged at the crossing, a circuit-controller, and circuit-wire connections each including said circuit-controller, one of the controlling-magnets and said contact-sections at the crossing.

698,976. BAND-CUTTING AND FEEDING DEVICE FOR THRESHING-MACHINES. William D. Lindsay, Milwaukee, Wis. Filed Oct. 29, 1900. Serial No. 34,760. (No model.)



Claim.—1. The combination with the threshing-cylinder of a threshing-machine; a conveyer for the unthreshed straw; a set of revolving blades adapted to cut the bands of the bundles carried by the conveyer; another set of blades arranged and adapted to freely enter the straw, and revolved at such speed as to lift and distribute the same centrifugally; said last-mentioned set of blades being arranged with a free and unobstructed space between the same and the larger portions of the front and upper surface of the cylinder of such dimensions, that the centrifugally-distributed straw will reach the cylinder in a vertically-separated condition.

2. The combination of a conveyer for unthreshed straw, provided with bundle-engaging projections; a set of revolving blades adapted to cut bands while the bundles are being carried by the conveyer; another set of blades arranged and adapted to freely enter the straw and revolved at such speed as to lift, distribute and project the same centrifugally; a threshing-machine casing, formed with an unobstructed receiving-throat, leading to the thresher; and a threshing-cylinder so located as to receive the projected straw in a vertically-separated condition upon its front and upper surface.

3. The combination with the threshing-cylinder of a threshing-machine; a conveyer for the unthreshed straw, having bundle-holding projections; a set of revolving blades adapted to cut the bands of the bundles carried by the conveyer; another set of blades arranged and adapted to interact with the blades of the first-mentioned set, and to freely enter and lift the straw, said last-mentioned blades being revolved at such speed as to lift and distribute the straw centrifugally, and the cylinder and blades being located in such relation that the former will receive the straw distributed by the latter while such straw is separated by centrifugal force.

4. The combination with the threshing-cylinder of a threshing-machine; of a conveyer for the unthreshed straw, provided with bundle-holding projections; a plurality of sets of revolving interacting blades, each set being arranged transversely of the conveyer, and adapted to freely enter the straw carried thereby, and with one of said sets located approximately over the discharge end of the conveyer, and revolved at such speed as to lift and distribute the straw centrifugally over the opposing surface of the cylinder with sufficient space between the cylinder and the blades of the last-mentioned set to permit the centrifugal distribution of the straw over a maximum cylinder-surface.

5. The combination with the threshing-cylinder of a threshing-machine; of a conveyer for the unthreshed straw, extending in two directions from an intermediate point or crown, and provided with bundle-holding projections; a set of revolving blades located slightly ahead and above the crown of the conveyer, and adapted to cut the bands of the bundles carried over the crown of the conveyer; and a second set of blades located approximately over the discharge end of the conveyer, and adapted to freely enter the unbound bundles, said second set of blades being revolved at such speed as to lift the straw and distribute the same centrifugally over the opposing surface of the cylinder.

6. The combination with the threshing-cylinder of a threshing-machine; of a conveyer for the unthreshed straw, extending in two directions from an intermediate point or crown; a set of revolving band-cutters arranged transversely of the conveyer; a set of distributing-blades arranged to interact with the band-cutters, and adapted to freely enter the unbound bundles, said distributing-blades being driven at a comparatively high rate of speed with reference to the conveyer, and at a sufficient speed to lift the straw vertically and distribute the same centrifugally over the exposed surface of the cylinder, the space between said blades and the front and upper surfaces of said cylinder being unobstructed and of such dimensions as to permit said distribution.

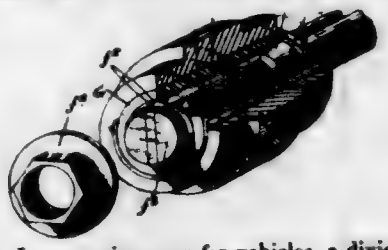
7. The combination with the threshing-cylinder of a threshing-machine; of a conveyer for the unthreshed straw; a transverse set of revolving band-cutting blades; a second set of revolving distributing-blades arranged to interact or lap past the blades of the first-mentioned set, and adapted to freely enter and lift the straw; and a housing covering the cylinder and blades, with an unobstructed space between the blades and the front and upper portions of the cylinder, said blades being located to coöperate with the conveyer in delivering the straw to the cylinder, and revolved at such speed as to lift and distribute the straw centrifugally over the latter, and to return any excess of straw over the blades of the first-mentioned set, which might otherwise interfere with the centrifugal distribution of the remainder.

8. The combination with the threshing-cylinder of a threshing-machine; of a conveyer for the unthreshed straw; a plurality of sets of revolving blades, each set being arranged transversely of the conveyer, with its members arranged to interact or lap past the blades of another set, into close proximity with the line of support for such other set of blades, and each member being located in a plane adjacent to the plane of one member of the other set and in proximity thereto, said second set of blades being so located, and revolved at such speed, as to throw the straw in divergent lines to the cylinder.

9. The combination with the threshing-cylinder of a threshing-machine; of a conveyer for the unthreshed straw; a plurality of sets of revolving blades located and adapted to interact or lap past each other, and to freely enter the straw upon the conveyer, the blades of one set being revolved at a high speed and arranged with an open, unobstructed space

between them and the cylinder, adapted to permit the straw to be distributed centrifugally from the blades to the cylinder, said blades being adapted to cooperate with the conveyer in distributing the straw.

693,977. VEHICLE-GEAR. WILLIAM L. MARSHALL, Port Perry, Canada. Filed May 17, 1901. Serial No. 60,748. (No model.)



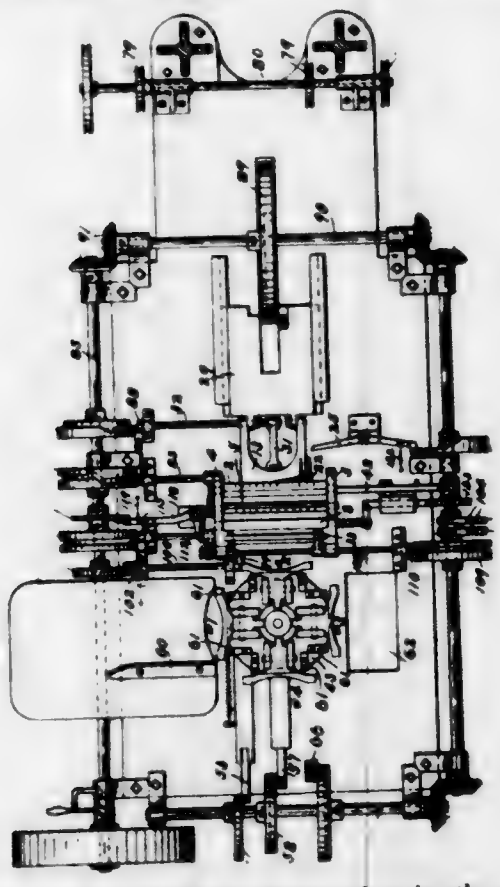
Claim.—1. In a running-gear for vehicles, a divided axle comprising two semicylindrical bars suitably held together in the center, the said bars having tapering ends, means for holding the ends apart, said ends being screw-threaded, substantially as described.

2. In a running-gear for vehicles, a divided axle comprising two bars suitably connected together in the center and having end arms with ribs extending between and holding the bars apart at each end and separating-blocks provided with flanges at the top and bottom extending at each side onto the two bars as and for the purpose specified.

3. The combination with the divided axle-bar, of an arm comprising a sleeve-shaped inner end with a tapered central bar attached to or forming parts of the same and extending between the divided axle-bars and provided with flanges and the threaded end formed partially on the divided bar and central bars as and for the purpose specified.

4. The combination with the divided axle-bar, of an arm comprising a sleeve-shaped inner end with a tapered central bar attached to or forming part of the same and extending between the divided axle-bars and provided with flanges and the threaded end formed partially on the divided bar and central bars, a boxing suitably held in the hub through which such arm extends and a cap-nut on the threaded end of the arm and axle as and for the purpose specified.

698,978. MACHINE FOR STICKING SAFETY-PINS. WILLIAM D. MIDDLEBROOK, Waterbury, Conn., assignor to Oakville Company, Waterbury, Conn., a Corporation of Connecticut. Filed May 25, 1898. Serial No. 681,680. (No model.)



Claim.—1. In a machine for sticking safety-pins, the combination of mechanism for sticking safety-pins, and means for presenting the material upon which the pins are to be stuck to said mechanism.

2. In a machine for sticking safety-pins, the combination of mechanism for sticking safety-pins, and means for presenting the material upon which the pins are to be stuck to said mechanism and delivering the filled material.

3. In a machine for sticking safety-pins, the combination of mechanism for sticking safety-pins, means for delivering pins thereto, and means for presenting the material upon which the pins are to be stuck to said mechanism and delivering the filled material.

4. In a machine for sticking safety-pins, the combination of crimpers, means for feeding the material to said crimpers, means for thrusting the points of one or more pins through the material, and means for closing the pins.

5. In a machine for sticking safety-pins, the combination of crimpers, means for feeding the material to said crimpers, means for opening the pins, thrusting said pins through the material, and closing said pins.

6. In a machine for sticking safety-pins, the combination of crimpers, means for feeding the material to said crimpers, means for feeding the pins, means for opening the pins, thrusting said pins through the material, and closing said pins.

7. In a machine for sticking safety-pins, the combination of means for moving the point of a pin away from the catch and means for moving the catch laterally.

8. In a machine for sticking safety-pins, the combination of a rotary bar provided with one or more slots for holding pins, and means for arresting the movement of the ends of the pins.

9. In a machine for sticking safety-pins, the combination of a rotary bar provided with one or more slots for holding pins, an opener-bar for engaging the ends of the pins, and means for moving one of said bars laterally.

10. In a machine for sticking safety-pins, the combination of a rotary bar provided with one or more slots for holding pins, an opener-bar for engaging the ends of the pins, means for moving the opener-bar laterally, and means for withdrawing the pins from said slots.

11. In a machine for sticking safety-pins, the combination of a bar having one or more slots extending therethrough, a stop in front of said bar, a laterally-moving opener-bar for engaging the ends of the pins, and means for withdrawing the pins from said slots.

12. The combination with a magazine for the pins, of a separator provided with a slot to register with the mouth of the magazine, a stop on said separator for retaining the pins in the magazine, and means for reciprocating said separator.

13. In a machine for sticking safety-pins, the combination of one or more chutes, a bar having one or more slots registering with said chutes, one or more reciprocating grippers, and means for rocking said bar to carry the rear ends of the pins into said grippers.

14. In a machine for sticking safety-pins, the combination of one or more reciprocating grippers, means for delivering the pins to said grippers, and opening said pins.

15. In a machine for sticking safety-pins, the combination of one or more reciprocating grippers, means for delivering the pins to said grippers, means for opening the pins, crimpers, and means for closing the pins.

16. In a machine for sticking safety-pins, the combination with crimpers, of one or more grippers for thrusting the pins through the material.

17. In a machine for sticking safety-pins, the combination with crimpers, of one or more grippers for thrusting the pins through the material, and means for closing the pins.

18. In a machine for sticking safety-pins, the combination of one or more grippers, for thrusting the points of the pins through the material, and one or more cam-surfaces for forcing the catch of the pins toward the point.

19. In a machine for sticking safety-pins, the combination of one or more grippers for thrusting the points of the pins through the material, and one or more cam-surfaces for forcing the catch of the pins toward the point, and means for moving the catch laterally.

20. In a machine for sticking safety-pins, the combination of crimpers, means for thrusting the points of the pins through the material, and one or more conical guides for guiding the points to said material.

21. In a machine for sticking safety-pins, the combination of crimpers, one or more reciprocating grippers for thrusting the points of the pins through the material, and one or more conical guides for guiding the points to said material.

22. In a machine for sticking safety-pins, the combination of a female crimper, a male crimper provided with one or more grooves for the passage of the pin-points, and a reciprocating guide-plate provided with one or more guides for directing the points to said grooves.

23. The combination with means for feeding the material, of male and female crimpers, one of said crimpers being formed in two sections, and means for operating said sections successively.

24. In a machine for sticking safety-pins, the combination of means for thrusting the points of the pins through the material, a pivoted closing-bar for engaging the catch of the pins, and means for rocking said bar and moving said bar laterally.

25. In a machine for sticking safety-pins, the combination of means for thrusting the points of the pins through the material, a closing-bar provided with one or more recesses for receiving the catches of the pins, and means for rocking said bar and moving said bar laterally.

26. The combination, in a machine of the character described, of reciprocating gripper-jaws to grasp the pin and insert its point in the card or paper and a presser and means to actuate the same to close the pin.

698,979. GRAIN-CAR DOOR. JOHN MONTGOMERY, Simcoe, Canada. Filed Aug. 19, 1901. Serial No. 72,487. (No model.)



Claim.—1. In a grain-door, the combination of a door, a vertical rod arranged in proximity to a door-post, a double hinge arranged to turn on the rod and on a pintle located at the opposite side of the door and to bring the door between the rod and the door-post, substantially as described.

2. In a grain-door, the combination of a door longer than the distance across the door-opening, a rod arranged vertically beside the door-post on the side thereof toward the inside of the car and inside of the closed position of the door, a tube sleeved on the rod, a hinge having one leaf secured to the tube and one leaf secured to the door on the side thereof which lies toward the outside of the car when the door is closed, the leaf secured to the tube being arranged to extend across the end of the door, means provided for an extension of the door, which extension is arranged to bear against the door-post, substantially as described.

3. In combination with the door-post of a car, a rod arranged parallel thereto, a door arranged to engage between the post and the rod, and hinge connections arranged to turn on the rod and on a pintle intermediate the rod and door and to permit both swinging and horizontal sliding of the door, substantially as described.

4. In combination with the door-post of a car, a rod arranged parallel thereto, a door arranged to engage between the post and the rod, a hinge slidingly connected with the rod, secured to the door and arranged to engage across the end of the door, and between the door and the post and to take end thrust of the door, and with a hinge-joint between the rod and the door connection, whereby the door is adapted to have swinging motion on either the hinge-pintle or the rod, a horizontal reciprocating motion, or a vertical sliding motion, substantially as described.

5. In combination with a car-door, a vertical rod secured to the car and spaced therefrom to admit the door between the rod and the door-frame, a tube sleeved on said rod and bearing on the face of the door when the latter is closed, hinge-leaves secured to said tube, hinge-leaves secured to the door and pintle connections for the hinge-leaves, substantially as described.

6. In combination with a car-door, a vertical rod secured to the car and spaced therefrom to admit the door between the rod and door-frame parallel with a door-post and at the side thereof inside the car, a tube arranged to slide on said rod and bearing on the face of the door when the latter is closed, hinge-leaves secured to the tube arranged to extend across the end of the door, angled hinge-leaves secured to the door on the side thereof toward the outside of the car and pintle connections spaced from the door by the angled hinge-leaves, substantially as described.

7. In combination with a car-door and an extension slidingly held thereto, a lever pivoted to the extension, a socket in the door having a bearing-face arranged to engage the end of the lever when the free end of the lever is swung against the face of the slide, and a bearing-face arranged to engage the lever near the end and at the side thereof when the lever is swung out substantially to a right angle to the slide, said lever being free from actuating engagement with the socket after it leaves its engagement with either bearing-face until it engages the opposite bearing-face.

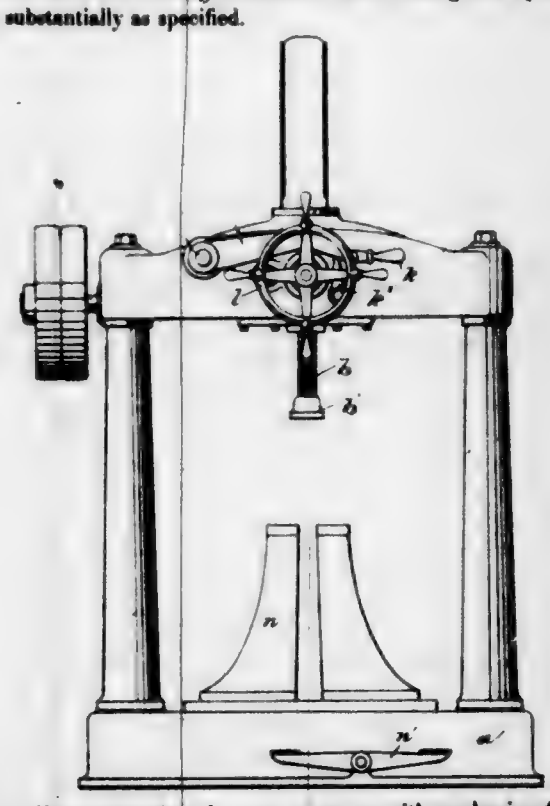
698,980. HAND AND POWER SCREW-PRESS. EDWARD A. MULLER, Springfield, Ohio. Filed July 31, 1901. Serial No. 70,349. (No model.)

Claim.—1. The combination of a pressure-screw, mechanism for driving same normally connected to said screw but adapted to be disconnected by the resistance to the screw, and means for holding connected said screw and driving mechanism against the resistance to the screw.

2. The combination with a pressure-screw of power driving mechanism, a clutch for connecting said parts, means for moving automatically said clutch out of connecting position, and mechanism for holding same in holding position against the resistance to the pressure-screw.

3. The combination of a pressure-screw and power driving mechanism normally connected, means for automatically disconnecting said parts, and hand-operated levers for connecting said parts against the resistance to the screw.

4. The combination of a pressure-screw, lever-operating devices, and releasable mechanism held in engagement with said screw by said lever-operating devices, for driving said screw into operative position, and means, actuated by the resistance to the screw, for automatically disconnecting said screw from said driving mechanism after reaching said operating position, substantially as specified.



5. The combination of a pressure-screw with mechanism for driving said screw longitudinally into operating position, intermediate mechanism for automatically disconnecting the screw after reaching operative position, and means for connecting said parts and holding same connected against resistance to said screw.

6. The combination of a pressure-screw with gears for driving said screw, hand-operated devices for holding connected said gears, and intermediate mechanism for automatically disconnecting said gears, and means for allowing for a movement of said hand-operated devices before said intermediate mechanism begins to disconnect said gears.

7. The combination of the pressure-screw with gears for driving said screw, keys for connecting said gears to said pressure-screw, intermediate mechanism for automatically releasing said gear, and means for allowing a partial rotation of said gears before disconnecting said parts, substantially as described.

8. The combination with the pressure-screw, gears for driving said screw, means including levers for holding connected said gears, mechanism for automatically releasing said gears, a slotted connecting part for allowing said levers some movement before said mechanism begins to release said gears.

9. The combination with a pressure-screw, and an operating-nut for said screw, of releasable means for operating said nut to drive said screw, lever-operating mechanism to hold said means in engagement against the resistance to the screw, and devices for automatically throwing said means out of engagement by the resistance to the screw, substantially as specified.

10. The combination with a pressure-screw, and means to prevent its rotation, of an operating-nut for said screw, and means to operate said nut, normally held out of engagement by the resistance to said screw, and a hand-lever to hold said operating means in connection with said nut, substantially as specified.

11. The combination with the pressure-screw, an operating-nut for said screw, and means, including a worm and worm-gear, to operate said nut and drive said screw, of a coupling for said nut, means for automatically releasing said coupling, and means for holding connected said coupling against the resistance to said screw, substantially as specified.

12. The combination with a pressure-screw, an operating-nut for said screw, and means, including a worm and worm-gear, to operate said nut and drive said screw longitudinally, of a coupling for said nut having a connection to said worm, and a hand-lever also connected to said coupling, to hold said coupling in engagement with said nut against the resistance to the pressure-screw, substantially as specified.

13. The combination of a pressure-screw with power driving mechanism, and a clutch, said screw and driving mechanism being normally connected by said clutch, levers and a yoke operated by said levers for moving said clutch into operative position against the resistance to the screw, and into inoperative position by the resistance to the screw, for the purpose of connecting and disconnecting said screw and driving mechanism.

14. The combination of a pressure-screw, with power driving mechanism, normally connected with said screw, of a compound lever for dis-

connecting said mechanism and screw, consisting of two parts adapted to be held coupled together until the resistance to the screw uncouples same, substantially as specified.

15. The combination of a pressure-screw, with power driving mechanism, normally connected with said screw, of a hand-operated compound lever having its two parts normally coupled together, and means for uncoupling said parts by the resistance to the screw, substantially as specified.

16. In a pressure-screw machine, a pressure-screw, releasable driving mechanism for said screw, hand-operated mechanism for connecting, and automatic means actuated by the resistance to the screw, for disconnecting said screw and driving mechanism, and means for returning said screw independent of said hand operating and driving mechanism, substantially as specified.

17. The combination of a power pressure-screw with an operating-nut on said screw, the upper end of the screw being flattened, a yoke on said upper end, and means for holding said yoke while said screw is driven longitudinally, for the purpose specified.

18. The combination with a pressure-screw and driving mechanism for said screw, of an operating-nut for said screw, a yoke having a slotted opening on the upper end of said nut, a roller-bearing for following the movement of said nut and preventing the rotation of said screw, substantially as specified.

19. In a power pressure-machine, the combination of a pressure-screw with pedestals for holding the work to be operated upon by said screw, a foot-lever, mechanism operated by said foot-lever for forcing said pedestals together, for the purpose specified.

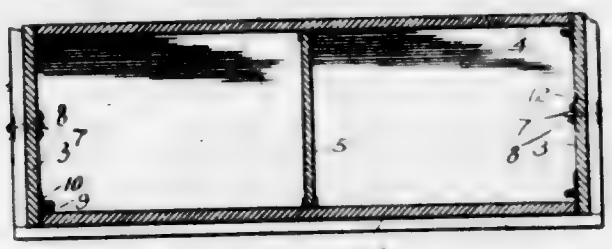
20. In a pressure-screw machine, the combination of a pressure-screw with pedestals, segmental gears connected to said pedestals, and a foot-lever arranged to operate said gears both for drawing together said pedestals by one movement of said foot-lever and by the opposite movement thereof for forcing apart said pedestals, substantially as described.

21. The combination of the pressure-screw, mechanism for driving same normally connected to said screw but adapted to be disconnected by the resistance to the screw, clutch mechanism connecting said screw and driving mechanism, holding devices for said clutch mechanism, and means for releasing said clutch mechanism after a partial movement of said holding devices.

22. The combination with the pressure-screw, of power driving mechanism, a clutch for connecting said parts, means for moving automatically said clutch out of connecting position, mechanism for holding said parts in connected position against the resistance to the pressure-screw, and devices for allowing a partial movement of said mechanism before it begins to return said clutch to holding position.

23. The combination of the pressure-screw, a revolving nut on said screw, a clutch for connecting said parts, driving mechanism consisting of a worm and gear, the worm of said mechanism being adapted to be moved longitudinally, holding devices for said clutch and a slotted connecting part for permitting said worm to move longitudinally before said nut and screw are disconnected, substantially as and for the purpose specified.

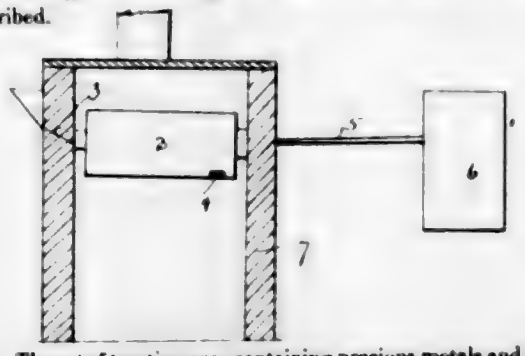
693,981. FOLDING CASE OR CRATE. ALEXANDER MCDONALD, Ashley, Ohio. Filed July 2, 1901. Serial No. 66,819. (No model.)



Claim.—A folding crate or case comprising shallow tray-like top and bottom sections, end pieces formed in their lower edges with slots, right-angled pins on the bottom section fitting in said slots, loops on the end pieces engaging said pins and hinging the end pieces thereto, the slots being of such length as to allow the end pieces when turned down to be adjusted to compensate for expansion and contraction and prevent overlapping, side pieces, tongue-and-grooved strips upon the ends of the side and end pieces whereby said pieces are adapted to be connected and disconnected by an endwise sliding movement, grooved metallic strips upon the inner faces of said side pieces, a partition adapted to be slidably fitted in said strips, and fastenings for connecting the top section with the end pieces and with said bottom section, substantially as described.

693,982. PROCESS OF REDUCING CARBONACEOUS ORES. ROBERT MCKNIGHT, Philadelphia, Pa., assignor to Metallic Condense Company, a Corporation of Delaware. Filed Dec. 5, 1900. Serial No. 38,739. (No specimens.)

Claim.—1. The art of treating ores containing precious metals and carbonates, which consists in heating the ore in the presence of sulfur, until the carbonates are converted into sulfur compounds, and continuing the heating in the presence of a haloid salt of an alkaline or alkaline-earth metal, with access of air, until the alkaline metal or alkaline-earth metal combines with the sulfur and with oxygen to form a non-volatile sulfate of the alkaline or alkaline-earth metal, and the liberated halogen unites with the precious metal, as a haloid salt or an oxyhaloid of said precious metal, and volatilizing and collecting said haloid or oxyhaloid salt; substantially as described.

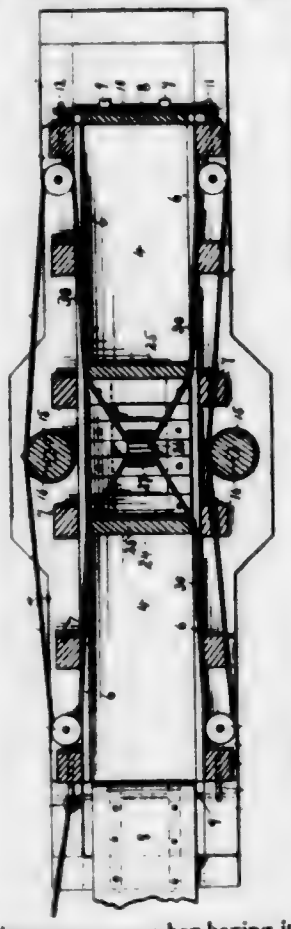


2. The art of treating ores containing precious metals and carbonates, of a baser metal, which consists in heating the ore in the presence of sulfur and a haloid salt of an alkaline or alkaline-earth metal, until the carbonic-acid radical passes off, and continuing the heating with access of air, until the sulfur combines with oxygen and the alkaline or alkaline-earth metal, and forms a sulfate of such alkaline or alkaline-earth metal, and the liberated halogen unites with the precious metal, and volatilizing the precious metal as a haloid or oxyhaloid; substantially as described.

3. The art of treating ores containing precious metals and impurities in the form of carbonates, which consists in heating the ore with sulfur, apart from the products of combustion, and with the regulation of the admission of air, until the carbonates are converted into sulfids, and continuing the heating with access of air in the presence of a haloid salt of an alkaline metal, and until a haloid salt of the metal to be recovered is formed, and continuing the heating until the same passes off; substantially as described.

4. The art of treating ores containing precious metals and impurities in the form of carbonates, which consists in heating the ore with access of air with sulfur until the carbonates are converted into sulfur compounds, and continuing the heating of the ore with access of air with a chlorid of an alkaline metal, until a chlorid of the precious metal is formed and the same is volatilized and driven off; substantially as described.

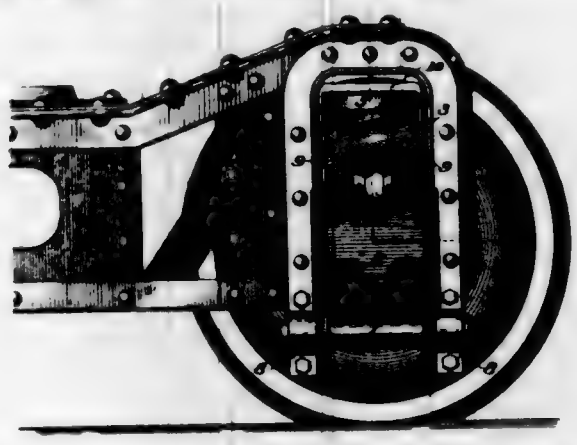
693,988. BALING-PRESS. WALTER S. MCLENDON, Estabutchie, Miss., assignor of one-half to Ross Wedgeworth, Estabutchie, Miss. Filed Aug. 9, 1901. Serial No. 71,513. (No model.)



Claim.—In a baling-press, a press-box having its opposite ends open and provided with suitable closures, said press-box being further provided

with longitudinal slots in its sides and direction-sheaves at its ends, in line with said slots, in combination with a follower in the press-box, adapted to be moved in either direction therein and having a central transverse opening, winding-drums on opposite sides of and without the press-box, out of the path of the follower and intermediate the ends of the press-box, means to simultaneously rotate said drums in either direction and a flexible connecting element secured to and partly coiled in reverse directions on said respective drums, and having bights engaging said direction-sheaves, disposed in said slots and rove through the central opening in the follower, substantially as described.

693,984. CAR-TRUCK. SAMUEL W McMUNN, Chicago, Ill. Filed July 27, 1901. Serial No. 69,894. (No model.)



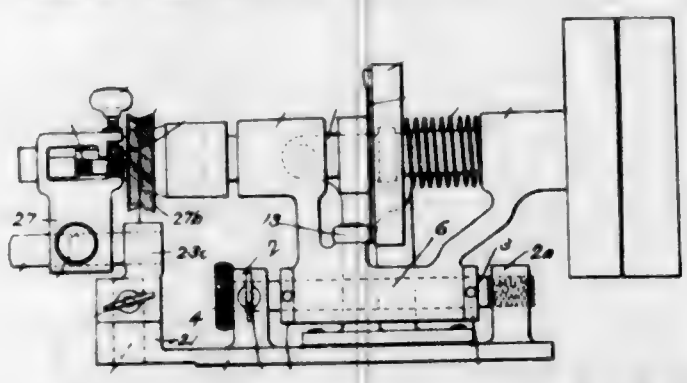
Claim.—1. The combination with a car-truck, and an axle-box, of a supporting-spring, a cap-piece fitting the upper end of the spring, and suspension-links pivotally connecting said cap-piece with the truck, and having a laterally-widened bearing on said cap-piece, substantially as set forth.

2. In combination with a car-truck, and an axle-box, of a supporting-spring, a cap-piece fitting the upper end of the spring, a pivot-rod secured to the truck-frame beneath the axle-box, and suspension-links pivotally connected to said rod, and having a laterally-widened horizontal member which bears upon the cap-piece, substantially as set forth.

3. The combination with a car-truck, and an axle-box, of a supporting-spring, a cap-piece fitting the upper end of the spring, and a suspension member comprising two vertical links integrally connected together at top by a laterally-widened horizontal member, the said member connecting the cap-piece to the truck in a pivotal manner, substantially as set forth.

4. The combination with a car-truck, and an axle-box, of a supporting-spring, a cap-piece fitting the upper end of the spring, a pivot-rod secured to the truck-frame beneath the axle-box, and a suspension member comprising two vertical links integrally connected together by a laterally-widened horizontal member which bears upon the cap-piece, the lower ends of the vertical links having pivotal connection with the pivot-rod, substantially as set forth.

693,985. SAW-FILING MACHINE. HENRY F. NOYES, Indianapolis, Ind. Filed June 15, 1901. Serial No. 64,650. (No model.)



Claim.—1. In a saw-filing machine, in combination with a suitable saw-support; a rotary file suitably supported; a means adapted to impart to said file a bodily movement longitudinally of said saw-support, whereby said file is adapted to perform the functions of a pawl in effecting a feeding movement of a saw; and a means of rotating said file; as and for the purpose set forth.

2. In a saw-filing machine, in combination with a suitable rest a rotary file suitably supported and provided with an untoothed portion whereby it is adapted to effect a feeding movement of a saw; and a means of rotating said file as and for the purpose set forth.

3. A rotary file comprising a ring having circumferential surfaces cut to form file-teeth, and intersecting to form an entire cutting edge; and that portion of said surfaces which is included within a certain arc, being uncut; as and for the purpose set forth.

4. A rotary file comprising an entire ring having a circumferential surface provided with file-teeth; said teeth being omitted from that portion of said surface which is included within a certain arc; as and for the purpose set forth.

5. In a saw-filing machine, in combination with a suitable rest; a spindle suitably supported and adapted to carry at one end a rotary file; a means adapted to impart to the file-carrying end of said spindle a movement longitudinal of said rest; and a means of rotating said spindle; as and for the purpose set forth.

6. In a saw-filing machine, in combination with a suitable rest; a spindle suitably supported and adapted to carry a rotary file; a cam carried by said spindle and adapted to impart thereto a movement longitudinally of said rest; and a means of rotating said spindle; as and for the purpose set forth.

7. In a saw-filing machine, in combination with a suitable rest; a spindle suitably supported and adapted to carry a rotary file; a means carried by said spindle and adapted to impart thereto a longitudinal movement whereby it is adapted to remove a file from contact with a saw-tooth preparatory to a feeding movement thereof; a saw-feeding means; and a means of rotating said spindle; as and for the purpose set forth.

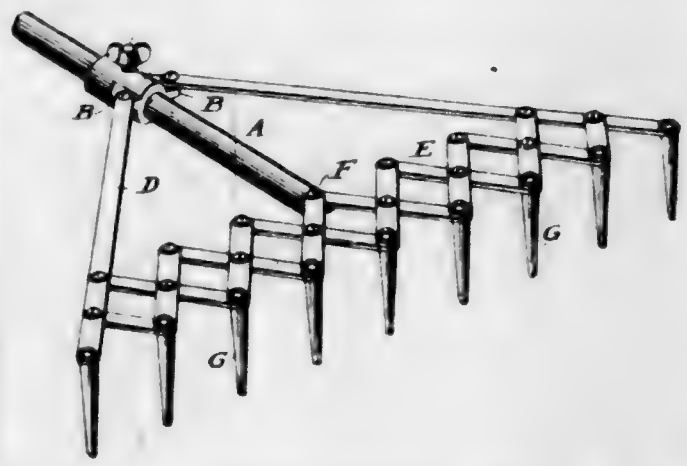
8. In a saw-filing machine, in combination with a means adapted to carry a rotary file; a suitable means of rotating said file-carrying means; a bed adapted to support said file-carrying means; a saw-rest fastened to said bed; a rod fastened to said rest and disposed longitudinally thereof; a traveling means adapted to be fastened to a saw thereby to guide the same; as and for the purpose set forth.

9. In a saw-filing machine, in combination with a means adapted to carry a rotary file and provided with a suitable means of rotation; a bed adapted to support said file-carrying means; a saw-rest fastened to said bed; a rod fastened to said rest and disposed longitudinally thereof and provided with a traveling means adapted to form a guide for said saw; and a means carried by said rest and adapted to guide the back of a saw; as and for the purpose set forth.

10. In a saw-filing machine, in combination with a suitable rest; a bed adapted to support said rest; a spindle carried by said bed and provided with a suitable means of rotation and adapted to carry a rotary file; a means adapted to impart coincidently to said spindle movements both longitudinally of and transversely of said rest; as and for the purpose set forth.

11. In a saw-filing machine, in combination with a suitable rest; a bed adapted to support said rest; a rocker pivoted to said bed; a spindle carried by said rocker and adapted to carry a file; a means of rotating said spindle; a means carried by said spindle and adapted to impart thereto a movement longitudinally of said rest; as and for the purpose set forth.

693,986. HAND-RAKE. DANIEL B. SIMPSON, Mount Sterling, Ky., assignor of two-thirds to Jacob Effron and Samuel Rosenzweig, Mount Sterling, Ky. Filed July 17, 1901. Serial No. 68,635. (No model.)

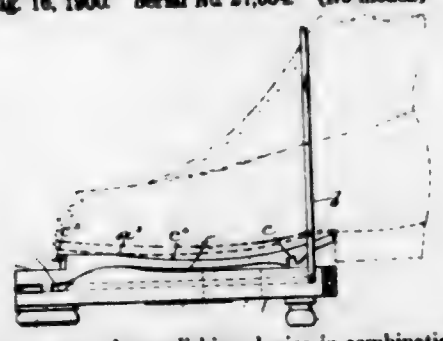


Claim.—1. A hand-rake consisting of a handle or staff, an adjustable or collapsible head connected to the staff, and means for adjusting the head.

2. A hand-rake consisting of a handle or staff, a sleeve adjustable on said staff, and a collapsible head connected to the handle and sleeve and held in proper place by the sleeve.

3. A hand-rake consisting of a handle or staff, a head composed of a series of connected links after the manner of lazy-tongs, tines carried by the series of links, and devices for regulating the distance between the tines of the head.

693,987. SHOE-POLISHING APPARATUS. NAPOLEON C. SPRING, Winsted, Conn., assignor to Charles H. McCarty and Abra K. Alford. Filed Aug. 16, 1900. Serial No. 27,054. (No model.)



Claim.—1. In a shoe-polishing device in combination, a base-piece comprising two hinged parts, a guide pivoted to one of said parts and retained between them, and a polishing-strip coöperating with said guide and support.

2. In combination, in a shoe-polishing apparatus, a support including a base-piece, and an adjustable shoe-supporting member, a guide adapted for guiding and supporting actions with relation to said shoe-supporting member and means for securing a shoe to the supporting member.

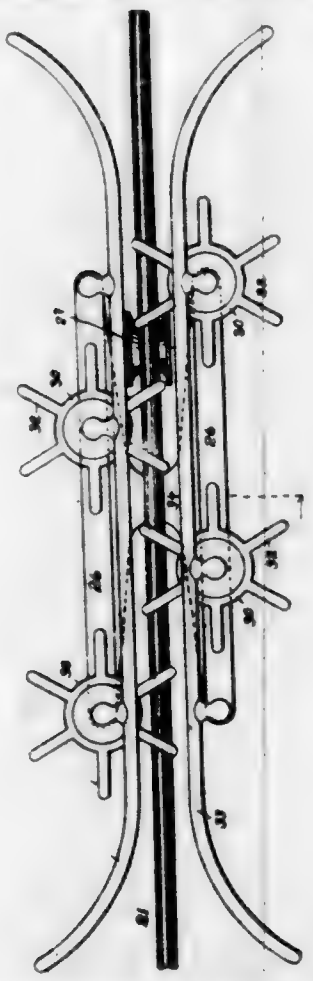
3. In combination in a shoe-polishing apparatus, a base-piece, an adjustable shoe-supporting member pivoted to one end thereof, and a guide pivoted to the opposite end thereof, substantially as described and for the purposes set forth.

4. In combination in a shoe-polishing apparatus a support, a guide operatively arranged with relation to the support, said guide being adapted to occupy different positions and maintained in said positions by the shoe, substantially as described.

5. In a shoe-polishing device, in combination, a base-piece comprising two hinged parts, a guide pivoted to one of said parts, and a recess in the other part adapted to receive said guide.

6. In combination in a shoe-polishing apparatus a base-piece, two parts hinged at opposite ends thereof, one of said parts being a shoe-supporting device and the other part being a guiding device, and a recess in the shoe-supporting device adapted to receive and retain the guide.

693,988. TROLLEY FOR ELECTRIC CARS. EUGENE W. TAYLOR, Spokane, Wash. Filed Dec. 26, 1900. Serial No. 41,040. (No model.)



Claim.—1. The electric trolley car or vehicle system herein described, comprising a track, a trolley-wire or conductor, and a trolley riding on said wire or conductor and adapted to swing or turn laterally thereon as a pivot, and having movable or yielding contacting devices having unyielding axes to pass the vertical supports or hangers of the conductor, said trolley-wire having at curves, switches or crossings a portion eccentric to or outside of the track upon which the car runs to cause said trolley to tilt or turn to one side to pass horizontally-extending guys or forks of the conductor, substantially as specified.

2. The electric trolley car or vehicle system herein described, comprising a track, a trolley-wire or conductor, and a trolley riding on said wire or conductor and adapted to swing or turn laterally thereon as a pivot, and having movable or yielding contacting devices to pass the vertical supports or hangers of the conductor, said trolley-wire having at curves, switches or crossings a portion eccentric to or outside of the track upon which the car runs to cause said trolley to tilt or turn to one side to pass horizontally-extending guys or forks of the conductor, and said trolley having a flexible connection with the car, substantially as specified.

3. A trolley having upper and lower contacting devices embracing or surrounding the trolley-wire or conductor, the upper contacting devices being movable or yielding having unyielding axes to permit the trolley to pass the hangers or supports for the trolley wire or conductor, substantially as specified.

4. A trolley provided with movable or yielding contacting devices having unyielding axes to pass hangers or supports for the trolley-wire, substantially as specified.

5. A laterally swinging or turning trolley having mounted on unyielding axes movable or yielding contacting devices to pass vertical hangers or supports and horizontal forks or guys connected to the trolley wire or conductor, substantially as specified.

6. A trolley surrounding and threaded upon a trolley-wire or conductor and provided with means for permitting the trolley to pass hangers, forks, guys or obstructions on or connected to the trolley-wire or conductor, said means comprising a plurality of movable or yielding contacting devices having unyielding axes, substantially as specified.

7. A trolley surrounding and threaded upon a trolley-wire or conductor and provided with means for permitting the trolley to pass hangers, forks, guys or obstructions on or connected to the trolley-wire or conductor, said means comprising a plurality of movable or yielding contacting devices part connected to the trolley-frame on the right and part on the left of the trolley-wire or conductor in a plane other than the plane in which the cable that moves the trolley along the trolley-wire is suspended, substantially as specified.

8. A trolley surrounding and threaded upon a trolley-wire or conductor and provided with means for permitting the trolley to pass hangers, forks, guys or obstructions on or connected to the trolley-wire or conductor, said means comprising a plurality of rotatable turnstiles, substantially as specified.

9. The combination with a trolley-frame, of a plurality of movable or yielding contacting devices thereon, having unyielding axes and arranged part on each side of the central longitudinal line of the trolley and adapted to permit the trolley to pass hangers, substantially as specified.

10. The combination with a trolley-frame, of a plurality of movable or yielding contacting devices thereon, arranged part on each side of the central longitudinal line of the trolley and adapted to permit the trolley to pass hangers, said contacting devices being in the form of rotary turnstiles, substantially as specified.

11. The combination with a trolley-frame, of a plurality of movable or yielding contacting devices thereon, arranged part on each side of the central longitudinal line of the trolley and being in a plane such as to support the trolley upon its wire cable against the strain of the depending cable that draws the trolley along and adapted to permit the trolley to pass hangers, substantially as specified.

12. The combination with a trolley-frame, of a plurality of movable or yielding contacting devices thereon, arranged alternately part on each side of the central longitudinal line of the trolley and all against the strain of the draft and adapted to permit the trolley to pass hangers, substantially as specified.

13. The combination with a trolley-frame, of a plurality of movable or yielding contacting devices thereon, arranged alternately part on each side of the central longitudinal line of the trolley and adapted to permit the trolley to pass hangers, said contacting devices being in the form of rotary turnstiles, substantially as specified.

14. The combination with a trolley-frame, of a plurality of upper movable or yielding contacting devices thereon, having unyielding axes arranged part on each side of the central longitudinal line of the trolley and adapted to permit the trolley to pass hangers, and a lower contacting device or wheel, substantially as specified.

15. The combination of a trolley-frame, of a plurality of upper movable or yielding contacting devices thereon having unyielding axes arranged part on each side of the central longitudinal line of the trolley and adapted to permit the trolley to pass hangers, and a lower contacting device or wheel mounted on a pivoted arm or lever, substantially as specified.

16. The combination of a trolley-frame, of a plurality of movable or yielding contacting devices thereon arranged part on each side of the central longitudinal line of the trolley and adapted to permit the trolley to

pass hangers, a lower contacting device or wheel mounted on a pivoted arm or lever, and a connection between said arm or lever and the car, substantially as specified.

17. The combination with a trolley-frame of a plurality of rotary turnstile contacting devices thereon having unyielding axes, substantially as specified.

18. The combination with a trolley-frame of a plurality of upper rotary turnstile contacting devices thereon, and a pair of lower contacting devices or wheels mounted on pivoted arms connected to the car, substantially as specified.

19. The combination with a trolley-frame of a plurality of upper rotary turnstile contacting devices thereon, and a pair of lower contacting devices or wheels mounted on pivoted arms connected to the car, said turnstiles being arranged alternately, substantially as specified.

20. The combination with a trolley adapted to swing or tilt laterally on the trolley-wire as a pivot, of curved guides or shoes to aid in tilting the trolley, substantially as specified

21. The combination with a laterally swinging or turning trolley of a track for the car, and a trolley-wire or conductor having portions eccentric or divergent from the track to give a side pull to the trolley to turn it to one side, substantially as specified.

22. The combination with a laterally swinging or turning trolley of a track for the car, and a trolley-wire or conductor having portions eccentric or divergent from the track to give a side pull to the trolley to turn it to one side, and a flexible conductor between the trolley and car, substantially as specified.

23. The combination with a trolley-frame, of a plurality of upper rotary turnstile contacting devices thereon and curved guides or shoes, substantially as specified.

24. The combination with a trolley-frame of a plurality of upper rotary turnstile contacting devices thereon, a pair of lower contacting devices or wheels mounted on pivoted arms connected to the car, and curved guides or shoes on the trolley, substantially as specified.

25. The combination with a trolley-wire or conductor and vertical hangers therefor having hooks and sheet-metal holders through which the hooks extend and embracing the wire, of a trolley traveling on and supported by said wire, and provided with a plurality of movable or yielding contacting devices to pass said hangers, substantially as specified.

26. The combination with a track of a trolley-wire or conductor having a fork or branch, of a trolley adapted to turn or swing laterally on said wire or conductor as a pivot, and provided with means for passing said fork or branch when swung to one side, said wire or conductor having a portion eccentric to said track to turn the trolley to one side, substantially as specified.

27. The combination with a car-track having a curve, of a trolley-wire having at such curve horizontally-extending guys, and a trolley adapted to turn laterally on said wire, a draft-cable for pulling and turning the trolley and provided with movable contacting devices for passing said guys, substantially as specified.

28. The combination with a car-track having a curve, of a trolley-wire having at such curve horizontally-extending guys, and a trolley adapted to turn laterally on said wire, and provided with movable contacting devices for passing said guys, and curved guides or shoes to aid in turning the trolley, substantially as specified.

29. The combination with a trolley-frame having parallel sides with open space between them and a central connection, of a pair of lower contacting devices or wheels having pivoted arms oscillating between said sides, and a plurality of upper turnstile contacting devices turning on vertical shafts or pivots on said frame, substantially as specified.

30. The combination with a trolley-frame having parallel sides with open space between them and a central connection, of a pair of lower contacting devices or wheels having pivoted arms oscillating between said sides, and a plurality of upper turnstile contacting devices turning on vertical shafts or pivots on said frame, part on one side thereof and part on the other, substantially as specified.

31. The combination with a trolley-frame having parallel sides with open space between them and a central connection, of a pair of lower contacting devices or wheels having pivoted arms oscillating between said sides, and a plurality of upper turnstile contacting devices turning on vertical shafts or pivots on said frame, part on one side thereof and part on the other, said turnstile contacting devices having wings or vanes with curved or inclined lower edges, substantially as specified.

32. A trolley having a plurality of turnstile-like contacting devices turning on vertical shafts or pivots, substantially as specified.

33. A trolley having a plurality of turnstile-like contacting devices turning on vertical shafts or pivots, and each having wings or vanes with curved or inclined lower edges, substantially as specified.

34. A trolley having a plurality of turnstile-like contacting devices turning on vertical shafts or pivots, and part arranged on each side of the longitudinal center of the trolley, substantially as specified.

35. A trolley having a plurality of turnstile-like contacting devices turning on vertical shafts or pivots, and part arranged on each side of the longitudinal center of the trolley, and guides on the trolley, substantially as specified.

36. A trolley having a plurality of turnstile-like contacting devices turning on vertical shafts or pivots, and part arranged on each side of the longitudinal center of the trolley, and guides on the trolley, said guides being curved both downwardly and outwardly at their ends, substantially as specified.

37. The combination with a wire or cable of a plurality of turnstiles mounted on fixed axes, part of said turnstiles being placed on one side and part on the other side of the wire or cable, so that the turnstile device and the cable are movable one along the other and supported one by the other, substantially as specified.

38. The combination with a trolley-frame, of a pair of lower contacting devices or wheels journaled on arms pivoted to said frame, and a flexible connection from the car having branches extending to and connected with said pivoted arms to force said wheels against the trolley-wire by the tension of the flexible connection in pulling the trolley, substantially as specified.

39. The combination with a trolley-frame, of a pair of lower contacting devices or wheels journaled on arms pivoted to said frame, and a flexible connection from the car having branches extending to and connected with said pivoted arms to force said wheels against the trolley-wire by the tension of the flexible connection in pulling the trolley, and a plurality of turnstile-like contacting devices turning on vertical shafts on said frame and resting upon the trolley-wire, substantially as specified.

40. The combination with a trolley-frame, of a pair of lower contacting devices or wheels journaled on arms pivoted to said frame, and a flexible connection from the car having branches extending to and connected with said pivoted arms to force said wheels against the trolley-wire by the tension of the flexible connection in pulling the trolley, a plurality of turnstile-like contacting devices turning on vertical shafts on said frame and resting upon the trolley-wire, and curved guides or shoes flush with the upper ends of said turnstile-shafts, substantially as specified.

41. The combination with the trolley-frame, of a pair of lower contacting devices or wheels journaled on arms pivoted to said frame, and a flexible connection with the car having branches extending to and connected with said pivoted arms to force said wheels against the trolley-wire by the tension of the flexible connection in pulling the trolley, a plurality of turnstile-like contacting devices turning on vertical shafts on said frame and resting upon the trolley-wire, and curved guides or shoes flush with the upper ends of said turnstile-shafts and inside said shafts, substantially as specified.

42. The combination with the trolley-frame, of a pair of lower contacting devices or wheels journaled on arms pivoted to said frame, and a flexible connection with the car having branches extending to and connected with said pivoted arms to force said wheels against the trolley-wire by the tension of the flexible connection pulling the trolley, a plurality of turnstile-like contacting devices turning on vertical shafts on said frame and resting upon the trolley-wire, and curved guides or shoes flush with the upper ends of said turnstile-shafts and inside said shafts, said turnstiles having wings or vanes with curved or inclined lower edges, substantially as specified.

43. The combination with the trolley-frame, of a pair of lower contacting devices or wheels journaled on arms pivoted to said frame, and a flexible connection with the car having branches extending to and connected with said pivoted arms to force said wheels against the trolley-wire by the tension of the flexible connection pulling the trolley, a plurality of turnstile-like contacting devices turning on vertical shafts on said frame and resting upon the trolley-wire, curved guides or shoes flush with the upper ends of said turnstile-shafts and inside said shafts, said turnstiles having wings or vanes with curved or inclined lower edges, and said guides or shoes being curved outwardly and downwardly at both ends, substantially as specified.

44. A laterally swinging or turning trolley having movable or yielding contacting devices to pass vertical hangers or supports and horizontal forks or guys connected to the trolley wire or conductor and provided with curved guides or shoes to aid in turning the trolley, substantially as specified.

45. A trolley surrounding and threaded upon a trolley-wire or conductor and provided with means for permitting the trolley to pass hangers, forks, guys or obstructions on or connected to the trolley-wire or conductor, and said trolley having curved guides or shoes to aid in turning the trolley on said wire or conductor as a pivot, substantially as specified.

46. A trolley surrounding and threaded upon a trolley-wire or conductor and provided with means for permitting the trolley to pass hangers, forks, guys or obstructions on or connected to the trolley-wire or conductor, said means comprising a plurality of rotatable turnstiles, and said trolley having curved guides or shoes to aid in turning the trolley on said wire or conductor as a pivot, substantially as specified.

47. The combination with a trolley-frame of a plurality of rotary turnstile contacting devices thereon having fixed axes and a pair of guides on the trolley-frame, substantially as specified.

48. The combination with a trolley-frame having parallel sides with open space between and a central cross connection, of a plurality of movable or yielding contacting devices having fixed axes, substantially as specified.

49. The combination with a trolley-frame having parallel sides with open space between and a central cross connection, of a plurality of rotary turnstile contacting devices journaled on the sides of said frame on upright shafts, substantially as specified.

50. The combination with a trolley-frame having parallel sides with open space between and a central cross connection, of a plurality of rotary turnstile contacting devices journaled on the sides of said frame on upright shafts, and curved guides or shoes, substantially as specified.

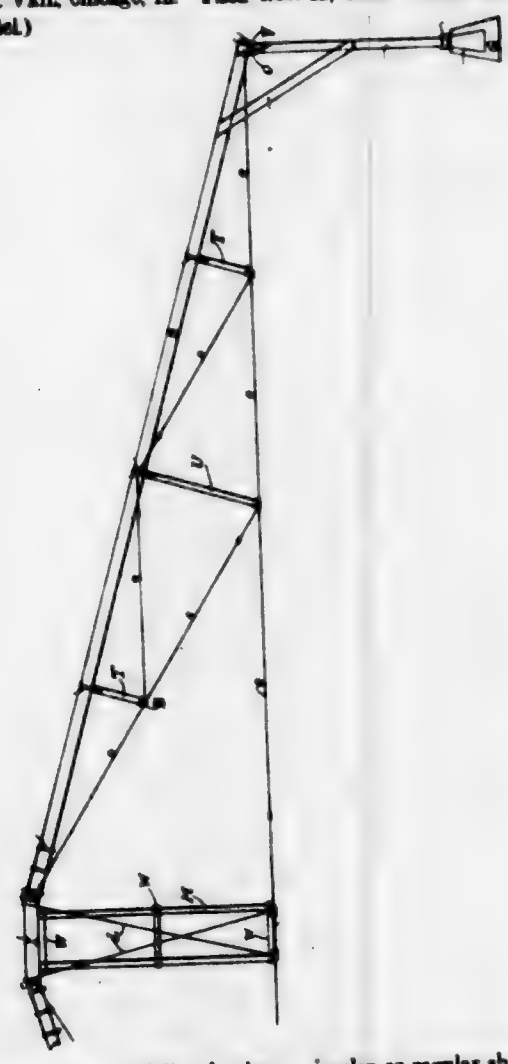
51. The combination with a trolley-frame having parallel sides with open space between and a central cross connection, of a plurality of movable or yielding contacting devices and an opposing lower contacting device or wheel, substantially as specified.

52. The combination with a trolley-frame having parallel sides with open space between and a central cross connection, of a plurality of movable or yielding contacting devices and an opposing lower contacting device or wheel mounted on an arm pivoted to said trolley-frame, substantially as specified.

53. The combination with a trolley-frame having parallel sides with open space between and a central cross connection, of a plurality of movable or yielding contacting devices and an opposing lower contacting device or wheel mounted on an arm pivoted to said trolley-frame, and curved guides on the trolley-frame, substantially as specified.

693,989. CONSTRUCTION FOR BUILDINGS HAVING CIRCULAR OR REGULAR SHAPED ROOFS CONVERGING IN ONE POINT.

MORRIS H. VAIL, Chicago, Ill. Filed Nov. 12, 1900. Serial No. 36,316. (No model.)



Claim.—1. In a building having a circular or regular shaped roof, the combination with rafters or roof-supports converging toward a central point, of a central core composed of a plurality of layers of planks and having a thickness corresponding to the depth or vertical thickness of the rafters and connected to the ends thereof, substantially as described.

2. In a building having a circular or regular shaped roof, the combination with rafters or roof-supports converging toward a central point, of a central core composed of a series of layers or elements crossing each other and connected to the ends of the rafters, substantially as described.

3. In a building having a circular or regular shaped roof, the combination with rafters or roof-supports converging toward a central point, head-plates intermembered with said rafters and a central core composed of a series of layers or elements crossing each other and also engaged with said head-plates, substantially as described.

4. In a building having a circular or regular shaped roof, the combination with rafters or roof-supports, and a central core of head-plates intermembering with said rafters and said core, tension members connecting the base ends of opposite rafters and struts interposed between the roof-supports and tension members, substantially as described.

5. In a building having a circular or regular shaped roof, the combination with rafters or roof-supports, foot-plates and head-plates engaging the opposite ends of said rafters, a central core interlocked with the head-plates and a tension member connecting the foot-plates, substantially as described.

6. In a truss-roof for buildings of circular or regular form, the combination with rafters or roof-supports, head-plates embracing the upper ends of said rafters, a central core engaging the head-plates of the several rafters, foot-plates engaging the lower ends of the rafters, a tension member connecting the foot-plates of opposite rafters, and strut members interposed between the tension members and the rafters, substantially as described.

7. In a building of the class described, the combination with roof-supports or rafters, straps embracing said rafters, tension members connecting the bases of the rafters, plates connected with said tension members and struts interposed between said tension-member plates and said straps and connected to each, substantially as described.

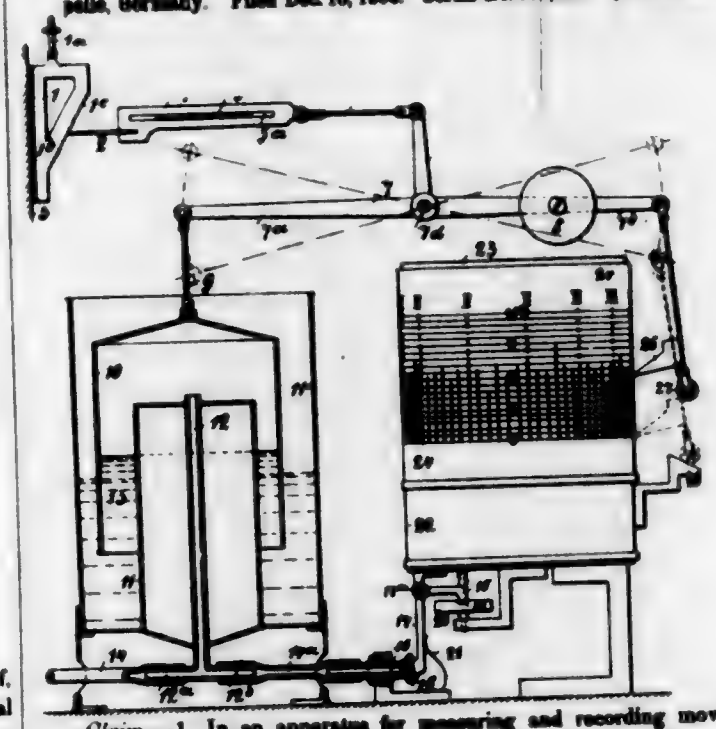
8. In a building of the class described, the combination with rafters and roof-supports converging to a common point, a central core to which said rafters are connected, tension members connected with the bases of said rafters and extending toward a common center, plates to which said tension members are secured and struts interposed between said plates and said core, substantially as described.

9. In a building of the class described, the combination with rafters or roof-supports converging toward a central point, a central core to which said rafters are connected, plates disposed axially below said core, struts interposed between said plates and the core, tension members connecting the bases of the rafters with the plates and means for tensioning said members, substantially as described.

10. In a building having a circular or regular shaped roof, the combination, with rafters or roof-supports converging toward a central point, of a central core interposed between and connected to the ends of the rafters, and plates extending across said central core and connected to the rafters and the core, whereby to prevent twisting of said members, substantially as described.

693,990. APPARATUS FOR MEASURING AND RECORDING OSCILLATING MOVEMENTS OF BODIES.

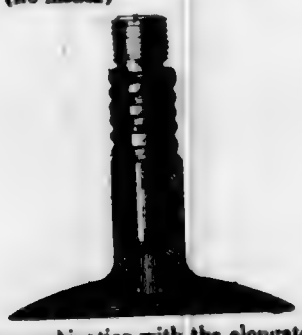
MAX ARNDT, Aix-la-Chapelle, Germany. Filed Dec. 10, 1896. Serial No. 615,253. (No model.)



Claim.—1. In an apparatus for measuring and recording movements, the combination of a two-branched air-conduit, a bell or receptacle closed against the atmosphere and communicating with one branch of the air-conduit, a valve for temporarily closing and opening the other branch of the air-conduit, means for actuating the valve, a lever connected to the bell or receptacle, a registering-pen connected to the said lever, a rotating drum coacting with the recording-pen, a finger connected to the said lever, and a gage-piece to coact with the finger and to assume the movement to be measured and recorded, substantially as described.

2. In an apparatus for measuring and recording movements, the combination of a two-branched air-conduit, a movable bell or receptacle closed against the atmosphere and communicating with one branch of the air-conduit, a valve for temporarily closing and opening the other branch of the air-conduit, a lever carrying the valve, a revolving cam-disk to control the movement of the lever, a lever connected to the bell or receptacle, a registering-pen connected to the latter lever, a rotating drum co-acting with the registering-pen, a finger connected to the pen-actuating lever, and a gage-piece to coact with the said finger and to assume the movement to be measured and recorded, substantially as described.

698,991. VALVE FOR PNEUMATIC TIRES. CHARLES R. BARRETT and ELWOOD C. PHILLIPS, Chicago, Ill. Filed July 12, 1901. Serial No. 67,949. (No model.)



Claim.—1. The combination with the elongated outwardly-projecting flexible attaching-neck of a pneumatic tire, of a valve-casing fitting the bore of said neck, and a clamping-collar fitting outside said attaching-neck, and provided with inturned flanges or beads at its respective ends, substantially as set forth.

2. The combination with the elongated outwardly-projecting flexible attaching-neck of a pneumatic tire, of a valve-casing fitting the bore of said neck, and a clamping-collar fitting outside said attaching-neck, and provided with indentations or grooves in its surface, substantially as set forth.

3. The combination with the elongated outwardly-projecting flexible attaching-neck of a pneumatic tire, of a valve-casing fitting the bore of said neck, and a clamping-collar fitting outside said attaching-neck, and provided with spirally-arranged indentations or grooves in its surface, substantially as set forth.

4. The combination with the elongated outwardly-projecting flexible attaching-neck of a pneumatic tire, of a valve-casing fitting the bore of said neck, and a clamping-collar fitting outside said attaching-neck, and provided with inturned flanges or beads at its respective ends, and spiral indentations from end to end, substantially as set forth.

698,992. SAFETY-RAZOR. JOHANN H. BECKER, Ohligs, Germany. Filed Aug. 17, 1901. Serial No. 72,342. (No model.)



Claim.—A safety-razor provided with a casing, a pivoted blade-holder, means for locking the blade-holder to the casing, springs adapted to bear upon the blade, jaws for holding the blade, and an adjusting-screw for adjusting the jaws, substantially as specified.

698,993. WINDOW-SCREEN. SIMON W. BENSON, Denver, Colo. Filed July 23, 1901. Serial No. 69,439. (No model.)



Claim.—1. A frame comprising doubled metal rails having inner clamping edges crimped transversely from end to end, and a wire fabric held by said edges.

2. A frame comprising doubled metal rails having adjustably-interlocked ends which are fitted into each other and also having clamping edges crimped transversely from end to end, the ends of the upper and lower rails having slots therein at right angles to slots in the adjacent ends of the side rails to receive clamping-bolts and permit adjustment of the rails, and a fabric held by said crimped clamping edges.

3. A window-screen having an arcuate recess at the center of the lower rail thereof to fit over the fastening device of shutters, and a detachable excluder applied to said rail to close the inner portion of said recess.

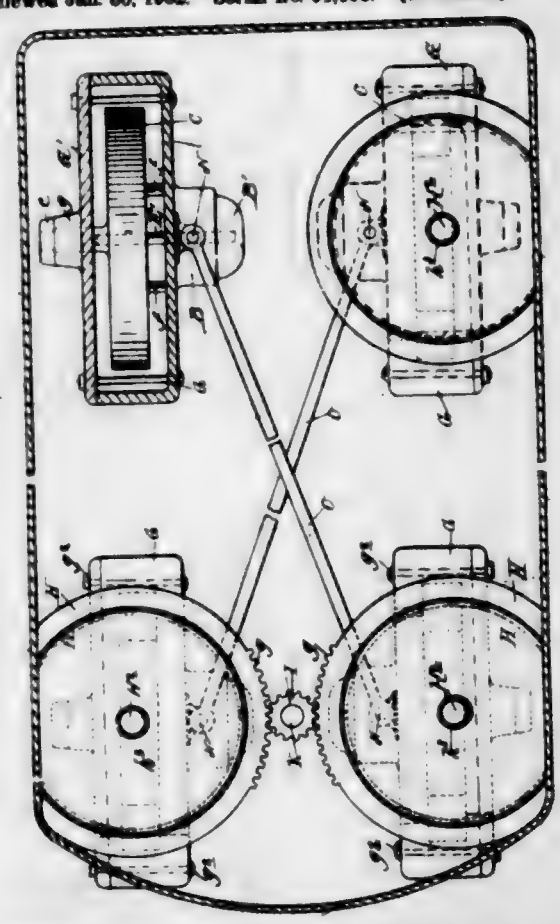
4. A window-screen having a recess at the center of the lower rail and provided with an inner freely-detachable closure, whereby the projecting portions of shutter-fastenings may extend into the said rail.

5. A window-screen having a recess at the center of the lower rail, and an inner freely-detachable convex shield therefor having an inner closed side.

6. A window-screen having a slot in the center of the lower rail, and a freely-detachable attachment mounted in said slot and comprising an arcuate plate with an upper inwardly-extending finger-grip and an inner downwardly-extending shield.

7. A window-screen having a slot in the center of the lower rail, and a freely-detachable attachment mounted in said slot and comprising a pair of flanges, and an arcuate plate with an inwardly-extending finger-grip and an inner downwardly-extending shield.

693,994. RUNNING AND STEERING GEAR FOR MOTOR-VEHICLES. WILLIAM BOWKER, Sr., Waltham, Mass. Filed June 22, 1901. Renewed Jan. 30, 1902. Serial No. 91,890. (No model.)



Claim.—1. In a motor-vehicle, the combination with a wheel and motor carrying frame, of a ground-wheel having a journal on one side mounted in a bearing in the frame, a motor mounted at the opposite side of the frame exterior to the ground-wheel and having its shaft mounted in a bearing in the center of the opposite side of the wheel, and gearing connecting said shaft and wheel.

2. In a motor-vehicle, the combination with a wheel and motor carrying frame, of a ground-wheel journaled therein and having an internally toothed ring or gear, a motor carried by said frame exterior to said wheel, and having a shaft provided with a pinion concentric with said internally-toothed gear, and a gear carried by the frame and connecting the pinion on the motor-shaft with the first-named gear.

3. In a motor-vehicle, the horizontally-turning frame having a journal-bearing on one side and a motor-box at the other, a wheel having a journal at one side mounted in said bearing and provided at its opposite side with an internal gear, a motor in said box having a shaft extending from its bearings in the box into a central bearing in the wheel, and there provided with a pinion, and pinions carried by the frame and connecting the motor-shaft pinion with the wheel-gear.

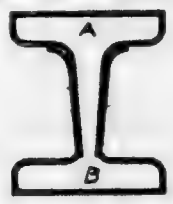
4. In a motor-vehicle, a horizontally-turning frame, a ground-wheel journaled therein, a motor mounted on the frame and geared to the wheel, and rollers mounted in the upper portion of the frame and bearing on the upper edge of the wheel.

5. The combination with a vehicle frame or platform, of a plurality of connected horizontally-turning wheel and motor carrying frames, a steering shaft or bar connected to one or more of said frames, a wheel in every frame, and a motor on every frame and geared to the wheel carried thereby.

6. The combination with a platform or body, of two horizontally-turning frames, a vertical steering-shaft geared to said frames for turning them in unison, a wheel mounted in each frame and a motor in each frame and geared to the said wheels.

7. The combination with a platform or body, of two horizontally-turning frames having turn-tables or plates on their upper ends, cover-plates secured to the under side of the platform or body and having bearings in which the axes of the frames turn, roller-bearings between the turn-tables and cover-plates, wheels journaled in said frames, motors for the wheels mounted on said frames, connecting-rods between the frames for moving them in unison, a steering-rod provided at the lower end with a pinion and teeth on two of the said turn-tables with which said pinion meshes.

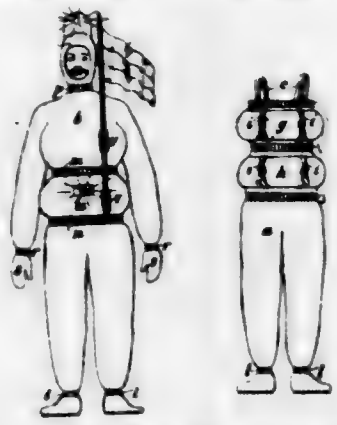
698,995. ELECTRIC SWITCH. THOMAS H. BRADY, New Britain, Conn. Filed Dec. 7, 1900. Serial No. 39,097. (No model.)



Claim.—1. In a knife-switch, in combination, a male member having a broad base and inturned downwardly-converging spring members, and a coacting female member having a base and inturned upwardly-diverging spring members, substantially as described.

2. In a knife-switch a male member comprising a base and inturned downwardly-converging spring members integral with said base, and a coacting female member having a base and inturned upwardly-diverging spring members integral with said base, substantially as described.

698,996. LIFE-SAVING SUIT. HERRMAN M. BRAND, Porto Alegre Brazil. Filed Oct. 4, 1901. Serial No. 77,539. (No model.)



Claim.—1. In a life-saving suit, the combination, with waterproof trousers extending up to the armpits and provided around the body with annular elastic bands, between which annular floats are inserted, of a waterproof coat with elastic rings around the body coinciding with the elastic rings of the trousers.

2. In a life-saving suit, the combination, with waterproof trousers extending up to the armpits, of elastic rings around the body part, between which are inserted detachable annular floats.

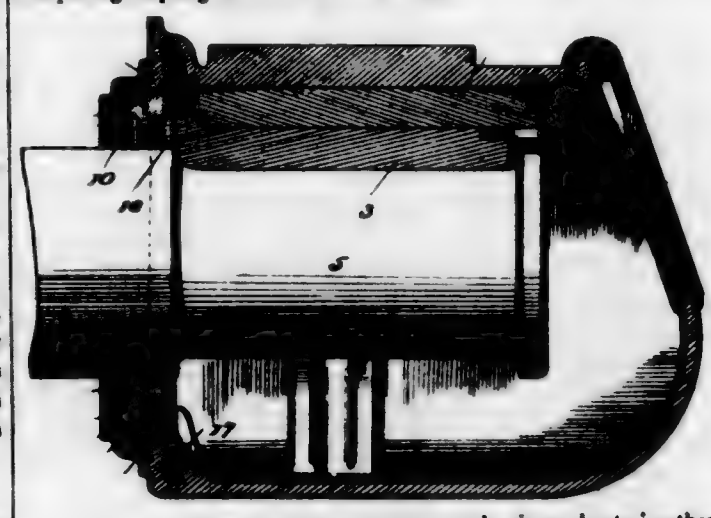
3. In a life-saving suit, the combination, with trousers having a plurality of elastic bands around their body portion, of floats secured between the said bands, substantially as set forth.

4. In a life-saving suit, the combination, with trousers having a plurality of elastic bands around their body portion, of pneumatic floats, and fastening devices securing said floats to the body portion of the trousers between the said bands, substantially as set forth.

698,997. JOURNAL-BOX. PERRY BROWN, Wilmington, Del. Filed Dec. 18, 1900. Serial No. 40,274. (No model.)

Claim.—1. A journal-box having an opening in its end, a cover slidingly secured to the outer wall of said end and over said opening, and a ring supported by and moving with said cover and interposed between said cover and the outer wall of the box.

2. A journal-box having an opening in its rear end, a journal entering therein, a cover slidingly secured over said opening, a ring supported by the cover and moving therewith, and means for closing said opening comprising a spring-actuated follower or filler.



3. A journal-box having an open rear end, a journal entering therein, in combination with a cover supported on said journal and slidingly secured to said end and means for closing said opening comprising a spring-actuated follower or filler acting against the journal at a right angle thereto and moving as said cover slides.

4. A journal-box having an opening in its end, a journal entering therein, in combination with a cover supported on said journal and slidingly secured to said end and spring-actuated followers or fillers supported by said slidingly-secured cover and closing around said journal.

5. A journal-box having an open rear end, a journal entering therein, a cover supported by said journal and slidingly secured over said opening, and a yielding connection for attaching said cover to said end comprising a spring-actuated bolt.

6. A journal-box having an open rear end, a journal entering therein, in combination with a cover supported on said journal and slidingly secured to said end, means for closing said opening comprising a spring-actuated follower or filler, the said means being supported by said sliding cover and a ring slipped over the journal and coacting with said follower or filler.

7. A journal-box having an opening in its end, a journal entering therein, in combination with a cover supported on said journal, a yielding connection slidingly connecting said cover to said end, and spring-actuated followers or fillers supported by said sliding cover and acting against the journal at a right angle thereto.

8. A journal-box having an open rear end, a journal entering therein, a cover supported by said journal and slidingly secured to said end and followers or fillers forming a closure for said opening and bearing on opposite sides of said journal, the said followers or fillers being supported by said sliding cover and having their adjacent edges formed to a knife-edge.

9. A journal-box having an open rear end, a journal entering therein, a cover supported by said journal and slidingly secured to said end and followers or fillers forming a closure for said opening and bearing on opposite sides of said journal, the said followers or fillers being only as wide as the journal is thick and having their adjacent edges formed to a knife-edge.

10. A journal-box having an open rear end, a journal entering therein, the said opening being elongated and having its smaller diameter of the same size as the journal, and a spring-actuated follower closing the gap between the elongated opening and the journal.

11. A journal-box having an open rear end, a journal entering therein, a cover supported on said journal and slidingly secured to said end, followers or fillers supported by said sliding cover and forming a closure for said opening and bearing on opposite sides of said journal and a spring for each follower or filler causing it to press against said journal.

12. A journal-box having an open rear end, a journal entering therein, a cover supported on said journal and slidingly secured to said end, followers or fillers supported by said sliding cover and forming a closure for said opening and bearing on opposite sides of said journal and a spring for each follower or filler causing it to press against said journal, the said followers or fillers having their adjacent edges formed to a knife-edge.

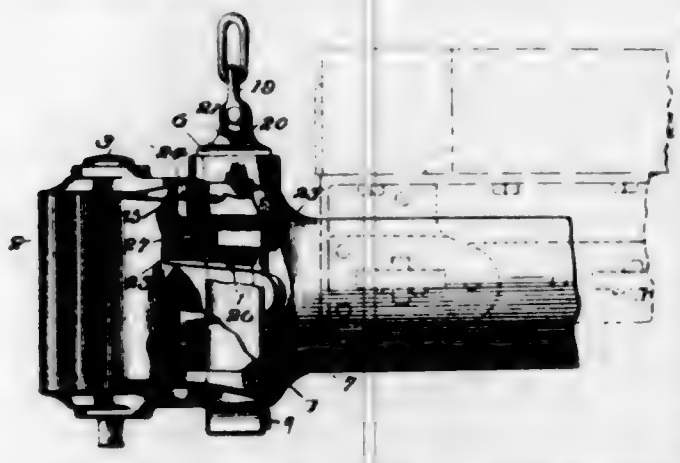
13. A journal-box having an open rear end, a journal entering therein, an opening or recess on each side of said journal, a spring-actuated follower or filler in each of said openings bearing against opposite sides of the journal, and a cover slidingly secured to the rear end of the box and supporting said spring-actuated followers.

14. A journal-box having an open rear end, a journal entering therein, a cover slidingly secured over said opening and followers or fillers inclosed in said cover and acting against the journal.

15. A journal-box having an open rear end, a journal entering therein, a cover secured on the outer wall of said end, and having an elongated

opening therein, and a ring or washer supported by said cover and having an opening therein of substantially the same size as the journal and moving therewith.

693,998. CAR-COUPLING. PERRY BROWN, Wilmington, Del. Filed Feb. 22, 1901. Serial No. 48,869. (No model.)



Claim.—1. In a car-coupler, a knuckle and a locking-pin therefor, and a spring-actuated pusher swinging on a pivot-point and arranged to throw said knuckle open and to hold said locking-pin in an unlocked position; that part of the pusher acting on the knuckle and pin projecting entirely on one side of the pivot-point on which it swings.

2. In a car-coupler, a knuckle and a vertically-moving locking-pin therefor, in combination with a pivoted spring-actuated pusher arranged to throw said knuckle open and to hold said locking-pin in its elevated position; that part of the pusher acting on the knuckle and locking-pin comprising a single arm projecting entirely on one side of its pivot.

3. In a coupler, a coupling-head, a knuckle pivoted thereto, a lock for said knuckle, and a pivoted spring-actuated pusher contained within said coupling-head and arranged to throw said knuckle open and to hold said lock in its inoperative position.

4. In a coupler, a coupling-head, a knuckle pivoted thereto, a locking-pin for said knuckle, in combination with a pivoted spring-actuated pusher contained within said coupling-head and having an integral tail arranged to throw said knuckle open; the said pusher also holding said pin in its elevated position when the knuckle is open.

5. In a coupler, a knuckle, and lock, in combination with a spring-actuated pusher swinging on a pivot-point and having its swinging member comprising a single arm with an integral tail; the tail arranged to throw said knuckle open and the arm arranged to hold the lock in an unlocked position.

6. In a coupler, a pivoted knuckle, a pusher journaled in the upper wall of the coupling-head and having a tail arranged to throw the knuckle open, the said pusher also holding the locking portion in its unlocked position when the knuckle is open.

7. In a coupler, a pivoted knuckle, a pusher journaled in the upper wall of the coupling-head and having a tail arranged to throw the knuckle open, the said pusher also being arranged to swing under the said locking-pin and hold the same in an unlocked position.

8. In a coupler, a pivoted knuckle, a locking-pin, a pusher journaled in the upper wall of the coupling-head and arranged to hold the said pin in an unlocked position, and having a tail arranged to throw the knuckle open, and a spring arranged to actuate said pusher.

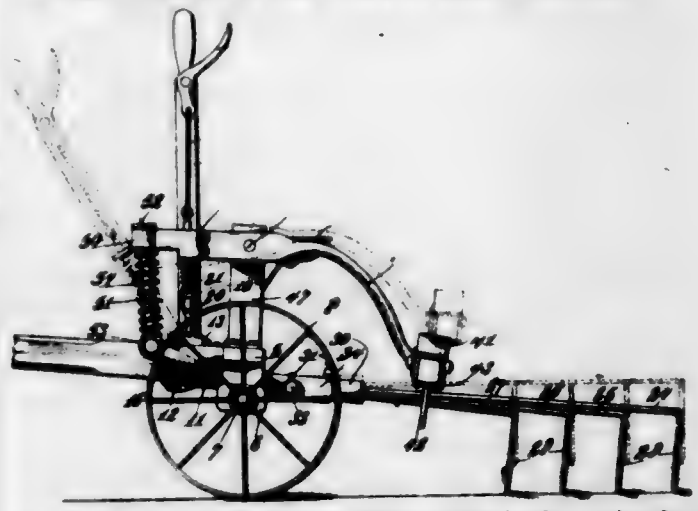
9. In a coupler, a recess for a locking-pin having two wedging-surfaces therein, and a coupling-pin having a wedge arranged to coact with each of said wedging-surfaces, whereby the locking-pin is prevented from "creeping" both on the whole and half lock.

10. In a coupler, a pivoted knuckle and a locking-pin therefor, and a pusher arranged to throw said knuckle open and to hold said locking-pin raised; the tail of the knuckle also swinging under and remaining under the locking-pin when the knuckle is open.

11. In a coupler having an internal rib as 5 therein, a pivoted knuckle having a hooked tail arranged to coact with said rib and thereby partially relieve the strain on the pivot of said knuckle, a locking-pin, and a pusher arranged to throw said knuckle open and to swing under and support the locking-pin; the tail of the coupler also being arranged to swing under said locking-pin, and remain thereunder when the knuckle is open.

12. In a coupler, a coupling-pin having a lug on the head thereof, a link or shackle pivoted to said head and also having a lug or projection on its under side coacting with the lug on the head and thereby preventing the link or shackle from falling rearwardly; the said lugs on the head and link or shackle being so located and proportioned that the link or shackle is capable of assuming a substantially vertical position, whereby a vertical pull can be given to said locking-pin.

698,999. AGRICULTURAL MACHINERY. JOHN CLARK, Carman, Canada. Filed Oct. 12, 1901. Serial No. 78,421. (No model.)



Claim.—1. A cultivator comprising a wheeled axle, a series of rods having individual pivotal connection with said axle and provided with teeth arranged in different ranks, bars having looped fingers loosely receiving the rods, and means for raising and lowering the bars and their fingers with relation to the rods, substantially as described.

2. A cultivator comprising a wheeled axle, a series of teeth having individual pivotal connection therewith, bars loosely connected with said teeth, hand-levers mounted on the axle, and trains of operative connections, including a spring, and disposed between the hand-levers and the bars, whereby each bar may be adjusted and may be subjected to pressure, substantially as described.

3. A cultivator comprising a wheeled axle, a multiplicity of teeth having individual pivotal connection therewith, bars loosely connected with said teeth, levers fulcrumed on the axle and attached to said bars, crank-shafts mounted on the axle and provided with hand-levers, and spring-links between the cranks and the levers which are attached to the bars, substantially as described.

4. A cultivator comprising a wheeled axle, a pivotal rod thereon, a multiplicity of socketed pivotal blocks loosely fitted on said pivotal rod, a plurality of rods clamped individually in the sockets of the pivotal blocks and provided with teeth arranged in different ranks, bars loosely connected with said rods, and means whereby the bars may be raised and lowered, substantially as described.

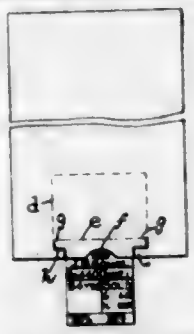
694,000. DRAFT-EQUALIZER. ALBERT CORNWELL, Montpelier, Ohio. Filed Sept. 27, 1901. Serial No. 76,764. (No model.)



Claim.—1. In a draft appliance, the combination, of a doubletree A, links *b b* pivotally connected to the ends of the doubletree and adapted to be disposed at either side of the same, singletrees pivotally connected to said links, the said connection being made at one side of the center of the singletrees; together with plates pivoted to the shorter end of the singletrees, rollers journaled in the outer end of said plates, and draft-chains, substantially as shown and for the purpose set forth.

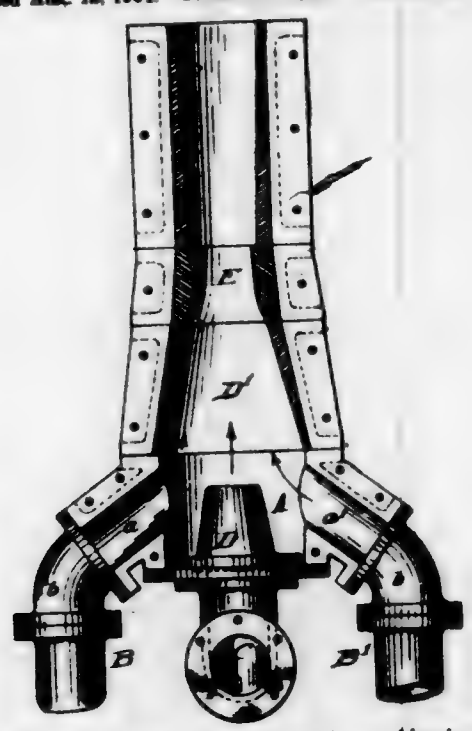
2. In a draft appliance, the combination, of the doubletree A, links *b b* pivotally connected to the outer ends of the doubletree and adapted to be disposed at either side of the same, singletrees pivotally connected to said links, the connection being made at one side of the center of said singletrees; together with plates *d d* pivoted to the shorter end of the singletrees and provided with holes adjoining the pivot which are adapted to register with holes in the singletrees, rollers journaled in the outer ends of the plates, pins *e* adapted to hold the plates on a line with the singletrees, and draft-chains F and H having hooks at their ends, as herein shown and described.

694,001. REGISTERING CLOTH-BOARD. JOHN W. CURRIER, North Troy, Vt. Filed Dec. 22, 1899. Serial No. 741,211. (No model.)



Claim.—As an improved article of manufacture, a cloth-board having a recess extending inwardly from one end, a card or tablet adapted to move in and out of said recess and provided at its inner end with a lug or projection and a stop at the outer end of the recess in the path of the said lug or projection to limit the outward movement of the tablet; substantially as described.

694,002. MINING-ELEVATOR. HOWARD W. DAVIS, Auburn, Cal. Filed Aug. 12, 1901. Serial No. 71,511. (No model.)

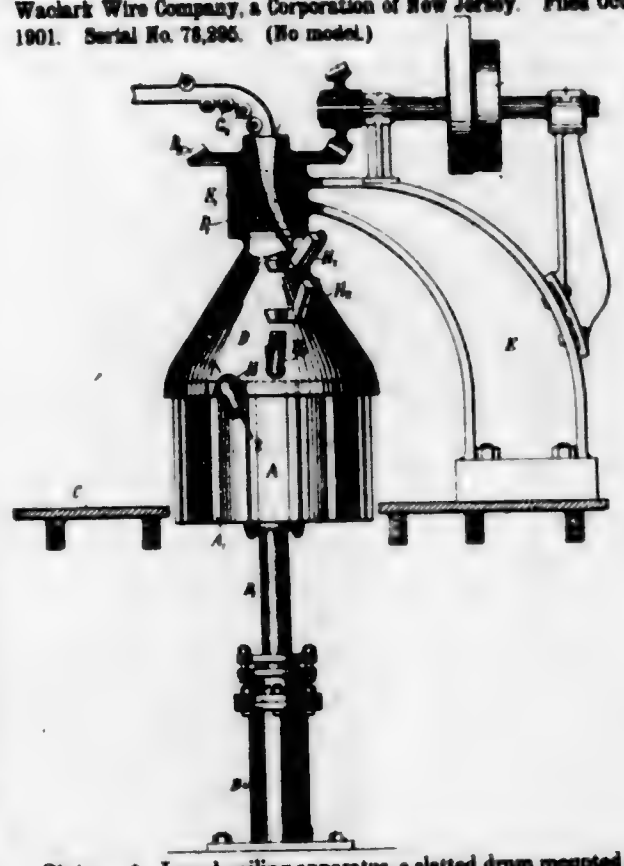


Claim.—1. In a mining-elevator, and in combination an exterior casing formed in sections placed end to end, and each section formed of a plurality of arc-shaped parts placed edge to edge, and all formed with vertical ribs and horizontal flanges, whereby they are secured together to form a connected tubular structure, and an inner lining composed of a number of single-piece tubes abutting end to end and unsecured, but held and inclosed by the exterior sectional casing.

2. A mining-elevator comprising an exterior casing formed in sections placed end to end, and each section formed of a plurality of arc-shaped parts placed edge to edge, and all formed with vertical ribs and horizontal flanges, whereby they are secured together to form a connected tubular structure, an inner lining composed of a number of single-piece tubes abutting end to end and held and inclosed by the exterior sectional casing, a base-section in two parts, each being formed with halves of two suction-passages, abutting ribs by which said halves are secured together, an upper flange by which the base-section is connected to the lower casing-section, flanges on the suction-halves by which they are connected to suction-pipes, and an injector entering the base-section.

3. A base-section for mining-elevators formed in two parts adapted to be connected to form a hollow chamber, each part being formed with halves of two suction-passages, abutting ribs by which said halves are secured together, an upper flange by which the base-section is connected to an adjacent section, and flanges on the suction-halves by which they are connected to exterior suction-pipes.

694,008. ROD-COILING APPARATUS. WILLIAM D. DE LAMATER, Elizabeth, and FREDERICK W. WALLACE, Plainfield, N. J., assignors to Wickwire Wire Company, a Corporation of New Jersey. Filed Oct. 11, 1901. Serial No. 78,295. (No model.)



Claim.—1. In rod-coiling apparatus, a slatted drum mounted on hydraulic elevator mechanism, a support, a coiler-cone revolubly mounted in said support to coöperate with said drum, the lower edge of said cone embracing said drum, a guiding-channel through the journal of said cone and communicating with the exterior of said cone, a series of guide-rolls mounted on said cone to guide a rod issuing from said channel in a rearward direction, said guide-rolls being provided with enlarged bearing-flanges at their inner ends and their outer ends being supported by bearing-brackets, a flanged clearer-roll mounted at an inclination in a recess near the edge of said cone to guide the rod away from said edge and a curved rod-guide communicating with said channel, there being an upper antifriction-roll near said curve and a series of antifriction-rolls on the inside of said curve.

2. In rod-coiling apparatus, a curved rod-guide having an antifriction-roll at the upper part of the guide adjacent the curve in the same and also having a series of antifriction-rolls on the inside of the curve, a drum and a relatively rotating coiler-cone coöperating with said drum, the lower edge of said cone embracing said drum, there being a guiding-channel in said cone communicating with said rod-guide, guide-rolls mounted on said drum and a clearer-roll provided with a guiding-flange mounted at the edge of said coiler-cone to guide the rod out of contact with the edge of said cone.

3. In rod-coiling apparatus, a drum and a relatively rotating coiler-cone, a guiding-channel formed in said cone, a series of guide-rolls mounted on said cone to guide the rod issuing from said channel and a flanged clearer roll mounted at an inclination adjacent the edge of said cone to be engaged by a rod wound by said cone and to guide the end of said rod over the edge of said cone.

4. In rod-coiling apparatus, a drum and a relatively rotating coiler-cone, the base of said cone embracing said drum, a guiding-channel formed in said cone, guides on the surface of said cone to guide a rod issuing from said channel and a flanged clearer-roll mounted at an inclination in a recess near the base of said cone to guide the free end of rod away from the edge of said cone.

5. In rod-coiling apparatus, a drum and a relatively rotating coiler-cone, the base of said cone embracing said drum, means to guide a rod over the surface of said cone and a flanged clearer-roll mounted in the edge of said cone to guide the rod away from said edge.

6. In rod-coiling apparatus, a drum and a relatively rotating coiler-cone the base of said cone embracing said drum, guides formed on said cone and a flanged clearer-roll mounted at an inclination in a recess in the lower edge of said cone to be engaged by a rod passing out of contact with said guides and to guide said rod away from the edge of said cone.

694,004. TWYER. GERARD DOAN, Union Springs, N. Y. Filed July 10, 1901. Serial No. 67,730. (No model.)



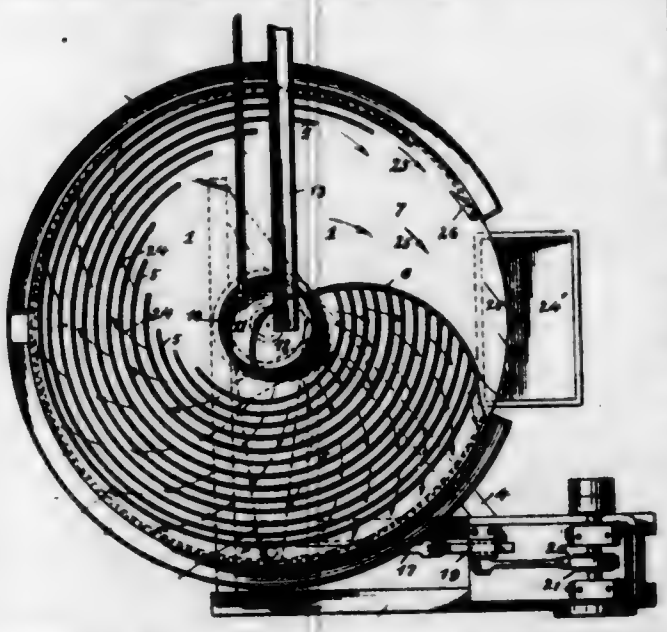
Claim.—1. A twyer-head provided with a perforated top plate and an ash-flange surrounding the same, a hollow base-piece secured to the bottom of the twyer-head, a tubular air-plug extending through the said base-plate and open at one end and provided with a side orifice, a hollow oscillating headpiece secured to the top of the air-plug within the twyer-head and provided with lugs coacting with lugs upon the base-piece, a lever connected with the air-plug for oscillating the same, a perforated air-distributing plate secured to the top of the headpiece and provided with perforations which are adapted to register with those in the top plate of the twyer-head, and a tube for supplying air to the orifice of said plug, substantially as shown and described.

2. A twyer-head casing provided with a top plate having perforations arranged in separate circles therein, an air-regulating plate beneath said top plate and provided with perforations arranged in separate circles and adapted to register with those in said top plate, one set of said holes in each of said plates being larger than the others, means for admitting air to the twyer-head and devices for oscillating said air-distributing plate, substantially as shown and described.

3. A hollow twyer-head provided with a perforated top plate, a hollow oscillating headpiece mounted in said twyer-head and provided with an air-distributing plate having perforations adapted to register with those in the top plate, a hollow base-piece secured to the bottom of the twyer-head and provided with lugs which operate in connection with other lugs formed on the headpiece, an oscillating tubular air-plug mounted in the base-piece and connected with the headpiece, means for supplying air to said plug, and a device for oscillating said plug, substantially as shown and described.

4. A hollow twyer-head provided with a perforated top plate, a hollow oscillating headpiece mounted in said twyer-head and provided with an air-distributing plate having perforations adapted to register with those in the top plate, a hollow base-piece secured to the bottom of the twyer-head and provided with lugs which operate in connection with other lugs formed on the headpiece, an oscillating tubular air-plug mounted in the base-piece and connected with the headpiece, means for supplying air to said plug, and a device for oscillating said plug, said twyer-head being also provided with an annular flange or rim, substantially as shown and described.

694,005. ORE-CONCENTRATOR. WILLIS G. DODD, San Francisco, Cal. Filed Mar. 18, 1901. Serial No. 51,619. (No model.)



Claim.—1. An ore-concentrator comprising an oscillatory inclined table having an unriffled or plain surface adjacent its discharge portion for the separated mineral, a series of curved riffles upon the working face of the table, said riffles extending from approximately a radial division and terminating at and discharging onto the plain or unriffled surface of the table, and means whereby an oscillating motion is imparted to the table whereby the mineral and gangue travel within the riffles at approximately the same velocity until separation takes place.

2. An ore-concentrating apparatus comprising an oscillatory table inclined outwardly from its center, means for imparting an oscillating motion to the table during the treatment of the ore, a plain or unriffled portion to the table, a series of curved riffles arranged on the working face of the table eccentric to its center, each riffle increasing in length and extending a greater distance into the unriffled portion of the table than the riffle immediately above.

3. A concentrating apparatus comprising an oscillatory concentrating-table, means whereby an oscillating motion is imparted to the table, a series of concentric riffles arranged upon the working face of the table, each riffle being the involute of a circle, and of a plain or unriffled portion to the table intermediate the ends of the riffles.

4. A concentrating apparatus comprising an oscillatory concentrating-table, means whereby an oscillating motion is imparted to the table, a series of concentric riffles arranged upon the working face of the table, each riffle being the involute of a circle and its discharge end terminating at a point beyond that of its preceding riffle and a plain or unriffled surface to the table onto which the riffles discharge.

5. The combination in a concentrating apparatus, of a circular concentrating-table, of means whereby an oscillating motion is imparted to the table, and of a series of curved riffles arranged upon the working face of the table, said riffles being concentric, and a plain or unriffled portion to the table onto which the riffles discharge.

6. In an ore-concentrating apparatus, the combination with a cone-shaped concentrating-table, having a plain or unriffled portion, of means for imparting an oscillating motion to said table, and a series of concentric involute curved riffles arranged on the working face of the table, the discharge end of each riffle terminating at a point beyond that of the riffle immediately above the same.

7. In an ore-concentrator, the combination with the cone-shaped table mounted to oscillate around a central vertical axis, a plain or unriffled portion to the table, a pulp and water distributing box arranged to distribute the pulp and water at the apex of the cone, a series of downwardly-inclined curved riffles arranged on the working face of the table and extending onto the plain or unriffled portion thereof, the discharge end of each riffle being beyond that of the riffle immediately above, and means whereby an oscillating motion is imparted to the concentrating-table

8. In an ore-concentrator, the combination with the circular cone-shaped table having a plain or unriffled portion, of means for imparting an oscillatory motion to the table, a pulp and water distributer arranged to distribute at the center of the table, a partition-wall secured to the working face of the table, and a series of concentric curved riffles extending from said partition-wall across the working face of the table.

9. In an ore-concentrating machine, the combination with the circular concentrating-table having an upper radially-sloping face, of devices for supplying water and pulp to said table, a central support for the table, a bearing for the support, a plain or unriffled portion to the table, means for imparting an oscillating motion to the table, and a series of downwardly-inclined curved riffles arranged upon the working face of the table, each riffle extending and discharging onto the plain or unriffled portion of the table.

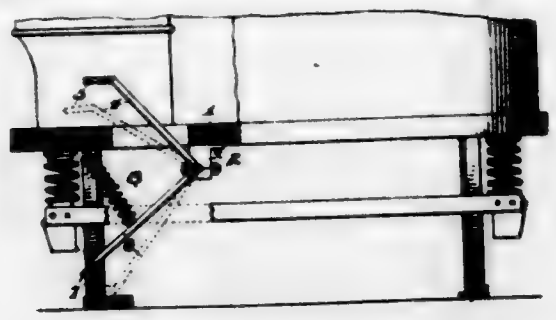
10. In an ore-concentrator, the combination with the concentrating-table having a plain or unriffled portion, of means for imparting an oscillating movement to the table, a series of concentric riffles arranged on the working face of the table, each of which discharges onto the plain or unriffled portion of the table, devices for supplying water and pulp to the table, and a circular trough or launder arranged to receive the gangue discharged from the table.

11. In an ore-concentrater, the combination with the concentrating-table having a plain or unriffled portion, of means for imparting an oscillating motion to the table, a series of curved riffles arranged on the working face of the table, each riffle discharging onto the plain or unriffled portion of the table, devices for supplying water and pulp to the surfaces of the table, a circular trough or launder for receiving the gangue discharged from the table, and a deflecting-finger secured to the unriffled portion of the table at a point beyond the discharge end of the bottom riffle.

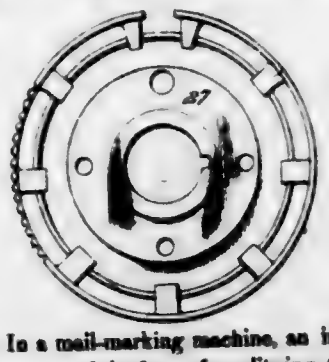
694,006. SWITCH-OPERATING MECHANISM. JACOB ENGLE, Pittsburg, Pa. Filed Apr. 24, 1901. Serial No. 57,218. (No model.)

Claim.—A switch-throwing device, comprising in combination with the brackets 2, secured to the under side of the platform of a car, boxings held thereto, a bar 3 journaled in said boxings, said bar being bent at right angles at two locations, forming a downwardly-disposed arm 6 with flattened pointed end, and an upwardly-inclined arm 4, the extreme upper end of arm 4 being bent at an obtuse angle thereto, and a spring fastened at one end to said arm 6, its other arm fastened to the floor of the car, as set forth.

694,006.



694,007. MAIL-MARKING MACHINE. JAMES GEARY, Bradford, Pa. Filed Nov. 24, 1900. Serial No. 37,605. (No model.)



Claim.—1. In a mail-marking machine, an impression-roll having for its periphery a spring of the form of a split ring, the ends of the spring being adjacent each other, in combination with a printing-roll.

2. In a mail-marking machine, an impression-roll having a central body and a compressible periphery consisting of a split metal spring-ring.

3. In a mail-marking machine, an impression-roll having a central body and a compressible periphery consisting of a split spring-ring surrounding the entire body approximately, the ring and body having loose connections holding them in definite relation to each other while permitting expansion and contraction of the ring.

4. In a mail-marking machine, an impression-roll having a central body and a compressible periphery consisting of a split ring, the ring and body having loose connections holding them in definite relation to each other while permitting expansion and contraction of the ring, said connections comprising lugs on one part to engage corresponding parts on the other.

5. In a mail-marking machine, an impression-roll having a central body and a compressible periphery composed of a split spring-ring, and a detachable cover adapted to hold the ring movably on the body.

6. In a mail-marking machine, an impression-roll having a central body and a compressible peripheral ring and a detachable cover, said cover holding the ring and body together, and an eccentric-pin connecting the cover to the body.

7. In a mail-marking machine, a pump-supported letter-carrier, a movable pump adapted to draw air into the carrier and comprising a cylinder, and stops to limit the movement of the pump-cylinder.

8. In a mail-marking machine, the combination of a pump comprising a cylinder, a piston movable lengthwise the cylinder, and a hollow carrier fixed to the piston-rod and communicating with the cylinder on the side of the piston opposite said carrier.

9. In a mail-marking machine, the combination of a pump comprising a cylinder, a piston movable lengthwise the cylinder, and a hollow carrier fixed to the piston-rod and communicating with the cylinder on the side of the piston opposite said carrier, said cylinder and piston being simultaneously movable transversely of the lengthwise movement of the piston.

10. In a mail-marking machine, a hollow letter-carrier, a rod supporting said carrier and having a hollow part communicating therewith, means for producing a partial vacuum in the hollow of the rod, and mechanism for moving the rod lengthwise, and devices for guiding it transversely to move the letter-carrier to and from a piece of mail-matter at the time of feeding said piece forward.

11. In a mail-marking machine, a pump comprising a cylinder, a piston movable lengthwise the cylinder, a suction letter-carrier medately fixed to the piston, mechanism to move the piston and thereby operate the pump to produce a partial vacuum in the carrier, said cylinder and piston being both transversely movable, and a pivotal support for the pump.

12. In a mail-marking machine, a rotating shaft, a suction-pump, a hollow piston-rod, a hollow letter-carrier situated at the side of and communicating with the said rod, and a pump-operating connection situated directly between the shaft and the rod, said shaft and connection positively reciprocating the piston.

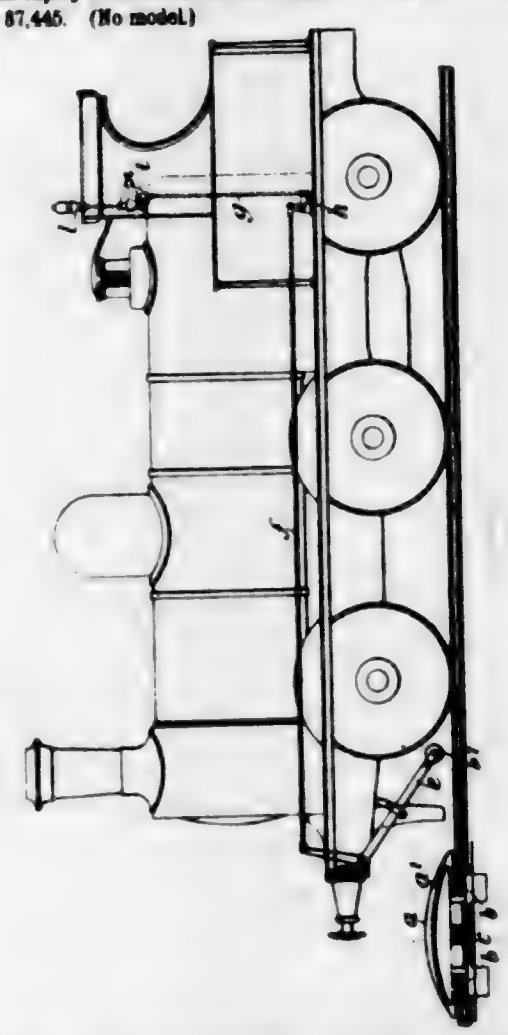
13. In a mail-marking machine, a rotating shaft, a suction-pump, a hollow piston-rod, a hollow letter-carrier situated at the side of and communicating with the said rod, and a pump-operating connection situated between the shaft and the rod and pivoted to the rod, said shaft and connection positively reciprocating the piston.

14. In a mail-marking machine, a suction-pump having a piston and a hollow piston-rod, means for reciprocating the rod and piston, a hollow letter-carrier communicating with the rod, and means for holding letters parallel to a plane passing lengthwise through the rod.

15. In a mail-marking machine, a mail-separator comprising a spring-wire coil having its ends extended into the path of ingoing mail and inclined thereto.

16. The combination of a printing-roll and an impression-roll comprising a yielding platen, said latter roll having indentations corresponding to the printing-faces of the former, whereby the rolls may rotate in close proximity without inking the impression-roll when nothing is passing between the rolls.

694,008. AUTOMATIC AUDIBLE SIGNALING ON RAILWAYS. JOHN GOODE, Colwall, near Malvern, England, assignor of one-half to Denis Ripley Broadbent, London, England. Filed Dec. 27, 1901. Serial No. 87,445. (No model.)



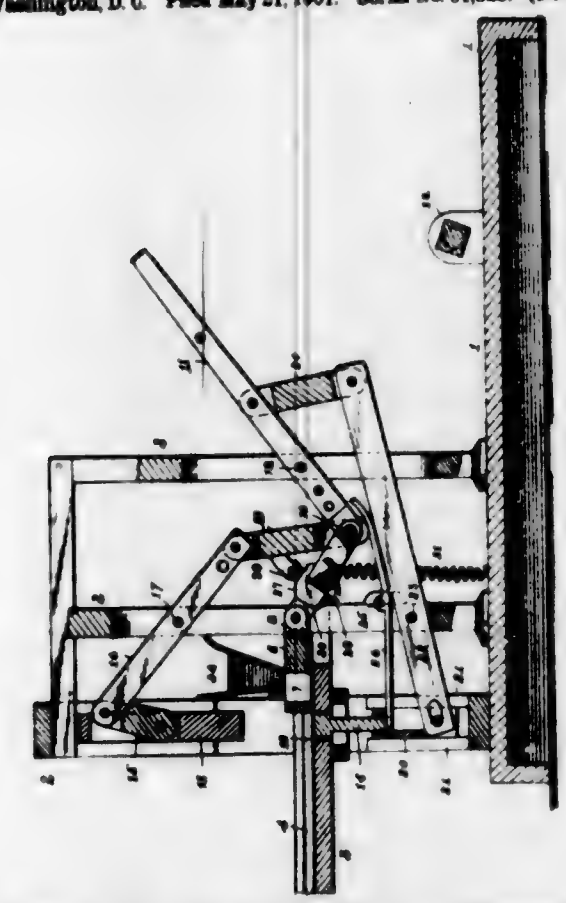
Claim.—1. The improvements in or relating to automatic audible signaling on railways, comprising inclined or curved striking-plates of different height arranged parallel with the track and movable at right angles thereto by connections controlled from the signal-cabin, in combination with a lever dependent from the engine and adapted to be actuated by one or other of the striking-plates according to their position, mechanism connecting said lever with the whistle-valve, a device for locking said mechanism against return movement when it has been actuated through the agency of one of the striking-plates, and means controlled from the engine-cab for releasing said locking device by hand, the locking device remaining inoperative when the whistle-valve is opened through the agency of the other striking-plate, substantially as described and for the purpose set forth.

2. In apparatus or means for automatic audible signaling on railways, the combination with inclined or curved striking-plates of different height movable in a direction at right angles to the track by connections controlled from the signal-cabin, of a striking lever dependent from the engine and adapted to be actuated by one or other of the striking-plates according to their position, mechanism connecting said lever with the whistle-valve, a catch or dog which, when brought into action by the excess motion transmitted to the whistle-operating mechanism by means of the higher striking-plate, locks the said mechanism in position to keep the whistle-valve open, and means for releasing said catch or dog by hand, the catch or dog remaining inoperative when the lower strik-

ing-plate actuates the striking-lever, substantially as described and for the purpose set forth.

3. In apparatus or means for automatic audible signaling on railways, the combination with inclined or curved striking-plates *a a'* of different height movable at right angles to the four-foot way by connections controlled from the signal-cabin, of a striking-lever *e* dependent from the engine and adapted to be actuated by one or other of the striking-plates according to their position, a sector-shaped lever *i* actuating the whistle-valve, connections between said sector-lever and the striking-lever *e*, and a spring-controlled catch or dog *m* bearing on the edge or periphery of said sector-lever *i*, which when the sector-lever receives excess motion from the higher striking-plate *a*, shoots forward and locks the sector-lever against return movement until released by the driver, substantially as described and for the purpose set forth.

694,009. PRESS FOR MAKING BRICK. JOSEPH E. GRINDER, Washington, D. C. Filed May 21, 1901. Serial No. 61,323. (No model.)



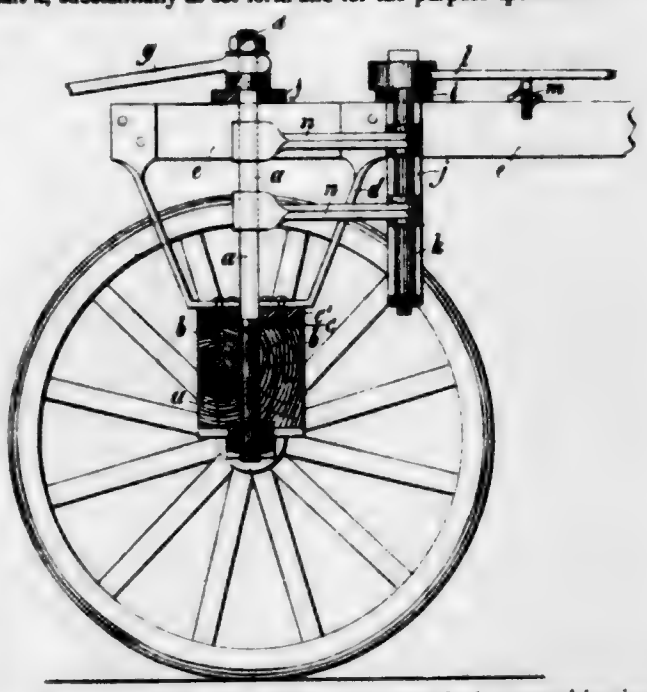
Claim.—1. The combination, in a brick-press, of the mold, a table carrying the same, plungers 13, 14 adapted to enter said mold to compress the material therein, an operating-lever 11 fulcrumed on the frame of the machine, auxiliary levers 16 and 22 also fulcrumed on the frame, links connecting said plungers to said auxiliary levers and links connecting the lever 11 to the auxiliary levers and to the mold, substantially as specified.

2. The combination, in a brick-press, of the mold, a table carrying the same, oppositely-disposed plungers adapted to enter said mold and compress the material therein, an operating-lever 11 fulcrumed to the frame, a link 9 connecting said lever to the mold, a system of levers and links connecting the lever 11 to the upper plunger 13, a guide-box 20 in which the lower plunger is carried, a lever and link connecting the same to the lever 11, and an auxiliary lever 26 fulcrumed to the frame and adapted to act on the plunger 14, substantially as specified.

694,010. DEVICE FOR STEERING AGRICULTURAL MACHINES. CARL F. GROSMANN, Güstrow, Germany. Filed Apr. 12, 1901. Serial No. 55,477. (No model.)

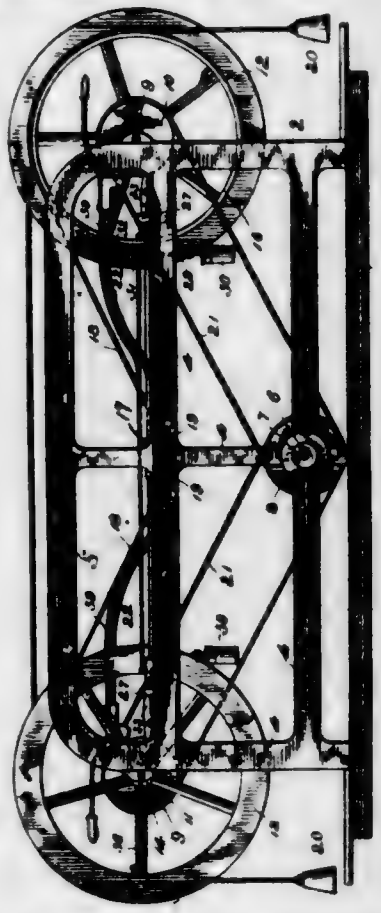
Claim.—1. In an agricultural machine a steering device comprising a pole-bolt *a* secured to the front axle of the machine, a vertical shaft *k* secured to the upper part of the frame of the machine, claws *n* secured at one end to the vertical shaft *k* and inclosing the pole-bolt *a* at the other end, a steering-lever *l* secured to the vertical shaft *k*, substantially as set forth.

2. In an agricultural machine a steering device comprising in combination a pole-bolt *a* secured to the front axle of the machine, a beam *b* secured on said axle, a plate *c'* possessing a slot *h* and secured to the frame of the machine, a plate *f* connecting the two side beams *e* and possessing a slot *h*, a vertical shaft *k* secured to the upper part of the frame of the machine, claws *n* secured at one end to the vertical shaft *k* and inclosing at the other end the pole-bolt *a*, a steering-lever *l* secured to the vertical shaft *k*, substantially as set forth and for the purpose specified



3. In an agricultural machine a steering device comprising in-combination a pole-bolt *a* secured to the front axle of the machine, a beam *b* secured on said axle, a plate *c* attached to the top of said beam, a plate *c'* resting on the said plate *c* and possessing a slot *h* and secured to the frame of the machine a plate *f* connecting the two side beams *e* and possessing a slot *h* a vertical shaft *k* turning in bearings *j* secured to the frame of the machine, two claws *n* secured at one end to the vertical shaft *k* and surrounding at the other end the pole-bolt *a*, a steering-lever *l* secured to the vertical shaft *k*, a rail *m* between the two side beams *e* and provided with notches adapted to hold the steering-lever *l* in any desired position, substantially as set forth and for the purpose specified.

694,011. APPARATUS FOR WINDING WIRE FROM ONE REEL TO ANOTHER WHILE SAME IS BEING POLISHED. ADOLPHE GUIMOND, Fall River, Mass. Filed May 7, 1901. Serial No. 59,153. (No model.)



Claim.—1. In a machine of the character described, the combination, of a frame, of means for winding the drum, and means for automatically stopping the drum when one lap of wire is left thereon.

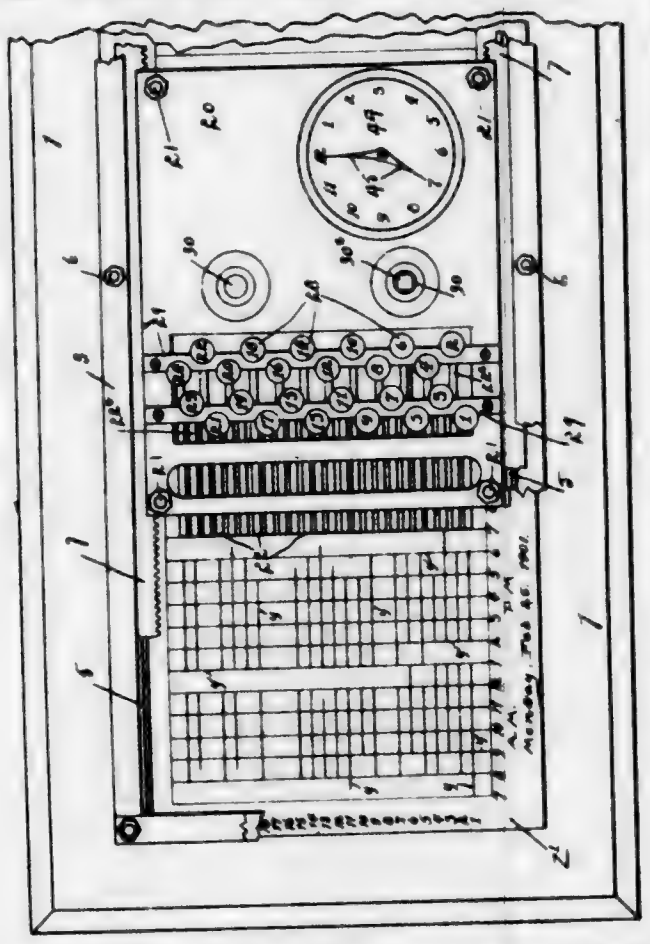
2. In a machine of the character described, the combination of a frame, a power-transmitting shaft mounted therein, winding-drums mounted in the ends of the shaft, means for causing said drums to be operated, means for normally holding said operating means out of use, and means

for automatically stopping the drums before the wire is entirely unwound therefrom.

3. In a machine of the character described, the combination, of a frame, a power-transmitting shaft mounted therein, winding-drums mounted in the frame and adapted to be operated by said shaft, a lever mounted in the frame and adapted to set the drums in motion, a brake to stop said drums when said lever is operated to shift the power, and an automatic stop operated by the wire before the wire is entirely unwound from the drums.

4. In a machine of the character described, the combination, of a base, sides rising upward therefrom, platforms connecting said sides at the top, a shaft located in the lower central part of the frame, shafts mounted in the ends of said frame, loose pulleys mounted upon said end shafts, belts connected to said pulleys and the central shaft, a winding-drum mounted upon the end shafts, a lever to shift the belts from the loose pulley to revolve the drum, means to normally hold said lever and the belt upon the loose pulley, a weighted brake to stop said drums when the lever shifts the belt upon the loose pulley, and means for automatically stopping the drums before the wire is entirely unwound from the drums.

694,012. TIME-RECORDER. WILLIAM P. GURR, Minneapolis, Minn. Filed Mar. 19, 1901. Serial No. 51,854. (No model.)



Claim.—1. The combination with a record-supporting platen so extended that its entire record-supporting surface may be seen, of a carriage or support, means for moving one of said parts with a timed action, and a plurality of independent markers mounted on said carriage or support and operative at will, which markers are so disposed that they always stand entirely clear of the record, thereby leaving the entire record exposed to view, substantially as described.

2. The combination with a substantially flat platen and a carriage or support, of means for moving one of the said parts with a timed action, independent markers on said support, and means for holding the record-strips on said platen, substantially as described.

3. The combination with a platen and a carriage or support, the one movable with respect to the other, of a rack connected to said platen, a gear on said support meshing with said rack, automatic means for intermittently moving said gear with a timed action, and marking devices on said carriage or support, substantially as described.

4. The combination with a platen and a carriage or support, of a rack connected to said platen, a gear on said support meshing with said rack, a spring-motor on said support, a rotating driver subject to said motor, a skip-pawl on said driver, engageable with driving projections movable with said gear, and a timed trip for rendering the driving action of said skip-pawl intermittent, substantially as described.

5. The combination with a platen and a carriage or support, the one movable with respect to the other, means for timing the action of the movable member and intermittently moving the same, involving an escapement, a spring-motor and a skip-pawl connection between said motor and driven member, and independent markers on said carriage or support, substantially as described.

6. The combination with a platen, of a carriage mounted to move over the same, means for moving said carriage with a timed action, and independent markers on said carriage, substantially as described.

7. The combination with a platen and means for securing a record-strip thereon, a carriage-guide, a traveling carriage movable on said guide over said platen, independent markers on said carriage, and means for moving said carriage with a timed action, substantially as described.

8. The combination with a platen and means for securing a record-strip thereon, of a carriage-guide, a carriage movable on said guide over said platen, means for moving said carriage intermittently and with a timed action, and markers on said carriage, substantially as described.

9. The combination with a platen and a graduated record-strip securable upon said platen, of a carriage guide, a carriage movable on said guide over said record-strip, independent markers on said carriage, and means for moving said carriage at a rate of speed corresponding to that indicated on said record-strip, substantially as described.

10. The combination with a platen and a carriage-guide, of a traveling carriage movable on said guide, independent markers on said carriage, a spring-motor for moving said carriage, and an escapement controlling said motor and a timed mechanism for regulating the speed of said carriage, substantially as described.

11. The combination with a platen and a carriage or support, of means for moving one of said parts with respect to the other with a timed action, means for positively and intermittently intercepting the movement of said movable member, and independent markers on said support, substantially as described.

12. The combination with a platen and a carriage-guide, of a traveling carriage movable on said guide, a motor for moving said carriage, a lock for said carriage operated intermittently and with a timed action, and independent markers on the said carriage, substantially as described.

13. The combination with a platen and a carriage or support, of a constantly-running motor for moving one of said parts with respect to the other, a trip for intermittently throwing said motor out of action on the movable member, a lock for intermittently securing the movable member, and independent markers on said carriage or support, substantially as described.

14. The combination with a platen and a carriage-guide, of independent markers on said carriage, a constantly-running spring-motor on said carriage for driving the same, driving-wheels subject to said motor, a trip for throwing said motor out of action on said driving-wheels, a resistance device arranged to be thrown into action on said motor when said motor is thrown out of action, which resistance device offers a resistance to the movement of said motor approximately equal to that required to drive the carriage or movable member.

15. The combination with a flat, relatively fixed platen and carriage-guide connected therewith, of a pair of racks fixed against endwise movement with respect to said platen, a traveling carriage movable on said guide, a pair of intermeshing gears meshing with said racks, one thereof having a pair of driving-lugs, a spring-motor actuating said gears, means for restraining the movements of said motor, involving an escapement, and a motor-driven skip-pawl intermittently engageable with said driving-lugs, substantially as described.

16. The combination with a platen and a carriage or support and means for moving the one with respect to the other with a timed action, of markers on said carriage or support, and a carbon and a record-strip securable on the face of said platen for coöperation with said markers, substantially as described.

17. The combination with a platen and a carriage or support, the one movable with respect to the other, independent markers on said support movable over said platen, a rack mounted on said platen, a pair of gears located one over the other on said support, means for engaging said rack with either of said gears, means for driving one of said gears continuously, and means for driving the other of said gears intermittently, and both with properly-timed actions, substantially as described.

18. The combination with a relatively fixed platen and a traveling carriage, of a pair of vertically-adjustable racks, two pairs of gears on said carriage, means for adjusting said racks into engagement with either of said pairs of gears, a spring-motor acting constantly on one of said pairs of gears, means for automatically and intermittently rendering said motor operative on the other pair of said gears, and a clockwork or escapement mechanism restraining the action of said motor, substantially as described.

19. The combination with the relatively fixed platen and traveling carriage, of a pair of vertically-adjustable racks extending lengthwise of the path of movement of said carriage, two pairs of gears mounted one over the other on said carriage, means for moving said racks into mesh with either pair of said gears, independent marking devices on said carriage, a spring-motor acting constantly on one of said pair of gears, driv-

ing-lugs 42 on one member of the other pair of gears, a constantly-driven arm or driver 38, provided at its free end with a skip-pawl 39 engageable intermittently with said lugs 42, the vibrating trip-arm 49 for action on said skip-pawl, and a cam or trip 46 mounted to rotate with said driver 38 and controlling the tripping movements of said arm 49, substantially as described.

694,013. STOPPER FOR BOTTLES. JOHN A. HAYES, Philadelphia, Pa. Filed Aug. 25, 1899. Serial No. 728,453. (No model.)



Claim.—1. A stopper for bottles, comprising a tapering cork, the diameter of which is greater at the bottom than at the top, and being adapted to fit into a correspondingly-tapered chamber in the mouth of the bottle, said cork being provided with a central bore, the wall of which is tapered or disposed oppositely to the external taper of the cork, the said cork having an irregular external configuration, and a threaded stopper adapted to said bore.

2. A stopper for bottles comprising a tapering cork having a plurality of external grooves, said cork being larger in diameter at the bottom than at the top and being adapted to fit a correspondingly-shaped chamber in the mouth of the bottle, said chamber being provided with ribs which enter said grooves in the cork and prevent rotative movement thereof, said cork being provided with a central bore, the wall of which is tapered or disposed oppositely to the external taper of the cork, and a threaded stopper adapted to the bore in said cork.

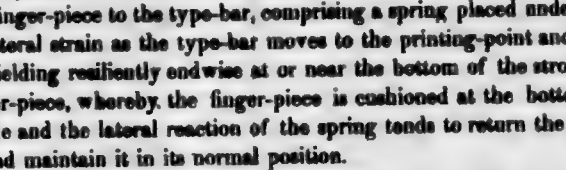
3. A stopper for bottles, comprising a tapering cork having a plurality of external grooves, said cork being larger in diameter at the bottom than at the top and being adapted to fit into a correspondingly-shaped chamber in the mouth of the bottle, said chamber being provided with ribs which enter said grooves in the cork and prevent rotative movement thereof, said cork being further provided with a central bore, the wall of which is tapered or disposed oppositely to the external taper of the cork and being rounded or flared at its lowermost extremity, and a threaded stopper adapted to the bore in said cork.

694,014. PROCESS OF PRODUCING ARTIFICIAL WOOD. EMIL HELBING, Hamburg, Germany. Filed Oct. 4, 1901. Serial No. 77,595. (No specimens.)

Claim.—A process for producing artificial wood which consists in first thoroughly washing turf, and retaining as far as possible its natural fiber, then adding a mixture of hydrate of lime and sulfate of aluminium, then pressing while moist in the manner and for the purpose substantially as described.

694,015. WRITING-MACHINE. EDWARD B. HESS, Brooklyn, N. Y., assignor to Mechanical Improvements Company, New York, N. Y., a Corporation of New York. Filed Oct. 9, 1901. Serial No. 78,077. (No model.)

Claim.—1. In a writing-machine the combination of a pivoted type-bar, a finger-piece, a rigid but movably-mounted part to which the finger-piece is connected and devices interposed between said part and the type-bar by which power applied to the finger-piece is transmitted to the type-bar to actuate it, which interposed devices comprise a spring that is placed under tension as the finger-piece is depressed and the reaction of which tends to return the type-bar throughout its entire passage from the printing-point to its normal position of rest.



2. In a writing-machine, the combination of a pivoted type-bar, a finger-piece, a movably-mounted part to which the finger-piece is applied, a resilient member or spring, a connection between it and the type-bar and a connection between it and said movable part actuated by the finger-piece, whereby on the depression of the finger-piece the spring is placed under tension, the type-bar actuated and, on the release of the finger-piece, the reaction of the spring tends to return the type-bar throughout its entire passage from the printing-point to its normal position of rest.

3. In a writing-machine, the combination of a pivoted type-bar, a finger-piece, a spring mounted upon a fixed support and through which power applied to the finger-piece is transmitted to the type-bar, a connection between the spring and type-bar and between the spring and a part actuated by the finger-piece, the operation being substantially as described.

4. In a writing-machine, the combination of a pivoted type bar, a finger-piece, a spring mounted upon a fixed support and through which power applied to the finger-piece is transmitted to the type-bar, a connection between the spring and type-bar and between the spring and the finger-piece, the operation being substantially as described.

5. In a writing-machine, the combination of a pivoted type-bar, two links flexibly connected, one operatively connected to the type-bar and the other a spring connected to a fixed point, a finger-piece, and a connection between it and the spring-link, whereby on the depression of the finger-piece the spring is placed under tension as its free end moves about the fixed point to throw the type-bar to the printing-point.

6. In a writing-machine, the combination of a pivoted type-bar, a finger-piece, and interposed devices, for transmitting power exerted on the finger-piece to the type-bar, comprising a spring placed under tension by lateral strain as the type-bar moves to the printing-point and capable of yielding resiliently endwise at or near the bottom of the stroke of the finger-piece, whereby the finger-piece is cushioned at the bottom of its stroke and the lateral reaction of the spring tends to return the type-bar to and maintain it in its normal position.

7. In a writing-machine, the combination of a pivoted type-bar, a finger-piece, a movably-mounted part actuated by the finger-piece and devices interposed between said part and type-bar through which power exerted on the finger-piece is transmitted to the type-bar, which interposed devices comprise a spring that cushions the finger-piece at the bottom of its stroke and by its reaction tends to return the type-bar throughout its entire passage from the printing-point to its normal position of rest.

8. In a writing-machine, the combination of a pivoted type-bar, a connection which extends forward from the type-bar to a fixed point, is capable of flexing intermediate its ends, and comprises a laterally-yielding spring whose free end is movable about said point as said connection is flexed, and means for flexing the connection to throw the type-bar to the printing-point and at the same time compress said spring.

9. In a writing-machine, the combination of a pivoted type-bar, a connection which extends forward from the type-bar to a fixed point, is capable of flexing intermediate its ends, and comprises a laterally-yielding spring capable also of yielding elastically endwise and whose free end is movable about said fixed point as said connection is flexed, and a finger-piece on the depression of which the spring is compressed by moving it about the fixed point, the type-bar thrown to the printing-point, and the finger-piece cushioned at the bottom of its stroke by the longitudinal yielding of the spring.

10. In a writing-machine, the combination of a pivoted type-bar, a connection which extends forward from the type-bar to a fixed point, is capable of flexing intermediate its ends, and comprises a laterally-yielding spring whose free end is movable about said point as said connection is flexed, and means for flexing the connection applied intermediate its ends to throw the type-bar to the printing-point and at the same time compress said spring.

11. In a writing-machine, the combination of a pivoted type-bar, a connection which extends forward from the type-bar to a fixed point, is capable of flexing intermediate its ends, and comprises a laterally-yielding spring capable also of yielding elastically endwise and whose free end is movable about said fixed point as said connection is flexed, and a finger-piece on the depression of which the flexing connection is operated upon intermediate its ends to compress the spring by moving it about the fixed

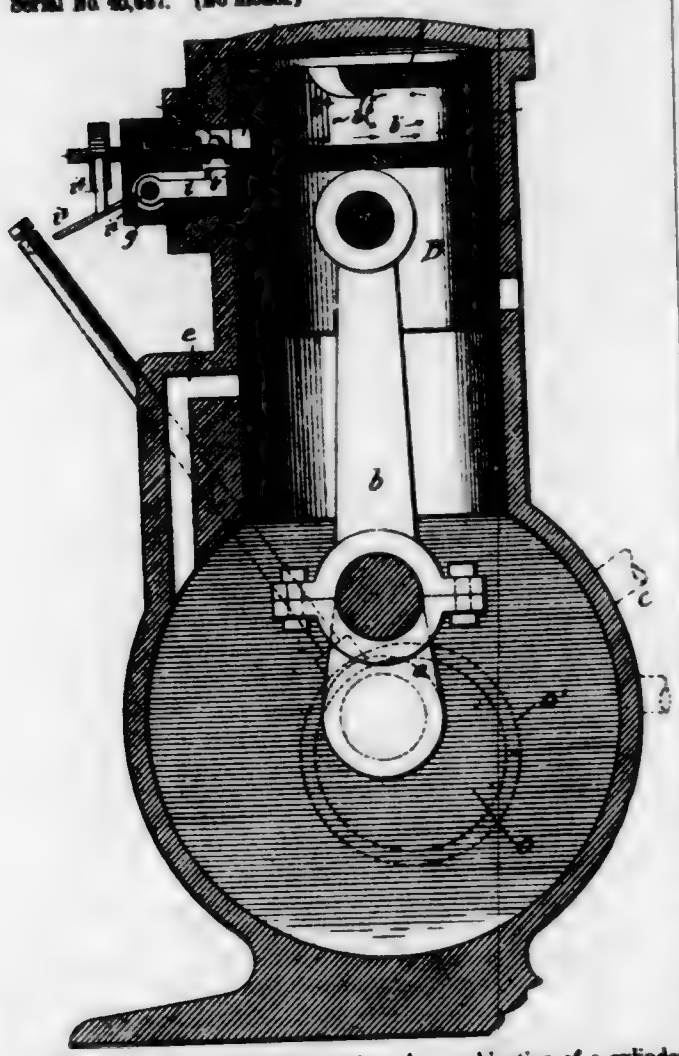
point; the type-bar thrown to the printing-point; and the finger-piece cushioned at the bottom of its stroke by the endwise yielding of the spring.

12. In a writing-machine, the combination of a pivoted type-bar, a key-lever having a finger-piece applied thereto, and power-transmitting connections, between the key-lever and type-bar, comprising a spring that is placed under tension during the excursion of the type-bar to the printing-point and by its reaction tends to return the type-bar throughout its entire passage from the printing-point to its normal position of rest.

13. In a writing-machine, the combination of a pivoted type-bar, a key-lever, a spring attached to a fixed point or support and through which power applied to the key-lever is transmitted to the type-bar, a connection between the spring and type-bar and between the spring and key-lever, the organization being such that the spring is placed under tension as the type-bar moves to the printing-point and by its reaction tends to return the type-bar to and maintain it in its normal position.

14. In a writing-machine, the combination of a type-bar rocking about a fixed axis during any excursion of the bar from its normal position to the printing-point on the platen, a key-lever having a finger-piece applied thereto and power-transmitting connections, between the key-lever and the type-bar, comprising a spring placed under tension during the excursion of the type-bar to the printing-point and which by its reaction tends to return the type-bar to its normal position.

694,016. EXPLOSIVE-ENGINE. WARREN HIBBARD, SUMNER HIBBARD, and CHARLES HIBBARD, Sandyhill, N. Y. Filed Feb. 2, 1901. Serial No. 45,687. (No model.)

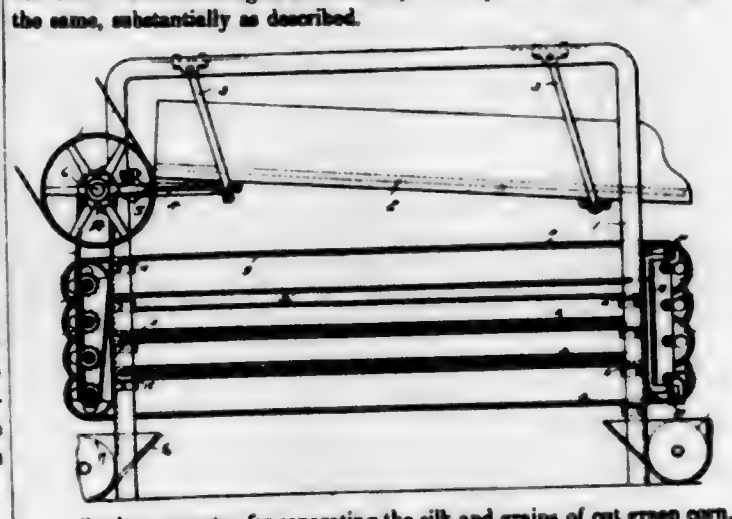


Claim.—1. In an explosion-engine, the combination of a cylinder, a piston therein provided with a trap for fresh gas, an inlet-port adapted to communicate with said trap when the piston is at one end of its stroke, and a sparking-chamber adapted to communicate with said trap when the piston is at the other end of its stroke through the same opening by which the fresh gas enters the trap.

2. In an explosive-engine, a piston having a trap for gas, on its explosion side, said trap being formed by the extended sides of the piston and by two lips approaching each other in different planes from opposite sides of the piston, and a port opening into said trap.

694,017. APPARATUS FOR SEPARATING SILK FROM GREEN CORN. ELI HOUSTON, Morrow, Ohio, assignor of one-half to William B. Hayner, South Lebanon, Ohio. Filed Mar. 18, 1901. Serial No. 51,807. (No model.)

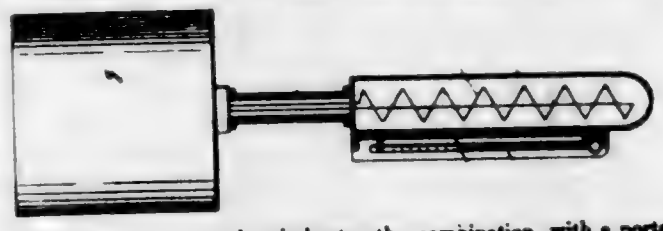
Claim.—1. As a means for effecting the separation of the silk from the grains of cut green corn, a plurality of endless flexible traveling ropes or the like arranged in groups in different horizontal planes, and the ropes of each group being offset or staggered relatively to the ropes of the groups above and below, whereby, the silk and corn passing by gravity through the ropes, the silk will engage with and be carried off by the ropes, while the corn will be discharged from the ropes and pass downward through the same, substantially as described.



2. An apparatus for separating the silk and grains of cut green corn, comprising a plurality of endless traveling ropes arranged in groups in different horizontal planes, the ropes of each group being offset or staggered relatively to those of the adjacent groups, means for imparting a continuous movement to said ropes, and means for discharging the silk and corn vertically downward upon said ropes, substantially as described.

3. An apparatus for separating the silk and grains of cut green corn, comprising a frame, a vibrating screen mounted thereon, a plurality of shafts mounted one above another at each end of the frame below the screen, each shaft being provided with a plurality of wheels or pulleys, the pulleys of each shaft being offset or staggered relatively to those above and below, endless ropes passing around said pulleys from one end of the machine to the other and traveling across the space below the screen so as to substantially fill the same, and means for actuating said screen and shafts, substantially as described.

694,018. ELECTRIC-HEATING DEVICE. EMIL KAETNER, Berlin, Germany. Filed June 17, 1901. Serial No. 64,807. (No model.)



Claim.—1. In an electric heater, the combination, with a portable casing, and resistance-wires inclosed therein; of a thermometer secured against one side of the casing for indicating the temperature of the fluid into which the said casing and thermometer are plunged, and non-heat-conducting material between the said casing and thermometer whereby the direct passage of heat from the casing to the thermometer is prevented, substantially as set forth.

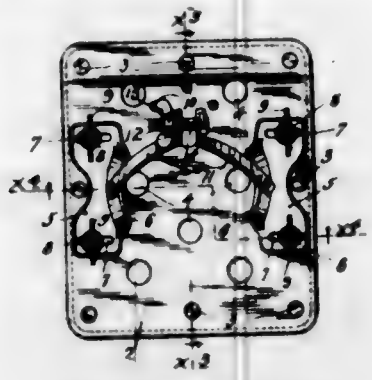
2. In an electric heater, the combination, with a portable casing, and resistance-wires inclosed therein; of a thermometer-tube secured against one side of the casing with its bulb opposite the lower parts of the said resistance-wires, and non-heat-conducting material arranged between the said thermometer and the casing and partly encircling the thermometer, whereby the direct passage of heat from the casing to the thermometer is prevented, and the thermometer is adapted to indicate the temperature of the fluid into which it and the said casing are plunged, substantially as set forth.

694,019. MARSH-SHOE. WALLACE D. KELSEY, Minneapol. Minn. Filed Nov. 2, 1900. Serial No. 35,247. (No model.)

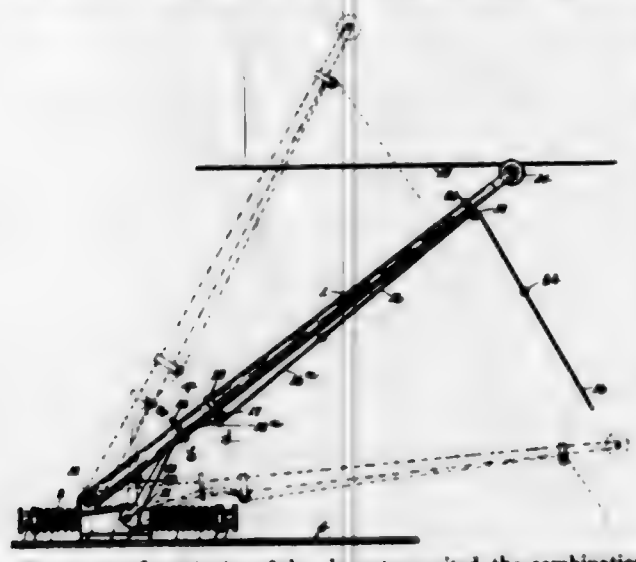
Claim.—1. A marsh-shoe comprising a sole-plate having laterally-spaced side clamps, a toe-clamp connected to said side clamps, and arranged to draw downward and rearward on the horse's hoof, and one or more brads projecting upward from said sole-plate, in position to engage the toe or forward portion of the horse's hoof and to prevent the same from sliding under the downward and rearward drawing action of said toe-clamp.

2. A marsh-shoe, comprising a sole-plate the side clamps 5 6 having slots 7, studs 8 projecting from said sole-plate through said slots 7, the nuts 9 on said studs 8, the two-part toe-clamp 11 pivoted to the flanges of said side clamps, the bolt 12 passed through the ends of the clamping-

sections 11 and provided with the nut 13, which nut 13 and which nuts 9 are removable from above the sole-plate, and one or more brads projecting upward from the forward central portion of said sole-plate, substantially as described.



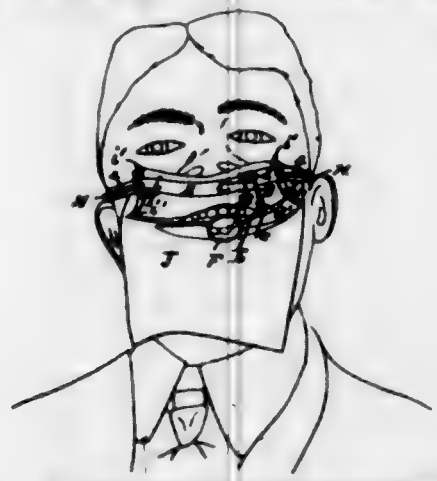
694,020. TROLLEY-POLE SUPPORT. FISHER H. LIPPINCOTT, Philadelphia, Pa. Filed July 16, 1900. Serial No. 23,845. (No model.)



Claim.—1. In a device of the character recited, the combination of the pivoted trolley-pole, the spring-controlled lever, or levers, whose free end is adapted to normally bear against the under side of said pole, at a point between the pivot and the free end of the pole, said lever or levers being also adapted to move out of contact with said pole when the latter is rotated upwardly by the upward movement of said lever a predetermined distance beyond the normal position thereby permitting the pole to fall rearwardly, and means for returning said lever, or levers, into position to bear against said pole, in order to cause the latter to be rotated upwardly on its pivot, substantially as set forth.

2. In a device of the nature recited, the combination of the pivoted trolley-pole, the spring-controlled, laterally-elastic, pivoted levers, the winged collar upon said pole against which said levers are adapted to bear, and the rope connected to said pole and secured to the free ends of said levers, all constructed and adapted to operate substantially as and for the purpose set forth.

694,021. HOLDER FOR DENTAL DEVICES. JAMES A. MEAD, Corry, Pa. Filed May 29, 1901. Serial No. 62,400. (No model.)



Claim.—1. In a holder for dental devices, the combination of a flexible bar arranged to conform to the face; means for attaching the bar in position on the face; a sliding block on the bar; and a mirror carried by the block.

2. In a holder for dental devices, the combination of a flexible bar arranged to conform to the face; means for attaching the bar in position on the face; a sliding block on the bar; a mirror, and a lever system connecting the mirror with the block, said lever system being provided with a universal joint.

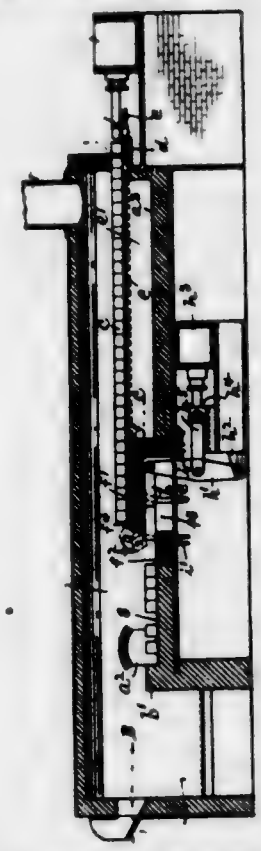
3. In a holder for dental devices, the combination of a bar shaped to conform to the face between the nose and the mouth; means for holding it in this position; a sliding block on the bar; and a mirror carried by the block.

4. In a holder for dental devices, the combination of a bar arranged to be attached adjacent to the face; cross-pieces on said bar having means for engaging a rubber dam thereon, said cross-pieces being arranged to slide on said bar.

5. In a holder for dental devices, the combination of a flexible bar arranged to conform to the shape of the face and to be in position between the nose and mouth; and sliding cross-pieces on said bar, said cross-pieces being provided with means for engaging a rubber dam.

6. In a holder for dental devices, the combination of the cross-bar, A, arranged to conform to the shape of the face between the nose and mouth; the cross-pieces, I I, slidingly mounted thereon, having the outwardly-projecting points, *i' i'*; the blocks, D, slidingly mounted on the bar; the lever system comprising the levers, D and E; joints formed of the sockets, C and *d'*; and the balls *d* and *e*.

694,022. FURNACE FOR HEATING BILLETS. CHARLES H. MORGAN, Worcester, Mass., assignor to the Morgan Construction Company, Worcester, Mass., a Corporation of Massachusetts. Filed Nov. 10, 1899. Serial No. 736,559. (No model.)



Claim.—1. In a furnace for heating billets, the combination with a heating-chamber, of a billet-support or track extending from one end of the heating-chamber partially through the same and adapted to support the billets transversely thereon, a pushing mechanism for pushing the billets along said billet-support or track by a sidewise movement, a second billet-support or track adapted to support the billets transversely thereon and extending from the first-named track, but in the same direction, toward the delivery end of the chamber, means for separating the billets as they pass from the first to the second of said tracks, and a second pushing mechanism for pushing the separated billets along said second track toward the delivery-opening, substantially as described.

2. In a furnace for heating billets, the combination with a heating-chamber, of a billet-support or track extending from one end of the heating-chamber partially through the same and adapted to support the billets transversely thereon, a pushing mechanism for pushing the billets along said support or track, a second billet-support or track extending from the first-named track, but in the same direction, toward the delivery end of the chamber, an opening through the bed or floor of the heating-chamber between said tracks and a second pushing mechanism made to operate through said opening for pushing the billets along said second track toward the delivery-opening, substantially as described.

3. In a furnace for heating billets, the combination with a heating-

chamber, of a billet-support, or track, extending from one end of the heating-chamber partially through the same, a pushing mechanism for pushing the billet along said billet-support and supported transversely thereon, a second longitudinal track or billet-support extending from the first-named track but in the same direction toward the delivery end of the chamber, said second track being on a lower level, whereby the billet, when pushed off the first track, falls by gravity upon the second track in a position transversely thereto, and a second pushing mechanism for pushing the billet along said second track toward the delivery-openings, substantially as described.

4. In a furnace for heating billets, the combination with a heating-chamber, of a track leading from the charging end of the chamber toward the delivery end, means for moving the billets along said track, a hearth placed on a lower level than said track and extending from said track toward the delivery end of the chamber, supplemental piers on which the billets are received from said track and delivered to said hearth, said piers having recesses for a pushing mechanism, and a pushing mechanism by which the billets are pushed along said hearth, substantially as described.

5. In a furnace for heating billets, the combination with a heating-chamber, of supplementary piers inserted in the floor of the chamber and between its ends forming a step down which the billets fall by gravity as they are pushed off said piers, means for pushing the billets off said piers, recesses in said piers for a pushing mechanism, and a pushing mechanism inclosed in said recesses by which the billets are moved away from said supplementary piers, substantially as described.

6. In a furnace for heating billets, the combination of billet-supports on different horizontal planes, whereby the billets are carried from a higher to a lower level by gravity, and a reciprocating pushing-bar by which the billets are moved forward on the lower level, said bar projecting into the path of a billet as it falls from the higher to the lower level, whereby the billets are turned in falling, substantially as described.

7. In a furnace for heating billets, the supplemental metal piers *f*, located in the floor of the heating-chamber and forming steps, water-pipes inclosed in said piers, a track for billets on the plane of the upper step and a hearth on the plane of the lower step, means for pushing the billets along said track and means for pushing the billets along said hearth, substantially as described.

8. In a furnace for heating billets, the combination with the heating-chamber, of a billet-supporting surface upon which the billets are supported in their passage from one end of said chamber to the other, a pushing mechanism by which the billets are moved from one end of the heating-chamber toward the center of said chamber, means for separating the billets at the center of the chamber, and a second pushing mechanism by which the billets when separated are moved in the same direction from the center toward the other end of said chamber, substantially as described.

9. In a furnace for heating billets, the combination of a heating-chamber having an admission-opening at one end, a delivery-opening at the opposite end for the admission and delivery of billets, a track or billet-support extending from said admission-opening to said delivery-opening and adapted to support the billets transversely thereon, a pushing mechanism for pushing the billets along said track or support by a sidewise movement from the admission-opening to the center of said heating-chamber, a second pushing mechanism for pushing the billets by a sidewise movement from the center of the heating-chamber to the delivery end thereof, substantially as described.

694,023. SIDING-GAGE. LARS P. A. NELSON, Poysippi, Wis. Filed Nov. 27, 1901. Serial No. 83,884. (No model.)



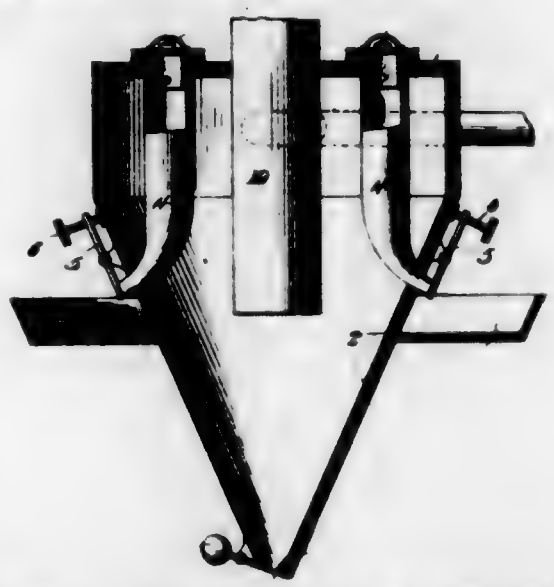
Claim.—1. In a device of the class described the combination of a slotted gage-bar, a relatively long pivoted arm secured to said gage-bar, and means for adjusting said arm at any predetermined distance along said gage-bar, substantially as set forth.

2. In a device of the class described, the combination of a slotted gage-bar provided with fastening-prongs formed on the under surface thereof, a relatively long arm pivotally held at the side of said gage-bar by means extending through the slot therein, and means for adjusting the arm at any predetermined distance along said slot, substantially as set forth.

3. In a device of the class described, the combination of a slotted gage-bar provided on its lower surface with fastening-prongs, and having its upper and lower faces marked with a graduated measuring-scale, a bolt extending through the slot in said scale and carrying at one end a relatively long arm, said arm being provided at its lower end with a hook-shaped portion, and means, comprising a thumb-screw threaded on the opposite end of said bolt, for holding said bolt and arm in any predetermined position relative to either of the measuring-scales, substantially as set forth.

4. A device of the class described, comprising a slotted gage-bar having its surfaces marked with graduated measuring-scales, a bolt extending through said slots and adjustably secured therein, an annular shoulder formed on the bolt near the head thereof, and a relatively long hook-shaped arm pivotally secured to said bolt between the annular shoulder and the head of said bolt, substantially as set forth.

694,024. NITER-OVEN. ANDREW P. O'BRIEN, Richmond, Va. Filed June 6, 1901. Serial No. 63,445. (No model.)



Claim.—1. A niter-oven comprising a casing having an inlet and an outlet pipe, one or more niter-pots arranged in said oven projecting at their lower end or ends through the walls of the said oven, and means for opening or closing communication between the niter pot or pots with the interior of the oven, substantially as described.

2. A niter-oven comprising a casing for receiving heated products from ore-roasting furnaces, an outlet-pipe leading from the said oven, a series of niter-pots arranged in the oven and projecting through the top thereof at their upper ends while their lower ends project through the said walls of the oven, means for closing both ends of the niter-pots, and means for collecting the residue discharged from said niter-pots, substantially as described.

3. A niter-oven comprising a casing having a conical portion projecting to an outlet-opening, niter-pots arranged within the oven, means for introducing a blast of heated products from a roasting or other furnace tangentially into the said oven whereby the niter-pots will be heated and dust or other injurious particles may be removed by centrifugal force and gravity from the said blast, and an outlet-pipe leading from said oven, substantially as described.

4. A niter-pot and dust-collector comprising a casing formed with a conical lower portion, and having a discharge-opening at its lower end, an outlet-pipe for introducing heated gases from a roasting-furnace in a tangential manner into said oven near its upper end, an exit-pipe extending into the oven from the top and to a considerable distance below the inlet opening whereby the dust brought in by the blast into the inlet-opening can be separated therefrom and collected in the bottom of the oven, and niter-pots so arranged as to extend for the greater portion of their length through the said ovens whereby they are subjected to the heat of the incoming blast, substantially as described.

5. A niter-oven comprising a casing and a series of niter-pots arranged therein, sleeves at the upper ends of the niter-pots having openings coincident with the openings in the walls of the said niter-pots, covers for closing the said pots and resting upon the said sleeves, and means for regulating the flow of the residuum from the lower ends of the said niter-pots, substantially as described.

6. A niter-oven comprising a casing partially cylindrical and partially conical, niter-pots extending from the top of the oven and projecting at their lower ends through the walls of the conical portion of the oven, valves or gates secured to the oven-casing and adapted to close the discharge ends of the niter-pots, adjusting-screws for holding the said valves in their adjusted positions, means at the upper ends of the said pots for opening or closing communication between the interior of the pots and the interior of the oven, substantially as described.

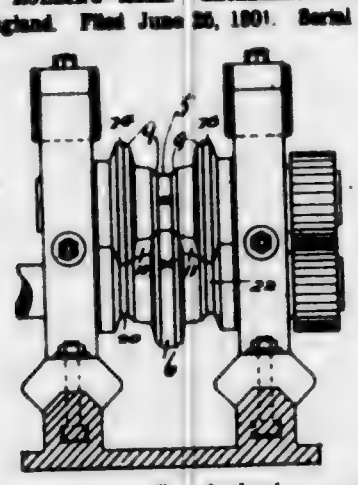
7. A niter-oven comprising a casing, a series of niter-pots arranged therein, a sleeve movably mounted in the upper end of each niter-pot and provided with an aperture registering with an aperture in the wall of each

niter-pot, a cover resting upon the sleeve and provided with dowel-pins adapted to engage recesses in the flange of the said sleeve whereby the sleeve may be turned by turning the cover, sealing-ribs introduced between the upper ends of the niter-pots and the flanges of the said sleeves, and between the sleeves and the covers for preventing the escape of gas at these points, and luted openings in the covers of the niter-pots whereby liquids may be introduced into the said pots without the escape of gas therefrom, substantially as described.

8. A niter-oven comprising a casing, a series of niter-pots arranged therein adapted to receive nitrate of sodium or nitrate of potassium and sulfuric acid for producing nitric acid, the lower ends of the said pots extending through the walls of the oven, a niter-cake pan arranged around the oven below the discharge ends of the said pots for receiving the niter cake therefrom, said oven operating to apply the heat necessary to the said pots for carrying out of the process going on therein, substantially as described.

9. A niter-oven comprising a casing having a conical portion, a series of niter-pots arranged within the casing, extending through the top thereof and having a tapering outlet projecting through the conical sides thereof, means for closing the projecting ends of the niter-pots, and means for introducing a blast of heated products from a roasting or other furnace into said oven, whereby the niter-pots will be heated, substantially as described.

694,025. ROLLING-MILL. ZACHARIAH W. CHOWN, Wainfelin, Pontypool, England. Filed June 25, 1901. Serial No. 65,917. (No model.)



Claim.—In a continuous-roll train having upper and lower rolls whose passes are successively placed axially in opposing inclined positions, such passes having the initial inclined surfaces 9 as shown on the drawings and for the purposes specified.

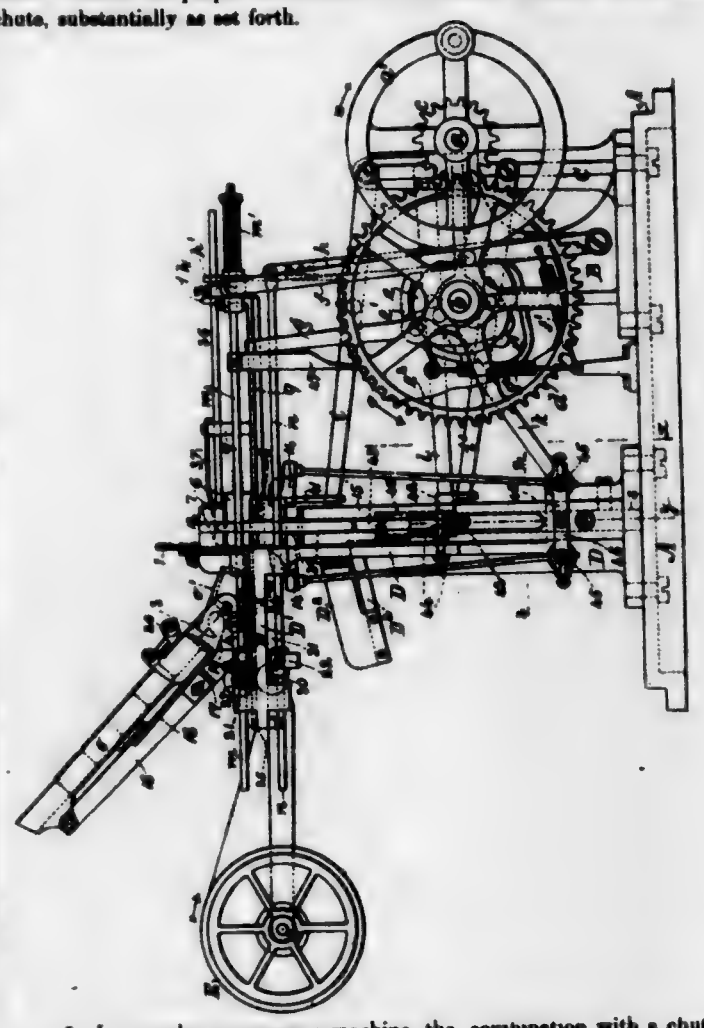
694,026. PACKAGE-WRAPPING MACHINE. JOHANNES T. PEDERSEN, Woodside, N. Y. Filed Feb. 25, 1901. Serial No. 48,641. (No model.)

Claim.—1. In a package-wrapping machine and in combination, a receiving-hopper, devices for successively feeding and delivering an article at a time upon a movable strip of paper, devices for moving the article along and means for simultaneously folding the free end of the paper around one side of the article and holding the paper in position, means for severing the paper, and devices for folding the freed edge of the paper over the article and lapping the edge upon the first fold, tuckers, end side-folders and end-folders in pairs for progressively folding the paper at the ends and for forming the double end folds and upturning the folded ends to complete the envelop, and devices for delivering the wrapped articles, substantially as set forth.

2. In a package-wrapping machine, the combination with a pivoted chute, of an oscillating hopper pivoted to the chute devices for imparting a forward-and-backward swinging motion to the said hopper adapting the same to receive an article at a time from the chute and to deliver the same and a device acting in connection with the chute for arresting the movement of the articles in the chute during the movement of the hopper, substantially as set forth.

3. In a package-wrapping machine, the combination with a chute and an arm to which the same is pivotally connected, of a cross-bar adjustably connected to the said arm, an oscillating hopper pivoted to the lower end of the chute, a device pivoted to the hopper and located between the hopper and the cross-bar and performing the functions of turning the oscillating hopper in one direction and simultaneously arresting the downward movement of articles in the chute while an article is being delivered from the hopper, and means for returning the oscillating hopper to its normal position and simultaneously moving the said device out of the path of the articles so that the hopper is again filled and the operations repeated, substantially as set forth.

4. In a package-wrapping machine, the combination with a chute and an arm to which the same is pivotally connected, of a cross-bar adjustably connected to the said arm, an oscillating hopper pivoted to the lower end of the chute, a device pivoted to the hopper and located between the hopper and the cross-bar and performing the twofold function of turning the oscillating hopper in one direction and simultaneously arresting the downward movement of articles in the chute while an article is being delivered from the hopper, and means for returning the oscillating hopper to its normal position and simultaneously moving the said device out of the path of the articles so that the hopper is again filled and the operations repeated, and a pivoted gravity-roller acting above the chute to insure the proper movements of the articles passing down the chute, substantially as set forth.



5. In a package-wrapping machine, the combination with a chute and an arm to which the same is pivotally connected, of a cross-bar adjustably connected to the said arm, an oscillating hopper pivoted to the lower end of the chute, a device pivoted to the hopper and located between the hopper and the cross-bar and performing the twofold function of turning the oscillating hopper in one direction and simultaneously arresting the downward movement of articles in the chute while an article is being delivered from the hopper, and means for returning the oscillating hopper to its normal position and simultaneously moving the said device out of the path of the articles so that the hopper is again filled and the operations repeated, and a longitudinally-movable device having two projections and performing the twofold function of advancing the article delivered by the hopper, returning the hopper to a normal position and simultaneously elevating the hopper and chute to permit of the downward movement of the articles in the chute, and the delivery of one article at a time into the hopper, substantially as set forth.

6. In a package-wrapping machine, the combination with the bed-plate and the pedestal supporting the same and parallel depending ribs from the bed-plate forming guides, of a guide for the paper upon the bed-plate, an upper feed-roller in suitable bearings therefor, a yoke-frame pivoted to the bed-plate and an under feed-roller pivoted in the yoke-frame and a spring and adjusting-screw for applying pressure and for regulating the tension of contact between the surfaces, substantially as set forth.

7. In a package-wrapping machine, the combination with the bed-plate and the pedestal supporting the same and parallel depending ribs from the bed-plate forming guides, of a guide for the paper upon the bed-plate, an upper feed-roller in bearings connected therewith, a yoke-frame pivoted to the bed-plate, and an under feed-roller pivoted in the yoke-frame, and spring-actuating devices for applying pressure and for regulating the tension of contact between the surfaces of the feed-rollers, and longitudinally-movable devices acting periodically to overcome the action of the spring and permit the yoke-frame to descend to separate the surface of the feed-rollers, substantially as set forth.

8. In a package-wrapping machine, the combination with the bed-plate and the pedestal supporting the same and parallel depending ribs from the bed-plate forming guides, of a guide for the paper upon the bed-plate, an upper feed-roller in bearings connected therewith, a yoke-frame pivoted to the bed-plate, and an under feed-roller pivoted in the yoke-frame and a spring and adjusting-screw for applying pressure and for regulating the tension of contact between the surfaces, an offset arm, a longitudinally-movable rod to which the said arm is connected, and devices for moving the said rod and arm, the arm being adapted to depress the spring to release the tension thereof and cause the yoke-frame to descend and separate the rollers, a ratchet upon one end of the lower feed-roller, a spring-actuated rack pivoted to said arm and adapted with the movement in one direction to rotate the lower feed-roller at a time when the rollers bear frictionally in contact with one another so as to feed the paper forward, substantially as set forth.

9. In a package-wrapping machine, the combination with a vertically-movable platform, a slide-block, a top-folder and means for actuating the same, of means for delivering an article at a time upon a strip of paper and for periodically feeding forward such strip of paper, a slide-frame and roller, an arm and a horizontally-actuated rod for imparting a back-and-forth movement to the slide-frame and roller to force the article to be wrapped out upon the vertically-moving platform and simultaneously moving the slide-block out of the way, a slide-plate and roller, an arm and horizontally-actuated rod connected therewith for imparting a back-and-forth movement to the said slide-plate and roller for completing the first fold of the paper around the article and a knife and means for operating the same for simultaneously severing the strip of paper, substantially as set forth.

10. In a package-wrapping machine, the combination with a vertically-movable platform, a slide-block, a top-folder and means for actuating the same, of means for delivering an article at a time upon a strip of paper and for periodically feeding forward such strip of paper, a slide-frame and roller, an arm and a horizontally-actuated rod for imparting a back-and-forth movement to the slide-frame and roller to force the article to be wrapped out upon the vertically-movable platform and simultaneously moving the slide-block out of the way, a slide-plate and roller, an arm and horizontally-actuated rod connected therewith for imparting a back-and-forth movement to the said slide-plate and roller for completing the first fold of the paper around the article, and a knife and means for operating the same for severing the strip of paper, and a pair of tuckers and devices connected therewith for imparting thereto both a vertical and an approaching movement for giving to the paper the second fold at either end of the article and for holding the tuckers in such position for an appreciable period, substantially as set forth.

11. In a package-wrapping machine, the combination with a vertically-movable platform, a slide-block, a top-folder and means for actuating the same, of means for delivering an article at a time upon a strip of paper and for periodically feeding forward such strip of paper, a slide-frame and roller, an arm and a horizontally-actuated rod for imparting a back-and-forth movement to the slide-frame and roller to force the article to be wrapped out upon the vertically-movable platform and simultaneously moving the slide-block out of the way, a slide-plate and roller, an arm and horizontally-actuated rod connected therewith for imparting a back-and-forth movement to the said slide-plate and roller for completing the first fold of the paper around the article and a knife and means for operating the same for simultaneously severing the strip of paper, and a pair of tuckers and devices connected therewith for imparting thereto both a vertical and an approaching movement for giving to the paper the second fold at either end of the article and for holding the tuckers in such position for an appreciable period, and end side-folders in pairs at either side of the machine, and devices connected therewith for imparting thereto simultaneous movements to give to the paper the end folds from each side, substantially as set forth.

12. In a package-wrapping machine, the combination with a vertically-movable platform, a slide-block, a top-folder, and means for actuating the same, of means for delivering an article at a time upon a strip of paper and for periodically feeding forward such strip of paper, a slide-frame and roller, an arm and a horizontally-actuated rod for imparting a back-and-forth movement to the slide-frame and roller to force the article to be wrapped out upon the vertically-movable platform, and simultaneously moving the slide-block out of the way, a slide-plate and roller, an arm and horizontally-actuated rod connected therewith for imparting a back-and-forth movement to the said slide-plate and roller for completing the first fold of the paper around the article and a knife and means for operating the same for simultaneously severing the strip of paper, and a pair of tuckers and devices connected therewith for imparting thereto both a vertical and an approaching movement for giving to the paper the second fold at either end of the article and for holding the tuckers in such position for an appreciable period, and end side-folders in pairs at either side of the machine and devices connected therewith for imparting thereto simultaneous movements to give to the paper the end folds from each side before the tuckers fully release their hold, and end-folders in the form of vertically-placed spring-arms to upturn the folded ends of the paper and so complete the envelop around the article wrapped with the downward movement of the vertically-movable platform, substantially as set forth.

13. In a package-wrapping machine, the combination with a vertically-movable platform and a bracket extension thereto and upright guide parts thereon, of a slide-block 6 and a rod connected therewith, a top-folder 7 above the slide-block and a rod therefor, the said rods passing through the upright parts of the bracket extension, a spring for bearing the top-folder downward, a guide for the vertically-movable platform and a rocker-arm and cam for operating the same for imparting to said platform the up-and-down movement, substantially as set forth.

14. In a package-wrapping machine, the combination with the vertically-movable platform and a bracket extension thereto, and upright guide parts thereon, of a slide-block 6 and a rod connected therewith, a top-folder 7 above the slide-block and a rod therefor, the said rods passing through the upright parts of the bracket extension, a spring for bearing the top-folder downward, a rod connected to the under side of the said platform, a tube fixed in the machine and in which the said rod moves, a slotted frame also connected to the said platform, a rocker-arm i pivoted to the machine and having a roller with the free end of the arm in the said slotted frame and a cam for imparting an up-and-down movement to the rocker-arm, the rod and the platform and the parts connected therewith, substantially as set forth.

15. In a package-wrapping machine, the combination with a pair of tuckers 13 and arms to which the same are connected, and a cross-head 42, means at the ends of the cross-head for adjustably holding the rods of the tuckers, cam projections upon the rods of the tuckers and adjustable pins acting thereon and secured to the frame of the machine, a guide for the cross-head, a rocker-arm and means for imparting an up-and-down movement thereto for periodically moving the tuckers and causing them to perform their operations, substantially as set forth.

16. In a package-wrapping machine, the combination with a pair of tuckers 13 and arms to which the same are connected, of a cross-head 42, means at the ends of the cross-head for securely holding the rods of the tuckers, cam projections upon the rods of the tuckers and adjustable pins acting thereon and secured to the frame of the machine, a tube connected to the cross-head and a tube secured in a fixed part of the machine and upon which the cross-head tube slides, a slotted frame connected to the cross-head, a rocker-arm pivoted to a part of the machine and a cam acting upon the roller with the free end of the rocker-arm in the said cross-head to impart a vertical movement to the rocker-arm, the cross-head and the tuckers, substantially as set forth.

17. In a package-wrapping machine and in combination, pairs of end side-folders at either side of the machine, rods connected therewith, parallel shafts in bearings in the base of the machine and through which the rods of the end side-folders pass, toggle-bars connecting the said shafts upon one side of the machine, an arm connected with one shaft and carrying a roller at its free end, and a cam having a slot receiving the said roller, and a means for imparting motion thereto whereby the said pairs of end side-folders are operated simultaneously upon opposite sides of the machine to fold the paper at the ends from the sides, substantially as set forth.

18. In a package-wrapping machine and in combination, pairs of end side-folders at either side of the machine, rods connected therewith, parallel shafts in bearings in the base of the machine and through which the rods of the end side-folders pass, toggle-bars connecting said shafts upon one side of the machine, an arm connected with one shaft and carrying a roller at its free end and a cam having a slot receiving the said roller and a means for imparting motion thereto whereby said pairs of end side-folders are operated simultaneously upon opposite sides of the machine to fold the paper at the ends from the sides, and means for adjustably connecting the rods carrying the end side-folders to the parallel shafts for regulating their vertical position with reference to the other parts of the machine, substantially as set forth.

19. In a package-wrapping machine, the combination with a vertically-movable platform, a slide-block and top-folder connected therewith, of an arm of suitable form connected to the rod of the slide-block, means for moving the slide-block in one direction with the operations of wrapping the article, and the cam and roller on the cam for acting upon the lower end of said arm and moving the slide-block in the opposite direction, substantially as set forth.

20. In a package-wrapping machine, the combination with a vertically-movable platform, a slide-block and top-folder connected therewith, of an arm of suitable form connected to the rod of the slide-block, means for moving the slide-block in one direction with the operations of wrapping the article and a cam and roller on the cam for acting upon the lower end of said arm and moving the slide-block in the opposite direction, an arm *g* pivoted to the machine and having a bent free end adapted to come in contact with the aforesaid arm on the rod of the slide-block,

and devices connected to and acting between the said arm and the power devices of the machine for releasing the said power devices when the machine is not wrapping goods, substantially as set forth.

21. In a package-wrapping machine, the combination with the main shaft, a cam-shaft, a gear upon the main shaft and a loose gear upon the cam-shaft, of a cam connected to the loose gear, a spring-actuated arm *g* pivoted to the frame of the machine and having a bent lower end, a collar secured to the cam-shaft, a dog upon the collar adapted to engage a tooth in a recess of the said cam and devices connected respectively with the collar and with the lower end of said pivoted arm *g* for effecting the prescribed movements of the parts, substantially as set forth.

22. In a package-wrapping machine, the combination with the main shaft, a cam-shaft, a gear upon the main shaft and a loose gear upon the cam-shaft, of a cam connected to the loose gear, a spring-actuated arm *g* pivoted to the frame of the machine and having a bent lower end, a collar having two adjacent peripheral portions of varying outline, projections on the respective peripheries, a dog-spring actuated and pivoted to the said collar and forming a portion of one periphery, projections upon the lower bent end of the said arm *g*, and means for actuating the arm *g* whereby in one position the dog is pressed toward and kept within the peripheral limits of the collar and the projections of the collar and the arm engage, and in the other position the dog is free to move out and engage the tooth of the cam so that the revolving cam through the dog effects the movements of the machine in their progressive order, substantially as set forth.

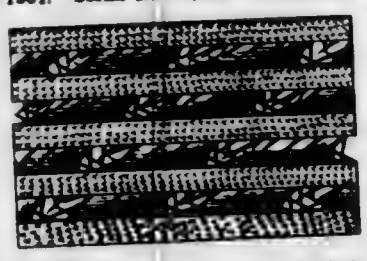
23. In a package-wrapping machine, the combination with a chute and an arm to which the same is pivotally connected, of a cross-bar secured to the said arm, an oscillating hopper pivoted to the lower end of the chute, a device pivoted to the hopper and located between the hopper and the cross-bar and turning the oscillating hopper in one direction for delivering an article therefrom, and means for returning the oscillating hopper to its normal position, substantially as set forth.

24. In a package-wrapping machine, the combination with a chute and an arm to which the same is pivotally connected, of a cross-bar secured to the said arm, an oscillating hopper pivoted to the lower end of the chute, a device pivoted to the hopper and located between the hopper and the cross-bar and arresting the downward movement of articles in the chute during the movement of the oscillating hopper, and means for moving said device out of the path of the articles in the chute as the hopper is again filled and the operations repeated, substantially as set forth.

25. In a package-wrapping machine and in combination, devices for delivering an article at a time upon and near the free end of a movable strip of paper, devices for progressively moving the article and paper along, devices for folding the free end of the paper around one side, means for moving the article and paper downward, devices for severing the paper strip, devices for lapping the edges of the paper over the article from opposite directions, devices for tucking down the folded parts at the ends, devices for forming the double end folds and the other devices for upturning the folded ends, substantially as specified.

26. In a package-wrapping machine and in combination, a stationary platform over which a continuous strip of paper is movable, devices for delivering an article at a time upon and near the free end of said strip of paper above said platform, an adjacent vertically-movable platform, devices for moving the article and paper along upon the movable platform and means for folding the free end of the paper around one side, devices for moving the platform with the article and paper downward and devices for severing the paper strip, devices for lapping the edges of the paper over the article from opposite directions, devices for tucking down the folded parts at the ends, devices for forming the double end folds and devices for upturning the folded ends, substantially as specified.

694,027. FIRE-KINDLER. COLLINGWOOD POLLARD, Bradford, England, assignor to Pollard & Metcalfe, Limited, Silsden, England. Filed June 29, 1901. Serial No. 66,515. (No specimens.)

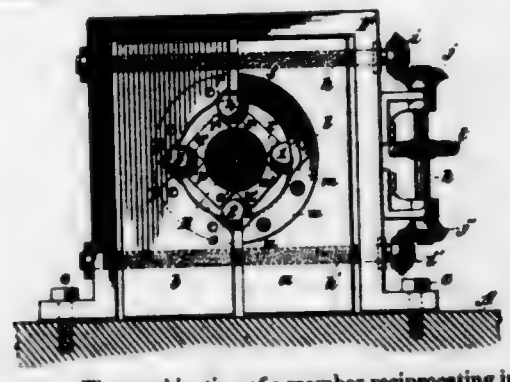


Claim.—1. A kindling-block having a channeled surface with slivers or splinters extending into said channels, substantially as described.

2. A kindling-block having a channeled surface with slivers or splinters extending from the walls of said channels, substantially as described.

3. A kindling-block having ribs or channels and a series of ignitible projections extending from said ribs, substantially as described.

694,028. BALL-BEARING SLIDE. CHARLES C. PROTHEROE, Richmond Hill, New York, N. Y. Filed July 27, 1899. Serial No. 725,277. (No model.)



Claim.—1. The combination of a member reciprocating in a straight line, balls in contact therewith, means supporting said balls in said contact and means for simultaneously and uniformly regulating the distance between said balls and the path of motion of said member, substantially as described.

2. The combination of a reciprocating member, balls in contact therewith, ways or guides borne by said member receiving said balls, ways or guides respectively supporting said balls in said contact, and means for simultaneously and uniformly adjusting said last-named ways or guides nearer to or farther from said member, substantially as described.

3. The combination of a reciprocating member, a ball-bearing therefor, means actuated by said member and constructed and operating to positively move said balls in said bearing over a path of definite extent corresponding to that of the path of reciprocation of said member, and means for simultaneously and centrally adjusting the balls of said bearing to said member, substantially as described.

4. The combination of a reciprocating member, ways or guides borne by said member, plane surfaces parallel to the path of reciprocation of said member on said ways or guides for contact with the balls, balls received by and in contact therewith, ways or guides respectively supporting said balls in said contact, plane surfaces on said last-named ways or guides substantially parallel to the path of reciprocation of said member for contact with said balls and means for simultaneously adjusting said last-named ways or guides nearer to or farther from said member, substantially as described.

5. The combination of a reciprocating member, ways or guides borne by said member, plane surfaces parallel to the path of reciprocation of said member on said ways or guides for contact with the balls, balls in contact therewith, ways or guides respectively supporting said balls in said contact, plane surfaces on said last-named ways or guides substantially parallel to the path of reciprocation of said member for contact with said balls, and means for simultaneously and uniformly adjusting said last-named ways or guides nearer to or farther from said member, substantially as described.

6. The combination of a longitudinal reciprocating member, a ball-bearing therefor, said bearing consisting of guideways parallel to the path of reciprocation of said member, and two sets of balls interposed between said guideways and said member, and means for assembling each of said two sets of balls in its plane respectively transversely to the path of reciprocation of said member at each end of each stroke thereof, substantially as described.

7. The combination of a longitudinal reciprocating member, a ball-bearing supporting and guiding said member at all times at points distant from each other along the path of reciprocation thereof and means for centrally and uniformly regulating the pressure between the balls of said bearing and said member, substantially as described.

8. The combination of a longitudinal reciprocating member, a ball-bearing supporting and guiding said member at all times at points distant from each other along the path of reciprocation thereof and means for adjusting the balls of said bearing simultaneously and uniformly toward or away from the longitudinal axis of said member, substantially as described.

9. The combination of a member confined and controlled by a ball-bearing to longitudinal reciprocating movement in substantially a straight line, the said ball-bearing, and means for centrally and uniformly regulating the pressure between the balls of said bearing and said member, substantially as described.

10. The combination of a member confined and controlled by a ball-bearing to longitudinal reciprocating movement in substantially a straight line, the said ball-bearing, and means for adjusting the balls of said bearing simultaneously and uniformly toward or away from the longitudinal axis of said member for purposes of adjustment, substantially as described.

11. The combination of a member confined and controlled by a ball-bearing to longitudinal reciprocating movement in substantially a straight line, the said ball-bearing, the said bearing consisting of guideways par-

allel to the longitudinal axis of said member and adapted to maintain the balls in contact therewith and two sets of balls interposed between said member and said guideways, and means for centrally and uniformly regulating the pressure between said balls and said member, substantially as described.

12. The combination of a reciprocating member, a ball-bearing therefor, said ball-bearing consisting of two or more sets of balls normally in contact with said member in planes transversely thereto, and guideways adapted to maintain said balls in contact with said member substantially at all times, and means for moving the guideways of the balls simultaneously and uniformly toward or away from the longitudinal axis of the reciprocating member, substantially as and for the purposes described.

13. The combination of a reciprocating member, stops in said member adapted to maintain each set of balls at all times out of contact with the other set of balls, guideways parallel to the motion of the reciprocation of said member and adapted to hold two sets of balls in contact therewith, two sets of balls interposed between said guideways and said reciprocating member, and means for centrally and uniformly regulating the pressure between the balls of each set and said reciprocating member, substantially as described.

14. The combination of a longitudinal reciprocating member, a ball-bearing therefor, said bearing consisting of guideways parallel to the longitudinal axis of said member and adapted to maintain the balls in contact therewith and two or more sets of balls interposed between said guideways and said member, means for regulating the pressure between said balls and said member and means for assembling each set of balls respectively in its plane transversely to the longitudinal axis of said member at each end of each stroke thereof, substantially as and for the purposes described.

15. The combination of a longitudinal reciprocating member, a ball-bearing therefor, said bearing consisting of guideways parallel to the longitudinal axis of said member and adapted to maintain the balls in contact with said member, and two sets of balls interposed between said guideways and said member, means for centrally and uniformly regulating the pressure between said balls and said member and means for preventing the escape of the balls at both ends of the guideways, substantially as described.

16. The combination of a reciprocating member, stops in said member to compel the assembling of the balls, two guideways each parallel to the motion of reciprocation of said member and adapted to hold two sets of balls in contact with said member, and each provided with stops to limit the rolling of the balls, two sets of balls interposed between said guideways and said reciprocating member and means for moving the guideways of the balls simultaneously and uniformly toward or away from the longitudinal axis of the reciprocating member, substantially as and for the purpose described.

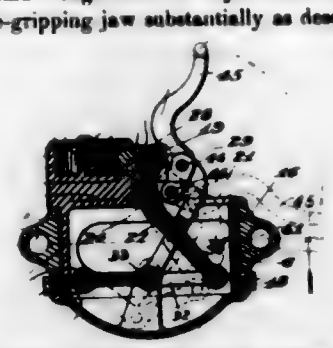
17. The combination of reciprocating piston-rod B, having grooves formed thereon by planes l', m', n', o', p', q', r' and s', balls 1, 2, 3 and 4, balls 5, 6, 7 and 8, guideways a, b, having grooves formed therein by planes l, m, n, o, p, q, r and s, holders F, F', right-and-left screws k, k', k'', k''', gears i, i', i'', i''', j, j', j'', j''', shafts k, k' and hand-wheels t, t', all constructed and operating substantially as and for the purposes described.

18. The combination of the reciprocating rod B, having grooves formed therein by planes l', m', n', o', p', q', r', and s', stops v, v', v'', v''', balls 1, 2, 3 and 4, balls 5, 6, 7 and 8, guideways a and b, having grooves formed therein by planes l, m, n, o, p, q, r, and s, stops z, z', z'', z''', holders F, F', right-and-left screws k, k', k'', k''', gears i, i', i'', i''', j, j', j'', j''', shafts k, k' and hand-wheels t, t', all constructed and operating, substantially as described.

19. The combination of reciprocating piston-rod B, having grooves formed therein by planes l', m', n', o', p', q', r', and s', balls 1, 2, 3 and 4, and balls 5, 6, 7 and 8, guideways a and b, having grooves formed therein by planes l, m, n, o, p, q, r and s, stops u, u', at each end of guideways a and b, holders F, F', and means for moving guideways a, b, of the balls simultaneously and uniformly toward the longitudinal axis of rod B, substantially as and for the purposes described.

694,029. ROPE-GRIP. HOMER M. SACKETT, Telluride, Colo., assignor to the A. Leschen & Sons Rope Company, St. Louis, Mo., a Corporation of Missouri. Filed June 17, 1901. Serial No. 64,849. (No model.)

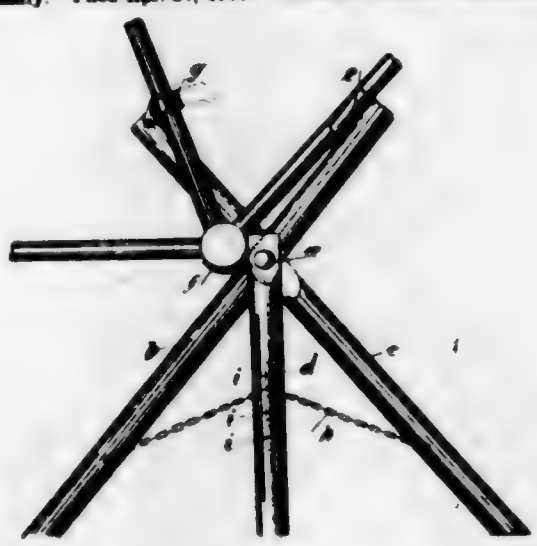
Claim.—1. In a rope-grip, the combination of a system of toggle-levers provided with a rope-gripping jaw supported in a suitable casing, an operative handle operatively pivoted intermediate of its ends to said system of toggle-levers and pivotally secured at one end to said casing, with a rope-receiving loose adjustable abutment-jaw, in operative relation to said rope-gripping jaw a loose wedge-block operatively arranged in bearing contact with said loose abutment-jaw, and means including a screw for moving said wedge-block to adjust said loose abutment-jaw relative to said rope-gripping jaw substantially as described.



2. In a rope-grip, the combination of the supporting-frame, the hollow cylindrical casing revolubly mounted therein and the hood detachably secured to said casing and arranged to confine said casing to said frame, with a toggle comprising a lever pivoted at one end to the inner periphery of said casing adjacent to said hood and having its opposite end extend to the central portion of said casing, levers pivotally secured at one end on each side of the free end of said lever, a rope-gripping lever pivoted intermediate of its ends in said casing having a rope-receiving jaw formed on one end and having its opposite end pivotally secured to the free ends of said toggle-levers, toggle actuating-levers pivotally secured at one end to the central pivotal point of said toggle-levers, a grip-actuating lever or handle pivotally supported in said casing and arranged to swing a predetermined distance and pivotally secured intermediate of its ends to the free end of said toggle actuating-levers, a recess in said casing having an open side facing said rope-gripping lever-jaw, a loose abutment rope-receiving jaw secured freely and loosely in said open recess and arranged opposite to said rope-gripping lever-jaw to grip and adjust itself to bear evenly on a rope between them, a fixed abutment in said recess, a sliding wedge fitting loosely between said loose abutment rope-receiving jaw and said fixed abutment of said recess and a screw arranged to adjust said wedge to move said abutment-jaw to and from said rope-gripping lever-jaw, substantially as described.

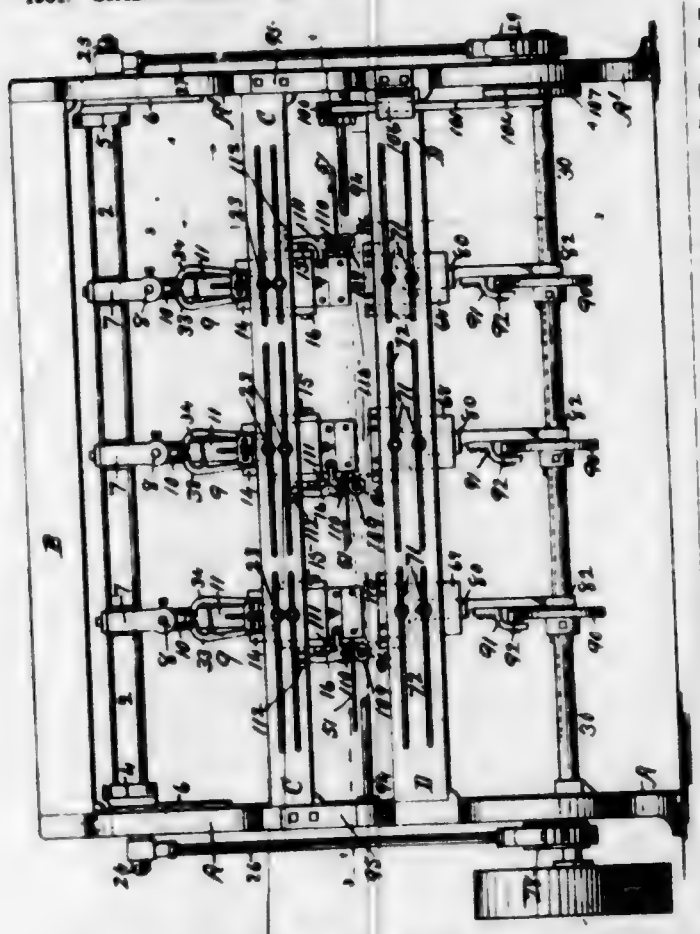
3. In a rope-grip, the combination with the frame and hood of the revoluble casing containing an open-ended, dovetail-shaped recess, a loose rope-gripping jaw, having laterally-extended dovetailed portions at its opposite ends adjacent to one side, fitting loosely in said dovetailed recess, a rope-receiving recess in the edge of its opposite side, a fixed abutment in said dovetailed recess, a loose wedge-block in said recess fitting loosely between said loose jaw and the fixed wall of said recess, and an adjustable screw threaded in the wall of said recess and arranged to bear loosely against one end of said wedge-block, with the reciprocating lever jaw having a rope-gripping jaw at its upper end containing a rope-receiving groove; the pin pivotally connecting said reciprocating lever to said casing, the pin through the lower end of said reciprocating lever, the toggle-levers pivotally connected at one of their ends to said pin on each side of the lower end of said reciprocating lever, the pin pivotally connecting the opposite end of said toggle-levers, the toggle-lever pivotally connected at one end to said pin between said toggle-levers, the pin pivotally securing the opposite end of said toggle-lever to said casing, the toggle actuating-levers pivotally connected at one end on the central pin of said toggle-levers, the grip-operating handle, the pin pivotally securing said grip-operating curved handle to said casing, the pin pivotally connecting the opposite end of said toggle-levers to said grip-operating handle, and means for securing said pivotal pins in their respective operative positions, substantially as described.

694,080. CYCLE-STAND. CARL W. L. SCHMIDT, Holzminden, Germany. Filed Apr. 27, 1900. Serial No. 14,546. (No model.)



Claim.—In a cycle-stand, the combination of the two bars *b*, *c*, pivoted together between their ends, the bar *b* being provided at its upper end with a rounded bracket *f* extending outwardly from the bar *b*, the other bar *c* being provided at its upper end with a hinged band *g* adapted to encircle a portion of the bicycle-frame, a bar *d* pivoted at its upper end to said pivot, and a chain connected to said bars *b* and *c* below their pivot, and stops secured to the bar *d* for engaging said chain to lengthen or shorten it, substantially as described.

694,081. BOX-STAPLING MACHINE. JOSEPH SCHMIDT, Jr., Chicago, Ill., assignor to John L. Flannery, Chicago, Ill. Filed Mar. 29, 1901. Serial No. 53,426. (No model.)



Claim.—1. In a box-stapling machine, the combination with the main frame, of the longitudinal companion bars, the companion heads, mounted on the respective ends of said bars, the guide-bearings, formed in the ends of the main frame, a number of cross-heads, adjustably mounted on the companion bars, a plurality of driving-heads, supported in each of said cross-heads, and the operative connection for transmitting motion from the driving-shaft, substantially as described.

2. In a box-stapling machine, the combination with the longitudinal companion bars, adapted to have a vertical movement, of a number of cross-heads, adjustably mounted thereon, a plurality of driving-heads, adjustably supported by said cross-heads whereby the driving-heads have both a longitudinal and a transverse adjustment in changing the working position of the same, substantially as described.

3. In a box-stapling-machine, the combination with a longitudinally-disposed support, having a vertical movement, of a number of cross-heads adjustably mounted thereon, and a plurality of driving-heads, mounted in each of said cross-heads and arranged in rows transversely, and means for positioning the driving-heads both with reference to the spacing of the staples and the distance between the corner-joints, substantially as described.

4. In a box-stapling machine, the combination with a cross-head, adjustably mounted, the operative connection for transmitting a vertical movement thereto, a rod, having its respective ends fixed in said cross-head, a staple-driver, a clip, providing a movable connection between said rod and driver, the staple-forming bars, a back guide, in which the driver and forming-bars are loosely framed, and means for movably supporting said back guide, substantially as described.

5. In a box-stapling machine, the combination with the driver and forming-bars, the back guide, the transverse bars 15 and 16, slotted longitudinally, the adjusting and locking bolts, engaging said back guide, the companion end plates, to which the respective ends of the transverse bars are secured, the front and back frame-bars, C C', slotted longitudinally, and the adjusting and locking bolts, inserted through the slotted bars C C' and engaging said end plates, substantially as described.

6. In a box-stapling machine, a main frame, provided in its respective ends with vertical guide-bearings, the longitudinal companion bars, the companion heads, moving in said guides, the driving-shaft, the companion rods, operatively connecting said heads and driving-shaft, a number of cross-heads mounted on said longitudinal bars, and a plurality of driving-heads, supported from said cross-heads, substantially as described.

7. In a box-stapling machine, a driving-head, comprising a staple-driver, the wire-cutting and staple-forming bars, a transverse bar connecting the upper ends of the forming-bars, the curved arms, pivoted at their upper ends to the driver and normally engaging said transverse bar, means for disengaging said arms in arresting the down movement of the forming-bars, means for returning said arms to their normally engaged position, the back guide, in which the driver and forming-bars have a vertical movement, and an anvil-die, movably secured in the back guide and normally positioned in the path of the said driver, substantially as described.

8. In a box-stapling machine, the combination with the transverse bar, connecting the forming-bars, of a bolt, fixed therein and passing through a vertical slot in the staple-driver, a face-plate a bolt, inserted in the face-plate, and a spring, having its respective upper and lower ends attached to said bolts, substantially as described.

9. In a box-stapling machine, the cutting and forming bars, having their lower ends beveled to an edge, of the companion die members, provided with grooves and with which the forming-bars are adapted to engage in severing the wire and sharpening both ends of the staple, and a wire-guide, normally located in the path of one of the forming-bars and adapted to be forced backward out of the way by the contact thereof at the proper time, and means for returning said guide to its normal position when the forming-bar shall have passed out of contact, substantially as described.

10. In a box-stapling machine, the combination with the lower front and back framing-bars, of the clencher-frame, comprising the companion side bars and the two end pieces, and means for changing the position of the clencher-frame in bringing the parts into alinement with the driving-heads, substantially as described.

11. In a box-stapling machine, the combination with the clencher-frame, adjustable longitudinally with reference to the main frame, of a clencher back guide, a clencher-plate, the clencher-dogs, a lifting-yoke, and means for periodically imparting a vertical movement thereto, substantially as described.

12. In a box-stapling machine, the combination with a back guide, adjustably supported in position, of a clencher-plate framed therein, the clencher-dogs, pivoted at one end and loose at the other, the loose ends resting on the clencher-plate, a yoke, upon which the clencher-plate is mounted, and provided with a stem; the lower end of which is bifurcated and loosely embraces the driving-shaft, and means for imparting a vertical movement to said yoke, substantially as described.

13. In a box-stapling machine, the combination with the clencher-frame, of a back guide, adjustably retained therein, a clencher-plate, the companion clencher-dogs, having curved concave engaging surfaces and pivoted at their outer ends to said back guide, the inner loose ends resting on the clencher-plate, and means for actuating the clencher-plate, substantially as described.

14. In a box-stapling machine, the combination with a back guide, of a clencher-plate framed therein and provided with vertical slots, of a detachable face-plate, provided with guide-pins engaging said slots in the clencher-plate, substantially as described.

15. In a box-stapling machine, the combination with the main frame, of a clencher-plate a retaining back guide, adapted to have both a longitudinal and a transverse adjustment with reference to the main frame, a yoke, on which the clencher-plate is mounted, said yoke being provided with a stem having a bifurcated lower end embracing the driving-shaft, a cam-wheel, mounted on the driving-shaft, and a roller, journaled in the yoke-stem and having a rolling contact with the periphery of the cam-wheel, substantially as described.

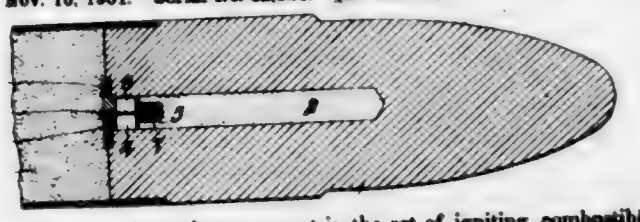
16. In a box-stapling machine, the combination with a shaft, 94, journaled in and extending along the front side of the main frame, the beveled pinions mounted thereon at intervals, the transverse counter-shafts, having pinions mounted on the front ends thereof which engage the pinions on shaft 94, a pinion, mounted on one end of shaft 94, a rack-bar, having its upper end engaging said pinion, and means for imparting a vertical movement to said rack-bar in actuating the wire-feed shafts, substantially as described.

17. In a box-stapling machine, the combination with the main wire-feed shaft, of the counter-shafts, receiving motion therefrom, a pinion, mounted on one end of the main feed-shaft, a rack-bar engaging said pinion, a link, connected with the rack-bar, and a shaft, whereby an intermittent rotary movement is transmitted to the wire-feed shafts, substantially as described.

18. In a box-stapling machine, the combination with the main frame, of the wire-feed shaft, journaled therein, the counter feed-shafts actuated thereby, the wire-feed rollers, mounted thereon, the tension-rollers, jour-

naled above and in line with the feed-rollers, the angle-levers, for regulating the gripping action of the tension-rollers, and means for periodically imparting a rotary motion to said wire-feed shaft, substantially as described.

694,082. PROJECTILE. JOHN B. SEMPLE, Sewickley, Pa. Filed Nov. 16, 1901. Serial No. 82,520. (No model.)

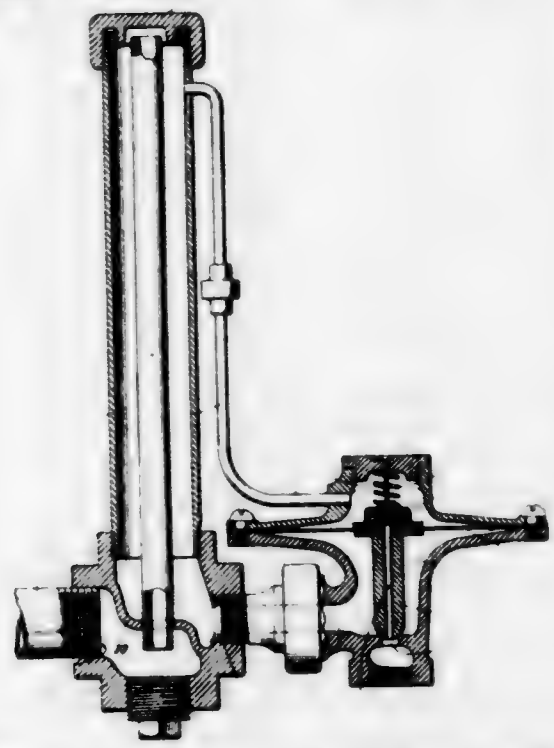


Claim.—1. As an improvement in the art of igniting combustible charges in projectiles, the method herein described which consists in confining a portion of the gases generated by the combustion of the propelling charge, permitting such gases to expand and then by or through the expansion of such gases effecting the ignition of the combustible charge in the projectile, substantially as set forth.

2. A projectile provided with a chamber, a port for the entrance of gases into said chamber, a movable member adapted to be shifted by the expansion of the gases stored in said chamber, and an igniter operated by said movable member, substantially as set forth.

3. A projectile provided with a chamber, a movable cover for said chamber, a port for the admission of gases into the chamber and an igniter connected to said cover, so as to be operated on the shifting of the cover by the expansion of the gases stored in said chamber, substantially as set forth.

694,033. VALVE DEVICE OR FITTING. JOHN A. SERRELL, Bayonne, N. J., assignor to the American Steam Heating Specialty Company, a Corporation of New Jersey. Filed Nov. 9, 1900. Serial No. 35,928. (No model.)



Claim.—1. A valve device consisting of a chamber divided internally into a water-compartment and an air-compartment, said water-compartment being provided with a water-inlet and a discharge-outlet, a valve-piece to control said discharge-outlet, a pressure-motor operatively connected with said valve-piece and having its opposite sides exposed respectively to the air and water compartments, a stand-tube communicating with the water-inlet of said water-compartment and extending at an elevation above said motor, whereby said motor may be operated to open the valve by the hydrostatic pressure of the column of water in said stand-tube acting against the pressure in said air-compartment, and means acting on said pressure-motor to regulate the pressure acting against the pressure in said water-compartment.

2. A valve device consisting of a chamber divided internally into a water-compartment and an air-compartment, said water-compartment being provided with a water-inlet and a discharge-outlet, a valve-piece to control said discharge-outlet, a pressure-motor operatively connected with said valve-piece and having its opposite sides exposed respectively to the air and water compartments, a stand-tube communicating with the water-inlet of said water-compartment and extending at an elevation above said motor, whereby said motor may be operated to open the valve by the hydrostatic pressure of the column of water in said stand-tube acting against the pressure in said air-compartment, and an air-duct between the outlet side of said valve device beyond the valve-piece and said air-compartment.

3. A valve device consisting of a chamber divided internally into a water-compartment and an air-compartment, said water-compartment being provided with a water-inlet and a discharge-outlet, a valve-piece to control said discharge-outlet, a pressure-motor operatively connected with said valve-piece and having its opposite sides exposed respectively to the air and water compartments, a stand-tube communicating with the water-inlet of said water-compartment and extending at an elevation above said motor, whereby said motor may be operated to open the valve by the hydrostatic pressure of the column of water in said stand-tube acting against the pressure in said air-compartment, and an air-duct between the outlet side of said valve device beyond the valve-piece and said stand-tube above the level assumed by the column of water therein.

4. A valve device consisting of a chamber divided internally into a water-compartment and an air-compartment, said water-compartment being provided with a water-inlet and a discharge-outlet, a valve-piece to control said discharge-outlet, a pressure-motor operatively connected with said valve-piece and having its opposite sides exposed respectively to the air and water compartments, a stand-tube communicating with the water-inlet of said water-compartment and extending at an elevation above said motor, whereby said motor may be operated to open the valve by the hydrostatic pressure of the column of water in said stand-tube acting against the pressure in said air-compartment, an air-duct between the outlet side of said valve device beyond the valve-piece and said air-compartment, and an air-duct between the air-compartment and the stand-tube above the level assumed by the column of water therein.

5. In a valve device, the combination of a valve-piece for controlling the discharge-outlet, a motor-diaphragm operatively connected therewith and having one side subjected to the hydrostatic pressure of the accumulation of water of condensation, and a duct between the other side of the motor-diaphragm and the discharge side beyond said discharge-outlet.

6. In a valve device, the combination of a valve-piece for controlling the discharge-outlet, a motor-diaphragm operatively connected therewith and having one side subjected to the hydrostatic pressure of the accumulation of water of condensation, a duct between the other side of the motor-diaphragm and the discharge side beyond said discharge-outlet, and a duct between said side which communicates with the discharge beyond the outlet and the radiator or apparatus with which said valve device is connected.

7. In a valve device, the combination of a valve-piece for controlling the discharge-outlet, a motor-diaphragm operatively connected therewith, a stand-tube communicating with the radiator or apparatus with which said valve device is connected and opening on the side of the motor-diaphragm on which the discharge-outlet is located, the other side of the diaphragm being subjected to the pressure in the radiator or apparatus with which the valve device is connected, and a duct between said side of the diaphragm and the outlet side of the valve device beyond the discharge-outlet.

8. In a valve device, the combination of a valve-piece, for controlling the discharge-outlet, a motor-diaphragm operatively connected therewith, and a stand-tube communicating with the radiator or apparatus with which said valve device is connected and opening on the side of the motor-diaphragm on which the discharge-outlet is located, said valve-piece being provided with a passage-way *g*, forming a duct between the other side of the diaphragm and the outlet side of the valve-piece beyond the discharge-outlet.

9. In a valve device, the combination of a valve-piece, for controlling the discharge-outlet, a motor-diaphragm operatively connected therewith, a stand-tube communicating with the radiator or apparatus with which said valve device is connected and opening on the side of the motor-diaphragm on which the discharge-outlet is located, said valve-piece being provided with a passage-way *g*, forming a duct between the other side of the diaphragm and the outlet side of the valve-piece beyond the discharge-outlet, and a pin projecting into said passage-way to keep it free from particles of foreign matter.

694,034. RAPID-TANNING PROCESS. KARL F. F. G. SOMMER, Hamburg, Germany. Filed Mar. 24, 1900. Serial No. 10,070. (No specimens.)

Claim.—1. In the tanning process, the process which consists in treating the skins in a bath containing chrome and picric acids, substantially as described.

2. In the process of tanning, the subprocess which consists in tanning the skins with a bath of potassium bichromate, sodium chlorid, alum and water, substantially as set forth.

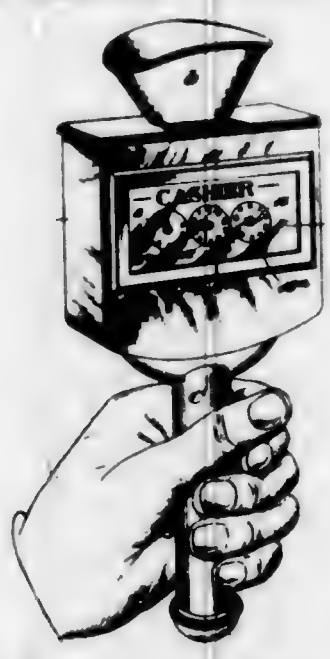
3. In the process of tanning, the treatment of the skins in a bath of picric acid and water, and then in a bath of potassium bichromate, sodium chlorid, alum and water, substantially as set forth.

4. In the process of tanning, the treatment of the skins in a bath of picric acid and water, then in a bath containing potassium bichromate and picric acid, and then in a bath of potassium bichromate, picric acid, and hydrochloric acid, substantially as and for the purposes set forth.

5. In the process of tanning, the treatment of the skins in a bath of picric acid and water, then in a bath of potassium bichromate, sodium chlorid alum and water; and then in a bath of potassium bichromate, sodium chlorid alum, water and hydrochloric acid, after which they are treated in a bath of hydrochloric acid and hyposulfite of sodium, substantially as and for the purpose set forth.

6. In the process of tanning, the subprocess which consists in treating the skins with a bath of picric acid and water, then in a bath of potassium bichromate, sodium chlorid, alum and water, then with ammonia, substantially as and for the purpose set forth.

694,035. CASH-REGISTER. CHRISTOPHER C. STEARNS, Denver, Colo., assignor of one-third to John H. Stimson, Denver, Colo. Filed Nov. 18, 1901. Serial No. 82,908. (No model.)



Claim.—1. A combined cash register and receiver, comprising a portable casing having a slot in its top side; registering mechanism secured within the casing beneath the slot; a trough or guideway connecting the slot with the registering mechanism, a lever, one end of which is depressed by a falling coin, and the other end of which carries means for actuating the registering mechanism, a coin-receiving tube having a removable cap, secured to the casing; and a stop operating in conjunction with the lever, for preventing the entrance of a coin until one previously inserted has been registered, substantially as described.

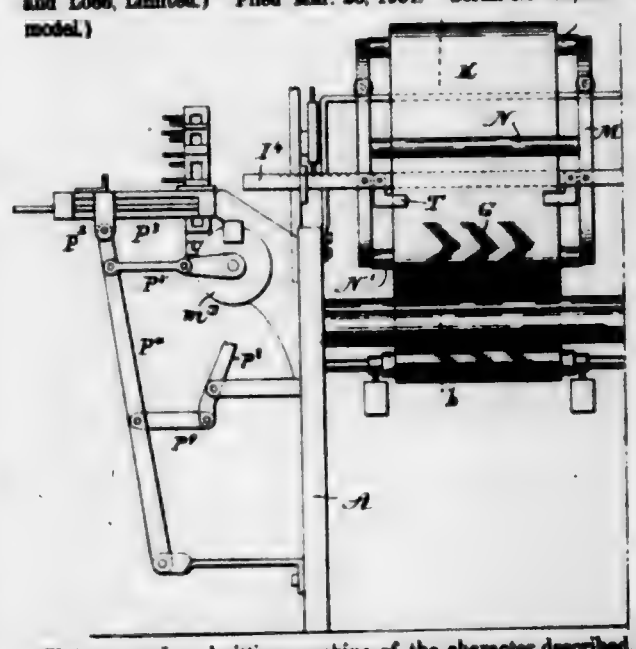
2. A combined cash register and receiver comprising a portable casing having a slot in its top side and a coin-receiving tube secured to its bottom side; registering mechanism located within the casing and beneath the slot; an inclined trough or guideway connecting the slot with the coin-passage leading to the receiving-tube; a lever one end of which obstructs the coin-passage so as to be depressed by a falling coin, while the other end carries a swinging pawl; a ratchet-wheel operated by each upward movement of the pawl the arbor of said wheel carrying a pinion and at its outer end a pointer; and a stop located in the trough or guideway, which falls by gravity as the lever is tipped; the said stop preventing the entrance of a coin until one previously inserted has been registered, substantially as described.

3. A combined cash register and receiver comprising a portable casing, having a coin-receiving slot in its top side and a coin-receiving tube having a removable cap secured to its bottom side; registering mechanism located within the casing; an inclined trough or guideway leading from the coin-receiving slot to the coin-passage which discharges into the coin-receiving tube; a lever, one end of which lies beneath the discharge end of the trough, and in the pathway of a falling coin so as to be tilted thereby, while the other end carries a swinging pawl; a stop located within the trough above the discharge end thereof, said stop normally lying in a horizontal position, and being secured to a rocking arm, one end of which is formed into a crank-arm; a rod connecting the crank-arm with a projection on the operating-lever, whereby the stop, through its connection with said lever falls by gravity when the lever is tilted so as to bar the entrance to the receiver; a ratchet-wheel engaged by the aforesaid pawl pivoted to one end of the operating-lever; said ratchet-wheel being mounted upon an arbor which carriers a pinion and at its forward end a pointer, the said pinion operating a gear-wheel whose arbor carries a pointer at its outer end, and a pinion which operates a second gear-wheel, whose arbor also carries a pointer at its outer end, the number of teeth on pinions and gear-wheels having a ratio of one to ten, so that the registering mechanism operates in the order of tens, hundreds and thousands, substantially as described.

4. A combined cash register and receiver, comprising a portable casing having a coin-receiving slot in its top side; registering mechanism secured within the casing beneath the slot; an inclined trough or guideway connecting the slot with the registering mechanism; an operating-lever, one end of which lies within the pathway of a falling coin so as to be tilted thereby, while its opposite end carries a pawl; a ratchet-wheel forming part of the registering mechanism to which said pawl imparts an intermittent rotation; a spring engaging said pawl in such a manner as to hold it in operative engagement with the ratchet-wheel, and at the same time, hold the lever to which said pawl is pivoted, normally, in a horizontal position, the tension of the springs being such as to be overcome by the weight of a coin; a coin-receiving tube having a removable cap, secured to the bottom of the casing; and a stop secured to a rocking arm located at the discharge end of the trough or guideway one end of said rocking arm being bent to form a crank-arm; a rod connecting the crank-arm with a projecting member on the operating-lever, so that the said stop through its connection with the lever is normally held in a horizontal position, or so as to allow a coin to pass beneath it, but drops by gravity when the lever is tilted, so as to bar the entrance to the receiver, substantially as shown.

5. A registering mechanism comprising the following coöperating agents; a shaft or arbor carrying at its forward end a pointer and at its rear end a ten-toothed ratchet-wheel, said shaft or arbor also being provided with a pinion which operates a gear-wheel on a second shaft or arbor, this second shaft or arbor carrying a pointer at its outer end, and a pinion which operates a gear-wheel on a third shaft or arbor, carrying a pointer at its outer end; the teeth on the pinions and those on the gear-wheels having a ratio respectively of one to ten, so that the said registering mechanism operates in the order of tens, hundreds and thousands; a lever one end of which carries a pawl which is in operative engagement with the aforesaid ratchet-wheel; while the other end is designed to be tilted; the said tilting motion of the lever causing the pawl at its opposite end to rotate the ratchet-wheel intermittently or step by step; and a spring engaging the pawl in such a manner as to hold it in engagement with the ratchet-wheel and at the same time hold the lever to which the said pawl is pivoted, normally, in a horizontal position, substantially as shown.

694,036. KNITTING-MACHINE. WILLIAM G. STEWART, Philadelphia, Pa., assignor to Frank R. Aspen, William G. Stewart, and Herbert R. Loeb, Philadelphia, Pa., (copartners trading as Aspen, Stewart and Loeb, Limited.) Filed Mar. 20, 1901. Serial No. 52,035. (No model.)

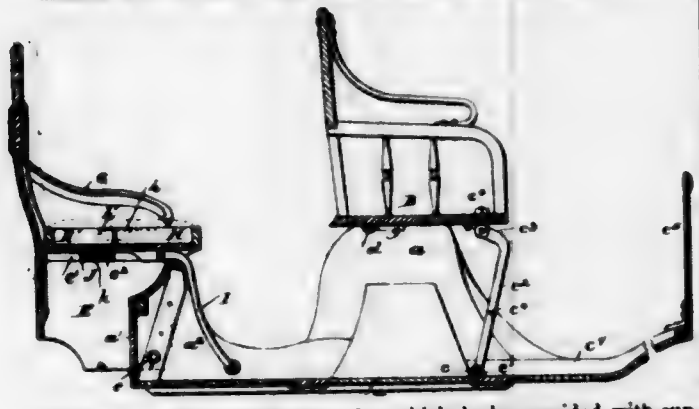


Claim.—1. In a knitting-machine of the character described, having a needle-guiding bar with means to reciprocate the needles therein, reciprocatory guiding devices carrying the fabric-backing roll or bobbin, in combination with devices adapted to shift said reciprocatory fabric supplying and guiding devices, pattern mechanism to control the reciprocatory movements of the supplying and guiding devices, and guide-bars for feeding thread to the needles to form knitted stitches or loops, whereby the fabric backing in respect of the pattern to be formed thereon by the knitted stitches or superposed pattern-braids, is automatically brought in the path of the actuated needles; substantially as described.

2. In a knitting-machine of the character described, having a needle-guiding bar with means to reciprocate the needles therein, guide-bars for feeding thread to the needles to form knitted stitches or loops, of reciprocatory guiding devices adapted to supply and guide a fabric backing to and in the path of the actuated needles, with means to so reciprocate said guiding devices in respect of the pattern to be formed by or with the stitches knitted thereon by the needles, said means consisting of a suitable cam, connecting devices between the cam and the said guiding devices and between the cam and the pattern-forming devices; substantially as described.

3. In a knitting-machine of the character described having a needle-guiding-bar with means to reciprocate the needles therein, guide-bars for feeding thread to the needles to form knitted stitches or loops, reciprocatory supplying and guiding devices, a tension mechanism or temple arranged between the reciprocatory guiding devices, in combination with pattern-forming devices adapted to move said reciprocatory supplying and guiding devices in accordance with a predetermined pattern whereby the fabric backing in respect to the pattern to be formed thereon by the knitted stitches or superposed braid is automatically brought into the path of the actuated needles.

694,087. **SHIFTING-SEAT VEHICLE.** CHARLES H. STRATTON, Muncie, Ind. Filed Nov. 14, 1901. Serial No. 82,217. (No model.)



Claim.—1. The combination of a vehicle-body provided with supports for a seat, a seat resting on said supports, and a substantially U-shaped frame having a horizontal bar located at the bottom of the vehicle-body and hinged thereto and having upwardly-projecting side arms connected to said seat, substantially as set forth.

2. The combination of a vehicle-body provided with supports for a seat, a seat resting on said supports and disconnected therefrom, and side swinging arms pivoted to the body and having rigid rearwardly-projecting portions at their upper ends pivotally connected to said seat in rear of the front edges thereof, whereby said seat can be swung down on said arms with the rearwardly-projecting end portions bearing flat against the seat to support the same in a lowered position, substantially as set forth.

3. The combination of a vehicle-body having supports for a seat, a seat resting on said supports, and side swinging arms pivoted at their lower ends to the body and connected at their upper ends to said seat, said swinging arms having lateral offset portions adapted to contact with the side sills of the body when the arms are swung downwardly, substantially as set forth.

4. The combination with a body having front-seat supports, of a front seat, and a rear seat pivoted to said body and having a back adapted when said seat is turned down to project forwardly between said front-seat supports, said front seat resting on parts carried by said rear-seat back when the same is in its lowered position to prevent the same from rattling, substantially as set forth.

5. The combination with a body having front-seat supports at the side thereof, of a rear seat pivoted to said body, a back therefor adapted when the seat is turned down to project forwardly between said front-seat supports, skeleton arms connected to said rear seat and having inwardly-extending portions adapted to rest on the upper edges of said front-seat supports, and a front seat resting upon said front-seat supports and said inwardly-extending skeleton arms, substantially as set forth.

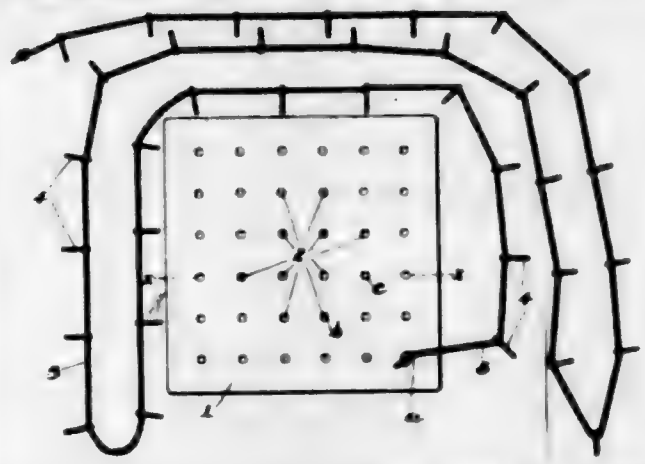
6. The combination with a vehicle-body, of a seat having panels located at the sides of said body and pivoted thereto, supports on said panels, and a sectional bottom-frame connected to said seat-panels and resting on said supports, one section of said bottom-frame being hinged to swing off of said supports when said seat is turned downwardly, substantially as set forth.

7. The combination with a vehicle-body, of seat-panels located at the sides of said body and pivoted thereto, seat-supporting bars secured to said panels, a seat-bottom frame composed of a rear section fixedly secured on said supporting-bars, and a front section hinged to said rear section, and links pivoted to said front-seat section and to said body, substantially as set forth.

8. The combination with a vehicle-body, of a seat pivoted thereto, a seat-bottom frame composed of a rear section fixedly secured to said seat, and a front section having hinge-arms pivoted to said rear section in rear of the front edge thereof, and a link or links connected to said front frame-section and to said body, substantially as set forth.

9. The combination with a vehicle-body, of a seat pivoted thereto to swing downwardly on said body, of a sectional seat-bottom frame carried by said seat and of greater width than the width of the body, and means for causing one section of said seat-frame to move upwardly when said seat is swung downwardly, substantially as set forth.

694,088. **PUZZLE DEVICE.** WILLIAM H. STUBBS, Chester, Pa. Filed July 11, 1901. Serial No. 67,823. (No model.)

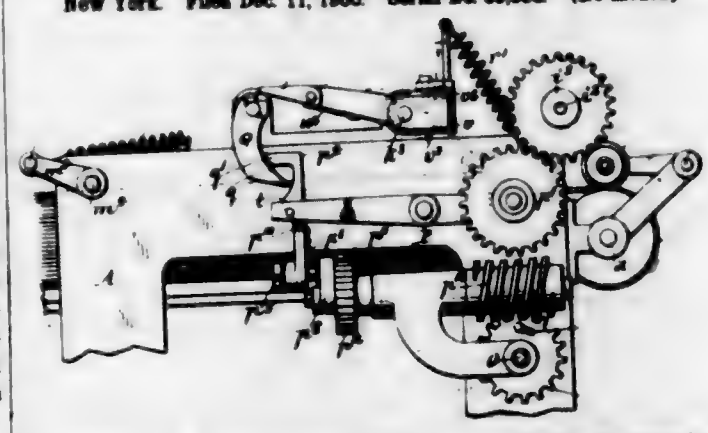


Claim.—1. A puzzle device comprising a block having equidistant parts arranged in equidistant parallel rows, and a cord or the like, having parts corresponding in number to the said parts of the block, and whose distance apart is equal to the length of a diagonal line of a rectangle formed by six or more of the parts of said block; the said parts of the cord being adapted to be engaged with and disengaged from the parts of the block, substantially as and for the purpose set forth.

2. A puzzle device consisting of the block having the series of equidistant holes therein arranged in equidistant parallel rows, and the cord, or the like, having the series of pins secured thereto whose distance apart is equal to the length of the diagonal line of a rectangle formed by six or more of said holes, substantially as set forth.

3. In a puzzle device of the character recited, the combination of the block having the series of equidistant holes therein arranged in equidistant parallel rows, the cord, or the like, the series of equidistant pins secured thereto and having the bowed spring-shanks adapted to engage said holes, substantially as and for the purpose set forth.

694,089. **PAPER-FEEDING MACHINE.** CHARLES A. STURTEVANT, Plainfield, N. J., assignor, by direct and mesne assignments, to Welvant Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Dec. 11, 1900. Serial No. 39,538. (No model.)



Claim.—1. The combination with a support for the sheets and an endless feeding-band, of an eccentrically-journaled front driving-wheel and a centrally-journaled idle rear wheel upon which said band is mounted, substantially as set forth.

2. The combination with a support for the sheets and an endless feeding-band, of an eccentrically-journaled front driving-wheel and a centrally-journaled idle rear wheel upon which said band is mounted, and mechanism whereby said rear wheel is raised and lowered, substantially as set forth.

3. The combination with a support for the sheets and an endless feeding-band, of an eccentrically-journaled front driving-wheel and a centrally-journaled idle rear wheel upon which said band is mounted, a ver-

tically-movable support for said rear wheel, and a cam whereby said support is raised and lowered, substantially as set forth.

4. The combination with a support for the sheets and an endless feeding-band, of an eccentrically-journaled front driving-wheel and a centrally-journaled idle rear wheel upon which said band is mounted, a vertically-movable rock-arm adapted to support the arbor of the rear wheel, and a cam whereby said rock-arm is raised and lowered, substantially as set forth.

5. The combination with a support for the sheets and an endless feeding-band, of an eccentrically-journaled front driving-wheel and a centrally-journaled idle rear wheel upon which said band is mounted, a vertically-movable support for said rear wheel, and a cam which lowers said support after the front wheel has engaged the front portion of said feed-band with the top sheet and raises said support before the front portion of the band leaves the top sheet, substantially as set forth.

6. The combination with a support for the sheets and an endless feeding-band, of an eccentrically-journaled front driving-wheel and a centrally-journaled idle rear wheel upon which said band is mounted, and a tension device which presses said rear wheel rearwardly and tightens the feeding-band, substantially as set forth.

7. The combination with a support for the sheets and an endless feeding-band, of an eccentrically-journaled front driving-wheel and a centrally-journaled idle rear wheel upon which said band is mounted, a bifurcated vertically-movable rock-arm which is adapted to support on its rear portion the arbor of said rear wheel, a cam whereby said rock-arm is raised and lowered, and a rearwardly-acting tension-spring connected with the arbor of said rear wheel, substantially as set forth.

8. The combination with a support for the sheets and an endless feeding-band, of front and rear wheels upon which said band is mounted, said front wheel being journaled eccentrically and having the salient portion of its peripheral face curved concentrically with the axis about which it turns, substantially as set forth.

9. The combination with a support for the sheets, the endless feeding-band, its eccentric front wheel and rear wheel, of a sheet-retarder arranged below said front wheel and having a forwardly-projecting flexible tongue which yields vertically under the actiton of the eccentric front wheel, substantially as set forth.

10. The combination with the pile-support, of outwardly-tapering supporting-rollers which are arranged above the pile-support in front of the corners of the pile and adapted to support the corners of the sheet which is being fed off, substantially as set forth.

11. The combination with the pile-table, its elevating mechanism and a rocking actuating-lever, of a dog which actuates said elevating mechanism and which is capable of engagement with said rocking lever for actuating the elevating mechanism or disengagement from said rocking lever for stopping the elevating mechanism, a restraining-finger which is controlled from the pile on the table, and a movable disengaging-arm which is interposed between said finger and said dog and which disengages the latter from the actuating-lever when the arm is locked by the restraining-finger, substantially as set forth.

12. The combination with the pile-table, its elevating mechanism and the rocking actuating-lever, of a dog which actuates said elevating mechanism and which is capable of engagment with said rocking lever for actuating the elevating mechanism, a restraining-finger which is controlled from the pile on the table, and a pivoted disengaging-arm interposed between said dog and said finger and provided with a stop-shoulder adapted to be engaged by said finger, substantially as set forth.

13. The combination with the pile-table, its elevating mechanism and the rocking actuating-lever having an actuating-shoulder, of a dog which actuates said elevating mechanism and which is provided with a shoulder for engagement with the actuating-shoulder of said lever and above said shoulder, with a cam or projection which is struck by the actuating-lever when the dog is disengaged from the same, a pivoted disengaging-arm, and a restraining-finger which is controlled by the pile on the table and which is adapted to engage said disengaging-arm, substantially as set forth.

14. The combination with the pile-table, its elevating mechanism and the rocking actuating-lever, of a dog which actuates said elevating mechanism and which is capable of engagement with and disengagement from said rocking lever, a disengaging-arm provided with a stop-shoulder, and a restraining-finger which is controlled by the pile on the table and which is provided with a pivoted end portion capable of yielding upon striking upon the disengaging-arm, substantially as set forth.

15. The combination with the pile-table, its elevating mechanism and the rocking actuating-lever, of a dog which actuates said elevating mechanism and which is capable of engagement with and disengagement from said actuating-lever, a disengaging-arm, a rock-shaft, a restraining-finger which is adjustably secured to said rock-shaft, and a regulating-arm secured to said rock-shaft and adapted to rest upon the pile, substantially as set forth.

16. The combination with the pile-table, its automatic elevating mechanism, a rock-shaft provided at one end with a restraining-finger by which said elevating mechanism is controlled and between its ends with a regulating-arm adapted to bear upon the pile, of endless feeding-bands arranged on opposite sides of said regulating-arm, tubular shafts mounted upon said rock-shaft on opposite sides of said arm and connected by a bridge-piece, wheel-supports secured to said tubular shafts, rear band-wheels adapted to be raised and lowered by said supports, an actuating-arm secured to one of said tubular shafts, a cam acting upon said arm, and front band-wheels, substantially as set forth.

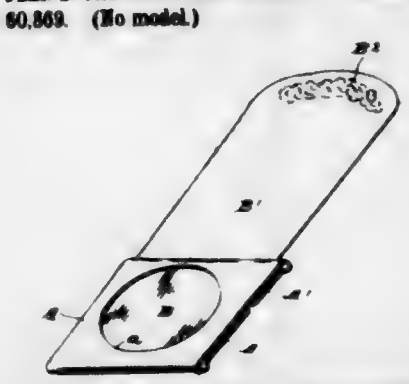
17. The combination with front and rear band-wheels, of an endless feeding-band provided in its outer face with suction-recesses, substantially as set forth.

694,040. COMB-CLEANER. ALBERT SYVERSON and CORNELIUS SYVERSON, Pelican Rapids, Minn. Filed Feb. 19, 1901. Serial No. 47,993. (No model.)



Claim.—A comb having its end teeth formed with slots and its back with laterally-projecting flanges provided with transverrely-alined grooves, in combination with a cleaning device adapted normally to bear against the under sides of the flanges and comprising two strips connected intermediate of their ends by cross-pieces to fit closely between the teeth and at their terminals by pins disposed to work in the said slots, and locking means carried by the strips and comprising resilient arms having their intermediate portions disposed to engage the said grooves and their terminals provided with balls or knobs to interlock over the back, substantially as and for the purpose specified.

694,041. SANITARY SHIELD FOR TELEPHONE-TRANSMITTERS. JEAN B. TAUVERON, New York, N. Y. Filed May 16, 1901. Serial No. 60,869. (No model.)



Claim.—1. A sanitary shield for mouthpieces of telephones and the like, comprising a diaphragm, a diaphragm holder or support provided with a continuation forming a wrapper or cover, and means for holding the appliance normally in a sealed relation.

2. A sanitary shield for mouthpieces of telephones and the like, comprising a diaphragm, and a diaphragm holder or support provided with arms or flaps to engage the said mouthpiece, and also provided with a continuation forming a wrapper or cover for the whole.

3. A sanitary shield for mouthpieces of telephones and the like, comprising a diaphragm, and a diaphragm holder or support provided with a continuation forming a wrapper or cover for the whole, and means for holding the appliance normally in a sealed relation.

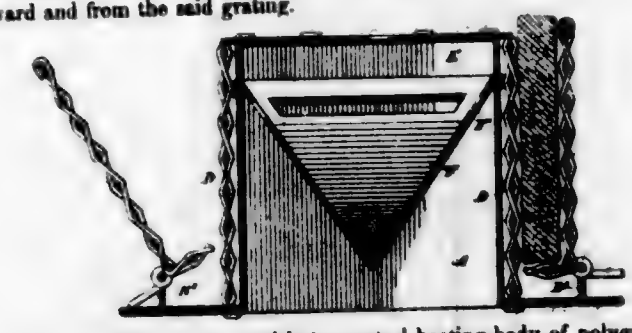
4. A shield for mouthpieces of telephones and the like, comprising a diaphragm B, a diaphragm holder or support A, provided with an orifice of a size approximately that of the mouthpiece, and also with folding arms or flaps A', the said diaphragm-holder being provided with a continuation forming a cover or wrapper.

5. A shield or mouthpiece for telephones and the like, comprising a diaphragm B, a diaphragm holder or support A, provided with an orifice of a size approximately that of the mouthpiece, and also with folding arms or flaps A', the said diaphragm-holder being provided with a continuation forming a cover or wrapper B', and with sealing means B^2.

694,042. BREAD-TOASTER. ROBERT C. VROOM, San Diego, Cal. Filed Sept. 21, 1901. Serial No. 76,080. (No model.)

Claim.—1. A bread-toaster comprising a body having an imperforate wall adapted to be heated, a stationary grating located exteriorly of

said imperforate wall and a movable bread-support adapted to carry bread toward and from the said grating.



2. A bread-toaster comprising a central heating-body of polygonal shape, stationary gratings located adjacent to the sides of the said body and bread-supports pivoted about axes parallel and adjacent to the respective sides of the heating-body.

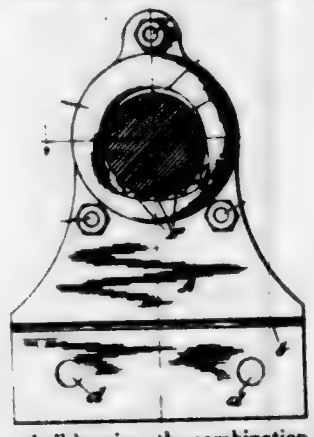
3. A bread-toaster comprising a heating-body provided with an imperforate wall, a stationary grating on the outside of said wall and an apertured bread-support movable toward and from said grating.

4. A bread-toaster comprising a heating-body provided with an imperforate wall, a grating adjacent to said wall and an apertured bread-support pivoted about an axis parallel to the plane of the grating.

5. A bread-toaster comprising a hollow heating-body apertured at the top, an apertured spreader located within said body and movable bread-supports located exteriorly of the body and adapted to carry the bread to be toasted toward and from the body.

6. A bread-toaster comprising a heating-body provided with a surrounding flange at the bottom, a base resting on the flange of the body, and a movable bread-support located above said flange and arranged to carry the bread toward and from the heating-body.

694,043. SHAFT-BEARING. GUSTAVUS WIDEMAN, Aurora, Ill., assignor to Wilcox Manufacturing Company, Aurora, Ill., a Corporation of Illinois. Filed Aug. 26, 1901. Serial No. 73,374. (No model.)



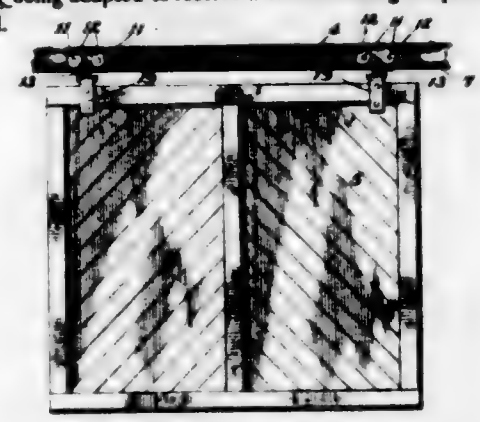
Claim.—1. In a ball bearing, the combination with two plates having a shaft-opening therein of greater diameter vertically than horizontally, each of said plates having formed therein around said opening a half of a channel, of a series of balls in said channel, said balls being exposed in the lower portion of said channel, and means for holding said plates together, substantially as specified.

2. In a ball-bearing, the combination with two plates, of means for holding said plates together, an opening through the plates of greater diameter vertically than horizontally, a channel formed on the inner faces of said plates and around said opening, and a series of balls in said channel, said channel being open on the upper portion of its lower side to permit the balls to project to form a bearing for a shaft passing through said opening, and the edges of the channel opposite the exposed balls being turned in toward the balls and above their centers, substantially as specified.

694,044. DOOR-HANGER. GUSTAVUS WIDEMAN, Aurora, Ill., assignor to Wilcox Manufacturing Company, Aurora, Ill., a Corporation of Illinois. Filed Sept. 9, 1901. Serial No. 74,819. (No model.)

Claim.—1. In a door-hanger, the combination with a wheel-frame, of a hanger-arm formed of a single piece of material bent to have an eye 14 at its central or upper portion, vertical portions below said eye, oppositely-extending horizontal portions 16, said last-named portions being bent back on themselves to form horizontal portions 18 with an opening between said portions 16 and 18, a door-attaching strap adapted to be held between said portions 16 and 18, and a pivot on said wheel-frame from which said hanger-arm is suspended by its eye 14, substantially as specified.

2. In a door-hanger, the combination with a wheel-frame, of a hanger-arm pivotally suspended therefrom and having an enlarged lower portion that is extended in opposite directions beyond the pivotal support of the said arm, and provided with a narrow opening in said enlarged portion, said opening being adapted to receive a door-attaching strap, substantially as described.



694,045. ADHESIVE CEMENT AND PROCESS OF MAKING SAME. ROBERT H. WILLIS, Chicago, Ill. Filed July 3, 1901. Serial No. 66,981. (No specimens.)

Claim.—1. The herein-described cement, consisting of glue, crude turpentine, pine-tar and rosin, in about the above-named proportions, substantially as described.

2. The herein-described process for manufacturing cement, consisting in soaking glue in cold water until swealed, then heating the said glue and adding the same while hot to a mixture of crude turpentine, pine-tar and rosin, while hot, in about the proportions above named, substantially as described.

694,046. PULLEY-COVERING. ROBERT H. WILLIS, Chicago, Ill. Filed July 5, 1901. Serial No. 67,157. (No model.)



Claim.—1. The combination of a pulley, the canvas 2 adapted to be cemented thereto and having a series of raveled threads extending around the pulley and forming beveled edges, the layers or threads 5 extending beyond the transverse thread 4 the threads or layers 7 equal in length to the layer 5 and adapted to be cemented down and abut against the end of the threads 3 and the transverse threads 4, substantially as described.

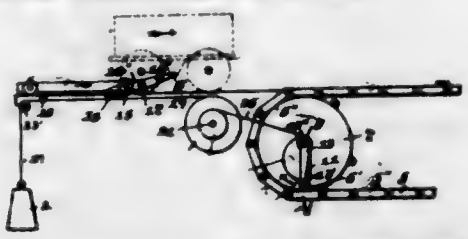
2. The combination of a pulley, the canvas cemented thereto, and having the free ends of the threads 5 and 7 interlocking and adapted to be cemented and the laterally-disposed threads 6 adapted to be cemented forming circumferential beveled edges, substantially as described.

3. The combination of a pulley, the canvas 2 cemented thereto and of a width less than that of the face of the pulley and having the free ends or threads 6 forming beveled edges, the canvas having the free ends of the circumferential threads 5 extending to the transverse threads 8, the circumferential threads 7 extending to the ends of the circumferential threads 3 and the transverse threads 4, and the said threads 3, 4, 5 and 7 adapted to be cemented, substantially as described.

4. The combination with a pulley, of a canvas covering cemented thereto and having a portion of the warp adjacent the edges removed and the weft cemented, substantially as described.

5. The combination with a pulley, of a canvas covering cemented thereto, and having a portion of the weft removed and the warp cemented and the adjoining ends having the weft removed and the warp overlapping and cemented substantially as described.

694,047. CAR-HAUL. ALFRED M. ACKLIN, Pittsburg, Pa. Filed Nov. 25, 1901. Serial No. 83,009. (No model.)



Claim.—1. A device for moving cars, consisting of a continuously-moving hauling-chain having hooks thereon for engaging with the car, and mechanism for bringing the car from a state of rest or slow speed by a gradually-increased speed to that of the hauling-chain to be caught and hauled thereby.

2. A device for moving cars, consisting of a continuously-moving hauling-chain having hooks thereon for engaging with the car, and mechanism for automatically engaging with the car to bring the same from a state of rest or slow speed by a gradually-increased speed to that of the hauling-chain to be caught and hauled thereby.

3. A device for moving cars, consisting of a continuously-moving hauling-chain having hooks thereon for engaging with the car, and mechanism for engaging with the car to bring the same from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

4. A device for moving cars, consisting of a continuously-moving hauling-chain having hooks thereon for engaging with the car, and mechanism for automatically engaging with the car to bring the same from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

5. A device for moving cars consisting of a continuously-moving hauling-chain having hooks thereon for engaging with the car, and mechanism engaging with said hauling-chain and car for bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

6. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, and mechanism for automatically engaging with said hauling-chain and car to bring said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

7. A device for moving cars, consisting of a continuously-moving hauling-chain having hooks thereon for engaging with the car, and mechanism engaging with said hauling-chain and car for bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

8. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, and mechanism for automatically engaging with said hauling-chain and car to bring said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

9. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, a sliding or reciprocating frame or bar for engaging with said car, and connections between said hauling-chain and bar for bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

10. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, a sliding or reciprocating frame or bar for engaging with said car, and connections between said hauling-chain and bar for automatically bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

11. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, a sliding or reciprocating frame or bar for engaging with said car, and connections between said hauling-chain and bar for bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

12. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, a sliding or reciprocating frame or bar for engaging with said car, and connections between said hauling-chain and bar for automatically bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

13. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and connections between said hauling-chain and bar for bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

14. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and connections between said hauling-chain and bar for automatically bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

15. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and connections between said hauling-chain and bar for bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

16. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and connections between said hauling-chain and bar for automatically bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

17. A device for moving cars, consisting of a hauling-chain having hooks on one side thereof for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and connections between the hooks on the opposite side of said chain from the car-engaging hooks and the bar for bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

18. A device for moving cars, consisting of a hauling-chain having hooks on one side thereof for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and connections between the hooks on the opposite side of said chain from the engaging hooks and the bar for automatically bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

19. A device for moving cars, consisting of a hauling-chain having hooks on one side thereof for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and connections between the hooks on the opposite side of said chain from the car-engaging hooks and the bar for bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

20. A device for moving cars, consisting of a hauling-chain having hooks thereon for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and connections between the hooks on the opposite side of said chain from the car-engaging hooks and the bar for automatically bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

21. A device for moving cars, consisting of a hauling-chain passing around wheels mounted on shafts, hooks on one side of said chain for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and means connected to one of said wheel-shafts for engaging with the hooks on the opposite side of the chain from the car-engaging hooks and with the bar for bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

22. A device for moving cars, consisting of a hauling-chain passing around wheels mounted on shafts, hooks on one side of said chain for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and means connected to one of said wheel-shafts for engaging with the hooks on the opposite side of the chain from the car-engaging hooks and with the bar for automatically bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

23. A device for moving cars, consisting of a hauling-chain passing around wheels mounted on shafts, hooks on one side of said chain for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and means connected to one of said wheel-shafts for engaging with the hooks on the opposite side of the chain from the car-engaging hooks and with the bar for bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

24. A device for moving cars, consisting of a hauling-chain passing around wheels mounted on shafts, hooks on one side of said chain for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, and means connected to one of said wheel-shafts for engaging with the hooks on the opposite side of said chain from the car-engaging hooks and with the bar for automatically bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

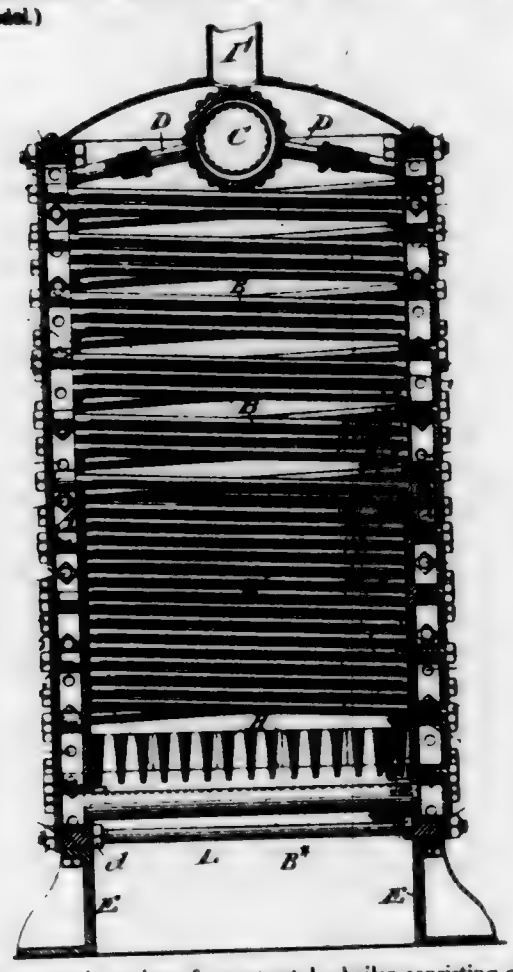
25. A device for moving cars, consisting of a hauling-chain passing around wheels mounted on shafts, hooks on one side of said chain for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, a cam-drum loosely mounted around one of said wheel-shafts having an arm connected thereto for engaging with the hooks on the opposite side of said chain from the car-engaging hooks, and ropes connected to drums and to the said cam-drum and said bar for bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

26. A device for moving cars, consisting of a hauling-chain passing around wheels mounted on shafts, hooks on one side of said chain for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, a cam-drum loosely mounted on one of said wheel-shafts having an arm connected thereto for engaging with the hooks on the opposite side of said chain from the car-engaging hooks, and ropes connected to drums and to th said cam-drum and said bar for automatically bringing said car from a state of rest or slow speed by a gradually-increased speed to that of the chain to be caught and hauled thereby.

27. A device for moving cars, consisting of a hauling-chain passing around wheels mounted on shafts, hooks on one side of said chain for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, a cam-drum loosely mounted on one of said wheel-shafts having an arm connected thereto for engaging with the hooks on the opposite side of said chain from the car-engaging hooks, and ropes connected to drums and to said cam-drum and said bar for bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

28. A device for moving cars, consisting of a hauling-chain passing around wheels mounted on shafts, hooks on one side of said chain for engaging with the car, hooks on the opposite side of said chain, a sliding or reciprocating frame or bar, a yielding or pivoted hook on said bar for engaging with the car, a cam-drum loosely mounted on one of said wheel-shafts having an arm connected thereto for engaging with the hooks on the opposite side of said chain from the car-engaging hooks, and ropes connected to drums and to said cam-drum and said bar for automatically bringing said car from a state of rest or slow speed by a gradual and continual increased speed to that of the chain to be caught and hauled thereby.

694,048. **MULTITUBULAR STEAM-BOILER.** FREDERICK D. ALTHOUSE, New York, N. Y. Filed Oct. 11, 1901. Serial No. 78,298. (No model.)



Claim.—1. A section of a water-tube boiler consisting of two opposite upright boxes and communicating transversely-arranged tubes, the said boxes being each composed of an inner plate constituting a tube-sheet and an outer plate separable from said inner plate for access to the tubes, substantially as herein described.

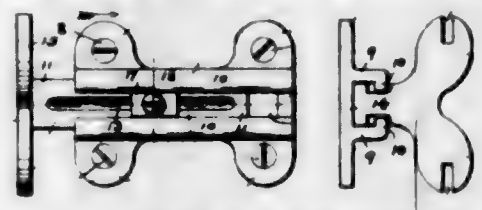
2. The combination with the inner and outer plates of a water-box for a boiler, of bosses which are formed upon the inner plate integral therewith and stay-bolts passing through the outer plate from its exterior and screwed into said bosses, substantially as herein described.

3. The combination in a water-tube boiler of two or more water-boxes abutting together and each composed of a flanged inner plate constituting a tube-sheet and an outer plate detachably secured to the flange of said inner plate, and bolts securing said boxes together through the flanges of their inner plates, the said flanges having in them openings for communication between the abutting boxes, substantially as herein described.

4. The combination in a water-tube boiler composed of two or more sections each consisting of two opposite boxes and transverse connecting-tubes, of a fire-grate made in sections one for each boiler-section, and means for supporting said grate-sections independently each on its own boiler-section, substantially as herein described.

5. The combination with the tube-sheet of a boiler having a taper hole for the reception of a tube, of a tube inserted within said hole and a taper externally-threaded expanding-bushing screwed into said tube within the tube-sheet, substantially as herein described.

694,049. **SHADE-ROLLER BRACKET.** FREDERICK AUER, Newark, N. J. Filed Sept. 26, 1901. Serial No. 76,597. (No model.)



Claim.—1. In a bracket for supporting shade-rollers, the combination, with a plate adapted to be fixed against a window-frame, of a pair of upwardly-projecting and longitudinally-extending ribs, inwardly-extending and oppositely-placed shoulders on said ribs, a slide adjustably arranged between said ribs, provided with a longitudinally-extending groove, a block arranged above said groove having its edges projecting beneath said shoulders, and means connected with said block and having a portion extending into said groove for causing the edges of said block to bind against the said shoulders and thereby securing said slide in its adjusted position, substantially as and for the purposes set forth.

2. In a bracket for supporting shade-rollers, the combination, with a plate adapted to be fixed against a window-frame, of a pair of upwardly-projecting and longitudinally-extending ribs, inwardly-extending and oppositely-placed shoulders on said ribs, a slide adjustably arranged between said ribs, and means for securing said slide in its adjusted position, consisting, essentially, of a nut-like block and a screw, the said block having its opposite ends arranged beneath the shoulders of said ribs, and being brought in holding engagement with said shoulders by the turning of the said screw, substantially as and for the purposes set forth.

3. In a bracket for supporting shade-rollers, the combination, with a plate adapted to be fixed against a window-frame, of a pair of upwardly-projecting and longitudinally-extending ribs, inwardly-extending and oppositely-placed shoulders on said ribs, a slide adjustably arranged between said ribs, provided with a longitudinally-extending groove, a block arranged above said groove having its edges projecting beneath said shoulders, a bearing-post on said slide, a pair of oppositely-extending supports on said post, said supports being provided with bearings, and means connected with said block and having a portion extending into said groove for causing the edges of said block to bind against the said shoulders and thereby securing said slide in its adjusted position between said ribs, substantially as and for the purposes set forth.

4. In a bracket for supporting shade-rollers, the combination, with a plate adapted to be fixed against a window-frame, of a pair of upwardly-projecting and longitudinally-extending ribs, inwardly-extending and oppositely-placed shoulders on said ribs, a slide adjustably arranged between said ribs, a bearing-post on said slide, a pair of oppositely-extending supports on said posts, said supports being provided with bearings, and means for securing said slide in its adjusted position, consisting essentially, of a nut-like block and a screw, the block having its opposite ends arranged beneath the shoulders of said ribs, and being brought in holding engagement with the said shoulders by the turning of the said screw, substantially as and for the purposes set forth.

694,050. **THILL-COUPLING.** CHRISTOPHER C. BRADLEY, Syracuse, N. Y. Filed Oct. 12, 1900. Serial No. 32,948. (No model.)

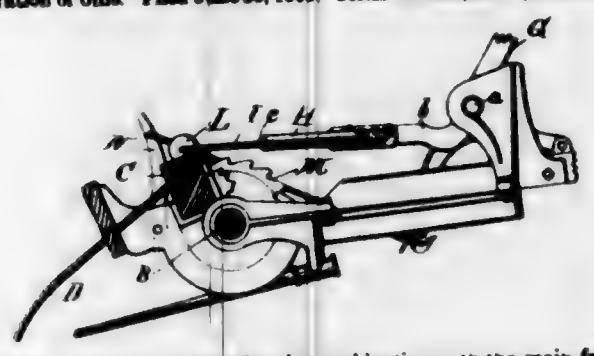


Claim.—1. The combination with the fixed and movable jaws of a thill-coupling, of a reversible tightening-spring having one end connected

with said movable jaw, a support, and a sliding and pivotal connection between the opposite end of said spring and said support, whereby said spring is enabled to turn on said support and also to slide bodily in the direction of its length on said support, substantially as set forth.

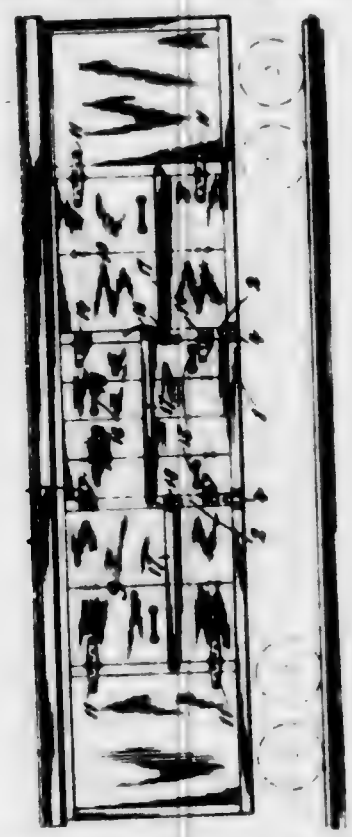
2. The combination with the fixed and the movable jaws of a thill-coupling, of a reversible U-shaped tightening spring having at one end a loop which is elongated in the longitudinal direction of said spring, a fixed pivotal support engaging in said loop, and a link connecting the opposite end of said spring with the movable jaw, substantially as set forth.

694,051. **HORSE HAY-RAKE.** ARTHUR F. BROWN, Dayton, Ohio, assignor to the Stoddard Manufacturing Company, Dayton, Ohio, a Corporation of Ohio. Filed June 29, 1899. Serial No. 722,247. (No model.)



Claim.—In a horse hay-rake, the combination with the main frame thereof, of the rake-head pivoted to said frame and provided with an arm or projection L, a hand-lever G provided with the bell-crank *b* by which said hand-lever is pivoted to said main frame, the rod I attached at its rear end to said arm or projection L and having the rigidly-attached collar or stop *e* and adjustable nut J, the barrel or housing H into which said rod extends and which is adjustably attached at its forward end to said bell-crank, and the cushioning-spring K housed within said barrel and interposed between the rear end thereof and said nut, substantially as set forth.

694,052. **FREIGHT-CAR.** FREDERICK P. BUTTS, New York, N. Y. Filed Nov. 4, 1901. Serial No. 80,996. (No model.)



Claim.—1. In a freight-car, the combination with the framing, of a removable door-post and a door arranged at either side thereof.

2. In a freight-car, the combination with the framing, of a door mounted thereon, a removable door-post, and a door hinged thereto.

3. In a freight-car, the combination with the framing, of a door mounted thereon, a removable door-post, and a door removably hinged thereto.

4. In a freight-car, the combination with the framing, of doors hinged thereto, and a removable door-post between the said doors.

5. In a freight-car, the combination with the framing, of a door mounted thereon, a removable door-post to which the said door is adapted to be secured when closed, and a door hinged to the said door-post.

6. In a freight-car, the combination with the framing, of a door mounted thereon, a removable door-post to which the said door is adapted to be secured when closed, and a door removably hinged to the said door-post.

7. In a freight-car, the combination with the framing, of two removable door-posts, and separate doors arranged between said door-posts and the framing, and between the said door-posts themselves.

8. In a freight car, the combination with the framing, of two removable door-posts, a door mounted upon the framework and adapted to close against one of the said door-posts, another door mounted upon the framework and adapted to close against the other said door-post, and a door mounted upon one of the said door-posts and adapted to close between the said door-posts.

9. In a freight-car, the combination with the framing, of two removable door-posts, a door mounted upon the framework and adapted to close against one of the said door-posts, another door mounted upon the framework and adapted to close against the other said door-post, and two doors, one mounted upon each of said door-posts, and adapted to close between them.

10. In a freight-car, the combination with the framing, of two removable door-posts, a door mounted upon the framework and adapted to close against one of the said door-posts, another door mounted upon the framework and adapted to close against the other said door-post, and two doors, one removably hinged upon each of said door-posts, and adapted to close between them.

11. In a freight-car, the combination with the framing, of a removable door-post, and a door hinged upon the car, said door comprising two members, one hinged upon the other.

12. In a freight-car, the combination with the framing, of two doors hinged thereto, each door comprising two members, hinged upon each other, and a removable door-post arranged between the said doors.

13. In a freight-car, the combination with the framing, of two doors hinged thereto, each door comprising two members, hinged upon each other, a removable door-post arranged between the said doors, and two doors, one mounted upon each of said door-posts and adapted to close between them.

14. In a freight-car, the combination with the framing, of two doors hinged thereto, each door comprising two members, hinged upon each other, a removable door-post arranged between the said doors, and two doors, one removably hinged upon each of said door-posts and adapted to close between them.

15. In a freight-car, the combination with the framing, of two doors hinged together, each door comprising two members, hinged upon each other, a removable door-post arranged between the said doors, and two doors, one mounted upon each of said door-posts and adapted to close between them, each door comprising two members hinged upon each other.

16. In a freight-car, the combination with the framing, of two doors hinged thereto, each door comprising two members, hinged upon each other, a removable door-post arranged between the said doors, and two doors, one removably hinged upon each of said door-posts and adapted to close between them, each door comprising two members hinged upon each other.

17. In a freight-car, the combination with the framing, of a removable door-post, a bolt for securing one end of said door-post to the car-framing, a locking device for securing the other end thereto, and a door arranged at either side of said door-post.

18. In a freight-car, the combination with the framing, of a removable door-post, a bolt for securing the lower end of said door-post to the car-framing, means, inaccessible from the outside of the car, when closed, for securing the upper end of the door-post to the car-framing, and a door arranged at either side of said door-post.

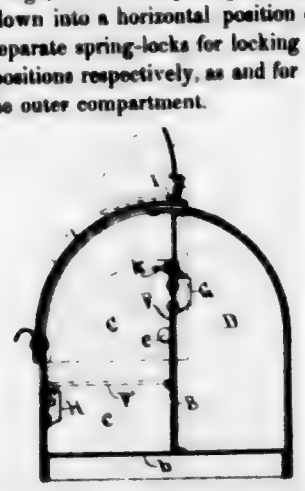
19. In a freight-car, the combination with the framing, of a removable door-post, a tongue carried thereby, a perforated plate secured to the car-framing, and adapted to receive the said tongue, and a locking-pin arranged to pass through the said tongue and to lock the said tongue and plate together.

694,058. **MAIL-BOX.** MELVIN M. CONKLIN, Elmira, N. Y., assignor of one-half to Cornelius B. Mather, Elmira, N. Y. Filed Feb. 8, 1901. Serial No. 46,637. (No model.)

Claim.—1. A mail-box comprising an inner and an outer compartment, a longitudinal partition separating said compartments, an aperture in said partition through which mail-matter is deposited in and removed from the inner compartment by way of the outer compartment, said inner compartment being otherwise closed, a door for said aperture provided with a spring-lock and a closure for the outer compartment, whereby mail deposited in the outer compartment may be taken therefrom by the mail-carrier, but mail deposited in the inner compartment by the carrier can only be removed therefrom by the possessor of the key to said lock.

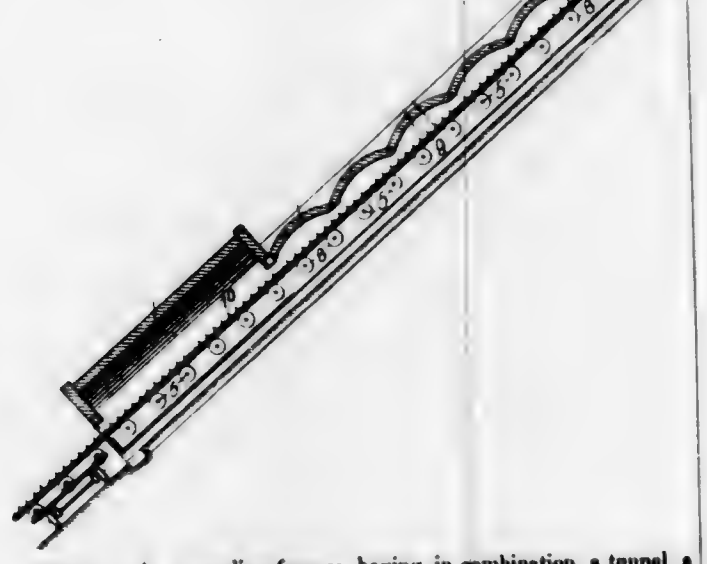
2. A mail-box comprising an inner and an outer compartment, a lon-

gitudinal partition separating said compartments, an aperture in the upper part of said partition through which mail-matter is deposited in and removed from the inner compartment by way of the outer compartment, said inner compartment being otherwise closed, a door for said aperture hinged at its lower edge, said door opening into the outer compartment and when thrown down into a horizontal position closing off a subcompartment therein, separate spring-locks for locking said door in its vertical and horizontal positions respectively, as and for the purpose set forth, and a closure for the outer compartment.



3. In a mail-box of the type described, the combination, with the curved lid, of a signal-plate hinged upon a rod attached to and running parallel with the top of the lid at its uppermost edge when in closed position, said plate being slidable upon said rod, and a forked standard rising from the lid to receive said plate when in elevated position.

694,054. ANNEALING-FURNACE. FREDERICK DANNER, Tarentum, Pa. Filed Aug. 19, 1901. Serial No. 72,484. (No model.)



Claim.—An annealing-furnace having in combination, a tunnel, a series of shafts arranged transversely of the tunnel, supporting-wheels adapted to turn freely carried by said shafts, rail-sections adapted to ride upon said wheels and carrying-bars secured to the rails at right angles thereto, substantially as set forth.

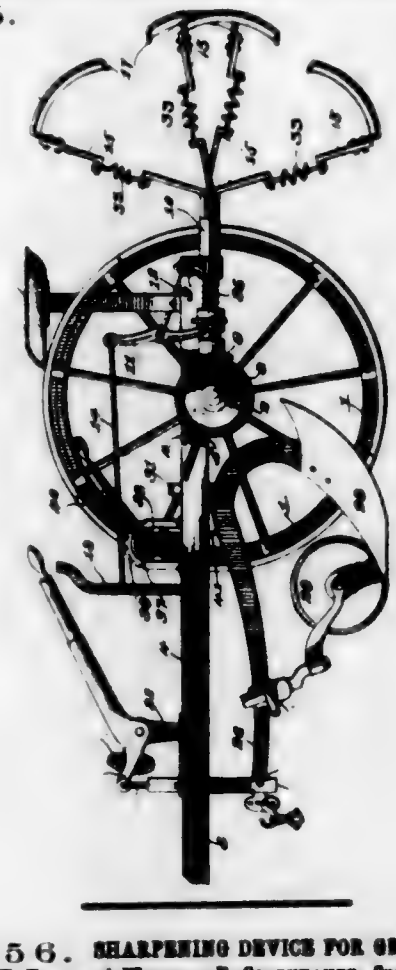
694,055. COTTON CHOPPER AND CULTIVATOR. WILLIAM C. ELSEY, Aurora, Mo. Filed July 27, 1901. Serial No. 69,919. (No model.)

Claim.—1. In a combined cotton chopper and cultivator, the combination with a suitable frame and carrying-wheels therefor, of an auxiliary frame coöperating with the main frame and having a bearing for the contiguous part of the axle, a tongue connected to the auxiliary frame, means to regulate the relative position of said frames, a shaft rotatably mounted on the frame, means to actuate said shaft, radial arms carried by one end of said shaft and having resilient portions, knives carried by said arms, all combined substantially as specified and for the purpose set forth.

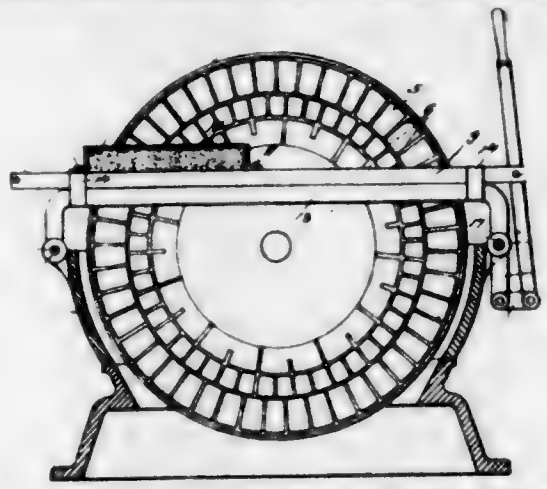
2. In a device of the character described, the combination with a shaft and an arm radiating therefrom and a longitudinally-curved cutting arm or blade carried thereby and an intervening resilient portion or section, as set forth.

3. The combination with a shaft and arms radiating therefrom and having resilient portions between their ends, of longitudinally-curved cutting-blades carried by said arms, a sleeve slidingly mounted on the shaft to rotate therewith, and a spring on said shaft acting on the sleeve, as set forth.

694,055.



694,056. SHARPENING DEVICE FOR GRINDING-PLATES. ROBERT H. FOOS and WILLIAM R. COPENHAVER, Springfield, Ohio, assignors to the Foos Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed Nov. 6, 1901. Serial No. 81,282. (No model.)



Claim.—1. A sharpening attachment for attrition-mills, comprising a bracket, a carrier mounted to slide thereon, and an abrasive block or plate mounted on the carrier, the opposite sides of said block constituting working faces, substantially as described.

2. A sharpening attachment for attrition-mills, comprising a bracket, a carrier mounted to slide thereon, and an abrasive block supported on said carrier so as to be free to move laterally, the opposite sides of said block constituting working faces, substantially as described.

3. A sharpening attachment for attrition-mills, comprising a bracket, adapted for attachment to the mill frame or casing and to extend between the heads of the mill, a carrier mounted to slide on said bracket, means connected with said bracket for operating the carrier, and an abrasive block or plate of greater width than the carrier and bracket and mounted on the carrier, its opposite sides constituting working faces, substantially as described.

4. A sharpening attachment for attrition-mills, comprising a bracket, adapted for connection to the opposite sides of the mill frame or casing, the body of said bracket adapted to pass between the heads of the mill and provided with guides, a bar or carrier mounted to slide on said bracket and laterally supported by the guides, an abrasive block mounted on said carrier and having a width or thickness greater than that of the carrier and bracket, its opposite sides constituting working surfaces, and an operating-lever connected with the bracket and with the bar or carrier, substantially as described.

5. The combination, with the heads or disks of an attrition-mill, and means for rotating the same in opposite directions, of a bracket extending between the same, a carrier slidably mounted on said bracket, and an

abrasive block mounted on said carrier and having its opposite sides in contact with the grinding-surfaces of both heads, substantially as described.

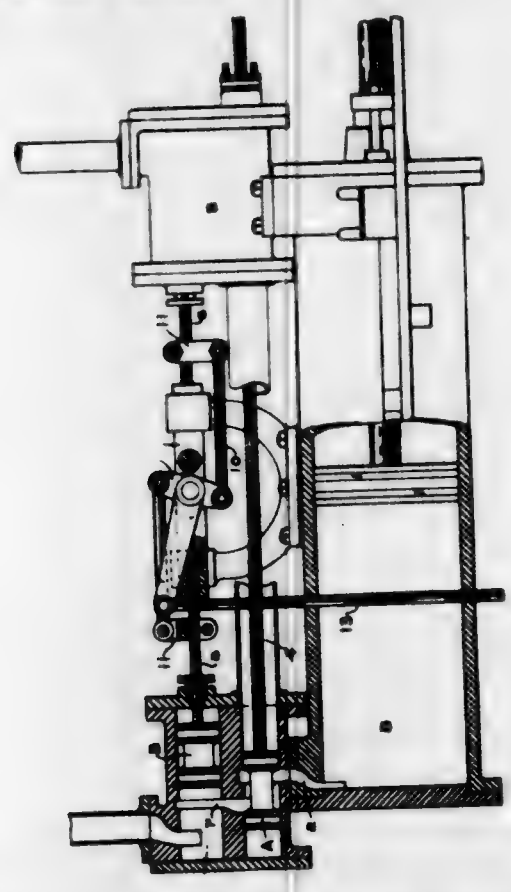
6. The combination, with the heads or disks of an attrition-mill, and means for rotating the same in opposite directions, of a bracket extending between the same, a carrier slidably mounted on said bracket, and an abrasive block mounted on said carrier and having its opposite sides in contact with the grinding-surfaces of both heads, said block being free to move laterally with respect to the carrier to permit it to adjust itself to the planes of revolution of the heads, substantially as described.

7. The combination, with the heads of an attrition-mill, and means for rotating the same in opposite directions, of a reciprocating grinding-block supported between said heads and having its opposite sides constituting working surfaces which bear against the grinding-surfaces of the respective heads, and means for holding said heads against said block with a yielding pressure, substantially as described.

8. The combination, with the opposite heads of an attrition-mill, means for rotating said heads in opposite directions, one of said heads being movable toward and from the other and provided with a spring for yieldingly holding it in position, of a bracket extending between the heads, a carrier slidably mounted on said bracket, and a grinding-block of greater thickness or width than the bracket and carrier and supported on the carrier so as to be free to yield laterally thereof, its opposite sides constituting working faces contacting with the grinding-surfaces of the respective heads, substantially as described.

9. The combination, with an attrition-mill having opposite heads, means for rotating said heads in opposite directions, and a divided casing provided with lugs which serve to attach the removable upper portion of the casing, of a sharpening attachment comprising a bracket adapted to be fitted and secured to said lugs and provided with a carrier slidably mounted thereon, and an abrasive block mounted on the carrier and having its opposite sides constituting working surfaces, substantially as described.

694,057. VARIABLE CUT-OFF. ASA D. GILLETT, Lake City, Minn., and JAMES H. GILLETT, Everett, Wash. Filed Aug. 19, 1901. Serial No. 72,492. (No model.)



Claim.—1. In combination with main-valve steam-chests of the class described, of cut-off valve-chests arranged alongside said main-valve steam-chests, and having a direct port connection therewith, valves arranged in said cut-off valve-chests, rods connected with said valves, a cross-bar pivotally supported between the ends of said rods, and a connection between the opposite ends of said cross-bar and said rods.

2. In combination with a pair of main-valve steam-chests, arranged in longitudinal alinement, of a pair of cut-off valve-chests arranged alongside said main-valve chests and having direct communication therewith, valves arranged in said cut-off valve-chests, rods connected with said valves, and mechanism interposed between said rods for varying the relative positions of said cut-off valves, thereby changing the point of cut-off.

694,058. RAILWAY-SWITCH. DAVID J. GRIFFITHS, HENRY W. HITEROT, and CHARLES W. MOWER, McKeesport, Pa. Filed Sept. 10, 1901. Serial No. 74,962. (No model.)



Claim.—1. The combination of track-rails and a pivoted switch-point, fulcrums projecting outwardly from the track-rails, levers pivoted intermediate their ends to the fulcrums with their upper ends adjacent to the tread-surface of the rails, a rod D^2 connected pivotally to the lower ends of the respective levers, a vertically-extending rod C^2 connected to the rod D^2 and the switch-point, and devices carried by a car on said rails to engage the upper ends of the levers and rock the levers to shift the switch-point, substantially as set forth.

2. The combination of track-rails and a pivoted switch-point, fulcrums projecting outwardly from the track-rails, levers pivoted intermediate their ends to the fulcrums with their upper ends adjacent to the tread-surface of the rails, a rod D^2 connected pivotally to the lower ends of the respective levers, a vertically-extending rod C^2 connected to the rod D^2 and the switch-point, shoes D hinged to a car movable on the track-rails, means on the car to raise and lower the said shoes from and to the rails, said shoes each having a plate portion *e* to rest and slide upon the tread-surface of a rail and a wedge-shaped portion E to slide between the outer face of the rail and upper end of said levers, substantially as set forth.

694,059. DIPPING-TANK FOR SHINGLES. ISAAC HARVEY, Fort Dodge, Iowa, assignor, by direct and mesne assignments, to Chas. R. Colwell, John R. Mulroney, and Fred J. Blake, Fort Dodge, Iowa; Anna M. Mulroney and J. R. Mulroney executors of said John R. Mulroney, deceased. Filed Apr. 27, 1901. Serial No. 57,799. (No model.)



Claim.—1. In an apparatus for dipping shingles, the combination with a tank, of a V-shaped frame comprising side pieces hinged together at their lower ends, brushes at the lower ends of said side pieces, and means for adjusting the upper ends of the side pieces to adjust the brushes with respect to each other, substantially as shown and described.

2. In an apparatus for dipping shingles, the combination with a tank, of a frame comprising side pieces hinged together at their lower ends, brushes attached to the lower ends of said side pieces, and adjustable connections between the upper ends of the side pieces, substantially as shown and for the purpose set forth.

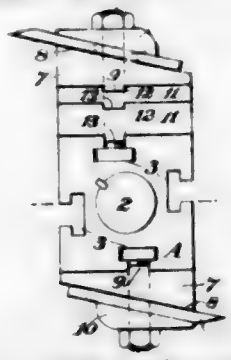
3. In an apparatus for dipping shingles, the combination with a tank, of a V-shaped frame hinged together at its lower end, brushes attached to the lower ends of said frame, plates connecting the upper ends of the frame and slidable upon each other, and means for securing the plates, substantially as shown and for the purpose set forth.

4. In an apparatus for dipping shingles, the combination, of a tank, a V-shaped frame hinged together at its lower ends, means for adjustably connecting the upper ends of said frame, and brushes removably secured to the lower ends of the frame, substantially as shown and for the purpose set forth.

5. In an apparatus for dipping shingles, the combination, of a tank, a V-shaped frame hinged together at its lower end, brushes secured to the lower ends of said frame, plates connecting the upper ends of the frame and slidable upon each other, and a thumb-screw connecting the plates, one of said plates having a slot through which the thumb-screw passes, substantially as shown and described.

6. In an apparatus for dipping shingles, the combination with a tank, of a V-shaped frame comprising side pieces hinged together at their lower ends, clamping-jaws at the lower ends of said side pieces, brushes clamped in the jaws at the lower ends of the side pieces, and means for adjustably connecting the upper ends of the side pieces to adjust the brushes to and from each other, substantially as shown and for the purpose set forth.

694,060. EXTENSION FOR CUTTER-HEADS. CHARLES E. HAWLEY, Berkeley, Cal. Filed Nov. 11, 1901. Serial No. 81,807. (No model.)



Claim.—1. The combination with a cutter-head, of a detachable radial extension fitted to the head in such position that a line through substantially the center of the extension will intersect the axis of the head, a knife, and means for attaching the knife to the outer face of the extension.

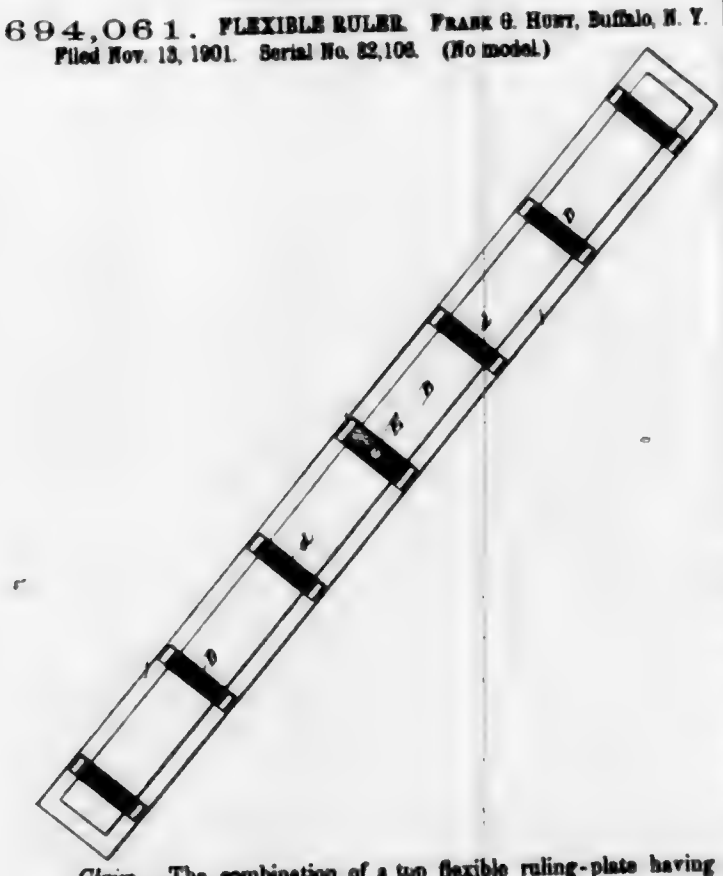
2. The combination with a cutter-head, of a detachable radial extension fitted to the head in such position that a line longitudinally through substantially the center of the extension will intersect the axis of the head said extension having an inclined outer surface, and a knife and means for attaching it to said surface.

3. The combination with a cutter-head, of a block, extension-blanks adapted to be inserted between the block and head, and means for attaching a knife to the block, and means for securing the knife, block and blanks rigidly to the cutter-head.

4. A cutter-head extension consisting of a block adapted to seat upon a cutter-head in such manner that a line projected through substantially the longitudinal center of the extension will intersect the axis of the head, means for preventing displacement on the extension on the head, said block having an outer inclined surface upon which a knife is supported, and means for detachably securing said block to a cutter-head.

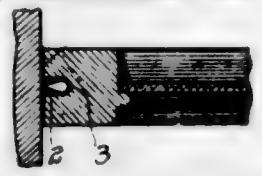
5. The combination with a cutter-head, of radial extension-blocks disposed upon opposite sides of said head, said blocks having their outer faces inclined and their longitudinal centers substantially radially in line with the axis of the head, knives secured upon said inclined faces and means exterior to the cutter-head whereby said blocks are held rigidly thereon.

694,061. FLEXIBLE RULER. FRANK G. HUNT, Buffalo, N. Y. Filed Nov. 13, 1901. Serial No. 82,108. (No model.)



Claim.—The combination of a top flexible ruling-plate having a plain upper face, a flexible plate of less width than the upper plate arranged longitudinally beneath the same, a flexible spacing means arranged between the top and bottom plates, and a plurality of holding-straps secured at their ends to the under face of the top plate and having side portions extending down at the sides of the spacing means and bottom plate and having bottom portions connecting said side portions and extending transversely beneath the bottom plate, said straps constituting bearing parts for the ruler, substantially as set forth.

694,062. WEATHER-STRIP AND GUIDE FOR WINDOWS. HUGH E. KENNY, Detroit, Mich., assignor to the Chamberlain Metal Weather Strip Company, Detroit, Mich., a Corporation of Michigan. Filed May 4, 1901. Serial No. 58,720. (No model.)



Claim.—1. A combination of a window sash provided with longitudinal grooves in its edges and a metal weather-strip consisting of a base and a rib formed integral with each other, portions of the rib between its edge and the base having a thickness less than the width of the groove, so that the rib will bear only along its edge or sides adjacent thereto against the bottom of the groove and sides adjacent thereto in the sash.

2. A metal weather-strip consisting of a base and a rib formed integral with each other, the sides of the rib being undercut, substantially as set forth.

3. A metal weather-strip consisting of a base and a rib formed integral with each other, said rib being formed with a bead or enlargement along its edge, substantially as set forth.

694,063. PIN-FASTENER FOR SHOW-CARDS. LEON LEMOS, San Francisco, Cal. Filed July 26, 1901. Serial No. 69,755. (No model.)



Claim.—1. An attachment for cards and the like, consisting of a hook-shaped pin having a transverse loop formed at the base, and integral with it, a flattened integral extension at right angles with the loop and means for securing it rigidly to the card.

2. An attachment for cards and the like consisting of a pin having a transverse loop formed at the base and integral with it, a flattened continuation at right angles, and below the loop, and an adhesive disk adapted to be pasted over the loop and its continuation.

3. A combination with a card or the like of a hook-shaped pin having a transverse loop and a flattened continuation below the loop in line with the shank of the pin, and a flexible adhesive disk adapted to fit over the flattened continuation to secure it to the card, said disk having a tongue passing through and securing the loop.

694,064. SUSPENDER AND GARMENT CLAMP. LEON LEMOS, San Francisco, Cal. Filed July 26, 1901. Serial No. 69,756. (No model.)

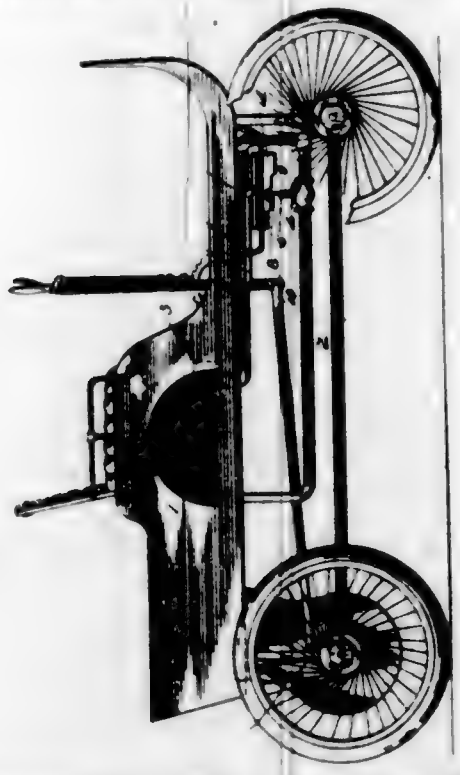


Claim.—1. A suspender and garment clasp including parallel spaced plates pivotally united between opposite ends, one of said plates having at one side of the pivot connection, means for the attachment of a suspender and also having a stop to limit the swinging movement of the other plate, and both of said plates having inwardly-turned lower edges and portions between said edges and the pivotal connection corrugated in transverse lines.

2. A suspender and garment clasp including two plates, a spacing-washer between the plates and a pivot-pin passing through the plates and washer, said plates having portions at one side of the pivot-pin corrugated transversely and the lower edges of the plates turned inwardly and overlapping to compress the fabric, one of said plates having means for the attachment of a suspender and a stop to limit the swinging movement of the other plate, said other plate having a lever portion of hook form above the pivot-pin whereby the plate may be turned about the pivotal connection.

694,065. CONTROLLER MECHANISM FOR AUTOMOBILES. JOHN G. MACPHERSON, Philadelphia, Pa., assignor to the MacPherson Automobile Company, Philadelphia, Pa. Filed June 11, 1901. Serial No. 64,133. (No model.)

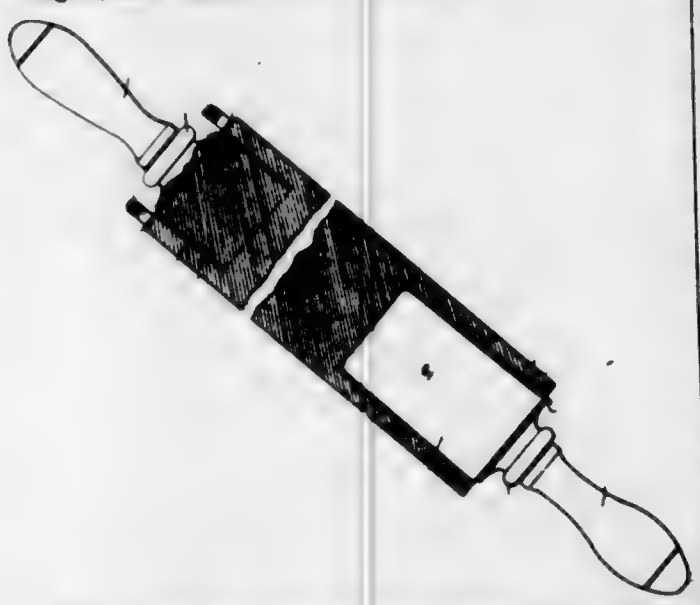
Claim.—1. In a controller for automobiles, the combination of a hand-operated lever, a rod pivoted to said lever, a slide-cam carried by said rod, a spring-actuated valve mounted in the supply-pipe of the engine, an arm carried by the valve and contacted by the slide, and another rod connected to the lever's end to control the movement of the automobile.



2. In an automobile controlling mechanism a lever, a rod pivoted to the lower end thereof, a clutch mechanism connected to the propelling portion of an automobile and operated by said rod, another rod connected to said lever and extending in opposite directions therefrom, and a cam-slide operated by said last-mentioned rod, and a spring-actuated valve in the supply-pipe of an engine having an angle-arm operated by said cam-slide to regulate the flow of hydrocarbon gases to the engine.

3. In an automobile controlling mechanism a lever, means for controlling the transmission of power to the automobile, a rod connected to the lever, a cam-slide carried by said rod and provided with a central notch, a medium-speed-regulating surface, a high-speed-regulating surface, and a reverse-speed-regulating surface upon the under side thereof, a spring-actuated valve in the supply-pipe of an engine, and an angle-arm carried by the valve and operated upon to open and close the valve by means of the surfaces of the cam-slide.

694,066. COMBINED ROLLING-PIN, POTATO-MASHER, AND BISCUIT-CUTTER. HENRY L. MEYER, Festus, Mo., assignor of two-thirds to Jesse P. Donnell and George O. Biedermann, Festus, Mo. Filed Aug. 26, 1901. Serial No. 73,355. (No model.)



Claim.—1. The combination with a rolling-pin, of a biscuit-cutter detachably supported thereon, and handles upon said biscuit-cutter, said handles forming members by which the said rolling-pin can be suspended when the parts are assembled; substantially as described.

2. The combination with a rolling-pin having a slot in the end thereof, of a cutter fitting in said slot, and a handle upon said cutter and forming a member by which said rolling-pin can be suspended, said handle being located to one side of the roller when the parts are assembled; substantially as described.

3. The combination with the body portion of a rolling-pin having a chamber in one end, a potato-masher fitting in said chamber, and yielding means for locking said potato-masher in said chamber; substantially as described.

4. The combination with the body portion of a rolling-pin provided with means for suspending it from one end and having a chamber in its opposite end, of a potato-masher fitting in said chamber, and yielding means for locking said potato-masher in said chamber; substantially as described.

5. The combination with the body portion of a rolling-pin having a concentric slot in one end and a chamber in its opposite end, of a biscuit-cutter fitting in said slot, arched handles upon said biscuit-cutter which are located at the sides of the rolling-pin when the parts are assembled, a potato-masher fitting in said chamber, a leaf-spring supported in said chamber and projecting beyond the end of the said body portion of the rolling-pin, and a nose on the outer end of said spring engaging the outer end face of said rolling-pin section when the parts are assembled; substantially as described.

6. The combination with a rolling-pin, of a handle therefor, a suspending member projecting beyond the end of the body portion of said rolling-pin and toward said handle, and a hand-guard between said member and said handle; substantially as described.

7. The combination with a rolling-pin, of a handle therefor, a suspending member projecting beyond the end of the body portion of said rolling-pin and toward said handle, and an enlargement upon said rolling-pin, said enlargement being of greater diameter than said handle and being located in a plane beyond said suspending member; substantially as described.

8. The combination with a rolling-pin having a slot in its end, of a handle about which said slot is formed, a biscuit-cutter fitting in said slot and having handles which are located at the side edges of said rolling-pin when the parts are assembled, and an enlargement at the inner end of said rolling-pin handle, said enlargement being of greater diameter than said handle and being located in a plane beyond said biscuit-cutter handles; substantially as described.

9. The combination with the body portion of a rolling-pin, of a potato-masher, a handle on said masher, a latch securing said body portion and potato-masher together and projecting beyond said potato-masher toward said handle, and a hand-guard between said projecting latch end and said handle; substantially as described.

10. The combination with the body portion of a rolling-pin having a chamber in the end thereof, of a potato-masher fitting in said chamber, a handle upon said potato-masher, a latch in said chamber securing said body portion and potato-masher together and projecting beyond the end of said parts and toward said handle, and a hand-guard between said projecting latch and said handle; substantially as described.

694,067. CONVEYER SYSTEM. EDWARD W. MCKENNA, Chicago, Ill. Filed Jan. 7, 1901. Serial No. 42,390. (No model.)

Claim.—1. In a conveyer system for loading freight-cars, the combination with a plurality of parallelly-arranged freight-cars, the doors of said freight-cars registering in a straight line, of freight-supporting devices adapted to convey freight within the said cars, and cable power-transmission mechanism for propelling said freight-supporting devices, substantially as described.

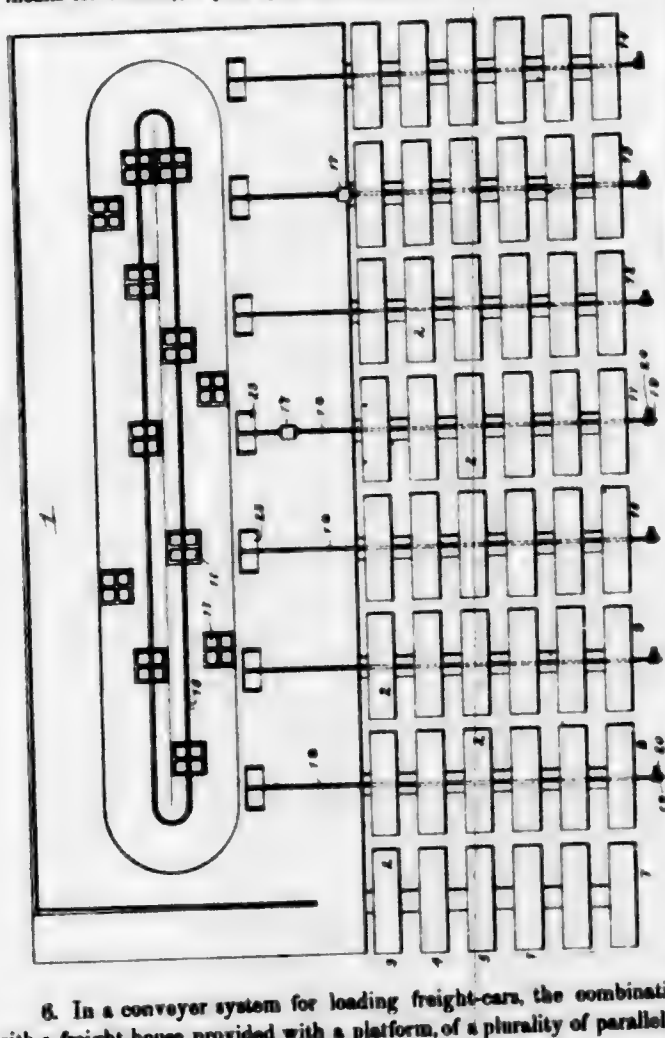
2. In a conveyer system for loading freight-cars, the combination with a freight-house provided with a platform, of a plurality of parallelly-arranged freight-cars, the doors of said freight-cars registering in a straight line, freight-supporting devices adapted to convey freight within the said cars, and cable power-transmission mechanism for propelling said freight-supporting devices, substantially as described.

3. In a conveyer system for loading freight-cars, the combination with a plurality of parallelly-arranged freight-cars, the doors of said freight-cars registering in a straight line, of freight-supporting devices adapted to convey freight within the said cars, a cable adapted for attachment to said freight-supporting devices, means for transferring power to said cable, and crossover platforms provided between the floors of adjacent cars, substantially as described.

4. In a conveyer system for loading freight-cars, the combination with a freight-house provided with a platform, of a plurality of parallelly-arranged freight-cars, the doors of said freight-cars registering in a straight line, freight-supporting devices adapted to convey freight within the said cars, a cable adapted for attachment to said freight-supporting devices, means for transferring power to said cable, and crossover platforms provided between the floors of adjacent cars, substantially as described.

5. In a conveyer system for loading freight-cars, the combination with a plurality of parallelly-arranged freight-cars, the doors of said freight-

cars registering in a straight line, of freight-supporting devices adapted to convey freight within the said cars, a cable adapted for attachment to said freight-supporting devices, sheaves for said cable, said cable passing through said car-doors, about the said sheaves, and back underneath the said cars, the said cable being adapted to engage both ends of said freight-supporting devices, so that the said devices may move in both directions, and means for exerting a pull upon said cable, substantially as described.



6. In a conveyer system for loading freight-cars, the combination with a freight-house provided with a platform, of a plurality of parallelly-arranged freight-cars, the doors of said freight-cars registering in a straight line, freight-supporting devices adapted to convey freight within the said cars, a cable adapted for attachment to said freight-supporting devices, sheaves for said cable, said cable passing through said car-doors, about the said sheaves, and back underneath the said cars, the said cable being adapted to engage both ends of said freight-supporting devices, so that the said devices may move in both directions, and means for exerting a pull upon said cable, substantially as described.

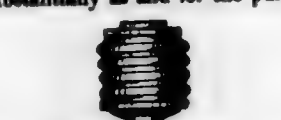
7. In a conveyer system for loading freight-cars, the combination with a plurality of parallelly-arranged freight-cars, the doors of said freight-cars registering in a straight line, of freight-supporting devices adapted to convey freight within the said cars, a cable adapted for attachment to said freight-supporting devices, sheaves for said cable, said cable passing through said car-doors, about the said sheaves, and back underneath the said cars, the said cable being adapted to engage both ends of said freight-supporting devices, so that the said devices may move in both directions, a pulley 23, a drum 22, and a motor 24 for operating said drum, substantially as described.

8. In a conveyer system for loading freight-cars, the combination with a freight-house provided with a platform, of a plurality of parallelly-arranged freight-cars, the doors of said freight-cars registering in a straight line, freight-supporting devices adapted to convey freight within the said cars, a cable adapted for attachment to said freight-supporting devices, sheaves for said cable, said cable passing through said car-doors, about the said sheaves, and back underneath the said cars, the said cable being adapted to engage both ends of said freight-supporting devices, so that the said devices may move in both directions, a pulley 23, a drum 22, and a motor 24 for operating said drum, substantially as described.

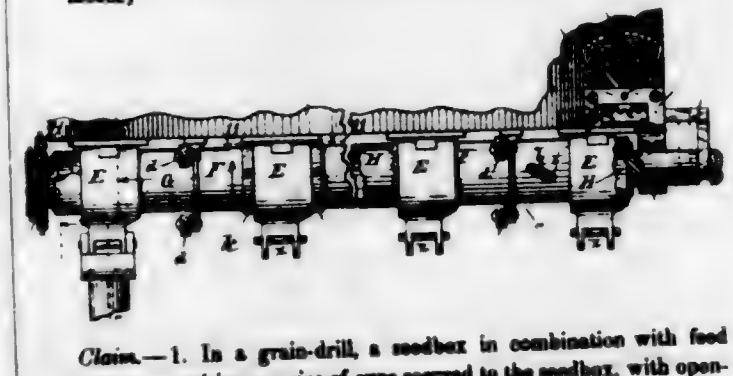
694,068. INCANDESCENT LAMP. EUGENE MCQUAT, Malden, Mass. Filed June 15, 1901. Serial No. 64,747. (No model.)

Claim.—1. A bulb for an incandescent lamp, having a broadly-extended, flattened, spherical surface, immediately above the source of light, and having its neck, between the said flattened spherical surface and the cap, contracted to receive a reflector, whereby nearly all the upward rays of light are reflected, substantially as and for the purpose set forth.

2. An electric incandescent lamp, having a bulb, the neck of which is contracted between the cap and the body; and a mirror-shield in the form of a flattened spherical surface, adapted to closely fit the bulb, and having a small central opening, and cut radially from said opening to the circumference, whereby it is adapted to be detachably attached to the neck of the bulb, substantially as and for the purpose set forth.



694,069. FEED MECHANISM FOR GRAIN-DRILLS. FRANK J. NOECKEL, Rochester, N. Y. Filed Apr. 6, 1901. Serial No. 54,617. (No model.)



Claim.—1. In a grain-drill, a seedbox in combination with feed mechanism comprising a series of cups secured to the seedbox, with openings between the seedbox and the cups, and telescoping cylinders crossing the interiors of said cups, formed with openings constituting continuous passages to the interior of the cylinders, and means for moving the inner tube independently of the outer tube, and for turning the cylinders, substantially as and for the purpose specified.

2. The seedbox of a grain-drill, and feed-cups secured to the seedbox, openings in the latter communicating with the interiors of the cups, an outer and an inner cylinder crossing the spaces in the cups, there being elongated overlapping openings through the sides of the cylinders communicating with the interiors of the cups, and means for moving the inner cylinder longitudinally within the outer cylinder, and to rotate the cylinders, substantially as set forth.

3. The seedbox of a grain-drill, having outflow-openings, in combination with cups secured to the seedbox to cover the openings, a pair of telescoping cylinders crossing the interiors of the cups, formed with openings, there being continuous passages for the seed from the interior of the seedbox through said openings, and core-pieces in the inner cylinder, having cavities registering with the openings through said inner cylinder, and openings into the interior of the inner cylinder, substantially as and for the purpose specified.

4. In combination with the seedbox of a grain-drill, having outflow-openings for the grain or seed, cups to cover said openings through the seedbox, and telescoping cylinders piercing the cups, having series of inflow-openings and series of outflow-openings, and core-pieces in the inner cylinder, having cavities or pockets registering with the inflow-openings through said inner cylinder, leading into the space within the inner cylinder, substantially as shown and described.

5. In combination with the seedbox of a grain-drill, having outflow-openings, feed mechanism comprising cups for said openings, and telescoping cylinders piercing the cups, having series of inflow-openings and series of outflow-openings, and core-pieces in the inner cylinder each having a head formed with spiral cavities registering with the inflow-openings and leading into the interior of the inner cylinder, and a diaphragm, said outlet-openings being between the heads of the core-pieces and the opposing diaphragms, substantially as set forth and shown.

6. The seedbox of a grain-drill, formed with outflow-openings, and pendent cups to cover said openings, and telescoping cylinders piercing the cups, having inflow and outflow openings, and core-pieces in the inner cylinder having cavities or pockets for the seed, coacting with said inflow-openings, and means for revolving the cylinders, said pockets being inclined or slanting in the direction in which the cylinders are revolved, substantially as and for the purpose specified.

7. In combination with the seedbox of a grain-drill, having outflow-openings, cups covering said openings, and telescoping cylinders piercing

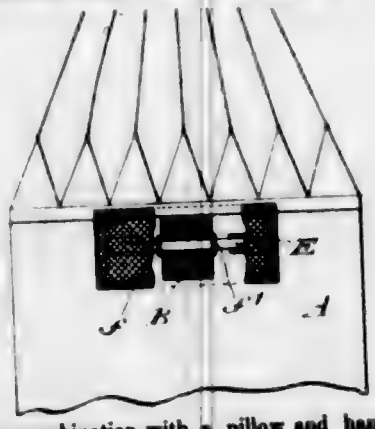
the cups, having inflow and outflow openings arranged in circumferential series, partitions in the cups dividing the interiors into vertical apartments crossed by the feed-cylinders, a series of inflow-openings being in one apartment of a cup and a series of outflow-openings being in the other apartment of the cup, and means for turning the cylinders, substantially as set forth.

8. In combination with the seedbox of a grain-drill, formed with outflow-openings, cups covering said openings, and telescoping cylinders piercing the cups, having inflow and outflow openings in series, partitions in the cups dividing the interiors thereof into apartments crossed by the feed-cylinders, and feed-chambers in the cups, leading to the surface of the outer feed-cylinder, with means to rotate the feed-cylinders, substantially as shown and set forth.

9. Feed mechanism for a grain-drill, comprising, in combination with a seedbox, cups secured to the seedbox, and openings between the latter and the cups, telescoping feed-cylinders traversing the cups, having inflow-openings communicating with the interiors of the cups, and deflecting chambers or passages in the cups communicating with said openings in the cylinders above the middle line of the latter, and core-pieces in the inner cylinder, having inclined pockets communicating at their outer ends with said inflow-openings in the feed-cylinders, and at their inner ends with the space in the inner feed-cylinder, the inner end of each pocket being above the outer end when the inflow-opening leading to said pocket passes a deflecting-chamber, substantially as and for the purpose specified.

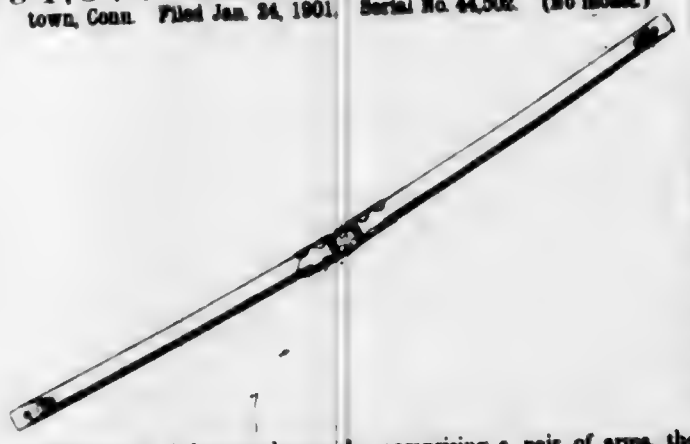
10. In combination with the seedbox of a grain-drill, formed with outflow-openings, a feed mechanism comprising cups secured to the seedbox, and revolving telescoping cylinders traversing the cups, having inflow and outflow openings, and core-pieces in the inner cylinder, each having a head formed with inclined or slanting pockets registering at their outer ends with the inflow-openings of the inner cylinder, the inner or discharge ends of the pockets leading into the space in the inner cylinder, said discharge ends of the pockets being in advance of the receiving ends as the cylinders are revolved, substantially as shown and described.

694,070. PILLOW ATTACHMENT FOR HAMMOCKS. ISAAC R. PALMER, Middletown, Conn. Filed Jan. 13, 1900. Serial No. 1,220. (No model.)



Claim.—The combination with a pillow and hammock-body, the one provided with pockets fixed thereto and the other with a strap located intermediate of the position of the pockets and extending in a direction lengthwise of the hammock, of a slat or bar held in two of said pockets and a clamp in engagement with the bar and strap for holding the bar to the strap to secure the pillow in the desired longitudinal and lateral adjustment, substantially as set forth.

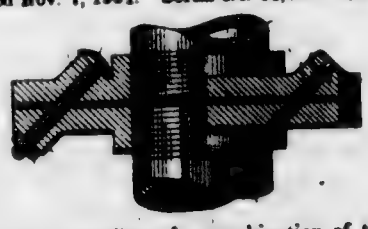
694,071. HAMMOCK-SPREADER. ISAAC R. PALMER, Middletown, Conn. Filed Jan. 24, 1901. Serial No. 44,502. (No model.)



Claim.—1. A hammock-spreader comprising a pair of arms, the members of the pair of arms being provided on their adjacent ends with hinge-pieces, a hinge-piece common to the two arms and consisting of plates spaced apart, a stop-pin and hinge-pintles, connecting the said plates, the stop-pin being so located with relation to the hinge-pintles that the arms will engage it only when swung past a fully-extended position, substantially as set forth.

2. A hammock-spreader comprising a pair of wooden arms, hinge-pieces at the adjacent ends of the arms, the said hinge-pieces at the adjacent ends of the arms being provided with skeleton sockets terminating at their edges with malleable-metal teeth for gripping the arms and a hinge-piece common to the two arms and provided with pintles and a stop, the said stop and hinge-pintles being so located with relation to the arms that the latter will be arrested by the stop only when swung past their fully-extended position, substantially as set forth.

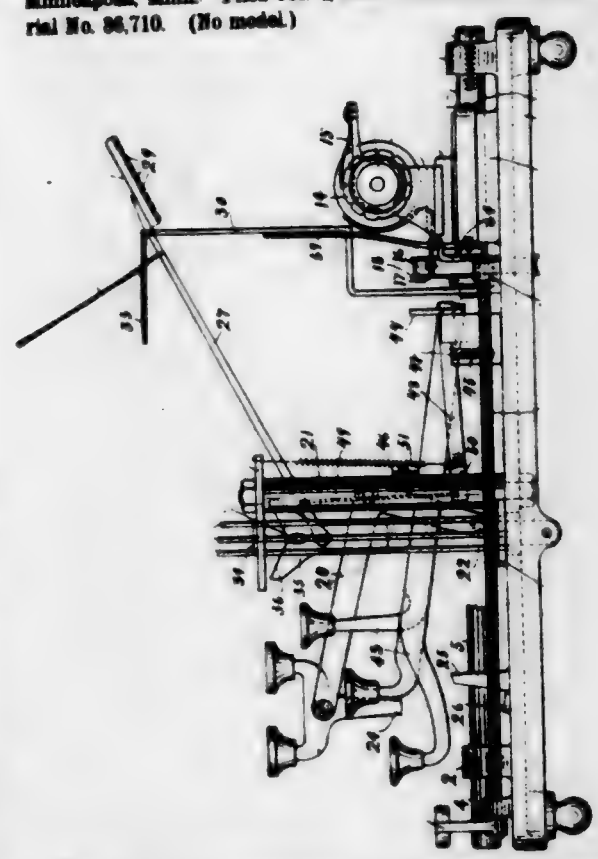
694,072. PIPE-COUPLING. WILLIAM M. PEARCE, Norwood, W. Va. Filed Nov. 7, 1901. Serial No. 81,417. (No model.)



Claim.—1. In a coupling, the combination of the pipes provided with flanges, one of said flanges being provided with one or more pins extending obliquely from one of its faces and entering similarly-inclined holes in the other flange, and means for drawing the two flanges together.

2. In combination, two pipe-sections each of which is provided with a flange, one flange carrying one or more pins and a bolt extending obliquely from its bearing-face and entering similarly-inclined holes in the other flange, the bolt and pins being set at the same angle and inclining in the same direction, and a nut on said bolt.

694,073. TYPE-WRITING MACHINE. CHARLES E. PETERSON, Minneapolis, Minn. Filed Oct. 4, 1900. Renewed Dec. 20, 1901. Serial No. 86,710. (No model.)



Claim.—1. In a type-writer, the combination with a type-bar having several type, of a vibrating cam serving as a shiftable fulcrum for said type-bar, a group of independently-mounted slides, operating on said cams, to shift said type-bar, and a corresponding group of keys for actuating said slides, substantially as described.

2. In a type-writer, the combination with a type-bar having several type, of a vibrating cam-arm serving as a shiftable fulcrum for said type-bar, and provided at its free end with diverging cam-surfaces, and a group of keys provided with parts which stand at different distances from the impression-point, and, when the keys are depressed, engage one or the other of said diverging cam-surfaces and shift said type-bar, substantially as described.

3. In a type-writer, the combination with a type-bar having several type of a vibrating cam-arm serving as a shiftable fulcrum for said type-bar and provided at its free end with an aligning-notch and diverging cam-

surfaces, a group of independently-mounted slides located at different distances from the impression-point and operating on said cam-surfaces to position the selected type and with said alining-notch to aline said selected type, and a corresponding group of keys for actuating said slides, substantially as described.

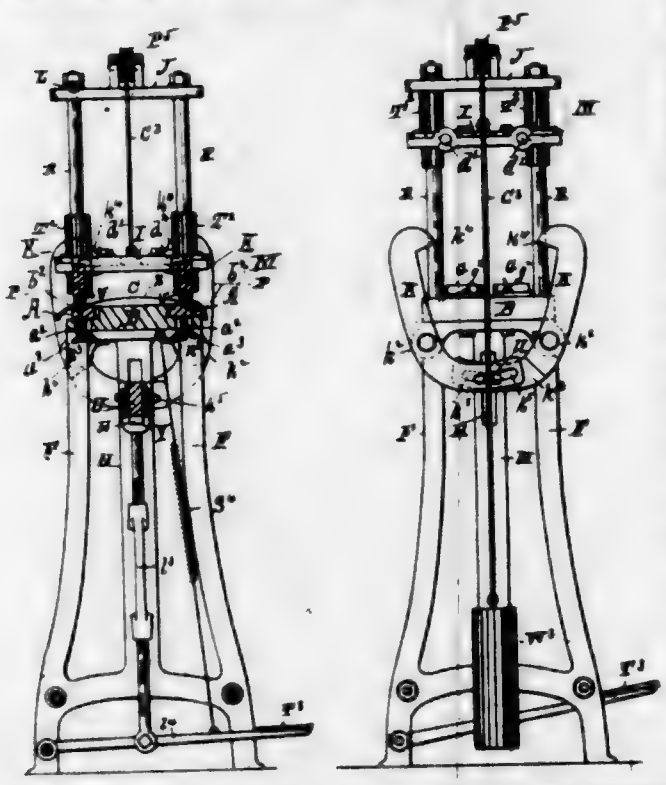
4. In a type-writer, the combination with a type-bar having several type, of a vibrating cam affording a shiftable fulcrum for said type-bar, which cam is adapted to remain wherever last set, and a group of character-keys having a differential action on said cam, substantially as described.

5. In a type-writer, the combination with a type-bar, having several type, of a vibrating cam-arm serving as a shiftable fulcrum for said type-bar and having a lock-notch with diverging cam-surfaces, a group of character-keys, and a corresponding group of key-actuated slides located side by side and at different distances from the impression-point, for a differential action on the cam-surfaces and for locking engageable with the lock-notch of said vibrating cam-arm, to select and position the type, substantially as described.

6. In a type-writer, the combination with a platen, of an alining-guide, a plurality of type-bars coöperating with said guide and provided with guiding-fingers, and a series of finger-guides located side by side and through which the fingers of said type-bars work, substantially as described.

7. The combination with a platen, of an alining-guide, and a plurality of type-bars movable on different lines to and from the impression-point, said type-bars having projecting guide-fingers, and finger-guides through which said guide-fingers work, said guide-fingers permitting the alining movements of the bars, under the impression-stroke, and serving to guide said bars back to normal positions, the one standing out of the path of movement of the other, substantially as described.

694,074. MACHINE FOR FOLDING SHIRTS. MAX PEUKERT, Troy, N. Y., assignor of one-half to Tim & Co., Troy, N. Y., a Copartnership. Filed Aug. 28, 1900. Serial No. 28,279. (No model.)



Claim.—1. In a machine for producing fold-lines in a shirt at each side of the bosom the combination with a bed provided with a creaser-blade upwardly projected therefrom at each of its opposite sides, of presser-bars each provided with a groove on its under surface arranged to be vertically over one of the creaser-blades on the bed said presser-bars being provided with a slide at each end of the machine; and means substantially as described whereby said presser-bars are operated to descend upon a shirt placed upon said bed, between said creaser-blades and presser-bar grooves and be operated upon by applied pressure substantially as, and for the purposes set forth.

2. In a machine for producing a fold-line in a shirt at each side of the bosom, the combination with a bed provided with neckband gage-plates at one of its ends and having a creaser-bar adjustably connected to a shelf upon each side of said bed, each of said bars being provided with an upcast creaser-blade; and a presser mechanism arranged on vertical slide-ways and having a presser-bar at each side adapted to be laterally adjusted toward or from each other, and each provided with a groove on its under side arranged to be vertically in line with and over one of the creaser-blades, and means substantially as described whereby said presser mechanism is operated to descend upon a shirt placed upon said bed, and have pressure applied thereto to fix the folds therein.

3. The combination with the bed B, having the creaser-blades C, and the vertical side rods R; of the presser mechanism M, having the grooves *v*, on its under surface vertically in line with, and over said creaser-blades, and at each of its ends provided with a cross-plate I, having outwardly-projecting pins d^3, d^3, and each having tubular slides mounted upon two of the rods R, thereat; a pulley on top of the frame at each end having a cord passed over it with one of its ends attached to one of the plates I, and the other end to a depending weight; clutches K, at each end of the machine pivoted thereto and provided with slots, and a slide-bar U, having a slide-pin u^3, at each end passing through a slot in the machine-frame and the slots of the clutches thereat; and a foot-treadle connected to said slide-bar constructed and arranged to be operated as, and for the purposes set forth.

4. The combination with the bed B, having bars provided with blades upwardly projected therefrom, and vertical slide-rods at each of its four corners, of the presser mechanism M, having two presser-bars each provided with a groove *v*, on its under side vertically in line with and over one of the blades of the bed; the end cross-plates I, I, each having on its outer side the pins d^3, d^3, and each connected to one of the ends of the presser mechanism, and each having slides upon two of said slide-rods at each end of the machine; clutches K, mounted upon each end of the machine; and a slide-bar U, having a pin u^3, at each end arranged to operate said clutches to grasp the pins upon the cross-plates; and a foot-treadle T^9, constructed to operate said slide-bar U, substantially as shown and described.

5. The combination with the bed B, having the creaser-bars A, A, each provided with an upcast creaser-blade C, attached to the frame F, and having at each of its four corners the upcast rod R, of the presser mechanism M, provided with bars P, P, each having a groove *v*, on its under surface and the cross-plates I, I, each provided with the pins d^3, d^3, outwardly-projected therefrom, and at its inner side connected to the presser mechanism; each of said cross-plates having a tubular slide T^3, at each of its ends mounted upon one of the rods R, on which the presser mechanism can be vertically reciprocated; clutches K, each provided with a latch k^4, a slot k^3, and pivoted to the frame at each end at k^2, and the bar U, having the pin u^3, at each end arranged to pass through the slot H, in the frame ends, and the slots in the clutches; and the foot-treadle T^9, constructed and arranged to be operated substantially as, and for the purposes set forth.

6. The combination with the bed B, having the upcast creaser-blades C, of the presser mechanism M, having the grooves *v*, on its under side, and the connected cross-plate I, at each end provided with the exteriorly-located pins d^3, d^3, constructed to move vertically on slideways substantially as described; the clutches K, K, at each end of the machine each provided with the latching upper end k^4, the slot k^3 and at k^2, pivoted to the frame end; the slide-bar U having the pin u^3, at each end arranged to pass through the slot H, in the frame end and the slots in the clutches thereat; whereby when said pressing mechanism is resting on a shirt placed on the bed and the sliding bar U, is drawn downwardly the clutches at each end will grasp the pins d^3, d^3, and thus apply pressure to the presser mechanism, substantially as and for the purposes set forth.

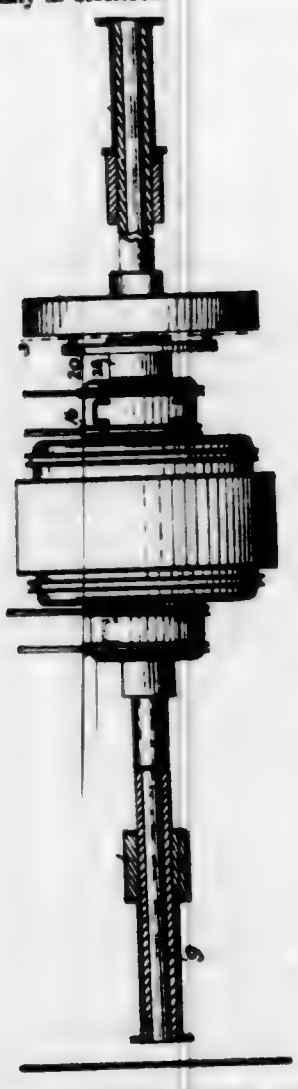
694,075. ELECTRIC MOTOR. FRANCIS A. POCOCK, Philadelphia, and CHARLES W. KENNEDY, Rutledge, Pa., assignors, by mesne assignments, to the Electric Power Development Company, Philadelphia, Pa. Filed July 29, 1897. Serial No. 646,386. (No model.)

Claim.—1. In an electric motor, the combination with the armature and field-magnets adapted to rotate in opposite directions, of the central axle, the tube journaled on one end thereof to which the hub of a wheel is secured, the tube journaled on the other end of said axle to which the hub of another wheel is secured, the gear secured thereto, the tube journaled on said axle and secured to the armature, and gearing connected therewith engaging with said gear, substantially as described.

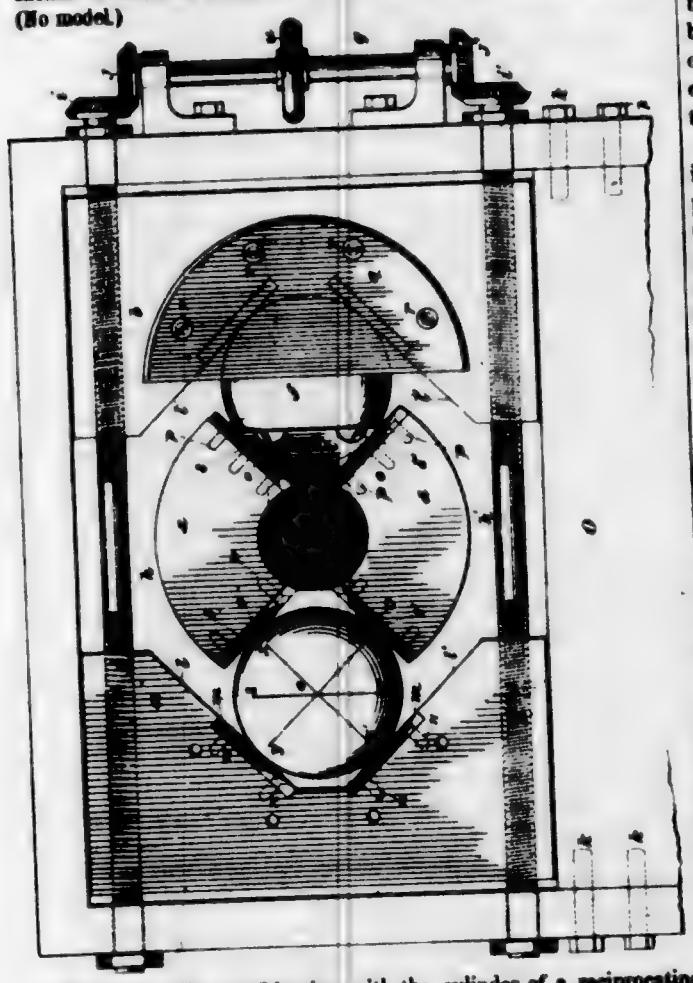
2. In an electric motor, the combination with the armature and field-magnets adapted to rotate in opposite directions, the central axle, the independent tubes journaled on the ends thereof, the wheel-hubs secured to said tubes, and the internal gear secured to the inner end of one of said tubes, of the tube journaled on said axle intermediate the ends of the same, to which the armature is secured, the pinion and the collar secured thereto, the disk secured to said collar, the stud-shafts and the pinions meshing with said pinion and with said internal gear, substantially as described.

3. In an electric motor, the combination with the armature and field-magnets adapted to rotate in opposite directions, the central axle, the independent tubes journaled on the ends thereof, the wheel-hubs secured thereto and the internal gear secured to the inner end of one of said tubes, of the tube journaled on said axle intermediate its ends and secured to the armature, the pinion at the outer end of said tube, the collar also se-

cured to said tube, the disk secured to said collar, the stud-shafts, the pinions, and the strap-brake passing around said collar, and means for operating the same, substantially as described.



694,076. RECIPROCATING ENGINE. CHARLES C. PROTHEROE, Richmond Hill, New York, N.Y. Filed Nov. 9, 1899. Serial No. 736,394. (No model.)



Claim.—1. The combination with the cylinder of a reciprocating engine and its piston rod of a ball-bearing for said piston-rod, means actuated by said piston-rod and constructed and operating to positively move the balls of said bearing over a path of definite extent corresponding to that of the path of said piston-rod, means for independently regulating the pressure between each of the balls of said bearing and said piston-rod, and means operated by said piston-rod for converting the reciprocating motion thereof into rotary motion, substantially as described.

2. The combination with the cylinder of a reciprocating engine and its piston-rod of a ball-bearing for said piston-rod, means for simultaneously and uniformly adjusting the pressure between the balls of said bearing and said piston-rod and means operated by said piston-rod for converting the reciprocating motion thereof into rotary motion, substantially as described.

3. The combination with the cylinder of a reciprocating engine and its piston-rod of balls in contact with said piston-rod, ways or guides respectively supporting said balls in said contact, means for simultaneously and uniformly adjusting said ways or guides nearer to or farther from said piston-rod, a pitman connected to said piston-rod and a crank-arm and crank-shaft connected to and adapted to be operated by said pitman, substantially as described.

4. The combination with the cylinder of a reciprocating engine and its piston-rod of balls in contact with said piston-rod, ways or guides borne by said piston-rod receiving said balls, means supporting said balls in said contact, means for independently regulating the pressure between each of said balls and said piston-rod, means actuated by said piston-rod and constructed and operating to positively move the balls of said bearing over a path of definite extent corresponding to that of the path of said piston-rod and means operated by said piston-rod for converting the reciprocating motion thereof into rotary motion, substantially as described.

5. The combination with the cylinder of a reciprocating engine and its piston-rod of balls in contact with said piston-rod, ways or guides borne by said piston-rod receiving said balls, ways or guides respectively supporting said balls in said contact, means for adjusting said last-named ways or guides nearer to or farther from said piston-rod and means operated by said piston-rod, means actuated by said piston-rod and constructed and operating to positively move the balls of said bearing over a path of definite extent corresponding to that of the path of said piston-rod for converting the reciprocating motion thereof into rotary motion, substantially as described.

6. The combination with the cylinder of a reciprocating engine and its piston-rod of balls in contact with said piston-rod, ways or guides substantially parallel to the path of and borne by said piston-rod receiving said balls, ways or guides respectively supporting said balls in said contact, means for simultaneously and uniformly adjusting said last-named ways or guides nearer to or farther from said piston-rod, means actuated by said piston-rod and constructed and operating to positively move the balls of said bearing over a path of definite extent corresponding to that of the path of said piston-rod and means operated by said piston-rod for converting the reciprocating motion thereof into rotary motion, substantially as described.

7. The combination with the cylinder of a reciprocating engine and its piston-rod of ways or guides borne by said piston-rod, plane surfaces parallel to the path of reciprocation of said piston-rod on the ways or guides thereof for contact with the balls, balls in contact therewith, means supporting said balls in said contact and means operated by said piston-rod, means actuated by said piston-rod and constructed and operating to positively move the balls of said bearing over a path of definite extent corresponding to that of the path of said piston-rod for converting the reciprocating motion thereof into rotary motion, substantially as described.

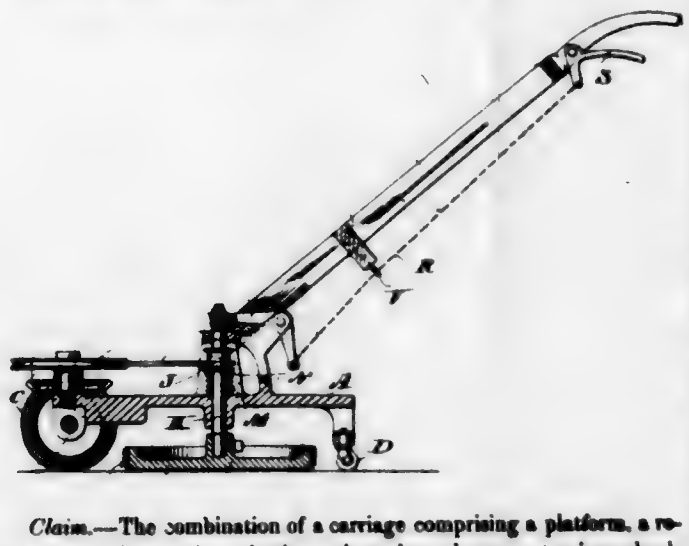
8. The combination with the cylinder of a reciprocating engine and its piston-rod of ways or guides borne by said piston-rod, plane surfaces parallel to the path of reciprocation of said piston-rod on the ways or guides thereof for contact with the balls, balls in contact therewith, ways or guides respectively supporting said balls in said contact, plane surfaces on said last-named ways or guides substantially parallel to the path of reciprocation of the piston-rod for contact with said balls, means for adjusting said last-named ways or guides nearer to or farther from said piston-rod and means operated by said piston-rod for converting the reciprocating motion thereof into rotary motion, substantially as described.

9. The combination with the cylinder of a reciprocating engine and its piston-rod, ways or guides borne by said piston-rod, plane surfaces parallel to the path of reciprocation of said piston-rod on said ways or guides for contact with the balls, balls in contact therewith, ways or guides respectively supporting said balls in said contact, plane surfaces on said last-named ways substantially parallel to the path of reciprocation of said piston-rod for contact with said balls, means for simultaneously and uniformly adjusting said last-named ways nearer to or farther from said piston-rod and means operated by said piston-rod for converting the reciprocating motion thereof into rotary motion, substantially as described.

10. The combination with the cylinder of a reciprocating engine and its piston-rod B, of faces *s*, *s'*, plates *o*, *o'*, secured thereon, ball *s*, faces *l*, *l'*, plates *m*, *m*, secured thereon, guideway *a*, means sustaining said

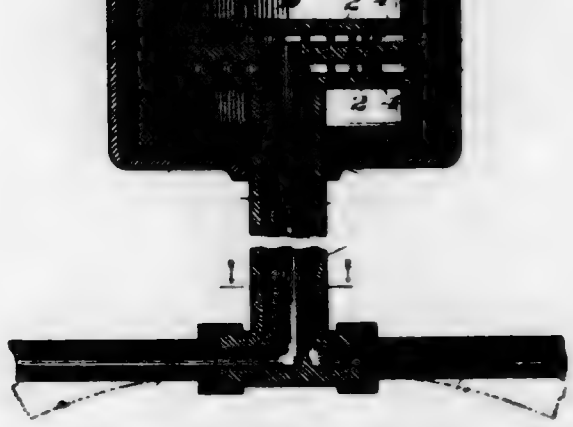
guideway in supporting said ball against said rod and means of adjusting said guideway nearer to or farther from said rod, substantially as and for the purposes described.

694,077. FLOOR-TREATING MACHINE. FERDINAND RAASCH and JOHN W. KRUEGER, Milwaukee, Wis. Filed May 4, 1901. Serial No. 58,709. (No model.)



Claim.—The combination of a carriage comprising a platform, a rotatory front axle, traction-wheels on the axle, and a rear steering-wheel; a vertical spindle for which the carriage is provided with bearings, a bevel gear-wheel fast with one of the traction-wheels on said axle, a stud on the carriage-platform, a bevel-pinion loose on the stud and in mesh with said gear-wheel, a power-wheel rigid with the pinion-hub, another power-wheel fast on said spindle, a belt connecting the two power-wheels, a spiral spring surrounding the aforesaid spindle between the power-wheel thereon and said carriage-platform, a spindle-lifting bell-crank lever fulcrumed to a bracket of the carriage, push-handles in connection with said carriage, a hand-lever on one of the push-handles, a flexible device connecting said levers, and a surface-treating head in connection with the lower end of the rotatory spindle.

694,078. PISTON AND PISTON-ROD. ARTHUR F. RITCHIE, Duluth, Minn. Filed Mar. 7, 1901. Serial No. 50,241. (No model.)



Claim.—1. A piston provided with face-plates forming the pressure-surfaces of the piston, and means for spacing said faces apart to form a liquid receiving and containing chamber in the piston, the said chamber being entirely open from the piston-rod to the cylinder-walls so that the liquid in the said chamber may be permitted to engage the inner surface of a cylinder within which the piston is caused to move, substantially as described.

2. The combination with a cylinder, of a piston within the same formed with a piston-head proper, face-plates arranged upon either side of said head, and means for spacing the face-plates from the said piston-head to form a liquid receiving and containing chamber in the piston, the said chamber being entirely open from the piston-rod to the cylinder-walls so that a fluid may be caused to circulate around the said piston-head between the face-plates, a piston-rod connected with the piston, the said piston-rod being formed with inlet and outlet passages, and flexible means for connecting the passages with a fluid-supply and a fluid-discharge, substantially as described.

694,079. PLOW. JAMES A. ROSS, St. Clair, Mich. Filed Mar. 12, 1901. Serial No. 50,788. (No model.)

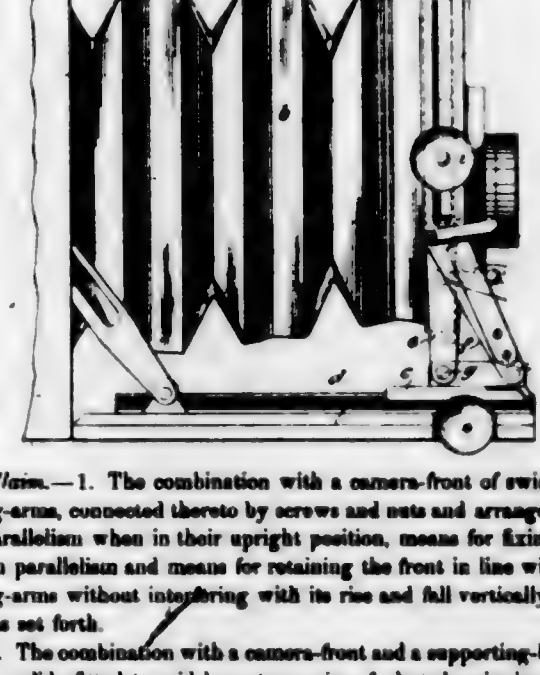


Claim.—1. In a plow, the combination of a landside having an integral laterally-offset portion and a beam secured to said offset portion, the forward end of said beam returning into the plane of the main portion of said landside.

2. In a plow, the combination of a landside having a laterally-extending portion at its upper end, a vertical flange upon said laterally-extending portion arranged at an angle to the plane of said landside and a beam secured to said flange and bent to return at its forward end into the plane of said landside.

3. In a plow, the combination of a landside, a beam secured thereto having a portion thereof laterally offset and its forward end returning into the plane of said landside, and a ground-wheel secured to said offset portion of the beam.

694,080. PHOTOGRAPHIC CAMERA. FREDERICK H. SANDERSON, Cambridge, England. Filed Oct. 8, 1901. Serial No. 77,945. (No model.)



Claim.—1. The combination with a camera-front of swinging supporting-arms, connected thereto by screws and nuts and arranged to come into parallelism when in their upright position, means for fixing the said arms in parallelism and means for retaining the front in line with its supporting-arms without interfering with its rise and fall vertically, substantially as set forth.

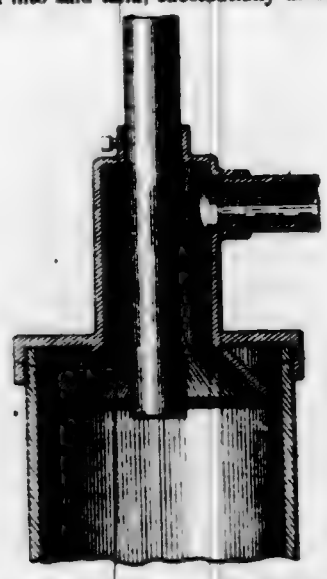
2. The combination with a camera-front and a supporting-base therefor, of a slide fitted to said base, two pairs of slotted swinging arms one pair on each side of the front pivoted to the slide one behind the other, studs one on each side of the front passing through the slots in both said swinging arms on the corresponding side, and means for securing said arms with the slots in an upright position, substantially as herein described.

3. The combination with a camera front, of slotted swinging supporting-arms two on each side having their slots respectively so directed that the slots of the two may be brought parallel with each other in an upright position, screw-studs one on each side of the front passing through the slots on both arms on the corresponding side, and means for securing said arms with their slots upright independently of said screw-studs, substantially as herein described.

4. The combination with a camera-front, of slotted swinging supporting-arms two on each side having their slots respectively so directed that the slots of the two may be brought parallel with each other in an upright position, screw-studs one on each side of the front passing through the slots on both arms on the corresponding side, and a spring-catch for securing together the two arms on either side with their slots parallel with each other in an upright position, substantially as herein described.

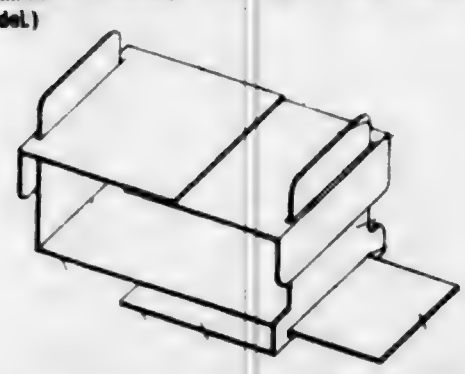
694,081. APPARATUS FOR SATURATING LIQUIDS WITH GASES. JOSEPH B. WEIS and LOUIS C. ANDERSON, Franklin, Ohio. Filed Apr. 5, 1900. Serial No. 11,586. (No model.)

Claim.—1. In an apparatus for saturating liquids with gases, the combination with a gas-supply, a mixer comprising a tank surmounted by a water-inlet head provided with a water-supply inlet, a spraying-head in said tank and a gas-conducting pipe leading from the gas-discharge outlet in said supply through said water-inlet head and through said spraying-head into said tank, substantially as described.



2. In an apparatus for saturating liquids with gases, the combination with a gas-supply, a mixer comprising a tank surmounted by a water-inlet head provided with a water-supply inlet, a downwardly-flaring flange in the upper end of the tank provided with a numerously-perforated cover, and a gas-conducting pipe leading into the tank from the gas-discharge outlet in said supply through said water-inlet head and through said cover, substantially as described.

694,082. APPARATUS FOR PRESSING CIGARS. ROBERT WORRNER, Mannheim, Germany. Filed Oct. 14, 1901. Serial No. 78,625. (No model.)



Claim.—Improved pressing apparatus for cigars comprising in combination two bottom plates the outer ends of which are bent upward at right angles, a slot in the vertical part of the lower bottom plate, to receive the inner end of the horizontal part of the upper bottom plate, a dovetailed projecting rib on the lower side of the upper bottom plate, a dovetailed groove in the lower bottom plate for the reception of the said projecting rib to prevent a sidewise displacement of these plates on one another, two top plates, the outer ends of which are bent downward at right angles, and two slots one in each horizontal part of the top plates for the reception of the vertical parts of the bottom plates substantially as described and shown.

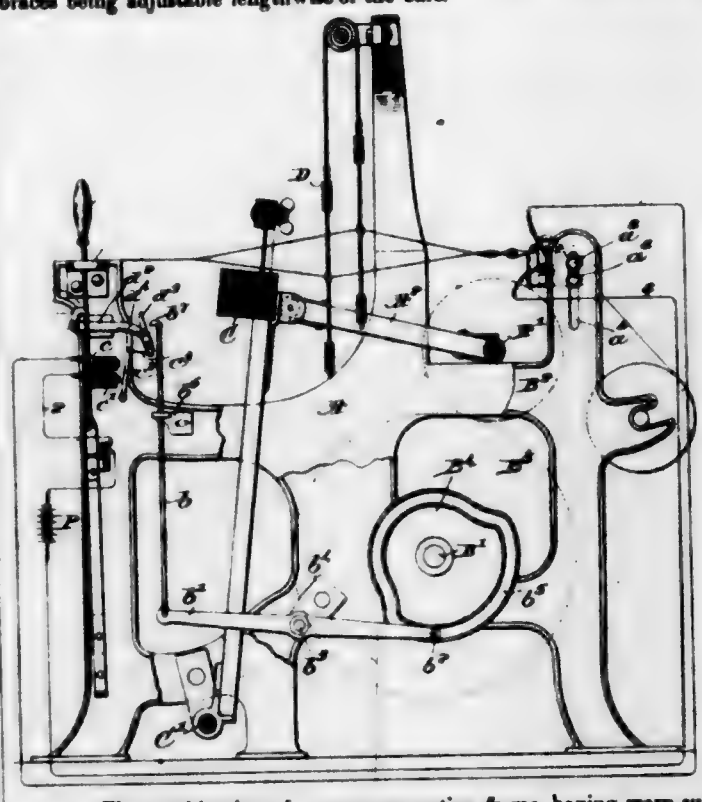
694,083. WARP STOP-MOTION FOR LOOMS. HORACE WYMAN, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Massachusetts. Filed Apr. 16, 1900. Serial No. 13,068. (No model.)

Claim.—1. In a warp stop-motion for looms, a warp-supporting frame, drop devices supported by the normal warp-threads, guides to retain the drop devices from moving longitudinally with the warp-threads and an adjustable brace intermediate the ends of the guides and connected to the frame and engaging said guides to preserve the same in proper alinement.

2. In a warp stop-motion for looms, drop devices, guide-bars for said drop devices, warp-supporting bars connected to the loom-frame and a brace intermediate the ends of and connected to the warp-supporting bars and engaging the guide-bars to maintain the parts in proper alinement.

3. The combination of warp-supporting bars, guides for drop devices adjacent said bars, and a brace interposed between said warp-supporting bars and having slots to receive the said guides.

4. The combination of warp-supporting bars, guides for drop devices adjacent said bars, and a brace interposed between said warp-supporting bars and having open-ended slots for the reception of the said guides, said braces being adjustable lengthwise of the bars.



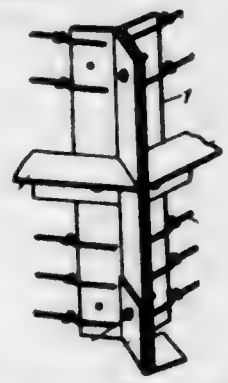
5. The combination of a warp-supporting frame having warp-supporting bars, removable end brackets carried by said frame and having guides for the drop devices connected thereto, a brace interposed between the warp-supporting bars and having provisions for engagement with the said guides, and means for adjusting the braces lengthwise of the bars.

6. A brace for the bars and guides of a warp-stop-motion device consisting of a plate having open-ended slots and provided with means on each edge of the plate for securing it adjustably in position.

7. A warp-support, a series of drop devices, a guide for said drop devices, and a slotted brace engaging said guide between its ends.

8. A warp-support, a series of drop devices, a guide for said drop devices, and a slotted brace sustained by said warp-support and engaging said guide between its ends.

694,084. FARM-FENCE. BENJAMIN F. EBEY, Laud, Ind., assignor of one-half to Marion W. Swineheart. Filed July 13, 1901. Serial No. 68,144. (No model.)



Claim.—1. In a worm fence, a fence-panel consisting of a pair of angle-iron posts whose sides or flanges are in oblique relation to each other, for the purpose specified, the said posts being rigidly connected by an angle-iron bar, and wire strands secured to said posts above and below the said bar.

2. In a worm fence, a fence-penal consisting of two angle-iron posts whose sides or flanges are in oblique relation to each other, as described, the said posts being rigidly connected by a metal bar, as shown, wire strands connecting said posts above and below the said bar, and post-supporting shoes secured to the bottom of said posts as described.

3. In a fence-panel for worm fences, an angle-iron post whose edges or flanges are in oblique relation to each other as described, and provided with a sheet-metal shoe adapted to receive and support the lower end of the post.

694,085. PAINT-OIL. ELLA K. EINGS, Great Valley, N. Y., administratrix of HERMAN EINGS, deceased, assignor of one-half to Mary C. Fitts, Salamanca, N. Y. Filed Nov. 29, 1901. Serial No. 84,331. (No specimens.)

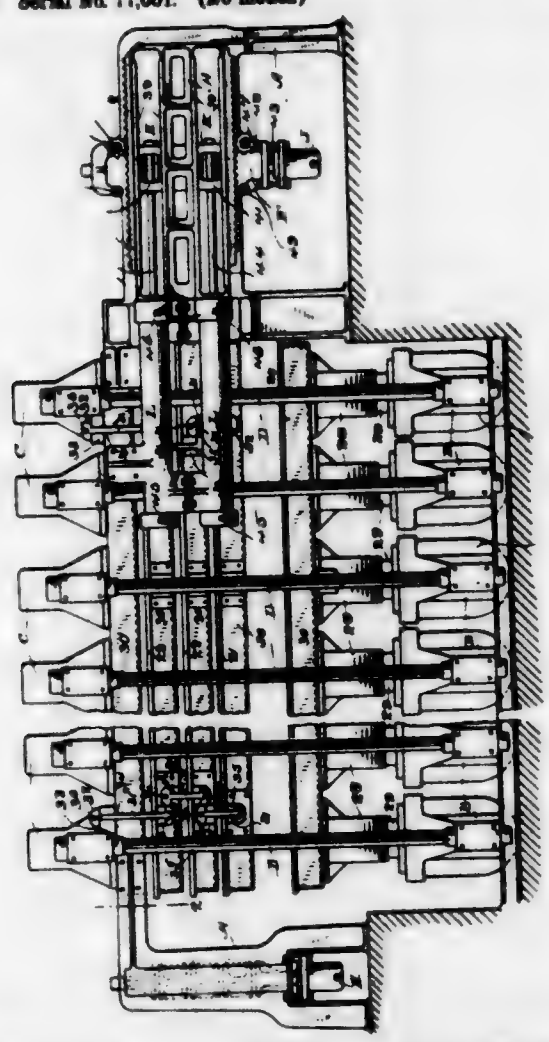
Claim.—A substitute for linseed-oil, consisting of the following ingredients by measure; a gum mixture, forty-two parts, boiled linseed-oil, twenty-five parts, and petroleum, thirty-three parts.

694,086. **BOLTLESS RAIL JOINT AND FISH-PLATE.** JAMES M. BEBOUT, Madison, Ind., assignor of one-half to Henry G. Pollock, Madison, Wis. Filed May 22, 1901. Serial No. 61,445. (No model.)

Claim.—1. A railroad-rail fish-plate having an upward and inward inclined socket or channel in its inner side, near the bottom edge and adapted to receive oppositely-arranged bottom edge flanges of the rail-sections, substantially as set forth.

2. The fish-plates having upward and inward inclined sockets or channels in their inner sides, near the bottom edges, and upward and inward inclined top edges, in combination with a rail-section having upward and outward inclined bottom edge lateral flanges and undercut tread-flanges, receiving said top edges of the fish-plates, substantially as set forth.

694,087. **APPARATUS FOR STRETCHING AND VULCANIZING A PLURALITY OF RUBBER BELTS.** DAVID R. BOWEN and CHARLES T. ERICSON, Ansonia, Conn., assignors to Farrel Foundry and Machine Company, Ansonia, Conn., a Corporation of Connecticut. Filed Sept. 30, 1901. Serial No. 77,001. (No model.)



Claim.—1. The combination with a series of vulcanizing tables and platens and means for operating said tables and platens hydraulically to press a series of belts simultaneously, of series of clamps at the opposite ends of the tables and platens, hydraulic rams for operating said clamps to grip a series of belts simultaneously at two places and means for moving one series of clamps longitudinally of the machine so as to stretch the series of belts simultaneously.

2. The combination with a series of vulcanizing tables and platens and means for operating said tables and platens hydraulically to press a series of belts simultaneously, of a series of clamps at the opposite ends of the tables and platens, means for operating said clamps to grip a series of belts simultaneously and double-acting hydraulic rams on opposite sides of the machine for moving one series of clamps longitudinally of the machine in either direction so as to stretch a series of belts simultaneously or to return the clamps to the starting position.

3. The combination with a series of vulcanizing tables and platens and means for operating said tables and platens hydraulically to press a series of belts simultaneously, of a series of clamps at the opposite ends of the tables and platens, hydraulic rams for operating said clamps to grip a series of belts simultaneously at two places and double-acting hydraulic rams on opposite sides of the machine for moving one series of clamps longitudinally of the machine in either direction, substantially as shown for the purpose specified.

4. The combination with a series of vulcanizing tables and platens and means for operating said tables and platens hydraulically to press a series of belts simultaneously, of a series of stationary clamps, hydraulic rams for operating said clamps to grip a series of belts simultaneously, a sliding carrier, a series of clamps carried thereby, hydraulic rams moving with the carrier to operate said clamps and other hydraulic rams adapted to move the carrier longitudinally of the machine to stretch a series of belts simultaneously.

5. The combination with a series of vulcanizing tables and platens and means for operating said tables and platens hydraulically to press a series of belts simultaneously, of a series of stationary clamps, hydraulic rams for operating said clamps, a series of sliding clamps, a carrier for said clamps, hydraulic rams for operating the sliding clamps and hydraulic rams for operating the carrier in either direction.

6. The combination with a series of vulcanizing tables and platens and a series of hydraulic rams for operating said tables and platens, of a series of stationary clamps, hydraulic rams for operating said clamps, a series of sliding clamps, a carrier for the sliding clamps, hydraulic rams upon the carrier for operating said clamps and hydraulic rams for moving the carrier longitudinally upon the machine.

7. In a machine of the character described, the combination with an upper platen, a lower table and a series of intermediate combined tables and platens, of hydraulic rams to operate said tables and platens to press a series of belts simultaneously and means for suspending the intermediate combined tables and platens, whereby the downward movement is limited and they are left free to be moved upward by the rams.

8. In a machine of the character described the combination with an upper platen and a lower table, of a series of intermediate combined tables and platens, double-headed rods 31 and blocks upon said tables and platens which are adapted to be engaged by the heads and are provided with recesses to receive the bolts, so that the downward movement of the intermediate tables and platens is limited, but they are left free to move upward, substantially as shown for the purpose specified.

9. In a machine of the character described, the combination with means for pressing and vulcanizing a series of belts simultaneously, of a series of stationary clamps, a series of sliding clamps, hydraulic rams for operating said clamps and means for suspending the intermediate clamps, whereby, their downward movement is limited and they are left free to be moved upward by the rams.

10. The combination with a series of vulcanizing tables and platens and hydraulic rams for operating said tables and platens to press and vulcanize a series of belts simultaneously, of series of stationary and sliding clamps, hydraulic rams for operating said clamps and pins engaging said clamps to limit their downward movement leaving them free to be moved upward by the rams.

11. The combination with a series of vulcanizing tables and platens and hydraulic rams for operating said tables and platens to press and vulcanize a series of belts simultaneously, of series of stationary and sliding clamps, hydraulic rams for operating said clamps, a carrier for the sliding clamps, hydraulic rams for operating said carrier, stationary racks and pinions upon the carrier engaging said racks, substantially as shown, for the purpose specified.

12. The combination with framework having upper and lower racks on both sides, a series of vulcanizing tables and platens and hydraulic rams for operating said tables and platens, of series of stationary and sliding clamps, hydraulic rams for operating said clamps, a carrier for the sliding clamps, pinions on said carrier engaging the racks and hydraulic rams on opposite sides of the framework for operating the carrier.

13. The combination with framework having upper and lower racks on both sides, vulcanizing tables and platens and hydraulic rams therefor, of stationary and sliding clamps, hydraulic rams for operating the clamps, a carrier for the sliding clamps having pinions engaging the racks and duplicate double-acting hydraulic rams on opposite sides of the framework for operating the carrier.

694,088. **AGRICULTURAL IMPLEMENT.** ERIC G. BOWMAN, Monmouth, Ill. Filed July 11, 1901. Serial No. 67,223. (No model.)

Claim.—1. A garden-tool comprising a slotted handle, a blade curved in cross-section and having at its lower end a transverse cutting edge and at its upper end an integral socket adapted for the reception of the handle, a pivoted jaw having a widened clamping-face of a contour similar to that of the blade and having an integral transversely-reduced stem adapted to

pass through the slot in the handle and affording an unobstructed view of the lower end of the blade, a pivot-pin for securing the stem in position in the slot, and an operating-handle connected to the rear portion of said stem, substantially as specified.



2. A garden-tool comprising a head provided at one end with a socket portion consisting of rolled ears of which the extremities are arranged in proximity, a movable jaw having a transversely-reduced stem, a handle fitted in said socket and having a slot in which the stem of the jaw is pivotally mounted, said stem in the closed position of the jaw occupying a position between the upper portions of the ears forming said socket and being laterally supported thereby, and means for actuating the movable jaw.

3. A garden-tool comprising a blade having at its upper end a socket portion consisting of rolled ears of which the extreme end portions are slightly separated, and provided at its lower ends with a sharpened cutting edge 6 adapted to cut the roots of a plant slightly below the surface of the ground, a handle 2 fitted within said socket and having a slot 9, a movable holding-jaw comprising a transversely-reduced stem 11 extending through said slot, a bolt 8 carried by the handle and forming a pivot for said stem, the lower end of said jaw being provided with a widened convex face for engagement with the concaved face of the blade, a slide-rod 4 connected at its lower end to the stem of the movable jaw and having at its upper end a handle or grip 14, and guides 13 carried by the handle for engagement with said slide-rod, substantially as specified.

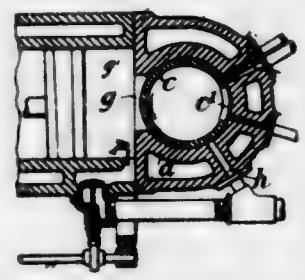
694,089. ZINC ELEMENT FOR PRIMARY BATTERIES. HORATIO J. BREWER, New York, N. Y. Filed Nov. 18, 1901. Serial No. 82,657. (No specimens.)



Claim.—A zinc electrode for galvanic batteries, made in two sections the opposed ends of which are united electrically by a coupling-piece of conducting material, and a covering of insulating material protecting said coupling-piece and the lower end of the upper section and the upper end of the lower section, substantially in the manner and for the purpose set forth.

694,090. GAS, GASOLENE, OR INFLAMMABLE-VAPOR ENGINE. ARTHUR W. CLAYDEN, Exeter, England. Filed July 26, 1901. Serial No. 69,536. (No model.)

Claim.—1. In an explosive-engine, the combination with the cylinder and piston, of a single explosion-chamber, separate from and normally out of communication with said cylinder and capable of containing the entire explosive charge, means for supplying the explosive charges to said chamber, an igniting device, means of temporarily establishing communication between said cylinder and said chamber without altering the position of said chamber with respect to the cylinder, an exhaust-port for said cylinder, and a separate exhaust-port for said chamber, substantially as described.



2. In an explosive-engine, the combination with the cylinder and piston, of a single explosion-chamber, separate from and normally out of communication with said cylinder and capable of containing the entire explosive charge, means for supplying the explosive charge to said chamber, an igniting device, means for temporarily establishing communication between said cylinder and said chamber without altering the position of said chamber, with respect to said cylinder, an exhaust-port for said cylinder, a separate exhaust-port for said chamber, and means for introducing air under pressure into said chamber to force out the products of combustion, substantially as described.

3. In an explosive-engine, the combination with the cylinder, provided with an inlet-port and a piston, of a revoluble explosion-chamber separate from said cylinder constructed to rotate upon its own axis, capable of containing the entire explosive charge, and provided with a port adapted to register with the inlet-port of said cylinder, means for supplying explosive charges to said chamber, an exhaust for said chamber, a separate exhaust for said cylinder, and means for rotating said chamber, substantially as described.

4. In an explosive-engine, the combination with the cylinder, provided with an inlet-port and a piston, of a revoluble explosion-chamber separate from said cylinder, capable of containing the entire explosive charge, and provided with a port adapted to register with the inlet-port of said cylinder, means for supplying explosive charges to said chamber an exhaust for said chamber, a separate exhaust for said cylinder and connections between said chamber and the engine for rotating the chamber, substantially as described.

5. In an explosive-engine, the combination with the cylinder provided with an inlet-port and an exhaust-port, of a single revoluble explosion-chamber constructed to rotate upon its own axis, provided with a port adapted to register with the inlet-port of said cylinder, a casing for said chamber, provided with an exhaust-port, an inlet-port for compressed air, and an inlet-port for admitting explosive material, an igniting device, for the explosive charge, and means for rotating said explosion-chamber, substantially as described.

6. In an explosive-engine, the combination with the cylinder provided with an inlet and exhaust port, and the piston, of a casing provided with a conical interior, a hollow revoluble conical chamber, mounted in said casing constructed to rotate upon its own axis and provided with a port adapted to register with the inlet-port of the cylinder, means for supplying explosive charges to said chamber, an exhaust for said chamber, means for rotating said chamber, and devices for adjusting said chamber in said casing in a direction longitudinally of the axis of rotation of said chamber, substantially as described.

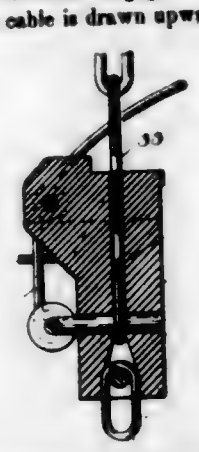
7. In an explosive-engine, the combination with the cylinder provided with an inlet and exhaust port, and the piston, of a casing provided with a conical interior, a hollow revoluble conical chamber, mounted in said casing constructed to rotate upon its own axis and provided with a port adapted to register with the inlet-port of the cylinder, said chamber being provided with axial spindles, mounted in said casing, said casing being provided with inlet-ports for the explosive charges and an exhaust-port, means for rotating said chamber and an adjusting mechanism engaging one of said spindles, substantially as described.

8. In an explosive-engine, the combination with the cylinder provided with inlet and exhaust ports and a piston in said cylinder, of a plurality of independently-revoluble explosion-chambers mounted adjacent to one end of said cylinder each constructed to rotate upon its own axis and provided each with a port adapted to register with one of the inlet-ports of said cylinder, means for supplying an explosive charge to each of said chambers, a separate exhaust-port for each chamber independent of the cylinder exhaust-port, mechanism for revolving said chambers from the engine-shaft, and mechanism for throwing one or more of said chambers out of operation, to reduce the power of the engine, substantially as described.

694,091. HOISTING APPARATUS. MARION W. COX, Duquoin, Ill. Filed Oct. 3, 1901. Serial No. 77,430. (No model.)

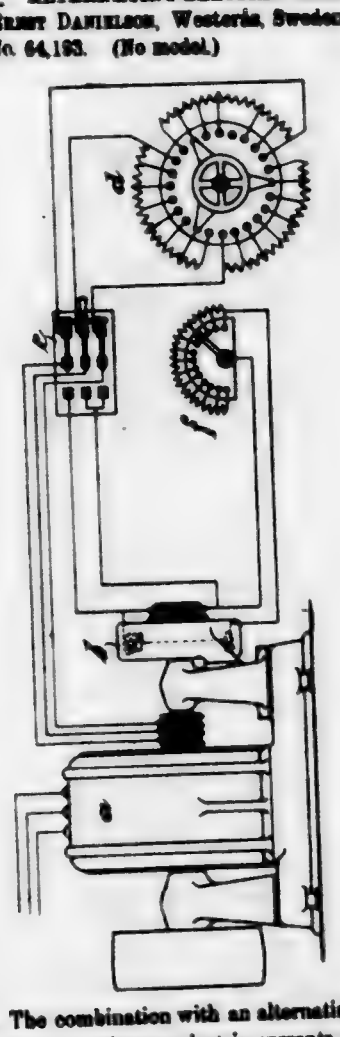
Claim.—1. In a hoisting apparatus, the combination with uprights

and a cross-beam having a supporting-roller thereon and a second cross-beam disposed therebelow, of a cage slidably mounted between the uprights, a cable passed over the pulley and downwardly adjacent to the second beam and having a terminal link, a block connected to the cage and having a longitudinal opening and a transverse perforation intersecting the opening, said opening having the link disposed therein, a pin passed through the perforation and link, and a U-shaped lever connected to the pin and pivoted to the block thereabove, said lever extending transversely of and above the block for engagement with the second beam to retract the pin when the cable is drawn upwardly.



2. In a hoisting mechanism, a trip-latch including a block having a longitudinal passage and a transverse perforation intersecting the passage, a pin disposed in the perforation for engagement with a link in the passage, a U-shaped lever pivoted upon the block above the pin and having its lower end pivoted to the pin, said lever having its sides extending diagonally of the block and projecting thereabove, and a spring connected to the lever and block and adapted to hold the pin inwardly of the perforation.

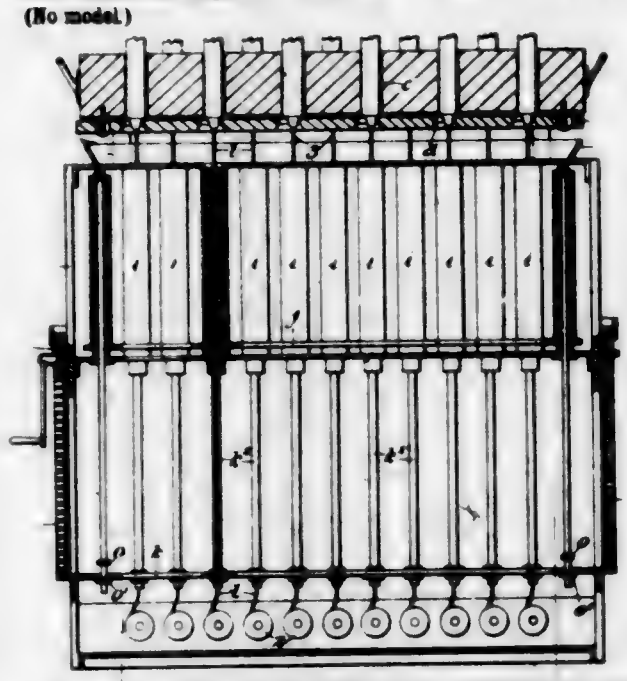
694,092. ALTERNATING-ELECTRIC-CURRENT INDUCTION-MACHINE. ERNST DANIELSON, Westerås, Sweden. Filed June 11, 1901. Serial No. 64,193. (No model.)



Claim.—1. The combination with an alternating-current induction-machine, of a source of continuous electric currents, a rheostat, a switch connected to the secondary winding of said machine, the said source of continuous currents and to the said rheostat, substantially as and for the purpose set forth.

2. The combination with an alternating-current induction-machine, of a source of continuous electric currents, a rheostat, a switch connected to the secondary winding of said machine, to the said source of continuous currents, and to the said rheostat, and a regulating device in the circuit of said source of continuous currents, substantially as and for the purpose set forth.

694,093. MACHINE FOR MAKING CANDLES. WILLIAM H. DAY, Hounslow, England. Filed July 12, 1900. Serial No. 23,373. (No model.)



Claim.—In candle-making machines, the combination of a mold consisting of a suitable material in which a sheath or coil or winding of wire is embedded or wound upon the outer surface, a sliding plate or cleaner adapted to remove the undesired substance from the exterior of the mold, a lifter or clamp consisting of a block having apertures therein to grip the candles as they are removed from the mold which is effected by moving a sliding plate having similar apertures to the block aforesaid so that the apertures in each are out of axial alinement, a locking device for the purpose of maintaining the sliding plate in the desired position.

694,094. ZITHER SUPPORT AND SOUNDING DEVICE. JOSEPH A. DUERST, Philadelphia, Pa. Filed Jan. 30, 1901. Serial No. 45,291. (No model.)



Claim.—In a zither support and sounding device, the combination of a bottom plate having a screw-threaded orifice, a screw mounted in the said threaded orifice, a shoulder upon the said screw, a top plate having a central orifice, the said top plate supported by the said shoulder, and a square portion upon the free end of the said screw, projecting up through the orifice in the said top plate, substantially as shown and for the purpose set forth.

694,095. SLIDING WINDOW-SCREEN. JOHN B. FEATHER, Roaring Spring, Pa. Filed Oct. 14, 1901. Serial No. 78,614. (No model.)

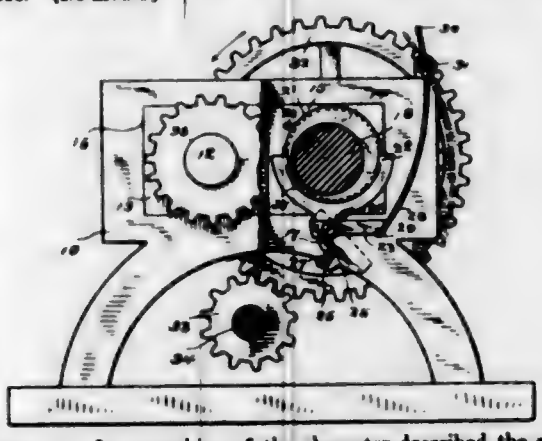


Claim.—1. The combination with a window-frame, of guide-rods having diagonal portions and adjacent lower laterally-offset feet pivotally connected to the inner faces of the frame, screw-eyes engaged with the inner faces of the frame and in position for rotation into engagement over the ends of the rods, and a window-screen disposed behind the rods and having eyes engaged therewith and disposed to strike the diagonal portions of the rods to ease the lower terminal movement of the screen.

2. The combination with a window-frame, of guide-rods having laterally-offset feet at their lower ends pivotally connected to the inner side faces of the frame, the feet being connected with the upper portions of the rods by diagonal portions, screw-eyes engaged with the inner side faces of the frame and in position for rotation into engagement with the upper ends of the rods, said eyes having the sides of their heads projected to different extents beyond the continuations of the axes of the stems thereof, a screen disposed behind the rods, and eyes carried by the frame and engaged with the rods and adapted to strike the diagonal portions when the screen is lowered.

3. The combination with a window-frame, of guide-rods having laterally-offset feet at their lower ends pivotally connected to the inner side faces of the frame, screw-eyes engaged with the inner side faces of the frame and in position for rotation into engagement with the upper ends of the rods, said eyes having the sides of their heads projected to different extents beyond the continuations of the axes of the stems thereof, a screen disposed behind the rods, and eyes carried by the frame and slidably engaged with the rods.

694,096. **SAFETY STOP-MOTION FOR GRINDING-MACHINES.** MYLES P. FILLINGHAM, Ansonia, Conn. Filed Oct. 24, 1901. Serial No. 79,800. (No model.)



Claim.—1. In a machine of the character described the combination with rolls, of eccentric bearing-sleeves in which one of said rolls is journaled and means for imparting the rotary movement of the roll to said sleeves, whereby said roll may be moved outward and upward away from the other roll.

2. In a machine of the character described the combination with rolls and driving connections therefor, of pins 20 extending from the ends of one of the rolls, eccentric bearing-sleeves in which said roll is journaled, arms extending from the bearing-sleeves and having pins 24, levers pivoted to the arms, a spring-controlled cross-rod engaged by said arms to lock the bearing-sleeves, and trips for holding the levers out of engagement with the cross-rod, the parts being so arranged that pins 20 will clear pins 24 and when the levers are released pins 20 and 24 will lock the levers and cause them to retract the cross-rod and release the arms, continued movement of the rolls carrying the eccentric bearing-sleeves and lifting the roll carried thereby upward and outward and detaching the driving connections.

3. In a machine of the character described the combination with rolls, of eccentric bearing-sleeves in which one of said rolls is journaled, arms extending from said sleeves, a spring-controlled cross-rod which is engaged by the arms to lock the sleeves and means at the control of the operator whereby movement of the roll is caused to release the arms, and rotate the eccentric bearing-sleeves, which lift the roll journaled therein outward and upward away from the other roll.

4. In a machine of the character described the combination with rolls and driving connections therefor, of eccentric bearing-sleeves in which one of said rolls is journaled, arms extending from said sleeves, a spring-controlled cross-rod which is engaged by the arms to lock the sleeves and means at the control of the operator whereby movement of the rolls is caused to retract the cross-rod, which releases the arms, and rotate the eccentric bearing-sleeves which lift the roll outward and upward and detach the driving connections.

5. In a machine of the character described the combination with rolls, of eccentric bearing-sleeves in which one of said rolls is journaled, said sleeves having flanges 21, arms detachably connected to said flanges, a spring-controlled cross-rod engaged by the arms to lock the sleeves and means at the control of the operator whereby movement of the roll is caused to release the arms and rotate the sleeves, substantially as and for the purpose set forth.

6. In a machine of the character described the combination with rolls, of eccentric bearing-sleeves in which one of said rolls is journaled, means for normally locking said sleeves against rotation and means whereby the movement of the rolls is caused to release and rotate the sleeves.

7. In a machine of the character described the combination with rolls, of eccentric bearing-sleeves in which one of said rolls is journaled, arms extending from said sleeves, means whereby the arms are locked and means whereby said arms are released and the rolls and sleeves are connected.

8. In a machine of the character described the combination with framework having recesses 26, rolls and eccentric bearing-sleeves in which one of said rolls is journaled, of arms extending from said sleeves, a cross-rod extending between the recesses, springs in said recesses which hold the cross-rod in position to be engaged by the arms and means for retracting the cross-rod against the power of the springs and for connecting the rolls and the sleeves.

9. In a machine of the character described the combination with rolls, one of which is provided with pins extending from the ends thereof and eccentric bearing-sleeves in which said roll is journaled, of arms extending from said bearing-sleeves and also provided with pins, levers pivoted to the arms, means for locking the bearing-sleeves and means for normally holding the levers out of operative position.

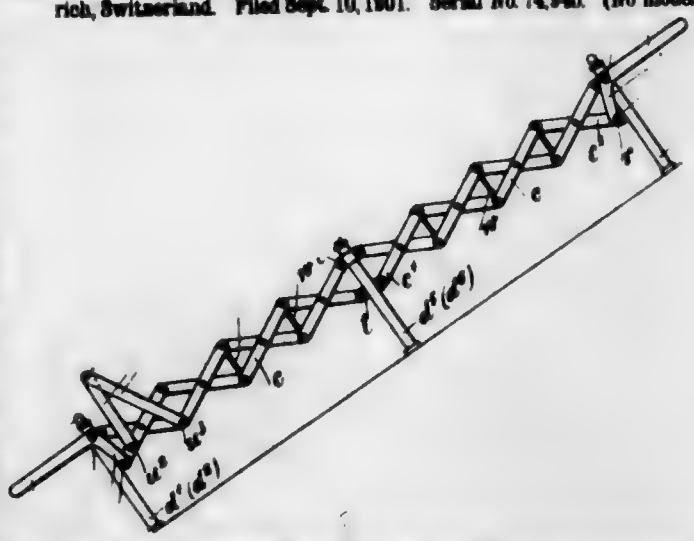
10. In a machine of the character described the combination with rolls, one of which is provided with pins extending from the ends thereof, and eccentric bearing-sleeves in which said roll is journaled, of arms extending from said bearing-sleeves and also provided with pins, levers pivoted to the arms, means for locking the bearing-sleeves and pivoted trips acting to normally hold the levers out of operative position and provided with a cross-rod in position to be engaged by the operator.

11. In a machine of the character described the combination with rolls, one of which is provided with a gear-wheel, of a driving-pinion adapted to engage the gear-wheel, eccentric bearing-sleeves in which the roll carrying the gear-wheel is journaled and means for connecting the roll and the bearing-sleeves whereby the roll journaled therein is lifted and the gear-wheel is disengaged from the driving-pinion.

12. In a machine of the character described the combination with rolls, one of which is provided with a gear-wheel, of a driving-pinion adapted to engage the gear-wheel, eccentric bearing-sleeves in which the roll carrying the gear-wheel is journaled and means at the control of the operator whereby the roll and the bearing-sleeves are connected.

13. In a machine of the character described the combination with rolls, one of which is provided with a gear-wheel and which are provided at their opposite ends with intermeshing pinions, of a driving-pinion adapted to engage the gear-wheel, eccentric bearing-sleeves in which the roll carrying the gear-wheel is journaled, means for normally locking the sleeves and means at the control of the operator whereby movement of the rolls will unlock the sleeves and connect the roll and the sleeves, whose forward movement will disconnect the gear-wheel from the driving-pinion and also disconnect the pinions at the other ends of the rolls.

694,097. **COLLAPSIBLE STRETCHER.** KASPAR FREULER, Zurich, Switzerland. Filed Sept. 10, 1901. Serial No. 74,940. (No model.)



Claim.—1. In collapsible stretchers formed of lazy-tongs secured to posts, the lower end of the links of the said lazy-tongs each pivotally connected to guides adapted to slide in the said posts and placed under the influence of a spring which tends to draw the said ends upward and thus extend the lazy-tongs, all combined substantially as and for the purpose set forth.

2. In collapsible stretchers formed of lazy-tongs secured to posts, the lazy-tongs ends having at their points of connection respectively a recess and a projection forming an abutment which limits the extension of the stretcher, all combined substantially as and for the purpose set forth.

3. In collapsible stretchers formed of lazy-tongs secured to posts, two-part cross-stays, the inner ends of which are pivotally connected together and one end having a recess and the other a projection forming an abutment and the outer ends of which are pivotally connected to the lower ends of the links and corner-stays the upper ends of which are pivotally connected to the upper ends of the said lazy-tongs and their lower ends engaging in slots in the said cross-stays, all combined substantially as and for the purpose set forth.

694,098. COMBINED PENCIL-CLIP AND CALENDAR. THOMAS GRIFFIN, Berlin, N. H. Filed Oct. 7, 1901. Serial No. 77,890. (No model.)

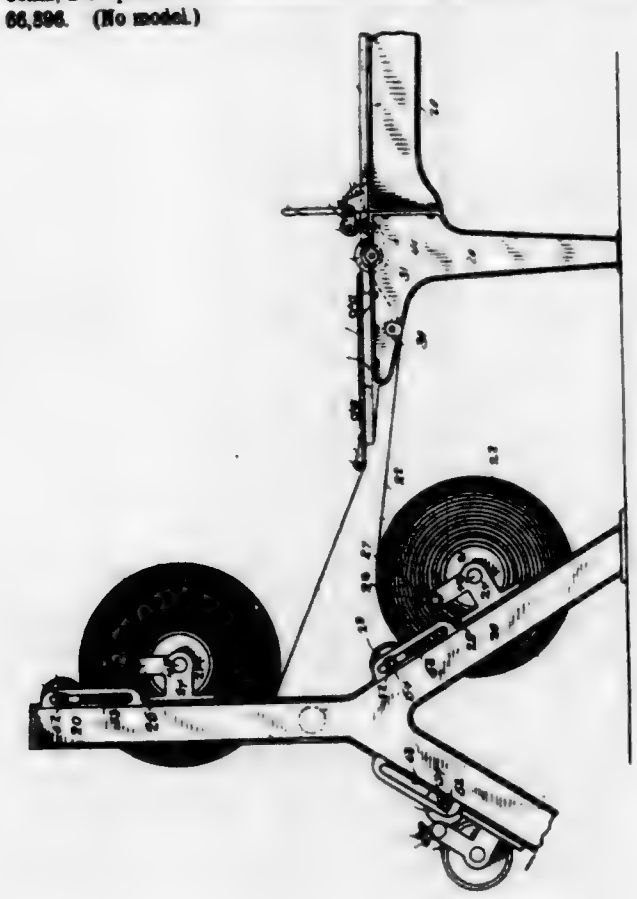


Claim.—1. A pencil-clip and calendar combined comprising a sleeve carrying day-numerals and having an auxiliary sleeve projecting therefrom of less diameter, a day-initial collar rotatably mounted on the said auxiliary sleeve and having notches in the outer end thereof, a month-name collar also rotatably mounted on the auxiliary sleeve and having notches in the inner end contiguous to and adapted to coincide with the notches of the day-initial collar, and a single spring having a tongue movably projecting through the auxiliary sleeve to engage the coinciding notches of the collars to lock the latter in their adjusted positions.

2. A combined pencil-clip and calendar having a longitudinally-split sleeve with an auxiliary sleeve of less diameter projecting therefrom and also formed with a longitudinal slot, a pair of collars independently rotatable on the auxiliary sleeve and having notches in the adjacent ends adapted to coincide, and a semicircular spring mounted in the auxiliary sleeve and having an outwardly-projecting tongue at its free end extending through the slot in said latter sleeve to engage the notches in the collars, the said longitudinally-split sleeve, and the collars respectively having day-numerals, week-day initials and month-name abbreviations thereon.

3. A combined pencil-clip and calendar comprising a day-numeral-carrying sleeve, a week-day-initial collar and a month-name collar rotatably mounted in operative relation to the said sleeve and said week-day-initial collar and month-name collar having coincidable notches in the contiguous ends thereof, and a single spring of flat form having an outwardly-projecting tongue to engage said notches and immovably lock said collars.

694,099. BELT-FOLDING MACHINE. BERNARD O. HALE, Ansonia, Conn., assignor to Farrel Foundry and Machine Company, Ansonia, Conn., a Corporation of Connecticut. Filed July 2, 1901. Serial No. 66,896. (No model.)



Claim.—1. In a belt-folding machine having suitable bearings for the roll of material which is to be converted into a belt, a take-off roll adapted to rest on the roll of material and to descend by gravity as the latter decreases in size, and guides to direct the path of movement of said take-off roll, said guides being straight and non-radial to the axis of the roll of material, for the purpose described.

2. In a machine of the character described the combination with framework and drawing-rolls, pressure-rolls and folding-rollers journaled thereon, of an adjustable bracket adapted to carry a seam-covering strip, a solvent-tank through which the strip passes and a guide by which the strip is centered, said tank and guide being supported by the bracket, the tank being intermediate the guide and the support for the seam-covering strip.

3. In a machine of the character described the combination with framework and drawing-rolls, pressure-rolls and folding-rollers journaled thereon, of an adjustable bracket having mounted thereon a spool for a seam-covering strip and also carrying a solvent-tank and a guide through which the strip passes, said tank having within it a roller partially submerged and a roller having peripheral contact therewith and adapted to be engaged by the strip.

4. In a machine of the character described the combination with framework having an angular cross-bar 69 and drawing-rolls, pressure-rolls, and folding-rollers journaled on said framework, of a bracket adjustable on the cross-bar and adapted to carry a seam-covering strip, a solvent-tank through which the strip passes and a guide by which it is centered.

5. In a machine of the character described the combination with drawing-rolls, pressure-rolls and folding-rollers, of an adjustable bracket adapted to carry a seam-covering strip, a hollow guide by which the strip is centered and a longitudinal blade on the under side of the guide, substantially as shown, for the purpose specified.

6. In a machine of the character described the combination with folding-rollers, pressure-rolls and drawing-rolls, of an adjustable bracket adapted to carry a spool having a seam-covering strip wound thereon, a hollow guide contiguous to the pressure-rolls by which the strip is centered and a longitudinal blade on the under side of the guide by which the edges of an outer belt ply are held slightly separated until the seam with the strip laid thereon passes between the pressure-rolls.

7. In a machine of the character described the combination with folding-rollers, pressure-rolls and drawing-rolls, of an adjustable bracket adapted to carry a seam-covering strip, and a solvent-tank and guide also carried by said bracket, said tank having within it a roller partly immersed and a roller having peripheral contact therewith which is engaged by the strip, and a blade on the under side of the guide by which the edges of an outer belt ply are held slightly separated until the strip is laid over the seam by the guide, substantially as described.

8. In a machine of the character described the combination with folding-rollers, pressure-rolls, drawing-rolls and a winding-shaft, of a hollow seam-covering-strip guide having on its under side a blade for the purpose set forth, a talcum-box through which the folded belt is passed and rotary brushes for removing the surplus talcum.

694,100. PROCESS OF PRODUCING DRY CONDENSED MILK. WILLIAM A. HALL, Bellows Falls, Vt. Filed June 8, 1901. Serial No. 63,723. (No specimens.)

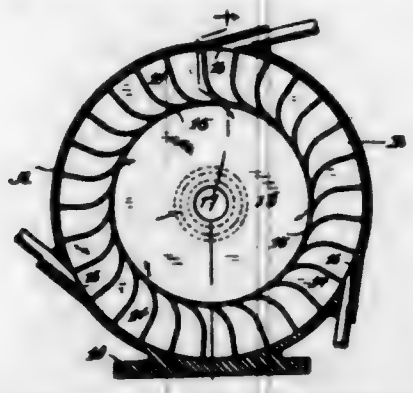
Claim.—1. The herein-described process for producing whole, dry, condensed milk, consisting in mixing a suitable proportion of cream with the dry solids of skimmed milk, and then eliminating the water of the cream from the mixture.

2. The herein-described process for producing whole, dry, condensed milk, consisting in mixing a suitable proportion of cream with the dry solids of skimmed milk, and then eliminating the water of the cream from the mixture by exposing the latter to air at a relatively low evaporation temperature, substantially as set forth.

3. The herein-described process for producing whole, dry condensed milk, consisting in removing the cream or fatty particles from the milk, evaporating the skimmed milk until a dry product is obtained, thoroughly mixing with such dry skimmed-milk product a suitable proportion of heavy cream approximately equal to the cream first removed from the milk, and then evaporating the water of the added cream from the mixture.

4. The herein-described process for producing whole, dry condensed milk, consisting in removing the cream or fatty particles from the milk, evaporating the skimmed milk until a dry product is obtained, thoroughly mixing with such dry skimmed-milk product a suitable proportion of heavy cream approximately equal to the cream first removed from the milk, and then evaporating the water of the added cream from the mixture by exposing the latter to air at a relatively low evaporation temperature, substantially as set forth.

694,101. ROTARY ENGINE. ELWIN R. HYDE, Bridgeport, Conn. Filed June 18, 1900. Serial No. 20,677. (No model.)



Claim.—1. The combination with a case having a peripheral steam-port, of a wheel having a shaft comprising hollow trunnions journaled in said case, said wheel having an unobstructed circular central steam-space and peripheral buckets with openings leading to the steam-space, the inner ends of said buckets forming the circle which bounds the steam-space and said shaft having an exhaust-passage leading from said steam-space.

2. The wheel B having an unobstructed circular central steam-space, peripheral buckets having openings leading into said steam-space, the inner ends of said buckets forming the circle which bounds the steam-space and a shaft with an opening leading from said steam-space.

3. An engine comprising a case having a peripheral steam-port and a wheel having an unobstructed circular central steam-space, a hollow trunnion having a central opening leading from said steam-space and peripheral buckets having relatively small openings leading into the steam-space the inner ends of said buckets forming the circle which bounds the steam-space, whereby the force of the steam will first act upon the buckets and the steam then pass through the openings into the steam-space and exhaust through said trunnion.

4. In an engine the combination with a case, of a wheel having hollow trunnions journaled in said case and in bearings 24, longitudinally-movable sleeves keyed to said trunnions and engaging the bearings and nuts upon said trunnions by which the sleeves may be forced against the bearings and the trunnions moved longitudinally to center the wheel in the case.

694,102. PROCESS OF PREPARING ALIMENTARY EXTRACTS. EDWARD C. L. KERSEL, London, England, assignor of two-thirds to Thomas Hill-Jones, London, England. Original application filed Sept. 3, 1897, Serial No. 651,516. Divided and this application filed Dec. 9, 1898. Serial No. 698,770. (No specimens.)

Claim.—1. The process of preparing an alimentary extract from yeast which consists in hydrating the proteid matter of the yeast by treating the yeast in a closed receptacle with superheated steam, to convert said proteid matter into soluble peptones, then removing the solid matter and condensing the liquid, containing said soluble peptones, substantially as described.

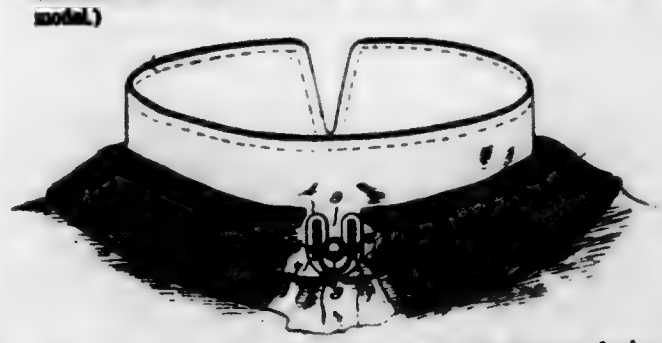
2. The process of preparing an alimentary extract from yeast which consists in hydrating all the proteid matter of the yeast by treating the yeast in a closed receptacle with steam at a temperature of from 180° to 200° centigrade, to convert the proteid matter into soluble peptones, then removing the solid matter and condensing the liquid containing the said soluble peptones, substantially as described.

694,103. MANIFOLD-BOOK. ALEXANDER LEVISON, San Francisco, Cal. Filed Dec. 3, 1901. Serial No. 84,682. (No model.)



Claim.—A manifold-book composed of sections, each section comprising in order a double carbon-sheet, a plurality of recording-sheets, and a cardboard backing, the record-sheets being divided into three separable parts, the carbon-sheets extending the width of two of said parts, and the cardboard backing extending the width of one of said parts, said recording-sheets and backings having stubs to which they are attached along lines of perforations, said stubs and the edges of the carbon-sheets being all bound together to form a book, substantially as described.

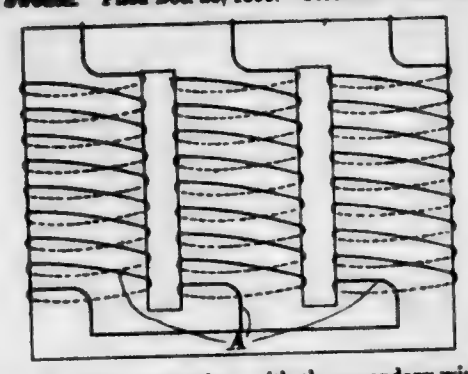
694,104. BUTTON OR CATCH FOR COAT-COLLARS. JULIUS A. LIPPERMAN, Atlanta, Ga. Filed June 26, 1901. Serial No. 66,149. (No model.)



Claim.—1. A catch or holding device of the class set forth, consisting of a U-shaped member, and a fastening means applied to one side thereof and following out the U-shaped contour thereof, said means having pointed extremities to engage holding devices therefor.

2. The combination with a coat-collar and the rear collar-button for a shirt-collar, of a catch device consisting of a U-shaped member having a fastening for removable application to the inner side of the rear portion of the said coat-collar to engage the collar-button and hold the coat-collar in positive adjustment, the said fastening consisting of a wire bent into U-shaped form and provided with opposite keepers and rebent pointed extremities to removably engage said keepers.

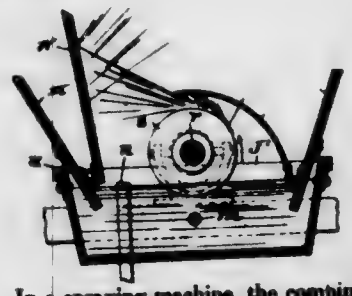
694,105. DEVICE FOR STARTING ALTERNATING-ELECTRIC-CURRENT INDUCTION-MOTORS. KARL A. LINDSTRÖM, Sommarro, Sweden, assignor to Aktiebolaget Svenska Elektriska Aktiebolaget, Westerås, Sweden. Filed Dec. 30, 1899. Serial No. 741,971. (No model.)



Claim.—1. The combination, with the secondary winding of an alternating-electric-current induction-motor, of an inductive resistance having a small ohmic resistance and great losses by hysteresis compared to the losses by eddy currents, for the purpose set forth.

2. A resistance of the class described, consisting of windings of small ohmic resistance on closed magnetic cores the losses by hysteresis in which are great compared to the losses by eddy currents in the same, for the purpose set forth

694,106. SPRAYING-MACHINE. GEORGE A. METCALF and RALPH K. HALL, Woonsocket, R. I. Filed Apr. 11, 1901. Serial No. 55,435. (No model.)



Claim.—1. In a spraying-machine, the combination of a reservoir for water or other fluid to be sprayed, a rotary cylinder having disks at intervals of its length arranged and adapted to turn in the body of water in the reservoir, a shield arranged over the cylinder, and a deflector against which the volume of spray is thrown.

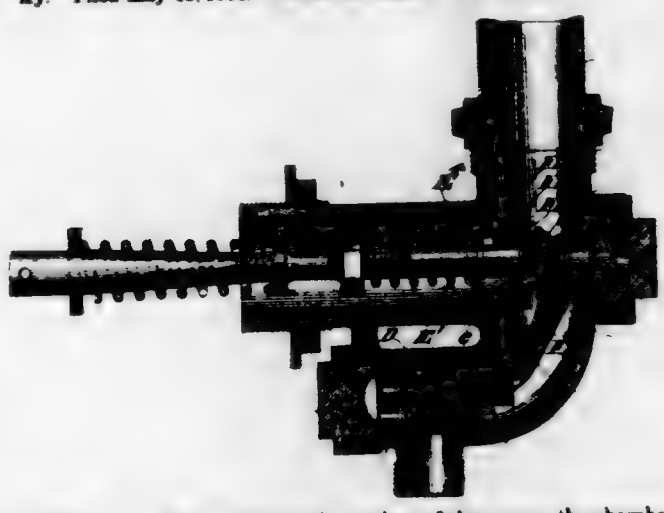
2. In a spraying-machine, the combination of a reservoir for water or other fluid to be sprayed, a rotary spraying device, an adjustable shield arranged over the spraying device, means for adjustably fixing the shield with respect to said device so as to regulate the volume of spray thrown therefrom, and an adjustable deflector against which the volume of spray is thrown.

3. In a spraying-machine, the combination of a reservoir for water or other fluid to be sprayed, a rotary cylinder having disks at intervals of its length arranged and adapted to turn in the body of water in the reservoir, drip-boards having their lower portions arranged to conduct water to the reservoir, a shield connected in a hinged manner to one drip-board and extending over the cylinder, means intermediate of said drip-board and the shield for adjustably fixing the latter in position, a deflector connected in a hinged manner to the other drip-board, and means intermediate of the latter drip-board and the deflector for adjustably fixing said deflector in position.

4. In a spraying-machine, the combination of a reservoir for water or other fluid to be sprayed, a rotary device arranged to raise water from the body in the reservoir and throw off the same in the form of spray, a shield arranged over said rotary device, and a deflector against which the volume of spray is thrown.

5. In a spraying-machine, the combination of a reservoir for water or other fluid to be sprayed, a rotary spraying-cylinder having disks at intervals in its length arranged in the body of water in the reservoir, drip-boards having their lower portions arranged in and connected to the reservoir, a shield hinged on one drip-board and extending over the cylinder, a rack-bar pivotally connected to the shield and engaging said drip-board, a deflector hinged on the other drip-board, and a rack-bar pivotally connected to said deflector and arranged to engage the latter drip-board.

694,107. FLUSHING-VALVE. FREDERICK W. MEYER, Louisville, Ky. Filed May 13, 1901. Serial No. 60,075. (No model.)



Claim.—1. The combination in a valve, of the casing, the chambers therein, the valve-stem, the valve loosely mounted on said stem having minute water-passages therethrough, a head adjustably connected to the stem adapted to seat the valve and close the passages when the stem is moved in one direction, and a spring on said stem at the opposite side of the valve interposed between a collar on the stem and the valve, and adapted to unseat the valve when the stem is moved inwardly and the water-pressure is suitably reduced, all constructed and adapted to operate substantially as described.

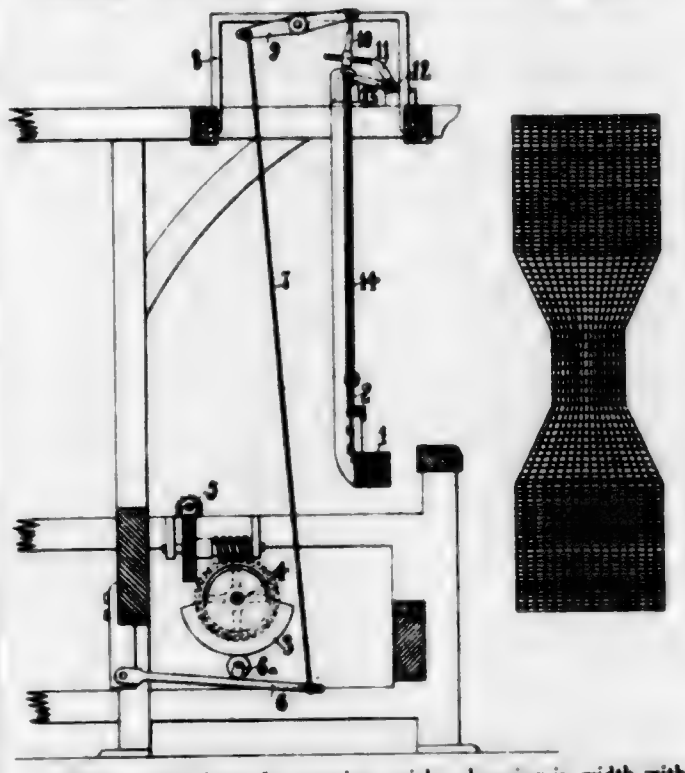
2. In a valve, the combination of the casing having outlet and flushing chambers, a valve for closing communication between said chambers, and a stem supporting said valve, said valve comprising a sleeve loosely mounted on the stem, and having longitudinal water-passages extending through the valve; and a washer and disk on the sleeve; with a head on the stem adapted to forcibly seat the valve and close the said passages when the stem is moved outward, and a spring for unseating the valve when the pressure is sufficiently reduced, all constructed and adapted to operate substantially as and for the purpose described.

3. In a valve, the combination of the casing having outlet and flushing chambers, a valve for closing communication between said chambers, and a stem supporting said valve, said valve comprising a sleeve loosely mounted on the stem, and a washer confined between a disk and a nut on the sleeve, said sleeve having longitudinal water-passages extending through the valve; with a head on the stem adapted to forcibly seat the valve and close the said passages when the stem is moved outward, and a spring interposed between a collar on said stem and said valve, and adapted to unseat the valve when the pressure is sufficiently reduced, all constructed and arranged to operate substantially as and for the purpose described.

4. In a valve, the combination of the inlet, outlet, and flushing chambers, the oppositely-disposed valves closing communication between the storing-chamber and inlet and outlet chambers respectively, a valve-stem upon which the outlet-valve is slidingly mounted, and to which the inlet-valve is rigidly connected, and passages for escape of water past the outlet-valve; with means for operating said stem to open or close the inlet-valve, and to close the outlet-valve when inlet-valve is opened, and a spring adapted to unseat the outlet-valve at or below a certain pressure in the storage-chamber, when the said inlet-valve is closed, substantially as described.

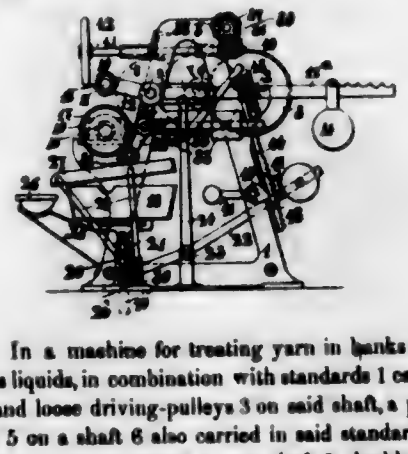
5. In a valve, the combination of the inlet, outlet and flushing chambers, the oppositely-disposed valves closing communication between said storing-chamber and inlet and outlet chambers respectively, a valve-stem upon which the outlet-valve is slidingly mounted, and to which the inlet-valve is rigidly connected, said outlet-valve having passages for escape of water therepast before it is unseated; with means for operating said stem to open or close the inlet-valve, and to close the outlet-valve when the inlet-valve is open, and a spring on said stem adapted to unseat the outlet-valve at or below a certain pressure in the storage-chamber after the said inlet-valve is closed, substantially as and for the purpose set forth.

694,108. LOOM. ERNST NIERHAUS and PETER KAISER, Barmen, Germany. Filed July 22, 1901. Serial No. 69,312. (No model.)



Claim.—In a loom for weaving articles changing in width without increasing the number of the warp-threads and where the number of the weft-threads per unit of length varies in proportion to the width of the fabric an expansion-reed 2 in a lathe 1, a rod 14 supporting said reed, a lever 13 keyed to a rocking shaft 12, a lever 30 on said shaft, a rod 29 connecting said lever 30 to a lever 28 pivotally carried on a bracket 27 of the machine-frame, a rod 26 suspended on lever 28 and carrying a sliding piece 24 at its lower end, an adjustable set-screw 25 connected to said sliding piece, a lever 18 below the set-screw 25 and actuated by a cam 16 on shaft 17, in combination with a rod 19 linked to the free end of said lever 18, a lever 20 jointed to said rod 19, a connecting-rod 21 at the other end of lever 21 and connected to the ratchet-lever 22 of the regulator of the loom, the whole as described and illustrated and for the purpose set forth.

694,109. APPARATUS FOR MERCERIZING. ALBERT RÖMER, Oberdollendorf-on-the-Rhine, Germany. Filed Nov. 23, 1901. Serial No. 83,399. (No model.)



Claim.—1. In a machine for treating yarn in hanks with alkaline lyes and acidulous liquids, in combination with standards 1 carrying a driving-shaft 2, fast and loose driving-pulleys 3 on said shaft, a pinion 4 gearing into a wheel 5 on a shaft 6 also carried in said standards 1, a pinion 7 on said shaft gearing into a wheel 8 on a shaft 9, double-armed levers 12, 12ª fixed movably upon both ends of shaft 9 outside of standards 1, said levers carrying adjustable weights 14 on arms 12ª and a shaft 11 at

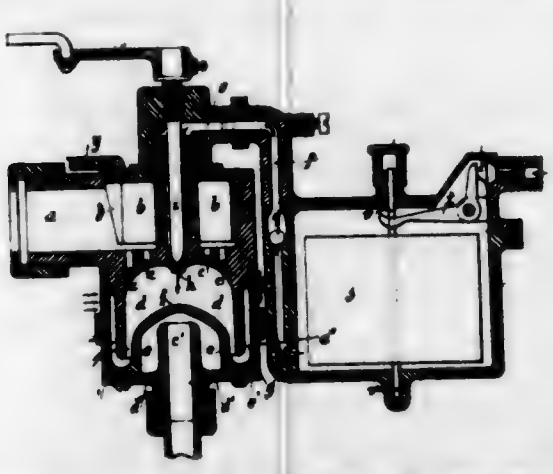
the ends of arms 12, a pinion 10 on shaft 11 gearing into wheel 8 and polygonal rollers 13 at both ends right and left outside of the standards 1; a shaft 16 carried rotatively on standards 1 below the shaft 11, a pinion 15 on said shaft gearing into wheel 8 and rollers 17 at both ends of shaft 16 below the rollers 13; the whole as described and illustrated and for the purpose set forth.

2. In a machine for treating yarn in hanks with alkaline lyes and acidulous liquids standards 1, carrying a driving-shaft 2, a pinion 4 on said shaft gearing into a wheel 5 on a shaft 6, a pinion 7 on said shaft 6 gearing into a wheel 8 on a shaft 9, double-armed levers 12, 12^a held movably upon both ends of shaft 9 outside of standards 1, said levers carrying adjustable weights 14 on arms 12^a and a shaft 11 at the ends of arms 12^a, a pinion 10 on shaft 11 gearing into wheel 8 and polygonal rollers 13 at the end of shaft 11, a shaft 16 carried rotatively on standards 1 a pinion 15 on said shaft gearing into wheel 8 and rollers 17 at both ends of shaft in combination with troughs 18 held on pillars 16, said pillars being guided in sockets 20 and made adjustable vertically by counterweighted levers 22 connected to them by rods 26 and a lever 24 fixed to the fulcrum 23 of levers 22; a scoop 27 capable of being pushed in between the rollers 17 and the trough 18 by being held on brackets 28 held pivotally upon a shaft 29, a trough 26 held by brackets 25, the whole as described and illustrated and for the purpose set forth.

3. In a machine for treating yarn in hanks with alkaline lyes and acidulous liquids, standards 1, carrying a driving-shaft 2, a pinion 4 on said shaft gearing into a wheel 5 on a shaft 6, a pinion 7 on said shaft 6 gearing into a wheel on a shaft 9, double-armed levers 12, 12^a held movably at both ends of shaft 9, a shaft 11 carried by said levers, a pinion 10 on shaft 11 gearing into wheel 8, rollers 13 at both ends of shaft 11, a shaft 16 carried by standards 1 below shaft 11 rollers 17 at the ends of shaft 11 below rollers 13, a pinion 15 gearing into wheel 8 and thereby turning around shaft 16 and rollers 17 in combination with pressing-rollers 31 pressed against rollers 17 by a loaded bell-crank lever 32, 33 and capable of being released from pressing against the yarn-rollers 17 by a lever 35 fulcrumed at 35^a in brackets fixed to the standards 1, the whole as described and illustrated and for the purpose set forth.

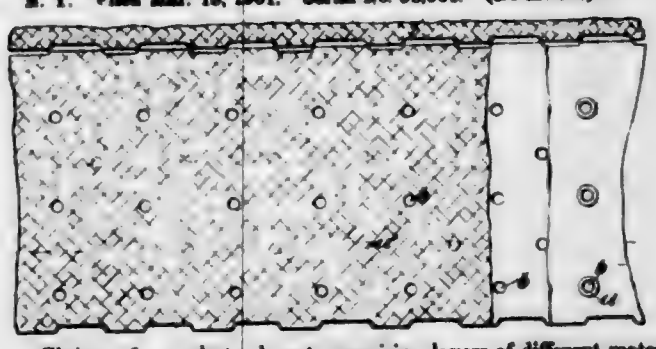
4. In a machine for treating yarn in hanks with alkaline lyes and acidulous liquids, standards 1 carrying a driving-shaft 2, a pinion 4 on said shaft, a shaft 6 carried by said standards, a wheel 5 on shaft 6 gearing into pinion 4, a pinion 7 on shaft 6 gearing into a wheel 8 on a shaft 9 also carried by said standards 1 a pinion 10 on a shaft 11 gearing into wheel 8, said shaft 11 being carried in weighted levers 12, 12^a having their fulcrum in shaft 9, in combination with chains 36 fixed with one end to the arm 12^a of said levers with the other end to a pulley 37 on a shaft 38, a worm-wheel 39 keyed to said shaft and gearing into a worm 40 on a spindle 41 for turning the worm and worm-wheel by a hand-wheel 42 at the end of spindle 41 for the sake of lowering and raising the weighted lever 12^a the whole as described and illustrated and for the purpose set forth.

694,110. CARBURETER FOR EXPLOSIVE-ENGINES. Louis H. M. Sabrou, Dieppe, France. Filed Oct. 2, 1900. Serial No. 31,805. (No model.)



Claim.—In a carbureter, the combination with a carbureting-chamber having outlet-ports for carbureted air in its top and being open at its bottom, of a casing constructed with an upwardly-extending portion arranged within the carbureting-chamber, the exterior diameter of which upwardly-extending portion is less than the interior diameter of the carbureting-chamber to form an intermediate space, said casing having also a portion surrounding the carbureting-chamber provided with air-inlet openings, the interior diameter of which latter portion is greater than the exterior diameter of the carbureting-chamber to form an intermediate space, means for admitting oil to the carbureting-chamber and means for heating the upwardly-extending portion of the casing which is within the carbureting-chamber.

694,111. PLASTER BOARD. Jacob Schratwieser, Brooklyn N. Y. Filed Mar. 13, 1901. Serial No. 50,961. (No model.)



Claim.—1. A plaster board comprising layers of different material, each provided with perforations and the material of one layer passing through the perforations of the other.

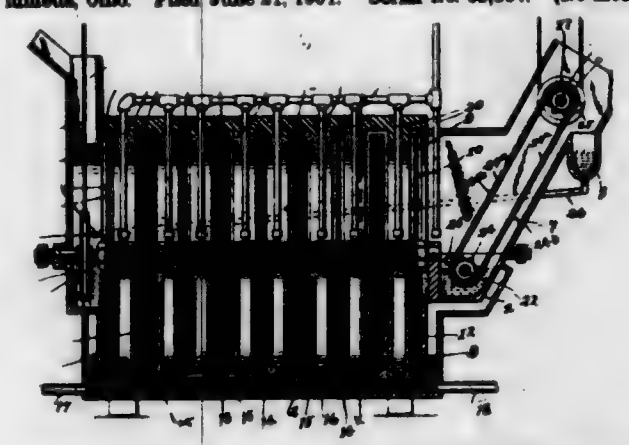
2. A plaster board comprising two or more layers of different material, provided with perforations, the material and perforations of one layer passing through the perforations of the other.

3. In a plaster board, the combination of layers of different material, and perforations in two or more of the layers, the perforations of one layer being of lesser diameter than those of another.

4. In a plaster board, the combination of layers of different material, and perforations in two or more of the layers, the perforations of one layer being of lesser diameter than those of another and passing therethrough.

5. A plaster board provided with projections and indentations on one or more of its edges, the said projections and indentations being of unequal length.

694,112. AMALGAMATING-MACHINE. Gerard C. Scott, Columbus, Ohio. Filed June 21, 1901. Serial No. 65,397. (No model.)



Claim.—1. In an amalgamator, the combination with a casing having an inlet-opening at one end and an outlet at the other, of a shaft journaled in said casing, of copper disks mounted on said shaft and provided with radially-arranged openings, said casing adapted to contain a body of mercury and said disks adapted to travel through the mercury contained in said casing and casings mounted on said shaft and alternating with said disks, substantially as specified.

2. In an amalgamator, the combination with a casing, said casing having an inlet-opening at one end and a discharge-opening at the other and the lower portion of said casing having formed therein parallel wells or mercury-pockets, of a shaft journaled centrally in the casing 1, amalgamating-plate disks having openings therein and mounted on said shaft, circular casings carried by said shaft and alternating with said disks, said casings adapted to contain a body of mercury and said casings and disks adapted to run through a body of mercury contained in said wells or pockets when the shaft is rotated, substantially as specified.

3. In an amalgamator, the combination with an external casing 1 having an inlet and outlet opening and mercury wells or pockets formed in the lower portion of said external casing adapted to contain mercury, of a central shaft journaled in the external casing and circular casings 11 mounted on said shaft and adapted when the latter is rotated to run in a body of mercury contained in said wells, each of said casings having a filling of amalgamating material, substantially as specified.

4. In an amalgamator, the combination with an external casing 1 having inlet and outlet openings and mercury-containing wells formed in the lower portion of said external casing, of a central shaft journaled in the casing, amalgamating-disks carried on said shaft and running in said wells and water-carrying pipes leading into the external casing and discharging between said disks, substantially as specified.

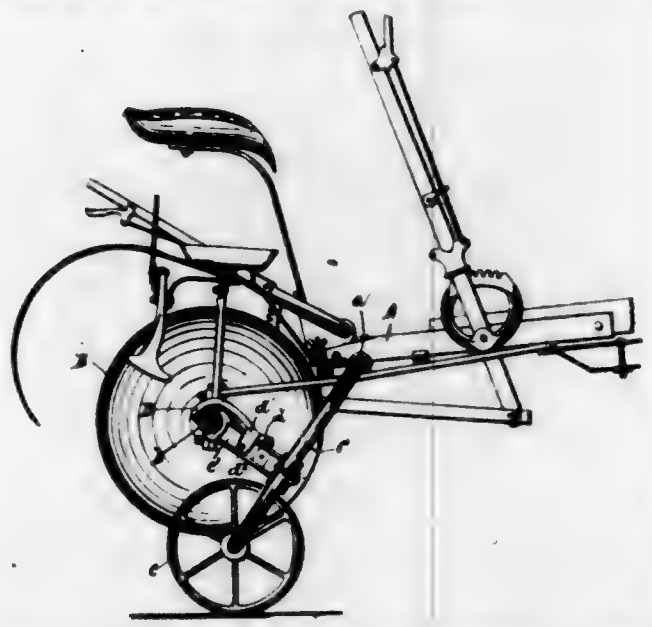
5. In an amalgamator, the combination with the external casing 1 having an inlet and outlet opening and having mercury-containing wells formed in its lower portion, of a central shaft journaled in said casing, amalgamating-disks 12 having openings therein and casings 11 having open-work sides, said disks and casings mounted on said shaft and said

casings having fillings of amalgamating material and both casings and disks adapted to run in said mercury-containing wells, substantially as specified.

6. In an amalgamator, the combination with an external casing 1 having an inlet-opening at one end and an upwardly-inclined discharge-neck at the other, said discharge-neck adapted to contain mercury and having a pocket depending from and communicating with its outer portion, of a shaft journaled in said external casing, amalgamating-bodies carried on said shaft, an elevating mechanism mounted to run in said discharge-neck and carrying mercury-cups, the lower portion of said elevator adapted to run in a body of mercury contained in the lower portion of the discharge-neck and in the lower portion of the external casing and a pipe connection between the mercury-pocket 8 and the opposite end of the external casing, substantially as specified.

7. In an amalgamator, the combination with an external casing 1 having an inlet-opening at one end and an upwardly-inclined discharge-neck at the other, said discharge-neck adapted to contain mercury and having a pocket depending from and communicating with its outer portion, of a shaft journaled in said external casing, amalgamating-bodies carried on said shaft, an elevating mechanism mounted to run in said discharge-neck and carrying mercury-cups and amalgamating-plates, said cups and amalgamator-plates adapted to run in a body of mercury contained in the lower portion of the discharge-neck and in the lower portion of the external casing and a pipe connection between the mercury-pocket 8 and the opposite end of the external casing, substantially as specified.

694,113. HARROW. CHARLES S. SHARP, Auburn, N. Y., assignor to D. M. Osborne & Company, Auburn, N. Y., a Corporation of New York. Filed May 25, 1901. Serial No. 61,924. (No model.)



Claim.—1. The combination with a harrow-frame; of a support journaled in the harrow-frame, and provided with a traction-wheel, the portion of the support provided with the traction-wheel being movable from in front of the axis of the support to points beneath and above said axis at the rear thereof, said support being also provided with a normally fixed arm for supporting the contiguous portion of the harrow, and said arm being extended rearwardly beyond the contiguous portion of the support when in its operative position, substantially as and for the purpose described.

2. The combination with a harrow-frame; of a support having one end pivotally connected to the harrow-frame, its opposite end provided with a traction-wheel, and its portion interposed between the harrow-frame and the axis of the traction-wheel provided with a normally fixed arm for supporting the contiguous portion of the harrow, said arm when in its operative position having its free end arranged beneath and at the rear of the axis of the support and above the traction-wheel, substantially as and for the purpose specified.

3. The combination with a harrow-frame; of a support pivotally connected to the harrow-frame and provided with a traction-wheel and with an arm for supporting the contiguous portion of the harrow, said arm being adjustable lengthwise of the support and being normally fixed thereto, substantially as and for the purpose set forth.

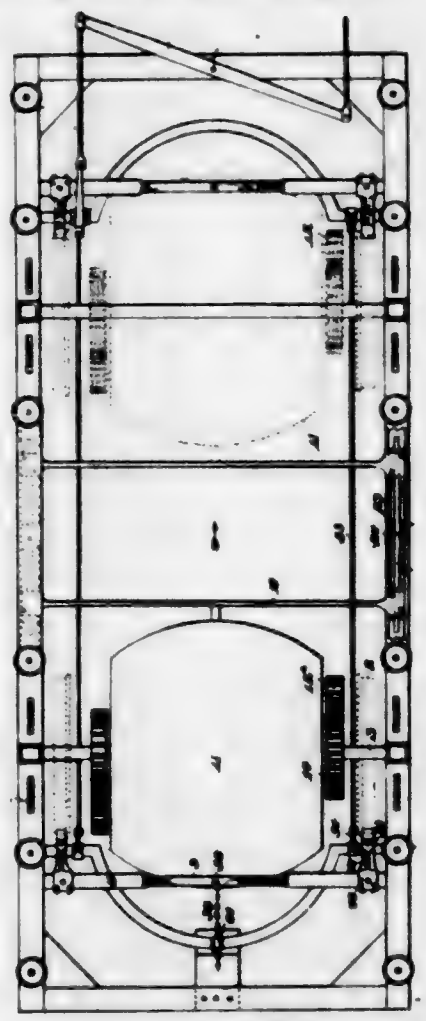
4. The combination with a harrow-frame; of a support pivotally connected to the harrow-frame and provided with a traction-wheel and with a normally fixed arm for supporting the contiguous portion of the harrow, said arm being extended outwardly from the contiguous portion of the support between the axis of said support and the axis of the traction-wheel, and a clamping member for preventing movement of said arm independently of the contiguous portion of the harrow, substantially as and for the purpose described.

5. The combination with a harrow-frame; of a support pivotally connected to the harrow-frame and provided with a traction-wheel and with an arm for supporting the contiguous portion of the harrow, a clamping member for preventing movement of the arm independently of the contiguous portion of the harrow, said clamping member being movable relatively to said arm, and means for holding the clamping member in its adjusted position, substantially as and for the purpose specified.

6. The combination with a harrow-frame; of a support pivotally connected to the harrow-frame and provided with a traction-wheel and with a normally fixed arm for supporting the contiguous portion of the harrow, said arm being extended outwardly from the contiguous portion of the support between the axis of said support and the axis of the traction-wheel, a clamping member for preventing movement of said arm independently of the contiguous portion of the harrow, and a catch for holding the clamping member in its adjusted position, substantially as and for the purpose set forth.

7. The combination with a harrow-frame; of a support having one end journaled in the harrow-frame, and its opposite end provided with a traction-wheel and movable from in front of the axis of the support to points beneath and above said axis at the rear thereof, said support being also provided with a normally fixed arm for supporting the contiguous portion of the harrow, and said arm being extended rearwardly beyond the contiguous portion of the support when in its operative position, a clamping member secured to the free end of the arm for engaging the contiguous portion of the harrow, and a catch for holding the clamping member in its adjusted position, substantially as and for the purpose described.

694,114. CAR-TRUCK. WILLIAM T. SERVOCK, Allegheny, Pa. Filed June 4, 1901. Serial No. 63,074. (No model.)



Claim.—1. In a car-truck, the combination of a rigid frame, an auxiliary frame, a flexible frame, and motors suspended from said flexible frame, substantially as described.

2. In a car-truck, the combination of a rigid, an auxiliary and a flexible frame, and motors suspended on each end of said flexible frame, substantially as described.

3. In a car-truck, the combination of a rigid and a flexible frame, twin motors suspended on each end of said flexible frame and geared to a common axle, substantially as described.

4. In a car-truck, the combination of a rigid, an auxiliary and a flexible frame, motors suspended on each end of said flexible frame, and brakes suspended from said flexible frame, substantially as described.

5. In a car-truck, the combination with a rigid frame, of a flexible frame supporting the rigid frame with its side rails formed in sections pivoted together, said flexible frame having the motors carried by the truck suspended therefrom, as and for the purpose described.

6. In a car-truck, the combination with a rigid frame, of a flexible frame supporting the rigid frame with its side rails formed in sections pivoted together, connections between the side rails of the flexible frame, and means for suspending the motors of the truck from said connections, substantially as described.

7. In a car-truck, the combination with a rigid frame, and an auxiliary frame carried thereby, of a flexible frame connected thereto with the motors of the truck suspended from said flexible frame, as and for the purpose specified.

8. The improvement in motor suspension for car-trucks, comprising a truck having a rigid frame, a flexible frame supporting the rigid frame with each of its side rails formed in sections pivoted together, and means for suspending the motors of the truck from the flexible frame, substantially as described.

9. The improvement in motor suspension for car-trucks, comprising a truck having a rigid frame, a flexible frame supporting the rigid frame, cross-bars connecting the side rails of the flexible frame, and means for suspending the motors from the flexible frame, substantially as described.

10. In car-trucks, a rigid frame, and a flexible frame supporting the rigid frame with the truck-motor and truck-brakes suspended from the flexible frame, substantially as described.

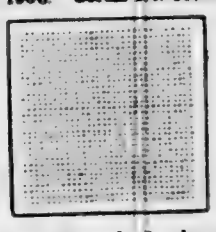
11. In car-trucks, a rigid frame, an auxiliary frame carried thereby, and a flexible frame supporting the rigid frame with the truck-motors suspended from the flexible frame, substantially as described.

12. In a car-truck, the combination of a rigid frame, and a flexible frame having its side rails made in sections pivoted together, supports carried by the side rails of the flexible frame, rods connected to said supports and passing through the rigid frame, and springs on said rods between the rigid and flexible frames, substantially as described.

13. In a car-truck, a rigid frame, a flexible frame supporting the rigid frame with each of its side rails formed in sections pivotally connected together, a central support connecting the side rails of the flexible frame to the rigid frame, supports carried by the side rails of the flexible frame, and springs interposed between the side rails of the flexible frame and the side rails of the rigid frame, substantially as described.

14. A car-truck having a rigid frame, a flexible frame connected to the rigid frame, and springs interposed between the rigid frame and the flexible frame, combined with cross-bars connecting the side rails of the flexible frame, and means for suspending the truck-brakes and the truck-motor from the cross-bars, substantially as described.

694,115. STIPPLE MATRIX-PLATE. BIBBER SMITH, St. Paul, Minn. Filed Nov. 2, 1900. Serial No. 35,246. (No model.)



Claim.—A matrix-plate formed of a hard-metal base with a coating of earthy substance capable of being engraved, and with minute indentations in said earthy coating to form a stipple ground, substantially as set forth.

694,116. DEVICE FOR SUPPORTING ROLLS IN DEVELOPING-TRAYS. EDWARD P. SMITH, Springfield, Mass. Filed May 28, 1901. Serial No. 62,186. (No model.)



Claim.—1. Devices for supporting a roller in a developing-tray, consisting of paired detachable supports for application on the opposite side walls of the tray each having an inwardly-projecting stud, provided with an enlarged ball at its inner end.

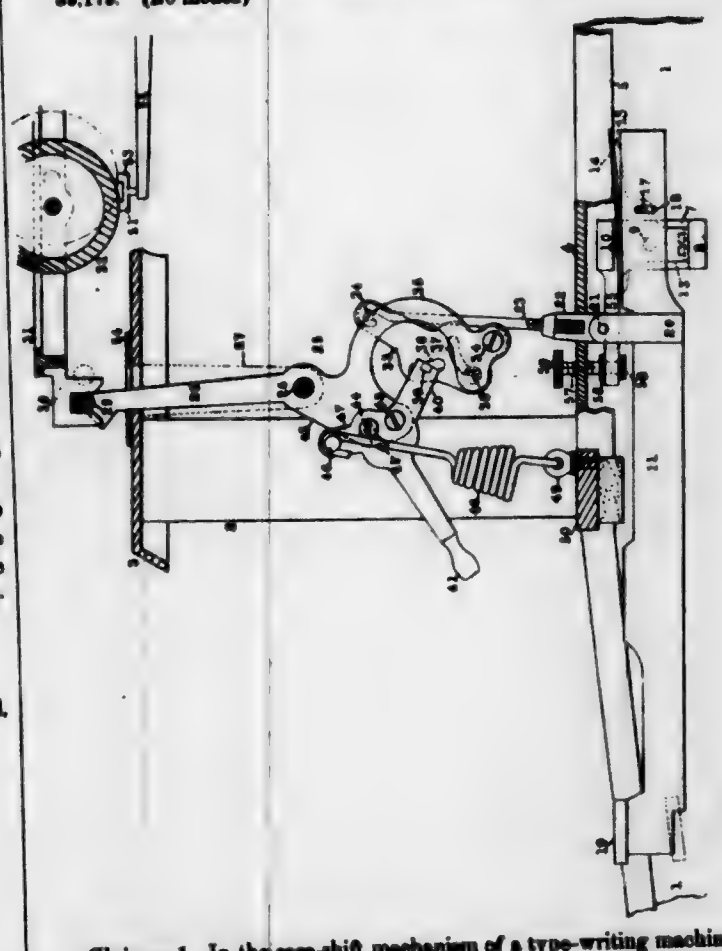
2. The combination with the developing-tray having at the opposite side walls thereof, detachable supporting appliances, each provided with an inwardly-extending, approximately horizontal stud having at its inner end an enlarged ball, of the axially-bored roller having journal-bearing engagements, over the balls, substantially as described.

3. In a device of the character described, a detachable support for the side of the tray having a member adapted to extend downwardly in an oblique direction on the inner side of the tray which is provided with a stud extending inwardly at an obtuse angle to the downwardly-extending member and thereby have an approximately horizontal disposition, and having at its end the enlarged ball for the purpose set forth.

4. In a device for the purpose explained, a clip comprising separating depending members 10 and 11, the one 10 having the stud 12 extended inwardly therefrom at an obtuse angle, and provided with the enlarged spherical end 13, and the clamping-screw threading transversely through the member 11, substantially as set forth.

5. In a device for the purpose explained, a clip comprising separating depending members 10 and 11, the one 10 having the stud 12 extended inwardly therefrom at an obtuse angle, and provided with the enlarged spherical end 13, and the member 11 constructed with the recess 15 having the screw *b* threading through such recessed portion and provided at its inner bearing end with the circular enlargement, substantially as described.

694,117. TYPE-WRITING MACHINE. BURNHAM C. STICKNEY, Elizabeth, N. J., assignor to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Dec. 8, 1900. Serial No. 39,179. (No model.)



Claim.—1. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of which elements is shiftable, of a shift-key lever, a fulcrum along which the lever has a leverage-changing rocker movement, and connections from said lever to said shiftable element.

2. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever operated by a shift-key, a fulcrum device extending along said lever, one of said fulcrum and lever elements being formed with a curved rocker portion, and connections from said lever to said shiftable element.

3. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of which elements is shiftable, of a key-operated lever having a rocker, a straight fulcrum upon which said rocker works, and connections from said lever to said shiftable element.

4. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever having at one end a key and at the other end a rocker, a fixed fulcrum upon which said rocker works, and connecting devices extending from a point between the rocker and the key to said shiftable element.

5. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a horizontal lever extending to the keyboard and having a key at its forward end and also having its rear upper edge constructed to rock,

a fixed fulcrum overlying the rocker portion of said lever, and connecting devices extending from a point between the rocker and the key to said shiftable element.

6. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of an unpivoted key-operated shift-lever and means for automatically decreasing the purchase or leverage of the lever during the depression of the key, said lever being operatively connected to said shiftable element.

7. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of an unpivoted key-lever connected to said shiftable element and having an extended end, and a fulcrum with which said extended end contacts at successive points during the operation of the key.

8. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of an unpivoted operating-lever for said shiftable element, a fulcrum with which said lever contacts at successive points during the operation thereof, and means for preventing endwise displacement of said lever.

9. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of an unpivoted operating-lever for said shiftable element, a fulcrum-plate arranged longitudinally of said lever, pin 17, and slot 18.

10. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever bearing a key, a shifting frame suitably connected to one of said shiftable elements, and means, including a link attached at one end to said lever and at the other end to said shifting frame, for automatically decreasing the purchase of said lever upon said shifting frame during the depression of the key.

11. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever bearing a key, a vibratory frame mounted upon the framework of the machine and operatively connected to said shiftable element, and means, including a link attached at one end to said lever and at the other end to said vibratory frame, for automatically decreasing the purchase of said lever upon said vibratory frame during the depression of the key.

12. In the case shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a shifting frame operatively connected to said shiftable element, a key-lever having a rocker, a fulcrum along which said rocker creeps, and a link connecting said lever directly to said shifting frame.

13. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a shifting frame operatively connected to said shiftable element, a lever having a key at one end and a rocker at the other end, a fulcrum along which said rocker creeps, and a link attached at one end to said lever at a point between the rocker and the key, and connected at the other end to said shifting frame.

14. In a type-writing machine, the combination of a platen-frame, a key-controlled lever, a fulcrum along which said lever has a leverage-changing rocker movement, and operative connections extending from said lever to said platen-frame.

15. In a type-writing machine, the combination of a platen-frame, a vibratory frame mounted on the framework of the machine and operatively connected to said platen-frame, a key-operated lever connected to said vibratory frame, and a fulcrum device extending along said lever, one of said fulcrum and lever elements being formed with a curved rocker portion.

16. In a type-writing machine, the combination of a platen-frame, a key-lever of the second order operatively connected thereto and having a curved rocker, and a straight fulcrum upon which said rocker works.

17. In a type-writing machine, the combination of a platen-frame, a vibratory shifter-frame operatively connected thereto, a horizontal lever having at its forward end a key and at its rear end a rocker, a link connected at one end to said vibratory shifter-frame and at the other end to said lever at a point between the key and the rocker, and a fixed fulcrum upon which said rocker work.

18. In a type-writing machine, the combination of a horizontal lever extending to the keyboard of the machine and bearing at its forward end a key and at its rear end a rocker, a vibratory shifter-frame above said lever, a link connecting said lever to said shifter-frame, and a platen operatively connected to said shifter-frame.

19. In a type-writing machine, the combination of a platen-frame, an unpivoted shift-lever operatively connected thereto, a key for said lever, and means for automatically decreasing the purchase or leverage of said lever upon said platen-frame during the depression of the key

20. In a type-writing machine, the combination of a platen, an unpivoted key-lever operatively connected thereto and having an extended end, and a fulcrum with which said extended end contacts at successive points during the operation of the key.

21. In a type-writing machine, the combination of a platen, an unpivoted operating-lever therefor, a fulcrum with which said lever contacts at successive points during its operation, and means for preventing endwise displacement of said lever.

22. In a type-writing machine, the combination of key-lever 11 having a rocker 11^a, fulcrum-plate 14^a, link 23, shifter-frame 25, platen-frame 31, and platen 32.

23. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a finger-key operatively connected to said shiftable element, and means for effecting an adjustment of the leverage of the key upon said shiftable element.

24. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of which elements is shiftable, of a key-operated lever operatively connected to said shiftable element, and means for effecting an adjustment of the leverage of said lever upon said shiftable element.

25. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever operatively connected to said shiftable element, a fulcrum for said lever, and means for adjusting the relation of the lever to the fulcrum in such a manner as to alter the purchase of said lever upon said shiftable element.

26. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever operatively connected to said shifting element, a fulcrum for said lever, and means for adjusting said fulcrum so as to alter the purchase of said lever upon said shiftable element.

27. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever having a key at one end, a fulcrum for the other end of said lever, said fulcrum being adjustable so as to change the purchase of said lever, and connections from said lever to said shiftable element.

28. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever connected to said shiftable element, a fulcrum extending along said lever, and means for tipping said fulcrum.

29. In a type-writing machine, as a new mechanical movement, the combination of a key-operated lever, a fulcrum extending along said lever, and a pivot or journal for said fulcrum.

30. In a type-writing machine, as a new mechanical movement, the combination of a key-operated lever, a fulcrum extending along said lever, a pivot or journal for said fulcrum, and an adjusting-screw.

31. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever connected to said shiftable element, a bracket pivoted upon the framework of the machine, and a fulcrum fixed upon said bracket and extending longitudinally of said lever.

32. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever connected to said shiftable element, a bracket pivoted upon the framework of the machine, a fulcrum fixed upon said bracket and extending longitudinally of said lever, and an adjusting-screw.

33. In a type-writing machine, the combination with a shiftable platen, of a finger-key, and means for altering at will the leverage or purchase of said key upon said platen.

34. In a type-writing machine, the combination with a platen, of a depressible key-lever operatively connected thereto, and means for effecting an adjustment of the leverage of said lever upon said platen.

35. In a type-writing machine, the combination of a platen, a shiftable platen-frame, a lever operatively connected to said platen-frame, a fulcrum for said lever, and means for adjusting the relation of said lever to said fulcrum in such a manner as to alter the purchase of said lever upon said platen-frame.

36. In a type-writing machine, the combination of a platen, a shiftable platen-frame, a lever, connections extending from said lever to said platen-frame, a fulcrum for said lever, and means for adjusting said fulcrum so as to alter the purchase of said lever upon said platen-frame.

37. In a type-writing machine, the combination with a platen and a shiftable platen-frame of a lever connected to said platen-frame and bearing a finger-key at its forward end, and a fulcrum for the rear end of said lever, said fulcrum being adjustable so as to change the purchase of said lever upon said platen-frame.

38. In a type-writing machine, the combination with a platen and a shiftable platen-frame, of a key-operated lever, a fulcrum extending along said lever, means for tipping said fulcrum, and connections extending from said lever to said platen-frame.

39. In a type-writing machine, the combination with a platen and a shiftable platen-frame of a key-operated lever and a pivoted fulcrum extending along said lever.

40. In a type-writing machine, the combination with a platen and a shiftable platen-frame of a key-operated lever, a pivoted fulcrum extending along said lever, and an adjusting-screw.

41. In a type-writing machine, the combination with a platen and a shiftable platen-frame, of a lever connected to said frame, a bracket pivoted in the base of the machine, and a fulcrum fixed upon said bracket and extending longitudinally of said lever.

42. In a type-writing machine, the combination with a platen and a shiftable platen-frame, of a horizontal lever bearing at its forward end a key, a fulcrum overlying the rear end of said lever, said fulcrum extending longitudinally of said lever and being arranged upon a bracket which is pivoted in the base of the machine, and connections from said lever to said platen-frame.

43. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a finger-key operatively connected to said shiftable element in such a manner that the leverage or purchase of the key upon said shiftable element automatically decreases during the key-stroke, and means for altering at will the leverage of said key upon said shifting element.

44. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a key-operated lever operatively connected to said shiftable element in such a manner that the leverage or purchase of said lever upon said shiftable element automatically decreases during the stroke of the lever, and means for altering at will the leverage of said lever upon said shifting element.

45. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever operatively connected to said shiftable element, a fulcrum along which said lever has a leverage-changing rocker movement, and means for adjusting the relation of the lever to the fulcrum.

46. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of which elements is shiftable, of a lever operatively connected to said shiftable element, a fulcrum along which said lever has a leverage-changing rocker movement, and means for adjusting said fulcrum.

47. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of which elements is shiftable, of a lever operatively connected to said shiftable element, a fulcrum along which said lever has a leverage-changing rocker movement, and means for tipping said fulcrum.

48. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever having a key at one end, a fulcrum along which the other end of said lever has a leverage-changing rocker movement, means for adjusting said fulcrum, and connections from said lever to said shiftable element.

49. In a type-writing machine, as a new mechanical movement, the combination of a key-operated lever, a fulcrum along which said lever has a leverage-changing rocker movement, and a pivot or journal for said fulcrum.

50. In a type-writing machine, as a new mechanical movement, the combination of a key-operated lever, a fulcrum along which said lever has a leverage-changing rocker movement, a pivot or journal for said fulcrum, and an adjusting-screw.

51. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a lever connected to said shiftable element, a fulcrum along which said lever has a leverage-changing rocker movement, and a bracket upon which said fulcrum is fixed, said bracket being pivoted upon the framework of the machine.

52. In a type-writing machine, the combination with a shiftable platen, of a finger-key so connected to the platen that the purchase or leverage of the key upon the platen decreases automatically during the key-stroke, and means for altering at will the leverage of said key upon said platen.

53. In a type-writing machine, the combination with a shiftable platen, of a depressible key-lever so connected to the platen that the purchase or leverage of the lever upon the platen decreases automatically during the key-stroke, and means for altering at will the leverage of said lever upon said platen.

54. In a type-writing machine, the combination of a platen, a shiftable platen-frame, a lever, connections extending from said lever to said platen-frame, a fulcrum along which said lever has a leverage-changing rocker movement, and means for altering at will the position of said fulcrum.

55. In a type-writing machine, the combination with a platen and a shiftable platen-frame of a lever connected to said platen-frame and bearing a finger-key at its forward end, and an adjustable fulcrum along which the rear end of the lever has a leverage-changing rocker movement.

56. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a finger-key operatively connected to said shiftable element, means for effecting an adjustment of the leverage of the key upon said shiftable element, and an adjustable returning-spring for said shiftable element.

57. In a type-writing machine, the combination with a platen and a shiftable platen-frame of a lever operatively connected to said platen-frame, means for effecting an adjustment of the purchase of said lever upon said platen-frame, and an adjustable returning-spring for said platen-frame.

58. In the case-shift mechanism of a type-writing machine, the combination with a platen and a type system, one of said elements being shiftable, of a finger-key so connected to said shiftable element that the leverage or purchase of said key upon said shiftable element decreases automatically during the key-stroke, mechanism for altering at will the purchase of said key upon said shiftable element, and an adjustable returning-spring for said shifting element.

59. In a type-writing machine, the combination with a platen and a shiftable platen-frame of a lever operatively connected to said platen-frame, an adjustable fulcrum along which said lever has a leverage-changing rocker movement, and an adjustable returning-spring for said platen-frame.

60. In a type-writing machine, a key-operated lever provided with an individual fulcrum so constructed and arranged that during its operation the lever contacts with the fulcrum at successive points, whereby the leverage of the lever is decreased, said fulcrum being suitably supported upon the framework of the machine, and having means for preventing sidewise displacement of the lever.

61. In a type-writing machine, a key-operated lever provided with an individual fulcrum so constructed and arranged that during its operation the lever contacts with the fulcrum at successive points, whereby the leverage of the lever is decreased, said fulcrum being suitably supported upon the framework of the machine, and having devices formed integrally therewith for preventing sidewise displacement of the lever.

62. In a type-writing machine, a key-operated lever and a housing therefor, said housing serving as a fulcrum for the lever, and the construction and arrangement being such that during its operation the lever contacts with the fulcrum at successive points, whereby the leverage of the lever is decreased.

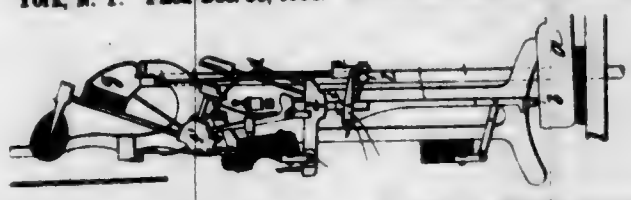
63. In a type-writing machine, a key-operated lever provided with an adjustable housing, whereby the leverage of said lever may be altered at will.

64. In a type-writing machine, a key-operated lever provided with an adjustable housing, one portion of said housing serving as a fulcrum for the lever, and the construction and arrangement being such that during its operation the lever contacts with the fulcrum at successive points, whereby the leverage of the lever is automatically decreased.

65. In a type-writing machine, a key-operated lever provided with an individual fulcrum so constructed and arranged that during its operation the lever contacts with the fulcrum at successive points, whereby the leverage of the lever is decreased, said fulcrum being suitably supported upon the framework of the machine, and having means for preventing sidewise and endwise displacement of the lever.

66. In a type-writing machine, a key-operated lever provided with a housing, said housing serving as a fulcrum for the lever, and the construction and arrangement being such that during its operation the lever contacts with the fulcrum at successive points, whereby the leverage of the lever is decreased, said lever being provided with a slot, and said housing being provided with a device for engaging said slot and preventing endwise displacement of said lever.

694,118. UPRIGHT-PIANO ACTION. PETER D. STRAUSS, New York, N. Y. Filed Dec. 30, 1901. Serial No. 87,662. (No model.)



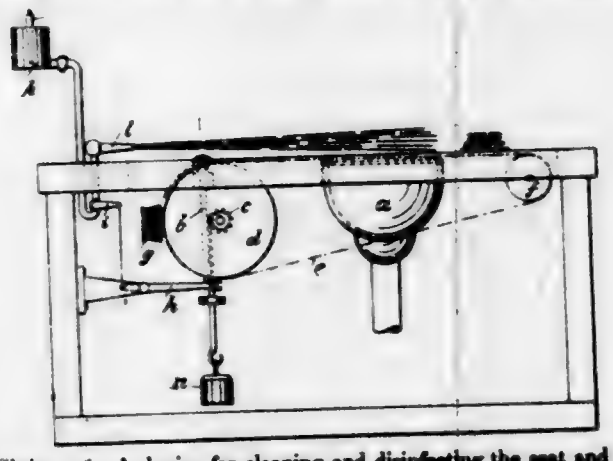
Claim.—1. In an upright-piano action, the combination of an abstract and a wippen, with a slide interposed between the same, and with means for raising the slide upon the depression of the soft pedal, substantially as specified.

2. In an upright-piano action, the combination of an abstract and a wippen, with a slide interposed between the same and pivoted to the wippen, and with means for raising the slide upon the depression of the soft pedal, substantially as specified.

3. In an upright-piano action, the combination of an abstract notched at its upper end, with an upwardly-movable slide engaging the notched

end of the abstract, a wippen pivoted to the slide, and means for raising the slide upon the depression of the soft pedal, substantially as specified.

694,119. DEVICE FOR CLEANING AND DISINFECTING THE SEATS IN TOILET-ROOMS. JENNY VON STRYK and EMMY VON STRYK, Arras, Russia, assignors to Ludovica Adolphowna Perschke, St. Petersburg, Russia. Filed Oct. 16, 1901. Serial No. 78,841. (No model.)



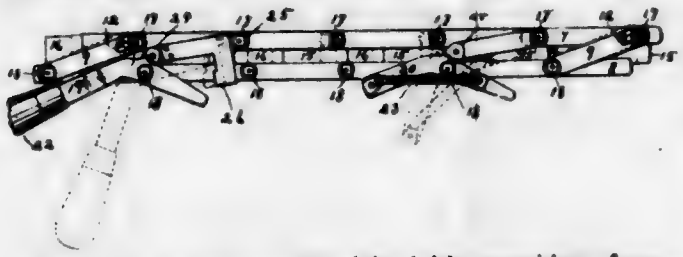
Claim.—1. A device for cleaning and disinfecting the seat and the funnel of toilet-rooms, comprising the combination with an operating-handle of a receptacle containing disinfecting liquid, a cock on said receptacle and a brush or equivalent means, substantially as described for cleaning the seat of the water-closet, and operating connections between said handle and the cock and brush respectively.

2. A device for cleaning and disinfecting the seat and other parts of toilet-rooms comprising the combination with an operating-handle of a cock, a receptacle for disinfecting liquid controlled by said cock, a nozzle for distributing said liquid, a brush in connection with said handle, and means for connecting the cock to the brush so that they will operate in unison, substantially as described.

3. In a device for cleaning and disinfecting parts of toilet-rooms, the combination of a liquid-receptacle having a cock, with a brush, a handle, and means for connecting the cock and the brush to such handle, so that they will both be moved at the same time and by the same mechanism, substantially as specified.

4. In a device for cleaning and disinfecting parts of toilet-rooms an operating-handle, a rinsing device in connection therewith, a draw-bar and rack on said draw-bar, a gear-wheel engaging therewith, a wheel of larger diameter, rotated by said gear-wheel, an endless band on said wheel, a fluid-receptacle and a cock to control the escape of fluid from said receptacle a brush and connections between said band and the cock and the brush respectively, substantially as described.

694,120. BRICK-EDGER. WILLIAM TOWERS, New Britain, Conn. Filed Nov. 19, 1901. Serial No. 82,572. (No model.)



Claim.—1. An implement for edging bricks comprising a frame, a series of fingers arranged on the said frame in pairs to open and close upon the opposite edges of the bricks and to turn in pairs upon the said frame, and means for operating the said pairs of fingers to close them and to turn them in pairs, substantially as described.

2. The combination of the swinging frame with pairs of grasping-fingers having extensible and contractile connections, the said fingers being pivotally mounted upon the said frame, and means for operating the said fingers for drawing them toward each other and turning each pair, substantially as described.

3. The combination of the swinging frame with pairs of grasping-fingers, pivotally mounted on the said frame and arranged to open and close for grasping the bricks, the operating-lever having angle-arm 24, the link 25 pivoted to the said angle-arm and to one of the bars of the said frame, the spring-catch and the trip-cam, whereby the operating-lever acts first to close the fingers and second to turn them on the frame, substantially as described.

4. The combination of the swinging frame with the grasping-fingers, pivotally mounted upon the said frame, the operating and holding levers each having the upwardly-extending short arm and the angle-arm 24, the links 25 pivoted by one end to the said angle-arms and by their opposite end to the upper bar of the said frame, substantially as described.

694,121. SHUFFLE-BOARD. HARLAND VADNAIS, Springfield, Mass. Filed Aug. 31, 1901. Serial No. 73,996. (No model.)



Claim.—1. In a shuffle-board, the combination of a base having a marginal upstanding wall and a top board of less length and width than the base to form a gutter around its sides and ends, cushions surrounding the top board, and a textile covering closely fitting over the top board and extended over to confine the cushions, substantially as described.

2. In a shuffle-board, the combination of a base having a marginal upstanding wall and a top board of less length and width than the base to form a gutter around its sides and ends, cushions at the base of the gutter and at the inner sides of the upstanding wall, a textile covering closely fitting over the top and edges of the top board and extended over both the base and side cushions, and fastening means, substantially as shown to separate and confine the cushions.

3. A shuffle-board consisting of a base, a top board thereabove of less width and length than the base, and a surrounding edge wall whereby the gutter is produced, pads or cushions at the base and inner sides of the gutter and a textile covering closely fitted over the top board and extended across the base-cushions of the gutter, and upwardly to inclose and confine the inner side cushions of the gutter, substantially as described.

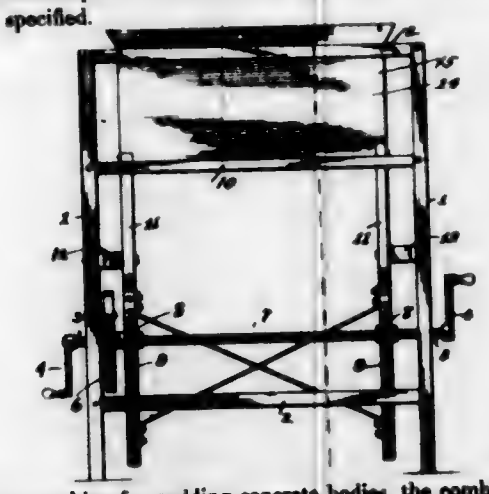
694,122. RAIL-JOINT. OLIVER S. WEDDELL, McKeesport, Pa. Filed Apr. 26, 1901. Serial No. 57,548. (No model.)



Claim.—In a rail-joint, the combination of fish-plates having oblong openings formed therein, one of said fish-plates having its outer face provided with recesses the walls of which incline toward the engaging face of the fish-plate, with elongated slots extending through the fish-plate with a rounded opening intermediate to ends of the slot, of bolts, a head on one end thereof, a portion of the shank being square and a portion round, a head on said square portion, the said square portion of the bolt adapted to engage in the elongated slot and be prevented from turning, the head on said square portion engaging the inclined wall whereby the fish-plate is moved laterally and wedges the bolt, and U-shaped washers adapted to engage between the heads of the bolts on the other end and the other fish-plate, substantially as described.

694,128. MACHINE FOR MOLDING CONCRETE BODIES. MARION A. WISNER, Columbus, Ohio. Filed June 28, 1901. Serial No. 66,333. (No model.)

Claim.—1. In a machine for molding concrete bodies, the combination with a framework and fixed cores projecting therefrom, of a hopper or mold-box adapted to be raised and lowered about said cores, substantially as specified.



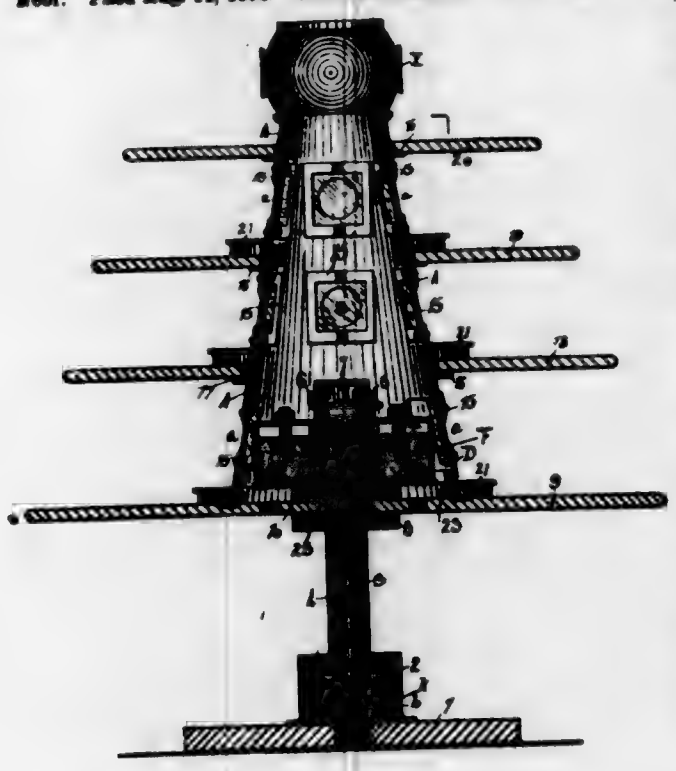
2. In a machine for molding concrete bodies, the combination with a framework and fixed cores supported therein, of a hopper or mold-box having its sides and ends hinged at their lower portions and means for retaining said sides and ends in vertical positions until the lower portion of the hopper is elevated to the top of the frame and means for raising and lowering said hopper, substantially as specified.

3. In a machine for molding concrete bodies, the combination with a framework, a shaft journaled in said framework and pinions on said shaft, of a hopper having hinged sides and ends and rigid cores adapted to extend within said hopper, of sliding rack-bars, supporting devices on said rack-bars connected with said hopper, the teeth of said pinions adapted to gear with the pinions of said rack-bar, substantially as specified.

4. In a machine for molding composition blocks, the combination with a framework comprising connected standards and a fixed bed-plate 10 and fixed cores extending vertically from said bed-plate, of a hopper movably supported above said bed-plate, a bottom plate 18 in said hopper, a mold-plate 22 removably supported on said bottom plate, the sides and ends of said hopper being hinged in their lower portions, rollers journaled between the main frame and the hopper sides and ends and means for raising and lowering said hopper, substantially as specified.

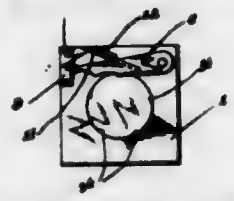
5. In a machine for molding composition bodies, the combination with a stationary framework, a fixed bed-plate 10 therein, rigid cores 21 rising from said bed-plate, a hopper above the bed-plate, a bottom plate in the hopper, vertically-movable rack-bars, hopper-supporting arms extending from said rack-bars and having a hinge connection with the sides of said hopper, the ends of said hopper having a hinge connection with the bottom plate thereof, rollers journaled in the upper portion of the framework and adapted to retain the sides and ends of the hopper in vertical positions until said hopper has been elevated to a predetermined height and means for raising and lowering said rack-bars, substantially as specified.

694,124. DISPLAY-RACK. WILLIAM A. H. WHITE, Bancroft, Nebr. Filed Aug. 11, 1896. Serial No. 602,408. (No model.)



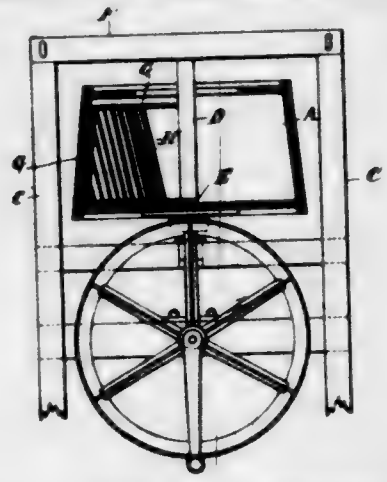
Claim.—In a display-rack of the character described, the combination of the following instrumentalities; to wit: the base 1, the supporting-tube 3, extending therefrom, the supporting-shaft 4 within said tube 3, the cap 7 secured to said shaft 4, the table 9 secured to said cap, the hollow standard A, the transparencies *a*, within said standard, the supports 16 secured to said hollow standard, and the shelves 18, 19, and 20 held by said supports, all arranged substantially as and for the purpose set forth.

694,125. NUT-LOCK. JAMES O. WOLFORD, Columbus, Ohio. Filed Dec. 18, 1901. Serial No. 86,406. (No model.)



Claim.—In a nut-lock, the combination with a nut-body 1 having a face-recess 3 leading from its central threaded opening, a locking-tongue 6 pivoted over said recess, said locking-tongue having a downwardly-extending inner side flange 8 and a spring embedded in the nut-body and extending within said recess, said spring exerting a pressure on said locking-tongue flange, of a bolt adapted to be received by said nut, said bolt having longitudinal recesses intersecting its threads, substantially as specified.

694,126. CHURN. SVEN P. A. ANDERSSON, Backasands gård, Ödeshög, Sweden. Filed Dec. 29, 1897. Serial No. 664,446. (No model.)



Claim.—1. In a centrifugal churn, the combination with the rotatable vessel or cream-container, the rigid support therein, and the frame fixed to said support within the drum, of the sheet-metal strips or knives fixed in said frame as a grating, said knives being inclined outward from the axis of rotation at their upper ends and having their edges directed toward the current of cream caused by rotation of the vessel.

2. In a centrifugal churn, the combination with the rotatable vessel or cream-container, the rigid support therein, and the frame fixed to said support within the drum, of the sheet-metal strips or knives fixed in said frame as a grating, said knives being inclined outward from the axis of rotation at their upper ends, having their edges directed toward the current caused by rotation of the vessel, and the series of knives in their frame having their lower ends in one radial plane and their upper ends in another radial plane.

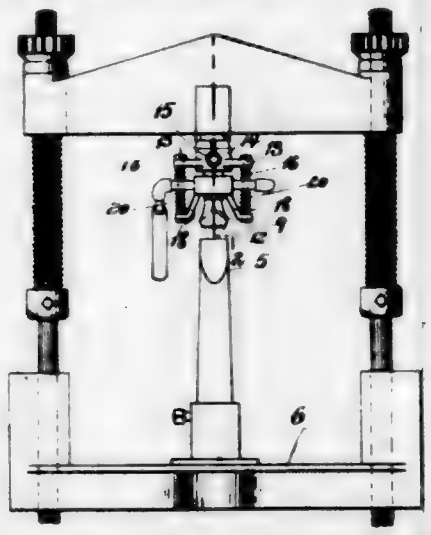
3. In a centrifugal churn, the combination with the rotatable vessel or cream-container, the rigid support therein, and the frame fixed to said support within the drum, of the sheet-metal strips or knives fixed in said frame as a grating, said knives being inclined outwardly and toward the current at their upper ends, and being concave on their inner faces.

694,127. DIE-CARRIER FOR STAMPING OR EMBOSSING MACHINES. ALBERT G. BREWER, Hopkinton, Mass. Filed June 22, 1901. Serial No. 65,003. (No model.)

Claim.—1. A die-carrier comprising a base member having a pressure-imparting face, a die-holding member having a pressure-receiving face, a die secured to said holding member, and yielding flexible connections between said members, whereby the said faces are normally separated and permitted to meet, the flexibility of said connections permitting the acting face of the die to adjust itself to the surface to be stamped before the said faces meet.

2. A die-carrier comprising a base member having a pressure-imparting face, a die-holding member having a pressure-receiving face, a die secured to said holding member, and connections between said members

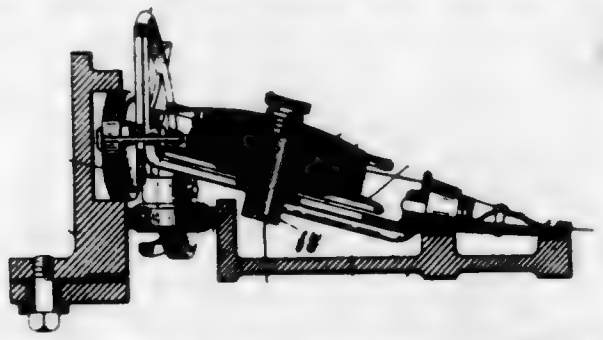
having provisions for yieldingly separating said faces, and for permitting independent tipping movements of the die, whereby the die is permitted both to yield and tip when pressed against a surface to be stamped.



3. A die-carrier comprising a base member having a pressure-imparting face, a die-holding member having a pressure-receiving face, a die secured to said holding member, and connections between said members having provisions for yieldingly separating said faces, and for permitting independent tipping movements of the die whereby the die is permitted both to yield and tip when pressed against a surface to be stamped, said connections including abutments or seats rigidly secured to the base member and arms rigidly secured to the die-holding member and normally held in yielding contact with said seats, the said seats being located approximately in the plane of the acting face of the die, whereby the lateral displacement of said acting face caused by the tipping movements of the die is reduced to the minimum.

4. A die-carrier comprising first, a base member having a pressure-imparting face, means for attachment to a support and rigid parallel guides projecting below said face, said arms being provided with abutments or seats at their lower portions, secondly, a die-holding member having a pressure-receiving face, means for holding a die, and rigid arms formed to slide on said guides and to bear on said seats, and thirdly, springs adapted to hold said arms yieldingly against said seats, the arms being adapted to separate from the seats and to rock or tip thereon.

694,128. BOBBIN-HOLDER FOR CIRCULAR LOOMS. CHARLES H. BROWN, Boston, Mass., assignor of one-half to James S. Wilson, Chelsea, Mass. Filed Sept. 12, 1901. Serial No. 75,206. (No model.)



Claim.—A shuttle for a circular loom, comprising a suitable support or frame having a downwardly-projecting boss, a spindle carried by said boss and projecting above the support, a hollow hub mounted on said spindle and having a base at its lower end, and a top removably connected to the upper end of said hollow hub.

694,129. RAILWAY, TRAMWAY, OR THE LIKE. JOHN BROWN, Belfast, Ireland. Filed May 23, 1901. Serial No. 62,226. (No model.)

Claim.—1. The system or method of railway-working which consists in adding at successive stations to the leading end of a moving train one or more coaches previously started and now moving at a slower speed than that of the train and consequently overtaken by it and thereafter forming part of the train.

2. The system or method of railway-working which consists in adding at successive stations to the leading end of a train in motion one or more coaches which thereafter form part of the train.

3. The system or method of railway-working which consists in detaching at successive stations from the back end of the continuously-moving train one or more coaches appropriated to that station and taking on in front also without stopping another coach or coaches substantially as described.

4. The system or method of railway-working with a continuously-moving train which consists in: (*a*) starting from the successive stations coaches laden with passengers in advance of the approaching train which successively overtakes and absorbs them as part of itself at its leading end; (*b*) transferring from the coaches so absorbed to the other coaches the passengers to be landed at the respective destinations of those coaches; (*c*) successively detaching from the back end of the moving train the coaches appropriated to the respective stations and containing their respective passengers.



5. The system or method of railway-working with a continuously-running train which consists in: (*a*) loading with passengers coaches in advance of the approaching train which absorbs the coaches at its leading end as part of itself; (*b*) transferring from the coaches so absorbed to the other coaches the passengers to be landed at the respective destinations of those coaches; (*c*) successively detaching from the back end of the moving train the coaches appropriated to the respective stations and containing their respective passengers.

6. The system or method of railway-working which consists in: (*a*) maintaining a train constantly moving throughout the system to which it appertains; (*b*) maintaining at each station one or more coaches to be successively started in advance of the approaching train; (*c*) dropping at successive stations from the back end of the train one or more coaches containing the passengers or goods for that station whereby a constantly-moving train is maintained but constantly changing in its elements and their contents can be picked up at any station and deposited at any other station without the need for stopping the train.

694,130. TOBACCO-STEMMING MACHINE. ANDREW J. BUSH, Kaufman, Tex., assignor of one-half to A. C. Green, Palestine, Tex. Filed July 7, 1900. Serial No. 22,844. (No model.)

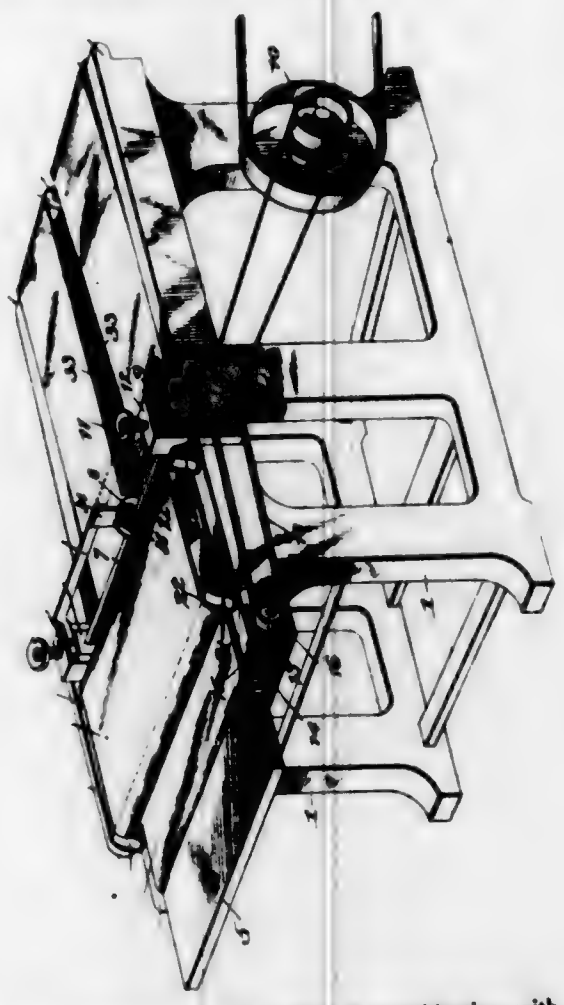
Claim.—1. In a tobacco stemming machine, the combination, with a frame, of cutters arranged therein, a wide delivery-belt in front of the cutters and two discharge-belts to the rear thereof the belts at the rear being spaced apart and the cutters being located between them, substantially as described.

2. In a tobacco-stemming machine, the combination, with a frame, of cutters journaled therein, a wide belt in front of the cutters, two narrower belts at the rear thereof the belts at the rear being spaced apart and the cutters being located between them and guards adjacent to the rear belts, substantially as described.

3. In a tobacco-stemming machine, the combination, with a frame, the top of which is formed in sections, of cutters journaled between the front and rear sections, a belt for each section, said sections, each lying between the upper and lower plies of its respective belt, and a belt journaled above the belt over the forward section, substantially as described.

4. In a tobacco-stemming machine, the combination, with a frame, the top of which is provided with a wide section in front and two narrower sections at the rear, the rear sections being at a slight distance from each other, of cutters journaled between the rear sections at their forward ends, the contacting edges of the cutters being substantially even with

the top of the table, a belt for each of the sections each section lying between the upper and lower plies of its respective belt, and a belt arranged above the belt on the forward section, substantially as described.



5. In a tobacco-stemming machine, the combination, with a frame, the top of which is provided with sections, of rollers journaled at the front and rear of the frame, a roller journaled at the rear of the front section, shafts journaled transversely of the frame, one above the other, cutters upon the central portion of said shafts, rollers upon the lower shaft, one upon each side of the cutters, a wide belt upon the rollers at the opposite ends of the front section, belts upon the rollers on the lower shaft and at the rear end of the frame, and a belt above the wide belt at the forward end of the machine, substantially as described.

6. In a tobacco-stemming machine, the combination, with a frame, the top of which is provided with front and rear sections, of rollers journaled at the front and rear of the frame, a roller journaled at the rear of the front section, cutter-shafts journaled transversely of the frame, one above the other, the lower one of which is provided with rollers, a belt upon the rollers in front of the cutters, belts on the rollers of the cutter-shafts and at the rear of the machine, two rollers journaled at the front of the machine above the front section, a belt thereon arranged to move substantially in contact with the belt on the front section, the rollers at the front sections being grooved substantially midway of their length, the grooved portions being arranged in substantial alinement with the cutters, substantially as described.

7. In a tobacco-stemming machine, the combination, with a frame, the top of which is provided with sections, of brackets at the front and rear of the frame, shafts therein provided with rollers, one end of the shaft in the front brackets projecting beyond its bearings, a pulley thereon, brackets secured to the top of the frame above the front section, shafts journaled therein provided with rollers, one end of the front shaft projecting beyond its bearings, a pulley thereon, shafts journaled transversely of the machine between the front and rear sections, grooved cutters upon the central portion of said shafts, one end of each of the cutter-shafts projecting beyond its bearings and provided with a pulley, a belt from each of said pulleys to its respective pulley on the shafts at the front of the machine, rollers upon the lower cutter-shaft, feed-belts upon the rollers in front of the cutters, and discharge-belts upon the rollers of the cutter-shafts and at the rear of the machine, substantially as described.

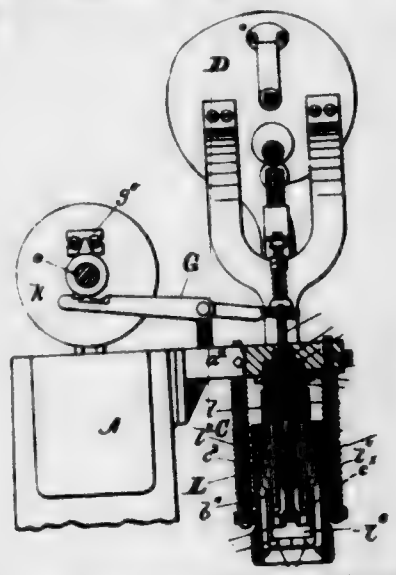
8. In a tobacco-stemming machine, the combination, with a frame, the top of which is provided with a front section and two rear sections, the rear sections being at a distance from each other, of cutters between the rear sections, feed-belts in front of the cutters and discharge-belts at the rear thereof, longitudinal rods arranged at the inner edges of the rear sections, and guards upon said rods, there being a guard at the inner edge of each of the rear sections, substantially as described.

694,131. BOTTLE-STOPPER. JOSEPH BUTKUS and JOHN A. BUTKUS, Baltimore, Md. Filed Apr. 1, 1901. Serial No. 53,796. (No model.)



Claim.—The combination of a bottle whose mouth is provded with an interior annular enlargement; and a cup-shaped ductile metallic stopper-body provided with an outwardly and downwardly projecting upper rim and also provided with a sealing-collar wedged and laterally compressed between the side wall of the stopper-body and the downwardly-projecting portion of the rim, the said stopper-body being expanded into said annular enlargement and vertically compressing, with a direct downward movement, the sealing-collar between the upper edge of the bottle-mouth and the outwardly-projecting portion of the stopper-body rim, whereby the said sealing-collar will be both laterally and vertically compressed without any sliding contact with the upper edge of the bottle-mouth.

694,132. BOTTLE-STOPPERING MACHINE. JOSEPH BUTKUS and JOHN A. BUTKUS, Baltimore, Md. Filed Oct. 14, 1901. Serial No. 78,807. (No model.)



Claim.—1. In a bottle-stoppering machine, the combination of stopper-expanding devices; a stopper-pressing device surrounding said expanding devices; a vertically-reciprocable stopper-holding device surrounding said stopper-pressing device and adapted to hold a stopper below the latter and the expanding devices; and means for releasing the stopper from said stopper-holding device.

2. In a bottle-stoppering machine, stopper-expanding devices; and a vertically-adjustable stopper-pressing device surrounding said expanding devices, as set forth.

3. A device for fastening a cup-shaped ductile metal stopper in a bottle-mouth, provided with stopper-expanding fingers; and a laterally-yielding stopper-pressing device adapted to press the stopper in the bottle-mouth while it is being expanded.

4. A bottle-stoppering device comprising a tube provided with a series of expanding-fingers; means for spreading said fingers apart; and a tube, *b*, surrounding said first-named tube and provided with a series of fingers adapted to press the stopper into a bottle-mouth, as set forth.

5. In a bottle-stoppering machine, a tube provided with a series of expanding-fingers; means for spreading said fingers apart; and a stopper-pressing device surrounding said tube and vertically adjustable with respect to the same, as and for the purpose set forth.

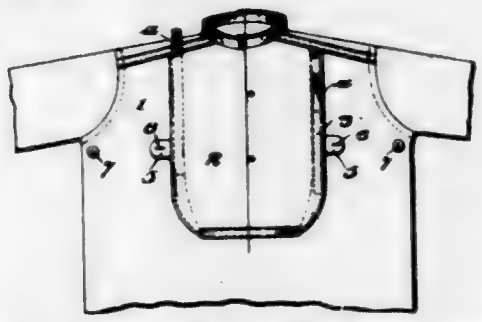
6. In a bottle-stoppering machine, the combination with the standard and its projecting ledge, of a tube secured to and depending from said ledge and provided with a series of expanding-fingers, means for spreading said fingers apart; and a stopper-pressing tube held vertically adjustable in said ledge and surrounding said first-named tube.

7. In a bottle-stoppering machine, the combination of a stopper-expanding device provided with a series of spring-fingers; means for spreading said fingers apart; a stopper-pressing tube surrounding said expanding-fingers; a stopper-releasing sleeve surrounding said pressing-tube and provided with an annular shoulder; and a vertically-reciprocable stopper-holding tube provided with fingers which are formed with shoulders, adapted to engage said annular shoulder whereby said fingers may be spread apart and release the stopper, as set forth.

8. In a bottle-stoppering machine, the combination of a stopper-expanding device provided with a series of spring-fingers; means for spreading said fingers apart; a stopper-pressing tube surrounding said expanding-fingers; a vertically-adjustable stopper-releasing sleeve surrounding said pressing-tube and provided with an annular shoulder; and a vertically-reciprocable stopper-holding tube provided with fingers which are formed with shoulders, adapted to engage said annular shoulder whereby said fingers may be spread apart and release the stopper, as set forth.

9. In a bottle-stoppering machine, the combination of a stopper-expanding device provided with a series of spring expanding-fingers; means for spreading said fingers apart; a vertically-reciprocable stopper-holding tube provided with fingers formed on their inner sides with shoulders, l^4; and a vertically-adjustable stopper-releasing sleeve interposed between said expanding-fingers and stopper-holding fingers and provided with a shoulder adapted for engagement by the said shoulders, l^4, of the stopper-holding fingers, as set forth.

694,133. SHIRT. SAMUEL BUTZ, Easton, Pa. Filed Dec. 15, 1900. Serial No. 39,978. (No model.)



Claim.—1. A shirt having a permanent bosom, pockets extending along opposite sides of the bosom, stiffeners contained in said pockets, tabs extending in opposite directions from the bosom at points intermediate the length thereof, and fastening means for said tabs whereby the shirt-bosom is held in shape throughout its entire length, substantially as described.

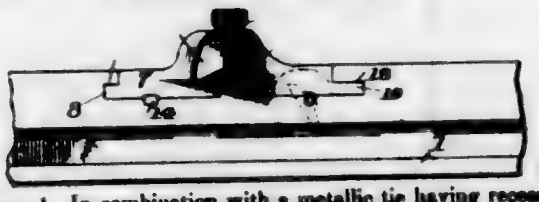
2. A shirt comprising a permanent bosom, pockets extending longitudinally of the side edges of the bosom, stiffeners removably fitted in said pockets, and laterally-extending tabs connected to the sides of the bosom and adapted to be secured to the shirt, whereby the shirt-bosom is held taut throughout its entire length, substantially as set forth.

3. A shirt comprising a permanent bosom, pockets extending along opposite sides of the bosom, and arranged within the side edges thereof, removable stiffeners contained within said pockets, and laterally-projecting tabs connected to the sides of the bosom beyond the pockets and centrally disposed with respect to the pockets and having fastening means by which they may be secured to the body of the shirt, whereby the shirt-bosom is held taut throughout its entire length, substantially as described.

4. A shirt comprising a permanent bosom, pockets extending along the sides of the bosom and open at the top and closed at the bottom, curved stiffeners removably inserted in said pockets, and laterally-projecting tabs secured to the sides of the bosom intermediate its length beyond the pockets and having provision whereby they may be removably connected with the body of the shirt, whereby the shirt-bosom is held taut throughout its entire length, substantially as described.

5. A shirt having its bosom and neckband formed as permanent parts thereof, longitudinal pockets extending throughout the bosom along opposite sides thereof, said pockets being open at the top and closed at the bottom, longitudinally-curved stiffeners removably inserted in said pockets, tabs arranged beyond the pockets and extending in opposite directions from the bosom at points intermediate the lengths of the pockets, and fastening means for said tabs, whereby the shirt-bosom is stiffened longitudinally and held transversely, substantially as described.

694,134. RAIL-JOINT. JOSEPH L. CAMPBELL, Butler, Pa. Filed Nov. 16, 1901. Serial No. 82,546. (No model.)



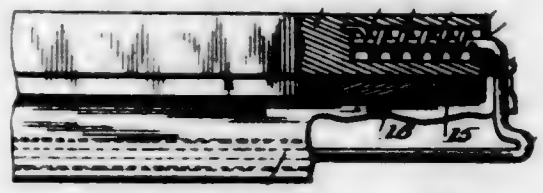
Claim.—1. In combination with a metallic tie having recesses extending across the upper face thereof at an angle, of a pair of clamping-blocks fitted in said recesses and adapted to embrace opposite sides of the rail, pins carried by one of said clamping-blocks, a key for securing one of the blocks in position, and a pivoted locking-pawl for securing the other block in position, substantially as described.

2. In combination with a metallic tie having recesses in the upper face thereof, of a pair of clamping-blocks mounted in said recesses, a key for securing one of said clamping-blocks in position, and a pivoted locking-pawl for securing the other of said blocks, substantially as described.

3. In combination with a metallic tie, a pair of clamping-blocks adapted to embrace opposite sides of the rail for holding same to the tie, a key fitting in the angular keyway extending through one of the blocks and through the tie, and a locking-pawl mounted in the tie and adapted to engage in the recess in the other clamping-block for securing same in position, substantially as described.

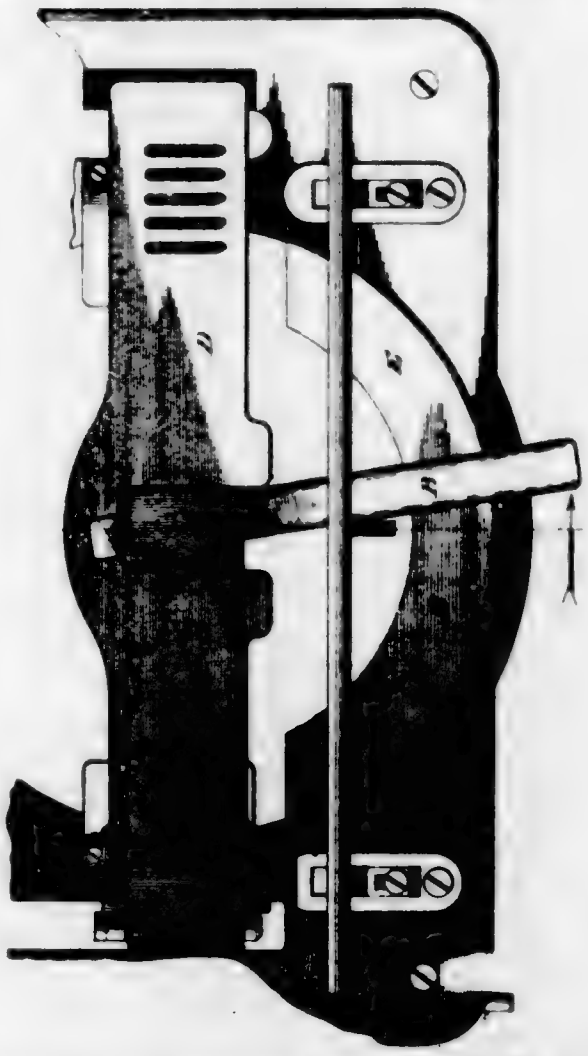
4. In combination with a metallic tie having recesses in its upper face, of a pair of clamping-blocks fitted in said recesses and provided with tongues which engage in grooves in the tie, a key for securing one of the blocks in position, and a pivoted locking-pawl mounted in the recesses of the tie and adapted to engage in the recess of the other clamping-block for securing same in position, substantially as described.

694,185. WEATHER-STRIP. FRANCIS M. CARSON, McKeesport, Pa. Filed Dec. 24, 1901. Serial No. 87,076. (No model.)



Claim.—In a weather-strip the combination of a securing-strip, a reinforcing-strip attached to said securing-strip, a wire forming a loop, the end of which extends into said securing-strip, a spring encircling one of the ends arranged in said securing-strip, a covering arranged over said wire, loop and between the said securing and reinforcing strips, and end plates carrying stops secured to the ends of said securing-strips, substantially as described.

694,136. TYPE-CLEANING DEVICE. JAMES T. CAWTHORN, Chicago, Ill., assignor of one-half to Isaac A. Escutt, Chicago, Ill. Filed Oct. 4, 1901. Serial No. 77,521. (No model.)

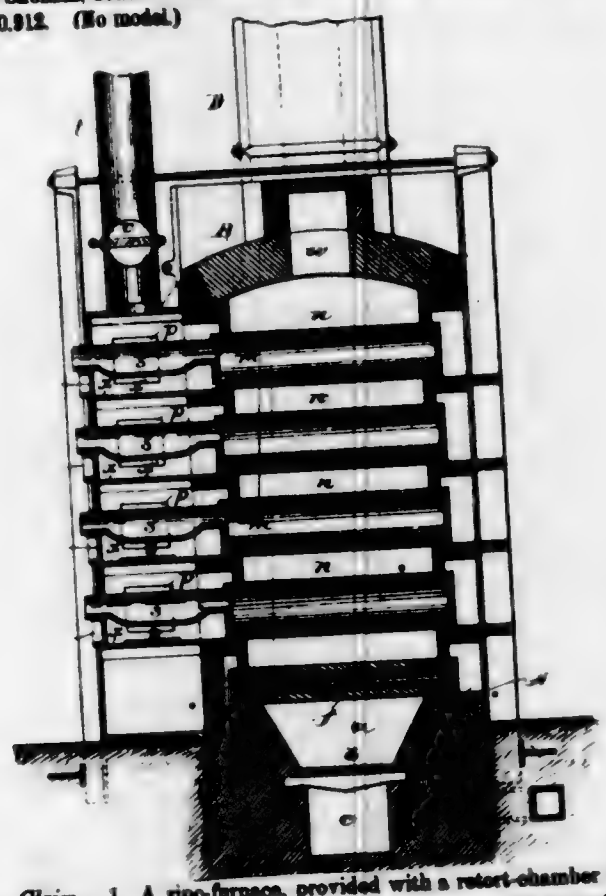


Claim.—1. In a type-cleaning device, the combination of a head provided on its under side with type-cleaning bristles, a clamping-clip projecting from one side of said head adapted to engage with the ribbon guide-bar of a type-writing machine, at one side of the path of the type when struck up, and a handle extending from the opposite side of said

head and adapted to pass beneath the carriage-shifting rail and rest on the frame of said machine, substantially as set forth.

2. In a type-cleaning device, the combination of a head provided with type-cleaning bristles, extending obliquely with relation to the path of the type when struck up, a clip on the head to slip over and engage with a stationary part of a type-writing machine at one side of the path of the type when struck up, and a handle extending from the opposite side of said head to rest on the frame of said machine, substantially as set forth.

694,187. ZINC-FURNACE. GEORGE G. CONVERS and ARTHUR B. DE SAULLES, South Bethlehem, Pa. Filed Sept. 14, 1896. Serial No. 690,912. (No model.)



Claim.—1. A zinc-furnace, provided with a retort-chamber for the circulation of products of combustion, a plurality of retorts or muffles arranged in vertical series within said chamber, a cooling-flue chamber common to all of said retorts and adjacent to the vapor-discharge openings of the retorts, zinc-condensers extending through the cooling-flue chamber, and means for creating a cooling-draft through said flue-chamber; substantially as described.

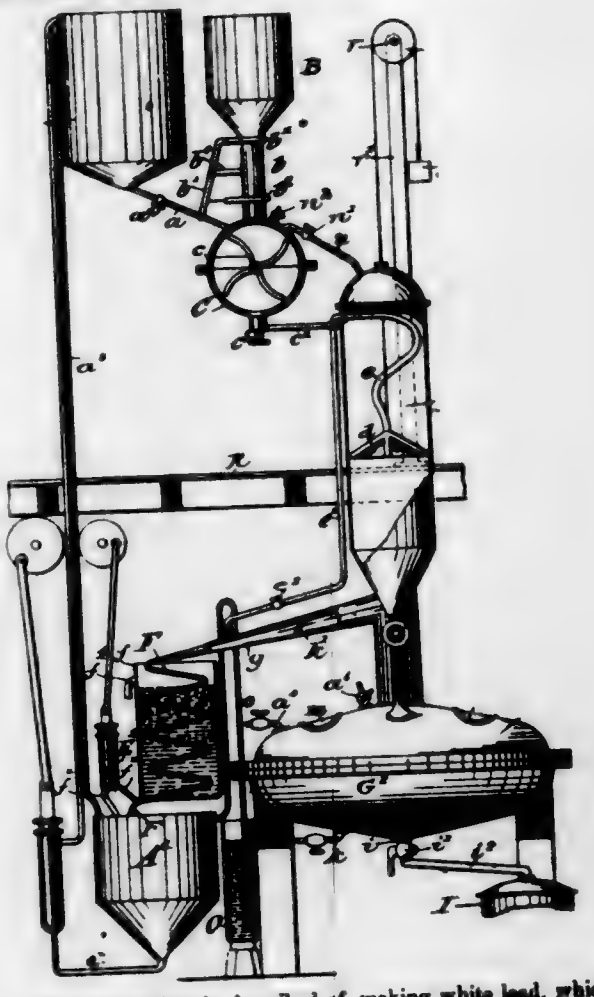
2. A zinc-furnace, provided with a retort-chamber for the circulation of products of combustion, a plurality of retorts or muffles arranged in vertical series within said chamber, a cooling-flue chamber common to all of said retorts and adjacent to the vapor-discharge openings of the retorts, zinc-condensers extending through the cooling-flue chamber, means for creating a cooling-draft through said flue-chamber, and means for regulating the cooling-draft; substantially as described.

3. A zinc-furnace, provided with a retort-chamber for the circulation of products of combustion, a plurality of retorts or muffles arranged in vertical series within said chamber, a cooling-flue chamber common to all of said retorts and adjacent to the vapor-discharge openings of the retorts, zinc-condensers extending through the cooling-flue, and valved transverse partitions within the flue and between the several condensers; substantially as described.

4. A zinc-furnace, provided with a retort-chamber for the circulation of products of combustion, a plurality of retorts or muffles arranged in vertical series within said chamber, a cooling-flue chamber common to all of said retorts and adjacent to the vapor-discharge openings of the retorts, zinc-condensers extending through the cooling-flue, valved transverse partitions within the flue and between the several condensers, and a valved stack surmounting the flue-chamber; substantially as described.

694,138. PROCESS OF MANUFACTURING WHITE LEAD. FREDERICK J. CORBETT, Prahran, Victoria, Australia. Filed June 9, 1900. Serial No. 19,661. (No specimens.)

Claim.—1. The process herein described of making white lead, which consists in mixing aldehyde and acetic acid in substantially the proportions specified, introducing lead oxid into the solution, agitating the mixture, simultaneously subjecting the same to contact with carbonic-acid gas, permitting the mass to settle, drawing off the supernatant liquid, and heating the precipitate to a temperature sufficient to expel the liquid remaining therein, substantially as set forth.



2. The process herein described of making white lead, which consists in mixing aldehyde acetic acid and water in substantially the proportions specified, introducing lead oxid into the solution, agitating the mixture, simultaneously subjecting the same to contact with carbonic-acid gas, permitting the mass to settle, drawing off the supernatant liquid, and heating the precipitate to a temperature sufficient to expel the liquid remaining therein, substantially as set forth.

694,139. APPARATUS FOR MANUFACTURING WHITE LEAD. FREDERICK J. CORBETT, South Yarra, Victoria, Australia. Filed May 24, 1901. Serial No. 61,676. (No model.)

Claim.—1. In an apparatus for making white lead, a settling-chamber, a float in said settling-chamber, a siphon-pipe connected with said float and extending outside the same, and a discharge-pipe communicating with the lower part of the chamber below the float, substantially as set forth.

2. In an apparatus for making white lead, a settling-chamber, a vacuum-pan, a spout connected with said vacuum-pan, a discharge-pipe from the settling-chamber to the vacuum-pan, a float in said settling-chamber, and a siphon-pipe connecting said float with the spout, substantially as set forth.

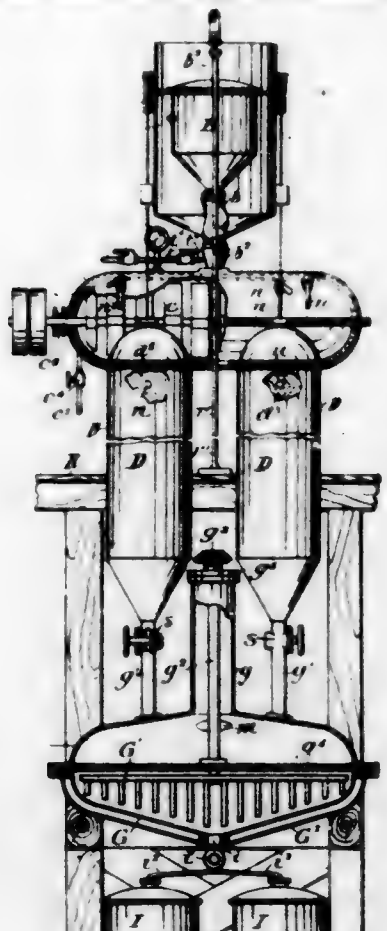
3. In an apparatus for making white lead, a settling-chamber, a vacuum-pan, a spout connected with said vacuum-pan, a discharge-pipe from the settling-chamber to the vacuum-pan, a float in said settling-chamber, a siphon-pipe connecting said float with the spout, and a condenser connected with said spout, substantially as set forth.

4. In an apparatus for making white lead, a settling-chamber, a vacuum-pan, a spout connected with said vacuum-pan, a discharge-pipe from the settling-chamber to the vacuum-pan, a float in said chamber, a pipe connecting said float with the spout, a condenser connected with said spout, and an air-pump connected with said condenser, substantially as set forth.

5. In an apparatus for making white lead, a settling-chamber consisting of an outer shell, an inner perforated shell and a lining of filtering material within said inner shell, a float in the settling-chamber within said lining, a siphon-pipe connected with said float and extending outside of the chamber, a discharge-pipe connected with the interior space of the settling-chamber below the float, and a discharge-pipe connected with the space between the inner and outer shells, substantially as set forth.

6. In an apparatus for making white lead, the combination, with a settling-chamber having an outer shell, an inner perforated shell and a lining of filtering material within the inner shell, of a float in said settling-chamber within said lining, a vacuum-pan, a discharge-pipe connecting the interior space of the settling-chamber with the vacuum-pan, a spout

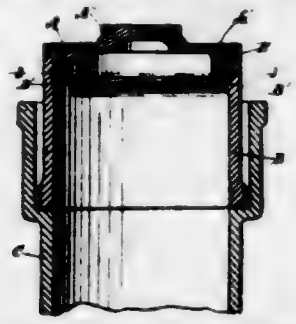
connected with the vacuum-pan, a siphon-pipe connected with the float and with said spout, and a discharge-pipe connecting the space between the inner and outer shells with said spout, substantially as set forth.



7. In an apparatus for making white lead, a plurality of settling-chambers provided each with an outer shell, an interior perforated shell and a lining of filtering material within the inner shell, floats, one in each settling-chamber, a vacuum-pan, discharge-pipes, each connecting the interior space of one settling-chamber with the vacuum-pan, a spout connected with said vacuum-pan, siphon-pipes, one for each float, connecting the same with said spout, a discharge-pipe connecting the space between the inner and outer shells with said spout, a condenser connected with said spout, and an air-pump connected with said condenser, substantially as set forth.

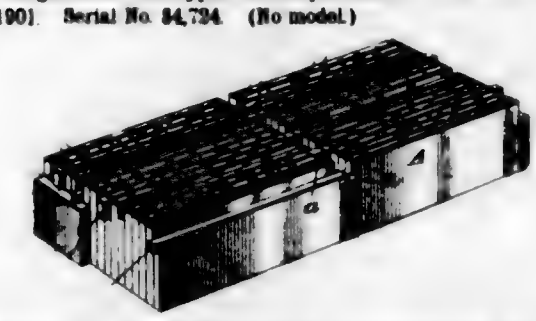
8. In an apparatus for making white lead, a plurality of settling-chambers provided each with an outer shell, an inner perforated shell and a lining of filtering material within said inner shell, floats, one in each settling-chamber, a vacuum-pan, valved discharge-pipes, one for each settling-chamber, connecting the interior space of the same below the float with the vacuum-pan, a spout connected with said vacuum-pan, a valve in said spout, siphon-pipes, one for each float, connecting the same with the spout beyond the valve, a discharge-pipe connecting the space between the inner and outer shells with the spout, beyond the valve, a condensing-coil connected with said spout beyond the valve, and an air-pump connected with said condensing-coil, substantially as set forth.

694,140. CLEAN-OUT FOR DRAIN OR SOIL PIPES. JAMES CRAWFORD, Boston, Mass. Filed June 6, 1901. Serial No. 63,420. (No model.)



Claim.—The herein-described clean-out, consisting of a screw-threaded removable brass cap A combined with an internally-screw-threaded brass ring having notches or projections on its exterior, interlocked with corresponding projections or recesses on the interior of the cast-iron body portion B, and an annular projection or shoulder B′ on the interior of said body B below the said brass ring D, said shoulder serving as a rest or support for said brass ring substantially as and for the purpose set forth.

694,141. LINOTYPE. DANIEL F. DALEY, Brooklyn, N. Y., assignor to Mergenthaler Linotype Co., a Corporation of New York. Filed Dec. 5, 1901. Serial No. 84,724. (No model.)



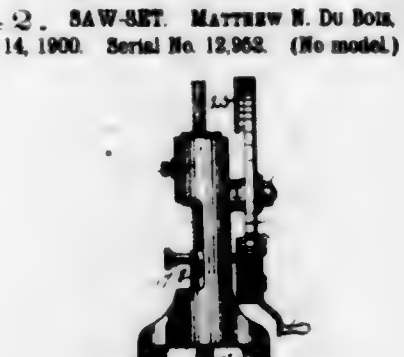
Claim.—1. A linotype-slug having an overhanging end projection at the upper edge below the printing-level, substantially as described.

2. A linotype-slug, having at the upper edge below the printing-level overhanging projections *a* extending beyond the body or measure of the slug, substantially as described.

3. In a linotype-form, the combination of reglets or rules and type-high linotype-slugs adapted to engage over the same and hold them down in place.

4. A type-high linotype having a printing-surface and end shoulders in combination with a reglet or its equivalent underlying said shoulders, whereby the printing-pressure applied to the linotype in use is caused to hold the linotype down in place, and the linotype in turn is caused to hold down the reglet.

694,142. SAW-SET. MATTHEW N. DU BOIS, Philadelphia, Pa. Filed Apr. 14, 1900. Serial No. 12,962. (No model.)



Claim.—1. The combination in a machine of the character described of a base having a groove in its upper surface, housing secured to the base, said housing having a vertical slot in one of its walls, a spring-pressed plunger operating in the housing, said plunger comprising a triangular-shaped head having an aperture in its top and a rod which is secured in bushing at the top of the housing and has its lower end in engagement with the aperture of the head, a pin secured to the plunger and adapted to hold the parts together, said pin working in and protruding beyond the slot of the housing, a power-wheel secured to the housing, cam-blocks secured to the inner face of the wheel and adapted to engage the protruding end of the said pin, an adjustable anvil having its upper face beveled, said anvil being adapted to ride in the groove of the base, guide-plates on the legs of the housing, adjustable saw-supporting devices on the base, and operating means for the power-wheel.

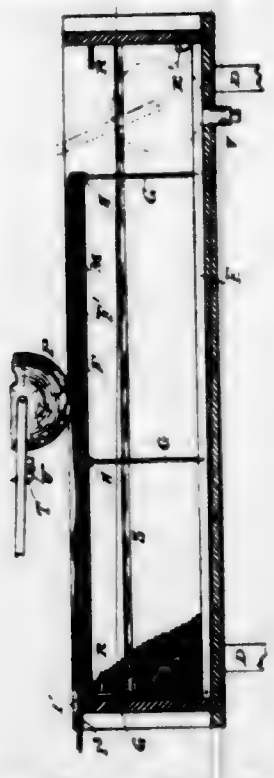
2. In a saw-set the combination with a base having a groove in its upper face, of an anvil adapted to slide in the said groove, the upper face of said anvil being beveled in opposite directions from a central line, one end of said anvil having a threaded socket, a bracket fixed to the base, a screw working through the said bracket and entering the threaded socket of the anvil, and the vertically-adjustable rest-screws arranged upon the base upon opposite sides of the anvil, substantially as shown and described.

3. In a saw-set, the combination with a base, of a housing arranged thereon and supported by suitable legs, an anvil adjustable upon the base, the vertical guides arranged upon the base adjacent to the anvil, the horizontal guides attached to the legs of the housing, the plunger having a socket in its upper end, a spring-actuated rod working in the housing and connected to the plunger, the coupling-pin for connecting the rod and plunger, the end of said pin projecting beyond the said plunger and working in a vertical slot produced in the side of the housing, and a wheel having cam-lifting arms adapted to engage the said pin for the purpose of raising the plunger and the spring for forcing the plunger downwardly, substantially as set forth.

694,143. WASHING-MACHINE. JOHN H. ELLIS, Peoria, Ill. Filed July 12, 1901. Serial No. 68,123. (No model.)

Claim.—1. In a washing-machine, a tank for holding water, a re-

movable platform secured in said tank and adapted to rise and fall for the purposes set forth, supporting means for said platform for holding it horizontally in all positions, means for raising and lowering said platform upon its supporting means and an inclosing fabric on said platform for enveloping the clothes substantially as set forth and for the purposes described.



2. A washing-machine comprising a tank, a perforated platform therein for carrying the clothes, the same adapted to be raised and lowered, means for carrying the same in a horizontal position, an enveloping fabric attached to and covering the platform for the purposes set forth, horizontal slots in the sides of the tank, a roller for traversing the length of the platform upon the clothes for the purposes explained, a handle for operating said roller, a cross-bar on the handle, entering and moving within the slots all being arranged substantially as described.

3. A washing-machine comprising a tank, a perforated platform F, bails G for supporting it and permitting it be raised and lowered as described, fabric secured to the platform for enveloping the clothes to be washed and a roller P for passage over the clothes upon the platform as set forth.

4. In a washing-machine, a tank, a perforated platform F therein, bails G for supporting the same, the arm E E in the bottom of the tank in which the extremities of the bails are carried, fabric on the platform for inclosing the clothes to be washed, a roller P for traversing the platform from end to end upon the clothes, a slot in each side of the tank from end to end, a handle for the roller and a cross-piece on said handle for entering and moving within the slots substantially as and for the purposes described.

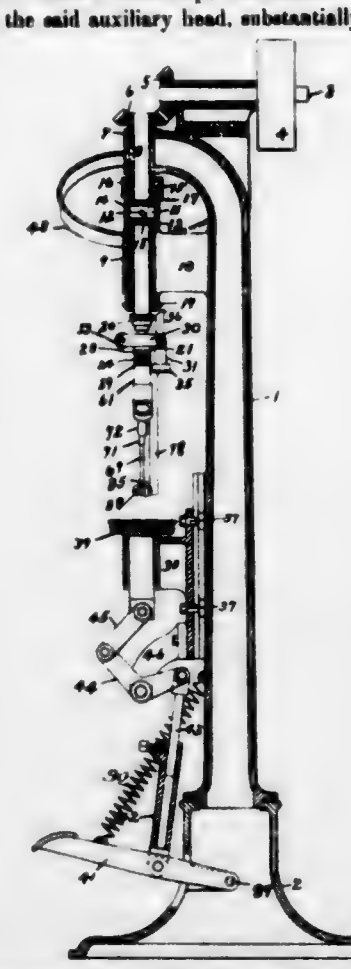
5. In a washing-machine the tank, a movable platform F therein, bails G for carrying the same, the fabric on the platform for enveloping the clothes, means for moving the platform and locking it in its raised position, a roller P within the tank and means for guiding it in its movements and producing more or less pressure upon the clothes as set forth and described.

6. In a washing-machine the tank A, B, C of rectangular form, the arms E in the bottom, the bails G pivoted thereto at their lower ends, the perforated platform supported at the top of said bails, the enveloping fabric F′ secured to the top of the platform for inclosing the clothes to be washed, the arms I for raising and lowering the platform for the purposes described, means for holding the latter after being raised and the roller P for moving over the platform for washing the clothes within the fabric F′ all being arranged substantially as and for the purposes described.

7. In a washing-machine the tank A, B, C of rectangular form, slots S in the sides thereof, the arms E in the bottom, the bails G pivoted thereto at their lower ends, the perforated platform supported at the top of said bails, the enveloping fabric F′ secured to the top of the platform for inclosing the clothes to be washed, the arms I for raising and lowering the platform for the purposes described, means for holding the latter after being raised, the roller P, the handle Q for the same, the cross-arm U pivoted thereto and engaging the said slot S all for the purposes set forth and described.

694,144. BOTTLE-CAPPING MACHINE. ROBERT PLANIGAN, Baltimore, Md. Filed June 15, 1901. Serial No. 64,688. (No model.)

Claim.—1. In a bottle-capping machine, the combination of a vertically-movable shaft; means for rotating said shaft; a fixed head secured to the lower end of said shaft; a spinning-tool carried by said fixed head; an auxiliary head revolubly secured to the fixed head and having means at its lower end to hold a bottle-cap; and means for automatically feeding the caps to the said auxiliary head, substantially as described.



2. In a bottle-capping machine, the combination of a vertically-movable shaft; means for rotating said shaft; a fixed head secured to the lower end of said shaft; a spinning-tool carried by said fixed head; an auxiliary head revolubly secured to the fixed head and having means for holding a bottle-cap; and means for forcing the spinning-tool in against the bottle-cap when the shaft is moved upwardly, substantially as described.

3. In a bottle-capping machine, the combination of a vertically-movable shaft having a fixed collar thereon; means to rotate said shaft; a spring surrounding the shaft above the said collar; means to change the tension of said spring; a fixed head secured to the lower end of said shaft; a spinning-tool carried by said fixed head; an auxiliary head revolubly secured to the fixed head and having means for holding a bottle-cap; and means for automatically feeding the caps to the auxiliary head, substantially as described.

4. In a bottle-capping machine, the combination of a vertically-movable shaft; means to rotate said shaft; a fixed head secured to the lower end of said shaft; a spinning-tool carried by the fixed head; an auxiliary head revolubly secured to the fixed head and having means to hold a bottle-cap thereto; and a stationary cam which when the shaft is moved upwardly will force the spinning-tool in against the cap held by the auxiliary head, substantially as described.

5. In a bottle-capping machine, the combination of a vertically-movable shaft having a fixed collar thereon; means for rotating said shaft; a stationary sleeve surrounding said shaft below the collar; ball-bearing between the said collar and sleeve; a spring surrounding the shaft above the collar; a vertically-adjustable cap surrounding the shaft above the spring; a cam on the lower end of the said sleeve; a fixed head secured to the lower end of the said shaft; a spinning-tool carried by the said fixed head; and an auxiliary head revolubly secured in the said fixed head and having a slotted spring extending around and below said auxiliary head, substantially as described.

6. In a bottle-capping machine, the combination of a vertically-movable shaft; means for rotating said shaft; a fixed head secured to the lower end of said shaft; a spinning-tool carried by said fixed head; an auxiliary head revolubly secured to said fixed head and having means to hold a bottle-cap; a magazine to hold the caps; and means for passing the said caps from the magazine to the auxiliary head one at a time, substantially as described.

7. In a bottle-capping machine, the combination of a vertically-movable shaft; means for rotating said shaft; a fixed head secured to the lower end of said shaft; a spinning-tool carried by said fixed head; an auxiliary head revolubly secured to said fixed head and having means for holding a bottle-cap; a vertically-movable bottle-seat below said shaft and in line

therewith; means to operate said seat to carry the bottle up to the auxiliary head and force the shaft upwardly, a magazine for holding the bottle-caps; and means operated by the vertically-movable seat for passing the caps one at a time from the magazine to the auxiliary head, substantially as described.

8. An automatic feeder comprising a magazine having an opening in the front thereof; a guide in line with said opening; an oscillating race having a recess in the lower end thereof; means to oscillate said race to bring it into communication with the magazine; a plunger normally seated in the recess in said race; and means to force the said plunger upwardly as the race is brought into communication with the magazine, substantially as described.

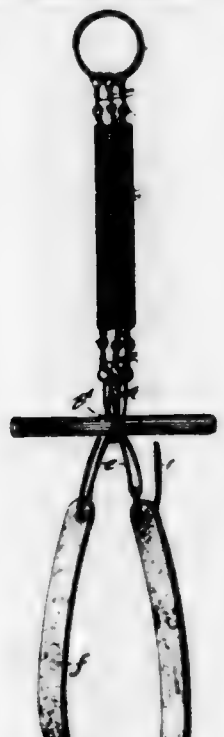
9. An automatic feeder comprising a magazine having an opening in the front thereof; a reciprocating bottom pivoted in the magazine; an oscillating race; means to oscillate said race to bring it into communication with the magazine; means for reciprocating the bottom in the magazine when the race is oscillating; a plunger in the lower end of the race; and means to force said plunger upwardly as the race is being brought into communication with the magazine, substantially as described.

10. An automatic feeder comprising a magazine having an opening in the front thereof; a guide in front of said opening in the magazine; means to permit but one cap to enter the said guide at a time; an oscillating race; means to oscillate said race to bring it into communication with the magazine; a plunger in said race; and means to force the plunger upwardly as the race is brought in communication with the magazine, substantially as described.

11. An automatic feeder comprising a magazine; an oscillating race having a recess in the lower end thereof; means to oscillate said race to bring it into communication with the magazine; a plunger having its head normally seated in the said recess in the race; a pin projecting downwardly from the head of said plunger; and means to force the said plunger upwardly when the race is being brought into communication with the magazine, substantially as described.

12. In a bottle-capping machine, the combination of an automatic feeder consisting of a magazine for holding the bottle-caps; an oscillating race; means to oscillate said race to bring it into communication with the magazine; a plunger for passing the cap from the race to the machine; and means to operate the said plunger when the race is being oscillated, substantially as described.

694,145. FIRE-ESCAPE. JOSEPH FRENKEL, New York, N. Y. Filed Nov. 14, 1901. Serial No. 82,184. (No model.)

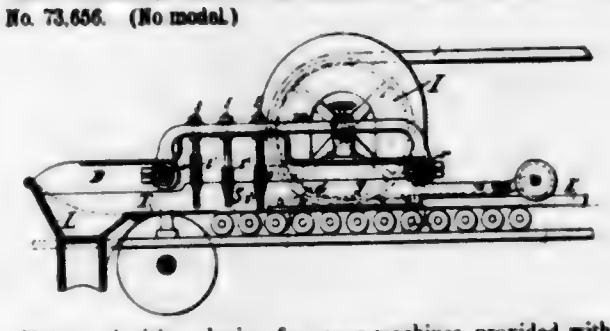


Claim.—1. A fire-escape, consisting of a plurality of closely-wound helical coils of wire, free to expand at both ends, an upper suspension member, a lower suspension member, a suspension device connected with the lower suspension member, and means detachably connecting said coils individually with said upper and lower suspension members, substantially as set forth.

2. A fire-escape consisting of a plurality of closely-wound helical coils of wire free to expand at both ends, suspension-rings at the upper and lower ends of said coils; snap-hooks connecting the coils therewith, a cross-bar connected with the lower suspension-rings, a suspension device for the body, and means for connecting said suspension device with the lower suspension-rings, substantially as set forth.

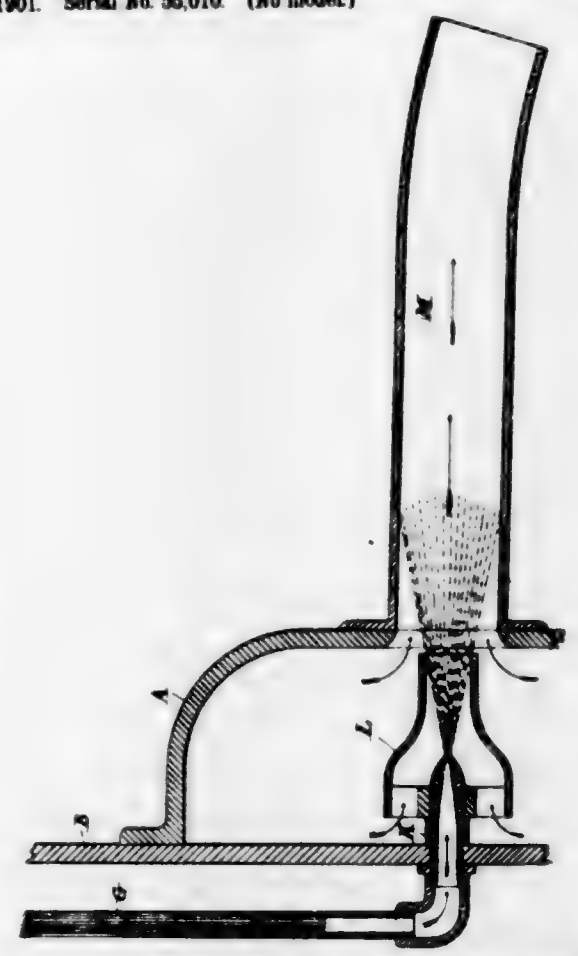
3. A fire-escape consisting of a plurality of closely-wound helical coils of wire free to expand at both ends, suspension-rings connected with the upper and lower ends of said coils, a suspension device adapted to be applied to the body, means for connecting one end of said suspension device with the lower suspension-rings, and means connecting the opposite end of the suspension device detachably with the suspension-rings, substantially as set forth.

694,146. SIZING APPARATUS FOR PAPER-MACHINES. ALWIN R. FÜLLNER, Warmbrunn, Germany. Filed Aug. 29, 1901. Serial No. 73,656. (No model.)



Claim.—A sizing device for paper-machines provided with undivided edge bars which pass through suitable packed openings in the side bars and are fixed independently of the latter on the longitudinal frames of the wire-cloth table, as set forth.

694,147. SMOKE-PREVENTING AND FUEL-SAVING DEVICE FOR BOILER OR OTHER FURNACES. GEORGE GREGORY, London, England, assignor of two-thirds to Robert Gregory, Islington, London, England, and John Henry Foster, Greenwich, England. Filed Apr. 9, 1901. Serial No. 55,010. (No model.)

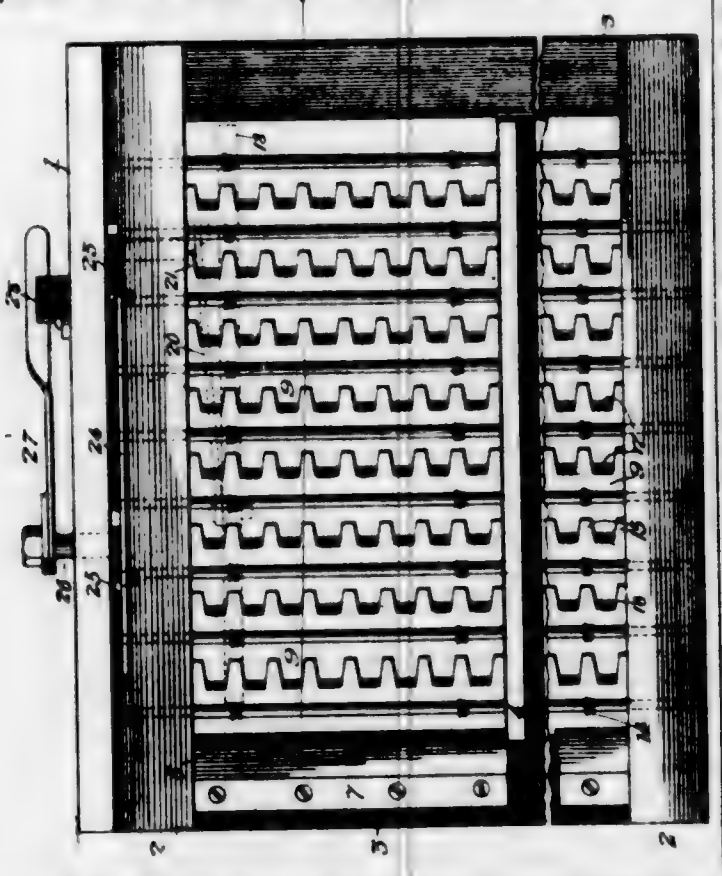


Claim.—In combination with a boiler-furnace, a casing or shield-plate A formed of one piece and secured to the inner face of the boiler-front around the doorway, thus forming an air-chamber, a retort M secured to said casing and projecting over the bed of fuel, a nozzle K extending through the boiler-front, a case L secured to said nozzle and having an enlarged open rear end and a contracted front portion in line with the retort M, and an air-inlet, substantially as described.

694,148. ADJUSTABLE CHAFFER OR SIEVE. FRANK HIXSON, Ashland, Ohio, assignor of one-half to H. L. McCray, Ashland, Ohio. Filed Jan. 21, 1901. Serial No. 44,042. (No model.)

Claim.—1. The combination in a chaffer or sieve, of a frame; a series of metallic slats rigidly secured to shafts and the shafts journaled in

the frame; and means for rotating the slats and shafts simultaneously; the said slats having one edge provided with fingers 15, and prongs 16 which lie in a plane substantially at right angles to the plane of the surface of the slat, and the said slats so arranged in the frame that the fingers 15 of each slat will overlap the edge of an adjacent slat.



2. The combination in a chaffer or sieve, of a frame; a series of metallic slats rigidly secured to shafts and the shafts journaled in the frame; and means for rotating the shafts and slats simultaneously; the said slats having one edge provided with downwardly-projecting prongs 16, which lie in a plane at an angle to the plane of the slat, and the other edge provided with notches 17 formed in the body thereof; the said slats being so arranged in the frame that the prongs of one slat normally occupy positions within the notches of an adjacent slat.

3. The combination in a chaffer or sieve, of a frame; a series of metallic slats rigidly secured to the shafts and the said shafts journaled in the frame; and means for rotating the shafts and slats simultaneously; the said slats having one edge provided with fingers 15 and prongs 16, and the other edge with notches 17, and the slats so arranged in the frame that the prongs of one slat will occupy positions within the notches of an adjacent slat and the fingers 15 overlap the edge of an adjacent slat.

4. The combination with a shoe, of a chaffer or sieve having a frame; a series of metallic slats rigidly secured to shafts and the shafts journaled in the frame; each of said slats having a plane surface and the metal thereof struck up in a longitudinal line intermediate its parallel edges to form a seat 10 for a shaft, and a shaft rigidly secured in said seat by solder and clips; and each of said slats having a crank 12; a rocker-bar 18 located beneath the frame and slats to which the cranks 12 of the slats are pivoted; a lever located on the outside of the shoe; and means uniting the lever and the rocker-bar 18 whereby the slats may be adjusted simultaneously.

5. The combination with a shoe, of a chaffer or sieve; and means for operating the slats of the chaffer or sieve; the said chaffer or sieve having a frame, slats rigidly secured to shafts journaled in the frame and each shaft provided with a crank 12 which is pivoted to a rocker-bar 18; and the means for operating the slats of the sieve or chaffer consisting of a lever and crank-arm, a journal located in a side piece of the frame and having arms, an upper connecting-bar, and a lower connecting-bar.

6. The combination in a chaffer or sieve, of a frame; a series of metallic slats rigidly secured to shafts and the said shafts journaled in the frame; and means for rotating the shafts and slats simultaneously consisting of cranks 12 on the under surfaces of the slats, a rocker-bar 18 beneath the frame to which the cranks are pivoted, an upright 23, a journal 22 located in the side of the frame, an arm 21 on the journal 22; a connecting-bar 20 pivoted to the rocker-bar 18 and the arm 21, and means whereby the upright 23 can be held in a fixed position when shifted toward the right or left relative to the frame.

7. The combination in a chaffer or sieve, of a frame; a series of sheet-metal slats rigidly secured to shafts so that the slats will move with the shafts without lost motion, and the said shafts journaled in the frame; and means for rotating the shafts and slats simultaneously; the said slats being arranged parallel in the frame and one edge of each slat having downwardly-projecting prongs or fingers which are located close to the edge of an adjacent slat and normally extend below said adjacent slat, the arrangement being such that, when the slats are rotated and caused to occupy positions oblique to the frame, openings will be made between the prongs and the edge of a slat adjacent the said prongs through which currents of air can pass.

694,149. ACIDYL DIALKYLRHODAMIN AND PROCESS OF MAKING SAME. CARL HOFFMANN, Höchst-on-the-Main, Germany, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany, a Corporation of Germany. Filed Dec. 10, 1901. Serial No. 85,309. (Specimens.)

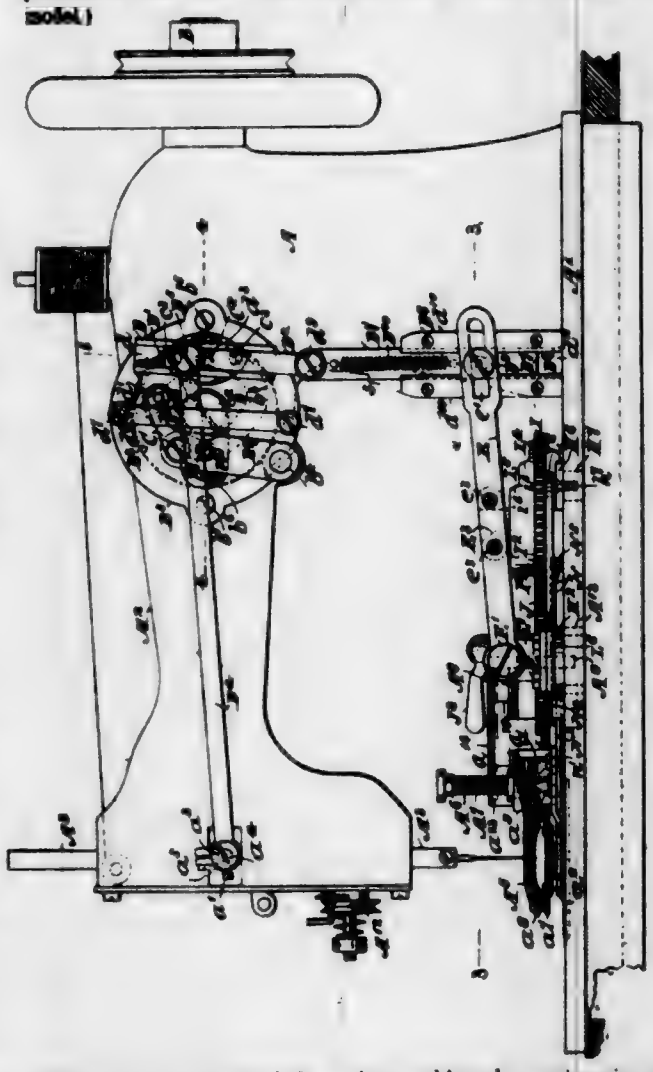
Claim.—1. The herein-described process for the manufacture of acidulated asymmetric dialkylrhodamins which consists in condensing dialkylamidooxybenzoylbenzoic acids with acidyl-meta-amidophenols, substantially as set forth.

2. As new products, the acidulated asymmetric dialkylrhodamins, being substances of metallic luster and when pulverized red powders, soluble with difficulty in water and dilute cold acid, insoluble in ether, but readily dissolved by hot alcohol, the alcoholic solutions are pink red and dye mordanted calico bright yellow-red to bluish-red shades; said products when heated with dilute mineral acid are easily transformed into the asymmetric dialkylrhodamins.

3. The herein-described process for the manufacture of acidulated dialkylrhodamins, which consists in condensing diethylamidooxybenzoylbenzoic acid with meta-oxyacetanilid, substantially as set forth.

4. As a new product, the acidulated asymmetric diethylrhodamin, being in a dry state a dark-red powder, soluble with difficulty in water and dilute acid, insoluble in ether, but readily dissolved by hot alcohol, the dilute alcoholic solution is pink red and has a green-yellow fluorescence; it dyes mordanted calico bright yellow-red shades and when heated with dilute mineral acid is readily transformed into asymmetric diethylrhodamin.

694,150. BUTTONHOLE-SEWING MACHINE. JAMES T. HOGAN, Jersey City, N. J., assignor to the National Machine Company, a Corporation of New York. Filed June 30, 1899. Serial No. 722,397. (No model.)



Claim.—1. In a buttonhole-sewing machine, the combination with stitch-forming mechanism comprising a needle, and a work-support, mechanism for producing between said stitch-forming mechanism and work-support a relative feed and vibratory movement suitable for forming rows of stitches for the sides of a buttonhole, and mechanism for producing an-

other relative movement for forming barring-stitches at each end of and at substantially right angles to the aforesaid rolls of side stitches, beginning at the center of the buttonhole and extending to one side thereof, then across the end of the buttonhole to the other side thereof, and finally, back to the starting-point, substantially as described.

2. In a buttonhole-sewing machine, the combination with stitch-forming mechanism comprising a needle, and a work-support, mechanism for producing between said stitch-forming mechanism and work-support a relative feed and vibratory movement suitable for forming rows of stitches for the sides of a buttonhole, and mechanism for producing another relative movement for forming barring-stitches at each end of and at substantially right angles to the aforesaid rows of side stitches, beginning at the center of the buttonhole and extending to one side thereof, then across the end of the buttonhole to the other side thereof, and finally, back to the starting-point, and means to vary the extent of said movements, substantially as described.

3. In a buttonhole-sewing machine, the combination with stitch-forming mechanism comprising a needle, and a work-support, mechanism for producing between said stitch-forming mechanism and work-support a relative feed and vibratory movement suitable for forming rows of stitches for the sides of a buttonhole, and mechanism for producing another relative movement for forming barring-stitches at each end of and at substantially right angles to the aforesaid rows of side stitches, beginning at the center of the buttonhole and extending to one side thereof, then across the end of the buttonhole to the other side thereof, and finally, back to the starting-point, whereby one set of side and barring stitches is formed, and means whereby these operations are repeated and the direction of the relative feed movements of the sewing mechanism and work-support lengthwise and crosswise of the buttonhole are reversed, thereby forming a second set of side and barring stitches similar to the first, substantially as described.

4. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, means comprising a ratchet-wheel for producing a relatative feed between said sewing mechanism and work-support lengthwise of a buttonhole, an actuating-pawl for said wheel, means for producing a relative vibratory movement between the sewing mechanism and work-support transversely to the length of a buttonhole mechanism adapted to operate automatically and periodically to engage and disengage the ratchet-actuating pawl, and mechanism for producing a relative feed between the sewing mechanism and work-support transversely to the length of a buttonhole and simultaneously therewith a relative vibratory movement between said devices lengthwise of a buttonhole immediately after the disengagement of the actuating-pawl from said ratchet-wheel, substantially as described.

5. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of means comprising a ratchet-wheel for producing a relative feed between said sewing mechanism and work-support lengthwise of a buttonhole, an actuating-pawl for said wheel, means for producing a relative vibratory movement between the sewing mechanism and work-support transversely to the length of a buttonhole, means adapted to operate automatically and periodically to suspend the rotation of said ratchet-wheel and mechanism actuated by said wheel to suspend said vibratory movement at the same time, substantially as described.

6. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, means comprising a ratchet-wheel for producing a relative feed between said sewing mechanism and work support lengthwise of a buttonhole, means to actuate said ratchet-wheel, means adapted to operate automatically and periodically to suspend the rotation of said wheel, mechanism to produce a relative vibratory movement between the sewing mechanism and the work-support transversely to the length of the buttonhole, and a cam actuated by said ratchet-wheel to control the mechanism for producing said vibratory movement, said cam operating to suspend such vibratory movement at or about the time that rotation of said ratchet-wheel ceases, substantially as described.

7. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of a pawl-actuated ratchet-wheel, a pinion actuated by said ratchet, mechanism intermediate said pinion, and work-support whereby the said support is fed lengthwise of a buttonhole, means adapted to automatically and periodically move the ratchet-actuating pawl into and out of engagement with said wheel, a lever connected with the needle-bar of the sewing mechanism by means of a pitman to produce a vibratory movement of the needle-bar, and means actuated by said pinion to adjust the point of connection between said lever and pitman so as to make such connection coincident with the fulcrum of said lever when the actuating-pawl is disengaged from said ratchet-wheel, substantially as described.

8. In a buttonhole-sewing machine, the combination of a needle-bar, means to reciprocate said bar, a lever and means to actuate the same, a pitman connected to said needle-bar and lever, and means to adjust the point of connection between said pitman and lever to a point coincident with the fulcrum of said lever for a predetermined definite period or lengthwise of said lever to a point on either side of its fulcrum, substantially as described.

9. A buttonhole-machine comprising a vibratory needle-bar, a lever for vibrating the same, means to actuate said lever, a pitman intermediate of the needle-bar and said lever and connected loosely with said lever so as to be capable of being adjusted coincident with the fulcrum of said lever for a predetermined definite period or along either arm of said lever, and a cam, and means actuated thereby for adjusting the point of connection between said pitman and lever, substantially as described.

10. A buttonhole-machine comprising a vibratory needle-bar, a lever for vibrating the same, and means to actuate said lever, a pitman intermediate of the needle-bar and said lever and connected loosely with said lever so as to be capable of being adjusted coincident with the fulcrum of said lever or along either arm of said lever, a cam, consisting of three steps, and a lever actuated by said cam and connected with said pitman for adjusting the point of connection between said pitman and first-mentioned lever, substantially as described.

11. A buttonhole-sewing machine, comprising an actuating-pitman and a lever with which said pitman has a sliding connection, a rod for adjusting the point of connection between said pitman and lever to a point coincident with the fulcrum of said lever for a predetermined definite period or lengthwise of said lever to a point on either side of its fulcrum, a second lever longitudinally slotted where it is connected with said rod, and a cam for operating said second lever, substantially as described.

12. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of a ratchet-wheel and mechanism connected therewith to feed said support, a plate having a ratchet-segment extending beyond the periphery of the ratchet-wheel, a lever and means to oscillate the same and two pawls on said lever, one pawl being in advance of the other and one of said pawls adapted to engage the teeth of said wheel and segment, and the second pawl to engage the segment only, and means to feed the ratchet-segment into position to be engaged by the said second pawl, whereby a positive feed is given said segment to cause the first-named pawl to fall out of engagement with the ratchet-wheel at substantially the end of the sewing of a set of side stitches, substantially as described.

13. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of a ratchet-wheel and mechanism connected therewith to feed said support, a lever having thereon a pawl to rotate said ratchet-wheel, means to actuate said lever, a plate having a ratchet-segment and movable independently of said wheel, a second pawl on said lever in advance of the first-named pawl to engage said segment, and a pin secured to said ratchet-wheel and engaging said segment at a predetermined point in its travel, substantially as described.

14. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of means for producing a relative feed between said sewing mechanism and work-support lengthwise of a buttonhole, also for producing a relative vibratory movement between the sewing mechanism and work-support transversely of the length of a buttonhole for the formation of side stitches; independently-operated means for producing a relative feed between the sewing mechanism and work-support transversely to the length of a buttonhole and simultaneously therewith a relative vibratory movement between said devices lengthwise of a buttonhole for the formation of barring-stitches, the side-stitch mechanism being operative while the barring mechanism is wholly inoperative, and means actuated by the former to bring the latter into operative position, substantially as described.

15. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of a ratchet-wheel and mechanism intermediate said wheel and support, whereby the latter is fed lengthwise of a buttonhole, a second ratchet wheel and mechanism intermediate thereof and the work-support whereby the latter is moved transversely of the length of the buttonhole and at the same time vibrated in a direction lengthwise of the buttonhole, the second-named ratchet-wheel being dormant while the first is active, means actuated by the first-named wheel to bring the second ratchet-wheel into operative position, and means to actuate said wheels, substantially as described.

16. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of a feed-wheel and mechanism actuated thereby to feed the said support in the direction of the length of a buttonhole, a second feed-wheel and mechanism actuated thereby to feed the work-support transversely to, and simultaneously therewith vibrate the same in the direction of the length of a buttonhole, said second feed-wheel being dormant while the other is active, a trip-piece actuated by said first-named feed-wheel, means to actuate said feed-wheels, and a pawl-carrying arm to engage said second feed-wheel lying in the path of said trip-piece and actuated thereby after a predetermined length of travel of said first-named feed-wheel, substantially as described.

17. In a buttonhole-sewing machine, the combination with sewing mechanism comprising a vibrating needle-bar and a work-support, of a ratchet-wheel and mechanism intermediate thereof and the work-support to produce a feed of said support lengthwise of a buttonhole, a second ratchet-wheel and mechanism intermediate thereof and the work-support to produce a vibratory movement of the work-support in the direction of the length of a buttonhole and simultaneously therewith a feed movement transversely to the length of a buttonhole, said second ratchet-wheel being dormant while the first-named ratchet-wheel is active, and means actuated by the latter to suspend the vibration of the needle-bar and to bring said second ratchet-wheel into operative position after a predetermined length of travel of said first-named ratchet-wheel, substantially as described.

18. In a buttonhole-sewing machine the combination with sewing mechanism and a work-support, of a slotted plate connected to said support, a cam and means to rotate the same, a cam-follower secured to a lever fulcrumed on a suitable stud, and adjustable means coöperating with the slot of said plate to clamp said lever to said plate, whereby the amplitude of movement of said plate may be varied substantially as described.

19. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of a barring mechanism comprising a plate connected with the work-carrier, a second plate having guides which support the first-named plate, a stud immovably fixed to the bed of the machine, two cams mounted on said stud, means for rotating said cams, and two cam-followers one on each of said plates and each engaging one of said cams, whereby the work-support is fed transversely to and simultaneously vibrated in the direction of the length of a buttonhole, substantially as described.

20. In a buttonhole-sewing machine, the combination with stitch-forming mechanism and a work-support, of a barring mechanism comprising a plate connected to said support, said plate movably supported in guides fixed to a second plate, said second plate, a stud immovably fixed to the bed of the machine and passing through clearance-openings in said plates, said stud having mounted thereon two cams, means for rotating said cams, and two cam-followers one on each of said plates and each engaging one of said cams, whereby the work-carrier is fed transversely to and simultaneously vibrated in the direction of the length of a buttonhole, substantially as described.

21. In a buttonhole-sewing machine, the combination with stitch-forming mechanism, of a work-support, a plate connected to said support, means to vibrate said plate so as to produce a vibratory motion of the work-support lengthwise of the buttonhole, and means to limit the movement of said plate to vary the bight of the stitches, substantially as described.

22. In a buttonhole-sewing machine, the combination of stitch-forming mechanism, of a work-support, a plate connected therewith, means to vibrate said plate so as to produce a vibratory motion of the work-support lengthwise of a buttonhole, and an adjustable stop fixed to the bed of the machine and against which said plate abuts, whereby the bight of the stitches may be varied, substantially as described.

23. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of a slotted plate connected to said support, a cam to feed said plate transversely to the length of a buttonhole, a slotted arm carrying a cam-follower in contact with said cam, said arm being pivoted to the bed-plate, and a set-screw adjustable along the length of the slots of said slotted plate and arm whereby the length of the rows of barring-stitches may be varied, substantially as described.

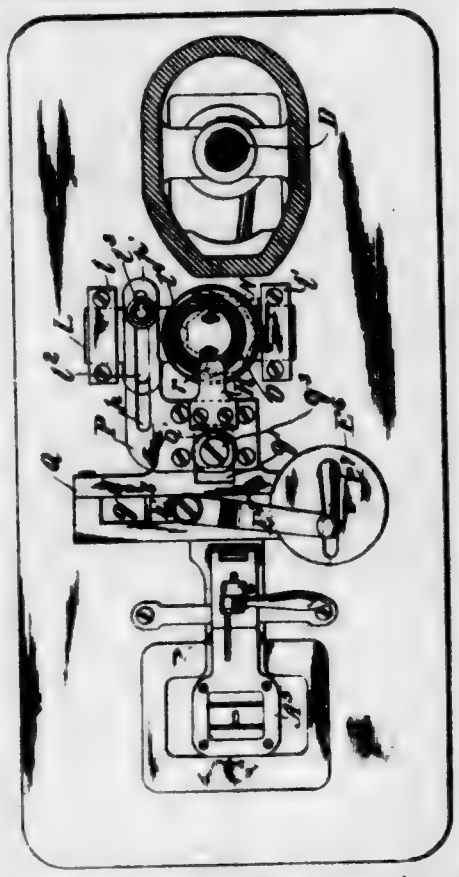
24. In a buttonhole-sewing machine, the combination with stitch-forming mechanism and a work-feeding mechanism, of means for controlling said mechanisms for producing side stitches, and independent automatic means for controlling said mechanisms for producing barring-stitches at substantially a right angle to and overlapping a portion of said side stitches while the work is maintained in the same relative position to the stitch-forming mechanism.

25. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of means for producing side stitches, means for producing barring-stitches at substantially a right angle to the side stitches comprising a plate connected to the support, a cam-follower secured to said plate, a cam bearing against said follower so constructed as to cause a vibratory movement of said plate in a direction lengthwise of a buttonhole to produce barring-stitches which overlap the side stitches, and means to actuate said cam, substantially as described.

26. In a buttonhole-sewing machine, the combination with sewing mechanism and a work-support, of means for producing side stitches, means for producing barring-stitches at substantially a right angle to the side stitches comprising a plate secured to the work-support, a cam-follower secured to said plate, a cam bearing against said follower so constructed as to move said plate the full depth of the stitch except the first and last stitches, whereby the barring-stitches may be made to overlap the side stitches at both ends of the buttonhole, and means to actuate said cam substantially as described.

27. In a buttonhole-sewing machine, the combination of a needle-bar, a frame in which said bar is mounted, said frame having a stud rotatably adjustable therein and carrying a disk having a stud set eccentrically thereon, a pitman connected to said last-named stud and means to reciprocate said pitman, substantially as described.

694,151. BUTTONHOLE-SEWING MACHINE. JAMES T. HOGAN, Jersey City, N. J., assignor to the National Machine Company, New York, N. Y., a Corporation of New York. Filed Feb. 26, 1901. Serial No. 48,943. (No model.)



Claim.—1. In a buttonhole-sewing machine the combination with stitch-forming mechanism of a work-support, means for producing between said stitch-forming mechanism and work-support relative feeding and vibratory movement suitable for forming rows of stitches for the sides of a buttonhole, and mechanism for producing relative feeding and oscillating movements between the stitch-forming mechanism and the work-support, to form barring-stitches at substantially right angles to the side stitches, said last-named means comprising a plate and an extension of the work-support and two cams to simultaneously actuate such plate and work-support, substantially as described.

2. In a buttonhole-sewing machine the combination with stitch-forming mechanism, of a work-support, means for producing between said stitch-forming mechanism and work-support relative feeding and vibratory movements suitable for forming rows of stitches for the sides of a buttonhole and means for producing barring-stitches at both ends of and at substantially right angles to, the rows of side stitches, comprising a feed-wheel having a blind tooth, a lever carrying two pawls, one of which engages said tooth during the formation of the side stitches, a lever to hold the second of said pawls out of engagement with said wheel during the formation of side stitches, and means to trip said lever to permit the last-named pawl to move said wheel to bring the first-named pawl into active relation with the feed-wheel, substantially as described.

3. In a buttonhole-sewing machine, the combination with stitch-forming mechanism, of a work-support, means for producing between said stitch-forming mechanism and work-support relative feeding and vibratory movements suitable for forming rows of stitches for the sides of a buttonhole, means to suspend said movements; means to produce barring-stitches, comprising a main plate, a second plate pivoted on a block supported in an opening in the main plate, and means to impart to said second plate a movement in a straight line transversely to the length of the buttonhole and at the same time to oscillate it in a direction at right angles to such transverse movement, substantially as described.

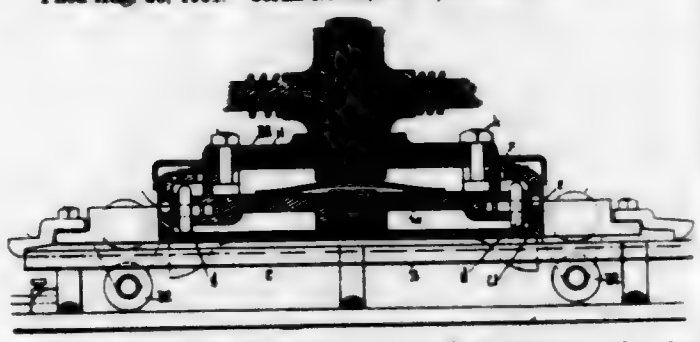
4. In a buttonhole-sewing machine the combination with stitch-forming mechanism, of a work-support, mechanism for producing between said stitch-forming mechanism and work-support relative feeding and vibratory movements suitable for forming rows of stitches for the sides of a buttonhole, means to suspend said movements at a predetermined period, and means to form barring-stitches, consisting of a plate connected to the work-support, means to feed said plate in a straight line transversely to

the length of the buttonhole and at the same time to oscillate it in a direction at right angles to such transverse movement, substantially as described.

5. In a buttonhole-sewing machine the combination with stitch-forming mechanism, of a work-support, means for producing between said stitch-forming mechanism and work-support relative feeding and vibratory movements suitable for forming rows of stitches for the sides of a buttonhole, and mechanism for feeding and oscillating the work-support relatively to the needle to form barring-stitches at both ends of and at substantially right angles to the aforesaid rows of side stitches, said mechanism including an extension of the work-support, substantially as described.

6. In a buttonhole-sewing machine, the combination with stitch-forming mechanism comprising a needle and a work-support, mechanism for producing between said stitch-forming mechanism and work-support a relative feeding and vibratory movement suitable for forming rows of stitches for the sides of a buttonhole, and mechanism for producing a relative feeding and oscillating movement for forming barring-stitches at the ends of the buttonhole, at substantially right angles to the side stitches, said mechanism including an extension of the work-support, substantially as described.

694,152. TROLLEY-STAND. HENRY HOLLAND, Detroit, Mich. Filed Aug. 28, 1901. Serial No. 73,555. (No model.)



Claim.—1. In a trolley-stand and base, the combination of a plate having a flange rising therefrom and forming a receptacle for lubricating-oil, and a trolley-holding plate provided with wheels at its periphery, said trolley-holding plate being adapted to rest with said wheels upon the first-named plate and to turn thereon within said flange.

2. In a trolley-stand and base, the combination of a plate having a flange rising therefrom and forming a receptacle for lubricating-oil, a trolley-holding plate provided with wheels at its periphery, said trolley-holding plate being adapted to rest with said wheels upon the first-named plate and to turn thereon within said flange, and a part secured to the first-named plate and extending over said wheels throughout their travel.

3. In a trolley-stand and base, the combination of a plate having a flange rising therefrom and forming a receptacle for lubricating-oil, a trolley-holding plate provided with wheels at its periphery, said trolley-holding plate being adapted to rest with said wheels upon the first-named plate and to turn therein with said flange, a part secured to the first-named plate and extending over said wheels throughout their travel and means for preventing the passage of dust to the receptacle for oil.

4. The combination of a plate having a flange rising therefrom and inclosing an oil-receptacle, a plate adapted to turn in said oil-receptacle and carrying the trolley-pole, a ring secured to the first-named plate and extending over the plate carrying the trolley-pole, and a flexible disk secured to the trolley-pole-carrying plate and extending over and resting upon said ring.

5. The combination of a plate having a flange rising therefrom and inclosing an oil-receptacle, a plate adapted to turn in said oil-receptacle and carrying a trolley-pole, a ring secured to the first-named plate and extending over the plate carrying the trolley-pole, a flexible disk secured to the trolley-pole-carrying plate and extending over and resting upon said ring and a disk secured to the trolley-pole-carrying plate and extending over said ring above said flexible disk.

6. The combination of a plate having a flange rising therefrom and inclosing an oil-receptacle, a plate adapted to turn in said receptacle and carrying the trolley-pole, a ring secured to the first-named plate, and extending over the plate carrying the trolley-pole, a flexible disk secured to the trolley-pole-carrying plate and extending over and resting upon said ring, and a disk secured to the trolley-pole-carrying plate, extending over said ring above said flexible disk, and extending downward below the upper surface of said ring and near to the periphery thereof.

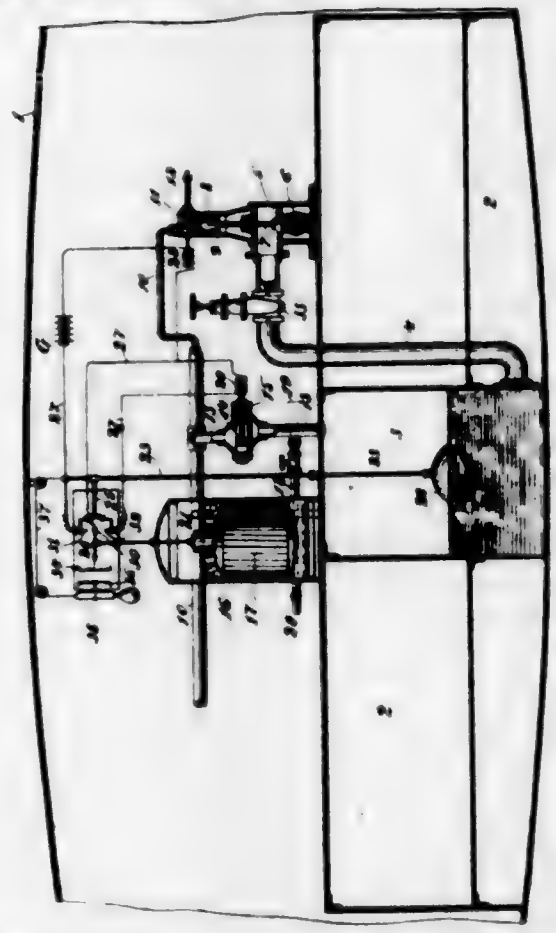
7. The combination with a car-roof, having a track extending longitudinally thereof, of a carriage containing a reservoir for containing lubricating-oil, said carriage being secured for travel along said track and a trolley-stand mounted so that its base shall turn in said reservoir.

8. The combination with a car-roof, of a track extending longitudinally thereof and having a laterally-extending flange, a trolley-stand having a set of wheels adapted to roll upon said track, and a second set of wheels located normally slightly below said flange but adapted to contact said flange when they are elevated with the part of the stand to which they are secured, and a latch adapted to engage a stationary catch when said stand is in its normal position, and to be disengaged therefrom when the stand is raised so as to cause the lower wheels to engage said flange.

9. The combination with a car-roof, of a trolley-stand mounted to travel thereon and adapted to be tipped in the direction of its travel, a latch upon one end of said trolley-stand adapted to engage a stationary catch, and to be disengaged therefrom when the stand is tipped so as to raise said catch.

10. In a trolley-stand and base the combination of two plates, one of said plates being adapted to turn upon the other of said plates, the last-named plate being provided with a reservoir for lubricating-oil, and friction-rollers between said plates arranged to roll in said reservoir.

694,158. MEANS FOR AUTOMATICALLY BALLASTING SUBMARINE BOATS. JOHN P. HOLLAND, Newark, N. J. Filed July 27, 1901. Serial No. 69,887. (No model.)



Claim.—1. A submarine boat having a tank to contain water ballast, said tank having valve-controlled communication with the water of flotation, means for opening said valve to admit water to the tank, means for admitting an aeriform fluid to said tank for blowing out water therefrom, a hydrometer, electrical means controlled by the rise and fall of said hydrometer for actuating the means for admitting water to and discharging it from said tank, and a float in said tank which breaks the electric circuits established by the hydrometer.

2. A submarine boat having a tank to contain water ballast, said tank having valve-controlled communication with the water of flotation, means for admitting water to and discharging it from said tank, a hydrometer, means for changing the water in which the hydrometer floats, electrical means, controlled by the rise and fall of the hydrometer, for actuating the means for admitting water to and discharging it from the tank, and a float in the tank which breaks the electric circuits established by the hydrometer.

3. A submarine boat having a tank to contain water ballast, mechanism for admitting water to and discharging it from said tank, a hydrometer, and electrical means, controlled by the rise and fall of said hydrometer, for setting in operation the means for admitting water to and discharging it from said ballast-tank.

4. A submarine boat having a water-ballast tank in communication with the water of flotation, and having a valve 5 controlling said communication, in combination with a cylinder, a piston therein, a valve for admitting a compressed aeriform fluid to said piston for opening the valve 5, a valve for admitting compressed aeriform fluid to the ballast-tank for blowing out water therefrom, a hydrometer-casing, means for changing the water of flotation therein, a hydrometer in said casing and provided

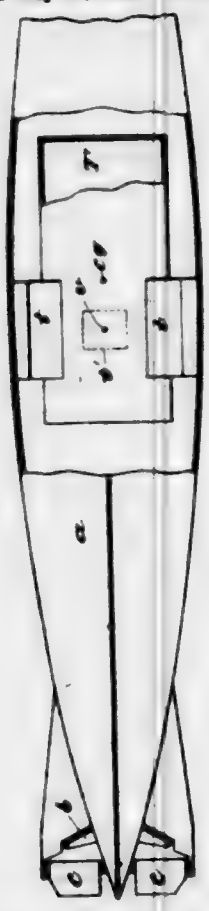
with a stem carrying the common terminal 30, of two electric circuits, a float in the ballast-tank, provided with a stem, an arm 25 carrying the two terminals 31 and 32 of the said circuits and electrical means including a generator and the said terminals, for operating the valves which control the aeriform fluid.

5. A submarine boat having a tank to contain water ballast, said tank having communication with the water of flotation, a cock or valve controlling said communication, means for admitting an aeriform fluid to said tank for blowing out the water, means for visually indicating the quantity of water in said tank at all times, a hydrometer communicating with the water of flotation and having a visual indicator for indicating the specific weight of the water, substantially as set forth.

6. A submarine boat having a hydrometer in communication with the water of flotation for determining the specific weight of the latter, a tank to contain water ballast, said tank having communication with the water of flotation for filling and emptying, a cock or valve controlling said communication, means for admitting a compressed aeriform fluid to the tank for blowing the water therefrom, and automatic means for varying the amount of water in said tank proportionately to the specific weight of the water of flotation, substantially as set forth.

7. A submarine boat having a tank to contain water ballast, said tank having communication with the water of flotation, a cock or valve controlling said communication, means for admitting an aeriform fluid to said tank for blowing out the water, means for visually indicating at all times the quantity of water in the tank, a hydrometer communicating with the water of flotation and provided with a visual indicator for indicating the specific weight of the water of flotation, and means for regulating the amount of water in said tank proportionately to the specific weight of the water of flotation, substantially as set forth.

694,154. SUBMARINE BOAT OR VESSEL. JOHN P. HOLLAND, Newark, N. J. Filed July 31, 1901. Serial No. 70,414. (No model.)



Claim.—1. A submarine boat having a tank with capacity, when full, for water ballast sufficient to put the boat in diving condition in fresh water, and an auxiliary tank with capacity, when both it and the main tank are full, to put the boat in diving condition in salt water, said tanks being situated with reference to the center of buoyancy of the boat substantially as set forth.

2. A submarine boat having a tank with capacity, when full, for water ballast sufficient to put the boat in diving condition in fresh water, said tank having its center of gravity situated directly below the center of buoyancy of the emersed portion of the boat, and an auxiliary tank with capacity, when both it and the main tank are full, to put the boat in diving condition in salt water, said auxiliary tank having its center of gravity in the same transverse plane with the center of buoyancy of the boat, substantially as set forth.

3. A submarine boat having a tank with capacity, when full, for water ballast sufficient to put the boat in diving condition in fresh water, an auxiliary tank with capacity, when it and the main tank are full, to put the boat in diving condition in normal salt water, and a smaller compensating tank to provide ballast to compensate the difference between the weight of salt and fresh water in the tanks, said tanks being situated with respect to the center of buoyancy of the boat, substantially as set forth.

694,155. FIREPLACE-HEATER. THOMAS B. JACKSON, Belmont, Ohio. Filed June 12, 1901. Serial No. 64,292. (No model.)



Claim.—1. In a fireplace-heater, the combination with the fire-box of a hot-air chamber partially surrounding the same, two superheating-chambers arranged one above the other, a combustion-passage between the same, said superheating-chambers being in communication with each other and the lower one in communication with the hot-air chamber, and a vertical chamber in communication with the upper superheating-chamber, substantially as specified.

2. In a fireplace-heater, the combination with the fire-box, of a hot-air chamber partially surrounding the same, superheating-chambers arranged above the hot-air chamber so as to form a passage for the products of combustion, the lower superheating-chamber being in communication with the hot-air chamber, and two oppositely-arranged vertical chambers, one of said chambers being in communication with both superheating-chambers, and the other in communication with the upper superheating-chamber, substantially as specified.

3. In a fireplace-heater, the combination with the fire-box, a hot-air chamber partially surrounding the same, two superheating-chambers arranged one above the other, said superheating-chambers being in communication with each other and the lower one in communication with the hot-air chamber, a combustion-passage between the superheating-chambers, and a vertical chamber in communication with the upper superheating-chamber, of a detachably-arranged water-heater situated in the upper part of the fire-box and beneath one of the superheating-chambers, substantially as specified.

694,156. TAKE-DOWN SCREW. THOMAS C. JOHNSON, New Haven, Conn., assignor to the Winchester Repeating Arms Co., New Haven, Conn., a Corporation. Filed Aug. 16, 1901. Serial No. 72,237. (No model.)



Claim.—1. In a take-down gun, the combination with a gun-frame having a recess formed in it, of a take-down screw, and a safety-dog located within the said recess and formed with a tooth adapted to engage with a screw to hold the same against unscrewing rotation when in its home position.

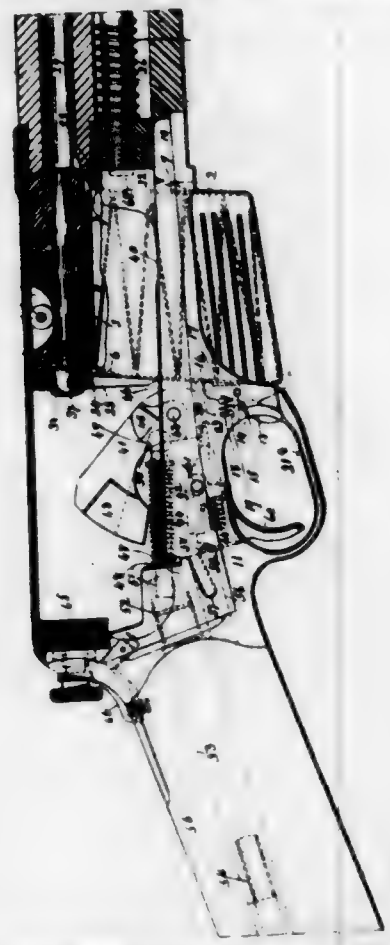
2. In a take-down gun, the combination with the receiver and the tang thereof, of a take-down screw mounted in the tang and entering the receiver, and a safety-dog located in a recess formed in the tang and coacting with the screw for locking the same against unscrewing when in its home position.

3. In a take-down gun, the combination with a take-down screw, of a safety-dog located within a recess in a portion of the frame of the gun, and formed with a tooth adapted to engage with the screw to hold the same against unscrewing rotation when in its home position, and a spring coacting with the dog to hold the same in its locking position.

4. In a take-down gun, the combination with the receiver thereof, of a bushing located thereon, a tang formed with an upwardly-projecting arm and with a recess, a take-down screw mounted in the said arm, having free longitudinal movement therein, and adapted to enter the said bushing for firmly binding the receiver to the tang, and a safety-dog lo-

cated in the recess of the tang, and coacting with the screw for locking the same against unscrewing rotation when in its home position.

694,157. AUTOMATIC FIREARM. THOMAS C. JOHNSON, New Haven, Conn., assignor to Winchester Repeating Arms Co., New Haven, Conn., a Corporation. Filed Sept. 16, 1901. Serial No. 75,452. (No model.)



Claim.—1. In an automatic firearm, the combination with the lower tang thereof, the same having a box-magazine opening, of a removable box-magazine adapted to be passed upward into the said opening from which it is removed for being filled with cartridges, and a balanced breech-block adapted to stride the upper portion of the box-magazine so as to move back and forth over the same.

2. In an automatic firearm, the combination with the tang thereof, the same having a box-magazine opening, of a removable box-magazine passing upward into the said opening from which it is removed for being filled with cartridges, and a balanced breech-block adapted to stride the upper portion of the box-magazine so as to move back and forth over the same and formed with a rigid balancing extension into which the magazine extends when the block is in its open position.

3. In an automatic firearm, the combination with the lower tang thereof, the same having a box-magazine opening, of a removable box-magazine passed upward into the said opening from which it is removed for filling it with cartridges, a balanced breech-block adapted to stride the magazine for moving back and forth over the projecting upper portion thereof and a locking-dog mounted in the tang and engaging with the rear portion of the magazine for holding the same in place in the said opening in the tang.

4. In an automatic firearm, the combination with the tang thereof, the same having a box-magazine opening, of a box-magazine passed upward into the said opening, a balanced breech-block adapted to stride the projecting upper portion of the box-magazine over which it moves back and forth, and a guide-post located upon the forward end of the tang and receiving the forward, upper portion of the said box-magazine which it holds against tilting and lateral deflection.

5. In an automatic firearm, the combination with the lower tang thereof, the same being formed with a box-magazine opening, of a box-magazine adapted to be passed upward into the said opening, a stop for limiting the upward movement of the magazine in the said opening, a locking-dog located at the rear end of the magazine for holding the same in place against downward movement, a guide-post located upon the tang and coacting with the front end of the magazine, and a balanced breech-block having its lower portion adapted to clear the projecting upper portion of the magazine, which it strides, and over which it moves back and forth.

6. In an automatic firearm, the combination with the lower tang thereof, of a recoiling breech-block, and a swinging hammer mounted in the said tang and provided at its upper end with one or more stop shoulders or projections which engage with the tang and limit the rearward swinging movement of the hammer under the recoiling action of the breech-block.

7. In a take-down automatic firearm, the combination with the lower tang thereof, of a recoiling breech-block, and a hammer pivotally mounted in the said tang, and provided with one or more stop shoulders or projections adapted to engage with the tang for limiting the forward swinging movement of the hammer in case the same should be released when the gun is taken down.

8. In a take-down automatic firearm, the combination with the lower tang thereof, of a hammer pivotally mounted in the said tang and provided with one or more stop shoulders or projections for engaging with the tang to limit the rearward movement of the hammer, and with one or more stop shoulders or projections for engaging with the tang, for preventing an undue forward movement of the hammer in case the same is released by the pulling of the trigger when the gun is taken down.

9. In an automatic firearm, the combination with the tang thereof, the said tang having its rear transverse web or bridge formed with a hole, of a swinging hammer having a socket formed in its rear edge, a rod the forward end of which enters the said socket and the rear end of which passes through the said hole, and a hammer-spring encircling the said rod and impinging at its rear end against the forward face of the said bridge or web.

10. In an automatic firearm, the combination with the lower tang thereof, the same having a trigger-spring socket, of a flat, sheet-metal U-shaped trigger-spring, the lower leg of which is extended, forms a hook, and a trigger engaged by the said hook.

11. In an automatic firearm, the combination with the lower tang thereof, the same having its rear web or bridge formed with a hole, and with a trigger-spring socket located below the said hole, a hammer pivotally mounted in the said tang, a rod connected with the hammer at its forward end and at its rear end entering the said hole in which it plays freely back and forth, a spiral hammer-spring encircling the said rod, a U-shaped trigger-spring entered into the said socket and formed with a projecting hook, and a trigger engaged by the said hook.

12. In a take-down automatic firearm, the combination with the tang and the receiver thereof, of a balanced breech-block, a guide-rod for the same projecting rearward through the forward end of the said receiver and constituting a take-down dowel, and a socket formed in the forward end of the tang and receiving the said dowel for supporting the forward end of the tang.

13. In an automatic firearm, the combination with the receiver and the tang thereof, the latter having a box-magazine opening, of a removable box-magazine passing upward into the said opening from which it is removed for being filled with cartridges, a breech-block formed with a large clearance-space for the reception of the upper end of the magazine over which it rides back and forth, and also formed with two rigid forwardly-extending arms having a space between them into which the magazine extends when the block is in its open position, and a rod fixed to the forward end of the receiver and supporting the said arms as they move back and forth with the said block.

14. In an automatic firearm, the combination with the receiver and the tang thereof, the latter having a box-magazine opening, of a box-magazine passing upward into the said opening from which it is removed for being filled with cartridges, a balanced breech-block formed with a large recess receiving the upper end of the magazine which rides back and forth over it and having two rigid forwardly-extending parallel arms constituting a balancing extension, a rod fixed in the forward end of the receiver and located between the said arms which move back and forth with respect to it and which are supported by it, and a spring located upon the said rod and located in the said space between the arms which space receives the upper end of the magazine when the breech-block is in its open position.

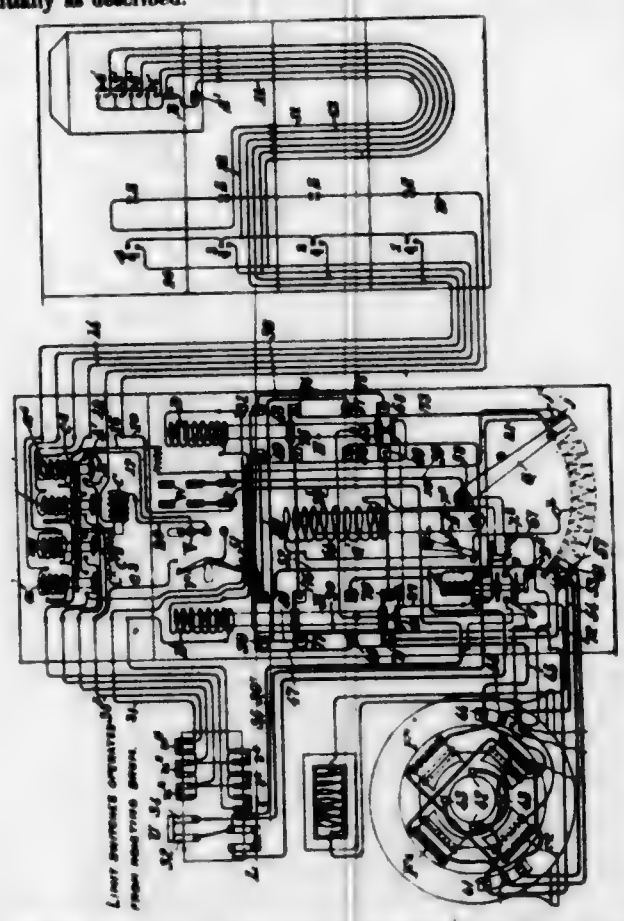
694,158. AUTOMATIC CONTROL SYSTEM FOR ELEVATORS. BENJAMIN F. JONES, East Orange, N. J. Filed Apr. 20, 1901. Serial No. 58,189. (No model.)

Claim.—1. In an electric control system for elevators the combination of the operating and control circuits, a relay to close the control-circuit for each floor, a push-button for operating said relay and means for positively engaging and mechanically locking, in the inoperative position, all relays, save the one first actuated, substantially as described.

2. The combination of a control-circuit, a push-button on each floor, a push-button for each floor in the car, a single relay for each floor adapted, when actuated, to close the control-circuit, and connections whereby the operation of either of the push-buttons will actuate said relay, substantially as described.

3. The combination of a control-circuit, a push-button on each floor, a push-button for each floor in the car, a relay for each floor adapted, when actuated, to close the control-circuit, connection whereby the oper-

ation of either of the push-buttons will actuate said relay and a locking device for positively engaging and mechanically locking said relay in the operative position and the other floor-relays in the inoperative position, substantially as described.



4. The combination of floor-relays, circuit-closing device actuated thereby and means for positively engaging and mechanically locking one of the circuit-closing devices in the operative and the other in the inoperative position, substantially as described.

5. In an electric control device for elevators the combination of relays for closing the control-circuit for each floor, a magnet in the control-circuit and a lock for the circuit-closing device operated thereby, a directing-magnet in circuit with the last-named magnet, and means on the car and floor for operating said relay, substantially as described.

6. In an electric control system for elevators the combination of a control-circuit a relay for closing the circuit for each floor, a push-button for each floor on the car and at the floor, and connections whereby the operation of either push-button will actuate the relay and close the control-circuit, regardless of the position of the car, substantially as described.

7. In an electric elevator the combination of a resistance-regulating arm, mechanical means for positively locking the same when in the position where all resistance is cut out, and mechanical means operated by the failure of current-supply for releasing said arm, substantially as described.

8. In a control system for electric elevators the combination in the control-circuit, a push-button circuit for closing the same, a resistance-regulating arm in the main circuit and means whereby the circuit through the push-buttons is opened when the arm moves, substantially as described.

9. The combination of a main circuit, a control-circuit, a resistance-regulating arm and connections for preventing the closing of the control-circuit until said resistance-regulating arm is in its normal position, substantially as described.

10. In an electric system for elevators the combination of a motor, a main supply, a resistance between the two, a resistance-regulating arm, a magnet for actuating the same, the magnet being connected across the resistance, whereby the movement of the elevator is prevented when excess of load is present, substantially as described.

694,159. EAR-PROTECTOR. ELMER E. KEELER, Philadelphia, Pa. Filed Apr. 11, 1901. Serial No. 55,282. (No model.)

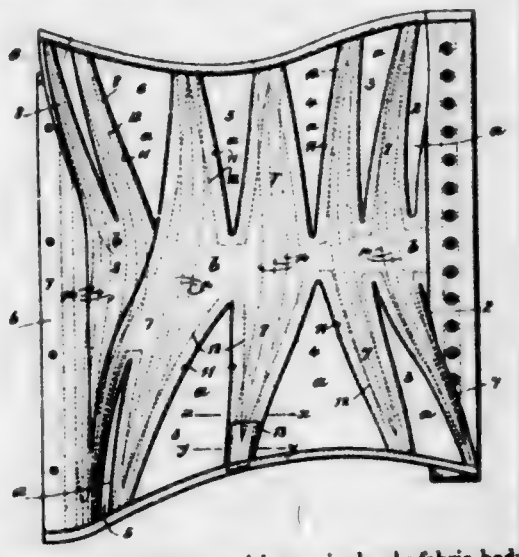


Claim.—1. An ear-protector, comprising a spherical body portion provided on one side with a neck ending in an enlarged flattened end portion, and on the side opposite to the neck with a diametrical open slot formed in the same plane as the flattened end portion of the neck, substantially as shown and described.

2. An ear-protector comprising an elastic spherical body provided in one side with a transverse slot, and at the opposite side with a neck the end of which is enlarged and flattened, substantially as shown and described.

3. An ear-protector comprising a spherical body portion provided in one side with a transverse slot, and at the opposite side with a projecting neck having a flattened end, substantially as shown and described.

694,160. CORSET. DANIEL KOPS, New York, N. Y. Filed Oct. 21, 1901. Serial No. 79,371. (No model.)



Claim.—1. A corset comprising a single-ply fabric body of shaped connected parts and overlying and heavier fabric connected thereto and continuous around the waist-line and having series of upward and downward fingers above and below said continuous waist-line with intervening V-shaped incisions, said series of fingers having edge-folded portions turned inward against the fabric body and the parts connected by edge lines of sewing, and devices connected to said parts for stiffening the same vertically, substantially as set forth.

2. A corset comprising a single-ply fabric body of shaped connected parts and overlying and heavier fabric connected thereto and continuous around the waist-line and having series of upward and downward fingers above and below said continuous waist-line with intervening V-shaped incisions, said series of fingers having edge-folded portions turned inward against the fabric body and the parts connected by edge lines of sewing, and adjacent bones and bone-pocket strips overlying the inner surface of the fabric body and in line with the series of fingers and connected to the said fabric parts, substantially as set forth.

3. A corset each portion of which comprises a fabric body of shaped connected parts 2, 3, 4, 5 and 6 forming approximately half of said corset portion, and an overlying heavier fabric composed of a main part 7 and a connected gore part 8, said parts having lines of incision in from the upper and lower edges dividing the same into series of upward and downward fingers between which the incisions are of V shape, edge lines of sewing for connecting the parts and bones and bone-pocket strips secured to the fabric body and the overlying fabric upon the inner surface of the fabric body and extending vertically upon the series of upward and downward fingers, substantially as set forth.

4. A corset, each portion of which comprises a light-weight fabric body of shaped connected parts 2, 3, 4, 5 and 6 forming approximately half of said corset portion, and an overlying heavier fabric composed of a main part 7 and a connected gore part 8, said parts having lines of incision in from the upper and lower edges dividing the same into series of upward and downward fingers between which the incisions are of V shape, the adjacent edges of the fabric being folded inward upon the light-weight fabric body, edge and parallel adjacent lines of sewing extending all around the edges of said series of fingers for connecting the fabric portions and holding the edge folds in position, the folds at the extreme ends constituting a double thickness of the outer fabric at the ends of the series of fingers, and bones and bone-pocket strips connected to the said fabrics for stiffening the corset, substantially as set forth.

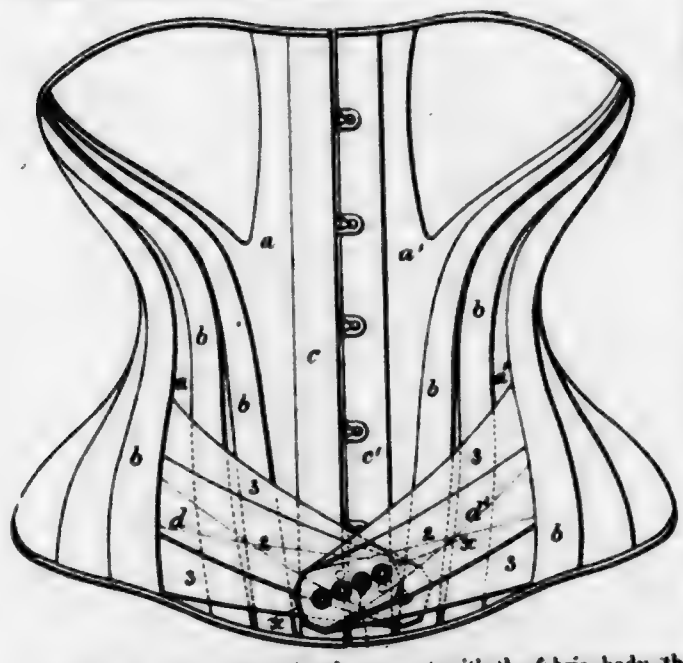
5. A corset, each portion of which comprises a light-weight fabric body of shaped connected parts 2, 3, 4, 5 and 6 forming approximately half of said corset portion, and an overlying heavier fabric composed of a main part 7 and a connected gore part 8, said parts having lines of incision in from the upper and lower edges dividing the same into series of upward and downward fingers between which the incisions are of V shape, the adjacent edges of the fabric being folded inward upon the light-weight fabric body, edge and parallel adjacent lines of sewing extending all around the edges of said series of fingers for connecting the fabric portions and holding the edge folds in position, the folds at the extreme ends

constituting a double thickness of the outer fabric at the ends of the series of fingers, and pairs of bones and bone-pocket strips overlying the same upon the inner surface of the corset, that is, the surface of the light-weight fabric body, extending vertically of the corset across the waist portion and upon the series of upward and downward fingers and connected thereto by three parallel lines of sewing which pass through all the thicknesses of fabric and at the same time assist in connecting the parts together, substantially as set forth.

6. A corset comprising a single-ply fabric body of shaped connected parts and overlying and heavier fabric connected thereto and composed of a main part 7 and a connected gore part 8, said parts having lines of incision in from the upper and lower edges dividing the same into series of upward and downward fingers between which the incisions are of V shape, said series of fingers having edge-folded portions turned inward against the fabric body, and the parts connected by edge lines of sewing, and bones and bone-pocket strips overlying the inner surface of the fabric body and in line with the series of fingers and secured to the fabric, substantially as set forth.

7. A corset comprising a single-ply fabric body of shaped connected parts and an overlying and heavier fabric connected thereto and continuous around the waist-line to provide for the central and circumferential strain, and having therein series of upward and downward fingers above and below said continuous waist-line between which are intervening V-shaped incisions and the parts connected by edge lines of sewing, and devices connected to said parts for stiffening the said finger parts vertically, the single-ply fabric body between the said fingers carrying the upper and lower circumferential strains, substantially as specified.

694,161. CORSET. DANIEL KOPS, New York, N. Y. Filed Nov. 4, 1901. Serial No. 80,968. (No model.)



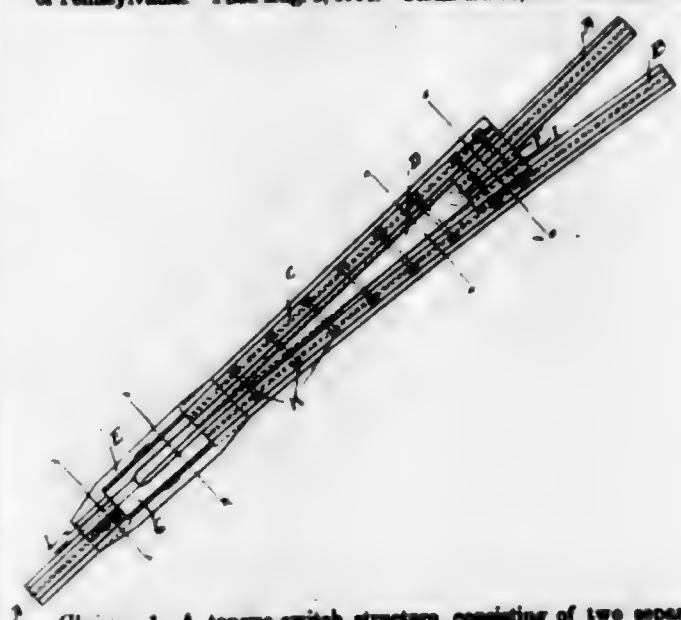
Claim.—1. The combination in a corset with the fabric body, the front steels and a downwardly-pointed hook upon the lower end of one of said steels, of tapering, downwardly-inclined strap devices each formed of folded strips of strong woven fabric secured together at their folded portions by sewing, and eyelets passing through the said folded portions and the independent and free ends of said folded strips connected to the fabric body of the corset, substantially as set forth.

2. The combination in a corset with the fabric body, the front steels and a downwardly-pointed hook upon the lower end of one of said steels, of tapering, inclined strap devices each formed of two folded strips of strong woven fabric, one of said strips being folded on itself longitudinally and the other of said strips being folded at an acute angle, the latter strip being received in the former and the folded ends connected together by sewing, and eyelets passing through the said connected folded end, and the four free ends of said strips being secured to the fabric body of the corset, substantially in the manner and for the purposes set forth.

3. The combination in a corset with the fabric body, the front steels and a downwardly-pointed hook upon the lower end of one of said steels, of tapering, inclined strap devices each formed of two folded strips of strong woven fabric, one of said strips being folded on itself longitudinally, and the other of said strips being folded at an acute angle, the latter strip being received in the former and the folded ends connected together by sewing, and an interposed strip of fabric within and between the folded portions of said strips, and a series of eyelets passing through the said folded portions of said strips and the intervening fabric, and the four free ends of each strap device secured to the fabric body of the corset, substantially in the manner and for the purposes set forth.

4. The combination in a corset with the fabric body, the front steels and a fastening device upon the lower end of one of said steels, of tapering downwardly-inclined strap devices each formed of a series of strips of strong woven fabric or heavy tapes secured together at their meeting ends and at the independent and free ends of said strips secured to the fabric body of the corset, and eyelets through the connected ends of said strips to engage the fastening device of the corset, substantially as set forth.

694,162. RAILWAY-TRACK STRUCTURE. CHARLES H. KRAUSS, Johnstown, Pa., assignor to the Lorain Steel Company, a Corporation of Pennsylvania. Filed Aug. 3, 1901. Serial No. 70,764. (No model.)



Claim.—1. A tongue-switch structure, consisting of two separate cast-metal bodies in which rail members of the structure are held, one of said bodies being secured to and between rail members of the other body.

2. In a tongue-switch structure composed of two parts, one of which consists of a cast-metal body forming a seat for the heel portion of the switch-tongue, and of a main rail member to which the said body is cast, and the other part consisting of a cast-metal body having a seat for the point end of the switch-tongue, and of main, branch and guard-rail members to which said body is cast, together with bolts which secure said parts together.

3. The herein-described tongue-switch structure, comprising main and branch rail members consisting of T-rail corresponding in section to that of the adjacent rails, a guard-rail member, a cast-metal body cast about the adjacent ends of said rail member, a cast filler secured between said branch and guard-rail members and forming a bed for the switch-tongue, and a main rail member secured to said filler.

4. A tongue-switch structure having one of its main rail members, its branch rail member, and a guard-rail member united by a body of metal cast about the end portions thereof, a second cast-metal body fitting between and secured to the branch rail member and the guard-rail member and forming a support for the switch-tongue, and a second main rail member having its end portion cast into the last-named body.

5. In a tongue-switch structure of the character described, the combination with the T-rail members A, B and C and the pocketed cast-metal body E, of the filler F fitting between the members B and C and forming a bed for the switch-tongue, and the T-rail member A′ secured to said filler.

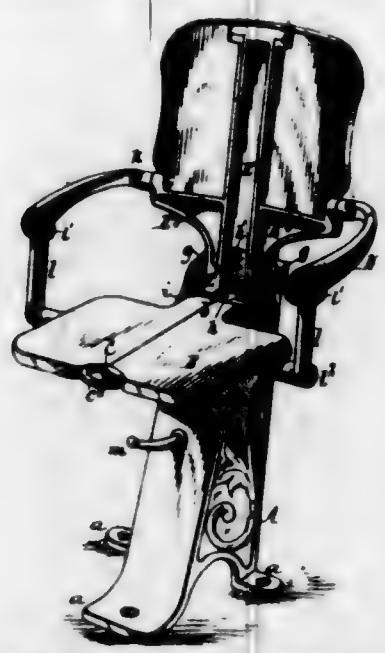
6. In a tongue-switch structure of the character described, the combination with the T-rail members A, B and C and the pocketed cast-metal body E of the filler F fitting between the members B and C and forming a bed for the switch-tongue, and the T-rail member A′ secured in said filler, said filler also seating a guard-section for the rail member B.

694,168. FOLDING CHAIR. FRANK D. LA COURRIER and JOHN B. STEFFEN, Buffalo, N. Y. Filed Apr. 26, 1901. Serial No. 57,566. (No model.)

Claim.—1. In a folding chair, the combination with a pedestal provided with cams or guides, of a back composed of a vertically-sliding center bar guided on the pedestal, and forwardly-folding leaves hinged to opposite edges of said center bar and having their lower portions arranged to ride over said cams when the center bar is lowered, whereby the back-leaves are automatically folded toward each other, substantially as set forth.

2. In a folding chair, the combination with a pedestal provided at its upper end with cams or guides, of a back composed of a vertically-sliding center bar guided in the pedestal, and forwardly-folding leaves hinged to opposite edges of the center bar and having contracted lower

portions which extend into the pedestal, and a vertically-swinging seat provided at its rear end with a locking device which holds the back-leaves in their unfolded position when the seat is lowered, substantially as set forth.



3. In a folding chair, the combination with a pedestal, of a back composed of a center bar and forwardly-folding leaves hinged to the center bar and provided with contracted lower portions which extend into the pedestal, and a vertically-folding seat hinged to the pedestal and provided on the rear side of its pivot or hinge with a transverse locking-bar which extends across the contracted lower portions of the back-leaves in the normal position of the seat, substantially as set forth.

4. In a folding chair, the combination with a pedestal, of a back composed of a vertically-sliding center bar provided on its front side with a vertical row of gear-teeth, and forwardly-folding leaves adapted to engage against the pedestal when said center bar is lowered, and a vertically-folding seat provided at its rear end with a gear-segment which engages with the gear-teeth of said center bar, substantially as set forth.

5. In a folding chair, the combination with a pedestal provided at its upper end with cams or guides, of a back composed of a vertically-sliding center bar guided in the pedestal and provided with a vertical row of gear-teeth, and forwardly-folding leaves hinged to the center bar and having contracted lower portions extending into the pedestal and folding faces arranged to ride over the cams of the pedestal when the center bar is lowered, and a vertically-folding seat having a gear-segment which meshes with the toothed center bar and a transverse locking-bar arranged to extend across the contracted lower portions of the back-leaves in the lowered position of the seat, substantially as set forth.

6. In a folding chair, the combination with a pedestal, of a vertically-movable back guided on the pedestal and provided with a vertical row of gear-teeth, a vertically-folding seat having a gear-segment which meshes with said gear-teeth, and a folding-spring connecting the vertically-movable back with the pedestal, substantially as set forth.

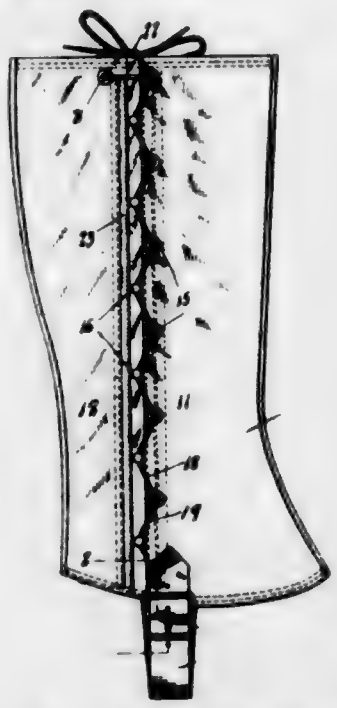
7. In a folding chair, the combination with a pedestal provided at its upper end with cams, of a back composed of a vertically-sliding center bar guided in the pedestal and provided with a vertical row of gear-teeth, and forwardly-folding leaves hinged to the center bar and having their lower portions arranged to ride over said cams, a vertically-folding seat pivoted to the pedestal and provided with a gear-segment which meshes with said gear-teeth, and a spring connecting the lower portion of said center bar with the pedestal, substantially as set forth.

8. In a folding chair, the combination with a pedestal having forwardly-extending seat-supports separated by an intervening space, of a vertically-swinging seat-carrying arm pivoted to the pedestal and arranged to enter between said seat-supports when lowered, substantially as set forth.

9. In a folding chair, the combination with a pedestal, of a seat composed of folding leaves provided at their adjoining front corners with recesses, and a vertically-swinging arm, pivoted at its rear end to the pedestal and carrying said leaves, said arm being arranged below the plane of the seat-leaves and provided at its front end with a handle which is located above the plane of the arm and arranged in the recesses of the seat-leaves, substantially as set forth.

10. In a folding chair, the combination with a pedestal, of a vertically-swinging seat pivoted to the pedestal and composed of hinged leaves, a back having forwardly-folding leaves, a pair of arm-rests, universal joints connecting the rear ends of said arm-rests with the leaves of the back, vertical links extending downwardly from the front ends of the arm-rests to the lateral edges of the seat-leaves and transverse pivots connecting the ends of said links with said arm-rests and seat-leaves, respectively, substantially as set forth.

694,164. GAITER. WILLIAM LAHR, Chicago, Ill. Filed Oct. 26, 1901. Serial No. 79,966. (No model.)



Claim.—1. A gaiter or legging comprising a body having overlapping flaps, one of which is provided with a series of eyelets and the other with a series of hooks alternating with the eyelets, and a pair of lacing ends threaded in opposite directions through each eyelet and which extend along the opposite faces of the flap between adjacent pairs of eyelets, the sections of the lacing ends on the outer face of the flap between the eyelets being designed to be looped over the hooks opposite thereto.

2. A gaiter or legging comprising a body having overlapping flaps, one of which is provided with a series of eyelets and the other with a series of hooks alternating with the eyelets, and a lacing-cord one of the ends of which is threaded through the eyelets and passes along the outer face of the flap between alternate pairs of the eyelets, the other end also passing through the eyelets and alternating with the first-mentioned end.

3. A gaiter or legging comprising a body having overlapping flaps, one of which is provided with a series of eyelets and the other with a series of hooks alternating with the eyelets, an eyelet, 20, at the bottom of the flap carrying the hooks, a lacing-cord provided with a stop between its ends and passing through the eyelet 20, one of the ends of the said cord being threaded through the series of eyelets and passing along the outer face of the flap between alternate pairs of eyelets, the other end of the cord also being threaded through the eyelets and alternating with the first-mentioned end, the sections of the lacing-cord on the outer face of the flap between the eyelets being designed to be looped over the hooks opposite thereto.

694,165. WATCH-MOVEMENT HOLDER. FREDERICK LEACH Oradell, N. J. Filed Nov. 19, 1901. Serial No. 82,836. (No model.)



Claim.—1. The combination, with a base-plate, a plurality of disks pivoted to its upper side and provided with gear-teeth in their peripheries, and a jaw secured to each of such disks eccentric to its pivot and adapted to engage with, and, with the other jaws, firmly hold a watch-movement when supplied thereto either with the face upward or downward, of a gear for engaging with the teeth of said disks, a handle or support and devices by which such gear is connected with this handle or support, substantially as described.

2. The combination, with a base-plate, a plurality of disks pivoted to its upper side and provided with gear-teeth in their peripheries, and a jaw secured to and projecting upwardly from the upper side of each of such disks eccentric to its pivot and adapted to engage with, and, with the other jaws, firmly hold a watch-movement when supplied thereto either with the face upward or downward, of a gear arranged intermediate such disks and engaging with the teeth thereon, a handle or support, a tubular journal by which this handle or support is connected with

said gear, and a spring connected at one end with the base-plate and at the other with the tubular journal, whereby to normally hold the jaws in positions of nearest approach to a central point, substantially as described.

3. The combination, with a plurality of jaws constructed in the form of studs, with each provided intermediate its length with an outwardly-extending flange and with a sharp square corner at its upper end, and a base-plate upon which these jaws are supported, of means by which such jaws may be moved toward and away from a central point, whereby such jaws may be engaged with and firmly hold a watch-movement supplied between them either with the watch-face downward or upward, substantially as described.

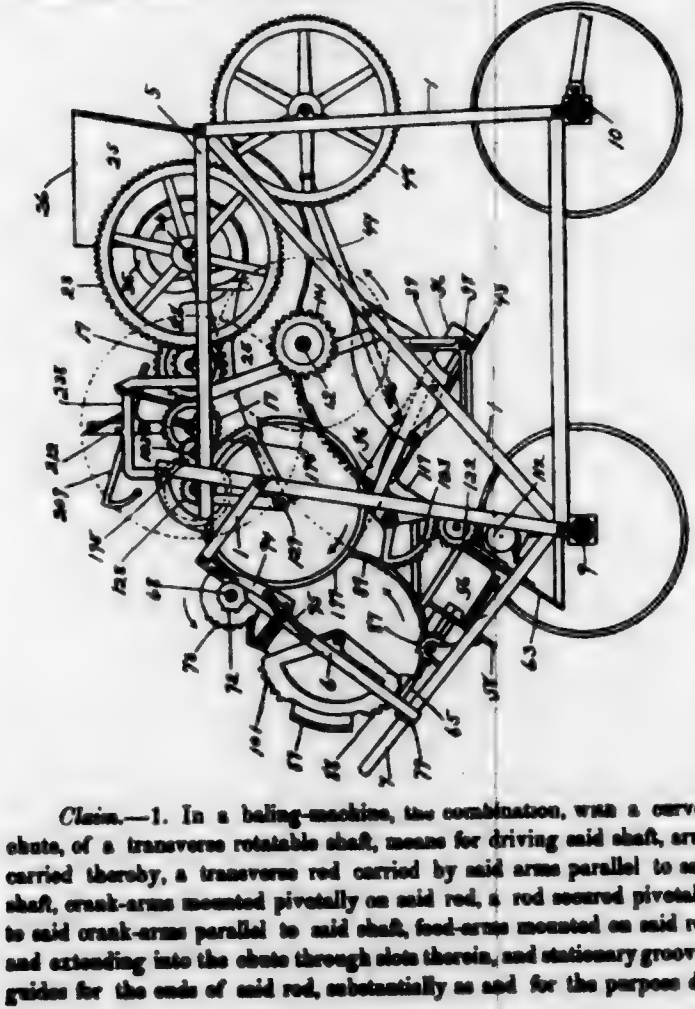
4. The combination, with a holder that is adapted to engage with and firmly hold watch-movements of different sizes with the face of the watch upward, of a mechanism for engagement with the lower ends of the center staffs of such movement to sustain any pressure applied to the upper ends of such staffs in pressing on the hands of their respective watches or otherwise, substantially as described.

5. The combination, with the jaws of a holder for watch-movements, adapted to move toward and away from a central point whereby to engage with and firmly hold watch-movements of different sizes with the face uppermost, a bed-plate upon which they are supported, a handle or support, and a tubular journal by which the bed-plate and handle or support are connected, of a block or plug adapted to enter the aperture in the tubular journal, and a screw passing through such block or plug and adapted at its upper end to contact with the lower end of a center staff of a watch-movement held by said jaws, to resist pressure applied to the upper end of such staff, substantially as described.

6. A support for the center staff of a watch-movement, comprising a block or body portion adapted to be supported from a holder for watch-movements and be removed therefrom, and a screw extending upward through such block or body portion and adapted at its upper end to contact with the lower end of such staff, substantially as described.

7. A support for the center staff of a watch-movement, comprising a block which is adapted to enter and fit an aperture in a watch-movement holder and be removed therefrom, and a screw which extends upwardly through and is threaded in such block and is adapted to contact at its upper end with the lower end of a center staff of a watch-movement, substantially as described.

694,166. BALING-MACHINE. ORLAN S. LEE, Parsons, Kans. Filed Apr. 12, 1900. Serial No. 12,653. (No model.)



Claim.—1. In a baling-machine, the combination, with a curved chute, of a transverse rotatable shaft, means for driving said shaft, arms carried thereby, a transverse rod carried by said arms parallel to said shaft, crank-arms mounted pivotally on said rod, a rod secured pivotally to said crank-arms parallel to said shaft, feed-arms mounted on said rod and extending into the chute through slots therein, and stationary grooved guides for the ends of said rod, substantially as and for the purpose described.

2. In a baling-machine, the combination, with a curved chute having longitudinal slots in its upper side, of a transverse rotatable shaft above the chute, means for driving said shaft, arms carried by said shaft, a transverse rod carried by said arms, crank-arms mounted pivotally on said rod, a rod pivotally secured to said crank-arms and having a roller on each of its ends, feed-arms mounted on said rod and rigidly secured to said crank-arms, and stationary grooved guides engaged by said rollers and causing said feed-arms to be withdrawn from the chute, in a direction parallel to their length, when said shaft is rotated; substantially as described.

3. In a baling-machine, a feeding or pressing device comprising, in combination with a curved chute, a plurality of prongs, a plate to which said prongs are slidingly secured, a transverse pivot for said plate, a cross-bar secured to said prongs, means for oscillating said cross-bar and prongs, and grooved guides for causing said prongs to feed the straw in only one direction, through said chute, substantially as described.

4. In a baling-machine, the combination, with a curved chute, of a plurality of prongs, a plate to which said prongs are slidingly secured, means for oscillating said plate, slots in the chute through which said prongs extend, and curved plates secured to said plate, for keeping said slots closed except where said prongs enter; substantially as described.

5. In a baling-machine, the combination, with a curved chute, of a plurality of prongs, slots into said chute through which said prongs oscillate, a cross-bar secured to said prongs, rollers on the ends of said cross-bar, stationary grooved cams for guiding said rollers, switch-blocks pivoted near the ends of said cams, and means for oscillating said prongs and cross-bar, whereby said prongs will feed the straw in only one direction through the chute all substantially as described.

6. In a baling-machine, the combination, with a curved chute, having slots thereinto, of a plurality of prongs extending through said slots, a transverse pivot-shaft on which said prongs are mounted, a cross-bar secured to said prongs, wrist-pins on the ends of said cross-bar, pitman-wheels having wrist-pins thereon, and pitmen mounted on said wrist-pins, whereby said prongs are oscillated by the revolution of the wheels, substantially as described.

7. In a baling-machine, a bale-compressing device comprising a plurality of pressing-arms 100, a cross-bar 102 secured thereto, arms 103 secured to said cross-bar, a reciprocatory plate 105 to which said arms are pivotally secured, and means for reciprocating said plate and oscillating said pressing-arms, comprising a rock-shaft 116, means for rocking the same, a lever 115 keyed thereon, a connecting-rod 114 connecting said lever with said cross-bar 102, a roller on the end of said cross-bar, and a stationary grooved guide 119 engaged by said roller and so formed as to cause said plate 105 to move in a direction opposite to that of said arms 100, while the bale is being compressed; substantially as described.

8. In a baling-machine, the combination, with a curved chute having longitudinal slots in its bottom, of a pivot-shaft 38, below the chute, a forked plate 43 mounted pivotally on said shaft, feeder-prongs 36 slidably connected to said plate in alinement with the slots in said chute, a cross-bar 44 secured to said prongs and provided with rollers on its ends, stationary grooved guides 46 engaged by said rollers, a pitman connected to said cross-bar, and a wheel for oscillating the pitman, substantially as described.

9. In a baling-machine, the combination, with a chute 25, of a set of oscillating and reciprocating feeder-prongs 36, and means for oscillating and reciprocating the same, comprising a cross-bar 44 having rollers on its ends, pitmen connected to said cross-bar, wheels for oscillating the pitmen, a grooved guide-cam 46, having a peripheral flange limiting the movements of said rollers, and pivoted switch-blocks 49 and 50, mounted within said flange, for causing said rollers to describe an approximately elliptical path and thereby reciprocate the prongs 36 as they oscillate, substantially as, and for the purpose, described.

10. In a baling-machine, the combination, with a feeding-chute having its bottom extending downwardly beyond its top and sides, of a bale-box normally registering with the lower end of the chute and communicating therewith; and means for swinging the bale-box from or toward the chute, said means comprising upwardly-extending hangers 64, 64′ secured to a portion 58 of the top of the bale-box, inclined rods 67 to which said hangers are secured, a transverse lifter-bar 80 supporting said rods at their lower ends, pitmen 82 connected to said lifter-bar, and crank-shafts 84, and 85, for oscillating said lifting-bar, and said pitmen; substantially as described.

11. In a baling-machine, the combination, with a feeding-chute having its bottom extending obliquely downward beyond its top and sides, of a bale-box normally resting upon said bottom and opening into the chute, and means for raising the bale-box in a direction substantially parallel to that of the chute, said means comprising upwardly-extending hangers 64, 64′ secured to the frame of the bale-box, sleeves at the upper ends of said hangers, straight rods 67 extending through said sleeves, said sleeves being slidable upon said rods, a rack rigidly secured to two of said hangers, parallel to said rods, a mutilated gear engaging said rack, and means for rotating said gear; substantially as described.

12. In a baling-machine, a bale-box comprising a pair of frame-

plates 57, a pair of side plates 59, hinged to said frame-plates, respectively, and an end plate 61 also hinged to said frame-plates; and means for swinging said end plate and side plates outwardly to release a bound bale, and for returning said plates to normal position; said means comprising ears secured to said end and side plates respectively, a bar 69, links connecting said ears to said bar, a sleeve at the upper end of the bar, a rod extending through said sleeve and pivotally secured at one end, a transverse lifter-bar 79 secured to the opposite end of said rod, pitmen 83 connected to said lifter-bar, and cranked shafts 84, 85, for oscillating said pitmen and reciprocating said bar; substantially as described

13. In a baling-machine, the combination, with a feeding-chute, of a bale-box embracing the lower end of the chute, the bale-box being moved along the chute by the pressure of the material to be baled, and means for regulating and retarding such movement; said means comprising a rack secured to the bale-box, a mutilated gear engaging the rack, a ratchet, keyed on the shaft of said gear, and a spring-pressed pawl engaging the ratchet; the whole operating substantially as described.

14. In a baling-machine, the combination, with a movable bale-box, of a transverse shaft, a gear-wheel or pinion secured on said shaft, a rack engaged by said gear for raising the bale-box and controlling its descent, a ratchet secured on said shaft, a pawl normally engaging said ratchet, a lever pivoted to said pawl and to a fixed support, a stop on said pawl, and a spring normally holding said stop against said lever, substantially as and for the purpose described.

15. In a baling-machine, the combination, with a movable bale-box, of a rack secured to said bale-box or its supports, a gear for reciprocating said rack, a shaft carrying said gear, a second gear secured on said shaft, and a mutilated gear for intermittently actuating said gear and thereby raising said bale-box, substantially as described.

16. In an automatic binding device for a baling-machine, a reciprocating wire-cutting bar, a lug on said bar, an oscillating lever engaging said lug, a slot in said lever, a crank-shaft playing in said slot, means for rotating said crank-shaft, a stop for said cutter-bar, and a spring for drawing the cutter-bar against said stop, substantially as described.

17. In an automatic binding device for a baling-machine, a reciprocating wire-cutting bar, a lug on said bar, a slotted lever for engaging said lug, a plurality of rotatable retainer-disks, ratchets secured to said disks, a slotted lever pivoted near said disks and extending away therefrom, pawls pivoted on said lever for actuating said ratchets, and a shaft having cranked portions playing in the slots of said levers and thereby oscillating the levers, substantially as described.

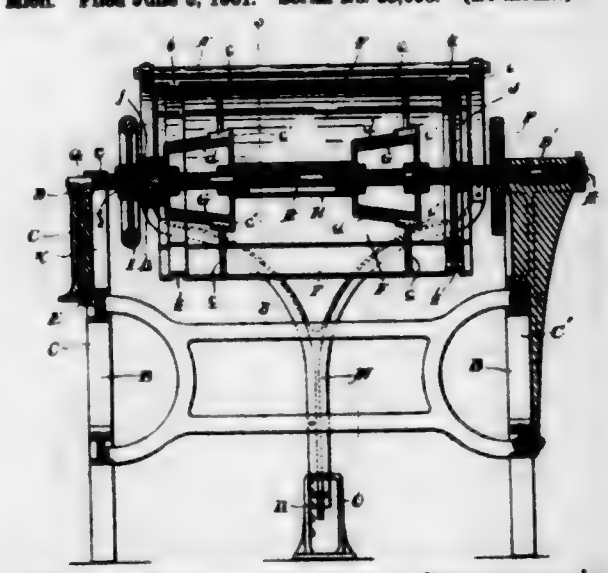
18. In a gear-shifting device for a self-binding baling-machine, a rotatable shaft, a pinion secured on said shaft for driving a binding mechanism, a gear-wheel loosely mounted on said shaft, a roller secured to the face of said gear-wheel, an arm keyed to said shaft near said gear, a detent-arm pivoted to said arm, a detent on said detent-arm normally engaging said roller, an oscillating beam, the end of which, when depressed, engages the end of said detent-arm and releases said detent from said roller, and means actuated by said binding mechanism for tipping said beam so as to cause it to engage said detent-arm and thereby throw said binding mechanism out of gear with said shaft, substantially as described.

19. In a gear-shifting device for a self-binding baling-machine, the combination, with a baling mechanism, of a rotatable shaft, a pinion secured on said shaft for driving the feeding mechanism, a gear-wheel loosely mounted on said shaft, a roller secured to the face of said gear-wheel, an arm keyed to said shaft near said gear, a detent-arm pivoted to said arm, a detent on said detent-arm normally engaging said roller, an oscillating beam the end of which, when depressed, engages the end of said detent-arm and releases said detent from said roller, and means actuated by the baling mechanism for tipping said beam so as to cause it to engage said detent-arm and thereby throw said feeding mechanism out of gear with said shaft, substantially as described.

20. In a gear-shifting device for a self-binding baling-machine, the combination, with a binding mechanism, of a centrally-pivoted beam, a cranked shaft having its cranked portion oscillating longitudinally of said beam, a rod pivoted to said cranked portion, a roller on the other end of said rod, said roller resting against said beam, a spring holding said roller against said beam, an arm secured to the axial portion of said cranked shaft, a catch for engaging said arm and oscillating said crank-shaft, rod carrying said catch, and means, actuated by the binding mechanism, for oscillating or reciprocating said rod, substantially as, and for the purpose, described.

21. In a gear-shifting device for a self-binding baling-machine, the combination, with baling mechanism, of a centrally-pivoted beam, a cranked shaft, having its cranked portion oscillating longitudinally of said beam, a rod pivoted to said cranked portion, a roller on the other end of said rod, said roller resting against said beam, a spring holding said roller against said beam, an arm secured to the axial portion of said cranked shaft, a sleeve or opening in the lower end of said arm, a rod passing through said sleeve or opening, and a collar secured on said rod for engaging said arm; said rod being reciprocated by the baling mechanism, substantially as and for the purpose described.

694,167. BARREL-MACHINE. ALBERT C. LUYCKX, Detroit, Mich. Filed June 8, 1901. Serial No. 63,698. (No model.)



Claim.—1. In an expansible forming-cylinder, composed of a plurality of segments, the combination of a shaft journaled in bearings free to revolve and provided at one end with a screw-thread, a nut upon said screw-threaded portion of the shaft, a pair of connected cones sleeved upon said shaft and adapted to be actuated by said nut to slide longitudinally of the shaft, a pair of radial arms on each segment projecting with their inner ends toward the faces of the cones respectively, a sliding connection between the inner ends of said arms and the faces of the cones adapted to expand and contract the segments by the sliding movement of the cones and means for radially guiding the segments in relation to the shaft.

2. In an expansible forming-cylinder, composed of a plurality of segments, the combination of the shaft A journaled in bearings and provided at one end with the screw-threads *e*, the nut *f* upon said screw-threads having the hand-wheel I, the cone-spiders G G sleeved upon the shaft and connected to move together, the coupling-sleeve *j* uniting the screw-nut with the hub of one of the cones, free to revolve the nut independently of the cones, the tenons *d* formed on the cones, the radial arms *c* of the segments provided with bearings *c'* having undercut mortises engaging with the tenons on the cones, the spider J fixed upon the shaft and having bifurcated arms, and the radial arms *i* of the segments guided in said bifurcations.

3. In a barrel-machine, the combination with the frame and forming-cylinder supported in said frame free to revolve, the combination of the power-lever M fulcrumed in rear of the forming-cylinder and having a rigid long arm extending in rear and beneath the frame and forming a foot-lever, a guide-loop O through which said foot-lever passes and having ratchet-teeth for engaging said lever, a flexible short arm bifurcated and extending upwardly over the rear of the forming-cylinder, and a compression-bar rigidly secured to the bifurcated ends of the short arm and extending longitudinally over the top of the forming-cylinder.

694,168. HAT FOR FIREMEN, &c. JAMES L. MAITLAND, Garfield, N. J. Filed Sept. 14, 1901. Serial No. 75,381. (No model.)



Claim.—1. A hat of the character described comprising a main or outer crown and a supplemental inner or false crown secured within the hat at an appreciable distance beneath the said crown and in contact therewith at the front or forehead portion of the hat and out of contact therewith at the rear, and an air-cushion or inflatable bag within the hat between the two crowns thereof and extending downwardly at the rear and adapted to project and be removed through the space between the said crowns at the lower rear portion of the hat.

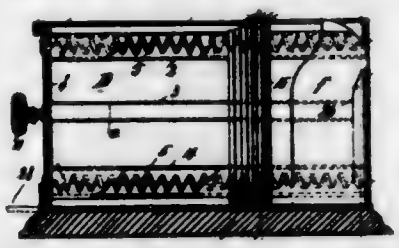
2. A hat of the character described comprising a shield or brim and an integral upwardly-projecting crown and an inner supplemental or false crown secured to the front edge of the main crown and extending longi-

tudinally of the hat to a point inward of the rear portion of the main crown to form above and rearwardly of and around the false crown a compartment, an inflatable bag having its main portion adapted substantially to occupy the compartment above the inner crown and formed with a contracted or narrowed extension adapted to occupy the portion of the compartment rearward of the inner crown; a slitted portion at the mouth of the rearward end of the compartment through which the bag is adapted to be removed and a fastening for the slitted portion to normally hold the bag therein.

3. A hat of the character described comprising a main or outer crown and a supplemental inner or false crown secured within the hat at an appreciable distance beneath the said crown and in contact therewith at the front or forehead portion of the hat and out of contact therewith at the rear, an air-cushion or inflatable bag within the hat between the two crowns thereof and extending downwardly through the space between the said crowns at the lower rear portion of the hat, the said hat being slitted to permit the removal of the air-cushion therefrom at the said point and being provided thereat with a fastening device to hold the bag normally in position within the hat.

4. A hat of the character described, a shield or brim and an integral upwardly-projecting crown of rounded contour and an inner supplemental or false crown secured to the front edge of the main crown and extending at a point appreciably below the top of the main crown and extending longitudinally of the hat to a point inward of the rear portion of the main crown to form above and rearwardly of and around the inner or false crown a compartment, said inner or false crown being rounded; an inflatable bag having its main portion adapted substantially to occupy the compartment above the inner crown and adapted when inflated to press upwardly against the upper portion of the outer crown from the fulcrum of the lower crown and formed with a contracted or narrowed rear portion adapted to occupy the portion of the compartment rearward of the inner crown; a slitted portion at the mouth of the rearward end of the compartment between the crowns through which the bag is adapted to be inserted and passed upwardly, and a fastening for the slitted portion whereby access may readily be had to the compartment for the insertion and removal of the bag and the said bag being provided with a nozzle or valve adapted to be projected through the said slitted portion.

694,169. MATCH-BOX. JOHN T. MATTHEWS, Newark, N. J. Filed June 12, 1901. Serial No. 64,253. (No model.)



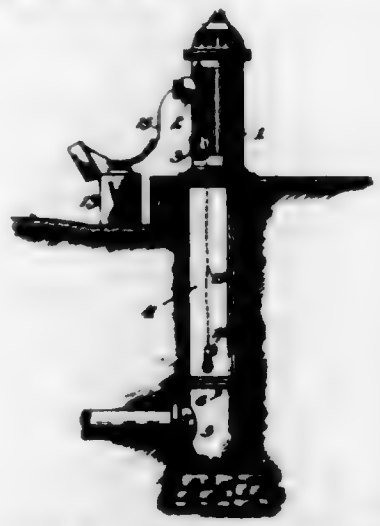
Claim.—1. A match-safe comprising a casing provided with a match-chamber having a stationary wall at one end and a spring-operated follower or press plate at the other end, said casing being provided in the top thereof with a transverse match-slot adjacent to the stationary end wall and at the bottom thereof with an upwardly-inclined portion adjacent to the said stationary end wall, the top of said casing at the front of the match-slot being also inclined upwardly, substantially as shown and described.

2. A match-safe comprising a casing provided with a match-chamber having a stationary transverse end wall at one end and a spring-operated follower or press plate at the opposite end, the springs by which the follower or press plate is operated being located in the sides of the match-safe, the top of said match-safe being also provided adjacent to the stationary end wall with a transverse slot, the end of the top adjacent to the slot being upwardly inclined and the bottom of said match-safe being provided adjacent to the stationary end wall with an upwardly inclined portion, substantially as shown and described.

3. A match-safe comprising a casing having a match-chamber having a stationary transverse end wall at one end and a spring-operated follower or press plate at the opposite end, the springs by which the follower or press plate is operated being located in the sides of the match-safe, the top of said match-safe being also provided adjacent to the stationary end wall with a transverse slot, the end of the top adjacent to the slot being upwardly inclined and the bottom of said match-safe being provided adjacent to the stationary end wall with an upwardly-inclined portion, substantially as shown and described.

694,170. HYDRANT-CAP. JOHN P. MEER, Brooklyn, N. Y. Filed June 27, 1901. Serial No. 66,206. (No model.)

Claim.—1. A fire-hydrant provided with a cap or headpiece formed with a peep-opening located at an eccentric point upon the cap, and a removable plug closing said opening.



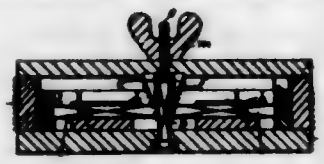
2. The combination with a fire-hydrant provided with an opening in its upper end, of a thawing and clearing apparatus comprising a pipe extended into the hydrant through said opening, and means for inducing a circulation through said pipe alternately in opposite directions.

3. The combination with a fire-hydrant provided with an opening in its upper end, of a thawing and clearing apparatus comprising a pipe extended into the hydrant through said opening, an ejector at the upper end of said pipe, a steam-pipe connected to the ejector and communicating with a suitable source of steam-supply, a by-pass pipe extending from the first-named pipe to the steam-pipe, and valves located in the several pipes, whereby steam may be injected into the hydrant or may be supplied to the ejector for the purpose of creating sufficient suction to deliver the hydrant of its contents.

4. The combination with a fire-hydrant provided with a cap or headpiece formed with an eccentric peep-opening, of a thawing and clearing apparatus comprising a pipe extended into the hydrant through said eccentric peep-opening, an ejector at the upper end of said pipe, a valve-controlled steam-pipe communicating with the ejector, a steam-boiler connected to the steam-pipe, a valve-controlled by-pass pipe communicating with the first-named pipe and the steam-pipe respectively, and a valve located in said first-named pipe intermediate of the ejector and by-pass pipe.

5. In a thawing and clearing apparatus for fire-hydrants, the combination with a pipe designed to be inserted in the hydrant, and provided adjacent to its upper end with a valve, an ejector located at the upper end of said pipe, a valve-controlled steam-pipe communicating with the ejector, a portable boiler communicating with said steam-pipe, and a valve-controlled by-pass pipe connected at one end to the steam-pipe and at its opposite end to the first-named pipe at a point below the valve therein.

694,171. BARREL-CLOSURE. PETER MIER, Niedercassebeln, Germany. Filed Aug. 19, 1901. Serial No. 72,628. (No model.)



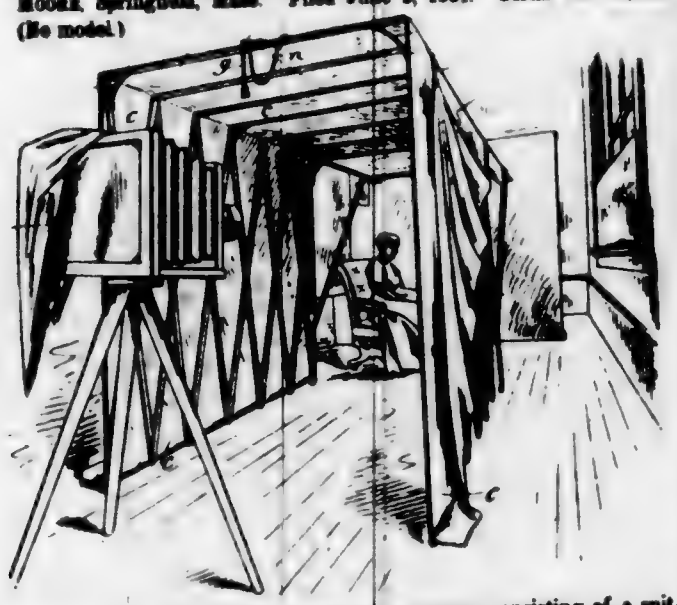
Claim.—1. In a head for barrels and vessels, the combination with a casing having top and bottom plates, of an annular elastic band interposed between said plates, a bolt extending through said plates, segmental sections within said casing and engaging said elastic band, a sleeve loosely mounted on said bolt between said plates, rods connected to said segmental sections and engaging said sleeve, and a nut on said bolt adapted to engage and depress said top plate for operating said sleeve and rods.

2. In a head for barrels and vessels, the combination with a casing having top and bottom plates, of an annular elastic band inserted between said top and bottom plates, segmental sections within said casing adapted to exert a pressure against said band, rods connected to said segmental sections, a bolt extending through said plates, a wedge adapted to slide on said bolt between said rods and also between said plates, and a nut on said bolt adapted to depress said top plate and exert a pressure on said wedge to spread said rods apart, substantially as described.

3. In a head for barrels and vessels, the combination with a casing having top and bottom plates, of an annular elastic band inserted between said top and bottom plates, segmental sections within said casing adapted to exert a pressure against said band, rods connected to said segmental sections, a bolt extending through said plates and having a rectangular portion between said plates, a block adapted to slide on said rectangular

part, and having wedge-surfaces adapted to engage said rods, and a nut on said bolt adapted to depress said top plates and exert a pressure on said block to spread said rods, substantially as described.

694,172. PHOTOGRAPHIC SCREEN OR CANOPY. HIRAM C. MOORE, Springfield, Mass. Filed June 3, 1901. Serial No. 62,859. (No model.)



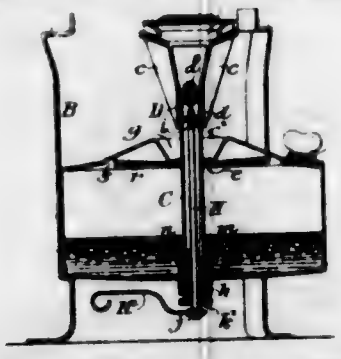
Claim.—1. A photographic screen or canopy consisting of a suitable frame, a light-excluding covering therefor, a curtain-supporting device movable toward and from the end of said canopy over a subject to be photographed, removable curtains or screens on said supporting device, and means for moving said device toward and from one end of said screen or canopy, substantially as described.

2. A photographic screen or canopy consisting of a longitudinally-extensible structure substantially as described, a frame pivotally supported near the bottom on the end of the structure, and adapted to swing outwardly more or less, removable curtains for said frame more or less permeable by light, and means for controlling the swinging movement of said frame, substantially as described.

3. A photographic screen or canopy comprising a longitudinally-extensible frame, a light-excluding covering therefor, a more or less transparent canopy extension supported at one end of said frame to extend more or less over a subject to be photographed, means for extending said canopy more or less relative to the frame, and means for withdrawing a portion of said light-excluding covering from the frame, substantially as described.

4. A photographic screen or canopy consisting of a suitable longitudinally-extensible frame, a light excluding covering therefor, a curtain-supporting device movable toward and from one end of said frame, more or less, over a subject to be photographed, removable curtains or screens on said supporting device, and means for adjusting said device relative to one end of said frame, substantially as described.

694,173. VAPOR-STOVE. JOHN P. NEWBOLD, Philadelphia, Pa. Filed Oct. 10, 1900. Serial No. 32,641. (No model.)

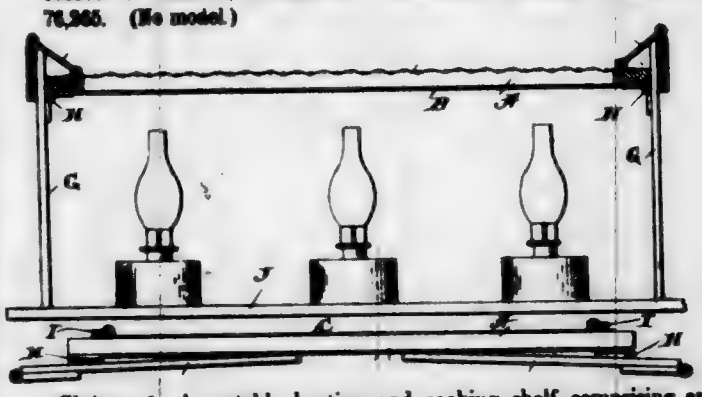


Claim.—1. The combination of a reservoir, a tube extending through the same having a burner at its upper end, a valve and valve-rod in the tube, said tube having openings for the intake of liquid fuel and having a hood fixed to its outside surface and extending below said openings, substantially as described.

2. The combination of a reservoir, a tube extending through the same having a burner at its upper end, a valve and a valve-rod in the tube, a gland for the valve-rod in the bottom of the reservoir, the same extending into the tube, said tube having openings in its sides above the inwardly-extending portion of the gland, a hood encircling the tube, having its lower edge extending below the level of the openings in said tube, substantially as described.

3. The combination of a reservoir, a tube extending through the same having a burner at its upper end, a stuffing-box extending into said tube, a valve-rod extending through said stuffing-box controlling the flow of fluid from the burner, said tube having an annular hood encircling the tube near its lower end, the lower edge of said hood extending to within a relatively short distance of the bottom of the reservoir, there being openings in the side of the tube above the inwardly-projecting end of the stuffing-box and below the point of contact of the hood with the tube, substantially as described.

694,174. PORTABLE HEATING AND COOKING SHELF. AUGUSTUS W. NEWELL, Bradford, Pa. Filed Sept. 28, 1901. Serial No. 76,265. (No model.)



Claim.—1. A portable heating and cooking shelf, comprising an open frame having at its under side a fine wire-gauze smoke and gas intercepting member, at its upper side a heavy supporting open-work member, hinged folding legs therefor, and holding members for the legs when they are extended, substantially as described.

2. A heating and cooking shelf comprising an elongated open frame adapted to receive thereunder a number of lamps, supporting-legs therefor of a height greater than the height of the lamps and their chimneys, the said open frame having at its under side a smoke and gas intercepting fine wire-gauze, and at its upper side a heavy open-work supporting member, separated from the said wire-gauze, substantially as described.

3. A heating and cooking shelf comprising an open frame having at its under side a smoke and gas intercepting fine wire-gauze member and at its upper side a heavy open-work supporting member, depending legs having a transverse connecting member at their upper ends, and said legs hinged to the under side of the said open frame, and connecting members between the upper side of the open frame and the said transverse member of the legs, substantially as described.

694,175. BELT-GEARING. WILLIAM NEWMAN, Alexandria, S. D. Filed Oct. 1, 1901. Serial No. 77,215. (No model.)



Claim.—1. A rope pulley-ring having its rim grooved and provided with grips operating in the said ring and composed of opposite sections pivoted together and arranged to grip the cable within the groove, said sections being provided with inwardly-projecting arms, and springs connecting the opposite arms of the grips, substantially as set forth.

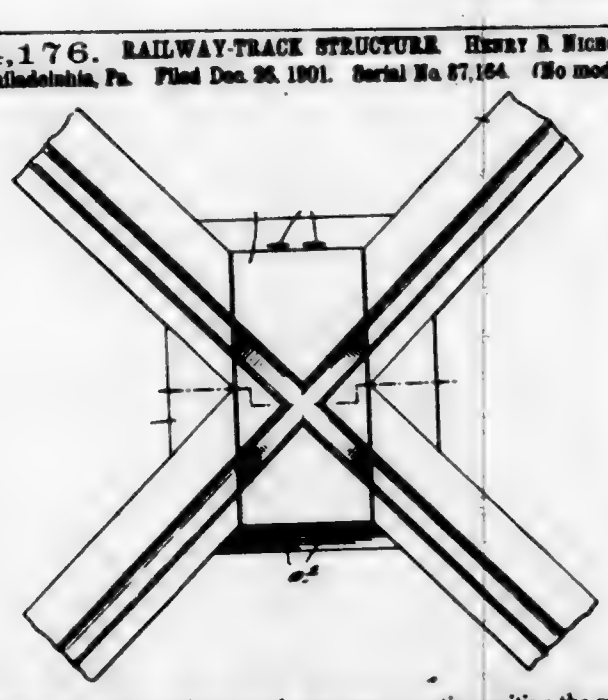
2. The combination of the band-wheel, the rope pulley-ring arranged over the band-wheel and having the spokes provided with the laterally-extending portions, the inwardly-opening threaded sockets in the pulley-ring, the base-bars fitting to the rim of the pulley-wheel, and provided with threaded sockets, and the screws operating in said sockets and in the sockets of the pulley-ring, substantially as set forth.

3. The combination of the band-wheel, the rope pulley-ring extending around the band-wheel, and bolts operating between the band-wheel and pulley-ring and clamping the pulley-ring in place on the band-wheel substantially as set forth.

4. The combination of the wheel the pulley-ring arranged over the wheel and having the inwardly-opening sockets, the base-bars fitted to the wheel and provided with threaded sockets, and the screws operating in said sockets substantially as set forth.

5. The combination with the threshing-machine-cylinder pulley of a band-wheel, a band connecting said pulley and wheel, and a pulley-ring fitted upon the band-wheel and formed to receive a cable for connection with the drive-engine, substantially as set forth.

694,176. RAILWAY-TRACK STRUCTURE. HENRY B. NICHOLS, Philadelphia, Pa. Filed Dec. 26, 1901. Serial No. 87,164. (No model.)

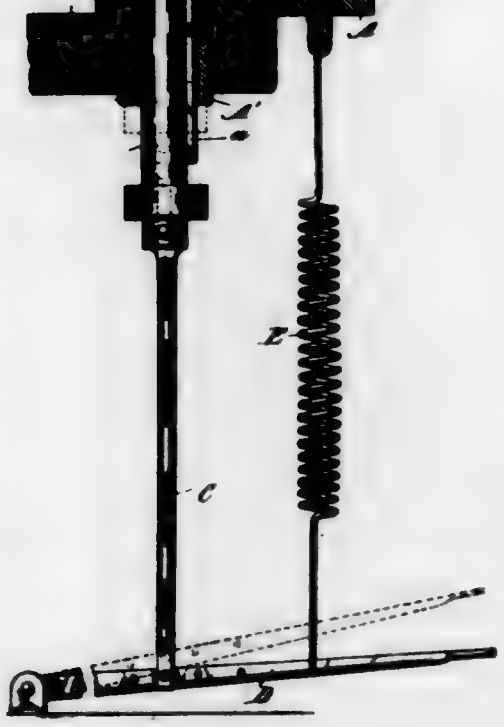


Claim.—1. In a railway-track structure, a casting uniting the meeting rails, in combination with a block seated and removably secured to said casting, an extension filling said casting and having grooves or channels and a bed or filler interposed between the block, its extension and the casting and filling the grooves or channels of said extension to form a key or lock accessible from the outside of the casting.

2. In a railway-track structure, a casting uniting the meeting rails and having a pocket or recess, in combination with a block seated and removably secured in said pocket, an extension formed on the base of the block and fitting said pocket, the side or sides of said extension and the adjacent wall or walls of the pocket being complementally grooved or channeled and a bed or filler interposed between the plate, its extension and the casting, said bed or filler filling the complemental grooves or channels to form a key or lock accessible from the outside of the casting.

3. In a railway-track structure, a casting uniting the meeting rails and provided with a pocket or recess, a block adapted to be seated in said pocket and to be inclosed on two sides only by said casting, an inverted pyramidal extension formed on the base of the block and entering said pocket, adjacent sides of the extension and pocket being complementally grooved to form an opening and a metal bed or filler arranged between the block, its extension and the casting, said bed or filler entering said opening to form a removable key or lock.

694,177. CAN-STRAIGHTENER. CHARLES W. NICKLAUS, Elgin, Iowa. Filed Dec. 24, 1901. Serial No. 87,084. (No model.)

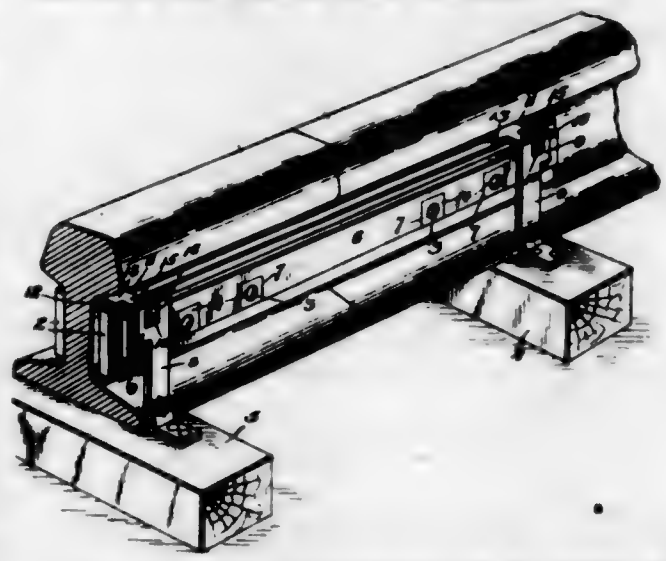


Claim.—1. A can-straightening machine, consisting of a bed-plate having a concave seat formed on its upper surface, a vertically-sliding stem passing through the bed-plate and having a feather-and-groove connection with the same, a former-arm connected to said stem above the bed-plate and adapted to fit within the can-seat, and means for raising and lowering said former-arm substantially as described.

2. A can-straightening machine, consisting of a bed-plate having a concave seat formed on its upper surface, a vertically-sliding stem passing through the bed-plate and having a feather-and-groove connection with the same, a former-arm connected to said stem above the bed-plate and adapted to fit within the can-seat, a connecting-rod attached to the lower end of the former-arm stem, a treadle attached to the connecting-rod, and a spring connecting the treadle to the bed-plate substantially as shown and described.

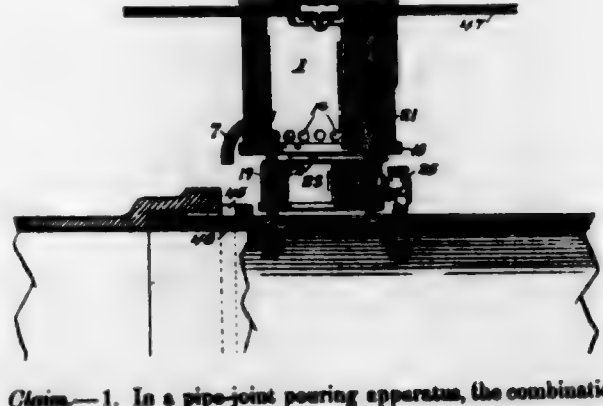
3. A can-straightening machine, consisting of a bed-plate having a detachable concave seat, a vertically-sliding stem passing through the bed-plate and having a feather-and-groove connection therewith, a former-arm detachably connected to said stem above the bed-plate and adapted to fit within the can-seat, a connecting-rod attached to the lower end of the former-arm stem, a treadle attached to the connecting-rod, and a spring connecting the treadle to the bed-plate substantially as and for the purpose described.

694,178. NUT-LOCK. JOHN W. NORMAN, Dyersburg, Tenn. Filed Dec. 30, 1901. Serial No. 87,739. (No model.)



Claim.—In a nut-lock, the combination with the abutting ends of railroad-rails, fish-plates or splice-bars, and bolts and nuts, of a locking-bar having recesses in its lower edge to engage said nuts and prevent them from turning, an angle-knee adapted to be secured to the ties and provided with an apertured head, and an angle-plate clamped between the web of the rail and the splice-bar and provided with a laterally-projecting tongue which extends through the apertured head and is provided with an upturned end, substantially as set forth.

694,179. HYDROCARBON APPARATUS. DENIS F. O'BRIEN, Newark, N. J. Filed Mar. 15, 1899. Serial No. 709,137. (No model.)



Claim.—1. In a pipe-joint pouring apparatus, the combination of a suitable casing, a melting-pot and delivery-pipe therefor, a tank beneath the pot removably connected to and supported by the casing, and a combined vaporizer and burner between the tank and pot and borne by the former, substantially as described.

2. In a pipe-joint pouring apparatus, the combination of a suitable casing, a melting-pot and delivery-pipe therefor, a tank beneath the pot removably connected to and supported by the casing, a combined vapo-

rizer and burner between the tank and pot and borne by the former, and supporting-legs connected with the casing and projecting below the tank, substantially as described.

3. In a pipe-joint pouring apparatus, the combination of a suitable casing, a melting-pot and delivery-pipe therefor, a tank beneath the pot removably connected to and supported by the casing, a combined vaporizer and burner between the tank and pot and borne by the former, and laterally-adjustable supporting-legs connected with the casing and projecting below the tank, substantially as described.

4. In a pipe-joint pouring apparatus, the combination of a suitable casing, a melting-pot and delivery-pipe therefor, a tank beneath the pot removably connected to and supported by the casing, a combined vaporizer and burner between the tank and pot and borne by the former, and means interposed between the burner and tank for protecting the latter against the heat of the flame from the former, substantially as described.

5. In a pipe-joint pouring apparatus, the combination of a suitable casing having a closed bottom, a melting-pot and delivery-pipe therefor, a tank beneath the bottom of the casing removably connected to and supported by the casing, and a combined vaporizer and burner projecting upwardly from the tank into a position beneath the pot through an opening in the bottom of the casing, substantially as described.

6. In a pipe-joint pouring apparatus, the combination of a suitable casing having a closed bottom, a melting-pot and delivery-pipe therefor, a tank beneath the bottom of the casing removably connected to and supported by the casing, a combined vaporizer and burner projecting upwardly from the tank into a position beneath the pot through an opening in the bottom of the casing, and means interposed between the bottom of the casing and the tank for protecting the latter against the heat of the flame from the burner, substantially as described.

7. In a pipe-joint pouring apparatus, the combination of a suitable casing, a melting-pot and delivery-pipe therefor, a tank beneath the pot having a sliding connection with and supported by the casing, and a combined vaporizer and burner between the tank and pot and borne by the former, substantially as described.

8. In a pipe-joint pouring apparatus, the combination of a suitable casing, a melting-pot and delivery-pipe therefor, a tank beneath the pot and supported by the casing, said tank being provided with lugs adapted to slide upon and interlock with corresponding devices upon the casing, and a combined vaporizer and burner between the tank and pot and borne by the former, substantially as described.

9. In a pipe-joint pouring apparatus, the combination of a suitable casing, a melting-pot and delivery-pipe therefor, a tank beneath the pot and supported by the casing, said tank being provided with lugs adapted to slide upon and interlock with corresponding devices upon the casing, a combined vaporizer and burner between the tank and pot and borne by the former, and supporting-legs on the casing projecting below the tank, substantially as described.

10. In a pipe-joint pouring apparatus, the combination of a suitable casing, a melting-pot and delivery-pipe therefor, a tank provided with lugs 24, corresponding lugs 22 on the casing, and a vaporizer and burner borne by the tank beneath the pot, substantially as described.

694,180. HYDRANT. DENIS F. O'BRIEN, Newark, N. J. Filed Apr. 27, 1900. Renewed Aug. 20, 1901. Serial No. 72,845. (No model.)

Claim.—1. The combination of a main valve, actuating mechanism for opening and closing the valve, a lost-motion connection between the valve and actuating mechanism permitting movement in opposite directions of the latter relatively to the valve before the valve is opened and after it is closed, a drip-valve, connections between the actuating mechanism and drip-valve whereby the latter is operated during the movement of the former relatively to the main valve and a spring for taking up the lost motion between the actuating mechanism and main valve when the latter is open, substantially as described.

2. The combination of a main valve, actuating mechanism for opening and closing the valve, a lost-motion connection between the valve and actuating mechanism permitting movement in opposite directions of the latter relatively to the valve before the valve is opened and after it is closed, a drip-valve, connections between the actuating mechanism and drip-valve whereby the latter is operated during the movement of the former relatively to the main valve and a spring between the actuating mechanism and main valve for taking up the lost motion between them when the valve is open, substantially as described.

3. The combination of a main valve, a spindle secured thereto, an actuating-spindle engaging the valve-spindle for opening and closing the valve, a lost-motion connection between the two spindles permitting movement in opposite directions of the actuating-spindle relatively to the valve-spindle before the valve is opened and after it is closed, a drip-valve, connections between the actuating-spindle and drip-valve whereby the latter is operated during the movement of the former relatively to the valve-spindle, and a spring for taking up the lost motion between the two spindles when the main valve is open, substantially as described.



4. The combination of a main valve, a spindle secured thereto, an actuating-spindle engaging the valve-spindle for opening and closing the valve, a lost-motion connection between the two spindles permitting movement in opposite directions of the actuating-spindle relatively to the valve-spindle before the valve is opened and after it is closed, a drip-valve, connections between the actuating-spindle and drip-valve whereby the latter is operated during the movement of the former relatively to the valve-spindle, and a spring between the two spindles for taking up the lost motion between them when the main valve is open, substantially as described.

5. The combination of a main valve, a spindle secured thereto, an actuating-spindle engaging the valve-spindle for opening and closing the valve, a lost-motion connection between the two spindles permitting movement in opposite directions of the actuating-spindle relatively to the valve-spindle before the valve is opened and after it is closed, a self-seating drip-valve, and an arm between the actuating and drip-valve spindles, said arm being borne by and movable with one of said spindles and loosely engaging the other whereby upon the movement of the actuating-spindle to open the main valve and before said valve is opened the drip-valve seats itself and upon the movement of the actuating-spindle to close the main valve and after the latter is closed said arm effects the opening of the drip-valve, substantially as described.

6. The combination of a main valve, a spindle secured thereto, an actuating-spindle engaging the valve-spindle for opening and closing the valve, a lost-motion connection between the two spindles permitting movement in opposite directions of the actuating-spindle relatively to the valve-spindle before the valve is opened and after it is closed, a self-seating drip-valve, and an arm between the actuating and drip-valve spindles, said arm being borne by and movable with one of said spindles and loosely engaging the other whereby upon the movement of the actuating-spindle to open the main valve and before said valve is opened the drip-valve seats itself and upon the movement of the actuating-spindle to close the main valve and after the latter is closed said arm effects the opening of the drip-valve, and a spring for taking up the lost motion between the two spindles when the main valve is open, substantially as described.

7. The combination of a main valve, a spindle secured thereto, an actuating-spindle engaging the valve-spindle for opening and closing the valve, a lost-motion connection between the two spindles permitting movement in opposite directions of the actuating-spindle relatively to the valve-spindle before the valve is opened and after it is closed, a self-seating drip-valve, and an arm between the actuating and drip-valve spindles, said arm being borne by and movable with one of said spindles and loosely engaging the other whereby upon the movement of the actuating-spindle to open the main valve and before said valve is opened the drip-valve

seats itself and upon the movement of the actuating-spindle to close the main valve and after the latter is closed said arm engages and effects the opening of the drip-valve, and a spring between the two spindles for taking up the lost motion between them when the main valve is open, substantially as described.

8. The combination of main valve 6, spindle 10, actuating-spindle 11 having a limited movement relatively thereto, spring 21 between the spindles, means for moving spindle 11 endwise, self-seating drip-valve and spindles 23, 25, arm 28 borne by spindle 11 and loosely engaging spindle 25, and a stop on spindle 25 on the upper side of arm 28 whereby said spindle and its valve are raised on the upward movement of spindle 11, substantially as described.

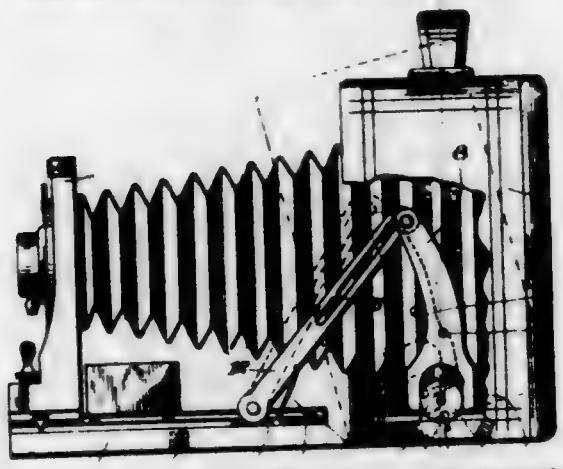
9. The combination of main valve 6, spindle 10, actuating-spindle 11 having a limited movement relatively thereto, bracket 18 connecting the spindles, a stop on spindle 10 beneath the bracket for engagement therewith, spring 21 between the spindles, means for moving the spindle 11 endwise, self-seating drip-valve and spindle 23, 25, arm 28 borne by spindle 11 and loosely engaging spindle 25, and a stop on spindle 25 on the upper side of arm 28 whereby said spindle and its valve are raised on the upward movement of spindle 11, substantially as described.

10. The combination of main valve 6, spindle 10, actuating-spindle 11 having a limited movement relatively thereto, spring 21 between the spindles, means for moving spindle 11 endwise, self-seating drip-valve and spindle 23, 25, arm 28 borne by spindle 11 and slotted at its outer end to loosely engage spindle 25, and a stop on spindle 25 on the upper side of arm 28 whereby said spindle and its valve are raised on the upward movement of spindle 11, substantially as described.

11. The combination of a main valve, actuating mechanism for opening and closing the valve, a lost-motion connection between the valve and actuating mechanism permitting movement in opposite directions of the latter relatively to the valve before the valve is opened and after it is closed, a drip-valve, and connections between the actuating mechanism and drip-valve whereby the latter is operated during the movement of the former relatively to the main valve, said connections including a member movable from operative position to render said connections inoperative, substantially as described.

12. The combination of a main valve, a spindle secured thereto, an actuating-spindle engaging the valve-spindle for opening and closing the valve, a lost-motion connection between the two spindles permitting movement in opposite directions of the actuating-spindle relatively to the valve-spindle before the valve is opened and after it is closed, a drip-valve, and connections between the actuating-spindle and drip-valve whereby the latter is operated during the movement of the former relatively to the valve-spindle, said connections including a member movable from operative position to render said connections inoperative, substantially as described.

694,181. SWING-BACK PHOTOGRAPHIC CAMERA. VICTOR OSQUIST, Chicago, Ill., assignor to Imperial Camera & Mfg. Co., La Crosse, Wis. Filed Oct. 1, 1901. Serial No. 77,198. (No model.)



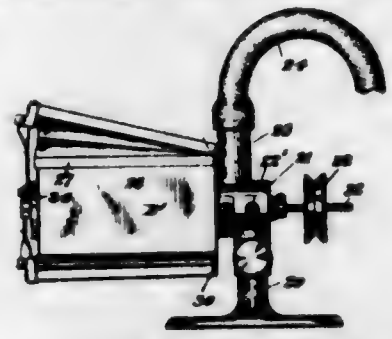
Claim.—1. In a swing-back photographic camera, the combination of a camera-bed, a swing-back hinged to the camera-bed, links pivotally supported in the swing-back, levers pivotally supported on the camera-bed, and slidingly connected to the upper ends of the levers in the swing-back, and means in the swing-back to engage the levers therein and tilt the back.

2. In a swing-back photographic camera, the combination of a camera-bed, a swing-back hinged thereto, levers pivotally supported in the swing-back and formed with forked lower ends, and studs at their upper ends, a shaft journaled across the swing-back, disks eccentrically mounted on the shaft to engage between said forks, and links pivotally mounted on the camera-bed, and formed with elongated slots to slidingly engage on the studs of the levers.

3. In a swing-back photographic camera, the combination with a swing-back and a camera-bed hinged together, of levers and links fulcrumed to the swing-back and camera-bed and having upper ends slidably interengaging, and means in the swing-back to rock the levers therein and tilt the back.

4. In a swing-back photographic camera, the combination with the camera-bed and the swing-back, hinged together, of levers pivotally supported in the swing-back and formed with forked lower ends and provided with headed studs in their upper ends, links pivotally mounted on the camera-bed and formed with elongated slots terminating in catch-notches to interlock with the said studs, springs to keep the studs and catch-notches in detachable engagement, a rotatable shaft in the swing-back, and disks eccentrically mounted on the shaft and engaging between the forked end of the levers.

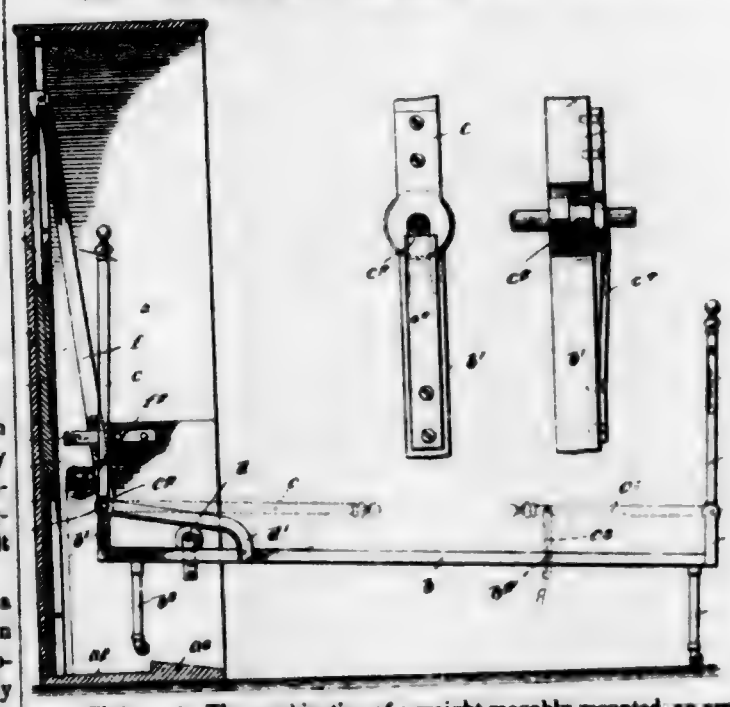
694,182. MOTOR OR ENGINE. ALLAN R. OLNEY, Pittsfield, Mass. Filed Mar. 25, 1901. Serial No. 52,520. (No model.)



Claim.—1. In a fluid-pressure apparatus, the combination with a member having a cylindrical chamber and a circular series of ports radially disposed in the walls of the chamber; of a rotatable valve consisting of a mutilated cylinder arranged to engage the walls of the chamber at the part containing said ports; the valve having a cut-away portion forming a port extending longitudinally from a place intermediate of its ends to one end; the valve also having another port extending longitudinally from a place diametrically opposite to said place to the other end of the valve.

2. In a fluid-pressure apparatus the combination with a member having a cylindrical chamber and a circular series of ports radially disposed in the walls of the chamber; of a rotatable valve consisting of a mutilated cylinder arranged to engage the walls of the chamber at the part containing the said ports; the valve having a port formed by a portion cut away by a plane parallel to its axis, which portion extends from one end to and including a part in alinement with said ports; the valve having another port also formed by a similar cut-away portion on the opposite side from said cut-away portion and extending from the other end of the cylinder to and including a portion located opposite to said portion in alinement with said ports.

694,188. BED. WILLIAM D. OLSEN, Stillwater, Minn. Filed Aug. 15, 1901. Serial No. 72,133. (No model.)



Claim.—1. The combination of a weight movably mounted, an arm connected therewith, a stationary member engaged by a part on the arm whereby to sustain the weight in raised position, a bed movable into engagement with the arm to throw it off of said stationary member and

thereby to bear the heft of the weight, and means forming a pivot around which the bed may turn.

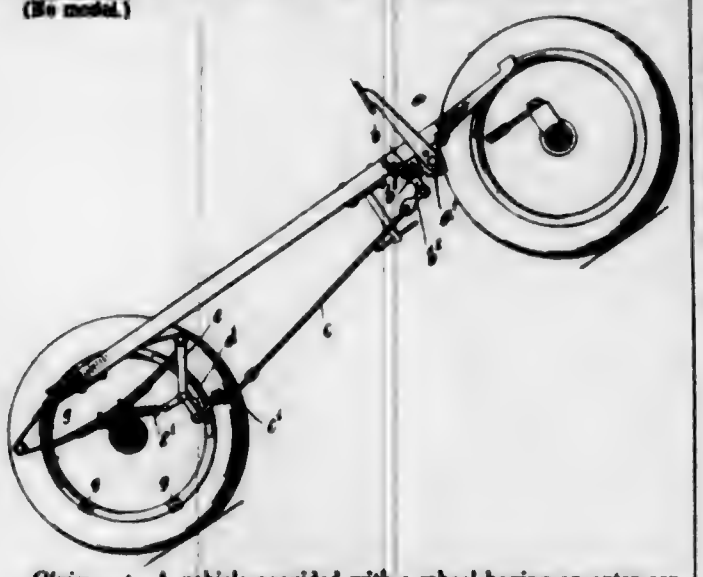
2. The combination of a cabinet having a shoulder thereon, a weight movably mounted in the cabinet, an arm connected to the weight and having a part bearing on the shoulder of the cabinet, a bed movable into the cabinet and adapted to engage the arm to throw it off of the shoulder of the cabinet, and means forming a fulcrum or pivot around which the bed may be swung under the action of the weight.

3. The combination of a cabinet, a weight mounted to move vertically therein, an arm in connection with the weight, the arm having a laterally-projecting pin and the cabinet having a shoulder normally engaged by the pin whereby to sustain the weight, a bed movable into the cabinet and arranged to engage with the arm to throw it off of the shoulder, whereby to place the heft of the weight on the bed, and a means in the cabinet for forming a pivot or fulcrum around which the bed may swing.

4. The combination of a weight mounted to move vertically, releasable means for sustaining the weight in raised position, and a folding bed normally disconnected from said sustaining means and movable into engagement therewith to release said means and transfer the heft of the weight to the bed to assist in the folding movement thereof.

5. The combination of a cabinet, a weight arranged to move vertically therein, an arm having connection with the weight, the cabinet having a shoulder on which a part of the arm bears, normally to sustain the weight, the lower end of the arm being notched, a bed movable into the cabinet, and a pin carried on the bed and adapted to engage the notched end of said arm to throw the arm out of engagement with the shoulder of the cabinet and place the heft of the weight on the bed.

694,184. VEHICLE-BRAKE. JAMES W. PACKARD and WILLIAM A. HATCHER, Warren, Ohio. Filed Oct. 29, 1900. Serial No. 34,762. (No model.)



Claim.—1. A vehicle provided with a wheel having an outer concave bearing-surface, and a concave rim attached to the inner side thereof at one side of the plane of the spokes, said rim having its concave side inward for the purpose specified.

2. A vehicle provided with a wheel having an outer concave bearing-surface, a concave rim attached to the inner side thereof, said rim having its concave side inward for the purpose specified, a brake-lever fulcrumed to the vehicle-spring, a brake-shoe bearing on said concave rim, and a spring for retracting the lever and shoe, said spring being attached adjacent to the axle of the wheel.

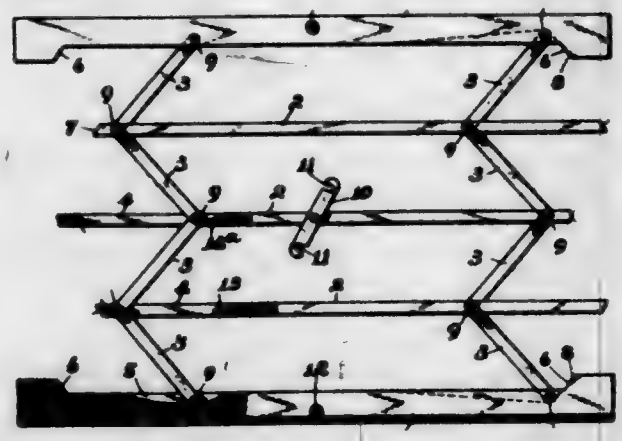
3. A vehicle-brake comprising an annular brake-rim adapted to be engaged by the brake-shoe, and located at one side of the spokes of the wheel directly adjacent to the inner periphery of the rim of the same, and brackets attached to the inner periphery of the wheel and to the outer periphery of the brake-rim to hold the brake-rim in place.

4. A vehicle-brake, comprising an annular brake-rim adapted to be engaged by the brake-shoe, said rim being located at one side of the wheel, and brackets attached to the wheel and projecting laterally to the brake-rim, whereby to hold the brake-rim in place.

694,185. PARALLEL-RULER. JAMES PAGE, Washington, D. C. Filed Jan. 6, 1902. Serial No. 88,687. (No model.)

Claim.—1. In a pair of parallel-rulers, the combination of two straight-edges, parallel bars interposed between said straight-edges, and parallel links pivotally connected to the inside of the straight-edges and the bars, so that said bars and links are so disposed with reference to the surfaces of the straight-edges, as to avoid projecting surfaces beyond the surfaces of the straight-edges.

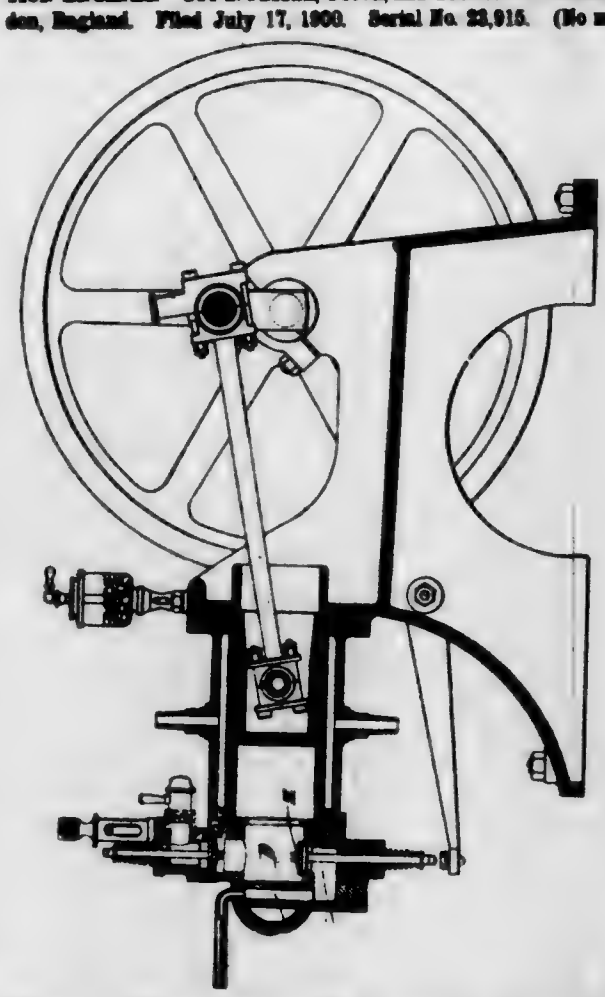
2. In a pair of parallel-rulers, the combination of two straight-edges having recesses on their inner sides, parallel bars interposed between the said straight-edges having slots at the opposite ends, and links pivotally connected in the recesses of the straight-edges and in the slots of the bars, said links adapted to be inclosed within the slots of the bars and the recesses of the straight-edges when the rulers are closed, substantially as described.



3. In a pair of parallel-rulers, the combination of two straight-edges having recesses on their inner sides, parallel bars interposed between the straight-edges and provided with slots in their opposite ends, parallel links pivotally connected at one end to, and in the recesses of, the straight-edges, and at the other end to, and in the slots of, the bars adjacent to the said straight-edges, and other links pivotally connecting the bars, the said links and bars being adapted to be inclosed within the straight-edges and forming close joints, when the rulers are closed, substantially as described.

4. In a pair of parallel-rulers, the combination of two straight-edges having corresponding elongated recesses on the insides, so as to form an elongated slot with beveled ends when closed, parallel bars having slots in the ends thereof, parallel links pivotally connected with said bars in the slots thereof and with the straight-edges, said bars having their ends beveled to correspond with the beveled ends of the elongated recesses in the straight-edges, thereby forming a parallel motion connecting the two straight-edges, which is inclosed within the said elongated slot when the rulers are closed.

694,186. IGNITING APPARATUS FOR INTERNAL-COMBUSTION ENGINES. GUY R. PETTER, Yeovil, and ERNEST W. PETTER, London, England. Filed July 17, 1900. Serial No. 23,915. (No model.)



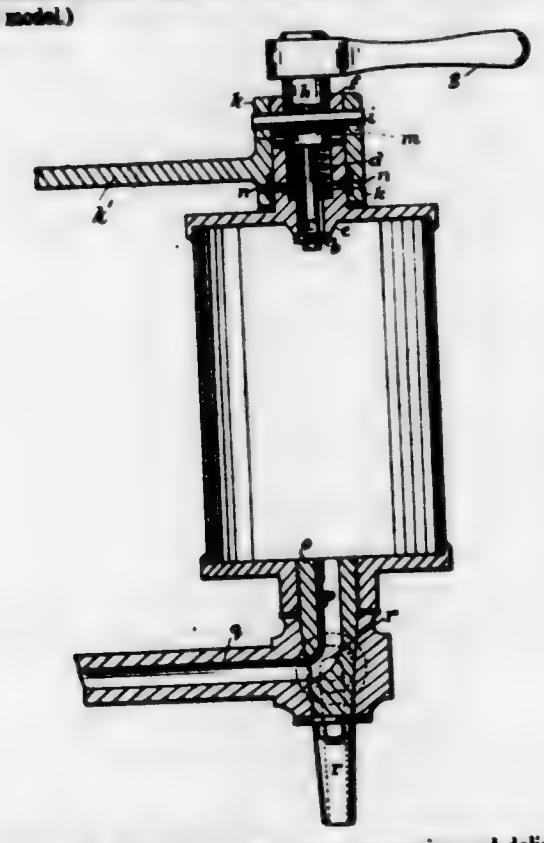
Claim.—1. The combination, with an explosion or internal-combustion motor of a combustion-chamber, an ignition-tube located therein, an

exhaust-chamber connecting said tube and combustion-chamber forming a continuous channel, an exhaust-valve, suitably arranged, and an exhaust-pipe communicating with the said ignition-tube, substantially as set forth.

2. The combination, with an explosive or internal-combustion motor, of a combustion-chamber, an ignition-tube arranged therein, and completely exposed to exterior heating, an exhaust-chamber communicating with the same at one end and with the combustion-chamber to form a continuous channel, a valve suitably provided for the exhaust-chamber, and an exhaust-pipe connected with opposite end of the ignition-tube, substantially as set forth.

3. The combination, with an explosive or internal-combustion motor, of a combustion-chamber, an ignition-tube within the same so as to be exteriorly heated, an opening in one end of the same for the entrance of the products of combustion for heating the tube interiorly, an exhaust-chamber communicating with the interior of the ignition-tube, and an exhaust-valve suitably interposed between the ignition-tube and exhaust-chamber, substantially as set forth.

694,187. APPARATUS FOR STORING, MEASURING, AND DELIVERING AERATED LIQUIDS. FREDERICK G. PIRIE and FREDERICK SHARMAN, London, England. Filed July 1, 1901. Serial No. 66,702. (No model.)



Claim.—1. In apparatus for storing, measuring and delivering aerated liquids, the combination with a cylinder and inlet and outlet ports, of a hollow shoulder formed on said cylinder, a valve mounted in said hollow shoulder, a fixed collar surrounding said hollow shoulder, and means engaging said valve and fixed collar for operating said valve simultaneously with the rotation of said cylinder and hollow shoulder.

2. In apparatus for storing, measuring and delivering aerated liquids, the combination with a cylinder and inlet and outlet ports, of a hollow shoulder formed on said cylinder, a valve and stem mounted in said hollow shoulder, a fixed collar engaging said hollow shoulder, slots cut in said shoulder and collar, and a pin secured to said valve-stem, engaging said slots.

3. In apparatus for storing, measuring and delivering aerated liquids, the combination with a cylinder and inlet and outlet ports, of a hollow shoulder formed on said cylinder, a valve and stem mounted in said hollow shoulder, a fixed collar engaging said hollow shoulder, longitudinal slots cut in said hollow shoulder, curved slots or guideways formed in said collar, and a pin, secured to said valve-stem, engaging said slots.

4. In apparatus for storing, measuring and delivering aerated liquids, the combination with a cylinder and inlet and outlet ports, of a hollow shoulder formed on said cylinder, a valve and stem mounted in said hollow shoulder, a fixed collar engaging said hollow shoulder, ports cut in said hollow shoulder and collar, and means for simultaneously rotating said cylinder and opening said valve.

694,188. MITTEN. WILLARD L. POLLARD, Rosetta, Ill. Filed Apr. 2, 1901. Serial No. 54,072. (No model.)

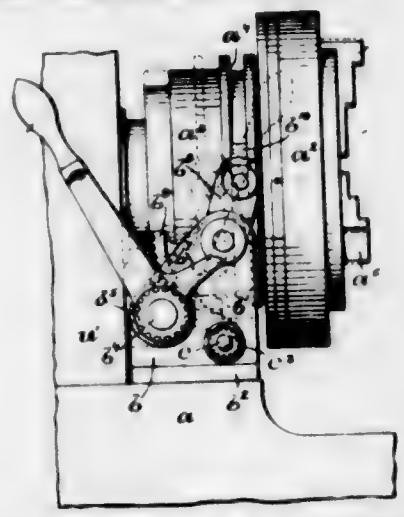
Claim.—1. A reversible mitten, comprising two sections provided with projecting thumb portions and secured together along the edges having the thumb portions, which are also secured together to form the two thumbs, the connected sections being then folded longitudinally and each having its side edges and one its end edges secured together, as set forth.



2. A reversible mitten, consisting of two separate and independent sections each provided with two projecting thumb portions and secured together along the edges having the thumb portions, which are also secured together to form the two thumbs, the connected sections being then folded longitudinally and each having its sides and one its end edges secured together, as set forth.

3. A reversible double-thumb mitten, composed of two sections, each of which is provided at one end with two projecting portions spaced apart and adapted to constitute the parts of the thumbs, the projecting portions of one section being united to the projecting portions of the other section, whereby the two opposite thumbs of the same mitten are formed, each of one projecting portion of one section united to a projecting portion of the other section, as set forth.

694,189. CHUCK-OPERATING DEVICE. JAMES C. POTTER and JOHN JOHNSTON, Pawtucket, R. I., assignors to Potter and Johnston Machine Company, Pawtucket, R. I., a Corporation of Rhode Island. Filed June 20, 1900. Serial No. 20,966. (No model.)



Claim.—1. In a mechanism for operating a chuck, clutch or similar device, the combination with a shipper-sleeve, of a rock-shaft, pinions on the rock-shaft, and a hand-lever on the rock-shaft, of levers having segmental gears on one end, connecting with the pinions on the rock-shaft, and shoes engaging with the shipper-sleeve on the other end, as described.

2. In a chuck-operating mechanism, the combination with the shipper-sleeve, of a rock-shaft extending transversely to the shipper-sleeve, a pinion on the rock-shaft, and a lever actuated by the pinions on the rock-shaft and connected with the shipper-sleeve, as described.

3. In a chuck-operating mechanism, the combination with the shipper-sleeve, of a rock-shaft, a hand-lever on the rock-shaft, levers connected with the opposite sides of the shipper-sleeve pivoted on a fixed part of the machine, and mechanism for operating the levers through the rock-shaft, as described.

4. In combination with the shipper-sleeve on the chuck, of a shaft extending transversely to the shipper-sleeve, levers supported on fixed bearings on each side of the shipper-sleeve, connections between the levers and the shipper-sleeve, means for operating the shaft, and mechanism connecting the shaft with the levers, whereby the power exerted to rock the shaft is transmitted with increased force to the shipper-sleeve, as described.

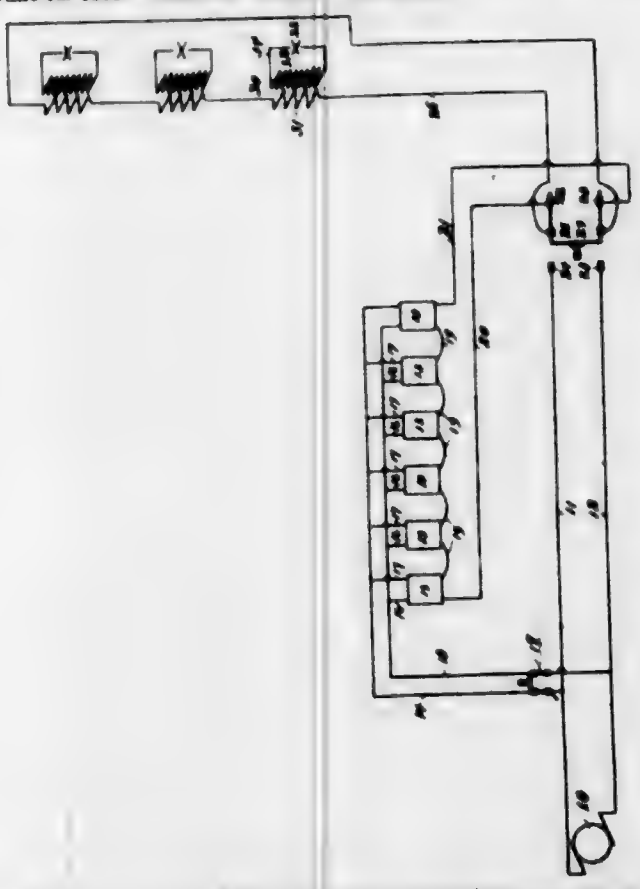
5. In a lathe-chuck, the combination of the following instrumentalities: a shipper-sleeve, levers pivotally supported on fixed bearings on each side of the shipper-sleeve, shoes engaging with the shipper-sleeve pivotally supported on the levers, segmental gears on the levers, a transversely-extending shaft, pinions on the shaft, a hand-lever on one end of the shaft, a bracket on the hand lever, and a stop-pin; whereby the force exerted on the hand-lever is transmitted to operate the chuck.

6. In a lathe-chuck, the combination with the frame of the lathe and the shipper-sleeve on the chuck, of the bed b, the stop-pins $c\,c$ in the bed, and the brackets $b'\ b'$ on the bed, of the shaft b^4 journaled in bearings on the bed b, the pinions $b^5\ b^5$ on the shaft b^4, the levers $b^9\ b^9$ pivotally supported on the brackets $b'\ b'$, the shoes $b^{10}\ b^{10}$ pivoted to the levers $b^9\ b^9$, the segmental gears on the levers $b^8\ b^8$ in engagement with the pinions $b^5\ b^5$, and the hand-lever b^6 having the bracket b^7, as described.

7. In a chuck-operating mechanism, the combination of jaws, racks and pinions for operating said jaws, a shipper-sleeve to which said racks are connected, a lever having one end in engagement with said shipper-sleeve and having on its other end a segment, a pinion engaging said segment and mounted on a fixed journal and having a lever by which it can be revolved, substantially as and for the purpose described.

8. In a chuck-operating mechanism, the combination of a lever mounted on a fixed pivot, connections between said lever and the chuck-jaws, whereby the latter can be operated when the lever is moved between certain limits, said connections being disconnected by a further movement of the lever, and a stop for confining the lever to said first-mentioned limits, substantially as and for the purpose described.

694,190. ARC-LIGHTING SYSTEM FOR ALTERNATING CURRENTS. LOUIS PRIVAT and ABRAHAM PRIVAT, Oakpark, Ill. Filed June 10, 1899. Serial No. 720,054. (No model.)

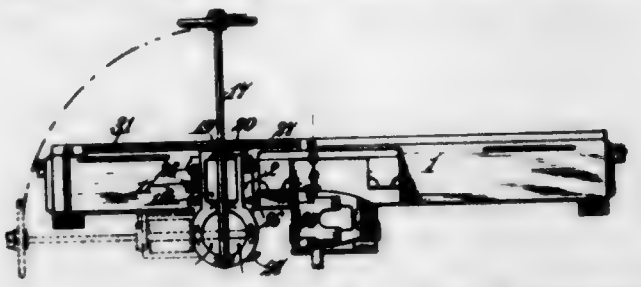


Claim.—1. An arc-lighting system for alternating currents, comprising an alternating generator, a circuit connected therewith, a plurality of converters having their primary coils arranged in series in said circuit, a plurality of arc-lamps, each connected in a separate circuit with the secondary coil of one of said converters, and an automatic cut-out for each converter connected in a shunt around the primary coil of the converter and comprising an insulated tube with a filling of mercury between its terminals adapted to expand when the primary coil is abnormally heated and thereby complete the shunt-circuit, substantially as described.

2. An arc-lighting system for alternating currents, comprising an alternating generator, a bank of converters having their primary coils connected in parallel to said generator and their secondary coils connected in series with each other, a separate induced current series circuit connected with said secondary coils, a plurality of converters arranged in series in said circuit, a plurality of arc-lamps, each connected in a separate circuit with the secondary coil of one of said last-mentioned converters, and a shunt-circuit extending around the primary of each of said last-mentioned converters and a normally open automatic switch adapted to be operated by abnormal resistance in the primary it controls, substantially as described.

3. An arc-lighting system for alternating currents, comprising an alternating generator, a bank of converters whose primary coils are connected in parallel to said generator and whose secondary coils are connected in series with each other, a separate induced current series circuit connected with said secondary coils, a plurality of converters having their primary coils arranged in series in said circuit, a plurality of arc-lamps, each connected in a separate circuit with the secondary coil of one of said last-mentioned converters, and an automatic cut-out for each of said last-mentioned converters adapted to be brought into operation by an abnormally-increased resistance in the primary and operating to shunt the circuit around the latter, substantially as described.

694,191. BRAKE-STAND FOR CARS. JOHN W. PUCKETT, Manchester, Va. Filed Oct. 15, 1901. Serial No. 78,750. (No model.)



Claim.—1. The combination with a car-body, of a plate or frame mounted to swing thereon, and provided with an opening at the center of its arc of movement, a brake-staff carried by said frame, and a brake-chain connected with said staff and extending through said opening.

2. The combination with a car-body, of a bracket secured thereto and having an opening therein, a plate or frame mounted to swing on said bracket and having an opening therein at the center of its arc of movement, registering with the opening in said bracket, a brake-staff carried by said frame, and a brake-chain connected with said staff and extending through said openings.

3. The combination with a back plate or bracket, of a brake-staff-carrying frame mounted to turn from a vertical to a horizontal position thereon, and a releasable dog movable independently of said frame for retaining said frame in its vertical position.

4. The combination with a back plate or bracket, of a brake-staff-carrying frame mounted to turn from a vertical to a horizontal position thereon, and a pivoted dog for retaining said frame in its vertical position.

5. The combination with a back plate or bracket, of a brake-staff-carrying frame mounted to turn from a vertical to a horizontal position thereon, and a dog pivoted to said bracket and adapted to engage said frame for retaining the latter in its vertical position.

6. The combination with a back plate or bracket, of a brake-staff-carrying frame mounted to turn from a vertical to a horizontal position thereon, a stop for limiting the turning movement of said frame in one direction, and a releasable dog coöperating with said stop for retaining said frame in vertical position.

7. The combination with a back plate or bracket, of a brake-staff-carrying frame mounted to turn from a vertical to a horizontal position thereon, a stop for limiting the turning movement of said frame in one direction, and a pivoted dog coöperating with said stop for retaining said frame in vertical position.

8. The combination with a back plate or bracket, of a brake-staff-carrying frame mounted to turn from a vertical to a horizontal position thereon, a stop for limiting the turning movement of said frame in one direction, and a dog pivoted to said bracket, adapted to engage said frame and coöperating with said stop, for retaining said frame in vertical position.

9. The combination with a back plate or bracket, of a brake-staff-carrying frame mounted to turn from a vertical to a horizontal position thereon, detent mechanism for retaining said frame in vertical position, and a lateral projection on said frame coöperating with a stationary part for limiting the turning movement of said frame in one direction and for supporting the same in its horizontal position.

10. The combination with a back plate or bracket, of a brake-staff-carrying frame mounted to turn from a vertical to a horizontal position thereon, a stop for limiting the turning movement of said frame from a

vertical position in one direction, a releasable dog for preventing the turning movement of said frame from a vertical position in the other direction, and a projection on said frame coöperating with a stationary part for supporting the same in a horizontal position.

11. The combination with a car-body, of a brake-staff mounted to swing thereon, and a flexible connection between said staff and the brake, the same being attached to said staff at the center of the arc of swinging movement of the same, whereby the brake may be operated by said staff in any position of the latter.

12. The combination with a car-body, of a brake-staff mounted to swing thereon in bearings located below the bottom of said body, and a flexible connection between said staff and the brake, the same extending beneath said body, and through said bearings and attached to said staff at the center of the arc of its swinging movement, whereby the brake may be operated by said staff in any position of the latter.

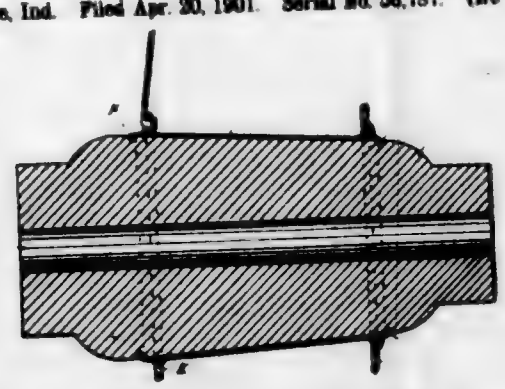
13. The combination with a back plate or bracket having an opening therein, of a frame mounted to turn on said bracket and having an opening therein registering with the opening in said bracket, a brake-staff mounted in said frame and extending across the opening therein, and a flexible connection between said staff and the brake extending through said openings.

14. The combination with a back plate or bracket having an opening therein, of a frame mounted to turn on said bracket and provided with an opening registering with the opening in said bracket, lugs secured to the upper and lower ends of said frame, a brake-staff mounted in bearings in said lugs, and a chain connected with said staff and extending through said openings.

15. The combination with a back plate or bracket having an opening therein, an outwardly extending rib around said opening forming a groove and provided with a notch leading into said groove, of a frame having an opening therein registering with the opening in said bracket, inwardly-extending lugs on said frame adapted to fit within the groove in said bracket, one of which lugs is of a size corresponding with said notch and the other of a greater size, a brake-staff carried by said frame, connections between said staff and the brake, stops for limiting the turning movement of said frame in opposite directions, and a movable dog for retaining said frame in its vertical position.

16. The combination with a back plate or bracket having an opening therein, an outwardly-extending rib around said opening forming an annular groove and provided with a notch leading into said groove, and a thickened portion on the front face of said bracket recessed at its upper end to form a channel and a locking projection, of a frame having an opening therein registering with the opening in said bracket, lugs on said frame adapted to fit within said groove, one of which lugs is of a size corresponding with said notch and the other of a larger size, an overhanging flange on said frame above the opening therein, said flange adapted to fit within said channel behind said locking projection when said frame is in its vertical position, a brake-staff carried by said frame and connected through said openings with the brake, a projection on said frame adapted to engage the edge of said thickened portion for limiting the movement of said frame in one direction, a stop for limiting the movement of said frame in the opposite direction, and a pivoted dog coöperating with said stop for maintaining said frame normally in its vertical position.

694,192. VEHICLE-WHEEL. WILLIAM C. RASTETTER, Fort Wayne, Ind. Filed Apr. 20, 1901. Serial No. 56,737. (No model.)



Claim.—1. In a wheel for vehicles, in combination, a hub of wood; a metal barrel having radial flanges at its ends for the attachment of wire spokes; and a number of teeth projecting from the ends of said barrel, said teeth being adapted to be forced into the wood after said barrel has been driven tightly upon said hub, for the purpose of permanently securing said barrel to the hub.

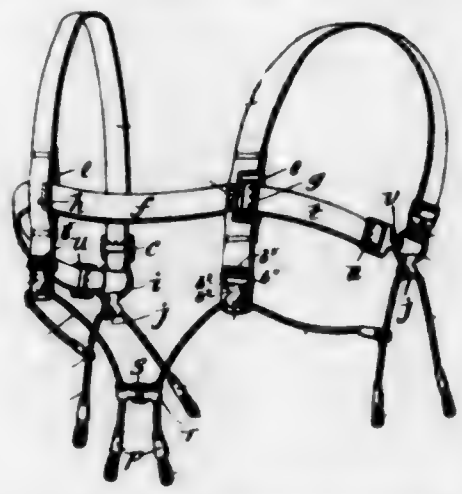
2. In a wheel for vehicles, in combination, a hub of wood having a tapering central portion; a metal tapering barrel having a radial flange at each of its ends for the attachment of wire spokes; and a number of teeth extending from the ends of said barrel, said teeth being adapted to be driven into the wood after said barrel has been driven upon said hub, for the purpose of securing said barrel in place.

694,193. RIB FOR CONCRETE-ARCH CONSTRUCTION. KNUD S. RISER, Grand Rapids, Mich. Filed Oct. 26, 1901. Serial No. 80,160. (No model.)



Claim.—As a new article of manufacture, a rib for the superstructure of a concrete arch, said rib consisting of a flat broad bar of iron having offsets formed in its opposite edges in alternate positions, substantially as and for the purpose set forth.

694,194. SUSPENDERS. ROBERT P. ROBINSON, Ottawa, Canada. Filed May 14, 1901. Serial No. 60,241. (No model.)



Claim.—1. In garment-suspenders the combination with a pair of shoulder-straps, of a pair of cords slidably carried by the front ends of said shoulder-straps, and each having a buttonhole-loop at each end; a second pair of cords slidably carried by the rear ends of said shoulder-straps and each having a buttonhole-loop at one end and a loop at its other end through which the front cords pass, and a link slidably connecting together the portions of the rear cords adjacent to their button connections, substantially as described and for the purpose set forth.

2. In garment-suspenders the combination with a pair of shoulder-straps, of a pair of cords slidably carried by the front ends of said shoulder-straps, and each having a buttonhole-loop at each end; a second pair of cords slidably carried by the rear ends of said shoulder-straps and each having a buttonhole-loop at one end and a loop at its other end through which the front cords pass, and a link slidably connecting together the portions of the rear cords adjacent to their button connections, said link consisting of a pair of tubular sections and a rectangular piece hinged at two opposite side edges to said tubular sections, substantially as described and for the purpose set forth.

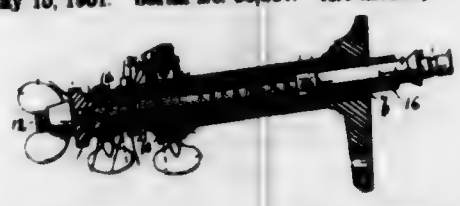
3. In garment-suspenders, the combination with a pair of inelastic shoulder-straps, of a pair of tubular hangers detachably connected to the front ends of said shoulder-straps; a pair of inelastic cords passed through said tubular hangers and having their ends bent back and retained to form buttonholes; a pair of tubular hangers each consisting of two tubular lengths, a web portion connecting said tubular lengths rigidly together, and a wire loop passing at one side through one of said tubular lengths and connected at its other side by stitching to the rear ends of said shoulder-straps; a pair of inelastic cords passing through the other of said last-mentioned tubular lengths and having one end thereof bent back and retained forming a loop which incloses said first-mentioned cords, and their other ends bent back and retained to form buttonholes; a pair of tubular sections inclosing said last-mentioned cords near their buttonholes, and a rectangular link hinging said tubular sections together, substantially as described and for the purpose set forth.

4. In garment suspenders, the combination with a pair of inelastic shoulder-straps, of a pair of tubular hangers detachably connected to the front ends of said shoulder-straps; a pair of inelastic cords passed through said tubular hangers and having their ends bent back and retained to form buttonholes; a pair of tubular hangers each consisting of two tubular lengths, a web portion connecting said tubular lengths rigidly together, and a wire loop passing at one side through one of said tubular lengths

and connected at its other side by stitching to the rear ends of said shoulder-straps; a pair of inelastic cords passing through the other of said last-mentioned tubular lengths and having one end thereof bent back and retained inclosing said first-mentioned cords, and their other ends bent back and retained to form buttonholes; a pair of tubular sections inclosing said last-mentioned cords near their buttonholes and a pair of adjustable shoulder-supporting braces detachably connected at one end to the front ends of said shoulder-straps and at their other ends to their rear portions of said shoulder-straps, a rectangular link hinging said tubular sections together substantially as described and for the purpose set forth.

5. In garment-suspenders the combination with a pair of shoulder-straps, of a pair of cords slidably carried by the front ends of said shoulder-straps, and having button connections at their ends; a pair of cords slidably carried by the rear ends of said shoulder-straps and having button connections, and a compensating connection between said front and rear cords, a horizontal strap *f* extending between and stitched to the rear portions of said shoulder-straps and having a buckle at each end, a pair of adjustable shoulder-supporting braces, spring-hooks detachably connecting said braces at one end to the front ends of said shoulder-straps, and the opposite ends thereof being detachably connected to said buckles upon the ends of the horizontal strap, and short strap lengths covering said buckles and attached to the said shoulder-straps on the inside substantially as described and for the purpose set forth.

694,195. ATTACHMENT FOR KNITTING-MACHINES. ROBERT ROHLEDER, Troy, N. Y., assignor of one-fourth to Alfred Buhs, Troy, N. Y.
Filed May 15, 1901. Serial No. 60,287. (No model.)



Claim.—1. In an attachment of the class set forth, the combination of an elongated tube, a lining rotatably mounted in said tube and almost wholly inclosed by the latter, a shaft longitudinally slidable in said lining and carrying a feed-wheel at its inner extremity, and mechanical means located at the outer extremity of the attachment for unitedly rotating the lining and shaft and independently moving the shaft longitudinally in the lining.

2. In an attachment of the class set forth, the combination of an elongated tube, a lining rotatably mounted in said tube, coacting angle adjusting and designating means carried in part respectively by the tube and lining, a shaft longitudinally slidable in the said lining and carrying a feed-wheel at its inner extremity, means for unitedly rotating the shaft and lining and simultaneously moving the angle-designating means to vary the angle of the said feed-wheel, and means for independently moving the shaft longitudinally in the lining.

3. In an attachment of the class set forth, the combination of an elongated tube, a lining almost wholly inclosed by and rotatably mounted in the said tube, the latter having diametrically-opposed longitudinally-extending slots therein, a spring-actuated shaft longitudinally slidable in the said lining and provided with adjustable projecting means to engage the slots in the lining to prevent rotation of the shaft, and means for longitudinally adjusting the shaft.

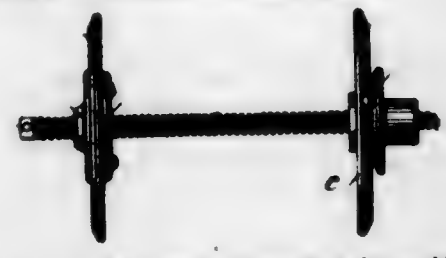
4. In an attachment of the class set forth, the combination of a tube, a lining rotatably mounted in the said tube, a shaft slidingly mounted in the lining and held against rotation, a nut engaging the outer portion of the shaft for adjusting the latter longitudinally, the lining adjacent the sleeve having a projecting device, a sleeve on the said nut and adjacent portion of the lining and having a slot therein through which the projecting device of the lining extends, a mantle adjustably mounted on the upper portion of said sleeve to take up wear by having portions thereof bear against the said projecting device and thereby overcome lost motion, and means for maintaining the adjustment of the several parts.

5. In an attachment of the class set forth, the combination of a tube, a shaft slidingly mounted therein, the inner end of the shaft being reduced and having a projection, and a holder for a feed-wheel having a sleeve at its outer end with slots therein to engage the said projection and insure accurate registration of the holder corresponding to a previous position occupied thereby on the shaft end.

694,196. APPARATUS FOR REPAIRING DRAINS. GEORGE ROSE, Brighton, England. Filed Aug. 19, 1901. Serial No. 72,571. (No model.)

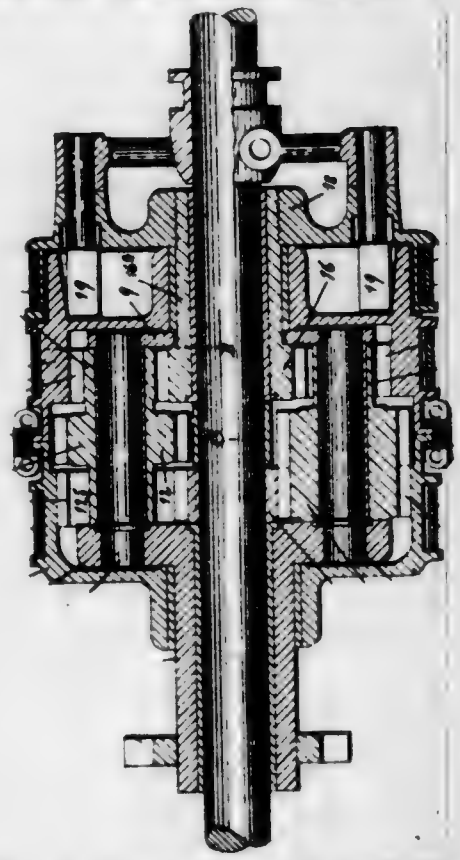
Claim.—1. In a device of the character described, the combination of a pair of flexible disks adapted to be inserted into a drain or the like, said disks being spaced apart so as to receive a cementing composition between them, and means for drawing said disks together.

2. In a device of the character described the combination of a pair of flexible disks, adapted to be inserted into a drain, a screw passing through said disks and holding the same at a spaced distance, the space between said disks being adapted to receive a cementing composition, and a socket provided upon one end of said screw adapted to receive a rod or the like for rotating said screw to draw said disks together.



3. In a device of the character described, the combination of a pair of disks of flexible material, a screw between said disks, a socket rigidly mounted upon one end of said screw provided with a screw-threaded socket, a flexible disk carried by said socket, a screw-threaded member mounted upon said screw and a flexible disk carried by said member, whereby the rotation of said screw draws the said disks together.

694,197. TRANSFORMING-GEAR. HARRY ROSE, Utica, N. Y.
Filed June 10, 1901. Serial No. 63,854. (No model.)



Claim.—1. In a transforming-gear the combination of a shaft, a gear fixed thereon, a planet-gear meshing therewith, a rotatable disk carrying the planet-gear, a sprocket-wheel connected to said disk, a rotatable internally-toothed shell engaging with said planet-gear, a brake therefor, a supplemental planet-gear meshing with said planet-gear and mounted on said disk, a second or supplemental shell having internal teeth engaging with said supplemental planet-gear and a brake therefor, substantially as set forth.

2. In a transforming-gear the combination of the shaft, a gear fixed thereon, a planet-gear meshing therewith, a rotatable disk carrying the planet-gear, a sprocket-wheel connected to said disk, a rotatable internally-toothed shell engaging with said planet-gear, a brake therefor, a supplemental planet-gear meshing with said planet-gear and mounted on said disk, a second or supplemental shell having internal teeth engaging with said supplemental planet-gear, a brake therefor, an axial gear engaging with said supplemental gear and a brake therefor, substantially as set forth.

3. In a transforming-gear the combination of a shaft, a gear fixed thereon, a planet-gear meshing therewith, a rotatable disk carrying the planet-gear, a sprocket-wheel connected with said disk, a supplemental planet-gear meshing with said planet-gear and mounted on said disk, a rotatable casing having internal teeth engaging with said supplemental planet-gear, a brake therefor, a free-running axial gear engaging with said supplemental gear and a brake therefor, substantially as set forth.

4. In a transforming-gear the combination of a shaft, a gear fixed thereon, a planet-gear meshing therewith, a rotatable disk or support for

said planet-gear and a sprocket-gear connected therewith, a supplemental planet-gear meshing with said planet-gear and mounted on said rotatable disk, said supplemental gear having a reduced toothed gear portion, a rotatable shell having internal teeth engaging with said reduced portion of said supplemental planet-gear, a brake for securing said shell, a free-running, axial gear also engaging with said reduced portion of the supplemental gear and a brake therefor, substantially as set forth.

5. In a transforming-gear the combination of a shaft, a gear fixed thereon, a planet-gear meshing therewith, a rotatable disk carrying planet-gear, a sprocket-wheel connected therewith, a rotatable internally-toothed shell engaging with said planet-gear, a brake therefor, a supplemental planet-gear meshing with said planet-gear and having a reduced gear portion, a second internally-toothed rotatable casing engaging with said reduced portion of gear, a brake therefor, a free-running axial gear meshing with said reduced portion of supplemental gear, a brake therefor and a clutch for securing said portion of shell or casing and said axial gear together, substantially as set forth.

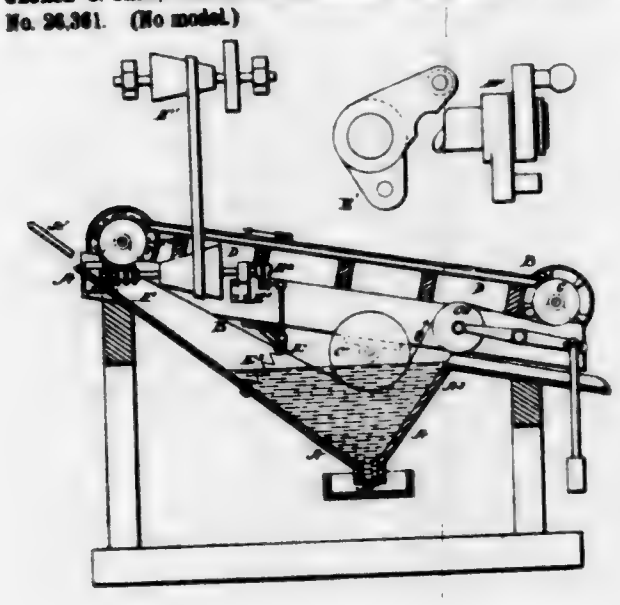
694,198. STUFFING FOR HORSE-COLLARS. BERNHARD H. RUETER, Burlington, Wis. Filed Mar. 14, 1898. Serial No. 673,855. (No model.)



Claim.—1. The improved stuffing for horse-collars consisting of a composition of matter composed of particles of sponge and fibers of wool intermingled so as to bring the fibers of wool between the particles of sponge to hold the sponge particles in position and prevent matting of the wool fibers, substantially as described.

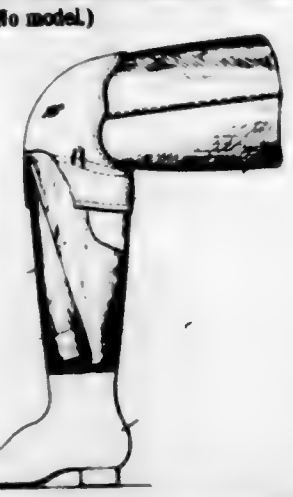
2. In a horse-collar the stuffing for preserving the shape of the collar consisting of particles of sponge and fibers of wool intermingled so as to bring the fibers of wool between the particles of sponge, and an absorbent backing of straw placed back of the intermingled wool fibers and sponge particles, substantially as described.

694,199. CONCENTRATOR FOR GOLD-BEARING MATERIAL. GEORGE G. SALE, Dunedin, New Zealand. Filed Aug. 9, 1900. Serial No. 26,361. (No model.)



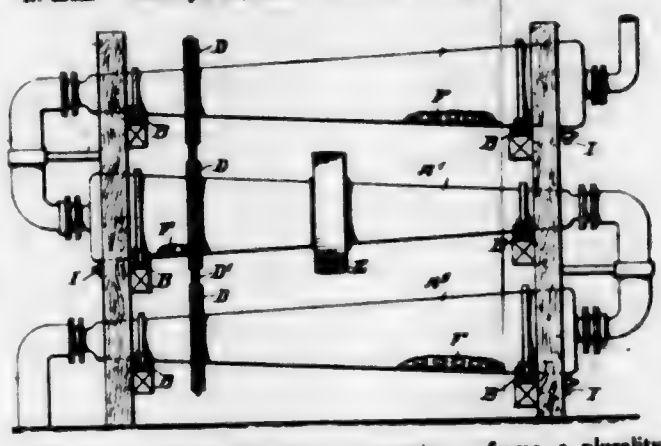
Claim.—In combination with a concentrator employing an endless belt, of a beater mechanism for the belt, comprising a frame, a horizontal shaft carried by the frame and adapted to rotate said belt, means to transmit power to said shaft, a rigid crank mounted upon said shaft near the end thereof, a loose crank mounted upon the end of the shaft and adapted to be tilted at each revolution of the shaft by said rigid crank, a rod connected to said loose crank, a pivoted flapper connected to the under side of the frame and also to the rod, said flapper being adapted to be raised at every revolution of the shaft, and a spring for returning said flapper, rod and loose crank with a sudden jerk to beat the belt, substantially as described.

694,200. PROTECTING ATTACHMENT FOR LEGS OF TROUSERS. BENJAMIN F. SALMON, Freeland, Pa. Filed Apr. 15, 1901. Serial No. 55,866. (No model.)



Claim.—As a new article of manufacture a pair of trousers having its leg portions provided on their outer sides at the front with a knee-protector whose lower end is free or detached from the trousers-legs and forms a flap to fit over and inclose the upper end of the boot-leg, when the latter is fitted over the trousers, such flap having its rear ends disconnected or unclosed to facilitate the turning up of the flap when the boots are drawn on and the turning down of the flap over the upper end of the boot-leg, all substantially as and for the purposes set forth.

694,201. AMALGAMATOR. JOHN R. SAWYER, Arroyocoon, N. Mex. Filed Apr. 18, 1900. Serial No. 13,227. (No model.)

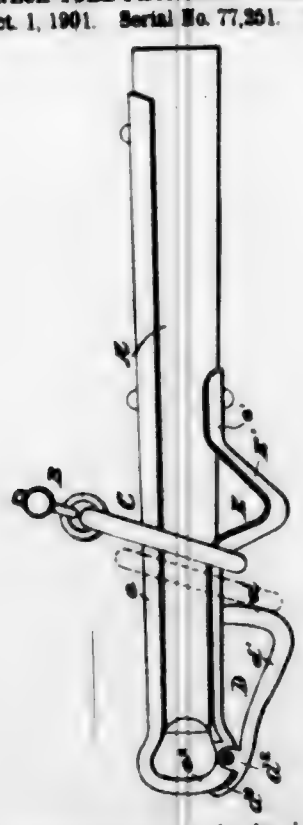


Claim.—1. An amalgamator, comprising a frame, a plurality of conical revoluble drums mounted one above the other in the frame with their ends projecting beyond the same, the axes of the drums being in horizontal planes and the said drums being arranged with the base end of one opposite the apex of the drum below, means for revolving the drums in unison, cups on the inside of the drums and adapted to contain mercury and arranged to discharge the mercury upon the material as the drums revolve, means for feeding the material into the projecting base end of the uppermost drum, and stationary pipes connecting the ends of the drums outside of the frame, each pipe leading from the apex of one drum to the base of the drum next below, as set forth.

2. An amalgamator, consisting of a frame, three conical drums mounted in the frame to revolve with their axes in horizontal planes and having their ends projecting beyond the said frame, the drums being arranged one above the other with the base of one opposite the apex of the one next below, the upper and lower drums being in the same vertical plane and the intermediate one in a different vertical plane, a feed-pipe leading into the projecting base end of the uppermost drum, inclined stationary pipes connecting the drums outside of the frame, each pipe leading from the apex of one drum to the base of the drum next below, cups on the inside of each of the drums, a sprocket-wheel on each drum, a chain passing around the sprocket-wheels, and a pulley on the intermediate drum

and by means of which it may be driven, substantially as herein shown and described.

694,202. NECK-YOKE FASTENER. CONRAD M. SCHANZ, Chelsea, Mich. Filed Oct. 1, 1901. Serial No. 77,251. (No model.)

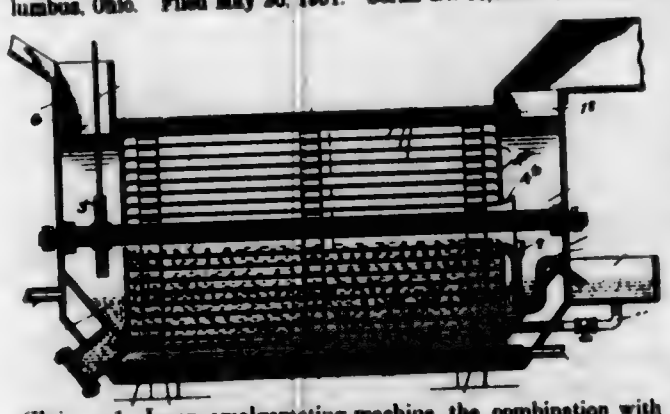


Claim.—1. A neck-yoke fastener having in combination with the tongue A and the bracing and guard part E, with the upper and lower plates e e', the front loop e^2 and the stop-loop E', the gravity-actuated front stop formed with the upwardly-extending finger d, and the arm d' hinged to the front loop e^2 and extending rearward therefrom, said finger d being normally held with its free upper end in the aperture e^3 in plate e', substantially as set forth.

2. A device for strengthening the front end of a vehicle-pole and fastening a neck-yoke thereto, having the bracing and guard part E formed of the upper and lower plates e e' joined by the front loop e^2, the lower plate e' being bent down to form the back stop-loop E', and said plate e' having an aperture e^3 in front of the loop E', the swinging arm d' hinged to the front loop e^2, the stop-arm d^2 engaging with said loop, and the stop-pin d normally held by said arm d' with its upper end in the aperture e^3, substantially as set forth.

3. In a neck-yoke fastener, the combination of a plate adapted to be fitted on the vehicle-pole, having a downward projection to hold the harness-ring from backward movement and formed with the aperture e^3, a stop-arm for holding said ring from forward movement, said arm being hinged at its forward end to the plate to move toward and from the same, and having a rear finger extending toward the plate and into said aperture, and means for holding the end of the finger within the aperture when the finger is in operative position to retain the harness-ring.

694,203. AMALGAMATING-MACHINE. GERARD C SCOTT, Columbus, Ohio. Filed May 20, 1901. Serial No. 61,022. (No model.)



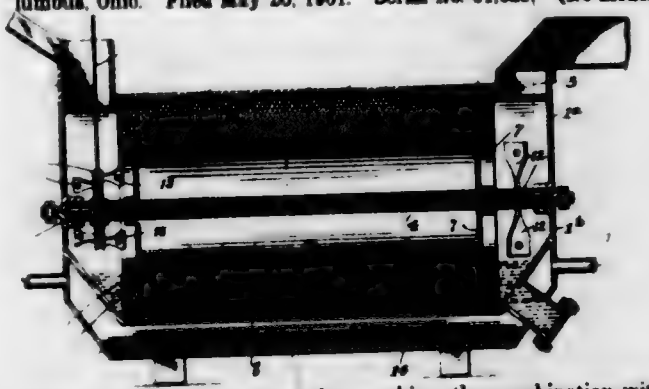
Claim.—1. In an amalgamating-machine, the combination with a casing having inlet and outlet openings said casing adapted to contain a body of mercury in its lower portion, of an amalgamating-plate bent into a coiled form and journaled within said casing the spaces between said coils being open at their ends and said coils extending approximately parallel with and about the central coil and means for imparting a rotary motion to said coiled plate.

2. In an amalgamating-machine, the combination with a casing having inlet and outlet openings and adapted to contain a body of mercury in its lower portion, of a shaft journaled centrally within said casing, an amalgamating-plate bent into a coiled form and having its inner end connected with said shaft and means for supporting the coils of said plate one from the other without closing the spaces or passages between the same, substantially as specified.

3. In an amalgamating-machine, the combination with a casing having inlet and outlet openings and adapted to contain a body of mercury in its lower portion, of an amalgamating-plate bent into a coiled form and journaled within said casing, the inner coil of said amalgamating-plate having a flaring extension as described, a mercury-receptacle on the outer side of the casing and conductors leading respectively from a point below the inner coil of the amalgamating-plate to said outer receptacle and from the latter to the lower portion of the casing, substantially as specified.

4. In an amalgamating-machine, the combination with a casing having inlet and outlet openings and adapted to contain a body of mercury in its lower portion, of an amalgamating-plate bent into a coiled form and having its ends bent inward, said coiled plate journaled within said casing and means for imparting a rotary motion to the coil, substantially as specified.

694,204. AMALGAMATING-MACHINE. GERARD C. SCOTT, Columbus, Ohio. Filed May 20, 1901. Serial No. 61,023. (No model.)



Claim.—1. In an amalgamating-machine, the combination with a substantially horizontally-disposed casing having inlet and outlet openings, a shaft journaled therein and means for imparting motion to said shaft, of a cylindrical body mounted on said shaft and having surrounding separated compartments containing copper in a granular form, said cylindrical body having open-work ends and said casing adapted to contain a body of mercury in the lower portion thereof, substantially as specified.

2. In an amalgamating-machine, the combination with a casing having inlet and outlet openings and a shaft journaled in said casing, of a body mounted on said shaft having radially-arranged compartments formed by open-work partitions, said compartments containing copper in a loose form and said casing adapted to contain a body of mercury in the lower portion thereof, substantially as specified.

3. In an amalgamating-machine, the combination with a casing having inlet and outlet openings, of a shaft journaled in said casing, a drum carried on said shaft, a casing connecting with and surrounding said drum and having radially-arranged compartments divided by open-work partitions, a filling of copper within said compartments, agitator-arms on said power wheel and shaft and said casing adapted to contain a body of mercury in the lower portion thereof, substantially as specified.

694,205. HORSESHOE-MACHINE. OTTO W. SIEBENHAAR, Rosendale, Wis., assignor of two-thirds to Edward Falbe, Princeton, Wis., and Roddy W. Wyse, Milwaukee, Wis. Filed Apr. 30, 1901. Serial No. 56,779. (No model.)

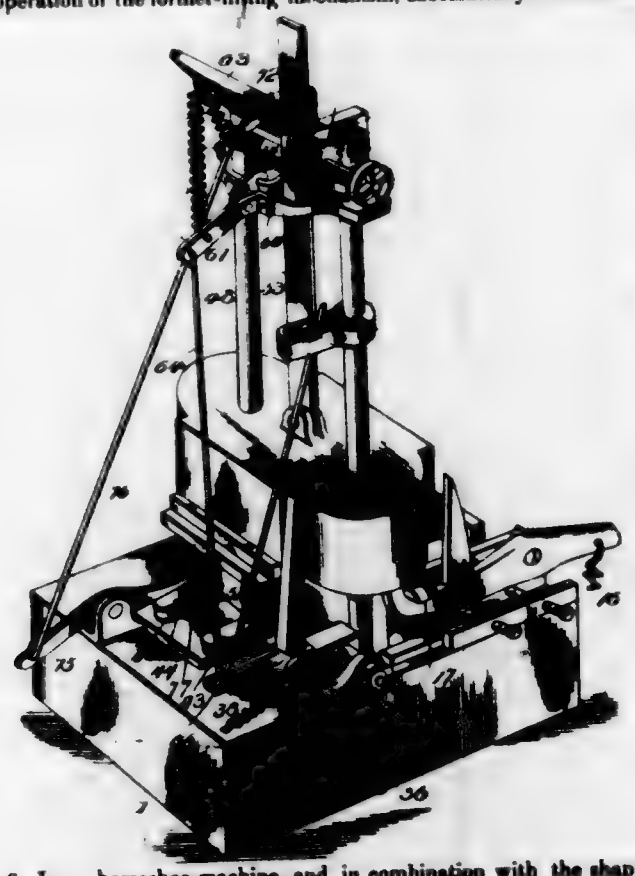
Claim.—1. In a horseshoe-machine, a former about which the shoe is shaped, a vertical stem attached to the former, and a rock-shaft having eccentric connection with the said stem for effecting vertical movement thereof and a lifting of the former to clear the shoe, substantially as set forth.

2. In a horseshoe-machine, a former about which the shoe is shaped, an approximately U-shaped frame having one member adapted to effect a lifting of the said former, and a rock-shaft having eccentric connection with the other member of said frame for actuation thereof, substantially as set forth.

3. In a horseshoe-machine, an anvil, a former supported upon the anvil, and a die having a rim to snugly encompass the said anvil and adapted for coöperation therewith to remove any projecting metal of the horseshoe and to confine and prevent escape of said metal when subjected to pressure, substantially as set forth.

4. In a horseshoe-machine, an anvil, a die having a rim to snugly encompass the anvil, and a former supported upon the anvil and adapted to be lifted therefrom to clear the shoe and admit of its removal from the machine by a sliding movement, substantially as set forth.

5. In a horseshoe-machine, and in combination with the shaping mechanism including a former and reciprocating shaping elements for cooperation therewith, means for lifting the former to clear the shoe, and including a rock-shaft, and an actuator adapted to reciprocate with the aforesaid shaping elements and engage with the rock-shaft to effect an automatic operation of the former-lifting mechanism, substantially as set forth.



6. In a horseshoe-machine, and in combination with the shaping mechanism including a former and reciprocating elements, means for operating the former to lift it clear of the shoe and including a rock-shaft having an offstanding part, and an actuator connected for reciprocal movement with the traveling shaping elements and adapted to ride over and engage with the offstanding part of the rock-shaft to effect automatic operation of the former-lifting mechanism, substantially as set forth.

7. In a horseshoe-machine, and in combination with the shaping mechanism including a former, an approximately U-shaped frame having one member in contact with the said former, a rock-shaft having eccentric connection with the other member, a spring for holding and returning the rock-shaft to a normal position, a head applied to the rock-shaft, and a reciprocating actuator adapted to ride upon the head of the rock-shaft and to engage therewith to effect an automatic lifting of the former to clear the shoe when shaped, substantially as set forth.

8. In a horseshoe-forming machine, and in combination with the die around which the shoe is bended, reciprocating elements for bending the blank about the said die, a toothed driver rotated continuously in the same direction when the machine is in operation, a frame having oppositely-toothed portions to alternately mesh with the teeth of the said driver to effect a positive reciprocation of the aforesaid shapers, and means for operating the said frame to throw its toothed portion into engagement with the driver, substantially as set forth.

9. In a horseshoe-machine, and in combination with a former, reciprocating arms for bending the blank around said former, a toothed driver, a frame having oppositely-toothed portions for alternate engagement with the said driver, and a lever for starting and reversing the machine and having laterally-extending parts to engage with the said frame and effect a positive movement thereof, substantially as set forth.

10. In a horseshoe-machine, and in combination with the shoe-forming mechanism, a trip device at one side of the machine for starting the same, a cutting mechanism at the opposite side of the machine, and means for adjusting the trip device and cutting mechanism laterally according to the size of the horseshoe for which the machine is adjusted, substantially as set forth.

11. In a horseshoe-machine, and in combination with the shoe-forming mechanism, actuating mechanism therefor, a lever for throwing the actuating mechanism into gear, and a catch or restraining device for holding the said lever in a position with the actuating mechanism out of gear and adapted to be tripped by the bar when fed into the machine so as to release the said lever and permit throwing of the machine into gear, substantially as set forth.

12. In a horseshoe-machine, shoe-forming mechanism including a hammer, actuating mechanism, and a lever for starting and reversing the machine and adapted to be tripped by the bar when fed into the machine and adapted to be operated by the hammer for reversing the machine, whereby the parts after actuation are returned to a normal position, substantially as set forth.

13. In a horseshoe-machine, and in combination with the shoe-forming mechanism including a hammer, a lever for starting and reversing the machine, a catch for holding the lever in a predetermined position with the machine out of gear and adapted to be tripped by the bar when fed into the machine to admit of throwing the latter into gear, said lever adapted to be operated by the hammer for reversing the machine, substantially as set forth.

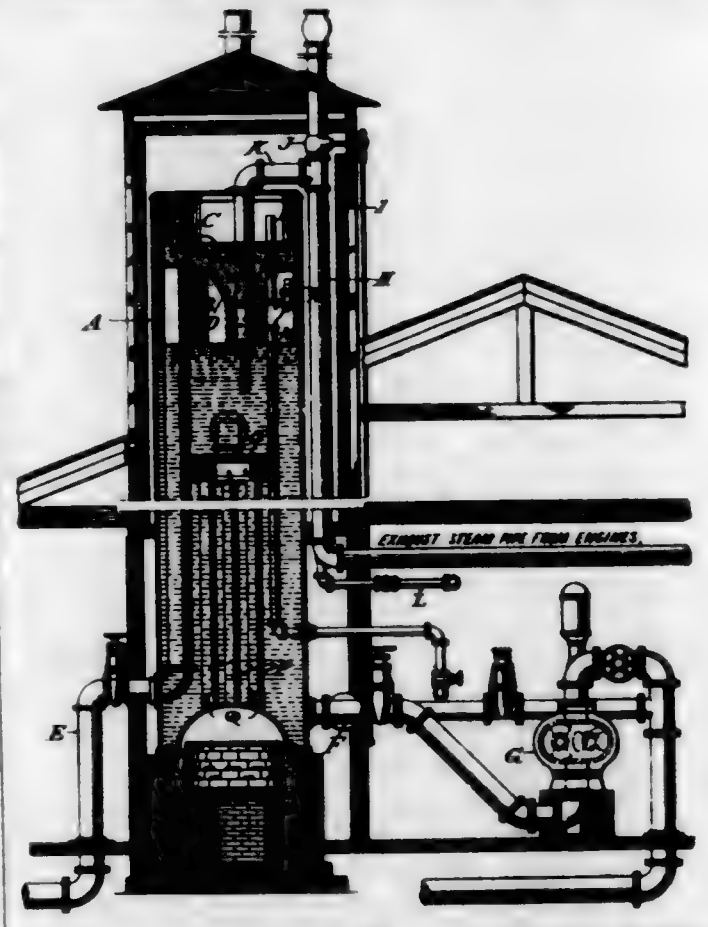
14. In a horseshoe-machine, shoe-forming mechanism including a hammer, a lever for starting and reversing the machine, a catch or restraining device for said lever to hold the machine out of gear, and a laterally-adjustable support for the said lever and catch, substantially as set forth.

15. In a horseshoe-machine comprising a former, reciprocating shaping-arms for bending the horseshoe-blank about the former and having shouldered parts to effect a removal of the shoe from the machine, lifting mechanism for the former, a reciprocating arm for actuating the said lifting mechanism, bar-feeding mechanism, a cutter for severing the bar and checking its feed, a lever for starting and reversing the machine, a catch for said lever adapted to be tripped by the horseshoe-bar, a hammer, elevating mechanism for the hammer and adapted to be thrown into gear by the hammer upon its descent, means for holding the said hammer-elevated mechanism in gear and adapted to be tripped upon the ascent of the hammer, a clutch for holding the hammer in suspension, and a trip for releasing said clutch and adapted to be operated by one of the reciprocating shaping-arms, substantially as set forth.

16. In a horseshoe-machine, a die having a rim and formed with horseshoe and punching devices, substantially as described.

17. In a horseshoe-machine, an anvil, a die having creasing and punching devices, and having a rim to coöperate with the anvil to trim the horseshoe and confine the same during the forging, creasing and punching operation, substantially as set forth.

694,206. HOT-WATER HEATING SYSTEM. ISAAC D. SHEAR, Cincinnati, Ohio. Filed Oct. 12, 1901. Serial No. 78,496. (No model.)



Claim.—1. In combination with a water-reservoir; a diaphragm mounted in the upper end thereof; a funnel extending down from said diaphragm; a steam-supply pipe passing down through the funnel and terminating at a point slightly below the same; and means for supplying water to the reservoir at a point above the diaphragm.

2. In combination with a water-reservoir; a diaphragm mounted in the upper end thereof and provided with an opening; means for withdrawing water from said reservoir and returning the same thereto at a point above the diaphragm; and means for introducing steam into the water as it flows downwardly through the opening in the diaphragm.

3. In combination with a water-reservoir; a diaphragm secured in the upper portion thereof; a funnel extending downwardly from said diaphragm; means for withdrawing water from the reservoir and returning the same thereto at a point above the diaphragm; and a steam-supply pipe extending down through the funnel.

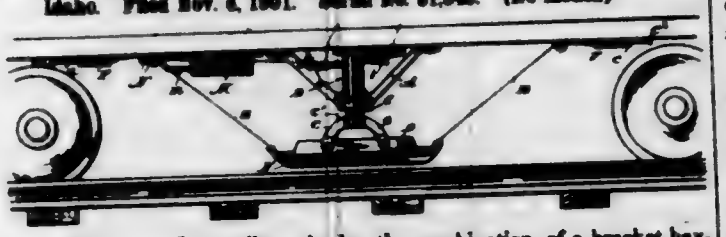
4. In combination with a water-reservoir; a diaphragm secured in the upper end thereof; a funnel extending downwardly from said diaphragm; a steam-supply pipe extending through the funnel and having a perforated end, and means for withdrawing water from the reservoir and returning the same thereto at a point above the diaphragm.

5. In combination with a water-reservoir; a diaphragm secured in the upper end thereof; a funnel extending downwardly from said diaphragm; a steam-supply pipe extending into said funnel; an overflow-pipe having openings above and below the diaphragm; and means for withdrawing water from the reservoir and returning the same thereto at a point above the diaphragm.

6. In combination with a water-reservoir; a circulating system in communication therewith; means for withdrawing the water from the lower portion of said reservoir and returning it to the upper end thereof; means for admitting steam to the upper portion of the reservoir and bringing it into intimate contact with the water as it is returned to the upper end of the reservoir; and a furnace located below the reservoir.

7. In combination with a water-reservoir; a circulating system in communication therewith; means for withdrawing the water from the lower portion of said reservoir and returning it to the upper end thereof; means for admitting steam to the upper portion of the reservoir and bringing it in intimate contact with the water as it is returned to the upper end of the reservoir; a fire-drum located within the reservoir; a flue connected to said drum and extending outwardly through the reservoir above the drum; a fire-chamber located beneath the reservoir; and tubes extending from the fire-chamber to the drum.

694,207. BRAKE MECHANISM. FINLEY M. SMITH, Salmon, Idaho. Filed Nov. 6, 1901. Serial No. 81,343. (No model.)



Claim.—1. In a railway-brake, the combination, of a bracket having a socket, a standard slidable in the socket and provided with a footpiece at its lower end, a removable shoe attached to the under side of the footpiece, and chains connected to the ends of the shoe to reinforce the standard; together with a lever pivoted at one end and extending through the socket and standard, a cam bearing upon the outer end of the lever, and a brake-cylinder connected to the cam, substantially as shown and for the purpose set forth.

2. In a railway-brake, the combination, of a bracket secured to the under side of the car and having a socket B, a standard C slidable in the socket and provided with a footpiece at its lower end, a removable shoe attached to the under side of the footpiece, chains attached to the ends of the shoes and to rods slidable in tubes on the under side of the car, springs acting upon the rods to draw upon the chains and lift the brake-shoe out of operation, and stops for limiting the movement of the rods; together with a lever pivoted at one end in the bracket and extending through openings in the socket and standard, respectively, a cam engaging the outer end of the lever and provided with an arm, and a brake-cylinder connected to the arm of the cam, substantially as shown and for the purpose set forth.

3. In a railway-brake, the combination with the brake-cylinder M and lever N which operate the wheel-brakes, of the piston-rod m slidable in a casting on the lever N, a collar or stop adjustable upon the piston-rod, and a spring interposed between said stop and the casting; together with a bracket, a standard slidable vertically therein, a lever for depressing the standard, a cam operating said lever, and a chain connecting the cam to the piston-rod, substantially as shown and for the purpose set forth.

694,208. EXPANSIBLE TREE-PROTECTOR. JAY H. SMITH, Rochester, N. Y. Filed Nov. 6, 1901. Serial No. 81,339. (No model.)



Claim.—1. A tree-protector comprising a hood whose upper end is made up of a series of overlapping tongues having interlocking means thereon.

2. A tree-protector comprising a hood whose upper end is made up of a continuous series of substantially radially disposed tongues, the said tongues overlapping one another, and provided with interlocking means.

3. A tree-protector comprising a hood whose upper end is made up of a continuous series of substantially radially disposed tongues, the said tongues overlapping each other and being provided with integral interlocking means.

4. A tree-protector comprising a hood whose upper end is made up of a continuous series of substantially radially disposed tongues, the said tongues overlapping each other and provided at their inner ends with lips constituting interlocking means.

5. A tree-protector comprising an annular hood whose upper end is made up of a continuous series of substantially radially disposed tongues, the said tongues overlapping each other and provided at their inner ends with lips which constitute locking means for the adjacent tongues.

6. A tree-protector comprising an expansible annular hood made up of an outer rim and a continuous series of overlapping substantially radially disposed tongues constituting the top of said hood and integral with said rim, the said tongues being provided with interlocking means for maintaining the same in surface contact with each other.

7. A tree-protector comprising an expansible hood made up of an outer rim and a continuous series of substantially radially disposed tongues overlapping each other constituting the top of said hood and integral with said rim, the said tongues being provided at their inner ends with integral locking means for maintaining the same in surface contact with each other.

8. A tree-protector comprising an annular expansible hood made up of an outer rim and a continuous series of substantially radially disposed tongues overlapping each other constituting the top of said hood and integral with said rim, the said tongues being provided with lateral incisions forming lips, and said lips constituting interlocking means for maintaining said tongues in surface contact with each other.

9. A tree protector comprising an annular expansible hood made up of an outer rim and a series of annularly-arranged overlapping tongues constituting the top of the hood, and provided with interlocking means and a clamp or clip for connecting the meeting ends of said hood.

10. A tree-protector comprising an annular expansible hood made up of an outer rim and a series of annularly-arranged overlapping tongues constituting the top of the hood, and provided with interlocking means and a clamp integral with said hood for connecting the meeting ends thereof.

11. A tree-protector comprising an annular expansible hood made up of a side flange or rim and a continuous series of overlapping tongues constituting the top, the said tongues being provided with interlocking means, means for connecting the meeting ends of said rim together with provision for sliding movement, and a contractile spring secured to one end of said hood and adjustably connected to the other.

12. A tree-protector whose upper end is made up of a series of overlapping interlocking tongues provided with engaging portions at their inner ends.

13. A tree-protector whose upper end is made up of a series of overlapping interlocking tongues provided with serrated inner edges.

14. A tree-protector comprising an annular expansible hood made up of a side flange and a continuous series of overlapping interlocking tongues, the inner ends of said tongues being provided with engaging means.

15. A tree-protector comprising an annular expansible hood made up of an outer side flange and a continuous series of overlapping tongues constituting the top and integral with said flanges, the said tongues being provided with transverse incisions forming lips for locking said tongues one to the other, and the inner ends of said tongues being provided with serrations.

16. A blank for the production of tree-protectors consisting of a continuous strip of sheet metal having lateral slits therein extending from one edge thereof to points adjacent to the other, forming tongues, and each of said tongues being provided with incisions extending at an angle to said slits.

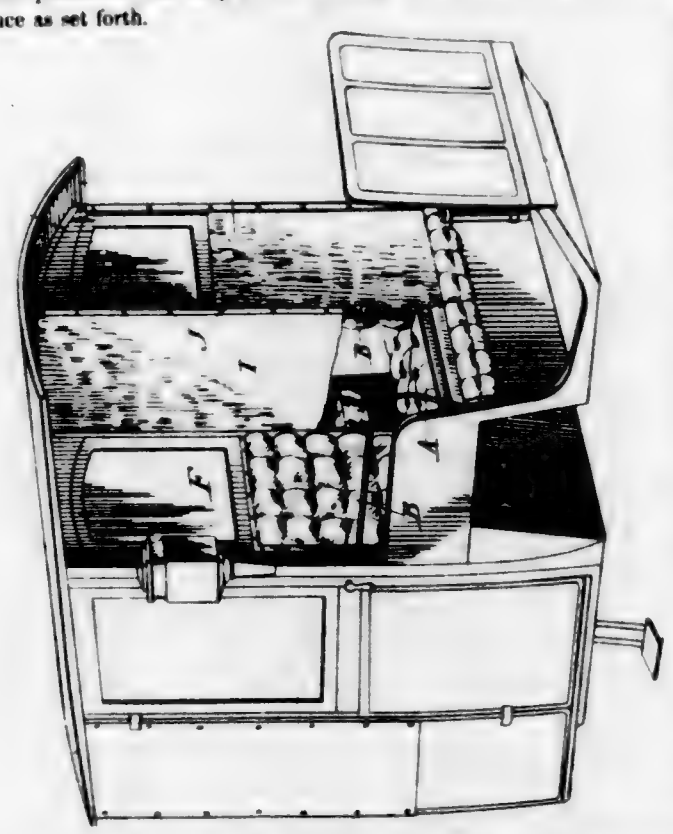
17. A blank for the production of tree-protectors, consisting of a continuous strip of sheet metal having lateral slits therein, extending from one edge thereof to a point adjacent to the opposite edge, forming tongues, which tongues are provided with projections constituting engaging means.

694,209. VEHICLE. JOHN M. SMITH, Atlanta, Ga. Filed Nov. 18, 1901. Serial No. 82,676. (No model.)

Claim.—1. A vehicle having two partitions or frames, F F, and one of said partitions adapted to be moved from its normal position on a line with the rear seat-rail to a position in line with the front seat-rail; and means for holding the said removable partition in a vertical position.

2. A carriage-body having a front seat with divided parts so constructed and arranged that a part thereof may be either inclosed with a

closed portion of the body of the carriage or be open in front; in substance as set forth.



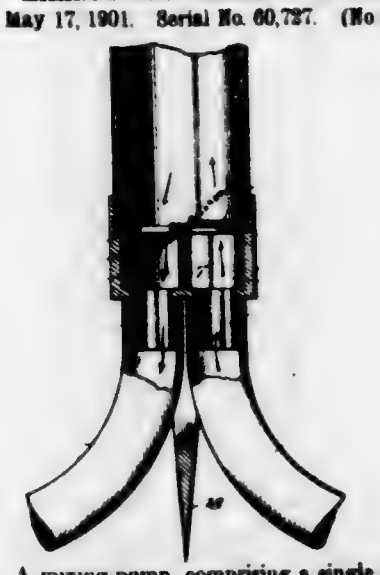
3. A carriage-body with front and rear seat-rails, a back frame or partition adapted to be detachably secured to either of said seat-rails, and removable side curtains adapted to be attached to said back-frame and other parts of the carriage where said back-frame is secured to the front seat-rail, thereby forming an inclosed space in communication with the rear inclosed space of the vehicle; in substance as set forth.

4. A carriage-body with seat-rails extending transversely across the same, a roof with transversely-extending arch-rails, a separate back-frame adapted to be alternately detachably secured to an arch and seat rails at the rear and front of the seat, and a movable cushion and back-upholstering; said parts being combined substantially as described.

5. In a carriage-body, two transversely-extending seat-rails and a detachable back-frame adapted to be secured in a vertical position to either of said seat-rails; substantially as described

6. The combination with a vehicle having a seat-frame, of a vertical partition, said partition being adapted to occupy positions at the rear or front of said seat-frame; and means for detachably securing the said partition in place.

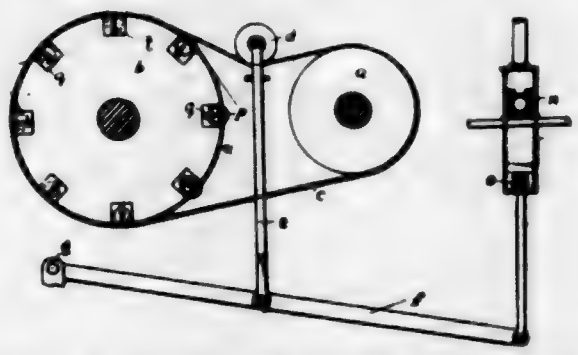
694,210. MIXING-PUMP. HERMAN F. C. SOELLNER, Brooklyn, N. Y. Filed May 17, 1901. Serial No. 60,727. (No model.)



Claim.—1. A mixing-pump, comprising a single cylinder, a piston for operating therein, a valve-casing removably attached to the lower end of the cylinder, said valve-casing being divided into two chambers, flexible pipes connecting with said chambers, a valve-seat consisting of a disk secured between a shoulder on the valve-casing and the lower end of the cylinder, said disk having an opening communicating with each chamber, an upwardly-opening valve carried by said valve-seat and controlling one of the openings thereof, and a downwardly-opening valve carried by said valve-seat and controlling the other opening of the seat, substantially as specified.

2. A mixing-pump, comprising a cylinder, a piston in the cylinder, a valve-casing secured to the lower end of the cylinder and divided by a vertical partition into two chambers, each having a valve-seat at its upper end and a nipple projecting from its bottom, an upwardly-opening valve on one of the seats and a downwardly-opening valve on the other seat, a flexible tube connected with each nipple, and a supporting-rod secured to the valve-casing and adapted to rest upon the bottom of the vessel in which the pump is arranged, the rod being of less length than the tubes, whereby the said tubes will lie upon the bottom of the cask or receptacle with their ends inclined slightly upward, as set forth.

694,211. BELT-AND-PULLEY GEARING. LEONARD J. C. SOUHAMI, London, England. Filed July 22, 1901. Serial No. 69,308. (No model.)



Claim.—1. In a device of the character described, the combination with a pair of pulleys, a belt passing over said pulleys, and a plurality of rollers resiliently set in the face of one of said pulleys; of means for applying a tension upon said belt, substantially as described.

2. In a device of the character described, the combination with a pair of pulleys, a belt passing over said pulleys, and a plurality of rollers resiliently set in the face of one of said pulleys; of a jockey-pulley adapted to apply tension upon said belt, substantially as described.

3. In a device of the character described, the combination with a pair of pulleys, a belt passing over said pulleys, and a plurality of rollers resiliently journaled in the face of one of said pulleys; of a jockey-pulley, and fluid-pressure mechanism for actuating said jockey-pulley to apply tension upon said belt, substantially as described.

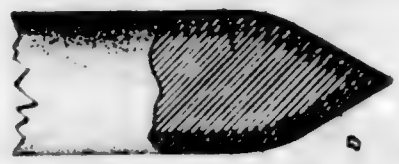
4. In a device of the character described, the combination with a pair of pulleys, a belt passing over said pulleys, and a plurality of rollers resiliently journaled in the face of one of said pulleys; of a jockey-pulley, a pivoted lever in connection with said jockey-pulley, and means for actuating said lever, substantially as described.

5. In a device of the character described, the combination with a pair of pulleys, a belt passing over said pulleys, and a plurality of rollers resiliently journaled in the face of one of said pulleys; of a jockey-pulley, a pivoted lever in connection with said jockey-pulley, a piston connected to the free end of said lever, and a fluid-pressure cylinder within which said piston reciprocates, for actuating said lever, substantially as described.

6. In a device of the character described, the combination with a belt-pulley; of a plurality of rollers yieldingly journaled in the face of said pulley, substantially as described.

7. In a device of the character described, the combination with a belt-pulley; of a plurality of rollers journaled in the face thereof, and springs beneath said rollers, adapted to force the same above the surface of said pulley, substantially as described.

694,212. PROCESS OF PRESERVING WOOD. IRA B. SPRAGUE, Everett, Wash. Filed July 23, 1900. Serial No. 24,523. (No specimens.)



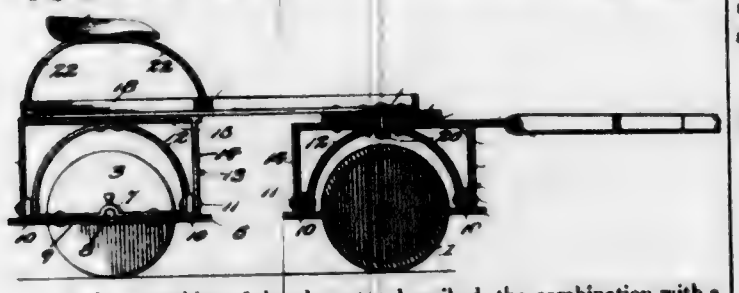
Claim.—1. The process of preserving wood, which consists in driving pieces of iron into it, then pressing comminuted iron into the wood between the outer ends of said pieces, and finally treating the wood with an oxidizing liquid.

2. The process of preserving wood, which consists in driving into it pieces of rusty iron, then pressing comminuted iron into the surface of the wood between the outer ends of said pieces of iron, and finally treating the wood with a salt solution containing rust.

694,218. LAND-ROLLER. J. C. STARK, Hamilton, Ill. Filed June 8, 1901. Serial No. 63,795. (No model.)

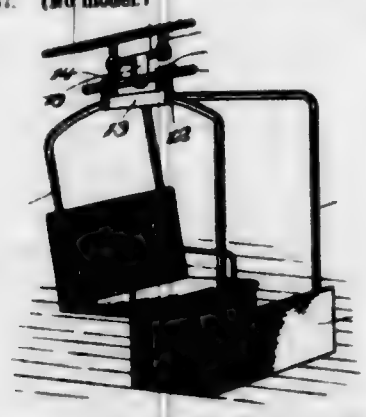
Claim.—1. In a machine of the character described, the combina-

tion with a series of rolls arranged in triangle position, of oblong frames provided with journals for said rolls, ribs on said frames, each having an opening therein, yokes comprising arched inner frames and substantial ⊓-shaped outer frames mounted above said rolls and having their ends extending downward adjacent to and on each side of the said ribs, bolts engaging said ends and ribs, and means for connecting the rolls together.



2. In a machine of the character described, the combination with a series of rolls arranged in triangle position, of oblong frames provided with journals for said rolls, ribs on said frame, each having an opening therein, a yoke comprising an inner and outer frame mounted above each of said rolls, and having their ends extending downward adjacent to and on each side of the said ribs, bolts engaging the ends of the yoke-frames and ribs, and a hollow triangular frame for connecting said roll-yokes together.

694,214. SELF-LEVELING AND ADJUSTABLE BERTH, &c., FOR SHIPS. CAMILLE ST. HILAIRE, Wilson, Mich. Filed Apr. 20, 1901. Serial No. 56,787. (No model.)



Claim.—1. A device of the class described comprising a hanger including depending ears having bearings therein, a shaft mounted in the bearings, a second shaft carried by the first shaft, and lying at right angles thereto, a plate having hooks engaged slidably and pivotally with the second shaft, a spider connected with the hook-plate and comprising two pairs of arms having terminal hooks, a roller having trunnions engaged with the hooks of one pair of arms, a second roller having angular trunnions engaged removably with the hooks of the other pair of arms to be held against rotation thereby, and a fabric connecting the rollers, whereby the tension of the fabric may be adjusted.

2. The combination with a vessel of a pivoted shaft, a frame pivotally connected with the shaft for movement in a plane at right angles to the pivotal movement of the shaft, said frame being shiftable with respect to the shaft in a plane at right angles thereto to shift its center of gravity, and a passenger-receptacle carried by the frame.

3. A device of the class described comprising a hanger including a plate having depending spaced ears provided with bearings, a shaft mounted in the bearings, a second shaft carried by the first shaft at right angles thereto, a plate having spaced upwardly-directed hooks engaged slidably and pivotally with the second shaft, a spider connected to the plate and a passenger-receptacle attached to the spider.

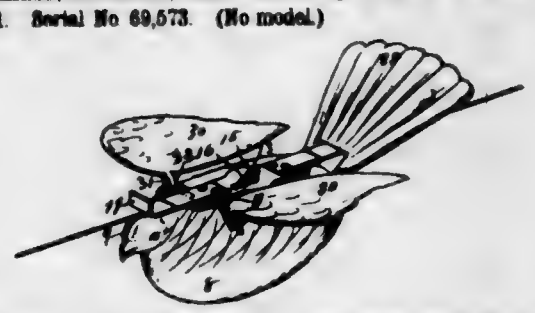
694,215. METHOD OF CUTTING DIAMONDS. JOHN H. G. STOUBMAN, Brooklyn, N. Y., assignor of one-half to Herman A. Groen and Joseph Groen, New York, N. Y. Filed Dec 5, 1901. Serial No. 84,859. (No specimens.)



Claim.—1. The method of cutting through the axis of a diamond herein described, consisting in abrading the diamond at a point of intersection of the girdles, and then continuing the cut through the selected axis of the stone at right angles to its other axis, substantially as specified.

2. The method of cutting through the axis of diamonds to divide them in two equal parts herein described, consisting in abrading the stone at a point of the intersection of the girdles, and then making a dividing cut directly on the line of the selected axis of the stone, whereby the stone is divided into two equal parts, and then splitting off the points, sides and ends, substantially as described.

694,216. INDESTRUCTIBLE BIRD-TARGET. EDWARD K. THRESHER, Kalamazoo, Mich. Filed Aug. 31, 1898. Renewed July 24, 1901. Serial No. 69,573. (No model.)



Claim.—1. An indestructible movable target, suspended by wire or cable, said target constructed to change its position and condition to indicate a kill when disturbed by contact of the missile shot, without destroying the target for further use, substantially as set forth.

2. The combination of a representation of an indestructible bird-target, means for detachably attaching it to a traveling suspending means, and a reversible tail for suspending it on the suspending means after the bird-target drops, substantially as set forth.

3. A traveling suspended wire or cable, a carrier-plate attached to said cable, a bird-target adapted to be detachably attached to said carrier-plate, a reversible tail astride of the carrier-plate and wings pivoted to the body and having arms adapted to catch under the carrier-plate to hold the wings up until the bird-target falls, at which time the wings also fall, all combined, substantially as set forth.

4. The combination of the hollow indestructible bird-target having the top slot, a carrier-plate smaller than the slot, a revolnble disk attached to the carrier-plate and locking-rods pivotally attached to the disk and adapted to detachably engage the under side of the edges of the slot in top of the bird-target, substantially as set forth.

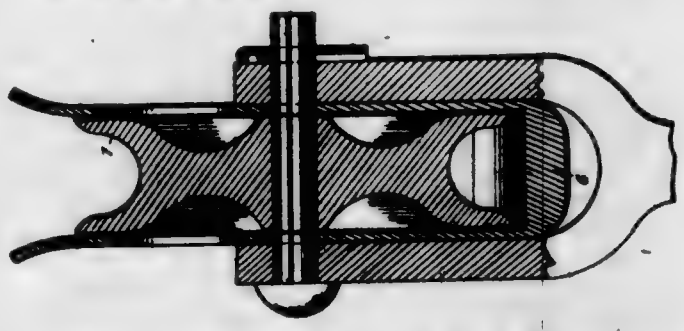
694,217. CIGAR. JEREMIAH D. TYNES, Spooner, Wis. Filed Oct. 19, 1901. Serial No. 79,239. (No model.)



Claim.—1. A cigar having two tobacco wrappers the outer one of which is made of a quality of leaf having a larger proportion of gummy matter than the inner one, so as to form a more impervious casing, said outer wrapper being temporarily secured about the cigar and designed to be torn off before smoking the cigar as described.

2. A cigar having two tobacco wrappers, the outer one being wound reversely to the inner one and being made of a quality of leaf having a large proportion of gum to make a more impervious casing, said outer wrapper being temporarily secured about the cigar and designed to be torn off before smoking the cigar as described.

694,218. TROLLEY. JOHN S. VAN LEER, St. Louis, Mo., assignor of one-half to John W. Howard, St. Louis, Mo. Filed May 9, 1901. Serial No. 59,412. (No model.)



Claim.—A trolley, a harp in which the trolley is mounted, and guard-plates mounted between the opposite sides of the trolley and at the inner side of the harp members, the said plates being connected together and weighted below the trolley, the upper portion of the plates being ex-

tended above the trolley and terminating in a substantially pointed end, the edges at the opposite sides of the substantially pointed end being curved downward and outward equally to the point of junction with the trolley, substantially as specified.

694,219. RURAL-DELIVERY MAIL-BOX. WARNER L. VENTAL, San Bernardino, Cal. Filed Aug. 30, 1901. Serial No. 73,855. (No model.)



Claim.—1. In a device of the character described, the combination with a casing provided with a plurality of independent compartments normally closed by spring-actuated doors, a locking device carried by each door, a separate compartment arranged adjacent the first-named ones, rods slidably mounted in the compartments' partitions, means mounted in the separate compartment for operating the said rods simultaneously, an indicator arranged in the separate compartment and a swinging door for said compartment carrying means for actuating the indicator.

2. In a device of the character described, the combination with a casing provided with a plurality of independent compartments, doors carried by the casing, one for each compartment, a separate compartment arranged in one end of the casing, longitudinally-moving rods provided with trips to release the said doors, levers pivotally mounted in the said separate compartment and having one of their ends connected to the said rods, a bar connecting the opposite ends of the levers, and arms projecting outwardly from the said levers and having weighted ends for returning the said rods to their normal positions.

3. In a device of the character described, the combination with a casing provided with a plurality of independent compartments, swinging doors normally closing said compartments, a second compartment arranged in said casing, means carried by the casing and controlled from the last-named compartment, whereby the swinging doors may be simultaneously released, a mail-receptacle in the rear of the second-named compartment, a door secured thereto, a bell-crank lever pivoted within the said receptacle, a link-bar having one of its ends in engagement with said door and the other end pivotally connected to one end of the said lever, a plunger-lever connected to the other end of the said bell-crank lever, said plunger-lever adapted to bear against the edge of the door of the said separate compartment when it is open.

4. In a device of the character described, the combination with a casing provided with a plurality of independent compartments each normally closed by a spring-actuated swinging door, means for independently releasing each door, longitudinally-moving rods provided with trips adapted to operate said locks for simultaneously releasing said doors, a separate compartment from which the said rods may be operated, a door closing the same, and an indicator controlled by said door for denoting the time of collection.

5. In a device of the character described, the combination with a casing provided with a plurality of independent compartments, swinging doors normally closing said compartments, a second compartment arranged in said casing, means carried by the casing and controlled from the last-named compartment whereby the swinging doors may be simultaneously released, a mail-receptacle in the rear of the second-named compartment, a door secured thereto and levers arranged in said casing so that the door in the second compartment cannot be closed until the door in the mail-receptacle is closed.

6. In a device of the character described the combination with a casing provided with a plurality of independent compartments normally closed by self-opening doors, a locking device carried by each door, a separate compartment arranged adjacent to the first-named ones, rods slidably mounted in said independent compartments' partitions, and means mounted in the separate compartment for operating the said rods simultaneously.

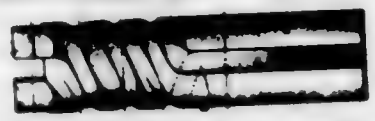
7. In a device of the character described, the combination with a casing provided with a plurality of independent compartments, each normally closed by a swinging door, of a second compartment arranged in said casing, means within the last-named compartment for releasing the swinging doors, and a mail-receptacle in the rear of the second-named compartment and normally closed by a door.

8. In a device of the character described, the combination with a casing provided with a plurality of independent compartments, swinging doors normally closing said compartments, a second compartment arranged in said casing, means within the last-named compartment for releasing the swinging doors, a mail-receptacle in the rear of the second-named compartment and normally closed by a swinging door, and means for preventing the closing of the door of the second compartment until the door of the mail-receptacle is closed.

9. In a device of the character described, the combination of a casing divided into a plurality of independent compartments, of spring-actuated doors carried by said casing, one for each compartment, a locking device carried by each door for normally holding it closed, and each adapted to be unlocked from the exterior separately, a second compartment arranged in said casing, and means located in said second compartment for unlocking all of the doors simultaneously.

10. In a device of the character described, the combination of a casing provided with a plurality of independent compartments, each normally closed by a door, a separate compartment arranged adjacent the first-named compartments, a swinging door for the said compartment, an indicator arranged in the last-named compartment, and comprising an endless belt, cleats on the endless belt, a lever pivotally mounted adjacent to the said belt and adapted to engage the said cleats, and a pair of arms arranged one above the other and rigidly secured to the door of the last-named compartment and adapted to actuate the said lever.

694,220. FORMER FOR FILAMENTS FOR INCANDESCENT ELECTRIC LAMPS. GLENN C. WEBSTER, Warren, Ohio. Filed Dec. 30, 1901. Serial No. 87,723. (No model.)



Claim.—1. An improved former for filaments of incandescent lamps, the same having two opposite spiral grooves leading downward from its upper end, substantially as shown and described.

2. An improved former for filaments of incandescent electric lamps, the same being shaped as described, and having two similar spiral grooves in its upper portion and two opposite straight grooves in its lower portion, which grooves are joined with the spiral ones, as shown and described.

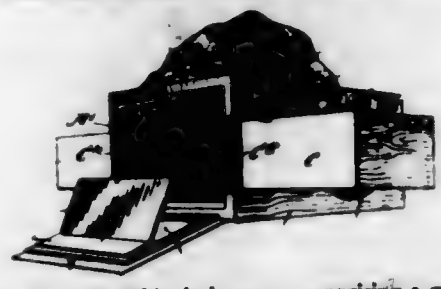
3. The improved former for the purpose specified, consisting of a cylindrical body having a passage-way at the top and two spiral grooves leading downward therefrom on opposite sides as shown and described.

4. The improved former for the purpose specified, consisting of a cylindrical carbon body having a passage-way at the top and two spiral grooves leading downward therefrom on opposite sides and terminating in straight portions parallel to the central axis of the former, as shown and described.

5. The improved former for the purpose specified, consisting of a round body having opposite ears at the top which are separated by a space suitable to receive a bundle of carbon filaments, and two similar spiral grooves leading downward on opposite sides and terminating in straight portions which are also opposite each other as shown and described.

6. The improved former for the purpose specified, consisting of a cylindrical carbon body having two opposite ears or projections at the top, and two other ears which are diagonally opposite and beveled on their outer sides, and two similar spiral grooves leading downward from the space between the ears and terminating in straight portions arranged on opposite sides of the body of the former, as shown and described.

694,221. PORTABLE DARK ROOM. ALBERT WEBER, Liberty, N. Y. Filed Mar. 20, 1901. Serial No. 52,087. (No model.)



Claim.—1. A portable dark room, comprising a main box having an inner flexible hood secured around an opening in the top of the box, and a flexible protective cover separate from and loosely surrounding the hood and likewise fastened to the top of the box, as set forth.

2. A portable dark room, comprising a main box having a flexible hood secured around an opening in the top of the box, and having an elastic draw-band at its outer end, and a flexible protective cover separate

from and loosely surrounding the hood and likewise fastened to the top of the box, as set forth.

3. A portable dark room, comprising a main box having its front end closed by a cover having a pane and adapted to be opened, the sides of the box having openings extending rearwardly from the opening in the front end, and auxiliary boxes open only at one side and adapted to be inserted in said openings when said cover is open, the cover when closed locking said auxiliary boxes in place, as set forth.

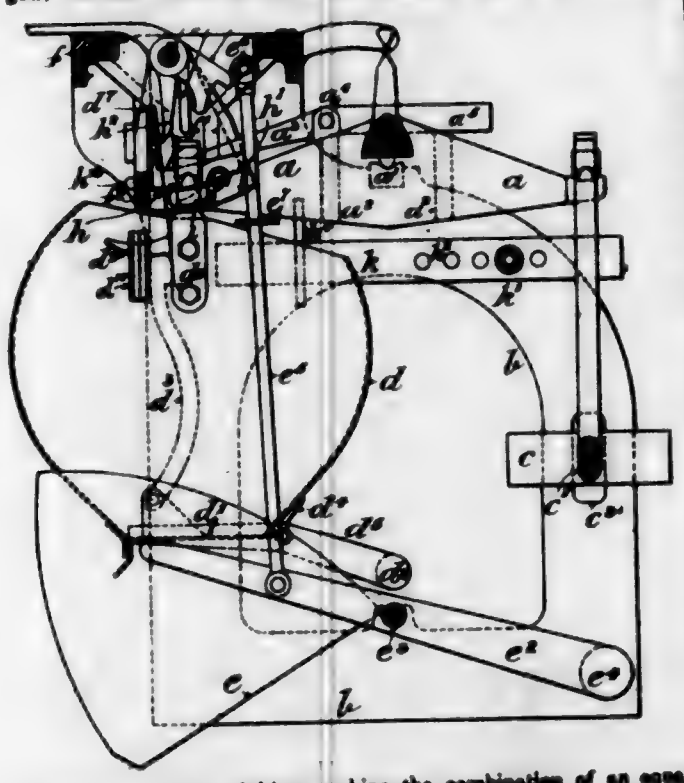
4. A portable dark room, comprising a main box having its hinged cover end closed by a front having a pane, the sides of the box having openings extending rearwardly from the opening in the cover end, guideways along the upper and lower ends of said side openings, and auxiliary boxes open at one side and adapted to be inserted in said guideways when the cover is open, the cover when closed locking said auxiliary boxes in place, as set forth.

5. A portable dark room, comprising a main box having its hinged cover end closed by a front having a pane and provided on its inner face with a shield for the pane, the sides of the box having openings extending rearwardly from the opening in the front end, and auxiliary boxes open only at one side and adapted to be inserted in said openings when said cover is open, the cover when closed locking said auxiliary boxes in place, said auxiliary boxes having horizontal partitions to form upper and lower compartments.

6. A portable dark room, comprising a main box having its hinged cover end closed by a front having a pane and provided on its inner face with a shield for the pane, the sides of the box having openings extending rearwardly from said front end, and auxiliary boxes open only at one side and adapted to be inserted in said openings when said cover is open, the cover when closed locking said auxiliary boxes in place, said auxiliary boxes having horizontal partitions to form upper and lower compartments, one of said compartments being normally closed at the inner side by a hinged door, as set forth.

7. In a portable dark room, the combination with the main box having at its front a hinged cover provided with a pane, of a shield for the pane on the inner face of the cover, said shield comprising a fixed section and a hinged section, as set forth.

694,222. **WEIGHING-MACHINE.** FRANK WERTHEIMER, Glasgow, Scotland. Filed Nov. 26, 1901. Serial No. 83,706. (No model.)



Claim.—1. In a weighing-machine the combination of an equal-armed beam, a weight-pan pivoted at one end of the beam, a receiver pivoted at the other end of the beam, a counterbalanced door for normally maintaining the lower end of the receiver closed, a catch for locking the door in its closed position, a pivoted funnel below the receiver, a fixed funnel above the receiver, the inner and outer shutters for closing the upper funnel, a pivoted finger carried by the outer shutter and arranged to release the said catch when the shutter is closed, the shutter-retaining mechanism, and the shutter-releasing mechanism and means actuated by the upward movement of the pivoted funnel for opening the shutters substantially as herein described.

2. In a weighing-machine the combination of an equal-armed beam, a weight-pan and receiver at opposite ends of the beam, the beam-centers, a hinged door at the bottom of the receiver, a catch for holding closed the receiver-door, the pivoted funnel below the receiver, the fixed funnel above the receiver, the inner shutter with its recesses for partially closing the fixed funnel the outer shutter for completely closing the fixed funnel, the brush at the front of the fixed funnel, the retaining and releasing mechanisms for the shutters, the lever acting upon the beam during the early part of the weighing, the compensation-weights and means actuated by the upward movement of the pivoted funnel for opening the shutters substantially as herein described.

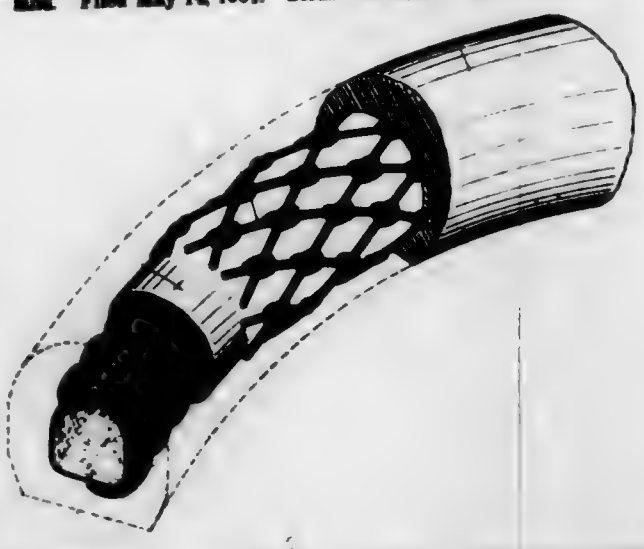
3. In a weighing-machine the combination of an equal-armed beam, a weight-pan and receiver, the beam-centers, the receiver-door, the catch for the said door, the pivoted funnel with its balance-weight below the receiver, the fixed funnel, the inner shutter for partially closing the said funnel, the brush in front of the funnel, the shaft to which the inner shutter is fixed, the inner-shutter-retaining finger, the claw-lever pivoted on the beam for engaging the said finger, the shutter-opening lever, the lug on the inner shutter for opening the inner shutter, the outer shutter for completely closing the fixed funnel the outer-shutter toggle-levers and the weighted lever acting upon the back end of the beam substantially as herein described.

4. In a weighing-machine the combination of an equal-armed beam, a weight-pan and receiver, the beam-centers, the receiver-door, the catch for the said door, the pivoted funnel with its balance-weight below the receiver, the fixed funnel, the inner shutter for partially closing the said funnel, the brush in front of the funnel, the shaft to which the inner shutter is fixed, the second shaft on which the shutter is free, the inner-shutter-retaining finger, the claw-lever pivoted on the beam, the shutter-opening lever, the lug at the front of the inner shutter, the outer shutter, the toggle-lever pivoted thereto, the second toggle-lever, the fixed center for the toggle-levers, the releasing-arm attached to the toggle-levers, the releasing-pin on the beam, the shutter-opening link connected to the pivoted funnel the weighted lever acting on the back end of the beam and the compensating weights substantially as herein described.

5. In a weighing-machine the combination of an equal-armed beam, the weight-pan and receiver pivoted thereto, the beam balancing-centers, the cross center-pieces, the fixed and pivoted funnels, the inner and outer shutters, the retaining and releasing mechanisms for the shutters, the lever acting upon the back end of the beam, the compensating weights, and means actuated by the upward movement of the pivoted funnel for opening the shutters substantially as herein described.

6. In a weighing-machine the combination of an equal-armed beam, the beam balancing-centers, the cross center-pieces, the pivoted weight-pan, the pivoted receiver, the receiver-door and its catch, the catch-releasing finger on the outer shutter, the catch-releasing hand-lever, the fixed funnel, the brush in front of the same, the shutter-shafts, the inner shutter, the inner-shutter-retaining finger, the pivoted claw-lever, the shutter-opening lever, the shutter-opening link, the lug at the front of the inner shutter, the outer shutter, the shutter-retaining toggle-levers, the fixed center for the said levers, the shutter-releasing arm and pin, the pivoted funnel, the balance-weight for the said funnel, the lever for the back end of the beam the compensating weights and the indicator or pointer substantially as herein described.

694,223. **ELASTIC TIRE.** WILLIAM F. WILLIAMS, London, England. Filed May 14, 1901. Serial No. 60,164. (No model.)



Claim.—1. A rubber tire of the solid or cushion type, comprising a helically-wound fibrous cord, a layer of rubber on the fibrous cord, and a netted fabric formed of cords or strands knotted together at their points of intersection and embedded in the rubber, the cords or strands encircling the tire in oppositely-oblique directions so that the meshes are of diamond shape with their diagonals in the transverse and circumferential directions of the tire, as set forth.

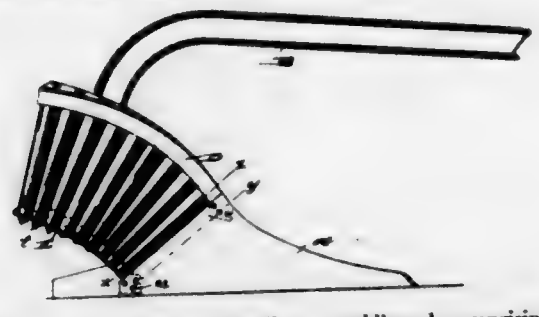
2. A rubber tire, comprising a canvas lining, a helically-wound fibrous cord around the lining, and a layer of rubber upon the fibrous cord, the layer of rubber having embedded therein a netted fabric formed of cords or strands knotted together at their points of intersection, the cords or strands encircling the tire in oppositely-oblique directions so that the meshes are of diamond shape with their diagonals in the transverse and circumferential directions of the tire, as set forth.

694,224. ALLOY. JACOB S. WOLFE and LOUIS K. ENGLERT, West Catasauqua, Pa. Filed June 3, 1901. Serial No. 63,020. (No specimens.)

Claim.—1. A composite metal resulting from fusing the following elements in approximately the following proportions by weight: copper eighty-five parts, tin four parts, iron six parts, and salt five parts.

2. The process for producing a composite metal consisting in fusing the following elements in approximately the following proportions by weight: copper eighty-five parts, tin four parts, iron six parts, and salt five parts.

694,225. PLOW. JAMES W. WOODWARD, Lewiston, Idaho, assignor of one-half to James A. Bailey, Lewiston, Idaho. Filed Nov. 8, 1901. Serial No. 81,587. (No model.)



Claim.—1. In a plow or the like, a moldboard comprising upper and lower supports, rollers interposed and mounted between the supports and having hollow ends arranged adjacent to the supports and protected thereby, and antifriction-bearings disposed in said hollow ends of the rollers.

2. The combination with a plow; of the rollers screw-tapped at opposite ends, the rods shouldered near opposite ends, the bearing-rings arranged in each end of the rollers, the nuts and balls interposed between the nuts, rings and shoulders, and suitable supports for the rods, substantially as specified.

3. The combination with a plowshare; of the angle-bars D and E, the hollow rollers containing ball-bearings at their opposite ends and protected on the upper side at their upper ends by a flange of one angle-bar and protected at their lower ends and on their under sides by a flange of the other angle-bar, substantially as specified.

694,226. COIN-CONTROLLED MUSCLE-TESTER. CHRISTOPHER C. YANCEY, Yankton, S. D., assignor of two-thirds to Peter Steffen and Florian J. Hatz, Yankton, S. D. Filed Feb. 5, 1901. Serial No. 46,079. (No model.)



Claim.—1. A machine of the class described comprising a casing, a vertically-movable bar, a plunger, a lever operated by the plunger and adapted to actuate the vertically-movable bar, a locking device for holding the plunger normally against movement, a spring arranged in the path of the vertically-movable bar and adapted to engage the locking device when the bar falls, and means for holding the bar in an elevated position, substantially as described.

2. A machine of the class described comprising a casing, a vertically-movable bar, a plunger, a lever arranged to be engaged by the plunger and adapted to actuate the bar, a locking-bar for holding the plunger against movement, and a spring arranged in the path of the vertically-movable bar and adapted to engage the locking-bar, substantially as described.

3. A machine of the class described comprising a casing, a vertically-movable bar, a horizontal plunger, an approximately triangular lever fulcrumed near one of its angles and arranged to be engaged by the plunger and extending beneath the vertically-movable bar and adapted to actuate the same, the transversely-disposed locking-bar pivotally mounted within the casing and adapted to be held out of engagement with the plunger by the weight of a coin, and a spring arranged in the path of the vertically-movable bar and located adjacent to and adapted to engage the locking device when the latter is held out of engagement by a coin, whereby the locking device will be caused to reëngage the plunger, substantially as described.

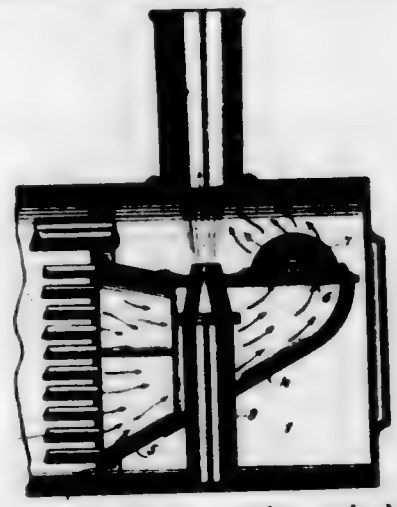
694,227. PROCESS OF BRONZING PHOTOGRAPHIC PLATES. CARL P. H. ABELE, Frankfort-on-the-Main, Germany, assignor to Metalline-Platten-Gesellschaft M. B. H., Frankfort-on-the-Main, Germany. Filed May 17, 1901. Serial No. 60,729. (No specimens.)

Claim.—1. The process of producing bronze-coated plates for photographic purposes, which consists in applying to a rigid base a layer of varnish, a softening solution, and fine metallic powder in succession.

2. The process of producing bronze-coated plates for photographic purposes, which consists in applying to a rigid base, varnish, a solution containing albumen, honey and water, and metallic powder in succession.

3. The process of producing bronze-coated plates for photographic purposes, which consists in applying to a rigid plate a layer of varnish, smoothing and polishing the same, then applying a solution composed of albumen, honey and water, and then while still wet brushing a dry metallic powder over the surface thereof, allowing it to dry, and applying alcohol thereto.

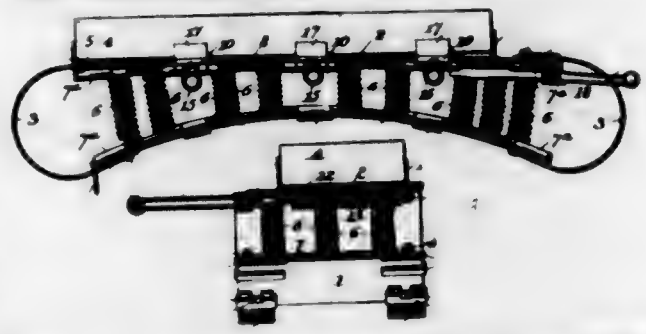
694,228. SPARK-ARRESTER. WESLEY P. ALLEN and JOHN R. H. BROWNE, Albuquerque, N. Mex., assignors of one-third to Max R. Becker, Albuquerque, N. Mex. Filed Nov. 2, 1901. Serial No. 80,890. (No model.)



Claim.—1. A spark-arrester, comprising a casing having an inclined lower wall, the said casing being extended from the flue-sheet of a boiler and into the smoke-box, a netting arranged in the top of the casing, a hood of netting hinged over the first-named netting and an exhaust leading through the casing and terminating at a point below the top plane of said hood, substantially as specified.

2. A spark-arrester, comprising a casing having a slanting or inclined top, and an upwardly and forwardly inclined bottom, the said arrester being attached to the flue-sheet of a boiler and surrounding the boiler-flues, a netting arranged over an opening at the forward portion of the top of the casing, a convex hood of netting material hinged over the first-named netting, and an exhaust-nozzle extended up through the bottom wall of the casing and through the top wall thereof and terminating below the top plane of said hood.

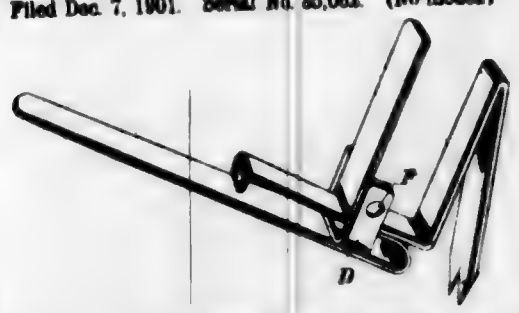
694,229. AUTOMATIC OSCILLATING SKID OR SUPPORT FOR RAZOR-HONES. THEODORE ANDERSON, Junction, N. J. Filed Sept. 21, 1901. Serial No. 76,076. (No model.)



Claim.—1. In a device of the class described, an upper deck provided with means for securing a hone thereto, a curved lower deck and curved springs connecting said decks, substantially as described.

2. In a device of the class described, the combination of a resilient upper deck, a lower curved resilient lower deck, curved springs connecting the corners of said decks springs mounted intermediate said decks, and means for securing a hone to said upper deck substantially as described.

694,280. SCAFFOLD-BRACKET. WILLIAM R. ARNOLD, Dallas, Tex. Filed Dec. 7, 1901. Serial No. 85,062. (No model.)



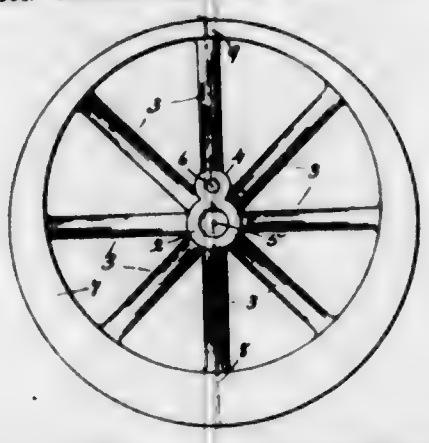
Claim.—1. In a scaffold-bracket, the combination with a member provided upon one end with a bent-over portion, and a yoke carried by said member; of a pivoted member mounted in said yoke, having a portion adapted to bear upon said bent-over portion, and claws provided upon one end of said pivoted member, substantially as described.

2. In a scaffold-bracket, the combination with a stationary member, a bent-over portion provided upon said member, provided with a toothed jaw upon its free end, and a yoke carried by said member; of a swinging member mounted in said yoke, said member being so mounted as to raise and lower said jaw when operated, and claws carried by said swinging member, substantially as described.

3. In a scaffold-bracket, the combination with a stationary member, a bent-over portion carried by said stationary member, a toothed jaw carried by said portion, and a yoke carried by said member; of a swinging member pivotally mounted in said yoke, a cam-shaped portion carried by said swinging member adapted to bear upon said bent portion to raise and lower said jaw, and claws carried upon the free end of said swinging member, substantially as described.

4. In a scaffold-bracket, the combination with a stationary member pointed at one end, a bent-over portion upon its other end provided with a toothed jaw, and a yoke carried by said member; of a swinging member pivotally mounted in said yoke, in such manner as to raise and lower said toothed jaw when the same is actuated, the said swinging member being provided with a recess to receive a portion of the scaffolding, and claws carried upon the free end of said swinging member, substantially as described.

694,281. WHEEL. JOHN T. ASHLEY, Brooklyn, N. Y. Filed Nov. 30, 1901. Serial No. 84,233. (No model.)



Claim.—1. A wheel of the class herein described comprising a wheel-center and a peripheral member, the latter mounted on the former, and continuously varying in radial thickness, substantially as herein specified.

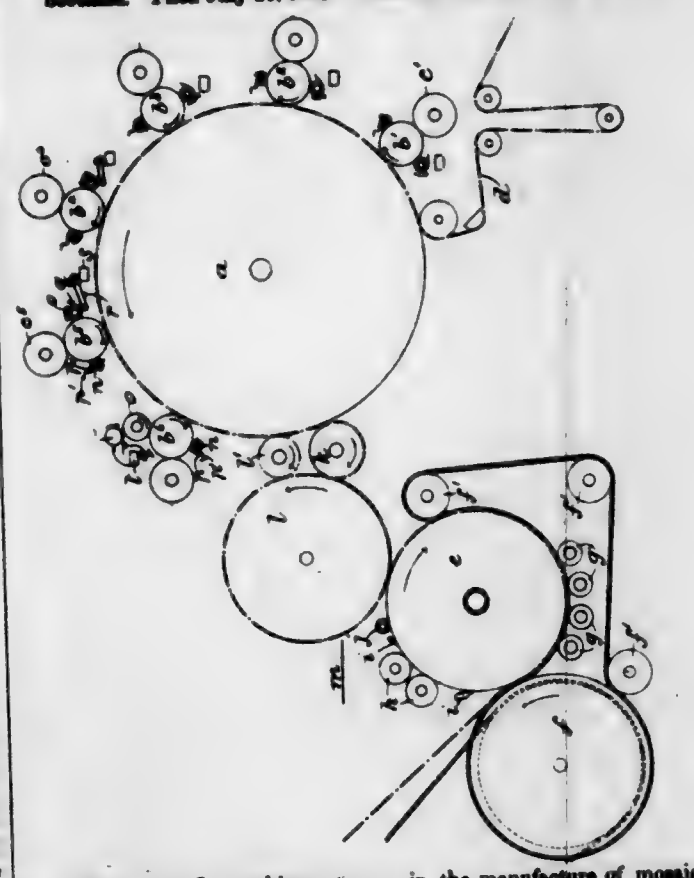
2. A wheel of the class herein described comprising a wheel-center and a peripheral member, the latter mounted on the former, and having an inner surface the continuous elements of which are lines conforming substantially to a true circle whose center is away from the axis of the wheel proper and within a radius thereof, substantially as herein specified.

694,282. CANOPY. GEORGE A. BARRITT, Brownsboro, Ky. Filed Nov. 14, 1901. Serial No. 82,274. (No model.)

Claim.—In combination with the thills of a vehicle, a skeleton frame having jaws clamped to said thills, and adjustable bands connecting oppositely-disposed jaws, a bar fastened to the highest portion of said bands, and upwardly inclined at one end, and bent to form an eye F', a wire H held at its middle portion in said eye, and passed through apertures in said bands, said wire passed about the edge of one of the bands, and turned into loops, their ends passed through apertures in the bands, and bent over the edges thereof, forming guides for the reins, as set forth.



694,283. MACHINERY FOR USE IN THE MANUFACTURE OF MOSAIC OR INLAID FLOOR-CLOTH. EDWARD BATTEN, Kirkcaldy, Scotland. Filed July 26, 1901. Serial No. 70,154. (No model.)



Claim.—1. In machinery for use in the manufacture of mosaic or inlaid floor-cloth the improvements hereinbefore described whereby the production of patterns containing a greater number of colors can be obtained without increasing the diameter of the pin-cylinder upon which the inlaying of the tesseræ is obtained, the said improvements consisting in the combination with the said pin-cylinder and a beating-cylinder, of a bending-cylinder around which passes the mosaic fabric on leaving the pin cylinder, a pin-carrying cylinder on the pins of which the said fabric is pressed by the bending-cylinder and partly around which the fabric passes with the pattern-face outermost, so as to permit of correction of

the pattern of the fabric while it is so passing, cutter-cylinders and pin-rollers and combs arranged relatively to the cutter-cylinders and adapted for the removal of the tesseræ from the heads of the plungers of the cutter-cylinders when projected from the knives thereof.

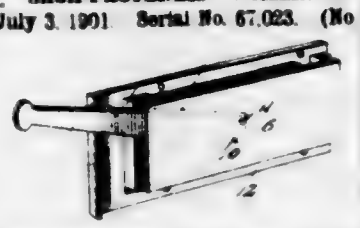
2. In machinery of the character described, a bending-cylinder around which passes the fabric, and a justifying-cylinder arranged in suitable relation to the bending-cylinder.

3. The means hereinbefore described and illustrated in the accompanying drawings for removal of tesseræ from the plunger-heads of the cutter-cylinders when the plungers are projected from between the knives by the action of the cylinder mechanism that is to say the arrangement contiguously to the said cylinders of rotary rollers from the peripheries of which project straight-pointed wires or pins adapted to penetrate the said tesseræ and remove them from the plunger-heads and the combination with the said rollers of combs for disengaging the tesseræ from the said pointed wires or pins the arrangement of the said combs being such that the free ends of their teeth lie between the rows of pointed wires or pins on the said rollers and are in proximity to or in contact with the peripheries thereof.

4. In machinery of the character described, means for removal of tesseræ from the plunger-heads of the cutter-cylinders when the plungers are projected from between the knives by the action of the cylinder mechanism that is to say, the arrangement contiguous to the said cylinders of rotatory rollers from the peripheries of which project straight-pointed wires or pins adapted to penetrate the said tesseræ and remove them from the plunger-heads and the combination with the said rollers of combs for disengaging the tesseræ from the said pointed wires or pins, the arrangement of the said combs being such that the free ends of their teeth lie between the rows of pointed wires or pins on the said rollers and are in proximity to or in contact with the peripheries thereof, and an endless traveling apron for receiving and carrying away the tesseræ disengaged from the pin-roller by the combs.

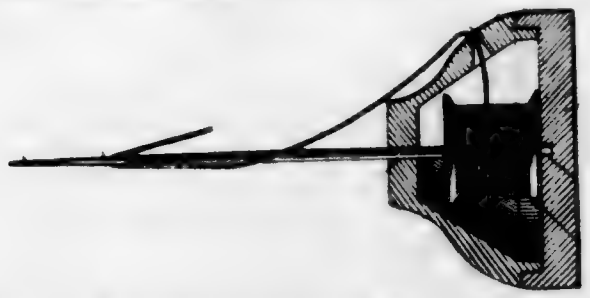
5. In machinery of the character described, means for removal of tesseræ from the plunger-heads of the cutter-cylinders when the plungers are projected from between the knives by the action of the cylinder mechanism that is to say, the arrangement contiguously to the said cylinders of rotatory rollers from the peripheries of which project straight-pointed wires or pins adapted to penetrate the said tesseræ and remove them from the plunger-heads and the combination with the said rollers of combs for disengaging the tesseræ from the said pointed wires or pins, the arrangement of the said combs being such that the free ends of their teeth lie between the rows of pointed wires or pins on the said rollers and are in proximity to or in contact with the peripheries thereof, and a rotatory brush for removing the tesseræ from the said comb.

694,284. SASH-FASTENER. WILLIAM W. BATTLER, San Jose, Cal. Filed July 3, 1901. Serial No. 67,023. (No model.)



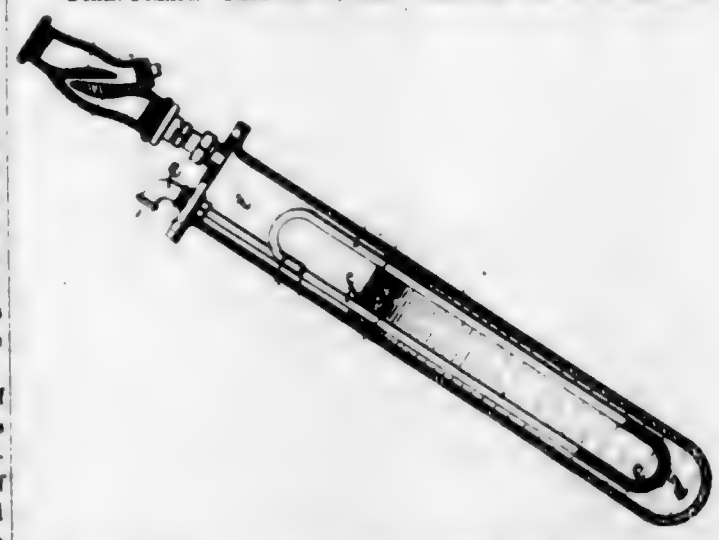
Claim.—The combination with a window-frame formed with a horizontal mortise, of a sash-fastener comprising two overlapping plates formed at opposite ends with clamping-jaws adapted to embrace the window-sashes, a lever interposed between said plates and independently pivoted to each plate whereby both plates may be simultaneously moved in opposite directions by said lever, a dog projecting from the lever, and a casing-plate covering the mortise and having parallel slots to receive the jaws, and a rack to engage the dog.

694,285. PAPER-FILE. SUMNERS F. BECKWITH, Charleston, W. Va. Filed May 4, 1901. Serial No. 58,812. (No model.)



Claim.—A file comprising a base formed with a central socket, a hollow cover detachably secured to the base and having an opening in vertical alinement with the socket, and a cord-opening, and a spindle shaped at its outer end to form a needle, while its lower end extends through the cover and fits within the socket to serve as a bearing for a spool.

694,286. STEAM-GENERATOR. HENRI BENET, La Plaine St. Denis, France. Filed Nov. 5, 1901. Serial No. 81,272. (No model.)

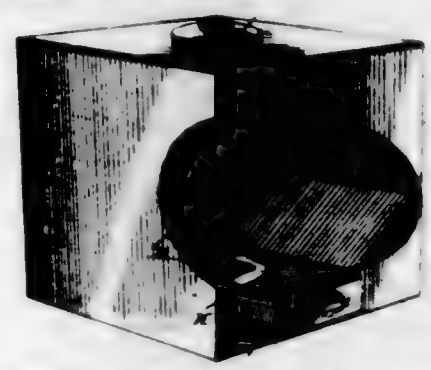


Claim.—1. In a steam-generator, an outer tube adapted to contain a molten alloy, a U-shaped inner tube suspended in said outer tube and provided with perforations in its lower portion, the discharge end of the inner tube being above the surface of the alloy and bent to present the orifice toward the latter, substantially as described.

2. In a steam-generator, an outer tube adapted to contain a molten alloy and an inner water-tube connected with a source of supply submerged in said alloy and so constructed as to admit the latter to its lower submerged portion, the discharge end of said inner tube being bent to bring the orifice above and presented toward the alloy, substantially as described.

3. In steam-generators of the class described, a tube to contain a molten alloy, a U-shaped water-tube connected with a source of supply submerged in said alloy, openings in the lower part of the water-tube, the other end of said water-tube being above and presented toward the alloy, and a bed of pulverulent carbon on the surface of the alloy, substantially as described.

694,287. BASE-DELIVERY CADDY. GEORGE BERNHARD, Dayton, Ohio, assignor, by mesne assignments, to The Canby, Ach & Canby Company, Dayton, Ohio, a Corporation of Ohio. Filed Nov. 13, 1901. Serial No. 82,156. (No model.)



Claim.—1. The combination in a caddy having a delivery-opening at the bottom, of a valve pivoted in said bottom and having a wing on the inside of the caddy for closing the said opening and a stem projecting through the bottom of the caddy, an operating member connected with the stem of the valve on the under side of the bottom and a drawer having a projection coöperating with the operating member to close the valve when the drawer is withdrawn and to open the valve when the drawer is pushed in; substantially as described.

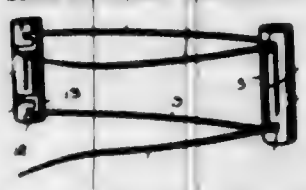
2. The combination in a caddy having a delivery-opening at the bottom, of a valve pivoted in said bottom and having a wing on the inside of the caddy for closing said opening, an operating member connected with the stem of the valve on the under side of the bottom and having two arms, a drawer with guides therefor, and a curved projection on the drawer adapted to coöperate with one of said arms when the drawer is pushed in to open the valve and with the other of said arms when the drawer is pulled out to close the valve; substantially as described.

3. The combination with a caddy having an interior hopper-bottom with a horizontal section, a delivery-opening in said horizontal section and a compartment below the hopper-bottom, of a valve pivoted on the horizontal section of the hopper bottom, a valve-stem passing through the

said section, an operating member on said stem below the hopper-bottom, a drawer sliding in the compartment below the hopper-bottom and a projection on the drawer for moving the valve-operating member and valve positively in each direction in accordance with the movements of the drawer; substantially as described.

4. The combination with the caddy formed with an internal hopper-bottom having a horizontal section, with a compartment below said bottom having a smooth bottom and a delivery-opening in the horizontal section, of a wing-valve located on the inner side of said horizontal section and having a stem passing through said section, an operating member secured to said stem below the said section and having two arms with curved operating-faces, a drawer guided in the compartment below the hopper-bottom and a curved projection on the inner side of the drawer for coöperating with said arms to open and close the valve in accordance with the movements of the drawer; substantially as described.

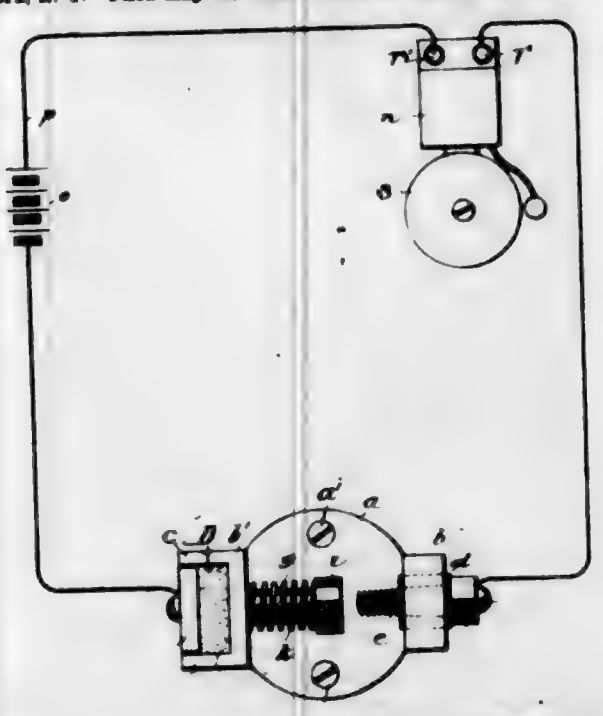
694,288. SAFETY-PIN. MARY BERUBE, Wilson, Mich. Filed July 13, 1901. Serial No. 68,220. (No model.)



Claim.—1. A fastening device comprising parallel hollow cylindrical heads, one of which is slotted and bent to form a sleeve, and the other formed with slots to receive the free ends of engaging pins, rods securing the cylinders together, and resilient pins attached to one of the cylinders and adapted to engage the slots in the opposite cylinder.

2. A fastening device comprising parallel hollow cylindrical heads one of which is slitted to form a flap bent to form a sleeve, and the other formed with slots, rods connecting the heads and a bail consisting of a cross-bar fitting said sleeve and resilient pins projecting from the cross-bar.

694,289. THERMO-ELECTRIC ALARM. HENRY BLACK, New York, N. Y. Filed May 18, 1901. Serial No. 60,826. (No model.)



Claim.—1. In a thermo-electric alarm the combination of a base-plate, a perforated ear on one side of said base-plate, an insulating-bushing fixed in the perforation, and a contact-piece provided with a head and a binding-screw inserted in the bushing, a perforated ear on the opposite side of the said base-plate having side pieces, and a recess formed thereby in the outer side of the ear, a movable contact-piece passed through the perforation in the ear and adapted to operate through the same consisting of a rod having a plate on the outer end provided with a binding-screw and a collar on the inner end, a spiral spring on the rod between the ear and the collar, and a block of fusible material placed in the recess between the plate on the outer end of the rod and the inner wall of the recess, substantially as specified.

2. In a thermo-electric alarm the combination of a base-plate, a perforated ear on one side of said base-plate, an insulating screw-threaded bushing fixed in the said perforation, a screw-threaded adjustable contact-piece provided with a head and a binding-screw passed through the said bushing, a perforated ear on the opposite side of the base-plate having side pieces and a recess formed thereby in the outer side of the ear, a movable contact-piece passed through the perforation in the recessed ear and adapted to operate through the same consisting of a rod having a plate on the inner end, a spiral spring on the rod between the ear and the collar, and a block of fusible material placed in the recess between the plate on the outer end of the rod and the inner wall of the recess, substantially as specified.

3. In a thermo-electric alarm the combination of a base-plate, a perforated ear on one side of the said plate, an insulated contact-piece having a head provided with a binding-screw passed through the said perforation, a perforated ear on the opposite side of the base-plate having side pieces and a recess formed thereby in the outer side of the ear, a movable contact-piece passed through the perforation in the ear and adapted to operate through the same consisting of a rod having a plate on its outer end provided with a binding-screw and a collar on its inner end, a spiral spring on the rod between the ear and the collar, and a block of fusible material placed in the recess between the plate on the outer end of the rod and the ear and in direct and close contact with the walls of the recess, substantially as specified.

4. In a thermo-electric alarm the combination of a base-plate, a perforated ear on one side of the said plate, an insulated adjustable contact-piece having a head provided with a binding-screw passed through the said perforation, a perforated ear on the opposite side of the base-plate having rectangular side pieces, a rectangular recess formed by the ear and its side pieces, a movable contact-piece passed through the perforation in the ear and adapted to operate through the same consisting of a rod having a rectangular plate on its outer end and a separable collar on its inner end, a spiral spring on the rod between the ear and the collar, and a rectangular perforated block of fusible material placed on the rod in the recess between the plate on the outer end of the rod and the ear, and in direct and close contact with the walls of the recess, substantially as specified.

5. In a thermo-electric alarm the combination of a base-plate, a perforated ear on one side of said plate, an insulated adjustable contact-piece having a head provided with a binding-screw passed through the said perforation, a perforated ear on the opposite side of the base-plate having rectangular side pieces, a rectangular recess formed by the ear and side pieces—the said base-plate, recessed ear and side pieces being integral parts of one another—a movable contact-piece passed through the perforation in the recessed ear and adapted to operate through the same consisting of a rod having a rectangular plate provided with a binding-screw on its outer end and a collar on its inner end, a spiral spring on the rod between the ear and the collar, and a rectangular perforated block of fusible material placed in the recess between the plate on the outer end of the rod and the ear, and in direct and close contact with the walls of the recess, substantially as specified.

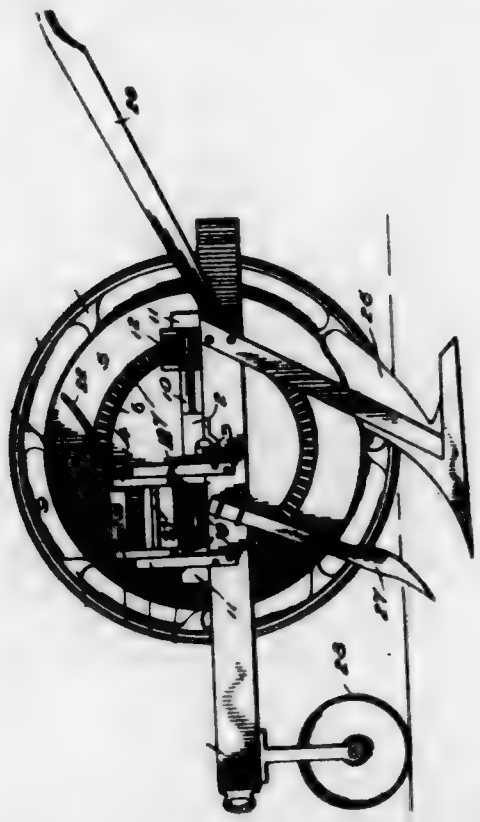
6. A thermo-electric alarm consisting of a base-plate, a perforated ear on one side of said base-plate, an insulated contact-piece having a head provided with a binding-screw inserted in the perforation in the ear, a perforated ear on the opposite side of the base-plate having side pieces and a recess formed thereby in the outer side of the ear, a movable contact-piece passed through the perforation in the recessed ear and adapted to operate through the same consisting of a rod having a plate on the outer end provided with a binding-screw and a collar on the inner end, a spiral spring on the rod between the ear and the collar, and a block of fusible material placed in the recess between the plate on the outer end of the rod and the inner wall of the recess and in close and direct contact with the walls of the recess, in combination with an electric circuit, the terminals of which connect with the respective contact-pieces, and an electric bell placed in the said circuit, substantially as specified.

7. A thermo-electric alarm consisting of a base-plate, a perforated ear on one side of said base-plate, an insulated contact-piece having a head provided with a binding-screw inserted in the perforation in the ear, a recessed perforated ear on the opposite side of the base-plate, a movable contact-piece passed through the perforation in the recessed ear and adapted to operate through the same consisting of a rod having a plate on the outer end provided with a binding-screw and a collar on its inner end, a spiral spring on the rod between the collar and the ear, and a block of fusible material placed in the recess in close and direct contact with the walls of the recess, in combination with an electric circuit—the terminals of which are connected with the respective contact-pieces, an electric bell placed in the said circuit, and a journal-bearing to which the base-plate of the alarm is fastened, substantially as specified.

8. A thermo-electric alarm consisting of a base-plate, a perforated ear on one side of said base-plate, an insulated contact-piece having a head provided with a binding-screw inserted in the perforation in the ear, a recessed perforated ear on the opposite side of the base-plate, a movable contact-piece passed through the perforation in the recessed ear and adapted to operate through the same consisting of a rod having a plate on the outer end provided with a binding-screw and a collar on its inner end, a

spiral spring on the rod between the collar and the ear, and a block of fusible material placed in the recess in close and direct contact with the walls of the recess, in combination with an electric circuit, the terminals of which are connected with the respective contact-pieces, an electric bell placed in the said circuit, and, the pillow-brass of a journal-bearing, to the under side of which, the base-plate of the alarm is fastened, substantially as specified.

694,240. EXCAVATING-MACHINE. JAMES D. BLALOCK, Cross Ala. Filed May 18, 1901. Serial No. 60,878. (No model.)



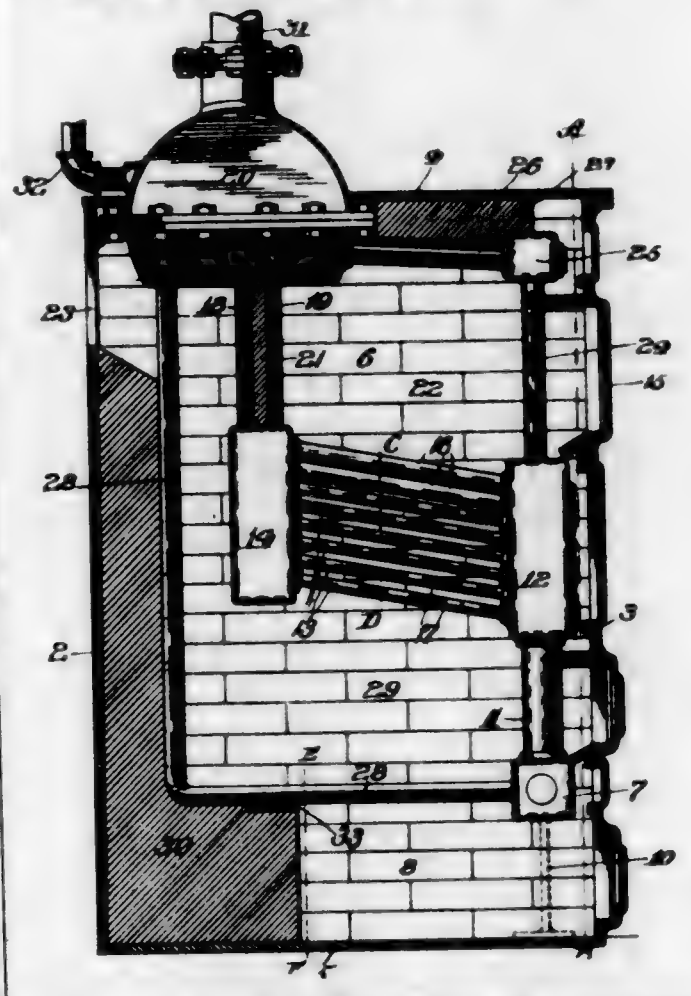
Claim.—1. An excavating-machine comprising a frame, an axle mounted on the frame, a bucket-wheel mounted on the axle within the frame and upon which the machine is balanced, constructed with a head at its inner side, and with buckets, an annular ring having laterally-extending teeth and secured to the head, the inwardly-projecting arms secured to the frame at the outer ends and having shaft-bearings at their inner ends, a longitudinal shaft carrying a gear-wheel at its rear end meshed by the laterally-extending teeth, and a pulley at its forward end, the standards secured to the frame, the guide-bars supported at their inner ends on the longitudinal shaft and at their outer ends on the standards, the pulley mounted in the outer ends of the guide-bars, the endless-belt conveyer mounted on the pulleys, and the inclined guide-plate secured to one of the guide-bars within the bucket-wheel.

2. An excavating-machine comprising a frame, an axle mounted on the frame, a bucket-wheel mounted on the axle within the frame and upon which the machine is balanced, constructed with a head at its inner side, and with buckets, an annular ring having laterally-extending teeth and secured to the head, the inwardly-converging annular rim arranged on the inner side of the head and projecting beyond the inner end of the buckets, annular flange and the teeth, the inwardly-projecting arms secured to the frame at the outer ends and having shaft-bearings at their inner ends, a longitudinal shaft carrying a gear-wheel at its rear end meshed by the laterally-extending teeth, and a pulley at its forward end, the standards secured to the frame, the guide-bars supported at their inner ends on the longitudinal shaft and at their outer ends on the standards, the pulley mounted in the outer ends of the guide-bars, the endless-belt conveyer mounted on the pulleys, and the inclined guide-plate secured to one of the guide-bars within the bucket-wheel.

3. An excavating-machine comprising a frame, an axle mounted on the frame, a bucket-wheel mounted on the axle within the frame and upon which the machine is balanced, constructed with a head at its inner side, and with buckets, an annular ring having laterally-extending teeth and secured to the head, the inwardly-projecting arms secured to the frame at the outer ends and having shaft-bearings at their inner ends, a longitudinal shaft carrying a gear-wheel at its rear end meshed by the laterally-extending teeth, and a pulley at its forward end, the standards secured to the frame, the guide-bars supported at their inner ends on the longitudinal shaft and at their outer ends on the standards, the pulley mounted in the outer ends of the guide-bars, the endless-belt conveyer mounted on the pulleys, the guard arranged transversely of the conveyer at the inner end of the guide-bars, and the inclined guide-plate secured to one of the guide-bars within the bucket-wheel.

4. An excavating-machine comprising a frame, an axle mounted on the frame, a bucket-wheel mounted on the axle within the frame and upon which the machine is balanced, constructed with a head at its inner side, and with buckets, an annular ring having laterally-extending teeth and secured to the head, the inwardly-converging annular rim arranged on the inner side of the head and projecting beyond the inner end of the buckets, annular flange and the teeth, the inwardly-projecting arms secured to the frame at the outer ends and having shaft-bearings at their inner ends, a longitudinal shaft carrying a gear-wheel at its rear end meshed by the laterally-extending teeth, and a pulley at its forward end, the standards secured to the frame, the guide-bars supported at their inner ends on the longitudinal shaft and at their outer ends on the standards, the pulley mounted in the outer ends of the guide-bars, the endless-belt conveyer mounted on the pulleys, the guard arranged transversely of the conveyer at the inner end of the guide-bars, and the inclined guide-plate secured to one of the guide-bars within the bucket-wheel.

694,241. FURNACE. SAMUEL T. BLEYER, Chicago, Ill. Filed May 13, 1901. Serial No. 60,008. (No model.)



Claim.—1. In a furnace, the combination with a furnace-chamber, of a front and rear manifold therein, pipes or tubes connecting between the manifolds and forming grates, and a firing-chamber thereabove, and connections leading from manifolds along two sides of such firing-chamber.

2. In a furnace, the combination with a furnace-chamber, of a front and rear manifold therein, one of such manifolds being in a slightly-higher plane than the other, inclined pipes or tubes connecting between the manifolds and forming grates, a water-arch above the grates and a connection leading from one of such manifolds.

3. In a furnace the combination with a furnace-chamber, of a front and rear manifold therein, one of such manifolds being in a slightly-higher plane than the other, inclined pipes or tubes connecting between the manifolds and forming grates, and a firing-chamber thereabove, a drum exposed to the firing-chamber and a connection between such manifolds and the drum and arranged on opposite sides of said firing-chamber.

4. In a furnace, the combination with a furnace-chamber, of manifolds therein, pipes or tubes connecting said manifolds and forming water-tube grates, the upper pipes having a narrower space between them than the pipes below, and connections leading from the manifolds.

5. In a furnace, the combination with a furnace chamber of a header arranged therein, a series of pipes 28 leading therefrom and dividing said chamber so as to form an ash-pit in the lower portion thereof, and a casting arranged in the chamber and receiving said pipes so as to space the same.

6. In a furnace, the combination with a furnace-chamber, of a front and rear manifold therein, pipes or tubes connecting said manifolds and forming water-tube grates, the said pipes being arranged zigzag with the upper ones of greater diameter than the lower and connections leading from the manifolds.

7. In a furnace, the combination with a furnace-chamber, of a front and rear manifold therein, pipes or tubes connecting said manifolds and forming water-tube grates downwardly through which the fire burns and also forming a firing or fuel chamber 22, and connections 19 and 24 leading from the manifolds along the walls of such chamber 22.

8. In a furnace, the combination with a furnace-chamber, of a front and rear manifold therein, pipes or tubes connecting said manifolds and forming water-tube grates downwardly through which the fire burns, and also forming a fuel-chamber 22, an elevated drum 20 exposed to the fuel-chamber and connections 19 and 24 leading from the manifolds along the walls of such chamber 22 and into the drum.

9. In a furnace, the combination with a furnace-chamber, of a front and rear manifold therein, connecting water-tubes forming grates between the manifolds, a wall 21 leading upwardly from the rear manifold and forming a fuel-chamber 22 open downwardly through such grates, and pipes or connections 21 and 24 leading from the rear and front manifolds respectively and through chamber 22.

10. In a furnace the combination with a furnace-chamber of a front manifold 12, and rear manifold 14 therein, connecting water-tubes arranged to have greater space between them below than above and forming grates between the manifolds, an elevated drum, a wall 21 leading upwardly from the rear manifold to the bottom of the drum and forming a fuel-chamber 22, open downwardly through such grates, a pipe or connection 19 from the manifold 14 to the drum and alongside wall 21, and pipes or connections 24 and 26 leading from manifold 12 through chamber 22 and along the top of such latter chamber to the drum.

11. In a furnace, the combination with a furnace-chamber, with flue 23, of manifolds and connecting-tubes forming grate-bars and a series of tubes 28, all said tubes dividing the furnace-chamber into a fuel-chamber 22 flame-chamber 29, communicating with the flue 23, and an ash-pit 8.

12. In a furnace the combination of a furnace-chamber, manifolds 12 and 14 therein, tubes or pipes connecting said manifolds and forming water-tube grates, a wall 21 extending upwardly from the manifold 14, said wall, manifolds and tubes dividing the furnace-chamber into a fuel-chamber 22, a flame-chamber 29 and an outlet-passage leading from said chamber 29 and pipes 18 and 19 leading from manifold 14 and located on either side of the wall 21.

13. In a furnace, the combination with a furnace-chamber of manifolds 12 and 14 located therein, pipes connecting said manifolds and forming grates, a wall 21 leading upwardly from the manifold 14, which together with the manifolds and grates, divides the furnace-chamber into a fuel-chamber 22, a flame-chamber 29 and an outlet-passage leading from chamber 29, an elevated drum, pipes 18 and 19 leading from manifold 14 into said drum and extending along either side of the wall 21, and pipes 24 and 26 leading from manifold 12 through said chamber 22, along the roof or top of said chamber and into the drum.

14. In a furnace, the combination with the furnace-chamber of manifolds 12 and 14 therein, connecting-pipes therebetween forming water-tube grates, an elevated drum in the upper part of said chamber, pipes 18 and 19 leading from manifold 14 into the drum, a wall 21 interposed between the manifold 14 and the drum and also interposed between said pipes 18 and 19, which wall, together with the manifolds and grate, divides the furnace-chamber into a fuel-chamber 22, flame-chamber 29 and an outlet-passage leading upwardly along the rear side of manifold 14 and along pipe 18.

15. In a furnace, the combination with a furnace-chamber having a fuel or firing chamber 22 of a header in the lower portion thereof, front and rear manifolds 12 and 14 located in the furnace above the plane of said header, connection between the header and manifold 12, an elevated drum, pipes connecting said manifolds and forming water-tube grates downwardly through which the fuel burns, and pipes or connections 19, 24 and 26 leading from both the manifolds into the drum, and surrounding the fuel or firing chamber.

16. In a furnace, the combination with the furnace-chamber of a header located in the lower part of such chamber, an elevated drum in the upper part of such chamber, a series of pipes 28 leading from said header first horizontally and then upwardly into the drum and forming an ash-pit in the lower part of such chamber, manifolds 12 and 14 in the chamber, connections between the manifold 12 and said header, pipes connecting said manifolds and forming bars, and connections between said manifolds and drum.

17. In a furnace, the combination with a furnace-chamber having in the rear portion a lining 30 substantially L-shaped in cross-section, a header in the front portion of said chamber, a series of pipes 28 leading substantially horizontally from the header and then upwardly to the drum and resting upon the foot of said L-shaped lining, manifolds 12 and 14 in such chamber, a series of pipes forming water-tube grates between said manifolds, a connection 11 between the header and manifold 12 and pipes or connections leading upwardly from said manifolds into the drum.

18. In a furnace, the combination with a furnace-chamber, of a lower header 7, an elevated drum 20, pipes 28, leading from the header first horizontally and then upwardly into the drum, manifolds 12 and 14, having connecting-pipes forming water-tube grates, a connection 11 between the header 7 and manifold 12, pipes 24 and 26 leading from the manifold 12 into the drum, and pipes 18 and 19 leading from the manifold 14 into said drum.

19. In a furnace, the combination with the furnace-chamber, of manifolds 12 and 14 therein, a header 7, connections between said header and manifold 12 and water-tube grates connecting said manifolds, an elevated drum 20, a wall 21, between the drum and manifold 14, said wall and grate-bars dividing the furnace-chamber into a fuel-chamber 22, a flame-chamber 29, and an outlet-passage from said chamber 29, and leading upwardly along the rear side of manifold 14, pipes 28 leading from the header 7 along the bottom of chamber 29, and then upwardly along said outlet-passage, pipes 18 between the manifold 14 and drum 20 and exposed to said outlet-passage, pipes 19 leading from the manifold 14 to the drum and exposed to the fuel-chamber 22, and pipes 24 and 26 leading from the manifold 12 to the drum and exposed to the fuel-chamber 22.

20. In a furnace, the combination with the furnace-chamber, of manifolds 12 and 14 therein, a header 7, connections between said header and manifold 12, water-tube grates connecting said manifolds, the said grates being arranged zigzag and inclined and with the upper series of greater diameter than the lower series, an elevated drum 20, a wall 21 between the drum and manifold 14, said wall and grate-bars dividing the furnace-chamber into a fuel-chamber 22, a flame-chamber 29 and an outlet-passage from said chamber 29 leading upwardly along the rear side of manifold 14, pipes 28, leading from the header 7 along the bottom of chamber 29 and then upwardly along said outlet-passage, the horizontal portions of the pipes 28 forming the ash-pit 8, pipes 18 between the manifold 14 and drum 20 and exposed to said outlet-passage, pipes 19 leading from the manifold 14 to the drum and exposed to the fuel-chamber 23, and pipes 24 and 26 from the manifold 12 to the drum and exposed to the fuel-chamber 22.

21. In a furnace, the combination with the furnace-chamber, of manifolds 12 and 14 therein, inclined water-tube grates connecting said manifolds, a header 7, a drum 20, pipes 28 from the header to the drum, pipes 11 from the header to manifold 12, pipes 18 and 19 from manifold 14 to the drum, a header 25, pipes 24 between manifold 12 and said header 25, and pipes 26 between header 25 and the drum.

22. In a furnace, the combination with the furnace-chamber, of manifolds 12 and 14 therein, pipes or tubes connecting said manifolds and forming water-tube grates, a wall 21 which together with said grate-bars divide said furnace-chamber into a fuel-chamber 22, a flame-chamber 29, and an outlet-passage leading therefrom, an elevated drum 20 positioned above said wall 21 and exposed both to the chamber 22 and to said outlet-passage and connections between the manifold 14 and the drum.

23. In a furnace, the combination with the furnace-chamber, of manifolds 12 and 14 therein, a series of pipes or tubes connecting between said manifolds and forming water-tube grates, said pipes being arranged zigzag with the two uppermost rows 16 of greater diameter than the lower rows 17 whereby the spaces between the pipes 16 are narrower than those between the pipes 17.

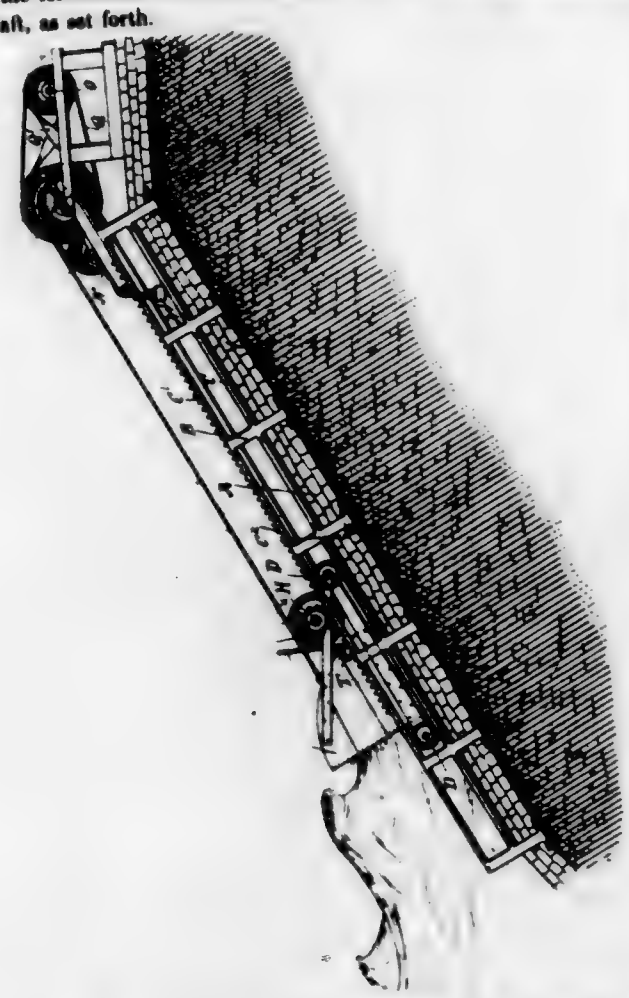
694,242. WAVE OR TIDE MOTOR. WILLIAM BORCHERT, Carson City, Nev., assignor of one-half to Reuben J. Kelly and Richard Kirman, Carson City, Nev. Filed Oct. 2, 1901. Serial No. 77,262. (No model.)

Claim.—1. In a wave or tide power, the combination with a guideway, and a float movable thereon, of a driven shaft, a drum mounted on said float to travel therewith and having operative engagement with the guideway to be rotated on the rising-and-falling motion of the float, and operative connections between the drum and the driven shaft, as set forth.

2. A wave or tide motor, comprising an inclined guideway, a wheeled float mounted to travel on the said guideway and adapted to be moved up the guideway by the power of the waves or tides and arranged to travel upon the guideway by its own weight, means connected with the said float to convert the reciprocating motion thereof into rotary motion, the said means comprising a fixed rack, a pinion in mesh with the rack, a shaft carrying the pinion and journaled on the float, a drum on the shaft, a driven shaft journaled in fixed bearings and carrying a sheave, and a cable fastened at one end to the said float and winding and unwinding on the said drum and passing over the said sheaves, as set forth.

3. A wave or tide motor, comprising an inclined guideway, a wheeled float mounted to travel on the said guideway and adapted to be moved up the guideway by the power of the waves or tides and arranged to

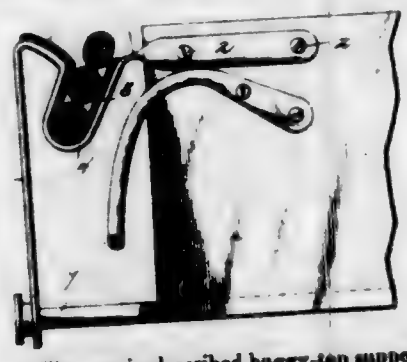
travel upon the guideway by its own weight, means connected with the said float to convert the reciprocating motion thereof into rotary motion, the said means comprising a fixed rack, a pinion in mesh with the rack, a shaft carrying the pinion and journaled on the float, a drum on the shaft, a driven shaft journaled in fixed bearings and carrying a sheave, a cable fastened at one end to the said float and winding and unwinding on the said drum and passing over the said sheave, and a transmitter for transmitting the forward-and-backward motion of the said driven shaft to a main shaft, as set forth.



4. A wave or tide motor, comprising sets of inclined guide-rails, a float having wheels mounted to travel on the said guide-rails, a shaft journaled on the said float, pinions on the said shaft, racks on the said guide-rails and in mesh with the said pinions, drums secured on the said shaft, a driven shaft journaled in fixed bearings at the head of the said inclined guide-rails and carrying sheaves, cables winding and unwinding on the said drums and passing over the said sheaves, and a compensating device for the said cables, as set forth.

5. In a wave or tide power, the combination with a guideway and a float, of a driven shaft, a shaft journaled on the float and geared to said guideway, whereby the rising-and-falling motion of the float will rotate the shaft which is carried thereby, connections between the float carried shaft and the driven shaft, a main shaft, a transmitting mechanism between the driven shaft and the main shaft for propelling the latter continuously in one direction.

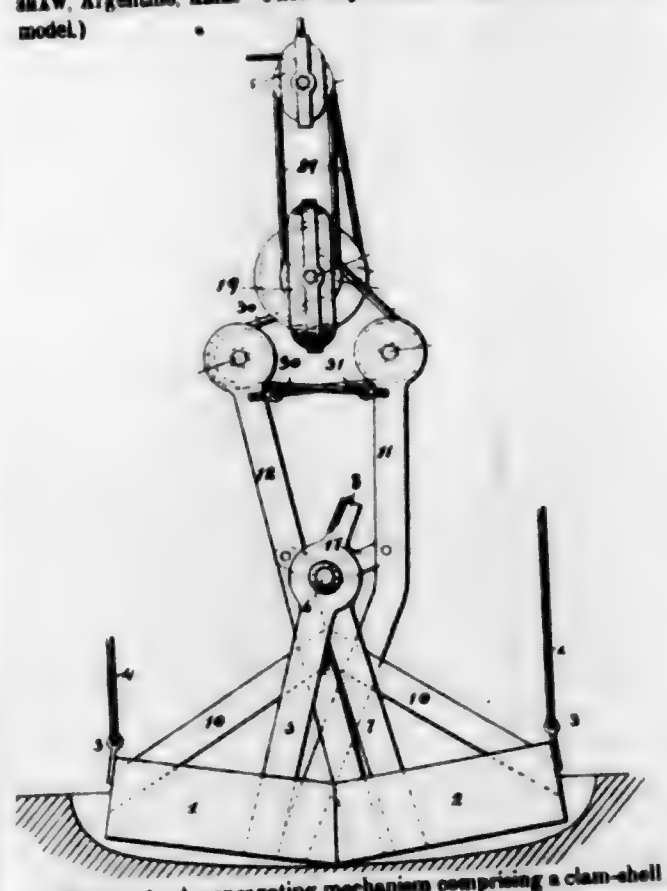
694,248. BUGGY-TOP SUPPORT. ELMER E. BOXLEY and JOE HOLMES, Princeton, Mo. Filed Oct. 19, 1901. Serial No. 79,271. (No model.)



Claim.—1. The herein-described buggy-top support consisting of a metal strap having its end portions extending at substantially right angles to each other, the intermediate portion being bent to form an oblique loop which inclines outward and downward away from the adjacent end of the seat and forms a socket in which the buggy-top bows are received when lowered.

2. The herein-described buggy-top support consisting of a metal strap having its end portions bent substantially at right angles to each other and the intermediate portion deflected to form a downwardly and outwardly inclined loop or holder adapted to receive the buggy-top bows when lowered, the loop being extended to form an inclined shoulder which serves to guide the bows into the socket or loop as they are lowered.

894,244. EXCAVATING MECHANISM. CHARLES W. BRADSHAW, Argentine, Kans. Filed July 5, 1901. Serial No. 67,107. (No model.)



Claim.—1. An excavating mechanism comprising a clam-shell consisting of two scraper-pans pivotally connected together, two levers crossing each other and secured respectively to opposite scraper-pans, two pulleys mounted one on each lever, a rotatable drum, means for rotating the drum, and two cables secured to and adapted to be wound on the drum when the drum is rotated in the proper direction, the two cables being secured respectively to opposite levers, each cable bearing upon the pulley on the lever opposite to the lever to which the cable is secured, substantially as described.

2. An excavating mechanism comprising a clam-shell consisting of two scraper-pans pivotally connected together, two levers crossing each other and secured respectively to opposite scraper-pans, two pulleys mounted one on each lever, a rotatable drum, two cables secured to and adapted to be wound on the drum when the drum is rotated in the proper direction, the two cables being secured respectively to opposite levers, each cable bearing upon the pulley on the lever opposite to the lever to which the cable is secured, and a hoisting-cable secured to and adapted to be wound on the drum when the other two cables are unwound therefrom, substantially as described.

3. An excavating mechanism comprising a clam-shell consisting of two scraper-pans pivotally connected together, two levers crossing each other and secured respectively to opposite scraper-pans, two pulleys mounted one on each lever, means for swinging the two scraper-pans apart, and means for swinging the scraper-pans toward each other consisting in a rotatable drum, means for rotating the drum, and two cables secured to and adapted to be wound on the drum when the drum is rotated in the proper direction, the two cables being secured respectively to opposite levers, each cable bearing upon the pulley on the lever opposite to the lever to which the cable is secured, substantially as described.

4. An excavating mechanism comprising a clam-shell consisting of two scraper-pans pivotally connected together, two levers crossing each other and secured respectively to opposite scraper-pans, two pulleys mounted one on each lever, means for swinging the scraper-pans apart, and means for swinging the scraper-pans toward each other consisting in a rotatable drum, two cables secured to and adapted to be wound on the drum when the drum is rotated in the proper direction, the two cables being secured respectively to opposite levers, each cable bearing upon the pulley on the lever opposite to the lever to which the cable is secured, and a hoisting-cable secured to and adapted to be wound on the drum when the other two cables are unwound therefrom, substantially as described

5. An excavating mechanism comprising a clam-shell consisting of two scraper-pans pivotally connected together, two levers crossing each other and secured respectively to opposite scraper-pans, two pulleys mounted one on each lever, a rotatable drum, two cables secured to and adapted to be wound on the drum when the drum is rotated in the proper direction, each cable bearing upon the pulley on the lever opposite to the lever to which the cable is secured, a supporting-block, and a hoisting-cable secured to and adapted to be wound on the drum when the two cables are unwound therefrom, the hoisting-cable passing from the drum to and supported by the supporting-block, substantially as described.

6. An excavating mechanism comprising a clam-shell consisting of two scraper-pans pivotally connected together, two levers crossing each other and secured respectively to opposite scraper-pans, two pulleys mounted one on each lever, a rotatable drum, two cables secured to and adapted to be wound on the drum when the drum is rotated in the proper direction, each cable bearing upon the pulley on the lever opposite to the lever to which the cable is secured, a supporting-block, a pulley rotatable independently of but movable with the said drum, and a hoisting-cable secured to and adapted to be wound upon the drum when the two cables are unwound therefrom, the hoisting-cable passing from the drum to the supporting-block thence around the pulley movable with the drum and thence again to the supporting-block, substantially as described.

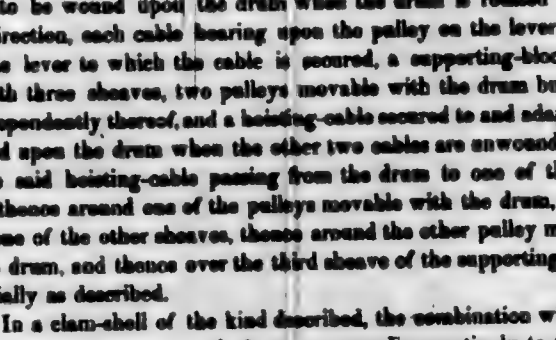
7. An excavating mechanism comprising a clam-shell consisting of two scraper-pans pivotally connected together, two levers crossing each other and secured respectively to opposite scraper-pans, two pulleys mounted one on each lever, a rotatable drum, two cables secured to and adapted to be wound upon the drum when the drum is rotated in the proper direction, each cable bearing upon the pulley on the lever opposite to the lever to which the cable is secured, a supporting-block provided with three sheaves, two pulleys movable with the drum but rotatable independently thereof, and a hoisting-cable secured to and adapted to be wound upon the drum when the other two cables are unwound therefrom the said hoisting-cable passing from the drum to one of the said sheaves thence around one of the pulleys movable with the drum, thence around one of the other sheaves, thence around the other pulley movable with the drum, and thence over the third sheave of the supporting-block, substantially as described.

8. In a clam-shell of the kind described, the combination with two scraper-pans, of a transverse shaft, arms secured respectively to the two scraper-pans and pivoted to the said transverse shaft, two levers crossing each other and secured respectively to opposite scraper-pans, and two links connecting the two levers respectively with the transverse shaft to which the links are pivoted, substantially as described.

9. In a clam-shell of the kind described, the combination with two scraper pans, of a transverse shaft, arms secured respectively to the two scraper-pans and pivoted to the transverse shaft, and two levers each of which comprises two arms the upper ends of which are bolted together and the lower ends of each pair of arms diverging and secured to opposite sides of a scraper-pan, the two levers crossing and one lever being located between the two arms forming the other lever, substantially as described.

10. In a clam-shell of the kind described, the combination with two scraper-pans, of a transverse shaft, arms secured respectively to the two scraper-pans and pivoted to the transverse shaft, two levers crossing each other and secured respectively at their lower ends to the two scraper-pans, each lever consisting of two arms, the upper ends of each pair of said arms being connected to each other and the lower ends thereof diverging and secured to a scraper-pan, and two pulleys mounted one on each lever between the two arms thereof, substantially as described.

694,245. CONVEYER-BUCKET. LEO A. BRIGEL, Jr., Cincinnati, Ohio. Filed Apr. 10, 1901. Serial No. 55,180. (No model.)



Claim.—1. A conveyer-bucket comprising a single piece of sheet metal having interengaging fins upon the bottom and side sections adapted to form seams upon the inside of the bucket, when pressed into shape.

2. A conveyer-bucket comprising a single piece of sheet metal having its edges provided with fins adapted to automatically interengage to form the joints of the bucket, and lugs upon the inner walls of the side sections adapted to hold the fins in engagement.

3. A conveyer-bucket comprising a single piece of sheet metal of substantially the form shown provided with interengaging fins stamped up from its edges, said fins being adapted to automatically interengage to form the seams when the bucket is pressed into shape.

4. A conveyer-bucket comprising a single piece of sheet metal made of substantially the form shown, having fins along its edges, said fins being adapted to automatically form seams upon the inside of the bucket when pressed into shape.

5. A conveyer-bucket comprising a single piece of sheet metal having its edges provided with fins adapted to automatically interengage to form the joints of the bucket and a ridge formed upon the inner wall of the bucket to engage the adjacent fin.

6. A conveyer-bucket comprising a single piece of sheet metal having its edges provided with fins adapted to automatically interengage to form the joints of the bucket, and means substantially as described for locking said fins in place to prevent the opening of the joint.

7. A conveyer-bucket comprising a single piece of sheet metal having the adjoining edges of the bottom and side sections stamped up into fins, adapted to form a lock-joint when said piece is pressed into shape.

8. A conveyer-bucket comprising a single piece of sheet metal having the upper end of the side sections and the upper end of the back section stamped up into fins, adapted to engage each other and form a lock-joint when the lock joint is pressed into form, and means for preventing the subsequent disengagement of said fins.

9. In a conveyer-bucket, a chain-link, a bucket portion having flaps adapted to be bent over and engage said link, and said link having curves to prevent endwise movement thereof relative to the bucket.

694,246. NUT-LOCK. EDWIN F. BARGER, Des Moines, Iowa. Filed June 7, 1901. Serial No. 63,534. (No model.)



Claim.—An improved nut-lock, comprising in combination a bolt, an internally-screw-threaded nut for the bolt having on one face an annular projection surrounding the bolt-opening and also having on the same face a series of radial ratchet-teeth extending from the projection toward the periphery of the nut, a spring-metal washer designed to be mounted on the annular projection and divided on a radial line at one side, the divided ends being extended in opposite directions, one end being designed to engage the ratchet-teeth on the nut, a radial projection at one end of the washer extending beyond the periphery of the nut, said washer being of materially less thickness than the thickness of the annular projection, and a block having an opening therein to receive the bolt and having radial ratchet-teeth surrounding said opening, said block being designed to be secured to the articles to be clamped together by the bolt and to have the bolt passed through it and to have one end of the spring-washer engage its ratchet-teeth, said block also being designed to be engaged by the annular projection of the nut, substantially as and for the purposes stated.

694,247. TREE-SUPPORT. THOMAS P. BROWN, Riverside, Cal. Filed Nov. 7, 1901. Serial No. 81,362. (No model.)



Claim.—1. A tree-support, comprising a pole, hanger-strands pendent from the pole and having offset portions, and bracket-hooks for sup-

porting limbs of the tree, said hooks being securable at different heights on the hanger-strands, by their engagement with offset portions of said hanger-strands.

2. A tree-support, comprising a pole, hanger-strands pendent from the pole, bracket-hooks adapted to engage with offset portions on the hanger-strands, and means to hold the bracket-hooks from displacement.

3. A tree-support, comprising a pole securable upright on a tree, a plurality of hanger-strands held to depend from the pole, and a bracket-hook for each hanger-strand, comprising a hook member and a tubular arm extended at an angle from said hook member and mounted upon a respective hanger-strand.

4. In a tree-support of the character described, the bracket-hooks, each formed of a wire strand bent to provide two spaced hook members, that are coiled at their ends, forming a tubular arm which projects at an angle from the hook members.

5. In a tree-support of the character described, a supported wire strand, a bracket-hook having an angularly-disposed tubular arm engaged with an offset portion of the hanger-strand, and a keeper-brace engaged with said hook and with a depending part of the hanger-strand.

694,248. STOVE-TRUCK. WILLIAM T. BUCK, Freehold, N. J. Filed Sept. 16, 1901. Serial No. 75,527. (No model.)



Claim.—1. The combination with a body, having a supplemental body hinged thereto, of angle-brackets each formed of a single piece of metal bent upon itself to form a bearing and secured to the front of said first-mentioned body, a shaft mounted in said bearings, chains connecting the supplemental body and shaft and adapted to be wound thereon to raise the supplemental body, a pinion on said shaft, a bow-shaped bracket having a bearing and secured at its ends to said angle-brackets, a rod journaled in the said last-mentioned bearing, and a worm mounted on said rod meshing with said pinion.

2. The combination with a body, having a supplemental body secured thereto, of angle-brackets secured to the front of said first-mentioned body and each formed of a single piece of metal bent upon itself to form a bearing, one end is bent to form a securing-arm, and a vertical arm, and the opposite end bent to form an inclined brace-rod, a shaft journaled in said bearings, chains connecting the supplemental body to said shaft, and adapted to be wound thereon to raise said supplemental body, a pinion mounted on said shaft, a bow-shaped bracket having a central bearing and secured at its ends to said angle-brackets, a thrust-bearing secured to said body, a shaft having a handle and crank and journaled in said last-mentioned bearings, and a worm on said rod meshing with the pinion.

694,249. PLOW. OTIS W. BUDD and MELVIN L. BUDD, Westerville, Ohio. Filed July 3, 1901. Serial No. 67,540. (No model.)



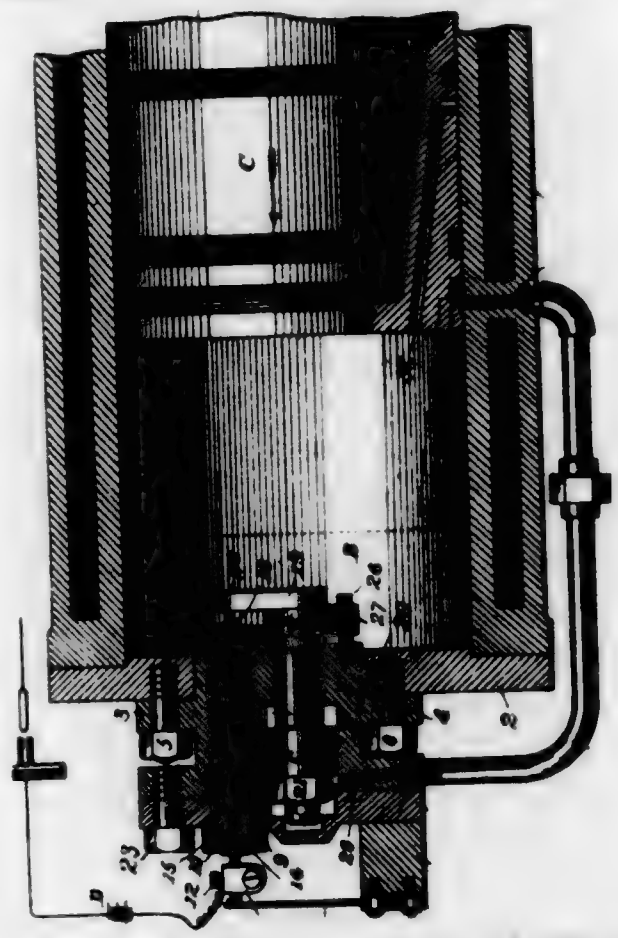
Claim.—1. In a device of the character described, the combination with a plow, of a harrow attachment carried thereby comprising a spring-pressed pivoted arm secured to the beam, harrow-teeth on the end of said arm, and a feed-roll also carried by the arm.

2. In a device of the character described, the combination with a plow, of a harrow attachment carried thereby comprising a spring-pressed pivoted arm, harrow-teeth carried by said arm, a feed-roll also carried by the arm in the shape of a frustum of a cone, and a pivoted roll adjacent the first-named roll.

3. In a device of the character described, the combination with a plow, of a rearwardly-extending arm carried thereby, a yoke-shaped extension on said arm, teeth projecting from said extension, a feed-roll carried by said extension and means carried by the beam for exerting a downward pressure on the weeds adjacent the plow-point.

4. In a device of the character described, the combination with a plow, a harrow attachment carried by the beam thereof comprising a spring-pressed rearwardly-extending arm, harrow-teeth, a pivoted arm arranged adjacent the first-named arm and extending vertically, and a roller carried by the last-named arm.

694,250. ELECTRIC IGNITER FOR GAS-ENGINES. FRANK BURGER, Fort Wayne, Ind., assignor of three-fourths to Henry M. Williams, Fort Wayne, Ind. Filed Nov. 17, 1900. Serial No. 36,897. (No model.)



Claim.—1. In an explosive-engine, the combination with the working cylinder, of electrodes for igniting the charge, and means for applying the pressure developed in the working cylinder alternately to opposite ends of one of the electrodes, whereby said electrode is positively operated in both directions to open and close contact between it and the other electrode, substantially as described.

2. In an explosive-engine, the combination with the working cylinder, of a fixed and a movable electrode, and means for applying the pressure developed in the working cylinder alternately to opposite ends of the movable electrode, whereby said electrode is positively operated in both directions to open and close contact between it and the fixed electrode, substantially as described.

3. In an explosion-engine, the combination with a compression-cylinder, of electrodes for igniting the charge, a secondary cylinder for one of the electrodes, and connections between said secondary cylinder and the compression-cylinder, whereby the said electrode is operated by the compressed charge, substantially as described.

4. In an explosion-engine, the combination with a compression-cylinder and piston, of electrodes for igniting the charge, a secondary cylinder for one of the electrodes and connections between said secondary cylinder and the compression-cylinder controlled by the movement of the piston, substantially as described.

5. In an explosion-engine, the combination with a compression-cylinder and piston, of electrodes for igniting the charge, a connecting-passage between one of the electrodes and the compression-cylinder, and a channel in said piston controlling said connecting-passage, substantially as described.

6. In an explosion-engine, the combination with a compression-cylinder and piston of electrodes extending into the cylinder, one of the electrodes having a head and piston and connections between the electrode-piston and compression-cylinder whereby the electrode is moved by variations in pressure of the gases in the compression-cylinder, substantially as described.

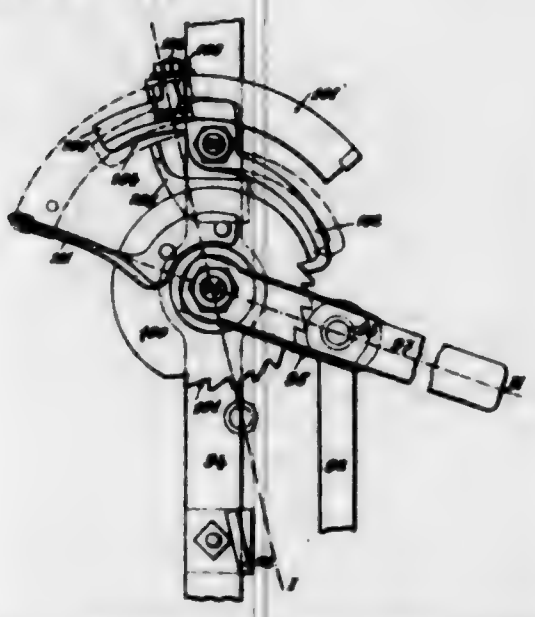
7. The combination with a compression-cylinder, piston and secondary cylinder of a gas-engine, of electrodes extending within the compression-cylinder, one of said electrodes carrying a piston working in said secondary cylinder, means for closing contact between the electrodes, and means for admitting pressure from the compression-cylinder to the sec-

ondary cylinder, whereby contact between the electrodes is broken and a spark produced, substantially as described.

8. The combination with the compression-cylinder, piston and secondary cylinder of a gas-engine, of two movable electrodes extending within the compression-cylinder, one of said electrodes being spring-controlled, whereby it follows for a predetermined distance in contact with the other and the second of said electrodes having a piston working in said secondary cylinder, means for closing contact between the electrodes, and means for admitting pressure from the compression-cylinder to the secondary cylinder whereby contact between the electrodes is broken and a spark produced, substantially as described.

9. The combination with the compression-cylinder, piston and secondary cylinder of a gas-engine, of an attachment carrying electrodes sliding within the same and extending within the compression-cylinder, one of said electrodes being spring-controlled and the other carrying a piston working in said secondary cylinder, ports in the compression-cylinder and secondary cylinder connected to admit pressure to the secondary cylinder and a channel in the piston adapted to register with the port in the compression-cylinder at the end of the compressing stroke of the engine, substantially as described.

694,251. PAWL-AND-RATCHET BRAKE. EUGÈNE CANAPLE and FÉLIX THIÉBAUX, Germigny-l'Evêque, France. Filed Oct. 26, 1901. Serial No. 80,100. (No model.)



Claim.—1. In a brake having a pawl-and-ratchet mechanism, the combination, with the cross-piece 2, carrying the brake-shoes, and connected with a rocking lever, of an adjustable pull-rod 10, of a hand-lever rocking about a fixed spindle and provided with a handle connected by a link or connecting-rod to the said pull-rod, of a toothed disk coöperating with the hand-lever, of a pawl pivoted to a fixed spindle and capable of acting on the said disk to hold the brake locked, of a balance-weight sliding on a stem integral with the pawl, and of a finger revolving with the lever and coming in contact with a pin fixed to the said balance-weight, to bring the same into a position in which it will press the pawl against the said toothed disk.

2. In a brake having a pawl-and-ratchet mechanism, the combination of an operating-lever rocking on the frame, of a toothed disk coöperating with the said lever, of a pawl rocking on the said frame, of a longitudinal tongue formed on an extension or stem of the said pawl, of a balance-weight in the form of an extended ring or link sliding on the said tongue, of a rod in projection on the said tongue and provided with a nut to hold the said balance-weight against the stem of the pawl, of a pin in projection on the balance-weight, and of a finger fixed to the said toothed disk to come in contact with the aforesaid pin and to cause the balance-weight to slide on the stem of the pawl.

3. In a brake having a pawl-and-ratchet mechanism, the combination of a cross-piece provided with brake-shoes and connected to a horizontal lever rocking under the vehicle, of two vertical levers rocking on one side of the vehicle, one of the said levers being connected to the said horizontal lever, and the other being connected to a pull device, and of a pull-rod connecting the two vertical levers in passing above the hub of one of the wheels of the vehicle.

4. A brake, comprising a lever, a beam provided with brake-shoes, longitudinal members connecting said lever and said beam, a ratchet, a pawl movable relatively thereto, and a weight connected with said pawl and movable relatively to the same.

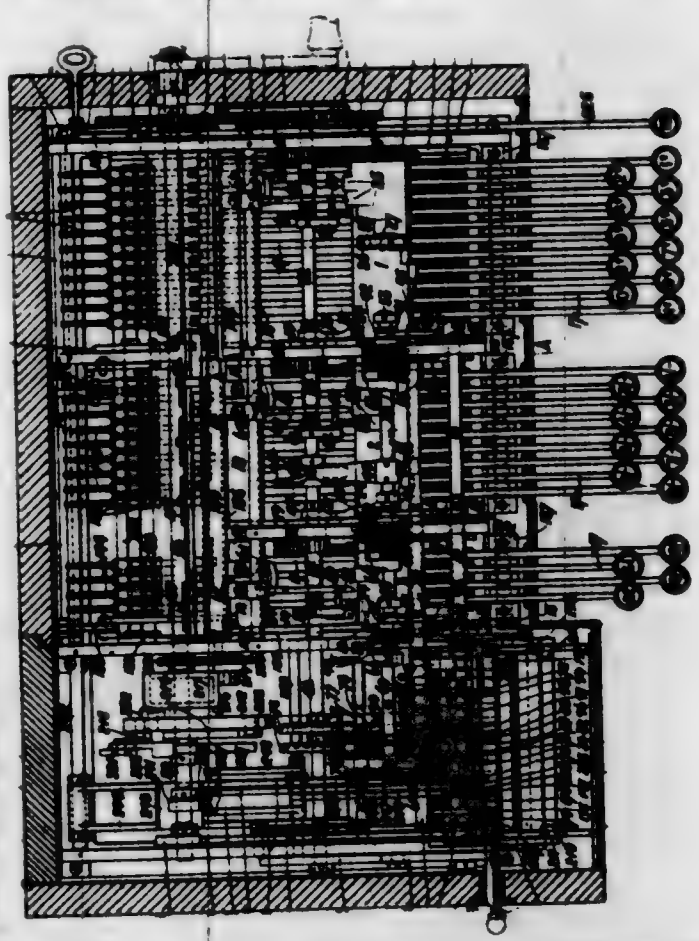
5. A brake comprising a lever, a beam provided with brake-shoes, longitudinal members connecting said lever and said beam, and an arc-shaped weight flexibly connected with said pawl and free to move relatively thereto.

6. A brake comprising a beam, brake-shoes mounted thereon, a lever normally free to rock, mechanism connecting said lever and said beam, a ratchet-disk connected with said lever, a pawl for engaging said disk, a weight movably mounted upon said pawl and provided with a stop, and a finger connected with said lever and normally free to engage said stop for the purpose of shifting the position of said weight.

7. A brake, comprising a lever, a beam, brake-shoes mounted upon said beam, longitudinal members connecting said lever and said beam, means for adjusting the length of said longitudinal members for purposes of adjustment, a ratchet, a pawl movable relatively thereto, a weight slidably connected with said pawl, and means for shifting the position of the weight independently of the position of said pawl.

8. A brake, comprising a frame, a lever, a beam, brake-shoes mounted upon said beam, a toothed disk connected with said lever and free to move therewith, a pawl provided with a tongue integral therewith and pivotally mounted upon said frame, a weight slidably mounted upon said tongue and normally free to move relatively thereto, means controllable at will for clamping said weight rigidly upon said tongue, a stop for limiting the movement of said tongue, a boss mounted upon said weight, and a radially-projecting finger mounted rigidly upon said disk for engaging said boss on said weight.

694,252. CASH-REGISTER. NORMAN COLLINS, London, England, assignor to the Empire Cash Register Limited, London, England. Filed Jan. 2, 1901. Serial No. 41,841. (No model.)



Claim.—1. In a cash-registering machine, the combination with spring-revolved stud-barrels, sets of key-lever-operated barrel releasing and arresting mechanism each for determining in coöperation with the barrel-studs, a single revolution of the corresponding barrel in two angular movements, and key-lever motion-transmitting cross-bars for the respective sets of key-levers, of an independently-rotated shaft and barrel-spring-rewinding mechanisms, each such mechanism comprising a clutch whereof the driven member is permanently geared with the corresponding barrel-spring arbor, while the other members of all the clutches are in driving connection with the same independently-rotated shaft, and means for causing the slidable clutch member to be put into gear with the other clutch member by the movement of the key-lever motion-transmitting cross-bar, as described.

2. In a cash-registering machine, the combination with spring-revolved stud-barrels, sets of key-lever-operated barrel releasing and arresting mechanism each for determining in coöperation with the barrel-studs, a single revolution of the corresponding barrel in two angular movements, key-lever motion-transmitting cross-bars for the respective sets of key-levers, an independently-rotated shaft, and barrel-spring-rewinding clutch mechanisms in driving connection with said shaft and respectively adapted

to be brought into operative position by the movement of the corresponding cross-bar, of means whereby that clutch member which is permanently geared with the barrel-spring arbor, is locked against rotation when out of gear with the other clutch member, so as to then form an abutment for the barrel-spring.

3. In a cash-registering machine, the combination of spring-revolved stud-barrels, sets of key-lever-operated barrel releasing and arresting mechanism each for determining in coöperation with the barrel-studs a single revolution of the corresponding barrel in two angular movements, an independently hand-rotated shaft, axially-alined sets of type-wheels each set corresponding to one of the stud-barrels, shafts respectively in gear with the units-wheels of the several sets of type-wheels, coupling mechanisms adapted to couple the respective shafts with the respective stud-barrels and adapted to be brought into operative position by the actuation of any key-lever of the corresponding set of key-levers so as to gear the stud-barrel with the units-wheel of the associated set of type-wheels concurrently with the release of said stud-barrel from normal position, and a mechanism in operative connection with the independently-rotated shaft for disengaging from the stud-barrel the coupling mechanism which has been permitted to come into action, before the said stud-barrel performs the second of its two angular movements, so that by successive operations of the machine the said sets of type-wheels will respectively receive an aggregation of angular advances corresponding to the successive significant angular movements of the respective stud-barrels.

4. In a cash-registering machine, the combination with spring-revolved stud-barrels, sets of key-lever-operated barrel releasing and arresting mechanism each for determining, in coöperation with the barrel-studs, a single revolution of the corresponding barrel in two angular movements, key-lever motion-transmitting cross-bars for the respective sets of key-levers, and an independently-rotated shaft, of sets of type-wheels each set corresponding to one of the stud-barrels and the units-wheel of each set being geared with a separate shaft, coupling mechanisms for gearing each of said shafts respectively with the corresponding barrel under the control of the corresponding key-lever motion-transmitting cross-bar so as to come into operation concurrently with the release of the corresponding stud-barrel from normal position, and a cam-gear in operative connection with the independently-rotated shaft for returning to inoperative position after the barrel has performed the first part of its revolution, such of the coupling mechanisms as have been operated.

5. In a cash-registering machine the combination with spring-revolved stud-barrels, sets of key-lever-actuated barrel releasing and arresting mechanism each for determining in coöperation with the barrel-studs, a single revolution of the corresponding barrel in two angular movements, key-lever motion-transmitting cross-bars for the respective sets of key-levers, an independently-rotated shaft, sets of type-wheels each set corresponding to one of the stud-barrels and the units-wheels of each set being geared with a separate shaft, and coupling mechanisms for gearing the said shafts respectively with the corresponding stud-barrels, under the control of the key-lever motion-transmitting cross-bars, of means of locking the said coupling mechanisms when in inoperative position and a cam-gear in operative connection with the independently-rotated shaft for returning to inoperative and locked position, such of the coupling mechanisms as may have been operated.

6 In a cash-registering machine the combination with an independently-rotated shaft, sets of key-levers, and a weight-bar adapted to be raised by any one of the key-levers, of a detent for locking the independently-rotated shaft adapted to be disengaged by the rising movement of the said weight-bar to permit the rotation of said shaft and to be relocked therewith by the fall of the weight-bar, as described.

7. In a cash-registering machine the combination with key-levers and with a weight-bar adapted to be raised by any of the said key-levers, of latch-levers pivoted one to each said key-lever, each such latch-lever being adapted to engage with the weight-bar, and of a stationary cam common to all the latch-levers for causing the latch-lever of any key-lever which may be operated, and consequently the said key-lever itself, to be coupled to the weight-bar from the moment it begins to rise until it returns to normal position.

8. In a cash-registering machine, the combination with an independently-rotated shaft, inking and impression-taking devices actuated from said shaft, spring-actuated stud-barrels, type-wheels in gear therewith, key-lever mechanism for releasing and arresting said barrels, a key-coupling weight-bar adapted to be raised by any one of the key-levers, and means whereby any key-lever operated is caused as soon as the key-lever and coupling-bar begin to move, to become positively engaged with the key-coupling bar so as to be prevented from returning to normal position independently thereof, of a detent for retaining said coupling-bar in its highest position and so preventing all motion of the keys operated, of the stud-barrels and of the type-wheels in gear therewith, until the said shaft has been sufficiently revolved to bring about the operation of the inking and impression-taking devices actuated from said shaft, and a cam operated by said shaft for causing said detent to be disengaged from the coupling-bar when the recording operations have been completed.

9. In a cash-registering machine, the combination with key-levers, a weight-bar adapted to be raised by any one of the key-levers and to cause by its fall the return of the said key-lever to normal position, latch-levers respectively pivoted to the key-levers and adapted to be engaged with the weight-bar, a stationary cam for causing the latch-lever of any key-lever operated to be thrown into engagement with the weight-bar, of arms on the latch-levers and an abutment or stop with which said arms are brought into contact by the weight-bar in its fall so as to disengage from the weight-bar the latch lever or levers coupled therewith.

10. In a cash-registering machine, the combination with key-levers, latch-levers pivoted to the key-levers, and a stationary cam adapted to cause the latch-lever of any key-lever that may be operated to be positively oscillated, of a locking-bar extending across the key-levers so as to be raised by the operation of any one thereof, and adapted to prevent, from the moment when it begins to be raised until its fall, a positive obstruction to the oscillation of the latch-lever pertaining to any other key-lever than that key-lever or those key-levers by which the locking-bar was so raised and thereby to prevent the actuation of any such other key-lever so long as the locking-bar is raised, as described.

11. In a cash-registering machine, the combination of an independently-rotated shaft, inking and impression-taking devices actuated from said shaft, key-levers, cam-operated latches pivoted to the key-levers, a locking-bar adapted to be raised by any one of the key-levers, and when so raised to present a positive obstruction to the latches of all key-levers other than that operated, whereby those key-levers are positively locked against operation so long as the locking-bar remains raised, and a detent for retaining said locking-bar in its highest position while the shaft is being revolved to bring about the operation of the inking and impression-taking devices actuated from said shaft.

12. In a cash-registering machine, the combination with an independently-rotated shaft, key-levers, a weight-bar adapted to be raised by any one of the key-levers and to cause by its fall the return of the key-lever to normal position, of means whereby the said shaft in its revolution is caused to act positively on the weight-bar and to thereby force it down should it fail to fall or be purposely held up.

13. In a cash-registering machine, the combination with an independently-rotated shaft, key-levers and a weight-bar adapted to be raised by any one of the key-levers and to cause by its fall the return of the said key-lever to normal position, of a spring-actuated latch adapted to engage said weight-bar when it reaches its lowest position for temporarily preventing it from being raised again, and of cam mechanism actuated by the independently-rotated shaft for disengaging said latch at the moment when the revolution of the independently-rotated shaft is completed.

14. In cash-registering type-wheel mechanism comprising sets of wheels appertaining to different denominations of value and of which the wheels receive aggregate increments of angular motion, the combination of conjointed type-wheels turning together as one, and constituting respectively the tens type-wheel of a set appertaining to an inferior denomination, and the units-wheel of the set appertaining to the next superior denomination, a transfer mechanism adapted to be brought into position to act on the conjoined wheels, and adapted to act on the said transfer mechanism once in each revolution so as to bring it into position to act on the said conjoined wheels, and a units-wheel pertaining to the set of inferior denomination, as described.

15. In a cash-registering machine, the combination with independent spring-barrel-actuated sets of gear adapted to intermittently transmit motion during part of each revolution of the corresponding barrel and to be locked in the intervals of operation, of sets of type-wheels connected to the said respective sets of gear through jumper-springs and toothed rings, and of independently-operated transfer mechanisms adapted to be brought into operative position by a type-wheel of one set and to transmit movement to a type-wheel of another set in the intervals when the direct-driving gears of said wheels are locked.

16. In a cash-registering machine, the combination with type-wheels, of an inking-pad mounted to oscillate in a direction normal to the type, on a frame mounted to swing around the type-wheels, a cam actuated at each operation of the machine, and a rod actuated by the cam and so connected with the said frame as first to swing the frame and then by a further movement to oscillate the pad so as to bring said pad against the type, as described.

17. In a cash-registering machine, the combination with type-wheels, an oscillating platen for taking impressions from said wheels, and an independently-rotated shaft, of cam mechanism actuated by said shaft at each operation of the machine so as to move the platen toward the type in two successive stages of relatively slow and sudden movement, said cam mechanism consisting of two rotary cams adapted to act successively on the platen, the one for producing said slow movement being timed to act in advance of the other, and the second cam being engaged during

the operation of the first cam by an escapement operated from the said shaft so as to release the cam and permit it to act suddenly under the stress of a spring, as described.

18. In a cash-registering machine, the combination with a printing-platen of a cam mechanism for imparting sudden movement to the platen and consisting of a cam mounted to turn loose on a shaft revolved at each operation of the machine, a spring connected to the said cam and shaft so as to be wound up by the revolution of the shaft, a cylinder-escapement geared with the said shaft and adapted, in conjunction with a dog in connection with the cam, to arrest the cam during the winding of the spring and to permit the sudden revolution of the cam under the stress of the spring at a given point in the revolution of the escapement-cylinder, as described.

19. In a cash-registering machine, the combination with cash-record type-wheels, key-lever-controlled mechanisms for setting the same at each operation of the machine, and a revolvable shaft upon the revolution of which the operation of the cash-register depends, of time-record-printing type-wheels, pinions rotating as one therewith, racks gearing with said pinions, independent spring-actuated levers in operative connection with said racks, clock-actuated stopped snails for determining the extents of angular motion of said levers in accordance with the amounts necessary for the setting of the type-wheels to positions denoting the time at which said shaft is rotated, a cam on the said shaft adapted on the rotation thereof to permit the rack-operating levers to be oscillated by their springs to extents determined by said snails, and a printing-platen carrying a record-strip and adapted to be brought by the revolution of said shaft into printing contact with the cash and time record type-wheels.

20. In a cash-registering machine, the combination with a shaft rotated at each operation of the machine, of a clock mechanism and of cam-operated lever, pawl, and ratchet mechanism intermediate of the said shaft and the spring-arbor of the clock-barrel, adapted to cause the spring to be rewound by the rotation of the shaft at each operation thereof.

21. In a cash-registering machine the combination with a shaft rotated at each operation of the machine, of a clock mechanism, cam-operated lever, pawl, and ratchet mechanism adapted to rotate the spring-arbor of the clock-barrel at each revolution of the shaft, and of safety mechanism for rendering the rewinding mechanism inoperative when the spring is fully wound, said safety mechanism comprising a cam adapted when in operative position to throw the driving-pawl out of engagement with the ratchet, and mechanism controlling the said cam whereby the position of the said cam is determined by the mutually relative angular displacements of the spring-barrel and the spring-arbor.

22. In a cash-registering machine, the combination with a shaft rotated at each operation of the machine, of a clock mechanism, cam-operated lever, pawl, and ratchet mechanism for rotating the spring-arbor of the clock-barrel at each revolution of the shaft, and of safety mechanism for rendering the reminding mechanism inoperative when the spring is fully wound, said safety mechanism consisting of a cam adapted when in operative position to throw the driving-pawl out of engagement with the ratchet, in combination with "hunting-gear" formed by a pair of star-wheels controlled by jumper-springs and adapted to be intermittently revolved by the barrel and by the spring-arbor respectively, cam-studs rotating with the star-wheels and adapted, when said cam-studs coincide in angular position, to cause displacement of one of the star-wheels in the direction of its axis, and means intermediate of said star-wheel and the pawl-disengaging cam, whereby the position of said cam will be determined by the mutually relative angular displacements of the said star-wheels.

23. In a cash-registering machine, the combination with an independently-rotated shaft, cam mechanism actuated therefrom, an inking-pad and printing-platen operated from said shaft through said cam mechanism, and a detent for locking the said shaft, of a key whereby to enable said detent to be disengaged and the shaft to be revolved so as to cause an impression to be made.

24. In a cash-registering machine, the combination with an independently-rotated shaft, clock-actuated time-record-printing type-wheels and inking and impression-taking mechanism whose operation is dependent on the rotation of the said independently-rotated shaft, of a portable or inspector's type-key, a keyway in the frame of the machine adapted to support the said type in position to receive ink, and to yield an impression along with the said type-wheels, and a latch operated in the one direction by said key for locking the said shaft against rotation when the key and its type are partially inserted in position, and in the other direction by a spring for releasing the shaft when the key and its type are fully inserted or completely withdrawn from the machine.

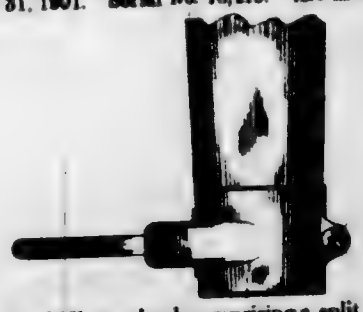
25. In a cash-registering machine, the combination of key-levers, tablets brought by the operation of said levers into position to be exhibited, a weight-bar adapted to be raised by any of the key-levers, a screen permitted by the rise of the weight-bar to move in one direction and moved in the other direction by the fall of the weight-bar, an independently-rotated shaft and mechanism driven thereby for actuating inking and impression-taking devices, a detent for retaining said weight-bar in its highest position until the shaft has been revolved to bring about the operation of the printing devices, and means operated by the said shaft for then releasing the detent and permitting the screen to be withdrawn to expose the tablet which has been raised by the key-lever operated.

694,253. GARMENT-SUPPORTER. SAMUEL S. COBANT, Edgerton, Ohio. Filed June 6, 1901. Serial No. 63,419. (No model.)



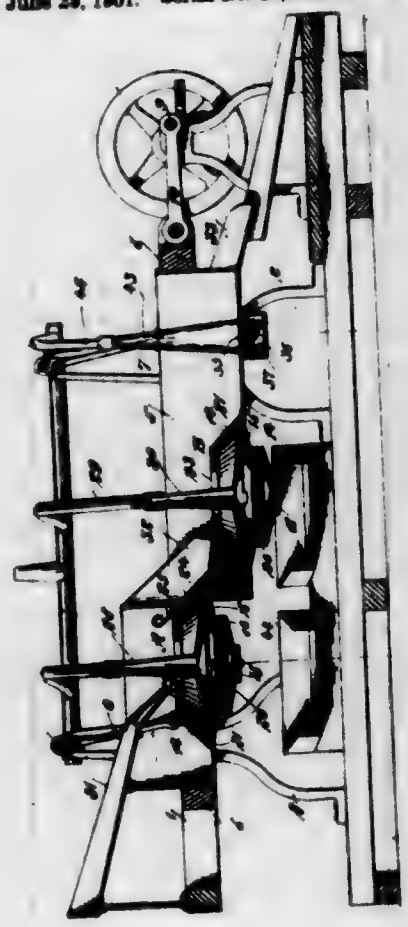
Claim.—A supporter comprising a body member and a suspending member, the two members being formed from single sheet-metal blanks and having portions of each in pivotal connected relation to the other, the body member also having an elongated slot extending from its pivotal portion to near the upper end, the suspending member having an upper forwardly-bent hooked extremity freely movable from the front rearwardly through the said slot of the body member, and both members having lower coacting gripping-jaws.

694,254. WHIFFLETREE-CLIP. JASPER CURRY, Buffalo, Tex. Filed July 31, 1901. Serial No. 70,415. (No model.)



Claim.—A whiffletree-hook comprising a split band formed integral with perforated lugs at its rear edges and with an U-shaped loop at its front, a bolt connecting the lugs, and a hook pivoted in the loop and having a retaining-head.

694,255. GOLD-SEPARATOR. ARTHUR L. DANA, Colorado Springs, Colo. Filed June 29, 1901. Serial No. 66,491. (No model.)



Claim.—1. In a separator, a reciprocating pan, a plurality of traps arranged therein, a spreader-plate on each trap, and water-supply pipes leading into the traps, substantially as specified.

2. In a separator, a reciprocating pan, a plurality of traps arranged therein, the traps being on different horizontal planes, a spreader-plate on each trap, and water-supply pipes leading into the traps, substantially as specified.

3. In a separator, a pan, a trap arranged in said pan, comprising a hood open at the top, a ring-plate on which the hood is supported, a tray attached to the under side of the ring-plate and having a valve-controlled opening in its bottom, a perforated disk supported in the tray, a spreader-plate supported on the ring-plate, and a water-pipe providing communication to the under side of said spreader-plate, substantially as specified.

4. In a separator, a pan, a trap arranged therein, comprising an upwardly and inwardly tapered hood having an inwardly and downwardly extended flange at its upper edge, a dished ring-plate on which the hood is supported, a tray attached to the under side of the ring-plate and having a valve-controlled opening in its bottom, a dished perforated disk supported in the tray, an upwardly and inwardly inclined spreader-plate having spaced legs resting on the ring-plate, and a water-supply pipe leading through said spreader-plate, substantially as specified.

5. A gold-separator, comprising an oscillating pan, means for causing the movements of said pan, traps arranged in the pan, the trap at the feed end of the pan being on a higher elevation than the trap between it and the outlet end of the pan, valves for controlling openings in the upper portions of the traps, perforated disks supported in the traps, and means for supplying water to the traps, substantially as specified.

694,256. GEOGRAPHICAL CLOCK. ANDREW J. DAY, Exeter, South Australia, Australia. Filed June 20, 1899. Serial No. 721,263. (No model.)

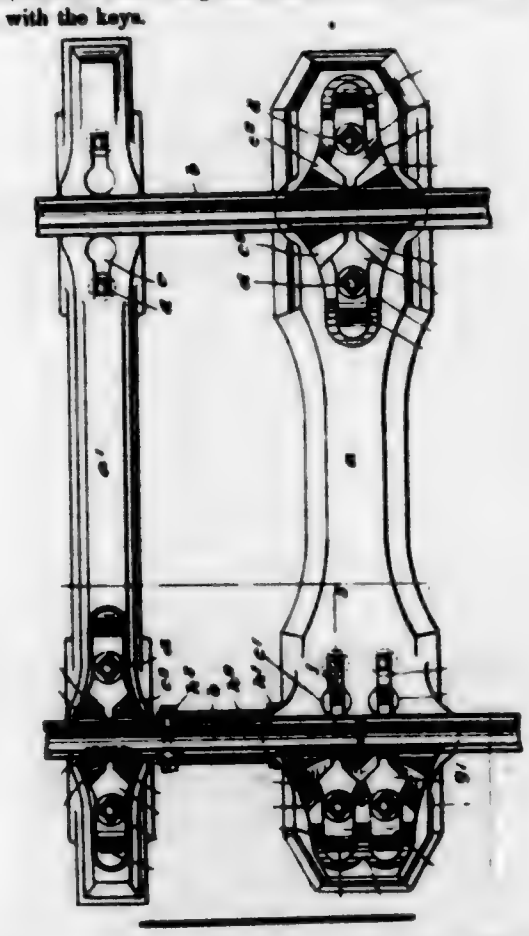


Claim.—1. A horological apparatus, comprising a dial having hour-numerals in two sets 1 to 12, and solar-hour numerals 0 to 23, produced thereon in concentric circles, a radiant having twenty-four pointers corresponding to the twenty-four zones of time, a pivoted and weighted plate on each pointer adapted to contain the number of the zone and the principal place or places therein, an hour-wheel arbor, to which the radiant is secured, an hour-hand adjustably secured to the arbor to rotate therewith, and a minute-hand revolving once in each hour, as set forth.

2. A horological apparatus, comprising a dial having hour-numerals in two sets 1 to 12, and solar-hour numerals 0 to 23 produced thereon in concentric circles, a radiant consisting of twenty-four pointers corresponding to the twenty-four zones of time, a pivoted and weighted disk on each pointer adapted to contain the number of the zone and the principal place or places therein, and an equatorial circle attached to the pointers, a meridian-index projecting from the dial over the equatorial circle, an hour-wheel arbor, to which the radiant is secured, an hour-hand adjustably secured to the arbor to rotate therewith, and a minute-hand revolving once in each hour, as set forth.

694,257. RAILWAY-TIE. CORTLAND DE CEW, Brooklyn, N. Y., assignor of one-fourth to George Anderson, Brooklyn, N. Y. Filed Feb. 14, 1901. Serial No. 47,223. (No model.)

Claim.—The combination of a rail, a tie-bearing thereunder, and having at each side of the rail an undercut groove, chairs bearing on the tie and against the rail at opposite sides thereof and formed with slots disposed transversely to the rail, the chairs having pairs of diagonally-disposed or V-shaped beveled surfaces, spring-keys bearing on the ties and having correspondingly-beveled surfaces engaging the beveled surfaces of the chairs, and bolts, the heads of which are fastened in the underset slots, the said bolts being extended upward through the chairs and connected with the keys.



694,258. SLIDE-RULE. JEAN H. C. DENNERT, Altona, Germany, assignor to The Firm of Dennert & Pape, Altona, Prussia, Germany. Filed July 26, 1901. Serial No. 69,726. (No model.)



Claim.—1. A slide-rule comprising parallel bars provided with a guide-groove in their proximate faces, a slide slidable along and guided by said groove, and a more or less resilient supporting-plate, to which the parallel bars are secured, said plate provided with a longitudinal outwardly-curved center portion or bulge, for the purpose set forth.

2. A slide-rule, comprising parallel bars, a slide slidable between and along said bars and a supporting-plate to which said bars are secured, said plate extending throughout the length of the bars and adapted to expand and contract in a direction at right angles to the direction of motion of the slide, for the purpose set forth.

694,259. CIGAR-WRAPPER CUTTER. CYRIAC DU BRUL and LESTER J. DU BRUL, Brooklyn, N. Y., assignors to the Miller, Du Brul and Peters Manufacturing Co., Cincinnati, Ohio, a Corporation. Filed July 25, 1901. Serial No. 69,632. (No model.)

Claim.—1. The combination with a perforated platen, of means for holding the leaf thereto by suction, and means for successively cutting off the suction upon the leaf at successive portions thereof.

2. In a wrapper-cutter, a perforated platen, a compartted suction-box located on one side of said platen, and a controlling device for shutting off the suction from the compartments of the box successively.

3. In a wrapper-cutter, a perforated platen, a compartted suction-box located on one side of said platen, and a controlling-slide for shutting off the suction from the compartments of the box successively.

4. In a wrapper-cutter, the combination of a perforated platen, a cutter coöperating with said platen, a compartted suction-box located on one side of said platen, a controlling device for shutting off the suction from the compartments of the box successively, and means for imparting successive movements to the controlling device in one direction, while rolling, and for completely opening it when cutting.

5. In a wrapper-cutter, the combination with a platen, of a cutter, a carrier by which said cutter is supported over the platen from a point outside the platen, and means by which said carrier is supported on the machine, adapted to slide in a horizontal direction to bring the carrier longitudinally to and from a position over said platen.

6. In a wrapper-cutter, the combination with a platen, of a cutter, a carrier by which said cutter is supported over the platen from a point outside the platen, and means by which said carrier is supported on the machine, adapted to slide in a horizontal direction to move the carrier longitudinally to and from a position over said platen, and means for imparting said horizontal movement to the cutter-carrier.

7. In a wrapper-cutter, a platen, a cutter-carrier movable vertically relatively to the platen and also slidable bodily forward and rearward, and means for successively lifting the carrier and then sliding it rearwardly from the platen.



8. In a wrapper-cutting machine, the combination of a platen, a track and a cutter; said track having a horizontally-sliding connection with the machine and moving horizontally into and out of position above the platen.

9. In a machine for cutting wrappers from tobacco-leaf, the combination of a platen, a cutter traveling over said platen, a track directing said cutter, and means supporting said cutter and track above the platen, from a point outside of said platen, and having a horizontally-moving connection with the machine.

10. In a machine for cutting wrappers from tobacco-leaf, the combination of a platen, a cutter traveling over said platen, a track directing said cutter, and means supporting said cutter and track above the platen, from a point outside of said platen, and having a common horizontally-moving connection with the machine, for both the cutter and track.

11. In a wrapper-cutting machine, the combination of a platen, a cutter, a lever connected with said cutter, extending over the platen from a point outside thereof, a track by which said cutter is directed, and a bracket by which both said lever and track are supported, and with which said lever has both swiveling and sliding connection in a horizontal direction, whereby the cutter may follow the outline of a wrapper.

12. In a wrapper-cutting machine, the combination of a platen, a cutter, a lever connected with said cutter, extending over the platen from a point outside thereof, a track by which said cutter is directed, and a bracket by which both said lever and track are supported, and with which said lever has both swiveling and sliding connection in a horizontal direction, whereby the cutter may follow the outline of a wrapper, and said bracket having horizontal sliding connection with the machine.

13. The combination with a platen of a cutter-carrier bodily movable horizontally to and from said platen, and means for locking the cutter-carrier in position over the platen.

14. The combination with a platen, of a cutter-carrier movable to and from said platen, means for locking the cutter-carrier in position over the platen, and mechanism for unlocking and moving the carrier.

15. The combination with a platen, of a guide outside the platen, and a cutter-carrier comprising a track and a traveler movable bodily upon the guide to and away from the platen.

16. The combination with a platen, of a guide outside of the platen, a cutter-carrier movable bodily upon the guide to and away from the platen, and means for locking the carrier relatively to the guide consisting of a projection on one of said parts and a recess on the other.

17. In a wrapper-cutter, the combination of a platen, a guide located outside thereof, a cutter-carrier extending from said guide outside the platen and provided with engaging means in contact with the upper and lower faces of the guide respectively, and mechanism for moving the carrier along said guide to and from the platen.

18. In a wrapper-cutter, the combination of a platen, a guide located outside thereof, and a cutter-carrier extending from said guide outside the platen movable longitudinally thereof and provided with rollers located one in advance of the other and engaging the upper and lower faces of the guide, respectively.

19. In a wrapper-cutter, the combination of a platen, a guide located outside thereof, a cutter-carrier extending from said guide inwardly over the platen and provided with rollers located one in advance of the other and engaging the upper and lower faces of the guide respectively, the guide being provided with a depression or recess to receive one of said rollers in its forward position and to allow the front portion of the carrier to drop over the platen, and means for moving the carrier along the guide.

20. In a wrapper-cutter, the combination of a frame having a platen, a guide located outside thereof, a cutter-carrier provided with engaging portions in contact with the upper and lower faces of the guide respectively, the guide having a recess or depression to receive one of said engaging portions in its forward position, interlocking parts on the frame and carrier to lock the latter in its forward position, and means for unlocking the carrier and moving it along the guide.

21. In a wrapper-cutter, the combination of a platen, a cutter-carrier extending inward from a point outside the platen, movable vertically and also movable horizontally, an operating-lever, said carrier and operating-lever being provided, the one with a toe or projection, the other with two fingers between which said toe is received with play, and an inclined surface arranged to engage the toe and to effect the lifting and lowering of the cutter-carrier.

22. In the wrapper-cutter, the combination of a platen, a track located adjacent thereto and provided with a flange, a traveler mounted to run along the track and engaging the flange upon each of its edges and upon its upper and lower faces, and a cutter on the traveler.

23. In a wrapper-cutter, the combination of a platen, a track located adjacent thereto and provided with a horizontal flange, a traveler mounted to run along the track and provided with rollers engaging both edges of said flange and holding the traveler thereto, and having means engaging the upper and lower faces of said flange and a cutter on the traveler.

24. In a wrapper-cutter, the combination of a platen, a track located adjacent thereto and provided with a flange, a traveler embracing both edges and the upper face of the flange provided with a lip taking under said flange, said traveler being mounted to run along the track and a cutter on the traveler.

25. In a wrapper-cutter, the combination of a platen, a track located adjacent thereto and provided with a flange, and a traveler running along the track embracing and holding itself to the flange, provided with a lip taking under said flange, and having rollers engaging the edges of said flange and a cutter on the traveler.

26. In a wrapper-cutter, the combination of a platen, a track located adjacent thereto and having a flanged portion with a removable section, a traveler mounted to run along the track and removable upon taking off the removable track-section and a cutter on the traveler.

27. In a wrapper-cutter, the combination of a platen, a track located adjacent thereto, a traveler directed by the track, a cutter on said traveler and a spring interposed between the track and the traveler to hold the traveler normally in a raised position.

28. In a wrapper-cutter, the combination of a platen, a track located adjacent thereto and provided with a flange, a traveler arranged to run along the track and embracing said flange, a cutter on said traveler and a spring-pressed plunger carried by the traveler, movable vertically in relation thereto and impinging the track.

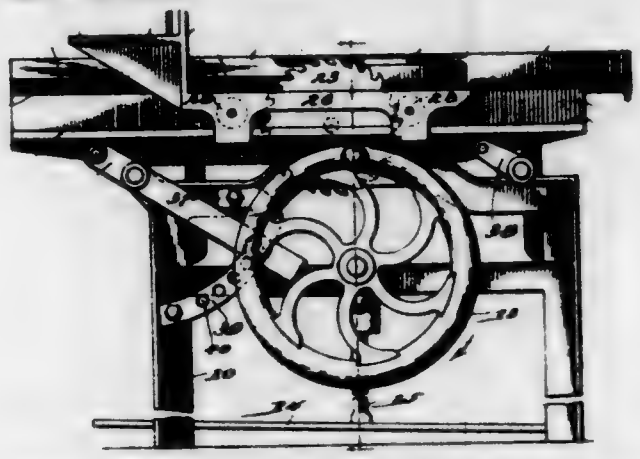
29. In a wrapper-cutter, the combination of a platen, a track located adjacent thereto, a traveler directed by the track, a cutter on said traveler, a spring to hold the traveler normally in a raised position, a lever having a swivel connection with the traveler and a cap carried by the traveler and holding the lever in position thereon, said cap also engaging the spring.

30. In a wrapper-cutter, the combination of a platen, a track adjacent thereto, a traveler arranged to run along the track, a cutter carried by said traveler, an operating-lever having a swivel connection with the traveler and a swiveled head or guide with which said lever has sliding engagement.

31. In a wrapper-cutter, the combination of a platen, a cutter-carrier movable bodily to and from the platen, said cutter-carrier comprising a track, an arm connected therewith a guide-head having a swivel connection with said arm, a lever mounted to slide on the said head, and a traveler swiveled to the lever and mounted to run along the track.

32. In a wrapper-cutter, the combination of a platen, a cutter-carrier movable to and from the platen, said carrier comprising a track, a lever movable vertically relatively to the track, a traveler mounted to run along the track, connected with said lever, and a cutter on said traveler depressible relatively to the track into cutting relation to the platen by the vertical movement of the lever.

694,260. MACHINE FOR SAWING ICE INTO CUBES OR BLOCKS. JOSEPH S. DUNCAN, Chicago, Ill., assignor to Incubator Company, Chicago, Ill., a Corporation of Illinois. Filed Sept. 26, 1901. Serial No. 76,651. (No model.)



Claim.—1. In a machine of the character described, the combination of a pair of circular saws arranged at right angles to each other and means for operating the same, a carriage for supporting and carrying the material into operative engagement with the saws, a side guide for the material, a plate located inside of the vertical plane of the upright saw and beneath the horizontal saw, and a dog carried by said plate and adapted to prevent that part of the material which has been separated from returning with the carriage, substantially as described.

2. In a machine of the character described, the combination of a pair of circular saws arranged at right angles to each other and means for operating the same, a carriage for supporting and carrying the material into operative engagement with the saws, a plate on which the material carried by the carriage slides, and a horizontally-adjustable guide-rail on said top plate, substantially as described.

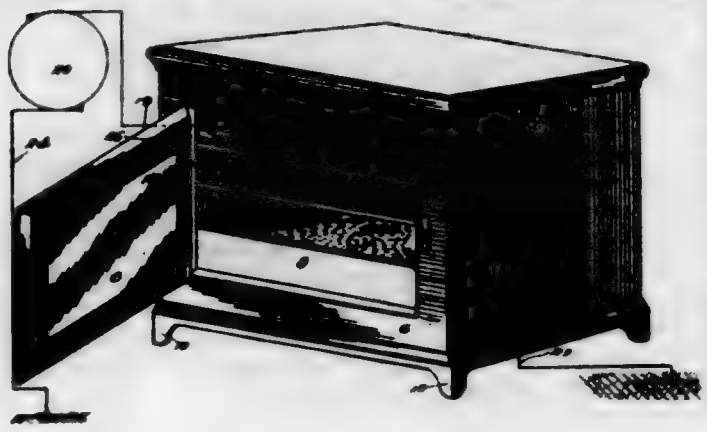
3. In a machine of the character described, the combination of a pair of circular saws arranged at right angles to each other and means for operating the same, the top plate, a carriage for supporting and carrying the material on one side of the top plate and into operative engagement with the saws, an end guard for said carriage, and a plate on the opposite side of the top plate arranged to travel with the carriage, substantially as described.

4. In a machine for sawing cakes of ice into cubes or blocks, the combination of a traveling carriage for supporting the cake of ice, which projects over one side edge thereof, a fixed plate for supporting this projecting portion of the cake of ice, an adjustable side guide on the plate, an upright circular saw operating between said plate and the carriage and a horizontal circular saw operating above the side guide, substantially as described.

5. In a machine of the character described, the combination of a top plate, a pair of circular saws arranged at an angle to each other, and means for operating the same, a carriage provided with a horizontal rearward extension above the top plate, and a supplemental plate loosely connected to said extension and traveling with the carriage on the opposite side of the top plate, substantially as described.

6. In a machine of the character described, the combination of a frame, saw-shafts journaled in bearings in said frame and carrying circular saws and driving-pinions, a driving-shaft and means for operating the same, a gear-wheel mounted on said driving-shaft and meshing with the pinions on the saw-shafts, a top plate in the same plane with one of the saws, a carriage traveling adjacent to the other saw, and a side guide on the top plate within the cutting-lines of the saws, substantially as described.

694,261. APPARATUS FOR PRESERVING FOODS. MARSHALL D. ELLIS, Congress Heights, D. C., assignor of one-half to Guy M. Field, Highpoint, N. C. Filed Mar. 29, 1901. Serial No. 53,542. (No model.)

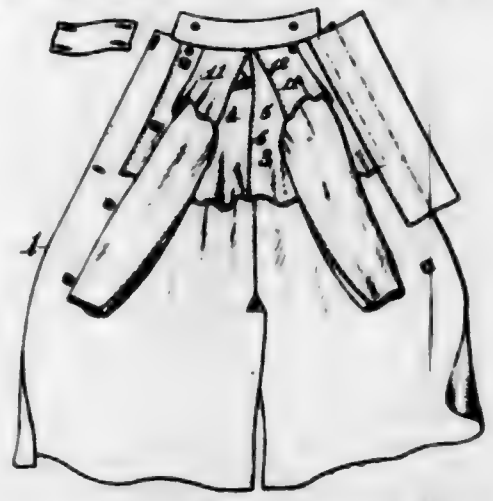


Claim.—1. A device of the class described comprising a plurality of conducting-supports connected in series, an insulated inclosing casing for the supports, a switch for opening and closing the circuit of the supports, and means carried by the door for operating the circuit-closer.

2. The combination with a casing having insulated walls, a series of shelves or supports of conducting material connected in series, a door for said casing, a switch to which the terminals of an electric circuit are connected, and means carried by the door for opening said switch and breaking the circuit when the door is open.

3. The combination of the casing having in its lower portion a liquid-containing vessel or tank formed of conducting material, superposed shelves or supports also formed of conducting material, said tank and shelves being insulated from the casing, a switch or circuit-breaker to which the terminals of an electric circuit are connected, and means carried by the door for operating said circuit-breaker.

694,262. WATERPROOF GARMENT. SAMUEL H. EMANUEL, New York, N. Y., assignor to Standard Oiled Clothing Co., New York, N. Y., a firm composed of Solomon Lorsch, Samuel H. Emanuel, and Henry Emanuel. Filed Nov. 27, 1901. Serial No. 83,364. (No model.)



Claim.—1. A waterproof garment, comprising a body and a cape thereon, the said cape being secured to said body along its top and side edges and around the edges of the armhole-openings therein and having its lower edges free, as and for the purpose set forth.

2. A waterproof garment, comprising a body, and a cape thereon made in two parts, stitched to the body along the neckband and to each other at the center of the back, both of said parts having armholes opening therein coincident with the armhole-openings in the body and stitched to said body along the edges of said armhole-openings, the said parts being further provided with inclined edges which are stitched to each other and to the body along the center of the upper surfaces of the shoulders, the said cape being extended laterally to points adjacent to the front edges of the body and stitched along its side edges to said body, all of the lower edges of said cape being free.

3. A waterproof garment, comprising a body, a cape thereon made in two parts stitched to the body along the neckband and to each other at the center of the back, both of said parts having armhole-openings therein coincident with the armhole-openings in the body and stitched to said body along the edges of said armhole-openings, the said parts being further provided with inclined edges which are stitched to each other and to the body along the center of the upper surfaces of the shoulders, the said cape being extended laterally to points adjacent to the front edges of the body and stitched along its side edges to said body, all of the lower edges of said cape being free, and supplemental shoulder pieces or strips covering the shoulder portions of the body, stitched at their upper and side edges to said body and having their lower edges free, as and for the purpose set forth.

694,268. HAND DUMP-SHOVEL. JOHN PELTON, Fertile, Minn. Filed Nov. 14, 1901. Serial No. 82,308. (No model.)

Claim.—1. A hand dump-shovel having supporting-wheels on which the same is adapted to be balanced and provided with rearwardly-extending handles, in combination with a lever connected to said shovel and a device carried by said lever to engage the floor or surface on which the shovel is operated, and in coaction with said lever push the said shovel forwardly into a pile of material to load said shovel, substantially as described.

2. A shovel or body of the class described having supporting-wheels which adapt the same to be tilted or inclined and means whereby it may be pushed into a mass of material, tilted or inclined to any desired angle and moved on its wheels from point to point, in combination with a lever fulcrumed to said body and a dog pivoted to and thereby adapted to be

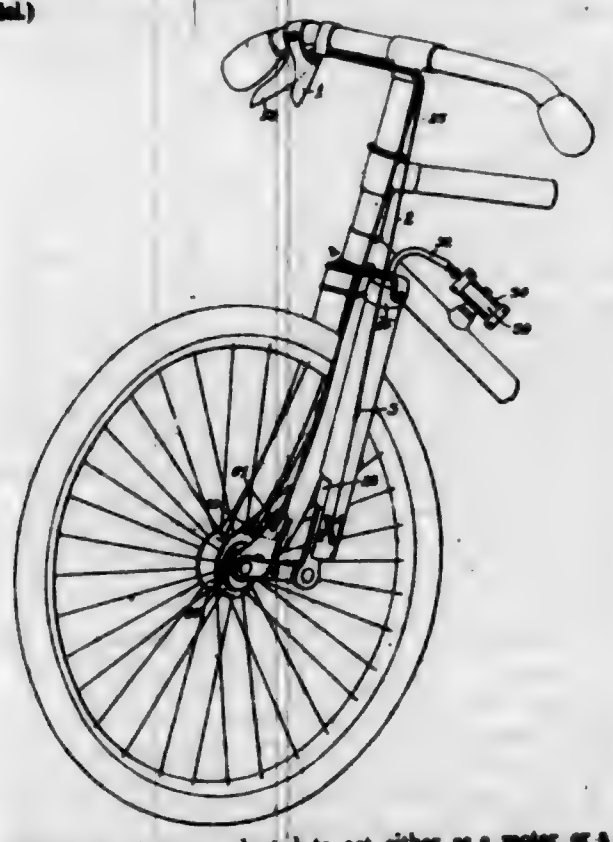
operated by said lever, to engage the surface on which the shovel or body is operated and push the same forwardly into a pile of material, whereby the same may be loaded, substantially as described.



3. In combination with a hand dump-shovel having supporting-wheels and rearwardly-extending handles, a lever fulcrumed on the rear side of said shovel and having a catch to lock the same thereto, a dog for the purpose set forth, pivotally connected to the said lever and a catch to lock the said dog in an elevated disengaged position, substantially as described.

4. In combination with a hand dump-shovel having supporting-wheels and rearwardly-extending handles, a lever fulcrumed on the rear side of said shovel, and a dog pivotally connected to the said lever, said dog having an element adapted to be depressed by the foot of the operator to engage said dog with the floor or surface on which said hand dump-shovel is operated, substantially as described.

694,264. UTILIZING POWER IN VELOCIPEDES. ANTONY GIBBS, Bristol, England. Filed June 15, 1900. Serial No. 20,461. (No model.)



Claim.—1. A pump adapted to act either as a motor or a compressor, comprising a cylinder, a valve in said cylinder, a piston, a valve and valve-spindle in said piston, and means for turning said spindle in opposite directions whereby the pump is changed from a compressor to a motor or the reverse.

2. A pump adapted to act either as a compressor or a motor comprising a cylinder, a valve in said cylinder, a piston in said cylinder, a valve and valve-spindle in said piston, means for turning said spindle in opposite directions, and means connected with said piston for opening the cylinder-valve when the spindle is turned in one direction thereby causing the pump to act as a motor.

3. A pump adapted to act either as a motor or a compressor, comprising a cylinder, a valve in said cylinder, a piston in said cylinder, a valve and valve-spindle in said piston, means for turning said spindle in opposite directions, means connected with the piston for opening the cylinder-valve when the spindle is turned in one direction, and means connected with the piston-valve for preventing the cylinder-valve from being opened on the outstroke of the piston when the spindle is turned in the opposite direction.

4. A pump adapted to act either as a compressor or a motor, comprising a cylinder, a valve in said cylinder, a piston in said cylinder, a valve and valve-spindle in said piston, means for turning said spindle in opposite directions, a lever fulcrumed in a recess in the head of said cylinder, a notched rod connected to said piston and adapted to engage said lever on the outstroke of the piston thereby causing the lever to engage the cylinder-valve and hold it open for a predetermined period when the pump acts as a motor.

5. In a convertible pump and motor, the combination of an air-reservoir, a cylinder, a hollow piston disposed therein and having a slotted opening, a valve-spindle disposed in said piston and provided with a valve on its upper end, a spiral spring attached at one end to said spindle and at the other end to said piston for holding said valve normally in closed position, a guide-pin extending at right angles from said valve-spindle and projecting through the opening in the piston, a rotatable sleeve surrounding said cylinder and provided at its lower end with a V-shaped slot adapted to engage said guide-pin and change the position thereof in the slot of the piston thereby adapting the pump to be used either as a motor or a compressor.

6. In a convertible pump and motor, the combination of an air-reservoir, a cylinder, a hollow piston disposed therein and having a slotted opening, a valve-spindle disposed in said piston and provided with a valve on its upper end, a spiral spring attached at one end to said spindle and at the other end to said piston for holding said valve normally in closed position, a guide-pin extending at right angles from said valve-spindle and projecting through the opening in the piston, a rotatable sleeve surrounding said cylinder and provided with means for engaging said guide-pin to change the position thereof, whereby the pump may be used either as a motor or a compressor, and means for rotating said sleeve in opposite directions.

7. In a convertible pump and motor, the combination of a cylinder, a hollow piston disposed in said cylinder and having an inverted-U-shaped opening therein, a valve-spindle disposed in said piston and provided with a guide-pin adapted to extend through said U-shaped opening, means for normally turning said spindle toward the right and holding the guide-pin normally in the right limb of said opening whereby the pump acts as a compressor, and means for moving said guide-pin into the left limb of the opening whereby the pump acts as a motor.

8. In a convertible pump and motor, the combination of a cylinder, a piston disposed in said cylinder and having a two-limbed opening therein, a valve-spindle disposed in said piston and provided with a guide-pin adapted to project through said opening, means for turning said spindle in one direction whereby the pump may be used as a motor, and means for turning said spindle in the opposite direction whereby the pump may be used as a compressor.

9. In a convertible pump and motor, the combination of an air-reservoir, a cylinder, a piston disposed in said cylinder, a valve-spindle disposed in said piston and provided with a valve at its upper end, a pump-head having a vertical channel therein, a notched rod fixed to said piston and adapted to move in said channel, a valve-chamber provided with a valve disposed in said head and connected with said reservoir, a two-armed lever fulcrumed near its center, one arm of which is adapted to engage the notch of said rod and the other arm the valve in said head, and means for actuating the piston.

10. In a convertible pump and motor, the combination of a pump-head having a valve therein, a cylinder, a piston, a rod fixed to said piston and having a notch therein, and a double-armed lever fulcrumed in said head, one arm thereof being adapted to engage the notch in said rod whereby said arm is depressed on the forward stroke of the piston and the other arm raised into contact with the valve in the head thereby opening the valve for the admission of air to actuate the piston.

11. The combination of a vehicle, a main driving mechanism mounted thereon and connected with the driving-axle thereof, an auxiliary driving mechanism also mounted on said vehicle and comprising a convertible pump-motor and detachable means positively connecting the piston of said pump-motor to said driving-axle.

12. The combination of a vehicle-frame, a loose axle journaled therein, a crank on said axle, a pump connected with said crank, and a clutch mechanism for uniting the wheel and axle.

13. The combination of a vehicle-frame, a loose axle journaled therein, a crank on said axle, a pump connected with said crank, an air-reservoir connected with said pump, a clutch mechanism for uniting the wheel and axle, and means for shifting the clutch mechanism in either direction to unite or release the axle.

14. The combination of a vehicle-frame, a loose axle journaled therein, a crank on said axle, a pump connected with said crank, an air-reservoir connected with said pump, a clutch mechanism for uniting the wheel

and axle, means for shifting the clutch mechanism in either direction to unite or release the axle, and means for shifting a part of the pump to change it from a pump to a motor and the reverse.

15. The combination of a vehicle-frame, a loose axle journaled therein, a crank on said axle, a pump connected with said crank, a hub disposed loosely on said axle and provided with recesses of different shape alternating with each other, rollers disposed in said recesses, disks connected with said hub, and means for causing an annular displacement of said disks whereby the rollers are moved out of contact with said hub and a free wheel obtained.

16. The combination of a vehicle-frame, a loose axle journaled therein, a crank on said axle, a pump connected with said crank, a hub disposed loosely on said axle and provided with recesses of different shape alternating with each other, rollers disposed in said recesses, disks connected with said hub, and a wedge-shaped nose adapted to normally engage said disks and thereby hold the rollers out of contact with the hub and release the wheel from the pump.

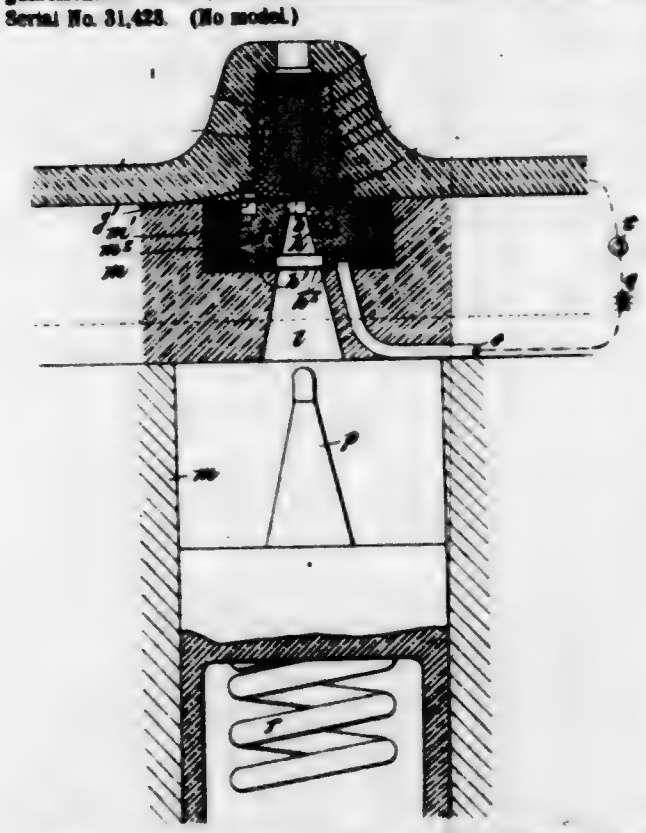
17. The combination of a vehicle-frame, a loose axle journaled therein, a crank on said axle, a pump connected with said crank, a hub disposed loosely on said axle and provided with recesses of different shape alternating with each other, rollers disposed in said recesses, disks connected with said hub and provided with notches, a wedge-shaped nose adapted to engage said notches and displace said disks thereby releasing the hub from the axle, and giving a free wheel.

18. The combination of a vehicle-frame, a loose axle journaled therein, a crank on said axle, a pump connected with said crank, a hub disposed loosely on said axle, a clutch member fixed on said axle, and means for causing said hub to engage said clutch member thereby uniting the hub with the axle.

19. The combination of a vehicle-frame, a loose axle journaled therein, a crank on said axle, a pump connected with said crank, a hub disposed loosely on said axle, and provided with recesses, rollers disposed in said recesses, a clutch member fixed on said axle, disks surrounding said clutch member and provided with pins extending into the recesses in said hub and adapted to normally engage said rollers, and hold them out of contact with said hub, and means for releasing said rollers from said pins causing the hub to engage the clutch member and thereby connect the hub with the pump.

20. The combination of a vehicle, a pedal-driving mechanism mounted thereon and connected with the driving-axle thereof, an auxiliary driving mechanism also mounted on said vehicle and comprising a convertible pump-motor and detachable means positively connecting the piston of said pump-motor to said driving-axle.

694,265. PRIMER FOR ORDNANCE. CONSTANTIN VON GÖRTZ, Vienna, Austria-Hungary, assignor to The Firm of Skodawerke Actiengesellschaft in Pilsen, Pilsen, Austria-Hungary. Filed Sept. 28, 1900. Serial No. 31,423. (No model.)

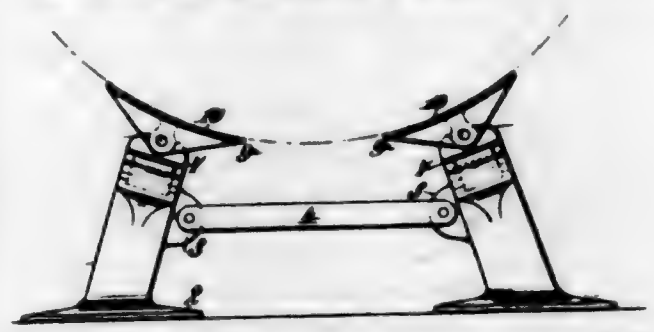


Claim.—1. The combination with a metallic shell having a recess, of a primer comprising a body portion provided with a groove, a conducting-wire in said groove and terminating inside the primer, an incandescible wire inside the primer and connected at one end to the primer-body and at the other to said insulated wire, and an insulated contact in the head of the primer connected to said insulated wire.

2. The combination with a metallic shell having a threaded recess, of a threaded primer screwed in said recess and provided with a groove cut at the base of the threads of the primer, an insulated metallic contact in the head of the primer, a conducting-wire connected thereto and placed in said grooves and terminating inside the primer, an incandescible wire connected to the end of the latter and to the primer-body, an anvil in the primer and a percussion-cap between the anvil and the head of the primer, substantially as described.

3. The combination with a metallic shell having a recess, of a primer adapted to be fired by electricity and by percussion, having a solid end wall and an exterior and interior thread, a percussion-cap in the primer, an anvil screwed thereon to hold the cap against the end wall, an insulated conducting-wire at the base of the exterior thread, an incandescible wire inside the primer and connected at one end to the insulated wire and at the other to the body of the primer, an insulated contact in the head of the primer connected to said insulated wire and a priming charge surrounding the incandescible wire, substantially as described.

694,266. CASK-SUPPORT. WILHELM GRIEBER, New York, N. Y. Filed Aug. 29, 1901. Serial No. 73,724. (No model.)



Claim.—1. A cask-support, comprising two pairs of standards, each of the same having a transverse socket therein provided with inwardly-extending flanges at its ends, a saddle for each of said standards, and an intermediate section between each standard and the saddle thereon, the said section having a cylindrical bearing-piece thereon fitting within the socket in said standard and provided with contracted ends to receive said flanges, so that it is capable of turning movement on said standard, and said saddle being pivoted to said section and capable of turning movement at right angles to the turning movement of said section on said standard.

2. A cask-support, comprising two pairs of standards, each of the same having a transverse socket therein provided with inwardly-extending flanges at its ends, a saddle for each of said standards, and an intermediate section between each standard and the saddle thereon, the said section having a cylindrical socket at its upper end and a cylindrical bearing-piece at its lower end at right angles thereto, the said bearing-piece fitting within the socket in said standard and provided with contracted ends to receive said flanges, and said saddle having a cylindrical bearing-piece on its under side fitting within the socket in said section, and having parallel ribs at the opposite ends of the socket-piece thereon overlapping and adapted to engage the ends of the socket on said section.

694,267. BREWER'S VAT. WILHELM GRIEBER, New York, N. Y. Filed Aug. 29, 1901. Serial No. 73,726. (No model.)

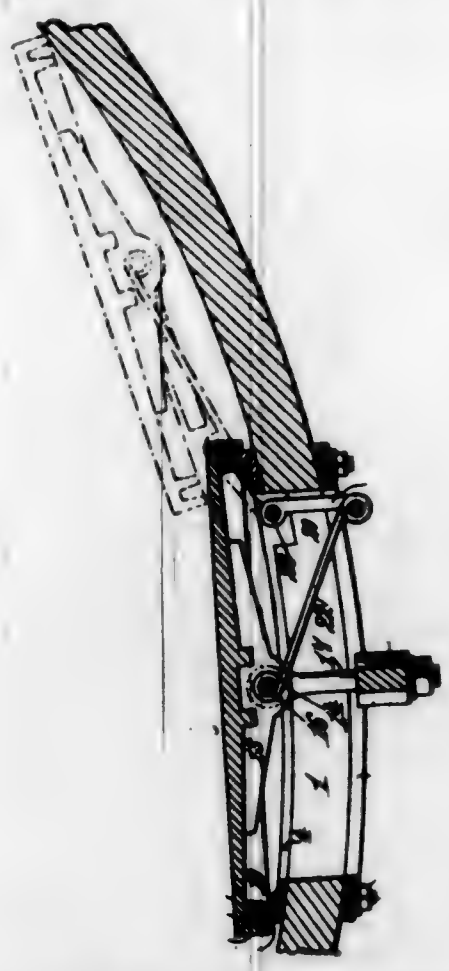
Claim.—1. In a storage vessel having a manhole or other opening therein, the combination with a metallic ring on the inside of said vessel and a door cooperating therewith to form a sealing-joint, of securing means for said ring located between said joint and said manhole.

2. In a storage vessel having a manhole or other opening therein, the combination with a metallic ring on the inside of said vessel and a door cooperating therewith to form a sealing-joint, of bolts for securing said ring to said vessel, the said bolts and the openings through which they pass being located between said joint and said manhole.

3. In a storage vessel having a manhole or other opening therein, the combination of a ring secured to the inner surface of said vessel and having an inwardly-extending flange around its outer edge and an inwardly-opening door having a groove or channel therein for receiving said flange, the securing means for said ring being cut off from access to the interior of the vessel by said flange and door.

4. In a storage vessel having a manhole or other opening therein, the combination of a ring on the inside of the vessel comprising a base and an inwardly-extending flange around the outer edge thereof, an inwardly-opening door having a groove or channel therein for receiving said flange, and securing devices for said ring extending through openings in said base.

5. In a storage vessel having a manhole or other opening therein, the combination of a ring on the inner surface of the vessel comprising a base and an inwardly-extending flange around the outer edge thereof, a door having flanges around the outer edge thereof forming a groove or channel adapted to receive the flange on said ring, a packing ring or gasket in said groove or channel, and securing-bolts for said ring extending through the base thereof.



6. In a storage vessel having a manhole or other opening therein, the combination with a metallic ring secured to the inner surface of the vessel and a door coöperating with said ring to form a sealing-joint, of a hinge on which said door is mounted located outside said joint when the door is in its closed position.

7. In a storage vessel having a manhole or other opening therein, the combination with a metallic ring secured to the inner surface of the vessel and a door coöperating with said ring for closing the manhole, of a double hinge on which said door is mounted, the same comprising two sections pivoted to each other and, respectively, to said ring and to said door.

8. In a storage vessel having a manhole or other opening therein, the combination of a ring secured to the inner surface of the vessel around said opening and having lugs or projections thereon, a door coöperating with said ring for closing said manhole having a plurality of lugs thereon, a pin extending through said lugs, and a double hinge on which said door is mounted comprising two sections pivoted to each other and, respectively, to the lugs on said ring and to said pin.

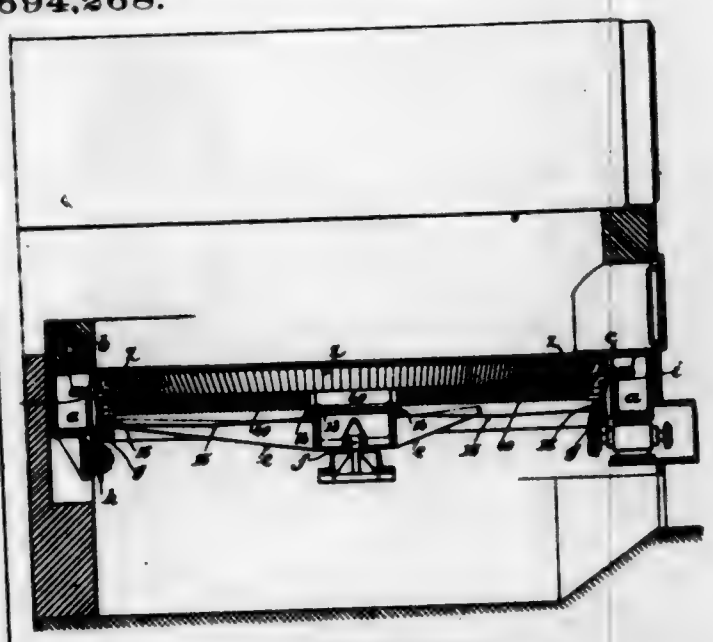
694,268. ROTARY FURNACE. CHAS. GROLL, Roubaix, France. Filed May 11, 1901. Serial No. 59,894. (No model.)

Claim.—1. A rotary-furnace grate, comprising curved segmental bars independent one of another and arranged concentrically, radial bars supporting said curved bars, each segmental bar being provided with a narrow notch to receive one of the radial bars and wide notches to receive other radial bars, a star-shaped frame, a toothed circular rack on which the frame rests, a crown on said rack and to which said radial bars are fixed border-pieces resting on said rack and rollers supporting the said circular rack.

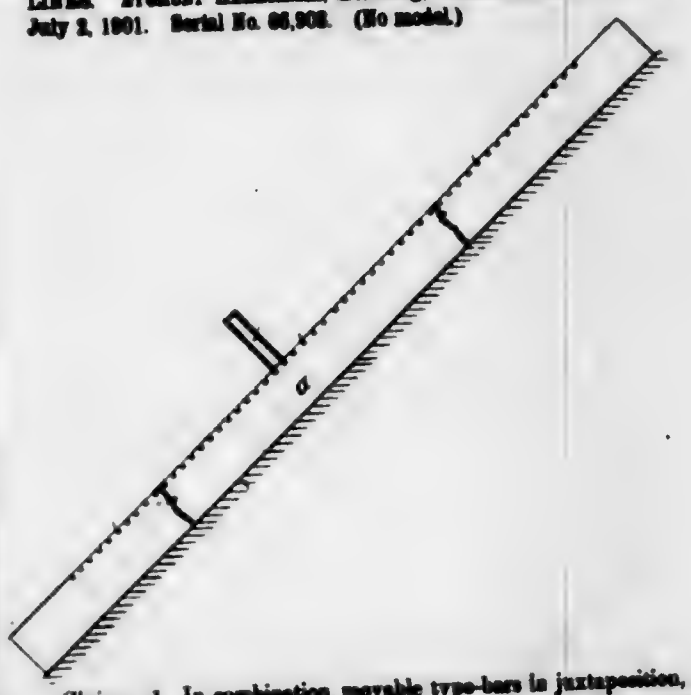
2. A grate, comprising a series of independent segmental bars and radial bars for supporting the segmental bars, each segmental bar being provided with a narrow notch to receive one of the radial bars and wide notches to receive other radial bars.

3. A grate, comprising a series of independent segmental bars, the ends of one bar overlapping the ends of other bars, and radial bars for supporting the segmental bars, each segmental bar being provided with a narrow notch to receive one of the radial bars, and wide notches to receive other radial bars, substantially as specified.

694,268.



694,269. DEVICE FOR COMPOSING AND CASTING TYPE-LINES. ZYGMUNT HALACHSKI, Lemberg, Austria-Hungary. Filed July 2, 1901. Serial No. 66,903. (No model.)



Claim.—1. In combination, movable type-bars in juxtaposition, alternately tapered in opposite directions and having notches between the characters, and a type-line mold, the edges of which are adapted to take into said notches to aline the bars during casting, substantially as described.

2. In combination with a horizontal supporting-surface, of a plurality of straight type-bars, alternately tapered in opposite directions and having notches between the characters thereon, and a type-line mold, the edges of which are adapted to take into said notches to aline the bars during casting, substantially as described.

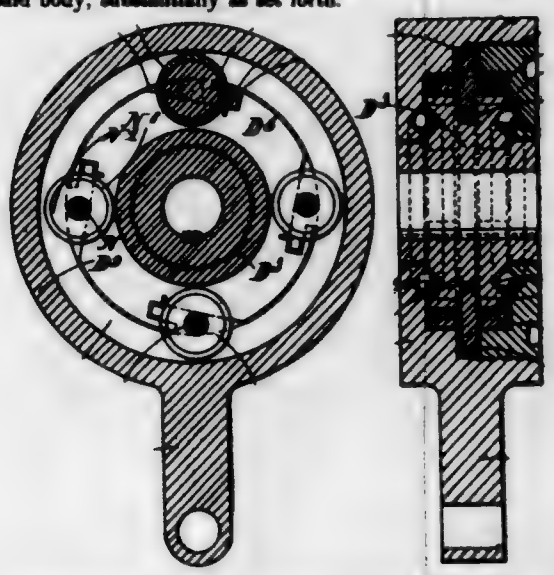
694,270. FRICTION-CLUTCH. FRANK G. HARPER, London, England. Filed July 28, 1900. Serial No. 25,182. (No model.)

Claim.—1. In a friction-clutch, the combination with roller friction-pieces each provided with a collar, of a body having inclined bearing-surfaces for the rollers, and a casing capable of movement on the body, the body and the casing being each provided with a slot to receive the collars, substantially as and for the purpose specified.

2. In a friction-clutch and in combination, a body having a plurality of inclined bearing-surfaces and a circumferential slot, a roller friction-piece on each bearing-surface having a collar engaged in said slot, a spring engaging each of said collars, a casing, capable of movement on said body, formed of two members, and the sides of said body and said casing members having grooves forming ball-races, balls in said races, the one member of the casing being adjustably connected with the other member to adjust the ball-bearings, substantially as specified.

3. In a friction-clutch, a body having an inclined bearing-surface, and a circumferential slot, combined with a casing having a slot opposing the slot in the body, a roller friction-piece on said bearing-surface having a collar extending into said slots, a spring extending transversely of and

bearing against the collar, said spring having an offset projecting into the slot in said body, substantially as set forth.



4. In a friction-clutch, a body having an inclined bearing-surface and a circumferential slot, combined with a casing having a slot opposing that in the body, a roller friction-piece on said bearing-surface, having a collar extending into said slots, a ring on said collar, and a spring engaging said ring, substantially as set forth.

5. In a friction-clutch, a body having an inclined bearing-surface, a circumferential slot, and a transverse slot D^5, combined with a casing having a slot opposing the circumferential slot in the body, a roller friction-piece on said bearing-surface having a collar extending in said opposing slots, and a spring supported in said slot D^5, and bearing against said collar, substantially as set forth.

6. In a friction-clutch, a body having an inclined bearing-surface, a circumferential slot, and a transverse slot D^5, combined with a casing having a slot opposing the circumferential slot in the body, a roller friction-piece on said bearing-surface having a collar extending in said opposing slots, a spring supported in said slot D^5, and a roller carried by said spring, and bearing against said collar, substantially as set forth.

694,271. **BLASTING-FUSE.** NICHOLAS HARRIS and JOSEPH BRAY, Russell Gulch, Colo. Filed Nov. 23, 1901. Serial No. 84,042. (No model.)



Claim.—1. A fuse, comprising a longitudinal combustible member, and a series of igniters extending laterally from the longitudinal member, and spaced at intervals thereon.

2. A fuse, comprising a continuous combustible member, and a series of ancillary combustible members for igniting said continuous member, said ancillary members extending laterally from the continuous member and being foldable relatively thereto.

3. A fuse, comprising a continuous combustible member, and a series of ancillary combustible members extending laterally from said continuous member, each ancillary member being provided at its free end with an ignitible tip.

4. A fuse, comprising a continuous combustible member, and a series of laterally-extending ancillary members, the said ancillary members being spaced along the length of the continuous member and ignitible independently of each other.

5. A fuse, comprising a main combustible member, and a series of laterally-extending ancillary members for igniting said combustible member, the said ancillary members being foldable around the main member.

6. As an article of manufacture, a cord-like combustible member adapted to be cut into arbitrary lengths and provided with ancillary combustible members for igniting the same, the said ancillary members being of tapering form for the purpose of enabling the same to be readily folded against said cord-like member without breaking, said ancillary members being disposed at definite intervals on said cord-like member.

694,272. **NECKWEAR FASTENER AND SHIELD.** WILLIAM H. HART, Jr., Philadelphia, Pa. Filed Mar. 22, 1901. Serial No. 52,226. (No model.)



Claim.—1. A neckwear-shield having a central portion reduced in height and a strengthening member thereon about said central portion, the same being secured at said central portion to said shield and having its ends free.

2. A neckwear-shield having its center reduced in height and provided with a strengthening member connected therewith about said center, the ends or wings of said shield being disconnected from said member, and the sides of said member converging from center to ends.

3. A neckwear-shield having a strengthening member thereon and a buttoning device having jaws which are formed of resilient material and adapted to engage said member, said member being connected about its central portion with the shield and having its wings free from the same.

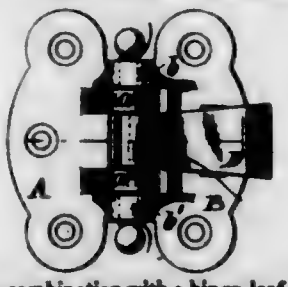
4. A neckwear-shield having a strengthening member thereon, and a buttoning device having jaws of resilient wire and means integral with said jaws forming connections for said jaws with said member and said shield, said member being connected about its center with the shield and its wings being reduced in height from their inner to their outer ends.

5. A neckwear-shield having a strengthening member thereon, means adapted for connecting said member with said shield and a buttoning device having jaws of resilient material which are continuous of said means, said member being connected about its center with the shield and having its wings free from the same and reduced in height from their inner to their outer ends.

6. A neckwear-shield having a strengthening member thereon, and a buttoning device therefor, said device being connected with both said strengthening member and shield, said member being connected centrally with said shield and having its side portions free from said shield.

7. A neckwear-shield having a buttoning device provided with jaws of resilient material and a strengthening member projecting over the shield laterally from said buttoning device and having its side end portions free from the shield.

694,273. **SPRING-HINGE.** ARTHUR S. HELD, Freeport, Ill., assignor to Stover Manufacturing Company, Freeport, Ill., a Corporation of Illinois. Filed Jan. 19, 1901. Serial No. 43,942. (No model.)

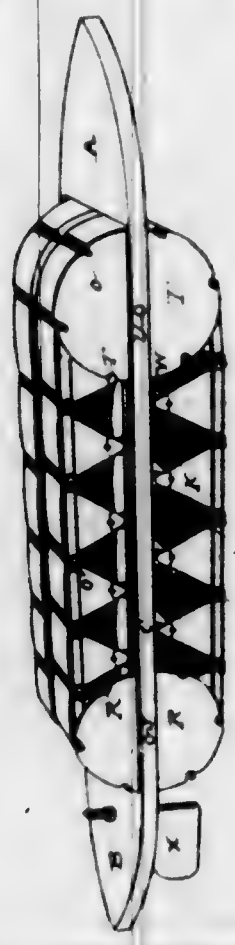


Claim.—1. The combination with a hinge-leaf provided with a bearing at one side of the pintle-axis, of a second leaf pivotally connected with the first, and a spring secured to the second leaf and normally pressing said bearing in a line of direction passing to one side of the pintle-line, said second leaf being provided with a member passing over the pressing portion of the spring and lying without the path followed by the latter as the hinge opens and closes; whereby the spring being pressed away from said member by the opening of the hinge may be held out of action by inserting between it and said member a body not readily crushed.

2. In a spring-hinge, the combination with a hinge-leaf provided with two widely-separated ears, of a second leaf provided with two ears connected by a rod at one side of the pintle-axis and adapted to fit between the ears of the first leaf and form therewith two pairs of pintle-connected contiguous ears, a roller mounted upon said rod, and a spring

mounted upon the first leaf and normally pressing said roller in a line of direction passing to one side of the pintle-axis.

694,274. BUOYANT PROPELLER. BENEDOTT T. HEROLD, Vallejo, Cal. Filed July 3, 1900. Renewed Feb. 7, 1901. Serial No. 46,437. (No model.)



Claim.—1. In a boat, a hull comprising an endless chain composed of alternate rigid and intermediate collapsible air-cells, said collapsible cells having an air-passage connecting them together passing through the rigid cells, in combination with means to rotate said chain.

2. In a boat, a hull comprising an endless chain of alternate rigid and intermediate collapsible air-cells; an air-passage through the rigid cells connecting the air-space of the collapsible cells; bars affixed to the ends of the rigid cells having holes in the ends thereof, a rod projecting through the holes in said bars, and adapted to enter slots on the driving-wheel; a driving-wheel having slots on the periphery thereof affixed to a shaft; a shaft and means to operate said shaft.

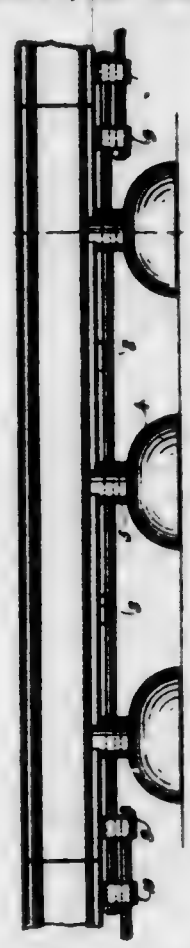
694,275. PACKING-BOX. MARTIN HERR, Brooklyn, N. Y. Filed Oct. 2, 1901. Serial No. 77,313. (No model.)



Claim.—1. In a knockdown box, the combination of the body comprising the sections or walls a a' a^2 and a^3, strips of bendable metal connecting the sections a a', strips of bendable metal connecting the sections a a' to the sections a^2 a^3, respectively, the inwardly-directed seats connected to the upper and lower ends of the section a' and extending throughout the width thereof, and the inwardly-directed guideways connected to the upper and lower ends of the sections a^2 a^3 and having inner ends of a size to enter the seats on section a' when the sections a a^2 are disposed at right angles to said section a', and removable top and bottom sections or walls arranged in the seats and guideways of the said body sections or walls.

2. In a knockdown box, the combination of the body comprising the sections or walls a a' a^2 and a^3 of veneer, strips of bendable metal connecting said sections or walls, the sheet-metal seats connected to the section or wall a' and extending inwardly from the upper and lower ends thereof, the inwardly-directed sheet-metal guideways connected to the upper and lower ends of the sections a^2 a^3 and having inner ends of a size to enter the seats on section a' when the sections a a^2 are disposed at right angles to said section a', and sheet-metal barrels on the outer vertical edges of the sections or walls a^2 a^3 adapted to register with each other when the body is folded into box form, a bolt adapted to be sheathed in and detachably connect the registered barrels of the sections or walls a^2 a^3, and removable top and bottom walls of veneer, arranged in the seats and guideways of the said body sections or walls and having angular, sheet-metal flanges at their outer ends adapted to be connected to the wall a^2.

694,276. RAILROAD CONSTRUCTION. WILLIAM M. HENDON, Pharisburg, Ohio. Filed Dec. 2, 1901. Serial No. 84,360. (No model.)



Claim.—1. In a railway construction, anchor-plates arranged at intervals along the rails, and tie-rods extended below and endwise of the rails and securing one rail to another, substantially as specified.

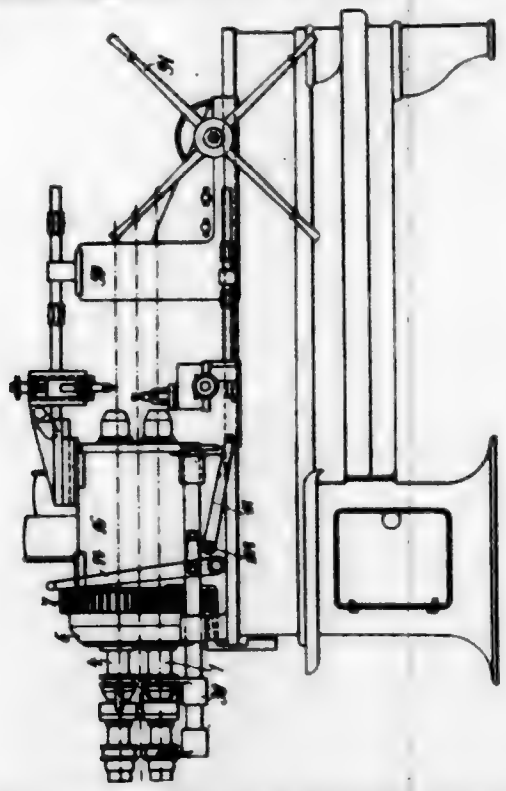
2. In a railroad construction, the inverted-cup-shaped plates having upward extensions provided with recesses to receive the base portions of rails, tie-rods extended through openings in said upwardly-extended portions, and lugs on the ends of the rails through which said rods pass, substantially as specified.

3. In a railroad construction, the track-rails, the cross-ties connecting opposite rails, anchor-plates arranged at intervals along the rails and secured thereto, and the tie-rods for connecting one rail with another, substantially as specified.

694,277. MULTIPLE-SPINDLE LATHE. FRANK HIRSCH, Stockholm, Sweden, assignor to Aktiebolaget Verktygsmaskiner, Stockholm, Sweden, a limited liability company. Filed Dec. 3, 1900. Serial No. 38,537. (No model.)

Claim.—1. In a multiple-spindle lathe, the combination with the head-stock having a horizontal bore, of a drum adapted to revolve in said bore of the head-stock and provided with a plurality of longitudinal bores arranged around the center line, a like plurality of chuck-spindles mounted in said horizontal bores to revolve, a cylinder mounted on said drum to revolve and provided with external and internal gear-teeth, a series of gear-wheels engaging said external gear-teeth and arranged to be driven by a belt-cone, the said chuck-spindles having each a pinion running loosely and engaging said internal gear-teeth of the cylinder, means for coupling each of said chuck-spindles with its pinion and holding it disconnected

independently of the other chuck-spindles which continue turning, means for stopping said drum during the work of the tools and releasing it to change the position of said chuck-spindles, a lengthwise-moving slide-rest arranged on the lathe-bed and provided with a plurality of tool-spindles in the direction and in opposition to said chuck-spindles and means for actuating same, so as to subject the blanks held in said chuck-spindles successively to the various tools held in said tool-spindles, substantially as set forth.



2. In a multiple-spindle lathe, the combination with the head-stock, of a horizontal drum mounted in said head-stock to revolve and provided with a plurality of revoluble chuck-spindles arranged parallel to and around the center line of said drum a cylinder mounted on said drum to revolve and provided with external and internal gear-teeth, series of gear-wheels engaging said external gear-teeth and arranged to be driven by power, the said chuck-spindles having each a pinion running loosely and engaging said internal gear-teeth of the cylinder, means for coupling each of said chuck-spindles with its pinion and again releasing same independently of the other chuck-spindles which continue running, means for stopping and releasing said drum to change the positions of said chuck-spindles, a slide-rest arranged on the lathe-bed to move lengthwise and provided with a plurality of tool-spindles in alinement with and in opposition to said chuck-spindles, means for actuating the tool-spindles, so as to subject the work-pieces held in said chuck-spindles successively to the various tools held in said tool-spindles, a number of tool-slides arranged to slide in directions at right angles to the drum-axis, means for supporting and guiding said cross tool-slides, and means for connecting said cross tool-slides positively with said lengthwise-moving slide-rest so that on the latter being moved in a certain direction the said cross-slides will be moved in various directions, substantially as set forth.

3. In a multiple-spindle lathe the combination with the head-stock, of a horizontal drum mounted therein to revolve and provided with a plurality of chuck-spindles arranged parallel to and around the center line of said drum to revolve and provided with external and internal gear-teeth, a series of gear-wheels engaging said external gear-teeth and arranged to be driven by power, the said chuck-spindles having each a pinion running loosely and engaging said internal gear-teeth of the cylinder, means for coupling each of said chuck-spindles with its pinion and again releasing same independently of the other chuck-spindles which continue running, means for stopping and releasing said chuck-spindles, a slide-rest arranged on the lathe-bed to move lengthwise and provided with a plurality of tool-spindles in alinement with and in opposition to said chuck-spindles one of said tool-spindles being arranged for screw-cutting in moving lengthwise, a shaft mounted in the center of said drum and extending through said lengthwise-moving slide-rest, a gear-wheel secured on one end of said shaft and engaging said pinions on said chuck-spindles, whereby the shaft is driven, two gear-wheels arranged on said screw-cutting tool-spindle, a series of gear-wheels for transmitting the revolution of said shaft to said two gear-wheels at different speeds, and means for engaging said screw-cutting tool-spindle with one of said two gear-wheels for screw-cutting and with the other gear-wheel for withdrawing the screw-cutting tool, while in both cases running in the same direction as the blank, substantially as set forth.

4. In a multiple-spindle lathe, the combination with the head-stock, of a horizontal drum mounted in said head-stock to revolve and provided with a plurality of longitudinal bores arranged around the axis of the drum, a like plurality of chuck-spindles mounted in said horizontal bores to revolve, a ring fastened on the outside of said drum to secure it against shifting lengthwise in said head-stock and provided with two races for two series of balls, a cylinder mounted on said two series of balls to revolve, means for adjusting said balls in their races, the said cylinder being provided with external and internal gear-teeth, a gear-wheel engaging said external gear-teeth and arranged to be driven by power, the said chuck-spindles having each a pinion running loosely and engaging said internal gear-teeth of the cylinder, means for coupling each of said chuck-spindles with its pinion and again disengaging same independently of the other chuck-spindles which continue running, means for stopping and releasing said drum, to change the position of said chuck-spindles, a slide-rest arranged on the lathe-bed to move longitudinally and provided with a plurality of tool-spindles in alinement with and in opposition to said chuck-spindles, and means for actuating the tool-spindles, so as to subject the blanks held in said chuck-spindles successively to the action of the various tools held in said tool-spindles, substantially as set forth.

5. In a multiple-spindle lathe, the combination with the head-stock, of a horizontal drum mounted in said head-stock to revolve and provided with a plurality of longitudinal bores arranged around the axis of the drum, a like plurality of chuck-spindles mounted in said horizontal bores to revolve, a ring fastened on the outside of said drum to secure it against shifting lengthwise in said head-stock and provided with two races for two series of balls, a cylinder mounted on said two series of balls to revolve, means for adjusting said balls in their races, the said cylinder being provided with external and internal gear-teeth, a gear-wheel engaging said external gear-teeth and arranged to be driven by power, the said chuck-spindles having each a pinion running loosely and engaging said internal gear-teeth of the cylinder, means for coupling each of said chuck-spindles with its pinion and again disengaging same independently of the other chuck-spindles which continue running, means for stopping and releasing said drum to change the position of said chuck-spindles, a slide-rest arranged on the lathe-bed to move longitudinally and provided with a plurality of tool-spindles in alinement with and in opposition to said chuck-spindles, means for actuating the tool-spindles, so as to subject the blanks held in said chuck-spindles successively to the action of the various tools held in said tool-spindles, a number of tool-slides arranged to slide in directions at right angles to the drum-axis, means for supporting and guiding said cross tool-slides, and means for connecting said cross tool-slides positively with said longitudinally-moving slide-rest, so that on the latter being moved in a predetermined direction, the cross-slides will be moved in various directions, substantially as set forth.

6. In a multiple-spindle lathe, the combination with the head-stock, of a horizontal drum mounted therein to revolve and provided with a plurality of longitudinal bores arranged around the axis of the drum, a like plurality of chuck-spindles mounted in said horizontal bores to revolve, a cylinder mounted on said drum to revolve and provided with external and internal gear-teeth, a gear-wheel engaging said external gear-teeth and arranged to be driven by power, the said chuck-spindles having each a pinion running loosely and engaging said internal gear-teeth of the cylinder, means for coupling each of said chuck-spindles with its pinion and again disengaging same independently of the other chuck-spindles which continue running, means for stopping and releasing said drum to change the positions of said chuck-spindles, a slide-rest arranged on the lathe-bed to move longitudinally and provided with a plurality of tool-spindles in alinement with and in opposition to said chuck-spindles, one of said tool-spindles consisting of a hollow shaft and of a screw-cutting tool-spindle, said hollow shaft being mounted in said slide-rest to revolve and provided at both ends with clutch members, and said screw-cutting tool-spindle being mounted in said hollow shaft to revolve and to shift endwise, and provided with clutch members for engaging alternately the clutch members of said hollow shaft, a shaft mounted in the center of said drum and extending through said slide-rest, a gear-wheel secured on one end of said shaft and engaging said pinions on said chuck-spindles, whereby the shaft is driven, two gear-wheels secured on said hollow shaft, a series of gear-wheels for transmitting the revolution of said shaft to said two gear-wheels at different speeds, so that on moving said slide-rest toward the blank running in one direction the blank will shift said screw-cutting tool-spindle and bring it by means of said hollow shaft into gear with one of said two gear-wheels, whereupon it will be driven in the same direction but at a slower speed for screw-cutting, while on moving said slide-rest back the blank will shift said screw-cutting tool-spindle in the opposite direction and bring it by means of said hollow shaft into gear with the other of said two gear-wheels, whereupon it will be driven in same direction, but at a greater speed, for returning from the blank, substantially as set forth.

7. In a multiple-spindle lathe, the combination with the head-stock, of a horizontal drum mounted therein to revolve and provided with a plurality of longitudinal bores arranged around the axis of the drum, a like

plurality of chuck-spindles mounted in said horizontal bores to revolve, a cylinder mounted on said drum to revolve and provided with external and internal gear-teeth, a gear-wheel engaging said external gear-teeth and arranged to be driven by power, the said chuck-spindles having each a pinion running loosely and engaging said internal gear-teeth of the cylinder, means for coupling each of said chuck-spindles with its pinion and again disengaging same independently of the other chuck-spindles which continue running, means for stopping and releasing said drum to change the positions of said chuck-spindles, a main slide-rest arranged on the lathe-bed to move longitudinally and provided with a plurality of tool-spindles in alinement with and in opposition to said chuck-spindles, an adjustable slide mounted on the lathe-bed between said head-stock and said main slide-rest, a cross tool-slide mounted on said adjustable slide to move across the lathe-bed, a rack mounted in said adjustable slide to move across the lathe-bed, adjustable means for connecting said cross tool-slide with said rack, a pinion mounted on said adjustable slide and engaging said rack, an arm connected rigidly with said pinion, a link connected at the one end to said arm, a sliding piece mounted in said adjustable slide to move longitudinally and connected with the other end of said link, said main slide-rest being provided with a boss in alinement with said sliding piece, a rod mounted in said boss to move longitudinally and connected with said sliding piece, two adjustable stops mounted on said rod on both sides of said boss, so that on moving said main slide-rest in one direction, its boss will strike at a certain moment against one of said adjustable stops and take said rod along with it, whereupon said cross tool-slide will be moved in one direction at a varying speed in accordance with the motion of said arm, substantially as set forth.

8. In a lathe, the combination with the head-stock, of a main slide-rest arranged on the lathe-bed to move longitudinally and provided with a boss, an adjustable slide mounted on the lathe-bed, a cross tool-slide mounted on said adjustable slide to move crosswise, a lever pivoted on said adjustable slide, adjustable means for connecting said lever positively with said cross tool-slide, a rod mounted in said boss of said main slide-rest to move longitudinally, adjustable stops mounted on said rod, and means for connecting said rod with said lever, so that on moving said main slide-rest in one direction, its boss will strike at a certain moment against one of said adjustable stops and take said rod along with it, whereupon said cross tool-slide will be moved in one direction at a varying speed in accordance with the motion of said lever, substantially as set forth.

9. In a lathe, the combination with the head-stock, of a spindle mounted in said head-stock to revolve, means for driving said spindle, a slide-rest arranged on the lathe-bed to move longitudinally and provided with a longitudinal bore in alinement with and in opposition to said spindle, a hollow shaft mounted in said longitudinal bore to revolve and provided at both ends with clutch members, a screw-cutting tool-spindle mounted in said hollow shaft to revolve and to shift endwise and provided with clutch members for engaging alternately the clutch members of said hollow shaft, a shaft mounted in said head-stock and extending through said slide-rest, a gear-wheel secured on one end of said shaft, means for transmitting the revolution of said spindle to said gear-wheel, two gear-wheels secured on said hollow shaft, and a series of gear-wheels for transmitting the revolution of said shaft to said two gear-wheels at different speeds, so that on moving said slide-rest toward the blank held in said spindle the blank will shift said screw-cutting tool-spindle and bring it by means of said hollow shaft into gear with one of said two gear-wheels, whereupon it will be driven in same direction, but at a slower speed for screw-cutting, while on moving said slide-rest back the blank will shift said screw-cutting spindle in the opposite direction and bring it by means of said hollow shaft into gear with the other of said two gear-wheels, whereupon it will be driven in same direction, but at an increased speed for returning from the blank, substantially as set forth.

10. In a lathe, the combination with the head-stock, of a spindle mounted in said head-stock to revolve, means for driving said spindle, a slide-rest arranged on the lathe-bed to move longitudinally and provided with a longitudinal bore in alinement with and in opposition to said spindle, a tool-spindle mounted in said longitudinal bore to revolve and to shift endwise and arranged for screw-cutting during its lengthwise movement, a shaft mounted in said head-stock and extending through said slide-rest, means for transmitting the revolution of said spindle to said shaft, two gear-wheels arranged on said screw-cutting tool-spindle, a series of gear-wheels for transmitting the revolution of said shaft to said two gear-wheels at different speeds, and means for bringing said screw-cutting spindle into gear with one of said two gear-wheels for screw-cutting and with the other gear-wheel for withdrawing the screw-cutting tool while in both cases running in the same direction as the blank, substantially as set forth.

11. In a lathe, the combination with the head-stock, of a longitudinal guide affixed thereto, a slide mounted to move in said longitudinal guide and formed as a guide, a sliding piece mounted in said guide on said longitudinal slide to move longitudinally, a main slide-rest arranged on the lathe-bed to move longitudinally and provided with a boss in alinement with and in opposition to said sliding piece, a rod mounted in said boss to move longitudinally and connected with said sliding piece, adjustable stops mounted on said rod, a cross-guide connected rigidly with said longitudinal slide, a cross tool-slide mounted in said cross-guide to move, a two-armed lever fulcrumed on said cross-guide and having one of its arms in engagement with said cross tool-slide, a link connecting the other arm of said lever with said sliding piece, means for adjusting the stroke of said cross tool-slide, a second rod mounted in a boss on the head-stock to move longitudinally and secured adjustably to said longitudinal slide, said second rod having a feather of a length equal to that of said boss and engaging a recess in the boss, two loose collars and two adjustable set-collars mounted on said second rod on both sides of said boss, two compressible coiled springs arranged between said loose collars and said adjustable set-collars, the said springs being compressed by said set-collars and pressing said loose collars against said feather, so that, on moving said main slide-rest in one direction, it will by means of one of said adjustable collars take said rod along with and move said cross tool-slide in one direction across, until the latter is stopped by said adjusting means, whereupon said cross tool-slide with said cross-guide, said longitudinal slide and said second rod is moved longitudinally, one of said springs being compressed, while upon moving said main slide-rest back, said parts are first moved longitudinally in the opposite direction by said compressed spring, whereupon by means of said two-armed lever said cross tool-slide is moved crosswise in the opposite direction by said rod and the other of said adjustable collars, substantially as set forth.

12. In a lathe, the combination with the head-stock, of a cross-guide, means for supporting said cross-guide and guiding same longitudinally, means for returning said cross-guide, on its being released, to a middle position, a cross tool-slide mounted to move in said cross-guide, a lever fulcrumed upon said cross-guide and engaging said cross tool-slide, means for adjusting the stroke of said cross tool-slide, a main slide-rest arranged on the lathe-bed to move longitudinally and provided with a boss, a rod mounted in said boss to move longitudinally, adjustable stops mounted on said rod, and operating means for connecting said rod positively with said lever, so that on moving said main slide-rest in one direction, it will by means of one of said adjustable stops take said rod along with it and move said cross tool-slide across in one direction, until the latter is stopped, whereupon said cross tool-slide with said cross-guide is moved longitudinally, while upon moving said main slide-rest back said parts are first moved longitudinally in the opposite direction by the return of said operating means, whereupon said cross tool-slide is moved in the opposite direction across by said rod and the other of said adjustable stops, substantially as set forth.

13. In a lathe, the combination of a revoluble drum, a cylinder mounted to revolve on one end of the drum and provided with an internal gear, means for revolving the cylinder, a plurality of chuck-spindles mounted in the drum, gear-wheels loosely mounted on the chuck-spindles and meshing with the internal gear of the cylinder, said gear-wheels each carrying a clutch member, a second clutch member movably mounted on each spindle and adapted to engage the clutch member of the said gear-wheel to lock the gear-wheel to the spindle, and means for operating the movable clutch members, as set forth.

14. In a lathe, the combination of a revoluble drum, a cylinder mounted to revolve on one end of the drum and provided with an internal gear, means for revolving the cylinder, a chuck-spindle mounted in the drum, a gear-wheel loosely mounted on the chuck-spindle and meshing with the internal gear of the cylinder, said gear-wheel carrying a friction-cone, a second friction-cone movably mounted on the spindle and adapted to engage the cone of the gear-wheel, said movable friction-cone being provided with recesses, dogs pivoted in the recesses, a sliding sleeve mounted on the spindle, said sleeve extending over the movable cone and adapted to be engaged by the dogs, and means for operating the sleeve, as set forth.

15. In a lathe, the combination of a revoluble drum, a cylinder mounted to revolve on one end of the drum and provided with an internal gear, means for revolving the cylinder, a chuck-spindle mounted to revolve in the drum, a gear-wheel loosely mounted on the spindle and meshing with the internal gear of the cylinder, said gear-wheel carrying a friction-cone, a second friction-cone mounted to slide between collars on the spindle, said second friction-cone being provided with recesses having slanting sides, dogs pivoted in the recesses and having projecting ends or fingers, a sleeve mounted to slide on the spindle and extending over the movable cone, said sleeve being provided with a recess to receive the ends or fingers of the dogs, and means for operating the sleeve, as set forth.

16. In a lathe, the combination with a revoluble drum, a plurality of chuck-spindles mounted in the drum, and means for operating the said spindles, of a slide-rest, a plurality of tool-spindles carried by the slide-rest, and mechanism for operating one of the tool-spindles from the chuck-spindles, as set forth.

17. In a lathe, the combination with a revoluble drum, a plurality

of chuck-spindles mounted in the drum, and means for operating the said spindles, of a slide-rest, a plurality of tool-spindles carried by the rest, a shaft mounted in the drum and geared at one end with the chuck-spindles, and gearing between the other end of the shaft and one of the tool-spindles, whereby the tool-spindle will be driven during the cutting operation at less speed than the chuck-spindles and at a greater speed than the chuck-spindles upon the withdrawal of the cutting-tool, as set forth.

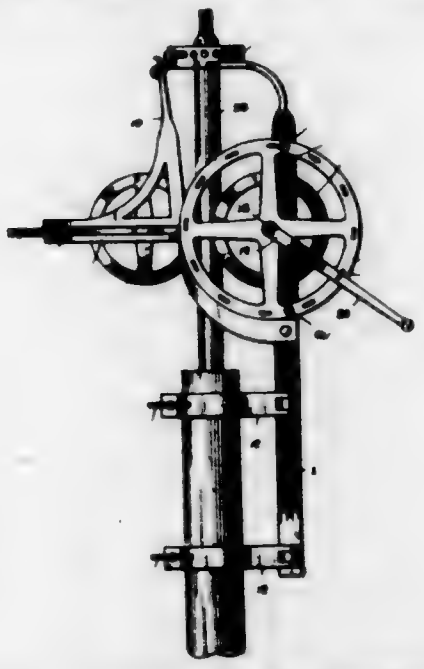
18. In a lathe, the combination with a revoluble drum, a plurality of chuck-spindles mounted in the drum, and means for operating the chuck-spindles, of a slide-rest, a plurality of tool-spindles carried by the rest, two gear-wheels on one of the tool-spindles, a shaft mounted in the drum and geared at one end with the chuck-spindles, and a series of gears for transmitting the revolution of said shaft to the said two gear-wheels at different speeds, as set forth.

19. In a lathe, the combination with a revoluble drum, a revoluble cylinder mounted on the drum and provided with an internal gear, chuck-spindles mounted in the drum, and gear-wheels on the spindles and meshing with the internal gear of the cylinder, of a slide-rest, a plurality of tool-spindles carried by the rest, two gear-wheels on one of the tool-spindles, a shaft mounted in the drum, a gear-wheel on the shaft and meshing with the gear-wheels of the chuck-spindles, and a series of gears for transmitting the revolution of the said shaft to the said two gear-wheels at different speeds, as set forth.

20. In a lathe, the combination of a revoluble drum, a revoluble cylinder mounted on the drum and provided with an internal gear, chuck-spindles mounted in the drum, gear-wheels loose on the spindles and meshing with the internal gear of the cylinder, clutches for locking the gear-wheels to the spindles, a slide-rest, a plurality of tool-spindles carried by the rest, two gear-wheels on one of the tool-spindles, a shaft mounted in the drum, a gear-wheel on the shaft and meshing with the gear-wheels of the chuck-spindles, and a series of gears for transmitting the motion of the shaft to the said two gear-wheels on the tool-spindle, at different speeds, as set forth.

21. In a lathe, the combination of a slide-rest, a plurality of tool-spindles carried by the rest, two gear-wheels on one of the spindles, a driven shaft, and a series of gears for transmitting the motion of the shaft to the said two gears at different speeds, as set forth.

694,278. PUMP-ROD EJECTOR. WILLIAM HOEKSTRA, Harrison, S. D. Filed Apr. 13, 1901. Serial No. 55,773. (No model.)



Claim.—1. A rod-extractor comprising a supporting-frame; a shaft supported thereby; a grooved wheel on said shaft; a crank for revolving said wheel; a wheel fixed to the frame and provided with catches to engage said crank; a ring supported at the upper end of the frame and formed with openings to receive removable pins; and an adjustable shaft carrying a serrated wheel coöperating with the grooved wheel.

2. A rod-extractor comprising a supporting-frame; adjustable clamps carried by said frame; a grooved wheel adapted to have frictional engagement with the pump-rod; a jointed crank for revolving said grooved wheel; a wheel fixed to the frame and having laterally-projecting hooks to engage said crank; and means for holding the pump-rod against the grooved wheel comprising a serrated wheel supported upon an adjustable shaft.

694,279. ANIMAL-TIE. JOHN T. HORRIS, New York, N. Y. Filed Nov. 30, 1901. Serial No. 84,183. (No model.)

Claim.—1. The combination with a guideway, of a movable carriage provided with projections arranged to ride against the front and rear of the guideway, and a halter connection on said carriage, as set forth.



2. The combination with a guideway, of a movable carriage fitted to said guideway and provided with means for attachment of a halter, and a locking device for holding the carriage in one position and against movement on said guideway, as set forth.

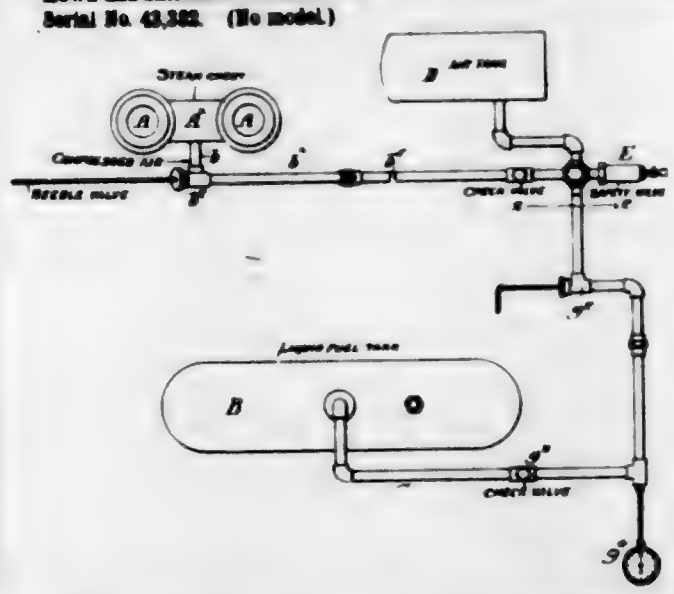
3. An animal-tie, comprising a fixed guideway having a vertical track in its rear portion and a slot in the front of the guideway and leading to said track, and a carriage having a body extending through the slot and carrying friction-rollers mounted to travel on said track, as set forth.

4. An animal-tie, comprising a fixed guideway having a vertical track in its rear portion and a slot in the front of the guideway leading to said track, a carriage having a body extending through the slot and carrying friction-rollers mounted to travel on said track, and a flexible halter connection attached to the front end of said body, as set forth.

5. An animal-tie, comprising a fixed guideway having a vertical track in its rear portion and a slot in the front of the guideway leading to said track, a plate extending through said slot, friction-rollers carried on the inner end of the plate and mounted to travel on said track, and a flexible connection for the front end of said plate to connect it with the halter, as set forth.

6. An animal-tie, comprising a fixed guideway having a vertical track in its rear portion and a slot in the front of the guideway leading to said track, a plate extending through said slot, friction-rollers carried on the inner end of the plate and mounted to travel on said track, a flexible connection for the front end of said plate to connect it with the halter, and pins held transversely in said plate at the front end thereof, to engage the front face of the guideway, as set forth.

694,280. APPARATUS FOR COMPRESSING AIR. SAMUEL P. HOWE and SAMUEL M. VAUCLAIN, Jr., Ithaca, N. Y. Filed Jan. 15, 1901. Serial No. 43,382. (No model.)



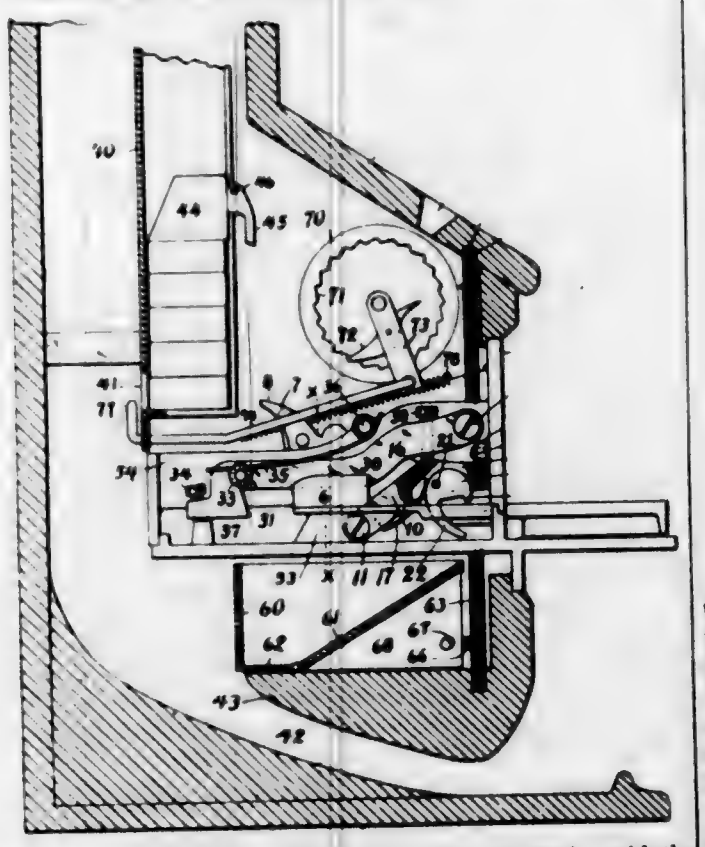
Claim.—The herein-described improvement in apparatus for utilising the operating parts of a steam-engine for compressing air for use in a system of which said engine forms a part, consisting of the combination with a steam-engine and its valve-chest, of a storage-reservoir for compressed air, a liquid-fuel tank, a branch pipe connecting the tank and reservoir, a valve in said pipe for controlling communication between said tank and reservoir, a check-valve between said controlling-valve and reservoir, a main pipe connecting the valve-chest of the engine with the branch pipe, a valve for controlling communication between said main pipe and the valve-chest, and a check-valve in said main pipe between its controlling-valve and the junction between the main pipe and the branch pipe, whereby when the steam is shut off from the engine, the latter may operate to compress air and discharge the same through the main pipe into the reservoir and tank, or either of them, substantially as and for the purpose set forth.

694,281. TAPE-NEEDLE. CARRIE L. HUSHER, Cleveland, Ohio. Filed Dec. 16, 1901. Serial No. 86,041. (No model.)



Claim.—A tape-threading needle comprising a thin flat body portion, an eye at each end of the needle, and a pointed detent formed in the body portion between the eyes, substantially as described.

694,282. COIN-OPERATED MACHINE. CHARLES L. HURD, Chelsea, Mass., assignor of one-half to Hollis F. Smith, Chelsea, Mass. Filed Sept. 23, 1901. Serial No. 76,502. (No model.)



Claim.—1. In a coin-operated machine, the combination with the slide having the coin-opening and the slot communicating therewith, of a detent constructed to normally intercept said slide, and a rocking dog pivotally supported above said slide and constructed when raised to elevate said detent; said dog being formed with an elongated tail projecting through said slot, and a tooth distant from the tail the radius of the coin for which the machine is designed, substantially as described.

2. In a coin-operated machine, the combination with the slide having the coin-opening and the slot communicating therewith, of the lever pivoted below said slide and projecting through said slot, the slide-intercepting detent supported on said lever, and the rocking dog pivoted to said lever and having the elongated tail projecting through said slot and the tooth at a distance from the tail equal to the radius of the coin for which the machine is designed, substantially as described.

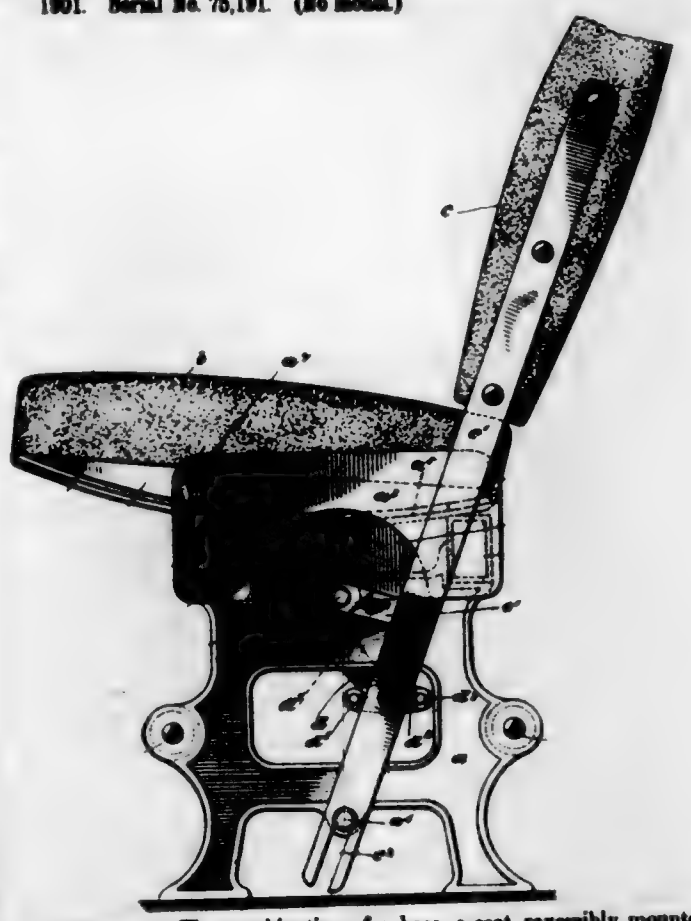
3. In a coin-operated machine, the combination with the slide having the coin-opening and the slot communicating therewith, of the lever pivoted below the slide but extended up through said slot and having the slot therein, the rocking dog pivoted in the slot in said lever and having the elongated tail projecting down through the slot in the slide and the tooth at a distance from the tail equal to the radius of the coin for which the machine is designed, and the spring held by the lever for pressing the rocking dog forward, and a detent supported by said lever, substantially as described.

4. In a coin-operated machine, the combination with the slide having the coin-opening and the slot communicating therewith, of the detent, the lever supporting the detent and pivotally supported, and the rocking dog pivoted to said lever; said lever having an adjusting-screw constructed to support the free end thereof to prevent its sinking below a predetermined point, substantially as described.

5. In a coin-operated machine, the combination with the slide, of the coin-engaging lever, the detent pivoted at one end and connected with said lever, and a fixed support for the free end of said detent, substantially as described.

6. In a coin-operated machine, the combination with the slide, of the coin-engaging lever, the pivoted detent connected with said lever, the fixed support for the free end of said detent, and the adjusting-screw tapped through said end of the detent and contacting with said support substantially as described.

694,288. SEAT. LOUIS JAFFEE, Brooklyn, N. Y. Filed Sept. 12 1901. Serial No. 75,191. (No model.)



Claim.—1. The combination of a base, a seat reversibly mounted thereon, a back, a lever at each side of the base and in connection with the back, the levers being fulcrumed on the base and said fulcrum comprising a pivotal and slidable connection, connections between the seat and the levers to move the seat in unison with the levers, an arm pivotally mounted on each side of the base, said arms respectively having connection with the levers, and a shaft connecting the arms together, for the purpose specified.

2. The combination of a base, a seat reversibly mounted thereon, a back, a lever connected with the back and fulcrumed on the base, a second lever fulcrumed on the base and connected with the seat, and a crosshead pivotally carried on the second lever and having laterally-projected portions engaged with opposite sides of the first-named lever.

3. The combination of a base, a seat reversibly mounted thereon, a back, a lever attached to the back and having a slot receiving a part on the base whereby to fulcrum the lever and allow it a longitudinal movement in addition to its pivotal movement, a connection with the seat to work the seat with the lever, and an arm mounted to swing on the base and connected with the lever.

4. The combination with a base, a seat reversibly mounted thereon, a back, a lever attached thereto and fulcrumed on the base, the fulcrum comprising a pivotal and slidable connection, a transverse shaft mounted on the base, an arm attached to the shaft and connected to the lever, a second lever fulcrumed on the base and connected with the first-named lever and with the seat, said second lever being formed with a transversely-elongated looped portion receiving the shaft.

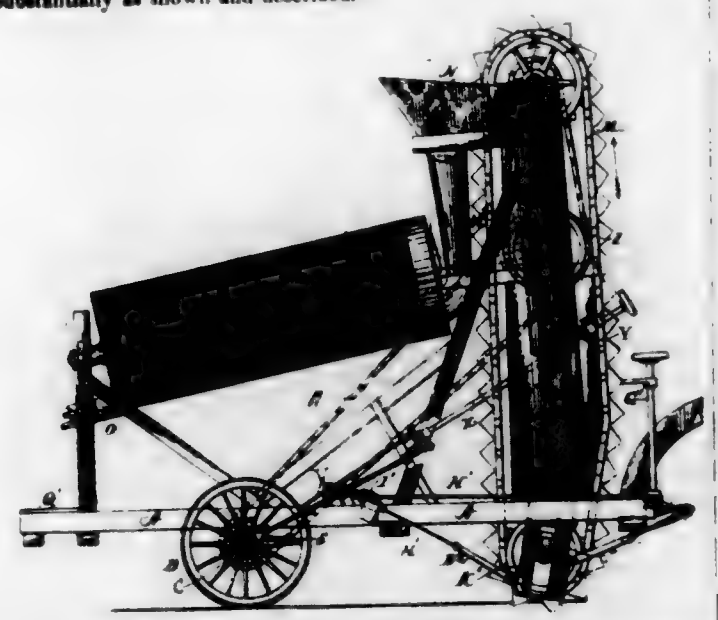
5. The combination of a base, a seat reversibly mounted thereon, a lever fulcrumed on the base, the fulcrum comprising a pivotal and slidable connection, a connection between the lever and seat, for the purpose specified, and an arm mounted to swing on the base and connected with the lever.

6. The combination of a base, a seat reversibly mounted thereon, a lever fulcrumed on the base, said fulcrum comprising a pivotal and slidable connection, means bearing between the base and lever for causing the lever to move longitudinally simultaneously with its pivotal movement, and a second lever forming a connection between the first lever and the seat.

7. The combination of a base, a seat reversibly mounted thereon, a lever fulcrumed on the base, the fulcrum comprising a pivotal and slidable connection, means working between the base and lever to cause the lever to move longitudinally simultaneously with its pivotal movement, and a connection between the seat and lever to throw the seat simultaneously with the movement of the lever.

694,284. MACHINE FOR HARVESTING ONION SETS OR SIMILAR CROPS. JOHN W. JEFFERSON, Louisville, Ky. Filed July 6, 1901. Serial No. 67,234. (No model.)

Claim.—1. In a machine of the class specified, the combination, with a frame and wheels supporting the same, of an endless traveling digger having a series of scoops, sprocket-wheels for supporting and carrying the same, means for imparting movement thereto, and pivoted swinging bars arranged in the lower portion of the frame, an axle having its bearings therein, and means for adjusting the said bars forward and back, substantially as shown and described.



2. In a machine of the class specified, the combination, with a wheeled frame having a vertical portion upon which an axle and sprocket-wheels are supported, of an endless traveling digger comprising a chain and scoops attached thereto, bars pivoted to said frame and provided with slotted bearings in their lower portions, an axle adapted for adjustment in such slots, a sprocket-wheel mounted on said axle and carrying the endless digger, and means for adjusting the said bars forward and back, substantially as shown and described.

3. In a machine of the class specified, the combination, with a wheeled frame having a vertical portion as described, of an endless traveling digger, a sprocket-wheel arranged on the vertical frame and supporting the endless digger, means for rotating the same, bars arranged in a vertical plane and pivoted in the vertical frame of the machine and provided with bearings, an axle arranged in said bearings, and a sprocket-wheel carried thereby, ropes connected with the lower portions of said bars and extending forward and rearward over pulleys as described, and a shaft to which the said ropes are attached, so as to wind thereon in opposite directions, whereby the said bars and the lower portion of the digger may be adjusted for work or out of work, substantially as shown and described.

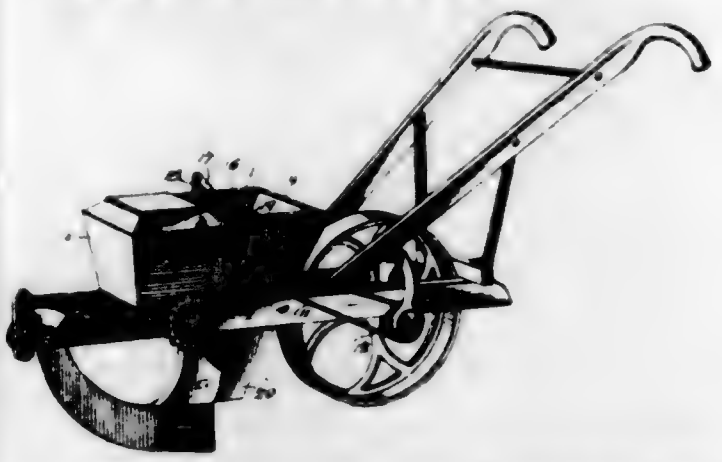
4. In a machine of the class specified, the combination, with a wheeled frame having a vertical extension, of an endless traveling digger, a shaft and sprocket supporting the same at the top of the frame, means for driving the digger, bars pivoted at their upper ends to the lower portion of the frame, a shaft having its bearings in said bars and provided with a sprocket-wheel upon which the lower portion of the digger travels, clevises pivoted to the lower portions of said bars, ropes connected with the said clevises, pulleys located in front and rear of the said bars, a vertical rotatable shaft provided with a hand-wheel, the aforesaid ropes passing over the pulleys and attached to the shaft so as to wind in opposite directions, substantially as shown and described.

5. In a machine of the class specified, the combination, with a wheeled frame of an endless traveling digger, means for supporting the same, hoppers and spouts for receiving the tubers from the diggers a cylindrical wire screen arranged at an inclination in rear of the spouts, a shaft upon which said screen is mounted, a bevel-gear fixed on the front end of said shaft, two alined horizontal shafts having bevel-gears meshing with the first-named gear, sprocket-gearing connecting one of said shafts with the rear axle of the machine, clutch-and-lever mechanism for locking the said axle with the running wheels thereon, and sprocket-gearing connecting the axle with one of the aforesaid horizontal shafts, substantially as shown and described.

6. In a machine of the class specified, the combination, with a wheeled frame and two endless traveling diggers, and means for carrying the same, of a clutch mechanism for throwing them into or out of action, a rotatable rear axle, means for locking the same with its running wheels, a cylindrical rotary screen, horizontal shafts and a bevel-gearing for driving it, and a sprocket-gearing for connecting the said axle with the gearing operating the screen, substantially as shown and described.

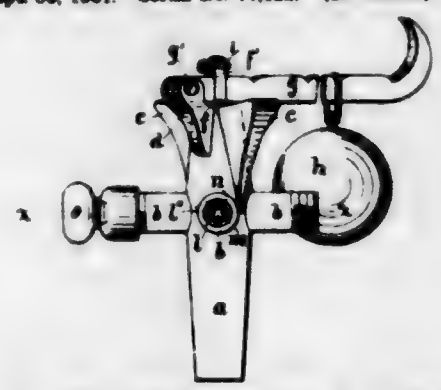
7. In a machine of the class specified, the combination, with a frame having horizontal and vertical portions, a rotatable rear axle, running wheels applied thereto, a clutch mechanism for locking the wheels to the axle, of endless traveling diggers, sprocket-wheels and a shaft therefor supporting the diggers at the top of the frame, a clutch and lever connected with said shaft, two alined horizontal shafts, and sprocket-gearing connecting one of these with the digger or upper shaft, and other gearing connecting the second alined shaft with the axle, a rotary screen geared with the alined shafts, and hoppers and spouts for delivering tubers from the diggers into said screen, substantially as shown and described.

694,285. COTTON-PLANTING ATTACHMENT FOR CORN-PLANTERS. MILTON JOYNER and JOHN D. SPRINGER, Clarksburg, Tenn. Filed Sept. 20, 1901. Serial No. 75,870. (No model.)



Claim.—In a cotton-planting attachment for corn-planters, a hopper having oppositely-disposed downwardly-converging laterally-inclined bottom boards 6 with a discharge-opening 7 formed between them, with a revoluble shaft journaled in the sides of said hopper above said bottom boards, said shaft having a crank-arm at one end and a sprocket-wheel at the opposite end, a stirring and feed wheel on said shaft, and comprising a hub-disk, radial feed-spurs projecting therefrom and adapted to operate in said discharge-opening, and laterally-extending stirring-spurs projecting from opposite sides of said hub-disk and operating above said laterally-inclined bottom boards; a rock-shaft journaled in the sides of the hopper and having a crank-arm at one end, said rock-shaft being further provided with projecting stirring-spurs, and a pitman connecting the crank arms of said respective shafts, substantially as described.

694,286. TAP FOR ALE-CASKS. JAMES KENNEY, Holyoke, Mass. Filed Sept. 30, 1901. Serial No. 77,022. (No model.)



Claim.—1. The combination, in a tap, of a body having a longitudinal passage *e* extending through the same and independent passages *k* extending alongside said passage *e*, and chambered arms into which said passages *k* open at their upper ends, with a valve in the upper terminal of the passage *e*, and other valves suitably arranged in the arms, having their inward movement so limited as to leave the openings into adjacent passages *k* clear, substantially as described.

2. The combination, in a tap, of a body having a longitudinal passage *e* extending through the same and independent passages *k* extending alongside said passage *e*, and chambered arms into which said passages *k* open at their upper ends, with a valve in the upper terminal of the passage *e*, means to normally close said valve, and other valves suitably arranged in the arms, having their inward movement so limited as to leave the openings into adjacent passages *k* clear, substantially as described.

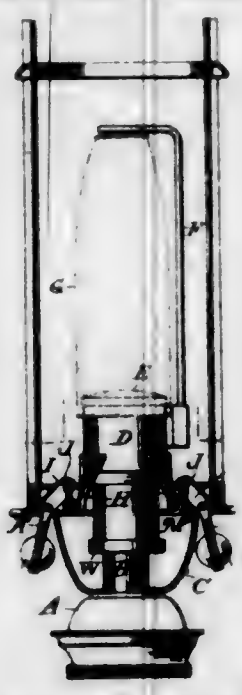
3. The combination, in a tap, of a body having a longitudinal passage *e* extending through the same and independent passages *k* extending alongside said passage *e*, and chambered arms into which said passages *k* open at their upper ends, with a valve in the upper terminal of the passage *e*, means to normally close said valve, hollow plugs *l* in said arms, valves in said plugs, and means to so limit the inward movement of the plug-valves as to leave the openings into adjacent passages *k* clear, substantially as described.

4. The combination, in a tap, of a body having a longitudinal passage *e* extending through the same and independent passages *k* extending alongside said passage *e*, and chambered arms into which said passages *k* open at their upper ends, with a valve at the upper end of the passage *e*, a weighted lever bearing on said valve, and a valve in the chamber in each of said arms, adapted to close or open the entrance thereto, substantially as described.

5. In combination, a body having a longitudinal passage extending through the same, and provided with laterally-extending chambered arms, independent passages being formed in said body to open through the lower terminal thereof and into the chambers in said arms, a valve in each of said chambers, and a cap adapted to close the outer end of any one of the arms, substantially as set forth.

6. In combination, a body provided with laterally-extending arms and external wings adapted to receive the blows of a mallet or hammer, said body having passages therein opening through the upper and lower terminals thereof and through the outer terminals of said arms, said passages being independent of each other, and suitable valves arranged at the entrances of said passages, substantially as set forth.

694,287. GAS-BURNER. PETER KRIM, Baltimore, Md. Filed July 22, 1901. Serial No. 69,409. (No model.)



Claim.—1. In a gas-burner, the combination of a gas-supply tube; a sleeve loosely encircling the upper end thereof; a series of weighted levers carried by a fixed portion of the burner; and connections intermediate said levers and the sleeve.

2. In a gas-burner, the combination of a gas-supply tube; a sleeve loosely encircling the upper end thereof; a mantle supported by said sleeve; and connections substantially such as described intermediate the sleeve and a fixed portion of the burner permitting the tube and sleeve to move universally one relatively to the other when subjected to jar or the like, and to return the parts to their normal position.

3. In a gas-burner, the combination of a gas-supply tube; a sleeve loosely encircling the upper end thereof; a mantle supported by said sleeve; and a series of weighted levers flexibly connected to the sleeve and fulcrumed on a fixed portion of the burner.

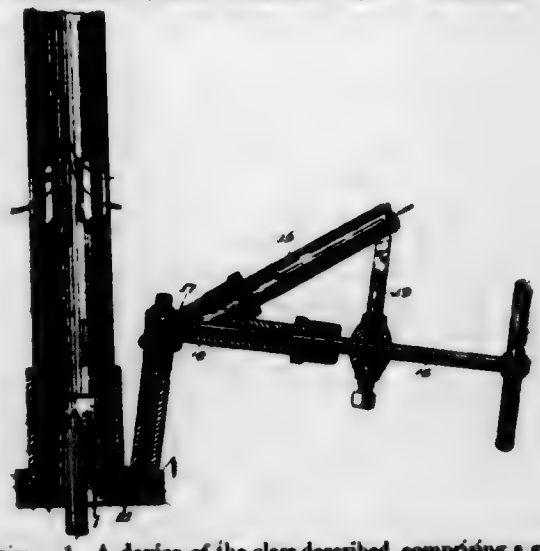
4. In a gas-burner, the combination of a gas-supply tube; a sleeve loosely encircling the upper end thereof; a mantle carried by said sleeve; arms connected to the sleeve and extending downwardly therefrom; a series of levers fulcrumed upon a fixed portion of the burner; flexible connections intermediate the inner ends of said levers and the arms; and a weight adjustably mounted upon the outer end of each lever.

5. In a gas-burner, the combination of a gas-supply tube; a mantle; means for suspending said mantle over the tube; and a series of weighted levers flexibly connected to said supporting means, whereby the tube may be tipped laterally or moved up and down independent of any movement of the mantle.

6. In a gas-burner, the combination of a gas-supply tube; a sleeve loosely encircling the upper end thereof, and free to rock or tip and to be moved up and down independently of the tube; a mantle supported by said sleeve; a series of arms connected to the sleeve and extending downwardly therefrom; a series of levers fulcrumed upon a fixed portion of the burner; links connecting the inner end of each lever to one of the arms; and a weight adjustably mounted upon the outer end of each lever.

7. In a gas-burner, the combination of a gas-supply tube; a sleeve loosely encircling the upper end thereof; a mantle supported by said sleeve; a series of arms connected to the sleeve and extending downwardly therefrom; a gallery surrounding the tube; a series of levers fulcrumed on the gallery in line with the arms; links connecting the ends of the arms and the inner ends of the levers; and a weight adjustably mounted upon the outer end of each lever.

694,288. GAS-GENERATOR. RUDOLPH A. KUNNEL, St. Louis, Mo. Filed Nov. 11, 1899. Serial No. 736,606. (No model.)



Claim.—1. A device of the class described, comprising a generator-tube open at its lower end for the entrance of air, an oil and gas chamber having jet-apertures leading therefrom into the interior of the generator-tube above the lower extremity thereof, a mixing-tube surmounting said generator, a burner located at the upper end of said mixing-tube, and means for partly closing the lumen of the generator-tube, substantially as described.

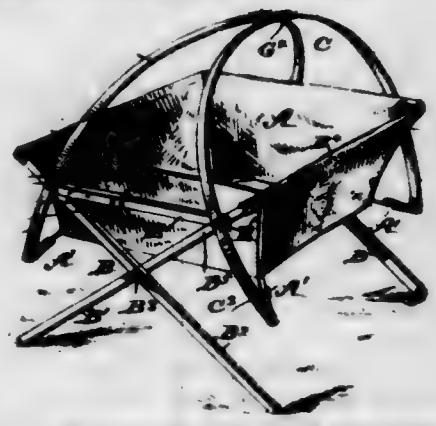
2. A device of the class described comprising a generator-tube open at its lower end for the entrance of air and containing an oil and gas chamber having jet-apertures leading therefrom into the interior of the generator-tube above the lower extremity thereof, a nipple located within said generator-tube above said jet-apertures, a mixing-tube surmounting said generator-tube, and a burner located at the upper end of said mixing-tube, substantially as described.

3. The combination of a ring having an inner annular groove, a generator-tube having an annular groove positioned opposite the groove in said ring, said generator-tube being provided with apertures leading from said grooves to the interior of the generator-tube, means through which gasolene is conducted to said grooves, a nipple, a pendant, and a mixing-tube carrying a burner, substantially as described.

4. A gas-generator comprising a ring provided with an annular groove, a generator-tube carried by said ring, and having apertures communicating with said groove, a pendant suspended within said generator-tube, and a mixing-tube.

5. A gas-generator comprising a ring provided with a groove, and apertures, a generator-tube placed in said ring, and having a groove communicating with the groove in said ring, the apertures formed through said generator-tube communicating with both of said grooves, a nipple mounted within the generator-tube and positioned immediately above said apertures, a pendant suspended within the nipple, a mixing-tube mounted upon said generator-tube and communicating with the burner, a valve mechanism communicating with said ring, and means for regulating the flow of fuel within said ring.

694,289. BASKET. THOMAS J. LAUGHTON, Johnston, S. C. Filed Aug. 9, 1901. Serial No. 71,590. (No model.)



Claim.—1. The basket herein described, consisting of the flexible collapsible body, the body-frame composed of two members each having side

bars and cross-bars at one end and the side bars of the two members being pivoted together between their ends, and the cross-bars thereof being connected with the opposite ends of the body at the top thereof, the bows constituting the handle-frame having their arms pivoted to the side bars of the body-frame and extending beyond said pivots, the straps connecting the extremities of such extensions with the bottom of the basket-body, a clasp connecting the handle-bows at the crown thereof, and the cross-braces pivoted at one end to the side bars of one member of the body-frame, and ratchets on the side bars of the other member of the body-frame for engagement by the free end of said brace-bars, substantially as set forth.

2. A basket having a collapsible body, and a body-frame and handle-frame, one of said frames being connected with the top of the body at the opposite ends thereof only, the sides of the top of the body being free and flexible and the other frame being connected with the bottom of said body whereby said frames may distend the body at the top and bottom thereof in the adjustment of the basket for use, substantially as set forth.

3. The combination with the collapsible basket-body, of the body-frame composed of members pivoted together and having their cross-bars connected with the top of the basket-body at the ends thereof, and the handle-frame having its sections pivoted to the members of the body-frame and extended below said pivot outside of the basket-body and connected with the lower portion of the body, substantially as set forth.

4. The combination with the body, of the body-frame composed of members pivoted together and connected with the body at the top thereof, and the handle-frame composed of sections pivoted to the members of the body-frame, and straps connecting the body at the several corners thereof with the handle-frame, substantially as set forth.

5. The combination with a collapsible body and a body-frame for distending the same at its top, of a handle-frame connected with the body-frame and extending along the outside of the basket-body and arranged to distend the body at its bottom, substantially as set forth.

6. The combination with the body and the body-frame composed of members pivoted together, of the brace-rods operating between the members of the body-frame, the handle-frame having its sections pivoted to the members of the body-frame, and connections between the body-frame members and the sections of the handle-frame and the body, substantially as set forth.

7. The combination with a collapsible basket-body and the frame therefor, of a handle-frame composed of sections having portions extending along the outside of the basket-body to points approximately opposite the bottom of the body, and means connecting the said outside portions of the handle-frame with the basket-body whereby the handle can operate to distend the bottom of the basket-body, substantially as set forth.

8. A basket comprising the basket-body and the body-frame composed of members having side bars and cross-bars, and the angular joint-pieces connecting the side bars and cross-bars at the corners of the body-frame members and channeled to receive the said bars, substantially as set forth.

9. A basket having a collapsible body composed of flexible material, a frame for supporting said body from its top, a frame for distending said body at its bottom, and flexible connections or straps between the bottom of the body and the frame, substantially as set forth.

10. A basket composed of a flexible collapsible body and body-frame therefor composed of folding members, and the handle-frame for said basket projecting above the basket-body and also composed of folding members and extending along the outside of the basket-body, substantially as set forth.

11. The combination in a folding basket, of the collapsible body, the body-frame composed of members pivoted together and connected with the top of the basket at its opposite ends, and the handle-frame composed of members pivoted to the members of the body-frame and having portions extended outside of and connected with the bottom of the basket-body, and means for bracing the members of the body-frame apart substantially as set forth.

12. The combination of the collapsible basket-body, a body-frame therefor, a frame for distending said body at its bottom, straps between the bottom and distending-frame, and buckle devices for adjusting the said straps, substantially as set forth.

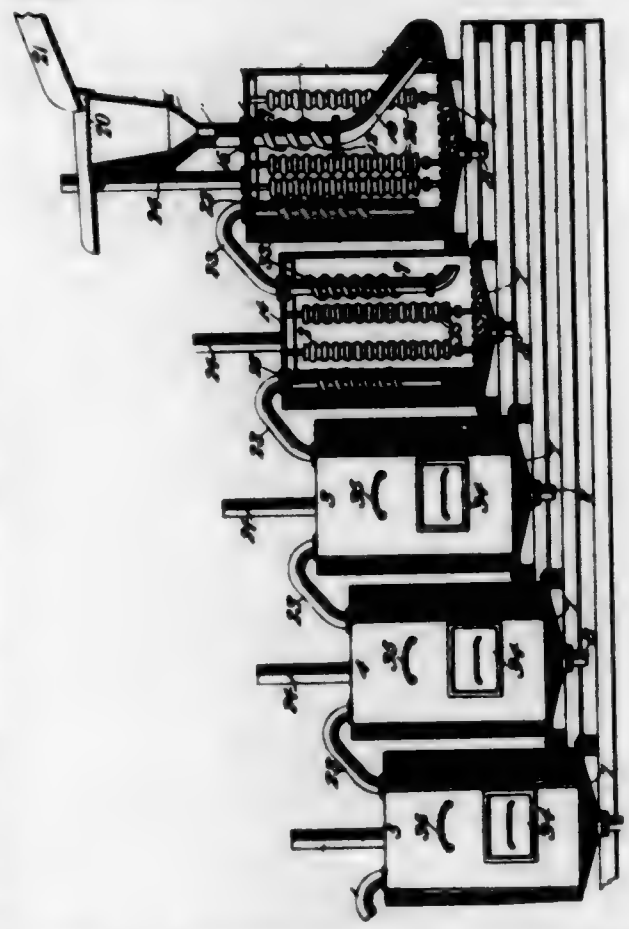
13. A basket composed of a flexible collapsible body, a body-frame, a distending-frame having portions extending outside of the basket-body, and straps connected with the basket-body at the opposite corners thereof and extending thence diagonally outward and secured to the distending-frame substantially as set forth.

14. The combination in a folding basket of the flexible collapsible body, the handle-frame composed of the members pivoted between their ends and having portions extending above the basket-body to form a handhold and portions extending along the outside of the basket-body and devices connecting the latter portions with the bottom of the basket-body, substantially as set forth.

15. A basket composed of a flexible body, a distending-frame having portions extending along the outside of the body and straps connecting the basket-body with the distending-frame substantially as set forth.

16. The combination of the flexible basket-body, a body-frame, a handle-frame composed of bows pivoted to the body-frame and having their upper bow portions arranged to jointly form a handhold and their lower portions extended outside the flexible body and connections between the said lower portions and the flexible body substantially as set forth.

694,290. **FINE-GOLD AMALGAMATOR.** MARTIN LAMWELL, Spokane, Wash., assignor of two-thirds to F. T. Hill and Eugene Deasi, Spokane, Wash. Filed Jan. 25, 1901. Serial No. 44,733. (No model.)



Claim.—1. A fine-gold amalgamator comprising a stationary container having a sloping bottom which provides a mercury-chamber in the base thereof, an inlet-pipe provided with a curved nozzle adapted to discharge water, sand and gravel laterally in one direction against the wall of the container above the surface of the mercury so as to cause the water, sand, and gravel to rebound in the opposite direction over the surface of the mercury to cause the latter, sand, and gravel to rebound in the opposite direction over the surface of the mercury avoiding agitation of the latter, an outlet-pipe, and spiral amalgam-plates encircling the inlet and outlet pipes.

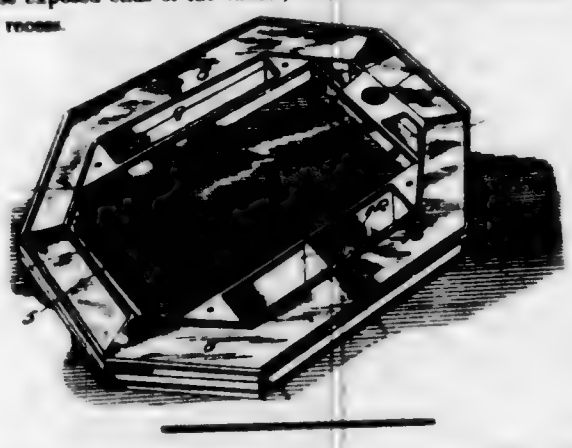
2. A fine-gold amalgamator comprising a stationary container having a lateral extension-chamber, and a sloping bottom which provides a mercury-chamber in the base thereof, an inlet-pipe provided with a curved nozzle adapted to discharge water, sand, and gravel laterally in one direction against the wall of the extension-chamber above the surface of the mercury so as to cause the water, sand, and gravel to rebound in the opposite direction over the surface of the mercury avoiding agitation of the latter, an outlet-pipe, and spiral amalgam-plates encircling the inlet and outlet pipes.

3. A fine-gold amalgamator comprising a stationary container having a sloping bottom which provides a mercury-chamber in the base thereof, an inlet-pipe provided with a discharge-nozzle, an outlet-pipe, spiral amalgam-plates encircling the inlet and outlet pipes, and removable standards each having a corrugated jacket coated with silver-plate and quicksilver.

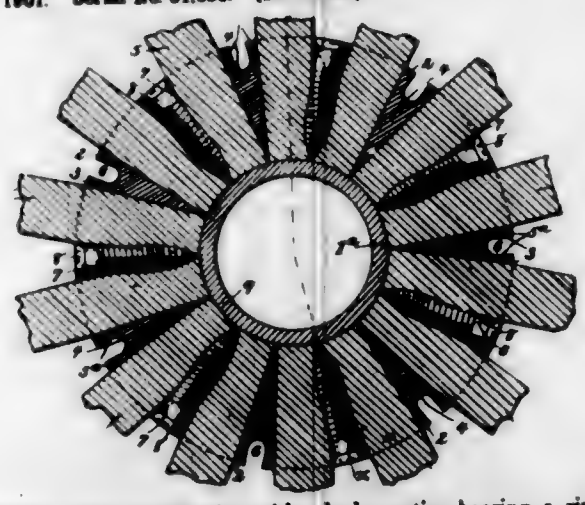
694,291. **HOTEL-REGISTER.** WILLIAM C. LOEBY, Danville, Ill., assignor of one-half to Frank W. Coats, Indianapolis, Ind. Filed Aug. 12, 1901. Serial No. 71,797. (No model.)

Claim.—A register comprising a horizontally-disposed body having marginal divisions and pockets for the reception of advertising matter and various articles, the said marginal divisions and pockets surrounding a central rectangular recess provided with end, side and bottom walls and having the one end of the bottom wall cut away at a downward angle of inclination to form an opening through the lower portion of the adja-

cent end wall of the said recess, the under side of the end of the body adjacent to the latter end wall of the recess being cut upwardly and inwardly at a bevel, a slot being also formed at the lower intersection of the end wall of the recess and the cut-away end of the bottom wall of said recess and extending the full transverse dimension of the latter, whereby loose sheets placed in the recess may be withdrawn through said slot and an operator be permitted to insert his hand under the body at one end to engage the exposed ends of the sheets, and a series of loose sheets mounted in said recess.

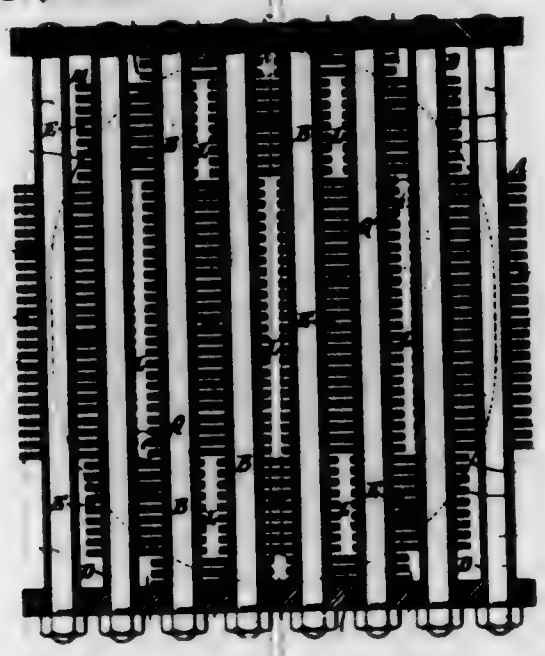


694,292. HUB. TABER O. MANDT, Stoughton, Wis. Filed Nov 8, 1901. Serial No. 81,630. (No model.)



Claim.—The combination with a body portion bearing a rim provided with spoke-sockets, separated by V-shaped partitions having radially-extending apertures therein, of spokes fitted in said sockets, screws mounted in said apertures and engaging said spokes to hold them against withdrawal, substantially as described.

694,293. DYNAMO-ELECTRIC MACHINE OR MOTOR. WILFRED R. V. MARSHALL, Paisley, Scotland. Filed Nov. 8, 1901. Serial No. 81,574. (No model.)



Claim.—1. A pole-face for a dynamo-electric machine or motor, comprising laminated groups of metal plates, spaces between the ends of such groups, the outside groups forming a face of less breadth than the center ones and the intermediate groups being in step-like position between the center and outside groups, substantially as described.

2. A pole-face for dynamo-electric machine or motor, comprising laminated groups of metal plates, spaces between the plates of the groups, spaces between the ends of the groups, and said groups being arranged step-like from the outside toward the center, substantially as set forth.

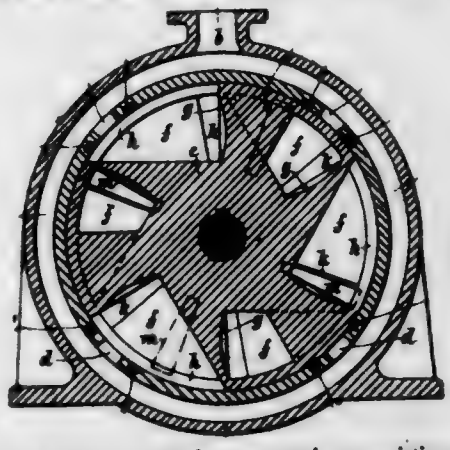
3. A pole-face for a dynamo-electric machine or motor, having standard plates mounted in groups, the plates of each group being spaced apart from each other, substantially as described.

4. A pole-face for a dynamo-electric machine or motor, having standard plates mounted in groups, the plates of each group being spaced apart and being made short to leave transverse air-gaps in said pole-face, substantially as described.

5. A pole-face for a dynamo-electric machine or motor, comprising plates mounted in groups, the plates of each group being spaced apart, transverse slots in said pole-face, said metal plates forming a face of greatest breadth at the center of the pole-face, and diminishing in breadth in step-like manner toward the side, all substantially as described.

6. A pole-piece for a dynamo-electric machine or motor having a greater proportion of metal in one part than in another, and consisting of a number of standard metal plates assembled in such a manner as to produce a pole-face having different masses of iron in such places as it may be required according to the use of the machine, substantially as described.

694,294. ROTARY ENGINE. THOMAS J. MASTERS, Cardiff, England. Filed Dec. 4, 1900. Serial No. 38,662. (No model.)



Claim.—The herein-described rotary engine, consisting of a piston provided with a plurality of internal chambers such as shown and described, and with alternately-arranged peripheral admission-ports thereto fitted to revolve within a cylinder provided with circumferential passages and with ports opening therefrom through the bore of the cylinder with which peripheral ports of the piston coincide, the piston being also provided with end ports which are adapted to coincide with end ports in the cylinder at certain points in the revolution of the piston, substantially as specified.

694,295. CARTRIDGE. HUDSON MAXIM, New York, N. Y. Filed Aug. 24, 1899. Serial No. 728,304. (No model.)



Claim.—1. In a cartridge charge, a plurality of concentrically-arranged integral cylinders of explosive material with longitudinal demarcations constituting a flame-passage between the cylinders and a plurality of symmetrically-arranged lateral vents to said demarcations.

2. In a cartridge charge, a plurality of integral cylinders of explosive material arranged one within the other with longitudinal demarcations constituting a flame-passage between the cylinders and lateral vents to said demarcations.

3. In a cartridge charge, a plurality of integral cylinders of explosive material arranged one within the other with longitudinal demarcations constituting a flame-passage between the cylinders, lateral vents to said demarcations, and laterally-opening cells formed in the walls of the cylinders.

4. In a cartridge charge, a plurality of integral cylinders of explosive material arranged one within the other with longitudinal demarcations constituting a flame-passage between the cylinders, a plurality of symmetrically-arranged vents to said demarcations and a plurality of symmetrically-arranged laterally-opening cells formed in the walls of the cylinders.

5. In a cartridge charge, a plurality of integral cylinders of explosive material arranged one within the other with longitudinal demarcations constituting a flame-passage between the cylinders and lateral vents to said demarcations, and a projectile seated in and surrounded by one of said cylinders.

6. In a cartridge charge, a plurality of integral cylinders of explosive material provided with lateral vents and laterally-opening cells, said vents and cells being arranged equidistant from each other on any given surface of any given cylinder.

7. In a cartridge charge, an integral cylinder of explosive material having a longitudinal perforation therethrough and lateral vents to said longitudinal perforation; a second integral cylinder surrounding the first with a longitudinally-extending demarcation constituting a flame-passage between them and a plurality of symmetrically-arranged lateral vents to said demarcation.

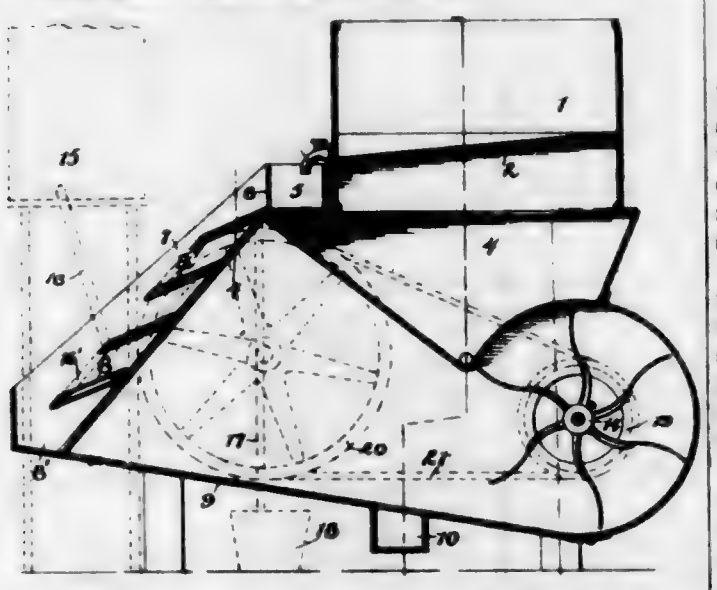
8. In a cartridge charge, an integral cylinder of explosive material having a longitudinal perforation, a second integral cylinder surrounding the first but with a longitudinally-extending demarcation constituting a flame-passage between them, and a plurality of symmetrically-arranged lateral vents extending from said perforation through said cylinders.

9. In a cartridge charge, an integral cylinder of explosive material having a longitudinal perforation, a second integral cylinder surrounding the first and having a longitudinally-extending demarcation constituting a flame-passage between them, each of said cylinders being provided with a plurality of symmetrically-arranged lateral vents.

10. In a cartridge charge, an integral cylinder of explosive material having a longitudinal perforation, a second integral cylinder surrounding the first and having a longitudinally-extending demarcation constituting a flame-passage between them, each of said cylinders being provided with a plurality of symmetrically-arranged lateral vents and a plurality of laterally-opening cells.

11. In a cartridge charge, an integral cylinder of explosive material having a longitudinal perforation, a second integral cylinder surrounding the first and having a longitudinally-extending demarcation constituting a flame-passage between them, each of said cylinders being provided with a plurality of symmetrically-arranged lateral vents and a plurality of symmetrically-arranged laterally-opening cells.

694,296. **MILK-AERATOR.** LEWIS R. MORSAL, Washington, D. C., assignor of one-half to Charles B. Cropley, Washington, D. C. Filed Sept. 10, 1901. Serial No. 74,879. (No model.)



Claim.—1. An apparatus of the character described consisting of a series of hollow shelves over which a liquid is adapted to flow, hollow side pieces supporting said shelves and opening into the hollow interiors thereof, said hollow side pieces forming guides for the liquid, a means for supplying a cooling fluid attached to the apparatus and a means for forcing air through the liquid as it passes from shelf to shelf.

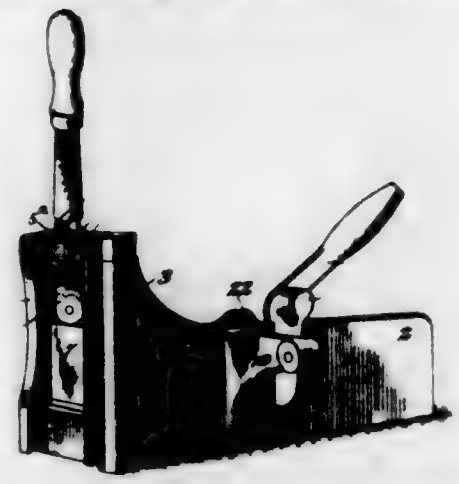
2. An apparatus of the character described, consisting of a series of hollow shelves over which a liquid is adapted to flow, hollow side pieces supporting said shelves and opening into hollow interiors thereof, said hollow side pieces forming guides for the liquid, a means for supplying a cooling fluid attached to the apparatus, a pipe connecting said cooling means with one of the hollow side pieces, a discharge-outlet attached to the opposite hollow side piece, and a means for forcing air through the liquid as it passes from shelf to shelf.

3. An apparatus of the character described, consisting of a series of shelves over which a liquid is adapted to flow, each shelf being downwardly inclined at its outer edge, each shelf being hollow in its interior and adapted to contain a cooling liquid, each shelf being of greater breadth than thickness, thereby affording an extensive surface coming in contact with the cooling medium, and the liquid to be treated, said shelves being arranged one above the other, the general line of the shelves being at an acute angle, a means for supplying a cooling fluid attached to the apparatus and a means for forcing air through the liquid as it passes from shelf to shelf.

4. An apparatus of the character described, consisting of a series of hollow shelves over which a liquid is adapted to flow, a means for supplying a cooling fluid consisting of an elevated tank, a pipe connecting said tank to the lowest shelf, a series of pipes connecting the shelves together, a discharge-outlet attached to the highest shelf, and a means for forcing air through the liquid as it passes from shelf to shelf.

5. An apparatus of the character described, consisting of a series of hollow shelves over which a liquid is adapted to flow, each shelf being downwardly inclined at its outer edge, each shelf being hollow in its interior and adapted to contain a cooling medium, each shelf being of greater breadth than depth, said shelves being arranged one above the other, the general line of the shelves being at an acute angle, a means for supplying a cooling fluid consisting of an elevated tank, a pipe connecting said tank with the lowest shelf, a series of pipes connecting the shelves together, a discharge-outlet attached to the highest shelf, and a means for forcing air through the liquid as it passes from shelf to shelf.

694,297. **MACHINE FOR CUTTING STEREOTYPE-PLATES.** WILLIAM P. NESBITT and PETER ANDREWS, Big Rapids, Mich. Filed May 11, 1901. Serial No. 59,860. (No model.)



Claim.—1. A machine for cutting stereotype-plates comprising a base having a fixed side plate formed with an upwardly-projecting tongue and provided with a vertical groove, the detachable side having a top formed with a slot, and provided with a vertical groove, the fixed knife supported on the base, a movable cutting-blade having a pin, a link having a slot receiving the pin, and a lever extending through, and fulcrumed in, the slot of the top and connected with the link.

2. A machine for cutting stereotype-plates comprising a base having a fixed side plate formed with an upwardly-projecting tongue and provided with a vertical groove, the detachable side having a top formed with a slot and provided with a vertical groove, the adjustable fixed knife supported on the base, a movable cutting-blade having a pin, a link having a slot receiving the pin, and a lever extending through, and fulcrumed in, the slot of the top and connected with the link.

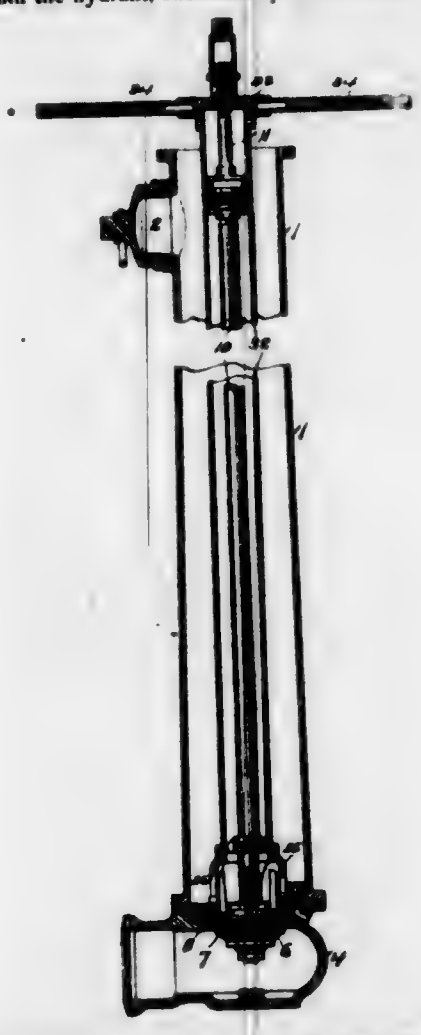
3. A machine for cutting stereotype-plates comprising a base having a fixed side plate formed with an upwardly-projecting tongue and provided with a vertical groove, the detachable side having a top formed with rounded bearings and provided with a vertical groove, the fixed knife supported on the base, a movable cutting-blade having a pin, a link having a slot receiving the pin, and a lever fulcrumed to the top having a cam-face bearing on the movable cutting-blade, formed with oppositely-beveled shoulders working on the rounded bearings.

4. A machine for cutting stereotype-plates comprising a base having a fixed side formed with a vertical slot, a horizontal bracket projecting from one side of the slot, a lever fulcrumed to the bracket and extending through the slot and carrying a trimming-knife, a vertical bracket projecting above the side, and a cam-lever fulcrumed to the vertical bracket and adapted to clamp a stereotype-plate.

694,298. **HYDRANT.** DENIS F. O'BRIEN, Newark, N. J. Original application filed Apr. 27, 1900, Serial No. 14,577. Divided and this application filed Dec. 14, 1900. Serial No. 39,859. (No model.)

Claim.—1. In a hydrant, the combination with its stand-pipe, of a main-valve mechanism capable of being passed inwardly and outwardly through the stand-pipe to introduce it into and remove it from the hydrant and provided with a screw-threaded member for connection to the

hydrant and with means for interlocking with a removing and inserting tool whereby said screw-threaded member may be rotated to connect it to or disconnect it from the hydrant and with means whereby said valve mechanism may also be supported by the tool while being introduced into or removed from the hydrant, substantially as described.



2. In a hydrant, the combination with its stand-pipe, of a main-valve mechanism capable of being passed inwardly and outwardly through the stand-pipe to introduce it into and remove it from the hydrant and provided with a screw-threaded seat-ring for connection to the hydrant and with an operating-spindle, said threaded member and spindle being provided with means for interlocking with a removing and inserting tool whereby said screw-threaded member may be rotated to connect it to or disconnect it from the hydrant and with means whereby said valve mechanism may also be supported by the tool while being introduced into or removed from the hydrant, substantially as described.

3. In a hydrant, the combination with its stand-pipe, of a main-valve mechanism capable of being passed inwardly and outwardly through the stand-pipe to introduce it into and remove it from the hydrant and provided with a screw-threaded seat for connection to the hydrant and with an operating-spindle, said threaded member being provided with means for interlocking with a removing and inserting tool whereby said threaded member may be rotated to connect it to or disconnect it from the hydrant and said spindle being provided with means for interlocking with said tool whereby said valve mechanism may be supported by the tool while being introduced into or removed from the hydrant, substantially as described.

4. In a hydrant, the combination with its stand-pipe, of a main-valve mechanism capable of being passed inwardly and outwardly through the stand-pipe to introduce it into and remove it from the hydrant and provided with a screw-threaded member for connection to the hydrant and with means for interlocking with a removing and inserting tool whereby said screw-threaded member may be rotated to connect it to or disconnect it from the hydrant and whereby said valve mechanism may also be supported by the tool while being introduced into or removed from the hydrant and an inserting and removing tool adapted to so interlock with said valve mechanism, substantially as described.

5. In a hydrant, the combination with its stand-pipe, of a main-valve mechanism capable of being passed inwardly and outwardly through the stand-pipe to introduce it into and remove it from the hydrant and provided with a screw-threaded seat-ring for connection to the hydrant and with an operating-spindle, said threaded member and spindle being provided with means for interlocking with a removing and inserting tool whereby said screw-threaded member may be rotated to connect it to or disconnect it from the hydrant and whereby said valve mechanism may also be supported by the tool while being introduced into or removed from the hydrant, and an inserting and removing tool adapted to so interlock with said valve-seat ring and spindle, substantially as described.

6. In a hydrant, the combination with its stand-pipe, of a main-valve mechanism capable of being passed inwardly and outwardly through the stand-pipe to introduce it into and remove it from the hydrant and provided with a screw-threaded seat for connection to the hydrant and with an operating-spindle, said threaded member being provided with means for interlocking with a removing and inserting tool whereby said threaded member may be rotated to connect it to or disconnect it from the hydrant and said spindle being provided with means for interlocking with said tool whereby said valve mechanism may be supported by the tool while being introduced into or removed from the hydrant, and an inserting and removing tool adapted to so interlock with said valve-seat ring and spindle, substantially as described.

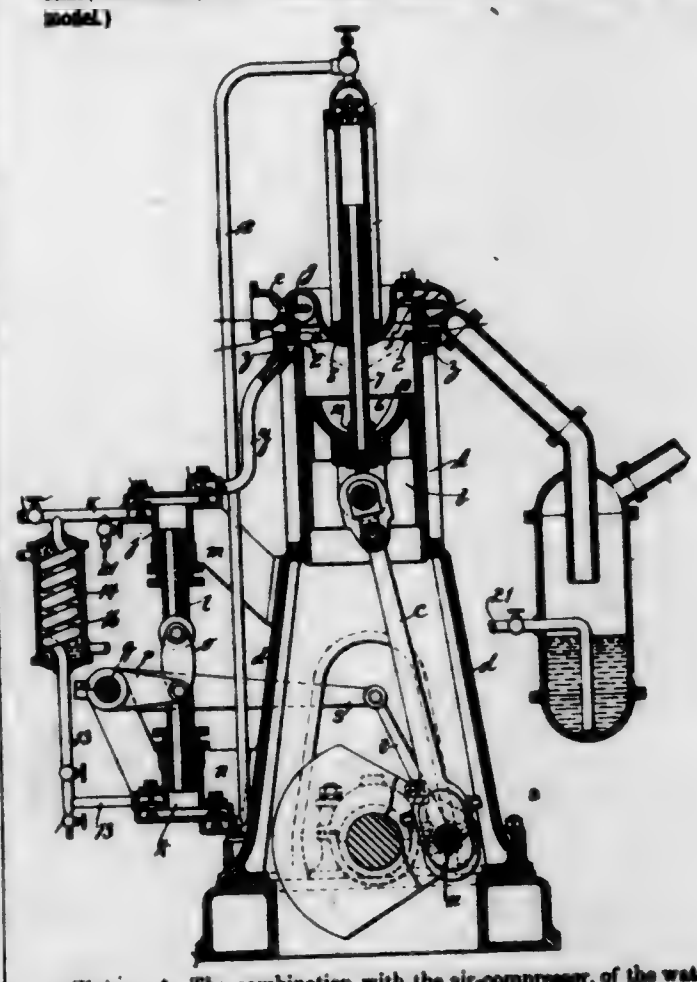
7. A tool for removing or inserting main valves and externally-screw-threaded valve-seats in hydrants, comprising a body portion adapted to be inserted into the stand-pipe of a hydrant and means for locking it to the main-valve spindle to support the latter and its valve-seat while being introduced into or withdrawn from the hydrant, said body portion being also provided with means for engaging the valve-seat ring and screwing it into or out of position, substantially as described.

8. In a hydrant, the combination with its stand-pipe, of a main valve and spindle, a screw-threaded valve-seat ring provided with lugs, and a tool for removing or inserting the valve and seat-ring comprising a body portion adapted to be inserted into the hydrant and to be secured to the main-valve spindle to support the latter and its valve-seat while being introduced into or withdrawn from the hydrant, said body portion being provided with lugs for engaging the lugs on the valve-seat ring and screwing it into or out of position, substantially as described.

9. The combination with a stand-pipe, as 1, of valve 6, valve-seat ring 8 provided with lugs 31, a valve-spindle threaded at its upper end to receive a nut, and a tool for removing or inserting the valve and its seat consisting of tube 32, provided with lugs 35 for engaging lugs 31, substantially as described.

10. The combination with a stand-pipe, as 1, of valve 6, valve-seat ring 8 provided with lugs 31, a valve-spindle threaded at its upper end to receive a nut, and a tool for removing or inserting the valve and its seat consisting of tube 32, provided with lugs for engaging lugs 31, and guide 36 on the spindle, substantially as described.

694,299. **AIR COMPRESSOR AND COOLER.** OSCAR P. CUTTER-GREN, New York, N. Y. Filed May 24, 1901. Serial No. 61,773. (No model.)



Claim.—1. The combination with the air-compressor, of the water-injecting pump, the annular inlet to the compressing-cylinder and the annular valve controlling said inlet.

2. The combination with the air-compressor, of the water-injecting

pump, the annular inlet to the compressing-cylinder, and the annular valve controlling said inlet, and arranged to distribute the inflowing jet partly under and partly over it.

3. The combination with the air-compressor and water-injecting pump, of the tubular tail-rod attached to the piston and having inlet-passages in close proximity to the piston, the tubular stand-pipe attached to the cylinder-cover and receiving the tail-rod and the check-valve in the top of the stand-pipe.

4. The combination with the air-compressor and water-injecting pump, of the piston having the cup in the upper side, the tubular tail-rod attached to the piston at the bottom of the cup and having the inlet-passages in close proximity to the bottom of the cup, the cylinder-cover having the protruding part coacting with the cup, stand-pipe receiving the tail-rod and the check-valve in the top of the stand-pipe.

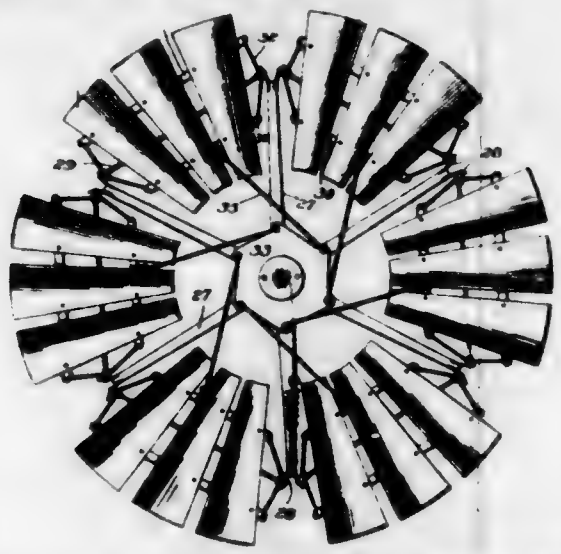
5. The combination with the air-compressor, of the duplex plunger-pump, one part of which is connected for injecting cooling-water into the compressor, and the other part is connected for receiving the water ejected from the compressor, and returning it to the injecting part, whereby the resistance on the pump is balanced.

6. The combination with the air-compressor, of the duplex plunger-pump, one part of which is connected for injecting cooling-water into the compressor, and the other part is connected for receiving the water ejected from the compressor and returning it to the injecting part, and a cooler intermediate of the two parts for the water passing from one to the other of said parts.

7. The combination of the compressor, duplex plunger water-injecting pump, rock-shaft coupled with the plunger intermediately of the pump-cylinders, and also coupled with the pin of the compressor driving-crank.

8. The combination with the air-compressor, of the water-injecting pump geared with the compressor for injecting the cooling-water into the compressing-chamber simultaneously with the act of compressing.

694,300. WINDMILL. EMIL PLAGMANN, Marengo, Iowa. Filed Apr. 8, 1901. Serial No. 54,813. (No model.)



Claim.—1. In a windmill, the combination with the windmill-shaft, of a wind-wheel comprising a plurality of tilting blade-carrying frames comprising a central shaft, parallel stringers, and end bars and provided with laterally-projecting arms, a rotatable disk surrounding the shaft, links connecting said arms and disk, and a blade-resetting device controlling said disk.

2. In a windmill, the combination with the windmill-shaft, of a wind-wheel thereon comprising a series of tilting blade-carrying frames each comprising a central shaft, parallel stringers and end bars, a rotary disk loose on said shaft and operatively connected to each of said frames, means for yieldingly resisting the turning movement of the disk, a cam-sleeve on which the disk is mounted slidable on the shaft for engaging the wind-wheel, and connections for operating said cam-sleeve.

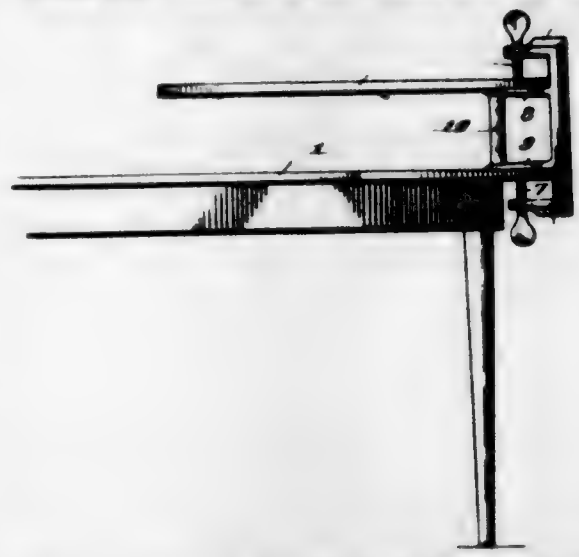
694,301. PROCESS OF PRESERVING FRUITS, &c. ADRIAAN L. DE STERLER, Overveen, near Haarlem, Netherlands. Filed Aug. 15, 1900. Serial No. 26,967. (No specimens.)

Claim.—1. The method of preserving food which consists in treating the surface of the food with a gaseous sterilizing agent, then closely enveloping the sterilized food in a paper cover so as to leave no space between the cover and food for the collection of gas or moisture, and then dipping the said cover containing the food into a bath of waxy hydrocarbon whereby the food is effectively sealed from the atmosphere and the hydrocarbon is prevented from coming into contact with the food, substantially as described

2. The method of preserving food which consists in treating the surface of the food with formaldehyde gas, then closely enveloping the food in a paper cover so as to leave no space between the surface of the food and the cover for the collection of moisture or gas, then dipping the paper cover containing the food into liquid paraffin-wax and permitting it to cool, whereby the sterilized food is sealed from the atmosphere and the paper cover prevents the flavor or smell of petroleum affecting the food, substantially as described.

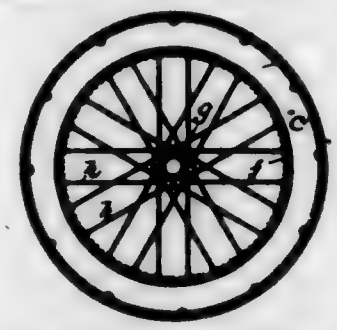
3. The herein-described method of preserving foods, which consists of the following steps in the order named, first, sterilizing the surface of the food, then closely enveloping the sterilized food in a sterilized wrapper causing said wrapper to snugly embrace the food and exclude the air from between the food and wrapper and then inclosing said wrapper and food in a covering of heated heavy hydrocarbon substantially as described.

694,302. LAUNDRY BRACKET OR CLAMP. JAMES T. WATKINS, Jefferson City, Tenn., assignor of one-half to William W. Moody, Jefferson City, Tenn. Filed Nov. 23, 1901. Serial No. 83,444. (No model.)



Claim.—A bracket or clamp for securing an ironing-board to a table or other support, consisting of a vertical member, a pair of laterally-extending arms integral therewith, a pair of flat plates integral with said member and arranged between said arms and of greater length and of greater width than the said arms, a standard integral with the said plates for bracing them, a set-screw extending through one of the said arms and in connection with one of the said flat plates adapted to secure the said bracket or clamp to the support, and a set-screw extending through the other of said arms and adapted when operated to secure the ironing-board to the other of the said plates.

694,808. TRACTION-WHEEL. BERNHARD BERGOW, Stockholm, Sweden. Filed June 28, 1901. Serial No. 66,382. (No model.)



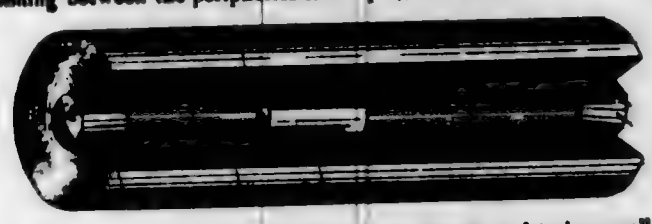
Claim.—1. A vehicle-wheel having a duplex laterally-sinuous tread in which the lateral sinuosities of the respective parts coincide reversely.

2. A vehicle-wheel having a laterally-sinuous tread, and consisting of two stamped or pressed cup-shaped parts connected by inserting the flange of one part within the flange of the other part, said parts being coincidently divergent sinuously.

694,304. PACKAGE. CHARLES S. BIRD and JOHN B. HANCOCK, East Walpole, Mass., assignors to F. W. Bird and Son, East Walpole Mass., a firm composed of Charles S. Bird. Filed Jan. 25, 1902. Serial No. 91,282. (No model.)

Claim.—1. A package comprising a roll of material adapted to be unrolled and having a central bore, plugs adjustably fitted into the ends of the bore, and a wire connecting the plugs and adjustably secured to the outer portion of one plug and extending along the wall of the bore.

2. A package comprising a roll of material adapted to be unrolled and having a central bore, plugs adjustably fitted into the ends of the bore, and a wire adjustably secured to the outer surfaces of the plugs and extending between the peripheries of the plugs and the wall of the bore.



3. A package comprising a roll of material adapted to be unrolled and having a central bore, tapering plugs adjustably fitting into the ends of the bore, and a wire bent over and adjustably secured to the outer ends of the plugs and extending between the peripheries of the plugs and the wall of the bore.

4. A package comprising a roll of material adapted to be unrolled and having a central bore, a wire adjustably secured to the outer surfaces of the plugs and extending between the peripheries of the plugs and the wall of the bore, and staples secured to said surfaces of the plugs and in engagement with the wire.

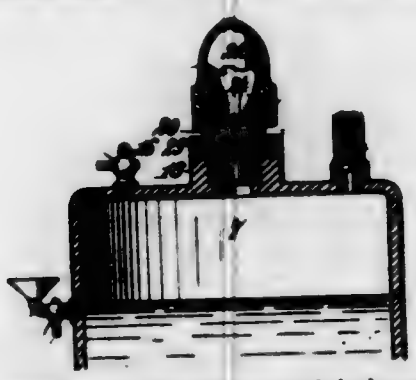
5. A package comprising a roll of material adapted to be unrolled and having a central bore, closures for the ends of the bore, and a wire connecting the two closures and adjustably secured to one of said closures and extending along the wall of the bore.

6. A package comprising a roll of material adapted to be unrolled and having a central bore, closures for the ends of said bore, a wire connecting the closures and adjustably secured to one of said closures and means contained within the bore to positively hold the wire approximately against the wall of the bore.

7. A package comprising a roll of material adapted to be unrolled and having a central bore, closures for the ends of the bore, and a wire connecting said closures and adjustably secured to one of them, said closures being constructed to support the wire, when adjusted, along the wall of the bore to leave the center unobstructed.

8. A package comprising a roll of material adapted to be unrolled, and having a central bore; separate closures inserted, one in each end of said bore, and adjustable in distance from each other; and means, adjustable in relation to the inserted closures, for securing said closures in place, whereby packages may be safely held in the cavity between the closures.

694,805. MEANS FOR PRODUCING PRESSURE ON THE HYDROCARBON IN PORTABLE RESERVOIRS. JOSEPH C. BRANCH, St. Louis, Mo. Filed Sept. 26, 1900. Serial No. 31,236. (No model.)



Claim.—The combination with a portable hydrocarbon reservoir and burner, of a supply-pipe connecting the reservoir and burner, a compressed carbonic-acid capsule, a pipe secured to the upper end of and communicating with said reservoir having a prong in the passage therethrough and provided with a gasket above said prong, a closing-cap screwing upon the upper end of said pipe, the said gasket being adapted to receive the contracted neck of the capsule and the said prong to puncture the seal of the same, and a safety-valve in said hydrocarbon-reservoir, substantially as described.

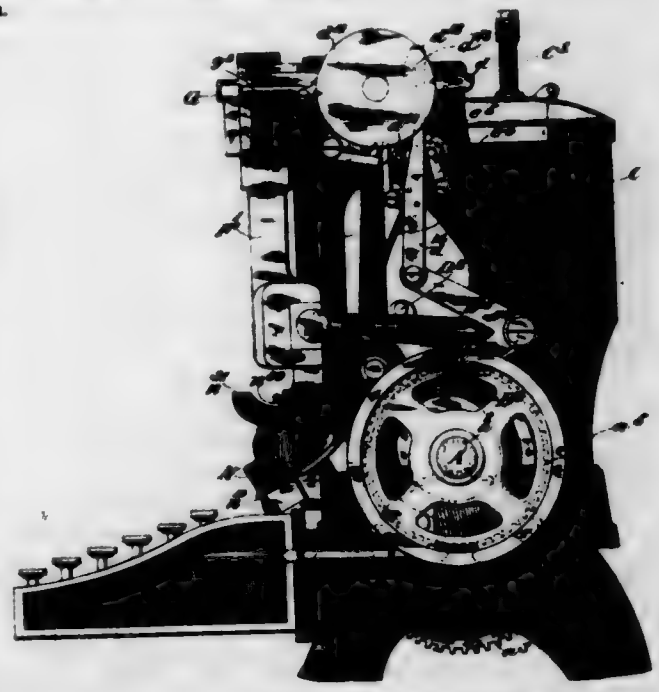
694,806. MACHINE FOR THE PRODUCTION OF TYPES AND TYPE-BARS. LUCIEN A. BENOIT, Brooklyn, N. Y., assignor, by mesne assignments, to the Composite Type Bar Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 26, 1899. Serial No. 725,492. (No model.)

Claim.—1. The combination of a line-holder, with means for transforming a line of type into a type-bar.

2. The combination of a line-holder, with means for transforming a line of type into a justified type-bar.

3. The combination with means for holding a line of type, of means for presenting a line thereto, and means for transforming the line into a type-bar.

4. In a typographic machine, the combination with a type-setting mechanism, of a line-transforming mechanism, and means for transferring a line from the type-setting mechanism to the line-transforming mechanism.



5. In a typographic machine, the combination of type-casting means type-storing means, type-setting means, bar-forming means, and connecting and actuating mechanism.

6. In an organized typographic machine, the combination of mechanism for assembling the separate units of a line, and means for transforming the line into a type-bar.

7. In an organized typographic machine, the combination of means for casting the units of a line, means for assembling the units into a line, and means for transforming the line into a type-bar.

8. In an organized typographic machine, the combination of means for casting the units of a line, means for assembling the units into a line, means for alining the line, means for justifying the line, and means for transforming the line into a type-bar.

9. In a typographic machine, the combination of means for casting the units of a line, means for storing the separate units in separate receptacles, means for releasing the units in any desired sequence, means for assembling them into a line, means for alining the line, means for justifying the line, and means for transforming the line into a type-bar.

10. In a typographic machine, the combination of means for casting the units of a line, means for assembling the units into a line, means for alining the line, means for justifying the line, and means for casting additional metal about the line to transform it into a type-bar.

11. In a typographic machine, the combination of means for casting a series of types bearing different characters, means for selecting or assembling the units of a line, a receptacle for the line, means within the receptacle for alining and justifying the line, and means for introducing type-metal into the line.

12. The combination with type-casting and type-setting mechanism, of means for justifying an assembled line, means for transforming the line into a type-bar, and means for removing and discharging the justifiers.

13. In a typographic machine, the combination of a receptacle for a line of types, means for justifying and transforming the line into a type-bar, and means for discharging the type-bar.

14. In a typographic machine, the combination of a composing-block having channels for containing and guiding the units of a line of type during composition, a line-holder or bar-block having channels registering with those of the composing-block, means for transferring a line from the composing-block to the line-holder or bar-block, and means for actuating the line-holder or bar-block to form a justified line of type.

15. In a typographic machine, comprising type casting, type-setting and bar-forming mechanisms, means for continuously operating the type-casting mechanism, and means governed by the operator for intermittently applying the power to the actuating means of the bar-forming mechanism.

16. The combination of a type-setting mechanism with a bar-block to receive a line of type from the type-setting mechanism, means for moving the bar-block, an intermediate line-transfer mechanism, means for applying power to the line-transfer mechanism and to the actuating mechanism of the bar-block, and, means for reversing the action of the line-transfer mechanism before the movement of the bar-block.

17. In a typographic machine, the combination of a receptacle for a composed line of types, means for transforming the line into a justified

type-bar, means for discharging the bar, and a receptacle or bar-galley adapted to receive and forward each bar in succession.

18. The combination with the composing-block of a type-setting mechanism having channels to sustain and guide the units of a line of type, of a line-holder having channels to receive the line of type, an end gate guarding the channels of the line-holder, and means for transferring the line from the composing-block to the line-holder and operating the end gate to close it.

19. In a typographic machine, the combination with a melting-pot and a holder for receiving and retaining a line of type, of means for swinging the holder to and from the melting-pot, and means for discharging metal into the line of type to space it and transform it into a type-bar.

20. In a typographic machine, the combination with a melting-pot, of a journaled holder for receiving and retaining a line of type, means for swinging the holder to and from the melting-pot, and means for rocking it during its movements, substantially as described.

21. In a typographic machine, the combination of a melting-pot, a receptacle or holder for an assembled line of type, means for moving the receptacle or holder to and from the melting-pot, means for alining, and means for justifying the line during the transit of the receptacle or holder substantially as described.

22. In a typographic machine, the combination of a melting-pot, means for assembling the units of a line, a receptacle for the line of type, means within the receptacle for alining and justifying the line of type, and means for moving the receptacle to and from the melting-pot, substantially as described.

23. In a typographic machine, the combination of a melting-pot, a receptacle for a line of type, means for clamping the line of type in the receptacle, means for swinging the receptacle to and from the melting-pot, means for discharging metal into the line of type to space it and transform it into a type-bar, and means for releasing the clamp on the returning movement, substantially as described

24. In a typographic machine, the combination of a melting-pot, a receptacle or holder for an assembled line of type, means for moving the receptacle or holder to and from the pot, means for alining, and means for justifying the line operating during the movement to the pot, and means for removing and discharging the justifiers operating on the movement from the pot, substantially as described.

25. The combination of a melting-pot, a receptacle adapted to receive a line of type, means for swinging the receptacle through an arc to and from the melting-pot, and means for partially rotating the receptacle at the beginning of its movement and upon its return, substantially as described.

26 The combination of means for assembling a line of type, means for introducing justifiers, means for forcing in the justifiers, and means for introducing metal about the shanks of the types to create permanent spaces and bind the types together.

27. The combination of means for placing justifiers in a line of type, means for forcing in the justifiers, and means for simultaneously replacing all the justifiers by spaces.

28. The combination of means for placing justifiers in a line of type, means for forcing in the justifiers, and means for applying all the required spaces to the line simultaneously.

29. In a typographic machine, the combination of means for justifying the line, and means for applying all the required spaces to the line simultaneously.

30. The combination of a line of type and justifiers, means for forcing the justifiers into the line, and means for applying spaces to the line while the justifiers remain in position.

31. The combination of means for forcing justifiers into a line of type to occupy a portion of each division or space, and means for fixing spaces in the line without removing the justifiers.

32. The combination of means for placing justifiers across a line of type, means for forcing in the justifiers, and means for placing spaces beneath the justifiers.

33. A mechanism for justifying composed lines of types, comprising means for parting the lines between words and means for casting justifying-spaces into the molds so formed.

34. A mechanism for justifying lines of type composed with temporary spaces, comprising means for removing the temporary spaces, and means for simultaneously producing and placing in their stead permanent spaces.

35. The combination of means for assembling types and justifiers, and means for simultaneously producing and placing the required spaces.

36. A mechanism for justifying composed lines of type comprising means for forming justifying-spaces in the line.

37. The combination of means for casting types, means for casting a binder for the types, and operating means.

38. The combination in an organized typographic machine, of means for casting the units of a line, separate receptacles for the several units, means for separately storing and accumulating the several units in the receptacles, and means for assembling the units into a line.

39. The combination in an organized typographic machine, of type-casting molds, means for introducing type-metal into the molds, means for releasing the types from the molds, receptacles for the types, means for releasing the types from the receptacles, and means for assembling the types into line.

40. In a typographic or type-casting machine, the combination of molds, means for introducing type-metal into the molds, receptacles for the type, and means for releasing the types from the molds so that they fall by gravity into the receptacles.

41. The combination with molds for casting type, of receptacles fo the types, means for bringing each mold over the mouth of a receptacle, and means for releasing or freeing the types, so that they are discharged by gravity into the receptacles.

42. The combination of a mold-carrier bearing movable molds for casting types, receptacles for the types, and a mold-operator for releasing the types from the molds having means for engaging the molds and moving them away from the types, so that the types may fall into the receptacles, substantially as described.

43. The combination with a mold-carrier bearing movable molds for casting types, of a series of fingers for moving the molds to release the types.

44. The combination of a mold-carrier bearing molds for casting types movable on the carrier, receptacles for the types, and a mold-operator for releasing the types from the molds having fingers adapted to engage the ends of the several molds to move them away from the type to permit the type to fall into the receptacles, substantially as described.

45. The combination with mechanism for casting type, of a mold-operator bearing a series of fingers adapted to engage and move the molds of the casting mechanism, and means to engage and adjust the fingers.

46. The combination with a series of movable molds for casting a series of types, of means for moving the molds away from the types, and separate receptacles for the several types.

47. The combination with a series of movable molds for casting a series of types, of a series of fingers for moving the molds away from the types after the casting, and separate receptacles for the several types.

48. The combination with a series of movable molds for casting a series of types, of a series of fingers for moving the molds away from the types after the casting, separate receptacles for the several types, means for releasing the types from the receptacles, and means for assembling them into line.

49. The combination of a series of movable type-molds, a melting-pot and operating means, and means for moving each mold separately or independently away from the cast type.

50. In a typographic machine, the combination with molds, of a mold-operator having fingers for operating the molds, and means for controlling the action of the fingers.

51. The combination of a mold-carrier bearing molds for casting types, a series of fingers for releasing the types from the molds, and means for selecting and throwing out of engagement any of the fingers.

52. In a typograph, the combination of a mold-carrier bearing molds for casting types, a series of fingers for releasing the types from the molds, and means controlled by the operation of the machine for selecting and throwing out of engagement any of the fingers.

53. In a typographic machine, the combination with molds, of a mold-operator, fingers loosely supported by the mold-operator, and means for controlling the action of the fingers.

54. In a typographic machine, the combination with a series of molds, of a series of fingers for operating the molds, means for controlling the action of the fingers, and means for throwing all the fingers simultaneously out of engagement with the molds.

55. In a typographic machine, a reciprocating mold-operator having a body bearing a series of fingers, and a series of unattached or loosely-supported selecting-pins coacting with the fingers to control their action.

56. In a typographic machine, a mold-operator having a channeled body, fingers and selecting-pins in the channels, the fingers having operating means and the selecting-pins serving normally to limit the inward movement of the fingers.

57. In a typographic machine, the combination with molds and a vertical magazine of a vertically-reciprocating mold-operator having a series of fingers, and a series of selecting-pins or feelers playing into the magazine and controlling the action of the fingers.

58. In a typographic machine, the combination of a horizontally-reciprocating mold-carrier, bearing a series of molds, a vertical magazine and a vertically-reciprocating mold-operator bearing a series of fingers and a series of selecting-pins or feelers.

59. The combination with mechanism for casting type, of a mold-operator for releasing the types, having a series of fingers to engage the molds of the casting mechanism, and a series of elements each adapted to engage and render inoperative a corresponding finger.

60. The combination with mechanism for casting type, of a mold-operator for releasing the types having a series of fingers for engaging the molds of the casting mechanism lying in and guided by a channel in the body of the mold-operator, a series of elements lying in another channel in the body of the mold-operator, guided by the channel and adapted to engage and render inoperative the fingers, substantially as described.

61. In a typographic or type-casting machine, the combination of a mold-carrier having a series of molds, type-receptacles, a mold-operator having fingers for engaging the molds, a series of feelers each adapted to enter a type-receptacle, and also adapted to engage a corresponding finger, and means for operating the mold-operator, substantially as described.

62. In a typographic machine, the combination of a magazine, a mold-carrier having molds adapted to discharge into the magazine, a mold-operator having a series of fingers and a series of feelers adapted to engage the fingers and to enter the magazine, means for moving the mold-operator to cause the feelers to enter and leave the channels of the magazine, and subsequently to cause the operative fingers to free the types, substantially as described.

63. The combination with a mold bearing means for releasing the cast unit, of a receiving-channel and means adapted to operate the releasing elements of the mold and to be thrown out of engagement by the contents of the channel.

64. The combination of means for casting a series of types, a series of receptacles for the types, and means for automatically regulating the supply of types to each receptacle, substantially as described.

65. The combination of means for casting a series of types, a series of receptacles for the types, and means for automatically and independently regulating the supply of types to each receptacle, substantially as described.

66. The combination of means for casting a series of types, a series of receptacles for the types, means for automatically and independently regulating the supply of types to each of the receptacles, and means for releasing the types from the receptacles, substantially as described.

67 The combination of means for casting a series of type bearing different characters, receptacles for the types, means for separately storing the several types in the receptacles, and means for automatically and independently regulating the supply of type to any receptacle, substantially as described.

68. In a typographic machine, the combination of means for casting types, receptacles for the types, and means adapted to be operated by the type in any receptacle to render inoperative the casting mechanism for that receptacle.

69. The combination with a series of independently-movable molds for casting a series of types, of a series of fingers for moving the molds away from the types and movable out of operative connection with the molds to govern the operation of the casting mechanism.

70. The combination with a series of molds for casting a series of types, of a series of fingers adapted to engage and move the molds to strip them from the type and movable out of operative connection with the molds to govern the operation of the casting mechanism.

71. The combination with a plurality of molds for casting a series of types, of a series of reciprocating fingers adapted to move the molds away from the types and movable out of operative connection with the molds to render the casting mechanism inoperative, cells or magazines arranged to receive the types and in which the types are accumulated, and mechanism for individually removing the desired types from the cells or magazines, substantially as described.

72. In a typographic or type-casting machine, the combination of a mold-carrier having a series of faces, molds on each face for casting a series of type bearing different characters, and a series of receptacles having channels corresponding in arrangement to the unit arrangement of the molds, substantially as described.

73. In a mold-carrier for typographic or type-casting machines, the combination of a movable mold with the walls of a channel, a shank-block in one of the walls for determining the form of the shank of a type, and means for freeing the type from the shank-block.

74. In a typographic or type-casting machine, the combination of molds having type-cavities, and auxiliary devices for determining the form of the shanks of the type, and means for successively moving the molds and the auxiliary devices away from the types, so that the types may fall by gravity.

75. In a typographic or type-casting machine, the combination of molds, means for introducing type-metal into the molds, receptacles for the types, means for removing the molds from the types, means for retaining the types during the movement of the molds away from the types and sustaining them thereafter, and means for finally releasing the types, so that they may fall by gravity into the receptacles.

76. The combination of a melting-pot, and receptacles for types, of a mold-carrier, means for reciprocating the mold-carrier to and from the melting-pot and the receptacles, means for introducing type-metal into the molds, means for rotating the mold-carrier to bring the molds into line with the receptacles, and means for releasing the type from the molds so that they may fall into the receptacles, substantially as described.

77. The combination of a movable mold-carrier bearing molds for casting types, receptacles for the types, a movable mold-operator for releasing the types from the molds and mechanism operated by the movements of the mold-carrier to locate the mold-operator with reference to the receptacles.

78. The combination of a melting-pot, a mold-carrier for casting types, a series of receptacles for the types, means for moving the mold-carrier between the pot and the receptacles, and a movable device for releasing the types from the molds connected to the mold-carrier so that the movement of the mold-carrier moves the type-releasing device to and from the receptacles.

79. The combination of a mold-carrier bearing a series of molds for casting types, a series of receptacles for the types, and a mold-operator for releasing the types from the molds, the mold-carrier and the mold-operator being adapted to be reciprocated to and from the receptacles to throw them into and out of engagement, substantially as described.

80. The combination with a mold-carrier having movable molds for casting type, and movable bars projecting into the type-cavities of the molds, of a mold-operator or type-releasing device having a series of fingers adapted to engage the molds and arms adapted to engage the bars, and means for operating the mold-operator or type-releasing device, so that the types are released and permitted to fall, substantially as described.

81. In a typographic machine, the combination of a mold-carrier having a series of molds, type-receptacles, and a mold-operator F, having a block F^2, bearing a series of fingers f^3, projecting at each end beyond the body, and adapted at one end to engage the molds and at the other end to engage a bar or frame to return the fingers, and a series of selecting-pins or feelers each adapted to engage a finger, and projecting below the body and adapted to enter the type-receptacles, and means for operating the mold-operator, substantially as described.

82. In a typographic machine, the combination of a polygonal mold-carrier having channels in each face adapted to receive and guide a series of movable molds, and a mold-operator bearing a series of fingers, and formed to fit into the face of the mold-carrier and engage the movable molds, and means for operating the mold-operator, substantially as described.

83. The combination of a mold-carrier bearing a series of molds for casting type, a series of receptacles for the types, a mold-operator for releasing the types from the molds, means for operating the mold-operator, and stop mechanism for registering the mold-operator and the mold-carrier with any of the series of receptacles, substantially as described.

84. In a typographic machine, the combination of a magazine having a plurality of rows of channels, a mold-carrier, bearing corresponding series of molds, and means for registering the molds with the several rows of channels in succession, substantially as described.

85. In a typographic machine, the combination of a magazine having a plurality of rows of channels, a mold-carrier bearing corresponding series of molds, a mold-operator, and means for registering the molds and the mold-operator with the several rows of channels in succession, substantially as described.

86. In a typographic machine, the combination of a magazine, a mold-carrier having molds adapted to discharge into the magazine, a mold-operator having a series of fingers and a series of selecting-pins or feelers adapted to engage the fingers and to enter the magazine, means for moving the mold-operator to cause the selecting-pins or feelers to enter and leave the channels of the magazine, and subsequently to cause the operative fingers to free the types, substantially as described.

87. In a typographic machine, the combination of a magazine, a mold-carrier having molds adapted to discharge into the magazine, a mold-operator having a series of fingers and a series of selecting-pins or feelers adapted to engage the fingers and to enter the channel of the magazine, means for moving the mold-operator to and from the magazine, means for moving the mold-operator to cause the selecting-pins or feelers to enter the channels of the magazine, and subsequently to cause the fingers to free the type, and means for putting all the fingers and selecting-pins or feelers out of engagement upon the backward movement of the mold-operator, substantially as described.

88. The combination of a mold-carrier having molds journaled on a shaft bearing a cam-face, a device for releasing the types from the molds, and means for regulating the position of the type-releasing device operated by the cam of the mold-carrier shaft.

89. In a typographic machine, the combination of a magazine and a melting-pot, and ways connecting the two, bearing-guides adjacent the magazine and the melting-pot, with a reciprocating mold-carrier adapted to be laterally adjusted by the guides, substantially as described.

90. The combination with the magazine and melting-pot of a typographic machine, of ways d, having projecting guides d^{31}, and a recipro-

cating polygonal mold-carrier cut away at opposite corners on each end so that the mold-carrier may alternately engage opposite guides, substantially as described.

91. A polygonal mold-carrier having a plurality of distinct faces each face bearing a series of molds for casting type, said molds bearing matrices representing different characters.

92. A polygonal mold-carrier for casting types having a series of movable molds, and means for guiding the molds upon the mold-carrier.

93. In a typographic or type-casting machine, a polygonal mold-carrier having a body carrying in each corner a spring-pressed bar, a plate attached to each face and forming with the body and the faces of the bars channels for a series of molds, substantially as described.

94. In a typographic machine, a polygonal mold-carrier bearing a series of molds on each face, plates inclosing the molds, channels in each face of the carrier, and movable bars lying in each channel and projecting into the type-cavities of the molds, substantially as described.

95. A polygonal mold-carrier for casting types having plates attached to each face, so that channels are formed between the plates and the body of the carrier and movable molds, and spring-pressed guides for the molds lying in the channels, substantially as described.

96. In a typographic machine, the combination of a mold-carrier having bars d^{10}, arms f^9 adapted to engage the bars, and means for operating the arms f^9, substantially as described.

97. The combination of a melting-pot and a reciprocating and rotatable mold-carrier having a plurality of mold-bearing faces.

98. The combination of a melting-pot, a magazine, a mold-carrier having a plurality of mold-bearing faces, means for reciprocating the mold-carrier to and from the melting-pot and the magazine, and means for partially rotating the mold-carrier during each reciprocation.

99. The combination of a melting-pot, type-receptacles, a mold-carrier, means for presenting the molds horizontally to the melting-pot, means for turning the molds to a vertical position after each casting, and means for releasing the types.

100. The combination of a mold-carrier having four faces, each face bearing a series of molds for casting different characters, means for introducing type-metal into the molds, means for giving a quarter-revolution to the mold-carrier after each casting, and means for releasing the types from the molds.

101. In a typographic or type-casting machine, the combination of a mold-carrier bearing a notched disk having pins projecting from it, a detent adapted to engage the notches of the disk, a hooked arm bearing a latch, the arm adapted to engage the pin, and the latch adapted to engage the detent, and means for operating the hooked arm, substantially as described.

102. A type-mold having a yielding side to permit its ready removal from the type.

103. A mold E, having a part E', an end gate carried by the part E', and a part E^2, and elements carried by the part E^2 to regulate the discharge of the cast unit, substantially as described.

104. The combination of a reciprocating mold-carrier D, a bracket e^3, carried by the mold-carrier D, a rock-shaft E^2, operated by the bracket e^3, carrying one part E' of the mold E, and a sleeve e^3 carrying the other part E^2 of the mold, substantially as described.

105. The combination of a mold, a spring-pressed loosening-pin extending into the mold-cavity, an arm, and means for automatically operating the arm to vibrate the pin.

106. The combination of a mold, a spring-pressed loosening-pin extending into the mold-cavity, an arm, means for operating the arm to vibrate the pin, and means for governing the operation of the arm to regulate the supply.

107. The combination of a mold, a receptacle, a spring-pressed loosening-pin extending into the mold-cavity, an arm, means for operating the arm to vibrate the pin, and means controlled by the types in the receptacles for governing the operation of the arm to regulate the supply.

108. A mold-operator F, having in combination a block F^3, carrying fingers f^2 to engage and move the type-molds, and reciprocating bars F' bearing the block F^3, and having arms f^9 for finally releasing the types, substantially as described.

109. A mold-operator having a channel in its body to receive and guide a series of fingers adapted to engage and move a series of molds, and a second channel intersecting the first channel, and adapted to receive and guide a series of elements to engage the fingers, substantially as described.

110. The combination of a mold-operator, a reciprocating mold-carrier, and frictional slides connecting the mold-carrier and the mold-operator, substantially as described.

111. The combination of a mold-operator, a reciprocating mold-carrier having recesses and frictional slides connecting the mold-operator and the mold-carrier, having hooked ends adapted to play in the recesses, substantially as described.

112. The combination of a reciprocating mold-operator and a rocking bar, and means for intermittently operating the rocking bar to limit the reciprocations of the mold-operator, substantially as described.

113. A mold-operator having alternating stops g^7, g^8, and a reciprocating block F^3, bearing a stop adapted to engage one of the stops g^7, g^8, substantially as described.

114. A stop mechanism G for a typographic machine, having a rocking bar, G^3, a swinging lever G^4, a stop g^7, and an operating-arm g^3, substantially as described.

115. In a typographic machine, a type-magazine consisting essentially of a series of grooved plates separated by plain plates, substantially as described.

116. In a typographic machine, a type-magazine comprising two grooved or channeled plates closed at the sides and placed with open sides of the channels facing, and an intervening plain plate forming the fourth side for the channels.

117. In a typographic machine, a type-magazine having a series of rows of channels arranged in opposing order at the receiving end, and in alternating order at the discharge end, substantially as described.

118. A block H^4 adapted to form the bottom of a type-magazine H, having two rows of channels with intervening perforations in the walls of the outer channels to permit the passage of escapement-detents to the inner row, substantially as described.

119. The combination of a type-magazine having a plurality of rows of channels arranged in opposing order at the receiving end and in alternating order at the discharge end, and a series of alternating long and short escapement-detents operating at the discharge end, substantially as described.

120. The combination of a magazine, a free escapement-detent rocking upon the magazine, but not attached thereto, and a free bar operating upon the detents.

121. The combination of an escapement-detent and a bar not attached thereto, but sustaining and operating the detent.

122. The combination with a pivoted escapement-detent having fingers for engaging and releasing types and having projecting faces opposite the base of each finger, of a bar having a face adapted to reciprocate upon and successively engage the projecting faces, substantially as described.

123. The combination with a magazine for types, and a magazine for justifiers, of escapement devices for releasing the types and justifiers, and means for guiding the justifiers in falling, so that they are placed in and across the line at substantially right angles to the types.

124. In a typographic machine, the combination with free or separate justifiers capable of being assembled in substantially the same manner as types, of means for assembling the type into a line, and means for discharging the justifiers into and across the line during composition, so that they lie at substantially right angles to the line of type.

125. An escapement-detent having upon the finger side an intermediate pivot projection and on the other side projecting faces equidistant from the pivot, substantially as described.

126. The combination with an escapement-detent having projecting faces upon its back opposite the base of each finger, of an operating-bar having an enlargement on the end adapted to lie between and move across the projecting faces, substantially as described.

127. The combination in a type-escapement detent, of fingers I', I^2, a pivot I^3, a central face i, projecting faces i^2, and means for sustaining and operating the detent, substantially as described.

128. The combination of a magazine, an escapement-detent rocking upon but not attached to the magazine, a plate carried by the magazine and forming therewith a channel, and a bar serving to retain the escapement-detent, and adapted to reciprocate between the plate and the detent to operate the detent, substantially as described.

129. An escapement-detent having a pivot i^3 and fingers I', I^2, the upper finger I' being curved at the top of the inner end upon an arc having the pivot for a center, substantially as described.

130. A type-packer for typographic machines, consisting essentially of a vibrating hopper for guiding and packing the types, and means for operating the hopper.

131. A type-packer, having in combination means for receiving and grasping the types, and a system of automatically-operating levers adapted to yield in case of an obstruction.

132. In a typographic machine, a cam-drum surrounding a shaft and inclosing a train of gearing and a split-ring clutch, and means for engaging the clutch with the gear, and thereby rotating the drum.

133. A cam mechanism consisting of a train of gearing, having an enlarged shell on one element of the gear embracing a split-ring clutch, and means for engaging and disengaging the clutch and the gear.

134. A composing-frame for a typographic machine, consisting of a block having a channel or raceway for the character-bearing types, a face adapted to hold free justifiers across the line, and a ledge at the front of

the block to hold the justifiers in their proper relation to the line, substantially as described.

135. In a typographic machine, the combination with a composing-block having a type-channel, of a transfer-carriage movable laterally in a channel in the composing-block, two fingers journaled in the transfer-carriage, embracing the composing-block and extending across the type-channel.

136. In a typographic machine, the combination with a composing-block having a type-channel, of type-transferring fingers operating across the type-channel and movable horizontally and laterally.

137. In a typographic machine, the combination with a composing-block having a type-channel, of type-transferring fingers embracing the composing-block and operating across the type-channel and movable horizontally and laterally.

138. In a typographic machine, an aliuing device having a level surface, means for holding a line of character-bearing types, and means for placing the line face down upon the level surface, substantially as described.

139. In a typographic machine, an aliuing and justifying device having in combination a level surface, means for holding a line of type and justifiers, means for placing the line face down upon the level surface, and means for forcing in the justifiers.

140. The combination of opposing jaws carrying means for alternately clamping and releasing a line of type, and a bar confronting the intervening space between the jaws, adapted to catch and aline a line of type.

141. In a typographic machine, a bar-block having jaws carrying mechanism for sustaining, clamping and discharging a line or bar of type, substantially as described.

142. The combination of type-sustaining jaws, a bar confronting the jaws and forming with them a space for the admission of justifiers between the heads of the types, and a justifying-bar adapted to either force in the justifiers or enter and fill the space between the jaws and the bar, substantially as described.

143. A rocking bar-block having channels at substantially right angles to receive a line of types and justifiers, and means for sustaining all the units in any position of the block.

144. The combination of opposing type-sustaining jaws, a clamping device carried by and movable in one of the jaws, and means for advancing and retracting the clamping device, substantially as described.

145. The combination of opposing jaws, a gage-bar lying at one end of the space between the jaws, a type-sustaining bar carried by one of the jaws and reduced at one end to fit the gage-bar, and means for reciprocating the sustaining-bar, substantially as described.

146. The combination of type-sustaining jaws, a false jaw lying in one of the jaws, and means for operating the false jaw, substantially as described.

147. The combination of opposing jaws, a false jaw lying in one of the jaws and having recesses fitting over ledges, a stepped bar, and means for operating the bar to actuate the false jaw, substantially as described.

148. The combination of jaws N^4, N^5, the jaws N^4 carrying a type-sustaining spring-pressed bar n^{15}, having projections n^{18}, and an operating-bar n having depressions n^{20} adapted to receive the projections n^{18}, substantially as described.

149. The combination with a block for manipulating a line of type and justifiers, of a spring-pressed rocking lever attached to a bar, and means for automatically operating the lever to force the bar to discharge the justifiers, substantially as described.

150. The combination in a type-manipulating block, of telescoping slides carrying respectively a bar for forcing in the justifiers and a bar for discharging the justifiers, and operating means, substantially as described.

151. In a typographic machine, the combination of a rocking block, a grooved guide-plate, a pin projecting from the block and adapted to play in the groove of the guide-plate, and means for swinging the block up and down, substantially as described.

152. The combination of a receptacle adapted to receive a line of type, means for swinging the receptacle through an arc, and means for partially rotating the receptacle at the beginning of its movement and upon its return, substantially as described.

153. An end gate for a line-holder, having a slide, in combination with a spring-pressed operative lever having a projecting foot, adapted to be engaged by actuating means, substantially as described.

154. A justifier-bar having in combination two hinged parts, means for varying the elevation of one of the parts, and means for retaining, releasing and operating the bar, substantially as described.

155. The combination of a holder for carrying type, means for swinging the holder up and down, means for rocking the holder, and means for locking and unlocking the holder, substantially as described.

156. The combination with a holder N for carrying a line of type, of a latch n^{17}, a catch n^{19} adapted to engage the latch, means for swinging the block up and down, means for rocking the block, and means for disengaging the catch and latch, substantially as described.

157. The combination of opposing jaws N^4, N^5, the jaw N^5 carrying a false jaw n^{23}, a rocking bar n^{24}, and eccentric roller n^{25}, pins n^{26}, and means for operating the rocking bar, substantially as described.

158. A justifying or spacing type, having its major or base portion substantially wedge-shaped, that is, in the form of a truncated right, triangular prism, and a rectangular apex portion having parallel faces.

159. The combination of a series of molds for casting types with recessed shanks, with means for assembling the types into a line, comprising a channel having a rib to take into the recesses to sustain and guide the types.

160. The combination of a series of molds for casting types with recessed shanks, a magazine, means for storing the types in the magazine, an escapement having a detent, a composing-channel having a rib, and a line-holder having a jaw or rib, all adapted to engage the recesses in the shanks of the types.

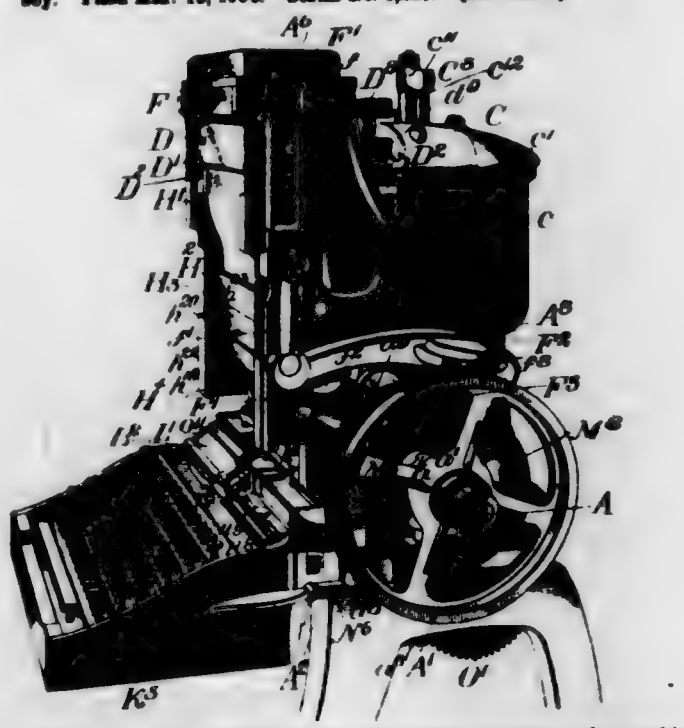
161. The combination of a series of molds to cast types with short or incomplete and recessed shanks, means for assembling the types into a line, a receptacle to receive the line, having means to engage the recesses in the shanks to sustain the types, and means for casting metal upon the base of the types and into their recesses to complete them.

162. The combination with a type-casting mechanism, comprising a series of movable molds for casting types with recessed shanks, means for moving the molds away from the types, means for holding the types by the recesses as the molds are moved away, of assembling and line-transforming mechanism, comprising elements to engage the recesses of the shanks in the successive stages of the operation.

163. The combination with a holder for a line of incomplete or short types, of means for transforming the line into a type-high bar.

164. In a typographic machine, a melting-pot having a plurality of mouths and pumps, and means for operating the pumps in succession to cast types, and a binder for the types.

694,807. MACHINE FOR THE PRODUCTION OF TYPES AND TYPE-BARS. LOUIS A. BROTT, Brooklyn, N. Y., assignor to the Composite Type Bar Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 10, 1900. Serial No. 8,220. (No model.)



Claim.—1. In a melting-pot for typographic machines, the combination of a chamber communicating with the nipples of the mouth, of means for constantly maintaining the molten metal against the base of the mouth and in the bottom of the nipples.

2. In a melting-pot for typographic machines, the combination of a main or reservoir chamber, a mouth at the top of the pot, an auxiliary chamber supplying the mouth, an intermediate chamber lying above the base of the mouth, connecting-passages and a pump.

3. In a melting-pot for typographic machines, the combination of a pump, a main or reservoir chamber, an auxiliary chamber and an intermediate chamber separated from the main chamber by division-walls, a piston-cylinder passage leading from the intermediate chamber to the auxiliary chamber, and having an overflow to the main chamber, and a connecting-passage carrying the metal forced by the pump from the main chamber to the intermediate chamber.

4. In a mold-carrier for typographic or type-casting machines, the combination of a movable mold with the walls of a channel, one of the

walls of the channel comprising a shank-block for determining the form of the shank of a type, and means for freeing the type from the wall.

5. In a mold-carrier for typographic or type-casting machines, the combination with the walls of a channel, of a movable mold, one of the walls of the channel comprising a shank-block for determining the form of the shank of a type, and means operated by the movement of the mold for freeing the type from the wall.

6. In a mold-carrier for typographic and type-casting machines, the combination with the walls of a channel, of a mold forming with a wall of the channel a type-cavity, means for freeing a cast type from the wall of the channel, and means for guiding and directing the type.

7. In a mold-carrier for typographic and type-casting machines, the combination with the walls of a channel, of a movable mold, a type-freeing device in one wall of the chamber and a spring-pressed guide in the opposite wall, the freeing device being operated and the guide released by the rising of the mold.

8. The combination of a mold-carrier having a mold-cavity, a mold, a freeing-pin extending into the mold-cavity, an arm, and means for operating the arm to reciprocate the pin, substantially as described.

9. In a mold-carrier for typographic machines, the combination of a series of angle pieces or walls with a series of angle-molds, the angle-pieces and the angle-molds together forming type-cavities, and means for moving the molds away from cast types.

10. In a typographic machine, the combination of a mold-carrier bearing a series of molds, with a yielding and rocking presser-plate, and means for forcing the presser-plate upon the heads of the molds at the moment of casting.

11. In a typographic machine, the combination with molds, of a mold-operator bearing spring-pressed fingers for operating the molds, and means for controlling the action of the fingers.

12. In a typographic machine, a mold-operator having a channeled body, fingers playing in the channels, means for controlling the action of the fingers, a bar guiding and supporting the fingers, and means for operating the bar intermittently to put the fingers into and out of the line of mold engagement.

13. In a typographic machine, a reciprocating mold-operator having a body bearing a series of fingers, and a series of unattached or loosely-supported selecting-pins playing beside and upon the fingers to control their action.

14. In a typographic machine, a mold-operator having a channeled body, fingers and selecting-pins in the channels, the fingers having operating means and the selecting-pins serving normally to lock the fingers against movement.

15. In a magazine for typographic machines, the combination with a discharge-chute of a series of rotating feed-wheels extending into the chute borne by pivoted, spring-pressed shafts.

16. The combination of a type-packer shaft with magazine feed-wheels, and an intermediate gear for actuating the feed-wheels from the type-packer shaft.

17. A composing-block for typographic machines, comprising a fixed section, a movable section lying in the fixed section and means for adjusting the movable section therein to regulate the width of the type-channel.

18. A composing-block for typographic machines, comprising a movable section and a shaft bearing polygonal adjusters, the adjusters having a series of faces at different distances from the shaft.

19. A composing-block for typographic machines, comprising a type-channel, a swinging spring-pressed locking-bar extending into the channel and engaging the several types, a free pin, and an operating-lever to force the free pin against the locking-bar.

20. A composing-block for typographic machines, comprising a type-channel, a pivoted, spring-pressed bar extending into the channel to take into recesses in the types, and operating means.

21. In a composing-block for typographic machines, the combination of relatively adjustable sections forming a variable type-channel, with hand-adjusting means and an index carried by the block.

22. In a composing-block for typographic machines having a type-channel, a justifier-chute discharging from above across the type-channel, a guide to receive justifiers and direct them to the face of the block, and a guide lying above the surface of the block to sustain the justifiers in a fixed relation to the type-channel.

23. In a typographic machine, a composing-block having a type-channel with an extension to receive the types, in combination with means for swinging a type in the extension into line with the type-channel and putting it into the channel.

24. In a typographic machine, a composing-block having a type-channel in combination with a type-packer comprising a wing revolving in a line substantially at a right angle to the type-channel.

25. A type-packer comprising a rotating shaft carrying a sector wing turning in a path behind but including the outer edge of the path of an entering type.

26. A type-packer comprising a sector-wing, supporting means, and means for rotating and reciprocating the sector-wing.

27. In a type-packer, the combination of a shaft and driving means, a sleeve on the shaft carrying a wing, a notched collar on the sleeve, and a stop-roller on which the collar plays.

28. In a type-packer for typographic machines, the combination of a rotating shaft, a sleeve carrying a type-engaging wing, an adjustable notched collar on the sleeve, a spring pressing upon the collar, and a stop-roller regulating the intermittent reciprocation of the type-packer.

29. The combination in a typographic machine, of a type-swinging finger for engaging the shank of a type, and a type-packer having a rotating shaft operating a wing to engage the types at the rear and push them forward, the shaft also controlling the type-swinging finger.

30. In a typographic machine, the combination of a composing-block having an inclined type-channel, a substantially vertical extension of the channel for receiving the entering types, a finger playing into the extension, a lever engaging the finger, and a type-packer controlling the lever and forwarding the types.

31. The combination with means for assembling and composing the units of a line of type, of mechanism for moving the line away from the assembling-point, a hand-lever or equivalent controlling means and means for locking the controlling means released by the advancing line.

32. The combination with means for assembling and composing the units of a line of type, of line-shifting mechanism for moving the line away from the assembling-point comprising means brought into action by the advancing of the composing line and a hand-lever or equivalent means for independently releasing the line-shifting devices.

33. The combination with a type-composing mechanism, of a resistant traveling ahead of the composing line, a line-shifter, and means connected with the resistant for locking the line-shifter during the composition of the line and then releasing it.

34. The combination with a type-composing mechanism, of a line-shifting mechanism comprising latches and catches, or equivalent devices for securing the mechanism during the composition of a line, a resistant finger, a rod carried by the finger, a flange on the rod, and a latch governed by the movement of the flange and thus controlling the action of the latches and catches of the line-shifting mechanism.

35. In a mechanism for determining the length of a line of type during composition, a controlling-latch, a shaft bearing the latch, and means for adjusting the latch upon the shaft to fix the point of action and the length of the line.

36. In a mechanism for determining the length of a line of type, a line-shifter and operative means, a revoluble shaft bearing an adjustable latch, a supporting or locking element carried under the latch during composition and carried from under the latch at the completion of the line.

37. In a mechanism for controlling the composition of a line of type, an alarm mechanism comprising a revoluble shaft governing the alarm, the shaft bearing an adjustable latch, a supporting flange or bar having an extension on a lower plane than the main part of the flange, and operated by the advancing line.

38. In a typographic machine, comprising a composing-block, the combination of a type-packer to forward the types step by step, a line-shifter operating automatically to slightly advance the completed line for inspection, and a line-transferring mechanism to carry the line out of the composing-block.

39. In a typographic machine, comprising a composing-block having a type-channel, the combination of a type-packer to forward the types step by step, a line-shifter to slightly advance the completed line along the type-channel for inspection, and a line-transferring mechanism to carry the line out of the composing-block.

40. The combination of a type-setting mechanism, a bar-block, a line-transfer mechanism, a common source of power-controlling connections, and an intermediate yielding clutch to permit the bar-block to continue moving after the action of the line-transfer mechanism.

41. In a typographic machine an alining-plate having a level surface, means for holding a line of type and means for bringing the alining-plate down upon the faces of the types.

42. In a typographic machine, alining and justifying means having in combination a level surface, means for holding a line of type and justifiers, means for bringing the level surface down upon the face of the types, and means for forcing in the justifiers.

43. The combination in the rotating block, R, of opposing jaws carrying means for alternately clamping and releasing a line of type, and a bar confronting the intervening space between the jaws, adapted to be forced upon the line of type to aline the types.

44. An alining-plate for types, having a channel to take over the heads of the types, and means for rocking the plate.

45. The combination with opposing jaws for sustaining a line of type, a projecting ledge taking into a recess on each type, an alining-plate, and means for bringing the alining-plate down upon the heads of the types.

46. An alining-plate, R^6, in combination with a hinged justifier device, R^5, the justifying device traveling upon the surface of the alining-plate in the act of justifying and dropping from the plate to permit the removal of the justifiers.

47. The combination with a line-holder having a channel to receive a line of type and means for transforming the line into a justified line or bar of type, of a series of removable graduated gage-plates, any one of which may be placed in the channel without other change or adjustment.

48. In a line-holder of a typographic machine, the combination of opposing jaws forming a type-channel, means for moving one of the jaws toward the other, and means for adjusting the degree of movement comprising an index-register.

49. The combination of an alining-plate, as R^6, a hinged justifying device, as R^5, embracing the alining-plate, and means for placing the justifying device upon the alining-plate at the beginning of the foward movement.

50. The swinging bar-block, R, carrying means for alining and justifying a line of type and then transforming it into a bar, and having a plunger and pin for ejecting the bar.

51. In the mouthpiece of a melting-pot, a supply-channel turning upon itself so that each charge of metal flushes the whole channel.

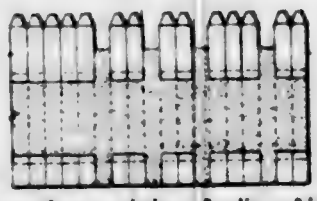
52. A magazine for justifiers comprising a receptacle having means for holding the justifiers separate and upright in the magazine.

53. A magazine for justifiers having a movable bottom, and means for moving the bottom to form a gradually-widening opening to discharge a row of justifiers in succession.

54. A substantially rectangular magazine for justifiers having a bottom of gradually-increasing width and means for moving the bottom in and out.

55. In a bar-gallery for typographic machines, the combination of a stick or plate, a rack-bar, means for locking the stick or plate to the rack-bar against upward movement, a stationary pulley, a spring-tensioned pulley, a cord or chain passing over the pulleys and supporting the stick or plate.

694,308. **COMPOSITE TYPE-BAR.** LUCIEN A. BROTT, Brooklyn, N. Y., assignor to the Composite Type Bar Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 1, 1897. Serial No. 643,106. (No model.)



Claim.—1. A type-bar consisting of a line of individual types and justifying-spaces attached to adjacent types, substantially as described.

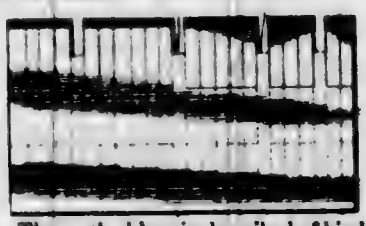
2. A type-bar consisting of assembled type units and an additional metal binder secured to the types and comprising spaces.

3. A composite type-bar consisting of assembled recessed types, and an additional metal binder lying in the recesses and intervals between the types.

4. A justified line or bar of type comprising separate but attached types and spaces.

5. An improved type-bar comprising a line of types, and spacing-bars and a locking-slug therefor formed of type-metal, whereby the types and bars and slug may be melted down and be reused, substantially as shown and described.

694,309. **PRODUCTION OF TYPE-BARS.** LUCIEN A. BROTT, Brooklyn, N. Y., assignor to the Composite Type Bar Company, Jersey City, N. J., a Corporation of New Jersey. Original application filed July 25, 1896, Serial No. 600,492. Divided and this application filed July 22, 1898. Serial No. 686,970. (No specimens.)



Claim.—1. The method herein described of binding together a series of type units which consists in casting additional metal about the types, substantially as set forth.

2. The method herein described of locking together a series of types which consists in casting additional metal between the shanks of the types and upon the bases of the types, substantially as set forth.

3. The method of binding together the assembled units of a justified line of type which consists in casting additional metal into the mold formed by the separated shanks of the units, substantially as set forth.

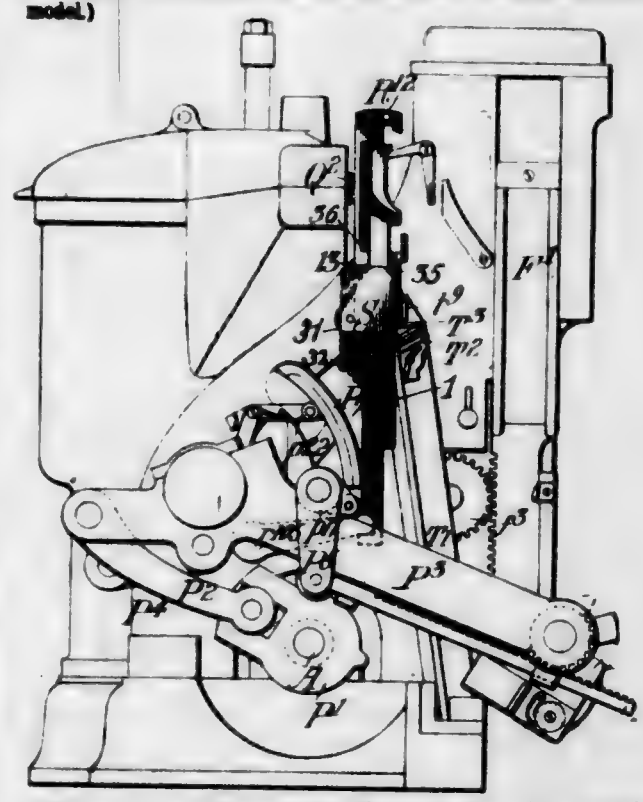
4. The method herein described of forming composite type-bars which consists in assembling and justifying a line of type units and casting a backing of metal upon and between the shanks of the types, substantially as set forth.

5. The method herein described of producing type-bars which consists in assembling and justifying units of a line and flowing molten metal between and upon the type units, whereby the line is transformed into a bar, substantially as set forth.

6. The herein-described method of applying spaces to a line of type which consists in forcing molten metal between the types and permitting it to harden and form the spaces, substantially as set forth.

7. The method of forming a line of type which consists in assembling and justifying units of the line and then forcing molten metal between the divisions of the line and permitting the metal to harden and form the spaces, substantially as set forth.

694,310. **TYPE-MAGAZINE.** LUCIEN A. BROTT, Brooklyn, N. Y., assignor to the Composite Type Bar Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 16, 1900. Serial No. 23,819. (No model.)



Claim.—1. In a type-magazine, the combination of a receptacle having a channel to receive type elements, a partition, means for moving the partition, and mechanism for regulating the movement.

2. In a type-magazine, the combination of a receptacle for the type elements, having a movable partition or false bottom, means for actuating the partition, and an escapement mechanism for regulating the movement.

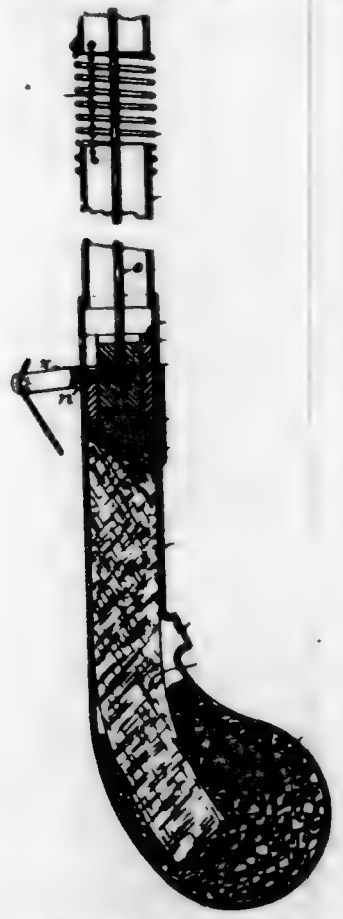
3. A type-magazine having an upper channel to receive the type elements, a lower channel with an inclined bottom to discharge the type elements, an intervening movable partition, and means for tilting the type elements, so that they may fall sidewise toward the inclined bottom.

4. A type-magazine for wedge-shaped justifiers having in combination an upper channel, a lower channel with an inclined bottom, an intervening partition, and means for moving the partition at stated periods, a serrated slide lying in the wall of the upper channel to receive the apexes of the justifiers, and means for reciprocating the slide to tilt the justifiers so that they may fall with their butt-ends directed toward the lower or discharge end of the inclined bottom.

5. In a type-magazine, the combination of a receptacle having a channel to receive a series of type elements, a partition or false bottom gradually reduced from one end to the other, means for moving the partition to discharge the type elements in succession, mechanism for regulating the movement of the partition, and means for positioning the type elements so that they may be guided in their fall toward the point of discharge.

6. In a type-magazine, the combination of a receptacle having a channel to receive and guide a series of type elements, a swinging trapezoidal partition dividing the channel, a rack carrying a spring-pressed trip which engages and operates the partition, a pinion operated by the rack and carrying a shaft, a spring having a pawl-and-ratchet connection with the shaft so that it is energized by the rotation of the shaft, an escapement mechanism and intermediate gear connecting it with the spring, and means for operating the rack.

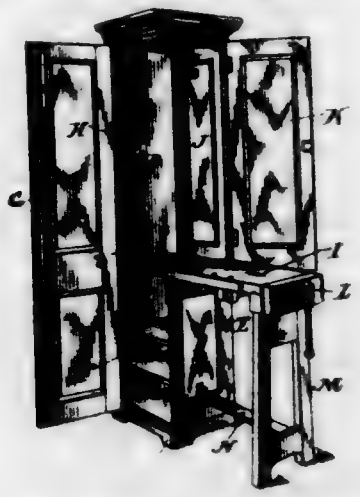
694,811. ELECTRIC CIGAR-LIGHTER. JOSEPH M. ALTHOUSE, Reading, Pa. Filed June 26, 1901. Serial No. 66,046. (No model.)



Claim.—1. A cigar-lighter consisting of a supporting-tube forming one terminal of an electric circuit, an insulated plug secured in said tube near its lower end, said plug being provided with apertures crossing each other, a bar carrying a sparking electrode entering one of the apertures, through the tube, and provided itself with an aperture near its rear end, an electrical connecting-wire entering the other aperture in the plug and passing through the bar, and means for securing said wire in place, and a wick-tube pivotally connected to the lower end of the tube and in proximity to the electrode.

2. A cigar-lighter consisting of a supporting-tube forming one terminal of an electric circuit, an insulated plug secured near the lower end thereof, said plug being provided with a horizontal and vertical screw-threaded aperture crossing each other, a screw-threaded sparking-electrode bar, provided with an aperture near its rear end adapted to register with the vertical aperture in the plug, an electric wire provided with a screw-threaded end entering the plug and passing through the registering apertures, asbestos filling in the tube beneath the plug, and a wick-tube pivoted to the lower end of the supporting-tube.

694,812. PORTABLE WORK-BENCH. DANIEL F. BARBER, Newton, Mass., assignor to The Firm of Chandler & Barber, Boston, Mass. Filed Nov. 22, 1901. Serial No. 83,244. (No model.)



Claim.—1. A bench-holding cabinet comprising a base, a fixed side rising from the base, a bench attached to the fixed side movable from a vertical position adjacent thereto to a horizontal working position extending therefrom and doors secured to the fixed side adapted when closed to form with it a compartment inclosed on all sides for holding the bench in its vertical position and when open to permit of the movement of the bench to a horizontal position and the operative use of the portion then within the cabinet as well as the portion which extends from it.

2. A bench-holding cabinet having a base, a fixed side rising from the base, a bench attached at one end to the fixed side and movable from a vertical position adjacent thereto to a horizontal working position extending therefrom, a leg for supporting one end of the bench in horizontal position secured to it to turn to and from its under surface, and folding doors secured to the fixed side and forming with it a compartment for entirely inclosing the bench and its leg when in vertical position substantially as described.

3. A bench-holding cabinet having a base and a fixed side, a bench attached to the side to be movable toward and from the same, a partial side resting upon the base to act as a support for the bench when in horizontal position.

4. A bench-holding cabinet having a base, a fixed side rising from the base, a bench secured at one end to the fixed side to be movable toward and from it, a fixed side beneath the bench when in a horizontal position, a fixed back below the surface of the bench when in horizontal position, the said last-named side and back forming with a portion of the first-named side a compartment, and the doors G, J and K.

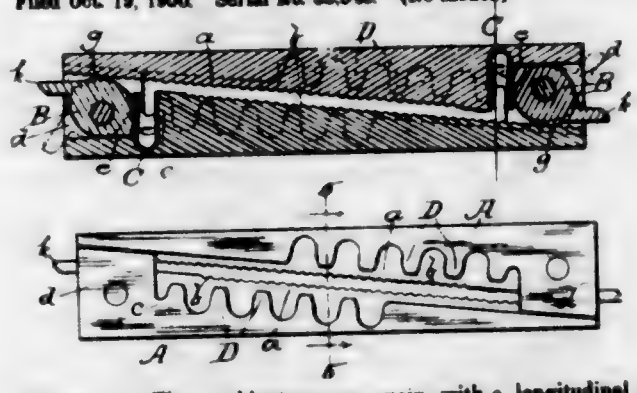
5. A bench-holding cabinet having a base and an upper and lower compartment, the latter having a fixed back and two fixed sides, the former having one fixed side and a movable back and side and both compartments having a door common to them and a bench held vertically in the upper compartment when not in use and movable to a horizontal position when in working position, a portion of the bench remaining in the compartment and a portion extending from the side of the cabinet.

6. A bench-holding cabinet having a base provided with a fixed side and having also a movable back, a movable side and a movable front, and a bench attached to the cabinet to be swung vertically therein to an inoperative position and outward across the same to a horizontal operative position.

7. A bench-holding cabinet having a compartment for holding a bench in vertical inoperative position and means for opening the side, back and front of said compartment and for moving the bench to a horizontal position and one or more bench extensions movable laterally from the front and back edges thereof or either.

8. In a bench-holding cabinet, a folding bench having a laterally-moving rest adapted to be moved within the limits of a cabinet when the bench is in inoperative position and to be moved beyond the limits of the cabinet and away from the bench to form an extension of its supporting-surface when in operative position.

694,813. PRINTER'S QUOIN. FERDINAND J. BECK, Chicago, Ill. Filed Oct. 19, 1900. Serial No. 33,046. (No model.)



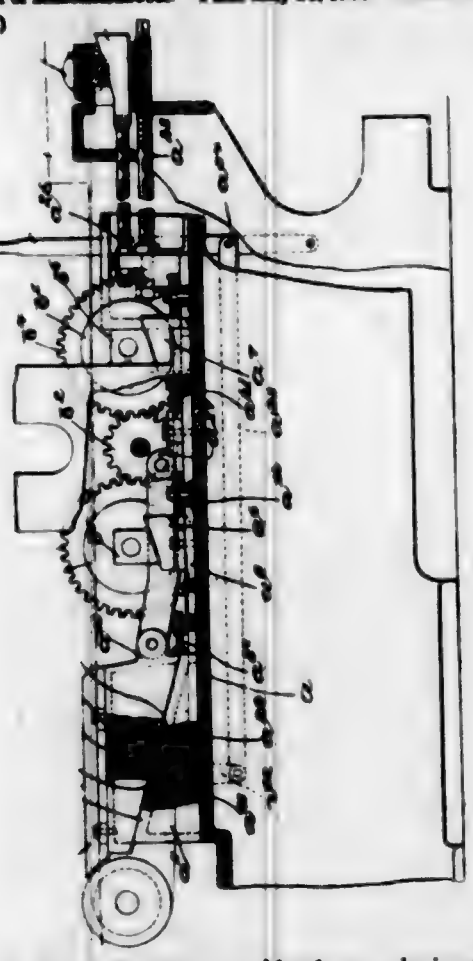
Claim.—1. The combination, in a quoin, with a longitudinal rib *a* extending from the thin end nearly to the thick end thereof and provided with transverse serrations in its inclined edge, and parallel lugs adjacent to said thicker end the space between which alines with said rib, of a cam-detent, eccentrically pivoted between said lugs, and a spring engaging the same.

2. In a quoin, the combination with a longitudinal rib *a* extending from the thin end nearly to the thick end of the same, and provided with transverse serrations in its inclined edge, and parallel lugs adjacent to said thicker end the space between which alines with said rib, of a heart-shape cam-detent, eccentrically pivoted between said lugs, which is adapted to engage the serrations of said edge, and a U-shape spring between said detent and the end of said rib, adapted to bear against the surfaces on each side of the apex thereof to hold said detent against accidental movement.

3. In a quoin, the combination with a longitudinal rib *a* extending from the thin to near the thicker end thereof and provided with a series of transverse serrations in its inclined edge, a transverse wall *c* near the thicker end of the quoin in which said rib merges and terminates, and parallel lugs *d d* between said wall and the thick end of said quoin, of a heart-shape cam-detent eccentrically pivoted between said lugs, having the segment thereof nearest the plane of the incline edge of the rib pro-

vided with serrations and having a finger *g* projecting therefrom, of a U-shape spring between the end of said rib and detent, and adapted to bear against and prevent the accidental movement thereof.

694,814. **PLANING-MACHINE.** CHARLES W. H. BLOOD, Boston, Mass., assignor to S. A. Woods Machine Company, Boston, Mass., a Corporation of Massachusetts. Filed May 31, 1901. Serial No. 62,535. (No model.)



Claim.—1. In combination, a machine-frame, a horizontally-movable platen, horizontally-stationary feed-rolls, and means moving horizontally for vertically adjusting the feed-rolls and horizontally moving the platen, and coöperating means causing a vertical movement of the platen to result from its horizontal movement.

2. In a machine of the kind described, a platen, a support therefor, said support having an inclined upper surface, means for causing relative horizontal movement of said platen and support for adjusting the platen vertically, a vertically-adjustable feed-roll, wedge-blocks supporting said feed-rolls and horizontally movable for the vertical adjustment of the feed-roll, slide-plates carrying said wedge-blocks, said slide-plates being horizontally movable on the frame of the machine, connections from said slide-plates to cause the said relative horizontal movement between said platen and its support, means for operating said slide-plates, and means for independently adjusting said wedge-blocks and said connections on said slide-plates.

3. In a machine of the kind described, a frame, slide-plates horizontally movable thereon, wedge-blocks adjustably mounted on said slide-plates, a plurality of feed-rolls vertically movable in the frame and supported therein on said wedge-blocks, and means for moving said slide-plates longitudinally of the frame of the machine.

4. In a machine of the kind described, a frame, slide-plates horizontally movable thereon, wedge-blocks adjustably mounted on said slide-plates, a feed-roll vertically movable in the frame and supported therein on said wedge-blocks, a platen provided with wedging means for raising the same, connections therefrom to said slide-plates, means for adjusting said connections on said slide-plates, and means for moving said slide-plates longitudinally of the frame of the machine.

5. In a machine of the kind described, a frame having horizontal ways at its opposite sides, slide-plates resting on and longitudinally movable along said ways, said plates having horizontal upper surfaces, wedge-blocks resting on said upper surfaces and provided with slot-and-bolt connections therewith for longitudinal adjustment, a platen, a support therefor, said platen and support having coöperating inclined surfaces, blocks mounted on said slide-plates, bolt-and-slot connections therewith for adjustment, links pivotally connected to said blocks and to said platen, a bridge-piece connecting said slide-plates, and means engaging said bridge-piece for moving said plate on said ways.

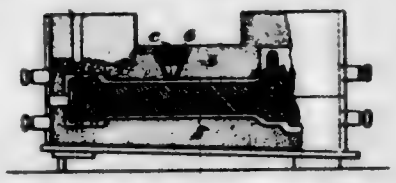
6. In a machine of the kind described, a frame having horizontal ways at its opposite sides, slide-plates resting on and longitudinally movable along said ways, said plates having horizontal upper surfaces, wedge-blocks resting on said upper surfaces and provided with slot-and-bolt connections therewith for longitudinal adjustment, a platen, a support therefor, said platen and support having coöperating inclined surfaces, blocks mounted on said slide-plates, bolt-and-slot connections therewith for adjustment, links pivotally connected to said blocks and to said platen, adjustable means for limiting the movement of said several blocks on said plates and the plates on said ways, a bridge-piece connecting said slide-plates, and means engaging said bridge-piece for moving said plate on said ways.

7. In a machine of the kind described, a bed, a cutter and feed-rolls mounted on said bed, a movable platen for supporting the material fed by said rolls to said cutter, a support for said platen, having its upper surface inclined upwardly toward said cutter, and the platen having a coöperating inclined bottom surface, wedge-blocks supported to have horizontal motion and having their top surfaces inclined downwardly toward said platen-support for carrying the journal ends of said feed-rolls, and means for simultaneously moving said wedge-blocks and platen horizontally.

8. In a machine of the kind described, a bed having an inclined upper surface, a platen-support having an inclined under surface, inclined to coöperate therewith, means for relatively moving said two parts for vertically adjusting the platen, one of said parts containing ledges located adjacent said coöperating inclined surfaces, a bar engaging said ledges, clamping-blocks opposite said bar, and means connected with said bar for moving said blocks into clamping position.

9. In a machine of the kind described, a bed having an inclined upper surface, a platen-support having an inclined under surface, inclined to coöperate therewith, means for relatively moving said two parts for vertically adjusting the platen, one of said parts containing ledges located adjacent said coöperating inclined surfaces, a bar engaging said ledges, clamping-blocks opposite said bar, an angular rock-shaft bearing against said blocks, and means to rock said shaft for operating the clamping-blocks.

694,815. **MOLD FOR CASTING.** JOHN J. CARROLL, Cleveland, Ohio, assignor to the National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed Mar. 30, 1901. Serial No. 53,594. (No model.)



Claim.—1. A mold for casting, comprising a mold-cavity and pouring-gate, and a riser-box communicating at its lower end with the mold-cavity and closed sufficiently at the top to restrain the escape of metal, and having an air-vent; substantially as described.

2. A mold for casting, comprising a mold-cavity and pouring-gate, and a riser-box contracted at its lower end, communicating at its lower end with the mold-cavity and closed sufficiently at the top to restrain the escape of metal and having an air-vent; substantially as described.

3. A mold for casting draw-bars, comprising a mold-cavity and pouring-gate, an insertible riser-box embedded in the sand of the mold and composed of dry coherent material; said riser-box being distinct from the pouring-gate and reduced in its dimensions at its lower end to a contracted opening which communicates with the shank portion of the mold-cavity; substantially as described.

694,816. **BRICK-KILN.** JOSEPH CROUTZ, Louisville, Ky., assignor of one-half to Antoine Dumesnil, Louisville, Ky. Filed Oct. 18, 1901. Serial No. 79,128. (No model.)

Claim.—1. In a brick-kiln the combination with the base B and the furnaces, of a series of separate flues from each furnace extending inward above said base different distances toward the middle of the kiln, substantially as set forth.

2. In a brick-kiln, the combination with the base B and the furnaces, of a series of separate flues above said base extending from each furnace inward for different distances, and means for controlling the passage of heat through said flues, substantially as set forth.

3. In a brick-kiln, the combination with the furnaces, of a base B having flues *a* leading from each furnace and constructed within said base, and shorter flues leading inward from the furnaces above said base, substantially as set forth.

4. In a brick-kiln, the combination with the furnaces, of a base isolated from said furnaces at its sides, all resting on a solid connecting-sub-base, substantially as set forth.

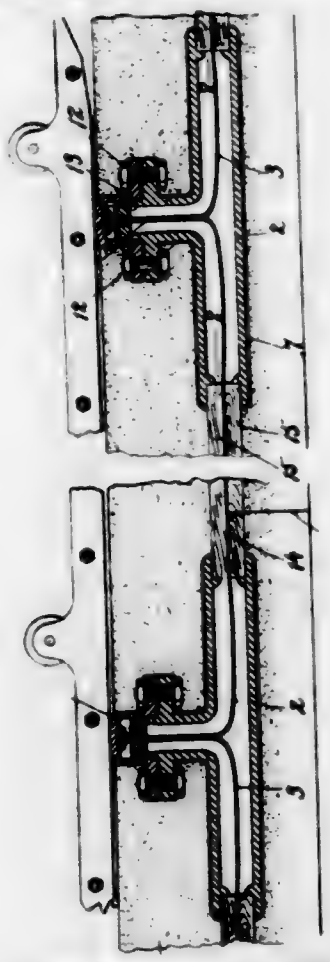
5. In a brick-kiln, the combination, with the furnaces, and side walls, of the intermediate base B having between it and said walls the space *d*,

said space separating the furnaces from said intermediate base, substantially as set forth.



6. In a brick-kiln, the combination with the furnaces, of the intermediate base B having the surrounding space *d* all resting on a solid connecting-subbase and flues extending from said furnaces across said space, substantially as set forth.

694,317. ELECTRIC TRACTION ROAD. LÉON DION, Boston, Mass. Filed June 22, 1901. Serial No. 65,583. (No model.)

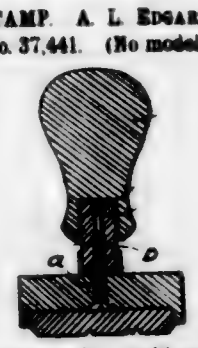


Claim.—1. A roadway-conductor comprising normally neutral sections in combination with flexible connecting members adapted to contact with the neutral sections and each having fixed end portions, and a movable magnetic intermediate portion.

2. A roadway-conductor comprising normally neutral sections in combination with flexible connecting members adapted to contact with the neutral sections, and each having fixed end portions, an enlarged movable magnetic intermediate portion, a contracted neck portion below said intermediate portion, and an insulating rest for said intermediate portion.

3. A roadway unit comprising a casing having opposite openings, insulating-fillings in said openings, an intermediate opening provided with a removable conductive cover, and a flexible connecting member having ends anchored to said fillings and an intermediate movable magnetic portion below said cover.

694,318. HAND-STAMP. A. L. EDGARTON, Chicago, Ill. Filed Nov. 23, 1900. Serial No. 37,441. (No model.)



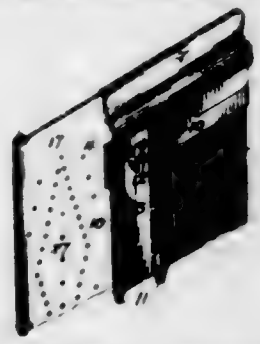
Claim.—1. In a hand-stamp, the combination with a socketed handle, of a flexible, axially-apertured part extending at one end into the socket, means for expanding said end therein, a socketed type-block into the socket of which the other end of said flexible part extends and a screw passing through said type-block and socket thereof into the said flexible part and jamming the same into the socket.

2. In a hand-stamp, the combination with a handle having a socket therein larger at its inner end of a flexible axially-apertured part, one end of which extends into and fits closely in said socket, a socketed type-block into the socket of which the lower end of said flexible part fits and a screw passing through said type-block and axially through the socket thereof into the aperture of the flexible part and acting to dilate and wedge the same into engagement with the walls thereof.

3. In a hand-stamp, the combination with a handle having a central inwardly-flaring socket, of a flexible axially-apertured part extending within said socket, a ball within said aperture acting to dilate the end of said flexible part into binding engagement in said socket, a type-block, an inverted ferrule centrally secured thereon and into which the other end of the flexible part closely fits and a screw extending upwardly through said type-block and ferrule and into the lower end of the flexible part and acting to wedge the same in the ferrule.

4. In a hand-stamp, the combination with a handle having a central inwardly-flaring socket, of a flexible axially-apertured part extending within said socket, a ball within said aperture acting to dilate the end of said flexible part into binding engagement in said socket, a type-block, an inverted ferrule centrally secured thereon and into which the other end of the flexible part closely fits and a screw extending upwardly through said type-block and ferrule and into the lower end of the flexible part and acting to wedge the same in the ferrule, the lower end of the handle being cut away around said flexible part to afford greater freedom of movement.

694,319. WINDOW-SCREEN. EDWIN L. LLOYD, Philadelphia, Pa., assignor of one-half to William H. Bruner, Philadelphia, Pa. Filed Sept. 25, 1901. Serial No. 76,563. (No model.)



Claim.—1. The combination in a metallic window-screen, of the upper and lower rails formed of sheet metal bent upon itself and having tubular strengthening portions, side pieces secured to said rails and forming a frame, woven-wire netting secured within said frame, and side or end extension-pieces for said frame lying between the walls of the top and bottom rails.

2. The combination in a window-screen, of the upper and lower rails formed of sheet metal bent upon itself and having tubular strengthening

portions, side members having their edges formed to serve as strengthening-supports, woven-wire netting secured to the frame formed by said side pieces and the top and bottom rails, and side or end extension members for said frame lying between the walls of the top and bottom rails, said extension members being perforated.

3. A metallic window-screen comprising the top and bottom rails each formed of a single piece of metal, and shaped so as to provide tubular strengthening portions at or near the center of the same, metallic side pieces also strengthened and secured to said top and bottom rails, the said top and bottom rails having two walls, extension members lying between said walls and woven-wire netting secured between the walls of said top and bottom rails and to one side of the metallic side pieces, thereby permitting free movement of the extension members.

4. A metallic window-sash having top and bottom rail-sections formed of sheet metal bent upon itself and having tubular portions for strengthening purposes, a lip formed by the double portion of the metal composing the upper rail and disposed above the tubular portion of said rail, said lip adapted to engage the window-sash when the screen is in use, side members secured to said top and bottom rails, and woven-wire netting secured to the frame formed by said side members and the top and bottom rails.

5. The combination in a metallic window-screen, of the top and bottom rails formed of sheet metal bent upon itself, side members secured to one wall of said rails, and extension-pieces carried by said top and bottom rails adapted to slide between the walls of the same.

6. The combination in a metallic window-screen, of the top and bottom rails formed of sheet metal bent upon itself, side members secured to one wall of said rails, and perforated extension-pieces carried by said top and bottom rails and adapted to slide between the walls of the same.

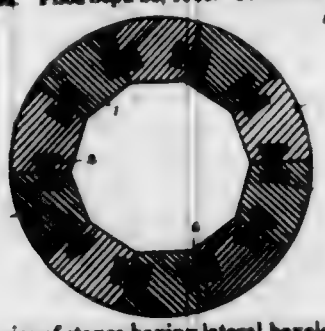
7. The combination in a metallic window-screen, of the top and bottom rails formed of metal doubled upon itself, side members secured to said top and bottom rails to form the frame of the screen, and extension-pieces for the ends of said frame, the upper and lower ends of said extension-pieces lying between the walls of the top and bottom rails.

8. The combination in a metallic window-screen, of the top and bottom rails formed of metal doubled upon itself and having tubular strengthening portions, side pieces secured to one wall of said top and bottom rails, extension-pieces for the ends of said frame lying between the walls of the top and bottom rails, and springs carried by said tubular portions of the rails, said springs engaging the extension-pieces lying between the walls of the rails and serving to maintain said pieces in the extended position.

9. The combination in a metallic window-screen, of the top and bottom rails formed of metal pieces bent upon themselves and having tubular strengthening portions, the lower edge of one portion of each rail being bent upon itself to form a bead, extension-pieces carried by said rails, and wires carried by the edges of said pieces for strengthening the same, one of said wires being bent and adapted to the beads of the top and bottom rails whereby said extension-pieces may be guided in their movement.

10. The combination in a metallic window-screen, of the top and bottom rails comprising metal members bent upon themselves, side members secured to one wall of said top and bottom rails and forming a frame, the top rail having a flange at its upper edge, wire-netting secured within the frame of the screen, and extension members carried by the frame and adapted to slide between the walls of the top and bottom rails, said extension-pieces lying between the flange of the top rail and forming with said flange when extended, a continuous closure for the edge of the sash abutting the upper rail.

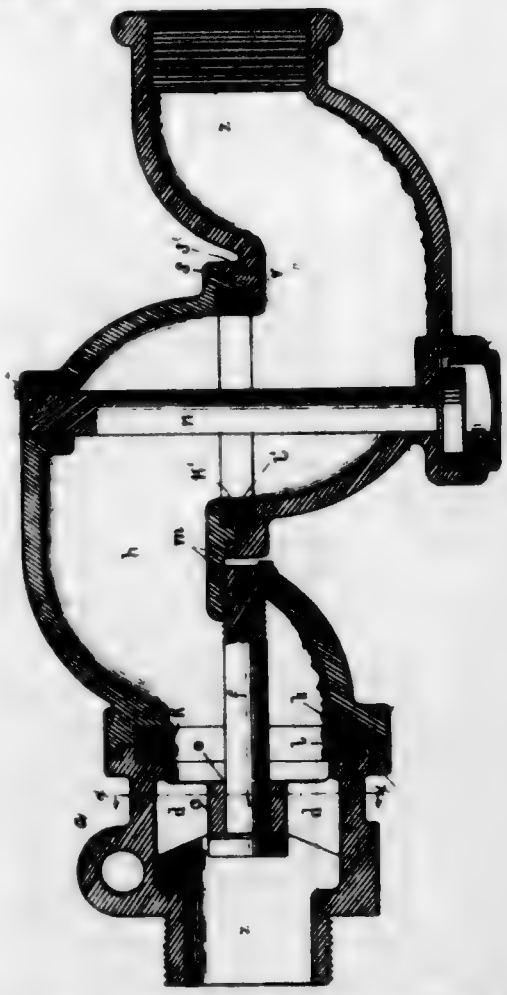
694,320. STAVE-COLUMN. JOHN S. MILLER, Fort Wayne, Ind., assignor of one-half to John B. Barrand and Hubert A. Poquignat, Fort Wayne, Ind. Filed Sept. 23, 1901. Serial No. 76,847. (No model.)



Claim.—A series of staves having lateral beveled surfaces, the outermost portions of which meet when said staves are arranged into a circular column; crevices intervening the inner portions of said staves; grooves having lateral gains in the sides of said staves; and the I-strips engaging in said grooves and securing said staves together.

694,321. PIVOT-JOINT FOR PIPES. THOMAS W. MORAN, Louisville, Ky. Filed Jan. 31, 1901. Serial No. 45,457. (No model.)

Claim.—1. A hollow pivot-joint for pipe-sections, consisting of the two end sections having their outer end portions in alinement, and the middle section connected to said end sections by inside pivot-bolts at right angles to each other, substantially as specified.



2. A hollow pivot-joint for pipe-sections, consisting of the two end sections having their outer end portions adapted to be brought into alinement, and the middle section connected to said end sections by inside pivot-bolts at right angles to each other, said sections having annular contact-faces and gaskets having their outer peripheral walls spanning the joints thereof, substantially as specified.

3. In a hollow pivot-joint for pipe-sections, the pipe-sections having annular contact-faces, the gasket having its outer peripheral wall spanning the joint thereof, and its inner peripheral wall entirely exposed to pressure and the inside pivot-bolt connecting said sections, substantially as specified.

4. In a hollow pivot-joint for pipe-sections having annular contact-faces, the gasket having its outer peripheral wall spanning the joint of said faces, and the inside pivot-bolt having a threaded end portion engaging a threaded aperture of one of said sections, and a head engaging a shoulder of the other said section, substantially as specified.

5. In a pivotal pipe-joint, the combination with a semicircular middle section, a semicircular end section, and a straight end section, having their threaded ends in the same axial line, of inside pivot-bolts at right angles to each other, and exposed gaskets on the inside of the annular contact-faces, substantially as specified.

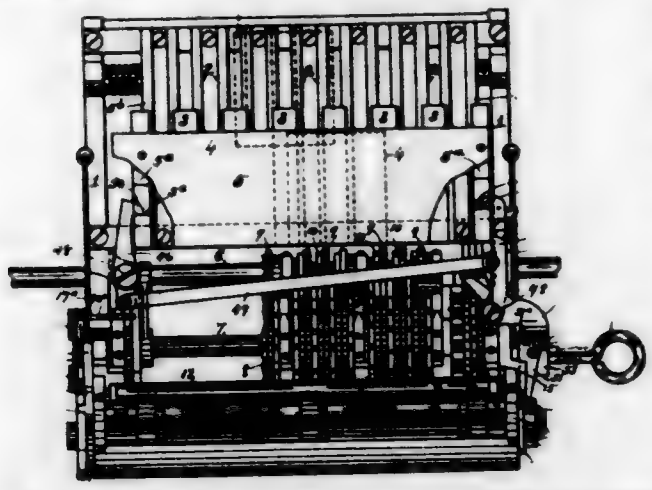
6. In a pivotal pipe-joint, the combination with the semicircular sections, having the plane of their contact-faces lying in the direction of the chords of their arcs, of the transverse concealed screw-bolt passing through the openings of their contact ends and connecting their convex walls, the annular recess in the joint, and the gasket in said recess, having its inner face exposed, substantially as specified.

694,322. FARE-REGISTER. JOHN F. OHMER, HIRAM TYLER, and WILLIAM F. BREIDENBACH, Dayton, Ohio, assignors to the Ohmer Car Register Company, Rochester, N. Y., a Corporation. Filed July 31, 1901. Serial No. 70,420. (No model.)

Claim.—1. In a register, a series of register-wheels, means for moving said wheels at each registration, a key bearing a number or other mark of identification, and means for taking printed or impressed statements from said wheels and said key, the said statements showing the work of the register and the identification-mark of the person taking such statements.

2. In a fare-register, the combination of type-wheels upon which is registered the work of said register, a key bearing an identification-mark adapted to be placed in alinement with said type-wheels, and impression

devices adapted to press one or more sheets against said type-wheels and said identification-mark on said key, and whereby an impression or print is obtained showing the work of the register and the identification of the person taking such statement.



3. In a fare-register, the combination of type-wheels by means of which the various fares collected are registered, a key bearing an identification-mark, means for supporting said key in alinement with said type-wheels, and means for taking a statement from said type-wheels and said key, the statement being identified with the person taking the same by means of said identification-key.

4. In a fare-register, the combination of type-wheels upon which the collections of fares are registered, a key bearing an identification-mark which is adapted to be placed in printing alinement with the type-wheels, and means for taking statements from said wheels and key showing the different fares collected and the person taking such statement.

5. In a register, the combination with type-wheels for registering the fares collected, printing or impression devices, a key controlling such printing or impression devices, said key having an identification-mark which is adapted to be placed in alinement with the type-wheels, and whereby means are afforded for identifying with each statement taken from the register, the person taking the same.

6. In a fare-register, the combination with type-wheels upon which the various fares collected are registered, of a key bearing an identification-mark adapted to be placed in alinement with said type-wheels, printing or impression devices for taking statements from said wheels and key, said statements showing the various fares collected and the person taking the statements, and mechanism for locking said register, the said locking mechanism under the control of the identification-key.

7. In a fare-register, the combination with type-wheels which register the various fares collected, devices for taking statements from said type-wheels, and means for locking said devices so that they may not be operated, of means for identifying the person taking such statements therewith, the said identification means controlling the locking mechanism for the devices through which the statements are taken.

8. In a fare-register, the combination with type-wheels upon which are registered the various fares collected, printing or impression devices through which statements are taken from said wheels, of an identification-key by means of which the person taking such statements is identified therewith, and locking mechanism under the control of such identification-key and whereby the printing or impression devices may be actuated to take an impression or print when said identification-key is placed in printing alinement with the type-wheels.

9. In a fare-register, the combination with type-wheels to register the various fares collected, printing or impression devices through which statements are taken from said wheels, and means for locking said printing or impression devices against operation, of an identification-key, means under the control of said identification-key whereby the register is locked against operation when said key is not in a position to print.

10. In a fare-register, the combination with type-wheels which register the various fares collected, printing or impression devices by means of which statements are obtained from said type-wheels, of an identification-key by means of which the person taking such statement is identified therewith, means for locking the register against operations at desired times, said means being under the control of the identifying-key, and means for locking the printing or impression devices against operation, said last-named means being under the control of the locking mechanism which is controlled by the identification-key.

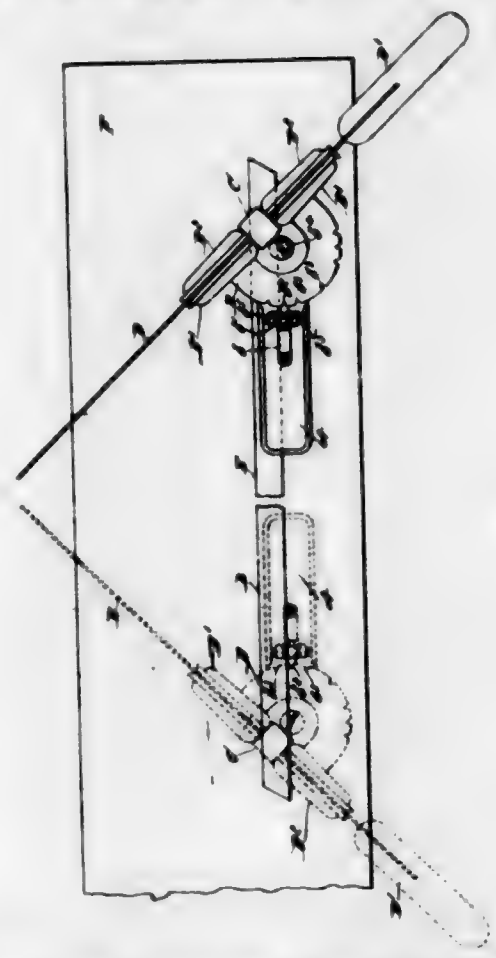
11. In a register, the combination of groups of register-wheels, means for moving the wheels of each group at each registration, a key bearing a number or other mark of identification, and means for taking impressed or printed statements from said wheels and said key, whereby the work of the register is ascertained, and the person taking each statement is identified therewith.

12. In a fare-register, the combination with a series of groups of register-wheels, and means for moving the wheels of each group upon each registration, of means for taking statements from said wheels, a key bearing an identification-mark by which the person taking such statements is identified therewith, and means for supporting said key in printing alinement with the type-wheels.

13. In a register, the combination with register-wheels upon which the transactions of a register are recorded, means for moving said wheels at each registration, means for taking statements from said wheels, an identification device adapted to be placed in a position to print simultaneously with the statements taken from said wheels, said identification device being also adapted to place the register in an operative condition when it is inserted therein.

14. In a fare-register, the combination with register-wheels arranged in groups and upon which the various transactions of the register are recorded, means for moving said wheels at each registration, of a pressure-bar, means for actuating said pressure-bar, and a printing-key by means of which an operative relation is established between said pressure-bar and the means for actuating said pressure-bar, said key having an identification-mark which is placed in line with the printing-surfaces of the wheels when said key is inserted in a position which establishes the operative relation between the pressure-bar and its actuating mechanism.

694,828. MITER-MACHINE. WILLIAM J. PARSONS, Montague, Mass., assignor to Langdon Mitre Box Company, Erving, Mass., a Corporation. Filed Aug. 21, 1901. Serial No. 72,763. (No model.)



Claim.—1. The herein-described miter-machine, consisting of the base A, provided with the solid central fin *a*, having a face on each side formed at right angle to the under side of the said base; the base-plate B, provided with the notches b^2, and adapted to revolve on the pivot which secures it to the base; the saw-guide plates B' B^2; the spring C, secured to said guide-plates; the adjustable catch or bolt b', having the pointed end b^3, and adapted to coincide with the said notches, all combined substantially as and for the purposes set forth.

2. In a miter-machine, the combination of a base provided with a longitudinal central fin and having two right-angular faces in connection with the under side of said base; with suitable means for holding and adjusting a saw, substantially as and for the purposes set forth.

3. In a miter-machine, the base A, having a double-faced solid fin; a movable base-plate secured to the said base and provided with suitable notches and suitable guide-plates supported thereon, and an adjustable catch suitably held and having a pointed end corresponding with said notches and adapted to engage them, all combined substantially as and for the purposes set forth.

4. In a miter-machine, the box *b*, provided with the adjusting-screws b^5 b^5, the catch b', adapted to be moved longitudinally and laterally, the

revolving base-plate B, arranged to present a suitable rack for the engagement of said catch, and having suitable saw-guides, and the base A, combined substantially as and for the purposes set forth.

5. In a miter-machine, the base A, having the central fin *a*, solid with said base and forming a right angle with the under side of said base upon each face of said fin, and adapted to operate as and for the purpose described.

6. In a miter-machine, the base-plate B, adapted to revolve and provided with suitable notches b^3, in combination with the catch *b'*, adapted to be adjusted laterally by suitable means, substantially as and for the purposes set forth.

694,824. RECEIVER FOR PNEUMATIC-DESPATCH TUBES. ALBERT W. PEARSALL, New York, N. Y. Filed June 11, 1901. Serial No. 64,167. (No model.)



Claim.—1. A receiving-terminal having a carrier-removal opening made shorter or smaller than the carrier substantially as described.

2. A receiving-terminal having a carrier-removal opening, and a closure or lid for a portion of the said opening.

3. A receiving-terminal having a carrier-removal opening and a closure or lid for part of said opening to normally diminish the size of the latter below the size of the carrier and prevent the latter accidentally leaving the terminal substantially as described.

4. A receiving-terminal having a pneumatic buffer of hollow hemispherical shape and a carrier-removal opening of less length than the carrier, substantially as described.

5. A receiving-terminal having a flange, a buffer seated on the flange, and said terminal farther provided with a carrier-removal opening of less length than the carrier substantially as described.

6. A receiving-terminal having a flange, a closing-plate secured at the flange, and a buffer seated on the flange so as not to rest on or press against the closing-plate substantially as described.

7. In a pneumatic-despatch-tube apparatus a delivery and receiving terminal having a carrier-removal opening of less length than the carrier, and a standard or support made to secure said delivery and receiving terminal in alinement and out of contact with one another substantially as described.

8. In a pneumatic-despatch-tube apparatus a delivery and receiving terminal, combined with a suction-standard, said receiving-terminal and the end or mouth of said delivery being secured to the suction-standard in alinement with one another substantially as described.

9. A suction-standard combined with a delivery and receiving terminal having their delivery and receiving mouths or portions in alinement with but out of contact with one another, fastenings for securing said mouth portions to the standard, and a brace or fastening for the lower or removal end portion of the terminal substantially as described.

10. A suction-standard combined with a delivery and receiving terminal, a fastening for securing the upper or receiving portion of the terminal to the standard, and a brace on the standard connected to the lower or removal portion of the terminal, said terminal being adapted to be swiveled or set in the fastening for causing its removal portion to extend in desired direction substantially as described.

694,825. ARTIFICIAL LEG. JOHN A. PEER, Philadelphia, Pa., assignor to Arthur L. Blessing, Baltimore, Md. Filed May 16, 1901. Serial No. 60,555. (No model.)



Claim.—1. An artificial leg, comprising among its members a thigh portion having side stiffening-bars, the outer bar being extended upwardly a greater distance than the inner bar, flexible side portions connected to said stiffening-bar, adjustable devices for connecting said side portions together and a belt secured to said outer side bar adjacent to its upper end, substantially as described.

2. An artificial leg comprising among its members, the thigh-section, a calf-section, a hinge connection between the said sections, a spring for said hinge connection and devices for adjusting the tension of said spring having a part extending to the exterior of said hinge connection adapted to be operated without separating the parts of said hinge connection, substantially as described.

3. An artificial leg comprising among its members, the thigh and calf sections, a hinge connection connecting said sections comprising two plates pivotally connected, and provided with stops to prevent the hinge from opening rearward, a spring for said hinge connection, a rotatable adjusting device for said spring and devices for holding said rotatable device in its adjusted position, substantially as described.

4. An artificial leg comprising among its members, the thigh and calf sections, hinge connections between said sections, each comprising a pair of plates, pivotally connected, a rotatable part disposed concentrically with the pivot of said plates and provided with ratchet-teeth, a coiled spring between said plates, secured to one of said plates, and to said rotatable part, and a pawl on the other plate engaging said ratchet-teeth, substantially as described.

5. An artificial leg comprising among its members the thigh and calf sections, a hinge connection between said sections consisting of two plates, one secured to each section, each plate being provided with a part to engage a part of the other plate to limit the movement of the hinge in one direction, a rotatable hub passing through one of said plates and provided outside the hinge with means for turning it, a spring secured at one end to one of said plates and at the other end to said hub, ratchet-teeth on said hub, a pawl secured to one of said plates and engaging said ratchet-teeth, and a pivot passing through said hub, and holding said plates together, substantially as described.

6. An artificial leg comprising among its members the thigh and calf sections, separate hinge connections between said sections located at

the inner and outer sides thereof, said calf-section being provided with a cross-bar adjacent to said hinge connections and means for adjusting said cross-bar longitudinally to regulate the width of said thigh-sections, substantially as described.

7. An artificial leg comprising among its members the thigh and calf sections, separate hinge connections between said sections located at the inner and outer sides thereof said thigh and calf sections being each provided with a cross-bar, adjacent to said hinge connections, and means for adjusting each of said cross-bars longitudinally to regulate the width of said sections, to insure the proper operation of said hinge connections, substantially as described.

8. An artificial leg comprising among its members, thigh and calf sections, each provided with lateral stiffening-bars, and flexible side portions, hinge connections between the adjacent stiffening-bars of said sections, each section being provided with a removable, adjustable cross-bar engaging its stiffening-bars, adjacent to said hinge connections, substantially as described.

9. An artificial leg comprising among its members, thigh and calf sections, each provided with lateral stiffening-bars, and flexible side portions, hinge connections between the adjacent stiffening-bars of said sections, each section being provided with a removable and adjustable cross-bar, comprising threaded rods or bolts extending through opposite stiffening-bars, adjacent to said hinge connections, nuts on said rods or bolts for securing each to one of said bars, and a sleeve provided with right and left threaded apertures connecting said rods or bolts, substantially as described.

10. An artificial leg comprising among its members, the thigh-section and calf-section hinged together, each section being provided with a means for holding and vertically adjusting a leg-supporting sling, and a sling adapted to be secured to either section and vertically adjusted therein substantially as described.

11. An artificial leg comprising among its members, the thigh-section provided with lateral stiffening-bars, flexible side portions and a plurality of strap-securing devices in different vertical planes, of a sling provided with supporting-straps for engaging adjustably said strap-securing devices, to enable the sling to be adjusted vertically, substantially as described.

12. An artificial leg comprising among its members the thigh-section composed of inner and outer side bars and flexible side portions connected therewith, the outer side bar being extended upward beyond the inner side bar, means for adjustably securing said flexible side portions together, a belt secured to the upper end of said outer side bar, and a crutch-support pivotally connected to said outer side bar below its upper end, at a point substantially in line with the hip-joint, substantially as described.

13. An artificial leg comprising among its members, the thigh-section provided with lateral stiffening-bars, and flexible side portions, a crutch-support hinged to the outer of said stiffening-bars at a point substantially in line with the hip-joint and a spring-pawl adapted to engage a recess in a part connected with said crutch-support to hold it in line with said stiffening-bar, substantially as described.

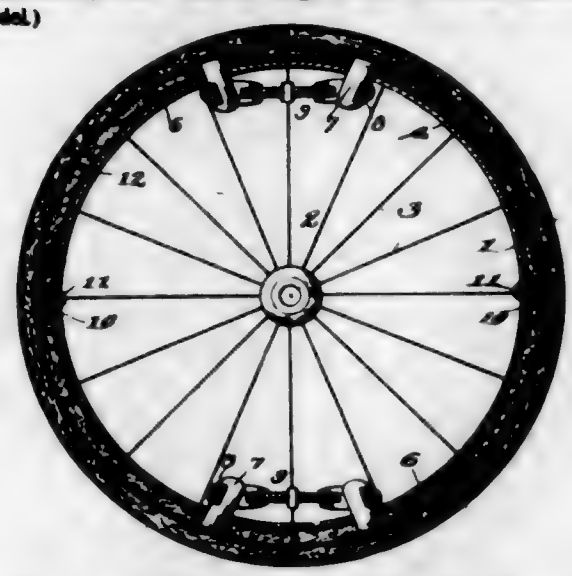
14. An artificial leg comprising among its members the thigh-section and calf-section each provided with lateral stiffening-bars, and flexible side portions secured thereto and adjustably connected to each other, hinge connections between adjacent stiffening-bars, a removable cross-bar, engaging the side bars of each section, devices on each section for holding and vertically adjusting a sling, and a sling adapted to be secured to either of said sections, substantially as described.

15. An artificial leg comprising among its members, a thigh and calf sections, each provided with a pair of lateral stiffening-bars, and flexible side portions, of a foot-section having the outer portion thereof provided with a vertically-disposed part adapted to extend up within the lower part of the calf-section and provided on each side with a vertical recess to receive the lower ends of the side bars of said calf portion and a detachable bolt passing through said stiffening-bars and said vertically-disposed part, and forming the sole connection between the foot-section and calf-section, substantially as described.

16. An artificial leg comprising among its members thigh and calf sections each provided with a pair of lateral stiffening-bars, and flexible side portions, of a foot-section having the outer portion thereof provided with a vertically-disposed part adapted to extend up within the lower part of the calf-section and provided on each side with a vertical recess to receive the lower ends of the side bars of said calf portion, the said vertically-disposed portion of the foot-section, and the contiguous portions of said side bars being provided with registering vertically-disposed slots, and a detachable bolt passing through said slots and forming the sole connection between the foot-section and calf-section, substantially as described.

17. An artificial leg comprising among its members, the foot-section provided with parts movable with respect to each other and a joint connecting said parts including two plates, each provided with hemispherical sockets, the one plate being provided with rocker-lugs and the other with recesses to receive said lugs, a ball interposed between said plates and engaging the hemispherical sockets thereof, and a bolt passing through slotted portions of said plates and through said ball, substantially as described.

694,326. CLAMPING DEVICE FOR VEHICLE-WHEEL TIRES. JOSEPH D. PRESCOTT, Boston, Mass., assignor of two-thirds to Charles E. Bacon, Winchester, Mass., and Albert W. Griffith, Beechmont, Mass. Filed Dec. 20, 1900. Renewed Aug. 1, 1901. Serial No. 70,567. (No model.)



Claim.—1. In a device for connecting the sections of a tire to a wheel, plates secured to the tire and provided with arms extending at an inclination, bands for connecting together the said plates, a socket secured to said band, a fastening-pin operating in said socket, and means for connecting the arms together.

2. In a device for connecting the sections of a tire to a wheel, a plate secured to each end of the said sections, an arm carried by each of said plates, a band connected to each of said plates, means engaging said arms for securing the sections to the wheel, a socket secured to said band, and a fastening means engaging said socket.

3. In a device for connecting the sections of a tire to a wheel, a plate secured to each end of the said sections, an arm carried by each of the said plates, the arms of one section extending toward the arms of the adjacent section, a band engaging each of said sections and connected to the plates thereof, a socket secured to said band, a fastening means engaging said socket and means engaging said arms for connecting the sections together.

4. In a device for connecting the sections of a tire to a wheel, a pair of plates suitably secured to each of the sections, an arm carried by each of the plates, extending through the section and into the wheel, each of said arms provided with a seating, bands connected to said plates, a socket secured to each of said bands and extending through said sections, fastening means engaging in said socket, and an adjustable means engaging in said seatings for connecting the arms together thereby securing the tire to the wheel.

694,827. SIGNAL-RECORDING MECHANISM. GEORGE J. SCHOEPFEL, New York, and HENRY W. ATLWARD, Brooklyn, N. Y., assignors, by direct and mesne assignments, to the Signal and Control Company, New York, N. Y., a Corporation of West Virginia. Filed Dec. 1, 1900. Renewed Jan. 13, 1902. Serial No. 89,486. (No model.)

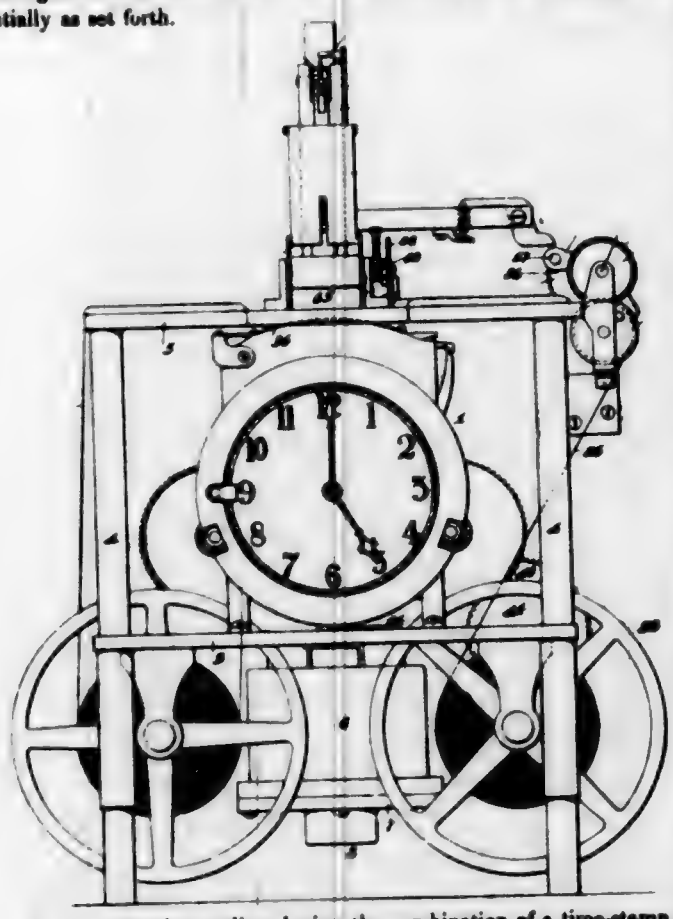
Claim.—1. In a signal-recording device, the combination of a signal, controlling mechanism for controlling said signal, a time-stamp, mechanism for effecting a record from the time-stamp at each operation of the signal, and means controlled by the time-stamp for operating said controlling mechanism, substantially as set forth.

2. In a signal-recording device, the combination of a signal, a controlling-magnet for controlling said signal, a time-stamp, mechanism for effecting a record from the time-stamp at each operation of the signal, a circuit including said magnet, a circuit-closer in said circuit adapted to be periodically closed by the time-stamp, and a switch in series with said circuit-closer, substantially as set forth.

3. In a signal-recording device, the combination of a signal, a controlling-magnet for controlling said signal, a time-stamp, mechanism for effecting a record from the time-stamp at each operation of the signal, a circuit including said magnet, a circuit-closer in said circuit adapted to be periodically closed by the time-stamp, a switch in series with said circuit-closer, and a contact-plate with which said switch may engage to short-circuit said circuit-closer, substantially as set forth.

4. In a signal-recording device, the combination of a time-stamp, a

signal, a cylinder operated simultaneously with said signal, a piston in said cylinder, a walking-beam connected to said piston, a spring-pressed plunger, connections between the plunger and said walking-beam, means for releasing said connections, and a hammer carried by said plunger, substantially as set forth.



5. In a signal-recording device, the combination of a time-stamp, a signal, a cylinder operated simultaneously with said signal, a piston in said cylinder, a walking-beam connected to said piston, a spring-pressed plunger, a finger carried by said walking-beam engaging said plunger, a cam carried by said finger, a pin arranged in the path of said cam and with which the cam engages to disengage the finger from said plunger, and a hammer carried by said plunger, substantially as set forth.

6. In a signal-recording device, the combination of a whistle, a time-stamp, a vacuum-cylinder, an exhaust-pipe leading into said vacuum-cylinder and from which the air is exhausted simultaneously with the operation of the whistle, a piston in said cylinder, a normally open downwardly-movable valve in said piston, and means operated by the piston for effecting a record from the time-stamp, substantially as set forth.

7. A signal-recording mechanism comprising a signal, a time-stamp, a hammer arranged to effect a record from said time-stamp, a plunger carrying said hammer, a spring forcing the hammer toward the time-stamp, means for limiting the movement of said spring before the hammer engages the time-stamp, but permitting the said hammer to effect a record from the time-stamp by its momentum, and means for operating the plunger simultaneously with the signal, substantially as set forth.

8. A signal-recording mechanism comprising a signal, a time-stamp a hammer arranged to effect a record from said time-stamp, a plunger carrying said hammer, a spring forcing the hammer toward the time-stamp means for limiting the movement of said spring before the hammer engages the time-stamp, but permitting the said hammer to effect a record from the time-stamp by its momentum, a counteracting-spring for returning the hammer to its normal position, and means for operating the plunger simultaneously with the signal, substantially as set forth.

9. In a signal-recording device, the combination of a time-stamp, a signal, a hammer, mechanism for operating the hammer simultaneously with the signal, a tape-strip interposed between the hammer and the time-stamp and on which the records are made, and feed mechanism for said strip operated simultaneously with the signal and comprising a pair of feed-rolls, a pawl-arm for positively rotating one of said rolls, and means for effecting a retarded return movement of said pawl-arm, substantially as set forth.

10. In a signal-recording device, the combination of a time-stamp, a signal, a hammer, mechanism for operating the hammer simultaneously with the signal, a tape-strip interposed between the hammer and the time-stamp and on which the records are made, and feed mechanism for said strip operated simultaneously with the signal and comprising a pair of feed-rolls, a pawl-arm for positively rotating one of said rolls, and a segment cooperating with an escapement mechanism for effecting a retarded return movement of said pawl-arm, substantially as set forth.

11. In a signal-recording device, the combination of a time-stamp, a signal, a hammer, mechanism for operating the hammer simultaneously with the signal, a tape-strip interposed between the hammer and the time-stamp and on which the records are made, and feed mechanism for said strip operated simultaneously with the signal and comprising a pair of feed-rolls, a pawl-arm for positively rotating one of said rolls, and a segment cooperating with an escapement mechanism for effecting a retarded return movement of said pawl-arm, said segment being provided with a slot therein, whereby a portion of the movement of the pawl-arm will be made independent of said segment, substantially as set forth.

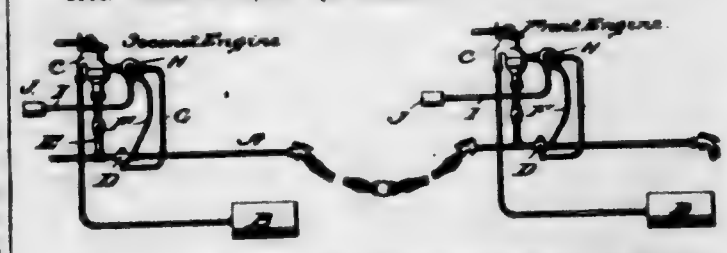
12. In a signal-recording device, the combination of a time-stamp, a cylinder, a piston therein, a hammer, connections between said hammer and the time-stamp, a tape-strip between the hammer and the time-stamp and on which the records are made, and feeding mechanism for said strip comprising two feed-rolls, a pawl-arm for moving said feed-rolls, an arm movable with the piston, and a pivoted lever on said arm cooperating with the pawl-arm, substantially as set forth.

13. In a signal-recording device, the combination of a time-stamp, a cylinder, a piston therein, a hammer, connections between said hammer and the time-stamp, a tape-strip between the hammer and the time-stamp and on which the records are made, and feeding mechanism for said strip comprising two feed-rolls, a pawl-arm for moving said feed-rolls, an arm movable with the piston, means for adjusting said arm, and a pivoted lever on said arm cooperating with the pawl-arm, substantially as set forth.

14. In a signal-recording device, the combination of a time-stamp, a tape-like strip, mechanism for effecting a record on said strip, mechanism for feeding the strip, and take-up mechanism for the strip cooperating with the mechanism for effecting the record and comprising a take-up reel, a pawl-arm, a spring for moving said pawl-arm to rotate the take-up reel, and means for positively moving the pawl-arm against the tension of said spring at the making of each record, substantially as set forth.

15. In a signal-recording device, the combination of a time-stamp, a pressure-cylinder, a piston in said cylinder, a hammer, connections between the piston and the hammer, a tape-like strip interposed between the hammer and the time-stamp, feed mechanism for said strip, and a take-up mechanism comprising a take-up reel, a pawl-arm, a spring for moving said pawl-arm to turn the take-up reel, and an arm movable with the piston for engaging the pawl-arm to move it downward against the tension of said spring simultaneously with the operation of making each record, substantially as set forth.

694,828. AIR-BRAKE. CHARLES A. SELBY, Roanoke, Va., assignor of one-half to William H. Lewis, Roanoke, Va. Filed Aug. 9, 1901. Serial No. 71,469. (No model.)



Claim.—1. In an air-brake system, the combination, with the train-pipe and engineer's brake-valve, of a check-valve, placed in the train-pipe at a point in advance of the connection between the train-pipe and the engineer's brake-valve, said check-valve provided with a pipe connection by which air-pressure can pass from the train-pipe ahead of the check-valve, to the equalizing-chamber of the engineer's brake-valve, substantially as described.

2. In an air-brake system, means for cutting out of the equalizing-drum pressure from the equalizing-chamber and valve of the engineer's brake-valve, and the substitution therefor of the pressure in the train-pipe ahead of a check-valve, so placed as to prevent flow or air-pressure forward through the check-valve, said pressure to flow through suitable connections from the train-pipe ahead of the check-valve to the equalizing-chamber of the engineer brake-valve, substantially as and for the purpose described.

3. In an air-brake system, the combination with the train-pipe and engineer's valve of a check-valve placed in the train-pipe at a point in advance of the connection between the train-pipe and the engineer's brake-valve, said check-valve so arranged as to prevent flow of air-pressure forward, except when held open by the action of a spring, said spring to be compressed or released by action of a piston operated by air-pressure from below by means of a cock in a pipe connecting the cavity under the piston with the engineer's brake-valve at a suitable point, substantially as and for the purpose described.

4. In an air-brake system, the combination with the train-pipe and engineer's valve, of a train-pipe check-valve, placed in the train-pipe at a point ahead of the connection of the train-pipe to the engineer's valve,

said check-valve being provided with a supplementary valve with a double seat, and with ports for the passage of air-pressure, substantially as and for the purpose described.

5. In an air-brake system, the combination with the train-pipe and engineer's valve, of a train-pipe check-valve located in the train-pipe at a point in advance of the connection of the train-pipe with the engineer's valve, said check-valve having a pipe connection with a controlling-cock; a pipe connecting the chamber under the spring-piston of the train-pipe check-valve with the controlling-cock; a pipe connecting the equalizing-drum with the controlling-cock and a connection between the controlling-cock and the engineer's brake-valve leading into the equalizing-piston-valve chamber, substantially as and for the purpose described.

694,829. TAPE-HOLDER. RICHARD J. SHERTON, Newark, N. J., assignor to the Whitehead & Hoag Company, Newark, N. J., a Corporation of New Jersey. Filed July 24, 1901. Serial No. 69,569. (No model.)



Claim.—1. A tape-holder comprising an annular band having a tape-opening and an aperture, and a spring-clasp secured to the band and tensioned to impinge the tape against the band in proximity to the opening, said clasp having a pressure-piece projecting through the aperture.

2. In a tape-holder the combination with a band having a tape-opening and an aperture, of a clasp within the band and having a portion thereof projecting outwardly through the aperture, said clasp being secured to the band and tensioned to impinge the tape against the band in proximity to the opening.

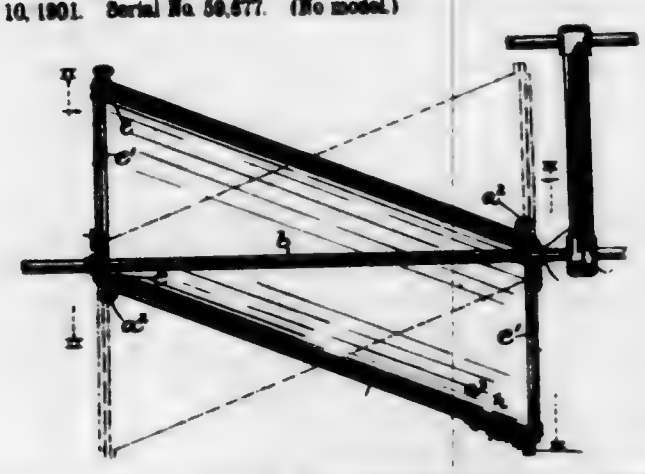
3. The combination with a tape-holder shell having a tape-opening and an aperture, a spring-clasp secured to the shell and provided with a yielding portion extending partially across the opening for impinging the tape against the adjacent portion of the shell, said yielding portion having a finger-piece projecting through the aperture.

4. In a tape-holder, the combination of a cylindrical band and a spring-clasp normally tensioned toward its inner face, the band and clasp being provided with tape-openings out of alinement with each other, and means for depressing the clasp against its tension.

5. In a tape-holder, the combination with a cylindrical band having a tape-opening and an aperture, a spring-clasp within the band and secured at one end, its other end being tensioned toward the inner face of the band and provided with a tape-opening out of alinement with the former tape-opening, the intermediate portion of the clasp being depressed into the aperture for the purpose described.

6. In a tape-holder, the combination with a shell consisting of an annular band and caps inclosing the ends of the band, said band being formed with a tape-opening and an aperture, a spring-actuated drum for the tape, and a spring-clasp within the shell and secured at one end to the band, the opposite end of the clasp being extended partially across and into the tape-opening and formed with a slot for receiving the tape, the intermediate portion of the clasp being depressed into the aperture for the purpose set forth.

694,880. MACHINE FOR FORMING BALL-SHAPED OR SPHERICAL BODIES. SOLOMON SMITH, Ravenna, Ohio, assignor of two-thirds to John J. Lightcap and John R. Albright, Ravenna, Ohio. Filed May 10, 1901. Serial No. 59,577. (No model.)



Claim.—1. A machine for forming ball-shaped or spherical bodies, comprising an upwardly and downwardly extending inclined cylinder having heads cut away centrally to form holes for receiving bodies or blanks to be operated upon, and two cross-bars arranged centrally and radially of and rigid with the different heads, respectively, and the cylinder being rotatably supported at the said cross-bars and having its axial line arranged horizontally or approximately horizontally, substantially as and for the purpose set forth.

2. A machine for forming ball-shaped or spherical bodies, comprising an upwardly and downwardly extending inclined cylinder provided, at the ends, with heads cut away centrally to form holes for receiving bodies or blanks to be operated upon, cross-bars extending across the said holes and rigid with the heads, means for rotating the cylinder comprising a horizontally-arranged or approximately horizontally arranged shaft extending through the cylinder and through the aforesaid bars, means establishing operative connection between the said cross-bars and the shaft, and means for rotating the shaft, substantially as and for the purpose set forth.

3. A machine for forming ball-shaped or spherical bodies, comprising a horizontally-arranged or approximately horizontally arranged shaft and an upwardly and downwardly extending inclined cylindrical shell operatively mounted upon the shaft and provided, at the ends, with internal rims extending circumferentially of the cylinder around the shaft, substantially as and for the purpose set forth.

4. A machine for forming ball-shaped or spherical bodies, comprising an upwardly and downwardly extending inclined cylinder having heads cut away centrally to form holes for receiving blanks or bodies to be operated upon, and two cross-bars arranged centrally and radially of and rigidly secured to the outer side of the different heads, respectively, means for rotating the cylinder and comprising a horizontally-arranged or approximately horizontally arranged shaft extending through the cylinder and through the aforesaid bars; means establishing operative connection between the said cross-bars and the shaft, and means for rotating the shaft, substantially as and for the purpose set forth.

694,331. BREECH-LOADING FIREARM. FRANK SNYDER, Fulton, N. Y., assignor to Hunter Arms Company, Fulton, N. Y., a Corporation of New York. Filed Nov. 21, 1900. Serial No. 37,221. (No model.)



Claim.—1. In a breech-loading fire arm, an ejector mechanism comprising a spring-actuated extractor-bar, in combination with a hammer, and means controlled by the hammer for preventing the tensioning of the spring when the hammer is cocked.

2. In a breech-loading firearm, an ejector mechanism comprising an extractor-bar, a spring-actuated tumbler for moving the extractor-bar, means movable into and out of the path of movement of the tumbler for the purpose described, in combination with a hammer, and a cocking-bar for controlling the position of said means as the hammer assumes its cocked and firing positions.

3. In a breech-loading firearm, an ejector mechanism comprising an extractor-bar, a spring-actuated tumbler for moving the extractor-bar, a sear reciprocally movable into and out of the path of the tumbler for the purpose described, in combination with a hammer, and a cocking-bar for controlling the position of the sear as the hammer is cocked or fired.

4. In a breech-loading firearm, an ejector mechanism comprising an extractor-bar, a spring-actuated tumbler for moving the extractor-bar, a movable sear, a spring for forcing the sear into the path of the tumbler, in combination with a hammer, and a cocking member adapted to hold the sear out of the path of the tumbler when the hammer is cocked.

5. In a breech-loading firearm, an ejector mechanism comprising an extractor-bar, a spring-actuated tumbler for moving the extractor-bar, a spring-actuated sear for holding the tumber in its inoperative position, and means for forcing the sear to its inoperative position when the gun is discharged and broken.

6. In a breech-loading firearm, the combination with the frame and barrel; of an ejector mechanism mounted on the barrel and comprising an extractor-bar, a spring-actuated tumbler for actuating the bar, a sear for controlling the movement of the tumbler, and means mounted on the frame and actuated by the hammer for controlling the position of the sear.

7. In a breech-loading firearm, the combination with the frame and barrel; of an ejector mechanism mounted on the barrel and comprising an extractor-bar, a spring-actuated tumbler for actuating the bar, a sear for controlling the movement of the tumbler, and means engaged with the frame for forcing the sear to its inoperative position when the gun is broken.

8. In a breech-loading firearm, the combination with the frame and barrel; of an ejector mechanism mounted on the barrel and comprising an extractor-bar, a spring-actuated tumbler for actuating the bar, a sear for controlling the movement of the tumbler, a cocking-bar mounted on the frame for holding the sear in its inoperative position when the hammer is cocked and for releasing the same when the hammer is fired, and a spring for forcing the sear to its operative position.

9. In a breech-loading firearm, the combination with the frame and barrel; of an ejector mechanism mounted on the barrel and comprising an extractor-bar, a tumbler for actuating the bar and provided with a cam-face, a support, and spring-arms having corresponding ends movably mounted in the support and their opposite ends engaged respectively with the frame and with said cam-face.

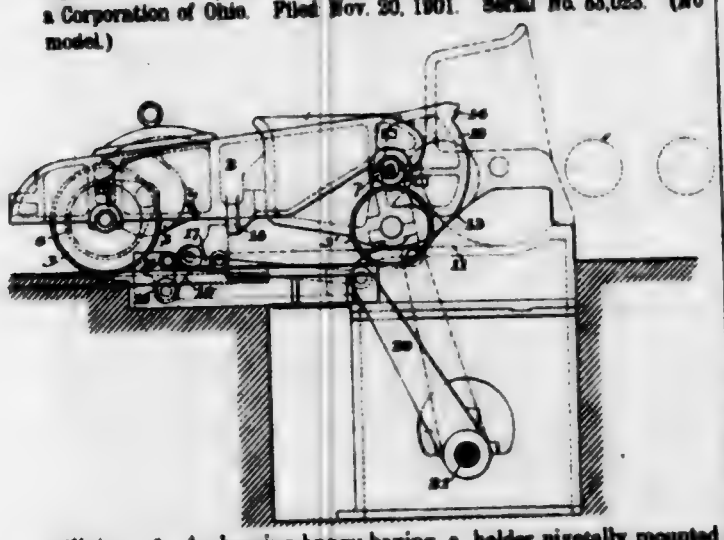
10. In a breech-loading firearm, the combination with the frame and barrel; of an ejector mechanism mounted on the barrel and comprising an extractor-bar, a tumbler for actuating the bar and provided with a cam-face, a support, and spring-arms having corresponding ends movably mounted in the support and their opposite ends engaged respectively with the frame and with said cam-face, a spring-actuated sear movable into the path of the tumbler, said sear being forced out of the path of the tumbler by the end of the spring engaging with the frame as the gun is broken for the purpose described.

11. In a breech-loading firearm, the combination with the frame and barrel; of an ejector mechanism mounted on the barrel and comprising an extractor-bar, a tumbler for actuating the bar and provided with a cam-face, a support having an inclined bearing-face, and spring-arms having corresponding ends mounted on the inclined bearing-face and their opposite ends engaged respectively with the frame and with the cam-face of the tumbler for the purpose described.

12. In a breech-loading firearm, the combination with the frame and barrel; of an ejector mechanism mounted on the barrel and comprising an extractor-bar, a pivoted tumbler for actuating the bar and provided with a cam-face extending outwardly from its pivot, a support having a guideway and an inclined bearing-face, a sear guided in the ways and movable into and out of the path of the tumbler for the purpose described, a spring for forcing the sear into the path of the tumbler, spring-arms having corresponding ends united and movable on said bearing-face and their opposite ends engaged respectively with the frame and the cam-face of the tumbler, one of the spring-arms being arranged to force the sear out of the path of the tumbler when the gun is broken.

13. In a breech-loading firearm, the combination with the frame and barrel; of an ejector mechanism mounted on the barrel and comprising an extractor-bar, a pivoted tumbler for actuating the bar and provided with a cam-face extending outwardly from its pivot, a support having a guideway and an inclined bearing-face, a sear guided in the ways and movable into and out of the path of the tumbler for the purpose described, a spring for forcing the sear into the path of the tumbler, spring-arms having corresponding ends united and movable on said bearing-face and their opposite ends engaged respectively with the frame and the cam-face of the tumbler, one of the spring-arms being arranged to force the sear out of the path of the tumbler when the gun is broken, and a cocking-bar mounted on the frame and adapted to hold the sear out of engagement with the tumbler when the hammer is cocked.

694,382. **CHARGING-BUGGY.** OSCAR SUDDT, Cleveland, Ohio, assignor to the Garrett Cromwell Engineering Company, Cleveland, Ohio, a Corporation of Ohio. Filed Nov. 20, 1901. Serial No. 83,023. (No model.)



Claim.—1. A charging-buggy having a holder pivotally mounted thereon, wheels pivoted to the holder, and mechanism for suddenly slowing up said wheels and thereby tilting the holder; substantially as described.

2. In rolling-mill feed mechanism, a feed-table, a track leading to its end, a wheeled charging-buggy having a tilting holder pivoted thereon, supporting-wheels pivoted to the holder, and mechanism for slowing up the holder-wheels at the end of the table to cause the tilting of the holder; substantially as described.

3. A track, a wheeled buggy movable thereon, a holder pivoted to the front portion of the buggy, wheels pivoted to the holder, and upwardly-curved inclines arranged to contact with the holder-wheels to cause tilting of said holder; substantially as described.

4. A wheeled charging-buggy having a holder pivoted in its front portion, a bed portion between the track, and rockers on the holder arranged to rock upon said bed portion; substantially as described.

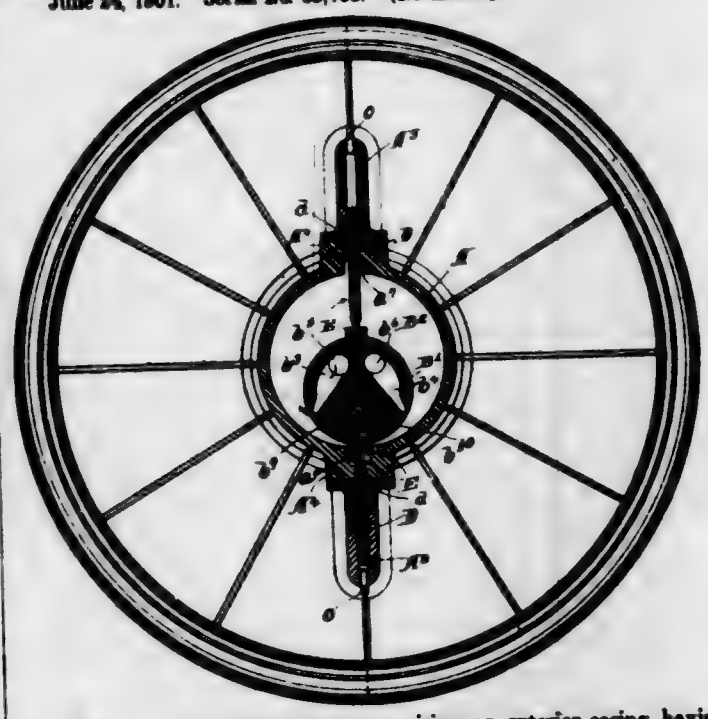
5. A feed-table, a track leading thereto, and having upwardly-curved portions adjacent to the table, a wheeled buggy movable upon the track, and a holder pivoted in the front portion of the buggy, said holder having supporting-wheels pivoted thereto and also provided with curved rockers; substantially as described.

6. A feed-table, a track leading thereto, a charging-buggy movable upon the track and having a driving-motor thereon, a pivoted holder on the buggy, mechanism for tilting the holder as the buggy nears the table, and a push device arranged to engage the buggy and move it forward in the latter portion of its travel toward the table; substantially as described.

7. A charging-buggy having a pivoted holder, mechanism for tilting the holder as the buggy is moved forward at a certain point in the track, and pusher mechanism arranged to engage the car near said point and force it forward; substantially as described.

8. A feed-table, a track leading thereto and having upwardly-curved end portions adjacent to the table, a buggy movable on the track and having a driving-motor, a pivoted holder mounted on the buggy and arranged to tilt as the buggy rides up the raised track portion, and a stationary motor having a pushing device arranged to engage the buggy and force it forward and up the incline; substantially as described.

694,383. **ROTARY MOTOR.** BASIL V. SRABÓ, Chicago, Ill. Filed June 24, 1901. Serial No. 65,793. (No model.)



Claim.—1. A rotary motor comprising an exterior casing having a cylindric inner surface, an eccentric cylinder therein, said eccentric cylinder and casing having rotative movement one with respect to the other, and the cylinder being provided at its ends with circular disks or flanges formed at their margins to provide steam-tight joints with the cylindric inner surface of the casing, radially-sliding plates in the casing, shoes having oscillatory connection with the inner ends of said plates and bearing against the cylinder, and lugs on the shoes adapted to engage circular grooves formed on the inner faces of said disks or flanges.

2. A rotary motor comprising an exterior casing having a cylindric inner surface, an eccentric cylinder therein, said eccentric cylinder and casing having rotative movement one with respect to the other, radially-sliding plates in the casing having parts engaging the eccentric surface of the cylinder, a radially-movable bearing-block occupying a longitudinal recess in the periphery of said cylinder and bearing at its outer face against the cylindric interior surface of the casing, said bearing-block being provided with projecting parts which enter guide-grooves in the casing and said grooves having cam-surfaces which are located to retract the block in its grooves when the plates pass thereover.

3. A rotary motor comprising an exterior casing having a cylindric inner surface, an eccentric cylinder therein, said eccentric cylinder and casing having rotative movement one with respect to the other, radially-sliding plates mounted in the casing and having parts engaging the sur-

face of the eccentric cylinder, supply and exhaust passages leading through said cylinder and opening into the casing, a radially-movable bearing-block occupying a longitudinal groove in the periphery of said cylinder and bearing against the inner cylindric surface of the casing, and means for retracting said block into its recess to permit the inner ends of the plates to pass thereover.

4. A rotary motor comprising an exterior casing having a cylindric interior surface, an eccentric cylinder therein, said eccentric cylinder and casing having rotative movement one with respect to the other, radially-sliding plates mounted in the casing and having parts engaging the surface of the eccentric cylinder, supply and exhaust passages leading through said eccentric cylinder and opening into the interior of the casing, a radially-movable bearing-block occupying a longitudinal recess in the periphery of the cylinder, and projecting parts at the ends of said bearing member engaging curved guide-grooves in the casing.

5. A rotary motor comprising an exterior casing having a cylindric interior surface, an eccentric cylinder therein, said eccentric cylinder and casing having rotative movement one with respect to the other, circular disks or flanges at the ends of the cylinders formed at their margins to provide steam-tight joints with the interior cylindric surface of the casing, radially-sliding plates mounted in the casing and having parts engaging the surface of the eccentric cylinder, supply and exhaust passages leading through said eccentric cylinder and opening into the interior of the casing, interlocking connections between said sliding plates and said disks or flanges acting to hold the plates in their proper relation with respect to the cylinder and a bearing-block occupying a longitudinal recess in said cylinder and bearing against the cylindric interior surface of the casing, said bearing-block being provided with extensions which pass through openings in the disks or flanges and engage curved guide-grooves in the casing, and said grooves being provided with cam portions which act to withdraw the bearing-block into its recess to permit the plates to pass over the same.

6. A rotary motor comprising an exterior casing having an interior cylindric surface, an eccentric cylinder therein, said cylinder and casing having rotative movement one with respect to the other, radially-sliding plates in the casing, shoes pivotally connected with the inner ends of said plates and engaging the surface of the eccentric cylinder, disks or flanges at the ends of said cylinder having interlocking guiding engagement with the ends of said shoes, one of said disks or flanges being provided with a removable part, the removal of which permits said shoes to be inserted into or removed from the casing.

7. A rotary motor comprising an exterior casing having an interior cylindric surface, an eccentric cylinder therein, said cylinder and casing having rotative movement one with respect to the other, radially-sliding plates mounted in said casing, shoes pivotally connected with the inner ends of said plates and engaging the surface of the eccentric cylinder, disks or flanges at the ends of said cylinder provided with curved guide-grooves which are engaged by lugs projecting from the ends of said shoes, one of said disks or flanges being provided with an opening covered by a plate, said opening being located to permit the removal of said shoes or insertion thereof in the casing, and said plate containing part of the guide-groove of said disk or flange engaged by the lugs of the shoes.

8. A rotary motor comprising an exterior casing having a cylindric interior surface, an eccentric cylinder therein, said cylinder and casing having rotative movement one with respect to the other and the cylinder being provided at its ends with annular disks or flanges which are formed to provide at their margins steam-tight joints with the cylindric inner surface of the casing, removable heads for said casing located outside of said disks and inner and outer split packing-rings interposed between said heads and disks, the slits in the packing-rings being staggered with relation to each other, and said packing-rings being provided with inclined margins which engage conical recesses or seats in the head formed to receive the same.

9. A rotary motor comprising an exterior casing having a cylindric interior surface, an eccentric cylinder therein, said cylinder and casing having rotative movement one with respect to the other and the cylinder being provided at its ends with annular disks or flanges which are formed to provide at their margins steam-tight joints with the cylindric inner surface of the casing, removable heads for said casing located outside of said disks, and inner and outer rings interposed between said heads and disks, the slits in said rings being staggered with respect to each other, said packing-rings being provided with inclined margins which engage conical recesses or seats in the head formed to receive the same, and springs interposed between said disks and said rings to hold the rings against their conical seats.

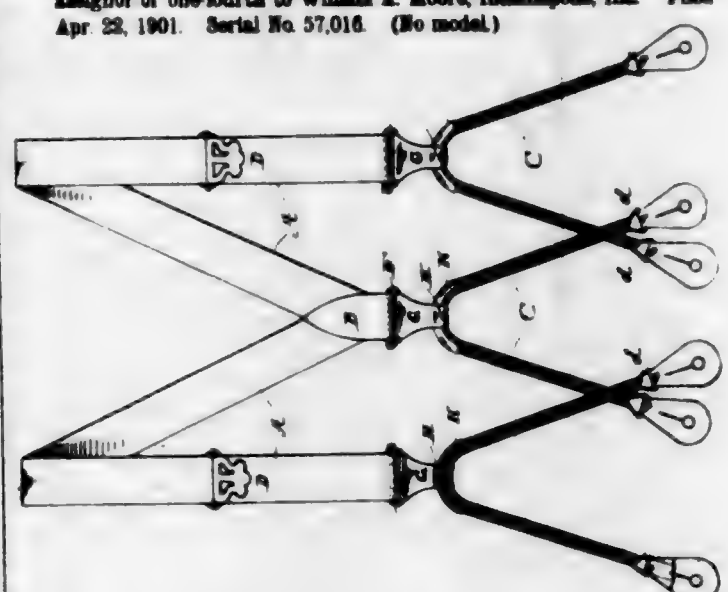
10. A rotary motor comprising an exterior casing having a cylindric interior surface, an eccentric cylinder therein, said cylinder and casing having rotative movement one with respect to the other, radially-sliding plates mounted in the casing and having parts engaging the surface of the eccentric cylinder, supply and exhaust passages leading through said eccentric cylinder and opening into the interior of the casing, said sliding plates comprising two laterally-separable parts provided at their meeting edges, one with a tongue and the other with a groove to receive the tongue, said tongue member being provided with enlargements, the outer ends of which enter notches in the grooved member, and springs in said notches which bear outwardly against said enlargements on the tongue member.

11. A rotary motor comprising an eccentrically-disposed cylinder, concentrically-disposed flanges at the opposite ends of said cylinder, a casing inclosing the space around the cylinder and between the flanges and radially-movable plates having at their inner ends parts engaging the outer surface of said cylinder and having also interlocking guiding engagement with said flanges.

12. A rotary motor comprising an eccentrically-disposed cylinder concentrically-disposed flanges at the opposite ends of said cylinder, a casing inclosing the space around said cylinder and between the flanges radially-movable plates having at their inner ends parts engaging the outer surface of said cylinder, a radially-movable bearing-block occupying a longitudinal groove in said cylinder and bearing against the inner cylindric surface of said casing and means for retracting said block into its recess to permit the plates to pass thereover.

13. A rotary motor comprising an axle or spindle having thereon two concentrically-disposed flanges, an eccentrically-disposed cylinder between said flanges, a casing, comprising an annular part, inclosing the space around the cylinder between said flanges and having slots or openings therethrough, hollow caps or extensions secured to said annular part or casing over said slots, heads secured to said casing and engaging said axle outside of said flanges, plates radially movable in said slots and hollow caps and having parts bearing against said cylinder, and transverse packing-strips occupying grooves in said extensions and bearing yieldingly against the faces of said plates.

694,834. SUSPENDERS. LINDLEY A. TALBERT, Indianapolis, Ind., assignor of one-fourth to William A. Moore, Indianapolis, Ind. Filed Apr. 22, 1901. Serial No. 57,016. (No model.)



Claim.—In a suspender, the combination of the straps thereof, metal holders secured to the straps, said holders each having an eye and a spirally-formed spring tempered coiled wire strip, without a core, having each of the ends of said wire strip bent back and fastened to the last coil of the spiral to form loops, each of said springs being passed through one of said eyes, buttonhole-tips secured to the loops, each tip comprising a flexible strip passed through said loop and doubled upon and secured to itself, a reinforcing-strip between said tip and the loop; and a hood in said eye to direct the position of the spring but not forming a support or bearing therefor, substantially as described and shown.

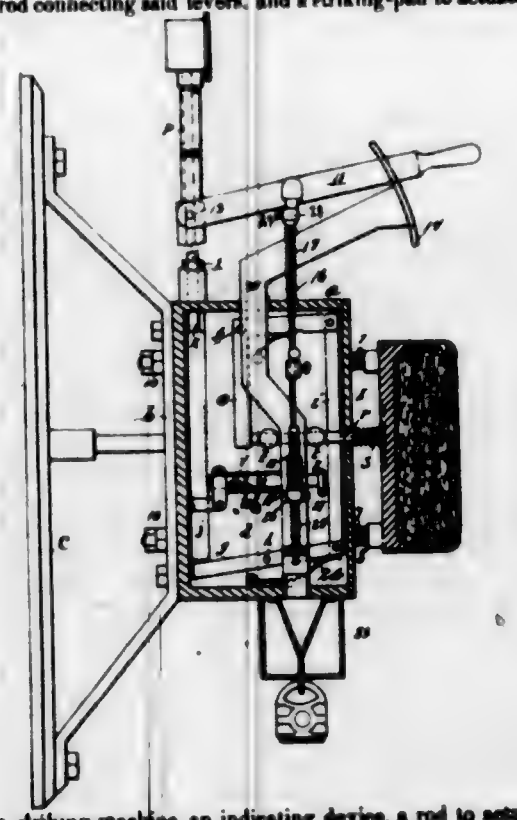
694,885. COIN-CONTROLLED STRIKING-MACHINE. CHARLES J. TREMAN and WALTER A. HOUSER, Lansing, Mich. Filed Feb. 4, 1901. Serial No. 45,870. (No model.)

Claim.—1. In a striking-machine, an indicating device, a rod to actuate said device, a locking device to lock said rod, mechanism to disengage said locking device, a bell-crank lever, an additional lever to actuate said rod, a connecting-rod connecting said levers, and means for actuating said levers.

2. In a striking-machine, an indicating device, a reciprocatory rack-bar connected with said device, a pawl to engage the rack-bar, mechanism to disengage the pawl from the rack-bar, a bell-crank lever, an additional lever to actuate the rack-bar, a connecting-rod connecting said levers, and means for actuating said levers.

3. In a striking-machine, an indicating device, a rod to actuate said device, a locking device to lock said rod, mechanism to disengage the

locking device, a bell-crank lever, an additional lever to actuate said rod, a connecting-rod connecting said levers, and a striking-pad to actuate said levers.



4. In a striking-machine, an indicating device, a rod to actuate said device, a locking device to lock said rod, mechanism to disengage the locking device, a bell-crank lever, an additional lever to actuate said rod, a connecting-rod connecting said levers, a striking-pad, means engaging said pad with said levers to actuate the levers, and means to retract said pad.

5. In a striking-machine, an indicating device, mechanism for actuating said device, a locking device to lock said mechanism, levers to actuate said mechanism, mechanism to disengage the locking device, a striking-pad, spring-actuated rods supporting said pad, and an additional spring-actuated rod to actuate said levers when a blow is struck upon the pad.

6. In a striking-machine, an indicating device, a rod to actuate said device, a locking device to lock said rod, mechanism to disengage said locking device, a bell-crank lever, an additional lever to actuate said rod when the locking device is released therefrom, a connecting-rod connecting said levers, and means for actuating said levers.

7. In a striking-machine, an indicating device, a rack-bar, a rod connecting the rack-bar with the indicating device, means to cushion said rod, a locking-pawl to engage the rack-bar, levers to actuate the rack-bar, mechanism to retract the pawl, and a yielding pad to actuate said levers.

8. In a striking-machine, an indicating device, a rack-bar, a rod connecting the rack-bar with the indicating device, means to cushion said rod, a locking-pawl to engage the rack-bar, a bell-crank lever, an additional lever to actuate the rack-bar, a connecting-rod connecting said levers, mechanism to retract the pawl, and a yielding device to actuate said levers.

9. In a striking-machine, the combination of a case, an upright supporting-plate, a train of levers engaged with said plate, an indicating device, a rack-bar to actuate said device actuated by said levers, means to actuate said levers, a locking device to engage the rack-bar, and mechanism to retract the locking device.

10. In a striking-machine, an indicating device, a rack-bar, an indicator-actuating rod carried by said bar, means to cushion the said rod, a pawl to engage the rack-bar, mechanism to retract said pawl, a train of levers to actuate the rack-bar, and a striking-pad to actuate said levers.

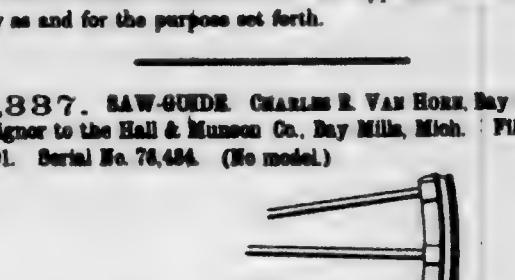
11. In a striking-machine, an indicating device, a rack-bar, an indicator-actuating rod carried by said rack-bar made in two parts, a spring intervening between the adjacent ends of said rod, a housing for the adjacent ends of said rods and the intervening spring, a locking device, mechanism to actuate the locking device, a striking-pad, and means actuated by said pad to elevate the rack-bar.

12. In a striking-machine, the combination of a case, an indicating device, a bell-crank lever, an additional lever to actuate said device, a supporting-plate within the case with which said levers are engaged, a striking-pad having a yielding engagement with said case to actuate said levers, a locking device, and mechanism to actuate the looking device.

13. In a striking mechanism, the combination of a case, an indicating device, a rack-bar, an indicator-actuating rod carried by said bar, a locking device to engage the rack-bar, mechanism to actuate the locking device, a lever to actuate the rack-bar, a bell-crank lever to actuate the first-named lever, and a striking-pad to actuate said bell-crank lever.

14. In a striking-machine, the combination of a case, a supporting-plate, a train of levers engaged with said plate, an indicating device, a rack-bar to actuate said device actuated by said levers, means to actuate said levers, a locking device to engage the rack bar, mechanism to retract the locking device, said indicating device provided with a dial, a ratchet-wheel, and an arm upon the shaft of the ratchet-wheel actuated by the elevation of the rack-bar.

694,886. TRACE-CARRIER. THOMAS D. THURMOND, Forsyth, Ga., assignor of three-fourths to James M. Harrison and William H. Thurmond. Filed July 13, 1901. Serial No. 68,191. (No model.)



Claim.—1. A trace-carrier comprising a carrier-plate proper, slotted longitudinally to form a relatively wide cross-bar and a relatively narrow cross-bar, and a trace-hook pivoted about the longitudinal center of and in a bearing in said wider cross-bar; in combination with a lock-plate having a narrow and a wider cross-bar, said wider cross-bar designed to form a bearing for and project beyond the narrower cross-bar of the carrier-plate when applied to a back-band as described, for the purpose set forth.

2. A trace-carrier, comprising a carrier-plate proper, slotted longitudinally to form a narrow and a wider cross-bar, said wider cross-bar provided about midway of its length with a recess in its rear face, with a hole in said recessed portion and with the cut-away portions, 9, 10, and a curled trace-hook pivoted in the aforesaid hole with its head in the recess of the plate; in combination with a slotted lock-plate coöperating with said carrier-plate to lock the same to a back-band, for the purpose set forth.

3. In a trace-carrier, the carrier-plate *p* provided with the transverse recessed portion 5 having a hole or bearing 8; in combination with a trace-hook pivoted in said bearing with its head 7 in the aforesaid recess, for the purpose set forth.

4. In a trace-carrier, the longitudinally-slotted carrier-plate *p* having a portion of the cross-bar on one side of the slot cut away to form the inclined face 9; in combination with a curled or pigtail trace-hook pivoted about midway of and in the aforesaid cross-bar, and having a head 7, formed on its shank, substantially as and for the purpose set forth.

5. In a trace-carrier, a longitudinally-slotted plate having a narrow cross-bar 3 on one side and a wider cross-bar 4 on the opposite side of its slot, and a trace-hook pivoted in said wider cross-bar; in combination with a longitudinally-slotted lock-plate having a wider cross-bar 14 on one side and a narrower cross-bar 13 on the opposite side of its slot, substantially as and for the purpose set forth.

694,887. SAW-GUIDE. CHARLES R. VAN HORN, Bay Mills, Mich., assignor to the Hall & Munson Co., Bay Mills, Mich. Filed Sept. 25, 1901. Serial No. 76,484. (No model.)

Claim.—1. In a saw-guide, the combination with the saw, of spaced substantially horizontally disposed supports located in angular relation to the saw, and a guide element mounted on the spaced supports and movable longitudinally thereon, said guide elements being movable toward and from the saw.

2. In a saw-guide, the combination with the saw, of spaced substan-

tially horizontally disposed supports located in angular relation to the saw, an arm slidably mounted on each support, and a guide element secured to and movable with the arms.

3. In a saw-guide, the combination with spaced substantially horizontally disposed supports, of arms slidably mounted on the opposing inner faces of the supports, and a guide element secured to and movable with the arms, said element extending across the space between the supports.

4. In a saw-guide, the combination with spaced supports, of guiding elements arranged to engage opposite sides of the saw, adjustable connections between the inner sides of the spaced supports and one of the guide elements, and adjustable connections between the other guide element and the outer sides of the supports.

5. In a saw-guide, the combination with spaced substantially horizontally disposed supports, of arms slidably mounted on the opposing inner faces of the supports, a guide element secured to and movable with the arms, said element extending across the space between the supports, and operating mechanism for the arms arranged on the exterior faces of the supports and engaging the same.

6. In a saw-guide, the combination with spaced parallel supports having longitudinally-disposed slots, of an arm slidably mounted on each of said supports and having a lug slidably located in the slot thereof, operating mechanism for the arms engaging the lugs, and a guide element attached to the ends of the arms and movable therewith.

7. In a saw-guide, the combination with spaced substantially parallel supports having longitudinally-disposed slots, of an arm slidably mounted on each of said supports and having a lug disposed in the slot thereof, operating mechanism for the arms engaging the lugs, and a guide element pivotally attached at its ends to the ends of the arms and movable therewith.

8. In a saw-guide, the combination with spaced standards, of supports having clamps secured to the standards, an inner guide member secured to and slidable between the supports, and an outer guide member also secured to the supports and movable thereon toward and from the inner member.

9. In a saw-guide, the combination with spaced supports, of an arm adjustably engaging each support, and a guide element having pivotal connections with the arms.

10. In a saw-guide, the combination with spaced supports, of an arm slidably mounted upon each support, means for holding the arms against independent movement upon their respective supports, and a guide element having pivotal connections with the arms.

11. In a saw-guide, the combination with spaced supports, of a guide element pivoted at one end to one of the supports and having a hook at the other end that detachably engages the other support.

12. In a saw-guide, the combination with spaced supports, of a guide element, a pivot connection between one end of the guide element and one of the supports, the other end of said element having a hook, a bolt located upon the other support and arranged to be engaged by the hook, said bolt and pivotal connection being adjustable upon their respective supports.

13. In a saw-guide, the combination with spaced supports, of an inner guide element having adjustable connections at its opposite ends with the supports, and an outer guide element having adjustable connections at its opposite ends with the supports.

14. In a saw-guide, the combination with spaced standards, of supports having yokes which embrace the standards, an inner guide element having slidable connections at its opposite ends with the supports, means for holding said guide element against movement, an outer guide element, and adjustable means connecting said outer guide element and the supports.

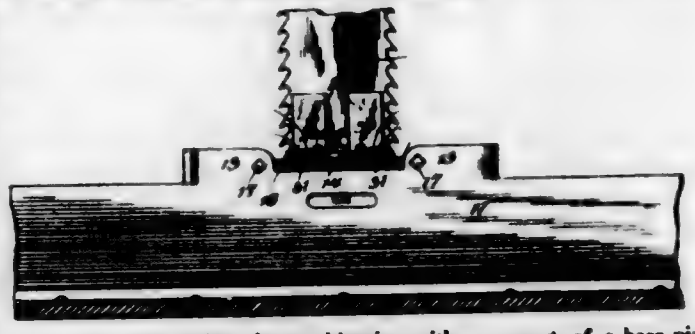
15. In a saw-guide, the combination with spaced standards, of supports at their outer ends which embrace the standards, braces connected to the inner ends of the supports, an inner guide element having slidable connections at its opposite ends with the supports, means for holding said element against movement, and an outer guide element having adjustable connections at its opposite ends with the supports.

694,338. SAW-GUIDE. CHARLES R. VAN HORN, Bay Mills, Mich., assignor to the Hall and Munson Co., Bay Mills, Mich. Filed Sept. 25, 1901. Serial No. 76,485. (No model.)

Claim.—1. In a saw-guide, the combination with a pair of independently-pivoted bases, of means for holding the bases against movement, and coacting guide elements adjustably mounted on the bases and movable toward and from each other.

2. In a saw-guide, the combination with suitable supporting means of independently-movable bases pivoted upon the supporting means, and independent coacting guide elements movably mounted upon the bases.

3. In a saw-guide, the combination with a support, of a base pivoted intermediate its ends upon the support, independent guide elements slidably mounted upon the base and movable transversely of the same, said elements being located upon opposite sides of the pivot, and means for holding the guide elements against movement.



4. In a saw-guide, the combination with a support, of a base pivoted intermediate its ends upon the support and having transversely-disposed channels located on opposite sides of the pivot, means for holding the base against movement, independent guide elements slidably mounted in the channels of the base, means for holding the base against movement, and means for holding the guide elements against movement.

5. In a saw-guide, the combination with suitable supporting means, of a base pivotally mounted intermediate its ends upon the supporting means and movable endwise thereon, means for holding the base against its pivotal and endwise movement, and guide elements mounted upon the base and movable transversely thereof, said guide elements being located on opposite sides of the pivot.

6. In a saw-guide, the combination with suitable supporting means, of bases independently pivoted upon the supporting means and movable endwise thereon, means for holding the bases against their pivotal and endwise movement and coacting guide elements mounted upon the bases and movable transversely thereof.

7. In a saw-guide, the combination with suitable supporting means, of separate bases located upon the supporting means, pivots connecting the bases and supporting means, said pivots being movable longitudinally upon the supporting means to permit the endwise movement of the bases, and coacting guide elements mounted upon the bases and movable transversely thereof.

8. In a saw-guide, the combination with a support having upstanding projections, and a longitudinally-disposed slot located between the projections, of a base mounted upon the support, said base having transversely-disposed channels, a pivot-bolt connecting the base and support and passing through the slot of the latter, guide elements slidably mounted in the channels of the base, and adjusting means passing through the projections of the support and engaging the base.

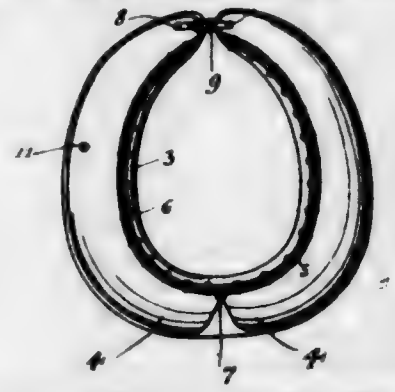
9. In a saw-guide, the combination with independently-pivoted bases, of means for moving the bases upon their pivots, and guide elements carried by the bases, said elements being located on opposite sides of the pivots of each base.

10. In a saw-guide, the combination with independently-pivoted bases, of independent means for separately moving the bases upon their pivots, and coacting guide elements carried by the bases and located on opposite sides of the pivots thereof.

11. The combination with a saw, of independent bases pivoted on opposite sides of and contiguous to the saw, said pivots being located substantially in line with the center of the saw, guide elements carried by the bases and engaging the saw and means for holding the bases against movement.

12. In a saw-guide, the combination with bases pivoted intermediate their ends, of independent means engaging the opposite ends of the bases for separately moving them upon their pivots, and stationary coacting guide elements movably mounted transversely of the bases.

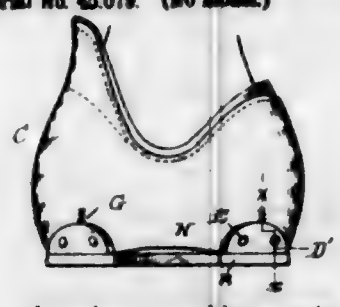
694,339. PNEUMATIC HORSE-COLLAR. CHARLES S. BOSEN, Hopkins, Minn. Filed Mar. 26, 1901. Serial No. 53,014. (No model.)



Claim.—In a horse-collar, the combination, with a pneumatic pad, provided with a suitable inflation-valve, of an outer casing composed of

parts 3, 3', and plates 4, hinged together at the bottom, and each provided with an upturned flange 5 forming the fore-wale of the collar, said outer casing having its ends fixed on said upturned flanges, substantially as described.

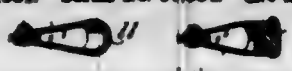
694,340. HORSE-BOOT. CHARLES R. TUTTLE, Detroit, Mich., assignor to Tuttle & Clark, Detroit, Mich., a Copartnership. Filed Jan. 28, 1901. Serial No. 45,079. (No model.)



Claim.—1. A horse-boot comprising a body proper shaped to fit the quarters of the hoof directly above the rear extension of the shoe, metal wear-plates secured to the boot and extending to the lower edge thereof and arranged to rest upon the rear extensions of the shoe, said body portion having a flexible, non-metallic portion between the wear-plates; substantially as described.

2. A horse-boot having upon opposite sides of the rear portion thereof the wear-plates D', the outer portions thereof extending upon the outside of the boot down to and across the lower edge thereof, and the upwardly-extending flanges F' pressed over and forced into the latter flush with the inner face thereof and an intermediate flexible portion of the boot between said wear-plates.

694,341. PUSH-BUTTON FOR LOCKS, &c. HOMER LAWRENCE, Jr., and DANIEL SCHUYLER, Los Angeles, Cal., assignors to the Perfect Sliding Door Company, Los Angeles, Cal., a Corporation of California. Filed July 10, 1901. Serial No. 67,304. (No model.)



Claim.—1. A push-button consisting in a cup furnished with extensions which are integral with the edge of the cup.

2. A push-button consisting in a cup furnished with perforated extensions which are integral with the edge of the cup.

3. A push-button consisting in a tubular body furnished with extensions which are integral with the walls of the tube.

4. A push-button consisting in a tubular body furnished with resilient extensions which are integral with said body.

DESIGNS.

35,768. STICK-PIN BLANK. HARVEY R. STEBBINS, Punxsutawney, Pa. Filed Jan. 16, 1902. Serial No. 90,089. Term of patent 7 years.



Claim.—The design for a stick-pin blank, as herein shown and described.

35,769. CYLINDER-LENS. ORONEZ W. WELLS, Southbridge, Mass. Filed June 28, 1901. Serial No. 66,434. Term of patent 14 years.



Claim.—The design for a lens substantially as shown and described.

35,770. BACK FOR BRUSHES, MIRRORS, OR SIMILAR ARTICLES. ALEXANDER GEIGER, Wallingford, Conn., assignor to R. Wallace & Sons Mfg. Co., Wallingford, Conn., a Corporation. Filed Dec. 12, 1901. Serial No. 85,708. Term of patent 7 years.

35,770.



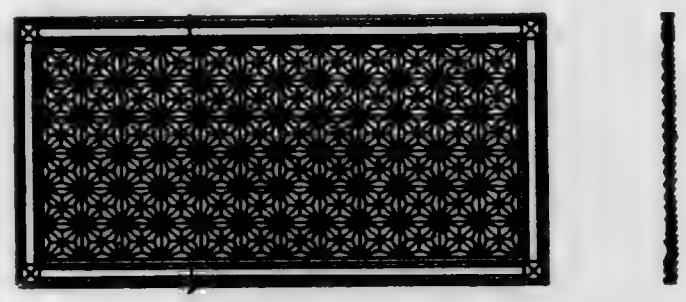
Claim.—The design for a back for a brush, mirror or similar article as herein shown and described.

35,771. ORNAMENTAL DISH. WILLIAM R. CARLSON, Concord, N. H., assignor to William R. Durgin Company, Concord, N. H. Filed Jan. 27, 1902. Serial No. 91,523. Term of patent 7 years.



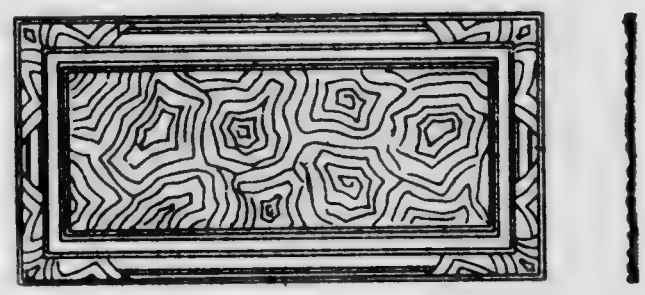
Claim.—The design for an ornamental dish, substantially as shown and described.

35,772. ORNAMENTAL TILE. THOMAS JOHN WOODWARD, Birmingham, England, assignor to Chance Brothers and Co., Limited, West Smethwick, England. Filed Jan. 10, 1902. Serial No. 89,233. Term of patent 14 years.



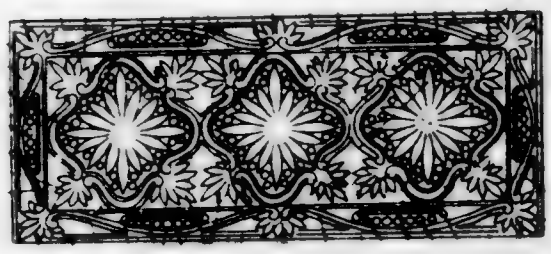
Claim.—The design for a tile as herein shown and described.

35,773. ORNAMENTAL TILE. THOMAS JOHN WOODWARD, Birmingham, England, assignor to Chance Brothers and Co., Limited, West Smethwick, England. Filed Jan. 10, 1902. Serial No. 89,234. Term of patent 14 years.



Claim.—The design for a tile as herein shown and described.

35,774. ORNAMENTAL TILE. THOMAS JOHN WOODWARD, Birmingham, England, assignor to Chance Brothers and Co., Limited, West Smethwick, England. Filed Jan. 10, 1902. Serial No. 89,235. Term of patent 14 years.



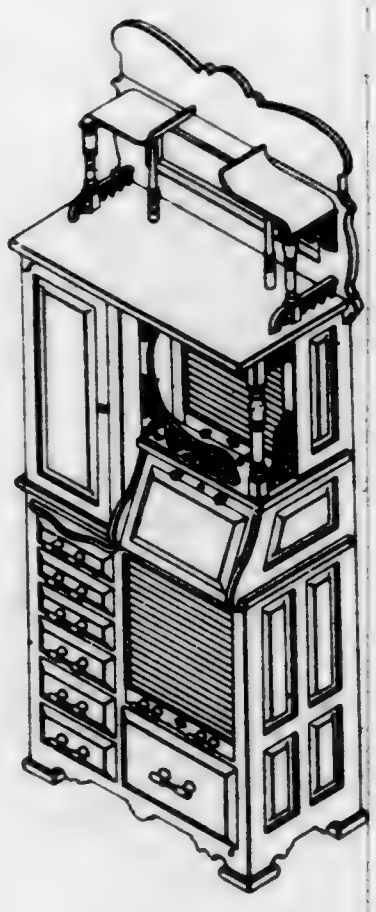
Claim.—The design for a tile as herein shown and described.

35,775. ORNAMENTAL TILE. THOMAS JOHN WOODWARD, Birmingham, England, assignor to Chance Brothers and Co., Limited, West Smethwick, England. Filed Jan. 10, 1902. Serial No. 89,236. Term of patent 14 years.



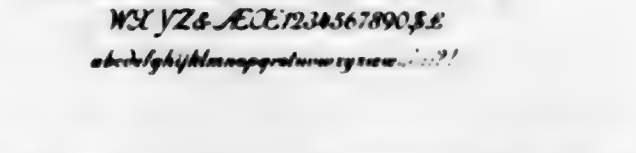
Claim.—The design for a tile as herein shown and described.

35,776. DENTAL-INSTRUMENT CABINET. FRANK H. CASE, Canton, Ohio. Filed Dec. 31, 1901. Serial No. 86,883. Term of patent 14 years.



Claim.—The design for a dental-instrument cabinet, as herein shown and described.

35,777. FONT OF PRINTING-TYPE. HERMAN IHLENBURG, Philadelphia, Pa., assignor to the American Type Founders' Company, Newark, N. J., a Corporation of New Jersey. Filed Jan. 31, 1901. Serial No. 45,520. Term of patent 14 years.



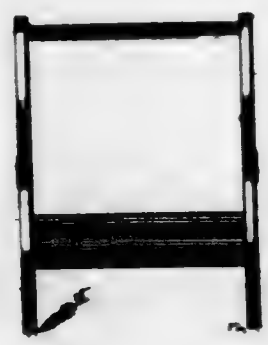
Claim.—The design for a font of printing-type, substantially as herein described and as illustrated in the accompanying typographical impression.

35,778. RUG. ADOLPH PETZOLD, Philadelphia, Pa., assignor to John H. Bromley and Edward Bromley, Philadelphia, Pa., copartners trading as John Bromley & Sons. Filed Jan. 31, 1902. Serial No. 92,082. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and described.

35,779. CHAIR. CHARLES W. CLARK, Ardmore, Pa. Filed Jan. 29, 1902. Serial No. 91,810. Term of patent 3½ years.





Claim.—The design for a chair substantially as shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 25, 1902.

87,886. WATCHES, WATCHCASES, AND WATCH-MOVEMENTS. United States Watch Co., Riverside, N. J., and Waltham, Mass. Filed Jan. 14, 1902.



Essential feature.—The representation of a shield bearing thereon the representation of a locomotive and a number of stars, the representation of a watch, and an eagle perched on the top of said shield. Used since January 1, 1902.

87,887. SENSITIZED PHOTOGRAPHIC PAPER. Bernhard Rinesmann, New York, N. Y. Filed Jan. 20, 1902.

LENTA.

Essential feature.—The word "LENTA." Used since December, 1901.

87,888. WRITING-PAPER AND ENVELOPES. S. & W. M. Crane, Dalton, Mass. Filed Jan. 15, 1902.

LINEN LAWN

Essential feature.—The words "LINEN LAWN." Used since November 1, 1900.

87,889. PICTURES. Vrooth Wards, New York, N. Y. Filed Jan. 21, 1902.

PRISMATYPE

Essential feature.—The word "PRISMATYPE." Used since November 15, 1901.

87,840. DRESS-SILKS. Liberty Silk Co., New York, N. Y. Filed Jan. 13, 1902.



Essential feature.—The word "TUXILK" in connection with a figure of a hand bearing a torch. Used since December 21, 1901.

87,841. CORSETS. Kops Bros., New York, N. Y. Filed Jan. 4, 1902.

RAY-CONTOUR

Essential feature.—The hyphenated words "RAY-CONTOUR." Used since December 1, 1901.

87,842. CORSETS. Weingarten Bros., New York, N. Y. Filed Dec. 13, 1901.

Czarina

Essential feature.—The word "CZARINA." Used since January 1, 1901.

87,843. SUSPENDERS. Hasbrouck Manufacturing Company, Easthampton, Mass., and New York, N. Y. Filed Dec. 26, 1901.

"Le Napoleon"

Essential feature.—The words "LE NAPOLEON" inclosed between quotation-marks. Used since December 2, 1901.

87,844. HOSE-SUPPORTERS. A. Steinhardt & Bro., New York, N. Y. Filed Jan. 14, 1902.

CINCH

Essential feature.—The word "CINCH." Used since January 1, 1902.

87,845. LADIES' SHOES. The Litchfield Shoe Co., Carlisle, Pa. Filed Jan. 20, 1902.

COUNTESS

Essential feature.—The word "COUNTESS." Used since November 1, 1900.

87,846. BOOTS AND SHOES. Summers Shoe Co., Kansas City, Mo. Filed Jan. 11, 1902.

THOROUGHBRED.

Essential feature.—The word "THOROUGHBRED." Used since December 1, 1901.

87,847. SHOES. THE GEORGE H. WHITE SHOE CO., Philadelphia, Pa. Filed Jan. 3, 1902.



Essential feature.—The word "KOMMERCIAL," the representation of a dragon, and a circular panel. Used since November 1, 1901.

87,848. PATENT AND ENAMELED LEATHER. HUGH SMITH, a Corporation, Newark, N. J. Filed Sept. 24, 1901.

ROYAL OAK

Essential feature.—The words "ROYAL OAK." Used since 1893.

87,849. STIFFENERS FOR FLEXIBLE GOODS. A. A. DUSTER & Co., Boston, Mass. Filed Jan. 23, 1902.

TREBONE

Essential feature.—The word "TREBONE." Used since July 1 1901.

87,850. BREAKFAST-FOOD. SALLIE P. AYERS, Washington, D. C. Filed Jan. 27, 1902.

CEREO-MALTA

Essential feature.—The compound word "CEREO-MALTA." Used since November 25, 1901.

87,851. CREAM OF TARTAR. ROYAL BAKING POWDER CO., Jersey City, N. J. Filed Jan. 20, 1902.

ROYAL

Essential feature.—The word "ROYAL." Used since December, 1901.

87,852. WHISKY. JAMES BUCHANAN, London, England. Filed Jan. 27, 1902.

BLACK & WHITE

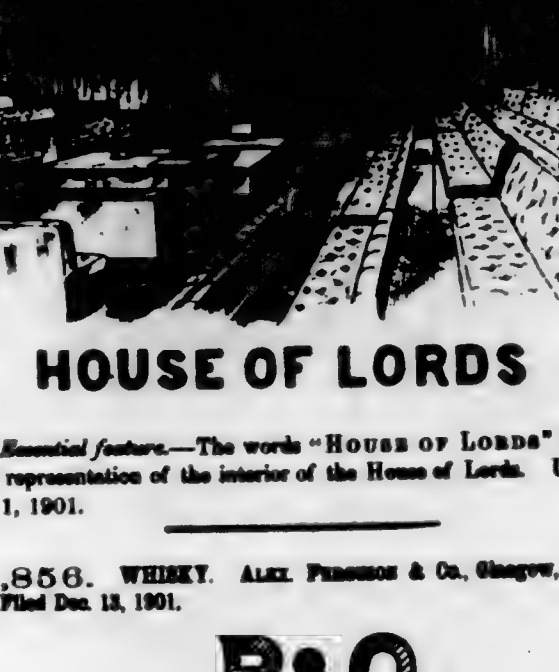
Essential feature.—The words "BLACK & WHITE." Used since July, 1901.

87,853. WHISKY. JAMES BUCHANAN, London, England, and Glasgow, Leith, and Stanhope, Scotland. Filed Jan. 27, 1902.

87,858.

Essential feature.—The words "BLACK & WHITE" in combination with the facsimile-signature "JAMES BUCHANAN & Co." Used since November, 1899.

87,854. SCOTCH WHISKY. JOHN CALDWELL, New York, N. Y. Filed Dec. 28, 1901.



Essential feature.—The representation of four crowns and the numeral "4," having crown representations on its four corners. Used since July 1, 1901.

87,855. SCOTCH WHISKY. JOHN CALDWELL, New York, N. Filed Jan. 3, 1902.



HOUSE OF LORDS

Essential feature.—The words "HOUSE OF LORDS" and a pictorial representation of the interior of the House of Lords. Used since July 1, 1901.

87,856. WHISKY. ALEX. PERMISON & Co., Glasgow, Scotland. Filed Dec. 13, 1901.

P&O

Essential feature.—The letters "P & O." Used since October 1, 1895.

87,857. TONICS. ISAAC W. DOUGLASS, Kishigantown, Ind. Filed Jan. 27, 1902.

SYLILIAN

Essential feature.—The word "SYLILIAN." Used since September 15, 1901.

87,858. TONIC AND RESTORATIVE MEDICINES. [illegible] & SCHLEIDEGER, New York, N. Y. Filed Dec. 18, 1901.

SUPERLATONE

Essential feature.—The word "SUPERLATONE." Used since December 1, 1901.

87,859. TONIC AND MEDICINAL FOOD. JOSEPH KEES, West Superior, Wis. Filed Jan. 13, 1902.

OXENOL

Essential feature.—The word "OXENOL." Used since November 15, 1901.

87,860. TONIC, ANTIPERIODIC, AND ANTIPYRETIC PREPARATION. ALLEN H. STILL, New York, N. Y. Filed Jan. 24, 1902.

MODOQUINIA

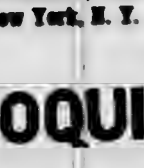
Essential feature.—The word "MODOQUINIA." Used since December 2, 1901

87,861. COUGH MEDICINE. TAR-BEN MEDICINE CO., Newark, N. J. Filed Oct. 8, 1901.

Tar-Ben

Essential feature.—The word "TAR-BEN." Used since May, 1901.

87,862. CERTAIN NAMED MEDICINE. PEACOCK CHEMICAL CO., St. Louis, Mo. Filed Dec. 28, 1901.



Essential feature.—The representation of a peacock. Used since November 15, 1900.

87,863. BLOOD, LIVER, AND KIDNEY REMEDIES. THE BALSAM MEDICINAL CO., Sylva, N. C. Filed Jan. 23, 1902.

Casaloda

Essential feature.—The word "CASALODA." Used since November 15, 1901.

87,864. BLOOD SPECIFIC. ANDREW J. BAXLEY, Dallas, Tex. Filed Jan. 24, 1902.



Essential feature.—The representation of an Indian in the act of discharging an arrow, the representation of a heart impaled by the arrow, and the representation of a receptacle into which drops are falling from the heart. Used since November 1, 1901.

87,865. LAXATIVES. CHESTER KENT & CO., Boston, Mass. Filed Jan. 16, 1902.

Vinlax

Essential feature.—The arbitrary word "VINLAX." Used since December 15, 1901.

87,866. MEDICAL COMPOSITION FOR EXTERNAL APPLICATION. JACOB SHUMAN, Mount Pleasant, Pa. Filed Jan. 23, 1902.



Essential feature.—A portrait of the registrant. Used since January, 1901.

87,867. ANTISEPTICS. RALPH H. PAGE, Detroit, Mich. Filed Jan. 10, 1902.

BENZOZONE

Essential feature.—The word "BENZOSONE." Used since January, 1901.

87,868. ANTISEPTICS. RALPH H. PAGE, Detroit, Mich. Filed Jan. 20, 1902.

ACETOZONE

Essential feature.—The word "ACETOSONE." Used since January 10, 1902.

87,869. DISINFECTANT AND PRESERVATIVE. FARBENFABRIKEN OF ELBERFELD CO., New York, N. Y. Filed Jan. 14, 1902.

87,869.

ANTIGERMIN

Essential feature.—The word "ANTIGERMIN." Used since July 1, 1901.

87,870. MECHANICAL RESPIRATORY DEVICES. MORTIMER J. B. HURLBUT, Chicago, Ill. Filed Jan. 27, 1902.

PULMONATOR

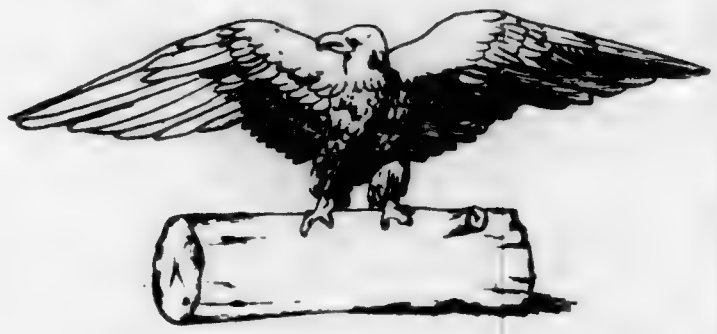
Essential feature.—The word "PULMONATOR." Used since October, 1892.

87,871. REFINED NITRATE FOR FERTILIZING PURPOSES. THE LAUTARO NITRATE COMPANY, LIMITED, London, England. Filed Sept. 16, 1901.



Essential feature.—The representation of an Indian's head adorned with feathers. Used since March 18, 1901.

87,872. MIXED TURPENTINE. JOHN A. CASEY COMPANY, New York, N. Y. Filed Jan. 11, 1902.



Essential feature.—The representation of an eagle with extended wings and a section of pine log grasped in its talons. Used since November, 1901.

87,873. PAINTS FOR EXTERIOR AND INTERIOR FINISHING. GEO. W. PITKIN COMPANY, Chicago, Ill. Filed Jan. 2, 1902.



Essential feature.—The representation of a barn. Used since December 1, 1901.

87,874. ELECTRICAL GLASSWARE. CHARLES S. KNOWLES, Boston, Mass. Filed Jan. 21, 1902.

EMERALD 

Essential feature.—The word "EMERALD" and the representation of an emerald. Used since December 1 1901

87,875. GLASS LAMP-CHIMNEYS, GLASS REFLECTORS, AND GLASS LANTERN-GLOBES. GILL BROTHERS COMPANY, Steubenville, Ohio. Filed Jan. 20, 1902.

JUNCO

Essential feature.—The word "JUNCO." Used since November 20, 1901.

87,876. CERTAIN NAMED BLACKSMITHS' TOOLS. THE COLUMBUS FORGE & IRON CO., Columbus, Ohio. Filed Dec. 30, 1901.



Essential feature.—The representation of an Indian and the words "INDIAN CHIEF." Used since December 16, 1901.

87,877. CHAIN BELTS. THE LINK BELT MACHINERY CO., Chicago, Ill. Filed Jan. 17, 1902.

ROLLING

Essential feature.—The word "ROLLING." Used since June 1, 1898.

87,878. HAND WASHING-MACHINES. THE VANDERGRIFT MFG. CO., Jamestown, N. Y. Filed Jan. 28, 1902.

CHALLENGE

Essential feature.—The word "CHALLENGE." Used since July 1, 1901.

87,879. ACETYLENE-GAS GENERATORS. JUAN DE DIOS TEJADA, Havana, Cuba. Filed Oct. 31, 1901.

Sol de Cuba

Essential feature.—The words "SOL DE CUBA." Used since May 1, 1901.

87,880. FURNITURE SPRINGWORK. STAPLES & HANFORD CO., Newburgh, N. Y. Filed Jan. 6, 1902.

S&H

Essential feature.—The letters and character "S. & H." Used since November, 1901.

87,881. FURNITURE SPRINGWORK. SPRINGLOCK SPRING BED CO., Newburgh, N. Y. Filed Jan. 9, 1902.

SPRINGLOCK

Essential feature.—The word "SPRINGLOCK." Used since November, 1901.

LABELS

REGISTERED FEBRUARY 25, 1902.

8,979.—*Title:* "DIRECTIONS." (For a Toy Bird.) LEXINGTON TOY BIRD CO., Lexington, Ky. Filed January 22, 1902.

8,980.—*Title:* "SYSTEM LENOX." (For Garments.) GIMBEL BROTHERS, Philadelphia, Pa. Filed December 16, 1901.

8,981.—*Title:* "BLUE LION 36-INCH PERCALE." (For Percale.) THE H. B. CLAFLIN COMPANY, New York, N. Y. Filed January 31, 1902.

8,982.—*Title:* "RED LION 36-INCH PERCALE." (For Percale.) THE H. B. CLAFLIN COMPANY, New York, N. Y. Filed January 31, 1902.

8,983.—*Title:* "THE APPETINE STOMACH TABLET." (For Stomach-Tablets.) J. W. STAHLBERG, St. Louis, Mo. Filed February 3, 1902.

8,984.—*Title:* "CHLOROTHOL." (For Anodyne.) J. W. VAN WINKLE, Chicago, Ill. Filed January 31, 1902.

8,985.—*Title:* "MARCA VUELTA." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed February 3, 1902.

8,986.—*Title:* "JOHNIE BIRD." (For Cigars.) SCHMIDT & CO., New York, N. Y. Filed February 3, 1902.

8,987.—*Title:* "WHEGN." (For Food Made from Wheat.) WHEGN FOOD COMPANY, York, Pa. Filed February 1, 1902.

8,988.—*Title:* "GRAPE SUGAR FLAKES." (For Cereal Food.) COMMERCIAL TRAVELERS & FARMERS NATIONAL FOOD CO., LTD., Battlecreek, Mich. Filed January 31, 1902.

8,989.—*Title:* "HOME BRAND." (For Baked Beans) GRIGGS, COOPER & CO., St. Paul, Minn. Filed January 16, 1902.

8,990.—*Title:* "HOME BRAND." (For Asparagus.) GRIGGS, COOPER & CO., St. Paul, Minn. Filed January 16, 1902.

8,991.—*Title:* "HOME BRAND." (For Soda.) GRIGGS, COOPER & CO., St. Paul, Minn. Filed January 16, 1902.

8,992.—*Title:* "HOME BRAND." (For Maple-Syrup.) GRIGGS, COOPER & CO., St. Paul, Minn. Filed January 16, 1902.

8,993.—*Title:* "HOME BRAND." (For Olive-Oil.) GRIGGS, COOPER & CO., St. Paul, Minn. Filed January 16, 1902.

8,994.—*Title:* "SUNLIGHT SOAP." (For Soap.) LEVER BROTHERS, LIMITED, Port Sunlight, England. Filed January 31, 1902.

PRINTS

REGISTERED FEBRUARY 25, 1902.

470.—*Title:* "A WINNING PAIR." (For Wine.) THE WHITE TOP CHAMPAGNE CO., Pultney, N. Y. Filed February 4, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE BROWN.

Decided January 29, 1902.

1. APPEAL TO EXAMINERS-IN-CHIEF—ALL CLAIMS FINALLY ACTED UPON.

Construing all of the rules together, a party is not entitled to take an appeal to the Examiners-in-Chief merely because some of his claims have been twice rejected for the same reasons, but only after all of the claims have been finally acted upon by the Examiner.

2. SAME—PIECEMEAL APPEALS NOT PERMITTED.

If piecemeal appeals to the Examiners-in-Chief were permitted, the greatest delay and confusion would result, and it would be practically impossible to close the consideration of cases before the Office. It is the purpose of the rules to expedite the determination of cases.

ON petition.

BELTS.

Application of Francis W. Brown filed September 5, 1901, No. 74,453.

Mr. R. W. Hardie for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner refusing to forward an appeal in the above-entitled application to the Board of Examiners-in-Chief.

The Examiner has refused to forward the appeal because it is prematurely taken, since the claims are not finally rejected.

From the record it appears that the three claims in the case were rejected on certain references October 7, 1901. In reply to a request for reconsideration in connection with an argument to the effect that the references cited did not meet the claims the Examiner on November 14, 1901, again rejected claims 1 and 2 on the same reference as before and cited a new reference against claim 3. Thereupon applicant filed an appeal to the Examiners-in-Chief.

Rule 133 provides that an applicant—

* * * any of the claims of whose application have been twice rejected for the same reasons, upon grounds involving the merits of the invention * * * may * * * appeal * * * to the Examiners-in-Chief.

It is urged in behalf of applicant that this rule permits an appeal when any claims have been so twice rejected, that all of the rejected claims need not have been so rejected, but that if any of them has been twice rejected, as provided in the rule, an appeal to the Examiners-in-Chief may be taken.

Such an interpretation of this rule is not in accordance with the practice of the Office nor with the spirit and intention of the Rules of Practice. It is the purpose of these rules to expedite the determination of the merits of each case so far as this can be done, due regard being had for the rights of other applicants and of the public. To permit such piecemeal action as is proposed in the present case would be in direct conflict with this purpose, for if an applicant were allowed to prosecute one claim to final rejection and take an appeal thereon before determination of the merits of other claims the greatest delay and confusion would result, so that it would be a practical impossibility to close the consideration of cases before the Office. Rule 133 does not contemplate such a course of action. This rule is to be read in the light of the other rules and is to be so construed as to give effect to them, so that even if it were not specifically provided for it would be competent for an Examiner to require that all the claims must receive final action before appeal to the Examiners-in-Chief. Rule 134, however, does make just this provision:

There must have been two rejections of the claims as originally filed, or, if amended in matter of substance, of the amended claims, and all the claims must have been passed upon, * * * before the case can be appealed to the Examiners-in-Chief.

Reading these two rules together, it is clear that before the appeal to the Examiners-in-Chief is in order all the claims upon which appeal is to be taken must have been twice rejected for the same reasons.

In the case now under consideration this is not the condition of the claims. Claim 3 has not been twice rejected for the same reasons. A rejection on one reference is made on a different ground from a rejection on two references. Applicant's proper course after the last rejection of the claims was to ask for reconsideration in the manner provided for by Rules 65 and 67. Had this course been followed, the delay incident to the present petition would have been avoided.

The petition is denied.

EX PARTE STOCKER.

Decided January 30, 1902.

1. MODEL—CLEAR DISCLOSURE—SUSPENSION OF ACTION UPON THE MERITS.

Where the disclosure of an invention is so vague and indefinite that the construction or alleged mode of operation cannot be understood, a model is often desirable in order to make possible an intelligent examination. In such case action upon the merits should be suspended.

2. SAME—SAME—INOPERATIVE DEVICE.

Where the disclosure of the invention is clear and complete, but the Examiner takes the position that it is not operative, as stated, *Held* that he should not require a model and suspend action upon the merits, but should reject the claims.

ON petition.

DISTILLING APPARATUS.

Application of John Stocker filed December 3, 1898, No. 698,159.

Messrs. Knight Bros. for the applicant.

ALLEN, *Commissioner:*

This is a petition that the Examiner be advised that the requirement for a model be not insisted upon and directed to proceed to examine the claims upon their merits.

Rule 56 provides, among other things, that—

a model will only be required or admitted as a part of the application when on examination of the case in its regular order the Primary Examiner shall find it to be necessary or useful. * * * When a model is required, the examination will be suspended until it shall have been filed.

A model may be necessary or useful when upon examination it is found that the showing or description of the invention is so vague and indefinite that the construction or alleged mode of operation thereof cannot be understood. In such cases it is often desirable that a model should be furnished in order that the construction of the device and its alleged mode of operation may be clear to the Examiner, for unless the case is thus clearly presented he can make no intelligent examination on the merits thereof. For these reasons a suspension of the examination on the merits is necessary and is provided for by the rules.

The case now under consideration presents a different state of facts. There is no question but that the invention is fully shown and described and its alleged mode of operation clearly set forth. It is urged by the Examiner, however, that a device so constructed will not operate in the manner described by applicant and that the allowance of a claim in the case depends upon the question of the operativeness of such device.

Under these circumstances a requirement for a model under Rule 56 should not be made. If the Examiner is of the opinion that the apparatus as shown and described will not operate as set forth in the specification and in the claim in question, he should reject the claim for this reason, leaving it to applicant to decide whether he will attempt to overcome this rejection by a demonstration of the working of the invention by means of a model or by an appeal in the regular course, as provided by Rule 133. The question of inoperativeness presented in this case is not one which relates to the completeness of the disclosure, but it is one which relates to the merits and should be settled in the way provided by the rules for the settlement of such questions.

The petition is granted.

EX PARTE BALDWIN.

Decided February 11, 1902.

1. PRINTS AND LABELS—REGISTRATION.

The statute under which copyrights are granted has reference only to such writings or discoveries as are the result of intellectual labor, (*Higgins* v. *Keuffel*, 55 O. G., 1139,) or, as was held in *Trade-Mark Cases*, (100 U. S., 82,) it includes such original designs for engravings, prints, etc., as are founded in the creative powers of the mind. Such designs for engravings, prints, etc., when used in connection with the fine arts are the proper subjects of copyrights; but, as provided by the section of the statute quoted above, prints or labels which are designed to be used for any other articles of manufacture may be registered only in the Patent Office.

2. SAME—REQUIREMENTS OF.

In so providing for a separate place for registration of prints or labels to be used in connection with articles of manufacture the law does not change the requirements, as interpreted by the Supreme Court, to which such prints or labels must conform—that is, they must be original, the result of intellectual labor founded on the creative powers of the mind.

ON appeal.

LABEL FOR MEDICINE.

Application of O. N. Baldwin filed December 24, 1901, No. 2,330.

Mr. O. N. Baldwin pro se.

ALLEN, *Commissioner:*

This is an appeal from the action of the Examiner refusing to register a certain label consisting of the title "Ayres Medicinal Wonder" and printed matter descriptive of the medicine, with directions for its use. The said printed matter is surrounded by an ordinary printed border.

Registration is sought under section 4952 of the Revised Statutes relating to copyrights. This section is in part as follows:

Sec. 4952. The author, inventor, designer, or proprietor of any book, map, chart, dramatic or musical composition, engraving, cut, print, or photograph or negative thereof, or of a painting, drawing, chromo, statue, statuary, and of models or designs intended to be perfected as works of the fine arts, and the executors, administrators, or assigns of any such person shall, upon complying with the provisions of this chapter, have the sole liberty of printing, reprinting, publishing, completing, copying, executing, finishing, and vending the same; and, in the case of a dramatic composition, of publicly performing or representing it, or causing it to be performed or represented by others. * * *

In the construction of this act the words "engraving," "cut," and "print" shall be applied only to pictorial illustrations or works connected with the fine arts, and no prints or labels designed to be used for any other articles of manufacture shall be entered under the copyright law, but may be registered in the Patent Office.

The statute under which copyrights are granted has reference only to such writings or discoveries as are the result of intellectual labor, (*Higgins* v. *Keuffel*, 55 O. G., 1139,) or, as was held in *Trade-Mark Cases*, (100 U. S., 82,) it includes such original designs for engravings, prints, etc., as are founded in the creative powers of the mind. Such designs for engravings, prints, etc., when used in connection with the fine arts are the proper subjects of copyrights; but, as provided by the section of the statute quoted above, prints or labels which are designed to be used for any other articles of manufacture may be registered only in the Patent Office.

In so providing for a separate place for registration of prints or labels to be used in connection with articles of manufacture the law does not change the requirements, as interpreted by the Supreme Court, to which such prints or labels must conform—that is, they must be original, the result of intellectual labor founded on the creative powers of the mind.

The label now under consideration is not such a one. It required no exercise of the creative powers of the mind to write the proper directions for the use of the medicine described in this label, nor is

any originality shown in the design thereof. It is simply an example of the ordinary skill of the typesetter, and as such is not the subject for registration. (See *ex parte Mahn*, 82 O. G., 1210; *ex parte New England Gas and Coke Company*, 90 O. G., 1365.

The decision of the Examiner is affirmed.

NIEDERMEYER *v.* WALTON.

Decided February 11, 1902.

1. APPEAL—FAVORABLE DECISION ON PATENTABILITY.

A favorable decision by the Examiner upon the patentability of claims cannot be brought up for review either by appeal or petition. The Commissioner will interfere in such case only to correct an error which is clear and evident.

2. SAME—NEW REFERENCES—PIECEMEAL MOTIONS TO DISSOLVE.

Where an appeal to the Commissioner from the refusal of the Examiner to dissolve an interference new references are cited and it is asked that the case be remanded to the Examiner for reconsideration, *Held* that this amounts to a new motion for dissolution, and since motions should not be made piecemeal the request will be denied.

ON petition.

SAWMILL SET-WORKS.

Application of Arthur Niedermeyer filed January 19, 1901, No. 43,855. Application of John Walton filed April 22, 1900, No. 14,757.

Messrs. Winkler, Flanders, Smith, Bottum & Vilas and *Mr. Wm. G. Henderson* for Niedermeyer.

Mr. H. C. Lord for Walton.

ALLEN, *Commissioner:*

This is a petition that the Commissioner—

take jurisdiction of this case and review the action of the Primary Examiner and order such revision as will do substantial justice to all parties and interests involved therein.

It appears that a motion to dissolve this interference upon all the grounds specified in Rule 122 was filed by Niedermeyer November 4, 1901. This motion was denied by the Primary Examiner December 13, 1901. At the hearing before him the only grounds urged for dissolution related to the anticipation of the issue by certain patents which were cited in the motion. The Examiner after a full consideration of these patents held that the issue was not anticipated by them and denied the motion on all the grounds. From this action this petition is taken.

A review of the Examiner's action, so far as it relates to the patentability of the issue, will be granted only to correct an error in such action, which error is clear and evident. (*Goss* v. *Scott*, 96 O. G., 842.) A petition, therefore, which seeks to obtain indirectly a review of an Examiner's action, from which no direct appeal lies, will not ordinarily be entertained. The present petition is such a one and must be dismissed, since no error clearly appears which would warrant a review of the Examiner's action in the way proposed.

So far as the petition relates to the questions of interference in fact and irregularity in the declaration, it may be treated as an appeal from the Examiner's decision on these points. There appears to be no error in this decision, and on these grounds it is affirmed.

At the hearing before the Commissioner attorney for Niedermeyer called attention to certain patents alleged to anticipate the issue, which patents were not in the record. In view of these patents it was asked that the interference be dissolved or else remanded to the Primary Examiner for further consideration. This amounts to a new motion for dissolution on the ground that the issue is not patentable. Such a motion cannot properly be made at this time. This matter should have been urged at the time the original motion to dissolve was made. Motions should not be made by piecemeal, but the whole case should be presented at one time. No sufficient excuse appears why this matter was not sooner introduced and in the regular way.

For these reasons the request made at the hearing must be denied.

DITTGEN *v.* PARMENTER.

Decided February 11, 1902.

1. INTERFERENCE—ACCESS TO ORIGINAL APPLICATION.

The junior party to an interference is clearly entitled to have access to an earlier application of the senior party when the senior party's application involved in the interference is alleged to be a division of said earlier application. (Citing *in re Swihart*, 90 O. G., 601.)

2. SAME—SAME—MOTION TO SHIFT BURDEN OF PROOF—TRANSMITTAL.

When access to such earlier application was at first refused and was finally granted after repeated requests had been made, *Held* that a motion to shift the burden of proof brought by the junior party soon after such access was granted was brought without unreasonable delay and should be transmitted to the Primary Examiner.

APPEAL on motion.

CIGAR-POUCHES.

Patent to John J. Dittgen, No. 62,226, granted November 20, 1901. Application of Orville L. Parmenter filed January 9, 1901, No. 42,672; division of No. 693,416, filed October 13, 1898.

Mr. Geo. B. Parkinson for Dittgen.

Mr. Hubert E. Peck for Parmenter.

ALLEN, *Commissioner:*

This case comes before the Commissioner on an appeal by Dittgen from the decision of the Examiner of Interferences refusing to transmit to the Primary Examiner a motion by said Dittgen that the burden of proof be shifted to Parmenter, the senior party in the above-entitled interference.

The motion was refused transmission by the Examiner of Interferences on the ground that it came too late in view of the fact that each party has taken testimony.

It appears from the record that the preliminary statements were approved May 1, 1901. Parmenter's application involved in this interference is said to be a division of an earlier application, filed October 13, 1898. As this is prior to the filing date of the application upon which Dittgen's patent was granted, Parmenter was made the senior party. Dittgen's motion is based upon the allegation that Parmenter's earlier application does not disclose the subject-matter in issue in the present case. In

support of the motion Dittgen's attorney has filed an affidavit to the effect that he was unable to obtain a copy of Parmenter's earlier application from the Office until October 7, 1901, though repeated requests for the same had been made. It was held by the Examiner of Interferences that—

> * * * it does not appear when his request was made or when it was refused. The Examiner is unable, therefore, to determine whether Dittgen used reasonable diligence in endeavoring to inform himself in regard to what Parmenter's parent application contained.

The affidavit of Dittgen's attorney distinctly sets forth the dates when the requests for a copy of Parmenter's parent application were made and the dates when it was refused and finally granted, and this affidavit is practically substantiated by the records of this Office, which show that such requests were made and at first refused, then afterward granted, and it was not until October 5, 1901, that a copy of Parmenter's earlier application was mailed him.

Dittgen was clearly entitled under the rulings of this Office to have access to Parmenter's early application, (*in re Swihart*, 90 O. G., 601,) and it is apparent that through no fault of his own such access was denied him until October 5, 1901.

The present motion was brought October 25, 1901. Under the circumstances the delay was not unreasonable, and the motion should be transmitted to the Primary Examiner for his determination. It is essential in a case of this kind that all the facts should be before the Office in order that the award of priority may be made to the party who is justly entitled thereto. The question raised by the present motion is one which may directly affect the merits of the case, and consideration thereof should not be denied in the absence of laches.

The decision of the Examiner of Interferences refusing to transmit the motion to the Primary Examiner is reversed.

RITTER *v.* KRAKAU.

Decided February 11, 1902.

1. INTERFERENCE—JUDGMENT ON THE RECORD—MOTIONS THEREAFTER.

After judgment on the record the losing party may bring any motions permitted by the rules, provided he does so within the time limit therefor and has not waived his right of appeal.

2. SAME—SAME—SAME.

Such a judgment does not prevent a consideration of facts which may show, if proved, that the issue is not patentable or that it is not patentable to one of the parties. If a mistake has been made in the declaration of the interference, it is essential to the ends of justice that opportunity for the correction of this mistake be given and the judgment vacated.

APPEAL on motion.

DRAFT-RIGGING.

Application of Gilbert P. Ritter filed August 14, 1901, No. 72,070. Application of Harry T. Krakau filed January 26, 1901, No. 44,825.

Mr. F. W. Ritter, Jr., for Ritter.

Messrs. Bakewell & Bakewell for Krakau.

ALLEN, *Commissioner:*

This is an appeal by Krakau from the decision of the Examiner of Interferences granting a motion by Ritter to transmit to the Primary Examiner a motion to dissolve the above-entitled interference brought by Ritter.

The motion to dissolve the interference is based upon the grounds—

> 1. That no interference in fact exists.
> 2. That the said Krakau, one of the parties to said interference is not entitled to make the claims in form and substance as set forth in the several issues of said interference—

and this appeal is taken for the reason "that the Examiner of Interferences erred in transmitting said motion in so far as relates to the second ground or reason stated in the moving papers."

It appears that a decision awarding priority of invention to Krakau was rendered on December 14, 1901, for the reason that the preliminary statement of Ritter, the junior party, had failed to overcome the *prima facie* case made against him by the respective dates of filing applications. The limit of appeal from this decision was set to expire January 4, 1902. On December 19, 1901, before this limit of appeal had expired, Ritter filed his motion for dissolution, together with a motion for its transmittal. As the motion to dissolve was found to be in proper form and brought in proper time, it was transmitted to the Primary Examiner.

This action was the only proper one under the rules. The fact that judgment has been rendered on the record does not prevent the losing party from bringing any motions permitted by the rules, provided he does so within the time limit therefor and has not waived his right of appeal. Provision for the filing of such motions is expressly made by Rule 114. Nor does such a judgment prevent a consideration of facts which may show, if proved, that the issue is not patentable or that it is not patentable to one of the parties. A judgment on the record of an interference is made before the Office has had the benefit of the views of counsel for either party upon the questions involved therein. If a mistake has been made in the declaration of such interference, it is essential to the ends of justice that opportunity for the correction of this mistake be given and the judgment vacated. For this reason the practice laid down in the rules should be followed. No reason for departing from this practice is found in the present case.

The decision of the Examiner of Interferences is affirmed.

EX PARTE CREVELING.

Decided February 13, 1902.

DRAWINGS—EXACT PROPORTIONS OF PARTS NOT NECESSARY.

It is not necessary in Patent Office drawings that the exact proportions of the parts should be indicated. All that is required is that such an operative device be shown that one skilled in the art can make and use the same.

ON petition.

MEANS FOR REGULATING THE OUTPUT OF DYNAMO-ELECTRIC MACHINES.

Application of John L. Creveling filed June 12, 1901, No. 64,200.

Mr. George E. Morse and *Messrs. Kenneson, Crain, Emley & Rubine* for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring an additional drawing in the above-entitled application.

The Examiner has objected to the present drawing for the reason that it does not show the body of mercury of such a size as to expand and contract sufficiently to operate the switch-arm as described. There seems to be no question of the operativeness of the combination set forth in the claims, but the Examiner holds that the proportions of the parts as now shown are such that the device will not operate. It is not necessary in Patent Office drawings that the exact proportions of the parts should be indicated. All that is required is that such an operative device be shown that one skilled in the art can make and use the same.

In the case now under consideration the tube containing the body of mercury is described as communicating with the interior of the generator-case. It is obvious that the amount of mercury contained in that part of the tube which is within the case should be sufficient to effect the function described and that this part of the tube should be of a size which will contain this amount of mercury. No further illustration is necessary in order to make this matter clear.

The petition is granted.

FINCH *v.* SINGLETON.

Decided February 13, 1902.

MOTION TO DISSOLVE—SUCCESSIVE MOTIONS—PRACTICE.

The practice of the Office does not permit a party to bring a motion to dissolve upon one ground and if it is denied to bring another motion setting up different grounds, since this would result in unwarrantable delay of the proceedings and in trouble and expense to the opposing party.

APPEAL on motion.

EYEGLASSES.

Application of Robert B. Finch filed March 19, 1901, No. 51,954. Application of Eustace M. Singleton filed January 10, 1891, No. 42,756.

Mr. A. J. O'Brien for Finch.

Messrs. John B. Thomas & Co. for Singleton.

ALLEN, *Commissioner:*

This is an appeal by Finch from the decision of the Examiner of Interferences refusing to transmit to the Primary Examiner a motion by Finch to dissolve the above-entitled interference.

It appears that a motion to dissolve was brought by Finch August 17, 1901, on the sole ground that Singleton had no right to make the claim. At the hearing before the Primary Examiner a part of the argument by Finch was directed to the question of irregularity in the declaration of the interference. The Examiner considered the motion as if it were brought upon both grounds and denied it. From that part of the decision holding that there was no irregularity in the declaration which would preclude a proper determination of the question of priority appeal was taken to the Commissioner. This appeal was dismissed for the reason that the Examiner had no jurisdiction to consider the question of irregularity, since this ground for dissolution had not been specified in the motion papers, and that his decision on this ground was to be treated as a nullity.

On December 10, 1901, Finch filed a second motion for dissolution on the ground of irregularity in the declaration, which was dismissed by the Examiner of Interferences for the reasons that the motion papers had not been served on the opposing party nor the motion to transmit noticed for hearing upon a day certain before the Examiner of Interferences, and for the further reason that the practice of the Office does not permit a party to bring a motion upon a single ground and, if the same be denied, to bring another motion setting up other grounds. (Citing *Horrocks* v. *Harter and Parker*, 36 MS. Dec., 348.)

On December 21, 1901, Finch filed a third motion for dissolution, accompanied by motions to transmit and for a stay of proceedings. This motion to transmit was dismissed January 8, 1902, and from this action the present appeal has been taken.

From the above statement of the case it appears that the action of the Examiner of Interferences was correct. To permit a party to an interference to make successive motions for dissolution, as was done in this case, would result in an unwarrantable delay of the proceedings and in trouble and expense to the opposing party. There appears to be no good reason why both grounds for dissolution should not have been stated in the original motion, and if it was appellant's desire to have the question considered on both grounds he should have stated them at that time.

It is contrary to the well-settled practice of the Office to allow a party to make motions to dissolve by piecemeal. (*Bechman* v. *Wood*, 81 O. G., 2067.)

The decision of the Examiner of Interferences is affirmed.

RICHARDS *v.* KLETZKER AND GOKSEL.

Decided February 14, 1902.

1. MOTIONS TO DISSOLVE—PIECEMEAL MOTIONS.

Motions to dissolve should not be made piecemeal; but the whole case should be presented at one time.

2. SAME—SAME—DIFFERENCE IN CONSTRUCTION OF ISSUE.

Where as a reason for permitting a second motion to dissolve in a case a party alleges that the Examiner's decision indicated an interpretation of the issue at variance with that placed upon it by the petitioner, *Held* that such difference of opinion is not a sufficient reason for a dissolution.

3. APPEAL—EXTENDING LIMIT OF APPEAL—MISTAKE AS TO REMEDY.

Where a party appeals to the Examiners-in-Chief from a favorable decision upon the merits and his appeal is dismissed and he thereafter asks that the limit of appeal be extended, so that he can bring the case before the Commissioner upon the allegation that the matter relates to irregularity in the declaration, *Held* that the request will be denied.

4. SAME—IRREGULARITY—ISSUE TOO BROAD—MERITS.

Where a party alleges irregularity in the declaration and asks that the issue be revised and the real reason given is that the issue is too broad, *Held* that the Commissioner will not review the favorable decision of the Examiner upon that question of merits.

ON petition.

MECHANISM FOR MAKING TYPE.

Application of Francis H. Richards filed June 19,

1900, No. 20,814. Application of Albert J. Kletzker and John G. Goesel filed June 19, 1897, No. 641,722.

Mr. F. H. Richards and *Mr. C. A. Weed* for Richards.

Mr. J. G. Goesel for Kletzker and Goesel.

ALLEN, *Commissioner:*

This is a petition that the Commissioner exercise his supervisory authority to review a decision of the Primary Examiner denying a motion by Richards to dissolve the above-entitled interference on the ground that the issue is so broad as to be unpatentable in view of the prior art and, further, that the limit of appeal from the Examiner's decision on a motion to reform the issue be reset in order that Richards may appeal to the Commissioner.

It appears that a motion to dissolve this interference was filed by Richards on the ground that the issue was not patentable. This motion was denied by the Primary Examiner July 11, 1901, who held the issue to be patentable. On August 26, 1901, Richards filed a motion for a rehearing of the motion to dissolve and also a motion for a revision of the issue. This latter motion was based on the grounds:

1. That, as now drawn, it is not certain what is intended to be meant by the last element of the claim of the issue.
2. That it is evident from the decision of the Primary Examiner, rendered July 1, 1901, holding the issue to be patentable, that the Office has placed a special construction upon such issue.
3. That the issue is not complete.
4. That in view of certain patents the issue is too broad.
5. That each party should be restricted to his own specific device.

These motions were denied by the Primary Examiner November 1, 1901. On November 20, 1901, Richards filed an appeal to the Examiners-in-Chief, which was dismissed by them for the reasons that—

the motion for a revision of the issue involves a question of merits, which, having been affirmatively decided by the Examiner, does not warrant an appeal to this tribunal—

and also that even if—

the motion could properly be regarded as involving an irregularity in the declaration of the interference, still appeal would not lie to this tribunal from a decision of the Primary Examiner.

Thereupon the present petition was taken.

It is clear from the above statement of the case that Richards, having been defeated in an attempt to bring about a dissolution of the interference on the ground of non-patentability of the issue, now seeks a review of the Examiner's favorable decision and also an opportunity to present a matter for consideration which has not been urged before—namely, irregularity in the declaration, which will preclude a proper determination of priority.

An inspection of the reasons given for a revision of the issue shows that they consist mostly of allegations that the issue is too broad in view of the prior art. This is a matter touching the merits and one which was decided by the Examiner in favor of the patentability of the issue. His decision on this point will not be disturbed unless some error appears therein which is clear and evident. (*Goss* v. *Scott*, 96 O. G., 842.) No such error is found in the present case, and the petition, so far as it requests a review of the Examiner's action on the patentability of the issue, must be denied.

The petitioner also seeks to have the limit of appeal reset in order that he may file an appeal to the Commissioner on the question of irregularity in the declaration of the interference. It is to be observed that this question of irregularity is raised now by the petitioner for the first time. It is true that the Examiners-in-Chief suggested in their decision that if the motion could be regarded as involving an irregularityappeal would not lie to them, but no motion to dissolve on this ground has been made in the case.

Under the well-settled practice of the Office it is too late now to urge this matter as a ground for dissolution. There is nothing in the record to show that such a motion could not have been made at the proper time if in the opinion of the petitioner there were sufficient reasons for such a motion. The allegation that such reasons did not appear until the Examiner in his decision on the first motion to dissolve indicated an interpretation of the issue at variance with that placed upon it by petitioner is not sufficient. Such a difference of opinion as to the meaning of an issue is not a sufficient reason for dissolution on the ground of irregularity. (*Annand* v. *Spalckhaver*, 97 O. G., 2083; *Pupin* v. *Hutin and Leblanc* v. *Stone*, 82 O. G., 1418.)

Since no motion to dissolve on this ground was made, it cannot under the well-settled practice of the Office be made now. Motions should not be made by piecemeal, but the whole case should be presented at once.

Under these circumstances no appeal can be filed on the question of irregularity, nor can a motion be brought at this late day to dissolve the interference on that point.

The petition is denied.

Patents Nos. 604,342 to 604,934.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 98.—No. 9. TUESDAY, MARCH 4, 1902. Price—$5 per year.

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Labels	13—No.	8,995 to No. 9,007, inclusive.
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Total issue	656	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	.....	Nevada	1	.....
Arizona Territory	1	.....	New Hampshire	2	.....
Arkansas	4	.....	New Jersey	15	1
California	18	.....	New Mexico Territ'y	2	.....
Colorado	10	.....	New York	87	24
Connecticut	13	.....	North Carolina	2	.....
Delaware	2	.....	North Dakota	13	.....
District of Columbia	12	.....	Ohio	35	3
Florida	1	1	Oklahoma Territ'y	1	.....
Georgia	1	.....	Oregon	3	.....
Hawaii Territory	1	.....	Pennsylvania	70	4
Idaho	.....	.....	Porto Rico	.....	.....
Illinois	51	2	Rhode Island	15	.....
Indian Territory	.....	.....	South Carolina	2	.....
Indiana	14	.....	South Dakota	1	.....
Iowa	14	1	Tennessee	3	.....
Kansas	8	.....	Texas	12	1
Kentucky	9	.....	Utah	.....	.....
Louisiana	4	.....	Vermont	.....	.....
Maine	3	1	Virginia	4	.....
Maryland	8	.....	Washington	2	.....
Massachusetts	30	4	West Virginia	1	.....
Michigan	19	1	Wisconsin	15	.....
Minnesota	5	.....	Wyoming	1	.....
Mississippi	3	.....	U. S. Navy	.....	.....
Missouri	20	1	Total to citizens of the United States	550	44
Montana	.....	.....			
Nebraska	1	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	.....	.....	Mexico	1	.....
Austria-Hungary	.....	.....	Netherlands	.....	.....
Barbadoes	.....	.....	Newfoundland	.....	.....
Belgium	1	.....	New South Wales	.....	.....
Bermuda	.....	.....	New Zealand	.....	.....
Brazil	.....	.....	Norway	.....	.....
Canada	10	.....	Queensland	.....	.....
Cape Colony	.....	.....	Roumania	.....	.....
Chile	.....	.....	Russia	1	.....
China	.....	.....	Scotland	2	.....
Colombia	.....	.....	South African Republic	.....	.....
Cuba	1	.....	South Australia	.....	.....
Denmark	.....	.....	Spain	.....	.....
Egypt	.....	.....	Sweden	.....	.....
England	16	2	Switzerland	2	.....
France	10	.....	Turkey in Asia	.....	.....
Germany	14	.....	Victoria	.....	.....
Guatemala	.....	.....	Western Australia	.....	.....
Haiti	.....	.....			
India	.....	.....	Total to citizens of foreign countries	56	2
Ireland	.....	.....			
Italy	.....	.....			

Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 19, 1902.

SIR: The Secretary of the Interior has ordered that Robert L. Underwood, of Fostoria, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 19, 1902.

SIR: The Secretary of the Interior has ordered that James P. Robinson, of Washington Court House, Ohio, be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Delivery of Patent.

The patent will be delivered or mailed on the day of its date to the attorney of record, if there be one; if not, to the patentee; or, if the attorney so request, to the patentee or assignee of an interest therein.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 25, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	In arrears—Under one month.			
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Feb. 0	Feb. 11	165
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Feb. 5	Feb. 13	230
253	X. Carriages and Wagons	Feb. 5	Feb. 13	91
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Jan. 29	Feb. 5	94
218	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Jan. 27	Feb. 11	179
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Jan. 27	Feb. 11	160
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Jan. 27	Feb. 11	139
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Jan. 27	Feb. 11	152
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Jan. 27	Feb. 11	216
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Jan. 27	Feb. 10	368
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Jan. 27	Feb. 10	305
251	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Jan. 27	Feb. 10	301
246	I. Tillage, etc., and Fences	Jan. 27	Feb. 7	160
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Jan. 27	Feb. 5	173
80	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Jan. 27	Feb. 3	276
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Jan. 27	Jan. 30	180
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Jan. 25	Feb. 11	178
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Jan. 25	Feb. 11	255
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Jan. 25	Feb. 8	189
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Jan. 25	Feb. 8	168
138	XXIX. Wood-Working Machines, Coopering and Roofing.	Jan. 25	Feb. 3	175
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Jan. 25	Jan. 20	156
	Between one and two months.			
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Jan. 24	Feb. 11	209

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Jan. 23	Feb. 11	174
122	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Jan. 23	Feb. 5	198
102	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Jan. 22	Feb. 10	205
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 8	Jan. 20	360
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Jan. 3	Jan. 17	292
93	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Jan. 2	Dec. 18	380
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Dec. 21	Jan. 3	336
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec. 27	Dec. 24	308
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Dec. 26	Dec. 26	539
	Between two and three months.			
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Dec. 20	Dec. 21	451
248	XVIII. Steam-Engineering, etc	Dec. 13	Jan. 2	439
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 9	Jan. 25	274
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Dec. 3	Jan. 15	436

Total number of applications awaiting action.....8,905

Under one month.			
*Designs	Jan. 28	Feb. 5	202
†Trade-Marks	Jan. 28	Feb. 14	151
‡Labels and Prints	Feb. 21	Feb. 21	7

Disclaimer.

451,847.—*Albert Baur*, Gispersleben, near Erfurt, Germany. IMPROVEMENT IN ARTIFICIAL MUSK. Patent dated May 5, 1891. Disclaimer filed February 21, 1902, by the present assignee, the *Societe Fabriques de Produits Chimiques de Thann et de Mulhouse*.

Enters its disclaimer—

"To that part of the description of the said patent which is found in lines 35-36 thereof in the following words, to wit:

'It may be made by various processes.'"

Also—

"To that part of the description of the said patent which is found in lines 37-38 of the said patent in the following words, to wit:

'or other similar substance.'"

Also—

"To that part of the description of the said patent contained in lines 53-74 thereof as far as the same refers to any substance except 'methyl-isobutyl-benzine' and except 'dimethyl-isobutyl-benzine.'"

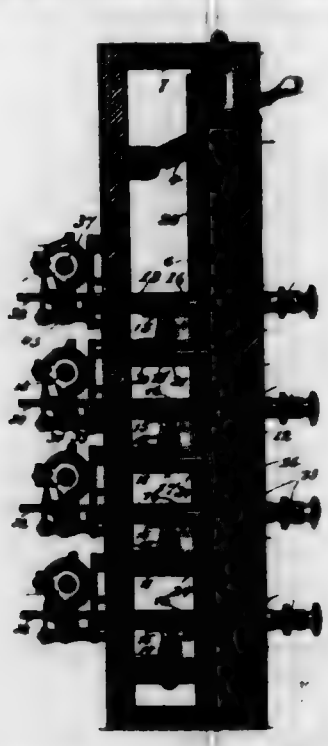
Also—

"To any claim to the artificial musk herein described when derived from 'methyl-isopropyl-benzine,' or when derived from 'methyl-isoamyl-benzine,' or when derived from 'dimethyl-isopropyl-benzine,'' or when derived from 'dimethyl-isoamyl-benzine, or when derived from any other base or substance but from 'methyl-isobutyl-benzine,' (that is, 'isobutyl-toluene,' commonly called 'butyl-toluene,') or 'dimethyl-isobutyl-benzine,' (that is, 'isobutyl-xylene,' commonly called 'butyl-xylene,') and * * * claims only the trinitrated hydrocarbon derived from the said 'methyl-isobutyl-benzine' ('isobutyl-toluene,' commonly called 'butyl-toluene') or derived from 'dimethyl-isobutyl-benzine,' ('isobutyl-xylene,' commonly called 'butyl-xylene.'")

PATENTS

GRANTED MARCH 4, 1902.

694,842. VOTING-MACHINE. HUGH A. ADAMS, Wabash, Ind. Filed May 13, 1901. Serial No. 60,946. (No model.)



Claim.—1. In a voting-machine, the combination of the voting-keys, disks connected thereto, vertically-sliding bars adapted to operate said voting-keys, levers adapted to operate said vertically-sliding bars, release-bars adapted to release said voting-keys, a vertical eccentrically-pivoted bar adapted to operate said release-bars, pawls on said release-bars, a release-bar-operating rod adapted to operate said vertical eccentrically-pivoted bar, a key secured to said rod, disks adapted to be operated by said key, a release-key, a pawl secured thereon adapted to release said key secured to said rod, substantially as described.

2. In a voting-machine, the combination of the voting-keys, disks, vertically-sliding bars, release-bars, a release-bar-operating rod extending from the machine and adapted to be operated by the voter, whereby the mechanism is reset, and a release-key for said release-bar-operating rod, adapted to be operated by the election judge, whereby the resetting of the voting mechanism is controlled by the said election judge, substantially as described.

3. In a voting-machine, the combination of the voting-keys, disks connected thereto, a locking means, release-bars for said keys, a release-bar-operating rod adapted to operate said release-bars, and extending a distance from the machine, said release-key also situated at a distance from the machine, whereby the entire poll-vote is registered, substantially as described.

4. In a voting-machine, the combination with vote-registering means, of a key adapted to be operated in presence of an election judge, and adapted to register the poll-vote, and a release-key adapted to be simultaneously operated by an election judge, whereby the aforementioned key operated by the voter is under the control of an election judge, substantially as described.

5. In a voting-machine the combination of the voting-keys arranged in a series of vertical lines, a lever adapted to operate each line, a locking device, a release-bar-operating rod adapted to release said keys, and operated by the voter, and a release-key adapted to release said release-bar-operating rod and adapted to be operated by the election judge, whereby the resetting of the voting mechanism is under the control of the election judge, substantially as described.

6. In a voting-machine, the combination of vote-registering means, consisting of voting-keys and disks, and a poll-vote-registering means consisting of a rod, key and disks, said key being adapted to release said voting-keys and simultaneously register a poll-vote, said key being operated by the voter, and a release-key adapted to release said rod and key and operated by an election judge, substantially as described.

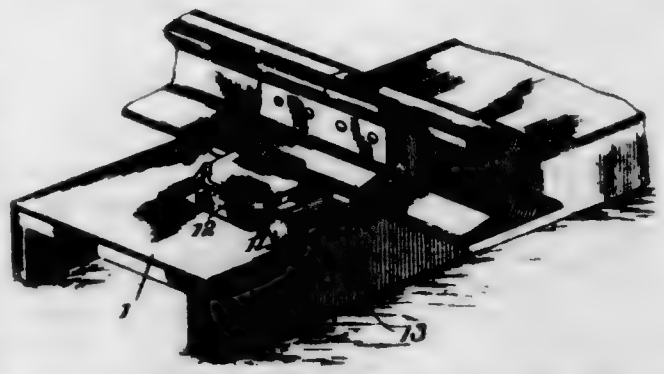
7. In a voting-machine, the combination of vote-registering means consisting of voting-keys and disks, means for releasing said voting-keys at a distance from the machine and operated by the voter, said releasing means being adapted to be controlled by an election judge, at a distance from the machine, substantially as described.

8. In a voting-machine, the combination of vote-registering means consisting of voting-keys and disks, a poll-vote-registering means, consisting of a rod key and disks, a locking means for said poll-vote-registering means, and a release-key adapted to release said poll-vote-operating means when said release-key is depressed, substantially as described.

9. In a voting-machine the combination of vote-registering means adapted to be operated by the voter, a poll-vote-registering means adapted to be operated by the voter in presence of an election judge, and means for controlling said poll-vote-registering means, adapted to be operated by an election judge, substantially as described.

10. In a voting-machine, the combination of vote-registering means consisting of voting-keys and disks and adapted to be operated by the voter, a poll-vote-registering means consisting of a key, rod and disks adapted to be operated by the voter in presence of an election judge, and means for releasing said poll-vote-registering means, adapted to be operated by an election judge, substantially as described.

694,843. SECURING DEVICE FOR RAILROAD-TIES. AARON B. ALLEN, Pueblo, Colo. Filed Mar. 30, 1901. Serial No. 53,715. (No model.)



Claim.—1. In a securing device for rails, the combination with a tie having an aperture upon one side of the rail, of a bolt-anchoring member 2 adapted to fit said opening and provided with a threaded aperture near one end; a base-plate having a hole in its inner edge and a bolt fitting said hole and aperture and having a head adapted to secure the base of the rail whereby when the anchoring device 2 is properly entered in the aperture provided in the tie the bolt will be disposed relatively near the base of the rail, substantially as specified and for the purpose set forth.

2. In securing devices for track-rails, a tie having an opening disposed at a point adjacent to one edge of the rail in combination with a base member 3 having an anchoring member 2 upon its upper surface adapted to fit the opening in the tie, said anchoring member 2 being provided at one end with a threaded aperture 5 for the reception of the threaded bolt 6 whereby said aperture may be located immediately contiguous to the edge of the rail or relatively farther away therefrom, substantially as specified and for the purpose set forth.

3. The herein-described securing device for track-rails comprising the base-section 3 and an oblong rectangular anchoring member 2 secured to its upper surface, said anchoring member being provided with a threaded opening 5 disposed eccentrically with reference to said base member, in combination with a bolt having a threaded stem 6 and a head 7, the former being adapted to be received by the opening 5, while the latter is designed to engage the base of the rail, all substantially as specified and for the purpose set forth.

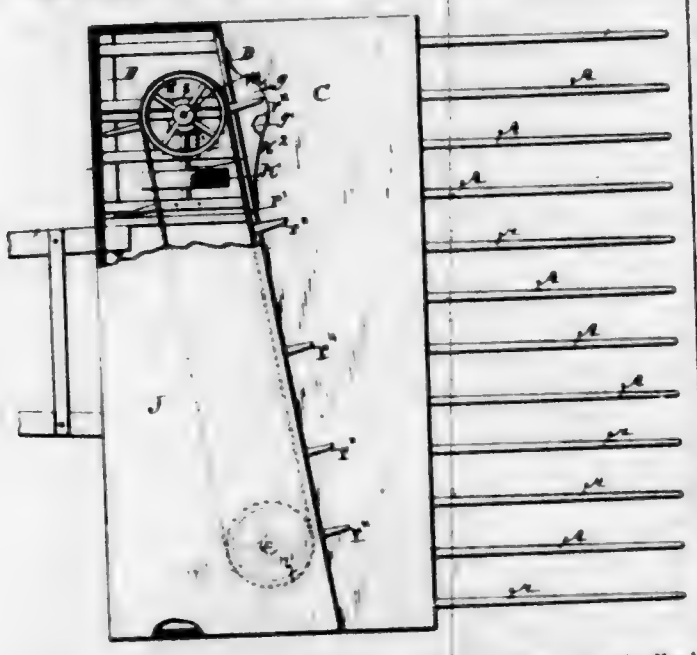
4. In a securing device for track-rails, the combination with a tie,

of a rail-engaging device comprising the anchoring member 2 provided with a threaded opening disposed eccentrically with reference to the base member and with means to coöperate with the tie and having a bolt adapted to engage the base of the rail and hold it against lateral movement substantially as specified and for the purpose set forth.

5. The herein-described securing device for track-rails comprising an adjustable bolt-carrying device, consisting of the base-section 3 and an anchoring member 2, the latter being adapted to be adjustably secured in a suitable opening provided in the tie whereby the threaded aperture 5 formed in said anchoring member may be disposed with respect to the base of the rail; a bolt fitting said aperture whereby the head of the bolt may be brought to bear upon said base, and the anchoring device 6 properly entered in the aperture provided in the tie, substantially as specified and for the purpose set forth.

6. In a securing device for track-rails, the combination with a tie having an aperture near the edge of the rail and an anchoring member, a base member and a threaded bolt having a head, the plate 9 having an aperture 10 and a thickened section 11 and an upwardly-extending flange 12, the latter adapted to be bent down into engagement with the head of the bolt as set forth.

694,344. SIDE-DELIVERY HAY-RAKE. CHARLES W. BAIRD, Millersburg, Iowa. Filed June 24, 1901. Serial No. 65,796. (No model.)



Claim.—1. In a hay-rake, a transverse wall having longitudinal slots, fixed on the rear end portion of the rake to project vertically, fixed rake-teeth extending forward from the wall, a platform fixed in front of said wall to extend forward over the rake-teeth, wheels in rear of the platform for supporting the rear end portion of the rake elevated, endless chains in rear of the wall provided with fixed fingers to traverse said slots and means for operating said chains, arranged and combined to move hay over the platform and in front of said wall to deliver the hay at the side of the rake as the rake is advanced to gather hay.

2. In a machine or rake adapted for gathering hay, a frame supported upon traction-wheels partially under the frame, a plurality of parallel fixed rake-teeth, a fixed platform on top of the frame and rear end portions of the teeth at some distance from their free front ends, a wall having longitudinal slots fixed on the platform to project vertically and extend across the platform, endless carriers in rear of said wall provided with fingers, and means for operating the carriers connected with the traction-wheels, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a machine for gathering and delivering hay at one side thereof as it is advanced in a field, a frame, traction-wheels mounted between the two parallel sides of the frame, a plurality of rake-teeth fixed in parallel position to the frame to project forward, a platform fixed on top of the frame and rear ends of the rake-teeth, a transverse wall fixed on the platform to project vertically, a slot in the wall extending horizontally to permit fingers carried by an endless chain to traverse the slot, an endless chain having fixed fingers in rear of the wall, means to press hay from the fingers at one end of said slot and means to actuate the chain in parallel line with the wall having the slot, arranged and combined to operate in the manner set forth for the purposes stated.

4. In a rake for delivering hay at the side of the line of advance, a frame mounted upon traction-wheels a plurality of rake-teeth projected forward from the frame, two shafts mounted on the frame to project vertically, a sprocket-wheel fixed to each one of said shafts, an endless chain placed on said sprocket-wheels and provided with fingers adapted to engage and move hay a wall in front of the chains provided with slots to be traversed by said fingers and means for actuating the sprocket-wheels, arranged and combined to operate in the manner set forth for the purposes stated.

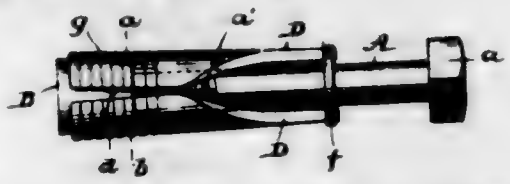
5. A frame for a side-delivery hay-rake composed of a plurality of straight bars rigidly connected at their rear end portions and in parallel position, a platform fixed across the central portions of said straight bars and a case fixed on top of the said bars and in rear of said platform and the front wall of the case inclined relative to the ends of the case and line of advance and traction-wheels connected with the rear end portion of the frame to operate within the case and mechanism for moving hay from the platform in front of the inclined wall in the manner set forth, for the purposes stated.

6. In a hay-rake a frame mounted upon traction-wheels to extend over the wheels, shafts having fixed sprocket-wheels mounted in fixed bearings to project vertically, an inclined transverse wall having slots for the passage of fingers carried by endless chains, a platform in front of the inclined wall endless chains on said sprocket-wheels, fingers projecting from said chains to traverse the slots in said inclined wall to engage and move hay, bevel-gears connected with the axles of the traction-wheels and with the shafts projecting vertically, arranged and combined to operate in the manner set forth for the purposes stated.

7. A side-delivery hay-rake comprising a frame mounted upon traction-wheels to inclose the wheels, a plurality of rake-teeth projecting forward from the frame a platform fixed on the rake-teeth, a case fixed to the rear end of the platform to project vertically the front wall of the case inclined relative to the ends of the case and the line of advance and provided with longitudinal slots, fixed clearer-plates projecting forward at the sides of the slots, vertical shafts having fixed sprocket-wheels in bearings fixed to the frame, bevel-gears connecting the said shafts with the axle of the traction-wheels, chains on the sprocket-wheels, fingers projecting from links in the chain and means for hitching horses to the frame to push the machine forward, arranged and combined to operate in the manner set forth for the purposes stated.

8. A hay-rake for gathering hay into a row at the side of the rake comprising a frame composed of a plurality of rake-teeth and cross-bars fixed to the rear end portions of the teeth, traction-wheels within the frame on axles mounted in bearings fixed to the frame, a platform fixed on the rake-teeth in front of the traction-wheels, a wall fixed on the platform to extend diagonally across the platform in a vertical plane, one or more slots extending longitudinally in the wall, endless carriers mounted in rear of the slotted wall and provided with fingers to traverse the slots in the wall devices at one end portion of the wall for clearing the fingers, means connected with the traction-wheels for operating the endless carriers and means for hitching a horse thereto for advancing the rake in a field, arranged and combined to operate in the manner set forth for the purposes stated.

694,345. EXPANSION-BOLT. DWIGHT W. BENNETT, Philadelphia, Pa., assignor to Walter H. Devlin, Philadelphia, Pa. Filed Aug. 27, 1901. Serial No. 73,480. (No model.)



Claim.—1. The combination, forming an expansion-bolt, of a spring-sleeve, formed of two oppositely-disposed segmental spring-sections, concave interiorly and united at the base to a perforated ring or collar, a screw-threaded bolt passing through the collar, and a retaining head or nut having a central screw-threaded opening and of exterior contour oval in cross-section at its outer end and tapering toward its inner end; with means to guide said nut in a longitudinal sliding movement in the sleeve-sections, substantially as described.

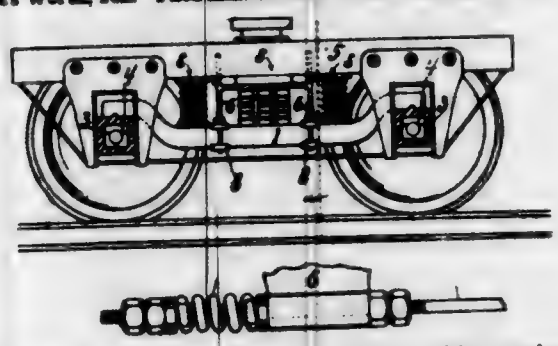
2. The combination, forming an expansion-bolt, of a spring-sleeve having two transversely-arranged pairs of spring-sections which are concaved interiorly and united at the base to a perforated ring or collar, a screw-threaded bolt passing through the collar, and a retaining-head having a central screw-threaded opening and of exterior contour presenting on cross-section at its outer end two transversely-arranged ovals constituting two pairs of oppositely-disposed segments, said segments being adapted to coincide with the interior concave faces of the four sleeve-sections, said retaining-head tapering substantially to a cylinder at its inner end; with devices between the spring-sections and retaining-head adapted to form a sliding connection between them; substantially as described.

3. In combination, forming an expansion-bolt, a spring-sleeve, having a series of concave spring-sections slotted longitudinally, with a bevel slot as at b terminating in a larger plain slot as at b^3, a perforated collar supporting the sections at one end, a screw-threaded bolt passing through

the collar, and a retaining-nut provided with a series of longitudinally-arranged beveled flanges adapted to enter the beveled slots in the spring-sections and form a dovetail sliding connection therewith; substantially as described.

4. In combination, forming an expansion-bolt, a spring-sleeve, having a series of concave spring-sections slotted longitudinally, with a bevel slot as at A terminating in a larger plain slot as at A^3, a perforated collar supporting the sections at one end, a screw-threaded bolt passing through the collar, and a retaining-nut having a central screw-threaded opening and of exterior contour presenting in cross-section two oppositely-disposed segments at its outer end and tapering toward the inner end, and provided with a series of longitudinally-arranged beveled flanges adapted to enter the beveled slots in the spring-sections and form a dovetail sliding connection therewith; substantially as described.

694,346. COACH-EQUALIZING SUSPENDER. WILLIAM H. BRET, Los Angeles, Cal., assignor of one-half to Charles Herbert Stillman, Fort Worth, Tex. Filed Mar. 13, 1901. Serial No. 51,020. (No model.)



Claim.—1. A coach-equalizer suspender comprising a pair of equalizing-bars; a support carried by a portion of the car-truck; and resilient connections between said equalizing-bars respectively and said support for normally holding the equalizing-bars in true position, but which will allow them to yield under abnormal pressure.

2. In a car-truck, the combination with the brasses and the equalizing-bars; of independent resilient connections connecting said bars respectively with a support carried by the car-truck to normally hold the equalizing-bars in true position and to allow the bars to spread apart under abnormal pressure.

3. In a car-truck, the combination with an equalizing-bar; of a support carried by the truck; a jointed rod connected at one end with the equalizing-bar and passing through the support at the other end; nuts on the opposite sides of the support to adjust the position of the rod relative to said support; and a spring between the support and the nuts on the side of the support opposite the equalizing-bar.

4. In a car-truck, the combination with an equalizing-bar; of a support carried by the truck and located at one side of the bar; and resilient connection between said bar and said support to normally yieldingly hold the equalizing-bar in true position perpendicularly and to allow the bar to oscillate.

5. In a car-truck, the combination with an equalizing-bar; of a support carried by the truck and located at one side of the bar; resilient connection between the bar and the support to normally yieldingly hold the equalizing-bar in true position perpendicularly and to allow the bar to oscillate; and means for adjusting the tension of such resilient connection.

6. In a car-truck, the combination with the equalizing-bars; of independent resilient connections for said bars respectively connecting said bars independently with the frame of the truck and arranged at the side of the bars to normally hold the bars in true position perpendicularly and to allow the bars to oscillate; and means for adjusting the tension of said resilient connections independently of each other.

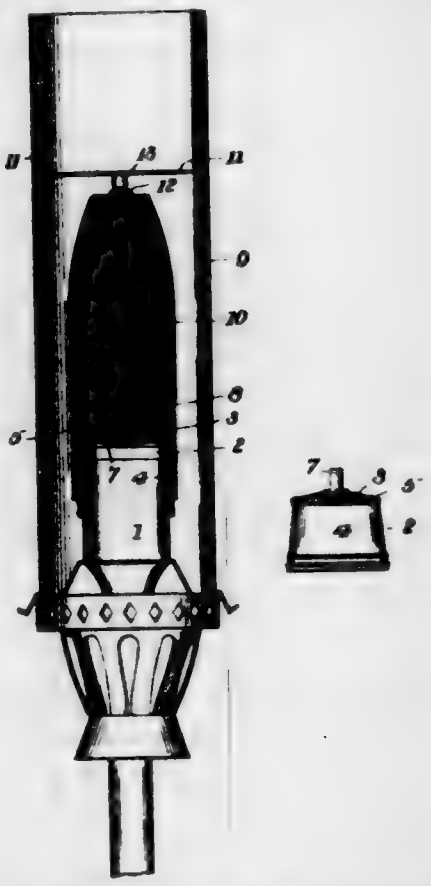
7. In a car-truck provided with equalizing-bars which respectively extend along the opposite sides of the truck; resilient connections for said bars extending transversely of the truck whereby said bars will yield laterally under abnormal strain and be automatically adjusted to their normal positions when the abnormal strain is relieved.

8. In a car-truck provided with equalizing-bars; resilient connections for said bars connected with said bars respectively between the ends thereof and extending laterally of said bars whereby said bars will yield under abnormal strain and be automatically adjusted to their normal positions when the abnormal strain is relieved; and means for supporting said connections between said bars.

9. In a car-truck provided with equalizing-bars; resilient connections for said bars, means for supporting said connections between said bars, and means for adjusting the tension of said connections.

10. In a car-truck provided with equalizing-bars; resilient connections for said bars extending laterally of said bars, and hangers for supporting said connections between said bars, said connections being attached to said bars and to said hangers.

694,847. INCANDESCENT-MANTLE SUPPORT. JOHN F. BARROW, Davenport, Iowa, assignor to the Iowa Mantle Manufacturing Company, a Corporation of Iowa. Filed June 4, 1901. Serial No. 63,060. (No model.)



Claim.—1. A mantle-support for incandescent mantles consisting of a central supporting-rod having horizontally-projecting mantle-centering arms at its upper end adapted to bear at their ends against the chimney of the lamp.

2. A mantle-support for incandescent mantles consisting of a central supporting rod or wire having two horizontally-projecting mantle-centering arms at its upper end, said arms being crossed to form a central closed loop for the reception of the transverse mantle-supporting cord and adapted to bear at their ends against the chimney of the lamp.

3. A mantle-support for incandescent mantles formed of a plurality of wires interlaced or twisted together through a portion of their length to form a central supporting-rod, the upper ends of said wires being untwisted and bent at right angles to the twisted portion to form mantle-centering arms adapted to bear at their ends against the chimney of the lamp.

4. A mantle-support for incandescent mantles formed of two wires twisted together through a portion of their length to form a central supporting-rod, said wires having their upper ends untwisted and bent at right angles to said twisted portion to form mantle-centering arms adapted to bear at their ends against the chimney of the lamp.

5. A mantle-support for incandescent mantles formed of two wires twisted together through a portion of their length to form a central supporting-rod, said wires having free, untwisted upper ends projecting at right angles to the said twisted portion, to form mantle-centering arms adapted to bear at their ends against the chimney of the lamp, the said arms being crossed upon each other to form a closed loop for the reception of the transverse mantle-cord.

6. In an incandescent-mantle support, the combination with a burner cap or thimble having a centrally-placed socket therein, of a central mantle-supporting rod mounted in said socket, said mantle-supporting rod having horizontally-projecting arms at its upper end to maintain the mantle in a central position within the chimney.

7. In an incandescent-mantle support, the combination with a burner cap or thimble having a centrally-placed socket therein, of a central mantle-supporting rod adjustably mounted in said socket, said mantle-supporting rod having horizontally projecting arms at its upper end to maintain the mantle in a central position within the chimney.

8. In an incandescent-mantle support, the combination with a burner cap or thimble, of a centrally-placed socket carried thereby, a central mantle-supporting rod having horizontally-projecting arms at its upper end to maintain the mantle in central position within the chimney, said rod being mounted in said socket, the said socket projecting above the top of the burner-cap and surrounding the lower end of the mantle-supporting rod to protect it from excessive heat.

9. A burner-cap for incandescent burner having a body portion and

a foraminous burning-surface, said body portion having an inwardly-turned lip at its upper end, said lip having portions of its edge cut away.

10. In a burner-cap for incandescent burners, the combination with a body portion, of a disk mounted in the top of said body portion to form a burning-surface, said body portion having an inwardly-turned lip at its upper end to secure said foraminous disk in place, said lip having its edge notched or serrated.

11. In an incandescent burner and in combination, a burner, a detachable burner-cap, a foraminous disk to form a burning-surface secured to said burner-cap by means of an inwardly-projecting, serrated lip or flange, a socket-piece mounted centrally of said foraminous disk and projecting upwardly therefrom, a mantle-support mounted in said socket-piece, a mantle carried by said support and surrounding said burner-cap at its lower end, and means at the upper end of said mantle-support to center the mantle at its top within the chimney or globe.

12. A detachable burner-cap for incandescent burners having a lower portion 5^a with vertical walls, and an upper inwardly-stepped portion 4^a of smaller diameter than said lower portion; whereby said cap is adapted to be fitted to and used with burners of different diameters.

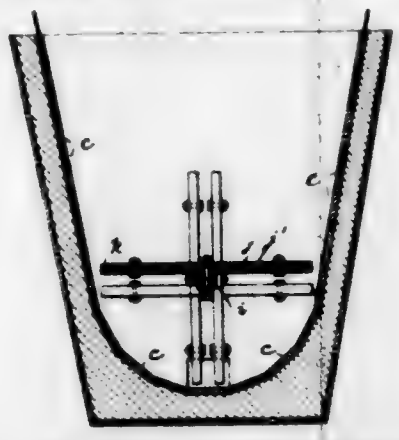
694,848. APPARATUS FOR TREATING METALS. GEORGE C. CARSON, Redding, Cal. Filed Apr. 12, 1901. Serial No. 55,481. (No model.)



Claim.—A blowpipe or jet composed of hollow carbon having an internal sleeve split and lapped, and forming a reinforcement for said carbon

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694,849. PROCESS OF RECOVERING GOLD FROM REFRACTORY ORES. HENRY R. CASSEL, New York, N. Y. Filed June 12, 1901. Serial No. 64,198. (No specimens.)



Claim.—1. The process of recovering gold from refractory ores which consists in converting the ore into a pulp, adding a salt capable of yielding by electrolysis oxidizing and dissolving agents, agitating the mixture and simultaneously electrolyzing it under such conditions as to oxidize the refractory elements, dissolve the gold and reprecipitate the dissolved gold in the form of a black powder, and finally adding a solvent to redissolve such black powder, substantially as specified.

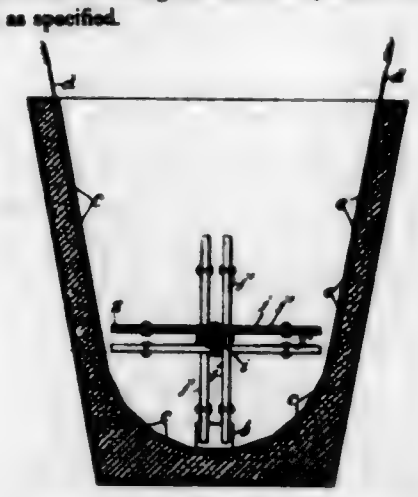
2. The process of recovering gold from refractory ores which consists in converting the ore into a pulp, adding a salt capable of yielding by electrolysis oxidizing and dissolving agents, agitating the mixture and simultaneously electrolyzing it under such conditions as to oxidize the refractory elements, dissolve the gold and reprecipitate the dissolved gold in the form of a black powder, reversing the current to detach the black powder from the electrodes, and finally adding a solvent to redissolve such black powder, substantially as specified.

694,850. APPARATUS FOR RECOVERING PRECIOUS METALS FROM REFRACTORY ORES. HENRY R. CASSEL, New York, N. Y. Filed June 12, 1901. Serial No. 64,198. (No model.)

Claim.—1. In an apparatus for electrolytically recovering precious metals from ores, the combination of a vessel with a lining composed of grooved carbon plates, and of metal conducting-strips contained within the grooves of said plates, substantially as specified.

2. In an apparatus for electrolytically recovering precious metals from ores, the combination of a vessel with a lining composed of grooved carbon plates, a backing of cement between the vessel and lining, metal conducting-strips within the grooves of said lining, and a cement covering above the metal strips, substantially as specified.

3. In an apparatus for electrolytically recovering precious metals from ores, the combination of a vessel with a rotatory insulated shaft, metal arms projecting radially therefrom, carbon plates projecting beyond the arms, and a cement filling between the plates and around the arms substantially as specified.



4. In an apparatus for electrolytically recovering precious metals from ores, the combination of a vessel with a carbon lining and metal strips in contact therewith to form one electrode, and rotatable stirrers composed of metal arms and a carbon covering that form the second electrode, substantially as specified.

5. In an apparatus for electrolytically recovering precious metals from ores, the combination of a vessel with a grooved carbon lining, metal conducting-strips within the grooves of said lining, a cement covering above the strips, an insulated shaft, metal arms projecting radially therefrom, and a carbon covering affixed to said arms, substantially as specified.

694,851. PLOW-COLTER-FASTENING DEVICE. CHRISTOPHER C. CHAPPEL, Bono, Ark. Filed Nov. 19, 1901. Serial No. 82,882. (No model.)



Claim.—1. In a plow, the combination with a colter provided with a series of holding-notches, of a vertically-pivoted and horizontally-swinging fastening-lever having a portion adapted to engage any one of said notches to hold the colter in place and which lever may be swung aside when it is desired to release the colter to permit the same to be adjusted vertically in the plow-beam.

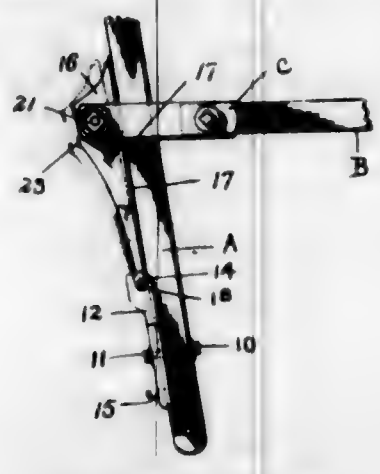
2. In a plow, the combination with the beam thereof, of a colter mounted loosely on said beam so as to be capable of being swung back and forth longitudinally of the beam, more or less, two connected longitudinally-adjustable plates provided with slots, bolts passing loosely through said slots and provided with handled nuts adapted to be turned without the use of a wrench when it is desired to loosen the said plates for the purpose of moving them lengthwise of the plow-beam to adjust the working part of the colter nearer to or farther from the point of the plow.

3. In a plow, the combination with the beam thereof, of a colter passing loosely through said beam and the shank of which is provided with a series of holding-notches, the connected slotted plates *j* and *s*, bolts passing through the slots of said plates, handled nuts on said bolts, and the colter-fastening lever *p* provided with a tooth or cam portion adapted to engage any one of the said notches in the shank of said colter, to hold the colter in place, but capable of being swung aside sidewise to release the colter when the latter is to be moved up and down in the plow-beam.

694,852. CONNECTION FOR LOOM PICKER-STICKS. EUGENE CHEVERETTE, Fitchburg, Mass. Filed Feb. 14, 1901. Serial No. 47,209. (No model.)

Claim.—In a picker-stick connection for looms, the combination of a fastening-bolt 10 extending transversely through the picker-stick, a pivot-piece 12 adjustably clamped in place on the rear side of the picker-stick by the fastening-bolt 10, a rocker-piece 16 extending up from the pivot-piece, a leather facing 17 for the rocker-piece 16 which extends down and forms a flexible connection between the pivot-piece 12 and the rocker 16, and a bushing 20 journaled in the upper end of the rocker-

piece, and having a bolt 22 passing through said bushing for clamping the sweep-straps thereto, whereby the bolt will turn with said bushing, and the parts may operate without tending to loosen the fastening-nut, substantially as described.



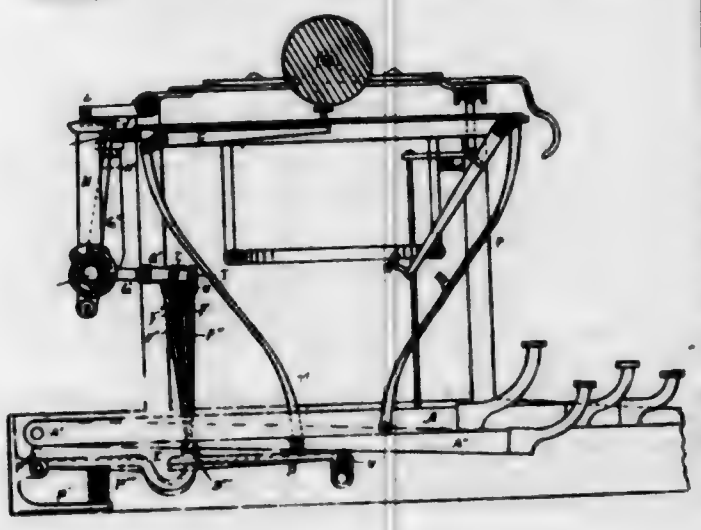
694,858. CONVERTIBLE COT AND STRETCHER. ENOCH B. CLIFTON, Withee, Wis. Filed Sept. 30, 1901. Serial No. 77,125. (No model.)



Claim.—1. A convertible cot and stretcher, compriging a pair of side bars, united by a flexible covering forming the bed proper, said side bars being transversely grooved, on their under surfaces, one at one end, and the other at its opposite end, in combination with pivoted frame-braces secured to the ungrooved ends of the opposed side bars and recessed at their free ends for engagement with the grooves in the side bars; pivoted buttons on the side bars for retaining the frame-braces in their engaged positions; folding legs pivotally secured to said side bars; and depending pivoted hooks for securing said legs in folded position.

2. A convertible cot and stretcher, comprising a pair of side bars, united by a flexible covering, forming the bed proper, said side bars being transversely grooved, on their under surfaces, one at one end, and the other at its opposite end, and provided with pivoted retaining-buttons adjacent to said grooves, in combination with pivoted frame-braces, secured to the opposite ends of the said side bars, and recessed at their free ends for engagement with said grooves in the side bars; two pairs of folding legs pivotally secured to said side bars, each pair being pivoted just inside the line of the adjacent frame-brace, and one leg of each pair being transversely grooved across the under surface of its free end, and provided with a pivoted retaining-button adjacent to said groove; a pair of pivoted leg-braces, each brace being secured to the free end of the non-grooved leg, and itself recessed at its free end for engagement with the grooved leg, in each pair of folding legs; and means for securing said legs in folded position, parallel to and against said side bars.

694,854. TYPE-WRITING OR OTHER LIKE MACHINE. MABLE C. CORNELL, Alma, Kans. Filed Oct. 8, 1900. Serial No. 32,396. (No model.)



Claim.—1. The combination with a ratchet; of a fixed pawl, a limber pawl normally engaging the ratchet, a stop-guide, and steps thereto any one of which is adapted to limit the lateral movement of the limber pawl when released from engagement with the ratchet, each step having a groove for guiding the limber pawl back into engagement with the ratchet.

2. The combination with a ratchet; of a fixed pawl, a limber pawl hinged thereto and normally engaging the ratchet, said fixed pawl and limber pawl being adapted to engage the ratchet alternately, a stationary stop-guide, and steps thereto any one of which is adapted to limit the lateral movement of the limber pawl, each step having a groove adapted to guide the limber pawl back into engagement with a corresponding notch in the ratchet.

3. The combination with a movable ratchet; of a dog-rocker, a fixed pawl, a limber pawl hinged thereto and movable laterally, a stationary stop-guide, steps thereto any one of which is adapted to limit the lateral movement of the limber pawl, each step having a groove adapted to guide the limber pawl back into engagement with a corresponding notch in the ratchet, said fixed pawl holding the ratchet against movement while disengaged from the spacing-arm.

4. The combination with a movable ratchet; of a dog-rocker, a fixed pawl, a limber pawl hinged thereto and movable laterally, a spring adapted to automatically impart lateral movement to the limber pawl, a stop adapted to limit the movement of the limber pawl in one direction, a stop-guide, and steps thereto any one of which is adapted to limit the movement of the limber pawl in the opposite direction, each step having a groove adapted to guide the limber pawl back into engagement with a corresponding notch in the ratchet, said fixed pawl holding the ratchet against movement which disengaged from the limber pawl.

5. The combination with a movable ratchet; of a dog-rocker, a fixed pawl, arms thereto of unequal lengths whereby varying leverage may be secured upon the dog-rocker, a limber pawl hinged to the fixed pawl, a spring for imparting lateral movement thereto, a stop-guide, steps thereto any one of which is adapted to limit the lateral movement of the limber pawl, each step having a groove adapted to guide the limber pawl to a corresponding notch in the ratchet, said fixed pawl preventing movement of the ratchet when the limber pawl is disengaged therefrom.

6. The combination with key-levers; of type operated thereby and each comprising one or more letters, the levers of the type having a similar number of letters being grouped, a supporting-frame for each group adapted to be depressed by any lever in said group, a dog-rocker, arms of different lengths extending therefrom whereby different leverages may be obtained, rods connecting the arms and frames, the frames operating the type having the most letters being secured to the longest arms, a fixed pawl, a movable ratchet, a limber pawl hinged to the fixed pawl, a stop-guide, steps thereto any one of which is adapted to limit the movement of the limber pawl, each step having a groove adapted to guide the limber pawl to a notch in the ratchet, said fixed pawl preventing movement of the ratchet when the limber pawl is disengaged therefrom.

7. The combination with a dog-rocker, a fixed pawl, a limber pawl hinged thereto, a stop-guide, and steps thereto any one of which is adapted to limit the lateral movement of the limber pawl; of key-levers, type operated thereby and comprising one or more letters, the levers of the type having the same number of letters being grouped together, a supporting-frame for each group, and arms of different lengths extending from the dog-rocker, each group being connected to an arm and having a different leverage upon the dog-rocker, whereby the limber pawl is moved into engagement with the proper step of the stop-guide.

8. The combination with a ratchet; of a dog-rocker, a fixed pawl, a limber pawl adapted to release one or more teeth of the ratchet according to the length of the movement of the rocker, arms of different lengths extending from the rocker, supporting-plates secured one to each arm and having different degrees of leverage upon the rocker, and key-levers each adapted to depress a supporting-plate, the levers of type having the same number of letters being adapted to operate the same plate.

9. The combination with a ratchet; of a dog-rocker, a fixed pawl, a limber pawl adapted to release one or more teeth of the ratchet according to the length of the movement of the rocker, arms of different lengths extending from the rocker, supporting-plates secured one to each arm and having different degrees of leverage upon the rocker, key-levers each adapted to depress a supporting-plate, the levers of type having the same number of letters being adapted to operate the same plate, and spring-controlled levers for holding the plates normally raised.

10. The combination with a ratchet; of a dog-rocker, a fixed pawl, a limber pawl adapted to release one or more teeth of the ratchet according to the length of the movement of the rocker, arms of different lengths extending from the rocker, supporting-plates, a slotted rod connecting each plate with one of the arms, whereby each plate has a different leverage upon the rocker, and key-levers each adapted to depress a supporting-plate.

694,855. CONVEYING APPARATUS. JAMES G. DELANEY, New York, N. Y., and THOMAS S. MILLER, South Orange, N. J. Filed Jan. 6, 1899. Serial No. 701,311. (No model.)



Claim.—1. In combination, two relatively moving supports, a load-carrier, a ropeway whereon said load-carrier is transferred from one support to the other, a tension mechanism tending to hold said ropeway taut and consisting of a float immersed in a fluid.

2. In combination, two relatively moving supports, a transit-rope extending between the same, a transit-rope actuator and a tension device for holding said transit-rope taut consisting of a body actuated by a column of fluid.

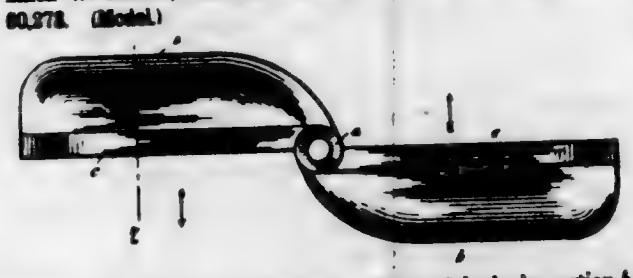
3. In combination, two relatively moving supports, a ropeway between the same, a float and means whereby the buoyancy of said float exerts a tension on said ropeway.

4. In a conveying apparatus load-carrier, in combination, a shoe *d'*, a cam adapted to act upon the rope in opposition thereto and a load-rest connected with said cam, substantially as described; whereby the weight of the load tends to hold said cam in clamping position.

5. In a load-carrier for cableways, the combination of two movable rope-clamping members, a weight-suspending bar connected with one of the clamping members, and by gravity causing the clamping members to grip the rope, and a weight-releasing device having a tripping member adapted to engage a fixed member to free the load.

6. In a load-carrier for a cableway, the combination with a shoe, a cam adapted to act upon the rope in opposition thereto and a load-support connected with said cam to clamp the cam upon the cable by gravity, of a trigger or tripping member adapted to engage a fixed object to free the load.

694,856. BLADE FOR PROPELLERS FOR AIR-SHIPS. FREDERICK W. DURYEA, Mexico, Mexico. Filed May 15, 1901. Serial No. 60,878. (Model.)

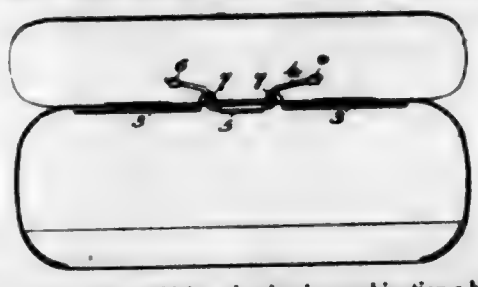


Claim.—1. The propeller-blade consisting of the body portion *b* and the trough-shaped strip *c*, arranged to leave the opening *d* between them and united to and carried by a hub *a*, substantially as described.

2. The propeller-blade consisting of body *b* and V-shaped strip *c* united near their ends but arranged to leave the opening *d* between the body and the strip as specified.

3. A propeller for air-ships comprising a central hub or shaft, and a plurality of blades, each consisting of the curved body portion *b* and the V-shaped strip *c* forming opening *d* between them, substantially as described.

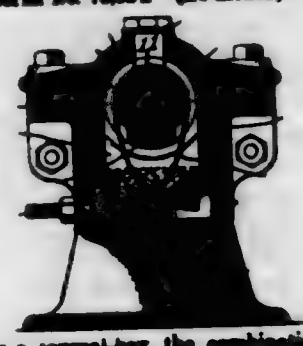
694,857. SPRING-LID BOX. ARALDO M. HOLMES, Boston, Mass., assignor, by mesne assignments, to George W. Wells, trustee, Southbridge, Mass. Filed Jan. 26, 1901. Serial No. 44,955. (No model.)



Claim.—1. A spring-lid box, having in combination a body portion, a lid hinged thereto, and a laterally-acting spring connected with the rear of said body portion below the axis of the hinge and connected with said lid above the axis of the hinge, and having a swinging movement through the axis of the hinge from the front to the rear thereof, said box having provision to permit such movement, substantially as described.

2. A spring-lid box, having in combination a body portion, a lid hinged thereto, and a bowed spring connected at its center to the rear of said body portion and at its end to the lid, and having a swinging movement through the axis of the hinge from the front to the rear thereof, said box having provision to permit such movement, substantially as described.

694,858. JOURNAL-BOX. RALPH C. BRYANT, Connersville, Ind., assignor to the P. H. & F. M. Roots Company, Connersville, Ind. Filed Oct. 14, 1901. Serial No. 78,594. (No model.)



Claim.—1. In a journal-box, the combination, substantially as set forth, of a trough-like base-piece, a wedge disposed upon the floor of the trough of the base-piece, means for shifting the wedge, a hollow bed-box fitting within the trough and resting upon the wedge, a box-cap secured to the top of the base-piece, the cap portion of the bearing being provided with a semicircular groove open to the bearing-surface, and the bed portion of the bearing being provided with slots open to said groove and to the cavity of the bed-box, and an endless chain disposed within said groove and hanging down through said slots into the cavity of the bed-box.

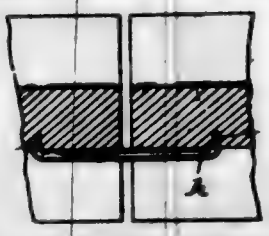
2. In a journal-box, the combination, substantially as set forth, of a trough-like base-piece, a wedge disposed upon the floor of the trough of the base-piece, means for shifting the wedge, a hollow bed-box fitting within the trough and resting upon the wedge, a box-cap secured to the top of the base-piece, bushing halves fitting the bores of the box cap and bed-box, the upper bushing half being provided with a semicylindrical groove open to the bearing, and the lower bushing half having slots communicating with said groove and also open to the cavity of the bed-box, and an endless chain disposed within said groove and hanging down through said slots into the cavity of the bed-box.

3. In a journal-box, the combination, substantially as set forth, of a trough-like base-piece, a wedge disposed upon the floor of the trough of the base-piece, means for shifting the wedge, a hollow bed-box fitting within the trough and resting upon the wedge, a box-cap secured to the top of the base-piece, a half-bushing fitting the bore of the cap and having a semicylindrical groove open to its bearing and roofed by segments separated from each other at a point over the axis of the journal, a bushing half fitting the bore of the bed-box and having slots communicating with said groove and also with the cavity of the bed-box, and an endless chain disposed in said groove and hanging down through said slots into the cavity of the bed-box.

4. In a journal-box, the combination, substantially as set forth, of a trough-like base-piece, a wedge disposed upon the floor of the trough of the base-piece, means for shifting the wedge, a hollow bed-box fitting within the trough and resting upon the wedge, a box-cap secured to the top of the base-piece, said bed-box and box-cap being provided at each

end with annular recesses open to their bores and having communication with the cavity of the bed-box by means of ports in the bed-box, the box-cap being also provided with a semicircumferential groove open to the bearing, and a bed-box being provided with slots communicating with said groove and with the cavity of the bed-box, and an endless chain disposed in said groove and hanging through said slots down into the hollow of the bed-box.

694,359. DEVICE FOR REDUCING THE NOISE IN ELEVATED-RAILROAD STRUCTURES. HIRAM G. FARR, Winchester, Mass. Filed Dec. 12, 1901. Serial No. 85,694. (No model.)

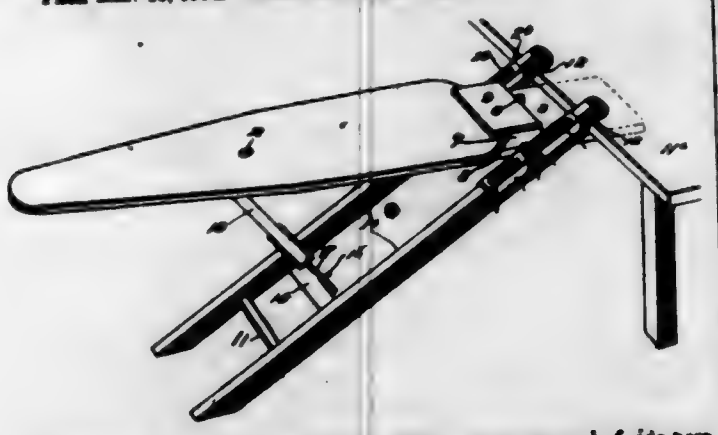


Claim.—1. The herein-described means for decreasing the noise caused by the vibration of elevated-railway structures which comprises the employment of a metallic wire with its bared ends in rigid contact with portions of said structure, the body portion of said wire being covered with a non-vibratory material.

2. Means for decreasing the noise caused by vibration in elevated-railway structures which comprises the employment of a metallic wire having a bared end in rigid contact with some portion of said structure, the body portion of said wire being covered with a non-vibratory material.

3. Means for decreasing the noise caused by vibration in elevated-railway structures which comprises the employment of a metallic wire having a bared end in rigid contact with some portion of said structure, the body portion of said wire being covered with a non-vibratory material, and its opposite bared end in contact with the ground or some structure other than that of the railroad.

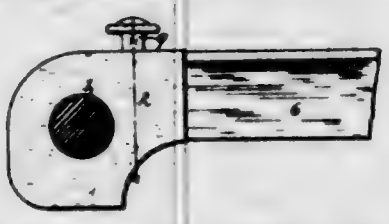
694,360. IRONING-TABLE. ROSSER FOX, North Yakima, Wash. Filed Mar. 18, 1901. Serial No. 51,902. (No model.)



Claim.—1. An ironing-table comprising a leg composed of side bars and connecting-pieces, bearing-plates adjustably secured to the side bars of the leg and provided with eyes, a longitudinal support, a pintle projecting laterally from opposite sides of the support and arranged in the said eyes, and an ironing-board mounted on the support, substantially as described.

2. An ironing-table comprising a leg provided with side bars, a support adjustably hinged to the leg, a block mounted on the support and provided with a ledge and having a projecting plate, an ironing-board pivotally mounted on the support and arranged to extend between the ledge and the plate, and a locking device mounted on the block and arranged to engage the ironing-board, substantially as described.

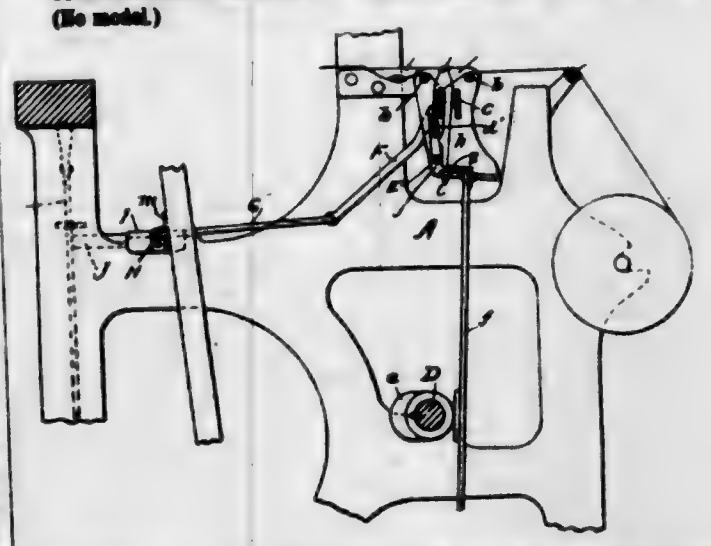
694,361. BEDSTEAD. RUDOLPH FLEIM, Milwaukee, Wis. Filed Feb. 4, 1901. Serial No. 46,330. (No model.)



Claim.—1. In a bedstead, the combination with one of the corner posts or legs; of a corner-piece secured thereto, and having a rounded and recessed outer surface; a side rail formed of angle-iron, with its vertical portion extended and curved in conformity with said recess, and substantially engaging two sides of said corner-piece.

2. In a bedstead, the combination with the corner posts or legs; of a corner-piece secured thereto, and provided with a rounded and recessed outer surface; a horizontal channel in its inner face; and side rails composed of right-angled flanges, one of said flanges being extended and adapted to fit the recess in the rounded outer surface of the corner-piece, with the other flange registering with and engaging in the channel in the inner face of said corner-piece; together with means for securing said side rail against lateral displacement.

694,362. STOP-MOTION FOR LOOMS. NAPOLEON FORTIER and SIMMES FORTIER, Warren, R. I. Filed Oct. 15, 1901. Serial No. 78,741. (No model.)



Claim.—In a stop-motion for looms, the combination with a warp-thread of a drop-wire supported by the tension of the warp-thread, a transverse strip vibrating below the drop-wire, a vertical spring-rod carrying said strip, a cam fixed to the loom-shaft and contacting with the spring-rod, a pivoted bar parallel to and nearly contacting with the vibrating strip, an arm integral with the bar, a connecting-rod pivoted to said arm, a latch also pivoted to the connecting-rod, and fixed to a slidable block, an arm projecting from the movable block, a shipper-lever, and an arm projecting from the block and normally contacting with the shipper-lever, as set forth.

694,363. DEVICE FOR CLEARING HORSES FROM VEHICLES. LLOYD L. FOX and JOHN W. FOX, Lowell, Me. Filed Oct. 28, 1900. Serial No. 34,708. (No model.)

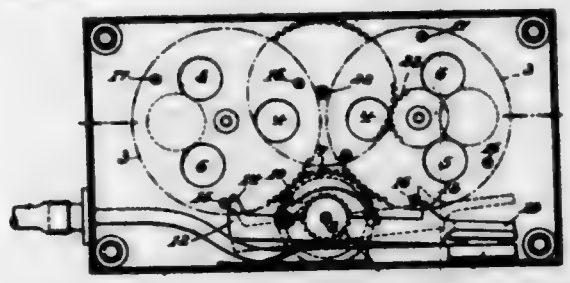


Claim.—A device for clearing a horse from a vehicle consisting of the combination of a whiffletree having bearings at each end adapted to receive spring-bolts and a backwardly-projecting bracket at its center; two spring-bolts working in said bearings and having arms pivoted to their inner ends, said arms being also pivoted to said bracket and bent to cross each other when said bolts are in said bearings; a hand-lever pivoted to said bracket and projecting upwardly between said arms; a stop on each shaft shaped to check the backward movement of the thill-holders on the shaft; two thill-holders; two holdback-straps; and straps connecting each holdback-strap with the corresponding thill-holder.

694,364. SHUTTER FOR COLOR PHOTOGRAPHY. JEAN M. FRAGHEDORG, Paris, France. Filed Nov. 22, 1900. Serial No. 37,232. (No model.)

Claim.—1. In an apparatus for color photography, a shutter comprising a disk having a notched or toothed periphery and provided with three openings adapted to successively register with the lens, screens of varying colors adapted to cover said openings, a gear-wheel adapted to mesh with the toothed periphery of the disk and means for periodically

driving said gear-wheel to bring each color-screen successively between the lens and plate.

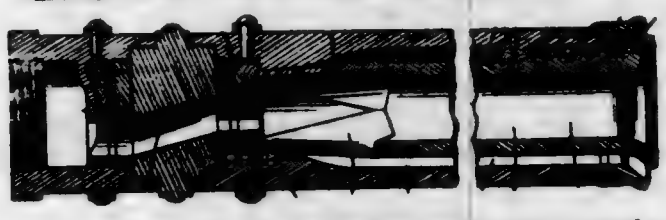


2. In a stereoscopic apparatus for color photography provided with two universal-focus lenses, two shutters each comprising a disk provided with openings, a color-screen covering each opening, said openings and screens in one disk arranged to correspond with the openings and screens in the other disk, and means for rotating both disks to bring corresponding screens simultaneously in alinement with the lenses of the apparatus, substantially as and for the purposes described.

3. In a stereoscopic apparatus for color photography provided with two universal-focus lenses, two shutters each consisting of a toothed disk provided with openings, a color-screen covering each opening, a gear mechanism in mesh with both disks and adapted to rotate the same simultaneously and means for periodically actuating said gear mechanism to bring corresponding color-screens of the disks in alinement with the lenses, substantially as and for the purposes described.

4. In an apparatus for color photography, a disk having a series of openings, each opening covered by a screen, the color of which is different from that of the other screens, means for automatically rotating said disk, and an indicator adapted to indicate the relative position of the color-screens with respect to the lens of the apparatus, substantially as and for the purposes described.

694,865. HOSE-NOZZLE. JOSEPH E. GARRETSON, Philadelphia, Pa. Filed June 1, 1901. Serial No. 62,706. (No model.)

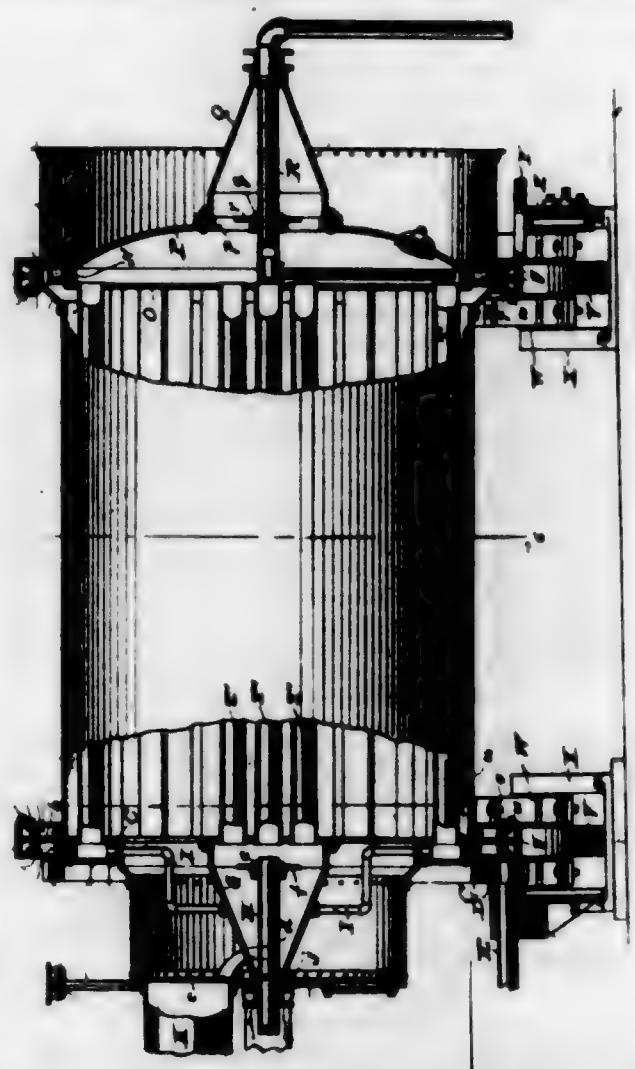


Claim.—1. In combination with a hose-nozzle having a central passage and an annular passage surrounding the same, two valves hinged to the walls of the central passage, said valves adapted to close the central passage and open the annular passage when brought together, and open the central passage and close the annular passage when spread, a rotatable disk rotated within the nozzle, said disk adapted to engage the ends of the valves to open and close the same as the disk is rotated, means connected with the disk and extending to the exterior of the nozzle for rotating said disk, a rotating valve also located within the nozzle and adapted to open or close the supply, means extending to the exterior of the nozzle for rotating said valve, substantially as described and for the purpose specified.

2. In a hose-nozzle, a casing, a straight passage formed in the center of the casing, an annular passage formed in the casing and surrounding the central passage, said annular passage being deflected at the mouth so as to cause the water to be thrown at an angle and in a circular sheet, a sleeve threaded upon the exterior of the casing for the purpose of regulating the width of the mouth of the annular passage, two valves hinged to the walls of the central passage, said valves adapted to form a cone when closed together for the purpose of closing the central passage and opening the annular passage, said valves adapted to be spread to open the central passage and close the annular passage, means adapted to be actuated upon the exterior of the nozzle for opening or closing said valves, a passage leading from the supply end of the nozzle to the valve, a circular valve arranged within the casing, a hole formed through said valve adapted to be brought in or out of alinement with the supply-passage for opening or closing the same, and means extending to the exterior of the nozzle for rotating said rotary valve, substantially as described and for the purpose specified.

3. In combination with a hose-nozzle having a central passage and an annular passage, two valves hinged to the walls of the central passage, said valve adapted to be brought together to close the central passage and open the annular passage, and when spread to open the central passage and close the annular passage, a rotatable disk arranged within the casing, an opening formed through said disk, the end of the valve adapted to lie within said opening, the walls of said opening so formed as to spread the valves when the disk is rotated in one direction and close the valves when it is rotated in the opposite direction, or hold said valves in position between these two extremes so as to allow water to enter both the central and annular passage, a ring adapted to surround the exterior of the nozzle, a slot formed through the wall of the casing and extending one-half of the diameter of the same, a pin secured in both the rotatable disk and the ring for the purpose of rotating the disk when the ring is turned, substantially as described and for the purpose specified.

694,866. ROTARY STEAM-DRIER. FRANKLIN B. GUSLER, Milwaukee, Wis. Filed Oct. 19, 1900. Serial No. 33,561. (No model.)

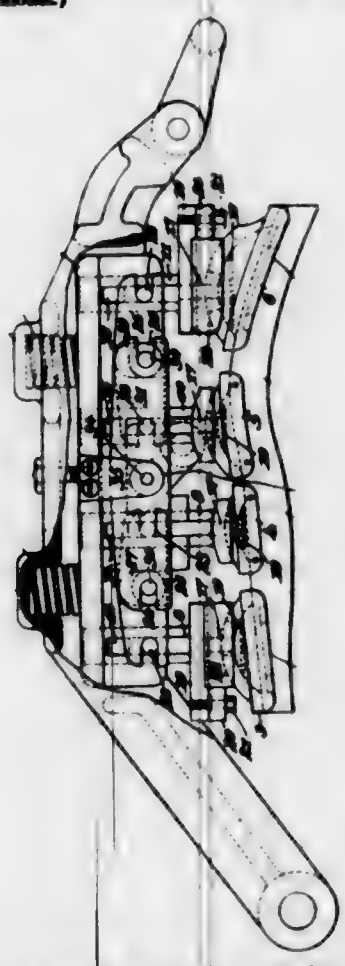


Claim.—1. A drier comprising an inclined rotary drum embodying a cylindrical shell, an annular casting made fast to the high end of the shell, a radially-apertured flat plate abutting the casting, another casting and plate combined with those aforesaid to form a steam-space, a conical central chamber extending in front of the first of said plates and having pipe connection with said steam-space, a steam-pipe in stuffing-box and bushed-spider engagement with said chamber, an annular casing extending in front of the latter of the aforesaid castings, a stationary head constituting a closure for the casing, an air-pipe and a feed-spout in connection with the head, a ring having a conical flange in connection with the low end of the aforesaid shell, another ring having radial lugs impinging the inner face of the former ring, a flat plate abutting the inner side of the lug-ring, an outwardly-dished head made fast to the outer side of said lug-ring, a rear central conical hood having its large end in open connection with the dished head, a siphon-pipe in stuffing-box and bushed-spider engagement with the hood, an annular apron extending rearward from the outermost of the aforesaid rings, a series of fines at intervals of a circle within the shell, angle-irons in connection with said shell impinging said fines, and a cluster of fines central of the aforesaid shell, all the fines being set at their ends in the plates that face the shell ends.

2. A drier comprising an inclined rotary drum embodying a cylindrical shell, an annular casting made fast to the high end of the shell, a radially-apertured flat plate abutting the casting, another casting and plate combined with those aforesaid to form a steam-space, a conical central chamber extending in front of the first of said plates and having pipe connection with said steam-space, a steam-pipe in connection with said chamber central of the same, an annular casing extending in front of the latter of the aforesaid castings, a stationary head constituting a closure for the casing, an air-pipe and a feed-spout in connection with the head, a ring having a conical flange in connection with the low end of the aforesaid shell, another ring having radial lugs impinging the inner face of the former ring, a flat plate abutting the inner side of the lug-ring, an out-

wardly-dished head made fast to the outer side of said lug-ring, a rear central conical hood having its large end in open connection with the dished head, a siphon-pipe in connection with the hood central of same, an annular apron extending rearward from the outermost of the aforesaid rings, a series of fines at intervals of a circle within the shell, and a cluster of fines central of the aforesaid shell, all the fines being set at their ends in the plates that face the shell ends.

694,867. PRESSING-FORM FOR SOLE-LAYING MACHINES. GEORGE E. GIFFORD, Lynn, Mass. Filed Apr. 20, 1900. Serial No. 13,573. (No model.)



Claim.—1. A pressing-form for sole-laying machines, having, in combination, a continuous pressing-pad, relatively movable supports for the ball and shank parts of the pad and pressure-distributing mechanism connecting said supports, substantially as described.

2. A pressing-form for sole-laying machines, having, in combination, a continuous pressing-pad, relatively movable supports for the heel, shank, ball and toe portions of the pad, and pressure-distributing mechanism connecting said supports, substantially as described.

3. A pressing-form for sole-laying machines, having, in combination, a continuous elastic pressing-pad, relatively movable supports for said pad, and pressure-distributing mechanism connecting said supports, substantially as described.

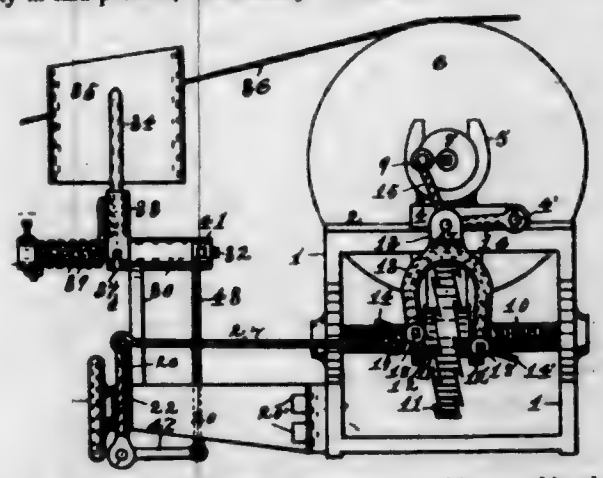
4. A pressing-form for sole-laying machines, having, in combination, a pressing-pad, relatively movable supports for the heel, shank, ball and toe parts of the pad, movable pressure-distributing mechanisms connecting the supports for the heel and shank parts and the ball and toe parts, respectively, and pressure-distributing mechanism connecting the aforesaid pressure-distributing mechanisms, substantially as described.

5. A pressing-form for sole-laying machines, having, in combination, a movable carrier, a pressing-pad, tipping supports for said pad, a pressure-distributing mechanism connecting said supports, said pad, supports and mechanism being carried by said carrier, substantially as described.

6. A pressing-form for sole-laying machines, having, in combination a movable carrier, yielding supports for said carrier, a pressing-pad, movable supports for said pad, and pressure-distributing mechanism connecting said supports, said pad, supports, and mechanism being carried by said carrier, substantially as described.

694,868. WIRE OR FELT GUIDE FOR PAPER-MAKING MACHINES. WILLIAM M. GILBERT, THEODORE M. GILBERT, and WILLIAM C. HASE, Neenah, Wis. Filed Sept. 3, 1901. Serial No. 74,061. (No model.)

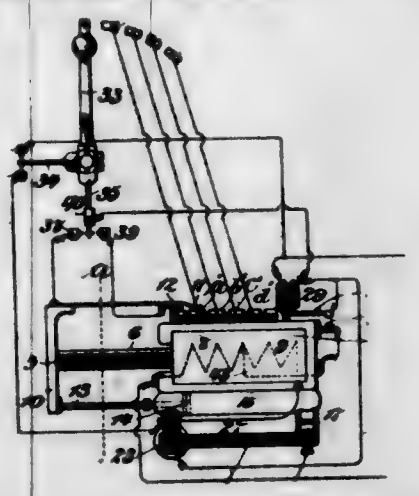
Claim.—1. In a wire or felt guide for paper-making machines having a guiding-roll adapted for carrying said wire or felt and mechanism for moving one end of said roll forward or backward in a line parallel with the normal line of travel of said wire or felt by the action thereon of said wire or felt against its guiding device, a guide therefor arranged to be continuously borne against by one edge of said wire or felt, said guide being mounted upon a holder which is arranged for an easy oscillation upon a horizontally-arranged rod, means for limiting the oscillation upon said rod of said holder toward said wire or felt to a position slightly beyond a vertical line, and a spring arranged for holding said holder normally in said position, substantially as described.



2. In a wire or felt guide for a paper-making machine having a guiding-roll adapted for carrying said wire or felt and mechanism for moving one end of said roll forward or backward in a line parallel with the normal line of travel of said wire or felt by the action thereon of said wire or felt against its guiding device, a guide therefor arranged to be continually borne against by one edge of said wire or felt, said guide being mounted upon a holder which is arranged for an easy oscillation upon a horizontally-arranged rod, a slot in the lower end of said holder transversely of said rod, a pin in said rod arranged to engage the upper end of said slot and limit the oscillation of said holder toward the making-wire or felt to slightly beyond a vertical position, and a spring arranged for holding the upper end of the aforesaid slot against said pin, substantially as described.

3. In a wire or felt guide for a paper-making machine having a guiding-roll adapted for carrying said wire or felt and mechanism for moving one end of said roll forward or backward in a line parallel with the normal line of travel of said wire or felt by the action thereon of said wire or felt against its guiding device, a guide therefor arranged to be continually borne against by one edge of said wire or felt, said guide being mounted in a vertical position upon a holder for bearing against the edge of said wire or felt, said holder being arranged for an easy oscillation upon a horizontally-arranged rod, means for limiting the oscillation upon said rod of said holder toward said wire or felt to a position but slightly beyond a vertical line, and a spring arranged for holding said holder normally in said position, substantially as described.

694,869. BRAKE FOR CONTROLLING ELECTRIC OR OTHER MOTORS. EDWIN R. GILL, Englewood, N. J., assignor, by mesne assignments, to Electric Company, a Corporation of New York. Filed July 25, 1896. Serial No. 600,800. (No model.)



Claim.—1. In a system of electric control, a solenoid for producing increase or decrease of power, a hydraulic cylinder and a piston moving with said solenoid-core, a tube for permitting flow of liquid from end to end of said cylinder around said piston, and an automatic valve in said tube for retarding said flow in one direction while offering no substantial resistance in the opposite direction.

2. In a system of electric control, a power-regulator, a controlling-actuator therefor comprising a solenoid and core, said solenoid having two

coils of practically equal opposing magnetic efforts, and means for cutting one of said coils out of circuit at will.

3. In a system of electric control, a power-regulator, a controlling actuator comprising a solenoid and core, said solenoid having two coils of practically equal opposing magnetic effects, a short circuit, as 32, around one of said coils, a magnet for keeping said short circuit open, and means for short-circuiting said magnet at will.

4. In a system of electric control, a power-regulator, a controlling-actuator comprising a solenoid and core, said solenoid having two coils of practically equal opposing magnetic effects, a short circuit, as 32, around one of said coils, a magnet for keeping said short circuit open, a winding on said magnet coiled so as to counteract the active coils thereof, and means for passing current through said counteracting winding.

5. In a system of electric control, a power-regulator, a controlling-actuator comprising a solenoid and core, said solenoid having two coils of practically equal opposing magnetic effects, but one being of higher resistance than the other, and means for cutting said high-resistance solenoid-coil out of circuit at will.

6. In a system of electric control, a solenoid having opposing windings a hydraulic cylinder and piston governing the movements of said solenoid, a valve controlling the liquid flow in said cylinder, a magnet governing said valve, a short circuit around said magnet and one of said opposing coils, and a second magnet governing said short circuit.

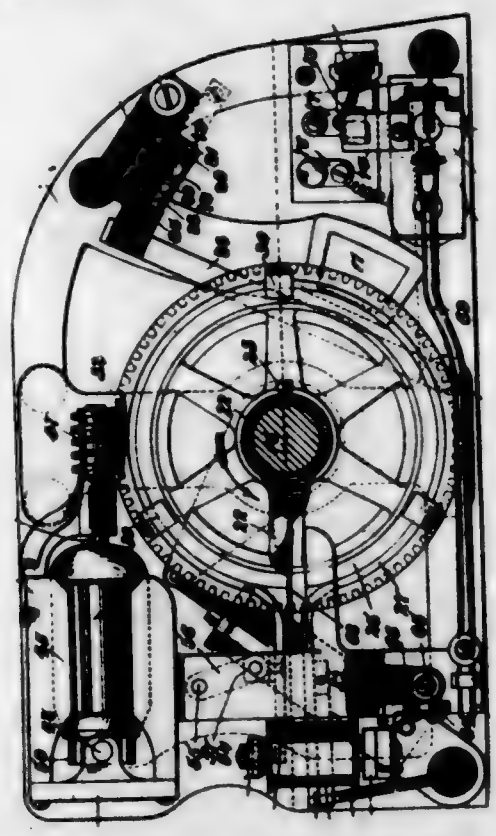
7. In a system of electric control, an interrupting-switch wherein th movable member has two insulated brushes touching different stationary terminals, two magnets for governing the controlling-actuator, and a manipulator comprising two automatic selectors, as 34, 35, for selecting one or the other magnet, and one or the other brush of the interrupting-switch respectively.

8. In an electric car, the combination with the usual barrel switch-controller, of the solenoid-motor and governing-switch for operating the controller, said motor mechanically geared with the controller-shaft, and means for effecting retraction of the solenoid-core to the off position when the current is interrupted.

9. In an electric car, the combination with the usual barrel switch-controller, of the solenoid-motor and governing-switch for operating the controller, said motor mechanically geared with the controller-shaft, and a spring for effecting retraction of the solenoid-core to the off position where the current is interrupted.

694,870. AUTOMATIC ACTUATOR FOR POWER-REGULATORS.

EDWIN R. GILL, New York, N. Y., assignor to Invention Developing Company, a Corporation of New Jersey. Filed Mar. 14, 1899. Serial No. 709,015. (No model.)



Claims.—1. In a device for actuating a main power-regulator, automatic means for returning said regulator to normal, a brake for said actuating device, and means impelled by said returning means for applying said brake on return to normal.

2. In a device for actuating a main power-regulator, a main operating-shaft, automatic means for returning the same to normal, a brake adapted to be applied to said shaft and a tightening-lever on said shaft adapted to apply said brake on return to normal.

3. In a device for actuating a main power-regulator, a main operating-shaft, automatic means for returning the same to normal, a brake-wheel on the shaft, a strap-brake thereon, a pivoted lever and toggle-piece for applying said brake, and a tightening-lever moved by said main operating-shaft and adapted on return to normal to power said pivoted lever to apply said brake.

4. In a device for actuating a main power-regulator, automatic means for returning said regulator to normal, a brake, a pivoted lever for applying said brake, a spring-abutment thereon, and a portion of the movable device adapted to come in contact with said abutment to store power therein for applying said brake.

5. In a device for actuating a main power-regulator, automatic means for returning said regulator to normal, an air-cushion device for moderating said return, a brake for preventing rebound of said device on said air-cushion, and means actuated by the returning mechanism itself to apply said brake.

6. In a device for actuating a main power-regulator, automatic means for returning said regulator to normal, a piston and dash-pot for easing said return, and means having frictional engagement with said mechanism when operating to move away from normal, said means acting to bring the piston into operative position relative to said dash-pot.

7. In a device of the class described, two gears, one being operatively connected with a main power-regulator, and a brake-wheel and brake operatively connected to the other gear; in combination with means for producing relative movement between said gears, and means for applying or releasing said brake at will.

8. In a device of the class described, a main operating-shaft, a gear fast thereto, a second gear loosely sleeved thereon, and a brake-wheel moving with said second gear; in combination with means for producing relative movement of said gears and a brake adapted to coöperate with said brake-wheel.

9. In a device of the class described, a main operating-shaft, a gear fast thereto, a second gear loosely sleeved thereon, and a brake-wheel moving with said second gear; in combination with means for producing relative movement of said gears, a brake adapted to coöperate with said brake-wheel, a spring or its equivalent for returning said shaft to normal, means actuated by return movement of said shaft to apply said brake, and electromagnetic means for retaining said brake when thus applied.

10. In a device of the class described, a main operating-shaft, a driven gear fast thereon, a brake-gear loose thereon, said gears having differing numbers of teeth, a driving-gear also loose on said shaft, wedging-gears carried by said driving-gear and meshing with said driven gear and brake-gear, means for actuating said driving-gear and means for fixing said brake-gear.

11. In a device of the class described, a main operating-shaft, power-transmitting means centered thereon, electric means for driving said transmitting means, circuit-breakers controlling said electric means and devices controlled by movement of said main driving-shaft to operate said circuit-breakers.

12. In a device of the class described, a main operating-shaft, a spring wound around said shaft for returning the same to normal, a cam upon the shaft, an electric motor for driving said shaft, a circuit-breaker for controlling said motor and a lever bearing against said cam for governing said circuit-breaker.

13. In a device of the class described, a main operating-shaft, a spring wound around said shaft for returning the same to normal, a cam upon the shaft cut with a number of steps, an electric motor for driving said shaft, a multiple circuit-breaker for controlling said motor and a lever bearing against said cam and adapted to produce successive breaks at said multiple circuit-breaker, as each step in said cam is reached on movement of said main shaft.

14. As a means for automatically controlling electric circuits a swinging lever, two cam-layers adapted to revolve together in both directions and two wipers on said lever, one adapted to bear upon one of said cam-layers when it moves in one direction and the other adapted to bear on the other cam-layer when moving in the opposite direction.

15. As a means for automatically controlling electric circuits a swinging lever, two cam-layers adapted to revolve together in both directions, one layer presenting an unbroken spiral edge, and the other having shoulders on its edge, a fixed wiper on said lever adapted to bear operatively upon said spiral edge while moving in one direction and a pivoted wiper on said lever adapted to bear operatively against said shouldered edge when moving in one direction and to bend under the cams when said fixed wiper is operative.

16. In a device of the class described, adapted to be stopped in a number of positions, an electric driving means, a spring-arm and contact-button corresponding to each position of rest, of said driving means and in circuit therewith, a swinging lever and contact-button, means for actuating said lever to push all said buttons together against the resilient

tendency of said spring-arms, and an abutment in the path of each spring-arm preventing the same from following retractile movement of said swinging lever so as to cause successive ruptures of circuit at the spring-arms.

17. In a circuit-breaking switch, a series of spring-arms having a resilient tendency in one direction, terminals on said arms adapted to come in contact when pressed in the opposite direction to said tendency and an abutment in the path of each spring-arm, whereby as said buttons move under the influence of said tendency they are one by one removed from contact with each other.

18. In a device of the class described, an upper and lower framing, a substantially central driving-shaft pivoted between said frames, a speed-reducing transmission system centered on said shaft for moving the same and an electric driving-motor for actuating said transmission system.

19. In a device of the class described, an upper and lower framing, a substantially central driving-shaft pivoted between said frames, a speed-reducing transmission system centered on said shaft for moving the same, an electric motor for actuating said transmission system, two sets of circuit-breakers for controlling said motor and means moving with said shaft for successively operating said circuit-breakers.

20. In a device of the class described, an upper and lower framing, a substantially central driving-shaft pivoted between said frames, a transmission system centered on said shaft, an electric motor for actuating said transmission system, a spiral spring attached to the top framing and to said driving-shaft tending to return the latter to normal.

21. In combination with a main electric-car controller complete in itself, a self-contained automatic means for actuating and controlling the same adapted to fit upon the top or end thereof.

22. In combination with a standard electric-car controller, a self-contained automatic means for actuating the same containing an electric driving-motor and adapted to fit upon the top or end of said controller, and circuits for connecting the main line directly to said motor without dead resistance.

23. In combination with a main electric controller complete in itself, a self-contained automatic handle for actuating the same adapted to replace the ordinary crank-handle and to be taken off or put onto said controller at will.

24. In combination with a main electric controller, complete in itself, a self-contained automatic handle having a main driving-shaft forming a virtual prolongation of the main controller-axis and extending through the automatic handle, and an indicator on the top of said driving-shaft.

25. In a self-contained automatic handle, a main frame and main operating-shaft terminating beneath said frame in means adapted to connect with the main axis of a controller-box and shaped above said frame so as to receive the socket on the ordinary crank-handle used for manual operation of said main axis.

26. In combination with a main electric controller complete in itself, a self-contained removable automatic handle for actuating the same and adapted to fit on the top or end of said controller, said handle having a main driving-shaft provided with a socket fitting over the end of the main controller-axis, and the framework of said handle having means coöperating with the usual stop on said main controller, to hold said framework in a fixed position.

27. In combination with a main electric controller complete in itself, a self-contained automatic electric means for actuating the same fitting on the top or end thereof, a manipulator-switch within the casing of said means and a manipulator-handle pivoted on said casing.

28. In combination with a main electric controller complete in itself, a self-contained automatic electric means for actuating the same fitting on the top or end thereof, a manipulator-switch within the casing, a manipulator-handle pivoted on said casing and a spring or equivalent tending to force said handle always toward one extreme position.

29. In an automatic actuating device for power-regulators, a casing, a pivoted handle outside of said casing, an operating-lever turning therewith within said casing, a switch operated by said lever, stops for limiting the movement of said handle and lever, and a retractile spring acting to normally hold said handle and lever against one of said stops.

30. In combination with a series of main electric controllers for electric cars, each complete in itself, a self-contained automatic electric means fitting on the top or end of each of said main controllers for actuating the same and a manipulator-switch connected electrically with said several actuating means whereby they may all be controlled from a single point.

31. In a device of the class described, an auxiliary electric motor, an energizing-circuit therefor, power-transmitting mechanism and connecting means for establishing operative relation between said motor and transmitting mechanism; in combination with means for automatically closing a break in said energizing-circuit during operation of said connecting means and opening said break when said connecting means are idle.

32. In an actuator for power-regulators, an auxiliary driving-motor, a power-transmitter for actuating the main power-regulator, means for operatively connecting the auxiliary motor to said power-transmitter, an electromagnet and a second means operated by said magnet for maintaining said operative connection when made.

33. In an actuator for power-regulators, an auxiliary electric driving-motor, a power-transmitter for actuating the main power-regulator, means for operatively connecting the auxiliary motor to said power-transmitter, an electromagnet for closing circuit through said motor, and a second means operated by said magnet for maintaining said operative connection when made.

34. In an automatic actuator for power-regulators, a spring or equivalent means tending to return the mechanism to normal, an auxiliary motor for driving the actuator, means for starting said motor, means for operatively connecting the same with the power-regulator, and means for simultaneously stopping said motor and holding the mechanism against the power of said spring or equivalent.

35. In an automatic actuator for power-regulators, an auxiliary electric driving-motor, a power-transmitter for actuating the main power-regulator, means for operatively connecting the auxiliary motor to said power-transmitter, an electromagnet in series with said driving-motor, a second electromagnet for closing said series circuit, and means whereby said magnets tend together to operate said connecting means.

36. In a device of the class described, an auxiliary driving-motor, a power-transmitter for actuating a main power-regulator, a strap-brake for operatively connecting said motor and transmitter, a lever pivoted on said strap-brake, a toggle connecting said lever and strap-brake to tighten the latter, an electromagnet, an armature therefor and a push-bar connecting said armature and said pivoted lever.

37. In a device of the class described, an auxiliary electric driving-motor, a power-transmitter for actuating a main power-regulator, a strap-brake for operatively connecting said motor and transmitter, a lever pivoted on said strap-brake, a toggle connecting said lever and strap-brake to tighten the latter, an electromagnet operating as a relay to close the circuit of said motor, an armature therefor and a push-bar connecting said armature and said pivoted lever.

38. In a device of the class described, an auxiliary electric driving-motor, a power-transmitter for actuating a main power-regulator, a strap-brake for operatively connecting said motor and transmitter, a lever pivoted on said strap-brake, a toggle connecting said lever and strap-brake to tighten the latter, an electromagnet operating as a relay to close the circuit of said motor, an armature therefor, a push-bar connecting said armature and said pivoted lever, and a circuit-breaker operated by said pivoted lever to close a circuit to the driving-motor when the brake is applied and to open it when the brake is released.

39. In a device of the class described, an auxiliary electric driving-motor, a power-transmitter for actuating a main power-regulator, electrically-controlled means for insuring operative connection between said motor and transmitter, means for returning the device to normal when said operative connection is interrupted, and a circuit-making switch in circuit with said motor and said connecting means adapted to open during said return to normal and to be closed only on completion of said return to normal.

40. In a device of the class described, an auxiliary electric driving-motor, means for producing operative connection between said motor and a power-regulator and a magnet in series with said motor having an armature tending, on energizing of said magnet, to operate said connecting means.

41. In an electric switch, a stationary contact-terminal, two swinging arms bearing contact-pieces adapted to be brought in contact with said terminal, a slotted link pivotally attached to each swinging arm and a pivoted operating-lever having a pin passing through the slots in both of said links.

42. In an electric switch, a stationary contact-terminal, two swinging arms bearing each a leaf-spring carrying a movable contact-terminal adapted to be brought in contact with said stationary terminal, a slotted link pivotally attached to each swinging arm and a pivoted operating-lever having a pin passing through the slots in both of said links.

43. In an electric switch, a common stationary electric terminal, two movable terminals, automatic means adapted to move in one direction to cause successive contact of said movable terminals with said stationary terminal and in the opposite direction to produce simultaneous interruption of such contacts.

44. In an electric switch, a stationary electric terminal, two swinging arms carrying movable electric terminals adapted to move against said stationary terminal, a slotted link pivoted to each swinging arm and an operating-lever having a pin passing loosely through one of said links and with frictional engagement through the other.

45. In an electric switch, a stationary electric terminal, two swinging arms carrying movable electric terminals adapted to move against said stationary terminal, a retractile spring for one of said swinging arms, a slotted link pivoted on each of said swinging arms, an operating-lever having a pin passing loosely through the link pivoted on the swinging

arm having the retractile spring and passing with frictional engagement through the other link, and a retractile spring for said operating-lever.

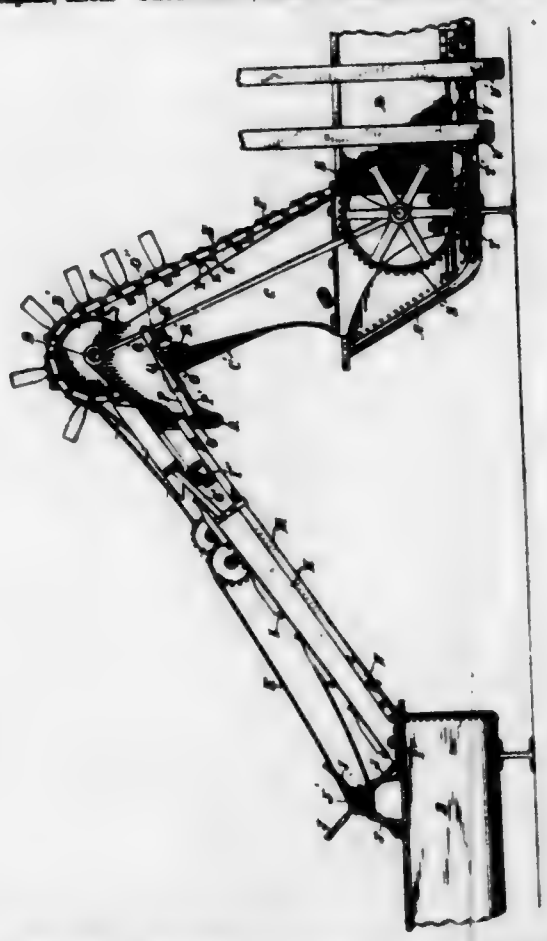
46. In combination with a series of main electric controllers for electric cars in a train, a trolley for each car, an automatic electric means for actuating each main controller, a manipulator common to said several automatic actuators, a connection from the driving-motor of each actuator to the trolley on its own car, a connection from the other side of each actuator-motor to the common manipulator, and a connection from said manipulator to ground.

47. In combination with a series of main electric controllers for electric cars in a train, a trolley for each car, an automatic electric means for actuating each main controller, manipulators on a number of said cars common to said several automatic actuators, a connection from the driving-motor of each actuator to the trolley on its own car, a connection from the other side of each actuator-motor to all the common manipulators, and connections from said manipulators to ground.

48. A number of controllers for electric motors, one automatic electric actuator for each controller adapted to be stopped in a number of positions, a manipulator for governing all of said actuators and a group of conductors connecting said manipulator and actuators, said group containing as many separate conductors as there are stopping positions for each actuator and no more.

49. A number of electric automatic actuators for main motor-controllers, each comprising a motor for driving said controller and a relay for establishing circuit through said driving-motor; in combination with a common manipulator for said actuators a conductor connecting said manipulator with said relays and one or more conductors for establishing one or more branches around said relays through said motors and said manipulator.

694,871. BOTTLE-CLEANING MACHINE. ADOLPH GOEHE, Grand Rapids, Mich. Filed Mar. 2, 1901. Serial No. 49,655. (No model.)



Claim.—1. In a bottle-cleaning machine, means for holding bottles consisting of plates having openings to receive the bottles, rigid truncated, conical segments projecting from the plates at one side of the openings, and springs, projecting from the plates at the opposite sides of said openings, and adapted to engage the necks of the bottles, substantially as described.

2. The combination of a frame, sprocket-chains, bottle-holding means attached to the chains, a hook to hold said means in closed position, a lever adapted to engage the hook, and means for adjusting said lever within or without the path of the said hook, at pleasure, substantially as described.

3. The combination of a frame, sprocket-chains, bottle-holding means attached to the chains, a hook to hold said means in closed position, a pivoted lever to engage and release the hook, an eccentric to adjust the lever, and means for adjusting the eccentric, substantially as described.

4. The combination of a frame, sprocket-chains, a plate attached in fixed relation to the chains, a second plate attached in movable relation to the said chains, a hook to hold the plates in close relation, bottle-holding means on said plates, a pivoted lever having a roll at one end adapted to engage the hook, an adjustable joint in the lever, an opening in the lever, an eccentric in the opening, and means for adjusting the eccentric, substantially as described.

5. The combination of sprocket-chains, a plate attached to said chains and in fixed relation thereto, a second plate attached to said chains and in movable relation to the first-named plate, rigid, truncated, conical segments on one plate, and springs on the other plate and located opposite the segments, substantially as described.

6. The combination of sprocket-chains, end bars having flanges rigidly attached to said chains, a plate rigidly attached to the said end bars, a second plate movably attached to said end bars, bottle-holding means on said plates, and means for holding and releasing the movable plate, substantially as described.

7. The combination of sprocket-chains, end bars having flanges rigidly attached to said chains and having grooves in their adjacent sides, a plate rigidly attached to said end bars, a plate slidable in the said grooves, a hook on the fixed plate, a lug on the slidable plate, truncated, conical segments on one plate, and springs on the other plate and opposite the segments, substantially as described.

8. In a bottle-cleaning machine, the combination of plates arranged in the same plane and movable toward and from each other, and having recesses in their adjacent edges, truncated, conical, segments on one of said plates, springs on the other plate opposite said segments, and means for temporarily holding said plates in close relation, substantially as described.

9. The combination of a frame, sprocket-chains, plates attached in fixed relation thereto, plates attached in movable relation thereto, means for holding said plates in close relation, means for releasing the movable plates, a lifter to engage and close the plates, a rock-shaft supporting the lifter, and a spring yieldingly holding the lifter in the path of the plates, substantially as described.

10. The combination of a frame, sprocket-chains, a plate rigidly attached to the chains, a second plate movably attached to the chains, means for holding and releasing the movable plates, a lifter to engage the movable plates, a spring yieldingly supporting the lifter in the path of the movable plates, and tracks engaging and aligning the chains opposite the lifter, substantially as described.

11. The combination of a frame, sprocket-chains, end bars attached to the chains and having grooves in their adjacent sides, plates rigidly attached to the end bars, plates slidable in the grooves, hooks and lugs on the plates, means for releasing the hooks, a lifter to engage the movable plates, a rock-shaft supporting the lifter, an arm on the rock-shaft, a spring engaging the arm to hold the lifter in the path of the plates, and means for adjusting the arm to turn the lifter out of the path of the said plates, substantially as described.

12. The combination of a frame, sprocket-chains, plates rigidly attached to the chains, other plates movably attached to the chains, means for holding and releasing the movable plates, a rock-shaft, a lifter attached to the rock-shaft and engaging the movable plates, an arm on the rock-shaft, a rod, slidably engaging the arm, a collar on the rod, engaging one side of the arm, a spring on the rod engaging the other side of the arm, and means for longitudinally adjusting the rod, substantially as described.

13. In combination with a frame, sprocket-chains, and means, for holding and releasing bottles, attached to said chains, and means for throwing the releasing mechanism out of action; a movable, inclined section to receive the bottles, pivoted rods supporting the lower end of the section, movable slides pivoted to the upper end of the section, and means for adjusting the slides, substantially as described.

14. In combination with a frame, sprocket-chains, and means for holding and releasing bottles attached to said chains, and means for throwing the releasing mechanism out of action; a movable, inclined section to receive the bottles, pivoted rods supporting the lower end of the section, slides pivoted to the upper end of the section, a rock-shaft, arms on the rock-shaft, rods connecting the arms and slides, and means for rotating and holding the rock-shaft, substantially as described.

15. In combination with a frame, sprocket-chains, having bottle-holding means attached, and means for releasing the bottles from the same, and a movable section to receive the bottles; a rock-shaft adapted to throw the releasing means out of action, a rock-shaft connected to the movable section, to move the same out of action, arms on the rock-shafts, a rod connecting the arms and means for adjusting said arms, substantially as described.

16. The combination of a frame, sprocket-chains, bottle-holding means, attached to the chains, hooks to hold and release said means, a lever to engage and release the hooks, a rock-shaft to move the lever out of action, a lifter to close the bottle-holding means, a rock-shaft to move the lifter out of action, a movable section to receive the bottles, a rock-

shaft to move the section out of the path of the bottles, and means for simultaneously operating said rock-shafts, substantially as described.

17. The combination of a frame, movable bottle-holders, means for moving the bottle-holders, hooks to release the bottles from the holders, a pivoted lever to operate the hooks, a rock-shaft and eccentric to operate the lever, a lifter to close the bottle-holders, a rock-shaft and spring to operate the lifter, a movable section to receive the bottles, a rock-shaft, arms, and connecting-rods to move the section, an arm on each rock-shaft, to adjust and hold the same, and means for connecting the arms to simultaneously move the same, substantially as described.

18. In a bottle-cleaning machine, the combination of a frame, movable bottle-holders, chains to which the holders are attached, a movable section to receive the bottles from the holders, a rock-shaft, means for releasing the bottles, operated by the rock-shaft, a second rock-shaft, means for closing the bottle-holders operated by said rock-shaft, a third rock-shaft to move the section, an arm on each rock-shaft, a pivoted lever, and connecting-rod to move one of the arms, and rods connecting said arm to the other two arms, substantially as described.

19. In a bottle-cleaning machine, a tank to hold a soaking solution, a tank to hold rinsing-water, sprocket-chains and bottle-holding means for passing bottles through the soaking solution and elevating the same, means for releasing the bottle-holding means, a way between said tanks to convey bottles, and having longitudinal ribs to keep the bottles separate, and one or more longitudinal partitions in the rinsing-tank, for the same purpose, substantially as described.

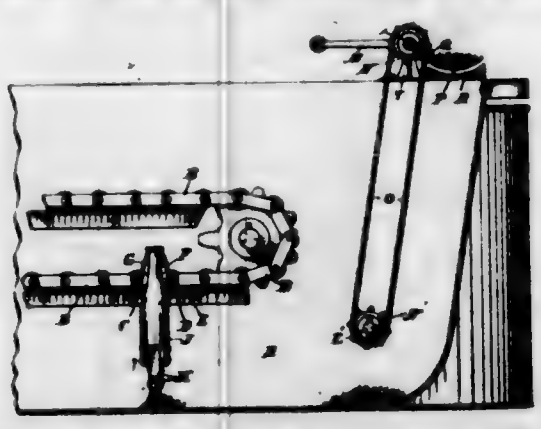
20. The combination of a tank to hold a soaking solution, a tank to hold rinsing-water, a way to convey bottles to the latter tank, means for passing bottles through the soaking solution, and discharging the bottles upon the way, and movable brushes interposed between the bottles, as they are discharged from the way, substantially as described.

21. The combination of a tank to hold a soaking solution, a tank to hold rinsing-water, an inclined way from the soaking-tank to the rinsing-tank, means for passing bottles through the soaking solution and discharging them in transverse rows upon the way, transverse bars traversing the way between the rows of bottles, a moving brush interposed between the respective rows of bottles as they leave the way, and means for moving the brush, substantially as described.

22. The combination of a tank to hold a soaking solution, a tank to hold rinsing-water, an inclined way between the tanks, means for passing bottles through the soaking solution and discharging them in transverse rows upon the way, longitudinal ribs on the way, transverse bars traversing the ways between the respective rows of bottles, means for moving the bars, a rotative shaft near the lower end of the way, radial brushes attached to the shaft and adapted to pass between the respective rows of bottles as they leave the way, and means for rotating the shaft, substantially as described.

23. In a bottle-cleaning machine, a tank to contain a soaking solution, horizontal tracks attached to the sides of the tank, sprocket-chains traversing the tracks, rolls in the chains engaging the tracks and supporting the chains, means for moving the chains, and bottle-holding means attached to the chains, substantially as described.

694,372. BOTTLE-CLEANING MACHINE. ADOLPH GOETZ, Grand Rapids, Mich. Filed Nov. 13, 1901. Serial No. 81,968. (No model.)



Claim.—1. In a bottle-cleaning machine, a tank, bottle-holding means adapted to traverse the tank, and a brush having projections adapted to engage the bottle-holding means, substantially as described.

2. In a bottle-cleaning machine, a tank, bottle-holding means adapted to traverse the tank, and means for sweeping the bottom of the tank adapted to be inserted in the bottle-holding means and detachably held thereby, substantially as described.

3. In a bottle-cleaning machine, a tank, bottle-holding means traversing the tank and adapted to engage the sides and neck of the bottles and hold the same, and a brush having bottle-shaped projections adapted to be held by said means, substantially as described.

4. In a bottle-cleaning machine, a tank, sprocket-chains parallel with the bottom of the tank, a plate attached to the chains in fixed relation thereto, a plate in movable relation to the first-named plate, means for retaining and releasing the movable plate, rigid, truncated, conical segments on one of the plates, springs on the other plate opposite the segments, and a brush having projections adapted to engage the springs and segments, and to be held thereby, substantially as described.

5. In a bottle-cleaning machine, a tank, sprocket-chains parallel with the bottom of the tank, a brush having bottle-shaped projections, a plate attached to the chains and engaging the projections at one side and at a distance from the ends thereof, springs on the said plate to engage the projections, a second plate attached to the chains, and truncated, conical, segments attached to the said plate and engaging the projections at the other side opposite the springs, substantially as described.

6. In a bottle-cleaning machine, a tank, a brush adapted to traverse the bottom of the tank, and a scoop adapted to elevate the insoluble matter gathered by the brush, substantially as described.

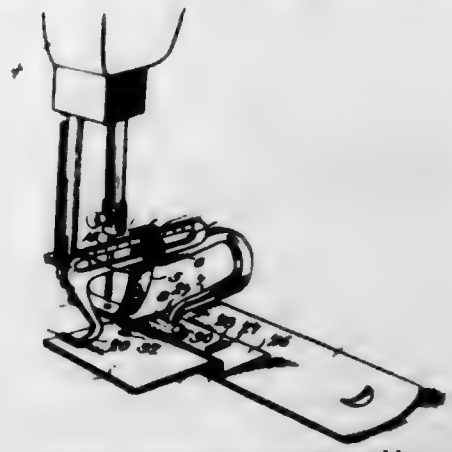
7. In a bottle-cleaning machine, a tank, means for sweeping insoluble matter to one end of the tank, a scoop adapted to elevate the said matter to above the tank, a receptacle outside the tank, and a trough to convey said matter from the scoop to the receptacle, substantially as described.

8. In a bottle-cleaning machine, the combination of a tank, means for sweeping insoluble matter to one end of the tank, a shaft above the tank, sprocket-wheels on the shaft, sprocket-wheels in the tank, chains engaging the sprocket-wheels, a scoop attached to the chains, and means for rotating the shaft, substantially as described.

9. In a bottle-cleaning machine, the combination of a tank, bottle-holding means adapted to traverse the tank, a brush having projections adapted to engage the bottle-holding means, sprocket-chains extending above the tank and to near the bottom thereof, means for operating the said chains, and a scoop attached to the chains, substantially as described.

10. In a bottle-cleaning machine, a tank, sprocket-chains traversing the tank and parallel to the bottom thereof, relatively fixed and movable plates attached to the said chains, springs on one of said plates, rigid, truncated, conical segments on the other of said plates, a brush having bottle-shaped projections adapted to engage the springs and segments, sprocket-chains near the end of the said tank, and extending from near the bottom thereof to above the same, a shaft and sprocket-wheels to operate the chains, and a scoop attached to the chains, substantially as described.

694,373. TUCKER. CHARLES F. GOFORTH and MARSHALL T. GOFORTH, Wichita, Kans. Filed Apr. 24, 1901. Serial No. 57,287. (No model.)



Claim.—1. A tacking attachment for sewing-machines, comprising a work-plate having an angular offset disposed in alinement with the presser-foot and provided with a longitudinal slot, a horizontally-disposed tack-width gage adjustably connected with the work-plate and projecting through the said slot, a pivoted tacking-arm coacting with the gage-plate, and a tack-gage coacting with the work-plate.

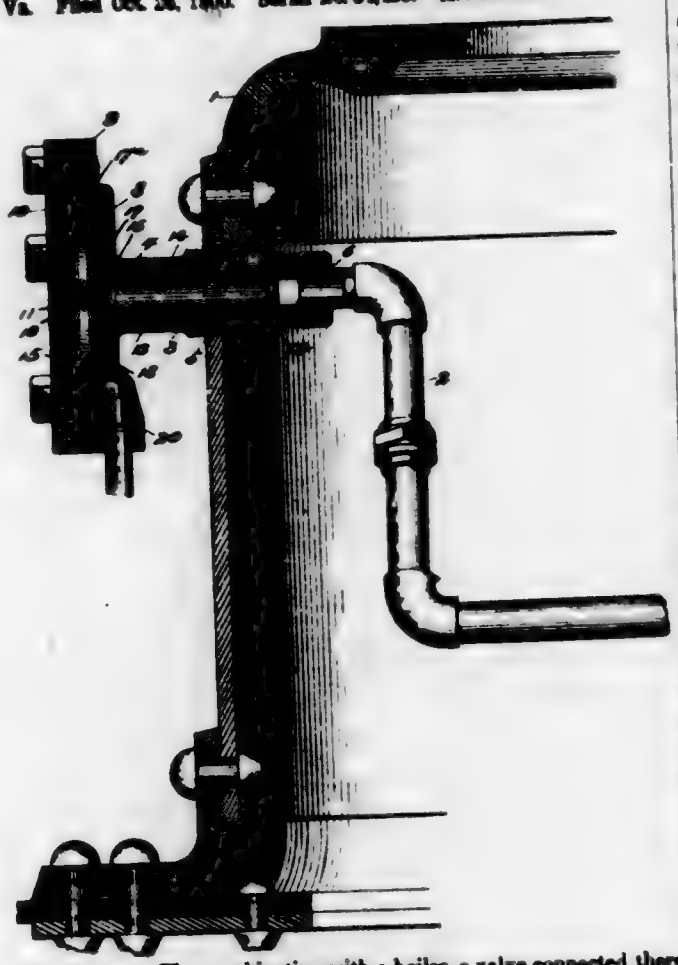
2. A tacking attachment for sewing-machines, comprising an adjustable work-plate having an angular offset disposed in alinement with the presser-foot and provided with a longitudinal slot, a horizontally-disposed tack-width gage adjustably connected with the work-plate and projecting through the said slot, a pivoted tacking-arm, including locking mechanism, coacting with the gage-plate, and an adjustable tack-gage coacting with the work-plate.

3. A tacking attachment for sewing-machines, comprising an adjustable work-plate having an angular offset disposed in alinement with the presser-foot and provided with a longitudinal slot, a horizontally-disposed tack-width gage adjustably connected with the work-plate and projecting through the said slot, a pivoted tacking-arm having an angular extension disposed beneath the projecting end of the gage-plate, and an adjustable tack-gage coacting with the work-plate.

4. A tucking attachment for sewing-machines, comprising an adjustable work-plate having an angular offset disposed in alinement with the presser-foot and provided with a longitudinal slot, a horizontally-disposed tuck-width gage adjustably connected with the work-plate and projecting through the said slot, a pivoted tucking-arm having an angular extension disposed beneath the projecting end of the gage-plate, means for holding the said arm in operative position with relation to the gage-plate, and an adjustable tuck-gage having a foot disposed at an angle to and coacting with the work-plate.

5. In a tucking attachment for sewing-machines, the combination with a presser-foot having an upward-curved extension, of a tucking-arm pivoted to the presser-foot, a spring carried by the presser-foot and operating to lock the tucking-arm in operative position, an adjustable tuck-gage also carried by the presser-foot, an adjustable work-plate having an angular offset disposed in alinement with the presser-foot and provided with a longitudinal slot, and a horizontally-disposed tuck-width gage adjustably connected with the work-plate and projecting through the slot and coacting with the free end of the tucking-arm.

694,874. RELIEF-VALVE. WILLIAM J. GOYNE, Bartonheights, Va. Filed Oct. 26, 1900. Serial No. 34,423. (No model.)



Claim.—1. The combination with a boiler, a valve connected therewith and adapted to receive steam therefrom, and a steam relief-pipe leading therefrom and to a steam-cylinder, of means for opening the valve automatically by atmospheric pressure at one side of the valve and admitting steam thereto and to the relief-pipe from the boiler when a partial vacuum is formed in said relief-pipe, and means for directing said steam to the opposite side of said valve for closing the same after such admission of steam.

2. The combination of a boiler, a relief-valve connected therewith, a steam relief-pipe connected to the valve and leading to a steam-cylinder, means for opening the said valve by atmospheric pressure so as to admit steam from the boiler to the valve and relief-pipe upon the formation of a partial vacuum, and for closing the same by steam-pressure after a destruction of said vacuum, said exhaust-steam pressure acting upon the opposite side of the valve to that acted upon by said steam.

3. The combination with a boiler, a valve connected therewith and adapted to receive steam therefrom, and a relief-pipe leading from the valve to a steam-cylinder, of means for opening the valve automatically by atmospheric pressure by air admitted in rear of the valve, and for closing the same automatically thereafter by steam admitted in front of said valve.

4. The combination with a boiler, a valve-case located in the wall and extending at each side thereof and provided within the boiler with a steam-inlet port, and a relief-pipe connected with the casing back of the port, of a reciprocating valve mounted to slide in the case and adapted to close said port, means for automatically opening the valve to admit steam from the boiler to the pipe when a partial vacuum is formed in the latter, and for automatically closing the valve against its seat subsequent to such opening.

5. The combination with a boiler, a valve-case provided with a steam-inlet port in communication with the boiler, and at its front or outer end terminating in an enlarged chamber, and at its rear inner end connected with a relief-pipe leading to a steam-cylinder, of a valve terminating in a piston fitting said chamber and having a stem fitting the case and adapted to open and close the steam-inlet port, and means for admitting atmospheric pressure to one side of the piston to move the same in a direction to uncover the port when a partial vacuum is formed in the relief-pipe, and means for conducting steam to the opposite side of the piston to effect a closing of the said port after the destruction of said vacuum.

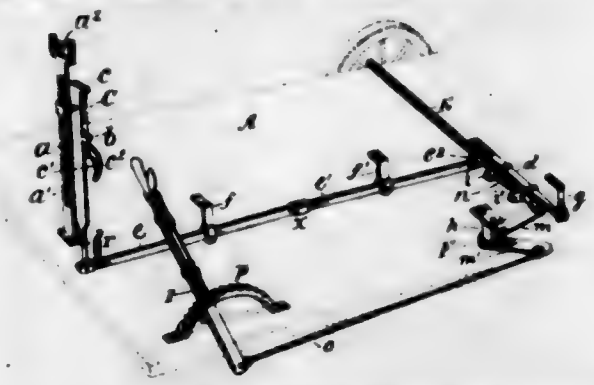
6. The combination with a boiler and a cylinder relief-pipe, of a valve-case located in the wall of the boiler and extending to each side of the same and connected at its inner end to said pipe, said casing being provided within the boiler with a steam-inlet port, and at its opposite or outer end provided with an enlarged closed chamber in communication with the outer atmosphere, a hollow valve mounted to slide in the case and adapted to close the said port thereof, and provided with a piston fitting the said chamber and with an exhaust-port at the piston end thereof also in communication with the chamber but at an opposite side of the piston at which the chamber communicates with the atmosphere, whereby, upon the formation of a partial vacuum in the relief-pipe the atmospheric pressure will act against the piston to move the valve from over the steam-inlet port, and subsequently the steam exhausting in the chamber will act on the opposite side of the piston to close said steam-inlet port.

7. The combination with a boiler, a steam-relief pipe, and a valve-case located in the wall of the boiler and connected to said pipe, said valve-case having the internal valve-seat 12, steam-inlet port 7, and enlarged chamber 8, having an air-port at the rear side thereof, and the cap or cover for said chamber, of the tubular open-end valve 13 adapted to close against said seat and cover said steam-port, and having the piston provided with the steam-exhaust 16.

8. The combination with a boiler and a relief-pipe leading to a steam-cylinder, of a valve-case located in the wall of the boiler and provided within the same with a steam-inlet and seat and at its outer end terminating in an enlarged chamber provided with an air-port, a valve located in the case and adapted for reciprocation, said valve acting to close the port and adapted to bear against the seat of the case and at its front end carrying a piston fitting the said chamber of the case, and a spring interposed between the front wall of the case and the face of the piston, whereby any inaccuracy in the fitting of the rear end of the valve against the seat is provided for and the valve cannot be accidentally opened.

9. The combination with a boiler, a relief-pipe, and a valve-case terminating in an enlarged chamber, said case being in communication with the boiler, of a valve mounted for reciprocation in the case and adapted to close the seat of the said case and the inlet-port thereof and terminating within the chamber in a piston provided with superficial ribs 16, and means for automatically opening and closing the valve by fluid-pressure.

694,875. HORSE-HITCHING DEVICE. DEE T. GRADBERY, Memphis, Tenn. Filed July 23, 1901. Serial No. 70,147. (No model.)



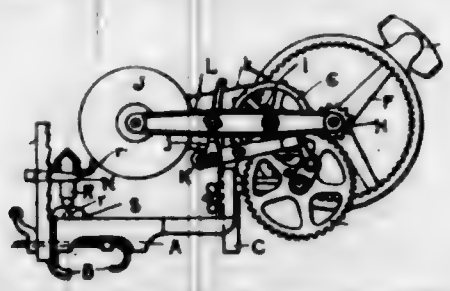
Claim.—1. In a safety attachment for vehicles, the combination with the body of a vehicle, of a pivoted hand-lever and rack, a bell-crank lever, one arm of which is connected by a rod with said hand-lever, a horizontal rod connected with another arm of said bell-crank lever and adapted to be projected so as to connect with spokes of a wheel of the vehicle, and a retracting-spring for withdrawing said horizontal rod, substantially as and for the purposes described.

2. The combination with a vehicle-body, of a slotted standard, a spring-clamp loosely connected with said standard and having a rod extending downward through the body of the vehicle, horizontal rods having a loose joint *x* and being loosely connected with hangers secured to said bed and with the rod of said clamp, a bar or rod, *d*, having at one end a loose connection with said horizontal rods, its opposite end being

loosely connected with a hanger *g*, a horizontal rod movably connected with the rod *d* and adapted to be projected so as to connect with a wheel of the vehicle, substantially as set forth and described.

3. The combination with a vehicle-body of a slotted standard having a roller mounted between guides at the top of the standard, a spring-clamp movably connected with said standard and extending downward through the bed of the vehicle, a spring adapted to keep said clamp in its normal position and mechanism constructed to automatically draw downward said clamp and the reins secured therein, substantially as set forth and described.

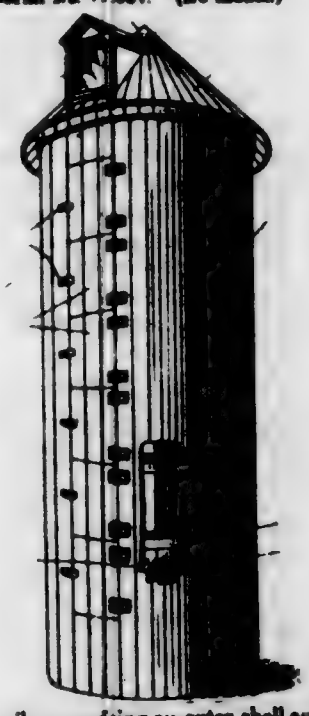
694,876. MOWING-MACHINE-KNIFE GRINDER. FRANK G GREEVE, Albany, N. Y. Filed Aug. 4, 1900. Serial No. 25,888. (No model.)



Claim.—1. In a machine for grinding mowing-machine knives; a base; a means for securing it into position; a frame connected with said base; an emery-wheel mounted in a pivoted frame; a means for rotating said emery-wheel; with a means for causing said emery-wheel to move in a vertical plane, consisting of a link attached to said pivoted frame, a lever secured to said link at one end and to a pivoted arm attached to a gear-wheel at its opposite end; with a means for causing said gear-wheel to revolve; a swinging arm pivoted to the base about midway between the sides at one end of the base; substantially as described.

2. In a machine for grinding mowing-machine knives; a base; a means for securing it into position; a frame connected with said base; an emery-wheel mounted in a pivoted frame; a means for rotating said wheel; a means for causing said wheel to automatically move in a vertical plane; an adjustable knife-rest, consisting of a base; provided with a slotted opening and serrated along one of its faces, a support adapted to fit within said slot and held therein by means of a T-shape portion on one side and a shoulder on the opposite side; with an adjustable swinging arm adapted to engage in the opening in the plate secured in the frame about midway between the sides at one end thereof; said arm constructed in sectional parts arranged to be telescoped upon each other, substantially as described.

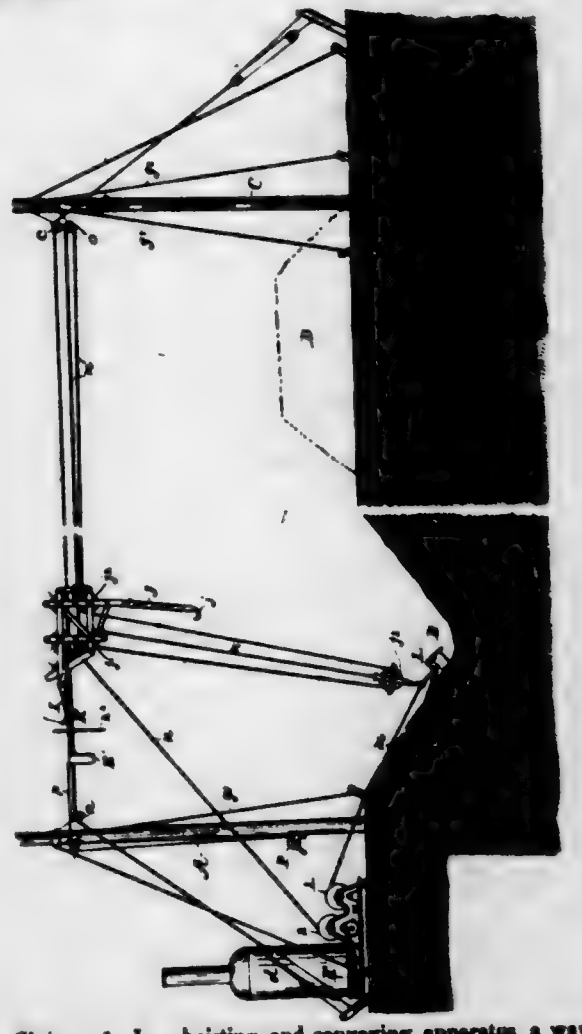
694,877. SILO. GEORGE H. GREENFIELD, Moravia, N. Y. Filed Sept. 30, 1901. Serial No. 77,067. (No model.)



Claim.—1. A silo comprising an outer shell and an inner shell having registering door-openings, inner and outer doors for the openings, and hoops disposed between the shells and to which they are secured, the shells and hoops inclosing separate annular air-chambers with each of which a pair of inner and outer doors communicates.

2. A silo comprising an inner shell and an outer shell having hoops disposed therebetween and to which they are secured to form separate annular air-spaces, said shells having registering door-openings, and inner and outer doors for the openings, the inner doors registering with the corresponding outer doors, and each door terminating on lines between the upper and lower faces of hoops and adapted to fit snugly thereagainst when closed with their mutually-adjacent edges abutting, each pair of inner and outer doors communicating with one of the air-spaces only.

694,878. HOISTING AND CONVEYING APPARATUS. HENRY H. GUFFIN, Indianapolis, Ind. Filed Apr. 22, 1901. Serial No. 56,870. (No model.)



Claim.—1. In a hoisting and conveying apparatus, a way, a carriage adapted to travel on said way, a receptacle, a sheave attached to said receptacle, a rope attached to the block of said sheave and passing thence over a sheave in said carriage, thence under the sheave attached to the receptacle, thence over a second sheave in said carriage, thence around a sheave located at a point outside the line of said way, thence back, and over an idler located in the carriage, means for operating said rope, and means for dumping said receptacle, substantially as described and shown.

2. In a hoisting and conveying apparatus, a way, a carriage adapted to travel on said way, a receptacle, a sheave attached to said receptacle, a rope attached to the block of said sheave and passing thence over a sheave in said carriage, thence under the sheave attached to the receptacle, thence over a second sheave in said carriage, thence around a sheave located at a point outside the line of said way, a rope attached to the receptacle, means for operating said ropes and means for dumping said receptacle, substantially as described and shown.

3. In a hoisting and conveying apparatus, a way, a carriage adapted to travel on said way, a receptacle, a sheave attached to said receptacle, a rope attached to the block of said sheave and passing thence over a sheave in said carriage, thence under the sheave attached to the receptacle, thence over a second sheave in said carriage, thence around a sheave located at a point outside the line of said way, thence back and through the carriage over an idler located therein, means for operating said rope, means for locking the carriage against movement on said way, means for releasing it, and means for dumping said receptacle, substantially as described and shown.

4. In a hoisting and conveying apparatus, a way, a carriage adapted to travel on said way, a receptacle having a bail capable of adjustment but rigid during excavating and hoisting operations, a sheave attached to said bail, a rope attached to the block of said sheave and passing thence over a sheave in said carriage, thence under the sheave attached to the receptacle, thence over a second sheave in said carriage, thence around a sheave located at a point outside the line of said way, a rope attached to the bail of the receptacle, means for operating said ropes, a lock to pre-

vent movement of the carriage on the way, means for releasing the lock and means for dumping said receptacle, substantially as described and shown.

5. In a hoisting and conveying apparatus, a way supported above the level of the ground, a carriage adapted to travel on said way, a receptacle, a rope attached to the receptacle and passing thence over a sheave in said carriage and around a sheave located at a point outside the line of said way as to the dump-mast, thence back and over an idler located in the carriage, means for operating said rope, and means for dumping said receptacle, substantially as described and shown.

6. In a hoisting and conveying apparatus, a way supported above the level of the ground, and a carriage adapted to travel upon said way, in combination with a receptacle having a bail which can be adjusted and held at different angular positions with relation to the front of the bucket, a sheave attached to the bail, a rope attached to the block of the sheave and passing thence over a sheave in the carriage and thence down around the sheave of the bail and thence over a second sheave of the carriage, thence around a sheave attached to the dump-mast, and a rope attached to the bail, each of said ropes being wound upon an independent drum, and said winding-drums and their operating mechanism, substantially as shown and described.

7. In a hoisting and conveying apparatus, a way supported above the level of the ground, and a carriage adapted to travel upon said way, in combination with a receptacle having an adjustable bail and a serrated upwardly-projected upper front edge, a sheave attached to said bail, a rope attached to the frame of the sheave and passing thence over a sheave in the carriage and thence down around the sheave of the bail and thence over a second sheave of the carriage, thence around a sheave attached to the dump-mast, and a rope attached to the bail, each of said ropes being wound upon an independent drum, and said winding-drums and their operating mechanism, substantially as shown and described.

8. In a hoisting and conveying apparatus, a way supported above the level of the ground, a hook adjustable in position thereon, a carriage adapted to travel upon said way and having a latch-bar secured to the carriage adapted to engage the hook and lock the carriage, means for releasing the hook to permit it to travel with the carriage, a receptacle, a rope by which the receptacle is supported from the carriage said rope passing over sheaves to form an apparatus for hoisting the receptacle and moving the carriage on the way, a winding-drum upon which said rope is wound, means for operating said drum and means consisting of a hook supported independently of the receptacle to engage a catch-bar on the receptacle for dumping the load in the receptacle, substantially as described and shown.

9. In a hoisting and conveying machine, a way supported above the level of the ground, a hooked bar adapted to travel on said way, a cord connected to said bar and a reel upon which the cord is wound, a carriage adapted to travel on said way, a latch pivotally secured to the carriage and adapted to engage the hook, means for unhooking the latch, a receptacle, a sheave secured thereto, a rope secured to the frame of the sheave and passing over a sheave in the carriage, thence around the sheave of the receptacle, thence over a second sheave in the carriage, thence around a sheave at the dump-mast and thence to a winding-drum, said winding-drum and means for operating it, and means for dumping the receptacle, substantially as described and shown.

10. In a hoisting and conveying apparatus, a way supported above the level of the ground, a carriage adapted to travel upon said way, a receptacle having a bail and a horizontal bar or bail below its bottom, a rope and tackle for connecting the carriage and receptacle and for actuating the carriage on the way, and a hook supported independently of the receptacle, to engage the bar under the receptacle and assist in dumping said receptacle, substantially as described and shown.

11. In a conveying and hoisting apparatus, a way, a carriage adapted to travel upon said way having a pivoted latch-bar, and a hook adapted to travel upon said way and to engage the latch-bar of the carriage, said hook having a face at an oblique angle, next to the carriage, a cord attached to the hook, a reel upon which the cord is wound and unwound, said hook when its cord is released and it is connected to the carriage, being drawn by the carriage toward the dump-mast and returned by reeling in its cord, substantially as described and shown.

12. In a hoisting and conveying apparatus, a way, a carriage adapted to travel thereon, a bar mounted upon the way having an oblique hooked end next to the carriage, said bar being weighted heaviest below the said way, a bail pivoted to the bar to guard the hook and a pivoted latch-bar on the carriage, substantially as described and shown.

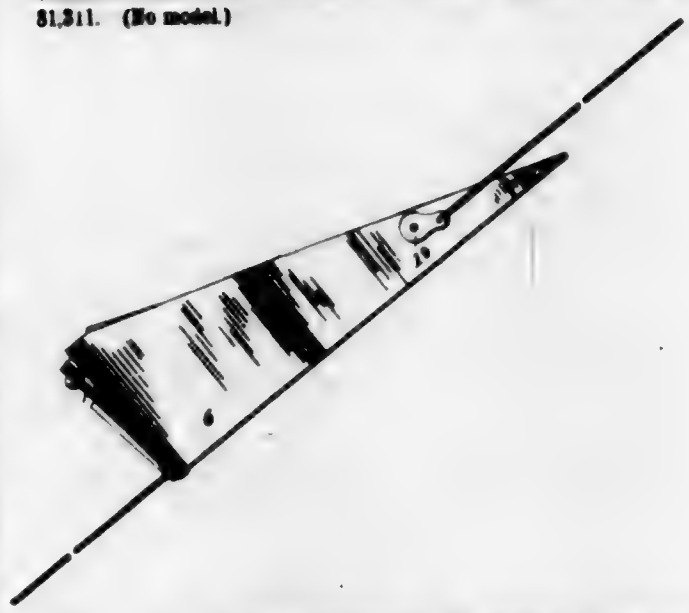
13. In a hoisting and conveying apparatus, a receptacle of elliptical form in horizontal section having a bail connected at each end to the receptacle by two bolts, said bail being attached to the receptacle at the widest diameter of the latter, said receptacle having a series of holes to allow an adjustment of the angle of the bail with the front of the receptacle, substantially as described and shown.

14. A receptacle to be used in a hoisting and conveying apparatus, elliptical in horizontal section, having a bail attached to its sides at its widest diameter by two bolts at each attachment, said receptacle having a plurality of bolt-holes whereby the bail may be placed at different angles, the front edge of said receptacle being serrated as and for the purposes specified, and said receptacle having a downwardly tapering rear flattened side with outwardly-projected flanges on either side of said flattened portion and a horizontal bar projected below the receptacle and below the termini of said flanges, substantially as described and specified.

694,379. BUCKLE. JOHN H. HART, Memphis, Tenn. Filed June 21, 1900. Serial No. 21,068. (No model.)

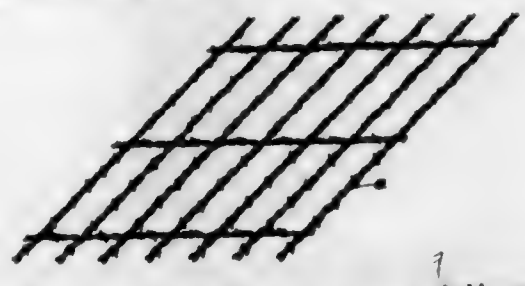
Claim.—As an improved article of manufacture the buckle herein described comprising a body portion having curved side bars, a downwardly-curved cross-bar which extends below the level of the body of the buckle, and having a notch across its surface to receive the end of the tongue and a recess at the bottom of the said notch, combined with the curved tongue which coöperates with said cross-bar, concaved on its under face and provided with a right-angled projection on its under side independent of and in addition to its point and disposed between said point and the pivot of the tongue to engage in the said recess of the said notch, all substantially as shown and described and for the purpose specified.

694,380. COMBINED BURGLAR-ALARM AND DOOR-CHECK. CHARLES H. HAWKINSON, Chicago, Ill. Filed Nov. 6, 1901. Serial No. 81,311. (No model.)



Claim.—In a combined burglar-alarm and door-check, the combination with a wedge shaped casing, a spring-actuated hammer pivoted thereto, an arm pivotally connected to the hammer, and a supporting-lever for the hammer against the head of which the arm abuts to hold the hammer in cocked position, of a trigger adapted to strike the tail of the lever and release the hammer, said trigger projecting above the incline of the wedge to engage a door opening toward the device and also having a crank and connections attached thereto to be actuated by a door opening from the device.

694,381. FIREPROOF FLOORING. JAMES B. HINSHAW, Denver, Colo. Filed Nov. 13, 1900. Serial No. 36,434. (No model.)

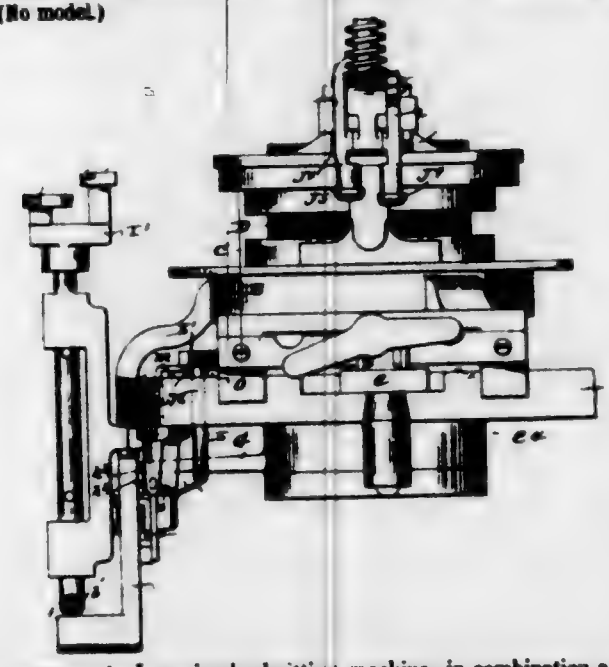


Claim.—1. In a fireproof flooring, a series of suitably-spaced separate longitudinal strands of barbed wire arranged in parallel relation to one another, a series of suitably-spaced strands arranged transverse to said longitudinal strands and supported on their upper faces, the outer of the transverse strands being located adjacent to the ends of said longitudinal strands, and a composite filling of cement entirely surrounding all of said

above-named strands and securing said strands in their relative positions to one another, substantially as described.

2. In a fireproof flooring, a series of suitably-spaced separate longitudinal lengths of wire arranged in parallel relation, each length comprising two members spirally wound together throughout their entire length, suitably-spaced barbs carried by each length extending above and below the same, a series of separate and suitably-spaced transverse strands arranged in parallel relation upon the upper face of the longitudinal strands and being supported thereby, and a composite filling of cement entirely surrounding all of the above-named strands and securing said strands in their relative positions, substantially as described.

694,382. CIRCULAR-KNITTING MACHINE. HARRY A. HOUSMAN, Philadelphia, Pa., assignor to Standard Machine Company, a Corporation of Pennsylvania. Filed Apr. 18, 1901. Serial No. 56,348. (No model.)



Claim.—1. In a circular-knitting machine, in combination a main thread-carrier normally in action and a supplemental thread-carrier normally out of action and needle-controlling mechanism to render certain needles inoperative and operative in a regular sequence to form the heel and toe of a stocking, intermediate devices operated by said needle-controlling mechanism after said operation commences to bring the supplemental thread-carrier into action and move the main thread-carrier out of action and prior to the termination of said operation to return the main thread-carrier into action and the supplemental thread-carrier out of action.

2. In a circular-knitting machine, in combination a main thread-carrier normally in action and a supplemental thread-carrier normally out of action and needle-controlling mechanism to render certain needles inoperative and operative in a regular sequence to form the heel and toe of a stocking, intermediate devices operated by said needle-controlling mechanism after said operation commences to bring the supplemental thread-carrier into action, and subsequently to move the main thread-carrier out of action and prior to the termination of the movement of said needle-controlling mechanism to return the main thread-carrier into action and subsequently remove the supplemental thread-carrier out of action.

3. In a circular-knitting machine, in combination a rack-plate adapted in its movement in one direction to move certain needles out of action in a regular sequence and in the movement in the other direction to return said needles into action, a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, intermediate devices operated by the rack-plate intermediate of its operation in one direction of its movement to move the supplemental thread-carrier into operative position and the main thread-carrier out of operative position and intermediate of its operation in the other direction of its movement to return the main thread-carrier out of operative position.

4. In a circular-knitting machine, in combination a rack-plate adapted intermediate of its movement in one direction to move certain needles out of action in a regular sequence and in the movement in the other direction to return said needles into action, a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, intermediate devices operated by the rack-plate intermediate of its movement in one direction to move the supplemental thread-carrier into operative position and subsequently to move the main thread-carrier out of operative position and intermediate of its movement in the other direction to return the main thread-carrier into action and move the supplemental thread-carrier out of action.

5. In a circular-knitting machine, in combination a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, a cam-cylinder mechanism to reciprocate the cam-cylinder and mechanism operated during the reciprocation of said cam-cylinder to bring the said supplemental thread-carrier into action after one or more courses have been knit and move the main thread-carrier out of action.

6. In a circular-knitting machine, in combination a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, a cam-cylinder mechanism to reciprocate the cam-cylinder and mechanism operated during the reciprocation of said cam-cylinder to bring the supplemental thread-carrier into action after one or more courses have been knit and move the main thread-carrier out of action, and subsequently to return the main thread-carrier into action and move the supplemental thread-carrier out of action.

7. In a circular-knitting machine, in combination with a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, a cam-cylinder mechanism to reciprocate the cam-cylinder and mechanism operated during the reciprocation of said cam-cylinder to bring the supplemental thread-carrier into action after one or more courses have been knit, and subsequently to move the main thread-carrier out of action.

8. In a circular-knitting machine, in combination with a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, a cam-cylinder mechanism to reciprocate the cam-cylinder and mechanism operated during the reciprocation of said cam-cylinder to bring the supplemental thread-carrier into action after one or more courses have been knit, and subsequently to move the main thread-carrier out of action, and subsequently to move said main thread-carrier again into action and subsequently to move supplemental thread-carrier out of action.

9. In a circular-knitting machine, in combination with a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, of a cam adapted to throw the supplemental thread-carrier into action, a cam for throwing the main thread-carrier out of action, a cam-cylinder, means to reciprocate the cam-cylinder of said machine and mechanism operated during said reciprocation after one or more courses have been knit to move said cams in line of movement of the thread-carriers.

10. In a circular-knitting machine, in combination with a main thread-carrier normally in action and a supplemental carrier normally out of action, of a cam adapted to throw the supplemental thread-carrier into action, a cam for throwing the main thread-carrier out of action, a cam-cylinder, means to reciprocate the cam-cylinder of said machine and means to move said cams in line of movement of the thread-carriers during said reciprocation after one or more courses have been knit, the supplemental-thread-carrier cam being in advance of the main-thread-carrier cam, whereby the supplemental thread-carrier is thrown into action before the main thread-carrier is moved out of action.

11. In a circular-knitting machine, in combination with a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, of a cam adapted to throw the supplemental thread-carrier into action, a cam for throwing the main thread-carrier out of action, a cam-cylinder, means to reciprocate the cam-cylinder of said machine, a cam for returning the main thread-carrier into action and the supplemental thread-carrier out of action and means during said reciprocation after one or more courses have been knit to first move the first set of cams into line of movement of the thread-carriers and subsequently return said first set of cams and move said second set of cams into line of movement of said thread-carrier.

12. In a circular-knitting machine, in combination with a main thread-carrier normally in action and a supplemental thread-carrier normally out of action, of a cam adapted to throw the supplemental thread-carrier into action, a cam for throwing the main thread-carrier out of action, a cam-cylinder, means to reciprocate the cam-cylinder of said machine, cams for returning the main thread-carrier into action and the supplemental thread-carrier out of action and means during said reciprocation after one or more courses have been knit to first move the first set of cams into line of movement of the thread-carriers and subsequently return said first set of cams and move said second set of cams into line of movement of said thread-carriers, the supplemental-thread-carrier cam being in advance of the main-thread-carrier cam in the first set of cams and vice versa in the second set of cams.

13. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a cam-cylinder and means to reciprocate the cam-cylinder, and means during the reciprocation of the cam-cylinder after one or more courses have been knit to move the first-mentioned set of cams out of line of move-

ment of the thread-carriers and the second-mentioned set of cams into line of movement of the thread-carriers.

14. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams, one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a cam-cylinder and means to reciprocate the cam-cylinder, and means during the reciprocation of the cam-cylinder after one or more courses have been knit to move the first-mentioned set of cams out of line of movement of the thread-carriers and the second-mentioned set of cams in line of movement of the thread-carriers, and subsequently to reverse the position of said sets of cams.

15. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main-thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, the main-thread-carrier cam of the first set of cams being in advance of the supplemental-thread-carrier cam and vice versa in the second set of cams, a cam-cylinder, means to reciprocate said cam-cylinder, and means during the reciprocation of the cam-cylinder after one or more courses have been knit to move the first-mentioned set of cams out of line of movement of the thread-carriers and the second-mentioned set of cams in line of movement of the thread-carriers.

16. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, the main-thread-carrier cam of the first set of cams being in advance of the supplemental-thread-carrier cam and vice versa in the second set of cams, a cam-cylinder, means to reciprocate said cam-cylinder, and means during the reciprocation of the cam-cylinder after one or more courses have been knit to move the first-mentioned set of cams out of line of movement of the thread-carriers and the second-mentioned set of cams into line of movement of the thread-carriers, and subsequently to reverse the position of said sets of cams.

17. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, needle-controlling mechanism to render certain needles inoperative and operative in a regular sequence to form the heel and toe of a stocking, intermediate devices operated by said needle-controlling mechanism, to move the first-mentioned set of cams out of line of movement with the thread-carriers and the second-mentioned set of cams in line of movement with the thread-carriers.

18. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, needle-controlling mechanism to render certain needles inoperative and operative in a regular sequence to form the heel and toe of a stocking, intermediate devices operated by said needle-controlling mechanism, to move the first-mentioned set of cams out of line of movement with the thread-carriers and the second-mentioned set of cams into line of movement with the thread-carriers, and subsequently to reverse the position of said sets of cams.

19. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, the main-thread-carrier cam of the first set of cams being in advance of the supplemental-thread-carrier cam and vice versa in the second set of cams, needle-controlling mechanism to render certain needles inoperative and operative in a regular sequence to form the heel and toe of a stocking, intermediate devices operated by said needle-controlling mechanism, to move the first-mentioned set of cams out of line of movement with the thread-carriers and the second-mentioned set of cams into line of movement with the thread-carriers.

20. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action, and the supplemental thread-carrier into action said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, the main-thread-carrier cam of the first set of cams being in advance of the supplemental-thread-carrier cam and vice versa in the second set of cams, needle-controlling mechanism to render certain needles inoperative and operative in a regular sequence to form the heel and toe of a stocking, intermediate devices operated by said needle-controlling mechanism, to move the first-mentioned set of cams out of line of movement with the thread-carriers and the second-mentioned set of cams in line of movement with the thread-carriers, and subsequently to reverse the position of said sets of cams.

21. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a rack-plate adapted in its movement in one direction to move certain needles out of action in a regular sequence and in the movement in the other direction to return said needles into action, of intermediate devices operated in one direction of movement by the rack-plate to move the first-mentioned set of cams out of line of movement of the thread-carriers and the second-mentioned set of cams into line of movement of said thread-carriers and in the other direction of movement to reverse the positions of said sets of cams.

22. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a rack-plate adapted in its movement in one direction to move certain needles out of action in a regular sequence and in the movement in the other direction to return said needles into action, of intermediate devices operated in one direction of movement by the rack-plate to move the first-mentioned set of cams out of line of movement of the thread-carriers and the second-mentioned set of cams in line of movement of said thread-carriers and in the other direction of movement to reverse the positions o said sets of cams, the main-thread-carrier cam of the first set of cams being in advance of the supplemental-thread-carrier cam and vice versa in the second set of cams.

23. In a circular-knitting machine in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a plunger carrying said cams, a pivoted cam-plate having cam-surfaces at

different levels, said plunger dependent upon the position of the cam-plate resting upon one or the other of said surfaces, a vertically-movable slide having projections from opposite sides at different levels, a cam-cylinder mechanism to reciprocate the cam-cylinder, a lever and connection between said cam-cylinder mechanism and the lever, said movable slide being in line of movement of said lever, and mechanism adapted during the reciprocation of said cam-cylinder to move said slide in one direction.

24. In a circular-knitting machine in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a plunger carrying said cams, a pivoted cam-plate having cam-surfaces at different levels, said plunger dependent upon the position of the cam-plate resting upon one or the other of said surfaces, a vertically-movable slide having projections from opposite sides at different levels, a cam-cylinder mechanism to reciprocate the cam-cylinder, a lever and connection between said cam-cylinder mechanism and the lever, said movable slide being in line of movement of said lever, and mechanism adapted during the reciprocation of said cam-cylinder to move said slide in one direction, and subsequently return said slide to its initial position.

25. In a circular-knitting machine in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams, one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a plunger carrying said cams, a pivoted cam-plate having cam-surfaces at different levels, said plunger dependent upon the position of the cam-plate resting upon one or the other of said surfaces, a vertically-movable slide having projections from opposite sides at different levels, a cam-cylinder mechanism to reciprocate the cam-cylinder, a lever and connection between said cam-cylinder mechanism and the lever, said movable slide being in line of movement of said lever, needle-controlling mechanism to render certain needles inoperative and operative in a regular sequence during said reciprocation, intermediate devices operated by said needle-controlling mechanism to move said slide in one direction, and subsequently return said slide to its initial position.

26. In a circular-knitting machine in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams, one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a plunger carrying said cams, a pivoted cam-plate having cam-surfaces at different levels, said plunger dependent upon the position of the cam-plate resting upon one or the other of said surfaces, a vertically-movable slide having projections from opposite sides at different levels, a cam-cylinder mechanism to reciprocate the cam-cylinder, a lever and connection between said cam-cylinder mechanism and the lever, said movable slide being in line of movement of said lever, needle-controlling mechanism to render certain needles inoperative and operative in a regular sequence during said reciprocation, intermediate devices operated by said needle-controlling mechanism to move said slide in one direction and subsequently return said slide to its initial position.

27. In a circular-knitting machine in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a plunger carrying said cams, a pivoted cam-plate having cam-surfaces at different levels, said plunger dependent upon the position of the cam-plate resting upon one or the other of said surfaces, a vertically-movable slide having projections from opposite sides at different levels, a cam-cylinder mechanism to reciprocate the cam-cylinder, a lever and connection between said cam-cylinder mechanism and the lever, said movable slide being in line of movement of said lever, a rack-plate adapted in its movement in one direction to move certain needles out of action in a regular sequence and in the movement in the other direction to return said needles into action, intermediate devices operated by the rack-plate in one direction of its movement to move said slide in one direction and in the other direction of its movement to return the slide to its initial position.

28. In a circular-knitting machine in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams, one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carrier, a plunger carrying said cams, a pivoted cam-plate having cam-surfaces at different levels, said plunger dependent upon the position of the cam-plate resting upon one or the other of said surfaces, a vertically-movable slide having projections from opposite sides at different levels, a cam-cylinder mechanism to reciprocate the cam-cylinder, a lever and connection between said cam-cylinder mechanism and the lever, said movable slide being in line of movement of said lever, a lever connected to said slide, a plunger having a projecting head connected to said last-mentioned lever, a rack-plate having an inclined cam adapted in the movement of the rack-plate to pass under said head and move said plunger.

29. In a circular-knitting machine, in combination with a main thread-carrier normally in action, a supplemental thread-carrier normally out of action, of a pair of cams, one of said cams being operative to move the main thread-carrier into action and the supplemental thread-carrier out of action, a second pair of cams connected together one of said last-mentioned set of cams being adapted to move the main thread-carrier out of action and the supplemental thread-carrier into action, said second pair of cams being in a different position from the first-mentioned set of cams, the first-mentioned set of cams being normally in line of movement of the thread-carriers, a plunger carrying said cams, a pivoted cam-plate having cam-surfaces at different levels, said plunger dependent upon the position of the cam-plate resting upon one or the other of said surfaces, a vertically-movable slide having projections from opposite sides at different levels, a cam-cylinder mechanism to reciprocate the cam-cylinder, a lever and connection between said cam-cylinder mechanism and the lever, said movable slide being in line of movement of said lever, a lever connected to said slide, a plunger having a projecting head connected to said last-mentioned lever, a rack-plate, an inclined cam pivotally connected thereto, and adapted in the movement of the rack-plate in one direction to pass under said head and move said plunger, a pawl attached to the frame of the machine operative in one direction, in line of movement of said inclined cam and adapted when operative to move said inclined cam laterally and a spring to return said inclined cam to its initial position.

30. In combination, a thread-carrier frame, two thread-carriers supported in said frame side by side, one of said thread-carriers having a pivoted operative portion adapted to move toward the other carrier and a spring tending to move said pivoted portion in that direction.

31. In combination, a thread-carrier frame, two thread-carriers supported in said frame side by side, one of said thread-carriers having a portion adapted to move toward the other carrier and a spring tending to move said movable portion in that direction.

32. In combination, a thread-carrier frame, two thread-carriers supported in said frame, side by side, one of said thread-carriers having a portion adapted to move toward the other carrier.

33. In combination, two thread-carriers and means to move said carriers in and out of operative position, one of said carriers having a portion adapted when said carrier is in operative position to move into the operative position of the other carrier when the last-mentioned carrier is out of operative position.

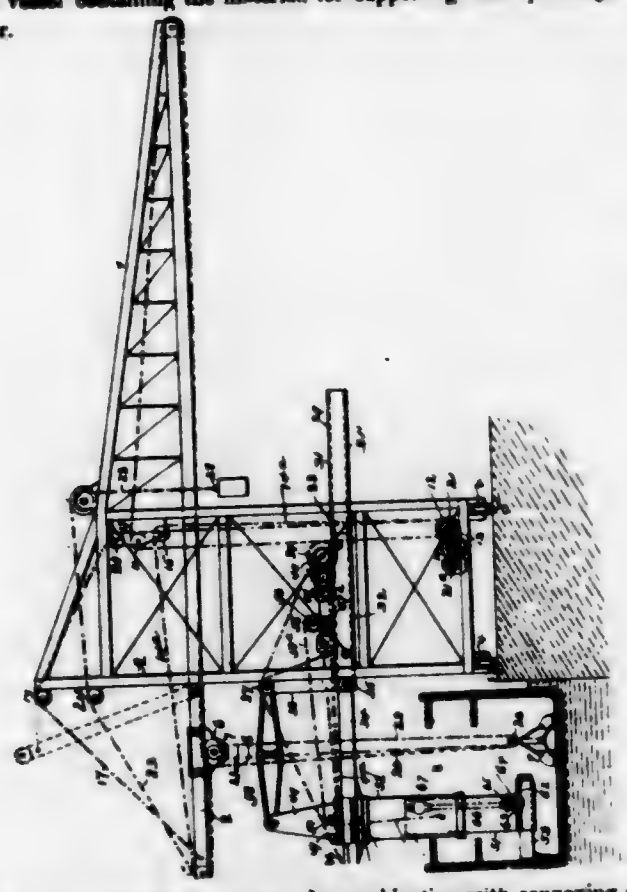
34. In combination, two thread-carriers and means to move said carriers in and out of operative position, one of said carriers being adapted when said carrier is in operative position to move into the operative position of the other carrier when the last-mentioned carrier is out of operative position.

35. In combination, two thread-carriers, means to move said carriers in and out of operative position, and means to retain both said thread-carriers simultaneously in operation, one of said carriers being adapted when said carrier is in operative position to move into the operative position of the other carrier when the last-mentioned carrier is out of operative position.

694,883. UNLOADING APPARATUS. GEORGE H. HULATT, Cleveland, Ohio, assignor of one-half to Webster, Camp & Lane Machine Company, Akron, Ohio. Filed Apr. 30, 1901. Serial No. 56,751. (No model.)

Claim.—1. In an unloading apparatus, the combination with a leg, of a scraper carried by said leg and movable in a horizontal plane at right angles to the longitudinal axis thereof and means for moving said scraper longitudinally.

2. In an unloading apparatus, the combination with a bucket and means for operating it, of a scraper for collecting material to within reach of the bucket, means for operating said scraper, and means independent of the vessel containing the material, for supporting and operating the scraper.



3. In an unloading apparatus, the combination with conveying apparatus and scraping apparatus independent of the conveying apparatus, for collecting material to be unloaded to a point within reach of the conveying apparatus, of means for supporting and operating both of said apparatus independently of the vessel containing the material to be unloaded.

4. In an unloading apparatus, the combination with framework and a conveyer, of a carriage mounted to move in said framework and adapted to be projected over a vessel, means for moving said carriage longitudinally, a depending leg carried by the carriage, a scraper independent of the conveyer, carried by said leg, means for operating said scraper to collect material to a point within reach of the conveyer and means independent of the scraper for operating the conveyer.

5. In an unloading apparatus, the combination with framework of a depending leg, a scraper carried by said leg, means for imparting a longitudinal sliding movement to the scraper in a horizontal plane at right angles to the longitudinal axis of the leg, and means for rotating the leg.

6. In an unloading apparatus, the combination with framework, of a depending leg, a scraper carried by said leg and adapted to have a sliding movement in a horizontal plane at right angles to the axis of the leg, means for sliding said scraper longitudinally, means for rotating the leg, and means for raising and lowering the leg.

7. In an unloading apparatus, the combination with a conveying apparatus, of a depending leg independent of the conveying apparatus, a scraper carried by said leg, means for manipulating the leg to dispose the scraper in different positions relatively to the conveying devices, and means for operating the scraper to move the material to said conveying devices.

8. In an unloading apparatus, the combination with framework, of a carriage mounted to slide in the framework and be projected over a vessel, said carriage having a hinged section, of a depending leg carried by said hinged section, a scraper carried by said leg, means for actuating the carriage, means for operating the scraper and means for raising and lowering said hinged section of the carriage.

9. An unloading apparatus comprising a frame adapted to travel parallel to the water-front and carrying a hoisting or conveying device, and a depending leg, independent of the hoisting and conveying device, said leg having a scraper adapted to deposit the material in a position where it can be readily reached by said independent hoisting or conveying devices.

10. In an unloading apparatus, means for collecting material in a vessel to a point within reach of a conveying apparatus, consisting of a depending leg, a scraper carried by said leg and movable in a direction transversely thereto, means for turning said leg, means for sliding the scraper longitudinally, means for moving the leg laterally, means for raising and lowering the leg and means for raising and lowering the scraper without raising or lowering the body of the leg.

11. In an unloading apparatus, the combination with conveying means, of an independent collector for moving material to a point within reach of the conveying means, consisting of a depending leg, a scraper carried by said leg, means for shifting said leg to various positions relatively to the conveying means and the material in the vessel to be unloaded and means for operating the scraper.

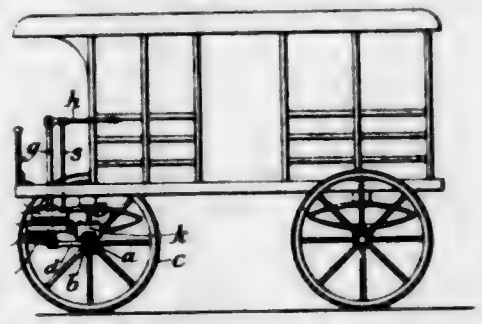
12. In an unloading apparatus, the combination with conveying means, of collecting means comprising a revoluble and vertically-movable leg independent of the conveying means, a scraper carried by said leg and means within said leg for operating the scraper to move material to a point within reach of the conveying means.

13. In an unloading apparatus, the combination with a supporting-frame, a carriage thereon and a scraper-leg depending from the carriage, of a hoisting-trolley located on the frame in a vertical plane over the scraper-leg and independent hoisting and conveying devices carried by said trolley.

14. In an unloading device the combination with a movable frame, of a carriage mounted on said frame, a leg depending from the carriage, a scraper carried by said leg, means for actuating the scraper, and independent hoisting and conveying means also carried by said frame.

694,384. STEERING MECHANISM FOR MOTOR-VEHICLES.

CHARLES W. HUNT, West New Brighton, N. Y. Filed May 22, 1901. Serial No. 61,376. (No model.)



Claim.—1. The combination with the stub-axles, the rotary pillar connected at its lower end to said axles and provided at its upper end with a vertically-swinging steering-handle, of a clutch mechanism comprising a fixed friction-plate through which the pillar freely passes, a second plate or carrier secured to the pillar to turn therewith, a movable jaw mounted on the carrier to engage said friction-plate, and a vertically-movable rod depending from the steering-handle and in operative relation at its lower end with the said movable jaw, substantially as described.

2. The combination with the stub-axles, the rotary pillar connected at its lower end to said axles, and provided at its upper end with a vertically-swinging steering-handle, of a clutch mechanism comprising a fixed friction-plate provided with a raised circular flange and a central aperture through which said pillar freely passes, a carrier secured to the pillar over the said flange, and having a depending stud or pin, oppositely-extending curved friction-jaws pivoted at their adjacent ends on said stud or pin, a rod depending from the steering-handle, extending through the said carrier and provided with a wedge between the free ends of said friction-jaws, to force them outwardly against the flange on the friction-plate and lock the pillar thereto; substantially as described.

3. The combination with the main axle, stub-axles at the ends thereof, a rotary steering-pillar operatively connected at its lower end to said stub-axles and provided at its upper end with a vertically-swinging handle, a bracket projecting forwardly from the main axle, a friction-plate secured thereto and having a circular raised flange on its upper side, and a central opening through which said pillar freely passes, a carrier-plate secured to said pillar and having a depending flange encircling the first-named flange, oppositely-extending curved friction-jaws pivoted to the carrier in front of the pillar and extending at their free ends in rear of the pillar, and a rod extending from the pivoted handle down through the carrier and there provided with a wedge between the free ends of the friction-jaws to force them against the circular friction-flange; substantially as described

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694,385. BOLSTER FOR RAILWAY-CARS.

FRANK S. INGOLDSBY and JOSEPH R. BOWLING, St. Louis, Mo., assignors to the Ingoldsby Automatic Car Company, St. Louis, Mo., a Corporation of West Virginia. Filed July 13, 1901. Serial No. 68,128. (No model.)

Claim.—1. In a bolster, in combination, a central frame, a channel-shaped compression member extending across the frame in each direction, a tension member extending across the frame and secured to it, the ends of said tension member and channel member being secured together, and a center bearing within the channel member where it crosses the frame, substantially as described.

2. In a bolster, in combination, a central frame, a channel-shaped compression member extending across one end of the frame in each direction, a tension member extending in each direction from the other end of the frame, the ends of said tension and compression members being secured together, a center bearing in the form of a channel-shaped block carrying a boss, and rivets binding the center bearing, the compression member and the central frame together, substantially as described.



3. In a bolster, in combination, a central frame, a tension member extending from the frame, a compression member secured to said central frame and extending therefrom, a reinforce riveted to the compression member near its free end, the end of said tension member being turned across the end of the compression member and riveted to such reinforce, substantially as described.

4. In a bolster, in combination, a central frame, a tension member extending from the frame, a compression member in the form of a channel-beam secured to the central frame and extending therefrom, a reinforce within the channel member near its free end and riveted to the side flanges thereof the end of said tension member being turned across the end of the compression member and rivated to such reinforce.

5. In a bolster, in combination, a central frame, a tension member extending from the frame, a compression member secured to the frame and extending therefrom said tension and compression members approaching each other at their free ends, a filling-block between said free ends, a reinforce adjacent to the compression member, the end of the tension member being turned across such reinforce, and two sets of rivets one binding the reinforce and tension member together and the other binding the reinforce, the compression member, the filling-block, and the tension member together, substantially as described.

6. In a bolster, in combination, a central frame, a compression member in the form of a channel-beam secured thereto and extending laterally therefrom, a tension member in the form of a flat strap secured to the casting and extending therefrom, said tension and compression members approaching each other as they recede from the central frame, a wedge-shaped filling-block between said tension and compression members near the free ends thereof, and rivets extending through such tension member the filling-block and the compression member, substantially as described.

7. In a bolster, in combination, a central frame, a compression member in the form of a channel-beam secured thereto and extending laterally therefrom, a tension member in the form of a flat strap secured to the casting and extending therefrom, said tension and compression members approaching each other as they recede from the central frame, a wedge-shaped filling-block between said tension member and compression member near the free ends thereof, a flanged reinforcing member within the channel-beam near its free end, rivets extending through the tension member, the wedge-shaped filling-block, channel member and the reinforcing member and binding said parts rigidly together, and other rivets binding the flanges of the channel member and the flanges of the reinforcing-block, substantially as described.

8. In a bolster, in combination, a central frame, a tension member extending across the frame and secured to it, a compression member in the form of a channel-beam secured to said central frame and extending therefrom, a flanged reinforce within the channel member near its free end and riveted to the side flanges thereof, the end of said tension member being turned across the end of the channel member and riveted to such reinforce, and a filling-block between the tension member and compression member, and rivets extending through the tension member, the filling-block, the compression member and such reinforce, substantially as described.

9. In a bolster, in combination, a central frame, tension and compression members extending diagonally therefrom and having their free ends secured together, an intermediate strut between such tension and compression members and secured to each of them, and a diagonal strut secured to the tension member adjacent to such intermediate strut and to the bolster adjacent to the central frame, substantially as described.

10. In a bolster, in combination, a central frame, tension and compression members extending diagonally therefrom and having their free ends secured together, an intermediate vertical strut between such tension and compression members and secured to each of them, a diagonal strut seating at one end between such intermediate strut and the tension member and there secured and at the other end riveted to the compression member, substantially as described.

11. In a bolster, in combination, a central frame, tension and compression members secured to the same and extending diagonally and having their free ends secured together, and a diagonal tension-rod secured to the central frame and extending through the compression member, and means for adjusting said rod, substantially as described.

12. In a bolster, in combination, a central frame, diagonal tension and compression members secured thereto and having their free ends secured together, a side bearing carried by said compression member, a diagonal tension-rod secured to said central frame and extending through said compression member and through said side bearing, and a nut screwing onto said tension-rod and bearing against said side bearing, substantially as described.

13. In a bolster, in combination, a central frame, diagonal tension and compression members secured thereto and having their free ends secured together, a side bearing carried by said compression member, a pair of diagonal tension-rods secured to said central frame and extending through said compression member and through said side bearing, nuts screwing onto said tension-rods and bearing against said side bearing, a rigid strut between the tension and compression members in the line of the side bearing, and a diagonal brace leading from the tension member to the bolster near the lower end of the central frame and lying between said diagonal tension-rods, substantially as described.

14. In a bolster, in combination, a central frame, a compression member extending diagonally in each direction from opposite sides thereof, a tension member extending across the frame and having its opposite ends secured to the ends of the compression member, diagonal tension-rods leading from opposite sides of the central frame to said compression member and secured at their outer ends thereto, and a bolt passing through said central frame and securing the inner ends of said two tension-rods, substantially as described.

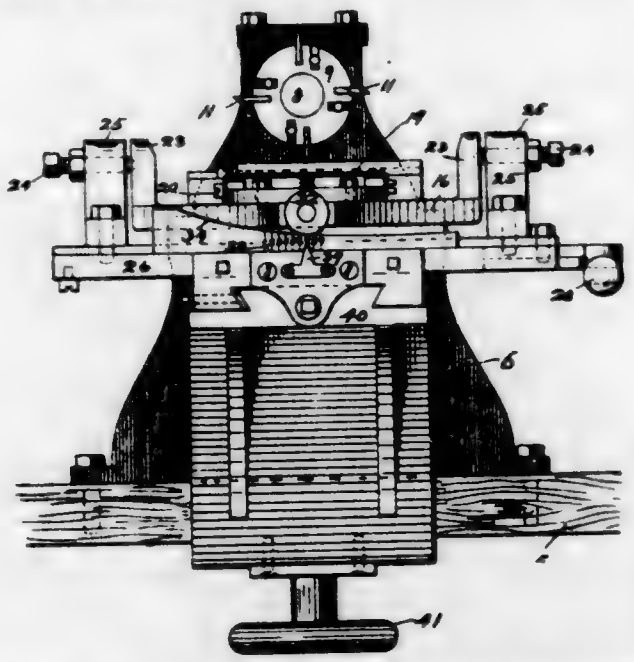
15. In a bolster, in combination, a central frame, a channel-shaped compression member extending across one end thereof and leading diagonally therefrom in each direction, a tension member extending across the other end of the frame and leading diagonally toward the compression member the free ends of said tension and compression members being secured together, a pair of side bearings on opposite sides of said central frame seating in said channel-shaped member, diagonal tension-rods leading from opposite sides of the central frame to said compression member and passing through the compression member and through the side bearings, nuts screwing onto the ends of said tension-rods and bearing against said side bearings, and a bolt passing through said central frame and securing the inner ends of said tension-rods, substantially as described.

16. In a bolster, in combination, a central frame having a pair of webs across it, a channel-shaped compression member extending across the frame in each direction, a tension member extending across the frame and secured to it, the ends of said tension member and channel member being secured together, and a center bearing seating in the channel member where it crosses the frame, said center bearing being a cored structure with vertical webs directly beneath the cross-webs of the frame, substantially as described.

17. In a bolster, in combination, a central frame, a channel-shaped compression member extending across the frame in each direction, a tension member extending across the frame and secured to it, the ends of said tension member and channel member being secured together, and a center bearing within the channel member where it crosses the frame, said central frame having a pair of webs across it, and a king-pin extending

through the center bearing into the space between said webs, substantially as described.

694,886. MACHINE FOR CUTTING IRREGULAR SURFACES. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Apr. 15, 1901. Serial No. 55,837. (No model.)



Claim.—1. In a machine for producing a concave twisted surface on wood or like material, the combination with a revolving cutter, of a reciprocating carriage adapted to feed the block to the cutter, pivotal supports for said carriage arranged parallel with the line of feed, and located substantially in the plane to which the cutter cuts, and means for tipping the carriage as it moves, substantially as specified.

2. The combination with the cutter having convex cutting edges, of a reciprocating carriage supporting the work and pivoted in the plane to which the cutters cut, and means for tipping the carriage, whereby a concave twisted surface having a straight line at or near one edge and an inclined line at the other edge is produced, substantially as specified.

3. The combination with the cutter of the work-holder, the reciprocating and tipping carriage, the supports for the latter having both horizontal and vertical adjustments, substantially as specified.

4. The combination with the cutter of the reciprocating and tipping carriage and a work-holder consisting of a back piece 15 and a pivoted clamping-plate 19, substantially as specified.

5. The combination with the cutter of the reciprocating and tipping carriage and a work-holder consisting of a back piece 15 and a pivoted clamping-plate 19 having a spring 22, substantially as specified.

694,887. CUTLERY-GRINDING MACHINE. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Apr. 15, 1901. Serial No. 55,838. (No model.)

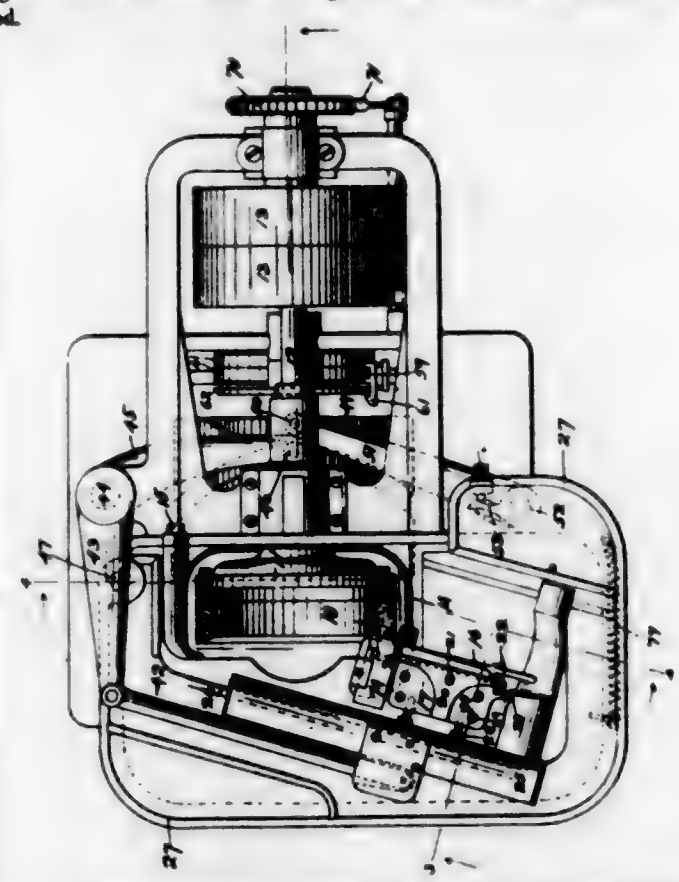
Claim.—1. In a cutlery-grinding machine, a rotating cylindrical grinder having an internal cone-shaped end surface, in combination with means for carrying the blank across and parallel with such cone-shaped end, such means consisting of a rigidly-supported metal slide, a supplemental piece or backing of wood or other soft material supported from said slide and having both a tipping and a horizontal adjustment thereon, and means for securing the blank to said backing, substantially as specified.

2. In a cutlery-grinding machine, a rotating cylindrical grinder having an internal cone-shaped end surface, and a holder for the cutlery adapted to carry the blank across such end surface, in combination with a carriage 27 pivoted at one edge and swinging horizontally at the other, a slide moving upon a track formed on the carriage, means for holding the work attached to said slide and having both a tipping and a horizontal adjustment thereon, means for actuating the slide and means for actuating the carriage, substantially as specified.

3. In a cutlery-grinding machine, a carriage movable toward and from the grinder, and a slide mounted on the carriage and carrying the work past the grinder, in combination with a work-holder having both a tipping adjustment and a horizontal adjustment on the slide, substantially as specified.

4. In a cutlery-grinding machine, a carriage movable toward and from the grinder, and a slide mounted on the carriage and carrying the work past the grinder, in combination with a work-holder mounted on the slide, and a stationary plate 74 for supporting the blade vertically during the grinding, substantially as specified.

5. In a cutlery-grinding machine, a carriage 27 pivoted at one edge and swinging horizontally at the other, a slide moving upon a track formed on the carriage, means for holding the work attached to said slide and embodying a wood or soft backing 18 for the blank, means for actuating the slide and means for actuating the carriage, substantially as specified.



6. The work-holder consisting of the frame 17, the wood backing 18, supported on a ledge of the frame, the blank-support 22, and the clamp 20, in combination with the slide 24, substantially as specified.

7. The work-holder having screws 28 for horizontal adjustment and screws 29 for tipping adjustment, in combination with the slide carrying the holder and against which said screws bear, substantially as specified.

8. In a cutlery-grinding machine, the combination with the slide for carrying the work past the grinder, of a work-holder having both a tipping adjustment and a horizontal adjustment toward the grinder, and a cylindrical or ring grinder having an internal cone-shaped end surface, substantially as specified.

9. The combination with a ring or cylindrical grinder having an internal cone-shaped end surface, of a work-holder carrying the blade across said end surface and having means for securing the handle end of the blank, and a stationary device located close to the grinder and supporting the blade while it is being ground, substantially as specified.

10. The work-holder consisting of the L-shaped frame, the wood backing 18, the blank-support 22, and the clamp, and the adjusting-screws for the frame and support, in combination with means for moving the same across the grinder and a rest 74, substantially as specified.

11. In a cutlery-grinding machine, the combination with a suitable work-holder of means for moving said holder across the grinder and a movable carriage for said holder adapted to carry the holder toward the grinder and at right angles to the path of the holder, and a plate upon which the blade rests while it is being ground, substantially as specified.

12. The work-holder of a cutlery-grinder embodying a wood backing for the work and means for securing such backing, consisting of devices clamping it on the top and bottom, substantially as specified.

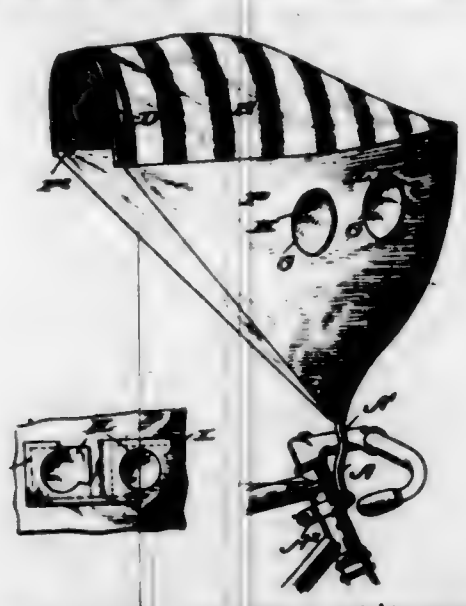
13. The work-holder of a cutlery-grinder embodying a wood backing for the work, such backing having an upper-cut offset along its bottom engaging a correspondingly-shaped ledge on the holder, substantially as specified.

14. The work-holder having a screw or screws for horizontal adjustment, and a screw or screws for tipping adjustment, in combination with a slide carrying the holder and against which said adjusting-screws bear, substantially as specified.

694,888. BICYCLE ATTACHMENT. ROBERT KAUMER, Rochester, N. Y. Filed June 22, 1901. Serial No. 65,690. (No model.)

Claim.—1. A bicycle attachment comprising an upright supporting-bar, an essentially triangular-shaped frame connected at its forward end to the upper end of said supporting-bar, a canopy attached to said frame, and a hood composed of two flaps attached to the supporting-bar at their front edges and connected to the canopy and frame at their upper edges, substantially as set forth.

2. A bicycle attachment comprising an upright supporting-bar, an essentially triangular-shaped frame connected at its forward end to the upper end of said supporting-bar and the canopy attached to said frame and a hood composed of two flaps attached to the supporting-bar at their front edges and connected to the canopy and frame at their upper edges, said hood extending substantially the entire length of the supporting-bar and provided with side openings in its upper portion, substantially as set forth.



3. A bicycle attachment comprising an upright supporting-bar, the diverging side bars and the central top bar connected at their forward ends to the upper end of the supporting-bar, the central bar being elevated above the side bars, the cross bars or bows connecting the side and central bars and the canopy extending over and attached to the side and central bars and cross bars or bows, substantially as set forth.

4. A bicycle attachment comprising the upright bar, the side bars pivoted at their forward ends to the upper end of the upright bar, the top bar pivoted at its forward end to the upper end of the upright bar, the connecting cross-bows for connecting the side and top bars, the canopy extending over the top and side bars and bows and connected thereto, and the hood comprising the two side flaps, each provided with sight-openings having pockets adapted to receive the transparent plates for protecting the said sight-openings, all arranged and adapted to operate substantially as described.

694,889. ATTACHMENT FOR DRAFTING-BOARDS AND T-SQUARES. AMANDUS KLITZNER, Chicago, Ill., assignor to Eugene Dietzgen Company, a Corporation of Illinois. Filed Nov. 11, 1901. Serial No. 81,857. (No model.)



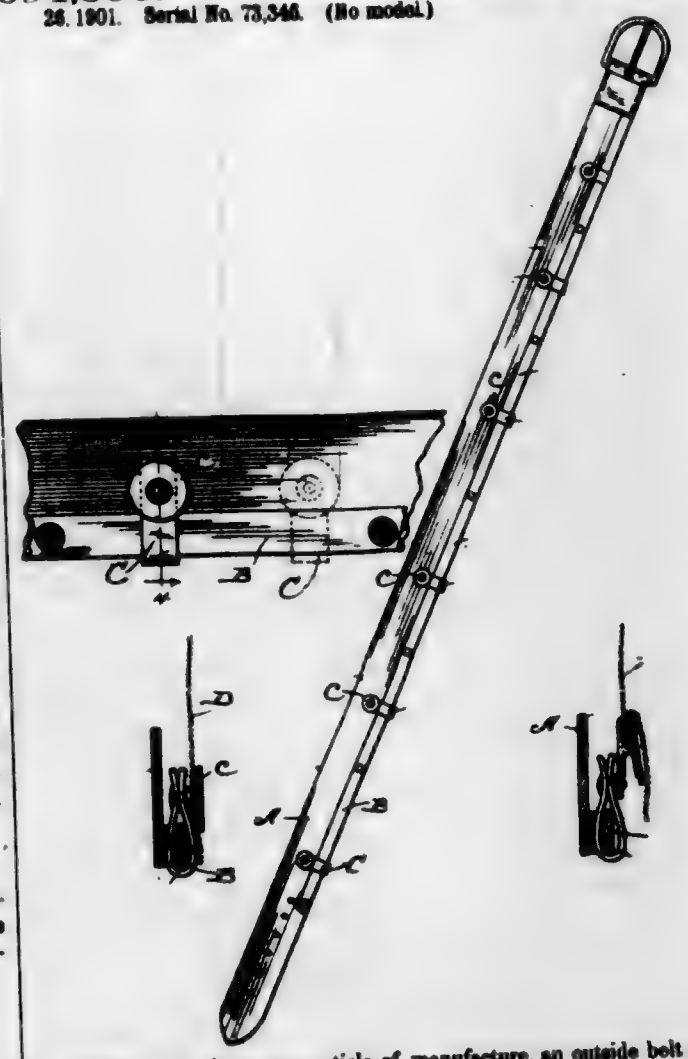
Claim.—1. In combination, a T-square having a single head, a drafting-board, a guide-strip upon a single edge of said board, and a resilient wire for retaining the head of said T-square in engagement with said strip, said wire having a U-shaped bend intermediate of its extremities for attachment to said T-square at the head thereof, arms branching from said bend, and depending portions at the extremities of said arms for engaging said guide-strip upon said board, whereby said T-square is yieldingly connected to said board.

2. In combination, a T-square having a head at one end of the blade thereof, a drafting-board, an approximately L-shaped guide-strip secured at the outer edge of its base portion to one edge of said board, the standing portion of said L-shaped strip being thereby at a slight distance from the edge of the board, a resilient wire having a U-shaped bend for attachment to the top of the T-square at the head thereof, arms on said wire branching from said bend, and depending portions at the extremities of said arms for engaging the inner surface of the standing portion of said L-shaped strip, the head of said T-square contacting the outer surface of the standing portion of said guide-strip, whereby said T-square yieldingly engages said strip.

3. In combination with a drafting-board, a guide-strip for attachment to the edge of said board, an inwardly-projecting flange at the upper portion of said strip, a retaining-wire detachably attachable to a T-square, said wire having depending extremities; and rollers mounted upon the said depending extremities for traveling upon said guide-strip, beneath said flange, said flange thereby retaining said rollers in engagement with said guide-strip.

4. In combination, a guide-strip for attachment to a drafting-board, said strip having an inwardly-projecting flange at its upper edge, a one-piece retaining-wire having a U-shaped bend intermediate of its extremities, arms extending in opposite directions from said bend, depending extremities upon said arms, rollers mounted on said depending extremities of said arms and a washer for covering a portion of said U-shaped bend to thereby adjustably secure said retaining-wire to the T-square.

694,890. BELT. BENJAMIN KRONTHAL, Chicago, Ill. Filed Aug. 26, 1901. Serial No. 73,346. (No model.)



Claim.—1. As a new article of manufacture, an outside belt composed of a suitable length of material provided with a fastening means to connect its ends, a narrower strip upon the inner surface thereof and secured thereto at intervals, loops of less length than the width of the belt surrounding and permanently but adjustably mounted on the inner strip so as to be invisible when the belt is in use, and a fastening means on each loop adapted to be secured to the band of the garment with which it is employed.

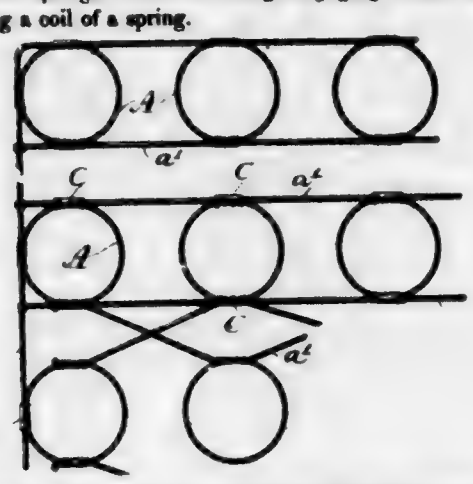
2. As a new article of manufacture, an outside belt comprising a suitable length of flexible material having suitable means thereon to connect its ends, a relatively narrower strip of flexible material upon the inner surface thereof along its lower edge and secured thereto at intervals, loops of less length than the width of the belt surrounding and permanently but adjustably mounted on the inner strip so as to be invisible when the belt is in position, and inwardly-facing buttons secured to the upper ends of the loops; substantially as and for the purpose described.

694,891. SPRING-WIREWORK. HUGO R. KUERSTEN, Chicago, Ill., assignor, by mesne assignments, to the Staples & Hanford Company, Newburgh, N. Y., a Corporation of New York. Filed Oct. 20, 1900. Serial No. 33,706. (No model.)

Claim.—1. In spring-wirework, the combination of suitably-supported springs, edge wires adapted to rest on the top coils of the springs at their points of contiguity, and sheet-metal clips, each having parallel lateral wings, one of the wings engaging an edge wire and the other one engaging a coil of a spring.

2. In spring-wirework, the combination of suitably-supported springs, edge wires and interior bracing wires adapted to rest on the top coils of said springs at their points of contiguity, and sheet-metal clips, each hav-

ing a body and two lateral wings, the body impinging upon the sides of said wires and springs, one of the wings engaging a wire and the other one engaging a coil of a spring.



3. In spring-wirework, the combination of suitably-supported springs, wires resting thereon at their points of contiguity, and sheet-metal clips each having a straight top channel to receive the wire and a curved bottom channel to receive the coil of a spring.

4. A sheet-metal clip for spring-wirework, having a body formed with a straight upper side and with a curved lower side adapted respectively to the sides of spring-coils and superposed wires, and upper and lower parallel wings to engage the coils and wires respectively.

5. A sheet-metal clip for spring-wirework, having a body and two lateral wings in parallel horizontal planes, one having a straight edge and one a curved edge.

6. A sheet-metal clip for spring-wirework, having a body and two wings, the upper one being substantially straight and the lower one tangential to the plane of the body.

7. A sheet-metal clip for spring-wirework, having a body and two lateral wings lying in parallel horizontal planes, the body slanting inwardly from about its central line toward each end.

8. A sheet-metal clip for spring-wirework, having a body the central portion of which is substantially vertical and wings constituting upper and lower channels, the upper channel extending substantially parallel with the plane of the central portion and the lower channel extending away from said plane on each side of the central portion.

694,392. **TUNING DEVICE FOR STRINGED INSTRUMENTS.** EDWIN C. LAHR, Brooklyn, N. Y. Filed Mar. 21, 1901. Serial No. 52,131. (No model.)



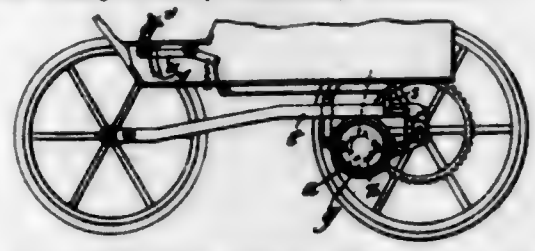
Claim.—1. The combination with the scroll of a musical instrument, of a collar secured to one side thereof, a peg extending through said collar, and provided with a shoulder engaging the outer end of said collar, a sleeve on said peg, one end engaging the inner end of said collar and its other end engaging an aperture in the opposite side of said scroll and means for clamping said collar between the shoulder of said peg and the end of said sleeve, substantially as described.

2. The combination with the scroll of a musical instrument, of a collar secured to one side thereof, and provided with a shoulder, a peg passing through said collar and provided with a shoulder engaging the shoulder of said collar, a sleeve on said peg, having one end engaging the end of said collar opposite its shoulder, said sleeve engaging a bearing-aperture in the other side of the scroll, and a screw-threaded adjusting device engaging said peg and adapted to engage the end of said sleeve to force said sleeve into contact with said collar and draw the shoulders of said peg and collar into frictional engagement, substantially as described.

3. A stringed-instrument peg comprising among its members, a collar, provided with means for securing it to one side of the scroll of an instrument, so as to prevent it from turning, the peg proper having a part revolubly mounted in said collar, and having a shoulder frictionally engaging one end of said collar, a sleeve on said peg having one end engaging the other end of said collar, and a threaded adjusting device, engaging said peg and having a part engaging said sleeve to clamp the said collar, between said shoulder and said sleeve, without straining the sides of the scroll toward each other, substantially as described.

694,893. **BRAKE MECHANISM FOR VEHICLES.** ALBERT L. LARSON, Chicago, Ill., assignor to Oscar J. Friedman. Filed May 3, 1899. Serial No. 715,458. (No model.)

Claim.—1. In a brake-actuating mechanism, the combination with a brake-actuating lever, of a foot-receiving portion *v* having pivotal connection therewith, a locking member *x* secured to the portion *v* and rotatable therewith about the axis of rotation thereof and thereby with relation to the brake-actuating lever, and a second locking member *y* opposed to the locking member *x*, said portion *v* serving when rotated to rotate the locking member *x* with relation to the said lever away from or toward the locking member *y*, substantially as described.

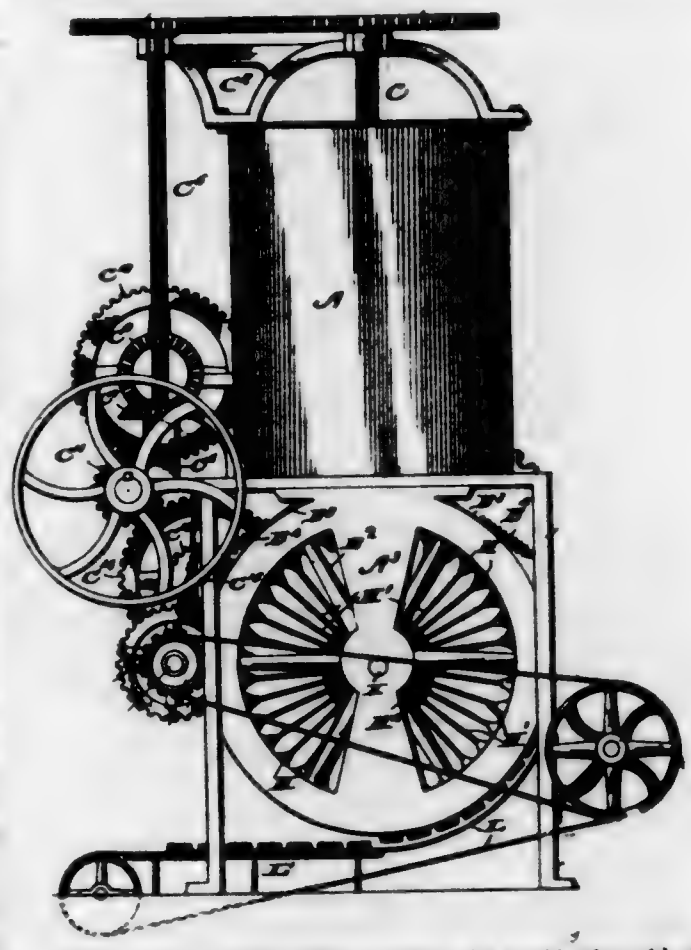


2. In a brake-actuating foot-lever, the combination with a lever *u*, of a plate *v* having pivotal connection with the said lever, a locking-dog *x* carried by the foot-plate, and a locking-rack *y* opposed to the said dog, the said dog being adapted by the rotation of the foot-plate upon the said lever to bring the said dog into and out of engagement with the said rack, substantially as described.

3. In a brake-actuating foot-lever, the combination with a lever *u*, of a plate *v* having pivotal connection with the said lever, a locking-dog *x* carried by the foot-plate, a locking-rack *y* opposed to the said dog, the said dog being adapted by the rotation of the foot-plate upon the said lever to bring the said dog into and out of engagement with the said rack, and a spring for thrusting the said dog into engagement with the said rack, substantially as described.

4. In a brake-actuating foot-lever, the combination with a lever *u*, of a plate *v* having pivotal connection with the said lever, a locking-dog *x* carried by the foot-plate, a locking-rack *y* opposed to the said dog, the said dog being adapted by the rotation of the foot-plate upon the said lever to bring the said dog into and out of engagement with the said rack, and a spring for thrusting the foot-plate and the contiguous end of the said lever upwardly, substantially as described.

694,894. **BRICK-MACHINE.** DAVID A. LEE and FRANK GLESSNER, Shelbyville, Ind. Filed Mar. 16, 1901. Serial No. 51,448. (No model.)



Claim.—1. In a brick-making machine, the combination with the rims and subdividing-partitions providing a series of peripheral molding-compartments, the outer rims having arms terminating in hubs which are journaled upon suitable bearings arranged upon the main frame, of the plungers located in the compartments, the pitmen connected to the plungers, the wheel to which the pitmen are connected, the shaft upon which

the wheel turns freely, said shaft being arranged eccentrically to the journals upon which the mold-wheel proper turns, and the rod passing through the slotted arms of the pitman-operating wheel, said arms being rigidly connected to the arms of the mold-wheel proper, whereby the rotating of the mold-wheel causes the pitman-operating wheel to move in unison therewith, substantially as and for the purpose described.

2. In a brick-making machine, the combination with the hopper having a spiral blade arranged therein and adapted to force the clay from the said hopper, a trough arranged beneath the hopper and into which the clay is fed, the sides being pivoted and constituting scraper-plates, the mold-wheel comprising the outer and intermediate rims, and the subdividing-partitions providing a series of peripheral molding-compartments, the outer rims being grooved circumferentially to receive the rigid ends of the trough, the plungers working in the mold-compartments, the pitmen and wheel for operating said plungers, means for causing the pitman-operating wheel and the mold-wheel to move in unison, the conveyer-belt adapted to receive the molded bricks ejected from the mold-wheel, and means for simultaneously operating the spiral blade and mold-wheel and conveyer-belt, substantially as and for the purpose described.

694,895. CASTING SPROCKET-WHEELS. CHRISTOPHER W. LEVALLEY, Milwaukee, Wis. Filed Jan. 7, 1899. Serial No. 701,442. (No model.)



Claim.—1. For the casting of sprocket-wheels a series of chills one for each tooth of the wheel, the chills being duplicates one of the other, and each recessed at one end and formed with the inner walls of the recesses arranged to form and chill the working sides of the teeth, and also formed with end faces d', which extend laterally beyond the recesses in the chills and are arranged to form and to chill the periphery of the wheel adjacent to the bases of the teeth, the outer or edge portions of which end faces are substantially flat, substantially as set forth.

2. For the casting of wheels having teeth which are relatively far apart, a series of chills, one for each tooth of the wheel to be formed, the chills being duplicates one of the other and each recessed at one end whereby it forms and chills the working sides of a tooth, and also formed with end faces which extend laterally from the recess therein and which form and chill the parts of the periphery of the wheel adjacent to and on either side of each tooth, the width of the said laterally-extending end faces of the chills being less than half the distance between the bases of the teeth in the casting of which the chills are used, and the outer or edge portions of the said end faces being substantially flat, substantially as set forth.

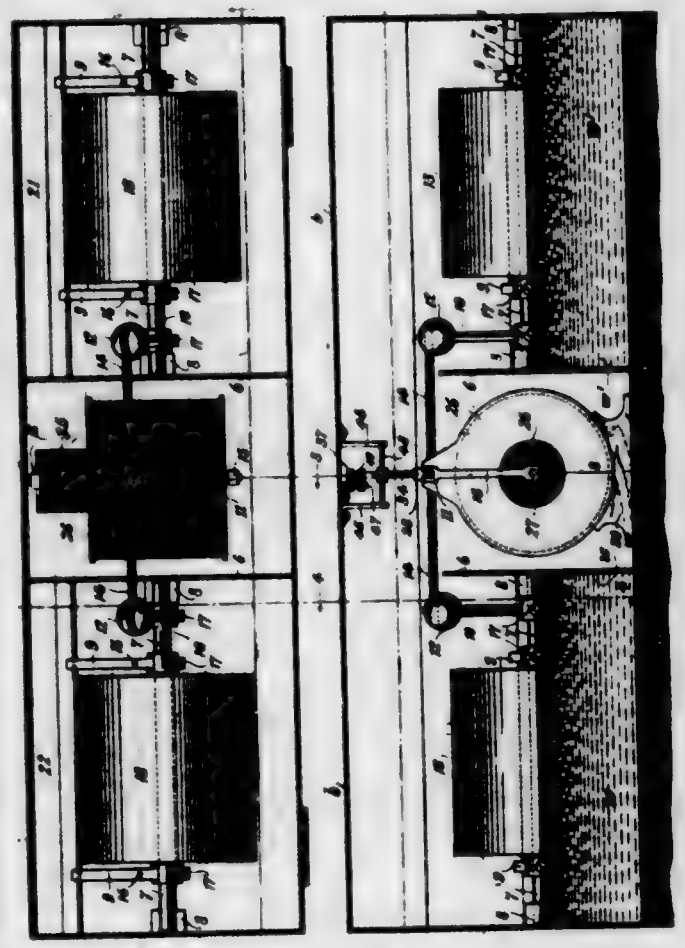
3. For use in the casting of sprocket-wheels a series of recessed chills, one for each tooth of the wheel, the chills being formed with end faces d' adapted to form and chill portions of the periphery of the wheel adjacent to the bases of the teeth, these faces of the chills being of a thickness greater than the thickness of the teeth which the chills form, and the outer or edge portions of such chill-faces being substantially flat, substantially as set forth.

4. The combination with a toothed pattern, of a series of recessed chills, one for each tooth arranged to fit over the teeth of the pattern, and means for supporting the chills in position to embrace the teeth of the pattern, but at a slight distance beyond the same, substantially as set forth.

5. The combination with a toothed pattern, of a series of recessed chills, one for each tooth and removable liners or spacing-pieces arranged between the teeth of the pattern and the walls of the recesses of the chills whereby the positions of the chills relative to the pattern may be slightly varied, substantially as set forth.

694,896. APPARATUS FOR VAPORIZING LIQUIDS. WILLIAM G. LYLE and JOHN R. STEWART, New York, N. Y. Filed Feb. 16, 1901. Serial No. 47,575. (No model.)

Claim.—1. In an apparatus for vaporizing liquids, the combination of a flexible moisture-conducting body divided at a convenient point into two separate parts, one end of one of which parts is immersed in a suitable liquid, whereby, when contact is effected between the two parts at the point of division, the liquid is caused to flow from one part to the other, and means substantially as described, for effecting and breaking contact between the said two parts from time to time as may be necessary.



2. In an apparatus for vaporizing liquids the combination of a flexible moisture-conducting body, divided at a convenient point, one end of which is immersed in a suitable liquid, whereby, when contact is effected between the two parts at the point of division, the liquid is caused to flow therethrough, and means automatically actuated by a hygrometer for effecting and breaking contact between said two parts, substantially as described.

3. In an apparatus for vaporizing liquids, a flexible wick of suitable moisture-conducting material, divided at a convenient point into two separate parts, one end of one of which parts is immersed in a suitable liquid, and the opposite end of the other part is attached to an evaporating-plate, whereby, when contact is effected between the two parts of the wick at the point of division, the liquid is caused to flow therethrough, and means substantially as described for effecting and breaking contact between two said parts.

4. In an apparatus for vaporizing liquids, a flexible wick of suitable moisture-conducting material, one end of which is immersed in a suitable liquid and the opposite end of which is arranged to come into contact with a suitable moisture-conducting body attached to an evaporating-plate, whereby when contact is effected between the two, the liquid is caused to flow therethrough; and means for effecting and breaking contact between the said bodies, substantially as described.

5. In an apparatus for vaporizing liquids the combination of a flexible wick of suitable moisture-conducting material, divided at a convenient point, one end of which is immersed in a suitable liquid, and the other end of which is attached to an evaporating-plate, whereby, when contact is effected between the two parts of the wick at the point of division, the liquid is caused to flow therethrough, and devices actuated by an electromagnet substantially as described, for making and breaking contact between said two parts, through the making and breaking of the electric current.

6. In an apparatus for vaporizing liquids the combination of a flexible wick of suitable moisture-conducting material, divided at a convenient point, one end of which is immersed in a suitable liquid, and the other end of which is attached to an evaporating-plate, whereby, when contact is effected between the two parts of the wick at the point of division, the liquid is caused to flow therethrough; an electromagnet the core of which actuates devices for making and breaking contact between said two parts, by the making or breaking of its electric circuit, and a hygrometer for automatically making or breaking the electric circuit of the electromagnet substantially as described.

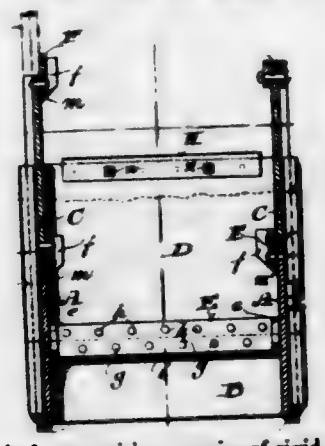
7. In an apparatus for vaporizing liquids, the combination of a tank containing a suitable liquid; a flexible wick of suitable moisture-conducting material divided at a convenient point into two parts one of which parts is attached at one end to a vaporizing-plate; a rocking shaft over

the tank carrying arms to which the other part of the wick is so attached that one end is immersed in the liquid in the tank, by the rocking of which contact between the two ends of the two parts of the wick at the point of division is made and broken; an electromagnet, the coil of which is arranged to actuate the rocking shaft; counterweights attached to the shaft for restoring the same to its original position, and devices for maintaining the liquid in the tank at a constant level.

8. In an apparatus for vaporizing liquids, the combination of a tank containing a suitable liquid; a flexible wick of suitable moisture-conducting material divided at a convenient point into two parts one of which parts is attached at one end to a vaporizing-plate; a rocking shaft over the tank carrying arms to which the other part of the wick is so attached that one end is immersed in the liquid in the tank, by the rocking of which contact between the two ends of the two parts of the wick at the point of division is made and broken; an electromagnet, the coil of which is arranged to actuate the rocking shaft; counterweights attached to the shaft for restoring the same to its original position; devices for maintaining the liquid in the tank at a constant level, and an hygrometer for automatically making or breaking the electric circuit of the electromagnet and actuating the rocking shaft substantially as described.

9. In an apparatus for vaporizing liquids, the combination of a tank containing a suitable liquid; a flexible wick of suitable moisture-conducting material divided at a convenient point into two parts one of which parts is attached at one end to a vaporizing-plate and at the other to a sponge-like material; a rocking shaft over the tank carrying arms to which the other part of the wick is so attached that one end is immersed in the liquid in the tank, by the rocking of which contact between the free end of one part of the wick and the sponge is made and broken; an electromagnet, the coil of which is arranged to actuate the rocking shaft; counterweights attached to the shaft for restoring the same to its original position; devices for maintaining the liquid in the tank at a constant level, and an hygrometer for automatically making or breaking the electric circuit of the electromagnet and actuating the rocking shaft substantially as described.

694,897. SHAFT CONSTRUCTION. GEORGE J. MAAS, Negaunee, Mich. Filed July 3, 1899. Serial No. 722,614. (No model.)



Claim.—1. A shaft, comprising a series of rigid end and side plates having interlocking side edges, the adjacent plates of each vertical row of both end and side plates being united by horizontal braces within the shaft, whereby each vertical row of plates has limited vertical movement, while incapable of lateral separation from its adjacent vertical row.

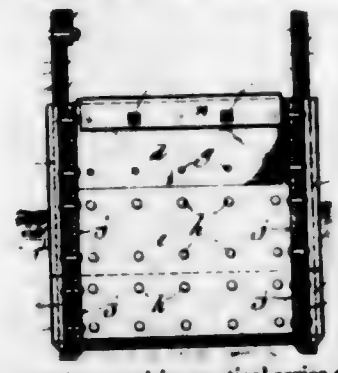
2. A shaft, comprising a shoe formed of two opposed pairs of end and side plates, having interlocking side edges, and beveled on their bottom edges, with a second series of similarly-interlocked end and side plates, separately united by horizontal inner braces to the corresponding plates of said shoe, and additional series of similarly-interlocked end and side plates, separately united to the corresponding adjacent plates, each united vertical row of plates having vertical movement limited to the space between each two successive braces on the adjacent vertical row of plates, but incapable of lateral separation from such adjacent vertical row.

3. A shaft, comprising a shoe formed of two opposed pairs of end and side plates having interlocking side edges, and beveled on their bottom edges, the pair of end shoe-plates being of different height from the pair of side shoe-plates, with additional series of similarly-interlocked end and side plates of equal height, and a top series of plates forming the collar of the shaft wherein the relative height of the pair of end plates and pair of side plates is different, and in reversed order to the relative height of the pair of end plates and pair of side plates forming the shoe of the shaft, together with series of inner horizontal braces, each brace uniting the two adjacent plates of each vertical row of plates, whereby each vertical row of plates has independent vertical movement within the limits of the space between each two successive braces on the adjacent vertical row of plates, but is incapable of lateral separation from such adjacent vertical row.

4. In a shaft, the combination of a series of pairs of rigid end plates having outwardly-turned side flanges, a series of pairs of rigid side plates having inwardly-turned side flanges interlocking with the side flanges of the end plates, and series of inner horizontal braces uniting the vertically-adjacent plates of each vertical row and having inturned ends bearing against the inner surfaces of the adjacent vertical rows of plates, but free from union therewith.

5. In a shaft, the combination of series of end and side plates interlocked together at their side edges, and the plates of each vertical row being united together to have independent vertical movement, with a series of caps detachably secured to the upper plates of each vertical series to prevent injury to the top edges of said plates while they are being driven downward in the sinking of the shaft.

694,898. CONSTRUCTION OF SHAFTS. GEORGE J. MAAS, Negaunee, Mich. Filed July 25, 1901. Serial No. 69,633. (No model.)



Claim.—1. A shaft, comprising vertical series of end plates, and vertical series of side plates, having interlocking side edges, the adjacent plates of each vertical row of both end and side plates being united by vertical inner or lining plates, whereby each vertical row of plates has independent vertical movement, while incapable of lateral separation from its adjacent vertical rows.

2. A shaft, comprising a shoe formed of two opposed pairs of vertically-disposed end and side plates, having interlocking side edges, and beveled on their bottom edges, with a second series of similarly-interlocked end and side plates, separately united by vertical inner or lining plates to the corresponding plates of said shoe, and additional series of similarly-interlocked end and side plates, separately united to the corresponding adjacent plates, each united vertical row of plates having independent vertical movement, but incapable of lateral separation from its adjacent vertical rows.

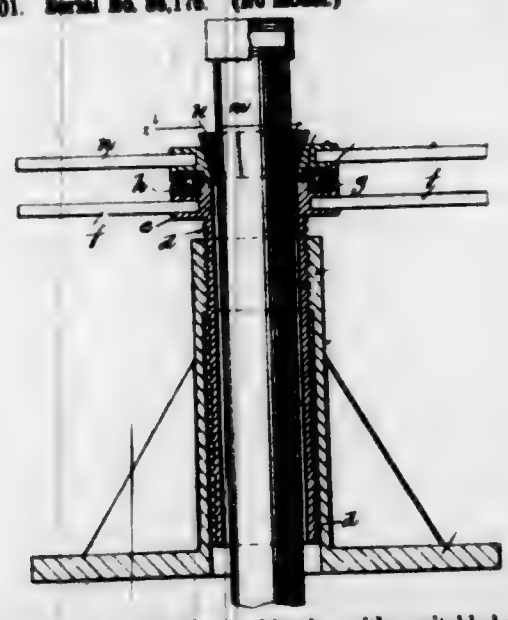
3. A shaft, comprising a shoe formed of two opposed pairs of vertically-disposed end and side plates having interlocking side edges, and beveled on their bottom edges, the pair of end shoe-plates being of different height from the pair of side shoe-plates, with additional series of similarly-interlocked end and side plates of equal height, and a top series of plates, forming the collar of the shaft, wherein the relative height of the pair of end plates and the pair of side plates is different, and in reversed order to the relative height of the pair of end plates and pair of side plates forming the shoe of the shaft, together with series of vertical inner or lining end and side shoe-plates of different height, having beveled bottom edges, and bolted or riveted to the first-named end and side shoe-plates, the shorter inner shoe-plates being secured to the taller outer shoe-plates, and the taller inner shoe-plates being secured to the shorter outer shoe-plates; top or collar inner or lining plates of different height bolted or riveted to the outer top or collar plates, in relatively reversed order to the relative height of the latter, and intermediate inner or lining plates of equal height to the intermediate outer plates and bolted or riveted thereto, so as to break joints therewith; whereby each vertical row of united end or side plates is continuous on both the outer and inner surfaces from top to bottom, and capable of independent vertical movement, but incapable of lateral separation from its adjacent vertical rows.

4. In a shaft, the combination of a series of pairs of outer end plates having outwardly-turned side flanges; a series of pairs of outer side plates having inwardly-turned side flanges interlocking with the side flanges of the outer end plates; a series of pairs of inner side plates bolted or riveted to the outer side plates and having straight end edges closely adjacent to but free from union with the inner surfaces of the ends of the outer end plates; and series of pairs of inner end plates bolted or riveted to the outer end plates, and having straight end edges closely adjacent to but free from union with the inner surfaces of the ends of the inner side plates.

5. In a shaft, the combination of a series of pairs of outer end plates and series of pairs of outer side plates having vertical interlocking end edges; with series of pairs of inner or lining end and side plates, respectively bolted to the corresponding outer end and side plates, the end edges of one pair of said inner plates bearing against but being free from union with the inner surfaces of one pair of the outer plates, and the end edges

of the other pair of said inner plates bearing against but being free from union with the inner surfaces of the ends of the first-named pair of inner plates.

694,899. PIPE-JACK. George J. Maas, Negaunee, Mich. Filed Dec. 16, 1901. Serial No. 86,178. (No model.)



Claim.—1. In a pipe-jack, the combination with a suitable base and a hollow interiorly-threaded post supported thereby, of a hollow jack-screw in movable engagement with said post, and a pipe-clamping device supported by said jack-screw.

2. In a pipe-jack, the combination with a suitable base and a hollow interiorly-threaded post supported thereby, of a hollow jack-screw in movable engagement with said post, and a pipe-clamping device located above said jack-screw, and kept from contact therewith by interposed antifriction balls or rollers.

3. In a pipe-jack, the combination with a suitable base and a hollow interiorly-threaded post supported thereby, of a hollow jack-screw in movable engagement with said post, and provided with a cap at its upper end, a clamp-ring supported by said cap; and wedges for clamping said clamp-ring to a pipe projecting therethrough.

4. In a pipe-jack, the combination with a suitable base, and a hollow interiorly-threaded post supported thereby, of a hollow jack-screw in movable engagement with said post; a flanged cap at the upper end of said jack-screw; bars projecting laterally from said cap; antifriction balls or rollers resting in a groove in the upper face of said cap; a clamp-ring resting on said balls or rollers and formed with a beveled bore; bars projecting laterally from said clamp-ring; and wedges for clamping said clamp-ring to a pipe projecting therethrough.

5. In a pipe-jack, a hollow open-ended post adapted to be set over and around a pipe projecting from the ground; a tubular jack in vertical movable engagement with said post, and a pipe-clamping device supported by said tubular jack, whereby, as the latter is elevated the clamping device is raised therewith, and the attached pipe drawn from the ground.

6. In a pipe-jack, a hollow open-ended post adapted to be set over and around a pipe projecting from the ground; a tubular jack supported within and in vertical movable engagement with said post; a clamp-ring supported by said tubular jack and surrounding said pipe; wedges for clamping said ring to the said pipe; and bars projecting from said clamp-ring, whereby the said pipe may be turned or shaken loose, by the rotary movement of said clamp-ring, and drawn from the ground as the clamp-ring is elevated by the upward vertical movement of the tubular jack.

694,400. UNDERREAMER. Patrick H. Mack, Bradford, Pa., assignor to Oil Well Supply Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed July 10, 1901. Serial No. 67,780. (No model.)



Claim.—1. In an underreamer for oil and Artesian wells, the combination with a stock having a cutter-slot provided with upper and lower bearing-faces or abutments for the cutter-shank said bearing-faces or abutments being on opposite sides of the vertical axis of the stock, of a pivoted cutter having a shank provided with upper and lower corresponding faces which engage the upper and lower bearings or abutments of the cutter-slot, substantially as and for the purpose specified.

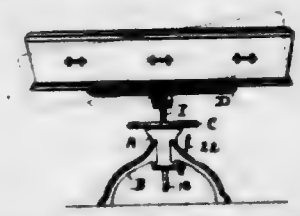
2. In an underreamer for oil and Artesian wells, the combination with a stock having a cutter-slot provided with upper and lower walls or abutments for the cutter-shank said abutments being on opposite sides of the vertical axis of the stock, and a transverse peripheral recess for the head of the cutter, of a pivoted cutter having a head adapted to engage the recess in the periphery of the stock and provided with a shank having upper and lower bearing-faces adapted to engage the abutments on the upper and lower faces of the cutter-slot; substantially as and for the purposes specified.

3. In an underreamer for oil and Artesian wells, the combination with a stock having a cutter-slot provided with upper and lower walls or abutments for the cutter-shank said abutments being on opposite sides of the vertical axis of the stock, of a pivoted cutter having a shank provided with parallel faces which engage the upper and lower walls or abutments of the cutter-slot, and a spring-actuated push-pin which bears on the heel of the cutter-shank, substantially as and for the purposes specified.

4. In an underreamer for oil and Artesian wells, the combination with a stock having cutter-slots provided with a straight upper wall and oppositely-disposed abutments on the under walls which latter abutments are parallel to the upper walls of the slots, of two oppositely-disposed cutters having shanks provided with upper and lower bearing-faces which engage the upper and lower walls of the cutter-slot on opposite sides of the vertical axis of the cutter-stock, and a pivot-pin common to both cutter-shanks; substantially as and for the purposes specified.

5. In an underreamer for oil and Artesian wells, the combination with a stock having a cutter-slot extending therethrough the upper and lower walls of said slot being arranged to form an upper and lower bearing for the shanks of the cutters said bearings being on opposite sides of the vertical axis of the stock, of cutters provided with shanks having upper and lower bearing-faces, a pivot-pin common to the shanks of both cutters, and a spring-actuated push-pin for each cutter arranged to engage the heel of the shank of its respective cutter, substantially as and for the purposes specified.

694,401. ADJUSTABLE STAND OR SUPPORT. George L. Marsolais, Leominster, Mass. Filed Sept. 27, 1901. Serial No. 76,743 (No model.)



Claim.—1. In an adjustable stand or support, the combination of a base-piece, a table, a screw projecting from the table into the base, a wheel threaded on the screw and resting on top of said base, a shank projecting from said screw, a revoluble piece fitted to said base and turning with said shank, and means whereby said piece may be locked to the base or left free to revolve.

2. In an adjustable stand or support, the combination of a base, a table, a screw projecting from the table into the base, a wheel threaded on the screw and resting on top of said base, a polygonal shank projecting from said screw, a notched revoluble disk having a polygonal opening into which said shank extends, a retaining-piece holding said disk to the bottom of the base, and a movable locking-pin for engaging said disk.

3. In an adjustable stand or support, the combination of a base, a table, a screw projecting from the table into the base, a wheel threaded on the screw and resting on top of said base, a polygonal shank projecting from said screw, a notched revoluble disk having a polygonal opening into which said shank extends, a retaining-piece holding said disk to the bottom of the base, a locking-pin extending through said retaining-piece in position to engage the notched revoluble disk, and a handle for operating said locking-pin.

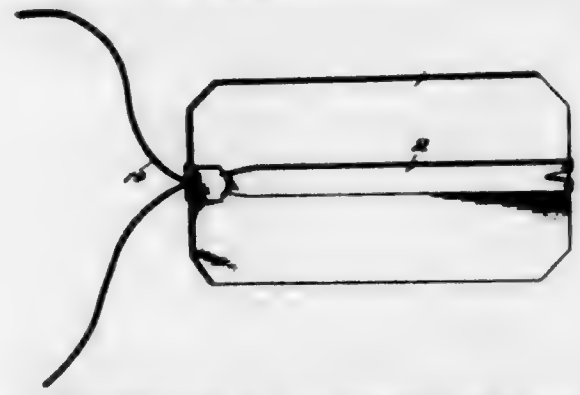
4. In an adjustable stand or support, the combination of a base, a table, a screw projecting from the table, an adjustable connection between said screw and table whereby the table can be set at different angles, a wheel threaded on said screw and resting on top of said base, balls arranged between said wheel and base, a polygonal shank projecting from said screw, a revoluble piece fitted to said base and engaging said shank, and means whereby said piece may be locked to the base or left free to revolve.

694,402. SHIPPING-TAG. Thurston Matheny, Chauncey, Ohio. Filed Oct. 17, 1901. Serial No. 79,012. (No model.)

Claim.—1. The combination with a tag, of an attachment having a head at one extremity and a securing extension projecting from said head, shoulders being formed at the point of juncture of the extension with the head, and a securing-strand doubled around the said extension and passed through a portion of the head.

2. The combination with a tag, of an attachment consisting of a body having bendable legs at opposite extremities to engage the tag and shoulders near one end, and a securing-strand doubled around the body

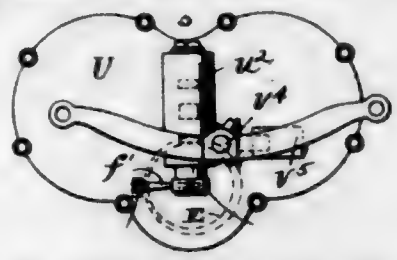
and caught against the said shoulders, the portions of the strand being passed through a part of the attachment at one end.



3. The combination with a tag, of a metallic attaching member secured thereto and provided with shoulders and a doubled securing-strand caught against the said shoulders and thence passing under said attaching member to the end portion of the tag, said strand being pressed in contact with but unsecured to the main body of the tag.

4. The combination with a tag, of a metallic attaching member extending longitudinally over one side thereof and secured to the opposite ends of the tag, and a double securing-strand held by the said attaching member.

694,403. **ENGINE-BRAKE.** EDWARD Y. MOORE, Cleveland, Ohio, assignor, by mesne assignments, to Chicago Pneumatic Tool Company, a Corporation of New Jersey. Filed Apr. 19, 1901. Serial No. 56,596. (No model.)



Claim.—1. The combination of an incased engine, an additional crank-disk therefor within the casing, said crank-disk removably engaging the crank-pin, and means for establishing braking frictional engagement between said disk and a non-rotative member, substantially as described.

2. The combination of a casing with an engine within the casing driving a crank and crank-pin, a crank-shaft for said crank at the side of the casing opposite the cover, a crank-disk carried by the cover and axially alined with the crank-shaft, said crank-disk removably engaging the end of the crank-pin, and means for establishing braking friction between said disk and a non-rotative body, substantially as described.

3. The combination of a casing and a cover-plate therefor, with a cylinder, piston, crank and crank-pin within the casing, a crank-shaft for said crank, a crank-disk journaled axially with the crank-shaft on the inner side of the cover-plate, said crank-disk having an opening loosely receiving the end of the crank-pin, and mechanism for applying braking friction to said crank-disk, whereby the disk serves the double purpose of an additional support for the crank-pin and of a brake but may be removed with the cover, substantially as described.

4 The combination of a casing and cover-plate therefor, with an engine within the casing driving a suitable crank and crank-pin, a crank-disk on the inner side of the cover-plate journaled on the stub-shaft carried by the cover-plate, said crank-disk removably receiving the end of said crank-pin, a brake-strap surrounding said crank-disk and mechanism extending through said cover for operating said brake, substantially as described.

5. In a motor, in combination, a casing, a cylinder, piston, crank, and crank-pin therein, a cover-plate for the casing, a crank-disk on the inner side of the cover-plate journaled on a stub-shaft carried thereby, a resilient brake-strap surrounding said disk, a block for releasing said strap, and a pin extending through said cover-plate for operating said block from the outside, substantially as described.

6. The combination of a casing including a cover, with a cylinder, piston, crank and crank-pin within the casing, and a disk within the casing journaled axially with the crank-shaft and engaging the crank-pin, said disk carrying a friction-surface, mechanism for causing engagement between such surface and another surface to establish frictional braking, a valve for governing the motor and a connection between it and such mechanism, substantially as described.

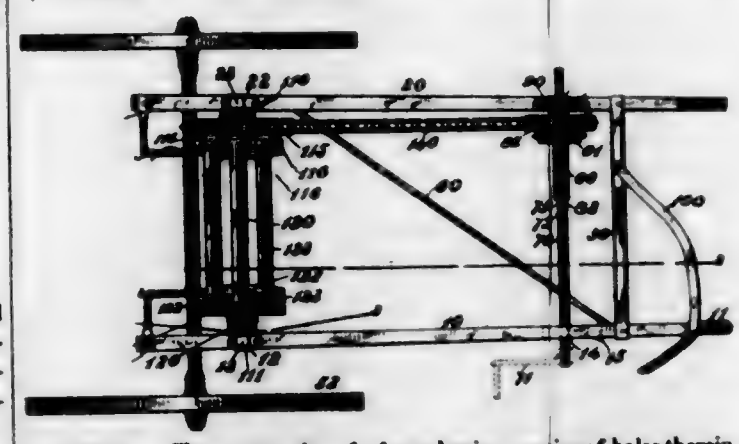
7. In a motor, in combination, a casing, a crank-disk therein, a resilient brake normally in contact with the peripheral surface thereof, a rotatable pin extending through the casing and adapted to release said brake, an arm carried by said pin, a valve adapted to control the operation of said motor, said arm being mechanically connected to said valve, substantially as described.

8. In a motor, in combination, a disk adapted to rotate when the motor operates, a resilient brass-strap enveloping the peripheral face thereof, said strap having an opening through it, a block occupying said opening and adapted to move therein to expand the strap, a valve for controlling said motor, and an operative lever mechanically connected with both said valve and said block and adapted to simultaneously move the two, substantially as described.

9. The combination of a casing including a cover-plate, an engine within the casing, a reversing-valve on the outer side of the cover for controlling the engine, a crank-disk within the casing engaging the crank-pin, a resilient brake normally applied to said disk within the casing, a rotatable pin extending through the cover and adapted to release said brake, and a lever on the outer end of said cover connecting with said valve whereby the movement of the valve releases the brake, substantially as described.

10. In a motor, in combination, a crank-disk, a resilient brake normally in contact therewith, a rotatable pin, a block rigid with said pin which may release said brake, an arm carried by said pin, a valve, an eye-bolt whose shank is rotatably mounted on said valve, the eye whereof receives said arm, and means for shifting said valve, substantially as described.

694,404. **MACHINE FOR HANDLING BARBED WIRE.** JAMES MOORE, Hanover, Ill. Filed Dec. 30, 1899. Serial No. 742,168. (No model.)



Claim.—The combination of a frame having a series of holes therein, a spool-spindle supported in said frame, a sprocket-wheel disposed on said spool-spindle, a crank-shaft adapted to be journaled in said holes, a plurality of integral sprocket-wheels of varying sizes provided with a sleeve adapted to slide on said crank-shaft, means for fastening said sleeve to said crank-shaft and a chain connecting the spool-spindle sprocket-wheels with the crank-shaft sprocket-wheel.

694,405. **LUMBER-MEASURER.** BEVERLY G. MOSS, Washington, D. C. Filed June 21, 1901. Serial No. 65,501. (No model.)

Claim.—1. In a trimmer and like woodworking-machine the combination with a saw and mechanism for throwing it into and out of operative position, of a register, devices connected with said register and with said saw, whereby said register will be operated by the lumber fed to said saw, when said saw is in operative position, substantially as described.

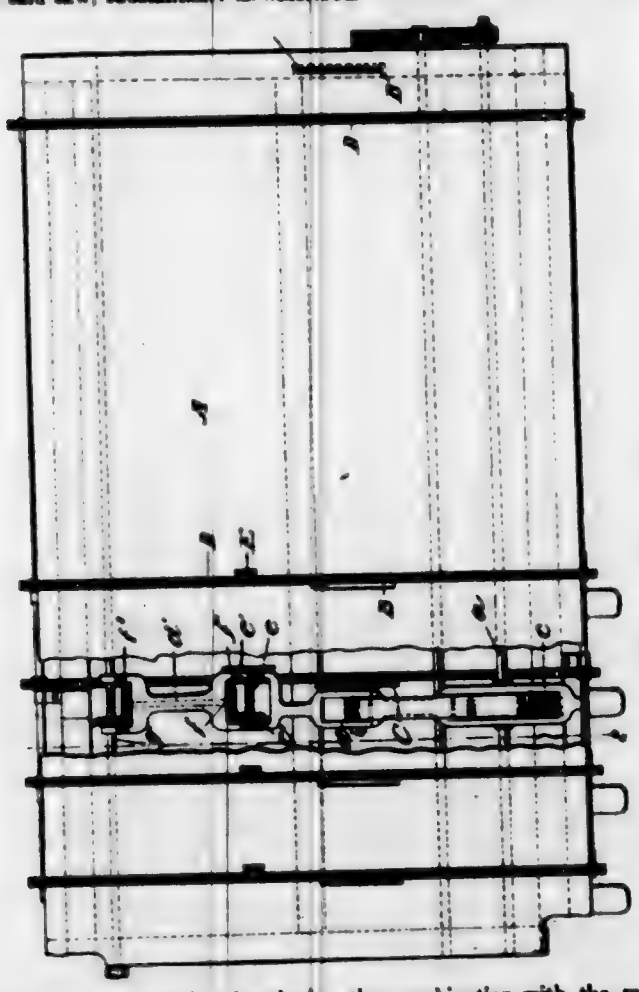
2. In a trimmer and like woodworking-machine the combination with a saw and mechanism for throwing it into and out of operative position, of a register, a movable device operatively connected with the register, devices connecting said movable device with said saw, for moving the device into and out of the path of the lumber, as the saw is moved into and out of operative position, substantially as described.

3. In a trimmer, the combination with a fixed saw, of a movable saw, normally out of operative position, mechanism for moving said movable saw into operative position, a registering device, a movable device adapted to be operated by the lumber, connected with said register, and connections between said movable device and the mechanism for moving said movable saw, for throwing said movable device into and out of operative position with said movable saw, substantially as described.

4. In a trimmer, the combination with a fixed saw of two or more movable saws normally out of operative position, a register, actuating means for said register connected with each movable saw whereby the moving of any one of the movable saws into operative position brings the actuating devices of the register into position to be operated by the lumber cut by said saw, substantially as described.

5. In a lumber-trimming machine, the combination with swing-

ing frame having a saw mounted thereon, said saw being normally out of position, of a register operative devices therefor including a star-wheel, said operative devices being connected for joint movement with the swinging saw-frame, whereby the moving of the movable saw into operative position brings the star-wheel into position to be actuated by the lumber cut by said saw, substantially as described.



6. In a lumber-trimming device, the combination with the main frame of the machine, of a movable or swinging frame mounted on said frame, a saw journaled in said movable frame, a register, a star-wheel for operating said register mounted in a swinging support connected with the said saw-support, whereby the moving of said saw-support to place the said saw in operative position causes the star-wheel to swing into position to be actuated by the lumber cut by said saw, substantially as described.

7. In a lumber-trimming device, the combination with a series of movable saws normally out of operative position, a register having an actuating mechanism for each saw including a star-wheel, each of said star-wheels being normally out of operative position and connected with devices for moving one of said saws, whereby the moving of one of the said saws into operative position brings the connected star-wheel of the measuring device into position to be actuated by the lumber cut by said saw, substantially as described.

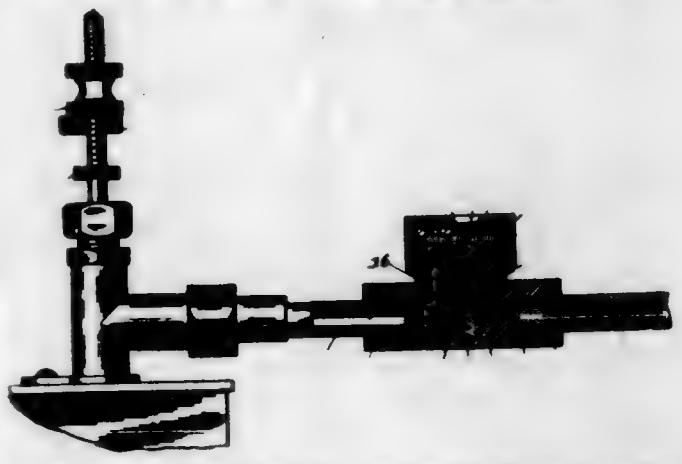
8. In a lumber-trimming device, the combination with a series of movable saws normally out of position, of a register, a shaft for actuating said register, a series of star-wheels one for each saw connected to said shaft to operate the same, said star-wheels being normally out of operative position and connected severally with said movable saws and each adapted to be moved into operative position with its appropriate saw, substantially as described.

9. In a lumber-trimmer, the combination with the stationary saw, and the movable saws, of a register, operating devices therefor including a star-wheel for each movable saw, each of said star-wheels being located between the movable saw with which it is associated and the said stationary saw, substantially as described.

10. In a lumber-trimmer, the combination with a stationary saw, a series of movable saws, and independent devices for throwing each of said movable saws into and out of operative position, of a register, a series of movable devices connected therewith, each adapted to be engaged by the lumber to move the register a different distance, one of said movable devices being located adjacent to each saw, and mechanism connecting each of said movable devices with the devices connected with its adjacent and corresponding movable saw, for moving said movable device into and out of operation with its corresponding saw, substantially as described.

11. In a lumber-trimmer, the combination with a stationary saw, a series of movable saws, and independent devices for throwing said movable saws into and out of operative position, of a register, a series of rotary devices of different diameters operatively connected with said register and adapted to engage the lumber when in operative position, one of said rotary devices being movably mounted adjacent to each movable saw, and devices for throwing each of said rotary devices into and out of operative position simultaneously with its adjacent movable saw, substantially as described.

694,406. LUBRICATOR. BENJAMIN T. MCCANNA and THOMAS A. DELANEY, Chicago, Ill., assignors to Hills-McCanna Company, Chicago, Ill. Filed Nov. 15, 1901. Serial No. 82,468. (No model.)



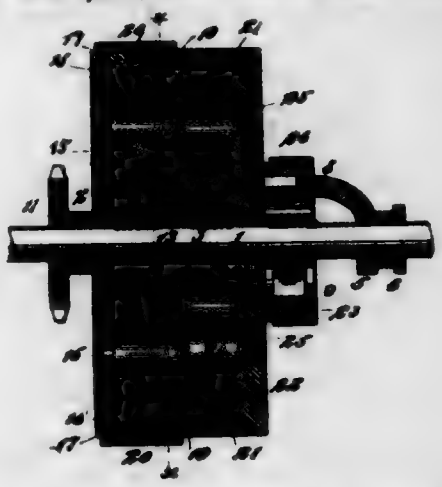
Claim.—1. A sight-feed for a force-feed lubricator, comprising in combination, an oil-duct, a transparent portion thereof, and a movable indicator contiguous to said transparent portion, moved by the movement of the oil, and adapted by its position to indicate the flow or non-flow of the oil, substantially as set forth.

2. A sight-feed comprising in combination, an oil-duct, a transparent portion thereof, a movable indicator normally against said transparent portion and adapted by the flow of oil to be forced away therefrom, and a spring to resist such tendency of the oil, whereby said indicator, by its obscuration or visibility indicates the flow or non-flow of the oil, substantially as set forth.

3. A sight-feed comprising in combination, an oil-duct, a glass section thereof, a plunger normally in view through said glass and adapted to be thrown out of view by the flow of the oil through the duct, and a spring to maintain said plunger in its normal position, substantially as set forth.

4. A sight-feed comprising in combination, an oil-duct, a chamber in said duct, a glass wall to said chamber, a plunger moving in said chamber, and a spring to press said plunger toward said glass wall, substantially as set forth.

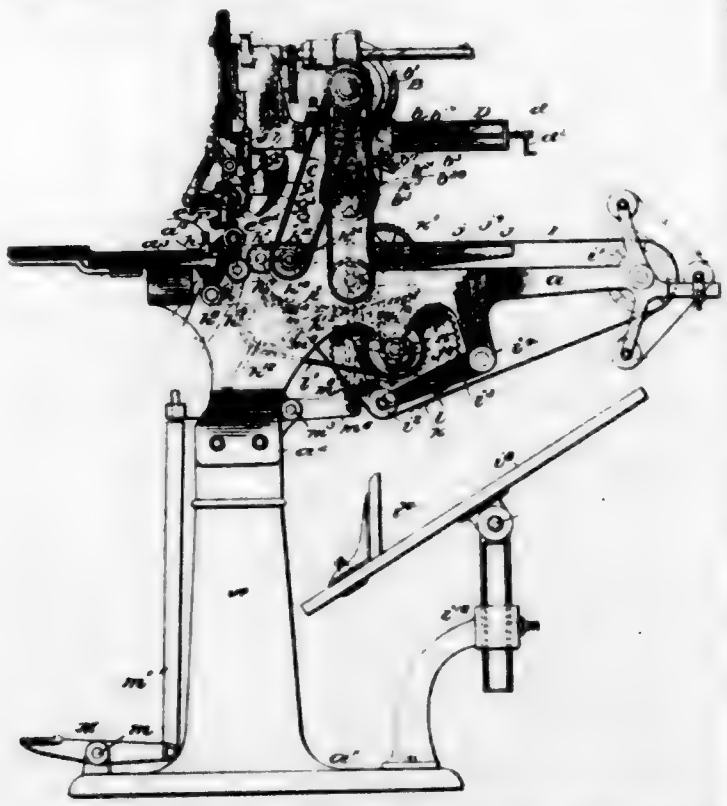
694,407. SPEED-CHANGING GEAR. GEORGE H. MCELROY, New York, N. Y. Filed Apr. 13, 1901. Serial No. 55,445. (No model.)



Claim.—In a device of the character herein specified, the combination with the driving-shaft, two gear-wheels and a clutch fixed thereon, of a disk 22 provided with a brake-ring 23 projecting from the face thereof; a brake arranged to engage the periphery of said ring, the clutch engaging within the ring; the studs secured to said disk and three intermediate gears carried thereby; a disk 13 provided with internal gear 21; a disk 12 pinned to the disk 13; three intermediate gears located upon studs engaging with the disks 12 and 13; an internal gear 17; a brake-band around the periphery of the said internal gear, and a sprocket-wheel connected to the disk 12, substantially as shown and described.

694,408. NUMBERING-MACHINE. JOHN F. MCHUGH, Warren, Ohio, assignor to the Harris Automatic Press Company, Niles, Ohio, a Corporation of Ohio. Filed May 25, 1898. Serial No. 681,675. (No model.)

Claim.—1. In a numbering-machine, a carrier for the numbering-head, a frame in which said carrier is mounted, means for reciprocating said carrier vertically, a support for said frame, an adjusting-rod for effecting the longitudinal adjustment of said frame in relation to its said support, and a second adjusting-rod for adjusting said support transversely of the machine, substantially as set forth.



2. The combination with the numbering-head and the carrier therefor, of pivoted arms depending from said carrier having lower flanged ends, plates adjustably held to said ends, ink-rollers having their journals resting on said plates, adjusting-screws in said flanged ends bearing on said journals, an ink-distributing plate, and means for moving said arms and rollers rearward when said carrier is lowered, substantially as set forth.

3. The combination with the numbering-head, the ink-rollers, and the swinging carrier therefor, of an ink-distributing plate mounted in rear of said head, a rod engaging said plate, and means for partly rotating said rod alternately in opposite directions for shifting said plate laterally on its support, as set forth.

4. The combination with the numbering-head, the ink-rollers, and the swinging carrier therefor, of an ink-distributing plate having a groove, a support for said plate fitting in said groove, a rod engaging said plate, and means for partly rotating said rod alternately in opposite directions, as set forth.

5. The combination with the numbering-head, the carrier therefor, the ink-rollers and their swinging carrier mounted on said former carrier, of a shiftable ink-plate supported by said former carrier, an upright rod movable with the latter and having a fork on its lower end for engaging and shifting said plate, and means for partly rotating said rod alternately in opposite directions, as set forth.

6. The combination with the numbering-head, the carrier therefor, the ink-rollers and their swinging carrier mounted on said former carrier, of a shiftable ink-plate supported by said former carrier, an upright rod movable with the latter and having a fork on its lower end for engaging and shifting said plate, fingers projecting laterally from the upper end of said rod, and a rotary disk having a lug designed to engage said fingers and partly rotate said rod alternately in opposite directions, substantially as set forth.

7. The combination with the numbering-head, the carrier therefor, the ink-rollers and their swinging carrier mounted on said former carrier, of a shiftable ink-plate having a rib formed with a groove, a vertically-disposed sleeve supported by said former carrier and having a projection extended into said groove, an upright rod extended through said sleeve and having a fork on its lower end engaging said rib, a collar on said rod above said sleeve, fingers projecting laterally from said rod, and a rotary disk having a lug designed to engage said fingers and partly rotate said rod alternately in opposite directions, substantially as set forth.

8. The combination with the operating-shaft, the crank-shaft driven thereby and having a gear-wheel thereon, of a numbering-head, the carrier therefor, the frame for said carrier, a short shaft mounted in said frame and having a gear-wheel meshing with said former gear-wheel, a disk on said short shaft having a lug on its front face, ink-rollers, a carrier therefor, an ink-plate, an upright rod having a fork engaging said plate and provided at its upper end with laterally-projecting fingers designed to be engaged by the lug on said disk, as set forth.

9. A numbering-machine having a series of feed-rolls normally out of engagement, and means for intermittently throwing said rolls into frictional contact, in combination with a series of stops means for periodically positioning said stops in and removing them from the feed-line and means for timing the operation of said feed-rolls relatively to the operation of the stops, as set forth.

10. A numbering-machine having a series of coacting feed-rolls normally out of engagement, gearing between said feed-rolls and means connected to one feed-roll of each series for intermittently throwing said rolls into frictional contact, in combination with a series of stops means for periodically positioning said stops in and removing them from the feed-line and means for timing the operation of said feed-rolls relatively to the operation of the stops, as set forth.

11. A numbering-machine having a frame, a series of coacting feed-rolls normally out of engagement, longitudinally-adjustable shafts for said feed-rolls, intermeshing gear-wheels for said shafts, held in fixed relation to said frame, and means for acting on the shaft of one feed-roll of each series, for intermittently throwing the rolls into frictional contact, as set forth.

12. A numbering-machine having a frame, a series of coacting feed-rolls normally out of engagement, separate shafts for said feed-rolls each of said shafts being longitudinally adjustable, gearing between the shafts of each series, held in fixed relation to said frame, a movable bearing for one of the shafts of each series of feed-rolls, and means for intermittently moving such bearings, as set forth.

13. A numbering-machine having coacting feed-rolls, intermeshing gear-wheels for rotating said rolls, a shaft for throwing said feed-rolls into and out of engagement, an arm on said shaft, and means for engaging said arm for holding the rolls in frictional contact, such means being capable of being adjusted to regulate the extent of such contact, as set forth.

14. A numbering-machine having coacting feed-rolls, shafts therefor, a movable bearing for one of said shafts, a shaft to which said bearing is connected, an arm on said latter shaft, a cam having peripheral lugs with which said arm engages, and means for increasing or lessening the lengths of such lugs, as set forth.

15. A numbering-machine having upper and lower shafts, feed-rolls on said shafts, an adjustable bracket supporting one of such shafts and having a vertical opening, a bearing for the other shaft having a depending portion fitted in said vertical opening, a shaft having an arm to which said depending portion is secured, an arm on the outer end of said latter shaft, and a cam engaging said latter arm, substantially as set forth.

16. In a numbering-machine, the combination with the main frame, of shafts having coacting feed-rolls on their inner ends, sleeves mounted in the sides of said frame having at one end intermeshing gear-wheels splined on said shafts, adjustable brackets having openings for one of said shafts, movable bearings for the other one of said shafts, a shaft having arms to which said bearings are secured, an arm on one end of said latter shaft and a cam engaging said latter arm, substantially as set forth.

17. In a numbering-machine, the combination with the main frame having a table extended across one end, of brackets adjustably secured to said table and having openings in their lower ends and also formed with vertical openings, upper and lower shafts having feed-rolls, said upper shafts being supported by said frame and brackets, movable bearings for said lower shafts, fitted in said vertical openings, a shaft mounted in said frame and extended through the lower openings in said bearings, arms thereon supporting said movable bearings, an arm on one end of said shaft, and a cam having peripheral lugs with which said latter arm engages, substantially as set forth.

18. The combination with the coacting feed-rolls, of means for throwing the same into frictional contact, such means comprising an arm and a cam with which such arm engages, such cam being formed in sections, axially adjustable, and having peripheral lugs, as set forth.

19. The combination with the feed-rolls, and the movable bearing for one of the rolls, of a shaft to which said bearing is connected, an arm on the end of said shaft, and a cam formed in two sections, axially adjustable and having peripheral lugs, as and for the purpose set forth.

20. In a numbering-machine, a plurality of stops arranged at different points between the receiving and discharging ends of the machine, such stops being normally out of the line of travel, in combination with means for intermittently feeding the stock, such stock being fed between the removal of one stop from, and the placing of another stop in, the line of travel, as set forth.

21. In a numbering-machine, a plurality of stops arranged at different points between the receiving and discharging end of the machine, such stops being normally on a uniform plane out of the line of travel of the stock, means for successively raising each of said stops into the line of travel as a precedingly-raised stop is removed from such line of travel, in combination with means for intermittently feeding the stock, such stock

being fed between the withdrawal of one stop from, and the raising of another stop into, the line of travel of the stock.

22. In a numbering-machine, a series of bars, a series of stops adjustably secured on said bars at different distances from the receiving end of the machine, such stops being normally out of the line of travel of the stock, and means for engaging each of said bars for periodically and successively throwing such stops across such line of travel, as set forth.

23. In a numbering-machine, a series of bars, a series of stops adjustably secured on the upper edges of said bars, such stops being at different distances from the receiving end of the machine, each of said bars having a depending portion, a bracket for holding said bars, and a series of cams, one for each bar, for periodically and successively raising the latter, as set forth.

24. In a numbering-machine, a series of stop-bars having upper horizontal portions formed with longitudinal grooves and central depending portions, stops adjustably held in said grooves, a bracket in which said depending portions are held, a cross-bar supporting said bracket, and a rotary shaft having a series of cams corresponding to said stop-bars for periodically raising the latter, substantially as set forth.

25. A printing-machine having reciprocating printing mechanism, a series of spaced-apart stops with each of which the stock is designed to successively engage, means for withdrawing each stop after each imprint, means for periodically feeding the stock over the printing-field between the imprints, and means for operating such feeding means between the removal of one stop from, and the placing of another stop in, the line of travel.

26. A numbering-machine having a series of stops normally out of the line of travel of the stock, a shaft having cams corresponding to said stops for successively placing the same across such line of travel, feed-rolls normally out of contact, means for periodically throwing said feed-rolls into frictional contact, and means for operating said cam-carrying shaft, substantially as set forth.

27. A numbering-machine having a series of stops normally out of the line of travel of the stock, a shaft having cams corresponding to said stops for successively placing the same across such line of travel, feed-rolls normally out of contact, a shaft for throwing said feed-rolls into frictional contact, an arm on said shaft, a cam driven by said first-mentioned shaft and having peripheral lugs corresponding to the number of said stops, said arm being designed to be engaged by said lugs, substantially as set forth.

28. In a numbering-machine, a series of independent stops, arranged at different distances from the receiving end of the machine, a shaft having a series of cams for successively operating said stops, differential gearing on said shaft corresponding to said stops, and operating mechanism engaging said differential gearing, as and for the purpose set forth.

29. In a numbering-machine, a series of independent stops, arranged at different distances from the receiving end of the machine, a shaft having a series of cams for successively operating said stops, differential gearing on said shaft corresponding to said stops, a rotating shaft having a gear-pinion and an arm concentric with said shaft carrying an intermediate gear-wheel meshing with said pinion and said differential gearing, as set forth.

30. In a numbering-machine, a series of independent stops, a shaft having a series of cams for operating said stops, differential gearing on said shaft corresponding to said stops, a rotating shaft having a gear-pinion capable of being adjusted longitudinally thereon, an arm having a sleeve adjustable on said latter shaft and an intermediate gear-wheel intermeshing with said pinion and said differential gearing, as set forth.

31. In a numbering-machine, a series of independent stops, a shaft having a series of cams for operating said stops, differential gearing on said shaft corresponding to said stops, a rotating shaft having a gear-pinion capable of being adjusted longitudinally thereon, an arm having a sleeve adjustable on said latter shaft, a flanged plate projecting from said sleeve holding said gear-pinion, means for holding said arms, and an intermediate gear-wheel mounted on the outer end of said arm meshing with said pinion and differential gearing, substantially as set forth.

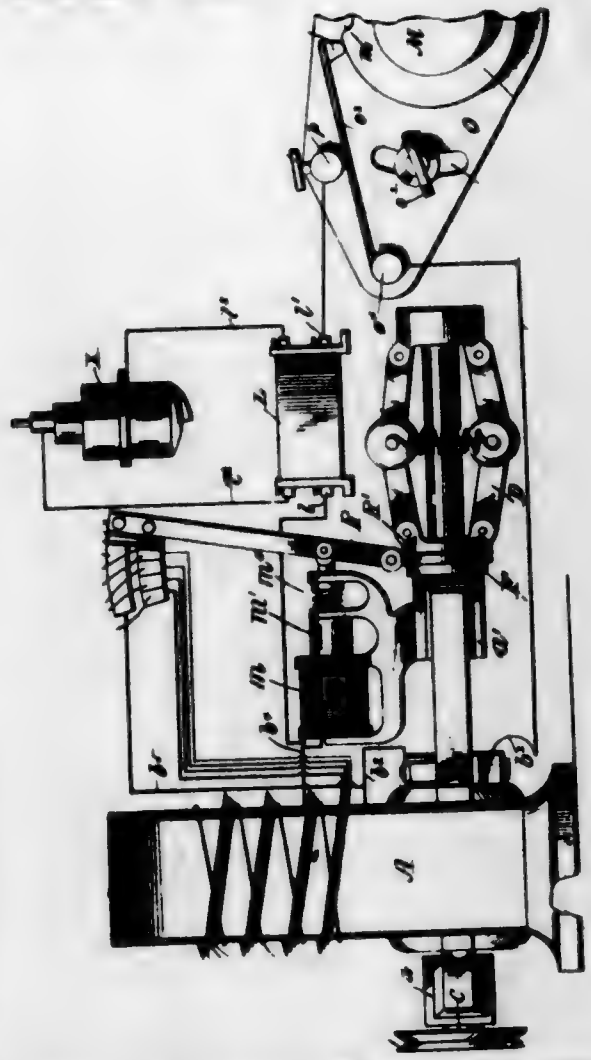
32. In a numbering-machine having a table across its front end, a bar, or bars, extended transversely over said table having tapered edges, tympan-blocks having grooves accommodating said bars, screws for holding said blocks, coverings for each of said blocks, and frames surrounding said blocks for holding said covering, substantially as set forth.

33. In a numbering-machine having a main frame, and a rotary shaft provided with pulleys, tapes passed over said pulleys and extended horizontally within said frame along the line of travel of a sheet to be printed, a drum supported by said frame at the rear end thereof over which said tapes are passed, a lower drum bearing on said tapes, pivoted arms therefor, a series of rollers also supported by said frame, two of said rollers being above and below said first-mentioned drum, respectively, a third roller being on a line with said drum and having adjustable supports for its bearings, and a lower receiving-table, as set forth.

34. A numbering-machine having its main operating-shaft provided with a clutch, a foot-treadle having a rod for releasing said clutch, and provided with a rocking member having a projecting arm, a pivoted arm for engaging said former arm, and means for releasing said arms, as set forth.

35. A numbering-machine having its main operating-shaft provided with a clutch, a foot-treadle, a rocking member to which said treadle is connected, a rod connected to said member, a pivoted arm having an upper weighted portion and designed to engage said former arm at its lower end, and a rotary shaft having an arm thereon designed to engage said pivoted arm and release the same from engagement with said former arm, substantially as set forth.

694,409. ELECTRIC IGNITING APPARATUS FOR EXPLOSIVE-ENGINES. SAMUEL F. NEILL, Bradford, Pa. Filed Feb. 26, 1901. Serial No. 48,986. (No model.)



Claim.—1. In an explosive-engine, the combination with an igniting device, of an electric generator therefor provided with a series of demagnetizing-coils of different resistances and a circuit-controller connected with said coils, substantially as described.

2. In an explosive-engine, the combination with an igniting device, of an electric generator therefor, provided with coils for increasing the normal magnetism of the field-magnets and coils for demagnetizing said field-magnets, a circuit-controller for said coils and a governor, operatively connected to said circuit-controller, substantially as described.

3. In an explosive-engine, the combination with an igniting device, of an electric generator therefor, provided with coils for increasing the normal magnetism of the field-magnets, a series of coils for demagnetizing said field-magnets, means for cutting in said magnetizing and demagnetizing coils, and means for successively cutting out said demagnetizing-coils, substantially as described.

4. In an explosive-engine, the combination with an igniting device, of an electric generator therefor, provided with coils for increasing the normal magnetism of the field-magnets, a series of coils for demagnetizing said field-magnets, a circuit-controller for cutting in said magetizing-coils and of said demagnetizing-coils and cutting them out successively, and a governor operated by the engine for actuating said circuit-controller.

5. In an explosive-engine, the combination with an igniting device, of an electric generator therefor, provided with coils for increasing the normal magnetism of the field-magnets, and a series of demagnetizing-coils of different resistances and a circuit-controller connected with said coils, substantially as described.

6. In an explosive-engine, the combination with an igniting device, of an electric generator therefor provided with coils for increasing the normal magnetism of the field-magnets and a series of demagnetizing-coils of different resistances, a circuit-controller connected with said coils and a governor operated by the speed of the engine, operatively connected with said circuit-controller, substantially as described.

7. In an explosive-engine, the combination with an igniting device, of an electric generator therefor provided with a magnetizing-coil for increasing the normal magnetism of the field-magnets and a series of demagnetizing-coils, one of which is constructed to neutralize the magnetizing-coil, a circuit-controller connected with said coils, and a governor for actuating said circuit-controller, substantially as described.

8. In an explosive-engine, the combination with an igniting device, of an electric generator therefor provided with a magnetizing-coil for increasing the normal magnetism of the field-magnets, and a series of demagnetizing-coils, of graduated resistances, one of which is constructed to neutralize the magnetizing-coil, a circuit-controller connected with said coils and arranged to cut in separately the magnetizing-coil, and all the demagnetizing-coils and to cut out successively the demagnetizing-coils, and a governor operatively connected with said circuit-controller, substantially as described.

9. In an explosive-engine, the combination with an igniting device, of an electric generator therefor provided with a magnetizing-coil and a series of demagnetizing-coils, a circuit-controller connected with said coils and a governor operated by the engine connected with said circuit-controller and an independent electric governor connected with said circuit-controller, substantially as described.

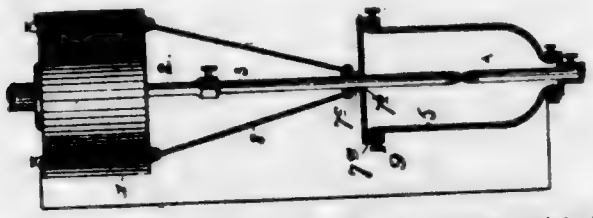
10. In an explosive-engine, the combination with an igniting device, of an electric generator therefor provided with a magnetizing-coil and a series of demagnetizing-coils, a circuit-controller provided with contacts, separately connected to said coils, a movable switch-lever, an electric governor having a movable part pivotally connected to said switch-lever, said pivotal connection forming the normal fulcrum of said lever, and a governor operated by the engine connected with said lever, substantially as described.

11. In an explosive-engine, the combination with the igniting device, of an electric generator therefor, provided with auxiliary magnetizing and demagnetizing coils, a circuit-controller for said coils and a governor for operating said circuit-controller, of a cam on a shaft operated by the engine, a plate adjustable around said shaft, an igniter-operating device mounted on said plate and operatively engaging said cam, and connections between said igniter-operating device and the igniting device substantially as described.

12. In an explosive-engine, the combination with an igniting device, of an electric generator therefor provided with an auxiliary magnetizing-coil for increasing the normal magnetism of the field-magnets and a series of demagnetizing-coils, a circuit-controller connected to said coils, a movable switch-lever for said circuit-controller, a governor operated by the engine connected to said switch-lever, a solenoid located in the main circuit of the generator, a movable core therefor and connections between said core and said switch-lever, substantially as described.

13. In an explosive-engine, the combination with an igniting device, of an electric generator therefor provided with an auxiliary magnetizing-coil for increasing the normal magnetism of the field-magnets and a series of demagnetizing-coils, a solenoid located in the main circuit of the generator, a movable core therefor, a spring holding said core in one position, a circuit-controller for said coils having a movable switch-lever pivoted to said core, and a governor operated by the engine and operative connections between said governor and said switch-lever located in a different plane from its pivotal connection with said core, substantially as described.

694,410. ELECTRIC-ARC LAMP. MOSES S. OKUN, New York, N. Y. Filed Sept. 16, 1896. Renewed Aug. 20, 1901. Serial No. 72,693. (No model.)



Claims.—1. An arc-lamp provided with an arc-inclosing globe having an opening for the passage of a carbon, means to support the globe and to permit it to have motion of translation laterally, and a lower-carbon carrier connected with the globe to move therewith.

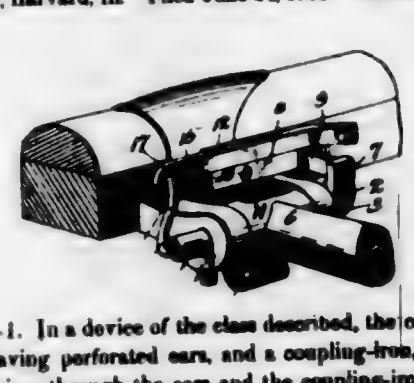
2. An arc-lamp provided with an arc-inclosing globe having an opening for the passage of a carbon, means to support the globe and to permit it to have motion of translation laterally as well as lateral oscillatory or pivotal movement, and a lower-carbon carrier connected with the globe to move therewith.

3. An arc-lamp provided with an arc-inclosing globe having an opening for the passage of a carbon, means to support the globe and to permit it to have a progressive movement laterally, and a lower-carbon carrier connected with the globe to move therewith.

4. In an arc-lamp, a regulating mechanism, a globe and a flexible connection between said globe and said mechanism to allow the globe to have movement independent of said mechanism to permit adjustment of the globe relatively to a carbon, the globe having an opening for the passage of a carbon, and a lower-carbon carrier connected with the globe to move therewith.

5. In an arc-lamp, a regulating mechanism, a globe, and a movable or yielding suspension-support connecting said mechanism with said globe to permit adjustment of the globe relatively to a carbon, the globe having an opening for the passage of a carbon, and a lower-carbon carrier connected with the globe to move therewith.

694,411. THILL-COUPLING. MORRIS OLORA, Harvard, Ill., assignor, by direct and mesne assignments, of three-fourths to Charles W. Young, Harvard, Ill. Filed June 24, 1901. Serial No. 66,861. (No model.)



Claim.—1. In a device of the class described, the combination with an axle-clip having perforated ears, and a coupling-iron, of a transverse pivot-bolt passing through the ears and the coupling-iron, a cushion arranged at the back of the coupling-iron and engaging the same, a transverse bar located above the said ears and pivotally connected with the bolt and carrying the cushion, a lever fulcrumed on the bar, and a hook connected with the lever and arranged to engage one of the perforated ears, substantially as described.

2. In a device of the class described, the combination with an axle-clip, perforated ears, and a coupling-iron, of a pivot-bolt passing through the ears and the coupling-iron, a transverse bar located above the perforated ears and in rear of the coupling-iron and pivotally connected with the pivot-bolt, a cushion located in rear of the coupling-iron and engaging the same and secured to the transverse bar, a lever pivoted to the transverse bar and extending longitudinally thereof, and a hook secured to the lever and depending therefrom and arranged to engage one of the perforated ears, substantially as described.

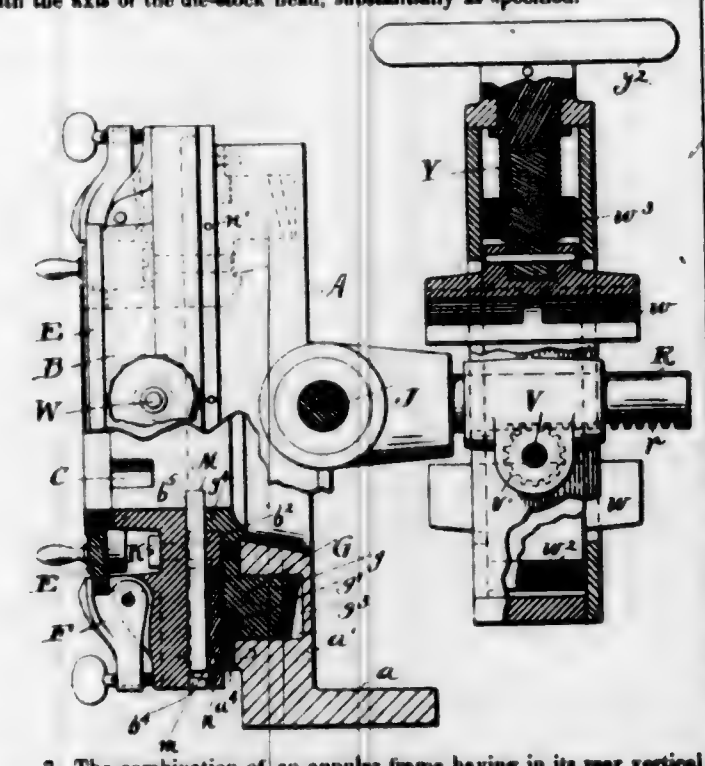
3. A device of the class described comprising a coupling-bolt having an upwardly-extending arm, a transverse bar located in rear of the bolt and provided with a forwardly-extending arm pivoted to the arm of the bolt, a cushion depending from the bar, a bell-crank lever fulcrumed on the bar at the free end thereof and arranged to be supported by the same, and a depending hook carried by the lever, substantially as and for the purpose described.

694,412. THREAD-CUTTING MACHINE. HERMAN W. OSTER, Cleveland, Ohio, assignor to the Oster Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. Filed Dec. 5, 1901. Serial No. 84,777. (No model.)

Claim.—1. The combination of an annular frame having in its rear face an annular recess, and a rotatable member consisting of two parts which are rigidly secured together, to wit, a die-stock head, and the member G having a forwardly-projecting cylindrical flange which is rotatably mounted in the annular recess in the frame and has gear-teeth on its front face, said compound rotatable member having a cylindrical portion b^2, a cam-ring rotatably mounted thereon, means for rigidly fastening said cam-ring to said member, and a plurality of radially-movable guide-blocks mounted in said compound member, which blocks and cam-ring engage substantially as described, whereby the turning of the cam-ring moves said guide-blocks inwardly and outwardly, a cutting-off tool movably mounted in said head, operating mechanism for said tool, a rotatable shaft mounted in the frame, and a gear secured thereto and engaging with the gear on the member G, substantially as specified.

2. The combination of an annular frame having in its rear face an annular recess, an annular member G having a cylindrical flange which is rotatably mounted in said recess and has bevel-gear teeth on its front face, a die-stock head which is secured to the member G and has a cylindrical portion b^2 adjacent to said member, a cam-ring rotatably mount-

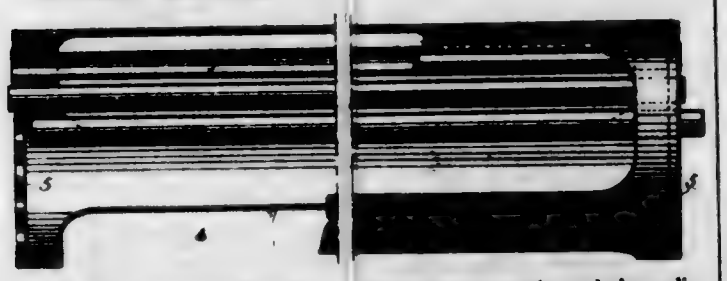
ed on said cylindrical portion and lying between the member G and the die-stock head, a plurality of radially-movable guide-blocks which are supported by said head and which engage with and are operated by said cam-ring, and mechanism for locking said cam-ring to the die-stock head, a cutting-off tool movably mounted in said head, operating mechanism for said tool, a bevel-gear mounted in said frame and engaging with the bevel-gear teeth on the member G, a vise which is slidable in a path parallel with the axis of the die-stock head, substantially as specified.



3. The combination of an annular frame having in its rear vertical face an annular recess, and an annular member G having a cylindrical flange which is rotatably mounted in said recess and is provided with beveled-gear teeth on its front face, said member having also an annular rabbet in its outer edge, and an annular gib fixed to the frame and engaging in said rabbet, a die-stock head secured to the member G and having adjacent thereto a cylindrical portion b^2, a cam-ring rotatably mounted upon said cylindrical portion, a plurality of guide-blocks supported by and radially movable in the die-stock head, said ring having in its rear face cam-grooves, and the guide-blocks having pins which project into said grooves, means for locking the cam-ring to the die stock head, a cutting-off tool movably mounted in said head, operating mechanism for said tool, and a beveled gear mounted in the frame and engaging with the bevel-gear teeth on the member G, substantially as specified.

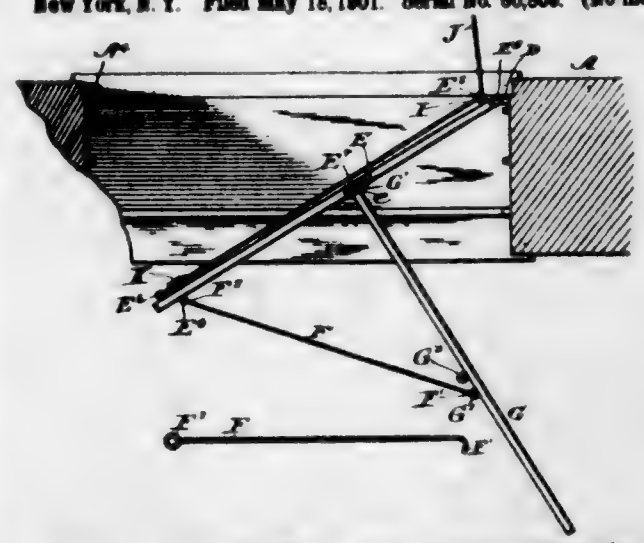
4. The combination of an annular frame having in its rear face an annular recess, a member G having a cylindrical flange which is rotatably mounted in said recess and has bevel-gear teeth on its front edge, a bevel-gear mounted in the frame and engaging with said gear-teeth, a die-stock head secured to the member G and having adjacent thereto a forwardly-projecting cylindrical portion b^2, a plurality of guide-blocks supported by and radially movable in the die-stock head, a cam-ring rotatably mounted upon the cylindrical portion b^2 and provided on its rear face with cam-grooves which receive pins secured to the guide-blocks, said ring having an arc-shaped recess in its front face and an arc-shaped slot through said recessed portions, and a clamping-bolt passing through said slot and through the die-stock head, and having its head fitted into the arc-shaped groove in the cam-ring, and a nut screwed to the projecting end of said bolt whereby to lock the cam-ring to the die-stock head, substantially as described.

694,413. ASSEMBLING-FRAME FOR STEAM-BOILERS. EDWARD J. PENNINGTON, London, England. Filed June 10, 1901. Serial No. 64,083. (No model.)



Claim.—An assembling-frame for use in constructing tubular cylindrical boilers, condensers, or the like, consisting of an open frame combined with concentric cylindrical ends of different internal diameters, said heads being cut with equally-pitched threads, substantially as set forth.

694,414. CLOTHES-LINE APPARATUS. HENRY PERDREAUX, New York, N. Y. Filed May 18, 1901. Serial No. 60,808. (No model.)

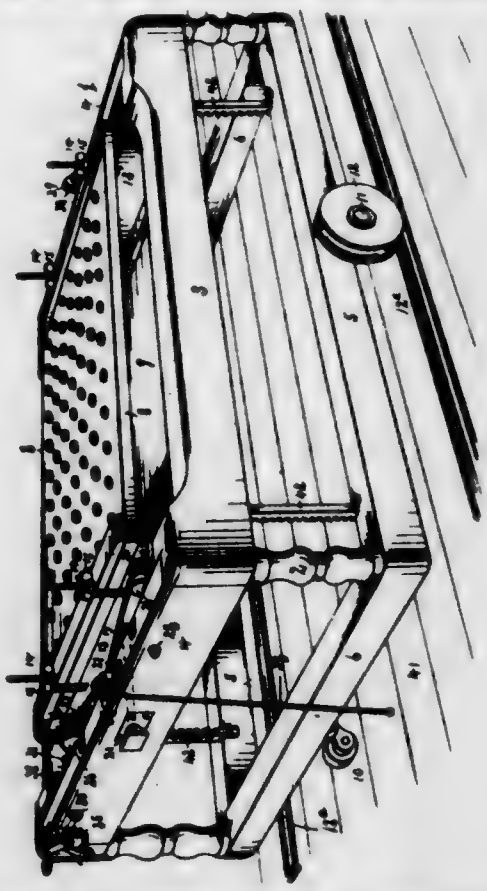


Claim.—1. In a clothes-line apparatus, a horizontally-turning crane provided with pintles E^3 and E^4 for pivotally engaging with suitable eyes D D′ in one side of a window-opening, and the eye E^5 for engaging a clothes-line pulley, in combination with said eyes D D′ and said pulley and with the detachable arm G and means for engaging it with the arm E for holding it, and with the oblique detachable brace F, substantially as herein specified.

2. In a clothes-line apparatus, a horizontally-swinging crane pivotally engaged with one side of a window-opening, and means E^5 for engaging a clothes-line pulley, in combination with the eyes E^3 E^4 on the upright E′ and the cord I and cleat E^{10}, all arranged to serve substantially as herein specified.

3. The clothes-line apparatus described, comprising a clothes-line and an inner and an outer pulley, a horizontally-swinging crane arranged to extend as required from the window-opening into the apartment, pintles E^3 E^4 thereon, eyes D D′ on one side of the window-opening and a stop A^4 on the other side thereof, an eye E^5 on said crane for conveniently engaging the inner pulley K therewith and disengaging at will, a detachable arm G and a brace F for stiffly connecting such arm with the crane, the bracket A^3 and locking means H for holding the whole reliably during the loading or unloading of the clothes-line, and the flexible means I for holding the clothes-line near the axial line of the crane when it is swung, all combined and arranged to serve substantially as herein specified.

694,415. BOTTLING-TABLE. WILLIAM M. PRELAR, Osceola Mills, Pa. Filed May 8, 1901. Serial No. 59,311. (No model.)



Claim.—1. A table comprising an open frame, a top mounted within and adapted to move through the open frame, pivots detachably en-

gaging the top and adapted to permit the same to be rotated, and hoisting mechanism connected with the top for raising and lowering the same, substantially as and for the purpose described.

2. A table comprising an open frame, a top arranged within and adapted to move through the open frame and provided with a pair of trays and adapted to receive bottles, pivots mounted on the frame and detachably engaging the top, and hoisting mechanism for raising and lowering the top when the pivots are withdrawn, substantially as described.

3. A table comprising an open frame, a top arranged within and adapted to move through the open frame, pivots detachably engaging the top, drums arranged in pairs and located at the ends of the top, flexible connections arranged on the drums and detachably secured to the top, and means for rotating the drums, substantially as described.

4. A table comprising an open frame, a reversible top arranged within and capable of vertical movement through the open frame, means for detachably pivoting the top to the frame, and hoisting mechanism detachably connected with the top, substantially as described.

5. A table comprising an open frame, a reversible top detachably pivoted within the frame and adapted to move through the same, and means for raising and lowering the top, substantially as described.

6. A table comprising an open frame, a top arranged within the open frame and adapted to move through the same, pivots supporting the top, drums arranged in pairs at the ends of the table, flexible connections arranged on the drums and detachably secured to the top, gearing connecting the drums of each pair, and means for operating the gearing, substantially as described.

7. A table comprising an open frame, a reversible top arranged within and adapted to move through said frame, drums arranged in pairs at the ends of the top, flexible connections extending across the table and secured to the top and connected with the drums, gearing connecting the drums of each pair, a longitudinal shaft arranged at one side of the table, gears connecting the shaft with the said gearing, and means for operating the shaft and for locking the top of the table in its adjusted position, substantially as described.

8. A table comprising a frame, a reversible top, the short shafts arranged in pairs at the ends of the table, the drums mounted on the short shafts, flexible connections arranged on the drums and connected with the top of the table, pulleys arranged on the said short shafts and connected with the drums, the crossed belts connecting the pulleys, the longitudinal shaft arranged at one side of the table, and gearing connecting the longitudinal shaft with the adjacent pulleys, substantially as described.

9. A table comprising an open frame, a reversible top arranged within and adapted to move through the open frame, rack-bars arranged at opposite sides of the frame, pinions mounted on the top and meshing with the rack-bars, and means for raising and lowering the top, substantially as described.

10. A table comprising an open frame, a reversible top arranged within and adapted to move through the open frame, means for raising and lowering the top, and the counterbalancing-weights having flexible connections detachably secured to the top, substantially as described.

11. A table comprising an open frame, a reversible top arranged within and adapted to move through the open frame, pulleys mounted on the frame, the counterbalancing-weights having flexible connections arranged on the pulleys, and secured to the top, and means for raising and lowering the top, substantially as described.

12. A table comprising an open frame, a reversible top capable of vertical movement through the said frame and located within the same, means for raising and lowering the top, rack-bars mounted on the frame, pinions carried by the top and meshing with the rack-bars, and the counterbalancing-weights connected with the top, substantially as described.

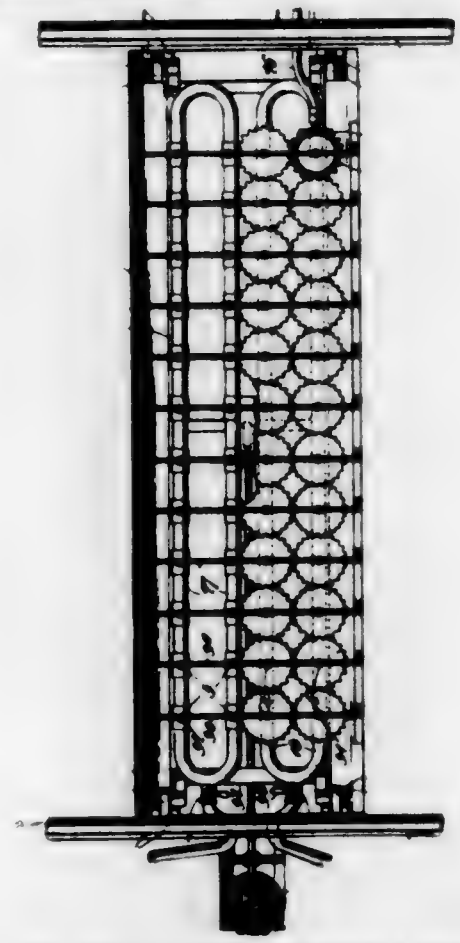
694,416. BOTTLE WASHER AND RINSER. WILLIAM M. PHELAN, Osceola Mills, Pa. Filed Sept. 3, 1901. Serial No. 74,133. (No model.)

Claim.—1. A machine of the class described comprising a vertically-movable frame designed to be arranged below the floor or other supporting-surface, and provided with a series of nozzles adapted to be introduced into and removed from the bottles or other receptacles by the vertical movement of the frame, means for raising and lowering the frame, and a supply-pipe connected with the nozzles, substantially as described.

2. In a machine of the class described, the combination with a track, and vertical guides located beneath the track, of a vertically-movable frame provided with a series of nozzles and having wheels arranged in the said guides, means for raising and lowering the frame, and a supply-pipe connected with the nozzles, substantially as described.

3. A machine of the class described comprising a vertically-movable frame designed to be arranged in a pit and adapted to lie normally below a track, said frame being provided with wheels, vertical ways arranged to receive the wheels, nozzles carried by the frame, and means for raising and lowering the latter, substantially as described.

4. A machine of the class described comprising a vertically-movable frame provided with nozzles, a supply-pipe connected with the nozzles, a lever fulcrumed between its ends and arranged to lift the frame, and a weight connected with the lever and adapted to partially counterbalance the frame, substantially as described.



5. A machine of the class described comprising a vertically-movable frame, the vertically-disposed rotary nozzles carried by the frame, a supply-pipe connected with the nozzles, and means for rotating the nozzles, substantially as described.

6. A machine of the class described comprising a vertically-movable frame, the vertically-disposed rotary nozzles mounted on the frame and provided with gears meshing with each other, a supply-pipe connected with the nozzles, a flexible shaft having a gear meshing with one of the said gears, and means for raising and lowering the frame, substantially as described.

7. A machine of the class described comprising a frame, a pipe mounted on the frame and having a nipple, a cap mounted on the nipple, a rotary nozzle having an enlargement arranged within the cap, antifriction balls supporting the enlargement of the nozzle, and means for rotating the latter, substantially as described.

8. A machine of the class described comprising a frame, a pipe mounted on the frame and having a nipple, a cap secured to the nipple, a nozzle having an annular enlargement arranged within the cap, antifriction-balls supporting the enlargement, the washers arranged above and below the balls, the packing located at the top of the cap, a washer interposed between the packing and enlargement, and means for rotating the nozzle, substantially as described.

9. A machine of the class described comprising the stationary braces, the vertically-movable frame provided with nozzles supported by the stationary braces, a supply-pipe connected with the nozzles, and means for raising and lowering the frame, substantially as described.

10. A machine of the class described comprising a stationary brace provided with a tubular guide having a seat adapted to receive the neck of the bottle, and a vertically-movable frame having a nozzle supported by the said guide, substantially as and for the purpose described.

11. A machine of the class described comprising the stationary braces provided with guides, the vertically-movable frame provided with washing and rinsing nozzles supported by the said guides and adapted to extend through the same, pipes connecting the nozzles, and gearing for rotating the washing-nozzles, substantially as described.

694,417. CULTIVATOR-SHOVEL. HENRY M. PHILLIPS, Spearville, Kans. Filed Dec. 12, 1901. Serial No. 86,662. (No model.)

Claim.—1. A cultivator-shovel of rectangular form, having its lower cutting edge substantially at right angles to its axis, and provided at its lower corners with outwardly-projecting pulverizing-points, substantially as described.

2. A cultivator-shovel having parallel side edges, a lower cutting edge adapted to run horizontally in the soil and outwardly-projecting pulverizing-points at its lower corners, substantially as described.

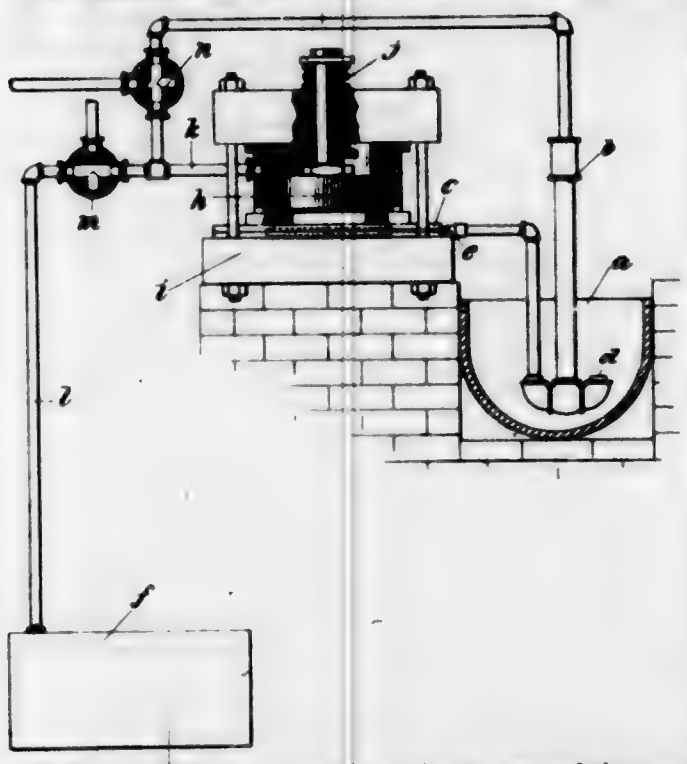


3. A cultivator-shovel having a lower, substantially horizontal cutting edge, and outwardly-projecting pulverizing-points at its lower corners, substantially as described.

4. A cultivator-shovel having outwardly-projecting rectangular pulverizing-points at its sides, substantially as described.

5. A cultivator-shovel of rectangular form having outwardly-projecting pulverizing-points at its lower corners and having one of its upper corners curved forwardly, so that the upper edge of the cultivator-shovel is obliquely disposed with reference to the lower edge thereof, substantially as described.

694,418. APPARATUS FOR CASTING LEAD. CARROLL POTTER, Philadelphia, Pa. Filed Sept. 18, 1900. Serial No. 30,380. (No model.)



Claim.—1. The combination of a supply of compressed air, a pneumatic pump, a piston and its cylinder for clamping molds, pipe connections from the air-supply to the cylinder, branch-pipe connections from the first-mentioned pipe connections to the pump, a three-way valve located on the supply side of the first-mentioned pipe connections, and a three-way valve located in the branch-pipe connections, substantially as described.

2. The combination of a pneumatic pump, a plunger and its cylinder for holding molds, a spring for lifting the plunger, the pipe for the pressure fluid, and pipe connections including valves and extending from said pipe to the pneumatic pump and to the cylinder, substantially as described.

694,419. GRAIN-TUBE CUP. WALTER C. REMAKER, Cynthiana, Ky. Filed Nov. 6, 1901. Serial No. 81,300 (No model.)

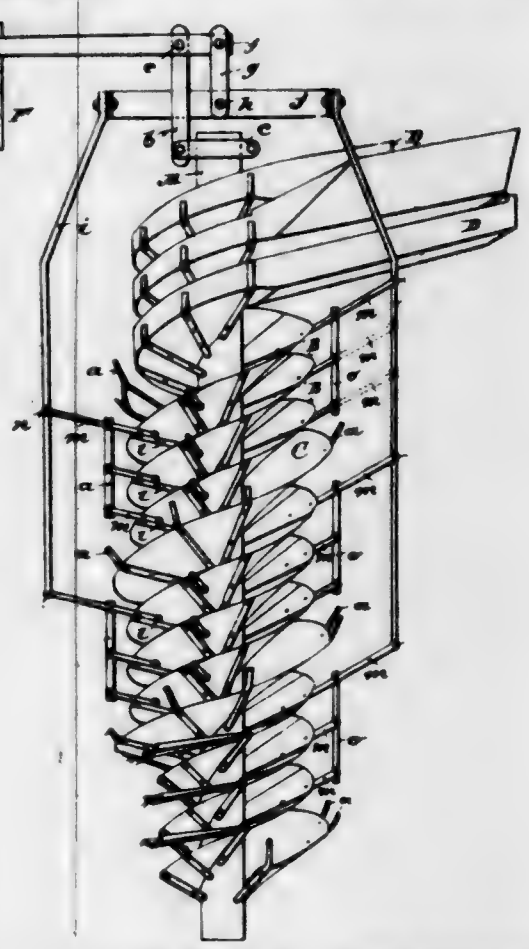
Claim.—1. As a new article of manufacture, a cup for grain-drill tubes, made from a thin metallic blank, with its side edges overlapping, substantially as described.

2. A cup for grain-drill tubes made from a thin metallic blank, with its side edges overlapping, and means for compressing the cup to vary its size, substantially as described.

3. A cup for grain-drill tubes made from a thin metallic blank, with its side edges overlapping, hooks on the lower end of the cup, and a coiled-wire tube screwed therein to secure same thereto, and to compress the cup to the proper diameter, substantially as described.



694,420. SEPARATOR FOR ORE, COAL, &c. JAMES H. RICE, Scranton, Pa., assignor to Anthracite Separator Company, Hazleton, Pa., a Corporation of Pennsylvania. Filed May 22, 1901. Serial No. 61,438 (No model.)



Claim.—1. In a separator for coal, &c., a suitably-supported spiral having loose overlapping segments in combination with means for changing the angle of the segments by tilting or lifting the overlapping radial edges thereof.

2. In a separator for coal, &c., a suitably-supported spiral having overlapping segments in combination with arms connecting with the radial overlapping edges of such segments, and rods to which said arms are pivotally secured, said rods being movable and adapted by their movements to change the angles of the segments with which they are connected.

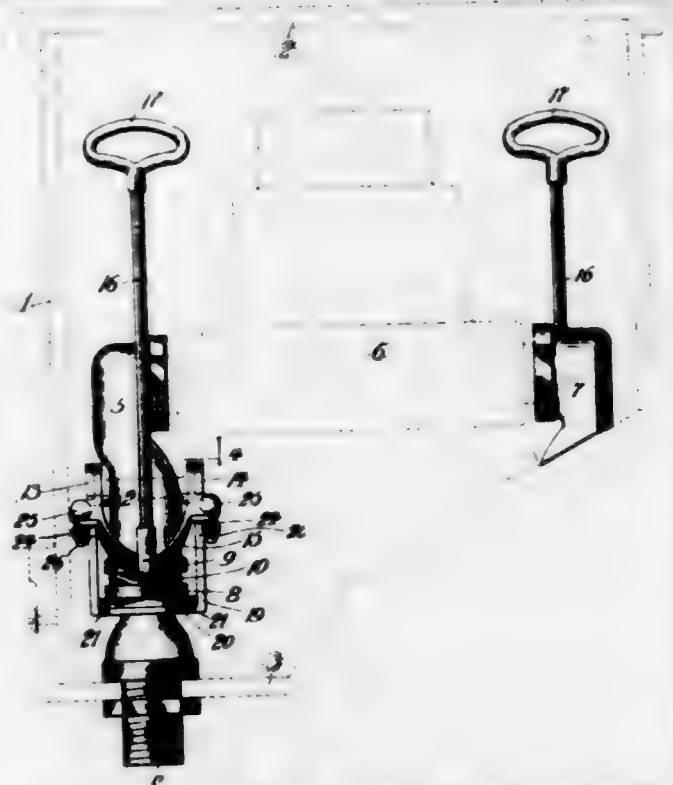
3. In a separator for ore, coal, &c., a suitably-supported spiral having overlapping segments in combination with lever connections adapted to act on said segments and means for operating said connections at will, substantially as described.

694,421. RIDING-SPUR. JOHN O. RIDINGS, Amarillo, Tex. Filed Sept. 16, 1901. Serial No. 75,483. (No model.)



Claim.—A riding-spur comprising a heel-band, an open-ended socket projecting from the rear thereof, a shank having a limited sliding movement in said socket, a rowel freely journaled at the outer end of the shank, and a spring inclosed within the socket and serving to hold the shank normally outward, the tines or points of the rowel being adapted to engage the socket and secure the rowel against rotation when the shank is pressed inward.

694,422. PIPE-COUPLING. ALEXANDER Y. ROBERTSON, Chicago, Ill., assignor to Illinois Malleable Iron Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 15, 1900. Serial No. 33,070. (No model.)



Claim.—1. A pipe-coupling comprising, in combination with the meeting ends of two pipes or connections, an operating-yoke pivoted on either side of one of said pipes and having cams at such pivotal points, and arms having circular openings at one end to receive the cams and engaging the other pipe with their other ends, said yoke and arms swinging on the same center.

2. A pipe-coupling for a water-meter or the like comprising in combination with the meter and its inlet and outlet pipes and also the service-pipe from the water-main and the service-pipe of the building, yokes mounted on the inlet and outlet pipes and adapted to engage said service-pipes and handles for operating each yoke and also for lifting the meter and its connections.

3. A pipe-coupling comprising, in combination with the meeting ends of two pipes or connections, a yoke pivoted to one pipe and adapted to engage the other pipe, an operating member to actuate such yoke and a yielding connection between such yoke and member.

4. A pipe-coupling comprising, in combination with the meeting ends of two pipes or connections, an operating-yoke pivoted on one pipe and provided on the ends of its arms at its pivotal points with cams, a clutch-yoke whose arms receive such cams and a yielding connection between the yokes intermediate of their lengths.

5. A pipe-coupling comprising, in combination with the meeting ends of two pipes or connections, an operating-yoke pivoted on one pipe, a clutch-yoke separated from but actuated by such operating-yoke to cause such clutch-yoke to engage the other pipe and means on the operating-yoke for swinging the clutch-yoke clear of such latter pipe when the pipes are being uncoupled.

6. A pipe-coupling comprising, in combination with the meeting ends of two pipes or connections, an operating member pivoted on one pipe, a clutch member separated from but actuated by the operating-member to move substantially longitudinal of the pipes and means for swinging the clutch member clear of the engaged pipe when uncoupling, both of said members swinging on the same center.

7. A pipe-coupling comprising in combination with the meeting ends of two pipes or connections, an operating-yoke pivoted on one pipe, a clutch-yoke actuated by such operating-yoke to cause such clutch-yoke to engage the other pipe and a projection on the operating-yoke to contact the clutch-yoke only when uncoupling to swing the latter yoke clear of the engaged pipe.

8. A pipe-coupling comprising in combination with the meeting ends of two pipes or connections, an operating-yoke pivoted on one pipe, a clutch-yoke actuated by such operating-yoke to cause such clutch-yoke to engage the other pipe, and a spring 24 bearing at its ends against the yokes, respectively.

9. A pipe-coupling comprising in combination with the meeting ends of two pipes or connections, an operating-yoke pivoted at 12 on one of the pipes and having cams 18 on the outer faces of its arms, a clutch-yoke having arms 19 whose upper ends have an opening to receive the cams and whose lower ends engage the other of said pipes and an operating-rod 16 connected to the operating-yoke, said yoke and arms swinging on the same center.

10. A pipe-coupling comprising in combination with the meeting ends of two pipes or connections, an operating-yoke having arms 13 and 14 pivoted on either side of one pipe on pins 12, cams 18 on said arms, and a clutch-yoke consisting of arms 19 and cross-piece 20, such arms having a circular opening to receive the cams, such clutch-yoke being adapted to engage the other of said pipes, said yoke and arms swinging on the same center.

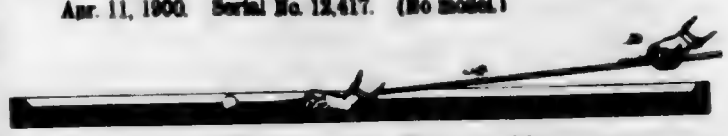
11. A pipe-coupling comprising in combination with the meeting ends of two pipes or connections, an operating-yoke 15 having arms 13 and 14 pivoted on either side of one pipe on pins 12, cams 18 on said arms, a clutch-yoke consisting of arms 19 and cross-piece 20 engaging the other of said pipes, such arms having a circular opening at one end to receive the cams and a projection 23 on one of the arms of the yoke 15 to contact and swing the clutch-yoke.

12. A pipe-coupling comprising in combination with the pipes 4 and 5, a yoke 15 having arms 13 and 14 pivoted on pins 12 on pipe 5, cams 18 on such arms, a lug 23 on one of such arms, a clutch-yoke having arms 19 and a cross-piece 20 engaging pipe 4, spiral springs 24 abutting at one end against the arms 13 and 14 and at the other end against the arms 19 and a handle 16 pivotally and operatively connected to yoke 15.

13. A pipe-coupling comprising, in combination with the meeting ends of two pipes or connections, an operating-yoke pivoted on either side of one of said pipes and having a cam at such pivotal points, swinging arms having circular openings at one end to receive the cams and engaging the other pipe with their other ends, said yoke and arms swinging on the same center, and means whereby the operating-yoke positively swings the said arms to both engagement and disengagement position.

14. A pipe-coupling comprising, in combination with the meeting ends of two pipes or connections, an operating-yoke pivoted on either side of one of said pipes and having a cam at such pivotal points, swinging arms having circular openings at one end to receive the cams and engaging the other pipe with their other ends, said yoke and arms swinging on the same center, and means whereby the operating-yoke swings the said arms to engagement position by yielding connection, and for swinging such arms to disengagement position with a rigid connection.

694,423. BILLIARD-CUE. WILL C. ROOD, Chicago, Ill. Filed Apr. 11, 1900. Serial No. 12,417. (No model.)



Claim.—1. A billiard-cue or the like, comprising a support, a cue relatively movable thereon, a spring, and a latch or trigger, in combination with a movable sleeve arranged upon the free end of the support and adapted to regulate the effect of the blow of the cue, substantially as described.

2. A billiard-cue or the like comprising a tube or pipe A, a sleeve A′ within said tube at one end, a sleeve A″ within said tube at the other end, a cue B sliding in said sleeves, a projecting spring for said cue within said tube between said sleeves, and coiled around a portion of the cue and a latch for holding said cue retracted, substantially as described.

3. A billiard-cue or the like, comprising a tube or pipe A, a sleeve A′ within said tube at one end, a sleeve A″ within said tube, at the other end, a cue B sliding in said sleeves, a projecting spring coiled around a portion of said cue within said tube between said sleeves and secured at its rear end to the cue and at its forward end to the sleeve A′, and a latch for holding said cue retracted, substantially as described.

4. A billiard-cue or the like, comprising a tube or pipe A, provided with the sleeves A′ A² and a latch or trigger, in combination with a cue B provided with a part adapted to engage with said latch or trigger, a spring C secured at the forward end to the sleeve A′ and at the other to the cue, said spring being "spread" to cause a partial recoil or return of the cue after striking a movable object, substantially as described.

5. A billiard-cue or the like, comprising a tube or pipe A provided with separated sleeves A′ A² reducing the internal diameter of the tube, and a latch or trigger, a telescoping cue B adapted to closely fit and be guided within the sleeves and provided with a part adapted to engage with the latch or trigger, a spring arranged between the sleeves within the tube and adapted to project the cue, and a movable gage adapted to regulate the effect of the blow of the cue, substantially as described.

6. A billiard-cue, comprising a tube or pipe, a cue sliding within the same, a spring for projecting the cue, secured at one end to the tube and at the other end to the cue, said spring being spread to cause a partial recoil of the cue, substantially as described.

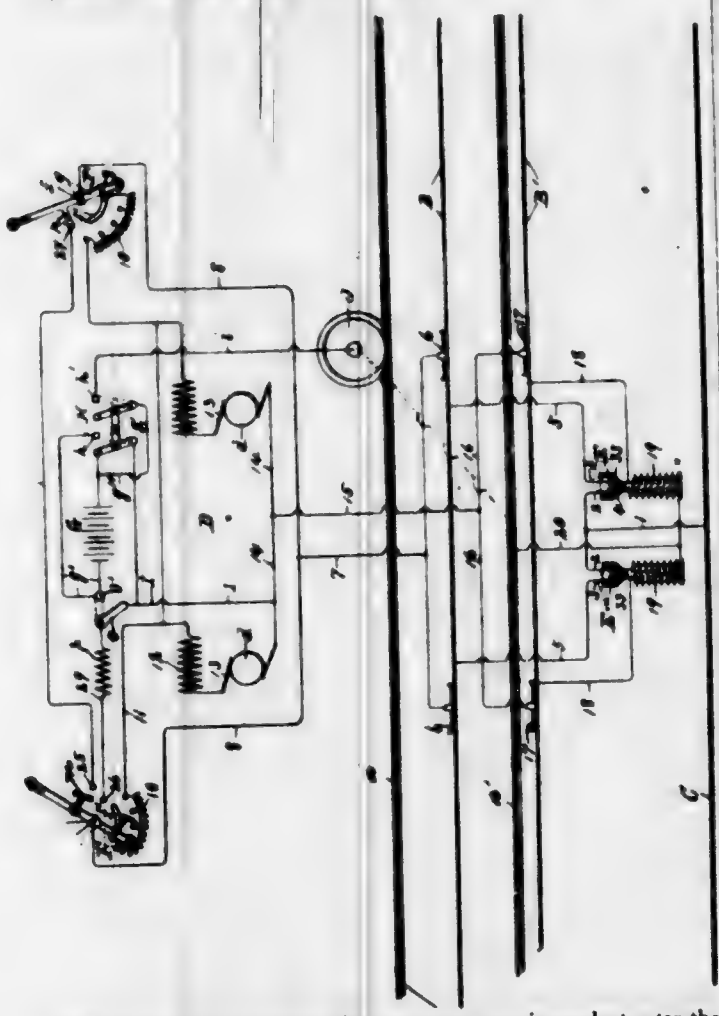
7. A billiard-cue or the like, comprising a handle provided with guiding means for a cue and a spring-chamber, a cue sliding in said guiding means, and a latch for holding said cue retracted, in combination with means within the spring-chamber for resiliently projecting the cue and instantly retracting the same partially, substantially as described.

694,424. COMPOUND OF MAGNESIA. EMIL RUFFY, New York, N. Y. Original application filed Aug. 3, 1898, Serial No. 687,595. Divided and this application filed Aug. 7, 1899. Serial No. 726,409. (No specimens.)

Claim.—1. A compound of magnesia, carbon dioxid, and water, which contains at least twice as many molecules of magnesia as of carbon dioxid.

2. A compound of magnesia, carbon dioxid, and water, which contains at least twice as many molecules of magnesia as of carbon dioxid, and more molecules of water than of magnesia, said compound being very finely divided and light, forming porous lumps in the presence of water, being a bad conductor of sound and heat, and possessing when pressed or molded great tensile strength and elasticity.

694,425. ELECTRIC-RAILWAY SYSTEM. JOHN RYAN, Watertown, N. Y., assignor to John D. Ryan, Watertown, N. Y. Filed Oct. 8, 1900. Serial No. 32,428. (No model.)



Claim.—1. In an electric-railway system, a main conductor for the power-current, a track having one or both of its rails adapted to form a conductor for the return power-current, a sectional conductor interposed between the rails of the track, a second sectional conductor arranged at the opposite side of the return-current rail, normally open connections between the main power-conductor and the sections of the first sectional conductor, a switch for closing said connection, and an additional connection between the return-current rail and the second sectional conductor, said additional connection being connected in the power-circuit and provided with means for electrically operating the switch.

2. An electric switch comprising separated terminals, a solenoid connected in an electric circuit, a core movable within the solenoid, and a support formed of insulating material and provided with a metallic fluid for electrically connecting said terminals, said support being actuated by the core and returned by its own gravity.

3. An electric switch comprising separated terminals, a solenoid, a core movable within the solenoid, means for limiting the movement of the core, and a cup-shaped support formed of insulating material secured to the core and provided with a metallic fluid for electrically connecting said terminals when the solenoid is energized, said core being movable by gravity for disconnecting said terminals when the solenoid is deënergized.

4. An electric switch comprising separated terminals of an electric circuit, an electric coil, a core of magnetizable material movable within the coil, a support connected to the core and provided with means for electrically connecting the terminals, a shell surrounding the coil, and a lubricant within the shell and extending above the contact-points of the terminals.

5. An electric switch comprising separated terminals of an electric circuit, an electric coil, a metallic core movable within the coil and provided with means insulated from the core for electrically connecting said terminals, and means for limiting the movement of the core for preventing the core from assuming its neutral position as the coil is energized.

6. An electric switch comprising separated terminals of an electric circuit, an electric coil, a core movable within the coil, a support secured to the core and formed of insulating material, a metallic fluid carried by the support for electrically connecting said terminals, in combination with a metallic shell inclosing the switch, and provided with a subchamber alined with the core and passages connecting said subchamber with the interior of the shell, and a lubricant fluid supported within the shell and extending above the contact-points of the terminals.

7. The combination with a shell having its lower end formed with a subchamber and passages connecting said chamber with the interior of the shell and its upper end provided with a removable cap having a detachable bushing formed of insulating material, separated terminals of an electric circuit supported by said bushing and projecting into the shell, a hollow spool formed of non-magnetizable material supported within the shell above said chamber, an electric coil wound upon the spool, a magnetizable core movable within the spool and having its lower end provided with a flange movable in said chamber and adapted to engage the lower face of the spool, said core being formed of less length than the length of the coil, a support secured to the core and formed of insulating material, and a metallic fluid carried by the support for electrically connecting the terminals when the coil is energized, said core being movable by gravity into the chamber for disconnecting said terminals when the coil is deënergized, and a lubricant within the shell and chamber and extending above the contact-points of the terminals.

8. In an electric railway system, the combination with main and return conductors, sectional conductors arranged on opposite sides of one of the return-conductors, a plurality of switches, electric connections between the sections of one of the sectional conductors and the switches and connected to the main conductor, and additional electric connections between the other sectional conductor and the return-conductor, said additional conductors being provided with means connected to each other for simultaneously actuating the switches.

9. An electric-railway system comprising a main conductor and sectional conductors, a switch connected in circuit between the main conductor and the sectional conductors, a motor-actuated vehicle, means provided on the vehicle and adapted to be connected in the power-circuit for transmitting the power-current to and from the motors of the vehicle and for maintaining the power-current through the switch when the motor is stopped, and a source of electric energy provided on the vehicle for operating said switches independently of the motor-circuit.

10. A controller for electric-motor circuits comprising a resistance-coil having a plurality of contact-points of variable resistance, a contact-bar arranged substantially parallel with the contact-points and connected to the point of greatest resistance, and an arm having contact-pieces electrically connected to each other for simultaneously engaging the contact-points and bar.

11. The combination with main and sectional conductors of an electric-railway system, of an electrically-operated switch between said conductors, a vehicle provided with a motor, a contact-plate electrically connected to a series of contact-points in the power-circuit, and a movable member electrically connected to the sectional conductors of the power-circuit and provided with contact-pieces adapted to engage the contact-plate and said points independently of each other and to maintain the power-circuit through the switch when the motor is deënergized.

12. In an electric-railway system, the combination of sectional conductors for the main and return current of a power-circuit, of an electrically-operated switch connected in the power-circuit, a vehicle having a motor and contact-pieces electrically connected in the power-circuit, a contact-plate, and contact-points electrically connected to each other and to the power-circuit, and a movable member electrically connected in the power-circuit and normally in contact with the plate and points and adapted to contact with the plate independently of said points and to shunt the power-current through the switch when the motor is deënergized.

13. A controller comprising separated terminals of an electric circuit, a contact-plate electrically connected to one of the terminals and to a series of contact-points, a movable member electrically connected to the other terminal and movable into and out of contact with said plate and points, in combination with a normally open independent circuit, means provided on the movable member and insulated therefrom for closing the circuit.

14. In an electric-railway system of the class described, the combination with a motor-circuit, controllers for making and breaking said circuit, an additional circuit independent of the motor-circuit, and means actuated by the controllers for closing the independent circuit simultaneously with the opening of the motor-circuit.

15. In an electric-railway system of the class described, the combi-

nation with a motor-circuit, an additional circuit independent of the motor-circuit, of an electrically-operated switch connected in said circuits, and a controller provided with means for simultaneously opening one circuit and closing the other for the purpose set forth.

16. In an electric-railway system of the class described, the combination with a motor-circuit, an additional circuit independent of the motor-circuit, of an electrically-operated switch connected in said circuits, a controller provided with means for simultaneously opening one circuit and closing the other for the purpose set forth, a battery connected in the independent circuit, and a second switch for shunting the power-current through the battery.

17. In an electric-railway system of the class described, the combination with a motor-circuit, an additional circuit independent of the motor-circuit, of an electrically-operated switch connected in said circuits, a controller provided with means for simultaneously opening one circuit and closing the other for the purpose set forth, a battery connected in the independent circuit, a second switch for shunting the power-current through the battery, and a resistance-coil between one of the controllers and the second switch.

18. A controller comprising separated terminals of an electric circuit, a third terminal adapted to be connected in said circuit, and a movable member electrically connected to one of the former terminals and movable into and out of contact with the other of said former terminals, said movable member being adapted to contact with the third terminal simultaneously with its breaking contact with the other of the former terminals for the purpose described.

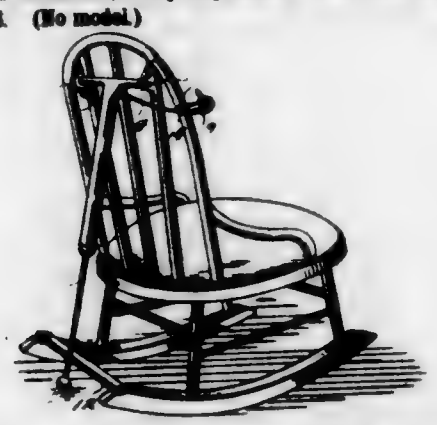
19. A controller comprising separated terminals of an electric circuit, a contact-plate electrically connected to one of the terminals and to a series of contact-points, a movable member electrically connected to the other terminal and movable into and out of contact with said plate and points, said plate and contact-points being so relatively arranged that the movable member may be in contact with the plate when out of contact with the points for the purpose described.

20. An electric-railway system comprising a main circuit and a battery-circuit, sectional conductors or contacts and switches connected in said circuits, contacts on the car for closing the circuits through the sectional conductors and switches, controllers for regulating the power-current to the motor, said controllers being arranged to maintain the power-current through the switches when the motors are deënergized, and a circuit-changing switch connected in both circuits for the purpose of operating the switches by either the power or battery circuit.

21. In an electric-railway system, a motor or power circuit, a battery-circuit independent of the motor, a shunt-circuit independent of the battery-circuit and motor and adapted to be connected in the power-circuit, a solenoid-switch having its coil connected in the battery and shunt circuits, a controller for the power-circuit and provided with means for closing the shunt-circuit before the power-circuit is cut out, and a circuit-changing switch for alternately closing the shunt and battery circuit through said solenoid-coil.

22. In an electric-railway system, a motor or power circuit, a battery-circuit independent of the motor, a shunt-circuit independent of the battery-circuit and motor and adapted to be connected in the power-circuit, a solenoid-switch having its coil connected in the battery and shunt circuits, a controller for the power-circuit and provided with means for closing the shunt-circuit before the power-circuit is cut out, and a circuit-changing switch for alternately closing the shunt and battery circuit through said solenoid-coil and an additional switch arranged to break the shunt-circuit through said solenoid-coil and to close the power-circuit through the battery for recharging the same.

694,426. ATTACHMENT FOR CHAIRS, CRADLES, &c. LOUIS M. SARTAIN, Tracy City, Tenn., assignor of two-thirds to Lin J. Cox and Lee A. Robertson, Tracy City, Tenn. Filed Sept. 25, 1901. Serial No. 76,523. (No model.)



Claim.—1. A device of the class described comprising a hinged air-pump adapted to be mounted on a rocking-chair or the like and provided with a piston arranged to engage the floor, and a discharge tube or pipe extending from the cylinder, substantially as described.

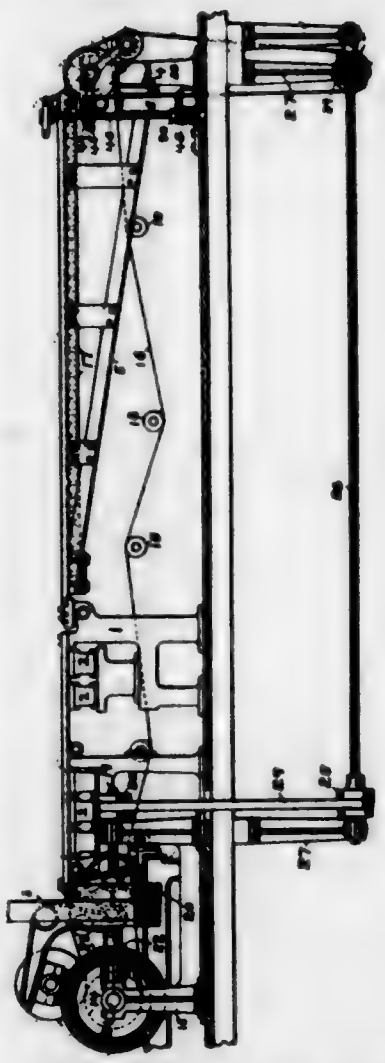
2. A device of the class described comprising brackets adapted to be mounted on a chair or the like and provided with bearings, an air-pump provided at its top with arms journaled on the said brackets, said air-pump being arranged to swing and having a piston arranged to engage the floor, and a discharge pipe or tube, substantially as described.

3. A device of the class described, comprising brackets, a hinged air-pump supported by the brackets and having a downwardly-extending plunger provided with a buffer arranged to engage the floor, means for limiting the swing of the air-pump, and a discharge pipe or tube, substantially as described.

4. The combination with a rocking-chair, of an inclined air-pump hinged at its top to the back of the chair and provided with a depending plunger for engaging the floor, a supporting-bar mounted on the chair and limiting the inward swing of the pump, and a discharge tube or pipe, substantially as described.

5. In a device of the class described, the combination with the flexible discharge-tube, of the plate or bar provided at one end with a recess receiving the tube and a transverse sleeve mounted on the other end of the plate or bar and receiving the tube and adapted to be rotated, substantially as described.

694,427. PAPER-MAKING MACHINE. THOMAS H. SAVERY, Wilmington, Del. Filed June 25, 1901. Serial No. 65,908. (No model.)



Claim.—1. In a paper-making machine, the combination with the making-wire and the breast-roll, of means for driving the wire, and means independent of the wire for driving the breast-roll, substantially as described.

2. In a paper-making machine, the combination with the making-wire, the couch-roll and the breast-roll, of means for driving the couch-roll and the wire, and means independent of the wire for driving the breast-roll, substantially as described.

3. In a paper-making machine, the combination with the making-wire, the couch-roll and the breast-roll, of a driving mechanism, connections from the driving mechanism to the couch-roll and the wire, and connections from the driving mechanism to the breast-roll, substantially as described.

4. In a paper-making machine, the combination with the making-wire, the couch-roll and the breast-roll, of means for driving the couch-roll and the wire, and means independent of the wire for driving the breast-roll, said means including a compensating connection to insure that

the surface speed of the breast-roll correspond to that of the wire, substantially as described.

5. In a paper-making machine, the combination with the making-wire, the couch-roll and the breast-roll, of a driving mechanism, driving connections from said mechanism to the couch-roll and the wire, and driving connections from said mechanism to the breast-roll, said driving connections including a compensating means to insure that the surface speed of the breast-roll correspond to that of the wire, substantially as described.

6. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of means for driving the couch-roll and the wire, and means independent of the wire for driving the breast-roll, said means being constructed to permit the movement of the shaking frame, substantially as described.

7. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of a driving mechanism, driving connections from said mechanism to the couch-roll and wire, and driving connections from said mechanism to the breast-roll, said connections being constructed to permit the movement of the shaking frame, substantially as described.

8. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, a driving mechanism, driving connections from said mechanism to the couch-roll and wire, and driving connections from said mechanism to the breast-roll, said connections including compensating means and being constructed to permit the movement of the shaking frame, substantially as described.

9. In a paper-making machine, the combination with the making-wire, the couch-roll and the breast-roll, of a power-shaft, driving connections from said power-shaft to the couch-roll and the making-wire, a counter-shaft, driving connections between the power-shaft and the counter-shaft, and driving connections from said counter-shaft to the breast-roll, said connections being arranged to permit slip in order to insure that the surface speed of the breast-roll correspond to that of the wire, substantially as described.

10. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of means for driving the couch-roll and the wire, a driven shaft, driving connections from said shaft to the breast-roll shaft, said connections being constructed to permit lengthwise movement of the breast-roll shaft produced by the movement of the shaking frame, substantially as described.

11. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of a power-shaft, driving connections from said shaft to the couch-roll and wire, a counter-shaft, driving connections from the power-shaft to the counter-shaft, a pulley, driving connections including a belt from the counter-shaft to the pulley, and driving connections between the pulley and the breast-roll shaft, said connections being arranged to permit the lengthwise movement of the breast-roll shaft due to the movement of the shaking frame, substantially as described.

12. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of means for driving the couch-roll and wire, and means independent of the wire for driving the breast-roll, said means including a flexible shaft, substantially as described.

13. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of means for driving the couch-roll and the wire, a driven shaft, and driving connections from said shaft to the breast-roll, said driving connections including a slipping belt, substantially as described.

14. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame, and the breast-roll mounted thereon, of means for driving the couch-roll and wire, a driven shaft, and driving connections from said shaft to the breast-roll, said driving connections including a slipping belt and a flexible shaft, substantially as described.

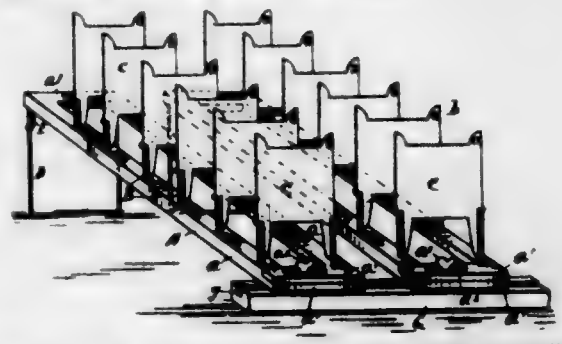
15. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of a power-shaft, driving connections from the power-shaft to the couch-roll and wire, a shaft driven from the power-shaft, and driving connections from said driven shaft to the breast-roll, said connections including a slipping belt and a flexible shaft, substantially as described.

16. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of a power-shaft, driving connections between the power-shaft and the couch-roll and wire, a counter-shaft, means including a belt for driving said shaft from the power-shaft, a third shaft, driving connections including a slipping belt between the third shaft and the counter-shaft, and a flexible shaft connecting said third shaft and the breast-roll shaft, substantially as described.

17. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of a power-shaft, driving connections from the power-shaft to the couch-roll and the making-wire, a counter-shaft driven from the power-shaft, driving connections between the counter-shaft and the breast-roll, said driving connections including a slipping belt and means for adjusting the tension of the belt, substantially as described.

18. In a paper-making machine, the combination with the making-wire, the couch-roll, the shaking frame and the breast-roll mounted thereon, of a power-shaft, driving connections from the power-shaft to the couch-roll and making-wire, a counter-shaft driven from the power-shaft, and driving connections including a slipping belt and a flexible shaft between the counter-shaft and the breast-roll, and a belt-tightener for adjusting the tension of the belt, substantially as described.

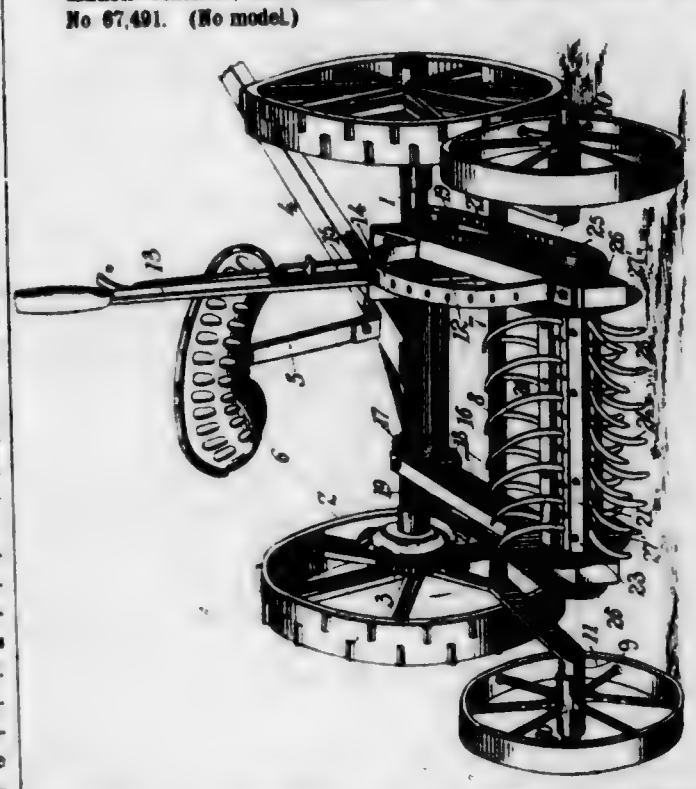
694,428. LACE-RACK. MAX M. SAVLAN, Petoskey, Mich. Filed Aug. 2, 1901. Serial No. 70,598. (No model.)



Claim.—1. In a lace-rack the combination with a laterally-adjustable frame consisting of side bars each provided with slotted end bars adjustably engaged the one with the other respectively, of thumb-screws to hold the corresponding ends of the frame in adjusted position, and card-supporting arms upon the upper face of said frame.

2. In a lace-rack the combination of an inclined supporting-frame consisting of side bars each provided with end bars having an adjustable engagement the one with the other, and a series of card-supporting arms upon the upper face of said frame.

694,429. REVERSIBLE ROTARY HARROW AND CULTIVATOR. MARTIN SCHICHTL, North Yakima, Wash. Filed July 8, 1901. Serial No. 67,491. (No model.)



Claim.—1. In a machine of the class described, the combination of an axle-shaft, ground-wheels thereon to rotate said axle-shaft, a frame having its front side pivotally connected to said axle-shaft, a revoluble element, as a harrow, carried at the rear side of said frame, a cranked axle connected to said frame and supporting the rear side thereof, supporting-wheels on said cranked axle, a lever to turn said cranked axle, and thereby raise or lower the rear side of said frame, and said revoluble element, and power connections between said revoluble element and said axle-shaft, substantially as described.

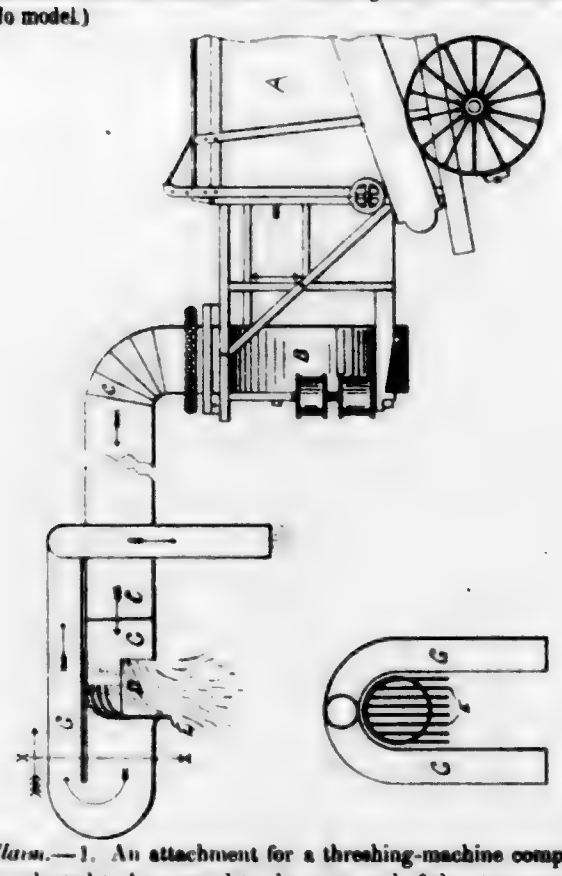
2. In a machine of the class described, a revoluble stock having angular faces, in combination with clamping-bars disposed on said angular

faces and teeth clamped between said stock and said clamping-bars, substantially as described.

3. In a machine of the class described, a revoluble element having implements for stirring the soil, and disks at the ends of said revoluble element, for the purpose set forth, substantially as described.

4. In a machine of the class described, the combination of a revoluble stock having angular faces, clamping-bars on said angular faces, said clamping-bars and said stock having transverse angular openings on their opposing sides and soil-stirring teeth having their shanks disposed in said openings and clamped between said stock and said bars, substantially as described.

694,430. ATTACHMENT FOR THRESHING-MACHINES. RICHARD SCHROEDER, Walcott, Iowa. Filed Aug. 21, 1901. Serial No. 72,807. (No model.)



Claim.—1. An attachment for a threshing-machine comprising an air-tube adapted to be secured to the outer end of the straw-conveyer on the threshing-machine; said air-tube provided with a lateral opening and a plurality of bars or strips secured in said tube so as to deflect the straw downwardly through said opening, said air-tube being so constructed and of such form as to direct the air-blast passing through the straw-conveyer away from the straw-stack for the purposes stated.

2. An attachment for a threshing-machine comprising an air-tube G adapted to be secured to the outer end of the straw-conveyer, said tube provided with the opening D, the bars E secured in the air-tube and projecting downward therethrough, said tube having two downwardly-extending branches with open bottoms, for the purposes stated and substantially as described.

694,431. MACHINE FOR BUFFING ARTICLES OF LEATHER. JACOB R. SCOTT, Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J., a Corporation of New Jersey. Filed Jan. 14, 1901. Serial No. 43,193. (No model.)

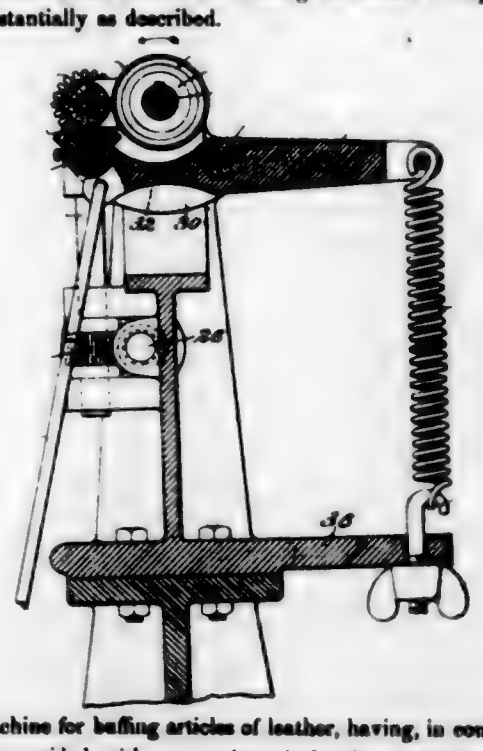
Claim.—1. A machine for buffing articles of leather, having, in combination, a roll provided with a covering of abrasive material yieldingly supported to conform to the surface of the article, and means for feeding the article and holding it in contact with the roll, substantially as described.

2. A machine for buffing articles of leather, having, in combination, a buffing-roll, means for feeding the article and for holding it in contact with the roll unsupported at the point of contact, substantially as described.

3. A machine for buffing articles of leather, having, in combination, a buffing-roll, feeding-rolls arranged to feed the article in a plane passing through the roll and to hold the article in contact with the roll, substantially as described.

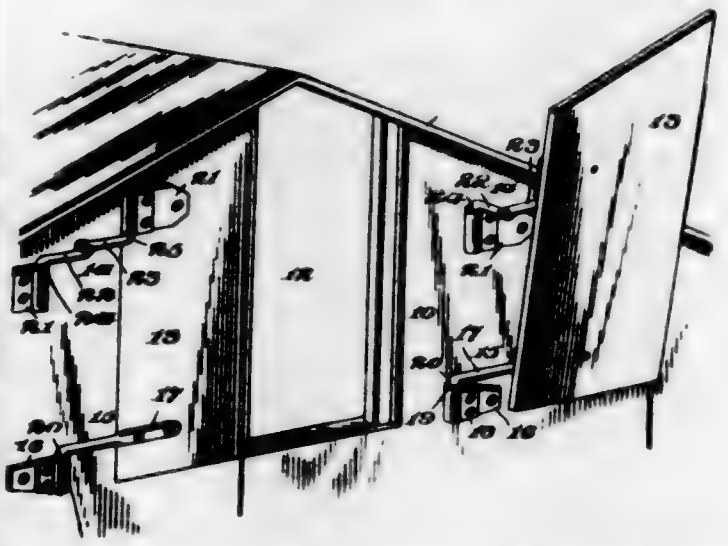
4. A machine for buffing articles of leather, having, in combination, a buffing-roll, feeding-rolls arranged to hold the article in contact with the buffing-roll, and means for separating the feeding-rolls, substantially as described.

5. A machine for buffing articles of leather, having, in combination, a buffing-roll, a movable frame mounted in proximity to the roll, a feed-roll carried by said frame, a coöperating feed-roll, said feed-rolls and frame acting to hold the article in contact with the buffing-roll unsupported at the point of contact, and means for moving the frame to separate the feed-rolls, substantially as described.



6. A machine for buffing articles of leather, having, in combination, a buffing-roll provided with a covering of abrasive material yieldingly supported to conform to the surface of the article, a frame movably mounted in proximity to the roll, a feed-roll carried by said frame, a coöperating feed-roll of flexible material, said feed-rolls and frame acting to hold the article in contact with the buffing-roll unsupported at the point of contact, and means for moving the frame to separate the feed-rolls, substantially as described.

694,432. HINGE FOR SUPPORTING AND OPERATING DOORS. WALLACE L. SELLECK, Platteville, Wis. Filed Nov. 27, 1900. Serial No. 37,918. (No model.)

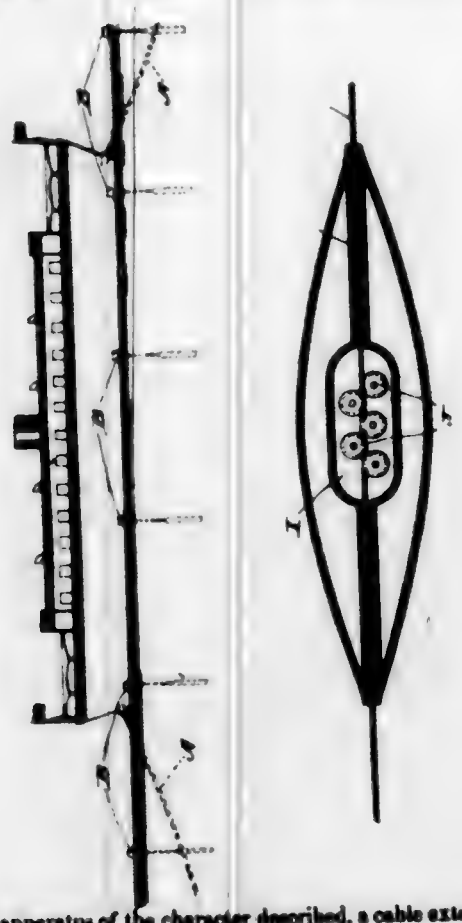


Claim.—In door-hanging means of the class described, the combination with the door, of a hinge composed of a pair of pivotally and detachably connected leaves, said leaves being secured respectively to the lower portion of the door and the wall adjacent thereto, and another hinge secured to the upper portion of the door and the wall adjacent thereto, said latter hinge comprising a pair of leaves, one being secured to the door and the other to the wall, and a connecting-arm comprising a pair of links pivotally connected at one end and provided with offstanding pintles at their opposite ends, the pintle of one arm projecting upwardly and detachably engaging in the eye of one leaf and the pintle of the other arm projecting downwardly and detachably engaging in the eye of the other leaf.

694,433. MEANS FOR GUIDING AND PROPELLING STEAMSHIPS. LOUIS SHER, Atlantic City, N. J. Filed Sept. 24, 1901. Serial No. 76,390. (No model.)

Claim.—1. In an apparatus of the character described, a cable extending from one terminus of a steamship-line to the other and secured rigidly to the shore at each end, said cable adapted to pass longitudinally through a vessel and be acted upon by friction-wheels, thereby furnishing a frictional surface for the propulsion of the vessel, a supporting-frame-

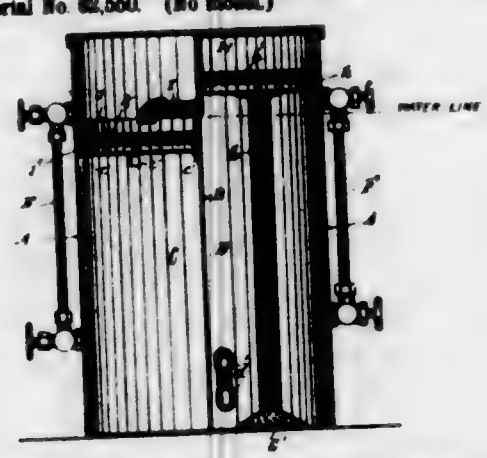
work running parallel with the cable from one terminus to the other and lying at a level in the water below the keel of the vessel, buoys connected to said framework at predetermined intervals, anchors connected to said framework at predetermined intervals, substantially as and for the purpose set forth.



2. In an apparatus of the character described, a cable extending from one terminus to the other of a steamship-line, and rigidly secured at each end to the shore, a series of buoys arranged upon each side of the cable and at predetermined intervals throughout its length, vertical rods descending from said buoys, V-shaped frames secured to said vertical rods and extending across between each pair of the same, the cable adapted to rest upon said V-shaped frames, cables securing the V-shaped frames against displacement, cables secured to the lower end of the vertical rods, anchors secured to said cables, substantially as and for the purpose set forth.

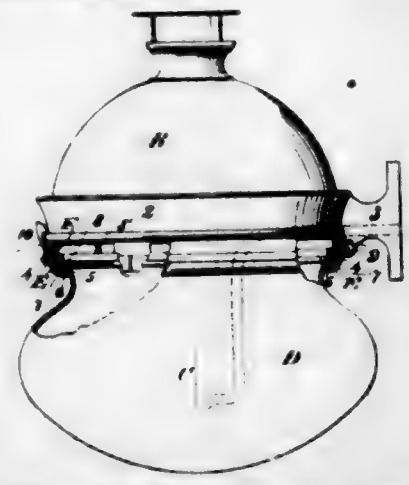
3. In an apparatus of the character described, a cable, a supporting-framework for the cable consisting of two truss side frames extending the entire length of the cable and upon each side of the same, buoys located at predetermined intervals for supporting said frames, anchors arranged at suitable intervals for holding the structure in place, cross-frames extending across between the two side frames, the cable resting, when in its normal position, upon said cross-frames, means attached to the framework for guiding the cable to the center of the cross-frames, substantially as described and for the purpose specified.

694,484. OIL-FILTER. HENRY SIMS, Erie, Pa. Filed May 31, 1901. Serial No. 62,550. (No model.)



Claim.—The combination in an oil-filter, of a tank A, a vertical wall B therein dividing the tank into chambers C and D, a receiving-tank H, and a pipe G extending downward therefrom in the chamber D, terminating in a conical perforated base G′ on said pipe, and resting upon the bottom of the chamber D, a heating-coil *d*′ in one side of the chamber D, a removable outlet-pipe I in the wall B below the tank H, and a removable strainer-pan J in the chamber C below the outlet-pipe I, substantially as and for the purpose set forth.

694,485. LAMP. WALTER J. SHART, Brooklyn, N. Y., assignor to The Firm of John Williams, New York, N. Y. Filed Mar. 26, 1901. Serial No. 52,887. (No model.)



Claim.—1. The combination with a globe, of a rim-fixture and an independent supporting member consisting of a split ring.

2. The combination with a globe, of a rim-fixture an independent supporting member adapted to coöperate with an inclined surface on the rim-fixture and be thereby held in engagement with the globe.

3. The combination with a globe, of a rim-fixture provided with an annular flange and an independent supporting member consisting of a split ring adapted to coöperate with the flange on the fixture and be thereby held in engagement with the globe.

4. The combination with a globe, of a rim-fixture, an independent supporting member and a retaining-ring provided with slotted recesses.

5. The combination with a globe having a body portion of larger diameter than the outwardly-flaring rim portion, of a rim-fixture having an inwardly-projecting flange, an independent supporting member consisting of a split ring adapted to coöperate with the flange of the rim-fixture and be thereby held in engagement with the globe and a retaining-ring provided with slotted recesses.

694,486. CORNER-STAY FOR PAPER BOXES. HARRY B. SMITH, Brooklyn, N. Y. Filed June 27, 1900. Serial No. 21,760. (No model.)

Claim.—1. As a new article of manufacture, a corner-stay for paper boxes, consisting of a thin strip of ductile metal having on one side thereof a normally dry adhesive, substantially as described.

2. As a new article of manufacture, a corner-stay for paper boxes consisting of a continuous strip of thin, relatively stiff and inelastic metal having affixed to one surface thereof a normally dry adhesive substance capable of becoming sticky when moistened.

3. As a new article of manufacture, a corner-stay for paper boxes, consisting of a thin strip of ductile metal provided on one side with an adhesive-carrying vehicle or agent said vehicle or agent having its outer face coated with an adhesive, substantially as described.

4. As a new article of manufacture, a corner-stay for paper boxes, consisting of a thin strip of ductile metal having cemented to one side thereof a strip of paper coated on its outer side with an adhesive, substantially as described.

5. A corner-stay for paper boxes, comprising a thin strip of metal coated on one side with an adhesive, and provided on its other side with a plurality of projections, substantially as described.

6. A corner-stay for paper boxes comprising a thin strip of metal coated on one side with an adhesive and having a plurality of tongues or lips stamped out of its body and bent up at an angle on the side opposite the adhesive coating, substantially as described and for the purpose specified.

7. A corner-stay for paper boxes comprising a thin strip of metal coated on one side with an adhesive and provided with engaging or feeding means, substantially as described.

694,487. APPARATUS FOR ROLLING CHANNEL-IRONS. HARRY S. SMITH, Pittsburg, Pa., assignor to the Victor Rubber Company, Springfield, Ohio, a Corporation of Ohio. Filed Apr 18, 1901. Serial No. 56,262. (No model.)

Claim.—1. In an apparatus for rolling channel-irons, the combina-

tion, with strand-rolls having passes whereby the bar is reduced and formed into a channel having flaring flanges with rounded outer and inner walls, of edging-rolls having a pass whereby the flanges of the bar are partly bent in toward each other, and finishing-rolls having a pass provided with cylindrical portions to hold the flat body portion of the channel, and grooves having inclined walls to bend the flanges inward toward each other, and stop-shoulders to limit said inward bending, substantially as described.



2. In an apparatus for rolling dovetailed channel-irons, finishing-rolls having a pass formed by a shallow flat-bottomed groove in one roll, a cylindrical portion or collar on the other roll of less width than the width of the bottom of the completed channel, grooves having inclined rounded walls and located on each side of said cylindrical portion, and inclined or rounded shoulders between said grooves and the surface of the roll, substantially as described.

694,488. FOLDABLE TABLE-SPREAD SUPPORT. MARTIN L. SMITH, Elwell, Iowa. Filed Nov. 18, 1901. Serial No. 82,846. (No model.)

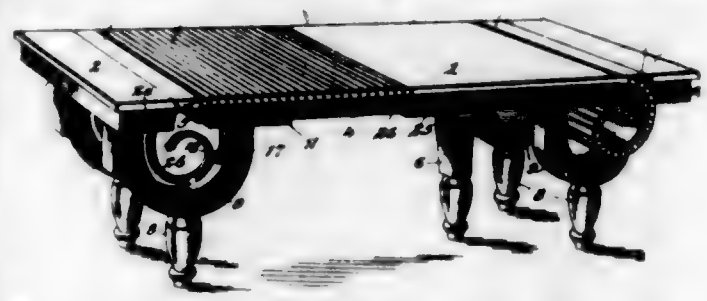


Claim.—1. A flexible support for a cloth spread over a table, comprising a main part in the form of a frame made of wire and one end portion coiled into a tube to project upward and the other portion extended horizontally and downward and a plurality of mating wire frames that have right-angled extensions extended in the tube and pivotally connected with the said tube at the end of said main part, to operate in the manner set forth for the purposes stated.

2. A foldable and adjustable support for a flexible spread on a table consisting of a main part made of wire and a portion of the wire coiled to produce a tube projecting upward a convolute coil or flange at the top of the tube and terminating in a loop or arch, a double curve at the lower end of said tube and then a straight length that terminates in an outward and downward ornamental extension and a plurality of mating wire frames having right-angled projections at their top ends extended into the tube at the end of the main part, arranged and combined in the manner set forth for the purposes stated.

694,489. EXTENSION-TABLE. EDWARD J. SPIES, Davenport Iowa. Filed Mar. 14, 1901. Serial No. 51,126. (No model.)

Claim.—1. In an extension-table, the combination with a fixed section, of a movable section comprising an end and slides spaced therefrom, said slides having a slidable engagement with the fixed section, a leg supporting the movable section, a yoke having its ends secured respectively to the end of the movable section and the slides leaving an intermediate open space, a guide secured at its upper end to the slides in the space between said slides and the end, and depending below the slides, and a flexible top section supported upon the slides and having a slidable engagement with the guide, whereby said flexible top will be located within the yoke when the movable section is arranged contiguous to the fixed section.



2. In an extension-table, the combination with a fixed section, of a movable section comprising an end and slides spaced therefrom, said slides having a slidable engagement with the fixed section, a leg having a yoke, the ends of which are secured respectively to the end of the movable section and the slides, leaving an intermediate open space, a guide secured at its upper end to the slides contiguous to the space and located below the plane of the top and within the vertical planes of the sides of the yoke, and a flexible top section secured to the edge of the fixed section and having a slidable engagement with the guide, whereby said flexible top will be located within the yoke of the leg when the movable section is arranged contiguous to the fixed section.

3. In an extension-table, the combination with a fixed section, of a movable section comprising an end and slides spaced therefrom, said slides having a slidable engagement with the fixed section, a leg having a yoke, the ends of which are secured respectively to the end of the movable section and the slides leaving an intermediate open space, an involute guide secured at its upper end to the slides contiguous to the space and located below the plane of the top and within the vertical planes of the sides of the yoke, and a flexible top section secured to the edge of the fixed section and having a slidable engagement with the guide, whereby said flexible top will be located within the yoke of the leg when the movable section is arranged contiguous to the fixed section.

4. In an extension-table, the combination with a fixed section, of a movable section comprising an end and slides spaced therefrom, said slides having a slidable engagement with the fixed section, a leg having a yoke the ends of which are secured respectively to the end and slides of the removable section leaving an intermediate open space, an involute guide secured solely at its upper end to the slides contiguous to the space and depending below the plane of the top and within the vertical planes of the sides of the yoke, and a flexible top section secured to the edge of the fixed section and having a slidable engagement with the guide, whereby the said flexible top will be located within the yoke of the leg when the movable section is arranged contiguous to the fixed section.

5. In an extension-table, the combination with relatively fixed and movable sections, one of said sections comprising an end having a flat top and a slide-frame having a slidable engagement with the other section and spaced from the end member, said end member and slide-frame being connected, a flexible top secured to the other member and normally supported upon the slide-frame, and a guide arranged to receive the flexible top and depending in the space between the end member and the slide-frame, said guide having its upper end located substantially level with the upper edge of and secured to the outer end of the slide-frame, whereby said guide will receive the flexible top immediately upon its movement from the slide-frame.

6. In an extension-table, the combination with a fixed section having a top, of a movable section having a top and a slide-frame spaced from the top and slidably engaging the fixed section, means connecting the top and slide-frame of the movable section to hold them in fixed relation, a curved metallic guide secured at its upper end to the outer end of the slide-frame, and comprising an involute strip substantially U shape in cross-section, and provided with outstanding side flanges, and a flexible top secured at one end to the fixed section and having an undercut groove that receives the flanges of the guide-strip.

7. In an extension-table, the combination with fixed and movable table-sections having rigid tops, of extension-slides slidably engaging the fixed section, a flexible top secured to the fixed section and arranged to rest upon the slides, a depending guide for the flexible top secured to the slides, supporting-legs provided with curved yokes which embrace the folded flexible top section, the arms of the yokes being of unequal length, and brackets secured to said yokes and fastened respectively to the fixed section and slides.

8. In an extension-table, fixed and movable table-top sections, in combination with an interposed flexible table-top section, extension-slides connected by a cross-bar, a curved guide for the flexible section, and a

guide-seat secured to the cross-bar and consisting of a block having a curved surface which is grooved to receive a portion of the guide.

9. In an extension-table, the combination with a fixed section, of a movable section comprising an end and slides spaced therefrom, said slides having a slidable engagement with the fixed section, a connection between the end and slides to maintain their spaced relation, a guide secured at its upper end to the slides and having said upper end located substantially level with the upper edge of the slides and depending beneath the same, and a flexible top supported on the slides and having a sliding engagement with the guide immediately on its movement from the slides.

10. In an extension-table, the combination with a fixed section having a flat top, guide-bars secured to the under side thereof, and a leg secured to the center of the guide-bars, of a movable section comprising an end and a slide-frame spaced therefrom and having a sliding connection with the guide-bars of the fixed section, a yoke connecting the end and slide-frame to maintain their spaced relation, a guide secured at its upper end to the slide-frame and depending below the same in the space between the frame and end, and a flexible top secured to one edge of the fixed top and engaging the guide.

694,440. STRAINER FOR DOWN-SPOUTS. BURTON A. STAIR, Harrisonville, Mo., assignor of one-half to Albert B. Bohon, Harrisonville, Mo. Filed June 20, 1901. Serial No. 65,362. (No model.)



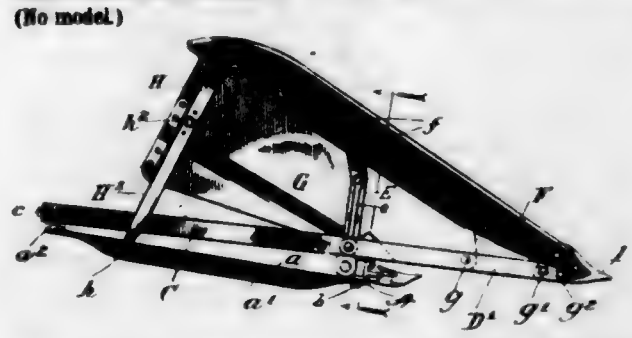
Claim.—1. A strainer of the class described, comprising a casing, having an upper inlet, and a lower outlet, opposite internal supports adjacent to the bottom thereof, and a sediment-receptacle removably supported upon the supports and inserted through an opening in the device, the outer side of the receptacle closing the opening, the bottom of the receptacle having a strainer, and a removable perforate false bottom within the receptacle.

2. A strainer of the class described, comprising a casing, having a top inlet, a bottom outlet, an opening in the front thereof, and opposite internal supporting-flanges inclined downwardly from the bottom of the opening in the front of the casing, a removable sediment-receptacle inserted through the opening and supported upon the flanges, the front of the receptacle closing the opening, and having a handle, the intermediate bottom portion of the receptacle having a strainer, a perforate false bottom having a pendent marginal foot-flange supported upon the marginal edge portion of the receptacle.

3. In a strainer of the class described, the combination of a casing, having an inlet-pipe projected through the back of the top thereof, and provided at the lower end of the pipe with an elbow directed toward the front of the casing, a pendent discharge-pipe piercing the bottom of the casing, a hinged cover in front of the inlet-pipe, there being an opening formed in the front of the casing, corresponding flanges provided upon the inner faces of the opposite sides of the casing and inclined downwardly from the bottom of the opening in the front of the casing, a removable sediment-receptacle inserted through the opening and supported upon the flanges, the receptacle closing the opening, and having an open top, there being an intermediate strainer in the bottom of the receptacle, a handle upon the front of the receptacle, and a perforate false bottom, having a marginal foot-flange supported upon the bottom of the receptacle, and an upstanding handle.

4. A strainer for down-spouts having a casing provided with an inlet and an outlet, a sediment-receptacle removably fitted in the casing between the inlet and outlet thereof and provided with a screening-bottom which is inclined backwardly toward its rear or inner ends, with a perforated false bottom removably fitted in the receptacle and having an upstanding handle disposed wholly within the receptacle, and means for directing the incoming water upon the upper front portion of the false bottom.

694,441. GRAIN-DIVIDER FOR HARVESTING-MACHINES. JOHN F. STEWARD, Chicago, Ill. Filed Aug. 19, 1901. Serial No. 72,519 (No model.)



Claim.—1. A divider-frame consisting of bars pivotally jointed together so as to form a quadrilateral and having means for locking the said frame rigidly in place and holding all parts in working position substantially as described.

2. In combination with a harvester-platform the bar H', the pivoted extension projecting forward of the cutting apparatus of the said harvester, the post E and the board F, the said parts pivoted together, whereby the said divider may be given its working position or folded rearwardly, substantially as described.

3. In a grain-divider, in combination with a harvester-platform adapted to form a support therefor, a post, formed by the bar H', a post E forward therefrom, a board or bar F, the forward extension D, D', said bar or board secured to the said post E and pivotally secured at its forward end to the said forwardly-extending bars D, D', and also pivotally secured to the bar H' and means for locking said parts to position substantially as described.

4. In a grain-divider in combination with a harvester-platform, having bar C secured thereto, the forward extension consisting of the bars D, D', a post E, connected pivotally to the bar C at a point coincident with the place of securement of the said bar C, a bar H' and a bar or board F connected to the point of said bars D, D' and extending to the upper end of the bar H', and means for holding said parts in position for labor substantially as described.

5. In a harvester a grain-divider consisting essentially of the forward extension pivoted to the grain-receiving platform, the divider-board F, its forward end pivotally secured to the forward end of said forward extension, the post E connecting said board to the rear end of the forward extension, and means for securing said board to the top of said post, all combined substantially as described.

694,442. COMBINATION APPARATUS FOR HEAVY GYMNASTICS. HENRY SUDER, Chicago, Ill. Filed Dec. 22, 1900. Serial No. 40,722. (No model.)

Claim.—1. The combination in an apparatus for heavy gymnastics of two movable end supports, a separable adjustable piece connected with each of said end supports and adapted to be moved up and down, with relation to said supports, and a detachable cross-piece connecting said adjustable pieces so as to be adjusted in height when the adjustable pieces are moved.

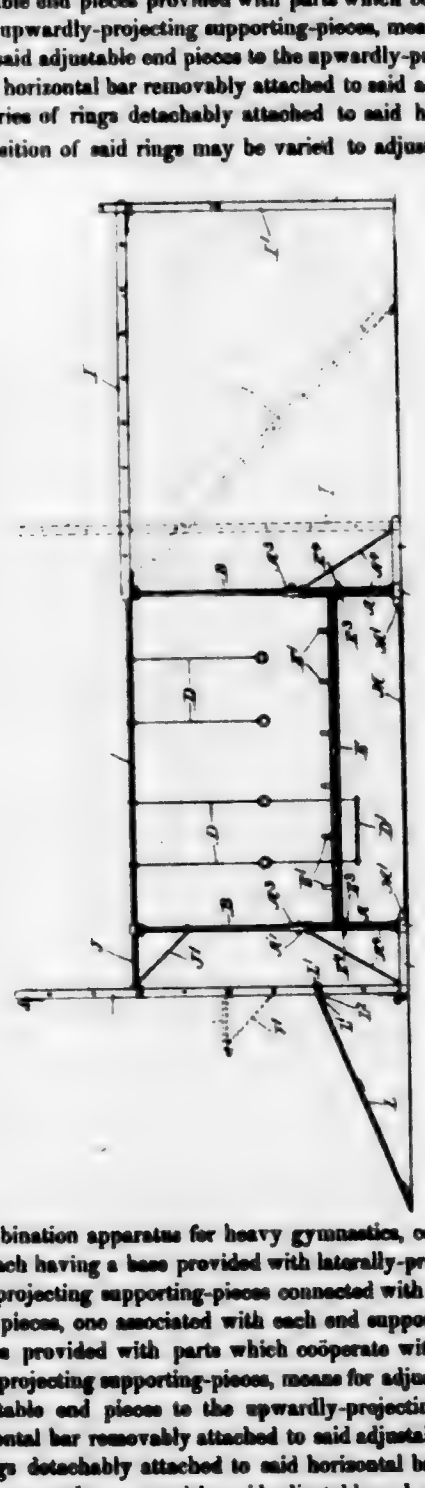
2. An exercising device, comprising two movable bases, an adjustable detachable support connected with each of said bases and adapted to be moved up and down, with relation to said bases, and a detachable cross-piece connected with said supports so as to be adjusted in height without being detached from said supports.

3. An exercising apparatus, comprising two detachable end supports, a movable base for each support, provided with upwardly-projecting supporting-pieces, an adjustable end piece associated with each end support and provided with parts which coöperate with and engage said upwardly-projecting supporting-pieces, and means for adjustably connecting said end pieces to the upwardly-projecting supporting-pieces.

4. A combination apparatus for heavy gymnastics, comprising two end supports, each having a base provided with laterally-projecting parts, two upwardly-projecting supporting-pieces connected with said bases, two adjustable end pieces, one associated with each end support, said adjustable end pieces provided with parts which coöperate with and engage said upwardly-projecting supporting-pieces, means for adjustably connecting said adjustable end pieces to the upwardly-projecting supporting-pieces, and a horizontal bar removably attached to said adjustable end pieces.

5. A combination apparatus for heavy gymnastics, comprising two

adjustable end supports, each having a base provided with laterally-projecting parts, two upwardly-projecting supporting-pieces connected with said base, two adjustable end pieces, one associated with each end support, said adjustable end pieces provided with parts which coöperate with and engage said upwardly-projecting supporting-pieces, means for adjustably connecting said adjustable end pieces to the upwardly-projecting supporting-pieces, a horizontal bar removably attached to said adjustable end pieces, and a series of rings detachably attached to said horizontal bar whereby the position of said rings may be varied to adjust them to different uses.



6. A combination apparatus for heavy gymnastics, comprising two end supports, each having a base provided with laterally-projecting parts, two upwardly-projecting supporting-pieces connected with said base, two adjustable end pieces, one associated with each end support, said adjustable end pieces provided with parts which coöperate with and engage said upwardly-projecting supporting-pieces, means for adjustably connecting said adjustable end pieces to the upwardly-projecting supporting-pieces, a horizontal bar removably attached to said adjustable end pieces, a series of rings detachably attached to said horizontal bar, and one or more ladders supported at one end by said adjustable end piece or pieces.

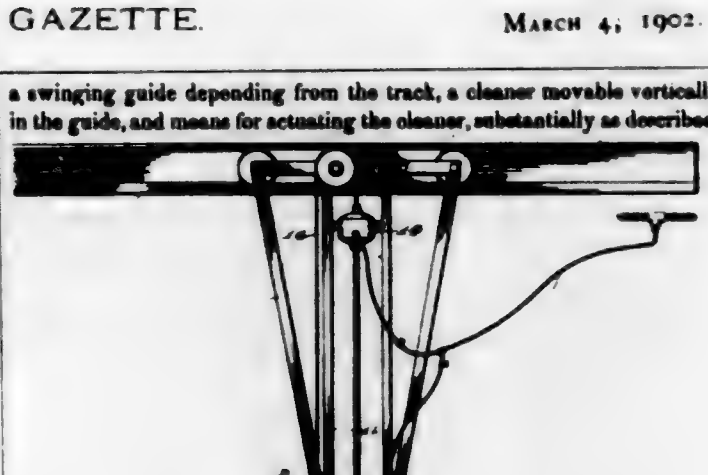
7. A combination apparatus for heavy gymnastics, comprising two end supports, each having a base provided with laterally-projecting parts, two upwardly-projecting supporting-pieces connected with each base, a removable cross-piece adjustably attached to the two upwardly-projecting supporting-pieces of each base, and a padded board extending between the end supports and removably connected to said cross-pieces.

8. A combination apparatus for heavy gymnastics, comprising two end supports, each provided with a base having two upwardly-projecting supporting-pieces, an adjustable end piece associated with each end support and having parts which slide along the upwardly-projecting supporting-pieces, so as to form a telescoping frame, and means for fastening said adjustable end piece in any of its various positions.

9. An exercising apparatus comprising two end supports each having two upwardly-projecting parts, an adjustable end piece associated with each part and consisting of a loop, the branches of which are adjustably connected with said projecting parts, a bar removably mounted upon these adjustable end pieces whereby the position of said bar may be adjusted for different uses.

694,443. APPARATUS FOR CLEANING STAND-PIPES OF GAS-RETORTS. JOHN H. TAUSSIG, Philadelphia, Pa., assignor to the United Gas Improvement Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Jan. 24, 1901. Serial No. 44,506. (No model.)

Claim.—1. A cleaner for gas apparatus comprising a horizontal track arranged above and parallel with the row of stand-pipes of the apparatus, a swinging guide depending from the track, a cleaner movable vertically in the guide, and means for actuating the cleaner, substantially as described.

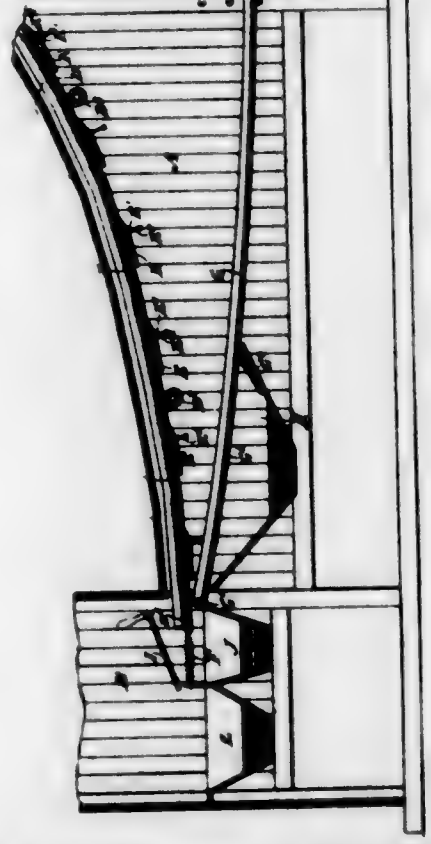


2. A cleaner for gas apparatus comprising a pendent guide arranged over the top of the stand-pipe, and a cleaner movable up and down in the guide to enter the top of the stand-pipe, substantially as described.

3. A cleaner for gas apparatus comprising a pendent guide arranged over the top of the stand-pipe, a cleaner movable up and down in the guide to enter the top of the stand-pipe, and means for shifting the cleaner up and down in respect to the guide, substantially as described.

4. A cleaner for gas apparatus comprising a pendent guide arranged over the top of the stand-pipe, a cleaner movable up and down in the guide to enter the top of the stand-pipe, means for shifting the cleaner up and down in respect to the guide, and devices for rotating the cleaner, substantially as described.

694,444. ORE-CONCENTRATOR. WILLIAM THURSCHD, Hillsboro, N. Mex., assignor of five-twelfths to William E. Nelson and Charles H. Jones, Denver, Colo. Filed Feb. 19, 1898. Renewed May 24, 1901. Serial No. 61,816. (No model.)



Claim.—1. In an ore-concentrator, an exhaust-chamber, a draft-chamber at one side of the exhaust-chamber and opening into the lower portion of the same, the bottom of the draft-chamber being provided with apertures in the end adjacent to the exhaust-chamber, and an inclined reciprocating screen arranged in the upper part of the draft-chamber and having its lower end projecting into the exhaust chamber, said screen being formed of a plurality of sections arranged at different angles to one another, the uppermost section having the greatest inclination, substantially as described.

2. In an ore-concentrator, an exhaust-chamber, a tapering draft-chamber having its smaller end opening into the lower part of the exhaust-chamber, the bottom of the draft-chamber being provided with openings in its end adjacent to the exhaust-chamber, and an inclined recipro-

cating screen in the upper part of the draft-chamber and having its lower end discharging into the exhaust-chamber, the said screen being formed of a series of sections arranged at different angles to one another, the uppermost section having the greatest inclination, substantially as described.

3. In an ore-concentrator, a draft-chamber connected with an exhaust, a reciprocating screen arranged in the upper part of the draft-chamber and inclining downwardly from its receiving to its discharge end, and an adjustable bottom in the draft-chamber below the screen and provided with apertures at one end, substantially as described.

4. In an ore-concentrator, a draft-chamber connected with an exhaust, a reciprocating screen in the upper part of the draft-chamber and inclining downwardly from its receiving to its discharge end, and a bottom arranged in the draft-chamber below the screen and provided with apertures at one end, said bottom having one end hinged and its free end adjustably held, substantially as described.

5. In an ore-concentrator, an exhaust-chamber, a draft-chamber opening into the exhaust-chamber, a reciprocating inclined screen in the upper part of the draft-chamber and discharging into the exhaust-chamber, weighted beaters loosely mounted on the under side of the screen, whereby they will be actuated by the movement of the screen, and an adjustable bottom for the draft-chamber, said bottom being provided with apertures at its inner end, substantially as described.

6. A draft-chamber connected at one end with a suction-box, and having a reciprocating inclined screen at its top, and screen-plates increasing in the size of their mesh from the upper end of the screen to the lower end, and a bottom pivoted near the lower end of the screen and adjustably held at its free end, the bottom being provided near its pivotal end with apertures for the passage of the concentrates passing through the screen-plates, substantially as shown and described.

7. In an ore-concentrator, a draft-chamber, a suction-box into which opens the draft-chamber, and a reciprocating inclined screen arranged in the upper part of the draft-chamber and having its lower end projecting into the suction-box, substantially as described.

8. An ore-concentrator, provided with a draft-chamber, an inclined reciprocating screen in the draft-chamber, a suction-box into which opens said draft-chamber, to create a draft in the said draft-chamber, and to permit the coarser material to pass from the screen of the draft-chamber into the suction-box, and hoppers arranged within the suction-box one alongside the other, one of said hoppers being directly below the discharge end of said screens, substantially as shown and described.

9. An ore-concentrator, provided with a draft-chamber, an inclined reciprocating screen in the draft-chamber, a suction-box into which opens said draft-chamber to create a draft in said draft-chamber, and to permit the coarser material to pass from the screen of the draft-chamber into the suction-box, two hoppers arranged within the suction-box one alongside the other, one of said hoppers being directly below the discharge end of said screen, this hopper receiving the coarser ore and the other the tailings, and an elevator for receiving the coarser ore from the said hopper, substantially as shown and described.

10. An ore-concentrator, provided with a draft-chamber an inclined reciprocating screen in the draft-chamber, a suction-box into which opens said draft-chamber, to create a draft in said draft-chamber, and to permit the coarser material to pass from the screen of the draft-chamber into the suction-box, two hoppers arranged within the suction-box one alongside the other, one of the hoppers being directly below the discharge end of said screen, and deflectors arranged in the upper end of the suction-box, substantially as shown and described.

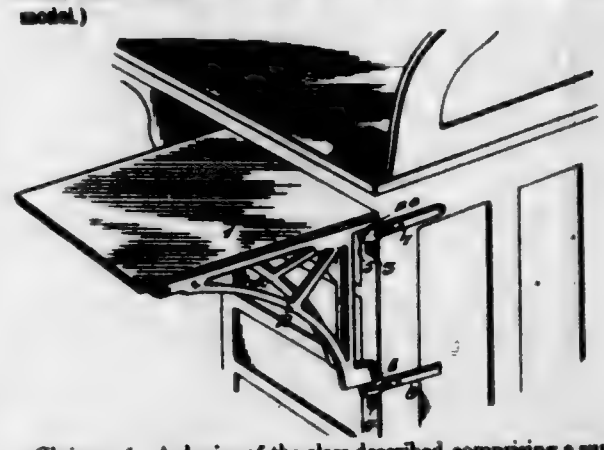
11. In an ore-concentrator, the combination with an exhaust-chamber, a draft-chamber communicating with the exhaust-chamber and having a hinged bottom provided with openings, and a screen in the draft-chamber, of a hopper below the openings of the bottom of the draft-chamber, and a door hinged to the under side of the bottom and engaging the hopper, substantially as described.

12. In an ore-concentrator, the combination with a suction-box, of a draft-chamber opening into the suction-box and having an adjustable apertured bottom and an inclined reciprocating screen in the upper part of the draft-chamber and having its lower end discharging into the suction-box, said screen being formed of a series of sections arranged at different angles to one another, the uppermost section having the greatest inclination, substantially as described.

13. In an ore-concentrator, the combination with a suction-box and hoppers arranged therein, of a draft-chamber opening into the suction-box, an inclined reciprocating screen in the draft-chamber and having its lower end projecting into the suction-box over one of the hoppers, and an adjustable deflector arranged in the suction-box over the end of the screen, substantially as described.

14. In an ore-concentrator, the combination with a suction-box and hoppers therein, of a draft-chamber opening into the suction-box and having an adjustable and apertured inclined bottom, an inclined reciprocating screen in the draft-chamber and having its lower end projecting into the suction-box over one of the hoppers, and an adjustable deflector arranged in the suction-box over the end of the screen, substantially as and for the purpose set forth.

694,445. SWINGING SHELF FOR DESKS, &c. ELMER J. TIMMONS, Cincinnati, Ohio. Filed June 3, 1901. Serial No. 63,019. (No model.)



Claim.—1. A device of the class described comprising a supporting-bracket designed to be mounted at the corner of a table or desk and provided at its top with projecting lugs or ears, a shelf having leaves or plates hinged to the lugs or ears of the bracket, the folding brace mounted on the bracket and arranged to swing horizontally and provided with recesses or openings to receive the leaves or plates and the lugs or ears to permit it to fold to a position between the bracket and the shelf, and the keeper 17 arranged beneath the shelf and mounted thereon, said keeper being open at its inner end and arranged in the path of the brace and adapted to be automatically engaged by the same when the brace is swung outward, substantially as described.

2. A device of the class described comprising a supporting-bracket designed to be mounted at the corner of a table or desk and provided at its top with projecting lugs or ears, a shelf provided with leaves or plates hinged to the lugs or ears of the bracket, and the folding brace mounted on the bracket and arranged to swing horizontally and provided with recesses or openings to receive the leaves or plates and the lugs or ears, whereby it is adapted to fold to a position between the bracket and the shelf, substantially as described.

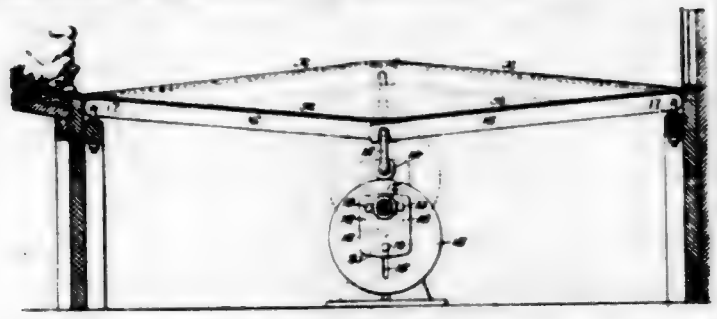
694,446. COPY-HOLDER. FELIX S. TOWLE, Hackensack, N. J. Filed June 5, 1901. Serial No. 63,273. (No model.)



Claim.—A copy-holder comprising a metal plate formed with a transverse opening, with a pair of oppositely-disposed integral clips springing from the plate adjacent to and directly below the opposite ends of the opening, and with a forwardly-projecting ledge at its lower extremity, said ledge being bent to form a pocket arranged to rest directly upon the supporting-surface, and a flange downwardly inclined from the front edge of said pocket and disposed to contact with the supporting-surface at an advanced point, and a swinging supporting-leg secured to the back of the plate and arranged to contact with the supporting-surface at a point in rear of the pocket, whereby the copy-holder proper is provided with an extensive integral supporting-base contacting with the supporting-surface at a plurality of separated points, and is formed with a pocket for the reception of the lower edge of the book.

694,447. AMUSEMENT OR ILLUSION APPARATUS. THEOPHILUS VAN KANNEL, New York, N. Y. Filed May 23, 1900. Serial No. 18,287. (No model.)

Claim.—1. An amusement or illusion device comprising a strip or sheet of flexible material, with means for imparting thereto a series of longitudinally-progressive rising-and-falling movements, simulating the appearance of the waves of the sea, substantially as specified.



2. An amusement or illusion device comprising a strip or sheet of flexible material, with means for imparting thereto a series of longitudinally-progressive rising-and-falling movements, said movements simulating the appearance of the waves of the sea and gradually diminishing toward the edges of the sheet, substantially as specified.

3. An amusement or illusion device having in combination, a series of pivoted levers disposed side by side, and a shaft having lever-operating cams or eccentrics timed to reach their limit of throw in longitudinal progression, substantially as specified.

4. An amusement or illusion device having in combination, a series of pairs of levers disposed side by side, the levers of each pair overlapping each other, and a shaft having lever-operating cams or eccentrics timed to reach their limit of throw in longitudinal progression, substantially as specified.

5. An amusement or illusion device comprising a flexible support, means for imparting a series of longitudinally-progressive rising-and-falling movements thereto simulating the appearance of the waves of the sea, and a conveyance mounted upon said flexible support and caused to travel thereon, by the movement thereof, substantially as specified.

6. An amusement or illusion apparatus comprising a flexible support, means for imparting a series of longitudinally-progressive rising-and-falling movements thereto simulating the appearance of the waves of the sea, and a conveyance mounted upon said flexible support and caused to travel thereon, by the movement thereof, and means for retarding or arresting such traveling movement of the conveyance, whereby it is caused to rise and fall as the supporting-surface undulates substantially as specified.

7. The combination of the flexible strip or sheet, a series of short shafts set at different angles and each having eccentrics or cams for imparting wave-like movement to said strip or sheet, and means for connecting the cams of successive shafts, substantially as specified.

8. The combination of a flexible strip or sheet, a pair of long shafts set at an angle in respect to each other, a series of short shafts interposed between the long shafts and set at different angles in respect thereto, and cams or eccentrics carried by said long and short shafts and timed so as to reach their limit of throw in longitudinal progression, substantially as specified.

9. The combination of a flexible strip or sheet, pivoted levers acting thereon, a shaft having cams or eccentrics for vibrating said levers, and interposed levers connected to those which are thus vibrated, so as to receive their motion therefrom, substantially as specified.

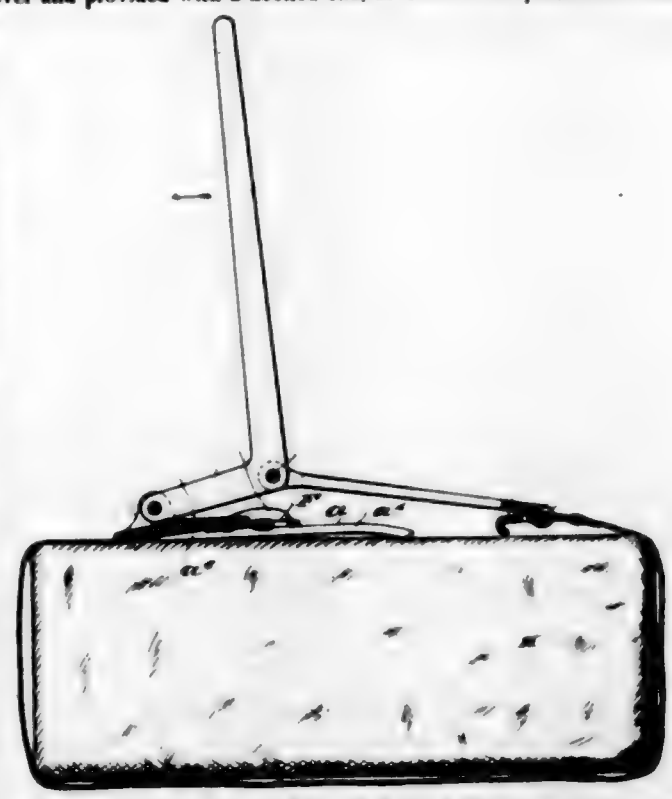
694,448. BALE-BAND APPLYING AND TIGHTENING DEVICE. ARTHUR A. VARDELL, Dallas, Tex. Filed Jan. 14, 1901. Serial No. 43,107. (No model.)

Claim.—1. In a bale-band applying and tightening device, a shoe arranged to engage one end of the bale band or strap, a lever pivotally connected to said shoe, a link or yoke pivotally connected to said lever and arranged to engage the other end of the band or strap, whereby when said lever is rocked the ends of the band or strap are drawn together, as and for the purpose set forth.

2. In a bale-band applying and tightening device, a shoe provided with a shoulder arranged to engage behind the eyelet in one end of the band or strap, a lever pivotally connected to said shoe, a yoke or link pivotally connected to said lever and provided with a hooked end arranged to engage behind the hook in the other end of the bale band or strap, whereby when said lever is rocked said hook and eyelet are drawn toward each other for engagement, as and for the purpose set forth.

3. In a bale-band applying and tightening device, a shoe having a forked end, shoulders formed in the forks thereof, a lever pivotally connected to said shoe, a link or yoke pivotally connected to said lever and provided with a forked and hooked end, as and for the purpose set forth.

4. In a bale-band applying and tightening device, a shoe provided with forked projections arranged to form seats or recesses, a lever pivotally connected to said shoe, a yoke or link pivotally connected to said shoe, a lever and provided with a hooked end, as and for the purpose set forth.

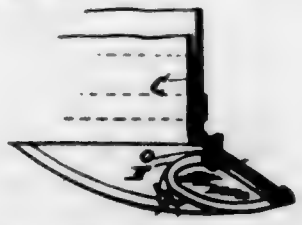


5. In a bale-band applying and tightening device, a shoe provided on the under surface with a longitudinal seat or depression adapted to receive the bale band or strap therein, and at its front end provided with a shoulder arranged to engage behind the edges of the eyelet in one end of the bale band or strap, a lever pivotally connected to said shoe, and a hooked link or yoke arranged to engage the hook end of the bale band or strap, said link or yoke being pivotally connected to said lever, as and for the purpose set forth.

6. In a bale-band applying and tightening device, a shoe provided with a shoulder arranged to engage one of the holding parts of the band carried in one end thereof, an angle-lever pivotally connected at one end to said shoe, a link or yoke pivotally connected to said lever at the angle thereof and provided with a hook at its other end, said hook arranged to engage the coöperating engaging part carried in the other end of the bale-band, as and for the purpose set forth.

7. In a bale-band applying and tightening device, a shoe provided with a longitudinal seat or recess in the under surface thereof and formed with suitably-spaced fingers or projections at its front end, said shoe provided with suitably-spaced projections arranged to form a seat or shoulder, in combination with an angle-lever pivotally connected to said shoe, a link or yoke pivotally connected to said lever at the angle thereof, and having a forked end formed with hooks, as and for the purpose set forth.

694,449. COMBINED VISOR AND EYE-SHIELD. HARRY L. WALDRON, Providence, R. I., assignor of one half to Walter H. Crowninshield and Charles H. Lawton, Pawtucket, R. I. Filed Nov. 23, 1901. Serial No. 83,445. (No model.)



Claim.—1. In a cap, the combination of a visor, an eye-shield having transparent lenses and provided with two earpieces at its ends, two spring-wire loops engageable with said two earpieces of the eye-shield, respectively, each of which loops has a screw-threaded stem passing through the visor and comprises a parallel and resilient guideway and a curved loop both adapted to direct the proper movement of the eye-shield, and a nut engaging the screw-threaded stem of each spring-wire loop, substantially as shown.

2. In a cap, the combination of a visor, a visor-lining, an eye-shield having transparent lenses and provided with two earpieces at its ends, two spring-wire loops engageable with said two earpieces of the eye-shields, respectively, each of which loops has a screw-threaded stem passing through the visor and has a straight portion thereof lying in contact with the under surface of the visor-lining, a curved open loop, a portion lying parallel with and adjacent to said straight portion and a bent free end, which

latter passes freely through an aperture in the vizor-lining and abuts the inner surface of said vizor and a nut engaging the screw-threaded end of each of said wire loops, substantially as described.

694,450. MUSIC-ROLL FOR AUTOMATIC MUSICAL INSTRUMENTS. PETER WELIN, Worcester, Mass., assignor to Theodore P. Brown, Worcester, Mass. Filed Oct. 31, 1901. Serial No. 80,633. (No model.)

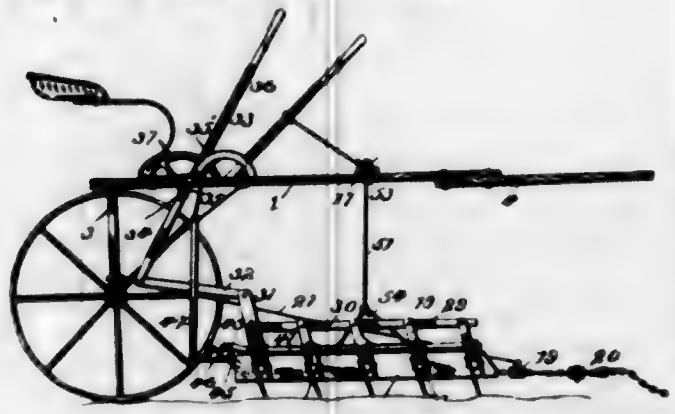


Claim.—1. In a spool for perforated paper, the combination of a metallic rod or spindle, a spool-head secured thereto, a wooden roll or core turning with and free to move longitudinally upon said spindle, and a second spool-head adjustably secured on the opposite end of the rod or spindle.

2. In a spool for perforated paper, the combination of a rod or spindle, a spool-head secured rigidly at one end thereof, a wooden roll or core fitting onto the rod or spindle, and slotted to receive a pin, so that said wooden roll will turn with, and be free to move longitudinally upon the rod or spindle, and a spool-head adjustably threaded onto the opposite end of the spindle.

3. The combination of a rod or spindle, a wooden roll turning with and free to move longitudinally upon said spindle, a music-sheet or strip of perforated paper having its end secured to the wooden roll, and spool-heads carried by said spindle, and adjustable with respect to each other to compensate for the shrinking or swelling of the paper.

694,451. RIDING-HARROW. BEN ALSUP, Bluffcreek, Iowa. Filed May 18, 1901. Serial No. 60,876. (No model.)



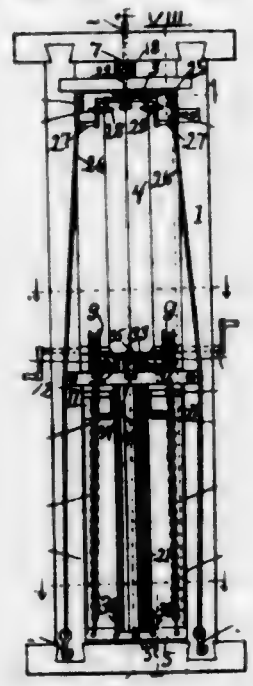
Claim.—1. In a riding-harrow, the combination with the riding-frame, rolling supports therefor, and harrow-sections, each harrow-section having an intermediate centrally-arranged bar and diagonal rods, of a cross-bar attached to the riding-frame and having its end portions extended over the harrow-sections and provided medially and at its ends with direction-pulleys, independently-mounted operating-levers, and flexible connections attached at one end to the respective operating-levers and passing over the respective sets of direction-pulleys and having the opposite end connected medially to the aforesaid central bar of the respective harrow-sections, substantially as set forth.

2. In a riding-harrow, the combination with the riding-frame, and rolling supports therefor, of harrow-sections suspended beneath the riding-frame in advance of the rolling supports, each harrow-section comprising a frame, parallel harrow-bars journaled therein and carrying rigidly-attached teeth, means for simultaneously rocking the harrow-bars, means for locking each of the several harrow-bars, and means under the control of the driver for tripping the locking mechanism, substantially as described.

3. In a riding-harrow, the combination with the riding-frame, and rolling supports therefor, of harrow-sections suspended beneath the riding-frame in advance of the rolling supports, each harrow-section comprising parallel harrow-bars with rigidly-attached teeth, means for simultaneously rocking all of the harrow-bars and setting the teeth at any desired pitch, harrow-bar-locking mechanism consisting of ratchet-wheels on the several harrow-bars, a corresponding series of pawls engaging said ratchet-wheels, a coupling-bar operatively connecting all of the pawls, and operating connections interposed between said coupling-bar and a lever under the control of the driver, whereby all the pawls may be simultaneously tripped substantially as and for the purpose specified.

4. In a riding-harrow, the combination with the riding-frame, and rolling supports therefor, of harrow-sections suspended beneath the riding-frame in advance of the rolling supports, each of said harrow-sections comprising parallel harrow-bars carrying rigidly-attached teeth, teeth-setting mechanism embodying means for coupling together and simultaneously rocking the several harrow-bars, locking mechanism for the harrow-bars consisting of ratchet-wheels fast on the harrow-bars, pawls for respectively engaging said ratchet-wheels, a coupling-bar pivotally connected with all the pawls for simultaneously operating them, a crank-shaft journaled on the harrow-section and operatively connected with the coupling-bar, and a trip-lever fulcrumed on the riding-frame and operatively connected with said crank-shaft, substantially as described.

694,452. WOOD-PIPE MACHINE. ANDREW ANDERSON, Burnett, Cal. Filed Aug. 12, 1901. Serial No. 71,819. (No model.)



Claim.—1. A wood-pipe machine comprising an annular cutter having a vertical axis; rotary means for suspending and rotating a stick axially upright above said cutter; and means for moving the cutter up and down.

2. A wood-pipe machine comprising a plurality of coaxially annular cutters mounted respectively on upright supports which will enter the kerfs cut by their respective cutters; rotary means for suspending a stick axially above said cutters; and means for moving the cutters up and down.

3. The combination of a rotary clutch for suspending a stick; an annular cutter arranged axially below said clutch; and means for moving said cutter toward and from said clutch.

4. The combination of a plurality of annular cutters; means for supporting said cutters and moving them endwise; a shaft mounted above said cutters; means for rotating the shaft; means connected with said shaft to rotate therewith and constructed to suspend a stick above the cutters; and means for moving the cutters up and down.

5. The combination of an annular cutter; means for supporting said cutter and moving it endwise; a shaft mounted above said cutter; means for rotating the shaft; a clutch constructed to suspend a stick above the cutters; means for detachably connecting said clutch with said shaft to rotate therewith; and means for moving the cutters up and down.

6. The combination of a rotary clutch for suspending a stick; an annular cutter arranged axially below said clutch; and means for producing relative endwise movement between said cutter and clutch.

7. The combination of a plurality of annular cutters; means for moving said cutters axially up and down; and means for suspending and rotating a stick in the path of said cutters.

8. A wood-pipe machine comprising a vertical rotary shaft; a clutch constructed and arranged for clutching and suspending a stick detachably connected with said shaft to rotate therewith; means for raising and lowering the clutch; an annular guide for the lower end of the stick constructed and arranged to allow the stick to swing slightly; an annular cutter coaxial of the shaft and fixed against rotation; and means for moving said cutter up and down.

9. In a wood-pipe machine, the combination of means for suspending and rotating a stick on a vertical axis; one or more cutters mounted on a support to move up and down coaxially of said stick; and a counterbalance connected with the support to draw it upward.

10. In a wood-pipe machine, the combination of means for suspending and rotating a stick on a vertical axis; one or more cutters mounted on a support to move up and down coaxially of said stick; and an adjustable counterbalance connected with the support to draw it upward.

11. The combination with means for suspending and rotating a stick on a vertical axis; of one or more annular cutters; a support for said cutters; a vertical guide for said support; a shaft; sprocket-wheels on said shaft; sprocket-chains connected with said support and led over said sprocket-wheels; weights on said flexible connections to counterbalance the support; and means for rotating the shaft.

12. The combination of means for suspending and rotating a stick on a vertical axis; annular cutters arranged below said means coaxial therewith; means for raising and lowering said cutters; and guides for the upper end of the cutters

13. A chuck for holding a stick; elevated means for rotating the chuck; detachable means for lifting the chuck to connect it with the rotating means; an annular cutter; and means for raising and lowering the annular cutter.

14. The combination of a vertical shaft having its lower end adapted to rotate a chuck; means for rotating the shaft; a stick-holding chuck furnished with a socket for said shaft and with members by which the chuck can be lifted; flexible connections detachably connected with said members to lift the chuck, the axis of said members being below the mouth of the socket into which the shaft is to seat.

15. The combination of the frame; pulleys on the frame; flexible connections led over said pulleys, respectively; a chuck furnished with a socket and with means for clamping a stick and with members for the attachment of said flexible connections; a vertical rotary shaft to seat in said socket to turn the chuck; an annular cutter; means for raising and lowering the cutter toward and from the chuck; and means for rotating the shaft above the cutter.

16. In a wood-pipe machine, the combination with a vertical rotary shaft; of a stick-clamping chuck furnished with a socket to fit said rotary shaft; an annular cutter; means for raising and lowering the cutter toward and from the chuck; means for supporting the stick and chuck with the shaft in said socket above the cutter, said chuck being furnished with supporting members; flexible connections furnished with hooks to hook upon said supporting members and weighted to become detached from said supporting members by the force of gravity, substantially as set forth.

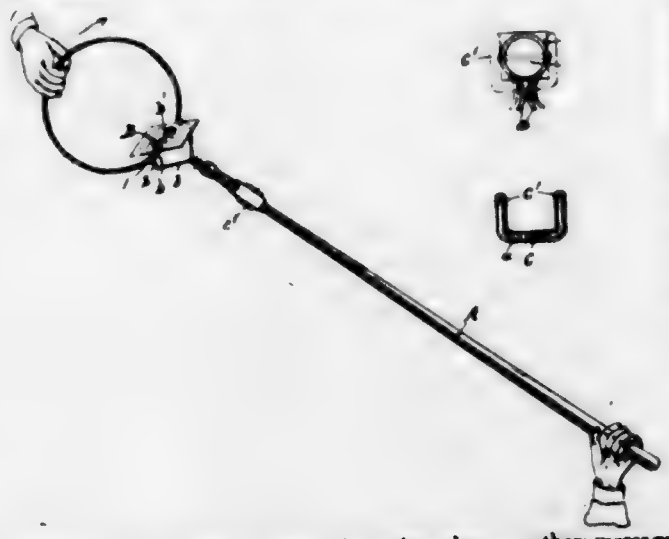
17. The annular cutters; supports for said cutters furnished with seats for cross-bars; and cross-bars inserted in said seats to hold the cutters concentric in the act of starting the cut.

18. The combination of a plurality of annular cutters; supports for said cutters respectively; and expansible blocks for holding said supports in position relative to each other.

19. The combination with the cutter-supports; of two wedges slidably connected together between two of said supports; a nut on one of said wedges; and a screw swiveled to the other wedge and screwed through the nut.

20. The combination with the annular cutter-supports; of a wedge furnished with an arm and with a nut on said arm; another wedge slidably connected with the first-named wedge; a screw swiveled to said last-named wedge and screwed through the nut; said wedges being arranged between two supports to engage the same.

694,453. DEVICE FOR DELIVERING TRAIN-ORDERS. BERT E. ANDRESS, Port Allegany, Pa. Filed Jan. 30, 1901. Serial No. 45,341. (No model.)



Claim.—1. A delivery device for train orders or other messages comprising a rod or pole and a message-clamp consisting of a bar and a yielding tongue detachably secured to the pole and provided with a hand-engaging loop united to the opposite ends of the bar.

2. A delivery device for train orders or other messages comprising a rod or pole provided with spring-jaws, and a message clamp detachably held by said jaws and consisting of a loop having a cross-bar, and a tongue on the bar for the purpose described.

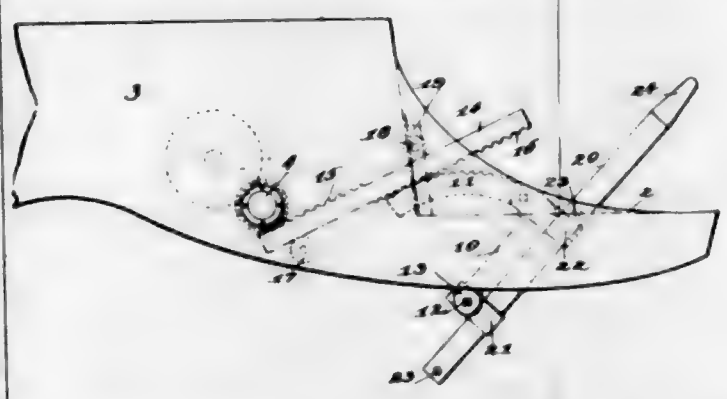
3. A delivery device for train orders or messages comprising a rod or pole and message-receiving support having a loop or ring for the purpose described, a bar having its opposite end secured to the opposite sides of the ring or loop, and a tongue having one end secured to the bar and its other end spring-tensioned toward the bar.

4. A delivery device for train orders or messages comprising a rod or pole having one end provided with spring-jaws and inserted between the jaws and the message-receiving support having one end provided with spring-jaws for engaging the pole and its other end provided with a loop having a spring-arm for holding a message.

5. A delivery device for train orders or other messages comprising a rod or pole having one end provided with yielding clamping-jaws, and a ring detachably held by said jaws and having a cross-bar and spring-arm tensioned toward the bar for engaging and holding the message in position.

6. A delivery device for train orders or messages comprising a rod or pole, spring-jaws secured to the pole, a ring or loop having an arm detachably engaged with the jaws of the pole or rod and provided with a cross-bar and a spring-arm secured at one end to the bar and having its other end tensioned toward the bar for holding the message in position.

694,454. STARTING MECHANISM. JACOB BALDNER, Xenia, Ohio. Filed Jan. 21, 1901. Serial No. 43,994. (No model.)



Claim.—1. A starting device, consisting of a pinion loosely mounted on an engine-shaft, connection between the pinion and a ratchet having a positive connection with said shaft, a segmental rack, and means for actuating the rack for transmitting motion to the loose pinion on the engine-shaft through mechanism interposed between the pinion and segmental rack, substantially as described.

2. In a starting device for motor-vehicles, a pinion loosely carried on the power-shaft of the vehicle, a rack engaging the pinion, a segmental rack engaging the aforesaid rack, an extensible lever for actuating the segmental rack, and suitable means having a positive connection with the power-shaft arranged to be actuated by the pinion on said power-shaft, substantially as described.

3. In a starting device, the combination with the engine-shaft of a vehicle, of a segmental rack having a pivotal connection on the vehicle-bed, a lever having an extensible connection with the segmental rack, means interposed between the engine-shaft and segmental rack whereby when said rack is actuated a rotary movement will be imparted to the engine-shaft, substantially as described.

4. The combination with the driving parts of a vehicle, of an engine-shaft, a flanged pinion loosely carried on the shaft and carrying a series of pawls engaging with a ratchet having a positive connection with said shaft, a rack-bar capable of reciprocation having on its upper face a cog-rack engaging with a loose pinion on the shaft, and having a cog-rack on its lower face engaging with means for reciprocating the same for imparting rotary motion to its connecting means on the engine-shaft, substantially as described.

5. In a starting device for motor-vehicles, the combination with the driving mechanism therein, of an engine-shaft, a flanged pinion having a loose connection with the shaft, a ratchet-wheel carried adjacent to the pinion and having a positive connection with the shaft, pawls engaging the ratchet and carried by the flanged pinion, a reciprocating cog-rack suitably supported and having oppositely-arranged cog-faces, one of which has a meshing relation with the loose pinion and the other having a meshing relation with an auxiliary pivoted rack and a lever for swinging the pivoted rack, substantially as specified.

6. In a starting device for motor-vehicles, the combination with the power driving-shaft, a loose pinion carried on said shaft, a reciprocating bar having a cog-rack on its upper and lower faces at opposite ends, the inner teeth having a meshing relation with the loose pinion and the outer lower rack having a meshing relation with a swinging rack, and supporting-rollers for the reciprocating rack, an extensible lever connected with the swinging rack suitably pivoted for actuating the swinging and reciprocating rack, and means having a positive connection with the shaft actuated by the loose pinion when the same is rotated by the reciprocating bar, substantially as described.

7. In a starting device, the combination with a fixed and loose pinion on the engine-shaft, of the rack 14, having double cogged faces, the rack 10, pivoted at 12, and the lever 20, sliding in yokes 21, and 22, and arranged to transmit a reciprocating movement to the rack 14, in the manner and for the purpose described.

8. In a seat starting device, the combination with a fixed and loose mechanism on the engine-shaft, the rack 14, and the segmental rack 10, means for holding the rack 14, in engagement with the mechanism on the engine-shaft and with the rack 10, a lever 20, for actuating the aforesaid racks, and a common pivotal point 12, for the lever and segmental rack 10, all arranged substantially in the manner and for the purpose described.

694,455. MANHOLE-COVER. FRED BARKER, Paterson, N. J. Filed Sept. 4, 1901. Serial No. 74,902. (No model.)



Claim.—1. A manhole-cover consisting of a metallic body having its top surface recessed, projections extending inwardly from the outer wall of the thus-recessed body and being penetrated by openings, and a filling of cement or other similar material occupying said recess and also occupying the openings which penetrate said projections, substantially as described.

2. A manhole-cover consisting of a metallic body having its top surface formed with a dovetailed recess, projections extending inwardly from the outer wall of the thus-recessed body and being penetrated by openings, and a filling of cement or other similar material occupying said recess and also occupying the openings which penetrate said projections, substantially as described.

3. A manhole-cover consisting of a metallic body having its top surface recessed, projections extending inwardly from the outer wall of the thus-recessed body and being penetrated by openings, a filling of cement or other similar material occupying said recess and also occupying the openings which penetrate said projections, and knobs extending up through the cement and being elongated in a direction parallel with the circumference of the cover, substantially as described.

694,456. BURGLAR AND FIRE ALARM. ROY BARRETT, Palmyra, N. Y. Filed July 18, 1901. Serial No. 68,796. (No model.)

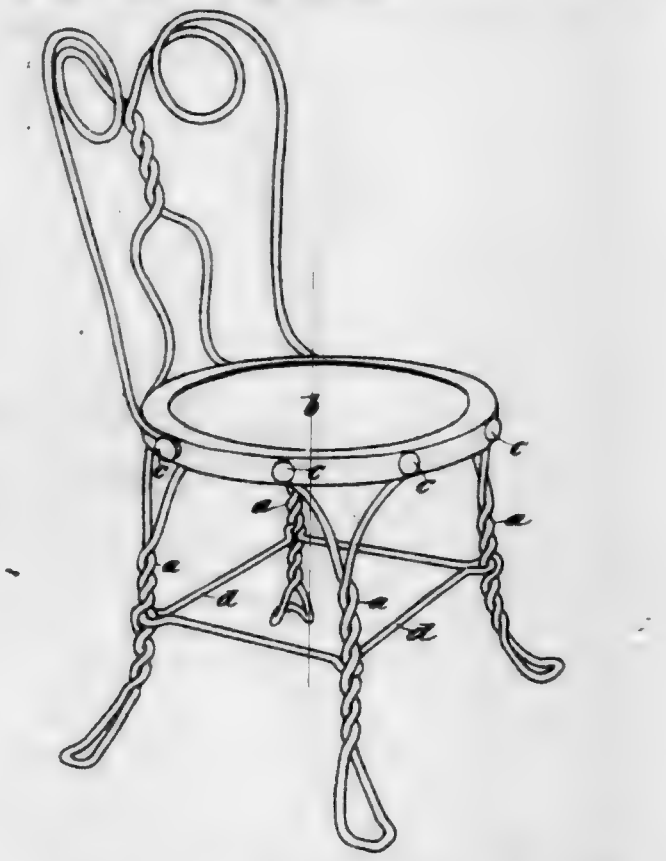


Claim.—1. An alarm device of the character described, comprising a rod or bar, a cartridge-holder arranged at one point upon the rod or bar and adapted to receive a number of cartridges, a hammer or plunger slidably mounted upon the rod or bar above said cartridge-holder and having a firing-pin to discharge the cartridges, and adapted to be upwardly propelled by the force of the explosion, and means for turning said hammer or plunger to successively bring the firing-pin into engagement with each cartridge, substantially as described.

2. In a device of the character described, the combination of a rod or bar, a cartridge-holder mounted thereon, a hammer or plunger slidable upon the bar and carrying a firing-pin and adapted to drop by gravity to discharge the cartridges, a turning device upon the bar adapted to turn the hammer to bring the firing-pin in position to successively engage each cartridge, said turning device being provided with guide-slots, and a guide-pin on the hammer coöperating with said slots, substantially as described.

3. In a device of the character described, the combination of a rectangular rod or bar provided adjacent to its upper end with a round or cylindrical portion, a cartridge-holder at the base of the bar, a drop hammer or plunger slidably mounted upon the bar and carrying a firing-pin to engage the cartridges, said hammer having a guide-pin and adapted to turn upon said cylindrical portion, and a turning device above the cylindrical portion having guide-slots coöperating with said pin to affect the turning of the hammer, substantially as described.

694,457. CHAIR. OTIS L. BEARDSLEY, Austin, Ill. Filed July 10, 1899. Serial No. 723,255. (No model.)



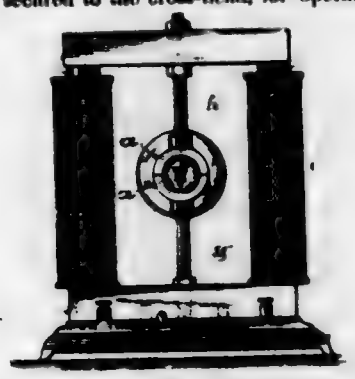
Claim.—1. As a new article of manufacture, a chair comprising a seat *b*, detachable legs *a a* formed of twisted loops of wire, the ends of the wire forming each leg or loop being adapted to be attached to the seat adjacent to one another, and a brace *d* having loops in which the twisted legs are linked, whereby the said legs, when detached from the seat, may be folded together about said brace into a star-shaped plane figure, substantially as described.

2. As a new article of manufacture, a chair comprising a seat *b*, detachable legs *a a* formed of loops of heavy wire twisted together, the ends of the wire forming each leg or loop being symmetrical and adapted to be attached to the seat adjacent to one another, and a brace *d* of wire in the shape of a polygon, said brace having loops at its corners in which the twisted legs are linked, whereby the legs, when detached from the seat, may be folded together about said loop into a plane, substantially as set forth.

694,458. ELECTROMAGNETIC CAPPING-MACHINE. LOUIS J. BOSIE, San Francisco, Cal. Filed Feb. 4, 1901. Serial No. 45,853. (No model.)

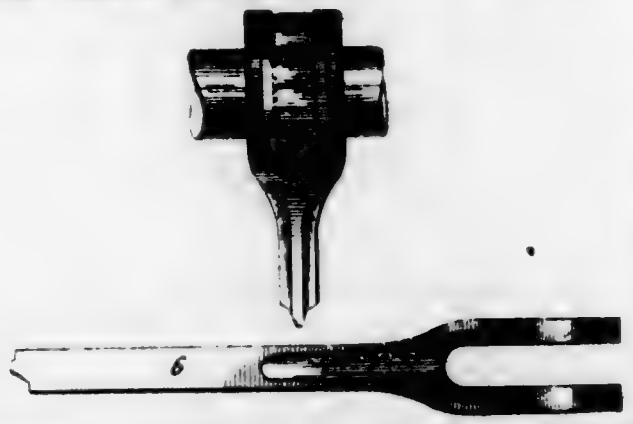
Claim.—1. The herein-described capping-machine, comprising a suitable base, the solenoids, fixed cores secured to the base, the loosely-fitted cores having their ends in working relation to the fixed cores, the

cross-head uniting the loosely-fitted cores, an electric circuit including a source of electric energy, a circuit-closing device and the winding of the solenoids, and a two-part die one part of which is mounted on the base and the other part secured to the cross-head, for operation as set forth.



2. In a capping-machine the combination of a pair of solenoid-magnets each comprising a bobbin a fixed core inserted from one end and stationary therein and a movable core inserted from the opposite end and longitudinally movable therein, a cross-head connecting the two movable cores, a base rigidly joining the stationary cores, a two-part die having one part mounted on the base and the other part secured to the movable cross-head, springs interposed between the movable cross-head and the stationary base, and an electrical circuit including a source of electrical energy the windings of the solenoids and a circuit-closer, substantially as specified.

694,459. CONNECTING DEVICE. JOHN R. CARTER, Augusta, Ky., assignor to Ernst H. Huenefeld, Cincinnati, Ohio. Filed Aug. 7, 1901. Serial No. 71,266. (No model.)



Claim.—1. In a double-pitman connection the combination of two pitmen, one having double hooks spaced apart and adapted to receive a shaft, the other pitman having a single hook to be disposed on the shaft between the double hooks and the outer portion of the single hook having an enlargement to engage the hook portion of the pitman having double hooks and lock both pitmen on the shaft when the hooks are moved out of alinement.

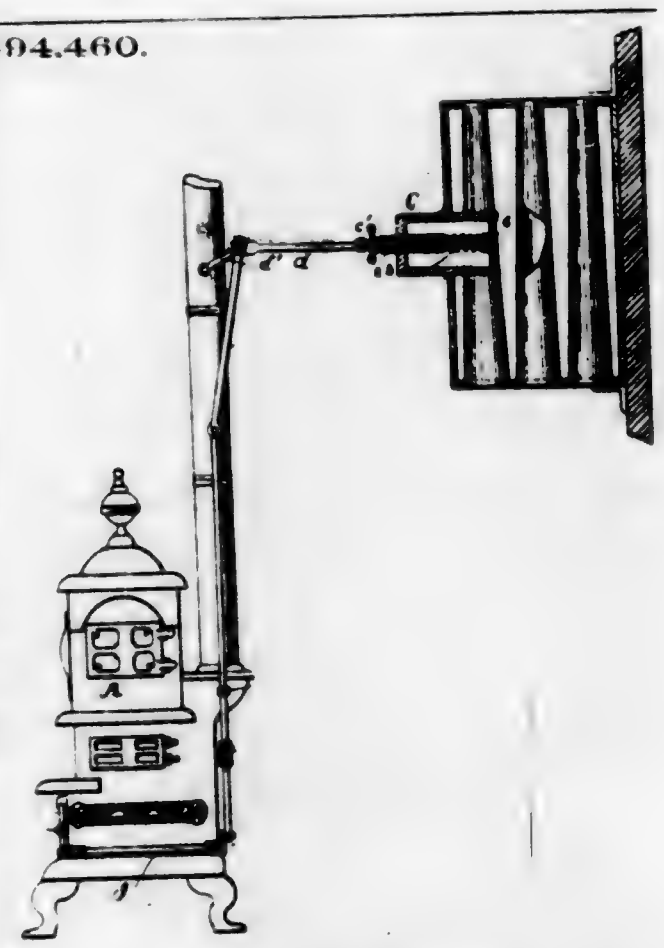
2. In a double-pitman connection, the combination of two pitmen and a shaft, one pitman having double hooks spaced apart and adapted to receive the shaft, the other pitman having a single hook to be disposed on the shaft between the double hooks and the outer portion of the single hook having lateral enlargements to overlap the outer edges of the double hooks when the hooks are moved out of alinement.

694,460. STOVE-DAMPER REGULATOR. BARNABAS J. CASTERLIN, Olalla, Oreg. Filed July 27, 1900. Renewed Aug. 1, 1901. Serial No. 70,501. (No model.)

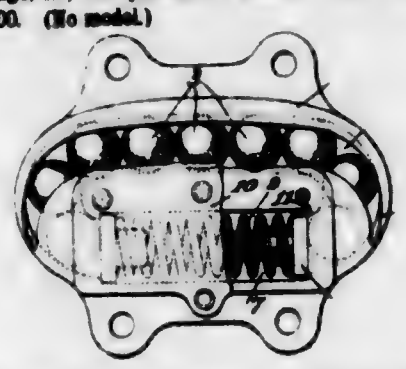
Claim.—1. The combination with a stove, the pipe thereof, a damper in said pipe, and a crank actuating said damper, of an air-chamber, conical tubes vertically arranged in said chamber, a cylinder in the wall of said chamber, a piston and piston-rod in said cylinder, a screw and spring embracing said piston-rod in said cylinder, a pitman pivotally connecting said piston-rod, and said damper-crank, all substantially as and for the purpose set forth.

2. The combination with a stove and the pipe thereof, the draft-damper of said stove, a damper in said pipe, and a crank actuating said damper, of an air-chamber, vertical tubes in said air-chamber, a cylinder in the side wall of said chamber, a piston and piston-rod in said cylinder, a screw and a spring embracing said piston-rod in said cylinder, a pitman pivotally connecting said piston-rod and said damper-crank, a shaft journaled on said stove, cranks mounted on said shaft, two pivotally-connected rods, connecting one of said cranks with said pitman and said damper-crank, and the other crank on said shaft connected with the said draft-damper of said stove, all substantially as and for the purpose set forth.

694,460.



694,461. SIDE BEARING FOR RAILWAY-CARS. FREDERICK R. CORNWALL, St. Louis, Mo., assignor to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 18, 1901. Serial No. 82,900. (No model.)



Claim.—1. In a side bearing for cars, the combination with an antifriction device, and a restoring medium actuated in a direction opposite to the movement of the antifriction device in service; substantially as described.

2. In a side bearing for cars, the combination with an antifriction device, of resilient means for restoring said antifriction device, and means between said antifriction device and said restoring means for reversing the movement of the former to store up power in the latter; substantially as described.

3. In a side bearing for cars, the combination with a series of antifriction devices, of a restoring medium therefor, and means for storing power in said medium in a direction opposite the movement of any of the antifriction devices in service; substantially as described

4. In a side bearing for cars, the combination with a row of balls, of resilient means for restoring said balls to their normal position, and means operated by the end balls of the row for storing up power in said restoring medium in a direction opposite the movement of the balls of the row in service; substantially as described.

5. In a side bearing for cars, the combination with a row of balls, of a compression-spring for restoring the same to a normal position, the end balls of the row coöperating with said compression-spring; substantially as described.

6. In a side bearing for cars, the combination with a row of balls, of spring-followers against which the end balls are seated, and a spring interposed between said followers; substantially as described.

7. In a side bearing for cars, the combination with a casting formed with an endless way, of balls in a portion of said way, and a restoring-spring in another portion of said way; substantially as described.

8. In a side bearing for cars, the combination with a casting formed with a continuous way, abutments or stops in said way, spring-followers coöperating with said abutments, a spring interposed between said fol-

lowers, and a row of balls coöperating with the said spring-followers: substantially as described.

9. In a side bearing for cars, the combination with a casting having a continuous way, of different areas, a row of balls in the way of smaller area, and a restoring-spring for said balls in that portion of the way which is of larger area; substantially as described.

10. In a side bearing for cars, the combination with a casting formed with a top way, a bottom way, and inclined end ways, of balls in said top and inclined ways, and a restoring-spring in the bottom way: substantially as described.

11. In a side bearing for cars, the combination with a casting having an endless way, of a row of exposed balls in a portion of said way, a restoring-spring in another portion of said way, and a housing for said restoring-spring; substantially as described.

12. In a side bearing for cars, the combination with a casting formed with an endless way, said way forming in part a ball-race, and in part a spring-housing, balls in said race, and a spring in said housing; substantially as described.

13. In a side bearing for cars, the combination with a casting formed with a continuous way, of balls arranged in a portion of said way, means for confining said balls in position in said way, abutments in said way, spring-followers coöperating with said abutments, a spring interposed between said followers, and a cover-plate for housing in said spring and its followers; substantially as described.

14. In a side bearing for cars, the combination with a casting having a continuous way of differential areas, of a row of balls arranged in said way, the end balls of said row being of relatively larger diameter and coöperating with shoulders in the way whereby said balls of larger diameter serve as spring-followers, and an expansion-spring interposed between said balls of larger diameter; substantially as described.

15. In a side bearing for cars, the combination with a casting formed with a continuous way, a track-plate in a portion of said way, a row of balls in said way which is supported in part by said track-plate, said casting having inwardly-extending lips to confine said balls in position, spring-followers coöperating with the balls at the ends of said row, a spring interposed between said followers, and a covering for said spring; substantially as described.

694,462. DOOR FOR GRAIN-CARS AND LOCKING DEVICE THEREFOR. SETH A. CROSE, New York, N. Y. Filed Nov. 9, 1901. Serial No. 81,649. (No model.)



Claim.—1. The grain-car door having the panel 16, and the hinges for the ends of said panel, said hinges being set below the upper edge of the panel and comprising the horizontal pins 18 on which said panel may turn, combined with a locking device for securing the central portion of the lower edge of said panel, and the plate 21 for bracing the central portion of the upper edge of said panel; substantially as set forth.

2. The grain-car door having the panel 16 and an opening for and to receive said panel, the lower edges of said panel and said opening being beveled to effect at the proper time the upward movement of said panel within said opening, and the hinges for the ends of said panel, said hinges comprising the horizontal pins 18 on which said panel may turn and the sleeves 19 receiving said pins and being elongated vertically to permit an upward movement of said panel during the firm closing of the latter, said pins 18 being set below the upper edge of said panel, combined with means for locking said panel at its lower edge; substantially as set forth.

3. The grain-car door having the panel 16, combined with means for locking said panel in closed position, said means comprising the slotted plate 22 containing in its slot the movable dog 25, and the pivoted lever having the toothed end to be engaged by said dog, said plate being secured upon said panel and said lever being pivotally secured to said door below said panel in position when the lever is turned in one direction for said toothed end to pass below said panel and when said lever is turned in the other direction for said toothed end to pass upward above the lower edge of said panel and against the lower end of said dog, whereby said dog is enabled to engage said toothed end and said lever is enabled to lock said panel in closed position; substantially as set forth.

4. The grain-car door having the panel 16, combined with means for locking said panel in closed position, said means comprising the plate 22 fastened to said panel and having the slot 23 and inner recess 24, the movable dog 25 within said slot and having the retaining-plate 28 within said recess, and the lever having the toothed end to be engaged by said dog, said lever being pivotally secured to said door below said panel in position when the lever is turned in one direction for said toothed end to pass below said panel and when said lever is turned in the other direction for said toothed end to pass upward above the lower edge of said panel and against the lower end of said dog, whereby said dog is enabled to engage said toothed end and said lever is enabled to lock said panel in closed position; substantially as set forth.

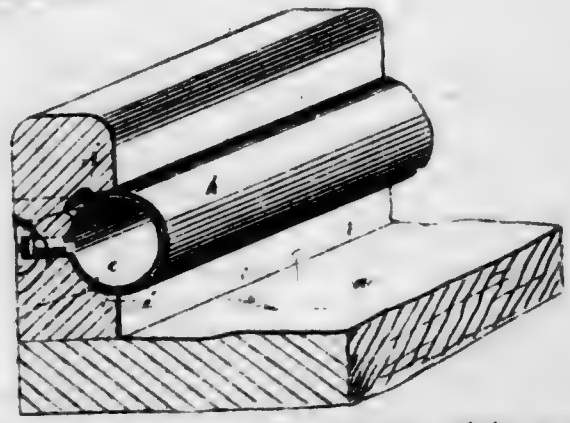
5. The grain-car door having the panel 16, combined with means for locking said panel in closed position, said means comprising the plate 22 fastened to said panel and having the slot 23 and downwardly and outwardly inclined inner recess 24, the movable dog 25 within said slot and having the retaining-plate 28 within said recess and against the inclined surfaces thereof, and the lever having the toothed end to be engaged by said dog, said lever being pivotally secured to said door below said panel in position when the lever is turned in one direction for said toothed end to pass below said panel and when said lever is turned in the other direction for said toothed end to pass upward above the lower edge of said panel and against the lower end of said dog, whereby said dog is enabled to engage said toothed end and said lever is enabled to lock said panel in closed position; substantially as set forth.

6. The grain-car door having the panel 16, combined with means for locking said panel in closed position, said means comprising the plate 22 fastened to said panel and having the movable dog 25, and the lever 27 having at one end the teeth 26 to be engaged by said dog and provided on its inner face with the wedge-surface 36 to engage the outer face of said plate 22 for forcing said panel to closed position, said lever being pivotally secured to said door below said panel in position when the lever is turned in one direction for said toothed end to pass below said panel and when said lever is turned in the other direction for said toothed end to pass upward above the lower edge of said panel and against the lower end of said dog, whereby said dog is enabled to engage said toothed end and said lever is enabled to lock said panel in closed position; substantially as set forth.

7. The grain-car door having the panel 16, combined with means for locking said panel in closed position, said means comprising the plate 22 fastened to said panel and having the movable dog 25 and exposed wedge surface 30, and the pivoted lever 27 having at one end the teeth 26 to be engaged by said dog and provided on its inner face with the wedge surface 36 to engage the said wedge surface 30 for forcing said panel to closed position, said lever being pivotally secured to said door below said panel in position when the lever is turned in one direction for said toothed end to pass below said panel and when said lever is turned in the other direction for said toothed end to pass upward above the lower edge of said panel and against the lower end of said dog, whereby said dog is enabled to engage said toothed end and said lever is enabled to lock said panel in closed position; substantially as set forth.

8. The grain-car door having the panel 16 therein, and the hinges for the ends of said panel, said hinges comprising the horizontal pins 18 and sleeves therefor, said pins being set below the upper edge of the panel and serving as pivots for the same and also as means for bracing the ends of said panel against the pressure of the grain, combined with means for bracing the upper edges of said panel when the latter is in closed position, and a locking device for securing the lower edge of said panel; substantially as set forth.

694,468. CUSHION FOR GAME-TABLES. RICHARD F. DOWNEY, Menominee, Mich., assignor to the Automatic Portable Bowling Alley Company, Menominee, Mich. Filed May 4, 1901. Serial No. 58,698. (No model.)

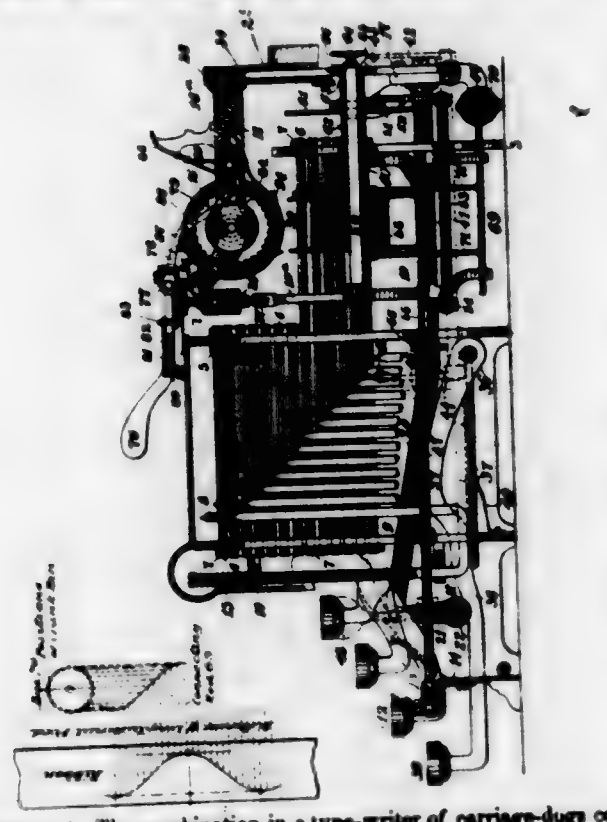


Claim.—1. In a game-table, the combination with the upward-projecting side and end rails having longitudinal recesses, and communicat-

ing longitudinal grooves, formed in the inner faces thereof, of protected inflatable tubes located in said recesses; a valve communicating with said tubes for inflating the same; and strips of suitable material secured at one edge within said recesses and having the opposite edge rolled around a wire, and inserted within the said groove, the said communicating grooves being located above the central horizontal plane of the said recesses, and being of greater width than the diameter of the said rolled edge of the fabric, whereby the said inflatable tubes are covered by said strips and held in place when the tubes are inflated, and whereby inflatable tubes of different diameters may be thus securely held in place without change in the construction of the recesses or grooves or in the point of attachment of the fixed edge of the fabric.

2. In a game-table, a series of upward-projecting side and end rails, each rail having a rounded concave central longitudinal recess in the inner face thereof, and a communicating longitudinal groove or extension of said recess formed in the rail back of the inner face of the said rail and above the central horizontal plane of said longitudinal recess, in combination with inflatable tubes located partly in and projecting from said recesses, and strips of suitable fabric secured at their lower edges within said recesses, and carried up around said tubes, the upper edges of said strips being stiffened and inserted within the said communicating grooves, whereby said tubes, when inflated, will be held to place within the said recesses, and the inner surfaces of said rails above and below said projecting tubes, be exposed and their continuity uninterrupted.

694,464. TYPE-WRITER. JOSIAH S. DU BOIS, Camden, N. J. Filed Mar. 12, 1896. Serial No. 582,853. (No model.)



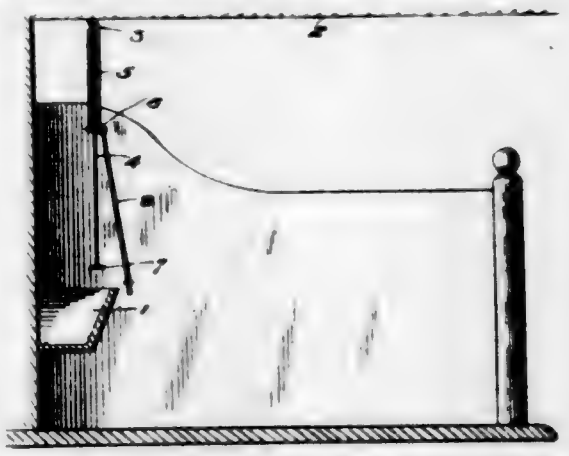
Claim.—1. The combination in a type-writer of, carriage-dogs connected with the shaft and carriage-support, a finger for throwing out said dogs, a key, as 48, carried by the fixed part of the machine, and sliding connections interposed between the key and finger, substantially as described.

2. In a type-writer the combination of, a bell, a hammer supported by a spring and provided with a projection, a carrier, as 74, frictionally fitted to a feather on the carriage-rack, and a lug depending from said carrier into range of the projection on the bell-hammer, substantially as described.

3. In a type-writer the combination of, teeth projecting radially from the axis of a revoluble platen, a bell-crank lever pivoted to a movable carriage by a vertically-disposed pivot and having one of its ends arranged to constitute a single hand-lever for returning the carriage and advancing the platen by a single motion, a pawl connected with the other arm of said lever and coöperating with said teeth, a notched sleeve adjustable endwise on the first-mentioned arm of said lever, and a keeper applied to the carriage and adapted to collide with different notches on the sleeve to change the distance between the lines of writing, substantially as described.

4. In a type-writer the combination of, a ratchet-wheel having its teeth disposed radially in respect to the axis of the platen, a pawl and its connections for driving said platen, a knob mounted to turn with and slide endwise on the axis of said platen, and a lever operated by a conical shank on said knob and adapted to lift said pawl out of action, substantially as described.

694,465. HITCHING DEVICE. JOHN W. EVANS, Greenville, Mo. Filed July 22, 1901. Serial No. 69,308. (No model.)



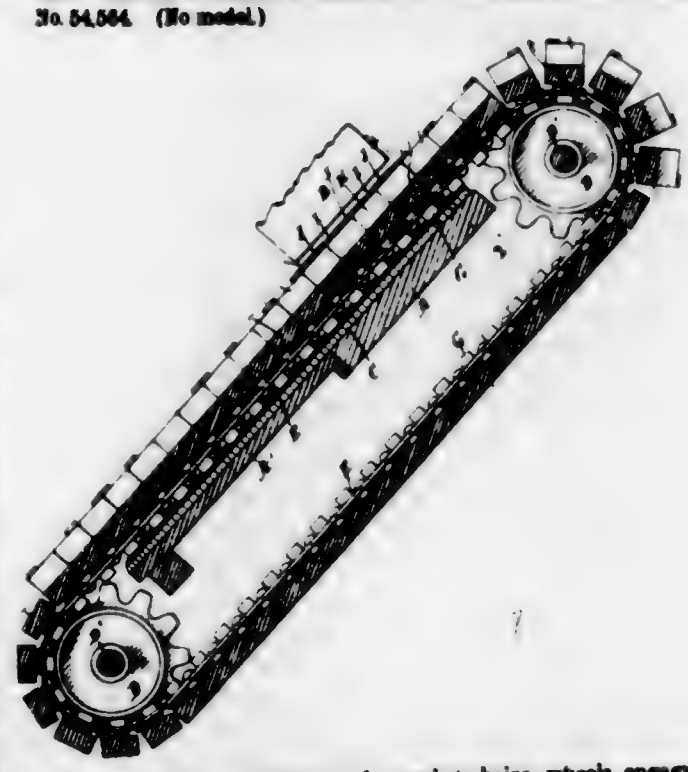
Claim.—A hitching device of the character described, comprising a swinging rod, means for hinging the upper end of the rod to a suitable support, a hitch-ring slidably mounted on the rod, an expansion-spring surrounding the rod and connected at one end thereto and at the other end to said ring, and a stop upon the lower end of the rod to limit the movement of the ring, substantially as described.

694,466. CORK-EXTRACTOR. GEORGE C. FERGUSON, Fredericton, Canada. Filed July 22, 1901. Serial No. 69,173. (No model.)



Claim.—A cork-extractor comprising a flattened and pointed blade provided with spurs or barbs on its opposite side edges and in alternate or staggered relation, each barb having a relatively abrupt top face and a sloping and cross-sectionally beveled under face, and a suitable handle secured to the blade, substantially as described.

694,467. WORK CONVEYING AND PRESENTING MECHANISM. RUSSELL B. FULLER, Holland, Mich. Filed Apr. 5, 1901. Serial No. 54,564. (No model.)



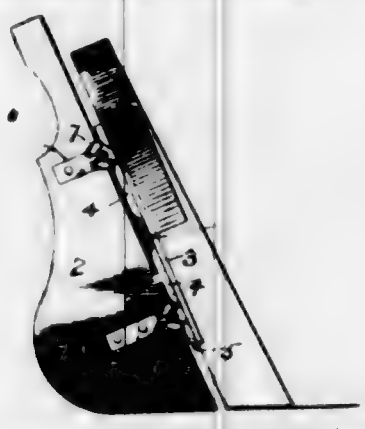
Claim.—1. The combination of sprocket-chains, wheels engaging the chains, transverse slats attached to opposing links in the chains and arranged in groups, posts attached to a slat at one side of the group,

springs attached to a slat at the opposite side of the group, pins in the slats, and blocks on the respective slats and having upward projections to engage opposite sides of the stock, substantially as described.

2. In combination with a nailing-machine, an endless apron, consisting of transverse slats pivotally connected to each other and arranged in groups of four, one slat having posts pins, and blocks, to engage one side of the stock, one slat having springs, pins, and blocks to engage the opposite side of the stock, two of said slats having blocks to engage the stock, and thimbles between the middle slats and attached to one of the same, substantially as described.

3. The following means for holding basket-tops to be nailed: four slats pivotally connected to each other in series, posts at one side of the series to engage the ends of the segments, springs at the other side of the series to engage the opposite ends of the segments, pins in the outer slats to engage the outside of the segments, and blocks on each slat having upward projections to engage the opposite sides of the top strips, substantially as described.

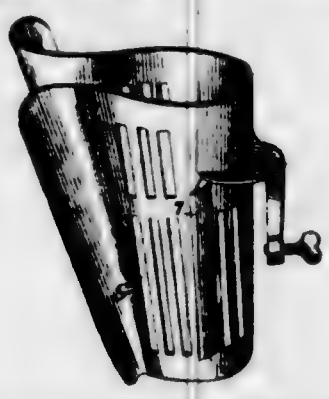
694,468. **RUDDER ATTACHMENT.** EUGENE G. GAILLAC, Jonesport, Me. Filed July 23, 1901. Serial No. 69,434. (No model.)



Claim.—1. The combination with the stern of a boat, of a strip countersunk into the stern-post and secured thereto, integral inclined flanges on the sides and lower end of said strip, the latter tapering at its lower end, a bar having inclined sides and lower end and tapering at its lower end, hooks or loops on said bar, brackets bent around said hooks or loops and secured to the sides of the rudder.

2. The combination in a rudder attachment, of a plate secured to the stern of the boat and provided with flanges at its sides and bottom, the said flanges forming a seat, a removable bar adapted to rest within said seat and provided with a curved bearing at its upper end and a similar bearing at a point above its lower end, and rudder-brackets secured to said rudder and permanently engaging said removable bar, substantially as set forth.

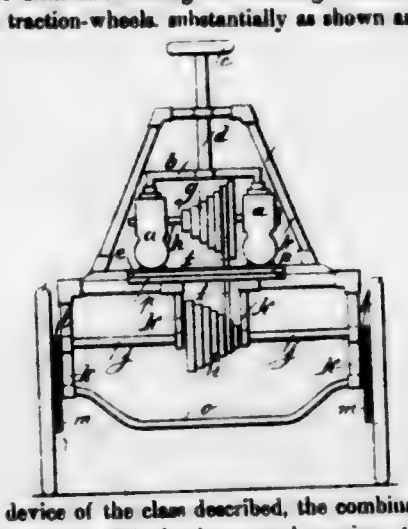
694,469. **MOP-WRINGER.** WILLIAM GEDDES, Quincy, Mass. Filed Apr. 25, 1901. Serial No. 57,469. (No model.)



Claim.—A mop-wringer comprising a hollow, conical, perforated receptacle, with a perforated bottom, one side of said receptacle being open, provided with flaring lips; the back of said receptacle being provided with projecting pieces adapted to rest against the inside of a pail, and a hook-shaped projecting piece adapted to hook over the edge of a pail, and means for firmly securing the receptacle to a pail, substantially as described.

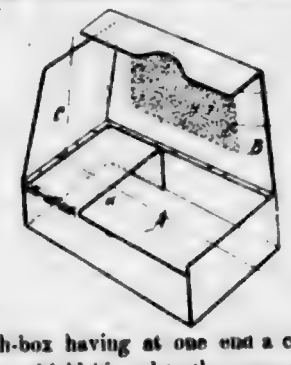
694,470. **MOTOR-CARRIAGE.** CHARLES GOUCHON, Lisieux, France. Filed Jan. 15, 1901. Serial No. 43,344. (No model.)

Claim.—1. In a device of the class described, the combination with a fifth-wheel consisting of two disks, the lower secured to the rear carriage and the upper to the fore carriage, means for vibrating the upper disk upon the lower disk, two traction-wheels carried by the fore carriage, a motor supported by the fore carriage above the disk thereof so as to move in unison therewith, and gearing passing through the central portion of the two disks and forming an actuating connection between the motor and the traction-wheels, substantially as shown and described.



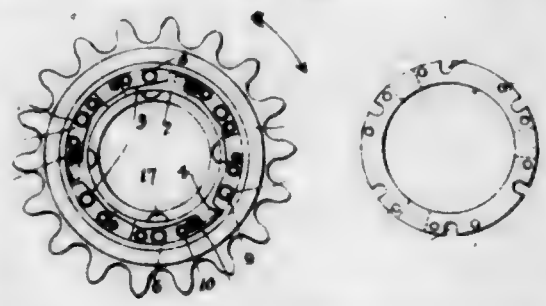
2. In a device of the class described, the combination with a fifth-wheel consisting of two disks having central openings, the lower supported by the rear carriage and the upper by the fore carriage, means carried by the fore carriage for turning the same upon the fifth-wheel connection for steering purposes, two traction-wheels carried by the fore carriage, a motor located above the fifth-wheel, a differential pulley rotated by the motor, a differential pulley in actuating connection with the traction-wheels, and a belt passing through the openings of the fifth-wheels and forming an actuating connection between the two differential pulleys, substantially as shown and described.

694,471. **MATCH-BOX.** KATE HALFACRE, Tewkesbury, England. Filed Sept. 11, 1900. Serial No. 29,737. (No model.)



Claim.—A match-box having at one end a compartment for the heads of the matches, a shield hinged to the same end, a lid hinged to the rear wall of the box, having a flap or extension bent at right angles thereto, a striking-surface on the inner portion of the lid, whereby when said lid and shield are elevated upward they form an inclosure to light a match therein on the striking-surface of said lid, substantially as specified.

694,472. **FRICTION-CLUTCH.** JOHN HARRINGTON, Coventry, England. Filed Mar. 28, 1900. Serial No. 10,516. (No model.)

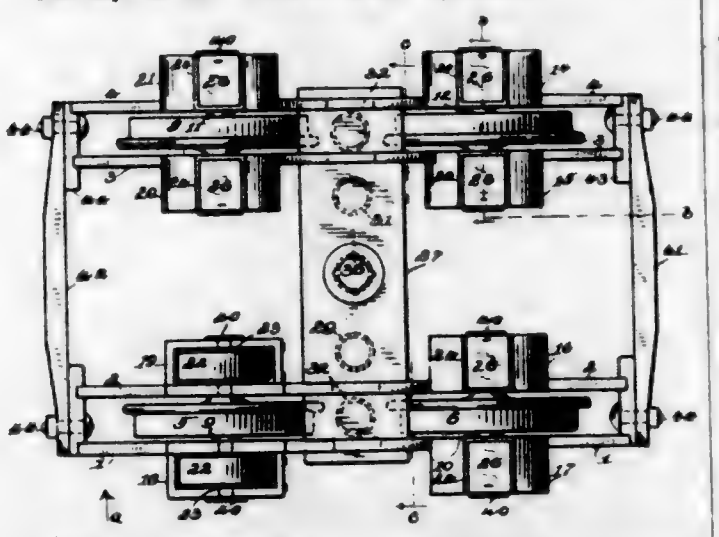


Claim.—1. In a clutch, the combination of an inner part, an outer part, rollers introduced between the said inner and outer parts, inclines for the said rollers, a carrier for the said rollers, and radial slots of limited depth in the said carrier adapted to receive the ends of the said rollers, substantially as and for the purpose set forth.

2. In a clutch, the combination of an inner part, an outer part, rollers introduced between the said inner and outer parts, inclines for the said rollers, a carrier for the said rollers, and springs introduced between the said inner part and the said carrier, substantially as and for the purpose set forth.

3. In a clutch, the combination of an inner part, an outer part, rollers introduced between the said inner and outer parts, inclines for the said rollers, a sectional carrier for the said rollers and springs introduced between the said inner part and the said carrier, substantially as and for the purpose set forth.

694,473. CAR-TRUCK. JENNIE F. HOBBS, Bridgeport, Conn. Filed Sept. 13, 1901. Serial No. 75,276. (No model.)



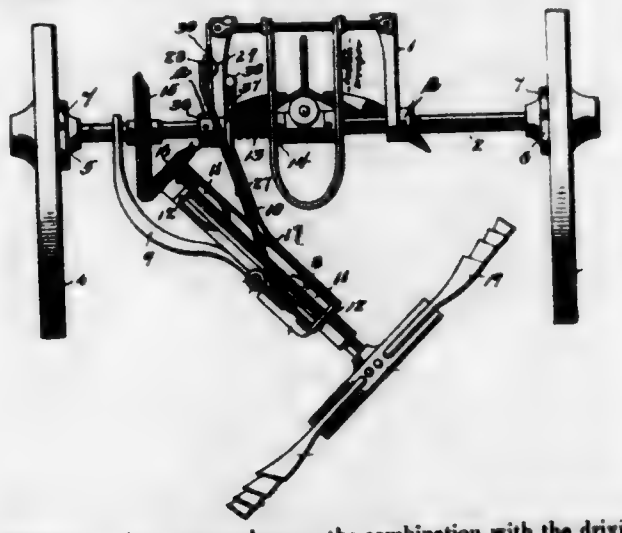
Claim.—1. The combination, in a car-truck of the character described, of the side frames 1, 2, 3 and 4, independent car-wheels having short axles located between said frames and journaled therein, antifriction-wheels adapted to run on said axles, housings embracing said antifriction-wheels, housings inclosing each of said wheels, an overlying oil-receptacle on each housing, means whereby the oil is communicated to said wheels and transmitted by them to the axles of the car-wheels, for the purpose set forth.

2. The combination, in a car-truck, of the character described, of parallel side frames, independent car-wheels having short axles within said frames, removable means to prevent end movement of said axles, said axles adapted to be removed and the wheels lifted out of said frames, means for elevating the car preparatory to such removal, for the purpose set forth.

3. The combination, in a car-truck, of the character described, with the side frames, of a depressible cross-piece to support the car, a second cross-piece below the first, springs interposed between the two cross-bars pivotally supported to the ends of the side frames, whereby the equilibrium of the car is maintained under all circumstances, for the purpose set forth.

4. The combination, in a car-truck, of the character described, of the parallel side frames, independent car-wheels having removable axles, an upper depressible cross-piece adapted to support a car-body, combined with a lower cross-piece, interposing springs, an elevating-screw adapted for raising one end of the car for the purpose of removing a wheel and replacing the same, cross-bars pivotally supported to the ends of said side frames so that, in combination with said springs, the equilibrium of the car is maintained, for the purpose set forth.

694,474. COTTON-CHOPPER. AARON L. HOCKETT, Mastodon, Miss. Original application filed Dec. 14, 1899, Serial No. 740,278. Divided and this application filed Jan. 24, 1901. Serial No. 44,531. (No model.)

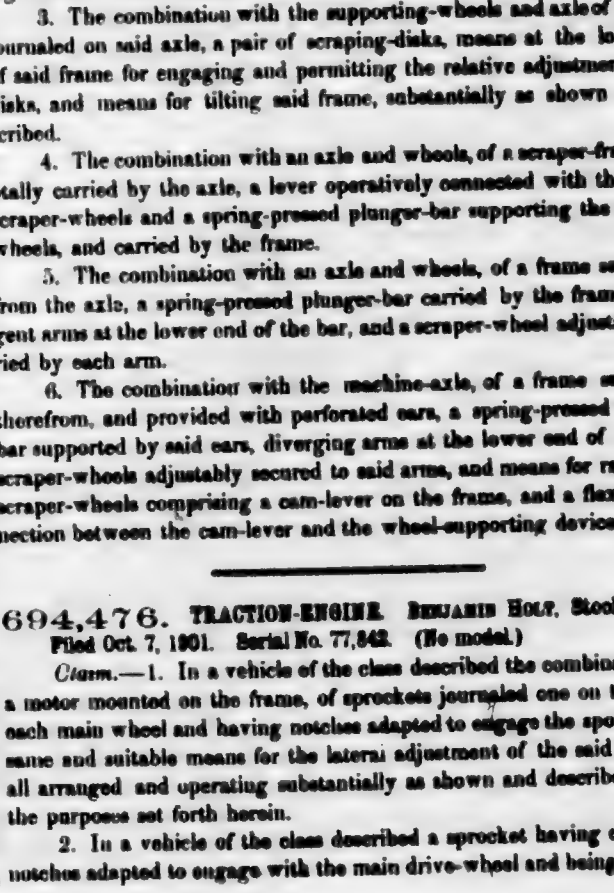


Claim.—1. In a cotton-chopper, the combination with the driving-wheels and axle and hilling means supported therefrom, of a chopping-wheel, a shaft carrying the same, driving means interposed between said shaft and the axle, and a frame supporting said shaft comprising a block and supporting-arms extending therefrom secured to the axle and shiftable thereon, means for shifting said frame in one direction and means for returning the same, substantially as described.

2. In a machine of the class described, a chopping-wheel comprising a hub and a plurality of radially-projecting blades arranged in a series of groups, each blade comprising a stem fitted in said hub and a wide free end forming a continuation of the stem.

3. In a cotton-chopper, the combination with a chopping-wheel shaft and the main frame, of a frame for supporting said shaft comprising a block and arms, a bracket, a vertically-adjustable feed-wheel mounted therein, a slotted sleeve secured to the block by one of said arms, a shaft extending into the sleeve from the bracket, and means for adjusting the shaft.

694,475. SCRAPER ATTACHMENT FOR COTTON-CHOPPERS. AARON L. HOCKETT, Mastodon, Miss. Original application filed Dec. 14, 1899, Serial No. 740,278. Divided and this application filed Jan. 24, 1901. Serial No. 44,532. (No model.)



Claim.—1. In combination, a supporting-wheel, an axle extending between the same, a yoke secured to and projecting forwardly from said axle, scraping-disks, a frame carrying the same depending from said axle, and means having a connection to the frame for tilting the latter supported upon said yoke.

2. In combination, a supporting-wheel, an axle extending between the same, a yoke secured to and projecting forwardly from said axle, scraping-disks, a frame carrying the same depending from said axle, a cam supported to have turning movement on said yoke, means for rotating the cam, and a flexible connection between the latter and said frame.

3. The combination with the supporting-wheels and axle of a frame journaled on said axle, a pair of scraping-disks, means at the lower end of said frame for engaging and permitting the relative adjustment of the disks, and means for tilting said frame, substantially as shown and described.

4. The combination with an axle and wheels, of a scraper-frame pivotally carried by the axle, a lever operatively connected with the frame, scraper-wheels and a spring-pressed plunger-bar supporting the scraper-wheels, and carried by the frame.

5. The combination with an axle and wheels, of a frame suspended from the axle, a spring-pressed plunger-bar carried by the frame, divergent arms at the lower end of the bar, and a scraper-wheel adjustably carried by each arm.

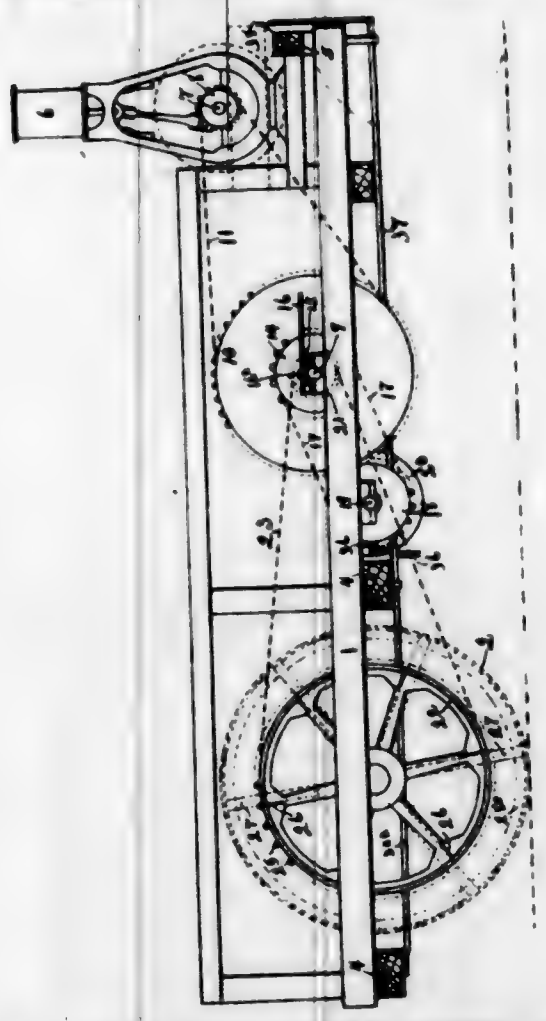
6. The combination with the machine-axle, of a frame suspended therefrom, and provided with perforated ears, a spring-pressed plunger-bar supported by said ears, diverging arms at the lower end of said bar, scraper-wheels adjustably secured to said arms, and means for raising the scraper-wheels comprising a cam-lever on the frame, and a flexible connection between the cam-lever and the wheel-supporting devices.

694,476. TRACTION-ENGINE. BENJAMIN HOLT, Stockton, Cal. Filed Oct. 7, 1901. Serial No. 77,842. (No model.)

Claim.—1. In a vehicle of the class described the combination with a motor mounted on the frame, of sprockets journaled one on the hub of each main wheel and having notches adapted to engage the spokes of the same and suitable means for the lateral adjustment of the said sprockets all arranged and operating substantially as shown and described and for the purposes set forth herein.

2. In a vehicle of the class described a sprocket having clutches or notches adapted to engage with the main drive-wheel and being journaled

on the hub or axle of said main wheel, a ring or yoke adapted to engage the hub of said sprocket, a lever or rod adapted to engage the ring or yoke and suitable means for imparting motion to the said sprocket all arranged and operating substantially as shown and described.



3. In a vehicle of the class described the combination with suitable bearing-wheels of the sprockets 22 having the clutches 26 arranged on the side thereof, and being journaled on the hub 28, the groove 30 formed in the hub of the sprocket 22, the ring 31 fitting in said groove, the yoke 33 34 adapted to engage with the ring aforesaid, the flexible sliding bar 34ª pivoted to the frame and engaging the said yoke, suitable means of operating the said bar 34ª and suitable means of imparting motion to the said sprockets 22 all arranged and operating substantially as shown and described and for the purposes set forth herein.

4. In a vehicle of the class described the combination with a suitable frame and bearing-wheels of the motor 6 mounted on the frame, the counter-shaft 9 and its sprockets, mounted transversely on the frame, the drum 20 and its shaft 19 also journaled transversely on the frame, the sprockets 22 journaled on the axle of the main drive-wheels 2 and having the clutches 26 adapted to engage said wheels 2, the yokes 33 adapted to engage the hub of the sprockets 22, the bars 34ª pivotally attached to the frame and yokes 33 and adapted to spring, flex or bend, the rods 35 attached to the free ends of the said bars 34ª, the rock-shaft 37 provided with the arms 36 and lever 38 said arms 36 being adapted to engage the rods 35, the lever 16 attached to the frame and adapted to engage the hub of the sprocket 14 and suitable chain belts and sprockets all arranged and operating substantially as shown and described and for the purposes set forth herein.

5. In a vehicle of the class described the combination with a suitable frame and motor mounted thereon, of sprockets journaled independently and having notches or teeth adapted to engage the spokes of the drive-wheels in a manner so as to allow the independent action of said drive-wheels, suitable means for the lateral adjustment of the said sprockets at will and suitable means of imparting motion to the said sprockets all arranged and operating substantially as shown and described and for the purpose specified.

6. In a vehicle of the class described, a traction or main bearing-wheel having the auxiliary spokes 27 arranged radially from the hub and attached to the rim and hub, 28ª and 28, respectively, said hub 28, having the extended end, as described, the sprocket 22, having teeth adapted to engage said auxiliary spokes 27, journaled on said hub 28, in combination with suitable means for laterally adjusting and communicating motion to the said sprocket 22 all arranged and operating substantially as shown and described and for the purpose set forth.

7. In a vehicle of the class described, the motor resting on the frame and adapted to communicate motion to sprockets arranged in juxtaposition to the main wheels, said sprockets being adapted to engage auxiliary spokes on the said main wheels, by means of ratchet-like teeth, in a manner so as to allow the independent action of said main wheels and suitable means of controlling the action of said sprockets all arranged and operating substantially as shown and described and for the purpose specified.

694,477. VALVE. FRANK E. HOWLAND, Peoria, Ill. Filed Mar. 11, 1901. Serial No. 50,746. (No model.)



Claim.—1. In a valve the combination with a plug adapted to fit in an opening in a receptacle having an open threaded interior and a closed bottom portion provided with three perforations, of an inlet and outlet tube depending from said plug, a valve seated in the opening in the plug provided with perforations therethrough adapted to be shifted to and from coincidence with the perforations in the bottom of the plug, mechanism connecting with the valve provided with ducts communicating with the perforations in the valve and suitable means for shifting the said valve, as described.

2. In a valve, the combination, with a plug, adapted to fit in an opening in a receptacle, provided with an open interior the same being exteriorly and interiorly threaded and provided with a closed bottom portion having three (3) perforations therein, two (2) pipes or ducts communicating with two (2) of said perforations and depending into the receptacle a gasket fitting in the bottom portion of the plug provided with two (2) perforations matching with two (2) of the said perforations in the bottom portion of the plug and a slot matching with the threaded perforation in the bottom part, a valve seated in the interior of said plug and secured therein by means of a suitable take-up nut and provided with two (2) perforations therethrough, a suitable wrench connected with said valve having perforations therethrough matching with the perforations in the valve adapted to turn the valve in the plug to cause the matching of the perforations in the valve with those in the gasket and the bottom portion of the plug and also to turn the said valve from such matching relation of the perforations substantially as shown and described.

3. In a valve a plug adapted to fit in an opening in a receptacle and having an open interior and provided with perforations in the bottom portion thereof ducts or pipes matching with two (2) of the openings and depending therefrom a valve seated in the plug and provided with perforations therein, a leather gasket interposed between the valve and the bottom of the plug provided with perforations matching with the perforations in the bottom of the plug, a wrench having radiating arms seated on the upper end of the valve-stem and having perforations one in each arm matching with the perforations in the valve, means for securing the valve in position and means for securing the wrench to the valve-stem substantially as shown and described.

4 In a valve, the combination with a plug adapted to fit in an opening in a receptacle, provided with perforations in the bottom portion thereof, comprising a gas-inlet, a liquid-outlet and an air-vent respectively, of a valve seated in an opening in the plug and provided with perforations therethrough intermittingly caused to coincide with the gas-inlet and liquid-outlet and the air-vent when being filled with liquid, suitable inlet and outlet mechanism communicating with the perforations in said valve and means for shifting said valve, substantially as shown and described.

5. In a valve the combination with a plug adapted to fit an opening in a receptacle having an open interior with a closed bottom portion provided with three (3) perforations, of ducts or pipes communicating with two (2) of the perforations and depending into the receptacle, a gasket in the bottom of the plug provided with two (2) perforations matching with two (2) of the perforations in the plug and a slot therein matching with the threaded perforation, a valve seated in the plug and provided with two (2) perforations therethrough, a take-up nut adapted to be screwed into the interior of the plug and down upon flanges of the valve suitable inlet and outlet mechanism having openings matching the openings in the valve and means for turning the valve.

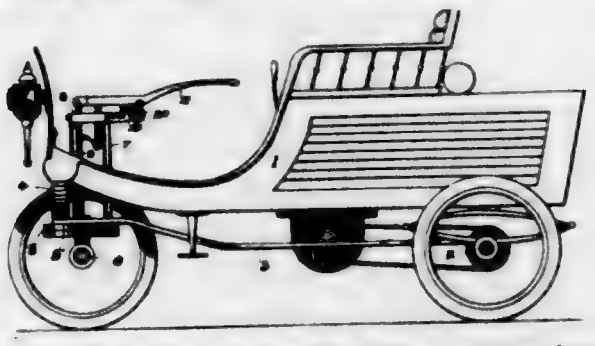
6. In a valve the combination with a plug adapted to fit an opening in a receptacle having an open interior with a closed bottom portion provided with three (3) perforations of ducts or pipes communicating with

two (2) of the perforations and depending into the receptacle, a gasket in the bottom of the plug provided with two (2) perforations matching with two (2) of the perforations in the plug and a slot therein matching with the threaded perforation, a valve seated in the plug and provided with two (2) perforations therethrough, a take-up nut adapted to be screwed into the interior of the plug and down upon flanges of the valve, a wrench having radiating arms seated on the valve and having perforations therethrough and through the said arms, and means for securing the said wrench to the valve, substantially as shown and described.

7. In a valve the combination with a plug adapted to fit an opening in a receptacle having an open interior, with a closed bottom portion provided with three (3) perforations of ducts or pipes communicating with two (2) of the perforations and depending into the receptacle, a gasket in the bottom of the plug provided with two (2) perforations matching with two (2) of the perforations in the plug and a slot therein, matching with the threaded perforation, a valve seated in the plug and provided with two (2) perforations therethrough, a take-up nut adapted to be screwed into the interior of the plug and down upon flanges of the valve, a wrench having radiating arms, seated on the valve and having perforations therethrough and through the said arms, a suitable standard or clamping-frame adapted to engage the valve and continuing above, the wrench adapted to carry a screw purposed to engage the said wrench to hold it in place on the valve substantially as shown and described.

8. In a valve the combination with a plug B provided with the bottom piece or diaphragm b, having the perforations b', b^2, b^3, of the pipes or ducts Z, Z', communicating with the perforations b', b^3, in the bottom piece b, the gasket C provided with the perforations c, c', and the slot c^2, the valve D having the flange d and cut away as at d' and provided with the perforations d^2, d^3, therethrough, the stop b^4, on the plug, the take-up nut E, the wrench F having the arms F F' provided with the perforations f f' therethrough, the stem H having the base I provided with flange i and the threaded head L at its upward portion and the screw K, all substantially as described and shown.

694,478. STEERING APPARATUS FOR SELF-PROPELLED VEHICLES. JOHN F. HURTIG, St. Louis, Mo. Filed Sept. 6, 1901. Serial No. 74,522. (No model.)



Claim.—1. A steering apparatus for vehicles comprising a lower rotatable disk, a rigid frame mounted above the same, a steering-rod secured at one end to the disk and passing loosely through the frame, a lever pivoted to the steering-rod, a curved track about which said lever can ride during the horisontal oscillation thereof, and a spring for drawing the lever firmly to the track, substantially as set forth.

2. A steering apparatus for vehicles comprising a lower rotatable disk, a rigid frame mounted above the same, a steering-rod secured at one end to the disk and passing loosely through the frame, a lever pivoted to the steering-rod, a roller on said lever, a curved track for said roller, and a spring for drawing the lever firmly to the track, substantially as set forth.

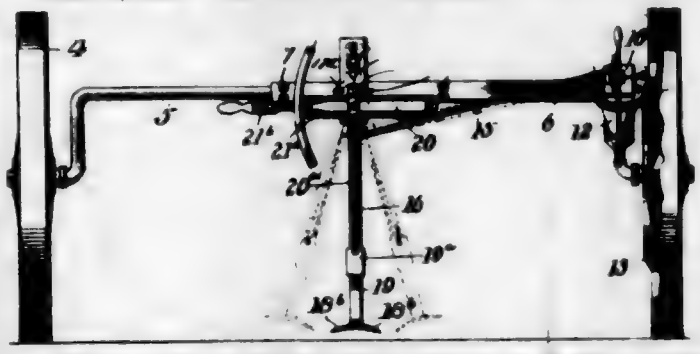
3. A steering apparatus for vehicles comprising a lower rotatable disk, a rigid frame mounted above the same, a steering-rod secured at one end to the disk and passing loosely through the frame, a lever pivoted to the rod, a roller on said lever, a curved track for the roller, a spring drawing down the lever against the track, an adjusting-screw mounted in proximity to the lever, and a fork movable along said screw and adapted to be coupled to the lever, substantially as set forth.

4. In a steering apparatus for vehicles, a horizontally-swinging steering-lever, intermediate connections between one end of the same and the front truck, a horizontally-disposed adjusting-screw, a fork mounted on said screw and adapted to embrace the lever, the engaging faces of the fork being beveled, substantially as set forth.

5. A steering apparatus for vehicles comprising a lower rotatable disk secured to the truck of the wagon, an upper stationary disk secured to the coupling-pole of the wagon, a frame mounted on the stationary disk, a steering-rod passing loosely through the frame and through the stationary disk and having its lower end secured to the rotatable disk, a curved track on said frame, a lever pivoted to the steering-rod, a roller mounted on the lever and engaging said track, a spring having one end coupled to the lever, a lug on the steering-rod to which the opposite end of the spring is secured, and means for adjusting the tension of the spring, substantially as set forth.

6. In a steering apparatus for vehicles, a horizontally-swinging steering-lever, intermediate connections between one end of the same and the wagon-truck, a rigid frame mounted above the truck, a curved track carried by the frame, the lever being adapted to ride along said track, and means for positively holding the lever against the track, substantially as set forth.

694,479. COTTON-CHOPPER. JOHN T. JARRE, Altus, Okla. Filed June 11, 1901. Serial No. 64,066. (No model.)



Claim.—1. In combination with a cultivator or the like, a cotton-chopper attachment detachably connected to the axle thereof, comprising a blade, a vertically-adjustable rod for supporting the blade, a laterally-adjustable bracket in which the rod is mounted, and means for vibrating the blade comprising instrumentalities operated from the conveying-wheels of the cultivator, substantially as described.

2. In combination with a cultivator or the like, of a cotton-chopper attachment adapted to be secured thereto, comprising a blade, means for operating said blade, and means for adjusting the elevation of the said blade without interrupting the operation thereof, comprising a rod connected to the blade and a lever adjustably connected to the rod, substantially as described.

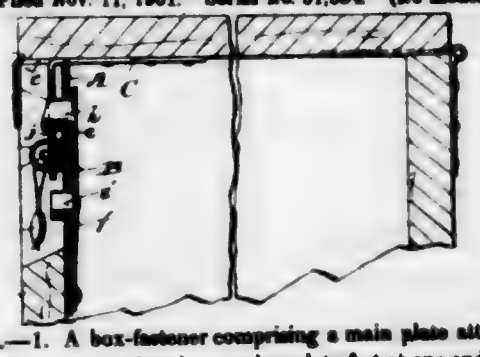
3. In combination with a cultivator or the like, of a cotton-chopper attachment adapted to be secured thereto, comprising a blade, a vibratory supporting-bar therefor, means for operating the bar, and means for adjustably securing the blade upon said bar, substantially as described.

4. In combination with a cultivator, a cotton-chopper attachment adapted to be secured thereto, comprising a blade, a supporting-rod for said blade, a bracket carrying said supporting-rod, means for imparting a vibratory movement to said supporting-rod, an adjustable connection between the rod and its supporting-bracket and means permitting lateral adjustment to the bracket, substantially as described.

5. In combination with a cultivator, a cotton-chopper attachment adapted to be secured thereto, comprising a supporting member, a bracket on said member, a supporting-bar adjustably mounted in said bracket, means for imparting a vibratory movement to said supporting-bar, a rack on said bracket, a pivoted lever adapted to be adjusted in said rack, a rod connected to said lever, a sleeve at the end of said rod slidably mounted upon the supporting-rod, and a cutter suspended from said sleeve, substantially as shown and described.

6. In combination with a cultivator or the like, a cotton-chopper attachment comprising supporting means, a blade carried thereby, means to vibrate the blade comprising a pitman, a pinion connected thereto adapted to engage a gear-wheel actuated by the conveying means of the cultivator, a lever adapted to disengage the pinion from the gear-wheel, and another lever having a head bearing against the back of the pinion and adapted to be actuated by the first-mentioned lever to retain the pinion in engagement with the gear-wheel.

694,480. BOX-FASTENER. CHARLES M. JOHNSON, Milwaukee, Wis., assignor, by direct and mesne assignments, of one-half to Charles H. Coakley, William F. Coakley, and Stephen S. Cramer, Milwaukee, Wis. Filed Nov. 11, 1901. Serial No. 81,894. (No model.)



Claim.—1. A box-fastener comprising a main plate attachable to a box-wall back of a recess therein, a spring-plate fast at one end to the main

plate and provided with lugs extending through apertures in said main plate one below the other, and a catch consisting of a right-angle strip attachable to the under side of a box lid, its vertical or tongue portion being apertured and engageable with the upper lug of the spring-plate when said lid is swung down.

2. A box-fastener comprising a main plate attachable to a box-wall back of a recess therein and having a longitudinally-slotted right-angle flange that faces the upper edge of the box-wall over said recess, a spring-plate fast at one end to the main plate and provided with lugs extending through main-plate apertures one below the other, and a catch consisting of a right-angle strip attachable to the under side of a box-lid, its vertical or tongue portion being apertured and engageable with the upper lug of the spring-plate when said lid is swung down.

3. A box-fastener comprising a main plate attachable to a box-wall back of a recess therein, and provided with an outer apertured lateral ear, a spring-plate fast at one end to the main plate and provided with lugs extending through apertures in said main plate one below the other, a catch consisting of a right-angle strip attachable to the under side of a box-lid, its vertical or tongue portion being apertured and engageable with the upper lug of the spring-plate when said lid is swung down, and an apertured ear extending outward from the catch-tongue, the strap or wire of an ordinary metallic seal being engageable with the main plate and catch-tongue ears.

694,481. TYPE-CONTAINING CHANNEL. LOUIS K. JOHNSON and ABBOT A. LOW, Brooklyn, N. Y., assignors to Alden Type Machine Company, New York, N. Y. Filed Nov. 24, 1899. Serial No. 738,204. (No model.)



Claim.—1. The type-containing channel C, formed with the longitudinal openings D, in its opposite side walls, the openings in one side wall adjoining one edge of the channel while the openings in the other side wall adjoin the opposite edge of the channel, for the purpose and substantially in the manner set forth.

2. The type-containing channel C, formed with the longitudinal openings D, and with the coinciding contracted type-shoulders *d*, *d*, for the purpose and substantially in the manner set forth.

3. The combination with a type-channel C, formed with the mortises c^3, c^4, of a rest-block B, and bolt *b*, for the purpose set forth.

4. The combination with a type-channel C, formed with the mortises c^3, c^4, of a rest-block formed with spring-bolts to engage said mortises on the channel, substantially as set forth.

5. In combination with a type-channel formed with the mortises c^3, c^4, a rest-block B beveled at one end as shown, and a bolt for securing said rest-block to the channel, substantially as described.

694,482. SASH-PULLEY. ALLEN JOHNSTON, Ottumwa, Iowa. Filed Aug. 6, 1901. Serial No. 71,073. (No model.)

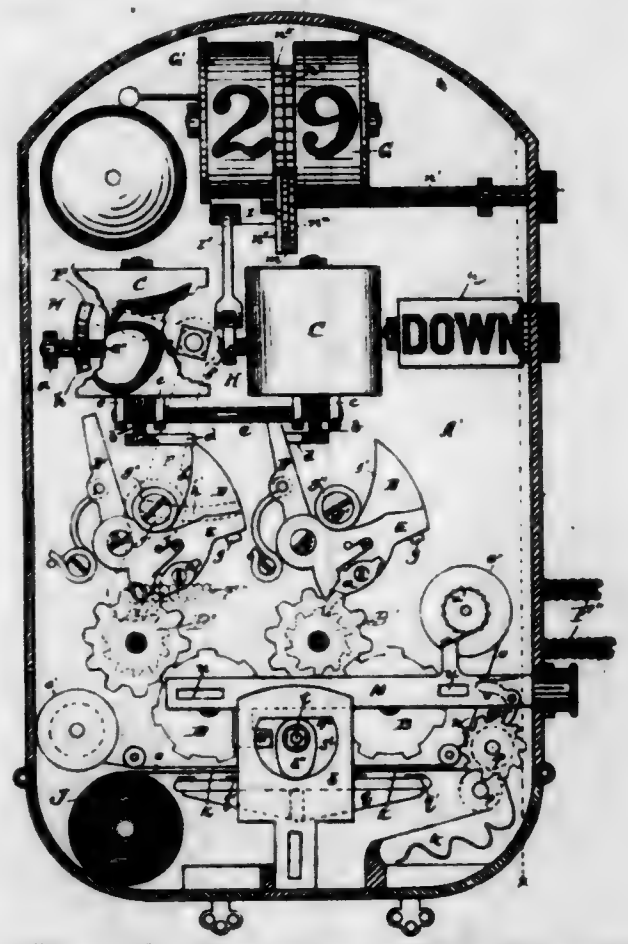


Claim.—1. In a sash-pulley, the casing formed of counterpart side plates, a central portion in each plate pressed inwardly in concentric superposed fluted rings ending in an apertured flat surface parallel with the body of said side plates, and the two plates joined by suitable means through the apertures in said flat surfaces.

2. In a sash-pulley, the casing formed of counterpart side plates having their centers pressed inwardly to form meeting cones, each cone being formed with a fluted ring at its apex, and their ends bent toward each other.

3. In a sash-pulley, a casing formed by counterpart side plates, a central portion in each plate pressed inwardly in concentric superposed fluted rings ending in an apertured flat surface parallel with the body of said side plate, said side plates rigidly connected together through said apertured flat surfaces, in combination with a pulley formed by counterpart plates of sheet metal and having outwardly-turned flanges on their inner margins, said counterpart plates forming said pulley rigidly connected together, and bearing-balls interposed and forming a roller-bearing between the inner flanges of the pulley and the inner fluted rings of the casing.

694,483. FARE REGISTER AND RECORDER. WALLACE M. KELCH, Dayton, Ohio, assignor to Wilfred I. Ohmer, Dayton, Ohio. Filed Apr. 1, 1898. Renewed Feb. 17, 1899. Serial No. 706,861. (No model.)



Claim.—1. In a fare-register, the combination of groups of fare-registering wheels, each group having its own classification of fares, a rotatable fare-indicator to exhibit each class of fares, indicator-wheels to exhibit the number of passengers, differential plates to concurrently actuate each series of registering-wheels and a fare-indicator, and means for simultaneously actuating said plates and the indicator-wheels.

2. In a fare-register, the combination of groups of fare-registering wheels, each group having its own classification of fares, a rotatable fare-indicator to exhibit the fares of each class, indicator-wheels to exhibit the number of passengers, differential plates to concurrently actuate each group of registering-wheels and a fare-indicator, and an operating-lever to simultaneously actuate said differential plates and indicator-wheels.

3. In a fare-register, the combination of groups of fare-register wheels, each group registering a separate class of fares, a rotatable fare-indicator for each class of fares, differential plates pivotally connected and operating concurrently to actuate a group of registering-wheels and their indicator, and a single member for imparting variable movements to said plates.

4. In a fare-register, the combination of groups of fare-registering wheels, each group adapted to register a distinct class of fares, a rotatable fare-indicator to exhibit the fares of each specific class of registering-wheels, differential plates movable concurrently and adapted to actuate a group of registering-wheels and a fare-indicator, an oscillating shaft with means thereon for locking each fare-indicator in its exposed position, and means for simultaneously imparting variable movements to said differential plates.

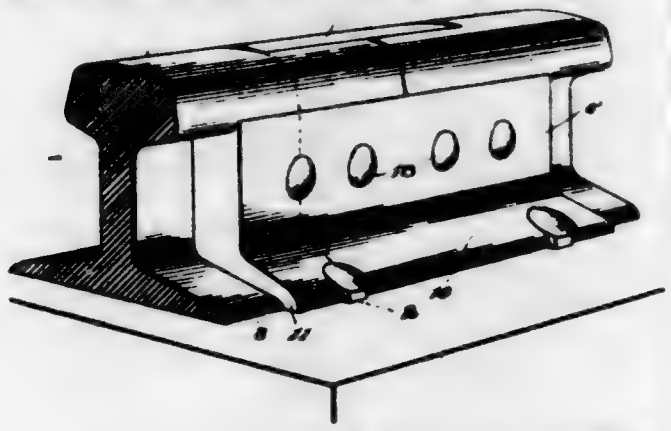
5. In a fare-register, the combination of groups of fare-registering wheels, each group having a specific class of fares, a fare-indicator for each group of wheels, the said fare-indicator being adapted to rotate in a horizontal plane to expose two sides one of which shows a fare and the other

being blank, variably-movable plates to concurrently actuate a group of wheels and a fare-indicator, and means for simultaneously actuating said plates.

6. In a fare-register, the combination of fare-registering wheels assembled in groups, a fare-indicator to exhibit the fares of each group, the said fare-indicator having two sides adapted to be alternately exposed: one side exhibiting a fare and the other side a blank space, an oscillating shaft with means thereon for simultaneously locking one fare-indicator in a position to expose a fare, and releasing another to expose its blank space, two plates pivotally connected and subject to concurrent and variable movements to actuate a group of wheels and a fare-indicator, and means for imparting said movements.

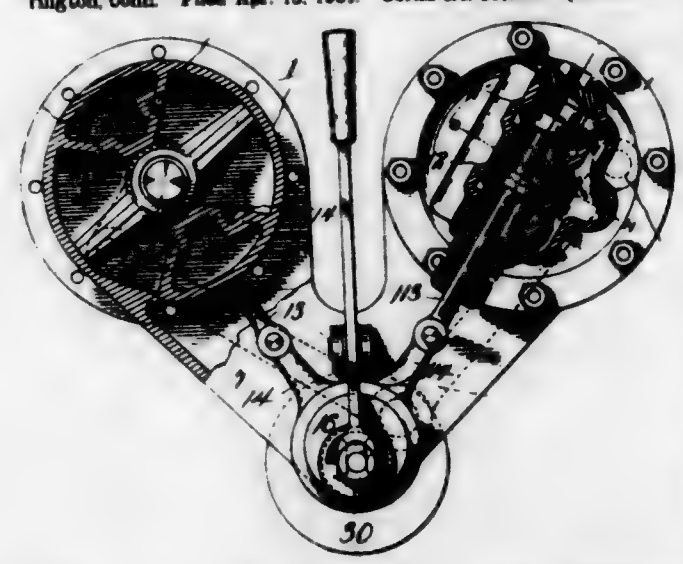
7. In a fare-register, the combination with fare-registering wheels, of a platen having two perpendicular sides with semicircular openings therein, cams movable in said openings to elevate said platen, and means for locking the cam-shaft against movement, substantially as specified.

694,484. RAILROAD-TRACK. GEORGE S. KENDALL, Indianapolis, Ind. Filed Nov. 20, 1901. Serial No. 83,016. (No model.)



Claim.—The combination with rails disposed end to end and having their treads cut away at one side flush with the webs of the rails and for a portion of their lengths, said rails having openings in their flanges; of a fish-plate disposed between the treads and flanges of the rails and bridging the cut-away portions, said fish-plate having a supplemental tread portion fitted in the cut-away portions and extending approximately from end to end thereof, and having fingers pivotally engaged with the openings of the flanges of the rails, and bolts passed through the rails and plate for moving the latter pivotally into position against the rails.

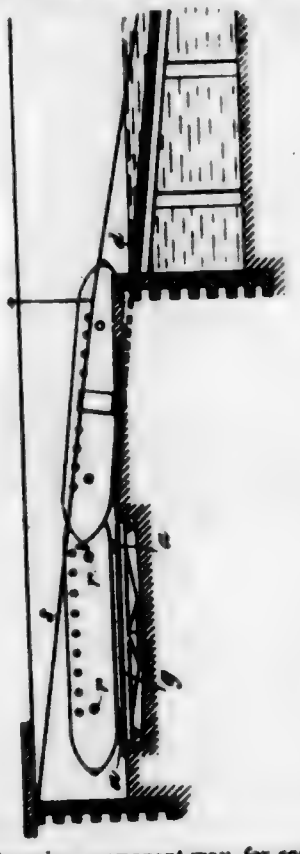
694,485. OSCILLATING-PISTON STEAM-ENGINE. JOHN O. LEPPER, Waterbury, Conn., assignor of one-third to R. C. Blakeslee, Torrington, Conn. Filed Apr. 15, 1901. Serial No. 56,220. (No model.)



Claim.—1. In a steam-engine, a pair of cylinders supported on a single frame and at an angle to the driving-shaft, said cylinders having their axes parallel, a shaft journaled at the center of each cylinder, and a piston supported at each side of each shaft, said shafts being connected by a pitman to a crank on the main shaft, so that oscillation of the pistons produces rotation of the main shaft, steam and exhaust ports connecting to the opposite sides of the pistons in the cylinders, and abutments in the cylinders between which the pistons oscillate, all combined substantially as described.

2. In a steam-engine, a pair of cylinders having axial shafts parallel to each other, a crank-shaft parallel to said axes, an oscillating piston at each side of and supported in each cylinder by the axial shaft, said axial shafts having pitmen connecting to cranks on the main shaft, abutments at each side of the oscillating piston, inlet and exhaust ports to said cylinders, and a valve controlled by one eccentric from the main shaft, and governing said supply and exhaust ports of each cylinder, all combined.

694,486. SUBMARINE PERMANENT WAY. KARL LEPS, Hamburg, Germany, assignor to Johannes von Detmt, Leipsic, Germany. Filed Aug. 30, 1901. Serial No. 73,842. (No model.)



Claim.—1. Submarine permanent way, for conducting a submarine boat from one station to another, consisting of wire ropes, chains or the like with which running rollers on the boat are adapted to engage, guide frames or supports by which the ropes or the like are kept at a suitable distance from the bottom of the bed and stations or platforms to which the ends of the rope are fastened above water, in such a manner, that the boats are only guided along the line during their journey under water.

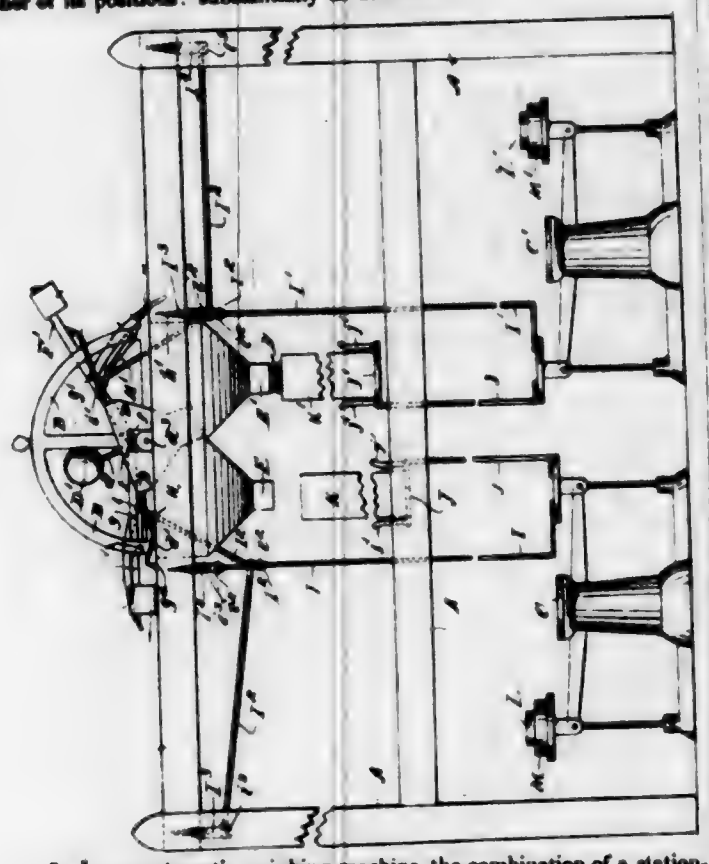
2. Submarine permanent way, for conducting a submarine boat from one station to another, consisting of wire ropes, chains or the like with which running rollers on the boat are adapted to engage, guide frames or supports by which the ropes or the like are kept at a suitable distance from the bottom of the bed and stations or platforms to which the ends of the rope are fastened above water, and a permanent incline for conducting the boats into the station, arranged leading to the bottom of the bed and on which runners attached to the bottom of the boat are traveling, thereby conducting the said boats to the turning platforms.

3. Submarine permanent way, for conducting a submarine boat from one station to another, consisting of wire ropes, chains or the like with which running rollers on the boat are adapted to engage, a means for driving the said rollers, guide frames or supports by which the ropes or the like are kept at a suitable distance from the bottom of the bed and stations or platforms to which the ends of the rope are fastened above water, in such a manner, that the boats are only guided along the line during their journey under water.

694,487. AUTOMATIC WEIGHING-MACHINE. GEORGE W. LOTTRIDGE, Bradley, Ill., assignor to Frank R. Sleeper and Eugene H. Macey, Chicago, Ill. Filed Jan. 30, 1901. Serial No. 45,220. (No model.)

Claim.—1. In an automatic weighing-machine, the combination of a stationary hopper provided with a plurality of depending spouts, load-receivers to such depending spouts, respectively, a movable hopper above the stationary hopper to discharge successively into the depending spouts, means to yieldingly maintain the movable hopper in position to discharge into a given depending spout, levers and means to yieldingly maintain such levers in a depressed position, respectively, means to raise the levers respectively, means to maintain the levers in a raised position, respectively, means to successively trip such maintaining mechanisms when a determined weight of material has been discharged from the movable hopper into one of the load-receivers, and a connection between the movable hopper and the levers, whereby the return of a lever to its depressed position moves the movable hopper from one of the positions thereof into the other of its positions: substantially as described.

2. In an automatic weighing-machine, the combination of a stationary hopper provided with a plurality of depending spouts, a pivotally-mounted hopper above the stationary hopper movable to successively discharge into the depending spouts, load-receivers to such depending spouts, respectively, a weight mounted on the movable hopper above the pivots thereof to move through the vertical plane in which the pivots are placed as the hopper moves from its position discharging into one depending spout to its position to discharge into the other depending spout, whereby the movable hopper is yieldingly maintained by such weight in position to discharge into a given depending spout, weighted levers, means for raising the weighted levers, respectively, and means for maintaining the weighted levers, respectively, in a raised position, means for tripping such maintaining mechanisms when a determined quantity of material has been discharged from the movable hopper into the load-receiver adjacent to the tripping mechanism, and a connection between the movable hopper and the weighted levers, whereby the falling of a weighted lever moves such movable hopper from one of the positions thereof into the other of its positions: substantially as described.



3. In an automatic weighing-machine, the combination of a stationary hopper provided with a plurality of depending spouts, a pivotally-mounted hopper thereover movable to successively discharge into the depending spouts, means for yieldingly maintaining the movable hopper in position to discharge into a given depending spout, receptacle-supports yieldingly mounted to move when a given weight of material is received thereon from the depending spouts and to return to the initial position thereof when the given weight of material is removed therefrom, mechanisms moved to operative position respectively, by the return of the receptacle-supports to the initial position thereof, respectively, connections between such mechanisms and the pivotally-movable hopper, means for maintaining such mechanisms in an operative position, respectively, independently of the receptacle-supports, and connections between the mechanisms and the yieldingly-mounted receptacle-supports whereby such mechanisms are released from the operative position thereof when the receptacle-supports are moved by a given weight of material thereon and the movable hopper is moved to discharge into the other depending spout by the operation of such released mechanism; substantially as described.

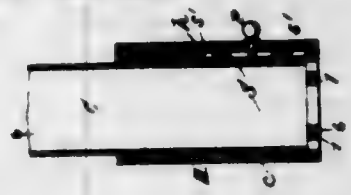
4. In an automatic weighing-machine, the combination of scales provided with load-receivers, a stationary hopper provided with a plurality of depending spouts, a movable hopper above the stationary hopper adapted to successively discharge into the depending spouts, means to yieldingly maintain the movable hopper in position to discharge into a given spout, operating-levers, abutments, latches to engage with such abutments to maintain the operating-levers in an operative position, respectively, levers adapted to trip the latches, respectively, connections between the scales and the tripping and operating levers whereby the tripping-levers are, respectively, moved to unlatch the latches corresponding therewith when the load-receivers of the scales are moved by a determined weight of material thereon, respectively, and to move such operating-levers into an operative position by the movement of the scales when such determined weight of material is removed therefrom, and a connection between the movable hopper and the operating-lever, whereby when the movable hopper is in position to discharge into one of the depending spouts and one of such operating-levers is released from its operative position the movable hopper is moved thereby in position to discharge into the other depending spout: substantially as described.

5. In an automatic weighing-machine, the combination of a stationary hopper provided with a plurality of depending spouts, a movable hopper above the stationary hopper to successively discharge into the depending spouts, means to yieldingly maintain the movable hopper in position to discharge into a given depending spout, levers and means to maintain the respective levers in a depressed position, movable platforms and means to yieldingly maintain such platforms in a raised position, and to determine the weight of material to depress such platforms, respectively, latches to maintain the levers in a raised position, respectively, connections between the respective movable platforms and the levers and latches corresponding thereto to elevate such levers by the elevation and to trip such latches by the depression of the movable platforms, and connections between the respective levers and the movable hopper, whereby the depression of a lever moves such movable hopper from one of its positions into the other of its positions.

6. In an automatic weighing-machine, the combination of a stationary hopper provided with a plurality of depending spouts, movable load-receivers to such depending spouts, respectively, covers to the respective load-receivers, latches to such covers, respectively, abutments coacting with the latches, a movable hopper above the stationary hopper, to discharge successively into the depending spouts, means to yieldingly maintain the movable hopper in position to discharge into a given depending spout, levers and means to yieldingly maintain such levers in a depressed position, respectively, means to raise the levers, respectively, means to maintain the levers in a raised position, respectively, means to successively trip such maintaining mechanisms when a determined weight of material has been discharged from the movable hopper into the load-receivers, and a connection between the movable hopper and the levers, whereby the return of a lever to its depressed position moves the movable hopper from one of the positions thereof into the other of its positions: substantially as described.

7. In an automatic weighing-machine, the combination of a stationary hopper provided with a plurality of depending spouts, movable load-receivers to such depending spouts, respectively, covers to the respective load-receivers, latches to such covers, respectively, abutments coacting with some of such latches to move the latches from engagement holding the covers closed, and abutments coacting with the remainder of such latches to move them from engagement holding the covers open, a movable hopper above the stationary hopper to discharge successively into the depending spouts, means to yieldingly maintain the movable hopper in position to discharge into a given depending spout, levers and means to yieldingly maintain such levers in a depressed position, respectively, means to raise the levers, respectively, means to maintain the levers in a raised position, respectively, means to successively trip such maintaining mechanisms when a determined weight of material has been discharged from the movable hopper into the load-receivers, successively, and a connection between the movable hopper and the levers, whereby the return of the lever to its depressed position moves the movable hopper from one of the positions thereof into the other of its positions: substantially as described.

694,488. TYPE-CHANNEL HOLDER. ABBOT A. LOW and JAMES BREAKEY, Brooklyn, N. Y., assignors to Alden Type Machine Company, New York, N. Y. Filed Aug. 26, 1901. Serial No. 73,270. (No model.)



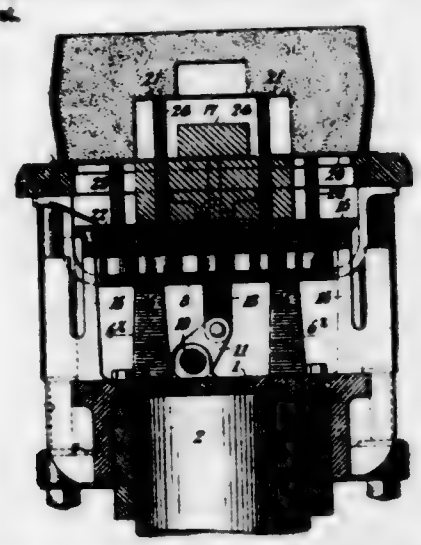
Claim.—1. The combination with a type-containing channel C, formed with the front opening c', of the whole width of the interior of the channel, of the holder H, formed with the recess A, and the spring-plate S, for engaging with the channel substantially as herein shown and described.

2. The combination with the type-containing channel C, formed with a front opening c', of the type-holder H, formed with the recess A, and the spring-plate S, formed with the rabbeted edges, the springs s', and the retracting-pin P, arranged and operating substantially in the manner and for the purpose described.

694,489. STRIPPING-PLATE. EDGAR H. MUNFORD, Plainfield, N. J. Filed Nov. 8, 1899. Serial No. 736,286. (No model.)

Claim.—1. In molding apparatus, means for retaining the sand in shape at the pattern edge during the operation of separating the mold

and the pattern consisting of a thin flexible sheet (that is to say, a sheet so weak as to be incapable of resisting without bending the force applied during ramming) having a contour at the parting-line which is the counterpart, substantially, of the contour of the corresponding part of the pattern at such line combined with relatively movable supports for preventing flexing or bending of any part of said sheet during the ramming of the sand thereagainst.



2. In molding apparatus, means for retaining the sand in shape at the pattern edge during the operation of separating the mold and the pattern consisting of a thin flexible sheet (that is to say, a sheet so weak as to be incapable of resisting without bending the force applied during ramming) having a contour at the parting-line which is the counterpart, substantially, of the contour of the corresponding part of the pattern at such line combined with supports for preventing flexing or bending of any part of said sheet during the ramming of the sand thereagainst, means for causing relative motion between certain of said supports and the said sheet during the operation of separating mold and pattern, and stools for supporting during said operation of separating mold and pattern those parts of said sheet from which said certain of said supports are so removed.

3. In molding apparatus, the combination of a pattern-support, means for retaining the sand in shape at the pattern edge or parting-line during the operation of separating mold and pattern consisting of a thin flexible sheet having a contour at the parting-line which is the counterpart, substantially, of the contour of the corresponding part of the pattern at such line and conforming to and resting upon the pattern-support, a pattern, and means for preventing flexing or bending of said sheet during the operation of separating pattern and mold and during the relative motion of the pattern-support and said sheet.

4. In molding apparatus, a pattern, a pattern-support, and means for retaining the sand in shape at the pattern edge or parting-line consisting of a thin flexible sheet having a contour at the parting-line which is the counterpart, substantially, of the contour of the corresponding part of the pattern at such line and resting upon said pattern-support and held thereby against flexing or bending during the ramming and combined with stools which pass freely through the pattern-support and prevent flexing or bending of said sheet during the operation of separating mold and pattern and the relative motion of the pattern-support and said sheet.

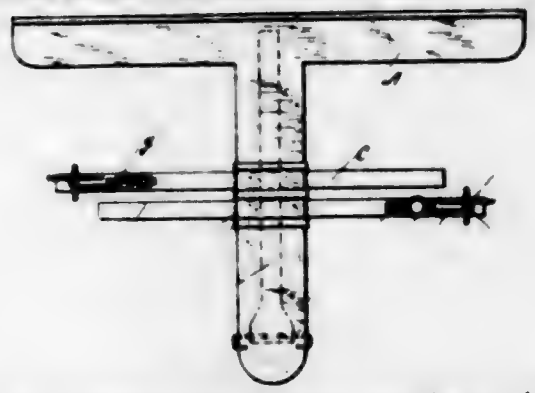
5. In molding apparatus, a pattern, a pattern-support, a flask-support, said supports being flush with each other during the ramming of the sand, a flask, a thin flexible sand-supporting sheet lying on both of said supports during the ramming of the sand and abutting against the pattern edge, and means for preventing flexing or bending of said sheet during the operation of separating mold and pattern and the relative motion of the pattern-support and said sheet.

6. In molding apparatus, a pattern, a pattern-support, and means for retaining the sand in shape at the pattern edge or parting-line consisting of a thin flexible sheet resting upon said pattern-support and held against flexing or bending thereby during the ramming of the sand combined with means for preventing flexing of said sheet during the operation of separating mold and pattern and the relative motion of the pattern-support and said sheet.

694,490. BOOK-HOLDER. CARLE W. MURPHY, Cambridge, Mass. Filed July 1, 1901. Serial No. 66,675. (No model.)

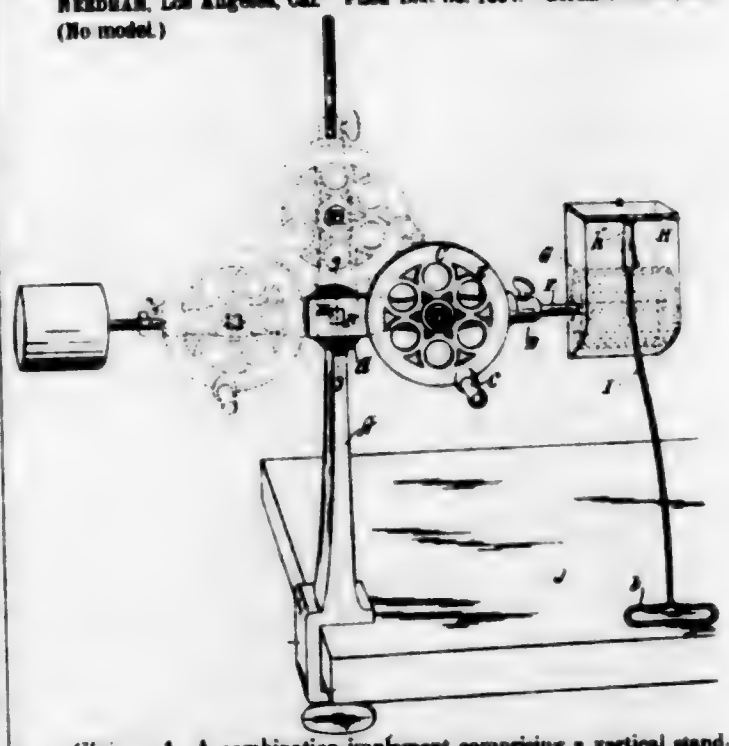
Claim.—1. In a book-holder, the combination, with a T-shaped frame having a longitudinal bar, of a guide-frame slidable longitudinally on the said bar and provided with two parallel guides on the under side thereof, cross-bars slidable in the said guides, and pillars provided with spring-arms and projecting upwardly from the end portions of the said cross-bars, substantially as set forth.

2. In a book-holder, the combination, with a T-shaped frame having a longitudinal bar, of a guide-frame slidable longitudinally on the said bar and provided with two parallel guides on the under side thereof, cross-bars slidable in the said guides, and spring-pillars projecting upwardly from the end portions of the said cross-bars, each said spring-pillar being provided with a spiral spring connected to its top portion, a cranked portion projecting from the inner coil of the spring crosswise of the main portion of the pillar, an arm projecting from the said cranked portion, and a knob at the free end of the said arm, substantially as set forth.



3. The combination, with a T-shaped frame having a longitudinal bar, of a guide-frame slidable longitudinally on the said bar and provided with two parallel guides on its under side, cross-bars slidable in the said guides and provided with spring-arms for bearing on the pages of the book, and means for clamping the two said cross-bars in their guides, substantially as set forth.

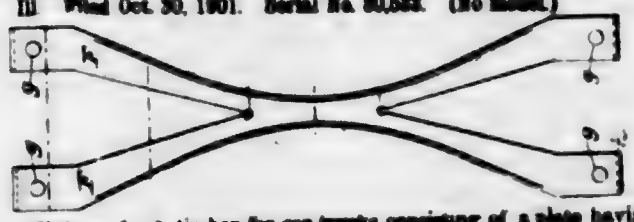
694,491. COMBINATION KITCHEN IMPLEMENT. HENRY C. NEEDHAM, Los Angeles, Cal. Filed Dec. 30, 1897. Serial No. 664,706. (No model.)



Claim.—1. A combination implement comprising a vertical standard provided with a clamp at one end and corrugations at the other, an arm pivotally secured to the standard, one end of which is provided with a slotted enlargement, a mandrel journaled in said enlargement provided with a chuck; a pinion on the mandrel within the slot, and a cog-wheel provided with a crank-handle and journaled on the arm in engagement with the pinion.

2. A nutmeg-grater comprising a standard and an arm adjustably secured thereto; a mandrel journaled in said arm and provided with a chuck; means for rotating the mandrel; a grating-box provided with a socket; a wire leg having its upper end in the socket and its lower end formed into a T-loop to form a foot, and a grater within the box, the shaft of which is removably secured in the chuck.

694,492. TIE-BAR FOR CAR-TRUCKS. SPENCER OTIS, Chicago, Ill. Filed Oct. 30, 1901. Serial No. 80,533. (No model.)

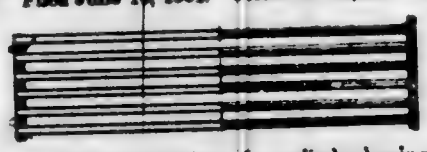


Claim.—1. A tie-bar for car-trucks consisting of a plate having its body forked at each end and divergent into two branches, the two edges

of said body and the outer edge of each branch flanged at right angles to the bottom of said body and branches, substantially as described.

2. A tie-bar for car-trucks consisting of a plate having its body forked at each end into two branches, the two edges of the central portion of said body and the outer edge of each branch being flanged at right angles to the bottom face of said body and branches, the flange diminishing in depth toward the end of each branch, substantially as described.

694,498. STEAM-BOILER. EDWARD J. PENNINGTON, London, England. Filed June 10, 1901. Serial No. 64,086. (No model.)



Claim.—1. A boiler consisting of a cylinder having at one end an internally-threaded part of diameter substantially equal to that of the major length of the cylinder, and at the opposite end an internally-threaded part of diameter less than that of said major portion, combined with heads and an assemblage of tubes connected to said heads, each head being externally threaded and engaging a threaded end of said cylinder, whereby the heads and assembled tubes may be inserted and withdrawn as an entirety, substantially as set forth.

2. A boiler consisting of a cylinder, heads and tubes, the heads supporting the tubes being secured to the cylinder by threads, substantially as set forth.

3. A boiler consisting of a cylinder, two heads, and an assemblage of tubes seated between and supported by said heads, the cylinder and heads being detachably united by screw-threads, substantially as set forth.

694,494. EXPRESS-CAR. JOSEPH R. PORTER, Ottawa, Ill. Filed Feb. 11, 1901. Serial No. 46,760. (No model.)



Claim.—1. The express-car provided with an inner compartment having its own walls at all sides and such walls being detached from the walls of the car a sufficient distance to form a wide passage-way for persons entirely surrounding the inner compartment, said compartment being adapted to be closed, and the passage-way also having doors whereby access to the entrance to the inner compartment may be shut off, substantially as specified.

2. The express-car provided with an inner compartment having its own walls at all sides and such walls being detached from the walls of the car a sufficient distance to form a wide passage-way for persons entirely surrounding the inner compartment, said compartment being adapted to be closed, and the passage-way also having doors whereby it may be shut off at each side of the outer door of the car and the outer wall of the car having port-holes, substantially as specified.

3. An express-car provided with an inner compartment for carrying the express matter, the outer wall of the car and the wall of the compartment being provided with windows 16 and 17 arranged opposite each other, substantially as specified.

4. An express-car provided with an inner compartment detached from the outer walls of the car sufficiently to form a passage-way all around the compartment, the outer walls and the inner compartment-walls being both provided with port-holes, and said passage-way being provided with doors whereby portions of it may be cut off, substantially as specified.

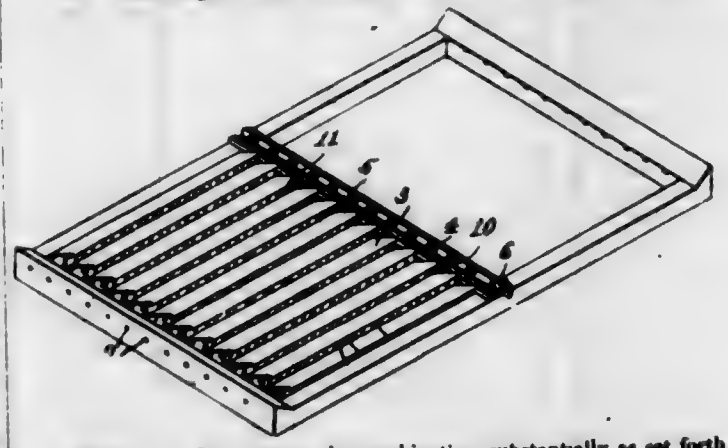
5. The express-car having metal-lined outer walls, an inner compartment or safe detached from the outer walls a sufficient distance to form a passage-way for persons all around the inner compartment, port-holes in the walls of the inner compartment, and doors in said passage-way whereby access to the door of the inner compartment may be shut off, substantially as specified.

694,495. TONGS. MARTIN QUINN, Blackrock, Ark. Filed Dec. 19, 1901. Serial No. 86,532. (No model.)



Claim.—The combination with the shank of a pair of tongs, said shank being provided with parallel lips having alined apertures; of a fork-head placed between said lips, a gib inserted in said apertures and provided with a shoulder at one end and a perforated head at the opposite end, and a key inserted through said apertures and having a screw-threaded extension that passes through the aperture in the head of the gib, and a nut screwed upon said extension, substantially as specified.

694,496. ADJUSTABLE SCREEN. WILLIAM H. RUMELY, Laporte, Ind. Filed Aug. 5, 1901. Serial No. 70,849. (No model.)

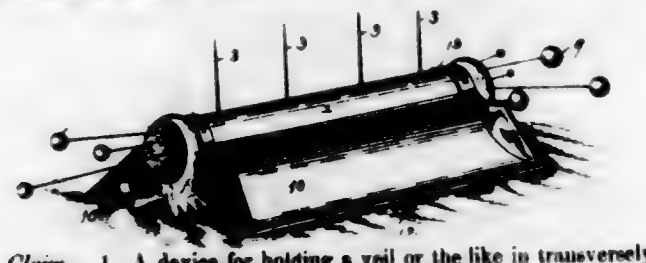


Claim.—1. In a screen, the combination, substantially as set forth, of a frame, a series of parallel axes supported thereby, strips having their rear edges mounted upon said axes, a curtain depending from the free portion of each strip and engaging with or near the rear of the heel of the strip next in front and projecting below said heel and having a transverse curvature concentric with the axis of its strip and formed with teeth separated by intervening spaces, and mechanism for adjusting said strips in unison upon their axes so that the curtains expose more or less of said spaces above the heels of their immediately forward neighbors.

2. In a screen, the combination, substantially as set forth, of a frame, a series of parallel axes supported thereby, strips having their rear edges mounted upon said axes, a curtain depending from the free portion of each

strip and engaging with or near the rear of the heel of the strip next in front and projecting below said heel and having a transverse curvature concentric with the axis of its strip and formed with teeth separated by intervening spaces, forward projections from the top of each of said curtains in the plane of its strip, and mechanism for adjusting said strips in unison upon their axes so that the curtains expose more or less of said spaces above the heels of their immediately forward neighbors.

694,497. TOILET-CASE. ANNIE SEMONITE, Brooklyn, N. Y.
Filed May 15, 1901. Serial No. 60,336. (No model.)



Claim.—1. A device for holding a veil or the like in transversely-stretched condition, comprising a base, a series of pins projecting upward from said base and arranged in a straight line with each other along the length thereof, whereby each section of a transversely folded and stretched veil may be impaled upon all of said pins and held thereby, and a cover adapted to inclose said veil and pins substantially as described.

2. A device for holding a veil or the like in transversely-stretched condition, comprising a series of linearly-arranged pins upon which the folded veil is impaled and by which it is held in extended position, a base supporting the pins and veil, pivoted jaws coöperating to form a compartment wherein said pins and the veil are contained, and means for detachably securing said jaws together to inclose said pins and veil.

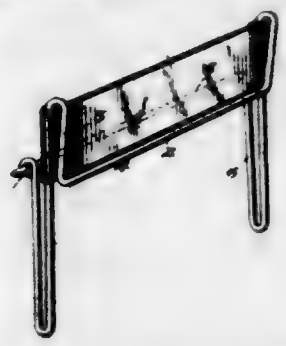
3. A combined pincushion and veil-holder, or the like, comprising a base having an opening extending longitudinally through it and provided with a series of outwardly-extending pins which rise from the surface of said base and upon which a folded veil may be impaled and held in transversely-stretched condition, and cushions applied to said base and closing the ends of the opening therethrough, substantially as described and for the purposes specified.

4. A combined pincushion and receptacle for ladies' veils or the like, consisting of a hollow base, having cushioned ends and provided with a series of rigid outwardly-extending pins upon which a folded veil may be impaled and by which the same may be held in transversely-stretched condition, and hinged jaws coöperating to inclose the series of pins and the material impaled thereon.

5. A combined pincushion and receptacle for ladies' veils and the like, consisting of a base, a pincushion applied to the end of said base, a series of pins rising from said base and so arranged that a folded veil may be impaled thereon and held thereby in transversely-stretched condition, a pair of jaws pivoted at their lower ends to opposite sides of said base and rising therefrom so as to inclose said pins and the material impaled thereon, and means for detachably securing the upper ends of said jaws together.

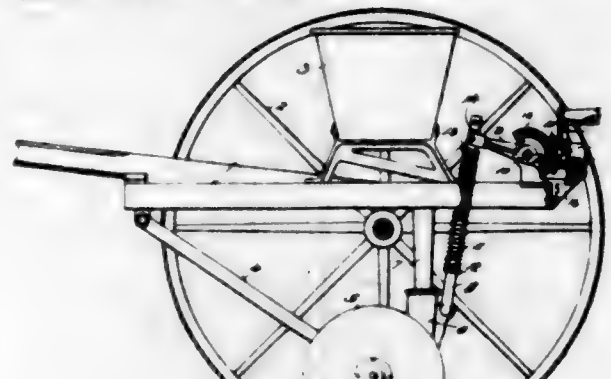
6. A combined pincushion and veil-holder, comprising a suitably-supported hollow base provided with a line of pins which project upward from its upper surface and are adapted to hold a folded and stretched veil, as specified, and a padded plug fitted to an end of said base and closing the same, said plug having its inner end located within the base and provided with a screen.

694,498. POCKET-CLASP. JAMES A. SKAER, Augusta, Kans.
Filed Oct. 29, 1901. Serial No. 80,385. (No model.)



Claim.—A pocket-clasp consisting of two vertically-disposed parallel side pieces terminating at their upper ends in downwardly-projecting arms connected by an integral cross-piece and terminating at their lower ends in upwardly-projecting arms, one of which is provided with a horizontally-extending jaw detachably connected with the other arm, and an elastic band connecting the two side pieces, substantially as set forth.

694,499. GRAIN-DRILL. AMOS SMITH, Vienna Crossroads, Ohio.
Filed Dec. 13, 1901. Serial No. 85,768. (No model.)



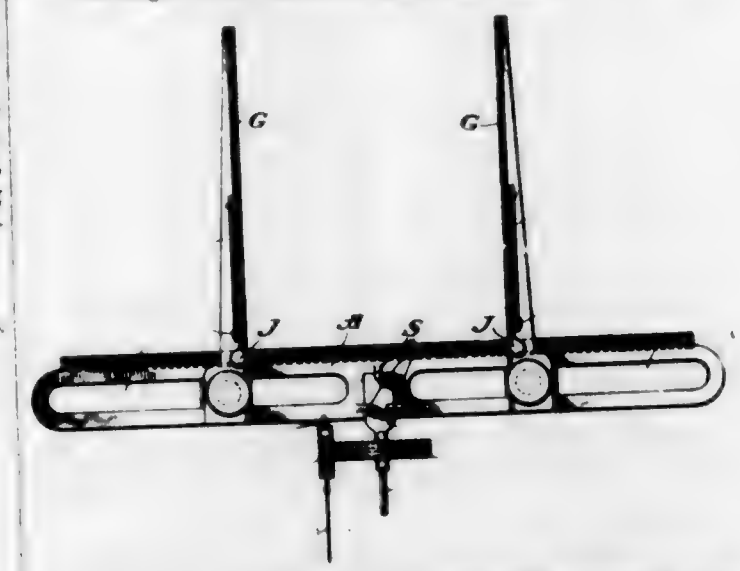
Claim.—1. The combination, with a main frame and drag-bars pivotally connected therewith, of a rock-shaft mounted on said frame and operatively connected with the drag-bars, a gear or gear-segment secured on said rock-shaft, and a lever mounted to swing transversely of the machine and provided with a pinion meshing with said gear or gear-segment, substantially as described.

2. The combination, with a main frame and drag-bars pivotally connected therewith, of a rock-shaft mounted on said frame and operatively connected with the drag-bars, a gear or gear-segment of relatively large diameter secured on said rock-shaft, and a lever mounted to swing transversely of the machine through an arc approximating a semicircle and provided with a pinion of relatively small diameter meshing with said gear or gear-segment, substantially as described.

3. The combination, with a main frame and drag-bars pivotally connected therewith, of a rock-shaft mounted on said frame and operatively connected with the drag-bars, a gear or gear-segment secured on said rock-shaft, a lever mounted to swing transversely of the machine and provided with a pinion meshing with said gear or gear-segment, and means for locking said lever, substantially as described.

4. The combination, with a main frame and drag-bars pivotally connected therewith, of a rock-shaft mounted on said frame and operatively connected with the drag-bars, a gear or gear-segment secured on said rock-shaft, a bracket mounted on the main frame and provided with a bearing and locking-segment, a shaft mounted in said bearing at right angles to the rock-shaft and provided with a pinion to mesh with the gear or gear-segment, and an operating-lever connected with said shaft, swinging transversely of the machine and provided with means for engaging the locking-segment, substantially as described.

694,500. MUSIC-RACK. JASPER H. STANFIELD, Muskegon, Mich.
Filed Aug. 5, 1901. Serial No. 70,856. (No model.)



Claim.—1. In a music-rack, a bar provided with a supporting-ledge, arms adjustably mounted upon said bar and extending at right angles to said bar, and spring-clamps carried by and extending longitudinally of said arms, as and for the purpose set forth.

2. In a music-rack, the combination of a pedestal-rod, a bar rotatively mounted upon said rod, means for imparting a rotative tension to said bar, a detachable stop, and suitably-spaced adjustable arms having spring-clamps and carried by said bar for clamping the sheet of music, as and for the purpose set forth.

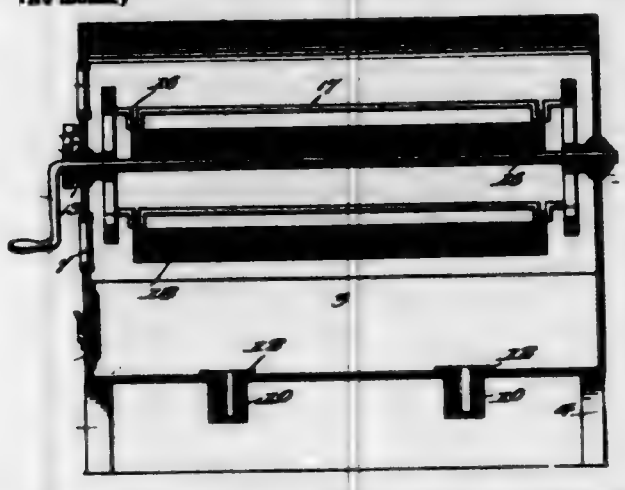
3. In a music-rack, the combination with a pedestal-rod, of a swivel-block rotatively mounted thereon, a spring arranged to impart a rotative

tension to said swivel-block, a bar carried by said swivel-block, a detachable stop for locking said bar and swivel-block against rotative movement, and clamp devices carried by said bar for clamping a sheet of music, as and for the purpose set forth.

4. In a music-rack, the combination with a pedestal-rod, of a swivel-block rotatively mounted upon said rod, a bar having a seat adapted to receive said swivel-block, a spring connected to said swivel-block for imparting a rotative tension thereto, a detachable lock arranged to engage said bar to hold the same against rotative movement, adjustable arms carried by said bar, and clamps carried by said arms, as and for the purpose set forth.

5. In a music-rack, a bar having longitudinal slots, arms carrying clamps, thumb-screws operating through said slots for adjustably clamping said arms to said bar, a swivel-block, a seat formed on said bar adapted to receive said swivel-block, a pedestal-rod upon which said swivel-block is rotatively mounted, means for imparting a rotative tension to said swivel-block, and a detachable stop for locking said arm against rotative movement, as and for the purpose set forth.

694,501. APPARATUS FOR PRESERVING EGGS. PAGE H. TREADWAY, Dardanelle, Ark. Filed Oct. 15, 1901. Serial No. 78,716. (No model.)



Claim.—1. In an egg-preserving apparatus, the combination with an air-tight casing of a chemical-receptacle detachably mounted in the bottom thereof, and a plurality of egg-receptacles revolubly suspended above the chemical-receptacle and within the casing, said egg-receptacles being adapted to be brought adjacent to the chemicals alternately.

2. In a preserving apparatus, the combination with a casing, of cups removably secured in said casing and adapted to contain a preserving agent, a shaft mounted in bearings in the casing, a frame rigidly secured thereto, egg-receptacles carried by the frame, and means for rotating the shaft whereby the egg-receptacles may be conveyed toward and away from the cups.

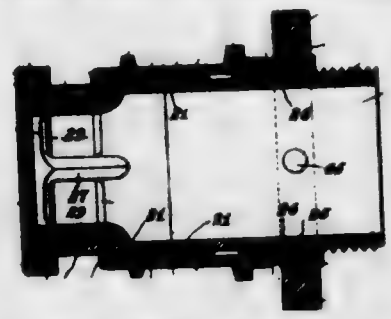
3. In an egg-preserving apparatus, the combination with a casing provided with longitudinally-arranged doors and openings in its bottom, of removable cups seated in said openings and provided with peripheral flanges adapted to rest on the bottom of the casing, a revolubly-mounted frame secured within the casing, egg-receptacles carried thereby and means for rotating the frame, whereby the egg-receptacles may be conveyed toward and away from the cups, and means for holding the receptacles in any predetermined position.

4. The combination with an air-tight receptacle having a suitably-located window therein, a revolubly shaft within said casing, pivotally-mounted receptacles suspended therefrom, detachable cups upon the bottom of the casing, means for revolving the shaft whereby the receptacles are conveyed alternately to points adjacent the cups and means for preventing backward movement of the shafts.

694,502. VALVE. JOSEPH TREMBLAY, St. Cunegonde, Canada, assignor to Tremblay & Lymburner, (Joseph Tremblay and Marie Louise Dextras dit Baxter, wife of Louis Marcel Lymburner,) St. Cunegonde, Canada. Filed Mar. 15, 1901. Serial No. 51,404. (No model.)

Claim.—1. In a valve of the character described, the combination of a bearing-ring, a hollow one-piece slidable member which exceeds the bearing-ring in length and is provided at one end with a hose-attaching nipple which is normally exposed beyond the front end of the bearing-ring, a valve-head in operative relation to the inner end of the hollow member, and metallic packings coöperatively disposed to the inner and outer portions of the bearing-ring and the hollow member and arranged to minimize leakage through and between the members of the valve in the opened and closed positions thereof, substantially as described.

2. In a valve of the character described, the combination in a single structure of the following instrumentalities, to wit: a bearing-ring, a hollow one-piece slidable member which exceeds the bearing-ring in length and is provided at one end beyond the front of the bearing-ring with the exposed operating-collar and with the hose-attaching nipple, a packing attached to the exposed collar and adapted to seat itself against the bearing-ring on adjustment of the hollow member to one position, a valve-head in coöperative relation to the inner portion of the hollow member, and another packing arranged to tightly close the joint between the bearing-ring and the hollow member when the valve is adjusted to its other position; the two packings coöperating with the members of the valve to minimize leakage through the valve and between the members thereof in the opened or closed positions of the same, substantially as described



3. In a valve of the character described, the combination of a bearing-ring provided at its exposed front portion with a seat, a hollow one-piece slidable member which exceeds the bearing-ring in length and is provided beyond the front portion of the bearing-ring with an exposed operating-collar and with a threaded hose-attaching nipple, a metallic packing seated in the rear face of said collar and in coöperative relation to said seat of the bearing-ring and adapted to occupy the same when the valve is moved to an open position, and a valve-head coöperating with said hollow member, substantially as described.

4. In a valve of the character described, the combination of a bearing-ring provided at its front and rear ends with the seats, a hollow one-piece slidable member which exceeds the bearing-ring in length and is provided at points beyond the front seat of the bearing-ring with an exposed collar and with a hose-attaching nipple, a valve-head movable with said hollow member, and metallic packings mounted respectively in the exposed collar and in the valve-head and disposed in coöperative relation to the seats of the bearing-ring to engage alternately therewith, whereby one packing closes the valve tightly when adjusted to a closed position and the other packing excludes leakage between the bearing-ring and the hollow member in the open position of the valve, as set forth.

5. In a valve of the character described, a slidable tubular member provided at its inner end with spaced arms united by a threaded ring and at its outer end with an exposed collar and with a hose-attaching nipple, and a valve-head screwed to said threaded ring and provided in one face with an annular packing which surrounds the tubular member, in combination with a bearing-ring having seats at its ends, and a packing mounted in the collar and adapted to one of the seats, the whole being arranged for service in the manner and for the purposes set forth.

6. A valve of the character described comprising a bearing-ring provided with an annular collar and with a series of lugs, a soft metal filling-joint surrounding the bearing-ring, a tubular valve element having threaded engagement with said bearing-ring, and a valve-head, as and for the purposes described.

7. A valve of the character described having a tubular member provided with a collar, and a vent-valve supported within said tubular member, said vent-valve being normally open for the admission of air to the valve and adapted to be closed by the pressure of fluid when the valve is opened, as and for the purposes described.

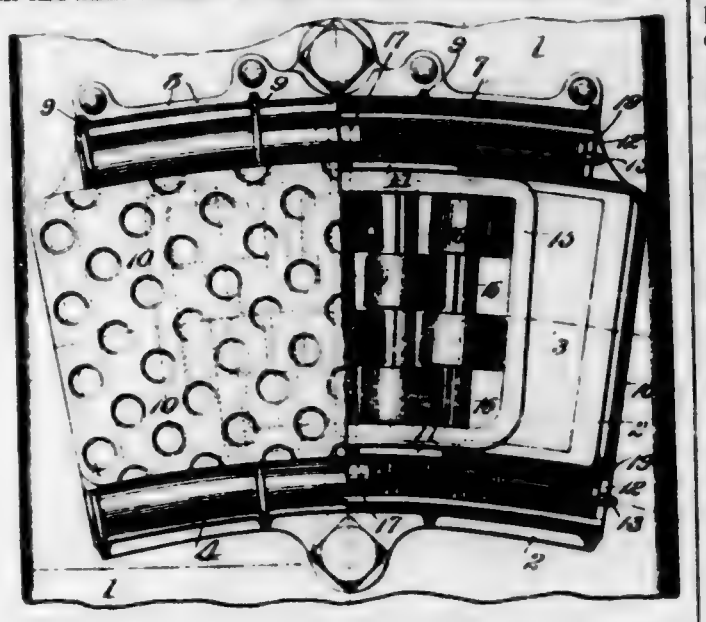
694,508. ROLLER SIDE BEARING. JOHN C. WANDS, St. Louis, Mo. Filed June 31, 1901. Serial No. 65,415. (No model.)

Claim.—1. In a side bearing for cars, the combination with an antifriction device, of a frame coöperating therewith, a bearing-plate, and resilient means located externally the frame for coöperating with the frame and bearing-plate to restore said parts to normal position: substantially as described.

2. In a side bearing for cars, the combination with an antifriction device, of a frame coöperating therewith, a plurality of opposing springs arranged at the sides of said frame and in alinement with the direction of movement of said frame, said springs engaging the frame and being placed in compression, and means coöperating with said springs whereby they exert their combined energies in opposition to movement of the frame in either direction; substantially as described.

3. In a side bearing for cars, the combination with an antifriction device, of a frame coöperating therewith, opposing springs arranged at the sides of the frame and bearing against lateral projections carried by

the frame, said springs acting to center said frame, and means coöperating with said springs for utilizing their combined energies to restore the frame after said frame is shifted in either direction; substantially as described.



4. In a side bearing for cars, the combination with an antifriction device, of a frame coöperating therewith, a track-plate upon which said antifriction device is mounted, springs arranged on opposite sides of the frame, the inner ends of said springs finding a bearing on said frame, said springs being placed in compression and opposing each other, and movable bearings for the outer ends of the springs; substantially as described.

5. In a side bearing for cars, the combination with a shiftable bearing-plate mounted in suitable guideways, and opposing springs arranged on each side of said bearing-plate, the combined energies of said springs being utilized to restore the bearing-plate to a central position when the latter is shifted in either direction; substantially as described.

6. In a side bearing for cars, the combination with an antifriction device, of a frame coöperating therewith, springs acting in opposition to the movement of said frame in either direction, a bearing-plate in contact with the frame of the antifriction device for advancing the same, fixed bearings for the outer ends of said springs, and bearings at the four corners of the bearing-plate for coöperating with the outer ends of said springs, and lifting them from their fixed bearings; substantially as described.

7. In a side bearing for cars, the combination with an antifriction device, of a frame coöperating therewith, two sets of springs arranged at the side edges of said frame and parallel with the path of movement thereof, the inner ends of said springs finding a bearing upon said frame, fixed bearings for the outer ends of said springs, and a bearing-plate having abutments at its four corners for coöperating with the outer ends of the springs and lifting the same from their fixed bearings when the bearing-plate is shifted in either direction, whereby, the movement of the bearing-plate in either direction effects the compression of all of the springs whose combined energies are exerted to restore the bearing-plate and the roller-frame to their normal position; substantially as described.

8. In a side bearing for cars, the combination with an antifriction device and its frame, of two sets of springs arranged at the sides and extending beyond opposite ends of said frame, the proximate ends of said springs engaging the frame and opposing its advance toward the sets of springs, respectively, followers supporting the ends of the springs remote from the frame, and a bearing-plate provided with means for lifting and carrying with it the spring-followers; substantially as described.

9. In a side bearing for cars, the combination with a track-plate, of an antifriction device arranged thereon, a frame for said antifriction device, sets of expansion-springs arranged at the sides and extending beyond the opposite ends of said frame, said springs extending parallel with the direction of movement of said frame, the proximate ends of said springs having a bearing upon said frame, followers against which the outer ends of the springs are seated, said followers being movable in the direction of movement of the frame, fixed stops for limiting the movement of the followers in a direction away from the frame, and a bearing-plate overlying the antifriction device and provided at its corners with projections adapted to engage the respective followers and carry them with the bearing-plate when the latter is moved in a certain direction; substantially as described.

10. In a side bearing for cars, the combination with a base-plate provided with overhanging hoods, of an antifriction device, a frame for said device, coiled springs housed in said overhanging hoods, and a bearing-plate provided with trough-shaped flanges for receiving said springs; substantially as described.

11. In a side bearing for cars, the combination with a base-plate provided with a track-plate, of overhanging hoods supported upon the base-plate, coiled springs arranged in said hoods, an antifriction device arranged on the track-plate, a frame for said antifriction device, lateral projections extending from said frame against which the proximate ends of the springs bear, followers for the outer ends of the springs which normally rest against the end walls of the hoods, a bearing-plate overlying the antifriction device and provided with trough-shaped flanges for receiving the springs, the end walls of said flanges being adapted to engage and carry the spring-followers when the bearing-plate is shifted, said plate being guided in its movement by the overhanging hoods; substantially as described.

12. In a side bearing for cars, the combination with a base-plate provided with overhanging hoods forming spring-housings, an antifriction device having a path of movement between said hoods, a bearing-plate overlying the antifriction device and interlocked with the overhanging hoods, and springs in said hoods coöperating with the bearing-plate and antifriction device; substantially as described.

13. In a side bearing for cars, the combination with a base-plate provided with overhanging hoods, one of which is removable, of an antifriction device between said hoods, a bearing-plate overlying said antifriction device, means for limiting the movement of said bearing-plate with respect to said antifriction device, flanges on the bearing-plate extending under the overhanging hoods, and springs; substantially as described.

14. In a side bearing for cars, the combination with a base-plate provided with spring-housings at its side edges, of an antifriction device arranged to travel between said housings, a bearing-plate overlying said antifriction device and having a differential movement with respect thereto, means for limiting the movement of said bearing-plate, abutments at the corners of said bearing-plate, and springs; substantially as described.

15. In a side bearing for cars, the combination with a base-plate having fixed spring-housings along its side edges forming guideways, of followers arranged in said housings and coöperating with the end walls thereof, springs bearing against said followers at their outer ends, an antifriction device against which the inner ends of said springs bear, whereby the energies of said springs are opposed, a bearing-plate overlying the antifriction device and provided with lateral flanges extending under the spring-housings for supporting said springs, and abutments at the ends of said flanges and in line with the followers for the springs, said abutments being free to pass the end walls of the spring-housings for the purpose of lifting the followers and carrying said followers with the bearing-plate; substantially as described.

16. In a side bearing for cars, the combination with antifriction-rollers, of a frame therefor, the spindle of one roller projecting laterally beyond the frame, heads on the projecting ends of said spindle, guideways for said heads, and springs coöperating therewith; substantially as described.

17. In a side bearing for cars, the combination with antifriction-rollers, of a frame therefor, one of the roller-spindles projecting laterally beyond the frame, heads on the ends of said spindle, fixed guideways for receiving said heads, abutments at the ends of said guideways; and springs interposed between said abutments and the heads on the ends of the spindle; substantially as described.

18. In a side bearing for cars, the combination with antifriction-rollers, of a frame therefor, one of the spindles of said rollers projecting laterally beyond the sides of the frame, heads on the ends of said spindle, overhanging hoods forming guideways for said heads, the end walls of said hoods providing abutments for spring-followers, springs bearing upon the heads and against the followers which are seated against said end walls, a bearing-plate resting upon the antifriction-rollers, and having trough-shaped flanges which coöperate with the overhanging hoods to form housings for the springs, and guideways for the heads on the ends of the roller-spindle, the vertical side walls of the bearing-plate being slotted for the passage of the projecting ends of said spindle, and walls at the ends of the trough-shaped flanges for coöperating with the spring-followers when the bearing-plate is moved in a certain direction; substantially as described.

19. In a side bearing for cars, the combination with spring-housings which are provided with openings for permitting a circulation of air thereunder, of an antifriction device guided in its movement by said housings, a bearing-plate arranged upon said antifriction device so as to permit a circulation of air thereunder and around said antifriction device, and springs in said housings for coöperating with said roller-frame, and with said bearing-plate; substantially as described.

20. In a side bearing for cars, the combination with an antifriction device, of springs coöperating therewith for restoring said device to its normal position, and housings for said springs, said housings being provided with openings in their bottom walls for the escape of dirt, dust, &c.; substantially as described.

21. In a side bearing for cars, the combination with an antifriction device, of coiled springs coöperating with said device, and trough-shaped

flanges in which said springs are received, said flanges being provided with openings for the discharge of dust, dirt, &c.; substantially as described.

22. In a side bearing for cars, the combination with a base-plate provided with overhanging hoods, an antifriction device, a frame for said device, coiled springs housed in said overhanging hoods, and a bearing-plate provided with trough-shaped flanges for receiving said springs, said flanges having openings in their bottom walls for the escape of dirt, dust, &c.; substantially as described.

23. In a side bearing for cars, the combination with an antifriction device, of a track-plate, upon which the same is arranged, guides rising from opposite sides of the track-plate, said guides being provided with openings so as to enable air to sweep over the track, and resilient means coöperating with said antifriction device to restore it to its normal position; substantially as described.

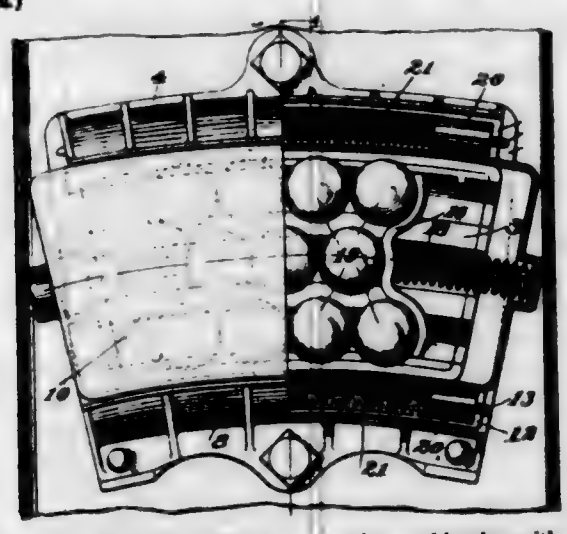
24. In a side bearing for cars, the combination with an antifriction device, of a track-plate upon which the same is arranged, guides rising from opposite sides of the track-plate, said guides being provided with openings for the circulation of air, the ends of the bearing being open so as to permit air to sweep over the track-plate, and mechanism coöperating with the antifriction device to restore it to its normal position; substantially as described.

25. In a side bearing for cars, the combination with a base-plate having a way in which operates an antifriction device, said way being free from pockets or other obstructions thereby preventing the lodging or packing of dust, dirt &c., an antifriction device traversing said way, guides rising from the opposite side of said base-plate for guiding the antifriction device in its movement, and resilient means supported by said guides and coöperating with the antifriction device for restoring the same to its normal position; substantially as described.

26. In a side bearing for cars, the combination with a way free from pockets and open at its ends thereby admitting an unobstructed circulation of air over said way and around the antifriction device arranged thereon, an antifriction device traversing said way, an antifriction device, a bearing-plate coöperating with said antifriction device, the ends of said bearing-plate being cut away to permit the air to sweep over the way, and resilient means coöperating with the antifriction device and the bearing-plate for restoring said parts to normal position; substantially as described.

27. In a side bearing for cars, the combination with a way free from pockets or obstructions, thereby preventing the lodgment or packing of dust, dirt, &c., on the way, said way being open at its ends, guides on opposite sides of the way, openings in the guides, the open ends of the way and the openings in the guides permitting a circulation of air over said way and around the antifriction device arranged thereon, an antifriction device traversing said way, and resilient means coöperating with the antifriction device for restoring it to a central position; substantially as described.

694,504. SIDE BEARING FOR RAILWAY-CARS. JOHN C. WARDE, St. Louis, Mo. Filed Aug. 23, 1901. Serial No. 73,046. (No model.)



Claim.—1. In a side bearing for cars, the combination with an antifriction device, of a bearing-plate coöperating therewith, guides for said bearing-plate, and resilient means located to the side of the bearing-plate for centering the same irrespective of the position of the antifriction device; substantially as described.

2. In a side bearing for cars, the combination with an antifriction device, of a bearing-plate arranged thereon, and springs located at each side of said bearing-plate for restoring the same to a central position and independently of the position of the antifriction device; substantially as described.

3. In a side bearing for cars, the combination with a shiftable bearing-plate, of an antifriction device coöperating therewith and capable of independent movement with respect to said bearing-plate, and means for centering the antifriction device independently of the position of said bearing-plate; substantially as described.

4. In a side bearing for cars, the combination with a shiftable bearing-plate, of an antifriction device coöperating therewith and capable of independent movement with respect thereto, means for centering said bearing-plate, and independent means for centering the antifriction device under the bearing-plate irrespective of the position of said bearing-plate; substantially as described.

5. In a side bearing for cars, the combination with a shiftable bearing-plate, of springs arranged at each side thereof for restoring the same to a central position, an antifriction device supporting said bearing-plate, and independent means constantly exerting a force to center said antifriction device with respect to the bearing-plate irrespective of the position of said bearing-plate; substantially as described.

6. In a side bearing for cars, the combination with a shiftable bearing-plate, of means tending at all times to restore same to a central position, an antifriction device under said bearing-plate, and independent means for centering said antifriction device with respect to said bearing-plate; substantially as described.

7. In a side bearing for cars, the combination with a shiftable bearing-plate, guides therefor, resilient means for restoring said bearing-plate to a central position, an antifriction device under the bearing-plate, and springs interposed between said antifriction device and the bearing-plate, said springs lying in the plane of travel of said parts; substantially as described.

8. In a side bearing, the combination with a shiftable bearing-plate, of guides therefor, springs arranged at the side edges of said bearing-plate for restoring the same to a central position, an antifriction device under the bearing-plate, and opposing springs bearing at their outer ends against the end walls of the bearing-plate, and at their inner ends against the antifriction device; substantially as described.

9. In a side bearing for cars, the combination with a shiftable bearing-plate, of springs arranged along the side edges thereof, fixed abutments or supports against which the ends of said springs normally find a bearing, and projections at the corners of the bearing-plate for lifting the ends of the springs from their fixed supports whenever the bearing-plate is shifted; substantially as described.

10. In a side bearing for cars, the combination with a shiftable bearing-plate, of single springs arranged at the side edges thereof, followers at the ends of said springs, fixed abutments coöperating with said followers, and projections at the corners of the bearing-plate for lifting the followers from their fixed abutment whenever the bearing-plate is shifted; substantially as described.

11. In a side bearing for cars, the combination of guideways, and a slidable bearing-plate mounted therein, and having a bearing-face which is convexed transversely, said face being formed straight longitudinally; substantially as described.

12. In a side bearing for cars, the combination of guideways, a shiftable bearing-plate having a convexed face, and means for restoring said bearing-plate to a central position; substantially as described.

13. In a lower side bearing for cars, the combination with guideways, a shiftable bearing-plate arranged in and guided by said ways, continuous grooves in the under face of the bearing-plate, balls in said grooves, and means for returning said balls to normal position under said bearing-plate after displacement; substantially as described.

14. In a lower side bearing for cars, the combination with a bearing-plate formed with continuous grooves in its under face, a bottom ball-race, and balls; substantially as described.

15. In a side bearing for cars, the combination with a bearing-plate, a group of staggered balls, and resilient means for centering said group of staggered balls with respect to the bearing-plate; substantially as described.

16. In a lower side bearing for cars, the combination with a bearing-plate formed with continuous grooves in its under face, a base-plate formed with continuous grooves in its upper face, balls in the races thus provided, and resilient means for holding said balls in position; substantially as described.

17. In a lower side bearing for cars, the combination with a bearing-plate, of a group of staggered balls arranged thereunder for supporting the same, and resilient means for restoring said group of staggered balls to a normal position with respect to said bearing-plate after actuation; substantially as described.

18. In a side bearing for cars, the combination with a shiftable bearing-plate, guides for said bearing-plate, resilient means coöperating with the bearing-plate for restoring the same to a central position, balls arranged under the bearing-plate, and independent means coöperating with said bearing-plate, in its different positions, and said balls, for exerting constant energy upon the balls tending to restore them to a central position with respect to the bearing-plate, in all positions of said bearing-plate; substantially as described.

19. In a lower side bearing for cars, the combination with a shiftable bearing-plate with rows of balls arranged thereunder, and a spring-pressed yoke coöperating with the end balls of said rows; substantially as described.

20. In a lower side bearing for cars, the combination with a shiftable bearing-plate, of balls arranged thereunder, a yoke having downwardly-extending supporting-legs, and a spring interposed between said yoke and said bearing-plate; substantially as described.

21. In a lower side bearing for cars, the combination with a shiftable bearing-plate provided with grooves in its under face forming a ball-race, of a bottom supporting ball-race, rows of balls in said races, yokes embracing the end balls of the row, and springs interposed between said yokes and the under walls of the bearing-plate; substantially as described.

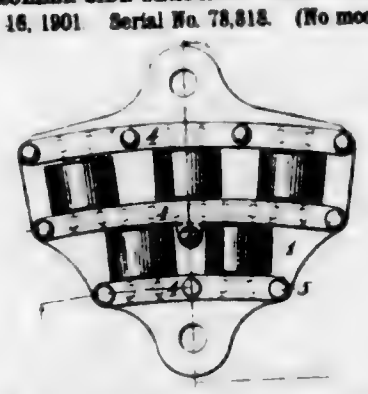
22. In a side bearing for cars, the combination with the ball-races composed of hard metal, and formed with concentric grooves, balls fitting in said grooves between said races, and reinforcing ductile metal for said ball-races; substantially as described.

23. In a lower side bearing, the combination with ball-races formed with continuous concentric grooves, of balls therein, and means for preserving the relation of said balls to each other; substantially as described.

24. In a lower side bearing for cars, the combination of a shiftable bearing-plate and a bottom ball-race, the latter being formed with continuous concentric grooves, of rows of balls in said grooves, yokes coöperating with the end balls of said rows, and springs bearing against said yokes in line with the middle row of balls, the outer ends of said springs engaging the bearing-plate; substantially as described.

25. In a lower side bearing for cars, the combination with a shiftable bearing-plate having spring-seats at its ends, of an antifriction device arranged under said bearing-plate, springs interposed between said antifriction device and the spring-seats at the ends of the bearing-plate, and elongated seats for supporting said springs; substantially as described.

694,505. ROLLER SIDE BEARING. JOHN C. WANDS, St. Louis, Mo. Filed Oct. 16, 1901. Serial No. 78,818. (No model.)



Claim.—1. In a side bearing for cars, the combination with supporting-walls, of a plurality of rollers journaled in said walls, the axes of rotation of said rollers being radial to the king-pin of the truck, caps over the spindles of said rollers, ball-races formed in said caps and in the supporting-walls, and balls in said races; substantially as described.

2. In a side bearing for cars, the combination with supporting-walls formed with ball-races, of a plurality of rollers journaled in said supporting-walls and whose axes of rotation are radial to the king-pin of the truck, ball-bearings for the spindles of said rollers, and a cap-piece extending over a plurality of spindles, said cap-piece being formed with ball-races registering with the races in the supporting-walls; substantially as described.

3. In a side bearing for cars, the combination with supporting-walls provided with ball-races, of cap-pieces also provided with ball-races, a roller, a spindle for said roller whose ends are provided with grooves forming ball-races, and balls in said races; substantially as described.

4. An article of manufacture consisting of a roller having a grooved spindle, of balls arranged in said groove, and a flexible band for holding said balls in position; substantially as described.

5. In a side bearing for cars, the combination with a spindle provided with a groove, of balls in said groove, a flexible band for confining said balls in position, a ball-race into which said balls are introduced, and means for removing said flexible confining-band; substantially as described.

6. In a side bearing for cars, the combination with a roller provided with a grooved spindle, of balls arranged in the groove of said spindle, a flexible band for confining said balls in position, a divided bearing coöperating with said balls, means for securing the parts of said bearing together, and means for removing said flexible confining-band; substantially as described.

7. In a side bearing for cars, the combination with a plurality of walls, of rollers journaled in said walls, said rollers being staggered with relation to each other and having independent spindles, and ball-bearings for the spindles of each roller; substantially as described.

8. In a side bearing for cars, the combination with a base-plate provided with a plurality of walls whose upper edges are formed with semicircular grooved recesses, cap-pieces having registering grooved recesses, rollers whose spindles are received by said recesses, and balls arranged in said recesses around the spindles of the rollers; substantially as described.

9. In a side bearing for cars, the combination with a base-plate 1 provided with walls 2, said walls having recesses 3 in their upper edges, cap-pieces 4 arranged on the upper edges of the walls, rivets for securing said cap-pieces in position, staggered rollers whose axes of rotation are radial to the king-pin of the truck; substantially as described.

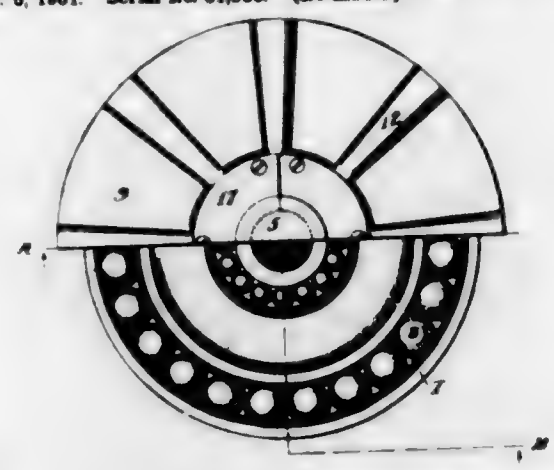
10. In a side bearing for cars, the combination with a base-plate 1, of integral walls 2 rising therefrom and concentric to the king-pin of the truck, rollers mounted between said walls, said rollers being staggered with relation to each other, and the axes of rotation of said rollers being radial to the king-pin of the truck, and caps secured in position on top of said walls, said caps being coextensive in length with said walls; substantially as described.

11. In a side bearing for cars, the combination with supporting-walls, of a roller finding a bearing therein, balls arranged in races around the ends of the spindles of the roller, said walls being provided with spaces 12; substantially as described.

12. The herein-described method of assembling the ball-bearings which consists in grouping the balls in position on one of the elements of the bearing holding said balls in place by a flexible band, assembling the bearing, and removing the flexible band; substantially as described.

13. The herein-described method of inserting the balls in ball-bearings which consists in grouping the balls in position around the spindle or axle and holding said balls in place by the use of a rubber band, inserting the axle and its grouped balls in position, and then dissolving the rubber band; substantially as described.

694,506. SIDE BEARING. JOHN C. WANDS, St. Louis, Mo. Filed Nov. 8, 1901. Serial No. 81,586. (No model.)



Claim.—1. In a side bearing for cars, the combination with a movable element, and ribs on the face thereof for reducing the contact of the companion bearing; substantially as described.

2. In a side bearing for cars, the combination with a rotary bearing-plate having ribs on its face, and an antifriction device coöperating with said bearing-plate; substantially as described.

3. In a side bearing for cars, the combination with a rotary element, of burden-bearing balls supporting the same, and a movable bottom ball-race in which said balls are arranged; substantially as described.

4. In a side bearing for cars, the combination with a rotary bearing-plate having radial ribs upon its face, and balls supporting said bearing-plate; substantially as described.

5. In a side bearing for cars, the combination with a rotary bearing-plate having a flat contact-face, the under face of said bearing-plate being grooved to afford an apex bearing upon a concentric row of balls, a movable lower ball-race, and balls; substantially as described.

6. In a side bearing for cars, the combination with a rotary bearing-plate, of several concentric series of balls for supporting the same, one of said series of balls taking up the side thrust; substantially as described.

7. In a side bearing for cars, the combination with a rotary bearing-plate, of a movable washer thereunder, and two concentric series of balls bearing upon said washer for supporting the bearing-plate; substantially as described.

8. In a side bearing for cars, the combination with a rotary bearing-plate, of a spindle therefor, burden-bearing balls arranged in a concentric row for supporting the outer edge of said bearing-plate, and a series of balls for supporting the center of the bearing-plate and also serving to take up the side thrust by coöperating with said spindle; substantially as described.

9. In a side bearing for cars, the combination with a shouldered spin-

dle, of a washer loosely arranged thereon, said washer being provided with a groove forming a ball-race, a rotary bearing-plate mounted upon said spindle and supported in position by the bearing-bearing balls traveling in the groove in the washer, and two concentric series of balls coöperating with the center of the bearing-plate and said spindle; substantially as described.

10. In a side bearing for cars, the combination with a spindle 1 provided with an enlargement 3, of a washer 6, a rotary bearing-plate 9, of balls 8, 14, and 16, and a flange-ring 17; substantially as described.

11. In a side bearing for cars, the combination with a spindle having enlargements 3 and 5 and a reduced annulus 4, of a washer 6 strung loosely on said spindle and having a concentric groove 7, balls 8 in said groove, a bearing-plate 9, balls 14 and 16 coöperating with said bearing-plate and with enlargement 3, and a divided flange-ring 17 fitting in the reduced annulus 4; substantially as described.

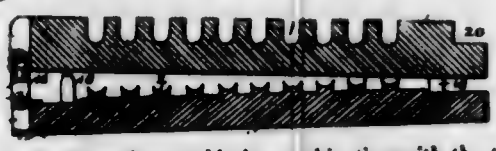
12. In a side bearing for cars, the combination with a rotary element, of a spindle therefor, said spindle also forming the attaching medium to the bolster; substantially as described.

13. In a side bearing for cars, the combination with a rod or bolt designed to be secured to a bolster and have one end project slightly thereabove, and a rotatable bearing-plate mounted on the upper projecting end of said rod; substantially as described.

14. In a side bearing for cars, the combination with a washer forming a ball-race, a bearing-plate, balls interposed between said washer and bearing-plate, a spindle forming the axis of rotation of said bearing-plate, said spindle also forming a medium for securing the parts when in position on a bolster; substantially as described.

15. In a side bearing for cars, the combination with a shouldered rod, of a washer forming a ball-race which is held in position upon the bolster by said shouldered rod, a bearing-plate rotating about the protruding end of said rod, and balls interposed between said bearing-plate and said washer; substantially as described.

694,507. CIGAR-MOLD. GEORGE M. WILLIAMS, Baltimore, Md., assignor to the American Tobacco Company, New York, N. Y., a Corporation of New Jersey. Filed July 19, 1901. Serial No. 68,883. (No model.)



Claim.—1. In a cigar-mold, the combination with the two sections carrying the cups and matrices respectively, of means for connecting said sections, said means including a double joint whereby the sections may be separated to open the mold and the cup-section turned beneath the matrix-section with the edges of the cups facing the bottom of said section, substantially as described.

2. In a cigar-mold, the combination with the two sections carrying the cups and the matrices respectively, of a hinged joint between said sections, said joint including a swivel connection, whereby the mold may be opened and the cup-section turned beneath the matrix-section with the edges of the cups facing the bottom of said section substantially as described.

3. In a cigar-mold, the combination with the two sections carrying the cups and the matrices respectively, of a hinged joint between said sections, said joint including a swivel connection, and lying in a recess in the end of the mold, whereby the mold may be opened and the cup-section turned beneath the matrix-section with the edges of the cups facing the bottom of said section, substantially as described.

4. In a cigar-mold, the combination with the two sections carrying the cups and the matrices respectively, of a hinged joint between said sections, said joint comprising a link and swivel connection whereby the axis of the hinge moves outward as the mold is opened, and after the mold is fully opened the cup-carrying section may be turned beneath the matrix-carrying section, the edges of the cups facing the bottom of said section, substantially as described.

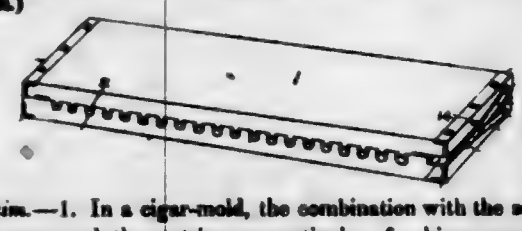
5. In a cigar-mold, the combination with the two sections carrying the cups and the matrices respectively, of a hinged joint between said sections, a part secured to one of the sections and provided with a pintle, a link having perforations engaged by the pintle, and a swivel connection between said link and the other section, substantially as described.

6. In a cigar-mold, the combination with the cup-carrying section, of a part secured thereto and provided with a pintle, a matrix-carrying section, a link, a swivel connection between the matrix-carrying section and the link, said link being engaged by the pintle, substantially as described.

7. In a cigar-mold, the combination with the cup-carrying section, said section having a recess in its end, of a part carrying a pintle located in said recess, a matrix-carrying section, said section having a recess in its end, a link, and a swivel connection between the matrix-carrying section and the link, said link and swivel connection being located in the recess of the matrix-carrying section, and said link being engaged by the pintle, substantially as described.

8. In a cigar-mold, the combination with the cup-carrying section, said section having a recess in its end, of a pintle-carrying part located in said recess, a matrix-carrying section having a recess in its end, a link located in said recess and engaging the pintle, and a pivoted headed pin also secured in said recess and engaging a perforation in the link and forming a swivel connection therewith, substantially as described.

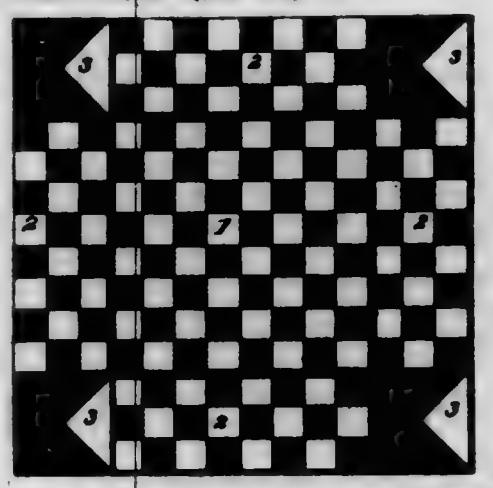
694,508. CIGAR-MOLD. GEORGE M. WILLIAMS, Baltimore, Md., assignor to the American Tobacco Company, New York, N. Y., a Corporation of New Jersey. Filed July 19, 1901. Serial No. 68,884. (No model.)



Claim.—1. In a cigar-mold, the combination with the sections carrying the cups and the matrices respectively, of a hinge connection between said sections, said connection comprising two pairs of links, one pair being located at each end of the mold, the links of each pair being pivoted to the mold and to each other, substantially as described.

2. In a cigar-mold, the combination with the sections carrying the cups and the matrices, of two links, one of said links being pivoted to the cup-carrying section at one end near one of the edges thereof and the other link being pivoted to the other end of the cup-carrying section near the same edge, and links pivoted to the matrix-carrying section at each end thereof, the pivotal points of the links being near the edge of the section and adjacent to the pivotal points of the links on the cup-carrying section, the links at each end of the mold being pivoted together, substantially as described.

694,509. GAME. GEORGE W. WINCHFIELD, Oakland, Cal., assignor of one-half to H. H. Hoyt and Elva Hoyt, Oakland, Cal. Filed Feb. 14, 1901. Serial No. 47,351. (No model.)



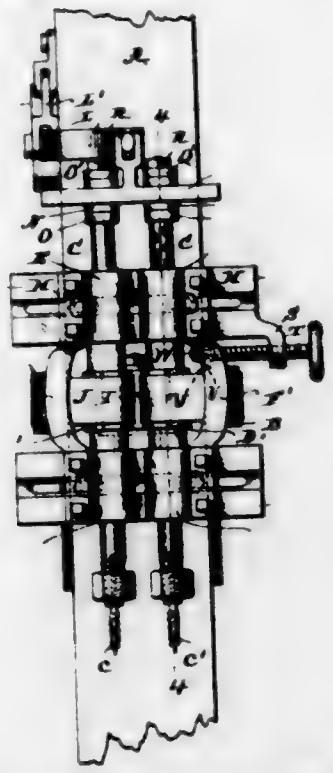
Claim.—A game-board having a square central field subdivided into contrasting squares, and having an oblong field at each edge of the central field similarly subdivided into squares and separated from the central field by a well-defined line, and having corner rests divided into triangular-shaped spaces by diagonal lines, said spaces being of contrasting color, substantially as set forth.

694,510. DOUBLE-SPINDLE DRAWER-PULL BORING-MACHINE. SOLOMON P. WEBB, Philadelphia, Pa., assignor to H. B. Smith Machine Company, a Corporation of New Jersey. Filed May 2, 1901. Serial No. 58,579. (No model.)

Claim.—1. In a double-spindle boring-machine, in combination, two upright spindles, means for rotating the spindles, laterally-adjustable bearings for the spindles, a slotted cross-head, and a journal loose on the spindle, said journal having flat faces on opposite sides thereof, said flat faces being narrower than the length of the journal and engaging the walls of the slots in the cross-head.

2. In a double-spindle boring-machine, in combination, two upright spindles, means for rotating the spindles, laterally-adjustable bearings for the spindles, said spindles being provided with a reduced portion near its upper end, and a still further reduced portion at its upper end, a journal on the first-named reduced portion, a washer on the first-named reduced portion below the journal, a washer on the end reduced portion, a nut

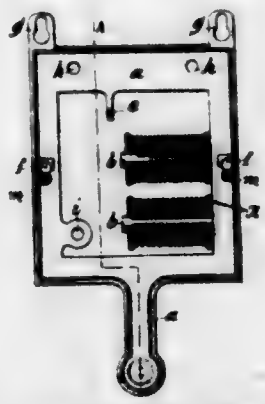
above said washer, the first-named reduced portion extending slightly above the journal and a slotted cross-head, the journal being adapted to slide in the slots of said cross-head.



3. In a double-spindle boring-machine, in combination, a post, an upright driving-shaft on one side thereof, a driving-pulley on said shaft, a slotted supporting frame on the opposite side of the post, two upright spindles, two bearings for each spindle, pulleys splined on the spindles and confined between the bearings, an idler-pulley rotating in bearings on said frame, bolts extending through said bearings and the slots in the supporting-frame, a slotted cross-head, the upper ends of said spindles extending through said slots, journals loose on the spindles and engaging the slots in the cross-head, a lever pivoted between its ends and secured to the cross-head near one end, a weight at the other end of said lever, and a driving-belt extending successively around the driving-pulley, one of the spindle-pulleys, the idler-pulley, other spindle-pulley, and back to the driving-pulley, substantially as described.

4. In a double-spindle boring-machine, in combination, two upright spindles, two spindle-carrying frames each consisting of two bearings and a connecting-arm, the spindles rotating respectively in the bearings of the two frames, a driving-pulley for each spindle confined between said two bearings and splined to the spindle, a slotted supporting-frame, bolts extending through said bearings and said slots, a threaded shaft engaging the supporting-frame and one of the spindle-carrying frames, means for simultaneously rotating the pulleys, a slotted cross-head, journals loose on the spindles and engaging the slots in the cross-head, and means for depressing the cross-head, substantially as described.

694,511. MOUNTING OF ELECTRIC BELLS. CHARLES WOTTEQUAED, Charleville, France. Filed Mar. 5, 1901. Serial No. 49,885. (No model.)

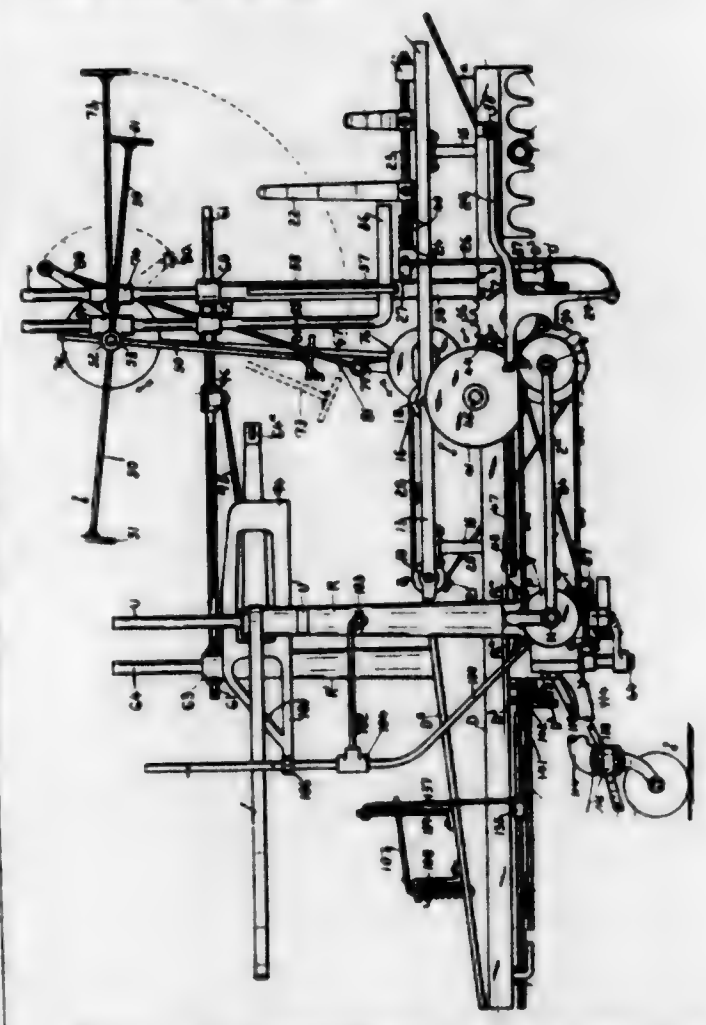


Claim.—1. In a mount for electric bells a base-plate constructed entirely of metal, covered at its rear with a vulcanized-fiber plate, comprised of a single piece of metal formed integral with the cores of the electromagnet, and connected therewith by a lug supporting the cores extending at right angles to the plate, a support for the regulating-screw, a post for the bell, and lugs for suspending the base-plate, the said base-plate being formed with holes for the passage of the conducting-wires and holes for securing the cover, substantially as shown and described.

2. A base-plate for electric-bell mounts formed of magnetizable metal cast in a single piece and comprising cores *b* for the electromagnetic coils extending from the side toward the center of the base-plate, and a bell-post, a bell-hammer armature lever-supporting lug, the base-plate being also provided with orifices for securing the cover thereon and for the reception of binding-screws, substantially as shown and described.

3. A base-plate for electric-bell mounts comprising a lug *x* extending at a right angle to the plate, and two core-pieces *b b* extending from the lug toward the center of the base-plate parallel therewith, and at right angles to the lug, the base-plate, lug and core-pieces being formed of one piece of metal, substantially as shown and described.

694,512. MACHINE FOR SHOCKING GRAIN. THOMAS A. WOOLEY and HERBERT FOX, Hamilton, Canada. Filed Mar. 5, 1901. Serial No. 49,778. (No model.)



Claim.—1. In a shocking-machine, a frame, adjusting-bars secured to the under side of the sides of the frame and at the sheaf-receiving end thereof, a series of transverse recesses in said bars and transversely opposite to each other, a transverse carrying-tube in said opposite recesses, and extending beyond the sides of the machine, adjustable collars on said tube and against the outer side of said recessed bars, to allow side adjustment to the machine, one end of said tube extending for rigid connection with the sheaf-delivery side of a reaper-machine, substantially as described.

2. In a shocking-machine, a frame, a sheaf-receiving arm, a horizontal bar, bearings secured to the frame at the sheaf-receiving end, and at the reaper side thereof, for said bar to oscillate, said arm secured to said bar and capable of adjustment thereon to suit different lengths of sheaves, said arm operated by a sheaf, a guiding-arm adjustably secured on said bar, to follow and guide the sheaf to position on the machine, substantially as described.

3. In a shocking-machine, a frame, an inclined floor at the sheaf-receiving end thereof, a sheaf-receiving arm, a horizontal bar, bearings on the frame at the sheaf-receiving end thereof, to support the bar, said arm secured to the bar and capable of adjustment on the bar to suit different relative positions of the machine to the reaper and different lengths of sheaves, a guiding-arm adjustably secured on said bar to follow the sheaf to position on the machine, substantially as described.

4. In a shocking-machine, a frame, a horizontal bar at the sheaf-receiving end of the frame, bearings on the frame to support and to allow said bar to oscillate, a crank on the end of the bar, a side arm pivotally connected to the side of the frame, and next to the reaper, a lower extension to said pivotal arm, a bent extension at the end of said side arm, a rod connected to said crank and to the end of said lower extension, substantially as described.

5. In a shocking-machine, a frame, a vertical tube secured to the frame, a post in and above the tube, a hub on said post, a vertical bar with lower horizontal extension, a guide on said tube for said extension to slide in, a hub on the upper part of the bar, a reel-shaft to revolve in said hub, a lower hub on the bar, a lower hub on the post, a horizontal bar secured to said lower hub of the bar and capable of sliding horizontally through said lower hub of the post, substantially as described.

6. In a shocking-machine, a frame, a side arm pivotally connected to the side of the frame, and at the sheaf-receiving end thereof, a transverse shaft, a clutch-wheel loosely connected to said shaft, a spur pinion-wheel secured on the shaft, bearings secured to the frame to support the shaft, a pin projecting from the inner side of said arm, a spur-wheel three times as large as the first-named spur-wheel, a rigid stud on the frame to support the larger wheel, a cam-flange on said larger spur-wheel, an opening in said cam-flange, to allow said pin to pass through, and means for lifting said side arm to allow the pin to pass through said opening and onto the cam-flange to allow the transverse shaft to make three revolutions, substantially as described.

7. In a shocking-machine, a frame, a side arm pivoted to the side of the frame at the sheaf-receiving end, a transverse shaft, a sprocket-wheel with clutch-wheel loosely connected on said shaft, a clutch-plate with catch secured on the shaft, a spur pinion-wheel secured on said shaft, bearings on the frame to support the shaft, means for raising the arm at the reception of a sheaf, a spur-wheel three times as large as the first-named spur-wheel to gear into said pinion, a stud on the frame, to allow the spur-wheel to revolve thereon, a cam-flange on the face of the larger spur-wheel, a lip on said side arm, a lifter-pin on said clutch-plate to engage with said lip, to lift the side arm higher, a pin on the side arm to pass through the opening of the cam-flange, to allow the cam-flange to pass under the pin, to continuously lift the same and allow the said spur-wheel to revolve once and the pinion with its shaft to make a second and third revolution, a transverse shaft, a sheaf-forwarding arm, and a reel to make one half-revolution and to operate the sheaf-forwarding arm, substantially as described.

8. In a shocking-machine, a vertical tube, a post in and extending above the tube, a vertical needle-shaft, a horizontal bar, a hub on the post, a loosely-fitting hub on the needle-shaft, the horizontal bar capable of sliding through said hubs, a vertical bar with lower extension, a hub secured to said bar and to said horizontal bar, a guide on the tube to receive said lower extension, an upper hub on said vertical bar and a reel capable of revolving in said hub, substantially as described.

9. In a shocking-machine, a frame, a stud on said frame, a spur-wheel mounted loosely on said stud, a cam-flange on the side of said wheel, an opening in the cam-flange, a side arm pivoted to the side of the frame, at the sheaf-receiving end, a pin on said arm, a horizontal bar, bearings on the frame to support said bar, a sheaf-receiving arm secured on said bar, said bar connected to said side arm, a spiral spring secured to the bar and to the frame to lower the said pin through the opening in the cam-flange, at one revolution of said spur-wheel to bring the sheaf-receiving arm to normal position, substantially as described.

10. In a shocking-machine, a frame, a vertical tube secured to the frame, a vertical post in said tube and stationary therewith, a horizontal bar, knotter and needle columns with lower oblique tube secured to the frame, hubs on the needle-column, and on the vertical tube, to support said horizontal bar and allow said bar to slide therein, a vertical bar with lower horizontal end, supported by and secured to said horizontal bar, a reel supported by said vertical bar, transverse blades on said reel, a guide on said vertical tube for the said lower horizontal end of the said vertical bar to slide in and means to slide the reel on the formation of a shock, substantially as described

11. In a shocking-machine, a reel, with transverse blades extending over a part of the machine and at the sheaf-receiving end, a vertical bar to support the hub of the reel, the lower end of said bar extended at a right angle therewith, to allow the reel to slide with said bar, a frame, a vertical tube secured to the frame, a guide on said tube to guide the said extended end of the bar, and means to revolve the reel one half-revolution by the reception of a sheaf, and to slide the reel toward the shock at the formation of the shock, substantially as described.

12. In a shocking-machine, a vertical tube, a vertical post in and extending above the tube, a sheaf-placing arm, a right-angled bend at one end of the arm, a hub secured to the post, said bent end of arm extending through said hub, a crank secured to the arm and in proximity to the hub, a frame, a stud secured to the frame, a sprocket-wheel, capable of revolving loosely on the stud, an arm on said sprocket, a rod connecting said crank and sprocket-arm, and means for revolving the sprocket with arm once at the reception of a sheaf, substantially as described.

13. In a shocking-machine, a transverse shaft, a frame, bearings on the frame to support said shaft, a sprocket-wheel secured on the shaft, a larger sprocket-wheel, a stud projecting from the frame to support and allow said sprocket to revolve thereon, a chain connecting said sprockets, a vertical post secured to the frame, a hub on said post, a sheaf-forwarding arm with bent end passing through said hub, a crank on the end of said bent part, a connecting-rod, a projecting arm of the said larger sprocket-wheel, said connecting-rod connecting said crank and said projecting arm, and means to revolve the transverse shaft and the sheaf-forwarding arm at the reception of a sheaf, substantially as described.

14. In a shocking-machine, the combination of a transverse shaft, a frame, bearings secured to the frame, to support said shaft, a sprocket-wheel with clutch-wheel to run loosely on the end of the shaft, a clutch-plate with catch secured on the shaft, a bevel-pinion secured on said shaft, an incline shaft supported by a bearing and sleeve on the end of the transverse shaft, a bevel-wheel on the incline shaft and gearing into said pinion, a bevel-pinion on the upper part of the incline shaft, a reel with hub, a transverse reel-shaft, a bevel-wheel secured on said shaft to gear into the bevel-pinion on the inclined shaft, said hub secured to the reel-shaft, a vertical bar with lower horizontal extension, to support the reel-shaft and the upper part of the incline shaft, a vertical tube secured to the frame, and guide on said tube for said horizontal extension on the vertical bar to slide in, substantially as described.

15. In a shocking-machine, vertical knotter and needle columns, a lower oblique tube connecting the columns, a frame, said oblique tube secured to the frame, vertical shafts in said columns and extending above and below said tube, collars on said shafts, and resting on said columns, a hub loosely connected on the needle-shaft, a vertical tube secured to the frame, a post, in, and extending above the tube, a hub secured to the post, a vertical bar, with lower horizontal extension, a guide on the vertical tube for said extension to slide in, a hub on the upper part of said bar, a reel-shaft capable of revolving in said hub, a lower hub secured to the said vertical reel-supporting bar, a horizontal bar secured to the said lower hub, a crank secured to the needle-shaft, a rod connected to said crank and to the horizontal bar to bring the vertical sliding bar toward the knotter and needle when operating to compress the shock, substantially as described.

16. In a shocking-machine, a frame, needle and knotter columns with lower oblique tube connecting said columns and secured to the frame, a hoop-strap above the shock-discharging end of the machine, a knotter-shaft, a knotter-shield on said shaft, a needle-shaft, a needle on said shaft, an arm on the needle, a spiral spring connected to said arm, said hoop-strap connected to said spring and to the hub of the knotter-shield, to compress the shock at the operation of the needle and the knotter, substantially as described.

17. In a shocking-machine, a sheaf-counter wheel, teeth or pins projecting from the inner side of said counter, an independent larger pin projecting from said same side of the counter, a frame, a bracket-bearing secured to the frame, a stud on the bracket-bearing, for the counter to revolve on, a tension-spring secured to the frame, to press on the counter to retain and prevent the same from revolving too far, a loosely-revolving spur-wheel, a stud on the frame for said spur-wheel, a transverse lever, pivoted to the frame, a rod with bent end pivoted to said lever, and supported by said bracket-bearing, the said large pin of the counter to engage with the said bent end of the rod, to draw the same toward the counter, needle and knotter columns with lower oblique tube connecting said columns, and secured to the frame, needle and knotter shafts in said columns, a bevel-wheel with clutch-wheel loosely connected on the lower end of the knotter-shaft, a clutch-plate with catch secured on said knotter-shaft, the bent end of said rod drawn by the large pin of the counter bringing with it the pivoted transverse lever to release said catch to revolve the knotter-shaft once, a spiral spring connected to said lever and to the said frame to bring said lever and rod to normal position, substantially as described.

18. In a shocking-machine, a frame, a side arm pivotally connected to the side of the frame, and at the sheaf-receiving end thereof, a transverse shaft, a spur pinion-wheel secured to the shaft, bearings secured to the frame to support the shaft, a pin projecting from the inner side of said arm, a larger spur-wheel, a stud on the frame to support the wheel, a cam-flange on said spur-wheel, an opening in said flange, a teeth on the side of the spur-wheel, a sheaf-counter wheel, a bracket-bearing secured to the frame to support said counter-wheel, a number of pins in said counter, the said teeth of the spur-wheel to engage successively a pin of the counter at every revolution of the spur-wheel, substantially as described.

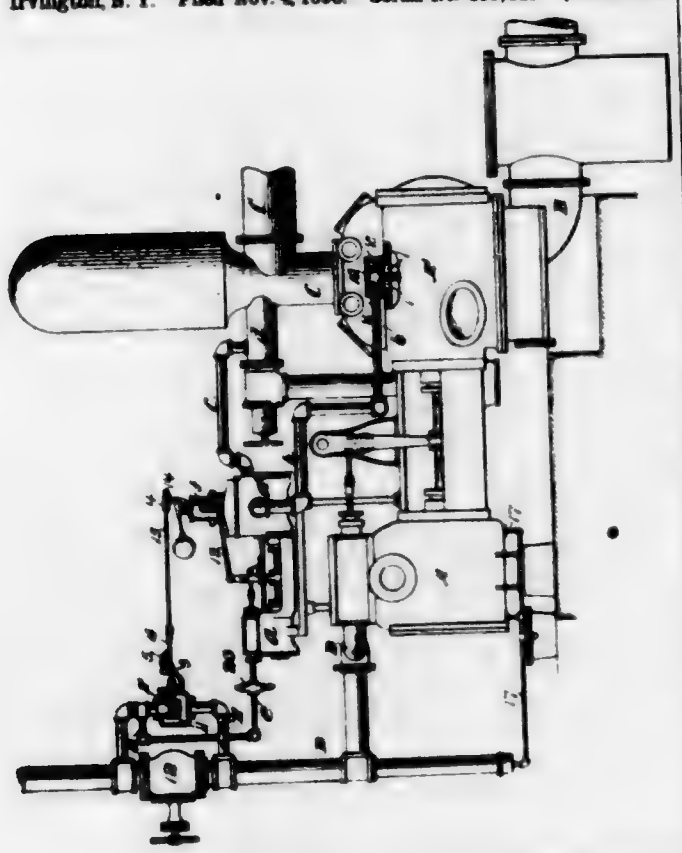
19. In a shocking-machine, caster-wheels, a transverse axle connected to said caster-wheels, said axle pivotally connected to lugs, a flange forming a part of said lugs, an oblique tube, needle and knotter columns forming a part of the tube, a frame, said tube secured to the frame, a flange on the middle part of the tube and forming a part of the same, braces connecting the outer ends of the axle to the said flange of the lugs, a headed stud projecting from said flange, slots in said braces to fit between said head of the stud and the flange, to allow the casters to rise and fall on uneven ground and to retain the axle in transverse position to the machine, substantially as described.

20. In a shocking-machine, a frame, sides secured to the frame at the shock-discharging end, said end widened out to facilitate the forming of the shock, curved arms, bearings secured to said sides, said arms pivotally connected to said bearings, spiral springs connected to the bearings and to the arms to press the curved part of the arms against the lower part of the sheaves while forming into a shock, and when the shock is formed, a hoop-strap, a knotter-shield having a hub, a needle, a spiral spring connected to the needle and the hoop-strap connected to the hub and the spring, substantially as described.

21. In a shocking-machine, a frame, said frame widened out at the shock-discharging end, sides to the frame, a transverse bar secured to the under side of the frame, sliding doors, arms pivoted to said transverse bar, a transverse bar secured to the frame to support said arms, hinges secured to said arms and to the doors, lugs on the outer edges of the doors, bearings secured to the upper parts of the sides, rods pivotally connected to said lugs and bearings to support and to bring the doors upward when sliding, bearings secured to the under side of the frame to support and guide the doors, a rod connected to one of said arms, a bearing secured to the first transverse bar to support and guide said rod, the ends of a cable secured to the said arms, a spool loosely connected to the frame for said cable to operate on, needle and knotter columns with lower oblique tube secured to the frame, a knotter-shaft, a crank on the knotter-shaft, a needle-shaft, a crank on the needle-shaft, a link to connect said cranks, an extension of said link to engage the end of the rod at the last part of the revolution of the crank, to open the doors, to discharge the shock, a spring secured to the frame, and to one said arm adjacent to the knotter, to close the doors, substantially as described.

22. In a shocking-machine, sliding doors at the shock-discharging end of the machine, a frame widened out at the said end of the machine, a transverse bar secured to the frame, horizontal arms pivoted to said bar, a second transverse bar secured to the frame to support said arms, hinges secured to the doors and to the arms, bearings secured to the under side of the frame to support and guide the outer parts of the doors, sides secured to the widened-out part of the frame, bearings secured on said sides, lugs secured to the doors, rods connecting said lugs and bearings to bring the outer parts of the doors upward on their said hinges, and means for opening the doors to allow the shock to drop, and to close the doors, substantially as described.

694,513. PUMPING APPARATUS. CHARLES C. WORTHINGTON, Irvington, N. Y. Filed Nov. 4, 1898. Serial No. 695,446. (No model.)



Claim.—1. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a device controlling the operation of the main pump, and mechanism through which the pumping action of the auxiliary pump controls said device for operating the main pump on a larger withdrawal of fluid from the system, substantially as described.

2. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a device controlling the operation of the main pump, and means controlled by the speed of the auxiliary pump for operating said device to start the main pump by the increase in the speed of the auxiliary pump on a larger withdrawal of fluid from the system, substantially as described.

3. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a speed-governor actuated by the auxiliary pump, and means for controlling the operation of the main pump by the speed-governor to operate the main pump on a larger withdrawal of fluid from the system, substantially as described.

4. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of water from the system, means for controlling the operation of the auxiliary pump in accordance with the withdrawal of fluid from the system, a speed-governor actuated by the auxiliary pump, and means for controlling the operation of the main pump by the speed-governor to operate the main pump on a larger withdrawal of fluid from the system, substantially as described.

5. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a valve controlling the supply of steam to the main pump, and means controlled by the auxiliary pump for opening said valve on a larger withdrawal of fluid from the system and arranged to permit the valve to remain open independently of the action of the auxiliary pump, substantially as described.

6. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a valve controlling the supply of steam to the main pump, means controlled by the speed of the auxiliary pump for opening said valve when the speed of the auxiliary pump is increased on a larger withdrawal of fluid from the system, and means for holding said valve in position when opened by the auxiliary pump, substantially as described.

7. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a speed-governor actuated by the auxiliary pump, and means for controlling the operation of the main pump by the speed-governor to operate the main pump on a larger withdrawal of fluid from the system and arranged to permit the main pump to remain in operation independently of the auxiliary pump, substantially as described.

8. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a valve controlling the supply of steam to the main pump, a speed-governor actuated by the auxiliary pump, and connections between said speed-governor and valve for opening said valve when the speed of the auxiliary pump is increased on a larger withdrawal of fluid from the system and permitting the valve to remain open independently of the action of the auxiliary pump, substantially as described.

9. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a valve controlling the supply of steam to the main pump, a speed-governor actuated by the auxiliary pump, connections between said speed-governor and valve for opening said valve when the speed of the auxiliary pump is increased on a larger withdrawal of fluid from the system, and means for holding said valve in position when opened by the auxiliary pump, substantially as described.

10. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, means for controlling the supply of steam to the auxiliary pump in accordance with the amount of fluid withdrawn from the system, and means controlled by the auxiliary pump for controlling the main pump to secure the operation of the main pump on a larger withdrawal of fluid from the system, substantially as described.

11. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, means for controlling the supply of steam to the auxiliary pump in accordance with the amount of fluid withdrawn from the system, a valve controlling the supply of steam to the main pump, and means controlled by the auxiliary pump for opening said valve on a larger withdrawal of fluid from the system, substantially as described.

12. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, means for controlling the supply of steam to the auxiliary pump in accordance with the amount of fluid withdrawn from the system, a valve controlling the supply of steam to the main pump, and a speed-governor actuated by the

auxiliary pump for opening said valve when the speed of the auxiliary pump is increased on a larger withdrawal of fluid from the system, substantially as described.

13. The combination with a main pump and its connected system, of an auxiliary pump connected to the system for maintaining the pressure against a small withdrawal of fluid from the system, a steam-pressure accumulator connected to the auxiliary pump and means for varying the supply of steam to the auxiliary pump in accordance with the movement of the accumulator-piston, and means controlled by the auxiliary pump for securing the operation of the main pump on a larger withdrawal of fluid from the system, substantially as described.

14. The combination with a main pump and its connected system, of an auxiliary water-pump connected to the system for maintaining the supply of water against a small withdrawal of liquid from the system, a steam-pressure accumulator connected to the auxiliary pump and means for varying the supply of steam to the auxiliary pump in accordance with the movement of the accumulator-piston, a valve controlling the supply of steam to the main pump, and a speed-governor actuated by the auxiliary pump for opening said valve when the speed of the auxiliary pump is increased on a larger withdrawal of water from the system, substantially as described.

15. The combination with an intermittently-operating pump, of a second pump with its suction or supply side connected with the water-cylinder of the first-mentioned pump, whereby the operation of the second pump charges with water the cylinder of the intermittently-operated pump, substantially as described.

16. The combination with a pump normally out of operation, of a second pump with its supply side connected with the water cylinder or cylinders of the first-mentioned pump, whereby the operation of the second pump charges with water the cylinder of the normally inoperative pump, and means controlled by the operation of the second pump for starting the normally inoperative pump, substantially as described.

17. The combination with a pump normally out of operation, of a second pump with its supply drawn from the supply of the first-mentioned pump, whereby the operation of the second pump charges with water the supply of the normally inoperative pump, and means controlled by the operation of the second pump for starting the normally inoperative pump, substantially as described.

18. The combination with an intermittently-operating pump, of a second pump drawing its supply from the supply of the intermittently-operating pump, whereby the operation of the second pump charges with water the supply of the intermittently-operating pump, substantially as described.

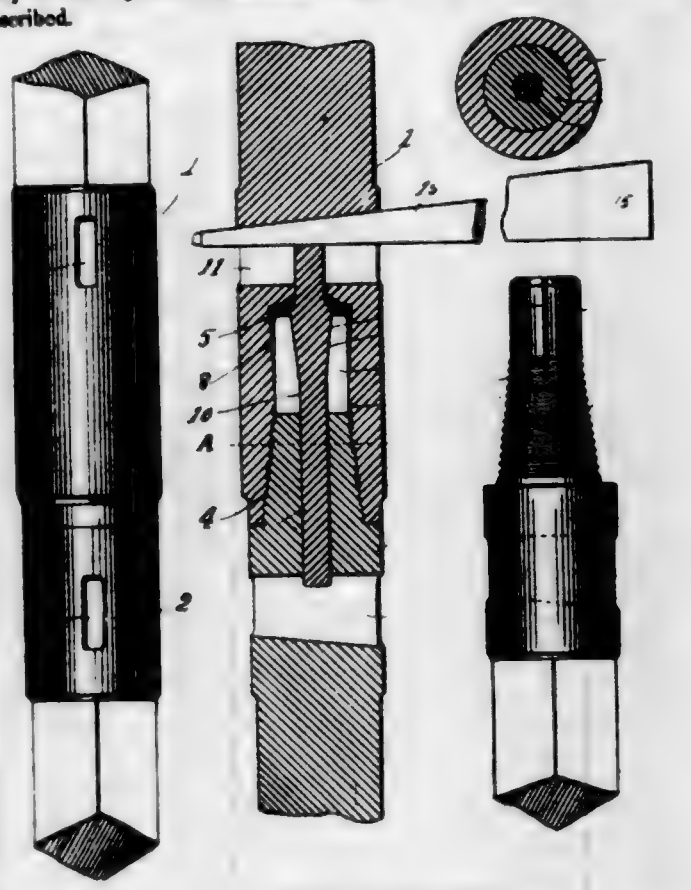
19. The combination with a pump normally out of operation, of a second pump drawing its supply from the water cylinder or cylinders of the first-mentioned pump, whereby the operation of the second pump keeps the water cylinder or cylinders of the normally inoperative pump charged with water, and valves 2 so arranged as to prevent the circulation of water between the pulsation-chambers of the normally inoperative pump when in action, substantially as described.

20. The combination with a pump-cylinder having chamber 10 and passages 1 from the opposite ends of the cylinder, of a second pump having its suction side connected with said passages, and valves 2 permitting the passage of fluid through said passages to the second pump but preventing the circulation of fluid between the pulsation-chambers of the first-mentioned pump, substantially as described.

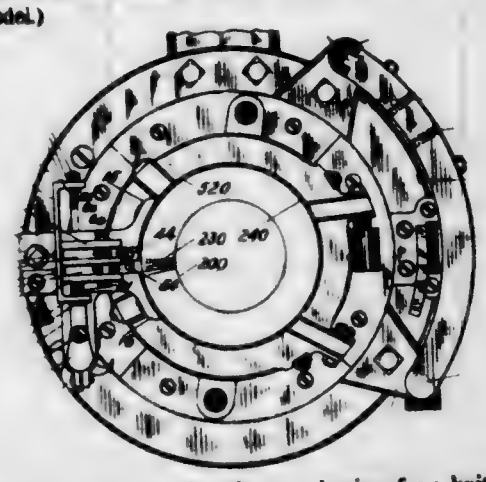
694,514. SCREW-JOINT FASTENER FOR DRILL-RODS, &c. FRANK WULFF, Colusa, Cal. Filed Sept. 4, 1901. Serial No. 74,238. (No model.)

Claim.—1. In a screw-joint fastening, the combination of a section having a socket converging or tapering inwardly at its outer portion and also screw-threaded thereat and flaring or diverging inwardly at its inner portion, a second section having a head converging or tapering outwardly at its inner portion and also screw-threaded thereat to engage the screw-threaded portion of the socket, said head also having an outer portion expansible into an outwardly-flaring form to fit snugly and bind within the inner portion of the socket, and means for so expanding the outer portion of said head after the head is screwed into the socket, substantially as described.

2. In a screw-joint fastening, the combination of a section having a socket converging or tapering inwardly at its outer portion and also screw-threaded thereat and flaring or diverging inwardly at its inner portion, a second section having a head converging or tapering outwardly at its inner portion and also screw-threaded thereat to engage the screw-threaded portion of the socket, said head also having an outer portion expansible into an outwardly-flaring form to bind within the flaring inner portion of the socket, the two sections having an axial aperture running through said head and through the portion of the section adjacent to the socket therein, said aperture being tapering or wedge-shaped in one portion of its length in said head, and a key in said aperture correspondingly tapering, said section above and below said aperture having transverse slots into which said aperture extends, whereby the key may be moved longitudinally in said aperture by suitable wedges in said slots, substantially as described.



694,515. YARN-CHANGING MECHANISM FOR CIRCULAR-KNITTING MACHINES. WILLIAM P. YOUNG, Woonsocket, R. I., assignor to American Knitting Machine Company, Philadelphia, Pa., a Corporation of New Jersey. Filed June 24, 1901. Serial No. 65,781. (No model.)



Claim.—1. In a yarn-changing mechanism for a knitting-machine the combination of a plurality of yarn-carriers each provided with a cam and a fulcrum slot, a support for said carriers provided with means for engaging said cam-slots, and an actuating device for said carriers comprising a cam-slide provided with a slot engaging said carriers and a fulcrum-rod extending through said fulcrum-slots.

2. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of yarn-carriers each provided with a cam-slot and a fulcrum-slot, a fixed guide engaging said cam-slots, and means for tilting said carriers on their fulcrums; said cam-slots being shaped to cause first the retraction of each yarn-carrier to escape the needles, then the projection thereof to carry the yarn behind the needles.

3. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of yarn-carriers each provided with a cam, a fulcrum-slot and a stud, a support therefor provided with a rod extending through said cam-slots, and an actuating device for said carriers comprising a cam-slide provided with a cam-slot engaging said studs and a fulcrum-rod extending through said fulcrum-slot.

4. In a yarn-changing mechanism for a knitting-machine, a combination of a yarn-carrier support, comprising a base-plate provided with vertical webs forming yarn-carrier guideways, yarn-carriers mounted in said guideways and each provided with a fulcrum-slot and a cam-slot, a rod extending through said webs and cam-slots, a cam-slide movable transversely at one end of said webs and engaging said yarn-carriers, a ful-

crum-rod extending through said webs and fulcrum-slots, and means for actuating said cam-slide.

5. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of yarn-carriers, a support therefor, a cam-slide for shifting said carriers into inoperative and operative positions, means for actuating said cam-slide, and an adjustable connection between said slide and said means.

6. In a yarn-changing mechanism for a knitting-machine, the combination of two movable yarn-carriers disposed side by side and provided at their inner ends with yarn-guides inclined in opposite directions and converging to their delivery-openings adjacent to each other at the lower corners of said yarn-guides.

7. A yarn-carrier for a knitting-machine provided with a yarn-guide at one end, a stud for the engagement of an actuating device, a slot to receive a fulcrum and cam-slot to receive a guide.

8. In a yarn-changing mechanism for a knitting-machine, the combination of a yarn-carrier support comprising a base-plate provided with vertical webs forming yarn-carrier guideways, yarn-carriers mounted in said guideways and each provided with a fulcrum-slot and a cam-slot, means engaging said fulcrum-slots and serving as fulcrums for said carriers and means engaging said cam-slots and serving as guides for said carriers, and means for tilting said carriers on their fulcrums.

9. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of yarn-carriers each provided with a cam-slot and a fulcrum slot, means engaging said fulcrum-slots and serving as fulcrums for said carriers, means engaging said cam-slots and serving as guides for said carriers, and means for tilting said carriers on their fulcrums.

10. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of yarn-carriers each provided with a cam-slot and a fulcrum-slot, means engaging said fulcrum-slots and serving as fulcrums for said carriers, means engaging said cam-slots and serving as guides for said carriers, and means for tilting said carriers on their fulcrums, said cam-slots being shaped to cause first the retraction of each yarn-carrier to escape the needle and then the projection thereof, to carry the yarn behind the needles.

11. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of movable yarn-carriers, means for tilting said carriers, and means for controlling the direction of movement of said carriers during the tilting thereof, the latter means being adapted to cause first the retraction of each yarn-carrier to escape the needles and then the projection thereof to carry the yarn behind the needles.

12. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of movable yarn-carriers, and means for shifting each yarn-carrier from operative to inoperative position and the reverse, said means being adapted to cause first the retraction of each yarn-carrier to escape the needles and then the projection thereof over the tops of the needles to carry the yarn behind them.

13. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of movable yarn-carriers provided with dependent latch-guards for the needles, and means for shifting each yarn-carrier from operative to inoperative position and the reverse, said means being adapted to cause first the retraction of each yarn-carrier to escape the needles and then the projection thereof over the tops of the needles to carry the yarn behind them.

14. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of pivoted yarn-carriers each having a shifting fulcrum and each provided with a cam-slot, means engaging said cam-slots and serving as guides for said carriers, and means for tilting said carriers respectively on their fulcrums.

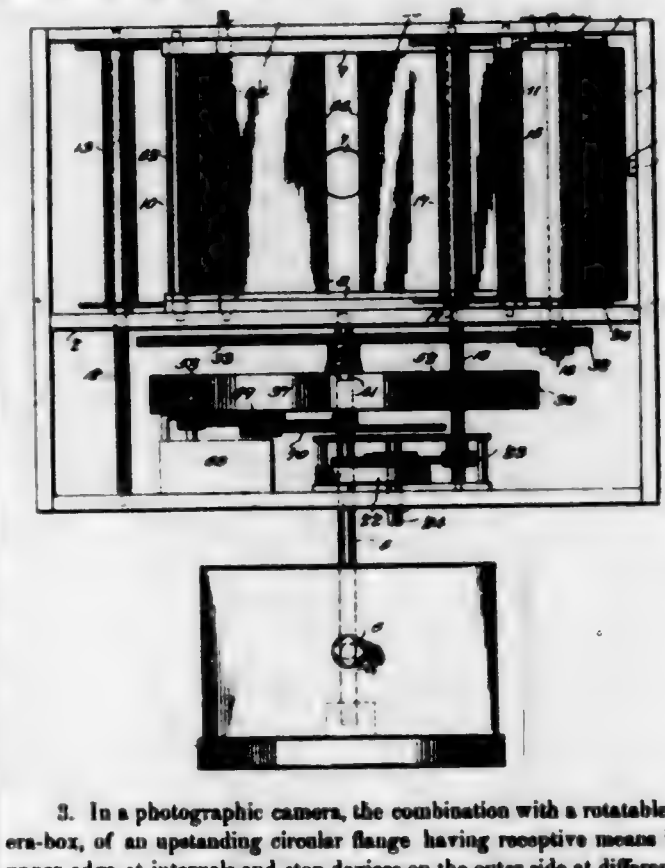
15. In a yarn-changing mechanism for a knitting-machine, the combination of a plurality of pivoted yarn-carriers each provided with a cam-slot and a fulcrum-slot, means engaging said cam-slots and serving as guides for said carriers, and an actuating device for said carriers comprising a slide provided with a cam-slot engaging said carriers and means engaging said fulcrum-slots, the cam-slot of the slide comprising inclined portions for tilting said carriers respectively and an intermediate straight portion which permits both carriers to remain simultaneously in operative position.

694,516. PANORAMIC CAMERA.

MAURICE L. AKERS and WILLIS L. RICHARDS, Ione, Oreg., assignors of one-fourth to John E. Williams, Ione, Oreg. Filed May 25, 1901. Serial No. 61,899. (No model.)

Claim.—1. In a photographic camera, the combination with a rotatable camera-box, of an upstanding circular flange having notches in the upper edge thereof, and a gravitating latch carried by the box to engage the notches of the said flange for locking the box at a plurality of predetermined points in the rotary path thereof.

2. In a photographic camera, the combination with a rotatable camera-box, of an upstanding circular flange having notches in the upper edge thereof and stop devices on the outer side thereof at intervals corresponding to the location of the notches, a gravitating latch carried by the box to engage the said notches, and adjustable means also carried by the box to coact with said stop devices.



3. In a photographic camera, the combination with a rotatable camera-box, of an upstanding circular flange having receptive means in the upper edge at intervals and stop devices on the outer side at different elevations, a gravitating latch carried by the box to engage said receptive means, and adjustable members also carried by said box and disposed at different elevations to engage said stop devices.

4. In a photographic camera, the combination with a rotatable camera-box, of a relatively fixed stop device therefor, and a plurality of stop projections carried by the box and adjustable independently into coöperative relation with respect to the fixed stop device.

5. In a photographic camera, the combination with a rotatable camera-box, of a fixed circular stop device mounted concentrically with respect to the axis of the camera, and provided in one edge with a notch, and also having a marginal stop projection, a stop projection carried by the camera-box and constructed for engagement with the stop projection of the circular stop device, and a pivotal latch mounted upon the box, traveling around the circular stop device, and constructed to be seated in the notch simultaneously with the engagement of the stop projections.

6. In a photographic camera, the combination with a rotatable camera-box, of a circular fixed stop device, provided in its upper edge with a notch, and also having an outwardly-directed projection upon its margin, a stop projection carried by the box and constructed for engagement with the former projection to stop the camera, and a pivotal gravity-latch mounted upon the box, traveling in frictional engagement with the upper edge of the fixed stop device, and constructed to drop into the notch simultaneously with the engagement of the stop projections.

7. In a photographic camera, the combination with a rotatable camera-box, of a circular fixed stop device having an upstanding marginal rim or flange, which is provided in its upper edge with a plurality of notches, and upon its margin with a plurality of stop projections corresponding to the notches, a pivotal latch mounted upon the box, traveling in frictional engagement with the upper edge of the rim and constructed to drop into the respective notches, and a plurality of stop-pins carried by the box and independently adjustable into coöperative relation with respect to the stop projections.

8. In a photographic camera, the combination with a rotatable camera-box, of a plurality of endwise-adjustable stop-pins carried by the box and located in different horizontal planes, and a plurality of fixed stop devices corresponding to the respective pins and located in different portions of the respective paths thereof.

9. In a photographic camera, the combination with a rotatable camera-box, a fixed circular stop device located concentrically with respect to the axis of the camera, and provided with a plurality of outwardly-directed marginal stop projections located in stepped planes, and a plurality of endwise-adjustable stop-pins carried by the camera and independently adjustable into coöperative relation with respect to the corresponding stop projections, the pins being located in the same planes with the corresponding projections.

10. In a photographic camera, the combination with a rotatable camera-box, of a fixed stop device within the box, and provided with a lateral

stop projection, and an endwise-adjustable stop-pin projected in opposite directions through the camera-box, the inner end of the pin being in cooperative relation with the stop projection at the inner limit of the pin.

11. In a photographic camera, the combination with a rotatable camera-box, of a fixed stop device within the box, and provided with a stop projection, and an endwise and rotatably adjustable stop-pin projected in opposite directions through one side of the camera box, and provided with a lateral projection to lie alternately at opposite sides of the said side of the box, there being an opening in the box to accommodate the projection, and a spring to hold the pin at one limit, the projection being constructed for engagement with the box to hold the pin at the opposite limit thereof, and the inner end of the pin being in coöperative relation with respect to the stop projection when the pin is at its inner limit.

12. In a photographic camera, the combination with a rotatable camera-box, a circular stop device fixed concentrically with the axis of the camera and within the box, the upper side of the stop device having a plurality of notches formed therein at predetermined intervals, stop projections upon the margin of the device and arranged in horizontally-stepped planes and between adjacent pairs of notches, a pivotal gravity-latch mounted upon the camera-box and traveling in frictional engagement with the upper side of the stop device and constructed to drop into the respective notches to lock the camera-box against rotation, and a plurality of endwise-adjustable stop-pins projected in opposite directions through one side of the box and arranged in stepped planes corresponding to the stop projections, the inner ends of the pins being constructed for engagement with the corresponding projections when at their inner limits, and the interval between each projection and the adjacent notch being equal to the interval between the corresponding stop-pin and the latch.

13. In a photographic camera, the combination with a rotatable camera-box, of a circular fixed stop device, having a plurality of notches formed in the upper side thereof and stop projections corresponding to the notches, a pivotal latch mounted upon the box in frictional engagement with the top of the stop device and constructed to drop into the respective notches thereof, and a plurality of stop projections, which are carried by the box and are independently adjustable into coöperative relation with respect to the respective stop projections, and there being a ratchet-notch formed in advance of the initial notch and constructed to receive the latch at the completion of a revolution of the box.

14. In a photographic camera, the combination with a rotatable camera-box, of a fixed internal stop device, and a latch coöperating therewith and projected outwardly through one side of the box, whereby the latch may be tripped from the exterior of the box.

15. In a photographic camera, the combination with a rotatable camera-box, of an internal circular fixed stop device, and a gravity-latch pivotally mounted upon the box, in coöperative relation with respect to the stop device, and also projected outwardly through a slot in one side of the camera-box, whereby the latch is accessible from the exterior of the camera.

16. In a photographic camera, the combination with a fixed vertical shaft, of a camera-box rotatably mounted thereon, a circular stop device located within the camera-box and fixed concentrically upon the shaft, and a pivotal latch mounted upon the box, located in coöperative relation with respect to the stop device, and also projected exteriorly of the box for access thereto to trip the latch.

17. In a photographic camera, the combination with a rotatable camera-box, having a fixed support, of a fixed circular toothed track upon the support, opposite film holding and winding rollers, means for driving the winding-roller upper and lower film-guides for the respective edges of the sensitive film, and a feed-roller constructed to be frictionally driven by the film, and also having a pinion traveling upon the fixed toothed track, whereby the camera-box is rotated and the film is fed.

18. In a photographic camera, the combination with a rotatable camera-box, having a fixed axial support, of a circular toothed track fixed upon the support, means for feeding a sensitive film across the focal plane of the camera, a film-driven feed-roller, having a rotatable shaft, which is provided with a pinion in mesh with the circular track, and means for permitting the feed-roller to be loosely rotated in opposite directions upon its shaft.

19. In a photographic camera, the combination with a rotatable camera-box, of a film-driven feed-roller having a pinion, a circular toothed fixed track in mesh with the pinion, one end of the roller having means to permit of an independent rotation of the roller upon its shaft, there being an opening in the part of the camera-box which is at the said one end of the roller, and a removable cover normally closing the opening and having a bearing for the adjacent end of the shaft, whereby access may be had to the means for permitting of an independent rotation of the roller.

20. A camera-box, having a removable top, corresponding film-guides carried by the top and bottom respectively of the box, and a removable light-excluding plate held between the opposite guides.

21. A camera, having opposite fixed light-excluding partitions extending forwardly from the focal plane and at opposite sides of the lens, and opposite adjustable light-excluding partitions hinged between the focal plane and the front of the camera and at the respective fixed partitions, and rearwardly-converging stops in advance of the plane of the film to limit the rearward swing of the respective partitions.

22. In a photographic camera, the combination with a fixed vertical shaft, of a rotatable camera-box mounted thereon, a circular toothed track fixed upon the shaft and within the box, a circular stop and locking device also fixed upon the shaft and within the box, a plurality of adjustable stop devices carried by the box and constructed for coöperation with the circular stop device at different points in the rotation of the box, a locking-latch mounted upon the box and in coöperative relation with the locking device to interlock therewith when the camera is stopped, a spring-motor within the box, a film-holding roller, a film-winding roller in operative relation with respect to the motor, a feed-roller frictionally driven from a film, and having a pinion in mesh with the circular track, and a light-excluding partition located between the focal plane and the lens and adjustable to vary the size of the exposed portion of the focal plane.

23. In a rotatable camera, the combination with a locking device therefor, of an operative connection between the locking device and the lens shutter, whereby the latter is simultaneously actuated by the operation of the former.

24. In a panoramic camera, the combination with a rotatable camera-box, of a fixed stop device, a locking device carried by the box and in coöperative relation with the stop device, and means for simultaneously opening the shutter by the release of the locking device and for closing the shutter by the engagement of the locking device with the stop device.

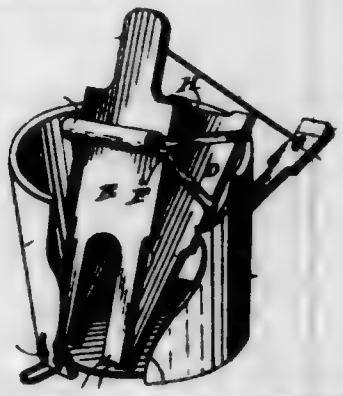
25. In a panoramic camera, the combination with a rotatable camera-box, of a fixed stop device, a pivotal latch mounted upon the box and in coöperative relation to the stop device, and connecting means between the latch and the lens-shutter for opening and closing the latter by the unlocking and locking, respectively, of the latch

26 In a panoramic camera, the combination with a rotatable camera-box, of a fixed stop device, locking means carried by the camera and in operative relation to the stop device, and an operating device common to the lens-shutter and the locking means and also constructed for the simultaneous operation thereof.

27. In a panoramic camera, the combination with a rotatable camera-box, of a fixed stop device, a locking device carried by the box and in coöperative relation to the stop device, and an operating air-bulb common to the locking device and the lens-shutter.

28. In a panoramic camera, the combination with a rotatable camera-box, of a fixed stop device, a locking device carried by the box and in operative relation to the stop device, a lens-shutter, having telescoped compressed-air-operated cylinders connected thereto, other telescoped compressed-air-operated cylinders for the locking device, and an operating air-bulb common to both sets of compressed-air-operated cylinders.

694,517. **MOP-WRINGER.** ASA H. ALLISON, New Vienna, Ohio, assignor to James C. Bowe, Indianapolis, Ind. Filed Apr. 24, 1901. Serial No. 57,223. (No model.)



Claim.—1. A mop-wringer including a vessel, a pair of hinged boards, a squeeze-roll supported by one of the hinged boards and normally in contact with the farther face of the opposing hinged board, a spring seated upon one of the boards and normally forcing the other board against the squeeze-roll, a foot-lever hinged to the vessel, and a link connecting the foot-lever with the hinged board that is forced against the squeeze-roll.

2. A mop-wringer comprising a vessel, a base-board slanting in the vessel, a pair of frames attached to the base-board, a squeeze-roll mounted in the frames, a presser-board hinged to the base-board and working between the base-board and the squeeze-roll, a spring normally forcing the presser-board from the base-board against the squeeze-roll, a foot-lever hinged to the vessel, and a link connecting the foot-lever with the presser-board, whereby the foot-lever may be normally supported by the

presser-board and the presser-board be operated against the spring-pressure by the foot-lever.

3. In a mop-wringer, a base-board, a presser-board hinged at one end thereof to one end of the base-board, a pair of frames attached to the base-board, a squeeze-roll mounted in the frames at the upper side of the presser-board, and a spring compressed between the base-board and the presser-board, all combined substantially as set forth.

4. In a mop-wringer, the combination of a rotative squeeze-roll having a fixed axis, a pivoted board adjacent to said roll, a spring normally pressing the free end of said board against said roll, a pivoted foot-lever, a link connecting the free end of the foot-lever with the free end of said board, a vessel to receive the water that may flow from said board, and frames supporting said roll.

5. In a mop-wringer, the combination of a vessel, a pair of frames having journal-bearings, a squeeze-roll mounted in said bearings, a movable presser-board situated in contact with said roll, a spring normally producing forcible contact of said board and said roll, a foot-lever, and a link connecting the foot-lever with said board, whereby said board may be withdrawn from said roll to insert a mop between the board and the roll.

6. In a mop-wringer, the combination of the vessel, the wringer comprising a base attached to the vessel and resting on the bottom thereof, a presser hinged to the base and having a free upper end, frames attached to the base, a squeeze-roll mounted in the frames and extending across the presser, a spring normally forcing the presser against the squeeze-roll whereby to force the water from the mop, a pivoted foot-lever, a link connecting the foot-lever with the free end of the presser whereby to force the presser away from the squeeze-roll to insert a mop, and a foot-step whereby to hold down the vessel and said wringer when withdrawing a mop under pressure.

694,518. **RIM-OPENER.** NELS AXLUND, Komstad, S. D. Filed June 17, 1901. Serial No. 64,850. (No model.)



Claim.—1. A device of the class described comprising a jack including a plate and a screw engaged therewith and adapted to impinge a felly, chains adjustably connected with the plate, and means connected with the chains for engagement with the ends of the felly.

2. A device of the class described comprising a jack including a plate and a screw to impinge against a felly, clamps for engagement with the ends of the felly, chains connected with the clamps and means for adjustably connecting the chains with the plate.

3. A device of the class described comprising an arcuate plate having terminal eyes, a screw engaged with the plate for impingement with the outer periphery of a felly and provided with means for rotating it, hooks having terminal eyes pivotally engaged with the eyes of the plate, clamps for engagement with the ends of a felly, and chains connected with the clamps and with the links of which the hooks are adapted for interchangeable engagement.

694,519. **CONVEYER APPARATUS.** GEORGE S. BAKER, London, England. Filed Dec. 3, 1901. Serial No. 84,568. (No model.)

Claim.—1. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth to the chamber, a discharging-mouth to the chamber, a series of receptacles adapted to pass through the charging and discharging mouths, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, means for advancing the receptacles into the chamber through the charging-mouth, means for supporting the receptacles within the chamber and means for withdrawing the receptacles from the chamber by the discharging-mouth as set forth.

2. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a discharging-mouth at the same end, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, means for advancing the receptacles into the chamber through the charging-mouth, means for supporting the receptacles within the chamber, means for withdrawing the end receptacle within the chamber from its alinement with the charging-mouth and placing it in alinement with the discharging mouth and means for withdrawing the receptacles from the chamber by the discharging-mouth as set forth.



3. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a discharging-mouth at the same end, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, means for advancing the receptacles into the chamber through the charging-mouth, means for supporting the receptacles within the chamber, means for withdrawing the end receptacles within the chamber from its alinement with the charging-mouth and placing it in alinement with the discharging-mouth, means for withdrawing the receptacles from the chamber by the discharging-mouth, and means for placing the discharged receptacles in position to reënter the charging-mouth as set forth.

4. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a discharging-mouth at the same end, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, means for advancing the receptacle into the chamber through the charging-mouth, means for supporting the receptacles within the chamber, means for interlocking the receptacles as they enter the chamber, means for withdrawing the end receptacle within the chamber from its alinement with the charging-mouth and placing it in alinement with the discharging-mouth, means for automatically disconnecting each receptacle within the chamber from the incoming receptacles as it is moved out from alinement with the charging-mouth and for interlocking it with the outgoing receptacles as it is moved into alinement with the discharging-mouth, and means for withdrawing the receptacles from the chamber by the discharging-mouth as set forth.

5. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a discharging-mouth at the same end, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, means for advancing the receptacles into the chamber through the charging-mouth, means for supporting the receptacles within the chamber, means for withdrawing the end receptacle within the chamber from its

alinement with the charging-mouth and placing it in alinement with the discharging-mouth, means for withdrawing the receptacles from the chamber by the discharging-mouth, means for placing the discharged receptacles in position to reënter the charging-mouth, means for interlocking the receptacles as they are returned to the charging-mouth and means for disconnecting each receptacle within the chamber from the incoming receptacles as it is moved out from alinement with the charging-mouth and for interlocking it with the outgoing receptacles as it is moved into alinement with the discharging-mouth as set forth.

6. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a discharging-mouth at the same end, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, automatically-operating coupling-tongues on the ends of each receptacle, means for advancing the receptacles into the chamber through the charging-mouth, means for supporting the receptacles within the chamber, means for withdrawing the end receptacle within the chamber from its alinement with the charging-mouth and placing it in alinement with the discharging-mouth and means for withdrawing the receptacles from the chamber by the discharging-mouth as set forth.

7. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a discharging-mouth at the same end, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, means for advancing the receptacles into the chamber through the charging-mouth, means for supporting the receptacles within the chamber, means for withdrawing the end receptacle within the chamber from its alinement with the charging-mouth and placing it in alinement with the discharging-mouth, means for withdrawing the receptacles from the chamber by the discharging-mouth, means for placing the discharged receptacles in position to reënter the charging-mouth and automatically-operating coupling-tongues on the ends of each receptacle as set forth.

8. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a discharging-mouth at the same end, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, automatically-operating bell-mouthed coupling-tongues on the ends of each receptacle, means for advancing the receptacles into the chamber through the charging-mouth, means for supporting the receptacles within the chamber, means for withdrawing the end receptacle within the chamber from its alinement with the charging-mouth and placing it in alinement with the discharging-mouth and means for withdrawing the receptacles from the chamber by the discharging-mouth as set forth.

9. In a conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a discharging-mouth at the same end, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, means for advancing the receptacles into the chamber through the charging-mouth, means for supporting the receptacles within the chamber, means for withdrawing the end receptacle within the chamber from its alinement with the charging-mouth and placing it in alinement with the discharging-mouth, means for withdrawing the receptacles from the chamber by the discharging-mouth, means for placing the discharged receptacles in position to reënter the charging-mouth, and automatically-operating bell-mouthed coupling-tongues on the ends of each receptacle as set forth.

10. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging-mouth, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, means within the chamber for receiving the receptacles at the end of the charging-mouth platform and delivering them upon the floor of the chamber in alinement with the discharging-mouth, guides within the chamber, a cross-head mounted in these guides between the advance and return tiers of receptacles, a forwardly-operating pawl on the cross-head adapted to engage the upper tier of receptacles, a rearwardly-operating pawl secured to the cross-head and adapted to engage the lower tier of receptacles and means for reciprocating the cross-head as set forth.

11. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging-mouth, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, guides within the chamber for the receptacles, means for advancing the receptacles through the charging-mouth into the chamber, an elevator within the chamber at the end of the charging-mouth platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, a driving-shaft, a frame to carry the driving-shaft, a toothed quadrant secured to the driving-shaft, a toothed wheel pivoted to the frame and adapted to be engaged by the quadrant, mechanism operatively connecting the toothed wheel with the mechanism of the elevator, means for locking the toothed wheel when not engaged by the quadrant and means for withdrawing the receptacles from the discharging-mouth of the chamber as set forth.

12. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging-mouth, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the said receptacle, guides within the chamber for the receptacles, means for advancing the receptacles through the charging-mouth into the chamber, an elevator within the chamber at the end of the charging-mouth platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, a driving-shaft a frame to carry the driving-shaft, a toothed quadrant secured to the driving-shaft, a toothed wheel pivoted to the frame and adapted to be engaged by the quadrant, mechanism operatively connecting the toothed wheel with the mechanism of the elevator, locking portions formed on the toothed wheel at opposite points, a locking portion on the quadrant coöperating with those on the toothed wheel, and means for withdrawing the receptacles from the discharging-mouth of the chamber as set forth.

13. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging-mouth, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, vertically-operating coupling-tongues on the ends of each receptacle, guides within the chamber for the receptacles, other guides within the chamber, a cross-head mounted in these other guides, a forwardly-operating spring-pawl secured to the cross-head and adapted to engage the receptacles on the platform within the chamber, a connecting-rod secured at each end of the cross-head and extending through the front wall of the chamber on either side of the receptacles, a frame outside the mouths of the chamber, a toothed wheel pivoted to the frame, a crank-pin on the wheel, mechanism operatively connecting the crank-pin with the connecting-rods of the cross-head for reciprocating the latter, a driving-shaft, a toothed quadrant secured to the driving-shaft and adapted to engage the teeth of the wheel, means for automatically locking the wheel when not engaged by the quadrant, an elevator within the chamber at the end of the platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, a second toothed wheel pivoted to the frame and adapted to coöperate with the quadrant, an operating-rod connecting the mechanism of this elevator with this toothed wheel, and a rear operating spring-pawl secured to the cross-head of the forwardly-operating pawl and adapted to engage the receptacles on the floor of the chamber as set forth.

14. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging mouth, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, vertically-operated coupling-tongues on the ends of each receptacle, guides within the chamber for the receptacles, other guides within the chamber, a cross-head mounted in these other guides, a forwardly-operating spring-pawl secured to the cross-head and adapted to engage the receptacles on the platform within the chamber, a connecting-rod secured at each end to the cross-head and extending through the front wall of the chamber on either side of the receptacles, a frame outside the feeding end of the chamber, a toothed wheel pivoted to the frame

a crank-pin on the wheel, mechanism operatively connecting this crank-pin with the connecting-rods of the cross-head for reciprocating the latter, locking portions formed on the toothed wheel at opposite points, a driving-shaft, a toothed quadrant secured to the driving-shaft and adapted to engage the teeth of the wheel, a locking portion on the quadrant coöperating with those on the toothed wheel, a second toothed wheel pivoted to the frame and adapted to coöperate with the toothed quadrant on the driving-shaft, an elevator within the chamber at the end of the platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, a rod operatively connecting the mechanism of this elevator with the second toothed wheel on the external frame and a rearwardly-operating spring-pawl secured to the cross-head of the forwardly-operating pawl and adapted to engage the receptacles on the floor of the chamber as set forth.

15. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform in the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging-mouth, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, vertically-operating coupling-tongues on the ends of each receptacle, guides within the chamber for the receptacles, other guides within the chamber, a cross-head mounted in these other guides, a forwardly-operating spring-pawl secured to the cross-head and adapted to engage the receptacles on the platform within the chamber, a frame, a toothed wheel pivoted to the frame, a crank-pin on the wheel, mechanism operatively connecting the crank-pin with the cross-head for reciprocating the latter, a driving-shaft, a toothed quadrant secured to the driving-shaft and adapted to engage the teeth of the wheel, means for automatically locking the wheel when not engaged by the quadrant, an elevator within the chamber at the end of the platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, a second toothed wheel pivoted to the frame and adapted to coöperate with the quadrant, an operating-rod connecting the mechanism of this elevator with this toothed wheel, and a rear operating spring-pawl secured to the cross-head of the forwardly-operating pawl and adapted to engage the receptacles on the floor of the chamber as set forth.

16. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform in the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging-mouth, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle vertically-operating coupling-tongues on the ends of each receptacle, guides within the chamber for the receptacles, other guides within the chamber, a cross-head mounted in these other guides, a forwardly-operating spring-pawl secured to the cross-head and adapted to engage the receptacles on the platform within the chamber, a frame, a toothed wheel pivoted to the frame, a crank-pin on the wheel, mechanism operatively connecting the crank-pin with the cross-head for reciprocating the latter, locking portions formed on the toothed wheel at opposite points, a driving-shaft, a toothed quadrant secured to the driving-shaft and adapted to engage the teeth of the wheel, a locking portion on the quadrant coöperating with those on the toothed wheel, a second toothed wheel pivoted to the frame and adapted to coöperate with the toothed quadrant on the driving-shaft, an elevator within the chamber at the end of the platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, a rod operatively connecting the mechanism of the elevator with the second toothed wheel on the frame and a rearwardly-operating spring-pawl secured to the cross-head of the forwardly-operating pawl and adapted to engage the receptacles on the floor of the chamber as set forth.

17. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging-mouth, an elevator outside the mouth of the chamber, a frame to support the elevator, a toothed wheel pivoted to the frame, a crank-pin on the wheel, mechanism operatively connecting the crank-pin and the elevator for raising and lowering the latter, a driving-shaft, a toothed quadrant secured to the driving-shaft and adapted to engage the teeth of the wheel, means for automatically locking the wheel when not engaged by the quadrant, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, guides within the chamber for the receptacles, means for advancing the receptacles into the chamber, an elevator within the chamber at the end of the platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, an operating-rod connecting the mechanism of this elevator with the mechanism of the outside elevator and means for withdrawing the receptacles from the discharging-mouth as set forth.

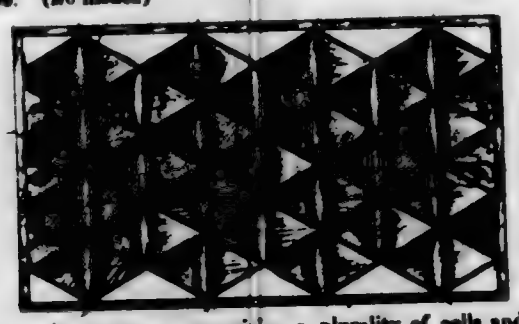
18. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber level with the charging-mouth, a discharging-mouth, at the same end as and below the charging-mouth, an elevator outside the mouth of the chamber, a frame to support the elevator, a toothed wheel pivoted to the frame, a crank-pin on the wheel, mechanism operatively connecting the crank-pin and the elevator for raising and lowering the latter, a driving-shaft, a toothed quadrant secured to the driving-shaft and adapted to engage the teeth of the wheel, means for locking the toothed wheel when not engaged by the quadrant, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, vertically-operating coupling-tongues on the ends of each receptacle, guides within the chamber for the receptacles, other guides within the chamber, a cross-head mounted in these other guides, a forwardly-operating spring-pawl secured to the cross-head and adapted to engage the receptacles on the platform within the chamber, a connecting-rod secured at each end of the cross-head and extending through the front wall of the chamber on either side of the receptacles, a second toothed wheel pivoted to the frame of the elevator and adapted to coöperate with the toothed quadrant on the driving-shaft, mechanism operatively connecting this second toothed wheel with the connecting-rods of the cross-head for reciprocating the latter, an elevator within the chamber at the end of the platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, an operating-rod connecting the mechanism of this elevator with the mechanism of the outside elevator and a rearwardly-operating spring-pawl secured to the cross-head of the forwardly-operating pawl and adapted to engage the receptacles on the floor of the chamber as set forth.

19. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber level with the charging-mouth, a discharging-mouth at the same end as and below the charging-mouth, an elevator outside the mouth of the chamber, a frame to support the elevator, a toothed wheel pivoted to the frame, a crank-pin on the wheel, mechanism operatively connecting the crank-pin and the elevator for raising and lowering the latter, locking portions formed on the toothed wheel at opposite points, a driving-shaft, a toothed quadrant secured to the driving-shaft and adapted to engage the teeth of the wheel, a locking portion on the quadrant coöperating with those on the toothed wheel, a series of receptacles adapted to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, vertically-operating coupling-tongues on the ends of each receptacle, guides within the chamber for the receptacles, other guides within the chamber, a cross-head mounted in these other guides, a forwardly-operating spring-pawl secured to the cross-head and adapted to engage the receptacles on the platform within the chamber, a connecting-rod secured at each end of the cross-head and extending through the front wall of the chamber on either side of the receptacles, a second toothed wheel pivoted to the frame of the elevator and adapted to coöperate with the toothed quadrant on the driving-shaft, mechanism operatively connecting this second toothed wheel with the connecting-rods of the cross-head for reciprocating the latter, an elevator within the chamber at the end of the platform, mechanism for alternately raising the elevator to the platform within the chamber and lowering it to the floor of the latter, an operating-rod connecting the mechanism of this elevator with the mechanism of the outside elevator and a rearwardly-operating spring-pawl secured to the cross-head of the forwardly-operating pawl and adapted to engage the receptacles on the floor of the chamber as set forth.

20. In conveying apparatus for a cooling or other chamber the combination of a chamber, a charging-mouth at one end of the chamber, a platform within the chamber flush with the floor of the charging-mouth, a discharging-mouth at the same end and below the charging-mouth, an elevator outside the mouths of the chamber, a frame to support the elevator, vertical slots in the frame, a lug on each side of the elevator engaging the slots in the frame, a shaft supported by the frame and mounted transversely to the chamber, arms secured one at each end of the shaft, links connecting the free end of the arms to the lugs of the elevator, a third arm on the shaft, a toothed wheel pivoted to the frame, a crank-pin on the wheel, a link connecting the crank-pin with the third arm on the shaft, locking portions formed on the toothed wheel at opposite points, a driving-shaft, a toothed quadrant secured to the driving-shaft and adapted to engage the teeth of the wheel, a locking portion on the quadrant coöperating with that on the toothed wheel, a series of receptacles adapt-

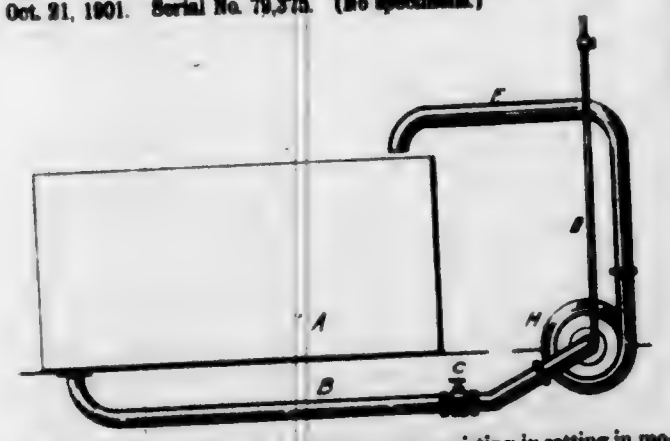
ed to pass through the charging and discharging mouths of the chamber, means whereby each receptacle forms with the mouth through which it is passing a valve so that each mouth in turn is closed by the same receptacle, vertically-operating coupling-tongues on the ends of each receptacle, guides within the chamber for the receptacles, other guides within the chamber, a cross-head mounted in these guides, a forwardly-operating spring-pawl secured to the cross-head and adapted to engage the receptacles on the platform within the chamber, a connecting-rod secured at each end of the cross-head and extending through the front wall of the chamber on either side of the receptacles, links on the free ends of the rods outside the chamber, operating-arms pivoted to the links, a shaft mounted in the elevator-frame, means for connecting the operating-arms to this shaft, a third arm secured to this shaft, a toothed wheel pivoted to the frame and adapted to coöperate with the toothed quadrant on the driving-shaft, a crank-pin on this wheel, a link operatively connecting the crank-pin and third arm on the shaft, locking portions on opposite sides of the wheel adapted to coöperate with the locking portion on the toothed quadrant, an elevator within the chamber at the end of the charging-mouth platform, a frame for the elevator, vertical slots in the frame, a lug on each side of the elevator engaging the slots, a shaft supported by the frame and mounted transversely to the chamber, arms secured one at each end of the shaft, links connecting the free ends of the arms to the lugs of the elevator, a third arm on the shaft, a rod operatively connecting this arm with the corresponding arm of the other elevator and a rearwardly-operating pawl secured to the cross-head of the forwardly-operating pawl and adapted to engage the receptacles on the floor of the chamber as set forth.

694,520. **BOX FOR CONTAINING EGGS OR THE LIKE.** ROBERT BAKER, Bury St. Edmunds, England. Filed Feb. 20, 1899. Serial No. 706,159. (No model.)



Claim.—An egg-tray comprising a plurality of cells and a frame carrying the same, said cells being formed of a single piece of flexible material folded with the folds tacked to each other at intervals and with the edges of the material tacked to the frame whereby a honeycombed formation of the flexible material is provided having diamond-shaped mouths, substantially as described.

694,521. **CYANID PROCESS OF EXTRACTING PRECIOUS METALS FROM ORES.** BASTIAAN W. BOSNER, Florence, Colo., assignor of one-half to Jeremiah M. Hower, Jr., Florence, Colo. Filed Oct. 21, 1901. Serial No. 79,375. (No specimens.)



Claim.—1. The herein-described process consisting in setting in motion a solution of cyanid of potassium, introducing oxygen repeatedly to the moving liquid, and finally subjecting precious-metal-bearing material to the action of the solution thus prepared, substantially as described.

2. The herein-described process of setting in motion a solution of cyanid of potassium by suction, introducing oxygen repeatedly to the moving liquid, and finally subjecting precious-metal-bearing material to the action of the said solution, substantially as described.

3. The herein-described process of treating material containing the precious metals, consisting in setting in motion in an endless path a solution of cyanid of potassium, introducing oxygen to the moving liquid, and finally subjecting the metal-bearing material to the action of said solution, substantially as described.

4. The herein-described process for the treatment of material containing the precious metals, consisting in setting in motion in an endless path a solution of cyanid of potassium, introducing atmospheric air to the moving liquid for a suitable period and finally subjecting the metal-bearing material to the solution thus prepared.

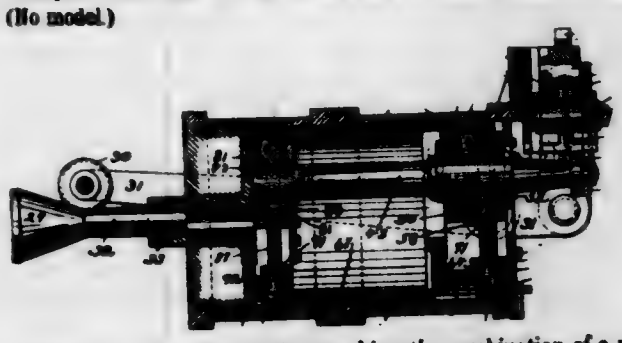
5. The herein-described process consisting in imparting rotary motion to a solution of cyanid potassium, introducing oxygen to the moving liquid at the center of rotation and finally subjecting precious-metal-bearing material to the action of the solution thus prepared.

694,522. **LINING MATERIAL.** CHARLES S. BIRD, Walpole, Mass. Filed Feb. 18, 1901. Serial No. 47,787. (No model.)

Claim.—1. As an article of manufacture, lining material which consists of outer layers of unsized paper; an intermediate layer of insoluble waterproofing material intimately uniting the inner surfaces of said outer layers and partially impregnating the pores thereof; and moisture-repelling material saturating the outer surfaces of the layers.

2. As an article of manufacture, lining material which consists of outer layers of unsized paper; an intermediate layer of asphalt intimately uniting the inner surfaces of said outer layers and partially impregnating the pores thereof; and paraffin saturating said outer layers.

694,523. **ROTARY PIPE-CUTTING MACHINE.** HENRY E. BOYD McKeesport, Pa., assignor to National Tube Company, New York, N. Y. a Corporation of New Jersey. Filed Feb. 26, 1901. Serial No. 48,940. (No model.)



Claim.—1. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, a movable cutting-disk also mounted thereon, means mounted in the barrel for moving the movable disk toward and from the stationary disk in a straight line, and mechanism for actuating said means.

2. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, means for adjusting said stationary disk toward and from the axis of the barrel, a movable cutting disk mounted on the barrel, means mounted in the barrel for moving the movable disk toward and from the stationary disk, and mechanism for actuating said means.

3. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, means for adjusting said disk toward and from the axis of the barrel, a movable cutting-disk, means mounted in the barrel for moving said disk toward and from the stationary disk, said disk being adjustably connected to said moving means, and mechanism for actuating said moving means.

4. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, a movable cutting-disk, means mounted in the barrel for moving the said disk toward and from the stationary disk, means for adjustably connecting said movable disk to the moving means, and mechanism for actuating said moving means.

5. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, a radial guideway on said barrel, a slide or carriage moving in said guide, a cutting-disk mounted on said slide, means mounted in the barrel for moving the slide, and mechanism for actuating said moving means.

6. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, a radial guide on said barrel, a slide or carriage moving in said guide, a cutting-disk mounted on said slide, levers connected to said slide and mounted in the barrel, and mechanism for actuating said levers.

7. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, means for adjusting said disk toward and from the axis of the barrel, a radial guide on said barrel, a slide moving in said guide, said slide carrying a cutting-disk, levers connected to said slide and mounted in the barrel, and mechanism for actuating said levers.

8. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, means for adjusting said disk toward and from the axis of the barrel, a radial guide on said barrel, a slide mov-

ing in said guide, a cutting-disk adjustably mounted on said slide, and means mounted in the barrel for moving the slide toward and from the stationary disk.

9. In a pipe-cutting machine, the combination of a rotatable barrel, a rotatable shaft mounted therein, said shaft carrying a stationary disk at its forward end adapted to bear on the inside of the pipe, a movable cutting-disk, and mechanism for moving the same toward and from the stationary disk.

10. In a pipe-cutting machine, the combination of a rotatable barrel, a rotatable shaft mounted therein, said shaft carrying a disk at its forward end, means for adjusting said shaft toward and from the axis of the barrel, a movable cutting-disk also mounted on the barrel, and means mounted in the barrel for moving said disk toward and from the stationary disk.

11. In a pipe-cutting machine, the combination of a rotatable barrel provided with heads having ways therein, bearings adjustably mounted in said ways, a shaft mounted in said bearings and carrying a stationary disk, a movable cutting-disk, and mechanism for moving the same toward and from the stationary disk.

12. In a pipe-cutting machine, the combination of a rotatable barrel provided with heads having radial ways therein, bearings in said ways, mechanism for simultaneously adjusting the bearings in both heads, a shaft mounted in said bearings and carrying a stationary disk, a movable cutting-disk, and mechanism for moving it toward and from the stationary disk.

13. In a pipe-cutting machine, the combination of a rotatable barrel provided with heads having radial ways therein, a shaft mounted in bearings and carrying a stationary disk, screws for moving said bearings toward and from the axis of the disk, a worm-shaft and connecting mechanism to said screws whereby the bearings are simultaneously adjusted.

14. In a pipe-cutting machine, the combination of a rotatable barrel having heads provided with ways, bearings moving in said ways, a shaft mounted in said bearings and carrying a stationary disk, a nut bearing on the upper face of the rear bearing, a nut bearing on the lower face of the forward bearing, screws working in said nuts, and means for simultaneously operating said screws.

15. In a pipe-cutting machine, the combination of a rotatable barrel having heads therein, a shaft mounted in said heads and carrying a stationary disk, levers fulcrumed in the front head, a movable cutting-disk and connections between the same and the front end of said levers, and means adapted to bear against the rear end of said levers to actuate the same.

16. In a pipe-cutting machine, the combination of a rotatable barrel having heads therein, of a shaft mounted in said heads and carrying a stationary disk, of levers provided with trunnions seated in the front head, a movable cutter and connections between the same and said levers, and means for actuating said levers.

17. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, a movable cutting-disk also mounted thereon, levers mounted in said barrel and connected to said movable disk, and means concentric with the barrel and adapted to bear against the rear end of the levers to actuate the same.

18. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, a movable cutting-disk, levers mounted in said barrel and connected to said movable disk, a cone concentric with the barrel and adapted to bear against the rear end of said levers, and a power-cylinder for actuating said cone.

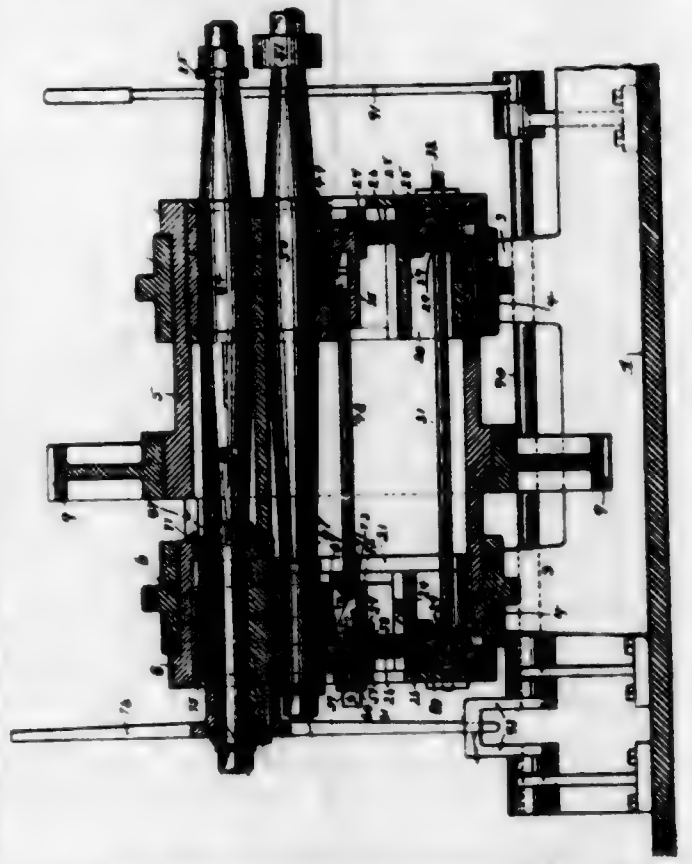
19. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary disk mounted thereon, a movable cutting-disk, levers mounted in the barrel and connected to said movable disk, a cone concentric with the barrel and adapted to bear against the rear end of said levers, a power-cylinder for actuating said cone, and counterweights for withdrawing said cone.

694,524. ROTARY PIPE-CUTTING MACHINE. HENRY R. BOYD, McKeesport, Pa., assignor to National Tube Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 22, 1901. Serial No. 52,319. (No model.)

Claim.—1. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary shaft therein carrying a cutter-disk adapted to bear on the inside of the pipe, a movable shaft also carrying a cutter-disk, and means for moving the latter in a parallel line toward and from the stationary shaft.

2. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary shaft mounted therein and carrying a shearing-disk, a movable shaft carrying a shearing-disk, an eccentric bearing for said movable shaft, and means for rotating said eccentric bearing.

3. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary shaft mounted therein and carrying a shearing-disk, a movable shaft also mounted therein and also carrying a shearing-disk, an eccentric bearing for said movable shaft, and means under the control of the operator for holding said eccentric bearing during the rotation of the barrel whereby said eccentric bearing is rotated to move the movable shaft toward and from the stationary shaft.



4. In a pipe-cutting machine, the combination of a rotatable barrel, a stationary shaft mounted therein and carrying a shearing-disk, a movable shaft also carrying a shearing-disk, an eccentric bearing in which said movable shaft is mounted, cross-arms on said eccentric bearing, and a movable stop adapted to be thrown in the path of said cross-arms whereby the eccentric bearing is rotated during the rotation of the barrel to move the movable shaft toward and from the stationary shaft.

5. In a pipe-cutting machine, the combination with a rotating barrel, of a stationary rotatable shaft carrying a shearing-disk adapted to bear on the inside of the pipe, a movable rotatable shaft also carrying a shearing-disk, and means for adjusting said shafts simultaneously toward and from the axis of the barrel.

6. In a pipe-cutting machine, the combination of a rotating barrel provided with heads having ways therein, of a stationary shaft carrying a shearing-disk, a movable shaft also carrying a shearing-disk, of bearing-frames in the guideways in the heads in which said shafts are mounted, and means for adjusting said bearing-frames toward and from the axis of the barrel.

7. In a pipe-cutting machine, the combination of a rotating barrel provided with heads having guideways, of bearing-frames moving in said guideways, a stationary shaft and a movable shaft mounted in said bearing-frames and each carrying a shearing-disk, of screws for adjusting said bearing-frames, a shaft and connected mechanism for simultaneously rotating said screws.

8. In a pipe-cutting machine, the combination of a rotating barrel provided with heads having ways therein, bearing-frames in said ways, a stationary shaft and a movable shaft each carrying a shearing-disk mounted in said frames, screws bearing against said frames, rotatable nuts engaging said screws, and mechanism for rotating said nuts in unison.

9. In a pipe-cutting machine, the combination of a rotating barrel, of a stationary shaft mounted therein, a movable shaft also mounted therein, means for moving said movable shaft toward and from the stationary shaft, and other means for adjusting said shafts relatively to each other.

10. In a pipe-cutting machine, the combination of a rotating barrel, of a stationary shaft mounted therein, a movable shaft also mounted therein, means for moving the latter toward and from the former, and wedges for adjusting the stationary shaft toward and from the movable shaft.

11. In a pipe-cutting machine, the combination of a rotating barrel, bearing-frames therein, a stationary shaft mounted in said bearing-frames, means for adjusting said stationary shaft in the bearing-frames, a movable shaft also mounted in said bearing-frames, and other means for moving the same toward and from the stationary shaft.

12. In a pipe-cutting machine, the combination of a rotating barrel, bearing-frames therein, a stationary shaft mounted in said bearing-frames, wedges for adjusting said stationary shaft in said frames, an eccentric bearing-sleeve also mounted in said frames, and a movable shaft mounted in said eccentric bearing-sleeve.

13. In a pipe-cutting machine, the combination of a rotating barrel

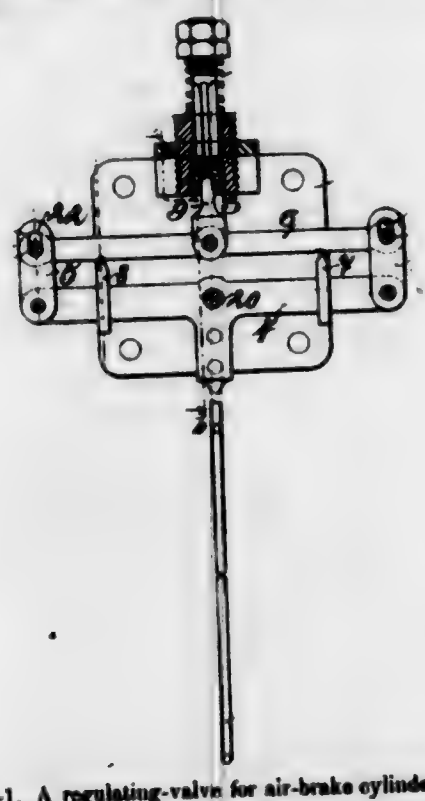
shafts carrying shearing-disks mounted in said barrel, means for adjusting said shafts toward and from the axis of the barrel, means for moving one of said shafts toward and from the other shaft, and other means for varying the distance between said shafts.

14. In a pipe-cutting machine, the combination of a rotating barrel, bearing-frames therein, shafts carrying shearing-disks mounted in said bearing-frames, means for adjusting the position of one of said shafts in said bearing-frames, means for moving said bearing-frames toward and from the axis of the barrel, and means for moving one of said shafts toward and from the other.

15. In a pipe-cutting machine, the combination of a rotating barrel, bearing-frames mounted therein, means for moving said bearing-frames toward and from the axis of the barrel, a shaft mounted in said bearing-frames, longitudinally-movable wedges for adjusting the position of said shaft in the bearing-frames, an eccentric bearing-sleeve also mounted in said bearing-frames, a shaft mounted in said eccentric bearing-sleeve, and means for rotating said eccentric bearing-sleeve.

16. In a pipe-cutting machine, the combination of a rotating barrel, bearing-frames therein, bearings for a stationary shaft in said frames, the front bearing having an inclined lower face, the rear bearing having an opening therethrough having inclined upper and lower walls, a wedge engaging the inclined face of the front bearing, and an inclined arm engaging the opening in the rear bearing, and means for moving said arm and wedge simultaneously.

694,525. AIR-BRAKE SYSTEM. AUGUST BUDDENHAGEN, Breslau, Germany, assignor to the Deutsche Waffen-und Munitionsfabriken, Karlsruhe in Baden, Germany. Filed Aug. 7, 1900. Serial No. 26,178. (No model.)



Claim.—1. A regulating-valve for air-brake cylinders and mechanism operated by wind-pressure caused by the velocity of the train to load the same, substantially as set forth.

2. A regulating-valve for air-brake systems, connected to a brake-cylinder opened by air-pressure from within said cylinder and lever mechanism operated by wind-pressure caused by the velocity of the train to load said valve, substantially as set forth.

3. A regulating-valve for air-brake systems normally open and mechanism operated by wind-pressure caused by the velocity of the train to close the same, substantially as set forth.

4. A regulating-valve for air-brake systems, comprising a normally open valve, a lever pivoted to a fixed element, a second lever parallel with the first and connected thereto, a fulcrum for said second lever, a lug attached to the second lever and arranged to operate said valve, substantially as and for the purpose set forth.

5. A regulating-valve for air-brake systems, comprising a valve, a lever pivoted to a fixed element, a second lever parallel therewith and connected with the first-mentioned lever, a lug at the middle of the second lever arranged to engage said valve, a fulcrum for the second lever, and means for moving the lever system to load the valve, substantially as set forth.

6. A regulating device for air-brake systems, comprising a valve, a lever pivoted at its center to a fixed element, a second lever parallel with the first, links connecting the second lever to and supporting it from the first lever at its ends, a fulcrum on either side of the center of the second lever, a lug pivoted to the middle of the second lever and arranged to operate said valve, and a vane moved by wind-pressure rigidly connected to the first lever to swing the system on its pivots toward the valve, substantially as and for the purpose set forth.

7. In combination with an air-brake cylinder, a relief-valve normally open and connected therewith, and mechanism operated by wind-pressure to regulate the load on said valve, substantially as set forth.

8. The combination with an air-brake system and of a supplementary brake-cylinder, of a valve to vent said cylinder to the atmosphere, and mechanism operated by wind-pressure caused by the velocity of the train to load said valve, substantially as and for the purpose set forth.

694,526. CHIP-BLOWING ATTACHMENT FOR DENTAL ENGINES. WELBY W. BURGIN, Richmond, Ky. Filed May 10, 1901. Serial No. 59,571. (No model.)



Claim.—1. The combination with a supporting-bracket, and means for securing the same to an object, of lugs carried by said bracket, a pump, sockets carried by said pump adapted to engage said lug, and a spring-tongue connected to the bracket and adapted to engage a part carried by the pump to prevent the disengagement of the same from said lugs, substantially as described.

2. In an attachment of the character described, the combination with the bracket and means for securing the same to an engine, of an air-forcing means having sliding engagement with said bracket, and a spring-controlled member for preventing the sliding of said air-forcing means to prevent its detachment from said supporting-bracket, substantially as described.

3. In an attachment for dental engines adapted to be secured to the engine-standard adjacent to the pitman, the combination of a pump, a bracket for supporting the pump in accessible position outside the plane of movement of the pitman, said bracket having attaching means located on one side thereof, a portion traversing the plane of movement of the pitman beyond its limit of throw, and devices disposed on the opposite side of said bracket whereby the same is secured to said standard; and means for actuating the pump operatively connected with the said pitman, substantially as described.

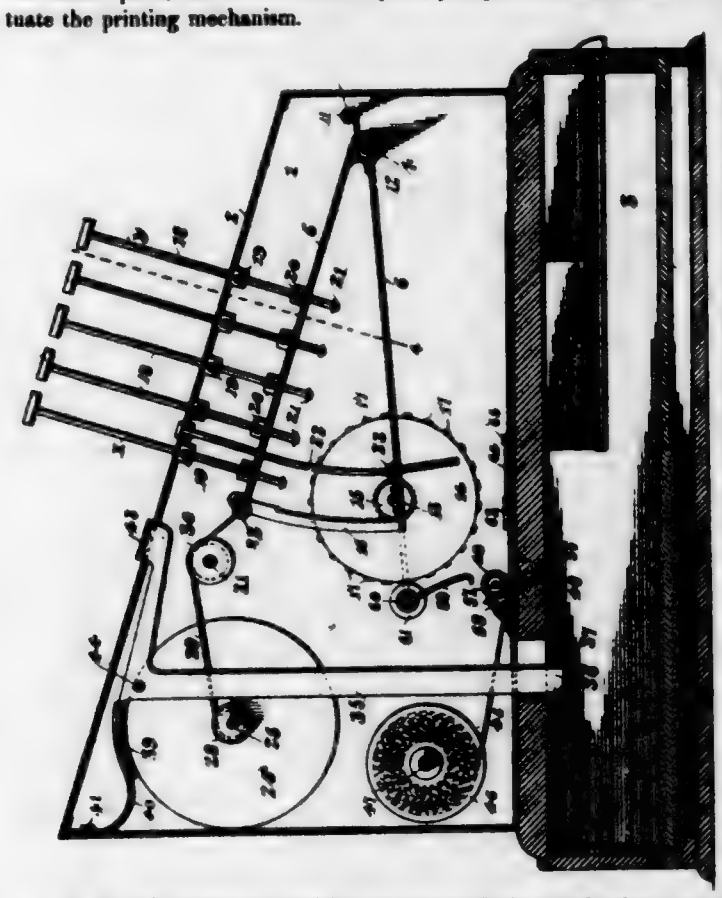
694,527. CASH-REGISTER. WILSON J. CARROLL, Denver, Colo. Filed July 29, 1901. Serial No. 70,148. (No model.)

Claim.—1. A cash-register comprising a frame composed of two yieldingly-supported members movable independently of each other, printing mechanism carried by one of the members, and groups of plungers carried by the other member, the plungers of the different groups, in progressive order, projecting different distances below the plunger-supporting plate.

2. A cash-register comprising a frame composed of two yieldingly-supported members movable independently of each other, printing mechanism carried by one of the members, plungers carried by the other member to actuate the printing mechanism, a sale-indicator, and a flexible connection between the sale-indicator and the plunger-carrying member.

3. A cash-register comprising two spring-pressed diverging plates, a printing-wheel, and inking means therefor carried by one plate, and means carried by the other plate to actuate the printing-wheel.

4. In a cash-register, a casing, a shaft carried thereby and supporting two plates arranged at an angle to each other, a plurality of groups of plungers carried by one of the plates and arranged to contact with the other plate to actuate the same, each plunger of all the groups being movable through a different arc of a circle, printing mechanism carried by the last-named plate, and means carried by the plunger-carrying plate to actuate the printing mechanism.



5. A cash-register comprising a casing, printing mechanism, means for actuating the latter, an indicator-wheel movable upon actuation of the printing mechanism to exhibit the amount of the sale, a lever having a portion to bear upon the sale-indicator to hold it in a shifted position, an arm to release the sale-indicator, and means for returning the indicator to its normal position.

6. The combination with a money-drawer, of a cash-register comprising printing mechanism, and means for actuating the same, an indicator-wheel movable upon actuation of the printing mechanism to exhibit the amount of the sale made, a spring-pressed brake-lever having a part to engage the sale-indicator, and a projection to extend downward into the path of movement of the money-drawer, an abutment on the money-drawer to move the lever to release the indicator when the drawer is moved in, and means for returning the indicator to its normal position.

7. In a cash-register, a two-membered supporting-frame, one of the members bearing printing mechanism and the other a plurality of plungers, operating mechanism connecting the plunger-bearing member with the printing-wheel, whereby upon depression of said member, the printing-wheel will be shifted to bring the appropriate type over the printing-point, a reel bearing a strip of paper to be passed under the printing-point of the wheel, feeding mechanism for the strip, and means carried by the wheel-carrying member to engage with the feeding mechanism to effect feeding of the strip through the machine.

8. In a cash-register, the combination with a movable printing-wheel plate, and a printing-wheel mounted thereon for movement therewith, of a movable plunger-carrying plate disposed above the printing-wheel plate, a plurality of plungers extended through the plunger-carrying plate and disposed to contact with the printing-wheel plate, and means operated by the relative movement of the plates for rotating the printing-wheel, whereby the depression of a plunger will effect predetermined relative movement of the plates to properly position the printing-wheel, and said plunger will then contact with the printing-wheel plate to depress the latter for the purpose of presenting the printing-wheel at the printing-point.

9. In a cash-register, the combination with a movable printing-wheel plate, and a printing-wheel carried thereby, of an independently-movable plunger-carrying plate disposed above the printing-wheel plate to rotate the printing-wheel, and a plunger disposed to impart independent movement to the plunger-carrying plate and extended below the same, for subsequent direct contact with the subjacent printing-wheel plate to depress the latter for the purpose of presenting the printing-wheel to the printing-point.

10. In a cash-register, the combination with a printing-wheel plate and a plunger-carrying plate swung from a common axis and capable of independent movement, of a printing-wheel carried by the printing-wheel plate and provided with a pinion, a rack meshing with said pinion and disposed for actuation by the plunger-carrying plate, and a plunger disposed to impart independent movement to the plunger-carrying plate to operate the rack-bar, and extended below said plate for direct contact with the subjacent printing-wheel plate subsequent to the independent movement of the plunger-carrying plate, and preparatory to the depression of the printing-wheel.

11. In a cash-register, the combination with a printing-wheel plate, and a printing-wheel carried thereby, of a superposed plunger-carrying plate, mechanism operated by the relative movement of the plates for effecting the rotation of the printing-wheel, and a plurality of plungers extended through the plunger-carrying plate, and terminating at different distances from the printing-wheel plate, whereby the relative movement of the plates will be limited by the contact of the plunger with the printing-wheel plate prior to the depression of the printing-wheel.

12. In a cash-register, the combination with a movable printing-wheel plate, and a printing-wheel carried thereby, of a superposed independently-movable plunger-carrying plate, a plunger passed through the plunger-carrying plate and extended below the same for contact with the printing-wheel plate after predetermined independent movement of the plunger-carrying plate, and means for rotating the printing-wheel through the initial movement of the plunger.

13. In a cash-register, the combination with a movable printing-wheel plate, and a printing-wheel carried thereby, of an independently-movable superposed plunger-carrying plate, said plates being disposed in divergent relation, several groups of plungers extended through the plunger-carrying plate and disposed to directly engage the printing-wheel plate to depress the latter, each of said groups of plungers projecting different distances below the plunger-carrying plate, and means for rotating the printing-wheel through the initial movement of any one of the plungers.

14. In a cash-register, the combination with a movable printing-wheel plate, and a superposed independently-movable plunger-carrying plate, said plates being disposed in divergent relation, of a printing-wheel carried by the printing-wheel plate, several groups of plungers extended through the plunger-carrying plate, and disposed to contact with the printing-wheel plate, the individual plungers of each group terminating at different distances from the printing-wheel plate, and the several groups of plungers being extended to different distances below the plunger-carrying plate, and means for rotating the printing-wheel through the relative movement of said plates.

15. In a cash-register, the combination with a swinging printing-wheel plate, and a printing-wheel carried thereby, of a paper-carrier designed for the support of an impression-strip extended from said carrier and passed under the printing-wheel, feeding mechanism for said strip, and means carried by the printing-wheel plate for operating the feeding mechanism as the printing-wheel is withdrawn from the strip.

16. In a cash-register, the combination with a swinging printing-wheel plate, a printing-wheel carried thereby, and a paper-carrier, designed to support an impression-strip extended under the printing-wheel from said carrier, of feeding mechanism for said strip, a device operated by the printing-wheel plate for actuating the strip-feeding mechanism, a plunger disposed to contact with the printing-wheel plate to depress the same, and having independent initial movement, means for rotating the printing-wheel through the initial movement of the plunger, and means for retracting the printing-wheel.

17. In a cash-register, the combination with a spring-retracted printing-wheel, and means for urging said wheel in opposition to the spring, to present the wheel to an impression-strip led under the printing-wheel, of feed mechanism for said strip, and means operated by the retraction of the printing-wheel for effecting the actuation of the feeding mechanism.

18. In a cash-register, the combination with a printing-wheel plate, and a printing-wheel carried thereby, of a plunger disposed to rotate the printing-wheel and to subsequently depress the printing-wheel plate, an indicator, means operatively connecting the plunger and indicator, and means for holding the indicator against movement when the plunger is retracted, and a plurality of independent devices for effecting the release of the indicator.

19. In a cash-register, the combination with a printing-wheel plate and a printing-wheel carried thereby, of a plunger disposed to depress the plate, an indicator operatively related to the plunger for actuation thereby, and means for holding the indicator against movement when the plunger is retracted, and a money-drawer disposed to release said holding means to permit the return of the indicator to its normal position.

20. In a cash-register, the combination with a printing-wheel plate, and a printing-wheel carried thereby, of a superposed independently-movable plunger-carrying plate, a plunger arranged to impart independent movement to the plunger-carrying plate and to subsequently depress the printing-wheel plate, an indicator designed to exhibit a character corresponding to the character to be printed, and mechanism operatively con-

necting the plunger-carrying plate with the printing-wheel and indicator, respectively, the connection between the plunger-carrying plate and the indicator comprehending a flexible element, whereby the plunger-carrying plate may be retracted without necessitating corresponding movement of the indicator.

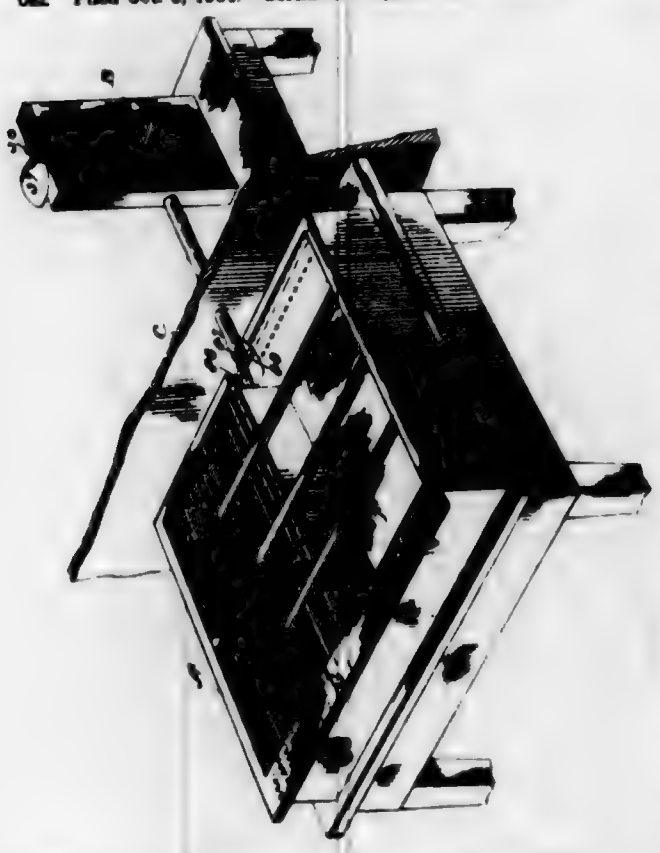
21. In a cash-register, the combination with a printing-wheel plate, and a printing-wheel carried thereby, of a superposed independently-movable plunger-carrying plate, a plunger disposed to operate the plunger-carrying plate and to subsequently contact with the printing-wheel plate to depress the same, means for effecting the rotation of the printing-wheel through the independent movement of the plunger-carrying plate, a rotary indicator designed to exhibit a character corresponding to the character to be printed, a flexible connection between the plunger-carrying plate and the indicator, whereby the indicator is operated by the depression of the plunger-carrying plate, but may be retained stationary during the retraction of said plate, a brake device disposed to retain the indicator in its set position, and means for automatically returning the indicator to its initial position upon the release of the brake device.

22. In a cash-register, the combination with a printing-wheel plate, and a printing-wheel carried thereby, of an inking-roll contacting with the wheel, and means for rotating the wheel and depressing the plate.

23. In a cash-register, the combination with printing mechanism, an indicator, and means for imparting simultaneous movement to the printing mechanism and indicator, whereby the indicator will exhibit a character corresponding to the character to be printed, of a retaining device independent of the printing mechanism, for retaining the indicator in its set position, and a money-drawer operatively related with said retaining device to effect its actuation and the consequent release of the indicator, and a finger piece or key likewise operatively related to the retaining device to permit the actuation thereof independently of the drawer.

24. In a cash-register, the combination with a printing-wheel plate, and a printing-wheel disposed for depression thereby, of a superposed plunger-carrying plate, means for rotating the printing-wheel through the independent movement of the plunger-carrying plate, and a plunger disposed to impart such independent movement to the plunger-carrying plate and to thereafter engage the subjacent printing-wheel plate to move the latter for the purpose of depressing the printing-wheel.

694,528. VOTING-MACHINE. HENRY B. CARY, Los Angeles, Cal. Filed Oct. 8, 1901. Serial No. 78,022. (No model.)



Claim.—1. In a voting-machine, means for registering a voter's preference for one candidate only for any given office, or for or against any given measure, means connected with said registering mechanism for automatically preventing the register of a vote but for one candidate for any one office or one vote on any given measure; a second registering mechanism independent and separable from the primary register, and adapted to be operated at a different locality by a person other than the voter to register serially the number of voters using the primary registering devices, and means intermediate of the two separate and separable registering mechanisms adapted to alternately restore the said registering mechanisms to their normal operative conditions, through the medium of the legitimate and alternate use of the respective registering mechanisms, substantially as hereinbefore set forth.

2. In a voting-machine, the voter's registering mechanism made in two separate and separable sections, one provided with a series of push buttons or plates indicating the candidates or measures to be voted, mechanism coöperating with such push buttons or plates for operating the registering mechanism in the adjacent section, and means for automatically placing the registering mechanism in operative or inoperative condition; and an adjacent section provided with registering mechanism adapted to be operated by the push buttons or plates and intermediate devices of the other section, and with means coöperating with the devices of the upper section for automatically rendering the registering mechanism operative when the two sections are in proper relation with one another, and locking said registering mechanism when the two sections are separated, substantially as hereinbefore set forth.

3. In a voting-machine, the voter's registering mechanism composed of an upper and a lower section, the upper section provided with mechanisms for operating registering devices in the lower section, and with means connected with the several operating mechanisms for automatically locking all of said operating mechanisms except the one used, and a lower section provided with registering devices corresponding with each of the operating mechanisms, and with means for automatically locking the registering devices whenever the two sections are separated, substantially as and for the purpose set forth.

4. In a voting-machine, means for registering the preference of a voter, consisting of two separable sections, the upper one containing means for operating the registering devices in the other, and fixed keys adapted to enter locks within the lower section, and the lower one containing registering devices adapted to be acted upon by the operating mechanism of the upper section, and with locks adjacent to the registering devices adapted to receive the fixed keys of the upper section, whereby the registering devices are free to be operated when the two sections are in cooperative relation, and are automatically locked when the two sections are separated, substantially as hereinbefore set forth.

5. In a voting-machine such as described a series of push plates or buttons coöperating with a series of vibrating levers having a series of gates at the free ends thereof and pivotally connected at the opposite end with a vibrating arm connected at its opposite end with a bell-crank lever, said bell-crank lever pivotally connected with an end of a dog-lever adapted to rotate a registering device, and provided at its free end with a pin or stud to coöperate with a dual cam for depressing the dog-lever during its forward movement and lifting the same during the reverse movement, substantially as hereinbefore set forth.

6. In a voting-machine such as described in combination with the push plates or buttons, vibrating gated levers, pivoted dog-levers and intermediate multiplying lever devices and bell-crank levers 15, locking-plates L', L^2, L^3, L^4 provided with lock-blocks O, platforms N, and push-bars K, provided with pins 25 in advance of pins 26 on the bell-crank levers, whereby when any given push plate or button is depressed and the bell-crank lever is rocked, the push-plates will be reciprocated and all other push plates or buttons locked, substantially as and for the purpose set forth.

7. In a voting-machine a registering mechanism consisting of a pair of gears provided with meshing peripheries of saw-tooth design inclined in reverse directions respectively, tape having serial numbers printed thereon located between and within the bite of the peripheries of the gears, and means for rotating one of said gears predetermined distances, substantially as hereinbefore set forth.

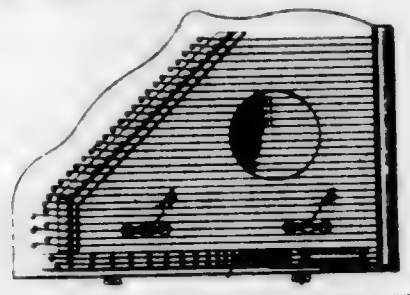
8. In a registering mechanism such as described, in combination with the tape-feeding gears having intermeshing peripheries of saw-tooth design, and a tape provided with serial numbers, interposed between the bite of the teeth of the gears, a latch or bolt adapted to interlock with the teeth on the periphery of one of the gears when desired, substantially as hereinbefore set forth.

9. In a voting-machine such as described, in combination with the voters' registering devices, mechanism for operating the registering devices, reciprocating locking-plates for automatically locking the registering mechanisms other than the one used, and a reciprocating push-bar for restoring the locking-plates to their normal positions, an independent registering mechanism provided with a reciprocating rod or arm, connected with the reciprocating push-bar of the primary registering mechanism, whereby the operation of the secondary registering mechanism will restore the primary registering mechanism to normal conditions substantially as hereinbefore set forth.

10. In a voting-machine such as described the judges' registering and alarm mechanism B, consisting of a traveling tape with serial numbers thereon, tape-feeding gears between which the tape is fed, a ratchet upon one of the said gears, a vibrating lever with a spring-tappet at its free end for operating a bell-hammer, a spring pawl or latch pivoted to the vibrating lever and coöperating with the ratchet on the tape-gear, a

radial arm for vibrating the lever and a spring for restoring the crank-arm to its normal position, substantially as hereinbefore set forth.

694,529. ZITHER. EMIL CERMINAR, Cassel, Germany. Filed Sept. 10, 1900. Serial No. 29,614. (No model.)



Claim.—1. In a zither a sounding-box strung with strings for the accompaniment, said sounding-box being provided with a groove; a touch-board being movably inserted into said groove; and means for holding said touch-board in position; substantially as shown and described.

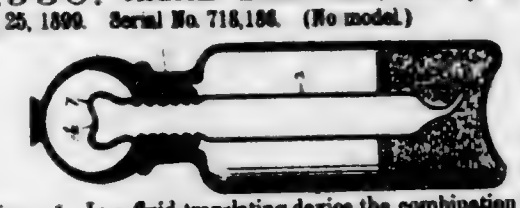
2. In a zither, the combination with a sounding-box, strung with strings for the accompaniment, of a reversible touch-board having on its upper and lower side arranged strings in varying number.

3. In a zither, the combination with a sounding-box strung with strings for the accompaniment, of a reversible touch-board having on its upper and lower sides arranged strings in varying number, the bridges and frets being plain on one side and curved on the other one.

4. The combination with a zither of a touch-board movably fastened to the body of the instrument, measurements of different length being provided on the upper and the lower side of said touch-board, substantially as shown and described.

5. In a zither the combination with a sounding-box strung with strings arranged in two groups, one of them containing strings arranged chromatically or diatonically, the other one containing them arranged in harmonious groups, of a reversible touch-board strung with strings on its upper and lower sides, said touch-board being inserted into a groove of the sounding-box, and means for fixing said sounding-board to the sounding-box, substantially as shown and described.

694,530. PIPETTE. HARRIS CONER, Philadelphia, Pa. Filed May 25, 1899. Serial No. 718,186. (No model.)



Claim.—1. In a fluid-translating device the combination of a resilient compressible chamber and a graduated fluid-retainer having a threaded adjustable connection with the compressible chamber with an abutment adapted to extend within the chamber as adjustable means for limiting its compressibility, substantially as and for the purpose described.

2. In a fluid-translating device the combination of a resilient compressible chamber and a tube threaded and adjustable therein with an abutment beyond the threaded portion of the tube and within the air-chamber to vary the compressibility of the chamber, substantially as described.

3. In combination with a bottle, a fluid-translating device consisting of a compressible chamber having a lower cork-shaped extension with a spiral threaded aperture therethrough communicating with the interior of the chamber, and a fluid-container open at the top and bottom and having an upper spiral threaded extremity adapted to project into the compressible chamber as adjustable means for limiting its compressibility, substantially as and for the purpose described.

694,531. HALTER. GEORGE P. COOLEY, Kansas City, Kans. Filed Aug. 13, 1901. Serial No. 71,926. (No model.)

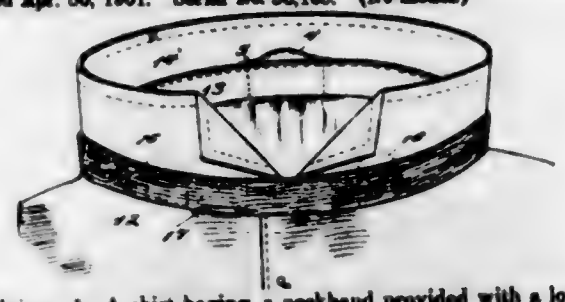
Claim.—1. The combination of an animal-muzzle having a head-bow, and a halter comprising a headstall connected at its ends to opposite sides of the muzzle, a throat-latch connected to the middle of the headstall and adapted to rest with the same on the head of an animal immediately in rear of the ears, and an adjustable jaw-strap interposed between and connecting the throat-latch and the rear portion of the head-bow of the muzzle.

2. The halter described comprising a headstall, the ends of which are adapted to be provided with knots, a throat-latch having a loop arranged parallel to the middle portion of the headstall, rings surrounding and connecting said loop of the throat-latch and the middle portion of the headstall, and a jaw-strap adjustably connected to the throat-latch.

3. The combination with an animal-muzzle having an oval head-bow, and hangers connected to opposite sides of said bow and provided with eyes; of a halter comprising a headstall the ends of which are passed through the eyes of the hangers and provided with knots, a throat-latch having a loop arranged parallel to the middle portion of the headstall, rings surrounding and connecting said loop of the throat-latch and the middle portion of the headstall, and a jaw-strap adjustably connected to the throat-latch, and interposed between and connecting the same and the rear portion of the head-bow.



694,582. SHIRT AND COLLAR. WALTER C. COX, Denver, Colo. Filed Apr. 30, 1901. Serial No. 58,165. (No model.)



Claim.—1. A shirt having a neckband provided with a longitudinally-extending loop at the center of the back portion and a similarly-extending loop on each side of the central front portion of the neckband, the said loops being secured to the neckband in such manner that their lower edges will be in line with or adjacent to the base of the neckband, and a collar formed without buttonholes and having a tongue depending from the lower edge of the center of the back portion and a similar tongue near each front terminal the said tongues being adapted to be turned inwardly and slipped through the loops from the bottom portions of the latter to hold the collar to the neckband without the use of collar-buttons and to prevent both vertical and circumferential movement of the collar, substantially as specified.

2. A shirt having a neckband provided with loops at the center of the back portion and at each side of the center of the front portion, said loops being so situated that their lower edges will be in line with or adjacent to the base of the neckband, a collar formed without buttonholes and having tongues formed on its lower edges and adapted to be engaged in said loops to prevent either vertical or circumferential movement independent of the neckband, and an auxiliary fastening extending around the lower portion of the collar, substantially as specified.

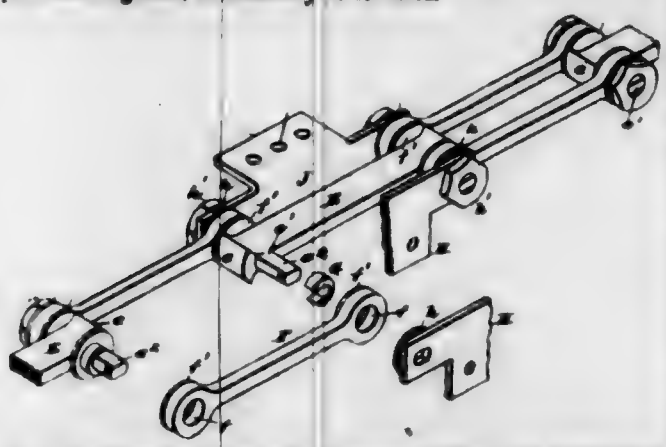
3. A shirt having a neckband with one or more loops thereon, a collar having one or more tongues to engage the said loops, and an elastic band to surround the collar.

694,588. CHAIN FOR CONVEYERS. GEORGE W. CROSS, Carbondale, Pa. Filed Apr. 17, 1900. Serial No. 13,175. (No model.)

Claim.—1. A chain comprising a series of one-part links each having two pivot-pins at each end arranged in line with each other, a bushing eccentrically arranged with respect to and detachably carried by each pivot-pin, and connecting-links mounted on said bushings to connect the one-part links together, substantially as set forth.

2. A chain comprising a series of one-part links each having two pivot-pins at each end arranged in line with each other, an open bushing

eccentrically arranged with respect to and detachably carried by each pivot-pin, and connecting-links mounted on said bushings to connect the one-part links together, substantially as set forth.



3. A chain comprising a series of one-part links, each having two pivot-pins at each end arranged in line with each other, a bushing detachably carried on each pivot-pin, connecting-links mounted on said bushings to connect the one-part links together, and means for adjusting said bushings with respect to the pivot-pins, substantially as set forth.

4. A chain comprising a series of one-part links each provided with two flattened pivot-pins at each end, a non-rotating bushing fitting each pin, and connecting-links mounted on said bushings for connecting the one-part links together, substantially as set forth.

5. A chain comprising a series of one-part links each provided with two flattened pivot-pins at each end, a non-rotating open bushing fitting each pin and mounted eccentrically thereon, and connecting-links mounted on said bushings for connecting the one-part links together, substantially as set forth.

6. A chain comprising a plurality of links, one of said links carrying an adjustable and detachable bushing upon which another link is mounted, substantially as described.

7. A chain comprising a plurality of links, one of said links carrying a detachable bushing upon which another link is mounted, and means for adjusting said bushing relatively to the link by which it is carried, substantially as described.

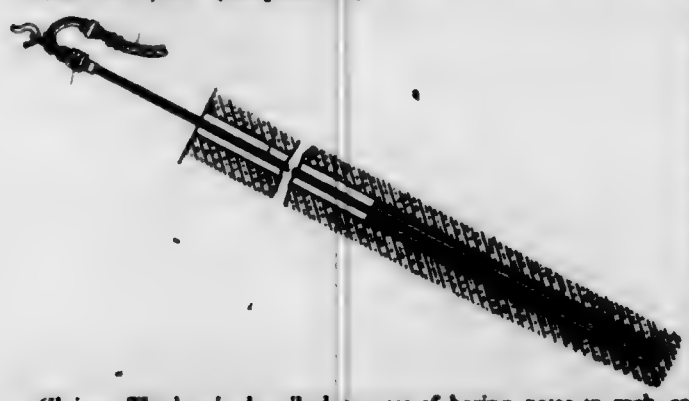
8. In a chain, a link having pivots, bearing-rings carried thereby, shims for adjusting said rings relatively to said pivots, and a link mounted on said rings, substantially as described.

9. In a chain, a link having a pivot with two flat faces, a detachable bearing-ring having a recess of substantially the same form and carried by said pivot, and a link mounted upon said ring, substantially as described.

10. A chain comprising one-part links, each having pivot-pins at its ends, a bushing carried by each of said pins, connecting-links for connecting the one-part links together and mounted on the bushings of the pivot-pins of the successive one-part links, and straps mounted on the pivot-pins of one or more of said links outside of said bushings and arranged coincidently with the one-part links, substantially as set forth.

11. A chain comprising one-part links, each having integral pivot-pins at its ends, a bushing carried by each of said pins, connecting-links for connecting the one-part links together and mounted on the bushings of the pivot-pins of the successive one-part links, and straps depending downwardly in a single plane and mounted on the pivot-pins of one or more of said links outside of said bushings and arranged coincidently with the one-part links, substantially as set forth.

694,584. PROCESS OF BORING HOLES IN ROCK, &c. FRANCIS H. DAVIS, New York, N. Y., assignor to Davis Calyx Drill Company, New York, N. Y., a Corporation of West Virginia. Filed Aug. 5, 1901. Serial No. 71,287. (No specimens.)



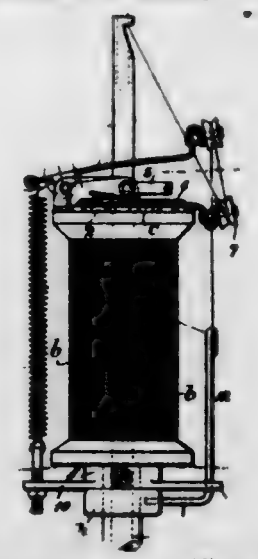
Claim.—The herein-described process of boring holes in rock, or similar material in the earth's strata, which consists in milling or grinding the same with a free or loose material, introducing water under pressure into the hole to carry up the millings or grindings, and, after the hole has reached a predetermined depth, maintaining a substantially uniform pressure upon the water at the bottom of the hole, regardless of the depth of the latter, to carry the millings or grindings a portion of the way only to the surface of the hole without carrying the milling or grinding material therewith, and catching said millings or grindings at a point intermediate the bottom and top of the hole, substantially as set forth.

694,585. APPARATUS FOR BORING HOLES IN ROCK OR SIMILAR MATERIAL IN THE EARTH'S STRATA. FRANCIS H. DAVIS, New York, N. Y., assignor to Davis Calyx Drill Company, New York, N. Y., a Corporation of West Virginia. Filed Sept. 7, 1901. Serial No. 74,665. (No model.)



Claim.—In an apparatus for boring holes in rock or similar material in the earth's strata, the combination with a hollow boring-rod, a hollow bit carried thereby, the working face of which is adapted to coöperate with shot substantially as described, and means whereby water may be forced into said bit and thence upward around same at a substantially uniform pressure regardless of the depth of the hole, to carry away the millings or grindings therefrom, said means including a cup disposed above the bit for catching the said millings or grindings, said cup carried by the drill-rod and adapted to be lowered and raised therewith as the drill-rod descends and ascends, substantially as set forth.

694,586. BRAIDING-CARRIER. ALBERT B. DUE, Brooklyn, N. Y., assignor to the United States Braid Machine Manufacturing Company, Newark, N. J., a Corporation of New Jersey. Original application filed Apr. 8, 1901, Serial No. 54,796. Divided and this application filed June 14, 1901. Serial No. 64,516. (No model.)



Claim.—1. The combination in a braiding-carrier, with the spool-spindles, of the thread-bobbins mounted upon said spindles, and thread-tension devices comprising parts hinged together and tension-rollers carried thereby around which the thread passes, and devices actuated by the movement of said parts for releasing the thread-bobbin to pay out the thread, substantially as set forth.

2. The combination in a braiding-carrier, with the spool-spindles, of the thread-bobbins mounted upon said spindles, and thread-tension devices comprising parts hinged together and tension-rollers carried thereby around which the thread passes, and a spring-actuated pivoted catch-plate at one end engaging the thread-bobbin and at the other end actuated by the hinged tension device for periodically releasing the thread-bobbin and paying out the thread, substantially as set forth.

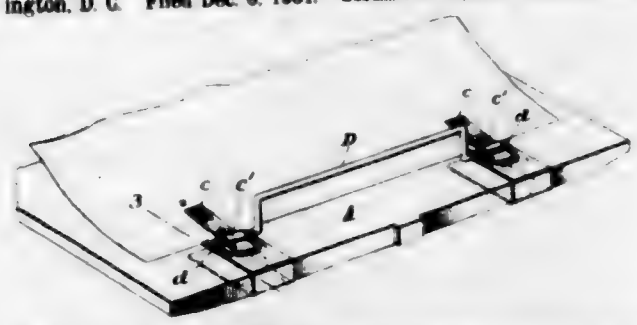
8. The combination in a braiding-carrier, with the spindles, of the thread-bobbins mounted upon said spindles, a toothed disk connected to each thread-bobbin, a base-plate connected to each spindle, a spring-actuated plate pivoted to each base-plate, tension-rollers carried upon one end of the base-plate and upon one end of the pivoted plate, the rollers

of one plate being above the rollers of the other plate, and a device pivoted to the base-plate and spring-actuated in one direction and actuated in the opposite direction by the downward movement of the pivoted plate for releasing the thread-bobbin and permitting the thread to pay out as the rollers of the plate approach one another, substantially as set forth.

4. The combination in a braiding-carrier, with the spindle, of the thread-bobbins mounted upon said spindles, a toothed disk connected to each thread-bobbin, a base-plate connected to each spindle, a spring-actuated plate pivoted to each base-plate, tension-rollers carried upon one end of the base-plates and upon one end of the pivoted plates, the rollers of one plate being above the rollers of the other plate, and a pawl-plate pivoted to one of the hinge parts of each base-plate, a spring connected to each pawl-plate and bearing upon the base-plates for maintaining the pawl-plates in their normal relation in which at one end they engage the thread-bobbins, the opposite end of each pawl-plate coming in contact with the downward movement of each pivoted plate to release the thread-bobbins and pay out the thread, substantially as set forth.

5. The combination in a braiding-carrier, with spindles made hollow or tubular at the upper end, of auxiliary spindles connected to and received in the upper end of the spindles, thread-bobbins mounted upon the auxiliary spindles above the aforesaid spindles, an eye in the upper end of the auxiliary spindles through which the thread passes, a sleeve surrounding each spindle at the upper end thereof, so that the spool rests upon the sleeve and the upper end of the spindle around the auxiliary spindle, a base-plate secured to each auxiliary spindle above the spool-spindle, a toothed disk secured to the upper end of each thread-bobbin, tension-rollers carried by the said base-plates, a plate pivoted to each base-plate and tension-rollers carried thereby and around which tension devices the thread passes, a spring for actuating each pivoted plate yielding as the thread is used up and taking up the slack as the thread is paid out, and a spring-actuated pawl-plate pivoted to each base-plate and actuated by the pivoted plate to release the spool-spindle periodically to pay out the thread, substantially as set forth.

694,537. TYPE-WRITING MACHINE. PHILIP T. DODGE, Washington, D. C. Filed Dec. 6, 1901. Serial No. 84,869. (No model.)



Claim.—1. In a book type-writer, the combination of the flat platen an elastic clip embracing the edge of the platen, and a lifting device above the platen, adapted to lift and sustain the upper arm of the clip.

2. In combination with the flat platen and the clip embracing the edge of the platen, a rotary flattened lifting device, adapted to sustain the upper arm of the clip, substantially as shown.

3. In combination with the flat platen, a plurality of clips embracing the same, and a rotary device, substantially as described, acting on the series of clips to raise and uphold their upper arms.

4. A paper-holding clip for attachment to a book type-writer, consisting of a ⊃-shaped elastic member adapted to embrace the platen or frame of the machine and hold itself in position and a lifting device to cooperate therewith.

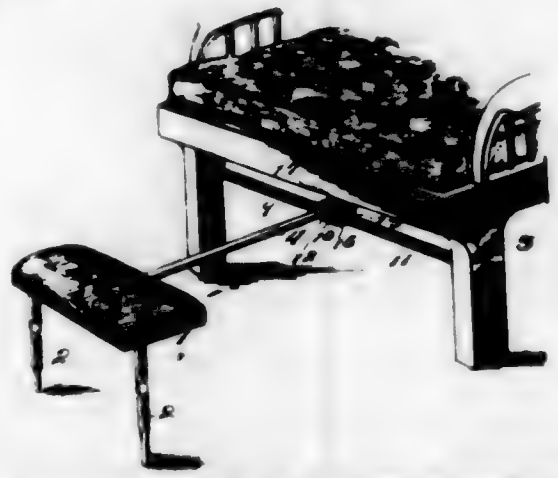
5. In a paper-clip for a type-writing machine, the elastic ⊃-shaped body portion, having its upper end divided into a plurality of arms, in combination with a rotary lifting device acting above one arm and beneath another, substantially as shown.

6. In a paper-clip for a book type-writer, the elastic body portion of ⊃ form, having its upper end divided into a plurality of arms differing in length, and one of said arms formed with an upward curve therein, in combination with a rotary lifting device seated between the arms and retained in place by the curved portion, substantially as described and shown.

7. In a book type-writer, in combination with a flat bed or platen, an elastic clip embracing the edge of the platen, the external frame seated outside of the clip and securing the same in position, and the lifting device coöperating with the upper arm of the clip, substantially as described.

694,538. FOOT-REST ATTACHMENT FOR CHAIRS. WALTON A. EDDY, Randolph, N. Y. Filed Apr. 2, 1901. Serial No. 54,068. (No model.)

Claim.—1. A device of the class described comprising a rod or bar, means for slidingly connecting the same to a chair, a foot-rest provided with supporting-legs and hinged to the outer end of the rod or bar and adapted to turn thereon to extend the legs beneath the chair, and means for locking the foot-rest rigid with the rod or bar, substantially as described.

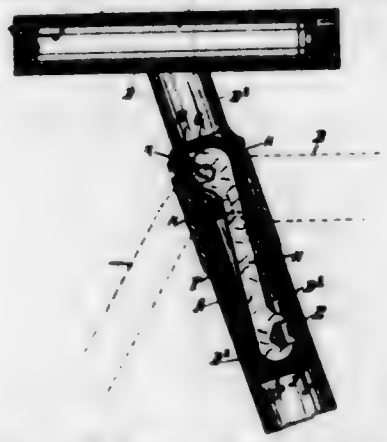


2. A device of the class described comprising a clamp having a guide-eye, a rod or bar passing through the guide-eye and provided at its inner portion with a stop, a foot-rest hinged to the outer portion of the rod or bar, and means for holding the foot-rest rigid with the same, substantially as described.

3. A device of the class described comprising an approximately U-shaped clamp provided at the top with an eye, a rod or bar extending through the eye and provided at its inner end with a stop, a foot-rest hinged to the outer end of the rod or bar, and a locking device mounted on the foot-rest and arranged to engage the said rod or bar, substantially as described.

4. A device of the class described comprising a guide, means for mounting the same on a chair, a rod or bar passing through the guide, a foot-rest hinged to the rod or bar, and a sliding bolt mounted on the foot-rest at one side of the rod or bar, and adapted to engage the same, substantially as described.

694,539. SEAT-POST FOR BICYCLES. JOHN ENGLAND, London township, and MOSES HUTCHINSON, London, Canada. Filed Nov. 12, 1899. Renewed Jan. 16, 1902. Serial No. 90,055. (No model.)

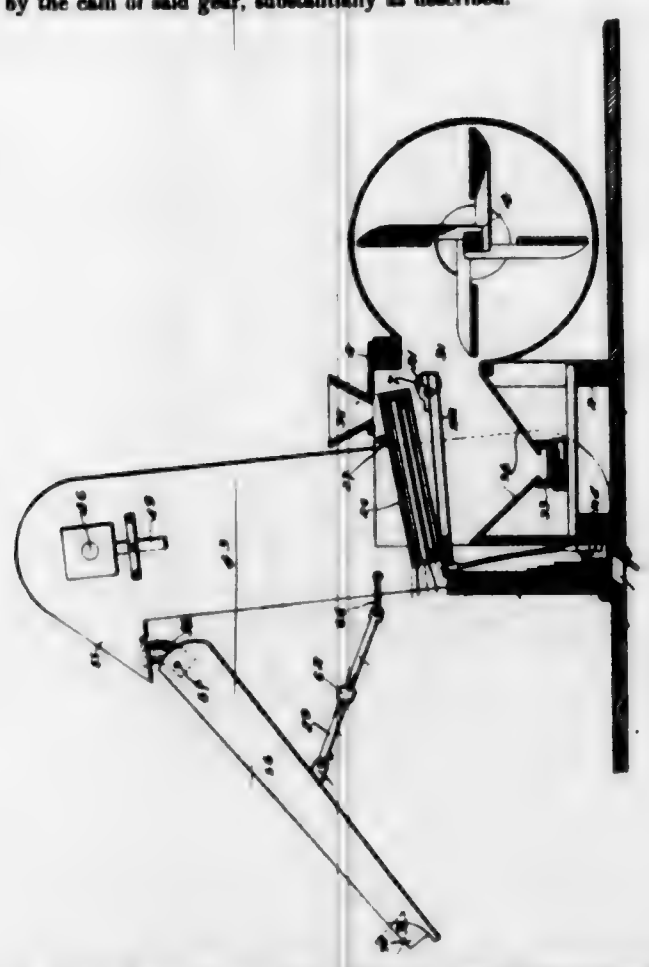


Claim.—In a device of the character described, a receptacle, in the side and end of which an opening and elongated slot respectively are formed, a partition in said receptacle for dividing it into two chambers, a spring-bolt formed with a shoulder and in which a socket is formed, one end of which spring-bolt projects through the side opening in said receptacle, a coil-spring in said receptacle located between said spring-bolt and the adjacent face of said receptacle, a pin secured to said spring-bolt and extending through the elongated slot in the end of said receptacle, in combination with a bicycle seat-post, in the interior face of which a circumferential groove is formed, with which the end of the spring-bolt engages, substantially as and for the purpose set forth.

694,540. GRAIN-CLEANER. ADOLPHE D. FRANCOEUR and GEORGE L. FRANCOEUR, Concordia, Kans. Filed Mar. 11, 1901. Serial No. 50,698. (No model.)

Claim.—1. In combination with an elevator to convey threshed grain from a threshing-machine, a frame on the threshing-machine casing, a riddle to which the threshed grain is fed by the elevator, a power-shaft in said frame, connections between said power-shaft and said riddle, to operate the latter, connections between said power-shaft and said elevator, whereby the latter is operated, a gear-wheel on said power-shaft, said gear-wheel having a cam on one side thereof, a blower on one

side of said frame, said blower having a pinion engaging said gear-wheel, and a shaking grain-discharge trough under said riddle-frame and operated by the cam of said gear, substantially as described.



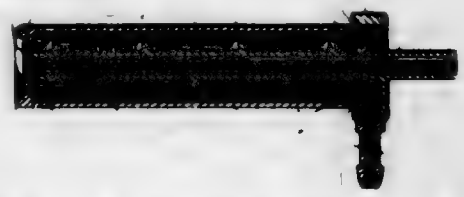
2. A threshing-machine casing having an opening in its upper side, in combination with a recleaning mechanism and an elevator to convey threshed grain to said recleaning mechanism, the latter including a riddle, a hopper below the riddle, to catch the grain that drops therethrough, a blower to direct a blast under the riddle and over the hopper, to winnow the grain as it drops from the riddle, and a shield rising from the threshing-machine casing, and forming a passage in which the tailings are discharged from the riddle, said passage being open at its upper end and at its lower end communicating with the opening in the threshing-machine casing, and said shield intercepting the blast from the blower, deflecting the blast upwardly, and directing the tailings downwardly through said passage into the threshing-machine casing, substantially as described.

3. A threshing-machine casing having an opening in its upper side, in combination with a recleaning mechanism and an elevator to convey threshed grain to said recleaning mechanism, the latter including a riddle, a hopper below the riddle, to catch the grain that drops therethrough, a blower to direct a blast under the riddle and over the hopper, to winnow the grain as it drops from the riddle, and a shield rising from the threshing-machine casing, and forming a passage in which the tailings are discharged from the riddle, said passage being open at its upper end and at the lower end communicating with the opening in the threshing-machine casing, and said shield intercepting the blast from the blower, deflecting the blast upwardly, and directing the tailings downwardly through said passage into the threshing-machine casing, the latter having a deflector at the lower end of said passage within said casing to prevent an updraft through said passage, substantially as described.

4. A threshing-machine casing having an opening in its upper side, in combination with a recleaning mechanism and an elevator to convey threshed grain to said recleaning mechanism, the latter including a riddle, a hopper below the riddle, to catch the grain that drops therethrough, a blower to direct a blast under the riddle and over the hopper, to winnow the grain as it drops from the riddle, and a shield hinged at its lower end to and adapted to be disposed in a vertical position on the threshing-machine, to form a passage in which the tailings are discharged from the riddle, said passage being open at its upper end and at its lower end communicating with the opening in the threshing-machine casing, and said shield intercepting the blast from the blower, and deflecting the blast upwardly and directing the tailings downwardly through said passage into the threshing-machine casing, substantially as described.

694,541. VAGINAL SYRINGE. ARTHUR R. GORDON, Toledo, Ohio. Filed Mar. 28, 1901. Serial No. 53,247. (No model.)

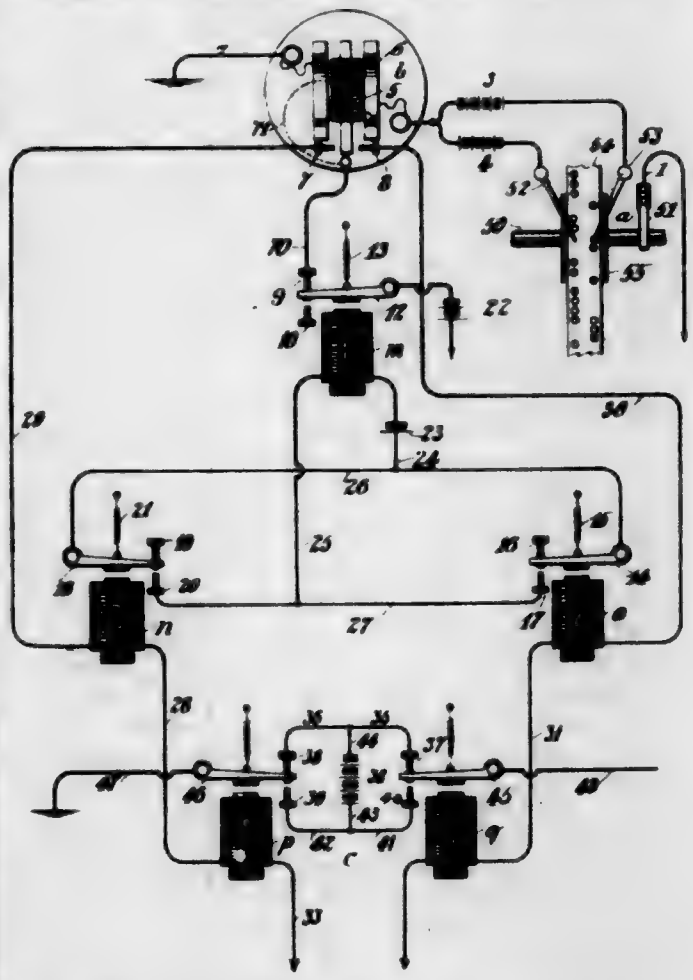
Claim.—1. In a syringe of the class described, the combination with an outer casing open at one end and provided with a diaphragm having an opening at the other, of an open-ended tube located longitudinally within the casing and having a detachable engagement at one end in the opening of the diaphragm, a cap arranged at the other end of the tube to close the open end of the casing, a nipple located upon the cap and having a passage-way that communicates with the space between the tube and casing, and a spiral flange secured to the exterior face of the tube and fitting snugly within the space between the tube and casing to form a spiral passage way therethrough.



2. A syringe of the class described, comprising an outer casing, a cylindrical tube located longitudinally within the casing, said tube and casing being connected at one end by an annular diaphragm which surrounds the tube and is provided with an annular series of discharge-orifices, said orifices being arranged in divergent relation from their inner ends and also inclined in a direction substantially tangential to the peripheral walls of the inner tube, and a spiral partition extending across the space between the inner tube and the outer casing and extending substantially from end to end thereof.

3. In a syringe of the class described, the combination with an outer casing open at one end and provided with a diaphragm having a central opening at the other, said diaphragm being inset from the end edge of the casing and provided with an annular series of inclined openings, of an open-ended tube located longitudinally within the casing and having a detachable engagement at one end in the opening of the diaphragm, said tube being provided contiguous to its opposite end, with a cap arranged to close the open end of the casing, and a spiral flange secured to the exterior face of the tube and fitting snugly within the space between the tube and casing to form a spiral passage-way therethrough.

694,542. TELEGRAPHY. JOHN P. GORTON, Weston-super-Mare, England. Filed Oct. 31, 1901. Serial No. 80,715. (No model.)



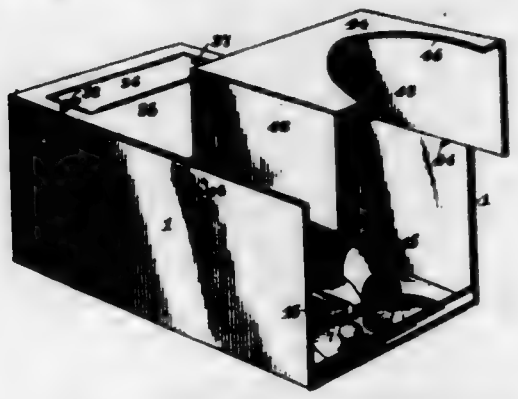
Claim.—1. In a telegraph-repeater the combination with two circuits of an automatic transmitter and a relay in one circuit, an electromagnetic pole-changing transmitter in the second circuit, a local circuit including the relay repeating-points, the coils of said transmitter-magnet, and an independent normally closed circuit-breaker, and automatic means for operating said circuit-breaker at regular intervals during the time the relay-contact is closed.

2. In a telegraphic repeater the combination of a main line, an automatic transmitter, and a relay in said line, a second main line, a transmitter in said line, an electromagnet to operate said transmitter, a primary local circuit containing said magnet and the relay repeating-points, a normally closed circuit-breaker in the primary local circuit, an electromagnet to operate said circuit-breaker, a secondary local circuit including said magnet and a circuit-breaker and an electromagnet to operate said circuit-breaker controlled by the primary local circuit.

3. In a telegraphic repeater, a main line, an automatic transmitter and a relay in said line, a second main line, a transmitter in said line, a local transmitter-circuit including the relay repeating-points and a magnet to operate said transmitter combined with means for determining the current impulses consisting of a normally closed circuit-breaker in the transmitter-circuit, an electromagnet to operate said circuit-breaker, a local circuit for said magnet and a circuit-breaker in said circuit controlled by a magnet in the transmitter local circuit.

4. The combination with two circuits of a suitable transmitter and a relay in one circuit, an electromagnetic pole-changing transmitter in the second circuit, a local circuit including the relay repeating-points, the coils of said transmitter-magnet, and an independent normally closed circuit-breaker, and automatic means for operating said circuit-breaker at regular intervals during the time the relay-contact is closed.

694,543. BALLOT-BOX. CHARLES D. GREEN, Houston, Tex., assignor to Stephen Th. Westdal, Minneota, Minn. Filed Jan. 28, 1901. Serial No. 45,108. (No model.)



Claim.—1. In a ballot-box, a ball-raceway having separate branches and constructed to form means for automatically directing a ball to either branch of the raceway, and a final terminal common to both branches.

2. In a ballot-box employing balls of different sizes, a ball-raceway having separate branches and constructed to form means for automatically directing the ball to either branch of the raceway, and a final terminal common to both branches.

3. In a ballot-box, a ball-raceway beginning and ending at the same side of the box and having separate branches, and means for automatically directing a ball to its appropriate branch.

4. In a ballot-box, a ball-raceway beginning and ending in different horizontal planes terminating at the same side of the box and having separate branches and constructed to form means for directing a ball to its appropriate branch.

5. In a ballot-box, a casing comprising separate compartments, and a ball-raceway beginning and ending in the same compartment and constructed so as to direct the ball without stop from the initial to the terminal point thereof.

6. In a ballot-box, a casing divided into compartments, a raceway beginning and ending in the same compartment and constructed so as to direct the ball without stop from the initial to the terminal point thereof, and ball-actuated registering mechanism in the adjoining compartment.

7. In a ballot-box, a casing divided into compartments, a raceway beginning and terminating in the same compartment and constructed so as to direct the ball without stop from the initial to the terminal point thereof, and ball-actuated alarm mechanism in the adjoining compartment.

8. In a ballot-box, a casing, independent ball-raceways diverging from the starting-point and then converging toward a delivery-receptacle common to all the raceways, the raceways being constructed to direct the balls without stop from the initial to the terminal point thereof, and registering mechanism arranged in the path of the balls.

9. In a ballot-box, a stationary chute communicating with raceways leading to the front of the box below the discharge-mouth of the chute, and a spring-retracted ball-operated trap arranged adjacent to the discharge-point thereof, in combination with registering mechanism actuated by said trap.

10. The combination with a ballot-box, of ball-raceways which have their initial and terminal portions in common, and intermediate diverging portions, the different portions of the raceways being so arranged that the balls will travel unimpeded from the point of beginning to the point of ending.

11. The combination with a ballot-box, of ball-raceways having initial and terminal portions in common, and intermediate diverging portions, the initial portion of the raceways being in a higher plane than the terminal portion, and the arrangement being such that the ball travels unimpeded from the point of beginning to the point of ending.

12. The combination with a ballot-box, of ball-raceways beginning at a common point, extending thence in opposite directions, and finally converging toward their terminal portions, the arrangement being such that the ball travels unimpeded from the point of beginning to the point of ending.

13. In a ballot-box, the combination with a raceway having separate discharge-points for balls of different sizes, and a receiving-chamber common to all the balls, of registering mechanism, and traps arranged adjacent to the different discharge-points of the raceways and adapted to be operated by the balls of different sizes.

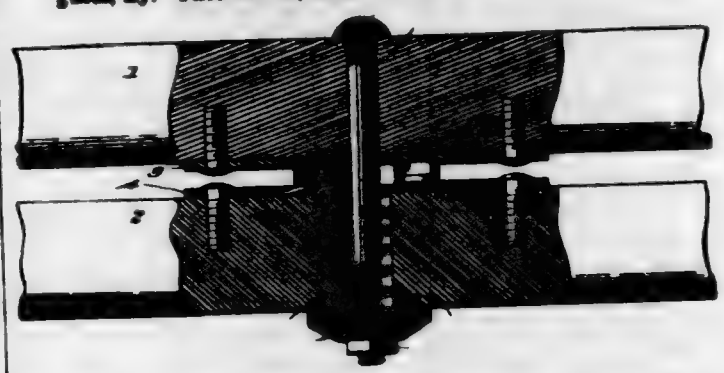
14. In a ballot-box, a chute forming part of the ball-race and having ball-discharges at different points in its length, in combination with ball-operated traps adjacent to the different points of discharge of the chute, registering mechanism operatively connected with said traps, and a receiving-compartment into which all of the balls pass.

15. In a ballot-box, a chute forming part of the ball-race and provided with a discharge-opening at the bottom, and with parallel flanges forming supporting-rails on the upper edges of which one of the balls travels, in combination with ball-operated traps arranged at different points in the ball-race, and registering mechanisms operatively connected with said traps.

16. In a ballot-box, a ball-race comprising a receiving-hopper, a delivery-receptacle, the hopper and the receptacle being on the same side of the box, and a transversely and longitudinally inclined floor interposed between the hopper and delivery-receptacle.

17. In a ballot-box, a raceway having separate branches constructed to form means for automatically directing a ball to either branch of the raceway, and a final terminal common to both branches, in combination with a hood arranged to fold entirely within the plane of the box and to form an extension of the said terminal, the hood being partly cut away at one side to present an observation-opening.

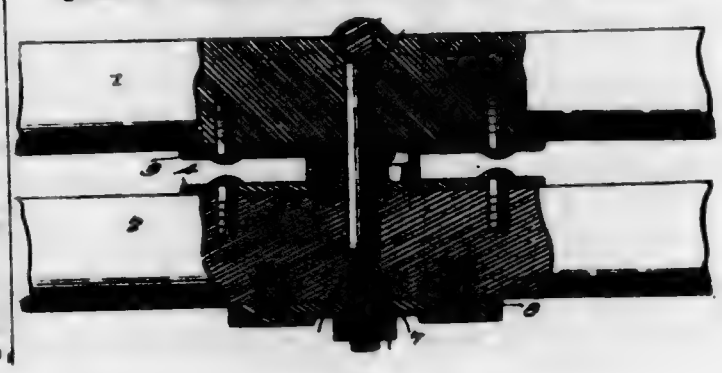
694,544. SINGLETREE ATTACHMENT. JAMES HAFER, Sr., Augusta, Ky. Filed Oct. 16, 1901. Serial No. 78,846. (No model.)



Claim.—1. The combination with a singletree and a cross-bar, of a bolt projecting through the parts, centrally of their width and constituting the sole assembling means therefor, a spring surrounding that portion of the bolt within the cross-bar, a socket engaging the lower end of the spring, and a nut on the bolt for forcing the socket against the cross-bar.

2. The combination with a singletree and a cross-bar, of a bolt projecting through the parts, a spring surrounding that portion of the spring within the cross-bar, a socket having a threaded engagement with the lower end of the spring, and a nut on the bolt for forcing the socket against the cross-bar.

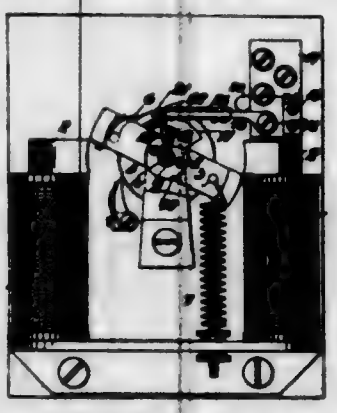
694,545. SINGLETREE ATTACHMENT. JAMES HAFER, Sr., Augusta, Ky. Filed Oct. 16, 1901. Serial No. 78,845. (No model.)



Claim.—1. The combination with a singletree and a cross-bar, or a bolt projecting through the parts, the cross-bar being provided on its under side with a plurality of orifices, a plate bearing springs to engage the orifices, and a nut on the bolt to hold the plate associated with the cross-bar.

2. The combination with a singletree and a cross-bar, of a bolt projecting through the parts, the under side of the cross-bar being provided with a recess surrounding the bolt and with a plurality of orifices, a plate bearing a plurality of studs having coiled springs mounted thereon, and a centrally-disposed tubular extension, the extension to engage the said recess and the studs and springs to engage the orifices, and a nut on the bolt for clamping the plate against the cross-bar.

694,546. **SELF-WINDING ELECTRIC CLOCK.** MAX HOEPT and EMIL SCHULTE, Berlin, Germany, assignors to Max Möller, Altona, Germany. Filed Sept. 26, 1900. Serial No. 31,016. (No model.)



Claim.—1. A contact device for electrical timepieces, and the like, comprising, in combination, an oscillating contact-piece; a lever fulcrumed with its free end proximate to said contact-piece; a second contact-piece, secured to the arm of said lever; a spring secured to, and insulated from, said lever; and means to depress said spring and consequently said lever, and thus increase the friction between the contact-surfaces when the circuit is closed; substantially as, and for the purpose, set forth.

2. In an electric clock a contact device for making and breaking electric circuits, comprising, in combination, a lever hinged at one end; a spring attached to said lever; and means to depress said spring and, consequently, said lever and thus to increase the friction between the contact-surfaces, when the circuit is closed; substantially as, and for the purposes, set forth.

3. In an electric clock a contact device for making and breaking electric circuits, comprising, in combination, an oscillating cam; a contact-piece secured to said cam; an arm hinged at one end with its free end proximate to the edge of said cam; a spring secured to, and insulated from said arm; a pallet-like piece secured to said spring; a pin secured to said oscillating cam and adapted, by oscillating to raise and lower said pallet-like piece, and, consequently, indirectly, said arm; substantially as set forth.

4. In an electric clock a contact device for making and breaking an electric circuit, comprising, in combination, an oscillating cam; a contact-piece secured to said cam; a lever hinged at one end with its free end proximate to the edge of said cam; a plate of insulating material secured to said lever and adapted by bearing on the edge of said cam to limit the downward stroke; a spring secured to said insulated plate; a pallet-like piece secured to said spring; a pin secured to said oscillating cam and adapted, by oscillating, to raise and lower said pallet-like piece, and, consequently, indirectly, said lever; substantially as set forth.

6. The combination in a timepiece of: an electromagnet; a lever-armature, pivoted between, and adapted to be turned by the attraction of, the poles of said electromagnet; a spring, adapted, on breaking the circuit to turn said lever-armature contrary to the direction of the attraction of said poles; a contact-piece adapted to oscillate with said lever-armature and electrically connected with one pole of the source of electricity; an insulated lever hinged to a fixed part of the timepiece, and arranged with its end pressed toward said lever-armature; a second spring, attached to, and insulated from, said lever; a pallet-like piece secured to the end of said second spring; a second contact-piece, electrically connected with the other pole of the source of electricity, secured to said lever and adapted to bear in certain positions of said armature against the first contact-piece.

6. The combination in a timepiece of an electromagnet with two projecting pole-pieces; a lever-armature adapted to oscillate between said pole-pieces; a spring attached to said lever-armature and adapted to turn said lever-armature in the opposite direction to that effected by the electromagnets; means for adjusting the tension of said spring; a contact-piece adapted to oscillate with said lever-armature and conductively connected with one pole of the source of electricity; an insulated lever hinged to a fixed part of the timepiece and arranged with its end pressed toward said lever-armature; a second spring, attached to, and insulated from, said lever; a pallet-like piece secured to the end of said second spring; a second contact-piece, electrically connected with the other pole of the source of electricity, secured to said lever, and adapted to bear in certain positions of said armature against the first contact-piece; and a pin adapted to rotate with said lever-armature and depress said pallet-like piece and increase the friction between said contact-surfaces, when the circuit is closed by the said contact-pieces; all substantially as set forth.

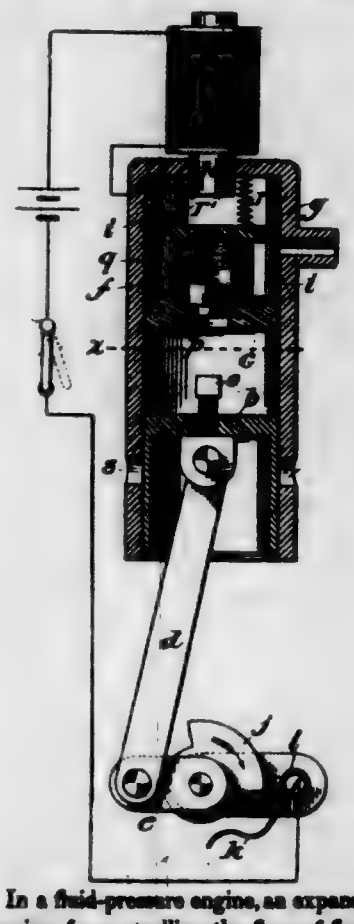
7. A contact device, for electrical timepieces and the like comprising, in combination, an oscillating contact-piece; a lever fulcrumed with its free end proximate to said contact-piece; a second contact-piece, secured to the arm of said lever; a spring attached to, and insulated from, said lever; a pallet-like piece attached to the free end of said spring; a pin adapted to oscillate with the first contact-piece and to raise and depress said pallet-like piece; substantially as, and for the purpose, set forth.

8. A contact device for electrical timepieces, and the like, comprising, in combination, an oscillating contact-piece; a lever insulated from, and fulcrumed with its free end proximate to, said contact-piece; a second contact-piece, secured to said arm; a spring attached to said lever and insulated from the first-said contact-piece; a pallet-like piece attached to the free end of said spring; a pin adapted to oscillate with the first-said contact-piece and to raise and depress said pallet-like piece; substantially as, and for the purpose, set forth.

9. A contact device for electrical timepieces, and the like, comprising, in combination, an oscillating contact-piece; a lever insulated from, and fulcrumed with its free end proximate to, said contact-piece; a second contact-piece secured to said lever; a spring secured to, said lever and insulated from the first-said contact-piece; and means to depress said spring and consequently said lever, and thus increase the friction between the said contact-surfaces; substantially as set forth.

10. In an electrical clock a contact device for making and breaking electrical circuits, comprising, in combination, a lever hinged at one end; a spring attached to said lever; a contact-piece adjustably secured to said lever; and means for depressing said spring, and, consequently, said lever and thus to increase the friction between the contact-surfaces, when the circuit is closed; substantially as and for the purposes, set forth.

694,547. **VALVE-GEAR FOR ENGINES.** RALPH O. HOOD, Danvers, Mass., assignor to Simplex Motor Vehicle Company, Danvers, Mass., a Corporation of Maine. Filed Mar. 7, 1900. Serial No. 7,698. (No model.)



Claim.—1. In a fluid-pressure engine, an expansion-chamber, a piston therein, mechanism for controlling the flow of fluid to said chamber, said mechanism including a valve, and operated by, said piston, a magnet controlling the closing of said valve and exhaust ports in the expansion-chamber uncovered by said piston when forced outward.

2. In a fluid-pressure engine, an expansion-chamber, a piston therein, mechanism for controlling the flow of fluid to said chamber, said mech-

anism including a valve, and a magnet regulating the movement of said valve, and exhaust-ports in the expansion-chamber uncovered by said piston when forced outward.

3. In a fluid-pressure engine, an expansion-chamber, a piston therein, and mechanism for controlling the flow of fluid to said chamber, said mechanism including a spring-tensioned valve opened by said piston and magnetic means for holding said valve open for a predetermined period of time.

4. In a fluid-pressure engine, an expansion-chamber, a piston therein, mechanism for controlling the flow of fluid to said chamber, said mechanism including a valve opened by said piston, magnetic mechanism for retarding the closing movement of said valve, and exhaust-ports in the expansion-chamber uncovered by said piston when forced outward.

5. In a fluid-pressure engine, an expansion-chamber, a piston therein, and mechanism for controlling the flow of fluid to said chamber, said mechanism including a valve opened by said piston, and magnetic mechanism for retarding the closing movement of said valve.

6. In a fluid-pressure engine, an expansion-chamber, a piston therein, and mechanism for controlling the flow of fluid to said chamber, said mechanism including a spring-tensioned valve operated in one direction by the piston, an electromagnet for retarding the closing movement of the valve, an electric circuit including said electromagnet, and automatic circuit making and breaking devices.

7. In a fluid-pressure engine, the combination of an expansion-chamber in which work is done by the movement of the fluid or gas, a magnetic valve mechanism for controlling the flow of the fluid or gas into said chamber, said mechanism consisting in a valve opened by the movement of a piston which forms a part of said chamber and a magnet adapted to act through the walls of the engine upon an armature forming a part of said valve, and means for causing said magnet to act at each cycle of the engine to retard the closing movement of said valve.

8. In a fluid-pressure mechanism, a casing closed at one end, and a partition dividing said casing into two compartments, a steam-inlet leading into one compartment, a valve seated in said partition, a piston in the other compartment directly engaging and opening the valve at one end of its stroke, a steam-outlet formed by ports placed in said other compartment and uncovered by the piston at the other end of its stroke, and means located in the first-mentioned compartment for retarding the closing movement of the valve.

9. In a fluid-pressure mechanism, a casing closed at one end and a partition dividing said casing, into two compartments, a steam-inlet leading into one compartment, a valve seated in said partition, a piston in the other compartment directly engaging and opening the valve at one end of its stroke, and electromagnetic mechanism partially located in said first-mentioned compartment for retarding the closing movement of said valve.

10. In a fluid-pressure engine, an expansion-chamber, a piston movable therein, a valve for controlling the admission of fluid to said chamber, said valve having a yielding member, means for retarding the closing movement of said valve, and means carried by said piston for engaging the yielding member of said valve for opening the same.

694,548. CANE-LOADER. ALBERT HORNER, Paauilo, Hawaii. Filed Aug. 3, 1901. Serial No. 70,720. (No model.)

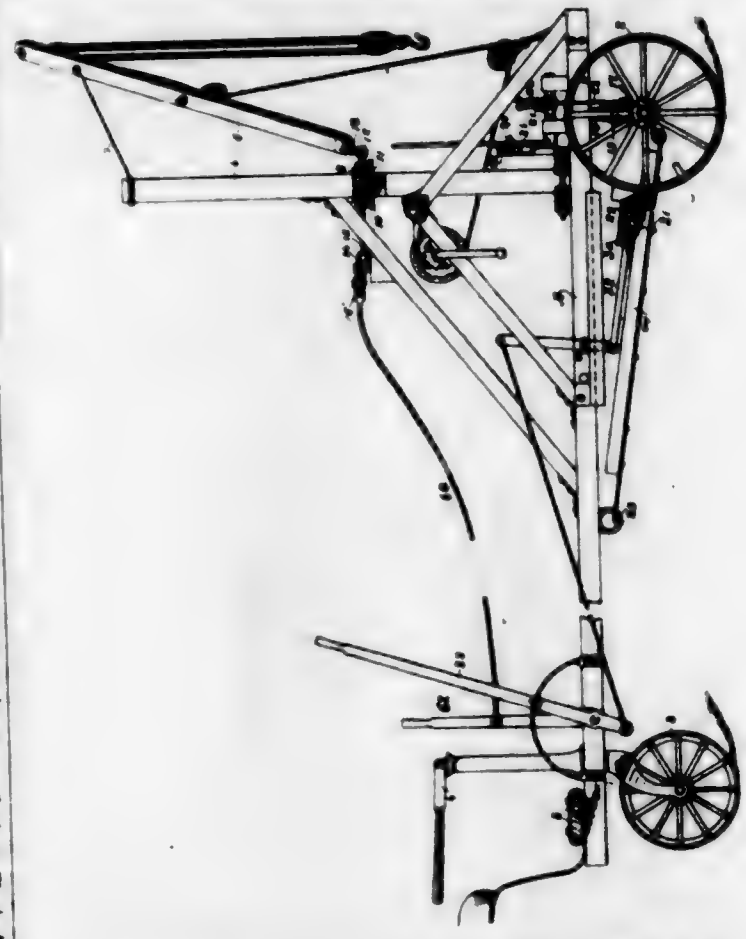
Claim.—1. The combination in a cane-loader of a platform, a derrick mounted thereon, said derrick consisting of a mast and a boom inclined with relation thereto, and means including a device freely turnable about the mast as an axis and having the inner end of the boom connected to it, and a mechanism for turning said device whereby the inner end of the boom is thrown out of the plane in which the outer end of the boom and said mast lie.

2. The combination in a cane-loader of a portable platform mounted on wheels, a mast mounted thereon, a boom swiveled on said mast, and means including rock-shafts at the sides of the platform and connections between said shafts and the wheel-axle whereby said mast may be maintained in a vertical position irrespective of the slope of the ground upon which said platform may rest.

3. The combination in a cane-loader of a platform, a mast mounted near the front portion thereof, a flanged sleeve fixed to the mast, and a support upon and axially turnable about the sleeve, and a boom inclined with relation to the mast and having its lower end loosely connected to the axially-turnable support whereby said end may be moved out of the plane of the mast and the outer end of the boom.

4. The combination in a cane-loader, of a platform, a mast mounted thereon, a sleeve on said mast, said sleeve having a base-flange, a ring turnable upon said sleeve, a boom having its inner end pivotally seated upon said ring, a lever centrally pivoted and connections of this lever and the ring whereby said ring is rotated about the mast by the oscillation of the lever.

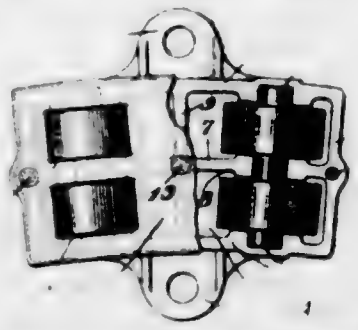
5. The combination in a cane-loader of a platform mounted on wheels, a derrick on said platform, pivotal connections of said platform and wheel-support upon which said platform may be tilted transversely, rock-shafts upon said platform, arm on said rock-shafts, connections of said arms and wheel-axle and a lever mechanism whereby said shafts are rotated in unison.



6. The combination in a cane-loader, of a platform having its forward and rear ends supported upon wheels, a derrick on said platform, pivotal connections of the forward end of said platform and its axle-support whereby a transverse tilting of the platform is permitted, and means by which this tilting is effected, brace-rods secured to the forward axle, pivotal connections of said rods and the platform, and a break-beam slidable upon said rods.

7. A cane-loader consisting in combination of a platform having its forward and rear ends mounted on wheels, a mast secured to the forward end of said platform and rearward of the front axle, a sleeve upon said mast, a ring turnable about said sleeve, a boom having its inner end pivotally connected to said ring, a lever mechanism by which said ring is rotated, pivotal connections of said platform and the forward axle whereby a transverse tilting of the platform is permitted, means including rock-shafts upon the platform whereby this tilting movement is regulated, brace-rods having one end secured to the axle, and their other end pivotally attached to the platform, and a brake-beam slidable upon said rods, said beam remaining constantly in the same plane with the axle irrespective of the tilt of the platform.

694,549. ROLLER SIDE BEARING. CHARLES F. HUFFCUT, Chicago, Ill., assignor to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 14, 1901. Serial No. 78,632. (No model.)



Claim.—1. In a side bearing for cars, the combination with a box-shaped base, of spindles loosely journaled therein, and rollers loosely mounted on said spindles, said rollers protruding through the top of the box; substantially as described.

2. In a side bearing for cars, the combination with a box-shaped housing, of a plurality of spindles loosely journaled therein, said spindles being radial to the king-pin of the truck, and a plurality of independently-

movable rollers mounted on each of said spindles, said rollers protruding through openings in the cover of the box-shaped housing; substantially as described.

3. In a side bearing for cars, the combination with a box-shaped housing formed with blind bearings, of spindles loosely journaled in said bearings, and rollers on said spindles which protrude through openings in the cover of the box-shaped housing; substantially as described.

4. In a side bearing for cars, the combination with a box-shaped housing, of a plurality of spindles arranged therein, and supported at each end by bearings formed in the side walls of the box-shaped housing, a partition-wall for supporting the middle portions of said spindles, and rollers mounted on said spindles on each side of said central partition; substantially as described.

5. In a side bearing for cars, the combination with a box-shaped housing having blind bearings in its side walls, a central partition also forming a bearing for the centers of the spindles, spindles loosely mounted in said bearings, and rollers on each side of the central partition, said rollers being loosely mounted on the spindles and independently rotatable; substantially as described.

6. A side bearing for cars, the combination with a box-shaped housing, a loosely-journaled spindle, a bushing loosely mounted on said spindle and a roller fixed to and carried by said bushing; substantially as described.

7. A side bearing for cars, the combination with a box-shaped housing formed with openings in its end walls, and the bottom wall of said housing being downwardly inclined each side of a central line, and an antifriction device mounted in said housing; substantially as described.

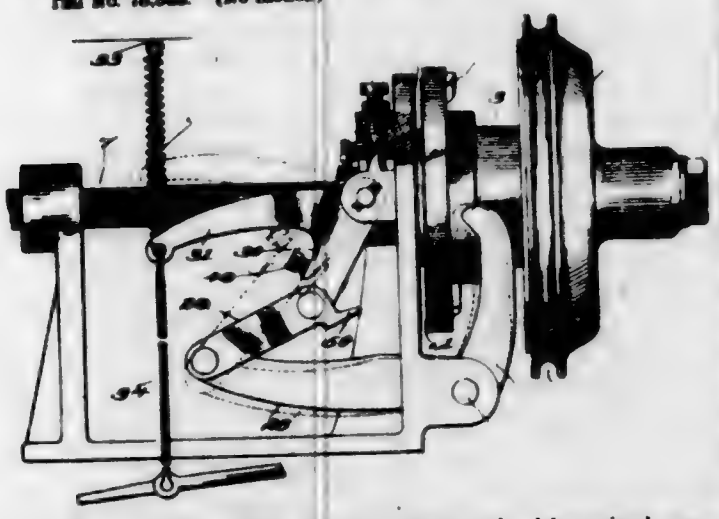
8. A side bearing for cars, the combination with a box-shaped housing formed with partition-walls, and the bottom wall of said housing being downwardly and oppositely inclined, means for admitting a circulation of air over said oppositely-inclined bottom wall, and an antifriction device carried by said housing; substantially as described.

9. A side bearing for cars, the combination with a box-shaped housing, of spindles journaled therein, rollers on said spindles, and a cover-plate provided with openings through which said rollers protrude, said cover-plate also having lugs which are arranged above the spindles to hold the same against vertical movement, said lugs also serving to lock the cover-plate against lateral movement; substantially as described.

10. In a side bearing for cars, the combination with a box-shaped housing provided with recesses forming bearings, the walls of said housing being thickened in the vicinity of said recesses, spindles loosely journaled in said recesses, and a plurality of rollers mounted on each of said spindles; substantially as described.

11. In a side bearing for cars, the combination with a box-shaped housing provided with recesses in its side walls forming bearings, a partition-wall also recessed in alinement with said first-mentioned recesses, and forming a middle bearing in the housing, spindles loosely mounted in said bearings, rollers arranged upon said spindles, a cover formed with openings through which said rollers protrude, and lugs on the cover fitting into the recesses above the spindles; substantially as described.

694,550. CLUTCH. HARRY I. ILLINGWORTH, Lynn, Mass., assignor to Charles E. Riley, Newton, Mass. Filed Aug. 26, 1901. Serial No. 73,332. (No model.)



Claim.—1. In a clutch, a shaft, a driving and a driven clutch member mounted thereon, both of said clutch members being capable of having a movement independent of the shaft, means to bring said clutch members into engagement, a friction-brake for the driven clutch member, and means to disengage said clutch members and apply said friction-brake to the driven clutch member to stop the rotation of said driven clutch member in a substantially predetermined angular position.

2. In a clutch, a shaft, a driving and driven clutch member mounted thereon, means to bring said clutch members into engagement, a friction-brake adapted to coöperate with the driven clutch member, means tending normally to disengage the clutch members, said means operating to apply the friction-brake and stop the rotation of the driven clutch member in a substantially predetermined angular position, and manually-operated means to render said clutch-disengaging means inactive.

3. In a clutch, a driving and a driven clutch member, means inclosed within the clutch and tending normally to maintain said clutch members in engagement, a friction-brake adapted to coöperate with the driven clutch member, means to automatically disengage the clutch members, said means also operating to apply the friction-brake and stop the rotation of the driven clutch member in a substantially predetermined angular position.

4. In a clutch, a driving and a driven clutch member, means inclosed within the clutch and tending normally to maintain said clutch members in engagement, a friction-brake adapted to coöperate with the driven clutch member, means to automatically disengage the clutch members, said means also operating to apply the friction-brake and stop the rotation of the driven clutch member in a substantially predetermined angular position, and manually-operated means to render said automatic clutch-disengaging means inactive.

5. In a clutch, a driving and a driven clutch member, means to bring said clutch members into engagement, said driven clutch member having a cam projection and a friction-brake surface, a coöperating fixed friction-brake surface, and an abutment adapted to be moved into the path of the cam projection, whereby the driven clutch member is disengaged from the driving clutch member, and the brake-surfaces are brought together to stop the rotation of the said driven clutch member in a substantially predetermined angular position.

6. In a clutch, a driving and a driven clutch member, means tending normally to maintain said clutch members in engagement, said driven clutch member having a cam projection and a friction-brake surface, a coöperating fixed friction-brake surface, a movable abutment, means tending normally to maintain said abutment in the path of the cam projection, and manually-operated means to move said abutment out of the path of said cam projection, the construction being such that when the manually-operated means is inactive, the abutment is automatically made to engage said cam projection and thereby bring the brake-surfaces into contact to stop the rotation of the driven clutch member in a substantially predetermined angular position.

7. In a clutch, a shaft having a driving clutch member mounted for rotation thereon but held against longitudinal movement, a sleeve or thimble also mounted on said shaft, a driven clutch member mounted on the sleeve to rotate therewith but adapted to have a movement longitudinally thereof, springs between said sleeve and driven clutch member and tending normally to maintain the clutch members in engagement, combined with a manually-controlled means to disengage said clutch members.

8. In a clutch, a shaft having a driving clutch member loosely mounted thereon, a sleeve or thimble also mounted on said shaft, a driven clutch member mounted on the sleeve to rotate therewith but adapted to have a longitudinal movement thereon, springs between said sleeve and driven clutch member and tending normally to maintain the clutch members in engagement, a friction-brake surface on the driven clutch member, a coöperating fixed friction-brake surface, and manually-controlled means to move the driven clutch member longitudinally to disengage the clutch members and to bring the brake-surfaces into engagement to stop the driven clutch member in a predetermined angular position.

9. In a clutch, a driving clutch member and a driven clutch member, one of said clutch members having an annular friction-surface and the other of said clutch members having a coöperating friction-surface, means tending normally to throw said members into engagement, and mechanism including a knuckle-joint to disengage said members.

10. In a clutch, a driving and a driven member, means tending normally to maintain said members in engagement, an abutment, and means to move said abutment into its operative position in engagement with the driven clutch member to disengage said clutch members, said means including a knuckle-joint, the construction being such that when the abutment is in its operative position the knuckle-joint is straightened thereby locking the abutment in such position.

11. In a clutch, a driving and a driven clutch member, means to bring said clutch members into engagement, said driven clutch member having a cam projection and a friction-brake surface, a coöperating fixed friction-brake surface, a movable abutment, automatic mechanism including a knuckle-joint to move said abutment into its operative position in the path of the cam projection, the knuckle-joint being straightened when the abutment is in its operative position, thereby locking the latter in such position, and the abutment when engaged by the cam projection operating to force the friction-brake surfaces together to stop the rotation of the driven clutch member in a predetermined angular position.

12. In a clutch, a driving clutch member and a driven clutch mem-

ber, one of said members having an annular clutch-surface, and the other of said members having a coöperating clutch-surface, a friction-brake adapted to coöperate with the driven clutch member, means to apply the brake and stop the rotation of said driven clutch member at a substantially predetermined point, said means including a knuckle-joint.

13. In a clutch, a driving clutch member and a driven clutch member, said members having coöperating conical friction-surfaces, a friction-brake adapted to coöperate with the driven clutch member, means to apply the brake and stop the rotation of said driven clutch member at a substantially predetermined point, said means including a knuckle-joint.

14. In a clutch, a driving clutch member and a driven clutch member, said members having coöperating friction-clutch surfaces, one of said members having a movement longitudinally of the shaft, a friction-brake adapted to coöperate with the driven clutch member, means to apply the brake and stop the rotation of said driven clutch member at a substantially predetermined point, said means including a knuckle-joint.

15. In a clutch, a driving clutch member, and a coöperating driven clutch member, one of said members having an annular friction-clutch surface, and the other of said members having a coöperating friction-clutch surface, means to bring said clutch-surfaces into engagement, clutch-disengaging means comprising a knuckle-joint, means tending normally to straighten said knuckle-joint, and manually-operated means to break said joint, the construction being such that when the knuckle-joint is straightened, the clutch-disengaging means is rendered active, and when the knuckle-joint is broken the clutch-disengaging means is inactive.

16. In a clutch, a driving clutch member having an annular friction-surface, and a driven clutch member having a coöperating friction-surface, means tending normally to throw said clutch members into engagement, a friction-brake, and means to disengage said clutch members and apply the brake, said means comprising a knuckle-joint, means tending normally to straighten said knuckle-joint, and manually-operated means to break the same, the construction being such that when the knuckle-joint is straightened, the means for disengaging the clutch members and applying the brake is rendered active, and when the knuckle-joint is broken, said means is rendered inactive.

17. In a clutch, a driving clutch member and a driven clutch member, said driven clutch member having a friction-brake surface, a coöperating friction-brake surface, and positive mechanism for disengaging said clutch members when said clutch members reach a predetermined angular position, said positive mechanism also operating to bring the friction-brake surfaces into contact with sufficient force to cause the driven clutch member to come to rest substantially in a predetermined angular position, said positive mechanism being operated independently of the rotation of the clutch.

18. In a clutch, a driving clutch member and a driven clutch member, means to disengage said clutch members, a friction-brake independent from said clutch-disengaging means, and a positive stop for the driven clutch member.

19. In a clutch, a driving clutch member and a driven clutch member, means to disengage said clutch members, and means to bring the driven clutch member to rest in a predetermined angular position, said means including a friction-brake and a positive stop.

20. In a clutch, a driving clutch member and a driven clutch member, a friction-brake coöperating with the driven clutch member, means to disengage the said clutch members, said means operating to apply the friction-brake subsequently to the disengagement of the clutch members, and a positive stop for the driven clutch member.

21. In a clutch, a shaft, a driving clutch member mounted thereon and having an annular friction-clutch surface, a driven clutch member also mounted on said shaft and having a coöperating friction-clutch surface, means to bring said clutch-surfaces into engagement, a friction-brake for the driven clutch member, and means to disengage said clutch-surfaces and apply said friction-brake to the driven clutch member, to stop the rotation of said driven clutch member in a substantially predetermined angular position.

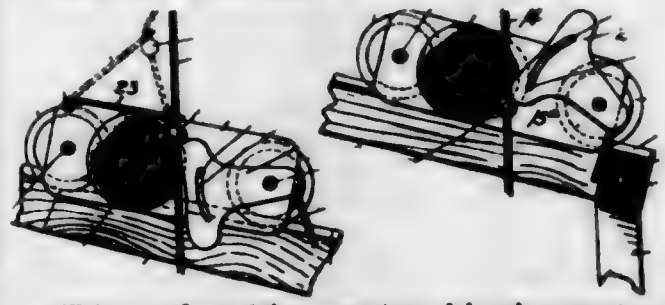
22. In a clutch, a shaft, a driving and a driven clutch member mounted thereon and each having a movement independent of the shaft, means tending normally to throw said members into engagement, and mechanism including a knuckle-joint to disengage said members.

23. In a clutch, a shaft, a driving and a driven clutch member mounted thereon, said driving clutch member having a rotary movement independent of the shaft, and the driven clutch member having a movement longitudinally of the shaft, a friction-brake adapted to coöperate with the driven clutch member, means to apply the brake and stop the rotation of the driven clutch member at a substantially predetermined point, said means including a knuckle-joint.

24. In a clutch, a shaft, a driving and a driven clutch member mounted thereon, said driving clutch member being loosely mounted on the shaft, and the driven clutch member having a movement longitudinally of the shaft, means to bring said clutch members into engagement, and clutch-disengaging means comprising a knuckle-joint, means tending to straighten said knuckle-joint, and manually-operated means to break said joint, the construction being such that when the knuckle-joint is straightened, the clutch-disengaging means is rendered active, and when the knuckle-joint is broken said clutch-disengaging means are inactive.

25. In a clutch, a shaft, a driving and a driven clutch member mounted thereon, each of said members having a movement independent of the shaft, means tending normally to throw said clutch members into engagement, a friction-brake, and means to disengage said clutch members and apply the brake, said means comprising a knuckle-joint, means tending normally to straighten said knuckle-joint, and manually-operated means to break the same, the construction being such that when the knuckle-joint is straightened, the means for disengaging the clutch members and applying the brake is rendered active, and when the knuckle-joint is broken, said means is rendered inactive.

694,551. TRAMWAY FOR HOISTING AND DUMPING APPARATUS. GEORGE D. JOHNSTON, Denver, Colo. Filed June 10, 1901. Serial No. 64,089. (No model.)



Claim.—1. In a hoisting, conveying and dumping apparatus, an inclined raised track having a depressed portion, in combination with a carrier having wheels at one end adapted to rest in said depressed portion and raise wheels on the opposite end of said carrier from said track, a receptacle depending from a rope, and means connected with said rope and carrier for suspending said receptacle from said carrier so as to tilt and start the latter, substantially as described.

2. In a hoisting, conveying and dumping apparatus, an inclined track with a depression at its upper end, a tilting carrier having wheels adapted to rest in said depression, a lifting-rope passing over a pulley on said carrier and carrying a load-receptacle at its lower end, a pivoted clutch on said carrier, and a ball on said rope adapted to engage said pulley and clutch, said parts being combined substantially as described.

3. In a hoisting, conveying and dumping apparatus, an inclined track, a carrier thereon, a lifting-rope passing over a pulley on said carrier and having a load-receptacle at its lower end, a dumping device in the path of said carrier adapted to engage a depending projection on said receptacle, locking means including a pivoted clutch for engaging a ball on said rope for sustaining said receptacle in elevated position during the transit of said carrier, and a stop for engaging said clutch for releasing the same and thereby permit the lowering of said rope so as to in connection with said dumping device dump said receptacle, said parts being combined substantially as described.

694,552. GAS-ENGINE. HUGO JUNKERS, Aix-la-Chapelle, Germany. Filed June 7, 1901. Serial No. 63,632. (No model.)



Claim.—1. A gas-engine, comprising a crank-shaft, two power-cylinders arranged in tandem on the same side of said shaft, two reciprocally-moving pistons in each of said cylinders, said pistons rigidly connected in pairs, and means for connecting each pair of pistons with the crank-shaft, substantially as set forth.

2. A gas-engine, comprising a crank-shaft, two power-cylinders arranged in tandem on the same side of said shaft, two reciprocally-moving pistons in each cylinder, the first and third pistons and the second and fourth pistons rigidly connected in pairs, and means for connecting each pair of pistons with the crank-shaft, substantially as set forth.

694,558. PLOW. GEORGE A. KELLY, Longview, Tex., assignor to the George A Kelly Plow Company, Longview, Tex. Filed June 29, 1901. Serial No. 66,532. (No model.)



Claim.—1. In a plow, the combination with a beam comprising spaced bars, of a standard secured to the beam intermediate the ends thereof, a brace fastened at its front end to the standard and having its rear end secured to the beam-bars contiguous to their rear ends, the terminals of said bars in rear of the brace being upturned, and handles attached to said upturned ends.

2. In a plow, the combination with a beam comprising spaced bars having upturned portions at their rear ends, of a standard secured to an intermediate part of the beam in front of the upturned portion and comprising spaced arms which embrace said beam, a rearwardly-extending brace secured at its lower end between the arms of the standard and at its upper end contiguous to their upturned portions and in rear of the standards, and handles secured to said upturned portions.

3. In a plow, the beam comprising spaced bars, in combination with a block located between the bars and constituting a spacing-block therefor, and a standard having its upper end embracing the bars and engaged with one face of the block.

4. In a plow, the combination with a beam comprising spaced bars, of an adjusting-block located between the bars, and a standard having an adjustable engagement with the block and movable longitudinally of the beam.

5. In a plow, the combination with a beam comprising spaced bars, of an adjusting-block located between the bars and provided with a plurality of shoulders, and a standard connected to a beam and having means arranged to detachably engage said shoulders.

6. In a plow, the combination with a beam comprising spaced bars, of an adjusting-block located between the bars and provided with a plurality of shoulders projecting above the upper edges of said bars, and a standard connected to the beam and having means arranged to detachably engage said shoulders.

7. In a plow, the combination with a beam comprising spaced bars, of an adjusting-block located between the bars and having outstanding ribs that engage over the upper edges of the same, said block being also provided with a plurality of shoulders, located above the upper edges of the beam-bars, a standard connected to the beam, and a bolt passing through said standard and having a detachable engagement with one of the shoulders of the block.

8. In a plow, the combination with a beam comprising spaced bars, of a standard having a forked head the arms of which embrace the beam, means for securing the standard and beam together, and a block located between the beam-arms at the point of engagement of the standard therewith.

9. In a plow, the combination with a beam comprising spaced bars, of a standard having a forked head the arms of which embrace the beam, means for securing the standard and beam together, and a block located between the beam-arms at the point of engagement of the standards therewith, said block having a plurality of shoulders, and means carried by the standard and detachably engaging certain of the shoulders.

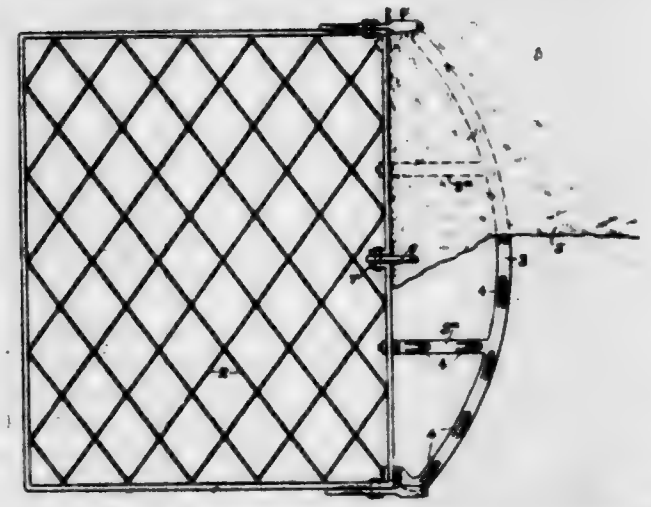
10. In a plow, the combination with a beam comprising spaced bars, of a standard attached to the beam and having its upper end embracing the spaced bars, said standard engaging the upper and lower edges of the bars, and a brace secured to the standard at one end and having its other end fastened between the bars and constituting a spacing device for said bars.

11. In a plow, the combination with a beam comprising spaced bars, of a brace secured to the bars, a standard pivotally attached to the brace and having its upper end embracing and adjustable upon the beam-bars, and a block secured between the beam-bars, said standard having an adjustable connection with the block.

12. In a plow, the combination with a standard, of a beam comprising spaced bars secured to the standard and extending beyond the rear of the same, said rearwardly-extending portion having offset terminals, handles secured to the offset terminals, and a brace connected to the standard and fastened between the rearwardly-extending portions of the beam-bars contiguous to the offset terminals.

13. In a plow, the combination with a beam comprising spaced bars having upturned rear ends, of a clevis located between the front ends of the bars, said bars being secured to the opposite side faces of the clevis, spacing-blocks located between the bars intermediate their ends, a standard attached to the beam, and handles secured to the upturned ends of the bars.

694,554. DOOR-MAT. CHARLES KUHN, Fruitvale, Cal. Filed Oct. 17, 1901. Serial No. 78,963. (No model.)



Claim.—1. A mat comprising a main frame and an intermediate grill of lattice-work with upturned edges, an extension beyond one end of the outer limits of the main frame and disposed in line with the bottom of said main frame, a fibrous flexible mat having one edge presented toward an outer vertical wall of the main frame and overlying said extension, and means for securing the fibrous mat to said main frame.

2. The combination of a main frame having a grill of lattice-work filling the space between its inner walls, a fibrous mat adapted to abut edgewise against an outer wall of the main frame, a bottom extension beyond the outer wall of one side of the main frame, and projecting beneath a contiguous portion of the mat, and latches on the main frame and projecting beyond the outer walls thereof, and engaging said mat.

3. The combination in a mat of a rigid frame with a filling of iron lattice having upturned edges, a flat extension of the bottom from one side of the frame having upturned points, a fibrous and flexible mat having a portion adapted to rest upon said extension and engage with the upturned points, and means carried by the frame to lock the mat thereto.

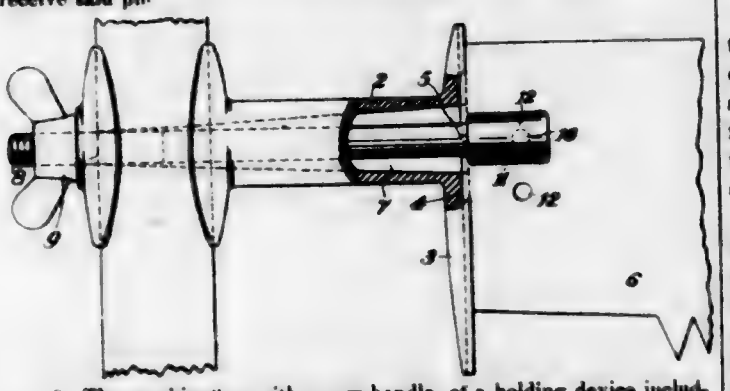
4. A mat consisting of a rigid frame having an interior lattice of metal with upturned edges, and a flattened extension of the bottom from one side having upturned points, a fibrous mat having a portion adapted to rest upon said extension and be engaged by said points and a plurality of latches pivotally secured between their ends and carried by the main frame, said latches being adapted to engage and lock the mat to the frame.

5. A mat consisting of a rigid frame having an interior filling of iron lattice with upturned edges, a flat extension exterior to one side of said frame having upturned points, a fibrous mat adapted to rest upon said extension and engage the points, levers pivoted to the rigid frame having downwardly-turned points upon the front end, the rear ends of said levers extending to contact with the floor and force the points into engagement with the upper surface of the mat.

694,555. DETACHABLE HANDLE FOR SAWS. EDWARD L. LAHERTY, Verdi, Nev., assignor of nine-twentieths to John F. Condon, Verdi, Nev. Filed Dec. 10, 1901. Serial No. 85,359. (No model.)

Claim.—1. In a handle and holder for saws, a socket-piece having one end fixed directly to and projecting from the handle said piece having formed integral with its opposite end a channeled plate and said plate

and piece having a hole through them essentially oval in shape, a split bolt passing through said hole and having one end threaded, and a nut upon said threaded end, one of the members of the bolt having a pin to pass through a hole in the saw-blade and the other member having a hole to receive said pin



2. The combination with a saw-handle, of a holding device including a socket-piece fixed to the handle said socket-piece having a hole through it essentially oval in cross-section, a split bolt forming jaws to grasp the saw-blade said bolt passing through said hole and capable of being axially turned to present the members of the bolt to each of the diameters of said hole whereby the members of the bolt are permitted to expand or separate when brought into line with the long diameter of the hole and are closed upon the saw-blade when brought into line with the smaller diameter of the hole, and means for securing the bolt to the handle.

3. The combination with the handle of a saw, of a socket-piece projecting therefrom having a plate upon its outer end, with a groove or channel adapted to receive the end of the saw-blade, an oval hole made through the socket, a split bolt passing through said hole having a pin in one half and a coincident hole in the other, said halves being adapted to separate when turned to the line of the longer diameter of the hole and closable when turned to the shorter diameter whereby the saw is locked in place.

4. The combination with a saw-handle of a socket-piece fixed thereto having an oval hole made through it transversely to the handle, and a grooved plate at the front end adapted to receive the end of the saw-blade, a split bolt, the front end of which is separable when in line with the longer diameter of the hole, a pin in one of the halves adapted to pass through a hole in the saw-blade, and a coincident hole in the other half, the sides of said pin being closed together by turning into the plane of the shorter diameter of the hole, screw-threads upon the rear end of the bolt and a nut by which the bolt is drawn back to lock the edge of the saw-blade in the groove.

694,556. **PANTS OR OVERALLS.** HOWARD S. LASIER, Danville, Va. Filed Aug. 13, 1901. Serial No. 71,953. (No model.)

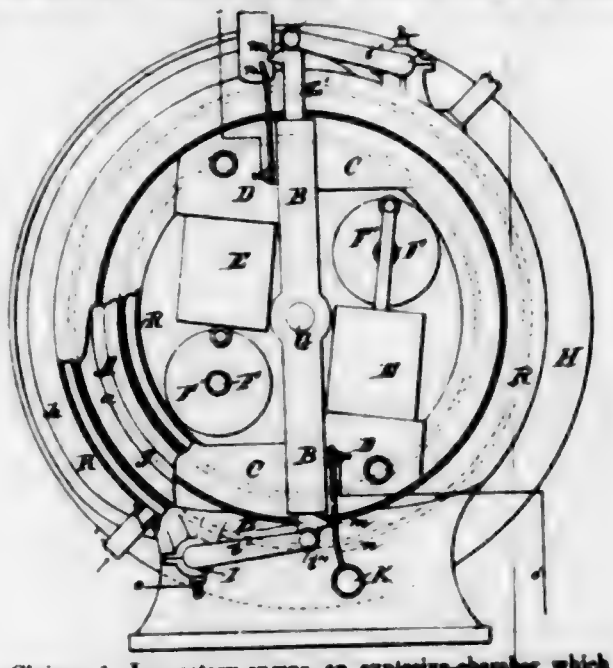


Claim.—1. A pair of pants or overalls, having the lower portion of each leg turned up on the outside, to form a hem, and provided with a cuff for each leg, each cuff having a hem turned up on the inner side and united to the hem of the leg by a blind seam, the upper edge of each cuff being stitched to the leg, whereby the bottom portions of the legs are made perfectly smooth inside and said blind seam is protected from wear and from moisture, substantially as described.

2. A pair of pants or overalls, having the lower portion of each leg turned up on the outside to form a hem, and provided with a cuff, the said cuff having its lower edge turned up on the inner side and connected to said hem by a blind seam, the upper and lower portions of said cuff being further united to the leg by rows of stitching, whereby the lower portions of said legs are made perfectly smooth on the inside and said blind seam is protected from wear and from moisture, substantially as described.

3. A pair of pants or overalls, having the lower portion of each leg turned up on the outside to form a hem, and provided with a cuff, the said cuff having its lower edge turned up on the inner side and united to said hem by a blind seam, said cuff being of greater depth at the front and rear portions of the leg than at the sides and having its upper edge turned down on the inside, said cuff being further united to said leg by rows of stitching adjacent to its lower and upper edges, whereby the legs are made perfectly smooth on the inside and whereby the said blind seam is protected from wear and from moisture, substantially as described.

694,557. **ROTARY EXPLOSIVE-ENGINE.** CHARLES F. LESHER, Valparaiso, Ind. Filed Jan. 28, 1901. Serial No. 44,906. (No model.)



Claim.—1. In a rotary engine, an explosive-chamber which communicates with a cylinder, a piston in said cylinder, a wheel to which the piston is directly connected, an abutment having a solid portion which intersects the cylinder and explosion-chamber, a port through the abutment which establishes communication between the explosion-chamber and the cylinder and means for actuating the abutment, substantially as shown.

2. In a rotary engine, the combination of an annular piston-passage, a piston operating therein, a balance-wheel to which the piston is connected, ways which intersect the piston-passage, abutments operating in the ways, explosion-chambers intersected by the way for the abutments, the abutments each having a solid portion and adjacent thereto a port and means for alternately reciprocating the abutments so that when the solid portions thereof intersect the piston-passage the port will establish communication between the explosion-chamber and the piston-passage, substantially as shown.

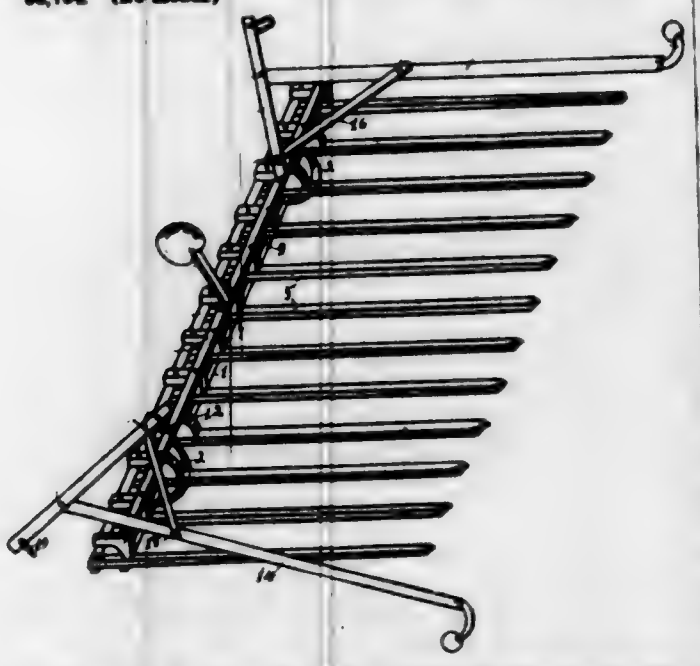
3. In a rotary gas-engine, the combination of a circular cylinder having through one side a continuous opening or slot, a wheel having a flange which closes the slot, a piston-head attached to the wheel, reciprocating abutments which intersect the piston-passage, explosion-chambers which communicate with the piston-passage and are intersected by the abutments, pumps for forcing the explosive mixture into the explosion-chamber, the abutments having ports which are positioned in line with the explosion-chambers when the ends of said abutments intersect the piston-passage, and means for igniting the explosive mixture when the ports of the abutments are on a line with the explosive-chambers, substantially as shown and for the purpose set forth.

4. In a gas or explosive engine, the combination with a circular cylinder, of a wheel to which a piston-head is connected, said piston-head operating in the cylinder, the wheel having a groove or recess which is partly concentric and partially eccentric to its periphery, abutments connected to rock-shafts having arms which engage the groove and actuate the abutments, the abutments having solid portions and ports, valved inlet-openings for the explosive mixture, pumps actuated to draw the ex-

plosive mixture into the same and force it into an explosion-chamber, the explosion-chamber communicating with the cylinder when the abutments intersect said cylinder, and an igniting device in the explosion-chamber, substantially as shown and for the purpose set forth.

5. In a rotary gas or explosive engine, the combination of an annular piston-passage a continuous slot or opening communicating therewith, a balance-wheel having a flange for closing the slot and a piston carried by said wheel which moves in the piston-passage, ways for reciprocating abutments which extend from one side of the piston-passage to the other side, explosion-chambers communicating with the piston-passage said chambers being intersected by the abutments, pumps for forcing an explosive mixture into the explosive-chambers, reciprocating abutments having solid portions which intersect the piston-passage and ports through the abutments for establishing communication between the explosion-chamber and the piston-passage, igniters within the explosion-chambers, means for actuating the abutments and means connected to the abutments for operating the igniters and exploding the charge when the port of the abutment is opposite the explosion-chamber, substantially as set forth.

694,558. HAY-RAKE. Winfield S. Livengood, Kansas City, Mo., assignor to the Smith & Sons Manufacturing Company, Kansas City, Mo., a Corporation of Missouri. Filed July 1, 1901. Serial No. 66,764. (No model.)



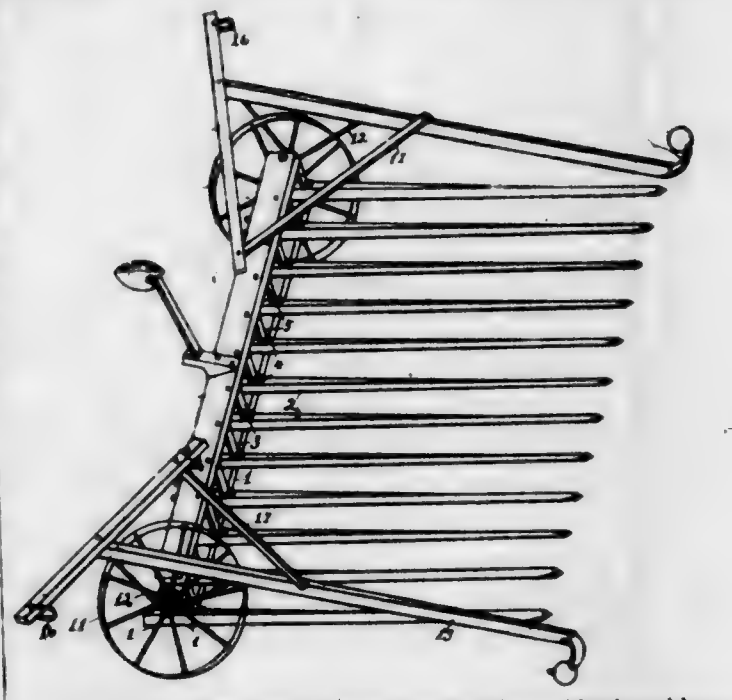
Claim.—1. In a hay-rake of the character described, the combination with the rake-frame of draft-bars flexibly connected with said frame at a distance from its ends, draft-poles flexibly connected with said frame near its ends, and secured to said draft-bars intermediate their ends, and brace-bars connected with said draft-bars near their inner ends and with said draft-poles in advance of the connecting-point of said poles upon the frame; substantially as set forth.

2. In a hay-rake of the character described, the combination with the rake-frame, of draft-bars, flexible connection between said draft-bars and said frame at a distance from its ends, draft-poles secured to said draft-bars intermediate their ends and extending a distance rearwardly with relation to the rake-frame, flexible connection between said poles and said frame near its ends and braces connected with said draft-bars near their inner ends and with said draft-poles in advance of the connecting-point thereof upon the rake-frame, and whereby rigidity of said poles against lateral strains is secured; substantially as set forth.

694,559. HAY-RAKE. Winfield S. Livengood, Kansas City, Mo., assignor to Smith & Sons Manufacturing Company, Kansas City, Mo., a Corporation of Missouri. Filed July 1, 1901. Serial No. 66,765. (No model.)

Claim.—1. In a hay-rake of the character described, the combination with the rake-frame, of axles mounted in said frame, carrying-wheels mounted upon said axles, brackets mounted upon said axles beyond the wheel-hubs, draft-poles mounted upon said brackets and extending a distance to the rear of the frame, draft-bars flexibly connected at their inner ends with the frame at a distance from the ends thereof and secured intermediate their ends to the rear ends of said draft-poles, and brace-bars secured to said draft-bars near their inner ends and to said draft-poles in advance of said supporting-brackets; substantially as set forth.

2. In a hay-rake of the character described, the combination with the rake frame and teeth, of axles mounted in said frame, carrying-wheels mounted upon said axles, brackets mounted upon said axles, draft-poles mounted upon said brackets, draft-bars flexibly connected with said rake-frame and secured to said draft-poles, and brace-bars connected with said draft-bars and with said draft-poles, substantially as and for the purpose set forth.

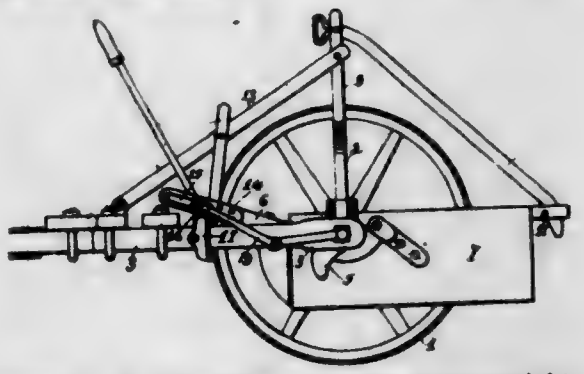


3. In a hay-rake of the character described, the combination with the rake frame and teeth, of axles mounted in said frame above the horizontal plane of the rake-teeth, carrying-wheels mounted upon said axles, brackets mounted thereon, draft-poles mounted upon said brackets, draft-bars having their inner ends flexibly secured to said frame and connected intermediate their ends with the rear ends of said draft-poles, and brace-bars secured to said draft-bars near their inner ends and to said draft-poles in advance of said brackets, and neck-yokes on said draft-poles; substantially as set forth.

4. In a hay-rake of the character described, a frame formed by the combination of stringers extending the length of the rake, rake-teeth mounted at their rear ends upon said stringers, brackets consisting of feet 4, supporting members 5 and 6 and a cap 7 connecting said supporting members, and having their feet mounted upon said teeth directly over said stringers, and a cap-plate mounted upon said brackets; substantially as set forth.

5. In a hay-rake of the character described, the combination of the stringers extending the width of the rake, rake-teeth mounted at their rear ends upon said stringers, brackets mounted upon said teeth at the rear ends thereof, a cap-plate mounted upon said brackets, short axles mounted in the end brackets, and the carrying-wheels and draft appliances mounted upon said axles; substantially as set forth.

694,560. WHEELED SCRAPER. Winfield S. Livengood, Kansas City, Mo., assignor to Smith & Sons Manufacturing Company, Kansas City, Mo., a Corporation of Missouri. Filed July 1, 1901. Serial No. 66,767. (No model.)



Claim.—1. In a wheeled scraper having its pan carried by a bail suspended from the axle, a brake-rod carried by said bail, and provided with brake-blocks arranged to engage and lock said bail upon the wheels, whereby as the wheels move forward said pan will be raised to carry the load; substantially as set forth.

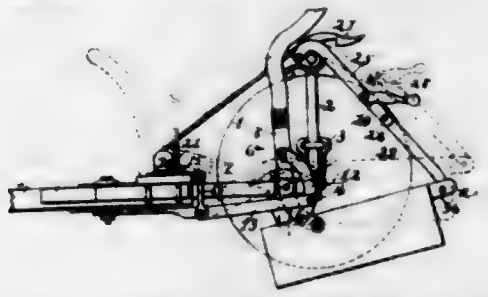
2. In a wheeled scraper having its pan carried by a bail suspended from the axle, and provided with a brace-bar supporting the rear of the pan, extensions mounted upon said bail, a brake-rod mounted in said extensions, brake-blocks mounted upon said rod, and arranged to engage said wheels, a hand-lever upon said rod for operating said brakes, and links connecting said brake-rod with the axle; substantially as set forth.

3. In a wheeled scraper the combination with the truck comprising the wheels and axle, the draft-bars connected with the axle, the platform mounted upon said draft-bars, the standards mounted upon the axle, and the forward brace-bars connected with said standards and with said platform, of a scraper-pan, a bail suspended from the axle upon which said pan is carried, a brace-bar pivotally connected with said standards and arranged to support the rear of said pan, slotted extensions mounted upon said bail, a brake-rod mounted in said extensions, brake-blocks on said rods arranged to engage said wheels, links connected with said brake-rod and with the axle, a hand-lever mounted upon said brake-rod for operating the brakes, and a latch-lever mounted upon said forward brace-bars and arranged to engage said bail to retain said pan in elevated position; substantially as set forth.

4. In a wheeled scraper having suitable wheels and axle, the combination of a scraper-pan, a bail suspended from the axle and carrying said pan, a brake-rod carried by said bail, and provided with brake-blocks arranged to engage the wheels, and a hand-lever on said brake-rod for operating the same; substantially as set forth.

5. In a wheeled scraper having its pan carried by a bail suspended from the axle, a brake mechanism connected with said bail, and arranged to be applied upon the wheels, whereby the loaded pan is raised by the forward movement of the wheels; substantially as set forth.

694,561. **WHEELED SCRAPER.** WINFIELD S. LIVERGOOD, Kansas City, Mo., assignor to the Smith & Sons Manufacturing Company, Kansas City, Mo., a Corporation. Filed Sept. 7, 1901. Serial No. 74,687. (No model.)



Claim.—1. In a wheeled scraper having its pan carried by a bail suspended from the axle, the draft appliances connected with said bail, whereby the draft is applied with a leverage upon said bail to draw the pan into the soil in taking its load; substantially as set forth.

2. In a wheeled scraper having its pan carried by a bail suspended from the axle, yokes on said bail, and draft-bars connected with said yokes and with the doubletree; substantially as set forth.

3. In a wheeled scraper having its pan carried by a bail suspended from the axle, yokes having their ends mounted upon said bail upon opposite sides of the points of suspension, and draft-bars connected with said yokes to the rear of said points of suspension, and with the doubletree; substantially as set forth.

4. In a wheeled scraper having its pan carried by a bail suspended from the axle, yokes having their ends mounted upon said bail upon opposite sides of the point of suspension, and draft-bars connected with said yokes and with the doubletree, and arranged in such manner as to pass the point of suspension as the pan is raised and lowered; substantially as set forth.

5. In a wheeled scraper having its pan carried by a bail suspended from the axle, the combination substantially as described, of the push-bars connected with the axle and with the scraper-tongue, a platform mounted thereon, a draft-beam suspended by links from said platform, yokes mounted upon the bail, draft-bars connected with said yokes and with said draft-beam, a doubletree slidably mounted upon the scraper-tongue, and draft-rods connected with said draft-beam and with said doubletree.

6. In a wheeled scraper, the combination of an arched axle upon which the wheels are mounted, hanger-blocks mounted upon the axle, arms on said blocks provided with inwardly-arranged pockets, push-bars mounted upon said arms, a bail mounted in said pockets, and a scraper-pan carried by said bail, and draft appliances connected with said bail; substantially as set forth.

7. In a wheeled scraper, the combination with an arched axle upon which the wheels are mounted, hanger-blocks mounted upon said axle, arms on said blocks, and pockets on said arms formed by an inwardly-extending portion provided with an upturned flange; substantially as set forth.

8. In a wheeled scraper having its pan carried by a bail suspended from the axle, a folding stay-bar pivotally connected at one end with the rear of the pan and at the other end with the axle, and a lock on said bar to prevent folding when the pan is down; substantially as set forth.

9. In a wheeled scraper having its pan carried by a bail suspended from the axle, hinged bars pivotally connected respectively with the rear of the pan and with the axle, and arranged to fold together as the scraper is turned up into traveling position, an extension on one of said bars, and a stirrup on the other bar arranged to engage said extension and lock said bars against folding when the scraper is down; substantially as set forth.

10. In a wheeled scraper the combination with the wheels and axle, of hanger-blocks mounted upon said axle, a sleeve on said axle provided with a cap bearing against said block, and a lug on the outer end of said sleeve, a sleeve on said axle telescoping with said aforementioned sleeve and provided with a cap bearing against the wheel-hub, and a recess in said sleeve arranged to be engaged by said lug on the other sleeve; substantially as set forth.

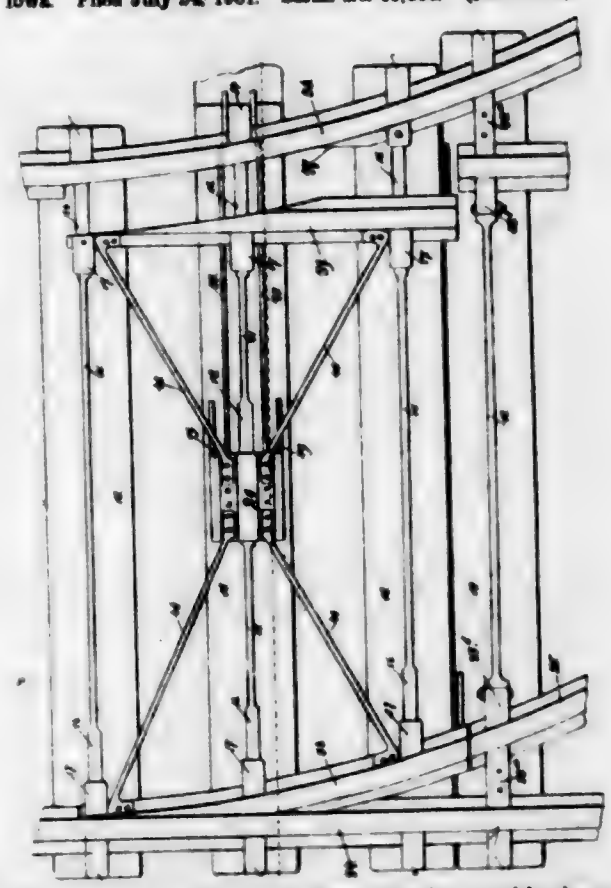
694,562. **DARNING-LAST.** ALBERT R. MACDONALD, San Francisco, Cal. Filed May 22, 1901. Serial No. 61,345. (No model.)



Claim.—1. A device for stretching and holding goods for repairs, consisting of a spheroidal form having a handle projecting from one side, said form having an equatorial groove made around it, and an elastic ring adapted to clamp the goods into said groove and stretch them over the outer end and having its ends overlapping and guided one on the other and provided with finger-pieces, said form having transverse grooves formed in its outer surface.

2. In a device of the character described, a spheroidal form having an equatorial groove, an elastic ring fitting said groove and adapted to clamp the goods, said form having crossed grooves made directly in one of its ends, and a handle extension of reduced diameter extending from the opposite end.

694,563. **RAILWAY-SWITCH.** HENRY K. J. MADSEN, Des Moines, Iowa. Filed July 24, 1901. Serial No. 69,601. (No model.)



Claim.—1. In an improved railway-switch, comprising in combination a number of metallic ties each having an upright longitudinal rib and flat platforms formed on the ribs, two switch-rails mounted upon the platforms and capable of movement longitudinally of the ties, means for con

necting the switch-rails with each other to move in unison, stationary track-rails fixed to the ties.

2. In an improved railway-switch, comprising in combination a number of metallic ties each having vertical longitudinal ribs, portions of the ribs being flattened and provided with outwardly-projecting edges to form platforms, two switch-rails mounted upon the platforms, blocks secured to the switch-rails and passed around and under the outwardly-projecting edges of the platforms to prevent movements of the switch-rails in any direction except longitudinally of the ties, means for connecting the switch-rails with each other to move in unison, and stationary track-rails fixed to the ties.

3. In an improved railway-switch, comprising in combination a number of metallic ties each having vertical longitudinal ribs, portions of the ribs being flattened and provided with outwardly-projecting edges to form platforms, two switch-rails mounted upon the platforms, blocks secured to the switch-rails and passed around and under the outwardly-projecting edges of the platforms to prevent movements of the switch-rails in any direction except longitudinally of the ties, a platform having outwardly-projecting edges formed on the central portion of the vertical rib of one of the ties, two or more ribs formed on said tie adjacent to the said platform and parallel therewith, and blocks mounted upon the said platform and ribs and capable of longitudinal movement only thereon, provided on its under surface with ribs to pass under the overlapping edges of the said platform, rods fixed to said block and connected with both switch-rails, means for sliding said block, and stationary track-rails fixed to the ties.

4. In an improved railway-switch the combination of a number of metallic ties having formed on, or fixed to a series of flat metal platforms, two switch-rails mounted upon the platforms and capable of movement longitudinally of the ties, one of the ties having integral extension on one end, and an upright on the extension, a switch-lever fulcrumed to the extension, a link pivoted to the switch-lever, means for connecting the switch-rails with each other and means for connecting said link with the switch-rails so that when the lever is operated the switch-rails will be moved longitudinally of the ties, and stationary track-rails fixed to the ties.

5. In an improved railway-switch the combination of a metallic tie having means thereon for supporting the stationary track-rails, and having platforms thereon for supporting the movable switch-rails, and an integral extension at one end of the tie, an upright on the extension having two internally-projecting perforated lugs, a lever fulcrumed to the upright and capable of being brought into position adjacent to the said perforated lugs on the upright, a bar slidingly mounted on the extension, and a link connected with the bar and with the switch-lever, substantially as and for the purposes stated.

6. In an improved railway-switch the combination of a series of metallic ties each having a vertical longitudinal rib 11, transverse ribs 12 at the end portions thereof, cushions 13 on the ribs 12, integral extensions 14 at the ends of the tie to engage the webs of the rails on top of the cushions whereby the stationary track-rails may be firmly supported without the use of devices adjacent to the inner surfaces of the rails, for the purposes stated.

694,564. RAILWAY-TRACK-LAYING MACHINE. HUGH MANN, Winnipeg, Canada. Filed Feb. 13, 1901. Serial No. 47,975. (No model.)

Claim.—1. A track-laying machine comprising a pilot-car, an inclined crane suitably supported at the front end and extending forwardly of the same over the road-bed, and endless carrier-chains extending from end to end of the crane and provided with carrier-fingers designed to convey the ties to the road-bed and the delivery-chute comprising the longitudinal boards secured to the end cross-piece of the crane and connected together at the lower end by a cross-piece and the side bracing-bars secured to the end of such cross-piece and to the end of the side bars of the crane as and for the purpose specified.

2. A track-laying machine comprising a pilot-car, an inclined crane suitably supported at the front end and extending forwardly of the same over the road-bed and endless carrier-chains extending from end to end of the crane and provided with carrier-fingers designed to convey the ties to the road-bed and the track-delivery platform located underneath the crane and supported at the inner end on the end of the pilot-car and means for supporting it at the outer end from the crane as and for the purpose specified.

3. A track-laying machine comprising a pilot-car, an inclined crane suitably supported at the front end and extending forwardly of the same over the road-bed, and endless carrier-chains extending from end to end of the crane and provided with carrier-fingers designed to convey the ties to the road-bed, a suitably-elevated frame on the pilot-car and carrier-chains on such frame for conveying the ties from the rear of the pilot-car to the carrier-chains of the crane and the rail-carrying rollers located in the center of the floor of the car and extending longitudinally on a line with each other, and the rail-delivery platform at the forward end of the car as and for the purpose specified.

4. The combination with the crane and elevated frame on the pilot-car and the carrier conveying-chain suitably driven, of the rail-delivery rollers located on the floor of the car beneath the carrier-chains and the delivery-platform located on a line with the same and extending over and connected to the end of the pilot-car as and for the purpose specified.



5. The combination with the pilot-car having the rail-delivery rollers suitably secured thereon in the center of the car, of the rail-delivery platform suitably secured to the end of the car on a line with the delivery-rollers and means for supporting the outer end thereof as and for the purpose specified.

6. In a track-laying machine, the combination with the pilot-car provided with uprights at one end secured at the bottom to the frame of the floor and the cross-bar spanning the top and provided with lower braces and upper converging bars or beams having a central bolt extending through the converging-point, of the crane supported at the inner end on the upright bars and suitably braced thereto and the endless carrier-chains passing over the side bars of the crane-frame and means for supporting the outer end of the crane from the pilot-car as and for the purpose specified.

7. In a track-laying machine, the combination with the pilot-car provided with uprights at one end secured at the bottom to the frame of the floor and the cross-bar spanning the top and provided with lower braces and upper converging bars or beams having a central bolt extending through the converging-point, of the crane supported at the inner end on the upright bars and suitably braced thereto and the endless carrier-chains passing over the side bars of the crane-frame, the supplemental cross-bar extending underneath the outer end of the crane, the hog-chains connected to the ends thereof and to the central bolt of the converging beams and the supplemental hog-chains connected to the bolt at the converging ends of the beams and to the rear ends of the pilot-car as and for the purpose specified.

8. In a track-laying machine, the combination with the pilot-car provided with uprights at one end secured at the bottom to the frame of the floor and the cross-bar spanning the top and provided with lower braces and upper converging bars or beams having a central bolt extending through the converging-point, of the crane supported at the inner end on the upright bars and suitably braced thereto and the endless carrier-chains passing over the side bars of the crane-frame, the supplemental cross-bar extending underneath the outer end of the crane, the hog-chains connected to the ends thereof and to the central bolt of the converging beams and the supplemental hog-chains connected to the bolt at the converging ends of the beams and to the rear ends of the pilot-car and the spreading-bars for separating the ends of the hog-chains as and for the purpose specified.

9. The combination with the elevated longitudinal bars and frames supporting the same on the pilot-car and the carrier-chains, of the delivery-crane extending forwardly of the pilot-car and supported on a suitable frame and suitably braced and a pivotal connection on such frame to the forward end of the pilot-car whereby a limited swing of the crane is provided for as and for the purpose specified.

10. The combination with the elevated longitudinal bars and frames supporting the same on the pilot-car and the carrier-chains, of the delivery-crane extending forwardly of the pilot-car and supported on a suitable frame and suitably braced, the uprights forming the end of the frame, the arc-shaped base-pieces to which such uprights are secured at the bottom, the segmental slots in which such arc-shaped pieces are supported and have movement and means for swinging the segmental pieces in their slots, so as to swing the crane as and for the purpose specified.

11. The combination with the elevated longitudinal bars and frames supporting the same on the pilot-car, and the carrier-chains, of the delivery-crane extending forwardly of the pilot-car and supported on a suitable frame and suitably braced, the uprights forming the end of the frame, the arc-shaped base-pieces to which such uprights are secured at the bottom, the segmental slots in which such arc-shaped pieces are supported and have movement, the toothed rack attached to or secured to one of the segmental pieces, the worm meshing therewith and having the spindles suitably journaled and means for imparting a rotary motion to the worm as and for the purpose specified.

12. The combination with the elevated longitudinal bars and frames supporting the same on the pilot-car, and the carrier-chains, of the delivery-crane extending forwardly of the pilot-car and supported on a suitable frame and suitably braced, the uprights forming the end of the frame, the arc-shaped base-pieces to which such uprights are secured at the bottom, the segmental slots in which such arc-shaped pieces are supported and have movement, the toothed rack attached to or secured to one of the segmental pieces, the worm meshing therewith and having the spindles suitably journaled, the stationary semicircular bracket secured to the stationary portion of the elevated frame and provided with friction-rollers, the band secured to the uprights forming the inner end of the crane and passing around and having a bearing on the rollers in the semicircular stationary track or frame and the clamping-levers suitably supported on the stationary portion of the frame and designed to have the end brought in contact with the semicircular bar as and for the purpose specified.

13. The combination with the crane and the elevated longitudinal bars and conveyer-chains of the pilot-car suitably supported and driven, of the rail-cars provided with the longitudinal elevated bars and conveyer-chains and suitable conveying means between the cars from the ends of one longitudinal set of bars to the end of the other longitudinal set of bars as and for the purpose specified.

14. The combination with the crane and the elevated longitudinal bars and conveyer-chains of the pilot-car suitably supported and driven, of the rail-cars provided with the longitudinal elevated bars and conveyer-chains and suitable conveying means between the cars from the ends of one longitudinal set of bars to the other longitudinal set of bars, the rearmost rail-car having the inclined longitudinal bars and conveying-chains, and conveying means for feeding the ties from the tie-car onto the inclined conveying-chains as and for the purpose specified.

15. The combination with the longitudinal bars and the conveying-chains suitably elevated and supported and the end sprocket-wheels and spindles thereof and means for driving the same, of the single sprocket-wheel secured on the center of the end spindles and the carrier-chains connecting the same as and for the purpose specified.

16. The combination with the longitudinal bars and the conveying-chains suitably elevated and supported and the end sprocket-wheels and spindles thereof and means for driving the same, of the single sprocket-wheel secured on the center of the end spindles and the carrier-chain connecting the same and the projecting pieces extending from the spindle of one set of sprocket-wheels on the end of the car to the spindles of the sprocket-wheels on the end of the adjacent car as and for the purpose specified.

17. The combination with the rail-car and the inclined longitudinal pieces on the end of the same and the carrier-chains carried on suitable end sprocket-wheels having the spindles thereof suitably journaled in the ends of the frame, of the tie-car having longitudinal bars and the supplemental longitudinal pieces extending upwardly from beneath the level of the longitudinal bars of the tie-car to a point above the level of the inclined longitudinal bars on the rail-car and conveyer-chains on such longitudinal pieces and means for driving such chains from a sprocket-wheel on the spindle of the sprockets of the carrier-chains on the rail-car as and for the purpose specified.

18. In a device of the class described, the combination with the tie-car and the longitudinal supporting-timbers for the ties on the tie-car, of the sectional longitudinal pieces and means for vertically adjusting the same and the conveying-chains passing over the longitudinal sectional pieces and means for driving the same as and for the purpose specified.

19. In a device of the class described, the combination with the pilot-car and a central rail-delivery, of a platform suitably pivoted to the end of the car so as to swing laterally and means for limiting its movement and means for supporting the outer ends of the same as and for the purpose specified.

20. In a device of the class described, the combination with the pilot-car and a crane pivotally swung at the front end thereof upon a suitable frame, of the rail-delivery platform pivoted in the front of the car and means for limiting its movement and means for supporting the outer end of such platform from the crane as and for the purpose specified.

21. In a device of the class described, the combination with the pilot-car and a crane pivotally swung at the front end thereof upon a suitable frame, of a rail-delivery platform pivoted in the front of the car and means for limiting its movement and the clevis and chain for supporting the outer end of the rail-delivery platform as and for the purpose specified.

22. The combination with the longitudinal bars and frame supporting the same on the pilot-car and the carrier-chains, of the delivery-crane extending forwardly of the pilot-car and supported on a suitable frame and suitably braced, the uprights forming the end of the frame, the pivotal connection between such frame and the car at the front end of such car and clamping means on the pivotal end of the crane for holding it in any position to which it may be swung as and for the purpose specified.

23. The combination with the longitudinal bars and frame supporting the same on the pilot-car and the carrier-chains, of the delivery-crane extending forwardly of the pilot-car and supported on a suitable frame and suitably braced, the uprights forming the end of the frame, the pivotal connection between such frame and the car at the front end of such car, the stationary elevated frame, the stationary semicircular brackets secured thereto and provided with friction-rollers, the band secured to the uprights forming the inner end of the crane and passing around and having a bearing on the rollers in the semicircular stationary track or frame and the clamping-lever suitably supported on the stationary portion of the frame and designed to have the end brought in contact with the semicircular adjustable bar as and for the purpose specified.

24. A rail-carrying car for track-laying machines having a platform provided with rail-supporting cross-bars located on opposite sides thereof, and a plurality of rail-conveying rollers having their ends journaled in said cross-bars, substantially as described.

694,565. **REVOLVING SCREEN.** VOLNEY W. MASON, Jr., New York, N. Y., assignor to Taylor Iron and Steel Co., Highbridge, N. J., a Corporation of New Jersey. Filed Oct. 25, 1899. Serial No. 734,757. (No model.)



Claim.—1. In a revolving screen, an inclined revoluble screen-cylinder having means for supporting its lowermost end, consisting of a pair of cylinder-supporting rolls engaging the side of the cylinder, and an end-thrust roll engaging the end of the cylinder, disposed substantially midway between said cylinder-supporting rolls and revoluble on an axis substantially in alinement with the perpendicular radius of said cylinder, substantially as described.

2. In a revolving screen, an inclined revoluble screen-cylinder hav-

ing means for supporting its lowermost end consisting of a pair of frusto-conical cylinder-supporting rolls engaging the side of the cylinder, the angle of the conical engaging face of each roll being the same as the angle of inclination of the cylinder, and an end-thrust roll engaging the end of the cylinder, disposed substantially midway between said cylinder-supporting rolls and revolubly on an axis substantially in alinement with the perpendicular radius of said cylinder, the angle of the conical face of said roll being at right angles to the angle of inclination of the cylinder, substantially as described.

3. In a revolving screen, an inclined revoluble screen-cylinder having means for supporting its uppermost end, consisting of a pair of frusto-conical cylinder-supporting rolls engaging the side of the cylinder, the angle of the conical face of each roll being the same as the angle of inclination of the cylinder, and means for supporting its lowermost end, consisting of a pair of frusto-conical cylinder-supporting rolls engaging the side of the cylinder, the angle of the conical engaging face of each roll being the same as the angle of inclination of the cylinder, and a frusto-conical end-thrust roll engaging the end of the cylinder, disposed substantially midway between said cylinder-supporting rolls and revolubly on an axis substantially in alinement with the perpendicular radius of said cylinder, the angle of the conical face of said roll being at right angles to the angle of inclination of the cylinder, substantially as described.

4. In a revolving screen, an inclined revoluble cylinder, a roll at its lower end adapted to receive the end thrust of said cylinder, a recess formed in the under side of said roll, a stud on which said roll is mounted, and a supporting frame or bracket provided with an oil-receptacle, the outer side wall of said receptacle projecting up into the recess in said roll, and the hub of said roll projecting down into said receptacle, substantially as described.

5. In a revolving screen, an inclined revoluble cylinder, a roll at its lower end adapted to receive the end thrust of said cylinder, a recess formed in the under side of said roll, a stud on which said roll is mounted, and a supporting frame or bracket having an oil-receptacle, the outer side wall of said receptacle projecting up into the recess in said roll, and the hub of the roll projecting down into said receptacle, said roll also having a hole through it communicating with said oil-receptacle, substantially as described.

6. In a revolving screen, an inclined revoluble cylinder, a roll at its lower end adapted to receive the end thrust of said cylinder, a stud on which said roll is mounted, supported by a frame or bracket having an oil-receptacle, the hub of said roll projecting down into said receptacle, said roll having a hole through it communicating with said oil-receptacle, and a dust-excluding plate secured to said stud above the roll, substantially as described.

7. In a revolving screen, an inclined revoluble cylinder consisting of a frame comprising end rings *f*, *g* secured together by longitudinal bars *h*, and sectional screen-plates secured to said bars *h*, to present perforated divisions, an end ring *m* fitted into the ring *f* of the frame and secured thereto by bolts and having a circumferential flange *m'* abutting against the end of said ring *f*, and also having a roller-receiving surface 30, and a roller-receiving surface 50, a pair of cylinder-supporting rolls engaging said roller-receiving surface 30, and a roll engaging said roller-receiving surface 50 turning on a vertical axis in alinement with the perpendicular radius of the cylinder, which receives the end thrust of said cylinder, substantially as described.

8. In a revolving screen, an inclined revoluble screen-cylinder having means for supporting one of its ends, consisting of a pair of cylinder-supporting rolls, and a thrust-roll which receives the end thrust of the screen-cylinder disposed substantially midway between said cylinder-supporting rolls and revolubly on an axis substantially in alinement with the perpendicular radius of said cylinder, substantially as described.

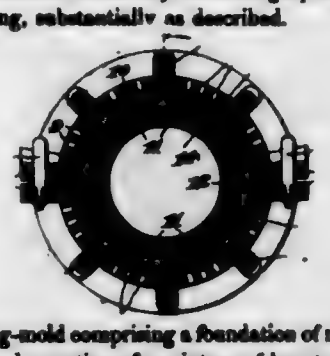
9. In a revolving screen, an inclined revoluble cylinder having a frame comprising several longitudinal bars and having near its lower end an opening for the tailings, and guards *p'* which protect said longitudinal bars at said opening, substantially as described.

10. In a revolving screen, an inclined revoluble cylinder and a conducting-chute composed of a bottom piece having side flanges or ears, a support therefor, side pieces having side flanges or ears, and bolts uniting the side flanges or ears to thereby detachably connect the side pieces to the opposite sides of the bottom piece, substantially as described.

694,566. CASTING-MOLD. SIMEON MICHAILOFF, Odessa, Russia. Filed Mar. 16, 1901. Serial No. 51,520. (No model.)

Claim.—1. A mold consisting of separable parts each composed of a number of layers of material of different porosity, the meeting edges of the parts combining to form a dovetail groove and a filling material in said grooves to form a continuous inner surface with the inner layer, substantially as described.

2. A casting-mold comprising a foundation of molding material and a coating of a mixture of burnt clay, crucible-graphite, fat clay, sand, charcoal and cow-dung, substantially as described.



3. A casting-mold comprising a foundation of molding material mixed with boiled oil and a coating of a mixture of burnt clay, crucible-graphite, fat clay, sand, charcoal, cow-dung, water and boiled oil, substantially as described.

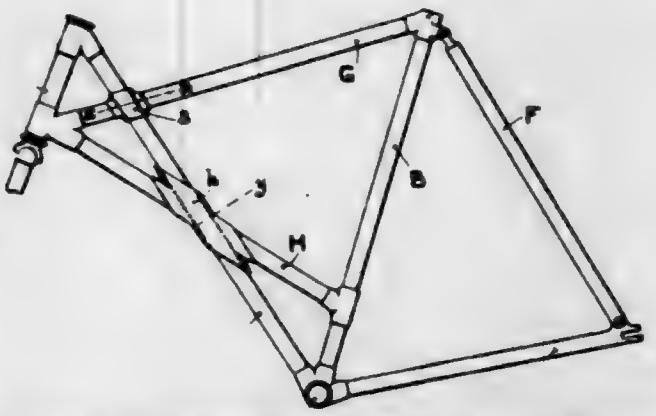
4. A casting-mold comprising a foundation of molding material mixed with boiled oil and formed in separable parts, and a coating of a mixture of burnt clay, crucible-graphite, fat clay, sand, charcoal, and cow-dung, substantially as described.

5. A casting-mold comprising a layer of a mixture of lean clay and chopped straw, a second layer of a mixture of burnt clay, sand, horse-droppings, oil and water and a thin layer of burnt clay, crucible-graphite, fat clay, sand, and charcoal, cow-dung, substantially as described.

6. A casting-mold, comprising one or more foundation-layers of a suitable material and a coating of a mixture of burnt clay, crucible-graphite, fat clay, sand, charcoal, cow-dung and linseed-oil, to be subsequently burnt or fired, substantially as described.

7. A casting-mold, comprising one or more foundation-layers of a suitable material whose meeting edges form dovetailed grooves and a coating of a mixture of forty per cent. burnt refractory clay, fifteen per cent. burnt crucible-graphite, ten per cent. fat clay, fifteen per cent. sand, five per cent. charcoal and fifteen per cent. cow-dung mixed with water and boiled linseed-oil, to be subsequently baked or fired, substantially as described.

694,567. FRAME FOR VELOCIPEDES. JAMES R. MOORE, Newcastle-upon-Tyne, England. Filed Apr. 29, 1901. Serial No. 58,065. (No model.)



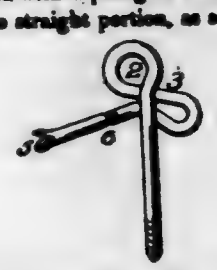
Claim.—A frame for velocipedes, comprising a socket for the steering-head a diagonal member carrying the pedal-crank-axle bracket at its lower end and supporting the seat at its upper end, and three single tubular members connecting the socket of the steering-head with the diagonal member one of the said three members connecting the top of the socket of the steering-head with the lower end of the diagonal member, another connecting the bottom of the socket of the steering-head with the top end of the diagonal member and the third connecting the lower end of the socket of the steering-head with the lower end of the diagonal member, the two members connecting the lower end of the socket of the steering-head with the diagonal member being provided with sockets through which the member running between the top of the socket of the steering-head and the lower end of the diagonal member passes so that it has a certain amount of free longitudinal movement with respect to the other two members, as and for the purpose set forth.

694,568. YARN OR THREAD GUIDE FOR SPINNING-MACHINES. JAMES W. MCCARTHY, New Bedford, Mass.; Samuel F. Winsper administrator of said McCarthy, deceased. Filed Jan. 3, 1901. Serial No. 41,007. (No model.)

Claim.—1. A yarn or thread guide and catcher consisting of a wire rod having a straight portion, an eye acting as a guide, and an arm acting as a kink-catcher, said eye and arm being on the same side of the straight portion, as set forth.

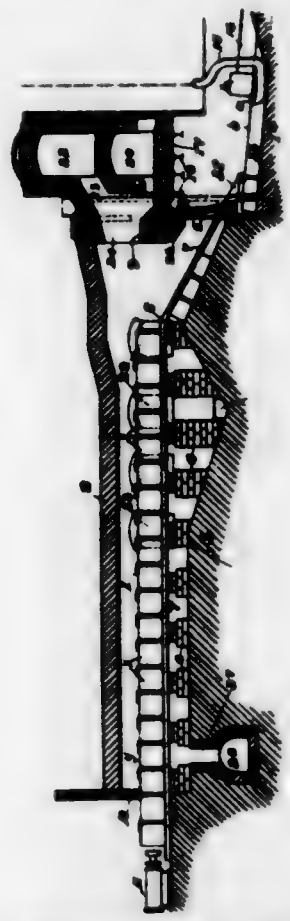
2. A yarn or thread guide and catcher consisting of a wire rod hav-

ing a straight portion and bent to form a guide-eye at one side and bent back upon itself at the opposite side of said straight portion and terminating in an arm formed with a prong in its end, said eye and arm being on the same side of the straight portion, as set forth.



3. A yarn or thread guide and catcher consisting of a wire rod having a straight portion bent to form an eye at one side of said straight portion and extended to the opposite side thereof and then back upon itself, terminating in an arm having a prong in its outer end and a circular recess near its inner end, substantially as set forth.

694,569. FURNACE FOR HEATING INGOTS OR BILLETS. JOHN R. HAM, New York, N. Y. Filed Sept. 28, 1901. Serial No. 76,364. (No model.)



Claim.—1. A furnace for heating ingots or billets, comprising a heating-chamber having an opening at one end for the introduction of ingots or billets and an opening at the opposite end for their discharge, a bridge or flame-port wall above the discharge-opening, a platform above and outside the discharge-opening, a gas-flue and an air-flue carried by the platform, gas-ports and air-ports leading respectively from said gas and air flues and uniting in pairs in a flame-port through which the flame passes into the furnace, a track extending from the charging-opening through the heating-chamber in a substantially horizontal plane to within a suitable distance of the flame-port wall and from there in a sharply-inclined plane under the flame-port wall and through the discharge-opening, a floor with reverse converging inclined parts, a slag-opening located at the bottom of the converging parts, and a pusher standing in front of the charging-door, substantially as described.

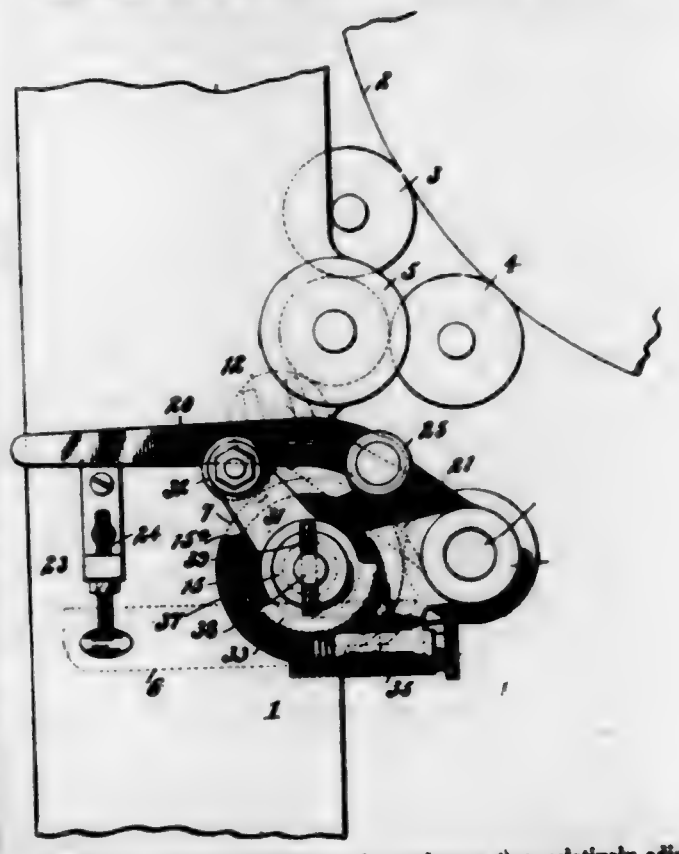
2. A furnace for heating billets or ingots, comprising a heating-chamber having an opening at one end for the introduction of ingots or billets and an opening at the opposite end for their discharge, a bridge or flame-port wall above the discharge-opening, a platform above and outside of the discharge-opening, a gas-flue and an air-flue carried by the platform, gas-ports and air-ports leading respectively from said gas and air flues and uniting in pairs in a flame-port through which the flame passes into the furnace, a track extending from the charging-opening through the heating-chamber in a substantially horizontal plane to within a suitable distance from the flame-port wall and from there in a sharply-inclined plane under the flame-port wall and through the discharge-opening, an inclined table forming a continuation of the track but with less incline, and having raised parts to receive the billets and a stop to arrest them, a floor with reverse, converging, inclined parts, a slag-opening located at the bottom of the inclined parts, and a pusher standing in front of the charging-door, substantially as described.

3. A heating-furnace for heating billets or ingots, comprising a heating-chamber having an opening at one end for the introduction of ingots or billets and an opening at the opposite end for their discharge, a bridge or flame-port wall above the discharge-opening, a platform above and outside of the discharge-opening, a gas-flue and an air-flue carried by the platform, gas-ports and air-ports leading respectively from said gas and air flues and uniting in pairs in a flame-port through which the flame passes into the furnace, a track extending from the charging-opening through the heating-chamber in a substantially horizontal plane to within a suitable distance from the flame-port wall, and from there in a sharply-inclined plane under the flame-port wall and through the discharge-opening, an inclined table forming a continuation of the track, but with less incline, and having raised parts to receive the billets and a stop to arrest them, crane hooks or tongs set loosely between said raised parts in such a way that when the billets are stopped they will lie over the hooks, a floor with reverse converging inclined parts, slag-openings located at the bottom of the inclined parts, and a pusher standing in front of the charging-doors, substantially as described.

4. A furnace for heating ingots or billets, comprising a heating-chamber having an opening at one end for the introduction of ingots or billets and an opening at the opposite end for their discharge, a bridge or flame-port wall above the discharge-opening, a platform above and outside the discharge-opening, a gas-flue and air-flue carried by the platform, gas-ports and air-ports leading respectively from such gas and air flues and uniting in pairs in a flame-port through which the flame passes into the furnace, a track extending from the charging-opening through the heating-chamber in a substantially horizontal plane to within a suitable distance of the flame-port wall and from there in a sharply-inclined plane under the flame-port wall and through the discharge-opening, and a pusher, standing in front of the charging-door, substantially as described.

5. A billet or ingot heating furnace comprising a heating-chamber having charging and delivery openings, means for pushing the billets or ingots into the charging-opening, a track upon which the billets slide inclined at the delivery end and extending through the delivery-opening, stops for arresting the discharged billets or ingots, and hoisting devices so arranged and located that they engage automatically the discharged billets or ingots when they are arrested by the stops.

694,570. VARIABLE CAM MECHANISM. THOMAS H. HOUTH, Plainfield, N. J., assignor, by mesne assignments, to Aluminum Press Company, Plainfield, N. J., and New York, N. Y., a Corporation of New York. Filed Apr. 22, 1901. Serial No. 56,068. (No model.)



Claim.—1. The combination of a rock-arm, two relatively adjustable bearing members carried thereby and a cam on whose periphery the bearing members operate; permitting the movement of the arm by simul-

taneous dropping of the bearing members into the depression of the cam, at a period in the cam's rotation determined by the proximity of the bearing members to each other as explained.

2. The combination of a cam; a rock-arm carrying two bearing members acting on the periphery of the cam and arranged to both drop into the depression of the cam to permit the movement of the arm in one direction; and means for relatively adjusting the bearing members so as to vary the point in the cam's rotation which permits said bearing members to drop simultaneously into the depression of said cam.

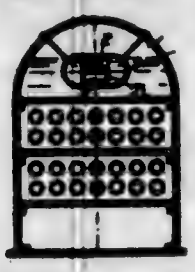
3. The combination of a cam, a rock-shaft, a two-part rock-arm mounted upon said rock-shaft, antifriction-rollers journaled upon the two parts of said rock-arm, and means for relatively adjusting the antifriction-rollers, substantially as set forth.

4. The combination of a cam, a rock-shaft, a two-part rock-arm mounted upon the rock-shaft, an arm adjustably mounted upon one part of said rock-arm, means for adjusting said rock-arm with relation to the other part of said rock-shaft, and antifriction-rollers journaled upon said adjustable arm and the other part of said rock-arm, substantially as set forth.

5. The combination of a cam, a rock-shaft, a two-part rock-arm mounted upon said rock-shaft, an antifriction-roller journaled upon one part of said rock-arm, an arm adjustably mounted upon the other part of said rock-arm, an antifriction-roller journaled upon said adjustable arm, a segment-gear upon said adjustable arm, and a worm engaging said segment-gear for adjusting said arm with relation to the other part of the rock-arm, substantially as set forth.

6. In a printing-press, the combination of a fountain-roller, a distributer-roller, a rock-shaft having bracket rock-arms, a duster-roller journaled in said bracket rock-arms and adapted to be vibrated between the fountain-roller and distributer-roller, a two-part rock-arm also mounted upon said rock-shaft, a cam supported in operative relation with the two parts of said rock-arm, and means for relatively adjusting the two parts of said rock-arm, substantially as set forth.

694,571. FEED-WATER PURIFIER. JAMES W. PEARCE, Philadelphia, Pa., assignor of one-half to Lester C. Keyser, Philadelphia, Pa. Filed Apr. 26, 1901. Serial No. 57,394. (No model.)



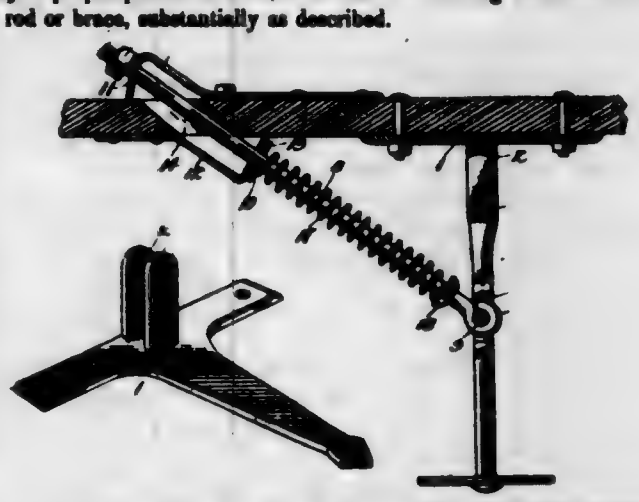
Claim.—1. In a feed-water purifier, situated within the boiler, the combination of a series of compartments, water-passages at various heights connecting said compartments, a feed-water-inlet pipe opening into one of said compartments, an outlet for the feed-water into the boiler, and valves in said passages, the valve in the upper passage opening in the direction of the flow of the water from the feed-pipe into the boiler, and the valve in the lower passage opening in the direction of the flow of the water from the boiler to the exhaust-water pipe; substantially as described.

2. In a feed-water purifier the combination of a box, having a portion of the top thereof closed; partitions dividing the closed portions into compartments; a feed-pipe entering the closed end of the box; valves near the top of said partitions, opening in the direction of the flow of water from the feed-pipe; and valves near the bottom of said partitions, opening in the opposite direction to those in the upper part of the partitions; substantially as described.

3. In a feed-water purifier the combination of a box, partly inclosed at its top, but having an open space lower and outlets therefrom into the boiler; supports for said box, maintaining it so that the said outlets are near the water-line of the boiler; partitions dividing the inclosed portion of the box into compartments; valves near the upper part of the partitions, opening toward the open end of the box; and valves in the lower portion of said partitions, opening toward the closed end of the box; a pipe leading into the lower part of the closed end of the box and means for connecting this pipe into a boiler-exhaust pipe; substantially as described.

694,572. VEHICLE-STEP. JAMES H. PETTUS and THEOPHILUS W. LUTTRELL, Hazlewood, Ky. Filed Aug. 7, 1901. Serial No. 71,396. (No model.)

Claim.—1. A device of the class described, comprising a hinged step adapted to swing rearward, an inclined rod or brace extending upward from the step and designed to be connected with the body of the vehicle, a spring disposed on the rod or brace and holding the step normally in proper position for use, and means for limiting the movement of the rod or brace, substantially as described.

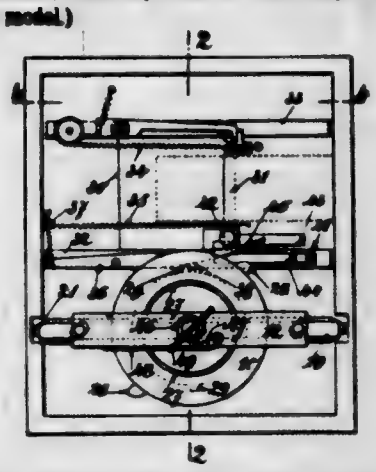


2. A device of the class described comprising a hinged step adapted to swing rearward, an inclined rod or brace extending upward from the step and connected with the same at its lower end, the upper end of the rod or brace being slidingly connected with the vehicle, means for limiting the reciprocation of the rod or brace, and a spring for holding the step normally in position for use, substantially as described.

3. A device of the class described comprising a hinged step, an inclined rod or brace pivoted at its lower end to the step, a guide-plate designed to be mounted on the body of the vehicle and having a guide-opening, receiving the rod, a coiled spring disposed on the rod and engaging the same, and means for limiting the movement of the rod, substantially as described.

4. A device of the class described comprising a hinged step, the upper and lower guide-plates designed to be mounted on the body of a vehicle and provided with approximately V-shaped portions having oppositely-disposed guide-openings, an inclined rod or brace passing through the guide-openings, and connected at its lower end to the step and provided at its upper end with means for engaging the upper guide-plate, said rod or brace being also provided near its lower end with a stop, and a coiled spring disposed on the rod or brace and interposed between the step and the lower guide-plate, substantially as described.

694,573. PHOTOGRAPHIC CAMERA. JOSEPH A. P. PRIEUR and LOUIS J. M. DUBOIS, Puteaux, France. Filed July 3, 1901. Serial No. 67,057. (No model.)



Claim.—In a photographic camera, the combination of a spring-motor, 10, two helical-shaped cams, 27, 27, upon one of the faces of the motor, a cross-piece, 19, pressed against the cams by springs, 65, 65 and guided by supports, 18, 18, two rotatable disks, 22, having notches, 24, receiving the pins of the frame of the most advanced sensitive plate, two rods, 21, 21, articulated respectively to the cross-piece 19 and to the disks 22, springs 23, 23, acting upon the disks 22, springs 51 and 55 for pushing the sensitive plates, projections 28 and 29 on the motor, a lever, two movable shutter-plates, 30 and 31, springs acting upon the shutter-plates, a button, 42, upon one of the shutter-plates located in the path of the projections 28, a spring-lever 36, having a tooth, 38, located in the path of the projections 29, a projection, 41, upon plate 31 to raise the lever 36 and release the motor, means for winding the motor and means for guiding the impressed plate in its groove, substantially as shown and described.

694,574. LITHOGRAPHIC PROCESS. CARL H. PFEIFER, Baltimore, Md. Filed June 10, 1901. Serial No. 64,042. (No specimens.)

Claim.—1. The process herein described, consisting in tracing a design or painting, or a portion thereof, on the grained side of a plate of thin transparent celluloid, transferring the design from the celluloid plate

to a lithographic printing-surface, and then preparing said surface for printing.

2. The process herein described, consisting in tracing a design or painting or a portion thereof, on the grained side of a thin plate of transparent celluloid, transferring the design therefrom to transfer-paper, then transferring from such paper to a lithographic printing-surface, and then preparing said surface for printing.

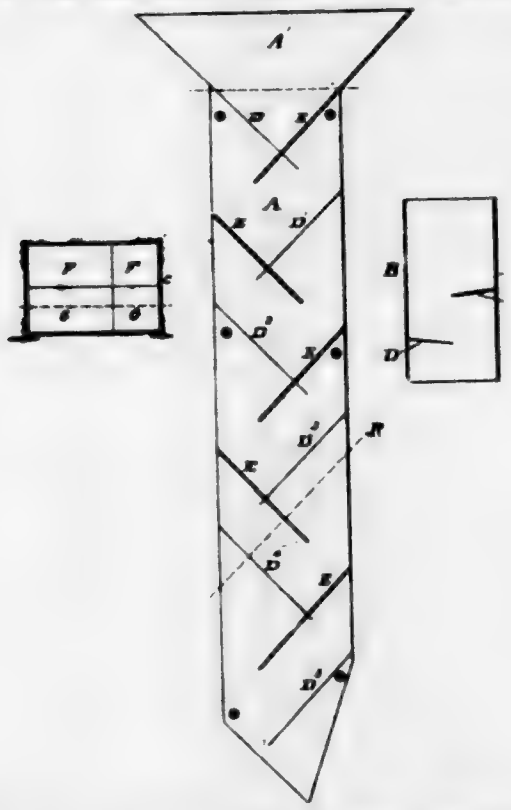
3. The process herein described, consisting in tracing a design or painting, or a portion thereof, on the grained side of a thin plate of transparent celluloid, etching the celluloid plate with the design thereon, then transferring the design from the celluloid tracing-plate to transfer-paper, and then applying the transfer-paper to a lithographic stone or similar printing-surface.

4. The process herein described consisting in tracing from the original design or painting or a copy thereof by means of lithographic crayons or ink the design, or different portions thereof on the grained sides of thin transparent plates of celluloid, transferring said designs thus traced to printing-surfaces corresponding in number to the colors to be printed and then printing from said last-mentioned plates in different colors substantially in the manner set forth.

5. A plate for use in lithographic processes, consisting of a thin transparent sheet of celluloid having one side prepared to receive lithographic crayon or ink by being grained, substantially as described.

6. A plate for use in lithographic processes, consisting of a thin transparent sheet of celluloid having one side grained, with a design thereon, and etched, substantially as described.

694,575. CONCRETE-MIXER. ERNEST L. RANSOME, New York, N. Y. Filed July 13, 1901. Serial No. 68,252. (No model.)



Claim.—1. A mixer, containing a multiple series of baffle-plates, each series of which consists of two tiers of plates the plates of one tier alternating in height with those of the other tier, substantially as described.

2. A mixer, containing a multiple series of baffle-plates, each series of which consists of two tiers of plates the plates of one tier alternating in height with those of the other tier, and the plates of one series being at a different slope to the plates of the adjoining series, substantially as described.

3. A mixer, containing a multiple series of baffle-plates, each series of which consists of two tiers of plates, the plates of one tier alternating in height with those of the other tier, and the plates of one series being at a different slope to the plates of the adjoining series, and sloping toward them as well as toward the plates of the other tier in their own series, substantially as described.

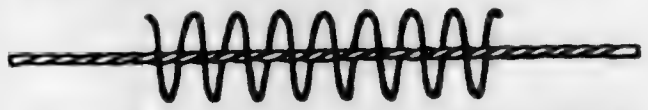
4. A mixer, containing a multiple series of baffle-plates, each series of which consists of two tiers of plates the plates of one tier alternating in height with those of the other tier, and the plates of one series being at a different slope to the plates of the adjoining series, and sloping toward them as well as toward the plates of the other tier in their own series; together with two sides having movable shutters, substantially as described.

5. A mixer, containing a multiple series of baffle-plates, each series of which consists of two tiers of plates the plates of one tier alternating in height with those of the other tier, and the plates of one series being at a different slope to the plates of the adjoining series and sloping toward them as well as toward the plates of the other tier in their own series, and with the plates in one or all tiers gradually increasing in slope as they are further from the top; together with two sides having movable shutters, substantially as described.

6. A mixer, containing a multiple series of baffle-plates, each series of which consists of two tiers of plates the plates of one tier alternating in height with the plates of the other tier, and the plates of one series sloping toward the plates of the adjoining series as well as toward the plates of the other tier in their own series, substantially as described

7. A mixer, containing a series of baffle-plates which consists of two tiers of plates, the plates of one tier alternating in height with those of the other tier, in combination with two sides having movable shutters, substantially as described.

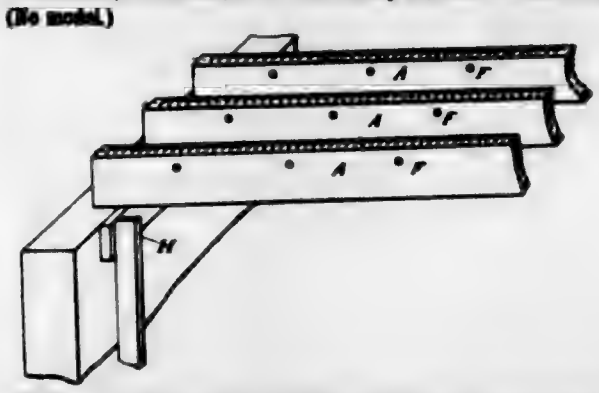
694,576. COUPLING METAL BARS IN REINFORCED CONCRETE. ERNEST L. RANSOME, New York, N. Y. Filed July 13, 1901. Serial No. 68,253. (No model.)



Claim.—1. In reinforced concrete construction a coupling consisting of a lap made by bars and surrounded by a sleeve large enough to slip over the lap; the whole being fastened together by the concrete in which they are embedded.

2. In reinforced concrete construction a coupling consisting of a lap made by bars and surrounded by an open sleeve large enough to slip over the lap; the whole being fastened together by the concrete in which they are embedded.

694,577. REINFORCED CONCRETE CONSTRUCTION. ERNEST L. RANSOME, New York, N. Y. Filed July 13, 1901. Serial No. 68,255. (No model.)



Claim.—1. The method of building a reinforced concrete floor which consists in setting webs of hardened reinforced concrete in position, spanning the spaces between them with false work, and molding upon the webs and the false work the top compressive member of the floor and integrally uniting it to the floor substantially as described.

2. The method of building a reinforced concrete floor which consists in setting webs of hardened reinforced concrete in position, placing false work beneath them, forming a ceiling upon the false work and connecting it to the webs, afterward spanning the spaces between the webs, near to the top thereof with false work, and molding upon the webs and false work the top compressive member of the floor and integrally uniting it to the webs substantially as described.

694,578. CONCRETE JOINT. ERNEST L. RANSOME, New York, N. Y. Filed July 17, 1901. Serial No. 68,701. (No specimens.)

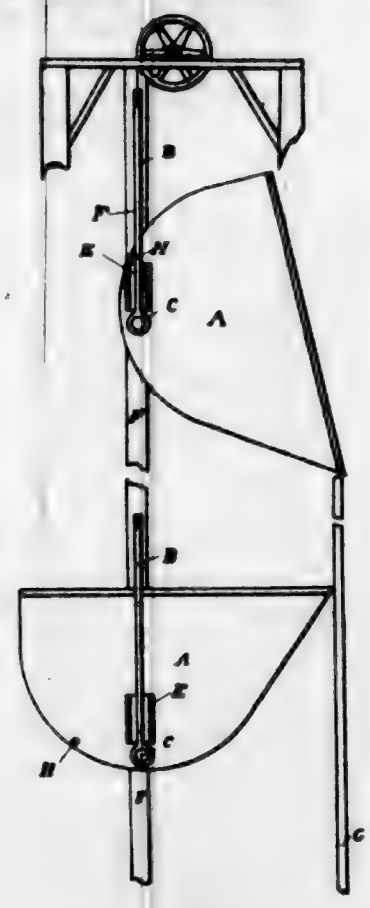
Claim.—1. The method of bonding one body of concrete after it has set to another body of unset concrete by the use of a coarse of honeycomb slag embedded into both, substantially as described.

2. The method of forming a bond between two bodies of concrete which consists in first sprinkling over the surface of the first-made body of concrete while yet soft and moist, a layer of prepared honeycomb slag, embedding the same into the surface, allowing the concrete to set, and after removing all superfluous slag, covering it and embedding its exposed surfaces with the second body of concrete, substantially as described.

694,579. SELF-DUMPING HOIST. ERNEST L. RANSOME, New York, N. Y. Filed July 17, 1901. Serial No. 68,703. (No model.)

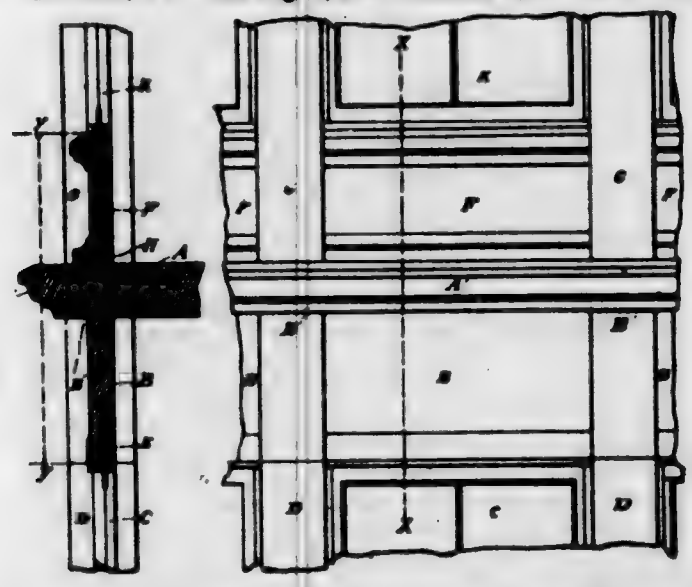
Claim.—1. A hoisting-tub swung on a bail wherein it overturns by its own weight, in combination with fixed guides upon which the bail moves, a stop to prevent the tub from overturning too far, and a guide-

rail in front of the tub which retains the tub in position and upon the top of which the tub tips, substantially as described.



2. The hoisting-tub A swung in the bail B in combination with fixed guides F and the guide-bar G, substantially as described.

694,580. CONCRETE CONSTRUCTION. ERNEST L. RANSOME, New York, N. Y. Filed Aug. 17, 1901. Serial No. 72,440. (No model.)



Claim.—1. A reinforced concrete floor, extending to the exterior face of a building, and there forming a belt course, substantially as described.

2. A reinforced concrete floor extending to the exterior face of a building, and capping the piers thereof, substantially as described.

3. A reinforced concrete floor extending to the exterior face of a building, capping the piers thereof, and forming a belt course, substantially as described.

4. A reinforced concrete floor extending to the exterior face of a building, and having a downward extension which forms a head or lintel to the windows below, substantially as described.

5. A reinforced concrete floor extending to the exterior face of a building and there forming a belt course with a downward extension forming heads or lintels to the windows below, substantially as described.

6. A reinforced concrete floor extending to the exterior face of a building and there forming a belt course, capping the piers and windows below, substantially as described.

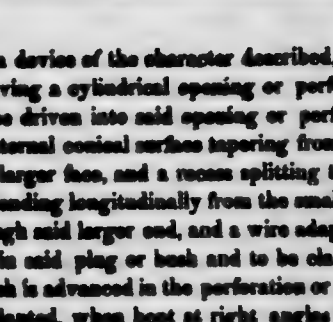
7. A reinforced concrete floor extending to the exterior face of a building with an upward window-sill extension, substantially as described.

8. A reinforced concrete floor extending to the face of a building and there forming a belt course with an upward window-sill extension, substantially as described.

9. A reinforced concrete floor extending to the face of a building with downward and upward extensions, substantially as described.

10. A reinforced concrete floor extending to the face of a building and there forming a belt course and with downward and upward extensions, substantially as described.

694,581. TARGET. XAVER REICHLIN, Horgen, Switzerland. Filed Oct. 25, 1901. Serial No. 79,963. (No model.)



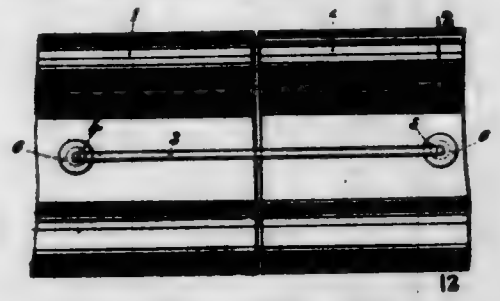
Claim.—1. The combination with a spiral support having the end of its outer convolution free to move, of a target hung from the outer free end of said support, substantially as described.

2. The combination with a spiral sheet-metal support having the end of its outer convolution free to move, of a target suspended from the outer free end of said support, substantially as described.

3. The combination with a spiral sheet-metal support having a receiving-trough in its outer convolution, of a target secured at its top to the outer free end of said support, substantially as described.

4. In combination, a spiral sheet-metal support, its outer free end not conforming to the curve of the spiral and having a trough formed in the lower part of said support in the outer convolution of the spiral, and a target capable of being perforated by a bullet secured at its upper corners to the outer free end of said support, substantially as described.

694,582. PLUG OR BUSH FOR CONNECTING WIRES OR BARS TO PIECES OF METAL. ERNEST A. RICHARDSON, Charenton, France. Filed July 20, 1901. Serial No. 69,080. (No model.)



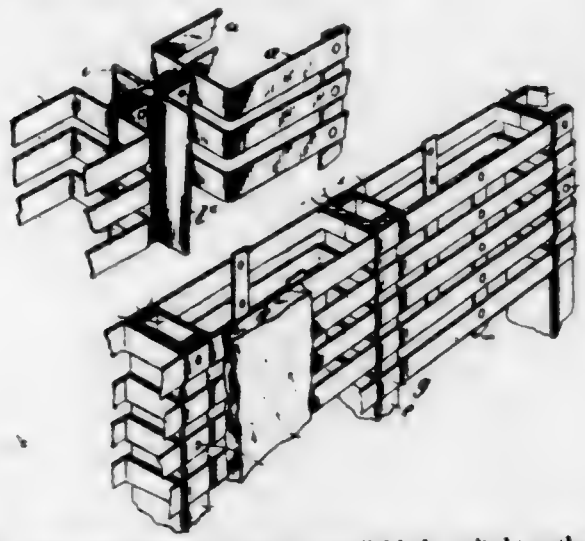
Claim.—In a device of the character described, in combination with the metal part having a cylindrical opening or perforation, of a plug or bush adapted to be driven into said opening or perforation, said plug or bush having an external conical surface tapering from end to end, a notch 7, in its upper or larger face, and a recess splitting the plug or bush diametrically and extending longitudinally from the smaller toward the larger end, but not through said larger end, and a wire adapted to enter a center or axial opening in said plug or bush and to be clamped tightly therein as the plug or bush is advanced in the perforation or opening in the metal part, said wire adapted, when bent at right angles to the axial opening of the plug, to rest in the notch 7, of said plug.

694,588. FIRE-RESISTING PARTITION, WALL, OR THE LIKE. WILLIAM SENTRY, London, England. Filed Nov. 6, 1900. Serial No. 35,682. (No model.)

Claim.—1. In the construction of fireproof walls, partitions and the like, the combination of hollow ribbed rectangles or cages formed of bent metal laths and adapted to fill up the space between two vertical columns, and a number of parallel, vertical, shaped columns, in engagement with which the ends of the said cages are held, and also a layer of cement or other like material covered finally over the whole, substantially as hereinbefore described.

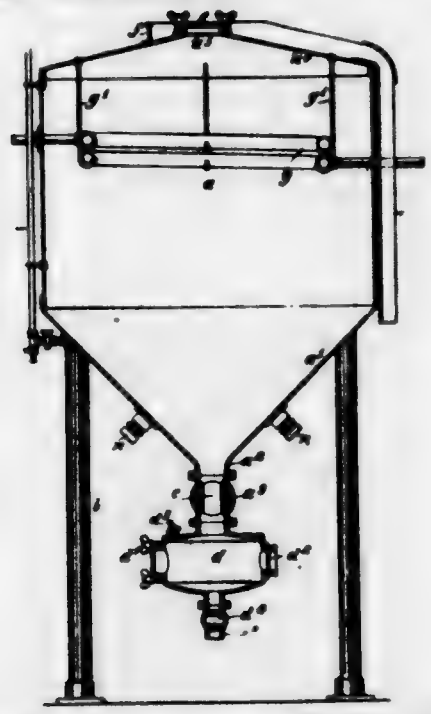
2. The combination of a half-cage composed of a series of parallel laths united together by a transverse strip and dished along the edges so as to present a series of flat rims and also a similar half-cage placed symmetrically against same, together with parallel vertical T or + columns through the flanges of which the series of flat rims of one half-cage are

fastened to those of the opposite half-cage and therefore also to the said columns, substantially as hereinbefore described.



3. The combination of a series of parallel laths united together by a transverse strip and parallel vertical T or + section columns to which the fastening devices are attached which secure the laths in position, together with a layer of cement, or other like material finally applied over the whole substantially as described.

694,584. PROCESS OF CONVERTING WORT INTO BEER. OTTO SELS and CARL GUNTHER, Brooklyn, N. Y. Filed Aug. 19, 1901. Serial No. 72,474. (No specimens.)



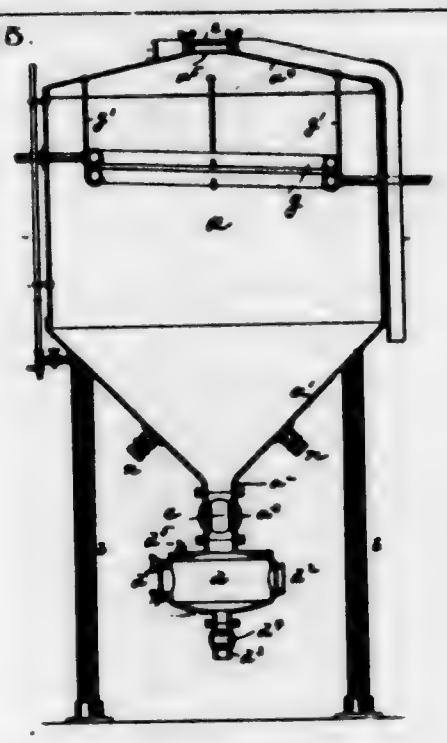
Claim.—The process of converting wort into beer, which consists in first adding yeast to the wort in a tub provided with an upper opening, to effect a main fermentation and a simultaneous ejection of impurities, then separating the main body of the yeast at the bottom of the liquid, leaving a residue of yeast in the tub, then closing the tub and subjecting the liquid to after fermentation by such residue of the yeast, and simultaneously cooling the upper strata of the liquid, substantially as described.

694,585. APPARATUS FOR CONVERTING WORT INTO BEER. OTTO SELS and CARL GUNTHER, Brooklyn, N. Y. Filed Aug. 19, 1901. Serial No. 72,475. (No model.)

Claim.—1. An improved brewing apparatus consisting of a fermenting-tub having a sloping bottom, a communicating yeast-chamber arranged below the level of the bottom, an intervening cock, a sloping top having an opening at its apex for discharging the impurities, a cover for said opening, and an attemperator in the upper portion of the tub, substantially as specified.

2. An improved brewing apparatus consisting of a fermenting-tub having a sloping bottom, a communicating yeast-chamber arranged below the level of the bottom, an intervening cock, a sloping top having an opening at its apex for discharging the impurities, a cover for said opening, a gallery around said opening, a communicating gutter, and an attemperator in the upper portion of the tub, substantially as specified.

694,585.



694,586. TOE-WEIGHT. CHARLES SEALEY, Sterling, Ill. Filed Sept. 14, 1901. Serial No. 75,208. (No model.)



Claim.—The toe-weight herein shown and described, consisting of the weight proper having the substantially triangular seat or recess one portion thereof being deeper than the other portion, a substantially triangular base-plate adapted to be secured to the hoof and fitting snugly in the recess of the weight, a raised portion formed on the base-plate providing a cavity or recess with a T-shaped seat communicating with the said recess, said raised portion of the base-plate fitting the deep portion of the seat in the weight, and a square flat head fitting in the recess of the base-plate, a stem passing from the head through the weight, and a securing-nut on said stem.

694,587. ACETYLENE-GAS GENERATOR. LEVI T. STEVENSON, Trinidad, Colo., assignor, by direct and mesne assignments, of one-half to John H. Turner and Richard J. Williams, Trinidad, Colo. Filed Nov. 15, 1900. Serial No. 36,644. (No model.)

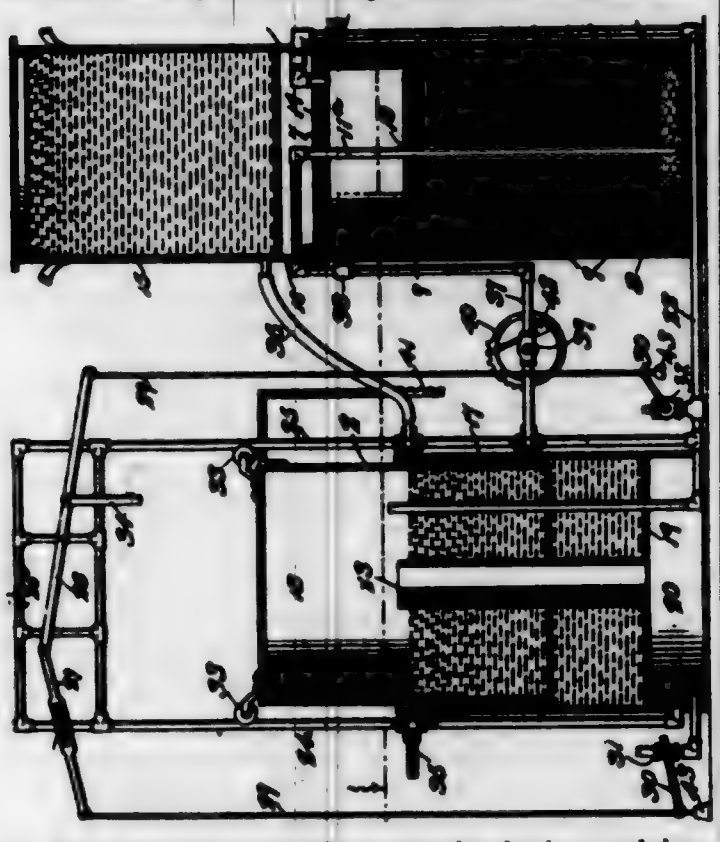
Claim.—1. In a generator, the combination with a generating-chamber, a seal-chamber in communication with the generating-chamber, and a carbid-holder in the generating-chamber, of a cover extended into the seal-chamber to a plane below the carbid-holder, and a water-supply pipe common to both the carbid-holder and cover and disposed to supply a water seal for said cover prior to supplying water for the decomposition of carbid within the holder, said pipe being extended into the generating-chamber to retain the carbid-holder in position.

2. A gas-generator comprising a generating-chamber, a seal-chamber in communication therewith, and a series of carbid-holders located within the generating-chamber and provided with apertured outer walls, a cover extended into the seal-chamber to a plane below the carbid-holders, a hollow imperforate core extended through the series of carbid-holders, and means for feeding water to the interior of the generating-chamber at a point below the holders through said core to form a water seal before the carbid is attacked.

3. A gas-generator comprising a generating-chamber, a seal-chamber in communication therewith, a series of carbid-holders within the generating-chamber, a cover for the generating-chamber, said cover being extended into the seal-chamber to a point below the carbid-holders, a hollow core passed through the series of holders and discharging therebelow to supply a water-seal for the cover before the carbid is attacked, a water-reservoir disposed above the chamber and in communication with the hollow core, and means intermediate of the core and reservoir for regulating the water-supply.

4. A gas-generator comprising a generating-chamber, a seal-chamber in communication therewith, a series of carbid-holders arranged in

superposed series in the generating-chamber, a cover extended into the seal-chamber to a point below the carbid-holders, a hollow core extending axially through the series of holders to retain said holders in coaxial relation and arranged to discharge water into the chamber below the series of holders to form a seal for the cover before the carbid is attacked, a water-reservoir, a pipe leading from said reservoir to the hollow core, a valve located in said pipe for controlling the water-supply, a gasometer, and means carried by the bell of the gasometer for operating said valve.



5. A gas-generator comprising a generating-chamber, a seal-chamber in communication therewith, a series of carbid-holders disposed one above the other within the generating-chamber, each of said holders being subdivided into a series of charge-holders or cartridges and having an exterior wall provided with apertures opposite the various charge-holders and at different elevations, whereby water is caused to attack the carbid charges successively, a cover extended into the seal-chamber to a point below the carbid-holders, a water-pipe extending axially through the carbid-holders to retain the apertured walls of said holders out of contact with the walls of the generating-chamber, said pipe being arranged to discharge below the last holder of the series to form a seal for the cover before the carbid is attacked, and means for storing the generated gas.

6. In a gas-generator, the combination with a generating-chamber defined by inner and outer shells, the inner of which is perforated at or adjacent to its bottom, a series of carbid-holders mounted above and in spaced relation to the bottom of the generating-chamber, a cover closing the upper end of the chamber and extending into the space between the shells and having its lower edge disposed in a plane below the lowest carbid-holder of the series, a water-supply pipe extending axially through the carbid-holders to retain said holders in position, and discharging below them, and means for supplying water to the pipe at a point above the generating-chamber.

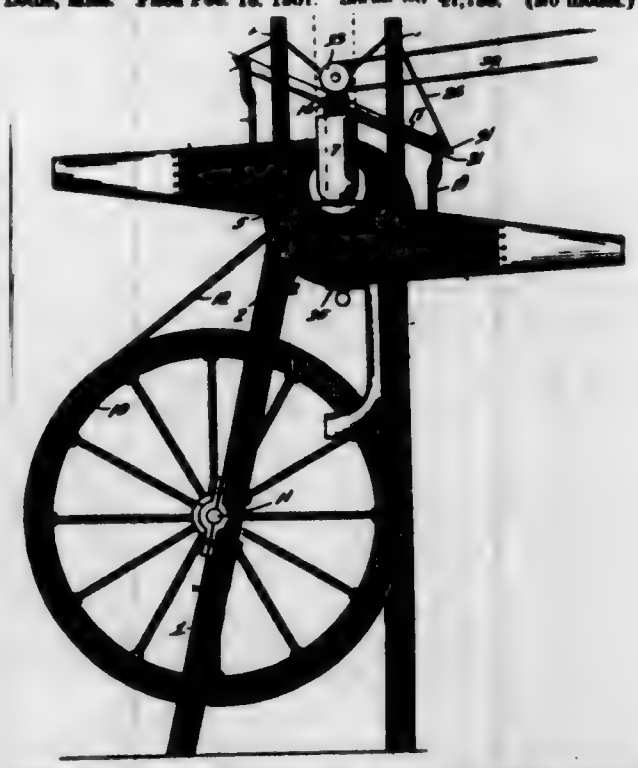
7. In a gas-generator, the combination with the generating-chamber, and a carbid-holder supported above and in spaced relation to the bottom thereof, of a seal-chamber surrounding the generating-chamber, a cover closing the upper end of the generating-chamber and having its side wall extended into the seal-chamber to a point below the plane of the carbid-holder, means disposed at the bottom of the generating-chamber for establishing communication between said chamber and the seal-chamber, and a water-supply pipe extending into the generating-chamber from above and terminating below the carbid-holder, said pipe being designed to retain the carbid-holder in proper axial position within the seal-chamber and to supply water which, as its level rises, will first form a seal for the lower end of the cover and will subsequently attack the carbid in the holder, the depth of the water seal being constantly increased as the level of the water rises to attack successive charges of carbid.

8. A gas-generator comprising a bottom, and inner and outer shells rising from the bottom and rigid therewith, the inner shell being provided with apertures immediately above the bottom of the generator, a cover having its side wall extended between the inner and outer wall of the generator and terminating adjacent to the bottom of the seal-chamber defined between said inner and outer walls, a series of carbid-holders supported axially within the generating-chamber, the lower carbid-holder of the series being elevated above the plane of the lower end of the cover, a water-supply pipe extended through the cover and also through the several carbid-holders and terminating in a plane below the lowest carbid-holder of the series, a water-reservoir superposed above the generator, and suitable connections intermediate of the pipe and reservoir.

9. In an apparatus of the character described, the combination with a gas-generator and a gasometer comprising a movable bell, of blow-off cocks for discharging gas from the generator and gasometer, respectively, a pair of connected levers operatively connected to the cocks, one of said levers being provided with a trip located in the path of movement of the bell.

10. In an apparatus of the character described, the combination with a gas-generator and a gasometer in communication therewith, of means for supplying water to the generator, a valve controlling the supply of water, a toothed wheel connected to said valve and provided with a gravity-dide designed to retain the valve in either of two positions, and a toothed rack movable with the bell of the gasometer and designed to engage the toothed wheel to open or close the valve.

694,588. AIR-BLAST APPARATUS. JAMES M. TYLER, Bay St. Louis, Miss. Filed Feb. 18, 1901. Serial No. 47,786. (No model.)



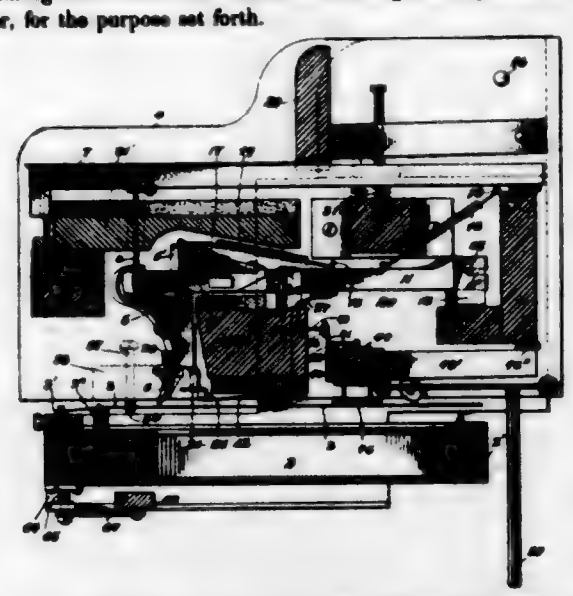
Claim.—1. The combination with a frame, of a blower supported thereon, and having opposite outlets, slide-valves for the respective outlets, a rocking lever fulcrumed intermediate of its ends upon the frame and located between the valves, the latter being pivotally connected to the respective ends of the lever, a transverse rock-shaft mounted between the valves, a cord or cable having its intermediate portion wrapped or coiled upon the rock-shaft, and its ends connected to the respective ends of the lever, and guides located between the rock-shaft and the respective ends of the lever, the opposite portions of the cable being passed through the guides, and means for rocking the shaft.

2. The combination with a blower, having opposite outlets, and controlling-valves therefor, of opposite end arch-frames straddling the blower, an intermediate arch-frame also straddling the blower, a lever fulcrumed intermediate of its ends upon the intermediate arch-frame, and having its opposite ends in operative relation to the respective valves, a rock-shaft mounted upon the intermediate arch-frame and extending transversely across the lever, guides carried by the end arch-frames, a cable having its intermediate portion wrapped or coiled upon the shaft, and its opposite ends connected to the respective ends of the lever, the opposite portions of the cable being passed through the respective guides, and means for rocking the shaft.

694,589. MUSICAL INSTRUMENT. WESLEY VAN METER, Poplar, Ohio. Filed Dec. 1, 1900. Serial No. 38,266. (No model.)

Claim.—1. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted blocks carrying pickers for the strings, movable supports for said blocks, means forming an operative connection between the blocks and the key-board independent of the block supports, and means for controlling the movement of the blocks and preventing contact of the pickers with the strings during their return movement after having been operated to snap the latter, for the purpose set forth.

2. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted vertically movable blocks carrying pickers for the strings, movable supports for said blocks, means forming an operative connection between the blocks and the key board independent of the block supports, and means for controlling the movement of the blocks and preventing contact of the pickers with the strings during their return movement after having been operated to snap the latter, for the purpose set forth.



3. In a musical instrument of the class described, the combination, with the key-board and strings, of a series of pivoted bars yieldingly held in a normal stationary position, a series of pickers pivotally supported by said bars and having operative connection with the keys to be operated thereby, means for limiting the downward movement of said bars prior to the engagement of the pickers with the strings, and means for controlling the movement of the pickers and preventing contact of the same with the strings when being returned to their initial position, for the purpose set forth.

4. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted bars yieldingly held in a normal stationary position, a series of blocks carrying pickers pivotally supported by said bars and having operative connection with the keys to be operated thereby, means for limiting the downward movement of said bars prior to the engagement of the pickers with the strings, and means for controlling the movement of the pickers and preventing contact of the same with the strings when being returned to their initial position, for the purpose set forth.

5. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted bars yieldingly held in a normal stationary position, a series of blocks carrying pickers pivotally supported by said bars and arranged to be operated from the keyboard, means for yieldingly holding said blocks in a normal stationary position relative to their supporting bars, means for limiting the downward movement of the bars prior to the engagement of the pickers with the strings, and means for controlling the movement of the pickers and preventing contact of the same with the strings when being returned to their initial position, for the purpose set forth.

6. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted bars yieldingly held in a normal stationary position and having removable connection with their pivot support, a series of blocks carrying pickers pivotally supported by said bars and arranged to be operated from the keyboard, means for limiting the downward movement of the bars prior to the engagement of the pickers with the strings, and means for controlling the movement of the pickers and preventing contact of the same with the strings when being returned to their initial position, for the purpose set forth.

7. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted bars yieldingly held in a normal stationary position, a series of blocks carrying pickers pivotally supported by said bars and arranged to be operated from said keyboard, an antirattle spring seated between said blocks and their supporting bars, means for limiting the downward movement of the bars prior to the engagement of the pickers with the strings, and means for controlling the movement of the pickers and preventing contact of the same with the strings when being returned to their initial position, for the purpose set forth.

8. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted bars yieldingly held in a normal stationary position and having removable connection with their pivot support, a spring for removably holding said bars in connection with their pivot support, a series of blocks carrying pickers pivotally supported by said bars and arranged to be operated from the keyboard, and means for controlling the movement of the pickers, substantially as and for the purpose set forth.

9. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted bars movably held in a normal stationary position, a series of blocks carrying pickers pivotally supported by said bars and having operative connection with the keys to be operated thereby, means for controlling the movement of the pickers, and means for adjusting the position of the blocks relative to their supporting bars and thereby the position of the pickers relative to the strings, for the purpose set forth.

10. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of pivoted bars movably held in a normal stationary position, a series of blocks carrying pickers pivotally supported by said bars and having operative connection with the keys to be operated thereby, adjustable stop-blocks located on said bars, means for yieldingly holding said picker-blocks in contact with said stop-blocks, and means for controlling the movement of the pickers, substantially as and for the purpose set forth.

11. In a musical instrument of the class described, the combination, with the key-board and strings, of a series of blocks provided with pickers having operative connection with the key-board to be operated thereby, movable supports to which the picker blocks are pivoted, and means for engaging with the picker blocks or a part thereof when moved in one direction, retaining such engagement and guiding the same relative to the strings during their return movement, and subsequently disengaging therefrom, substantially as and for the purpose set forth.

12. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of vertically movable pivoted blocks carrying pickers for the strings and arranged to be operated from the said keyboard, and a movable arm having a catch projection for engaging with said blocks or a part thereof when moved in one direction and guiding the same during their return movement past the strings, for the purpose set forth.

13. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of vertically movable pivoted blocks carrying pickers for the strings and arranged to be operated from the said keyboard, and a spring arm having a catch projection for engaging with said blocks or a part thereof when moved in one direction and guiding the same in their return movement, for the purpose set forth.

14. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of vertically movable bars, a series of blocks provided with pickers supported by said bars and having operative connection with the keys, and a damper mechanism, comprising a series of damper pads, and a series of levers having an operative connection with the latter and arranged to be operated by said picker-block supporting bars, for the purpose set forth.

15. In a musical instrument of the class described, the combination, with the keyboard and strings, of a series of vertically movable bars, a series of blocks provided with pickers supported by said bars and having operative connection with the keys, and a damper mechanism, comprising a series of damper pads, a series of levers operated by said picker-block supporting bars, means, including a flexible cord or wire, forming an operative connection between said levers and damper pads, and means for adjusting the length of said cord, for the purpose set forth.

16. In a musical instrument of the class described, the combination, with the keyboard, strings, and means operated from the keyboard for engaging with said strings, of a damper mechanism for the strings, comprising a movable rail, a series of frames supported to slide in said rail and provided with attached damper pads, means forming an operative connection between said damper pad frames and the keyboard, and means for moving said rail with the connected dampers, for the purpose set forth.

17. In a musical instrument of the class described, the combination, with the keyboard, strings, and means operated from the keyboard for engaging with said strings, of a damper mechanism for the strings, comprising a hinged rail or support, a series of frames supported to slide in said rail and provided with attached damper pads, means forming an operative connection between said sliding damper-pad frames and the keyboard, and a pedal having connected means for raising and lowering said rail with the connected dampers, for the purpose set forth.

18. In a musical instrument of the class described, the combination, with the main case, of an action case having a hinged connection adjacent to its rear end with said main case, and means for adjusting the vertical position of the action case relative to the main case, for the purpose set forth.

19. In a musical instrument of the class described, the combination, with the main case having contained therein a stringed instrument comprising a sounding board with strings stretched thereover, of an action case provided with a keyboard and a series of pickers supported in said main case, and means for adjusting the vertical position of said action case with its supported parts relative to the said stringed instrument in the main case, for the purpose set forth.

20. In a musical instrument of the class described, the combination, with the main case having contained therein a stringed instrument comprising a sounding board with strings stretched thereover, of an action case provided with a keyboard and a series of pickers supported in said main case, and means for securing a backward and forward adjustment of said action case with its supported parts relative to the main case and the stringed instrument therein, for the purpose set forth.

21. In a musical instrument, the combination, of the main case, two plates or castings connected with said case and provided with horizontally adjustable blocks connected therewith, and an action case having a hinged connection adjacent to its rear end with said adjustable blocks and supported in a vertically movable position at its front end upon said plates or castings, substantially as and for the purpose set forth.

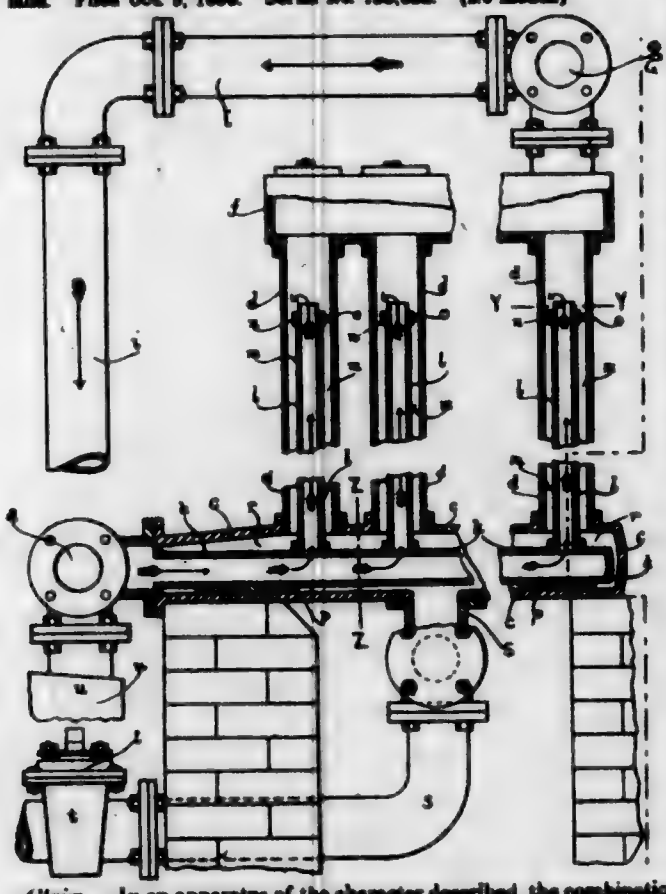
22. In a musical instrument, the combination, of the main case, two plates or castings connected with said case and provided with horizontally adjustable blocks connected therewith, and an action case having a hinged connection adjacent to its rear end with said adjustable blocks and adjacent to its front end provided with adjusting screws or pins resting upon stationary supports, for the purpose set forth.

23. In a musical instrument, the combination, with the main case, and an action case supported by the latter provided with a keyboard and a series of string engaging devices arranged to be operated from said keyboard, of a stringed instrument, comprising a sounding board with strings stretched thereover, supported in the main case below the action case, screws engaging with said stringed instrument, and means for operating said screws to raise and lower the stringed instrument relative to the string engaging devices, for the purpose set forth.

24. In a musical instrument, the combination, with the main case, and an action case supported by the latter provided with a keyboard and a series of string engaging devices arranged to be operated from said keyboard, of a stringed instrument, comprising a sounding board with strings stretched thereover, having a hinged connection at its rear end with the main case, screws engaging with said stringed instrument at its front end to support and vertically adjust the same, and means for operating said screws for the purpose set forth.

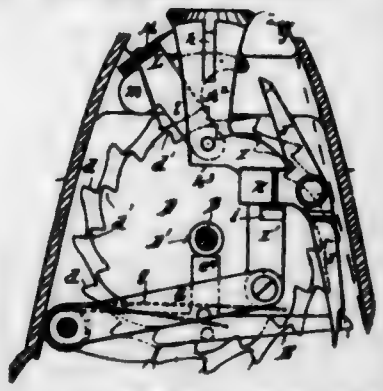
25. In a musical instrument, the combination, with the main case, and an action case supported by the latter provided with a keyboard and a series of string engaging devices arranged to be operated from said keyboard, of a stringed instrument, comprising a sounding board with strings stretched thereover, having a hinged connection at its rear end with the main case, screws engaging with said stringed instrument at its front end to raise and lower the same, each of said screws being provided with a lever-arm, one of which is shorter than the other, a rod connecting said lever arms, and means for operating said rod, for the purpose set forth.

694,590. ECONOMIZER. WILLIAM H. VERDON, Wakefield, England. Filed Oct. 9, 1899. Serial No. 733,022. (No model.)



Claim.—In an apparatus of the character described, the combination with a series of vertically-arranged tubes *d* adapted to be heated by the waste gases, a box *g* with which the upper ends of the tubes *d* are in communication, a box *c* with which the lower ends of the tubes are in communication, a box arranged within the box *c*, means for admitting cold feed-water to the inner box, a series of tubes leading at their lower ends from the inner box and extending upwardly within the tubes *d*, and leaving an intermediate narrow annular space between them as described, of a series of vertical tubes *e*, a box with which the lower ends of tubes *e* are in communication, a box *h* with which the upper ends of the tubes *e* are in communication and a pipe *i* in communication with the box *g* and the box at the lower end of tubes *e*.

694,591. CIGAR-TIP CUTTER. EDWIN WALKER, Erie, Pa. Filed May 17, 1901. Serial No. 60,681. (No model.)



Claim.—1. In a cigar-tip cutter, a rotary cylinder, a stop mechanism, a tripping mechanism adapted to operate the stop mechanism, and a cutter mechanism carried by the tripping mechanism and adapted to be brought into engagement with the rotary cylinder by the action of the tripping mechanism, substantially as set forth.

2. In a cigar-tip cutter, a rotary cylinder, teeth or stops thereon, stop mechanism adapted to engage said teeth or stops, a tripping mechanism adapted to disengage said stop mechanism, a cutter mechanism mounted on the tripper and adapted to be moved into engagement with the teeth or stops on the cylinder thereby, substantially as set forth.

3. In a cigar-tip cutter, a rotary cylinder, a tripper having a cigar-tip opening therein, a cylinder stop mechanism operated by said tripper, and a cutter mechanism mounted on the tripper and adapted to be actuated by the rotary cylinder when the tripper is depressed, substantially as set forth.

4. In a cigar-tip cutter, a frame, a spring-actuated rotary cylinder mounted therein, teeth or stops and cam-surfaces on said cylinder, stop-lever mechanism adapted to engage the teeth or stops and the cams on said cylinder, a tripper having an opening therein to receive a cigar-tip, mechanism on said tripper for engaging said stop-lever, and a cutter mechanism engaging said tripper and adapted to be moved thereby into engagement with the teeth or stops on the rotary cylinder, substantially as set forth.

5. In a cigar-tip cutter, a frame, a spring-actuated rotary cylinder mounted therein, teeth or stops on said cylinder, a stop-lever engaging the teeth or stops thereon, a tripper mounted in said frame so as to move up and down therein, and having a cigar-tip opening therein, a swinging arm mounted on said tripper so as to engage said stop-lever, a lug or extension on said arm adapted to be brought into engagement with the teeth or stops on said rotary cylinder by the action of the tripper, and a cutter-blade mechanism mounted on the tripper and adapted to be brought into engagement with the teeth on the rotary cylinder by the operation of the tripper, substantially as set forth.

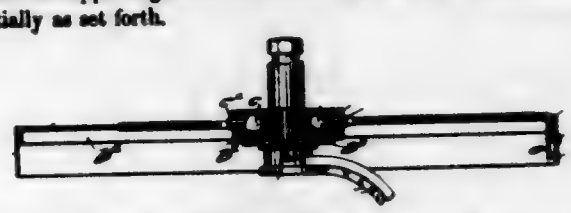
6. In a cigar-tip cutter, a frame, a spring-actuated rotary cylinder mounted therein, teeth or stops on said rotary cylinder, a stop-lever adapted to engage the teeth or stops thereon, a tripper mounted in said frame so as to move up and down therein, arms thereon projecting down on each side of the cylinder, a cutter mechanism pivoted on said arms, so as to move up and down with said tripper, a downward extension on one of the tripper-arms, a link pivoted to said extension and to the frame, spring mechanism for raising said tripper to its normal position, and an arm on said tripper adapted to engage the stop-lever during the downward movement of the tripper, substantially as set forth.

7. In a cigar-tip cutter, the combination of a spring-shaft, and a winding-key therefor consisting substantially of U-shaped rod inserted in holes in said shaft, substantially as set forth.

694,592. VEGETABLE-CUTTER. CHARLES WAIT, New York, N. Y. Filed Apr. 5, 1901. Serial No. 54,443. (No model.)

Claim.—1. In a vegetable-cutter, a cutter-disk provided with radial openings, center disks provided with hemispherical and radial semicylindrical depressions, said center disks being placed on opposite sides of the

cutter-disk, a shaft passing through said disks, means for clamping the disks together thereon, cutting-knives provided with spherical terminals and short cylindrical shanks at their inner ends engaging said depressions, and means for supporting the outer ends of the knives on the cutter-disks, substantially as set forth.



2. In a vegetable-cutter, a cutter-disk provided with radial openings and a circumferential flange, center disks provided with hemispherical and radial semicylindrical depressions, said center disks being placed on opposite sides of the cutter-disk, a shaft passing through said disks, means for clamping the disks together thereon, cutting-knives provided at their inner ends with spherical terminals and short cylindrical shanks engaging said depressions, and at their outer ends with pins pivoted in the circumferential flange of the cutter-disk, and means engaging said knives at their outer ends for adjusting the same relatively to the cutter-disk, substantially as set forth.

3. In a vegetable-cutter, a cutter-disk provided with radial openings and a circumferential flange, cutting-knives in said openings, having grooved backs engaging said disk, spherical terminals and short cylindrical shanks at the inner ends of said cutting-knives, center disks provided with depressions for supporting said terminals, a cranked web at the outer end of each knife, pins on said web, one pin engaging the flange of the disk, an adjusting-ring engaging the other pin of each web, and clamping-screws connecting said adjusting-ring with said cranked webs, substantially as set forth.

694,598. **BOOKBINDING.** RICHARD P. WINCKLER, Latonia, Ky. Filed Oct. 4, 1901. Serial No. 77,614. (No model.)



Claim.—1. In a binding for books, the combination of signatures, a back, sides and reinforces each formed from a strip of material folded at its central portion to form two plies, the folded central portion of each reinforce being held between one of the outer signatures and the next adjacent inner signature and the two plies of said reinforce being superimposed and extended around the binding edge of the outer signature and one of said plies being secured upon the adjacent side, substantially as set forth.

2. In a binding for books, the combination of a back, signatures, sides and reinforces each formed from a strip of material folded at its central portion to form two plies, the folded central portion of each reinforce being held between one of the outer signatures and the next adjacent inner signature and the two plies of said reinforce being superimposed and extended around the binding edge of the outer signature and one of said plies being secured upon the adjacent side, and a fly-leaf secured upon the other ply of said reinforce, substantially as set forth.

3. In a binding for books, the combination of a back, signatures, sides, reinforces each formed from a strip of material folded at its central portion to form two plies, the folded central portion of each reinforce being held between one of the outer signatures and the next adjacent inner signature and the two plies of said reinforce being superimposed and extended around the binding edge of the outer signature, an end sheet secured upon one ply of each reinforce and a fly-leaf secured upon the other ply of each reinforce, substantially as set forth.

4. In a binding for books, the combination of a cover, signatures, tapes, each formed of a strip of flattened woven tubing extended transversely across the binding edges of the signatures and having its two plies movable one on the other at its central part, said strip being secured at its ends to the cover and stitches passed through the signatures and engaged with said tapes, substantially as set forth.

694,594. **SETTING FOR FINGER-RINGS OR OTHER ARTICLES OF JEWELRY.** CHARLES T. WITTSTEIN, Chicago, Ill., assignor to Schrader-Wittstein Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 7, 1901. Serial No. 71,142. (No model.)

Claim.—1. A setting of the character described, comprising light standards separated by spaces, and a bezel-rim supported wholly thereon and secured to the upper portions thereof, substantially as and for the purpose set forth.

2. A setting of the character described, comprising open-work and an independently-formed bezel-rim supported wholly thereon, said open-work being stamped from sheet material and including standards connected by said rim, substantially as and for the purpose set forth.



3. A setting comprising independently-formed base-piece, open-work and bezel-rim, said open-work including standards and surmounting and secured to said base-piece, and said bezel-rim joining said standards together.

4. A setting comprising a base-piece, a surmounting open-work piece stamped from sheet metal and dished upwardly, and a bezel-rim joining the members of said open-work at their upper portions and wholly supported thereon.

5. A setting comprising open-work stamped from sheet metal and dished upwardly, and a rim-form bezel surmounting said open-work and joining the members thereof at their upper portions and wholly supported thereon.

694,595. **FINGER-RING.** CHARLES T. WITTSTEIN, Chicago, Ill., assignor to Schrader-Wittstein Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 7, 1901. Serial No. 71,143. (No model.)



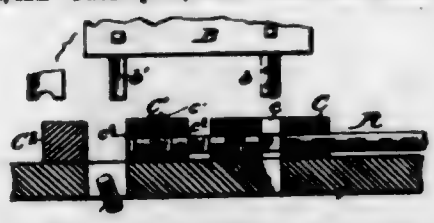
Claim.—1. A finger-ring of the close-set solitaire-gem type, comprising a ring or band having standards formed integrally therewith, and a separately-made rim-form bezel secured to and capping said standards, substantially as and for the purpose set forth.

2. A finger-ring of the close-set solitaire-gem type, comprising a ring or band having inwardly-convergent standards formed integrally therewith, and a separately-made rim-form bezel secured to and capping said standards, substantially as and for the purpose set forth.

3. A finger-ring of the close-set solitaire-gem type, comprising a ring or band having sets of symmetrically-arranged standards formed integrally therewith, and a separately-made surmounting rim-form bezel secured to said standards, substantially as and for the purpose set forth.

4. A finger-ring, comprising a ring or band having sets of standards with diametrically opposite members, and a rim-form bezel surmounting and firmly secured to said standards and wholly supported thereon.

694,596. **RIVET-MAKING MACHINE.** FRANK W. WOOD, Indianapolis, Ind. Filed Apr. 6, 1901. Serial No. 54,673. (No model.)



Claim.—1. In a rivet-making machine, the combination, of the die-plate having an aperture through which the wire is fed, and intersecting apertures through which the slabbing-dies operate, a die having an aperture surrounded by a cutting corner or edge through which the rivets are forced to trim or form them, a reciprocating die-head carrying the slabbing-dies and also a severing-die arranged to cooperate with the opposite end of the trimming-die to cut the rivets at the proper points, substantially as set forth.

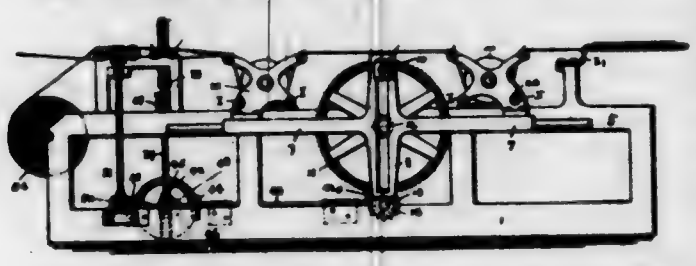
2. In a rivet-making machine, the combination, of the die-plate C having a longitudinal perforation to hold the rod or wire to be operated upon and intersecting transverse perforations on each side thereof, the second die-plate C' having a perforation of the size and form desired for the finished rivet, and formed with hardened cutting edges to remove any irregularities therefrom as it is forced therethrough, and the die-block B carrying the pair of dies *b b* for slabbing the rivet, and the cutting-die *b'*

for cutting it off at the proper point as it projects from the die-plate C, substantially as set forth.

3. In a machine for making rivets, the combination of the die-plate having longitudinal and transverse intersecting perforations, a second die-plate having a longitudinal perforation with cutting edge, in line with the longitudinal perforation in said first-named plate, and a cutting-die adapted to cut off the rivets at the outer edge of said second plate, substantially as set forth.

4. In a machine for making bicycle-chains, rivet-forming dies, comprising a plate with a longitudinal perforation through which the rod is to be fed and transverse intersecting perforations, a second plate with a longitudinal perforation for removing surface irregularities, a stop, and a reciprocating die-head carrying dies to "slab" the rod, and cut off the rivets simultaneously, substantially as set forth.

694,597. PRINTING-MACHINE. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press & Manufacturing Company, New York, N. Y., a Corporation of New York. Filed May 31, 1898. Serial No. 681,980. (No model.)



Claim.—1. The combination in a printing-press of a stationary form-bed, a traveling impression-cylinder coacting therewith, guides for directing a web to and from the traveling impression-cylinder, a deflector device arranged at one end of the machine to deflect the web after the same has been once printed back parallel with its original pathway and with the same side uppermost, again under the impression-cylinder, whereby the same side of the web can be twice presented to the forms by the same traveling impression-cylinder, and a web-manipulating device arranged at the other end of the machine relatively to the deflector for respacing the web when the impression-cylinder is out of impression.

2. The combination in a printing-press of a stationary form-bed, a traveling impression-cylinder coacting therewith, guides for directing a web to and from the traveling impression-cylinder, a deflector device arranged at one end of the machine to deflect the web after the same has been once printed back parallel with its original pathway, and with the same side uppermost, again under the impression-cylinder, whereby the same side of the web can be twice presented to the forms by the same impression-cylinder, and means for continuously feeding the web into and out of the press, and for respacing the web arranged at the other end of the machine relatively to the deflector, for shifting the web when the impression-cylinder is out of impression.

3. The combination in a printing-press of two stationary form-beds, a traveling impression-cylinder coacting with each form-bed, a deflector device arranged in the path of the web beyond the second of said impression-cylinders, guides for directing a web around both impression-cylinders, then around the deflector, then parallel with its original pathway, again around the two impression-cylinders, whereby a multicolor-printing machine is provided, and a web-manipulating device arranged to shift the web when the impression-cylinders are out of impression.

4. The combination in a printing-press of two stationary form-beds, a traveling impression-cylinder coacting therewith, a deflector device arranged at one end of the machine, guides for directing a web around said impression-cylinders, then through the deflector device, then back parallel to its original pathway, again around the impression-cylinders with the same side uppermost, whereby a multicolor-machine is provided, and a web-manipulating device arranged at the other end of the machine relatively to the deflector, for shifting the web when the impression-cylinders are out of impression.

5. The combination in a printing-press of a stationary form-bed, a traveling impression-cylinder coacting therewith, a guide moving with the impression-cylinder at each side thereof, a stationary deflector device arranged in the path of the web beyond the traveling impression-cylinder, and in substantially the same horizontal plane as the guide on the side of the impression-cylinder next to said deflector, the whole arranged to direct the web back parallel to its original pathway, again under the impression-cylinder with the same side uppermost, and a web-manipulating device arranged at the other end of the machine relatively to the deflector for shifting the web when the impression-cylinder is out of impression.

6. The combination in a printing-press of two side frames, a yoke mounted to reciprocate on each of said side frames, each of said yokes having a vertical slot, a revolving wrist-pin engaging each of said slots, brackets carried by said yokes, an impression-cylinder mounted in said brackets, suitable web-guides and web-manipulating devices.

7. The combination in a printing-press of two side frames, a yoke mounted to reciprocate upon each of said side frames, each of said yokes having a vertical slot, revolving wrist-pins engaging said vertical slots, brackets carried by said yokes, two impression-cylinders journaled in said yokes, suitable web guides and manipulating mechanism.

8. The combination in a printing-press of a form-bed, a traveling impression-cylinder coacting therewith, a deflector, and devices for leading a web under said impression-cylinder in opposite directions, and guides for said web arranged at each side of the impression-cylinder having independent portions thereof adapted and arranged so that they may turn in opposite directions.

9. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coöperating with each bed, a deflector, and guides for leading a web twice around each cylinder, said guides constructed so that different parts of the same may turn independently of each other, and web-manipulating mechanism.

10. The combination in a web-printing press of a form-bed, a traveling impression-cylinder coacting with said form-bed, a deflector, guides for leading a web around said impression-cylinder, through the deflector, and back parallel to its original pathway around said impression-cylinder so that the same side of the web will be twice presented to the forms by said impression-cylinder, a pair of looping-rollers over which the web is oppositely looped before and after passing to the impression-cylinder, and a continuously-running feeding device through which the web is led both before and after passing from said loopers, so that the same can be continuously fed into and out of the press by the same device.

11. The combination in a web-printing press of two form-beds, a traveling impression-cylinder coacting with each form-bed, a deflector, guides for leading a web around each impression-cylinder, then around the deflector, then back parallel to its original pathway, again around said impression-cylinders, so that said web may have the same side thereof presented to the forms four times by said impression-cylinders, a pair of loopers arranged at the opposite end of the machine from the deflector, and a continuously-running feeding device through which the web is led to and from said loopers, whereby the same device can feed the web into and out of the machine.

12. In a traveling-cylinder web-printing press, the combination of two form-beds, two traveling cylinders coöperating therewith, means for constantly unwinding the web from the web-roll, means for constantly delivering the web from the machine, means for intermittently respacing the web with respect to the form-beds and a deflector for directing the web twice over the form-beds, whereby the web may be printed four times.

13. In a traveling-cylinder multicolor web-printing press, the combination of two form-beds, two traveling impression-cylinders coöperating therewith, guides arranged at each side of each cylinder, the web passing from one cylinder to the other so that said cylinders will present the same side of the web to be printed, means for feeding the web into and out of the machine, and for respacing the same around the impression-cylinders when they are out of impression.

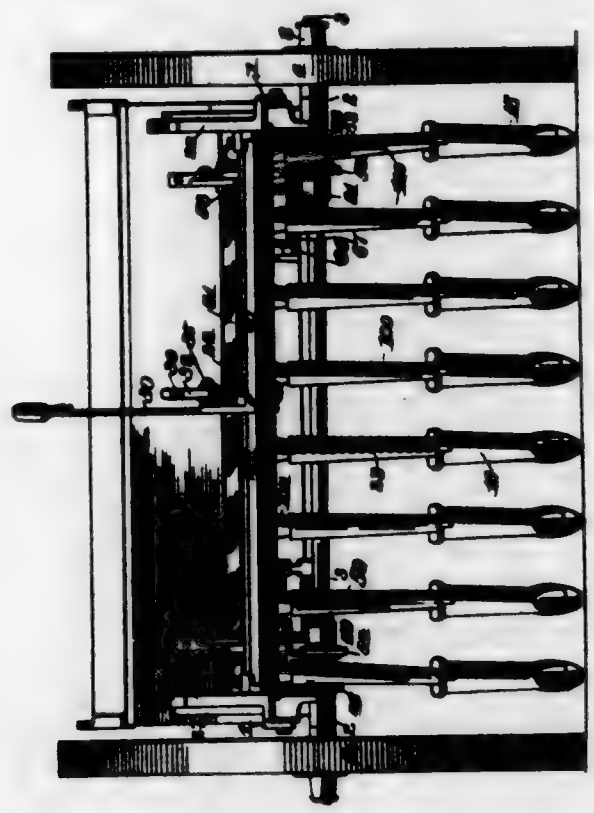
14. In a traveling-cylinder multicolor web-printing press, the combination of two form-beds, two traveling impression-cylinders coöperating therewith, guides at each side of each cylinder moving therewith, the web being led from one impression-cylinder to the other, so that said impression-cylinders will present the same side of the web to the forms, means for continuously unwinding the web from the web-roll, means for continuously delivering the web from the machine, and means for intermittently respacing the web with respect to the form-beds when the cylinders are out of impression.

15. In a traveling-cylinder multicolor web-printing press, the combination of two stationary form-beds, a traveling impression-cylinder coöperating with each form-bed, guides at each side of each cylinder moving therewith, a deflector arranged in the path of the web beyond the second of said cylinders, so that the web may be deflected and led a second time around said cylinders parallel with its original pathway, means for continuously unwinding the web from the web-roll, means for continuously delivering the web from the machine, and means for intermittently respacing the web with respect to the form-beds when the cylinders are out of impression.

694,598. GRAIN-DRILL. ALBERT ARMITAGE, Fairport, N. Y., assignor to Ontario Drill Company, Dunpatch, N. Y., a Corporation of New York. Filed July 24, 1901. Serial No. 69,593. (No model.)

Claim.—1. In an agricultural machine, the combination with a frame having a hopper, feeding mechanism in the latter, a rotary driving-shaft, a driven shaft, and adjustable speed devices between said driven shaft and the feeding mechanism, of the hoes, elevating devices for raising the latter out of contact with the ground, a gear-wheel on the driving-shaft

provided with lateral projections and connections between the gear-wheel and the driven shaft, a clutch member mounted on the driving-shaft and having projections interlocking with those on the gear-wheel, a movable clutch member carried on the driving-shaft, and means for disengaging the clutch members operated by the elevating devices when the hoes are raised out of the operative position.



2. In an agricultural machine, the combination with a frame, having a hopper, a feeding mechanism in the latter, a driving-shaft, a driven shaft, and speed devices arranged between the latter and the feeding devices, of the hoes normally in contact with the ground, elevating devices for raising the hoes, and a driving-gear loosely mounted on the driving-shaft for operating the driven shaft, having the hub provided with an irregular-shaped recess, a clutch member loosely mounted on the shaft having the irregular-shaped extension engaging the recess in the gear-hub, a movable clutch member carried on the driving-shaft and normally coöperating with the other member, and means arranged between the members operated by the elevating devices whereby the operation of the feeding device is arrested when the hoes are raised.

3. The combination with the frame, a revolvable shaft, the hoes connected to the latter and a shoulder on the shaft, of a pivoted latch adapted to engage the projection on the shaft to arrest its rotary movement in one direction, and a member on the latch coöperating with the projection to disengage the latch when the shaft is moved in the opposite direction.

4. The combination with the frame, a revolvable shaft the hoes connected thereto, and a shoulder on the shaft, of a pivoted latch, means for moving the latch relative the shaft to engage the shoulder thereon, and a releasing member operated, by the movement of the shaft in one direction, to hold the latch out of the path of the shoulder when the shaft is revolved in the opposite direction.

5. In an agricultural machine, the combination with a frame having the hoes, and the brackets on the frame having the guides and the racks, of the shaft arranged between the brackets having the gears engaging the racks and the pins moving in the guides, flexible connections between the shaft and hoes, and a handle for revolving the shaft, a projection on the shaft, a latch having an aperture engaging said projection to lock the shaft in the elevated position, and a finger on the latch adapted to close the aperture against the entrance of the projection therein when moving in one direction.

6. In an agricultural machine, the combination with a frame having a hopper, feeding devices in the hopper, and the hoes, upwardly-extending racks on the frame, the shaft connected to the hoes and having the gears engaging the racks, and means for revolving the shaft to elevate it upon the racks, of the driving-shaft, a loose clutch member thereon, and driving connections between the latter and the feeding devices, a laterally-movable clutch member carried on the shaft and coöperating with the former member, a disengaging device for moving said clutch member out of operative position, and a lever connected to said device having the fingers extending upon opposite sides of the hoe-elevating shaft whereby the clutch member will be positively operated by the raising and lowering of the shaft.

7. In an agricultural machine, the combination with a frame having a hopper, feeding devices in the hopper, and the hoes, brackets on the frame having upwardly-extending racks, the shaft guided on the brackets and having the gears engaging the racks, means for revolving the shaft to raise it on the brackets, and locking devices for securing it in the elevated position, of the driving-shaft, a loose clutch member carried thereon, driving connections between said member and the feeding devices, a second clutch member movably carried on the driving-shaft and coöperating with the first clutch member, and a lever having the fingers extending on opposite sides of the hoe-elevating shaft, and an arm attached to said lever having the end lying between the clutch members and adapted to separate them when moved out of the normal position.

8. In an agricultural machine, the combination with a frame having a hopper, feeding devices in the latter embodying a shaft and a driving-gear, and a driving-shaft on the frame, of a driven shaft operated from the latter carrying a gear, the two pinions adapted to engage singly with the gears on the feeding and driven shafts, a yoke having the arms extending upon opposite sides of the pinions adjustable relatively to the driven shaft and having the channels in the proximate faces of its arms, a journal-pin having its ends lying in the channels and supporting the pinions and means for preventing the movement of the pin in the channels.

9. In an agricultural machine, the combination with a frame having a hopper, a feeding-shaft arranged below the latter having the gear-wheel thereon, a driving-shaft on the frame, and a driven shaft operated from the latter carrying a gear-wheel, of the two pinions of different diameters mounted on a single journal and adapted to operate singly between the gear-wheels on the feeding and driven shafts, an adjustable yoke having the arms extending on opposite sides of the pinions and provided with channels in their proximate faces, and a pin forming a journal for both pinions having its ends lying in the channels, a frame having the side portions engaging the ends of the pin and provided with projections in rear of the pin lying in the channel, and a gate on the yoke engaging the frame to limit the rearward movement of the pinions.

10. In an agricultural machine, the combination with a hopper, a feeding-shaft located below the latter having the gear-wheel thereon, a driving-shaft on the frame, a driven shaft operated from the latter, and an adjustable yoke, of the pinions of different diameters journaled in the yoke and rigidly connected, one of said pinions being adapted to coöperate with the gear-wheel on the feeding-shaft, a series of gear-wheels mounted on the driven shaft movable longitudinally thereon and adapted to coöperate singly with either of the pinions, a plate hinged to the frame and provided with an aperture adapted to receive one of the gear-wheels on the driven shaft and retain it in line with one of the pinions, and means for adjusting the yoke relative the driven shaft.

11. In an agricultural machine, the combination with a hopper, a feeding-shaft having a driving-gear thereon, a driving-shaft on the frame, and a driven shaft operated thereby, of a yoke pivoted on the driven shaft, a pinion journaled in the yoke and coöperating with the gear on the driving-shaft, and a second pinion of a different diameter rigidly secured to the first, a series of differential pinions mounted on the shaft and movable longitudinally thereon, a plate having apertures in line with the pinions in the yoke adapted to receive one of the series of gears and position it in line with either of the pinions, and fingers at the sides of the plate holding the remaining gears of the series from passing beneath the yoke.

12. In an agricultural machine, the combination with a frame having a double hopper, feeding devices arranged in both hoppers and separate driving-shafts arranged beneath the hoppers, the operating gear-wheels on said shafts, the vehicle-wheels on the frame, and a revolvable axle on the frame connected to the wheels, of the separate driven shafts on the frame operated by the axle, separate clutch connections between the latter and said shafts, and intermediate pinions arranged between each of the driven shafts and the operating gear-wheels on one of the feeding-shafts, the hoes on the frame normally in contact with the ground, elevating mechanism for raising the hoes, and operating devices for each clutch, positive connections between one of said operating devices and the elevating mechanism, and adjustable connections between the other operating device and said elevating mechanism whereby the operation of either or both feeding devices, in the hopper, may be arrested upon the elevation of the hoes.

13. In an agricultural machine, the combination with the frame having the hopper provided with the feeding devices, the driving-shaft, and clutch connections between the latter and the feeding devices, of the hoes, the vertically-movable elevating-shaft mounted on the frame and connected to the hoes, the lever for operating the clutch, and the finger on the lever extending over the elevating-shaft and adapted to operate the lever to disengage the clutch when the shaft is raised, the finger pivoted on the lever and extending below said shaft, and a locking device for securing the finger in operative position to be normally engaged by the shaft in its downward movement.

14. In a seeding-machine, the combination with a hopper, and a feeding device therein embodying a distributer having the hollow collar provided with the oppositely-arranged pins or lugs, of a conveyer loosely surrounding the collar having at one side an aperture engaging one of the pins and at the opposite side a similar aperture adapted to engage the other pin and a passage leading from the aperture through which the pin may be passed to disengage the conveyer when the latter is tilted and revolved upon the former pin as an axis.

15. In a seeding-machine, the combination with a hopper, and a feeding device therein embodying a distributer having a hollow collar 101, and pins 102 and 102' arranged on opposite sides of the collar, of the conveyer having a tubular top piece 104 having at one side an aperture 103 engaging one of the pins and at the opposite side provided with a similar aperture adapted to engage the other pin and with a passage 105 leading from the latter aperture through which the said pin may be passed to engage and disengage the conveyer when the latter is tilted relative the collar.

16. In a machine such as described, the combination with a hopper having the two feeding devices, a driving mechanism, and separate clutch mechanism between the driving mechanism and feeding devices of the hoes, mechanism for elevating the latter, and the separate clutch-shifting devices for causing the operation of the clutches for the separate feeding devices controlled by the hoe-elevating mechanism.

17. In a machine such as described, the combination with a frame, a hopper thereon having two feeding-shafts, and a driving-shaft on the frame, the hoes, and a mechanism for elevating the latter, of separate clutch devices arranged between the driving-shaft and the feeding-shaft, separate operating devices controlled by the hoe-elevating mechanism to disconnect the clutches when the hoes are elevated, and means adjustable relatively to one of the operating devices whereby one of the clutches may be operated independently of the other when the hoes are in the operative position.

18. In a machine such as described, the combination with a frame having a hopper provided with a feeding-shaft, and a driving-gear thereon, a driving-shaft on the frame, a driven shaft operated from the driving-shaft, and a driving-gear thereon, of an adjustable yoke having the arms, differential pinions removably and interchangeably mounted in the yoke whereby either of said pinions may cooperate with the driving-gears on the feeding and driven shafts.

19. In a seeding-machine, the combination with a feeding mechanism having an operating-gear, a main driving-gear, and a shiftable gear driven from the main driving-gear, of differential pinions adapted to cooperate with the shiftable gear and the operating-gear of the feeding mechanism, a yoke supporting the pinions, and a removable journal for the differential pinions adjustable on the yoke whereby the position of the pinions may be reversed and devices for securing the journal on the yoke.

20. The combination with the frame having a hopper, feeding devices in the latter embodying a shaft having a driving-gear, and a driving-shaft on the frame, of a driven shaft operated from the former carrying a gear, a yoke adjustable relative the driving-shaft having the arms provided with the channels in their proximate faces, a pinion having the journal-pins lying in the channels in the yoke, and devices for adjusting the pinion on the yoke to cause its engagement with the gears on the feeding and driven shafts.

694,599. HERNIAL TRUSS. ROBERT ARNOLD, Cleveland, Ohio. Filed Nov. 14, 1901. Serial No. 82,258. (No model.)



Claim.—1. In a truss, a pad-plate, a block pivotally secured thereto having a dished face and a recess for a liquid, an absorbent cushion filling the dished portion and communicating with the recess, said plate having an arc slot concentric with said pivot, and an adjusting-screw extending through the slot into the block.

2. A truss-pad comprising a block having a dished face with a groove at the edge thereof, an absorbent cushion filling the dished portion and extending into the groove, and a liquid-supply opening through the side wall of the block into the groove.

694,600. METALLIC RAILWAY-TIE. ALFRED F. BANKERSEL, New Cumberland, Pa. Filed Sept. 12, 1901. Serial No. 75,207. (No model.)

Claim.—1. A metallic railway-tie consisting of metallic boxes, a tie-plate passed through the sides thereof and supported therein and rail-securing devices, embodying spike-keys and plates covering the heads thereof and means adapted to secure the said tie-plate to the boxes, as set forth.

2. The combination with the boxes and tie-plate, of flanged spikes, spike keys and fastenings mutually bracing each other and securing the tie-plate to the boxes and resting on the heads of the keys, as set forth.



3. The combination with the tie and the rail, of the spike having a flange at each end, a spike-key having a head, a heel-plate engaging said key, a spike-key plate resting upon the top of the key and a securing-bolt, as set forth.

4. The combination with the boxes, the tie-plate passed through the same, and the flanged spikes, of the headed spike-keys, the heel-plates, the spike-key plates and the securing-bolts, all substantially as shown and described.

5. The combination with the boxes, the tie-plate, the spikes flanged at each end, the headed spike-keys, the heel-plates with shoulders, with one end bearing against the spike-key, and the spike-key plates bearing against the shoulders of the heel-plates and against the spikes and resting upon the heads of the spike-keys, all substantially as described.

6. The combination with the box and the spike having flanges or lugs, of the spike-key, and a flanged heel-plate and bolt passed vertically through said flanged heel-plate for securing the same in position, as set forth.

7. The combination with the box, of the spike having lugs, the headed bolt, the headed spike-key, the flanged heel-plate, means engaging the flange of said heel-plate, and the spike-key and a nut on said bolt, all substantially as described.

8. The combination with the box and the spike, of a spike-key, a flanged heel-plate having one end disposed above and resting on the head of the key, a bolt and a locking member engaged by the flange of the heel-plate, as set forth.

694,601. GRATE-BAR. JAMES BARKER, Philadelphia, Pa. Filed June 6, 1901. Serial No. 63,264. (No model.)

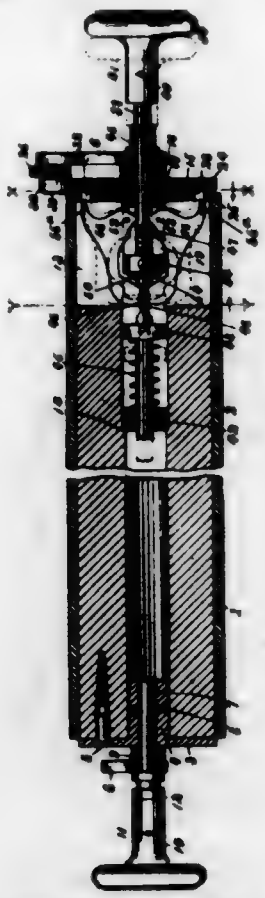


Claim.—1. A grate-bar having a bevel extending from the top of the bar downward to the end thereof to provide a space for the reception of ashes for protection to the end of the grate-bar, and ribs extending across said space and having their upper surfaces flush with the top of the grate-bar.

2. A union grate-bar comprising longitudinal bars, a cross-piece uniting said longitudinal bars at one end, said cross-piece having a bevel extending from the top thereof downward to the end of the grate-bar to provide a space for the reception of ashes and ribs extending across said space with their upper surfaces flush with the top of the grate-bar.

3. A grate-bar having a cross-piece joining the members thereof, said cross-piece having a bevel extending from the top thereof downward and ribs extending transverse of said bevel with their upper surface flush with the top of the grate-bar, said cross-pieces also being provided at one end with an open socket and at the other end with a corresponding tooth or projection, said socket and tooth or projection extending the depth of the cross-piece whereby a grate-bar may be readily replaced without disturbing other bars of the grate.

694,602. TYPE-WRITING MACHINE. WALTER J. BARRON, Brooklyn, N. Y., assignor to the Densmore Typewriter Company, Syracuse, N. Y., a Corporation of New York. Filed Nov. 27, 1899. Serial No. 738,392. (No model.)



Claim.—1. In a platen-release mechanism, the combination of a platen, a line-feed ratchet-wheel, and mechanism for releasably locking the two against independent rotation in all relative positions thereof.

2. In a platen-release mechanism, the combination of a platen, a line-feed ratchet-wheel, and means for locking the platen and the wheel together in any relative position thereof against independent rotation and for releasing the platen from the wheel, whereby the platen may be rotated in either direction to any desired position relatively to the printing-point and to the wheel and may then be relocked to the wheel.

3. In a platen-release mechanism, the combination of a platen, a detent-held line-feed ratchet-wheel, a clutch mechanism locking the platen and wheel against independent rotation in any relative position thereof, and means for opening the clutch mechanism and releasing the platen, whereby the latter may be rotated independently in either direction to any desired position and may then be relocked to the ratchet-wheel by the closing of the clutch.

4. In a type-writing machine, the combination of a platen, a ratchet-wheel, oppositely-acting clutches, one clutch acting to oppose rotation of the platen in only one direction, and the other to oppose rotation in only the opposite direction, said clutches connecting said wheel and said platen together, and means for disengaging the said clutches to permit independent rotation of the platen.

5. In a type-writing machine, the combination of a line-feed ratchet-wheel and a relatively movable platen connected together by releasable self-binding devices, the construction and arrangement being such that attempted relative movement between the line-feed wheel and the platen effects a more powerful binding action of the said connecting devices.

6. In a type-writing machine, the combination with a line-feed ratchet-wheel and a platen rotatable relatively thereto, of mechanism for locking the platen and line-feed wheel against relative rotary movement in only one direction, mechanism for locking the platen and line-feed wheel against relative rotary movement in only the other direction, and means for releasing both of said locking mechanisms.

7. In a type-writing machine, the combination of a line-feed ratchet-wheel, a platen whose axis coincides with the line-feed-wheel axis, said platen being rotatable relatively to the line-feed wheel, and a locking device movable around the common axis independently of both the platen and the line-feed wheel, and adapted to lock the platen to the line-feed wheel.

8. In a type-writing machine, the combination of a line-feed ratchet-wheel and a platen connected together by independent releasable self-binding wedges arranged between the platen and the line-feed ratchet-wheel and locking the two together.

9. In a type-writing machine, the combination of a platen, a line-feed ratchet-wheel, and mechanism, including a pair of oppositely-disposed independent releasable wedges movable around the axis of the platen and locking the platen and wheel together.

10. In a type-writing machine, the combination of a platen, a line-feed ratchet-wheel, and a releasable and rotatable wedge constructed to lock the two together by a turning movement of the wedge.

11. In a type-writing machine, the combination of a platen, a line-feed ratchet-wheel, and mechanism, including a pair of oppositely-disposed releasable and rotatable wedges, for locking the platen and wheel together.

12. In a type-writing machine, the combination with a line-feed ratchet-wheel and a platen rotatable relatively thereto, of a wedge for locking the platen to the ratchet-wheel, and normally disconnected means for engaging said wedge to move it and release the platen.

13. In a type-writing machine, the combination with a line-feed ratchet-wheel and a platen rotatable relatively thereto, of a pair of wedges for locking the platen to the ratchet-wheel, and a pair of levers constructed to engage said wedges to move them and release the platen.

14. In a type-writing machine, the combination with a line-feed ratchet-wheel and a platen rotatable relatively thereto, of a wedge for locking the platen to the ratchet-wheel, a lever constructed to engage said wedge to move it and release the platen, and a rod for operating said lever.

15. In a type-writing machine, the combination with a line-feed ratchet-wheel and a platen rotatable relatively thereto, of wedges for locking the platen to the ratchet-wheel, and a manually-operable device provided with teeth for engaging said wedges and moving them so as to release the platen.

16. In a type-writing machine, the combination with a platen, of a line-feed mechanism including a line-feed ratchet-wheel and releasable means for locking the platen to the line-feed wheel at all relative positions thereof, said line-feed mechanism comprising a member that may be pressed in a direction lengthwise of the platen to effect such release.

17. In a type-writing machine, the combination of a line-feed ratchet-wheel, a platen rotatable relatively thereto, means for locking the platen by a wedging action to the line-feed wheel at all relative positions thereof, and a rod movable relatively to the platen and provided with means for releasing the platen from the line-feed wheel.

18. In a type-writing machine, the combination of a line-feed ratchet-wheel, a platen rotatable relatively thereto, means for locking the platen by a wedging action to the line-feed wheel at all relative positions thereof, and a platen-rotating shaft provided with a hand-wheel and movable endwise relatively to the platen and also provided with means for releasing the platen from the line-feed wheel.

19. In a type-writing machine, the combination with a line-feed ratchet-wheel and a platen rotatable relatively thereto, of means for locking the platen by a wedging action to the ratchet-wheel, and an endwise-movable shaft splined to the platen and provided with means for releasing the platen from the line-space wheel, and provided also with a hand-wheel, whereby the shaft may be operated either to turn the platen or to effect said release.

20. In a type-writing machine, the combination with a line-feed ratchet-wheel, a platen rotatable relatively thereto, means for locking the platen by a wedging action to the line-feed wheel at all relative positions thereof, and a hand-wheel constructed to rotate both the platen and ratchet-wheel when locked together and provided with means for releasing the platen from the ratchet-wheel, and also constructed to rotate the platen after the releasing operation.

21. In a type-writing machine, the combination of a platen, a ratchet-wheel, oppositely-acting clutches for connecting the platen and the wheel together, one acting to oppose rotation of the platen in one direction, the other to oppose rotation in the opposite direction, a shaft movable axially of the platen, and means operated by the shaft for disengaging said clutches to permit independent rotation of the platen in either direction.

22. In a type-writing machine, the combination of a platen, a ratchet-wheel, oppositely-acting clutches for connecting the platen and ratchet-wheel together, a shaft movable axially of the platen, and movable teeth operated thereby for disengaging the said clutches, to permit independent rotation of the platen in either direction.

23. In a type-writing machine, the combination of a platen, a ratchet-wheel, oppositely-acting clutches for connecting the platen and wheel together, a shaft movable axially of the platen, and pivoted actuators connected to the shaft and operated thereby to disengage the said clutches to permit independent rotation of the platen in either direction.

24. In a type-writing machine, the combination of a platen, a ratchet-wheel, oppositely-acting clutches for connecting the platen and the wheel together, a shaft movable axially of the platen, and clutch-opening levers, pivotally connected with the platen by axes at right angles to the axis of said shaft, and operatively connected with the shaft for opening said clutches to permit rotation of the platen in either direction.

25. In a type-writing machine, the combination of a platen, a ratchet-wheel, oppositely-acting clutches for connecting the platen and wheel together, clutch-opening levers pivotally connected with the platen upon

axes at right angles to the axis of the platen, and a shaft movable axially of the platen and having a collar adapted to operate said openers by a camming action.

26. In a type-writing machine, the combination of a platen, a ratchet-wheel, oppositely-acting clutches for connecting the platen and the wheel together, pivoted clutch-openers, and a shaft movable axially of the platen and provided with a cammed part for actuating said openers.

27. In a type-writing machine, the combination of a platen, a line-feed ratchet-wheel, and a releasable wedge constructed to work between two surfaces, one of which surfaces is curved concentrically to the platen and the other of which is inclined to said concentrically-curved surface, one of said surfaces being secured to the platen and the other to the wheel.

28. In a type-writing machine, the combination of a platen, a ratchet-wheel, a disk alongside the ratchet-wheel and fast to the platen and provided with recesses whose bottoms are inclined some one way and some the other with respect to the periphery of the disk, a flange on the wheel exterior to the periphery of the disk, spring-pressed rollers in said recesses adapted to engage with said flange and said bottoms to lock the platen and the wheel together, and means for moving said rollers in said recesses to disengage the same, to permit rotation of the platen independently of the ratchet.

29. In a type-writing machine, the combination of a platen, a disk fast thereto, and having recesses in its periphery whose bottoms are inclined some one way and some the other with respect to said periphery, a ratchet-wheel exterior to the said disk, spring-pressed rollers in said recesses adapted to coact with the bottoms of said recesses and with the wheel to clutch or fasten the wheel and the platen together and also adapted to be moved in the recesses to disengage the platen from the wheel, and means for moving the said rollers toward the wider portions of said recesses to effect said disengagement.

30. In a type-writing machine, the combination of a platen, a disk fast to the platen and provided with tapering recesses, a loose ratchet-wheel provided with a flange opposing said recesses, spring-pressed rollers in said recesses adapted to engage with said bottoms and said flange to lock the platen and said wheel together and to be moved toward the wider parts of the recesses to disengage the platen from the wheel, a shaft movable axially of the platen, and means operated by said shaft for moving said rollers toward the said wider parts of the recesses to effect such disengagement.

31. In a type-writing machine, the combination of a platen, a line-space ratchet-wheel, a disk fast to the platen and provided with tapering recesses whose bottoms are reversely inclined, a surface on said ratchet-wheel opposing said recesses, spring-pressed rollers in said recesses adapted to engage with both said ratchet-wheel and said bottoms to lock the platen and the wheel together, and means for moving said rollers toward the wider parts of said recesses to disengage the disk from the wheel.

32. In a type-writing machine, the combination of a platen, a disk fast thereto and provided with tapering recesses in its periphery whose bottoms are reversely inclined, a ring exterior to said periphery and having line-space ratchet-teeth connected thereto, spring-pressed rollers in said recesses adapted to coact with the bottoms thereof and with the said ring to clutch or wedge together said ring and the disk, and means for moving said rollers toward the wider portions of said recesses.

33. In a type-writing machine, the combination of a platen, a disk fast thereto and provided with reversely-inclined tapering recesses, a ratchet-wheel provided with a surface opposing said recesses, spring-pressed rollers in said recesses adapted to engage said ratchet-wheel to lock the disk and ratchet-wheel together, a shaft movable axially of the platen, and means operatively connected with said shaft for moving said rollers toward the wider parts of the recesses.

34. In a type-writing machine, the combination of a platen, a disk fast to said platen and provided with reverse angular recesses, a ratchet-wheel having a flange opposing said recesses, spring-pressed rollers in said recesses adapted to coact with the bottoms thereof and with the flange to lock the wheel and platen together, a shaft movable axially of the platen, and wedges operatively connected to the shaft and adapted to force the rollers toward the wider portions of said recesses to disengage the disk and flange.

35. In a type-writing machine, the combination of a platen, a disk fast thereto and having reverse angular recesses, a ring opposing said recesses and connected to a line-space ratchet-wheel, spring-pressed rollers in said recesses adapted to coact with the bottoms thereof and with said ring to lock the platen and ratchet-wheel together, a shaft movable axially of the platen, wedges for moving said rollers to release the platen from the ratchet-wheel, pivoted arms carrying said wedges, and operative connections between said arms and said shaft.

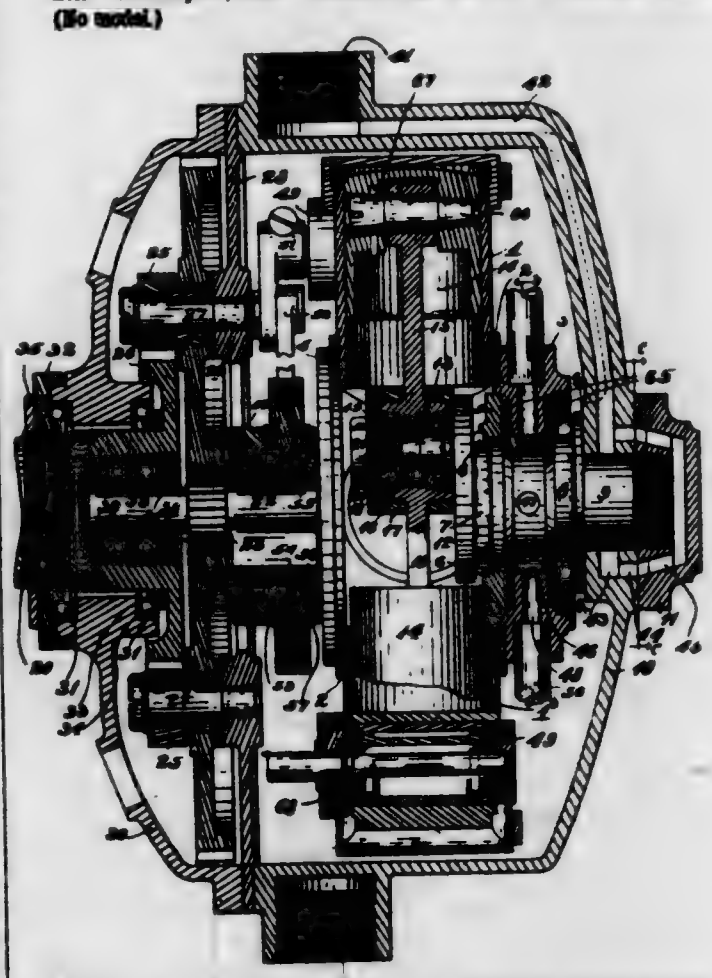
36. In a type-writing machine, the combination of a platen recessed at one end, a disk secured to the recessed end of the platen and provided with reverse angular recesses in its periphery, a line-space ratchet-wheel having a flange surrounding the periphery of the disk, spring-pressed rollers in said recesses for engaging with the bottoms thereof and with said flange to lock the platen and wheel together, an endwise-movable shaft arranged partly within and partly without said platen, and means connected with said shaft for moving said rollers toward the wider portions of said recesses.

37. In a type-writing machine, the combination of a platen recessed at one end, a disk secured to said recessed end and provided with reverse angular recesses in its periphery, a line-space ratchet-wheel having a flange or shoulder surrounding said disk, spring-pressed rollers in said recesses adapted to coact with the bottoms thereof and with the flange or shoulder to lock the platen and wheel together against independent rotation, a shaft partly within and partly without the platen and movable endwise independently thereof, wedges for moving said rollers toward the wider portions of said recesses, pivoted arms carrying said wedges, and operative connections between said arms and said shaft.

38. In a type-writing machine, the combination of a platen-carrier, a platen recessed at one end, a disk 15 secured to the recessed end of the platen and provided with reverse angular recesses 22, 23, a hub 18 on said disk and journaled in the platen-carrier, a line-space ratchet-wheel loosely mounted on the hub 18 between the disk 15 and the platen-carrier and having a flange 25 surrounding the disk 15, spring-pressed rollers 34 35 in said angular recesses, a hub 19 having intersecting slots 20, 21, extending longitudinally thereof, said hub being on the disk 15 and extending into the platen, levers 50, 51, pivotally connected with the hub 19, an endwise-movable shaft 38 sliding in bearings in the hubs 18, 19, and having a pin 47 engaging the slot 21 and also having flattened portions 49 with abrupt ends for engaging with extensions of levers 50, 51, a collar 44 on said shaft for engaging said extensions of the levers 50, 51, and a hand-wheel 38 on said shaft.

39. In a type-writing machine, the combination of a platen, a disk fast thereto and provided with reverse angular recesses in its periphery, a ring exterior to said periphery and connected to a line-space ratchet-wheel, spring-pressed rollers in said recesses adapted to coact with the bottoms thereof and with the ring to lock the wheel and the platen together against independent rotation, a shaft movable axially of the platen, wedges for moving said rollers to disengage the disk and ring, and connections between said spring-pressed shaft and said wedges for actuating the latter.

694,603. ROTARY ENGINE. ROBERT W. BARTON, Chicago, Ill., assignor to Holmes-Barton Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 7, 1900. Renewed July 22, 1901. Serial No. 68,296. (No model.)



Claim.—1. In a rotary engine, the combination with rotatably-mounted cylinders; of pistons adapted to operate in said cylinders; means for conveying driving fluid to said cylinders, whereby the said pistons may be operated; and means provided in connection with said cylinders, whereby the driving fluid, when exhausting from the said cylinders, is adapted to impart a rotary motion to the said cylinders, substantially as described.

2. In a rotary engine, the combination with rotatably-mounted cylinders; of pistons adapted to operate in said cylinders; means for conveying driving fluid to said cylinders, whereby the pistons may be operated; and pockets 69, 69, provided in connection with the said cylinders, whereby the driving fluid, when exhausting from the said cylinders, is adapted to impart a rotary motion to the said cylinders, substantially as described.

3. In a motor, the combination with a cylinder provided with a reciprocating piston, a valve mechanism for admitting operating fluid to the cylinder and a hollow stationary shaft, provided with an annular recess upon its exterior having two sloping side walls, of a frame rotatably mounted upon the shaft, means for conveying operating fluid to the valve mechanism, means provided for establishing communication between the interior of the shaft and the said annular recess, whereby operating fluid passed through the shaft may be admitted to the valve mechanism, and packings 65, 65 carried by the said frame and engaging the sloping walls of the said recess, a space intervening between the said frame and shaft, whereby an annular chamber about the shaft is provided, means being provided in the said frame and the shaft for affording passage for the fluid passing through the stationary shaft, substantially as described.

4. In an engine, the combination with a plurality of cylinders, of pistons adapted to operate in said cylinders, connecting-rods associated with said pistons, an eccentrically-mounted crank-pin, tapered sleeves associated with the said connecting-rods and interposed between the said connecting-rods and the crank-pin, and collars for holding the connecting-rods in place about the said tapered sleeves, substantially as described.

5. In an engine, the combination with a plurality of cylinders, of pistons adapted to operate in said cylinders, connecting-rods associated in split-sleeve arrangement with said pistons, an eccentrically-mounted crank-pin, adjustable means interposed between the said connecting-rods and said crank-pin, and means for securing the said connecting-rods in place about said crank-pin, substantially as described.

6. In an engine, the combination with a plurality of cylinders, of pistons adapted to operate in said cylinders, connecting-rods associated with said pistons, an eccentrically-mounted crank-pin, tapered sleeves 18 associated with the said connecting-rods and interposed between the said connecting-rods and the said crank-pin, and an adjustable ball-bearing interposed between the said sleeves and the said crank-pin, substantially as described.

7. The combination with a cylinder, of a hollow shaft upon which the cylinder is mounted to rotate, the said cylinder being provided with a reciprocating piston, valve mechanism for controlling the admission of operating fluid to the said cylinder, a casing surrounding the shaft and traveling with the cylinder, a space being provided between the said casing and shaft for receiving operating fluid passed through the shaft, means being provided for establishing communication between the interior of the shaft and the said space, and a duct intervening between the valve mechanism and the said casing and serving to establish communication between the space surrounding the shaft and the valve mechanism, substantially as described.

8. The combination with a single stationary hollow shaft, of a plurality of cylinders mounted to rotate thereon, each cylinder being provided with a reciprocating piston, a valve mechanism for each cylinder, a casing surrounding the shaft and affording an inclosed space between the same and the shaft, means being provided for establishing communication between the said space and the interior of the shaft for operating fluid passed to the same, and a plurality of ducts intervening between the said casing and the valve mechanisms, substantially as described.

694,604. BOBBIN-HOLDER FOR SPINDLES. WILLIAM E. RAMS and AUGUSTUS C. CHASE, Lawrence, Mass. Filed Nov. 20, 1901. Serial No. 84,077. (No model.)



Claim.—1. A bobbin-holder for spindles, comprising a collar adapted to engage a spindle, and spring-wire arms affixed to said collar, each arm having an inner portion projecting from the collar, an outer portion formed to bear yieldingly on the base of a bobbin, and an intermediate coiled portion which serves not only as a spring for said outer portion but also as a clamp adapted to hold the end of the thread.

2. A bobbin-holder for spindles, comprising a collar adapted to engage a spindle and having a peripheral groove, and a plurality of wire members each having a curved central portion formed to enter the said groove and two end portions formed to bear yieldingly on the base of a bobbin, said central portions being inserted and secured in said grooves.

3. A bobbin-holder for spindles, comprising a collar adapted to engage a spindle and having a peripheral groove, and a plurality of wire members each having a curved central portion formed to enter the said groove, two end portions formed to bear yieldingly on the base of a bobbin and coiled portions interposed between the central and end portions, said central portions being inserted and secured in said grooves.

694,605. OIL-CUP FOR SHAFT-BEARINGS. FRANK E. BOCCASELECI, Springfield, Mass. Filed May 1, 1901. Serial No. 58,285. (No model.)



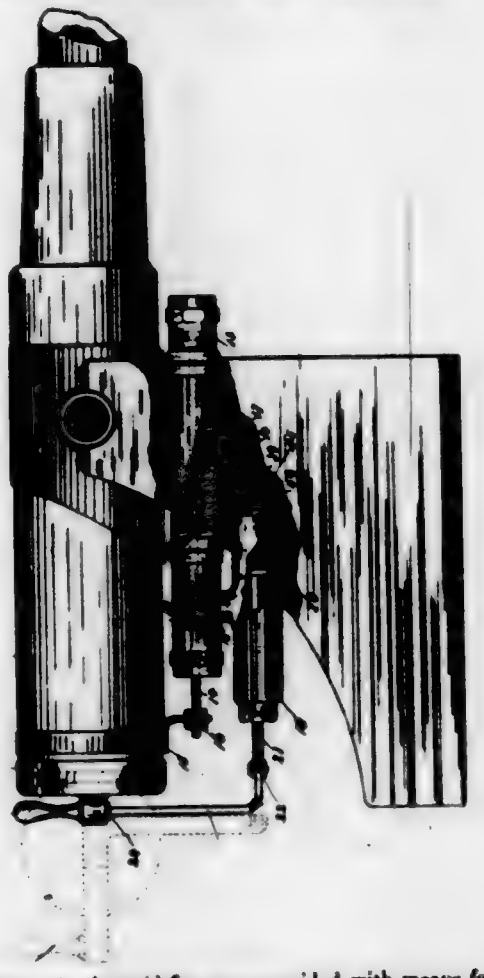
Claim.—1. The stationary cylinder having a valve formed integrally therewith by punching from sheet metal, in combination with the cup adapted to fit over said cylinder having a valve-orifice coacting with said valve, substantially as described and for the purposes set forth.

2. The cup with a valve-orifice in its side, in combination with the cylinder open at both ends and contained therein and having a yieldingly-supported cup-shaped valve projecting beyond the outer surface of the cylinder and in engagement with said valve-orifice, substantially as described and for the purposes set forth.

3. In combination in an oil-cup the stationary split cylinder open at both ends and having a valve formed integrally therewith and a cup fitting over said cylinder and having a valve-orifice closed by said valve, all substantially as described and for the purposes set forth.

4. In combination in an oil-cup the stationary interior cylinder open at both ends and having a yieldingly-supported cup-shaped valve formed integrally therewith and a cup having a valve-orifice in its side in engagement with said yieldingly-supported valve, all substantially as described.

694,606. RAPID-FIRE GUN. GEORGE J. BOSEN, Elizabeth, N. J. Filed Apr. 18, 1901. Serial No. 56,357. (No model.)



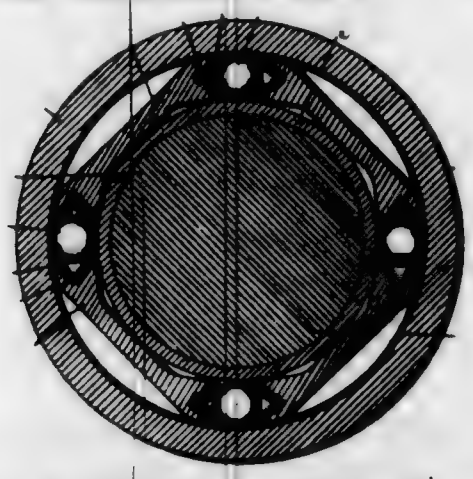
Claim.—1. A rapid-fire gun, provided with means for returning it to its normal position after the recoil thereof, a suitably-supported cylinder, a piston mounted therein, a rod connected with said piston and projecting backwardly in line with the gun and in operative connection with the operating-arm of the breech-block of the gun, said cylinder being also provided at its front end with spring-operated valves which open in opposite directions and at its front end with air ports or passages, substantially as shown and described.

2. A rapid-fire gun, provided with means for returning it to its normal position after the recoil thereof, a cylinder supported thereunder, a

piston mounted therein, a rod connected therewith, and projecting backwardly and in line with the gun and in operative connection with the operating-arm of the breech-block of the gun, means for passing air to and from the front end of said cylinder according to the movement of the piston, and means for discharging air from the rear end of said cylinder, substantially as shown and described.

3. A rapid-fire gun, provided with means for returning it to its normal position after the recoil thereof, a cylinder supported thereunder, a piston mounted therein, a rod connected therewith, and projecting backwardly and in line with the gun and in operative connection with the operating-arm of the breech-block of the gun, means for passing air to and from the front end of said cylinder according to the movement of the piston, and means for discharging air from the rear end of said cylinder, said cylinder being also provided in the inner wall thereof adjacent to the front end with a longitudinal groove, substantially as shown and described.

694,607. ANTIFRICTION JOURNAL-BEARING. WILLIAM J. BREWER, Washington, D. C., assignor to the National Roller and Ball Bearing Company, Washington, D. C., a Corporation of Virginia. Filed July 15, 1901. Serial No. 68,334. (No model.)



Claim.—1. In a roller-bearing, the combination with the detachable annular heads, and the tie-plates connecting the same, of wear-plates mounted in said tie-plates, and rollers mounted between said wear-plates, substantially as described.

2. In a roller-bearing, the combination with the detachable heads, of the channeled tie-plates connecting said heads, detachable V-shaped wear-plates mounted in said channeled tie-plates, and rollers mounted between said wear-plates, substantially as described.

3. In a roller-bearing, the combination with the detachable annular heads adapted to slide over the shaft or axle, and wear-rings detachably connected thereto, of the tie-plates connecting said heads and provided with channels, the detachable wear-plates mounted in said channels, and rollers mounted between said wear-plates, substantially as described.

4. In a roller-bearing, the combination with a wear-sleeve inclosing the shaft or axle, of a cage mounted exterior to said wear-sleeve and comprising detachable heads and tie-plates connecting the same, and wear-plates mounted in said tie-plates, with rollers mounted in said wear-plates, substantially as described.

5. In a roller-bearing, the combination with a wear-sleeve inclosing the shaft or axle, of a cage mounted exterior to said wear-sleeve and comprising detachable V-shaped wear-plates mounted in said channeled tie-plates with rollers mounted between said wear-plates, substantially as described.

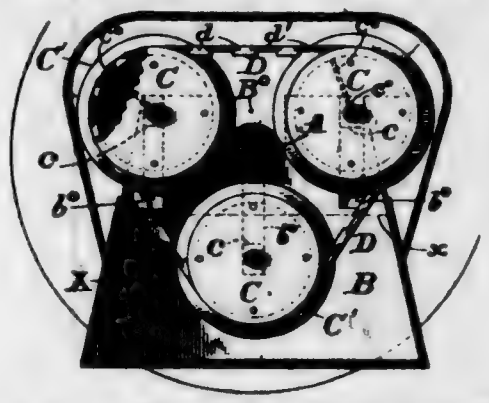
6. In a roller-bearing, the combination with a wear-sleeve, of detachable annular heads adapted to slide over the shaft or axle, wear-rings detachably connected thereto, tie-plates connecting said heads and provided with channels therein, detachable wear-plates mounted in said channels, and rollers mounted between said wear-plates, substantially as described.

7. In a roller-bearing, the combination with the detachable annular heads with wear-rings detachably secured thereto and tie-plates connecting said heads, of wear-plates mounted in said tie-plates, and rollers mounted in said wear-plates, substantially as described.

8. In a roller-bearing, the combination with the detachable annular heads, and wear-rings detachably secured thereto, of the channeled tie-plates connecting said heads, detachable V-shaped wear-plates mounted in said channeled tie-plates, and rollers mounted between said wear-plates, substantially as described.

9. In a roller-bearing, the combination with detachable annular heads adapted to slide over the shaft or axle, with wear-rings detachably secured to said heads, of the tie-plates connecting said heads and provided with V-shaped channels therein, the detachable V-shaped wear-plates mounted in said channels, and rollers mounted between said wear-plates, substantially as described.

694,608. ANTIFRICTION-BEARING. WILLIAM J. BREWER, Washington, D. C., assignor to the National Roller and Ball Bearing Company, Washington, D. C., a Corporation of Virginia. Filed Aug. 27, 1900. Renewed Aug. 8, 1901. Serial No. 71,404. (No model.)



Claim.—1. In an antifriction-bearing the combination with a shaft, of rollers having V-shaped grooves and flanges supporting said shaft, and a continuous body inclosing said rollers; substantially as described.

2. In an antifriction-bearing the combination with a shaft; of rollers having V-shaped grooves and flanges supporting said shaft, a continuous body having V-shaped edges engaging said V-shaped grooves, said body inclosing said rollers, substantially as described.

3. In an antifriction-bearing, the combination with a shaft having a V-shaped annular rib, of rollers having V-shaped grooves receiving said V-shaped rib, and flanges supporting said shaft, and a continuous body inclosing said rollers, substantially as described.

4. In an antifriction-bearing the combination with a shaft and supporting plates having slots; of rollers supporting said shaft and journaled in said slots, and a continuous body inclosing said rollers; substantially as described.

5. In an antifriction-bearing, the combination with a shaft, of rollers having grooves, flanges upon said rollers supporting said shaft at three points, and a continuous body inclosing said rollers and engaging said grooves, substantially as described.

6. In an antifriction-bearing the combination with a shaft, of supporting-plates having slots, rollers having flanges supporting said shaft, journals on said rollers extending into said slots, and a continuous body inclosing said rollers, substantially as described.

7. In an antifriction-bearing the combination with a shaft, of supporting-plates having slots, rollers having flanges supporting said shaft, journals on said rollers extending into said slots, a frame independent of said supporting-plates in which said rollers are journaled, and a continuous body inclosing said rollers, substantially as described.

8. In an antifriction-bearing, the combination with a shaft, of supporting-plates having slots, rollers having flanges supporting said shaft, journals on said rollers extending into said slots, a continuous body inclosing said rollers, and a casing adapted to contain oil inclosing said rollers and supporting-plates, substantially as described.

9. In an antifriction-bearing, the combination with a casing adapted to contain oil, guideways in said casing, and a shaft extending into said casing; of rollers having flanges supporting said shaft, journals on said rollers extending into said guideways, and a continuous body inclosing said rollers, substantially as described.

10. In an antifriction-bearing, the combination with a shaft having an annular rib; of rollers having grooves to receive said annular rib and flanges supporting said shaft, supporting-plates having slots therein, journals on said rollers extending into said slots, and a continuous body inclosing said rollers, substantially as described.

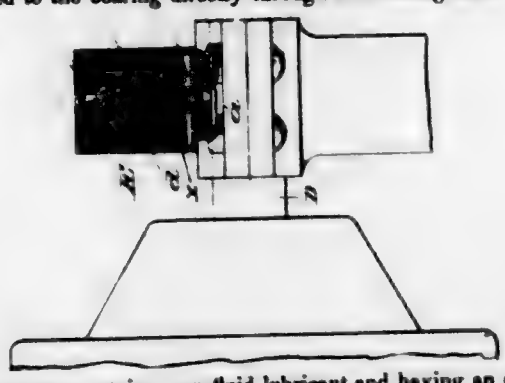
11. In an antifriction-bearing, the combination with a shaft having an annular rib; of rollers having grooves to receive said annular rib, and flanges supporting said shaft, supporting-plates having slots therein, journals on said rollers extending into said slots, a frame independent of said plates in which said rollers are journaled, and a continuous body inclosing said rollers; substantially as described.

12. In an antifriction-bearing, the combination with a casing adapted to contain oil, guideways in said casing, and a shaft extending into said casing and having an annular rib thereon; of rollers having grooves to receive said rib, flanges on said rollers supporting said shaft, and a continuous body engaging said grooves and inclosing said rollers; substantially as described.

13. In an antifriction-bearing, the combination with a shaft, of rollers having grooves and flanges supporting said shaft, and a V-shaped band inclosing said rollers, substantially as described.

694,609. HOLDER FOR NON-FLUID LUBRICANT. GEORGE W. BROWN, Boston, Mass. Filed July 15, 1901. Serial No. 68,287. (No model.)

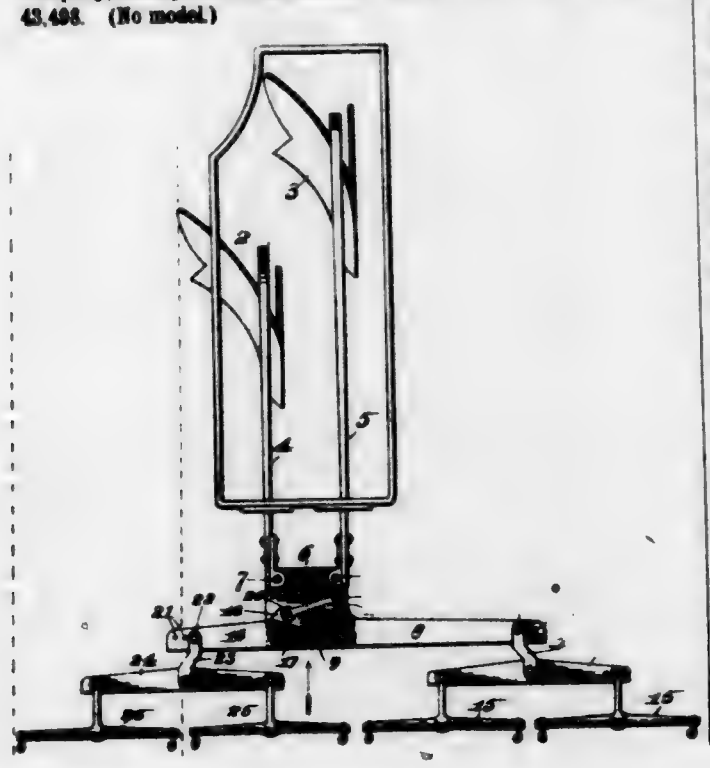
Claim.—1. A case to contain a non-fluid lubricant, a feeding-tube having an inlet in its side wall and sustained within said case, said case having the bottom wall thereof inclined or beveled toward said feeding-tube, said feeding-tube being open at its upper and lower ends and in communication with an opening of a shaft-bearing, by which bearing the case holding the non-fluid lubricant is adapted to be heated, a wick filling the diameter of said tube at its lower end, and a regulator coacting with the feeding-tube to permit the flow of lubricant from the case through the side wall of the feeding-tube after said lubricant has become fluid through the heating of the bearing and case, and whereby a liquid lubricant may be introduced to the bearing directly through the feeding-tube.



2. A case to contain a non-fluid lubricant and having an opening in its bottom, a feeding-tube having a plurality of inlets in its side wall and in communication with the opening in the bottom of the case, a wick substantially filling the feeding-tube at its lower end and preventing direct movement of the non-fluid lubricant from the case through the feeding-tube and regulating the flow of the lubricant after the bearing and case have become heated sufficiently to render the lubricant fluid, and a regulator coacting with the feeding-tube to permit the lubricant when in fluid condition to enter one or the other of the inlets, and locking means for the regulator, said case being also provided with a bottom having a bevel or incline directed toward the opening in the feed-tube, said feeding-tube being open at its ends to permit the direct application of a liquid lubricant through the feeding-tube.

3. A case to contain a non-fluid lubricant and having an opening in its bottom, a feeding-tube having a plurality of inlets and in communication with the opening in the bottom of the case, a wick substantially filling the feeding-tube at its lower end and preventing direct movement of the non-fluid lubricant from the case through the feeding-tube and regulating the flow of the lubricant after the bearing and case have become heated sufficiently to render the lubricant fluid, said feeding-tube being provided with a series of notches, and a regulator coacting with said feeding-tube to permit the lubricant when in fluid condition to enter one or the other of the inlets in the feeding-tube, said regulator being provided with a pin to engage the notches in the feeding-tube to lock the regulator in operative position, said feeding-tube being open at its upper and lower ends as and for the purpose described.

694,610. FOUR-HORSE EVENER FOR GANG-PLOWS. JOHN W. BROWN and GEORGE ELICK, Quincy, Ill., assignors to the Collins Plow Company, Quincy, Ill., a Corporation. Filed Jan. 16, 1901. Serial No. 43,498. (No model.)

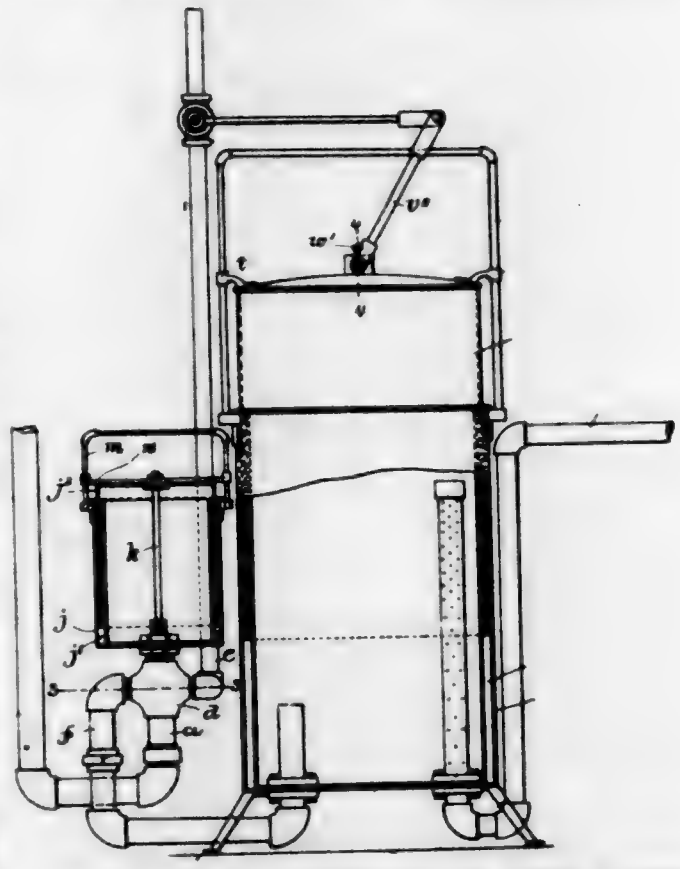


Claim.—1. In a four-horse evener, the combination of a pair of plates separated from each other, a pair of levers independently pivotally mounted between said plates, and means of connection between said levers, substantially as described.

2. In a four-horse evener, the combination of a pair of plates separated from each other, a pair of levers independently pivotally mounted between said plates and having rearwardly-extending arms, and a connecting-link by which said arms are joined between said plates, substantially as described.

3. In a four-horse evener, the combination of a pair of plates separated from each other, a pair of levers, pivot-pins located in said plates and passing through said levers to connect them independently to said plates, rearwardly-extending forked arms carried by said levers and positioned between said plates, and a link pivotally mounted within the forks of said arms, substantially as described.

694,611. AIR AND GAS MIXING AND SUPPLYING APPARATUS. GEORGE H. BURROWS, Somerville, Mass. Filed Nov. 22, 1901. Serial No. 84,126. (No model.)



Claim.—1. An apparatus of the character specified comprising a mixing-chamber having air and gas inlets and an outlet for the air and gas mixture, air and gas supply pipes connected with said inlets, a mixture-delivery pipe connected with said outlet, means controlled by the pressure of the mixture in the chamber and delivery-pipe for regulating the admission of air and gas to the mixing-chamber, and a telescopic air-reservoir connected with said air-supply pipe and with a source of air-supply.

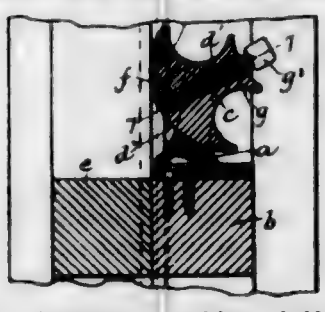
2. An apparatus of the character specified comprising a mixing-chamber having air and gas inlets and an outlet for the air and gas mixture, air and gas supply pipes connected with said inlets, a mixture-delivery pipe connected with said outlet, means controlled by the pressure of the mixture in the chamber and delivery-pipe for regulating the admission of air and gas to the mixing-chamber, a gas shut-off, and automatic operating mechanism having provisions for holding the shut-off open when the air-pressure in the air-supply pipe is normal, and for closing the shut-off when the air-pressure ceases or is reduced.

3. An apparatus of the character stated comprising a mixing-chamber having air and gas inlets, and an outlet for the air and gas mixture, air and gas supply pipes connected with said inlets, a mixture-delivery pipe connected with the said outlet, means controlled by the pressure of the mixture in the chamber and delivery-pipe for regulating the admission of air and gas to the mixing-chamber, a telescopic air-reservoir connected with said air-supply pipe and with a source of air-supply, a cock in the gas-supply pipe, and connections between said cock and the floating member of the telescopic reservoir, whereby when said reservoir falls to a predetermined point the said cock is closed.

4. An apparatus of the character stated comprising a mixing-chamber having air and gas inlets, and an outlet for the air and gas mixture, air and gas supply pipes connected with said inlets, a mixture-delivery

pipe connected with the said outlet, means controlled by the pressure of the mixture in the chamber and delivery-pipe for regulating the admission of air and gas to the mixing-chamber, a telescopic air-reservoir connected with said air-supply pipe and with a source of air-supply, a safety-valve in the floating member of the telescopic reservoir and a fixed stop arranged to open said valve when the reservoir rises to a predetermined height.

694,612. SASH-FASTENER. WILLIAM CARRICK, Boston, Mass. Filed May 20, 1901. Serial No. 61,008. (No model.)



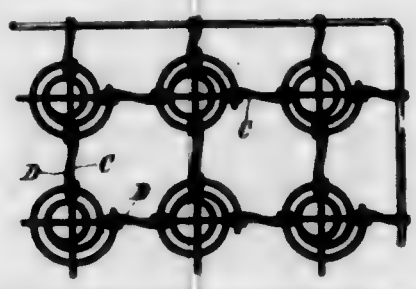
Claim.—1. A sash-fastener comprising a holder having a stud or journal, and a button having a cam-face, a journal-receiving slot whereby the button is adapted both to oscillate and move edgewise on said journal, a spring whereby the cam-face is pressed yieldingly from the journal to automatically bind if oscillated in either direction, and means for locking the button in retracted and inoperative position.

2. A sash-fastener comprising a holder having a stud or journal, and a button having a cam-face, a journal-receiving slot whereby the button is adapted both to oscillate and move edgewise on said journal, and a spring whereby the cam-face is pressed yieldingly from the journal, said button having a handle or projection at the opposite side of the journal from the cam-face, whereby the button may be retracted against the force of the spring, to make its cam-face inoperative.

3. A sash-fastener comprising a holder having a stud or journal, a button having a cam-face, a journal-receiving slot whereby the button is adapted both to oscillate and to move edgewise on said journal, a spring interposed between the journal and the cam-face of the button, and a button-retracting stem journaled in the button and having a cam-shaped inner end bearing on said journal, said stud being prevented from moving endwise in the button.

594,613. WITHDRAWN.

694,614. SPRING-WIRE MATTRESS. CLARENCE H. CLOSTERMAN, Cincinnati, Ohio. Filed Mar. 20, 1901. Serial No. 52,088. (No model.)



Claim.—1. In a spring-mattress in combination tie-rods having a series of double curves each consisting of a downturned and an upturned bend the downturned bends to seat the loops of the coils of the mattress, and links between the coils adjacent to the tie-rods and whose ends are bent to pass over said loops of the coils and to seat in the upturned bends of the double curves, substantially as shown and described.

2. In a spring-mattress the combination of a series of coils, tie-rods running diametrically across the coils at right angles to each other beneath the top loops of the coils and having a series of double curves consisting of an upturned and a downward bend the latter to seat said loops, and links between the coils adjacent to the tie-rods and having U-loops at their ends to pass over the loops of the coils and seat in the upturned bends of the tie-rods, substantially as shown and described.

3. In a spring-mattress the combination of a series of coils, tie-rods having a series of double curves each consisting of an upturned and a downturned bend running diametrically across the coils at right angles to each other beneath the top loop of the coils so that the loops seat in the downturned bends and the upturned bends come within the loops, and links between the coils adjacent to the tie-rods and having U-loops at each end one of which has its end left straight so that the completed U-loop having been slipped into one of the upturned bends of one of said double curves the straight end may be pushed through the next of said bends and secured in place at one operation, substantially as shown and described.

694,615. WINDOW-WASHER. BERNARD L. COHN, New York, N. Y. Filed Nov. 19, 1901. Serial No. 82,891. (No model.)

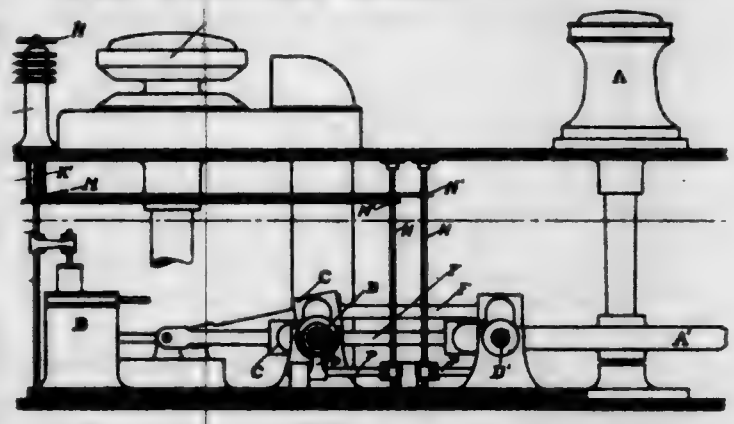


Claim.—1. A window-washer, comprising a suitable support *b*, a pair of parallel arms pivoted to said support, each arm consisting of a loop whose sides are adjustable in length, and rubbers located at the free ends of the arms.

2. A window-washer, comprising the combination of a gutter-shaped support *b*, a bar *a* confined in said gutter but adapted to slide longitudinally therein for the purpose described, and a pair of arms attached to said bar *a* and provided with rubbers at their free ends, the arms having a natural spring toward each other.

3. A window-washer, comprising the combination of a gutter-shaped support *b*, a bar *a* confined in said gutter but adapted to slide longitudinally therein for the purpose described, and a pair of arms attached to said bar *a* and provided with rubbers at their free ends.

694,616. MECHANISM FOR OPERATING SHIP WINDLASSES AND CAPSTANS. FREDERICK H. COMSTY, Providence, R. I. Filed June 27, 1901. Serial No. 66,252. (No model.)



Claim.—1. In mechanism for operating ship windlasses and capstans, the combination of two shafts each containing two cranks at right angles to one another, two connecting-rods one between each of the cranks of one shaft and the corresponding crank of the other shaft, means for driving one of the shafts, a clutch between each windlass and capstan and one of the shafts, a standard, a hand-wheel upon the standard for each clutch, and mechanism between each hand-wheel and one of the clutches to operate the latter by the former.

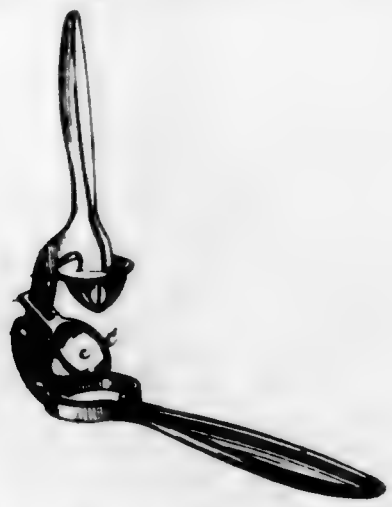
2. In mechanism for operating ship windlasses and capstans, the combination of two shafts each containing two cranks at right angles to one another, two connecting-rods one between each of the cranks of one shaft and the corresponding crank of the other shaft, means for driving one of the shafts, a clutch between each capstan and windlass and one of the shafts, a standard, a hand-wheel for each clutch upon and surrounding the standard and having an interior gear, a rod for each wheel within the standard, a pinion upon each rod extending through the standard and meshing with the gear of its wheel, and connections between each of the rods and one of the clutches so that the latter may be operated by the rotation of the former.

3. In mechanism for operating ship windlasses and capstans, the

combination of a power-operated shaft, a standard, a hand-wheel for each windlass and capstan upon the standard, a clutch between the shaft and each windlass and capstaff, and mechanism between each hand-wheel and one of the clutches to operate the latter by the former.

4. In mechanism for operating ship windlasses and capstans, the combination of a power-operated shaft, a standard, a hand-wheel for each windlass and capstan upon and surrounding the standard and having an interior gear, a rod for each wheel within the standard, a pinion upon each rod extending through the standard and meshing with the gear of its wheel, a clutch between the shaft and each windlass and capstan, and connections between each of the rods and one of the clutches so that the latter may be operated by the rotation of the former.

694,617. SQUEEZER. JAMES COOMBER, New York, N. Y., assignor of one-half to Charles C. Haret, New York, N. Y. Filed June 5, 1901. Serial No. 63,332. (No model.)



Claim.—1. In a squeezer, the combination with two frame members, and a pivotal connection between said members, of two compressing parts, one of which is secured to one of said members, and the other of which is pivotally secured to one of said members and operatively connected to the other of said members, said parts being connected so the relative shift of one of said members will effect the shift of both of said compressing parts.

2. In a squeezer, the combination with two pivotally-connected frame members, each of which is provided with a handle, of two compressing parts, one of which is rigidly secured to one of said members, and the other of which is pivotally secured to one of said members and operatively connected to the other of said members, said parts being connected so the relative shift of one of said frame members will effect the coaction of the compressing parts and the shift necessary to bring the compressing parts into position to discharge the expressed juice.

3. In a squeezer, the combination with two pivotally-connected frame members, each of which is provided with a handle, of two compressing parts, one of which is rigidly secured to one of said members, and the other of which is pivotally secured to one of said members and operatively connected to the other of said members, said parts being connected so the relative shift of one of said frame members will effect the coaction of the compressing parts and the shift necessary to bring the compressing parts into position to discharge the expressed juice when shifted in one direction and to bring the parts into "loading" position when shifted in the other direction.

4. In a squeezer, the combination with two frame members each of which is provided with a handle, of a cone or plunger rigidly secured to one of said frame members, and a holder pivotally secured to one of said members and operatively connected to the other of said members, and whereby the relative shift of the frame members will effect the coaction of the cone or plunger and said holder, and the shift of said holder.

5. In a squeezer, the combination with two frame members pivotally connected at one end, and each of which is provided with a handle, of a plunger or cone rigidly secured to one of said frame members, and a holder pivotally connected to one of said members, and provided with an arm having an opening therein wherethrough the other of said frame members is extended.

6. In a squeezer, the combination with two frame members, each of which is provided with an arm at one end whereby they are pivotally connected, and a handle at the other end, of a cone or plunger rigidly secured to one of said members, and a holder pivotally connected to the arm of one of said members, and provided with an arm having an opening therein wherethrough the arm of the other of the frame members is extended, one of said frame members having a ring portion into which the holder can pass.

694,618. COMPOUND INGOT. SYLVESTER A. CONRAVE, Pittsburg, Pa., assignor, by mesne assignments, to Darwin S. Wolcott, trustee, Sewickley, Pa. Filed Jan. 23, 1900. Serial No. 2,454. (No specimens.)



Claim.—1. A homogeneous cast ingot, having at the end of the casting operation a substantial portion or layer of one kind or grade of metal, another substantial portion or layer of a different kind or grade of metal, and a substantial portion or layer intermediate of the others wherein the characteristics of the two metals merge gradually and equally into each other, said portions or layers being parallel or approximately parallel to each other, substantially as set forth.

2. A homogeneous cast ingot, having at the end of the casting operation, a substantial portion formed of a steel of a certain carbonization, another substantial portion or layer formed of a steel having a different degree of carbonization and a portion intermediate of the other portions wherein the carbonization changes gradually or decrementally and with substantial regularity from one layer to the other, said portions or layers being parallel or approximately parallel to each other, substantially as set forth.

3. A homogeneous casting ingot having at the end of the casting operation a substantial stratum or layer approximately uniform in thickness formed of steel of a certain carbonization, and another substantial stratum or layer approximately uniform in thickness formed of steel having a different degree of carbonization, and a stratum or layer intermediate of the other two, decrementally carbonized from one stratum or layer to the other, substantially as set forth.

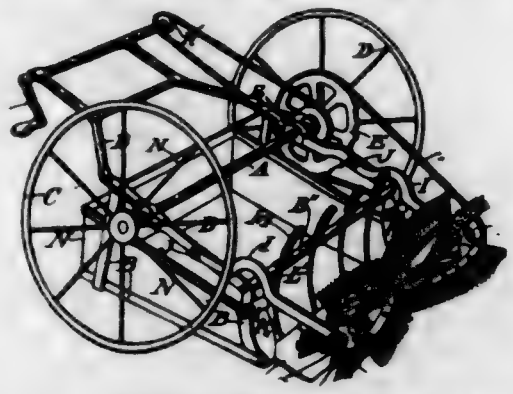
694,619. DRESS-STAY. ALVIN A. DUNTON, Newton, Mass., assignor to Great Eastern Manufacturing Company, Boston, Mass., a Partnership. Filed July 15, 1901. Serial No. 68,296. (No model.)



Claim.—1. A stiffener or stay comprising a strip of cane, and a sheath or covering of textile fabric inclosing the strip, the said strip and covering being connected by stitches extending through the said strip and covering and arranged in lines or rows which are oblique to the grain of the strip, whereby the stitches are caused to firmly unite the strip and cover and to unite overlapped ends of sections of the strip.

2. A stiffener or stay comprising a plurality of strips of cane arranged parallel with each other, edge to edge, and a sheath or covering composed of two ribbons of textile fabric placed upon opposite sides of the strips, the said ribbons being united to each other by longitudinal rows or lines of stitches which do not pass through the cane strips, and to the said strips by stitches extending both through the ribbons and strips, and arranged in lines or rows which are oblique to the grain of the strip.

694,620. STREET-SWEEPING MACHINE. WILLIAM G. DUDLEY, Los Angeles, Cal. Filed Mar. 14, 1901. Serial No. 51,208. (No model.)



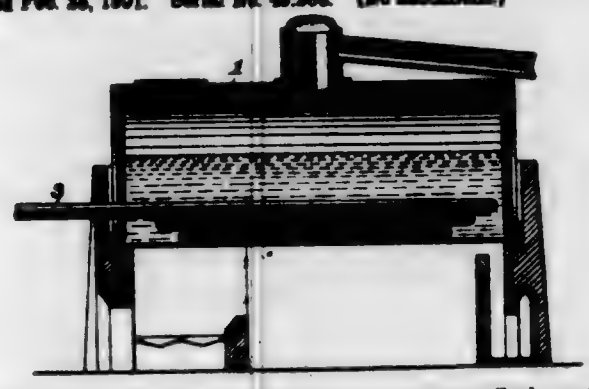
Claim.—1. A street-sweeping machine, comprising a frame having an axle rotatively mounted therein; two driving-wheels on said axle, one of which is loosely mounted, and the other rigidly mounted on said axle:

a driving sprocket-wheel loosely mounted on said axle; ratchet mechanism intermediate the axle and the driving-sprocket and the loose driving-wheel and the driving-sprocket, adapted, when the machine is pushed forward, to lock the driving-sprocket to the axle and to the loose driving-wheel to cause the rotation of the driving-sprocket, and when pulled backward to unlock the driving-sprocket from the axle and the loose wheel; a sweeping-brush revolubly mounted in the forward end of the machine, having a sprocket-wheel connected thereto; a sprocket-chain connecting said last sprocket with the driving-sprocket; shovels mounted in the front end of the frame adapted to be moved backward and upward independently of each other, and a removable dust-pan.

2. In a street-sweeping machine, means to impart motion to the sweeping-brush independent the main driving-wheels, comprising a sprocket-wheel rotatively mounted on the rear part of the frame, having means to cause its rotation; a main driving sprocket-wheel loosely mounted on the axle of the machine; a sprocket-wheel mounted on the hub of the main driving-sprocket, having sprocket mechanism adapted to lock the two sprocket-wheels together when driven in one direction, and unlock them when driven in the reverse direction; a sweeping-brush mounted in the front part of the frame; a sprocket-wheel on the axle of the sweeping-brush and sprocket-chains connecting said sprocket-wheels, in combination with a frame; an axle mounted in said frame, and supporting-wheels on said axle, as described herein.

3. In a street-sweeping machine, having a frame and driving-wheels adapted to drive the sweeping-brush, the combination of a sweeping-brush revolubly mounted in the front end of the frame and means to revolve said sweeping-brush independently of the driving-wheels, comprising a sprocket-wheel affixed to the brush, a sprocket-chain connecting said sprocket-wheel with the driving-sprocket; a driving-sprocket loosely mounted on the axle of the machine; a sprocket-wheel on the hub of the driving-sprocket; ratchet mechanism between said hub and said wheel, adapted to lock the two when the sprocket-wheel on the hub is rotated in one direction, and unlock it therefrom when rotated in the reverse direction; a sprocket-chain connecting the sprocket-wheel on the hub of the driving-sprocket with a sprocket-wheel on a rod; a rod revolubly mounted in the rear member of the frame, and a crank on the end of said rod.

694,621. DISTILLING OIL. JAMES A. DUNN, Pittsburg, Pa. Filed Feb. 28, 1901. Serial No. 49,368. (No specimens.)



Claim.—1. As an improvement in the art of treating oils the method herein described, which consists in forcing air through the oil while the latter is maintained at a vaporizing temperature and then subjecting the distillate while heated to the action of air, substantially as set forth.

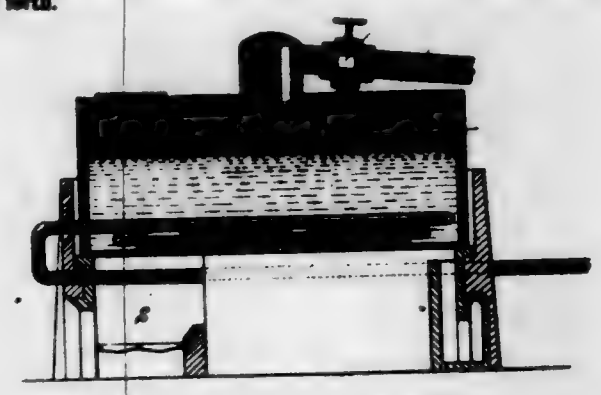
2. As an improvement in the art of treating oils the method herein described which consists in forcing air through the oil while the latter is maintained at a vaporizing temperature condensing the vapors, heating the distillate to a vaporizing temperature and forcing air through the distillate while maintained at a vaporizing temperature, substantially as set forth.

3. As an improvement in the art of treating oils the method herein described which consists in forcing air through the oil while at a vaporizing temperature, subjecting the distillate while heated to the action of air and similarly treating successive distillates, substantially as set forth.

694,622. DISTILLING OIL. JAMES A. DUNN, Pittsburg, Pa. Filed Mar. 12, 1901. Serial No. 50,911. (No specimens.)

Claim.—1. As an improvement in the art of distilling oil, the method herein described, which consists in effecting vaporization of the oil by the combined action of heat and air forced through the oil, and in subjecting the vapor to a temperature higher than the vaporizing temperature of the oil, substantially as set forth.

2. As an improvement in the art of distilling oil, the method herein described, which consists in effecting a vaporization of the oil by the combined action of heat and air forced through the oil, and controlling the flow of air so as to maintain a pressure in the still substantially higher than atmospheric pressure, whereby the oil and vapor are subjected to a temperature higher than the vaporizing temperature of oil, substantially as set forth.



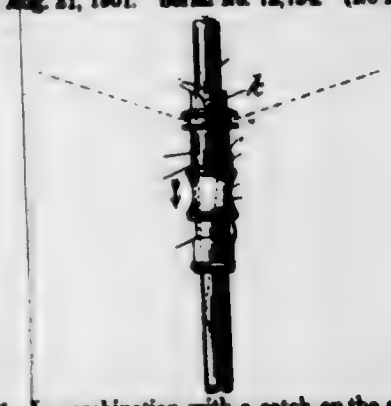
694,623. UMBRELLA-RUNNER. SAMUEL J. EVANS, Roanoke, Va. Filed June 1, 1901. Serial No. 62,765. (No model.)



Claim.—1. In an umbrella, a notch, a headed rib fitted to a socket therein, said socket having a contracted mouth, one wall of said mouth being capable of movement under pressure of the rib to enlarge the opening temporarily, the said wall returning automatically to its normal position, substantially as described.

2. In an umbrella, a notch having a socket, a rib having a headed end adapted thereto, a spring integral with the socket and forming an expansible mouth thereto, substantially as described.

694,624. UMBRELLA-RUNNER. SAMUEL J. EVANS, Roanoke, Va. Filed Aug. 21, 1901. Serial No. 72,734. (No model.)



Claim.—1. In combination with a catch on the stick having a high or cam part removed from the catching-point, a runner and a sleeve thereon adapted to pass over the said cam part and to take position between the cam part and the catching-point, substantially as described.

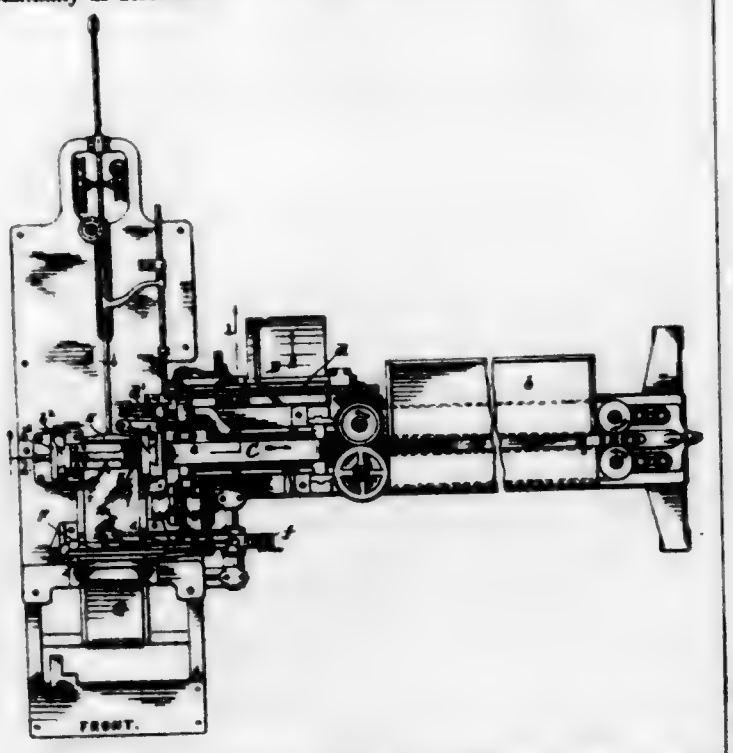
2. The catch having a high part sloping on both sides and removed from the catching-point, a sleeve adapted to pass over the said cam part and to depress it, when the said sleeve moves in either direction, the said catch having a space between the cam part and the catching-point, wherein the sleeve normally rests, substantially as described.

3. In combination, in an umbrella, a runner, a retainer or catch on the stick to engage the runner, said retainer having a cam part between its retaining-point and its pivot, and a releasing-sleeve on the runner movable longitudinally thereof and arranged to lie normally, when out of action between the retaining-point and the cam of the retainer, substantially as described.

694,625. CIGAR-BUNCHING MACHINE. MICHAEL M. GARDNER, Edgewood, R. I. Filed June 20, 1901. Serial No. 65,278. (No model.)

Claim.—1. In a cigar-bunching machine, the combination with means for feeding the suitably-prepared leaves of tobacco arranged in the

form of a strip or ribbon *t*, and a magazine *m*, of an intermittingly-operating knife K for severing said strip into filler-sections *t'*, the form of said knife transversely being serrated or zigzag, thereby producing filler-sections having correspondingly-shaped ends and adapted later to be converted into bunches without waste, and means for transferring the cut filler-section away from the said ribbon and knife into said magazine, substantially as described.



2. In a cigar-bunching machine, the combination with the feeding trough or chamber, means for feeding therethrough the tobacco arranged in the form of a strip or ribbon *t*, and a magazine *m*, of the mechanically-actuated knife K having an irregular form transversely arranged to sever the said strip into filler-sections having irregular-shaped ends, the counterpart of said knife, means for disengaging the severed sections singly from the knife and means for transferring them into said magazine, substantially as described.

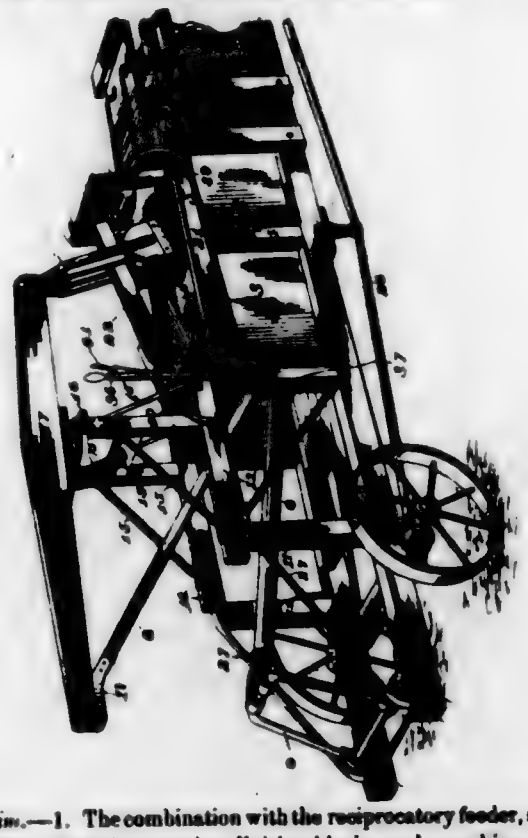
3. In a cigar-bunching machine, a feeding chamber or trough for the superposed leaves or ribbon *t* of tobacco, the magazine *m* arranged at right angles with said trough, a mechanically-actuated charging cylinder or member normally communicating with said magazine, in combination with an intermittingly-operating initial cutting-knife K having an irregular form transversely located contiguous to the mouth of said trough for severing the said ribbon into filler-sections *t'* having the shape of their ends the counterpart of the said knife, mechanism for transferring the severed sections singly from the knife into the said magazine and into the said cylinder, and a mechanically-actuated secondary cutter or knife interposed between the magazine and cylinder, all constructed and arranged whereby the charge in the cylinder, as cut longitudinally from said filler-section has an approximate shape of the cigar, substantially as described.

4. In a cigar-bunching machine, the combination with the feeding-chamber c^3 for the superposed leaves or ribbon *t* of tobacco, a magazine *m* located in a lower plane than the feeding-chamber and a suitably mounted and controlled plunger E, of the reciprocating corrugated knife K for severing said ribbon into filler-sections without waste, a reciprocating section-carrier S suitably timed with respect to said knife having a chamber c^5 therein adapted to receive the sections singly and to register with the magazine, whereby the said plunger is capable of discharging the section from the carrier into the magazine.

5. A knife for severing a strip of superposed leaves of tobacco into sections having a predetermined length, the said knife having an irregular or corrugated form cross-sectionally and further having the rear portion of the cutting edge k^1 of the two outer sides or wings of the knife somewhat lower than the intermediate cutting edges k^2, thereby not only producing a shearing effect but also adapting the said wings to engage the strip of tobacco in advance of the said intermediate portion of the knife.

6. In a cigar-bunching machine, the combination with the feeder member c^3 for the strip *t* of fillers and a section-carrier adapted to receive the forward portion of said strip from the feeder, of a knife having a corrugated form cross-sectionally adapted to pass between the adjacent ends of said feeder and carrier in severing said portion of the strip resting in the carrier to form a filler-section, a holder having said knife secured thereto and provided with an opening for the feeder member, means for intermittingly reciprocating the holder, and means for transferring the filler-section from the carrier.

694,626. HAY-PRESS. KIZZIE K. GITTINGS, Chilhowee, Mo. Filed Apr. 18, 1901. Serial No. 56,396. (No model.)



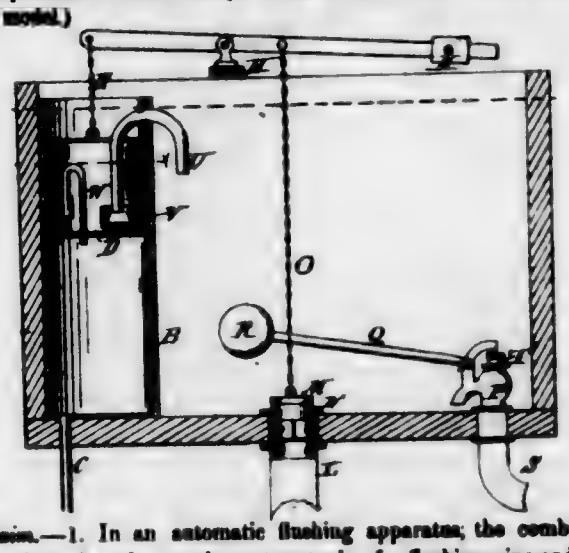
Claim.—1. The combination with the reciprocatory feeder, a division-block holder adapted to receive division-blocks and a rocking beam operatively connected with said feeder, of a controlling-lever pivotally mounted on the feeder and means carried by said lever to engage a division-block in said holder, substantially as and for the purpose specified.

2. The combination with a reciprocatory feeder, a division-block holder adapted to receive division-blocks and a rocking beam operatively connected with said feeder, of a controlling-lever pivotally mounted on the feeder, means carried by said lever to engage a division-block in said holder, and hinged door-sections connected to one end of said lever, as set forth.

3. The combination with a reciprocatory feeder, a division-block holder adapted to receive division-blocks, and a rocking beam operatively connected with said feeder, of a controlling-lever mounted pivotally on the feeder, means carried by said lever to engage a division-block in the holder, hinged door-sections connected to one end of said lever, and tracks upon which said holder rests horizontally till lifted into position to drop the blocks, as set forth.

4. The combination with a reciprocatory feeder, a division-block holder adapted to receive division-blocks, and a rocking beam operatively connected with said feeder, of a controlling-lever pivotally mounted on the feeder, means carried by said lever to engage a division-block in the holder, hinged door-sections connected to one end of the lever, tracks upon which the holder rests horizontally till lifted into position to drop the blocks and means for preventing the block proper from accidentally dropping off the ends of the tracks, as set forth.

694,627. AUTOMATIC FLUSHING-TANK. PETER F. GLACKIN, Pittsburg, Pa., assignor to Standard Sanitary Mfg. Co., Pittsburg, Pa., a Corporation of New Jersey. Filed Feb. 6, 1900. Serial No. 4,572. (No model.)

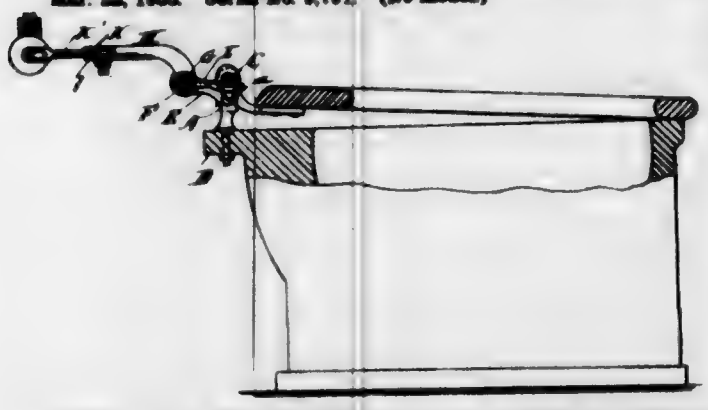


Claim.—1. In an automatic flushing apparatus, the combination with a main tank and a supplementary tank, of a flushing-pipe and valve

a lever connected to said valve, a bucket suspended from said lever and within the supplementary tank, a siphon-pipe leading from the main tank to the supplementary tank and discharging into said bucket and means for automatically emptying said bucket after it has descended and opened the valve, substantially as described.

2. In a flushing apparatus, the combination of main and supplementary tanks, a bucket adapted to rise and fall and by its movement governing the flow of water from the main tank, with a siphon adapted to discharge water from the main tank into said bucket and a second siphon adapted to discharge the water from the bucket into the supplementary tank, substantially as described.

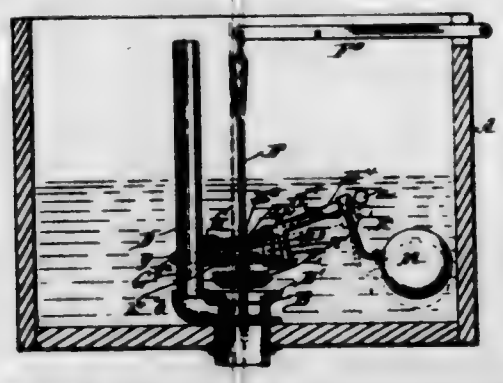
694,628. HINGE FOR WATER-CLOSET SEATS. PETER F. GLACKIN, Pittsburg, Pa., assignor to the Standard Sanitary Manufacturing Company, Pittsburg, Pa., a Corporation of New Jersey. Filed Mar. 22, 1900. Serial No. 9,791. (No model.)



Claim.—1. A hinge for water-closet seats consisting of stationary standards attached to the bowl of the closet and having curved slots, in combination with a flush-operating lever having forwardly-projecting arms and hinge members attached to the seat and connected by a horizontal pintle passing through said slots and adapted to bear on said arms when the rear of the seat is depressed, substantially as described.

2. The combination with a water-closet seat of the eyebolts or standards A, A, attached to the bowl and formed with segmental slots *a a* and rearwardly-extending projections E E the transverse shaft C adapted to move in said slots and having its ends connected to the seat-hinge members, the shaft G journaled in the projections E E and provided with the forwardly-extending arms H H upon which the shaft C rests and connections between the shaft C and the flush-operating mechanism, the parts being constructed and adapted to operate the flushing mechanism when the seat is depressed at the rear and prevent the horizontal movement of said seat, the seat being arranged so that its rear end when depressed shall move in the arc of a circle of which that portion of the seat normally resting on the bowl is the center, substantially as described.

694,629. FLUSHING APPARATUS. PETER F. GLACKIN, Allegheny, Pa., assignor to Standard Sanitary Mfg. Co., Pittsburg, Pa., a Corporation of New Jersey. Filed May 22, 1901. Serial No. 61,411. (No model.)



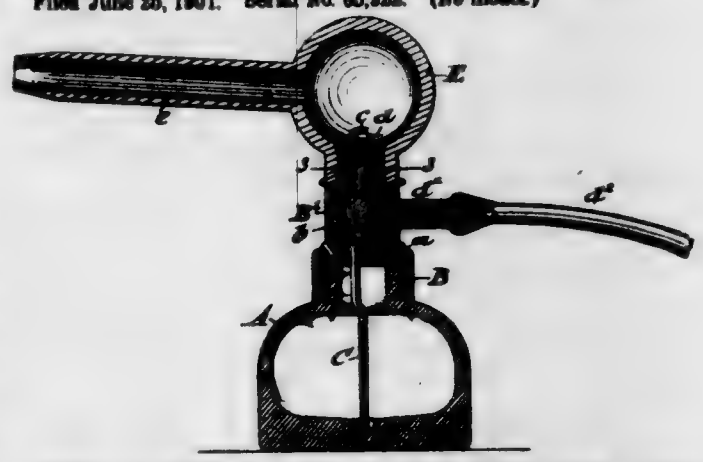
Claim.—1. In flushing apparatus, the combination with the flush-valve and its lifting-stem, of a gravitating bar or lever having an opening through which said stem passes and in which it is frictionally held when the valve is raised, a float, a lever to which said float is connected having a projection adapted to engage with said gravitating bar or lever, whereby, on the descent of the float, the latter will be lifted and the valve-stem released, substantially as described.

2. In flushing apparatus, the combination with the flush-valve and its lifting-stem, of a gravitating or counterbalance bar or lever having a hole through which said stem passes and in which the latter is frictionally restrained when the valve is lifted, a stationary bar to which said lever is pivoted, a float, a lifting-lever to which said float is connected having a toe or projection to engage with said gravitating lever and lift the same when the float has descended to its lowest required limit, substantially as described.

3. In flushing apparatus, the combination with the flush-valve and its lifting-stem, an overflow-pipe and a horizontal bar secured thereto, of a gravitating bar or lever attached to said horizontal bar and adapted to frictionally restrain said valve-stem when raised to empty the tank, a float and a lever to which said float is connected, said lever being pivoted on said horizontal bar and provided with a toe or projection which extends under said gravitating lever, whereby when said float descends, said gravitating lever will be lifted and the valve-stem released.

4. In flushing apparatus, the combination with the flush-valve E, lifting-stem F, and overflow-pipe D, of the bar G, secured to the pipe D, and provided with standards H, H', H², weighted gravity-lever I, pivoted between two of said standards and formed with an opening through which said stem passes and with the edges of which it engages and is held when lifted, lever I', pivoted between two of said standards and provided with a toe or projection A^4 passing under lever I and float M, connected to lever I', the parts being so arranged that when the float descends the lever I will be lifted and the valve-stem released.

694,630. NEBULIZER. HERMANN GOLTERMANN, New York, N. Y. Filed June 26, 1901. Serial No. 65,922. (No model.)



Claim.—A nebulizer, consisting of a liquid vessel A having a screw-threaded neck B, a cap B' screwed on said neck, and provided with bores *b'* extending through the same and communicating with the interior of the vessel, and with a liquid-supply bore *b* also extending therethrough, and an air-supply bore *d'*, an air-supply tube *d* connected with said air-supply bore, and projecting from the upper end of said cap, a suction-tube C connected with the lower end of the bore *b*, a nozzle *c* connected with the upper end of said bore and having its upper end bent over in proximity to said air-supply tube *d*, a spherical head E screwed on said cap, the upper end of said nozzle and air-supply tube being located in the lower part of said head, and a discharge-nozzle projecting from one side of said spherical head, substantially as set forth

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694,681. AXLE-SKEIN. EDGAR GOOD, Kalamazoo, Mich., assignor to Kalamazoo Spring & Axle Company, Kalamazoo, Mich., a Corporation of Michigan. Filed Apr. 27, 1901. Serial No. 57,750. (No model.



Claim.—1. An axle-skein comprising a journal or wearing portion formed of cast metal having an inwardly-extending integral shank and a shoulder formed between said shank and wearing portion, a tail and socket portion at the outer end thereof formed of wrought metal and having a sleeve at its outer end shrunk upon said inwardly-projecting shank and a shoulder or collar formed at the outer end of said sleeve and integral therewith.

2. An axle-skein comprising a journal or wearing portion formed of cast metal having an inwardly-extending integral shank, a tail and socket portion formed of wrought metal and a sleeve formed integral with said tail and socket portion shrunk upon said shank and having its inner end thickened to form a collar adjacent to said wearing portion.

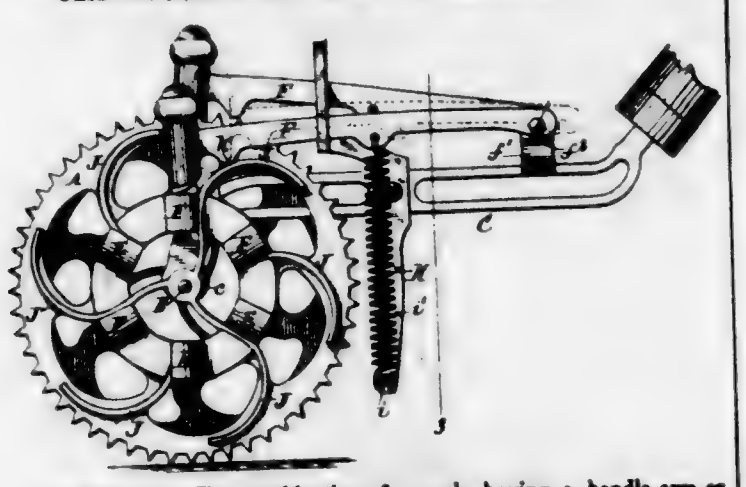
694,682. SEWING-MACHINE GAGE. GEORGE GOULSON, Los Angeles, Cal. Filed July 8, 1901. Serial No. 67,566. (No model.)



Claim.—1. A sewing-machine gage, comprising a resilient bed-piece having a longitudinal slot for the reception of the thumb-screw for securing same to the bed-plate of the machine, one end terminating in an eye to receive a pintle-bolt, a pintle-bolt in said eye, a fabric-engaging member pivoted on said bolt, the free end adapted to guide the fabric being sewed, the pivoted end of said member passing partly around the pintle-bolt and projecting radially therefrom and adapted to bear against the bed-plate and hold the free end of the fabric-engaging member spring-pressed against the bed-plate of the machine while the gage is in operative position.

2. The herein-described sewing-machine gage, comprising the spring-clamp D, having longitudinal slot D', therein, the thumb-screw C, adapted to secure same to the bed-plate, the body portion B, pivotally secured to the spring-clamp, the short end *a* projecting radially from the pintle-bolt securing the same to the clamp, and adapted to bear against the bed-plate of the machine, and spring-press the free end *b* against the bed-plate when in operative position.

694,683. DETONATING TOY. HERMAN GREINERT, Buffalo, N. Y. Filed Dec. 14, 1901. Serial No. 85,957. (No model.)



Claim.—1. The combination of an axle having a handle arm or frame, ground-wheels mounted side by side on the axle and each provided with a row of radial cartridge-chambers and a series of lifting-cams arranged in front of said chambers, the chambers and cams of the wheels being arranged in alternating or staggered order, and a firing-hammer for each wheel mounted on said handle-frame and arranged to coöperate with the cams and cartridge-chambers of the same, substantially as set forth.

2. The combination of an axle carrying an arm or frame, a wheel mounted on said axle and provided on its side with a laterally-projecting boss or bosses, each having a cartridge-opening which extends from end to end thereof, a firing-hammer mounted on said frame and arranged to strike the cartridges placed in said bosses, and lifting devices for said hammer carried by said wheel, substantially as set forth

3. The combination of an axle carrying an arm or frame, a wheel mounted on said axle and provided on its side with a laterally-projecting boss or bosses, each having a cartridge-opening which extends from end to end thereof, said bosses being arranged radially on the wheel, lifting-cams which project laterally from the same side of the wheel as said bosses and extend upwardly and rearwardly from the bosses, respectively, to a point opposite the outer end of the next succeeding boss, and a firing-hammer carried by said frame and arranged to ride over said cams, substantially as set forth.

4. The combination of an axle having a handle-arm, a ground-wheel mounted on said axle and provided on its outer side with radially-arranged cartridge-chambers and a series of curved cam-ribs arranged in front of said cartridge-chambers and each extending upwardly and rearwardly from one of the chambers, alternate ribs of the series extending inwardly beyond the cartridge-chambers to the hub of the wheel, and the intermediate ribs terminating at the adjacent chambers, and a firing-hammer cooperating with said chambers and cam-ribs, substantially as set forth.

5. The combination of an axle having a handle arm or frame, a wheel mounted on said axle and having a radial cartridge chamber or chambers, hammer-lifting devices arranged in front of said chambers, a firing-hammer detachably pivoted upon said frame, and a guide for the hammer mounted on said frame, substantially as set forth.

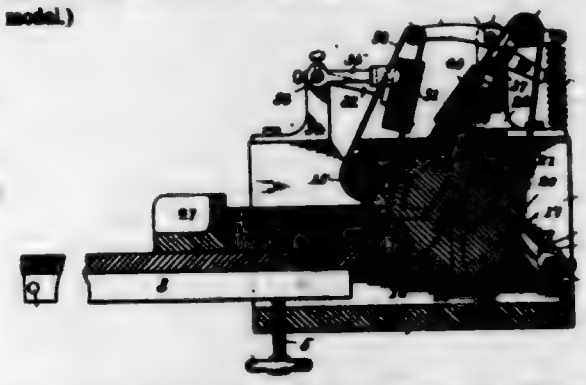
6. The combination of an axle, a handle-arm attached to the axle and carrying a horizontal pivot, a ground-wheel mounted on said axle and provided with radially-arranged cartridge-chambers and lifting-cams arranged in front of said chambers, a detachable firing-hammer provided at its rear end with a notch which receives the pivot on said handle-arm, and a spring for depressing said hammer, substantially as set forth.

7. The combination of an axle having a handle-arm, a ground-wheel having radially-arranged cartridge-chambers and lifting-cams arranged in front of said chambers, a firing-hammer detachably pivoted upon said handle-arm, and a guide for the hammer mounted on said handle in front of the hammer-pivot, substantially as set forth.

8. The combination of an axle, a frame carried by said axle and provided on the rear side thereof with a depending bracket and in rear of said bracket with a horizontal pivot, a wheel mounted on the axle and provided with a cartridge chamber or chambers and in front of said chambers with lifting devices, a firing-hammer mounted on said pivot, and a spring connecting the hammer with the lower end of said bracket, substantially as set forth.

9. The combination of an axle having a handle-arm, a ground-wheel mounted on said axle and provided with radially-arranged cartridge-chambers and in front of said chambers with lifting-cams, and a vertically-swinging hammer pivoted upon said handle-arm and provided at its front end with a firing-head and in rear of said head with a depending lug arranged to ride over said cams in advance of said head, substantially as set forth.

694,684. PAPER-BOX STACKER AND DRIER. GEORGE M. GRISWOLD, New Haven, Conn. Filed May 11, 1901. Serial No. 59,823. (No model.)



Claim.—1. In a box stacking and drying machine, the combination of a pair of feed-rolls, means for guiding the boxes thereto and means for adjusting the boxes to a uniform position as they are guided to the feed-rolls, and mechanism for stacking them one against the other in successive order.

2. The combination in a machine for stacking boxes, of a suitable box-receiving trough, means for guiding boxes from said trough to feed-rolls in a line substantially parallel to said rolls, rolls for compressing such boxes and means for delivering the boxes one against the other and retaining the same in a compressed position.

3. In a paper-box stacking and drying device the combination with a pair of feed-rolls, of notched disks for guiding boxes thereto, a table upon which the boxes are received and cams for guiding the boxes from said rolls to the table and shoving the previously-stacked boxes outward to make room for the boxes to be delivered.

4. In a box-stacking device of the class described, the combination with a pair of feed-rolls and means for guiding boxes thereto, of a device upon the roll-shaft to be engaged by the boxes, to guide it uniformly into said rolls and provided with means to shove the previously-stacked boxes

outward making room for and loading the new boxes into position where they are successively stacked.

5. The combination in a box-stacking device, of means to receive and deflect the boxes into the path of operation, a pair of feed-rolls to receive said boxes and compress the same, a disk upon the roll-shaft adapted to deliver the boxes from the rolls to a table in their successive orders.

6. The combination in a box-stacking device, of means to receive and guide boxes into the path of operation, of a pair of feed-rolls to receive, compress and deliver the boxes, a disk in line with one of the rolls having notched cam-surfaces thereon to engage and aline the boxes and to guide the successive finished boxes forward and deposit them against the stack.

7. In a box stacking and drying machine, the combination with a pair of feed-rolls, of means to receive and deliver boxes thereto, disks on the axial line of one of said rolls and having notches therein to receive and aline the boxes as they are fed through the rolls, cam-surfaces upon said disks to engage and force the previously-stacked boxes outward to make room for the additional boxes as they are guided to and delivered against said stock.

8. The combination in a box stacking and drying device, of a pair of feed-rolls one of which is formed in sections, disks intermediate of the sections having notched cam-surfaces thereon to automatically receive and guide a box through its line of operation.

9. The combination in a box drying and stacking device, of a pair of feed-rolls, disks having notches for alining and feeding boxes to said rolls, a table upon which said boxes are delivered and means for successively shoving the boxes outward with each delivery.

10. A paper-box stacking and drying machine, comprising a pair of feed-rolls, means for guiding glued boxes thereto, a series of disks operating in conjunction with said rolls having a series of notches thereon to be engaged by the boxes as they are fed to the rolls, a cam-surface upon the disk adjacent to the notches adapted to travel in advance of the box and shove the stack out to form a space for delivery and a table upon which said boxes are stacked.

11. The combination in a box stacking and drying apparatus, of a table upon which the boxes are delivered and stacked, a pair of rolls adjacent thereto, means for adjusting the table to and from the rolls to accommodate different heights of boxes, means for feeding the boxes to said rolls mechanism for guiding and delivering boxes from the rolls to the table and arranging them snugly against one another.

12. The combination in a paper-box-stacking device, of a pair of rolls, a table adjacent thereto to receive the boxes as they are delivered from the rolls, means for adjusting the table to and from the rolls and mechanism for guiding the boxes through the rolls and delivering them one against the other in a uniform line upon the table.

13. The combination in a paper-box-stacking device, of a pair of feed-rolls, a table adjacent thereto, disks for guiding boxes through the rolls and delivering them one against the other upon the table, a weight to ride against the outer side of the boxes adapted to slide outward with the successive accumulation of the boxes to the inner edge.

14. The combination in a paper-box stacker, of a pair of feed-rolls adapted to compress and move boxes forward for delivery, a series of disks operating in conjunction with said rolls having lugs thereon to insure the proper alinement of the box with the roll as it is fed to and from the same and means for guiding and delivering the said boxes one against another in a compressed manner.

15. In a paper-box machine of the class described, the combination of a pair of feed-rolls one of which is formed in sections, a series of disks interposed between said sections, notches upon said disks and cam-surfaces adjacent to said notches as and for the purpose set forth.

16. In a machine of the class described, the combination of a pair of feed-rolls one of which is formed in sections, disks loosely interposed between said sections having a series of peripheral projections thereon, annular recesses in the coacting roll to accommodate said projections, the whole arranged to operate as and for the purpose specified.

17. In a paper-box-stacking device, the combination of a pair of feed-rolls, one of which is formed in sections, a series of disks loosely mounted between said sections, a series of peripheral cams with notches upon said disks extending out slightly beyond the surface of the main portion of the roll in a manner to be engaged by the boxes as they are fed over said roll, frictional pawls to engage the periphery of said disks in a manner to afford a resistance to the forward movement and to insure the proper alinement of the notches upon the several disks, the whole arranged to operate substantially as and for the purpose described.

18. The combination in a paper-box-stacking device of a pair of feed-rolls with means for guiding folded boxes thereto, a series of disks operating in conjunction with said rolls having notched lugs thereon to engage and guide the boxes through the rolls and against the previously-stacked boxes, a stripper to separate the box from the rolls as it is being delivered.

19. In a paper-box-stacking device, the combination with a pair of feed-rolls, of means for delivering compressed boxes therefrom to the stack, of a pair of belts for feeding the boxes to said rolls and shields to deflect boxes as they are received into said belt.

20. The combination with a pair of feed-rolls, of cams upon the feed-roll shafts for delivering boxes therefrom to the stack, a series of belts upon each roll to feed the boxes thereto, and means for adjusting the tension of said belts substantially as described.

21. The combination with a pair of feed-rolls, of cams upon the feed-roll shaft for delivering boxes therefrom to the stack, a series of belts upon each roll to feed the boxes thereto, means for adjusting the tension of said belts substantially as shown, and guides to retain the belts in their relative positions.

22. The combination with a pair of feed-rolls, of means for delivering boxes therefrom to the stack, a series of belts upon each roll to feed the boxes thereto, guides to retain the belts in their relative positions, inclined deflecting-plates between the belts to guide the boxes thereto.

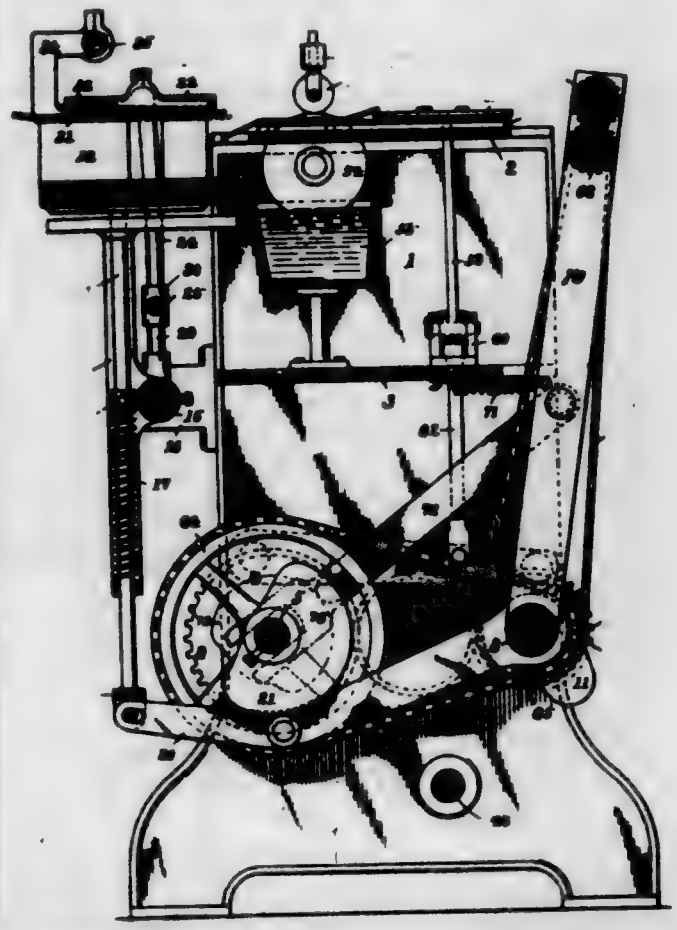
23. The combination in a paper-box-stacking device, of a pair of feed-rolls, means for delivering compressed boxes therefrom to a stack, a trough to receive said boxes and guide them into the rolls, an adjustable stop arranged transversely of said trough to guide the end of the box to the rolls in a uniform line.

24. The combination in a paper-box-stacking device, of a pair of feed-rolls to compress and deliver the boxes to a stack, notched disks to insure a parallel position of the boxes with the rolls as they pass therethrough, a pair of troughs to receive glued boxes and deliver them to different sides of the feed-rolls, substantially as shown and described.

25. The combination of a feed-roll for paper-box stackers, of a shaft, a series of pulleys secured thereto at substantially an equal distance apart, a series of disks arranged loosely between said pulleys and provided with a series of peripheral notches having a forward cam-surface.

26. The combination in a paper-box-stacking machine, of a pair of feed-rolls, means for delivering folded boxes thereto, mechanism for delivering said boxes from said rolls to a stack, a pair of gears interposed between said rolls whereby one is operated from the other, a bevel-gear upon the shaft of one of said rolls, a second bevel-gear meshing with said gear, a shaft upon which said gear is mounted and a driving-pulley whereby the entirety is operated.

694,685. PAPER-BOX-BLANK FEEDING AND FOLDING MECHANISM. GEORGE M. GRENWOLD, New Haven, Conn. Filed June 25, 1901. Serial No. 65,863. (No model.)



Claim.—1. The combination with paper-box folders, of a pneumatic device for feeding blanks to said folders, the same comprising a reciprocating rectangular perforated former around which the boxes are folded, an air-suction for said former and means for delivering blanks to said former.

2. The combination of reciprocating rectangular pneumatic carrier for engaging and feeding box-blanks and for holding said blanks while being folded, folders for turning the edges of the blank over upon the carrier to form said blank into boxes, and means for removing said boxes.

3. The combination with paper-box folders, of a reciprocating former with pneumatic means for grasping and holding a blank during transit and while being folded over said former.

4. The combination with paper-box folders, of a former around which the blank is folded, means for reciprocating said former to and from the folders, and pneumatic means for causing the blank to adhere to the former during transit and while the blank is being folded thereon, and means for automatically delivering blanks to said former.

5. The combination with paper-box folders, of a flat perforated hollow former over which the blanks are bent to form substantially a rectangular box, means for reciprocating said former to and from the folders, an air-suction for said former whereby the blanks are caused to adhere thereto during transit, and rolls for stripping the finished box from the former.

6. The combination with paper-box folders, of a hollow rectangular former with perforations through its under side and means for providing a pneumatic suction for said perforations to cause a box-blank to adhere thereto, means for reciprocating said former to and from the folders, and automatic means for ejecting the finished box from the machine.

7. In a paper-box-forming machine, the combination with a pair of stationary pneumatic pickers, of a blank-holder beneath the pickers, springs for normally holding said holder into engagement with said pickers, and means for lowering said holder against the action of said springs, a reciprocating pneumatic blank-carrying former, folders to bend the blank around said former, and means to strip the box from said former.

8. In a blank-feeding device for box-forming machines the combination of a pair of pneumatic pickers comprising hollow tubular bodies having a series of holes on their under sides to form engagements across the two outer edges of the blank, connections for creating a suction through said holes and a valve for controlling said suction, a reciprocating pneumatic blank-carrying former adapted to operate intermediate of said pickers to take the blanks therefrom to suitable folders.

9. A paper-box-blank feeding device comprising a pair of elongated hollow pickers, having a series of holes on their under side, means for insuring an air-suction therethrough, means for controlling said suction, means for successively causing the pickers to engage a blank adjacent to its side edges in a manner to separate the same from the bulk, and a pneumatic former for engaging said separated blank and feeding it therefrom to folding mechanism, where it is held during the folding operation.

10. The combination in a feeding device for box-forming machinery, of a reciprocating blank-holder, means for successively taking a single blank from said holder, a pneumatic device for receiving said blank and feeding it to the folding mechanism and constituting a former around which the box is formed, and means for removing said folded blank from said receiving mechanism, substantially as described.

11. In a box-forming machine, the combination with a device for separating and receiving a single blank from the pile, a gluing device, a pneumatic former around which the blank is folded into a box and for feeding the blanks to the folding mechanism, folders to bend and stick the box around the former, means for stripping said folded box from the pneumatic former and ejecting the box from the machine.

12. In a box-forming machine the combination with suitable folding mechanism, of a reciprocating former and blank-carrier around which the box is formed, pneumatic connections for said former whereby a blank is engaged and conveyed thereby to the folders, means for delivering the blanks to the former, substantially as described.

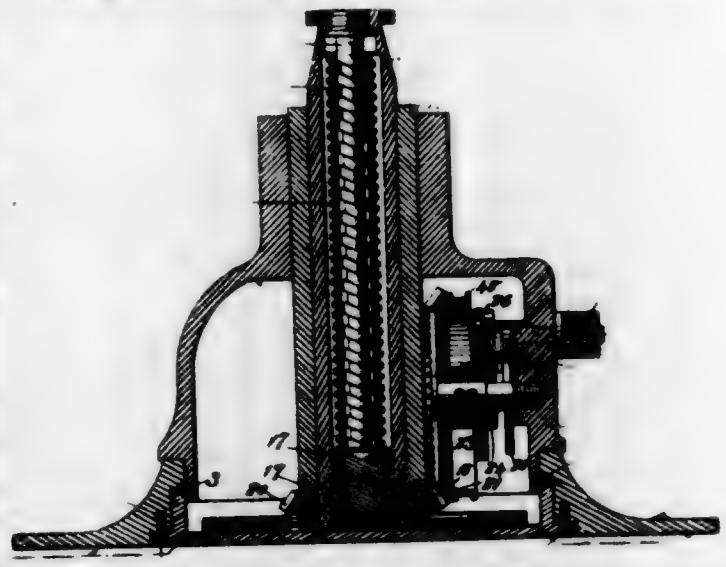
694,686. **BUTTON.** JACOB GUMP, Baltimore, Md. Filed Mar. 28, 1901. Serial No. 53,231. (No model.)



Claim.—1. A button having an annular collet, a small cupped and perforated metallic shank protruding through the hole in said collet, and a small cupped cloth fastening-piece inside of said shank, the cup of said fastening-piece being similar to the cup of said shank, and said fastening-piece forming a lining for said shank.

2. In a button, the combination with an annular collet, of a cupped and perforated metallic shank rotatable in the hole in said collet, and a small cloth fastening-piece inside of said shank, the cup of said fastening-piece being similar to the cup of said shank, and said fastening-piece forming a lining for said shank.

694,687. **ELEVATING AND CONTROLLING MECHANISM.** JAS. F. HARDY, New York, N. Y., assignor to Consolidated Dental Manufacturing Company, New York, N. Y., a Corporation of New York. Filed June 22, 1901. Serial No. 65,598. (No model.)



Claim.—1. An elevating mechanism comprising two posts, two screws connected therewith and means for positively rotating the outer of the screws for simultaneously raising the two posts, substantially as set forth.

2. An elevating mechanism comprising two posts and two screws mounted concentrically and means for rotating the outer of the screws for simultaneously raising the two posts, substantially as set forth.

3. An elevating mechanism comprising two posts and two screws mounted concentrically and connected together, the pitch of one screw being greater than the pitch of the other screw in the same direction and means for rotating the outer of the screws for simultaneously raising the posts at different speeds, substantially as set forth

4. In combination, two tubular posts and two screws mounted concentrically and connected together, means for positively rotating the outer of the screws in one direction for raising the posts and a governor connected to the rotary screw for automatically controlling its speed in the reverse direction to control the downward movements of the posts, substantially as set forth.

5. In combination, two tubular posts and two screws mounted concentrically, means for positively rotating the outer of the screws in one direction for raising the posts, a governor fixed to the rotary screw for controlling its movement in the reverse direction and means for adjusting the tension of the governor, substantially as set forth.

6. In combination, elevating mechanism, comprising two concentric tubular posts, a rotary screw connected to one of the posts and a stationary screw fixed to the other post and connected to the rotary screw whereby the turning of the rotary screw positively raises the two posts simultaneously, substantially as set forth.

7. In combination, two concentric tubular posts, a rotary screw, a traveling nut connecting the rotary screw with one of the posts, a stationary screw connected to the other post and engaging a nut carried by the rotary screw whereby the turning of the rotary screw in one direction will positively raise the posts, substantially as set forth.

8. An elevating mechanism comprising two concentric tubular posts, a rotary screw connected with one of the posts and a stationary screw fixed to the other post and connected with the rotary screw, the stationary screw having a greater pitch than the rotary screw whereby the post to which the stationary screw is attached will be raised at a greater speed than the other post when the rotary screw is turned, substantially as set forth.

9. In combination, two posts, screws positively connected therewith and means for turning the outer of the screws for positively raising the posts comprising a bevel-gear carried by the rotary screw, an intermeshing gear, a foot-lever and a pawl-and-ratchet connection between the foot-lever and the last-named bevel-gear, substantially as set forth.

10. In combination, two posts, two screws positively connected therewith, means for turning the outer of the screws in one direction for positively raising the posts comprising a bevel-gear carried by the rotary screw, an intermeshing gear, a foot-lever and a pawl-and-ratchet connection between the foot-lever and the last-named gear and means for disconnecting the foot-lever from the bevel-gear to permit the posts to slide downwardly by gravity, substantially as set forth.

11. In combination, two tubular posts, two screws positively connected therewith, means for positively turning the outer of the screws in

one direction for raising the posts, means for disconnecting the outer screw from its turning means, to permit the posts to slide downwardly by gravity and means for automatically locking the posts against downward movement, substantially as set forth.

12. In combination, body-elevating mechanism, means for automatically locking the body in any of its raised positions and mechanical means for controlling the speed of the downward movement of the body when the brake and the elevating mechanism are disconnected, substantially as set forth.

13. A base comprising a lower stationary section, an upper rotary section and means for locking the two sections together comprising a split ring interposed between the two sections and a cam-bar interposed between the ends of the split ring, substantially as set forth.

14. A hollow base comprising a stationary lower section, a rotary upper section and a cup secured to the lower section for closing the bottom of the base, substantially as set forth.

15. In combination, a hollow base, two concentric tubular posts fitted to slide therein, a stationary screw and a rotary screw connected to the posts, mechanical means for positively rotating the rotary screw in one direction to raise the posts and means for controlling the speed of the screw in the other direction comprising a governor-plate loosely mounted on the screw and having a pawl-and-ratchet connection with the screw and weighted governor-arms hinged to the governor-plate in position to engage the inner wall of the base, substantially as set forth.

694,688. VALVE FOR PNEUMATIC TIRES. WILLIAM D. HART, Bloomfield, N. J., assignor of one-half to Eugene M. Macdonald, Glenridge, N. J. Filed July 12, 1901. Serial No. 68,062. (No model.)



Claim.—1. In a valve, a tubular casing threaded at its inner end, a flanged valve-plug screwed into the threaded inner end of the tubular casing and closing the valve by the contact of the flange with the inner end of the casing, an air passage-way from the interior of the casing to the flange of the valve-plug, a coupling for an air-supply pipe, means for connecting the coupling to the outer end of the tubular casing, and a key connection between the coupling and the valve-plug, whereby the screwing on and off of the coupling opens and closes the valve, substantially as described.

2. In a valve, a tubular casing interiorly threaded from end to end, a flanged valve-plug screwed into the threaded inner end of the tubular casing and closing the valve by the contact of the flange with the inner end of the casing, an air passage-way from the interior of the casing to the flange of the valve-plug, a coupling for an air-supply pipe screwed into the threaded outer end of the tubular casing, and a key connection between the coupling and the valve-plug, whereby the screwing on and off of the coupling opens and closes the valve, substantially as described.

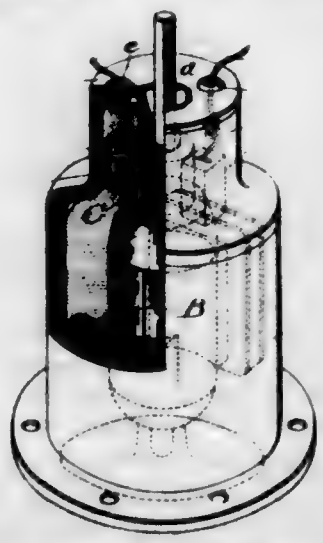
3. In a valve, a tubular casing threaded at its inner end, a flanged valve-plug screwed into the threaded inner end of the tubular casing and closing the valve by the contact of the flange with the inner end of the casing, an air passage-way from the interior of the casing to the flange of the valve-plug, a cap for the valve, and a screw connection between the cap and the valve-plug of opposite hand to the screw connection between the tubular casing and the valve-plug, substantially as described.

4. In a bicycle-wheel, the combination with a rim, and a pneumatic tire attached thereto, of a valve the casing of which is secured in the wall of the tire by means of tire-clamping flanges, the valve being so located in the wall of the tire that one side of the outer flange will be protected and supported by the rim and the outer end of the tubular valve-casing will lie outside the rim for the reception of a coupling of an air-supply pipe, substantially as described.

694,689. ELECTRIC MOTOR. TRACY B. HATCH, Menomonie, Wis., assignor to Submerged Electric Motor Company, Menomonie, Wis., a Corporation of Wisconsin. Filed Aug. 7, 1901. Serial No. 71,186. (No model.)

Claim.—1. In an electric motor, coöperating members forming, respectively, the field and the armature mounted one within the other, the outer one of said two members being a liquid-holding vessel.

2. In an electric motor, coöperating members forming, respectively, the field and the armature mounted one within the other, the outer one of said two members being a liquid-holding vessel, and a liquid sealing substance, of low conductivity, in said vessel surrounding and sealing the inner one of said members.



3. In an electric motor, a liquid-holding vessel forming the motor-field and containing the moving members of the motor, and a liquid sealing substance in the vessel enveloping said moving members, substantially as and for the purpose set forth.

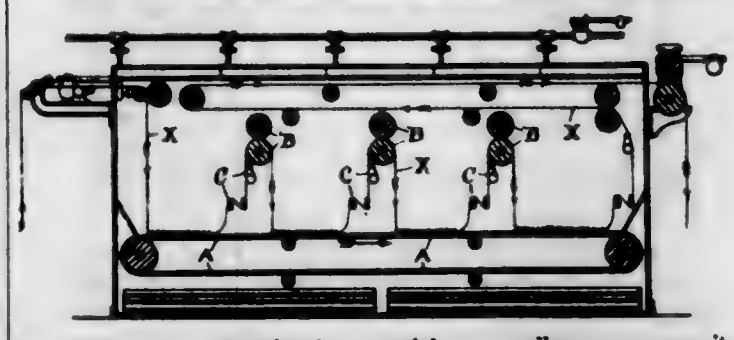
4. An electric motor, comprising a vessel forming the motor-field, and adapted to contain a fluid sealing substance of low conductivity, such as hydrocarbon oil, for surrounding and sealing the moving members of the motor, substantially as and for the purpose set forth.

5. In an electric motor, the combination of a closed vessel forming the motor-field and containing all the moving members of the motor, field-magnets on the inner wall of the vessel, a liquid sealing substance contained in the vessel and enveloping all the said moving members, and an opening in the upper part of the vessel for the passage of a rotary power-shaft, substantially as described.

6. In an electric motor, the combination of a closed vessel forming the field and containing all the moving members of the motor, a shaft in the upper part of and extending through a bearing-opening in said vessel, said shaft being rotated by the said moving members, and a liquid sealing substance in the vessel enveloping all the said moving members, substantially as described

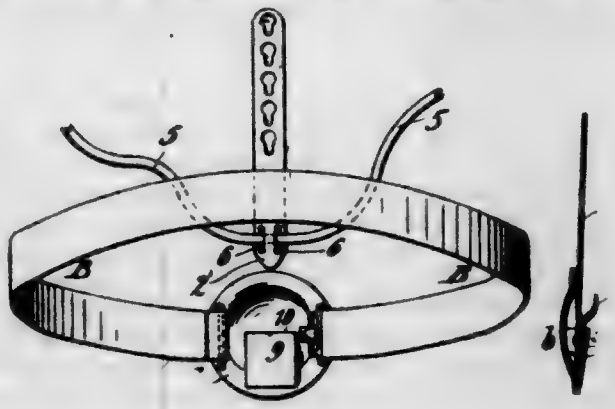
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694,640. AGING APPARATUS. JOHN C. HENDEE, Providence, R. I. Filed Dec. 20, 1901. Serial No. 86,591. (No model.)



Claim.—An aging-chamber containing an endless apron near its bottom, and rolls above the apron to lift the material to be aged from the apron and again drop it upon the apron, combined with mechanism for moving the apron and driving the rolls, and mechanism for feeding the material into the chamber and upon the apron and to take it from the chamber.

694,641. WAIST-SHAPING MEANS. MARY J. HENDERSON, New Kensington, Pa. Filed June 24, 1901. Serial No. 65,767. (No model.)



Claim.—1. A belt-buckle having at the rear side thereof a recess open at its upper side and adapted to receive the end of a waist-shaping device, the inner rear wall of said recess being inclined to the rear.

2. A belt-buckle having at the lower edge of its rear side a recess open at its upper side and adapted to receive the end of a waist-shaping device.

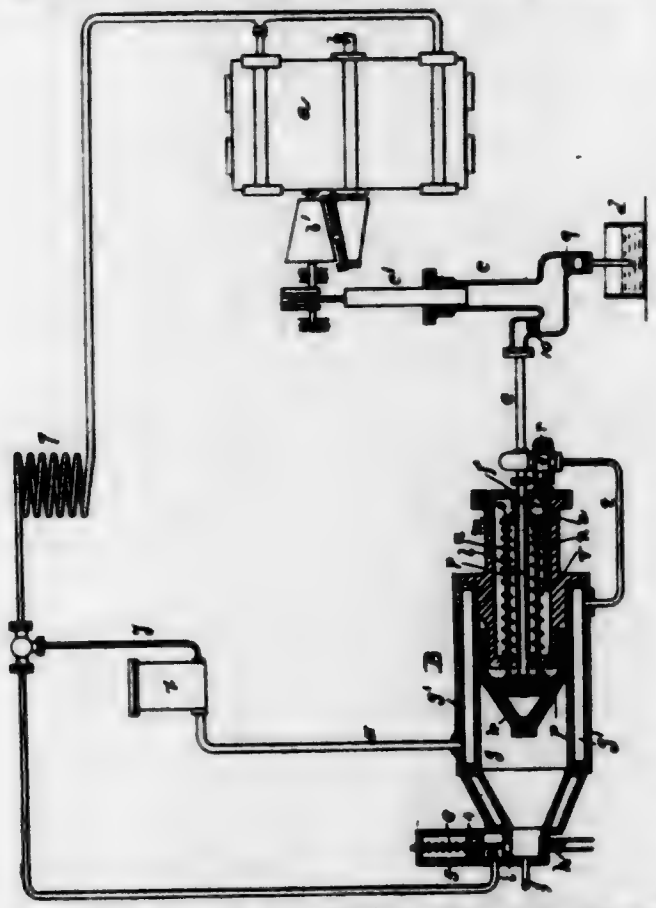
3. A belt-buckle having at the rear side thereof a rearwardly-projecting member forming between it and the buckle a socket adapted to receive the end of a waist-shaping device.

4. A belt having a buckle provided with a socket adapted to receive the end of a waist-shaping device.

5. The combination with a waist-shaping steel constructed for attachment to a corset, of a belt having a buckle provided at its rear side with a steel-receiving socket.

6. The combination with a waist-shaping steel constructed for attachment to a corset, of a tape adapted to be secured to said steel and passed around the body of the wearer, and a belt having a buckle provided at its rear side with a steel-receiving socket.

694,642. **MOTIVE-POWER APPARATUS.** JOSEF HOFMANN, Berlin, Germany. Filed Apr. 24, 1901. Serial No. 57,228. (No model.)



Claim.—1. The combination with a motor of the steam-engine type of a pump for compressing combustible mixtures, means for exploding the mixture before the termination of the compression-stroke and discharging at the same stroke, a valved outlet from said pump, a mixing-chamber to which said outlet leads, means for supplying water with the hot gases of combustion to the mixing-chamber, a pipe leading from the latter to the motor, and means whereby the motor actuates the said pump.

2. The combination with a motor of the steam-engine type, of a pump for compressing combustible mixtures, means for exploding the mixture before the termination of the compression-stroke and discharging at the same stroke, a valved outlet from said pump, a mixing-chamber, means for supplying water with the hot gases of combustion to the mixing-chamber, a pipe leading from the latter to the motor and means to actuate the pump from the motor to compress the combustible mixture and discharge the gases of combustion by the same forward stroke of the pump-piston.

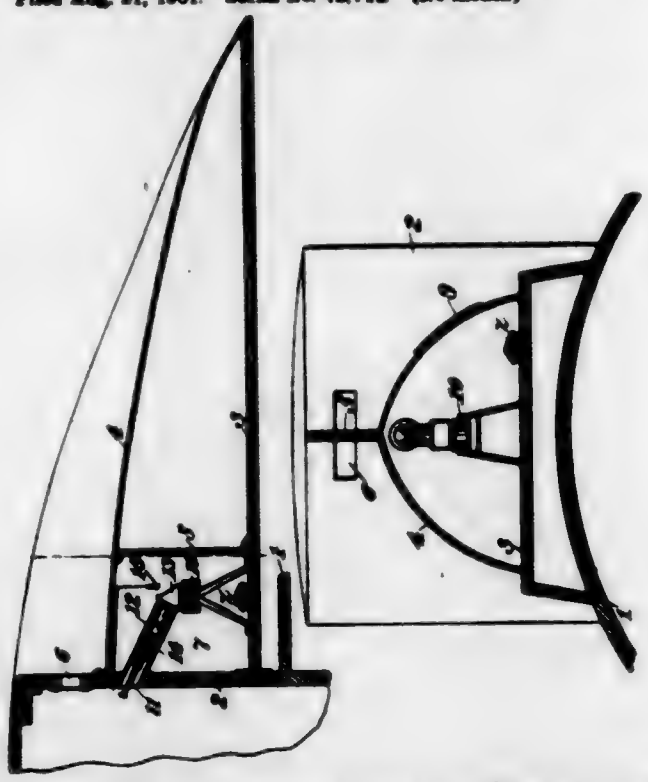
3. The combination with a motor of the steam-engine type, of a pump for compressing combustible mixtures, means for exploding the mixture before the termination of the compression-stroke and discharging at the same stroke, a valved outlet from said pump, a mixing-chamber, means for supplying water with the hot gases of combustion to the mixing-chamber, a pipe leading from the latter to the motor, and means including a variable friction-gearing for actuating said pump from the motor.

4. The combination of a motor of the steam-engine type, with a pump for drawing, compressing and igniting combustible mixtures, a mixing-chamber, means for supplying water with the hot gases of combustion to the mixing-chamber, a pipe leading from the latter to the motor, and a hydraulic pump to actuate the piston of the gas-pump on its forward stroke, substantially as described.

5. The combination of a motor of the steam-engine type, with means for mixing hot water and gases to produce expansive fluid to actuate the motor, a pump for drawing, compressing and igniting combustible mixtures and discharging the hot gases, a hydraulic pump operated from the motor to supply water to actuate the piston of the gas-pump and to supply the water for mixture with the hot gases, substantially as described.

6. The combination of a motor of the steam-engine type, with means for mixing hot gases and water to produce expansive fluid to actuate the motor, a pump for drawing, compressing and igniting combustible mixtures, and discharging the hot gases, a hydraulic pump to supply the water for the mixture, and also to actuate the piston of the gas-pump and a valve actuated by said pump-piston to open and close the connection to the water and gas mixing means, all substantially as described.

694,643. **SUBMARINE BOAT.** JOHN P. HOLLAND, Newark, N. J. Filed Aug. 21, 1901. Serial No. 72,744. (No model.)



Claim.—1. A submarine boat having a conning-tower, a water-tight binnacle-chamber exterior to the tower and to the shell or hull of the boat, a compass in said chamber, means for illuminating said chamber, and a way or passage connecting the interior of the conning-tower with a point in the binnacle-chamber over the compass, whereby the steersman is enabled to inspect the compass-card from the tower.

2. A submarine boat having a conning-tower, a water-tight structure forming a binnacle-chamber adjacent to the tower and exterior thereto and to the hull of the boat, a telescope-tube connecting the interior of the tower with the said chamber, a compass in said chamber and visible through said tube, and means for illuminating said compass.

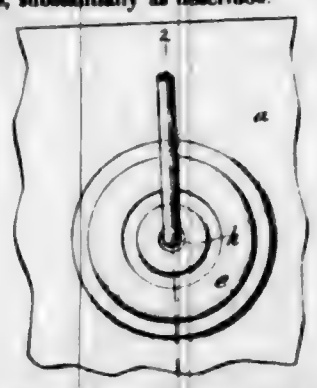
3. A submarine boat having a conning-tower which projects above the hull of the boat, a water-tight binnacle-chamber exterior to the hull and conning-tower, a compass in said chamber, a tube extending from the interior of the tower to a point in said chamber over the compass, means at the end of said tube over the compass for deflecting the image of the compass-card so that it may be seen through the tube from the tower, and means for illuminating the compass-card.

4. A submarine boat having a conning-tower which projects above the hull of the boat, a structure forward of and adjacent to said projecting tower containing a water-tight binnacle-chamber for a compass, the compass in said chamber, means for illuminating the compass, a tube extending from an aperture in the wall of said tower to a point over said compass, and a prism at the end of said tube and over the compass for deflecting the image of the compass-card so that it may be seen through said tube.

694,644. **METHOD OF FORMING RAIL-BARS ON SHEET-METAL VESSELS.** CHARLES G. HOSKINS and HENRY WOLF, Buffalo, N. Y. Filed Apr. 18, 1901. Serial No. 56,266. (No model.)

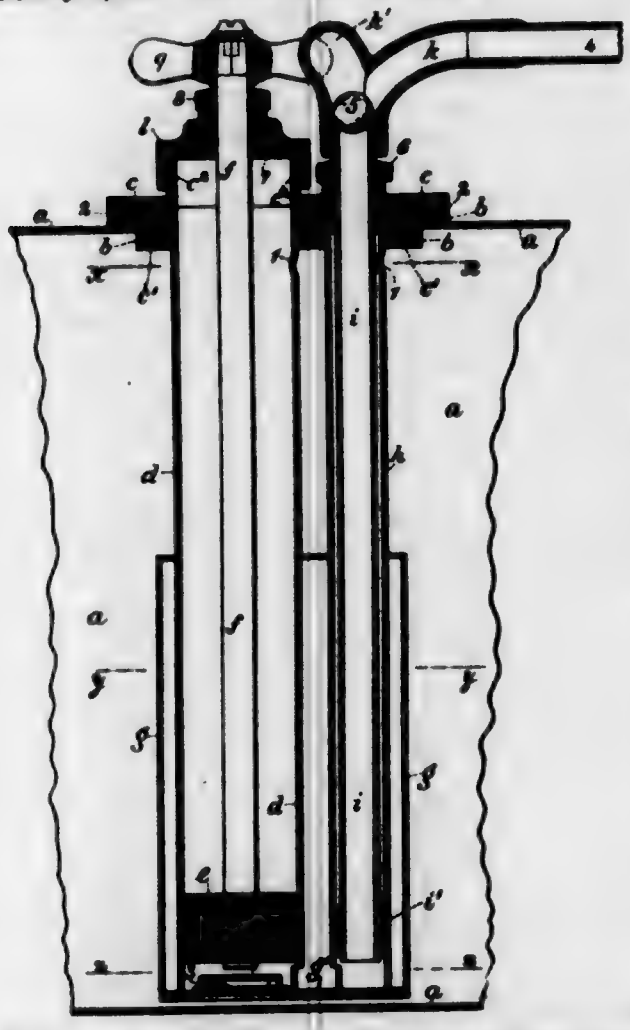
Claim.—1. The herein-described method of securing a pail-ear to a vessel, consisting in forming an opening in the body of the vessel with an inwardly-extending straight flange, forming a pail-ear with an outwardly-extending base-flange, forming a cap with a straight marginal wall, assembling the parts with the marginal wall of the cap surrounding the base-

flange of the ear, and then inserting the ear in the opening in the body of the vessel, and finally applying pressure to the parts to interlock said marginal wall and flanges, substantially as described.



2. The herein-described method of securing a pail-ear to a vessel consisting in stamping an opening in the body of the vessel with a straight inwardly-extending flange and a surrounding groove, stamping out a pail-ear with a base-flange, stamping out a cap with a straight marginal wall, assembling the parts with the marginal wall of the cap surrounding the base-flange of the ear and then inserting the ear in the opening in the body of the vessel and finally applying pressure to the assembled parts to interlock said marginal wall and flanges, substantially as described.

694,645. PUMP FOR FLUID-TANKS. FRANK W. HOWARD, Brooklyn, N. Y., assignor to Xenophon Stoutenborough, Brooklyn, N. Y. Filed May 31, 1901. Serial No. 62,639. (No model.)



Claim.—1. The combination with the tank and the flanged collar connected thereto, of a removable cap adapted to be connected to the flanged collar, a pump device, a discharge-pipe and an adjustable discharge-pipe all connected to the said removable cap and extending in part from the cap down into the tank and upwardly from the cap outside of the tank, and a case of tubular form surrounding and secured to the lower ends of the pump device and discharge-pipes, substantially as set forth.

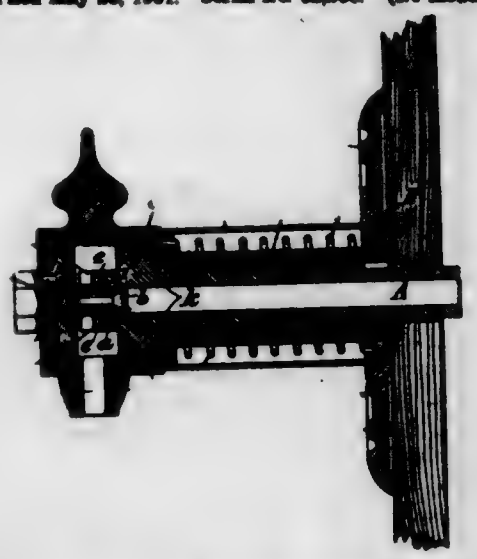
2. The combination with the tank and flanged collar, of a removable cap having a threaded flange adapted to be connected to the flanged collar, said removable cap being provided with flanges c^2, 10 and 11 upon opposite sides of the cap and intermediate to the diameter of the threaded flange of the cap, a barrel and discharge-pipe connected to said cap and extending down into the tank, an adjustable discharge-pipe vertically movable in the main discharge-pipe and having a packing-gland in the cap, a plunger and plunger-rod within the barrel, a cap surrounding the plunger-rod and screwing to the removable cap and a packing-gland in said cap around the plunger-rod, substantially as set forth.

3. The combination with the tank and flanged collar, of a removable cap having a threaded flange adapted to be connected to the flanged collar, said removable cap being provided with flanges upon opposite sides, a barrel and discharge-pipe connected to said cap and extending down into the tank, an adjustable discharge-pipe vertically movable in the main discharge-pipe and having a packing-gland in the cap, a plunger and plunger-rod within the barrel, a cap surrounding the plunger-rod and screwing to the removable cap and a packing-gland in said cap around the plunger-rod, and a case surrounding the lower ends of the barrel and the discharge-pipe within the tank and having an opening in the bottom of the case and a valve adjacent thereto, substantially as set forth.

5. The combination in a pump device for fluid-tanks with the tank and a flanged collar connected thereto, of the removable cap c having a threaded flange c' for connection with the flanged collar, a packing 2 between the adjacent faces of the cap and collar and said cap provided with circular flanges, a barrel connected to one flange and a discharge-pipe connected to the other flange, an adjustable discharge-pipe passing through the cover, said cover having a recess providing a packing-gland and a nut 6 screwing into the said recess and extending around the adjustable discharge-pipe, a threaded flange c^3 rising from the removable cap and forming a substantial continuation of the barrel, a cap interiorly threaded and screwing upon the said flange, a washer 7 between the said parts, said screw-cap having a recess forming a packing-gland and a nut 8 screwing therein and extending around the plunger-rod of the pump, substantially as set forth.

6. In a pump for fluid-tanks, the combination with a removable cap and an adjustable discharge-pipe extending through the same, of a head upon the upper end of said discharge-pipe comprising a nozzle and integral valve-pocket and provided within at the base of the said nozzle and valve-pocket with a valve-seat at the upper end of the said pipe, and a ball-valve adapted to seat thereon and be moved up into the valve-pocket when the fluid is discharged, substantially as set forth.

694,646. APPARATUS FOR USE IN DISPENSING LIQUIDS. WILLIAM HUGHES and WILLIAM HUGHES, Jr., Camden-Town, London, England. Filed May 22, 1901. Serial No. 62,280. (No model.)



Claim.—1. Apparatus for dispensing aerated liquors, comprising a container having an outlet, a valve therein, and a closing device on said outlet, in combination with a vessel, a holder for the vessel, and a pivot for the holder independent of the valve, said holder adapted when rotated to first close the vessel's mouth against the closing device and upon further rotation to open the valve, substantially as described.

2. Apparatus for dispensing aerated liquors, comprising a container having an outlet, a valve therein and a closing device on said outlet, in combination with a rotatable sleeve, a holder pivoted on the sleeve and

adapted to carry a vessel, whereby when the holder is turned on its pivot, the mouth of the vessel is first closed by the closing device and then the valve is opened, as described.

3. Apparatus for dispensing aerated beverages, comprising a container, an outlet-pipe therefrom and rigid therewith, a valve-stem parallel with the outlet-pipe, a valve on the stem, a closing device and a holder pivoted to the outlet-pipe independently of the valve, substantially as described.

4. Apparatus for dispensing aerated beverages, comprising a container, an outlet-pipe therefrom, a valve and a valve-stem parallel with the outlet-pipe, a closing device, a rotatable sleeve on the outlet-pipe and a holder pivoted to the rotatable sleeve, substantially as described.

694,647. AUTOMATIC COMPUTING-SCALE. WILLIAM F. HUNNER, Washington, D. C., assignor to the Columbian Automatic Computing Scales Company, Washington, D. C. Filed Feb. 2, 1901. Serial No. 45,736. (No model.)



Claim.—1. In combination in a scale, a frame comprising side pieces 1, a horizontally-arranged cross-piece 2, a spring with its connection leading therefrom, a rack-bar, said cross-piece having openings for the passage of the spring connection and the rack-bar and a carrying-bar to which the spring and rack-bar are connected, said horizontal cross-piece serving as a stop for the said carrying-bar, substantially as described.

2. In a weighing and computing scale, and in combination, the gear mechanism including a rack-bar and pinion, a base and a frame composed of side pieces 1, and a cross-bar 3 arranged with its broader face in vertical plane, and on the rear of the sides, and serving to support the bracket holding the gear mechanism, and to keep the rack-bar in mesh, substantially as described.

3. In combination with the frame having cross-bar 3, the brackets, the pinion and bevel-gear on shaft turning in said brackets, and rack-bar turning said pinion, said cross-bar serving to hold the rack-bar in mesh with the pinion, a vertical shaft carrying bevel-gear in mesh with bevel-gear on the said shaft, said vertical shaft having bearing on one bracket and carrying the drum, substantially as described.

4. In combination, the frame having an upper cross-bar 4 and a lower cross-bar 2, a spring attached to the upper cross-bar, a connection from said spring extending below the cross-piece, a cylinder supported at its lower end upon the lower cross-piece, a piston and piston-rod for said cylinder, a cross-bar 7 below the cross-bar 2, said piston-rod and spring being connected thereto, substantially as described.

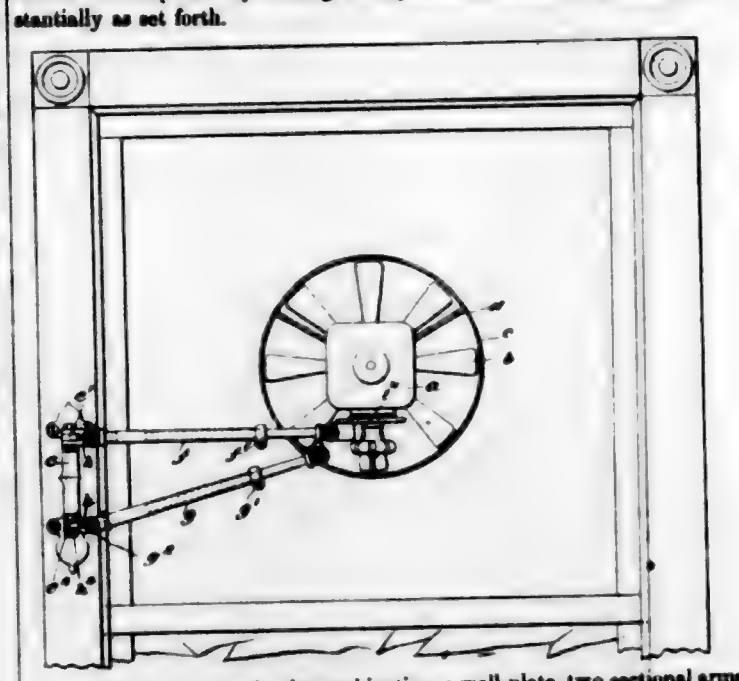
5. In combination in a weighing and computing scale, a vertical shaft, mechanism for turning the shaft, a frame in which said mechanism is supported, said shaft having its upper end extending above said frame, a drum attached to the upper extension of the shaft and depending over said frame and turning mechanism to rotate freely about the same, substantially as described.

694,648. VENTILATING APPARATUS. WILLIAM H. JORDAN and JOHN F. JORDAN, Brooklyn, N. Y. Filed Apr. 26, 1900. Serial No. 14,232. (No model.)

Claim.—1. A bracket having in combination, a wall-plate, two sectional arms hinged to said wall-plate, so as to be capable of vertical adjustment, and each arm being longitudinally adjustable a greater or less extent relatively to the other, and one serving as a brace for the other, an independently-adjustable plate carried by said arms, and means for locking the adjustable elements in positiou, substantially as set forth.

2. A bracket having in combination, a wall-plate, two longitudinally-adjustable arms, each adjustable a greater or less extent relatively to the other, and one serving as a brace for the other, a hinge connection between said arms and wall-plate permitting vertical and lateral adjustment of said arms, an independently-adjustable plate carried by said arms, and means for locking the adjustable elements in position, substantially as set forth.

3. A bracket having in combination, a wall-plate, two longitudinally-adjustable arms, each adjustable a greater or less extent relatively to the other, and one serving as a brace for the other, a hinge connection between said arms and wall-plate permitting vertical and lateral adjustment of said arms, an independently-adjustable plate carried by said arms, and means for independently locking the adjustable elements in position, substantially as set forth.

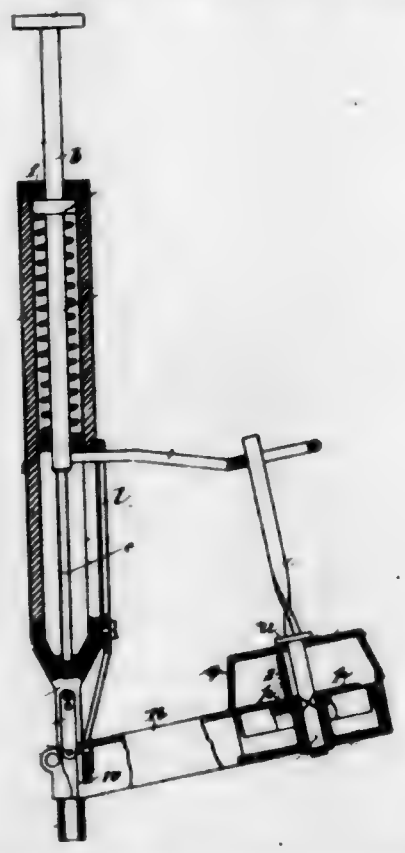


4. A bracket having in combination, a wall-plate, two sectional arms hinged to said wall-plate, so as to be capable of vertical adjustment, one section of each arm being tubular to receive the other section, and each arm being longitudinally adjustable a greater or less extent relatively to the other, and one serving as a brace for the other, an independently-adjustable plate carried by said arms, and means for locking the adjustable elements in position, substantially as set forth.

5. A bracket having in combination a wall-plate, two horizontally-swinging links hinged thereon, a vertically-adjustable arm hinged to each link, said arms being longitudinally adjustable a greater or less extent relatively to each other and one serving as a brace for the other, a supporting-plate carried by said arms, and means for locking the adjustable elements in position, substantially as set forth.

6. A bracket having in combination a wall-plate, two horizontally-swinging links hinged thereon, a vertically-adjustable sectional arm hinged to each link, one section of each arm being tubular to receive the other section, and said arms being longitudinally adjustable a greater or less extent relatively to each other and one serving as a brace for the other, an independently-adjustable plate carried by said arms, and means for locking the adjustable elements in position, substantially as set forth.

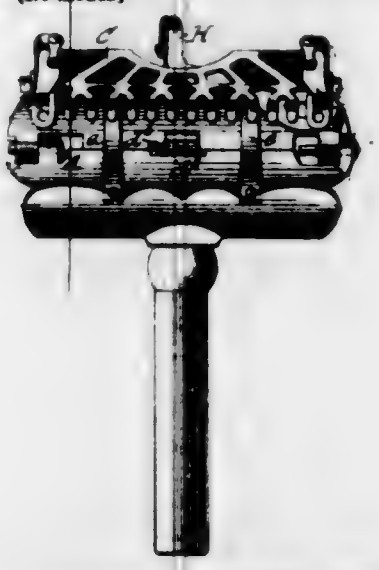
694,649. NAILING DEVICE. HERMANN VON KALIBOWSKI, Posen, Germany. Filed May 10, 1900. Serial No. 16,152. (No model.)



Claim.—In a nailing and riveting machine, the combination, with a nailing-tube, of a nailing-plunger in the same, a nail-receptacle, a feed-

ing-channel connecting the nail-receptacle with the lower end of the nailing-tube, a shaft journaled in said nail-receptacle and extending upwardly from the same at an inclination to the nailing-tube, said shaft being spirally bent at its exterior portion, a feed-wheel mounted on said shaft within the nail-receptacle, an escapement-anchor pivoted to the nailing-tube, and at its lower end entering the feeding-channel, the upper end of said escapement-anchor being slotted and provided with an inclined slotted portion, and an arm extending laterally from said nailing-plunger through the nailing-tube and engaging said escapement-anchor, and provided at its outer end with a slotted portion engaging the inclined spirally-bent shaft, substantially as set forth.

694,650. SAFETY-RAZOR. FREDERICK KAMPFE, RICHARD KAMPFE, and OTTO KAMPFE, Brooklyn, N. Y. Filed Oct. 22, 1901. Serial No. 80,406. (No model.)



Claim.—1. In a safety-razor, the combination, with a blade-holding casing consisting of a lower part and a top part hinged thereto, of a locking device for holding the top part in normally closed position on the lower part, and means for shifting the top part in one direction on the lower part so as to release the parts of the locking device, and for shifting the top part in opposite direction for producing the reëngagement of the locking device, substantially as set forth.

2. In a safety-razor, the combination, with a blade-holding casing composed of a lower part and a top part hinged thereto, said top part being adapted to be longitudinally shifted on fixed pintles of the lower part, of a locking device consisting of an inwardly-projecting lug on the top part and an inwardly and upwardly projecting hook on the lower part, the parts of the locking device being released when the top part is shifted in one direction and interlocked when the top part is shifted in opposite direction, substantially as set forth.

3. In a safety-razor, the combination with a blade-holding casing consisting of a lower part and a top part hinged thereto, of means for longitudinally shifting the top part in one direction and back again on the lower part, a locking device between the lower part and top part, and springs acting on the top part when the locking device is released by the shifting of the top part so as to swing the latter into open position, substantially as set forth.

4. In a safety-razor, the combination, with a blade-holding casing provided with a concave top portion and slotted end pieces, of blade-retaining clips guided in said end pieces, slide-pieces for said clips, clamping-screws engaging the clips and slide-pieces, and set-screws arranged in line with the clips and adapted to engage the slide-pieces, for adjusting the said slide-pieces and clips, substantially as set forth.

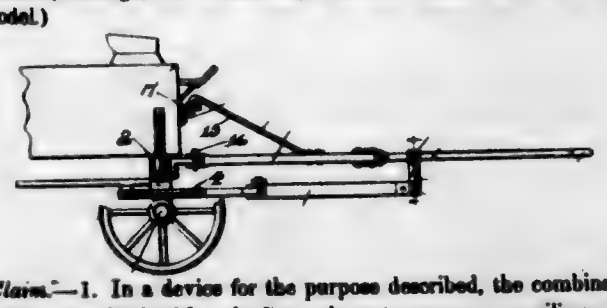
5. In a safety-razor, the combination, with a blade-holding casing, of a double spring-clasp, hinged near the angle between the rear wall and upper portion of the top part, said double spring-clasp being provided with blade-actuating lugs, an intermediate handle-piece at the upper end and a forwardly-extending heel at the lower end, and a spring attached to the under side of the upper portion of the top part and adapted to engage said heel for retaining said spring-clasp in position on the blade, substantially as set forth.

6. In a safety-razor, the combination, with a blade-holding casing, of a rotatable guard device supported at the top part of the casing, and provided with curved or arc-shaped teeth, and a clamping device at each end of same for adjusting said guard device into proper position relatively to the edge of the blade, substantially as set forth.

7. In a safety-razor, the combination, with a blade-holding casing provided with end pieces having downwardly-bent ears on their front ends of a rotary guard device provided with curved or arc-shaped teeth, ears at the ends of said guard device, and clamping-screws connecting the ears of the guard device and end pieces, for adjusting the same in relative position to the blade, substantially as set forth.

8. In a safety-razor, the combination, with a blade-holding casing, of a rotatable guard device pivoted to the front part of the casing, said guard device having curved or arc-shaped teeth, means for axially adjusting said guard device, upwardly-extending fingers at the ends of the guard device, and means for clamping the guard device and fingers into position for use, substantially as set forth.

694,651. DRAFT ATTACHMENT FOR VEHICLES. HENRY KUGLER, Chicago, Ill. Filed Aug. 5, 1901. Serial No. 70,943. (No model.)



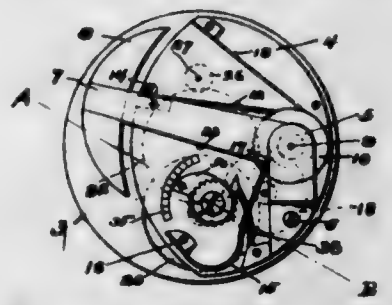
Claim.—1. In a device for the purpose described, the combination of a vehicle provided with a draft attachment proper, an auxiliary draft attachment having sliding connection with said draft attachment proper and provided with means for attachment to the draft-animals at its outer end, the inner end of said auxiliary draft attachment being pivotally connected to the vehicle on a vertical axis out of line with the pivotal connection of the draft attachment proper with the vehicle, substantially as set forth.

2. In a device for the purpose described, the combination of a vehicle proper with a turning axle and a draft attachment proper connected therewith, an auxiliary draft attachment held against vertical movement and pivotally connected with a part of the vehicle which does not turn with said axle, on a vertical axis, and means for operatively connecting said auxiliary draft attachment with said draft attachment proper, substantially as set forth.

3. In a device for the purpose described, the combination of a vehicle having a tongue pivotally connected therewith, an eye carried by said tongue, an auxiliary tongue passing through said eye and continued upwardly beyond the end of said first tongue, and provided with means for attachment to the draft-animals, and means pivotally connecting the inner end of said auxiliary tongue with a rigid part of the vehicle on a vertical axis, substantially as set forth.

4. In a device for the purpose described, the combination of a vehicle having a turning axle, a tongue connected therewith, an auxiliary tongue pivoted to a part of the vehicle which does not turn with said axle, on a vertical axis, out of line with the pivot of said axle, means for slidably connecting said tongues together, and a brace secured to said auxiliary tongue and pivotally connected with the vehicle on an axis in line with the pivot of said auxiliary tongue, substantially as set forth.

694,652. PEDOMETER. EDMUND KUHN, East Orange, N. J., assignor to the American Pedometer Company, New Haven, Conn., a Corporation of Connecticut. Filed July 17, 1901. Serial No. 68,624. (No model.)



Claim.—1. In a pedometer, the combination with a vibratory lever; of an indicating-finger; a train of gears operated by the movement of said lever for actuating said indicating-finger; a fixed stop to limit the movement of said lever in one direction; and a cam-stop for limiting its movement in the opposite direction.

2. In a pedometer, the combination with a vibratory lever; of an indicating-finger; a train of gears operated by the movement of said lever for actuating said indicating-finger; a fixed stop to limit the movement of said lever in one direction; and a pivotally-secured adjustable stop for limiting its movement in the opposite direction, comprising a rotatably-mounted cam; and spring mechanism for holding said cam in any of its adjusted positions.

3. In a pedometer, the combination with a vibratory lever 7; of an indicating-finger; a train of gears; a fixed stop 14 for limiting the move-

ment of said lever in one direction; a rotatably-mounted cam 30 for limiting the movement of said lever in the opposite direction; and a spring 33 having connection with said cam for holding the same in its adjusted positions.

4. In a pedometer, the combination with the bottom plate 3; of the top plate 4 of less width than said bottom plate; a vibratory lever 7 pivotally secured above said top plate; a weight 8 fixed to said lever and projecting below said top plate; a dial; an indicating-finger; a train of gears between the said plates, operated by the movement of said lever and actuating said indicating-finger; a fixed stop 14 for limiting the movement of said lever in one direction; and an adjustable stop for limiting its movement in the opposite direction, all constructed and operating substantially as described.

694,653. SHOE-LACE HOLDER. JOHN A. LESLIE, Westerly, R. I. Filed Aug. 15, 1901. Serial No. 72,176. (No model.)



Claim.—1. A merchandise-exhibitor comprising an attaching portion, a two-part separable holding-ring, and a spring-arm integral with one portion of said ring movable at right angles to the axis of said ring, as set forth.

2. A merchandise-exhibitor, comprising an attaching portion having a semicircular holding portion, an oppositely-disposed semicircular portion pivotally mounted with relation thereto, and a spring-arm integral with one of said semicircular portions, as and for the purpose specified.

3. A merchandise-exhibitor, comprising an attaching portion, with curved terminals, a hinged portion above the latter, and a spring-arm having integral coils and movable through the holding-ring formed by the said terminals, and means interlocking with each other for detachably connecting the free ends of the said terminals and hinged portion.

4. A merchandise-exhibitor comprising an attaching portion, a separable holding-ring, a spring-arm, and a pin for holding the said arm while filling the holder, as set forth.

5. A merchandise-exhibitor comprising an attaching portion, a two-part holding-ring, one part of which is movable with relation to the other, means for holding the two parts in their closed position, a spring-arm disposed to move within the holding-ring, and means for holding the movable part open while filling the holder, as set forth.

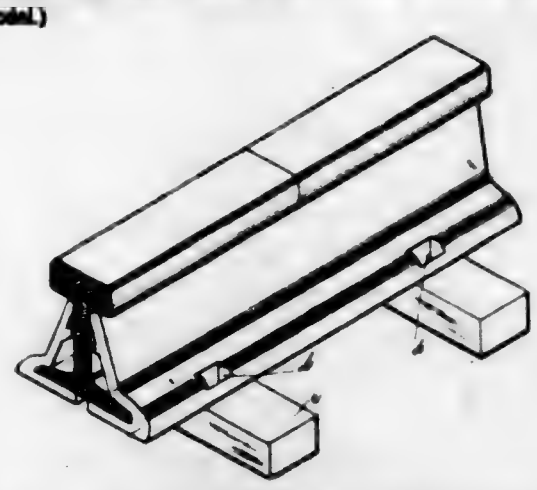
6. The herein-described merchandise-exhibitor consisting of a piece of wire bent to form an attaching-eye and a semicircle, a wire bent to form a semicircle and a spring-arm with coils, and a wire having a cross portion movably held by the other wires and having means for detachable engagement with the said semicircles, all substantially as and for the purpose specified.

694,654. BREECH-LOADING GUN. GEORGE S. LEWIS, Fulton, N. Y., assignor to Hunter Arms Company, Fulton, N. Y., a Corporation of New York. Filed Dec. 3, 1900. Serial No. 38,457. (No model.)



Claim.—In combination with a barrel-lug having front and rear engaging shoulders, a fore-end piece having a tang and an opening extending through the bottom face of the fore-end piece, said tang having an opening to receive the lug, a rock-arm having its upper end pivoted to the tang in front of the lug and adapted to engage the front shoulder thereon, its lower face being extended across the opening in the lower wall of the fore-end piece and serrated for the purpose described, a spring engaging the rock-arm for forcing the same into engagement with the shoulder on the forward end of the lug and means detachably engaged with the shoulder on the rear of the lug for the purpose set forth.

694,655. RAILROAD-JOINT. JOHN L. MAYER, St. Louis, Mo. Filed Mar. 27, 1901. Renewed Feb. 8, 1902. Serial No. 93,482. (No model.)



Claim.—1. In a device of the class described, two mating side pieces, each of said side pieces comprising a portion adapted to occupy a position extending from the lower face of the upper flange or ball and the upper edge of the rail-web to the center of the upper face of the lower flange, said portion being inclined away from the web, a second portion extending outwardly and downwardly to the outer edge of the lower flange; a third portion extending backwardly under the lower flange, and a projection extending downwardly from the inner edge of the third portion to form a truss, all adapted to support the ball of the rail and grip the upper edge of the rail-web, without the use of bolts through the rail, and also adapted to support the lower flanges, and also adapted to serve as equalized braces to hold the rail from tipping or twisting, substantially as specified.

2. In a device of the class described, two mating side pieces, each of said side pieces comprising a portion adapted to occupy a position extending from the lower face of the upper flange or ball and the upper edge of the rail-web to the center of the upper face of the lower flange, said portion being inclined away from the web, a strengthening-rib extending along the inner face of said portion, a second portion extending outwardly and downwardly to the outer edge of the lower flange, a third portion extending backwardly under the lower flange, there being spike-holes through the joined edges of the second and third portions outside of the rail, a projection extending downwardly from the inner edge of the third portion to form a truss, all adapted to support the ball of the rail and grip the upper edge of the rail-web without the use of bolts through the rail, and also adapted to support the lower flanges, and also adapted to serve as equalized braces to hold the rail from tipping or twisting, substantially as specified.

694,656. HEEL-NAILING MACHINE. BENJAMIN F. MAYO, Salem, Mass., assignor, by mesne assignments, to the United Shoe Machinery Company, a Corporation of New Jersey. Filed Mar. 3, 1897. Serial No. 625,873. (No model.)

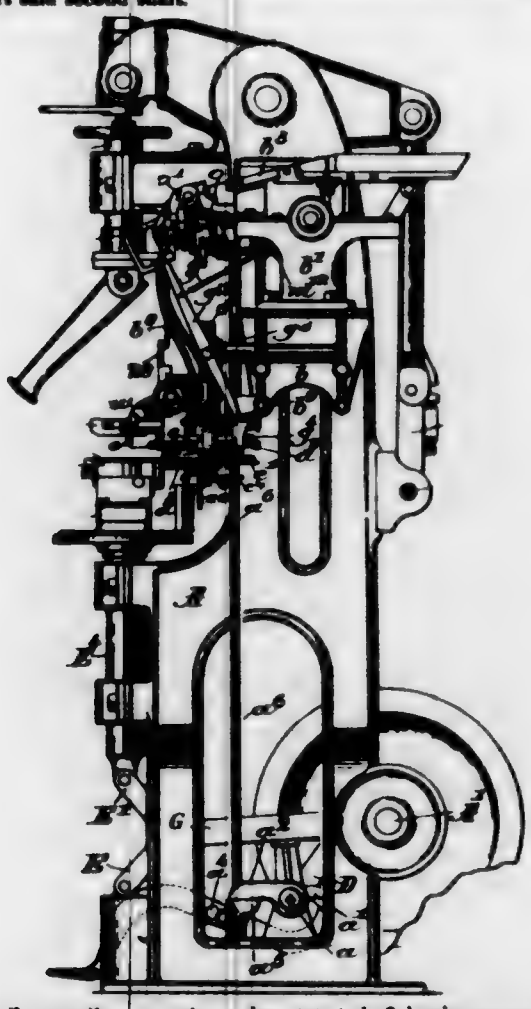
Claim.—1. In a nailing-machine, a raceway to guide a series of nails with their heads arranged indiscriminately, a movable nail-controller to receive only the nails leaving the raceway with their heads in one direction, and a series of chutes into which said controller deposits the nails received by it and which also receives the nails leaving the raceway with their heads in the other direction, nail-delivery tubes, and a nail-reverser located between said chutes and nail-delivery tubes to take the nails from the chute and reverse and deposit them in the nail-delivery tubes.

2. A casing presenting a concave interior surface and having a series of nail-passages arranged at opposite sides of the longitudinal center thereof, a series of chutes communicating with the upper nail-passages of said casing, a series of nail-receiving tubes in communication with the lower passages of said casing, a cylindrical reverser located in said casing and presenting a nail-supporting portion and a series of nail-receiving holes, said supporting portion sustaining the ends of nails in the series of upper nail-passages in the casing, and means to move said reverser in one direction to put its series of holes in position to receive the nails previously sustained by it, and to thereafter move said reverser in an opposite direction to put said holes in position to enable the nails therein to be discharged into said tubes.

3. A nail-reverser having a series of passages to hold a series of nails, a foot-plate, a series of tubes intermediate said reverser and foot-plate, a nail-carrier having a gate to close the passages of the carrier when the latter is in position under the foot-plate to receive nails, combined with means controlled by said carrier, when moved into position to receive nails, to actuate the said reverser and effect the delivery of its nails into said carrier.

4. In a machine of the class described, a continuously-rotatable shaft

having at one end part of a clutch, a second shaft having a coöperating clutch part and provided with a collar having a stud, an arm against which said stud may act at each rotation of the said second shaft to separate said clutch parts, a nail-asserting mechanism, and heel-attaching mechanism, combined with means under the control of the workman to move said arm and a spring to move said second shaft to effect the engagement of said clutch to start said second shaft.



5. A nail-controller, a continuously-rotated shaft having a connected disk forming one part of a clutch, a second shaft in line with it and having part of a clutch adapted to coöperate with the clutch part of said continuously-rotating shaft, a locking-device to hold said second shaft in position to separate said clutch parts leaving said second shaft at rest, means intermediate said second shaft and said nail-controller, to operate the latter, a nail-reverser, and means to start it into operation, said nail-reverser when started acting on said locking device and effecting the release of said second shaft, and means to thereafter effect the engagement of the clutch parts of said shafts in order that the continuously-rotating shaft may start the second shaft and actuate the nail-controller.

6. In a heeling-machine, mechanism for supplying nails including means for causing the nails all to point the same way and for delivering the nails with their points arranged as desired, a nail-carrier, and mechanism under the control of said nail-carrier for automatically causing nails to be supplied directly from said point-arranging means to said nail-carrier.

7. In a heeling-machine, nail-driving mechanism, a nail-carrier to present nails to said driving mechanism, mechanism for supplying nails including means for causing the nails all to point the same way and for delivering nails with their points arranged as desired, mechanism under the control of said nail-carrier for automatically causing nails to be supplied directly from said point-arranging means to said nail-carrier, and means to sustain the nails in said carrier while the carrier is being moved toward the driving mechanism.

8. A nail-point-arranging mechanism, and a nail-carrier, combined with intermediate mechanism to actuate said nail-point-arranging mechanism from the nail-carrier.

9. In a heeling-machine, a nail-block, and a movable nail-carrier; combined with automatic mechanism controlled by the said carrier to supply said carrier with nails at the desired times.

10. In a heeling-machine, a nail-block, nail-asserting mechanism, a nail-carrier movable between said nail-block and said nail-asserting mechanism, said carrier when in its receiving position effecting automatically the operation of the nail-asserting mechanism to deliver nails to the carrier, the carrier in its other position discharging its nails into said nail-block, a series of drivers occupying a position in said block, means to actuate said drivers, and means to restrain the operation of said nail-asserting mechanism while the nail-carrier occupies a position with relation to the said block to discharge its nails in the holes of the block.

11. In a heeling-machine, a nail-block, nail-asserting mechanism, a nail-carrier movable between said nail-block and said nail-asserting mechanism, said carrier when in its nail-receiving position effecting automatically the operation of the nail-asserting mechanism to deliver nails to the carrier, the carrier in its other position discharging its nails in the said nail-block, a heel-holder, and means actuated by said nail-carrier when being moved into the position to supply the nail-block with nails to move said holder and put the heel-receiving portion thereof in line with the nail-block.

12. In a heeling-machine, a nail-carrier, a gate connected therewith to sustain the ends of the nails in the carrier, a locking device to hold the gate closed to retain nails, and means to depress the gate to release it from the locking device.

13. In a heeling-machine, a nail-carrier, a gate to keep nails therein, a locking device to retain said gate closed, means to release the gate automatically from said locking device, means to open said gate, heel-attaching mechanism, a heel-holder for presenting a heel to be attached, a top-lift holder for presenting a top lift to be attached, and means for automatically moving the top-lift holder into position to present a top lift.

14. A nail-carrier, a gate to close its nail-receiving holes; means to lock said gate in its closed position to sustain the nails in the holes of the nail-carrier, means to unlock said gate, means to move the gate to effect the discharge of the nails from the carrier, and means to close said gate automatically preparatory to supplying said carrier with nails.

15. A movable nail-carrier having a movable gate, means acting normally to open said gate, means to close said gate automatically as the carrier is being moved into nail-receiving position, and means to lock said gate in its closed position.

16. A pivoted nail-carrier, a gate pivoted on said carrier and a spring acting normally to open said gate, combined with a stop to meet said open gate as the carrier is being swung back into receiving position, said stop arresting said gate while said carrier is completing its movement, and means to lock said gate in its closed position.

17. A movable nail-carrier having a movable gate, means acting normally to open said gate, means to close said gate as the carrier is being moved into nail-receiving position, means to lock said gate in closed position, and means to lock the carrier with the gate closed in nail-receiving position.

18. A starting-treadle, a controlling-lever, a shaft to which it is attached, said shaft having an arm; and a shaft having a lug to at times come under and prevent movement of said arm and its shaft, combined with a nail-carrier, and means between it and said shaft having said lug to turn said shaft and lug, substantially as and for the purposes set forth.

19. A nail-block, a heel-holder having devices to receive a heel, combined with a nail-carrier, means to supply it in one position with nails, and means actuated by said nail-carrier when being moved in position to supply the nail-block with nails to move said holder and put the heel-receiving portion thereof in line with the nail-block.

20. A nail-block, a heel-holder having devices to receive a heel, combined with a nail-carrier, means to supply it in one position with nails, and means actuated by said nail-carrier when being moved into position to supply the nail-block with nails to move said holder and put the heel-receiving portion in line with the nail-block, and means to lock the said heel-holder in such position.

21. In a heeling-machine, a nail-block, a movable heel-holder having devices to receive a heel and a top lift, a device to lock said heel-holder with the heel in position to be applied to the shoe, means to effect the release of said locking device, and means to thereafter automatically move the said heel-holder and put the top lift in position to be applied to the heel.

22. In a heeling-machine, means for positioning the heel end of a shoe, a heel-holder comprising a movable plate to receive a heel, an attached back gage to receive and position the rear end of the heel with relation to the heel end of the shoe, and a yielding breast-gage to keep the heel in position against said back gage, combined with similar mechanism for locating the rear end of the top lift with relation to the rear end of the heel.

23. In a heeling-machine, means for positioning the heel end of a shoe, a movable heel-holder comprising a plate to receive a heel, said plate having an attached back gage, means to adjust said back gage and adapt said heel-holder to receive and position the heel with relation to the heel end of the shoe, and a spring-controlled breast-gage.

24. A movable heel-holder, a movable nail-carrier, means actuated thereby to move the said heel-holder into position to put the heel held by it in attaching position, means to lock and retain said holder temporarily in said attaching position, and means to subsequently automatically release said locking means.

25. A nail-block, a heel-holder and top-lift carrier having devices to receive and hold a heel and a top lift, a nail-carrier, means to supply it in one position with nails, and means actuated by said nail-carrier when

being moved into position to supply the nail-block with nails to move said holder and put the heel-receiving portion thereof in line with the nail-block.

26. A nail-block, a heel-holder and top-lift carrier having devices to receive and hold a heel, combined with a nail-carrier, means to supply it in one position with nails, and means actuated by said nail-carrier when being moved into position to supply the nail-block with nails to move said holder and put the heel-receiving portion in line with the nail-block, and means to lock the said heel-holder in such position.

27. A heel-holder having mechanism for positioning the rear end of a heel; combined with a top-lift holder comprising a device to position the rear end of a top lift with relation to the rear end of the heel, a slide carrying a breast-gage, and means acting on said slide to force said breast-gage against the breast of the top lift.

28. In a heeling machine, a nail-block, a heel-holder and a top-lift holder movable independently of said nail-block, and means to adjust one of said holders with relation to the other to insure the application of the top lift in proper position with relation to the attached heel.

29. In a heeling-machine, mechanism for positioning the rear end of a shoe; a heel-holder composed of a plate provided with a breast-gage and an independent rear end gage to receive between them a heel, a top-lift holder movable with said plate and presenting a breast-gage, an independent device to engage the rear end of the top lift in said holder, and means to relatively adjust said gage and the device engaging the rear end of the top lift, whereby the convexed end of the top lift may be properly positioned with relation to the convexed end of a heel to which said lift is to be applied.

30. In a heel-attaching machine, mechanism for taking nails with their points arranged indiscriminately and presenting them all pointing the same way, a nail-carrier for receiving the nails, said carrier being movable to place the nails in position to be driven, mechanism for delivering the nails from said nail-presenting mechanism to the carrier, means for supporting a shoe in position for the heel-attaching operation, a series of drivers and mechanism for actuating the drivers to attach the heel.

31. A nail-block bed-piece, a nail-block carried thereby, a pivoted heel-holder having a stud, a spring-controlled releasing device to hold said holder, combined with means to keep said heel-holder in position for nailing the heel, said releasing device acting in one direction of movement of the bed-piece to disengage from said stud the means employed to hold it.

32. In a heeling-machine, a nail-block, and an independent heel-holder adapted to receive and hold a heel; combined with a top-lift carrier attached to and movable with said heel holder, said top-lift carrier receiving a top lift, and automatic means to actuate said heel-holder to put the heel or top lift in operative position with relation to the nail-block, and means acting independently of the means for moving the heel-holder to lock said heel-holder in its operative position during the time that the nails are being driven from said block into the heel to attach it to the sole of a boot or shoe.

33. In a heeling-machine, the following instrumentalities viz: a nail-block, a series of tubes to present nails, a carrier movable between said block and tubes, a heel-holder movable in one direction by said carrier, a treadle, a clutch-controlling lever, a device controlled by said carrier when it stands in its operative position with relation to said nail-block to prevent the said clutch-controller from being moved to start the machine while the nails are being fed from said carrier into said nail-block.

34. In a machine to automatically supply nails to a heel, the following instrumentalities, viz: nail-assorting mechanism, a nail-block, a heel-holder, a nail-carrier, tubes adapted to receive the assorted nails from said nail-assorting mechanism and deliver them into holes in said carrier, and means intermediate said carrier and said nail-assorting mechanism, and controlled by said carrier to automatically start said nail-assorting mechanism into operation when said carrier is to be supplied with nails.

35. In a heeling-machine, a nail-block, and a movable nail-carrier, tubes to conduct nails to said carrier; and means to automatically supply nails to said tube; combined with means controlled by the said carrier to actuate the nail-supplying means to supply said tubes and carrier with nails at the desired time.

36. In a heeling-machine, a nail-carrier having a series of holes to receive nails, a gate pivoted on and movable with said nail-carrier, means to close said gate automatically and lock the same when the carrier is in position to receive nails, and means to automatically unlock and to open said gate when the carrier is in position to discharge its nails.

37. A nail-carrier having a gate opened by a spring for the discharge of nails from the carrier in one position, combined with a stop to meet and arrest said gate as the carrier is being swung back into its nail-receiving position, the stop arresting the gate while the carrier completes its movement, and means to lock the gate in its closed position.

38. In a heeling-machine, a nail-block to receive nails to be driven into a heel, a series of tubes, and means to hold them in a position to receive nails, a heel-holder, having devices to receive and hold a heel, a nail-carrier movable from the position occupied by said tubes into position to supply the nail-block with nails, and an arm or projection extended from said nail-carrier, the movement of said carrier from its nail-receiving into its nail-discharging position causing said arm to act against said heel-holder and put it into position to receive a heel after the nail-block has been filled.

39. In a heeling-machine, a nail-block to receive nails to be driven into a heel, a series of tubes, means to hold them in a position to receive nails, a heel-holder having devices to receive and hold a heel, a nail-carrier mounted on a shaft, means to move said carrier from the position occupied by said tubes into position to deposit the nails contained in the carrier in the holes of said nail-block, means actuated by said carrier to turn said heel-holder into position to receive a heel to be held at the nail-block to receive nails, a shaft having a lug and occupying a position parallel with the shaft on which the carrier is mounted, a clutch-controlling lever, and means to rotate the shaft having said lug to put the latter in position to lock the said clutch-controlling lever when the nail-carrier is in position to supply the nail-block with nails.

40. A series of drivers, means to actuate the same, a nail-block, a movable heel-holder having also devices to carry a top lift, means to lock the heel-holder in position with relation to said nail-block while the drivers act to drive the nails from the nail-block into said heel, means to operate after the heel has been attached to the shoe to release the locking device holding the heel-holder, and means to turn said heel-holder to bring the top-lift carrier connected therewith and supplied with a top lift, into position between said nail-block and the heel, and means to effect a relative movement of said nail-block and heel to attach the top lift.

41. A nail-block, a movable plate having devices to hold a heel and also a top lift, means to lock said plate in position to maintain the heel held by it in position to be attached to a shoe, means to thereafter release the said locking device, and means to turn said plate and put the top lift in operative position with relation to the nail-block.

42. In a heeling-machine, a nail-block, a series of drivers occupying a position in said block, mechanism to actuate said drivers, a nail-carrier, actuating means for said nail-block, and means to restrain the operation of the driver-actuating mechanism while the nail-carrier is in position to discharge its nails into said block.

43. A nail-block, nail-assorting mechanism, a nail-carrier movable between said nail-block and said nail-assorting mechanism, said carrier when in its receiving position causing the operation of the nail-assorting mechanism to deliver nails to the nail-carrier, the nail-carrier in its other position discharging its nails into said nail-block.

44. In a heeling-machine, a nail-block, nail-assorting mechanism, a nail-carrier movable between said nail-assorting mechanism and said nail-block, and means intermediate said carrier and nail-assorting mechanism whereby said nail-carrier is made to operate the nail-assorting mechanism to supply the carrier with nails.

45. A heel-attaching machine comprising mechanism for supporting a shoe and for presenting a heel to be attached to the shoe, nail-driving mechanism, nail-assorting mechanism, a movable device to transfer nails from the nail-assorting mechanism to the nail-driving mechanism and means for delivering nails from the nail-assorting mechanism to the transferring device.

46. In a heel-attaching machine, nail-driving mechanism, nail-assorting and point-arranging mechanism, a device to transfer nails from the nail-assorting mechanism to the nail-driving mechanism, and means, operative when said transferring device is in position to receive nails, for causing nails to be delivered directly from said point-arranging mechanism to said device.

47. In a heel-attaching machine, nail-driving mechanism, nail-assorting mechanism, a device to transfer nails from the nail-assorting mechanism to the nail-driving mechanism, and connections whereathrough the nail-assorting mechanism is rendered operative or inoperative by movement of said transferring device.

48. In a heel-attaching machine, mechanism for securing a heel to a shoe, a heel-holder, and a top-lift carrier, means to place the heel-holder in position for the heel to be attached to the shoe, means for locking the heel-holder in said position, and automatic means to remove the heel-holder and put the top-lift carrier in position for the top lift to be attached to the heel.

49. In a heeling-machine, mechanism for attaching a heel to a shoe, nail-assorting mechanism, a nail-carrier movable from position to receive nails from the nail-assorting mechanism into position to deliver nails to the heel-attaching mechanism, and means to prevent automatically the operation of the nail-assorting mechanism when the nail-carrier is not in position to receive nails.

50. In a heel-attaching machine, mechanism for taking nails from bulk and presenting them all pointing the same way, a nail-carrier for receiving the nails, said carrier being movable to place the nails in position to be driven, mechanism for delivering the nails from said nail-present-

ing mechanism to the carrier and mechanism independent of the nail-carrier for driving the nails to attach the heel to a shoe.

51. In a heeling-machine, heel-attaching mechanism, a heel-holder, and a top-lift holder, both movable to and away from the attaching mechanism, means for automatically moving the heel-holder away from the attaching mechanism and for moving the top-lift holder into position for a top lift to be attached and a nail-carrier movable into position for delivering nails to the attaching mechanism, the top-lift holder being moved away from the attaching mechanism as the nail-carrier is moved to the attaching mechanism.

52. In a heel-attaching machine, mechanism for presenting a plurality of nails all pointing the same way, nail-driving mechanism, a nail-carrier movable from position to receive nails from the nail-presenting mechanism to place nails in position to be driven, means for actuating said nail-presenting mechanism to deliver nails to the carrier, said means operating when the carrier is in nail-receiving position and being inoperative when it is not in receiving position, a heel-holder and a top-lift holder, and means for operating them to present a heel and a top lift alternately for the operation of the attaching mechanism.

53. In a heel-attaching machine, nail assorting and delivering mechanism, heel-attaching mechanism, a nail-carrier movable from the nail-delivering mechanism to place nails in position to be driven, a heel-holder and a top-lift holder, means for placing the heel-holder in position to present a heel to be attached, and means for automatically moving the heel-holder out of such position and for automatically moving the top-lift holder into position to present a top lift to be attached.

54. In a heeling-machine, a heel-holder, heel-attaching mechanism, a device for supplying nails to said mechanism, and connections between said device and the heel-holder whereby the heel-holder is moved to put the heel in position to be attached.

55. In a heeling-machine, a nail-carrier movable from a nail-receiving to a nail-delivering position, and a lock for preventing the starting of the machine when the nail-carrier is in nail-delivering position.

56. In a heeling-machine, a nail-carrier movable from a nail-receiving to a nail-delivering position, a lock for preventing the starting of the machine when the nail-carrier is in its nail-delivering position, and connections between the nail-carrier and the lock for operating the lock whereby the lock is rendered inoperative when the nail-carrier is in its nail-receiving position and is made effective when the nail-carrier is in its nail-delivering position.

57. In a heeling-machine, nail assorting and delivering mechanism, heel-attaching mechanism, a nail-carrier movable into position to receive nails from the nail-delivering mechanism and in each movement causing the operation of the delivering mechanism, said carrier being also movable for presenting nails to said attaching mechanism, a gate for retaining the nails in said carrier, and means for moving said gate as the carrier approaches the heel-attaching mechanism.

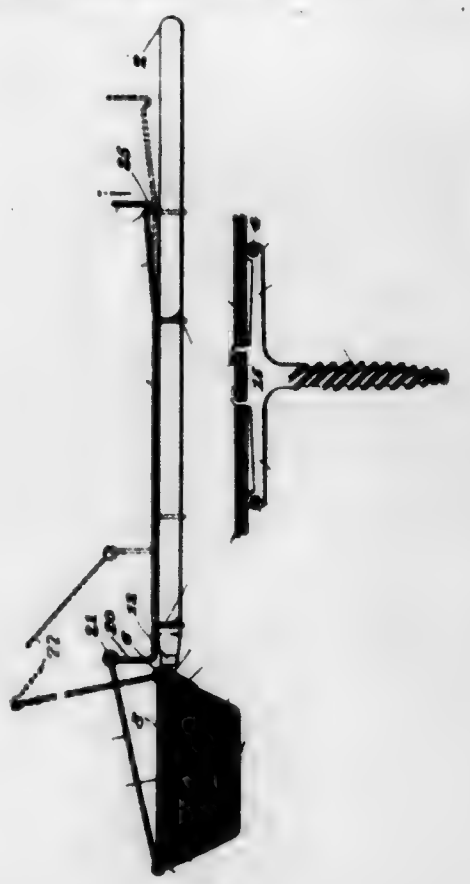
58. In a heel-attaching machine, means for supporting a shoe in position for a heel to be attached and mechanism for attaching a heel, one of said parts being movable relatively to the other, a heel-holder and a top-lift holder, and means controlled by the movement of said movable part for moving the heel-holder and top-lift holder.

694,657. CORN-POPPER. THOMAS G. MELLEN, Cincinnati, Ohio. Filed Aug. 16, 1901. Serial No. 72,216. (No model.)

Claim.—1. In a corn-popper, the combination of a basket, a lid movable thereon, a handle, a member movable on the handle and having at its forward end a portion extended upward from the handle and above the lid and at its rear end an integral upwardly-inclined portion provided with a catch at its extremity, a downwardly-directed connection between the upwardly-extended forward portion of the member and said lid, and an eye carried on the handle through which the upwardly-inclined rear portion of the member is passed to hold the member from turning on the handle and which is adapted for engagement with the catch thereof, to hold said member against movement on the handle, substantially as set forth.

2. In a corn-popper, the combination of a basket, a lid movable thereon, a handle having an eye and a wire having its forward end provided with an upwardly-bent portion for connection with the lid for moving the latter and having loops or bights encircling and slidable along the handle to hold the said wire for sliding movement along the same, the rear end of said wire being passed through the eye of the handle to hold it against turning on the handle and being bent upward from the handle and provided with a bend forming an elastic catch for engagement with said eye to lock the wire against movement along the handle, substantially as set forth.

3. In a corn-popper, the combination of a basket formed from wire-netting and having a sheet-metal reinforce extended along its front and rear edges, brace-wires extended across the bottom of the basket with their front and rear ends held in the reinforces along the front and rear edges of the basket, a handle and a connecting-piece between the handle and the basket, said piece having integral portions passed through the reinforce along the rear edge of the basket for holding said connecting-piece to the upper part of the basket and having, below said integral parts, divergent downwardly-directed arms, the lower ends of which have engagement with the respective brace-wires below the reinforce along the rear edge of the basket, substantially as set forth.



694,658. ELECTROLYTIC PROCESS. JULES MEURANT, Liege, Belgium. Filed Dec. 11, 1900. Serial No. 39,568. (No specimens.)

Claim.—1. The process of coating easily-oxidizable metals with metals less oxidizable and whose chlorids are soluble in water, which consists in forming an aqueous solution of the chlorids of said metals, adding thereto a compound of a metal of the alkalies containing oxygen and adding thereto a solution of chlorid of ammonia and a carbohydrate, placing in the mixture the body to be coated as cathode with a suitable anode and passing an electric current, substantially as and for the purpose set forth.

2. The process of coating easily-oxidizable metals with metals less oxidizable as zinc and tin, which consists in forming an aqueous solution of the chlorids of said metals, adding thereto a compound of a metal of the alkalies containing oxygen, adding thereto ammonium chlorid and a solution containing a sugar and gelatin, placing in the mixture the body to be coated as cathode with a suitable anode and passing an electric current of not over one volt, substantially as and for the purpose set forth.

3. The process of coating easily-oxidizable metals with zinc, which consists in forming a solution of a suitable salt of zinc, precipitating zinc by means of a suitable carbonate, dissolving the latter by means of ammonium chlorid and adding to the solution gelatin, placing the metallic body to be coated in said solution with a suitable electrode and passing a current of electricity, substantially as described.

4. The process of coating easily-oxidizable metals with zinc, which consists in forming a solution of a chlorid of zinc, adding thereto carbonate of an alkali metal, chlorid of ammonia and gelatin, placing in said solution the body to be coated and a suitable electrode and passing an electric current of not over one volt, and a density of not over one ampere per square decimeter, substantially as described.

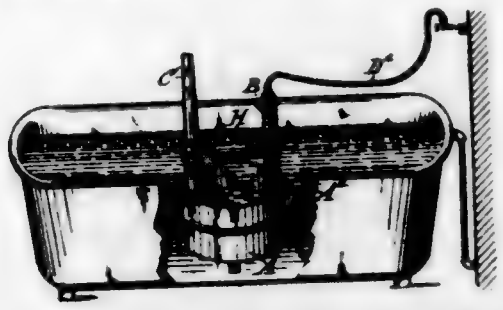
694,659. LAST. EPHRAIM S. MORTON, Brockton, Mass. Filed May 18, 1901. Serial No. 60,896. (No model.)



Claim.—A last having a transverse stay extending from side to side thereof, and provided with a helical retaining-flange extending through-

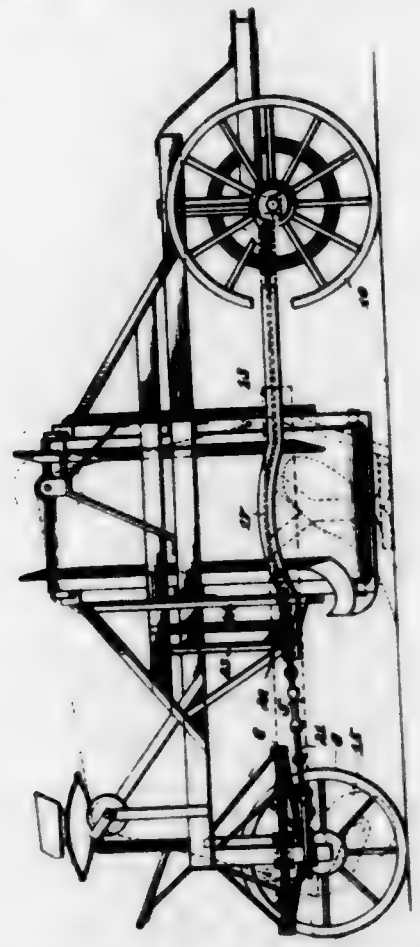
out its length and engaging the fibers of the wood from end to end of the stay to prevent cracking or splitting of the last, whereby enlargement of the ends of the stay is avoided.

694,660. WATER-HEATER. EDWARD J. MULLER, Brooklyn, N. Y. Filed Aug. 10, 1901. Serial No. 71,560. (No model.)



Claim.—A water-heater, consisting of a supported combustion-chamber, a heating-chamber surmounting the same, an air-supply pipe passing through the top wall of the chamber and having a gas-supply pipe passing therethrough, a chimney, a handle-brace connecting said pipe and chimney, vertical water-circulating tubes connecting the top and bottom of the combustion-chamber, a central opening in the top wall of the combustion-chamber, and means for closing the same, substantially as set forth.

694,661. GRADING-MACHINE. THOMAS R. MCKINNEY, Aurora, Ill., assignor to Western Wheeled Scraper Company, Aurora, Ill., a Corporation of Illinois. Filed Mar. 8, 1901. Serial No. 50,900. (No model.)



Claim.—1. In a grading-machine, the combination of a carriage, a plow, a push-bar connected at its rear end to the carriage and at its forward end to the plow-beam, and a flexible draft connection connecting the forward portion of said push-bar with the carriage, substantially as described.

2. In a grading-machine, the combination of a carriage, a plow, a push-bar connected at its rear end to the carriage and at its forward end to the plow-beam, a flexible draft connection connecting the forward portion of said push-bar with the carriage, and means for resisting lateral thrust of the plow, substantially as described.

3. In a grading-machine, the combination of a carriage, a plow, a push-bar connected at its rear end to the carriage and at its forward end to the plow-beam, a flexible draft connection connecting the forward portion of said push-bar with the carriage, a thrust-bar extending transversely of the carriage, means preventing said thrust-bar from moving transversely of the carriage, and means connecting said thrust-bar with the plow, substantially as described.

4. In a grader, the combination of a carriage, a plow, a push-bar pivoted at its rear end to the carriage and pivoted at its forward end to the plow-beam, and a thrust-bar pivotally connected to said push-bar near the forward end thereof and extending transversely of the carriage, the opposite end of said thrust-bar being connected to the carriage, substantially as described.

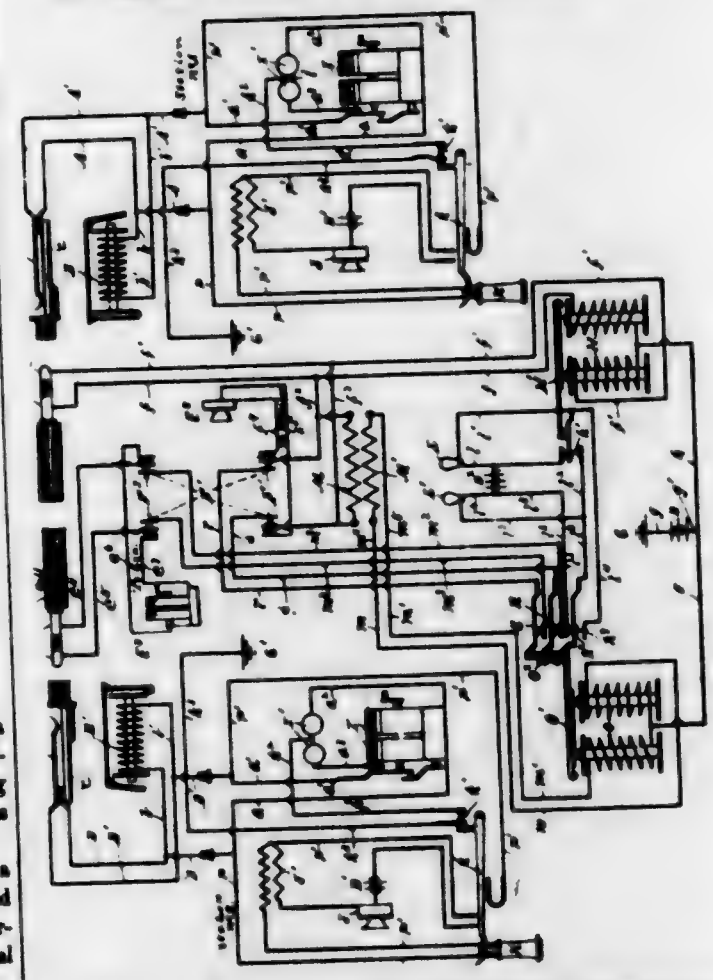
5. In a grader, the combination of a carriage, a plow, a push-bar pivoted at its rear end to the carriage and pivoted at its forward end to the plow-beam, a thrust-bar pivotally connected to said push-bar near the forward end thereof and extending transversely of the carriage, the opposite end of said thrust-bar being connected to the carriage, and a flexible connecting device connecting the forward portion of said push-bar with the forward portion of the carriage, substantially as described.

6. In a grader, the combination of a carriage, a plow arranged at one side thereof, a push-bar pivoted at its rear end to said carriage and extending forward and outward, the forward end of said push-bar being connected to the plow-beam, and a connecting device connecting the forward portion of said push-bar with the carriage, said connecting device extending forward and inward from said push-bar, substantially as described.

7. In a grader, the combination of a carriage, a plow arranged at one side thereof, a push-bar pivoted at its rear end to said carriage and extending forward and outward, the forward end of said push-bar being connected to the plow-beam, and a flexible connecting device connecting the forward portion of said push-bar with the carriage, said connecting device extending forward and inward from said push-bar, substantially as described.

8. In a grader, the combination of a carriage, a plow arranged at one side thereof, a push-bar pivoted at its rear end to said carriage and extending forward and outward, the forward end of said push-bar being connected to the plow-beam, a connecting device connecting the forward portion of said push-bar with the carriage, said connecting device extending forward and inward from said push-bar, and a transversely-arranged thrust-bar pivotally connected at one end to said push-bar and adjustably secured at the other end to the carriage, substantially as described.

694,662. TELEPHONE-EXCHANGE SIGNAL SYSTEM. WILLIAM S. PAGE, Erie, Pa., assignor of one-half to Peter H. Adams, Erie, Pa. Filed May 7, 1901. Serial No. 59,199. (No model.)



Claim.—1. In a telephone-exchange signal system, an exchange apparatus substantially comprising a battery, a lamp in circuit therewith, a relay for closing and opening said lamp-circuit, a battery connected with said relay and with a ground, and cord-circuits from said relay to a switching, and a subscriber's-telephone-station apparatus, a wire leading from

between the bell-magnets of said station apparatus, and a switch adapted to connect said wire with a ground, substantially as set forth.

2. In a telephone-exchange signal system, an exchange apparatus substantially comprising a battery, lamps in circuits therewith, relays for closing and opening said lamp-circuits, a battery connected with said relays and with ground, a circuit leading from one relay to a repeating-coil, an operator's switch and telephone and to an answering-plug, a circuit leading from another relay to a repeating-coil, an operator's switch and to a call-plug, subscribers'-telephone-station apparatus, a wire leading from the bell-magnets of the station apparatus, a switch in the station apparatus adapted to connect said wire with ground-wires, and wires connecting said subscriber's-station apparatus with drop and jack mechanism on the exchange-switchboard, substantially as set forth.

3. In a telephone-exchange signal system, a switchboard substantially comprising jacks and drop mechanism, an operator's switch, a call apparatus, a repeating-coil, a battery, lamps in circuit therewith, relays operating switches for closing and opening said lamp-circuits, a battery connected with the relays and with a ground, wires leading from the relays to the repeating-coil, the operator's switch and thence by branches to an operator's telephone and a calling apparatus, and continuations of said wires leading to answering and calling plugs adapted to operate in the jacks on said switchboard, subscribers'-telephone-station apparatus, wires leading from the bell-magnets of the station apparatus, switches in the station apparatus adapted to connect said wires with ground-wires, and wires connecting said subscribers' stations with drop and jack mechanism on the exchange-switchboard, substantially as set forth.

4. In a telephone-exchange signal system, a switchboard, jacks, connecting-plugs, an operator's switch, a relay, switches operated by said relay, line-circuits from the connecting-plugs to the operator's switch and thence to the switches operated by the relay, and branches from said line-circuits connecting with the repeating-coil, substantially as set forth.

5. In a telephone-exchange signal system, a switchboard substantially comprising jack and drop mechanism, switch-plugs operating in the jacks, an operator's switch, an operator's telephone, a call apparatus, a repeating-coil, a switch, a relay operating the same, circuits leading from the switch-plugs to the operator's switch, and thence to the switch operated by the relay, and branch circuits from said circuits connecting with the repeating-coil, substantially as set forth.

6. In a telephone-exchange signal system, a switchboard substantially comprising jack and drop mechanism, switch-plugs operating in said jacks, an operator's switch, an operator's telephone, a call apparatus, a repeating-coil, switches, a relay for operating the same, circuits leading from the switch-plugs to the operator's switch and thence to the switch operated by the relay, branch circuits from said circuits connecting with the repeating-coil, a battery, signal-lamps in circuit therewith, relays operating to open and close said lamp-circuits, a battery for operating said relays, and circuits from said relays to the switch-plugs, substantially as set forth.

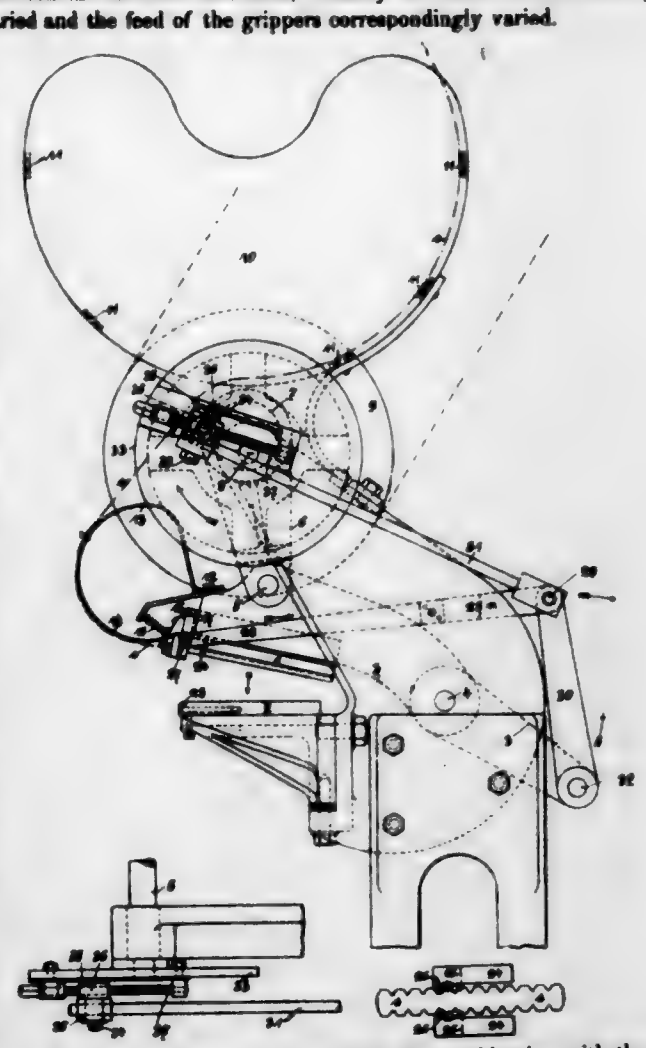
7. In a telephone-exchange signal system, a switchboard substantially comprising jack, switch-plug and drop mechanism, main-line circuits from subscribers' telephone-stations connecting with said jacks and drop mechanism, an operator's switch, an operator's telephone, a call apparatus, a repeating-coil, a battery, lamps in circuit therewith, relays for closing and opening said lamp-circuits, line-circuits from said switch-plugs to said relays, a switch in one of said line-circuits operated by one of said relays, a battery grounded at one side and connected with said relays on the other side, subscriber's-station apparatus connected with the main-line circuits leading to the jacks on the switchboard, a wire leading from the bell-magnets of each subscriber's-station apparatus to a switch therein adapted to connect such wire to ground, substantially as set forth.

8. In a telephone-exchange signal system, a switchboard, jacks, switch-plugs, an operator's switch, a repeating-coil, relays, switches operated thereby, circuits leading from switch-plugs through the operator's switch to one of the relays and to the switches operated thereby, and branches leading from said circuits to the repeating-coil, circuits leading from the other switch-plugs to the other relay, and branches leading from said circuits to the operator's switch and to the repeating-coil, and a battery and ground connected with said relays, substantially as set forth.

694,668. BOX-STAYING MACHINE. REINARD PARTESCH, Dresden, Germany. Filed June 2, 1900. Serial No. 18,836. (No model.)

Claim.—1. In a machine for the purpose specified the combination of the following instrumentalities, to wit, an anvil and stamp moving toward and from each other, strip-guides, a strip-severing mechanism and a strip-feeding mechanism embodying grippers coöperating with the strip, a drive-shaft, a crank projection moved by said drive-shaft and adjustable to vary its throw and an adjustable connection between said crank projection and grippers whereby by adjusting the crank projection and the connection between said crank projection and grippers the feed of the strip may be varied with relation to a fixed point.

2. In a machine such as described, the combination with the reciprocatory stamp, the grippers sliding on the stamp, the drive-shaft, the connection between the drive-shaft and stamp, the rod connected at one end to the grippers, a second rod connected to the opposite end of the first rod and to the drive-shaft, and means for adjusting the connection between the rod and drive-shaft, whereby the throw of said rod may be varied and the feed of the grippers correspondingly varied.



3. In a machine such as described the combination with the reciprocating stamp, the drive-shaft, the connection between the drive-shaft and stamp, the grippers sliding on said stamp, the rods connected at one end to the grippers, a rod as 31 connected to the opposite ends of said rods, the crank-disk on the drive-shaft, the stud on the crank-disk to which the rod 31 is connected and means for adjusting said stud radially on the disk, as and for the purpose set forth.

4. In a machine such as described, the combination with the anvil, the stamp having guideways or channels in each side, the blocks sliding in said channels, the projections on said blocks, the teeth arranged on the inner side of said projections, the rods or bars to which the blocks are connected, and acting as springs to press the blocks inwardly to grip the strip, and means for reciprocating the blocks; substantially as described.

5. In a machine such as described, the combination with the anvil, and reciprocating stamp, the drive-shaft, connection between the drive-shaft and stamp, the disk on said shaft, the screw-spindle mounted on said disk, the stud 34 adjustable on said spindle, the block or eye mounted on the stud 34, the rod 31 working in the eye or block, the grippers sliding on the stamp, the rods connected at one end to the stamp and at the other pivotally connected to the rod 31, whereby by adjusting the position of the stud 34 on its spindle the length of travel of the grippers may be varied; substantially as described.

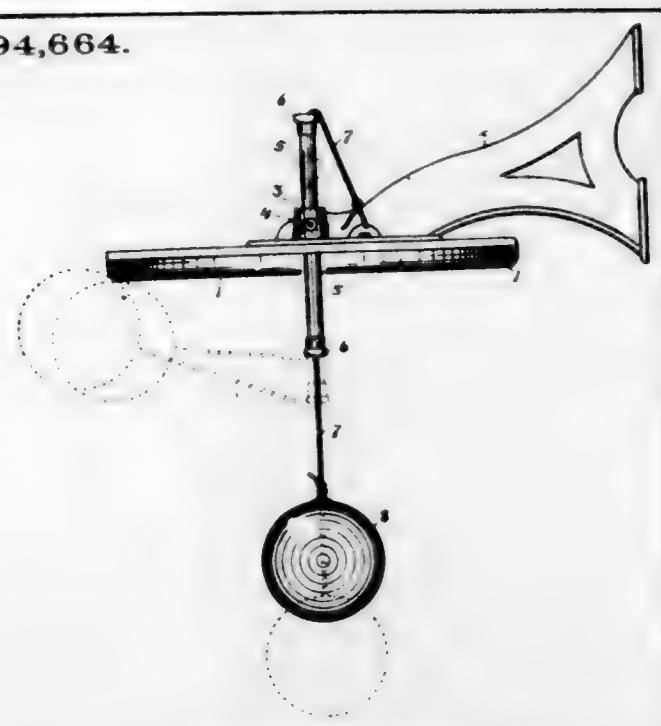
6. In a machine such as described, the combination with the stamp, the slide carrying the knife adapted to reciprocate in the face of the stamp and the spring for pressing the slide against the front of the stamp to take up wear; as set forth.

694,664. ADJUSTING DEVICE FOR STRIKING-BAGS. WILLIAM C. RAEFFETER, Fort Wayne, Ind. Filed Oct. 9, 1901. Serial No. 78,087. (No model.)

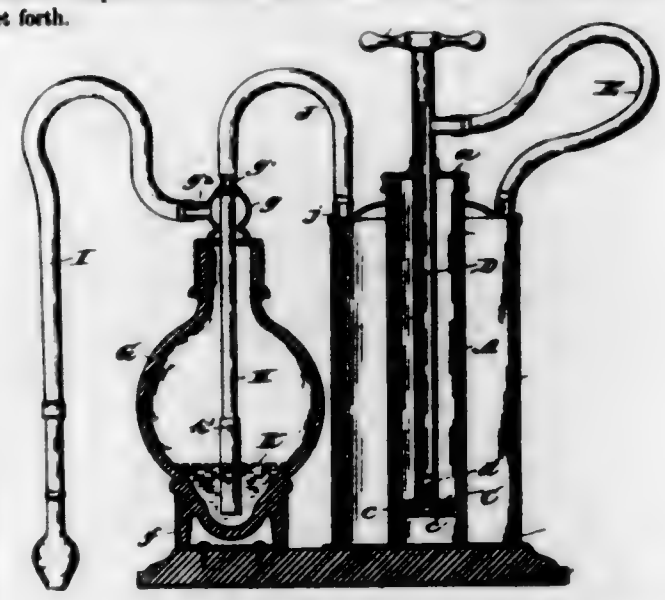
Claim.—1. An adjusting device for striking-bags, comprising a contact-ring supported by a bracket; a vertically-adjustable tube arranged at the axial center of said ring; and a cord attached to the bag, passing upward through said tube and secured to said bracket at a point beneath the top of said tube.

2. An adjusting device for striking-bags, comprising the vertically-adjustable tube arranged at the axial center of the contact-ring, and a cord attached to the bag and passing upward through said tube.

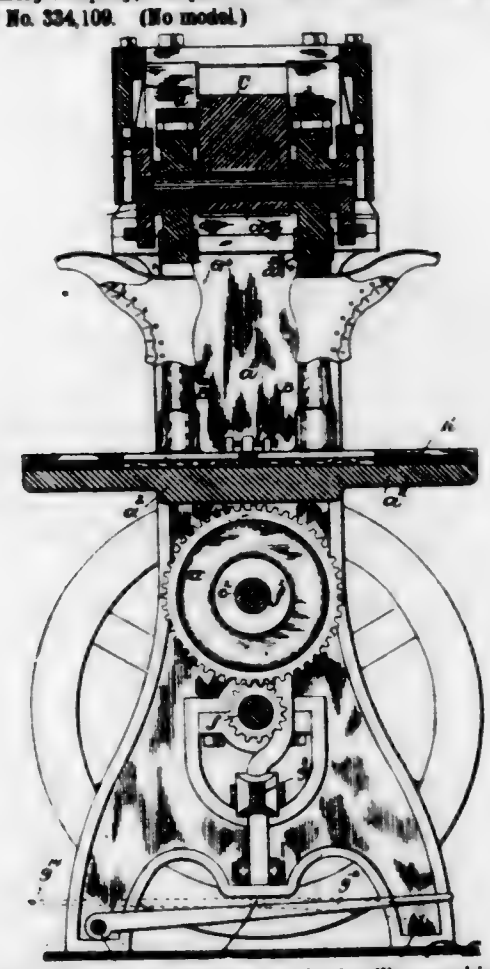
694,664.



Claim.—In an atomizer the combination of a base, two cylinders of different diameters arranged one within the other to form between them a storage-reservoir, the inner cylinder forming a pump-barrel having its upper end extended above the upper part of the outer cylinder and closed by a removable cap, a tubular piston-rod passing through said screw-cap, and having at its outer end a nipple and at its inner end a piston adapted to compress the air beneath it and capable of removal from the cylinder when said cap is detached, a valve controlling the entry of air to said tubular piston-rod from beneath the piston and a flexible tube detachably connected at one end to the nipple of said piston-rod and having its other end connected to the storage-reservoir, and a flat sheet-metal plate extending across the lower ends of both cylinders and forming a flat bottom therefor adapted to rest on and be secured to said base substantially as set forth.



694,665. HEEL-NAILING MACHINE. FREEBORN F. RAYMOND, 2d, Newton, Mass., assignor, by mesne assignments, to the United Shoe Machinery Company, a Corporation of New Jersey. Filed Dec. 17, 1889. Serial No. 334,109. (No model.)

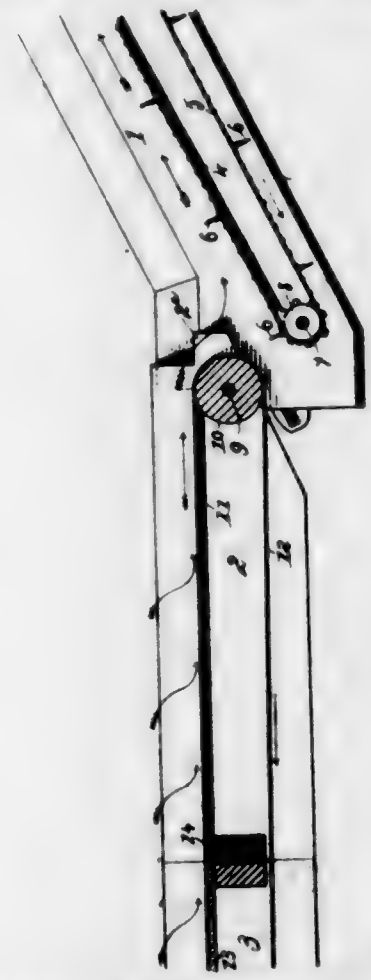


Claim.—1. The combination in a heel-nailing machine, of a cross-head having a central cavity, a suitable support extending through said cavity and beyond one surface of said cross-head, and two heads each carrying heel nailing or attaching devices, and mounted on said support, one within said cavity and one upon the outer wall of said cross-head, as and for the purposes set forth.

2. In a heel-attaching machine the combination of a machine-frame having two fronts, a common bed, two lasts or work-supports mounted upon said bed back to back, a common reciprocating head, two sets of heel-attaching and top-lift carrying and spanking devices attached to said head having operative relation respectively with the said lasts or work-supports, and each of which heel-attaching and top-lift carrying and spanking devices are movable from an inoperative to an operative position and are simultaneously reciprocated, as and for the purposes set forth.

694,666. PUMP FOR ATOMIZERS. JOHN ROBERTSON, Cincinnati, Ohio. Filed Dec. 5, 1895. Serial No. 571,087. (No model.)

694,667. FEED-DRAG FOR CORN-SHELLERS. WILLARD C. ROWE, Decatur, Ill. Filed July 27, 1901. Serial No. 69,202. (No model.)



Claim.—1. In a feeder-drag for corn-shellers, the combination of an inclined section having a horizontal extension at its lower end, an endless carrier in the inclined section, a horizontal section having its discharge end swung on a horizontal pivot in the receiving end of the horizontal part of the inclined section, a shaft concentric with the pivot, an endless carrier for the horizontal section driven by the shaft, and means for transmitting motion from the carrier of the inclined section to the shaft in the pivot of the horizontal section.

2. In a feeder-drag for corn-shellers, the combination of an inclined section having a horizontal extension at its lower end, such extension being provided with slots, an endless carrier for the inclined section having its receiving end located below the slots, a horizontal section having pivotal bearings adapted to rest in the slots of the horizontal part of the inclined section, a shaft extending through the pivotal bearings of the horizontal section, an endless carrier driven by said shaft and means for imparting motion to such shaft from the endless carrier of the inclined section.

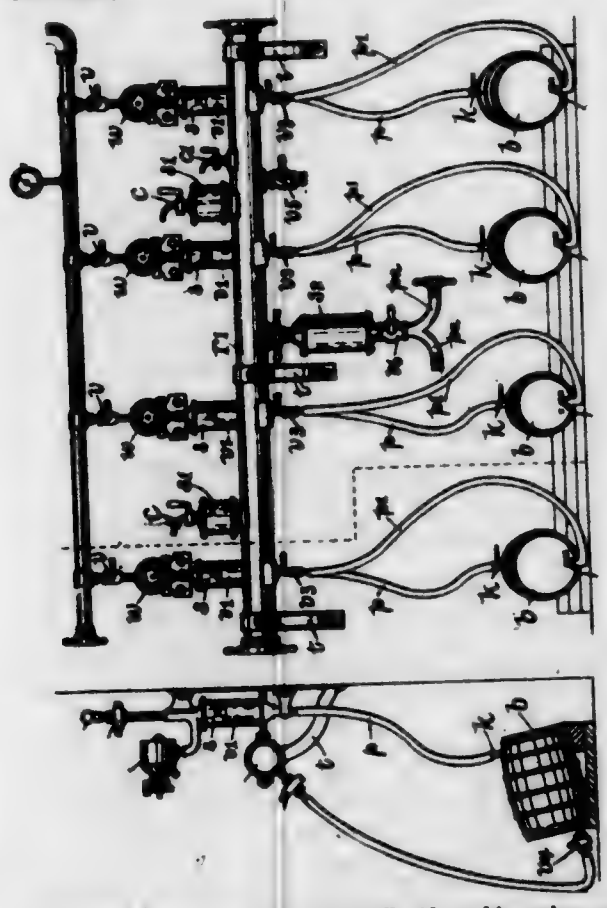
3. In a feeder-drag for corn-shellers, the combination of an inclined section having a slotted horizontal extension at its lower end, an endless carrier for the inclined section, a horizontal section having its discharge end extended into the horizontal part of the inclined section, brackets on the sides of the horizontal section extending outside the inclined section, bearings carried by the brackets and resting in the slots, a shaft journaled in the bearings, an endless carrier for the horizontal section driven by the shaft, and a chain to convey motion from the carrier of the inclined section to the shaft.

4. In a feed-drag for corn-shellers, the combination of an inclined section, a horizontal extension on the lower end of the inclined section, such extension having slots in its sides to receive pivot-bearings, outward-inclined side boards on the sides of the inclined section and the horizontal extension thereof, an endless drag in the inclined section, a horizontal section narrower than the horizontal part of the inclined section and adapted to pivot therein, an endless drag-bolt for the horizontal section, a drive-shaft for the drag-bolt of the horizontal section journaled in the discharge end thereof and extending sidewise therefrom, circular journal-boxes for the drive-shaft outside the horizontal section such boxes being adapted to enter the slots of the horizontal extension of the inclined section, means for transmitting motion from the drag of the inclined section to the drive-shaft of the horizontal section, and oblique side boards on the horizontal section overlapping the oblique side boards of the horizontal extension of the inclined section when the two sections are conjoined, substantially as described.

5. In a feed-drag for corn-shellers, the combination, with an inclined section, of a horizontal part composed of abutting and conjoining sections hooked together and tenoned one into the other to sustain side strain.

6. In a feed-drag for corn-shellers, a horizontal part made up of abutting sections each composed of side pieces and a cross-board, an extension of the cross-board of one section tenoning into the conjoining section, hooks on the lower corners of one of the abutting ends and studs on the opposite section engaging the hooks.

694,668. APPARATUS FOR RACKING LIQUIDS. ROBERT H. SALMON, Rochester, N. Y. Filed Jan. 16, 1902. Serial No. 89,968. (No model.)



Claim.—1. In a system for racking liquids, a chip-cask or source of supply for such liquids, a source of gas or air under practically constant pressure connected with such chip-cask, a supply-hook for such liquid connected with such chip-cask, a pressure-hook connected to such source of gas or air under pressure, two or more kegs to be filled, pipes leading from the supply-hook to such kegs and containing therein also cut-off valves, pipes leading from such pressure-hook also to the kegs to be filled and also containing cut-off valves, adjustable and automatically-operating pressure-relief valves located in such last-named pipes and between the cut-off valves therein and the pressure-hook to which they are connected, each of such automatically-operating pressure-valves independently adjustable at different pressures, and also valve-chambers containing floating check-valves arranged to be closed by such liquid only as it rises in such valve-chamber, such valve-chambers and valves also located in such last-named pipes and between the cut-off valves therein and such adjustable and automatically-operating pressure-relief valves.

2. In a system for racking liquids, a source of supply for such liquid under pressure, a source of gas or air under practically constant pressure, a pressure-hook connected to such source of gas or air, two or more kegs to be filled to such source of liquid under pressure, a pipe leading from such pressure-hook to each of such kegs and containing therein the following elements and in the order named commencing with such pressure-hook: a cut-off valve, an adjustable and automatically-operating pressure-relief valve, a check-valve arranged to be closed by the liquid as it rises in such pipe, and a cut-off valve located in such pipe as near as may be at the point where such pipe makes connection with the keg to be filled.

3. In a system for racking liquids, in combination with a keg to be filled and means for supplying liquid thereto under pressure, means for first charging such keg with gas or air under pressure and then forcing the liquid into such keg under pressure greater than that of the gas or air in such keg, thus forcing such air or gas out of such keg and allowing it to escape into the open air through suitable valve-controlled tubing, means for automatically checking the inflow of liquid to such keg as such liquid rises in such tubing, and means for disconnecting such tubing from such keg and retaining the liquid that has arisen therein under a pressure practically the same as that against which the liquid is racked or forced into such keg until such tubing is connected to the next succeeding keg, and means for forcing such liquid contained in such tube into such next succeeding keg and subjecting the same to the pressure of the gas or air with which such next succeeding keg is charged.

694,669. WASHBOARD. JAMES T. SARGENT, Cleveland, Ohio. Filed July 17, 1901. Serial No. 68,636. (No model.)

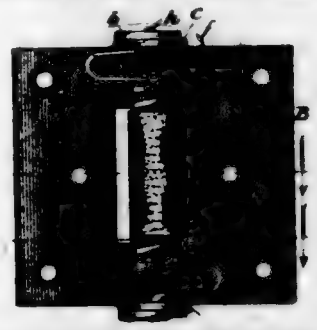


Claim.—1. A washboard having in combination a frangible rubbing-face, supplementary strips having seats for the edge of the rubbing-face, seats in the main frame for the supplementary strips, and cushions interposed at suitable points between the main-frame seats and the supplemental strips, substantially as set forth.

2. A washboard having in combination a main frame with seats cut therein for the reception of the edge-supporting strips of the rubbing-face, a frangible rubbing-face, supplementary strips having seats cut therein for the reception of the edges of the rubbing-face, and wires for securing the strips in position on the rubbing-face, the end portions of said wire being bent to form cushions between the supplementary strips and the seats in the main frame, substantially as set forth.

3. A washboard having in combination, legs and cross-bars having seats for the rubbing-face, a frangible rubbing-face, strips arranged on the edges of the rubbing-face, wire loops securing the strips in position on the rubbing-face, the end portions of said wire loops being bent to form cushions between the strips and the seats in the legs and cross-bars, substantially as set forth.

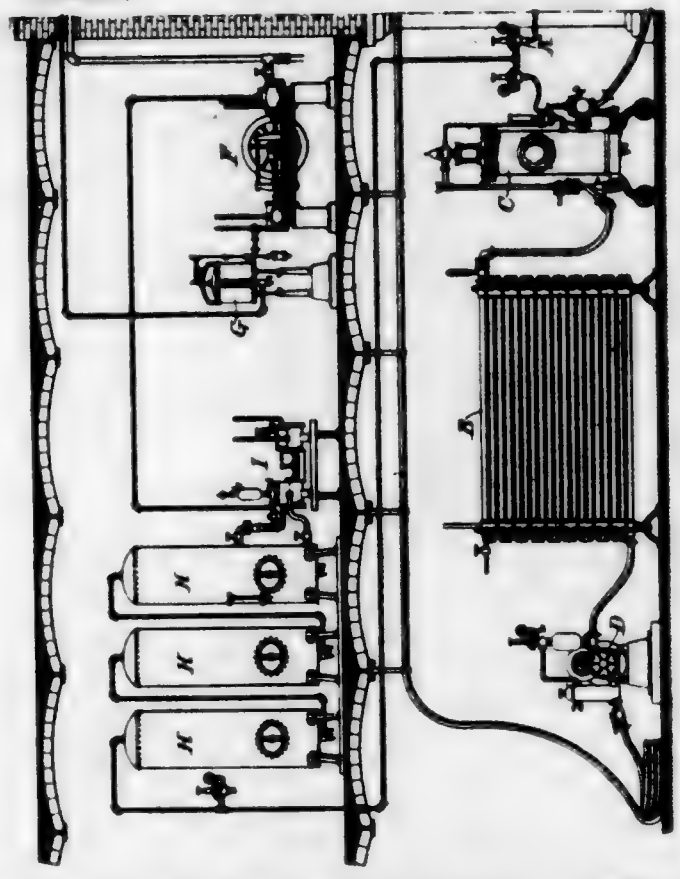
694,670. DETACHABLE SPRING-HINGE. GEORGE H. SCHIEK, Joliet, Ill. Filed Oct. 14, 1901. Serial No. 78,557. (No model.)



Claim.—1. In a detachable spring-hinge, the combination of companion leaves formed at their ends with perforated, overlapping ears, and a coiled spring having an offset toward each end bearing against the respective leaves, and ends passing through the said perforated ears, the spring being longitudinally contractible whereby it may be readily placed in and removed from its position and operates as the pintle for securing the leaves pivotally together.

2. In a detachable spring-hinge, the combination of companion leaves formed at their ends with perforated, overlapping ears, and a coiled spring having an offset toward each end bearing against the respective leaves, an offset *f*, and ends passing through the perforated ears, the spring being longitudinally contractible whereby it may be readily placed in and removed from its position, and operates as the pintle for securing the leaves pivotally together.

694,671. MANUFACTURE OF MALT LIQUORS. JOSEPH SCHEIDEMAN, New York, N. Y. Filed May 17, 1900. Serial No. 16,974. (No specimens.)

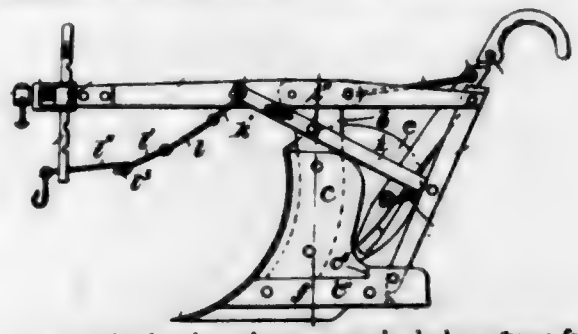


Claim.—1. The improvement in the manufacture of malt liquors, which consists in cooling newly-fermented liquor, charging the liquor, subsequent to its withdrawal from the fermenting-vat, with carbonic-acid gas to saturation under the conditions of temperature and pressure maintained on the cooled and charged liquor, and resting the liquor so cooled and charged until coagulation of the albuminous matters is effected; substantially as described.

2. The improvement in the manufacture of malt liquors, which consists in cooling newly-fermented liquor, charging the liquor with carbonic-acid gas to saturation under the conditions of temperature and pressure maintained on the cooled and charged liquor, resting the liquor so cooled and charged until coagulation of the albuminous matters is effected, and separating the coagulated matter from the liquor, substantially as described.

694,672. PLOW. ADOLPH SCHULZ, Chicago, Ill. Filed Sept. 3, 1901. Serial No. 74,208. (No model.)

Claim.—1. In a plow, in combination, an angular metal body or frame formed in one piece with a landside portion and a wing to receive the moldboard and share, the landside portion having an upwardly-facing shoulder at the lower portion of its inner face, a shoe secured at the lower end of the outer face of said landside portion, and a plow-beam having a standard secured and fitted in the inner angle of said body with its vertical front edge vertically abutting said body at said angle and having its lower end seated on said shoulder, substantially as described.



2. In combination, in a plow, an angular body or frame formed of one piece of metal with a wing to receive the moldboard and share and a vertical flat landside having the bottom horizontal depressed seat with a horizontal downwardly-facing top shoulder at the rear terminating in a rearwardly-facing shoulder, and a flat horizontally-disposed shoe or landside fitted in said seat and secured to said body and having a rearwardly-extended portion with a shoulder corresponding to and abutting against said rearwardly-facing shoulder of said body, substantially as described.

3. In combination, in a plow, a body or frame formed of one piece of metal with a wing and a landside portion meeting at the front edge of said body, the lower part of the inner face of the landside portion having a shoulder, a plow-beam having a depending standard fitting in the inner angle of said body having its front edge longitudinally conforming to and abutting against said inner angle of the body and its lower end abutting against said shoulder, said standard having a flat face fitting against said landside portion of the body, means securing said standard to said body and a landside, moldboard, and share secured on said body, substantially as described.

4. In combination, in a plow, a metal body or frame formed of a wing and a landside meeting at an angle at the front edge of the body, said landside having the horizontal depressed seat extending across the outer face of its lower end and extended rearwardly, a flat shoe fitted in said seat and secured to said body with its outer face flush with the outer face of said landside above the shoe, said shoe extended rearwardly beyond the body, a plow-beam having a standard secured and fitting vertically in the inner angle of the body, and plow-handles, one of which is secured to the rear portion of said shoe, substantially as described.

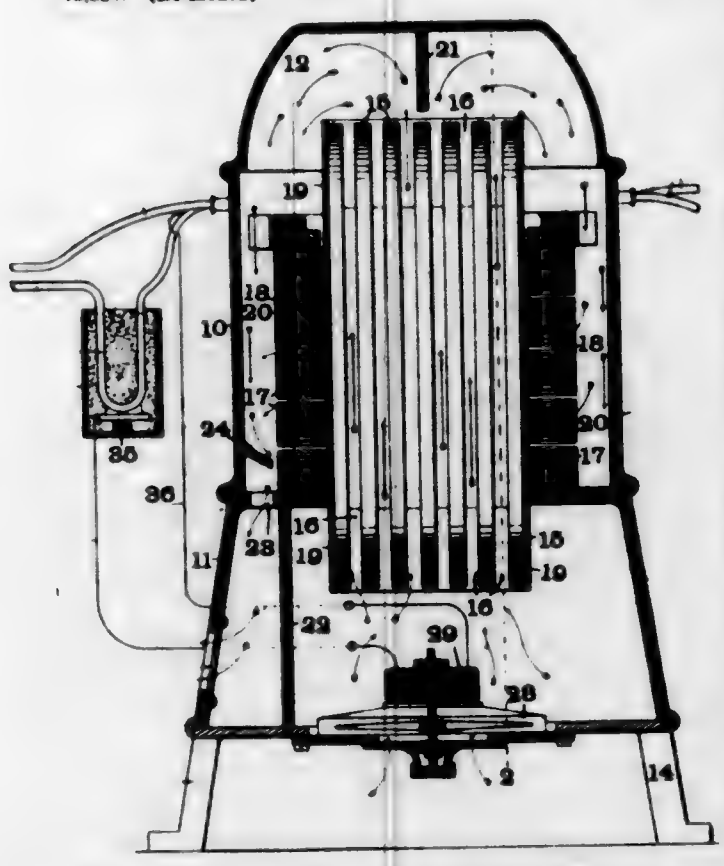
5. In combination, in a plow, the angular body or frame formed of one piece of metal with a wing and a landside a moldboard and share secured to said wing, a horizontal shoe secured to said landside and projected rearwardly beyond said body, plow-handles, one of said handles secured to the moldboard, the other handle secured to said projected end of said shoe, a plow-beam, and a standard secured in said body, substantially as described.

6. In combination, in a plow, a body or frame formed of one piece of metal and composed of a vertical flat landside and a wing, said landside and wing meeting at an angle at the front edge of the body, said landside having a depressed seat across the lower end of its outer face, a flat horizontal shoe fitted in said seat with its outer face flush with the outer face of the landside of the body and its lower edge projecting below the horizontal plane of the lower end of the body a moldboard removably secured on and projecting rearwardly beyond said wing, a share removably secured on and projecting below said wing and at its front end abutting against the front end of said shoe, a plow-beam, and a standard fitted in and secured to said body, substantially as described.

7. In combination, in a plow, an angular body or frame formed in one piece of metal with a vertical landside and wing extending rearwardly therefrom at an angle, the working faces of the plow secured on said body, a plow-beam, a standard rigid with said beam and fitting and secured in the inner angle of said body, the plow-handles and an inclined metal brace secured to the beam in advance of the standard and extended rearwardly and secured to said beam and to one of the plow-handles, substantially as described.

8. In combination, a cast body or frame, the moldboard, share and landside secured to said body, a plow-beam, a standard therefrom secured in said body, the plow-handles, the landside-handle secured to the rear end of said beam and at its lower end to said landside, metal braces secured to the beam and the standard, one of said braces secured to said landside-handle, the moldboard-handle at its lower end secured to the moldboard, a brace between said moldboard-handle and the beam, and a brace connecting said two handles, substantially as described.

694,673. TRANSFORMER. FERDINAND SCHWEDTMANN and GEORGE E. WELLS, St. Louis, Mo. Filed Aug. 17, 1901. Serial No. 72,351. (No model.)



Claim.—1. In a transformer, the combination with a housing, of primary and secondary windings in said housing, a passage for the flow of a cooling fluid, mechanism for supplying fluid to said passage, and means for automatically starting said mechanism when the current of said transformer has reached a predetermined amount.

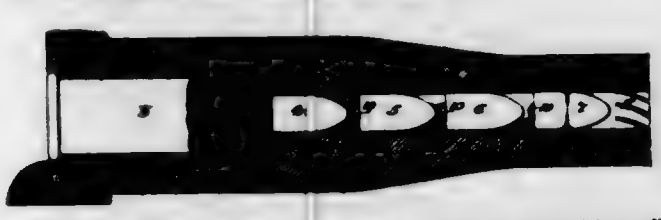
2. In a transformer, the combination with a housing, of primary and secondary windings in said housing, air-passages for cooling said windings, a fan or blower for supplying air to said passages, and means for automatically starting said fan or blower when the current in said transformer has reached a predetermined amount.

3. In a transformer, the combination with a housing, of primary and secondary windings in said housing, air-passages for cooling said windings, a fan or blower for supplying air to said passages, and means situated in the secondary circuit of said transformer for automatically starting said fan or blower when the current has reached a predetermined amount.

4. In a transformer, the combination with a housing, of primary and secondary windings in said housing, air-passages for cooling said windings, a fan or blower for supplying air to said passages, and magnetic means controlled by the current flowing in the transformer for automatically starting said fan or blower when the current in said transformer has reached a predetermined amount.

5. In a transformer, the combination with a housing, of primary and secondary windings in said housing, air-passages for cooling said windings, a fan or blower for supplying air to said passages, and magnetic means situated in the secondary circuit of said transformer for automatically starting said fan or blower when the current has reached a predetermined amount.

694,674. FIRING MULTISHOT GUNS. ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis M. D. Williams, Ashbourne, Pa. Filed Aug. 8, 1899. Serial No. 726,558. (No model.)



Claim.—1. The mode herein described of firing a series of full-caliber projectiles from the single bore of a gun at one discharge, said mode consisting in disposing the projectiles one before another, discharging them by means of a projecting agent at the rear of the series, and interposing between successive projectiles a barrier of elastic fluid under pressure when the series is being fired.

2. The mode herein described of firing a series of full-caliber projectiles from the single bore of a gun at one discharge, said mode consisting in disposing the projectiles one before another in advance of an explosive projecting agent, discharging the series of projectiles by firing said explosive agent, and interposing a barrier of elastic fluid under pressure between successive projectiles when the series is being fired.

3. The mode herein described of firing a series of full-caliber projectiles from the single bore of a gun at one discharge, said mode consisting in disposing the projectiles one before another, discharging them by means of a projecting agent at the rear of the series, and exploding supplementary charges between the successive projectiles as they are being fired.

4. The mode herein described of firing a series of full-caliber projectiles from the single bore of a gun at one discharge, said mode consisting in disposing the projectiles one before another in advance of a main explosive projecting agent, discharging the series of projectiles by firing said explosive agent, and exploding supplementary charges between the successive projectiles as they are being fired.

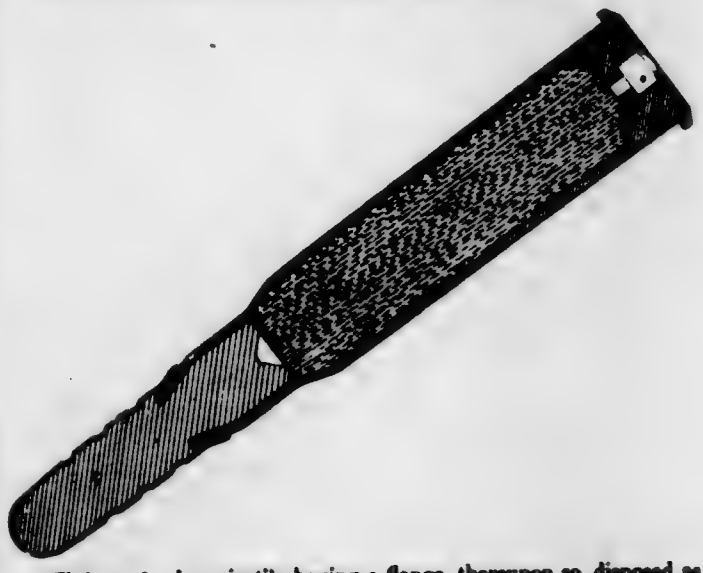
5. The mode herein described of firing a series of full-caliber projectiles from the single bore of a gun at one discharge, said mode consisting in disposing the projectiles one before another, discharging them by means of a projecting agent at the rear of the series, and interposing between successive projectiles, when the series is fired, a barrier of elastic fluid under pressure, the pressure being least between the two foremost projectiles, and gradually increasing between successive projectiles in the rear thereof.

6. The mode herein described of firing a series of full-caliber projectiles from the single bore of a gun at one discharge, said mode consisting in disposing the projectiles one before another in advance of the explosive projecting agent, discharging the series of projectiles by firing said explosive projecting agent, and interposing between successive projectiles, when the series is being fired, a barrier of elastic fluid under pressure, the pressure being least between the two foremost projectiles and gradually increasing between the successive projectiles in the rear thereof.

7. The mode herein described of firing a series of full-caliber projectiles from the single bore of a gun at one discharge, said mode consisting in disposing the projectiles one before another, discharging them by means of a projecting agent at the rear of the series, and exploding between the successive projectiles, as the series is being fired, graduated supplementary charges, least between the two foremost projectiles, and of gradually-increasing explosive force between the successive projectiles in the rear thereof.

8. The mode herein described of firing a series of full-caliber projectiles from the single bore of a gun at one discharge, said mode consisting in disposing the projectiles one before another in advance of a main explosive projecting agent, discharging the series of projectiles by firing said explosive agent, and exploding between successive projectiles as the series is being fired, graduated supplementary charges, least between the two foremost projectiles and gradually increasing in explosive force between successive projectiles in the rear thereof.

694,675. GUN-CARTRIDGE. ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis M. D. Williams, Ashbourne, Pa. Filed Oct. 24, 1901. Serial No. 79,230. (No model.)



Claim.—1. A projectile having a flange thereupon so disposed as to overlap the mouth of the casing which receives the explosive charge, whereby, when the projectile is fired, said flange will be expanded so as to serve as a gas-check.

2. A cartridge having a casing constructed for retention in the gun, and a projectile with gas-checking flange overlapping the mouth of said casing.

3. A projectile having a gas-checking flange and a cannelure into

which said flange can be forced as the projectile passes through the bore of the gun.

4. A cartridge having a casing constructed for retention within the gun, and a projectile having a gas-checking flange and a cannelure adjacent thereto into which the forward end of the casing is crimped, said forward end of the casing being overlapped by the gas-checking flange.

5. A cartridge having a casing constructed for retention in the gun, and a projectile with gas-checking flange overlapping the mouth of said casing, whereby the latter has both internal and external frictional contact with the projectile.

6. A projectile having a jacket with gas-checking flange formed from the metal of said jacket, and constructed to overlap a casing which receives the rear end of the projectile.

7. A cartridge comprising a projectile with jacket having a gas-checking flange formed thereon, and a casing whose mouth is overlapped by said flange.

8. A projectile having a jacket which incloses only a portion of the projectile and has an external flange which constitutes a gas-check, and is constructed to overlap the mouth of the cartridge-casing which receives the rear end of the projectile.

9. A cartridge having a casing for receiving the explosive charge, and a projectile provided with a jacket which incloses only a portion of the projectile and has a flange overlapping the forward portion of the casing and serving as a gas-check.

10. A projectile having its base portion contained within a jacket whose forward portion forms a gas-checking flange.

11. A cartridge having a casing for receiving the explosive charge and a projectile having its base portion contained within a jacket whose forward portion forms a gas-checking flange overlapping the forward portion of the cartridge-casing.

12. A cartridge comprising a casing for receiving the explosive charge and a projectile having a cannelure formed therein and having its base portion contained within a jacket whose forward portion forms a gas-checking flange which overlaps the forward portion of the casing and is pressed into said cannelure.

13. A jacket constructed to envelop a portion of a projectile, said jacket having thereon a flange so located as to receive within it the forward portion of a cartridge-casing in connection with which the projectile is intended to be used.

14. A jacket constructed to envelop a portion of a projectile and having at its forward end a flange so located as to receive within it the forward portion of a cartridge-casing in connection with which the projectile is intended to be used.

15. A projectile having a rounded base, and a gas-checking flange in advance of the same.

16. A projectile having a rounded base and a jacket inclosing the same so as to prevent its deformation by the upsetting pressure of the gases of explosion.

17. A projectile having a rounded base, a jacket for inclosing the same, and a gas-checking flange in advance of the base.

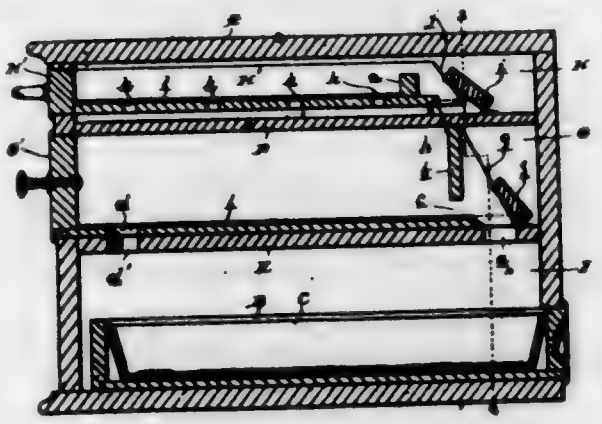
18. A projectile having a rounded base, a jacket for inclosing the same, and a gas-checking flange formed from the metal of said jacket.

19. A cartridge having a charge-containing casing and a projectile with rounded base, and a gas-checking flange in advance of said base, and overlapping the mouth of the cartridge-casing.

20. A cartridge having a charge-containing casing, and a projectile having a rounded base, and a jacket forming a flange which overlaps the mouth of the casing.

21. A cartridge having a charge-containing casing and a projectile having a rounded base, and a jacket inclosing said base and forming a flange which overlaps the mouth of the casing.

694,676. DISINFECTING-CABINET FOR BARBERS' USE, &c. WILLIAM R. SEWELL, Detroit, Mich. Filed Apr. 22, 1901. Serial No. 56,907. (No model.)



Claim.—1. The combination in a disinfecting or sterilizing cabinet, of a casing divided into compartments by transverse partition-walls formed with openings, drawers fitting in said compartments, valves controlling the openings in said partition-walls, for controlling communication between the compartment for the disinfectant and the compartments adapted to contain the articles to be disinfected, and inclined cams carried by said drawers for actuating its particular valve to establish communication with the compartment containing the disinfectant.

2. In a disinfecting-cabinet, the combination of a casing divided by transverse partition-walls into an upper, a lower and intermediate compartments, communicating through openings in said partitions with the lower compartment, valves controlling said openings, drawers fitting in said compartments, inclined cams carried by said upper and intermediate drawers for opening said valves when the drawers are pushed in, and the intermediate drawer formed with the opening *d* in its bottom adapted to register with the opening *d'* in the lowermost partition-wall.

3. The combination in an apparatus of the character described, of a casing divided into compartments by partition-walls formed with openings, drawers fitting in said compartments, valves controlling the openings in said walls, means for actuating said valves by the movement of the drawers, one of said drawers having a second set of openings or apertures formed in its bottom and inner end in communication with the source of disinfectant-supply, whereby a circulation of the disinfectant is obtained throughout the full length of the drawer.

4. In a disinfecting-cabinet, the combination of a casing divided by transverse partition-walls into an upper, a lower and intermediate compartment, communicating through openings in said partitions with the lower compartment, valves controlling said openings, drawers fitting in said compartments having steps or abutments across their rear ends of a width less than the height of the drawer to form transverse openings for the admission of the disinfectant into the drawer and means carried by the drawers for opening said valves at an angle to deflect the disinfectant into the ends of said drawers.

5. In a disinfecting-cabinet, the combination of a casing divided by transverse partition-walls into an upper, a lower and intermediate compartment, said upper and intermediate compartments communicating with the compartment adapted to contain the disinfectant through openings in said walls, valves controlling said openings and drawers fitting in said compartments, means carried by said drawers for actuating said valves, said intermediate drawer having an opening formed in its forward end coinciding with an opening in the partition-wall and a step or abutment extending across the rear end of said drawer, of a width less than the height of the drawer to form a transverse opening beneath the same, whereby a circulation of the disinfecting medium is obtained throughout the entire length of the drawer.

6. In a disinfecting-cabinet, the combination of a casing divided by transverse partition-walls into an upper, an intermediate and a lower compartment adapted to contain the articles to be disinfected and the disinfectant respectively, the upper and intermediate compartment communicating with the compartment containing the disinfectant through openings formed in said walls, valves controlling said openings and drawers fitting in said compartments, inclined cams carried by said upper and intermediate drawers for opening said valve when the drawers are pushed in, said upper drawer having its bottom slitted and raised above the partition-wall to form an air-space therebetween whereby a circulation of the disinfectant is obtained.

7. The combination in an apparatus of the character described, of a casing divided into compartments by partition-walls, drawers fitting in said compartments, flap-valves hinged to said partition-walls adjacent to openings formed therein, inclined cams formed by a rearward extension of the side members of said drawers for opening said valves when said drawers are pushed in and hold the same in an inclined position to deflect the disinfectant into said drawers.

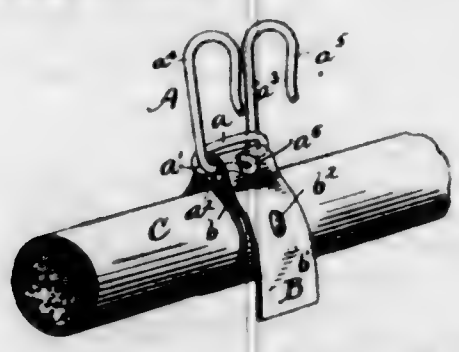
8. In a device of the character described, the combination with a casing of transverse partition-walls dividing the same into compartments communicating with each other through openings in said partition-walls, drawers fitting in said compartments, valves controlling the openings in said partition-walls, and coacting inclines on the valves and drawers adapted to open the valves by the closing movement of the drawers.

694,677. CABLE-HANGING HOOK. CARL P. SEYLER and PERRY H. ANXIER, Cleveland, Ohio. Filed Nov. 4, 1901. Serial No. 81,087. (No model.)

Claim.—1. A cable-hanging device consisting of a looped wire hook combined with a flat band having its ends held by the plies of the loop, substantially as described.

2. A cable-hanging hook consisting of a looped hook and a flat band having one end passing around one ply of the loop and the other passing through the loop and held to it, substantially as described.

3. A cable-hanging device consisting of a looped hook with a stud projecting from one ply of the loop, combined with a band secured at one end to another ply of the loop and having a hole adapted to hook over said stud, substantially as described.



4. A cable-hanging device consisting of a wire hook intermediately bent to form an integral projecting U-shaped stud, combined with a flat band secured at one end to the hook and having its other end perforated whereby it may hook over said stud, substantially as described.

5. A cable-hanging device comprising a wire hook having an intermediate loop and having one ply of said loop bent forward in a U shape to form a projecting stud, combined with a flat band having one end passing around another ply of the loop and having its free end perforated to hook over the stud, substantially as described.

6. A cable-hanging device having a wire hook with vertical legs, a horizontal loop, and a diagonally downwardly projecting stud, combined with a flat band secured at one end to one of the plies of said loop and having its other end perforated to hook over the stud, substantially as described.

7. In a cable-hanging device, a wire hook having substantially vertical legs bent over at their upper ends to form hooks and at their lower ends bent horizontally toward each other to form a connecting-loop, one lower ply of the loop being bent forward and diagonally downward to form a projecting stud, in combination with a flat band secured to another lower ply of said loop and having its free end perforated, substantially as described.

8. A wire hook for a cable-hanging device having two vertical legs a^3 a^4 bent over into hooks a^5 a^5 at their upper ends and connected at their lower ends by a horizontal loop having two lower plies a' a^2, the lower ply a^2 being intermediately bent outward and backward to form an integral U-shaped projecting stud a^6, substantially as described.

9. A cable-hanging device comprising a wire hook and a flat band secured thereto, the hook being looped intermediately and the band having one end passing around one of the plies of the loop and clamped by being squeezed between two adjacent plies of the loop, and means for securing the other end of the loop, substantially as described.

694,678. SCREEN APPARATUS FOR PAPER-PULP. DAVID SHARPE, South Hadley Falls, Mass. Filed Sept. 24, 1901. Serial No. 76,340. (No model.)

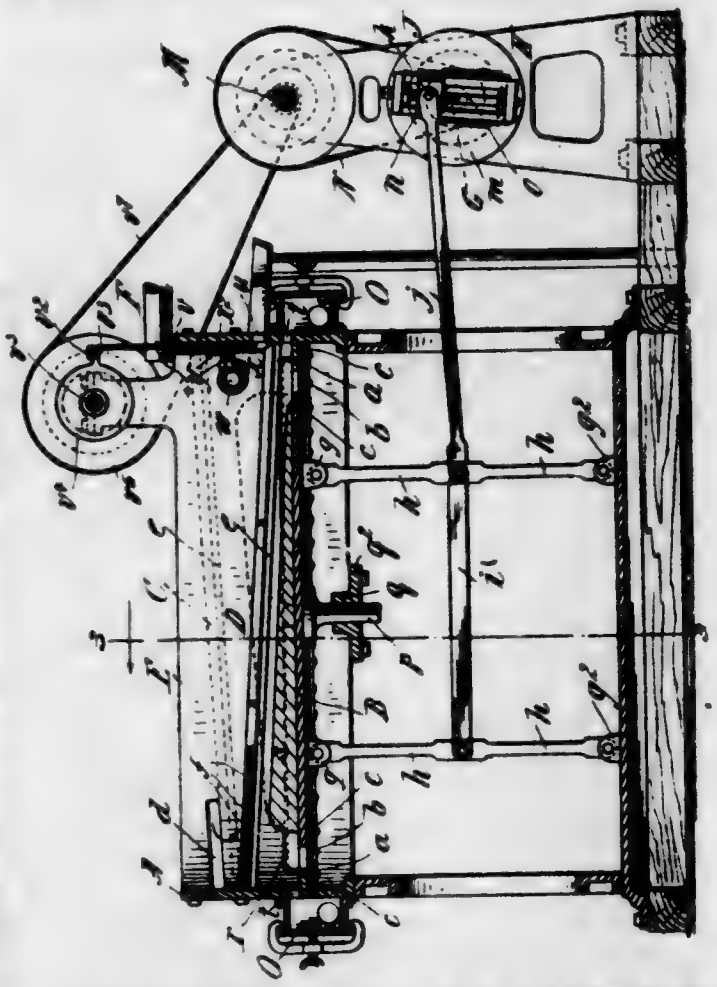
Claim.—1. In a screen apparatus for paper-pulp, the screen-box having a base-forming diaphragm, toggles below and engaged with the diaphragm, and linked together, a driving-shaft and a counter-shaft having cone-pulleys, a driving-belt around said pulleys, an apertured face-plate on the counter-shaft, an adjustable block in the apertured face-plate, with an adjusting-screw therefor, a crank-pin carried by said block, and a connecting-rod secured to the crank-pin, and to the linked toggles.

2. In a screen apparatus, the box having an inclined screen therein, and its base constituted by a horizontal reciprocatory diaphragm, the top of which has a section *s*, the upper surface of which is inclined substantially corresponding to the inclination of the screen, for equalizing the suction action.

3. In a screen apparatus for paper-pulp, the box having the diaphragm-base, and a screen thereabove which is inclined, an outlet for the pulp leading from the box below the screen and an outlet for the extraneous matter leading from the box adjacent the top of the lower portion of the screen, a gate for said latter outlet, and means for automatically periodically opening the same, and means for clearing the extraneous matter on the lower portion of the screen adjacent the gate-provided opening through the latter.

4. In a screen apparatus for paper-pulp, the box having the diaphragm-base, and a screen thereabove which is inclined, an outlet for the pulp leading from the box below the screen and an outlet for the extraneous matter leading from the box adjacent the top of the lower portion of the screen, a gate for said latter outlet having a projection a^5, and a rotating part having a tappet, periodically engaging the projection.

5. In a screen apparatus for paper-pulp, the box having the diaphragm-base, and a screen thereabove which is inclined, an outlet for the pulp leading from the box below the screen and an outlet for the extraneous matter leading from the box adjacent the top of the lower portion of the screen, a gate for said latter outlet, and means for automatically periodically opening the same, a sprinkler-pipe above the screen adjacent the gate-provided opening having a shut-off cock, and means operating concurrently with the opening and closing of the gate for opening and closing the said cock.



6. In a screen apparatus for paper-pulp, the box having the diaphragm-base, and a screen thereabove which is inclined, an outlet for the pulp leading from the box below the screen and an outlet for the extraneous matter leading from the box adjacent the top of the lower portion of the screen, a gate for said latter outlet, and means for automatically periodically opening the same, a sprinkler-pipe above the screen adjacent the gate-provided opening having a shut-off cock, having on its stem, a lever-handle, and projections extended from the gate and engaging the lever-handle of the cock, substantially as described.

7. In a screen apparatus for paper-pulp, the box having its base constituted by a reciprocatory diaphragm, and having therewithin the longitudinal partition E, a screen above the diaphragm at one side of said partition inclining from one end downwardly toward the other, another screen at the other side of the partition having its high end inclining from about the level of the low end of the first screen downwardly in the opposite direction, the said partition having the aperture *d*, one or more outlet-openings for the pulp leading from the box below the screen, and an outlet-opening leading from the box adjacent the lower end of the second screen, and means for closing the latter opening.

8. In a screen apparatus for paper-pulp, the box having its base constituted by a reciprocatory diaphragm, and having therewithin the longitudinal partition E, a screen above the diaphragm at one side of said partition inclining from one end downwardly toward the other, another screen at the other side of the partition having its high end inclining from about the level of the low end of the first screen downwardly in the opposite direction, the said partition having the aperture *d*, one or more outlet-openings for the pulp leading from the lower portion of the box at the side thereof of the second inclined screen, the trough O, inclosing three sides of the box, the head-box and the conduits connecting the trough therewith.

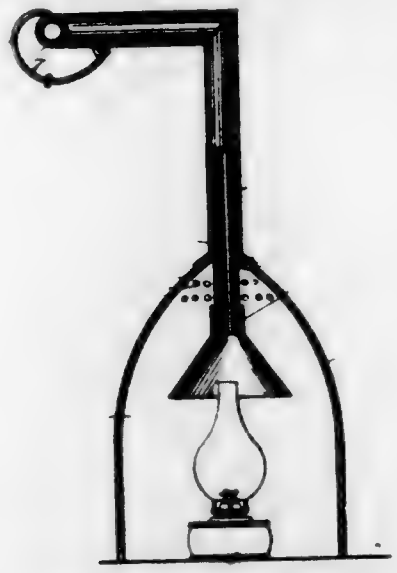
9. In a screen apparatus for paper-pulp, the box having its base constituted by a reciprocatory diaphragm and having therewithin the longitudinal partition E, a screen C above the diaphragm at one side of said partition, inclining endwise downwardly, another screen at the opposite side of the partition inclining in the opposite direction from, and located at a lower level than the first screen, said partition having an aperture at one end portion, above said screens, said diaphragm being constructed with reversely-inclined built-up portions *s s* at opposite halves thereof, substantially as and for the purposes set forth.

10. In a screen apparatus, the combination with the box having an

inclined screen and the diaphragm-base, and provided with a pulp-discharging aperture below the screen, and a waste-clearing aperture adjacent the top surface of the screen having a gate, of the toggles below and connected to the diaphragm and linked together, the shaft M and countershaft G having cone-pulleys and connecting-belt, and said shaft G having crank *k*, the rod connecting said crank and said linked toggles, and the shaft v^3 driven from said shaft M having the tappet v^3 cooperating with the gate.

11. In a pulp-screening apparatus, the box or vat having on its opposite inner side walls, the ledges *e* at different heights and oppositely inclining and the intermediate longitudinal partition E having on its opposite sides inclined ledges opposite and parallel with those of the box-wall, the screens C and D on said ledges, the diaphragm constituting the base of the box, and means for operating the diaphragm.

694,679. VAPORIZER. JOHN R. SHELDON, Watertown, Mass. Filed May 9, 1900. Serial No. 16,022. (No model.)



Claim.—1. In an apparatus of the class described, a comparatively short conduit open at both ends, a hollow cylindrical head secured to one end thereof and communicating therewith, the ends of said head being open and said head being adapted to receive an absorbent saturated with a volatile liquid, a device for generating dry heat beneath the lower end of said conduit, and a heat-resisting jacket surrounding said conduit, the construction being such that the dry heat from the heating device is conducted through the conduit directly to the head in sufficient quantities to vaporize the liquid therein.

2. In an apparatus of the class described, a chamber adapted to receive an absorbent saturated with a volatile liquid, such chamber having openings for the discharge of vapor and heat, a heating device adapted to generate dry heat, a heat-insulated conduit open at both ends and affording direct communication between the heating medium and the chamber whereby sufficient dry heat from the heating medium is conveyed to the chamber to vaporize the liquid therein combined with a protecter adapted to surround the heating device.

3. In an apparatus of the class described, a comparatively short conduit, a heat-resisting covering inclosing said conduit, the said conduit terminating in a chambered head which is adapted to receive an absorbent saturated with a volatile liquid, said head having an opening for the discharge of vapors and heat, the lower end of the conduit being open and flared, and a device for generating dry heat beneath said flared end of the conduit, the short conduit conducting heat from the heating medium directly to the chambered head to thereby vaporize the liquid in the absorbent.

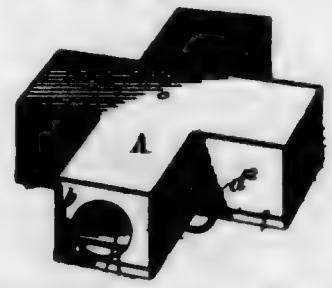
4. In an apparatus of the class described, a conduit terminating in a chambered head, a heat-resisting covering surrounding said conduit, an absorbent saturated with vaporizing liquid contained in said chambered head, the said head having openings therein for the discharge of heat and vapors, the lower end of the conduit being open and flared, a heating medium beneath said lower flared end, and a protector surrounding said heating medium, the heat from the medium being conducted through the conduit in sufficient quantities to vaporize the liquid in the absorbent.

5. In an apparatus of the class described, a comparatively short conduit terminating in a chamber-head, an absorbent saturated with vaporized liquid contained in said head, the said head having openings therein for the discharge of the heat and vapors and the said conduit being open and flared at its lower end, a heating medium beneath said flared open end of the conduit, and a dome-like protector surrounding the heating medium and secured to the conduit by means of a sliding connection, the heat from the heating medium passing up the conduit and vaporizing the liquid in the absorbent.

6. A jacketed conduit having a transverse head communicating with the bore of the conduit, the head being adapted to receive an absorbent saturated with a vaporizing liquid and having a multiplicity of openings for the discharge of vapor and heat, and the lower end of the conduit being flared or bell-shaped, and a dome-like protector slidably connected with the conduit.

7. In a device of the class specified, a conduit having at one end a chambered head communicating with the bore of said conduit and at its other end a flaring mouth to receive the heat from the heating medium, the said chambered head being adapted to receive an absorbent saturated with a vaporizing liquid and having a series of apertures therein for the discharge of vapors and heat, and a guard surrounding the said head.

694,680. TRAP. EDWIN W. SHEPPERD, Chicago, Ill. Filed May 6, 1901. Serial No. 58,901. (No model.)



Claim.—1. In a trap, the combination with a spring-pressed latch, of a swinging platform, and a plate secured upon said platform having a notch adapted for engagement with the latch to hold the same against the action of the spring when in one position, but to release said latch when moved away from such position; substantially as described.

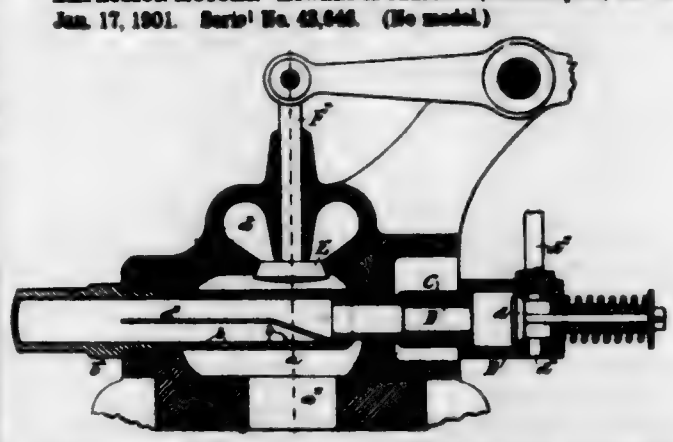
2. In a trap, the combination with a spring-pressed latch, of a swinging platform and a plate secured thereto, containing a notch for engagement with the latch against the action of the spring, the tension of the spring when the latch is in engagement with the notch being in a line approximately at right angles to the plane of the platform and passing through the pivot thereof; substantially as described.

3. In a trap, an inclosing frame, an opening in said frame, a bait-pin, a spring-pressed latch between the opening and bait-pin, and a swinging platform adjacent to the opening in engagement with the latch but adapted to release the same when moved in one direction; substantially as described.

4. In a trap, the combination with a suitable frame and a spring-pressed jaw pivoted thereon, having a laterally-extending handle by means of which it may be set, of a tripping-platform arranged to automatically engage and lock the jaw when the latter is brought into the set position; substantially as described.

5. In a trap, the combination with a frame and spring-pressed jaw pivoted thereon and having a laterally-extending handle for setting, of a tripping-platform arranged to be tripped by the weight of the animal when the trap is right side up, and to automatically engage and hold the jaw when wrong side up; substantially as described.

694,681. VAPORIZING AND MIXING DEVICE FOR GAS OR EXPLOSION MOTORS. HOWARD R. SHEPPARD, Philadelphia, Pa. Filed Jan. 17, 1901. Serial No. 43,646. (No model.)



Claim.—1. The combination of a cylinder-head for gas or explosion engines, with an igniting-tube, said tube extending through said cylinder-head into a chamber therein in communication with the engine, and a removable tube connected thereto, said tube extending into one end of the igniting-tube, substantially as described.

2. In a cylinder-head for a gas or explosion engine, the combination of an igniting-tube extending through one side of and supported by said

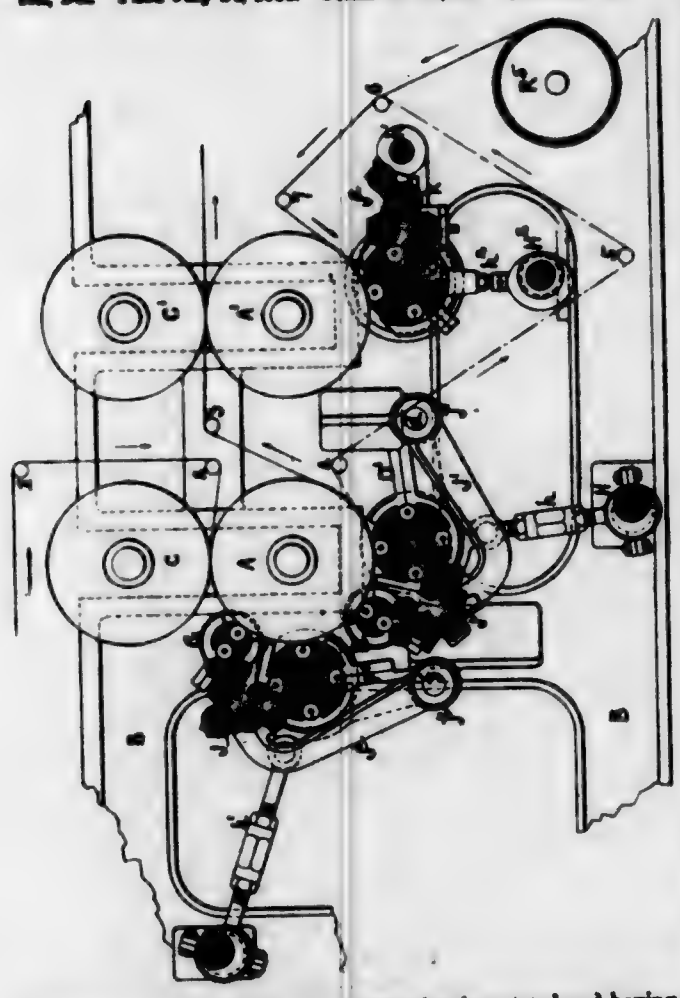
cylinder-head, a valve-casing connected to sources of air and fuel supply, said casing having a connection extending loosely into one end of the igniting-tube, perforations through the sides of said tubes between the point at which said connection enters and the point at which the tube passes through the side of the cylinder-head, substantially as described.

3. The combination in an igniting and vaporizing device for a gas or explosion engine, of a cylinder-head, a tube projecting through said head, a second tube connected to a source of fuel-supply, the inner section of the first tube having a series of holes through it and being open at the end, the fuel-supply tube entering said end and the outer section of the first tube extending outside the cylinder-head and being closed at the end, substantially as described.

4. The combination of a hollow cylinder-head, a tube having perforations through its sides projecting into the hollow of said head, a perforated diaphragm extending within said tube, a second tube extending into the said hollow opposite to the first tube a valve-casing connected to the said second tube, a valve in said casing and inlets for liquid fuel and air beyond said valve, substantially as described.

5. The combination in a cylinder-head for an explosion-engine, of a combustion-chamber, a perforated tube entering through an opening in said chamber, said tube being closed at its outer end and extended outside of the cylinder-head, a perforated diaphragm extending within said tube, a second tube extending into an opening in the combustion-chamber opposite to the first tube, and extending into the end of said tube, said diaphragm being placed to finely divide a fluid entering the first tube through the second tube, and a valve-casing connected to the second tube, a valve in said casing and air and fuel connections, substantially as described.

694,682. NUMBERING-MACHINE. SAMUEL R. SHOUP, Wilmington, Del. Filed July 24, 1900. Serial No. 24,698. (No model.)



Claim.—1. A numbering-head adapted to be rotated and having a rotary numbering-spindle with a fixed stud carrying a feed and locking disk, a coöperating pinion with long and short teeth carried by the head and gearing also carried by the head to transmit rotary motion from the said pinion to the numbering-spindle.

2. A numbering-head having a rotatable spindle, a numbering-wheel fixed to the spindle and a numbering-wheel free to turn on the spindle with a hand-controlled catch device to lock the free wheel in its adjusted position to the numbering-head.

3. The combination of a rotary printing-press with a series of rotary numbering-heads, one for the units, another for the tens, another for the hundreds, &c., each numbering-head having numbering-wheels, controller means for intermittently and automatically rotating the numbering-wheels in each of said heads, and means whereby the units, tens, hundreds, &c., of any given number are printed by said heads at different times.

4. The combination of the impression-cylinder of a rotary printing-press with a series of rotary numbering-heads grouped in succession around said impression-cylinder, one of the said heads being for units, another for tens, another for hundreds, &c., and each head having rotary numbering-wheels, controller means for intermittently and automatically rotating the numbering-wheels in each head and means whereby the units, tens, hundreds, &c., of any given number are printed by said heads at different times.

5. The combination of a rotary printing-press with a series of rotary numbering-heads, one for the units, another for the tens, another for the hundreds, &c., each numbering-head having rotary numbering-wheels on each of which the numbers have their vertical axes parallel with the axis of the wheel, controller means for intermittently and automatically rotating the numbering-wheels in each of said heads and means whereby the units, tens, hundreds, &c., of any given number are printed by said heads at different times.

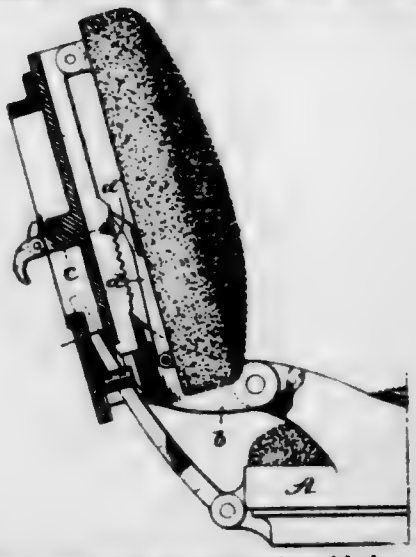
6. The combination of a rotary printing-press with a series of separate rotary numbering-heads, one for the units, another for the tens, another for the hundreds, &c., rotary numbering-wheels in each head, and each such wheel having its numbers with their vertical axes parallel with the axis of the wheel, and means whereby the units, tens, hundreds, &c., of any given number are printed by said heads at different times, all substantially as described.

7. A rotating numbering-head provided with a rotary numbering-spindle in combination with a fixed feed and locking disk, a coöperating pinion having long and short teeth carried by the head and gearing also carried by the head to transmit rotary motion from said pinion to the numbering-spindle.

8. A rotary numbering-head provided with a rotary numbering-spindle, in combination with a controller consisting of a notched feed and locking disk having laterally-projecting teeth, a pinion having long and short teeth, to coöperate with the notch and teeth of the locking-disk, and gearing to transmit motion from said pinion to the numbering-spindle.

9. In a printing-press, a rotary numbering-head provided with two or more rotary numbering-spindles geared together to rotate on their several axes simultaneously, in combination with a single controlling device for the several spindles, said controlling device comprising intermittent feed and locking gear to convert the rotary motion of the head into intermittent rotary motion of the numbering-spindles with intermediate locking of the latter.

694,688. BACK-REST FOR DENTAL CHAIRS. GIDEON SIBLEY, Philadelphia, Pa. Filed May 29, 1900. Serial No. 18,306. (No model.)



Claim.—1. In a chair, the combination with the seat and the swinging back-frame, of the supporting-bar extending into said frame, a device in said frame movable against the bar, a cam in said frame adapted to act upon said device to clamp it against the bar, said device being interposed between the cam and the wall of said frame, and means for operating said cam, substantially as described.

2. In a chair, the combination with the seat and the swinging back-frame, of the supporting-bar extending into said frame, a device in said frame movable against the bar, a cam in said frame adapted to act upon said device to clamp it against the bar, and means for maintaining said cam normally in contact with said device, substantially as described.

3. In a chair, the combination with the seat and the swinging back-frame, of the supporting-bar extending into said frame, a roller in said frame adapted to coact with said bar, a cam in said frame adapted to act upon said roller to clamp it against the bar, and means for operating said cam, substantially as described.

4. In a chair, the combination with the seat and the swinging back-frame, of the supporting-bars extending into said frame, the coacting

roller and cam engaging the respective bars, and means for operating said cam, substantially as described.

5. In a chair, the combination with the seat and the swinging back-frame, of the supporting-bars extending into said frame, the coacting roller and cam engaging the respective bars, and means for maintaining said cam and roller normally in contact with each other and with said bars, substantially as described.

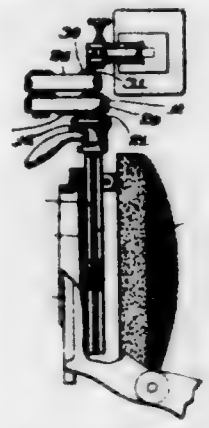
6. In a chair, the combination with the seat and the swinging back-frame, of the supporting-bars extending into said frame, the parallel studs affixed to said frames between the bars, a roller and a cam loosely mounted on the respective studs, and means whereby said cam and roller are normally maintained in contact with each other and with the respective bars, substantially as described.

7. In a chair, the combination with the seat and the swinging back-frame, of the supporting-bars extending into said frame, the parallel studs affixed to said frame between the bars, a roller and a cam loosely mounted on the respective studs, an arm on said cam, a rod connected therewith, and a spring acting upon said rod to maintain the same normally in such position that the said roller and cam are held yieldingly in contact with each other and with the respective bars, substantially as described.

8. In a chair, the combination with the back-frame, and the slide thereon, of the cam-lever mounted on said slide, means whereby the cam-head of the lever is maintained normally in contact with said frame, and means exteriorly of the frame for operating said cam-lever, substantially as described.

9. In a chair, the combination with the longitudinally-slotted back-frame and the slide thereon provided with a projection extending through the slot in said back, of the cam-lever fulcrumed on said projection, and a spring tending normally to maintain said lever in contact with the frame, substantially as described.

694,684. **HEAD-REST FOR DENTAL CHAIRS.** GIDEON SIBLEY, Philadelphia, Pa. Filed May 29, 1900. Serial No. 18,367. (No model.)



Claim.—1. In a chair, the combination with a support and a longitudinally-movable slide therein, of a clamp for said slide, a longitudinally-movable clamp-releasing member in said slide, a head-rest, adjustable connections therefor between the same and the slide, said connections including a rotary clamping device, a handle on said device, and an independently-movable pin or stem supported by said handle and adapted to actuate the said movable member, substantially as described.

2. In a chair, the combination with a support, and a longitudinally-movable slide therein, of a clamp for said slide, a longitudinally-movable clamp-releasing member in said slide, a spring to maintain said member normally raised, a head-rest, adjustable connections therefor between the same and the slide, said connections including a rotary clamping device, a handle on said device, and an independently-movable pin or stem supported by said handle and adapted to depress the said clamp-releasing member against the action of the spring, substantially as described.

3. In a chair, the combination with a support, of a longitudinally-movable slide therein provided with a beveled wall, a movable member interposed between said wall and the opposing wall of the support, whereby the weight of the slide and its parts tends to bind said member between the two walls and thereby clamp the slide, a rod for depressing said member, a spring to maintain said rod normally raised, and means for depressing said rod in opposition to the spring, together with a head-rest, and connections between the same and said slide, substantially as described.

4. In a chair, the combination with a support of a longitudinally-movable slide therein provided with a beveled wall, a movable member interposed between said wall and the opposing wall of the support, whereby the weight of the slide tends to bind said member between the two walls and thereby clamp the slide, and longitudinally-movable means separate and independent of said member adapted to bear upon and shift the same to unclamp the slide, substantially as described.

5. In a chair, the combination with a support, of a longitudinally-movable slide therein provided with a beveled wall, a roller interposed between said wall and the opposing wall of the support, whereby the weight of the slide tends to bind said roller between the two walls and thereby clamp the slide, and means separate and independent of said roller adapted to bear upon and shift the same to unclamp the slide, substantially as described.

6. In a chair, the combination with a support, of a longitudinally-movable slide therein provided with a recess having a beveled wall, a roller contained in said recess and adapted to be forced between said wall and the support by the weight of the slide so as to clamp the slide, and means separate and independent of said roller adapted to bear upon and shift the same to unclamp the slide, substantially as described.

7. In a chair, the combination with a support, of a longitudinally-movable slide therein provided with a recess having a beveled wall, a roller contained in said recess and adapted to be forced between said wall and the support by the weight of the slide so as to clamp the slide, an independent vertically-movable rod to bear upon and shift said roller, and means for operating said rod, substantially as described.

8. In a chair, the combination with a support, of a longitudinally-movable slide therein provided with a recess having a beveled wall, a roller contained in said recess and adapted to be forced between said wall and the support by the weight of the slide so as to clamp the slide, a yielding support for said roller below the recess, and means for depressing the roller and the support so as to unclamp the slide, substantially as described.

9. In a chair, the combination of the head-rest stem, the clamping-arms therefor, an inclined toggle-lever pivotally connected with said arms to effect the clamping action thereof, and means for operating said arms, substantially as described.

10. In a chair, the combination of the head-rest stem, the clamping-arms therefor, an inclined lever pivotally connected with said arms to effect the clamping action thereof, an underlying arm upon which one of said clamping-arms is pivotally mounted, a rock-lever, a pivot-bolt connecting said rock-lever and arms, a support for the fulcrum of the rock-lever, and means for operating said underlying arms, substantially as described.

694,685. **MANUFACTURE OF HOLLOW GLASS ARTICLES.** PAUL T. SIEVERT, Dresden, Germany. Filed June 8, 1901. Serial No. 63,713. (No model.)



Claim.—1. The process herein described for the production of hollow glass articles from liquid glass, consisting in spreading out the liquid glass in a sheet-like flat layer, holding the so-spread layer on outlines corresponding with the surrounding outlines of the hollow article to be produced while those parts of said layer included within said outlines are unsupported from beneath, and allowing the so-included parts, while remaining plastic by the retention of a portion of the heat of fusion, to shape themselves by their own weight, substantially as herein described.

2. The process herein described for the molding of hollow glass articles of a desired shape consisting in spreading out liquid glass in a sheet-like layer and holding the so-spread layer on outlines corresponding with the surrounding outlines of the hollow article to be molded while those parts of said layer included within said outlines, while remaining plastic by the retention of a portion of the heat of fusion, mold themselves into the desired shape by their own weight, substantially as herein described.

694,686. **BRAKE-WHEEL.** MILTON T. SIMS, Aurora, Ill. Filed Dec. 26, 1901. Serial No. 87,255. (No model.)

Claim.—1. In a tip-over brake-wheel, the combination of a brake-shaft and brake-wheel with spring mechanism for yieldingly holding them in their different positions, substantially as described.

2. In a tip-over brake-wheel, the combination of a brake-shaft, a brake-wheel pivotally secured thereto and a spring secured to the brake-shaft for yieldingly holding the brake-wheel in its different positions, substantially as described.

3. In a tip-over brake-wheel, the combination of a brake-shaft having a bifurcated end, a brake-wheel, a stud upon which such brake-wheel is mounted pivotally secured in the bifurcated end of the brake-shaft, and spring mechanism for yieldingly holding the brake-wheel in its different positions, substantially as described.

4. In a tip-over brake-wheel, the combination of a brake-shaft provided with a bifurcated end, a brake-wheel, a stud upon which such brake-wheel is mounted and provided with a flattened angular end portion pivotally secured in the bifurcated end of the brake-shaft, and a flat steel

spring secured to the brake-shaft and provided with a free end providing a recess to engage the angular portion of the brake-wheel stud and yieldingly hold such wheel in its different positions, substantially as described.



5. In a brake-wheel, the combination of a brake-shaft having a bifurcated end, a brake-wheel, a stud upon which such brake-wheel is mounted pivotally secured in the bifurcated end and provided with a limiting-shoulder to bear against the brake-shaft in one position, and spring mechanism for yieldingly holding the brake-wheel in its different positions, substantially as described.

694,687. RAIL-FASTENER. JAMES M. SPAULDING, Syracuse, N. Y. Filed July 15, 1901. Serial No. 68,367. (No model.)



Claim.—1. A rail-fastener comprising a support having lengthwise flanges and transverse slots arranged in pairs, keys movable in the slots, and fastening members arranged in pairs corresponding to the pairs of slots, the fastening members of each pair being engaged with their respective keys and having laterally-extending arms engaging the rail.

2. The combination with a support and rails having their meeting ends carried by the support and provided with apertures, of a pair of keys engaged with the support and a pair of fastening members engaged with their respective keys and having adjacent ends formed with rail-engaging plates extending laterally beyond their respective bodies, one of the plates being provided with studs projecting through the rail-apertures and the other formed with sockets receiving the projecting ends of the stud.

3. In a rail-fastener, the combination with a support having a transverse slot, a fastening member secured to the support and engaged with the rail, a second fastening member opposite the former member for engaging the opposite face of the rail, said second member being provided with a transverse slot alined with the former slot, a tapering key inserted in said slots and a spring or its equivalent for automatically forcing said key in the direction of its taper for the purpose described.

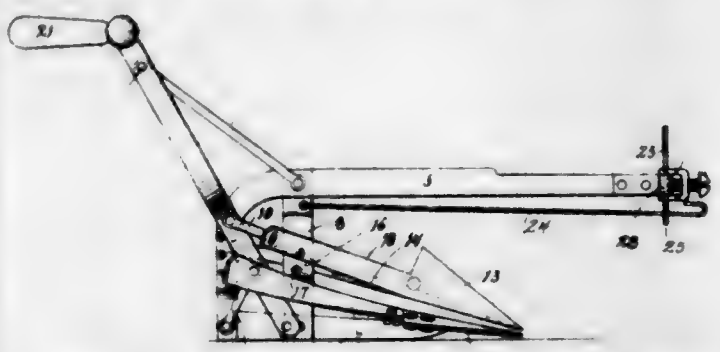
4. In a rail-fastener, the herein-described rail-engaging member having a transverse recess in one end and a transverse plate extending laterally beyond the recess, said member being provided with a transverse slot through its body and formed with separate lengthwise flanges provided with inwardly-projecting lengthwise ribs.

5. In a rail-fastener, the herein-described rail engaging member having separated lengthwise flanges provided with inwardly-projecting lengthwise ribs and transverse slots extending through the flanges above the ribs, said member being provided with laterally-extending arms, and studs projecting from said arms for the purpose described.

694,688. METHOD OF IMPROVING CASTINGS OF ALLOYS CONTAINING COPPER AND ZINC. ERWIN S. SPERRY, Bridgeport, Conn. Filed Nov. 29, 1901. Serial No. 84,055. (No specimens.)

Claim.—The herein-described method of improving castings made of alloys containing copper and zinc, which consists in adding to the alloy while in a molten condition a predetermined quantity of arsenic that will wholly oxidize out in the pouring and then pouring in the usual manner, the resulting casting being wholly free from arsenic and without dross or scale.

694,689. PLOW. MARTIN STAGGIE, Milwaukee, Wis. Filed Oct. 30, 1901. Serial No. 80,492. (No model.)



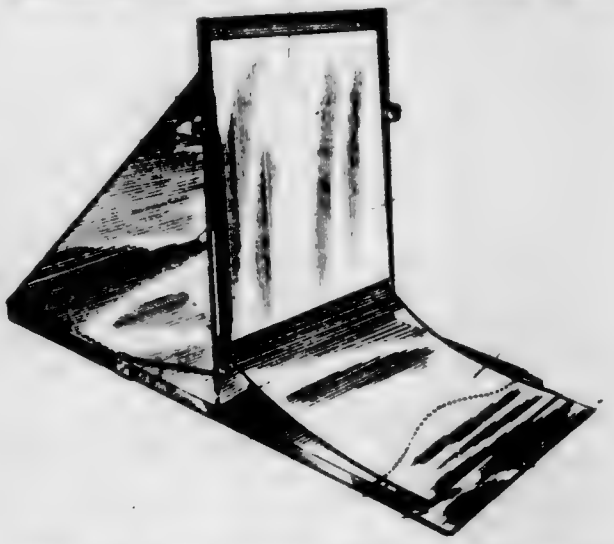
Claim.—1. A plow comprising a beam the rear portion of which is turned down forming a leg, a vertically-disposed knee, a landside secured to the leg and to the knee, a main share and a main moldboard secured to each other and to the runner and the leg, and an auxiliary share and moldboard separate from and above the main share and moldboard and secured detachably to the leg and the knee.

2. In a plow, a beam, a main share and a moldboard disposed at the right of the vertical plane of the beam, and an auxiliary share provided with an auxiliary moldboard, the auxiliary share being mounted in the plow above and at a distance from the main share and at the left of and in an oblique plane upwardly away from the vertical plane of the beam.

3. In a plow, a beam provided with a leg offset laterally, a landside secured to and projecting forwardly from the leg, a knee secured terminally to the beam and the landside and having a medial portion offset laterally, and an auxiliary share and moldboard provided with a rearwardly-extending shank and means securing the shank detachably to the leg and to the knee.

4. In a plow, a steel-strap horizontally-disposed beam turned down at its rear end forming a vertically-disposed leg, a steel-strap landside secured to the leg, a steel-strap knee secured to the beam and to the landside, steel-strap handle-posts secured to the landside and to the leg, and a share or shares with a moldboard mounted on the parts aforesaid forming the frame of the plow.

694,690. PORTABLE DISPLAY DEVICE. TRUMAN H. STARK, Naperville, Ill. Filed Sept. 10, 1901. Serial No. 74,907. (No model.)



Claim.—1. In a display device, in combination, a base, an easel, a link uniting the base and the easel, and a support for the easel hinged to the easel and to the base.

2. In a display device, in combination, a base, an easel, a pair of links uniting the base and the easel and secured to the former intermediate of its ends, and a support for the easel hinged to the easel and to the base.

3. In a display device, in combination, a base, an easel, a pair of links uniting the base and the easel and secured to the former intermediate of its ends, and a support for the easel.

4. In a display device, in combination, a base, an easel, a link uniting the base and easel and secured to the former intermediate of its ends, and a support for the easel.

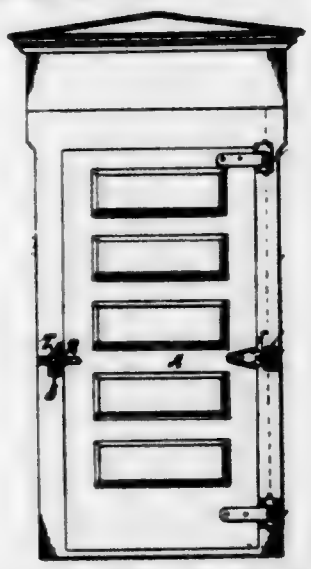
5. In a display device, in combination, a base, an easel in box form and having openings in its front and back sides, a pair of links uniting the base and the easel and secured to the former intermediate of its ends, and a support for the easel hinged thereto and to the base and having an enclosable panel.

6. In a display device, in combination, a base, an easel in box form and having openings in its front and back sides, a pair of links uniting

the base and the easel and secured to the former intermediate of its ends, a lever pivoted to the easel and to the panel, and a link detachably connecting the lever to the base.

7. In a display device, in combination, a base, an easel in box form, a pair of links uniting the base and the easel and secured to the former intermediate of its ends, a telescopically-extensible lever pivoted to the easel and to the panel, and a link detachably connecting the lever to the base.

694,691. FASTENING DEVICE FOR REFRIGERATOR-DOORS. BENJAMIN A. STEVENS, Toledo, Ohio. Original application filed Jan. 11, 1901, Serial No. 42,844. Divided and this application filed May 2, 1901 Serial No. 58,413. (No model.)



Claim.—1. The combination of a door, a casing therefor, a hinge connection between one edge of the door and the adjacent casing, a screw-bolt bearing in said casing adjacent to the hinged edge of the door and a plate secured to said door and projecting under the head of said bolt when the door is closed for the purpose set forth.

2. The combination of a door, a casing therefor, a hinge connection between one edge of the door and the adjacent casing, a screw-bolt bearing in said casing adjacent to the hinged edge of the door and located a distance from said door greater than the center line of the hinge-pintles and a plate secured to said door and projecting under the head of said bolt when the door is being closed, for the purpose set forth

3. The combination of a door, a casing therefor, a hinge connection between one edge of the door and the adjacent casing, a lug secured to said casing adjacent to the hinged edge of the door and adapted to be adjusted perpendicularly to said casing, and a plate secured to said door and projecting under said lug when the door is closed, for the purpose set forth.

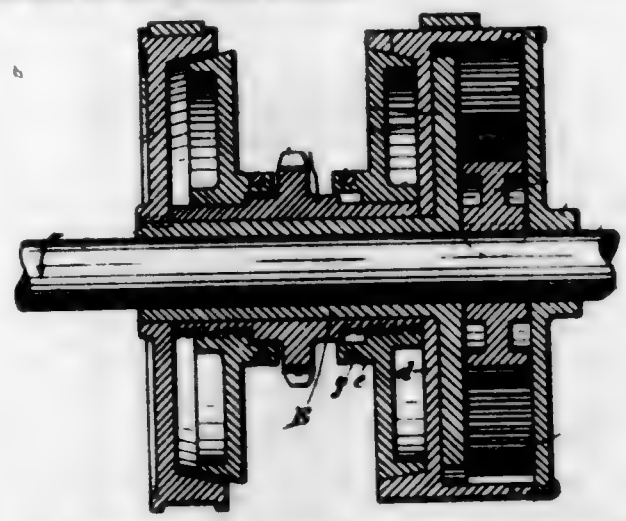
4. The combination of a door, a casing therefor, a hinge connection between one edge of the door and the adjacent casing, a lug upon said casing adjacent to the hinged edge of the said door located at a distance from said door greater than the center line of the hinge-pintles and a plate secured to said door and projecting under said lug when the door is being closed.

5. The combination of a door, a casing therefor, a hinge connection between one edge of the door and the adjacent casing, a lug upon said casing, adjacent to the hinged edge of said door, a plate secured to said door and projecting under said lug when the door is closed and means for adjustably securing the free edge of the door to the opposite side of the casing, substantially as described.

6. The combination of a door, a casing therefor, a hinge connection between one edge of the door and the adjacent casing, a lug upon said casing adjacent to the hinged edge of said door located at a distance from said door greater than the center line of the hinge-pintles, a plate secured to said door and projecting under said lug when the door is closed, and means for adjustably securing the free edge of the door to the opposite side of the casing.

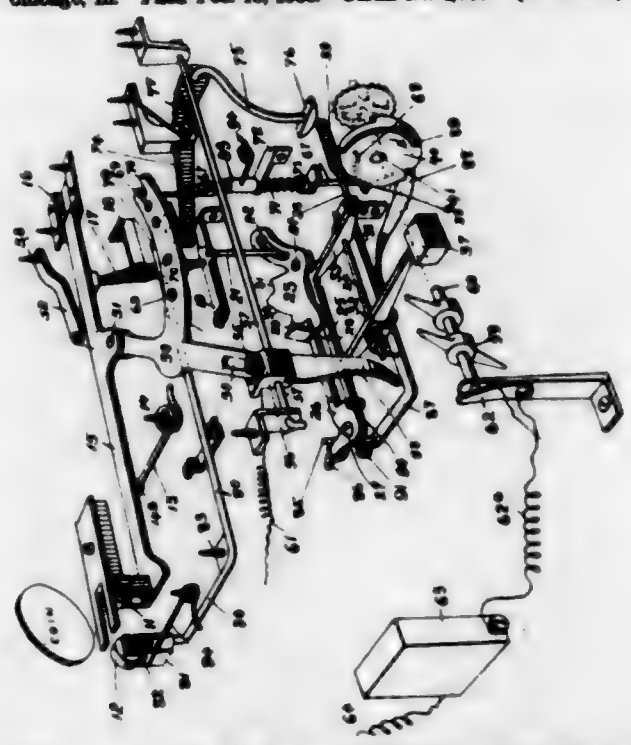
694,692. POWER-TRANSMITTING MECHANISM. HARRY W. SUMNER, Cincinnati, Ohio, assignor to the Lunkenheimer Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Dec. 13, 1901. Serial No. 85,830. (No model.)

Claim.—1. In transmitting mechanism of the character described, the combination of a shaft revolving in one direction, a clutch member loose upon said shaft, a disk provided with a sleeve likewise loose upon said shaft and adjacent to the foregoing clutch member, a gear fast upon said shaft, a gear intermediate of said disk and clutch member and engaging the last-named gear, a second clutch member fast upon the sleeve of said disk, a second sleeve loose upon the first-mentioned sleeve, a driving-gear carried by said second sleeve, independently-operated clutches feathered on said second sleeve for engagement and disengagement with said clutch members, mechanism for actuating said clutches, and brake mechanism for the said clutch members.



2. In transmitting mechanism of the character described, the combination of a shaft revolving in one direction, a drum-clutch loose upon said shaft and provided with an internal gear, a disk provided with a sleeve likewise loose upon said shaft and contained within the interior of the drum, a gear fast upon said shaft, a gear pivoted to said disk and meshing with the internal gear of the drum and engaging the gear fast upon the shaft, a clutch member fast upon the sleeve of said disk, a second sleeve loose upon the first-mentioned sleeve, a driving-gear carried by said second sleeve, independently-operated clutches feathered on said sleeve for engagement and disengagement with said drum-clutch and clutch member respectively, mechanism for actuating said clutches, and brake mechanism for said drum-clutch and clutch member, substantially as described.

694,698. COIN-CONTROLLED APPARATUS. HENRY G. SWEENEY, Chicago, Ill. Filed Feb. 10, 1900. Serial No. 4,719. (No model.)



Claim.—1. A toll-collecting apparatus having a coin-receiving slot, combined with coin-operated means at the entrance of said slot for gaging the coin while held by the patron, substantially as set forth.

2. A toll-collecting apparatus having a coin-receiving slot the entrance to which is normally of a size smaller than that of the smallest coin adapted to operate said apparatus, said entrance comprising coin-operated means for gaging the coin while held by the patron, substantially as set forth.

3. A toll-collecting apparatus having a coin-receiving slot the entrance to which is normally of a size smaller than that of the smallest coin adapted to operate the apparatus, said entrance comprising coin-operated means for gaging the coin while held by the patron, combined with a signaling mechanism which is differently operated by said coin-operated means according to the size of the coin inserted, substantially as set forth.

4. The combination in toll-collecting apparatus for telephones, of a

coin-slot having an expanding or yielding side operable by the coin when the latter is inserted and by which expanding side the slot is adapted to be used with various sizes of coin, an adjustable coin-arrester having its adjustment effected by said yielding side, and signaling mechanism having a circuit-closer also connected and positioned by said yielding side, substantially as specified.

5. The combination in toll-collecting apparatus for telephones, of a coin-slot having an expanding or yielding side operable by the coin when the latter is inserted, an adjustable coin-arrester having its adjustment effected by said yielding side, a signaling mechanism having an adjustable circuit-closer positioned by said yielding side, a motor for operating said signal mechanism, and means for normally locking said motor releasable by said yielding side, substantially as specified.

6. The combination in a toll-collecting apparatus, of a coin-chute the slot whereof is provided with a yielding side operable by the coin when inserted by the patron and requiring to be operated with all the different coin to which the apparatus is adapted, a signal mechanism adjusted by said yielding side, and a motor for operating said mechanism in sending the signals, substantially as specified.

7. The coin-controlling mechanism having its coin-receiving slot provided with a movable side normally positioned so as to render the slot too small to admit a coin without some yielding by said side, said yielding side being connected to and regulating the coin-arrester of the mechanism, substantially as specified.

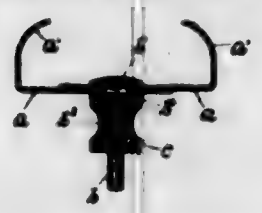
8. The coin-slot of coin-controlled apparatus, having at one side of its mouth a device capable of a limited amount of yield and at the opposite side thereof a device capable of yielding sufficiently to admit the large coin, both sides being operated by the coin at the time of its insertion and both having retracting-springs, substantially as specified.

9. The combination with the spring-contact of the signal mechanism, of the adjusting-lever 50 the lateral arm 70 and the wire 67 engaging said arm and locking-lever 50 during the sending of the signal, substantially as specified.

10. The combination with the sliding bar 15 and its retracting-spring, of the lever 50, the signal mechanism embracing the spring-contact 58, the arm 70 attached to said lever, and a wire engaging the arm and locking it during the operation of the signal mechanism, substantially as specified.

11. The combination with the sliding bar 15 and its retracting-spring, of the lever 50, the signal mechanism embracing the spring-contact 58, the arm 70 attached to said lever, a wire engaging the arm and locking it during the operation of the signal mechanism, a plate normally interposed between said wire and said arm, and means for moving said plate into and out of acting position, substantially as specified.

694,694. DISPLAY-STAND FOR FOOT-GEAR. GEORGE C. SWEET, Norwich, Conn., assignor to the Norwich Nickel & Brass Company, Norwich, Conn. Filed Oct. 22, 1900. Serial No. 33,841. (No model.)

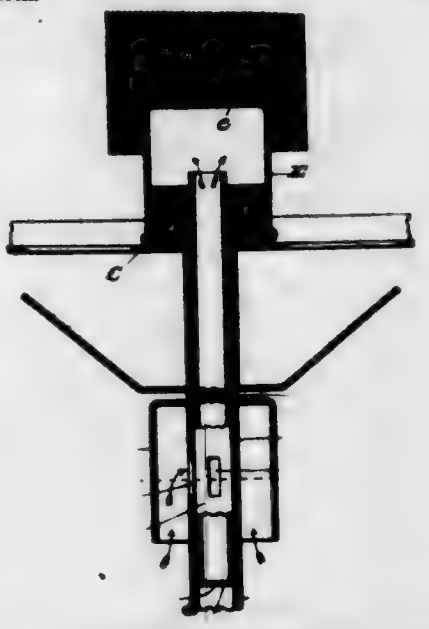


Claim.—In a shoe-support, in combination, slotted plates *a*, *a*, a bolt having a head *b'* and a threaded shank, a nut mounted on said shank and adapted to clamp the said plates between itself and the bolt-head; the said bolt being formed with a rhombic portion immediately beneath its head to retain the slotted plates either in line with, or at an angle to, each other.

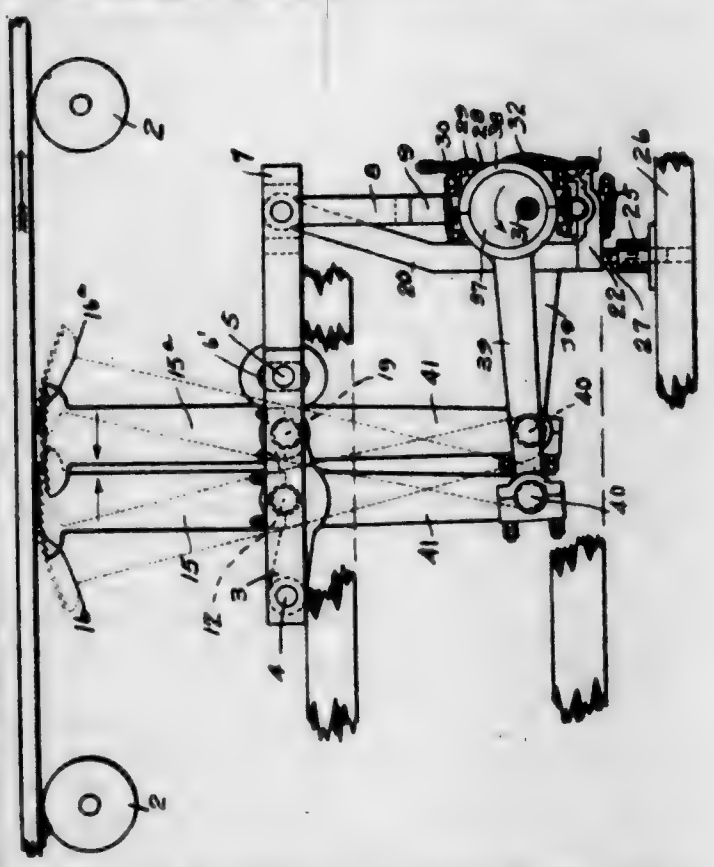
694,695. INCANDESCENT GAS-LAMP. WILLIAM TIDE, New York, N. Y. Filed Feb. 6, 1899. Serial No. 704,698. (No model.)

Claim.—1. In an incandescent-mantle lamp, the combination with the vertical mixing-tube having an upper portion and a lower orificed portion of the same diameter, of a tube fitted to the upper portion and carrying a burner-tip, a mantle-support, and a chimney-support, all detachable upwardly from the mixing-tube, a stop projecting outwardly from the mixing-tube above the air-orifices, an air-regulator below the burner-support, having a tube fitted to the external surface of the mixing-tube and an outer deflector, said air-regulator being rotatable independently of the burner-tube, and a stop for the air-deflector below the deflector, said stop or support on the mixing-tube preventing the upward movement of the air-regulator, substantially as set forth.

2. In an incandescent-mantle lamp, the combination with the vertical mixing-tube having an upper portion and a lower orificed portion, a stop above the orifices, a stop below the orifices, a rotary downwardly-removable air-regulator having an orificed tube fitting closely the external surface of the mixing-tube, and held from vertical movement in either direction between the said stops, but adapted to be slipped off therefrom when the lower stop is removed, and a burner-tube fitted to and upwardly removable from the upper portion of the mixing-tube and secured to a mantle-carrier and to a chimney-carrier, and resting upon the upper stop on the mixing-tube, the burner-tube and the air regulating tube being rotary independently of each other and independently supported, substantially as set forth.



694,696. LUMBER-CONVEYER FOR SAWMILLS. EDWIN E. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Oct. 12, 1901. Serial No. 78,412. (No model.)



Claim.—1. A lumber-conveyer, comprising idle rolls, vertically and horizontally reciprocating members arranged between said rolls alternating in their movement, one engaging the lumber as the other after the completion of its horizontal movement is on the point of leaving it, whereby progress of the lumber will be continuous.

2. The combination, with the lumber-rolls, of members provided beneath the same, each having a substantially vertical and horizontal swinging movement on its support, and means for alternately operating said members, substantially as described.

3. The combination, with the lumber-rolls, of members having curved toothed faces, means for raising said members to engage the under side of the lumber and swinging them to advance the same and said members alternating in their swinging and raising movement, one engaging the lumber as the other after the completion of its swinging movement is on the point of leaving it, whereby the progress of the lumber over the rolls will be continuous, substantially as described.

4. The combination, with the lumber-rolls, of swinging frames provided beneath the same, lumber-engaging members mounted in said frames, means for alternately tilting said frames to raise said members into engagement with the lumber, and means for alternately oscillating said members independently of said frames to advance the lumber, substantially as described.

5. The combination, with the lumber-rolls, of pivoted frames provided beneath the same, oscillating sleeves carried by said frames, toothed arms provided on said sleeves, those of one sleeve lapping by those of the other, means for alternately tilting said frames to lift said frames into engagement with the lumber, and means for oscillating said sleeves, substantially as described.

6. The combination, with the lumber-rolls, of swinging frames provided beneath the same, a series of oscillating toothed arms mounted in sets respectively in said frames, means for alternately tilting said frames to raise said arms into engagement with the lumber, and means for alternately oscillating the sets of arms to advance the lumber over said rolls, substantially as described.

7. The combination with the lumber-rolls, of a series of toothed lumber-engaging arms provided beneath the same, said arms being arranged in sets, means for raising said arms to engage the under side of the lumber and swinging them to advance the same, and said sets of arms alternating in their swinging and raising movement, one set engaging the lumber as the other after the completion of its swinging movement is on the point of leaving it, whereby the progress of the lumber over the rolls will be continuous, substantially as described.

8. The combination, with the lumber-rolls, of oscillating sleeves provided beneath the same and have depending bars, a series of toothed arms provided on said sleeves and adapted to engage the under side of the lumber, means for alternately raising said sleeves to move their respective arms into contact with the lumber, and means connected with said depending bars for alternately oscillating said sleeves after the engagement of their arms with the lumber, substantially as described.

9. The combination, with the idle lumber-rolls, of frames horizontally arranged beneath the same, oscillating lumber-engaging means mounted in said frames respectively, means for tilting said frames one at a time to move the lumber-engaging means carried thereby into contact with the under side of the lumber, and means for swinging said lumber-engaging means independently of said frames to advance the lumber over said rolls, substantially as described.

10. The combination, with the lumber-rolls, of the bars 3 beneath the same, the rods 4 and 5 connecting said bars, a U-shaped frame mounted on said bar 4, a shaft 12 carried by said bars, toothed arms mounted on said shaft, a second frame mounted on said rod 5, toothed bars carried by said second frame, means for alternately tilting said frames to move their respective arms into engagement with the lumber, and means for alternately oscillating said arms on their support to advance the lumber over the rolls, substantially as described.

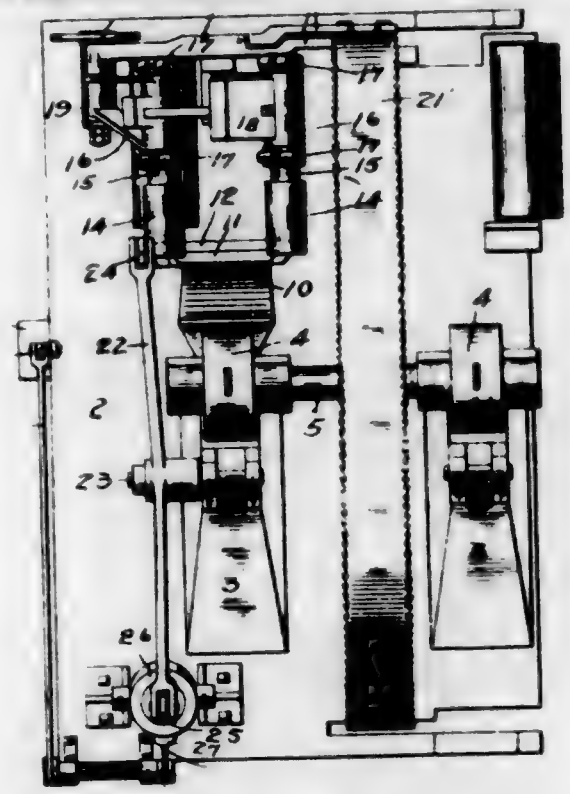
11. A lumber-conveyer, comprising idle rolls, members having toothed faces arranged between said rolls, means for raising said members to engage the lumber and oscillating them to advance the same and said members alternating in their raising and oscillating movement, one engaging the lumber as the other after its oscillating movement is on the point of leaving it, whereby progress of the lumber will be continuous.

694,697. GUIDE-OPERATING MEANS FOR BAND-SAW MILLS. EDWIN R. THOMAS, St. Paul, Minn., assignor of one-half to Union Iron Works, Minneapolis, Minn., a Corporation of Minnesota. Filed Nov. 11, 1901. Serial No. 81,808. (No model.)

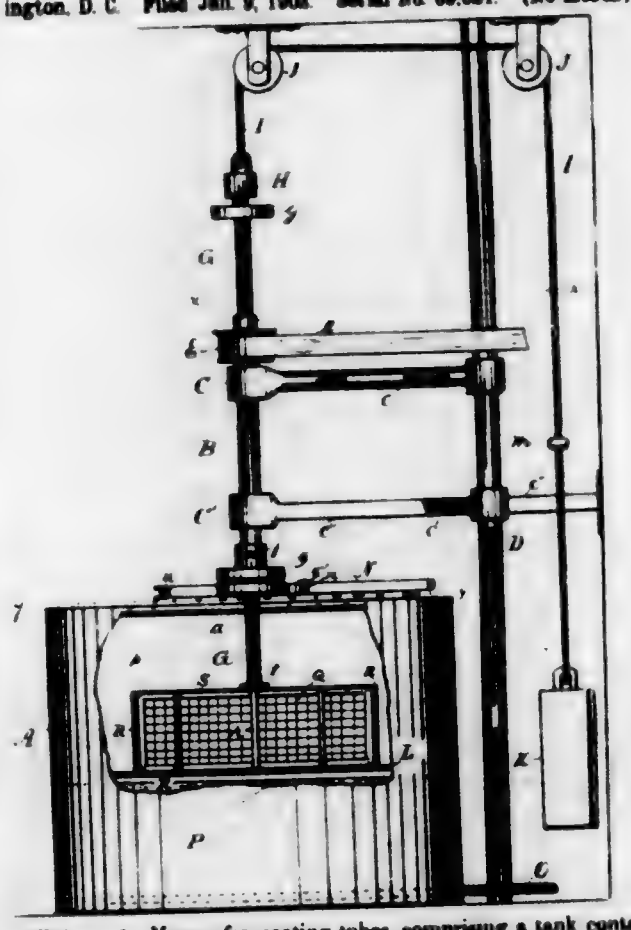
Claim.—1. In a band-mill, the combination, with a base having upright brackets, of the upper band-wheel and its shaft supported on said brackets, a saw, a vertically-movable saw-guide, an engine arranged on the opposite side of the upper band-wheel shaft from said guide to remove it from the dust and dirt of the saw and from interfering with the work of the operator, means for controlling said engine, and a lever pivoted on one of said brackets and having its ends connected respectively with said engine and with said guide, substantially as described and for the purpose specified.

2. The combination, with a band-mill base provided with upright brackets, of the upper and lower band-wheels and the saw thereon, a vertically-sliding saw-guide, a steam-cylinder, a sway-bar connected respectively to said guide and the piston of said cylinder and pivoted at an intermediate point on one of said brackets, and a lever having operative connections with the cylinder-valve.

3. In a band-mill, the combination, with a sawmill-base provided with suitable brackets or supports, of the upper band-wheel and its shaft supported on said brackets, a vertically-movable saw-guide, a sway-bar pivoted at a point intermediate to its ends on one of said brackets above said shaft and said guide, an engine provided on the side of said shaft and said brackets opposite said guide and the saw, whereby it is removed from the dust and dirt of the saw and from interfering with the work of the operator, means pivotally connecting the ends of said sway-bar with said guide and engine, and an operating-lever for controlling said engine.



694,698. TUBE-COATING MACHINE. WILLIAM THOMAS, Washington, D. C. Filed Jan. 9, 1902. Serial No. 89,081. (No model.)



Claim.—1. Means for coating tubes comprising a tank containing the coating material, receptacles for the tubes and means to rotate said receptacles in, and also above said coating material, as described.

2. Means for coating tubes, comprising a tank containing the coating material, receptacles for the tubes and means to rotate said receptacles in, and also above said coating material, by one continuous rotary movement, substantially as described.

3. Means for coating tubes comprising a heated tank, coating material therein, a rotatable plate and tube-receptacles thereon within the tank, mechanism to lower said receptacles into said coating material, to rotate them therein, to raise said receptacles out of said coating material and to rotate them thereabove, as and for the purposes specified.

4. In a tube-coating machine a covered tank containing the coating substance, an air-space above said coating substance, a steam-pipe to heat said substance and air-space, a suitable opening with cover in the top of

the tank, a shaft entering the tank, a basket-carrying plate fixed on said shaft, and means to rotate, to lower, and to raise said shaft and plate, as herein set forth.

5. The herein-described mechanism adapted for raising, for lowering, and for rotating an object, comprising a vertical hollow shaft B, held by bearings suitably anchored, a hand-wheel thereon a friction clutch-disk F at its bottom, a loose shaft G extending through shaft B, and journaled in a box H, held by a cord which passes over pulleys and has a weight at its other end, a clutch-disk near the upper end of shaft G adapted when lowered, to engage the top of said hand-wheel, a clutch-disk F' on its lower part to engage the disk F, the lower end of shaft G adapted to carry the object to be rotated, a lever to raise and lower said weight and shaft G, and a brake, substantially as herein specified.

694,699. ART OF REFINING COMPOSITE METALS. TITUS ULKE, Sault Ste. Marie, Canada. Filed Jan. 11, 1902. Serial No. 89,376. (No specimens.)

Claim.—1. The process of refining nickeliferous-copper material which consists in electrolytically depositing the copper from an acid solution of such material with an anode of the same material; periodically withdrawing a portion of the electrolyte as it becomes poorer in copper and richer in nickel, separating the copper and nickel salts contained in the withdrawn electrolyte; electrolytically depositing the nickel from a non-acid bath of the nickel salt by the use of an insoluble anode; periodically withdrawing and concentrating portions of the impoverishing nickel-bath, and periodically restoring to the copper and nickel baths respectively, the copper and nickel salts obtained from the withdrawn solutions, substantially as described.

2. The circular process of electrolytically refining nickeliferous-copper material, which consists in depositing copper from an acid solution of that material with an anode of the same; periodically withdrawing from circulation an amount of the electrolyte containing the same amount of nickel as is dissolved at the anode; replacing that amount by copper by adding copper sulfate, so as to keep up the normal strength of the copper electrolyte, and recovering by electrodeposition the nickel from the solution thus withdrawn by passing a suitable current from anodes of lead to suitable cathodes through a heated non-acid solution of the nickel sulfate first recovered from the withdrawn solution.

3. The process of recovering the copper from nickeliferous-copper material, consisting in dissolving such material, cast into anodes, simultaneously electrodepositing copper and regularly withdrawing a portion of the copper electrolyte containing an amount of nickel substantially equal to the amount of nickel dissolved at the anode, and regularly replacing the withdrawn solution by a copper-sulfate solution, free from nickel, containing copper in the same proportion as the original electrolyte, obtained from the withdrawn solution, so as to maintain the electrical and chemical conditions of the copper deposition substantially constant.

4. The process of electrorefining nickeliferous-copper material consisting in bringing this material into solution, electrolytically recovering copper from such solution while substantially maintaining the normal composition of the electrolyte, withdrawing a portion of such electrolyte for the separation of its contained metals, recovering from it the nickel, and adding the remaining copper salt or solution, now free from nickel, to the original copper electrolyte, so as to substantially maintain its normal strength.

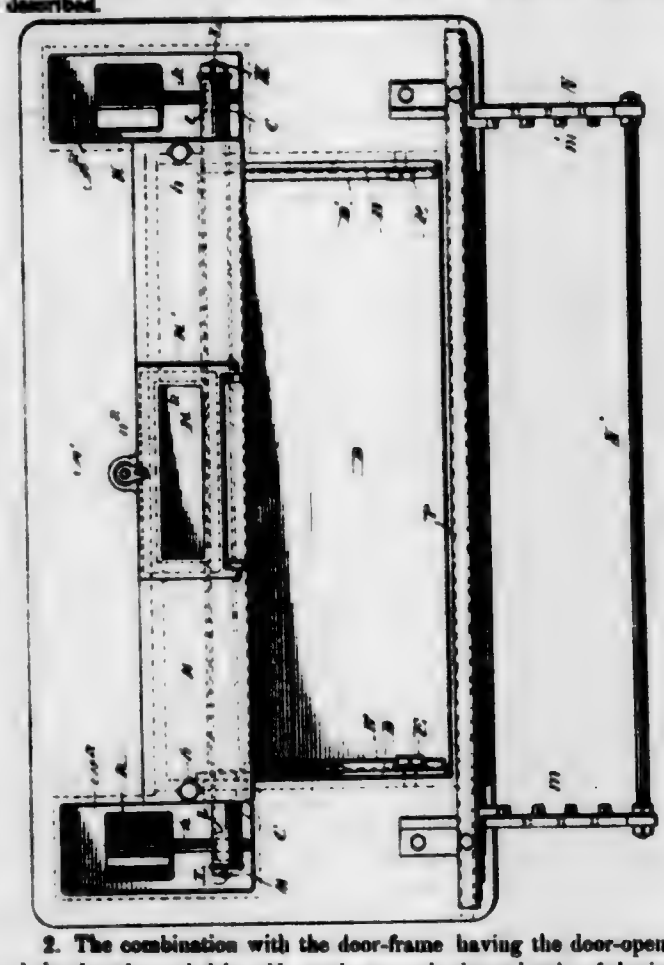
5. The process of refining nickeliferous-copper material consisting in bringing such material into solution, electrolytically recovering the contained copper while maintaining substantially constant conditions, withdrawing a portion of the electrolyte, separating the metals contained in the latter, returning the copper thus obtained as salt or solution to the original copper electrolyte, and electrolytically depositing the nickel separated as salt or solution, from its solution, while maintaining substantially the normal composition of the nickel electrolyte by the regular addition of nickel salt or solution obtained from the above withdrawn copper electrolyte and from the withdrawn nickel electrolyte.

6. The process of electrodepositing nickel with anodes of lead from a non-acid solution of nickel.

7. The process of electrodepositing nickel with anodes of lead from an ammoniacal solution of nickel.

694,700. OVEN-DOOR. FRANK H. VAN HOUTEN, Fishkill-on-the-Hudson, N. Y., assignor to Dutchess Tool Company, Fishkill-on-the-Hudson, N. Y., a Corporation of New York. Filed Oct. 30, 1901. Serial No. 80,560. (No model.)

Claim.—1. The combination with the door-frame having the central door-opening with the recesses in said frame at each side of said opening, of the jamb-pieces having projections extending into said recesses, a door journaled in said projection of the jamb-pieces and a removable front plate having a central window and closing said recesses and the space above the door, whereby by the removal of said front plate the door and working parts may be removed without disturbing the frame; substantially as described.



2. The combination with the door-frame having the door-opening, and the door journaled in said opening on a horizontal axis, of the jamb-pieces against which the door rests when closed, adjustably mounted on the sides of the frame whereby they may be independently adjusted to compensate for warping or winding of the door; substantially as described.

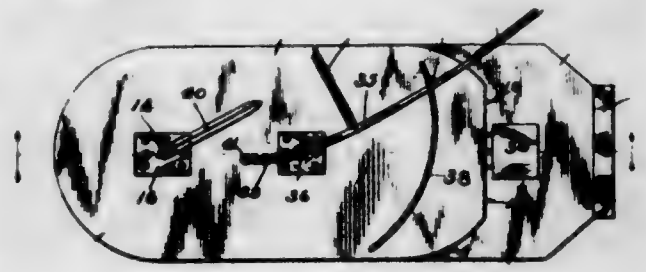
3. The combination with the door-frame having the door-opening and door journaled in said opening, of the jamb-pieces journaled on an axis coincident with the axis of the door and adjustably connected with the frame at their outer ends whereby they may be set to compensate for the warping or winding of the door; substantially as described.

4. The combination with the door-frame having the door-opening, and the jamb-pieces having hubs at the upper ends seating in the frame and means for adjustably connecting the lower ends of the jamb-pieces to said frame, of the door and a shaft on which it is mounted passing through the hubs of the jamb-pieces whereby the door and jamb-pieces may be turned about a common axis; substantially as described.

5. The combination with the door-frame having the central door-opening, chambers at each side thereof and recesses in the walls between said opening and chambers and the jamb-pieces having hubs projecting into said recesses and adjustably connected with the frame at the lower ends, of the shaft projecting through said hubs into the chambers, the door secured to the central portion of the shaft, the counterweights secured to the ends of the shaft in the chambers, and the front plate removably mounted on the frame and closing said recesses and the portion of the door-opening above the shaft; substantially as described.

6. In an oven-door, the combination with the door mounted on a tubular shaft, of counterweights for the door mounted on stems projecting transversely through the ends of the shaft, the screw-bolts surrounding said stems within the shaft and the nuts on said bolts and bearing against the ends of the shaft for locking the stems and weights in adjusted position; substantially as described.

694,701. ANIMAL-TRAP. ELMER D. VANTYLE and OMER V. VANTYLE, Lebanon, Ind. Filed Oct. 31, 1901. Serial No. 80,582. (No model.)



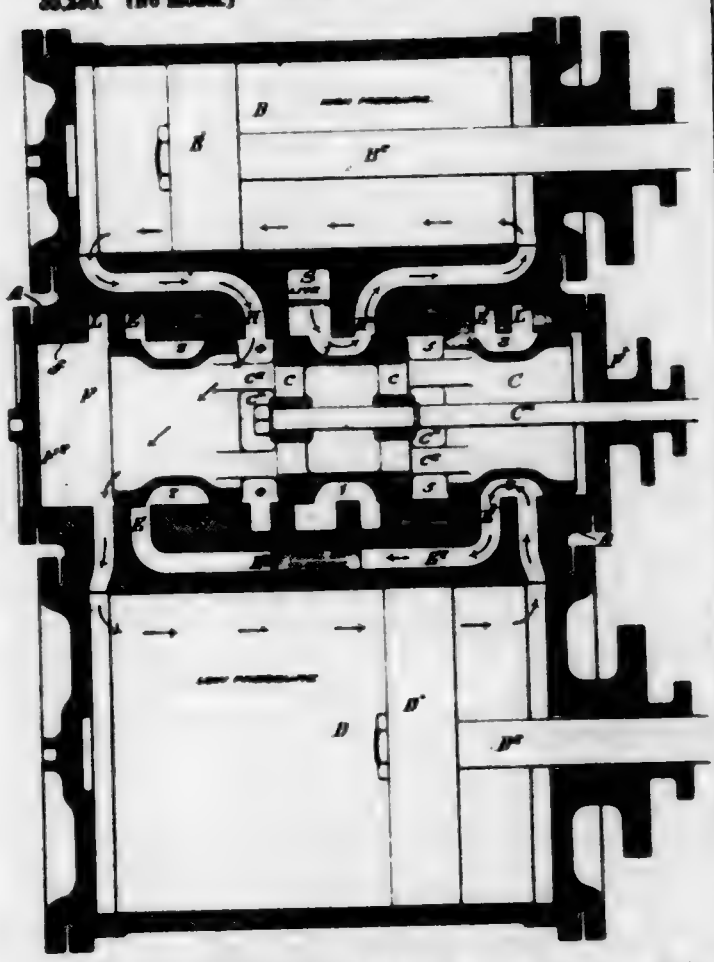
Claim.—1. The combination, in an animal-trap, of a suitable frame, a crank-shaft, a suitable driver connected to and operating to drive said crank-shaft, a disk-like detent also mounted on said shaft, a pivoted pawl adapted to engage with said detent, means for normally holding said pawl into engagement, impaling knives or spears operated by said crank-shaft, a bait-carrying part arranged in front of said knives or spears, and connections running therefrom to the pawl, whereby pressure on said bait-carrying part will operate to disengage the pawl and permit the crank-shaft to be given a single revolution under the impulse of the driver, said pawl being caused to reëngage with said detent and stop the motion of the mechanism at the end of such single revolution, substantially as set forth.

2. The combination, in an animal-trap, of impaling knives or spears, suitable mechanism for driving the same, and a sweep whose path of motion is in front of the knives or spears and which is connected to and operated by the same mechanism, whereby the animal is first impaled and killed, and the carcass then thrown out of the way as the trap resets for subsequent operations, substantially as set forth.

3. The combination, in an animal-trap, of impaling knives or spears, a crank-shaft for reciprocating the same, a motor for giving said crank-shaft a number of revolutions after one preparation, a detent and pawl adapted to stop the motion of said shaft at the end of each revolution, a bait-carrying part, connections from said bait-carrying part to said detent-and-pawl device whereby the latter is caused to operate upon a movement of the former, and a sweep whose path of motion is in front of the knives or spears and which is operated by the crank-shaft, substantially as set forth.

4. The combination, in an animal-trap, of a suitable device for striking and killing the animal, a crank-shaft by which said devices are driven having an arm extending out therefrom, a sweep pivoted to the frame of the trap whose path of movement is in front of the animal-killing devices and which is provided with a projection extending into the path of the arm on the crank-shaft, which is thus enabled to move it in one direction, and a spring connected to said sweep and adapted to move it in the opposite direction, substantially as set forth.

694,702. COMPOUND ENGINE AND VALVE THEREFOR. SAMUEL M. VAUCLAIN, Philadelphia, Pa., assignor to The Firm of Burnham, Williams & Company, Philadelphia, Pa. Filed Nov. 2, 1900. Serial No. 35,220. (No model.)



Claim.—1. The combination of high and low pressure cylinders, with a valve-chest having a central port connected to a series of steam-supply, ports on each side of the central port communicating with the high-pressure cylinder, ports at each end of the chest communicating with the low-pressure cylinder, ports adjacent to the low-pressure-cylinder ports, communicating with an exhaust-passage, a valve consisting of three annular sections provided with passages in their external surfaces, said sections being rigidly connected to the valve-rod, having passages through them and annular openings between them, said openings being in communication with each other and with both ends of the valve-chest through the passages in the interior in the said sections of the valves, substantially as described.

2. The combination of high and low pressure cylinders having a valve-chest, a central port in said chest connected to a source of steam-supply, ports on each side of the central port communicating with the high-pressure cylinder, ports at each end of the chest communicating with the low-pressure cylinder, ports adjacent to the low-pressure-cylinder ports, communicating with an exhaust, a valve consisting of a cylindrical section, having fixed to it a valve-rod, said section having an annular depression in its external surface a similar cylindrical section on each side of and similar to the first section held to the same and supported independently of the valve-rod by longitudinal ribs, said sections also having annular depressions in their external surfaces, all of the said sections being hollow and thereby allowing free passage of fluid from end to end of the valve and also to the interior of said sections from the space between the same, substantially as described.

694,708. PADLOCK. HENRY S. VOSBURY, New Britain, Conn., assignor to the Russell and Erwin Manufacturing Company, New Britain, Conn. Filed July 17, 1900. Serial No. 23,925. (No model.)



Claim.—1. The combination of the slotted key-hub, with the tumbler concentrically mounted thereon and slotted from its periphery inwardly, and the shackle having a heel consisting of a body portion to one side of the plane of the said tumbler, and a side projection on the broad side of the said body portion that serves as a fence and lies in the plane of the said tumbler for reacting therewith by passing in between the two walls of the slot in the said tumbler while the body portion of the heel swings along by the broad side of the said tumbler, whereby both the fence and body portion of the heel come within the circle described by the periphery of the said tumbler, substantially as described.

2. The combination of the case with the slotted key-hub, the slotted tumbler concentrically mounted on the said key-hub, the shackle having a fence on its heel for reacting with the said tumbler, and a spring having one part acting on the said case and another part acting on the said tumbler with a constant tendency for normally holding the said tumbler in its locking position, substantially as described.

3. The combination of the shackle having a fence on its heel, with the tumbler having a slot for said fence extending from its periphery inwardly, one wall of the said slot being on the arc of a circle of about the same radius as the outer corner of the shackle-heel 7, and the other wall of the said slot being on the arc of a circle of which the axis of the key is the center, and a spring acting on the said tumbler for normally holding it in the locking position, substantially as described.

4. The combination of the slotted key-hub with the slotted tumbler concentrically mounted thereon, the dog 6 with a tail extending toward the said key-hub for being acted upon by a key-bit, and the shackle having a nose for engaging the said dog and a heel having a fence for acting in connection with the said tumbler, substantially as described.

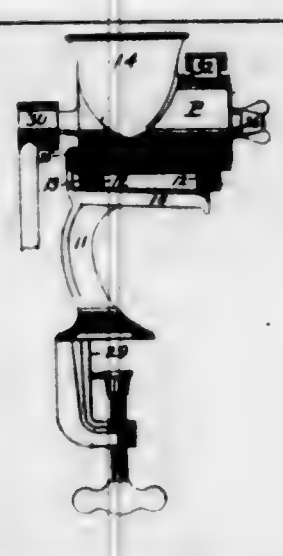
5. The combination of the slotted key-hub, with the slotted tumblers mounted concentrically thereon, the ward-plates 16 and 17 between the said tumblers, the dog 6 with its tail extending between the said ward-plates to a position adjacent to the said key-hub, and the shackle having a hooked nose for engaging the said dog and a heel with a fence for acting in connection with the said tumblers, substantially as described.

694,704. MEAT-CUTTER. HENRY S. VOSBURY, New Britain, Conn., assignor to the Russell and Erwin Manufacturing Company, New Britain, Conn. Filed Jan. 21, 1901. Serial No. 44,038. (No model.)

Claim.—1. A meat-cutter case having a drip-trough at its crank end leading to the delivery end of the case, substantially as described.

2. A meat-cutter case divided longitudinally and vertically into halves and provided with a drip-trough extending from the crank end longitudinally along the under part of one half to the delivery end, substantially as described.

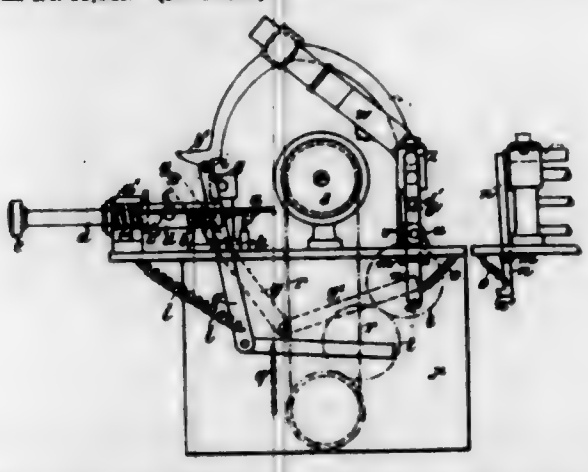
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the upper portion of the barrel and a threaded portion below the same, with a cylinder screwed onto said threaded portion of the barrel and forming a chamber surrounding the upper portion of the barrel, through which chamber the waste water is caused to flow, substantially as specified.

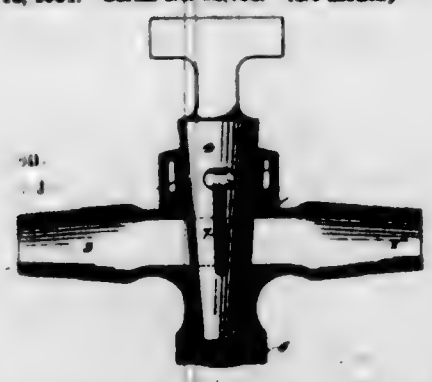
4. The combination of a cock or valve having a drainage-opening in the upper portion of the barrel and a threaded portion below the same, with a cylinder screwed onto said threaded portion of the barrel and having a contracted upper portion bearing upon the stem or plug above the top of the barrel, said cylinder forming a chamber surrounding the upper portion of the barrel through which chamber the waste water is caused to flow, substantially as specified.

694,705. AUTOMATIC RELEASING MECHANISM FOR PHONOGRAPHS, &c. JULIUS WALL, Berlin, Germany. Filed Nov. 9, 1900. Serial No. 35,946. (No model.)



Claim.—In a phonograph, a draw-bar, a lever adapted to be operated when said draw-bar is pulled in one direction, an arm adapted to be elevated by said lever, a sound box or carrier adapted to descend when said lever is operated, a clockwork mechanism adapted to be set in operation when the arm is elevated, a driving-worm and a drum adapted to be set in motion by the clockwork, a coupling means adapted to connect the sound-box carrier to said driving-worm when the carrier descends, a record secured to the drum and adapted to be engaged by the sound-reproducing mechanism of the sound-box, a hook adapted to retain the lever and its arm in operative position, a stop traveling with the sound-box carrier and adapted to shift said hook at the completion of the longitudinal movement of the carrier, and a spring adapted to return the lever and its arm to normal inoperative position and to thereby elevate the sound-box carrier away from the drum and record.

694,706. STOP-VALVE. JAMES WALSH, Jr., Philadelphia, Pa. Filed Nov. 18, 1901. Serial No. 82,736. (No model.)

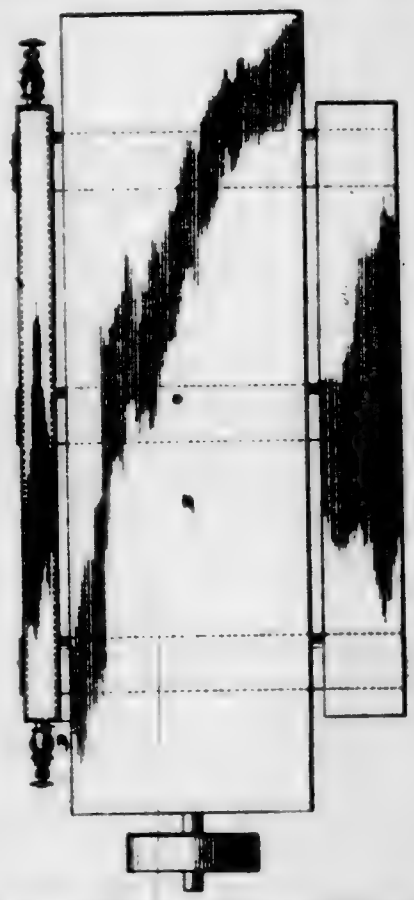


Claim.—1. A cock or valve having a drainage-opening in the upper portion of the barrel and having a cylinder surrounding said upper portion of the barrel and forming with the same a chamber which receives the waste water from the drainage-opening, and causes the same to wash the projecting portion of the plug or stem of the cock, substantially as specified.

2. The combination of a cock or valve having a barrel with drainage-opening therein, with a cylinder surrounding said barrel and having a bearing upon the plug or stem of the cock above the barrel, said cylinder forming, with the barrel of the cock, a chamber through which the waste water is caused to flow, substantially as specified.

3. The combination of a cock or valve having a drainage-opening in

694,707. CIRCULATING-BOX FOR PULP-SCREENS. LUKE WHALLEY, Watertown, N. Y. Filed Aug. 7, 1901. Serial No. 71,262. (No model.)



Claim.—1. The combination with a screen for paper-making machines, of a circulating-box in communication therewith, a perforated pipe leading through said box, and valves in said pipe.

2. A circulating-box for paper-making screens, having a pipe extending therethrough, said pipe perforated for the discharge and distribution of its water throughout the interior of the box, and valves in each end of the pipe.

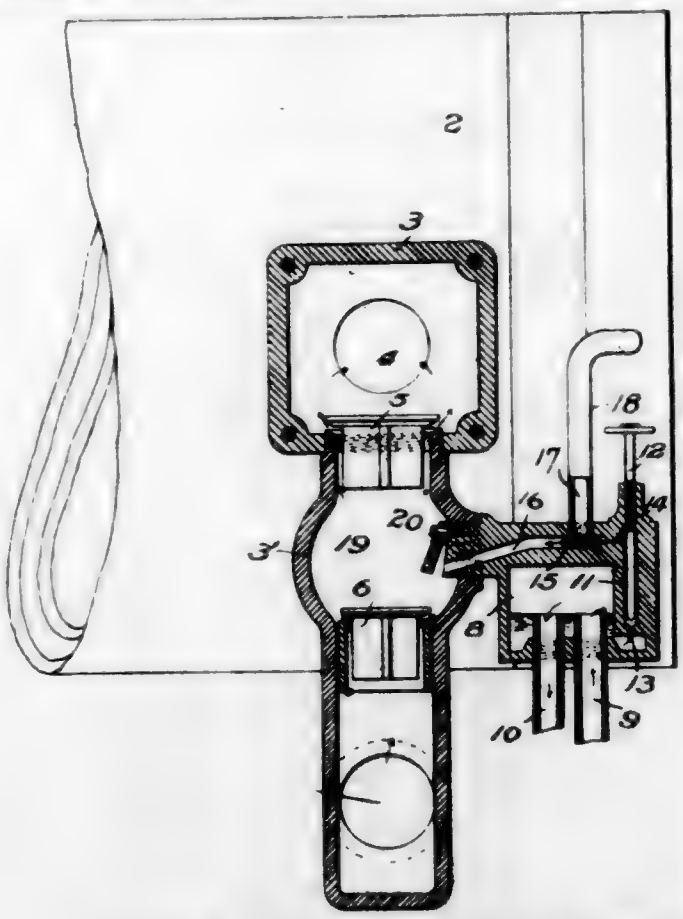
694,708. VAPORIZER FOR EXPLOSIVE-ENGINES. CLARENCE O. WHITE, Minneapolis, Minn., assignor of one-half to Edward J. Kimball, Minneapolis, Minn. Filed Feb. 11, 1901. Serial No. 696,912. (No model.)

Claim.—1. In a vaporizer for an explosion-engine, the combination, with the cylinder, of the mixing-chamber 19, provided with the air-inlet in its lower part and having in its upper part a port leading into said cylinder, valves provided in said inlet-opening and said port, to be closed by back pressure from said cylinder, the valve of said inlet being smaller than of said port, the overflow-reservoir 8, the gasolene-inlet, and the overflow-pipes connected therewith, the valve-controlled upwardly-extending duct in said reservoir, the horizontally-extending mixing-duct 16, also therein and larger than said gasolene-duct, said mixing-duct communicating with said chamber 19, as and for the purpose specified.

2. The combination, with the valve-chamber provided with a back-check air-valve, of the gasolene-reservoir wherein the gasolene is maintained at an even level, a duct 11 extending upwardly therefrom, a valve therein, a vaper-duct 16 connecting the same with said valve-chamber, and a transverse air-opening in said vaper-duct adjacent to the discharge-point of the duct 11 from said reservoir, said vaper-duct having a downwardly-extending portion intermediate between the reservoir-duct and said valve-chamber, and provided with a back-check valve, substantially as described.

3. The combination, of the valve-chamber provided with the back-check valve 6 and having the air-inlet opening 7, with the reservoir 8, having inlet and outlet pipes 9 and 10, and also provided with the ducts

11 and 14, the horizontal nozzle 15, the vapor-duct 16 into which the same projects, and said vapor-duct having a back-check valve and being provided with an air-opening 17 opposite said nozzle through which a small quantity of air is admitted for initial mixture with the liquid drawn from said duct 14, substantially as described.



4. In a vaporizer for an explosion-engine, the combination, with the cylinder, of the mixing-chamber provided with the air-inlet in its lower part and having in its upper part a port leading into said cylinder, valves 5 and 6 provided respectively in said port and said inlet-opening to be closed by back pressure from said cylinder, the reservoir 8, the gasolene-inlet, the duct 11 communicating with said reservoir, the horizontal duct 14 communicating with said duct 11 the mixing-duct 16, the air-inlet opening 17 leading into said duct 16, and the gravity-valve 20 provided in the space between said port and said inlet-valves and adapted to normally close said duct 16, substantially as described.

694,709. STEAM-ACTUATED VALVE FOR ENGINES AND MOTORS. WILLIAM A. WOODBRIDGE, Gateshead, England, assignor to Clarke, Chapman and Company, Limited, Gateshead, England. Filed Sept. 21, 1901. Serial No. 76,113. (No model.)

Claim.—1. Means for distributing and controlling the steam in a motor, comprising a main valve and an auxiliary valve placed in line with each other, said auxiliary valve being so arranged as to cut off the steam-supply at a fixed point of the stroke of the motor-piston as set forth.

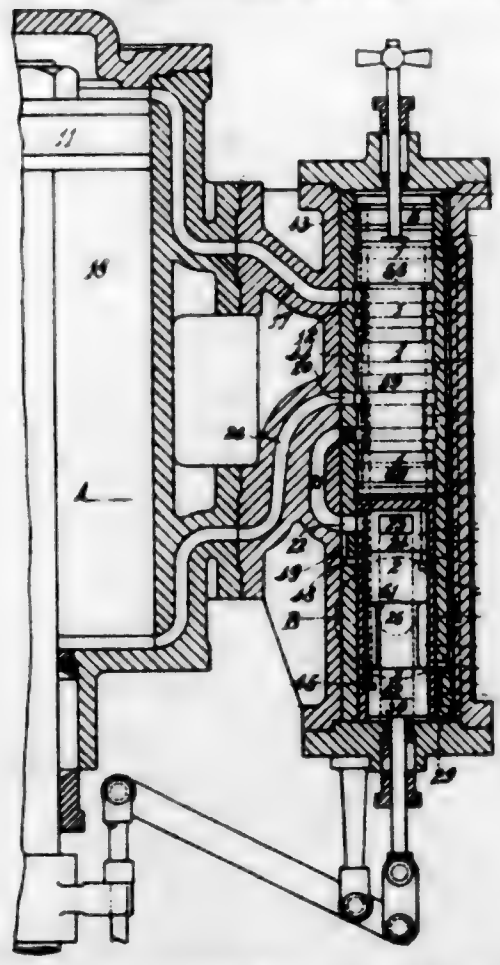
2. Means for distributing and controlling the steam in a motor, comprising a main valve and an auxiliary valve, valve-chambers therefor, and a main steam-inlet and a main steam-outlet, said auxiliary valve controlling said inlet and outlet, as set forth.

3. Means for distributing and controlling the steam in a motor, comprising a main valve and an auxiliary valve placed in line with each other and working in a liner divided into two valve-chambers, passages connecting the steam-inlet and exhaust-outlet with the auxiliary-valve chamber and the auxiliary-valve chamber with the main-valve chamber, said auxiliary valve directly controlling said inlet and outlet, as set forth.

4. Means for controlling and distributing the steam in motors comprising two valve-chambers in line with each other and contained within the same liner, a main distributing-valve in one of said chambers, an auxiliary valve in the other of said chambers, adapted to operate said main distributing-valve by controlling the passage of steam thereto and to directly control the main steam inlet and outlet, as set forth.

5. Means for controlling and distributing the steam in motors comprising two valve-chambers in line with each other and contained within the same liner, a main distributing-valve in one of said chambers, an auxiliary valve in the other of said chambers, adapted to operate said main distributing-valve by controlling the passage of steam thereto and to directly control the main steam inlet and outlet, and means for moving said auxiliary valve, as set forth.

6. Means for controlling and distributing steam in motors comprising two valve-chambers in line with each other, a main distributing-valve in one of said chambers, an auxiliary valve in the other of said chambers, a steam-supply pipe, and means whereby steam can be admitted to either end of the cylinder direct from the steam-supply pipe, as set forth.



7. Means for controlling and distributing steam in motors comprising two valve-chambers in line with each other, a main distributing-valve in one of said chambers, an auxiliary valve in the other of said chambers, a steam-supply pipe, and means whereby steam can be admitted to the exhaust side of the motor-piston after the exhaust-outlet has been closed, as set forth.

8. Means for controlling and distributing the steam in motors comprising two valve-chambers in line with each other and contained within the same liner, a main distributing-valve in one of said chambers, an auxiliary valve in the other of said chambers, a port within said auxiliary-valve chamber adapted to be uncovered by said valve should the main piston exceed its normal stroke and admit live steam to the exhaust side of the piston, as set forth.

9. Means for distributing and controlling the steam in a motor, comprising a main valve and an auxiliary valve, valve-chambers therefor, passages connecting said valve-chambers together, and connections between some of said passages and the main steam-supply, adapted to allow steam to pass directly to either end of the motor-cylinder, as set forth.

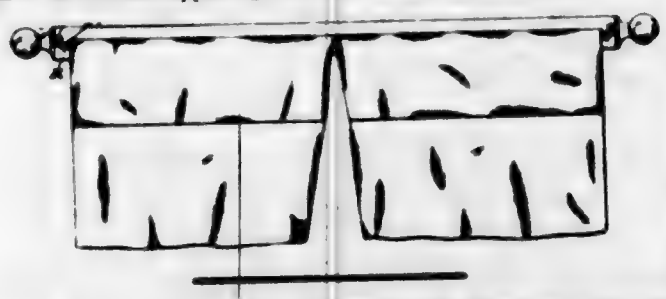
10. Means for controlling the passage of steam to and from a motor-cylinder, comprising a main-valve chamber, a main valve therein, an auxiliary-valve chamber, an inlet for steam thereto, an exhaust-outlet therefrom, passages connecting the ends of the motor-cylinder with the auxiliary-valve chamber, an auxiliary valve in said chamber, and means for moving said auxiliary valve, so as to put the ends of the said cylinder alternately in communication with the main steam inlet and outlet as set forth.

11. Means for controlling the passage of actuating fluid to and from a motor-cylinder comprising two valve-chambers, a main piston-valve, having two annular chambers, in one of said valve-chambers, an auxiliary piston-valve having a single annular chamber in the other of said valve-chambers, an inlet for steam, an exhaust-outlet, a permanent communication between said steam-inlet and the annular chamber of the auxiliary valve, passages adapted to form a communication between the annular chamber of said auxiliary valve, the auxiliary-valve chamber and the ends of the motor-cylinder, and means for moving said auxiliary valve so as to put the ends of said cylinder alternately in communication with the main steam inlet and exhaust, as set forth.

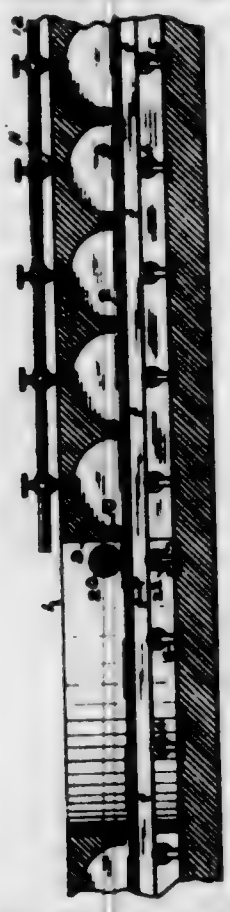
694,710. CURTAIN-POLE. DELLNER L. ALTMAN, Pittsburg, Pa. Filed Nov. 1, 1901. Serial No. 80,720. (No model.)

Claim.—A curtain-pole consisting of two semicylindrical sections

hinged together, the upper of said sections being cut away along its front edge to receive the curtain, hooks carried by the upper section and eyes secured to the lower section to receive said hooks to fasten the sections together at the front, a curtain-supporting rod adapted to have the curtain wrapped thereon, caps engaging the ends of said pole and provided with a concave outer end to receive the curtain-knobs, and screws secured in said knob and concave ends of the caps, said screws engaging into the ends of the curtain-supporting rod, substantially as described.



694,711. GLASS FLATTENING AND ANNEALING APPARATUS. JAMES A. ANDERSON and CLARENCE M. HOLLINGSWORTH, Ottawa, Ill., assignors of one-third to John R. Johnston, Hartford City, Ind. Filed Jan. 21, 1901. Serial No. 44,120. (No model.)



Claim.—1. The combination of an annealing-furnace, a conveyer passing therethrough with flattening tables or stones on it, and a roller mounted immediately over the conveyer whereby the glass is pressed and flattened as it passes under the roller.

2. The combination of an annealing-furnace, a conveyer passing therethrough with flattening tables or stones on it, and a pair of bearing-posts extending up at each side of said conveyer, and a roller mounted in said bearing-posts immediately over the conveyer, whereby the glass will be pressed and flattened as it passes under the roller.

3. The combination of an annealing-furnace, a conveyer passing therethrough with flattening tables or stones on it, and a roller mounted immediately above the conveyer whereby the glass will be pressed and flattened as it passes beneath the roller, and means for driving the conveyer and roller at the same surface speed.

694,712. STOVE. HENRY R. ATTENBERRY, Springfield, Ill. Filed June 13, 1901. Serial No. 64,430. (No model.)

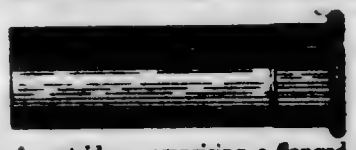
Claim.—1. In a stove, a grate having a perforated dome-shaped upper part, a central air-chamber and an imperforate central part provided with an imperforate circumferential ledge; in combination with an outer shell, an inner shell and an imperforate fire-pot supported on said inner shell and having an internal imperforate ledge on which said grate is supported, as set forth.

2. In a stove, a grate having a dome-shaped upper part, a central air-chamber, a middle part provided with a circumferential ledge and an extension below said ledge adapted to receive an instrument by which the grate may be centered on its support; in combination with an outer shell, an inner shell and a fire-pot supported on said inner shell and having an internal ledge on which said grate is turnable, as set forth.



3. In a stove the combination of an outer shell having a smoke-outlet, a downwardly-tapering inner shell having an opening in juxtaposition to said smoke-outlet, a damper in the opening of the inner shell, a downwardly-tapering imperforate fire-pot nesting in said inner shell and having an internal imperforate ledge and a perforated dome-shaped grate having a central air-chamber, also having a circumferential ledge seating on the ledge in the fire-pot, the downward communication between said fire-pot and the space between said shells being solely through the central air-chamber of said grate, as set forth.

694,713. CARTRIDGE. CHARLES A. BAILEY, Cromwell, Conn. Filed Oct. 22, 1901. Serial No. 79,596. (No model.)



Claim.—1. A cartridge, comprising a flanged cap or head, a tube inserted therein, and a breech-piece having a portion of its periphery embedded into the tube and projected into the flange of the cap or head, substantially as shown and described.

2. A cartridge, comprising a flanged cap or head, a tube inserted therein, and a breech-piece having spurs or points embedded in the tube and aforesaid flange of the cap or head, substantially as shown and described.

3. In a cartridge, the combination with the cap or head having a flange forming an annular recess, of the tube crimped inward at its inner end, and a cup-shaped disk bulged centrally and having a portion of its periphery embedded in the crimped end of the tube and projected into the aforesaid recess of the cap or head, substantially as shown and described.

4. In a cartridge, the combination, of the cap or head having a flange forming an annular recess, a tube having a crimped end inserted in the cap or head, and a cup-shaped disk having points at its edge which are forced into the tube and recess, substantially as shown and described.

5. In a cartridge, the combination, of a cap or head having a flange forming an annular recess, a tube having a crimped end inserted in the cap or head, and a cup-shaped disk bulged centrally and provided at its edge with spurs or points which are forced into the tube and aforesaid recess, substantially as shown and described.

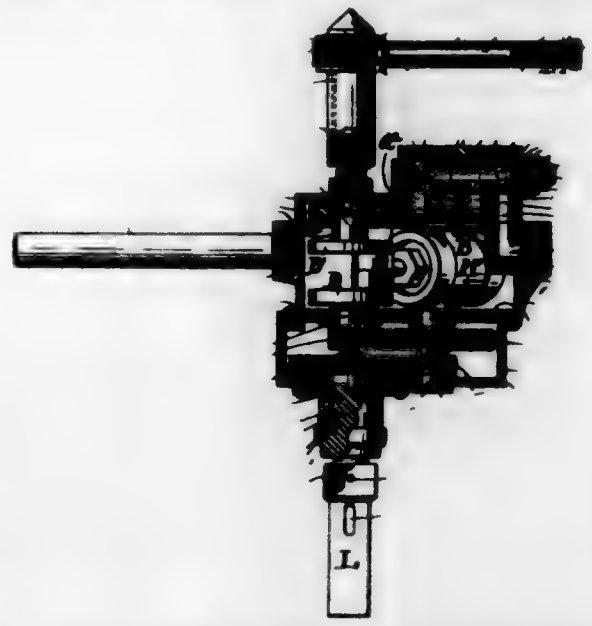
6. In a cartridge, the combination, of a cap or head having a flange forming an annular recess, a tube having a crimped end inserted into the cap or head, and a cup-shaped disk cut away at its edge to form points or spurs which are forced into the tube and aforesaid recess, substantially as shown and described.

694,714. PNEUMATIC DRILL. THOMAS BARROW, Cleveland, Ohio, assignor, by mesne assignments, to Chicago Pneumatic Tool Company, a Corporation of New Jersey. Filed Oct. 29, 1900. Serial No. 34,730. (No model.)

Claim.—1. In a pneumatic tool, the combination of a casing, an engine within the casing adapted to drive the tool, a cover-plate for the casing having valve-passages leading to the engine, a valve-box formed on the outer side of said cover-plate, a hollow valve within said box having an opening from its interior for the admission, and a recess in its exterior, a passage through said cover-plate to said valve-box adapted to be in open communication with the operating fluid, an opening into the interior of the valve in communication with said entrance-opening in both of the operating positions of the valve, substantially as described.

2. In a pneumatic tool, the combination with a casing, an engine within the casing adapted to drive the tool, passages leading to said engine, a rotary valve for controlling said passages, said valve consisting of a hollow barrel having a pair of admission-openings from its interior to its exterior on opposite sides of it and having a pair of recesses also on

opposite sides for connecting the other passage with the exhaust, the position of the admission-opening and the exhaust-recess on the opposite sides of the valve-barrel being reversed, and an opening for the admission of operating fluid to the interior of said valve, substantially as described.



3. In a pneumatic tool, the combination of a driving-engine, an oscillating valve for controlling the direction of operation of said engine, which valve consists of a hollow barrel having a pair of admission-openings through it and exhaust-recesses on its outer surface, one opening and the corresponding exhaust-recess being placed in the barrel in the reversed position from the other opening of its corresponding recess, a circumferential recess in said barrel, an opening from said recess into the interior of the barrel, and a passage-way for operating fluid alining with said last-mentioned recess, substantially as specified.

4. In a pneumatic tool, a casing, an engine within the casing adapted to drive the tool, a valve-seat circular in cross-section, passages leading from said seat to the engine, an exhaust-passage leading from said seat, the ports to said passages in the seat being in the same side of the seat, combined with an oscillating valve occupying said seat and consisting of a hollow barrel having a pair of admission-openings from its interior to its exterior and on its exterior surface exhaust-recesses, each admission-opening and its corresponding exhaust-recess being oppositely arranged longitudinally of the valve from the other admission-opening and its recess, and there being an opening for the admission of operating fluid to the interior of said valve, substantially as described.

5. In a pneumatic tool, a casing, an engine within the casing, passages leading to the engine, a valve-seat with which said passages communicate by port-openings, an exhaust-passage common to both admission-ports and having a port in said seat between the admission-ports, said seat being circular in cross-section, combined with a hollow rotatable plug occupying such seat and having a pair of admission-openings through its wall, one adapted to coöperate with one admission-port in the seat in one position of the valve and the other adapted to coöperate with the other admission-port in the other position of the valve, said plug having exhaust-recesses adapted to overlap the two remaining ports of the seat when either admission-port and the corresponding valve-opening are coupled, said two admission-openings and the corresponding recesses for the two operations being relatively reversed in their longitudinal positions on the valve-body, substantially as described.

6. In a pneumatic tool, the combination of a casing having a cover-plate, an engine within the casing, passages leading through the cover-plate to the engine, a valve-seat on the outer side of the cover-plate with which said passages communicate by port-openings in alinement, an exhaust-passage having a port in said alinement, said seat being circular in cross-section, and a hollow rotatable plug occupying such seat and having a pair of admission-openings through its wall out of alinement both longitudinally and circumferentially, and one adapted to coöperate with one admission-port in the seat in one position of the valve and the other adapted to coöperate with the other admission-port in the other position of the valve, said plug having exhaust-recesses longitudinally alined with its admission-openings and adapted to overlap the two remaining ports when either admission-port and the corresponding valve-opening are coupled, said two admission-openings and the corresponding exhaust-recesses being in reversed alinement, substantially as described.

7. In a pneumatic tool, the combination of a casing having a cover-plate, an engine within the casing, passages leading through said cover-plate to the engine, a valve-box on the outer side of the cover-plate with which said passages communicate, said passages terminating in a row with an exhaust-passage in the side of the box adjacent to the cover, said box having its interior circular in cross-section, a hollow rotatable plug occupying such interior and having a pair of admission-openings from its interior to its exterior on opposite sides of it and having a pair of recesses also on opposite sides for connecting the other passage with the exhaust, said admission-opening and exhaust-recess being alined on each side of the valve but said parts being in reversed relative position on opposite sides, there being an opening for the admission of operating fluid to the interior of the valve, substantially as described.

8. In a pneumatic tool, in combination, an engine, a casing inclosing said engine, said casing consisting of a box with a cover-plate therefor, valve-passages through the cover-plate leading to the engine-parts, a valve-box on the outer side of the cover-plate for controlling said passages, a valve in said box, a main admission-passage through the cover-plate from the valve-box to the inner face of the cover-plate, and an admission-passage in the casing-box itself alining with such passage in the cover-plate and opening outward, and means for securing an admission-pipe at the said outward opening, substantially as described.

9. A pneumatic tool including an engine and a spindle adapted to be rotated thereby and having a discharge-passage from the engine adapted to direct the discharged air toward the free end of the spindle, substantially as described.

10. In a pneumatic tool, a casing consisting of a box and a cover-plate therefor, an engine within the box adapted to drive the tool, a valve on the outer side of the cover-plate, admission and exhaust passages leading from said valve through the cover-plate to the engine, a main admission-passage leading to said valve, and a pair of exhaust-passages branching from the valve and leading to the edges of the cover-plate on opposite sides of the tool and turning across such edges in the direction pointing toward the tool-point, substantially as described.

11. In a pneumatic tool, the combination of a casing consisting of a box and a cover-plate, oscillating engines within such casing pivoted on trunnions taking into the box and cover-plate, a driven shaft and connecting mechanism between it and said engines, the trunnions of the engines occupying bushings carried by the casing, a set-screw passing axially through one of these bushings, and an interposed plate between the set-screw and the end of the trunnion, substantially as described.

12. In a pneumatic tool, the combination of a casing, oscillating engines within the casing pivoted on trunnions and having their pistons operating on the same crank-shaft, said crank-shaft extending outside the casing, a box secured to the casing and containing reducing-gearing, a driven shaft extending outside of the box and connected by such gearing within the box with the main shaft, bushings in which the trunnions of the oscillating engines rest, which bushings extend through the base of the casing outside of the box containing the reduced gearing, and means carried by said bushings for adjusting the engines toward the opposite side of the casing, whereby such adjustment may be made from the outside with the parts in place, substantially as described.

694,715. METAL CAR. ARTHUR R. BELLOWS, Pittsburg, Pa. Filed Mar. 28, 1900. Serial No. 10,468. (No model.)

Claim.—1. A car having a longitudinal center sill extending throughout its body portion, and floor portions inclined transversely between the center sill and the car sides, and having doors forming parts thereof, said parts forming the bottom framework of the car, the car being open and unobstructed below the doors to allow dumping at points between its sides, substantially as described.

2. A car having a longitudinal center sill, and a transversely-inclined floor, constituted of a door and a fixed portion, and diaphragms 10 interposed between a fixed portion of the inclined floor and an upright part of the car structure; substantially as described.

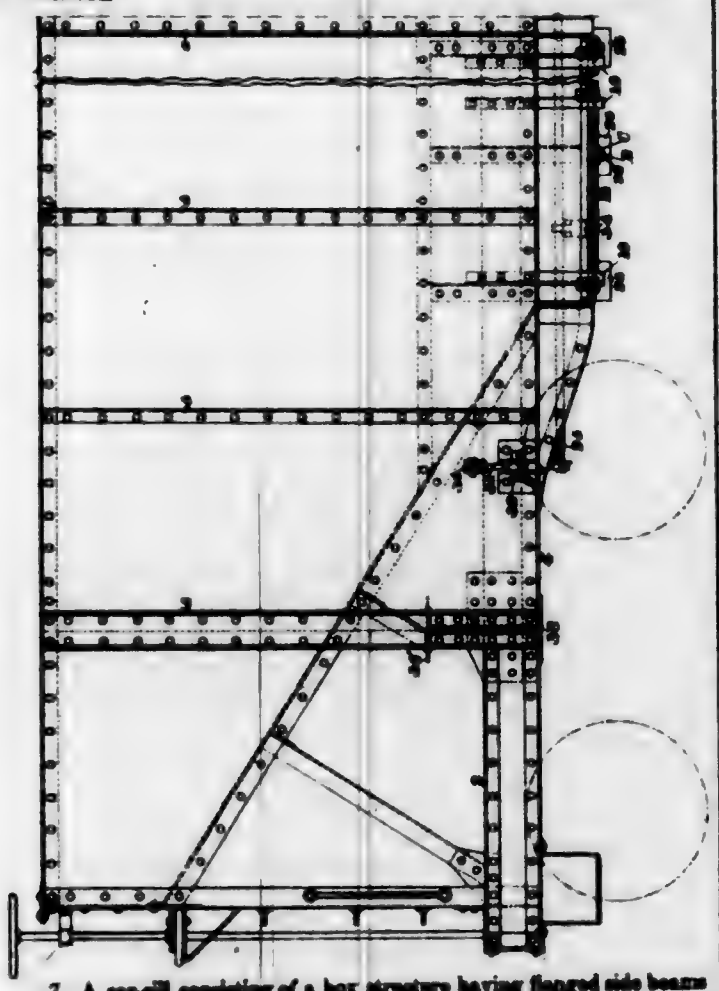
3. A car having a transversely-inclined floor, comprising a door with a fixed portion, said fixed portion being adjacent to the side of the car and extending above the base thereof, and cross ribs or diaphragms interposed between the side of the car and the floor; substantially as described.

4. A car having fixed stationary sides, a longitudinal center sill extending throughout the car-body, and a bottom or floor having oppositely-inclined portions extending from above the base of the sides downwardly to the center sills upon which they are carried, the car sides terminating above the level of the lower part of the center sill; substantially as described.

5. A car having fixed stationary sides, and a longitudinal center sill, extending throughout the car-body, plate-girder side portions, and floor portions inclined in opposite directions from a level above the base of the side of the car down to the base of the center sill and supported on said center sill; substantially as described.

6. A steel car having fixed side portions and a longitudinal center sill extending throughout the car body, continuous plate-girder sides, and floor portions inclined in opposite directions from the stationary sides to

the base of the center sill, and supported on said center sill; substantially as described.



7. A car-sill consisting of a box structure having flanged side beams and a covering-ridge of angle form, said ridge being composed of two flanged parts having their flanges secured together; substantially as described.

8. A car having a center sill with transversely-inclined floors and a needle-beam composed of a web and marginal flanges fixed to the floor and to the sill, and of general triangular form; substantially as described.

9. A car having a center sill with transversely-inclined floors and a needle-beam composed of a web and marginal flanges fixed to the floor and to the sill, and of general triangular form, and a diaphragm within the sill at or about the plane of the needle-beam; substantially as described.

10. A car having a center sill and sides, the body of said sill extending below the level of the sides and floors inclining transversely upwardly from the center sill at each side; substantially as described.

11. A car having continuous metal plate sides, a longitudinal center sill extending throughout the body of the car, and floors inclining transversely and upwardly from the center sill to the sides, the body of said center sill extending below the level of the car sides; substantially as described.

12. A car having a longitudinal center sill extending throughout its body, and floors inclining transversely and upwardly from the base of said sill to the car sides, at least a part of the center sill being below the lower parts of the car sides; substantially as described.

13. In combination with door mechanism and a car having inclined floor portions at the ends, a cross-link extending under the inclined floor portion to the side of the car, and a connection leading therefrom to the door mechanism; substantially as described.

14. The combination with a car-door and center sill, of a latch arranged within the center sill and adapted to project therefrom to engage the door; substantially as described.

15. The combination of a car-door and the sill, an operating-latch arranged within the sill, and connections extending transversely therefrom to the side of the car; substantially as described.

16. The combination with a car-door, of raising mechanism comprising a shaft extending lengthwise of the car, a lever attached to the shaft, and a link connecting it with the door, said lever extending upwardly when the door is open, the side of said car extending downwardly exterior to the body thereof below the upper end of said lever when the same is raised, affording thereby an open space into which the lever may rise; substantially as described.

17. A car having a longitudinal sill and a body-bolster located over the truck-bolster, said sill being passed through the body mainly below the neutral axis of the latter; substantially as described.

18. A car having a body-bolster located over the truck-bolster and formed with a continuous web plate or plates having a hole cut therein mainly below the neutral axis, and a longitudinal sill passed therethrough; substantially as described.

19. A car having a body-bolster located over the truck-bolster and formed with a continuous web plate or plates, having a hole cut therein mainly below the neutral axis, and a longitudinal sill passed therethrough, said sill being formed of metal pieces with a diaphragm interposed at or near the plane of the bolster to resist compression; substantially as described.

20. A car having a body-bolster located over the truck-bolster and formed with a continuous web plate or plates having a hole cut therein mainly below the neutral axis, and a longitudinal sill passed therethrough, said bolster having a cover-plate at its lower side; substantially as described.

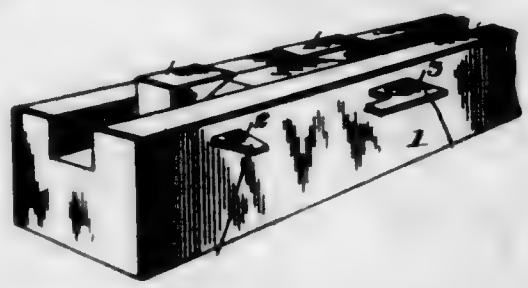
21. A car having a center sill, diagonal braces inclined upwardly therefrom to the sides of the car above their lower ends, and doors hinged at intermediate points of the diagonals, said points being at least as high as the level of the side base-line of the car; substantially as described.

22. A car having a body-bolster located over the truck-bolster and provided with a top flange, a bottom flange, and a continuous web plate or plates arranged to transmit bending strains from the top flange to the bottom flange, said web plate or plates having a hole cut therein, and a longitudinal sill extending through the hole; substantially as described.

23. A steel car, having a longitudinal center sill extending throughout the car-body, and plate-girder sides extending below the level of the top of said center sill; substantially as described.

24. A steel car, having a longitudinal center sill extending throughout the car-body, and continuous plate-girder sides having vertical strengthening members secured thereto, said sides extending below the top of the center sill; substantially as described.

694,716. METALLIC TIE AND RAIL-FASTENER. MATHIAS BERRINGER, Carrick, Pa. Filed Dec. 26, 1901. Serial No. 87,139. (No model.)



Claim.—1. In a metallic tie and rail-fastener, the combination of a metallic tie formed of a channel-bar having wedge-shaped openings therein, a male and female member interlocking with one another, and means extending through said metallic tie and male and female members to securely lock said parts together, substantially as described.

2. In a metallic tie, and rail-fastener, the combination of a metallic tie formed of a channel-bar having openings formed through the web of said channel-bar, interlocking male and female members forming a seat for the base of the rail, and wedge-shaped keys extending through said metallic tie and male and female members to lock the same securely together, substantially as described.

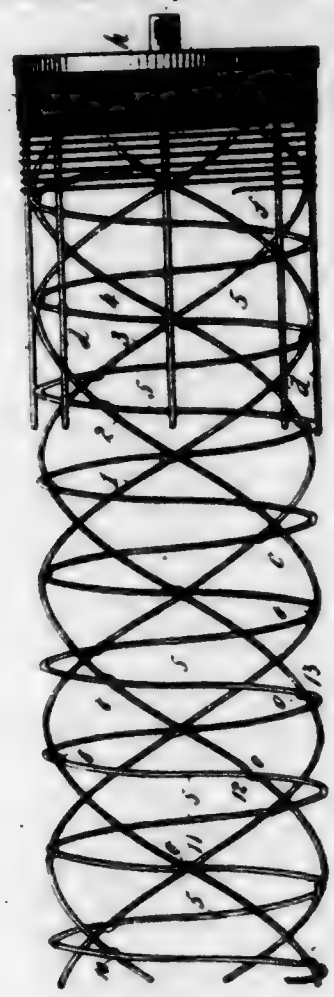
3. In a metallic tie and rail-fastener, the combination of a metallic tie formed of a channel-bar having wedge-shaped openings formed therein extending in opposite directions, a male and female clamping portion interlocking with each other, and means extending through said metallic tie and interlocking members for locking the tie and said interlocking members together, substantially as described.

694,717. DANDY-ROLL. FRANK H. BILLS, Springfield, Mass. Filed Dec. 23, 1901. Serial No. 86,877. (No model.)

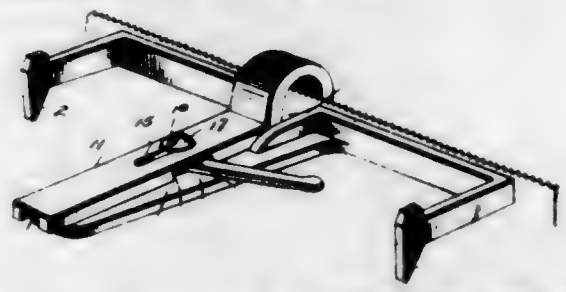
Claim.—1. A supporting structure for a dandy-roll consisting of a series of separated wires running spirally in the same direction from end to end of the roll, and another wire running spirally also in the same direction but with a different pitch or degree of spirality, and intersecting, in contact with, and secured to, each of the first-named series of wires, substantially as and for the purpose set forth.

2. A supporting structure for a dandy-roll consisting of a series of wires 1, 2, &c., running in separated parallel spiral coils in the same direction, and another wire 5 having coils running in the same direction as the first-named wires, but of different frequency or degree of spirality, and intersecting and in contact with the coiled wires of the first series, said wire 5 alternately crossing over and under the other wires, and every wire which is innermost at its place of intersection being formed with the

bend or crimp whereby the major portion of the length of all of the wires are conformable to the surface of a cylinder, substantially as described.



694,718. SAW-CLAMP. AARON T. BEKERD, Petrolia, Pa. Filed Oct. 14, 1901. Serial No. 78,638. (No model.)



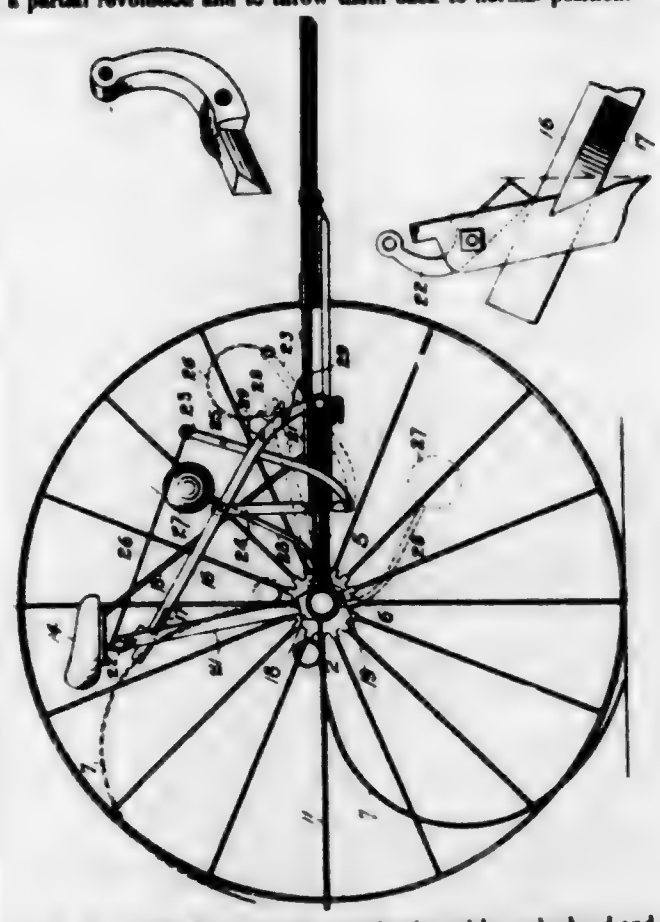
Claim.—1. In a saw-clamp, the combination with a fixed jaw having a recess in its working face and provided with a guide-lug, of a movable jaw having a coacting recess in its working face and provided with a groove to receive said guide-lug, and means for slidably connecting the fixed jaw to the movable jaw, and means for clamping the two jaws together, substantially as set forth.

2. In a saw-clamp, the combination with a fixed jaw having a groove in its working face and provided with a vertically-extending lug and with a stud, of a movable jaw having a coacting recess in its working face and provided with an extension having a notched portion, said extension being provided with a groove to engage the lug, and formed with a circular recess and with a longitudinal opening, a cam-lever journaled upon the stud and a screw extending through the longitudinal opening into the stud for slidably connecting the movable jaw to the fixed jaw, substantially as described.

694,719. SULKY HAY-RAKE. ABNER R. BLAKE, Lamar, Colo. Filed Oct. 9, 1900. Serial No. 32,545. (No model.)

Claim.—1. In a sulky hay-rake, the combination with a rake-head spring rake-teeth connected thereto, and means for locking the rake in operative position, of a counterbalancing device for the spring rake-teeth which is adapted to neutralize the natural gravitation of the spring rake-teeth and thus assist them to rise by their own resiliency to dump the load when released, and means for limiting the movement of the rake-teeth to a partial revolution and returning them back to normal, operative, position after dumping.

2. In a sulky hay-rake, the combination with a rake-head and spring rake-teeth and means for locking the rake in operative position, said rake-teeth being adapted to rise by their inherent resiliency when released, of a weighted arm rigidly connected to the rake-head which is adapted to neutralize the natural gravitation of the rake-teeth and assist them to rise, and a spring adapted to limit the movement of the rake-teeth, in rising, to a partial revolution and to throw them back to normal position.



3. In a sulky hay-rake, the combination with a rake-head and rake-tooth, of a lock-arm connected thereto, a lock-bar on the machine-frame, engaging devices on the arm and bar adapted for interlocking, and a movable member positioned to spring the arm and bar apart laterally and thereby disengage their interlocking devices.

4. In a sulky hay-rack, the combination with a rake-head and rake-tooth, of a lock-arm connected thereto, a lock-bar on the machine-frame, engaging devices on the arm and bar adapted for interlocking, and a wedge adapted for movement between the arm and bar to wedge them apart laterally and cause the engaging devices to become disengaged.

694,720. FIREPROOF CONSTRUCTION. PAUL F. BRANDSTEDT, Washington, D. C. Filed Oct. 30, 1901. Serial No. 80,569. (No model.)



Claim.—1. A fireproof construction, comprising a U-shaped stud having cross-slots in its back portion, and a second U-shaped stud having extensions at one end adapted to pass through the slot in the first stud, and be interlocked therewith, for the purposes described.

2. A sheet-metal stud, comprising a central corrugated body portion, the sides of which are bent back in parallel planes to form lath-receiving surfaces, the extremities of said surfaces having cut-away portions extending lengthwise thereof, whereby to form side extensions, for the purposes described.

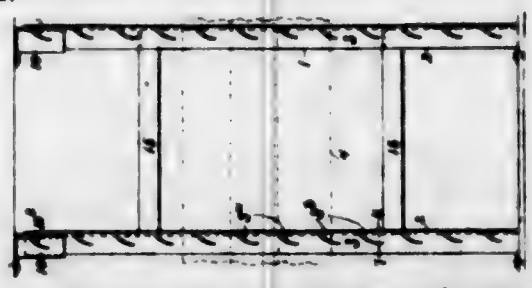
3. A sheet-metal stud, comprising a central corrugated body portion, the sides of which have extensions bent to form parallel lath-receiving faces, and lath-clamps consisting of bendable members, secured to the back of the aforesaid body portion transversely thereof, and with its free ends projected beyond the lath-receiving faces, as set forth.

4. A sheet-metal stud comprising a central corrugated body portion, the sides of which have extensions bent to form parallel lath-receiving faces, the back of the corrugated portion having slots and lath-clamps consisting of bendable strips, adapted to interlock with the slots in the back of the stud-body, and having the ends thereof projected beyond the lath-receiving faces, all being arranged substantially as shown and described.

5. An improved fireproof building construction comprising, in combination, a sheet-metal corrugated stud, the sides of which are bent back in parallel planes, and the back of which has cross-slots, two other studs

having the same cross-sectional shape of the first stud, and having their ends formed with extensions, adapted to pass through the cross-slots in the first stud, and adapted to interlock with each other, substantially as shown and for the purposes described.

694,721. METAL STUDDING OR PARTITION. PAUL BRANDSTEDT, Washington, D. C. Filed June 24, 1901. Serial No. 65,253. (No model.)



Claim.—1. A sheet-metal stud, comprising a central corrugated body portion, the free ends of which are bent back in parallel planes to form lath-receiving surfaces, said surfaces having bendable portions to clamp the laths, for the purposes specified.

2. A metallic stud-partition, comprising vertical U-shaped studs, each having supplemental parallel side members, having lath-clamping members, said U-shaped body having slots, and a brace-stud provided with projecting tongues at the ends to engage the slots in the vertical studs, said vertical studs having means at the opposite ends for attaching to the ceiling or floor, as set forth.

3. As a new article, a metal stud or supporting member, comprising a body portion U-shaped in cross-section, and having its sides bent to form resilient lath-attaching portions, said portions having bendable members adapted to clamp over the laths, for the purposes specified.

4. As a new article, a metal stud or supporting member, comprising a body portion U-shaped in cross-section, its free sides having extensions bent to form opposing parallel sides, said sides having diagonal notches, whereby to provide bendable clamp members, for the purposes specified.

5. A metallic stud consisting of a body, U-shaped in cross-section, the sides of which have extensions bent to form parallel faces, said sides having bendable clamp members, and a supplemental member slidably mounted thereon, having parallel sides provided with lath-clamp portions, said sides having bendable extensions, for the purposes specified.

6. As a new article, a metal stud or supporting member, comprising a main body U-shaped in cross-section, the sides of which are extended and bent to form opposite parallel lath-receiving sides, and a detachable supplemental portion, consisting of a U-shaped portion, the opposite sides of which are slitted longitudinally, said sides having extensions bent to form opposing lath-receiving sides, the lath-receiving sides of the two parts having lath-clamping members, for the purposes specified.

7. In a metallic studding or partition of the character described, the combination with two studs, each formed of sheet metal and consisting of a U-shaped body portion, the sides of which are bent to form opposing parallel sides to form lath-holding surfaces, the cross or base portion of said U-shaped body having slots; of a cross member having tongues to engage and be clamped within the slots of the U-shaped body, and adapted to form a support for a hanger, as set forth.

694,722. MACHINE FOR ROLLING METAL FORMS. CHARLES F. BROOKER, Ansonia, Conn., assignor to the Ose Brass Manufacturing Company, of Connecticut. Filed June 16, 1900. Serial No. 720,269. (No model.)

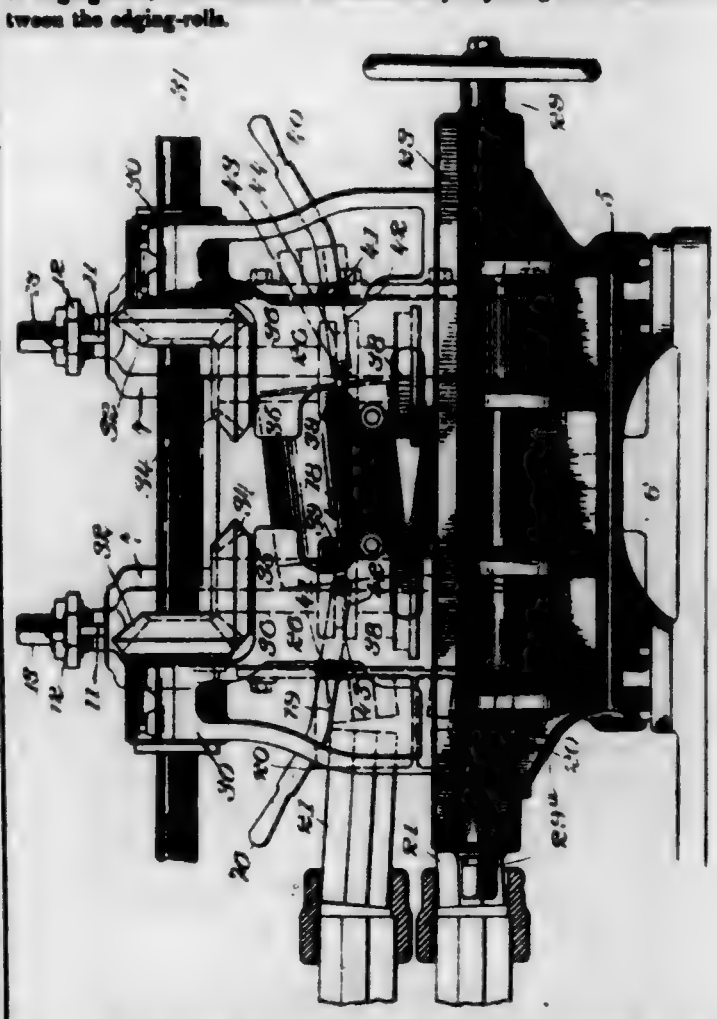
Claim.—1. In a machine for rolling metal forms, the combination with a pair of facing-rolls, a pair of edging-rolls, and means for throwing either one of the edging-rolls into and out of operation.

2. In a machine for rolling metal forms, the combination of a pair of facing-rolls, a pair of edging-rolls having contoured faces and adjustable as regards each other, and means for throwing either one of the edging-rolls into and out of operation.

3. In a machine for rolling metal forms, the combination of a pair of edging-rolls, a pair of housings adjustable relative to each other, mechanism for adjusting the housings, mechanism for positively driving the edging-rolls carried on and moving with said housings, and mechanism interposed between the driving mechanism and the edging-rolls, whereby the edging-rolls may each be independently thrown into and out of operation.

4. In a machine for rolling metal forms, the combination of a pair of facing-rolls, means for altering the angular inclination of both of said rolls relative to each other, a pair of edging-rolls, and means for simultaneously moving said edging-rolls to or from each other.

5. In a machine for rolling metal forms, the combination of a supporting-frame, a pair of facing-rolls, universal bearings for each of said rolls, means for independently adjusting said bearings, whereby the angular inclination of the rolls as regards each other may be altered, a pair of edging-rolls, and means for simultaneously adjusting the distance between the edging-rolls.



6. In a machine for rolling metal forms, the combination with a frame provided with a bracket-support on the front and having a longitudinal slot in the upper surface of said support, a pair of housings having depending portions provided with threaded openings, which portions take in the slot of the bracket-support, a pair of edging-rolls mounted in said housings, and a shaft having its bearings in said bracket-support and provided with oppositely-disposed screw-threads which respectively coact with the threaded openings in the depending portions of the housings.

7. In a machine for rolling metal forms, the combination of a main frame provided with a bracket-support on the front and having a longitudinal slot in the upper surface of said support, a pair of housings having depending portions provided with threaded openings, which portions take in the slot of the bracket-support, means for adjusting the distance between said housings, a pair of edging-rolls, vertical driving-shafts for each edging-roll carried in said housings but separate from said rolls, a horizontal driving-shaft carried in said housings and adapted to transmit motion to the vertical shafts, and clutch mechanism located between each vertical shaft and each vertical roll.

8. In a machine for rolling metal forms, the combination of a pair of vertical guide-rolls, a pair of horizontal guide-rolls, a pair of edging-rolls, a pair of facing-rolls, a guide between the edging-rolls and the facing-rolls, and a guide to the rear of the facing-rolls, the axis of the opening of said rolls and guides located in the same horizontal plane.

9. In a machine for rolling metal forms, the combination of a pair of housings, adjustable as regards each other, a slotted driving-shaft carried in said housings, loose gears mounted on said driving-shaft and keyed thereto, a pair of gears carried in said housings and meshing with said first-named gears, shafts depending from said second-named gears, a pair of edging-rolls mounted on shafts whose axis correspond to the axis of the shafts connected to the second-named gears, independent clutch mechanism introduced between said shafts, and levers under the control of the operator for manipulating said clutch mechanism.

10. In a machine for rolling metal forms, the combination with the adjustable housings, 26, provided with the bearings 30, the slotted shaft 31, loose bevaled gears 32, gears 34, shafts 36, edging-rolls 38, clutches 39, and independent levers 40 for manipulating said clutches

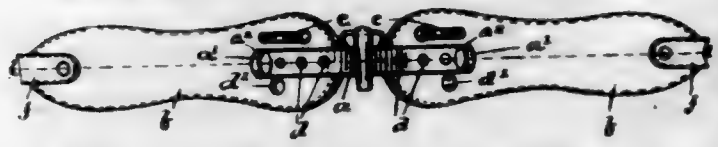
11. In a machine for rolling metal forms, the combination of a slotted frame, thrust-plates secured to said frame, a pair of facing-rolls, bearings for said facing-rolls, and means for vertically adjusting said bearing

12. In a machine for rolling metal forms, the combination of a slotted frame, thrust-plates on said frame, a pair of facing-rolls, a pair of suspended

bearings for the upper facing-roll, means for vertically adjusting said bearings, a pair of bearings for the lower facing-roll, and means for vertically adjusting said bearings.

13. In a machine for rolling metal forms, the combination with the edging-rolls and guides, of a pair of facing-rolls, and means for altering the angular inclination of the rolls relative to each other without altering the horizontal plane through which the material passing these rolls is obliged to travel.

694,723. HARNESS-SADDLE. CHARLES F. RHODES, Lynn, Mass. Filed Nov. 23, 1900. Serial No. 37,471. (No model.)



Claim.—1. A saddle composed of a tree adapted to receive a running back-band and having holes through it, skirts having saddle-pads attached thereto, reinforcing-plates interposed between the skirts and saddle-pads, bolts passing through said plates and skirts, other bolts passing through said plates, skirts and tree, and terrets at one side of the tree passing through the skirts and plates, substantially as described.

2. The combination of a tree having a channel from end to end and loops or eyes a^3 and having the stud g^2 projecting from the inner bottom wall thereof, and a running back-band contained in said channel and passing through said loops or eyes and having a slot g' for said stud g^2, substantially as described.

3. The combination with a tree provided with a channel and a stud therein, of a back-band running therein composed of two or more straps secured together, the under strap provided with an elongated slot adapted to receive the stud to limit the movement of the back-band, the upper strap being imperforate, substantially as described.

694,724. GEARING. ALEXANDER T. BROWN, Syracuse, N. Y. Filed Oct. 23, 1901. Serial No. 79,622. (No model.)



Claim.—1. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having opposing sides provided with toothed internal faces, a third power-transmitting member arranged between opposing surfaces of the first two power-transmitting members concentric with the shafts and movable independently thereof, said third power-transmitting member being formed with an opening extending through its side faces, and a pair of gears supported in the opening by the third power-transmitting member between opposing surfaces of the first two power-transmitting members and projecting beyond the side faces of the third power-transmitting member, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with said toothed internal faces, substantially as and for the purpose described.

2. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having opposing sides provided with toothed internal faces, a third power-transmitting member arranged between opposing surfaces of the first two power-transmitting members concentric with the shafts and movable independently thereof, said third power-transmitting member being formed with an opening extending through its side faces, plates fixed to opposite sides of the third power-transmitting member between opposing surfaces of the first two power-transmitting members, and a pair of gears arranged in the opening of the third power-transmitting member and each having its ends extended beyond the side faces of the third power-transmitting member and supported by the plates, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with said toothed internal faces, substantially as and for the purpose specified.

3. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having opposing sides provided with toothed internal faces, a third power-transmitting member arranged between opposing surfaces of the first two power-transmitting members concentric with the shafts and movable independently thereof, said third power-transmitting member being formed with an opening extending through its side faces and arms projecting from said side faces between opposing surfaces of the first two power-transmitting members, plates fixed to the arms between opposing surfaces of the first two power-transmitting members, and a pair of gears arranged in the opening of the third power-transmitting member and each having its ends extended beyond the side faces of the third power-transmitting member and supported by the plates, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with said toothed internal faces, substantially as and for the purpose described.

4. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having opposing sides provided with toothed internal faces, a third power-transmitting member arranged between opposing surfaces of the first two power-transmitting members concentric with the shafts and movable independently thereof, said third power-transmitting member being formed with an opening extending through its side faces, arms projecting from said side faces between opposing surfaces of the first two power-transmitting members, and a hub having its ends provided with engaging faces, plates fixed to the arms between opposing surfaces of the first two power-transmitting members and engaged with said faces of the hub, and a pair of gears arranged in the opening of the third power-transmitting member and each having its ends extended beyond the side faces of the third power-transmitting member and supported by the plates, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with said toothed internal faces, substantially as and for the purpose described.

5. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having opposing sides provided with toothed internal faces and inwardly-projecting hubs, a third power-transmitting member arranged between opposing surfaces of the first two power-transmitting members concentric with the shafts and loosely mounted on the inwardly-projecting hubs, said third power-transmitting member being formed with an opening extending through its side faces, and a pair of gears supported in the opening by the third power-transmitting member between opposing surfaces of the first two power-transmitting members and projecting beyond the side faces of the third power-transmitting member, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with said toothed internal faces, substantially as and for the purpose specified.

6. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having opposing sides provided with toothed internal faces and inwardly-projecting hubs, a third power-transmitting member arranged between opposing surfaces of the first two power-transmitting members concentric with the shafts and loosely mounted on the inwardly-projecting hubs, said third power-transmitting member being formed with an opening extending through its side faces, plates fixed to opposite sides of the third power-transmitting member between opposing surfaces of the first two power-transmitting members, and a pair of gears arranged in the opening of the third power-transmitting member and each having its ends extended beyond the side faces of the third power-transmitting member and supported by the plates, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with said toothed internal faces, substantially as and for the purpose set forth.

7. The combination of two shafts, two power-transmitting members fixed respectively to the shafts, a third power-transmitting member arranged concentric with the shafts and movable independently thereof, said third power-transmitting member having a portion thereof interposed between contiguous portions of the first two power-transmitting members and coöperating therewith to form an inclosing wall, and gears supported between the shafts and said inclosing wall and connecting the power-transmitting members, substantially as and for the purpose described.

8. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having their opposing sides provided with inwardly-projecting flanges, a third power-transmitting member arranged concentric with the shafts and movable independently thereof, said third power-transmitting member having a portion thereof interposed between contiguous surfaces of the inwardly-projecting flanges and forming a substantially tight joint therewith, and gears supported between the shafts and said flanges and connecting the power-transmitting members, substantially as and for the purpose specified.

9. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having their opposing sides provided with inwardly-projecting flanges, a third power-transmitting member arranged concentric with the shafts and movable independently thereof, said third power-transmitting member having a portion thereof interposed between contiguous surfaces of the inwardly-projecting flanges and forming a substantially tight joint therewith, and being formed with shoulders lapped upon contiguous peripheral surfaces of the flanges, and gears supported between the shafts and said flanges and connecting the power-transmitting members, substantially as and for the purpose set forth.

10. The combination of two shafts, two power-transmitting mem-

bers fixed respectively to the shafts and having their opposing sides provided with inwardly-projecting flanges formed with peripheral projecting shoulders, a third power-transmitting member arranged concentric with the shafts and movable independently thereof, said third power-transmitting member having a portion thereof interposed between contiguous surfaces of the inwardly-projecting flanges and the peripheral shoulders thereof and being formed with shoulders lapped upon the peripheral shoulders of the flanges, and gears supported between the shafts and said flanges and connecting the power-transmitting members, substantially as and for the purpose described.

11. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having their opposing sides provided with inwardly-projecting hubs and flanges, a third power-transmitting member arranged concentric with the shafts and loosely mounted on the inwardly-projecting hubs, said third power-transmitting member having a portion thereof interposed between contiguous surfaces of the inwardly-projecting flanges and being formed with shoulders lapped upon contiguous peripheral surfaces of said flanges, and gears supported between the shafts and said flanges and connecting the power-transmitting members, substantially as and for the purpose specified.

12. The combination of two shafts, a power-transmitting member having a hub and recesses in opposite faces formed concentric with the hub, additional power-transmitting members having opposing sides provided with hubs projecting within the hub of the first power-transmitting member and respectively fixed to the shafts, said additional power-transmitting members having their opposing sides provided with flanges projecting into the recesses of the first power-transmitting member, and gears supported between the shafts and said flanges and connecting the power-transmitting members, substantially as and for the purpose set forth.

13. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having their opposing sides provided with inwardly-projecting flanges formed with toothed internal faces, a third power-transmitting member arranged concentric with the shafts and movable independently thereof, said third power-transmitting member being formed with an opening therein, and a pair of gears supported in the opening by the third power-transmitting member and having their axes disposed substantially parallel with the shafts, said gears being engaged with each other and respectively engaged with the toothed internal faces of the flanges, substantially as and for the purpose described.

14. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having their opposing sides provided with inwardly-projecting flanges formed with toothed internal faces, a third power-transmitting member arranged concentric with the shafts and movable independently thereof, said third power-transmitting member being formed with an opening therein and having a portion thereof interposed between contiguous surfaces of the inwardly-projecting flanges and forming a substantially tight joint therewith, and a pair of gears supported in the opening by the third power-transmitting member and having their axes disposed substantially parallel with the shafts, said gears being engaged with each other and respectively engaged with the toothed internal faces of the flanges, substantially as and for the purpose specified.

15. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having their opposing sides provided with inwardly-projecting hubs, and with inwardly-projecting flanges formed with toothed internal faces, a third power-transmitting member arranged concentric with the shafts and loosely mounted on the inwardly-projecting hubs, said third power-transmitting member being formed with an opening extending through its side faces, and having a portion thereof interposed between contiguous surfaces of the inwardly-projecting flanges, plates fixed to opposite sides of the third power-transmitting member, and a pair of gears arranged in the opening and supported by the plates, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with the toothed internal faces of the flanges, substantially as and for the purpose set forth.

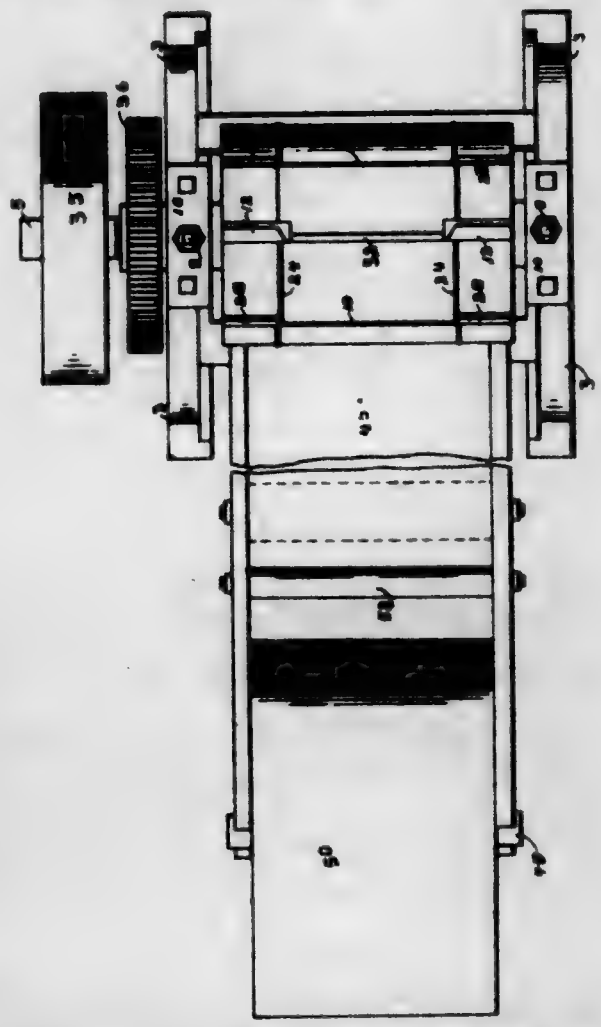
16. The combination of two shafts, two power-transmitting members fixed respectively to the shafts, gears connecting the power-transmitting members, brake members for respectively engaging the power-transmitting members, and means for actuating both the brake members, substantially as and for the purpose specified.

17. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and formed with peripheral engaging faces, a third power-transmitting member arranged concentric with the shafts and movable independently thereof, said third power-transmitting member having a portion thereof interposed between the peripheral faces of the first power-transmitting member, gears supported by the third power-transmitting member and connecting said power-transmitting members, and brake members for respectively engaging said peripheral faces of the first two power-transmitting members, substantially as and for the purpose set forth.

18. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and provided with peripheral engaging faces, said members having opposing sides provided with toothed internal faces, a third power-transmitting member arranged between opposing surfaces of the first two power-transmitting members concentric with the shafts and movable independently thereof, said third power-transmitting member being formed with an opening extending through its side faces, a pair of gears supported in the opening by the third power-transmitting member between opposing surfaces of the first two power-transmitting members and projecting beyond the side faces of the third power-transmitting member, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with said toothed internal faces, and brake members for respectively engaging said peripheral faces of the first two power-transmitting members, substantially as and for the purpose described.

19. The combination of two shafts, two power-transmitting members fixed respectively to the shafts and having their opposing sides provided with inwardly-projecting hubs and with inwardly-projecting flanges formed with peripheral engaging faces and with toothed internal faces, a third power-transmitting member arranged concentric with the shafts and loosely mounted on the inwardly-projecting hubs, said third power-transmitting member being formed with an opening extending through its side faces and having a portion thereof interposed between contiguous surfaces of the inwardly-projecting flanges, plates fixed to opposite sides of the third power-transmitting member, a pair of gears arranged in the opening and supported by the plates, said gears having their axes disposed substantially parallel with the shafts and being engaged with each other and respectively engaged with the toothed internal faces of the flanges, and brake members for respectively engaging said peripheral faces of the inwardly-projecting flanges, substantially as and for the purpose described.

694,725. **MACHINE FOR CUTTING BLANKS FOR PAPER OR STRAWBOARD BOXES.** WILLIAM B. BROWNE, Minneapolis, Minn., assignor of one-half to Frank Heywood, Minneapolis, Minn. Filed Apr. 27, 1901. Serial No. 57,058. (No model.)



Claim.—1. The combination, of the rolls, with male and female crossing-dies provided longitudinally in their peripheral surfaces, knives 12 provided in the surfaces of said rolls at the ends of said crossing-dies, the opposite knives having coacting cutting edges 14 and 15, for the purpose specified.

2. The combination, of the coacting rolls, with knives 12 arranged in both their peripheral surfaces, the knives of each roll having recesses 13 to receive corresponding knives on the opposite roll and the opposite knives having coacting cutting edges 14 and 15, for the purpose specified.

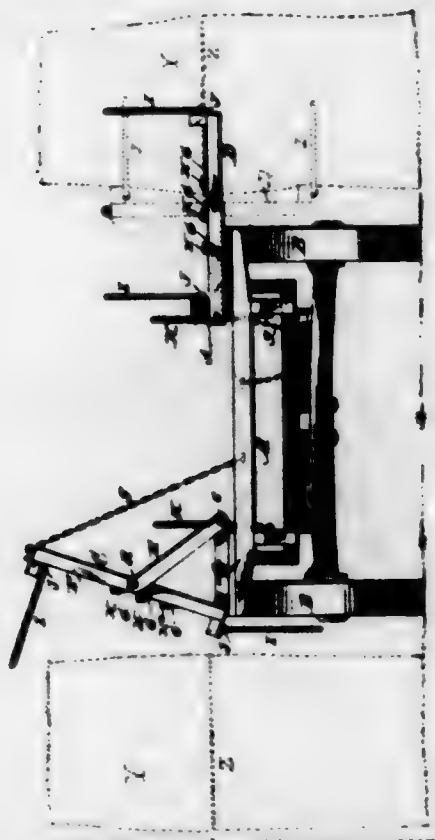
3. The combination, of the revolving rolls, with the knives 32 arranged longitudinally therein, the knives of each roll having cutting edges coacting with the edges of the corresponding knives in the other roll and said edges being inclined or tapered from the center toward the ends of the knives, for the purpose specified.

4. The combination, of the revolving rolls, with the longitudinally and transversely arranged male and female creasing-dies, the double-edged cutting-knives provided at the corners of said longitudinal dies and adapted to cut out the corners of the blank simultaneously with the formation of the longitudinal and transverse creases therein, knives 26 also provided in the surfaces of said rolls and adapted to slit the edges of the blank, and the blank-severing knives 32 oppositely arranged in said rolls and having coacting cutting edges, substantially as described.

5. The combination, with the revolving rolls, of the male and female creasing-dies arranged transversely thereon, the adjoining pairs of dies being offset or out of line with each other, for the purpose specified.

6. The combination, of revolving rolls, with male and female creasing-dies longitudinally arranged thereon, corresponding dies arranged transversely with respect to the axes of said rolls, the ribs and grooves of said longitudinal and transverse dies being reversely arranged on said rolls whereby the creases formed by them will be in the opposite sides of the blank, substantially as described and for the purpose specified.

694,726. SHOCKING ATTACHMENT FOR WAGONS. MARTIN BEVERS, Rockland, Ohio. Filed Oct. 15, 1901. Serial No. 78,792. (No model.)



Claim.—1. A shocking attachment to wagons, comprising a double-pivoted shocking-frame, means for holding the frame in a horizontal position, brackets having cam-bearings at the ends, and wire standards pivotally connected to the brackets, substantially as and for the purpose specified.

2. A shocking attachment to wagons, comprising two tilting shocking-frames, flanged links to which the frames are pivoted to form seats for the transverse bars of the shocking-frames, a plurality of wire-tie holders on each of the transverse bars and comprising curved springs and keepers, brackets connected to the shocking-frames and having cam-bearings at their ends, and wire standards pivotally connected to the brackets and acting in connection with the cams, substantially as and for the purpose set forth.

694,727. BACK-BAND BUCKLE. DEMPSEY T. BRYAN, Rocky-mount, N. C. Filed Oct. 23, 1900. Serial No. 34,053. (No model.)



Claim.—1. A back-band buckle comprising a base-plate having an elongated transverse slot, and essentially U-shaped ears connecting the ends of the walls of said slot, said ears extending outward from the base-plate, and a clamping member having a transverse slot of a length and width sufficient to extend from ear to ear, and to receive the inner portions of said U-shaped ears, the outer wall of the clamping-member slot located in a line with the slot of the base-plate, substantially as described.

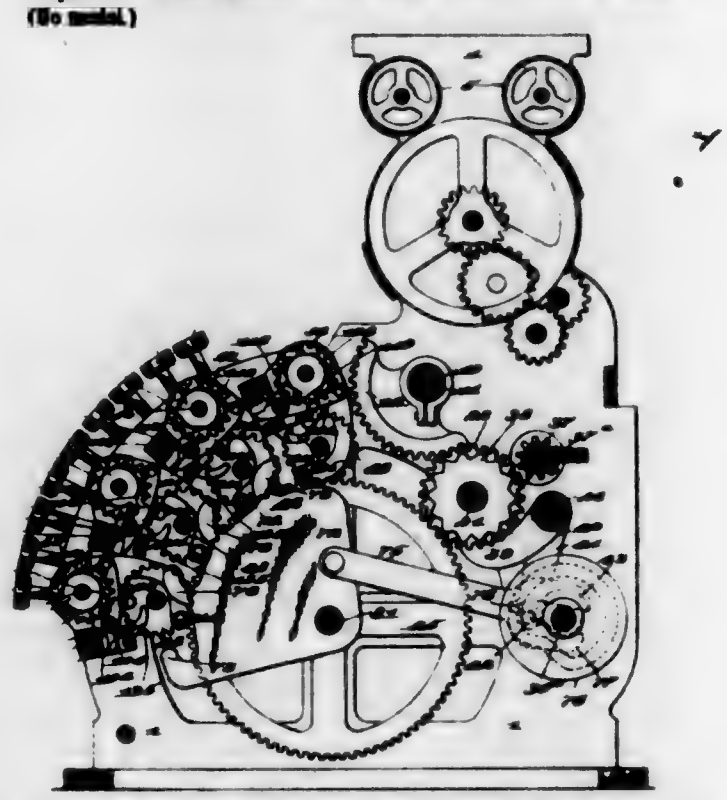
2. A back-band buckle comprising a base-plate having an elongated transverse slot, essentially U-shaped ears connecting the ends of the walls of said slot, said ears extending outward from the base-plate, said plate having a hook-shaped arm *e*, and a clamping member having a transverse slot of a length and width sufficient to extend from ear to ear and receive the inner portions of said ears, and an arm *f* extending under the hook of the said arm *e*, substantially as described.

694,728. ROSIN-SOAP FOR PAPER-SIZE. HOWARD F. CHAPPELL, Chicago, Ill. Filed Dec. 18, 1901. Serial No. 86,413. (No specimens.)

Claim.—1. As a new article of manufacture, desiccated soda resinate having a minimized proportion of uncombined resin and soda-ash present therein, substantially as described.

2. The method of making resin-soap for paper-size which consists in boiling resin in hot soda-ash solution and, after desired reaction effected, evaporating water excess and finally superheating the charge beyond 212° Fahrenheit, while stirring proceeds so that the finished resinate is derived without scorching, in desiccated state having a minimized proportion of uncombined resin and soda-ash present therein.

694,729. CASH-REGISTER. JAMES P. CLEAL, Dayton, Ohio, assignor to the National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed May 26, 1900. Serial No. 18,058. (No model.)



Claim.—1. In a cash-register, the combination with an operating mechanism, of a plurality of movable counters arranged to be brought into connection therewith, devices connected to the movable parts of the machine for moving said counters to effect this connection, movable means on said counters arranged to be engaged by said devices, and keys for moving said means into the path of said devices.

2. In a cash register, the combination with operating devices, of a totalizing-counter and a series of special counters mounted respectively on independent movable frames; the frame of said totalizing-counter being arranged to be normally moved to bring its counter into connection with the operating devices, and means arranged to be operated, when a special counter is set to be thrown, to positively move the totalizing-counter frame out of its normal position.

3. In a cash-register, the combination with a plurality of operating-gears, of a plurality of movable counters, movable throwing-arms on the respective counters, a throwing device connected to the movable parts of the machine, and keys for moving the throwing-arms into the path of the throwing device.

4. In a cash-register, the combination with a plurality of operating-gears, of a plurality of counters normally out of mesh therewith, a movable arm on each counter, special keys for moving said arms into operative positions, and devices connected to the movable portions of the ma-

chine and arranged to engage said arms to draw the counters forward into mesh with the operating-gears.

5. In a cash-register, the combination with a plurality of operating-gears, of a plurality of counters normally out of mesh therewith, a movable arm on each counter, keys for operating said arms, and a pivoted throwing-segment connected to the movable parts of the machine and provided with projections arranged to catch and operate the movable arms.

6. In a cash-register, the combination with operating devices, of a totalizing-counter and a series of special counters, operating-arms mounted on said counters, an operating-segment arranged to normally engage only the arm of the totalizing-counter to throw the same into engagement with the operating devices, means for bringing the arms of the special counters into the path of the segment and devices for rendering the totalizing-counter inoperative when one of the special counters is set for operation.

7. In a cash-register, the combination with operating devices, of a totalizing-counter and a series of special counters normally out of connection with the operating devices, a movable frame arranged to normally draw the totalizing-counter into connection with the operating mechanism, devices for moving the special counters so that they will be similarly operated by said frame and means for rendering the totalizing-counter inoperative when a special counter is set for operation.

8. In a cash-register, the combination with an operating mechanism of a plurality of movable counters arranged to be moved into connection therewith, a movable operating-arm mounted on each counter, a trip-arm connected to said operating-arm, and a key for operating said trip-arm.

9. In a cash-register, the combination with a series of operating-gears, of a series of counters arranged to be moved into mesh therewith, throwing-arms mounted on said counters, a pivoted segment having projections arranged to catch and operate said arms and keys for moving said arms into the paths of said projections.

10. In a cash-register, the combination with an operating mechanism, of a plurality of pivoted counters arranged to be moved into connection with the same, pivoted throwing-levers mounted on said counters keys for moving said levers, and devices arranged to act as stops for said levers after the operation of the machine has commenced.

11. In a cash-register, the combination with an operating mechanism, of a plurality of pivoted counters arranged to be moved into connection with the same, pivoted throwing-levers mounted on said counters, keys for moving said levers, an operating-segment arranged to engage said levers and a segment arranged to act as a stop for said levers after the operation of the machine has commenced.

12. In a cash-register, the combination with an operating mechanism, of a totalizing-counter, and a series of special movable counters arranged to be brought into connection therewith, a movable segmental frame, arranged to throw out the totalizing-counter, and projections on the special counters adapted to operate said segment.

13. In a cash-register, the combination with operating devices, of a series of operating-gears, a rock-frame carrying devices for connecting said devices and said gears and connected to the movable parts of the machine, a totalizing-counter and a series of special counters; the former being arranged to be normally thrown into connection with the operating devices, and means independent of the rock-frame and its connecting devices and arranged to be operated when the special counter is thrown into operative position to render the totalizing-counter inoperative.

14. In a cash-register, the combination with an operating mechanism, of a series of independent counters arranged to be moved into connection therewith, movable devices mounted on the counters and arranged to be set to cause the throwing of the counters, a movable segment arranged to be actuated by any one of said devices and a totalizing-counter arranged to be thrown out of operative condition by said segment.

15. In a cash-register, the combination with an operating mechanism, of a plurality of movable counters arranged to be brought into connection therewith, movable devices mounted on said counters and arranged to be set for throwing the same, and a common throwing means arranged to engage any of said devices which have been set.

16. In a cash-register, the combination with an operating mechanism, of a plurality of independent counters, movable devices mounted on said counters and arranged to be set for throwing the same, keys for setting said devices and a common throwing means arranged to engage any of the said devices which have been set.

17. In a cash-register, the combination with an operating mechanism, of a series of counters arranged to be brought into coöperation therewith at will, movable throwing-arms mounted on said counters, a pivoted segment having projections arranged to catch and operate said arms, and keys for moving said arms into the paths of said projections at will.

18. In a cash-register, the combination with an operating mechanism, of a series of counters arranged to be moved into connection therewith at will, movable throwing devices mounted on said counters, a movable segment having projections adapted to catch and operate said devices, springs for normally holding said devices out of the paths of said projections and keys for moving said devices into the paths of said projections at will.

19. In a cash-register, the combination with an operating mechanism, of a plurality of movable counters arranged to be brought into connection therewith, pivoted throwing-arms mounted on said counters, keys for setting said arms for operation and a movable member having projections arranged to operate the throwing-arm which has been set by its key and also lock the remaining throwing-arms.

20. In a cash-register, the combination with an operating mechanism, of a plurality of movable counters arranged to be brought into connection therewith, movable throwing arms mounted on said counters, keys for moving said arms, and a pivoted segment arranged to operate the throwing-arm which has been set by its key and also lock the remaining throwing-arms.

21. In a cash-register, the combination with an operating mechanism, of a plurality of movable counters arranged to be brought into connection therewith, movable throwing devices mounted on said counters, keys for moving said devices and a movable member arranged to operate the throwing device which has been set and simultaneously lock the remaining throwing devices.

22. In a cash-register, the combination with an operating mechanism, of a series of independent counters, movable throwing devices on said counters, keys for setting said devices for operation, a printing mechanism and devices arranged to be operated by the keys for setting said printing mechanism to print a character corresponding to the operated keys.

23. In a cash-register, the combination with an operating mechanism, of a plurality of movable counters arranged to be brought into connection therewith, movable throwing-arms mounted on said counters and carrying operating projections, and pivoted segments arranged to coöperate with said projections, one to be operated thereby and the other to operate the same, and means actuated by the operated segment to throw out one of the counters.

24. In a cash-register, the combination with an operating mechanism, of a series of counters arranged to be brought into connection therewith, movable throwing-arms mounted on said counters and a movable segment having bevel-faced projections arranged to be engaged by said throwing-arms whereby the throwing-arm of one of said counters is thrown out of operative position when any one of the other arms is thrown into such operative position.

25. In a cash-register, the combination with an operating mechanism, of a series of independent counters, a pivoted throwing-arm mounted on each counter, a movable throwing member normally engaging the arm of one of said counters, and a pivoted segment arranged to be operated by the arms of the remaining counters to disengage said first-mentioned arm from the throwing member.

26. In a cash-register, the combination with an operating mechanism, of a series of independent counters, a pivoted throwing-arm mounted on each counter, a pivoted throwing-segment normally engaging the arm of one of the counters, and a movable member having incline projections arranged to be moved by the arms of the remaining counters to disengage said first-mentioned arm from the throwing member.

27. In a cash-register, the combination with an operating mechanism, of a series of special counters, a pivoted throwing-arm mounted on each counter, a movable member for engaging said arm to throw the counters, a pivoted segment having bevel-faced lugs arranged to be engaged and operated by said arms, a totalizing-counter having a throwing-arm normally in engagement with the movable member, and arranged to be engaged by one of the bevel-lugs and forced out of such engagement with the movable member upon the setting of one of the special counters.

28. In a cash-register a counter comprising a rotary shaft, a series of counter-wheels journaled thereon, a cam arranged to turn with said shaft, a pawl coöperating with said cam and arranged to arrest the shaft when the counter-wheels have reached zero position, and independent means for giving the cam an additional turn to disengage the pawl from the cam and release said shaft.

29. In a cash-register a counter comprising a rotary shaft, a series of counter-wheels mounted thereon, a cam mounted on said shaft, a pinion also mounted on said shaft and carrying a locking-pin, a pawl coöperating with said cam and arranged to engage the pin and arrest the shaft when the counter-wheels have reached the zero position, and independent means for giving the cam an additional movement to release the pawl from the pin

30. In a cash-register a counter comprising a rotary shaft, a series of counter-wheels mounted thereon, a cam loose on said shaft, an operating-gear fast to said shaft and having a lost-motion connection with said cam, a pin on said gear, a pawl coöperating with said cam and arranged to arrest said pin, and means for giving said cam an independent movement to allow the pawl to disengage from the pin.

31. In a cash-register a counter comprising a rotary shaft, a series of counter-wheels mounted thereon, a cam loose on said shaft but having a lost-motion connection therewith, a pawl coöperating with said cam and arranged to engage a pin moving with the shaft to arrest it and the shaft at zero position and transfer devices arranged to give the cam an independent movement to release the pawl from the pin.

32. In a cash-register, a counter comprising a rotary shaft, a series of counter-wheels mounted thereon, a cam loose on said shaft, a pinion fast to the shaft and having a lost-motion connection with the cam, a locking-pin on said pinion, a bell-crank pawl having one of its arms engaging the periphery of said cam and the other formed with a hook adapted to arrest the pin on said cam, and means for giving said cam an independent movement.

33. In a cash-register, the combination with an operating mechanism, of a series of independent counters arranged to be brought into connection therewith and each comprising a rock-frame carrying counter-wheels, a rock-shaft mounted in said frame, a trip-arm mounted on one end of said shaft, and a throwing-arm mounted on the opposite end of the same, a key for operating said trip-arm and means for operating the throwing-arm upon the operation of the machine.

34. In a cash-register, the combination with an operating mechanism, of a counter comprising a rotary shaft, a series of counter-wheels mounted thereon, a cam arranged to turn with said shaft when it is rotated to turn the counter-wheels to zero, a rock-shaft carrying a pawl arranged to be operated by said cam, a series of transfer-levers, and arms mounted on the rock-shaft for raising the levers out of operative positions.

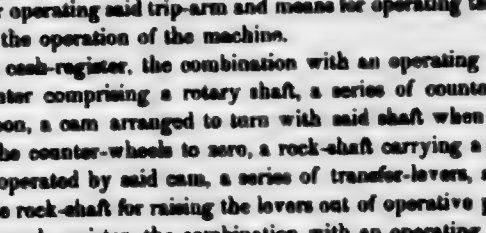
35. In a cash-register, the combination with an operating mechanism, of a counter comprising a rotary shaft, a series of counter-wheels mounted thereon, a cam mounted on said shaft, a pawl coöperating with said cam, a series of ratchet-wheels mounted on the respective counter-wheels, a series of transfer-levers arranged to engage said ratchet-wheels, and a rock-shaft arranged to be operated by the pawl and provided with arms for holding the transfer-levers away from the ratchet-wheels.

36. In a cash-register the combination with an operating mechanism, of a counter comprising a rotary shaft, a series of counter-wheels mounted thereon, a cam mounted on said shaft, a pawl engaging said cam and also arranged to arrest a pin carried by the shaft, an arm adapted to give said cam an independent movement and transfer devices arranged to operate said arm.

37. In a cash-register the combination with an operating mechanism, of a counter comprising a rotary shaft, a series of counter-wheels mounted thereon, a cam loose on said shaft, a pinion fast to the shaft and having a lost-motion connection with the cam, a pawl coöperating with said cam a pin mounted on the cam and arranged to engage the pawl, an arm for giving the cam an independent movement, transfer devices and means for communicating the movements of the transfer devices to said arm.

38. In a cash-register the combination with an operating mechanism of a counter comprising a shaft, a series of counter-wheels mounted thereon and each provided with a cam-wheel and a ratchet-wheel and a series of transfer devices each of which comprises a pivoted yoke-shaped lever one arm of which is arranged to be struck by one of the cams, a pawl mounted on the other arm of said lever and engaging one of the ratchet-wheels, and springs for forcing said levers in one direction.

694,780. DESIGNATOR OR ENUMERATOR. NEWTON L. COLLAMER and WILLIAM F. MAHONY, Washington, D. C., assignors to said Newton L. Collamer, Washington, D. C. Filed Nov. 14, 1901. Serial No. 82,317. (No model.)



Claim.—1. A designator comprising a body having series of notches in opposed edges, names adjacent one series, designations adjacent an opposed series, and an indicator leading from a notch opposite a name to a notch opposite a designation.

2. A designator comprising a body having series of notches in opposed edges, names adjacent one series, designations adjacent an opposed series, and a flexible indicator attached to the body and leading thence around it, first through a notch opposite a name, then through a notch opposite a designation which it is desired to connect with that name, then behind the body, and so on.

3. A designator comprising a body having series of notches in opposed edges, names adjacent one series, designations adjacent an opposed series, a flexible indicator leading through a name-notch, thence through a designation-notch, and so on, and a fastening device to which the indicator is finally attached.

4. A designator comprising a body having series of notches in opposed edges, names adjacent one series, designations adjacent an opposed series, a flexible indicator leading through a name-notch, thence through a designation-notch, and so on, and a fastening device consisting of a slit in the body through which the indicator is finally drawn.

5. A designator comprising a body having series of notches in opposed edges, names adjacent one series, designations adjacent an opposed series, a flexible indicator leading through a name-notch, thence through a designation-notch, and so on, and a fastening device consisting of a slit formed in the body at the bottom of a notch through which the indicator is finally drawn.

6. A designator comprising a body having series of notches with words adjacent them, a flexible indicator adapted to be wound around the body through certain notches, and a fastening device consisting of a series of notches with a slit at the bottom of each notch, words also being printed opposite these notches.

7. In a designator comprising a body and a flexible indicator substantially as described, a combined designation and fastening device consisting of a series of slits cut in the edge of the body and into which the indicator may be drawn, and words opposite said slits.

8. In a designator comprising a body and a flexible indicator substantially as described, a combined designation and fastening device consisting of a series of notches in the edge of the body with a slit at the bottom of each notch for the purpose set forth, and words opposite said slits.

9. As a new article of manufacture, a laundry-counter or the like comprising a body having series of notches along its opposed edges, names of articles of wash opposite one series, abstract numerals opposite the other series, price-numerals respectively opposite the names, a flexible indicator adapted to connect the notches in pairs as described, and means for holding the indicator in place.

10. A designator comprising a body having series of notches in opposed edges, names adjacent one series, designations adjacent an opposed series, a flexible indicator leading through a name-notch, thence through a designation-notch, and so on, and a fastening device consisting of a series of slits through one of which the indicator is finally drawn, these slits themselves having designations marked opposite thereto.

11. An enumerator or designator comprising a rectangular body having notches along its side edges and a series of slits along one end, names adjacent one series of notches, numerals adjacent the opposite series of notches, designations adjacent the slits, an eyelet near the upper end of the body, and a cord tied near one end into said eyelet, as and for the purpose set forth.

12. An enumerator or designator comprising a rectangular body having notches along its side edges and one end and a series of slits along the other end, names adjacent one series of side notches, numerals adjacent the opposite series of notches, designations adjacent the end notches and the slits, and a cord tied near one end to the body, as and for the purpose set forth.

13. A designator comprising a body having series of notches in opposed edges, with series of words opposite each series of notches, and an elastic indicator adapted to be led from a notch of one series to a notch of another.

14. A designator comprising a body having series of notches in opposed edges, with series of words opposite each series of notches, and a plurality of flexible indicators of different color, each adapted to lead from a notch in one series to a notch in another, and each capable of use independently of the other.

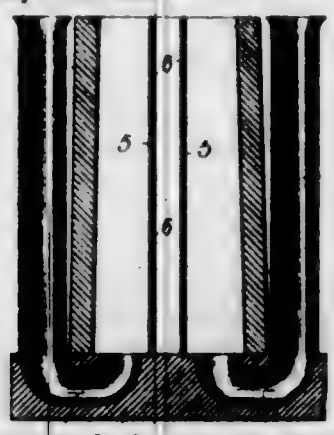
15. A designator comprising a comparatively delicate body with names in series along opposed edges thereof, comparatively strong clamps covering said edges and themselves provided with notches opposite the names, and an indicator adapted to lead from a notch at one edge to a notch at the other.

16. A designator comprising a flat body, clamps along its opposed edges and provided with outwardly-facing notches, strips held by the clamps against the body and marked with series of words spaced to stand opposite said notches, and an indicator adapted to lead from a notch at one edge to a notch at the other.

694,731. MANUFACTURE OF COMPOUND INGOTS AND MOLD THEREFOR. SYLVESTER A. CONGRAVE, Pittsburg, Pa., assignor to Aaron French, Margaret L. Patterson, and Maria B. Congrave, Pittsburg, Pa. Filed May 27, 1901. Serial No. 62,923. (No model.)

Claim.—1. As an improvement in the art of manufacturing compound ingots, the method herein described, which consists in pouring two or more metals in two compartments or chambers having adjacent walls formed of a material fusible by said metals and filling the space intermediate of said walls from each of said compartments prior to the fusion of the wall of the compartment, substantially as set forth.

2. As an improvement in the art of manufacturing compound ingots, the method herein described, which consists in pouring two or more different metals into two compartments or chambers having adjacent walls perforated and formed of a material fusible by said metals and filling the space intermediate of said walls by the metal from each of said compartments, substantially as set forth.



3. As an improvement in the art of manufacturing compound ingots, the method herein described which consists in pouring two or more different metals into two compartments or chambers having adjacent walls perforated and formed of a material fusible by said metals whereby the metal will flow from said compartments or chambers into the space intermediate of said walls and regulating the flow of metal into the chambers and space so that the chambers will fill more rapidly than the intermediate space, substantially as set forth.

694,732. DECOY. JOSEPH COUDON, Alton, Md. Filed Dec. 17, 1901. Serial No. 86,272. (No model.)



Claim.—1. A decoy device, comprising a support; a decoy; and two links each of which has one end pivotally connected to the support and the other end pivotally connected to the decoy, whereby the decoy may be swung away from, and also be folded up against the support, substantially as set forth.

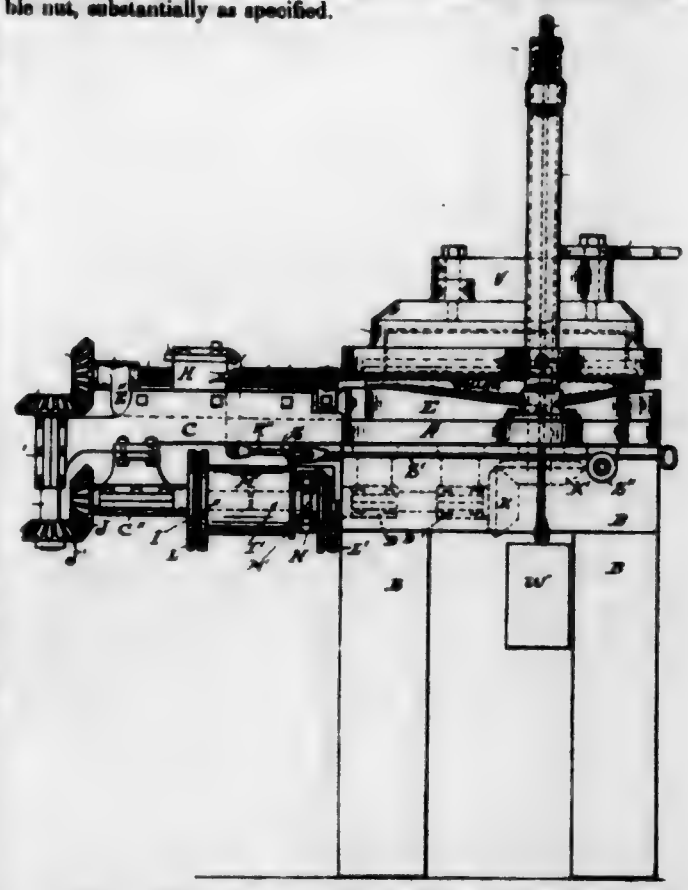
2. A floatable decoy device, comprising a plurality of decoys; and two links pivotally connected at their ends to adjoining decoys and said ends spaced apart in the direction of the length of the decoys, substantially as set forth.

3. A floating decoy device, comprising three decoys shaped to represent ducks or the like; and pairs of links pivotally connected at their ends to the lower edges of the adjoining decoys with said ends spaced apart in the direction of the lengths of the decoys—the two links of each pair being of unequal length, whereby when the decoys are spread apart the bodies of the two outside decoys will take an oblique position with respect to the middle decoy, as and for the purpose set forth.

694,788. HORSE-COLLAR-BLOCKING MACHINE. ROY DODSON, Dallas, Tex., assignor of one-half to H. O. Wolf, Dallas county, Tex. Filed Apr. 11, 1901. Serial No. 55,390. (No model.)

Claim.—1. In a horse-collar-blocking machine, the combination with the forming-block having a two-part neck portion and a central upright portion, the neck portion being mounted and secured between flanges to form a guideway, of a nut-head block sliding on said guideway, an openable or separable nut housed within said nut-head block, and a screw-threaded shaft mounted in suitable bearings and passing through said head-block and through the openable or separable nut, and means for connecting the said head-block and separable nut, substantially as specified.

2. In a horse-collar-blocking machine, the combination with the forming-block having a two-part neck portion and a central upright portion, the neck portion being mounted and secured between flanges to form a guideway, of a nut-head block sliding on said guideway, an openable or separable nut housed within said nut-head block, hooks formed with the head-block, and a screw-threaded shaft mounted in suitable bearings and passing through said head-block and through said openable or separable nut, substantially as specified.



3. In a horse-collar-blocking machine, the combination with the forming-block having a two-part neck portion and a central upright portion, the neck portion being mounted and secured between flanges to form a guideway, of a nut-head block sliding on said guideway, an openable or separable nut housed within said nut-head block having pins therewith, an eccentrically-slotted sliding plate to coact with said pins, and a screw-threaded shaft passing through said nut-head block and through said openable or separable nut, substantially as specified.

4. In a horse-collar-blocking machine, the combination with the forming-block, having a two-part neck portion, and a central upright portion, the neck portion being mounted and secured between flanges to form a guideway, of a nut-head block sliding on said guideway, an openable or separable nut housed within said nut-head block, having pins therewith, an eccentrically-slotted sliding plate to coact with said pins, a screw-threaded shaft passing through said nut-head block and through said openable or separable nut, a lever whereby the parts of the separable nut are moved to or from each other by means of the said pins and slots of said plate, substantially as specified.

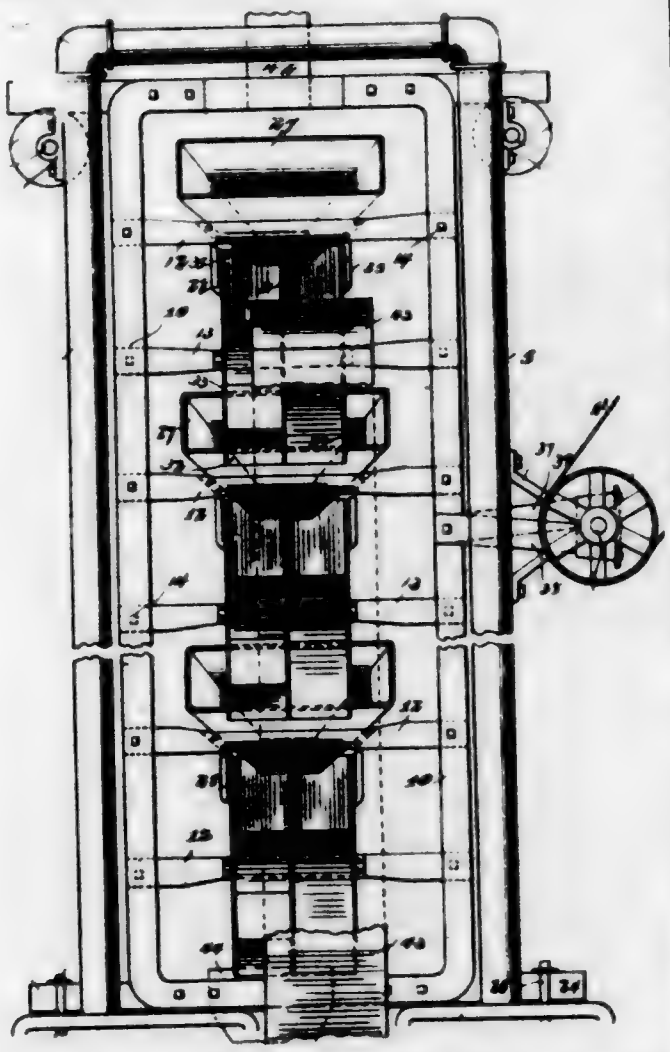
5. In a horse-collar-blocking machine, the combination with the bed-plate or forming-block provided with an upright portion, of a head-block mounted above said forming-block having pivotally fixed thereon a two-part openable nut provided with pins, a lever fulcrumed between said pins and having eccentric slots which coact with said pins, a screw-threaded shaft passing through said two-part openable nut, head-block, forming-block and bed-plate, a bevel-gear on said shaft, and means connected to said gear whereby to operate said screw-shaft, thereby operating the two-part nut, substantially as specified.

6. In a horse-collar-blocking machine, the combination with the forming-block having a two-part neck portion and a central upright portion, the neck portion being mounted and secured between flanges to form a guideway, of a nut-head block sliding on said guideway, an openable or two-part nut provided with pins housed within said nut-head block, an eccentrically-slotted sliding plate coacting with said pins, a screw-threaded shaft passing through said nut, head-block and through said openable or separable nut, a lever whereby the parts of the separable nut are moved to or from each other, and a bevel gear-wheel on said screw-shaft, and means connected to said gear-wheel whereby to operate the said screw-shaft, substantially as specified.

7. In the herein-described collar-blocking machine, in combination with the bed-plate and standards, bearing the hollow uprights having sheave-wheels journaled at their upper end; the head-block arranged to move vertically and be guided by said uprights; the cables arranged connecting the said block and over said sheave-wheels; and the counter-weight attached to the said cables, substantially as and for the purpose specified.

694,784. ORE-SAMPLER. CHARLES R. FOSTER, Rock Island, and WHEELOCK COOLIDGE, Chicago, Ill. Filed Aug. 5, 1901. Serial No. 70,996. (No model.)

Claim.—1. In an ore-sampling machine the combination of a hopper and a divider disposed one above the other and means for imparting to said hopper and divider simultaneous lateral reciprocating movements in opposite directions, substantially as described.



2. In an ore-sampling machine the combination with a hopper of a divider disposed therebeneath, said divider having adjacent ore retaining and discharging chambers formed side by side therein and longitudinally thereof, and means for imparting to said hopper and divider simultaneous lateral reciprocating movements in opposite directions sufficient to cause a relative travel of the discharge end of the hopper across the entire width of the divider, substantially as described.

3. An ore-sampling machine, comprising in combination an upright supporting-frame, a pair of vertical frames mounted side by side so as to be capable of lateral reciprocation within said supporting-frame, a series of hoppers and dividers fixedly secured in said vertical frames respectively and so disposed as to present a vertical series of alternate hoppers and dividers, and means for imparting to said vertical frames simultaneous lateral reciprocations in opposite directions, substantially as described.

4. An ore-sampling machine, comprising in combination a supporting-frame, a pair of parallel hopper and divider carrying frames disposed vertically therein, antifriction-bearings on which said frames are supported and guided at one end, suitable guides engaging the frames at their opposite ends and preserving their parallelism, and means for imparting edgewise or lateral movements to said frames on their supports simultaneously in opposite directions, substantially as described.

5. An ore-sampling machine, comprising in combination an upright supporting-frame, a pair of vertical frames mounted side by side so as to be capable of lateral reciprocation within said supporting-frame, a series of hoppers and dividers fixedly secured in said vertical frames respectively and so disposed as to present a vertical series of alternate hoppers and dividers, a discharge-chute disposed in front of said series of hoppers and dividers and having those portions of its rear wall opposite the lower ends of the discharge-chambers of the dividers cut away to receive the discharge therefrom, and means for imparting to said vertical frames simultaneous lateral reciprocations in opposite directions, substantially as described.

6. An ore-sampling machine, comprising in combination an upright supporting-frame, a pair of vertical frames disposed side by side therein, each of said frames having a series of suitably-spaced cross-bars, hoppers and dividers rigidly mounted on said cross-bars in such a manner as to produce a vertical series of alternate dividers and hoppers, and means for effecting simultaneous opposite reciprocations of said frames, substantially as described.

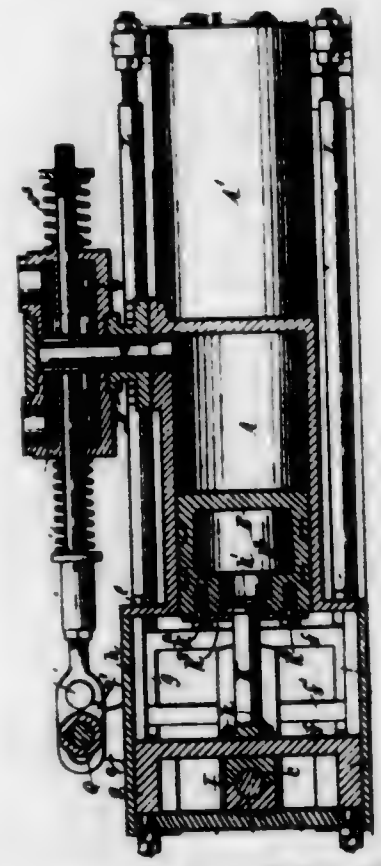
7. An ore-sampling machine, comprising in combination an upright supporting-frame, a pair of parallel hopper and divider carrying frames disposed vertically and side by side therein, a double-crank shaft, having oppositely-disposed cranks mounted on one side of the supporting-frame and pitmen connecting said cranks with said hopper and divider carrying frames respectively, substantially as described.

8. An ore-sampling machine, comprising in combination an upright supporting-frame having a pair of rollers journaled on each of its opposite sides near the top thereof, a pair of hopper and divider carrying frames suspended from said rollers and laterally reciprocable thereon, stationary guides in the base of the frame in which the lower ends of the frame are guided, a double-crank shaft having oppositely-disposed cranks mounted on one side of the supporting-frame, and pitmen connecting said cranks with said hopper and divider carrying frames respectively, substantially as described.

9. In an ore-sampling machine, a divider having two longitudinally-parallel chambers formed lengthwise thereof, one of said chambers being open at its lower end and the other having a wall formed across its lower end and a discharge-opening formed through its bottom within the chamber and adjacent said wall, substantially as described.

10. In an ore-sampling machine, a divider having three longitudinally-parallel chambers formed lengthwise thereof, the two side chambers being open at their lower ends and adapted to receive the ore to be discarded, and the intermediate chamber having a wall formed across its lower end and a discharge-opening formed through its bottom within the chamber adjacent said wall, said intermediate chamber being adapted to receive the sample-retaining portion of the ore, substantially as described.

694,785. GAS-ENGINE. SAMUEL A. FREEMAN and CHARLES E. TERRY, Buffalo, N. Y. Filed Oct. 20, 1900. Serial No. 33,666. (No model.)



Claim.—1. In a gas-engine, the combination with two opposing cylinders arranged end to end and having their adjacent firing ends connected and the pistons arranged in the cylinders, of a crank-shaft at the outer end of one cylinder provided with two diametrically opposite cranks, two reciprocating yokes which are arranged side by side and receive said cranks, a connecting-rod entering one of the cylinders and connecting the outer end of the piston therein with one of said yokes, and two connecting-rods arranged lengthwise on opposite sides of the other cylinder and connecting the piston therein with the other yoke, substantially as set forth.

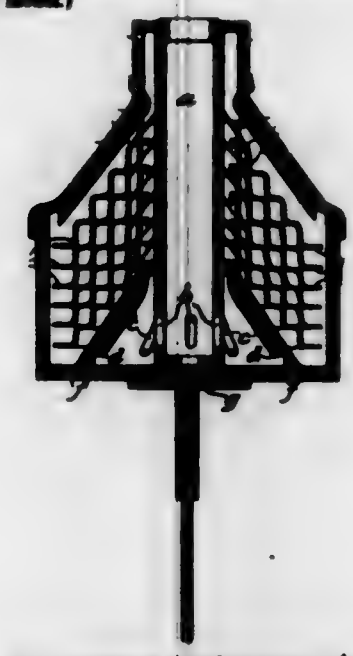
2. In a gas-engine, the combination with two opposing cylinders arranged end to end and having their adjacent firing ends connected and the pistons arranged in the cylinders, of a crank-shaft at the outer end of one cylinder provided with two diametrically opposite cranks, two reciprocating yokes which are arranged side by side and receive said cranks, a connecting-rod entering one of said cylinders and connecting the piston therein with one of said yokes, a cross-bar projecting through longitudinal slots in the other cylinder and connected with the piston therein, and

connecting-rods connecting the outer ends of the cross-bar with the other yoke, substantially as set forth.

3. In a gas-engine, the combination with two opposing cylinders arranged end to end and having their adjacent firing ends connected, and the pistons arranged in the cylinders, of a crank-shaft at the outer end of one cylinder provided with two diametrically opposite cranks, two reciprocating yokes which are arranged side by side and receive said cranks, a rod connecting one of said pistons with one of said yokes, a cross-bar connected with the other piston, connecting-rods secured to the other yoke and having threaded portions which are arranged in openings in said cross-bar, and screw-nuts arranged on the threaded portions of said last-mentioned rods on opposite sides of said cross-bar, substantially as set forth.

4. In a gas-engine, the combination with two opposing cylinders arranged end to end, one cylinder being offset laterally with respect to the other, and pistons in said cylinders, of a crank-shaft arranged at the outer end of one cylinder and provided with two cranks, and rods connecting one crank with one piston and the other crank with the other piston, whereby the cranks and connecting-rods work in parallel planes close together, substantially as set forth.

694,786. LINER FOR CENTRIFUGAL LIQUID-SEPARATORS. NICHOLAS W. GALBE, Waterloo, Iowa. Filed Jan. 4, 1902. Serial No. 88,372. (No model.)



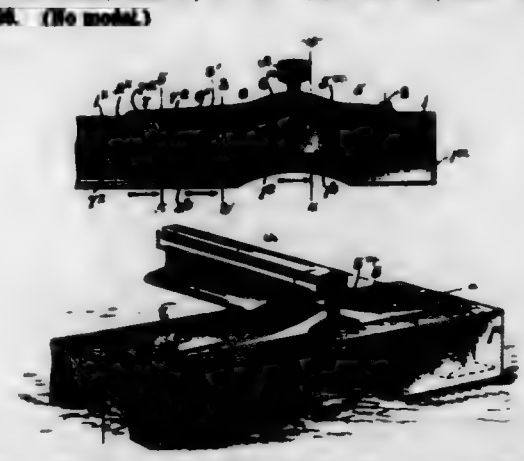
Claim.—1. In a centrifugal liquid-separator, the combination with a bowl, having a central boss or raised portion upon the inner side of the bottom thereof, of a removable central axial inlet-tube having an open lower end, which rests upon the bottom of the bowl and embraces the boss or raised portion, and also provided with lateral discharge-openings, a conical distributer embracing and carried by the inlet-tube, and also having an open and unobstructed bottom, the marginal edge of which rests upon the bottom of the bowl, distributer-tubes rising from the conical distributer and opening into the space above, openings in the conical distributer affording communication between the interior thereof and the cream zone of the bowl, and removable superposed corrugated conical separating devices provided with a plurality of perforations having raised rims, substantially as described.

2. A liner for centrifugal liquid-separators, consisting of an inlet-tube, which is open at its opposite ends and also provided with lateral discharge-openings near its lower end, a conical distributer embracing the inlet-tube above the discharge-openings, a plurality of distributer-tubes rising from the distributer, their open lower ends communicating with the interior of the distributer and their open upper ends communicating with the space above said distributer, a plurality of openings in the upper part of said distributer communicating with the cream zone of the bowl, and a series of superposed corrugated conical separating devices surrounding said inlet-tube and which are provided with a plurality of short tubes, all substantially as described.

3. A liner for centrifugal liquid-separators, consisting of a combination of superposed corrugated conical separating devices provided with a plurality of openings having raised rims, an inlet-tube, and a distributer provided with passages for separated cream and exit-tubes for partially-separated milk, substantially as described.

4. In a liner for centrifugal liquid-separators, an inlet-tube open at its opposite ends and having lateral discharge-openings near its lower end, and a conical distributer embracing the inlet-tube above the discharge-openings, said distributer having a plurality of tubes open at top and bottom passing through it and attached to its inner periphery, said distributer also provided with a plurality of cream-exits in its upper part, substantially as described.

694,787. COMBINED METALLIC TIE AND RAIL-CLAMP. WILLIAM M. GILPIN, Thomas, W. Va. Filed Dec. 27, 1901. Serial No. 87,456. (No model.)



Claim.—1. The combination with the rail and a metallic tie therefor, said tie having a pair of T-slots, one at each side of the rail-seat; of a pair of opposing clamp members, detachably and longitudinally slidably held in said slots, and having head portions for interlocking with the under walls of the tie, whereby to hold the said clamp members from vertical movement, and a detachable wedge or key coöperating with the clamp members, substantially as shown and described.

2. The combination with the tie 1, having a pair of oppositely-extending T-slots, having undercut side walls; of clamp members each consisting of a head portion, adapted to straddle the tie-slots, a beveled leg adapted to pass through the head or enlarged part of the slots and engage with the undercut or beveled side walls, and a pendent shank for engaging the restricted or shank portion of said slots, and means for forcing the clamp members into a gripping contact with the rail and holding them locked in such position, substantially as shown and for the purposes described.

3. The combination with the rail, and the tie, said tie being slotted longitudinally, opposing rail-clamping members 5 and 6, longitudinally slidable in the tie-slots, and held from vertical movement therein when adjusted to a clamping position, the member 6 having its outer edge undercut; of the locking member 7 having a recess to seat on one edge of the slot, two beveled surfaces *s s'* for coacting with the member 6, substantially as shown and for the purposes described.

4. The combination with a hollow metallic railroad-tie longitudinally slotted on its upper face, said slot having lateral enlargements, the under face of the tie at points adjacent the said enlargements having vertical walls, and undercut of beveled walls adjacent the other parts of the slot; of the members 5 and 6 each comprising a head 6^{a}, a pendent dovetailed leg 6^{c}, a narrow shank 6^{b}, and rail-engaging portions, and means for retaining the said members 5 and 6 interlocked with the tie and the rail substantially as shown and for the purposes described.

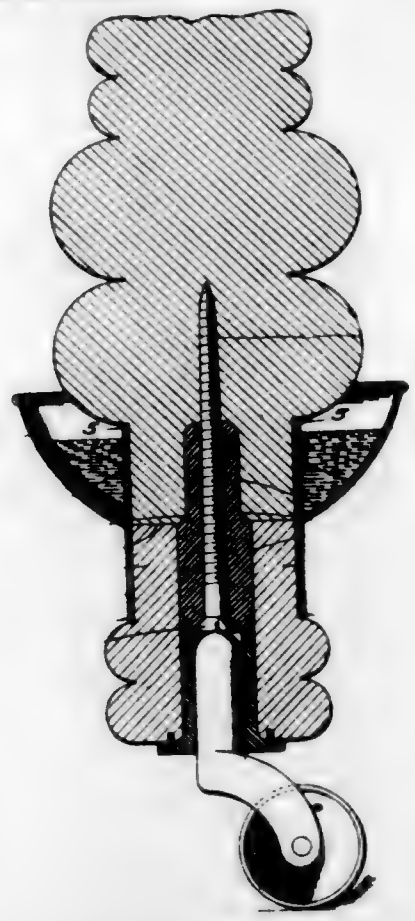
5. The combination with the longitudinally-slotted metallic tie, the rail, the opposing rail-clamp members 5 and 6, longitudinally slidable on the tie-slot, and the detachable wedge-block and locking member 7, arranged substantially as shown; of the key 8 having a split leg and adapted to be entered between the outer end of the clamp member 6 and the adjacent end of the slot in which the said member 6 fits, for the purposes specified.

6. In a metallic railroad-tie and rail-fastener means, the combination with the tie having longitudinal slots 2 and 3, each formed with an enlargement or head 2^{a} 3^{a}, straight walls 5^{c} 6^{c}, and undercut or beveled walls 5^{d} and 6^{d}, and a seat 1^{x} at the outer end of slot 2; of the clamp members 5 and 6, each consisting of a head portion, a pendent leg dovetailed in cross-section, to coöperate with the beveled or undercut walls of the slots in which they fit, and narrow shank portions to engage the narrow parts of the tie-slots, the head portions thereof having rail-flange-engaging portions, and the member 6 having its outer edge undercut, the lock or wedge member 7 having a head 7^{a}, a shank 7^{b} having a seat 7^{d}, and a stem 7^{x} adapted to fit the tie-seat 1^{x}, the front edge of the member 7, having surfaces *s s'*, disposed at an obtuse angle, all being arranged substantially as shown and for the purposes described.

694,788. ANT-TRAP FOR FURNITURE. MAX GOLDSTEIN, Santa Clara, Cuba. Filed Dec. 12, 1901. Serial No. 85,609. (No model.)

Claim.—A table-leg attachment for ant-traps consisting of covered leg parts, a tubular metal cup-trap receiving and laterally bracing the cut leg ends in abutting relation, a tubular metal core centrally connecting and laterally bracing the cut ends and a bolt passing through the core, connecting the core and the table ends, the tubular core, the bolt and the

trap-tube crossing the joining of the cut table ends and bound together in the way shown and described.



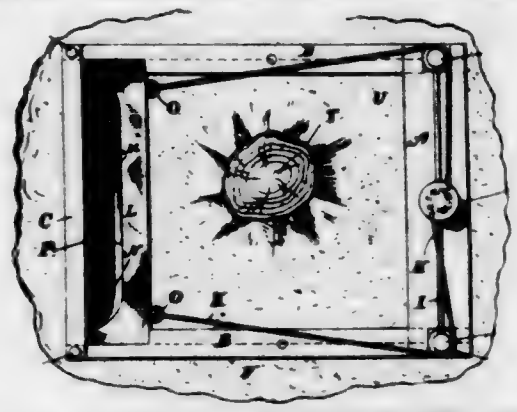
694,739. CUFF-HOLDER. MATTHEW S. GOLDHAR, Pittsburg, Pa. Filed Aug. 7, 1901. Serial No. 71,225. (No model.)



Claim.—1. In a cuff-holder adapted for attachment to the inner face of the coat-sleeve, and comprising a flat guide having its ends secured to the inner face of the coat-sleeve, a sleeve slidably mounted on said guide and frictionally held in the position to which it has been moved, and a clamp carried by said sleeve for engagement with the cuff, said clamp having a portion thereof held within the sleeve and the remaining portion bent over upon itself with the free end bent downwardly, substantially as described.

2. In a cuff-holder adapted for attachment to the inner face of a coat-sleeve, a guide having its ends rigidly fastened to the inner face of the sleeve, and a clamp slidably mounted on said guide for engagement with the cuff, the said clamp having a portion thereof engaging the slide and the remaining portion doubled over upon itself and extended forwardly with its free end bent downwardly, substantially as described.

694,740. TREE-TRANSPLANTER. GEORGE G. GUENTHER, Los Angeles, Cal. Filed Oct. 23, 1900. Serial No. 34,090. (No model.)



Claim.—1. In a transplanter, the combination with a frame comprising side and end bars, of a transversely-disposed cutter, slidably mounted in the side bars of the frame, and means for actuating the said cutter, substantially as described.

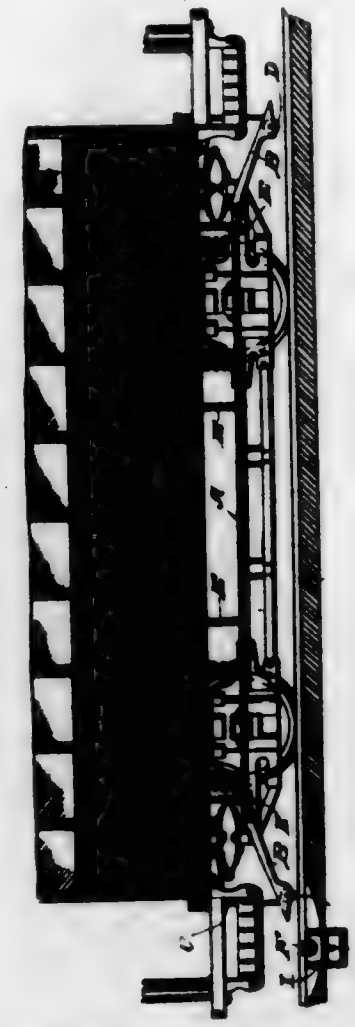
2. In a transplanter, the combination with a frame comprising side and end bars, of a transversely-disposed cutter slidably mounted in the side bars of the frame, an apron secured to said cutter and movable therewith, and means for actuating the said cutter.

3. In a transplanter, the combination with a frame comprising side and end bars, of a cutter slidably mounted in the side bars, transversely of the frame, a capstan mounted at the front of said frame and chains secured to said cutter and operated by said capstan to draw the cutter along said frame, substantially as described.

4. In a transplanter, the combination with a frame, comprising side and end bars, of a cutter slidably mounted in the side bars, transversely of the frame, an apron secured to said cutter, and means for actuating the said cutter, consisting of a capstan mounted at the front of said frame, and chains secured to said cutter and operated by said capstan to draw the cutter along said frame, substantially as described.

5. In a transplanter, the combination with a knockdown frame, comprising the end bars and the longitudinally-slotted side bars, pins passing through the overlapping ends of the bars of the frame and projecting below the under side thereof, whereby the frame may be secured immovably to the ground, a cutter slidably mounted in the slots of the side bars, an apron secured to said cutter and movable therewith, and means for actuating the said cutter, consisting of a capstan mounted on said frame and chains secured to said cutter and operated by said capstan to move the cutter, substantially as described.

694,741. AUTOMATIC SWITCH-OPERATING DEVICE. GEORGE G. GUENTHER, Los Angeles, Cal. Filed Nov. 12, 1900. Serial No. 36,188. (No model.)



Claim.—1. The combination with a railway-switch and an operating-lever, designed to be lifted to throw the switch, of mechanism carried by the car for picking up the said lever and throwing the switch, and means upon the car, adapted to form a sliding contact with the lever and uphold it in its lifted position for a predetermined period of time, substantially as described.

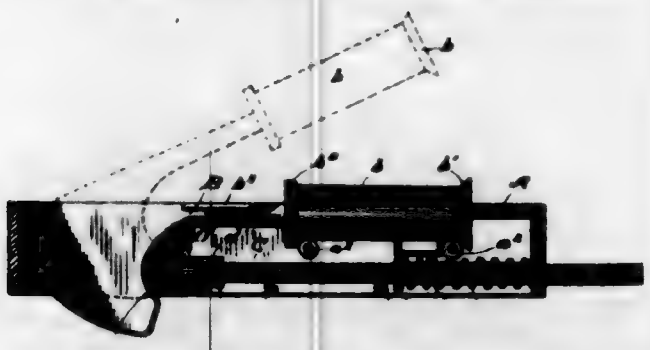
2. In an automatic switch-operating device, the combination with a car, of a rail secured thereto at a suitable distance from the track, and means, carried by said car and under the control of the operator, for lifting the switch-lever, and guiding it into engagement with the rail, said rail being of suitable length to maintain the switch-lever in its uplifted position, until the car-wheels have passed the switch, substantially as described.

3. In an automatic switch-operating device, the combination with a car, of a rail secured to said car and having depressible sections, at each end thereof, and a switch-operating lever, having its end lying in the path of the said sections of the rail, and designed to be lifted onto said rail by the depression of either of the sections, substantially as described.

4. In an automatic switch-operating device, the combination with a car, of a rail secured to said car, and having hinged sections at each end

thereof, friction devices on the ends of the hinged sections, means for depressing said hinged sections, a switch-operating lever having its end lying in the path of the hinged sections and designed to be lifted onto said rail by the depression of either of the said sections, and a guide adjacent and leading to the switch-lever, with which said guide the end of the hinged section is designed to engage, substantially as described.

694,742. RAILROAD-SWITCH. GEORGE G. GUSTAFSON, Los Angeles, Cal. Filed Nov. 22, 1900. Serial No. 37,051. (No model.)



Claim.—1. The combination with a railroad-switch and a switch-throwing bar, of an operating-lever for said bar, and means for disconnecting the operating-lever and the switch-bar, when a counter force opposes the movement of the switch-rail.

2. The combination with a railroad-switch, a switch-throwing bar, a spring to return said bar to its normal position and an operating-lever, of a telescoping connection between said bar and the operating-lever, adapted to be operated by a counter force opposing the movement of the switch-rail.

3. The combination with a railroad-switch, a switch-throwing bar, means for returning said bar to its normal position, and an operating-lever, of a thimble mounted upon the free end of the switch-bar and interposed between said bar and the operating-lever, and adapted to telescope upon the end of the bar to destroy operative connection between the bar and lever.

4. The combination with a railroad-switch, of a reciprocable switch-bar, a telescoping thimble mounted upon the free end of the switch-bar, and a pivoted switch-lever, having a cam-face bearing against the thimble upon the end of the switch-bar, substantially as described.

5. The combination with a railroad-switch, of a reciprocable switch-bar, having a free end, stops projecting from the sides of the bar, a predetermined distance from said end, a thimble on the free end of the switch bar, and formed with a cutting edge around the mouth thereof, designed to bear against the projecting stops, a pivoted switch-lever formed with a cam-face, bearing against the end of the thimble and a spring acting upon said switch-bar, to return it to its normal position, substantially as described.

6. The combination with a railroad-switch and operating mechanism, of an upwardly-swinging, pivoted switch-lever, and a flanged roller, slidably journaled on the end of the lever, and designed to be engaged by a pick-up mechanism on the car.

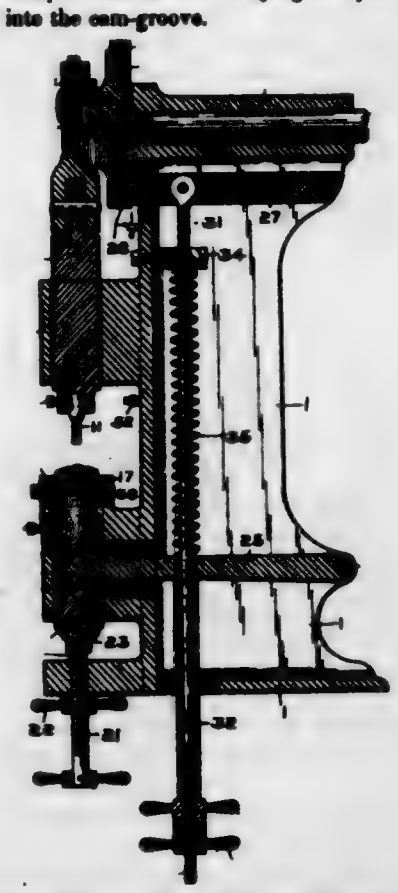
7. The combination with a railroad-switch and operating mechanism, of an upwardly-swinging, pivoted switch-lever, a slidable cylinder, mounted on the arm of said lever and containing a helical compressible spring, and a removable roller loosely journaled on said cylinder and adapted to slide along the lever-arm, therewith, substantially as described.

8. The combination with a railroad-switch, and operating mechanism, an upwardly-swinging, pivotal switch-lever, and a flanged roller, slidably journaled on the end of the lever and designed to be engaged and lifted by pick-up mechanism on a passing car, of a switch-box for the switch-lever and operating mechanism, constructed with a guideway or channel beneath the roller on the lever and transversely of the box and said lever, with entrances from either side of said box, substantially as described.

694,743. MACHINE FOR MAKING TABLETS. SCHUYLER C. GUTLEY, Indianapolis, Ind. Filed Oct. 5, 1901. Serial No. 77,982. (No model.)

Claim.—1. A die having a hole through it to form the sides of a mold, a plug capable of a reciprocating movement taking into the die-hole from the bottom, a lever to reciprocate the plug, a revolvable shaft, a cam-wheel mounted thereon, having a wrist-pin, a plunger having a punch said punch taking into the die-hole and said plunger being connected through a pitman with and reciprocated from the wrist-pin on the cam-wheel, said cam-wheel having a cam-groove on its inner side, a second lever having one of its ends taking in the said cam-groove whereby a vibratory movement is given to the lever and means for connecting the two levers whereby they will move in unison.

2. In a tablet-making machine a forming-die having a movable bottom, a lever by which said bottom is moved, a second lever connected with said first lever, a punch taking into said die, a cam-wheel having a wrist-pin on one side and a cam-shaped groove on the other, a pitman connecting the wrist-pin with the lever carrying the punch and said second lever taking into the cam-groove.



3. In a tablet-making machine a forming-die having a movable bottom, a lever controlling the movement of said bottom, a driving-shaft, a cam-wheel mounted thereon having a cam-groove, a second lever actuated by the cam-groove, a bolt connecting the two levers having a screw-threaded end, a nut on said threaded end whereby the distance between the levers can be regulated and a spring pressing the lower lever away from the upper one.

4. A die-plate, a removable and reversible die seated therein and supported by an adjustable collar.

5. A die-plate having an opening with a round screw-threaded lower portion, a threaded collar screwing into said threaded lower portion and a removable and reversible die seated in said opening and supported by said collar.

6. A die-plate having an opening with a round screw-threaded lower portion, said plate having a split extending from one edge to the opening, a bolt to draw the split parts together, a split screw-threaded collar screwed to the lower part of the opening and a removable and reversible die seated in said opening above the collar and supported thereby.

7. A shoe, having a socket and a lateral slot less in width than the diameter of the socket leading therefrom to the margin of the shoe, a cup seated in said socket, a headed bolt passing through the cup and socket and a spring between the bolt-head and the bottom of the cup.

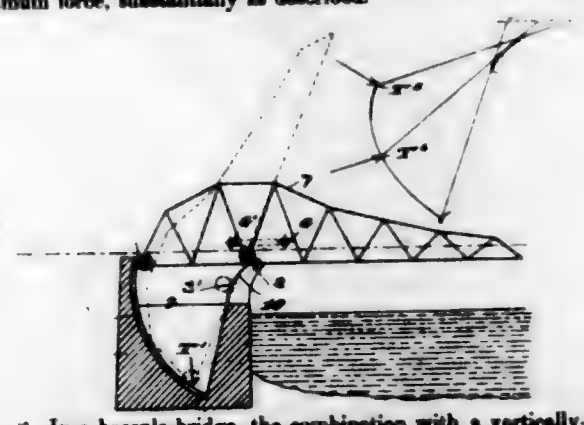
8. A die-plate having a die with a die-hole, a shoe pivotally secured to the plate and having a conduit registering with the die-hole at certain positions of the shoe, means for oscillating the shoe and a reservoir containing material to be fed through the shoe to the die-hole and a tube connecting the conduit of the shoe with the reservoir.

694,744. BASCULE-BRIDGE. CHARLES F. HALL, Chicago, Ill., assignor, by mesne assignments, to Hall Bascule Bridge Company, a Corporation of Illinois. Filed Dec. 3, 1900. Renewed Aug. 5, 1901. Serial No. 70,960. (No model.)

Claim.—1. In a bascule-bridge, the combination with a vertically-swinging span of an abutment supporting the same and having a dry well therein to receive the land end of the span, said dry well having a convex scarp and a concave rear wall with which the under side and heel of the span have sliding engagement respectively, said curved walls of the dry well being so related to each other and to the line of movement of the center of gravity of the bridge-span as that said bridge-span shall be in substantial equilibrium at all points of its travel without the employment of counterweights, substantially as described.

2. In a bascule-bridge, the combination with a vertically-swinging span of an abutment supporting the same having a dry well therein to receive the land portion of the span, the said dry well having a curved

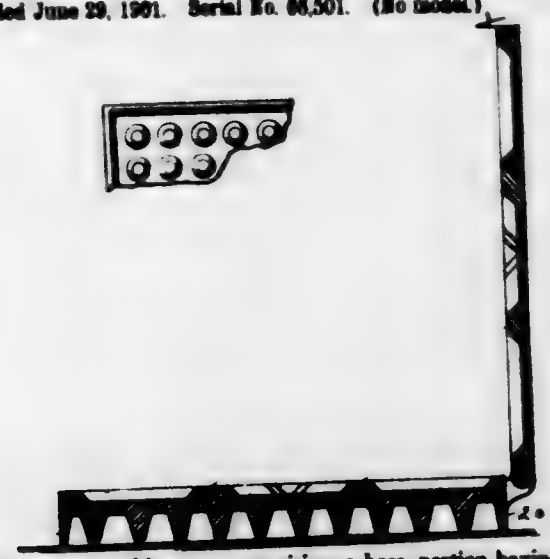
scarp and an oppositely-curved rear wall with which the under side and heel of the span have sliding engagement respectively, said curves being so related to each other and to the line of movement of the center of gravity of the span as that the effective component of the gravity force acting through the span structure shall be substantially equal to and counterbalanced by the effective component of the resistance offered by the curved inner wall of the dry well at all points of the travel of the span, whereby the latter is at all times in substantial equilibrium without the use of counterweights, and may be operated by the application of a minimum force, substantially as described.



3. In a bascule-bridge, the combination with a vertically-swinging span of an abutment supporting the same and having a dry well therein to receive the land end of the span, the said dry well having a convex scarp on which the under side of the span rests and over which it is adapted to slide, and the rear wall of the dry well engaging the heel of the span and being formed on a curve which is determined by a series of tangents, each of which is normal to a line representing the resultant of the force of gravity acting on the curved face of the scarp, at any corresponding point of the travel of the span, substantially as described.

4. In a bascule-bridge, the combination with a vertically-swinging span of an abutment supporting the same having a dry well therein to receive the land end of the span, the said dry well having a convex scarp on which the under side of the bridge is supported at a point in rear of the plane of its center of gravity and over which it is adapted to slide, and the rear wall of the dry well engaging the heel of the span and being formed on a curve which is determined by a series of tangents, each of which is normal to a line representing the resultant of the force of gravity acting on the curved face of the scarp at any corresponding point of the travel of the span, whereby, when the span is operated, the center of gravity moves back and forth in a horizontal line, and the span is in substantial equilibrium at all points of its travel without the use of counterweights, and may be operated by the application of a minimum power, substantially as described.

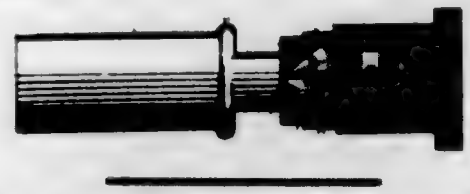
694,745. BAKING-PAN. FRANCIS HALL, Steubenville, Ohio. Filed June 29, 1901. Serial No. 66,501. (No model.)



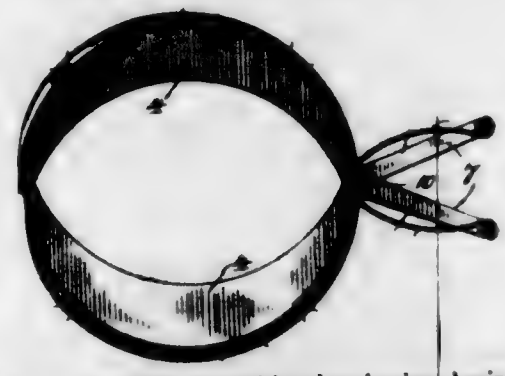
Claim.—A baking-pan comprising a base portion having a flange about its lower edge, a series of downwardly-extended solid truncated cones on the under surface of said base portion, the lower ends of said cones being above the plane of the lower edge of said flange, which surrounds same, molds formed in the upper surface of said base portion, sockets on the edge of the latter combined with the cover having a series of complemental mold-sections, the free edge of said cover having spurs which are adapted to enter said sockets when the cover is closed, as shown and described.

694,746. BUNSEN GAS-BURNER. BENJAMIN H. HANNA, Pittsburg, Pa. Filed Sept. 11, 1901. Serial No. 75,018. (No model.)

Claim.—In a gas-burner, an interiorly-threaded casing having a threaded upper portion of greater diameter forming a shoulder, an exteriorly-threaded plug in said larger portion of the casing, an exteriorly-threaded flange carried by the plug engaging the said larger portion of the casing and seated on said shoulder, said plug having ports and a central screw-threaded opening formed therein, an interiorly threaded cap mounted on said plug, the upper portion of said cap having a central aperture formed therein communicating with a gas-chamber having tapering walls formed in said cap, the periphery of said cap adapted to be engaged by the interior of the lower portion of the burner-tube, the exterior of said lower portion being threaded and engaging the interiorly-threaded larger portion of the casing, a pin carried by the said cap and operating in a slot provided therefor in the lower portion of the burner-tube, substantially as described.



694,747. FRUIT-JAR HOLDER. ERNST HIMMELSBAH, Leroy, N. Y. Filed July 5, 1901. Serial No. 67,192. (No model.)



Claim.—1. A jar-holder comprising clamping-jaws having handles, said handles being pivoted together at the rear of the jaws, and inwardly-projecting ledges on said jaws made to conform to the shape of a jar for the purpose of allowing said ledges to be passed over and support the same, substantially as described.

2. A jar-holder comprising a pair of clamping-jaws having handles projecting therefrom pivoted together at the rear of the jaws, ledges extending inwardly from the lower edges of said jaws each of which is curved so as to allow said ledges to be passed over a jar, and means for automatically opening said jaws, substantially as described.

3. A jar-holder comprising a pair of clamping-jaws having arms projecting from the upper and lower edges thereof, said arms being pivoted together, each connected by a bar, and means for automatically opening said jaws comprising a spring the opposite ends of which are attached to the bars which connect the arms, substantially as described.

4. A jar-holder comprising a pair of clamping-jaws having arms projecting from the upper and lower edges thereof, said arms being connected together by a bar, and said arms being pivoted together at the rear of said jaws, and ledges curved so as to adapt them to be passed over a jar when the jaws are open, and to engage the bottom of a jar and support it when the jaws are closed, substantially as described.

5. A jar-holder comprising clamping-jaws having a pair of arms projecting from both the upper and lower edges thereof which cross each other, one arm of each pair connected to the arm of the other pair by a bar, said arms being pivoted together at the rear of said jaws, and ledges extending from said jaws curved so as to adapt them to pass over and support a jar substantially as described.

6. A jar-holder comprising a pair of clamping-jaws having arms projecting from both the upper and lower edges thereof, said arms pivoted together and the ends each connected by a bar, means attached to the bar of each arm for automatically opening said jaws, and ledges adapted to pass over and support a jar substantially as described.

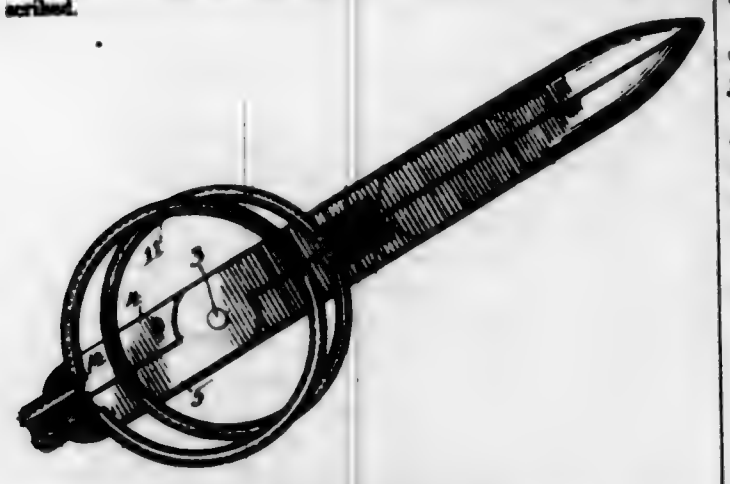
694,748. FRUIT-JAR-TOP WRENCH. ERNST HIMMELSBAH, Leroy, N. Y. Filed July 5, 1901. Serial No. 67,193. (No model.)

Claim.—1. A jar-top wrench comprising pivoted handles having jaws and expansible clamping members which when expanded open in opposite directions, substantially as described.

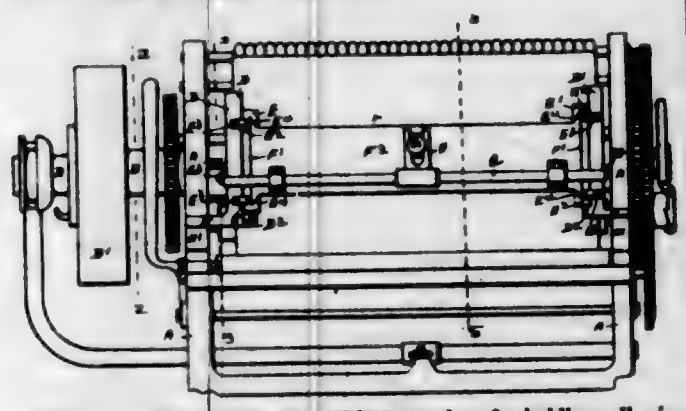
2. A jar-top wrench comprising pivoted handles having jaws and expansible clamping members which when expanded open in opposite directions, one of said members carried by the handles and the other by the jaws, substantially as described.

3. A jar-top wrench comprising pivoted handles having depending brackets carrying an expansible clamping member, and jaws having de-

pending brackets carrying an expansible clamping member, the brackets on the jaws extending below the brackets on the handles for the purpose of locating the clamping members in different planes, substantially as described.



694,749. MACHINE FOR APPLYING ADHESIVE MATERIAL TO PAPER. CLARENCE W. HOBBS, Worcester, Mass. Filed Apr. 11, 1896. Serial No. 577,123. (No model.)



Claim.—1. The combination with a gum-box for holding adhesive material and open on one side, of a gumming-roll fitting the open side of said gum-box, whereby the gumming material is held in contact with said roll with the bottom of said box provided with an upwardly-turned edge in contact with the periphery of said roll and above its center, said upturned edge forming an obtuse angle with the bottom of the box, whereby a current is established within the gum-box and the sediment is deposited on the bottom of the box substantially as described.

2. The combination with a gum-box for holding adhesive material and open on one side, of a gumming-roll fitting the open side of said gum-box, whereby the gumming material is held in contact with said roll, with the bottom of said box provided with an upwardly-turned edge in contact with the periphery of said roll and above its center, said upturned edge forming an obtuse angle with the bottom of the box, whereby a current is established within the gum-box and the sediment is deposited on the bottom of the box and means for adjusting said upturned edge relatively to the periphery of said roll, substantially as described.

3. The combination with a gumming-roll of a gum-box comprising ends F' connected by a vertical plate F^2 forming the front side of the gum-box, said gumming-roll forming the opposite side of the gum-box and a horizontal plate F^3 forming the bottom of the gum-box having an upturned edge in contact with the periphery of the gumming-roll and above its center and means for adjusting said bottom plate relatively to said roll independently of the ends of the gum-box, substantially as described.

4. In the gum-box of a machine for applying adhesive material to paper, of the class described comprising a rotating gumming-roll, the combination of plates forming the ends of the box, and having curved edges adapted to fit the periphery of the gumming-roll, a trough comprising a vertical front plate, a horizontal bottom plate, and connecting end plates, said trough having a sliding motion independently of said box ends, and means for adjusting said trough relatively to the gumming-roll, substantially as described.

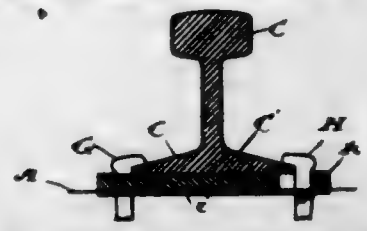
5. The combination in a gum-box of plates D, D' provided with shoulders D^2, plates E, E' resting upon said shoulders and forming the end of the gum-box, means for adjusting the plates E, E' relatively to the plates D, D', ways on the inner sides of the plates E, E', a trough F sliding in said ways and means for adjusting said trough in said ways, substantially as described.

6. The combination with a rotating gumming-roll of plates D, D', plates E, E' supported by said plates D, D', a trough F supported by said plates E, E' and adjustable thereon, said trough presenting an edge F^3 to said roll, a shaft journaled in said trough and provided with crank-pins at its ends, links connecting said crank-pins with fixed studs, a radial arm, carried by said rocking shaft, and means for adjusting the position of said radial arm and rocking said shaft, whereby said trough is adjusted relatively to said roll, substantially as described.

7. The combination with a rotating gumming-roll of a frame hinged concentrically with said roll and a gum-box held in said frame and adjustable therein relatively to said gumming-roll, substantially as described.

8. The combination with a rotating gumming-roll of a frame hinged concentrically with said roll, a gum-box supported in said frame, means for supporting said frame with the gum-box in operative relation to said roll and means for adjusting said gum-box within said frame, substantially as described

694,750. RAIL-FASTENER. ENOS W. HOGAN, Port Arthur, Canada. Filed Dec. 11, 1901. Serial No. 85,474. (No model.)



Claim.—1. In a rail-fastener, the combination with a shiftable tie-plate provided with a shouldered hole having an enlarged and contracted portion; of a shouldered spike having shoulders adapted to engage with the tie-plate under the edges of the contracted portion of the hole while the head holds the rail to the tie, substantially as described.

2. In a rail-fastener, the combination with a shiftable tie-plate located on the tie under the rail-base and provided with a shouldered hole having an enlarged and contracted portion; of a shouldered spike having shoulders adapted to engage with the tie-plate under the edge of the contracted portion of the hole while the head holds the rail to the tie substantially as described.

3. In a rail-fastener, the combination with a shiftable tie-plate located on the tie under the rail-base and provided with a shouldered hole having an enlarged and contracted portion; of a shouldered spike having shoulders adapted to engage with the tie-plate under the edges of the contracted portion of the hole while the spike-head engages with the rail-flange; and a spike to engage with the tie-plate and opposite flange of the rail, substantially as described.

4. In a rail-fastener, the combination with a shiftable tie-plate provided near one end with shouldered holes having enlarged and contracted portions; of shouldered spikes having shoulders adapted to engage with the tie-plate under the edges of the contracted portions of the holes while the spike-heads hold the rail to the tie, substantially as described.

5. In a rail-fastener, the combination with a shiftable tie plate located on the tie under the rail-base and provided near one end with shouldered holes having enlarged and contracted portions; of shouldered spikes having shoulders adapted to engage with the tie-plate under the edges of the contracted portions of the holes while the spike-heads engage with the rail-flange; and a spike to engage with the tie-plate and opposite flange of the rail, substantially as described.

6. In a rail-fastener, the combination with a shiftable tie-plate located on the tie under the rail-base and provided near one end with shouldered holes having enlarged and contracted portions; and at the other end with a spike-hole; and rubs formed on the reverse face of the tie-plate; of shouldered spikes having shoulders adapted to engage with the tie-plate under the edges of the contracted portions of the holes while the spike-heads engage with the rail-flange; and a spike to engage with the tie-plate and opposite flange of the rail, substantially as specified.

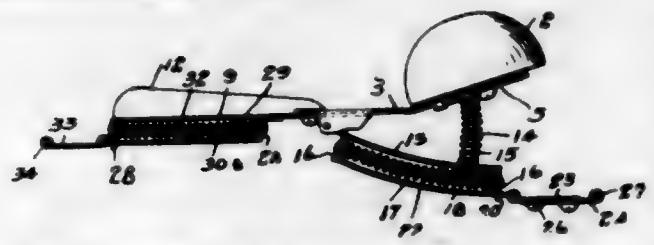
7. In a rail-fastener, the combination of the tie A; the tie-plate B provided with shouldered holes D and spike-hole E; the flanged rail C; the shouldered spike H provided with shoulder *h*; and the spike G, substantially as described.

8. In a rail-fastener, the combination of the tie A; the tie-plate B provided with shouldered holes D having enlarged portion *d'* and contracted portion *d*, and ribs *i* formed on the reverse side of the tie-plate; and spike-hole E; the rail C with flanges C'; the shouldered spike H provided with the shoulder *h*; and the spike G, substantially as described.

694,751. HERNIAL TRUSS. DAVID R. HUFFMAN, Minneapolis, Minn., assignor of one-half to ANDREW S. HOLMS, Minneapolis, Minn. Filed May 16, 1901. Serial No. 60,496. (No model.)

Claim.—1. In a truss, the combination, with two adjustably-connected plates, of pads mounted thereon, a plate hinged upon one of said pad-supporting plates, a spring tending to separate said hinged plate and the pad-plate to which it is connected, a spring carried by said hinged plate, and a plate 18 normally retracted by said spring and provided with a suitable belt connection.

2. The combination, with the plate 3, of the pad 2 adjustably connected to said plate, the plate 13 hinged to the plate 3, a spring arranged between the plate 13 and the pad and tending to press the pad away from the plate 13, a second plate arranged substantially in line with and adjustably connected to the plate 3, and spring connections for connecting the belt to the plate 13 and to the plate that is adjustably connected to the plate 3, substantially as described.



3. The combination, with the two plates 3, 3, adjustably connected together, of a pad 2 adjustably supported upon each of said plates, a plate 13 hinged to the inner portion of each of said plates 3, a spring 15 arranged between the plate 13 and each of the pads 2, and means for yieldingly connecting a belt to the outer end of each of the plates 13, substantially as described.

4. The combination, in a truss, with two plates adjustably secured together, of suitable pads secured upon said plates, a plate hinged to the inner portion of one of said pad-supporting plates, a spring tending to force the corresponding pad away from said hinged plate, and a yielding belt-supporting connection to said hinged plate, substantially as described.

5. In a truss, the combination, with a plate 3 having a slot 7 and a tube 6, of a plate 5 centrally pivoted on said tube and having near one end an adjustable connection with said slot, a pad secured to said plate 5 and having a socket to receive said tube, a plate 13 hinged to said plate 3 and having a stud to enter said tube, a spring provided in said tube for normally holding said pad and plate 13 apart, and a suitable belt connection provided on said plate 13, substantially as described.

6. The combination, with a plate 3, of a pad 2 pivoted thereon, a plate 13 hinged to said plate 3, a spring for normally holding said pad and plate 13 apart, a rod 17 carried by said plate 13, a spring thereon, the plate 18 normally retracted toward the hinged end of said plate 13 by said last-named spring, and means for attaching a belt to said plate 18.

7. A truss, comprising plates 3 and 9 adjustably connected, pads mounted on said plates, a plate 13 hinged to said plate 3, a spring interposed between said plates 3 and 13, a rod 17 carried by said plate 13, a spring 22 on said rod, a plate 18 normally retracted by said spring and provided with a suitable belt connection, and a yielding belt connection provided on said plate 9, substantially as described.

8. In a truss, the combination, with two plates 3 and 9 adjustably connected together and each provided with a suitable pad secured thereon, lugs 10 provided on said plate 3, a plate 13 hinged on said lugs, a spring between said plates 3 and 13 and tending to hold them apart, a yielding belt connection provided on said plate 13, and a second yielding connection for the other end of the belt provided on said plate 9, substantially as described.

9. A truss, comprising plates 3 and 9 adjustably connected, pads mounted on said plates, a plate hinged to said plate 3, a spring interposed between said plate 3 and said hinged plate, a rod carried by said hinged plate, a spring 22 on said rod, and a plate 18 normally retracted by said spring 22 and provided with a suitable belt connection.

10. A truss, comprising plates 3 and 9, pads mounted on said plates, a plate hinged to said plate 3, a spring interposed between said plate 3 and said hinged plate, a rod 17 carried by said hinged plate, a spring 22 on said rod and a plate 18 normally retracted by said spring 22 and provided with a suitable belt connection.

694,752. MANUFACTURE OF STEEL BY THE OPEN-HEARTH PROCESS. WILLIAM B. HUGHES, Philadelphia, Pa. Filed June 5, 1901. Serial No. 63,229. (No specimens.)

Claim.—1. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron, premelting, outside of the furnace, oxid of iron and mixing said molten oxid with lime to form thereby a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron and then bringing the molten slag into contact with the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, substantially as specified.

2. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified iron, premelting and fluxing together, outside of the furnace, oxid of iron and lime to form a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron and then bringing the molten slag into contact with the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, substantially as specified.

3. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified iron substantially without slag covering, premelting, outside of the furnace, oxid of iron and mixing said molten oxid with lime to form thereby a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron and then bringing the molten slag into contact with the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, substantially as specified.

4. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron, substantially without slag covering, premelting and fluxing together, outside of the furnace, oxid of iron and lime to form a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron and charging the molten slag into the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, substantially as specified.

5. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron, premelting, outside of the furnace, oxid of iron and mixing said molten oxid with lime to form thereby a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron, then bringing the molten slag into contact with the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, and then withdrawing a portion of the purified metal, leaving the remainder in the furnace to provide the starting-bath for a following operation, substantially as specified.

6. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron, premelting and fluxing together, outside of the furnace, oxid of iron and lime to form a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron, charging the molten slag into the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, and then withdrawing a portion of the purified metal, leaving the remainder in the furnace to provide the starting-bath for a following operation, substantially as specified.

7. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron substantially without slag covering, premelting, outside of the furnace, oxid of iron and mixing said molten oxid with lime to form thereby a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron, then bringing the molten slag into contact with the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, and then withdrawing a portion of the purified metal, leaving the remainder in the furnace to provide the starting-bath for a following operation, substantially as specified.

8. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron substantially without slag covering, premelting and fluxing together, outside of the furnace, oxid of iron and lime to form a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron, charging the molten slag into the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, and then withdrawing a portion of the purified metal, leaving the remainder in the furnace to provide the starting-bath for a following operation, substantially as specified.

9. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified iron, premelting, outside of the furnace, oxid of iron and mixing said molten oxid with lime to form thereby a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure iron, then bringing the molten slag into contact with the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, then withdrawing so much of the impurity-containing slag as may be necessary to permit of the rapid heating of the metal then reducing the carbon to the desired percentage and raising the temperature of the metal to the tapping-point, and finally tapping off only a portion of the purified metal, leaving the remainder in the furnace to provide a starting-bath for the following operation, substantially as specified.

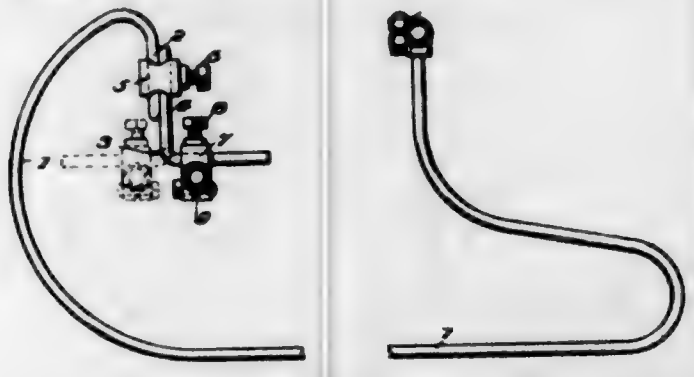
10. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron, premelting and fluxing together, outside of the furnace, oxid of iron and lime to form a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron, charging the molten slag into the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom,

then withdrawing so much of the impurity-containing slag as may be necessary to permit of the rapid heating of the metal, then reducing the carbon to the desired percentage and raising the temperature of the metal to the tapping-point, and finally tapping off only a portion of the purified metal, leaving the remainder in the furnace to provide a starting-bath for the following operation, substantially as specified.

11. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron substantially without slag covering, premelting, outside of the furnace, oxid of iron and mixing said molten oxid with lime to form thereby a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron, then bringing the molten slag into contact with the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, then withdrawing so much of the impurity-containing slag as may be necessary to permit of the rapid heating of the metal, then reducing the carbon to the desired percentage and raising the temperature of the metal to the tapping-point, and finally tapping off only a portion of the purified metal, leaving the remainder in the furnace to provide a starting-bath for the following operation, substantially as specified.

12. The method herein described of making open-hearth steel which consists in providing the hearth of the furnace with a bath of purified molten iron substantially without slag covering, premelting and fluxing together, outside of the furnace, oxid of iron and lime to form a highly-oxidizing liquid basic slag, pouring into the bath of purified molten iron on the hearth of the furnace a charge of impure molten iron, charging the molten slag into the full bath of molten iron on the hearth of the furnace so as to remove impurities therefrom, then withdrawing so much of the impurity-containing slag as may be necessary to permit of the rapid heating of the metal, then reducing the carbon to the desired percentage and raising the temperature of the metal to the tapping-point, and finally tapping off only a portion of the purified metal, leaving the remainder in the furnace to provide a starting-bath for the following operation, substantially as specified.

694,753. SLED-RUNNER. GUSTAF JOHNSON, Marquette, Mich. Filed Nov. 20, 1901. Serial No. 82,965. (No model.)



Claim.—1. The combination with a pair of sled-runners, and means for securing the front and rear ends of the runners, of an independent member intermediate each runner and one of its securing means having a horizontal portion upon which such securing means are adjustably mounted to regulate the distance between itself and the other securing means, and means whereby such horizontal portion may be axially turned to project forward or rearward of its axis to increase the extent of adjustment of the securing means toward or away from each other, as and for the purpose set forth.

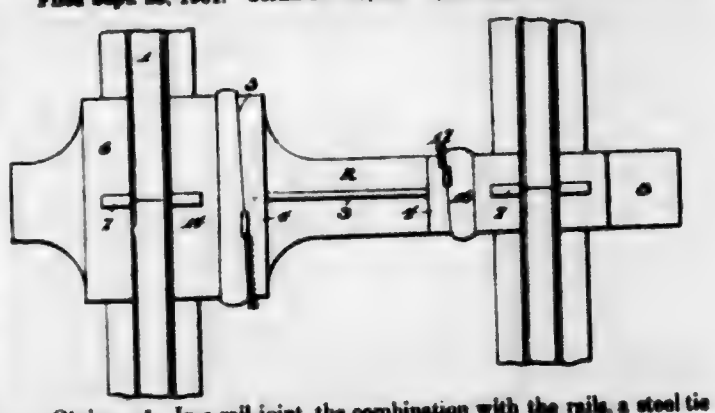
2. The combination with a pair of sled-runners and means for securing the front and rear ends of the runners, of right-angular bars intermediate each runner and one of its securing means, having each one arm adjustably held to such securing means, substantially as set forth.

3. The combination with a runner secured at one end and having a vertical portion at or near its other end, of an angular bar having one arm adjustably secured to said vertical portion, and holding means adjustable on the other arm of such bar by which the runner is held, substantially as set forth.

4. The combination with a runner held at one end, of means for holding the other end of the runner comprising a hub, a set-screw, and a clamp, and an angular bar one arm of which is secured to the runner and to the other arm of which the hub is adjustably held by its set-screw, substantially as set forth.

5. The combination with a pair of sled-runners, of clamps designed to hold said runners on the front and rear axles of a vehicle, said runners being secured at their rear ends to the inner ends of the rear clamps, angular bars having vertical and horizontal arms, means adjustably securing each vertical arms to the forward ends of the runners, and means adjustable on the horizontal arms of such bars for locking the same to the outer ends of the front clamps, substantially as set forth.

694,754. RAIL-JOINT. JOSEPH W. KENNEDY, Duquesne, Pa. Filed Sept. 25, 1901. Serial No. 76,456. (No model.)



Claim.—1. In a rail-joint, the combination with the rails, a steel tie having openings formed therein, chair-sections formed integral with said steel tie arranged at the outer ends thereof, locking fish-plates, dovetails secured to the lower face of said locking fish-plates engaging said openings in said tie, wedges engaging the inner faces of said locking fish-plates and steel tie, and means whereby said wedges are securely locked in position, substantially as described.

2. In a rail-joint, the combination of the rails, a steel tie having openings or guides formed therein, integral chair-sections formed on the outer ends of said steel tie, locking fish-plates, dovetailed guides formed on the lower face of said locking fish-plates engaging said openings and guideways, wedges oppositely inclined engaging said locking fish-plates, and locking-keys engaging said wedges and steel tie, all parts being arranged and operating substantially as described and for the purpose set forth.

694,755. ORNAMENTAL STOCK FOR FRAMING OR OTHER PURPOSES. JOHN H. KILLION, Chicago, Ill. Filed July 20, 1901. Serial No. 70,074. (No model.)



Claim.—1. Stock or material for framing and other purposes comprising a piece bent transversely to form portions extending on each side of an axial line on a plane at right angles to the edge of said piece and having in each of said extended portions an opening or recess for the reception of a frame or the like, substantially as described.

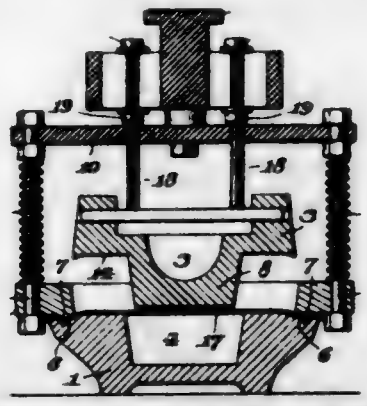
2. Stock or material for framing and other purposes comprising a piece having at proper points pairs of longitudinal slits and bent transversely, the portions between the slits being bent oppositely from the portions of the main piece from which they are cut, substantially as described.

3. Stock or material for framing and other purposes, comprising a piece having at proper places pairs of longitudinal slits, and bent transversely to form portions extending on each side of an axial line through said piece, the portions between the slits on each side of said line being bent oppositely from the portions of the main piece from which they are cut, substantially as described.

694,756. MACHINE FOR PRESSING HATS. CYRUS H. KLINGER and JAMES J. REYNOLDS, Philadelphia, Pa., assignors to Siegmund Prince, Philadelphia, Pa. Filed Sept. 3, 1901. Serial No. 74,071. (No model.)

Claim.—1. In an apparatus for pressing hats the combination of cooperating elements for crown and rim and a vertically-movable spring-

compressed member surrounding one of the coöperating elements and having recess-and-projection engagement with the other coöperating element as means for securing the material to be pressed at evenly-disposed disconnected points prior to and during said pressing, substantially as described.



2. In an apparatus for pressing hats the combination of coöperating elements for crown and rim and a vertically-movable spring-compressed member surrounding one of the coöperating elements and having recess-and-projection engagement with the other coöperating element as means for securing the material to be pressed at evenly-disposed disconnected points prior to and during said pressing with a constantly-increasing efficiency during the operation, substantially as described.

3. In an apparatus for pressing hats the combination of coöperating crown and rim forming elements and a vertically-movable spring-compressed member intermediate said two coöperating elements adapted to surround one of said elements and having recess-and-projection engagements with the other said element as means for securing the material at two pairs of oppositely-disposed points prior to and during the operation of pressing, substantially as described.

4. In a hat-pressing machine the combination of coöperating crown and rim forming elements, an intermediate member adapted to surround one of said elements and having recess-and-projection engagement with the other said element at evenly-disposed but disconnected points around the margin of the rim-surface and means for operating said elements so that the material to be operated upon is secured by said recess-and-projection engagement prior to and during the operation of pressing, substantially as described.

5. In a hat-pressing machine the combination of coöperating crown and rim forming elements, means for causing their coöperation and a vertically-movable spring-compressed intermediate member adapted to surround one element and to have recess-and-projection engagement with the other said element as means for automatically securing the material to be operated upon at a plurality of disconnected points around its margin prior to and during the coöperation of the crown and rim forming elements, substantially as described.

6. In a hat-pressing machine the combination of coöperating crown and rim forming elements, means for causing their coöperation and a vertically-movable spring-compressed intermediate member adapted to surround one element and to have recess-and-projection engagement with the other said element as means for automatically securing the material to be operated upon at a plurality of disconnected points around its margin prior to and during the coöperation of the crown and rim forming elements, with a constantly-increasing efficiency during the operation substantially as described.

7. In an apparatus for pressing hats the combination of a member recessed for the crown with a surrounding rim-surface, a second member having a coöperating projection conforming with said crown-recess and a coöperating rim-surface, means for causing the reciprocation of one member to and from the other and means for automatically securing the material to be operated upon at evenly-disposed disconnected points about its margin prior to and during the operation of pressing, substantially as described.

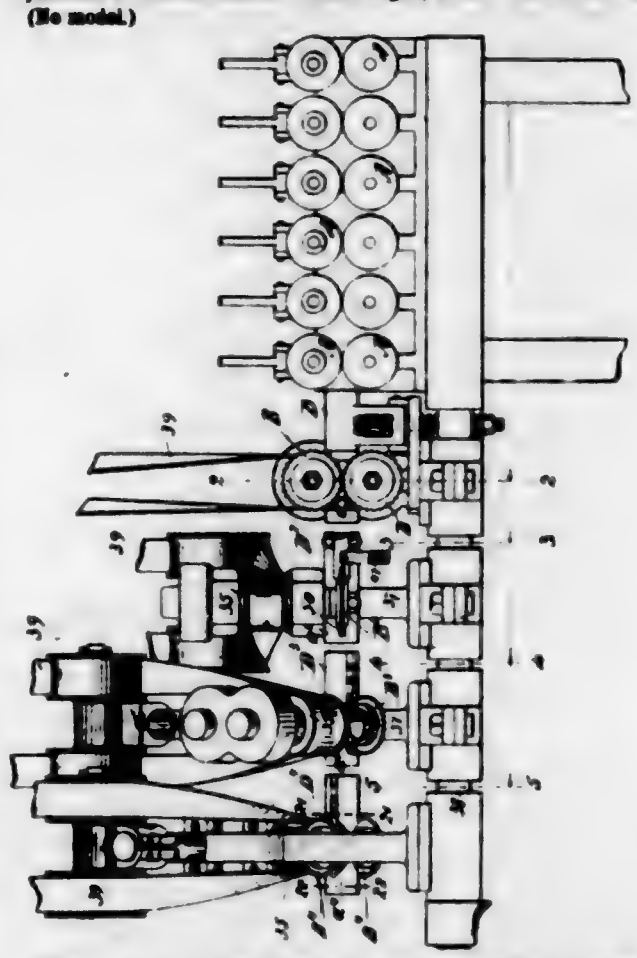
8. In an apparatus for pressing hats the combination of two coöperating crowns and rim forming elements one provided with a recess for the crown and a surrounding surface for the rim with evenly-disposed disconnected slots around the margin of the rim, the other provided with coöperating crown projection and rim-surface and means for reciprocating one member to and from the other and an intermediate member adapted to surround the rim-surface of the first member having projections corresponding with and adapted to coöperate with the slots in the first member and means for reciprocating said intermediate member to and from said first member, substantially as and for the purpose described.

9. In an apparatus for pressing hats the combination of two coöperating crown and rim forming elements one provided with a recess for the crown and a surrounding surface for the rim with evenly-disposed disconnected slots around the margin of the rim, the other provided with coöperating crown projection and rim-surface and means for reciprocating one member to and from the other and an intermediate member adapted to surround the rim-surface of the first member having projections corresponding with and adapted to coöperate with the slots in the first member and means for reciprocating said intermediate member to and from said first member with constantly-increasing spring-exerted pressure during the operation of forming, substantially as described.

10. In an apparatus for pressing hats the combination of two coöperating crown and rim forming elements, one element provided with evenly-disposed disconnected slots outside the margin of the rim-surface, and a reciprocating intermediate spring-compressed member having projections corresponding with said slots and adapted to coöperate therewith for securing the material to be operated upon, substantially as described.

11. In an apparatus for pressing hats the combination of two coöperating crown and rim forming elements, one element provided with evenly-disposed disconnected slots outside the margin of the rim-surface, and a reciprocating intermediate spring-compressed member having projections corresponding with said slots and adapted to coöperate therewith for securing the material to be operated upon, the spring compressing means being so arranged as to secure an efficiency of engagement of the material increasing during the operation, substantially as described.

694,757. MACHINE FOR DIVIDING LATH. HENRY W. LARSON, Springfield, Mass., assignor to the Larson Whip Company, a Corporation of Massachusetts. Filed Aug. 2, 1900. Serial No. 725,894. (No model.)



Claim.—1. In a machine of the character described, a pair of subdividing-saws for halving sections of stock already longitudinally divided, having coöperating therewith centering-guides for the divisions to be further divided, and having following the saws, separating-guides for those divisions of the stock produced and brought thereto which are to be further halved, in combination with a still further pair of saws located in the line of feed of stock beyond the first pair of saws for subdividing pairs of the segmental stock strips having preceding them guides with passages for the segmental sections to be further halved, into which guides such strips are all led by the said separating-guides next preceding them, substantially as described.

2. In a machine of the character described, the combination of the feed-rolls A A, the several pairs of circular saws, each pair having succeeding points of location in the line of feed of the stock and each pair arranged in a plane angular to that of another pair of the saws, and all having the approaching edges thereof working in the common line of feed of the stock, centering-guides for the undivided stock, preceding each pair of the saws, separator-guides following all the saws but the last for insuring the entrance separately of the divisions to be further divided into the guides preceding the respective subdividing-saws therefor.

3. In a machine of the character described, halving-cutters, a pair of circular saws in edgewise proximity working in a plane right-angular to the halving-cutters, for quartering, a pair of saws for subdividing di-

metrically opposite quarters of the stock, arranged in a plane angular to both that of the halving-cutters and the centering-saws, and a still further pair of saws for subdividing the two remaining quarters of the stock, arranged in a plane at right angles to the preceding subdividing-saws, means for guiding the stock and the divisions and subdivisions, with their central radial lines coincident with the cutters or saws therefor, and means succeeding each of the cutters or saws excepting the last, for separating or spreading the divisions of the stock, then being led or fed to the succeeding guides so that they will enter the respective succeeding guide therefor to be properly individually presented to the cutter for the further division thereof.

4. In a machine of the character described, in combination, halving-cutters and guides for leading the stock thereto, quartering-saws located in the line of feed beyond the halving-cutters and guides for leading the halved stock centrally to said quartering-saws, and a pair of saws having a location in the line of feed beyond the quartering-saws arranged in a plane angularly thereto, guides having V-walls for leading opposite quarters of stripe centrally to the last-named saws, sidewise pressure appliances, and devices for separating the ends of the strips being fed and approaching said endwise open V-guides, whereby such will be brought into such guides, substantially as described.

5. In a machine of the character described, the combination with mechanism for longitudinally feeding segmental stripe, and subdividing-cutters to which the stripe are fed, guides adjacent the cutters having V-formed walls, appliances acting with lateral pressure for yieldingly forcing the segmental stripe to contact on the convergent walls of the guides, and means for insuring the separation of the forward ends of the strips being fed to the guides and cutters, whereby they will respectively enter the individual guides therefor.

6. In a machine of the character described, the combination with mechanism for longitudinally feeding segmental stripe, guides for such stripe which transversely are of V form and appliances acting with lateral pressure for yieldingly forcing the segmental stripe to contact on the convergent walls of the guides, and subdividing-cutters for the segments fed thereto through said adjacent guides.

7. In a stock-stripping machine, the combination with the halving-cutters, of the separator-guide following same, a pair of quartering-saws B^2 B^2, guides for the halves preceding the saws comprising a median wall at right angles to the saws, and the laterally-arranged members 45 having V-recesses at their inner sides, and an inwardly-pressing spring for each said member.

8. In a machine of the character described, the combination with a halving-cutter, of a guide, and means for feeding and guiding the rattan or similar stock to and past the action of the same, of a succeeding saw or saws operating in a plane at right angles to the first saw, centrally-partitioned, longitudinally-arranged guides, and transverse pressure appliances whereby the half-stripe are carried centrally coincident with the second sawing plane, a longitudinal strip-separating wall succeeding the first cutter and between same and the guides in advance of the second saw or cutter for insuring the entrance of the halves respectively into the individual guides therefor, leading them to the second cutter, substantially as described.

9. In a machine of the character described, the combination with the quartering-saws B^2 B^2, and the separator-guides following them, having four radial partition-wings between which the quarter-segments pass in separation, of the pair of saws B^3 B^3 arranged in a plane radially intersecting a pair of the quarter-segments, a guide having four V-shaped passages preceding said saws, and pressure-springs transversely acting inwardly within an opposite pair of said V-passages, substantially as and for the purposes set forth.

10. In a machine of the character described, the combination with the set of saws B^3 B^3 arranged as described, coöperating with and following which is the separator-guide device having diametrically opposite wall-separated passages for undivided quarter-segments, of the pair of saws B^4 B^4 right-angular to the saws B^3 B^3, and centering-guides preceding them, but following the aforesaid separator-guides, which follows said saws B^3, substantially as and for the purposes set forth.

11. The set of feed-rolls A and the means for driving them all in unison, the four pairs of saws, the first and second arranged right-angular to each other, and the third and fourth arranged right-angular to each other, but both angular to the first and second, and all having their working edges intermeshing at a common longitudinal line, and guides for carrying stock centrally to the first pair of saws, and divisions thereof in radial coincidence with the succeeding sets of saws, for the purposes set forth.

12. In a stock-stripping machine, the combination of two or more sets or pairs of saws arranged with their teeth intermeshing and the saws of one pair in a plane angular to that of another pair, means for rotating both saws of each pair in opposite directions at the same speed, and means for guiding round stock in radial coincidence with the cutting planes of said saws.

13. In a machine for stripping rattan or other stock, a pair of circular saws both arranged for rotation in a common plane with their teeth intermeshing, means for rotating the saws in opposite directions at exactly the same speed.

14. In a machine for stripping rattan or other stock, a pair of circular saws both arranged for rotation in the same plane with their teeth intermeshing, means for rotating the saws in opposite directions at exactly the same speed, and a guide preceding said pair of saws.

15. In a machine for stripping rattan or other stock, a pair of circular saws both arranged for rotation in the same plane with their teeth intermeshing, means for rotating the saws in opposite directions at exactly the same speed, and a centering-guide preceding said pair of saws, and a separator-guide following same.

16. The combination of feed-rolls A A, and means for running them all in same direction, pairs of saws B, B^3, B^2, B^4, those of one pair being angular to those of another, and having the toothed edges intermeshing, the centering-guide D, preceding saw B which cuts the whole stock, the centering-guide D^2 preceding the quartering-saws B^2 for centering the halves relatively to such saws, centering-guides D^3 D^4 insuring the presentation of the diametrically opposite pairs of the quarters radially centrally relatively to the third and fourth pairs of saws, respectively, and separator-guides preceding the centering-guide for all the saws which follow the first set thereof, substantially as described.

17. The series of feed-rolls consisting of positively-driven lower rolls and upper pressure-rolls, bars on which the upper rolls are journaled, standards to which end portions of the said bars are pivoted, levers pivotally mounted and having a member thereof in pressure bearing on the respectively adjacent bar, and a spring applied to and exerting a draft force on the other member of each said pivoted lever, substantially as described.

18. In a stock-stripping machine, the combination with a tubular guide device having segmental-shaped openings therethrough, and having slots leading from opposite sides through the wall of the tubular device and entering opposite ones of said segmental openings, of the pair of circular saws having their teeth in intermeshing relations as described, and oppositely entering through said slots, means for driving the same and transverse pressure appliances inwardly acting within the segmental openings in which said saws enter.

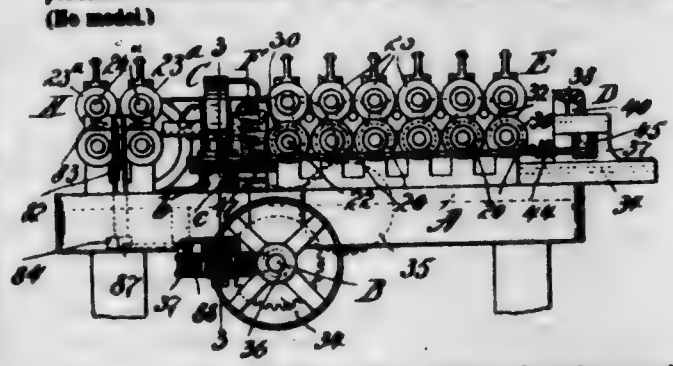
19. The combination with a guide for cross-sectionally segmental stripe of rattan or other stock comprising a V-shaped guiding-passage, of a subdividing circular saw arranged in a plane intersecting the guiding-passage and adapted to rotate so that its teeth move from the inner toward the outer side of the strip, and means for rotating said circular saw.

20. The combination with a guide for segmental stripe of rattan or other stock comprising a V-shaped guiding-passage, of a subdividing circular saw arranged in a plane coincident with a line radially extending from the apex of and intersecting the guiding-passage and adapted to rotate so that its teeth move from the apex outwardly, and means for rotating said circular saw in the stated direction.

21. In a machine of the character described, in combination the four pairs of saws, the first and second pairs arranged in planes right-angular to each other, and the third and fourth pairs arranged right-angular to each, and both angular to the planes of the first and second pairs and all having their working edges intermeshing at a common longitudinal line, and guides for carrying the stalk centrally to the first pair of saws, and divisions thereof, in radial coincidence with the succeeding pairs of saws, substantially as described.

22. A pair of arbors having intermeshing gears and also having circular saws, the teeth of which intermesh, and means for causing the rotations thereof.

694,758. MACHINE FOR DIVIDING RATAN. HENRY W. LARSEN, Springfield, Mass., assignor to the Larsen Whip Company, a Corporation of Massachusetts. Filed Oct. 26, 1900. Serial No. 734,818. (No model.)



Claim.—1. The combination with a guide for the strip or stock, of a cutter, a holder by which the cutter is supported, and means for moving the holder whereby the cutter is given a gradual swinging motion transversely relatively to the line of movement of the stock on an axis parallel thereto.

2. The combination with means to longitudinally guide the stock or strip, of a knife located adjacent the line of movement of the strip, a movable holder by which the knife is supported, and means for moving the said holder whereby the cutting plane of the knife is gradually changed transversely relatively to the length of the strip on an axis parallel thereto.

3. The combination with means to longitudinally guide the stock or strip, and means for imparting a longitudinal feed movement of the strip, of a knife located adjacent the line of the strip, a movable holder by which the knife is supported, and means for moving the said holder whereby the cutting plane of the knife is gradually changed transversely relatively to the line of feed of the strip on an axis parallel thereto.

4. The combination with means for longitudinally guiding the strip or stock, and means for imparting a feed motion to the strip, of a knife, a holder adapted for a rotational movement by which the knife is supported adjacent the line of feed movement of the strip and behind the knife, means for rotationally moving the said holder whereby the knife is caused to assume successively positions transversely relatively to the length of the strip, and a second feeding means provided behind the location of the knife, substantially as described.

5. The combination with means for longitudinally guiding the strip or stock, and means for imparting a feed motion to the strip, of a cutting-knife, a carrier adapted for a rotational movement by which the knife is supported adjacent the line of the strip and means for rotationally moving the said carrier whereby the knife is caused to pass through changing planes transversely of the length of the strip, and a second feeding means located in the line of feed of, and beyond the knife, which comprises members one of which is separable from the other, and means for causing the opening of the one member from the other to permit the entrance therebetween of the end portion of the strip which has passed subject to the action of the knife.

6. The combination with a feeding means for the strip or stock, and a guide back of, or beyond it, of a knife and a carrier adapted for a rotational movement by which the knife is supported located beyond or back of the said guide, means for moving the knife-carrier whereby the knife is given a gradual rotational swinging motion transversely relatively to the line of feed movement of the stock, a second guide in the line of feed beyond the knife, and a second feeding means beyond the last-named guide to which the latter guides the split portion of the stock.

7. The combination with means to longitudinally guide the stock or strip, of a knife located adjacent the line of feed of the strip, a movable holder or carrier for the knife by which it is pivotally supported with its cutting edge behind the pivotal center of its mounting upon the carrier, and means for moving the said carrier whereby the length of the knife is gradually moved transversely to the line of feed of the strip.

8. The combination with a V-shaped guide, of a knife located adjacent the line of and to the rear of the guide, a holder supporting the knife pivotally and which holder is mounted for an arc movement, the center of the movement of the holder and the knife being substantially coincident with the apex of the guide, and means for imparting the reciprocatory arc movement to the holder on an axis parallel with the line of feed movement of the stock.

9. The combination with a guide having convergent sides, of the knife-carrier and knife pivotally supported by the carrier, the carrier being mounted to move in an arc having an axis parallel with the line of feed of the stock and arranged to present and maintain the knife with its length always in a line radial to the intersection of the angular sides of the guide.

10. The combination with a guide having opposite convergent sides, of a knife in line with the guide, a holder by which the knife is pivotally supported thereon and mounted for an arc movement, the line of pivotal support of the knife on the holder being ahead of the cutting edge of the knife, and means for imparting a rotational reciprocatory movement to the holder in its said arc course.

11. A guide for conducting the stock longitudinally, having convergent sides, and means for feeding the stock through the guide, a knife located adjacent the line of feed of the stock with its length radial to the apex of the convergent sides of the guide, and as regards said guide and knife, means for causing a movement of the one relatively to the other whereby the radial relations of the cutting edge of the knife to the convergent guide are varied for the purpose set forth.

12. A means for supporting the segmental stock, a knife located adjacent the longitudinal line of the stock with its length radial to the apex thereof, and as regards said stock-support and knife, means for causing a movement of the one relatively to the other whereby the over radial relations of the cutting edge of the knife to the segmental strip are varied for the purpose set forth.

13. The combination with a guide for the stock to be divided, of an annular knife-carrier mounted for a rotatable movement, a knife mounted within and across the opening in said knife-carrier, and means for imparting a rotational motion to said carrier, for the purpose set forth.

14. The combination with a casing having a circular opening therein, an annular knife-carrier rotatably mounted within the casing, and means for imparting its rotational movements thereto, a knife mounted within and across the opening in the casing and a V-shaped guide for directing a segmental strip to be divided through the annular knife-carrier and subject to the action of the knife-carrier thereby.

15. The combination with an annular knife-carrier, provided with gear-teeth, a suitably-hollow part in which said carrier is mounted for a rotational motion, a knife supported by and across the opening in said carrier, a rack-bar meshing in said gear-teeth, and a cam operating the rack-bar in one direction and a retracting-spring therefor.

16. The combination with a V-guide for the stock to be divided, of an annular knife-carrier mounted for a rotational motion beyond the guide, a knife pivotally mounted within said angular carrier having the length of its cutting edge extending crosswise of the opening within said carrier and means for imparting a rotational motion of the carrier to result in a bodily-swinging motion to the knife.

17. The combination with a V-shaped guide, of a knife in line with and beyond the guide, a holder in which the knife is pivotally supported, and mounted for a rotational movement in an arc course, the center of which movement is coincident with the apex of the V-guide, means for imparting the motion to the carrier, a second V-guide arranged in line with the first one back of the knife, a feed mechanism ahead of the first guide and a feed mechanism to the rear of the second guide, for the purposes set forth.

18. The combination with a cross-sectional V-shaped guide for the segmental-shaped stock to be divided, of an annular knife-carrier mounted for a rotatable movement having its center coincident with the apex of the guide, a knife mounted within and across the opening in said knife-carrier radially relatively to said apex, and means for imparting rotational motion to said carrier, for the purpose set forth.

19. The combination with a casing having a circular opening therein, an annular knife-carrier rotatably mounted within the casing, and means for imparting its rotational movement thereto, a knife mounted within and across the opening in the casing and in a line which is radial to or intersects the center of the carrier, and a V-shaped guide for directing a segmental strip to be divided through the annular knife-carrier and subject to the action of the knife-carrier thereby, which guide has its apex coincident with the center of the annular knife-carrier.

20. The combination with an annular knife-carrier, provided with gear-teeth, a suitably-hollow part in which said carrier is mounted for a rotational motion, a knife pivotally supported by, and centrally across the opening in, said carrier, a rack-bar meshing in said gear-teeth, and a cam operating the rack-bar in one direction and a retracting-spring therefor.

21. The combination with a knife movably mounted and means for imparting a swinging motion thereto, substantially as described, of a V-guide in advance of the knife, a series of feed-rollers in advance of the guide, and a feeding device in advance of the rollers, the same comprising longitudinally-sliding part having a V-channeled portion, and a spring-pressed pawl 40 arranged inclined to the length of the channeled portion, the thrust-rod 43 the cam *b*, and means for rotating it and the retracting-spring 44, substantially as described.

22. In a machine of the character described, the combination with the knife and the annular carrier in which it is mounted provided with gear-teeth, and the rack-bar 70, and the initial guiding device D comprising the longitudinally-sliding member 37 having the channeled portion, and a spring-pressed gripping-pawl 40, of the shaft 38 having thereon the scroll-cams *b* and *c*, the latter coöperating with the rack-bar, and a thrust-rod connected to the sliding part 37 with which the cam *b* coöperates, retracting means for the rack-bar and said slide, and a series of feeding rolls between the said initial feeding device and the knife, and means for rotating them, substantially as described.

23. The combination with the annular knife-carrier and the knife mounted therewithin, and supported thereby, together with means for turning the carrier, of a V-shaped guide located in advance of, and with the longitudinal line thereof which is coincident with its apex, in the center of the carrier, and the pressure member 50, substantially as described.

24. The combination with the annular knife-carrier, having the knife mounted centrally crosswise thereof, and therewithin, and means for turning said carrier around a fixed center, of a V-shaped guide located in advance of, and in line with, the center of the carrier, substantially as described, and having applied therein the pawl or bar 50 which is pivoted at its forward end and inclined rearwardly, and the pressure-spring 53, substantially as described.

25. In a machine of the character described, the annular knife-carrier having the knife mounted therewithin, of the V-guide in the line of the center of the carrier, and a second V-guide longitudinally extending and located to the rear of the knife and having a portion extended through the opening in the carrier to one side of the knife, and confined on and supported by the first V-guide, substantially as shown.

26. In a machine of the character described, the combination with the casing C having a circular opening therewithin, and the ring-section 60 rotatably mounted within the casing and supported for its movements thereby, the secondary annular section removably secured in the ring-section 60, and having the opposite inwardly-projecting members 72, 72, having the alined ways 73 therein, the blocks 74 removable in said ways and having the sockets 75, 75, and the knife *a* having the end studs or pivot members 76, 76, engaged in said sockets, and means for imparting rotational movements to the carrier, substantially as described.

27. In a machine of the character described, which comprises the knife, and means for feeding the stock thereto, and the feeding-out rollers, comprising lower rollers having fixed bearings and upper rollers which are separable from the lower rollers, the combination with the separable upper rollers of a vertical rod 82 having the cross-bar 83, and provided at its lower end with the inclined cam 84, the intermediately-pivoted lever 85 having an inclined portion thereof coöperating with said part 84, a rotary wheel having the projection 88 adjacent which the extremity of said lever 85 is extended, and means for rotating said wheel.

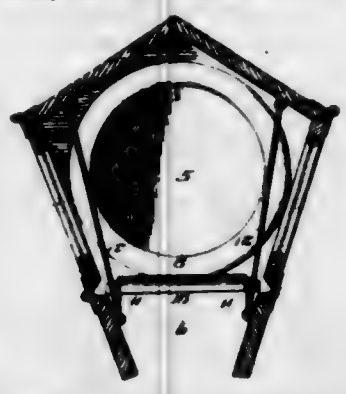
28. In a machine for dividing cross-sectionally V-shaped strips of rattan or like material from end to end on a line inclined to the common median of the strip, the combination with a V-shaped guide for the strip, a cutter thereabeyond, a holder by which the cutter is supported and means for moving the holder whereby the cutter is given a gradual swinging motion across the width of the opening in said V-shaped guide.

29. In a machine of the character described the combination with the guide having a V-shaped channel therein of a bar 75 movably mounted in the channel and a spring exerting a pressure against the bar to force it toward the base of said channel.

30. In a machine of the character described, the combination with part F having the V-shaped guide-channel of the pressure-bar 75 pivoted at its one end, and the spring 53 bearing against the bar.

31. The combination with the feed-rolls E having peripheral V-grooves, 20 of the set of coacting, yielding rolls 23 narrower than said grooves, and pressure-springs for the latter rolls.

694,759. NEST FOR POULTRY. GEORGE C. LATHROP, Washington, D. C. Filed July 16, 1901. Serial No. 68,471. (No model.)



Claim.—1. In a poultry-nest and in combination with a suitable closure or housing having ingress and egress doors hinged at opposite sides of the nest, means for connecting the doors whereby the opening and closing of ingress-doors will close and open the egress-doors, and means whereby the doors are thus opened and closed by the entrance of the fowl into the closure.

2. In a poultry-nest, the combination with a closure or housing to receive interchangeable laying or sitting nests, ingress and egress openings and doors therefor the ingress-doors of which are so hung as to provide an egg-removal opening beneath their lower ends and through which a portion of the laying-nest extends, and a plate pivotally mounted and closing said opening to exclude the air from the closure when the sitting-nest is in use, substantially as described.

3. In a poultry-nest, a closure or housing having ingress and egress openings and doors therefor, ingress-doors forming an opening beneath their lower ends, and a removable laying-nest having a flat bottom, an overhanging rim, one side formed to project as a covered trap through said opening beneath the doors, and means whereby the flat bottom of the rimmed nest is supported freely upon the bottom of the closure to incline the nest with its trap part external to the closure.

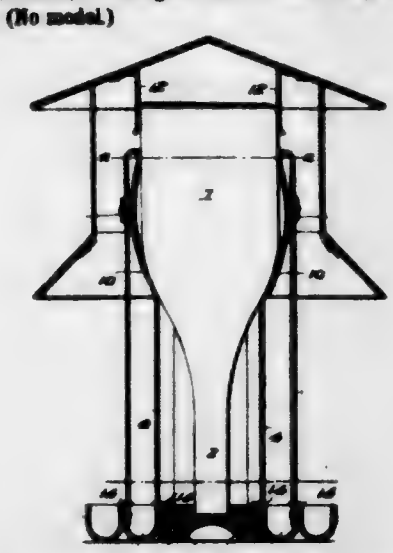
4. In a poultry-nest, a removable laying-nest having a flat bottom surrounded by an overhanging curved rim, the bottom and the curved rim oblated at one side to form a covered trap, and legs on the under side at the opposite end of the nest whereby it is freely supported with its oblated side at its lowest level.

5. In a poultry-nest and in combination with a closure or housing having ingress and egress doors hinged at opposite sides of the nest, links connecting the doors whereby the opening and the closing of the ingress-doors will close and open the egress-doors respectively, and a tilting plate or perch pivoted across the threshold of the entrance-doors and links connecting the tilting bar with said ingress-doors, whereby the weight of the fowl is caused to close and open the doors.

6. A poultry device for interchangeable laying and sitting nests consisting of a closure or housing provided on two of its sides with ingress and egress openings, doors vertically hinged in pairs, for said openings, links connecting the doors so that the closing of the ingress pair of doors will open the egress pair, the ingress pair being hung to provide an opening beneath them, screens closing the two other sides of the housing, a horizontal pivotally-mounted plate adapted to form a perch above said opening when the doors are open and a drop-plate to close said opening when the doors are closed and links connecting the said plate and ingress-doors whereby the said plate is controlled in its positions as a perch or as a drop-plate according as the laying or the sitting nests may be used.

7. A poultry-nest consisting of a closure having suitable ingress and egress doors, the ingress doors having an opening between their lower ends and the floor of the closure, and a flat laying-nest freely seated upon the floor, inclining toward the ingress-doors having an inward-curved overhanging rim and terminating at its lowest end in a trap for the egg external to the closure.

694,760. DRIP, GRIT, AND FEED DEVICE FOR POULTRY. GEORGE C. LATHROP, Washington, D. C. Filed July 16, 1901. Serial 68,472. (No model.)



Claim.—1. A feeding and watering device for poultry consisting of a plurality of contiguous concentric troughs, a basin within the circle of the inner trough, an open or skeleton stand of strips or rods, bands encircling and fastening their upper and lower ends together, the basin and the troughs being freely seated upon the lower ends of the strips, whereby the basin and the troughs are rendered independently removable for cleaning, and a drip suspended over the basin.

2. A feeding and watering device for poultry consisting of a basin and a plurality of contiguous concentric troughs, an open or skeleton stand of strips, and means whereby the basin and troughs are connected to and carried by the stand for independent removal therefrom.

3. In a feeding and watering device for poultry, the combination with a plurality of concentric troughs for containing food, a basin for containing water central with the troughs, a skeleton rack or stand of strips or rods having their lower ends split the branches whereof turned inward and outward to form seats for the troughs and basin, and means supported within the rack or stand for supplying water to the basin.

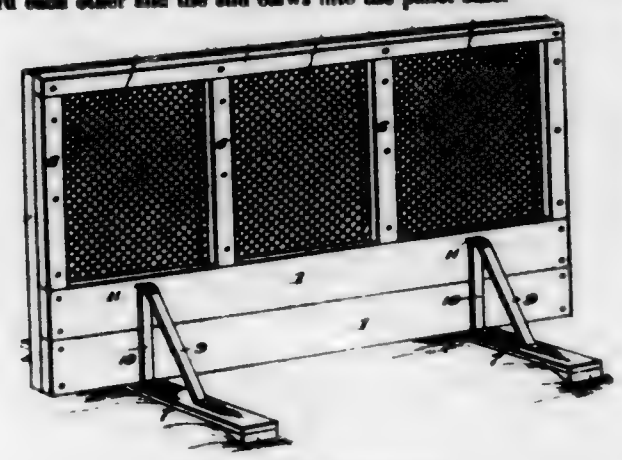
4. A feeding and watering device for poultry consisting of a basin, a plurality of endless troughs surrounding the basin, and a skeleton rack or stand of strips or rods having their lower ends split or divided to form seats for the troughs and for the basin and terminating in spear or anchor points whereby to anchor the device.

694,761. PORTABLE FENCE FOR CHICKEN-CLOSURES. GEO. C. LATHROP, Washington, D. C. Filed July 16, 1901. Serial No. 68,475. (No model.)

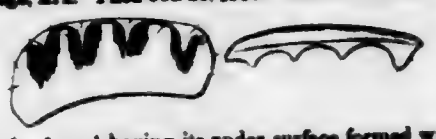
Claim.—1. In a portable fence for poultry-closures, the combination of fence-panels each having a base-boarding and above it a wire covering, with a pair of spring-sill boards, each having a riser at each end, and a pair of knee-braces rising from the sill about the middle of its length each brace having a vertical binder for receiving and supporting the panel between them, whereby the sinking of the spring-sills under the weight of the panel will force the vertical binders toward each other against the opposite sides of the panel-base boards.

2. In a portable fence for poultry-closures, the combination of fence-panels each having a base-boarding and above it a wire covering, with a pair of spring-sill boards each having a pair of knee-braces forming ver-

tical binders and end claws for receiving and supporting the panel between them, whereby the sinking of the sill will force the brace-binders toward each other and the end claws into the panel-base.



694,782. PROTECTIVE PAD FOR CORNS. SAMUEL A. LEVEL, Hot Springs, Ark. Filed Oct. 29, 1901. Serial No. 80,438. (No model.)



Claim.—1. A pad having its under surface formed with projections and depressions to conform to the upper portion of the foot at and adjacent the base of the toes, and an upper surface rounded in conformity with the inner surface of the shoe-vamp in proximity thereto, substantially as described.

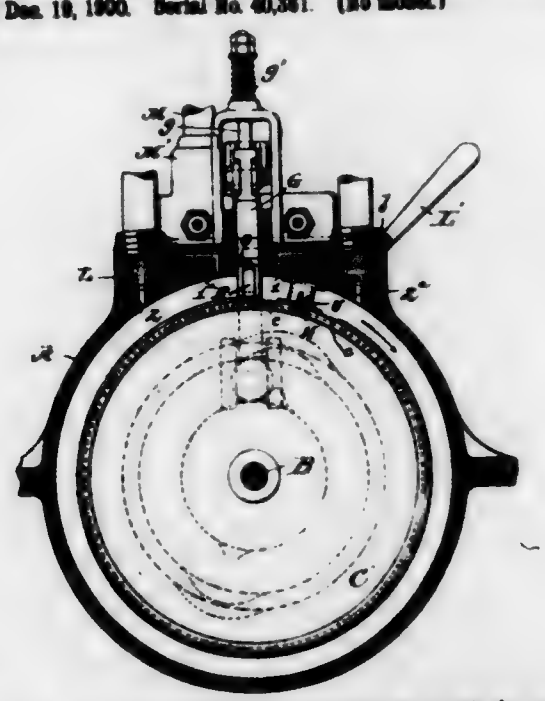
2. A pad designed to overlie that portion of the foot at and adjacent to the base of the toes, the under surface of said pad formed with projections registering with the spaces between the toes and conforming to the contiguous toes, substantially as described.

3. A pad of yielding material having its under surface formed with projections and depressions to conform to the upper portion of the foot at and adjacent the base of the toes, and an upper surface rounded in conformity with the inner surface of the shoe-vamp in proximity thereto, substantially as described.

4. A pad having a convexed upper surface, a partly-flattened lower surface, and tapered edges, said lower surface being formed with grooves or depressions extending laterally and merging into the remainder of said lower surface, substantially as described.

5. A pad having a convexed upper surface, a partly-flattened lower surface and tapered edges, said lower surface being formed with grooves or depressions extending laterally and merging into the remainder of said lower surface, and the grooves or depressions adjacent to the ends of the pad being formed incomplete to produce with the upper surface a tapered edge, substantially as described.

694,768. ROTARY ENGINE. HENRY LIETHEGENER and ADAM KLEMM, St. Louis, Mo.; said Klemm assignor to said Liethegener. Filed Dec. 19, 1900. Serial No. 40,361. (No model.)



Claim.—1. In a rotary engine, the combination with the cylinder and its piston and piston-head, of a shaft upon which said piston is mounted, a cam on said shaft, a lever operated by said cam, a plunger to which said lever is connected, and a spring cooperating with said plunger to counterbalance the weight thereof, substantially as described.

2. In a rotary engine or the like, the combination with a cylinder, a piston carrying a piston-head and mounted upon a suitable shaft, a plunger, and means for operating said plunger, there being inlet-ports leading to different sides of said plunger, of means for reversing said engine, said means including rocking frames, means for rocking said frames, valves respectively controlling the said inlet-ports, and connections between said valves and said rocking frames, whereby the throw of said valves can be adjusted and either valve brought to a stationary position while its operating mechanism continues to move; substantially as described.

3. In a rotary engine, the combination with a plurality of cylinders, a shaft passing therethrough, pistons mounted on said shaft and carrying piston-heads, plungers, and means for operating said plungers, and means for reversing said engine, said means including rocking frames, means for rocking said frames, cut-off valves respectively controlling inlet-ports leading to different sides of the plungers, and connections between said cut-off valves and said rocking frames, whereby the throw of said valves may be adjusted and either valve brought to a stationary position while its operating mechanism continues to move, substantially as described.

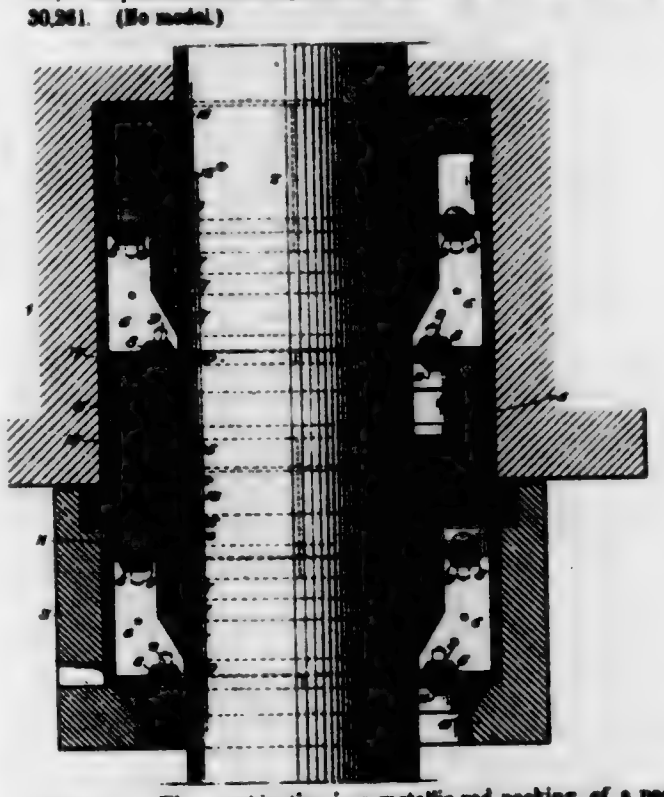
4. In a rotary engine, the combination with the cylinder and its piston, of a piston-head arranged thereon, an inclosing shell or casing for said piston-head, which shell is composed of sections, springs cooperating with said sections and tending to force them in different directions, a packing-ring upon said piston and a packing-strip U secured to said ring and having its free end seated in a groove in the outer faces of the end walls of said sections, substantially as described.

5. In a rotary engine, the combination with the cylinder and piston, of a U-shaped packing-ring T, a spring for forcing said ring against the cylinder-heads, and an expansible ring t' seated in the channel of the ring T and bearing against the overhanging edge of the piston, substantially as described.

6. In a rotary engine, the combination with the cylinder and its piston carrying a piston-head, of a plunger, and means for operating said plunger, said piston having a recess in its periphery for receiving the plunger upon its introduction into the cylinder, substantially as described.

7. In a rotary engine, the combination with the cylinder, of a piston having a recess c and carrying a piston-head, a plunger, and means for operating said plunger, substantially as described.

694,764. METALLIC PACKING FOR PISTON-RODS. CHARLES LOSENTHEIN, Yeadon, and CHARLES W. G. KIRK, Philadelphia, Pa., assignors to the United States Metallic Packing Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Sept. 17, 1900. Serial No. 30,261. (No model.)



Claim.—1. The combination in a metallic-rod packing, of a packing-ring casing composed of segments, with retaining-segments secured at each end thereof to the face of said segments of the casing and disposed so as to break joints with said casing-segments, substantially as specified.

2. The combination in a metallic-rod packing, of a packing-ring casing composed of segments, with retaining-segments secured at each end thereof to the face of said segments of the casing and having ribs adapted

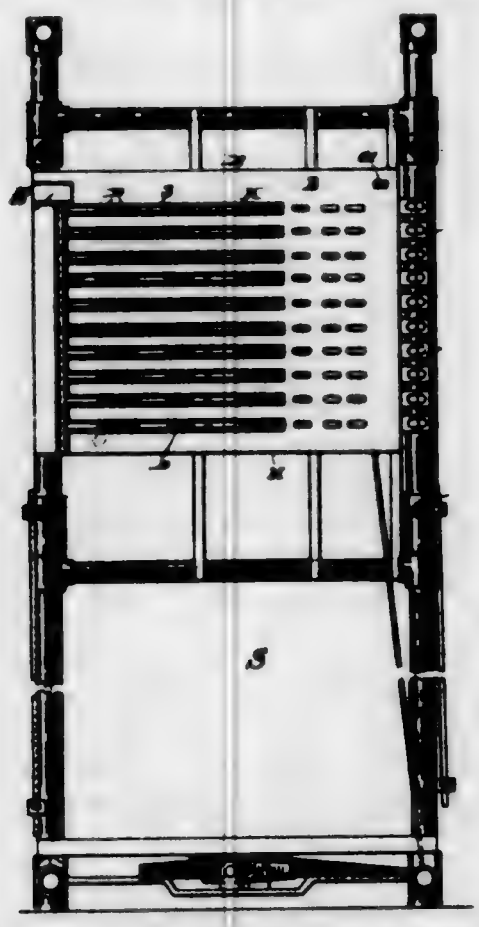
to grooves therein, said retaining-segments being disposed so as to break joints with the casing-segments, substantially as specified

3. The combination in a metallic-rod packing, of a packing-ring casing composed of segments, with retaining-segments secured at each end thereof to the face of said segments of the casing and having beveled ribs engaging with correspondingly-beveled grooves in the casing-segments, said retaining-segments being disposed so as to break joints with the casing-segments, substantially as specified.

4. The combination in a metallic-rod packing, of inner and outer sets of packing-rings each having a spring-pressed follower, with an interposed sleeve having a flange upon which is seated a ring constituting a bearing for the springs which act upon the follower of the outer set of packing-rings, substantially as specified.

5. The combination in metallic-rod packing, of inner and outer sets of packing-rings each having a spring-pressed follower, with the interposed sleeve having a seat for a ball-bearing ring forming part of the inner packing structure, and an internal shoulder upon which is seated a ring which constitutes a bearing for the follower-springs of the outer packing, substantially as specified.

694,765. VOTING-MACHINE. LAWRENCE W. LOVELACE, Olathe Kans. Filed Feb. 1, 1901. Serial No. 45,617. (No model.)



Claim.—1. In a voting-machine, the combination with a series of rows of keys, of sets of locking-dogs therefor, a device capable of acting upon the dogs of a plurality of the rows to lock all the keys therein, selective devices whereby any one of the sets of dogs may be removed from the influence of said locking device, and means for simultaneously restoring all the selective devices to their normal position.

2. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor movable toward and from the keys, means for moving one of the dogs independently in a plane intersecting that in which the key-locking movement occurs, a movable locking device coacting with these last-named dogs, and connecting mechanism whereby movement imparted to the locking device restores the independently-movable dog to its normal position.

3. In a voting-machine, the combination with a plurality of keys, of a set of dogs movable to lock certain of the keys, means for moving one dog independently of the key-locking movement, and mechanism coacting with the dog-moving means whereby said dog is restored to its normal position.

4. In a voting-machine, the combination with a plurality of keys, of a channel adjacent thereto, locking-dogs sliding longitudinally in said channel, a throw-out device for moving one of the dogs laterally of the channel, and a resetting-bar coacting with the throw-out device.

5. In a voting-machine, the combination with a series of rows of keys, of sets of locking-dogs therefor, a locking device provided with adjacent recesses of different size, selective devices whereby one of the dogs of the set may be made to operate in connection with one or another of the recesses, and means for simultaneously restoring all the selective devices to their normal position.

6. In a voting-machine, the combination with a series of rows of keys, of sets of locking-dogs therefor, a locking device provided with adjacent recesses of different size forming cam-faces, selective devices whereby one of the dogs of the set may be made to operate in connection with one or another of the cam-faces, and means for simultaneously restoring all the selective devices to their normal position.

7. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor, a locking device provided with a plurality of recesses, and means for moving one of the dogs to permit it to occupy one or another of the recesses comprising a throw-out device and an independent resetting device coacting therewith.

8. In a voting-machine, the combination with a series of rows of keys, of sets of locking-dogs therefor, a locking device longitudinally movable into different positions and provided with a plurality of faces occupying different longitudinal planes with which at least one of the dogs of each set may coact, each of these faces being adapted to prevent movement of different groups of keys according to the position of the device, selective devices whereby any one of the sets of dogs may be removed from the influence of said locking device, and means for simultaneously restoring all the selective devices to their normal position.

9. In a voting-machine, the combination with a series of rows of keys, of sets of locking-dogs therefor, a device capable of acting upon the dogs of a plurality of rows to lock all the keys therein, selective devices whereby any one of the sets of dogs may be removed independently from the influence of said locking device, and a resetting device common to all the selective devices.

10. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor, a locking device acting upon the dogs, and a member provided with a working face for actuating said locking device and with a working face to actuate means whereby it is itself locked.

11. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor, a locking device acting upon the dogs, and a member provided with a cam-face for actuating said locking device and with a cam-face to actuate means whereby it is itself locked.

12. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor movable toward and from the keys, throw-out devices for moving one of the dogs independently in a plane intersecting that in which the key-locking movement occurs, a locking device acting upon the dogs, and a member provided with a working face for actuating said locking device and with a working face to actuate means whereby it is itself locked.

13. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor movable toward and from the keys, throw-out devices for moving one of the dogs independently in a plane intersecting that in which the key-locking movement occurs, a locking device acting upon the dogs, and a member provided with a working face for actuating said locking device and with a working face to actuate means whereby it is itself locked and to reset the throw-out devices.

14. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor, a locking device acting upon the dogs, and a member provided with a cam-slot with which the locking device coacts adapted to move said locking device in opposite directions by a single movement.

15. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor, a locking device acting upon the dogs and provided with a projection, a member provided with a two-way cam-slot one portion of which is engaged by the projection from the locking device, and a roller coacting with the locking device and the other portion of the slot.

16. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor, a locking device acting upon the dogs, and a member provided with an inclined slot for actuating said locking device and with a straight slot having at its end a cam-face to actuate means whereby it is itself locked.

17. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor, a locking device acting upon the dogs, and a member provided with an inclined slot for actuating said locking device and with a straight slot having at its end a cam-face to actuate means whereby it is itself locked and with a depression in the line of the slot beyond the cam-face.

18. In a voting-machine, the combination with a plurality of keys, of a set of locking-dogs therefor, a locking device acting upon the dogs, a member provided with a cam-face for actuating said locking device and a second cam-face and depression adjacent thereto, and a spring-pressed pin coacting with the last-named cam-face and with the depression.

19. In a voting-machine, the combination with a series of rows of keys, of sets of locking-dogs therefor, a locking device capable of acting upon the dogs of a plurality of the rows, means for moving said locking

device to lock certain of the rows of keys against movement, and independent means for moving said device to lock all the keys against movement.

20. In a voting-machine, the combination with a series of rows of keys, of sets of locking-dogs therefor, a locking device capable of acting upon the dogs of a plurality of the rows, a cam-plate coacting with the locking device, a lever for moving the cam-plate, and a second lever acting directly upon the locking device.

21. In a voting-machine, the combination with a casing containing registering devices, of a closure therefor, a lock for the closure, a plurality of keys operable outside the casing, and means for simultaneously unlocking the closure of the casing and locking the keys against movement.

22. In a voting-machine, the combination with a casing containing registering devices, of an inner and outer closure therefor, a key-operated lock for the inner closure, a lock for the outer closure, a lever for operating the lock of said outer closure, and a lock for said lever.

23. In a voting-machine, the combination with a casing containing registering devices, of an inner and outer closure therefor, a key-operated lock for the inner closure, a lock for the outer closure, a lever for operating the lock of said outer closure, and an automatic lock for said lever.

24. In a voting-machine, the combination with a casing containing registering devices, of an inner and an outer closure therefor, a key-operated lock for the inner closure, a lock for the outer closure, a lever for operating the lock of said outer closure, and an automatic lock for said lever releasable only from within the casing.

25. In a voting-machine, the combination with a casing containing registering devices, of a transparent inner and an opaque outer closure therefor, a key-operated lock for the inner closure, a lock for the outer closure, a lever for operating the lock of said outer closure, and a lock for said lever.

26. In a voting-machine the combination, with a plurality of rows of independently-operative candidate-voting devices, and with means for limiting the number of devices to be operated in the same row, of means including a reciprocatory locking-bar for locking all the voting devices of one or more rows; automatically-operative means for locking the bar in its device-locking position; and a casing inclosing the last-mentioned means and having a normally locked door.

27. In a voting-machine the combination, with a row of independently-operative candidate-voting devices, of a train of separable dogs for limiting the number of voting devices to be operated at one time; a bar supported for reciprocatory movements in a path intersecting the path of the locking-dogs and having a cam-face for shifting the locking-dogs into positions for locking all the voting devices against effective movements; a lever in operative connection with said bar and effective for actuating the same; and automatically-operative means for locking the bar in its locking position.

28. In a voting-machine, a series of reactionary counter-operating keys disposed in a row; a train of dogs for limiting the number of keys to be operated at one time; a bar supported for reciprocatory movements in a path intersecting the path of the train of dogs and having a cam for shifting the dogs into position for locking all the keys of the row; actuating means including a pivoted lever in connection with said bar; a reactionary detent for automatically locking the bar in its key-locking position; and a casing having a normally locked door inclosing the detent, whereby the detent cannot be retracted without unlocking and opening the door of the casing.

29. The combination with a plurality of rows of independently-operative vote-registering devices and with a plurality of trains of locking-dogs, each train effective for limiting the number of vote-registering devices to be operated in each row; a reciprocatory locking-bar common to the several trains of locking-dogs and having a series of cam-faces disposed in coöperative relation with the end dogs of the several trains; selective throw-out devices in shiftable connection with the end dogs of the several trains and adapted for shifting said end dogs out of, and into, the path of the cam-faces of the locking-bar to permit selected rows of vote-registering devices to be locked by the bar against effective movement while leaving others free for operation; locking-bar-actuating means; and means operated by the locking-bar-actuating means for returning the throw-out devices and end dogs to their normal positions at a predetermined point in the movement of the locking-bar.

30. In a voting-machine a plurality of rows of keys; a plurality of trains of dogs for limiting the number of keys to be operated in each row at one time; a reciprocatory locking-bar having a plurality of cam-faces disposed in the normal path of and coöperative with the end dogs of the trains and adapted for shifting the trains into position for locking all the keys; a throw-out device in shiftable connection with the end dog of each train and adapted for shifting the outer end of said dog out of operative relation with the cam-face of the locking-bar, whereby on a locking movement of the bar all of the keys of one or more selected rows will be locked against effective movements without interfering with the effective movements of the other rows; two independently-operative bar-actuating devices, one adapted for imparting a vertical locking movement to said bar, and the other adapted for first imparting a dog-releasing movement to said bar and a subsequent dog-locking movement to said bar; means operative intermediate the dog releasing and locking movements of the last-mentioned bar-actuating device for returning the throw-out devices to their normal positions; and an automatically-operative locking device for the locking-bar.

31. In a voting-machine the combination, with a suitable base, of a plurality of horizontally-disposed parallel channel-pieces secured to the base; a vertically-disposed channel-piece secured to the base and intersecting the planes of all the horizontal channel-pieces; a plurality of rows of register-actuating keys extending through the horizontal channel-pieces respectively; a plurality of trains of dogs supported for movement in each horizontal channel-piece and adapted for limiting the number of keys to be operated in each row; means for temporarily locking operated keys in their advanced position; automatically-operative means controlled by the door of the voting-booth for releasing the operated keys; a locking-bar supported for reciprocatory movements in the vertical channel-piece and having cam-faces coöperative with the end dogs of the several trains for locking all the keys of one or more rows in their normal retracted positions and against effective movements; and means for actuating said bar.

32. In a voting-machine the combination, with a plurality of key-locking dogs supported for movements in parallel horizontal planes, and with a cam-faced bar for imparting key-locking movements to said trains of dogs, of arbitrarily-operative throw-out devices for nullifying the effective relation between one or more trains of dogs and the locking-bar; locking-bar-actuating means; and means operative by the locking-bar-actuating means at a predetermined point in the movement thereof, for resetting the throw-out devices and bringing all the trains of dogs into effective relation with said bar.

33. In a voting-machine the combination, with a plurality of trains of key-locking dogs, and with a cam-faced bar for imparting key-locking movements to said dogs, of a throw-out device in shiftable connection with the end dog of each train and effective for nullifying the effective relation between each train and the locking-bar; a two-way cam in operative connection with one end of the locking-bar; a lever for advancing and retracting the cam, whereby on the first part of the advancing movement thereof an ineffective or dog-releasing movement will be imparted to the locking-bar and upon the last part of said movement a dog-shifting movement will be imparted to said bar; means operative intermediate these two movements of the locking-bar for operating the throw-out devices to reëstablish an effective relation between all the dogs and locking-bar; and means operative at the end of the last movement of bar for locking said bar.

34. In a voting-machine the combination, with a plurality of rows of key-locking dogs and with means including a locking-bar for imparting locking movements to said dogs, of a casing having a normally locked door; an actuator for the bar disposed to be operated outside the casing; and an automatically-operative bar-locking device disposed inside the casing and effective for locking the bar against a second operation until the door of the casing is unlocked.

35. In a voting-machine the combination, with a plurality of rows, of candidate-voting devices and with means, including a locking-bar and a bar-actuator, for locking all the devices of any one or more rows against effective movement, of a casing having inner and outer normally locked doors; an automatically-operative bar-locking device disposed inside the casing and effective for locking the bar against a second operation until the inner door of the casing is unlocked; and means operative by the bar-actuator, on predetermined movements thereof, for locking and unlocking one of the casing-doors.

36. In a voting-machine the combination, with a train of horizontally-disposed key-locking dogs, of a locking-bar shiftably supported in a path intersecting the path of the train of dogs and having means for imparting a key-locking movement to said train; a horizontally-movable bar-actuating cam-plate having a two-way cam-face in engagement with a pin or projection on the bar and adapted, on one movement thereof, for imparting a complete reciprocation to said bar; a pivotally-supported bell-crank lever in shiftable connection at one end with said cam-plate; and automatically operative means for locking the bell-crank lever at the end of its stroke.

37. In a voting-machine the combination, with a train of horizontally-disposed key-locking dogs, of a locking-bar shiftably supported in a path intersecting the path of the train of dogs and having means for imparting a key-locking movement to said train; a horizontally-movable bar-actuating cam-plate having a two-way cam-face in engagement with a pin or projection on the bar and adapted on one movement thereof for imparting an releasing and locking movement to said bar; a pivotally-supported bell-crank lever in shiftable connection at one end with said cam-plate; a throw-out device in connection with the end dog of the train

and adapted for nullifying and reëstablishing an effective relation between the train and locking-bar; an inclosed spring-actuated pin for automatically locking the cam-plate at the end of its advancing movement; and means controlled by the locking-pin and cam-plate, and operative intermediate the bar releasing and locking movements of said plate and preparatory to the locking movement of said pin, for resetting the throw-out device to reëstablish an effective relation between the train of dogs and locking-bar.

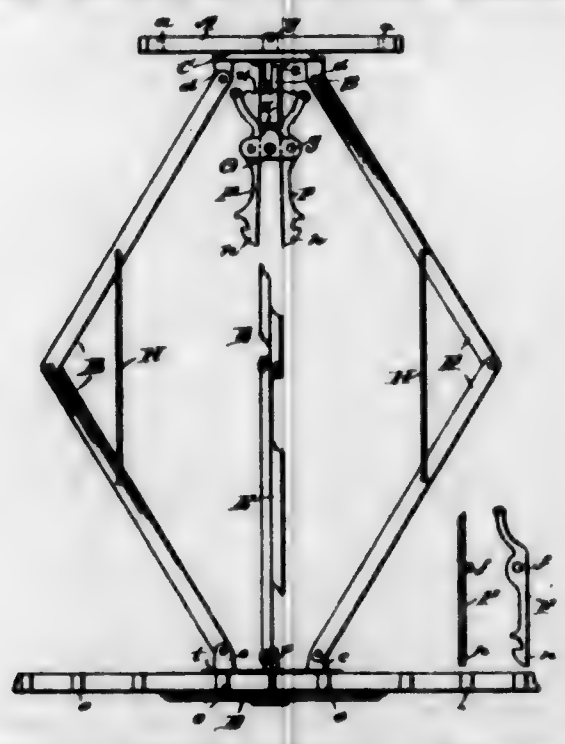
38. In a voting-machine a plurality of key-actuated counters in combination with a plurality of independent recording devices, one for each key and each comprising a reactionary punch supported independent, and in the path of movement, of a key; a perforated platen disposed in advance of said punch; a web of paper passing between the punch and platen and having its opposite ends secured to spools one of which is disposed below the other; a combined supporting and tension device for one of said spools, including spring-arms in bearing engagement with opposite faces of said spool and adapted for restricting the rotative movement thereof; and means for rotating the other spool of this recording device and the corresponding spools of all the other recording devices concurrently and automatically after each operation of the punch.

39. In a voting-machine the combination, with a base having a web-exposing opening therethrough, and with a plate disposed in the rear of said opening, of a web of paper extending between the plate and base and adapted to be exposed through said opening; a shutter for said opening; a key for moving said shutter toward and from the opening and means for advancing the web after the key has returned to its normal shutter-closing position.

40. In a voting-machine the combination, with a base or keyboard having a web-exposing opening therethrough; a plate in the rear of said opening; a pivotally-supported shutter disposed for oscillatory movements between the plate and keyboard; a web of paper supported for longitudinal movements between the shutter and plate; a reactionary counter-operating key in connection with, and adapted for imparting web covering and uncovering movements to, the shutter; means for locking the key in its advanced position; automatically-operative means for releasing said key whereby to return the shutter to its web-covering position; spools in connection with opposite ends of said web; and means operative automatically, after the return movement of the key, for advancing the web a predetermined distance.

41. The combination with a keyboard having a web-exposing slot therein; a shutter pivotally connected to the rear face of said keyboard and adapted normally for closing said slot; a counter-actuating key extending through the keyboard and having a cam-groove in the face thereof coöperating with a projection on the shutter and adapted for imparting opening and closing movements to said shutter on advancing and retracting movements of said key; a web supported for traveling movements in the rear of the shutter and adapted to be exposed through said slot: and automatically-operative means for advancing said web after the shutter is returned to its slot-closing position.

694,766. CLOTHES-HORSE. SIMEON S. MACMILLAN, Brookfield, Canada. Filed Mar. 25, 1901. Serial No. 52,516. (No model.)

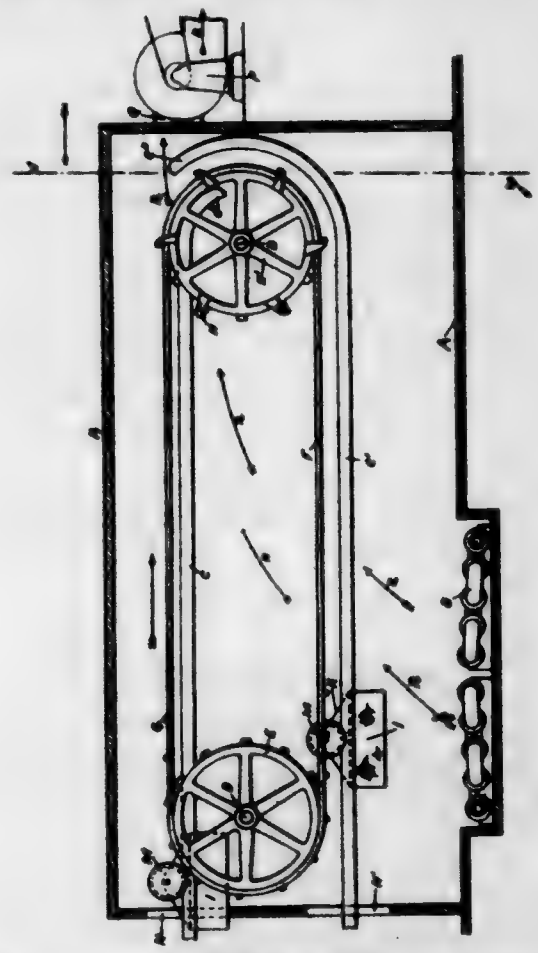


Claim.—1. A clothes-horse of the class above described adapted to revolve horizontally and having a rod-holder and rods for clothes vertically adjustable, checks, and an automatic lock or catch to arrest the vertical movements, jointed arms to guide the vertical motions and to carry the clothes-rod holder and rods, and a wrench formed on the rod-holder; substantially as set forth.

2. In a clothes-horse of the class hereinbefore described the combination of the suspension-post B provided with the stop K and the holes *g g*, the harpoon-jaws F F provided with the bosses *f f*, the spring *u*, the lock-plate G, and a clothes-holding device engaging said jaws; substantially as shown and for the purpose specified.

3. In a clothes-horse of the class above described the combination of the jaws F provided with the barbs A, the clothes-rod holder D having a suitable central aperture adapted to engage and disengage with and from said jaws, said rod-holder being provided with recesses to guide the clothes-rods to their proper positions, the clothes-rods C, the jointed arms E, the suspension-plate C, and the flexible checks H; substantially as shown and for the purpose specified.

694,767. APPARATUS FOR DRYING SUGAR. FREDERIC MARQUAND, New York, N. Y., assignor to the American Sugar Refining Company, New York, N. Y., a Corporation of New Jersey. Filed Jan. 4, 1901. Serial No. 42,168. (No model.)



Claim.—1. In a furnace for drying sugar or other bodies, the combination with a furnace-chamber closed at the top, open at the front for the ingress and egress of the material to be dried, and at the rear for the egress of the heated and moist air-currents, of a source of heat located at the bottom of the chamber and near to the forward end of the chamber, an exhaust-blower communicating with the upper portion of the chamber at its rear end, and means for transporting the material to be dried first inwardly through the upper portion of the chamber, then downwardly within the chamber, and then outwardly along the bottom of the chamber.

2. A furnace for drying sugar or other bodies, comprising a furnace-chamber, two parallel trackways, a carriage adapted to move thereon, an endless chain moving parallel with said trackways for imparting motion to the carriage on said trackways, and wheels at the end of the trackways carrying projecting arms which support the carriage in its movement from the upper to the lower trackway.

3. A furnace for drying sugar or other bodies, comprising an open furnace-chamber, an exhaust-blower communicating with the upper portion of the rear end of the chamber, a pair of parallel trackways, a carriage supported on said trackways, means not permanently engaging with said carriage for moving said carriage, and means for shifting the carriage from the upper to the lower trackway.

4. In a furnace for drying sugar or other bodies, the combination with a furnace-chamber closed at the top, open at the front for the ingress and egress of the material to be dried, and at the rear for the egress of the heated and moist air currents, of a source of heat located at the bot-

tom of the chamber and near to the forward end of the chamber, an exhaust-blower communicating with the upper portion of the furnace-chamber at its rear end, whereby zones of temperature are created in the furnace, increasing from without inward along the top of the furnace and decreasing from within outward along the bottom of the furnace.

5. A furnace for drying sugar or other bodies, comprising an open furnace-chamber, two trackways arranged parallel, said trackways horizontal over their major portion and concentric at their rear end, a carriage adapted to move on said trackways, means not permanently engaging with said carriage for moving said carriage, and means for guiding and supporting said carriage in passing from the upper trackway to the lower trackway and between the concentric portion of said trackways.

6. In a drying apparatus in which the upper and lower races or rails at the farthest end from the entrance side of the chamber form curved guides for the tray-wheels to descend from the upper race to the lower one, chains revolving over chain-wheels, said chains having on certain links fingers, and trays running on the said rails, said trays having wheels, the axles of which project sidewise into the course of the said chains, to shift the trays through the chamber by said fingers striking against said axles.

7. In a drying apparatus in which the upper and lower races or rails form curved guides for the tray-wheels to descend, said tray-wheels having wheel-axles projecting into the course of the endless traveling chains, said chains having fingers at certain links to shift the trays along the rails, and the chain-wheels, having holders for carrying the tray-wheel axles in their downward movement from the upper rail-race to the lower one independently of the said fingers.

8. The combination of the upper and lower races or rails, wheeled trays arranged to travel on said races, chains provided with driving projections arranged to engage the tray-wheel axles from behind, and chain-wheels supporting said chains and provided with retaining projections on which the tray-wheel axles rest temporarily during their passage from the upper race to the lower race.

9. The combination of the upper and lower races or rails, trays or carriers arranged to travel on said races, chains provided with driving projections arranged to engage the carriers from behind, and chain-wheels supporting said chains and provided with retaining projections on which the carriers rest temporarily during their passage from the upper race to the lower race.

694,768. WIRE-FENCE MACHINE. HERMAN MARTIN, Vermilion, Ohio, assignor to D. L. Nielsen. Filed Nov. 27, 1901. Serial No. 83,841. (No model.)



Claim.—A bending and twisting tool for a wire-fence machine comprising a handle, an offset shank and tubular body at one end thereof, said body having a lug projecting therefrom, and a laterally-extending portion at the other end of the handle.

694,769. BUSHING FOR BUNG-HOLES. NELSON H. MEDBERY, Providence, R. I. Filed July 6, 1901. Serial No. 67,336. (No model.)



Claim.—1. In a bung-hole bushing a tubular member made tapering both interiorly and exteriorly and having a screw-thread in its inside and projections on its outside, with slots in its smaller end allowing the lower half of said tubular member to expand to fill the bung-hole, in combination with a member adapted to receive a bung, substantially as described.

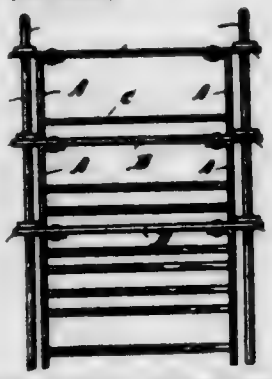
2. The combination in a bung-hole bushing of a partially-split ring made tapering interiorly and exteriorly and having projections on its outer side and a screw-thread on its inside, an exteriorly-screw-threaded collar fitting into said ring and having a flange extending out around one end to bear on the outside of the barrel, substantially as described.

694,770. VAPOR-HEATED SMOOTHING-IRON. WILLIS MITCHELL, Malden, Mass., assignor to the Mitchell Gas Generator and Burner Company, Boston, Mass., a Corporation of New Jersey. Filed Oct. 3, 1900. Renewed Jan. 14, 1902. Serial No. 89,771. (No model.)

Claim.—A smoothing-iron body having the upper face of its bottom plate horizontal, but supplied with a central longitudinal depression, which is concave in cross-section, in combination with a burner arranged above the said depression and corresponding in shape and size thereto, means for fastening the said burner in the said body and means for supplying vapor thereto, the said burner being provided with parallel rows of holes in its lower side and arranged opposite to the said depression for the purpose of causing the jets of flame from the holes to converge within the depression substantially as shown and described.



694,771. TELESCOPIC FIRE-ESCAPE AND CONVERTIBLE SCAFFOLDING. WILLIAM H. MEARNS, Newport, Ky., assignor of one-third to Christopher Whitehead, Newport, Ky. Filed June 3, 1901. Serial No. 62,774. (No model.)



Claim.—1. A telescopic fire-escape and convertible scaffolding comprising two or more ladder-sections, having side, top and bottom cross-pieces, lugs or links secured to and extending at an angle to said cross-pieces, and rods parallel with the sides or uprights and secured to the cross-pieces, the rods of one section passing through the links secured to the adjacent section, whereby the various sections have slidable connection with each other, substantially in the manner and for the purpose described.

2. An extension-ladder or convertible scaffolding comprising two or more sections, each having side, top and bottom cross-pieces, rods extending from the top to the bottom cross-pieces, and secured thereto adjacent the side supports or uprights, and means secured to each ladder-section and having slidable connection with the rods of the adjacent section, substantially in the manner and for the purpose specified.

3. Convertible scaffolding comprising two or more ladder-sections having sides or uprights, top and bottom cross-pieces all secured together, lugs provided with slots and secured to each top cross-piece, rods extending from the top to the bottom cross-pieces and secured thereto and adjacent the uprights, said rods passing through the slots of the lugs on the succeeding or adjacent section, and means for locking the adjusted ladder-sections in the desired position, substantially as shown and for the purpose described.

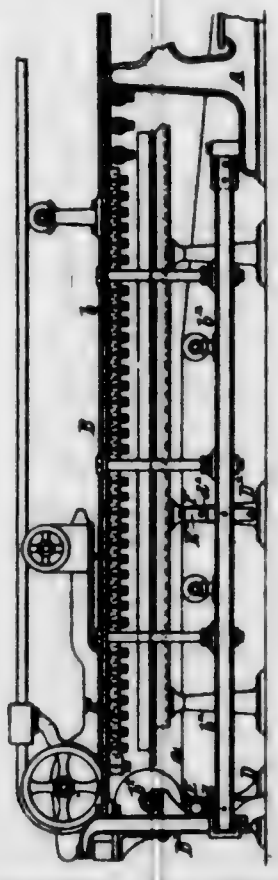
4. Convertible scaffolding having two or more ladder-sections, each comprising sides, top, and bottom pieces secured together and rounds, lugs provided with slots secured to each top cross-piece and at a horizontal angle thereto, rods extending from the top to the bottom cross-pieces and secured thereto and passing through said slots, whereby the sections have slidable connection with each other, means for locking the sections together in their vertical relation, and braces for retaining the sections in their horizontal relation with each other, substantially as shown and for the purpose specified.

5. A telescopic ladder comprising two or more sections having sides, top and bottom pieces, secured together, the top cross-pieces provided with lugs extending out horizontally at an angle thereto, lugs having slots, and rods extending through said slots and secured to the top and bottom cross-pieces, whereby the various sections have slidable connection with each other, substantially in the manner and for the purpose specified.

6. A sectional metallic ladder or convertible scaffolding consisting of two or more sections, each comprising sides, top, and bottom cross-pieces, and rounds, the whole being secured together, the cross-pieces extending beyond the sides or uprights and having lugs at their ends at a horizontal angle thereto, said lugs being provided with holes or slots, rods intermediate the top and bottom cross-pieces and passing through the holes or slots of the lugs of the succeeding section and secured to the respective cross-pieces, and means for securing the various ladder-sections in their adjusted positions, substantially as described and for the purpose set forth.

7. In convertible scaffolding comprising two or more ladder-sections each consisting of sides, top, and bottom cross-pieces and rounds, the whole secured together, lugs secured intermediate the side and cross pieces, and provided with holes or slots, the extending ends of said lugs being at an angle or incline to the horizontal plane of the cross-pieces, rods intermediate the top and bottom cross-pieces and passing through the holes or slots of the lugs of the succeeding sections and removably secured to the respective cross-pieces, keeps for locking the sections in their adjusted vertical position with each other, and braces or supports for maintaining the sections in the horizontal relation with each other, substantially as shown and in the manner for the purpose described.

694,772. PAPER-MAKING MACHINE. JOHN W. MOORE and JOSEPH A. WHITE, Philadelphia, Pa. Filed Mar. 6, 1897. Serial No. 626,246. (No model.)



Claim.—1. The combination in a paper-making machine of the Fourdrinier type, of a fixed frame, a shake-frame connected thereto, a standard, means for suspending the shake-frame from the standard, and means extending at right angles to the suspension means and movable relatively thereto for raising and lowering the free end of the shake-frame, substantially as described.

2. The combination in a paper-making machine, of a fixed frame, a shake-frame connected thereto, a standard, suspension-plates secured to the standard and to the shake-frame, a movable piece for raising and lowering the shake-frame, the same extending at right angles to the suspension-plates and connecting said plates and the standards, substantially as described.

3. The combination in a paper-making machine, of a fixed frame, a shake-frame connected thereto, a standard, suspension-plates connected to said shake-frame, an eccentric bolt mounted on the standard and adapted to the upper portion of the suspension-plates so that on turning the eccentric bolt the shake-frame can be raised or lowered, substantially as described.

4. The combination in a paper-making machine, of the standard, a shake-frame, a suspension-plate for the shake-frame, a block, a bolt passing through the block and the upper portion of the flexible plate, with means for adjusting the block and plate so as to raise or lower the shake-frame, said bolt securing the suspension-plate and block rigidly to the standard after adjustment, substantially as described.

5. In a paper-making machine the combination of a standard, a shake-frame, a flexible suspension-plate secured to the standard and to the shake-frame, a block, a bolt having an eccentric portion adapted to the block and to an opening in the suspension-plate, a nut on the bolt, and means for preventing the bolt from turning after adjustment, substantially as described.

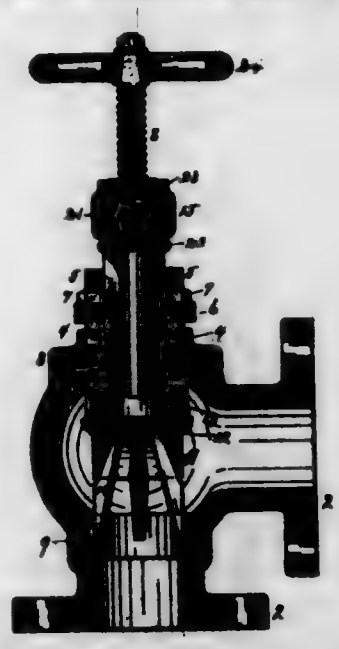
6. The combination in a paper-making machine, of the fixed frame, a shake-frame secured thereto, standards, flexible plates by which the shake-frame is secured to the standard, one set of standards being at the outer end of the shake-frame and the other intermediate of the length thereof, eccentric bolts adapted to the outer standards whereby the outer end of the shake-frame can be raised or lowered, a block secured to the suspension-plate at the intermediate standard and overhanging said standard, and a set-screw for adjusting said block to correspond to the adjustment of the outer end of the shake-frame, substantially as described.

7. The combination of a standard, a shake-frame, a flexible plate by which the said shake-frame is suspended, an eccentric block non-rotatably held to said plate, and an eccentric bolt passing through the block, substantially as described.

8. The combination in a paper-making machine of the Fourdrinier type, of a fixed frame, a shake-frame connected thereto, a standard, means for suspending the shake-frame from the standard and means movable relatively to the suspension means for simultaneously raising and lowering both corners of the free end of the shake-frame, substantially as described.

9. The combination in a paper-making machine, of a fixed frame, a shake-frame connected thereto at one end, standards, suspension-plates, eccentric bolts mounted on the standards and connected to the suspension-plates, with means for simultaneously turning said bolts whereby both corners of the free end of the shake-frame may be raised and lowered together, substantially as described.

694,778. BLOW-OFF VALVE. WILLIAM L. MORRIS, Cleveland, Ohio. Filed Aug. 23, 1897. Renewed Oct. 27, 1899. Serial No. 734,963. (No model.)



Claim.—1. The combination with a valve-seat, of a valve comprising a valve-plug provided with a male thread, a piston portion, and an angular circumferential recess intermediate of said thread and piston portion; a seating-ring of angular cross-section in said recess, and a cap-nut engaging said thread for securing said ring in said recess, substantially as set forth.

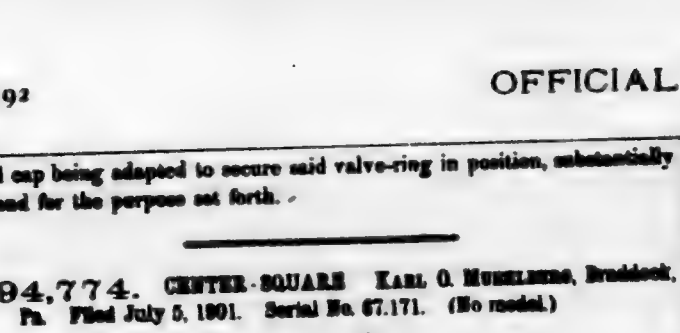
2. In a valve of the character described, a valve-plug carrying a valve-ring, a headed valve-stem engaging a recess in the head of said plug, and a cap-nut for securing and retaining said valve-ring and valve-stem in and upon said plug, in the manner and for the purpose, substantially as set forth.

3. In combination, a valve-case provided with a valve-seat ring 9, a plug carrying a valve-ring 12, a piston portion 11, guide-wings 14, a headed valve-stem 8, and a retaining cap-nut 13, substantially as and for the purpose specified.

4. In a device of the character described, in combination, a valve consisting of a body portion carrying a removable valve-ring, a headed valve-stem secured between the said body portion and a retaining-cap,

said cap being adapted to secure said valve-ring in position, substantially as and for the purpose set forth.

694,774. CENTER-SQUARE. KARL O. MUEHLEISEN, Braddock, Pa. Filed July 5, 1901. Serial No. 67,171. (No model.)

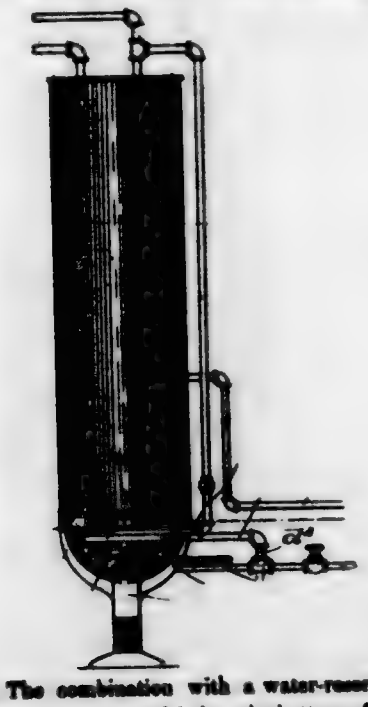


Claim.—1. In a center-square, the combination with a body provided with a centering-angle and a transverse slot therethrough, of a slide mounted thereon, said slide being provided with a screw-threaded block projecting through the slot in the body, a screw mounted in said body and passing through said block for adjusting the slide laterally, and an arm carried by the slide.

2. In a center-square, the combination with a body provided with a centering-angle and a transverse slot therethrough, of a slide mounted thereon, said slide being provided with a screw-threaded block projecting down through the slot in the body, a screw mounted in said body and passing through said block for adjusting the slide laterally, means for clamping the slide in its adjusted position to the body, and an arm carried by the slide.

3. In a center-square, the combination with a body provided with a centering-angle and a transverse slot therethrough, said slot being provided with beveled side walls, of a slide mounted on the body, said slide being provided with a screw-threaded block projecting through the slot in the body, a screw mounted in said body and passing through said block for adjusting the slide laterally, an arm carried by the slide, a block moving in the slot of the body and having beveled faces engaging the beveled side walls of the slot and provided with an enlarged hole through which the screw passes, said block being provided with a screw-threaded shank extending up through the slide, and a nut engaging said screw-threaded shank for clamping the slide to the body.

694,775. WATER-HEATING APPARATUS. JAMES MURRAY, Boston, Mass. Filed July 10, 1901. Serial No. 67,715. (No model.)

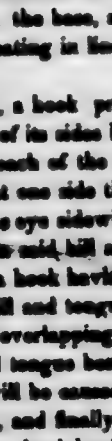


Claim.—1. The combination with a water-reservoir, of a water-heater comprising a burner located below the bottom of the reservoir, and a water-circulating conduit comprising a coiled portion interposed between the burner and the bottom of the reservoir and adapted to be heated by the burner, a connection between one end of said coiled portion and the lower portion of the boiler, and connections between the other end of said coil and the upper portion of the boiler, and with a suitable water-delivering conduit, the said heater receiving water from the lower portion of the boiler, and supplying the same either to the top portion of the boiler or to the delivering-conduit.

2. A water-heating attachment comprising a burner, and a water-circulating conduit consisting of a coiled portion located above the burner and adapted to be heated thereby, a cold-water-conducting portion adapted for connection with a water-reservoir and extending vertically through the space surrounded by the coiled portion, and constituting a continuation of one of the convolutions of the coil, and a hot-water-conducting portion constituting a continuation of another convolution of the coil and a connection therefrom to a hot-water-delivering conduit.

3. A water-heating attachment comprising a burner, a water-circulating conduit consisting of a coiled portion located above the burner and adapted to be heated thereby, a cold-water-conducting portion adapted for connection with a water-reservoir and extending vertically through the space surrounded by the coiled portion, and constituting a continuation of one of the convolutions of the coil, and a hot-water-conducting portion constituting a continuation of another convolution of the coil and a connection therefrom to a hot-water-delivering conduit, the said burner being attached to the said cold-water-conducting portion below the coil.

694,776. HORSESHOE-CALK. DUFF MCKENZIE, Baton Rapids, Mich. Filed Sept. 20, 1901. Serial No. 75,673. (No model.)

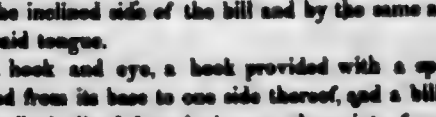


Claim.—1. A calk for horseshoes having spaced legs and blades disposed between and connected to the legs, said blades being arranged one above the other with their cutting edges directed downwardly.

2. A calk for horseshoes having cutting-blades spaced apart and arranged one in a higher plane than the other, whereby they will come into play successively as the calk is worn away.

3. A calk for horseshoes comprising spaced legs having blades disposed between them and arranged one in a higher plane than the other, each blade having upwardly-converging cutting edges.

694,777. HOOK AND EYE. ARCHIBALD MCHOOL, Ypsilanti, Mich. Filed Dec. 18, 1900. Serial No. 40,201. (No model.)



Claim.—1. In a hook and eye, a hook provided with a tapering bill bent to one side of the center line of the hook, and having one of its sides inclined, and a guard coöperating with said bill to one side thereof and at an angle to the inclined side thereof.

2. A hook for wearing-apparel, &c., comprising a base, a bill bent to one side of the center line of the base and substantially parallel therewith, having one of its sides inclined transversely of the hook, and a spring-tongue formed integral with the base, said tongue being oppositely inclined to said bill and terminating in line with the outer arm of said bill and coöperating therewith.

3. In a hook and eye, a hook provided with a spring tongue or guard, and a bill having one of its sides laterally inclined from its base up to the point of nearest approach of the tongue or guard, said tongue or guard overlapping the bill at one side thereof and arranged at an angle thereto whereby on tilting the eye sidewise it will be caused to slide down said incline and pass between said bill and guard.

4. In a hook and eye, a hook having a tongue and a bill formed integral with the base, said bill and tongue being bent to one side of the center line of the hook and overlapping each other, said bill having one of its sides inclined and said tongue bent at an angle thereto at one side thereof whereby said eye will be caused to slide down the inclined side of said bill and by the same, and finally released by said tongue.

5. In a hook and eye, a hook having a base and an inclined spring-tongue at one side thereof, a bill having one of its sides inclined from the base to the point of nearest approach of the tongue and at an angle thereto, and having a portion of its base bent at substantially right angles to said inclined side of said bill, and an eye bent to coöperate with said reversely-inclined bill and base portion whereby said eye will be tilted sidewise and caused to slide down the inclined side of the bill in releasing the same.

6. In a hook and eye, a hook provided with a bill bent to one side of the center line of the hook and at an angle thereto, a spring-tongue coöperating therewith and bent at an angle thereto, with their meeting ends overlapping at one side thereof, whereby said eye will be caused to slide down the inclined side of the bill and by the same and to be finally released by said tongue.

7. In a hook and eye, a hook provided with a spring tongue or guard inclined from its base to one side thereof, and a bill having one of its sides laterally inclined from its base to the point of nearest approach of the guard and overlapping the same at one side thereof, said base portion having one of its members bent at substantially right angles to the inclined side of the bill, and an eye coöperating with said reversely-in-

clined portions whereby in disengaging the parts, the eye will be tilted sidewise and caused to slide down the inclined side of said bill and by the same, to be finally released by said spring-tongue.

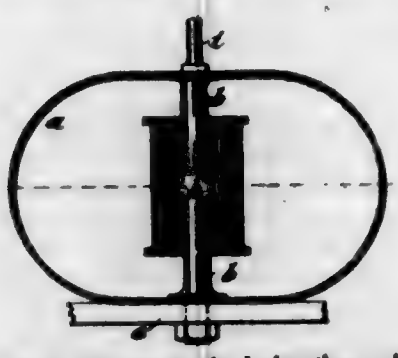
8. In a hook and eye, a hook formed with a base portion and a rearwardly-extending bill or projection bent to one side of the center line of the hook, and a forwardly-extending tongue or projection bent at an intersecting angle thereto and coöperating therewith, also bent to one side of the center line of the hook, said projections being separated from each other by an interval less than the thickness of the eye, the opposite sides of said bill and base portion being reversely inclined, whereby said eye will be tilted sidewise and caused to slide down the inclined side of said bill to release the same.

9. In a hook and eye, a hook formed with a base portion, and provided with a bill extending upwardly from the base and bent to one side of the center line thereof, and a spring-tongue overlapping said bill at one side thereof and coöperating therewith, said bill having one of its sides inclined and crossing its opposing base member at an angle thereto, and an eye provided with the circular end portion *g* and the upwardly-curved portion *k* coöperating with the reversely-inclined portions of the base and bill, whereby said eye will be caused to tilt sidewise and slide down the inclined side of said bill and be finally released by said tongue.

10. In a hook and eye, a hook composed of the bill *a*, and base *b*, said hook having the opposing inclines *e*, *f'*, formed by the bill and base, respectively, the guard *d* coöperating with said bill to one side thereof, and the eye B having the rounded portion *g* and the reversely-curved portion *k* adapted to coöperate with the opposing inclines of the hook, whereby a combined sliding and tilting motion will be imparted to said eye to release the same, substantially as described.

11. In a hook and eye, an eye having the rounded portion *g*, reversely-curved portion *k* and the anchor-eye *i* whereby in releasing the same, said anchor-eye will be in the direct line of the pull and cause a combined sliding and tilting motion to be imparted to said eye.

694,778. ELECTROMAGNET APPARATUS. DAVID PERRET, Neuchâtel, Switzerland. Filed Oct. 16, 1901. Serial No. 78,894. (No model.)



Claim.—1. In an electromagnetic device, the combination with a complete magnetic circuit of elastic magnetic material, of an exciter-coil connected to said magnetic material.

2. In an electromagnetic apparatus, the combination with a flexible loop of magnetic material forming a complete magnetic circuit, of pole-pieces projecting from opposite portions of said loop toward each other, and an exciter-coil surrounding said pole-pieces.

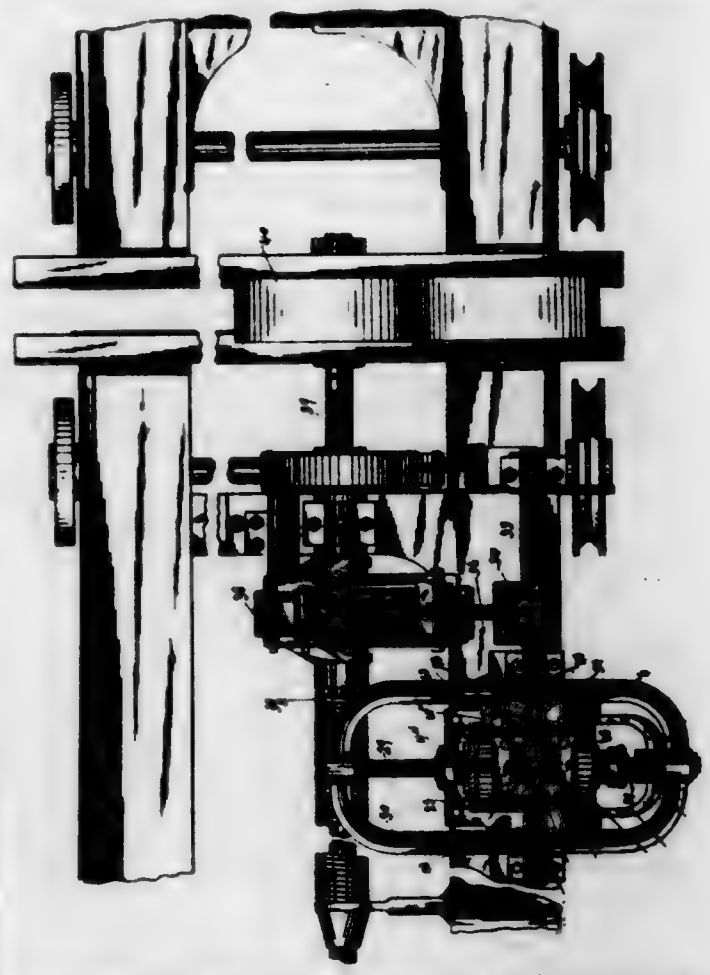
694,779. IRONING-BOARD SUPPORT. ANDREW J. PERRINE, Cincinnati, Ohio. Filed Oct. 31, 1901. Serial No. 79,688. (No model.)



Claim.—1. A support of the character described comprising a base or frame, legs pivotally connected therewith and adapted to be raised and lowered and having their upper ends adapted to support an ironing-board, slides movable on the base or frame, braces pivoted on the slides and having loose connection with the legs for holding them in raised position, said braces having their pivotal connections with the slides adapted, in the movement of said slides, to be moved in and out of alinement with the pivotal connections of the legs with said base or frame and means to limit the movement of said slides, substantially as set forth.

2. A support of the character described comprising a base having a longitudinal dovetail groove, legs pivoted on the base and adapted to be raised and lowered and having upper ends adapted to support an ironing-board, dovetail slides movable in the groove of the base and formed with longitudinal slots, pins on the base engaged with said slots to limit the outward movement of the slides, and braces pivoted on the slides and having loose connection with the legs for holding them in raised position, substantially as set forth.

694,780. STEAM SET-WORKS. CLAY S. PRESCOTT, Menominee, Mich., assignor of one-half to the D. Clint Prescott Co., a Corporation of Wisconsin. Filed Oct. 17, 1900. Serial No. 33,376. (No model.)



Claim.—1. In combination with log-moving mechanism for a sawmill-carriage, a fluid-motor for actuating such mechanism, ports for service and exhaust, means movable to control said ports uniformly for service and variably for exhaust, and means for controlling the motor, such means opening the service-ports uniformly and the exhaust-ports variably.

2. In combination with log-moving mechanism for a sawmill-carriage, a fluid-motor for actuating such mechanism, and means for controlling the supply and exhaust of fluid, the former uniformly, and the operation of which to open the exhaust variably controls such exhaust, such means opening the service-ports uniformly and the exhaust-ports variably.

3. In combination with log-moving mechanism for a sawmill-carriage, a fluid-motor for actuating such mechanism, and means for controlling the motor, such means opening the service-ports uniformly and the exhaust-ports variably in accordance with the position of the same.

4. In combination with log-moving mechanism for a sawmill-carriage, a fluid-motor for actuating such mechanism, and means for controlling the motor and providing an adequate supply of fluid for the prompt performance of the work and varying the exhaust, while the motor is in action.

5. In combination with the set-works of a sawmill-carriage, a motor for actuating such set-works, a controlling-valve for the motor, and means controllable with the valve for varying the exhaust-passage while the motor is in action.

6. In combination with log-moving mechanism for a sawmill-carriage, a fluid-motor for actuating such mechanism, and means for controlling the admission and exhaust of fluid-pressure thereto and therefrom, and means acting with such controlling means for varying the exhaust, while the motor is in action.

7. In combination, mechanism for moving logs on a sawmill-carriage, a reciprocating engine for actuating such mechanism, a valve for such engine having an induction-port capable of admitting steam to the full capacity of the engine and having restricted and graduated exhaust-ports, and adjustable means for limiting the throw of the valve.

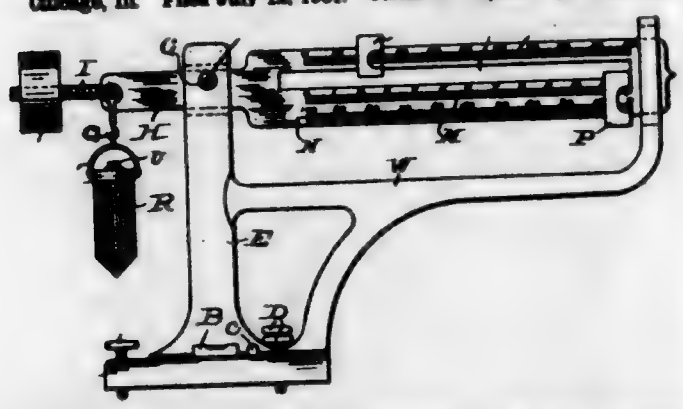
8. In combination with a sawmill set-works, a reciprocating steam-engine having steam-passages leading to opposite ends of its cylinder, a steam-chest having induction and exhaust ports, a rock-valve within the chest and having a central cavity open to the induction-port and adapted to communicate with the cylinder-passages, and having graduated ports

adapted to connect the cylinder-passages with the exhaust-ports of the chest, and adjustable positive stops for limiting the throw of the valve.

9. In combination with the set-works of a sawmill, a steam-cylinder, a piston reciprocating therein, a piston-rod fixed to the piston and projecting through both heads of the cylinder, a yoke-shaped frame inclosing the cylinder and attached to both ends of the piston-rod, stop-lugs formed on the frame, an adjustable stop-lever crossing the path of the lugs, and means for operatively connecting such frame with the set-works.

10. In combination with a sawmill set-works, a reciprocating steam-engine having steam-passages leading to opposite ends of its cylinder, a steam-chest having induction and exhaust ports, a rock-valve within the chest and having a central cavity open to the induction-port and adapted to communicate with the cylinder-passages and having graduated ports adapted to connect the cylinder-passages with the exhaust-ports of the chest, a hand-lever for moving the valve, stops for limiting the movement of the lever, a U-shaped plate fitting upon the lever for engaging such stops, and means for withdrawing such plate.

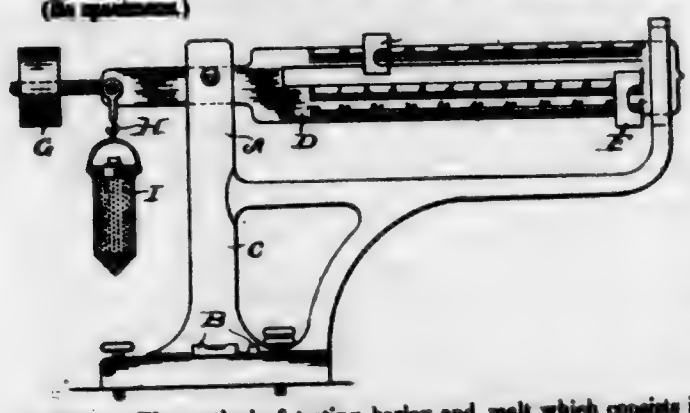
694,781. TEST-SCALE FOR MALTSTERS. WILLIAM H. PRIME, Chicago, Ill. Filed July 12, 1901. Serial No. 68,022. (No model.)



Claim.—1. In a test-scale, the combination with a base and a standard, of a scale-beam fulcrumed between its ends on said standard, one end of said scale-beam being provided with two graduated scales indicating percentage and reading in opposite direction, and with a graduated scale indicating ounces, a weight movable over and indicating on one of said percentage-scales, a second weight movable over and indicating simultaneously on both the other graduated scales, an adjustable counterweight on the other end of said scale-beam, and a removable perforated receptacle on said other end forming a load-receiver, substantially as and for the purpose described.

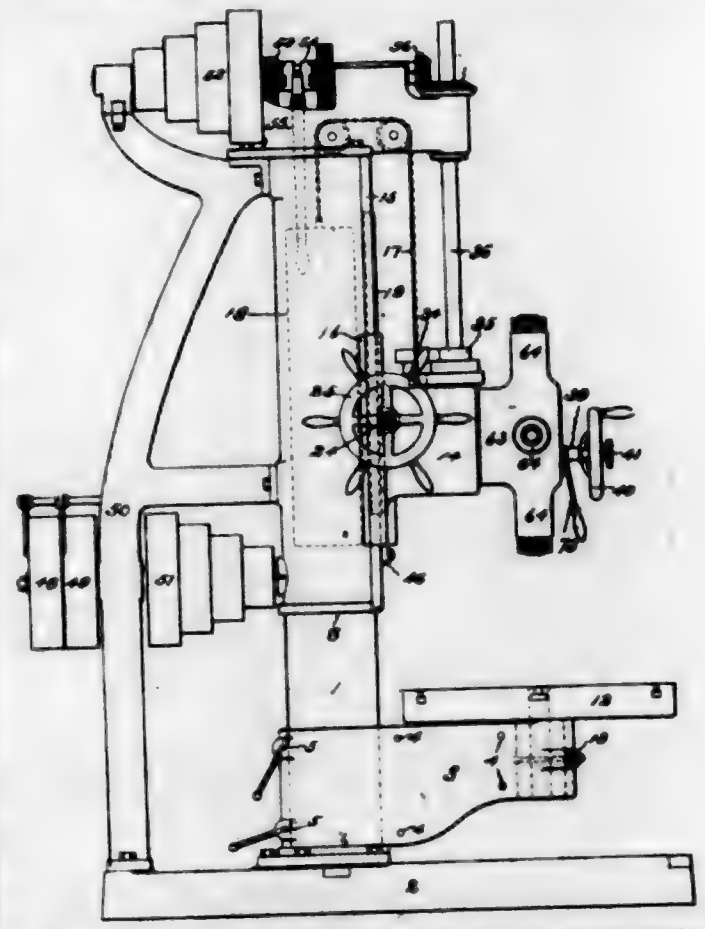
2. In a test-scale, the combination with a base, a standard thereon, and devices for leveling said base, of a scale-beam fulcrumed between its ends on said standard, a longitudinal slot in one end of said scale-beam, a graduated scale on said scale-beam above said slot indicating percentage, a similar graduated scale below said slot reading in the opposite direction, a graduated scale below said slot indicating ounces, a weight movable over and indicating on said first-named graduated scale, a second weight movable in said slot and embracing the lower bar of said scale-beam and indicating simultaneously on both said last-named graduated scales, an adjustable counterweight on the other end of said scale-beam, a removable perforated receptacle on said last-named end adapted to receive the substance to be weighed, and counting with said counterweight to balance said scale-beam, substantially as and for the purpose described.

694,782. METHOD OF TESTING BARLEY AND MALT. WILLIAM H. PRIME, Chicago, Ill. Filed July 12, 1901. Serial No. 68,023. (No specimens.)



Claim.—The method of testing barley and malt which consists in placing a given quantity of barley in a perforated receptacle, weighing the same and then subjecting such barley to any one or all steps in the malting process by inserting said receptacle in the body of barley during such process or any step thereof, and weighing said barley contained in said receptacle at frequent intervals during each step of the process to determine the percentage of gain or loss in weight thereof, whereby any fault in any step of the malting process may be determined.

694,783. TURRET DRILLING, MILLING, AND TAPPING MACHINE. ALANSON D. CROSBY, Hartford, Conn. Filed June 13, 1900. Serial No. 19,966. (No model.)



Claim.—1. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously rotatory shaft supported by the head, a spindle carried by the head and extending diametrically in the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle for rotating the spindle, and means for connecting the spindle with either one of the tool-holders in the turret, substantially as specified.

2. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-spindles borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, and means for holding the turret fixed with relation to the head when the spindle is connected with a tool-holder, substantially as specified.

3. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, and driving means supported by the frame and connected with the feed mechanism and the shaft-rotating mechanism, substantially as specified.

4. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, means carried by the head for operating the feed mechanism by hand, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane

of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head for rotating the spindle, and means for connecting the spindle with either one of the tool-holders in the turret, substantially as specified.

5. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, means carried by the head for operating the feed mechanism by hand, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, and driving means supported by the frame and connected with the feed mechanism and the shaft-rotating mechanism, substantially as specified.

6. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle for rotating the spindle, driving means supported by the frame and connected with the feed mechanism and the shaft-rotating mechanism, and means carried by the head for connecting and disconnecting the driving means and the feed mechanism, substantially as specified.

7. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head for feeding the head, means carried by the head for operating the feed mechanism by hand, a turret mounted upon a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, driving means supported by the frame and connected with the feed mechanism and the shaft-rotating mechanism, and means carried by the head for connecting and disconnecting the driving means and the feed mechanism, substantially as specified.

8. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head for feeding the head, means carried by the head for operating the feed mechanism rapidly by hand, means carried by the head for operating the feed mechanism slowly by hand, a turret mounted on a hub projecting radially from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, and driving means supported by the frame and connected with the feed mechanism and the shaft-rotating mechanism, substantially as specified.

9. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head for feeding the head, means carried by the head for operating the feed mechanism rapidly by hand, means for connecting and disconnecting the rapid hand operating means and the feed mechanism, means carried by the head for operating the feed mechanism slowly by hand, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, driving means supported by the frame and connected with the spindle-rotating mechanism, and means carried by the head for connecting and disconnecting the driving means and the feed mechanism, substantially as specified.

10. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head for feeding the head, means carried by the head for operating the feed mechanism by hand, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, driving means supported by the frame and connected with the feed mechanism and the spindle-rotating mechanism, means carried by the head for connecting and disconnecting the driving means and the feed mechanism, and a stop mechanism carried by the head for disconnecting the driving means from the feed mechanism, substantially as specified.

11. A turret-machine having a frame, a head movable on the frame, mechanism carried by the head for feeding the head, means carried by the head and projecting through the turret to the front of the machine for operating the feed mechanism slowly by hand, means carried by the head and projecting to one side of the head for operating the feed mechanism rapidly by hand, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a spindle in the head extending diametrically of the turret, tool-spindles borne by and projecting radially from the turret, mechanism carried by the head for rotating the spindle in the head, means for connecting the spindle in the head with a tool-spindle in the turret, and driving means supported by the frame and connected with the feed mechanism and the spindle-rotating mechanism, substantially as specified.

12. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head for feeding the head, means carried by the head for operating the feed mechanism rapidly by hand, said means having a longitudinal movement for the purpose of connecting and disconnecting it with the feed mechanism, means carried by the head for operating the feed mechanism slowly by hand, a turret mounted on a hub projecting radially from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the head, driving means supported by the frame and connected with the spindle-rotating mechanism, and means carried by the head for connecting and disconnecting the driving means and the feed mechanism, substantially as specified.

13. A turret-machine having a frame, a table movable on the frame, means for elevating and lowering the table on the frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame, for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, and means for connecting the spindle with either one of the tool-holders in the turret, substantially as specified.

14. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame, for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, and mechanism for disconnecting the feed mechanism when the head reaches a fixed limit of movement, substantially as specified.

15. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame, for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, mechanism in the head for registering and locking the turret in position, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, and means connecting the spindle with either one of the tool-holders in the turret, substantially as specified.

16. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radi-

ally from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, and mechanism carried by the head for registering and locking the turret in position and simultaneously causing a connection between the spindle in the head and one of the tool-holders, substantially as specified.

17. A turret-machine having a frame, a head movable on the frame, mechanism for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a spindle in the head extending diametrically of the turret, tool-spindles borne by and projecting radially from the turret, mechanism carried by the head for rotating the spindle in the head, means carried by the head for registering and locking the turret, and a clutch carried by the registering and locking means for connecting and disconnecting the spindle in the head with a tool-spindle in the turret, substantially as specified.

18. A turret-machine having a frame, a head movable longitudinally on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, turret registering and locking means carried by the head, hand operating mechanism for disengaging the registering and locking means from the turret, and a spring for causing the registering and locking means to engage the turret, substantially as specified.

19. A turret-machine having a vertical frame, a head movable vertically on the frame, a weight for counterbalancing the head, mechanism carried by the head and operated by means supported by the frame for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, and driving means supported by the frame and connected with the feed mechanism and the spindle-rotating mechanism, substantially as specified.

20. A turret-machine having a vertical frame, a head movable vertically on the frame, mechanism carried by the head and operated by means supported by the frame for feeding the head, a turret mounted on a hub projecting from the head and rotatable in a plane parallel with the plane of movement of the head, a continuously-rotatory shaft supported by the head, a spindle carried by the head and extending diametrically within the turret, independent rotatory tool-holders borne by and projecting radially from the turret, mechanism in the head and connecting the shaft and the spindle, for rotating the spindle, means for connecting the spindle with either one of the tool-holders in the turret, and driving means supported by the frame and connected with the feed mechanism and spindle-rotating mechanism, substantially as specified.

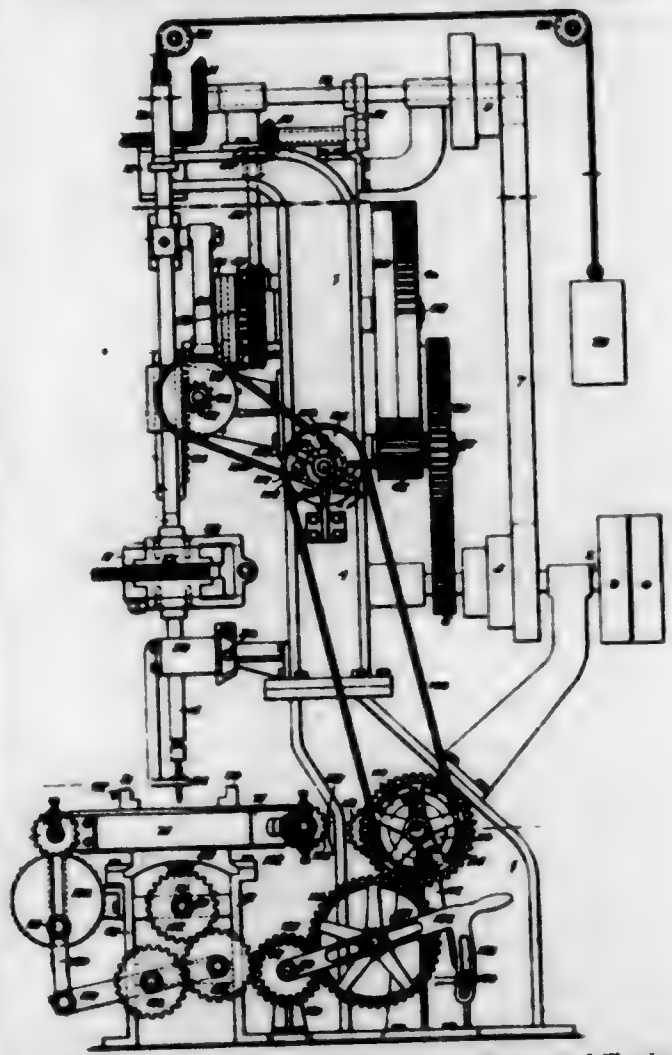
21. In a metal-working machine, a supporting-frame having a guide and power feed mechanism, a slide movable longitudinally upon said guide and subject to said feed mechanism, a rotary turret mounted on said slide and carrying rotary tool-holders, hand feed mechanism mounted upon and controlling the slide and operatively associated with the power feed mechanism, and means within said turret to throw the power feed mechanism into and out of operative condition, substantially as specified.

22. In a metal-working machine, a supporting-frame, a head movable longitudinally on the frame, a rotatory turret mounted on said head and carrying rotatory tool-holders, rotatory mechanism within the head arranged to be directly connected with either of the tool-holders, power feed mechanism and hand feed mechanism, both mounted upon and controlling the movement of the head and operatively associated with each other, and means carried by the head and extending through the turret for throwing the power feed mechanism and the hand feed mechanism into and out of operative condition, substantially as specified.

694,784. AUTOMATIC DRILLING-MACHINE. DANIEL RAMSAY, Philadelphia, Pa. Filed July 12, 1901. Serial No. 68,090. (No model.)

Claim.—1. The combination in a vertical drilling-machine, of a drill-spindle, means for vertically reciprocating the same, a work-table, a work-holder guided transversely on said work-table, feed-screws for the work-table and work-holder, and gearing whereby the vertical movement of the drill-spindle is caused to impart movement to said feed-screws, substantially as specified.

2. The combination, in a vertical drilling-machine, of a drill-spindle, means for rotating and vertically reciprocating the same, a work-table and longitudinal feeding devices therefor having as elements a spur-wheel on the feed-screw, a driving spur-wheel, and a lever carrying two spur-pinions meshing together, one of said pinions being also in mesh with the driving spur-wheel, whereby the rocking of the lever will permit either of its spur-pinions to mesh with the spur-wheel of the feed-screw in order to reverse the direction of rotation of the same, substantially as specified.



3. The combination, in a vertical drilling-machine, of a drill-spindle, means for rotating and for vertically reciprocating the same, a work-table, and feed-gearing interposed between the vertically-reciprocated spindle and the work-table, one of the elements of said gearing being a lost-motion clutch whereby feed movement of the table will be arrested until the drill is withdrawn from the work, substantially as specified.

4. The combination, in a vertical drilling-machine, of a drill-spindle, means for rotating and for vertically reciprocating the same, a work-table, and feed-gearing interposed between the drill-spindle and the work-table and having as elements a pawl-and-ratchet clutch whereby movement is imparted to the feed-screw only when the drill-spindle is reciprocating in one direction, substantially as specified.

5. The combination, in a vertical drilling-machine, of a drill-spindle, means for rotating and vertically reciprocating the same, a work-table, a feed-screw therefor, and gearing interposed between the drill-spindle and said feed-screw, and serving to transmit movement from one to the other, elements of said gearing being change-wheels whereby the extent of movement of the feed-screw on each reciprocation of the drill-spindle can be varied, substantially as specified.

6. The combination, in a vertical drilling-machine, of a drill-spindle, means for rotating the same, and reciprocating devices for said drill-spindle comprising a shaft having a spur-segment thereon, a pinion for driving the same, a loosely-running and continuously-driven worm-wheel on said shaft, and a one-way-clutch connection between said worm-wheel the shaft, substantially as specified.

7. The combination, in a vertical drilling-machine, of the drill-spindle, means for rotating the same, and reciprocating devices for the spindle comprising a shaft and two independent driving devices therefor, one having a one-way clutch whereby it is connected to the shaft and the other having an adjustable spur-segment comprising two members each with partially-toothed periphery, said members being adjustable circumferentially on the shaft so as to increase or diminish the extent of toothed segment presented, substantially as specified.

8. The combination in a drilling machine, of a drill-spindle, means for rotating the same, and reciprocating devices for said drill-spindle comprising a shaft having a toothed segment whose hauling teeth is yielding and elastic, a pinion for driving said segment, means whereby rotation of the shaft is caused to impart reciprocating movement to the drill-spindle.

and gearing for rotating the shaft when its segment is out of mesh with the driving-pinion, substantially as specified.

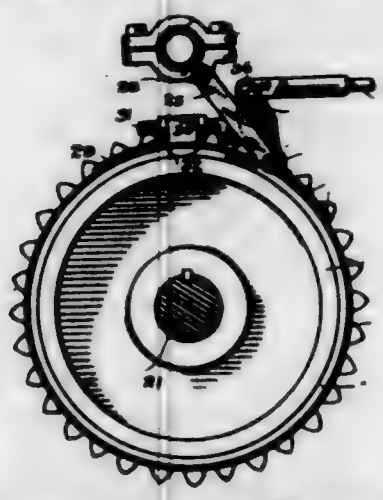
9. The combination in a drilling-machine, of a drill-spindle, means for rotating the same, and reciprocating devices for said drill-spindle comprising a shaft having a toothed segment whose leading tooth is composed of a bent plate of spring metal mounted above a recessed portion of the periphery of the segment, a pinion for driving said said segment, means whereby the rotation of the shaft is caused to impart reciprocating movement to the drill-spindle, and gearing for rotating the shaft when its segment is out of mesh with the driving-pinion, substantially as specified.

10. The combination, in a vertical drilling-machine, of the work-table, means for reciprocating the same, a work-holder, guides therefor, disposed transversely of the feed-table, transverse feeding devices for the work-holder, and gearing whereby said feeding devices are rendered operative when the work-table reaches the limit of its movement in either direction, substantially as specified.

11. The combination, in a vertical drilling-machine, of the feed-table, means for reciprocating the same, a work-holder, guides for said work-holder disposed transversely of the feed-table, work-holder-feeding devices, gearing for operating the same at either limit of movement of the feed-table, reversing-gearing for the feed-table, and gearing whereby said reversing devices are operated by the work-holder-feeding mechanism at either end of the travel of the feed-table, substantially as specified.

12. The combination, in a vertical drilling-machine, of the drill-spindle, means for rotating and for vertically reciprocating the same, a work-table, feeding devices therefor, and feed-operating gearing interposed between the drill-spindle and said work-table-feeding devices and having as elements a one-way clutch whereby forward movement is imparted to the feeding devices, and a spring-lock whereby backward movement of said feeding devices is prevented, substantially as specified.

694,785. BRAKE. ARTHUR H. RAYMOND, Bridgeport, Conn. Filed Nov. 20, 1901. Serial No. 84,084. (No model.)



Claims.—1. A brake comprising a rotary disk, a brake-band inclosing said disk, a connection between one end of said band and a fixed support said connection being formed to prevent movement of that end of the band toward or away from said fixed support, an operating-lever and an operating-rod, one end of said lever being pivoted to the operating-rod and the other to the brake-band, and the other end of the brake-band being pivoted to the lever at an intermediate point.

2. A brake comprising a rotary disk, a brake-band inclosing said disk, a link whose ends are pivotally connected to one end of the brake-band and to a fixed support, and formed to prevent movement of that end of the band toward or away from said fixed support, an operating-lever and an operating-rod, one end of said operating-lever being pivoted to the operating-rod and the other to the brake-band, and the other end of the brake-band being pivotally connected to the lever at an intermediate point.

3. A brake comprising a rotary disk, a brake-band inclosing said disk, a link whose ends are pivotally connected to one end of the brake-band and to a fixed support, and formed to prevent movement of that end of the band toward or away from said fixed support, an operating-lever and an operating-rod, one end of said operating-lever being pivoted to the operating-rod and the other to the brake-band, and the other end of the brake-band being provided with a yoke to which the operating-lever is pivoted.

694,786. LOCOMOTIVE-BOILER. SAMUEL S. RIDEOUT, Dunkirk, N. Y. Filed June 24, 1901. Serial No. 66,292. (No model.)

Claim.—1. The combination in a boiler structure of the locomotive type, of an external shell, a fire-box therein having a portion of its surface inclined, fire-tubes extending between the fire-box and the external shell, and a series of water-tubes on each side of a vertical plane through the long axis of the boiler, said tubes communicating with openings in various parts of the surface of the fire-box, said series of tubes being relatively near to one another at their upper portions and some distance apart at their lower portions, whereby a space is left for fuel and free combustion of gases, substantially as described.



2. The combination in a boiler structure of the locomotive type, of a fire-box having a portion of its lower surface inclined, a dished crown-sheet to the fire-box and inclined water tubes extending from openings in the dished portion of said crown-sheet to openings in the inclined surface of the lower part of the fire-box, substantially as described.

3. The combination in a boiler structure of the locomotive type of a fire-box having the lower surface of its sides inclined inwardly, with series of water-tubes extending between the crown-sheet of the fire-box and the inclined surface of the sides, said series of tubes approaching near to each other at their upper portions and being relatively far apart at their lower portions, thereby leaving a space between them for fuel, substantially as described.

4. The combination of a boiler structure of the locomotive type, of a fire-box provided with a dished crown-sheet and having the lower surface of its sides inclined inwardly, with a series of water-tubes within the fire-box extending between and toward each other from each side thereof, said tubes being connected to the dished portion of the crown-sheet, substantially as described.

5. The combination of a boiler of the locomotive type, a fire-box within the same having the lower portion of its sides inclined inwardly, water-tubes extending between the crown-sheet of the fire-box and the inclined portion of its sides, the lower portion of the sides of the boiler in the vicinity of the said fire-box being inclined inwardly and having an opening for the introduction and inspection of tubes, with means for closing the opening, substantially as described.

6. The combination of a boiler of the locomotive type, a fire-box within the same having the lower portion of its sides inclined inwardly, water-tubes extending between the crown-sheet of the fire-box and the inclined portion of its sides, a mud-ring between the lower edge of the boiler and the end of the inclined portion of the sides of the fire-box, the said ring being placed so that the tubes may be placed in position through the same, with means for closing the opening through the mud-ring, substantially as described.

7. The combination in a boiler structure of an external shell, a fire-box therein, fire-tubes extending between the fire-box and the external shell and a series of water-tubes on each side of a vertical plane through the long axis of the boiler, said tubes communicating with openings in various parts of the surface of the fire-box, said series of tubes being relatively near to one another at their upper portions and some distance apart at their lower portions, thereby leaving a space between them for fuel and free combustion of gases, substantially as described.

8. The combination in a boiler structure of the locomotive type of an external shell, a fire-box therein, fire-tubes connecting the fire-box with the external shell, said fire-box having its crown-sheet depressed thereby forming a reservoir for water with tubes connecting said depressed portion of the crown-sheet with the sides of the fire-box, substantially as described.

9. The combination in a boiler of the locomotive type of an external shell, a fire-box therein, fire-tubes connecting the fire-box with said shell, said fire-box having the central portion of its crown-sheet depressed, thereby bringing the same at a lower level than the edges thereof, and water-tubes extending from the depressed portion of said crown-sheet to the sides of the fire-box, certain of said tubes approaching relatively near to each other at their upper portions, substantially as described.

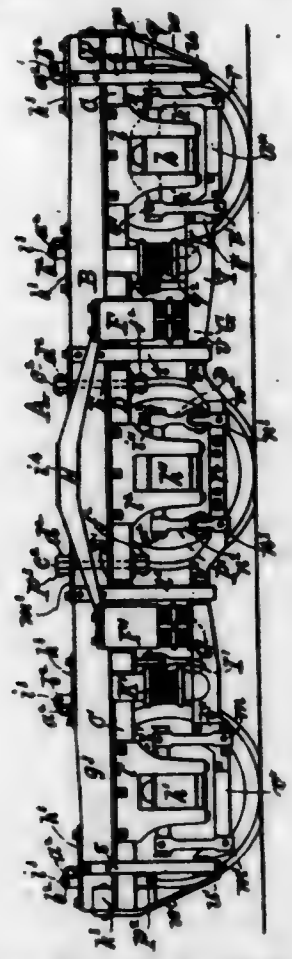
694,787. RADIAL CAR-TRUCK. WILLIAM ROSSMORE, Brooklyn, N. Y. Filed Oct. 21, 1901. Serial No. 79,261. (No model.)

Claim.—1. In a car-truck, the combination with the main truck-frame, of a wheel-frame arranged to swivel relatively thereto, and swing-links connecting said wheel-frame to said main frame, said swing-links being pivotally connected to said main frame and supporting said wheel-frame therefrom, substantially as described.

2. In a car-truck, the combination with the main truck-frame, of a plurality of wheel-frames and swing-links connecting said wheel-frames to said main frame, said swing-links being pivotally connected to said main frame and supporting said wheel-frames therefrom, the whole arranged to permit said wheel-frames to swivel relatively to said main frame, substantially as described.

3. In a car truck, the combination with the main truck-frame, of

wheel-frames and swing-links connecting the corners of said wheel-frames to said main frame, said swing-links being pivotally connected to said main frame and supporting said wheel-frames therefrom, the whole arranged to permit said wheel-frames to swivel relatively to said main frame, substantially as described.



4. In a car-truck, the combination with the main truck-frame, of wheel-frames arranged to swivel relatively thereto, and swing-links pivotally connected to said main frame and supporting said wheel-frames therefrom, said swing-links having diagonal axial supports at one end thereof, said axial supports permitting the opposite ends of said links to swing in an approximately horizontal curve, thus obviating twisting or torsional strain upon said swing-links, when said wheel-frames are swiveling, substantially as described.

5. In a car-truck, the combination with the main truck-frame, of a wheel-frame arranged to travel transversely across the center thereof, and swing-links connecting said main truck-frame and wheel-frame together and supporting said wheel-frame from said main truck-frame, substantially as described.

6. A radial truck consisting, essentially, of a main frame provided with three wheel-frames, two of said wheel-frames located toward the ends of said main frame and arranged to swivel relatively thereto, and an intermediate wheel-frame located between said swiveling frames and arranged to travel transversely across the center of said main frame, said wheel-frames being adjustably connected together and all suspended by swing-links from said main frame, substantially as described.

7. A radial truck consisting, essentially, of a main truck-frame, two swiveling wheel-frames located toward the ends thereof, an intermediate wheel-frame located between said swiveling frames and arranged to travel transversely across the center of said main frame, said wheel-frames being adjustably connected together and all suspended by swing-links from said main frame, equalizers supported by or from the axle-boxes, and springs supporting said main frame upon said equalizers, substantially as described.

8. In a radial truck, the combination with the main truck-frame of independent wheel-frames adjustably suspended by swing-links from said main frame, jaw-and-tongue couplers connecting said wheel-frames adjustably together, and a sliding block located between said couplers and arranged to prevent lost motion and wear between the same, substantially as described.

9. In a car-truck, the combination with the main truck-frame, of independent wheel-frames adjustably suspended by swing-links from said main frame, couplers connecting said wheel-frames adjustably together, spring-supports supported by the axle-boxes, and springs located between said supports and the main truck-frame, and supporting the latter, substantially as described.

10. In a radial truck, the combination with the main truck-frame, of independent wheel-frames adjustably suspended by swing-links from said main frame, couplers connecting said wheel-frames adjustably together, equalizing-bars supported by swing-links from the axle-boxes, and springs located between said equalizing-bars and the main truck-frame and supporting the latter, said last-named swing-links permitting said axle-boxes to move in a horizontal plane relatively to said equalizing-bars, substantially as described.

11. In a six-wheel radial truck, the combination with the main truck-frame, of two swiveling frames located near the ends thereof, an intermediate wheel-frame located between said swiveling frames and arranged to move transversely across the center of said main frame, said wheel-frames being adjustably coupled together and all suspended by swing-links from said main frame, equalizers supported by swing-links from the axle-boxes, supporting-springs between said equalizers and the main truck-frame, and braces arranged to keep said equalizers parallel to the main truck-frame, while permitting vertical adjustable movement between said main frame and equalizers, the flexible connections between the axle-boxes and said equalizers permitting said end wheel-frames to swivel and the intermediate wheel-frame to travel across the center of the main frame without disturbing the normal position of said equalizers, substantially as described.

12. The equalizers I, I', supported from the axle-boxes and adjustably connected together, whereby slight adjustable vertical movement relatively to each other is permitted, substantially as described.

13. The equalizers I, I', provided with detachable sections under the journal-boxes, for the purpose described.

694,788. JUSTIFYING DEVICE FOR LINOTYPES. James R. Rogers, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Nov. 26, 1901. Serial No. 83,706. (No model.)



Claims.—1. A justifying device for a linotype-machine, consisting of the body portion A, having a neck a^2 beveled on one side, and the wedge-shaped member B, having its body portion of the same width as the neck, and its upper end mounted to slide in the body portion, substantially as described.

2. In a justifying device, a body portion A of uniform thickness, having a groove a^3 in one side and having a neck a^2 beveled on the opposite side, in combination with a wedge B, sliding at one end within the groove in the body and having at said end lips fitted in the undercut walls of the groove.

3. In a justifying device for a linotype-machine, a body portion A, having in one side a longitudinal groove with undercut side walls closed at the lower end, in combination with a wedge, having its body portion adapted to slide in said groove and its upper end provided with lips loosely engaging the undercut walls whereby the two parts are adapted to constitute jointly an expansible space with permanently-connected members, adapting it to be handled as a unit.

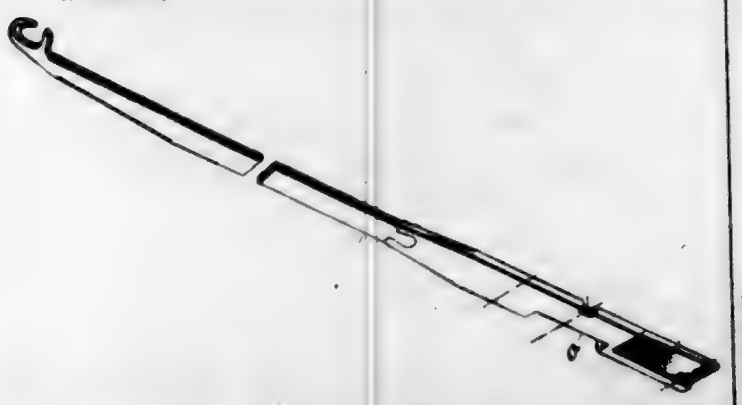
4. A spacing device consisting of the flexible shank A, with a suspending device at the upper end and with a longitudinal groove and a narrowed tapered neck at the lower end, in combination with the freely-movable wedge loosely suspended from the body by lips entering the groove, the body portion of the wedge being adapted to slide upward within the groove as described.

5. In a justifying device and in combination with a wedge, having lips at one end as described, the metal body having the tapered lower end and the groove with undercut walls to receive and guide the wedge, the walls being closed at the lower end to prevent the escape of the wedge, substantially as described and shown.

6. In a justifying device for a linotype-machine, a body portion reduced in width at the lower end to form a neck a^2 with parallel edges,

said neck beveled or inclined on one side, in combination with a wedge, having a uniform width throughout its operative portion equal to the width of the neck, and having at the upper end lips fitted and arranged to slide freely in the groove in the body, substantially as shown.

694,789. MATRIX FOR LINOTYPE-MACHINES. JOHN R. ROGERS, Brooklyn, N. Y., assignor to Mergenthaler Linotype Company, a Corporation of New York. Filed Nov. 20, 1901. Serial No. 83,767. (No model.)

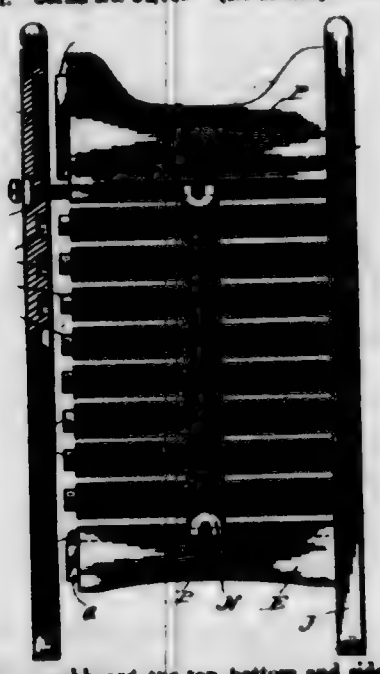


Claim.—1. The elongated linotype-matrix, having at one end the suspending eye or hook and at the opposite end the body portion with parallel sides and edges, with the matrix proper in one edge and with the beveled or inclined portion on one side below the character and extending rearward from the front edge a portion only of the width.

2. In a linotype-matrix, the body portion having the parallel edges and sides with the matrix *a'* in one edge, the alining notch *a* in the opposite edge and the beveled surface on one side extending from the front edge backward to aline with the inner wall of the notch *a*.

3. The combination of the two matrices having opposing vertical faces with the matrix characters therein, one of said matrices having its side face beveled or inclined vertically away from the other matrix, the fixed justifying-wedge lying against the vertical surface of the second matrix, and the long justifying-wedge having one side seated against the vertical face of the first-named matrix and its other side seated against the first-named wedge and continued downward adjacent to the beveled surface of the matrix, substantially as described and shown.

694,790. WASHBOARD. JOHN A. RUSSELL, Keywest, Fla. Filed June 16, 1901. Serial No. 64,706. (No model.)



Claim.—In a washboard, the top, bottom and side pieces connected together, said side pieces being provided with a series of alining bearings upon their adjacent inner sides, a series of rollers provided with corrugations having their ends journaled in said bearings of the sides, and a brake-strip provided with recesses upon one side, adjustably secured centrally to the rear of the top and bottom pieces and parallel with the side pieces so that its recesses will straddle the rollers and hold them in a stationary position when the brake-strip is clamped upon the rollers.

694,791. STEERING-GEAR. RICHARD H. SAGE, Detroit, Mich. Filed Feb. 17, 1900. Serial No. 5,569. (No model.)

Claim.—1. In a self-propelling vehicle having means for governing the direction of its movement, the combination of the steering-head, means thereon for operating switches, said switches controlling magnetic clutches connecting the motor to the driving-wheels, said motor and said driving-wheels whereby the movement of the lever turning the steering-wheels will actuate contacts in such manner as to partially or wholly release the clutch connecting the driving-wheel and axle on that side of the vehicle toward which the change of direction is made, substantially as described.

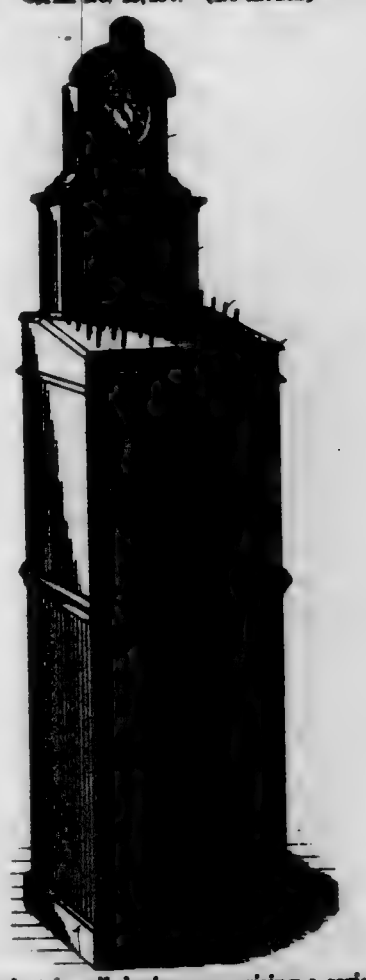


2. In a self-propelling vehicle, the combination of wheels driven by magnetic clutches interposed between the wheels and the driving-axle, resistances interposed in the electric circuits of the clutches and means whereby one of the resistances may be thrown into the circuit upon either side upon the operation of the steering device, and such steering device, substantially as described.

3. In a self-propelling vehicle, the combination of a steering-head, of contacts and resistances substantially as described for controlling the magnetic clutches connecting the driving-wheel and driving-axle thereof, said driving-wheel and driving-axle and means for driving the vehicle connected to the said driving-axle, substantially as described.

4. In combination, the wheels, the electromagnetic clutches, one being provided for driving each wheel, circuit connections, and a steering-handle and contacts controlled by said steering-handle, said contacts in turn controlling the two circuits of the electromagnetic clutch, whereby the current will normally flow through both clutches for actuating both wheels or by shifting the steering-handle, to open one circuit while maintaining the other closed to render one wheel free and drive the other, substantially as described.

694,792. ELECTRIC CALL. JOHN SALMON, New York, N. Y. Filed Jan. 31, 1901. Serial No. 45,467. (No model.)



Claim.—1. An electric-call device, comprising a series of contacts having electrical connection with calling or alarm devices, a support upon which said contacts are mounted and insulated one from another, a contact movable over said first-named contacts, an electric motor for operating said movable contact, a source of electricity, a main connection between said source of electricity and the motor, and a supplemental circuit

connecting with said source of electricity and closed by the striking-hammer of a clock mechanism for starting said motor, substantially as specified.

2. An electric-call device, comprising a series of fixed contacts, each adapted for connection with a call or alarm device, a contact movable over said fixed contacts, a source of electricity with which said movable contact has connection, a circuit-closing device, a clock mechanism for operating said closing device to close the motor-circuit through said source of electricity, an electric motor, a train of gearing between said electric motor and the movable contact, and means operated by the train of gearing for closing a main circuit from the source of electricity through the motor, substantially as specified.

3. An electric-call device, comprising a series of fixed contacts arranged in the circuit and adapted for connection with call or alarm devices, a contact movable over the fixed contacts, an electric motor for operating said movable contact, a source of electricity with which the movable contact connects, means for closing the circuit in which the movable contact is arranged, a motor having connection with said source of electricity, means having connection with the source of electricity for starting the motor, and means operated by the motor for closing a main circuit from the motor through the source of electricity during a complete rotation of the movable circuit closer or contact, substantially as specified.

4. An electric-call device, comprising a casing, a series of fixed contacts arranged in said casing, a contact movable over said fixed contacts, a series of contact-pins on the casing and having connection with the fixed contacts, a series of pins having connection with calling devices and adapted for connection with any one of the first-named pins, a source of electricity, a motor adapted to be placed in connection with said source of electricity and having a driving connection with the movable contact, an electrical controlling device for starting said motor, an electrical controlling device for momentarily holding the starting device in circuit-closing position, and means for maintaining the motor-circuit, substantially as specified.

5. An electric-call device, comprising a casing, a disk of insulating material supported in said casing, a series of contacts attached to said disk, contact-points on the casing and with which said first-named contacts connect, a series of call devices, pins with which said call devices connect, means for connecting said pins with the first-named pins, a contact movable over the fixed contacts, a source of electricity with which said movable contact has connection, an electric motor arranged in the casing and having a main connection with said source of electricity, means operated by the motor for closing said main-circuit connection, an electrically-operated device for starting the motor, and an electrically-operated device for opening the circuit through said first-named electrically-operated device, substantially as specified.

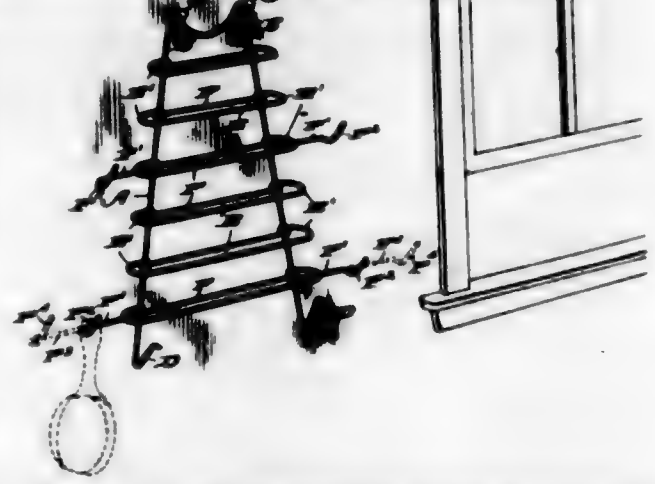
6. In an electric call, a casing, a series of fixed contacts arranged in said casing, call devices adapted for electrical connection with said fixed contacts, a contact movable over the fixed contacts, a motor for operating said movable contacts, a source of electricity with which said motor is adapted to be connected, an electromagnet having connection with said source of electricity, means for closing the circuit through said electromagnet, a supplemental circuit leading through the motor and closed by an operation of said electromagnet, means operated by the motor for closing the main circuit leading from said motor to the source of electricity, and an electromotive device controlled by the operation of the motor for opening the auxiliary circuit, substantially as specified.

7. In an electric-call device, a casing, a series of contact-points fixed in said casing and arranged in a circular row one independent of another, call devices or alarms, means for connecting any one or all of said call devices with any one of the fixed contacts, a source of electricity common to all the call devices, an arm mounted to rotate, a contact carried by said arm and movable over the fixed contacts, the said contact on the arm being in connection with the source of electricity, a motor for rotating the arm, the said motor being arranged in an electric circuit for operating the motor, an electromotive device for starting said motor, and a circuit-closer operated by a clock mechanism for closing the circuit through said electromotive device and means for maintaining the motor in circuit, substantially as specified.

8. In an electric call, a casing, a circular row of fixed contacts in said casing and adapted for electrical connection with calling or alarm devices, a source of electricity, a contact movable over said fixed contacts and having connection with said source of electricity, a motor arranged in the casing and having connection with said source of electricity, means controlled by a clock mechanism for closing a primary circuit through said motor, and means actuated by the motor for closing a main circuit through said motor, substantially as specified.

694,798. KITCHEN-RACK. ANNA M. SHIELS, Philadelphia, Pa. Filed Oct. 5, 1901. Serial No. 77,720. (No model.)

Claim.—1. A rack consisting of two suspending-rods terminating in hooks at their lower ends, the connecting rods or bars projecting beyond the suspending-rods and terminating in hooks, and the rack members connected to the suspending-rods and extending outwardly therefrom and adapted to rest parallel with the wall, substantially as described.



2. A rack comprising the suspending bars or rods connected at their upper ends, and formed with loop portions at their upper ends and terminating in hooks at their lower ends, the connecting-rods and the rack members attached to the suspending-bars above the connecting-rods, one or more of the connecting-rods extending beyond the suspending-bars and terminating in hooks, substantially as described.

694,794. CRATE. ADOLPH VON SCHLEINBACH, Martinsburg, Pa. Filed Mar. 15, 1901. Serial No. 51,291. (No model.)



Claim.—1. A folding crate comprising a bottom, a top provided with side and end sections depending therefrom, the end sections being free to fold against the top, and the side sections being free to fold against the end sections as thus folded so that the side and end sections are free to open simultaneously, the depending end sections serving as levers of variable power for unfolding the side sections.

2. A folding crate comprising a central flat member, a plurality of flat rigid sections flexibly connected therewith and free to fold upon the same directly, and a plurality of flat rigid sections flexibly connected with said flat member at right angles to the first-mentioned sections, and free to fold upon them so that the first-mentioned sections in swinging open serve as levers of variable power for opening the other sections.

3. A folding crate having top, bottom and side sections, each respectively rigid, the bottom section having guideways in its ends, the side sections having swinging connections with the top section and having parts slidably engaging said guideways whereby said top, side and bottom sections may be folded, in combination with end sections pivoted to the top section and folding inwardly against and parallel with the same and unfolding outwardly against and between the swinging edges of the side sections so as to exert increasing leverage upon the same as the said ends are unfolded.

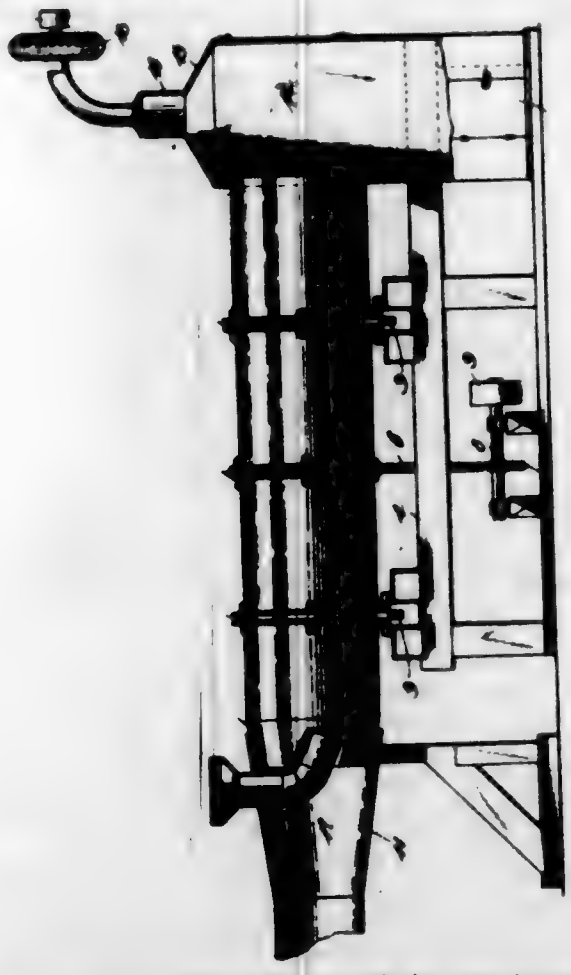
4. A folding crate, comprising a bottom, a top provided with side and end sections depending therefrom, the end sections being free to fold against the top and the side sections being free to fold against the end sections, and a fastening for securing said end sections, when unfolded, to said top section.

5. A folding crate, comprising a top, a bottom provided with slots, end members pivoted to said top and free to fold flatly against the same, side members pivoted to said top and free to fold flatly against said end members, said side members being provided with pins for slidably engaging said slots in said bottom, the arrangement being such that said crate is free to open when the said end members are pulled asunder.

694,795. METHOD OF WITHERING TEA-LEAVES. CHARLES U. SHEPARD, Summerville, S. C. Filed July 31, 1901. Serial No. 70,425. (No specimens.)

Claim.—1. The herein-described method of withering tea-leaves, which consists in taking the fresh leaves, passing them through an inclosed space, and subjecting them therein to agitation with progressive onward movement, in the presence of a current of suitably-tempered air.

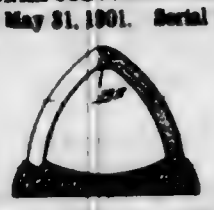
2. The herein-described method of withering tea-leaves, which consists in taking the fresh leaves, passing them through an inclosed space, picking up and dropping the leaves within the space and at the same time imparting progressive onward movement thereto in the presence of a current of suitably-tempered air.



3. The herein-described method of withering green tea and of destroying the oxidizing-enzyms thereof, which consists in passing the fresh leaves to an inclosed space, subjecting them at their point of entrance to a current of highly-heated air, and then picking up and dropping the leaves within the space while imparting progressive onward movement thereto toward the discharge.

4. The herein-described method of withering green tea, of destroying the oxidizing-enzyms thereof and conserving those favorable to the flavoring-oil of the tea, which consists in passing the fresh leaves to an inclosed space, subjecting them at their point of entrance to a current of highly-heated air, and then picking up and dropping the leaves within the space with decreasing temperature while imparting progressive onward movement thereto toward the discharge.

694,798. SECTIONAL CULVERT. FRANK A. SCHLIEPSIEK, Northbranch, Minn. Filed May 31, 1901. Serial No. 62,590. (No model.)



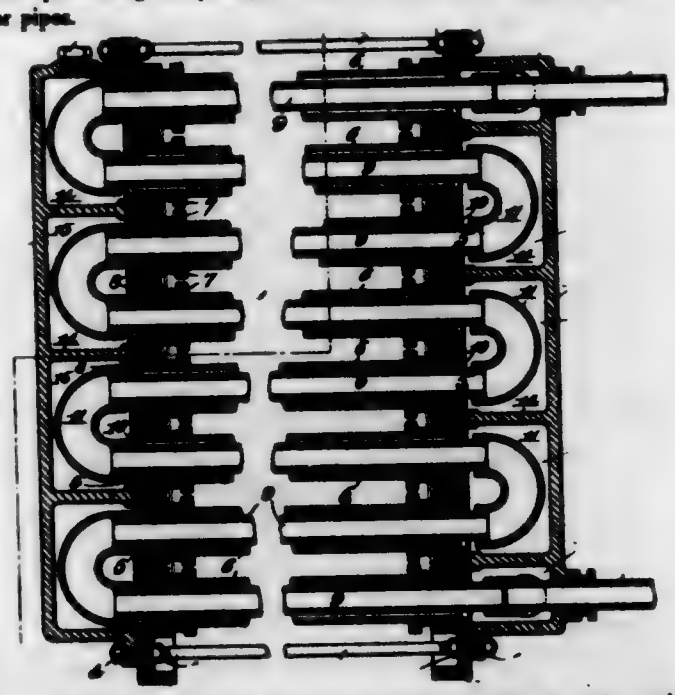
Claim.—1. A sectional culvert, comprising a base, oppositely-disposed side sections mounted upon the same and arranged to break joints with each other, said side sections being provided with serrated edges for forming a suture.

2. A sectional culvert, comprising a base, oppositely-disposed side sections mounted upon the same and arranged to break joints with each other, each section having the general shape of a semi-arch and being provided with a serrated edge having alternately-disposed bevels for the purpose of locking said edge to similar edges on other sections.

3. A sectional culvert, comprising a base, oppositely-disposed side sections each having the general shape of a semi-arch, said mounted upon said base so as to engage opposite side sections at the top, the upper edges of the sections being provided with serrations and slightly rounded externally, thereby forming a rotund, smooth external apex.

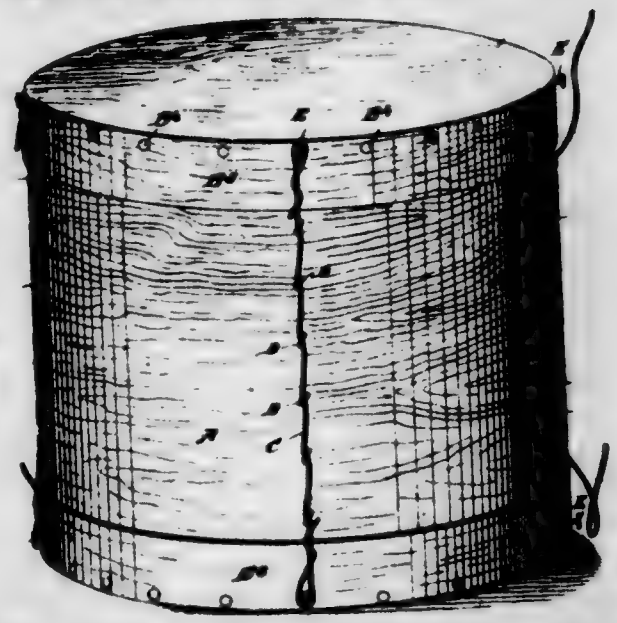
694,797. CONDENSING-COIL. ALFRED SIEBERT, St. Louis, Mo. Filed June 3, 1901. Serial No. 62,896. (No model.)

Claim.—1. In a coil of the class described, the combination of a pair of apertured heads, a series of outer conducting-pipes secured within the apertures of said heads, caps fitted to said heads through which said outer pipes communicate, a series of inner conducting-pipes located within said outer conducting-pipes, return-bends connecting the ends of said inner conducting-pipes, and means mounted within the apertures of the heads preventing the passage of the outer pipes and supporting the inner pipes.



2. In a coil of the class described, the combination of a pair of apertured heads, a series of outer conducting-pipes, secured in the apertures of the heads, caps fitted to said heads and provided with compartments into which said outer pipes communicate, a series of inner conducting-pipes located within said outer pipes, return-bends connecting the ends of said inner conducting-pipes and located in the compartments of said caps, and lugs mounted within the apertures of the heads preventing the passage of the outer pipes and supporting the inner pipes.

694,798. CHEESE-BOX. WILLIAM A. SCHEIFER, Ingersoll, Canada, assignor of one-half to James Sinister, Upper Montclair, N. J. Filed Mar. 26, 1901. Serial No. 52,767. (No model.)

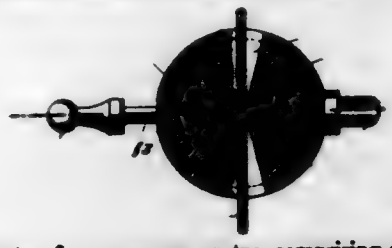


Claim.—1. A cheese-box, comprising an open-ended body, flanged heads removably fitting on the ends of the body and provided with a plurality of oppositely-arranged studs or pins projecting therefrom, and a plurality of independent non-elastic flexible ties secured upon the outer surface of the body to extend longitudinally thereof, the ends of each tie being free and wrapped around the studs or pins of the heads, as set forth.

2. A cheese-box, comprising an open-ended body, flanged heads removably fitting on the ends of the body and provided with a plurality of oppositely-arranged headed pins or studs projecting therefrom, and a plurality of independent wires secured upon the outer surface of the body to extend longitudinally thereof, the ends of each wire being free and wrapped around the studs or pins of the heads, as set forth.

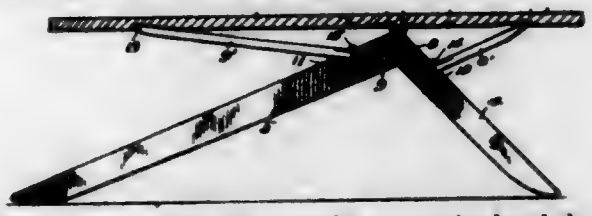
694,799. GAME APPARATUS. DANIEL SMITH, Orilla Corners, N. Y. Filed Mar. 28, 1901. Serial No. 53,207. (No model.)

Claim.—1. A projector for a game apparatus, comprising a body, a part of which is formed with a double-tapered or hour-glass-shaped slot, a sustaining-bar passed through the slot, and a plunger carried by the body.



2. A projector for a game apparatus, comprising a body, a part of which is formed with a double-tapered or hour-glass-shaped slot, a sustaining-bar passed through the slot, a plunger carried in the body, a spring actuating the plunger in one direction, and a device for releasably holding the plunger against the spring.

694,800. IRONING-TABLE. DAVID A. SOX, Harmison, Ga. Filed Mar. 20, 1901. Serial No. 53,202. (No model.)



Claim.—1. An ironing table comprising an ironing-board, the folding legs hinged at their upper ends to the lower face of the ironing-board and provided with abutting faces and adapted to support each other, and the braces extending upward from the legs and engaging the ironing-board to support the ends of the latter and to lock the legs in engagement with each other, substantially as described.

2. An ironing-table comprising an ironing-board, the folding legs hinged at their upper ends to the ironing-board and having abutting faces, and the braces hinged to the legs near the upper ends thereof and supporting the end portions of the ironing-board and holding the legs rigidly against each other, said legs being forked and adapted to receive the braces within the crotches of the forks, substantially as described.

694,801. TAG-FASTENER. SIDNEY G. SPENCER, Shreveport, La. Filed July 6, 1901. Serial No. 67,268. (No model.)



Claim.—The tag-fastener herein described, composed of wire having a central coil, end arms projecting outwardly in reverse directions from the opposite ends of the coil, the side arms extending from the outer extremities of the end arms at approximately right angles thereto and inclining inwardly toward their extremities, both longitudinally and laterally, and provided at such extremities with inwardly-projecting hooks all substantially as described, whereby the longitudinal and lateral inclination of the side arms will coöperate with the central coil in causing the fastener to adjust to the thickness of the bolt-board, and the hooked ends to engage upon the faces of the bolt-board, all substantially as and for the purposes set forth.

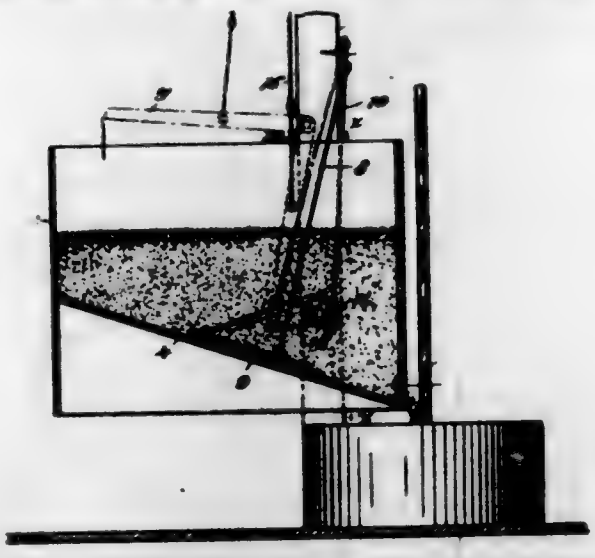
694,802. MANUFACTURE OF CEMENT. JACOB STREEB, London, England. Filed July 8, 1901. Serial No. 67,537. (No specimens.)

Claim.—1. The process for the manufacture of a silicated magnesia cement in dry form, which consists in mixing a concentrated hot solution of chlorid of magnesium with a powdered siliceous material, heating the same to and above 130° centigrade, reducing the mass to a dry powder by continued heating and adding calcined magnesite, substantially as set forth.

2. The process for the manufacture of a silicated magnesia cement in dry form, consisting of mixing a concentrated solution of chlorid of magnesium with a powdered siliceous material in suitable proportions, heating such mixture to form a hydrated silicic acid of the siliceous raw material, evaporating, drying and powdering the mixture, and adding thereto a suitable proportion of powdered calcined magnesite, substantially as set forth.

694,803. AUTOMATIC CUT-OFF FOR MILL-POWER. JOSEPH STRITTMATTER, Carroll Township, Pa. Filed Feb. 15, 1901. Serial No. 47,447. (No model.)

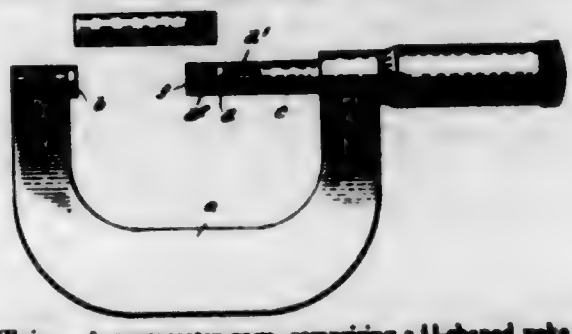
Claim.—1. The combination with a mechanism for stopping mills and a hopper, of a paddle mounted to swing in said hopper, a lever, a connection between said paddle and one end of the lever, a latch, a connection between said latch and the other end of the lever, a lever adapted for connection with a clutch or similar device of a mill, and a link on said last-named lever for engaging with the latch, substantially as specified.



2. The combination with a mill and a driving power therefor, of a hopper for discharging into the mill, a paddle arranged to swing in said hopper, a lever, a connection between said paddle and one end of said lever, a pivoted latch, a connection between the other end of said lever and the pivoted latch, a pin on said latch, a lever adapted for connection with a clutch or disconnecting device of a windmill, and a link on said last-named lever adapted for engagement with the pin on the latch, substantially as specified.

3. In a device of the character described, a hopper for discharging into a mill, a transversely-curved paddle mounted to swing on said hopper, the edges of said paddle being designed to engage with the bottom of the hopper, and means controlled by said paddle for operating a disconnecting device of a windmill or the like, substantially as specified.

694,804. MICROMETER-GAGE. JESSE STRAUSSER, Phœnix, Ariz. Filed May 3, 1901. Serial No. 58,614. (No model.)



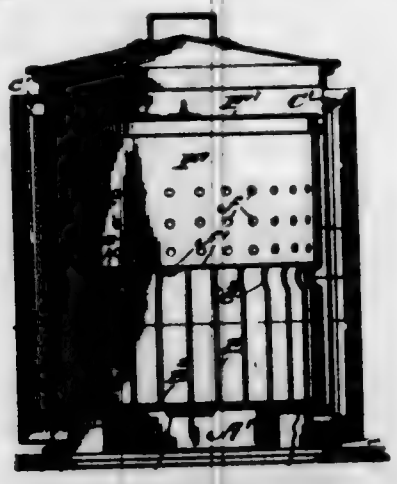
Claim.—A micrometer-gage, comprising a U-shaped yoke or body portion, an anvil carried by one end of the yoke and having a plane working face, a measuring-screw mounted in the other end of the yoke, a hardened disk fastened securely to the end of the measuring-screw and provided with an outwardly-projected threaded portion, and an extension-bar having at one end a threaded connection with said outwardly-projected threaded portion of the disk, and having its other end adapted to abut against the working face of the anvil.

694,805. COOKING-BOILER. WILLIAM H. TAYLOR, Narragansett Pier, R. I. Filed Aug. 17, 1901. Serial No. 72,265. (No model.)

Claim.—1. In a device of the kind described, the combination of a boiler having a depression formed in the bottom thereof, a flange held upon the lower edge of the bottom, tubes communicating with the boiler at one end and projecting through the flange at their opposite ends, a holder arranged within the boiler, the said holder being made of wire and comprising the horizontal strands to form a bottom, the vertical strands to form the sides, rings connecting the said bottom and side strands, the said strands having inwardly-bent portions formed thereon, and a perforated vessel supported by the said holder and resting on the said inwardly-bent portions, substantially as shown and described.

2. In a device of the kind described, the combination of a boiler having a depression or well formed in the bottom thereof and a flange surrounding the said well, tubes projecting through the flange at one end and having their opposite ends communicating with the upper end of the boiler, substantially as shown and described.

3. A holder for the purpose described, formed of wire and comprising the upper and lower rings, the vertical strands connected thereto, said vertical strands being bent inwardly intermediate their ends and the horizontal strands arranged radially and connected to a central ring, substantially as described.



694,806. OUTLET MEMBER FOR ELECTRICAL CONDUITS. ROBERT M. THOMAS, New York, N. Y., assignor to Thomas and Betts, New York, N. Y., a Firm. Filed Jan. 28, 1901. Serial No. 44,817. (No model.)



Claim.—An outlet member consisting of a sleeve of solid metal and having an interiorly-threaded attaching portion, a lip to extend over the walls of the pipe end, a flaring mouth, and a protective coating of enamel, upon the surface of said mouth, the base of said member being free from enamel to insure electrical connection between the pipe and the outlet-box which the latter may enter.

694,807. SAUCEPAN. ROBERT B. VANDERWERK, Los Angeles, Cal., assignor of one-half to Andrew W. Johnson, Longbeach, Cal. Filed May 27, 1901. Serial No. 62,146. (No model.)



Claim.—As a new article of manufacture, a detachable bail for kettles comprising a pair of twin bail-ears having a bail-receiving hole near each end of each ear; two bails in said bail-holes; one of which is shorter than the other; and a hand gripping-bar centrally mounted on said bails.

694,808. FORGING-MACHINE. SAMUEL VAUPOEL, Providence, R. I., assignor to the Patent Development Company, Providence, R. I., a Corporation of Rhode Island. Filed Apr. 11, 1901. Serial No. 55,378. (No model.)

Claim.—1. In a forging-machine, the oppositely-reciprocatory gripping means for both end portions of the blank, and devices in connection therewith for causing the grip of both such means to be effected automatically, substantially as specified.

2. In a forging-machine, the reciprocatory gripping means for an end portion of the blank, and devices in connection therewith for causing the grip of such means to be effected automatically, and gripping means for the opposite end portion of the blank, substantially as specified.

3. In a forging-machine, the combination with the reciprocatory gripping means for one end portion of the blank, and gripping means for the opposite end portion of the blank, of a pressure or die device for the heated portion of the blank, and means in connection with such device to cause it to be applied automatically, substantially as specified.

4. In a forging-machine, the reciprocatory slides, the jaws carried by said slides, and arranged to grip both end portions of the blank, and means in connection with such jaws to cause them to effect their grip automatically, substantially as specified.

5. In a forging-machine, the reciprocatory, gripping means for the end portions of the blank, and the reciprocatory, oppositely-acting dies or pressure-plates, substantially as specified.



6. In a forging-machine, the reciprocatory slides, the toggle-lever, automatically-acting tongs pivoted to said slides and arranged to grip the end portions of the blank, and means engaging the joint-pin of said tongs for extending said toggle-levers to automatically effect the initial grip, substantially as specified.

7. In a forging-machine, the reciprocatory cam-slides, automatically-acting jaws carried by said slides and arranged to grip the end portions of the blank, the pivoted levers operated by said slides, and the reciprocatory dies or pressure-plates operated by said levers, substantially as specified.

8. In a forging-machine, a reciprocatory cam-slide, jaws carried by said slide and arranged to grip the blank, reciprocatory oppositely-acting die-heads, carrying the dies, and the pivoted levers actuated by said slides to reciprocate said die-heads, substantially as specified.

9. In a forging-machine, the gripping means for the blank, having the tongs, and means engaging the joint-pin of said tongs, for temporarily retarding the movement thereof, to effect the initial grip, substantially as specified.

694,809. LABEL-HOLDER FOR BOTTLES, &c. OTTO H. C. VOIGT, Lübeck, Germany. Filed Aug. 7, 1901. Serial No. 71,270. (No model.)

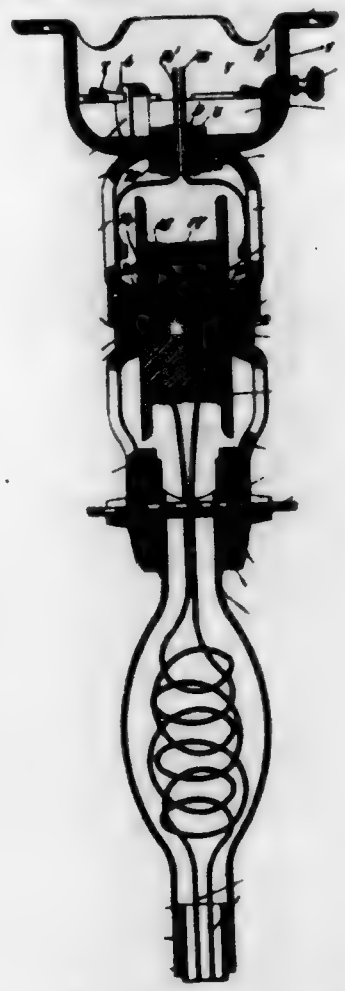


Claim.—1. A label-holder for bottles comprising a ring provided with arms to support the label and bent for a portion of its circumference into a serpentine shape adapted to enable the adjustment of the diameter of the ring, substantially as described and illustrated in the accompanying drawings.

2. A label-holder comprising a single strand of wire formed first into a ring, the ends of said wire being then bent upright to form parallel arms for supporting the label, a portion of said ring provided with a number of bends whereby the diameter of the ring may be lessened or enlarged for the purpose and substantially as described.

3. A label-holder for bottles consisting of a single strand of wire one end of which being bent to form a supporting-arm, the opposite end being bent upon itself to form short bends for a portion of its length adapted to engage said supporting-arm, and then bent parallel with the other end of said wire and forming a second supporting-arm, the whole so constructed and arranged that the diameter of the ring may be varied in order to fit bottles of different sizes, substantially as and for the purpose set forth.

694,810. ADJUSTABLE ELECTRIC-LIGHT SUPPORT. EDWARD R. WALTERS, Lehighton, Pa., assignor of two-fifths to Benjamin A. Mink, Lehighton, Pa. Filed Sept. 5, 1901. Serial No. 74,413. (No model.)



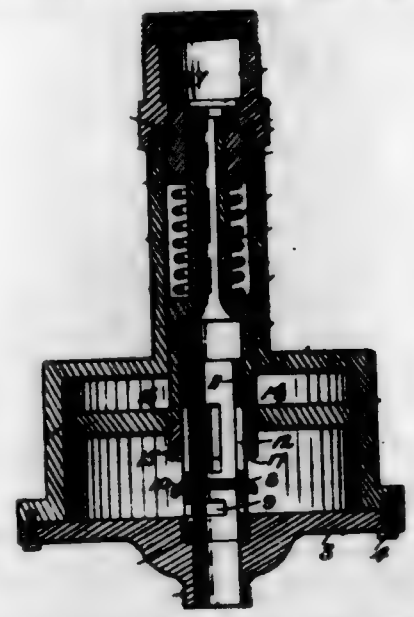
Claim.—1. An adjustable support for electric lamps, comprising a frame, an extensible member secured thereto and provided with an electric lamp and also with a hollow bulb, a spool mounted within said frame and provided with flexible electrodes leading to said lamp, electrodes leading from a source of electrical supply to said spool, a spring for normally winding said spool in one direction, spring-arms for governing the freedom of movement of said spool, and an adjusting device controllable at will for governing the pressure of said spring-arms.

2. An adjustable support for electric lamps, comprising a cylindrical member provided interiorly with wedge-shaped cams, a bow-shaped member provided interiorly with hooked lugs for engaging said wedge-shaped cams and provided centrally with an aperture, a sleeve mounted in said aperture, a pair of spring-arms secured to said sleeve, a spool provided with flexible electrodes normally wound thereon and located between said spring-arms, a spring for actuating said spool in one direction, a manually-controlled adjusting device for governing the tension of said spring-arms upon said spool, an extensible member provided with an electric lamp, said lamp being connected with said flexible electrodes, and means for supplying an electric current to said flexible electrodes.

3. An adjustable support for electric lamps, comprising a frame, a spool mounted thereon and wound with flexible electrodes, means for supplying an electric current to said electrodes, a spring for rotating said spool in one direction, an adjusting device for controlling the freedom of motion of said spool, and a hollow member connected with said frame and provided with a bulb, the arrangement being such that said spool according to its adjustment is normally free to take up the slack of said flexible electrodes, and said bulb is adapted to take up said slack, when said spools fail to do so.

4. An adjustable support for electric lamps, comprising a casing provided with fastenings and with a central aperture, a sleeve journaled in said aperture, a pair of spring-arms revolubly connected with said sleeve, a bolt provided with thumb-nuts and passing through said spring-arms, a telescopic member provided with a bulb and with a pair of friction-plates for engaging said spring-arms, an electric lamp connected with said telescopic member, and means for supplying a current of electricity to said electric lamp.

694,811. SAFETY-VALVE. PAUL WEITING, East Las Vegas, N. Mex. Filed Apr. 10, 1901. Serial No. 54,120. (No model.)



Claim.—1. In a device of the class described, the combination, of a cylinder, steam connection for said cylinder, a perforated head having a sloping rim and communicating with said steam connection, a piston having a hollow stem formed integral therewith, an annular conical valve seated in said piston and constructed to be seated on the said rim on said head, a spiral spring surrounding said stem, and means for adjusting the compression of said spring, substantially as described.

2. In a device of the class described, the combination, of a cylinder having a tubular casing formed integral therewith, steam connection for said cylinder, a perforated head detachably mounted in said cylinder, a piston fitting said cylinder and provided with a hollow stem, the upper portion of said stem being contracted and fitting within said casing, a valve seated in said piston and constructed to be seated on said head, a spring surrounding the contracted portion of said stem, and an adjusting-nut bearing on said spring, substantially as described.

3. In a device of the class described, the combination, of a cylinder having a tubular casing formed integral with one head thereof, a piston having a hollow stem fitting snugly said casing at its lower end and having a contracted upper portion, a valve mounted in said cylinder, a seat for said valve, a spring surrounding the contracted portion of said stem, and an adjusting-nut screwed into said casing and bearing on the end of said spring, substantially as described.

694,812. DOOR-SECURER. CHARLES F. WILLIAMS, Anderson, Ind. Filed Apr. 24, 1901. Serial No. 57,172. (No model.)



Claim.—1. A door-securer, consisting of the spiked carrier and the pivoted brace or stop of the carrier, having a locking-recess for the corner of the door, substantially as specified.

2. In a door-securer, the spiked carrier, and the pivoted brace or stop of the carrier having the locking-shoulder for the door, and having the lug extension engaging a stop-shoulder of the carrier when in locking position, and forming a locking-recess for the corner of the door with the door-locking shoulder of said brace or stop, substantially as specified.

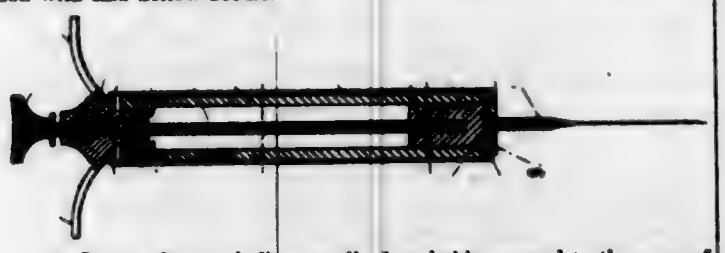
3. In a door-securer, the spiked carrier, having the bracing-shoulder arranged to take a bearing against the door-jamb, and the pivoted brace or stop of the carrier, having a locking-recess for the corner of the door, substantially as specified.

694,813. HYPODERMIC SYRINGE. BENJAMIN T. WHEELWRIGHT, Baltimore, Md. Filed Aug. 16, 1900. Serial No. 27,023. (No model.)

Claim.—1. In a syringe, a retaining-case made of spring material which is slightly narrower across its face on account of being slightly more than a semicircle in cross-section thereby enabling parts placed therein of substantially the same diameter being held thereby.

2. In a syringe, the combination of, a retaining-case made of spring

material which is slightly narrower across its face on account of being slightly more than a semicircle in cross-section thereby enabling parts placed therein of substantially the same diameter being held thereby, a barrel with its necessary operating piston and mechanism for working the same secured in said case, a hollow needle secured by a flange to one end of said case and adjusting mechanism secured by a flange at other end of said case and means for bringing the various parts together so that they may be made tight at their joints when the said barrel is in communication with said hollow needle.

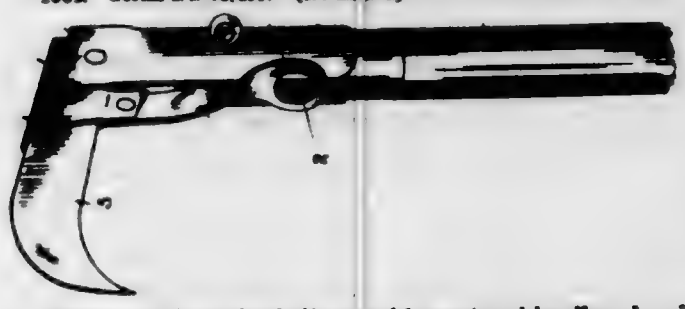


3. In a syringe, a hollow needle detachably secured to the case of said syringe by means of a flange on one end of said case which flange fits into a groove on the head of said needle, a barrel secured in contact with the head of said needle by pressure longitudinally applied, an adjusting-yoke secured in said case by means of a flange on end of said case fitting into a groove in the said adjusting-yoke operating to force the said barrel against the head of the said hollow needle, and a piston operated in said barrel by means of a piston-rod attached thereto operating through said adjusting-yoke.

4. In combination, in a syringe, a barrel, a piston operating therein, means for operating the piston, a hollow needle, and a retaining-case made of spring material which is slightly narrower across its face on account of being slightly more than a semicircle in cross-section.

5. In combination, in a syringe, a barrel, a piston operating therein, means for operating the piston, a hollow needle, a retaining-case made of spring material which is slightly narrower across its face on account of being slightly more than a semicircle in cross-section, said case being flanged for securing said hollow needle at one end and for securing an adjusting mechanism at the other end and means for securing the various parts.

694,814. KNIFE. ANDREW SWICKER, Rusk, Tex. Filed Oct. 12 1901. Serial No. 78,499. (No model.)



Claim.—1. A pruning-knife comprising a slotted handle and a pivoted blade, in combination with means for holding said blade in a partially-closed position, comprising a yoke fitting over the blade and a depending handle and means for detachably securing the said depending handle to the handle of the knife.

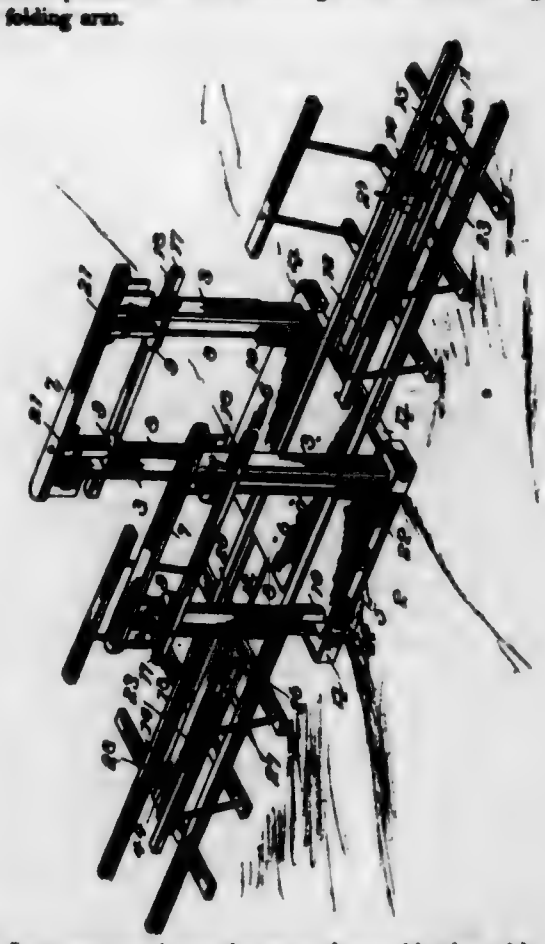
2. A pruning-knife comprising a hollow slotted handle having registering openings and a pivoted blade, in combination with a pole fitting within the handle and having an opening registering with the openings in the handle, a securing-pin extending through said openings, and means for securing the blade in partially-closed position.

3. A pruning-knife, comprising a hollow slotted handle having registering openings and a pivoted blade, in combination with a pole fitting within the handle and having an opening registering with the openings in the handle, a securing-pin extending through said openings, and means for securing the blade in partially-closed position comprising a yoke fitting over the handle and having a perforated ear extending through the slot in the handle, and a slot in the pole and held by the pin which secures the pole to the handle

4. The combination with a pruning-knife comprising a slotted handle and pivoted blade, of a suspending device therefor consisting of a coil-spring having pins projecting from the ends thereof.

694,815. RAILROAD-GATE. WILLIAM W. ALLEN and JAMES W. ALLEN, Carroll, Ill. Filed May 9, 1901. Serial No. 59,493. (No model.)

Claim.—1. In an automatic crossing-gate, the combination with a gate, of means for opening and closing the same comprising a sliding traveler, operative connections between the traveler and gate, a guideway for the traveler, a folding arm carried by the traveler, a latch for locking said arm in its operative position, and a trip located in the guideway and adapted to operate upon the latch for throwing the latter out of engagement with the folding arm.



2. In an automatic crossing-gate, the combination with a gate, of means for opening and closing the same comprising a sliding traveler, operative connections between the traveler and gate, a folding arm carried by the traveler, latches for holding said arm in its operative position, trips arranged at opposite ends of the throw of the traveler for moving the latches and releasing the traveler-arm, and a spring for returning the traveler-arm to its operative position.

3. In an automatic crossing-gate, the combination with a movable gate, of means for opening and closing the same comprising a sliding traveler, operative connections between the traveler and gate, a guideway in which the traveler moves a folding arm carried by the traveler, means for automatically locking and tripping said arm, and a restaining-spring for said arm comprising a pair of coils, one of which acts to move the arm in one direction, the other coil acting to move the arm in the opposite direction.

4. In an automatic crossing-gate, the combination with a movable gate, of means for opening and closing the same comprising a sliding traveler, operative connections between the traveler and gate, and a traveler-arm having telescopic members.

5. In an automatic crossing-gate, the combination with a movable gate, of means for opening and closing the same comprising a sliding traveler, operative connections between the traveler and gate, and a traveler-arm having telescopic members one of which is pivotally connected with the traveler.

6. In an automatic crossing-gate, the combination with a movable gate, of means for opening and closing the same comprising a sliding traveler, operative connections between the traveler and gate, and a pivoted and folding traveler-arm connected with the carriage and embodying a hollow body, a telescopic member slidingly mounted therein, and means for normally pressing the telescopic member outward.

7. In an automatic crossing-gate, the combination with a movable gate, of means for opening and closing the gate, comprising a sliding traveler, operative connections between the traveler and gate, and a traveler-arm embodying a hollow body pivotally connected with the traveler-frame, a sliding member arranged to telescope within the hollow body and provided with shoulders, and springs arranged within channeled portions of said body and exerting a pressure against the shoulders of the sliding member.

8. In an automatic crossing-gate, the combination with a movable gate, of means for opening and closing the gate comprising a sliding traveler, operative connections between the traveler and gate, and a traveler-arm embodying a sliding telescopic member provided with wings spaced apart and having a cushioning-spring interposed between the wings.

9. In an automatic crossing-gate, the combination with a movable gate, of means for opening and closing the gate comprising a sliding traveler, operative connections between the traveler and gate, a folding traveler-arm connected with the traveler and having a projection or shoulder,

a latch pivotally mounted in the traveler-frame and having a notch for engagement with the projection on the traveler-arm, and a trip arranged in the path of the traveler and adapted to operate upon the latch for releasing the traveler-arm and allowing the same to fold.

10. In an automatic crossing-gate, the combination with a vertically-movable gate, of parallel shafts each provided with a pair of drums, gate-operating cables connected with the gate and wound upon said drums, and means actuated by a moving object for imparting simultaneous rotation to said shafts.

11. In an automatic crossing-gate, the combination with a vertically-movable gate, of parallel shafts each provided with a pair of drums, separate gate-operating cables for each shaft, each cable being connected with the gate and having its opposite ends wound upon the drums of its respective shaft, and means operated by a moving object for simultaneously rotating said shafts.

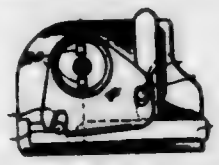
12. In an automatic crossing-gate, the combination with a vertically-movable gate, of parallel vertical shafts arranged at opposite sides of the gateway and provided with drums, gate-operating cables connected with the gate and wound upon said drums, and means operated by a moving object for imparting simultaneous rotation to said shafts.

13. In an automatic crossing-gate, the combination with a vertically-movable gate, of parallel vertical shafts at opposite sides of the gateway, gate-operating cables connected with said shafts and gate, sliding travelers arranged at opposite sides of the roadway protected by the gate, and operative connections between said travelers and shafts for imparting rotary movement simultaneously to said shafts.

14. In an automatic crossing-gate, the combination with a pair of gates, of sets of parallel shafts arranged contiguous thereto, drums actuated by said shafts and carrying gate-operating cables which act to raise and lower the gates, and means for simultaneously rotating all of the shafts comprising sliding travelers arranged at opposite sides of the crossing, and cables connected with the travelers and passing around drums on the gate-operating shafts, substantially as described.

15. In an automatic crossing-gate the combination with a pair of vertically-movable gates, of sets of vertical gate-operating shafts having drums, gate-operating cables wound upon said drums, and means for simultaneously rotating the shafts consisting of sliding travelers arranged at opposite sides of the crossing, a pair of main drums interposed between drums on the lower ends of the gate-operating shafts, and cables connected with the travelers and passing around the main drums and also around the drums on the lower ends of the gate-operating shafts, substantially as and for the purpose specified.

694,816. SASH-LOCK. OTIS W. ANDERSON, Bloomington, Ill. Filed June 10, 1901. Serial No. 63,964. (No model.)



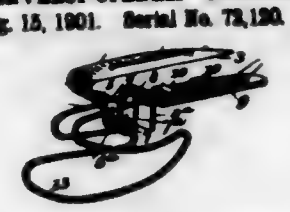
Claim.—1. A sash-fastener comprising a casing, reciprocating bolts provided at their side edges with notches and having studs, an oscillatory plate or lever mounted in the casing and provided with openings to receive the studs and having eccentric enlargements for engaging the notches, and means for operating the plate or lever, substantially as described.

2. A sash-fastener comprising a casing, reciprocating bolts provided with notches and having studs, an oscillatory plate or lever having openings to receive the studs and provided with projections arranged to engage the notches, said plate or lever having a perforation and provided at opposite sides of the same with lugs, an exterior grip or handle having recesses receiving the lugs and provided with a pivot passing through the perforation of the plate or lever, and a spring interposed between the plate or lever and the grip or handle, substantially as described.

3. A sash-fastener comprising a casing, reciprocating bolts, an oscillatory plate or lever engaging the bolts and having a perforation, said plate or lever being provided at the perforation with an annular enlargement and having lugs extending therefrom, an exterior grip or handle having recesses to receive the lugs, and provided with a pivot passing through the perforation, and a coiled spring disposed on the annular enlargement and interposed between the plate or lever and the grip or handle, substantially as described.

4. A sash-fastener comprising a casing having a tapering boss 14, reciprocating bolts, a plate or lever connected with the bolts and provided with a flared opening to receive the boss 14 and having an annular enlargement provided with lugs, a grip or handle provided with recesses to receive the lugs and having a pivot passing through the casing and through the said opening, and a coiled spring disposed on the annular enlargement and engaging the plate or lever and the grip or handle, substantially as described.

694,817. ENVELOP-OPENER. THEODORE ANDERSON, Junction, N. J. Filed Aug. 15, 1901. Serial No. 72,120. (No model.)



Claim.—1. A device of the class described, comprising a combination of a blade rounded off on the back and having a straight cutting edge, runner mounted on said blade, a gage rounded off on the under side and located parallel to said blade, and finger-grips for operating the device, substantially as described.

2. In a paper-cutter the combination of a blade rounded off on the back near the point, guides mounted one on each side of the blade and located in position to engage the freshly-severed edges of the paper as the cutter is shoved along, a runner mounted alongside said blade and constructed to bear on a plane surface, and finger-grips for operating the device, substantially as described.

694,818. ELEVATOR AND CARRIER. JOHN M. APPLEGATE, Indianapolis, Ind. Filed Apr. 6, 1901. Serial No. 54,676. (No model.)



Claim.—1. In a device of the kind described, a block having pulleys journaled therein, a wedge-block sliding vertically in the pulley-block, a cam-lever for projecting said wedge-block upwardly, substantially as shown and described.

2. In a device of the kind described, a pulley-block composed of two plates secured together and having an eye depending from its lower end, to which the grappling-hook and the cable are attached, the pulleys journaled between the plates adjacent to their upper end, a wedge-block slidably arranged between the plates below the wedge-block and connected at its lower end with the cable, substantially as and for the purpose described.

3. In a device of the kind described, the combination with a pulley-block composed of two side plates having inwardly-projecting lugs, of the pulleys journaled between the said plates near their upper end, the wedge-block having vertically-grooved sides adapted to receive the guide-lugs of the plates, a lever pivoted between the plates, and having a cam-head, the lower end of said lever projecting below the bottom of the block, a depending eye arranged upon the lower end of the block, the cable attached to the said eye and also passing beneath the pulleys and above the wedge-block, and the rope or cord connecting the lower end of the lever with the said cable adjacent to the end secured to the eye, all arranged and adapted to operate substantially as herein shown and described.

4. In an elevator and carrier, a cable, one end of which is doubled upon itself, a block upon the cable connected with the free end of the doubled portion, a lock for holding the block against movement on the cable, and means connected with the free end of the cable for automatically releasing the lock.

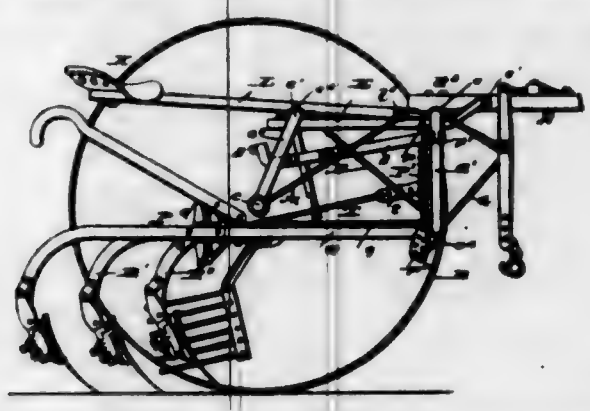
5. In an elevator and carrier, a cable, one end of which is doubled upon itself, a block mounted upon said cable in position to be moved longitudinally thereof, the free end of the doubled portion being connected with the block, a lock in the block for engaging with the cable and holding the block against longitudinal movement on the cable, a trip for controlling the lock, and means for connecting the trip with the free end of the doubled portion of the cable between the block and the end of the doubled portion in such position that the trip will be automatically released when the block is elevated.

6. In an elevator and carrier, a cable, one end of which is doubled upon itself, a block mounted on said cable and provided with pulleys for moving longitudinally thereon, the free end of the doubled portion of the cable being connected with the block, a lock in the block for holding the cable against the pulleys, a lever pivotally secured in the block in position to hold the lock in engagement with the cable, and means for connecting the opposite end of the lever with the cable between the block and the end of the doubled portion.

7. In a pulley for an elevator and carrier, two plates, means at the

lower end for connecting the fork thereto, two pulleys journaled between the plates near each other at the upper end, a sliding lock below the pulleys in position to be forced between them, and a cam-lever pivotally secured between the plates below the lock in position for engaging therewith, the free end of said lever adapted to be connected with the elevating-cable in such relation thereto as to render the device automatic.

694,819. CULTIVATOR. ROBERT H. AVERY, Peoria, Ill.; Frederic R. Avery, administrator of said Robert H. Avery, deceased, assignor to the Avery Manufacturing Company, Peoria, Ill., a Corporation of Illinois. Filed Nov. 21, 1891. Serial No. 412,501. (No model.)



Claim.—1. The combination with the standard and the shovel movable relatively to the standard, of a positive lock for the shovel, a lever for releasing the said lock, and a spring for holding the lever in an inactive position, substantially as set forth.

2. The combination with the shovel-standard and the shovel movable in relation to the standard of a two-part lock for the shovel, a spring arranged substantially as set forth to normally hold the parts of the lock in a locked position, and means supplemental to the shovel for releasing the parts of the lock, as described.

3. The combination with the swinging shovel and the lock therefor, of the spring, and a lever, as at 8, having an arm 10 adapted to bear upon and release the lock, substantially as set forth.

4. The combination with the standard and a shovel movable in relation to the standard, of lock-bars as at 3, 4, connected to the shovel, a lever as at 8 adapted to release the said locking-bars, and a spring which holds the lever in an inactive position, substantially as described.

5. The combination with the standard, and the shovel movable relatively to the standard, of a lever as at 8 pivotally connected to the shovel, locking-bars as at 3, 4, connected to the said lever 8, the spring also connected to said lever, and means supplemental to the shovel for unlocking said bars 3 and 4, substantially as set forth.

6. The combination with the standard and the shovel movable in relation to the standard, of the locking-bars 3, 4, connected to the shovel, the lever 8 pivotally connected to the said levers 3, 4, and adapted to be moved by them, and a spring connected to the lever, and arranged to resist motion of the lever by the said bars 3, 4, substantially as set forth.

7. The combination with the swinging shovel, of the spring, the lever 8, the toggle lock-bars 3, 4, a bar 1 connecting said toggle-bars to the shovel, and means supplemental to the shovel for unlocking said bars 3 and 4, substantially as described.

8. The combination with the standard and the shovel movable in relation to the standard, of the lever 8 pivoted at 11, the bars 3, 4, pivoted together and to lever 8 and having a pivot as at 2 interposed between them and the shovel, the pivot which unites said bars 3 and 4 normally lying below the line connecting the pivot 2 with the pivot that joins said bars 3 and 4 to lever 8, and the spring bearing against said lever, substantially as set forth.

9. The combination with the relatively stationary main frame and the vertically-adjustable shovels below said frame, of a lifting device for the shovels formed in two parts pivotally connected together, one being adjustably locked to the relatively stationary main frame, and the other being loosely supported, whereby it can be utilized at any time for lifting, substantially as set forth.

10. The combination with the relatively stationary main frame and the vertically-adjustable shovels below said frame, of the lifting-lever 8^{9} pivotally connected to said relatively stationary frame, and the lever 8 pivotally connected to the said lever 8^{9} and connected to the shovels, substantially as set forth.

11. The combination with the shovel-lifting devices, of a lifting-lever, and a transversely-vibrating support for said lever, substantially as set forth.

12. The combination with the relatively stationary main frame and the shovels below the main frame and hinged thereto whereby they can rise and fall under and independently of it, of a vibrating hand-lever pivotally supported on said stationary main frame, and a separate vibrating foot-lever, one of said levers being adapted to move in one direction independently of the other, and one of them having a stop lying in the path of the other, substantially as and for the purpose set forth.

13. The combination with the shovel-lifting devices, of the lever 8^{9}, and the locking-bar secured to the main frame by one or more substantially horizontally arranged pivots, substantially as set forth.

14. The combination with the relatively stationary main frame, the draft devices rigid therewith, and the vertically-adjustable shovels thereunder, of the hand-lever pivotally connected to the stationary main frame, and the independently-movable foot-lever pivoted on the same axis as the hand-lever, both said levers for lifting the shovels into a non-working position independently of any movement of the main frame relatively to the draft devices, substantially as set forth.

15. The combination with the shovels, of a lever having an arm within reach of the driver's foot when riding, said lever being connected to the shovels and being arranged to vibrate both longitudinally and transversely of the machine, substantially as set forth.

16. The combination with the relatively stationary main frame, the draft devices rigid therewith, and the vertically-adjustable shovels thereunder, of the hand-lever pivotally connected to the stationary main frame, the foot-lever movable independently of the hand-lever, and an arm 8′ which connects both of said levers to the shovels, substantially as set forth.

17. The combination with the laterally-vibrating shovels, of the foot-lever and the hand-lever both arranged to vibrate in planes transverse of the machine, substantially as set forth.

18. The combination with the vertically-adjustable and laterally-vibrating shovels, of the vibrating lifting-lever 8^{9}, and a second lever having the two arms 8, 8′, one projecting rearward to a point within reach of the driver's foot, and the other being connected to the shovels, substantially as set forth.

19. The combination with the relatively stationary main frame, the draft devices rigid therewith, and the laterally-vibrating vertically-adjustable shovels, of a foot-lever for lifting the shovels, a locking-bar for said lever arranged to vibrate transversely of the machine, and means for locking said lever to said bar against motion in one or more directions, substantially as set forth.

20. The combination with the shovel-beams adapted to vibrate laterally, of the lifting devices, and the vibrating lock-bar, substantially as set forth.

21. In a wheeled cultivator, the combination with the hinged plow-beam, of the operating-lever connected thereto, the swinging locking-plate to which said lever is pivoted, means for locking said lever, and a spring acting to assist said lever in raising the plows when the lever is unlocked, substantially as described.

22. In combination with the plow-beams, the lifting-lever, and the detent carried thereby, the swinging locking-plate having a notch therein adapted to be engaged by said detent, a dog adapted to release said detent, and means for sustaining said lever in an elevated position when the latter is raised, substantially as described.

23. In combination with the plow-gangs and the lifting-lever, the power-storing spring assisting the lever in raising the beams when the lever is unlocked, the swinging locking-plate to which said lever is pivoted, the detent, and the dog for actuating said detent so as to release the said lifting-lever, substantially as described.

24. The combination of the main frame, the plow-beams pivotally connected to the frame, the supporting-wheels adjustable longitudinally of the main frame, the mechanical device for adjusting the said wheels, the supplemental lever for adjusting the working position of the plow-beam, and the beam-lifting spring arranged to be approximately inactive when the beam is in working position and efficiently active when it is above the working position, substantially as set forth.

25. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the plow-beam pivotally connected thereto, the wheel-frame adjustable longitudinally relatively to the plow-beam to either of two positions, the main frame being held at the same height from the ground in both of said two positions, a lever for moving the wheel-frame longitudinally of the plow-beam to either of said two positions, and a lever for vertically adjusting the plow-beam adapted to be held stationary vertically while the said adjustments are being made, substantially as set forth.

26. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the plow-frame depending from and secured in fixed vertical relations to the main frame, the plow-beam pivotally connected to the plow-frame, the wheel-frame adjustable to either of two operative positions longitudinally of the plow-beam, a lever connected to the plow-beam in rear of its front end for lifting it, a lever for moving the wheel-frame and the plow-beam relatively to each other longitudinally of the machine, and means for holding the lifting-lever in fixed position as to the depending plow-frame when the said longitudinal adjustment is being effected, substantially as set forth.

27. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the plow-beam pivotally connected thereto, supporting-wheels and wheel-carriers movable from a rear position to a forward position, means for sustaining the rear end of the beam capable of a series of adjustments and adapted while under one adjustment to sustain the beam in the same position irrespective of whether the wheels are in their rear position or in their forward position, and a mechanical device supported by the main frame and connected with both of said wheels for effecting the adjustment of the wheels from the one to the other of the said positions, substantially as set forth.

28. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the plow-beams, the pivots between the beams and the main frame, the beam-sustaining means on the main frame for holding the rear ends of the beams, the wheels and wheel-carrier adjustable from a rear position to a forward position, means for positively holding the wheels and wheel-carrier in both of said positions alternately to prevent accidental return thereof from either position to the other, and devices for locking the beam-sustaining means relatively to the horizontal planes of the main frame to insure that, in one adjustment of said locking devices, the beams shall be held in the same horizontal positions whether the wheels are in their forward position or rear position, substantially as set forth.

29. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the plow-beams, the pivots interposed between the beams and the main frame, the supporting-wheels, the simultaneously-vibrating crank-arms for the wheels mounted on an axis and adapted to swing from a plane inclined rearward from the vertical plane of the axis to a plane of substantially equal inclination forward from said vertical plane, a lever connected with both of said wheels for applying power to move the wheels from the rear position to the forward position, means for sustaining the rear end of the plow-beam from the main frame, and devices for holding the said beam-sustaining means in one position irrespective of the positions to which the wheels are adjusted, substantially as set forth.

30. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the plow-beam pivotally connected to the main frame, ground-wheels and wheel-carriers movable from a rear operative position past a central neutral position to a forward operative position, and a mechanical device substantially as described connected with both of said wheels for moving the wheels from one operative position to the other and adapted to automatically carry the wheels from their central position to either of the aforesaid extreme positions after being brought to the said central position by the application of power.

31. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the plow-beam pivotally connected thereto, supporting-wheels and wheel-carriers movable from a rear operative position past a central position to a forward operative position, means for sustaining the rear ends of the beams and adapted to be held in one position and therefrom sustain the beam in the same relation to the ground both in the forward position of the wheels and in the rear position of the wheels, and a mechanical device substantially as described connected with both of said wheels for moving the wheels from one position to the other and adapted to automatically carry the wheels from their central position to either of the extreme positions, substantially as set forth.

32. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the beam, and three beam-sustaining devices interposed between the beam and the main frame, to wit, a pivotal connecting device for the front end of the beam, second, a beam-lifting spring, and, third, a beam-lifting and hand-adjusting device for the rear end of the beam, the ground-wheels and wheel-carriers movable from a rear position to a forward position, and mechanical devices substantially as described, for moving the wheels from one position to the other, and permitting the said three beam-sustaining devices to all occupy the same positions whether the wheels are in their forward position or in their rear position, substantially as set forth.

33. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the plow-carrying frame depending from the main frame and having plow-spindles turned inward from its vertical bars, and the wheel-carrying frame depending from the main frame, and having spindles turned outward from its vertical bars, mechanical devices for relatively adjusting the wheel-spindles and the plow-spindles toward and from each other, and means for holding the beam-spindles in fixed vertical planes relatively to the main frame, substantially as set forth.

34. In a convertible walking and riding cultivator, having a driver's seat, the combination of a main frame, the tongue rigidly secured to said frame, the depending beam-support rigidly secured to the frame, the shovel-gangs universally jointed to said depending support by fixed couplings, the longitudinally-adjustable wheels, the wheel-supports connected to the main frame, a lever for adjusting the wheels longitudinally, means for adjusting vertically the rear ends of the gangs independently of the position of the main frame, and means for fastening them in different positions vertically, substantially as set forth.

35. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the tongue rigidly secured thereto, the depending gang-support extending substantially to the axis of the wheels, the shovel-gangs having their beams universally jointed to said depending support by fixed couplings, the arched wheel-axle having the wheels on the vibrating spindles and having the journal part mounted on the main frame at the rear end thereof, and the lever for vibrating the said wheel-spindles, substantially as set forth.

36. In a convertible walking and riding cultivator, having a driver's seat, the combination of the draft-frame, the wheels, the outwardly-turned longitudinally-adjustable wheel-spindles, the inwardly turned beam-spindles depending from the frame in front of the wheel-spindles, the laterally-vibratable plow-beams hinged to the said spindles, and the upward-inclined braces connected to the wheel-spindles, and adjustably secured to the frame at points above the beam-spindles, substantially as set forth.

37. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the laterally-vibratable plow-beams, the inwardly-turned hinges or spindles for said beams, the wheels in planes outside of the beam-spindles, the longitudinally-adjustable wheel-supports, and the braces secured to the wheel-supports, and adjustably connected to the frame independently of the beam-spindles, substantially as set forth.

38. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the wheels supported on said frame, the longitudinally-adjustable wheel-supports, the rigidly-fastened suspenders or depending bars in front of the wheel-supports, the inwardly-turned beam-spindles connected to said suspenders, the plow-beams attached to said inwardly-turned spindles inside of their suspenders or depending bars whereby said beams can be placed near the central longitudinal line of the machine, and the adjustable braces for the wheel-supports, substantially as set forth.

39. In a convertible walking and riding cultivator, having a driver's seat, the combination with the supporting-wheels, the longitudinally-adjustable supports for said wheels, a connecting device between said wheel-spindles and a frame to which the upper part of the arched bar is hinged, of the links M loosely connected to the spindles, a crank-arm l^3 connected to the links, the depending support in front of the wheel-spindles, rigid with the main frame and extending to said wheel-spindles, the shovel-gangs secured to said depending support by fixed vertical and horizontal pivots, and a lever for rocking the said crank-arm l^3 toward the pivots at the front ends of the plow-gangs to throw more or less of the weight in front of the wheel-spindles, substantially as set forth.

40. The combination of the tongue, the diverging frame-bars E, E, extending back behind the tongue, the transverse bar D secured rigidly to the tongue and to the bars E and having the depending inwardly-turned shovel-drawing parts d^2 rigid with the tongue, the axle hinged to the bars E, and having outwardly-turned vibrating spindles and the braces F, G, substantially as set forth.

41. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, a beam-support and the wheel-support, said supports movable toward and from each other, the pivoted link in front of the wheel-supports, and the lever connected to the link at points in front of the wheel-support for moving the link and causing it to adjust the two said supports relatively to each other, substantially as set forth.

42. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the beam-support, the wheel-support, the link connected to the wheel-support and extending forwardly therefrom, and the lever connected to the link at points in front of the wheel-support, substantially as set forth.

43. In a convertible walking and riding cultivator, having a driver's seat, the combination of the draft-frame, the plow-gangs hinged to the draft-frame, means for suspending the rear ends of said gangs in a non-working position independently of the position of said frame, the longitudinally-adjustable wheels having their axes adapted to both lie in each of several transverse vertical planes, a wheel-adjusting mechanism having a vibratable lever mounted on the frame, and stops independent of said adjusting mechanism for limiting the movements of the wheels, substantially as set forth.

44. In a convertible walking and riding cultivator, having a driver's seat, the combination of two frames movable longitudinally relative to each other, carrying or ground wheels on one of said frames, plow-beams connected with the other of said frames, a bar or frame arranged centrally of the machine between said wheels, extending to the rear of the latter, and pivotally mounted on one of said first-mentioned frames, and a link connecting said bar with the other of said first-mentioned frames, whereby said parts act as a means for moving said frames relatively to each other.

45. In a convertible walking and riding cultivator, having a driver's seat, the combination of the main frame, the wheel-supports extending downward from the main frame, the beam-supports, the beams pivotally connected to said beam-supports at their front ends, the beam-lifting springs interposed between the beam-supports and the beams arranged to bear upward on the front ends of the beams and hold bodily in fixed relations to the beams, and their supports, and means for adjusting relatively to each other the wheel-supports and the beam-supports longitudinally of the machine.

46. In a convertible walking and riding cultivator, having a driver's seat, the combination with the shovels or plows, and the draft devices secured thereto, of the supporting-wheels, the spindles for said wheels, and a lever which supports said seat and is adapted to move the wheel-spindles longitudinally of the machine, substantially as set forth.

47. In a convertible walking and riding cultivator, having a driver's seat, the combination of the supporting-wheels, the frame, and the wheel-support adapted to be adjusted longitudinally of the frame, of a movable support for the driver's seat having a crank, and a link connecting said crank with the longitudinally-movable wheel-support, substantially as set forth.

48. In a convertible walking and riding cultivator, the combination of a pivoted arched axle, a main frame, a pivoted seat and longitudinally-movable and pivoted parts connecting the seat and axle, said parts being arranged to be on a dead-center when the seat is at an extreme of movement to lock the parts.

49. In a convertible walking and riding cultivator, having a driver's seat, the combination with the shovels or plows, the frame which supports them, the longitudinally-adjustable supporting-wheels, and the hinged seat-support, of the connecting devices which join the seat-support to said wheels, whereby the motion of the seat-support can be transmitted to the wheel-support, substantially as set forth.

50. In a convertible walking and riding cultivator, the combination of two frames movable longitudinally relative to each other, carrying or ground wheels on one of said frames, plow-beams connected with the other of said frames, beam-raising mechanism also connected with said other frame, and a movable seat having connections with both of said frames acting as a means for moving said frames relative to each other.

51. In a convertible walking and riding cultivator, the combination of the main frame, the plow-gangs pivotally connected thereto, the longitudinally-adjustable wheel-frame, the movable seat, and means connecting the seat and the wheel-frame and adapted both to transmit motion from the seat to the wheel-frame, and to lock the wheel-frame in position after adjustment, substantially as set forth.

52. A spring-trip for cultivators, consisting of the combination of a shovel, a shank or support on which the shovel is supported to yield to an obstruction, toggle-levers, and a spring for holding said shovel in normal working position, and a movable support for the end of one of the toggle-levers adapted to be actuated by the shovel, by the movement of which support the relative positions of the pivots of the toggles are changed to permit the flexion of the toggle.

53. A spring-trip for cultivators, comprising a shank, a shovel pivotally connected with the shank, toggle-joint members connected with the shank and with the shovel, and a spring-actuated device adapted to bear laterally against the toggle transversely of its joint.

54. A spring-trip for cultivators, comprising a shank, a shovel pivotally connected with the shank, toggle-joint members connected with the shank, and with the shovel, and a spring-actuated lever, one arm of which is connected with the spring, and another arm of which engages the toggle and is adapted to move in the direction of movement of the toggle as the latter is flexed to permit the yielding of the shovel.

55. A spring-trip for cultivators consisting of the combination of a shovel, a shank or support, on which the shovel is supported to yield to an obstruction, a spring tending to hold the shovel in normal working position, and means for relieving the spring of tension beyond its normal tension as soon as the shovel has yielded.

56. A spring-trip for cultivators, consisting of the combination of a shovel, a support on which the shovel is supported to yield to an obstruction, a spring tending to hold the shovel in normal working position, and means for allowing the spring to contract as soon as the shovel has yielded, and while the shovel remains in its backward position.

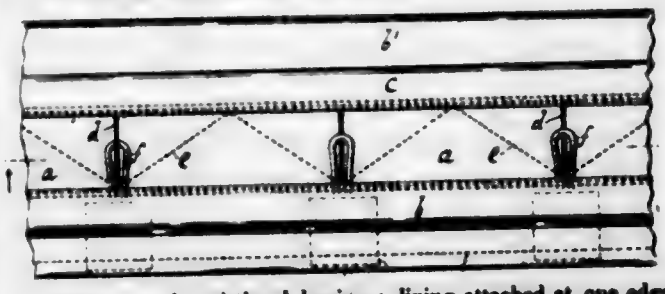
57. A spring-trip for cultivators, consisting of the combination of a shovel, a support, on which the shovel is supported to yield to an obstruction, a spring tending to hold the shovel in normal working position, means for allowing the spring to contract as soon as the shovel has yielded, and a stop for holding said spring at normal tension after the shovel has yielded.

58. The combination with the shovel-beam, and the horizontally-adjustable coupling, of the connecting-link q pivotally connected to the shovel-support at the rear, and pivotally connected to the adjustable coupling at the front end, said coupling being movable independently of the shovel-beam, substantially as set forth.

59. The combination of the shovel-beam pivotally connected to its support at the front end, and pivotally connected to the shovel-standard at its rear end, and the connecting-link q pivotally connected to the shovel-standards at the rear, and the laterally-adjustable holder for said link at the front end of the beam independent of the said beam, substantially as set forth.

60. The combination with the shovel-beam, its horizontal pivot or spindle d^1, the standards, and the pivotal connection between the beam and the standards, of the parallel link adjustable laterally independently of the beam, substantially as set forth.

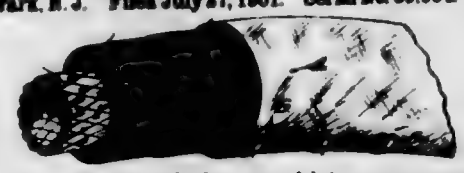
694,820. WAISTBAND. ADOLPH BERNSTEIN, New York, N. Y. Filed Oct. 5, 1901. Serial No. 77,712. (No model.)



Claim.—1. A waistband having a lining attached at one edge to the band and having the other edge free or detached and an elastic extension attached at one edge to the band and having the other edge free or detached so that when said free edges of the lining and extension are secured to a garment the band is left loose or detached from the garment to play or be drawn one way by the strain of the wearer and returned by the contraction of the elastic extension said extension having the elastics wholly contained in or secured thereto so as to be unconnected to the band.

2. A series of strips bound together to form buttonholes, and elastic loops placed at each buttonhole and each loop being also adapted to receive a button and the upper ends of the loops being below the upper ends of the buttonholes and said upper ends of the buttonholes serving to limit the stretch of the loops.

694,821. TIRE. ANTON VON BRUST, Orange, and FRANK M. POTTER, Newark, N. J. Filed July 27, 1901. Serial No. 69,964. (No model.)



Claim.—1. A tire for vehicles comprising an outer casing inclosing a core consisting of a non-resilient elastic tube and a tubular layer of sponge-rubber.

2. A tire for vehicles consisting of an outer casing inclosing a core comprising a layer of sponge-rubber and an elastic tube of cane.

3. A tire for vehicles consisting of an outer casing inclosing a core comprising a tubular layer of sponge-rubber and a tubular layer of cane, bamboo, or equivalent material.

4. A tire for vehicles consisting of an outer casing inclosing a core comprising a tubular layer of sponge-rubber and a tubular layer of woven cane or bamboo.

5. A tire for vehicles consisting of an outer casing inclosing a core comprising a central non-resilient tube and an outer layer of sponge-rubber.

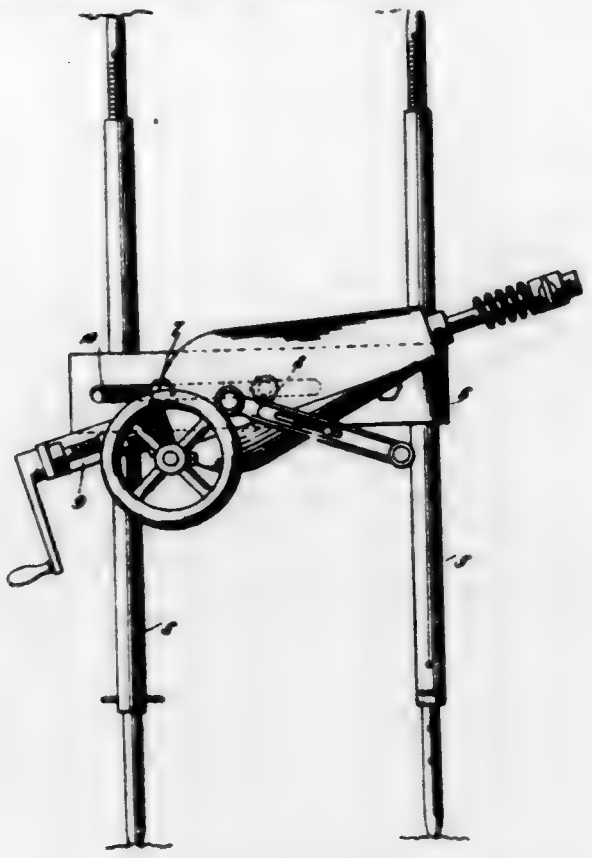
6. A tire for vehicles consisting of an outer casing inclosing a core comprising a central non-resilient tube, a series of strips of non-resilient material extending longitudinally of the tube, and a layer of a resilient substance.

7. A tire for vehicles consisting of an outer casing inclosing a core comprising a central tube of cane surrounded by a layer of rubber, a series of longitudinally-extending strips of cane surrounding said rubber-covered tube and a layer of sponge-rubber surrounding said strips.

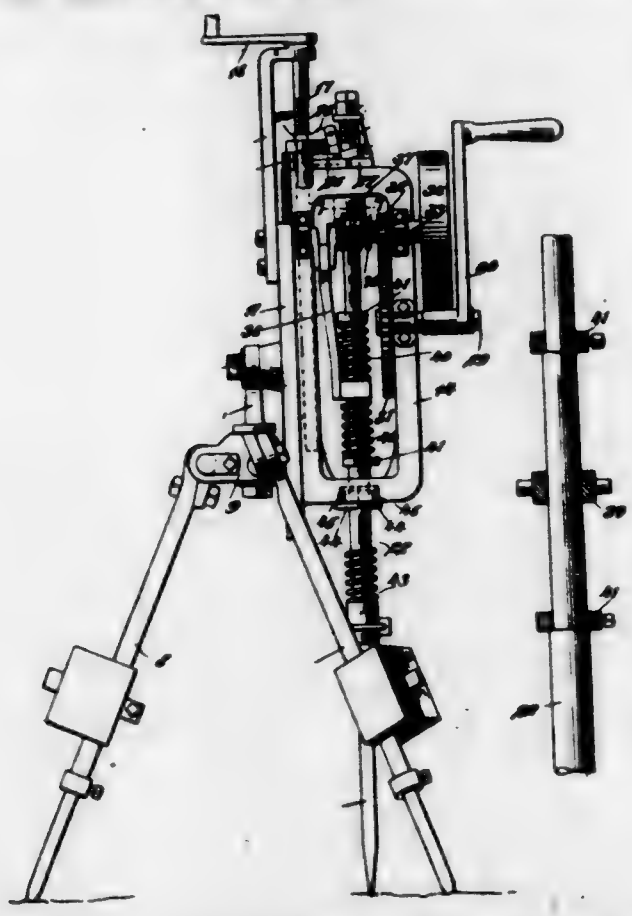
694,822. DRILL. ROBERT BUHR, Bolivar, Pa. Filed Sept. 5, 1900. Serial No. 29,055. (No model.)

Claim.—1. The combination of a frame-bar, a casing or the like sliding thereon, a feed-screw carried by the frame-bar, a gear-wheel having a nut formed thereon, the nut engaging the feed-screw and the gear-wheel being held on the casing to turn thereon, a drill-rod, a gear-wheel splined on the drill-rod and meshed with the first-named gear-wheel, a rotating crank-shaft, a connecting-rod between the crank-shaft and drill-rod, to reciprocate the drill-rod, a worm fastened to the crank-shaft, and a worm-wheel splined on the drill-rod and meshed with the worm.

2. The combination of a slidably-mounted casing or framing, a drill-rod arranged therein to turn and slide, a rotating drive-shaft with a crank thereon, a connection between the crank and drill-rod to reciprocate the latter, a worm on the drive-shaft, a worm-wheel held by the casing or frame and splined on the drill-rod and meshed with the worm to rotate the drill-rod, a feed-screw supported independently of the casing or framing, and a rotating feed-nut held in the casing or framing and working with the feed-screw and driven from the worm-wheel.



694,823. DRILL. ROBERT BIEHLE, Bolivar, Pa. Filed Sept. 5, 1900. Serial No. 29,056. (No model.)

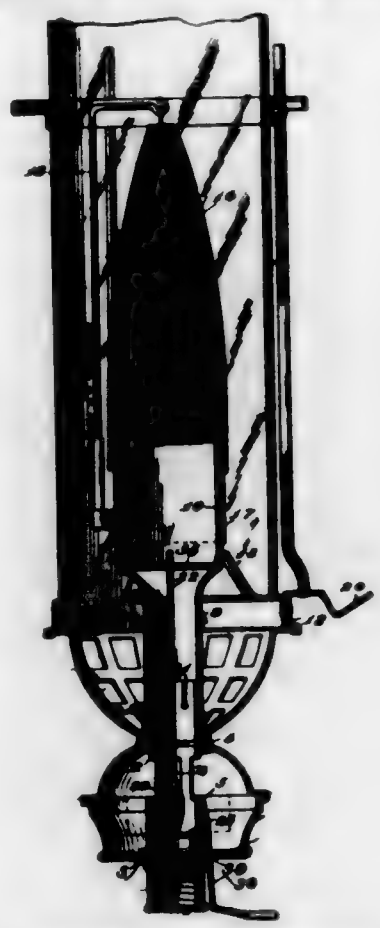


Claim.—1. In a drill, the combination of a sliding frame, a feed-screw supported independently thereof, a yoke attached to the frame and through which yoke the feed-screw passes, a nut held between the yoke and the frame and carried on the feed-screw, a bent lever one arm of which is fulcrumed to the yoke and the other arm of which is in the form of a ring, a reciprocally-driven drill-rod passing through the said ring of the bent lever and striking the lever to swing the same, and means actuated by the lever for driving the feed-nut.

2. A drilling-machine having a drill-rod, means for mounting the same, such means comprising collars engaged with the drill-rod and the drill-rod having varying diameters forming shoulders on the drill-rod which are engaged by said collars, for the purpose specified, a drive-shaft, and connections between the drive-shaft and drill-rod, to operate the latter.

3. In a drill, the combination of a slidably-mounted frame, a feed-screw supported independently thereon, a nut held to turn on the frame and working with the feed-screw, a bent lever the fulcrum of which is supported on the frame and one arm of the lever being in the form of a ring, a reciprocally-driven drill-rod passing through the said ring on the lever and striking the lever to swing the same, and means actuated by the lever for driving the feed-nut therefrom.

694,824. INCANDESCENT GAS-BURNER. CHARLES A. BLUHM, Michigan City, Ind. Filed June 1, 1901. Serial No. 62,761. (No model.)



Claim.—1. A gas-burner comprising a fixed and a rotatable portion, the fixed portion comprising a slotted tube and a threaded thimble adapted to be secured to a gas pipe or fixture and having a gas-orifice therein, a valve constructed and adapted to be controlled by the rotatable part of the burner for regulating the size of said orifice, and an air-regulating sleeve mounted on the tube for opening and closing the slots in the tube for regulating the supply of air to the burner.

2. A gas-burner comprising a fixed and a rotatable portion, the fixed portion adapted to be secured to a gas pipe or fixture and having a gas-orifice therein, a valve constructed and adapted to be controlled by the rotatable part of the burner for regulating the size of said orifice, means for regulating the supply of air to the burner and stop mechanism with which the handle of said air-regulating means coöperates to limit the movement of the rotatable parts of the burner.

3. A gas-burner comprising a fixed and a rotatable portion, the fixed portion having a gas-orifice formed therein and a valve controlled by the rotatable part of the burner and with which valve said rotatable part has a sliding connection, said valve constructed and adapted to regulate the discharge of gas through the orifice.

4. In a gas-burner, the combination with a pillar having a diaphragm therein, said diaphragm provided with a gas-orifice, and a suitably-supported threaded stem extending centrally through said orifice, of a valve screwed on the threaded stem and means for turning the valve to close or regulate the size of the orifice.

5. In a gas-burner, the combination with a pillar having a diaphragm therein, said diaphragm provided with a gas-orifice, and a suitably-supported threaded stem extending centrally through the orifice, of a conical valve screwed on the threaded stem, the conical exterior of the valve constructed and adapted to close or regulate the size of the gas-orifice in the diaphragm and also to spread the gas issuing therethrough.

6. In a gas-burner, the combination with a pillar constructed and adapted to screw on a gas pipe or fixture, a diaphragm extending across the interior of the pillar and having a gas-orifice formed therein, and a plug fitting the bore of the pillar, said plug having a gas-duct therein, a gas-chamber intervening between the inner end of the plug and the diaphragm, and the plug having a screw-threaded stem thereon which extends centrally through the gas-orifice, of a valve adapted to screw up and down on the threaded stem for closing or regulating the size of the gas-orifice.

7. In a gas-burner, the combination with a pillar constructed and adapted to screw on a gas pipe or fixture, a diaphragm extending across the interior of the pillar and having a gas-orifice formed therein, and a plug fitting the bore of the pillar, said plug having a gas-duct therein, a gas-chamber intervening between the inner end of the plug and the diaphragm, and the plug having a screw-threaded stem thereon which extends centrally through the gas-orifice, of a valve having a conical lower end and a threaded bore adapted to screw on the stem, and means for turning the valve whereby to close or regulate the size of the gas-orifice, the conical end of the valve serving as a spreader for the gas issuing through the orifice.

8. In a gas-burner, the combination with a pillar having a gas-orifice formed therein, of a valve for closing or regulating the size of said orifice, a rotatable portion of the burner, a disk therein having an angular opening and a rod extending from the valve loosely through said opening whereby the valve is turned with the rotation of the rotatable portion of the burner.

9. In a burner, the combination with a pillar composed of a tube and thimble removably secured together, the pillar having a diaphragm therein, said diaphragm provided with a gas-orifice, a plug fitted to the bore of the thimble and provided with a gas-duct, and a screw-threaded stem extending from the plug centrally through the gas-orifice in the diaphragm, of a valve which screws on said stem for closing the orifice or regulating the size thereof.

10. In a burner, the combination with a pillar composed of a tube and thimble removably secured together, the pillar having a diaphragm therein, said diaphragm provided with a gas-orifice, a plug fitted to the bore of the thimble and provided with a gas-duct, and a screw-threaded stem extending from the plug centrally through the gas-orifice in the diaphragm, of a valve which screws on said stem for closing the orifice or regulating the size thereof, the pillar having air-openings therein, an air-regulating sleeve mounted to slide on the pillar and regulate the size of these openings and means for holding it in position.

11. The combination with a pillar comprising a tube and thimble, the tube having a circumferential rib formed thereon and provided with air-openings below said rib, of an air-regulating sleeve mounted loosely on the pillar and confined in its movements between the rib and a projection on the thimble and a spring-handle for raising and lowering said sleeve.

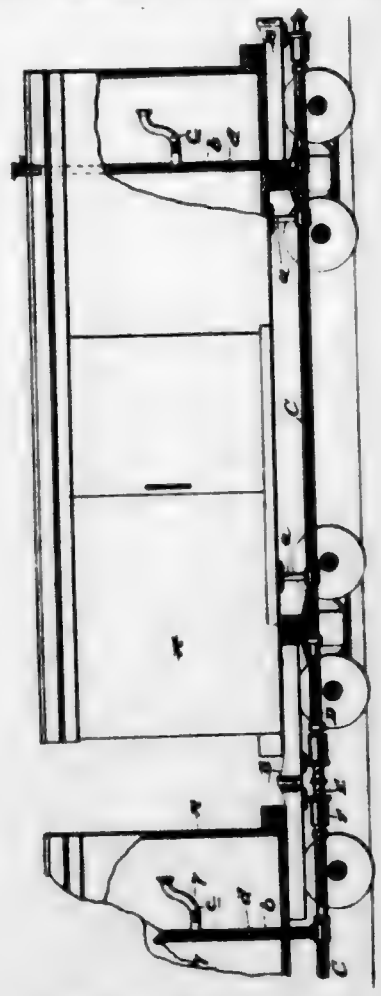
12. The combination with a pillar comprising a tube and thimble, the tube having a circumferential rib formed thereon and provided with air-openings below said rib, of an air-regulating sleeve mounted loosely on the pillar and confined in its movements between the rib and a projection on the thimble, a spring-handle for raising and lowering said sleeve and a stop on the pillar which the spring is adapted to strike to confine the rotary movements of the burner.

13. The combination with a pillar having a stop thereon and provided with air-openings and a gas-orifice, a sleeve for controlling the air-openings, a spring-handle depending therefrom, an air-mixing chamber mounted to turn on the pillar and provided with a notch to receive the spring-handle on the sleeve, of a valve constructed and adapted to turn with the air-mixing chamber for controlling the size of the gas-orifice in the pillar or for closing the latter.

14. The combination with a pillar provided with air-openings and a diaphragm having a gas-orifice formed therein, and a valve for closing or regulating the size of said orifice of a connected air-mixing chamber, mixing-chamber and gallery having rotatable connection with the pillar and sliding connection with the valve whereby the latter is operated with the rotations of the combined air-mixing chamber, mixing-chamber and gallery.

15. The combination with a pillar provided with air-openings and a diaphragm having a gas-orifice formed therein, and a valve for closing or regulating the size of said orifice, of an air-mixing chamber, a mixing-chamber, a tube connecting said chambers together, fitting the pillar and rotatably connected therewith, a gallery connected with the tube, a disk extending across the mixing-chamber and provided with a centrally-located angular opening and a rod extending from the valve and provided with an angular portion which has sliding connection with the angular opening in the disk whereby when the rotatable parts are turned the valve is raised or lowered.

694,825. SPEAKING-TUBE FOR TRAINS. SANFORD S. BOYD, Laurens, S. C. Filed June 13, 1901. Serial No. 64,416. (No model.)



Claim.—1. The combination of a vehicle, a main tube or tube-section carried thereby, and a tubing extending at an angle to the main tube, and provided with a mouthpiece; the said main tube extending to one end of the vehicle and being provided at its end with means adapted to engage similar means upon a similar tube in another vehicle.

2. The combination of a vehicle, a main tube or tube-section carried thereby, and a tubing extending at an angle to the main tube and provided with a mouthpiece and also with a normally closed valve; the said main tube extending to one end of the vehicle and being provided at its end with a normally closed valve, and means adapted to engage similar means upon a similar tube in another vehicle.

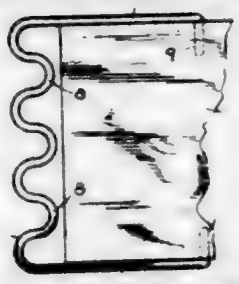
3. The combination of a vehicle, a metallic tube-section carried thereby and extending to a point adjacent to one end thereof, a flexible tube connected to such end of the tubular section, a tubular end piece connected to the flexible tube and having a collar, a cushioned flange at its forward end, and the opposite cone-shaped projection and socket and also having a diaphragm provided with a valve-seat, a spring-pressed valve normally resting in said seat and having its stem extended beyond the end of the end piece to be engaged by the stem of a valve carried by a similar tubular section on another vehicle, and means for guiding its end into engagement with the end of such similar tubular section, a sleeve hung from the vehicle and surrounding the tubular end piece and having an abutment, and a coiled spring also surrounding the tubular end piece and interposed between the collar thereon and the abutment of the sleeve.

4. The combination of a railway-car, a main metallic tube or tube-section carried thereby and extending to points adjacent to the ends thereof, a tubing extending at an angle to the main tube-section and provided with a mouthpiece, and a valve for normally closing the same and excluding dust therefrom, flexible tubes connected to the ends of the main tubular section, tubular end pieces connected to the flexible tubes and having collars, and also having diaphragms provided with valve-seats, spring-pressed valves normally resting in the seats and having their stems extended beyond the ends of the end pieces to be engaged by the stems of valves carried by similar tubular end pieces on other cars, and means for guiding its ends into engagement with the ends of such similar tubular end pieces, sleeves hung from the car and surrounding the tubular end pieces and having abutments, and coiled springs also surrounding the tubular end pieces and interposed between the collar thereon and the abutments of the sleeves.

694,826. MOP-HEAD. HENRY S. BRENNERTON, Baltimore, Md. Filed July 8, 1901. Serial No. 67,539. (No model.)

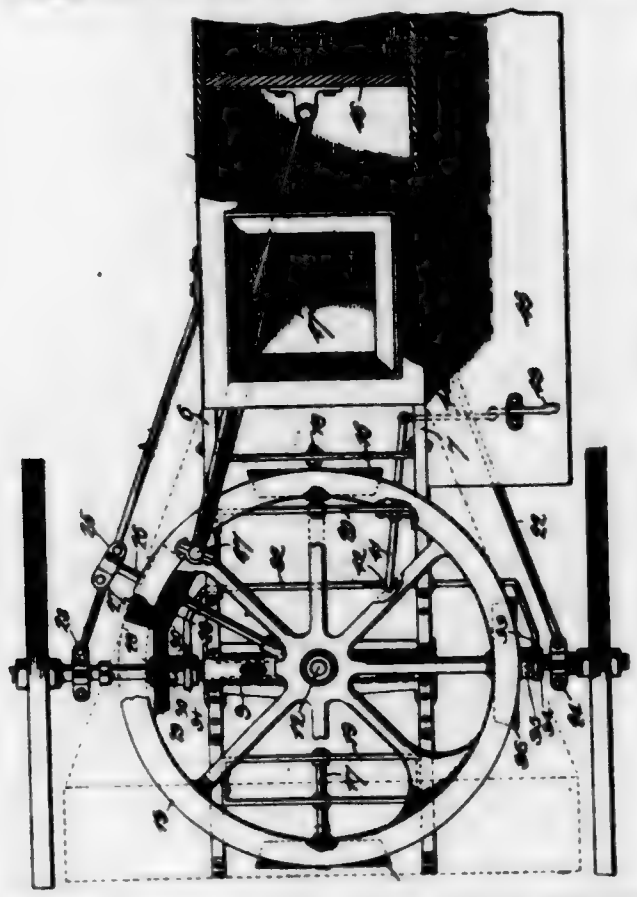
Claim.—1. A mop-head consisting of a body portion provided in

its opposite edges with depressed seats, in combination with oppositely-located clamps comprising side arms with terminal pintles journaled in sockets in the body and each comprising a spring cross-bar of serpentine shape adapted to be brought opposite one of the sides and to force a portion of the covering fabric into the seat, substantially as described.



2. A mop-head consisting of a block provided with depressed seats in its opposite ends, in combination with a handle pivotally connected with the block; a fabric covering for the lower surface of the block; and a pair of clamps pivotally connected with the block and comprising oppositely-located end cross-bars of serpentine shape adapted to lie opposite the seats in the block and to force portions of the fabric covering into the seats, substantially as and for the purpose specified.

694,827. AUTOMATIC HAY-PRESS. FRANK S. BUCHANAN, Kansas City, Kans. Filed Apr. 8, 1901. Serial No. 54,877. (No model.)

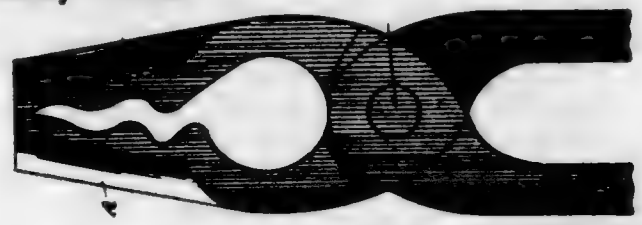


Claim.—1. In a hay-press, the combination with a horizontally-disposed bull-wheel, and a plunger operatively connected therewith, of a drive-axle carrying at one end a loose gear in direct mesh with the bull-wheel, a shaft carrying a gear also in mesh with the bull-wheel, a second gear loosely mounted on the drive-axle and meshing with the last-named gear-wheel, and clutch mechanism for locking the loose gears to the axle, substantially as described.

2. In a hay-press, the combination with a horizontally-disposed bull-wheel and a plunger operatively connected therewith, of a drive-axle carrying two loose gears, one of which is in direct mesh with the bull-wheel, and the other out of mesh therewith, a shaft carrying a third gear meshing with the bull-wheel and the second-named gear, clutch mechanism for locking the loose gears to the shaft, and idle gears meshing with the bull-wheel and operating to balance the same, substantially as described.

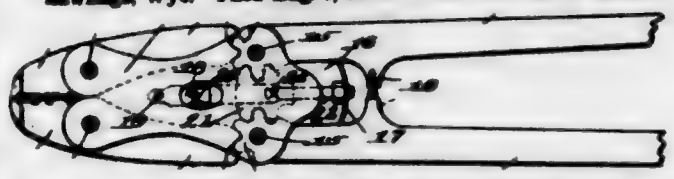
694,828. SMITH'S PLIERS OR TONGS. GUSTAV F. SUDACK, Flensburg, Germany. Filed Oct. 20, 1900. Serial No. 33,717. (No model.)

Claim.—1. A smith's tongs having jaws with faces of angular cross-section and so shaped and pivoted as to stand parallel one to the other when in a somewhat opened position, the said jaws having corrugated lateral edges, parallel when partly opened and adapted to come into terminal engagement with each other, and a rounded interior part at the rear adapted to form a rounded opening when the jaws are closed, substantially as described.



2. A smith's tongs having jaws with faces of angular cross-section and so shaped and pivoted as to stand parallel one to the other only when in a somewhat opened position, the said jaws having corrugated lateral edges, parallel when partly opened and adapted to come into engagement at their extremities, when closed, the forward ends of the jaws having the form of comparatively thin lips with the corrugations extending deeper toward the rear and then ending in a rounded interior part adapted to form a rounded opening at the rear when the jaws are closed, substantially as described.

694,829. BOLT CUTTER AND TRIMMER. JAMES CAHILL, Rawlings, Wyo. Filed Aug. 8, 1901. Serial No. 71,377. (No model.)



Claim.—1. In a bolt cutter and trimmer, a pair of plates, end cutters pivotally connected thereto and provided with reinforced ends, a stationary cutter secured to one of the said plates, a movable cutter connected with one of said plates, said stationary and movable cutters forming bottom cutters, and means engaging with said end and bottom cutters for operating the same simultaneously.

2. In a bolt cutter and trimmer, a pair of plates, end cutters pivotally connected to said plates, a toothed slide-block mounted between the said plates, a stationary cutter secured to one of said plates, a movable cutter connected with the said slide-block and with one of said plates, and means engaging with the end cutters and with the slide-block for operating the said end and bottom cutters simultaneously.

3. In a bolt cutter and trimmer, a pair of pivoted end cutters having reinforced ends, a bottom cutter consisting of a stationary and a movable cutter, a guide-rod for the said movable cutter, and means engaging with the said end and bottom cutters for operating the same simultaneously.

4. In a bolt cutting and trimming device, an upper plate provided with an opening, a bottom plate provided with an opening and a projecting portion, an apertured lug connected to said bottom plate, a pair of end cutters pivoted to the forward end of said plates, said end cutters provided with reinforced ends, a stationary cutter secured within the opening in the said bottom plate, a movable cutter, a slide-block arranged between said plates and connected with said movable cutter for operating the same, a guide-rod connected with said slide-block and operated through said apertured lug, and means engaging with said end cutters and slide-block for operating said end cutters and movable cutter simultaneously.

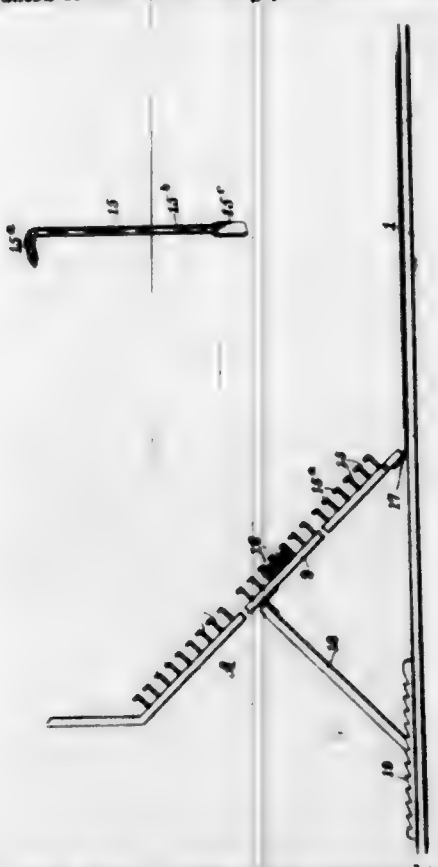
5. In a bolt cutting and trimming device, an upper and lower plate, each provided with an opening, said lower plate further provided with a projecting portion, an apertured lug connected with said projecting portion, a pair of end cutters, shanks formed integral with said end cutters and pivotally connected to the said plates, said shanks having their free ends toothed, a stationary cutter secured within the opening of the bottom plate, a movable cutter operating within the opening of said bottom plate, a toothed slide-block connected with said movable cutter for operating the same, a guide-rod connected with said block and operating through said apertured lug, a pair of toothed segments pivotally secured within said plates and engaging with the toothed shanks and the said slide-block for operating the end cutters and said movable cutter simultaneously, and handles formed integral with said segments for operating the same.

694,830. VOTING-MACHINE. STEPHEN D. CARPENTER, EDMUND R. STEVENS, and CHARLES K. TENNEY, Madison, Wis. Filed Nov. 15, 1901. Serial No. 82,416. (No model.)

Claim.—1. In a voting device, a hinged tablet provided with means for angular adjustment, said tablet being ruled to correspond with the official ballot, filing-pins mounted on said tablet, there being a pin corresponding to each and every name on the official ballot, and a series of consecutively-numbered removable billets mounted on each of said filing-pins, substantially as described.

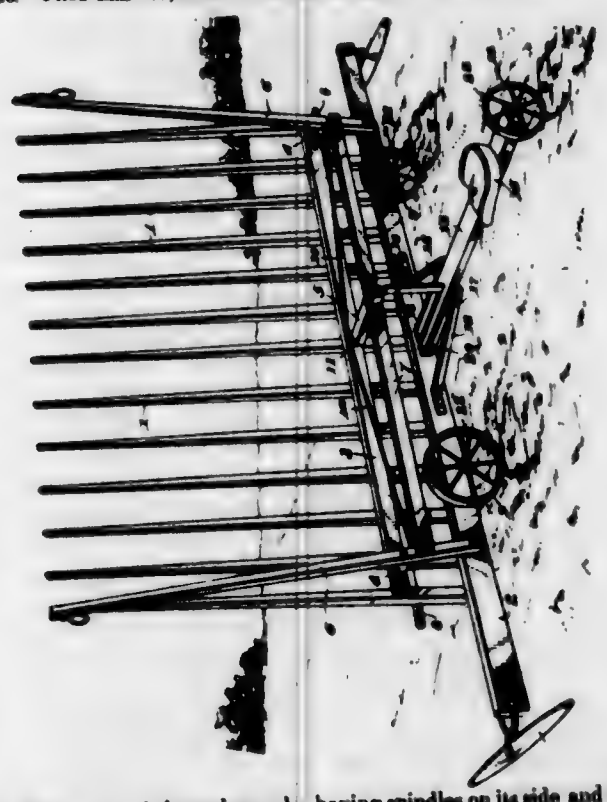
2. In a voting device, a tablet ruled to correspond with the official ballot used at the election and containing the names of the candidates,

filing-pins mounted on said tablet, there being a pin corresponding to each name on said official ballot, and a series of consecutively-numbered removable billets mounted on each of said filing-pins, substantially as described.



3. In a voting device, a tablet ruled to correspond to the official ballot and containing a rectangular space for the name of each candidate, a series of consecutively-numbered removable billets mounted in each of said rectangular spaces, and means for holding said billets so that they may be readily removed one at a time in the order in which they are numbered, substantially as described.

694,831. HORSE HAY-RAKE. WILLIAM A. CAVETT, Laplata, Mo. Filed Mar. 25, 1901. Serial No. 52,843. (No model.)

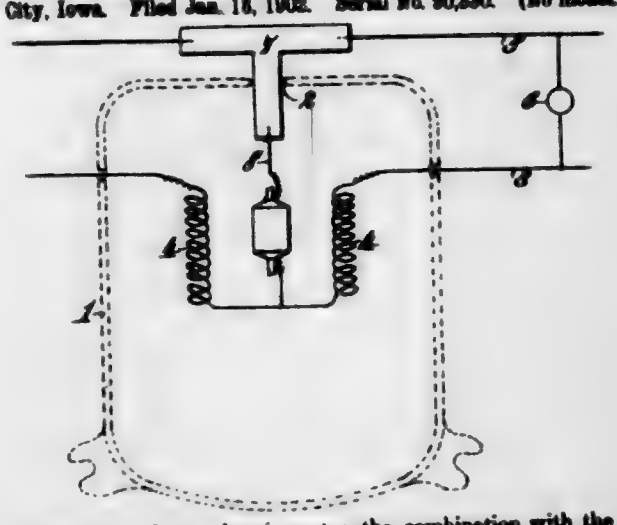


Claim.—1. A horse hay-rake having spindles on its side and similar spindles at right angles thereto, supporting-wheels for said spindles, a bracket projecting from and disposed at an angle to said rake, a bar pivotally connected at a point between its ends to the said bracket, and thereby adapted to be extended rearwardly from the rake or turned at right angles thereto at will, said bar having a spindle for a supporting-wheel at its outer end, and means to secure said bar in either of said positions, substantially as described.

2. A horse hay-rake having spindles on its side and similar spindles at right angles thereto, supporting-wheels for said spindles, a bracket projecting from and disposed at an angle to said rake, a bar pivotally connected at a point between its ends to the said bracket, and thereby adapted to be extended rearwardly from the rake or turned at right angles thereto at will, and means to secure said bar in either of said positions, substantially as described.

3. A horse hay-rake having a series of rake-teeth, and a pull-bar at the rear ends thereof, said rake having spindles for supporting-wheels at its side and similar spindles at right angles thereto and projecting from said pull-bar, a bracket projecting from and disposed at an angle to said rake, a support in advance of said bracket, a bar pivoted at a point between its ends to said bracket and having a spindle for a supporting-wheel at its outer end, said bar being thereby adapted to be extended rearwardly from said rake or turned at right angles thereto at will and means to secure the inner end of said bar either to said bracket or said support, substantially as described.

694,832. ELECTRIC METER. CHARLES T. CLAYPOOLE, Sioux City, Iowa. Filed Jan. 18, 1902. Serial No. 90,230. (No model.)



Claim.—1. In an electric meter, the combination with the casing thereof and the line-wires, one of which extends through said casing and the other of which is located outside the same, of a shunt-circuit through which the meter-registering mechanism is operated and controlled, and a coupling-piece of conducting material extending into said casing, said coupling-piece being attached to the wire portion of said shunt-circuit and to two parts of the outer line-wire.

2. In an electric meter, the combination with the casing thereof having an opening therein, and the two line-wires, one of which passes through said casing and the other of which is located outside the same, of a shunt-circuit through which the registering mechanism is operated and controlled, and a T coupling-piece extending through the opening in said casing, having the inner arm thereof attached to the wire portion of said shunt-circuit, and having the other arms thereof attached to the ends of two sections of the outer of said line-wires.

694,833. GUN-BARREL. WILLIAM F. COLE, Waco, Tex. Filed July 16, 1901. Serial No. 68,459. (No model.)

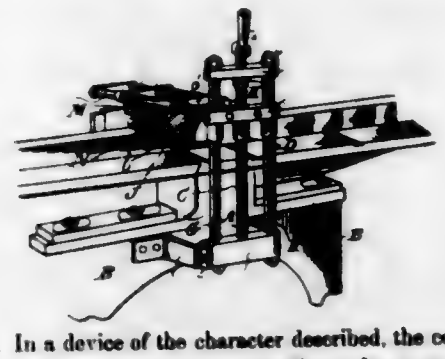


Claim.—1. A barrel for small firearms, having a bore which is smooth throughout, and cylindrical in the breech and throat, whereby it is adapted for reception of an ordinary ball-cartridge, and elliptical and uniformly twisted in the remaining or outer portion to receive the projectile and give a rotary motion thereto as shown and described.

2. A barrel for small firearms having a smooth bore which is enlarged in the breech, and cylindrical in both breech and throat, the remainder of the bore being elliptical and having a uniform twist as shown and for the purpose specified.

3. A barrel for small firearms having an enlarged cylindrical breech-bore adapted for a ball-cartridge, an elliptical and twisted smooth front bore to receive the projectile and give a rotary motion thereto, and an intervening portion or throat which is reduced and cylindrical and serves to blend or merge the cylindrical part with the elliptical one, whereby the gun is adapted for use of fixed ammunition of the ordinary cylindrical type, in the manner described.

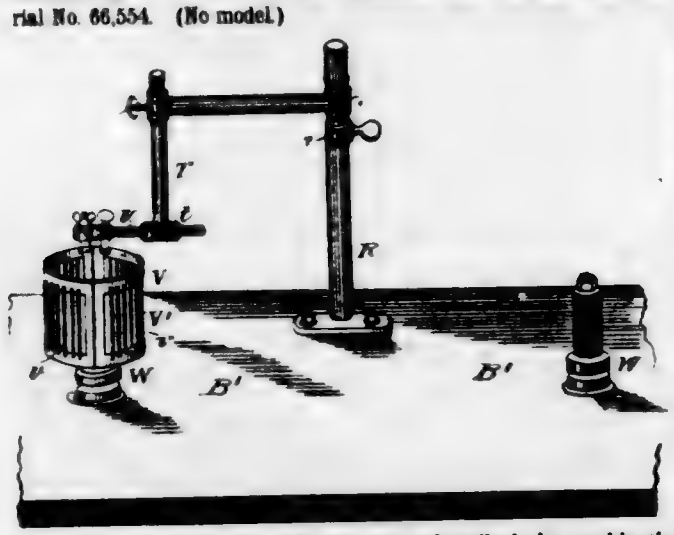
694,834. GUARD FOR WOODWORKING-MACHINES. ANDREW COOK, Glasgow, Scotland. Filed Mar. 12, 1901. Serial No. 50,824. (No model.)



Claim.—1. In a device of the character described, the combination with a planing-machine, and the horizontally-disposed rotary cutters carried thereby; of a hinged bracket secured to the side of said machine, a frame carrying a screw secured to the hinged portion of said bracket, a framework slidingly mounted upon said frame, adapted to be actuated by said screw, and a guard carried by said framework, substantially as described.

2. In a device of the character described, the combination with a planing-machine, and horizontally-disposed rotary cutters carried thereby; of a hinged bracket secured to said machine, a frame carrying a screw mounted upon said hinged bracket, a framework slidingly mounted upon said frame, and adapted to be actuated by said screw, a protective plate slidingly mounted upon said framework, a swinging frame also mounted upon said framework, a roller mounted upon the end of said swinging frame, and a spring acting upon said swinging frame, substantially as described.

694,835. GUARD FOR WOODWORKING-MACHINES. ANDREW COOK, Glasgow, Scotland. Original application filed Mar. 12, 1901, Serial No. 50,824. Divided and this application filed June 29, 1901. Serial No. 66,554. (No model.)



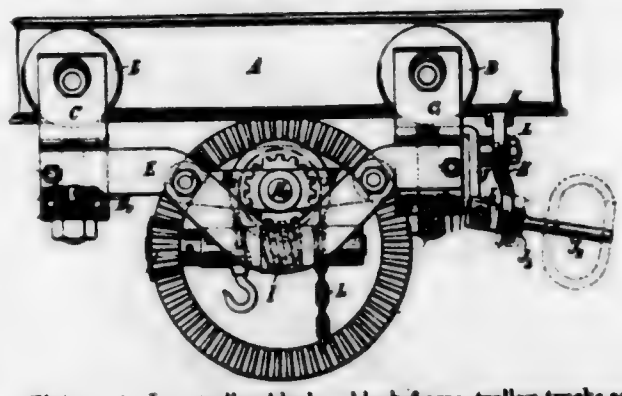
Claim.—1. In a device of the character described, the combination with a woodworking-machine, and rotary cutters carried thereby; of a standard supported upon said machine, an adjustable arm supported by said standard, and a divided cylindrical guard supported by said arm, and adapted to shield said cutters, substantially as described.

2. In a device of the character described, the combination with a woodworking-machine, and rotary cutters carried thereby; of a standard supported upon said machine, a rod swiveled to said standard, adapted to be adjusted vertically, an upright adjustably secured to said rod, a horizontal rod adjustably secured to said upright, and a guard adjustably secured to said horizontal rod, adapted to encircle said cutters, substantially as described.

3. In a device of the character described, the combination with a woodworking-machine, and rotary cutters carried thereby; of a standard supported upon said machine, an adjustable arm carried by said standard, and a pair of semicircular guards adjustably secured to said arm, and adapted to encircle said cutters, substantially as described.

4. In a device of the character described, the combination with a woodworking-machine, and rotary cutters carried thereby; of a standard mounted upon said machine, an arm adjustably secured upon said machine, a pair of semicircular guards carried by said arm adapted to encircle said cutters, one of said guards being swiveled to said arm, and the other guard hinged to said arm and provided with a spring and antifriction-roller for guiding the material fed to said cutters, substantially as described.

694,836. TROLLEY-HOISTING BLOCK. JOHN H. COOK, Brooklyn, N. Y., assignor to Henry B. Newhall, Plainfield, N. J. Filed June 15, 1901. Serial No. 64,653. (No model.)



Claim.—1. In a trolley-block, a block-frame, trolley-trucks secured to said block-frame, a bracket secured to said block-frame, a pair of clamping-levers pivoted to said bracket, a weighted clamping-wedge mounted in a universal joint in said bracket adjacent said levers to engage the ends of said levers to operate the same and to hold said levers in operative position by the weight of said wedge, said wedge being adapted to move between the ends of said levers to hang out of engagement with said levers.

2. In a trolley-block, a block-frame, swiveling trolley-trucks secured to said frame at either end of the same, a bracket secured to one of said trolley-trucks, a clamping-lever pivoted to said bracket, a bearing-sleeve pivoted to said bracket, a manually-operated weighted clamping-wedge mounted to turn in said sleeve, said wedge engaging said lever to operate the same, the weight of said wedge holding said lever in operative position, said wedge being rotatable in said sleeve to move said wedge past said lever into a depending position out of contact with said levers.

3. In a trolley-block, a block-frame, trolley-trucks secured to said block-frame, two levers pivotally mounted and secured to said block-frame and a wedge mounted to engage said levers to force them into engagement with the track upon which said trolley-trucks run to clamp said trolley-block thereto.

4. In a trolley-block, a block-frame, trolley-trucks pivotally attached to said block-frame to engage a trolley-rail, a pair of clamping-levers connected to said trolleys, a wedge mounted adjacent said levers to force said levers into engagement with said rail and means whereby said wedge may be moved out of engagement with said levers.

5. In a trolley-block, a block-frame, a swiveling trolley-truck mounted upon said block-frame, a pair of levers, pivots about which said levers move rigidly connected with said trolley-truck, a wedge mounted upon said trolley-truck, means to move said wedge into engagement with said levers to clamp said levers against the track upon which said trolley-truck runs and means to turn said wedge so that it does not engage said levers.

6. In a trolley-block, a block-frame, a trolley-truck mounted upon one end of said block-frame, another trolley-truck mounted upon the other end of said block-frame to swivel about a vertical axis, said trolley-trucks engaging a trolley-rail, a pair of clamping-levers, pivot-pins for said clamping-levers rigidly secured to said swiveling trolley-truck and a wedge movably mounted upon said swiveling trolley-truck to force said levers into engagement with said rail to clamp said block-frame to said rail.

7. In a trolley-block, a block-frame, trolley-trucks mounted upon either end of said block-frame to swivel about said block-frame, said trolley-trucks being adapted to engage a rail, a pair of clamping-levers pivotally connected with one of said trolley-trucks and means to force said levers into engagement with said rail.

8. In a trolley-block, a block-frame, trolley-trucks mounted at either end of said block-frame having antifriction-bearings for said trolley-trucks to allow them to swivel in said block-frame, an angle-bracket secured to one of said trolley-trucks, a pair of clamping-levers pivoted to said bracket, a bearing-sleeve pivoted to said bracket, a clamping-wedge mounted to turn in said bearing-sleeve and an operating-handle secured to said wedge whereby said wedge may force said levers into engagement with said rail or whereby said wedge may move between the ends of said levers entirely out of engagement with said levers.

9. In a trolley-block, a block-frame having curved side members, the ends of said side members being in the same plane and above the curved central portion of said side members, trolley-trucks mounted on the ends of said block-frame having antifriction-bearings for said trolley-trucks below the ends of said members, a chain-wheel mounted on said trolley-block frame, the axis of said chain-wheel being above the curved central portion of said side members and means to actuate said chain-wheel

10. In a trolley-block, a block-frame formed with curved side members, trolley-trucks secured to the ends of said block-frame having antifriction-bearings allowing said trolley-trucks to swivel about said block-frame, said bearings extending below the ends of said side members, a chain-wheel mounted to revolve on said block-frame, the shaft of said chain-wheel being above the central curved portion of said side members reducing-gear to actuate said chain-wheel and a clamping device secured to one of said trolley-blocks to clamp said block-frame to the rail upon which said trolley-trucks run.

11. In a trolley-block, a block-frame, trolleys mounted on either end of said block-frame to engage a rail, a chain-wheel rigidly secured to a shaft, a worm-wheel rigidly secured to said shaft, bearings for said shaft above the central portion of said block-frame whereby a chain moving over said wheel is substantially equidistant from said trolleys, a worm-shaft, a worm rigid on said shaft, a beveled pinion rigid on said shaft, suitable bearings for said shaft and an actuating-wheel having a beveled gear formed thereon to engage said beveled pinion.

12. In a trolley-block, a curved block-frame, a pair of trolley-trucks mounted at either end of said block-frame, a shaft revolubly mounted above the central curved portion of said block-frame, a chain-wheel and a worm-wheel rigid on said shaft, a worm-shaft mounted in suitable bearings on said block-frame, a worm, and a pinion fast on said worm-shaft and an actuating-wheel formed with a gear engaging said gear-pinion.

694,837. PADLOCK. JOSEPH J. COTTER, Bowerston, Ohio. Filed May 17, 1901. Serial No. 60,715. (No model.)



Claim.—1. A padlock-casing, comprising the opposite side walls, the opposite edge walls, one of said edge walls being arranged inward of the edges of the side walls and having an opening below the upper end, a hasp pivoted between the side walls below said opening, a latch-finger on said hasp adapted to pass through said opening, and a top edge wall connecting with the opposite side edge walls, substantially as specified.

2. A waterproof lock, comprising a hollow casing provided exteriorly with waterproof concaved recesses, and also provided with an aperture, a movable hasp provided with terminals engaging said waterproof concaved recesses, a locking-finger located intermediate of said terminals and extending through said aperture into said casing so as to form a watertight engagement therewith, said locking-finger being provided with an enlargement for preventing its withdrawal from said casing, and means, controllable by a key, for securing said locking-finger in a definite position relative to said casing.

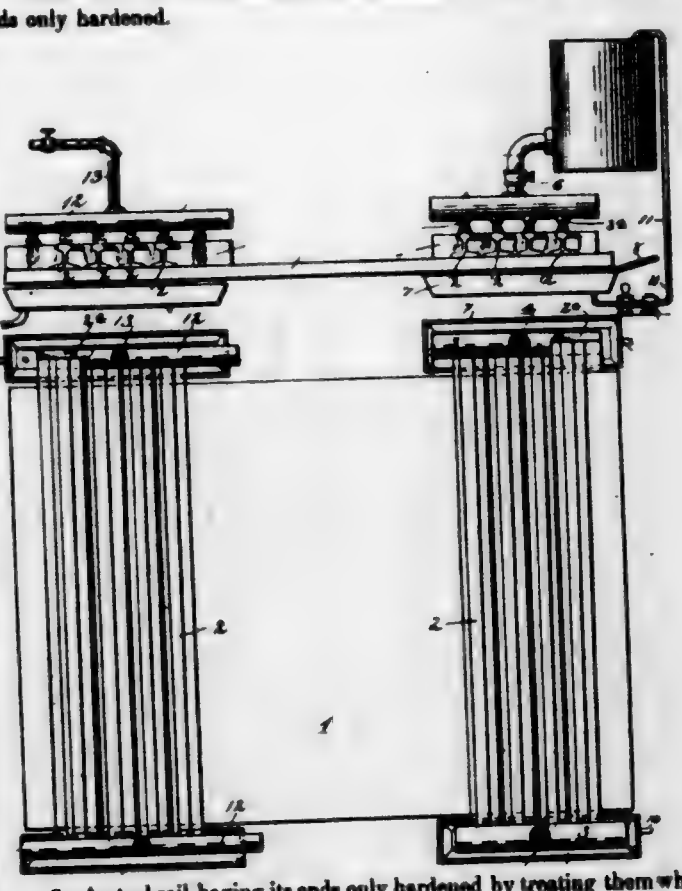
3. A waterproof lock, comprising a waterproof casing, a hasp provided with a locking-finger integral therewith, said hasp being pivoted at the bottom of said casing and said locking-finger entering the side thereof and provided with a lug inside of said casing, a dog pivoted inside of said casing, and a series of tumblers some of which are provided with oppositely-disposed hooks to engage, respectively, said dog and said lug upon said locking-finger.

4. A lock, comprising a casing, a hasp provided with a locking-finger, a plurality of tumblers provided with shoulders, and a dog provided with a flat face and a transverse rib for engaging different surfaces of said tumblers.

5. A lock, comprising a casing, a hasp provided with a locking-finger, a plurality of tumblers provided with edges disposed at different angles and with shoulders, and a dog provided with a flat face and a transverse rib for engaging said edges respectively.

694,888. HARDENED RAILROAD-RAIL. WILLIAM R. COYAR, Homestead, Pa., assignor of two-fifths to John K. Skelley, McKeesport, Pa. Filed Nov. 20, 1901. Serial No. 83,087. (No model.)

Claim.—1. A new article of manufacture, a steel rail having its ends only hardened.

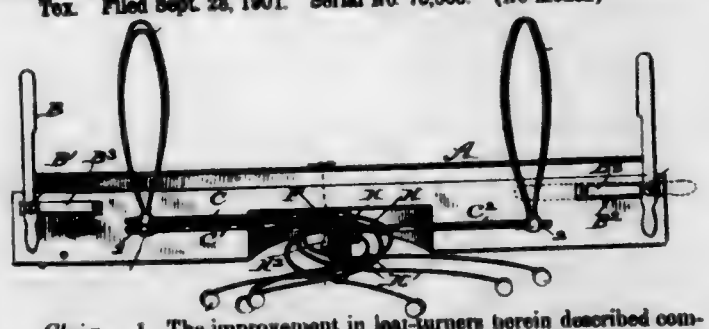


2. A steel rail having its ends only hardened by treating them when hot with case-hardening fluid and then treating them with a tempering fluid, substantially as described.

3. A new article of manufacture, a steel rail having its ends only hardened to a greater degree than the main portion of the body thereof.

4. A new article of manufacture, a steel rail having its ends only hardened at the head to a greater degree than the remaining portion and body thereof.

694,839. MUSIC-LEAF TURNER. CHARLES H. DASCOMB, El Paso, Tex. Filed Sept. 28, 1901. Serial No. 76,855. (No model.)



Claim.—1. The improvement in leaf-turners herein described comprising the base or support, the bearing-frame hinged thereto, means for adjusting said bearing-frame in connection with the base, the bearing-frame being divided by partitions into separate compartments, the swinging arms provided with leaf-carriers and having shafts journaled in the bearing-frame and provided on said shafts within the compartments of the frame with pinions, the rack-bars operating in the bearing-frame and meshed with their respective pinions, and the key-levers composed of wires or rods secured at their middles to the segments bent in the form of a bow around the racks and their pinions and united in advance of the pinions and having extensions bearing the keys substantially as set forth.

2. In a music-leaf turner the combination of the base or support, the bearing-frame hinged in connection with the base or support, the operating-arms and their operating devices supported in the bearing-frame, and means for adjusting the said bearing-frame substantially as set forth.

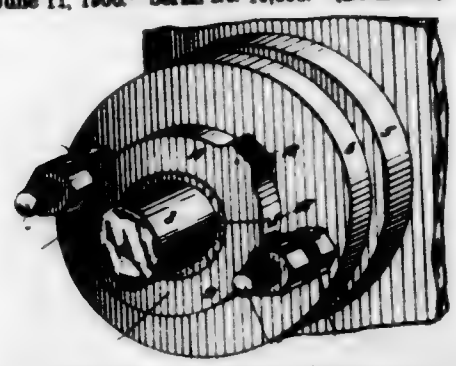
3. The combination of the base or support, the bearing-frame hinged thereto, the screw for adjusting said bearing-frame in connection with the base, and the swinging arms and their operating devices carried by the frame substantially as set forth.

4. The combination in a music-leaf turner of the pinion, the rack-segment meshed with the pinion, and the key-lever composed of a wire or rod secured at its middle to the rack, bent into loop form extending around the rack and pinion with its lengths united in advance of the rack and having extensions beyond said point of union adapted for the reception of the keys substantially as set forth.

5. The combination of the swinging arms having the pinions, the racks meshed with the said pinions, and the key-levers fixed to the racks and bent into loop form around the same substantially as set forth.

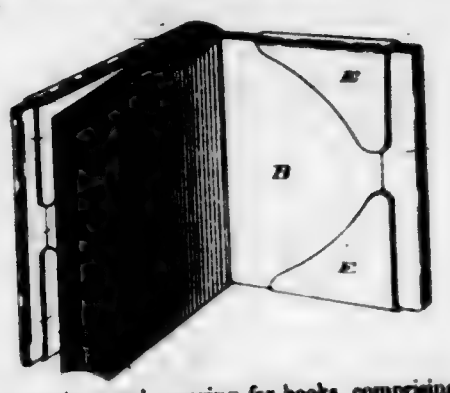
6. The combination of the base provided in its under side with a mortise or recess for the bearing-frame, the bearing-frame supported and adjustable within the said recess, the swinging arms provided with the pinions supported in the bearing-frame, the racks operating in the bearing-frame and meshed with the pinions, and the levers secured to the racks substantially as set forth.

694,840. ROD-SWAB. JOSEPH O. DAUPHIN, Rat Portage, Canada. Filed June 11, 1900. Serial No. 19,898. (No model.)



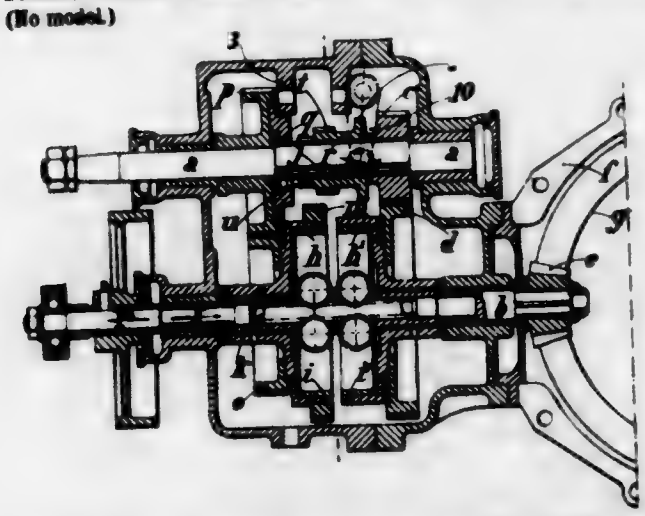
Claim.—A rod-swab, comprising a circular case or box formed of two sections hinged together and adapted to contain a swab, each section being provided with an apertured lug, and one of the sections with a hollow protuberance, and a circular spring having one end secured in the protuberance and its free end extending under its fixed end, substantially as described.

694,841. SUPPLEMENTAL-BOOK-COVER FASTENER. FRANKLIN R. DERRICK, Brodhead, Wis. Filed Mar. 25, 1901. Serial No. 52,948. (No model.)



Claim.—A supplemental covering for books, comprising a sheet of material having a width substantially equal to the length of the book to be covered, and of a length sufficient to extend about the outer faces of the permanent covers of said book and having its ends turned inwardly over the side edges of the same, in combination with tabs secured upon said inturned ends, said tabs being extended respectively over the top and bottom edges of the permanent cover and secured to the outer faces of the supplemental cover contiguous to their upper and lower edges.

694,842. VARIABLE-SPEED AND GEAR-REVERSING MECHANISM FOR MOTOR ROAD-VEHICLES. ALBERT DE DION and GEORGES BOUTON, Puteaux, France. Filed Nov. 11, 1901. Serial No. 81,897. (No model.)



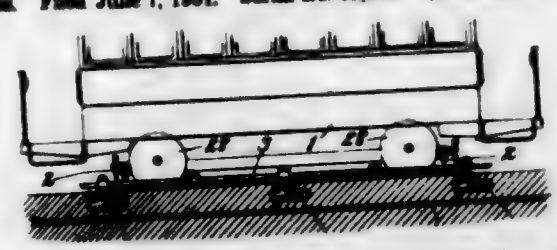
Claim.—1. In a variable-speed and gear-reversing mechanism for motor road-vehicles, the combination with a double friction-clutch A i A' i'' of the kind described, having a gear-wheel *d* integral with its part i'' and gear-wheels *o m* integral with the other part *i*, of a drive-shaft, a wheel *c* fast on the said shaft and gearing with the wheel *d*, and an internally-toothed wheel *p* loose on the said shaft and gearing with the wheel *o*, a sleeve *r* movable along the said shaft, and provided with indentures *u* in suitable relation with the internal teeth *q* of the wheel *p*, a toothed wheel *t* and collar *s* for shifting the said sleeve along said shaft, means for reversing the operation of the gear *m*, and means for engaging the said means with the gear-wheels *t* and *m*, substantially as described.

2. In a variable-speed and gear-reversing mechanism for motor-vehicles, the combination with a double friction-clutch provided with suitable gear-wheels, of a drive-shaft, a gear-wheel fast thereon, a gear-wheel loosely mounted on the said shaft, a sleeve movable upon the said shaft, a gear-wheel formed integral with the said sleeve, means for reversing the operation of the gear-wheels of the clutch and shaft, means for moving said reversing means into operative position, and means for preventing the engagement of said reversing means with the said gear wheels of the clutch and shaft.

3. In a variable-speed and gear-reversing mechanism for motor road-vehicles, the combination with a double friction-clutch A i A' i'' of the kind referred to, having a gear-wheel *d* integral with the part i'', two gear-wheels *o m* attached to the other part *i*, of a drive-shaft, a wheel *p* loose on the driving-shaft and in gear with the wheel *o*, a wheel *c* fast on the said shaft and in gear with wheel *d*, a sleeve *r* sliding along the driving-shaft, a wheel *t* integral with the said sleeve and adapted to engage with the gear-wheel *m*, an internally-toothed wheel *q* adapted to be engaged by the wheel *t*, means for reversing the gear, and means for shifting said reversing means into its operative position, substantially as described.

4. In a variable-speed and gear-reversing mechanism for motor-vehicles, the combination with a double friction-clutch of the character referred to provided with gear-wheels, of a driving-shaft, gear-wheels carried thereby and adapted to mesh with the gear-wheels of the clutch, an intermediate gear-wheel engaging a gear-wheel of the clutch and one of the gear-wheels of the shaft for reversing the operation of the gear, means for shifting the intermediate gear into operative position consisting of a yoke 13, an eccentric 17 bearing on the said yoke and a shaft 18 for operating the eccentric, and means for preventing the lowering of the intermediate gear-wheel 4 consisting of a piece 19 provided with a flange with a notch therein, and a collar *s* and sleeve *r*, said collar *s* and sleeve *r* mounted upon the drive-shaft in suitable relation to the means for preventing the lowering of the intermediate gear 4, substantially as herein shown and described.

694,843. ELECTRIC TRACTION-ROAD. LÉON DION, Boston, Mass. Filed June 7, 1901. Serial No. 63,497. (No model.)



Claim.—1. In an electric traction-road, in combination with the roadway and the car, a feeder, a sectional exposed conductor in the roadway, means to connect the feeder with the sections of the exposed conductor, an electromagnetic device carried by the car and adapted to actuate said means, and a collecting-shoe carried by said device and having a vertical sliding connection therewith whereby it maintains contact with the exposed conductor at various elevations of said device.

2. A roadway-switch comprising a box having a conductive top, an insulating-partition, and a connector comprising a flexible conductor located below said partition and an armature located above the partition and normally resting thereon.

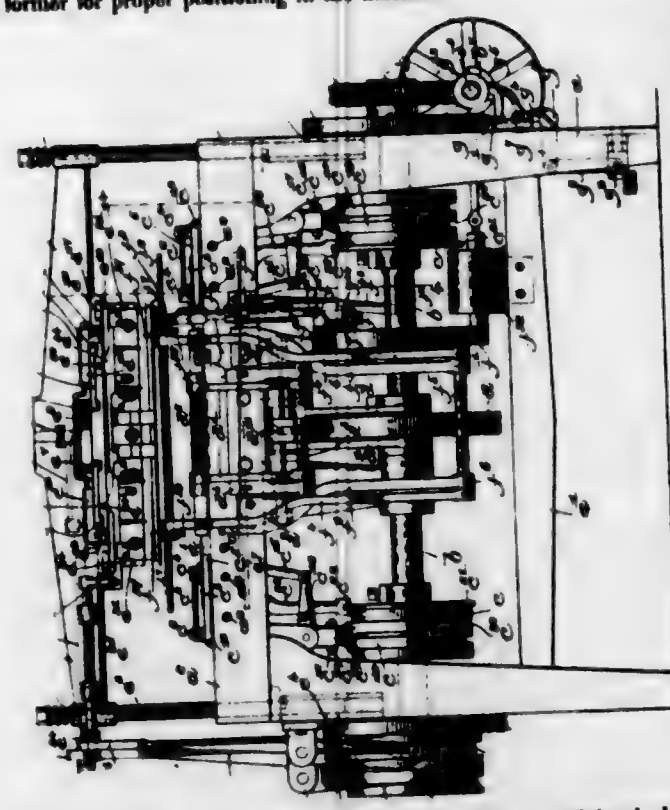
3. A roadway-switch comprising an outer conductor, a horizontally-elongated armature member composed of a piece of sheet metal bent to a T-shaped cross-section, the edges forming the stem of the T, and a flexible conductor held between said edges and adapted to permit movement of the armature member toward and from the outer conductor.

694,844. MACHINE FOR FOLDING COLLAR-BLANKS, &c. WILLIAM W. DIXON and WALTER L. DIXON, Boston, Mass., assignors to Reece Folding Machine Company, Portland, Me., and Boston, Mass. Filed Feb. 14, 1901. Serial No. 47,271. (No model.)

Claim.—1. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, and means for holding the blank, combined with pneumatic apparatus for receiving and retaining the blank in position to be held and operated upon by the aforesaid mechanism.

2. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank,

and means for holding the blank, and pneumatic apparatus having connection with said former for retaining a blank against the under side of said former for proper positioning in the machine.



3. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, means for holding the blank, said former having adjacent its opposite ends suction-places operative on the side of the former next to the receiving-bed for retaining a blank, an air-exhaust apparatus, connections therefrom to said suction-places, and operating mechanism therefor.

4. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding the edges of said blank over flat down upon the body of the blank, means for holding the blank, and automatic feeding mechanism for removing a blank from the machine, said automatic mechanism including lifting means for directly grasping a blank lying on said bed and carrying said blank therefrom out of the machine.

5. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, an automatic feeding mechanism for removing a blank from the machine when folded, said mechanism including a device for taking hold of the blank itself and removing it from the machine, said device being provided with means for positively holding the blank at a plurality of separated points in unchanging position against said removing device until the blank is out of the machine.

6. In a machine for folding collars and the like, a bed, folding mechanism, means for holding the blank, an automatic feeding mechanism adapted to engage a blank, feed it into the machine, and leave it there to be folded, and means for returning said feeding device and engaging the same with the folded blank yet upon the bed of the machine and take the blank out of the machine.

7. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, means for holding the blank, and automatic feeding mechanism for carrying a blank into the machine, said feeding mechanism including means for delivering the blank directly to the machine, said machine having means for taking hold of the blank itself and holding it in position.

8. In a machine for folding collars and the like, a bed, devices to fold a blank, automatic means to directly grasp the blank adjacent its opposite ends, carry it into the machine, and deposit it in position on said bed to be folded.

9. In a machine for folding blanks for collars and the like, a bed and a former to sustain and hold a blank while being folded, and automatically-operated means to enter between the bed and former, descend upon, directly grasp the folded blank, and feed it out from between the bed and former.

10. In a machine for folding collars and the like, a bed, devices to fold a blank, means to directly grasp a blank to be folded and carry it in suspended position down onto the bed to be folded, and means to directly engage the folded blank and remove it from the machine.

11. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, means for holding the blank, feeding mechanism for carrying a blank into the machine, and pneumatic apparatus for receiving the blank from said feeding apparatus and retaining the same in position in the machine for folding.

12. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, means for holding the blank, automatic mechanism movable in and out between the bed and said holding means for removing a blank from the machine, said mechanism including suction apparatus for taking a folded blank from said bed and carrying it out of the machine.

13. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, means for holding the blank, a feeding mechanism for carrying a blank into the machine, means for moving said apparatus adjacent the under side of said holding means, and pneumatic apparatus operating at said holding means for receiving the blank from said feeding mechanism and retaining the same in place for folding.

14. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, means for holding the blank, feeding mechanism movable between said holding means and said bed, and means for shifting said feeding mechanism into engagement with said holding means for the transfer of a blank, and lowering the same onto said bed for the transfer of another blank.

15. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, means for holding the blank, feeding mechanism movable between said holding means and said bed, and means for shifting said feeding mechanism into engagement with said holding means for the transfer of a blank, and lowering the same onto said bed for the transfer of another blank, and pneumatic apparatus operating on said holding means and also on said feeding mechanism for effecting said respective transfers.

16. In a machine for folding collars and the like, a receiving-bed to receive a blank to be folded, folding mechanism for infolding said blank, means for holding the blank, feeding mechanism including pneumatic apparatus for removing a blank when folded, pneumatic apparatus for receiving and retaining a blank in position for folding, said apparatus including a vacuum-tank, a valve, and connections, said valve including a cylinder and a hollow plunger, both provided with proper ports leading respectively to said tank and to said retaining apparatus and said removing apparatus, and means for operating said valve, the port leading to said retaining apparatus coming into operation before the port leading to said removing apparatus, and remaining open while the latter operates.

17. A machine for folding collars and the like, comprising a bed, folding apparatus, means to hold a blank in place for folding, an automatic feeding mechanism, said mechanism including an arm, means for moving said arm toward and from the machine, a feed-plate for carrying the blank, and means for moving said feed-plate up and down as it is moved by said arm.

18. A machine for folding collars and the like, comprising a bed, folding apparatus, means to hold a blank in place for folding, an automatic feeding mechanism, said mechanism including an arm, means for moving said arm toward and from the machine, a feed-plate for carrying the blank, a lifter for moving said feed-plate up and down as it is moved by said arm, and means for operating said lifter.

19. A machine for folding collars and the like, comprising a bed, folding apparatus, means to hold a blank in place for folding, and automatic feeding mechanism, said mechanism including an arm, means for moving said arm toward and from the machine, a feed-plate pivotally mounted on said arm, a lifter for swinging said feed-plate up and down as it is moved by said arm, and means for operating said lifter.

20. A machine for folding collars and the like, comprising a bed, folding apparatus, means to hold a blank in place for folding, automatic feeding mechanism for carrying a blank, said mechanism including means for retaining a blank while being carried, mechanism for moving said retaining means into and out of the machine, and a guide-track on which said retaining means travels.

21. A machine for folding collars and the like, comprising a bed, folding apparatus, means to hold a blank in place for folding, automatic feeding mechanism, said mechanism including means for retaining a blank while being carried, mechanism for moving said retaining means into and out of the machine, a lifting-post mounted in a socket on the machine, a guide-track carried by said post on which said retaining means travels, and means for raising and lowering said post in said socket.

22. A machine for folding collars and the like, comprising a bed, folding apparatus, means to hold a blank in place for folding, and automatic feeding mechanism including arms pivoted to the front of the machine, a table mounted on said arms obliquely to the horizontal, for supporting a pile of blanks to be fed into the machine, and means operated by said arms for feeding said blanks into the machine.

23. A machine for folding collars and the like, comprising a bed, folding apparatus, means to hold a blank in place for folding, a supporting device for carrying blanks into the machine, automatic means for operating the same, pneumatic mechanism for receiving the blank when car-

ried into the machine, and pneumatic means for taking a folded blank from the machine, said latter pneumatic means holding the blank until the blank has been removed from the machine, and then releasing the blank.

24. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, a cross-head carrying said former, actuating means for moving said cross-head and former toward and from the bed, automatic feeding mechanism for feeding a blank into the machine when the former is in raised position, and pneumatic apparatus for taking the blank from said feeding mechanism, said pneumatic apparatus including operating means for maintaining the same in action until said actuating mechanism has lowered the former upon the bed of the machine.

25. In a machine for folding collars and the like, a receiving-bed, folding mechanism, a former, pneumatic apparatus for engaging a blank, said pneumatic apparatus including a pump and means for operating the pump, and stopping mechanism for stopping the former and folding mechanism, the operating means of the pump continuing in operation independently of said stopping mechanism.

26. In a machine for folding collars and the like, a bed to receive a blank, automatic folding mechanism for infolding the edges of the blank, a former for defining the shape of the blank being folded, a cross-head carrying said former, automatic mechanism for moving said cross-head and former toward and from the bed, automatic stopping mechanism for stopping the machine when the former is in raised position, and means under the control of the operator for rendering said automatic stopping mechanism operative or inoperative at will.

27. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, a cross-head carrying said former, actuating means for moving said cross-head and former toward and from the bed, automatic feeding mechanism for feeding a blank into the machine when the former is in raised position, automatic stopping mechanism for stopping the machine when the former is in raised position, thereby enabling the operator to place blanks properly on the feeding mechanism, and manual stopping mechanism for stopping the machine at any point in its operation.

28. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of a blank, a former for defining the blank, a cross-head carrying said former, actuating means for moving said cross-head and former toward and from the bed, automatic feeding mechanism for feeding a blank when the former is in raised position, automatic stopping mechanism for stopping the machine when the former is in raised position, and manual stopping mechanism for stopping the machine at any point in its operation.

29. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, a cross-head carrying said former, actuating means for moving said cross-head and former toward and from the bed, said folding mechanism and cross-head-actuating means normally operating continuously and automatically, and manual stopping mechanism for stopping the machine at any point in its operation.

30. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, and means for yieldingly pressing said former on the blank on said bed, when the former is resting thereon.

31. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, a cross-head carrying said former, movable means supporting said cross-head for raising and lowering the latter, the cross-head being loosely mounted on said supporting means, and springs carried by said supporting means in engagement with said cross-head for permitting the latter to yield under pressure whereby the weight of the former, cross-head, connected mechanism, and the resistance of said springs are all brought to bear upon the blank on the bed of the machine.

32. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, a cross-head carrying said former, rods vertically movable in the machine for supporting and actuating said cross-head, horizontally-operating rods mounted in the cross-head for actuating said former, levers for shifting said horizontal rods, the latter and said levers having loose, vertically-sliding connection permitting the proper movements of each without interfering with the vertical movement of the cross-head.

33. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, a cross-head carrying said former, said cross-head having transverse slideways on its under side, and said former having connection with said slideways for front and back shifting movement in the machine, and shifting means therefor.

34. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, a cross-head carrying said former, the latter being capable of shifting backward and forward relatively to said cross-head, a rotary plate mounted in the cross-head, a slide-bar provided with cam-slots coöperating with the cross-head and former for shifting said former, a pin projecting from said rotary plate into loose connection with said slide-bar for reciprocating the latter, a horizontally-moving member for rotating said plate, and means for operating said member.

35. In a machine for folding collars and the like, a bed to receive a blank, folding mechanism for infolding the edges of the blank, a former for defining the blank, a cross-head carrying said former, slides on said cross-head, a rotary plate mounted in the cross-head, links connecting said plate and said slides, said slides being connected with contractible portions of the former, a rod mounted in the cross-head for longitudinal movement, a link connecting said rod and said rotary plate, and means for operating said rod.

36. In a machine for folding collars and the like, a frame, a bed carried thereby, a former, an edge-folding mechanism for infolding the edges of a blank, a single main shaft mounted in said frame, rotative members and levers for raising and lowering said former and operating said folding mechanism, all of said rotative members being mounted on said single shaft.

37. In a machine for folding collars and the like, a frame, a bed carried thereby, a former, means for raising and lowering said former relatively to said bed, end and edge folding mechanism for infolding the edges of a blank, a single main shaft mounted in said frame, levers for operating each of said end-folding mechanisms, levers for operating said edge-folding mechanisms cams mounted on said main shaft, all of said levers being directly connected to the folding mechanism at one end and at their other ends being in engagement with said cams, whereby all the folding movements of the machine are accomplished by the rotation of one shaft and the cams secured thereon, reciprocating rods for operating said former, levers pivotally mounted for reciprocating said rods, and a cam mounted on said main shaft in engagement with said levers for operating the latter.

38. In a machine for folding collars and the like, a frame, a bed carried thereby, folding mechanism on said bed for infolding a blank, a former, a cross-head carrying said former, supporting means for lifting and lowering said cross-head, a single main shaft mounted in said frame, said shaft always rotating in one and the same direction, cams mounted on said shaft for operating said folding mechanism, cams also mounted on said shaft for operating said cross-head-supporting means, other cams also on said shaft for operating said former, and pivotal connections between and for operating said folding mechanism from said cams, and other pivotal connections between and for operating said former from its said cams.

39. In a machine for folding collars and the like, a frame, a bed thereon, means for holding a blank on said bed, and end and edge folders for infolding the edges of said blank, a pivoted lever for lifting and depressing each of said folders, a pivoted lever for moving in and out each of said folders, a main shaft journaled in said frame, and cams fast on said shaft, each of said levers having engagement with certain of said cams whereby all the said movements of all of said folders are effected by said cams from said single shaft and are transmitted by said pivoted levers.

40. In a machine for folding collars and the like, a frame, a bed thereon to receive blanks to be folded, and an end folder for folding a portion of said blank, said end folder being adjustably mounted for movement longitudinally of said bed, a main shaft journaled in the machine, a cam adjustably mounted on said shaft, transmitting devices between said cam and said folder for actuating the latter by the former, and rigid connection between said folder and said cam for preventing longitudinal movement of one relatively to the other, and maintaining corresponding movement in both when either is adjusted.

41. In a machine for folding collars and the like, a frame, a bed thereon to receive blanks to be folded, and an end folder for folding a portion of said blank, said end folder being adjustably mounted for movement longitudinally of said bed, a main shaft journaled in the machine, a cam adjustably mounted on said shaft, transmitting devices between said cam and said folder for actuating the latter by the former, and a rigid lag connected to said folder and having at its lower end interlocking engagement with said cam for preventing disimultaneous adjustment of said folder and cam.

42. In a machine for folding collars and the like, a bed and bed-frame to receive a blank to be folded, an end folder for folding said blank, said end folder including a block rigidly mounted in the bed-frame of the machine, a plate pivotally mounted on said block, movable means on said plate for doing infolding, means for lifting and depressing said plate, and mechanism for shifting said folding means in and out.

43. In a machine for folding collars and the like, a bed and bed-frame to receive a blank to be folded, said bed-frame having a recess or opening, a folder said folder including a block slightly smaller than the recess in said bed-frame, said block being mounted in said recess or opening of the bed-frame, and a plurality of adjusting devices in said bed-frame at the opposite sides of said block and engaging the latter for adjusting the block as may be required.

44. In a machine for folding collars and the like, a bed to receive a blank to be folded, means for holding the blank in position, and a folder, said folder comprising a plate, a blade mounted thereon and made up of two members pivoted together and mounted to slide longitudinally on said plate, coöperating pin and cam-slot devices in said plate and in said two blade members for automatically swinging said members on their pivot, as they are moved forward and backward on said plate.

45. In a machine for folding collars and the like, a bed to receive a blank to be folded, two folders for infolding said blank, means for moving said folders inwardly along converging lines, said folders being separated by an intervening gap when in retracted or non-folding position, and said gap being gradually lessened in extent as the folders move inwardly, combined with yielding means adjacent the folding edges of said folders for closing said gap and adapted to move inwardly as one or both of said folders are moved inwardly for infolding the portion of the blank between the two folders.

46. In a machine for folding collars and the like, a bed to receive a blank to be folded, a plurality of folders for infolding the edges of said blank, said folders moving toward the blank out of parallelism, and means for maintaining a substantially continuous folding edge throughout said plurality of folders.

47. In a machine for folding collars and the like, a bed to receive a blank to be folded, a plurality of folders for infolding the edges of said blank, said folders moving toward the blank out of parallelism, and auxiliary folders for automatically closing the gaps between said folders and maintaining a substantially continuous folding edge.

48. In a machine for folding collars and the like, a bed to receive a blank to be folded, two folders, means to move said folders inwardly along converging lines, and an auxiliary folder longitudinally movable of one of said folders and projecting adjacent the edge thereof against the adjacent edge of the other folder, and means permitting the retraction of said auxiliary folder as and by the inward movement of said other folder.

49. In a machine for folding collars and the like, a bed to receive a blank to be folded, a folder for infolding an edge of the blank, an auxiliary folder slidingly mounted in said folder and projecting therefrom in substantial alinement with the edge thereof, a spring normally maintaining said auxiliary folder projected, and means for moving the same inwardly in performing the folding operation.

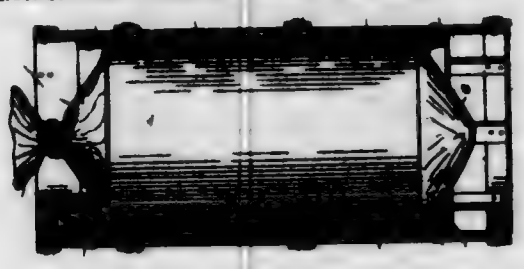
50. In a machine for folding collars and the like, a bed to receive a blank to be folded, opposite end folders, and an intermediate side edge-folder for folding respectively the two ends and intermediate longitudinal edge of the blank, mechanism for simultaneously moving inwardly said three folders for making a continuous folded edge on three sides of the blank, said three folders being in separated position before their inward movement and means for automatically preventing the material between said folders from being pinched or deformed by the latter as the said folders move simultaneously inwardly.

51. In a machine for folding collars and the like, a bed to receive a blank to be folded, a folder movable over said bed, a presser device secured to said folder, a cam mounted beneath said bed, a lever pivoted to the under side of said bed, and connected to said presser device, said lever having an arm operated by said cam, a second lever connected at one end to said folder for moving the same horizontally, and at its other end engaged by said cam.

52. In a machine for folding collars and the like, a bed to receive a blank to be folded, opposite edge-folders, a cam journaled in the machine beneath said bed, a presser device secured to each of said folders and passing beneath said bed, and similar levers pivoted to said presser devices and bed and passing in opposite directions about said cam to be actuated thereby.

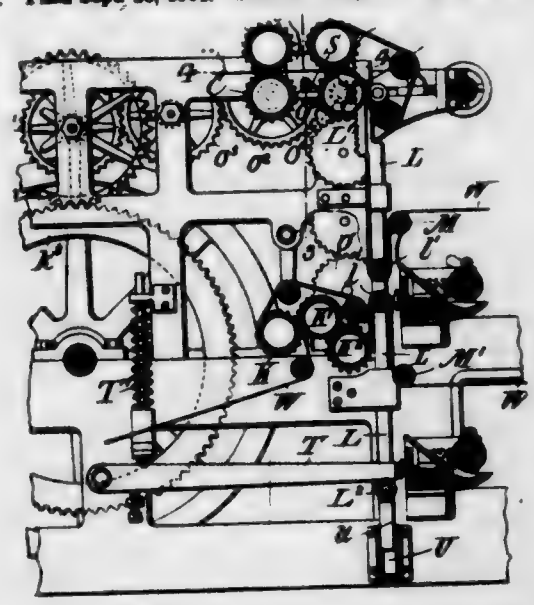
53. In a machine for folding collars and the like, a bed to receive a blank to be folded, opposite edge-folders, a cam journaled in the machine beneath said bed, a presser device secured to each of said folders and passing beneath said bed, similar levers pivoted to said presser devices and bed and passing in opposite directions about said cam to be actuated thereby, and other levers respectively pivoted at the front and rear sides of the machine and connected at their upper ends to said respective folders, and at their lower ends engaged by said cam for shifting the said folders for folding.

694,845. BANANA-CRATE. CHARLES A. DOUD, La Crosse, Wis. Filed Nov. 19, 1901. Serial No. 83,814. (No model.)



Claim.—A shipping-case for bananas consisting in the combination with the crate-frame having longitudinal slats and exterior hoops, of the heavy paper or pasteboard cylinder lining or body secured to said frame, the lower interior hoop having the bottom head of burlap or the like secured thereto for supporting the bananas, and the upper interior hoop having the top head of burlap or the like secured thereto for covering in the bananas, substantially as specified.

694,846. PRINTING-PRESS. ARTHUR E. DOWELL, Washington, D. C., assignor to the Duplex Printing Press Company, Battlecreek, Mich. Filed Sept. 30, 1901. Serial No. 75,842. (No model.)



Claim.—1. The combination of a continuously-operating web-forwarding roll, a web-looper, and mechanism for intermittently actuating the looper during a part of the revolution of said roll, said mechanism being adapted to move the looper at a predetermined speed always uniformly proportionate to the peripheral speed of said roll, substantially as described.

2. The combination of a web-actuating roll, means for changing the speed of the web-roll, a web-looper, a gear for operating said looper, and mechanism for causing the gear to intermittently move the looper, during a part of the revolution of the roll, at a predetermined speed proportionate to the peripheral speed of the said roll, substantially as described.

3. The combination of the web-feed roll driven at an uniform speed, means for changing the speed of said roll, a looping-frame, a gear for operating said looping-frame actuated from and driven uniformly with relation to said web-roll, and mechanism for causing the gear to move the frame during a predetermined part of the revolution of the web-roll, and at a rate of movement proportionate to the peripheral speed of the web-roll, substantially as described.

4. The combination of a continuously-driven web-roll, a gear actuated thereby, a looper-frame adapted to be intermittently moved by said gear, and an uniformly-driven cam and mechanism controlled by the cam for causing the gear to actuate the frame during a predetermined part of the revolution of the cam, substantially as described.

5. The combination of a web-feed roll and means for varying the speed thereof, a gear adapted to be driven uniformly with the feed-roll, a web-looping frame adapted to be intermittently operated by said gear, and an uniformly-operating cam and mechanism controlled by said cam adapted to cause the gear to actuate the frame during a predetermined part of the revolution of the cam, substantially as described.

6. The combination of an uniformly-driven and continuously-operating web-roll, a gear adapted to be driven uniformly with relation to said roll a looping-roller frame, and a bar thereon adapted to be actuated by said gear; with means for causing said gear to actuate said bar during some part of the revolution of the roll, substantially as described.

7. The combination of a continuously-driven web-roll, means for varying its speed, a gear on the shaft thereof; and a looping-frame adapted to be operated one way by said gear; with a continuously and uniformly driven cam, and mechanism, controlled by said cam, whereby said gear is caused to move the looping-frame during a predetermined part of the revolution of the cam, substantially as described.

8. The combination of a web-feed roll, a gear operated therewith, a looping-roller, a reciprocating frame carrying said roller, and a bar attached to said frame and engaging said gear; with means for causing said gear to intermittently operate the bar, and means for returning said frame to its original position when permitted by the gear, substantially as described.

9. The combination of the changeable-speed web-rolls, a gear adapted to be operated intermittently and uniformly with the rolls, and a loop-

ing-frame adapted to be operated by said gear; with a cam, and mechanism operated thereby, whereby said gear is caused to actuate the looping-frame, during a part of the revolution of the cam, and irrespective of the speed of the feed-rolls, substantially as and for the purpose described.

10. The combination of a changeable-speed web-feeding roll, a gear operated therefrom, an uniformly-driven cam, a looping-frame adapted to be intermittently operated by said gear, and means controlled by said cam whereby the gear is caused to actuate the frame during part of the revolution of the cam, substantially as described.

11. The combination of continuously and synchronously driven web feed and delivery rolls, a gear on one roll-shaft, a pair of uniformly-driven cutting-cylinders, a cam on one cylinder-shaft, a frame carrying web-looping rollers, and an arm on said frame adapted to engage said gear; with mechanism controlled by the said cam, adapted to cause the gear to operate the frame during a predetermined part of the revolution of the cutting-cylinders, and means for varying the speed of the feed-rolls, substantially as described.

12. The combination of a continuously-operating web-feed roll, a gear actuated thereby and adapted to be driven uniformly therewith, a frame carrying a looping-roller, a bar connected to said frame and engaging said gear, and means for causing said gear to intermittently operate the bar, substantially as described.

13. The combination of a web-feeding roll, a loose gear on the shaft thereof, a frame carrying a web-looper, adapted to be operated by said gear, and means for causing said gear to rotate with the roll, substantially as described.

14. The combination of a web-feeding roll, a gear on the shaft thereof, a frame carrying a looping-roller, a rack-bar connected to said frame and meshing with said gear, and means for intermittently locking said gear to the roll, substantially as described.

15. The combination of a changeable-speed web-roll, a gear on the shaft thereof, a cam, and means controlled by the cam for locking said gear to the roll during some part of the revolution of the cam; with a looping-roller, a reciprocating frame guiding said roller, and a rack-bar attached to said frame engaging said gear, substantially as described.

16. The combination of a web-roll, a gear on the shaft thereof, means for locking said gear to said roll during some part of the revolution thereof, a looping-frame, and a bar attached to said frame engaging said gear; with means for returning said frame to its original position when the gear is released from the roll, substantially as described.

17. The combination of a changeable-speed web-feeding roll, a gear on the shaft thereof, an uniformly-rotated cam, means controlled by the cam for locking said gear to the roll during some part of the revolution thereof, a looping-roller, a reciprocating frame guiding said roller, and a rack-bar attached to said frame and meshing with said gear; and means for returning said frame to its original when the gear is released from the roll, substantially as described.

18. The combination of continuously and synchronously rotating web-feeding rolls; a gear on one roll-shaft, uniformly-rotating cutting-cylinders, a cam on the shaft of one cutting-cylinder, a looping-frame adapted to be operated by the gear on the roll-shaft, and mechanism controlled by the cam on the cutting-cylinder shaft, for causing said gear to actuate said frame during a predetermined part of the revolution of the cutting-cylinders, substantially as described.

19. The combination of the continuously-driven web-roll, means for varying the speed thereof, and a gear on the shaft thereof; a continuously and uniformly driven cutting-cylinder, a cam on the shaft thereof, and a looping-frame having a bar adapted to engage said gear; with mechanism, controlled by said cam, whereby said gear and bar are caused to move the looping-frame during a predetermined part of the revolution of the cutting-cylinder, substantially as described.

20. The combination of the continuously and synchronously driven feed-rolls, a gear on one roll-shaft, means for varying the speed of said rolls; continuously and uniformly driven cutting-cylinders, and a cam on one cylinder-shaft; with a looping-frame, a bar thereon adapted to engage said gear, and mechanism substantially as described controlled by said cam, whereby said gear and arm intermittently move the looping-frame during a predetermined part of the revolution of the cutting-cylinders, irrespective of the speed of the feed-rolls, substantially as described.

21. The combination of the changeable-speed web-rolls, a loose gear on the shaft of one of the rolls, a clutch for locking said gear to said roll, a lever for operating said clutch, and an uniformly-rotating cam for operating said clutch-lever; with a looping-frame, a bar attached thereto engaging said gear, and means for returning said looping-frame to normal position when said gear is released from the roll, substantially as described.

22. The combination of the web-rolls, the cutting-cylinders, a gear on one web-roll shaft, a clutch for locking said gear to said roll, a lever for operating said clutch; and a cam on one cutting-roll shaft for operating said lever; with a looping-frame adapted to be operated by said gear, and means for returning said looping-frame to normal position when said gear is released from the roll, substantially as described.

23. The combination of variable-speed web-rolls, and uniformly-driven cutting-cylinders, a gear on the shaft of one of the web-rolls, a clutch for locking said gear to said roll, a lever for operating said clutch, and a cam on one cutting-roll shaft for operating said lever; with a looping-frame and a bar attached thereto meshing with said gear, and means for returning said looping-frame to normal position when said gear is released from the roll, substantially as described.

24. The combination of the synchronously-driven web feed and delivery rolls, means for varying the speed of said rolls, the uniformly-driven cutting-cylinders, a gear on the shaft of one of the delivery-rolls, a clutch for locking said gear to said roll, a lever for operating said clutch, and a cam, on one cutting-roll shaft, for operating said lever; with a looping-frame, a rack-bar attached thereto and meshing with said gear, and means for returning said looping-frame to normal position when said gear is released from the roll, substantially as described.

25. The combination of a web-feed roll and means for varying the speed thereof, a gear adapted to be driven uniformly with the feed-roll, a web-looping frame adapted to be intermittently operated by said gear, and mechanism adapted to cause the gear to actuate the frame during a predetermined part of the revolution of the feed-roll, substantially as described.

26. The combination of a continuously-driven web-roll, means for varying its speed, a gear adapted to be operated therewith; and a looping-frame adapted to be operated one way by said gear; with a cam, and mechanism, controlled by said cam, whereby said gear is caused to move the looping-frame during a predetermined part of the revolution of the cam, substantially as described.

27. The combination of continuously-driven web feed and delivery rolls, a gear adapted to be operated therewith, a pair of cutting-cylinders, a cam, and a frame carrying a web-looping roller and adapted to engage said gear; with mechanism controlled by the said cam, adapted to cause the gear to operate the frame during a predetermined part of the revolution of the cutting-cylinders, substantially as described.

28. The combination of a changeable-speed web-feeding roll, a gear driven therefrom, a cam, means controlled by the cam for driving said gear from the roll during some part of the revolution thereof, a looping-roller, a reciprocating frame guiding said roller, adapted to be operated by said gear; and means for returning said frame to its original position when the gear is released from the roll, substantially as described.

29. The combination of continuously and synchronously rotating web-feeding rolls; a gear driven from said rolls, uniformly-rotating cutting-cylinders, a cam, a looping-frame adapted to be operated by said gear, and mechanism controlled by the cam for causing said gear to actuate said frame during a predetermined part of the revolution of the cutting-cylinders, substantially as described.

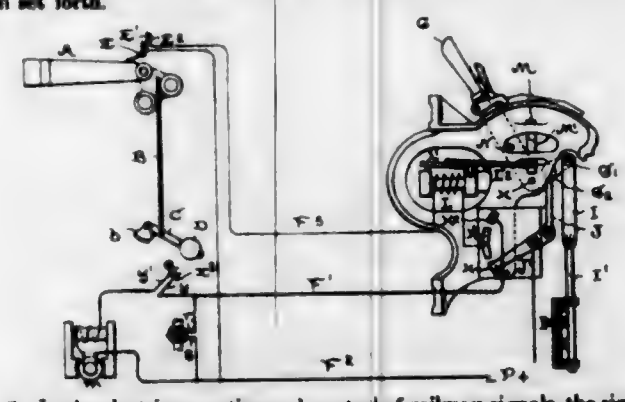
30. The combination of the continuously-driven web-roll, means for varying the speed thereof, and a gear adapted to be driven therewith, continuously-operating cutting-cylinders, a cam, and a looping-frame adapted to be operated by said gear; with mechanism, controlled by said cam, whereby said gear is caused to move the looping-frame during a predetermined part of the revolution of the cutting-cylinders, substantially as described.

31. The combination of the continuously-driven feed-rolls, a gear adapted to be driven therewith, means for varying the speed of said rolls, and continuously-driven cutting-cylinders; with a looping-frame adapted to be operated by said gear, and mechanism substantially as described, whereby said gear is caused to intermittently move the looping-frame during a predetermined part of the revolution of the cutting-cylinders, irrespective of the speed of the feed-rolls, substantially as described.

694,847. ELECTRICAL OPERATION AND CONTROL OF RAILWAY-SWITCHES. THÉOPHILE DUCOMMUN and FERDINAND RODART, Paris, France. Filed Apr. 1, 1901. Serial No. 53,920. (No model.)

Claim.—1. In the electrical operation and control of railway-signals, the combination of a signal-actuating mechanism comprising a signal and signal-operating rods counterweighted to return to "danger" position, a switch opened by the said signal when in "line clear" position, a reversible train of wheels connected to the signals, a motor for actuating the signals, an intermediate cut-out switch for the motor actuated by the reversible train of wheels, a non-reversible train of wheels connected to said motor, a magnetic clutch disposed between the reversible and non-reversible train of wheels a one-direction mechanical clutch between the magnetic clutch and the reversible train of wheels, mechanism for controlling the actuating mechanism comprising a hand-operated lever, a locking-bolt for said lever, an electromagnet for operating said bolt, a controlling switch-arm and three contacts actuated by said hand operating-lever, electric transmission-circuits between the controlling and the actu-

nating mechanism comprising a circuit from one contact of said controlling-switch through the bolt-actuating magnet to the switch opened by the signal when in "line clear" position, a circuit from said controlling-switch to the motor through the intermediate switch, a shunt-circuit across the motor-circuit for the magnetic clutch in the signal-actuating mechanism all adapted for use and operation substantially as and for the purposes herein set forth.



2. In the electric operation and control of railway-signals, the signal-actuating mechanism comprising a reversible train of wheels connected to the signals, a motor for actuating said train of wheels to set the signals to "line clear" position, a non-reversible train of wheels connected to said motor, a magnetic clutch disposed between the reversible and non-reversible train of wheels, a one-direction mechanical clutch between the magnetic clutch and the reversible train of wheels and arranged to prevent the backward movement of the reversible train of wheels to set the signals to "line clear" position when the magnetic clutch is out of action, said mechanical clutch allowing the signal to return to "danger" position but preventing the same being moved to "line clear" except by the motor, all substantially as and for the purposes set forth.

3. In the electric operation and control of railway-signals the actuating mechanism comprising an electric motor, a worm-gear so constructed as to only transmit power from the motor, an electromagnetic part of a magnetic clutch rotated by said worm-gear, an armature for said clutch, a ratchet-and-pawl gear between the clutch and its armature, a reversible train of wheels connected to the armature of the magnetic clutch a sector *b* driven by said reversible train of wheels, and connected with the signal-stops *c d* for said sector, a pair of spring-pressed levers *t x'* pivoted to the frame and to one another and forming with contacts *y y'* a switch controlling the electric circuit for operating the motor, a stop x^3 on the lever *x'* and a stop b^3 and nose *b'* on the said quadrant all adapted to operate substantially as and for the purposes set forth.

4. In an electrically operated and controlled railway-signal, the combination with the motor-driven actuating mechanism, of a controlling mechanism comprising a hand-lever controlled by an interlocking frame, a locking-bolt for said lever, an electric switch actuated by the hand-lever, an electromagnet for operating the hand-lever-locking bolt and arranged in a circuit controlled by the hand-lever switch and a switch actuated by the signal, and means carried by the hand-lever arranged to be engaged by the bolt when the hand-lever is shifted to set the signal to "danger" position and prevent the hand-lever from breaking the circuit at the hand-lever switch until the signal has been completely set to "danger" position, substantially as described.

694,848. SCREW-DRIVER. THOMAS A. FARRELL, Chicago, Ill. Filed Nov. 25, 1901. Serial No. 83,547. (No model.)



Claim.—1. A screw-driver comprising a non-expansible holding-frame having a cross-head provided with a screw-receiving opening, a sleeve attached to the frame and having non-slidable relation thereto, a spindle fitted loosely in the sleeve and adapted to slide and rotate with relation to the sleeve and the frame, and means for locking the sleeve and the spindle in fixed relation.

2. In a screw-driver, a holding-frame having the side members and the cross-head connecting said members, said cross-head provided with a screw-receiving opening which extends through one edge of the frame, combined with a spindle, and means for holding the spindle and the frame in fixed relation to each other.

3. In a screw-driver, the combination of a sleeve, a spindle fitted loosely in said sleeve, a non-expansible holding-frame having the side members and a notched cross-head, said side members being pivoted to the sleeve and the holding-frame thereby adapted to swing laterally to an operative position relative to the spindle, and means for locking the sleeve and the spindle in fast relation to each other.

4. In a screw-driver, the combination of a slotted sleeve, a non-expansible holding-frame connected thereto and provided with a notched cross-head, a spindle provided with a series of transverse teeth, and a toothed locking-block pivoted on the sleeve and adjustable into and from interlocking relation with the toothed portion of the spindle; said locking-block being movable on an axis which is disposed longitudinally of and parallel with the spindle.

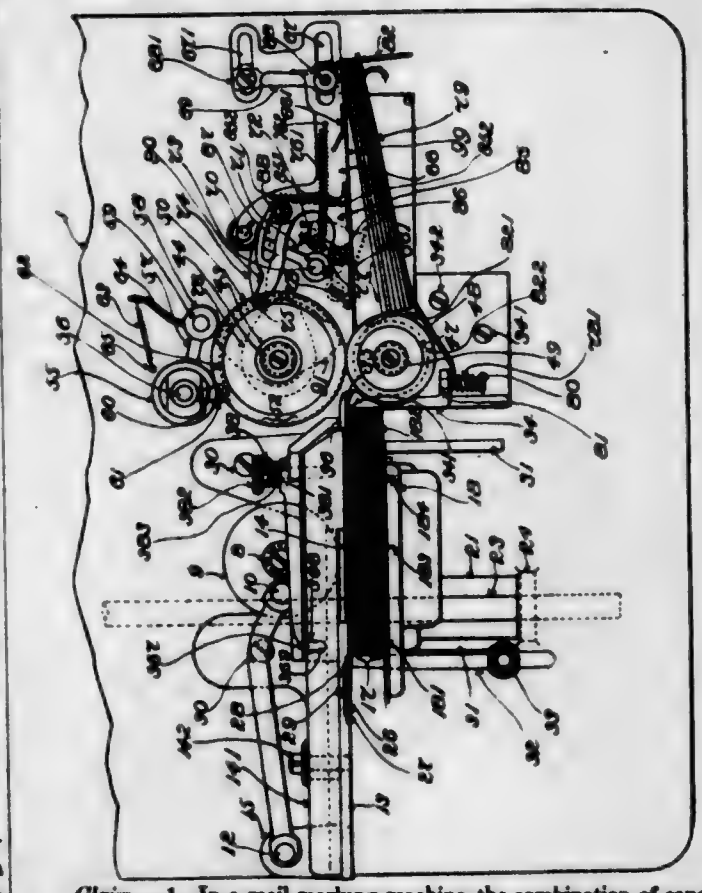
694,849. BADGE OR BUTTON. JACOB FRANK, Toledo, Ohio. Filed June 20, 1901. Serial No. 65,318. (No model.)



Claim.—1. A badge or button comprising a body, a flat shank rigid on the body and having two elongated apertures, and a resilient loop-shaped fastener formed in one piece and having legs provided at an intermediate point of their length with inward deflections *f*, and also provided with the outwardly and inwardly curved portions *g*; one of the said legs being longer than the other, substantially as specified.

2. A badge or button comprising a body provided with a pin and a keeper therefor, a flat shank rigid on and disposed at right angles to the body and having two elongated apertures arranged parallel to said body, and a resilient loop-shaped fastener formed in one piece, and having legs provided at an intermediate point of their length with inward deflections *f*, and also provided with the outwardly and inwardly curved portions *g*; one of the said legs being longer than the other, substantially as specified.

694,850. MAIL-MARKING MACHINE. JOSEPH FRENCH, Woonsocket, R. I. Filed Feb. 16, 1900. Serial No. 5,410. (No model.)



Claim.—1. In a mail-marking machine, the combination of canceling mechanism receiving and canceling the mail piece by piece, a pusher to stack the canceled pieces, a retainer working in a plane at right angles to the face of the stack, and means for causing said retainer to act against the face of the receiving-stack during the retraction of the pusher and to retire therefrom after the following piece of canceled mail has overlapped the stack, substantially as described.

2. In a mail-marking machine, the combination of a rotary canceling-cylinder and coöperating roller receiving and canceling the mail piece by piece, a reciprocating pusher means coöperating with the roller to remove the canceled piece transversely out of line with the delivery of the canceling mechanism into a receiving-stack with the mail previously canceled, a retainer working in the same direction as said pusher, and means for causing said retainer to act against the face of the receiving-stack during the retraction of the pusher and to retire therefrom after the follow-

ing piece of canceled mail has overlapped the stack, substantially as described.

3. In a mail-marking machine, the combination of a rotary canceling-cylinder and coöperating roller receiving and canceling the mail piece by piece, a reciprocating pusher coöperating with the roller to remove the canceled piece out of line with the delivery of the canceling mechanism into a receiving-stack with the mail previously canceled, and a reciprocating retainer carried on the pusher, advancing therewith, remaining advanced against the receiving-stack during the retraction of the pusher, and retiring after the following piece of canceled mail has overlapped the stack, substantially as described.

4. In a mail-marking machine, the combination of a rotary canceling-cylinder and coöperating roller receiving and canceling the mail piece by piece, a pusher and means to operate the same to place the rear edges of the successive pieces of mail in contact with the said coöperating roller, whereby such roller is caused to move said edges transversely out of the way of following pieces of mail, and stacking means for receiving the canceled mail and stacking it, substantially as described.

5. In a mail-marking machine, the combination of a rotary canceling-cylinder and coöperating roller receiving and canceling the mail piece by piece, a pusher at the delivery side of said cylinder and roller mounted to move transversely with relation to the latter, and means to actuate the said pusher to press the rear edge of the advancing piece of mail transversely into contact with the surface of the roller, whereby the roller is caused to complete the lateral shift of the rear portion of said piece of mail, substantially as described.

6. In a mail-marking machine, the combination of a rotary canceling-cylinder and coöperating roller receiving and canceling the mail piece by piece, the canceling-cylinder consisting of separated upper and lower parts, cams interposed between the said parts and rotating therewith, and stacking means for receiving the canceled mail and stacking it, operated through connections with the said cams, substantially as described.

7. In a mail-marking machine, the combination of a rotary canceling-cylinder and coöperating roller receiving and canceling the mail piece by piece, the canceling-cylinder consisting of separated upper and lower parts, cams interposed between the said parts and rotating therewith, a pusher reciprocated through connections with one of the said cams to stack the canceled pieces, and a retainer reciprocated through connections with another of the said cams to advance with the pusher, to remain advanced against the receiving-stack during the retraction of the same, and to retire after the following piece of canceled mail has overlapped the stack, substantially as described.

8. In a mail-marking machine, the combination of a feed-slide against which one face of the supply-stack rests, a yielding follower exerting pressure upon the other face of the stack, a side plate forming one side of a throat through which the pieces in the stack are successively fed, a throat-plate forming the other side of the said throat, means to hold the said throat-plate in place with yielding force, and an adjusting-screw to determine the normal position of the throat-plate substantially as described.

9. In a mail-marking machine, the combination of a feed-slide against which one face of the supply-stack rests, a yielding follower exerting pressure upon the other face of the said supply-stack, a throat-plate having the rear end thereof extended and mounted by a swiveling joint, the set-screws 38, 38, coöperating with the said throat-plate, and the spring for holding the throat-plate in normal working position, substantially as described.

10. In a mail-marking machine, the combination of a feed-slide against which one face of the supply-stack rests, a yielding follower exerting pressure upon the other face of the stack, a side plate forming one side of a throat through which the pieces in the stack are successively fed, a yielding throat-plate forming the other side of the said throat, and against which the advance end of the stack rests, and a yielding plate on the follower pressing against the same end of the stack and compressing said end against the said yielding throat-plate, substantially as described.

11. In a mail-marking machine, the combination of a feed-slide against which one face of the supply-stack rests, a yielding follower exerting pressure upon the other face of the stack, a side plate forming one side of a throat through which the pieces in the stack are successively fed, a yielding throat-plate forming the other side of the said throat, and against which the advance end of the stack rests, and a plate on the follower pressing against the same end of the stack and spring-held in an intermediate position so as to yield or advance automatically, substantially as described.

12. In a mail-marking machine, the combination of a feed-slide against which one face of the supply-stack rests, a yielding follower exerting pressure upon the other face of the stack, a fixed and rigid side plate forming one side of a throat through which the pieces in the stack are to be successively fed and beveled substantially as described adjacent to the throat, and a yielding throat-plate forming the other side of the throat, substantially as described.

13. In a mail-marking machine, the combination of a backing-plate, a feed-slide reciprocating in ways thereon and against which one face of the supply-stack rests, a yielding follower exerting pressure upon the other face of the stack, a side plate forming one side of a throat through which the pieces in the stack are successively fed, and a yielding throat-plate forming the other side of the said throat and supported on the backing-plate on a universal pivot-pin projecting into a recess in the backing-plate and taking bearing only at the bottom of the recess, substantially as described.

14. In a mail-marking machine, the combination of a backing-plate, a feed-slide reciprocating in ways thereon and against which one face of the supply-stack rests, a yielding follower exerting pressure upon the other face of the stack, a side plate forming one side of a throat through which the pieces in the stack are successively fed, and a yielding throat-plate forming the other side of the said throat and supported on the backing-plate on a rear pivot and two forward contact-points whereby either the upper or lower portions of the throat-plate may yield independently, substantially as described.

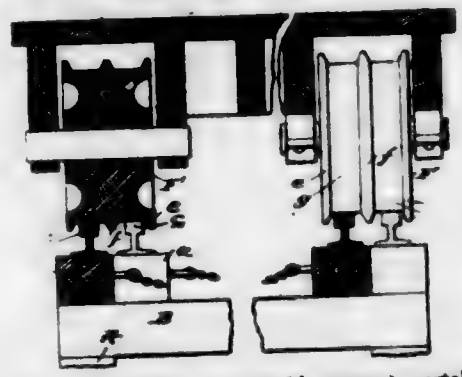
15. In a mail-marking machine, the combination of canceling mechanism receiving and canceling the mail piece by piece, a reciprocating pusher to receive and stack the canceled pieces, a yielding plate compressing the stack only at the end thereof unoccupied by the postmarks previously affixed, and a retainer operating against the face of the stack during the retraction of the pusher to prevent an abnormal degree of spreading of the stack and retiring therefrom after the following piece of canceled mail has overlapped the stack, substantially as described.

16. In combination, the feeder to advance a card or the like edgewise, a side plate, a throat-piece having between the same and the said side plate a throat for the passage of the said card or the like, and means to adjust said throat-piece to vary the width of said throat and in addition to enable the width of said throat at the top and bottom thereof, respectively to be regulated independently, substantially as described.

17. In combination, the feeder, the side plate, the end plate, the throat-piece having a rounded bearing on which it is adapted to rock in different planes, and means to adjust the said throat-piece to vary the width of the throat, substantially as described.

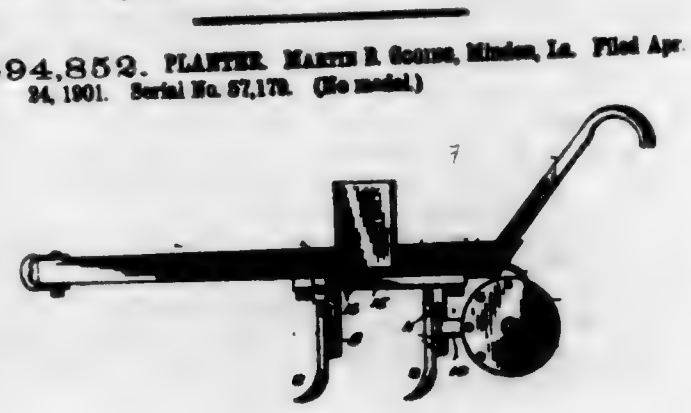
18. In combination the feeder, the side plate, the end plate, the throat-piece having a rounded bearing on which it is adapted to rock in different planes, and a spring tending to hold said throat-piece to its normal position, substantially as described.

694,851. PORTABLE TRAMWAY. JOHN H. GARDNER, New Orleans, La. Filed Oct. 23, 1901. Serial No. 80,268. (No model.)



Claim.—The combination of a suitable support, portable track-sections each of which comprises two parallel rails permanently connected together; the rails of the sections being arranged a common distance apart, and the said sections being arranged on the support with the end of one rail of one section disposed at the inner side of the corresponding rail of the other section, and the end of the other rail of the first-mentioned section arranged at the outer side of the remaining rail of the second-mentioned section, and a car, the treads of which are arranged to engage and travel on the parallel lapped rails of the sections.

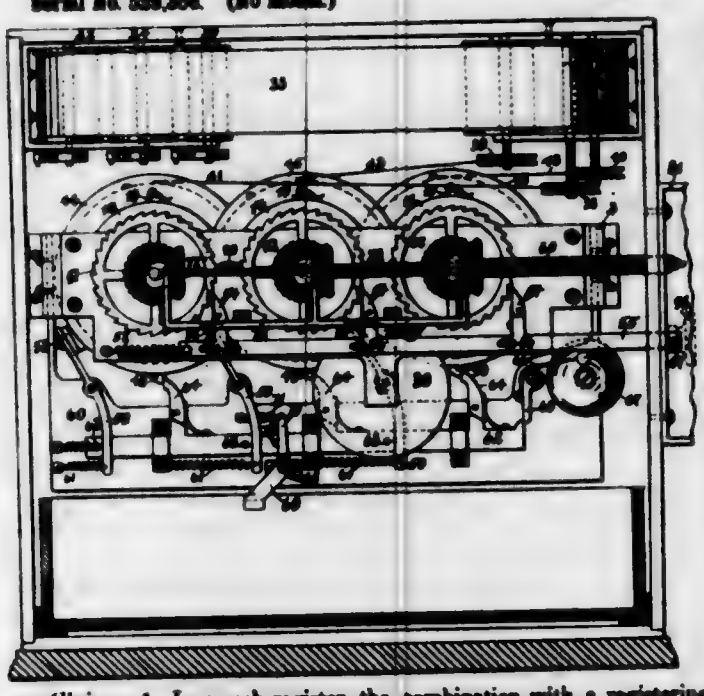
694,852. PLANTER. MARTIN R. GOUGE, Minden, La. Filed Apr. 24, 1901. Serial No. 57,179. (No model.)



Claim.—1. The combination with a plow-beam, of a plate having suitable perforated lugs in which plow-standards carrying points are secured, hollow strengthening-ribs depending from said plate back of said lugs, a disk adjustably secured to one side of the strengthening-ribs, lugs or projections on the face of said disk, of a seedbox having a perforated seed-slide, a rearward extension secured to said seed-slide and extended in the path of the lugs on the face of said disk, and means for holding the seed-slide normally within the seedbox.

2. The combination with a plow-beam, of a plate having suitable perforations in which plow-standards carrying points are secured, a disk adjustably secured to one side of the plow-points, lugs or projections on the face of said disk, of a seedbox having a perforated seed-slide, a rearward extension secured to said slide and extended in the path of the lugs on the face of said disk, and means for holding the seed-slide normally within the seedbox.

694,858. **CASH-REGISTER.** GEORGE H. GUMP, New York, N. Y., assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed Nov. 20, 1894. Serial No. 529,356. (No model.)



Claim.—1. In a cash-register, the combination with a registering mechanism, of a pulley loose upon the operating-shaft of the same, means connecting said pulley and shaft so as to leave said pulley free to turn independently in one direction but cause it to turn with the shaft in an opposite direction, an indicator consisting of a graduated tape rolled upon a suitable roller, a winding-roller connected to said tape, and means connecting the pulley and winding-roller.

2. In a cash-register, the combination with the registering mechanism, of a pulley sleeved upon the operating-shaft thereof, means for rotating it when the shaft moves in one direction, means for retaining it in the position to which it is moved, an indicator automatically returnable to zero, and connected to said pulley, and means for releasing the pulley and allowing the indicator to return to zero.

3. In a cash-register, the combination with the register mechanism, of a pulley sleeved upon the operating-shaft thereof, an arm secured to said shaft, a loose connection between said arm and pulley, a detent engaging said pulley, a releasing device for the detent operated by said arm, and an indicator automatically returnable to zero connected to said pulley.

4. In a cash-register, the combination with the register mechanism, of pulleys each idle upon the operating-shafts of said mechanism, means for rotating them with said shafts, detents acting upon said pulleys, means connected with each of said shafts for releasing said detents, and an indicator connected to and operated by said pulleys.

5. In a cash-register, the combination with the registering mechanism, of an indicator operable from pulleys upon the actuating-shafts of said mechanism, detents controlling the movement of said pulleys, a releasing device for said detents operable from said shafts, and a drawer-lock and a bell operable by said releasing device.

6. In a cash-register, the combination with the registering mechanism, of an indicator consisting of graduated tapes rolled upon spring-rollers and connected at their free ends to idle rollers, pulleys mounted upon actuating-shafts of the registering mechanism, connections between said idle rollers and pulleys for extending the tapes, restraining mechanism for holding the tapes extended, and releasing devices therefor automatically operated at each operation of the registering mechanism.

7. In a cash-register, the combination with the registering mechanism, of pulleys loose upon the actuating-shafts thereof, connections between said shafts and pulleys for moving them in one direction, spring-rollers carrying graduated indicating-tapes, idle rollers to which the free ends of said tapes are attached, connections between the idle rollers and said pulleys, detents for holding said pulleys against rotation by the spring-rollers, and means for releasing said detents at the operation of the registering mechanism.

8. In a cash-register, the combination with the registering mechanism, of an indicator, rotary shafts operating the indicator by their forward rotation and the registering mechanism on the return retention devices for said shafts, type-wheels geared to said shafts and operated simultaneously with the indicator, a movable platen on which lies the paper to be printed, means for reciprocating the platen and discharging the paper when printed, and a releasing device operated by the printing mechanism for releasing said rotary shafts.

9. In a cash-register, the combination with the registering mechanism, of type-wheels connected to the same, a paper-supply, a platen over which the paper passes, a shaft carrying a cam which engages said platen for reciprocating it and paper-feeding cams also mounted on said shaft so that their peripheries will engage and feed the paper over said platen.

10. In a cash-register, the combination with the registering mechanism, of type-wheels geared to the actuating-shafts thereof, a reciprocated platen over which the paper passes, feeding-wheels spring-mounted at either side of the type-wheels, and a shaft carrying cams coöperating with said feeding-wheels to feed the paper after the reciprocation of the platen.

11. In a cash-register, the combination with the registering mechanism, of type-wheels geared to the actuating-shafts thereof, a reciprocating platen over which the paper passes, a spring-plate spanning the type-wheels, feeding-wheels journaled in said plate at the sides of the type-wheels, a cam for actuating the platen, the feeding-cams mounted at the sides of the platen-actuating cam and upon the shaft thereof for coöperating with the feeding-wheels to feed the paper as soon as the platen recedes.

12. In a cash-register, the combination with printing-types, of actuating devices for the same arranged to automatically return to normal position when released, a platen, independent actuating devices carrying a cam for operating said platen, means for holding the actuating devices in the positions to which they are moved, and means operated by the independent actuating devices for releasing said holding means.

694,854. **TACK OR NAIL PULLER.** EDWARD HANNER, Ridgway, Pa., assignor of two-fifths to George W. Hanner, Ridgway, Pa. Filed July 12, 1901. Serial No. 68,009. (No model.)

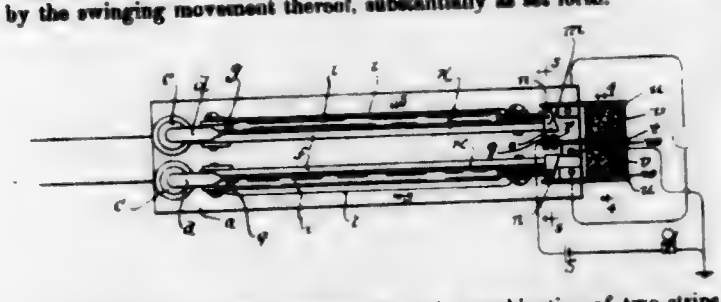


Claim.—1. A tack-puller, comprising a box-frame, a handle thereon, antifriction-bearings held in the box-frame, a head-block rockably held in the box-frame and supported on the antifriction-bearings, a claw-foot extended forwardly and downwardly from the head-block, and a lever projected from the head-block.

2. A tack-puller, comprising a box-frame, an upwardly and laterally bent handle extended from one end of said box-frame, which frame is open at the opposite end, two spaced antifriction-bearings in the box-frame, a circularly-edged head-block seated upon the antifriction-bearings, diagonal slots in the box-frame, trunnions on the head-block engaging said slots, and a lever extended from the head-block through a slot in the upper side of the box-frame.

694,855. **ELECTRIC PROTECTIVE DEVICE.** WILLIS P. HARDY, Ottumwa, Iowa. Filed May 4, 1900. Serial No. 15,462. (No model.)

Claim.—1. In a device of the class specified, the combination of two strips possessing substantially the same coefficient of expansion, the said strips being mechanically united so as to form a single rigid structure, and held at one end so that the said rigid structure formed by the strips can swing about said end, of a heating device arranged to subject one of said strips to heat due to an excess current, and a circuit-controlling device arranged at the free end of said rigid structure and adapted to be actuated by the swinging movement thereof, substantially as set forth.



2. In a device of the class specified, the combination of two strips possessing substantially the same coefficient of expansion, the said strips being mechanically united so as to form a single rigid structure, and being secured at one end, a heating device for heating one of said strips upon the passage of an excess current, and a circuit-opening device arranged at the free end of said strips and adapted to be actuated by the swinging movement of the rigid structure formed thereby, substantially as set forth.

3. In a device of the class specified, the combination of two strips possessing substantially the same coefficient of expansion, the said strips being mechanically united so as to form a single rigid structure, and being secured at one end, a heating device for heating one of said strips upon the passage of an excess current, a circuit-opening device arranged at the free end of said strips and adapted to be actuated by the swinging movement of the rigid structure, and a device for grounding the circuit, the said device being operable by the said rigid structure upon the operation of the circuit-opening device, substantially as set forth.

4. In a device of the class specified, the combination of two strips possessing substantially the same coefficient of expansion, the said strips being mechanically united so as to form a single rigid structure and being secured at one end, a heating device for heating one of said strips upon the passage of an excess current, a circuit-opening device arranged at the free end of said strips and adapted to be actuated by the swinging movement of the rigid structure, and a device for grounding the circuit, the said device being operable by the said rigid structure upon the operation of the circuit-opening device, the operation of the grounding device being begun before the completion of the operation of the circuit-opening device, whereby the circuit is grounded before being completely opened.

5. In a device of the class described, the combination with two strips *f* and *g* possessing substantially the same coefficient of expansion, of a heating-coil carried by one of the said strips, a wrapper surrounding the strip and holding the heating-coil in place, said strips being mechanically united at their ends and free from mechanical engagement between the ends, said strips being anchored at one end and free to move at the opposite end, and circuit-changing means at the free end of the strips, substantially as described.

6. In a device of the class specified, the combination of two strips having substantially the same coefficient of expansion, the said strips being mechanically united so as to form a single rigid structure and being secured at one end so as to cause a swinging movement of the strips about such end when one of the same is expanded, a heating device for subjecting one of said strips to heat due to excess current, contacts arranged at the free end of said rigid structure, and a contact-post adapted to make connection with said contacts on the structure, the latter being arranged to normally make connection between its contacts and the post and to separate said contacts when one of said strips is heated by the heating device, substantially as described.

7. In a device of the class specified, the combination with a pair of strips having substantially the same coefficient of expansion, the said strips being mechanically united so as to form a single rigid structure and being held at one end so that the expansion of one of the strips will cause a swinging movement of the structure about that end, a coil of wire arranged to heat one of said strips upon the passage of an unduly large current, a contact-strip carried at the free end of said rigid structure, contact-posts arranged at the opposite sides of said contact-strip, one of said posts being connected in circuit and the other having a ground connection, and being arranged so that the contact of the rigid structure normally makes connection with the circuit-contact post and separates therefrom, and makes contact with the ground-contact post upon the heating of the coil of fine wire by the unduly large current in the circuit, substantially as described.

694,856. SASH-FASTENER. ADAM C. HENDRICKS, Waynesboro, Pa. Filed May 24, 1901. Serial No. 61,750. (No model.)

Claim.—1. In a sash-fastening, the combination with a stationary vertical rod arranged in proximity to the sash, of a casing secured to the sash, a cam carried by the casing and having a face vertically inclined relatively to said rod, a lever pivoted to said casing, a roller loosely carried by one end of said lever and movably disposed between the inclined face of the cam and said rod, and means arranged to normally hold said lever in position to thrust the roller between the inclined face of the cam and the rod, substantially as described.



2. In a sash-fastening, the combination with a stationary vertical rod arranged in proximity to the sash, of a casing secured to the sash, a fixed cam in the casing having a face vertically inclined relatively to the rod, a lever pivoted to said casing, a roller loosely carried by one end of said lever and movably disposed between the inclined face of the cam and said rod, a spring for turning said lever on its pivot in a direction to thrust the roller between the inclined face of the cam and the rod, and means connected with the lever for turning the latter in a direction to move the roller out of contact with the inclined face of the cam and the rod, substantially as described.

3. In a sash-fastening, the combination with a stationary vertical rod arranged in proximity to the sash, of a casing secured to the sash and arranged to freely move on the rod which loosely passes through it, a fixed cam in the casing having a face vertically inclined relatively to the rod, a lever pivoted to said casing and provided at one end with a thumb-piece projecting beyond the casing, a roller loosely carried by the opposite end of the lever and movably disposed between the inclined face of the cam and the rod, and a spring for turning said lever on its pivot in a direction to thrust the roller between the inclined face of the cam and the rod, substantially as described.

4. In a sash-fastening, the combination with a stationary vertical rod arranged in proximity to the sash, of a casing secured to the sash, a fixed cam in the casing having a face vertically inclined relatively to the rod, a lever pivoted to said casing and provided at one end with a thumb-piece projecting beyond the casing, a roller loosely carried by the opposite end of the lever and movably disposed between the inclined face of the cam and the rod, and a bent spring bearing at one end against a support movable with the casing and at its other end seated in a notch formed in the edge of the projecting end of the lever and operating to thrust the roller between the inclined face of the cam and the rod, substantially as described.

5. In a sash-fastening, the combination with a stationary vertical rod arranged in proximity to the sash, of a casing secured to the sash, a fixed cam in the casing having a face vertically inclined relatively to the rod, said casing being arranged to freely move on the rod which passes loosely through it, a lever pivoted to the casing and provided at one end with two lugs, and a roller loosely disposed between said lugs and between the inclined face of the cam and the rod, substantially as described.

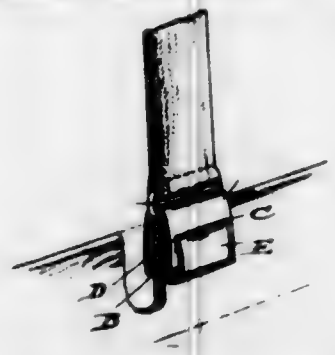
6. In a sash-fastening, the combination with a vertical stationary rod arranged in proximity to the sash, of a casing secured to the sash and provided near one edge with a socketed boss and near its other edge with a cam having a face vertically inclined relatively to the rod, said casing being arranged to freely move on the rod which passes loosely through it, a lever provided intermediate its ends with a pivot-pin journaled in the boss and provided at its inner end with two lugs, and a roller loosely disposed between said lugs and between the inclined face of the cam and the rod, substantially as described.

7. In a sash-fastening, the combination with a vertical stationary rod arranged in proximity to the sash, of a casing secured to the sash, two fixed cams in the casing arranged one above the other and having faces reversely inclined relatively to the rod, two levers pivoted intermediate their ends to the casing and each terminating at one end in a thumb-piece projecting without the casing, a bent spring fitted between the projecting ends of the levers and operating to thrust them apart, and rollers loosely carried by the other ends of the levers and disposed between the inclined faces of the cams and the rod, substantially as described.

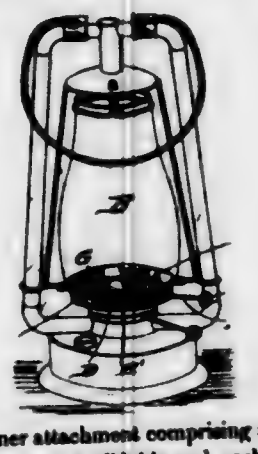
694,857. SUSPENDER-FASTENER. AUGUSTUS S. HENSHAW, Brooklyn, N. Y. Filed Feb. 5, 1901. Serial No. 46,031. (No model.)

Claim.—As an improved article of manufacture, a suspender-fastener

consisting of a metallic plate bent centrally upon itself, one edge of the plate being turned inwardly and serrated or toothed, the opposing member of the plate being slotted transversely and provided with inwardly-projecting integral perforated lugs or ears at the ends of the slot, the angular clamping member having integral trunnions or pivots which fit in the perforated ears or lugs, the outer portion of said angular clamping member being adapted to be turned down upon the side of the main plate, and the loop by means of which the fastener is connected to the end of the suspender, substantially as shown and described.



694,858. LAMP-BURNER ATTACHMENT. HOWARD L. HILLS, Lansing, Mich., assignor of two-thirds to Albert M. Darling and William Joy, Lansing, Mich. Filed Oct. 24, 1901. Serial No. 80,194. (No model.)



Claim.—1. A burner attachment comprising a globe or shade holder having perforated bottom, and a slidable and rocking rod, and a match-holding tube carried by the said rod, substantially as described.

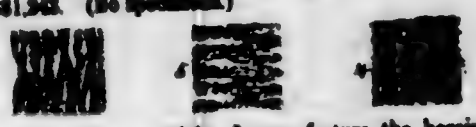
2. A burner attachment comprising globe or shade holder having a perforated bottom and a slotted side, a slide closing said slot, a rod sliding through the side and a match-holding tube carried adjacent to one end of said rod, substantially as shown and described.

3. A burner attachment comprising a globe or shade holder having a perforated bottom, and a slotted side, a slide adapted to close the said slot, a sliding and rocking rod passing through the side of the holder, a guide-bracket arranged upon the bottom of the holder and in which the inner end of said rod slides and rocks, and a match-holding tube arranged upon the said rod adjacent to its inner end, substantially as for the purpose described.

694,859. PROCESS OF TREATING MATERIALS TO RENDER THEM WATERPROOF. ALPHEUS H. HIPPLE, Omaha, Nebr. Filed July 30, 1900. Serial No. 25,234. (No specimens.)

Claim.—As an improved article of manufacture, compressed waterproof asbestos, having oil incorporated in its fibers and vulcanized therein, and compressed, as described.

694,860. PROCESS OF IMITATING BEIGE OR VIGOREUX BY PRINTING. LOUIS HIRSCH, Gera, Germany. Filed May 20, 1896. Serial No. 691,963. (No specimens.)



Claim.—1. As a new article of manufacture the herein-described imitation beige or like fabric, consisting of a body of suitable fabric marked with thread-lines imitating the warp and weft characteristics of said fabric.

2. As a new article of manufacture the herein-described imitation beige or like fabric consisting of a body of rough fabric marked with thread-lines imitating the warp and weft characteristics of the said fabric.

3. As a new article of manufacture the herein-described imitation beige or like fabric consisting of a body of rough bleached fabric marked with thread-lines imitating the warp and weft characteristics of the said fabric.

4. As a new article of manufacture the herein-described imitation beige or like fabric consisting of a body of rough colored fabric marked with thread-lines imitating the warp and weft characteristics of the said fabric.

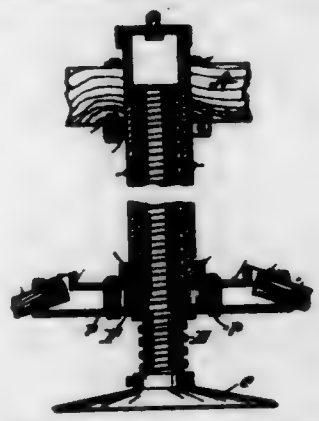
5. The process for the manufacture of imitation beige, vigoreux, or melange or the like, which consists in printing on the surface of a woven fabric, thread effects running in the direction of both the length and the width of the woven fabric, and in imitation respectively of the warp and weft characteristics of beige, vigoreux, or melange; substantially as herein described.

6. The process for the manufacture of imitation beige, vigoreux, melange or the like, which consists in marking a suitable fabric, by separate operations, with thread effects running longitudinally and transversely of the fabric so as to imitate both the warp and weft characteristics of beige, vigoreux, or melange, and then finishing the cloth in a suitable manner; substantially as and for the purpose set forth.

7. As a new article of manufacture, the herein-described imitation beige, vigoreux, or melange or the like fabric having a suitable body or ground of rough, or previously-colored fabric marked with longitudinal and transverse thread-lines in imitation of the warp and weft characteristic of the said goods imitated; substantially as described.

8. The process for the manufacture of fabric which consists in printing on textile goods an imitation of the warp and weft threads characteristic of beige, vigoreux, or melange, or the like; substantially as described.

694,861. SCREW-PRESS. LEWIS M. HOSEA, Cincinnati, Ohio. Filed Sept. 23, 1901. Serial No. 76,276. (No model.)



Claim.—1. A screw-press of the character indicated embodying in combination a non-rotating tubular casing adjustably supported in the head-block; a screw movable and guided longitudinally in the casing; and a nut seated on and engaging the threads of the screw and supporting the same by swiveling connection with and upon the casing and operating the screw without rotation of the latter, as a rotating wedge between the casing and the screw-threads, substantially as set forth.

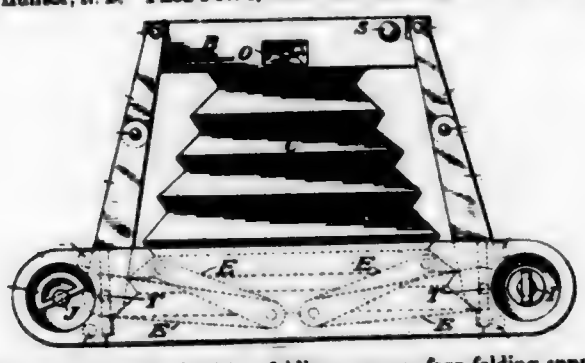
2. A screw-press, embodying in combination a non rotating tubular casing adjustably supported in the head-block, means for holding the casing in adjusted positions, a screw movable and guided longitudinally in the casing; a nut seated on the threads of the screw and supporting the same by a swiveling connection with and upon the casing, and operating the screw without rotating the latter by rotation as a rotating wedge between the screw and casing, and means for rotating said nut in either direction by step-by-step movements, substantially as set forth.

3. The improved screw-press embodying, in combination, a non-rotating tubular casing adjustable longitudinally in the head-block and devoid of internal threads; means for holding the casing in adjusted positions; a normally non-rotating screw guided telescopically within and protruding below the casing; a threaded nut upon and engaging the screw, said nut having a swiveling connection with the tubular casing whereby it is held below in rotative contact with the same; and means for rotating said nut in such contact and upon the threads of the screw; substantially as set forth.

4. In an extensible screw device of the character indicated, the combination of a tubular casing adjustable in the head-block and carrying telescopically a protruding normally non-rotating screw, and an adjustable clamp supported from the head-block and embracing the casing as a collar beneath and in contact with the head-block, substantially as set forth.

5. In a screw-press of the character indicated, the combination of a tubular casing adjustably seated in and projecting below the head-block, a normally non-rotating screw guided telescopically in and protruding below the tubular casing, a screw-nut abutting endwise against the casing and engaging the threads of the screw below and supporting it rotatively upon the tubular casing, and an oscillating pawl-frame swiveled upon and in pawl-engaging relations with the nut as a rotating wedge interposed between the screw and casing, substantially as set forth.

694,862. FOLDING SUPPORT FOR CAMERAS. DAVID H. HOUSTON, Hunter, N. D. Filed Feb. 8, 1901. Serial No. 46,525. (No model.)



Claim.—1. Combined with a folding camera, four folding supports pivoted respectively to the inner side of the camera-casing and to the camera-front, said folding supports each composed of a long and a short member and each having a knee-joint adapted to bend inward, and fold into the interior of the camera-casing, substantially as shown.

2. Combined with a folding camera, four folding supports pivoted respectively to the inner side of the camera-casing and to the camera-front, said folding supports each composed of a long and a short member and each having a knee-joint adapted to bend inward, and stops on the camera-casing adapted to stop the folding supports in line when extended.

3. Combined with a folding camera, four pivoted folding supports connecting the camera-front to the camera-casing, the said folding supports each composed of a long and a short member and each having a knee-joint adapted to bend inward and allow the said supports together with the camera-front and extensible bellows to all fold into the interior of the camera-casing, and stops on the camera-casing adapted to stop the said folding supports in line when extended.

4. Combined with a folding camera, four pivoted folding supports, said folding supports each composed of a long and a short member and each having a knee-joint adapted to bend inward, said long members pivoted to the camera-casing equidistant from the center of the said casing, the short members pivoted to the camera-front equidistant from the center of said camera-front, said short members pivoted distant from the center of the camera-front less than the long members are pivoted distant from the center of the camera-casing, said long and short members pivoted in positions on the camera adapted to allow of said long and short members to fold into the camera-casing.

694,863. BRAKING MECHANISM FOR VEHICLES. GREGORY JENNINGS, West Cairo, Ohio, and AARON R. JENNINGS, Central City, Ky. Filed Aug. 22, 1901. Serial No. 72,930. (No model.)



Claim.—1. In a vehicle-brake, a brake-shoe having an inclined surface, a brake-beam having a crank thereon adapted to engage and slide along said inclined surface, the said brake-beam being capable of axial rocking movement and mounted in bearings below the point of engagement of said crank with said shoe, and means for rocking said beam.

2. In a vehicle-brake, a brake-shoe having an inclined surface, a brake-beam having a crank thereon adapted to engage and slide along said inclined surface, the said brake-beam being capable of axial rocking movement and mounted in bearings below the point of engagement of said crank with said shoe, and means for automatically rocking said brake-beam.

3. In a vehicle-brake, a brake-shoe having an inclined transversely-extending slot therein, a brake-beam having a crank-arm with a projecting stud thereon fitting within said slot and adapted to engage and slide along one of the inclined walls thereof, the said brake-beam being capable of axial rocking movement and mounted in bearings below the point of engagement of said stud with said shoe, and means for rocking said beam.

4. In a vehicle-brake, a brake-shoe having an inclined transversely-extending slot therein, a brake-beam having a crank-arm with a projecting stud thereon fitting within said slot and adapted to engage and slide along one of the inclined walls thereof, the said brake-beam being capable of axial rocking movement and mounted in bearings below the point of engagement of said stud with said shoe, and means for automatically rocking said beam.

5. In a vehicle-brake, a brake-shoe having an inclined, transversely-extending slot therein and having an opening intersecting said slot, a spring within said opening, a brake-beam having a crank-arm with a projecting stud thereon, the said stud fitting within said slot and engaging the lower end of said spring, and means for rocking said brake-beam.

6. In a vehicle-brake, a brake-shoe having an inclined, transversely-extending slot therein and having an opening intersecting said slot, a spring within said opening, a brake-beam having a crank-arm with a projecting stud thereon, the said stud fitting within said slot and engaging the lower end of said spring, and means for automatically rocking said brake-beam.

7. In a vehicle-brake, a brake-shoe having an inclined transversely-extending slot therein and having an opening intersecting said slot, a cap on the upper end of said shoe for closing said opening, and a weight upon the lower end thereof for maintaining the same normally in upright position, a coil-spring in said opening, a centering-pin for said spring also located within said opening with the stem thereof projecting within said spring and with the head thereof formed with a concave lower end, a brake-beam having a crank-arm with a projecting stud thereon, the said stud fitting within said inclined slot and seated in the concavity in the head of said pin, and means for rocking said brake-beam.

8. In a vehicle-brake, a brake-shoe having an inclined surface thereon, a brake-beam having a crank thereon adapted to engage and slide along said inclined surface, swinging adjustable bearings for said brake-beam, and means for rocking said beam.

9. In a vehicle-brake, a brake-shoe having an inclined surface thereon, a brake-beam having a crank thereon adapted to engage and slide along said inclined surface bodily-movable bearings for said brake-beam, means for limiting the forward movement of said bearings, and means for rocking said brake-beam.

10. In a vehicle-brake, a brake-shoe having an inclined, transversely-extending slot therein, a brake-beam having a crank-arm with a projecting stud thereon, the said stud fitting within said slot, a swinging supporting-rod for said brake-beam having downwardly-extending arms at its ends provided with bearings for said brake-beam, adjustable connections with said arms for limiting the forward movement of the bearings thereon, and means for rocking said brake-beam.

11. In a vehicle-brake, a brake-shoe having an inclined, transversely-extending slot therein, a brake-beam having a crank-arm with a projecting stud thereon, the said stud fitting within said slot, a swinging supporting-rod for said brake-beam having downwardly-extending arms at its ends provided with bearings for said brake-beam, adjustable bolts on a stationary part of the vehicle, flexible connections between said bolts and the arms on said supporting-rod, and means for rocking said brake-beam.

12. In a vehicle-brake, a brake-shoe having a transversely-extending, inclined slot therein, a brake-beam having a crank-arm with a projecting stud thereon, the said stud fitting within said slot, a swinging supporting-rod for said brake-beam having downwardly-extending arms thereon bent back upon themselves to form loops constituting bearings for said brake-beam and thence bent rearwardly to form hooks, adjustable bolts on a stationary part of the vehicle, flexible connections between said bolts and said hooks, and means for rocking said brake-beam.

13. The combination with the trucks and the reach or coupling-pole of a vehicle, said reach or coupling-pole serving to connect the trucks longitudinally movable independent of said trucks, of a pair of brake-shoes, a brake-beam having crank-arms thereon connected with said shoes for moving the same into and out of braking position, bodily-adjustable bearings for said brake-beam, a crank-arm on said brake-beam, and con-

nections between said crank-arm and said reach, whereby the movement of said reach in one direction or the other independent of the trucks will rock said brake-beam and throw said brake-shoes into or out of braking position.

14. The combination with the reach or coupling-pole of a vehicle, longitudinally movable independent of the trucks, of a pair of brake-shoes having transversely-extending inclined slots therein, a brake-beam having cranks with projecting studs thereon, the said studs fitting within said slots, a supporting-rod for said brake-beam mounted upon the bounds of the rear truck and having downwardly-extending arms at its ends provided with bearings for said brake-beam, means for limiting the extent of the forward movement of said bearings, a crank-arm on said brake-beam, and a pitman connecting said crank-arm with said reach, as and for the purpose set forth.

15. The combination with the reach or coupling-pole of a vehicle, longitudinally movable independent of the trucks, of a pair of brake-shoes having transversely-extending inclined slots therein, a brake-beam having cranks with projecting studs thereon, the said studs fitting within said slots, a supporting-rod for said brake-beam mounted upon the bounds of the rear truck and having downwardly-extending arms at its ends provided with bearings for said brake-beam, means for limiting the extent of the forward movement of said bearings, a spring for urging said reach toward the rear truck, means for adjusting the tension of said spring, a crank-arm on said brake-beam, and a pitman connecting said crank-arm with said reach, as and for the purpose set forth.

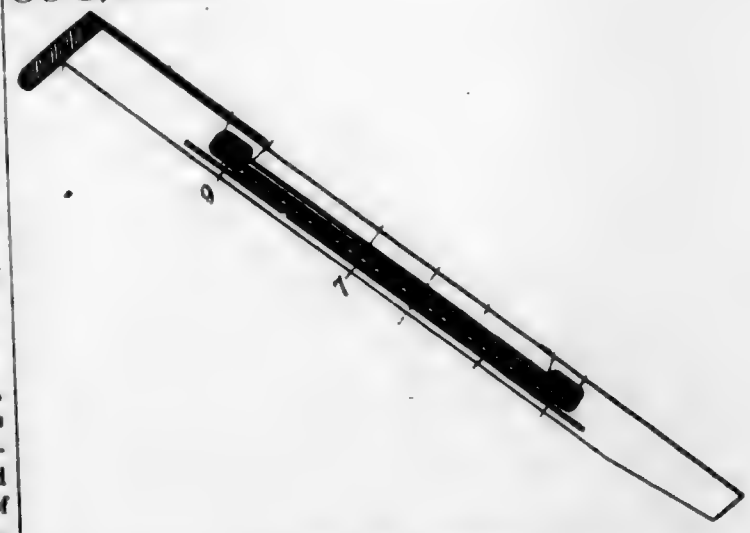
16. The combination with the reach or coupling-pole of a vehicle, longitudinally movable independent of the trucks, of a pair of brake-shoes having transversely-extending inclined slots therein, a brake-beam having cranks with projecting studs thereon, the said studs fitting within said slots, a supporting-rod for said brake-beam mounted upon the bounds of the rear truck and having downwardly-extending arms at its ends provided with bearings for said brake-beam, means for limiting the extent of the forward movement of said bearings, a spring attached to said reach, a rod extending through the rear bolster and connected to said spring, a cam pivoted to said rod and adapted to bear against said bolster for adjusting the tension of said spring, a crank-arm on said brake-beam, and a pitman connecting said crank-arm with said reach, as and for the purpose set forth.

17. The combination with the front and rear trucks of a vehicle, and a reach having a slotted connection with the king-bolt and with the bounds of the rear truck, of a plate on the under side of said reach having an opening therein through which the king-bolt passes and having upwardly and rearwardly extending arms which embrace said reach, draft connections between said arms and the rear truck, brake-shoes, and connections between said brake-shoes and said reach, whereby when the latter is moved rearwardly independently of said trucks, said brake-shoes will be thrown into operative positions.

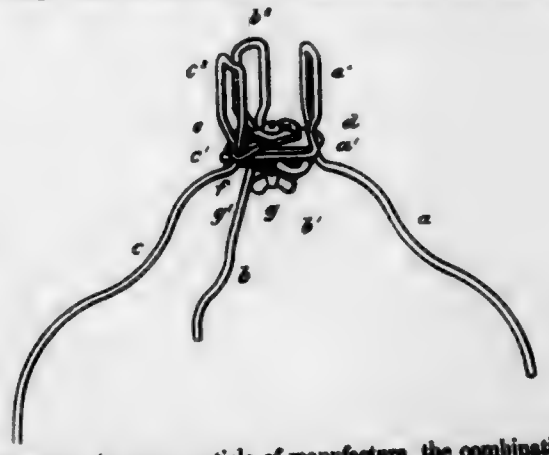
18. The combination with the front and rear trucks of a vehicle, and a reach having a slotted connection with the king-bolt and with the bounds of the rear truck, of a plate on the under side of said reach having an opening therein through which the king-bolt passes and having upwardly and rearwardly extending arms which embrace said reach, chains connecting said arms with the bounds of the rear truck, brake-shoes, and connections between said brake-shoes and said reach, whereby when the latter is moved rearwardly independently of the trucks said brake-shoes will be thrown into operative positions.

19. The combination with the front and rear trucks of a vehicle, the reach having a slotted connection with the king-bolt and with the bounds of the rear truck, and the tongue having a slotted connection with the bounds of the front truck, of a plate secured to the front end of said reach and bent upon itself to form a vertically-disposed segmental slot, a plate upon the rear end of said tongue bent upon itself to form an upwardly-extending loop, the rear web of the plate on said tongue fitting within the slot formed by the plate on said reach, brake-shoes, and connections between said shoes and said reach, whereby when said tongue and reach are moved rearwardly independently of said trucks, said brake-shoes will be thrown into operative positions.

694,864.



694,865. TREE STAND OR SUPPORT. CHARLES KACHOLD, Portland, Oreg. Filed Mar. 22, 1900. Serial No. 9,804. (No model.)



Claim.—1. As a new article of manufacture, the combination of a stand comprising three standards, or legs, *a*, *b*, *c*, having vertically-projecting portions, a^2, b^2, c^2, constituting a socket, and horizontally-projecting ears, *a'*, *b'*, *c'*, a block having grooves adapted to adjustably receive the said ears diagonally, one over the other, and means for securing such ears and thereby the said standards in position, substantially as described.

2. As a new article of manufacture, the combination of a stand comprising three standards, or legs, having vertically-projecting portions constituting a socket, and horizontally-projecting ears; a block held in the ear of one of such legs having diagonal grooves on its upper and under surfaces, adapted to receive said ears of the other two legs, and adjustable means engaging said ears for fixing said standards in position, substantially as described.

3. As a new article of manufacture, the combination of a stand comprising three standards, or legs, having vertically-projecting portions constituting a socket, and horizontally-projecting ears; a block held in the ear of one of such legs having diagonal grooves in its upper and under surfaces adapted to receive said ears of the other two legs; a truss or brace for the legs, to strengthen the same, and adjustable means engaging said ears, for fixing said standards in position, substantially as described.

4. As a new article of manufacture, the combination of a stand comprising three wire standards, or legs, *a b c*, having vertically-projecting portions a^2, b^2, c^2, constituting a socket, and horizontally-projecting ears *a'*, *b'*, *c'*; the block *d* fixedly held in the ear of the standard *a* and having diagonal grooves d', d^2, and d^3, d^4, on its upper and under surfaces, in which to receive the ears of the standards *b* and *c*; washers *e*, *f*, and a threaded bolt and nut, inserted through a perforation in said block, and whereby the said washers are caused to bear upon the ears of the standards *b*, *c*, and the latter fixed in position, substantially as described.

694,864. WASHBOARD. PETER J. JOSEPH, Cleveland, Ohio, assignor to the American Washboard Company, Cleveland, Ohio, a Corporation of Ohio. Filed July 17, 1901. Serial No. 68,614. (No model.)

Claim.—1. A washboard having in combination a frangible rubbing-face, a main frame having recesses for the reception of the edges of the rubbing-face, said recesses having resilient bearing-walls, substantially as set forth.

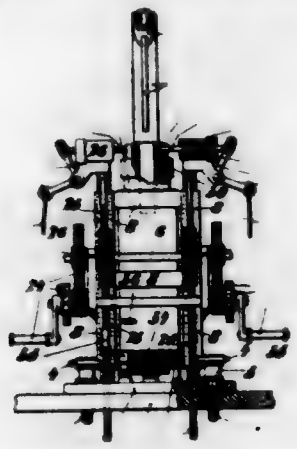
2. A washboard having in combination a frangible rubbing-face, a main frame having recesses for the reception of the edges of the rubbing-face, the bearing-walls of the grooves being formed by resilient ribs integral with the corresponding part of the main frame, substantially as set forth.

694,866. FIRE-ESCAPE. FRIEDRICH KASCHEWITH and PAUL BARTHEL, Gotha, Germany. Filed Sept. 5, 1901. Serial No. 74,433. (No model.)

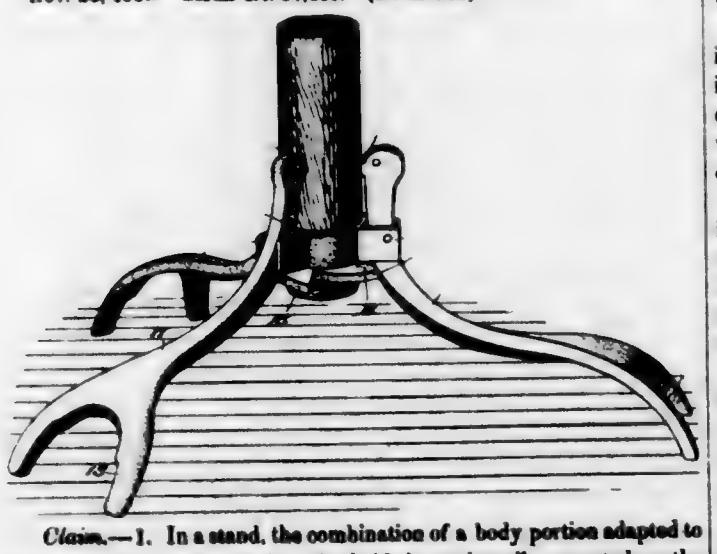
Claim.—1. A device for saving from fire, having telescoping tubes, each tube being individually extended and lowered by means of a rack-work-winch arranged on the frame, the connection between the rack and the tubes being established by means of a catch pin or bolt operated from below, substantially as herein described and illustrated by the appended drawings.

2. A saving appliance or fire-escape consisting of a plurality of tubes, one of the tubes having grooves and the coöperating groove having ribs

to travel in said tube and the grooved tube having recesses alternating with the grooves and adapted to receive the ends of the ribs, a rack, a pinion meshing with said rack, a pin for coupling said rack to one of the tubes, means below the pin for operating the same, and mechanism for actuating said pinion.



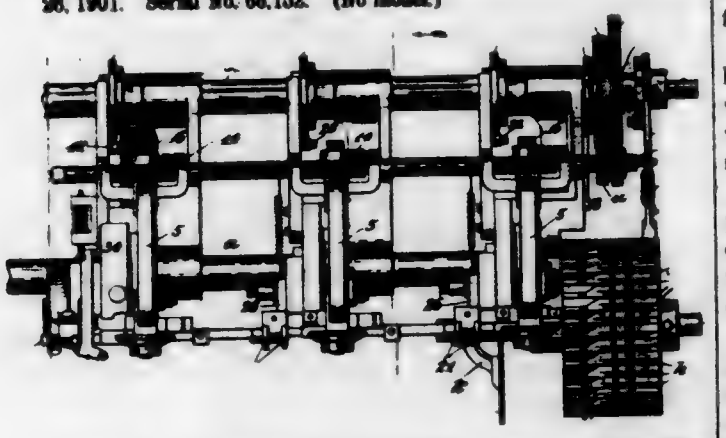
694,867. STAND. WILLIAM C. KRICK, Brooklyn, N. Y. Filed Nov. 20, 1900. Serial No. 37,119. (No model.)



Claim.—1. In a stand, the combination of a body portion adapted to receive the butt of the article to be held, legs pivotally mounted on the body portion intermediate the ends of the legs, the lower ends of the legs resting on the ground to support the body above the same and the upper ends of the legs projecting above the body to engage the article supported, and a cam mounted to turn on the body and working with the legs to force the upper ends thereof into engagement with said article.

2. In a stand, the combination of a body portion adapted to receive the butt of the article to be held, legs pivotally mounted on the body portion intermediate the ends of the legs, the lower ends of the legs resting on the ground to support the body above the same, and the upper ends of the legs projecting above the body to engage the article supported, and a cam mounted to turn on the body and working with the legs to force the upper ends thereof into engagement with said article, the body having extended lugs thereon, and the cam having notches matching with the lugs, the lugs serving removably to hold the cam in place on the body.

694,868. MACHINE FOR TRIMMING STRIPS OF RATAN. HENRY W. LARSSON, Springfield, Mass., assignor to Larsson Whip Company, Springfield, Mass., a Corporation of Massachusetts. Filed June 26, 1901. Serial No. 66,152. (No model.)



Claim.—1. In an organized machine, the combination of guiding means arranged to inclose a substantially sectoral bore, a cutter arranged with its cutting edge substantially transverse to a line bisecting the angle of said bore, and cutters arranged in advance of said cutter with their cutting edges substantially parallel with the sides forming the angle of said bore.

2. In a machine of the class described, the combination of a guide having a substantially V-shaped cross-section, a cutter arranged with its cutting edge substantially transverse to a line bisecting the angle of the V-shaped guide, a second cutter arranged in advance of said cutter with its cutting edge substantially parallel with the plane of one of the strip-engaging sides of the guide, a third cutter disposed in advance of the latter cutter with its cutting edge substantially parallel with the plane of the other strip-engaging side of the guide, and a fourth cutter arranged in advance of the latter cutter with its cutting edge substantially parallel with the cutting edge of the said second cutter

3. The combination with strip-guiding means; and means for reducing the strip; of a strip-entering device comprising an intermittently-rotatable carrier arranged with the plane of its rotation transverse to the strip-guiding path, so as to thereby bring the strips successively into said path; and a plate arranged to govern the position of the strips on the carrier.

4. The combination with strip-guiding means, and means for reducing the strip, of a strip-entering device comprising a rotatable drum having a series of longitudinally-arranged strip-holders at its periphery, said drum being arranged to bring said holders successively into alinement with the strip-guiding means.

5. The combination with strip-guiding means, and means for reducing the strip, of a strip-entering device comprising a rotatable drum having a series of longitudinally-arranged strip-holders on its periphery, said drum being arranged to bring said holders successively into alinement with the strip-guiding means, and means for intermittently rotating the drum.

6. The combination with strip-guiding means, and means for reducing the strip, of a strip-entering device comprising a rotatable drum having a series of longitudinally-arranged strip-holders on its periphery, said drum being arranged to bring said holders successively into alinement with the strip-guiding means, and a gage-plate for positioning the strips on the drum.

7. The combination with strip-guiding means, and means for reducing the strip, of a strip-entering device, comprising a drum having a series of longitudinal notches in its periphery, and a spring extending over each notch, said drum being arranged to be rotated and thereby bring the notches in succession into alinement with the strip-guiding means.

8. The combination of a pair of coacting feed-rolls, a pair of pivoted arms each having one of said rolls rotatable thereon, a pair of levers pivoted together at their extremities, and having their other extremities pivoted to said arms respectively, a slide connected to the pivotal jointure of said levers, a driving-shaft, and means for reciprocating the slide from said driving-shaft.

9. The combination of a pair of coacting feed-rolls, a pair of pivoted arms each having one of said rolls rotatable thereon, a pair of levers pivoted together at their extremities, and having their other extremities pivoted to said arms respectively, a slide connected to the pivotal joint of said levers, a driving-shaft, means for reciprocating the slide from said driving-shaft, a spiral gear on the shaft of each roll and arranged to intermesh, and a spiral gear on the driving-shaft arranged to engage one of said gears.

10. In an organized machine, the combination with means for guiding and feeding a strip, of a slide movable transversely to the path of a strip and a pair of cutters pivotally mounted on said slide and arranged to act on the strip consecutively.

11. In an organized machine, the combination with means for guiding and feeding a strip, of a slide movable transversely to the path of the strip, a pair of cutters pivotally mounted on said slide and arranged to act on the strip consecutively, and means connected with the feeding means for reciprocating the slide.

12. In a machine of the class described, the combination of a guide having a substantially V-shaped cross-section, a cutter movable transversely to the guide and arranged with its cutting edge substantially transverse to a line bisecting the angle of the V-shaped guide, strip-feeding means, and means coöperative therewith for moving the cutter.

13. In a machine of the class described, the combination of a support, a knife fixed on said support, a slide mounted on said support, a receiver or guide for a strip pivoted on said slide, and disposed in proximity to said knife, and a cam on said support arranged to engage the receiver on the movement of the slide and thereby oscillate the receiver.

14. In a machine of the class described, the combination of a support, a knife fixed on said support, a slide mounted on said support, a receiver or guide for a strip pivoted on said slide, and disposed in proximity to said knife, and a cam on said support arranged to engage the receiver on the movement of the slide and thereby oscillate the receiver, strip-feeding means, and means coöperative therewith for operating said slide.

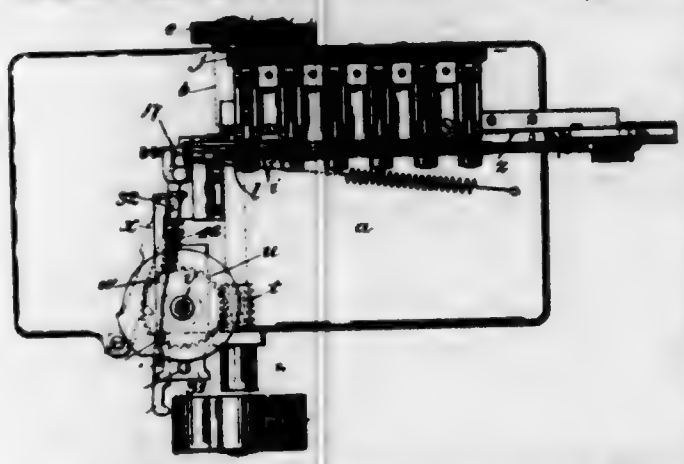
15. In a machine of the class described, the combination of a support having a guide mounted thereon for guiding a substantially V-shaped strip, said guide comprising a fixed jaw and a movable jaw having its strip-engaging face at an angle with said fixed jaw; a knife secured to the support in proximity to said jaws; and a slide mounted on said support and having a head in proximity to said guide, said slide being arranged to engage the strip and vary its position in said guide with respect to said knife.

16. In a machine of the class described, the combination of a support having a guide mounted thereon for guiding a substantially V-shaped strip, said guide comprising a fixed jaw and a movable jaw having its strip-engaging face at an angle with said fixed jaw; a knife secured to the support in proximity to said jaws, a slide mounted on said support and having a head in proximity to said guide, said slide being arranged to engage the strip and vary its position in said guide with respect to said knife, strip-feeding means, and means coöperative therewith for operating said slide.

17. In a machine of the class described, the combination of a support having a guide mounted thereon for guiding a substantially V-shaped strip, said guide comprising a fixed jaw and a pivoted jaw having its strip-engaging face at an angle with said fixed jaw; a knife secured to the support in proximity to said jaws; and a slide mounted on said support and having an antifriction-roller at one end, said slide being arranged to engage the strip in said guide and vary its position therein with respect to said knife.

18. In a machine of the class described, the combination of a support having a guide mounted thereon for guiding a substantially V-shaped strip, said guide comprising a fixed jaw and a pivoted jaw having its strip-engaging face at an angle with said fixed jaw; a knife secured to the support in proximity to said jaws, a slide mounted on said support and having an antifriction-roller at one end, said slide being arranged to engage the strip in said guide and vary its position therein with respect to said knife-strip-feeding means, and means coöperative therewith for operating said slide.

694,869. MACHINE FOR LONGITUDINALLY DIVIDING STRIPS OF RATAN. HENRY W. LARSON, Springfield, Mass., assignor to Larson Whip Company, Springfield, Mass., a Corporation of Massachusetts. Filed June 26, 1901. Serial No. 66,153. (No model.)



Claim.—1. In a machine for dividing a cross-sectionally V-shaped strip of fibrous material, such as ratan, on a surface diagonal to the strip, the combination of two members, one member being a guide for the strip having a V-shaped opening whose convergent sides are arranged to constitute substantial bearings for the convergent sides of the tapered strip, and the other member being a dividing-cutter located beyond the guide, one of said members being arranged to be moved relative to the other member and thereby cause the cutter to traverse the area of the V-shaped opening in the guide from one side of the V to the other, whereby complemental divisions of the strip are produced.

2. In a machine for dividing a cross-sectionally V-shaped strip of fibrous material, such as ratan, on a surface diagonal to the strip, the combination of a guide for the strip having a V-shaped opening whose convergent sides are arranged to constitute substantial bearings for the convergent sides of the tapered strip, a carrier located beyond the guide, a splitting-knife mounted on the carrier with its cutting edge substantially parallel with a line bisecting the angle of the V-shaped opening in the guide, the carrier being arranged to be moved bodily across the area of the V-shaped opening in the guide from one side of the V-opening to the other.

3. In a machine for dividing a cross-sectionally V-shaped strip of fibrous material, such as ratan, on a surface diagonal to the strip, the combination of a guide for the strip having a V-shaped opening whose convergent sides are arranged to constitute substantial bearings for the convergent sides of the tapered strip, a carrier located beyond the guide, a splitting-knife mounted on the carrier with its cutting edge substantially parallel with a line equally bisecting the angle of the V-shaped opening in the guide, the carrier being arranged to be moved and thereby carry the knife bodily across the area of the V-shaped opening in the guide from one side of the V-opening to the other.

4. In a machine for dividing a cross-sectionally V-shaped strip of fibrous material, such as ratan, on a surface diagonal to the strip, the combination of a guide for the strip having a V-shaped opening whose convergent sides are arranged to constitute substantial bearings for the convergent sides of the tapered strip, a carrier located beyond the guide, a splitting-knife pivotally mounted on the carrier with its axis lying in the same plane as the cutting edge, the cutting edge of the knife being substantially parallel with a line bisecting the angle of the V-shaped opening in the guide, the guide and the carrier being so arranged that one of these members may be moved relative to the other and thereby cause the knife to traverse the area of the V-shaped opening in the guide from one side of the V to the other.

5. In a machine for dividing a cross-sectionally V-shaped strip of fibrous material, such as ratan, on a surface diagonal to the strip, the combination of a guide for the strip having a V-shaped opening whose convergent sides are arranged to constitute substantial bearings for the convergent sides of the tapered strip, a dividing-cutter located beyond the guide, one of said members being arranged to be moved relative to the other and thereby cause the cutter to traverse the area of the V-shaped opening in the guide from one side of the V to the other, means for feeding a strip through the guide, means connected with said feeding means for operating said movable member, and means for adjusting the normal location of the cutter with respect to the feeding means toward and from the V-shaped opening.

6. In a machine for dividing a cross-sectionally V-shaped strip of fibrous material, such as ratan, on a surface diagonal to the strip, the combination of a guide for the strip having a V-shaped opening whose convergent sides are arranged to constitute substantial bearings for the convergent sides of the tapered strip, means for pressing the strip in contact with the engaging sides of the guide, and a dividing-cutter located beyond the guide, one of said members being arranged to be moved relative to the other and thereby cause the cutter to traverse the area of the V-shaped opening in the guide from one side of the V to the other.

7. In a machine for dividing a cross-sectionally V-shaped strip of fibrous material, such as ratan, on a surface diagonal to the strip, the combination of a guide for the strip having a V-shaped opening whose convergent sides are arranged to constitute substantial bearings for the convergent sides of the tapering strip, a carrier located beyond the guide, a splitting-knife mounted on the carrier with its cutting edge substantially parallel with a line bisecting the angle of the V-shaped opening in the guide, the carrier being arranged to be moved and thereby carry the knife bodily across the area of the V-shaped opening in the guide from one side of the V-opening to the other, and means secured to the carrier beyond the knife and arranged to separate the divisions of the strips produced by the cutter.

8. The combination of a work-supporting member; a knife-supporting member, and a knife pivotally mounted on the latter member; one of said members being arranged to be moved relative to the other member in a path transverse to the pivotal axis of the knife.

9. The combination of a work-supporting member; a knife-supporting member; and a knife pivotally mounted on the latter member with its cutting edge parallel with its pivotal axis; one of said members being arranged to be moved relative to the other in a path transverse to the pivotal axis of the knife.

10. The combination of a work-supporting member; a knife-supporting member; and a knife pivotally mounted on the latter member with its cutting edge not coincident with its pivotal axis, and the shearing sides of the knife converging in a direction toward said axis; one of said members being arranged to be moved relative to the other member in a path transverse to the pivotal axis of the knife.

11. The combination of a work-supporting member; a knife-supporting member; and a knife pivotally mounted on the latter member with its cutting edge parallel with its pivotal axis, but not coincident therewith, and the shearing sides of the knife converging in a direction toward said axis; one of said members being arranged to be moved relative to the other member in a path transverse to the pivotal axis of the knife.

12. The combination of a work-supporting member; means for feeding a strip through said member, a knife-supporting member; and a knife pivotally mounted on the latter member; one of said members being arranged to be moved relative the other member in a path transverse to the pivotal axis of the knife.

13. The combination of strip-feeding means, a V-shaped guide for the strip, and a presser-bar controlled by the strip-feeding means and arranged to be withdrawn from the guide by the feeding means after the passage of a strip therethrough.

14. The combination of a pair of coacting feed-rolls, a V-shaped

guide for the strip, and a presser-bar controlled by the bodily movement of one of said feed-rolls relative to the other.

15. The combination of a pair of coacting feed-rolls, a V-shaped guide for the strip, and a presser-bar controlled by the bodily movement of one of said feed-rolls relative to the other and arranged to be thereby withdrawn from the guide after the passage of a strip through the rolls.

16. The combination of a pair of coacting feed-rolls, yieldable means for normally forcing the rolls together, a V-shaped guide for the strip, and a movable presser-bar controlled by the bodily movement of one of the rolls relative to the other and arranged to be withdrawn from the guide after the passage of a strip through the feed-rolls.

17. The combination of strip-feeding means, a V-shaped guide for the strip, a presser-bar coöperative with the feeding means for retaining a strip in engagement with the guide; and means near one end of the guide for seating a strip therein.

18. The combination of strip-feeding means, a V-shaped guide for the strip, a presser-bar coöperative with the feeding means and arranged to engage the strip at one end of the guide and thereby retain the strip in engagement with the guide, and means located at the other end of the guide for seating a strip therein.

19. In a machine of the class described, the combination of one or more pairs of coacting feed-rolls, one of said rolls having a substantially V-shaped periphery and an annular slot at the bottom of the V; and a reciprocatory thrust-bar lying normally in said slot and below the V-shaped area of the rolls; and means for bringing said bar into the work-engaging area of the rolls at a certain part of its movement.

20. In a machine of the class described, the combination of one or more pairs of coacting feed-rolls, one of the rolls having a substantially V-shaped periphery and an annular slot at the bottom of the V; a reciprocatory feed-slide operatively connected with the rolls; a thrust-bar having one end connected with the feed-slide, said bar lying normally in the said slot and out of the V-shaped area of the rolls; and means for bringing the free end of the thrust-bar into the work-engaging area of the rolls at a predetermined part of its thrust movement.

21. In a machine of the class described, the combination of one or more pairs of coacting feed-rolls, one of the rolls having a substantially V-shaped periphery and an annular slot at the bottom of the V; a reciprocatory feed-slide operatively connected with the feed-rolls; a thrust-bar having one end connected with the feed slide, the bar lying normally in said slot and out of the V-shaped area of the rolls; and a cam arranged to engage said bar and bring the free end thereof into the work-engaging area of the rolls at a predetermined part of its movement.

22. In a machine of the class described, the combination of a guide for a strip, a pivoted presser-bar arranged to engage a strip in the guide, a lever connected with the presser-bar, a pair of coacting rolls, one of the rolls being movable to and from the other, and means for causing the bodily movement of the roll to operate the lever and presser-bar.

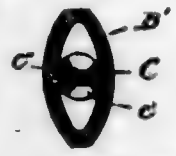
23. In a machine of the class described, the combination of a guide for a strip, a pivoted presser-bar arranged to engage a strip in the guide, a lever connected with the presser-bar, a pair of coacting rolls, one of the rolls being movable to and from the other, means for causing the bodily movement of the roll to operate the lever and presser-bar, a spring acting on the lever and tending to retain it with the presser-bar in the strip-engaging position, and a second spring tending to force the rolls together, the latter spring being arranged to overcome the effect of the other spring.

24. In a machine of the class described, the combination of a guide for a strip, a pivoted presser-bar arranged to engage a strip in the guide, a lever connected with the presser-bar, a pair of coacting rolls, a hinged bar having one of said rolls pivoted thereon and arranged to move to and from the other roll, a spring arranged to engage said lever and tending to retain it with the presser-bar in the strip-engaging position, and a spring acting on said hinged bar and tending to force the rolls together, the latter spring being arranged to overcome the effect of the other spring.

25. In a machine of the class described, the combination of a guide for a strip, a pivoted presser-bar arranged to engage a strip in the guide, a lever having one end connected with the presser-bar, a second lever having one end engaging the other end of said pivoted lever, said second lever having its other end supported in a hinged manner, a spring engaging said levers and tending to move them and thereby force the presser-bar toward said guide, a pair of coacting rolls, one of the rolls being bodily movable to and from the other, and means for causing the bodily movement of the roll to operate said lever and thereby move the presser-bar to and from the guide.

694,870. DRIVE-CHAIN. CHRISTOPHER W. LEVALLEY, Milwaukee, Wis. Filed Apr. 2, 1901. Serial No. 54,067. (No model.)

Claim.—1. In a drive-chain the combination with links having side bars and end bars, of connecting-bolts, the end portions of which are shaped to closely fit the apertures in the side bars, and the ends of the apertures in the end bars, while the longitudinal central portions of the bolts are formed with separated concentric wearing-surfaces which engage with the end bars, substantially as set forth.



2. In a drive-chain the combination with links having side bars and end bars, of connecting-bolts for the links the outer portions of which are formed to closely fit the apertures in the side bars and the ends of the apertures in the end bars, while the longitudinal central portions of the bolts are formed with separated concentric wearing-surfaces with which the end bars of the links have articulate engagement, and means for holding the bolts against rotation with the said separated wearing-surfaces disposed in the longitudinal plane of the chain, substantially as set forth.

3. In a drive-chain, the combination with side bars and chambered end bars constituting links, of connecting-bolts passing through the side bars and the end bars, and uniting the links at the joints or points of articulation, the end portions of the bolts being cylindrical and the intermediate portions of the bolts which are within the end bars being cut away or reduced on two sides, whereby there are formed a plurality of lubricant-receptacles within each end bar, which receptacles are separated by relatively wide wearing-surfaces C'' C'' of the bolt, substantially as set forth.

4. The combination with the separate articulating links of a drive-chain, of the connecting-bolts for uniting the links, the bolts being formed with enlarged heads having recesses *d*, and lugs or projections E carried by the chain-links and arranged to engage with the recesses in the heads of the bolts when the latter are in position, whereby the bolts are held against rotation, substantially as set forth.

5. The combination with the adjacent links of a drive-chain, of a bolt for uniting them at their joint or point of articulation, a split key for holding the bolt in place, and a lug carried by one of the links for spreading the key to prevent its accidental displacement, substantially as set forth.

6. The combination with the side bars and an end bar of a drive-chain, of a connecting-bolt passing through said bars and uniting them, the central longitudinal portion of the said bolt, which passes through the end bar having separated wearing-surfaces, a removable wearing-sleeve with which the bolt engages mounted in the end bar, and means for holding the bolt against rotation in different working positions, substantially as set forth.

7. The combination with the side bars and an end bar of a drive-chain, of a bolt passing through such bars and uniting them, and a wearing-sleeve carried by the end bar and extending beyond the ends thereof, the side bars being recessed on their inner faces concentric with the apertures through which the said bolt passes to receive the projecting ends of the said sleeve, substantially as set forth.

8. The combination of the side bars of a drive-chain perforated near their ends for the passage of a connecting-bolt and recessed on their inner faces around said perforations, wearing-rings seated in the said recesses in the side bars, an end bar provided at its ends with hubs or bosses adapted to engage with the said wearing-rings, and a connecting-bolt passing through the said side and end bars and uniting them, substantially as set forth.

9. The combination of the side bars of a drive-chain perforated near their ends for the passage of a connecting-bolt and recessed on their inner faces around said perforations, an end bar, a connecting-bolt passing through the side bars and the end bar and uniting them forming a joint, wearing-rings seated in the recesses formed in the inner faces of the side bars, and a wearing-sleeve seated in the end bar and having its ends projecting beyond the end bar forming hubs or bosses which are adapted to engage with the wearing-rings seated in the side bars, substantially as set forth.

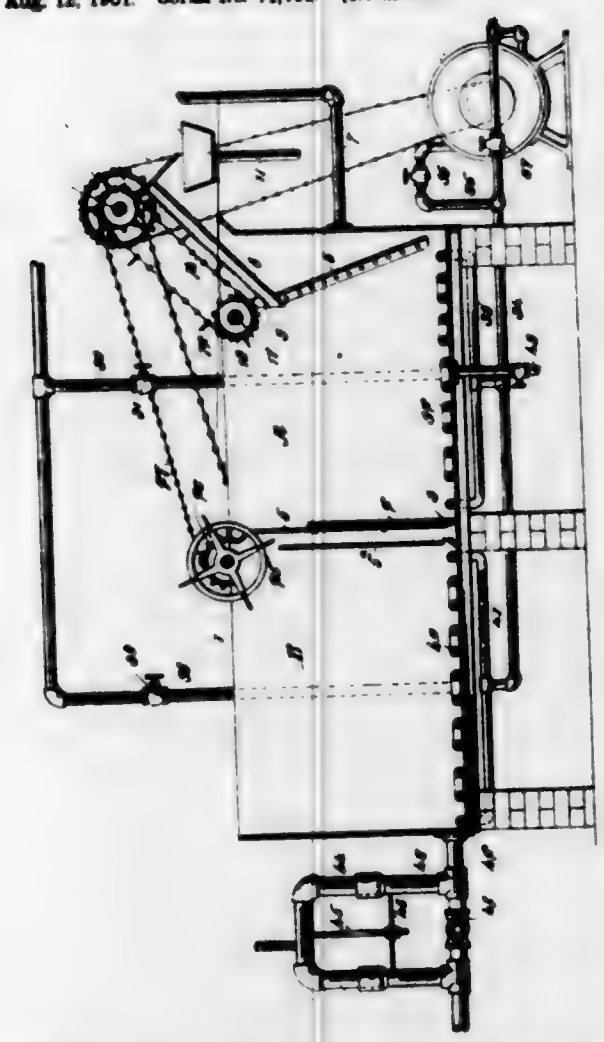
10. In a chain, the combination of the side bars, the end bars formed with outward-extending hubs or projections at their ends arranged to interlock with the overlapping ends of the side bars, and keepers carried by the side bars and arranged to engage with the free ends of the side bars of adjoining links and prevent them from spreading, substantially as set forth.

11. In a chain formed of articulating links, the combination of side bars arranged to overlap at the joints or places of articulation of the chain, the end bars which unite the side bars in pairs at one end, interlocking projections arranged between the end bars and the overlapping free ends of adjacent side bars, and keepers carried by the side bars arranged to prevent the spreading of the free ends of the side bars, substantially as set forth.

12. In a chain formed of articulating links, the combination of the side bars adapted to overlap at their ends, hollow end bars uniting the side bars in pairs at one end, and removable wearing-pieces fitted into the said hollow end bars and projecting beyond the ends thereof to constitute wearing projections which are arranged to interlock with the over-

lapping ends of the side bars, and keepers carried by the side bars and arranged to engage with the free ends of the side bars of adjacent links to prevent them from spreading, substantially as set forth.

694,871. CLARIFIER. LUCAS LITTY, Donaldsonville, La. Filed Aug. 12, 1901. Serial No. 71,769. (No model.)



Claim.—1. In a clarifier, an endless conveyer, comprising scrapers operating to remove scum from liquid flowing through the tank, an inclined chute over which the conveyer operates, a screen between the conveyer and the bottom of the chute and a baffle-plate extended downward from the end of the chute and forward of which drainage is directed by the closed bottom of the chute, substantially as specified.

2. In a clarifier, a tank divided into compartments, the separation between the compartments comprising a partition extending from the bottom of the tank and another partition extended from a point above the first-named partition to a point slightly above the bottom of the tank, and an endless conveyer for removing scum from liquid passing through the tank, substantially as specified.

3. In a clarifier, a tank divided into compartments, an inclined partition in the inlet end of the first compartment, the bottom of said partition being spaced above the bottom of the tank, a pipe for discharging liquid to be clarified into the tank at the upper side of said partition, an upwardly and outwardly inclined chute above the partition, a sieve spaced above the bottom of the chute, an endless conveyer operating over said sieve, and means for operating the conveyer, substantially as specified.

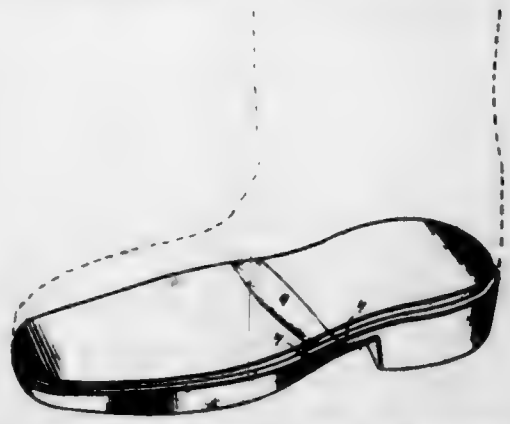
4. In a clarifier, a tank comprising two compartments, the said compartments being formed by a partition extended upward from the bottom of the tank and having a valve-controlled opening in its lower portion, and a partition spaced from the first-named partition within the second compartment, the last-named partition being extended from a point above the first-named partition to a point nearly to the bottom of the tank, steam-coils arranged in the compartments, a conveyer operating in the first compartment for removing scum, an outlet-pipe, and a level-regulator connecting with said outlet-pipe, substantially as specified.

5. In a clarifier, a tank divided into compartments, a conveyer operating in one compartment for removing scum, steam heating-coils in the compartments, an outlet-pipe, a regulator comprising upwardly-extended telescopic sections connecting with the outlet-pipe, means for regulating the upper portion of the regulator relatively to the lower portion, and a valve arranged in the outlet-pipe between the members of the regulator, substantially as specified.

6. A clarifier, comprising compartments adapted to discharge one into the other, an endless conveyer for removing scum from the liquid passed into the first compartment, coiled pipes arranged in the compartments and having connection with a steam-supply, and a propeller operating to force scum toward the conveyer, substantially as specified.

7. A clarifier, comprising a tank divided into compartments by two partitions so arranged that the liquid passing from one compartment will flow over one partition and underneath the other partition to the next compartment, means for conveying scum away from the liquid in the tank, and means for regulating the height of liquid in the tank, substantially as specified.

694,872. SHOE OR BOOT. BENJAMIN R. LOCKETT, Jefferson City, Mo. Filed July 30, 1901. Serial No. 70,276. (No model.)

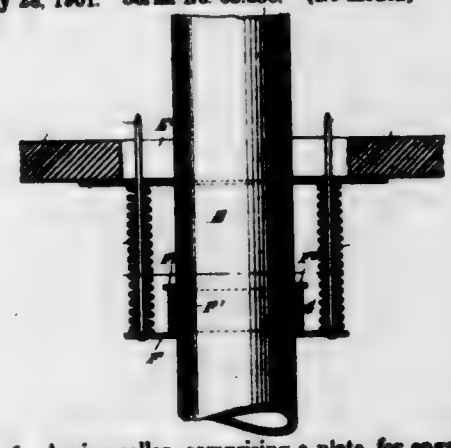


Claim.—1. A wooden sole made in two sections having at their adjacent faces, V-shaped grooves, a rubber block adapted to said grooves, and a hinge having one of its leaves secured to each section, said hinge extending over the rubber block and forming a protection for the same on the outer surface of the sole, substantially as described.

2. A wooden sole divided at the shank into two sections, each section having a V-shaped groove, a rubber block fitted in said grooves, a hinge uniting said sections and extending entirely over the shank, and covering and protecting said rubber block, there being a rabbet formed in the upper outer edge of said sections and said block, substantially as described.

3. A wooden sole made in two sections, the adjacent faces of each section being provided with V-shaped grooves, and each section having on its outer and upper face a rabbet for the reception of the upper, a rubber block shaped to conform to the V-shaped grooves and having at its opposite ends rabbets forming a continuation of the rabbets of the sole-sections, and a hinge having its leaves connected to the under side of the shank and extending entirely over the same, said hinge being so disposed as to form a protective covering for said rubber block, substantially as specified.

694,873. PIPE-COLLAR. EDWARD J. MALLEN, New York, N. Y. Filed May 23, 1901. Serial No. 62,250. (No model.)

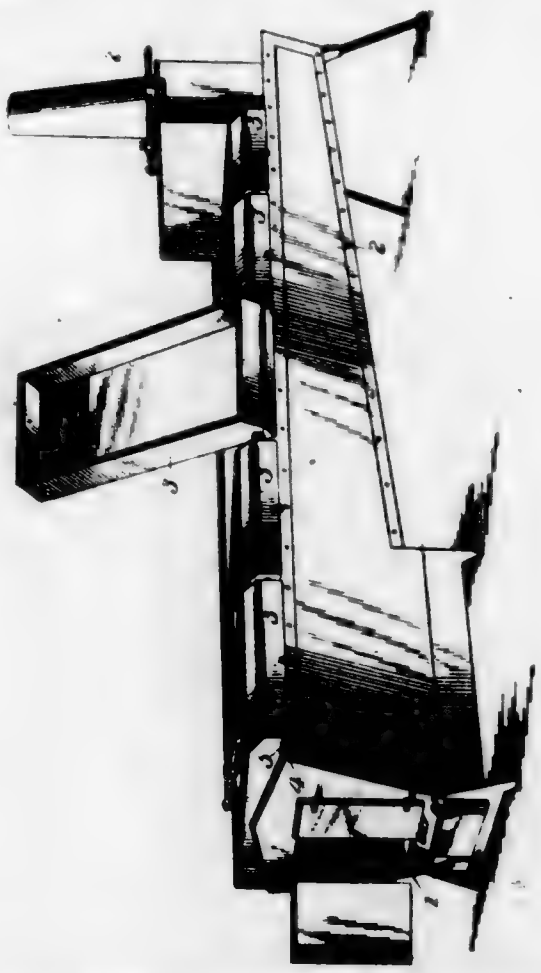


Claim.—1. A pipe-collar, comprising a plate for engaging a pipe, guide-rods for the plate, arms carrying the guide-rods, springs on said guide-rods and resting on said arms, for pressing the plate against a ceiling, floor or wall, and a clip on the pipe and carrying said arms, as set forth.

2. A pipe-collar, comprising a plate for engaging a pipe, guide-rods for the plate, arms carrying the guide-rods, and having shanks and flanges, springs on said guide-rods and resting on said arms, for pressing the plate against a ceiling, floor or wall, and a clip on the pipe and carrying said arms, said clip being engaged at the inside by said shanks and the top edge by said flanges, as set forth.

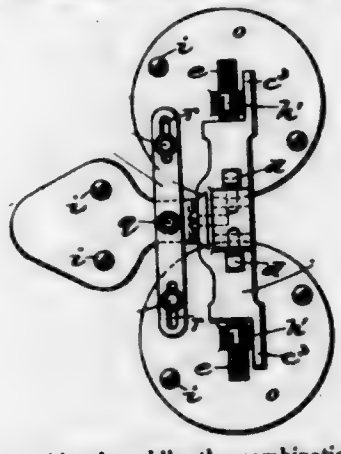
694,874. TRANSFER AND HINGE FOR EVAPORATING-PANS. GALUSHA A. KING, Linesville, Pa., assignor to Charles W. Davis, Linesville, Pa. Filed Apr. 3, 1901. Serial No. 54,157. (No model.)

Claim.—1. In an evaporator, the combination with the series of evaporating-pans, of a combined transfer and hinge arranged wholly inside of the space between adjacent pans and extending across such space or interval, said combined transfer and hinge providing a straight-away passage from pan to pan and comprising a tubular elongated journal member having a flanged end fitted to one pan, a tubular sleeve member also having a flanged end fitted to the corresponding side of the adjoining pan, and packing arranged about the journal member at the outer end of the sleeve member.



2. In an evaporator, the combination with the evaporating-pans, of a combined transfer and hinge comprising a tubular elongated journal member fitted to one pan, a tubular sleeve member fitted to an adjoining pan and receiving therein an end portion of the journal member, said sleeve member having a threaded portion, and an adjustable packing-nut closely fitting the exterior of the sleeve member and having a threaded collar engaging the neck of said sleeve, and packing arranged within the collar of the nut and against the outer end of the sleeve member.

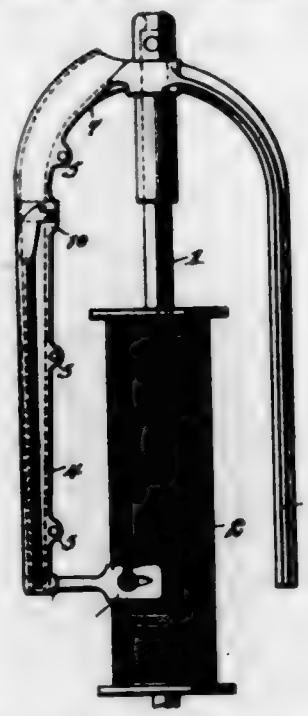
694,875. BICYCLE-SADDLE. GEORGE A. MEGHAN, Providence, R. I. Filed Oct. 4, 1901. Serial No. 77,585. (No model.)



Claim.—1. In a bicycle-saddle, the combination, of a saddletree, made in one piece of metal adapted to extend transversely across the saddle-post, having an ear projecting upwardly near each extremity thereof, each of which ears is provided with an opening opposite to each other, and an outer extension from the upper portion of each of said ears, and parallel with the openings of the same, said saddletree being also provided with a central transverse groove, a bolt mounted in the ears of said saddletree and provided with a right and left hand screw-threaded portion at either end thereof, a circular collar rigidly secured upon the central portion of said bolt and made to fit in the said groove of the saddletree, two circular pads made of yielding material, as described, metallic holders for said pads each having a projecting ear provided with a transverse screw-threaded opening to receive the threaded portion of said bolt, a pommel-arm rigidly secured to the said saddletree, with means secured upon said arm for permitting limited forward swing to the said pads, as shown and described.

2. In a bicycle-saddle, the combination, of a saddletree cast in one piece and adapted to extend transversely across the saddle-post, centrally secured thereon and having vertical ears near each extremity thereof, each of said ears provided with a circular opening opposite to each other, and an extension from each of said ears of the saddletree, said saddletree being also provided with a central transverse groove, a bolt mounted in the openings of the ears of said saddletree and provided with right and left hand screw-threaded portions, a circular collar rigidly secured centrally of the said bolt and adapted to rotate in the groove of said saddletree, two metallic cup-shaped holders each having a centrally-projecting ear provided with a screw-threaded opening to engage the threaded portion of said bolt, a yielding pad secured in each of the said holders, a centrally-projecting pommel-arm rigidly secured to the said saddletree and provided with a yielding pad, a screw-threaded bolt in said arm, a cross-bar loosely mounted on said bolt and provided with a slotted opening near each extremity thereof, with a screw-threaded bolt in each of the openings of said cross-bar to engage in the bottom of said holders, as shown and described.

694,876. FLIER. FREDERICK A. MELLER, Woonsocket, R. I., assignor of one-half to Francis Joseph O'Reilly, Woonsocket, R. I. Filed Aug. 21, 1901. Serial No. 72,535. (No model.)



Claim.—1. The herein-described flier, having a hollow arm, comprising two sections, lugs on the hollow arms and means engaging the lugs for binding the sections together.

2. A flier comprising arms one of which is formed of separable parts, one section of the separable arm being formed with the other arm and means for securing the sections together.

694,877. STOP MECHANISM FOR ENGINES. THOMAS D. MILLEA, Springfield, Mass., assignor to Springfield Engine Stop Company, New York, N. Y., a Corporation of Maine. Filed May 9, 1898. Serial No. 590,833. (No model.)

Claim.—1. The combination, with a motor having a main shut-off mechanism, of a shut-off cylinder provided with a piston and piston-rod independent of the main shut-off mechanism, a conduit extending from the shut-off cylinder, to the source of power, a valve in said conduit, a lever arranged to control said valve, an armature adapted to maintain said lever in a fixed position, an electromagnet arranged to move the armature and thereby release the lever, said electromagnet being connected by suitable conductors with a source of electrical energy, and means interposed in the path of the piston-rod of the shut-off cylinder to cause the operation of the main shut-off mechanism which in turn operates to shut off the motive force to the motor, substantially as set forth.

2. In combination with a motor and main shut-off mechanism therefor, an auxiliary shut-off mechanism consisting essentially of a shut-off cylinder having a piston and piston-rod arranged to operate the main shut-off mechanism to cut off the supply of steam or other motive force

to the motor, the shut-off cylinder, piston and rod being independent of the main shut-off mechanism, a conduit extending from the shut-off cylinder to the boiler or other reservoir of power, a valve in said conduit, a lever adapted to control said valve, an armature adapted to hold said lever in its normal position, and an electromagnet capable when energized of moving said armature to set free the lever, substantially as set forth.



3. In combination with a motor and a main shut-off mechanism therefor including a governor, an auxiliary shut-off mechanism independent of the main shut-off mechanism, consisting essentially of a cylinder provided with a piston and piston-rod, a conduit extending from the shut-off cylinder to a reservoir of motive force, a valve in said conduit, a lever arranged to control said valve, an armature adapted to hold said lever in normal position, an electromagnet to operate the armature and thereby set free the lever and open the valve, a projection having its position controlled by the governor, and an adjustable contact-point in the path of said projection, the projection, contact-point and electromagnet being in the same electric circuit when the two former are in contact, substantially as set forth.

4. In a shut-off mechanism operated by steam or fluid pressure, a lever, an inlet-valve maintained in its normal closed position by said lever and a spring-provided part interposed between the holding-lever and stem, the lever being free when released to move out of the path of the stem and release the pressure upon the spring and leave the valve free to open, substantially as shown.

5. In a shut-off mechanism operated by steam or fluid pressure, an inlet-valve having a stem-provided valve-disk, a cap arranged upon the stem, a spring interposed between the two, and means to hold the cap in position to compress the spring, substantially as and for the purposes shown.

6. In combination with a low-pressure motor, a shut-off cylinder provided with a piston-rod arranged to shut off the supply of steam or other motive force to the engine-cylinder, a conduit leading to the shut-off cylinder for the conveyance of motive force thereto, a valve arranged therein, a conduit leading to the vacuum, a valve arranged in said conduit, and means to open both said valves at substantially the same time, substantially as and for the purposes shown.

7. In combination with a low-pressure motor, two valves arranged adjacent to each other, one being connected with a shut-off mechanism to shut off the supply of steam or other motive force and the other connected with the vacuum, and a pivotally-mounted lever operatively controlling both said valves, and means to control said lever, substantially as shown.

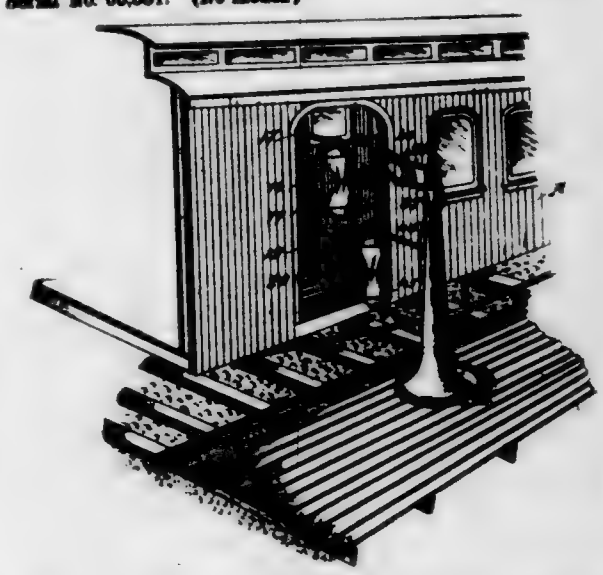
8. In a stop mechanism, the combination of a governor, a projection the position of which is governed by the speed of the motor, one or more contact-pieces adjustably arranged in the path of said projection, and a shut-off device adapted to be put in operation by an electric device, said electric device and contact-pieces being in electrical connection only when one of said pieces is in contact with said projection, substantially as set forth.

9. The combination, of a governor, a projection on one of the movable parts thereof, a shut-off cylinder having a piston and piston-rod the latter being arranged to engage said projection, when operated, contact-pieces suitably mounted in the path of the projection, a conduit leading to the shut-off cylinder, a valve in said conduit, an electrically-operated valve-operating device, a source of electrical energy, and suitable electric conductors employed to bring the contact-pieces into circuit when in contact with the projection, substantially as set forth.

10. The combination, in a shut-off mechanism, of an inlet-valve, a spring to hold said valve closed when said spring is under tension, a conduit extending from the valve to the source of power, a cylinder provided with a piston and piston-rod adapted to operate to close the main shut-off valve of a motor, a conduit extending from said inlet-valve to said cylinder, a lever arranged to maintain said spring under tension, an armature to engage one end of said lever, an electromagnet to move said armature, when energized, and means to energize said electromagnet at will, substantially as set forth.

11. In a shut-off mechanism for a vacuum-engine the combination of a cylinder, a piston and piston-rod arranged to shut off the supply of steam to the engine-cylinder, a conduit leading to the shut-off cylinder, a valve arranged therein, a conduit leading to the vacuum, a valve arranged therein and means to open both said valves by the operation of a single releasing device, substantially as shown.

694,878. MAIL CATCHER AND DELIVERER. JOHN F. MILLS, Jr., and CHARLES FREND, Jr., Port Chester, N. Y. Filed May 16, 1901. Serial No. 60,331. (No model.)

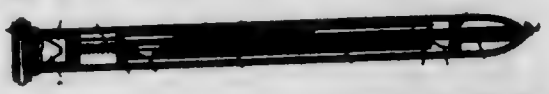


Claim.—1. In mail-bag catchers and deliverers, a spring-controlled support mounted for rocking movement, arms extending from the said support, curved jaws carried by said arms, an oppositely-curved jaw mounted between the said arms for movement to and from the fixed jaws, a keeper carried by the movable jaw, and a latch for the said keeper carried by a fixed jaw, the latch being released from the keeper by an object brought in contact therewith, for the purpose described.

2. In a mail-bag catcher and deliverer, a spring-controlled rocking support, arms fixed to the said support, terminating in curved jaws, a spring-controlled jaw mounted for movement between the said arms, the movable jaw being curved oppositely to the fixed jaws, a keeper-bar connected with the movable jaw, and a latch connected with one of the fixed jaws, adapted for engagement with the said keeper-bar, which latch extends downward in front of the concaved portions of the fixed jaws, for the purpose described.

3. In a mail-bag catcher and deliverer, a spring-controlled rocking support, arms fixed to the said support, extending horizontally therefrom and terminating in curved jaws, an oppositely-curved jaw, spring-controlled and mounted to rock between the said arms, to and from the fixed jaws, a keeper-bar connected with the said movable jaw, a latch carried by one of the fixed jaws, adapted for engagement with the keeper-bar, and extending down in front of the curved, concaved faces of the said fixed jaws, and a latch for the said arms, as and for the purpose described.

694,879. PENCIL. BARTLEY T. MULLIGAN, Brooklyn, N. Y. Filed Oct. 31, 1901. Serial No. 80,670. (No model.)



Claim.—1. A casing, a feed-rack in the casing, a pencil-tube in the casing having a longitudinal slot, a pawl in said tube for feeding the pencil

and the nose of which projects through said slot to engage the rack, and means for operating the rack, said rack and casing being free from or placed loosely one into the other so that no rotation is communicated from one to the other.

2. A casing, a feeding-rack, a slotted pencil case or tube, a pencil-feeding pawl in the tube made to engage the rack, a spring for holding the case and pawl toward the rack, means for feeding the pawl from the rack for returning the pawl, and means for actuating the rack substantially as described.

3. A casing, a feeding-rack, a pencil case or tube, and a pencil-feeding pawl made to engage the rack, said rack and pencil-tube having a bridge and shoulder portion made to engage one another to free or disengage the pawl and rack substantially as described.

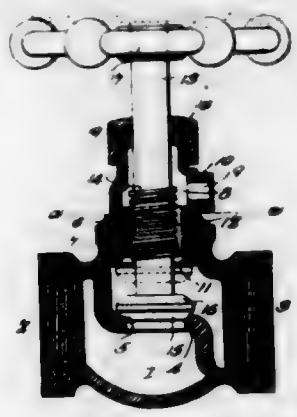
4. A casing, a reciprocating rack having a bridge portion, a pencil-tube having a shoulder portion, a pencil-feeding pawl in the pencil-tube, and a spring interposed between the pencil-tube and rack to hold the pawl normally in engagement with the rack, said pencil-tube and rack being non-rotary to keep the pawl in line with the rack-teeth and said bridge and shoulder portions being made to engage one another to depress the pawl to clear the rack substantially as described.

5. A casing, a reciprocating rack having a bridge portion, a pencil-tube having a shoulder portion, a pencil-feeding pawl in the pencil-tube, and a cam for oscillating the rack to feed the pawl and pencil and to hold the rack with the bridge and shoulder portions in engagement to free the pawl for return of the latter substantially as described.

6. A casing, a reciprocating rack having a bridge portion, a pencil-tube having a shoulder portion, a pencil-feeding pawl, and means for reciprocating the rack to feed the pawl and for holding the bridge and shoulder portions in engagement to free the pawl, said pawl being constructed from a spring-wire bent to form a pawl-tooth and a pencil-tube engaging or friction portion substantially as described.

7. A casing, a reciprocating rack, a pencil-tube having a pencil-feeding pawl actuated by the reciprocating rack, and a bridge and shoulder portion on the rack and pencil-tube respectively for freeing the pawl, said pencil-tube having a spring or clamping portion at its outlet to prevent loss of the pencil and pawl substantially as described.

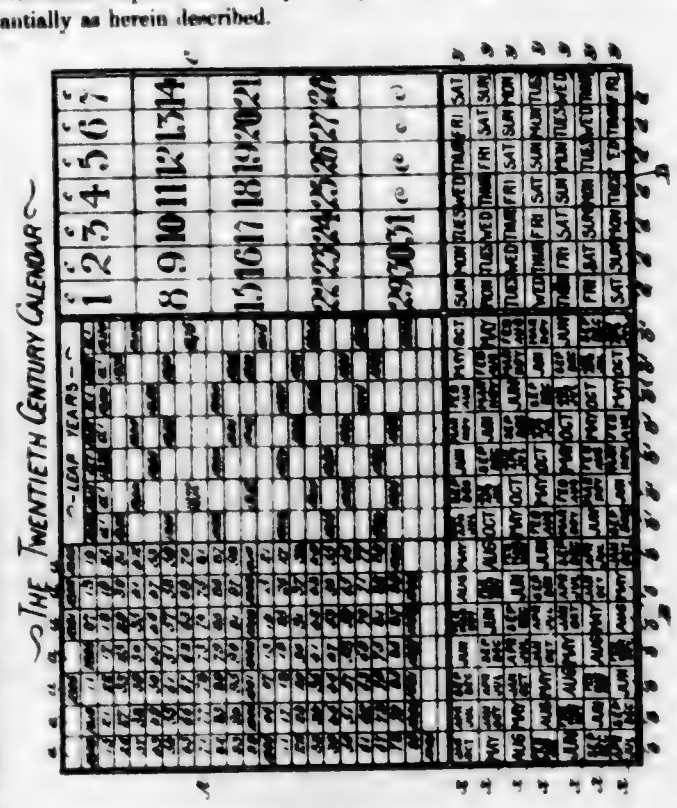
694,880. STOP AND WASTE COCK. ERNST MUNGER, Dallas, Tex. Filed Mar. 23, 1901. Serial No. 52,592. (No model.)



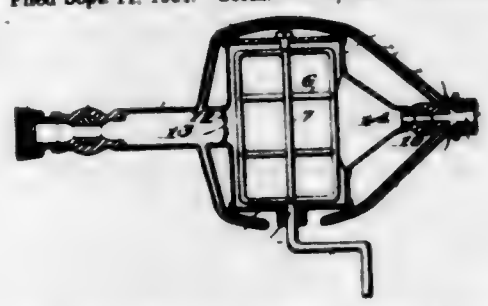
Claim.—In a stop and waste cock, a body having a main and a service connection, a port 5 between the same, and a threaded opening in one side, opposite said port, in combination with a gland having screw-threads at its inner end to engage said threaded opening and thereby detachably couple said gland directly to said body, said gland having a valve-seat 11 formed in its inner end, a threaded bore, a waste-port, and a waste-channel in one side of said threaded bore, said channel connecting said waste-port and said valve-seat 11, a valve-stem, carried by said gland, having a threaded portion engaging the threaded bore of said gland, and an oppositely-faced valve at the inner end of said stem, adapted to alternately close the port 5 and the valve-seat 11, the outer end of said stem projecting through an opening in the outer end of said gland, and a packing-cap screwed on the outer end of said gland, substantially as described.

694,881. CALENDAR. HENRY W. MCALL, Red Hill, England. Filed Nov. 30, 1901. Serial No. 84,218. (No model.)

Claim.—A calendar comprising four rectangular panels, A, B, C, and D, each divided into vertical columns respectively containing the numerals of years, the names of months, the ordinals of the days of the month and the names of the days of the week; the years being arranged in approximate sequence in the ordinary direction of reading, the leap-years being contained in a group of columns to one side of the group of columns containing common years; the columns containing the names of the months being in vertical alinement with the columns containing the years, a separate group of months being arranged in alinement with the leap-year columns; the columns containing the names of the days of the week being in vertical alinement with the columns containing the ordinals of the days of the month; and both groups of months in the months-panel and the days-of-weeks panel being also divided into horizontal row-spaces, with the row-spaces of the respective panels in horizontal alinement, substantially as herein described.



694,882. INSECT-DESTROYER. ROBERT A. MCCRONE, Denver, Colo. Filed Sept. 11, 1901. Serial No. 75,048. (No model.)



Claim.—1. In a device of the character described the combination with a receptacle adapted to contain a suitable material and provided with a fluid supply and discharge pipe, of a nozzle in the discharge-pipe, a branch pipe leading from the supply-pipe to the discharge-nozzle, an adjustable valve in the discharge-pipe for regulating or entirely cutting off the flow of liquid from the discharge-pipe to the discharge-nozzle, and a diaphragm in the supply-pipe between the branch pipe and the receptacle, and having a relatively small aperture, substantially as described.

2. In a device of the character described the combination with a receptacle adapted to contain a suitable material, and provided with a fluid supply and discharge pipe, of a discharge-nozzle on the discharge-pipe, an adjustable valve arranged in the discharge-pipe, a branch pipe leading from the supply-pipe to the discharge-nozzle, and a valve in the supply-pipe arranged to control the fluid to both the supply and branch pipes, substantially as described.

3. In a device of the character described the combination with a receptacle adapted to contain a suitable material, and provided with a fluid supply and discharge pipe, of a manually-actuated agitator in the receptacle, a discharge-nozzle on the discharge-pipe, a branch pipe leading from the supply-pipe to the discharge-nozzle, and a diaphragm in the supply-pipe between the branch pipe and the receptacle, and having a relatively small aperture, substantially as described.

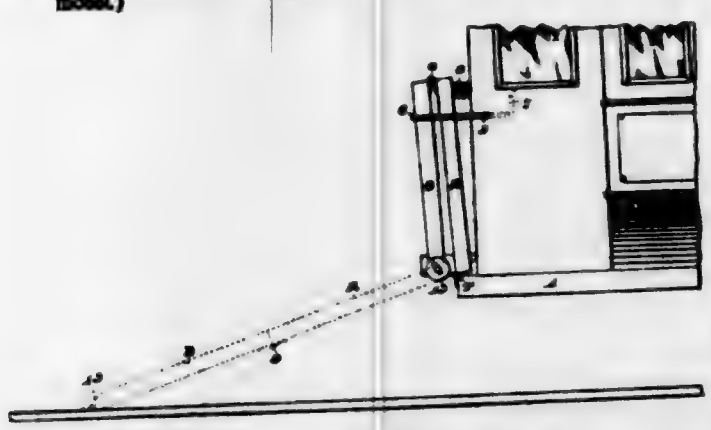
4. In a device of the character described the combination with a receptacle adapted to contain a suitable material, and provided with a fluid supply and discharge pipe, of a discharge-nozzle on the discharge-pipe, a branch pipe leading from the supply-pipe to the discharge-nozzle, a valve for controlling the passage of the fluid through both the supply and branch pipes, a valve for regulating the passage of the fluid through the discharge-pipe to the nozzle, and a diaphragm in the supply-pipe between the branch pipe and the receptacle, and having a relatively small aperture, substantially as described.

5. In a device of the character described the combination with a re-

ceptacle adapted to contain a suitable material and provided with a fluid supply and discharge pipe, of a mixing-chamber on the end of the discharge-pipe, branch pipes leading from the supply-pipe around the receptacle to the mixing-chamber, an agitator in the receptacle, means for regulating or entirely shutting off the flow of liquid from the receptacle to the mixing-chamber, and a diaphragm arranged in the supply-pipe between the branch pipe and the receptacle, and having a relatively small aperture, substantially as described.

6. In a device of the character described, the combination with a cylindrical receptacle provided on one side intermediate its ends with a fluid-supply pipe and on its opposite side with a discharge-pipe, a mixing-chamber on the end of the discharge-pipe, branch pipes leading around opposite sides of the receptacle and each respectively connected at its ends to the supply-pipe and mixing-chamber, a diaphragm in the supply-pipe between the branch pipes and the receptacle and having a relatively small aperture, and a valve arranged in the discharge-pipe and operating to control the flow of liquid from the latter to the mixing-chamber, substantially as described.

694,888. CAR-FENDER. JAMES J. MCGARVEY and GEORGE R. HOFF, Pittsburg, Pa. Filed July 17, 1901. Serial No. 68,622. (No model.)

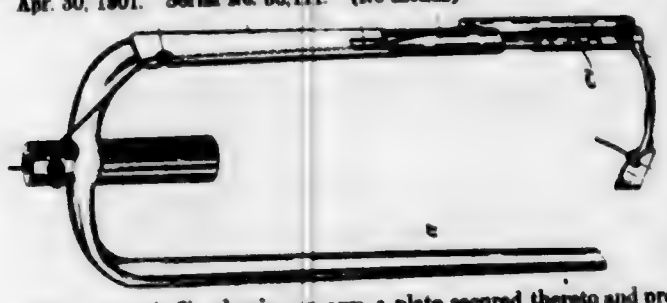


Claim.—1. In a device of the character described, the combination of substantially rectangular frames having spring-pressed hinges on their underneath faces forming a connection between said frames, hinges secured to one of said frames and to the forward portion of the car, springs carried by the car and adapted to engage one of said frames, rollers carried by the forward end of one of said frames, and means carried by the car for engagement with the forward frame for retaining the fender in an inoperative position, substantially as described.

2. In a car-fender, the combination of two hinged spring-pressed sections, rollers arranged upon the forward section, springs secured to the forward portion of the car, and a hooked operating-lever securing said sections in a folded position, substantially as described.

3. In combination with a car, a hinged fender formed of two sections, spring-pressed hinges securing said sections together, springs arranged to the forward portion of said car, rollers arranged to the forward part of one of said hinged sections, a hooked operating-lever arranged to the platform of the car retaining said fender in a folded position all parts being arranged and operating substantially as described.

694,884. FLIER. JOHN J. MCOSKER, Woonsocket, R. I. Filed Apr. 30, 1901. Serial No. 58,111. (No model.)



Claim.—1. A flier, having an arm, a plate secured thereto and provided with an eye at its upper end and a notch or slot at its lower end, a presser-finger sleeve mounted on the arm, and a tension-bar carried by said sleeve and engaging the yarn at its end portions.

2. A flier having an arm, a plate fastened at one edge thereto and having an eye at its upper end, and a notch at its lower end for guiding the yarn, and a presser-finger arranged on the arm and having the thread lead thereto from the plate.

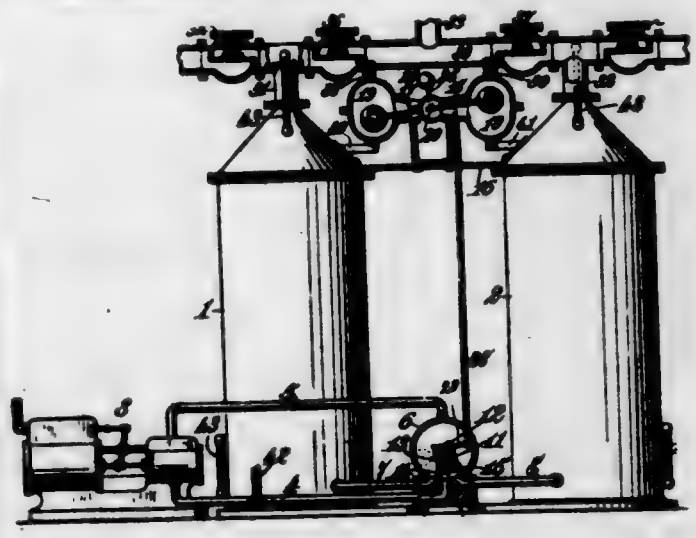
3. A flier having an arm, a presser-finger carried thereby, means carried on the exterior of the arm for guiding the thread, and a tension-bar from which the thread passes to the presser-finger.

4. A flier having an arm, a presser-finger sleeve mounted thereon, and a tension-bar held by the sleeve and having its end portions separated therefrom, for the purpose specified.

5. A flier having an arm, a presser-finger, a sleeve carrying the presser-finger and mounted to have a limited rocking movement on the arm, and a tension-bar carried by the sleeve and having its end portions separated therefrom, for the purpose specified.

6. A flier having a solid arm, a plate secured to said arm and having means at its ends for guiding the yarn, a presser-finger sleeve mounted on the arm and having a slot therein, a pin held by the arm and fitting in the slot to limit the rocking movement of the sleeve, a presser-finger carried by said sleeve, and a tension-bar connected between its ends to the sleeve.

694,885. AIR-COMPRESSOR. DAVID O'CONNELL, Brooklyn, N. Y. Filed Sept. 13, 1901. Serial No. 75,334. (No model.)



Claim.—1. In an air-compressor, the combination with two tanks each having a valve connection with a pressure-receiver and the outer air, respectively, one of said tanks containing water, a pump operatively connected with said tanks, a valve controlling the connections between the pump and said tanks and adapted to be turned to cause the water to be withdrawn by said pump from each of the tanks, in turn, and forced into the other, chambers communicating respectively with the upper end of each tank, a float in each chamber, a rock-shaft on which both of said floats are mounted and means actuating said rock-shaft for alternately shifting the said valve as the water rises in each of said tanks successively, substantially as described.

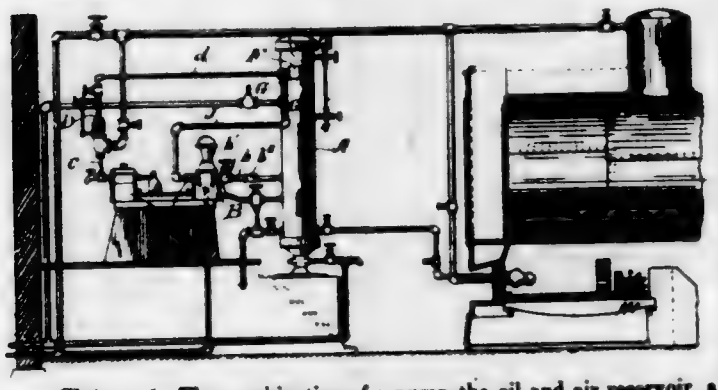
2. In an air-compressor, the combination with two tanks each having a valve connection with a pressure-receiver and the outer air, respectively, and one of said tanks containing water, of a pump operatively connected with said tanks, a valve controlling the connections between the pump and said tanks, and adapted to be turned to cause the water to be withdrawn by said pump from each of the tanks, in turn and forced into the other, chambers communicating respectively with the upper end of each tank, a float in each chamber, a rock-shaft on which both of said floats are mounted, a weighted arm fixed on said rock-shaft and arranged when shifted by one of said floats beyond a vertical position to rock said rock-shaft, and means actuated by said rock-shaft for alternately shifting the said valve as the water rises in each of said tanks, successively, substantially as described.

3. In an air-compressor, in combination with two tanks having each an outlet and valved communication with the outer air, and one of said tanks containing water, a pump operatively connected with said tanks, a valve controlling the communications between the pump and said tanks and adapted to be turned to cause the water to be withdrawn by the pump from each of said tanks, in turn, and forced into the other, chambers communicating, respectively, with the upper end of each tank, a float in each of said chambers having an arm connected to a common shaft, means operatively connecting said shaft and valve, and an arm extending vertically upward from said shaft and having at its outer end a weight, the combination operating as described.

4. In an air-pump, the combination with two tanks each having a valve communication with a pressure-receiver and the outer air, respectively, and one of said tanks containing water, of a pump operatively connected with said tanks, a valve controlling the communications between the pump and said tanks and adapted by turning to cause the water to be withdrawn by said pump from each of the tanks, in turn, and forced into the other, chambers communicating respectively with the upper end of each tank and with the air-outlet from the latter, a float in each chamber, a rock-shaft on which both of said floats are mounted, and means actuated by said rock-shaft for alternately shifting the said valve as the water rises in each of said tanks successively, substantially as described.

5. In an air-compressor, the combination with two tanks each having a valve communication with a pressure-receiver and the outer air, respectively, and one of said tanks containing water, of a pump operatively connected with said tanks, a valve controlling the communications between the pump and said tanks, and adapted to be turned to cause the water to be withdrawn by the pump from each of said tanks, in turn, and forced into the other, chambers communicating, respectively, with the upper end of each tank, a float in each of said chambers having an arm connected to a common shaft, means operatively connecting such shaft and valve, an arm extending vertically upward from said shaft, and having at its outer end a weight, and a weighted arm fixed to the stem of the said valve, substantially as described.

694,886. AUTOMATIC OIL AND AIR REGULATOR. FRANK W. PARFITT, Louisville, Ky. Filed Oct. 14, 1901. Serial No. 78,653. (No model.)



Claim.—1. The combination of a pump, the oil and air reservoir, a float therein, a pair of valves adapted to be opened one by the rise the other by the fall of the float, an air-outlet from the reservoir controlled by one of said valves, and an air-inlet to the pump controlled by the other of said valves, substantially as described.

2. In an automatic regulator for oil-burning apparatus, the combination of a pump, the oil and air reservoir, a float therein, a pair of rocking valves connected to said reservoir, adapted to be opened one by the rise the other by the fall of the float, and both closed when the float is in a central position, an air-outlet from the reservoir controlled by one of said valves, and an air-inlet to the pump controlled by the other of said valves, for the purpose and substantially as described.

3. In an automatic regulator for oil-burning apparatus, the combination of the reservoir, the chamber connected therewith, the valve-casings on opposite sides of the chamber, the rocking valves in said casings, a float in the reservoir, and a connection between said valves and said float, said valves being independently adjustable on said connection, all constructed and arranged to operate substantially as described.

4. The combination with a reservoir, of a casing attached thereto, similar opposite rocking valves in said casing, a rocking connection on which said valves are independently adjustable, a float attached to said connection, an air-exit from the upper part of the reservoir controlled by one valve and an air-inlet controlled by the other valve, said float opening one valve when it rises and the other valve when it falls, substantially as described.

5. The combination with a chamber, of similar opposite valve-casings detachably secured thereto, similar rocking valves in said casings, a rocking connection on which said valves are independently adjustable, and a float secured to said connection, all constructed and arranged to operate substantially as and for the purpose described.

6. The combination of the chamber, the opposite valve-casings detachably secured thereto, the conical rocking valves in said casings having ports adapted to register with ports in the casings; a sleeve in the chamber to which the inner ends of the valves are adjustably secured, and a float attached to said sleeve, adapted to rock the same and valves, substantially as described.

7. The combination of the oil and air reservoir, the supply-pump and the governor for said pump controlled by the air-pressure in the reservoir; with the chamber attached to the reservoir at the oil-level, the opposite rocking valves attached to opposite sides of said chamber, the rocking connection between said valves, the float attached to said connection, an air-exit from the upper part of reservoir controlled by one valve, and an air-inlet to the pump controlled by the other valve, substantially as described.

8. The combination of the oil and air reservoir, the supply-pump, and the governor for said pump controlled by the air-pressure in the reservoir; with opposite valve-casings attached to the reservoir at the oil-line thereof, the sleeve between said casings, the valves in said casings projecting into and secured to opposite ends of the sleeve; the float attached to said sleeve, the air-inlet pipe to pump controlled by one of said valves, and the air-outlet from reservoir controlled by the opposite valve.

9. In an oil-burning apparatus, the combination of the oil and air reservoir, the supply-pump, the governor for said pump controlled by the air-pressure in the reservoir; and a removable chamber attached to the reservoir at the oil-line thereof; with opposite removable valve-casings in opposite sides of said chamber, a sleeve in the chamber between said casings, the valves in said casings projecting into and adjustably secured to opposite ends of the sleeve, the float in the reservoir attached to said sleeve, and the air-inlet pipe to pump controlled by one of said valves, and the air-outlet from reservoir controlled by the opposite valve, said valves being so arranged that one is closed when the other is open, and both closed when the float is in central position, substantially as and for the purpose set forth.

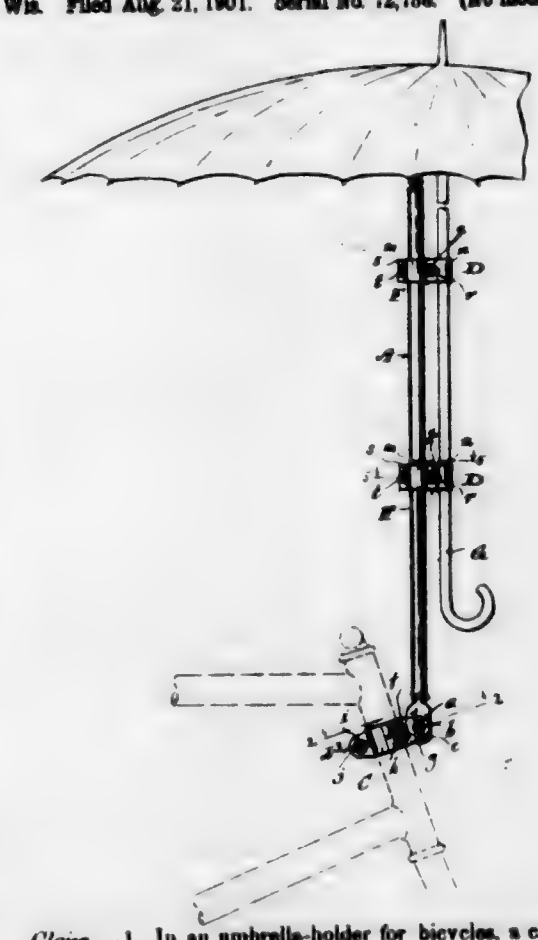
694,887. CASH-BOX. JOHN J. PENYS, Galveston, Tex. Filed Sept. 20, 1901. Serial No. 75,680. (No model.)



Claim.—1. A cash-box, comprising a box proper having an opening in its upper portion for the introduction of a coin, and a false bottom arranged in the box dividing it into upper and lower compartments, said false bottom comprising inclined stationary parts fastened to opposite walls of the box, movable parts mounted to swing on the respective stationary parts and closing against each other, and springs holding said movable parts yieldingly closed.

2. A cash-box, comprising a box proper having an opening in its upper portion for the introduction of a coin, and a false bottom arranged in the box dividing it into upper and lower compartments, said false bottom comprising inclined stationary parts fastened to opposite walls of the box, movable parts mounted to swing on the respective stationary parts and closing against each other, springs holding said movable parts yieldingly closed, and a latch for locking the movable parts of the false bottom closed, said latch having a portion capable of bearing on each movable part of the false bottom and being pivoted to swing toward and from the same.

694,888. UMBRELLA-SUPPORT. ANTON J. PFLUGER, Brillion, Wis. Filed Aug. 21, 1901. Serial No. 72,736. (No model.)

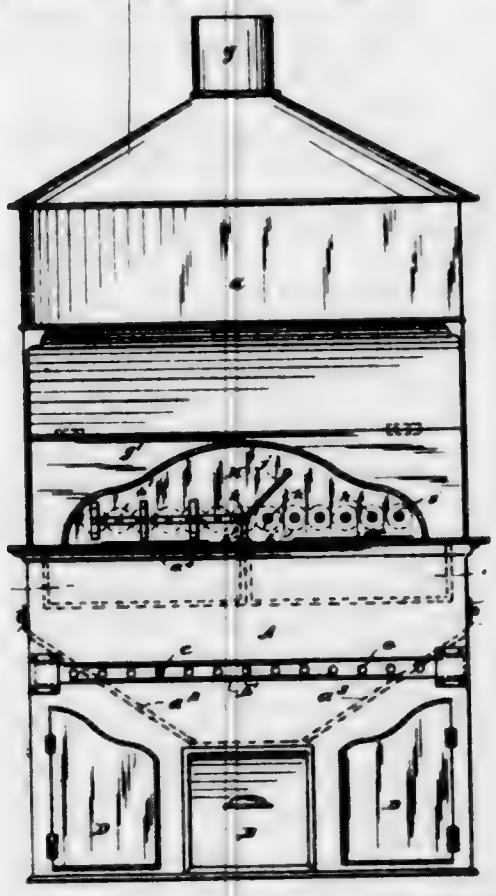


Claim.—1. In an umbrella-holder for bicycles, a clip composed of two members secured to the frame thereof, ears projecting from one of

said members, a rod pivoted between the latter and adapted to be adjusted at various angles upon its pivot, a hook *g* projecting from the other member of clip and a pocket in the first member for the reception of the hook and a clamping-bolt for securing the members to the frame of the bicycle, whereby when said bolt locks the two members upon the frame the hook *g* is simultaneously pressed against the pivoted rod and locks the same in its adjusted position substantially as set forth.

2. In an umbrella-holder for bicycles, a clip composed of two members secured to the frame thereof, ears projecting from one of said members, a rod pivoted between said ears, a thumb-nut upon one end of said pivot whereby the rod is held at various adjusted positions upon the former, a hook projecting from the other member of said clip, and a pocket in the first member for the reception of said hook; a thumb-nut and bolt at the opposite end of said members, whereby the latter are secured to the frame of the bicycle; adjustable clamps upon the aforesaid rod; an umbrella-handle fitted in said clamps, and means for locking the latter upon the rod and umbrella-handle, substantially as set forth.

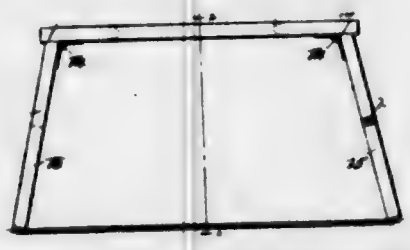
694,889. REVOLVING BROILER. PETER POOLEY, Chicago, Ill. Filed Apr. 5, 1901. Serial No. 54,560. (No model.)



Claim.—1. The combination of a casing provided with a draft-inlet in the front thereof and with outlets in its top plate, fire-boxes mounted in said casing, a revoluble broiler mounted over said fire-boxes provided with supports, and hollow broiler-spits adapted to engage with said supports.

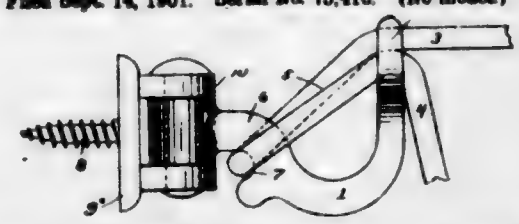
2. The combination in a broiler of a casing, a fire-box mounted in said casing, revoluble broilers mounted on a hinged plate proximate to said fire-box whereby said broilers may be turned away from the fire.

694,890. FOLDING COMMODE STAND AND SEAT. JAMES H. PRESTON, Brooklyn, N. Y. Filed July 6, 1901. Serial No. 67,235. (No model.)



Claim.—An apparatus of the kind described, comprising a seat provided with an opening, and a pair of leaves hinged to said seat, said leaves being provided with oppositely-disposed sinuous edges consisting of alternate tongues and recesses, the tongues of one edge being of substantially the same size and shape as the recesses of the opposite edge and adapted to fit the same accurately, so as to form, when folded, a substantially continuous surface.

694,891. CLOTHES-LINE FASTENER. FREDERICK RAUB, Elliott Pa. Filed Sept. 14, 1901. Serial No. 75,416. (No model.)



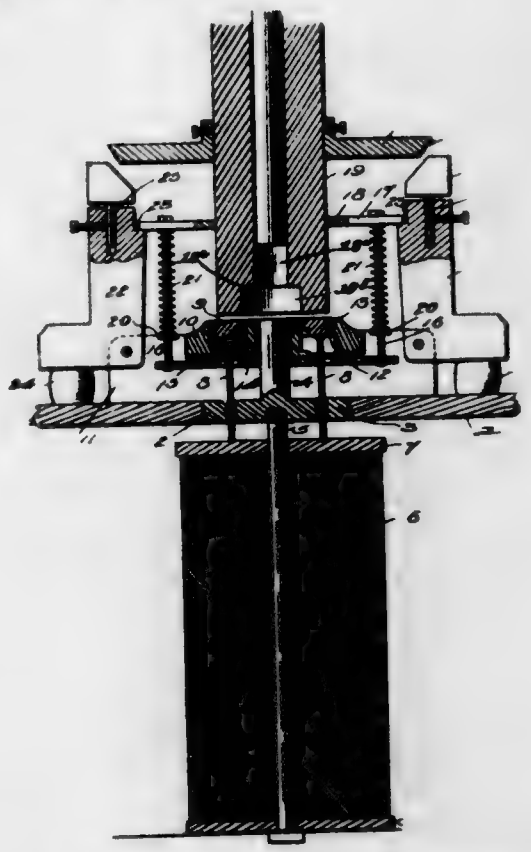
Claim.—1. A clothes-line fastener comprising a suitable support adapted to receive both strands of the rope and hold one on top of the other, and a notch or hook below the level of said support and a considerable distance to the rear thereof for holding the loop or bight inclined downwardly, whereby one strand will lie on top of the other and substantially parallel thereto and bind the same against the support.

2. A clothes-line fastener comprising a fork of a width substantially equal to the thickness of the rope and adapted to receive both strands thereof and hold one strand on top of the other, and suitable means below the level of said fork and a considerable distance to the rear thereof for holding the loop or bight of the rope inclined downwardly, whereby one strand will lie on the other and substantially parallel thereto and bind the same against the support.

3. A clothes-line or other rope fastener comprising a hook having a fork of a width substantially equal to the thickness of the rope and adapted to receive both strands of the rope and hold one on top of the other, and having a notch formed in its shank below the level of the fork and a considerable distance to the rear thereof for holding the loop or bight of the rope inclined downwardly, whereby one strand of the rope will lie on top of the other and substantially parallel thereto and bind the same against the support.

4. A clothes-line or other rope fastener comprising a suitable support adapted to recieve both strands of the rope and hold one on top of the other, a hook or notch below the level of said support and a considerable distance to the rear thereof for holding the loop or bight inclined downwardly, whereby one strand will lie on top of the other and substantially parallel thereto and bind the same against the support, and a base to which said fastener is hinged.

694,892. DIE FOR DRAWING SHEET METAL. JUSTUS H. REYNOLDS, Lemont, Ill. Filed May 25, 1901. Serial No. 61,909. (No model.)



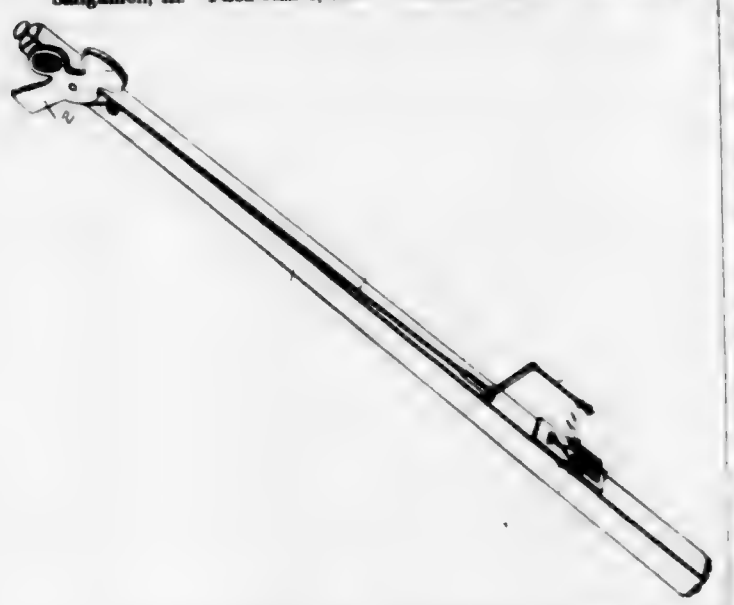
Claim.—1. The combination with a combined punch and female drawing-die; of a fixed female cutter-die, a stationary stem, an annular drawing-die, a bolster-plate for said annular die, a sliding collar on the punch, arms thereto, rods connecting said arms and plate, pivoted arms normally engaging the arms of the collar, and means for disengaging said arms during the downstroke of the punch.

2. The combination with a combined punch and female drawing-die: of a fixed stem and female cutter-die, an annular drawing-die sur-

rounding said fixed stem, a presser-ring between said drawing-die and female cutter-die, a bolster-plate for said annular die, a sliding collar on the punch, arms thereto, rods connecting said arms and plate, pivoted arms normally engaging the arms of the collar, and means for disengaging said arms during the downstroke of the punch.

3. The combination with a combined punch and female drawing-die; of a fixed stem and female cutter-die, an annular drawing-die, a bolster-plate, a sliding collar on the punch, arms thereto, rods connecting the plate and arms, springs for holding the plate normally lifted, pivoted arms, springs for holding the same normally in engagement with the arms of the ring, adjustable heads thereto, and an adjustable disk to the punch adapted to contact with the heads and throw the arms out of engagement during the downstroke of the punch.

694,893. RAILROAD SIGNALING DEVICE. GAINES G. RITCHIE, Sangamon, Ill. Filed Jan. 8, 1902. Serial No. 88,925. (No model.)



Claim.—1. A warning or signal attachment for semaphores comprising a pivoted guard-flap arranged adjacent to the cord-holding hook of the semaphore and adapted to cover the same, and means operable by the release of the cord for moving said flap to a position over said hook.

2. The combination with a semaphore having as elements an operating cord or rope and a holding-hook therefor, of a pivoted flap having sides of different color and normally occupying an elevated position when the semaphore is in safety position, and means operable by the release of the semaphore-cord for moving said flap to a position over said hook.

3. The combination with a semaphore having a holding-hook, of a pivoted flap having sides of different color, a guard arranged adjacent to the hook and adapted to move the flap to a position over said hook when depressed to effect the release of the semaphore-cord.

4. The combination with a semaphore having a holding-hook, an operating cord or rope and a ring secured thereto and adapted to be engaged on the hook, of a pivoted guard having a curved loop surrounding the hook and movable with respect thereto when the ring is released, a pivoted warning flap or signal and means for operatively connecting the loop to said flap to effect the movement of the latter to a position over said hook.

5. The combination with a semaphore-hook, its cord and attached ring, of the pivot-standards 11, a flap pivoted thereto and having different colors on its opposite sides, pivot-lugs 13 arranged between the standards and the hook, and a guard member pivoted in said lugs, said guard member having a lower loop adapted to embrace the hook, and an upper enlarged portion adapted to engage the rear face of said flap.

694,894. GUN-CARTRIDGE. ROBERT W. SCOTT, Philadelphia, Pa. Filed July 3, 1900. Serial No. 22,441. (No model.)



Claim.—1. A multishot-cartridge having a series of full-caliber projectiles disposed one before another in advance of a single projecting charge, said projectiles being of different sectional character, substantially as specified.

2. A multishot-cartridge having a series of full-caliber projectiles disposed one in advance of another and of different sectional character, successive projectiles being separated from each other by a medium which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by a projecting agent at the rear of said series, substantially as specified.

3. A multishot-cartridge having a single explosive projecting charge and a series of full-caliber projectiles disposed one beyond another in advance of said charge, said projectiles being of different sectional character, substantially as specified.

4. A multishot-cartridge having an explosive projecting charge and a series of full-caliber projectiles disposed one beyond another in advance of said charge, said projectiles being of different sectional character and successive projectiles being separated by a medium which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired, substantially as specified.

5. A multishot-cartridge having a series of full-caliber projectiles disposed one before another in advance of a single projecting charge, said projectiles being of different sectional density, substantially as specified.

6. A multishot-cartridge having a series of full-caliber projectiles disposed one in advance of another and of different sectional density, successive projectiles being separated from each other by a medium which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by a projecting agent at the rear of said series, substantially as specified.

7. A multishot-cartridge having a single explosive projecting charge and a series of full-caliber projectiles disposed one beyond another in advance of said charge, said projectiles being of different sectional density, substantially as specified.

8. A multishot-cartridge having an explosive projecting charge and a series of full-caliber projectiles of different sectional density disposed one beyond another in advance of said charge, successive projectiles being separated by a medium which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired, substantially as specified.

9. A multishot-cartridge having a series of full-caliber projectiles disposed one in advance of another, said projectiles being of different sectional density, and such sectional density being least in the forward projectile, greater in the next, and so on if the series comprises more than two, substantially as specified.

10. A multishot-cartridge having a series of full-caliber projectiles disposed one in advance of another and of different sectional density, successive projectiles being separated from each other by a medium which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by a projecting agent in the rear of said series, and the sectional density of the projectiles being least in the forward projectile, greater in the next, and so on if the series comprises more than two, substantially as specified.

11. A multishot-cartridge having an explosive projecting charge and a series of full-caliber projectiles disposed one beyond another in advance of said charge, said projectiles being of different sectional density, and the sectional density of the projectiles being least in the forward projectile, greater in the next, and so on if the series comprises more than two, substantially as specified.

12. A multishot-cartridge having an explosive projecting charge and a series of full-caliber projectiles of different sectional density disposed one beyond another in advance of said charge, successive projectiles being separated by a medium which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired, and the sectional density of the projectiles being least in the forward projectile, greater in the next, and so on if the series comprises more than two, substantially as specified.

13. A multishot-cartridge having a chamber for the explosive projecting charge, and a contracted neck in advance of the same, a series of projectiles disposed one in advance of another in said contracted neck, successive projectiles being separated by an interposed explosive charge, and a wad interposed between the forward projectile and the charge in the rear of the same, and fitting snugly in the contracted neck of the shell, substantially as specified.

694,895. GUN-CARTRIDGE. ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis N. D. Williams, Ashbourne, Pa. Filed Dec. 5, 1900. Renewed Aug. 7, 1901. Serial No. 71,260. (No model.)



Claim.—1. A cartridge-case having a reduced and projectile-receiving neck, and an external ring confined longitudinally between the shoulder formed by reducing the case, and an opposed shoulder in advance of the same.

2. A cartridge-case having a reduced and projectile-receiving neck, and an external ring in advance of the shoulder formed by such reduction.

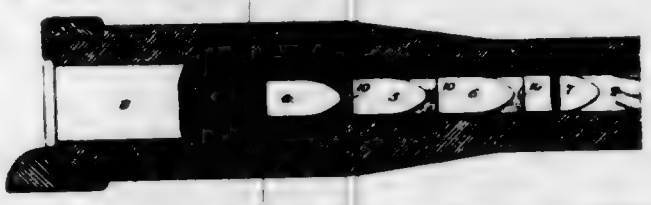
said ring presenting one or more shoulders, with which the material of the cartridge-case will be caused to engage by the expansive action of the gases of explosion.

3. A cartridge-case having a reduced and projectile-receiving neck, and an external ring in advance of the shoulder formed by such reduction, said ring having an internal shoulder-forming recess, into which the material of the cartridge-case will be forced by the expansive action of the gases of explosion.

4. A cartridge having a powder-chamber, a reduced neck in advance of the same, containing a series of projectiles, and an external ring in advance of the shoulder produced by reducing the case to form the neck, said ring presenting one or more shoulders, with which the material of the cartridge-case will be caused to engage by the expansive action of the gases of explosion.

5. A cartridge having a powder-chamber, a reduced neck in advance of the same, containing a series of projectiles, and an external ring in advance of the shoulder produced by reducing the case to form the neck, said ring having an internal shoulder-forming recess, into which the material of the cartridge case will be forced by the expansive action of the gases of explosion.

694,896. **GUN-CARTRIDGE.** ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis N. D. Williams, Ashbourne, Pa. Filed Dec. 21, 1900. Renewed Sept. 20, 1901. Serial No. 75,933. (No model.)



Claim.—1. A gun-cartridge having a casing containing a series of full-caliber projectiles disposed one in advance of another, successive projectiles being separated by a medium which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by a projecting agent at the rear of said series.

2. A gun-cartridge having a casing containing a series of full-caliber projectiles disposed one in advance of another, successive projectiles being separated from each other by an explosive charge which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by a projecting agent at the rear of said series.

3. A gun-cartridge consisting of a casing having an explosive projecting charge and a series of full-caliber projectiles disposed one before another in advance of said explosive charge, successive projectiles being separated by a medium which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by the explosion of said projecting charge.

4. A gun-cartridge consisting of a casing having a main explosive projecting charge and a series of full-caliber projectiles disposed one before another in said casing in advance of said projecting charge, successive projectiles being separated from each other by a supplementary explosive charge which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by the explosion of said projecting charge.

5. A gun-cartridge having a casing containing a series of full-caliber projectiles disposed one in advance of another, successive projectiles being separated from each other by a fulminating explosive charge which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by a projecting agent at the rear of said series.

6. A gun-cartridge consisting of a casing having a main explosive projecting charge, and a series of full-caliber projectiles disposed one before another in the casing in advance of said projecting charge, successive projectiles being separated from each other by a fulminating explosive charge which interposes a barrier of elastic fluid under pressure between them when the series is simultaneously fired by the explosion of the projecting charge.

7. A gun-cartridge having a casing containing a series of full-caliber projectiles disposed one in advance of another, successive projectiles being separated from each other by a fulminating explosive charge normally free from compression and interposing a barrier of elastic fluid under pressure between the projectiles when the series is simultaneously fired by a projecting agent at the rear of said series.

8. A gun-cartridge consisting of a casing having a main explosive projecting charge and a series of full-caliber projectiles disposed in said casing one before another in advance of said charge, successive projectiles being separated from each other by a fulminating explosive charge normally free from compression, and interposing a barrier of elastic fluid under pressure between the projectiles when the series is simultaneously fired by the explosion of the projecting charge.

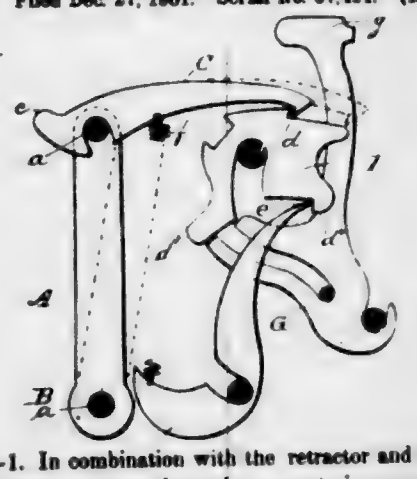
9. A gun-cartridge having a casing containing a series of full-caliber projectiles disposed one in advance of another, and separated by mediums which will prevent contact of the projectiles as they are fired, said mediums offering a graduated resistance to compression, least at the forward end of the cartridge and greatest at the rear.

10. A gun-cartridge consisting of a casing having an explosive projecting charge, and a series of full-caliber projectiles disposed in said casing one before another in advance of said charge, and separated by mediums which will prevent contact of the projectiles as they are fired, said medium offering a graduated resistance to compression least at the forward end of the cartridge and greatest at the rear.

11. A gun-cartridge having a casing containing a series of full-caliber projectiles disposed one in advance of another and separated by graduated explosive charges least at the forward end of the cartridge and greatest at the rear.

12. A gun-cartridge consisting of a casing having an explosive projecting charge, and a series of full-caliber projectiles disposed in said casing one before another in advance of said charge, and separated by graduated explosive charges least at the forward end of the cartridge and greatest at the rear.

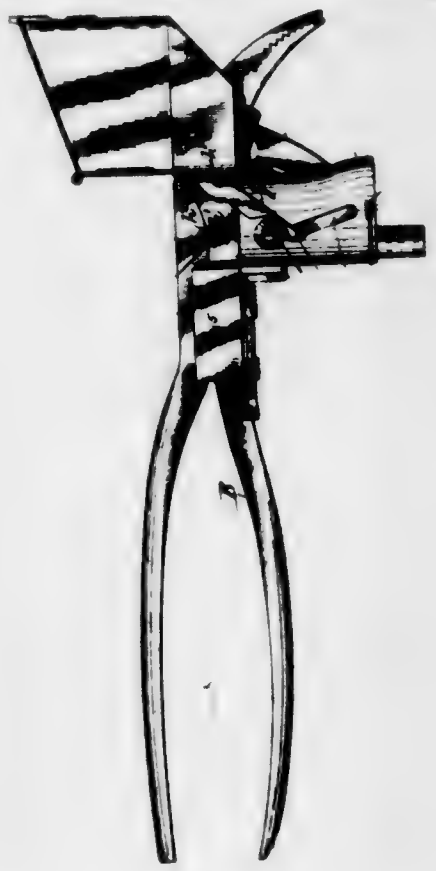
694,897. **CALCULATING-MACHINE.** JAMES W. SLOSS, Birmingham, Ala. Filed Dec. 27, 1901. Serial No. 87,421. (No model.)



Claim.—1. In combination with the retractor and the striker of a calculating-machine a trigger, located to operate in any space to the left of the units-column, and having its part d^3 undivided and approximately in the same plane as the body of the trigger, for the purpose specified.

2. In the recording mechanism of a calculating-machine, having a retractor for drawing back the striker and a trigger for releasing the striker, the said trigger located to the left of any other trigger, and adapted to act independently of the adjacent trigger on its right, as herein set forth.

694,898. **AUTOMATIC HAMMER.** ANDREW STRONDAHL, Manchester, N. H. Filed Mar. 29, 1901. Serial No. 53,376. (No model.)



Claim.—1. In an automatic hammer, the combination with tack-feeding devices of a hammer-head, a movably-mounted tack-driver, a driver-actuator movably mounted in such position as to share the impact of the hammer, and connections between the driver and the actuator whereby movement of the actuator in response to impact actuates the driver.

2. In an automatic hammer, the combination of a hammer-head, a hopper, a raceway leading therefrom to a driver, the driver, a driver-actuator movably mounted and normally projecting from the hammer-face, and connections between the actuator and driver whereby movement of the actuator transmits to the driver a movement in reverse direction to that of the actuator.

3. In an automatic hammer, the combination of a hammer, a hopper, a raceway leading therefrom to a driver, the movably-mounted driver, a movable driver-actuator mounted in position to share the impact of the hammer, and connections between the actuator and the driver whereby movement of the former in response to impact transmits a driving movement to the latter.

4. In an automatic hammer, the combination of a hammer, a hopper a raceway leading therefrom to a delivery-channel, the delivery-channel, a driver movable therein, a movable driver-actuator mounted in position to share the impact of the hammer, and connections between the actuator and the driver whereby movement of the former in response to impact actuates the latter to force a tack out of the delivery-channel.

5. In an automatic hammer, the combination of tack-feeding devices, a hammer-head, a movably-mounted driver, a movably-mounted driver-actuator, normally extended beyond the face of the hammer-head, and connections between the actuator and the driver whereby movement of the former in response to impact transmits a driving movement to the latter.

6. In an automatic hammer, the combination of a hammer, a hopper, a raceway leading therefrom to a driver, the movably-mounted driver, a movable driver-actuator normally extending beyond the face of the hammer-head, and connections between the actuator and the driver whereby movement of the former in response to impact transmits a driving movement to the latter.

7. In an automatic hammer, the combination of a hopper, a raceway leading therefrom to a delivery-channel in a hammer-head, the hammer-head, a driver movably mounted in the hammer-head, a movably-mounted driver-actuator, normally extended beyond the face of the hammer-head, and connections between the actuator and driver whereby movement of the former in response to impact actuates the latter to force a tack out of the delivery-channel.

8. In an automatic hammer, the combination with tack-feeding devices, of a hammer-head, two slideways therein, a driver slidingly mounted in one slideway, a driver-actuator slidingly mounted in the other, the actuator normally extended to such position as to share the impact of the hammer, and connections between the actuator and the driver whereby movement of the former in response to impact transmits driving movement to the latter.

9. In an automatic hammer the combination of a hopper, a raceway leading from the hopper to a delivery-channel in a hammer-head, the hammer-head, two slideways therein, one coincident with the delivery-channel, a driver sliding in said slideway, the other slideway bearing a movable driver-actuator which is normally extended beyond the face of the hammer-head, and connections between the actuator and driver whereby movement of the former in response to impact of the hammer actuates the latter to force a tack out of the delivery-channel.

10. In an automatic hammer, the combination with tack-feeding devices of a hammer-head means for yieldingly holding a tack in the path of a tack-driver, the movably-mounted tack-driver, a driver-actuator movably mounted in such position as to share the impact of the hammer, and connections between the driver and the actuator whereby movement of the actuator in response to impact actuates the driver.

11. In an automatic hammer, the combination of a hammer-head, a hopper, a raceway leading therefrom to a driver, the driver, a yielding stop in the path of the driver, a driver-actuator movably mounted and normally projecting from the hammer-face, and connections between the actuator and driver whereby movement of the actuator transmits to the driver a movement in reverse direction to that of the actuator.

12. In an automatic hammer, the combination of a hammer, a hopper, a raceway leading therefrom to a driver, the movably-mounted driver a yielding stop in the path of the driver, a movable driver-actuator mounted in position to share the impact of the hammer, and connections between the actuator and the driver whereby movement of the former in response to impact transmits a driving movement to the latter.

13. In an automatic hammer, the combination of a hammer, a hopper, a raceway leading therefrom to a delivery-channel, the delivery-channel, a driver movable therein, a yielding stop in the path of the driver, a movable driver-actuator mounted in position to share the impact of the hammer, and connections between the actuator and the driver whereby movement of the former in response to impact actuates the latter to force a tack out of the delivery-channel.

14. In an automatic hammer, the combination of tack-feeding devices, a hammer-head, a movably-mounted driver, a yielding stop in the path of the driver, a movably-mounted driver actuator, normally extended beyond the face of the hammer-head, and connections between the actuator and the driver whereby movement of the former in response to impact transmits a driving movement to the latter.

15. In an automatic hammer, the combination of a hopper, a raceway leading therefrom to a driver, the movably-mounted driver, a yielding stop in the path of the driver a movable driver-actuator normally extending beyond the face of the hammer-head, and connections between the actuator and the driver whereby movement of the former in response to impact transmits a driving movement to the latter.

16. In an automatic hammer, the combination of a hopper, a raceway leading therefrom to a delivery-channel in the hammer-head, the hammer-head, a driver movably mounted in the hammer-head a yielding stop in the path of the driver, a movably-mounted driver-actuator, normally extended beyond the face of the hammer-head, and connections between the actuator and driver whereby movement of the former in response to impact actuates the latter to force a tack out of the delivery-channel.

17. In an automatic hammer the combination with tack-feeding devices, of a hammer-head, two slideways therein, a driver slidingly mounted in one slideway, a driver-actuator slidingly mounted in the other, the actuator normally extended to such position as to share the impact of the hammer, a yielding stop in the driver-slideway, and connections between the actuator and the driver whereby movement of the former in response to impact transmits driving movement to the latter.

18. In an automatic hammer the combination of a hopper, a raceway leading from the hopper to a delivery-channel in a hammer-head, the hammer-head, two slideways therein, one coincident with the delivery-channel, a driver sliding in said slideway, the other slideway bearing a movable driver-actuator which is normally extended beyond the face of the hammer-head a yielding stop in the delivery-channel, and connections between the actuator and driver whereby the movement of the former in response to impact of the hammer actuates the latter to force a tack out of the delivery-channel.

19. In an automatic hammer, the combination with tack-feeding devices of a hammer, tack-driving mechanism consisting of a driver and a driver-actuator, each provided with a rack which meshes with a pinion, the pinion, the driver actuator being mounted in such position as to share the impact of the hammer, and by its movement in response to such impact to actuate the driver through the pinion.

20. In an automatic hammer, the combination of a hammer-head, a hopper, a raceway leading therefrom to a driver, the driver, a driver-actuator movably mounted and normally projecting from the hammer-face, the driver and its actuator being provided each with gear-teeth which mesh with an intervening pinion, and the pinion, whereby movement of the actuator transmits to the driver a movement in direction reverse to that of the actuator.

21. In an automatic hammer, the combination with tack-feeding devices, of a hammer-head, two slideways therein, a driver slidingly mounted in one slideway, a driver-actuator slidingly mounted in the other, the actuator normally extended to such position as to share the impact of the hammer, the driver and actuator provided with gear-teeth which mesh with an intervening pinion, and the pinion, whereby movement of the actuator in response to impact transmits driving movement to the driver.

22. In an automatic hammer the combination of a hopper, a raceway leading from the hopper to a delivery-channel in a hammer-head, the hammer-head, two slideways therein, one coincident with the delivery-channel, a driver sliding in said slideway, the other slideway bearing a movable driver-actuator which is normally extended beyond the face of the hammer-head, the driver and actuator provided with gear-teeth which mesh with a pinion, and the pinion, whereby movement of the actuator in response to impact of the hammer actuates the driver to force a tack out of the delivery-channel.

23. In an automatic hammer, the combination of a hopper, a raceway leading therefrom, tack-driving mechanism consisting of a driver and driver-actuator, each provided with a rack, a pinion meshing with the said racks, the driver-actuator being mounted in such position as to share the impact of the hammer and by its movement in response to such impact to actuate the driver through the pinion, and tack-delivery mechanism consisting of a tack-escapement and connections therewith to the tack-driving mechanism, whereby tack-feeding and tack-driving operations are alternated.

24. In an automatic hammer, the combination of a hopper a raceway leading therefrom, a hammer-head, a driver, a driver-actuator, geared together by a pinion, the pinion, a tack-escapement in the raceway, connections between the escapement and the pinion, whereby tack-feeding movement of the escapement alternates with movement of the tack-driver and actuator.

25. In an automatic hammer, the combination with tack-feeding devices, of a hammer-head, a movably-mounted tack-driver, a driver-actuator movably mounted in such position as to share the impact of the hammer, and connections between the driver and the actuator whereby movement of the actuator in response to impact actuates the driver and a catch under the control of the operator, whereby the driver-actuator may be restrained from movement.

26. In an automatic hammer, the combination with tack-feeding devices, of a hammer-head, a movably-mounted tack-driver a driver-actuator movably mounted in such position as to share the impact of the hammer, and connections between the driver and the actuator whereby movement of the actuator in response to impacts actuates the driver and a spring-actuated catch, under the control of the operator, and normally urged toward a position of engagement with the driver-actuator, whereby the actuator may be restrained from movement.

27. In an automatic hammer, the combination with tack-feeding devices, of a hammer, tack-driving mechanism consisting of a driver and a driver-actuator, each provided with a rack which meshes with a pinion, the pinion, the driver-actuator being mounted in such position as to share the impact of the hammer, and by its movement in response to such impact to actuate the driver through the pinion, and a catch under the control of the operator whereby the tack-driving mechanism may be restrained from movement.

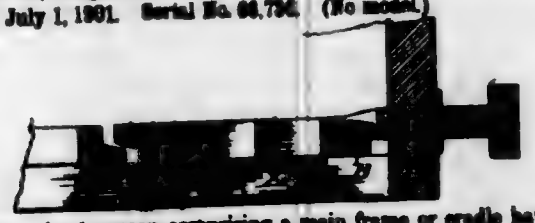
28. In an automatic hammer the combination with tack-feeding devices, of a hammer-head, two slideways therein, a driver slidingly mounted in one slideway, a spring-controlled driver-actuator slidingly mounted in the other, the actuator normally extended by the force of its spring to such position as to share the impact of the hammer, and connections between the actuator and the driver whereby movement of the former in response to impact transmits driving movement to the latter.

29. In an automatic hammer, the combination of pincers, a hammer-head secured thereto, tack-driving devices in the hammer-head, a tack-reservoir and raceway leading therefrom to the tack-driving devices, the pincer members provided with a slot for the admission of the tack-raceway.

694,899. EGG-PRESERVING COMPOUND. JOHN M. STOKES, Snyder, Tex., assignor to John S. Winfield, Gatesville, Tex. Filed June 25, 1901. Serial No. 66,000. (No specimens.)

Claim.—The herein-described egg-preserving compound consisting of; cotton-seed oil, one gallon; beeswax, two pounds; paraffin-wax, two pounds, and salicylic acid, one-half ounce.

694,900. SCREEN FOR PAPER-PULP. SETH H. TIBBETTS, Groveton, N. H., assignor of one-half to Edward E. Tibbetts, Groveton, N. H. Filed July 1, 1901. Serial No. 66,736. (No model.)



Claim.—1. A screen comprising a main frame or cradle having in its bottom cross-bars with undercut notches, retaining-bars having on their lower sides tenons corresponding to said notches and having overhanging upper edges, and screen-plates having lips along their lower edges adapted to be caught and held by the retaining-bars substantially as described.

2. A screen comprising a main frame or cradle having in its bottom cross-bars with undercut notches, retaining-bars having on their lower sides tenons corresponding to said notches and having overhanging upper edges, tightening devices for the ends of the retaining-bars, and screen-plates having lips along their lower edges adapted to be caught and held by the retaining-bars substantially as described.

3. A screen comprising a main frame or cradle having in its bottom cross-bars with undercut notches and mortises in the sides of the cradle immediately above each cross-bar, retaining-bars having on their lower sides tenons corresponding to said notches and overhanging upper edges, the ends of said retaining-bars being seated in said mortises, and screen-plates having lips along their lower edges adapted to be caught and held by the retaining-bars substantially as described.

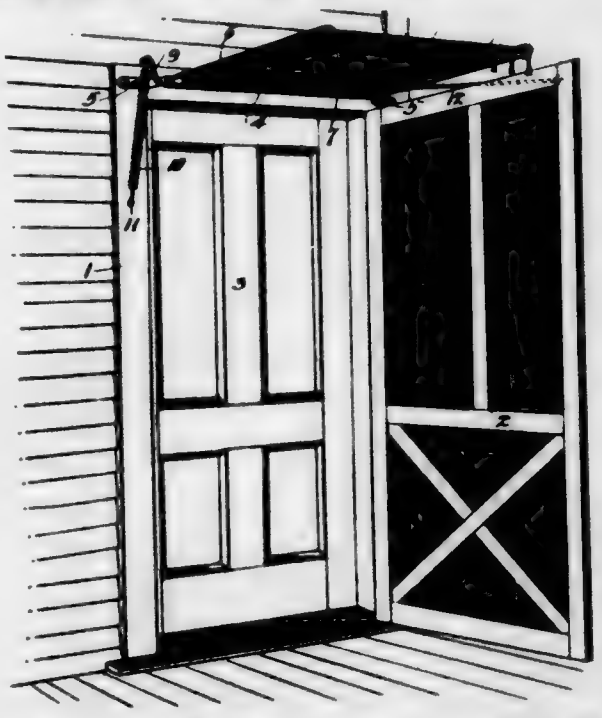
4. A screen comprising a main frame or cradle having in its bottom cross-bars with undercut notches and mortises in the sides of the cradle immediately above each end of the cross-bar, retaining-bars having on their lower sides tenons corresponding to said notches and overhanging upper edges, the ends of said retaining-bars being seated in said mortises and the mortises being made of a greater horizontal depth than that occupied by the fixed position of the retaining-bars, so as to permit the retaining-bars to be entered by an endwise movement, then drawn back, and moved laterally to seat the tenons in the notches, said screen-plates having lips along their lower edges adapted to be caught and held by the retaining-bars, substantially as and for the purpose described.

5. A screen comprising a main frame or cradle, having in its bottom cross-bars with undercut notches, retaining-bars having on their lower sides tenons corresponding to said notches and overhanging upper edges, cam-like tightening-seats for the ends of the retaining-bars arranged to force the ends of the said bars down when the bar is moved laterally to a position above the cross-bars, and screen-plates having lips along their lower edges adapted to be caught and held by the retaining-bars substantially as described.

6. A screen comprising a main frame or cradle having in its bottom cross-bars with detachable retaining-bars above them, said retaining-bars having overhanging edges, detachable screen-plates having lips along their lower edges adapted to be caught and held by the retaining-bars, and set-screws at the ends of the cradle arranged in the plane of the screen-plates and adapted to bear against and tighten the same substantially as described.

7. A screen comprising a main frame or cradle having in its bottom cross-bars with detachable retaining-bars above them, said retaining-bars having overhanging edges, screen-plates having lips along their lower edges adapted to be caught and held by the retaining-bars, said lips of the plates and overhanging edges of the retaining-bars being made with inclined adjacent edges to form a wedging action when brought together, and tightening devices at the ends of the series of plates to bring the screen-plates and retaining-bars together with a tightening action substantially as described.

694,901. INSECT-GUARD. ORLA H. WATKINS, Clinton, Iowa, assignor, by mesne assignments, to J. K. Milner, Clinton, Iowa. Filed June 25, 1901. Serial No. 66,029. (No model.)



Claim.—1. The combination with a door-frame, and a door hinged thereto, of a swinging guard mounted upon the top of the frame and normally overlapping the upper portion of the door, there being means for swinging the guard vertically by the opening and closing of the door.

2. The combination with a door-frame, and a door hinged thereto, of a swinging guard mounted upon the top of the frame and overlapping the top portion of the door, the upper edge of the door being constructed to bear frictionally against the inner side of the guard during the opening of the door and thereby swing the guard upwardly, there being means for returning the guard to its normal position when the door is closed.

3. The combination with a door-frame, and a door hinged thereto, of a swinging guard mounted upon the top of the frame and normally overlapping and lying against the outer side of the door, the upper edge of the latter being constructed to frictionally bear against the inner side of the guard during the opening of the door and thereby to swing the guard upwardly, and a flexible connection between the door and the guard to draw the latter downwardly by the closing of the door.

4. The combination with a door-frame, and a door hinged thereto, of a vertically-swinging guard mounted upon the top of the frame and normally overlapping and lying against the outer side of the door, and connecting means between the door and the guard to limit the upward movement of the latter and also to draw the same downwardly by the closing of the door.

5. The combination with a door-frame, and a door hinged thereto, of a vertically-swinging guard mounted upon the top of the frame and

normally overlapping and lying against the outer upper portion of the door, and a flexible connection between the free edge portion of the door and the opposite side portion of the guard.

6. The combination with a door-frame, and a door hinged thereto, of a vertically-swinging guard mounted upon the top of the frame and normally overlapping and lying against the top of the outer side of the door, an operative connection between the door and the guard, and a yieldable tension device connected to the guard to normally hold the same in a pendent position against the door.

7. The combination with a door-frame, and a door hinged thereto, of a vertically-swinging guard mounted upon the top of the frame and overlapping the top of the door, an operative connection between the door and the guard, a crank carried by one end of the pivotally-mounted end of the guard, and a spring having one end connected to the crank and its opposite end connected to the door-frame.

8. An insect-guard for doors, having a rock-bar, opposite terminal bearing-brackets for the bar, and a door-engaging connection carried by the guard and constructed to draw downwardly the guard by the closing of a door.

9. An insect-guard for doors, comprising a rock-bar, a foraminous guard projected laterally from and carried by the bar, opposite bearing-brackets for the rock-bar, one of the journals of the bar being projected and formed into a crank, a helical spring having one end connected to the crank, and a cord connected to the guard and adapted for connection with the free edge of a door.

694,902. GAS-IGNITER. THEODORE R. WILCOX, Newark, N. J., assignor, by mesne assignments, to Aladdin Manufacturing Company, a Corporation of Delaware. Filed Aug. 2, 1901. Serial No. 70,601. (No model.)



Claim.—1. In a gas-igniter, the combination of an incandescing electrical conductor and a pill adapted to be heated by the flowing gas, mounted in juxtaposition to each other, for the purpose set forth.

2. In a gas-lighter, the combination of a source of electricity, a circuit-closer therefor, a resistance-conductor in circuit therewith and a pill adapted to become heated in the presence of flowing gas, said pill and resistance-conductor being located adjacent to each other for the purpose set forth.

3. In a gas-lighting apparatus, the combination of an electrical resistance and a pill adapted to become heated in the presence of flowing gas, said resistance and pill being located within heating distance of each other.

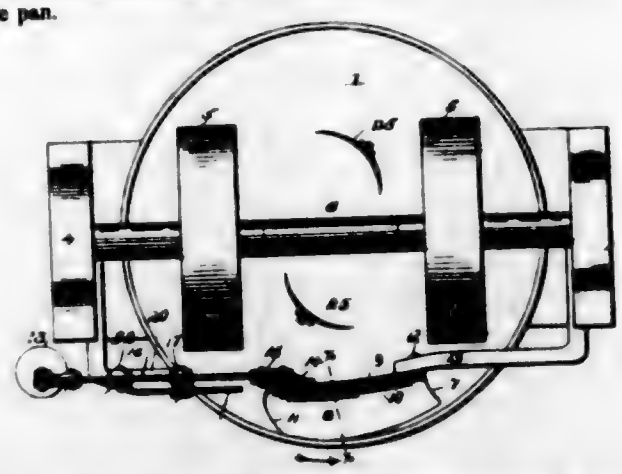
4. A gas-igniter consisting of platinum foil adapted to be thrust into flowing gas, in combination with means for raising the temperature of the foil.

5. A gas-igniter consisting of platinum foil, in combination with means for passing a current of electricity through the foil.

6. The combination of a battery-casing of insulating material, a battery-cell therein having a conducting-casing, a spring circuit-closer embedded in the battery-casing and projecting outside thereof, and adapted to be forced into contact with the battery-cell, and a gas-igniter operated by said circuit-closer.

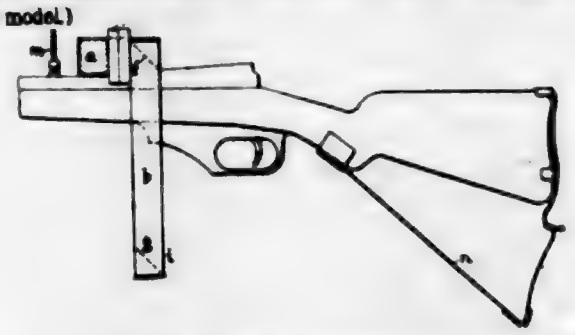
694,903. DEVICE FOR EMPTYING CLAY-PANS. JOHN P. WYNN, Beechbrook, Pa., assignor of one-half to James A. Bickford and Thomas M. Stevenson, Lockhaven, Pa. Filed June 19, 1901. Serial No. 65,153. (No model.)

Claim.—1. In a device for emptying pans, the combination with the pan of a shovel having a substantially vertical, slightly concave back set at an acute angle to the pan-rim, the shovel being pivoted within the pan in advance of its leading edge, and means for moving the shovel upon its pivot, the parts being so proportioned and arranged that upon the shovel being lowered, its leading edge will engage with the moving mass of clay, which will be forced up the trough formed by the bottom and back of the shovel in the form of a continuous ribbon clear of the edge of the pan.



2. In a device for emptying pans, the combination with the pan of a shovel having a substantially vertical, slightly concave back set at an acute angle to the pan-rim, an outturning, rolling top edge for the back, the shovel being pivoted within the pan in advance of its leading edge, and means for moving the shovel upon its pivot, the parts being so proportioned and arranged that upon the shovel being lowered, its leading edge will engage with the moving mass of clay, which will be forced up the trough formed by the bottom and back of the shovel in the form of a continuous ribbon clear of the edge of the pan.

694,904. SIGHTING DEVICE FOR FIREARMS. WILLIAM YOULTEN, Westminster, England. Filed May 13, 1901. Serial No. 60,114. (No model.)



Claim.—1. In a small-arm, the combination with a rifle or the like: of an attachment secured near the rear end thereof and adapted to move therewith, reflecting devices carried by said attachment, one of said reflectors being in line with the object, and a second reflector below the first, upon which the object is to be observed, substantially as described.

2. In a small-arm, the combination with a rifle or the like; of an attachment secured near the rear end thereof and adapted to move therewith, reflecting devices carried by said attachment, one of said reflectors being in line with the object, a second reflector below the first, upon which the object is to be observed, and an extension or false butt secured to the rear end of the rifle and extending downwardly therefrom, substantially as described.

3. In a small-arm, the combination with a rifle or the like; of an attachment secured near the rear end of the rifle and adapted to move therewith, a reflector mounted in the upper part of said attachment, in line with the sights of the rifle, and a second reflector mounted below the first upon which the image is to be observed, substantially as described.

4. In a small-arm, the combination with a rifle or the like; of an attachment secured near the rear end of the rifle and adapted to move therewith, a reflector mounted in the upper part thereof in line with the sights of the rifle, a second reflector mounted below the first, upon which the image is to be observed, and an extension or false butt secured upon the end of the rifle-stock forming a shoulder below the stock of the rifle, substantially as described.

5. In a small-arm, the combination with a rifle or the like; of an attachment detachably secured to the rifle behind the rear sight, a reflector mounted in the upper part of said attachment in line with the sights of the rifle, and a second reflector mounted below the first upon which the image is to be observed, substantially as described.

6. In a small-arm, the combination with a rifle or the like; of an attachment detachably secured to the rifle behind the rear sight, a reflector mounted in the upper part of said attachment in line with the sights of the rifle, a second reflector mounted below the first upon which the image is to be observed, and an extension or false butt detachably secured upon the rear end of the rifle and forming a shoulder-rest below the stock of the rifle, substantially as described.

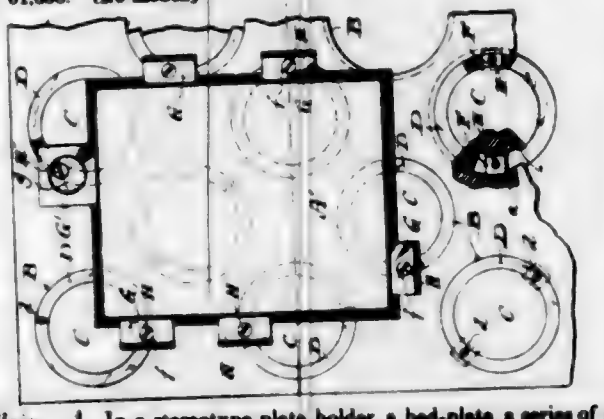
7. In a small-arm, the combination with a rifle or the like, and the

sights carried thereby; of a perforated tube or casing detachably secured to the firearm, and oppositely-disposed reflectors within said casing, one of said reflectors being in a direct line with the sights of the rifle, and the other below the first reflector, substantially as described.

8. In a small-arm, the combination with a rifle or the like, and the sights carried thereby; of a perforated tube or casing, oppositely-disposed reflectors within said casing, and means for detachably locking said casing to said firearm, substantially as described.

9. In a small-arm, the combination with a rifle or the like, and the sights carried thereby; of a tube or casing, adapted to be detachably locked upon said firearm, an upper reflector mounted in said casing in line with said sights, and a lower reflector also mounted in said casing beneath the upper reflector, upon which the image in line with the sights may be observed, substantially as described.

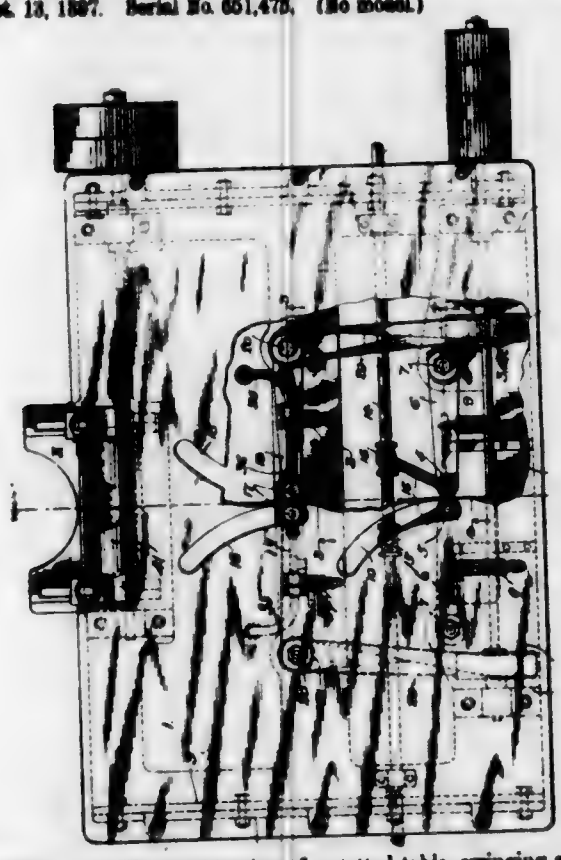
694,905. STEREOTYPE-PLATE HOLDER. SAMUEL G. YUNDT and WILLIAM J. HOLES, Milwaukee, Wis. Filed May 25, 1901. Serial No. 61,855. (No model.)



Claim.—1. In a stereotype-plate holder, a bed-plate, a series of annular rings embedded therein and flush with the upper surface thereof, and clamps secured to disks whereby the stereotype-plates, disks and bed-plate are locked together, substantially as set forth.

2. In a stereotype-plate holder, a bed-plate, a series of annular rings embedded therein, and flush with the upper surface thereof, clamps for the stereotype-plates, secured to disks by means of screws, nuts for the screws, secured in recesses at the bottom of disks and revoluble therewith, said nuts projecting into annular grooves in the bed-plate, a plug fitted into the bottom of the bed-plate, concentric with the disks, whereby an uninterrupted smooth upper surface is presented to the stereotype-plates secured thereto, substantially as set forth.

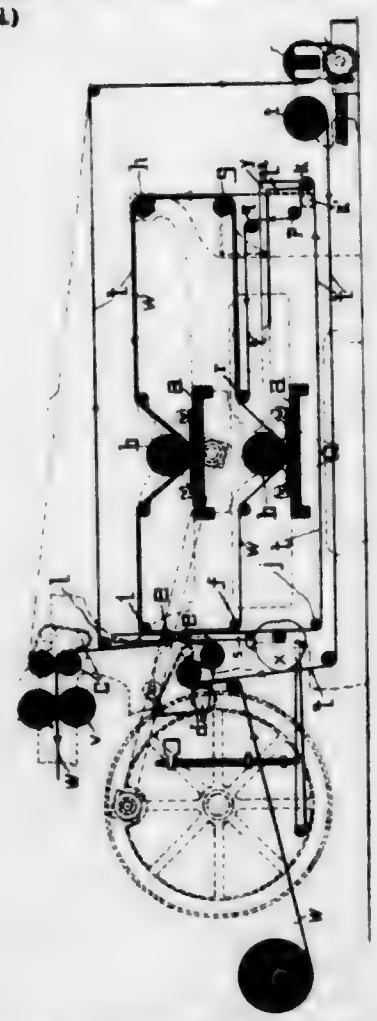
694,906. IRONING-MACHINE. CHARLES W. ANDERSON, Los Angeles, Cal., assignor of one-half to W. W. Wood, Los Angeles, Cal. Filed Sept. 13, 1897. Serial No. 651,473. (No model.)



Claim.—1. The combination of a slotted table, swinging arms pivotally supported below the table, work-treating rolls revolubly mounted on the arms for adjustment therewith and maintained thereby in parallel relation to each other at all points of their adjustment, and springs operatively fitted to said arms and actuating the latter to maintain said rolls normally in contact with each other, substantially as described.

2. The combination of a table having segmental slots, swinging arms lying below the table and pivoted at points concentric with the arc of the slots in said table, work-treating rolls revolubly mounted on said arms and extending through the table-slots, and springs connected to the arms to normally hold the latter and said rolls contiguous to the adjacent ends of said segmental slots, substantially as described.

694,907. RUNNING OR SHIFTING TYMPAN. HENRY F. BECHMAN, Battlecreek, Mich. Filed June 21, 1899. Serial No. 721,348. (No model.)

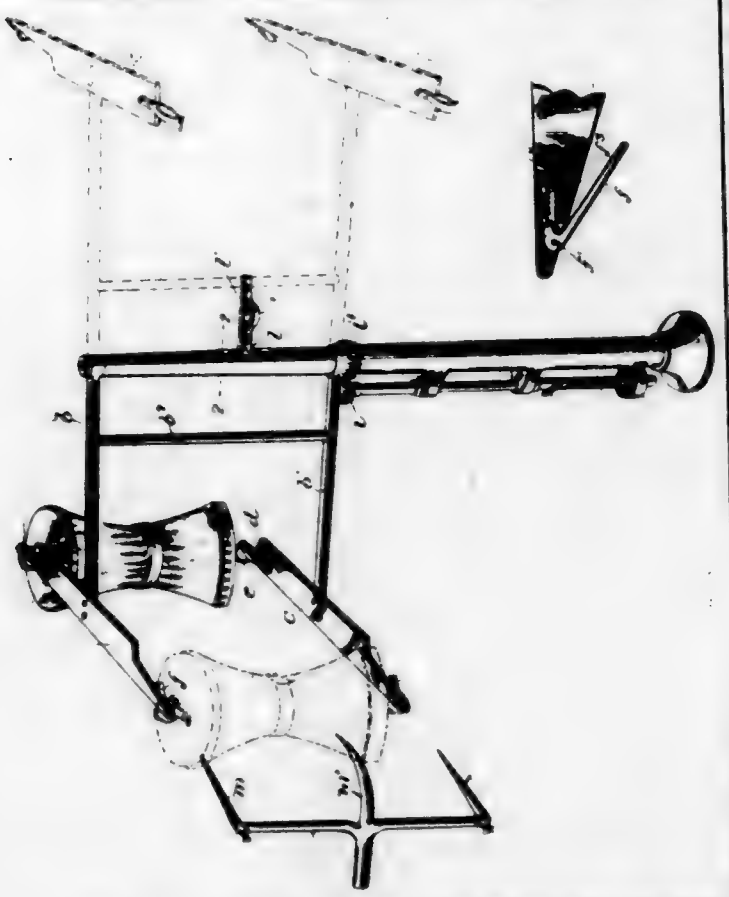


Claim.—1. The combination of a pair of stationary beds and co-acting reciprocating impression-cylinders, means for intermittently feeding a web of paper between the cylinders and beds to be printed thereby, and means for intermittently feeding a tympan through the press simultaneously and exactly in accordance with the movement of the paper web therethrough, the tympan being separated from the web and carried past the first bed and cylinder, then reunited with the web and compensating devices for looping the tympan before it reunites with the web, for the purpose and substantially as described.

2. In a printing-press, the combination of two type-beds, two traveling cylinders coacting therewith, web-guide rollers traveling with the cylinders, and means for feeding the web of paper successively between the cylinders and beds; with a tympan-web laid with the web and carried through the press by the web feeding and delivering mechanism, said tympan-web being looped around the first bed and cylinder, but reunited with the web at and looped around the second traveling guide-roller beside the first cylinder, and a looping device for the tympan to compensate it for the movement of said traveling guide-roller, for the purpose and substantially as described.

3. The combination of a pair of beds, a pair of coacting traveling cylinders, a web-feed mechanism, a web-delivery mechanism, and mechanism for looping the web, substantially as described; with a tympan fed to the press by the web-feeding mechanism, then looped around the first web-looper, then separated from the web and carried past the first bed and cylinder, then reunited with the web and looped over a guide-roller beside and traveling with the first cylinder and carried with the web between the second bed and cylinder, under the second web-looper and then again separated from the web and carried back to a rewinding mechanism; with devices for looping the tympan while separated from the web to compensate it for the movement of the said traveling guide-roller, substantially as and for the purpose described.

694,908. **MAIL-BAG CATCHING AND DELIVERING DEVICE.** CHARLES R. BENNETT, Tullytown, Pa., assignor of three-fourths to F. G. Edwards, Bristol, Pa., T. L. Eyre, Westchester, Pa., and Rosalie Wright, Washington, D. C. Filed June 20, 1901. Serial No. 65,264. (No model.)



Claim.—1. A mail-bag receiving and delivering device comprising bag-sustaining arms rotatably mounted on an upright, a spring operatively connected with the arms to be put under tension by the rotation of the same, and a stop on the upright opposite the track side adapted to check the return movement of the arms.

2. A mail-bag receiving and delivering device comprising bag-sustaining arms rotatably mounted on an upright, a shaft geared to the arms to rotate therewith, a spring coiled around the shaft, means for connecting and disconnecting the shaft and spring, and a spring-finger on the upright flexing in but one direction and acting as a stop in the reverse rotation of the arms.

3. A mail-bag receiving and delivering device comprising an upright, horizontal rods rotatably mounted on the upright, arms at the ends of the rods each arm having at one end a spring-clip to sustain the bag to be caught by the train, and at the other end with a bag-ring-catching point, means on the point for locking the caught ring, a spring operatively connected with the arms to be put under tension by the rotation of the same, and a stop on the upright adapted to check the reverse rotation of the arms.

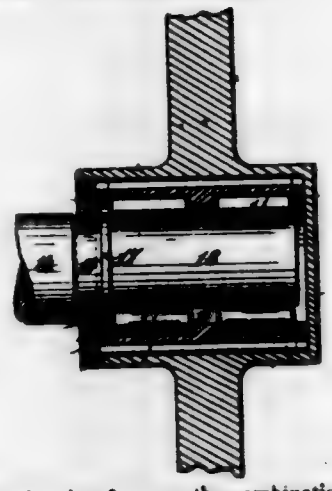
4. In combination, an upright, bag-sustaining arms rotatable thereon, a shaft geared to the arms, a spring secured to the upright and coiled around the shaft, a spring-pressed lever pivoted within a recess in the shaft and a pin on the lever adapted to engage a hole in the free end of the spring.

5. In combination with the pointed end of mail-bag-catcher arm, a finger pivoted on the arm near its end, a spring connected with an extension of the finger to hold the latter outwardly, and means for varying the tension of the spring.

694,909. **ROLLER-BEARING FOR CARS.** JAMES R. CHRISTOPHER, Marquette, Ill., assignor of one-half to Edward Anderson, Marquette, Ill. Filed Dec. 19, 1901. Serial No. 86,556. (No model.)

Claim.—1. In a roller-bearing for cars, the combination with a shaft or axle and a wheel mounted thereon, the said wheel having the opening in the hub thereof closed at one end and provided with longitudinally-extending grooves or keyways, of a removable bushing located within said hub, provided with longitudinally-extending ribs which fit within said grooves, and with inwardly-extending flanges at its ends and at a point intermediate its ends, a plurality of series of rollers located between said shaft or axle and said bushing and fitting within the spaces between said flanges, and a collar fitting loosely within an annular groove on said shaft or axle and secured to said hub at its open end.

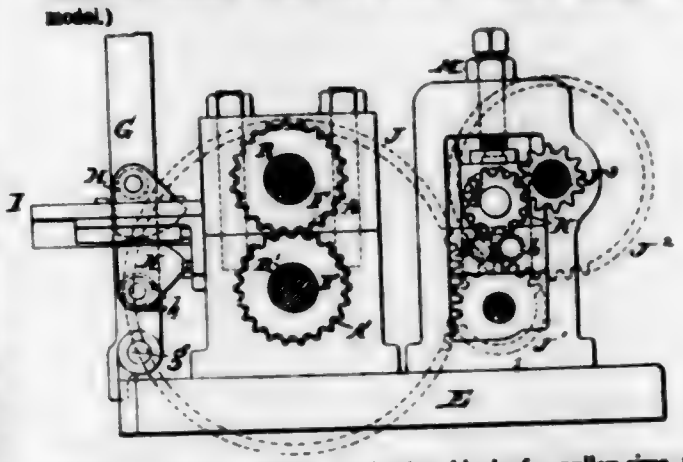
2. In a roller-bearing for cars, the combination with a shaft or axle and a wheel mounted thereon, the outer end of the opening in the hub of said wheel being closed by an integral web, and said hub being provided on its interior with longitudinally-extending grooves, of a bushing located within said opening and provided with longitudinally-extending ribs, which fit within said grooves, and with inwardly-extending annular flanges at its ends and at a point intermediate its ends, a plurality of series of annularly-arranged rollers located between said shaft or axle and said bushing and fitting within the spaces between said flanges, an outwardly-extended fixed collar on said shaft or axle lying in the same plane with the flange at the inner end of said bushing and forming on said shaft or axle an annular groove, a loose collar fitting within the said annular groove and secured around its outer edge to the open end of said hub, and a packing ring or washer located between said loose and fixed collars for preventing the entrance of dust to the bearings.



3. In a roller-bearing for cars, the combination with a shaft or axle having an annular groove therein, and a wheel mounted thereon, the said wheel having the opening in the hub thereof closed at one end, provided with longitudinally-extending grooves or keyways and with screw-threads at its open end, of a removable bushing located within said hub provided with longitudinally-extending ribs which fit within said grooves or keyways and with inwardly-extending flanges at its ends and at a point intermediate its ends, a plurality of series of rollers located between said flanges or axle and said bushing and fitting within the space between said flanges, and a two-part collar fitting loosely within said annular groove and provided with external screw-threads adapted to engage the screw-threads in the end of said hub.

4. In a roller-bearing for cars, the combination with a shaft or axle having an annular groove therein, and a wheel mounted thereon, the said wheel having the opening in the hub thereof closed at one end and provided with longitudinally-extending grooves or keyways, of a removable bushing located within said hub, provided with longitudinally-extending ribs which fit within said grooves or keyways, and made in three parts having the same exterior contour, the central part being provided with an inwardly-extending annular flange at a point intermediate its ends, and the other parts being in the form of rings or washers which fit against and have a dowel-pin connection with the ends of said central part and form at the ends of said bushing inwardly-extending flanges, a plurality of series of rollers located between said shaft or axle and said bushing and fitting within the spaces between said flanges, and a collar fitting loosely within said annular groove and secured to said hub at its open end.

694,910. **ROLL FOR CURVING SHEET-METAL PULLEY-RIMS.** ADELINE J. CORSCADEN, Philadelphia, Pa., administratrix of Thomas Corscaden, deceased. Filed Mar. 28, 1899. Serial No. 710,857. (No model.)



Claim.—1. In a machine for shaping blanks for pulley-rims, the combination of two independent sets of positively-driven rolls arranged in alinement, one set being of itself adapted to bend the lateral edges of the plate by acting upon the metal transversely to its length, and the other of which is wholly of itself adapted to act independently on the metal

sheet and bend it in the direction of its length to curve it the construction being such that the bending action of each set of rolls is independent of the other set and the main roll of the set of curving-rolls being formed with annular reduced portions for receiving the flanges of the sheet and preventing flattening them out, and gearing to positively drive each set of rolls to enable them to operate at relatively definite speeds.

2. In a machine for shaping blanks for pulley-rims, the combination of two independent sets of rolls arranged in alinement but at a considerable distance apart one set being adapted to bend the lateral edges of the plate by acting upon the metal transversely to its length, and the other of which is adapted to bend the sheet in the direction of its length to curve it independently of any action of the first-mentioned set of rolls and the main roll of the set of curving-rolls being formed with annular reduced portions for receiving the flanges of the sheet and preventing flattening them out, and connecting-gearing between the first and second sets of rolls whereby the second set of rolls is positively driven and its speed is commensurate with that of the first set of rolls.

3. In a machine for shaping sheet metal to form pulley-rims, the combination of a pair of rolls adapted to act upon the sheet transversely to its length for the purpose of flanging the lateral edges thereof, two fixed guides I I′ for guiding the metal into said rolls one of said guides I having an oblique face, and feeding devices located near the other guide for forcing the metal into said rolls comprising a movable lever portion having gripping-jaws provided with flat gripping-surfaces to grip the sheet on the side farthest from the oblique guide-face when moved toward the rolls and release it upon being moved away from the rolls or when the sheet is pulled between the jaws in the direction of the rolls.

4. In a machine for shaping sheet metal to form pulley-rims, the combination of a pair of rolls adapted to act upon the sheet transversely to its length for the purpose of flanging the lateral edges thereof, guides for guiding the metal into said rolls comprising guide I′ presenting a vertical guide-face and oblique guide I presenting an oblique face and longitudinal guide-shoulder, and feeding mechanism consisting of a pivoted lever G, two gripping-jaws H, H, pivoted to the lever and having eccentric gripping-surfaces opposed to each other, and a suitable spring *k* to hold the lower gripping-jaw upward in a normal position.

5. In a machine for shaping blanks for pulley-rims, the combination of a set of rolls adapted to bend the lateral edges of the plate by acting upon the metal transversely to its length for flanging the lateral edges thereof, an independent set of rolls arranged in line with the first-mentioned pair of rolls and operating solely of themselves for curving the sheet blank in the direction of its length and consisting of a large bending-roll and two smaller rollers arranged close to the face of the larger roller and between which and the larger roller the sheet-metal blank is caused to pass, the large bending-roll having reduced portions in diameter for receiving the flanges of the sheet and preventing flattening them out and gearing between the first and second sets of rolls whereby the speed of the second set of rolls is commensurate with that of the first set of rolls and each set of rolls positively operate upon the sheet to perform its function independently of that being performed by the other.

6. In a machine for shaping blanks for pulley-rims, the combination of two flanging-rollers adapted to work together having adjustable sections whereby said sections may be transposed so as to adjust the flanging portions as to their working length to correspond to different widths of blanks between the lateral flanged portions thereof without changing the length of the body of the rolls, and means for feeding a sheet of metal between the said flanging-rollers.

7. In a machine for shaping blanks for pulley-rims, the combination of two flanging-rollers adapted to work together having adjustable sections whereby they may be adjusted as to their working length to correspond to different widths of blanks between the lateral flanged portions thereof, means for feeding a sheet of metal between the said flange-rollers, and a set of curving-rollers arranged to the rear of the flanging-rollers and comprising a curving-roller at one level formed with grooves about its periphery to receive the flanges at one edge and the sheet treated in the flanging-rollers, and two rollers at a different level working in conjunction with the curving-roller whereby the flanged sheet is then curved in the direction of its length.

8. In a machine for shaping blanks for pulley-rims, the combination of flanging-rollers adapted to work together having shafts fitted with adjustable sections abutting against each other and clamped together whereby they may be adjusted as to their working length to correspond to different widths of blanks between the lateral flanged portions thereof, and a set of curving-rollers arranged to the rear of the flanging-rollers.

9. In a machine for shaping blanks for pulley-rims, the combination with a pair of flanging-rollers with curving devices arranged to the rear of the flanging-rollers and comprising a curving-roller formed with grooves about its periphery to receive the flanges of the sheet treated in the flanging-rollers, and guiding devices for holding the flanged sheet against the curving-roller while passing in contact therewith.

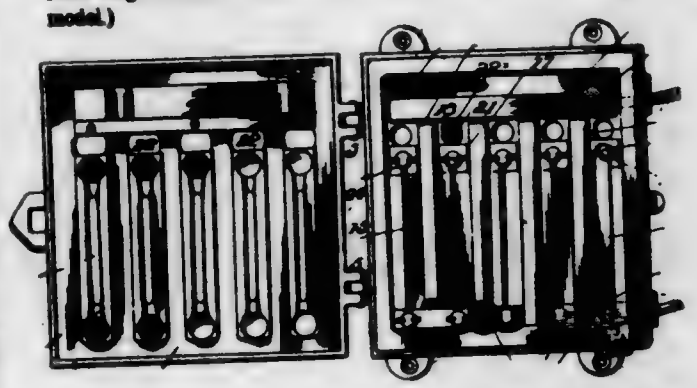
694,911. MARINE RAILWAY. JAMES L. CRANDALL, Boston, Mass., assignor to H. I. Crandall & Son Company, Boston, Mass., a Corporation of Maine. Filed Aug. 31, 1901. Serial No. 73,898. (No model.)



Claim.—1. In an apparatus of the kind described, a bridle-chain connected to the cradle, passing around a chain-wheel also connected with the cradle, and also passing around two chain-wheels, as a^5, disposed between said chain-wheel and the points of attachment of the chain to the cradle, and two actuating-chains passing around other chain-wheels, the supports of which are connected to said chain-wheels a^5, and also passing around chain-wheels rigidly secured to a driving-shaft, substantially as described.

2. In an apparatus of the kind described, two bridle-chains connected respectively to the cradle in opposite ways, each passing around a chain-wheel also connected with the cradle, and also around two chain-wheels, as a^5, disposed between the aforesaid chain-wheel and the points of attachment of the chain to the cradle, and two actuating-chains passing around other chain-wheels, the supports of which are connected to said chain-wheels a^5, and around chain-wheels rigidly secured to a driving-shaft, and also around idle chain-wheels, substantially as described.

694,912. PLURAL-FUSE CUT-OUT. CHARLES J. DORSEY, Baltimore, Md., assignor of one-half to Jacob Feisenstein, Baltimore, Md. Filed Aug. 30, 1900. Renewed June 21, 1901. Serial No. 65,507. (No model.)



Claim.—1. In a thermal electrical cut-out, a series of fuses each connected at one end to the main circuit, conductor-blocks connected to the other ends of the fuses, a detachable key whereby any fuse can be put in circuit, and a non-conducting inclosure having holes corresponding to the fuses for inserting the key, and having also ventilating-openings adjacent the fuses.

2. In a thermal electrical cut-out, a series of fuses each connected at one end to the main circuit, conductor-blocks connected to the other ends of the fuses, a detachable key whereby any fuse can be put in circuit, and a non-conducting inclosure having holes corresponding to the fuses for inserting the key, said key having its conducting part oblong in cross-section and directly removable from the inclosure.

3. In a thermal electrical cut-out, a series of fuses each connected at one end to the main circuit, conductor-blocks connected to the other ends of the fuses, a key whereby any section can be put in circuit, and a non-conducting inclosure having holes corresponding to the fuses for inserting the key, said key having its conducting part oblong in cross-section and means to lock it in position when turned to complete the circuit.

4. In a thermal electrical cut-out, a circuit comprising two separate bars, a series of fusible conducting-sections each connected to one of said bars, a series of conducting blocks or parts connected to the other ends of the said fusible conducting-sections, and a detachable key to connect the block of any section at will with the other bar, the conducting portion of said key being oblong in cross-section.

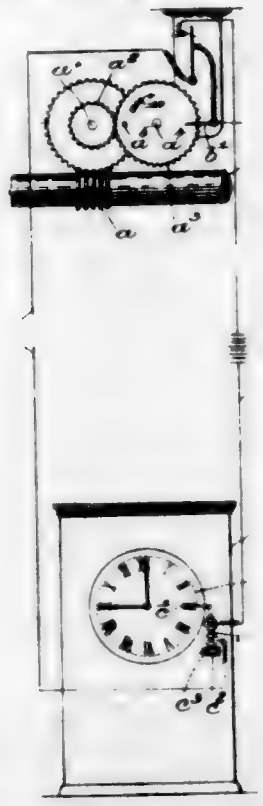
5. In a thermal electrical cut-out, a circuit comprising two separate bars, one of said bars being movable, a series of fusible conducting-sections each connected to one of said bars, a detachable key to connect any section at will with the other bar, and springs to hold the movable bar in suitable relation to the sections.

6. In a thermal electrical cut-out, two electrodes, a key for use in closing a circuit between the electrodes, said key having its conducting part oblong in cross-section and provided with the shoulder to engage behind a retaining-bar, and means for rotatably supporting it between the electrodes.

7. In a thermal electrical cut-out, hollow receptacles for fuses, a conductor connected to the fuses at one end thereof, means for making con-

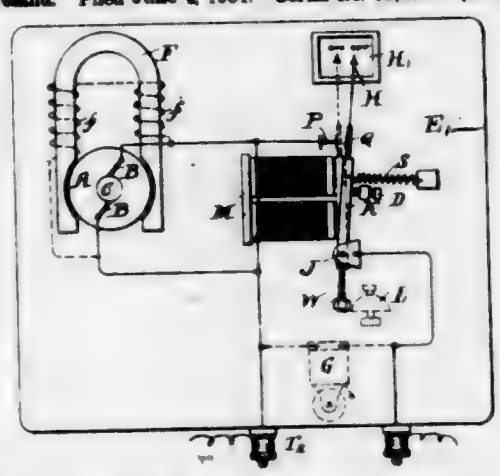
tact between the opposite end of each fuse and another conductor, and binding-posts at each end of the receptacles, said receptacles having a non-conducting cover with ventilating-openings adjacent the fuses for escape of metal.

694,913. SPEED-RECORDING APPARATUS. RUSSELL W. EATON, Brunswick, Me. Filed Apr. 17, 1901. Serial No. 56,185. (No model.)



Claim.—In a speed-recording apparatus, a clock, an electric circuit, a recorder, one member of which is actuated by the clock, a prime driving member, gearing actuated thereby, a circuit-changer in said circuit operated by said gearing and comprising a fixed terminal, a movable terminal, and an operating member adapted to connect the two terminals, said member being intermittingly and yieldingly engaged by said gearing and periodically operated thereby.

694,914. ELECTRIC APPARATUS FOR EXPLODING MINES. SYDNEY EVERSHED, London, England, assignor to himself and Evershed and Vignoles, Limited, London, England, a Corporation of Great Britain and Ireland. Filed June 4, 1901. Serial No. 63,096. (No model.)



Claim.—1. In combination, as an electric exploder, a generator of electric energy; an automatic switch actuated by energy from said generator; circuits having contacts operated by said switch, adapted to automatically and instantaneously direct said electric energy into a firing-circuit whenever the electric and magnetic forces reach or exceed predetermined values; and means controlled by said switch for the indication to the operator of the efficient working of the apparatus.

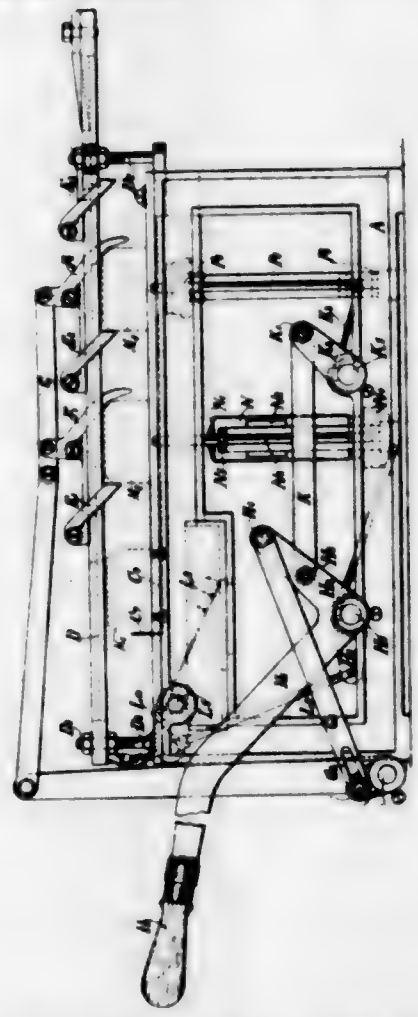
2. In combination, as an electric exploder, a generator of electric energy; an automatic pivoted switch, adapted as a keeper, with normal recoil, to an electromagnet energized by current from said generator; circuits adapted to cause the current to first energize said electromagnet before being directed into external firing-circuit; contacts operated by movement of said keeper, when the electric and magnetic forces reach or exceed predetermined value, directing total electric energy of generator into an external firing-circuit; and means controlled by said switch for the indication to the operator of the efficient working of the apparatus.

3. In combination, as an electric exploder, a hand-dynamo; an automatic pivoted switch, adapted as a keeper with normal recoil, to an electromagnet energized from said dynamo; circuits adapted to cause the electric energy to first energize said electromagnet, before being directed into external firing-circuit; contacts operated by movement of said keeper, when the electric and magnetic forces reach or exceed predetermined value in order to direct total electric energy of dynamo into an external firing circuit; and means controlled by said switch for the indication to the operator of the efficient working of the apparatus.

4. In combination, as an electric exploder, a generator of electric energy; an automatic pivoted switch actuated by energy from said generator; circuits and contacts operated by said switch, adapted to automatically and instantaneously direct said electric energy into a firing-circuit, whenever the electric and magnetic forces reach or exceed predetermined value; means controlled by said switch for the indication to the operator of the efficient working of the apparatus; and a portable box inclosing said apparatus.

5. In combination, as an electric exploder, a hand-dynamo; an electromagnet energized from said dynamo; an automatic pivoted switch, adapted as a keeper with normal recoil to said circuits, to cause electric energy to first energize said electromagnet, before being directed into an external firing-circuit; contacts closed by said keeper when the electric forces reach or exceed predetermined value, directing total energy of dynamo into an external firing-circuit; a trip-hammer device released by action of said switch; means on rotating gear and trip-hammer to cause repetitions of blows of trip-hammer during rotation; a closed box containing the apparatus; and a metal plate on side of box to receive blows of said trip-hammer, substantially as described.

694,915. LABELING-MACHINE. REMINGTON H. GILFILLAN and EDDY T. MCKAIG, Chicago, Ill., assignors to New York Labeling Machine Company, a Corporation of New York. Filed July 26, 1901. Serial No. 69,786. (No model.)



Claim.—1. In a labeling-machine, a runway composed of lower guiding members and an upper retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls movably mounted on said feeder to engage a series of articles and intermittently feed them step by step along said runway, label-applying devices situated below said runway and means to reciprocate said feeder and also to operate said label-applying devices to apply labels to articles intermittently fed along said runway.

2. In a labeling-machine, a runway having an upper retaining member extending along the same, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls

mounted on said feeder and projecting into said runway to intermittently feed a series of articles along said runway, a paste apparatus, a label-box and a pressure-pad mounted at stations beneath said runway to apply labels to articles fed along said runway.

3. In a labeling-machine, a runway composed of adjustable lower guiding members, and an upper adjustable retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted upon said feeder, a paste apparatus, a label-box and a pressure-pad mounted below said runway to coöperate therewith, means to reciprocate said feeder to intermittently feed forward a series of articles along said runway and means connected therewith to actuate said paste apparatus, label-box and pressure-pad to apply labels to said articles when said articles are stationary in said runway.

4. In a labeling-machine, a runway composed of lower adjustable guiding members and an upper adjustable retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted on said feeder, label-applying devices mounted beneath said runway to coöperate therewith and means to operate said feeder and said applying devices to intermittently feed forward a series of articles along said runway and to apply labels to such articles when such articles are stationary in said runway.

5. In a labeling-machine, a runway having an upper retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding pawls and a series of holding-pawls mounted in said feeder, label-applying devices underneath said runway to coöperate therewith, means to reciprocate said feeder and simultaneously to operate said holding-pawls and also to operate said applying devices to positively feed forward a series of articles intermittently along said runway to apply labels to such articles while they are stationary in said runway.

6. In a labeling-machine, a runway comprising an upper retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted in said feeder, label-applying devices comprising a paste apparatus, a label-box and a pressure-pad mounted at stations beneath said runway to coöperate with the same, means to operate said label-applying devices and said reciprocating feeder and said holding-pawls to intermittently feed a series of articles in a positive manner along said runway to place said articles directly above said applying devices at said stations and to apply labels to said articles while they are stationary in said runway at said stations.

7. In a labeling-machine, a runway comprising an upper retaining member adjustable in position to adjust the size of said runway, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted in said feeder, label-applying devices comprising a paste apparatus, a label-box and a pressure-pad mounted at stations below said runway to coöperate with said runway and means to yieldingly operate said label-applying devices and also to operate said feeder and said holding-pawls to intermittently feed forward in a positive manner a series of articles to said stations along said runway to release said holding-pawls from said articles as said feeder is retracted and to apply labels to said articles while they are stationary at said stations along said runway.

8. In a labeling-machine, a runway comprising an upper adjustable retaining member to adjust the size of said runway, a reciprocating feeder mounted in said runway, a series of feeding-pawls and a series of holding-pawls mounted on said feeder, label-applying devices mounted at stations below said runway to coöperate with said runway, means to yieldingly operate said applying devices, said means having a loose connection with said reciprocating feeder and said means operating said holding-pawls to intermittently feed forward a series of articles in a positive manner to said stations along said runway to release said articles as said feeder is retracted and to apply labels to said articles while they are at said stations.

9. In a labeling-machine, a runway comprising an upper retaining member, a reciprocating feeder mounted in said retaining member, a double series of feeding-pawls mounted in said feeder to engage a series of articles at two points along the rear of each of said articles, a series of holding-pawls mounted in said feeder, label-applying devices mounted at stations below said runway to coöperate with said runway, means to operate said label-applying devices and said feeder to intermittently feed forward a series of articles in parallel position along said runway, and to apply labels to said articles while they are stationary in said runway.

10. In a labeling-machine, a runway comprising an upper retaining member, a reciprocating feeder mounted on said retaining member, a double series of feeding-pawls mounted on said feeder to engage a series of articles at two points along the rear of each of said articles, a series of holding-pawls mounted in said feeder, and label-applying devices mounted below said runway to coöperate therewith, and means to operate said label-applying devices and said reciprocating feeder to intermittently feed forward a series of articles in parallel position along said runway and to apply labels to said articles while they are stationary in said runway.

11. In a labeling-machine, a runway, a reciprocating feeder mounted adjacent said runway, a double series of feeding-pawls mounted on said feeder to engage a series of articles at two points along the rear of each of said articles, a series of holding-pawls mounted on said feeder to engage the front of each of said articles between the points of contact of said feeding-pawls, means to operate said holding-pawls and to reciprocate said feeder to intermittently feed forward a series of articles in parallel position along said runway and label-applying devices coöperating with said runway.

12. In a labeling-machine, a runway comprising a slotted guiding member, a coöperating guiding member to support articles and to press said articles into engagement with said slotted guiding member, and an upper retaining member, a reciprocating feeder mounted in said retaining member, a series of feeding-pawls and a series of holding-pawls mounted in said feeder, label-applying devices underneath said runway to coöperate therewith, means to reciprocate said feeder and simultaneously to operate said holding-pawls and also to operate said applying devices to positively feed forward a series of articles intermittently along said runway to apply labels to such articles while they are stationary in said runway.

13. In a labeling-machine, a runway, labeling devices mounted to coöperate with said runway, a reciprocating feeder mounted adjacent said runway, feeding-pawls mounted on said feeder to engage articles at more than one point along the rear of each of said articles, holding-pawls mounted on said feeder to engage the front of said articles to hold said articles in engagement with said feeding-pawls and means to operate said holding-pawls and to simultaneously reciprocate said feeder.

14. In a labeling-machine, a runway, a reciprocating feeder mounted adjacent said runway, a multiple series of feeding-pawls mounted on said feeder to engage a series of articles at more than one point along the rear end of each of said articles, and a series of holding-pawls mounted on said feeder, to intermittently feed forward in a positive manner a series of articles in parallel position along said runway.

15. In a labeling-machine, a runway, labeling devices mounted adjacent said runway to coöperate therewith, a feeder mounted adjacent said runway, duplicate feeding-pawls mounted on said feeder to engage articles on said runway at more than one point along the rear of each of said articles, holding-pawls on said feeder to engage the front of said articles between said feeding-pawls to hold the same in engagement with said feeding-pawls and means to operate said holding-pawls and to simultaneously operate said feeder.

16. In a labeling-machine, a reciprocating feeder, a multiple series of feeding-pawls mounted on said feeder to engage a series of articles at more than one point along the rear end of each of said articles, a series of holding-pawls mounted on said feeder and means to positively move said holding-pawls with respect to said feeder, said feeder operating to intermittently and positively feed forward a series of articles in parallel position.

17. In a labeling-machine, a reciprocating feeder, a double series of feeding-pawls mounted at either side of said feeder to engage a series of articles at two points along the rear end of each of said articles and a series of holding-pawls mounted on said feeder, to intermittently and positively feed forward a series of articles in parallel position.

18. In a labeling-machine, a reciprocating feeder, a duplicate set of feeding-pawls mounted at either side of said feeder to engage a series of articles at two points along the rear end of each of said articles, a series of holding-pawls mounted on said feeder and means to reciprocate said feeder and simultaneously to operate said holding-pawls with respect to said feeder to intermittently and positively feed forward a series of articles in parallel position and to release said holding-pawls from said articles as said feeder is retracted.

19. In a labeling-machine, a reciprocating feeder, a double series of feeding-pawls mounted at either side of said feeder to engage a series of articles at two points along the rear end of each of said articles a series of holding-pawls pivoted to said feeder and means pivotally connected with the free end of said holding-pawls to reciprocate said feeder and simultaneously to operate said holding-pawls to intermittently and positively feed forward a series of articles and to release said holding-pawls from said articles as said feeder is retracted.

20. In a labeling-machine, a runway, a reciprocating feeder mounted adjacent said runway, feeding-pawls mounted on said feeder, holding-pawls pivoted to said feeder and means pivoted to the ends of said holding-pawls to rotate said holding-pawls about their pivots and to operate said feeder.

21. In a labeling-machine, a runway, comprising a guiding member formed with a slot and a coöperating member formed with an inclined face to maintain articles on said runway in contact with said slot, a reciprocating feeder and a multiple series of feeding-pawls mounted on said feeder to engage a series of articles at more than one point on the rear end of each of said articles to intermittently feed forward said series of articles in parallel position.

22. In a labeling-machine, a runway comprising a guiding member having an inclined face to maintain articles fed along said runway in

proper alinement, a reciprocating feeder mounted adjacent said runway, a multiple series of feeding-pawls mounted on said feeder to engage a series of articles at more than one point on the rear of each of said articles to intermittently feed forward said series of articles in parallel position along said runway.

694,916. ACETYLENE-GAS GENERATOR. JOHN HARRIS, Cleveland, Ohio, assignor to Harris Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. Filed June 26, 1900. Serial No. 21,523. (No model.)



Claim.—1. In an acetylene-gas generator, the combination of a feed-water pipe, a cock therein having a forked arm, and a vertically-movable rod carried by the gas-bell and having a vertical slot to receive said forked arm and a pin to engage said forked arm, substantially as described.

2. In an acetylene-gas apparatus, a gasometer or holder, a gas-generator adjacent to said holder, pipes connecting said generator with said holder, a water-supply pipe leading to said generator and provided with a valve, a bar secured vertically to the drum or cover of the holder and movable vertically therewith, and provided with vertical slots, and a fork connected with the stem of said valve, the prongs or arms of which are adapted to slide in said slots in said bar and to be locked against downward movement thereby when said bar is elevated, substantially as shown and described.

3. In an acetylene-gas apparatus, a water-tank, a gas-holder placed in said tank, and comprising a vertically-movable drum or cover, a generator adjacent to said holder, pipes leading from said generator to said holder, a water-supply pipe leading to said generator, and provided with a valve, a bar secured vertically to the holder and movable vertically therewith, and provided with vertical slots, and a fork connected with the stem of said valve, the prongs or arms of which are adapted to move in said slots during the movement of the holder, whereby said fork and valve are locked when said holder is in its lowest position, substantially as shown and described.

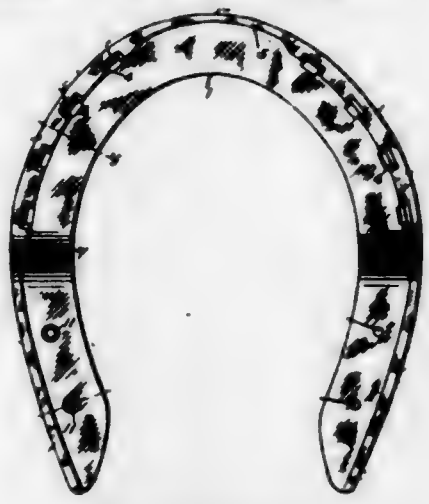
4. In an acetylene-gas apparatus, a water-tank, a vertically-movable drum or holder placed therein, a generator connected with said tank and in communication with said holder, a water-supply pipe connected with said generator, and provided with a valve, a vertical bar secured to the holder, and vertically movable therewith, and a fork connected with the stem of said valve, the arms or prongs of which are adapted to slide in slots in said bar and be locked thereby against movement when said bar is elevated or depressed, substantially as described.

5. In an acetylene-gas apparatus, a water-tank, a vertically-movable holder placed therein, a generator adjacent to said holder and in communication therewith, a supplemental water-tank supported above said first-named tank, a pipe leading therefrom to said generator, and provided with a valve, a fork connected with the stem of said valve, a vertical bar connected with the holder and movable vertically therewith, and provided with a guide for the arms or prongs of said fork, and a slot or slots into which the prongs or arms of said fork project during the movement of said bar, substantially as shown and described.

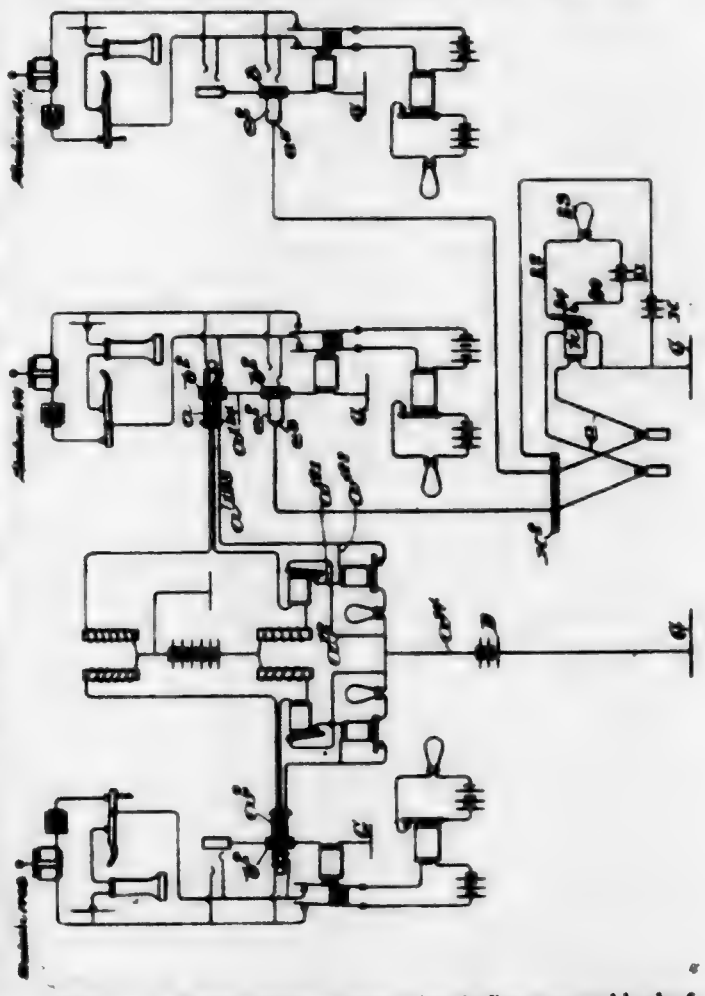
694,917. HORSESHOE. JOSEPH R. HOLLAND, Binghamton, N. Y., assignor to Irwin M. Gray and George D. Nash, Binghamton, N. Y., and Daniel S. Stone, Scranton, Pa. Filed June 5, 1901. Serial No. 63,188. (No model.)

Claim.—1. The herein-described horseshoe comprising a front semi-circular part provided with the usual nail-holes, a rear part consisting of the heel portions bent out of the plane of the rest of the shoe and adapted to receive a soft-tread substance between the hoof and the shoe, the said substance being held to the body of the shoe by sliding rivets arranged to slide downward through a flange of the shoe upon compression of the soft tread, substantially as and for the purpose specified.

2. As a new article of manufacture, a horseshoe constructed from angle-iron L-shaped in cross-section, and comprising a front portion adapted to lie flat against the hoof, and provided with the usual nail-holes for the purpose of nailing the same thereto, and a rear part consisting of the heel portions bent out of the plane of the rest of the shoe and adapted to receive a soft-tread substance between the hoof and the shoe, the said substance being held to the body of the shoe by sliding rivets arranged to slide downward through a flange of the shoe upon compression of the soft tread, substantially as and for the purpose specified.



694,918. TELEPHONE-EXCHANGE. NEWTON H. HOLLAND, Brookline, Mass., assignor of one-half to Charles W. Holtzer, Brookline, Mass. Filed Feb. 23, 1901. Serial No. 48,566. (No model.)



Claim.—1. In a telephone system, electrically-connected hooks for each incoming line; cord conductors for connecting a jack of one line to a jack of another line to establish communication; a signaling device; a controlling device for preventing the operation of said signaling device while two lines are connected for communication; a special circuit for said controlling device; means for connecting one terminal of said special circuit with one terminal of any jack; and a terminal of one conductor of each set of cord conductors cooperating with the jack-terminal aforesaid, the said conductor being normally connected with the other terminal of said special circuit whereby the completion of said circuit depends upon the connection between the connecting cord-conductor set and a jack connected with the jack which has been connected with said special circuit.

2. The combination with the sets of connecting cord conductors each of which has one of its conductors provided with a contact-piece connected with one terminal of a battery; of the jacks for the incoming lines, each having a contact for connection with the said contact-piece, the several jacks for the same line being connected together electrically; a special signal, a controlling-circuit for said special signal, one end of which is

connected with the opposite terminal of said battery; and means for connecting the other end of said controlling-circuit with any of the jack-contacts aforesaid, the said controlling-circuit being arranged to prevent the operation of the signal while two lines are connected.

3. In a telephone system, the combination with the several electrically-connected sets of jacks belonging respectively to the several lines; of the sets of cord conductors, each of which has one of its conductors connected with one terminal of a battery, said conductor being provided with a contact-piece to make contact with any jack; a special circuit having a connection with the opposite terminal of the battery aforesaid and means for connecting the said special circuit with any jack; and a signal controlled by said circuit, said circuit being arranged to prevent the operation of said signal while two lines are connected for communication.

4. In a telephone system the combination with means for connecting two lines for communication; of a special conductor adapted to connect one contact of a jack of a calling-line with one contact of a jack of a busy line without connecting the other contacts of said jacks to establish communication between said lines; a source of current one terminal of which is connected with said busy-line-jack contact, the other terminal being connected with said special conductor; a special signal controlled by said source of current; and means for preventing the operation of said signal consisting of a circuit controlled by the means for connecting two lines for communication.

5. In a telephone system, a special signal; a circuit controlling said signal, one terminal of which is adapted to be connected to one contact member of any jack, the other terminal being connected with one terminal of a battery; electrically-connected jacks for each incoming line; conductors for connecting one line with another, one member of each set of cord conductors being normally connected with the other terminal of said battery; a contact-piece for said member adapted to make contact with that member of the jack which is connected with the battery-terminal whereby the circuit for the special signal is controlled; and means for indicating the line to which said special signal refers.

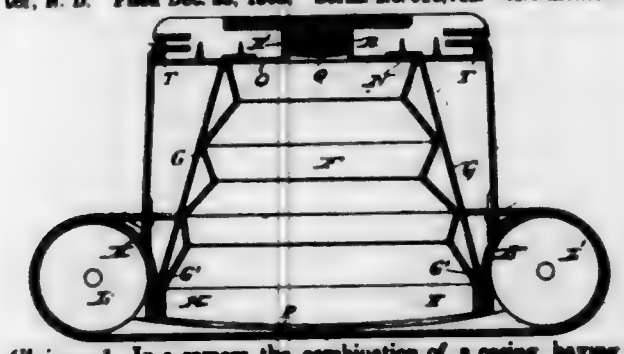
6. In a telephone signaling system, a special signal for the purpose described; a circuit for controlling said signal; sets of conductors, one conductor of each set having one terminal adapted to be connected with one terminal of said circuit; jacks having coöperating terminals; means for connecting said jack-terminals to the other terminal of said circuit; and means for indicating the line awaiting connection, as set forth.

7. In a telephone system a set of conductors adapted to connect the jacks of two telephone-lines; and a special signal controlled by said set of conductors in conjunction with a set of conductors connecting either of said two lines with a third line, the circuit controlling said signal, being arranged to prevent the operation of said signal while said telephone-lines are connected for communication.

8. In a telephone-exchange system, the combination with the incoming lines and their jacks; of sets of conductors coöperating with said jacks to connect two lines for purposes of communication; a special conductor adapted to connect one terminal of a jack of a calling-line with one terminal of a jack of a busy line; a special signal; and a circuit for said special signal controlled jointly by the conductors aforesaid, substantially as described.

9. In a telephone system, the combination with central exchange apparatus; of a special signal; a cord-circuit for connecting two lines for communication; a special local circuit for controlling said special signal, one terminal of said circuit being connected with one member of said cord-circuit; means for connecting the other terminal of said circuit with a jack of a busy line, whereby a signal is displayed when the two connected lines are disconnected; and means for indicating the waiting line to which said signal relates.

694,919. ROLL-HOLDING CAMERA. DAVID H. HOUSTON, Hunter, N. D. Filed Dec. 23, 1898. Serial No. 699,712. (No model.)



Claim.—1. In a camera the combination of a casing having two open-ended outer compartments for holding the supply and the reel spools, a central compartment, a lens and shutter located in line with the central compartment, said central compartment located between the said lens and the focal plane of said lens, said casing provided with an inner top over the central compartment, said outer compartments connected by a passage-way across and through said inner top of the central compartment, and a light-tight cover over the open ends of the outer compartments and over the passage-way in the central compartment.

2. In a camera the combination of a casing having its rear side, ends and light-excluding divisions formed of one continuous sheet of bent material, two open-ended outer compartments having their side walls formed by the said sheet of bent material, a central compartment between the said two open-ended outer compartments, an inner top over the said central compartment, said inner top having a passage-way extending across and through the said inner top of the central compartment, a light-tight cover over the open ends of the spool and reel compartments and the passage-way in the central compartment, a bellows connected at its rear end to the central compartment, a front, a lens, and a shutter closing the front end of said bellows, means for supporting the bellows and front in a position where the lens can be focused upon a sensitized film when the said film is extended across the rear interior part of the central compartment, said front lens and bellows all being adapted to fold into the said central compartment.

3. In a camera the combination of a single plate of material forming the back of the camera-casing said plate being bent to form the sides of the open-ended spool and reel chambers and two sides of the central compartment of the camera, a plate forming the bottom of the camera, a plate forming the top of the central compartment, the top of the said central compartment having a slot across and through the said top, a cover over the said open-ended spool and reel compartments and over the slot across and through the top of the central compartment, a bellows connected at its rear end to the central compartment, said bellows having its forward end closed by a front and lens and shutter, and means for supporting and indicating the extent of projection of the lens.

4. In a camera the combination of a casing having a central compartment adapted to hold the bellows when collapsed, said casing provided with an inner top over the central compartment and with light-excluding divisions, two open-ended outer compartments, said outer compartments connected by a passage-way across and through said inner top of the central compartment a light-tight cover over the open ends of the spool and reel compartments and the passage-way in the central compartment, a bellows having its forward end closed by a front and a lens and a shutter, said bellows connected at its rear end to the said light excluding divisions and to the interior of the central compartment, and means for supporting the bellows and front in a position where the lens can be focused upon a sensitized film when the said film is extended across the rear interior part of the central compartment.

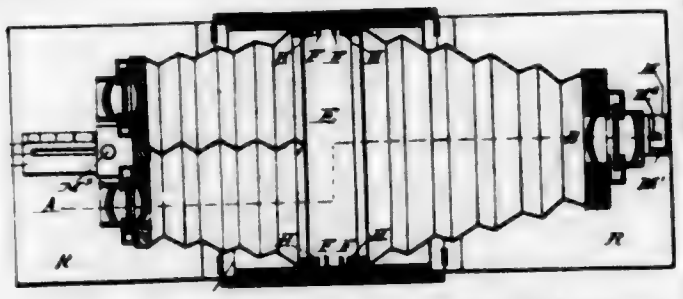
5. In a camera the combination with the casing of two open-ended outer compartments, and a central compartment, said casing having a passage-way leading across and through the top of the central compartment, said passage-way adapted to allow of the passage of the wrapper of the sensitized film when the said wrapper is connected from the supply-spool to the reel-spool, a light-tight cover over the open ends of the outer compartments and over the passage-way in the central compartment, bellows connecting the camera-front with the central compartment, and two folding doors in the front of the casing, said doors adapted to support the front of the camera in a position where the lens caried therein can be focused on the sensitized film in the central compartment of the camera.

6. In a camera the combination with the casing of two open-ended outer compartments, and a central compartment, said casing having a passage-way leading across and through the top of the central compartment said passage-way adapted to allow the passage of the wrapper of the sensitized film when the said wrapper is connected from the supply-spool to the reel-spool, a light-tight cover over the open ends of the outer compartments and over the passage-way in the central compartment, a front connected by a bellows to the camera-casing, elastic stays connecting the front and casing of the camera, and two folding doors in the front of the casing, said doors adapted to support the front of the camera in a position where the lens carried therein can be focused on the sensitized film in the central compartment of the camera.

7. In a camera the combination of a casing having a central compartment adapted to hold the bellows when collapsed, and two open-ended outer compartments, said casing being provided with an inner top over the central compartment, said outer compartments being connected by a passage-way across and through said inner top of the central compartment, a light-tight cover over the open ends of the spool and reel compartments and the passage-way in the central compartment, a bellows having its forward end closed by a front and a lens and a shutter, said bellows connected at its rear end to the said central compartment, and means for supporting the bellows and front in a position where the lens can be focused upon a sensitized film when the said film is extended across the rear interior part of the said central compartment.

694,920. CAMERA. DAVID H. HOUSTON, Hunter, N. D. Filed Mar. 12, 1897. Serial No. 627,093. (No model.)

Claim.—1. In a photographic camera the combination of a casing having a central portion adapted for holding and exposing sensitized photographic surfaces to the actinic action of light passed through lenses, a light-tight cover on the said central portion, extensible bellows attached on opposite sides of the said central portion, two sides of the casing folding outwardly and forming with the base of the casing a continuous base adapted to support said bellows when extended, lenses mounted on the front end of said bellows, and means whereby said lenses can be adjusted to focus on sensitized photographic surfaces in said central portion of said camera.



2. In a photographic camera the combination of a casing having a central portion adapted for holding and exposing sensitized photographic surfaces to the actinic action of light passed through lenses, a light-tight cover on the said central portion, folding sides hinged to the base of said casing and adapted to form with the base of the casing a continuous base, a divided bellows connected at its inner end to one side of said central portion, a pair of lenses of equal foci mounted and connected to the outer end of the divided bellows, a lens mounted and connected to the outer end of the single bellows, and means for supporting, adjusting, and indicating the extent of projection of said lenses.

3. In a photographic camera the combination of a casing having two of its opposite sides folding outwardly, said folding sides adjustable to form one rigid continuous base with the bottom of the camera-casing, a central portion in said casing fitted to hold sensitized-surface holders, said central portion having an opening adapted to admit the said holders, a light-tight door closing said opening, bellows attached at opposite interior sides of the said central portion, said bellows extensible outwardly on opposite sides of the casing, lenses mounted to close the outer ends of the bellows, and means for adjusting the focal position of the lenses to focus upon sensitized surfaces in the central portion of the casing.

4. In a photographic camera the combination of a casing having a central portion adapted to receive holders for sensitized surfaces, said central portion having stops on opposite sides of the said central portion, an opening in said central portion adapted to admit the said holders, said stops adapted to limit the position of the holders and stay the said holders at opposite sides of the said central portion, a door closing said opening in the central portion, folding sides hinged to the casing on two opposite sides, said folding sides fitted into the casing, said folding sides adapted to fold outwardly and form a continuous base with the bottom of the camera-casing, said continuous base fitted to support standards carrying lenses connected to the outer ends of the bellows, and said standards adjustable upon the folding sides when opened outwardly.

694,921. DAYLIGHT-LOADING PHOTOGRAPHIC-ROLL HOLDER. DAVID H. HOUSTON, Hunter, N. D. Original application filed Mar. 12, 1897, Serial No. 627,094. Divided and this application filed Jan. 23, 1898. Serial No. 668,244. (No model.)



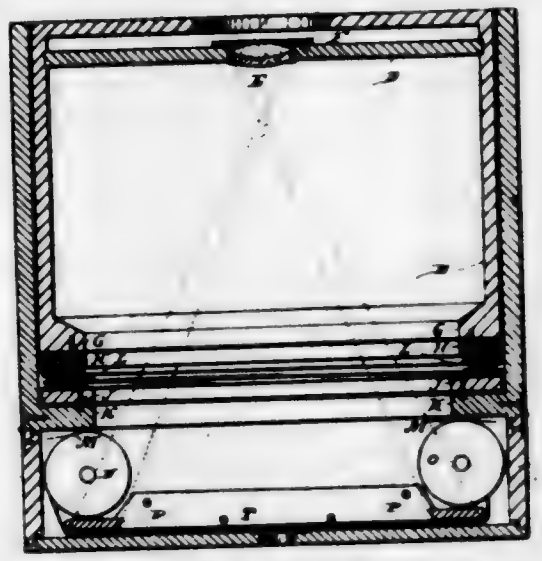
Claim.—1. In a photographic-roll holder the combination of a casing having a sight-opening in its top, a film-support board in the roll-holder casing, the said film-support board having a sight-aperture therethrough, said casing and said film-support board connected by walls forming a sight-passage through the top of the casing and through the film-support board, whereby visual observation can be had from the outside of the roll-holder casing through the film-support board.

2. In a photographic-roll holder the combination of a casing having a front opening, a slide in said front opening, a film-support board having a sight-aperture therethrough, rounded guides for the sensitized film positioned at opposite ends of the film-support board, spool and reel centering devices in the casing, the roll-holder casing having a sight-passage leading from the top of the casing to a sight-aperture in the film-support board, said sight-passage in the casing adapted to allow of the observation of indicia, and a door in the rear of the casing.

3. In a photographic-roll holder the combination of a casing having a front opening, a slide in said front opening, rounded guides for the sensitized film positioned at opposite interior ends of the casing, a film-support board having a sight-aperture therethrough, said film-support board positioned in line between the rounded guides, one chamber only for holding the supply and reel spools, spool and reel centering devices in the said chamber, the roll-holder casing having a sight-passage leading from the outside of the casing through to the said sight-aperture in the said film-support board, said sight-passage adapted to allow of the observation of indicia, and a door in the rear of the casing.

4. In a photographic-roll holder the combination of a casing having a front opening, a slide in said front opening, rounded guides for the sensitized film, said rounded guides positioned near to the front interior corners of the roll-holder casing, a film-support board positioned in line between the said rounded guides, said film-support board having a sight-aperture therethrough, one chamber for holding the spools of sensitized film, supply-spool and reel-spool centering devices in the said chamber, the roll-holder casing having an incased sight-passage leading from the outside of the casing through a suitable part thereof and leading to a sight-aperture through the film-support board of the roll-holder, whereby indicia can be observed through the said incased sight-passage, and a door in the rear of the casing.

694,922. ROLL-HOLDING PHOTOGRAPHIC CAMERA. DAVID H. HOUSTON, Hunter, N. D. Filed Mar. 31, 1898. Serial No. 675,800. (No model.)



Claim.—1. In a camera the combination of a casing having only one compartment for holding the supply and reel spools and for exposing the sensitized film to light-rays coming from the view, a lens mounted at the front side of the camera, a supply-spool journaled near one of the rear interior corners of the camera-casing, a reel-spool journaled near the opposite rear interior corner of the camera-casing, an oblong-shaped light-excluding film-guide positioned between the supply-spool and the rear interior side of the camera-casing, an oblong-shaped light-excluding film-guide positioned between the reel-spool and the rear interior side of the camera-casing, whereby the said spools and the wrappers of the sensitized film and the oblong-shaped light-excluding film-guides in combination together form a protecting-shield to intercept direct rays of light coming through the lens and allow rays of light to impinge only upon the part of the sensitized film extended between the inner edges of the said light-excluding film-guides.

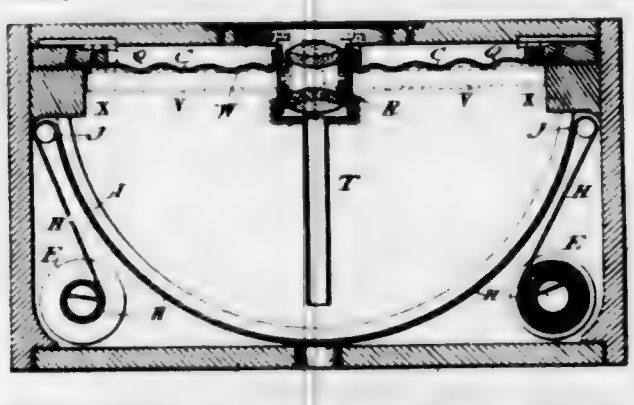
2. In a camera the combination of a casing having only one compartment for holding the supply and reel spools and for exposing the sensitized film to rays of light coming through a lens mounted at the front side of the camera, spools for carrying sensitized film journaled near the rear interior corners of the camera-casing, oblong light-excluding film-guides positioned between the said spools and the rear interior side of the camera-casing, film-edge guides positioned at opposite interior sides of the camera-casing, film-edge guides extending between the inner edges of the said oblong-shaped light-excluding film-guides, and means for indicating the position of the sensitized film in the camera when the camera is closed light-tight.

3. In a camera the combination of an outer casing, an inner casing telescoped into the interior of the said outer casing, said outer and inner casings forming one compartment for holding the spools of sensitized film and exposing the sensitized film to rays of light coming through a lens mounted at the front of the camera, a lens mounted at the front side of the inner casing, interior projections on the outer and inner casings, a bellows connecting the outer and inner casings, said bellows positioned between the said interior projections of the outer and inner casings, supply and reel spools positioned rearward from the interior projections of the outer casing and near the interior rear corners of the casing, oblong-

shaped light-excluding film-guides positioned between the said spools and the rear interior side of the camera-casing, and means for indicating the position of a sensitized film in the camera when the camera is closed light-tight.

4. In a camera the combination of a casing having only one compartment for holding the supply and reel spools and for exposing the sensitized film to rays of light coming through a lens mounted at the front of the camera, a lens mounted at the front of the camera, a shutter closing said lens, ray-intercepting projections at opposite interior sides of the camera-casing, a supply-spool positioned rearward from one of the ray-intercepting projections, a reel-spool positioned rearward from the opposite ray-intercepting projection, and oblong-shaped light-excluding film-guides positioned between the said spools and the rear interior side of the camera-casing, whereby said ray-intercepting projections, the spools, the wrappers of the sensitized film, and the oblong light-excluding film-guides in combination together form a protecting-shield to intercept direct rays of light coming through the lens and allow rays of light to impinge only upon the part of the sensitized film extended between the inner edges of the said light-excluding film-guides.

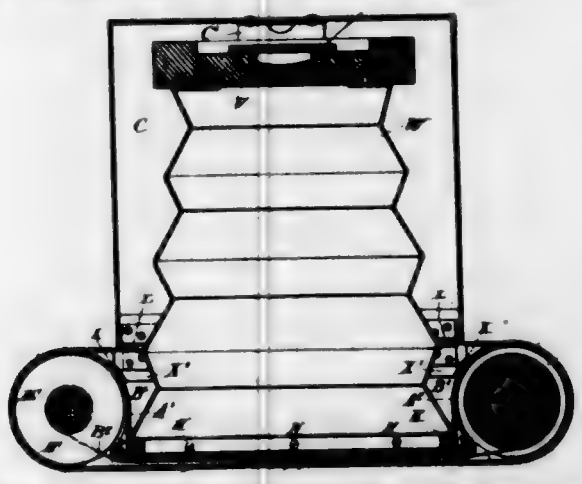
694,928. **PANORAMIC PHOTOGRAPHIC CAMERA.** DAVID H. HOUSTON, Hunter, N. D. Filed Aug. 24, 1899. Serial No. 728,394. (No model.)



Claim.—1. In a panoramic camera the combination of a suitable rectangular casing having an outer protective front adapted to fold outward and downward, a pivoted lens and mount in said casing, said mount having a rearward slot-like extension, an inner flexible front surrounding said pivoted lens-mount, said flexible front being connected to the rectangular casing and lens-mount, circularly-positioned guides for the film, said guides adapted to guide a sensitized film in the focal field of the pivoted lens.

2. In a panoramic camera the combination of a suitable rectangular casing having an outer protective front adapted to fold outward and downward, a pivoted lens and mount in said casing, an inner flexible front surrounding said pivoted lens-mount, said flexible front connected to the rectangular casing and lens-mount, guide-rollers positioned near to the right and left interior front corners of the casing, a supply-spool and a reel-spool for the sensitized film, said supply and reel spools being positioned in the triangular space at the right and left interior rear corners of the casing, and a guide for the sensitized film positioned circularly in the rear of the pivoted lens.

694,924. **ROLL-HOLDING CAMERA.** DAVID H. HOUSTON, Hunter, N. D. Filed Mar. 20, 1900. Serial No. 9,360. (No model.)



Claim.—1. In a photographic camera, the combination of a casing having light-excluding divisions forming a central compartment and two open-ended side compartments, said casing being provided with an inner top over said central compartment, and with a passage-way formed between its rear side and said inner top and connecting said side compartments, a bellows connected at its rear end to said light-excluding divisions and to the interior of said central compartment, said bellows having its front end closed by a front board carrying a lens and shutter, said bellows and the parts carried thereby being adapted to be folded into said central compartments, a folding front on said casing adapted to support said front board and bellows when extended, and a light-tight cover adapted to close the open ends of said side compartments and said passage-way connecting them.

2. In a photographic camera, the combination of a casing having light-excluding divisions forming a central compartment and two open-ended side compartments, spool and reel pivoting devices positioned in the said side compartments, said casing being provided with an inner top over said central compartment and with a passage-way formed between its rear side and said inner top and connecting said side compartments, a light-tight cover adapted to close the said ends of said side compartments and said passage-way, a reel-winding device passing through the camera-casing and connecting with and adapted to wind the reel-spool, a bellows connected at its rear end to said light-excluding divisions and to the interior of said central compartment, said bellows having its front end closed by a front board carrying a lens and shutter, said bellows and the parts carried thereby being adapted to be folded into said central compartment, and a folding front on said casing adapted to support said front board and bellows when extended.

694,925. **FOLDING ROLL-HOLDING CAMERA.** DAVID H. HOUSTON, Hunter, N. D. Filed Mar. 5, 1901. Renewed Feb. 3, 1902. Serial No. 92,321. (No model.)



Claim.—1. In a photographic camera, the combination with a suitable casing, of two side compartments for holding rolls of sensitized film, a reel-winding device passing from the outside of the camera-casing to the interior thereof, said reel-winding device adapted to connect with and wind a reel-spool positioned in one of the outer compartments, a central compartment for exposing the sensitized film situated between the two side compartments, a bellows connected at its rear end at the front side of the central compartment, a front and lens and shutter closing the front end of said bellows, said front of the bellows and the parts carried thereby and the bellows all adapted to fold into the said central compartment of the camera, and means for extending the bellows and supporting the front of said bellows in a position where the lens carried in said front will be focused upon the sensitized film when the said film is extended across the rear interior part of the said central compartment of the camera.

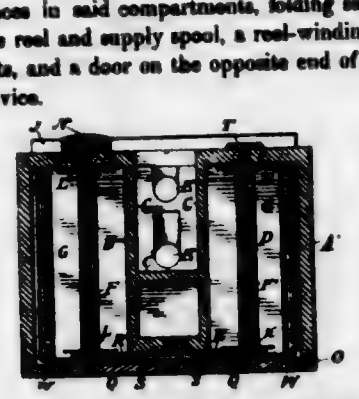
2. In a photographic camera, the combination with a suitable casing, of two side compartments for holding rolls of sensitized film, a reel-winding device passing from the outside of the camera-casing to the interior thereof, said reel-winding device adapted to connect with and wind a reel-spool positioned in one of the outer compartments, a central compartment for exposing the sensitized film situated between the two side compartments, a bellows having its rear frame connected to the front side of the camera-casing, said frame surrounding the front side of the central compartment, a front and lens and shutter closing the front end of said bellows, said front of the bellows and the parts carried thereby and the bellows all adapted to be carried in said central compartment, and means for extending the bellows and supporting the front of said bellows in a position where the lens carried in said front will be focused upon the sensitized film when the said film is extended across the rear interior part of the said central compartment of the camera.

3. In a photographic camera, the combination with a suitable casing, of two side compartments for holding rolls of sensitized film, a reel-winding device passing from the outside of the camera-casing to the interior thereof, said reel-winding device adapted to combine with and wind a reel-spool positioned in one of the side compartments, a central compartment for exposing the sensitized film, said central compartment situated between the two side compartments, a camera-front having its rear corners cut away, a bellows connected at its front end to the said front, said bellows connected at its rear end to the front side of the camera-casing, said camera-front and the parts carried thereby and the bellows all adapted to be carried in the said central compartment of the camera, and means for extending the bellows and supporting the front of said bellows in a position where the lens carried in said front will be focused upon the sensitized film when the said film is extended across the rear interior part of the said central compartment of the camera.

694,926. **DAYLIGHT-LOADING PHOTOGRAPHIC-ROLL HOLDER.** DAVID H. HOUSTON, Hunter, N. D. Filed Mar. 19, 1901. Serial No. 51,950. (No model.)

Claim.—1. In a photographic-roll holder the combination of a cas-

ing having a front opening, a slide in the said front opening, a film-support having a sight-aperture therethrough, said film-support having one of its edges disconnected from the casing, rounded guides for the sensitized film, said rounded guides positioned at opposite ends of the said film-support, the casing having a sight-passage leading from the outside of the casing to the said sight-aperture located in and through the said film-support, two compartments for holding the rolls of sensitized film, said compartments positioned on opposite sides of the said sight-passage, reel and spool centering devices in said compartments, folding supports carrying center pivots for the reel and supply spool, a reel-winding device in one of the compartments, and a door on the opposite end of the casing from the reel-winding device.

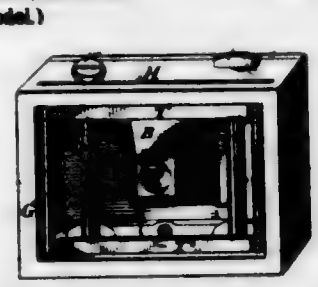


2. In a photographic-roll holder the combination of a casing having a front opening, a slide in the said front opening, a film-support having a sight-aperture therethrough, rounded film-guides positioned in line at the right and left ends of the film-support, the roll-holder casing having a sight-passage leading from the outside of the casing to the sight-aperture in the said film-support, two compartments for holding the rolls of sensitized film, said compartments positioned on opposite sides of the said sight-passage, a pivot for the supply-spool positioned in one compartment, a reel-winding device in one of the compartments, a supply-spool pivot and a reel-pivot positioned in the interior of the casing at the opposite interior side from the reel-winding device, said supply-spool pivot and said reel-pivot carried upon movable supports adapted to be moved from their position and when moved allow of the insertion into the roll-holder of a supply-spool and a reel-spool, and a door on the opposite end of the casing from the reel-winding device.

3. In a photographic-roll holder the combination of a casing having a front opening, a slide in the said front opening, two compartments for holding the rolls of sensitized film, a film-support attached to and carried upon the walls C, said film-support having one of its edges disconnected from the casing, the film-support having a sight-aperture, the casing having a sight-passage leading through its top and rear side to a sight-aperture located in and through the said film-supports, reel and spool centering devices in the compartments of the casing, supports carrying pivots for the reel and spool to center on, said supports adapted to fold outward and allow of the insertion of reel and supply spools into the reel and supply spool compartments of the roll-holder casing, a reel-winding device adapted to connect with and wind the reel, and a door on the opposite end of the casing from the reel-winding device.

694,927. DAYLIGHT-LOADING PHOTOGRAPHIC-ROLL HOLDER.

DAVID H. HOUSTON, Hunter, N. D. Filed Apr. 19, 1901. Serial No. 56,613. (No model.)



Claim.—1. In a photographic-roll holder the combination of a casing having a front opening, a slide in the said front opening, the casing having only one interior compartment for holding the rolls of sensitized film and exposing the sensitized film to rays of light passed through a lens, rounded guides for the film positioned at opposite interior front corners of the one-compartment casing, film-edge guides positioned at opposite interior sides of the casing and in line between the said rounded guides, spool and reel pivoting devices in the interior of the one-compartment casing, a reel-winding device, the rear side of the casing having an inward-projecting incased sight-passage leading from the interior rear side of the casing to a sight-aperture in the inner end of the said incased sight-passage, said sight-passage adapted to admit of the observation of indicia upon the wrapper of a sensitized film.

2. In a photographic-roll holder the combination of a casing having a front opening, a slide in the said front opening, the casing having only one interior compartment for holding the rolls of sensitized film and exposing the sensitized film to rays of light passed through a lens, rounded guides for the film positioned at opposite interior front corners of the one-compartment casing, film-edge guides positioned at opposite interior sides of the casing and in line between the said rounded guides, spool and reel pivoting devices in the interior of the one-compartment casing, a reel-winding device, the rear side of the casing arranged to separate from the casing, the rear side of the casing having an inward-projecting incased sight-passage leading from the interior rear side of the casing to a sight-aperture in the inner end of the said incased sight-passage, said sight-passage adapted to admit of the observation of indicia upon the wrapper of a sensitized film.

3. In a photographic-roll holder the combination of a casing having a front opening, a slide in said front opening, the casing having only one interior compartment for holding the rolls of sensitized film and exposing the sensitized film to rays of light passed through a lens, rounded guides for the film positioned at opposite interior front corners of the one-compartment casing, film-edge guides positioned in the rear of the edges of the film and at opposite interior sides of the casing and in line between the said rounded guides, said casing constructed with two of its sides carrying spool and reel pivoting devices, a reel-winding device, the rear side of the casing having an inward-projecting incased sight-passage leading from the interior rear side of the casing to a sight-aperture in the inner end of the said incased sight-passage, said sight-passage adapted to admit of the observation of indicia upon the wrapper of a sensitized film.

694,928. FOLDING ROLL-HOLDING PHOTOGRAPHIC CAMERA.

DAVID H. HOUSTON, Hunter, N. D. Filed June 10, 1901. Serial No. 64,016. (No model.)



Claim.—1. In a photographic camera the combination of an oblong-shaped one-compartment casing for holding the spools of sensitized film and exposing the film to rays of light passed through a lens, spool-centering devices in one end of said casing, reel-centering devices in the opposite end of the casing, rounded guides for the sensitized film, said rounded guides positioned near the rear interior side of the casing, a bellows having its rear end connected at the front side of the casing, a front and lens and shutter closing the front end of said bellows, the front side of the camera-casing having ray-intercepting projections positioned at the right and left ends of the front aperture of the camera-casing, said ray-intercepting projections positioned in line between the rays of light passing the lens when in use and the said rounded guides positioned near the rear interior side of the casing, said front of the bellows and the parts carried thereby and the bellows all adapted to fold into the central portion of the said one-compartment casing and be carried in the central space between the supply and reel spools, and means for extending the bellows and supporting the front of said bellows in a position where the lens carried in said front will be focused upon the sensitized film when the said film is extended across the rear interior part of the said one-compartment casing.

2. In a photographic camera the combination of an oblong-shaped one-compartment casing for holding the spools of sensitized film and exposing the film to rays of light passed through a lens, spool-centering devices in one end of said casing, reel-centering devices in the opposite end of the casing, rounded guides for the sensitized film, said rounded guides positioned near the rear interior side of the casing, film-edge guides positioned at opposite interior sides of the casing and in line between the said rounded guides, a bellows having its rear end connected at the front side of the casing, a front and lens and shutter closing the front end of said bellows, said front of the bellows and the parts carried thereby and the bellows all adapted to fold into the central portion of the said one-compartment casing and be carried in the central space between the supply and reel spools, and means for extending the bellows and supporting the front of said bellows in a position where the lens carried in said front will be focused upon the sensitized film when the said film is extended across the rear interior part of the said one-compartment casing.

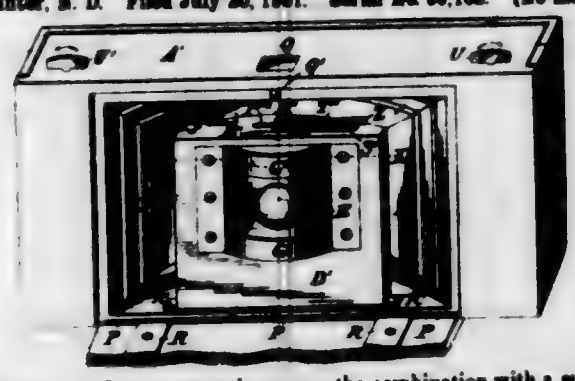
3. In a photographic camera the combination of an oblong-shaped

one-compartment casing for holding the spools of sensitized film and exposing the film to rays of light passed through a lens, spool centering devices in one end of the casing, reel-centering devices in the opposite end of the casing, rounded guides for the sensitized film, said rounded guides positioned near the rear interior side of the casing, a bellows having its rear end connected to a support-frame, said support-frame having angle-arms rigidly united to the inner edge sides of the camera-casing, a front and lens and shutter closing the front end of said bellows, said front of the bellows and the parts carried thereby and the bellows all adapted to fold into the central portion of the said one-compartment casing and be carried in the central space between the supply and reel spools, and means for extending the bellows and supporting the front of the said bellows in a position where the lens carried in said front will be focused upon the sensitized film when the said film is extended across the rear interior part of the said one-compartment camera.

4. In a photographic camera the combination of a one-compartment casing for holding the spools of sensitized film and exposing the film to rays of light passed through a lens, spool and reel centering devices in the casing, rounded guides for the sensitized film, light-excluding friction-brakes pivoted at the rounded guides, said light-excluding friction-brakes adapted to intercept light and thereby shield the parts of the sensitized film extended between the rounded guides and the rolls of film.

5. In a photographic camera the combination of a one-compartment casing for holding the spools of sensitized film and exposing the film to rays of light passed through a lens, spool and reel centering devices in the casing, rounded guides for the sensitized film, film-edge guides at opposite sides of the casing, springs supported upon the said film-edge guides, said springs positioned to bear upon light-excluding friction-brakes, said light-excluding friction-brakes pivoted to swing and extend from the said rounded guides to the roll of sensitized film.

694,929. **FOLDING PANORAMIC CAMERA.** DAVID H. HOUSTON, Hunter, N. D. Filed July 20, 1901. Serial No. 69,102. (No model.)



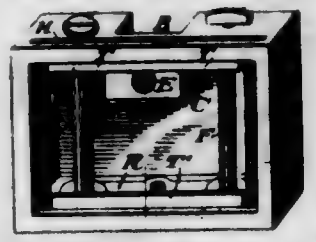
Claim.—1. In a panoramic camera the combination with a suitable casing of a bellows attached at its rear end to the said casing, a front attached to and closing the forward end of said bellows, said front having a circularly-shaped mount for the lens, said circularly-shaped mount pivoted to oscillate light-tight in said front, means for swinging said circularly-shaped mount, a lens mounted in the said circularly-shaped mount, said lens positioned with its forward and rear apertures facing the periphery of the said circularly-shaped mount, circularly-positioned guides for the sensitized film, said guides positioned to guide a sensitized film in the circularly-positioned focal field of a lens mounted with its optical center in the center of said circularly-shaped mount, and means for projecting and supporting the front of the camera in a position where the lens can be focused upon the sensitized film.

2. In a panoramic camera the combination with a suitable casing of a bellows attached at its rear end to the said casing, a front attached to and closing the forward end of said bellows, said front having a circularly-shaped mount for the lens, said circularly-shaped mount pivoted to oscillate light-tight in said front, means for swinging said circularly-shaped mount, a lens mounted in said circularly-shaped mount, said lens positioned with its forward and rear apertures facing the periphery of the said circularly-shaped mount, circularly-positioned guides for the sensitized film, said guides positioned to guide a sensitized film in the circularly-positioned focal field of a lens mounted with its optical center in the center of said circularly-shaped mount, a supply-spool and a reel-spool positioned in said casing, means to wind the sensitized film, and means for projecting and supporting the front of the camera in a position where the lens can be focused upon the sensitized film.

3. In a panoramic camera the combination of a front, said front having pivoted therein an oscillating mount for the lens, a geared pinion upon the pivot of the said oscillating mount, a geared sliding bar adjusted to slide, said geared sliding bar adjusted with its gear in mesh with the geared pinion, a reversible crank adjusted to swing on the center of the said front, an elastic spring connecting the said crank to the said geared sliding bar, means adapted to lock said oscillating lens-mount, and a touch-button and trigger adjusted to release the locked oscillating mount.

4. In a panoramic camera the combination with a suitable casing of a bellows attached at its rear end to said casing, a front attached to and closing the forward end of said bellows, gates adapted to partially close the right and left sides of the rear aperture of said front, said front having a circularly-shaped mount for the lens, said circularly-shaped mount pivoted to oscillate light-tight in said front, means for swinging said circularly-shaped mount, a lens mounted in said circularly-shaped mount, said lens positioned with its forward and rear apertures facing the periphery of the said circularly-shaped mount, circularly-positioned guides for the sensitized film, said guides positioned to guide a sensitized film in the circularly-positioned focal field of a lens mounted with its optical center in the center of said circularly-shaped mount, a supply-spool and a reel-spool positioned in said casing, means to wind the sensitized film, and means for projecting and supporting the front of the camera in a position where the lens can be focused upon the sensitized film.

694,980. **PHOTOGRAPHIC-ROLL HOLDER.** DAVID H. HOUSTON, Hunter, N. D. Filed Sept. 21, 1901. Serial No. 76,114. (No model.)



Claim.—1. In a photographic-roll holder the combination of a casing having a front opening, a side in said front opening, the casing having a walled sight-passage through the top of the casing, said walled sight-passage leading to a sight-aperture in the front of said walled sight-passage, film-edge guides at the interior top and bottom of the casing, rounded guides for the sensitized film positioned in line with the film-edge guides, said rounded guides placed at the sides of the space between the film-edge guides, spool and reel centering devices in the casing, and a reel-winding device adapted to connect with and wind the reel.

2. In a photographic-roll holder the combination of a casing having one compartment for holding the rolls of sensitized film and exposing the film to rays of light passed through a lens, said casing having a front opening, a slide in said front opening, said casing constructed with only one outside opening for introducing spools of sensitized film, which opening is closable by the said slide, said casing having in its top a walled sight-passage having a front wall, said front wall having a sight-aperture, film-edge guides at the interior top and bottom of the roll-holder casing, said film-edge guides positioned in line between the rounded guides for the film, spool and reel centering devices in the casing, and a reel-winding device adapted to connect with and wind the reel.

3. In a photographic-roll holder the combination of a casing having one compartment for holding the rolls of sensitized film and exposing the film to rays of light passed through a lens, said casing having a front opening, a slide in the said front opening, said casing having in its top a sight-aperture, film-edge guides at the interior top and bottom of the roll-holder casing, said film-edge guides positioned in line between rounded guides for the film, said rounded guides positioned on opposite sides of the space between the said film edge guides, spool and reel centering devices in the casing, and a reel-winding device adapted to connect with and wind the reel.

4. In a photographic-roll holder the combination of a casing having a front opening, a slide in said front opening, the casing having a walled sight-passage through the top and back of the casing, said walled sight-passage leading to a sight-aperture in the front of said walled sight-passage, film-edge guides at the interior top and bottom of the casing, rounded guides for the sensitized film positioned in line with the film-edge guides, said rounded guides placed at opposite sides of the space between the film-edge guides, spool and reel centering devices in the casing, and a reel-winding device adapted to connect with and wind the reel.

5. In a photographic-roll holder the combination of a casing having a front opening, a slide in said front opening, the casing having a walled sight-passage through the top and back of the casing, said walled sight-passage leading to a sight-aperture in the front of the said walled sight-passage, film-edge guides at the interior top and bottom of the casing, rounded guides for the sensitized film positioned in line with the film-edge guides, said rounded guides placed at opposite sides of the space between the film-edge guides, a pivoting device for the supply-spool, a pivoting and winding device for the reel-spool, a spring carrying spool and reel pivots positioned at the opposite side from the reel-winding device, and the roll-holder casing constructed to open and allow of access to the interior of the roll-holder.

6. In a photographic-roll holder the combination of a casing having one compartment for holding the rolls of sensitized film and exposing the

film to rays of light passed through a lens, said casing having a front opening, a slide in said front opening, the casing having a walled sight-passage through the top and back of the casing, said walled sight-passage leading to a sight-aperture in the front of said walled sight-passage, film-edge guides at the interior top and bottom of the casing, rounded guides for the sensitized film positioned in line with the film-edge guides, said rounded guides placed at opposite sides of the space between the film-edge guides, a pivoting device for the supply-spool, a pivoting and winding device for the reel-spool, and a spring carrying spool and reel pivots positioned at the opposite side from the reel-winding device.

694,931. PLOW. GEORGE A. KELLY, Longview, Tex., assignor to the George A. Kelly Plow Company, Longview, Tex. Filed June 29, 1901. Serial No. 66,531. (No model.)



Claim.—1. In a plow, the combination with a standard having sockets in its opposite side faces, the bottoms of said sockets being disposed in convergent relation toward their rear ends, of a beam comprising spaced bars that fit in the sockets, handles located in rear of the standard, and brace connections between the handles and standards, said connections extending from the points of attachment of the beam-bars to the standard.

2. In a plow, the combination with a beam comprising bars, of a standard located between the beam-bars and being provided with a portion that tapers from its front toward its rear edge, said standard having outstanding lips on its opposite side faces contiguous to its tapering portion that engage over the upper edges of the beam-bar.

3. In a plow, the combination with a beam comprising bars, of a standard located between the bars and being provided with a portion that tapers from its front toward its rear edge, said standard having outstanding lips on its opposite side faces contiguous to its tapering portion that engage under the lower edges of the beam-bar.

4. In a plow, the combination with a standard having sockets in its opposite side faces, the bottoms of said sockets being arranged in convergent relation toward their rear ends, of a beam comprising spaced bars that embrace the standard and fit respectively in the sockets thereof.

5. In a plow, the combination with a standard having sockets in its opposite side faces, of a beam comprising spaced bars that embrace the standard and fit respectively in the sockets thereof with their upper and under edges resting against the inner edges of the sockets, handles located in rear of the standards, braces extending from the handles to the socketed portions of the beam bars, and means for fastening the beam-bars and braces to the standards.

6. In a plow, the combination with a beam comprising spaced bars, of a standard secured between the bars, a tension-brace secured at one end to the standard and having its other end located between the bars, and means for securing the bars and brace together.

7. In a plow, the combination with a beam, comprising spaced bars, of a standard secured between said bars, a brace fastened at one end to the standard below its connection with the beam, said brace extending in front of the standard and having its other end located between the beam-bars, and means passing through said bars and brace for securing them together.

8. In a plow, the combination with a beam comprising spaced bars, of a standard secured between the bars, a brace having a yoke at one end that embraces and is fastened to the standard, the other end of said brace being secured to the beam.

9. In a plow, the combination with a beam comprising spaced bars, of a standard secured between the bars, a brace having a yoke at one end that embraces and is fastened to the standard, the other end of said brace being provided with a spacing cross-head that is located between the bars, and a bolt passing through said bars and cross-head for securing them together.

10. In a plow, the combination with a standard, of a beam secured to the standard and comprising spaced bars, and a space-block located between and having lips that engage over the edges of the bars.

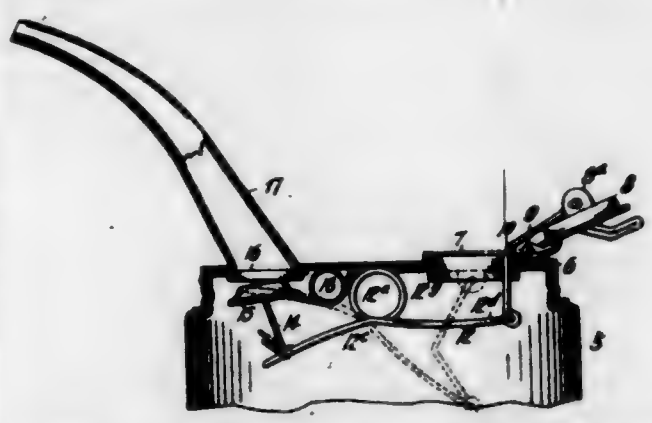
11. In a plow, the combination with a standard, of a beam secured to the standard and comprising spaced bars, a space-block located between and having lips that engage over the edges of the bars, and a clamping-bolt passing through the bars and engaging the block.

12. In a plow, the combination with a beam comprising spaced bars, of a standard secured between the bars, a clevis located at the front end of the beam and provided in its opposite side face with sockets in which the front ends of the beam-bars engage, and means for securing the bars in said sockets.

13. In a plow, the combination with a beam comprising spaced bars, of a standard secured between the bars at the rear ends thereof, a clevis located between the front ends of the bars, and a spacing-block arranged between the bars at a point intermediate the standard and clevis.

14. In a plow, the combination with a beam comprising spaced bars, of a standard secured between the bars at the rear ends thereof, a clevis fastened between the front ends of the bars, a spacing-block arranged between the bars at a point intermediate the standard and clevis, handles located in rear of the standards, and connections extending from the standard at the point of attachment of the beam-bars and secured to the handles.

694,932. STOPPER OR CLOSURE. LESLIE H. ADDIS and STEPHEN A. SEWALL, Denver, Colo. Filed July 6, 1901. Serial No. 67,268. (No model.)



Claim.—1. The combination with a liquid-receptacle whose top is provided with inlet and escape openings, of a spring-held valve normally closing the escape-opening and provided with a stem having a hook at its free extremity, a cover adapted to close the inlet-opening, a lever having one arm occupying a position above the hook extremity of the valve-stem and disengaged therefrom when the parts are in the closed position, and a suitable connection between the opposite arm of the lever and the hinged cover whereby as the cover is opened one lever-arm opens the valve by engaging the hook of its stem.

2. The combination with a liquid-receptacle and a cap therefor provided with inlet and escape openings, of a spring-held valve normally closing the escape-opening, and provided with a stem having a hook at its free extremity, a cover adapted to close the inlet-opening, and a lever formed from a single piece of wire and comprising a forward part 12^{a}, a rearwardly-located loop 12^{d} into which the part 12^{a} merges, a spring 12^{c} formed by a central coil intermediate the loop and the arm 12^{b}, the rear extremity of the wire being secured to the cap, the forward arm 12^{a} of the lever being arranged to engage the hook of the valve-stem for opening purposes; and a link connecting the rear extremity of the loop with the cover whereby the opening of the cover unseats the valve, the loop-opening being located directly beneath the inlet-opening of the cap.

3. The combination with a liquid-receptacle and a cap therefor provided with inlet and escape openings, of a spring-held valve normally closing the escape-opening, a cover adapted to close the inlet-opening, a lever formed from a single piece of wire and comprising a forward part 12^{a}, a rearwardly-located loop 12^{d} into which the part 12^{a} merges, a spring 12^{c} formed by a central coil intermediate the loop and the arm 12^{b}, the rear extremity of the wire being secured to the cap, and a suitable connection between the valve and the arm 12^{a} of the lever, and between the cover and the loop of the lever, whereby the opening of the cover opens the valve through the instrumentality of the lever.

694,933. ELECTRODE FOR PURIFYING LIQUIDS BY ELECTROLYSIS. WILLIAM R. GRIFFIAN, New York, N. Y., assignor of one-half to MAX BLUMENTHAL, New York, N. Y., and FREDERICK G. KUNZ, Brooklyn, N. Y. Filed Apr. 23, 1901. Serial No. 56,032. (No model.)

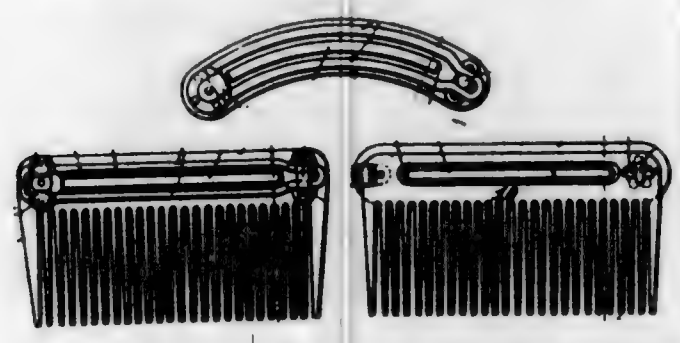
Claim.—1. An electrode for use in the purification of liquids by the electrolytic process consisting of a compound of metallic magnesium and aluminium from which oxyhydrates may be developed by electrolysis, one or more metals serving as a binder and one or more metals serving for hardening the compound, together with a suitable flux.

2. An electrode for use in the purification of liquids by the electro-

lytic process consisting of a compound of metallic magnesium, aluminium, straits tin, cadmium, nickel, ferrosilicon and a suitable flux.

3. An electrode for use in the purification of liquids by the electrolytic process consisting of a compound of metallic magnesium twenty parts, aluminium forty parts, straits tin fifteen parts, cadmium ten parts, nickel five parts, ferrosilicon ten parts and a suitable flux.

694,934. HAIR-CLASP. JOHN MACHADO, Boston, Mass. Filed Oct. 28, 1900. Serial No. 34,498. (No model.)



Claim.—1. A device of the character described comprising a base-plate, a compressible friction-strip on the base-plate and a clamping member lying parallel to the compressible strip and clamping the hair positively against the strip.

2. A device of the character described, the combination with a base-plate having compressible friction material secured thereto, a clamping-pin secured to the base-plate and lying parallel to the compressible material and clamping the hair positively against said material, and means for detachably securing the clamping-pin in position.

3. In a device of the class described, the combination with a base-plate having a strip of compressible friction material secured thereto and extending lengthwise of the plate, of a slotted clamping member hinged to the plate at one end and lying parallel to the compressible strip to clamp the hair positively against said strip, and means to detachably secure the free end of the clamp.

REISSUES.

11,973. BLUE SULFUR DYE AND PROCESS OF MAKING SAME. JULIUS ARNT, Mannheim, Germany, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany, a Corporation of Baden. Filed Feb. 1, 1902. Serial No. 92,178. Original No. 679,190, dated July 23, 1901.

Claim.—1. The process for producing new blue coloring-matter by treating dialkyl-amido-indophenol-thiosulfonic acid with sulfur and sodium sulfid, substantially as described.

2. The process of producing new blue coloring-matter by treating dimethyl-amido-indophenol-thiosulfonic acid with sulfur and sodium sulfid, substantially as described.

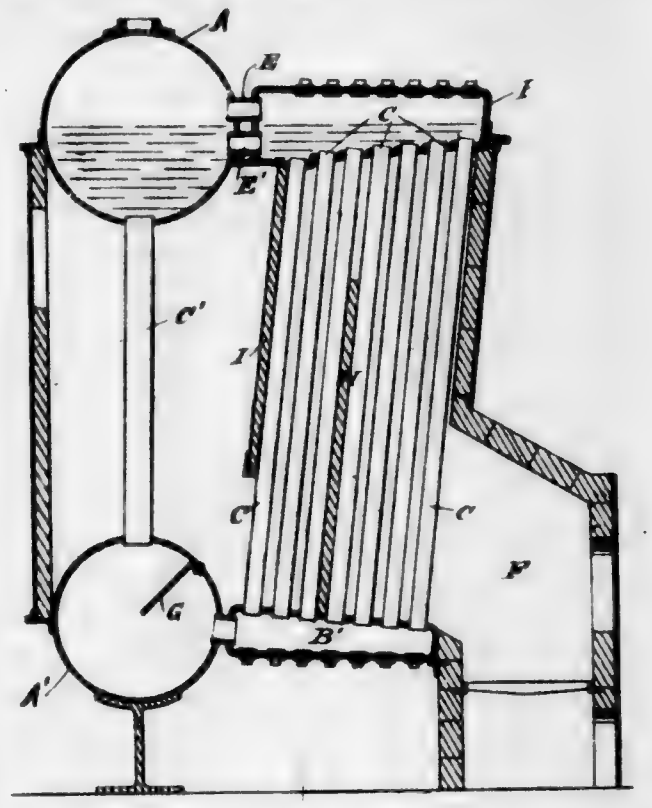
3. The new blue coloring-matter containing sulfur which is practically insoluble in pure water, hydrochloric acid or dilute carbonate-of-soda solution, which on suitable reduction with sodium-sulfid solution is converted into the form of leuco compound which is precipitated from its solution in sodium sulfid by hydrochloric acid and is practically insoluble in carbonate-of-soda solution, substantially as described.

11,974. STEAM-BOILER. CHARLES B. REARICK, New York, N. Y. Filed June 3, 1901. Serial No. 63,036. Original No. 639,907, dated Dec. 26, 1899.

Claim.—1. Combination in a water-tube boiler of a furnace, water and steam drum A, connected to a substantially horizontal header or headers B so that water-line passes through said header or headers, connections and water and steam drum A; downflow-pipes C' connecting steam and water drum A to water and mud drum A', said drum A' being connected to header or headers B', header or headers B' connected by upflow-pipes C to header or headers B, all substantially as shown and described and for the purpose set forth.

2. Combination in a water-tube boiler of a furnace, water and steam drum A, substantially horizontal header or headers B connected to water and steam drum A by two or more pipes E and E' one above another as described and for the purpose set forth, downflow-pipes C' connecting drum A to lower header or headers B', header or headers B' connected to header or headers B by water-tubes C.

3. Combination in a water-tube boiler of a furnace, water and steam drum A, header or headers B connected to water and steam drum A by one or more tubes E and one or more tubes E', as described and for the purpose set forth, header or headers B connected to header or headers B' by water-tubes C, header or headers B' being also connected to water and mud drum A', water-tubes C' connecting water and mud drum A' to water and steam drum A all substantially as shown and described.



4. Combination in a water-tube boiler of a furnace F, water and steam drum A, substantially horizontal header or headers B, with connections to drum A as shown and described; said header or headers B connected to lower header or headers B' by water-tubes C, said lower header or headers B' connected to water and mud drum A', separating-plate G in drum A', water-tubes C' connecting water and mud drum A' to water and steam drum A as shown and described and for the purpose set forth.

5. In a water-tube boiler, the combination of a steam and water drum, with an independent header connected to such drum by one or more sets of passages arranged one above the other, the normal water-line in said drum passing between the upper and lower passages of each set of connecting-passages and entering and extending into the header.

6. In a water-tube boiler, the combination of a steam and water drum, with a series of independent headers, each connected to such drum by a set of passages arranged one above the other, the normal water-line in such drum passing between the upper and lower passages of each connecting set, and entering and extending into the headers.

7. In a water-tube boiler, the combination of a steam and water drum, downflow-pipes from such drum, a header, the tube-sheet of which is normally submerged, with one or more sets of passages connecting such header and drum, the passage of each set arranged one above the other and the normal water-line in such drum passing between the upper and lower of such passages of each set and entering and extending into the header.

8. In a water-tube steam-boiler, the combination of a steam and water drum, downflow-pipes from such drum, a series of headers, the tube-sheets of which are normally submerged, with a set of passages connecting each header with the said drum, such passages arranged one above the other and the normal water-line in the said drum passing between the upper and lower of such passages and entering and extending into the said headers.

9. In a water-tube boiler, the combination of a steam and water drum, an independent header having one face adjacent to said drum and its tube-sheet normally submerged and substantially parallel to the top face of same, with a series of passages connecting such adjacent face of header to said drum, each of such passages reaching substantially the whole height of said adjacent face and the normal water-line in said drum passing through such connecting-passages and entering and extending into the header.

10. In a water-tube boiler, the combination of a steam and water drum, a series of independent headers, each having one face adjacent to said drum and its tube-sheet normally submerged and substantially parallel to the top face of same, with a passage connecting the adjacent face of each header to the said drum, such passages reaching substantially the whole height of said adjacent faces of headers, and the normal water-line in said drum passing through such connecting-passages and entering and extending into the header.

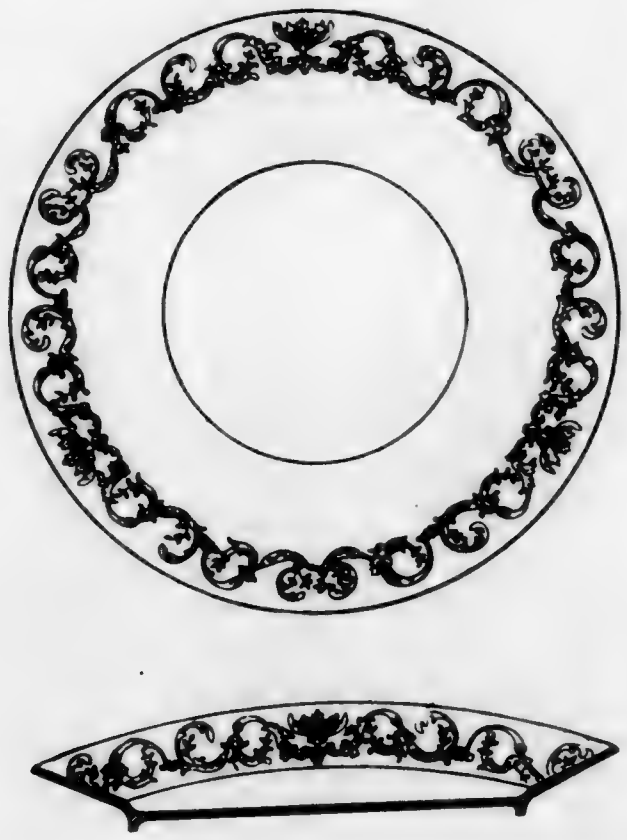
DESIGNS.

35,780. HANDLE FOR SPOONS, FORKS, OR SIMILAR ARTICLES. WILLIAM C. CODMAN, Providence, R. I., assignor to Gorham Manufacturing Company, Providence, R. I. Filed Feb. 6, 1902. Serial No. 92,923. Term of patent 7 years.



Claim.—The design for the handle of a spoon, fork or similar article, as herein shown and described.

35,781. PLATE OR SIMILAR ARTICLE. CHARLES J. ARRENFELDT, New York, N. Y. Filed Feb. 7, 1902. Serial No. 93,063. Term of patent 7 years.



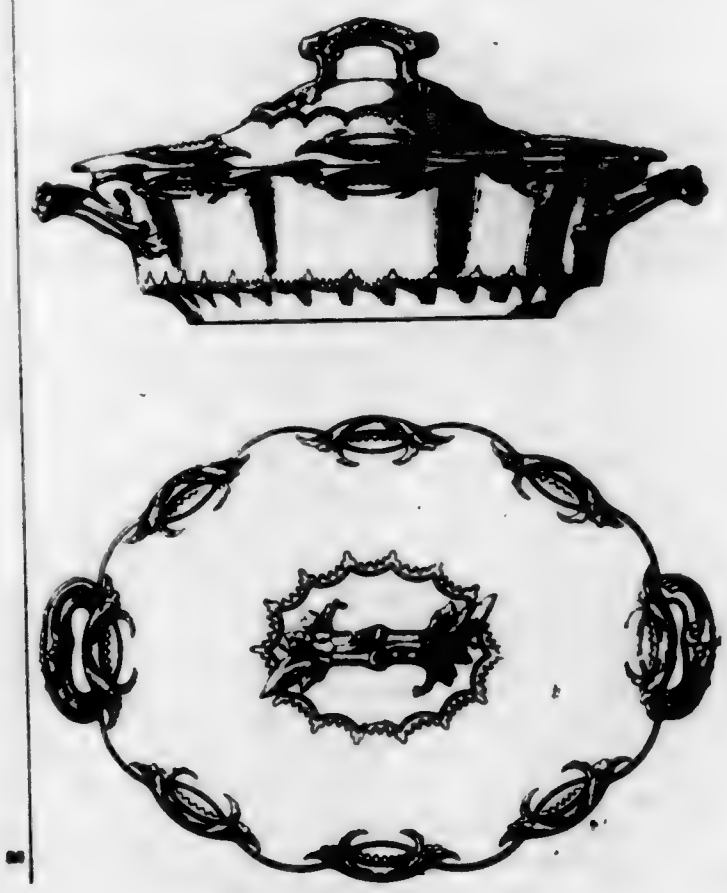
Claim.—The design for a plate or similar article substantially as herein shown and described.

35,782. PLATE OR SIMILAR ARTICLE. CHARLES EDWARD HAVILAND, Limoges, France. Filed Feb. 3, 1902. Serial No. 92,478. Term of patent 7 years.

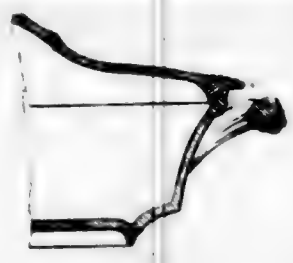


Claim.—The design for a plate or similar article, substantially as shown and described.

35,783. COVERED DISH OR SIMILAR ARTICLE. CHARLES EDWARD HAVILAND, Limoges, France. Filed Feb. 3, 1902. Serial No. 92,479. Term of patent 7 years.

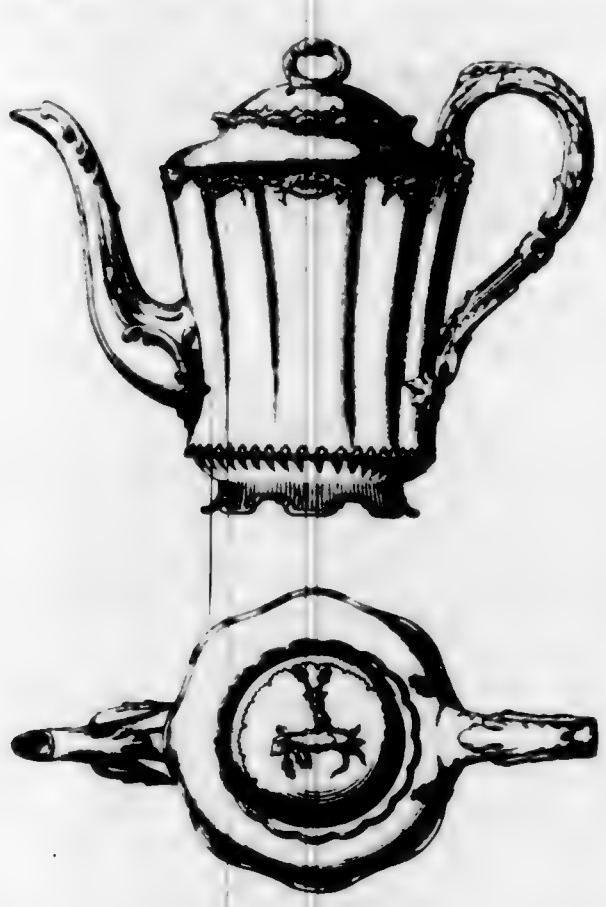


35,783.



Claim.—The design for a covered dish, substantially as shown and described.

35,784. TEAPOT OR SIMILAR ARTICLE. CHARLES EDWARD HAVILAND, Limoges, France. Filed Feb. 3, 1902. Serial No. 92,480. Term of patent 7 years.



Claim.—The design for a teapot or similar article, substantially as shown and described.

35,785. CUP. CHARLES GRAFF, New York, N. Y., assignor to Robert C. Black and Aaron V. Frost, New York, N. Y., under firm-name of Black, Starr & Frost. Filed Feb. 5, 1902. Serial No. 92,753. Term of patent 7 years.



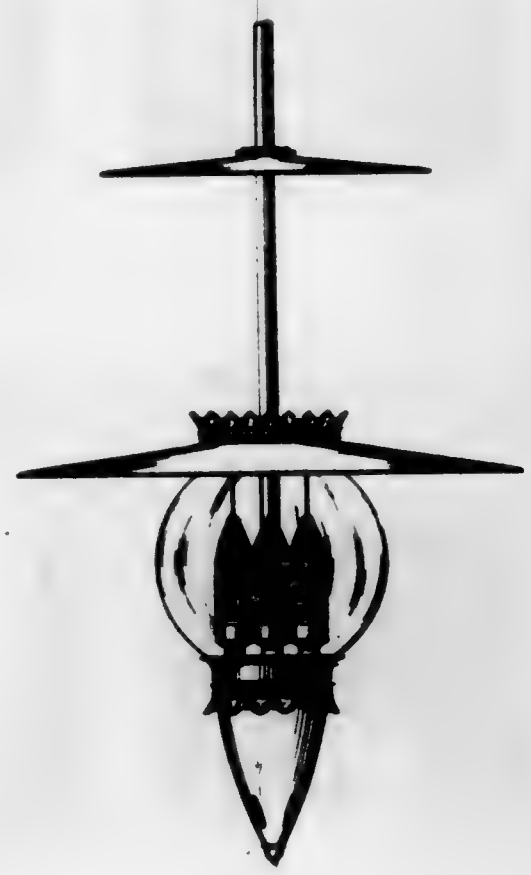
Claim.—The design for a cup, substantially as shown and described.

35,786. CANDLESTICK. EMIL GOETZE, Wallingford, Conn. Filed Feb. 6, 1902. Serial No. 92,934. Term of patent 7 years.



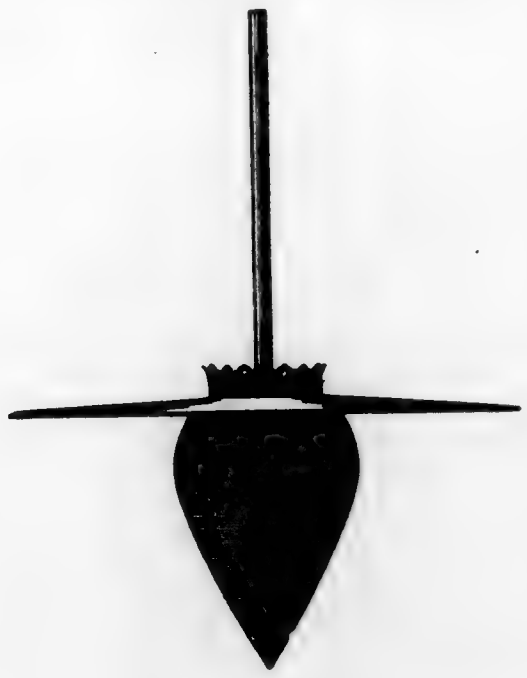
Claim.—The design for a candlestick as herein shown and described.

35,787. GAS-LAMP. ROBERT L. DORAN, Chicago, Ill., assignor of three-fourths to James S. Knight and J. H. Talbot Martin, Chicago, Ill., and Matthew C. McGannon, Nashville, Tenn. Filed Jan. 30, 1902. Serial No. 91,945. Term of patent 7 years.



Claim.—The design for a gas-lamp as herein shown and described.

35,788. GAS-LAMP. Robert L. Doran, Chicago, Ill., assignor of three-fourths to James S. Knight and J. H. Talbot Martin, Chicago, Ill., and Matthew C. McGannon, Nashville, Tenn. Filed Jan. 30, 1902. Serial No. 91,946. Term of patent 7 years.



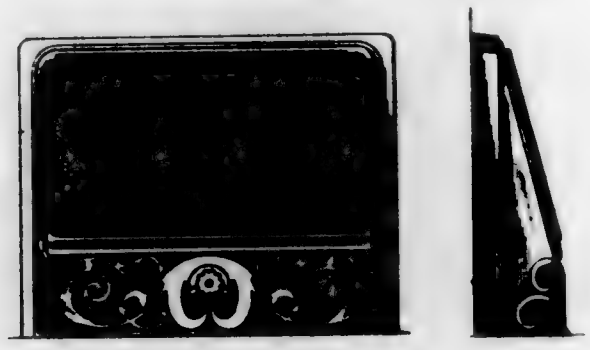
Claim.—The design for a gas-lamp as herein shown and described.

35,789. SIDE-WALL REGISTER. George Auer, Toledo, Ohio. Filed Jan. 30, 1902. Serial No. 91,944. Term of patent 14 years.



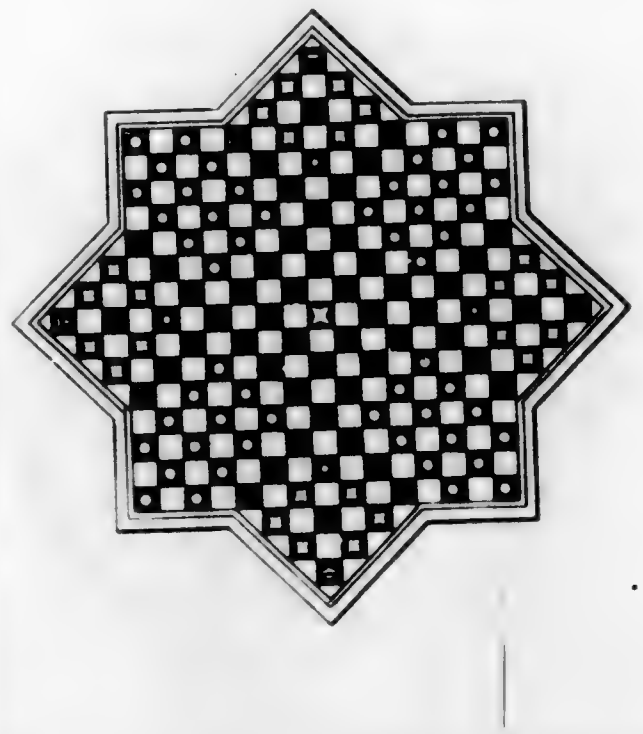
Claim.—The design for a side-wall register substantially as herein shown and described.

35,790. SIDE-WALL REGISTER. George Auer, Toledo, Ohio. Filed Feb. 1, 1902. Serial No. 92,207. Term of patent 14 years.



Claim.—The design for a side-wall register, substantially as herein shown and described.

35,791. GAME-BOARD. Frank R. Hollister, Mount Morris, N. Y. Filed Feb. 3, 1902. Serial No. 92,402. Term of patent 14 years.



Claim.—The design for a game-board, as herein shown and described.

35,792. APPAREL-BELT. Otto A. Lehman, Hoboken, N. J. Filed Feb. 7, 1902. Serial No. 93,083. Term of patent 3½ years.



Claim.—The design for an apparel-belt, substantially as herein shown and described.

35,793. APPAREL-BELT. Otto A. Lehman, Hoboken, N. J. Filed Feb. 7, 1902. Serial No. 93,094. Term of patent 3½ years.



Claim.—The design for an apparel-belt, substantially as herein shown and described.

35,794. APPAREL-BELT. Otto A. Lehman, Hoboken, N. J. Filed Feb. 7, 1902. Serial No. 93,095. Term of patent 3½ years.



Claim.—The design for an apparel-belt, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 4, 1902.

37,882. FLAT TABLEWARE. CATTARAUGUS CUTLERY CO., Little Valley, N. Y. Filed Dec. 21, 1901.

YUKON

Essential feature.—The word "YUKON." Used since November 30, 1901.

37,883. BLEACHED AND UNBLEACHED COTTON GOODS. GRISWELL WILLIS, New York, N. Y. Filed Jan. 3, 1902.



Essential feature.—The words "VILLAGE BELLE," a representation of a female, and a wreath of morning-glories. Used since December 1, 1901.

37,884. SHEETINGS. WM. H. WISNER & CO, New York, N. Y. Filed Nov 26, 1901.



Essential feature.—The representation of a fung kwang in an upright position gazing at the sun in front of it. Used since March 27, 1897.

37,885. FLANNELS. LAMSON BROTHERS, Toledo, Ohio. Filed Jan. 23, 1902.

NON-NETTLE

Essential feature.—The compound word "NON-NETTLE." Used since August 1, 1901.

37,886. SHIRTS, COLLARS, CUFFS, AND DRAWERS. REGENT SHIRT CO., Chicago, Ill. Filed Dec. 30, 1901.



REGENT

Essential feature.—The word "REGENT" and the representation of a dragon rampant having the head of a horse, the body of a serpent, wings extended from the back, and the body terminating in a coiled tail ending in an arrowhead and inclosed within double square border-lines. Used since October 1, 1901.

37,887. MEN'S, WOMEN'S, BOYS', AND MISSES' SHOES. BERTLEY & OLMSTED COMPANY, Des Moines, Iowa. Filed Jan. 7, 1902.



Essential feature.—The representation of a buffalo. Used since February 22, 1898.

87,888. PHOTOGRAPHIC CARD-MOUNTS. ALFRED CLEMENTS, Philadelphia, Pa. Filed Jan. 26, 1901.

REMBRANDT

Essential feature.—The word "REMBRANDT." Used since January, 1896.

87,889. ATOMIZERS AND ORTHOPÆDIC APPARATUS. IMMANUEL LOUDQUIST, New York, N. Y. Filed Jan. 25, 1902.

Record

Essential feature.—The word "RECORD." Used since November 1, 1900.

87,890. MEDICATED SOAP. WILLARD CHEMICAL CO., Malden, Mass. Filed Jan. 20, 1902.

PREVENTIONETTE

Essential feature.—The word "PREVENTIONETTE." Used since January 1, 1902.

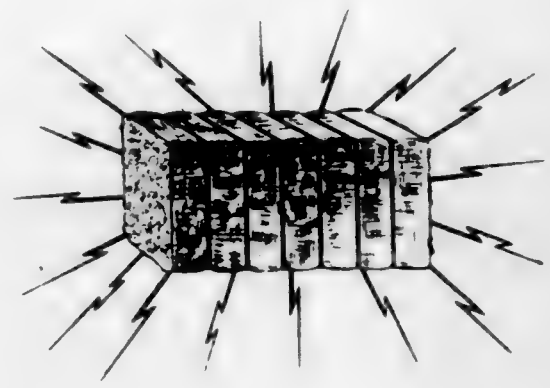
87,891. FACE-CREAM. ROBERT C. HUFF, 2nd, Detroit, Mich. Filed Feb. 1, 1902.

Puritana

Essential feature.—The word "PURITANA." Used since July 19, 1900.

87,892. MEDICATED-COTTON TOOTHACHE CURES. SEABA Mfg. Co., Brooklyn, N. Y. Filed Jan. 10, 1902.

ELECTRIC



Essential feature.—The word "ELECTRIC," associated with the representation of a bale from which radiate zigzag lines constituting the conventional or popular representation of lightning and electricity. Used since November 1, 1901.

87,893. REMEDY FOR COLDS IN TABLET OR PILL FORM. CHARLES H. LEECH, New York, N. Y. Filed Jan. 16, 1902.

RHINALOID

Essential feature.—The word "RHINALOID." Used since June 1, 1897.

87,894. COUGH MEDICINE. COUGH CHECKER MANUFACTURING COMPANY, Newburgh, N. Y. Filed Nov. 22, 1901.

COUGH CHECKERS

Essential feature.—The words "COUGH CHECKERS," together with a representation of two playing checkers. Used since 1891.

87,895. SPAVIN CURE. TROY CHEMICAL CO., Troy, N. Y. Filed Jan. 28, 1902.

SAVE THE HORSE

Essential feature.—The words "SAVE THE HORSE." Used since January 6, 1902.

87,896. CERTAIN NAMED CONFECTIONERY AND BAKERS' SUPPLIES. HENRY H. OTTENS, Philadelphia, Pa. Filed Jan. 10, 1902.



Essential feature.—The representation of a keystone. Used since October 1, 1901.

87,897. FILLING FOR CERTAIN CONFECTIONERY AND ARTICLES OF FOOD. HENRY H. OTTENS, Philadelphia, Pa. Filed Jan. 10, 1902.

ICILINE

Essential feature.—The word "ICILINE." Used since October 27, 1898.

87,898. SAUCES, KETCHUPS, RELISHES, PICKLES, CHOW-CHOW, AND CONDIMENTS. JAMES SHAW, New York, N. Y. Filed Jan. 30, 1902.

ELDORADO

Essential feature.—The word "ELDORADO." Used since March 1, 1900.

87,899. BUTTER, CHEESE, AND EGGS. GUSTAV T. LAWRENCE, New York, N. Y. Filed Dec. 18, 1901.

ACORN FARM



Essential feature.—The words "ACORN FARM" and the representation of an egg with two acorns on the surface thereof. Used since December 10, 1901.

87,900. SWEET NON-ALCOHOLIC BEVERAGES. CHESTERTON GEORGE ARMSTRONG, Chelmsford, Mass., and Sussex, New Brunswick. Filed Jan. 14, 1902.

87,900.



Essential feature.—The representation of an English armored knight on horseback. Used since December 14, 1901.

87,901. BEER. WM. J. LEMP BREWING CO., St. Louis, Mo. Filed Jan. 13, 1902.

FALSTAFF

Essential feature.—The word "FALSTAFF." Used since June, 1899.

87,902. PAINT. THE STANDARD PAINT COMPANY, New York, N. Y. Filed Feb. 1, 1902.

CARBELIN

Essential feature.—The word "CARBELIN." Used since October 16, 1901.

87,903. PAINT-OILS. JAMES BARCON HALL, Cleveland, Ohio. Filed Jan. 13, 1902.

CARDINAL

Essential feature.—The word "CARDINAL" and two double-headed crossed arrows, each carrying upon its head one of the four cardinal points of the compass. Used since October 1, 1901.

87,904. LINSEED-OIL FOR PAINTERS' USE. WOODSOME EXCELSIOR MANUFACTURING COMPANY, Philadelphia, Pa. Filed Jan. 30, 1902.

EXCELSIOR

Essential feature.—The word "EXCELSIOR." Used since June 1, 1901.

87,905. FUEL AND ILLUMINATING-OIL. BIG FOUR OIL COMPANY, Beaumont, Tex. Filed Dec. 26, 1901.

B4G

BIG FOUR

Essential feature.—The representation of the words "Big Four" by the numeral "4," with the representation of an eye therein, and the letters "B" and "G" before and after the numeral, respectively, and also the words "BIG FOUR." Used since December 17, 1901.

87,906. PREPARATION FOR EFFECTING THE COMBUSTION OF FIRE-WOOD. THE DUNBAR COMPANY, Boston, Mass. Filed Feb. 4, 1902.

DRIFTWOOD

Essential feature.—The word "DRIFTWOOD." Used since October 1, 1901.

87,907. GRAPHITE AND CARBON AND GRAPHITE AND CARBONACEOUS PRODUCTS. INT'L ACHESON GRAPHITE COMPANY, Niagara Falls, N. Y. Filed Jan. 24, 1902.

Essential feature.—The representation of an electric arc. Used since March, 1899.

87,908. SMALT. WEBSTER C. BOYER, New York, N. Y. Filed Feb. 3, 1902.

AZUROID

Essential feature.—The word "AZUROID." Used since January 25, 1902.

87,909. SMALT. WEBSTER C. BOYER, New York, N. Y. Filed Feb. 3, 1902.

IVOROID

Essential feature.—The word "IVOROID." Used since January 25, 1902.

87,910. SEWING-MACHINES AND ATTACHMENTS. ALBERT G. MASON, Chicago, Ill. Filed Jan. 27, 1902.

NEW CENTURY

Essential feature.—The words "NEW CENTURY." Used since January, 1900.

87,911. FISH-HOOKS. HENRY MILWARD & SONS, LIMITED, Redditch, England. Filed Feb. 1, 1902.



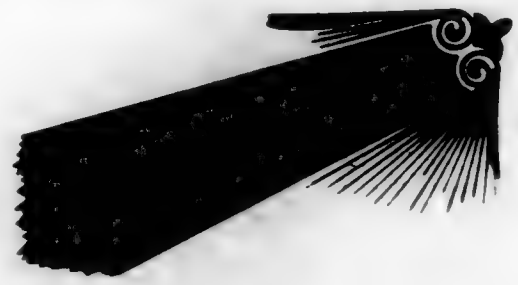
Essential feature.—The figure of a mailed arm holding in the hand a fishhook. Used since 1881.

87,912. FISH-HOOKS. HENRY MILWARD & SONS, LIMITED, Redditch, England. Filed Feb. 1, 1902.

IRON ARM

Essential feature.—The words "IRON ARM." Used since 1880.

87,918. INCANDESCENT MANTLES FOR GAS OR VAPOR BURNERS. THE STELLWELL LIGHT COMPANY, Camden, N. J., and Philadelphia, Pa. Filed Aug. 6, 1901.



Essential feature.—A tapering band forming a background, having at its larger end a jagged outline and at its smaller end a series of scroll-like figures, together with a series of radiating straight lines. Used since July 15, 1901.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON D.C.

LABELS

REGISTERED MARCH 4, 1902.

8,995.—*Title:* "MAGASIN DE MODES." (For Pattern-Hats.) ALICE A. WALLMAN, New York, N. Y. Filed February 10, 1902.

8,996.—*Title:* "SILVER LABEL." (For Machine-Twist.) WERNER BROS., Boston, Mass. Filed January 23, 1902.

8,997.—*Title:* "CARTLAND'S ORANGE FORMOSA." (For Tea.) MILLIKEN, TOMLINSON Co., Portland, Me. Filed February 6, 1902.

8,998.—*Title:* "KENNEL CLUB." (For Whisky.) ARMSTRONG & Co., Toledo, Ohio. Filed January 31, 1902.

8,999.—*Title:* "JOKE WHISKEY." (For Whisky.) THE COOK & BERNHEIMER Co., New York, N. Y. Filed October 26, 1901.

9,000.—*Title:* "LA CLARINA." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed February 5, 1902.

9,001.—*Title:* "KING'S BANNER." (For Cigars.) AMERICAN LITHOGRAPHIC COMPANY, New York, N. Y. Filed February 5, 1902.

9,002.—*Title:* "McKINLEY'S FAVORITE." (For Cigars.) H. ENGLER & Co., Keywest, Fla. Filed February 5, 1902.

9,003.—*Title:* "EL TIMONEL." (For Cigars.) STECHER LITHOGRAPHIC Co., Rochester, N. Y. Filed February 6, 1902.

9,004.—*Title:* "ACHESON GRAPHITE." (For Graphite.) INTERNATIONAL ACHESON GRAPHITE Co., Niagara Falls, N. Y. Filed February 3, 1902.

9,005.—*Title:* "ADIRONDACK." (For Cement.) GLENS FALLS PORTLAND CEMENT Co., Glens Falls, N. Y. Filed January 27, 1902.

9,006.—*Title:* "INVICTA." (For Cement.) GLENS FALLS PORTLAND CEMENT Co., Glens Falls, N. Y. Filed January 27, 1902.

9,007.—*Title:* "IRON CLAD." (For Cement.) GLENS FALLS PORTLAND CEMENT Co., Glens Falls, N. Y. Filed February 7, 1902.

PRINTS

REGISTERED MARCH 4, 1902.

471.—*Title:* "SEN SEN." (For Sen-Sen Products.) T. B. DUNN Co., Rochester, N. Y. Filed February 5, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE FRASCH.

Decided January 23, 1902.

DIVISION—QUESTION OF FORM—APPEAL.

A requirement for division is not an action upon the merits of the application, but is a mere matter of form from which the party has no right of appeal to the Examiners-in-Chief. An appeal in such case will not be forwarded.

ON petition.

MEANS FOR REMOVING INCRUSTATION OF CALCIUM SULFATE FROM BRINE-HEATING SURFACES.

Application of Herman Frasch filed November 13, 1899, No. 736,843.

Mr. Charles J. Hedrick for the petitioner.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring division in the above-entitled case and refusing to forward to the Examiners-in-Chief an appeal which has been filed.

The application includes claims to a process and claims to an apparatus, and therefore the Examiner properly required division and refused to act upon the merits of the claims until that requirement was complied with. The petitioner regarded this as a refusal of a patent to him and filed a request for reconsideration, which he calls a persistence in his claim, under section 4903 of the Revised Statutes, and upon a repetition of the requirement for division filed an appeal to the Examiners-in-Chief.

A requirement for division is not an action upon the merits of the application, but is a mere matter of form, and therefore a party has no right of appeal to the Examiners-in-Chief from such a requirement. It is not a refusal of a patent or patents upon the alleged invention or inventions, but is a ruling that the application therefor has not been made in proper form. The requirement of division may be and often is made where all of the claims are admitted to be patentable. The objection is to the way in which the matter is presented and not to the matter itself. The Examiner was right in refusing to forward the appeal.

The petition is denied.

EX PARTE STEINMETZ.

Decided February 7, 1902.

1. DIVISION — ELECTION — NOT APPEALABLE TO EXAMINERS-IN-CHIEF—PETITION.

A requirement for division and a requirement that a certain one of the independent inventions be eliminated from the case on the ground that the applicant has by his actions elected to retain the other invention in that case do not relate to the merits and are not appealable to the Examiners-in-Chief, but relate to form and are petitionable to the Commissioner.

2. SAME—REFUSAL TO FORWARD APPEAL.

Held that the Examiner properly refused to forward to the Examiners-in-Chief an appeal from his action requiring division.

ON petition.

MOTOR-METERS.

Application of Charles P. Steinmetz filed November 21, 1896, No. 612,943.

Mr. Albert G. Davis for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner refusing to forward to the Examiners-in-Chief an appeal in the above-entitled case.

The Examiner required division in this application between claims to the apparatus and claims to the process, and this action was clearly correct under the express provisions of Rule 41. The applicant then asked for an interference with a patent containing the process claims, and that interference was declared, the applicant being informed that the request for an interference upon the process was considered an election to retain the process claims in this case and that after the conclusion of the interference he would be required to cancel from the case the apparatus claims. The interference was decided in favor of this applicant, and the Examiner then insisted upon his requirement that the application be divided and that the apparatus claims be canceled. The petitioner states that this action amounted to a refusal of the apparatus claims, and therefore took an appeal to the Examiners-in-Chief. The Examiner refused to forward the appeal upon the ground that the questions involved are petitionable to the Commissioner and are not appealable to the Examiners-in-Chief.

The requirement for division is clearly a matter of form not involving the merits of the claims, since the claims may be, and in the present case are, regarded as allowable. The Examiner has not refused to grant a patent to this applicant upon any of the claims presented, but has merely required that they be included in two patents instead of one. It is a question of procedure or of the manner of securing the protection which is in controversy and not the right of the applicant to a patent upon any of the claims presented.

The Examiner was right in taking the position that the question involved is not appealable to the Examiners-in-Chief, and although it is a general

rule of law that the appellate tribunal is the one to determine whether or not it has jurisdiction when an appeal is taken to it it is not considered necessary in the Office practice to follow that practice strictly, since the Commissioner is the head of the Office and has the final decision upon all questions arising within it and may settle questions of this kind upon direct petition. The Examiner's decision upon the question whether or not an appeal to the Examiners-in-Chief is regular and proper is not final, since it may be reviewed by the Commissioner upon petition; but he has authority to pass upon that question in the first instance.

The petition is denied.

MAXWELL *v.* BRYON *v.* HENRY.

Decided February 24, 1902.

1. INTERFERENCE—DISSOLUTION—CERTAIN COUNTS OF THE ISSUE ELIMINATED.

Where a motion to dissolve an interference as to some of the counts of the issue on the ground that one of the three parties has no right to make the claims is granted, *Held* that the interference is continued as to the remaining counts without the necessity of a redeclaration as to them.

2. SAME—SAME—DECLARING NEW INTERFERENCE AS TO OTHER PARTIES.

Where an interference between three parties is dissolved as to some of the counts because one of the parties has no right to make the claims, *Held* that the Examiner should at once declare a new interference as to those counts between the remaining parties.

3. SAME—DIFFERENT PARTIES TO DIFFERENT COUNTS—TWO INTERFERENCES.

An interference should not continue between two parties as to some counts and between three parties as to other counts, but two interferences should be declared.

APPEAL on motion.

PUNCHING-BAG.

Application of George S. Maxwell filed March 8, 1901, No. 50,389. Application of W. J. Bryon, Jr., filed February 23, 1901, No. 48,411. Application of George W. Henry filed January 12, 1901, No. 42,997.

Messrs. Duell, Megrath & Warfield for Maxwell.

Mr. Charles F. Dane and *Mr. H. P. Doolittle* for Bryon.

Mr. Alfred Wilkinson for Henry.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Interferences refusing to transmit to the Primary Examiner a motion that the Primary Examiner declare two interferences.

This interference was declared upon an issue embracing four counts. A motion was made by Maxwell to dissolve the same for the following reasons:

1. That no interference in fact exists between the claims of his application included in counts 1, 2, and 3 of the interference and the claims of William J. Bryon, Jr., included in said counts.

2. That there has been such irregularity in declaring the interference as will preclude a proper determination of the question of priority.

3. That William J. Bryon, Jr., has no right to make the claims involved in counts 1, 2, and 3 of the interference.

This motion was granted by the Examiner, and the interference was dissolved "so far as pertains to counts 1, 2, and 3 of the interference." This decision became final, and proceedings were resumed by the Examiner of Interferences, who informed the parties that the interference stood dissolved as to counts 1, 2, and 3 and would be continued as to count 4, and times were reset for taking testimony and for final hearing.

On December 27, 1901, the present motion was filed on behalf of Maxwell that the Examiner declare two interferences, one, to be entitled *Maxwell* v. *Henry* v. *Bryon, Jr.*, as to count 4 of the present interference, and the other, *Maxwell* v. *Henry*, as to counts 1, 2, and 3 of said interference. Transmittal of this motion was refused by the Examiner of Interferences for the reason that—

> the Examiner is unable to understand why another interference with exactly the same issue and the same parties should be declared while the present one is running—

and because—

> as to whether the Primary Examiner will declare a new interference between Maxwell and Henry, or Maxwell, Henry and any other party, upon counts 1, 2 and 3 of this interference which stand dissolved, the Examiner of Interferences has no knowledge.

The difficulty in this case has arisen from a misunderstanding as to the scope and effect of the decision by the Primary Examiner on the motion to dissolve. Maxwell contends that—

> the motion to dissolve as to Bryon was granted as to counts 1, 2 and 3 of the issue. This left the interference continuing on one count between the three parties and on the other three counts between two parties.

The Examiner of Interferences, on the other hand, holds that the present interference includes but one count and is between the three parties and that it was dissolved as to all parties on counts 1, 2, and 3.

The latter interpretation is the proper one to be placed on this decision. It would clearly be irregular to continue an interference on the lines laid down by Maxwell between three parties as to one count and between two of the parties as to three other counts. It is not to be presumed that such an irregularity was intended by the Examiner; but such force and effect are to be given to his decision as will enable the proceedings to be continued in an orderly manner. It must be held, therefore, that the present case embraces but one count—the original fourth count—and that all the parties are included therein.

Under these circumstances there is clearly no necessity for a redeclaration of this interference. It is equally clear that a second interference should be declared between Maxwell and Henry as to counts 1, 2, and 3. This, however, is a matter which is not within the jurisdiction of the Examiner of Interferences, and he properly refused to transmit the motion now under consideration. His decision on this point is affirmed.

The Examiner having failed to declare the second interference, the papers are remanded to him with the direction that such new interference be declared without delay.

EX PARTE HUENEFELD.

Decided February 24, 1902.

TRADE-MARK—"SELMA"—ARBITRARY SIGNIFICANCE—GEOGRAPHICAL WORDS.

The word "Selma," although the name of a town in Alabama, is registrable as a trade-mark for washing-machines,

since it would be accepted by purchasers of such machines as arbitrary and fanciful in view of its classical origin and use as a feminine Christian name and would not in any case be given a geographical significance.

ON appeal.

TRADE-MARK FOR WASHING-MACHINES.

Application of Ernst H. Huenefeld filed December 4, 1901, No. 64,618.

Mr. Henry A. Seymour for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the word "Selma" as a trade-mark for washing-machines.

Registration has been refused for the reason that the word "Selma" is a geographical name.

It is true that this word is the name of a town in the State of Alabama and of other small towns and villages throughout the country; but it is also true that the word is of classical origin and has been used as a feminine Christian name.

Clearly, then, unless the geographical significance of this word is predominant its application to washing-machines can be made only with an arbitrary or fanciful meaning. The geographical meaning of this word is not thought necessarily to follow its use. It is one of that class referred to as follows in *ex parte Manogue-Pidgeon Iron Company*, (97 O. G., 2084:)

It is not believed to have been the intention of the courts to rule, broadly, that a word could not be a trade-mark merely because it happened to be used to designate some town or locality. Many words which are in common use and which in such use have a well-defined and well-understood meaning have been used as the name of some town or even county, but it is not believed that they are thereby changed to geographical words.

It is believed that this word used as a distinguishing mark upon washing-machines would be accepted by the purchasers of such machines as arbitrary and fanciful and would not in any case be given a geographical significance. Such a conclusion receives special support from the fact that appellant's goods are manufactured at Cincinnati, Ohio, and not at Selma, Ala., nor at any other place by that name. The word "Selma" is therefore held to be registrable as a trade-mark.

The decision of the Examiner of Trade-Marks is reversed.

EX PARTE WHITE.

Decided February 24, 1902.

1. AMENDMENTS—FINALLY-REJECTED CASES.

When a case is in condition for appeal, amendments canceling claims and substituting others therefor can be admitted in two cases—first, when they do not affect the merits, and, second, when they do affect the merits, in which latter case the additional requirement is applicable that they must be accompanied by a showing duly verified of good and sufficient reasons why they were not earlier presented. (Rule 68.)

2. SAME—SAME—CHANGE IN MERITS OF CLAIMS—REFUSAL TO ENTER AMENDMENT.

Where after final rejection new claims differing in substance from those rejected were presented by amendment as substitutes for the purpose of appeal, *Held* that the Examiner properly refused to enter the amendment.

ON petition.

KNIFE.

Application of Frank White filed May 1, 1901, No. 58,313.

Messrs. R. S. & A. B. Lacey for the applicant.

ALLEN, *Commissioner:*

This is a petition that the Examiner in charge of the above-entitled application be instructed to enter the amendment filed December 13, 1901, "for the sole purpose of appeal."

The records show that after several actions on the merits the claims in this case, two in number, were a second time and finally rejected under date of September 9, 1901. On December 13, 1901, an amendment paper was filed directing the amendment of the original specification in several particulars, the cancellation of the original drawing and substituting a new drawing in lieu thereof, and canceling the claims which were under final rejection and substituting three new claims.

The Examiner was requested to incorporate this amendment into the case "so that appeal may be taken forthwith to the Examiners-in-Chief."

The Examiner replied as follows:

Amendment filed on the 13th instant has not been entered, for the reason that the application is in condition for appeal, and the amendment does not conform to the provisions of Rule 68 governing the prosecution of the case in its present condition. The claims are not those extant in better form, but relate to the merits and no verified showing accompanies them.

This action was made final on January 18, 1902, from which final action this petition was taken.

Rule 68 provides in part that—

after such action upon an application as will entitle the applicant to an appeal to the Examiners-in-Chief (Rule 134), or after such appeal has been taken, amendments canceling claims or presenting those rejected in better form for consideration on appeal may be admitted; * * * If amendments touching the merits of the application are presented after the case is in condition for appeal, or after appeal has been taken, they may be admitted upon a showing duly verified of good and sufficient reasons why they were not earlier presented.

It is therefore seen that when an application is in condition for appeal, which is the condition of this application, amendments canceling claims and substituting others in lieu thereof can be admitted in two cases—first, when they do not affect the merits, and, second, when they do affect the merits, in which latter case the additional requirement is applicable that they must be accompanied by a showing duly verified of good and sufficient reasons why they were not earlier presented.

A comparison of the two sets of claims renders it apparent that the Examiner is correct in his holding that "the claims are not those extant in better form, but relate to the merits."

It therefore follows that the claims cannot be admitted under the provision of Rule 68 which relates to the admission of claims which are nothing more than the rejected claims in better form; neither can the amendment be admitted under the second provision of Rule 68, for the reason that it is not accompanied by a showing "duly verified of good and sufficient reasons" why it was not earlier presented.

The petition is denied.

EX PARTE WHITING.

Decided February 24, 1902.

ABANDONED APPLICATION—INSUFFICIENT AMENDMENTS—WARNING FROM EXAMINER—TAKING FULL STATUTORY PERIOD FOR AMENDMENT.

Where an applicant takes the full statutory period for amendment and upon two occasions is warned by the Examiner that his actions do not tend to make a substantial ad-

vance toward closing the prosecution of the case and there after files an amendment upon the last day but one allowed by law which does not meet the Examiner's requirements and renders it impossible to close the consideration of the case upon its merits. *Held* that the application is abandoned.

ON petition.

CLOVER-HULLER.

Application of Lewis S. Whiting filed September 17, 1898, No. 191,198.

Messrs. Bakewell & Bakewell for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner holding the above-entitled application to be abandoned by reason of petitioner's failure to take "such proper action as the condition of the case may require." (Rule 171.)

The records show that the application as originally filed on September 17, 1898, contained sixteen claims. On December 24, 1898, all the claims were rejected on references. During the following year the application was twice amended and received an action in response to each of said amendments. In the second of these actions, dated December 2, 1899, the Examiner considered that the amendment previously filed did not tend to make a "substantial advance toward closing the prosecution of the case" and after giving a full and complete action on the merits so informed the petitioner in the following language:

Applicant has not complied with Rules 68 and 69 as regards *all* of the claims. * * * If, as asserted, "the remaining claims cover features of novelty and utility," what are they? The bare assertion is insufficient.

In this letter a claim (then numbered 12) was "rejected as being for an inoperative device," the reasons for said rejection being given.

Five days before the expiration of the year allowed by law in which to amend—namely, November 27, 1900—the petitioner filed an amendment canceling two claims and amending others. This amendment was accompanied by an argument relating to certain other claims, in view of which a reconsideration was requested.

Former claim 12 (present number 10) was treated in the following brief way:

As to claim 10, the direction of the air depends upon the angle of the blades.

On December 19, 1900, the case was again given a full and complete action.

In treating claim 10 the Examiner wrote as follows:

Applicant has not responded to the Examiner's criticism of his fan; such response must be made before action will be made on the merits of claim 10.

It thus appears that in each of the last two Office actions, made more than a year apart, the petitioner was warned that in the Examiner's opinion his actions were not tending to close the prosecution of the case.

Notwithstanding these warnings the petitioner waited until the last day but one of the year allowed for response before he filed an amendment. This amendment directed the cancellation of one claim, the amendment of two claims, and requested a reconsideration of the case after submitting a short argument.

This action might warrant a reconsideration of the case were it not for the following statement regarding claim 10:

As to claim 10 we will furnish an affidavit upon this point, if the Examiner wishes.

This was the only action claim 10 received in response to the two previous clear and specific actions by the Examiner relating thereto. It is clear, therefore, that if the Examiner had been of the opinion either that all the remaining claims should on reconsideration be allowed or that they should be a second time and finally rejected and he had so informed the applicant the disposition of claim 10 must necessarily remain open for another year at least.

As was stated in *ex parte Vaughen et al.* (97 O. G., 957) and quoted with approval in *ex parte Kuper*, (97 O. G., 2981:)

The propriety or sufficiency of the action required by the rules has reference to its extent as well as to its subject-matter. It must be an action made in good faith, with the purpose and effect of making a substantial advance toward closing the prosecution of the case.

The following statements were also made in *ex parte Vaughen et al.*, *supra*, and they apply with equal propriety to this case:

There is no warrant in the rules for actions the purpose and effect of which are merely to "keep the case alive" or "avoid abandonment," and such actions cannot be considered such proper actions as the condition of the case requires.

Whether or not this was the purpose, the effect of the action by the petitioner was clearly not to make "a substantial advance toward closing the prosecution of the case."

The Examiner's action holding this case to be abandoned by reason of the petitioner's failure to take "such proper action as the condition of the case may require" (Rule 171) is correct, and the petition is denied.

EX PARTE PARENT.

Decided February 24, 1902.

DIVISION—PROCESS AND PRODUCT.

Claims for a method of making a portion of a sole should not be included in the same application with claims for said portion when it is clear that the method is not limited to the mere production of the article, but covers features not necessarily related thereto.

ON petition.

BOOTS AND SHOES.

Application of Edmond Parent filed July 29, 1901, No. 70,010.

Messrs. Marion & Marion for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring division between claims 14 and 15 and the remaining claims in this case.

The application relates to improvements in shoes. The first three claims cover an improvement in a portion of the sole. Claims 14 and 15 cover an alleged method of making the portion of the sole covered in claims 1, 2, and 3. The remaining claims cover other improvements in the construction of the shoe.

Though the article covered in claims 1, 2, and 3 may result from the method of claims 14 and 15, it is clear that said method is not limited to the mere production of the article, but covers other features

not necessarily related to the article of claims 1, 2, and 3. This article is, moreover, capable of being made by other methods than that covered in claims 14 and 15.

Claims 14 and 15, furthermore, cover a separate and independent invention from that covered in claims 4 to 13, inclusive, and claim 16, and it is clear that these two groups of claims should not be prosecuted in the same application.

It is proper to prosecute claims 1, 2, and 3 in the same application with the other claims covering the shoe construction, for the reason that the first-mentioned group of claims covers an integral part of the shoes, which part is included as an element in some of the claims of the second group. Claims 14 and 15 should not, however, remain in the same application with claims 1, 2, and 3, because the method is not limited to the mere production of the article, but covers other features not necessarily relating thereto, and for the further reason that the article may be produced by other methods than that covered in claims 14 and 15; neither should claims 14 and 15 remain in the same application with claims 4 to 13, inclusive, and claim 16, for the reason that claims 14 and 15 cover a separate and independent invention from that covered in claims 4 to 13, inclusive, and claim 16.

The action of the Examiner requiring division between claims 14 and 15 and the remaining claims in this case is correct, and the petition is denied.

EX PARTE SMITH.

Decided February 24, 1902.

DIVISION—TABULATING DEVICE AND RIBBON MECHANISM FOR TYPE-WRITING MACHINES.

Claims for a tabulating device for type-writing machines should not be included in the same application with claims for a ribbon mechanism when it appears that the tabulating device is useful in other forms of type-writing machines and that it is a separate subject of manufacture and sale. (Citing *ex parte* Johnston, 92 O. G., 1235.)

ON petition.

RIBBON FEEDING AND CONTROLLING MECHANISM FOR TYPE-WRITING MACHINES.

Application of John A. Smith filed June 21, 1901, No. 65,475.

Mr. E. G. Siggers for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring division between alleged separate inventions covered by the claims of the above-entitled application.

The alleged separate inventions are a tabulating device for type-writers covered by claims 1 to 14, inclusive, and claims 61 and 62, and a ribbon mechanism covered by claims 15, 16, 33 to 57, inclusive, and claims 59 and 60. The remaining claims constitute a third group and cover combinations of the tabulating device and the ribbon mechanism.

It is stated by the Examiner that the combination covered by the third group may be retained in the application with one of the other groups. The sole question now presented, therefore, is whether or not the tabulating device and the ribbon mechanism are such independent inventions that they may not be included in one application.

The tabulating device covered by claims 1 to 14 and claims 61 and 62 is described in the specification of this application as an improvement in the tabulating attachment illustrated and described in Patent No. 666,762, issued to Charles F. Laganke, this improvement consisting of a tabulator nut stop or catch supplemental to the tabulating attachment shown in this patent. This stop is operatively connected to both the carriage-release mechanism and the ribbon-release mechanism, so that the ribbon-feed will be stopped when this supplemental tabulator-stop is operated. Independently of its connection with the ribbon-release mechanism this tabulator comprises means for arresting the carriage in proper position to print a series of characters—as, for instance, numerals—on each side of a decimal point, in which the printing is begun at varying distances from the point, and means for arresting the carriage in proper position to print a series of characters begun at a predetermined point. Claims 1 to 14, inclusive, and claims 61 and 62 cover the tabulating device independent of its connection with the ribbon-release mechanism operating as above described. This tabulating device is useful elsewhere than in the form of type-writer shown in the present case. As shown by the Office classification, such devices are distinct subjects of invention. They are made and sold as separate attachments adapted to be applied to type-writing machines generally.

Under these circumstances it is held that the claims for this tabulating device by itself should not be included in the same application with claims for the ribbon mechanism. As was said in *ex parte Johnston*, (92 O. G., 1235:)

> It is not broadly true that in all cases where a party makes and is entitled to a combination claim he is also entitled in the same case to claim as many subcombinations or elements in that combination as he desires. The question arises and must be determined whether those elements or subcombinations are useful in other relations and are mere improvements on independent devices which have acquired a distinct status in art and classification.

That the tabulating device covered by the group of claims enumerated above is such an independent device cannot be questioned. It follows, therefore, that the tabulating mechanism and the ribbon mechanism cannot be retained in the same application.

The petition is denied.

EX PARTE STURTEVANT AND STURTEVANT.

Decided February 24, 1902.

DIVISION—PARTS OF A GAS-ENGINE.

It is the settled practice of the Office that the separate parts of a gas-engine should be claimed in separate applications. These are recognized by inventors as distinct subjects of invention and are found in the art as distinct subjects of manufacture.

ON petition.

EXPLOSION-ENGINES.

Application filed October 9, 1901, No. 78,083.

Mr. Henry Calver for the applicants.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring division between the claims of the above-entitled application.

An inspection of the claims shows that claim 1 covers generically the structure of a gas-engine of the multiple-cylinder type; claim 2, a connecting-rod; claim 3, a lubricating device; claims 4 to 7, inclusive, and claim 11, a sparking device; claims 8 and 9, a cooling device, and claim 10 a valve-gear.

It is the settled practice of the Office that the separate parts of a gas-engine should be claimed in separate applications. These are recognized by inventors as distinct subjects of invention, and they are found in the art as distinct subjects of manufacture. (See *ex parte Grant*, 70 MS. Dec., 204.) No broad claim for a combination of the parts claimed in this application can be maintained at this late day. Under these circumstances the following language used by the Commissioner in *ex parte Burgess* (80 O. G., 1759) is applicable:

> I think the time arrived long since when a proper classification of this Office, so as to facilitate examination and prevent mistakes in the granting of patents, requires that improvements on an old machine, having a distinct status in the arts and trade and classified separately in this Office should be presented in separate applications.

The requirement for division was proper and is sustained.

The petition is denied.

EX PARTE SUES.

Decided February 25, 1902.

FINALLY-REJECTED APPLICATION—REFUSAL TO ENTER AMENDMENT—ABANDONMENT.

After the final rejection of a case an amendment requesting the cancellation of claims and the substitution of others therefor which the Examiner refuses to enter is not such action in prosecution of the case as will save it from abandonment.

ON petition.

SHELVING.

Application of George W. Sues filed April 30, 1900, No. 14,957.

Mr. George W. Sues pro se.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner refusing to enter and consider an amendment filed September 24, 1901, and holding this application to be abandoned.

The records show that after several actions certain claims stood allowed and certain other claims were finally rejected on October 17, 1900.

On September 24, 1901, an amendment was filed canceling the claims under final rejection and substituting in lieu thereof two new claims. In filing this amendment the provisions of Rule 68 were not complied with in that no request was made that these two new claims be entered for the purposes of appeal; neither was the amendment accompanied by a verified showing of reasons why the same was not earlier presented.

Even if the Examiner had considered the two new claims as "presenting those rejected in better form for consideration on appeal" (Rule 68) and admitted them for that reason it would have been necessary for the petitioner to have filed his appeal within one year from October 17, 1900, the date of the final rejection, in order to save the application from abandonment. No appeal was filed.

The controlling rule covering this matter is Rule 68. This rule specifically provides that—

> * * * the admission of such an amendment or its refusal, and any proceedings relative thereto, shall not operate to relieve the application from its condition as subject to appeal, or to save it from abandonment under Rule 171.

It is apparent that the prosecution of an application could never be closed if an applicant were permitted without any restriction to cancel claims after a case is in condition for appeal and substitute new claims. If this could be done once, it follows that it could be done an indefinite number of times. Such an action, therefore, is not a "substantial advance toward closing the prosecution of the case." (*Ex parte Vaughen*, 97 O. G., 957; *ex parte Kuper*, 97 O. G., 2981.)

The petition is denied.

Patents Nos. 694,935 to 695,430.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 98.—No. 10. TUESDAY, MARCH 11, 1902. Price—$5 per year.

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Designs	22—No. 35,795 to No. 35,816,	inclusive.
Trade-Marks	32—No. 37,914 to No. 37,945,	inclusive.
Labels	14—No. 9,008 to No. 9,021,	inclusive.
Prints	4—No. 472 to No. 475,	inclusive.
Reissues	1—No. 11,975.	
Total issue	569	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	----	Nebraska	7	----
Alaska Territory	1	----	Nevada	----	----
Arizona Territory	1	----	New Hampshire	2	----
Arkansas	1	----	New Jersey	21	----
California	18	1	New Mexico Territ'y	----	----
Colorado	3	----	New York	75	16
Connecticut	13	----	North Carolina	2	----
Delaware	3	----	North Dakota	1	----
District of Columbia	2	2	Ohio	30	3
Florida	1	----	Oklahoma Territ'y	2	----
Georgia	2	1	Oregon	2	----
Hawaii Territory	1	----	Pennsylvania	55	5
Idaho	----	----	Rhode Island	4	1
Illinois	31	4	South Carolina	1	----
Indian Territory	1	----	South Dakota	3	----
Indiana	17	----	Tennessee	5	----
Iowa	7	----	Texas	7	1
Kansas	9	1	Utah	1	----
Kentucky	5	----	Vermont	2	----
Louisiana	2	----	Virginia	3	----
Maine	2	1	Washington	4	----
Maryland	2	3	West Virginia	----	----
Massachusetts	38	3	Wisconsin	11	1
Michigan	9	----	Wyoming	----	----
Minnesota	9	1	U. S. Army	1	----
Mississippi	3	----			
Missouri	17	3	Total to citizens of the United States	442	47
Montana	1	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	----	----	Mexico	----	----
Austria-Hungary	----	----	Netherlands	----	1
Barbadoes	----	----	Newfoundland	1	----
Belgium	----	----	New South Wales	----	----
Bermuda	----	----	New Zealand	----	----
Brazil	----	----	Norway	1	----
Canada	4	----	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile	----	----	Russia	----	----
China	----	----	Scotland	5	----
Colombia	----	----	South African Republic	----	----
Cuba	1	----	South Australia	1	----
Denmark	1	----	Spain	----	----
Egypt	----	----	Sweden	----	----
England	32	1	Switzerland	2	----
France	7	----	Turkey in Asia	----	----
Germany	19	1	Victoria	2	----
Guatemala	----	----	Western Australia	----	----
Haiti	----	----			
India	----	----	Total to citizens of foreign countries	70	3
Ireland	----	----			
Italy	----	----			

Change in Classification.

(Order No. 1,450.)

Department of the Interior,
United States Patent Office,
Washington, D. C., March 1, 1902.

It is hereby directed that class 93, Paper Manufactures, be transferred from Division XXX to Division VII.

F. I. ALLEN,
Commissioner.

Attorneys.

Department of the Interior,
Office of the Secretary,
Washington, D. C., March 3, 1902.

Sir: The Secretary of the Interior has ordered that William W. Stout, of Rural Home, Ark., be not recognized after this date as attorney or agent in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

EDWARD M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Communications to the Patent Office.

Rule 9. A separate letter should in every case be written in relation to each distinct subject of inquiry or application. Assignments for record, final fees, and orders for copies or abstracts must be sent to the Office in separate letters.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 4, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	In arrears—Under one month.			
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Feb. 12	Feb. 15	209
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Feb. 11	Feb. 21	88
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Feb. 7	Feb. 11	239
253	X. Carriages and Wagons	Feb. 6	Feb. 20	99
213	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Feb. 5	Feb. 18	171
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Feb. 5	Feb. 18	142
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Feb. 5	Feb. 5	145
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 5	Feb. 18	166
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Feb. 5	Feb. 18	189
102	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Feb. 5	Feb. 17	217
281	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Feb. 5	Feb. 13	297
80	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Feb. 5	Feb. 8	257
123	XXIX. Wood-Working Machines, Coopering and Roofing.	Feb. 5	Feb. 3	171
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Feb. 4	Feb. 18	216
246	I. Tillage, etc., and Fences	Feb. 4	Feb. 18	136
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Feb. 4	Feb. 18	177
14	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Feb. 4	Feb. 18	254
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Feb. 4	Feb. 17	399
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Feb. 4	Feb. 17	231
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Feb. 3	Feb. 20	187
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Feb. 3	Feb. 18	174
	Between one and two months.			
251	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Jan. 31	Feb. 14	146
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Jan. 31	Feb. 12	142

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Jan. 31	Feb. 12	211
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Jan. 28	Feb. 12	212
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Jan. 25	Jan. 21	156
122	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Jan. 25	Jan. 17	174
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 8	Jan. 29	346
93	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Jan. 6	Jan. 10	399
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Jan. 2	Jan. 2	530
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Jan. 2	Dec. 24	460
	Between two and three months.			
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Dec. 31	Dec. 28	339
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Dec. 27	Jan. 15	394
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Dec. 27	Dec. 31	399
248	XVIII. Steam-Engineering, etc	Dec. 19	Jan. 15	428
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 10	Feb. 3	303

Total number of applications awaiting action.....8,790

	Under one month.		
*Designs	Feb. 8	Feb. 17	179
†Trade-Marks	Feb. 6	Feb. 14	160
‡Labels and Prints	Feb. 24	Feb. 25	19

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Indexes to Periodicals.

The following journals containing indexes to periodical literature may be found on file in the reading-room of the Scientific Library:

Electrical World and Engineer, a weekly digest of electrical articles.

Engineering Magazine, a monthly title-index of engineering articles in the English language only.

Journal of the United States Artillery, a bimonthly title-index of current artillery literature.

Railroad Digest, a monthly synopsis of universal railroad literature.

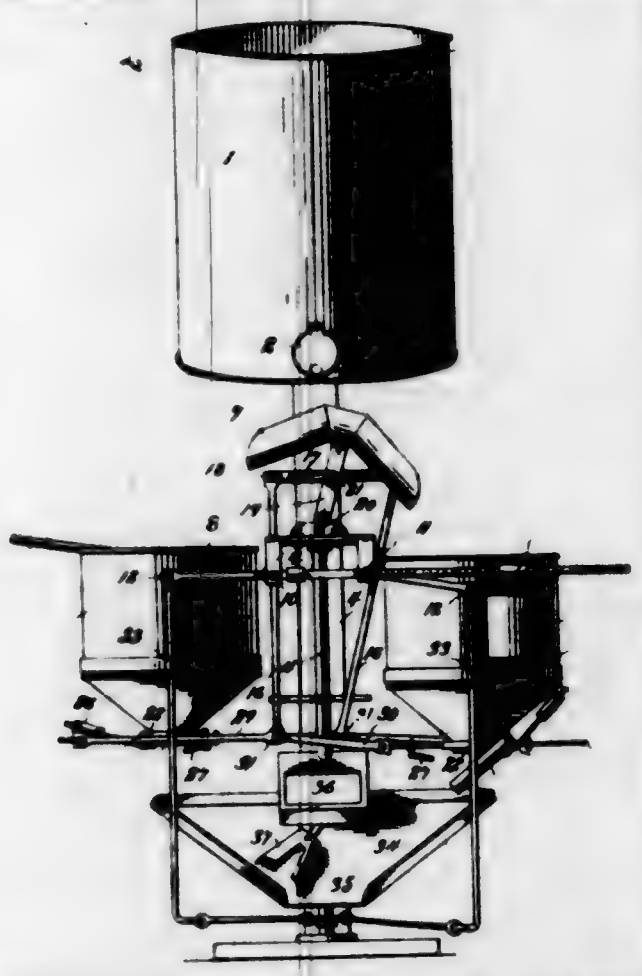
School of Mines Quarterly, a quarterly synoptical index of articles on analytical chemistry and title-index of metallurgical literature.

Science Abstracts, physics and electrical engineering. Monthly abstracts of the principal articles on physics published in the American and foreign journals.

PATENTS

GRANTED MARCH 11, 1902.

694,985. AUTOMATIC WEIGHING-MACHINE. THOS. C. BAKER, Washington, Kans. Filed Jan. 8, 1901. Serial No. 42,526. (No model.)



Claim.—1. The combination of a frame, scale-beams mounted thereon, pivoted hoppers carried thereby, gates for the hoppers, latches for the gates, an inverted-V-shaped pivoted conveyer located over the hoppers, and link connections between the conveyer, and the scale-beams and link connections between the scale-beams and the gate-latches, whereby the movement of the scale-beams alternately moves said conveyer and gate-latch.

2. The combination of a frame, scale-beams mounted thereon, pivoted hoppers carried thereby, gates for the hoppers, latches for the gates, a movable conveyer having chutes located over the hoppers, link connections between the conveyer, and the scale-beams and link connections between the scale-beams and the gate-latches, a chute, below the hoppers, and a vibrating wing in said chute, a registering mechanism and connections between the wing and register for registering each alternate vibration of the wing, whereby the movement of the scale-beams alternately moves the conveyer and gate-latches and the wing registers the discharge from the hoppers.

3. The combination of a frame, scale-beams mounted thereon, pivoted hoppers carried thereby, gates for the hoppers, latches for the gates, and a pivoted inverted-V-shaped vibrating conveyer having chutes located over the hoppers and link connections between the conveyer, and the scale-beams and link connections between the scale-beams and the gate-latches.

4. The combination of a frame, a pivoted inverted-V-shaped vibrating conveyer having a double chute oscillating in said frame, and a plurality of scale-beams having pivoted hoppers mounted thereon.

5. The combination of a frame, scale-beams having hoppers thereon mounted in said frame, a discharge-chute below said hoppers adapted to receive the discharge of both hoppers, a vibrating wing pivoted in and movable across said chute adapted to be alternately oscillated by the impact of the material upon the opposite sides of the wing, and a registering mechanism connected with said wing.

6. The combination of a frame, scale-beams mounted thereon, separately-movable pivoted hoppers carried thereby, an inverted-V-shaped pivoted conveyer above the hoppers, connections between the conveyer and the scale-beams, gates carried by said hoppers, latches for the gates, and mechanism for unlatching the gate of one hopper at a predetermined weight and simultaneously latching the gate of the other hoppers.

7. The combination of a frame, scale-beams mounted upon said frame, hoppers mounted in the scale-beams provided with gates and latches, an inverted-V-shaped pivoted conveyer above the hoppers connections between the conveyer and the scale-beams, an arm carried by each scale-beam, and a link connected to each arm adapted to alternately engage and disengage the latches of the gates.

8. The combination of a frame, scale-beams mounted upon said frame, hoppers mounted in the scale-beams provided with gates and latches, an arm carried by each scale-beam, a link connected to each arm for actuating the hopper-latches a pivoted vibrating conveyer located above the hoppers, and connections between the scale-beams and the conveyer for vibrating the latter upon the descent of either hopper.

9. The combination of a frame, scale-beams mounted in said frame, pivoted hoppers mounted in said scale-beams, gates for the hoppers, latches for the gates, connections between the scale-beams and the gate-latches for alternately latching and unlatching the gates, a pivoted conveyer located above the hoppers, an arm projecting from each scale-beam, and a link connecting each arm to the pivoted conveyer.

10. The combination of a frame, pivoted scale-beams mounted in said frame, a pivoted vibrating conveyer located above the scale-beams an arm projecting from each scale-beam, bearings upon the vibrating conveyer, and slotted links connecting the arms of the scale with the conveyer for alternately vibrating the latter.

11. The combination of a frame, scale-beams mounted thereon, hoppers pivoted in the scale-beams, gates pivoted to the hoppers, a latch-frame secured to the lower end of the hoppers, latches movable upon the latch-frame, and connections between the scale-beams and the latches alternately reciprocating the same.

12. In a weighing-machine the combination of a chute carrying a contracted outlet, a wing in said chute to vibrate across the mouth of said outlet by the alternate discharge against the opposite sides of the wing, and registering mechanism connected with said wing for registering the number of its vibrations or oscillations.

13. In a weighing-machine the combination of a chute, a vibrating or oscillating wing located in said chute adapted to be alternately oscillated by the impact of the grain upon opposite sides of the wing and registering mechanism connecting with said wing.

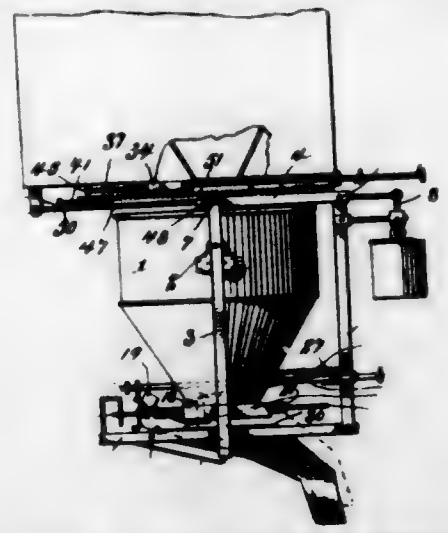
14. In a weighing-machine a vibrating wing adapted to be alternately oscillated in opposite directions by the discharge of grain in impact therewith and registering mechanism connected with said wing.

694,986. AUTOMATIC WEIGHING-MACHINE. THOMAS C. BAKER, Washington, Kans. Filed May 15, 1901. Serial No. 60,375. (No model.)

Claim.—1. In an automatic weighing-machine, the combination of a pivoted balance-arm, a hopper pivoted to said arm at one end and a scale-beam at the other, a valve for closing the bottom of the hopper, a series of bins above the hopper, a slide for each bin, independent disconnected mechanism for opening each slide, means for closing said slides, a latch adapted to hold open the slide-closing means, and connecting mechanism between the latch and scale-beam to release said latch when the hopper descends.

2. In an automatic weighing-machine, the combination of a series of bins, slides controlling said bins, independent disconnected mechanism for opening each slide, means for closing said slides, a latch for controlling

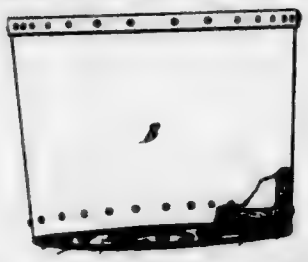
said slide-closing means, a pivoted balance-arm having a hopper at one end and a scale-beam at the other, and means connecting the slide and balance-arm for actuating the latch by the movement of the balance-arm.



3. In an automatic weighing-machine, the combination of a pivoted balance-arm, a hopper pivoted to said arm at one end and a scale-beam at the other, a bin located above the hopper, a slide controlling the discharge of the bin, an integral latch-lever pivoted to the frame at one end and to the trunnions of the hopper at the other, and a mechanism connecting the latch and the slide.

4. In an automatic weighing-machine, the combination of a pivoted balance-arm carrying a hopper, a pivoted valve closing the discharge end of said hopper, a linearly-moving reciprocating latch adapted to normally hold the hopper-valve closed, and means for moving the latch out of engagement with the valve.

694,937. LADLE. FREDERICK BALDT, Chester, Pa. Original application filed July 19, 1900, Serial No. 23,961. Divided and this application filed Sept. 14, 1900. Serial No. 30,009. (No model.)

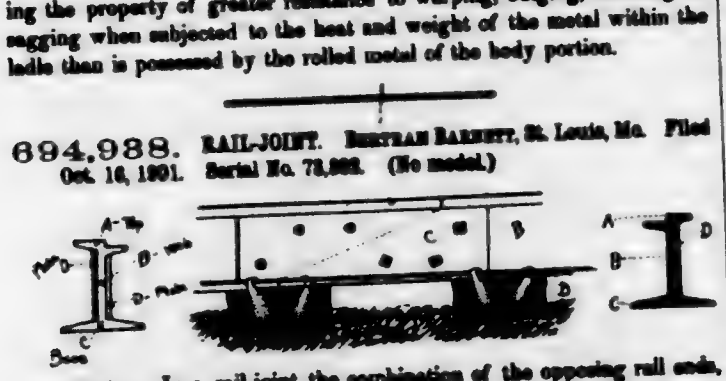


Claim.—1. In a ladle, a body portion formed of rolled metal, a bottom formed of cast metal, and means for securing the said body portion and bottom together.

2. In a ladle, a body portion formed of rolled metal, in combination with a bottom formed of cast metal suitably secured to said body portion.

3. A ladle consisting of a body portion formed of rolled metal, and a bottom of cast metal suitably secured to said body portion and possessing the property of greater resistance to warping, bulging, cracking or sagging when subjected to the heat and weight of the metal within the ladle than is possessed by the rolled metal of the body portion.

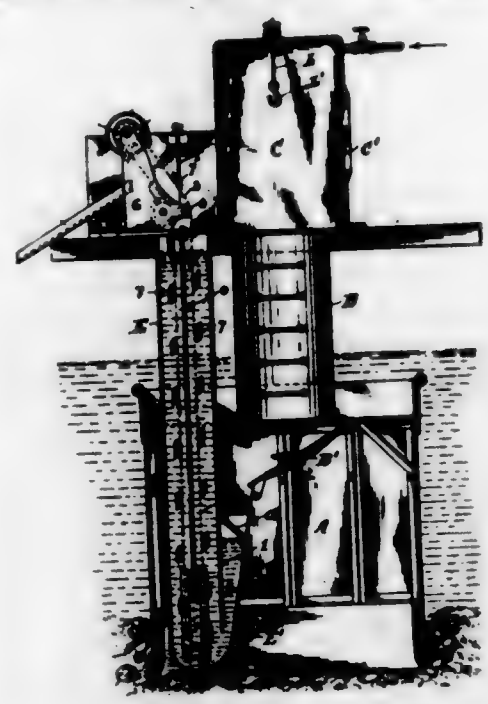
694,938. RAIL-JOINT. BERTRAM BARRETT, St. Louis, Mo. Filed Oct. 16, 1901. Serial No. 78,862. (No model.)



Claim.—In a rail-joint the combination of the opposing rail ends, the top of one rail extending beyond the base of the other rail, the web portion of each rail end being cut obliquely from the junction of the web to the base, to the point where the web meets the tread or body portion of the rail, the meeting ends of the rails also having overlapping integral web extensions for clamping said rails together, substantially as specified.

694,939. CAISSON FOR SUBAQUEOUS WORK. CHARLES BLASBURN, San Francisco, Cal. Filed May 2, 1901. Serial No. 58,438. (No model.)

Claim.—1. A caisson having in combination a working chamber, a water-sealed U-shaped discharge-conduit suspended from a point above the working chamber, one arm of said chamber extending without said chamber and the other arm being supported by the lower end of the said first-mentioned arm and opening within the working chamber.



2. A caisson, having in combination, a working chamber having an open lower end, a water-sealed conduit extending from the working chamber to a point above the level of the water and means for automatically varying the height of the water column controlling the water seal, substantially as set forth.

3. A caisson, having in combination, a working chamber having an open lower end, a discharge-conduit extending from the working chamber to a point above the level of the water and provided, within the working chamber, with a receiving branch having an open upper end and means for automatically maintaining the water within the conduit at a height not less than the level of the water outside of the conduit, substantially as described.

4. The combination with a caisson for subaqueous work having an opening in its lower portion, of a receiving-hopper for the excavated material, a water-seal conduit integral with said hopper, and a chain and bucket carrier adapted to work through said conduit for removing the excavated material, substantially as described.

5. The combination with a caisson for subaqueous work, of a receiving-hopper for the excavated material, a water-seal tube connected therewith and projecting beyond the caisson above the water-line and an endless chain and bucket carrier working therein and through the water seal for the removal of the excavated material.

6. The combination with a caisson for subaqueous work, of a water-seal closure for the outlet of the excavated material, including a hopper and a conduit secured together, and a chain and bucket conveyer working through said water seal for the removal of the excavated material.

7. The combination with a caisson for subaqueous work, of a water-seal closure for the outlet of the excavated material, devices working through said water seal which receive and remove the excavated material, and means whereby the water seal is automatically maintained at approximately a given level.

8. The combination with a caisson for subaqueous work, of a receiving-hopper for the excavated material, a tube secured thereto and projecting beyond the caisson above the water-line, a water seal within said tube and hopper, means for automatically maintaining the water seal at approximately a given level, and devices working through the water seal for removing the excavated material from within the ore-receiving hopper.

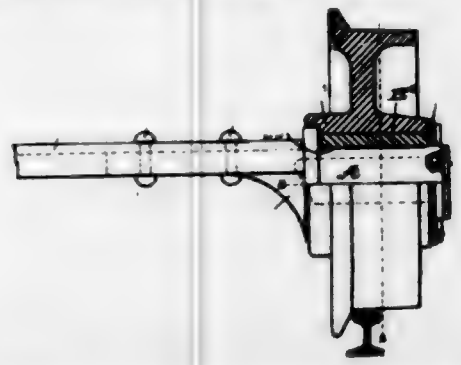
694,940. VEHICLE-AXLE. JASPER H. BOWLIN, Cosse, Tenn. Filed July 18, 1901. Serial No. 68,737. (No model.)

Claim.—1. In a vehicle-axle, a one-piece cast stub-journal having an interior oil-chamber and having extending through its outer end wall a vertical aperture adapted to receive a cotter-pin, substantially as described.

2. In a vehicle-axle, a one-piece cast stub-journal having an interior oil-chamber and having an aperture extending from said chamber through the lower wall of said journal, and having at its upper portion an aperture leading into said chamber, substantially as described.

3. In a vehicle-axle, a one-piece cast stub-journal having an annular flange and having an interior oil-chamber, and having extending through its outer end wall a vertical aperture adapted to receive a cotter-pin, substantially as described.

4. In a vehicle-axle, a one-piece cast stub-journal having an interior oil-chamber and having extending through the upper portion of its outer end wall an oil-inlet, substantially as described.



5. In a vehicle-axle, a one-piece cast stub-journal having an annular flange and having an interior oil-chamber and having extending through the upper portion of its outer end wall an oil-inlet, substantially as described.

6. In a vehicle-axle, a one-piece cast stub-journal having an interior oil-chamber and having extending through its outer end wall a vertical aperture for the insertion of a cotter-pin and an aperture extending through said end wall into said chamber, to serve as an oil-inlet, substantially as described.

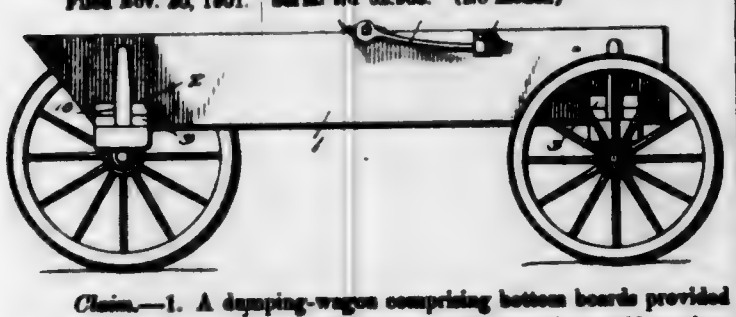
7. In a vehicle-axle, a one-piece cast stub-journal having a cylindric internal oil-chamber with its axis parallel to and above the axis of said journal, whereby the lower portion of the wall of said journal is made thicker than the upper portion of said wall, substantially as described.

8. In a vehicle-axle, a one-piece journal having an interior longitudinal oil-chamber, and having a flange, A', and a shank or stem, B, with a flat upper face and vertical apertures for receiving rivets, and a web extending from said shank downward to the lower portion of the inner end wall of said journal, substantially as described.

9. In a vehicle-axle, a one-piece journal having a longitudinal, interior oil-chamber, an aperture extending through the lower wall of said journal, and a channel and an aperture in the upper portion of said wall, substantially as described.

10. In a vehicle-axle, a journal having an internal oil-chamber, an aperture extending through the bottom wall of said chamber and a channel in the upper wall of said chamber and an aperture extending from said channel through said upper wall, substantially as described.

694,941. WAGON-BOX. THOMAS K. CAMPBELL, South Bend, Ind. Filed Nov. 20, 1901. Serial No. 82,963. (No model.)



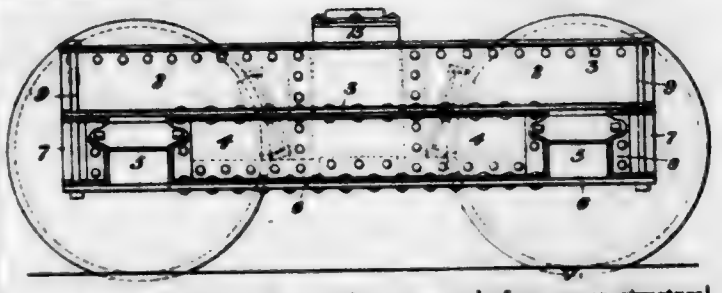
Claim.—1. A dumping-wagon comprising bottom boards provided with end bearings, bolsters made in two sections, each of said sections being grooved upon their adjacent surfaces whereby when they are placed one upon another they will form journals for the said end bearings, and side-boards provided with cut-out portions at or near their front and rear portions which are adapted to embrace the ends of the said sectional bolsters.

2. A dumping-wagon consisting of side-boards provided with a cut-away portion, sectional bolsters adapted to be embraced by said cut-away portion of the side-boards, said sectional bolsters being provided with journals, bottom boards the ends of which are each provided with bearings, and means for raising and lowering said bottom boards.

3. A dumping-wagon consisting of side-boards provided with a cut-out portion, sectional bolsters adapted to be embraced by the said cut-out portion of the said side-boards, said sectional bolsters being provided with journals, the outer ends of each of said sections being provided with a cut-out portion, and bottom boards the ends of which are each provided with castings terminating in bearings.

694,942. CAR-TRUCK. CYRUS M. CARNAHAN, Allegheny, Pa. Filed Feb. 20, 1901. Serial No. 48,186. (No model.)

Claim.—1. In a car-truck, a side member composed of an upper structural member for its full length, a lower structural member connected therewith, terminating at and forming the inner sides of the journal-box housings, supplemental end members forming the outer sides of the journal-box housings, and a lower member forming the lower sides of the journal-box housings.



2. In a car-truck, a side member composed of an upper structural member for its full length, an intermediate lower structural member terminating at and forming the inner sides of the journal-box housings, a lower member extending for the full length forming the lower sides of the journal-box housings, and intervening removable end sections forming the outer sides of the journal-box housings.

3. In a car-truck, a side member composed of an upper channel member for its full length, an intermediate channel member terminating at and forming the inner sides of the journal-box housings, a lower plate member extending for the full length forming the lower sides of the journal-box housings and intervening removable I-beam end section forming the outer sides of the journal-box housings.

4. In a car-truck, a side member composed of an upper channel member for its full length, an intermediate channel member terminating at and forming the inner sides of the journal-box housings, a lower plate member extending for the full length forming the lower sides of the journal-box housings, and intervening removable I-beam end sections forming the outer sides of the journal-box housings, with means for connecting the members, substantially as set forth.

5. In a car-truck, a side member composed of an upper channel member for its full length, an intermediate channel member terminating at and forming the inner sides of the journal-box housings, a lower plate member extending for the full length forming the lower sides of the journal-box housings, intervening removable I-beam sections forming the outer sides of the journal-box housings and supplemental angle members riveted to and connecting the members, substantially as set forth.

6. In a car-truck, a side member composed of an upper channel member for its full length, an intermediate channel member terminating at and forming the inner sides of the journal-box housings, a lower plate member extending for the full length, forming the lower sides of the journal-box housings, intervening removable I-beam end sections forming the outer sides of the journal-box housings, supplemental angle members riveted to and connecting the members, and end bolts connecting the removable end sections with the upper and lower members, substantially as set forth.

7. In a car-truck, a side member composed of an upper channel member for its full length, an intermediate channel member, terminating at and forming the inner sides of the journal-box housings, a lower plate member extending for the full length forming the lower sides of the journal-box housings, intervening removable I-beam end sections forming the outer sides of the journal-box housings, supplemental members riveted to and connecting the members, vertical guiding angle members for the bolster riveted to the inner plane side of the upper and intermediate channel members, and end bolts connecting the removable end sections with the upper and lower members, substantially as set forth.

8. A car-truck composed of sides comprising upper structural members, intermediate structural members terminating at and forming the inner housing-walls, lower members inclosing the journal-boxes, and outer end sections, with cross connecting members providing a bolster-support, substantially as set forth.

9. A car-truck composed of sides comprising upper structural members, intermediate structural members terminating at and forming inner housing-walls, lower members inclosing the journal-boxes, removable end sections, with a cross connecting member providing a bolster-support, and supplemental cross connecting members, substantially as set forth.

10. A car-truck composed of sides comprising upper structural members, intermediate structural members, terminating at and forming inner housing-walls, lower members inclosing the journal-boxes and removable end sections, with a cross connecting member providing a bolster-support, and supplemental cross connecting bracing members tilted outwardly and providing brake-beam supports, substantially as set forth.

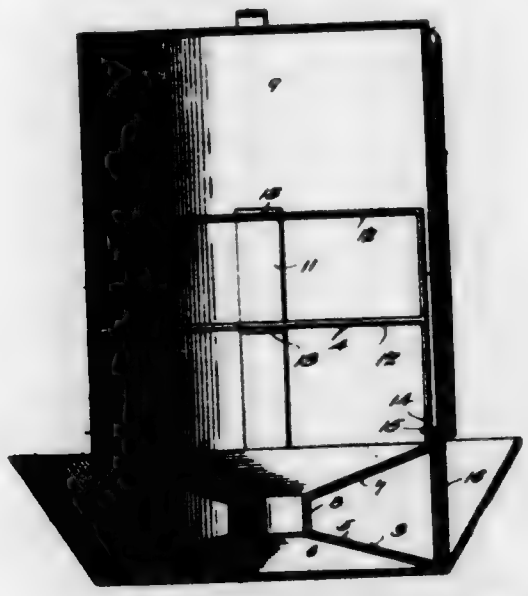
11. In a car-truck of the class described, cross connecting and bracing members consisting of channel-bars, rigidly connected at each end to the side members, and tilted outwardly whereby the upper flange projects beyond the lower flange for the purposes as set forth.

12. A car-truck composed of sides comprising upper structural members, intermediate structural members terminating at and forming inner housing-walls, lower members inclosing the journal-boxes removable end

sections, angle members riveted to and connecting the members and forming vertical bolster-guides, and a cross connecting member, providing a bolster-support, substantially as set forth.

13. A car-truck composed of sides comprising upper structural members, intermediate structural members, terminating at and forming inner housing-wall, lower members inclosing the journal-boxes, removable end sections, angle members riveted to and connecting the members and forming vertical bolster-guides, a cross connecting member providing a bolster-support, and supplemental cross connecting and bracing members on each side of each members, substantially as set forth.

694,943. STEAM-COOKER. FRANK W. CARSON, Shelby, Ohio. Filed Oct. 19, 1901. Serial No. 79,269. (No model.)



Claim.—1. A steam-cooker comprising a base consisting of a bottom conical plate, an inverted top conical plate, a neck connecting the plates at the center thereof, the vertical braces connecting the plates at their outer peripheries, a rack open at the front and provided at the sides and back with upper bars detachably interlocked with the upper plate at the outer periphery of the same, a receiver arranged over the rack and over the base, and a receptacle receiving the base and the receiver and having inclined walls extending upward to approximately the plane of the top of the base, substantially as described.

2. A steam-cooker comprising a receptacle, a base having a bottom plate arranged on the bottom of the receptacle and forming a space between it and the said bottom, said base being provided at its top with lugs, a rack provided with resilient supporting-bars detachably interlocked with the lugs, and a receiver or casing, substantially as described.

3. A steam-cooker comprising a receptacle, a base provided with the reversely-arranged upper and lower plates connected together, said base being provided at the outer edges of the plates with braces connecting the plates and provided at the top of the base with lugs, and a removable rack interlocked with the lugs, substantially as described.

4. A steam-cooker comprising a base, a receptacle receiving the base, a rack composed of the upright side bars interlocked with the base, the transverse bars connecting the side bars, the rear upright bar also interlocked with the base, and the horizontal bars extending from the rear upright bar to the transverse bars, and a casing or receiver, substantially as described.

694,944. AUTOMATIC KEYBOARD FOR TEACHING TYPE-WRITING. JOSEPH CHALLENGER, Walsall, England, assignor to the Yost Typewriter Company, Limited, London, England. Filed Sept. 20, 1901. Serial No. 76,002. (No model.)



Claim.—In apparatus for use in acquiring the art of manipulating or working a type-writer, a carrier or gallery formed with apertures, separately-mounted keys provided with eyed stems working in said apertures, elastic threaded through the said eyes and staples, secured to the inner side of the gallery, for holding the elastic in position, substantially as herein described.

694,945. PROCESS OF MANUFACTURING IODIN PREPARATIONS. MAX CORN, Berlin, Germany. Filed Aug. 17, 1901. Serial No. 72,261. (No specimens.)

Claim.—The process for producing iodin preparations, containing glue and possessing antiseptic properties, which consists in dissolving potassium iodid and gelatin substances in water, adding iodin to the resultant solution, hardening or solidifying the mixture, then drying and comminuting the same.

694,946. METHOD OF COVERING TEXTILE AND POROUS MATERIALS WITH METAL. JOHN A. DALY, Washington, D. C. Filed Aug. 26, 1900. Serial No. 28,005. (Specimens.)

Claim.—1. The method of producing metallined fabric of the character described, which consists in saturating the fabric with an adhesive compound having a quantity of comminuted metal embodied therewith, whereby the metal becomes enmeshed with the fabric, drying the fabric with the compound and metal so incorporated, and electrodepositing metal thereon, so that the same becomes adherent to the enmeshed particles of metal in the fabric, substantially as described.

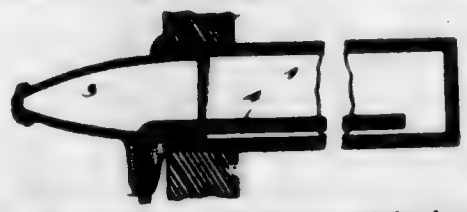
2. The method of producing metallined lace and the like which consists in saturating said fabric with a solution composed of a nitrocellulose base, as described, and finely-comminuted metal incorporated therein, then electrically depositing metal directly on said fabric so that the same becomes incorporated and connected to the enmeshed metal, substantially as described.

3. A metallined textile fabric having finely-comminuted metal enmeshed in its fibers along with a nitrated cellulose filling, and having a substantial covering of metal connected to said enmeshed particles, substantially as described.

4. The method of producing metallined fabric of the character described, which consists in saturating the fabric with an adhesive compound having comminuted metal contained therein, drying the fabric with the metal and compound, and without other addition to the product so prepared, electrodepositing a metal directly thereon, substantially as described.

5. A metallined textile fabric having finely-comminuted metal enmeshed in its fibers along with an adhesive filling, and having a substantial covering of metal electrodeposited directly on and adherent to the enmeshed metallic particles, substantially as described.

694,947. PROCESS OF SMELTING ZINC. SAMUEL DAVIS, Iola, Kans. Filed June 5, 1900. Serial No. 19,161. (No specimens.)



Claim.—The process of smelting zinc, consisting in placing a mixture of zinc oxid and particles of non-metallic refractory substances within a retort, exteriorly heating the latter, passing a current of hydrocarbon gas through the charge, whereby reduction is effected, conducting the gas and the vaporized metal carried thereby through a condenser to deposit the metallic zinc, and finally permitting the gas to escape.

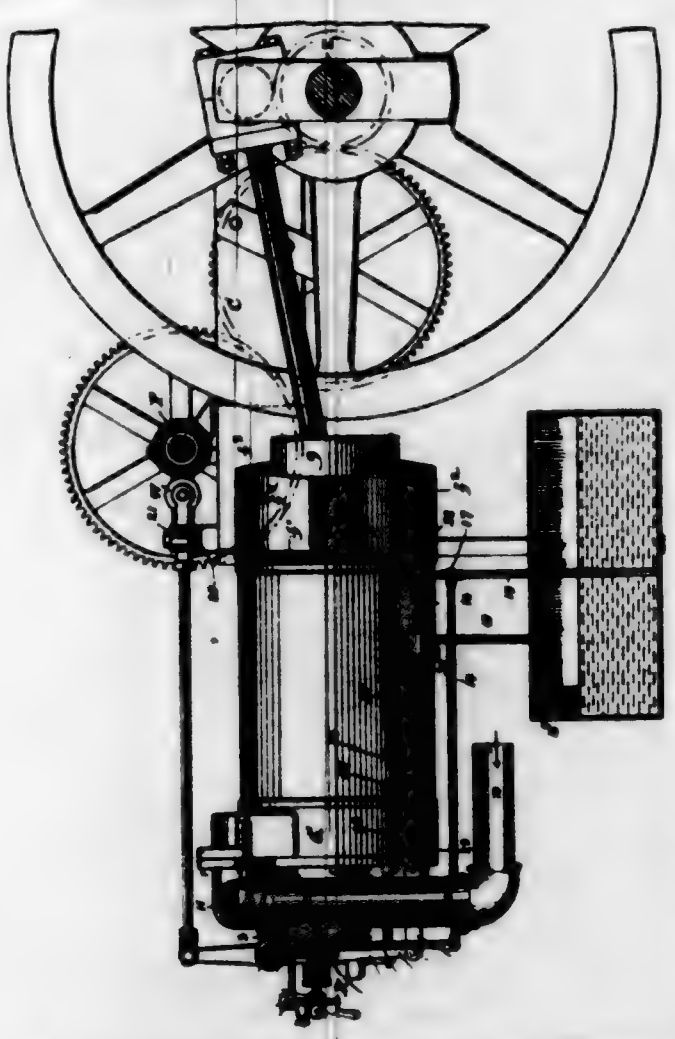
694,948. EXPLOSIVE-ENGINE. WILLIAM F. DAVIS, Milwaukee, Wis. Filed Jan. 2, 1900. Serial No. 90. (No model.)

Claim.—1. In an explosive-engine, the combination with the supply-passage and with the admission-valve between said passage and the engine-cylinder, of a fuel-supply pipe opening into said passage, means for periodically applying a yielding pressure to the fuel within said pipe, a controlling throttle-valve between said means and said passage, lever mechanism for opening said admission-valve through variable periods of time, connections between said lever mechanism and said means whereby pressure is only applied to the fuel during said variable admission periods and once only for every power-stroke of the engine.

2. In an explosive-engine, the combination with the supply-passage and with the admission-valve between said passage and the engine-cylinder, a pump for periodically applying pressure to the fuel within said pipe, a controlling throttle-valve between said pump and said admission-valve, lever mechanism for opening said admission-valve through variable periods of time, cushion-spring connections between said lever mechanism and said pump piston-rod through the medium of which pressure is applied to the fuel only during said variable admission periods and once only for every power-stroke of the engine.

3. In an explosive-engine, the combination with a fuel-delivery pipe and with a pump for forcing fuel through said pipe having a controlling

throttle-valve and with admission-valve mechanism, of governor-controlled lever mechanism for operating said admission-valve mechanism and the pump piston-rod through variable periods of time, a cushion-spring interposed between said lever mechanism and the pump piston-rod through the medium of which spring said lever operates during the forcing stroke of said pump, and a second spring interposed between said lever mechanism and a stationary part of the structure.



4. In an explosive-engine, the combination with a fuel-delivery pipe and with the admission-valve mechanism and lever mechanism for controlling said admission-valve mechanism, of a pump and means for operating the same comprising a piston-rod, a cushion-spring encircling said rod and at one end engaging a part fixed thereto, a sliding part mounted upon said piston-rod and against which the opposite end of said cushion-spring bears, a suitable connection between said sliding part and the lever mechanism that operates the admission-valve mechanism, and a second coil-spring interposed between the cylinder of the pump and said sliding part.

5. In an explosive-engine, the combination with the supply-pipe and with the admission-valve between said supply-pipe and the engine-cylinder, of a pump for injecting fuel in a series of jets into said pipe between the outer end thereof and said valve, a controlling throttle-valve intermediate the pump and the supply-pipe, lever mechanism for operating said valve and said pump, cushion-spring connections between said lever and said pump piston-rod; means for actuating said lever mechanism comprising a shiftable cam, automatically-operating governing mechanism connected with said cam for automatically shifting the same, and means connected to said governor mechanism for manually shifting said cam through the medium of said governor mechanism.

6. In an explosive-engine, the combination with a supply-pipe and with an admission-valve between said supply-pipe and the engine-cylinder, of a pump for injecting fuel in a series of jets into said pipe between the outer end thereof and said valve, a rocking lever, separate connections between said lever and said admission-valve, and between said lever and said pump, and means for operating said lever through variable periods of time, comprising a shifting rod connected thereto, a cam-shaft, an adjustable, tapered cam on said shaft and adapted to shift said rod, automatic governor mechanism connected to said cam for automatically varying the position of said cam upon said shaft and means connected to said governor mechanism for manually shifting said cam through the medium of said governor mechanism.

7. In an explosive-engine, the combination with a cylinder having suitable admission-valve mechanism, of means for operating said valve mechanism, comprising a shaft, shiftable devices on said shaft, a shifting rod connected to said devices, weighted governor-arms connected to said rod, hand-lever mechanism, and separate cushion-spring connections between said hand-lever mechanism and each arm of said weighted arms.

8. In an explosive-engine, the combination with the cylinder having suitable admission-valve mechanism, of means for operating said admission-valve mechanism comprising a cam-shaft, a cam mounted to slide upon said shaft and to revolve therewith, a rod for shifting said cam extending lengthwise of said shaft, a sliding sleeve connected to said rod, weighted governor-arms connected to said sleeve, a second movable sleeve mounted upon said shaft, suitable springs and rods interposed between said second sleeve and said governor-arms and lever mechanism for shifting said second sleeve lengthwise of the cam-shaft, said lever mechanism comprising a lever, one end of which is attached to said second sleeve and the opposite end of which is adjustably connected to the fixed part of the structure.

9. In an explosive-engine, the combination with the cylinder having suitable admission-valve mechanism, of means for operating said admission-valve mechanism comprising a cam-shaft, a cam mounted to slide upon said shaft and to revolve therewith, a rod for shifting said cam extending lengthwise of said shaft, a sliding sleeve connected to said rod, weighted governor-arms connected to said sleeve, a second movable sleeve mounted upon said shaft, suitable springs and rods interposed between said second sleeve and said governor-arms, lever mechanism for shifting said second sleeve lengthwise of the cam-shaft, said lever mechanism comprising a lever, one end of which is adjustably connected to the fixed part of the structure, a bell-crank lever suitably connected to said first-mentioned lever, a connecting-rod leading from said bell-crank lever and a main operating-lever connected with said rod.

10. In an explosive-engine, the combination with a cylinder having suitable valve mechanism, of an automatic governor for said valve mechanism, a fuel-supply valve, a hand-lever and connections between said lever and said automatic governor and between said lever and said fuel-supply valve, whereby the operator may simultaneously control the operation of said governor and the movement of said valve.

11. In an explosive-engine, the combination with the cylinder having suitable admission-valve mechanism, of means for operating said valve mechanism comprising a tapered cam, means for shifting the same, a fuel-delivery pipe for supplying fuel to said cylinder, a valve for controlling the flow of fuel through said pipe, suitable means for operating said valve and a hand-lever suitably connected with said valve-operating means and with the means that effects the shifting of the cam that controls the admission-valve mechanism.

12. In an explosive-engine, the combination with the cylinder and suitable admission-valve mechanism, of means for operating said admission-valve mechanism comprising a cam-shaft having a cam mounted to slide thereon and to revolve therewith, mechanism whereby said cam is shifted lengthwise of said shaft, a fuel-delivery pipe, a throttle-valve for controlling the flow of fuel through said pipe, mechanism for operating said throttle-valve and a hand-lever and suitable connecting mechanism whereby the operator may simultaneously shift the cam upon the cam-shaft and control the movement of the throttle-valve.

13. In an explosive-engine, the combination with the cylinder and suitable admission-valve mechanism, of means for operating said admission-valve mechanism comprising a cam-shaft having a cam mounted to slide thereon and to revolve therewith, a fuel-delivery pipe, a throttle-valve therefor, mechanism for operating said throttle-valve, a pump for forcing the fuel through said fuel-delivery pipe, mechanism for operating said pump, suitable connections between said pump-operating mechanism and the mechanism that operates the admission-valve mechanism, and a hand-lever and suitable connecting mechanism whereby the operator may simultaneously shift the cam upon the cam-shaft and control the movement of the throttle-valve.

694,949. RAIL-JOINT. JACOB DIEHL, West New York, N. J., assignor of one-half to WM. H. Schmidt and E. H. Schmidt, West New York, N. J. Filed Nov. 12, 1901. Serial No. 82,051. (No model.)



Claim.—1. In a rail-joint, a base, side stays arranged upon opposite sides of the end portions of adjacent rails and having vertical grooves in their inner faces, studs passed through openings in the end portions of the rails and having their terminal portions extending into the aforesaid vertical grooves of the side stays, and means for clamping the said stays against opposite sides of the rails, substantially as specified.

2. In a rail-joint, a base, side stays arranged upon opposite sides of the rails, one of the stays being integral with the base and the other separate therefrom, a stop forming a part of the base, the said stop and movable stay having grooves in their proximal edges or faces, and a key fitted

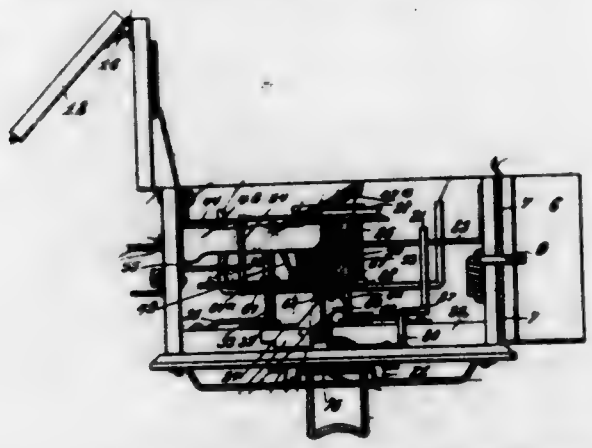
between the said stop and movable stay for securing the latter, substantially as set forth.

3. In a rail-joint, a base and fixed stay and stop, a second stay located in the space formed between the fixed stay and stop, a key fitted in the space between the said stop and movable stay, the face or edge of one of the parts bordering upon the key-seat being grooved, and means coöperating with the said groove and key for securing the latter when in place, substantially as specified.

4. In a rail-joint, a base, stays located upon opposite sides of the end portion of adjacent rails, a stop, a key adapted to be introduced between the said stop and the proximal stay for clamping the stays against opposite sides of the rail, and corresponding notches or grooves between adjacent sides of the key and stop, substantially as and for the purpose set forth.

5. In a rail-joint, a base, corresponding side stays, a fixed stop, a key adapted to be introduced between said stop and adjacent stay, adjacent sides of the key and stop having corresponding vertical grooves or notches, and an implement adapted for coöperation with the said notches or grooves to effect a positive longitudinal movement of the key in either direction, substantially as set forth.

694,950. THREAD MEASURING AND CUTTING DEVICE FOR SPOOL-CABINETS. JAMES DROVER, St. Johns, Newfoundland. Filed Apr. 22, 1901. Serial No. 56,828. (No model.)



Claim.—1. In a spool-cabinet, the combination of a measuring mechanism, a cutter-guide having means for holding a thread, a movable thread-carrying arm actuated by the measuring mechanism and arranged to automatically place a thread in said cutter-guide, a cutter operatively related to the cutter-guide, and means for actuating the cutter at a predetermined period to sever the thread confined in the cutter-guide, substantially as described.

2. In a spool-cabinet, the combination of a measuring mechanism, a cutter, a movable thread-carrying arm arranged to place a thread in the path of said cutter, and means actuated by the measuring mechanism to operate both the cutter and said thread-carrying arm one after the other, whereby the arm first places the thread in the path of the cutter and then the cutter is actuated to automatically sever the thread, substantially as described.

3. In a spool-cabinet, the combination of a measuring-wheel, a master-wheel, a cutter having operative connection with said master-wheel to be actuated intermittently thereby, and a movable thread-carrying arm also connected operatively with said master-wheel and arranged to place a thread automatically in the path of the cutter, substantially as described.

4. In a spool-cabinet, a measuring mechanism comprising shafts normally intergeared, a measuring-wheel, and means for adjusting said parts to permit the measuring-wheel to have a free rotation, combined with a cutter actuated by the measuring mechanism, and a movable thread-carrying arm also actuated by the measuring mechanism and arranged to place a thread in the path of the cutter, substantially as described.

5. In a spool-cabinet, the combination of a measuring mechanism having an element disposed in the path of the thread, a cutter-guide having means for holding a thread, a movable thread-carrying arm having means actuated by the measuring mechanism and arranged to move a thread into engagement with the cutter-guide and into the path of the cutter, a rock-shaft also actuated at a predetermined point by the measuring mechanism, and a movable cutter operatively connected with the rock-shaft and adapted to be actuated through the latter by the measuring mechanism, substantially as described.

6. In a spool-cabinet, a measuring mechanism comprising two shafts, a friction wheel or pulley on one of the shafts, a master-wheel on the other shaft, and trip devices carried by the master-wheel, in combination with a cutter, a thread-carrying arm having a trip element disposed in the path of one of said trip devices on the master-wheel, and another trip element having operative connection with the cutter and disposed for actuation by the other trip device on the master-wheel, substantially as described.

7. In a spool-cabinet, the combination of independent rock-shafts each having a trip-arm, a thread-arm carried by one rock-shaft, and a cutter having operative connection with the other rock-shaft, a master-wheel provided with trip devices arranged to successively engage with the trip-arms of said rock-shafts, and a thread-actuated element arranged to impart rotation to said master-wheel, substantially as described.

8. In a spool-cabinet, the combination of a cutter-guide provided with thread-loops, a movable cutter arranged to traverse the thread-loops of said guide, a thread-carrying arm movable into operative relation with the thread-loops of the cutter-guide, and a measuring mechanism having means whereby the thread-carrying arm and the cutter may be actuated successively, substantially as described.

9. In a spool-cabinet, the combination of a tiltable shaft having a master-wheel, another shaft having a thread-engaging element and geared to the master-wheel, means for manually adjusting said master-wheel shaft to disengage the master-wheel from the shaft of the thread element, and a cutter mechanism adapted to be actuated by said master-wheel, substantially as described.

694,951. MEAT-CHOPPER. JACOB ERIE, Buffalo, N. Y., assignor of one-half to John B. Porter, Buffalo, N. Y. Filed Feb. 20, 1901. Serial No. 48,056. (No model.)



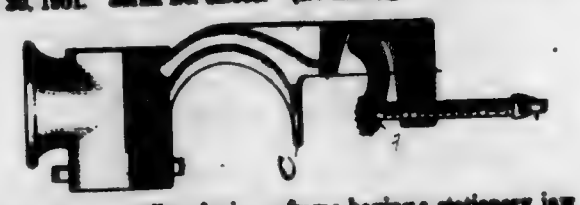
Claim.—In a meat-chopping machine, the combination with the framework, of a stationary table secured thereto, a revolvable table supported on said stationary table, a bushing passing through said stationary table and having a flange bearing against the under side of the same, said bushing entering the revolvable table and being held therein by a screw-threaded connection, a chopping-block secured to said revolvable table, a reciprocating rod guided in said bushing, chopping-knives carried on said rod, and mechanism for operating said rod and revolving said revolvable table, substantially as set forth.

694,952. TOOL FOR BALE-TIES. WILLIAM J. ENGLISH and LESLIE ALEXANDER, New York, N. Y. Filed Mar. 23, 1901. Serial No. 53,449. (No model.)



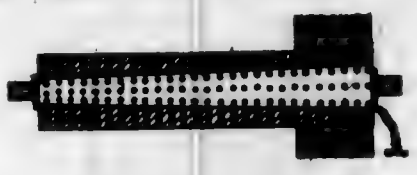
Claim.—A tool for securing bale-ties, comprising a bar having a slotted opening at the end thereof with a cross connecting-bar, and at the rear end of said slotted opening and at one side thereof, a prong or guard, substantially as set forth.

694,953. CLAMPING DEVICE. HENRY O. EVANS, Philadelphia, Pa., assignor to Thomas Devlin & Co., Philadelphia, Pa., a Firm. Filed Nov. 20, 1901. Serial No. 82,966. (No model.)



Claim.—In a coupling device, a frame having a stationary jaw and arm, said stationary jaw having lateral extensions, a slot in said frame, a movable jaw having a shank pivoted within said slot, a socket in the lower face of said movable jaw, and a screw-pin carried by said arm and having one end situated within said socket, said socket and slot in connection with the screw-pin and shank serving to prevent lateral movement or displacement of said movable jaw.

694,954. COUCH-ROLL. ROSS R. FARNHAM, Castleton, N. Y. Filed Sept. 20, 1901. Serial No. 75,943. (No model.)

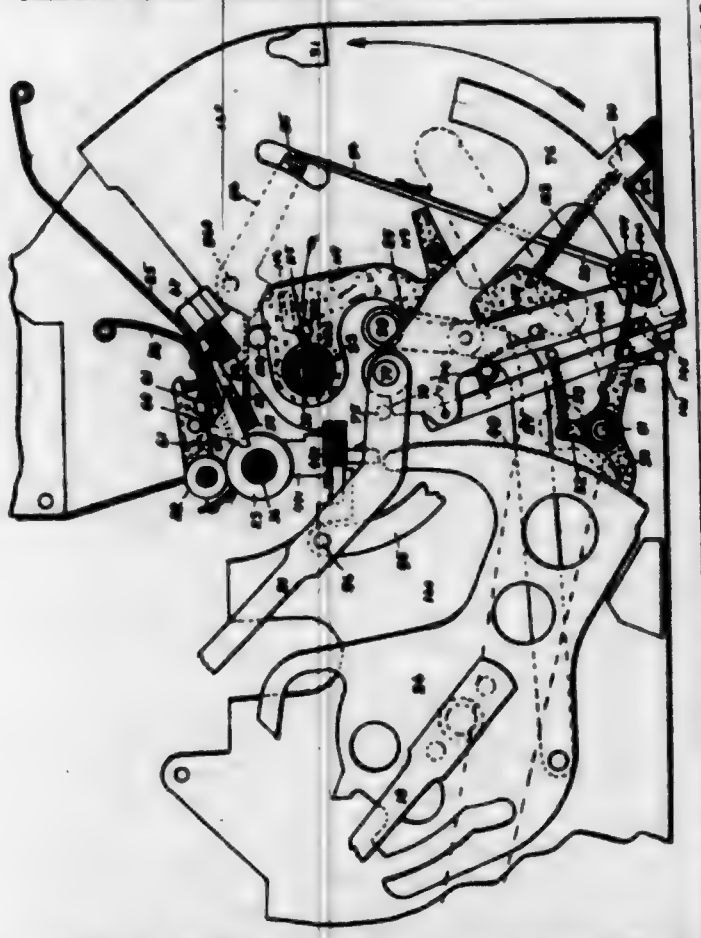


Claim.—1. A couch-roll for use in paper-making and other purposes consisting of a drum or journal; rings or washers of capilliform material set upon the same side by side in unbroken contact with each other and with the drum or journal and arranged so that the capillaries practically stand on end and radiate from the drum or journal and so as to form a practically unbroken smooth surface at the periphery of the roll substantially as described.

2. A couch-roll consisting of a perforated and hollow spindle, its outer surface being covered by an absorbent material arranged so that any surplus water absorbed will enter the hollow spindle and be discharged therefrom substantially as described.

3. Material for the covering of couch-rollers formed by forming the capillaries or fiber of which it is composed into tufts and binding the tufts into sheets, the tufts radiating from a practically common center substantially as described.

694,955. TABULATING-MACHINE. DORR E. FELT, Chicago, Ill. Filed Nov. 19, 1900. Serial No. 36,851. (No model.)



Claim.—1. The combination of an adding mechanism, printing devices, a paper holder and feeder one being laterally shiftable relative to the other means for operating said mechanism and devices at will, and automatic mechanism acting when the bottom of a sheet is reached for preventing the actuation of said adding mechanism.

2. The combination of an adding mechanism, printing devices, means for operating said mechanism and devices at will, a paper holder and feeder adapted for the holding of sheets of paper, and automatic mechanism released by the bottom edge of the sheet for preventing the actuation of said adding mechanism.

3. The combination of an adding mechanism, printing devices, means comprising finger-keys for operating said mechanism and devices at will, a laterally-shiftable paper holder and feeder, and automatic mechanism acting when the bottom of a sheet is reached for preventing the actuation of said adding mechanism.

4. The combination of an adding mechanism, printing devices, means comprising finger-keys for operating said mechanism and devices at will, a laterally-shiftable paper holder and feeder, and means controlled by the paper for preventing the actuation of said adding mechanism at a predetermined time.

5. The combination with the operating-lever and its cam, of a lever 50 controlled by the paper and locking the cam when a full column has been tabulated, substantially as specified.

6. The combination with the operating-lever and its cam, of a spring-actuated lever 50 engaging the cam and means whereby the paper controls said lever 50, substantially as specified.

7. The combination with the printing mechanism of a tabulator, of a laterally-movable paper-carriage, means for locking said mechanism, and devices controlling said locking means, consisting of a series of spring-pressed fingers supported in said carriage and bearing upon the paper at separated points and mechanically connected to the locking means, substantially as specified.

8. The combination with the printing mechanism of a tabulator, of means for locking said mechanism and devices for controlling said locking means, consisting of a series of spring-pressed fingers bearing upon the paper at separated points and yielding connections between said locking means and said fingers, substantially as specified.

9. The combination in a tabulator with the printing mechanism, of means for locking said mechanism when a full column has been tabulated, and mechanism for reversing the sheet acting to cause said locking means to act, substantially as specified.

10. The combination in a tabulator with the printing mechanism, of means for locking said mechanism when a full column has been tabulated, means whereby the paper may cause said locking means to act upon the completion of a column, and mechanism for causing said locking means to act in cases where the paper is too long or is wrongly positioned, substantially as specified.

11. The combination in a tabulator with the printing mechanism, of means for locking said mechanism when a full column has been tabulated, means whereby the paper may cause said locking means to act upon the completion of a column, and paper-reversing mechanism acting also to cause said locking means to act in cases where the paper is too long, substantially as specified.

12. In a tabulator, the combination with means for feeding the paper and printing mechanism for printing the numbers or amounts tabulated both operable at will, of a series of widely-separated spring-pressed fingers bearing against different portions of the paper in proximity to the feeding means, and means for locking said mechanism controlled by said fingers, substantially as specified.

13. The combination with the reversing mechanism of means for arresting the reversing movement located at the point where it receives power in the line-feeding movements, substantially as specified.

14. The combination with the reversing mechanism of means for arresting the reversing movement consisting of the pin 115 on the initial member of the mechanism, and a stop 116, substantially as specified.

15. The combination with a paper-reversing mechanism embracing an initial pinion receiving impulses from the paper-feed mechanism in the line-spacing movements, of a stop-pin 115 carried by said pinion, and a relatively stationary projection or stop 116 adapted to engage said pin, as the reversing mechanism completes the reversing operation, substantially as specified.

16. The combination with the paper-carriage of means for feeding the carriage in column-spacing, a device for arresting the carriage and link 105 slotted at 106 and actuated by the feeding means, substantially as specified.

17. The combination with the paper-carriage of means for feeding the carriage in column-spacing, means for preventing overthrow of the carriage, and a dolly-roll acting to center the carriage in its several positions, substantially as specified.

18. The combination of a paper-carriage having a spacing-bar with oppositely-faced notches, a feeding-pusher, an overthrow-preventing latch and a dolly-roll, substantially as specified.

19. The combination of a paper-carriage having a spacing-bar with oppositely-faced notches, a feeding-pusher, an overthrow-preventing latch and a dolly-roll, the latch and roll being both connected to the pusher, substantially as specified.

20. The tabulating-machine adapted to be used with either sheet or roll paper, and having a mechanism for reversing the sheet-paper, the combination of the paper-feed mechanism, said reversing mechanism and a device connecting said reversing mechanism with the paper-feed mechanism and changeable as to position to disconnect and reconnect the mechanisms, and means for regulating the disconnection and reconnection so that both always take place when the members of the mechanisms are in the same relative positions, substantially as specified.

21. The combination in a tabulator, of mechanism for feeding the paper in line-spacing, mechanism for reversing the paper geared to said feed mechanism by a separable connection, and means for regulating said connection so that it can only change position while the mechanisms are in one position, substantially as specified.

22. The combination in a tabulator, of mechanism for feeding the paper in line-spacing, mechanism for reversing the paper geared to said feed mechanism by a shifting pinion, having a lateral pin 115, and a plate

117 surrounding the pinion-shaft in proximity to the pinion and having a single opening 122 which said pin must enter to permit the shifting of the pinion, whereby the pinion is prevented from being shifted to disconnect the mechanisms except at one point, substantially as specified.

23. The combination in a tabulator, of mechanism for feeding the paper in line-spacing, mechanism for reversing the paper geared to said feed mechanism by a shifting pinion having a lateral pin 115, a pivoted plate 117 surrounding the pinion-shaft in proximity to the pinion and having a single opening 122 to receive said pin and acting to prevent the shifting except when the pin and opening are in register, and means whereby the registering mechanism moves said plate to bring the opening into the orbit of the pin, substantially as specified.

24. The combination with the paper-feed mechanism, paper-reversing mechanism, and separable means for connecting and disconnecting said mechanisms, of means for preventing connecting or disconnecting except when the members of the mechanisms are in certain relative positions, substantially as specified.

25. The combination with the operating-lever and its cam, and the locking-lever 50, of the total-printing lever and means whereby the latter releases said locking-lever, substantially as specified.

26. The combination with the operating lever and cam, of devices for causing the locking of the lever and cam consisting of a lever engaging the cam, a series of separated spring-pressed fingers 60 mounted upon a swinging bar and extending close up to the feed-rolls, a slotted guide above the paper into which said fingers move when the paper has passed, and connections between said bar and the lever engaging the cam, substantially as specified.

27. The combination with the printing mechanism, a laterally-movable paper-carriage and the devices whereby the printing mechanism is locked upon the completion of a column, of a series of separated fingers bearing upon the paper as it enters the feed-rolls, a bar pivoted at its ends in said carriage so it may swing and upon which said fingers are secured, connections between said bar and the locking devices, and a spring pressing said fingers against the paper, substantially as specified.

28. The tabulating-machine having a laterally-movable paper-carriage adapted to receive wide sheets, printing mechanism, means for feeding the paper vertically at each impression, and means whereby the actuating devices of said printing mechanism and said paper-feeding means may be automatically locked upon the completion of a full column, whereby the further operation of the printing mechanism is arrested and the operator is notified that the sheet must be shifted or replaced, substantially as specified.

29. The combination with the feed-rolls and actuating mechanism of a series of spring-pressed fingers projecting into the path of the paper, in proximity to the feed-rolls, a lever for moving and retaining the fingers out of said path while inserting the paper, said lever being located where it may be operated by the same hand which turns the rolls, and means connected with said fingers for controlling the actuating mechanism, substantially as specified.

30. The combination with the adding mechanism of a tabulating-machine and the device by which such mechanism is operated, of means for locking said operating device when a complete column has been tabulated, substantially as specified.

31. The tabulating-machine having a laterally-movable paper-carriage, and printing mechanism having finger-keys and adapted to print columns not exceeding a predetermined length, and also having means for locking the printing mechanism upon the completion of a full column irrespective of the lateral position of the carriage, whereby the further operation of the machine is arrested and the operator is notified that the sheet must either be shifted or replaced, substantially as specified.

694,956. PROCESS OF IMPREGNATING WOOD. JOSEPH L. FERRELL, Philadelphia, Pa. Filed May 18, 1901. Serial No. 60,893. (No specimens.)

Claim.—1. The hereinbefore-described process of impregnating a body of wood, which consists in injecting a fluid reagent through said body from one end thereof to the other, in the direction of the grain of wood; discharging the fluid from the opposite end of said body until the specific gravity of the fluid being emitted is substantially equal to that of the fluid being injected; thereupon preventing the escape of the fluid from said body at the discharge end thereof; and continuing the injection of the fluid, until it is distributed radially from the center through the substance of the wood and appears at the circumference thereof, substantially as set forth.

2. The hereinbefore-described process of impregnating a body of wood, which consists in injecting a reagent in solution through said body from one end thereof to the other, in the direction of the grain of the wood; discharging the solvent liquid from the opposite end of said body until the specific gravity of the liquid being emitted is substantially equal to that of the solution being injected; thereupon preventing the escape of the liquid from said body at the discharge end thereof; and continuing the injection of the solution until the reagent is distributed radially from the center through the substance of the wood and appear at the circumference thereof, substantially as set forth



3. The hereinbefore-described process of impregnating a body of wood, with a mixed salt, which consists in injecting a fluid reagent through said body from one end thereof to the other, in the direction of the grain of the wood; discharging the fluid from the opposite end of said body until the specific gravity of the fluid being emitted is substantially equal to that of the fluid being injected; thereupon preventing the escape of the fluid from said body at the discharge end thereof; continuing the injection of the fluid until it is distributed radially from the center through the substance of the wood and appears at the circumference thereof; terminating the injection of said first reagent; injecting a second fluid reagent through said body from one end thereof to the other, in the direction of the grain of the wood; discharging said second fluid from the opposite end of said body until the specific gravity of the fluid being emitted is substantially equal to that of the fluid being injected; thereupon preventing the escape of said second fluid from said body at the discharge end thereof; and continuing the injection of said second fluid until it is distributed radially from the center through the substance of the wood, and in association with said first fluid, produces an insoluble salt, throughout the substance of the wood from the center to the circumference thereof, substantially as set forth.

4. The hereinbefore-described process of impregnating a body of wood, with a mixed salt, which consists in injecting a reagent, in aqueous solution, through said body from one end thereof to the other, in the direction of the grain of the wood; discharging the solvent liquid from the opposite end of said body until the specific gravity of the liquid being emitted is substantially equal to that of the solution being injected; thereupon preventing the escape of the liquid from said body at the discharge end thereof; continuing the injection of the solution until the reagent is distributed radially from the center through the substance of the wood and appears at the circumference thereof; terminating the injection of said first solution; injecting a second reagent, in aqueous solution, through said body from one end thereof to the other in the direction of the grain of the wood; discharging the solvent liquid from the opposite end of said body until the specific gravity of the liquid being emitted is substantially equal to that of the second solution being injected; thereupon preventing the escape of said second liquid from said body at the discharge end thereof; and continuing the injection of said second solution until the second reagent is distributed radially from the center through the substance of the wood, and in association with said first reagent produces an insoluble salt throughout the substance of the wood from the center to the circumference thereof, substantially as set forth.

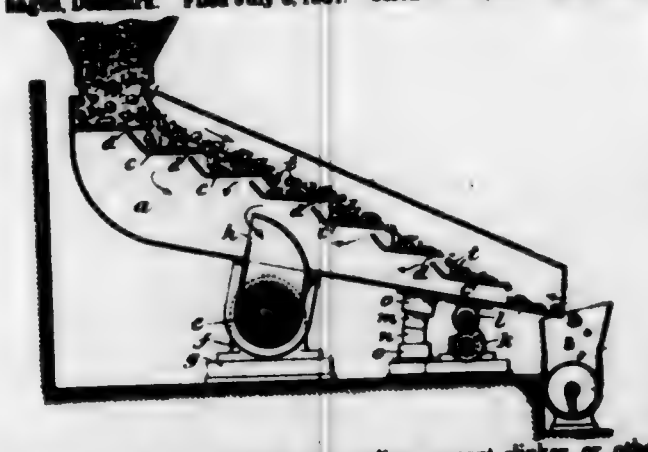
694,957. SEAT FOR UMBRELLAS. SAMUEL S. PETTY, Philadelphia, Pa. Filed Oct. 10, 1901. Serial No. 78,210. (No model.)



Claim.—The combination of a paragon rib, a lap surrounding the belly of said rib, and having the ends thereof folded inside the side walls

of said rib, said rib being provided with holes in the side walls opposite each other and the portion of the lap folded outside one of the side walls being provided with a hole registering with the hole in the side wall of the rib, and the outside fold of the lap adjacent to the opposite wall of the rib being integral; a stretcher having a flattened end inserted between the ends of the lap and a pin penetrating the side walls of the rib and abutting against the inside wall of the said integral fold of the lap, and free to move inward and outward in the side wall of the rib enveloped by the integral fold of the stretcher; substantially as described.

694,958. APPARATUS FOR COOLING CEMENT CLINKER OR OTHER GRANULAR MATERIALS. CHRISTIAN L. GALSKIÖT, Copenhagen, Denmark. Filed July 8, 1901. Serial No. 67,414. (No model.)



Claim.—1. In an apparatus for cooling cement clinker or other granular materials, the combination of a pivoted incline provided with openings intermediate of its ends to permit a current of air to pass through the clinker whereby same is cooled while passing down the incline, and means for rocking said incline.

2. In an apparatus for cooling cement clinker or other granular materials, the combination of a pivoted incline comprising a plurality of steps arranged on a curve and provided with openings to permit a current of air to pass through same, two or more of said steps being progressively inclined with respect to each other, and means for rocking said incline.

3. In an apparatus for cooling cement clinker or other granular materials, the combination with a pivoted incline comprising a plurality of steps and provided with openings to permit a current of air to pass through same, of means for rocking and jarring said incline to cause the material to pass over same.

4. In an apparatus for cooling cement clinker or other granular materials, the combination of a pivoted incline comprising a plurality of steps to carry the material and provided with openings to permit a current of air to pass through same, said openings being arranged to prevent the material from passing therethrough, and means for rocking said incline.

5. In an apparatus for cooling cement clinker or other granular materials, the combination of an air-tight receptacle having a perforated inclined top to carry the material, means for exhausting the air from the receptacle to draw a current of air through the perforations into the receptacle and about the material on the incline, and positively-actuated means for moving the material to be cooled over and down the top of the receptacle.

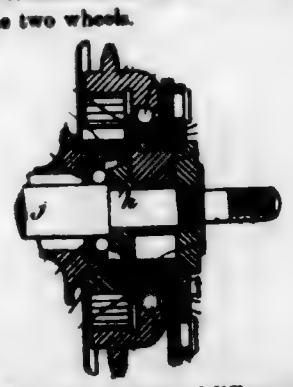
6. In an apparatus for cooling cement clinker or other granular materials, the combination of a receptacle secured to a shaft rotatable in suitable bearings and provided with an opening communicating with the interior of the receptacle, an inclined top for said receptacle provided with openings to permit air to pass into the receptacle, means to exhaust the air from the receptacle, and means for rocking said receptacle.

7. In an apparatus for cooling cement clinker or other granular materials, a receptacle provided with a top comprising a series of steps arranged on a curve to carry the material to be cooled and provided with air-passages to permit the air to enter the receptacle, means for exhausting the air from the receptacle so as to produce a current of air through the material on its top, and means for jarring the receptacle so as to cause a movement of the material in relation to itself and also a movement of transmission on the steps.

694,959. VARIABLE-SPEED GEAR. ALEXANDER GRAY, Sutton, England. Filed Feb. 27, 1901. Serial No. 49,052. (No model.)

Claim.—1. In a variable-speed gear, the combination of two wheels of different diameter one within the other, ratchet-teeth formed on the inner circumference of the larger wheel, a number of pawls jointed to the circumference of the smaller wheel to engage with the ratchet-teeth and means for varying the distance between the axes of the two wheels.

2. In a variable-speed gear, the combination of two wheels of different diameter mounted with their axes parallel the larger one having ratchet-teeth formed thereon, a number of pawls jointed to the smaller wheel and engaging the ratchet-teeth, and means for varying the distance between the axes of the two wheels.



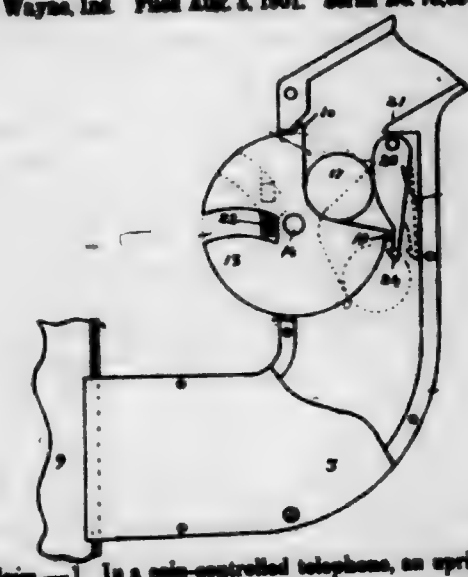
3. The combination of two wheels of different diameter one within the other, ratchet-teeth on the inner circumference of the larger wheel, a number of pawls jointed to the circumference of the smaller wheel, a hollow axle upon which the smaller wheel is fixed, a fixed axle passing through the hollow axle and around which the hollow axle can be revolved, a disk forming a bearing around which the larger wheel can be revolved, a slot in this disk through which the fixed axle passes and means for shifting the disk into positions more or less eccentric to the fixed axle.

4. The combination of two wheels of different diameter one within the other, ratchet-teeth on the inner circumference of the larger wheel, a number of pawls jointed to the circumference of the smaller wheel, a hollow axle upon which the smaller wheel is fixed, a fixed axle passing through the hollow axle and around which the hollow axle can be revolved, a disk forming a bearing around which the larger wheel can be revolved, a slot in this disk through which the fixed axle passes, two studs carried by this disk on opposite sides of its center, a cam-plate against which the two studs rest and which is capable of being turned around the fixed axle, and means for giving a partial turn to this cam to bring the disk into positions more or less eccentric to the fixed axle.

5. A pawl-and-ratchet-wheel arrangement of variable-speed gear comprising two wheels of different diameter one having ratchet-teeth thereon, pawls each having a semicylindrical end, fitting into a corresponding socket in the other wheel, and a countersunk hole therein, and a pin on the wheel passing through the countersunk hole in the pawl.

6. A pawl-and-ratchet-wheel arrangement of variable-speed gear comprising two wheels of different diameter one having ratchet-teeth thereon, pawls jointed to the other, and means for varying the distance between the axes of the two wheels, the wheels, pawls and ratchet-teeth being so related as set forth that as the wheels revolve each pawl comes in succession into a position in which it drives the driven wheel faster than any of the other pawls and continues to so drive it until the next succeeding pawl comes to the position in which it in turn can drive faster.

694,960. COIN-CONTROLLED TELEPHONE. SYLVESTER P. GREY, Fort Wayne, Ind., assignor of one-half to Franklin Hovenstein, Fort Wayne, Ind. Filed Aug. 3, 1901. Serial No. 70,231. (No model.)



Claim.—1. In a coin-controlled telephone, an upright chute having a longitudinal open-ended coin-channel therein; a coin-arresting disk revolubly mounted in said coin-channel, having a radial slot for the receiver-hook and a peripheral coin-receiving recess and provided with peripheral lugs at each side of said recess to limit the rotation of said disk as described; a spring-pressed receiver-hook arranged in said slot and adapted to actuate the said disk; a spring-pressed holding-pawl pivotally mounted in said channel in coöperative relation with the said disk; and a coin-receptacle adapted to receive the coins as they are discharged from the said chute.

2. In a device of the class specified, a coin-chute having an open-ended channel through which the coin is fed; a coin-arresting disk revolubly mounted in said channel having a coin-arresting peripheral recess and means for forming a holding engagement with the receiver-hook, and provided with limiting peripheral lugs adjacent to said recess; and a pivoted spring-pressed holding-pawl mounted in said channel in coöperative relation with the said disk.

3. In a coin-chute the combination of a receiver-hook; a coin-arresting disk revolubly mounted in said chute in an actuating engagement with the said hook, and provided with a peripheral coin-receiving recess and with a pair of peripheral lugs for the purpose specified; and a spring-pressed pawl pivotally mounted in said chute and adapted to holdingly engage the said disk.

4. In a device of the class specified a coin-arresting disk revolubly mounted in a coin-chute having a peripheral coin-arresting recess and a pair of peripheral lugs as described; a receiver-hook arranged in an actuating engagement with the said disk; and a spring-pressed pawl mounted in said chute in a coöperative relation with the said disk as described.

5. A coin-chute having a longitudinal coin-channel therein; a coin-arresting disk rotatably mounted in said chute in coöperative relation with an actuating receiver-hook; a receiver-hook engaging said disk and adapted to automatically actuate the same when the receiver is removed therefrom; and means for limiting the forward movement of the said disk against the stress of the said hook.

694,961. ELECTRICAL WEFT-INDICATOR MECHANISM FOR LOOMS. STEPHEN M. HAMBLIN, Central Falls, R. I., assignor to Harry W. Smith, Worcester, Mass. Filed Oct. 12, 1899. Serial No. 733,368. (No model.)



Claim.—1. In combination, a shuttle-body, electrical contacts or feelers within the same, means of electrically bridging the interval between such contacts or feelers on exhaustion or depletion of the yarn-load in the shuttle to a predetermined extent, and gravitating movable contact-pieces in electrical communication with the said electrical contacts or feelers.

2. In combination, a shuttle-body, electrical contacts or feelers within the same, means of electrically bridging the interval between such contacts or feelers on exhaustion or depletion of the yarn-load in the shuttle to a predetermined extent, gravitating movable contact-pieces in electrical communication with the said electrical contacts or feelers, the lay, contact-pieces or terminals applied thereto, coacting with the said movable contact-pieces, and an electric circuit including such contact-pieces on the lay.

3. In combination, a shuttle-body, a filling-carrier composed wholly or in part of conducting material, a pair of electrical spring-feelers carried by the said shuttle-body, adapted to bear against different portions of the yarn-load on said filling-carrier, and placed in electrical communication with each other on making contact with portions of said filling-carrier bared by the unwinding of the yarn, and gravitating movable contact-pieces in electrical communication with the said electrical feelers.

4. In combination, a shuttle-body, a filling-carrier composed wholly or in part of conducting material, a pair of electrical spring-feelers carried by the said shuttle-body, adapted to bear against different portions of the yarn-load on said filling-carrier, and placed in electrical communication with each other on making contact with portions of said filling-carrier bared by the unwinding of the yarn, gravitating movable contact-pieces in electrical communication with the said electrical feelers, the lay, contact-pieces or terminals applied thereto coacting with the said movable contact-pieces, and an electric circuit including such contact-pieces on the lay.

5. In combination, a shuttle-body, electrical contacts or feelers within the same, means of electrically bridging the interval between such contacts or feelers on exhaustion or depletion of the yarn-load in the shuttle to a predetermined extent, and gravitating rotating rings or washers in electrical communication with the said electrical contacts or feelers and constituting movable contact-pieces.

6. In combination, a shuttle-body, electrical contacts or feelers within the same, means of electrically bridging the intervals between such contacts or feelers on exhaustion or depletion of the yarn-load in the shuttle to a predetermined extent, gravitating rotating rings or washers in electrical communication with the said electrical contacts or feelers and constituting movable contact-pieces, the lay, contact-pieces or terminals applied thereto, coacting with the said movable contact-pieces, and an electric circuit including such contact-pieces on the lay.

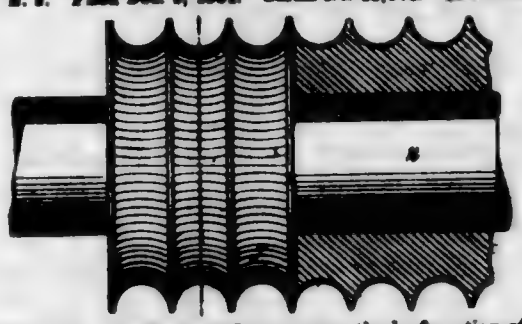
7. In combination, a shuttle-body, electrical contacts or feelers within the same, means of electrically bridging the interval between such contacts or feelers on exhaustion or depletion of the yarn-load in the shuttle to a predetermined extent, and movable contact-pieces in electrical communication with the said electrical contacts or feelers and tending with yielding force to project into their normal positions.

8. In combination, the lay, contact-pieces or terminals applied thereto, an electric circuit including such contact-pieces or terminals, a shuttle-body, electrical contacts or feelers within the same, means for electrically bridging the interval between such contacts or feelers on exhaustion or depletion of the yarn-load in the shuttle to a predetermined extent, and movable contact-pieces carried by the shuttle-body, in electrical communication with the said electrical contacts or feelers, and tending with yielding force to project normally into position to engage with the said contact-pieces or terminals on the lay.

9. In combination, a shuttle-body, a filling-carrier composed wholly or in part of conducting material, a pair of spring-feelers carried by the shuttle-body, adapted to bear against different portions of the yarn-load on said filling-carrier, and placed in electrical communication with each other on coming in contact with portions of said filling-carrier bared by the unwinding of the yarn, and the gravitating rings or washers in electrical communication with the said spring-feelers and constituting movable contact-pieces.

10. In combination, a shuttle-body, a filling-carrier, composed wholly or in part of conducting material, a pair of spring-feelers carried by the shuttle-body, adapted to bear against different portions of the yarn-load on said filling-carrier and placed in electrical communication with each other on coming in contact with portions of said filling-carrier bared by the unwinding of the yarn, the gravitating rings or washers in electrical communication with the said spring-feelers and constituting movable contact-pieces, the lay, contact-pieces or terminals applied thereto, and an electric circuit including the latter contact-pieces or terminals.

694,962. TOBACCO-STEMMING ROLLS. JOSEPH G. HAVENS, Trenton, N. J. Filed Dec. 9, 1901. Serial No. 85,178. (No model.)



Claim.—1. A roll adapted to remove the leaf portion of a tobacco-leaf from the stem, having on its periphery a plurality of circumferential grooves, and within said grooves a multiplicity of small cutting projections, substantially as described.

2. A roll adapted to remove the leaf portion of a tobacco-leaf from the stem, having on its periphery a plurality of circumferential grooves, and within said grooves a multiplicity of small cutting projections formed on said roll-surface and covering the same, substantially as described.

3. A roll adapted to remove the leaf portion of a tobacco-leaf from the stem, having on its periphery a plurality of substantially semicircular grooves and within said grooves a multiplicity of small cutting edges extending transversely said grooves and conforming to the shape thereof, substantially as described.

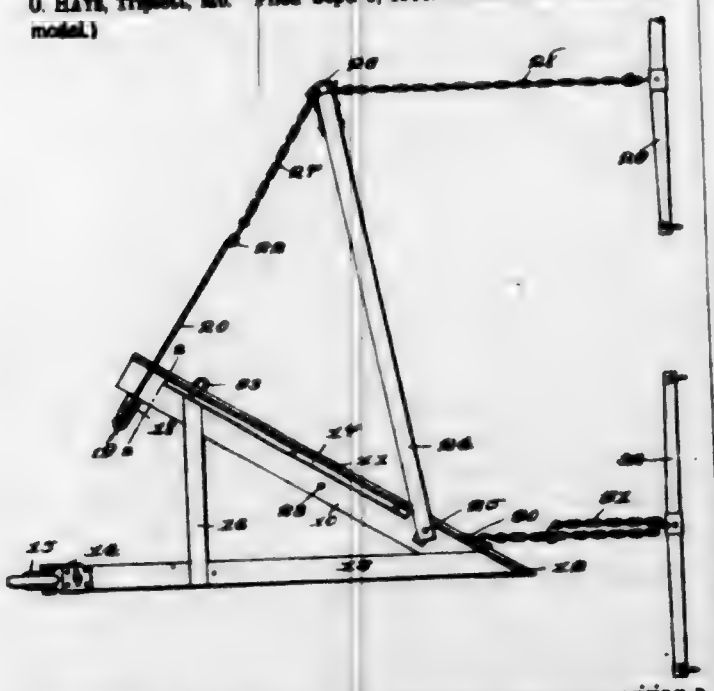
4. A roll adapted to remove the leaf portion of a tobacco-leaf from the stem, having on its periphery a plurality of circumferential flanges having edges adapted to cut the leaf between them, and between said flanges a multiplicity of small cutting projections, substantially as described.

5. The combination in an apparatus for stemming leaf-tobacco of two revolving rolls, each having a plurality of circumferential grooves and within said grooves a multiplicity of small cutting projections on said roll-surface, the said rolls being parallel with the groove of one opposite the groove of the other, to form a plurality of openings for the introduction of the leaf-stem; whereby the leaf is removed from said stems by said cutting projections entirely surrounding said stems, substantially as described.

6. The combination in an apparatus for stemming leaf-tobacco, of two parallel revolving rolls, each having a plurality of circumferential grooves and within said grooves a multiplicity of small cutting projections on said roll-surfaces, the grooves of one roll being opposite the grooves of the other to form a plurality of openings for the introduction of the leaf-stems, and means for conveying said stems longitudinally into said openings; whereby the leaf is removed from said stems by being caused by said means to meet said rapidly-moving cutting projections surrounding said stems, substantially as described.

7. The combination in an apparatus for stemming leaf-tobacco of two parallel revolving rolls each having a plurality of circumferential grooves and within said grooves a multiplicity of small cutting projections on said roll-surfaces, the grooves of one roll being opposite the grooves of the other, and means for conveying said stems longitudinally into said openings, the said rolls revolving in a direction opposite to that in which the leaf is conveyed by said means, and at a speed relatively greater than the speed of conveyance of said leaf; whereby the leaf is removed from said stems by being caused by said means to meet said rapidly-moving cutting projections surrounding said stems, substantially as described.

694,963. COMBINED ROAD GRADER AND SCRAPER. SAMUEL O. HAYS, Triplett, Mo. Filed Sept. 9, 1901. Serial No. 74,736. (No model.)



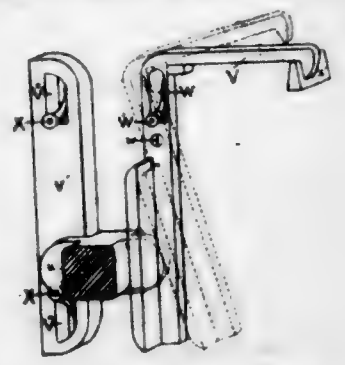
Claim.—1. An improved road grader and scraper comprising a straight body portion to engage the ground-surface, means for attaching independent teams of draft-animals to the opposite end portions of the body, said means for attaching being adjustable as to length so that the teams may advance abreast and either end of the body portion stand in the rear of the other end or so that the body portion may stand at right angles to the line of advance, a bar projecting rearwardly from the body portion and a caster-wheel swiveled in said bar, for the purposes stated.

2. An improved combined road grader and scraper comprising in combination a body portion having a sharp metallic point at one end and a metal blade at its front edge, a bar projecting rearwardly therefrom, a caster-wheel swiveled to the rear end of said bar, means for attaching a team of draft-animals to the end of the body carrying the pointed projection, a brace 24 pivoted to the body portion near the end having the pointed projection and projecting at an acute angle from the body portion, a chain or its equivalent attached to the said brace, and a whiffletree connected therein, and means for connecting the outer end of the brace with the other end of the body portion, for the purposes stated.

3. An improved combined road grader and scraper, comprising in combination a body portion, a metal blade fixed to the lower forward edge thereof, a sharp metal point at one end of the body portion, a bar fixed to the end of the body portion having the sharpened point and projecting rearwardly at an acute angle relative to the body portion and having a handle at its rear end, a caster-wheel swiveled in the rear end portion of the said bar, a bar connecting the rear end of the said bar and the body portion, hooks and staples fixed to the front face of the body portion near its opposite ends a bracket fixed to the rear face of the body portion at the end opposite from the pointed projection, an arm swiveled in said bracket and projecting upwardly over the body portion and in front of it, a brace pivoted to the body portion near its pointed end and projecting forwardly from the body portion at an acute angle relative thereto, means for detachably connecting the outer end of said brace with the said arm, a chain or the like adjustable as to length and detachably connected with the hook or staple near the pointed end of the body portion and having a whiffletree connected therewith, a chain or the like adjustable as to length and detachably connected with the said brace and having a whiffletree connected therewith, arranged and combined in the manner set forth and for the purposes stated.

694,964. ELEVATOR. FREDERICK HEINZE, Sioux City, Iowa, assignor, by mesne assignments, to Jessie H. Heinze, Sioux City, Iowa. Filed May 18, 1901. Serial No. 60,861. (No model.)

Claim.—1. A bar secured to the door of an elevator-cage and capable of a limited lateral movement, said bar having a vertical slot cut longitudinally therethrough and diverging at one end, a bolt adapted to engage said slot and bent so that one end thereof is capable of entering a slot in the wall beside the cage of the elevator, a bolt secured to said first bolt supported by suitable means and adapted to have one end engage the hand-lever of the elevator and secure said lever when said bar is moved, and a lever for moving said bar, substantially as described.



2. A door to an elevator-cage, a bar extending across the inside of said door and capable of a limited lateral movement, said bar having a vertical slot cut longitudinally therethrough and diverging at one end, a bolt having forked extensions which embrace the upper and lower surfaces of said bar and movably secured opposite the hand-lever of the elevator and the other end of said bolt adapted to engage said lever, said forked extensions embracing said bar near the end where said slot diverges, a bolt secured to the ends of said forked extensions passing through said slot and bent in such manner that the end thereof is capable of entering a slot in the wall beside the elevator, and a lever for moving said bar upon the door, substantially as described.

3. A door to an elevator-cage having a latch securing the same, a latch-lever pivotally secured to said door having a lug capable of raising said latch when said lever is turned, a bolt secured at one end to said latch-lever and extending through and beyond said door, a lug near the outer end of said bolt, in combination with the door to the elevator-shaft, a triangular-shaped latch pivotally secured to said shaft-door, securing the same when the door is closed, a bar secured to said door parallel with the vertical part of said latch, and at a sufficient distance from said latch to permit the said bolt to pass between, substantially as described.

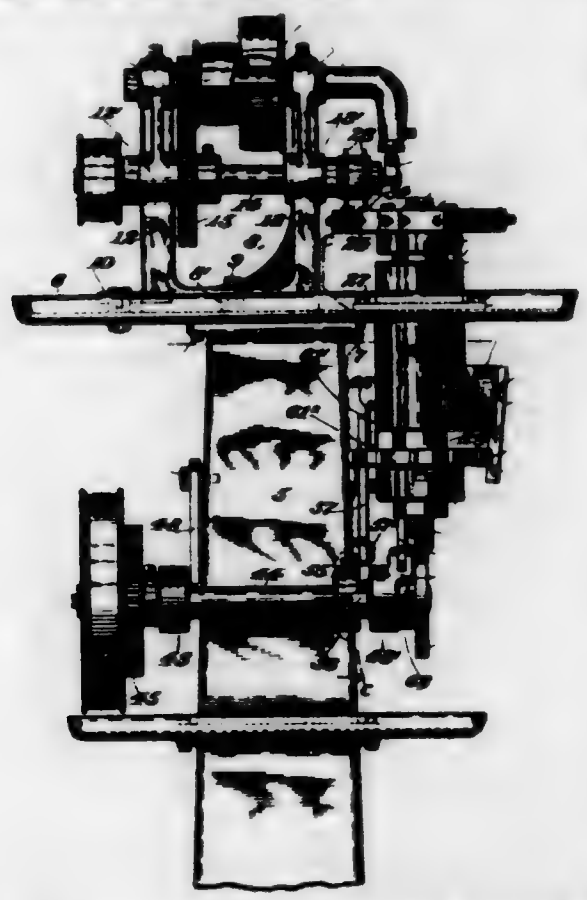
4. A movable bar extending across the inside of a door to an elevator-cage, said bar having a vertical slot cut longitudinally therethrough and diverging outwardly at the end near the hand-lever of the elevator, a bolt operating in the slot of said bar, one end of which is adapted to engage and lock the hand-lever of the elevator when said lever is in a vertical position, a second bolt connected with said first bolt and adapted to enter the wall at the same time and secure the elevator in its position, a lever pivotally secured at one end to said movable bar and at the other end pivotally connected with the latch for securing the door, said lever being adapted when the latch is raised to pull said movable bar into such position that the said first bolt is in the straight part of said slot and is thereby thrown into connection with said hand-lever securing the same, substantially as described.

5. A door to an elevator-cage, a bar movably secured to said door and having a vertical slot cut longitudinally through said bar, said slot diverging outwardly at the end opposite the hand-lever of the elevator, a bolt having forked extensions embracing the upper and lower surfaces of said bar and movably secured opposite said hand-lever, the other end of said bolt being adapted to engage said lever, a bolt secured to the ends of said forked extensions passing through said slot and adapted to have one end engage a slot in the wall beside the elevator a lever pivotally connected at one end to said bar and having pivotal connection at the other end with the latch-lever of said door, a latch-lever pivotally secured to said door and adapted to raise the latch of said door and to move said bar having said slot, a bolt secured to said latch-lever and extending through and beyond said door, said bolt having a lug near the outer end thereof extending at a right angle to said bolt, in combination with the door to the elevator-shaft, a triangular-shaped latch pivotally attached to said door and adapted to secure the same, a bar secured to said door parallel with the free part of said latch and at a sufficient distance from said latch to permit said bolt to pass between, substantially as described.

6. A door to an elevator-cage adapted to slide on suitable rollers, a bar J extending across the lower part of said door and adapted to be moved laterally on said door, said bar having a vertical slot cut longitudinally therethrough and diverging toward said door at the rear end thereof, an arc-shaped bar G' secured to the hand-lever of said elevator a short distance above the elevator-floor, said bar having an opening in the part secured to said lever, a bolt M having forked extensions N, N, movably supported opposite said bar by suitable means and adapted to engage the

opening in said bar G', the forked extensions N, N embracing said bar J, a bolt O secured to the ends of said forked extensions passing through said slot *j*, and bent so as to engage a slot in the wall beside said elevator, suitable means for movably supporting said bolt, a lever P pivotally secured at one end to said bar J and at the other end to a triangular-shaped lever R, a lever R pivotally secured near the center to said door, the other end of said lever being pivotally secured to a lever S, said lever S being pivotally secured to a latch-lever T, a latch-lever T pivotally secured to said door, having a round central part and an extension *l* with handle *v*, and an extension *u* with lug *u'* adapted to lift the latch when the lever is turned, a bolt *s* secured to the round central part of said latch-lever and extending through and beyond said door, said bolt *s* having a lug *u* near the outer end of said bolt extending at a right angle to said bolt and in the opposite direction from said extension *l*, in combination with a door to the elevator-shaft, a triangular-shaped latch V adapted to secure said door by connection with the catch *x'*, said latch being pivotally secured to said door, a bar V' secured to said door parallel with the vertical part of said latch, and at a sufficient distance therefrom to permit said bolt *s* to pass between, and means for regulating the distance between said latch and bar, substantially as described.

694,985. **BLANK-SLOTTING MACHINE.** EDWIN C. HESS, Bloomfield, Conn., assignor, by mesne assignments, to National Acme-Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. Filed May 16, 1901. Serial No. 60,608. (No model.)



Claim.—1. In a machine of the class specified, the combination, with a carrier having a series of sets of openings for receiving blanks, of means for reciprocating said carrier; means for slotting the heads of the blanks contained in said carrier; blank-ejectors; and means for actuating said ejectors at a speed different from that of the carrier during its reciprocatory motion.

2. In a machine of the class specified, the combination, with a carrier having seats for blanks, of a cutter for slotting the heads of said blanks; means for reciprocating the carrier to force the blanks against said cutter; a blank-ejector; and means for causing said ejector to advance in the direction in which the carrier is moving at an accelerated speed, whereby slotted blanks are discharged from said carrier.

3. In a machine of the class specified, the combination, with a carrier having sets of concentrically-arranged openings for the reception of blanks, of cutters for simultaneously slotting the heads of a plurality of said blanks; a support for the carrier; means for advancing the carrier-support to cause the blanks to be forced against the cutter; means for intermittently rotating the carrier; a head carrying blank-ejecting plungers; and means controlled by said carrier-support for actuating said head.

4. In a machine of the class specified, the combination, with an intermittingly-rotatable carrier having a series of pockets for the reception of blanks, of a cutter for slotting the heads of said blanks; means for reciprocating the carrier to force the blanks against the cutter; a blank-ejector, and means for actuating said ejector at a speed different from that of the carrier, substantially as specified.

5. In a machine of the class specified, the combination, with a carrier having a series of pockets for receiving the blanks, of means for rotating said carrier; a cutter; means for actuating said cutter to cause it to form a slot in the head of a blank; means for reciprocating the carrier to force the blank against the cutter; an ejector; and means for actuating said ejector at a speed different from that of the carrier.

6. In a machine of the class specified, the combination, with a carrier having seats for blanks, of a support for said carrier; a cutter; means for reciprocating the carrier-support; a device on said carrier-support; a blank-ejector; and means operated by the device on the carrier-support for actuating said ejector.

7. In a machine of the class specified, the combination, with a pair of cutters, of an intermittently-rotatable carrier having a series of concentric pockets for receiving blanks; a carrier-support; means for reciprocating said support to cause the carrier to force a plurality of blanks against the cutters; a plurality of ejecters working through the pockets of the carrier; and means for actuating said ejecters at a speed different from that of the carrier in its reciprocatory movement.

8. In a machine of the class specified, the combination, with a rotatable carrier having pockets for receiving blanks, of a shaft to which the carrier is secured; means for reciprocating said shaft; means for intermittently rotating the shaft; means for adjusting the cutter to position it properly with respect to the blank to be slotted; a blank-ejector; and means for actuating said ejector to cause it to move with accelerated speed relatively to the reciprocatory movement of the carrier in ejecting the blanks.

9. In a machine of the class specified, the combination, with a vertical shaft, of a carrier secured to one end of said shaft; means for reciprocating the shaft and carrier; means for intermittingly rotating the shaft; a cutter; means for actuating said cutter; means for adjusting the cutter with relation to the carrier; and means for ejecting the blanks from the carrier.

10. In a machine of the class specified, the combination, with framework, of a head secured to said framework; a cutter rotatably mounted in the head; a carrier having a series of pockets for the reception of blanks; means for intermittingly rotating said carrier; means for advancing the carrier to force the blanks, *serintim*, against the cutter; a device for ejecting the slotted blanks; and means for actuating said device at a speed different from that of the advancing movement of the carrier.

11. The combination, with a cutter, and with means for actuating said cutter, of an intermittingly-movable blank-carrier having a series of pockets for receiving blanks; means for actuating said blank-carrier step by step; a vertical shaft to which the blank-carrier is secured; means for reciprocating said shaft and carrier to cause the latter to advance the blanks against the cutter; and means for ejecting the blanks after they have been operated upon by said cutter, said means operating at a speed different from that of the shaft.

12. The combination with a series of cutters, and with means for rotating said cutters, of a carrier having pockets to receive blanks; a shaft to which said carrier is secured; means for reciprocating said shaft; means for intermittingly rotating the shaft; a blank-ejecter working through the pockets of the carrier; and means for actuating said ejecter at a speed different from that of the reciprocatory movement of the shaft and carrier.

13. In a slotting-machine, the combination, with an intermittingly-rotatable carrier having seats for blanks, of means for reciprocating said carrier; means for ejecting the blanks from the seats of the carrier; and devices for actuating the blank-ejecting means at a speed different from that of the reciprocatory movement of the carrier.

14. In a slotting-machine, the combination, with a cutter, of means for actuating said cutter; a blank-carrier; means for intermittingly rotating said carrier; means for reciprocating the carrier to force the blanks against the cutter; a blank-ejecting plunger; and lever mechanism for actuating said plunger.

15. In a slotting-machine, the combination, with a carrier having seats for the blanks, of an ejecting-plunger working in said seats; lever-and-link mechanism for actuating said plunger; a shaft to which the carrier is secured; means for rotating said shaft; and means for reciprocating said shaft.

16. In a slotting-machine, the combination, with a carrier having seats for the blanks, of a plunger working in said seats; lever mechanism for reciprocating the plunger to cause it to eject the blanks; means for positively withdrawing said plunger from the seats in the carrier; means for rotating the carrier; and means for reciprocating the carrier.

17. In a machine for slotting blanks, the combination, with a carrier having seats for said blanks, of an ejecting-plunger; means for actuating said plunger to cause it to eject the blanks; means for positively withdrawing the plunger; a cutter for slotting the blanks; means for actuating the carrier to force the blanks against the cutter; and means for intermittingly actuating the carrier to bring the blanks into line with the cutter.

18. In a machine for slotting blanks, the combination, with a carrier, of means for intermittingly rotating said carrier; lever mechanism actuated by a part of said means; means for reciprocating the carrier and a blank-ejector actuated by said lever mechanism.

19. The combination, with a carrier having seats for the reception of blanks, of a shaft to which the carrier is secured; means for reciprocating said shaft; a device secured to the shaft; lever mechanism actuated by said device; and a blank-ejecting plunger actuated by said lever mechanism.

20. The combination, with a carrier having seats for the reception of blanks, of a shaft to which the carrier is secured; means for reciprocating said shaft; a ratchet-wheel secured to the shaft; a pawl for actuating said ratchet-wheel; lever mechanism actuated by the ratchet-wheel; and a blank-ejector controlled by said lever mechanism.

21. The combination, with a blank-carrier, and with means for reciprocating the same, of a blank-ejecting plunger; a pivoted lever; a link; a second pivoted lever; and means for actuating said second lever.

22. The combination, with an intermittingly-actuated carrier having a series of seats for the reception of blanks and with means for reciprocating said carrier, of a blank-ejecting plunger; a pivoted lever for actuating said plunger; a device connected with said pivoted lever; and reciprocatory means for actuating said device.

23. The combination, with a carrier having seats for the reception of blanks, of a shaft to which said carrier is secured; a blank-ejecting plunger; lever mechanism for actuating said plunger; a device carried by the shaft for operating said lever mechanism; and means for reciprocating the shaft.

24. The combination with a carrier having seats for the reception of blanks, of a shaft to which said carrier is secured; means for reciprocating said shaft; a ratchet-wheel secured to said shaft; a pawl for turning the ratchet-wheel; means for actuating the pawl; lever mechanism actuated by the ratchet-wheel; and a blank-ejecting plunger controlled by the lever mechanism.

25. The combination, with a carrier having seats for the reception of blanks, of a shaft to which the carrier is secured; a cam for reciprocating said shaft; a blank-ejecting plunger; lever mechanism for actuating said plunger; and a device carried by the shaft and adapted to actuate said lever mechanism.

26. The combination, with a carrier having parallel rows of seats for the reception of blanks, of cutters for simultaneously slotting a plurality of blanks; means for actuating the carrier to force the blanks against the cutters; means for intermittingly moving said carrier to bring the blanks into line with said cutters; a device for ejecting the blanks; and lever-and-link mechanism for actuating said device.

27. The combination, with a carrier having concentric rows of seats for the reception of blanks, of cutters for simultaneously slotting a plurality of said blanks; means for reciprocating the carrier to force the blanks against the cutters; means for intermittingly rotating the carrier; a device for ejecting the blanks; and lever-and-link mechanism for actuating said device.

28. The combination, with a carrier having concentric rows of seats for the reception of blanks, of rotary cutters for simultaneously slotting a plurality of said blanks; a cam for controlling the reciprocatory movement of the carrier; ratchet-and-pawl mechanism for intermittingly rotating said cutter; a device for ejecting the blanks; and lever-and-link mechanism for actuating said device.

29. The combination, with a carrier having concentric rows of seats for the reception of blanks, of a shaft; a pair of cutters carried by the shaft; means for rotating the shaft and cutters; means for reciprocating the carrier; means for intermittingly rotating the carrier; a head; a pair of blank-ejecting plungers carried by said head; and means for reciprocating the head.

30. The combination, with a carrier having parallel rows of blank-receiving seats, of cutters for simultaneously slotting a plurality of blanks; means for reciprocating the carrier to force the blanks against the cutters; means for intermittingly rotating the carrier; a plurality of blank-ejecting plungers; a lever for simultaneously reciprocating said plungers; and cam-and-lever mechanism coöperating with said lever, and serving positively to withdraw the plungers.

31. The combination, with framework, of a head; a shaft and a cutter carried by the head; means for adjusting the head; a dial-plate or carrier having seats for the reception of blanks; a shaft to which said dial-plate or carrier is secured; means for reciprocating said shaft; means for intermittingly rotating said shaft; and a blank-ejector traveling at a speed greater than that of the shaft.

32. The combination, with a dial-plate having seats for blanks, of a shaft to which the dial-plate is secured; means for reciprocating said shaft; a head adjustably mounted on the frame; a cutter and means for actuating the same carried by the head; a ratchet-wheel carried by the shaft; means for intermittently actuating said ratchet-wheel; an ejector for discharging finished blanks from the seats in the carrier; and means operative by the ratchet-wheel for actuating said ejector.

33. The combination, with a head, of a shaft journaled in said head; a cutter secured to the shaft; gearing for rotating the cutter shaft; a device having seats for blanks; a shaft to which said device is secured; means for reciprocating said shaft; devices for intermittently turning the shaft; a blank-ejector; and means operative by one of the shaft-turning devices for actuating said ejector.

34. The combination, with an intermittingly-movable carrier having seats for blanks, of means for reciprocating said carrier; a blank-ejecting plunger; a pair of pivoted levers; a link connecting said levers; means for actuating said levers to cause the plunger to eject a blank; and means for actuating said levers to cause them positively to withdraw said plunger.

35. In a blank-slotting machine, the combination, with a reciprocatory shaft, of a sleeve in which said shaft is mounted; a carrier having seats for the blanks; a blank-ejecting plunger; a pair of connected levers for operating said plunger in one direction; a device carried by the shaft for actuating said levers; a pivoted lever connected to one of said pair of levers; and a cam for actuating said pivoted lever.

36. In a machine for slotting blanks, the combination, with a cutter, of means for actuating said cutter; a shaft; a carrier having seats for blanks secured to one end of said shaft; a ratchet-wheel secured to the shaft; means for reciprocating the shaft; a blank-ejecting plunger; a pair of pivoted levers, a portion of one of which is in contact with the ratchet-wheel, and the other of which is connected to the plunger; a link articulated to each of said levers; means for reciprocating the shaft; a pawl for engaging the ratchet-wheel to rotate said shaft; and means for actuating said pawl.

37. The combination, with a carrier, of a shaft to which said carrier is secured, a ratchet-wheel also secured to said shaft; a reciprocatory pawl adapted to engage the teeth of said ratchet-wheel, said pawl carrying an antifriction-roller; an angular lever pivoted to the frame, one arm of said lever being in engagement with the roller of the pawl; a cam for actuating the lever in one direction; and a spring for retracting said pawl and lever.

38. The combination, with a shaft, of a carrier having seats for blanks secured to the upper end of said shaft; a cutter for slotting said blanks; a cam for reciprocating the shaft; a ratchet-wheel secured to the shaft adjacent to its lower end; a pull-pawl for intermittingly actuating said ratchet-wheel; an angular lever for reciprocating said pawl; and a cam for actuating said lever.

39. The combination, with a cutter, of a carrier having seats for blanks; a shaft to the upper end of which said carrier is secured; a ratchet-wheel secured to said shaft; blank-ejecting plungers; a pair of connected levers for actuating said plungers; a cam for reciprocating the shaft; a ratchet-wheel secured to the shaft; and means for turning the ratchet-wheel.

40. The combination, with an intermittingly-rotatable carrier, of means for reciprocating said carrier; a support for the carrier; a ratchet-wheel connected to said support; a reciprocatory pawl adapted to engage the ratchet-wheel when the support and carrier are in their normal positions; an angular lever for actuating said pawl; means for actuating said lever; and means for returning said pawl and lever after they have been actuated.

41. The combination, with a shaft, of a sleeve secured to the framework and in which said shaft is mounted for rotary and reciprocatory movements; a carrier having seats for blanks secured to one end of said shaft; a ratchet-wheel fixed to the shaft adjacent to its opposite end; a cam for reciprocating the shaft; a cutter for slotting the blanks located in the seats of the carrier; a reciprocatory pawl adapted to engage the ratchet-wheel of the shaft; an angular lever pivoted to the framework for actuating said pawl; and a cam for operating said lever.

42. The combination, with a shaft, of a sleeve in which said shaft is mounted for rotative and reciprocative movements; a carrier having seats for blanks secured to one end of said shaft; a ratchet-wheel secured to said shaft at one side of the sleeve; a rotary shaft journaled in bearings of the frame; a cam carried by said shaft; a pawl for intermittingly actuating the ratchet-wheel; means for actuating said pawl; a stop-pawl carried by the sleeve, and serving to prevent reverse action of the ratchet-wheel; a head; a shaft journaled in said head; a cutter carried by said shaft; and means for rotating the shaft.

43. The combination, with a shaft, of a blank-carrier secured to said shaft; a ratchet-wheel carried by the shaft; a device for intermittingly turning said ratchet-wheel; a lever pivoted to a part of the frame, and having a nose bearing against the ratchet-wheel; a link articulated to said pivoted lever; a head carrying a blank-ejector; and a pivoted lever connected to the head and link.

44. The combination, with a shaft mounted for rotative and reciprocative movements, of means for reciprocating said shaft; means for intermittingly rotating the shaft; a carrier having concentric rows of seats for the reception of blanks; a head secured to the framework; a rotary shaft

journaled in bearings of the head; cutters carried by said rotary shaft; blank-ejectors; and means for actuating said ejectors.

45. The combination, with a pedestal, of a pan secured to the top thereof; a head mounted on said pan; a rotary shaft, carrying a cutter, journaled in the head; a sleeve projecting from the pan; a shaft mounted for rotative and reciprocatory movements in the sleeve; a carrier having seats for the reception of blanks, said carrier being secured to the shaft; means for rotating the carrier-shaft; and means for reciprocating said carrier-shaft.

46. The combination, with a shaft, of a blank-carrier secured thereto; a ratchet-wheel also secured to said shaft; a pull-pawl; an angular lever pivoted to the frame, one arm of which is in engagement with a projection of the pawl; a cam operating against the other arm of said lever; and a spring for returning the pawl and lever to their normal positions.

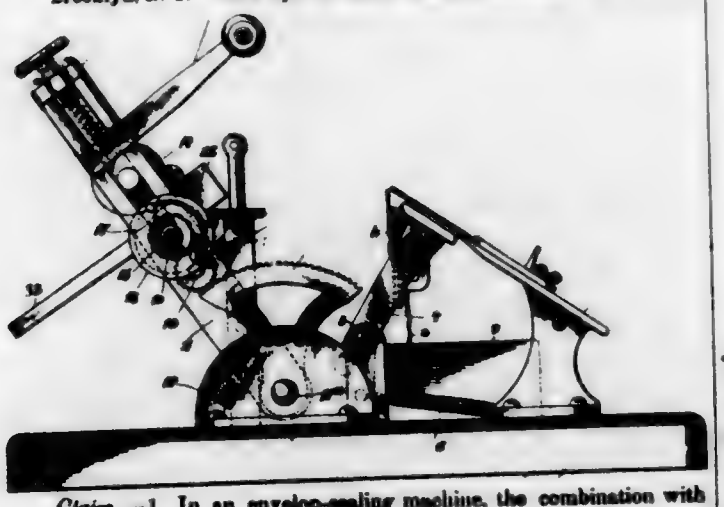
47. The combination, with a shaft, of a carrier having seats for the reception of blanks, said carrier being secured to the upper end of the shaft; a cutter for slotting the blanks; a sleeve in which the shaft is fitted for sliding and rotative movements; a ratchet-wheel secured to the shaft at one side of the sleeve; a cam for reciprocating the shaft; a pawl for turning the ratchet-wheel; a lever for actuating said pawl; a cam for actuating said lever; a blank-ejector; and compound linkage for actuating said ejector, one member of said linkage being actuated by the ratchet-wheel when the shaft is reciprocated.

48. The combination, with a carrier having seats for the reception of blanks, of means for reciprocating said carrier; a blank-ejector; compound linkage for actuating said ejector in one direction; and lever-and-cam mechanism for positively withdrawing the ejector.

49. In a machine of the class specified, the combination, with framework, of a pan secured to the top of said framework; a head adjustably mounted on said pan; means for adjusting the head; a shaft journaled on bearings of the head; cutters carried by the shaft; gearing located in the head, and serving to rotate said shaft; a dial-plate or carrier having a series of concentric seats for the reception of blanks; a shaft to which the dial-plate or carrier is secured; a ratchet-wheel attached to the lower end of said shaft; a stem projecting from the shaft and carrying an antifriction-roller; a shaft journaled in bearings of the frame; a cam secured to said shaft, the periphery of which is in contact with said antifriction-roller; means for rotating the cam-shaft; a pawl for actuating the ratchet-wheel; and means for actuating said pawl.

50. In a blank-slotting machine, the combination, with a sleeve depending from the framework, of a shaft mounted in said sleeve; a carrier having a series of seats for the reception of blanks, said carrier being secured to the upper end of said shaft; a ratchet-wheel secured adjacent to the lower end of the shaft; a lever pivoted to the sleeve, and having a depending portion in contact with said ratchet-wheel; a link pivoted to the opposite end of said lever; a pivoted lever articulated to said link at one end; a head to which the opposite end of said pivoted lever is connected; and a pair of blank-ejecting plungers carried by said head.

694,966. ENVELOP-SEALING MACHINE. ALFRED REYDRICH, Brooklyn, N. Y. Filed Apr. 18, 1901. Serial No. 56,401. (No model.)



Claim.—1. In an envelop-sealing machine, the combination with suitable moistening and sealing devices of a two-part envelop-receiving table, one of the said parts being mounted to swing out of the way of the sealing devices, substantially as described.

2. In an envelop-sealing machine, the combination with movable sealing devices of a two-part envelop-receiving table, one of the said parts being movable to swing out of the way of the sealing devices, and a moistening device carried by the movable part of the table.

3. In an envelop-sealing machine, the combination of movable sealing devices, an envelop-receiving table having a stationary and a movable section, a moistening device carried by the movable section of the envelop-receiving table, and means carried by the supporting means of the sealing devices for moving the moistening device to permit the envelop to be seized by the sealing means.

4. In a machine for sealing envelops, the combination of an envelop-receiving table, a moistening device, sealing devices and a pressure device for pressing the envelop-flap against the moistening device, comprising in its structure a roller device and longitudinally-moving swinging supports for the said roller device.

5. In a machine for sealing envelops, the combination of an envelop-receiving table, a moistening device, sealing devices and a movably-mounted pressure device including a roller for pressing the envelop-flap against the moistening device, and comprising in its structure a spring for throwing the roller forward and adjusting means for adjusting the tension of the spring.

6. In an envelop-sealing machine, the combination of an envelop-receiving table comprising a stationary section and a movable section, a moistening device carried by the movable section of said table and normally in position for moistening the flap of the envelop, sealing devices having a bodily movement to and from said table, and means operated by the movement of the sealing devices for moving the moistening device out of the path of the sealing devices.

7. In a machine for sealing envelops, the combination of an envelop-receiving table, a movable moistening device, a sealing device having a bodily movement, and a pressure device movable across the moistening device and operatively connected to the sealing device, whereby, upon movement of the sealing device, the pressure device will be caused to traverse the envelop-flap, combined with means for moving the moistening device by the movement of the sealing device in harmony with the movement of the pressing device.

8. In an envelop-sealing machine, the combination with a table for receiving envelops having a swinging part, a swinging carrier, envelop-sealing devices carried by the said carrier, a moistening device carried by the supports for the swinging part of the table, and a pressing device pivotally carried independently of the support for the sealing device and pivotally connected to the said support for the sealing device, said pressing device being arranged to press the envelop-flap against the moistening device, substantially as described for the purposes set forth.

9. A pressing device for pressing the flap of an envelop against a moistening-pad, comprising in its structure a phalanx of rollers of less width than the width of the moistening-pad, and a spring-pressed carrying means for the said rollers.

10. In an envelop-sealing machine, the combination of a moistening-pad, of a pressing device movable bodily across the said pad and comprising in its structure a spring-pressed roller device and means for adjusting the spring tension thereof.

694,967. OPTICAL TOY. WILLIAM JENKINS, London, England. Filed June 17, 1901. Serial No. 64,297. (No model.)



Claim.—The combination of a silvered glass C, with block E, pivot J, spring G, lever F, and figure D, substantially as described and shown.

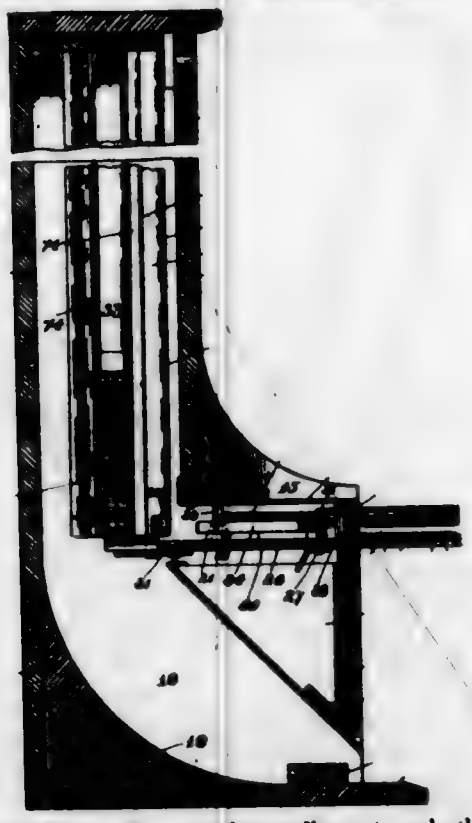
694,968. VENDING-MACHINE. GEORGE L. W. JOHNSON, Malden, Mass. Filed Apr. 29, 1901. Serial No. 57,578. (No model.)

Claim.—1. In a vending-machine, two chutes, mechanism to eject the lowermost article from a column of articles in one of said chutes, and means to guide said mechanism in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

2. In a vending-machine, two chutes, mechanism to eject the lowermost article from a column of articles in one of said chutes, and means contained within said first chute to guide said mechanism in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

3. In a vending-machine, two chutes, mechanism to eject the lower-

most article from a column of articles in one of said chutes, and a follower having an incline thereon adapted to guide said mechanism in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.



4. In a vending-machine, two chutes adjacent to each other, the end guide-walls of one of said chutes located out of line with the end guide-walls of the other of said chutes.

5. In a vending-machine, two chutes adjacent to each other, the side walls of one of said chutes located at an angle to the side walls of the other of said chutes.

6. In a vending-machine, two chutes adjacent to each other, the side walls of one of said chutes located at an angle to the side walls of the other of said chutes, and the end guide-walls of one of said chutes located out of line with the end guide-walls of the other of said chutes.

7. In a vending-machine, two chutes, a push-finger, mechanism to impart a reciprocating motion to said push-finger, whereby said finger ejects the lowermost article from a column of articles in one of said chutes, and means to guide said push-finger in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

8. In a vending-machine, two chutes, a push-finger, mechanism to impart a reciprocating motion to said push-finger and carry the same beneath one of said chutes, and means to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

9. In a vending-machine, two chutes, a push-finger, mechanism to impart a reciprocating motion to said push-finger, whereby said finger ejects the lowermost article from a column of articles in one of said chutes, and means contained within said first chute to guide said push-finger in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

10. In a vending-machine, two chutes, a reciprocatory slide, a push-finger pivoted to said slide and arranged to pass beneath one of said chutes, and means to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

11. In a vending-machine, two chutes adjacent to each other, a push-finger, mechanism to impart a reciprocating motion to said push-finger and carry the same beneath one of said chutes, and means contained within said first chute to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

12. In a vending-machine, two chutes adjacent to each other, a reciprocatory slide, a push-finger pivoted to said slide and arranged to pass beneath one of said chutes, and means contained within said first chute to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

13. In a vending-machine, two chutes, a push-finger, mechanism to impart a reciprocating motion to said push-finger whereby said finger ejects the lowermost article from a column of articles in one of said chutes, and a follower having an incline thereon, within said first chute, adapted to guide said push-finger in the proper direction to eject the lowermost article from a column of articles in the second chute after said first chute has been emptied.

14. In a vending-machine, two chutes adjacent to each other, a push-finger, mechanism to impart a reciprocatory motion to said push-finger and carry the same beneath one of said chutes, and a follower having an incline thereon contained within said first chute adapted to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

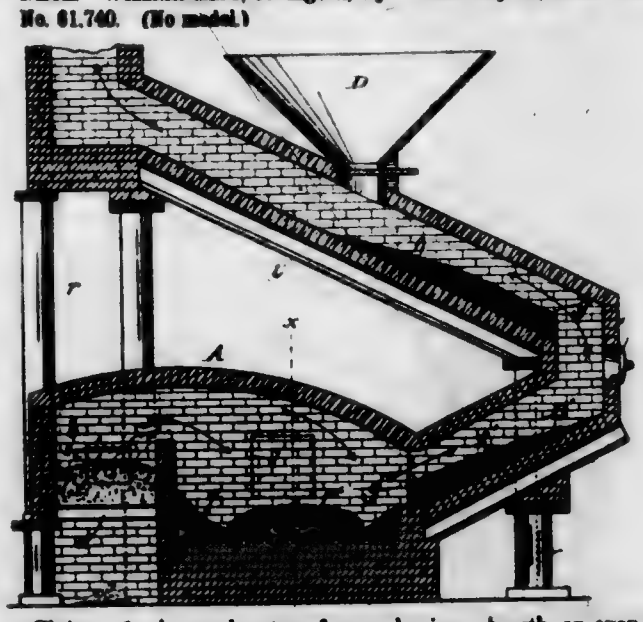
15. In a vending-machine, two chutes, a reciprocatory slide, a push-finger pivoted to said slide and arranged to pass beneath one of said chutes, and a follower having an incline thereon contained within said first chute and adapted to guide said push-finger beneath the second of said chutes after said first chute has been emptied.

694,969. FINGER-GUARD FOR REVOLVERS. ARTHUR A. KEMP, Loretta, Okla. Filed Nov. 9, 1900. Serial No. 35,968. (No model.)



Claim.—A firearm including as one of its elements, a movable loading-gate having in its forward face a dovetail groove 16, and a combined handle, finger-guard and hanger 15 consisting of a curved plate extended forward beyond the juncture of the cylinder and barrel and at its rear end being curved inwardly to form shoulders to rest against the outer edge of the gate, said rear end being bent transversely to the line of the main body of the device and having a narrowed tapering end 15′ adapted to said dovetail groove, and a retaining-screw passing through said plate into the body of the gate, substantially as and for the purpose set forth.

694,970. REVERBERATORY PUDDLING OR BOILING FURNACE. WILLIAM KENT, Covington, Ky. Filed May 24, 1901. Serial No. 61,740. (No model.)



Claim.—1. A reverberatory furnace having a hearth, an open flue connected thereto for escaping flames and for feeding a charge to the hearth, inclined to allow the ore to slide by gravity thereto, means for introducing the charge into the flue by gravity and a removable gate of less height than the flue to hold the charge in place on the floor of the flue, without interrupting the draft.

2. A furnace having a hearth and several inclined connecting-flues arranged in vertical series between the hearth and the chimney intersecting at an angle with each other, means for introducing a charge of metal into the uppermost of the flues, means for retaining it in place on the inclined floor of each flue and for releasing the charge to slide downward into the lower flues and into the hearth.

3. A reverberatory furnace having a hearth and two inclined flues directly connecting therewith and intersecting at an acute angle, means for retaining and releasing a charge of metal on the inclined floor of each flue and an opening in the elbow of the flues for the introduction of a tool to rake the bottoms of both flues.

4. A furnace having a hearth and several inclined draft and charging flues directly connecting therewith, a hopper for introducing a metal charge into the flue and removable stops manipulable from outside to retain the charge on the inclined floors of the flues to heat the same before introducing into the hearth by the escaping flames from the hearth.

5. A furnace having a reverberatory melting-chamber, a fire-chamber, a chimney over the fire-chamber, two intersecting inclined flues connecting the melting-chamber and the chimney, means for introducing a charge for the furnace into the upper flue and means for retaining and releasing the charge on the inclined floors of the flues, whereby a heated fresh charge is fed to the melting-chamber without opening the same to outside air or interrupting the draft.

6. A reverberatory furnace having a hearth and open flues for conducting off the flames therefrom, said flues being sufficiently inclined to allow a charge of metal to slide therein and fall by gravity into the hearth and having removable stops or gates of less height than the flue, located at various distances from the hearth for retaining charges in the flues subject to the action of the flames and releasing the charges at pleasure, to slide into the hearth, without opening to the outside air.

7. A furnace having a reverberatory melting-chamber, a fire-chamber, an inclined flue-section proceeding from the melting-chamber and a returning-section oppositely inclined and connecting the first section with a chimney, each flue-section being open for full draft and having therein removable stops of less height than the flue to temporarily retain on its floor a charge of metal to be heated by the flames before introduction to the melting-chamber.

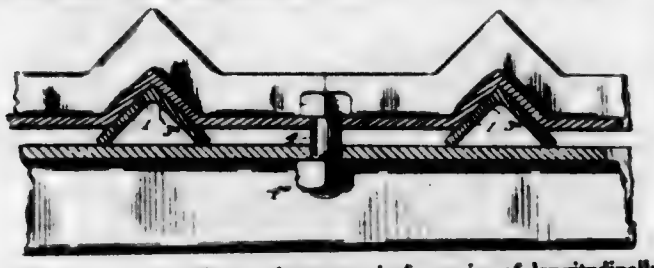
694,971. RECTAL INSTRUMENT. SAMUEL L. KEELER, Los Angeles, Cal. Filed July 8, 1901. Serial No. 67,565. (No model.)



Claim.—1. In an instrument for applying unguents to the rectum, the combination of an imperforate hollow pear-shaped reservoir provided with an opening in its base for the introduction therein of an unguent, of a hollow stem of uniform diameter opening into said reservoir and removably connected to the base of the reservoir and being of less diameter than the largest diameter of the reservoir, said stem being closed at its other end and being provided with a base-piece affixed to the closed end of the stem and perforations intermediate the base-piece and reservoir.

2. In a rectal instrument the combination with an imperforate hollow reservoir provided with a screw-threaded opening at its base, with a hollow perforate stem of uniform diameter opening into the reservoir and being of less diameter than the largest diameter of the reservoir and closed at its other end; said stem being provided at its closed end with a base-piece.

694,972. RAILROAD CATTLE-GUARD. VICTOR S. KLICK, Columbus, Ohio. Filed Aug. 20, 1901. Serial No. 73,768. (No model.)

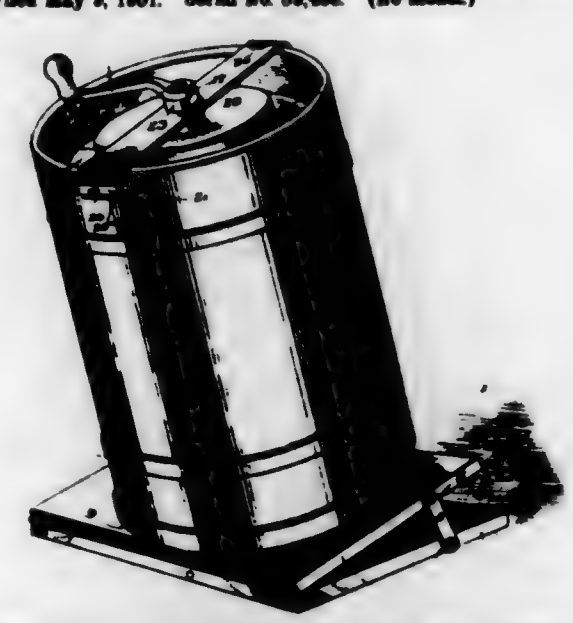


Claim.—1. A cattle-guard composed of a series of longitudinally-arranged angle-bars, cross-bars upon which said longitudinally-arranged bars rest, and a clamping-piece recessed to fit upon the longitudinally-arranged bars, and means securing the clamping-piece to the cross-bars, substantially as described.

2. A cattle-guard composed of a series of longitudinally-arranged angle-bars, cross-bars upon which said longitudinally-arranged bars rest, and a clamping-piece made with recesses shallower than the perpendicular depth of the longitudinally-arranged bars with means securing the clamping-piece, substantially as described.

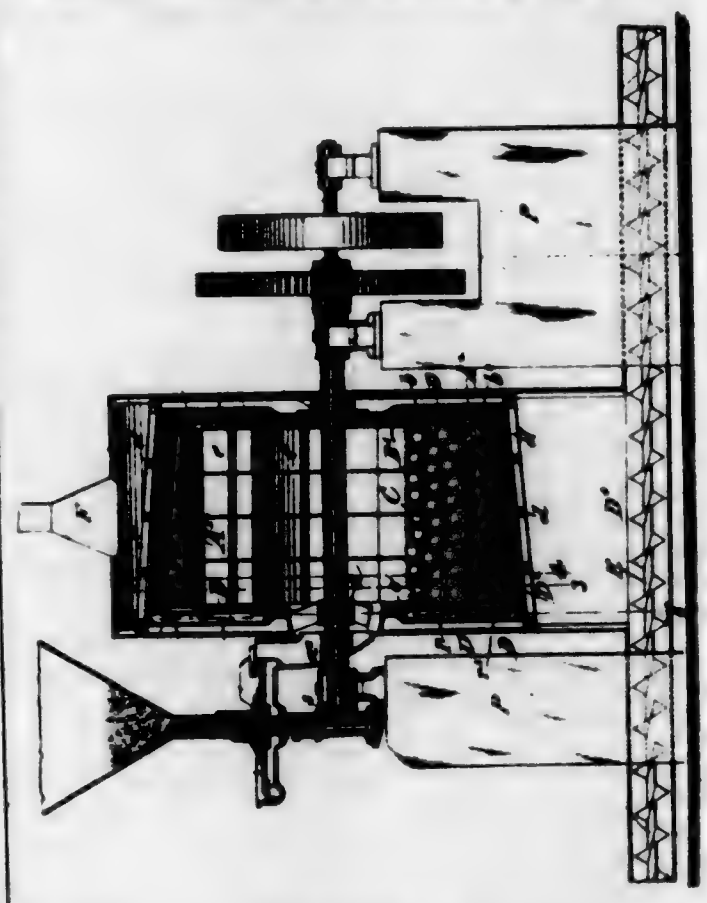
3. In a cattle-guard comprising longitudinal and cross bars, a clamping-piece 3 to secure the longitudinal bars to the cross-bars, said clamping-piece having recesses 3^a and ribs 3^b, substantially as described.

694,973. ICE-CREAM FREEZER. BURCHARD KUHL, Orlando, Fla. Filed May 9, 1901. Serial No. 59,466. (No model.)



Claim.—In a device of the class described, the combination with a stationary outer receptacle provided at its bottom with a bearing, an inner rotary receptacle journaled in the said bearing and provided at its bottom with an interior socket, a rotary can provided with a depending projection interlocked with the said socket, a stationary frame having a blade and provided at its top with an upwardly-extending sleeve projecting through the can and detachably connected with the stationary outer receptacle, and a shaft extending through the sleeve and interlocked with the bottom of the can and provided with means for rotating it, substantially as described.

694,974. BALL GRINDING-MILL. PAUL T. LEINGANG, Richmond Hill, N. Y. Filed Dec. 28, 1900. Serial No. 41,330. (No model.)



Claim.—1. In a ball grinding-mill, the combination of a rotary grinding-drum having a closed circumference, grinding-balls therein, the inlet and outlet heads of said drum being provided with inlet and discharge openings respectively, screens rotating with the drum and delivering toward the inlet-head, said screens communicating both with the inlet and discharge openings of the grinding-drum, substantially as described.

2. In a ball grinding-mill, the combination of a rotary grinding-drum having a closed circumference, grinding-balls in said drum, the inlet and outlet heads of said drum being provided with inlet and discharge openings respectively, screens arranged around and rotating with said drum, and inclined toward the inlet-head of the same, and means for con-

ducting the material rejected by said screens from the delivery ends of the same to said inlet-openings, substantially as set forth.

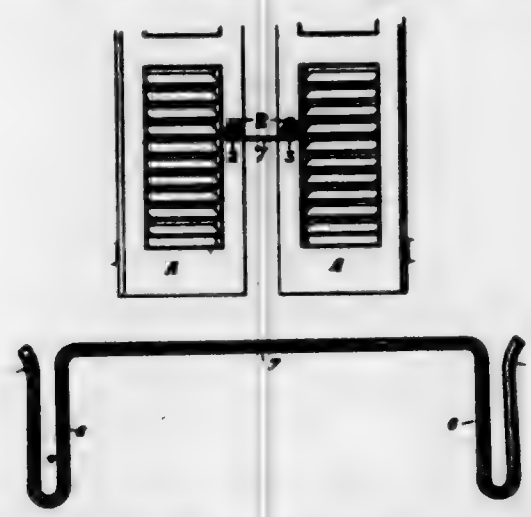
3. In a ball grinding-mill, the combination of a rotary grinding-drum having a closed circumference, grinding-balls in said drum, the inlet and outlet heads of said drum being provided with inlet and discharge openings respectively, screens arranged around the drum and rotating therewith, said screens being inclined toward the inlet-head, and having their delivery ends located adjacent thereto, and ribs on said head between the screens and said inlet-openings for conducting the material rejected by the screens into said inlet-openings of the head, substantially as set forth.

4. In a ball grinding-mill, the combination of a rotary grinding-drum having a closed circumference, grinding-balls in said drum, the inlet and outlet heads of said drum being provided with inlet and discharge openings respectively, a casing surrounding said drum and rotating therewith, said casing being composed of heads arranged at the outer sides of the heads of the drum, screens supported by said heads and inclined toward the inlet-head of the drum, and ribs located between the delivery ends of said screens and said inlet-openings of the inlet-head of the drum, substantially as set forth.

5. In a ball grinding-mill, the combination of a rotary grinding-drum having a closed circumference, grinding-balls in said drum, the inlet and outlet heads of said drum being provided with inlet and discharge openings respectively, screens arranged around said drum and rotating therewith, said screens being inclined toward the inlet-head of the drum, ribs on said inlet-head between the screens and said inlet-openings, and a lateral flange on each of said ribs and located adjacent to the screens, substantially as set forth.

6. In a ball grinding-mill, the combination of a rotary grinding-drum having a closed circumference, grinding-balls in said drum, the inlet and outlet heads of said drum being provided with inlet and discharge openings respectively, screens arranged around said drum and rotating therewith, said screens being inclined toward the inlet-head of the drum, and extending at each end slightly beyond the heads of the drum, closed casing-heads supporting said screens, and ribs between the delivery ends of the screens and the inlet-openings in the inlet-head of the drum, said ribs being located between said inlet-head and the adjacent casing-head, substantially as set forth.

694,975. SHUTTER-HOLDER. ELIZABETH C. S. MARSHALL, Philadelphia, Pa. Filed Mar. 1, 1901. Serial No. 48,504. (No model.)



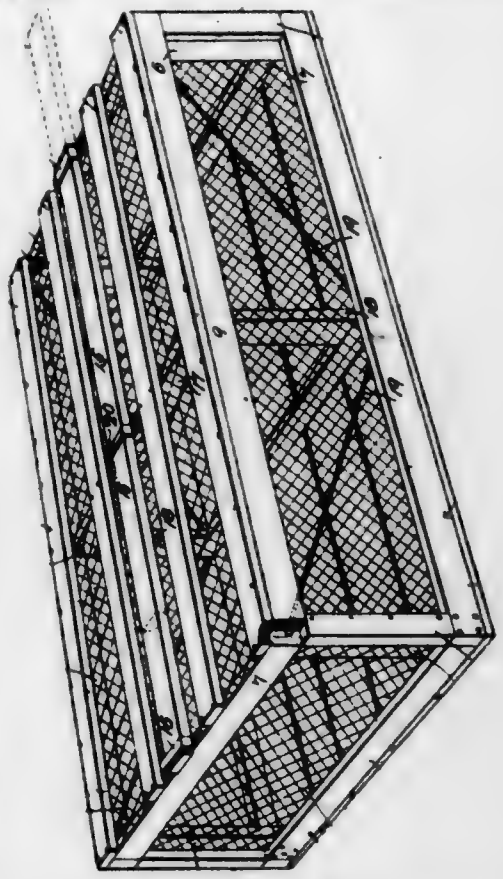
Claim.—The combination in a shutter-holder, of a pair of staples and rings with a removable fastener consisting of a bow-shaped wire with hooks or tines upon each end.

694,976. POULTRY-COOP. J. V. MITCHELL, Ottawa, Kans. Filed Nov. 14, 1901. Serial No. 82,332. (No model.)

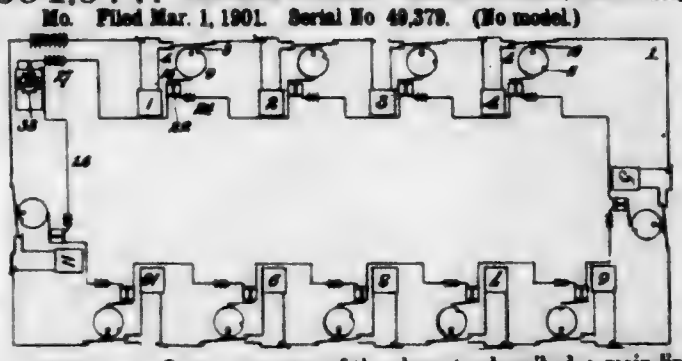
Claim.—1. A poultry-coop comprising corner-uprights having wire-netting secured thereto, side and end pieces secured to the outer sides of the uprights, thereby to throw the netting within the plane of these parts, a bottom secured to the side and end pieces, an open-work partition secured intermediate of the ends of the coop, a two-part open-work top, composed of netting held in place by longitudinal slats, and a slide disposed between the members of the top, substantially as described.

2. A poultry-coop comprising open-work sides, ends and top, an open-work partition disposed intermediate of the ends of the coop, and diagonally-disposed brace-rods secured intermediate of their ends to the lower portion of the sides of the coop and having their terminals formed into prongs to be driven into the inner faces of the corners of the top members of the sides.

694,976.



694,977. ELECTRIC SWITCH. ROBERT C. MOORE, Kansas City, Mo. Filed Mar. 1, 1901. Serial No. 49,379. (No model.)



Claim.—1. In an apparatus of the character described, a main-line circuit, a "service" instrument therein—such for instance as a telephone, a movable contact to shunt said instrument in or out of said circuit, an auxiliary circuit, means for sending electric impulses therethrough, an electromagnet in said auxiliary circuit, an armature-carrying lever operated by said magnet and provided with a pawl, a ratchet-wheel engaged by said pawl, and a disk movable with said ratchet-wheel and numbered to correspond with the number of the "service" instrument or "phone" in the circuit, and provided with a "home" notch and a notch opposite the number indicative of the corresponding "service" instrument, the movable contact when engaged with or disengaged from either of said notches holding the "service" instrument in or out of circuit respectively.

2. In an apparatus of the character described, a main-line circuit, a "service" instrument therein—such for instance as a telephone, a movable contact to shunt said instrument in or out of said circuit, an auxiliary circuit, means for sending electric impulses therethrough, an electromagnet in said auxiliary circuit, an armature-carrying lever operated by said magnet and provided with a pawl, a ratchet-wheel engaged by said pawl, a disk movable with said ratchet-wheel and numbered to correspond with the number of the "service" instrument or "phone" in the circuit, and provided with a "home" notch and a notch opposite the number indicative of the corresponding "service" instrument, the movable contact when engaged with or disengaged from either of said notches holding the "service" instrument in or out of circuit respectively, and means for holding said armature-carrying lever unresponsive to the energization of the magnet.

3. In an apparatus of the character described, a main-line circuit, a "service" instrument therein, a movable contact for shunting in or out of circuit said "service" instrument, an auxiliary circuit, means for sending electric impulses therethrough, an electromagnet to be energized by each impulse, an armature-carrying lever, means operated by said lever for causing said movable contact to throw the "service" instrument in or out of circuit with the main line, means for holding said armature-carrying lever unresponsive to the energization of the magnet, and means for mechan-

ically operating said lever and thereby shunting said "service" instrument in or out of circuit.

4. In an apparatus of the character described, a main-line circuit, a "service" instrument therein—such for instance as a telephone, a movable contact to shunt said instrument in or out of circuit, an auxiliary circuit, means for sending electric impulses therethrough, an electromagnet in said auxiliary circuit, an armature carrying lever operated by said magnet and provided with a pawl, a ratchet-wheel engaged by said pawl, a disk movable with said ratchet-wheel and numbered to correspond with the number of the "service" instrument or "phone" in the circuit, and provided with a home notch and a notch opposite the number indicative of the corresponding "service" instrument, the movable contact when engaged with or disengaged from either of said notches holding the "service" instrument in or out of circuit respectively, and means for preventing an unauthorized person from moving said movable contact and shunting the "service" instrument in or out of the main-line circuit.

5. In an apparatus of the character described, a main-line circuit, a "service" instrument therein, a movable contact for shunting in or out of circuit said "service" instrument, an auxiliary circuit, means for sending electric impulses therethrough, an electromagnet to be energized by each impulse, an armature-carrying lever, means operated by said lever for causing said movable contact to throw the "service" instrument in or out of circuit with the main line, means for holding said armature-carrying lever unresponsive to the energization of the magnet, means for mechanically operating said lever and thereby shunting said "service" instrument in or out of circuit, and means for preventing an unauthorized person from moving said movable contact and shunting the "service" instrument in or out of the main-line circuit.

6. In an apparatus of the character described, a main-line circuit, a contact therein, a "service" instrument interposed between the contact and the source of electric energy, a second contact interposed between the instrument and the source of electric energy, a movable or vibratory contact to engage one or the other of said contacts, a rotary disk containing a character indicative of the number of said "service" instrument, and a notch opposite said character, a tooth attached to but insulated from the movable or vibratory contact, and when engaging the notch, permitting the contact to engage the contact between which and the source of electric energy is located the "service" instrument, and means for rotating said disk and thereby throwing said tooth out of the notch and causing the vibratory contact to engage the other contact and shunt the "service" instrument out of the main-line circuit.

7. In an apparatus of the character described, a main-line circuit, a contact therein, a "service" instrument interposed between the contact and the source of electric energy, a second contact interposed between the instrument and the source of electric energy, a movable or vibratory contact to engage one or the other of said contacts, a rotary disk containing a character indicative of the number of said "service" instrument, and a notch opposite said character, a tooth attached to but insulated from the movable or vibratory contact, and when engaging the notch, permitting the contact to engage the contact between which and the source of electric energy is located the "service" instrument, a lever for intermittently rotating said disk, and thereby throwing the vibratory contact in engagement with one of said contacts or the other, and mechanically-operated means for oscillating said lever, substantially as described.

8. In an apparatus of the character described, a main-line circuit, a contact therein, a "service" instrument interposed between the contact and the source of electric energy, a second contact interposed between the instrument and the source of electric energy, a movable or vibratory contact to engage one or the other of said contacts, a rotary disk containing a character indicative of the number of said "service" instrument, and a notch opposite said character, a tooth attached to but insulated from the movable or vibratory contact, and when engaging the notch, permitting the contact to engage the contact between which and the source of electric energy is located the "service" instrument, a lever for intermittently rotating said disk, and thereby throwing the vibratory contact in engagement with one or the other of said contacts, and a push-button for operating said lever, substantially as described.

9. In an apparatus of the character described, a main-line circuit, a contact therein, a "service" instrument interposed between the contact and the source of electric energy, a second contact interposed between the instrument and the source of electric energy, a movable or vibratory contact to engage one or the other of said contacts, a rotary disk containing a character indicative of the number of said "service" instrument, and a notch opposite said character, a tooth attached to but insulated from the movable or vibratory contact, and when engaging the notch, permitting the contact to engage the contact between which and the source of electric energy is located the service instrument, a lever for intermittently rotating said disk, and thereby throwing the vibratory contact in engagement with one or the other of said contacts, and mechanically-operated devices for preventing the operation of said lever, substantially as described.

10. In an apparatus of the character described, a main-line circuit, a contact therein, a "service" instrument interposed between the contact and the source of electric energy, a second contact interposed between the instrument and the source of electric energy, a movable or vibratory contact to engage one or the other of said contacts, a rotary disk containing a character indicative of the number of said "service" instrument, and a notch opposite said character, a tooth attached to but insulated from the movable or vibratory contact, and when engaging the notch, permitting the contact to engage the contact between which and the source of electric energy is located the "service" instrument, a lever for intermittently rotating said disk, and thereby throwing the vibratory contact in engagement with one or the other of said contacts, mechanically-operated devices for preventing the operation of said lever, and means for automatically preventing the last-named device from being actuated by an unauthorized person to interfere with the free operation of said lever, substantially as described.

11. In an apparatus of the character described, a main-line circuit, a contact therein, a "service" instrument interposed between the contact and the source of electric energy, a second contact interposed between the instrument and the source of electric energy, a movable or vibratory contact to engage one or the other of said contacts, a rotary disk containing a character indicative of the number of the "service" instrument, and a notch opposite said character, a tooth attached to but insulated from the movable or vibratory contact, and when engaging the notch, permitting the contact to engage the contact between which and the source of electric energy is located the "service" instrument, a lever for intermittently rotating said disk, and thereby throwing the vibratory contact in engagement with one or the other of said contacts, mechanically-operated devices for preventing the operation of said lever, means for automatically preventing the last-named devices from being actuated by an unauthorized person to interfere with the free operation of said lever, and a key for withdrawing said automatic devices to inoperative position, substantially as described.

12. In an apparatus of the character described, a main-line circuit, a contact therein, a "service" instrument interposed between the contact and the source of electric energy, a second contact interposed between the instrument and the source of electric energy, a movable or vibratory contact to engage one or the other of said contacts, a rotary disk containing a character indicative of the number of said "service" instrument, and a notch opposite said character, a tooth attached to but insulated from the movable or vibratory contact, and when engaging the notch permitting the contact to engage the contact between which and the source of electric energy is located the "service" instrument, a lever for intermittently rotating said disk, and thereby throwing the vibratory contact in engagement with one of said contacts or the other, mechanically-operated means for oscillating said lever, mechanically-operated means for preventing said lever from operating, an automatic device for preventing the last-named means from interfering with the operation of the lever and for preventing the means for operating the lever from operating the same, and means to withdraw said automatic device to an inoperative position, substantially as described.

13. In an apparatus of the character described, a main-line circuit, a "service" instrument therein, a movable contact to shunt said "service" instrument in or out of circuit, an auxiliary circuit, an electromagnet therein, an armature for the magnet, instrumentalities interposed between the armature and the movable contact whereby the latter is caused to shunt the "service" instrument in or out of the main-line circuit, and means for sending the required number of electric impulses over the line, the same comprising a rotating arm, a movable catch to automatically arrest said rotating arm at the completion of each revolution thereof, a plate provided with holes arranged in a circular series and in number equaling the number of "service" instruments, and a pin to removably engage one of said holes and then arrest said arm before it has completed a revolution.

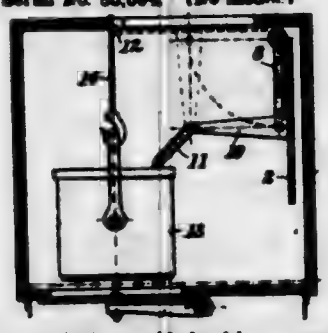
14. In an apparatus of the character described, a main-line circuit, a plurality of "service" instruments therein, movable contacts to shunt said "service" instruments in or out of circuit with the main line, rotary disks for said instruments, provided with characters indicative of the number of said "service" instruments, each disk being provided with a "home" notch, and with a notch opposite the character indicative of the number of its respective "service" instrument, teeth insulated from and carried by said movable contacts and adapted to engage alternately, the notches and the peripheries of said disks, an armature-carrying lever for imparting intermittent action to said disks, an auxiliary circuit, an electromagnet therein, and means for sending the required number of electric impulses therethrough for causing the registration of the character-notch of a particular disk with the teeth of its respective movable contact.

15. In an apparatus of the character described, a main-line circuit, a plurality of "service" instruments therein, movable contacts to shunt said "service" instruments in or out of circuit with the main line, rotary disks for said instruments, provided with characters indicative of the number of said "service" instruments, each disk being provided with a "home"

notch, and with a notch opposite the character indicative of the number of its respective service instrument, teeth insulated from and carried by said movable contacts and adapted to engage alternately, the notches and the peripheries of said disks, an armature-carrying lever for imparting intermittent action to said disks, an auxiliary circuit, an electromagnet therein, means for sending the required number of electric impulses therethrough for causing the registration of the character-notch of a particular disk with the tooth of its respective movable contact, and means for mechanically operating the disk of a particular instrument.

16. In an apparatus of the character described, a main-line circuit, a plurality of "service" instruments therein, movable contacts to shunt said "service" instruments in or out of circuit with the main line, rotary disks for said instruments, provided with characters indicative of the number of said service instruments, each disk being provided with a "home" notch, and with a notch opposite the character indicative of the number of its respective service instrument, teeth insulated from and carried by said movable contacts and adapted to alternately engage the notches and the peripheries of said disks, an armature-carrying lever for imparting intermittent action to said disks, an auxiliary circuit, an electromagnet therein, means for sending the required number of electric impulses therethrough and for causing the registration of the character-notch of a particular disk with the tooth of its respective movable contact, means for mechanically operating said disk of the particular instrument, and means for holding inactive the disk of a particular instrument, against the energization of its magnet, substantially as described.

694,978. **AIR-LOCK.** DANIEL B. MORAN, Mendham, N. J. Filed Nov. 26, 1901. Serial No. 83,694. (No model.)



Claim.—1. An air-lock provided with an opening for the passage of a bucket supported by a rope, a single door for said opening, and means to permit lateral movement of said bucket and rope whereby said door may be closed.

2. An air-lock having a head provided with an opening for the passage of a bucket and its supporting-rope, a door for the opening, said head being provided with a slot or recess to receive the rope and permit the door to close.

3. An air-lock provided with an upper head having an opening therein, a lower head provided with an opening, said upper head being provided with a slot communicating with the opening therein, and means for closing each of said openings.

4. An air-lock having openings in its upper and lower heads to permit movement of a bucket and its supporting-rope through said lock, said openings being out of alinement with each other, a door for each opening, the upper head being provided with means whereby the bucket and its supporting-rope may be moved laterally into alinement with the lower opening and the door to the upper opening be closed.

5. An air-lock having openings in its upper and lower heads to permit movement of a bucket and its supporting-rope through the lock, said openings being out of alinement with each other, a door for closing each of said openings, the upper head being provided with a slot communicating with the opening in said head to receive the rope when same is moved laterally, and means for sealing said slot when the door is closed.

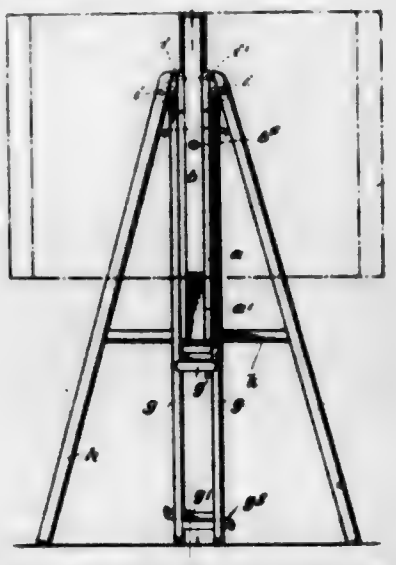
6. An air-lock having one of its heads provided with an opening and a door for said opening, said head being provided with a slot or recess communicating with the opening therein and extending beyond the overlapping portion of the door when same is closed.

7. An air-lock having openings in its upper and lower head arranged out of alinement with each other, the upper head being provided with a slot or recess communicating with the opening thereof and extending to a point centrally above the lower opening, substantially as described.

694,979. **EASEL.** CARL P. MUELLER, Dallas, Tex. Filed May 28, 1901. Serial No. 62,948. (No model.)

Claim.—1. An easel, having a body portion, a rear leg formed of two parallel members lying respectively at the sides of the body portion, arms to which the parallel members of the rear leg are fastened, said arms being pivoted on the body portion, and side legs pivotally mounted on the arms.

2. An easel having a body portion provided with guides at its front and rear sides, a slide arranged to move in the front guide, a drawing-board arranged to turn on said slide, a weighted slide running in the rear guide, a flexible connection between the slides, and means for sustaining the body portion in operative position.



3. An easel, having a body portion, a rear leg, an arm to which the rear leg is fastened, said arm being pivoted on the body portion, and a side leg pivotally mounted on the arm transverse to the axis of said arm.

4. An easel having a body portion, a rear leg formed of two parallel members running respectively at the sides of the body portion, arms to which the parallel members of the rear leg are fastened, said arms being pivoted on the body portion, side legs pivotally mounted on the arms, the axes of the said legs being transverse to the axes of the arms, whereby the side legs are permitted to swing inward toward the rear legs, and means for holding the side legs in their inward or folded position.

694,980. **ELASTIC-FLUID TURBINE.** HERBERT MCCORMACK, Little Falls, N. Y. Filed Jan. 3, 1899. Serial No. 700,935. (No model.)



Claim.—1. The combination with a tangentially-arranged jet-nozzle, of an inward-and-outward-flow turbine wheel provided with a series of vanes having their outer portions extending obliquely inward across the radial lines of the wheel and their inner portions turned approximately radial and terminated short of the axis of the wheel to form a central space, the force of the jet being extended upon said vanes primarily during its inward flow and secondarily during its outward flow substantially as set forth.

2. The combination with a tangentially-arranged jet-nozzle, of an impact turbine wheel having a series of curved or bent vanes extending inward from the periphery with inner ends turned approximately radial and terminated at a distance from the axis, and a central space communicating only with the passage-ways between said inner ends of the vanes substantially as and for the purpose set forth.

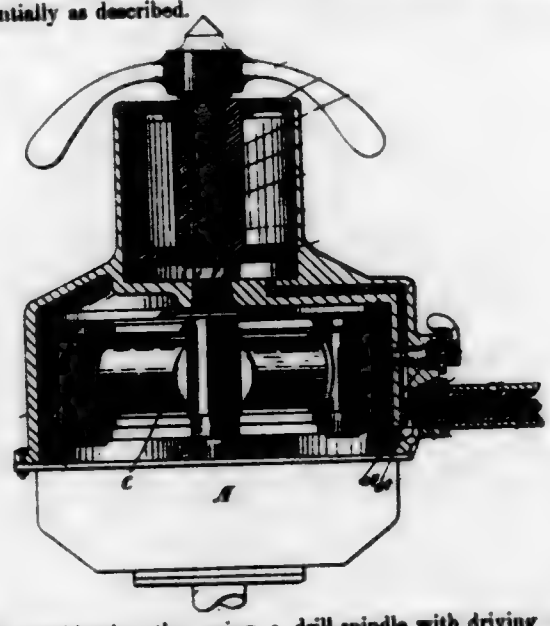
3. The combination with the spindle, of a wheel thereon capable of movement toward and from the axis thereof, and rotatively secured thereto by frictional clamping means adapted to permit automatic lateral adjustment of the wheel on the spindle without rebounding action substantially as set forth.

4. The combination with the turbine spindle provided with an attaching-flange, of a turbine wheel having a recess larger than said flange for the reception of the same and which permits said wheel to move toward and from the axis of the spindle, and clamping devices connecting said flange and wheel, substantially as set forth.

5. The combination with the turbine spindle provided with an attaching-flange having projections on its upper side, of a turbine wheel having in its under side a recess larger than said flange for the reception of the same and which permits said wheel to move toward and from the axis of the spindle, and clamping-screws connecting said flange and wheel and arranged between the projections of said flange, substantially as set forth.

694,981. **PNEUMATIC DRILL.** JOHN T. MCGRATH, Stratford, Canada. Filed Nov. 24, 1900. Serial No. 37,668. (No model.)

Claim.—1. In combination, the casing, the drill-spindle and driving means therefor, an air-pipe for supplying compressed air to said driving means, a cylinder carried by said casing, a piston working therein carrying a feed-spindle and a branch conduit from said air-pipe to said cylinder, substantially as described.



2. In combination, the casing, a drill-spindle with driving means therefor located within the casing, an air-pipe for supplying compressed air to operate said driving means, a cylinder axially in line with said drill-spindle and forming a part of said casing, an air-conduit from said air-pipe to said cylinder, and a feed-spindle adjustably connected to said piston, substantially as described.

3. The combination with the casing having suitable pneumatic driving means located therein and the air-tube leading thereto provided with an extension passage-way leading to the main driving means and a branch passage-way and a minor cylindrical chamber to which such passage-way leads, of the piston and sleeve thereof provided with flat upper sides, the head of the cylinder having a corresponding recess to receive the end of the sleeve, the screw-spindle extending into the wheel and the operating-wheel for the same and means for controlling the supply of air through the branch passage-way as and for the purpose specified.

4. The combination with the casing and the driving means and the feeding means located therein and the branch passage-way and extension passage-ways formed in the casing and leading to the respective chambers of the driving mechanism and the feeding means, of a tube having an enlarged head and a small notch to connect with the branch passage-way and an enlarged notch to connect with the extension passage-way and means for controlling the supply of air through the branch passage-way as and for the purpose specified.

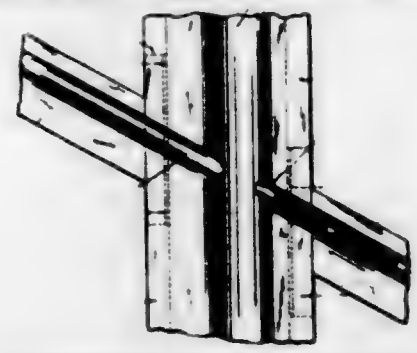
5. The combination with the casing and the driving means and the feeding means located therein and the branch passage-way and extension passage-ways formed in the casing and leading to the respective chambers of the driving mechanism and the feeding means, of a tube having an enlarged head and a small notch to connect with the branch passage-way and having a lateral circumferential extension and an enlarged notch to connect with the extension passage-way and means for controlling the supply of air through the branch passage-way as and for the purpose specified.

6. The combination with the casing and the driving means and the feeding means located therein and the branch passage-way and extension passage-way formed in the casing and leading to the respective chambers of the driving mechanism and the feeding means, of a tube having an enlarged head and a small notch to connect with the branch passage-way and having a lateral circumferential extension and an enlarged notch to connect with the extension passage-way, said head having a supplemental longitudinal notch and said casing having an oblique passage-way with which the said notch is designed to be brought into communication and means for controlling the supply of air through the branch passage-way as and for the purpose specified.

7. In a device of the class described, the combination with the driving means and the feeding means and the extension passage-way and the branch passage-way leading respectively thereto, of the tube having an enlarged head with end notches as shown, such tube fitting in a recess in the casing and the nut for securing such tube in position, so as to permit of its turning as and for the purpose specified.

694,982. INTERLOCKING RAIL CONNECTION AND CROSSING. HENRY R. NICHOLS, Philadelphia, Pa. Filed Nov. 9, 1901. Serial No. 81,675. (No model.)

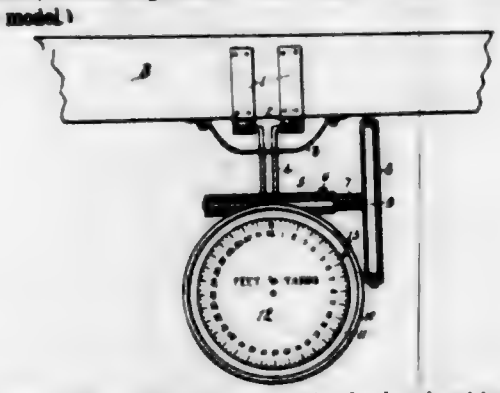
Claim.—1. In an interlocking rail connection or crossing, a main rail having in its side a recess or channel, a connecting-rail, and a dovetailing or interlocking projection formed directly on the meeting end of the connecting-rail to form a continuation of said rail, said projection being adapted to enter and to interlock with the recess or channel of the main rail.



2. In an interlocking rail connection or crossing, a main rail having in its side a recess or channel, a connecting-rail, and a dovetailing or interlocking projection formed directly on the meeting end of the connecting-rail to form a continuation of said rail, said projection being adapted to enter and to interlock with the recess or channel of the main rail, in combination with a filler or bed fusible at a lower temperature than the metal of the rails and adapted when introduced between the projection of the connecting-rail and the recess or channel of the main rail to interlock said connecting-rail to the main rail.

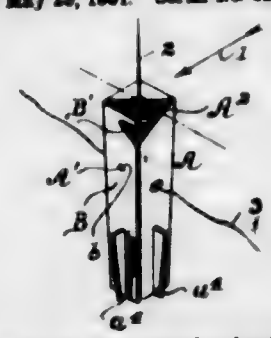
3. In an interlocking rail connection or crossing, a main rail and a connecting-rail, an interlocking projection formed directly on one of said rails, and a complemental recess or channel formed in the other of said rails, substantially as and for the purposes described.

694,983. CLOTH OR PAPER MEASURING MACHINE. JOHN H. NIEMAN, Petersburg, Nebr. Filed May 17, 1900. Serial No. 17,075. (No model.)



Claim.—The combination with a circular housing 14 provided with a glass top, said housing being provided with an opening upon its side, of the sleeve 5 secured to said housing at the point of perforation, of the worm-shaft 7 revolubly held within said sleeve 5, said worm-shaft being provided with the groove 6' the set-screw 6 working through said sleeve 5 into said groove 6', of the wheel 8 secured to said shaft 7, of the elastic tire 9 secured to said wheel 8, the upwardly-extending pins 23, 23 positioned within the bottom of said housing 14 and an annulus or ring 15 having its peripheral surface cut to mesh with said worm-shaft 7 said ring working loosely upon said pins 23, 23 the bars 16, 16 to prevent said ring from working upward, the pins 17, 17 to hold said bars 16, the upwardly-extending indicator 13 secured to said ring 15, the dial 12, said indicator 13 extending above said dial, the pin 22 supporting said dial 12, the collar 19 supporting said pin 22 said pin 22 below being threaded, and the threaded cap 21 adapted to screw upon said collar 19 so that said dial may be set to zero to point substantially as illustrated and described.

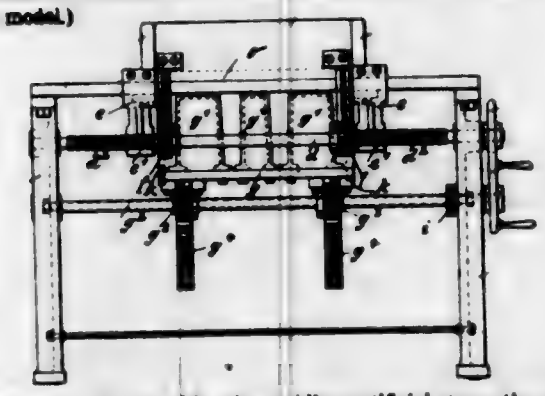
694,984. NEEDLE-THREADING DEVICE. ALFRED OLSON, San Diego, Cal. Filed May 29, 1901. Serial No. 62,323. (No model.)



Claim.—The plug A, formed with the slanting top A^2, the needle-holder a, having flared mouth a', the cross-channel a^2, having flared

mouths a^2, the recess A^2, and the ribs a^1, adapted to engage the surface of the bore of a spool, to afford facility for holding said plug, all substantially as shown and described.

694,985. MACHINE FOR MOLDING ARTIFICIAL STONE. NOYES F. PALMER, Brooklyn, N. Y. Filed Sept. 23, 1901. Serial No. 76,852. (No model.)



Claim.—1. In a machine for molding artificial stone, the combination of a mold-box having sliding sides, and an open bottom, with a vertically-movable core adapted to be projected through said bottom, substantially as specified.

2. In a machine for molding artificial stone, the combination of a mold-box having sliding sides and sliding ends, with a worm-shaft adapted to actuate the sliding ends, and with racks and pinions adapted to actuate the sliding sides, substantially as specified.

3. In a machine for molding artificial stone, the combination of sliding mold-box sides, with sliding mold-box ends which project beyond the mold-box sides, and with means for simultaneously moving the sides and ends, substantially as specified.

4. In a machine for molding artificial stone, the combination of a shaft having right and left worms and a pair of pinions mounted upon the shaft between the worms, with a mold-box having sliding ends adapted to be operated by the worms, and sliding sides adapted to be operated by the pinions, substantially as specified.

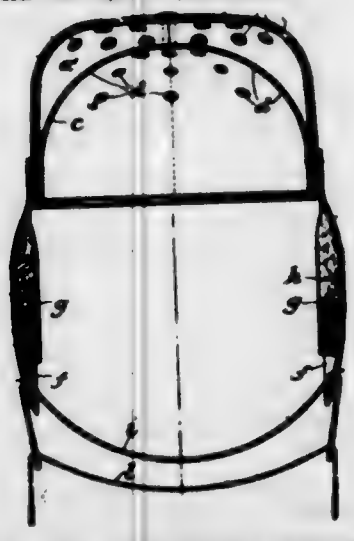
5. In a machine for molding artificial stone, the combination of a shaft having right and left worms, and a pair of pinions movably bolted upon the shaft between the worms, with threaded arms engaging the worms, mold-box ends connected to the arms, racks engaging the pinions, and mold-box sides connected to the racks, substantially as specified.

6. In a machine for molding artificial stone, the combination of a mold-box having sliding ends and sliding sides, with worms and pinions for actuating the same, a vertically-movable core, and means for raising and lowering said core, substantially as specified.

7. In a machine for molding artificial stone, the combination of a mold-box having sliding sides and ends, with pattern-plates adapted to be removably attached to the mold-box, substantially as specified.

8. In a machine for molding artificial stone, the combination of a mold-box having sliding sides and ends, with pattern-plates adapted to be removably attached to the mold-box, and with a core adapted to be projected into the mold-box, substantially as specified.

694,986. HEAD-HARNESS FOR FOOT-BALL PLAYERS. GEORGE L. PEIRCE, Brooklyn, N. Y., assignor to A. G. Spalding & Bros., Jersey City, N. J., and New York, N. Y., a Corporation of New Jersey. Filed July 9, 1901. Serial No. 67,587. (No model.)



Claim.—1. A head-harness comprising an outer shell of relatively tough and hard material, an inner shell to fit upon the head of the wearer and of less depth than the outer shell, said shells being secured together at their edges, and means to secure said shells upon the head of the wearer, substantially as shown and described.

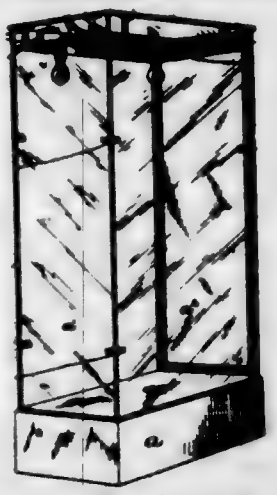
2. A head-harness comprising an outer shell of relatively tough and hard material, an inner shell to fit upon the head of the wearer and of less depth than the outer one, said shells being secured together at their edges and each of said shells having numerous perforations for ventilation and means to secure said shells on the head of the wearer, substantially as shown and described.

3. A head-harness comprising an outer shell of relatively tough and hard material, an inner shell to fit upon the head of the wearer and of less depth than the outer shell, said shells being secured together at their edges, earpieces of relatively hard material, secured to said shells, said earpieces being capped, and means to secure said shells and earpieces upon the head of the wearer, substantially as shown and described.

4. A head-harness comprising an outer shell of relatively tough and hard material, an inner shell to fit upon the head of the wearer and of less depth than the outer shell, said shells being secured together at their edges, and an elastic strap connected to opposite sides of said shells, substantially as shown and described.

5. A head-harness comprising a protective cover for the head, earpieces of relatively hard material secured to said cover, said earpieces being capped, an elastic strap passed through openings in the lower ends of said earpieces, and a cord to connect the ends of said strap, substantially as shown and described.

694,987. SHOW-CASE. FREDERICK POLLARD, Cleveland, Ohio. Filed Feb. 15, 1901. Serial No. 47,456. (No model.)

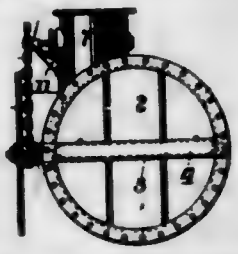


Claim.—1. A show-case of the character set forth comprising a base, glass plates mounted upon said base, and forming the top and sides of said case, metallic straps connecting the adjacent edges of said plates, a false top of wood or other easily-penetrated substance arranged within said case and means rigidly secured to said straps and forming supports for said false top.

2. A show-case of the character set forth comprising a base, glass plates mounted upon said base, and forming the top and sides of said case, a false top of wood or other easily-penetrated substance arranged within said case, and a combined strap and bracket arranged at each of the respective corners of the said case and adapted to secure the said plates together and form means for supporting the said false top, substantially as described.

3. In a show-case of the character set forth, the combination, of a base portion, perforated glass plates forming the top and sides of said case, metallic straps securing said glass plates together, brackets secured to said straps, and a secondary or false top of wood or similar material secured to and supported by said brackets, substantially as described.

694,988. DEVICE FOR OPERATING BLAST-FURNACE SHORT-VALVES. ROBERT S. POLLARD, Pittsburg, Pa. Filed May 10, 1901. Serial No. 59,647. (No model.)



Claim.—In combination with a furnace, a main casing, an auxiliary casing mounted thereon, ports in said casings, a port for establishing communication between the said casings, shafts secured in said casings, valves mounted on said shafts, a sprocket-wheel mounted on each shaft, a chain

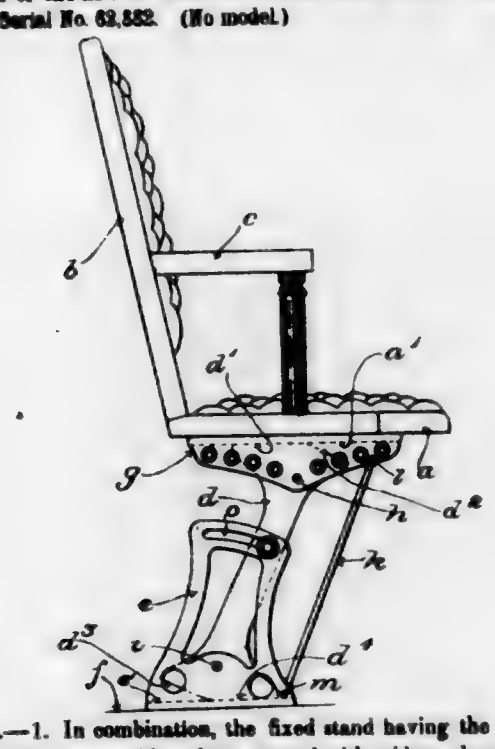
connecting the said wheels, and a lever connected to one shaft, substantially as described.

694,989. INSULATING COMPOUND. HENRY M. POTTER, Göttingen, Germany, assignor to George Westinghouse, Pittsburg, Pa. Filed Aug. 9, 1899. Serial No. 726,622. (No specimens.)

Claim.—1. A highly-refractory electrical insulating material, consisting of soapstone or talc-powder and water combined with a binder such as tragacanth, the soapstone or talc-powder being largely in excess of the other materials.

2. A highly-refractory electrical insulating material, consisting of soapstone or talc-powder, water, a binding material such as tragacanth and admixture of water-glass, the soapstone or talc-powder being largely in excess of the other materials.

694,990. THEATER-CHAIR. MARSHALL REED, Whitman, Mass., assignor of one-half to Oliver H. Wade, Boston, Mass. Filed June 3, 1901. Serial No. 62,552. (No model.)

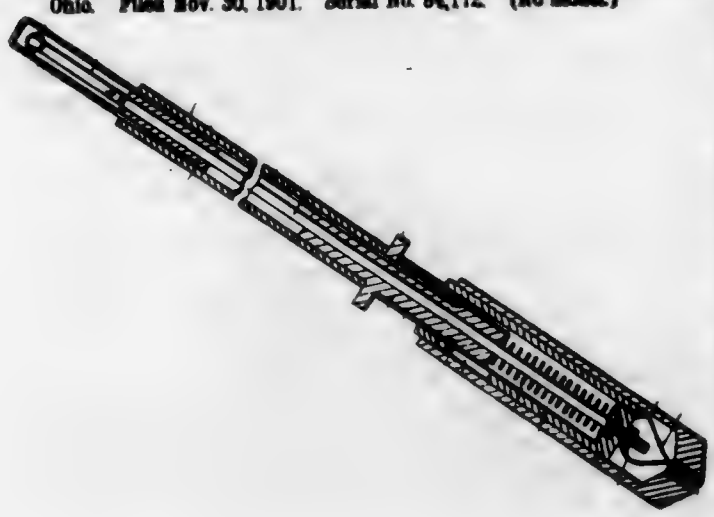


Claim.—1. In combination, the fixed stand having the slot *o*, the seat portion, the support *d* loosely connected with said stand and seat portion, and the screw or bolt *n* applied to said support and working in said slot, said seat tending normally to assume a relatively advanced position and having capacity for being temporarily shifted rearward to afford increased space in front of the chair, substantially as described.

2. In combination, the fixed stand having the slot *o* and the bearing-surface *c'*, the seat portion having the bearing-surface *a'*, the support *d* loosely connected with said stand and seat portion, and having the bearing-faces d' d^2 d^3 d^4, the screw or bolt *n* applied to said support and working in said slot and the link *k*, substantially as described.

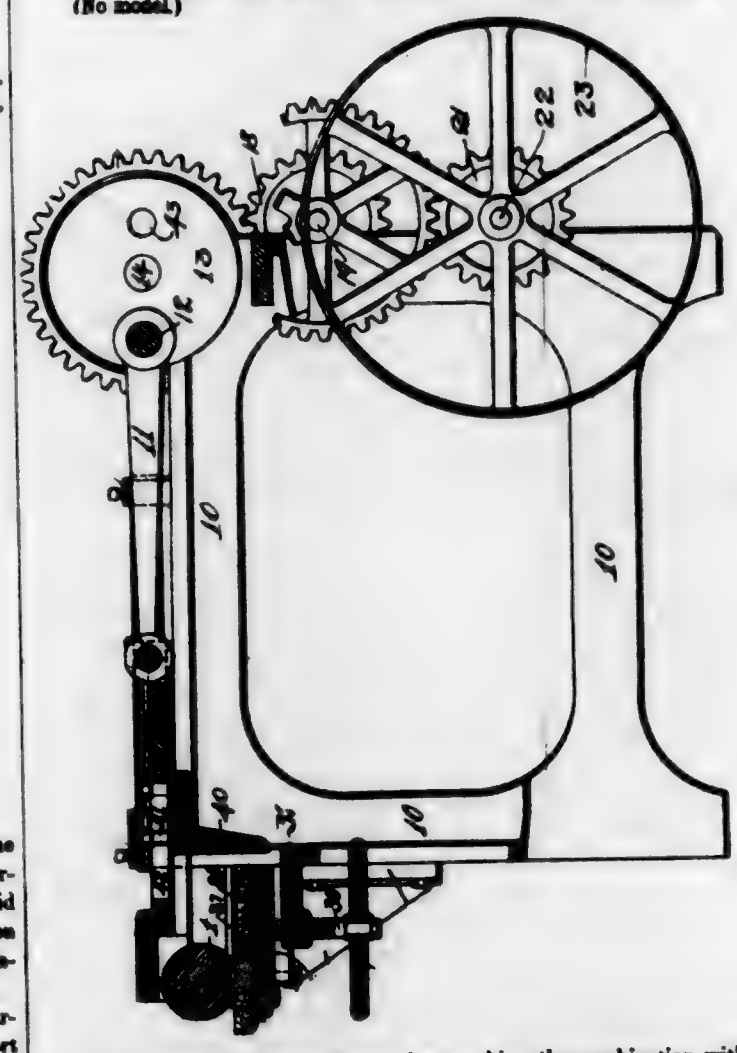
3. In combination, the fixed stand having the slot *o* and the bearing-surface *c'*, the seat portion having the bearing-surface *a'*, the support *d* loosely connected with said stand and seat-support, having the bearing-faces d' d^2 d^3 d^4, and the screw or bolt *n* applied to said support, working in said slot, and the cushion applied in connection with said screw or bolt, substantially as described.

694,991. ELECTRIC IGNITER. CHARLES C. REID, Cleveland, Ohio. Filed Nov. 30, 1901. Serial No. 84,172. (No model.)



Claim.—An electric-lighting device comprising a tubular handle, a tubular member detachably secured therein and having a longitudinal slot, a conducting-rod fixed to said tubular member and having a sparking device at the forward end thereof, an insulating-piece slidably secured in said tubular member and having a projection extending into said slot, a conducting-spring between the tubular member and the insulating-piece, and a conducting-rod in electrical contact with said spring, said rod being secured to and movable with the insulating-piece and having at the forward end thereof a sparking device adapted to contact with the first-mentioned sparking device.

694,992. MACHINE FOR IMPRESSING BOX MATERIAL. JAMES R. RIPLEY, Memphis, Tenn. Filed Dec. 24, 1901. Serial No. 87,131. (No model.)



Claim.—1. In a groove-impressing machine, the combination with a supporting-table, of a smooth roller and means of reciprocating said roller over said table substantially as shown and described.

2. In a groove-impressing machine, the combination with a supporting-table and means of adjusting same, of a smooth roller and means of reciprocating same over said table, substantially as shown and described.

3. In a groove-impressing machine, the combination with a suitable frame, and a supporting-table carried thereby, of a reciprocating cross-head, a roller journaled in said cross-head, and means of reciprocating said cross-head, substantially as shown and described.

4. In a groove-impressing machine, the combination with a suitable frame, a supporting-table carried thereby and means of adjusting said table, of a reciprocating cross-head, a roller journaled in said cross-head, and means of reciprocating said cross-head, substantially as shown and described.

5. In a groove-impressing machine, the combination with a suitable frame, a supporting-table adjustably mounted in guides on said frame, a bracket extending outward from said frame, and a screw through said bracket to adjust the height of said table, of a reciprocating cross-head, a roller journaled in said cross-head, and means of reciprocating said cross-head, substantially as shown and described.

6. In a groove-impressing machine, the combination with a suitable frame, and a supporting-table carried thereby of cross-head guides on said frame, a cross-head mounted on said guide, a roller journaled in said cross-head and means of reciprocating said cross-head, substantially as shown and described.

7. In a groove-impressing machine, the combination with a suitable frame, a supporting-table adjustably mounted in guides on said frame, a bracket extending outward from said frame, and a screw through said bracket to adjust the height of said table of cross-head guides on said

frame, a cross-head mounted on said guides, a roller journaled in said cross-head and means of reciprocating said cross-head, substantially as shown and described.

8. In a groove-impressing machine, the combination with a suitable frame, a supporting-table carried thereby and means of adjusting said table, of cross-head guides on said frame, a cross-head mounted on said guides, a roller journaled in said cross-head and means of reciprocating said cross-head, substantially as shown and described.

9. In a groove-impressing machine, the combination with a suitable frame, a supporting-table adjustably mounted thereon, and means of regulating the height of said table, of adjustable gages on said table and a smooth roller and means of reciprocating same over said table, substantially as shown and described.

10. In a groove-impressing machine the combination with a suitable frame, and a supporting-table carried thereby, of cross-head guides on said frame, a cross-head mounted on said guides, a roller journaled in said cross-head, a bracket adjustably fastened to said cross-head and extending downward therefrom, and means of reciprocating said cross-head, substantially as shown and described.

11. In a groove-impressing machine, the combination with a suitable frame, a supporting-table carried thereby and means of adjusting said table, of cross-head guides on said frame, a cross-head mounted on said guides, a roller journaled in said cross-head, a bracket adjustably fastened to said cross-head and extending downward therefrom, and means of reciprocating said cross-head, substantially as shown and described.

12. In a groove-impressing machine, the combination with a suitable frame, a supporting-table adjustably mounted in guides on said frame, a bracket extending outward from said frame, and a screw through said bracket to adjust the height of said table, of cross-head guides on said frame, a cross-head mounted on said guides, a roller journaled in said cross-head, a bracket adjustably fastened to said cross-head and extending downward therefrom and means of reciprocating said cross-head, substantially as shown and described.

694,993. RAIL-JOINT. JOHN H. ROBERTS, Shelbyville, Ill. Filed Sept. 13, 1901. Serial No. 75,341. (No model.)



Claim.—The herein-described joint for the ends of two rails or beams, the end of one having a flanged base, a vertical strip or web connected to the base, and a top portion supported by the strip, said strip having its end extending beyond the base and top portion, and said end of the base extending beyond the top portion; and the end of the other having a flanged base, a vertical strip or web connected to the base, a top portion supported by the strip, said strip extending beyond the base and top portion and said top portion extending beyond the base; and a lower curved strip connected to both ends provided upon opposite sides of the lower edges of the strips to rest upon the upper portions of the bases; whereby the ends of the strips interlock, the meeting edges of the top portions and bases are out of line with each other, and the lower curved strips rest upon opposite sides of the vertical strip of the bases to prevent the joint from twisting or turning.

694,994. MANUFACTURE OF WELDED PLATE-METAL CYLINDERS, &c. THOMAS F. ROWLAND, New York, N. Y. Filed Feb. 28, 1901. Serial No. 49,377. (No model.)



Claim.—1. The herein-described process of welding together the edges of a metal plate or plates, consisting in bringing said edges together, suitably heating the same, and then applying a welding pressure simultaneously along a line parallel with the seam to be welded throughout a large extent of said seam and bringing such pressure to bear on said edges.

2. The herein-described process of welding together the edges of a metal plate or plates, consisting in bringing said edges together and suitably heating the same and then applying a welding pressure on a line parallel with the seam to be welded and bringing said pressure to bear progressively in a direction transverse to said seam upon said edges and the parts contiguous thereto.

3. The herein-described process of making a welded plate-metal cylinder consisting in bending a suitably-shaped metal plate into cylindrical form, bringing the edges thereof together and heating the same, and then applying welding pressure simultaneously along a line parallel to the seam to be welded throughout a large extent of said seam and bringing said pressure to bear upon the said edges.

4. The herein-described process of making a welded plate-metal cylinder consisting in bending a suitably-shaped metal plate into cylindrical form, bringing together and heating the edges thereof, and then applying welding pressure on a line parallel to the seam to be welded and bringing said pressure to bear progressively in a direction transverse to said seam upon said edges and the parts contiguous thereto.

5. The herein-described process of welding the edges of a metal plate or plates consisting in bringing said edges together, heating the entire plate or plates, and then applying a welding pressure simultaneously along a line parallel with the seam to be welded throughout a large extent of said seam and bringing said pressure to bear on said edges.

6. The herein-described process of welding the edges of a metal plate or plates consisting in bringing said edges together, heating the entire plate or plates, and then applying a welding pressure on a line parallel with the seam to be welded and bringing the said pressure to bear progressively in a direction transverse to said seam upon the said edges and the parts contiguous thereto.

7. The herein-described process of making a welded plate-metal cylinder consisting in bending a suitably-shaped metal plate into cylindrical form, bringing the edges thereof together, heating the entire plate, and then applying welding pressure simultaneously along a line parallel to the seam to be welded throughout a large extent of said seam and bringing said pressure to bear on said edges.

8. The herein-described process of making a welded plate-metal cylinder consisting in bending a suitably-shaped metal plate into cylindrical form, bringing the edges thereof together, heating the entire plate, and then applying welding pressure on a line parallel to the seam to be welded and bringing said pressure to bear progressively in a direction transverse to said seam upon said edges and the parts contiguous thereto.

9. The herein-described process of welding the edges of a metal plate or plates consisting of bringing said edges together, heating the entire plate or plates, applying additional heat to the edges thereof, and then applying a welding pressure simultaneously along a line parallel with the seam to be welded throughout a large extent of said seam and bringing said pressure to bear on said edges.

10. The herein-described process of welding the edges of a metal plate or plates consisting in bringing said edges together, heating the entire plate or plates, applying additional heat to the edges thereof, and then applying a welding pressure on a line parallel with the seam to be welded and bringing said pressure to bear progressively in a direction transverse to said seam upon said edges and the parts contiguous thereto.

11. The herein-described process of making a welded plate-metal cylinder consisting in bending a suitably-shaped metal plate into cylindrical form, bringing the edges thereof, together, heating the entire plate, applying additional heat to the edges thereof, and then applying welding pressure simultaneously along a line parallel to the seam to be welded throughout a large extent of said seam and bringing said pressure to bear on the said edges.

12. The herein-described process of making a welded plate-metal cylinder consisting in bending a suitably-shaped metal plate into cylindrical form, bringing the edges thereof together, heating the entire plate, applying additional heat to the edges thereof, and then applying welding pressure on a line parallel to the seam to be welded and bringing said pressure to bear progressively in a direction transverse to said seam upon said edges and the parts contiguous thereto.

13. The herein-described method of making a welded plate-metal cylinder consisting in bending a suitably-shaped metal plate into cylindrical form, bringing the edges thereof together, heating the entire cylinder, placing said cylinder in a vertical position, and then applying welding pressure simultaneously along a line parallel to the seam to be welded throughout a large extent of said seam and bringing said pressure to bear on said edges and parts contiguous thereto.

14. The herein-described method of welding metal plates which consists in first securing the edges of such plates in desired position, then in heating said plates throughout their whole extent to substantially a welding heat and then in welding the edges of said plates.

15. The herein-described process of welding metal plates which consists in first bending such plates into cylindrical form, then in securing the edges of such plates in position, then in heating such cylindrical plates throughout their whole extent to substantially the welding heat while in a vertical position and then in welding the edges of such plates.

16. The herein-described process of welding metal plates which consists in bending such plates into cylindrical form, in securing the edges of such plates in position, in heating such plates throughout their whole extent to substantially a welding heat while such plates are in a vertical position and in welding the edges of such plates while in a vertical position.

17. The herein-described process of welding metal plates which consists in bending such plates into a cylindrical form, in securing the edges

of such plates in position, in heating such plates throughout their whole extent to substantially a welding heat while in a vertical position, in supplying additional heat to the edges of such plates and in welding the edges of such plates while in a vertical position.

18. The herein-described process of welding large plate-metal cylinders which consists in bending metal plates into a cylindrical form, in securing the edges of such plates in position and heating such plates throughout their whole extent to substantially welding heat and in welding the edges of such plates.

19. The herein-described process of welding large metal plates which consists in bending such plates into cylindrical form, in securing the edges of such plates in position, in heating the adjacent edges of such plates to a welding heat and in heating the parts of such plates adjacent the edges to maintain the edges of such plates in position and in welding the edges of such plates.

20. The herein-described process of welding large metal plates which consists in bringing the edges of such plates into position, in heating the edges of such plates to a welding heat, in heating the portions of such plates adjacent the edges to prevent the distortion by heat of the edges of such plates and in welding the edges of such plates.

21. The herein-described process of welding metal plates which consists in bringing the edges of such plates into position to form a seam, in heating the edges of such plates and parts adjacent thereto throughout a large extent of such seam, to bring the edges of such plates into a condition to be welded and to maintain the edges of such plates in position and in welding such large extent of the seam.

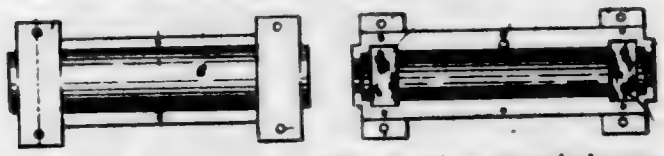
22. The herein-described process of welding metal plates which consists in bringing the edges of such plates together, in heating the edges of such plates and portions adjacent thereto to bring the edges of such plates into condition to be welded and to maintain the edges of such plates in position by preventing local heat distortion and in welding the edges of such plates.

23. The herein-described process of welding metal plates which consists in bending such plates into cylindrical form, in heating the edges of such plates and parts contiguous thereto to bring the edges of such plates into condition to be welded and to maintain such edges in proper position by preventing local heat distortion at such edges and in welding the edges of said plates.

24. The herein-described process of welding large metal plates which consists in bringing the edges of such plates together, in heating the edges of such plates and the parts adjacent thereto throughout a large extent of the seam formed by such edges to bring such edges into condition to be welded and to maintain such edges in proper position by preventing local heat distortion at such edges and by welding such large extent of said seam at one heat.

25. The herein-described process of welding metal plates which consists in bringing the edges of such plates together, in heating such plates to bring a large portion of the edges of such plates into a condition for welding and to prevent local heat distortion at such edges and in welding such plates.

694,995. CAR-AXLE JOURNAL-BOX. WILBUR R. SANDERS, Helena, Mont., assignor of one-half to John Berkin, Boulder, Mont. Filed Aug. 3, 1901. Serial No. 70,817. (No model.)

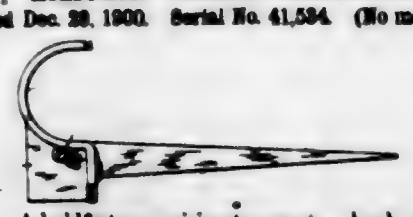


Claim.—1. In combination with an axle having terminal grooves located adjacent to the wheels thereof, a sectional journal-box surrounding the axle and having inwardly-deflected flanges entering said grooves, longitudinal flanges at the meeting edges of the sections, bolts for coupling said flanges together, laterally-extended wings located adjacent to the ends of the upper section, pockets formed in the upper section opposite said wings, bearing-blocks carried in said pockets, the axle having grooves formed thereon for the reception of the blocks, and an oil-box at each end of the lower section below the axle, substantially as set forth.

2. In combination with an axle having terminal grooves located adjacent to the wheels thereof, a sectional journal-box surrounding the axle and having inwardly-deflected flanges entering said grooves, longitudinal flanges at the meeting edges of the sections, bolts for coupling said flanges together, laterally-extended wings located adjacent to the ends of the upper section, pockets formed in the upper section opposite said wings, bearing-blocks carried in said pockets, the axle having grooves formed thereon for the reception of the blocks, and an oil-box formed in the lower section of the journal-box below the axle, substantially as set forth.

4. In combination with an axle having terminal grooves located adjacent to the wheels thereof, a journal-box surrounding the axle and having inwardly-deflected flanges entering said grooves, upwardly-projecting laterally-extended wings carried adjacent to the ends of the journal-box, suitable bearing-blocks carried by the journal-box opposite said wings and disposed along the axle at points between and adjacent to, the aforesaid grooves, the axle having formed thereon an independent set of grooves for the reception of the bearing-blocks, substantially as set forth.

694,996. HOLDFAST. THEODOR B. SAUER, Ober-Rathenberg, Germany. Filed Dec. 28, 1900. Serial No. 41,534. (No model.)

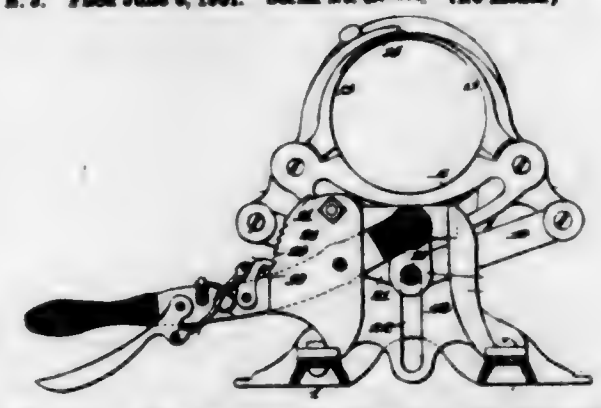


Claim.—1. A holdfast comprising two parts, a hook part and a holding part, the hook part being adapted to be passed through an opening in the holding part, to hold the latter against the body to be supported, and the hook part having a shoulder for engagement with the holding part to prevent dislodgment of the latter.

2. A holdfast comprising a hook part and a holding part, the holding part being slotted longitudinally to receive the hook part, the hook part having a shoulder to engage the holding part, the hook of the hook part being adapted to lie with its inner face flush with that of the holding part, and a screw passed through the hook part, to prevent displacement of the holding part.

3. A holdfast comprising a hook part and a holding part, the hook part comprising a tapering bar having a projecting head, the holding part comprising a semicircular plate having a flat portion extended at right angles thereto and being slotted longitudinally to receive the hook part, the hook part having a shoulder to engage the holding part, the hook of the hook part being adapted to lie with its inner face flush with that of the holding part, and a screw passed through the hook part, to prevent displacement of the holding part.

694,997. ASPARAGUS-BUNCHER. HENRY I. SCHABOK, Holmdel, N. J. Filed June 6, 1901. Serial No. 63,404. (No model.)



Claim.—1. In an asparagus-buncher, the combination with a supporting-frame, of a pair of pivoted jaws carried by and longitudinally adjustable with respect to said frame, a second pair of pivoted jaws carried by said frame, a vertically-movable operating-shaft, a link connecting each jaw to said shaft, and an operating-handle pivoted to the frame and connected to said shaft, substantially as set forth.

2. In an asparagus-buncher, the combination with a supporting-frame, of a pair of pivoted jaws mounted thereon, means for operating said jaws to open the same, and an extension adjustably carried at the end of one of said jaws, substantially as and for the purposes set forth.

3. In an asparagus-buncher, the combination with a supporting-frame, of a pair of pivoted jaws mounted thereon, means for operating said jaws to open the same, and an ejector-finger carried by and coöperating with each jaw, substantially as and for the purposes set forth.

4. In an asparagus-buncher, the combination with a supporting-frame, of two sets of pivoted jaws carried by said frame, a vertically-movable operating-shaft, links connecting said shaft with the jaws, an operating-handle pivoted to the frame and connected to said shaft, a pawl carried by said handle coöperating with ratchet-teeth to lock the jaws in varying positions of closure, and an auxiliary tooth on the pawl for locking the jaws in an open position, substantially as set forth.

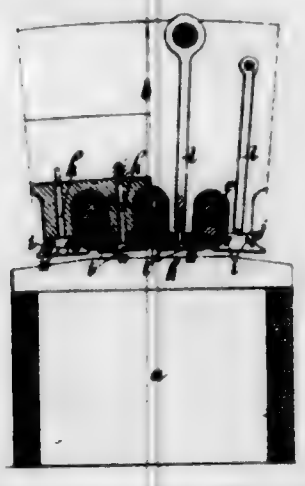
694,998. **BANANA-SHIPPING CASE.** FRANK SCHMITZ, Chicago Ill. Filed Nov 30, 1900. Serial No. 38,112. (No model.)



Claim.—1. In a banana-shipping case, the combination with a surrounding, protecting-case, of a bag suspended therein, an open-bottom inner bag suspended within the first and free therefrom part way up from the bottom, and means for closing up said inner bag between the ends of the outer bag to form two separate compartments whereby a bunch of bananas may be supported in each of said compartments; substantially as described.

2. In a banana-shipping case, the combination with an outer protecting-case, of a bag hung within the same and out of contact therewith, an inner open-bottom shorter bag hung within the first, and means for tying the open bottom end of said inner bag to form two compartments, whereby the bunch of bananas may be supported in each of said compartments; substantially as described.

694,999. **DYNAMO-ELECTRIC MACHINE.** CHARLES P. E. SCHNEIDER, Le Creusot, France. Filed Oct. 11, 1901. Serial No. 78,310. (No model.)



Claim.—1. In a dynamo-electric machine, a toothed armature, coils located in the grooves or spaces between the armature-teeth and adapted to be bodily removed therefrom and caps removably secured to the teeth of said armature each cap projecting beyond the edge of its tooth toward an adjacent tooth and over the coil in the groove between the teeth.

2. In a dynamo-electric machine a toothed armature having its teeth formed integral with the metal of the armature, coils located in the grooves or spaces between the armature-teeth and adapted to be bodily removed therefrom, and caps removably secured to the teeth of said armature each cap projecting beyond the edge of its tooth toward an adjacent tooth and over the coil in the groove between the teeth.

3. In a dynamo-electric machine, a toothed armature, and caps of divided magnetic material removably secured to the teeth, each cap projecting beyond the edge of its tooth toward an adjacent tooth.

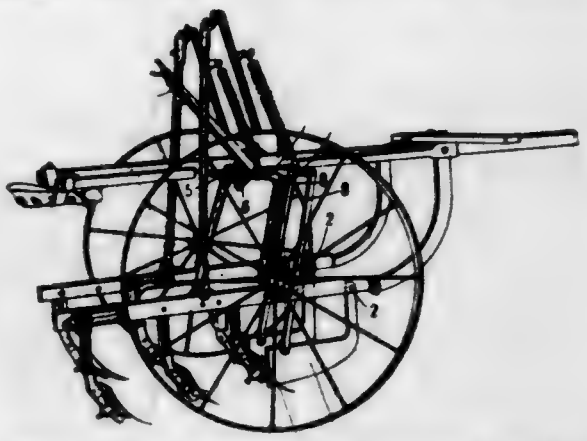
4. In a dynamo-electric machine, a toothed armature, and caps of juxtaposed magnetic laminated plates removably secured to the teeth each cap projecting beyond the edge of its tooth toward an adjacent tooth.

5. In a dynamo-electric machine, a toothed armature, and caps removably secured to and projecting beyond the edges of said teeth toward adjacent teeth, said caps consisting of groups of juxtaposed magnetic laminated plates, distance-pieces of non-magnetic material interposed between the groups of plates and rods securing the plates and distance-pieces together.

6. In a dynamo-electric machine, a toothed armature, caps removably secured to the teeth of the armature each cap having a series of winged extensions alternately projecting from opposite sides thereof beyond the edge of its tooth and toward the caps on adjacent teeth and the caps on the several teeth being so arranged that the winged extensions on each cap project into the spaces between the winged projections on adjacent caps.

7. In a dynamo-electric machine, a toothed armature having its teeth formed integral with the metal of the armature, coils located in the grooves or spaces between the armature-teeth and adapted to be bodily removed therefrom, and caps of divided magnetic material removably secured to the teeth of said armature each cap projecting beyond the edges of its tooth toward adjacent teeth and over the coils in the grooves between the teeth.

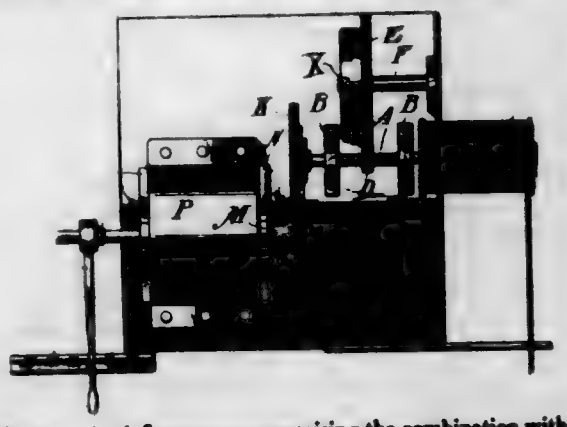
695,000. **CLOD-FENDER.** ELIAS R. SHAMBAUGH, Brown township, Ind. Filed Aug. 12, 1901. Serial No. 71,631. (No model.)



Claim.—1. The combination with a cultivator having a pair of plows, of a pair of clod-fenders each movably mounted upon the cultivator and adjacent the plows, and means within easy reach of the operator for simultaneously adjusting said fenders toward and from the ground independently of the plows.

2. The combination with a cultivator having a pair of plows, of a pair of clod-fenders movably mounted thereon each adjacent a plow, a lever also mounted on the cultivator, a cross-bar carried by said lever, a pair of links both connected to said cross-bar and each connected to a fender, and means for holding said lever in adjusted positions.

695,001. **FIRE-ESCAPE.** JUDSON C. SHARP, Salt Springville, N. Y. Filed Nov. 9, 1901. Serial No. 81,735. (No model.)



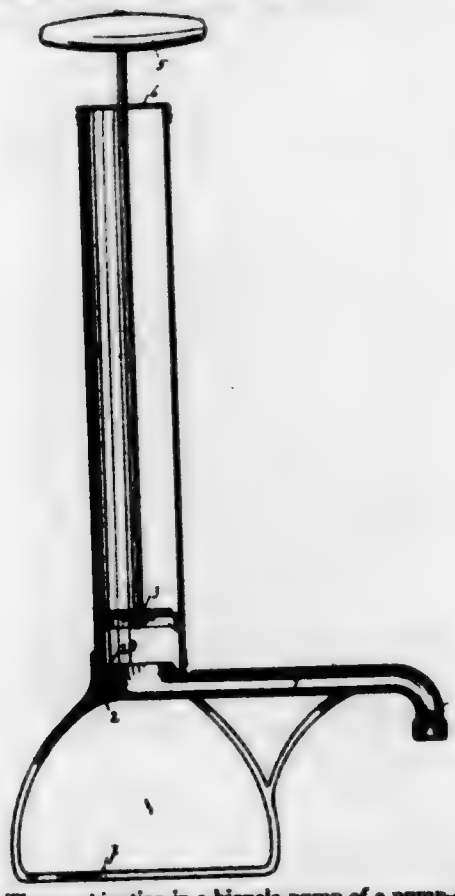
Claim.—1. A fire-escape, comprising the combination with the reel-carrying shaft, a spring for winding the same, a governor mechanism, comprising a fixed housing, a shaft mounted in suitable brackets and passing through said housing, geared connections between said shaft and the reel-carrying shaft, spring-actuated shoes, movable means carried by the shaft in the housing, for regulating the pressure of said shoes against the inner surface of the housing, a pawl and ratchet, between the reel-shaft and governor mechanism, as set forth.

2. A fire-escape comprising a reel and shaft carrying the same, a counter-shaft and spring for winding said reel, geared connections between the two, a governor mechanism comprising a fixed housing, a governor-shaft mounted therein, and having geared connections with the reel-carrying shaft, shoes, a pawl and ratchet between the reel-shaft and the governor mechanism carried by the governor-shaft, rods passing through the latter, and springs bearing between the governor-shaft and said shoes, and means for regulating the tension of said springs which bear against the friction-shoes, as set forth.

3. In combination with the reel-carrying shaft, a fixed housing, a governor-shaft mounted in suitable brackets thereon, converging shoes, and

rods carried by the governor-shaft, and on which rods said shoes are mounted, springs on the rods, a longitudinally-movable rod seated in a groove in the governor-shaft, bracket-arms secured to said longitudinal rod, and having arms bearing against said springs, a lever connected to said longitudinally-movable rod and a graduated notched bracket in which the ends of said lever are adapted to be held, a pawl and ratchet between the reel-shaft and the governor mechanism, as shown and described.

695,002. BICYCLE-PUMP. DE WARE B. SMITH, Deerfield, N. Y. Filed Feb. 16, 1899. Serial No. 705,648. (No model.)



Claim.—1. The combination in a bicycle-pump of a pump-cylinder, a pump foot or support rigidly attached to the lower end of the cylinder, a rigid side projecting spout or tube having a downwardly-opening outlet and an elastic washer or bushing arranged in said outlet and adapted to engage the valve-nipple, substantially as set forth.

2. The combination in a bicycle-pump of a pump-foot arranged to engage a fixed supporting-surface, a downwardly-opening cushion connection held and supported by the pump and adapted to engage a valve-nipple, the said connection arranged to engage with the valve-nipple when said pump-foot is engaged with the supporting-surface, substantially as set forth.

3. In a bicycle-pump the combination of a cylinder, and plunger, a pump-foot and downwardly-opening outlet held and supported by the pump, and fitted and arranged to engage a bicycle-tire valve-nipple by downward pressure at the outlet, substantially as set forth.

4. The combination with a portable pump having a barrel and plunger, of a pump-foot arranged to engage a supporting-surface, a downwardly-opening cushion connection held and supported by the pump and adapted to engage the object to be inflated when the pump-foot rests on the supporting-surface whereby the said connection may be held in contact by pressure exerted through the pump with the object to be inflated, and the pump-foot resists the thrust of the plunger, substantially as set forth.

5. In a bicycle-pump, a cylinder and plunger, a pump foot or support and a sidewise-projecting, downwardly-opening tube held and supported by the pump and having a cushion connection, substantially as set forth.

6. The combination with a bicycle-pump of a downwardly-opening cushion connection held and supported by the pump and adapted to engage with the object to be inflated, a pump-foot arranged to engage the supporting-surface when said cushion connection is connected with the valve-nipple, substantially as set forth.

7. The combination with the cylinder and plunger of a pump, of a cushion connection adapted to engage the tire rigidly supported from the pump and a pump-foot formed and arranged to be supported as upon a fulcrum at a point on the opposite side of the axial line of the barrel from said cushion connection when the pump is connected with the tire, substantially as set forth

8. In a bicycle-pump, a cylinder and plunger, a sidewise-projecting, downwardly-opening rigid tube having a cushion connection adapted to engage with the tire-nipple and a stirrup attached to the barrel combined, substantially as set forth.

9. An air-pump comprising essentially a pump barrel or cylinder, a stirrup rigidly attached to the lower end of the barrel or cylinder and a rigid laterally-projecting pipe or tube having a downwardly-extended spout or coupling and an elastic washer in the end of said spout or coupling adapted to engage the valve-nipple of a tire, or the inlet to any other object to be inflated, substantially as set forth.

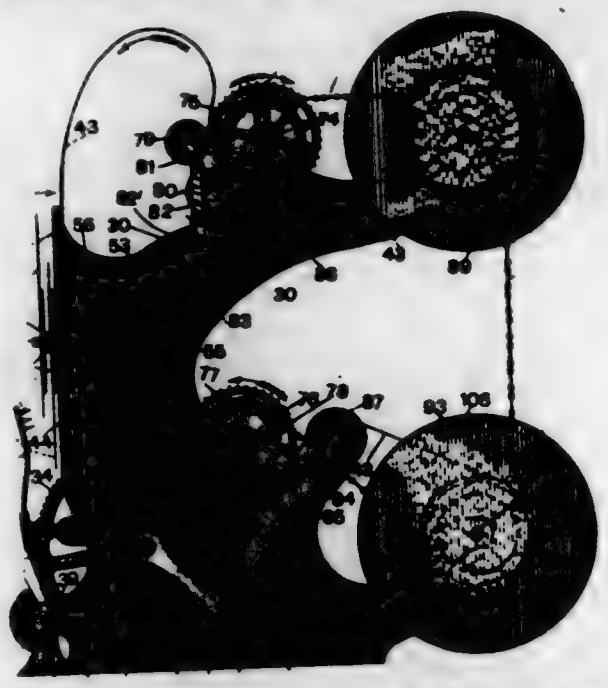
10. An air-pump comprising a barrel and plunger, a pump-foot, a cushion-tire coupling held and supported by the pump and adapted to engage and be maintained in connection with the valve-nipple of the tire or other device to be inflated by the downward pressure at said coupling, substantially as set forth.

11. The combination with a bicycle-pump of a downwardly-opening cushion connection adapted to engage a valve-nipple and rigidly supported by the pump, and a pump-foot adapted to engage the supporting-surface when said connection is engaged with the valve-nipple, substantially as set forth.

12. The combination with a bicycle-pump of a downwardly-opening cushion connection adapted to engage the valve-nipple, or other object to be inflated, and rigidly supported by the pump, a stirrup arranged to engage the supporting-surface when the said connection is engaged with the valve-nipple and adapted to receive the foot of the operator, substantially as set forth.

13. The combination in a bicycle-pump of a barrel, a piston, a pump-foot and a cushion connection arranged at the side of or out of the vertical plane of the pump-foot and held and operatively supported by the pump, substantially as set forth.

695,008. MOVING-PICTURE MACHINE. OSCAR SHELL, Chicago, Ill., assignor of one-half to Alexander H. Keith, Chicago, Ill. Filed Apr. 2, 1900. Serial No. 11,139. (No model.)



Claim.—1. In a moving-picture machine, the combination with a film-moving arm resilient throughout its length and having an integral cross portion at its upper free end and intermediate its ends having a lug, of a link connected to said lug and to a fixed part of the machine, and a crank connection with the lower end of said arm, as set forth.

2. In a moving-picture machine, the combination with a film-moving arm having pivotal connection intermediate its ends with the frame and resilient from its pivot to its free upper end and the latter formed T shape, the upper end of said arm being out of vertical line with its lower end and pivot, of a crank connected with the lower end of said arm, substantially as described.

3. In a moving-picture machine, the combination with a support, of shafts journaled thereon, a friction film-spool on each shaft, a film-mover, means for operating said mover, chain-wheels mounted on the shafts of said spools to revolve in but one direction on their respective shafts, ratchet-wheels on said shafts, and oppositely-disposed pawls on the chain-wheels engaging said ratchet-wheels and reversible with the reversal as to their operative position of the direction of movement of the film.

4. In a moving-picture machine, the combination with a support, of shafts journaled thereon, a friction film-spool for each shaft, a film-mover, means for operating the mover, chain-wheels mounted on the shafts of said spools to revolve in but one direction on their respective shafts, ratchet-wheels on said shafts, oppositely-disposed pawls mounted on the chain-wheels and means whereby said spools are automatically reversed in their

movement by the reversal of the direction of movement of the film, as set forth.

5. In a moving-picture machine, the combination, with a film-support provided with friction film-spools, of a pawl and ratchet for each spool, means for simultaneously moving the pawls in opposite directions relatively to their wheels, and a film-mover.

6. In a moving-picture machine, the combination, with a support, of two shafts journaled therein, each of which is provided with a friction film-spool and a ratchet, a sprocket-wheel journaled on each shaft and provided with a pawl, a sprocket-chain on the wheels, a film-mover, and means for operating said chain and mover in either direction.

7. In a moving-picture machine, the combination, with a support, of four shafts journaled therein, two of which are each provided with a friction film-spool and a sprocket-wheel, and the other two are each provided with a sprocket-wheel and a toothed film-feeding wheel, a chain over the sprocket-wheels, a reciprocatory film-mover, and an operating-wheel for moving the chain and the film-mover.

8. In a moving-picture machine, the combination, with a support, of four shafts journaled therein, two of which are each provided with a friction film-spool and a sprocket-wheel and the other two are each provided with a sprocket-wheel and a toothed wheel, a spring-actuated frame pivotally mounted adjacent to each toothed wheel, a roller-frame pivotally mounted in each of said frames provided with a set of rollers in position to engage with the toothed wheel, a guide-roller adjacent to each toothed wheel, a chain over the sprocket-wheels, a reciprocatory film-mover, and an operating-wheel for moving the chain and the film-mover.

9. In a moving-picture machine, the combination, with a film-support provided with a picture-window, of two shafts journaled in the support at right angles to each other, a sprocket-wheel and a bevel-wheel on one of the shafts and a shutter and a bevel-wheel on the other one, an intermittent film-mover provided with a sprocket-wheel, and a sprocket-chain on the sprocket-wheels.

10. In a moving-picture machine, the combination, with a film-support provided with a picture-window, of a shaft journaled in the support provided with a bevel-wheel, two shafts journaled in the frame adjacent to the window, one within the other, the outer end of each of which shafts is provided with a shutter and the inner end is provided with a bevel-wheel in engagement with the bevel-wheel on the first-mentioned shaft, an intermittent film-mover, and means for connecting the mover with the first-mentioned shaft.

11. In a moving-picture machine, a spool composed of a body with axial opening, flange and a groove parallel with said opening, a band loosely mounted on said body, and a friction device held in said groove and bearing against the inner face of said band for preventing free revolution of said band, as set forth.

12. In a moving-picture machine, the combination with a film-support, of shafts journaled therein, toothed wheels on said shafts, sprocket-wheels on said shafts, pawls and means for moving the same simultaneously in opposite directions a pivotally-mounted frame near each of said wheels, pivoted supports for said frames, and rollers carried by each of said frames and bearing upon and freely rotating in contact with said toothed wheels, as and for the purpose specified.

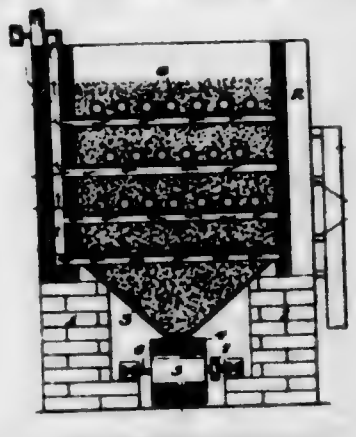
13. The combination with a film-support provided with a picture-window, of two shafts one within the other and independently movable, and a shutter carried by each shaft, said shutters being so constructed each of a length radially to fully cover the picture-window that no line of the marginal edge shall be parallel with the marginal lines of the picture-window when said shutters are overlapped, as set forth.

14. In a moving-picture machine, the combination with a film-support having a picture-window, of a hollow shaft, a second shaft working in said hollow shaft, miter cog-wheels on said shafts, means for engagement therewith for moving said shafts in opposite directions, and a shutter carried by each of said shafts each of a length radially to cover the picture-window, said shutters being provided at their side edges with notches disposed to admit and shut off the light as the shutters overlap opposite the picture opening, substantially as and for the purpose specified.

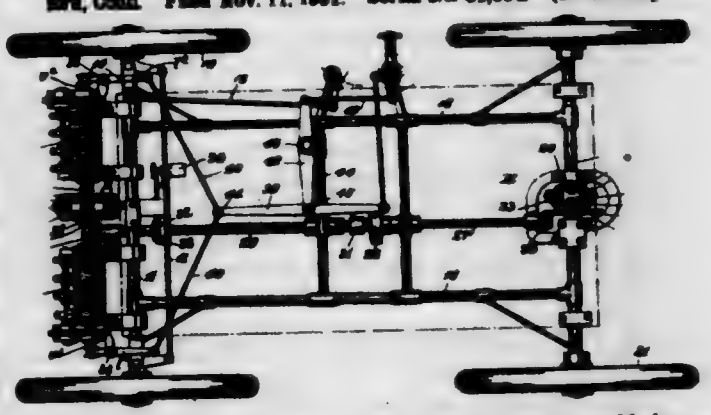
15. In a moving-picture machine, the combination with a film-support provided with a picture-window, of two independently-movable shafts, one within the other, and a shutter carried by each of said shafts, each shutter being of a length radially to fully cover the picture-window and each having at its side edges notches disposed to admit and shut off light in reverse order as the shutters overlap opposite the picture-opening, substantially as described.

695,004. SAND-DRIER. NOAH G. STEEL, Pittsburg, Pa. Filed Apr. 11, 1901. Serial No. 55,260. (No model.)

Claim.—A sand-drier, comprising in combination with the walled inclosure, having vertical flues in one of its inner walls, channel-irons open on their under sides supported by the opposite walls of said inclosure, said channel-irons opening on one side of the inclosure into said flues, and closed at their other ends, series of communicating steam-pipes resting upon said channel-irons, a hopper underneath the lower series of pipes and connecting the opposite walls of the inclosure, an endless carrier located adjacent to the outlet end of said hopper, as set forth.



695,005. POWER MECHANISM. CHARLES W. STORMS, Hartford, Conn. Filed Nov. 11, 1901. Serial No. 81,804. (No model.)



Claim.—1. The combination, with a pair of motors, movable in opposite directions and having valves for varying their efficiency; of a differential-power-transmission device comprising a rotatory member controlled by the movements of said motors relative to each other; and means for shifting said valves and for varying the speed ratio of said motors relatively to each other.

2. The combination, with a pair of independently-operative motors movable in opposite directions and each having a speed-controlling valve; of a differential-power-transmission device comprising a rotatory member controlled by the movements of said motors relative to each other; and means for shifting one of said valves and for varying the speed of one of said motors relative to that of the other.

3. The combination, with a pair of independently-operative motors, each having a speed-controlling device; of a differential-power-transmission device, comprising a rotatory member controlled by the movements of said motors relative to each other and an oscillatory member connected to both of said speed-controlling devices, and for varying the speed ratio of said motors relative to each other.

4. The combination, with a pair of independently-operative motors movable in opposite directions and having valves for varying their efficiency; of a differential-power-transmission device comprising a rotatory member controlled by the movements of said motors relative to each other; and a linkage comprising an oscillatory lever for shifting said valves and for varying the speed ratio of said motors relative to each other.

5. The combination, with a pair of independently-operative motors and speed-controlling device therefor; of a differential-power-transmission device, comprising a rotatory member controlled by the movements of said motors relative to each other; and a controller for varying the position of said speed-controlling devices relative to each other, and movable in two distinct zones disposed at opposite sides of a neutral line for shifting said speed-controlling devices.

6. The combination, with a pair of independently-operative motors and speed-controlling devices therefor; of a differential-power-transmission device, comprising a rotatory member controlled by the movements of said motors relative to each other; and a controller movable in a horizontal plane and in a forward and in a rearward direction from a neutral line for shifting said speed-controlling devices, and for causing an advancing and a retrograde movement, respectively, of said rotatory member.

7. The combination, with a pair of motors movable in opposite directions; of a differential-power-transmission device, comprising a rotatory member controlled by the movements of said motors relative to each other; and means for variably controlling the efficiency of both motors, simultaneously.

8. The combination, with a pair of motors movable in opposite directions; of a differential-power-transmission device, comprising a rotatory member controlled by the movements of said motors relative to each other; and a linkage comprising a member movable toward and away from said motors, and for variably controlling the efficiency of both motors, simultaneously.

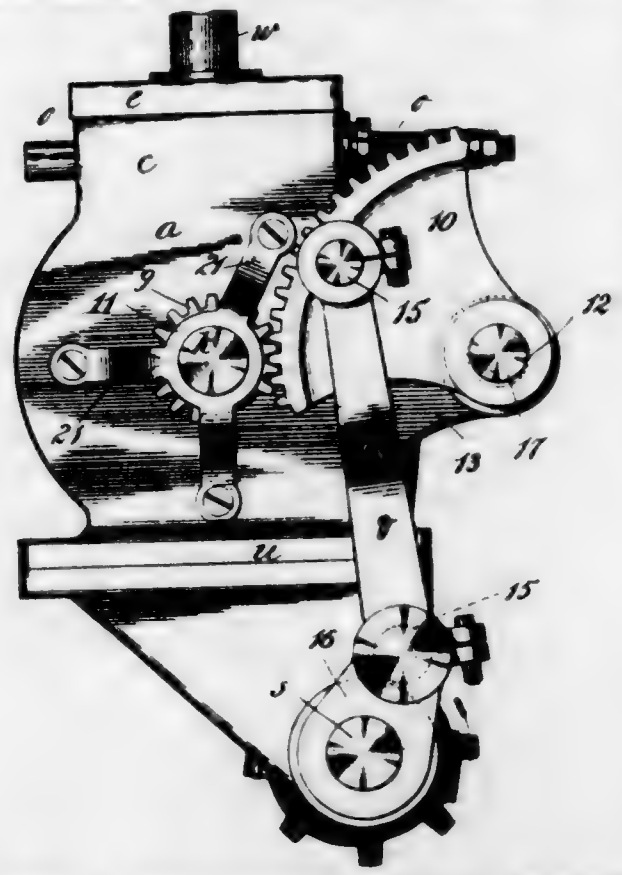
9. The combination, with a pair of motors movable in opposite directions; of a differential-power-transmission device, comprising a rotatory member controlled by the movements of said motors relative to each other; and a linkage comprising a member movable toward and away from said motors, for variably controlling the efficiency of both motors simultaneously; and a device rotatable in opposite directions for operating said linkage.

10. The combination, with a pair of motors movable in opposite directions; of a differential-power-transmission device comprising a rotatory member controlled by the movements of said motors relative to each other; and a compound controller for varying the speed ratio, and also the efficiency, of said motors, simultaneously.

11. The combination, with a pair of motors movable in opposite directions; of a differential-power-transmission device, comprising a rotatory member controlled by the movements of said motors relative to each other; a controller, comprising a member for varying the speed ratio of said motors; and a device for variably controlling the efficiency of both motors, simultaneously, and operable independently of, but movable with, said speed-varying member.

12. The combination, with a pair of motors movable in opposite directions; of a differential-power-transmission device, comprising a rotatory member controlled by the movements of said motors relative to each other; a controller, comprising an oscillatory member movable on opposite sides of a neutral line for varying the speed ratio of said motors relative to each other; and a rotatable device for variably controlling the efficiency of both motors, simultaneously, and operable independently of, but movable with, said oscillatory member.

695,006. STEAM-ENGINE. BYRON F. STOWELL, Springfield Mass. Filed Apr. 2, 1901. Serial No. 54,061. (No model.)



Claim.—1. In a steam-engine, in combination, the engine-body having the approximately cylindrical pressure-chamber, the axially-arranged rotatable body comprised as an intermediate portion of a shaft, provided with the radial piston, the fixed partition extending from the periphery of the cylinder-chamber to contact on the said rotatable body, steam-passages leading into the steam-chamber at opposite sides of the fixed wall, means for alternately opening and closing said passages whereby the radial piston is caused to have an oscillatory movement partially around within said chamber, an element having a series of concentric teeth affixed to the externally-extended end of said shaft, a driving-shaft, a sector-gear pivotally mounted and meshing said toothed element of the piston-shaft, a crank on the driving-shaft, and a pitman-rod pivotally connected to the sector, and to the crank, substantially as described.

2. In a steam-engine, in combination, the engine-body having the approximately cylindrical pressure-chamber, the axially-arranged rotatable body comprised as an intermediate portion of the shaft, provided with the radial piston, the fixed partition extending from the periphery of the cylinder-chamber to contact on the said rotatable body, steam-passages leading into the steam-chamber at opposite sides of the fixed wall, the slide-valve for alternately opening and closing said passages whereby the radial piston is caused to have an oscillatory movement around within said chamber, a spur-wheel affixed to the externally-extended end of said shaft, a driving-shaft having a crank and an eccentric, a sector-gear, pivotally mounted, and meshing said spur-wheel, the pitman-rod connecting the sector and the crank, the bell-crank lever, the arm connected to the eccentric, and said bell-crank and the slide-bar engaged by the bell-crank lever and engaging the stem of the slide-valve.

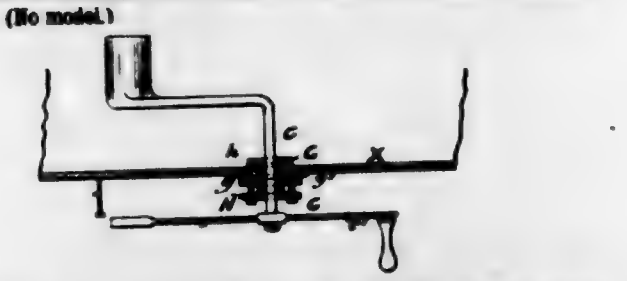
3. In an engine of the character described, the combination with the shaft having the radial piston and the toothed wheel 9 and the driving-shaft having the crank, of the cylindrical stud and a corresponding cylindrical supporting-bearing therefor axially parallel with the piston-shaft, said stud having its end constructed with the cylindrical portion eccentric to the portion thereof supported in the aforesaid bearing, the sector-gear having its cylindrically-apertured hub mounted to oscillate on the said eccentric portion of the stud, provisions for rotationally adjusting said stud, and a pitman-rod pivotally connected to the sector-gear, and to said crank, substantially as and for the purpose described.

4. In an engine of the character described, the combination with the shaft having the radial piston and the toothed wheel 9, and the driving-shaft having the crank, of the cylindrical stud and provisions whereby it may be turned, and a corresponding cylindrical supporting-bearing for said stud axially parallel with the piston-shaft, and said stud having its end constructed with the cylindrical portion eccentric to the portion thereof supported in the aforesaid bearing, the sector-gear having its cylindrically-apertured hub mounted to oscillate on the said eccentric portion of the stud, a set-screw for detachably confining said stud against turning, and a pitman-rod pivotally connected to the sector-gear and to said crank, substantially as and for the purpose described.

5. A steam-engine of the character described comprising an oscillatory piston and piston-shaft having externally of the engine-casing a concentrically-toothed element, and a driving or power shaft combined with a reciprocatory element having teeth in mesh with said toothed element of the piston-shaft and partaking of a reciprocatory motion therefrom, and a medium of connection between said reciprocating element and the driving-shaft for imparting the back-and-forth motions of the former a continuous rotary motion to the latter.

6. A steam-engine of the character described, comprising an oscillatory piston and piston-shaft having externally of the engine-casing, a concentrically-toothed element, and a driving or power shaft, combined with a reciprocatory element having teeth in mesh with and deriving reciprocatory movement from said toothed element, and a pitman-rod connected pivotally to said reciprocatory element, and having a crank connection with the driving-shaft.

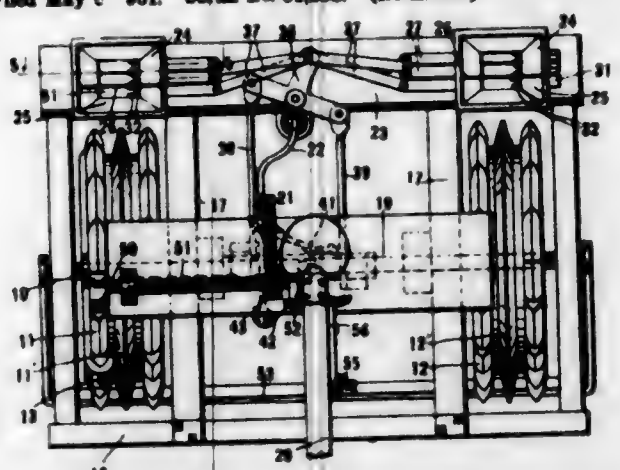
695,007. WATER-LEVEL INDICATOR. CHARLES STUART and OLIVER A. HOCKEY, London, England. Filed Jan. 2, 1900. Serial No. 137. (No model.)



Claim.—1. In a device of the character described, a boiler having an opening in the shell thereof, a float adapted to be passed through the opening in the boiler-shell, a crank-arm on the float, a spindle on the end of the crank-arm, a bushing-plug mounted on the spindle and closing the opening in the boiler-shell, and an indicator-arm on the exposed end of the spindle and located in the same plane as the crank-arm, substantially as described.

2. In a device of the character described, a boiler having a circular opening in the shell thereof, an elongated cylindrical float slightly smaller in diameter than said opening so as to be capable of passing through the same, a crank-arm on one end of the float, a spindle on the end of the crank-arm, a bushing-plug mounted on the spindle and secured to the exterior of the boiler-shell tightly closing the opening therein and serving as a journal-bearing for the spindle, an indicator-arm carried on the exposed end of the spindle and located in the same plane as the crank-arm, and a scale on which the position of the float is visibly indicated by the position of the indicator-arm, substantially as described.

695,008. PLANTER. RUDOLPH STOCKWISH, Indianapolis, Ind. Filed May 6 901. Serial No. 58,852. (No model.)



Claim.—1. In a planter, the combination with a receptacle, of a guideway formed in the bottom thereof, a dropper-slide, having an inclined face 29 and an inclined transverse groove 29' mounted in said guideway, a discharge-chute leading from the bottom of said guideway at a point beyond the hopper, and means for reciprocating the slide so as to intermittently bring the groove therein beneath the wall of the hopper and into register with the discharge-chute.

2. In a planter, the combination with the furrow-openers and a rotatable axle, of a seed-receptacle, a reciprocable dropper-slide mounted therein, a pair of arms carried by the axle, a pair of links arranged to normally lie in the paths of movement of said arms, connections between said links and dropper-slide, and means for shifting said links transversely out of the paths of movement of said arms, and for simultaneously withdrawing the furrow-openers from the ground.

3. In a planter, the combination with a rotatable axle and the supporting-wheels thereof, of an arm projecting beyond the periphery of one of said wheels, means for securing said arms to said wheel, a seed-receptacle, dropping mechanism mounted therein, means operated by the axle for operating said dropping mechanism, a frame supported upon said axle, a catch carried by said frame, and means for throwing said catch into engagement with the wheel so as to prevent the rotation of the axle.

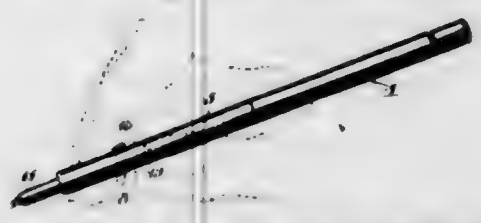
4. In a planter, the combination with a supporting-wheel and rotatable axle carried thereby, of a frame pivoted upon said axle, a tongue pivoted upon said frame substantially vertically above the axle, a lever 21 pivoted upon said tongue, connections between said lever and frame whereby said frame may be swung upon the axle, a seed-receptacle carried by said frame, a receptacle dropper-slide mounted therein, a pair of arms carried by the axle, a pair of links pivoted upon the frame and having their free ends normally in the paths of movement of said arms, connections between said links and the dropper-slide, and intermediate connections between said links and the lever 21 for causing a transverse movement of said links by a movement of the lever.

5. In a dropping mechanism for planters, the combination with a seed-receptacle, of a pair of guideways formed in the bottom of said receptacle, a discharge-chute leading from said guideways, a series of dropper-slides each provided with a different number of seed-openings and each adapted to be mounted in either of said guideways, and means for reciprocating said dropper-slides in said guideways.

6. In a planter, a dropper-slide having an inclined upper face, 29, and a groove extending from said face transversely through the slide, the said groove being enlarged at its upper end and inclined therefrom in the direction of travel of the slide from its receiving to its dropping position.

7. In a planter, the combination with the axle, of a disk carried thereby, dropping mechanism provided with an operating part arranged adjacent said disk and a series of adjustable fingers pivoted upon said disk and each arranged to be independent thrown into or out of position to engage and operate the dropping mechanism.

695,009. PHOTOGRAPHIC RETOUCHING-TOOL. ANDREW SWAN, Rhinelander, Wis. Filed Nov. 12, 1901. Serial No. 82,043. (No model.)

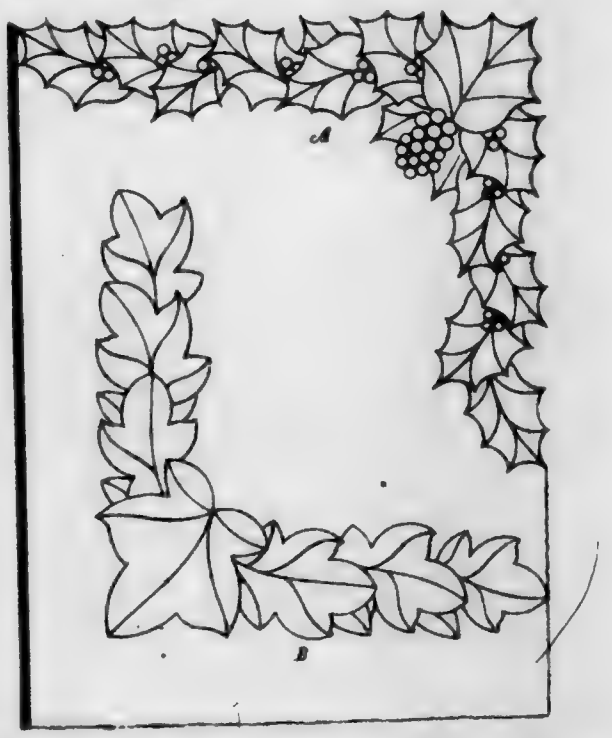


Claim.—1. A retouching-tool comprising a handle provided with three internal guideways opening to the exterior through one end thereof, said handle also being provided with slots communicating with the guideways, two of said slots being located in the opposite sides of the handle and the other in the top of the handle, tools sliding in said guideways, and headed studs slidable in the slots and connected with the tools, whereby the latter may be independently projected and retracted, said studs being so arranged as to be engaged by the thumb and first two fingers of the hand in their natural positions grasping the handle a short distance from the said end of the handle through which the guideways open, whereby either of said tools may be projected or retracted by the back or forth movement of the thumb or a finger without necessitating the removal or displacement of the other two fingers or thumb and finger, substantially as described.

2. A retouching-tool comprising a handle provided with internal guideways opening through one end of the handle and located at the points of an imaginary triangle arranged at an oblique angle to the vertical axial line of the handle when said handle is disposed in position for writing, said handle also having slots communicating with the guideways, two of said slots being located in the opposite sides of the handle and the other in the top of the handle, tools sliding in said guideways, and headed studs slidable in the slots and connected with the tools, whereby the latter may be independently projected and retracted, said studs being so arranged as to be engaged by the thumb and first two fingers of the hand in their natural positions grasping the handle a short distance from the said end of the handle through which the guideways open, whereby either of said tools may be projected or retracted by the back or forth movement of the thumb or a finger without necessitating the removal or displacement of the other two fingers or thumb and finger, substantially as specified.

3. A retouching-tool comprising a handle formed at one end with a reduced portion provided with peripheral longitudinal guideways, three in number, arranged, respectively, at the top and on opposite sides of the handle when said handle is in writing position, a sleeve inclosing the reduced portion of the handle and provided with slots corresponding in number to and arranged in alinement with said guideways, tools sliding in said guideways, and headed studs, one for each tool, each stud sliding on the outer surface of the sleeve and having a shank projecting through the coacting slot and connected with the coinciding tool, said studs being so arranged as to be engaged by the thumb and first two fingers of the hand in their natural positions grasping the handle a short distance from the said end of the handle through which the guideways open, whereby either of said tools may be projected or retracted by the back or forth movement of the thumb or a finger without necessitating the removal or displacement of the other two fingers or thumb and finger, substantially as and for the purpose set forth.

695,010. DECORATIVE ARTWORK AND PROCESS OF PRODUCING SAME. THOMAS H. SWINNERTON, St. Paul, Minn. Filed Nov. 25, 1901. Serial No. 83,055. (No specimens.)



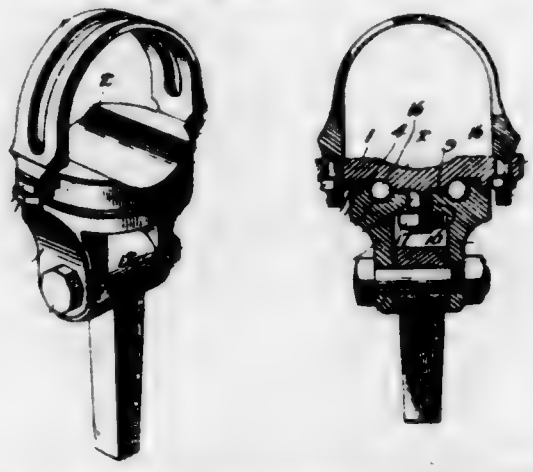
Claim.—1. As a new article of manufacture, the herein-described ornamental article of velvet, or other pile fabric, with painted figures or designs thereon, and having the marginal lines and markings of said designs burned to give relief and to prevent the fresh paint from spreading over and beyond the said outline, substantially as described.

2. As a new article of manufacture, the herein-described ornamental

pile fabric, the ornamentation thereon consisting of colored and uncolored portions, the colored portions being separated from the uncolored portions by means of lines burned on the standing pile by means of a stylus, substantially as described.

3. The method of ornamenting velvet or other pile fabric, which consists in burning the outlines and markings of the design, and painting the portions lying within the design so traced, for the purpose of pleasing effect and to prevent the fraying of raw edges, or the separating of filaments forming the fabric, substantially as described.

695,011. OAR-LOCK. CLIFTON A. TAMBLEY, Fort Plain, N. Y., assignor of one-half to Carl H. Greene, Fort Plain, N. Y. Filed July 29, 1901. Serial No. 70,160. (No model.)



Claim.—1. An oar-lock having an upper horizontally-rotatable table also capable of a swinging movement, and an arcuate yoke having lower terminal screw-stems removably applied to diametrically opposite portions of the said table.

2. An oar-lock having an upper horizontally-rotatable table also capable of a swinging movement, and an arcuate yoke having its terminals removably attached to said table.

3. An oar-lock having an upper horizontally-rotatable table provided with a central depending screw-threaded post, an arcuate yoke removably attached to said table, a lower table through which the said post extends and is secured, the said lower table having depending bearing-arms, balls interposed between the tables, and a squared thole-pin having a head pivotally held between the said arms.

4. An oar-lock having an upper table provided with clamping means for an oar-shank, and also having a central depending post, a lower pivotally-held table through which said post projects and is secured, and balls interposed between the two tables.

695,012. GANG LACING DEVICE. JOHN C. TELFER, Kansas City, Mo., assignor to the Telfer Manufacturing Co., Kansas City, Mo. Filed Nov. 11, 1901. Serial No. 81,805. (No model.)



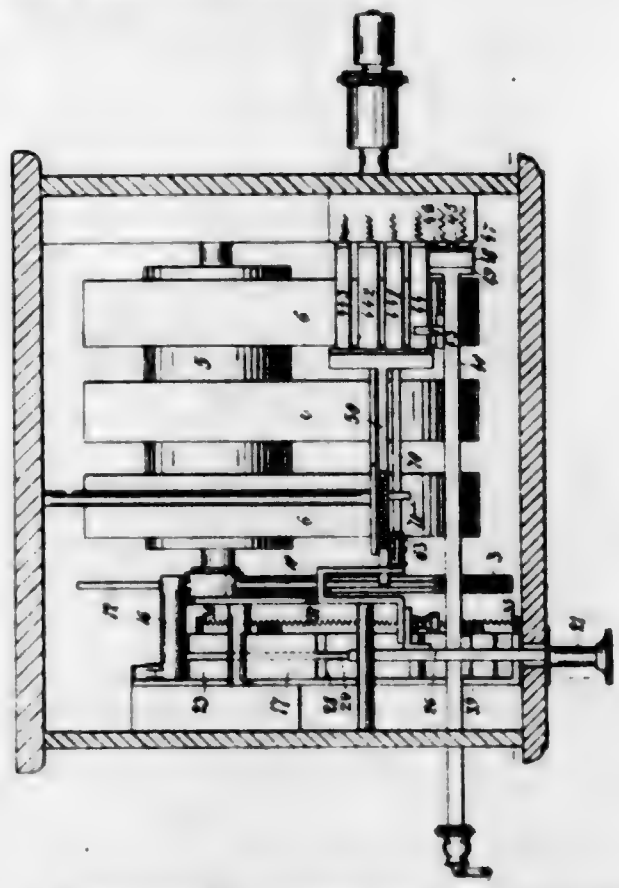
Claim.—1. As a new article of manufacture, a gang lacing device, consisting of a series of shanks, arranged side by side and terminating at one end in hooks or loops and a strip integrally uniting the opposite ends of and extending substantially at right angles to said shanks.

2. As a new article of manufacture, a gang lacing device, consisting of a series of shanks arranged side by side, and terminating at one end in hooks or loops and at their opposite ends in arms and a strip integrally uniting said arms by a strip extending substantially at right angles to said shanks, substantially as described.

3. As a new article of manufacture, a gang lacing device, consisting of a series of shanks arranged side by side and terminating at one end in hooks or loops and at their opposite ends in arms projecting at an angle to the body of the hooks, and a bar or strip connecting the arms of contiguous shanks and occupying the same plane as said arms, substantially as described.

695,018. COIN-FREED TELEPHONE APPARATUS. KARL UGHERMANN, Christiania, Norway. Filed Dec. 7, 1900. Serial No. 39,089. (No model.)

Claim.—1. In a coin-freed telephone apparatus, an inductor, a wheel connected thereto, an arresting-lever provided with two notches and arranged to prevent the motion of said wheel and inductor, and capable of being moved to allow their operation, a spring-latch arranged to temporarily engage one of said notches and a positively-moved latch arranged to engage the other, substantially as set forth.



2. In a coin-freed telephone apparatus, an inductor, a wheel connected thereto, an arresting-lever provided with two notches and arranged to prevent the motion of said wheel and inductor, and capable of being moved to allow their operation, a spring-latch arranged to engage one of said notches and a second latch arranged to engage the other, and a lever for releasing the spring-latch operated by the second-mentioned one, substantially as set forth.

3. In a coin-freed telephone apparatus, the combination with the signaling device, of means to engage and prevent the operation of said signaling device, a slide arranged to disengage the means and to receive a coin, and a detent for said slide, said detent moved out of operative position by the coin when the slide is moved with the coin in it, substantially as set forth.

4. In a coin-freed telephone apparatus, the combination with the signaling apparatus, of a crank-operated cog-wheel geared thereto, a lever arranged to engage the teeth of said wheel to prevent its rotation, a swinging arm acting on one end of the lever, a slide adapted to receive a coin and move the swinging lever, whereby the signaling apparatus is released, a detent to prevent the complete movement of said slide and moved out of operative position by the coin when the slide is operated, substantially as set forth.

5. In a coin-freed telephone apparatus, the combination with the signaling apparatus, of a crank-operated cog-wheel geared thereto, a pivoted spring-held lever arranged to engage with one end the teeth of said wheel to prevent its rotation, a swinging arm acting on the other end of said lever, a spring-held slide provided with a notch and a coin-slot adapted to receive a coin and move the swinging arm to actuate the lever to release the signaling apparatus, a pawl arranged to engage the notch in said slide to stop it when it is moved without a coin and moved out of operative relation by the coin in said slide, substantially as described.

6. In a coin-freed telephone apparatus, the combination with the signaling apparatus, of means for preventing the operation thereof, a spring-held slide provided with a notch adapted to receive a coin and cause the release of the signaling apparatus, a pawl arranged to engage the notch when the slide is moved without a coin therein, an automatic switch arranged to prevent the complete return of said slide after discharging its coin and to close the talking-circuit when the receiver is removed from said lever, substantially as set forth.

7. In a coin-freed telephone apparatus, the combination with the signaling apparatus and the signaling and talking circuits, of a lever to prevent the actuation of the signaling apparatus, a spring-held slide adapted to receive a coin and cause said lever to release the signaling apparatus and a spring-held contact-lever simultaneously operated to close the signaling-circuit, substantially as set forth.

8. In a coin-freed telephone apparatus, the combination with the signaling and talking circuits, of a lever arranged to prevent the actuation of the signaling apparatus, a slide arranged to receive a coin and to cause

the movement of said lever to release the signaling apparatus, a contact-lever operated by the first-mentioned one arranged to close the signaling-circuit, an automatic switch arranged to close the talking-circuit and means operated thereby to simultaneously cut out the signal-circuit when the telephone is lifted therefrom, substantially as set forth.

9. In a coin-freed telephone apparatus, the combination with the signaling apparatus and the signaling and talking circuits, of a lever arranged to prevent the actuation of the signaling apparatus, means for moving said lever to release the signaling apparatus, a spring-latch to hold said lever from engagement with the signaling apparatus, a spring-held contact-lever actuated by the first-mentioned one and arranged to close the signaling-circuit, an automatic switch arranged to close the talking-circuit and simultaneously cut out the signaling-circuit, and means operated from the signaling apparatus to release said spring-latch, substantially as set forth.

10. In a coin-freed telephone apparatus, the combination with the signaling apparatus and its operating crank-axle, of a lever arranged to arrest the operation thereof and provided with two notches, a spring-latch arranged to take into one of said notches, a positively-moved latch taking into the other notch, means for operating the latter, a pivoted lever connected to the spring-latch, means on the positively-moved latch for actuating the pivoted lever, substantially as set forth.

11. In a coin-freed telephone apparatus, the combination with the signaling apparatus, an operating crank-axle therefor arranged to have a slight longitudinal motion, of a lever arranged to arrest the operation of the signaling apparatus and provided with two notches, a spring-latch arranged to engage one of said notches, a positively-moved latch provided with an offset operated by the crank-axle, a pivoted lever yieldingly secured at one end to the spring-latch, the other end of said lever actuated by the offset on the positively-moved latch, substantially as set forth.

12. In combination, a telephone signaling apparatus, a lever normally arranged to prevent the operation thereof, a slide, means for operating said slide to release the lever, a spring-held lever actuated by the first-mentioned one to close the signaling-circuit, an automatic switch arranged to close the talking and simultaneously cut out the signaling circuit, and means for releasing the first-mentioned lever by ringing off on the signaling apparatus.

13. In a coin-freed telephone apparatus, an inductor, an arresting-lever provided with two notches and arranged to prevent the motion of said inductor and capable of being moved to allow its operation, a spring-latch arranged to engage one of said notches and a second latch arranged to engage the other, the distance between the acting faces of the hook and latch being less than the distance between the corresponding faces of the notches, and means for operating the latches, for the purpose specified.

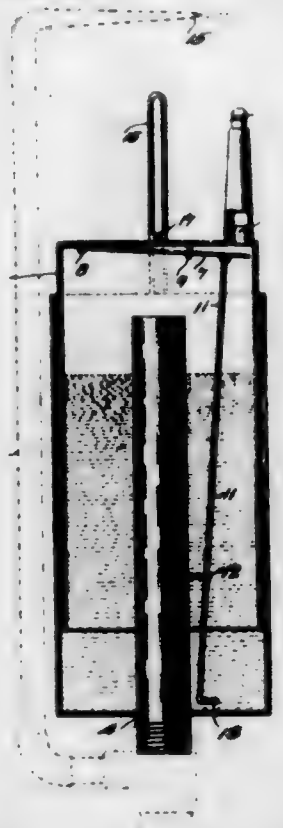
14. In a coin-freed telephone apparatus, the combination with the signaling and the signaling and talking circuits, of a crank-operating cog-wheel geared to the signaling apparatus, a pivoted spring-held lever provided with two notches and arranged to engage with one end the teeth of said wheel to prevent its rotation, a swinging arm acting on the other end of said lever, a spring-held slide provided with a notch and a coin-slot adapted to receive a coin and move the swinging arm to actuate the lever to release the signaling apparatus, a pawl arranged to engage the notch in said slide to stop it when it is moved without a coin and moved out of operative relation by the coin in said slide, a spring-latch arranged to engage one of the notches in the lever, a positively-moved latch arranged to engage the other and provided with an offset, a pivoted lever yieldingly secured at one end to the spring-latch, the other end of said lever actuated by the offset on the positively-moved latch, a spring-held lever actuated by the first-mentioned lever and arranged to close the signaling-circuit, and an automatic switch arranged to close the talking-circuit and simultaneously cut out the signaling-circuit, substantially as set forth.

695,014. FLASH-LIGHT GAS-BURNER. DELL WARD, Grand Rapids, Mich., assignor of one-half to Joseph R. Taylor, Grand Rapids, Mich. Filed Nov. 14, 1901. Serial No. 82,316. (No model.)

Claim.—1. An intermittently-acting gas-burner comprising a gas-holder having an element movable in one direction by the pressure of the gas therein, said movable element having a gas-escape passage, a valve, carried by said movable element, to close said gas-escape passage and maintained in closed position by the pressure of the gas during the outstroke of said movable element, and a connection between said valve and a fixed point to open said valve at the limit of the outstroke of said movable element, substantially as described

2. In a gas-burner of the class described, the combination of an expansible gas-holder having means to supply gas thereto, the movable element of said holder having a gas-escape passage, a valve pivotally connected to and carried by said movable element and actuated by the pressure of the gas to close said passage during the outstroke of said element, and means to open said valve at the limit of the outstroke of said movable element, substantially as described.

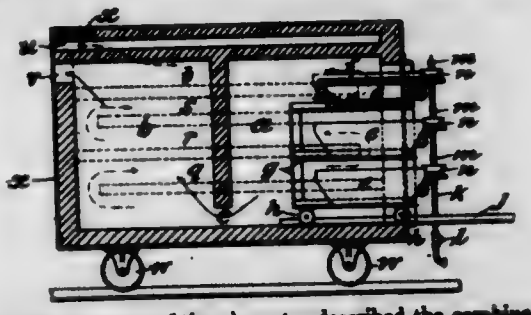
3. In a gas-burner of the class described, the combination of an expansible gas-holder, having an element movable in one direction by the pressure of the gas therein, said movable element having a gas-escape passage, a valve to open and close said passage, said valve being movable with said movable element and maintained in closed position by the pressure of the gas during the outstroke of said movable element, and means to open said valve at the limit of the outstroke of said movable element and close said valve at the limit of the reverse stroke of said movable element, substantially as described.



4. In a gas-burner of the class described, the combination of an expansible gas-holder, having an element movable in one direction by the pressure of gas therein, said movable element having a gas-escape passage and a burner to which said passage leads, a valve to open and close said passage and maintained by the pressure of the gas in a closed position during the outstroke of said movable element, said valve having a gas-passage of reduced capacity therein, and means to close said valve at the limit of the instroke of said movable element, substantially as described.

5. In a gas-burner of the class described, the combination of an expansible gas-holder, having an element movable in one direction by the pressure of gas therein, said movable element having a gas-escape passage, a valve, carried by said movable element, to open and close said gas-escape passage, an operating element connected to said valve and having a trip and fixed stops, alternately engaged by said trip, to open and close said valve at the limits of the stroke of said movable element, substantially as described.

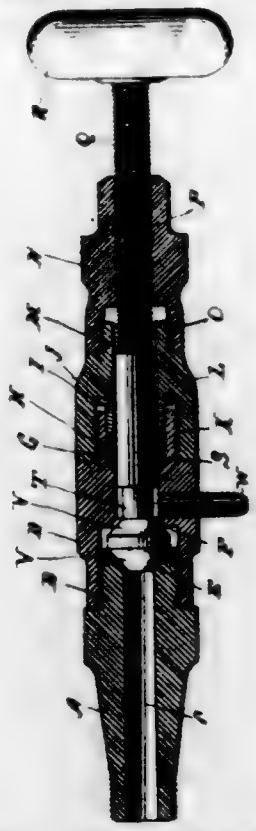
695,015. PORTABLE FURNACE. JAMES WARD, Delaval, England, assignor to International Oil Furnace Company, Limited, Scotswood Road, Delaval, near Newcastle-on-the-Tyne, county of Northumberland, England. Filed Mar. 11, 1901. Serial No. 50,730. (No model.)



Claim.—In a furnace of the character described the combination of a vaporizing-chamber *a*, a heating-chamber *b* in communication therewith at its lower part, tortuous air-passages on each side of said chambers *a b*, a slide for admitting air to the lowermost end of each of said passages an outlet *c* for discharge of gas from said heating-chamber *b*, a flue *e* for discharge of air from the uppermost end of each of said passages, trays *o* in said vaporizing-chamber for receiving the fuel, said trays being mounted in a frame *g*, a supply-pipe *k* having a stop-valve *l* and

cocks in said pipe *k* for regulating the flow to each tray through short pipes, provided with funnels, and a metallic casing *x* for holding the whole together, substantially as described.

695,016. VALVE. HENRY M. WARR, Lexington, Ky. Filed Aug 15, 1901. Serial No. 72,104. (No model.)



Claim.—1. A valve or cock comprising a valve-seat section having a valve-seat, an inner section, a packing-nut, a packing, a threaded nut N having an internally-threaded passage, a threaded valve rod or stem, and an escape opening or pipe in the inner section; the said stem being provided at its end with a conical surface to engage the valve-seat.

2. A valve or cock comprising a threaded end section, an inner section having a valve-seat, a packing-nut, a packing, a threaded nut having an internally-threaded passage, a threaded rod or stem, and an escape opening or pipe; the said stem being provided at its end with a beveled surface to engage the valve-seat.

3. A valve or cock embracing a section having a valve-seat, a packing-nut, a packing adapted to be compressed by the packing-nut, a threaded nut N which is internally threaded and adapted to be detached from the packing-nut, a threaded valve-stem provided with a beveled surface to fit the valve-seat, and an escape opening or pipe in the inner section.

4. A valve or cock having a valve-seat, a threaded stem or rod provided with a surface to fit the seat, a section D, a packing, a packing-nut J, and a threaded nut N engaging the threaded stem and detachably secured to the packing-nut, said packing being located between the packing-nut and the section D, as set forth.

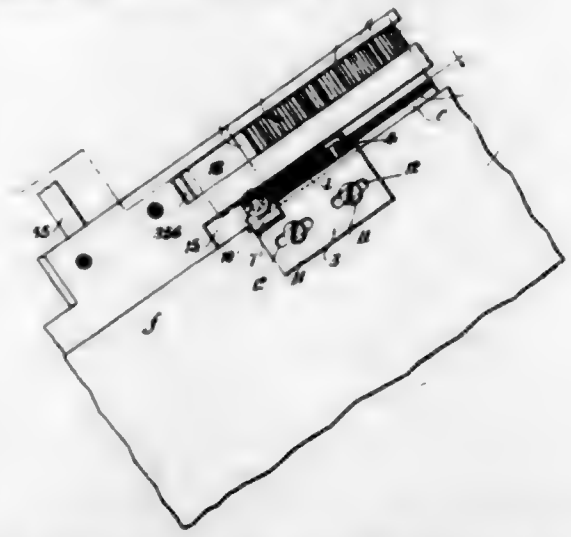
5. A valve or cock consisting of threaded sections A, D, J, and N detachably secured together end to end, and one of said sections having a valve-seat; a threaded valve-stem Q provided with a bearing to fit the seat in one of the sections, the threaded nut N being adjustable on the said stem; an escape-pipe; and a packing located between the nut N and the valve-seat and surrounding the smooth portion of the rod.

6. A valve or cock having a valve-seat, a section A, a section D, a section J, a threaded valve-stem provided with a bearing-surface for engaging the seat, an internally-screw-threaded nut which can be detached from another section of the valve and run upwardly upon the valve-stem and a stationary packing and packing-gland I located between the valve-seat and the threaded nut.

7. A valve or cock having a section A, a section D detachably secured to section A, a section J secured to section D, a valve-seat, a threaded valve-stem, a packing H and packing-gland located above the valve-seat and surrounding the valve-stem, and a detachable threaded nut N which can be run up on the stem and revolved with the same, said sections and nut being arranged in line, and said valve-stem having a bearing at the end engaging the seat; whereby the valve can be ground to its seat without the removal of the same from the receptacle containing fluid under pressure.

695,017. MACHINE FOR JUSTIFYING TYPE. JOHN WATSON, Brooklyn, N. Y., assignor to Empire Machine Corporation, a Corporation of New Jersey. Filed June 29, 1901. Serial No. 66,681. (No model.)

Claim.—1. The combination of a line-holder arranged to descend by gravity, and a device for diminishing the impact of the line-holder and retarding its movement substantially as described.



2. The combination of a line-holder arranged to descend by gravity, a side plate against which it slides; and a device on the side plate for diminishing the impact of the line-holder and retarding its movement substantially as described.

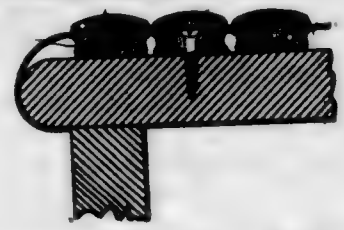
3. The combination of a line-holder arranged to descend by gravity, a side plate against which it slides; and a lever arranged to engage with the line-holder and retard its movement, and devices substantially as described for controlling the movement of the said lever.

4. The combination of a line-holder arranged to descend by gravity, a side plate against which it slides, and a lever pivoted on the side plate arranged to engage with the line-holder and retard its movement and devices substantially as described for controlling the movement of the said lever.

5. The combination of a line-holder provided with a slot of suitable length upon its inner face, a side plate against which it slides; and a lever pivoted upon the side plate of the machine, the forward end of which is arranged to engage with and retard the movement of the line-holder as it descends, and devices substantially as described whereby after the forward end of the line-holder has passed the point of the lever, the point is forced forward into the slot and ceases to operate.

6. The combination of a line-holder provided with a slot of suitable length on its inner face; a side plate against which the line-holder slides; a lever pivoted upon the side plate of the machine, the forward end of which is arranged to engage with and retard the movement of the line-holder as it descends; a stop upon the plate for limiting the forward motion of the lever; and a spring the tension of which may be regulated by a suitable thumb-screw for controlling the movement of the said lever.

695,018. SAFETY-TREAD. FRANK WEAR, Medford, Mass. Filed Feb. 20, 1901. Serial No. 48,140. (No model.)

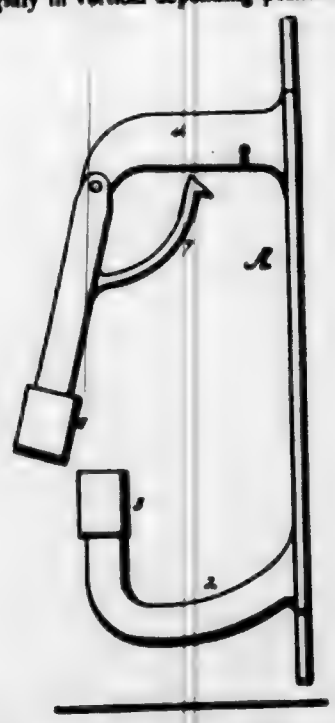


Claim.—A safety-tread comprising a plate having a plurality of openings and annular flanges integral with the edges of said openings and convexed inward, and non-slippable studs of a shape and material adapted to be compressed in the spaces within the flanges sufficiently to hold said studs projecting above and below the flanges whereby the lower edges of the flanges are prevented by the studs from coming in contact with the surface on which the tread rests while permitting the upward withdrawal of the studs as for substitution of one stud for another without raising the plate from its position.

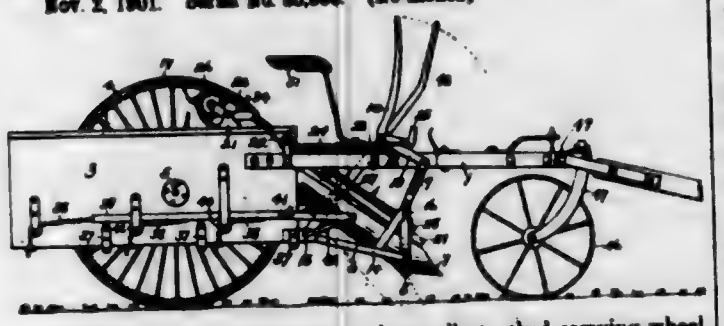
695,019. GARMENT-HANGER. LOUISE S. WHITE, Eskridge, Kans. Filed June 5, 1900. Serial No. 19,168. (No model.)

Claim.—A garment-hook, comprising a plate adapted to be secured to a vertical surface and formed with a hook at its lower portion rigid with the plate, a yielding tip on the free end of the hook, a rigid arm projected horizontally from the upper end of the fastening-plate, a lock in the said arm, a locking-bar hinged to the free end of the rigid arm and arranged to swing into vertical alinement with the hook and formed with a rigid

heap or arm curved upwardly and formed to engage the lock and hold the locking-bar rigidly in vertical depending position, substantially as set forth.



695,020. EXCAVATOR. JOHN R. WILLIAMS, Linneus, Mo. Filed Nov. 2, 1901. Serial No. 80,884. (No model.)



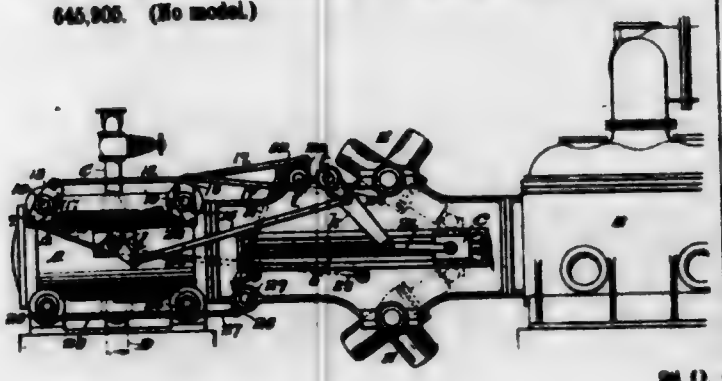
Claim.—1. In an excavator, an internally-toothed carrying-wheel a shaft, a pinion secured thereon, meshing with said gear, a pair of levers provided with bearings for said shaft, brackets pivotally supporting said levers, chains connected to said levers, springs connected to said chains, rods connected to said springs, and a manually-operated lever connected to said rods, substantially as described.

2. In an excavator, the scoop-plow 6, the stirrup 8 supporting the lower end thereof, the yoke 9 pivotally secured to said stirrup, the lever 10 connected at its lower end to said yoke, rearwardly-extending braces 14 secured to said stirrup, and the braces 16 connecting said braces to the upper ends of said stirrup, substantially as described.

3. In an excavator, the box 3, the pivoted dumping-plates 35 forming the bottom thereof, rollers mounted on the sides of said box, chains 38 secured to said respective plates and passing forwardly over said rollers, horizontal slide-bars 39 mounted above said rollers and secured to said chains, a rock-shaft 15, cranks on said shaft, links connecting said cranks with said slide-bars respectively, and a hand-lever on said shaft for rocking the same, substantially as described.

4. In an excavator, the carrying-wheels 4, the box 3 the axle 5 passing through the box, the bottom of the box, comprising a plurality of plates, pivotally secured to the sides of the box at their forward edges, the slide-bars 39, the chains 38 secured to said slide-bars and to said plates, and means for moving the slide-bars longitudinally, whereby said plates may be raised or lowered, substantially as described.

695,021. VALVE-MOVEMENT FOR STEAM-ENGINES. CHARLES C. WORTHINGTON, Irvington, N. Y. Filed July 26, 1897. Serial No. 645,905. (No model.)



Claim.—1. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of devices connected to said valve for operating it for admission and disconnected from said valve to permit the return of the valve for cut-off, and means actuated by a moving part of the engine for operating said valve for cut-off, substantially as described.

2. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of devices connected to said valve for operating it for admission and disconnected from said valve to permit the return of the valve for cut-off, and connections for operating said valve for cut-off by the piston of said cylinder, substantially as described.

3. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of devices for operating said valve for admission having a catch connected to said valve during the admission movement and operated to release the valve for the return of the valve for cut-off, and connections for operating said valve for cut-off from a moving part of the engine, substantially as described.

4. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of a valve-actuating member having a catch for operating said valve for admission, means for tripping said catch to permit the return of the valve for cut-off, and a second valve-actuating member actuated by a moving part of the engine for operating said valve for cut-off, substantially as described.

5. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of a valve-actuating member having a catch for operating said valve for admission, a second valve-actuating member for operating said valve for cut-off, and means carried by said second actuating member for tripping said catch to permit the return of the valve for cut-off, substantially as described.

6. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of a rocking valve-actuating member having a catch for operating said valve for admission, means for tripping said catch to permit the return of the valve for cut-off, and a second valve-actuating member actuated by a moving part of the engine for operating said valve for cut-off, substantially as described.

7. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of a rocking valve-actuating member having a catch for operating said valve for admission, means for tripping said catch to permit the return of the valve for cut-off, and a second rocking valve-actuating member actuated by a moving part of the engine for operating said valve for cut-off, substantially as described.

8. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of valve-actuating members for operating said valve in opposite directions for admission and cut-off, means for actuating the member that operates the valve for admission and disconnecting said member from the valve to permit the cut-off movement, and means for actuating the other member by a moving part of the engine for the cut-off movement, substantially as described.

9. The combination with an engine-cylinder and single valves controlling the admission and cut-off at opposite ends of the cylinder, of separate valve-actuating members for operating said valve in opposite directions for admission and cut-off, means for actuating the members that operate the valves for admission and disconnecting said members from the valves to permit the cut-off movement, and means for actuating the other members by a moving part of the engine for the cut-off movement, substantially as described.

10. The combination with an engine-cylinder and single valves controlling the admission and cut-off at opposite ends of the cylinder, of valve-actuating members for operating said valves in opposite directions for admission and cut-off, means for actuating the members that operate the valves for admission and disconnecting said members from the valves to permit the cut-off movement, means for actuating the other members by a moving part of the engine for the cut-off movement, and separate exhaust-valves and means for operating the same, substantially as described.

11. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of devices connected to said valve for operating it for admission and disconnected from said valve to permit the return of the valve for cut-off, connections for operating said valve for cut-off from a moving part of the engine, and a separate exhaust-valve and means for operating the same, substantially as described.

12. The combination with two cylinders and single valves controlling the admission and cut-off of the motor fluid, of means for operating the valves of each cylinder for admission by the piston of the other cylinder and for cut-off by the piston of their own cylinder, and disconnecting said valves from one of said pistons for their movement by the other piston, substantially as described.

13. The combination with two cylinders and single valves controlling the admission and cut-off of the motor fluid, of means for operating the valves of each cylinder for admission by the piston of the other cylinder and disconnecting the valves from said pistons for the cut-off move-

ment, and means for operating said valves for cut-off by the piston of their own cylinder, substantially as described.

14. The combination with two cylinders and single valves controlling the admission and cut-off of the motor fluid, of valve-actuating members having catches connected to said valves during the admission movement and operated to release the valves for the return of the valves for cut-off, connections for operating said actuating members to operate the valves of each cylinder for admission by the piston of the other cylinder, and means for operating said valves for cut-off by the piston of their own cylinder, substantially as described.

15. The combination with a plurality of engine-cylinders and single valves controlling the admission and cut-off of the motor fluid, of valve-actuating members having catches and connections for actuating said members to operate the valves of each cylinder for admission, means for tripping said catches to permit the return of the valves for cut-off, and other valve-actuating members and connections for operating said valves for cut-off, substantially as described.

16. The combination with a plurality of engine-cylinders and single valves controlling the admission and cut-off of the motor fluid, of valve-actuating members having catches and connections for actuating said members to operate the valves of each cylinder for admission, other valve-actuating members and connections for operating said valves for cut-off, and means carried by said other actuating members for tripping said catches to permit the return of the valves for cut-off, substantially as described.

17. The combination with a plurality of engine-cylinders and single valves controlling the admission and cut-off at opposite ends of each cylinder, of separate valve-actuating members for operating said valves in opposite directions for admission and cut-off, means for actuating the members that operate the valves of each cylinder for admission and disconnecting said members from the valves to permit the cut-off movement, and means for actuating the other members to operate the valves for cut-off, substantially as described.

18. The combination with two engine-cylinders and single valves controlling the admission and cut-off of the motor fluid, of means for operating the valves of each cylinder for admission by the piston of the other cylinder and disconnecting the valves from said pistons for the cut-off movement, means for operating said valves for cut off by the piston of their own cylinder, and separate exhaust-valves and means for operating the exhaust-valves of each cylinder by the piston of the other cylinder, substantially as described.

19. The combination with two engine-cylinders and single valves controlling the admission and cut-off of the motor fluid, of valve-actuating members having catches connected to said valves during the admission movement and operated to release the valves for the return of the valves for cut-off, connections for operating said actuating members to operate the valves of each cylinder for admission by the piston of the other cylinder, means for operating said valves for cut-off by the piston of their own cylinder, and separate exhaust-valves and means for operating the exhaust-valve of each cylinder by the piston of the other cylinder, substantially as described.

20. The combination with two engine-cylinders and single valves controlling the admission and cut-off at opposite ends of each cylinder, of separate valve-actuating members for operating said valves in opposite directions for admission and cut-off, means for actuating the members that operate the valves of each cylinder for admission by the piston of the other cylinder and disconnecting said members from the valves to permit the cut-off movement, and means for actuating the other members to operate the valves for cut-off by the piston of their own cylinder, and separate exhaust-valves and means for operating the exhaust-valves of each cylinder by the piston of the other cylinder, substantially as described.

21. The combination with two engine-cylinders and single valves controlling the admission and cut-off at opposite ends of each cylinder, of separate valve-actuating members for operating said valves in opposite directions for admission and cut-off, means for actuating the members that operate the valves of each cylinder for admission by the piston of the other cylinder and disconnecting said members from the valves to permit the cut-off movement, and means for actuating the other members to operate the valves of each cylinder for cut-off by the piston of their own cylinder, said other members being adapted to be secured in a fixed position for the operation of the valves without cut-off, substantially as described.

22. The combination with two engine-cylinders and single valves controlling the admission and cut-off at opposite ends of each cylinder, of separate valve-actuating members for operating said valves in opposite directions for admission and cut-off, means for actuating the members that operate the valves of each cylinder for admission by the piston of the other cylinder and disconnecting said members from the valves to permit the cut-off movement, said members being adapted to close the valves on their return movement in case the valves are not closed by the members that operate the valves for cut-off, and means for actuating the other members to operate the valves of each cylinder for cut-off by the piston of their own cylinder, said other members being adapted to be secured in a fixed position for the operation of the valves without cut-off, substantially as described.

23. The combination with a plurality of engine-cylinders and single valves controlling the admission and cut-off at opposite ends of each cylinder, of separate valve-actuating members for operating said valves in opposite directions for admission and cut-off, means for actuating the members that operate the valves of each cylinder for admission and disconnecting said members from the valves to permit the cut-off movement, said members being adapted to close the valves on their return movement in case the valves are not closed by the members that operate the valves for cut-off, and means for actuating the other members to operate the valves of each cylinder for cut-off by the piston of their own cylinder, substantially as described.

24. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of a valve-actuating member having a catch for operating said valve for admission, a second actuating member for operating said valve for cut-off, and means carried by said second actuating member for tripping said catch to permit the return of the valve for cut-off, said second actuating member being adapted to be secured in a fixed position for tripping said catch for the operation of the valve without cut-off, substantially as described.

25. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of devices for operating said valve for admission having a catch connected to said valve during the admission movement and operated to release the valve for the return of the valve for cut-off, said devices being constructed to close the valve on their return movement if not previously closed, and connections for operating said valves by the engine for cut-off, substantially as described.

26. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of devices for operating said valve for admission having a catch connected to said valve during the admission movement and operated to release the valve for the return of the valve for cut-off, said devices being constructed to close the valve on their return movement if not previously closed, and connections for operating said valves for cut-off, said connections being adapted to be secured in a fixed position for the operation of the valve without cut-off, substantially as described.

27. The combination with a plurality of engine-cylinders and single valves controlling the admission and cut-off of the motor fluid, of valve-actuating members and connections actuated by the engine for moving said valves in opposite directions for admission and cut-off and for closing said valves by the valve-actuating members that operate the valves for admission in case the valves are not closed by the members that operate the valves for cut-off, substantially as described.

28. The combination with an engine-cylinder and a valve controlling the admission and cut-off of the motor fluid, of valve-actuating members and connections actuated by the engine for moving said valve in opposite directions for admission and cut-off and for closing the valve by the valve-actuating member that operates the valve for admission in case the valve is not closed by the member that operates the valve for cut-off, substantially as described.

29. The combination with two engine-cylinders and single valves controlling the admission and cut-off of the motor fluid, of means for operating the valves by the piston of their own cylinder for cut-off and by the piston of the other cylinder for admission and for closing said valves by the piston of the other cylinder in case they are not closed by the piston of their own cylinder, substantially as described.

30. The combination with an engine-valve and a crank connected to said valve, of two reciprocating members actuated by a moving part of the engine for moving said crank in opposite directions, a catch through which one of said members engages said crank, and means for tripping said catch for the return of the valve, substantially as described.

31. The combination with an engine-valve and a crank connected to said valve, of two reciprocating members actuated by moving parts of the engine for moving said crank in opposite directions, a catch carried by one of said members for engaging said crank, and means for tripping said catch by the other member for the return of the valve, substantially as described.

32. The combination with an engine-valve and a crank connected to said valve, of a member rocking concentrically with said crank and engaging said crank through a catch, means for tripping said catch for the return of the valve, and means for actuating the crank by a moving part of the engine to return the valve, substantially as described.

33. The combination with an engine-valve and a crank connected to said valve, of two members rocking concentrically with said crank and acting to move the valve in opposite directions, one of said members engaging said crank through a catch, and means for tripping said catch by the other member for the return of the valve, substantially as described.

34. The combination with an engine-valve and a crank connected to said valve, of two members actuated by moving parts of the engine

and rocking concentrically with said crank and acting to move the valve in opposite directions, one of said members engaging said crank through a catch, and a cam carried by the other member for tripping said catch for the return of the valve by said other member, substantially as described.

35. The combination with an engine-valve and a crank connected to said valve, of a reciprocating member for moving said crank in one direction, a catch through which one of said member engages said crank, means for tripping said catch for the return of the valve, a member for moving said crank to return the valve, and rocker *l* linked to said last-mentioned member, and means for actuating said members by moving parts of the engine, substantially as described.

36. The combination with a cylinder and separate valves at opposite ends of the cylinder, of cranks connected to said valves, reciprocating members actuated by moving parts of the engine for moving said cranks in one direction, catches through which said reciprocating members engage said cranks, means for tripping said catches for the return of the valves, other members for moving said cranks to return the valves, and rocker *l* connected by links to said last-mentioned members, substantially as described.

37. The combination with a cylinder and separate valves at opposite ends of the cylinder, of cranks connected to said valves, reciprocating members for moving said cranks in one direction, catches through which said reciprocating members engage said cranks, means for tripping said catches for the return of the valves, other members for moving said cranks to return the valves, and rocker *l* connected by links to said last-mentioned members, said rocker *l* having a pivot adjustable to vary the operation of the valves, substantially as described.

38. The combination with a valve and crank *f* connected to said valve, of sleeve *g* having a catch engaging said crank to move the valve in one direction, and sleeve *h* engaging the crank to return the valve and having means for tripping the catch to permit the return of the valve, and means for actuating said sleeves by moving parts of the engine, substantially as described.

39. The combination with a valve, of crank *f* connected to the valve, sleeve *g* having a catch engaging said crank to move the valve in one direction said sleeve carrying also means for engaging the crank on the return of the sleeve to close the valve, means for tripping the catch to permit the return of the valve, and sleeve *h* engaging the crank to return the valve, substantially as described.

40. The combination with a valve, of crank *f* connected to the valve and having shoulder 3 and lug 12, sleeve *g* having catch 15 engaging said shoulder to move the valve in one direction and sleeve *h* having lug 17 engaging lug 12 and cam 5 for tripping said catch to permit the return of the valve, substantially as described.

41. The combination with a valve, of crank *f* connected to the valve and having shoulder 3, lug 12 and lug 51, sleeve *g* having catch 15 engaging said shoulder to move the valve in one direction and lug 50 engaging said lug 51 to move the valve in the opposite direction, and sleeve *h* having lug 17 engaging lug 12 and cam 5 for tripping said catch to permit the return of the valve, substantially as described.

42. The combination with valves *d* at opposite ends of the cylinder, of cranks connected to the valves, sleeves *g* having catches engaging said cranks to move the valves in one direction, means for tripping the catches for the return of the valves, sleeves *h* engaging the cranks to return the valves, and rocker *l* linked to said sleeves *h*, substantially as described.

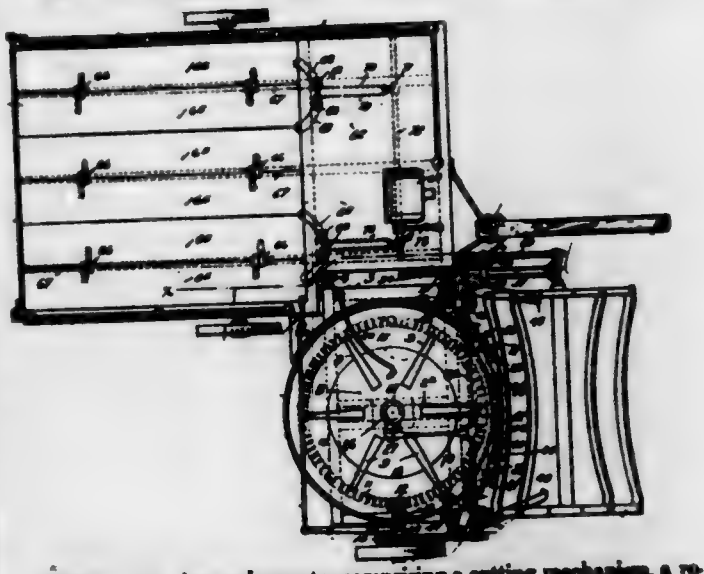
43. The combination with valves *d* at opposite ends of the cylinder, of cranks connected to the valves, reciprocating members having catches engaging said cranks to move the valves in one direction, means for tripping the catches for the return of the valves, reciprocating members engaging the cranks to return the valves, and rocker *l* linked to said last-mentioned members, substantially as described.

695,022. FITTING FOR PIPES OR RODS. LUDER ALBERTSON, Newark, N. J. Filed Oct. 4, 1901. Serial No. 77,543. (No model.)



Claim.—The combination in a fitting for pipes and rods, with two hollow hemispherical body members A and A' rotatable the one upon the other, with each constructed with a boss protruding from its inner surface, and the one provided with an orifice *f* extending through it and through its boss at right angles to its hemispherical edge with the outer end of such orifice constructed with a conical seat, and the other provided with a threaded orifice *g*, extending through its boss, in like relationship to its circumferential edge, of a screw C constructed with a conical head *k* and threaded lower end arranged in such orifices, with the head closely fitting within the conical seat and its threaded lower end engaging with the threaded orifice, and with each of the members provided with a rod or pipe connecting projection disposed at an acute angle to its circumferential edge, whereby the members may be circumferentially adjusted with respect to each other, to adapt the fitting to the joining of the ends of rods or pipes that lie in the same axial line or at an angle to each other, and be firmly clamped together in any adjusted position, with the head of the screw disposed wholly within the seat and its upper end flush with the upper surface of the members, substantially as described.

695,023. CORN-HARVESTER. SAMUEL C. ANDERSON, Xenia, Ohio. Filed May 4, 1901. Serial No. 58,686. (No model.)



Claim.—1. A corn-harvester comprising a cutting mechanism, a rotary platform located in the rear of the cutting mechanism and serving to convey the severed stalks rearwardly and laterally therefrom, and a shocking-platform located at the side of the rotary platform and adapted to receive the stalks to form a shock thereon, substantially as described.

2. A corn-harvester comprising a cutting mechanism, a rotary platform located in the rear of said cutting mechanism and adapted to convey the severed stalks rearwardly and laterally therefrom, and a shocking-platform located at the side of the rotary platform and comprising a dumping portion composed of tilting sections upon which the shock is formed and from which it may be discharged by tilting said sections, substantially as described.

3. A corn-harvester comprising a cutting mechanism, a rotary platform located in the rear of said cutting mechanism and adapted to convey the severed stalks rearwardly and laterally therefrom, and a shocking-platform located at the side of said rotary platform and comprising a fixed forward portion and a rear dumping portion composed of tilting sections, substantially as described.

4. A corn-harvester comprising a cutting mechanism, a lateral shocking-platform and a rotary conveying-platform located in the rear of the cutting mechanism and at the side of the shocking-platform and comprising a horizontal body and a tapering upright support with radial wings or arms, substantially as described.

5. In a corn-harvester, the combination, with cutting mechanism, of a rotary platform located in the rear of said cutting mechanism, a ground-wheel operatively connected with said rotary platform to actuate the same, and means for varying the speed of rotation of the platform relatively to that of the ground-wheel, substantially as described.

6. In a corn-harvester, the combination, with a rotary conveying-platform, of two cutting mechanisms located in front of said platform at opposite sides thereof to operate simultaneously on two rows of corn, and a shocking-platform located laterally relatively to said rotary platform, whereby the severed stalks of both rows are delivered to said shocking-platform by said rotary platform, substantially as described.

7. In a corn-harvester, the combination, with a rotary conveying-platform of circular form, of a correspondingly-curved finger-bar located at the front of said platform and having guard-fingers at each of its ends, and a cutter-bar of similarly-curved form having a group of cutters at each end cooperating with the guard-fingers, and means for oscillating or vibrating said cutter-bar, substantially as described.

8. In a corn-harvester, the combination, with a shocking-platform located at the side of the machine, of a rotary conveying-platform, cutting mechanisms located at each side of said platform in front of the same, gathering-arms arranged in sets above each cutting mechanism to draw the stalks toward the cutting mechanisms and platform, and means for actu-

ating said gathering-arms, the rotary platform serving to convey the severed stalks rearwardly and laterally from the cutting mechanism to the shocking-platform, substantially as described.

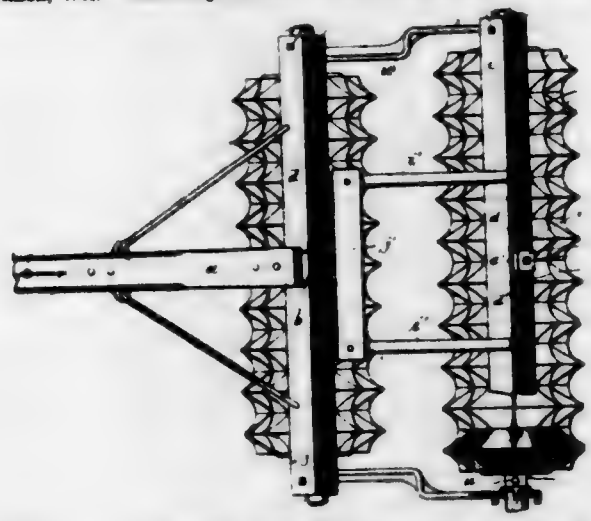
9. In a corn-harvester, the combination, with a shocking-platform located at the side of the machine, of a rotary conveying-platform, a cutting mechanism located in front of the same, and gathering mechanism comprising an upright shaft provided with oppositely-arranged cranks, gathering-arms pivotally mounted on said cranks, and links pivoted at one end to the rear end of said arms and at the other end to a fixed support, the rotary platform serving to convey the severed stalks rearwardly and laterally from the cutting mechanism to the shocking-platform, substantially as described.

10. In a corn-harvester, the combination, with a shocking-platform located at the side of the machine, of a rotary conveying-platform, cutting mechanism located in advance of the same, gathering-arms located above said cutting mechanism and adapted to act upon the lower parts of the stalks to draw them toward the cutting mechanism and platform, and a reel located above said gathering-arms and adapted to act upon the upper portions of the stalks to move them toward the cutting mechanism and platform, the rotary platform serving to convey the severed stalks rearwardly and laterally from the cutting mechanism to the shocking-platform, substantially as described.

11. In a corn-harvester, the combination, with a rotary conveying-platform and cutting mechanism located in advance of the same, of a reel having bowed or curved arms to move the upper portions of the stalks rearward and at the same time gather them inward toward the cutting mechanism and platform, substantially as described.

12. A corn-harvester comprising a cutting mechanism, a rotary conveying-platform located in the rear of the cutting mechanism, a shocking-platform located at one side of said rotary conveying-platform, and fixed curved arms located at the rear of the junction of the conveying and shocking platforms to receive the surplus stalks, substantially as described.

695,024. **PULVERIZER.** HENRY ARIENS and JOHN THOMPSON, Brillion, Wis. Filed July 5, 1901. Serial No. 67,142. (No model.)



Claim.—1. A pulverizer, comprising front and rear end frames, jointed together, so as to have independent vertical movement; transverse axles journaled in said end frames; and series of disks mounted on said axles, each disk having a central annular cutting edge, and transverse cutting edges on each side thereof, and the said disks being arranged so that the central annular cutting edges of the disks in one row shall be in line with the meeting edges of the transverse cutting edges of each two adjacent disks in the other row.

2. In a pulverizer, a series of disks, each disk comprising a pair of hollow sections, bolted together, and having a central annular cutting edge, and series of transverse cutting edges on each side thereof.

695,025. **AIR-GUN.** WALTER B. BENJAMIN, St. Louis, Mo. Filed Sept. 11, 1900. Serial No. 29,674. (No model.)



Claim.—1. In an air-rifle of the muzzle-loading type, the combination with the projectile-barrel, of a pump-barrel having its rear portion extended beyond the rear end of the projectile barrel and forming an air-reservoir, a valve at an intermediate point of the length of the pump-barrel, and exteriorly-arranged air-release mechanism connecting the air-reservoir with the projectile-barrel.

2. In an air-rifle of the muzzle-loading type, the combination with the projectile-barrel, of a pump-barrel having its rear portion extended beyond the rear end of the projectile-barrel and bent to form an inclined air-reservoir, a valve at an intermediate point of the barrel, a charging-plunger contained within the barrel in advance of the valve, and exteriorly-arranged air-release mechanism connecting the air-reservoir of the pump-barrel with the projectile-barrel.

3. In a pneumatic rifle of the muzzle-loading type, the combination with the stock, and projectile-barrel, of an air-pump barrel, the rear end of which is extended beyond the rear end of the projectile-barrel to form an air-reservoir and also a hand-grip which is joined to the stock, a valve at an intermediate point of the barrel, a charging-plunger contained within the pump-barrel in advance of the valve, and air-release mechanism for admitting air from the air-reservoir to the projectile-barrel, said mechanism being arranged exteriorly of the barrels and stock.

4. In a pneumatic rifle of the muzzle-loading type, the combination with the projectile-barrel, of a separate air-pump consisting of a single continuous piece of tubing extending beyond the rear end of the projectile-barrel and having a valved diaphragm intermediate of its ends separating the interior thereof into a pump-cylinder and an air-reservoir, respectively, a charging-plunger contained within the pump-barrel in advance of the valved diaphragm, and exteriorly-arranged air-release mechanism connecting the air-reservoir with the rear end of the projectile-barrel.

5. In a pneumatic rifle of the muzzle-loading type, the main barrel forming both a pump-cylinder and an air-reservoir, and consisting of a single continuous piece of tubing having an integral grip continuation constituting an air-reservoir, a valved diaphragm at an intermediate point of the barrel, a charging-plunger contained within the pump in advance of the valved diaphragm, a separate projectile-barrel, a flexible tube connecting the inner end of the projectile-barrel to the air-reservoir and arranged exteriorly thereof, and a releasing-trigger for the tube.

6. In a pneumatic rifle, a pump-barrel provided with a rear breech extension adjoining the stock and constituting an air-reservoir, a valve-plug interposed between the air-reservoir and the pump-cylinder, a rear sight fitted to the main barrel and having an inner retaining-stem lying in front of the valve-plug, and a separate projectile-barrel having an operative connection with the air-reservoir.

7. In a pneumatic rifle, the combination with the projectile-barrel, of the pump-cylinder barrel having an air-reservoir extension, a valve-plug interposed between the pump-cylinder and the air-reservoir, and a rear sight having an inner retaining-stem extending transversely across the pump-cylinder barrel and lying in front of said valve-plug.

8. In a pneumatic rifle, a pump-barrel having an integral grip extension constituting an air-reservoir and provided with a valve, a separate projectile-barrel adjoining the main barrel and having its bore flared at the rear end, a trigger-guard connecting the two barrels, and exteriorly-arranged trigger-actuated release mechanism disposed within the trigger-guard and including a flexible conveyer connecting the rear end of the projectile-barrel with the air-reservoir, and also forming a holder for the projectile or missile.

9. In a pneumatic rifle, the combination with the projectile-barrel, of a pump-barrel extended beyond the rear end of the projectile-barrel to form an air-reservoir and consisting of a single continuous piece of tubing having an integral grip continuation constituting an air-reservoir, a valve at an intermediate point of the pump-barrel, a charging-plunger received within the pump-barrel in advance of the valve, a stock closing the rear end of the tube which forms the pump barrel and reservoir, and an exteriorly-arranged valved air connection between the projectile-barrel and the air-reservoir.

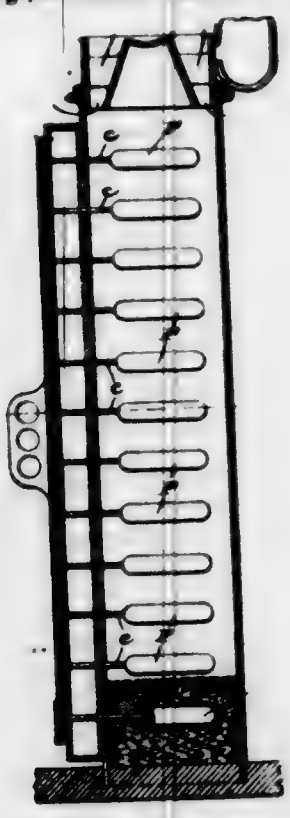
10. In a pneumatic rifle, a pump-barrel, a separate projectile-barrel adjoining the pump-barrel and having its rear end flared or enlarged, and trigger-actuated air-release mechanism including a flexible conveyer connecting the rear end of the projectile-barrel with the pump-barrel and also forming a holder for the projectile.

11. In a pneumatic rifle, a projectile-barrel, a pump-barrel extended in rear of the projectile-barrel to form an air-reservoir, and provided with a valve at an intermediate point, and a pump-piston operable in the pump-barrel, in advance of the valve, in combination with an exteriorly-arranged flexible tube connecting the rear end of the projectile-barrel with the air-reservoir, air-release mechanism, and a trigger-guard connecting the projectile and pump barrels and also forming a guard for the flexible tube.

695,026. **APPARATUS FOR INSERTING FLOATS IN CAKES OF SOAP.** WASHINGTON BERRY, Chicago, Ill. Filed May 27, 1901. Serial No. 62,122. (No model.)

Claim.—1. The combination with a soap-mold, of a separable pin-

support arranged upon the exterior of said mold, a pin-rod, and a plurality of insert-supporting pins attached thereto, substantially as described.



2. In a soap-mold, the combination with a mold, of a longitudinal slot therein, a separable support arranged upon the exterior of said mold and adjacent to said slot, a pin-rod separate from said support, a plurality of pins carried by said rod, and apertures through said support for receiving said pins, substantially as described.

3. In a soap-mold, the combination with a vertical slotted tube, of a sliding support, a plurality of insert-supporting pins carried thereby, and a deflector arranged to deflect the flow of liquid soap away from inserts mounted upon said pins, substantially as described.

4. In a soap-mold, the combination of a mold, a separable support, a pin-rod with a plurality of pins carried by said rod, and a deflector arranged to deflect the flow of liquid soap away from inserts mounted upon said pins, substantially as described.

5. In a soap-mold, the combination with a mold, of means, separable laterally from said mold, carrying a plurality of pins for supporting soap-inserts within said mold, substantially as described.

6. In a soap-mold, the combination with a mold, of a pin-support arranged upon the outside of said mold, a pin-carrying rod arranged upon the outside of said pin-support, a plurality of insert-supporting pins carried by said rod, and registering perforations through said support and through the wall of said mold, arranged for the passage of said pins, substantially as described.

7. In a soap-mold, the combination with a mold, of a pin-supporting rod arranged on the outside of said mold, and laterally separable therefrom, a plurality of insert-supporting pins carried by said rod, and a plurality of corresponding perforations through the wall of said mold for the passage into and from said mold of the free ends of said pins, substantially as described.

8. In a soap-mold, the combination with a mold, of a hollow pin-support arranged on the outside of said mold, a pin-carrying rod, a plurality of insert-supporting pins carried by said rod, and a plurality of registering perforations through said pin-support and through the wall of said mold for the passage of said pins, substantially as described.

695,027. SOAP-MOLD. WASHINGTON BERRY, Chicago, Ill. Filed July 31, 1901. Serial No. 70,264. (No model.)

Claim.—1. In a soap-mold, the combination with a casing, of an insert-support, means for securing said support in a desired position in said casing, and a plurality of inserts strung upon said support, substantially as described.

2. In a soap-mold, the combination with a casing, of a support extending centrally therethrough, and a plurality of inserts mounted and regularly spaced apart upon said support and within said casing, substantially as described.

3. In a soap-mold, the combination with a base of a plate mounted thereon, a casing extending over said base-plate and engaging said base, a rod extending centrally through said casing, a top plate mounted upon said rod, means upon said rod for engaging said base-plate and a plurality of inserts mounted directly upon said rod, substantially as described.

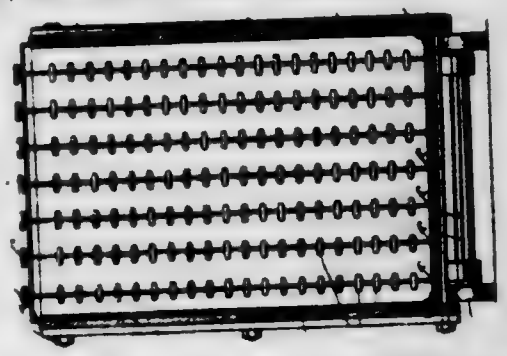
4. The combination with a soap-mold, of a spacing device comprising a trough and a plurality of adjustable slotted spacing-blocks, substantially as described.



5. The combination with a soap-mold of a spacing device, comprising a longitudinal block, a plurality of transverse slots therein, said slots being accurately spaced apart and a central longitudinal slot, substantially as described.

6. In a soap-mold, the combination with a base, a casing mounted thereon, a rod extending longitudinally through said casing, a top plate carried by said rod, means upon said rod for engaging said base, and a plurality of inserts mounted upon said rod, substantially as described.

695,028. SOAP-MOLD. WASHINGTON BERRY, Chicago, Ill. Filed July 31, 1901. Serial No. 70,265. (No model.)



Claim.—1. In a soap-mold, the combination with a plate at one side of said mold, of a plurality of insert-supporting rods, openings in said plate for receiving the ends of said rods, and means upon said mold disposed oppositely to said plate for receiving the opposite ends of said rods, substantially as described.

2. In a soap-mold, the combination with a plate disposed at one side of said mold, of a plurality of insert-supporting rods, openings in said plate for receiving the ends of said rods, bars disposed across said mold and opposite to said plate, and openings in said bars for receiving the opposite ends of said rods, substantially as described.

3. In a soap-mold, the combination with a plate disposed at one side of said mold, of a plurality of insert-supporting rods having screw-threaded ends, screw-threaded openings in said plate for receiving the screw-threaded ends of said rods, a bar disposed across said mold and opposite to said plate, openings in said bar for receiving the opposite ends of said rods, and means upon said rods for engaging the outer surface of said bar, substantially as described.

4. In a soap-mold, the combination with a plate disposed at one side of said mold, of a plurality of insert-supporting rods, said rods being screw-threaded at one end thereof, screw-threaded openings in said plate for receiving the screw-threaded ends of said rods, a bar disposed across said mold at the side thereof opposite to said plate, a plurality of open slots in said bar for receiving the opposite ends of said rods, and means upon said rods for engaging the outer surface of said bar, substantially as described.

5. In a soap-mold, the combination with a plate disposed at one side of said mold, of a plurality of insert-supporting rods, openings in said plate for receiving the ends of said rods, means disposed across said mold opposite to said plate for supporting the opposite ends of said rods, and means for closing said mold behind said supporting means, substantially as described.

6. In a soap-mold, the combination with a plurality of insert-supporting rods, of means disposed at opposite sides of said mold for supporting the opposite ends of said rods, and means for closing said mold so as to prevent the leakage of soap around said rod-supporting means, substantially as described.

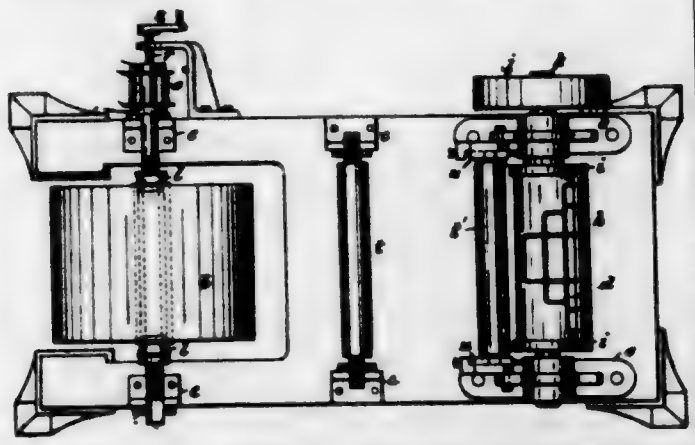
7. In a soap-mold, the combination with a plate disposed at one side of said mold, of a plurality of insert-supporting rods, said rods being screw-threaded at one end thereof, a corresponding number of screw-threaded openings in said plate for receiving the screw-threaded ends of said rods, means disposed across said mold opposite to said plate for supporting the opposite ends of said rods, openings in said rod-supporting means for receiving the opposite ends of said rods, means mounted upon said opposite ends of said rods for engaging the outer surface of said rod-supporting means, and means disposed opposite to said plate and back of said rods for closing said mold against the leakage of soap, substantially as described.

8. In a soap-mold, the combination with a plurality of insert-supporting rods, said rods being screw-threaded at one end, of means disposed at one side of said mold for engaging the screw-threaded ends of said rods, slotted rod-supporting means disposed opposite to said rod-engaging means, means upon said rods for engaging the outer surface of said rod-supporting means, and means for closing said mold against the leakage of soap around the ends of said rods, substantially as described.

9. In a soap-mold, the combination with a plurality of insert-supporting rods, said rods being screw-threaded at one end thereof, of means for engaging the screw-threaded ends of said rods, a bar disposed at the opposite side of said mold, slots within said bar for receiving the opposite ends of said rods, means upon said rods for engaging the outer surface of said slotted bar, and means for closing said mold against the leakage of soap around the ends of said rods, substantially as described.

10. In a soap-mold, the combination with a base, of side pieces and end pieces, a plurality of insert-supporting rods, said rods being screw-threaded at the lower ends thereof, means disposed at the inner bottom side of said mold for engaging the screw-threaded ends of said rods, notched bars extending along the upper edges of said mold on two of the opposite sides thereof, a transverse bar extending across said mold between said notched bars, means upon said transverse bar for engaging the notches in said notched bars, means upon said transverse bar for abutting against the opposite faces of said notched bars, openings within said transverse bar for receiving the upper ends of said rods, means upon said rods for engaging the upper surface of said transverse bar, clamping means disposed across the outer surfaces of the sides of said mold upon which said notched bars are mounted, and stay-bolts and nuts extending through said clamping means and across said mold, whereby said mold may be clamped together, substantially as described.

695,029. MACHINE FOR MAKING BLANKS FOR PAPER BOXES. JOHN C. BLEVENY, Newark, N. J., assignor to John S. W. Thompson, Morristown, N. J. Filed Feb. 18, 1901. Serial No. 47,716. (No model.)



Claim.—1. In a machine for making paper-box blanks; the roll bearing a pattern in relief and provided with end collars, in combination with a smooth bearing-roll of larger diameter so that new points of pressure are presented at every rotation, and which is rotated by means of friction imparted to it by the collars on said cutting-roll, substantially as described.

2. In a machine for making paper-box blanks; two opposed parallel rolls, one having a smooth hardened face serving as a bearing, and the other containing a pattern of a box-blank in relief and end collars, the plain bearing-roll being of larger diameter so that new points of pressure are presented at every rotation and being rotated by means of friction imparted to it by the end collars on the cutting-roll, and said end collars serving to keep the cutting and scoring blades from striking the bearing-roll, as and for the purposes described.

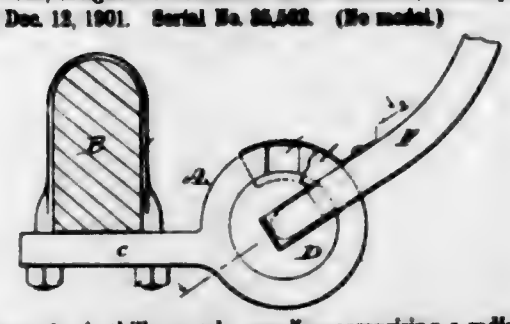
3. A machine for making blanks for paper boxes, comprising a frame carrying an imprinting-roll *d*, provided with end collars, a bearing-roll *h*, an adjustable feed-roll *i'*, all mounted in brackets *e*, the bearing-roll being driven by friction imparted to it by means of the collars on said imprinting-roll, substantially as described.

4. In a machine for cutting blanks, a bearing-roll having a hardened surface, a second roll provided with end collars, which are adapted to rest upon and rotate the bearing-roll, cutting-blades having a cutting edge of approximately forty-five degrees secured in the cutting-roll, the cutting-blades being kept from coming in absolute contact with the bearing-roll by means of the end collars.

5. In a device for carrying a roll of paper, a shaft adapted to pass through the roll, means for securing the roll to the shaft, a screw arranged to bear upon the shaft to force it in one direction, and a spring adapted to force the shaft in the other direction, as and for the purposes set forth.

6. In a device for carrying a roll of paper, a shaft adapted to pass through the roll, means for securing the roll to the shaft, a screw arranged to bear upon the shaft to force it in one direction, a plate surrounding the shaft and resting against the bearing, a second plate arranged to engage the shaft, and a spring interposed between the plates to force the shaft in the other direction, as and for the purposes set forth.

695,080. THILL OR POLE COUPLING. CHARLES H. CAIR, Waupaca, Wis., assignor of one-half to Ira C. Edwards, Minneapolis, Minn. Filed Dec. 12, 1901. Serial No. 85,562. (No model.)



Claim.—1. A thill or pole coupling comprising a radially-slotted circular holder having a shank attachable to an axle, a holder-fitting cylindrical block having a radial slot and a circular recess intercepting each other therein, a spiral spring in the block-recess normally under compression against the inside of said holder, and a longitudinally-recessed and transversely-slotted thill or pole iron engageable with the aforesaid holder and block against resistance of the spring.

2. A thill or pole coupling comprising a radially-slotted circular holder having a shank attachable to an axle, a holder-fitting cylindrical block having a radial slot and a circular recess intercepting each other therein, a spiral spring in the block-recess normally under compression against the inside of said holder, and a longitudinally-recessed and transversely-slotted thill or pole iron having a flaring indenture on one side thereof in rear of its slot, said iron being engageable with the aforesaid holder and block against resistance of the spring.

3. A thill or pole coupling comprising a radially-slotted circular holder having a shank attachable to an axle, a holder-fitting cylindrical block having a radial slot and a circular recess intercepting each other therein, a spiral spring in the block-recess normally under compression against the inside of said holder, a longitudinally-recessed and transversely-slotted thill or pole iron engageable with the aforesaid holder against resistance of the spring, and a holder-slot dust-cap in connection with the thill or pole iron.

4. A thill or pole coupling comprising a radially-slotted circular holder having a shank attachable to an axle, a holder-fitting cylindrical block having a radial slot and a circular recess intercepting each other therein, a spiral spring in the block-recess normally under compression against the inside of said holder and a longitudinally-recessed and transversely-slotted thill or pole iron having rear side projections constituting dust-guards for continuations of the block-slot inward from shoulders in the same abutting the rear edge portion of said iron when the latter is engaged with the aforesaid holder and block against resistance of the spring.

695,081. ELASTIC PLASTER. HENRY L. GARTEN, New York, N. Y. Filed July 24, 1901. Serial No. 69,589. (Specimens.)

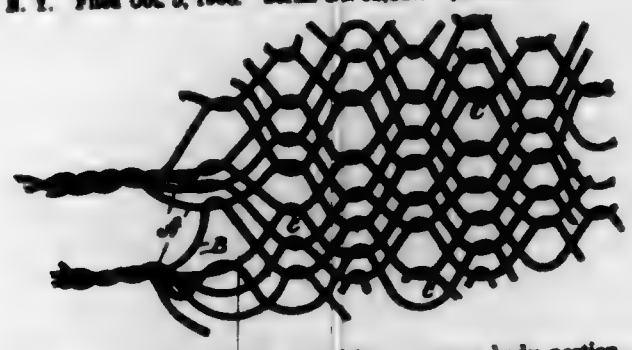
Claim.—1. A plaster consisting of a mixture of a base of calcined gypsum, althea, and dextrine.

2. A plaster consisting of a mixture of a base of calcined gypsum, althea, dextrine and gelatin.

3. A plaster consisting of a mixture of a base of calcined gypsum, in the proportion of about two thousand parts by weight, althea and dextrine about six parts each.

4. A plaster, consisting of a mixture of a base of calcined gypsum in the proportion of about two thousand parts by weight, and small quantities of althea, dextrine and gelatin.

695,082. HAMMOCK. EDWARD L. CHADBOURNE, New Brighton, N. Y. Filed Oct. 5, 1900. Serial No. 32,147. (No model.)



Claim.—1. A hammock, comprising a woven body portion, and cords at the ends of said body portion, which cords are formed by uniting the warp and the weft threads, said cords forming supporting means for the hammock, substantially as described.

2. A Mexican mesh-hammock, comprising a body portion formed of warp-threads, and weft-threads woven diagonally said warp, going alternately over two threads and under two threads thereof, first going four threads in one direction and then four threads back, and the warps and wefts united in cords at the ends of the hammock to form supporting means, substantially as described.

695,083. PRODUCTION OF CHLORIN AND ALKALINE HYDRATES ELECTROLYTICALLY. EDWIN D. CHAPLIN, Winchester, and HENRY S. HALLORAN, Boston, Mass., assignors to Henry Dakin, Boston, Mass. Filed Apr. 28, 1900. Serial No. 14,481. (No specimens.)



Claim.—1. In the separation of chlorin and alkaline hydrates, subjecting a chlorid solution as the electrolyte to the action of an electric current to separate the ions; maintaining them separated laterally by interposing an impervious, non-conducting barrier between anode and cathode; and utilizing the chlorid solution to complete the electric circuit between anode and cathode while separating such solution by a pervious non-dialytic diaphragm from both the anode and cathode compartments.

2. The process of electrolytically separating chlorin and alkaline hydrate from chlorid solutions as the electrolyte, which consists in interposing an impervious, non-conducting barrier between anode and cathode, and completing an electric circuit between them by or through a neutral solution separated from both the anode and cathode compartments by a pervious non-dialytic diaphragm.

3. The process of electrolytically separating chlorin and alkaline hydrate from chlorid solutions as the electrolyte, which consists in interposing an impervious, non-conducting barrier between anode and cathode, completing an electric circuit between them by or through neutral solution separated from the anode and cathode compartments respectively by a horizontal pervious diaphragm, introducing fresh neutral solution below the diaphragm and withdrawing the caustic solution from the cathode-compartment.

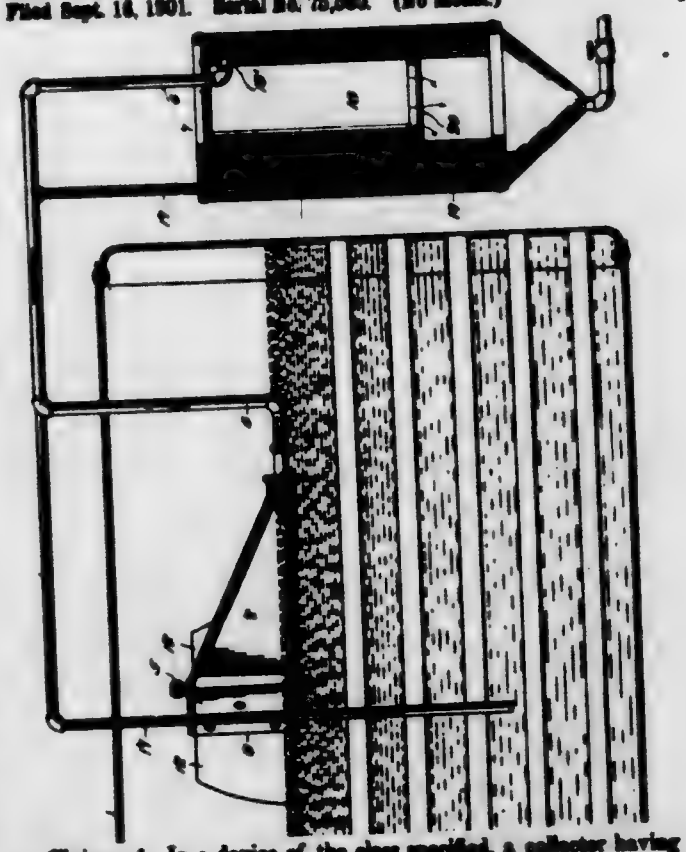
4. In the process of electrolytically separating chlorin and alkaline hydrates from chlorid solutions, completing the electric circuit between anode and cathode by or through the chlorid solution, which constitutes the electrolyte; maintaining the lateral separation of the ions by an interposed non-conducting, impervious barrier between the anode and cathode, and preventing diffusion of the separated ions from the anode and cathode compartments by a pervious non-dialytic diaphragm interposed between the chlorid solution and the anode and cathode.

5. An electrochemical process which consists in supplying the electrolyte to the electrolytic cell below the anode and cathode, completing the electric circuit between anode and cathode by or through the electrolyte, maintaining the lateral separation of the ions by an upright impervious, non-conducting barrier between anode and cathode withdrawing the separated ions, and preventing diffusion of the latter into the electrolyte by a horizontal, pervious diaphragm at the foot of the barrier and interposed between the anode and cathode and the incoming electrolyte.

6. An electrochemical process for producing chlorin and an alkaline hydrate from a chlorid solution, which consists in maintaining by a transverse pervious diaphragm a zone of undecomposed chlorid solution within an electrolytic cell below the chlorin and alkaline hydrate at their respective electrodes; supplying fresh quantities of solution to such zone below the diaphragm, completing the electric circuit between anode and cathode by or through the electrolytic solution, and maintaining a lateral separation of the ions by an upright impervious, non-conducting barrier between the anode and cathode, the incoming fresh solution completing the electric circuit between the electrodes and by its inflow displacing the separated ions toward their respective electrodes, from which regions the ions are withdrawn as displaced.

7. The process of dissociating soluble salts into their acid and basic constituents by electrolysis which consists in separating the electrolyte into three bodies, one of which is in communication with each of the other two through a pervious diaphragm, the latter two bodies being laterally separated from each other by an impervious barrier, the level of the liquid in the said two bodies of the electrolyte being maintained at the same level by the inflow of the electrolyte into the other body thereof, and passing an electric current through the said several bodies of the electrolyte.

695,084. BOILER-CLEANER. JAMES H. CONNOLLY, Clifton, Ariz. Filed Sept. 18, 1901. Serial No. 75,563. (No model.)



Claim.—1. In a device of the class specified, a collector having a central chamber, and a widened mouth divided into front and rear entrance-openings by vertical partitions arranged within said mouth and forming diverging wings leading to separate contracted passages connected to said central chamber, all of said entrance-openings being disposed in the same horizontal plane, a discharge-pipe leading from the rear of the collector, and a settling-chamber to which said discharge-pipe is connected.

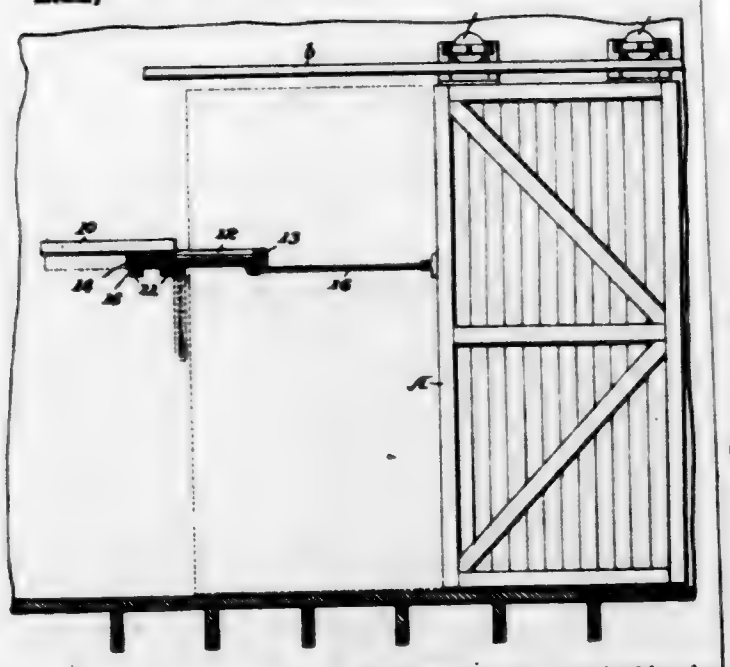
2. In a device of the class specified, a two-part casing, one section of which contains or forms the main collecting-chamber, a connected mouth-section having vertical-disposed partitions dividing the mouth into a series of separate entrance-openings all in the same horizontal plane, and each of said openings having a separate passage for communication with the collecting-chamber, a discharge-pipe connected to the rear end of the collecting-chamber, and a settling-chamber to which said discharge-pipe is connected.

3. In a device of the class specified, a two-part casing, one section of which forms the main collecting-chamber, and a connected mouth-section having vertical partitions forming divergent wings and dividing the mouth into several entrance-openings, the vertical partitions forming the forward flaring mouth being extended rearwardly within the main chamber and forming at the entrance end thereof three parallel passages communicating with the various mouths, a discharge-pipe leading from the rear ends of said chamber, and a settling-chamber to which said discharge-pipe is connected.

4. In a device of the class specified, a collector disposed in an approximately horizontal line and having at one end a flaring mouth, a discharge-pipe leading from the rear end of said casing, a settling-chamber to which said discharge-pipe is connected, and a return-pipe leading from the settling-chamber to a point within the boiler, said return-pipe being connected to and serving to support the entrance end of said collector-chamber.

5. In a device of the class specified, a collector within the boiler, a settling-chamber comprising two concentrically-disposed chambers, the inner chamber being of less vertical height than the outer chamber and being provided with a perforated bottom, a blow-off pipe leading from the lower end of the outer chamber and affording a discharge for the sediment, a discharge-pipe leading from the collector to the inner chamber and having a tangential discharge-opening within the inner chamber at a point near the upper end thereof, thereby to effect a swirling movement in the water in said inner chamber, and an outlet-pipe of smaller diameter than the discharge-pipe, said outlet-pipe leading from the outer chamber to a point within the boiler and forming a support for the forward end of the collector.

695,085. CHECKING DEVICE FOR SLIDING DOORS. WILLIAM H. COOK, Newark, Del. Filed May 21, 1901. Serial No. 61,293. (No model.)



Claim.—1. The combination with a sliding door, of a checking device consisting of a bolt provided with an elastic cushion at one end and supported in the path of movement of the door in position to be struck thereby when the door has partially completed its opening movement, a strap surrounding said bolt, and means for varying the pressure of said strap upon the bolt, substantially as set forth.

2. The combination with a sliding door, of a checking device consisting of a bolt supported in the path of movement of the door, and in position to be struck by the door when the latter has partially completed its opening movement, a flexible connection between the door and the bolt, and means for retarding the movement of the bolt, substantially as set forth.

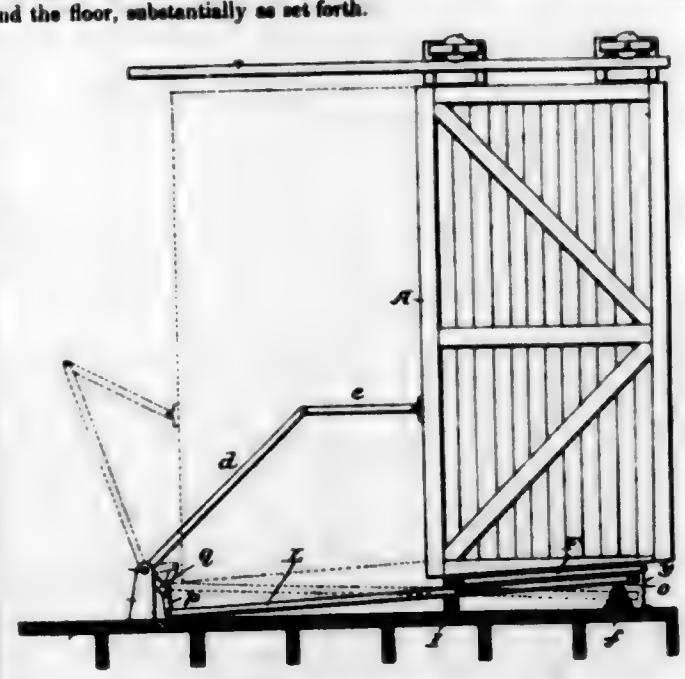
3. The combination with a sliding door, of a checking device consisting of a bolt located in the path of movement of the door, bands or straps for supporting said bolt, a friction-lining between the bands and bolt, means to adjust the pressure of the said lining upon the bolt, and a flexible connection between the bolt and the door, substantially as set forth.

695,086. DOOR OPENER OR CLOSER. WILLIAM H. COOK, Newark, Del. Filed Nov. 8, 1901. Serial No. 81,615. (No model.)

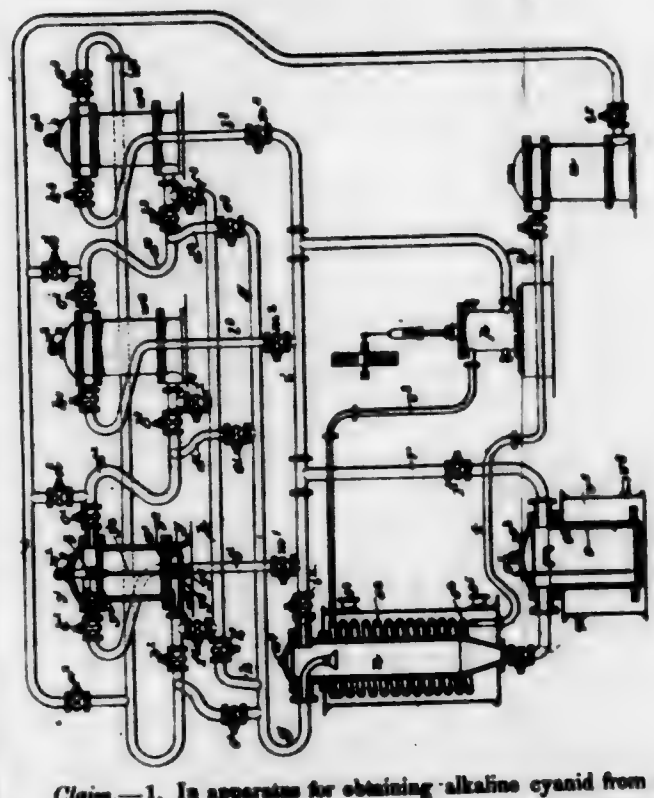
Claim.—1. The combination with a sliding door, of a spring-supported depressible plate below the door and extending beyond it on each side, a fulcrum adjacent to one edge of the door, a lever resting upon said fulcrum and having diverging arms at one side of the fulcrum extending under and secured to the plate, a link connected to the end of the lever on the other side of the fulcrum, a rock-shaft, a short arm extending from the shaft to which said link is pivotally connected, a long rod rigidly connected at one end to said shaft and extending therefrom at an angle to the short arm, and a link connecting the other end of the long rod to the door, substantially as set forth.

2. The combination with a sliding door, of a spring-supported depressible plate below the door and extending beyond it on each side, a strip to which said plate is hinged at one edge, said strip having an opening, a lever extending through said opening and the upper and lower walls of said opening forming opposing fulcrums for said lever, diverging arms on said lever on one side of the strip extending below and connected to the plate, and connections between the end of the lever on the other side of the strip and the door, substantially as and for the purpose set forth.

3. The combination with a sliding door and a floor below it, of a spring-supported depressible plate between the door and the floor and extending beyond the sides of the door, a lever pivoted adjacent to one edge of the plate and extending at one end under the latter, a rock-shaft, arms on said shaft, a connection between one of said arms and the door, and a connection between the other arm and said lever, and strips secured to the edges of the plate and arranged to close the space between the plate and the floor, substantially as set forth.



695,087. APPARATUS FOR OBTAINING ALKALINE CYANIDS. GEORGE CRAIG, Glasgow, Scotland, assignor to Robert Morton Paterson, Spiersfield, Paisley, Scotland. Filed Jan. 2, 1901. Serial No. 41,908. (No model.)



Claim.—1. In apparatus for obtaining alkaline cyanid from materials containing cyanogen by means of liquefied ammonia, an extractor in which the material is subjected to the action of liquefied ammonia, a concentrator communicating with the extractor and to which the ammonia solution passes from the latter, a crystalliser communicating with the concentrator, and a pump communicating with the concentrator and crystalliser for exhausting ammonia therefrom.

2. In apparatus for obtaining alkaline cyanid from material containing cyanogen by means of liquefied ammonia, an extractor in which the material is subjected to the action of liquefied ammonia, a concentrating-chamber communicating with the extractor, a condenser surrounding said concentrating-chamber, and a pump communicating with the upper part of the concentrating-chamber for withdrawing vaporized ammonia therefrom and with the condenser for forcing the vaporized ammonia therethrough.

3. In apparatus for obtaining alkaline cyanid from material containing cyanogen by means of liquefied ammonia, an extractor in which the material is subjected to the action of liquefied ammonia, a concentrator

chamber communicating with the extractor and into which the ammonia solution passes from the latter, a condenser about the concentrator, a crystallizer communicating with the concentrator, and a pump for exhausting ammonia from the concentrator and forcing it through the condenser.

4. In apparatus for obtaining alkaline cyanid from materials containing cyanogen by means of liquefied ammonia, a series of extractors in which the material is subjected to the action of liquefied ammonia, pipes connecting each extractor with its succeeding extractor and the last extractor of the group with the first extractor thereof, two valves in each connecting-pipe near the extractors respectively, a pipe having valved branches one communicating with each of the connecting-pipes at a point between one of the valves in the latter and one of the extractors to which it leads, an ammonia-supply pipe, branches leading therefrom to the connecting-pipes respectively at points between the two valves of the latter, and a valve in each of said branches, whereby the ammonia solution may be passed through the extractors in series beginning with any desired extractor.

5. In apparatus for obtaining alkaline cyanid from materials containing cyanogen by means of liquefied ammonia, a series of extractors in which the material is subjected to the action of liquefied ammonia, pipes connecting each extractor with its succeeding extractor and the last extractor of the group with the first extractor thereof, two valves in each connecting-pipe near the extractors respectively, a pipe having valved branches one communicating with each of the connecting-pipes at a point between one of the valves in the latter and one of the extractors to which it leads, an ammonia-supply pipe, branches leading therefrom to the connecting-pipes respectively at points between the two valves of the latter, a valve in each of said branches, whereby the ammonia may be passed through the extractors in series beginning with any desired extractor, and an exhaust-pipe leading from each of the connecting-pipes.

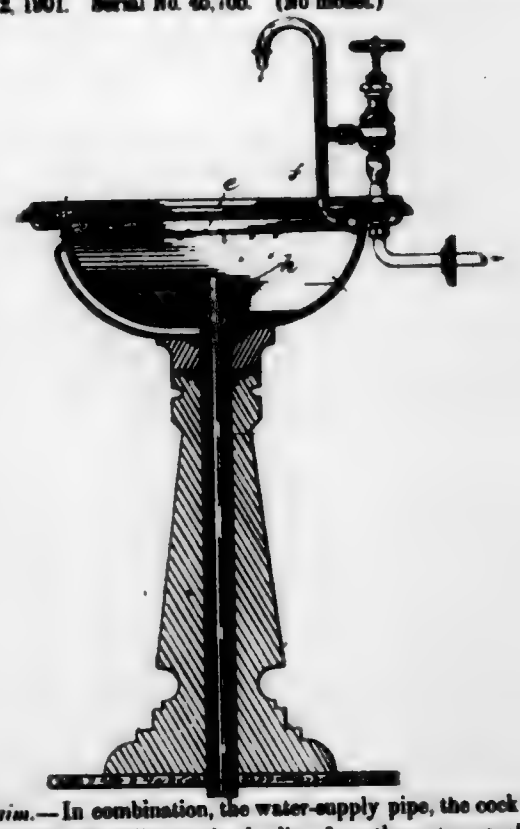
6. In apparatus for obtaining alkaline cyanid from materials containing cyanogen by means of liquefied ammonia, a series of extractors in which the material is subjected to the action of liquefied ammonia, pipes connecting each extractor with its succeeding extractor and the last extractor of the group with the first extractor thereof, two valves in each connecting-pipe near the extractors respectively, a pipe having valved branches one communicating with each of the connecting-pipes at a point between one of the valves in the latter and one of the extractors to which it leads, an ammonia-supply pipe, branches leading therefrom to the connecting-pipes respectively at points between the two valves of the latter, a valve in each of said branches, whereby the ammonia solution may be passed through the extractors in series beginning with any desired extractor, a concentrator, and exhaust-pipe connections leading from the extractors to the concentrator.

7. In apparatus for obtaining alkaline cyanid from materials containing cyanogen by means of liquefied ammonia, a series of extractors in which the material is subjected to the action of liquefied ammonia, pipes connecting each extractor with its succeeding extractor and the last extractor of the group with the first extractor thereof, two valves in each connecting-pipe near the extractors respectively, a pipe having valved branches one communicating with each of the connecting-pipes at a point between one of the valves in the latter and one of the extractors to which it leads, an ammonia-supply pipe, branches leading therefrom to the connecting-pipes respectively at points between the two valves of the latter, a valve in each of said branches, whereby the ammonia solution may be passed through the extractors in series beginning with any desired extractor, a combined concentrator and condenser, exhaust-pipe connections leading from the extractors to the concentrator part, and a pump connected with said part for withdrawing ammonia therefrom and forcing the same through the condenser part.

8. In apparatus for obtaining alkaline cyanid from materials containing cyanogen by means of liquefied ammonia, a series of extractors in which the material is subjected to the action of liquefied ammonia, pipes connecting each extractor with its succeeding extractor and the last extractor of the group with the first extractor thereof, two valves in each connecting-pipe near the extractors respectively, a pipe having valved branches one communicating with each of the connecting-pipes at a point between one of the valves in the latter and one of the extractors to which it leads, an ammonia-supply pipe, branches leading therefrom to the connecting-pipes respectively at points between the two valves of the latter, exhaust-pipe connections leading from the extractors to the concentrator part, a crystallizer and a pump connected with said part, a pipe leading from the pump to the condenser part, and a pipe leading from the crystallizer to the pump, whereby the pump withdraws ammonia from the concentrator part and the crystallizer and forces it through the condenser part.

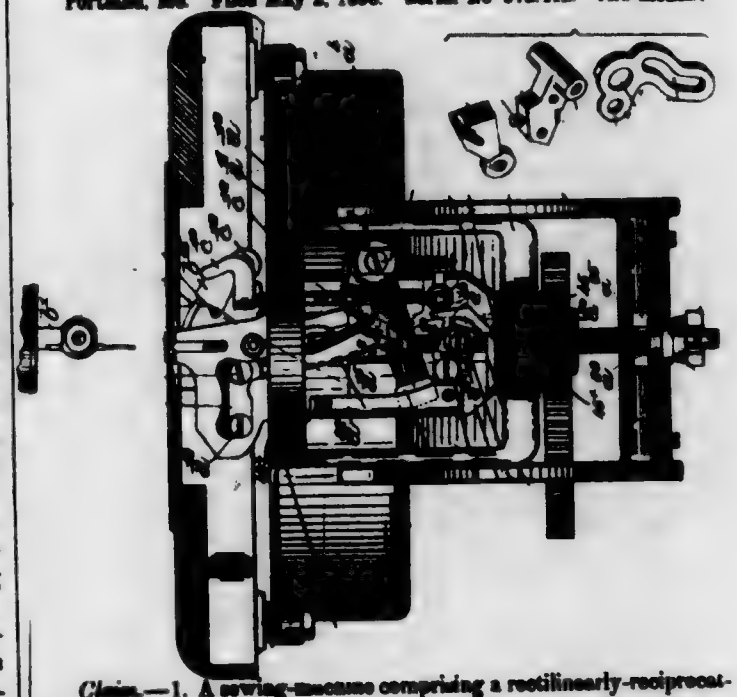
9. In apparatus of the kind described, a pump, a crystallizer, a pipe connecting the pump and crystallizer, a combined concentrator and condenser comprising a concentrating vessel provided at its top with an inlet for ammoniacal cyanid solution and a pipe leading to the pump for drawing off ammonia, and at its bottom with an outlet leading to the crystallizer, and a condensing-coil about the vessel connected with the pump.

695,088. WASHBOWL. JOHN S. CRAIG, Hartford, Conn. Filed Feb. 2, 1901. Serial No. 45,705. (No model.)



Claim.—In combination, the water-supply pipe, the cock in the water-supply pipe, the delivery-pipe leading from the water-supply pipe, the perforated flush-pipe adapted to interiorly encircle a bowl and the pipe leading from the water-supply pipe to the flush-pipe; all substantially as described and for the purposes set forth.

695,089. BUTTONHOLE-STITCHING MACHINE. WILLIAM W. DIXON, Boston, Mass., assignor to Reece Button Hole Machine Company, Portland, Me. Filed May 2, 1898. Serial No. 679,412. (No model.)



Claim.—1. A sewing-machine comprising a rectilinearly-reciprocating needle, a circularly-moving block having a raceway inclined with respect to the path of movement of said needle, means to rotate said block, a needle-carrier located in said raceway and provided with an under-thread-carrying needle, a lever mounted upon the circularly-moving block and vibrating in a plane parallel to the plane of inclination of the raceway, means to connect said lever with said needle-carrier, a rod or bar, means to move it in a path parallel to that of the rectilinearly-reciprocating needle, and means to connect said lever and rod or bar, whereby the movement of said rod or bar effects the movements of the parts referred to without binding.

2. A sewing-machine comprising in combination, a circularly-moving block having a raceway, a needle-carrier movable therein and provided with an under-thread-carrying needle, a lever, means to connect it with said needle-carrier, said lever having at one end a laterally-extended hollow arm slotted at its side, a slide fitted loosely in said hollow arm, a vertically-reciprocating bar, and a pin connecting said bar and slide; combined with means to move said bar to vibrate said lever and actuate said under-thread-carrying needle, substantially as described.

3. A sewing-machine comprising in combination, the following instrumentalities, viz: a circularly-moving block having a raceway, a needle-carrier guided by said raceway, an under-thread-carrying needle mounted on said carrier, a lever having at one end a laterally-extended arm, a slide connected loosely with said extended arm, means to connect said lever with said needle-carrier, a rod mounted in said circularly-moving block and provided with a ball-shaped projection, means to connect said rod with said slide, a lever having ears to embrace loosely the ball of said rod, means to move said lever to reciprocate said rod in said block, and devices to insure the rotation of said rod in unison with said block.

4. A sewing-machine comprising in combination, a circularly-moving block, means to move it, a raceway carried by said block, a needle-carrier coöperating with said raceway and provided with an under-thread-carrying needle, a pivoted lever having at one end an extended arm, an adjustable eccentric forming the pivot for said lever, means to connect said lever to said carrier, a vertically-reciprocating bar, and means to connect it loosely and operatively with the arm of said lever, substantially as described.

5. A sewing-machine comprising in combination, a circularly-moving block, means to actuate it, a raceway in said block, a needle-carrier fitted to slide in said raceway and provided with an under-thread-carrying needle, a pivoted lever having at one end an extended arm and provided with an ear, a guide connected with said block to guide said ear in the movement of said lever, means to connect said lever with said carrier, a rod, means to actuate it, a slide coöperating loosely with the extended arm of said lever, and means to connect said slide with said rod whereby the reciprocations of said rod effect the movement of said lever about its pivot, substantially as described.

6. In a sewing-machine, the following instrumentalities, viz: a reciprocating eye-pointed thread-carrying needle to penetrate the material, means to operate it, a circularly-moving block, a looper coöperating with said needle, a looper-carrier composed of a body part, a cam part, and a swiveled part to which said looper is attached, means to move said looper-carrier, and means comprising a wing, a rock-shaft, and a suitable cam to move said rock-shaft to turn the swiveled part of said looper-carrier on its body part.

7. In a sewing-machine, the following instrumentalities, viz: an eye-pointed thread-carrying needle to penetrate the material, means to actuate it, a looper, a looper-carrier composed of a body part and a swiveled part mounted thereon, means to sustain and actuate said body part, a pin or stud connecting the swiveled part with the body part loosely, a wing, and a rock-shaft to which said wing is attached; combined with means to move said rock-shaft and cause said wing to turn the swiveled part of said looper-carrier on said body part, substantially as described.

8. A sewing-machine comprising in combination, the following instrumentalities, viz: a circularly-moving block, a looper-carrier composed of a body, a swiveled part, and a detachable cam-slotted part, the said swiveled part having attached to it a looper, and a stud to support said body part, combined with a vertically-reciprocating rod or bar having a stud to enter said cam-slotted part, and means to move said rod or bar vertically to turn said looper-carrier about its pivot, and means to vibrate the swiveled part of said carrier on said body part, substantially as described.

9. A sewing-machine comprising in combination a looper-carrier, means to support and actuate it, said carrier being composed of a body part and a swiveled part mounted thereon, a looper held by said swiveled part, and a rock-shaft having a wing and a projection; combined with a cam to act on the projection of said rock-shaft to turn it, a reciprocating bar or rod, means to actuate the same, and connections between said bar or rod and said cam to enable the latter to be moved with and by said rod or bar, substantially as described.

10. A sewing-machine comprising in combination, the following instrumentalities, viz: a circularly-moving block, a looper carrier composed of a body part, a swiveled part mounted thereon, said swiveled part having a looper, a wing to move said swiveled part, means to sustain said wing, a slotted wing-actuating cam, having one of its ends pivoted to said block, a block entering the slot in said cam, an eccentric to sustain said block, a rod or bar fitted loosely in said circularly-moving block, means carried by said rod or bar to sustain said eccentric to said rod, the adjustment of said eccentric regulating the throw of said wing and consequently timing the movement of the looper.

11. A sewing-machine comprising in combination, a circularly-moving block, a bar mounted therein provided with a diagonally-placed stud, means to reciprocate said bar, an under-thread-carrying needle, and a carrier therefor, combined with a lever provided with a movable slide engaged by said stud, and connections between said lever and the carrier for said under-thread-carrying needle, substantially as described.

12. In a machine for stitching buttonholes, an eye-pointed needle, means to move it to penetrate the material, a circularly-movable block located below the material and provided with a raceway and a stud, a needle-carrier in said raceway, an attached under-thread-carrying needle, a lever mounted on said block, and connected operatively with said needle-carrier, means to move said lever, a looper, a looper-carrier composed of a body part mounted on the stud of said block, a swiveled part mounted on the body part, and a cam part attached to said body part; means to actuate said cam part to move said looper in the direction of its length, an independent device carried by said block, and means to move said device in a plane transverse to that in which moves the lever for actuating the needle-carrier, said device acting against the swiveled part and turning it on the said body part, and means to move said swiveled part in opposition to said device.

13. In a machine for stitching buttonholes, an eye-pointed needle to penetrate the material, means to actuate the same, a coöperating under-thread carrier, means to sustain the said thread-carrier and to actuate the same, a looper, a looper-carrier composed of a body part pivotally mounted on the means sustaining the under-thread carrier, a swiveled part movable on the body part, a cam part connected with said body part; a rod having two pins one entering the cam of the cam part, means to move said rod longitudinally, and a device deriving its movement from the second pin on said rod to meet and turn the swiveled part on the body part.

14. A buttonhole-sewing machine comprising a rotatable block sustaining a needle-carrier having an attached under-thread-carrying needle, a looper-carrier having an attached looper, a rod located in the axis of rotation of said block, two slotted levers sustained by said block and connected respectively operatively with said needle-carrier and said looper-carrier, means to reciprocate said rod, and studs carried thereby entering slots in said levers to move them and actuate said needle-carrier and looper-carrier.

15. A buttonhole-sewing machine comprising a rotatable block sustaining a needle-carrier having an attached under-thread-carrying needle, a looper-carrier having an attached looper, a rod located in the axis of rotation of said block, two slotted levers sustained by said block and connected respectively operatively with said needle-carrier and said looper-carrier, means to reciprocate said rod, studs carried thereby entering slots in said levers to move them and actuate said needle-carrier and looper-carrier, and means also carried by said block to move a part of the looper-carrier laterally as described when making a stitch.

16. A buttonhole-sewing machine comprising in combination, a rotatable block provided with an under-thread-carrying needle, a rod located in the axis of rotation of said block, said rod being provided near its lower end with a ball, and a pivoted lever cross-forked at its end to embrace said rod and reciprocate it in said block.

17. A buttonhole-sewing machine comprising in combination, a rotatable block provided with an under-thread-carrying needle, a rod located in the axis of rotation of said block, said rod being provided near its lower end with a ball, suitable cup-shaped washers embracing said ball, a pivoted lever cross-forked at its end to embrace said rod and set upon said washers, and means to reciprocate said lever to reciprocate said rod in said block.

18. A buttonhole-sewing machine comprising in combination, a rotatable block provided with an under-thread-carrying needle, a rod located in the axis of rotation of said block, said rod being provided near its lower end with a ball, suitable cup-shaped washers embracing said ball, a pivoted lever cross-forked at its end to embrace said rod and act upon said washers, means to reciprocate said lever to reciprocate said rod in said block, and adjusting means to adjust the lever to compensate for any wear between the disks and the ball of the said rod.

19. A buttonhole-sewing machine comprising in combination a rotatable block and means for rotating the same, lower complemental stitch-forming mechanism located on said block, a rod located in line with the axis of rotation of said block, connections between said rod and said lower complemental stitch-forming mechanism for operating the same, a ball connected with said rod, washers coöperating with said ball, and means acting upon said washers to reciprocate said rod during the period of rotation of the block and while the stitching of the buttonhole is being carried on and completed.

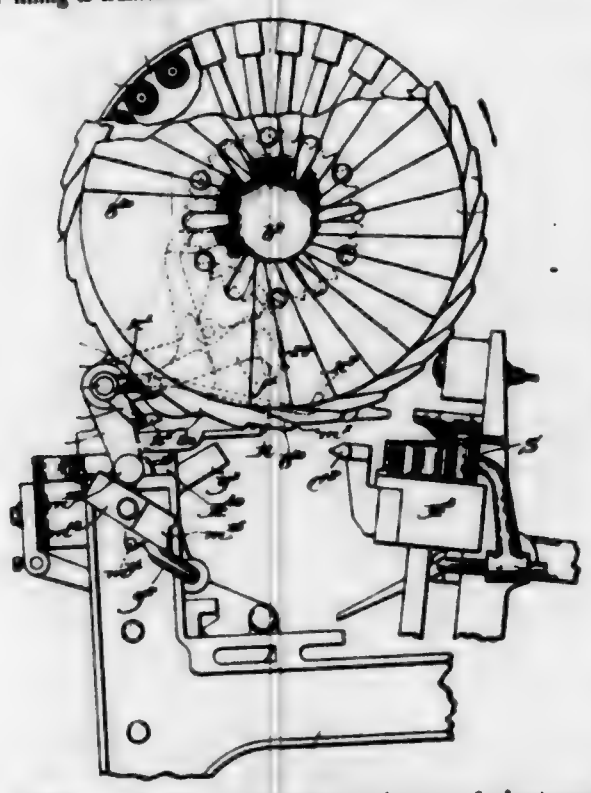
20. In a buttonhole-sewing machine comprising in combination, a rotatable block containing a looper-carrier composed of a body, and a block swiveled on said body and provided with a looper, a stud projecting from one end of said swiveled block, a wing, a rock-shaft carrying said wing, and means to move said rock-shaft to cause the wing carried thereby to periodically contact with the said stud and thus turn the swiveled part of the looper-carrier on the body part thereof.

695,040. FILLING-REPLENISHING MECHANISM FOR LOOMS.

CLARE H. DRAPER and EDWARD S. STIMPSON, Hopedale, Mass., assignors to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Nov. 14, 1901. Serial No. 82,232. (No model.)

Claim.—1. In a filling-replenishing mechanism for looms, a feeder to contain a supply of filling, a filling-end holder at the outer end thereof, a slack-supporter between the feeder and end-holder, to engage and de-

flect the filling from its direct path, and means to automatically engage the filling, and positively disengage it from the slack-supporter when the supply of filling is transferred.



2. In filling-replenishing mechanism for looms, a feeder to contain a plurality of supplies of filling, a holder for the several ends of filling, located at the outer end of the feeder, a slack-supporter to engage the individual threads between the feeder and holder and deflect them from their direct paths, and means to automatically disengage said threads one after another from the slack-supporter when the supplies of filling are transferred from the feeder.

3. In a loom, an intermittingly-rotatable feeder adapted to contain a series of filling-carriers, a filling-end holder rotatable with and located at the outer end of the feeder, a slack-supporter to engage said filling ends between the feeder and holder and deflect them from their direct paths, a transferrer to transfer the filling-carriers one by one from the feeder, and means to automatically release the filling end of the transferred supply from the slack-supporter when transfer is effected.

4. In filling replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to hold the several filling ends, a notched disk between said means and the feeder and rotatable therewith, to engage the filling ends and deflect them from their direct paths, transferring means, and a knock-off operative by or through actuation of said transferring means to engage and release from its notch in the disk the filling end of the carrier transferred.

5. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to hold the several filling ends, said means including a disk over the periphery of which the filling ends pass, a peripherally-notched disk of greater diameter, interposed between and rotatable with said feeder and end-holding means, to engage and deflect the filling ends from their direct paths, transferring means, and a knock-off operative by actuation of the transferrer, to engage and withdraw from its notch the filling end of the carrier to be transferred, and thereby provide a slack or surplus portion of filling.

6. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to hold the several filling ends, said means including a disk over the periphery of which the filling ends pass, a peripherally-notched disk of greater diameter, interposed between and rotatable with said feeder and end-holding means, to engage and deflect the filling ends from their direct paths, transferring means, and a pivotally-mounted knock-off movable in proximity to the notched disk, to release therefrom the threads one by one, the operative movement of said knock-off being controlled by or through the transferring means.

7. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to hold the several filling ends, said means including a disk over the periphery of which the filling ends pass, a disk between the feeder and end-holding means and having notches at its periphery, said notches being set in advance of the direct paths of the filling ends, the latter being maintained by the notches deflected, transferring means, and a knock-off device operated by or through actuation of said transferring means to release from its notch the filling end of the carrier to be transferred.

8. In filling-replenishing mechanism for looms, a feeder to contain a supply of filling, a filling-end holder at the outer end thereof, and a slack-supporter to engage and deflect the filling from its straight path between the feeder and holder, the transfer of the filling-supply from the feeder causing the filling end to drop off the slack-supporter.

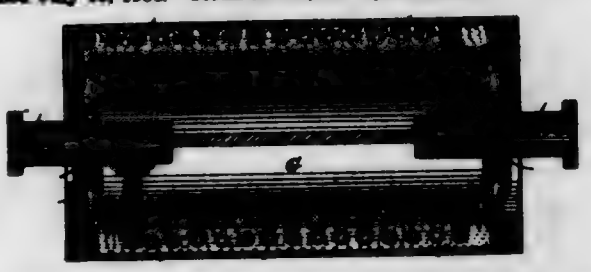
9. In filling-replenishing mechanism for looms, a rotatable feeder to contain a series of filling-carriers, a holder for the several ends of filling, located at the outer end of and rotatable with the feeder, and a disk-like slack-supporter between the feeder and holder and rotatable therewith, said supporter having a series of peripheral notches non-alined with the direct paths of filling ends between the feeder and holder, to engage and deflect the filling ends from their direct paths and thereby provide a surplus or slack portion of filling when a filling-carrier is transferred from the feeder.

10. In filling-replenishing mechanism for looms, a rotatable feeder to contain a series of filling-carriers, a holder for the several ends of filling, located at the outer end of and rotatable with the feeder and a slack-supporter between and rotatable with said feeder and holder, said supporter being made as a disk of greater diameter than the feeder, the periphery of the disk engaging the individual filling ends and deflecting them from their direct paths between the feeder and end holder.

11. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to hold the several filling ends, said means including a disk over the periphery of which the filling ends pass, a disk intermediate the feeder and end-holding means and rotatable therewith, the periphery of the said disk engaging and supporting the filling ends and deflecting them from their direct paths, to thereby provide a slack portion of filling when a filling-carrier is transferred, and transferring means.

12. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to hold the several filling ends, said means including a disk over the periphery of which the filling ends pass, a peripherally-notched disk intermediate and rotatable with the feeder and end-holding means and of greater diameter than the disk of the latter, the notches being out of alinement, radially and circumferentially, with the direct paths of the filling ends between the feeder and end-holding means, to deflect said filling ends both radially and circumferentially and thereby provide a slack portion when a filling-carrier is transferred, and transferring means.

695,041. DRYING-CYLINDER. EMIL FUHR, Hanau, Germany. Filed July 19, 1901. Serial No. 68,978. (No model.)



Claim.—1. In a drying apparatus, the combination of a rotatable cylinder, a stationary cylinder concentric therewith and heat-conducting material between the walls of the same, substantially as described.

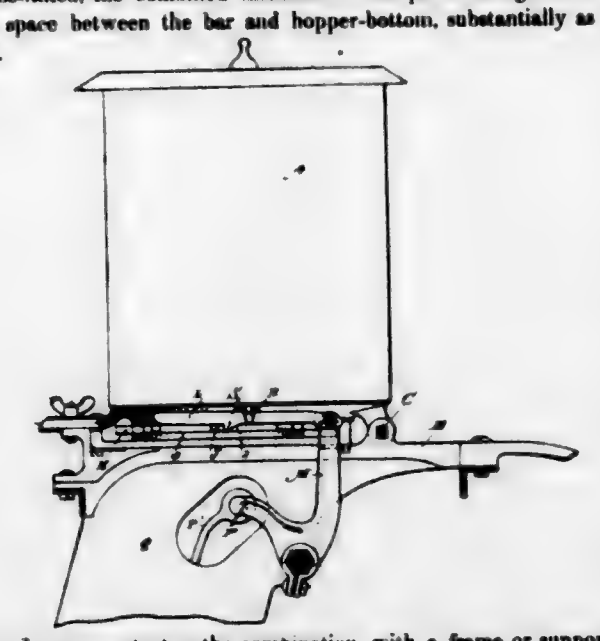
2. In a drying apparatus, the combination of a rotatable closed cylinder, a stationary closed cylinder concentric therewith and within the same, stationary heating-coils in the space between the walls of the cylinders and liquid heat-conducting material also in said space, substantially as described.

3. In a drying apparatus, the combination of a rotatable closed cylinder, a stationary closed cylinder concentric therewith and within the same, stationary heating-coils in the space between the walls of the cylinders, and heat-conducting material also in said space, substantially as described.

695,042. CORN-PLANTER. GEORGE E. GEDGE, Springfield, Ohio, assignor to the A. C. Evans Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed Dec. 14, 1900. Serial No. 39,822. (No model.)

Claim.—1. In a corn-planter, the combination, with a frame or support, of a hopper hinged thereto and provided with an annular opening in its bottom, a supporting-plate secured to the under side of the hopper-bottom at a point below the same, said supporting-plate being provided with an opening for the passage of the grain and with a removable stud, and means for fastening the same accessible on the under side of the bar, a non-rotating dropper-plate supported on said bar and having an aperture for the passage of the stud and provided with an opening registering with the grain opening of the bar, and a rotating dropper-plate mounted on the stud, between the non-rotating dropper-plate and the hopper-

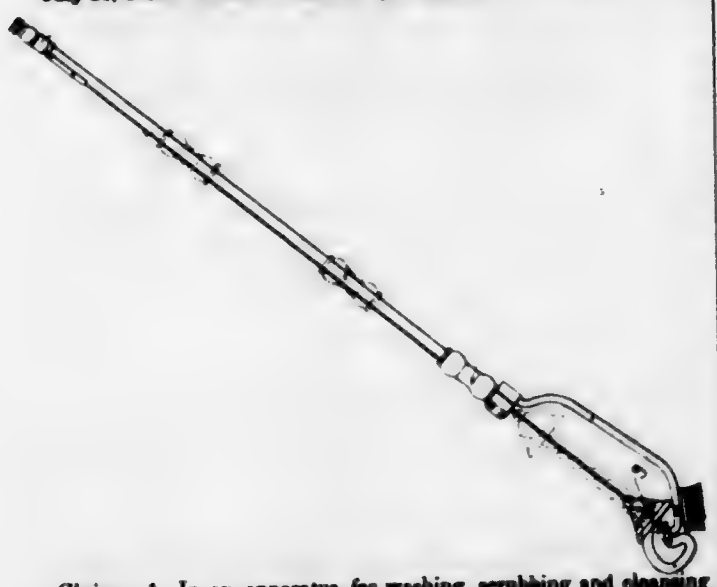
bottom, and provided with a plurality of apertures adapted to successively register with that of the non-rotating plate, whereby when said stud is removed the dropper-plates may be removed and others of different thickness substituted, the combined thickness of the plates being such as to fill the space between the bar and hopper-bottom, substantially as described.



2. In a corn-planter, the combination, with a frame or support, of a hopper hinged thereto, a supporting-bar secured to the under side of the hopper-bottom, a non-rotating and a rotating dropper-plate fitting between the hopper-bottom and supporting-bar, said bar and non-rotating plate being each provided with a grain-discharge aperture, and the rotating plate being provided with a plurality of apertures successively registering therewith, a removable stud passing through apertures in the bar and in each of the dropper-plates, lugs projecting from the under side of the bar on each side of the stud and provided with apertures, and a removable pin passing through said lugs and under the stud to hold the same in place, substantially as described.

3. In a corn-planter, the combination, with a hopper, and a rotatable dropper-plate provided with peripheral teeth, of a slotted boot or conduit, a valve mounted therein, a rock-shaft, and an integral double-armed lever mounted on said rock-shaft, one arm of said lever being provided with a pawl to engage the teeth of the rotating dropper-plate, and the other arm of said lever being operatively connected with the valve, substantially as described.

695,048. APPARATUS FOR WASHING, SCRUBBING, AND CLEANSING FLOORS. JAMES R. GEE, West Croydon, England. Filed July 26, 1901. Serial No. 69,838. (No model.)

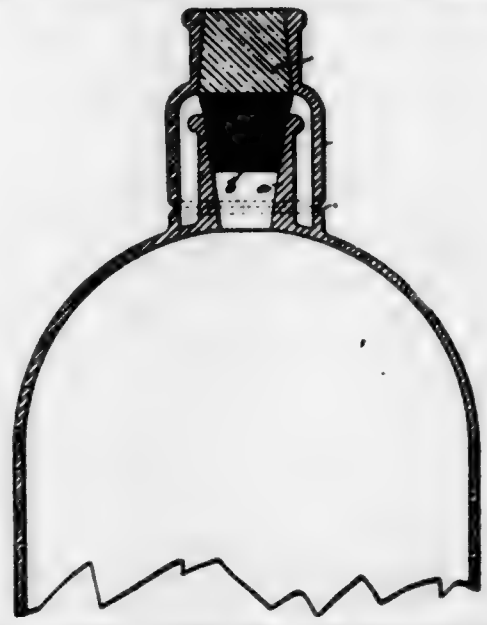


Claim.—1. In an apparatus for washing, scrubbing and cleansing floors, the combination with a hollow handle, a bracket attached to said handle carrying a scrubbing-brush, of a swab attached at one end to the bracket, of a rod located in the hollow handle and to which the other end of the swab is attached carrying or having a quick-pitched multiple screw-thread for a portion of its length and a screw-thread at its upper end, of a sliding nut engaging the said quick-pitched multiple-threaded screw, of a sleeve sliding longitudinally on the hollow handle and connected to the said nut, of a cap on the upper end of the hollow handle in which is a screw-thread with which the screw on the top of the internal rod engages, and of a projection on the said screw which engages the longitudinally-arranged slot in the hollow handle and with the female thread in the cap on the upper end of the said hollow handle, as set forth.

2. In an apparatus for washing, scrubbing and cleansing floors the combination with a hollow handle, a bracket attached to said handle carrying a scrubbing-brush, of a swab attached at one end to the bracket, of a cup-shaped holder to which the other end of the swab is attached, of a rod located in the hollow handle on which the cup-shaped holder is attached the said rod carrying or having a quick-pitched multiple screw-thread for a portion of its length and a screw-thread at its upper end, of a sliding nut engaging the said quick-pitched multiple-threaded screw, of a sleeve sliding longitudinally on the hollow handle and connected to the said nut, of a cap on the upper end of the hollow handle in which is a screw-thread with which the screw on the top of the internal rod engages, and of a projection on the said screw which engages the longitudinally-arranged slot in the hollow handle and with the female thread in the cap on the upper end of the said hollow handle, as set forth.

3. In an apparatus for washing, scrubbing and cleansing floors comprising a scrubbing-brush and a swab, a rod for manipulating the swab to which first a plain longitudinal stretching movement and secondly a combined twisting and further longitudinal stretching movement are imparted by one continuous movement of a sleeve sliding longitudinally on the hollow handle carrying the brush, as and for the purpose set forth.

695,044. NON-REFILLABLE BOTTLE. ALBERT R. GIBSON, Reading, Pa. Filed Dec. 23, 1901. Serial No. 87,583. (No model.)



Claim.—A bottle provided with a main neck, and a supplemental neck surrounding the same to form an annular space between the two, said supplemental neck being of the same internal diameter to a point slightly above the top of the main neck, and then contracted to a diameter equal to the mouth of the main neck and directly above the latter, and then tapering to the mouth of the supplemental neck, a cork seated in the mouth of the main neck and extending far enough above the same to close the opening formed above said mouth, by the supplemental neck, and also the annular space formed between the two, sealing material in the mouth of the supplemental neck resting on the cork, and a circumferential weakening-groove in the said supplemental neck near its base.

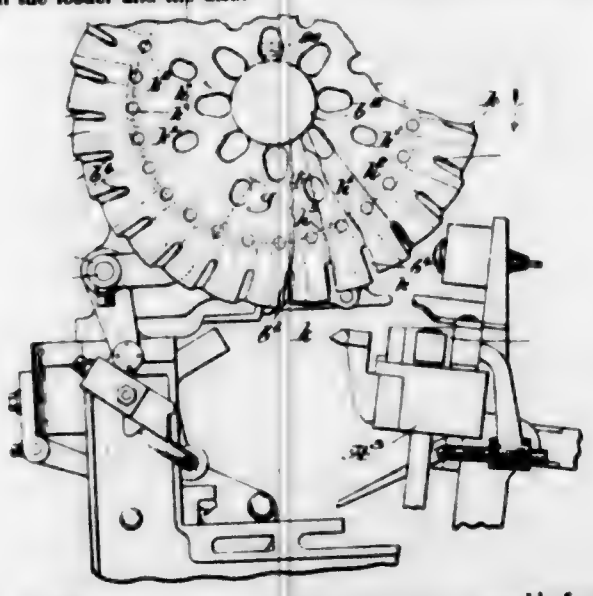
695,045. FILLING-REPLENISHING MECHANISM FOR LOOMS. JOSEPH A. G. GOULET, Montreal, Canada, assignor to Draper Company, Hopedale, Mass., a Corporation of Maine. Filed Dec. 4, 1901. Serial No. 84,643. (No model.)

Claim.—1. In filling-replenishing mechanism for looms, a feeder to contain a supply of filling, a filling-end holder at the outer end thereof, a surplus portion of filling being provided between said holder and the feeder, a device to normally engage such surplus portion, and means to automatically disengage said device from and release the filling, to slacken the same.

2. In filling-replenishing mechanism for looms, a feeder to contain a plurality of supplies of filling, a holder for the several ends of filling, located at the outer end of the feeder, a series of devices to normally and individually engage and support surplus portions of filling between the holder and the feeder, and means to automatically and successively disengage said devices from the filling engaged thereby.

3. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to support and hold the several filling ends, a series of devices to individually engage and deflect the filling ends from their direct path between the feeder and said holding means, and means to positively and successively move said devices to release the filling ends engaged thereby.

4. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to support and hold the several filling ends, said means including a disk having a series of slots extended inward from its periphery, a series of movable thread-engaging devices mounted on said disk and adapted to normally close the slots and individually hold the filling ends at the periphery of the disk adjacent the slots, and means to automatically move said devices successively to release the filling end held thereby and open the adjacent slot, to permit the filling end to enter the same and become slack between the feeder and the disk.

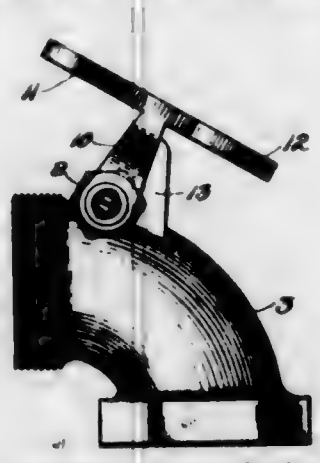


5. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to support and hold the several filling ends, a series of devices pivotally mounted on said holding means and adapted to normally engage individual filling ends and maintain them substantially taut, and a fixed controlling-cam to coöperate with said devices and automatically effect the movement thereof singly, at a predetermined point to release the filling end engaged thereby.

6. In filling-replenishing mechanism for looms, a rotatable feeder to contain a plurality of filling-carriers, means rotatable with the feeder to support and hold the several filling ends, said means including a disk having a series of slots extended inward from its periphery, a series of movable thread-engaging devices mounted on said disk and adapted to normally close the slots and individually hold the filling ends at the periphery of the disk adjacent the slots, and a fixed controlling-cam to coöperate with said devices and normally maintain them in operative position, and to effect the releasing and slot-opening movement of said devices one after another at a predetermined point in the bodily path of movement of such devices.

7. In filling-replenishing mechanism for looms, a feeder to contain a supply of filling, a filling-end holder at the outer end thereof, a surplus portion of filling being provided between said holder and the feeder, a thread-engaging device pivotally mounted on the filling-end holder, to normally maintain the filling end deflected from its direct path and taut, and means to positively move said device at a predetermined time to release the filling end and thereby permit it to become slack between the feeder and the holder.

695,046. VALVE FOR HOT-WATER RADIATORS. CLIFTON A. GRANTON, Haverhill, Mass. Filed Aug. 20, 1901. Serial No. 72,634. (No model.)



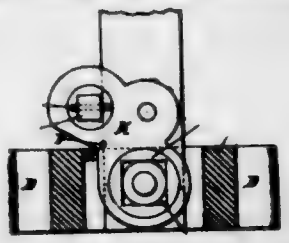
Claim.—1. In a valve for hot-water heating systems, the combination of an elbow-joint, a pivot journaled in and passing through the wall thereof, at one side of its interior, a plate located within the joint and secured at one edge to the pivot, said plate being curved both transversely and longitudinally and having its projection circular, as described, and means secured to the outer end of the pivot for operating the plate, the interior of said joint being unobstructed by any valve-seat.

2. In a valve for hot-water heating systems, the combination of an elbow-joint, a plate 2 formed as described and mounted at one edge on a pivot passing through the wall of said joint, a lever secured to the outer end of said pivot and provided with oppositely-extending arms, and a stop secured to the exterior of said joint and adapted to engage said lever.

3. In a valve for hot-water heating systems, the combination of a joint having an unobstructed interior, a plate located within said joint and secured at one edge to a pivot passing through the wall of the joint, a lever secured at one end to the outer end of said pivot and provided at its other end with two arms extending in opposite directions from said pivot, and a stop 13 for limiting the closing movement of the valve.

4. A valve for hot-water heating systems comprising a joint 3 having an unobstructed interior, a plate 2 formed as described and located within said joint, a pivot 4 passing through the wall of said joint and rigidly secured to said plate, a stuffing-box surrounding said pivot, a lever 10 secured to the outer end of said pivot and provided with oppositely-extending arms 11 and 12, and a stop 13 secured to the exterior of said joint, substantially as described.

695,047. NUT-WRENCH. WILLIAM F. HAMILTON, Ventura, Cal. Filed June 17, 1901. Serial No. 64,939. (No model.)



Claim.—1. The herein-described wrench, comprising a gear having a central socket therein for the reception of a nut on a tooth of a threshing-cylinder, rotatively mounted in a wrench-head casing; a handle-gear rotatively mounted in said casing; an intermediate gear also rotatively mounted in said casing at one side of the line which joins the centers of the nut and handle gears and meshing with both the other gears, a casing for said gear having an indentation in one of the sides thereof between the socket-gear and the handle-gear, opposite the intermediate gear, in combination with a handle adapted to operate the handle-gear.

2. In a wrench, the combination of a casing having an indentation in one side thereof; a handle-gear, and socket-gear rotatively mounted in said casing, one on each side of said indentation; an intermediate gear, meshing with both of the other gears, rotatively mounted in said casing opposite the indentation at a point which is at one side of the line which passes through the centers of the other gears; and a handle secured to the handle-gear.

3. In a cylinder-wrench three gears rotatively mounted in the casing of the head thereof at the apices of a triangle, one of said gears having a socket adapted for the reception of the nut of a threshing-cylinder tooth, one of said gears adapted for the reception of an operating-handle, and one of said gears adapted to mesh with both of the other gears and impart motion from one to the other; a casing having an indentation in the side thereof opposite the intermediate gear; and a handle secured to the handle-gear.

695,048. CAN-OPENER. DAVID M. HAYWORTH, Chicago, Ill. Filed Feb. 8, 1901. Serial No. 46,467. (No model.)

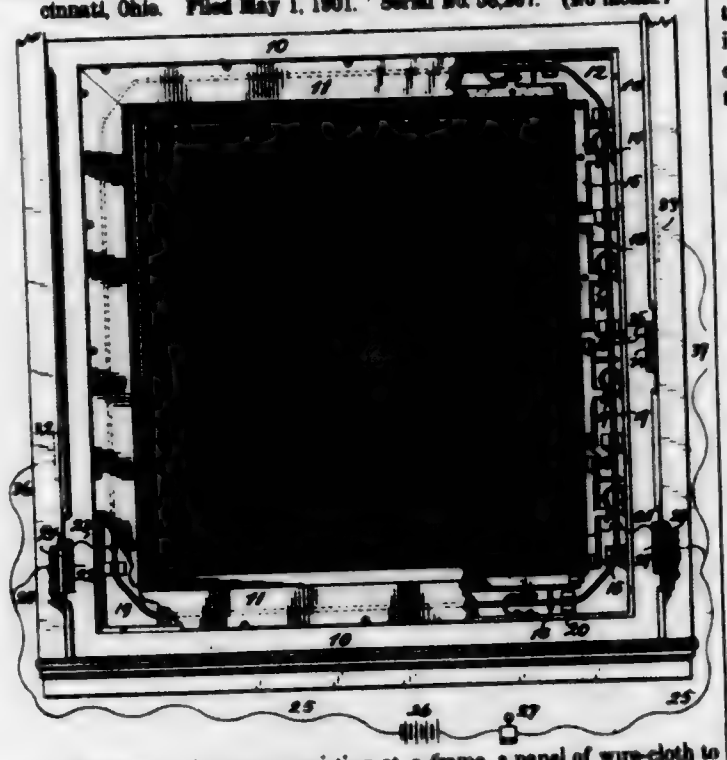


Claim.—1. In a can-opener, the combination of a bar provided with a suitable handle and with a spur adapted to be inserted through the can, and having a longitudinal slot therein, and a cutting-blade composed of a flat piece of steel bent upon itself to form a spring member and provided with a cutting edge and with a portion adapted to slide under the portion of the can to be removed, said cutting-blade slidably adjustable in said slot and adapted to be held in place by frictional engagement with the opposite faces of the bar aforesaid, as set forth.

2. In a can-opener, the combination of a bar provided with a suitable handle and with a spur adapted to be inserted through the can, and having a longitudinal slot therein, and a cutting-blade having a spring member, a beveled and notched cutting edge and a portion adapted to slide under the top of the can, said cutting-blade slidably adjustable in said

slot and having portions adapted to frictionally engage the opposite faces of the bar when said blade is, in operative position, substantially as set forth.

695,049. BURGLAR-ALARM FLY-SCREEN. DAVID S. HILL, Cincinnati, Ohio. Filed May 1, 1901. Serial No. 58,267. (No model.)



Claim.—1. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield either to or from the frame, contact-pieces projecting from the wire-cloth and attached thereto in a manner to partake of this movement in either direction, a current-conductor forming part of a circuit of which these contact-pieces form also a part, said current-conductor so supported as to be capable of contact with any of the contact-pieces when they move in either direction and an alarm-signal which operates upon such contact.

2. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield edgewise either inwardly or outwardly, a circuit-wire supported close to the edge of the wire-cloth, contact-pieces projecting from this latter and so shaped as to be able to touch the circuit-wire when moving with the screen-cloth in either direction, said contact-pieces and circuit-wire forming parts of an electric circuit and an alarm-signal adapted to operate when such circuit is closed.

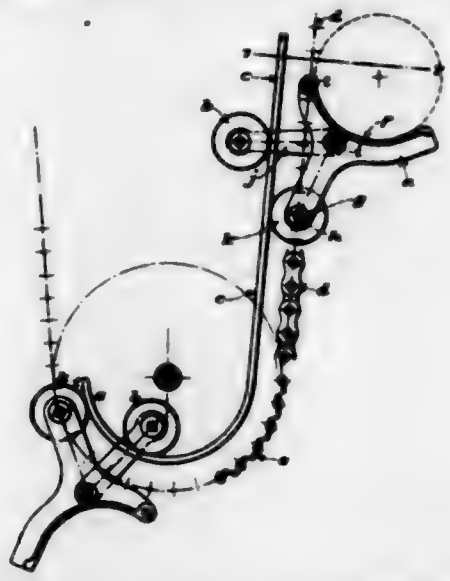
3. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield edgewise, contact-pieces projecting from the wire-cloth, a wire supported so as to be within the reach of movement of these contact-pieces, contact-pieces on the screen-frame, both electrically connected, one to the aforesaid wire, the other to the contact-pieces on the wire-cloth, stationary contact-pieces normally in contact with the contact-pieces on the screen-frame, a general circuit-wire connecting these stationary contact-pieces and an alarm-signal included in this latter, all these parts forming elements of an electric circuit which when closed, causes the alarm-signal to operate.

4. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield edgewise, contact-pieces having their outer ends curled, projecting from the wire-cloth, a wire passing through the curled ends of all these contact-pieces, but normally out of touch with any of them, an electrical circuit of which this wire and all these contact-pieces form a part, and an alarm-signal included in this circuit which will operate as soon as this latter is closed by reason of any of the contact-pieces touching the wire passing through them.

5. A screen consisting of a frame, a panel of wire-cloth to close the space surrounded by the same, clamps around the edge of the wire-cloth, springs connecting these clamps to the inside of the frame whereby the wire-cloth is held in a manner to be capable to yield edgewise, contact-pieces attached to these clamps and projecting outwardly from the wire-cloth, an electrical circuit of which they form a part when in contact therewith and an alarm-signal included in this circuit and adapted to operate when said circuit is closed.

6. A screen consisting of a frame, a panel of wire-cloth to close this frame, means whereby it is held thereto in a manner to be free to yield edgewise, contact-pieces projecting from the wire-cloth, a circuit-wire supported close to these contact-pieces and adapted to make contact with any of them upon movement of the screen-cloth, contact-pieces on the screen-frame to which this circuit-wire and all the contact-pieces on the wire-cloth are electrically connected stationary contact-pieces with which the contact-pieces on the screen-frame are normally in contact, additional contact-pieces on the screen-frame, and stationary contact-pieces so located as to be in the path of the former if the screen is moved, a general electric circuit connecting all these contact-pieces and an alarm-signal included in this circuit and adapted to operate if said circuit is closed in consequence of a movement of either the wire-cloth on the screen-frame, or of this latter within its inclosure.

695,050. HOIST AND CONVEYER. HARRY F. HODGES, U. S. Army. Filed Nov. 18, 1901. Serial No. 82,682. (No model.)



Claim.—1. In a conveyer, the combination with a fixed guide of a belt or chain running parallel thereto, a carrier having its lower portion pivotally supported on said chain, contact devices carried by the upper and lower portions of said carrier and arranged to engage the rear and front faces of said guide respectively, and means for permitting the upper portion of said carrier to move away from the chain when desired.

2. In a conveyer, the combination with a fixed guide of a belt or chain running parallel thereto, a carrier having its lower portion pivotally supported on said chain, and contact devices carried by the upper and lower portions of said carrier and arranged to engage the rear and front faces of the guide respectively, said guide being formed to permit a lateral movement of the upper contact device at the point where it is desired to discharge said carrier.

3. In a conveyer, the combination of a belt or chain, a fixed guide, and a carrier pivotally supported at its lower end on said chain and provided with upper and lower contact devices arranged to engage the rear and front faces of the guide respectively, said guide being formed to pass between the contact devices when the carrier is inverted and to turn said carrier into its load-carrying position.

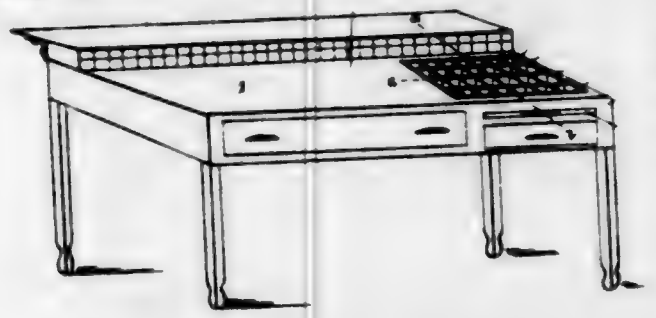
4. In a conveyer, the combination of a belt or chain, a carrier pivotally supported at its lower portion on said chain, means for holding said carrier in its load-retaining position, means for permitting said carrier to tilt when desired, and a relatively fixed support located outside the path of said carrier and arranged to be engaged by the same when the latter tilts.

5. In a conveyer, the combination with a fixed guide of a belt or chain running parallel thereto, a carrier pivotally supported at its lower portion on said chain, contact devices carried by the upper and lower portions of said carrier and arranged to engage the rear and front faces of the guide respectively, said guide being formed to permit a lateral movement of the upper contact device at the point where it is desired to discharge the load, and a support located near the path of said carrier and arranged to engage the same when the latter tilts.

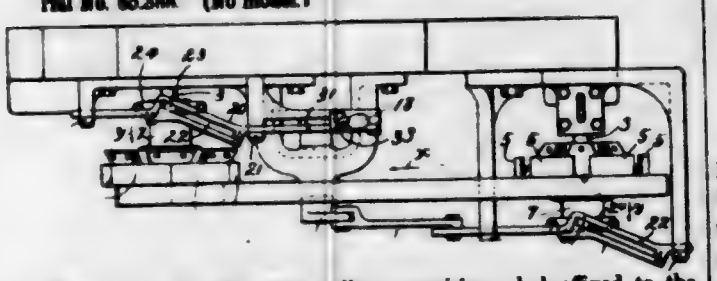
6. In a conveyer, the combination with a fixed guide of a chain *d*, running parallel thereto, a carrier comprising trays *f*, *f*, pivotally secured at their lower extremities to said chain, guide-rollers *h*, *h*, and *k*, *k*, secured to said trays and arranged to engage the opposite faces of the guide *c*, said guide being formed to permit the tilting of said trays when in their discharging positions, and a roller *p* located near the path of said trays and arranged to support the same when they are permitted to tilt, substantially as described.

695,051. TABLE OR DESK FOR HOLDING DIES. HENRY B. HOLLIS, New York, N. Y. Filed Mar. 2, 1900. Renewed Aug. 12, 1901. Serial No. 71,814. (No model.)

Claim.—The herein-described receptacle for dies, the same comprising a substantially flat support having in its top an upright aperture which is provided at its bottom with a surrounding groove opening out through the front of said support, a plate removably inserted from the front into said groove and consisting of a frame surrounding and attached to an inking-pad which latter is of the size of said aperture, and a framework of cells removably inserted in the aperture and of a depth sufficient to stand flush with the top of the support when it rests upon said plate, all substantially as herein shown and described.



695,052. ADJUSTABLE PULLEY AND ADJUSTING MECHANISM THEREFOR. CHARLES E. HOLMES, Melrose, Mass., assignor of one-half to Frederick H. Page, Melrose, Mass. Filed June 21, 1901. Serial No. 65,268. (No model.)



Claim.—1. An adjustable pulley comprising a hub affixed to the shaft which supports the pulley, radial guides affixed to the hub, pulley-segments engaged with said radial guides and movable radially thereon to vary the diameter of the pulley, the pulley-sections being internally supported by said radial guides, and a collar adapted to slide on said shaft and provided with rigid guides engaged with external portions of the pulley-segments, and adapted to move said segments simultaneously toward or from the shaft.

2. An adjustable pulley comprising a hub affixed to the shaft which supports the pulley, radial guides affixed to the hub, pulley-segments having shanks engaged with said radial guides and movable thereon to vary the diameter of the pulley, the pulley-segments being internally supported by said radial guides, and a collar movable on the shaft and provided with rigid tapering projections extending between the shanks of the pulley-segments and externally supporting them, said projections and shanks having inclined guide members whereby the segments are moved radially when the collar is moved on the shaft.

3. The combination of two adjustable pulleys, supporting-shafts therefor, each pulley comprising a hub affixed to its shaft and provided with radial guides, pulley-segments movable radially on said guides whereby they are internally supported by said guides, and a collar movable on the shaft and provided with rigid means for imparting radial movement to said segments and for externally supporting them, and mechanism for simultaneously moving said collars to effect a simultaneous adjustment of said collars.

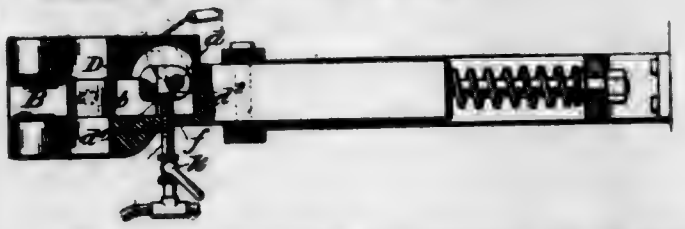
4. The combination of two adjustable pulleys, supporting-shafts therefor, each pulley comprising a hub affixed to its shaft and provided with radial guides, pulley-segments movable radially on said guides whereby they are internally supported by said guides, and a collar movable on the shaft and provided with rigid means for imparting radial movement to said segments and for externally supporting them, mechanism for simultaneously moving said collars to effect a simultaneous adjustment of said collars, and locking devices coöperating with said adjusting mechanism for maintaining any desired adjustment of said pulleys.

5. The combination of two adjustable pulleys, supporting-shafts therefor, each pulley comprising a hub affixed to its shaft and provided with radial guides, pulley-segments movable radially on said guides whereby they are internally supported by said guides, and a collar movable on the shaft and provided with rigid means for imparting radial movement to said segments and for externally supporting them, said pulleys being reversely arranged so that a movement of the collar of one pulley in a given direction causes an expanding movement while a movement of the collar of the other pulley in the same direction causes a contracting movement and means for simultaneously moving said collars.

6. The combination of two adjustable pulleys, supporting-shafts therefor, each pulley comprising a hub affixed to its shaft and provided with radial guides, pulley-segments movable radially on said guides whereby they are internally supported by said guides, and a collar movable on the shaft and provided with rigid means for imparting movement to said segments and for externally supporting them, slides movable in fixed guides crosswise of the axes of the pulleys and having oblique guides engaged with projections on said collars, and means for simultaneously moving said slides.

7. The combination of two adjustable pulleys, supporting-shafts therefor, each pulley comprising a hub affixed to its shaft and provided with radial guides, pulley-segments movable radially on said guides whereby they are internally supported by said guides, and a collar movable on the shaft and provided with rigid means for imparting radial movement to said segments and for externally supporting them, slides movable in fixed guides crosswise of the axes of the pulleys and having oblique guides engaged with projections on said collars, means for simultaneously moving said slides, and means for locking the slides in any position to which they may be moved.

695,053. CAR-COUPLING. JACOB D. HOOVER, Winchester, Va., assignor of one-fourth to Joseph T. Fisher, Winchester, Va. Filed Jan. 10, 1902. Serial No. 89,149. (No model.)



Claim.—1. In a car-coupling, the combination with a swinging knuckle, a locking-block, of a pipe which extends through the coupling-head and is engaged by the locking-block when it is lowered, means attached to the outer end of the pipe for supplying compressed air or fluid under pressure to said pipe and against the locking-block to move the same out of the path of the knuckle.

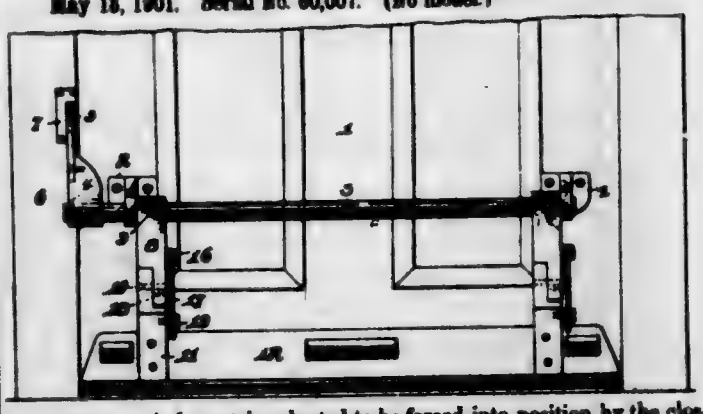
2. In a car-coupling, the combination with a knuckle, its tailpiece, and a locking-block which is mounted to vibrate on a horizontal pin and is provided forward of said pin with a recess, of a pipe which projects through the coupler-head and forms when seated in the recess a support which limits the downward movement of the locking-block, a cock in said pipe and connections between the lower end of the pipe and a fluid-supply under pressure, substantially as set forth.

3. In a car-coupling, the combination with a knuckle, its tailpiece, and a horizontally-pivoted locking-block whose center of gravity is forward of its pivot, of a pipe or tube against which the locking-block bears to maintain it in a horizontal position, a pipe for conveying fluid under pressure to the first-mentioned pipe, and a cock or cut-off between such pipes.

4. In a car-coupling, the combination with a knuckle, its tailpiece, a spring which engages the coupling-head and tailpiece, a horizontally-pivoted locking-block for engagement with the tailpiece, of means for manually raising the locking-block out of engagement with the tailpiece, and means for forcing a blast of air under pressure against the locking-block to effect a movement thereof without direct connection between the locking-block and such lifting means, substantially as set forth.

5. In combination with a car-coupling, the coupling-head having a gravity-locking block, a pipe which extends through the coupler-head and terminates beneath the locking-block, a recess in the locking-block which is adapted to overlie the end of the pipe, substantially as shown and for the purpose set forth.

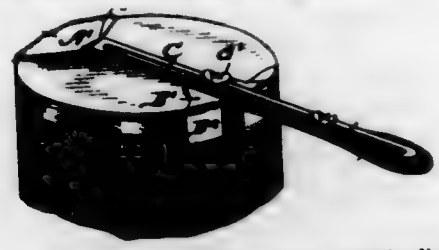
695,054. DOOR-STRIP. JOHN W. HOUSERS, Pittsburg, Pa. Filed May 18, 1901. Serial No. 60,007. (No model.)



Claim.—A door-strip adapted to be forced into position by the closing of the door; comprising in combination, a rock-shaft supported from

the door, a lever carried on one end of said shaft for contact with the door-frame, two pairs of arms pivoted together and suspended from the rock-shaft, a door strip carried by the lower pair of arms, and springs carried by the upper pair of arms and engaging pins in the lower arms to break the joint between the arms and elevate the lower arms and the door-strip when the door is opened, substantially as described.

695,035. CAN-OPENER. CHARLES W. HUNTER, Gardiner, Me. Filed June 22, 1901. Serial No. 65,691. (No model.)



Claim.—1. A can-opener comprising the oppositely-disposed clamping members, one having a shank integral therewith and the other having a handle member integral therewith, said shank and handle members being adapted to be secured together, and a cutting-blade attached to one of the clamping members, substantially as shown and described.

2. A can-opener comprising the clamping members, each clamping member consisting of a blade and depending flanges, a shank integral with one of the clamping members, and the handle integral with the other, means for connecting the shank and handle portions, and the cutting-blade attached to the plate of one clamping member, substantially as shown and described.

3. A can-opener comprising a pair of oppositely-disposed clamping members, each member consisting of a blade and depending flanges, a longitudinally-slotted shank integral with one clamping member, and an apertured handle integral with the other member, means for connecting the shank and handle, and the cutter adapted to be secured to the blade of one of the clamping members, substantially as shown and described.

695,056. TRACE-HOOK. WARREN W. JAQUES, Little Genesee, N. Y. Filed Dec. 4, 1901. Serial No. 84,703. (No model.)



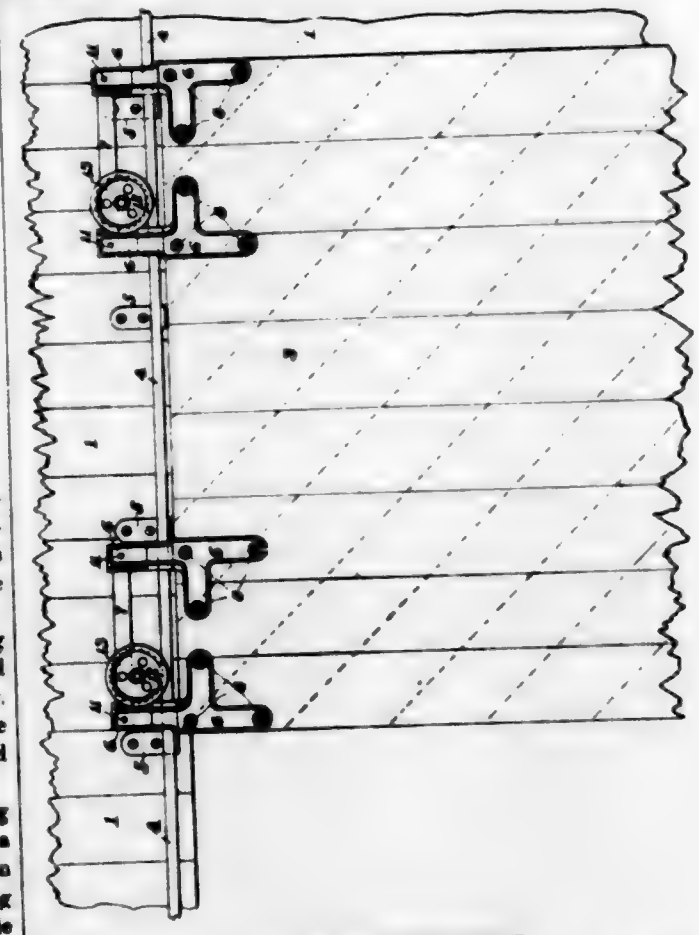
Claim.—1. A trace-hook comprising a stem having laterally-offset arms, one of said arms having a triangular opening therethrough having its apex at the outer end of the arm and its base at right angles to the stem of the hook, and the other arm being adapted for passage through the eye of a trace.

2. A trace-hook comprising a stem having laterally-offset arms, one of said arms having an opening therethrough and having a passage through the outer side of the opening extending in a common plane with the axis of the stem of the hook to permit the insertion of the side edge of a trace for passage thereof into the opening of the arm, the second arm extending in the common plane of said passage and the axis of the stem and adapted for engagement through the eye of the trace.

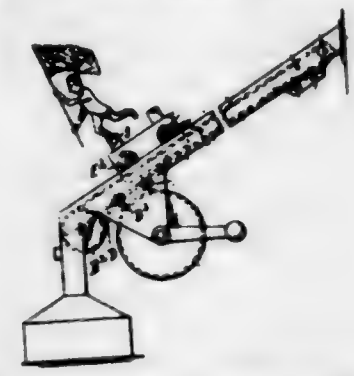
3. A trace-hook comprising a stem having laterally-offset arms, one of said arms having a triangular opening therethrough having its apex at the outer end of the arm and its base at right angles to the stem of the hook, and the other arm being adapted for passage through the eye of the trace, the first-named arm having a passage formed at the apex of the triangular opening for passage of the trace into the opening.

695,057. DOOR-HANGER. MORRIS E. KANALY, Somerville, Mass., assignor to the M. E. Kanaly Co., Portland, Me., and Cambridge, Mass., a Corporation of Maine. Filed Mar. 3, 1900. Serial No. 7,212. (No model.)

Claim.—In a door-hanger, the combination with a sliding door, of a track-rail comprising two upwardly-projecting parallel ribs, formed integral with each other; a single pair of supporting-trucks mounted upon a common axis and constructed and arranged to rest, and roll, one upon each of said ribs, and be guided thereby; a rider-bar constructed and arranged to rest upon, and be moved endwise over, said truck-axle; and supports for said rider-bar, one at each end, secured to said door in fixed positions, with the inner faces of the upper portions of said supports placed at such a distance apart, and so constructed as to alternately contact with the peripheries of said trucks, on opposite sides of their common axis, to limit the travel of said rider-bar, and consequently of the door, in either direction.



695,058. MECHANICAL TOY. ALBERT J. KECK, St. Paul, Minn. Filed Aug. 25, 1899. Serial No. 728,408. (No model.)



Claim.—1. In a mechanical toy, an inclined track having a weight at one end, and supported thereby loosely upon the floor, and with the other end resting loosely against a vertical support, pulleys journaled in the ends of said track, an endless cable engaging said pulleys, and with projections thereon at suitable intervals, a carriage supported upon said track, and with depending catch engaging said cable, and adapted to be engaged by said projection thereon, and an inclined projection upon said track at its upper end adapted to receive said carriage, and cause it to be elevated to disengage said catch from said cable projection, and permit said car to run down said inclined track by gravity, substantially as set forth.

2. In a mechanical toy, a weight resting loosely upon the floor, a standard rising vertically from said weight, a track projecting at an angle from the upper end of said standard, and adapted to be supported loosely by its upper end against a vertical support, a carriage running upon said track, pulleys in the opposite ends of said track, an endless cable running over said pulleys, and with projections at suitable intervals thereon, a catch upon said carriage, and engaging said projections on said cable, means for actuating said cable, and means whereby said catch may be disengaged from said cable at a predetermined point in its transit, substantially as set forth.

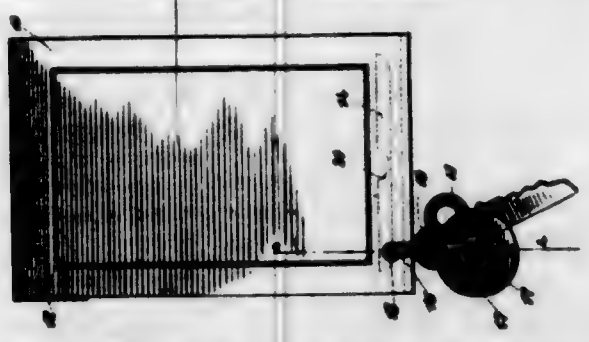
3. In a mechanical toy, a weight resting loosely upon the floor, a standard rising vertically from said weight, a track projecting at an angle from the upper end of said standard, and adapted to be supported loosely by its upper end against a vertical support, a carriage running upon said track, pulleys in the opposite ends of said track, an endless cable running over said pulleys, and with projections at suitable intervals thereon, a catch upon said carriage, and engaging said projections on said cable, means for actuating said cable, and means whereby said catch may be disen-

gaged from said cable at a predetermined point in its transit, a bridging-section connected to the lower end of said track by one end, and resting by its other upon the floor loosely to form a continuation to said track at its lower end, and provide means for conducting said carriage from said track to the floor, substantially as set forth.

4. In a mechanical toy, a weight resting loosely upon the floor, a standard rising vertically from said weight, a track projecting at an angle from the upper end of said standard, and adapted to be supported loosely by its upper end against a vertical support, said track formed in two parts and hinged at the lower side of the adjacent ends of the two parts, whereby when extended the two parts will be supported, and capable of being folded together when not in use, substantially as set forth

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695,059. ADVERTISING NOVELTY. JAMES L. KELLOGG, New York, N. Y. Filed Nov. 6, 1901. Serial No. 81,285. (No model.)



Claim.—1. The leaves 10, 11, one having the aperture 13, and the other the strip 15, said strip being held at both ends and adapted when folded to be passed through said aperture, combined with the band 16 having the enlarged ends and at its middle portion being adapted when in folded condition to extend around said strip and through said aperture, and the key having an aperture adapted to pass upon the middle portion of said band and also upon said strip when the latter is folded, said key being normally confined upon said band intermediate the enlarged ends of the latter and said aperture; substantially as set forth.

2. The leaves 10, 11, normally in face-to-face contact and connected together at one edge, the said leaf 10 having the aperture 13, and the leaf 11 having the strip 15, said strip being held at both ends and adapted when folded to be passed through said aperture, combined with the band 16 having the enlarged ends and at its middle portion being adapted when in folded condition to extend around said strip and through said aperture, and the key having an aperture adapted to pass upon the middle portion of said band and also upon said strip when the latter is folded, said key being normally confined upon said band intermediate the enlarged ends of the latter and said aperture; substantially as set forth.

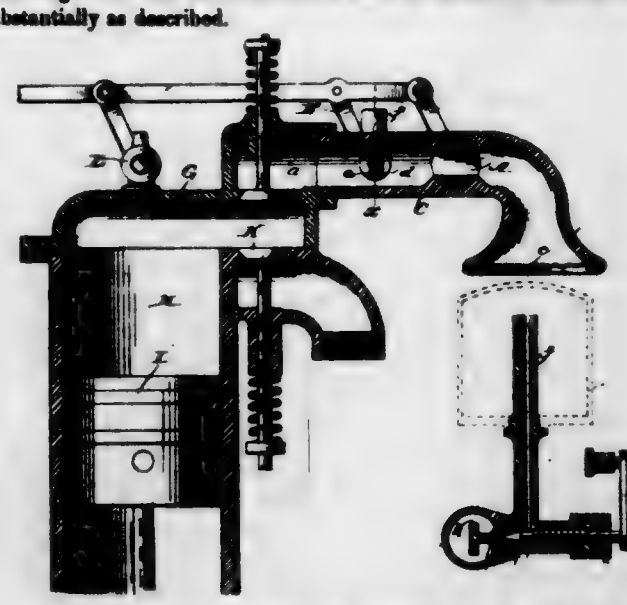
3. The flexible leaf having the slot 14 and strip 15, said strip being held at both ends and said leaf having the lip 20 extending centrally into said slot, combined with the band 16 to engage said strip with one of its enlarged ends at one edge of said strip and the other at the other edge thereof, and the key having an aperture and adapted to engage and lock said band on said strip, said aperture being adapted to pass upon said strip when the latter is folded, so as to then release said band; substantially as set forth.

4. The flexible leaf having the slot 14 and strip 15, said strip being held at both ends and having the series of bars or lines in color extending transversely across it, combined with the band 16 to engage said strip with one of its enlarged ends at one edge of said strip and the other at the other edge thereof, and the key having an aperture and adapted to engage and lock said band on said strip, said aperture being adapted to pass upon said strip when the latter is folded, so as to then release said band; substantially as set forth.

5. The leaves 10, 11, one having the aperture 13, and the other the strip 15, said strip being held at both ends and adapted when folded to be passed through said aperture, combined with the band 16 having the enlarged ends and at its middle portion being adapted when in folded condition to extend around said strip and through said aperture, said enlarged ends being too large to pass through said aperture whereby the leaf 10 is confined between said enlarged ends and said leaf 11; substantially as set forth.

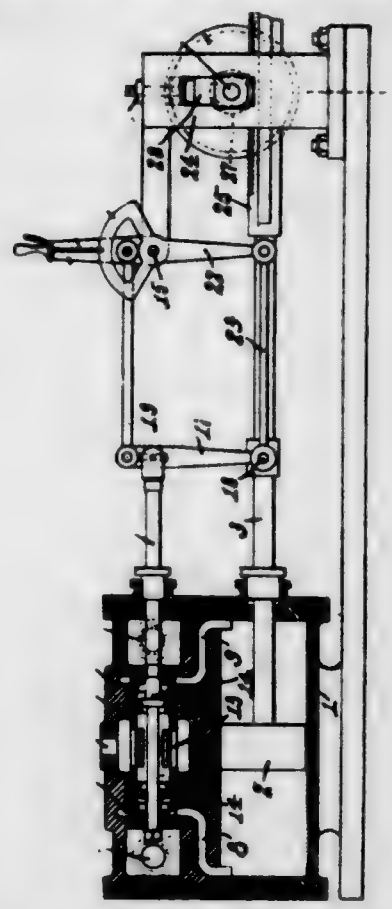
695,060. VAPORIZER FOR HYDROCARBON-ENGINES. ADOLPH KRASTIN, Cleveland, Ohio. Filed May 7, 1900. Serial No. 15,737. (No model.)

Claim.—1. In an explosive-engine, the cage for the inlet-valve, the casing to said cage, an air-valve placed in said casing, a terminal inlet for the feed of the fuel into said casing, a needle-valve for controlling said inlet; said inlet being arranged in the center of the casing and provided with a plurality of openings through which the fuel is fed, combined with arms or levers connected to the air and needle valves, the cylinder having a relief-valve in its head, an arm connected to said relief-valve, and an operating-rod connected to the arm or lever of all three of the said valves, substantially as described.



2. In an explosive-engine, the cylinder, the piston, the inlet and outlet valves, the inlet-valve cage and the casing connected to the cage of the inlet-valve and through which air is admitted, combined with the air-valve placed in the casing, a needle-valve for controlling the feed of the fuel, an inlet-terminal for the admission of the fuel into the casing, and a relief-valve upon the head of the cylinder, the levers connecting to the air, needle, and relief valve upon the head of the cylinder, and a single operating-lever by means of which all three of the last-named valves are operated simultaneously, substantially as specified.

695,061. VALVE-GEAR FOR CONTROLLING MOTORS. LINCOLN A. LANG, Yale, N. D., assignor of one-half to Janet Lang and William G. Lang, Yale, N. D. Filed Sept. 7, 1901. Serial No. 74,610. (No model.)



Claim.—1. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, an adjusting-piston therein, a valve-chest, an exhaust connection at each end of the valve-chest, cylinder-ports leading from opposite ends of the cylinder to the valve-chest at points between said two exhaust connections, an inlet to the valve-chest between said two cylinder-ports, a valve disposed in said valve-chest and adapted to place both of said cylinder-ports simultaneously in communication with the inlet or to put one of them to exhaust while the other is to live pressure, a floating lever having pivotal connection with the valve and with the piston, and an adjusting-lever mounted on a fixed pivot and having

pivotal connection with the floating lever and with the piston and adapted to move in unison with the floating lever as the piston moves.

2. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, an adjusting-piston therein, a valve-chest, an exhaust connection at each end of the valve-chest, cylinder-ports leading from opposite ends of the cylinder to the valve-chest at points between said two exhaust connections, an inlet to the valve-chest between said two cylinder-ports, a valve disposed in said valve-chest and adapted to place both of said cylinder-ports simultaneously in communication with the inlet or to put one of them to exhaust while the other is to live pressure, a floating lever having pivotal connection with the valve and with the piston, and an adjusting-lever mounted on a fixed pivot and having pivotal connection with the floating lever and with the piston and adapted to move in unison with the floating lever as the piston moves, said adjusting-lever being formed in two parts mounted on the lever-pivot and angularly movable in relation to each other, and a locking device to hold the two parts of the adjusting-lever in normal relationship.

3. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, an adjusting-piston therein, a valve-chest, an exhaust connection at each end of the valve-chest, cylinder-ports leading from opposite ends of the cylinder to the valve-chest at points between said two exhaust connections, an inlet to the valve-chest between said two cylinder-ports, a valve disposed in said valve-chest and adapted to place both of said cylinder-ports simultaneously in communication with the inlet or to put one of them to exhaust while the other is to live pressure, an adjusting-lever, a floating lever having connection with the piston and with the valve and with said adjusting-lever, a rocking segment concentric with said adjusting lever and arranged to move in unison with said piston, and a detent to lock said adjusting-lever to the segment.

4. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, an adjusting-piston therein, a valve-chest, an exhaust connection at each end of the valve-chest, cylinder-ports leading from opposite ends of the cylinder to the valve-chest at points between said two exhaust connections, an inlet to the valve-chest between said two cylinder-ports, a hollow valve disposed in said valve-chest and having its interior in free communication with said inlet and adapted to communicate with said two cylinder-ports simultaneously, an adjusting-lever, and a floating lever having connection with the piston and with the valve and with said adjusting-lever.

5. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, an adjusting-piston therein, a valve-chest, an exhaust connection at each end of the valve-chest, cylinder-ports leading from opposite ends of the cylinder to the valve-chest at points between said two exhaust connections, an inlet to the valve-chest between said two cylinder-ports, a hollow valve disposed in said valve-chest and having ports placing its interior in communication with said two cylinder-ports simultaneously when the valve is in mid-position and having its interior always in communication with said inlet, an adjusting-lever, and a floating lever having connection with the piston and valve and adjusting-lever.

6. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, an adjusting-piston therein, a valve-chest, an exhaust connection at each end of the valve-chest, cylinder-ports leading from opposite ends of the cylinder to the valve-chest at points between said two exhaust connections, an inlet to the valve-chest between said two cylinder-ports, a valve disposed in said valve-chest and adapted to place both of said cylinder-ports in simultaneous communication with said inlet or to place either one of them in communication with said inlet while the other is in communication with the exhaust, check-valves carried by said valve and adapted to close toward said inlet and close communication between said inlet and said cylinder-ports when said cylinder-ports are in simultaneous communication with said inlet, and mechanism for shifting said valve.

7. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, an adjusting-piston therein, a valve-chest, an exhaust connection at each end of the valve-chest, cylinder-ports leading from opposite ends of the cylinder to the valve-chest at points between said two exhaust connections, an inlet to the valve-chest between said two cylinder-ports, a hollow valve disposed within said valve-chest and having its interior in free communication with said inlet and having ports adapted to place its interior in simultaneous communication with both said cylinder-ports, said valve being adapted also to place either of said cylinder-ports in communication with said inlet while the other of said ports is in communication with the exhaust, check-valves disposed within said valve and closing toward said inlet and adapted, when the valve is in mid-position, to close communication between said cylinder-ports and inlet, and mechanism for shifting said valve.

8. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, an adjusting-piston therein, a valve-chest, an exhaust connection at each end of the valve-chest, cylinder-ports leading from opposite ends of the cylinder to the valve-chest at points between said two exhaust connections, an inlet to the valve-chest between said two cylinder-ports, a hollow valve disposed within said valve-chest and having circumferential grooves registering simultaneously with both said cylinder-ports and having ports placing the interior of the valve in communication with said grooves and with said inlet, said valve being adapted to place said inlet in simultaneous communication with both said cylinder-ports and also with either one of them while the other is in communication with the exhaust, check-valves disposed within said valve and closing toward said inlet and serving to close communication between the inlet and said cylinder-ports when the inlet communicates with them simultaneously, and mechanism for actuating said valve.

9. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, a piston therein, a valve-chest, a valve therein for the control of the motion of the piston, a piston-rod, a rack connected with the piston-rod, a housing, a vertically-adjustable bearing in the housing, means for adjusting the same, a shaft mounted in said bearing, a pinion fast on said shaft and adapted to engage said rack when the bearing is lowered, and means for turning said shaft.

10. In an adjusting-motor, the combination, substantially as set forth, of a cylinder, a piston therein, a valve-chest having an inlet and an exhaust, a cylinder-port communicating with said valve-chest between said inlet and exhaust, a valve disposed within said valve-chest and adapted to place said cylinder-port in communication with the inlet or the exhaust, and a check-valve disposed in the line of fluid communication between said inlet and cylinder and adapted to close communication between them under the influence of excessive pressure produced by moving the piston toward said cylinder-port.

695,062. BOARD FOR HOLDING AND SHIPPING CLOTH. JOHN LOUER, New York, N. Y. Filed May 27, 1901. Serial No. 62,044. (No model.)



Claim.—1. A cloth-board for holding and shipping cloth reinforced to prevent the splitting thereof by rigid means inclosing a portion of said board.

2. A cloth-board for holding and shipping cloth reinforced to prevent the splitting thereof by metallic caps located one on each end of said board.

3. A cloth-board for holding and shipping cloth reinforced to prevent the splitting thereof by rigid means inclosing each end thereof.

4. A cloth-board for holding and shipping cloth, having its ends encircled by metallic members.

5. A cloth-board for holding and shipping cloth, reinforced to prevent the splitting thereof by a pair of metallic members each encircling said board and located one at one part and the other at another part of the board.

6. A cloth-board for holding and shipping cloth reinforced to prevent the splitting thereof by two sets of devices, one set located at one and the other set at the opposite end of said board, both devices of each set being effective to reinforce the board in the direction of its greatest width.

7. A cloth-board for holding and shipping cloth having its ends covered by metallic caps secured thereon and having a reinforcing means located in said board and projecting in the direction of its greatest width.

8. A cloth-board for holding and shipping cloth reinforced at each end by a plate split at its ends and adapted to have its sides and ends turned down over the sides and ends of said board, and a rod extending transversely through each of such plates and the board from edge to edge of said board.

9. A cloth-board for holding and shipping cloth reinforced at each end by a plate having split ends, said plate having its sides and ends turned down over the sides and ends of said board, each end portion of said plate being overlapped by the split portions thereof.

10. A cloth-board for holding and shipping cloth comprising a board and a pair of reinforcing means at each end, and extending laterally the entire width, of the board, one of each pair encircling said board.

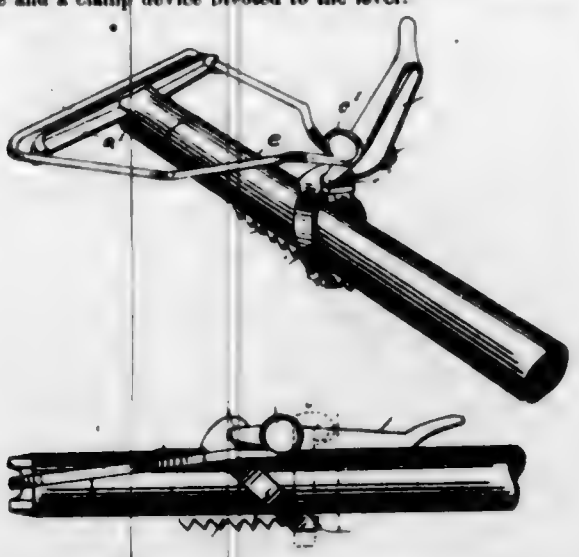
11. A cloth-board for holding and shipping cloth comprising a member and a pair of reinforcing means at each end of said member, one located on the exterior and one on the interior of such member.

12. A cloth-board for holding and shipping cloth comprising a member, a device fitting over each end of said member, and a rod passing therethrough from edge to edge of said member.

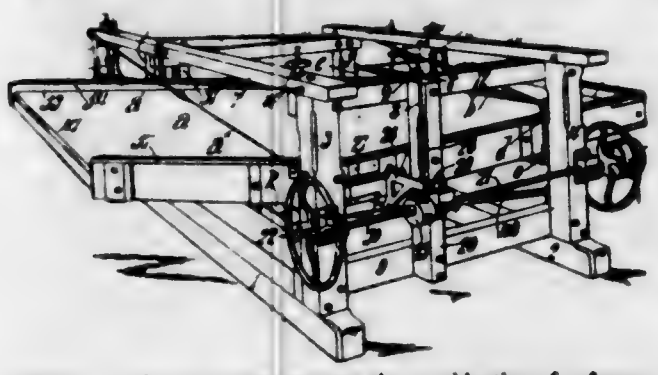
695,063. MOP-HEAD. JOHN C. LOOS, Tudor, Cal. Filed July 17, 1901. Serial No. 68,238. (No model.)

Claim.—In a mop-head, a handle provided with a clamp-head and

with a ratchet, an annular yoke surrounding the handle and ratchet and movable therealong and engaging the ratchet, said yoke having a section of sufficient diameter to operate over the ratchet, a lever pivoted to said yoke and a clamp device pivoted to the lever.



695,064. ORE-CONCENTRATOR. LUTHER LOOK, Los Angeles, Cal., assignor to the New Standard Concentrator Co., Los Angeles, Cal., a Corporation of California. Filed Aug. 14, 1900. Serial No. 26,857. (No model.)



Claim.—1. In an ore-concentrator the combination of a frame; a concentrating-table which slopes longitudinally downward from head to tail and discharges over the edge at the tail; a yoke; flexible means at the middle of the yoke connected with the frame at one end thereof for supporting the yoke; links at the ends of the yoke respectively, loosely connected with the yoke and with the opposite sides of the table at one end thereof; two table-supporting links at the other end of the frame, the same being respectively loosely connected with the frame and with the table at the opposite sides thereof; intermittent means for moving the table in one direction; resilient means for returning the table; and means for stopping the table at its return; said table also sloping transversely downward from the concussion side to the opposite side substantially as and for the purpose set forth.

2. In an ore-concentrator the combination of a frame; a concentrating-table which slopes longitudinally downward from head to tail and discharges over the edge at the tail; a yoke; flexible means at the middle of the yoke adjustably connected with the frame for supporting the yoke; links at the ends of the yoke respectively, loosely connected with the yoke and with the opposite sides of the table at one end thereof; two table-supporting links at the other end of the table, the same being respectively, loosely connected with the frame and the table at opposite sides thereof; intermittent means for moving the table in one direction; resilient means for returning the table; means for stopping the table at its return; and resilient means for starting the table in the direction in which it is moved by said intermittent means; said table also sloping transversely downward from the concussion side to the opposite side substantially as and for the purpose set forth.

3. The combination of a concentrating-table which slopes downward from head to tail and discharges over the edge at the tail; links loosely suspended and loosely connected with the table, and suspending such table; means for intermittently moving the table in one direction; a spiral spring arranged to exert a direct pull on the table for returning the table; and resilient means to normally hold the table at rest intermediate the ends of its throw; said table also sloping downward from the side to which it is returned by said spring substantially as and for the purpose set forth.

4. In an ore-concentrator the combination of a table; links supporting the table; parallel bars pivoted to the table at the discharge end thereof and extending toward the feed end of the table and there secured to a support; means for operating the table laterally; and means at one side of the table for arresting the movement of the table.

5. In an ore-concentrator the combination of a table; links supporting the table; means for intermittently moving the table in one direction; a spring for returning the table; means for arresting the return movement of the table; and table-guiding bars connected with the table at the discharge end thereof and extending toward the feed end and fastened to a support.

6. The combination of a concentrating-table which slopes downward from head to tail and discharges over the edge at the tail; links loosely suspended and loosely connected with such table, and suspending said table; means for intermittently moving the table in one direction; a spring for returning the table in the other direction; means for adjusting the tension of said spring; stationary means for stopping the table on its return; and a tempering-spring to yieldingly check the motion of the table immediately before the table strikes the stationary stop; said table also sloping downward from the concussion side to the opposite side substantially as and for the purpose set forth.

7. The combination of a concentrating-table; links suspending said table; means for intermittently moving the table in one direction; a spring for returning the table; stationary means for stopping the table at its return; a tempering-spring to yieldingly check the motion of the table immediately before the table strikes the stationary stop; and additional resilient means to normally hold the table at rest intermediate the ends of its path.

8. In an ore-concentrator, the combination of a concentrating-table which slopes downward from head to tail and discharges over the edge at the tail; loosely-suspended links loosely connected with the table to allow the same to swing in a horizontal plane; intermittent means for moving the table in one direction; a spring for returning the table; means for adjusting the tension of said spring; means for arresting the movement of the table at its return; and resilient means to normally hold the table intermediate the ends of its path; said table also sloping downward from the concussion side to the opposite side substantially as and for the purpose set forth.

9. The combination with loosely-suspended links; of an ore-concentrating table loosely connected with said links and sloping downward from the head to the tail and discharging over the edge at the tail; resilient means for balancing the table intermediate the ends of its path; means for adjusting the tension of said resilient means; and means disconnected from the table for moving the table to and fro in such path in consonance with the spring-controlled vibration of the table; said table also sloping from one side to the other substantially as and for the purpose set forth.

10. The combination with an ore-concentrating table which slopes from head to tail and discharges over the edge at the tail; of springs for balancing the table intermediate the ends of its path; means for adjusting the tension of the springs; and means disconnected from the table for vibrating the table in consonance with the spring-controlled movement thereof; said table also sloping from one edge to the other substantially as and for the purpose set forth.

11. In an ore-concentrator, the combination with a swinging table sloping from head to tail and discharging over the edge at the tail; of means for operating the table laterally; adjustable resilient means for timing the vibrations of the table; and stays for staying the table against endwise motion; said table also sloping downward from one edge to the other substantially as and for the purpose set forth.

12. In an ore-concentrator the combination with a swinging table; of means for operating the table laterally; and two parallel rods connected with the table on opposite sides of the mid-line thereof at the discharge end, and extending thence toward the feed end and fastened to a support.

13. In an ore-concentrator the combination of a concentrating-table; means for suspending said table; a lever; a rod connecting one arm of the lever with the table; a cam to operate the lever to swing the table to one side; a tension-spring connected with the lever and tending to hold the same away from the cam; a spring connected with the table to swing the table in the direction opposite to that in which it is moved by the operation of the cam; and means for arresting the motion of the table when the same is thrown by the spring.

14. In an ore-concentrator the combination of a concentrating-table; means for suspending said table to allow it to swing sidewise; a lever; a rod connecting one arm of the lever with the table; a lever-operating cam to engage the other end of the lever; a spring tending to hold said other end of the lever away from the cam; a spring for moving the table in the direction opposite to that in which it is moved by the action of the cam; a stationary stop for stopping the table when it is thrown by the spring; and a spring to yieldingly check the motion of the table immediately before the table strikes the stationary stop.

15. In an ore-concentrator the combination of a concentrating-table; means for suspending said table; table-operating means connected with the table; a cam for actuating said table-operating means to move the table in one direction; a spring tending to hold said table-operating means

away from the cam; and a spring for moving the table in the direction opposite to that in which it is moved by the action of the cam.

16. In an ore-concentrator the combination of a concentrating-table; means for suspending said table; table-operating means connected with the table; a cam for actuating said table-operating means to move the table in one direction; a spring tending to hold said table-operating means out of engagement with the cam during a portion of the rotation of the cam; a spring for moving the table in the direction opposite to that in which it is moved by the action of the cam; means for stopping the table at the end of its vibration away from the cam; and a tempering-spring to yieldingly check the motion of the table immediately before the table comes into contact with the stop.

17. In an ore-concentrator the combination of a concentrating-table; means for suspending said table to allow the same to swing; stays connected with the table at its discharge end and extending toward the feed end of the table to prevent longitudinal movement of the table; means for moving the table in one direction laterally; a cam for operating said means; a spring for normally holding said means free from the cam during a portion of the rotation of the cam; a spring to move the table in a direction opposite that in which it is moved by the cam; and means for arresting the movement of the table at the end of its vibration away from the cam.

18. In an ore-concentrator the combination of a yoke; means for pivotally supporting the yoke at its middle; means for vertically adjusting said support; links at the opposite ends of the yoke, respectively connecting the yoke with the opposite sides of the table at the feed end thereof; screw-supported links connected with the discharge end of the table on opposite sides thereof, respectively; nuts for adjusting said screws vertically; table-operating means for moving the table in one direction; a cam for operating said table-operating means; springs tending to hold said table-operating means away from the cam; two stay-bars connected with the table at the discharge end thereof on opposite sides of the mid-line of said table and extending thence toward the feed end of the table and fastened to stationary supports; a spring for moving the table in a direction opposite to that in which it is moved by the operation of the cam; a stationary stop for stopping the table at the end of its vibration away from the cam; and a tempering-spring to yieldingly check the motion of the table immediately before the table strikes the stationary stop.

19. In an ore-concentrator the combination of a concentrating-table; a yoke; means for pivotally supporting the yoke at its middle; means for vertically adjusting said support; links at the opposite ends of the yoke connecting the yoke with the opposite sides of the table at the feed end thereof; screw-supported links connected with the discharge end of the table at opposite sides thereof; means for adjusting said screws vertically; table-operating means for moving the table in one direction; a cam for operating said table-operating means; a spring tending to hold said table-operating means away from the cam; two stay-bars connected with the table at the discharge end thereof on opposite sides of the mid-line of said table and extending thence toward the feed end of the table and fastened to stationary supports; a spring for throwing the table in a direction opposite to that in which it is moved by the operation of the cam; a stationary stop for stopping the table at the end of its vibration away from the cam; and a tempering-spring to yieldingly check the motion of the table immediately before the table strikes the stop.

20. The combination of a concentrating-table; means for suspending said table to allow it to swing; a bell-crank lever; a connecting-rod connecting one end of said lever with the table; a cam arranged to intermittently engage the other end of the lever to actuate the same; a spring tending to hold said other end of the lever away from the cam; and a spring for moving the table in a direction opposite to that in which it is moved by the cam.

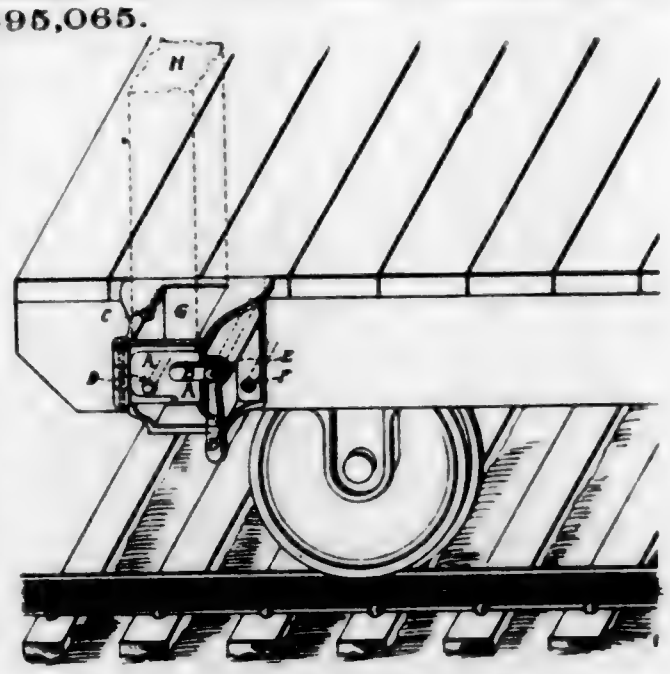
21. The combination of a concentrating-table; means for suspending said table to allow it to swing; a bell-crank lever; an adjustable connecting-rod connecting one end of said lever with the table; a cam arranged to intermittently engage the other end of the lever to actuate the same; a spring tending to hold said other end of the lever away from the cam during a portion of the rotation of the cam; and a spring for moving the table in a direction opposite to that in which it is moved by the cam.

22. In a concentrator the combination with a swinging table; of a bell-crank lever; a cam to intermittently engage one arm of said lever to actuate the same; a pin journaled in the other arm of the lever; a connecting-rod connected with the table and passing through said pin; means for adjustably fastening the rod in said pin; and yielding means tending to hold the free end of the bell-crank arm away from the cam.

695,065. CANE-CAR STAKE-POCKET. JAMES A. LOW, Honolulu, Hawaii. Filed July 27, 1901. Serial No. 69,942. (No model.)

Claim.—The three-sided stake-socket G, provided with the hinged gate, in combination with the gravity-latch pivoted thereto.

695,065.

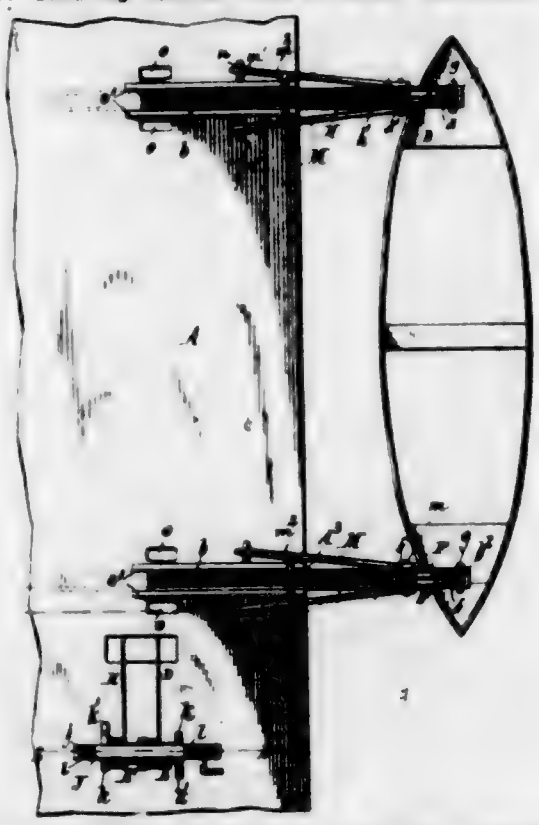


695,066. PIPE-COUPLING. CORNELIUS J. MACCLAIN and SILAS S. COLVIN, Hatton, Ohio. Filed July 16, 1901. Serial No. 68,508. (No model.)



Claim.—The herein-described pipe-coupling comprising the female member having the bore, the interior shoulder arranged at the end of the bore, the interior threads, and the taper bore intermediate of said shoulder and threads, and the male member having the bore of the same diameter as the bore of the female member, and also having the exterior shoulder abutting against the end of the female member, the reduced and tapered extension snugly occupying the taper bore of the female member and abutting at its end against the interior shoulder thereof, and exterior threads, intermediate of its shoulder and tapered extension, engaging the interior threads of the female member.

695,067. HOISTING OR LOWERING APPARATUS FOR BOATS. HUGH A. MALLON, Buffalo, N. Y., assignor to Louise P. Mallon, Buffalo, N. Y. Filed July 15, 1901. Serial No. 68,322. (No model.)



Claim.—1. The combination with a deck or support having guides, of a boom sliding in said guides and provided at its front and rear ends with guide-pulleys, a guide-pulley mounted on said support in front of the

rear guide-pulley of the boom, and an operating rope or cable doubled around the rear guide-pulley of the boom and running also around said front guide-pulley and the pulley carried by said support, substantially as set forth.

2. The combination with a deck or support having guides, of a boom sliding in said guides and provided at its front and rear ends with guide-pulleys, a guide-pulley mounted on said support in front of the rear guide-pulley of the boom, a hoisting and projecting rope doubled around the rear guide-pulley of the boom and running also around said front guide-pulley and the pulley carried by said support, and a retracting rope or cable attached to the front portion of said boom and extending toward the rear end thereof, substantially as set forth.

3. The combination with a deck or support having guides, of a pair of booms sliding in said guides and each provided at its front and rear ends with guide-pulleys, stationary guide-pulleys mounted on said support adjacent to said booms and in front of their rear guide-pulleys, a pair of hoisting and retracting drums, hoisting ropes or cables passing rearwardly around the front and rear guide-pulleys of said booms, and thence forwardly around said stationary guide-pulleys to said hoisting-drum, and retracting ropes or cables attached to the front portions of said booms and passing rearwardly around said stationary guide-pulleys and thence to said retracting-drum, substantially as set forth.

4. The combination with a deck or support having guides, of a pair of booms sliding in said guides and each provided at its front and rear ends with guide-pulleys, stationary guide-pulleys mounted on said support adjacent to said booms and in front of their rear guide-pulleys, a pair of hoisting and retracting drums, means for coupling and uncoupling one of said drums from the drum-shaft, hoisting ropes or cables passing rearwardly around the front and rear guide-pulleys of said booms and thence forwardly around said stationary guide-pulleys to said hoisting-drum, and retracting ropes or cables attached to the front portions of said booms and passing rearwardly around said stationary guide-pulleys and thence to said retracting-drum, substantially as set forth.

5. The combination with upper and lower decks or floors and guides arranged between the same, of a boom sliding in said guides and provided at its outer end with a davit or standard which extends above the upper deck or floor, hoisting-tackle carried by said davit, and a brace extending from said upper deck or floor to the top of said davit, substantially as set forth.

6. The combination with a deck or support having a transverse slot, of a sliding boom arranged below said deck in line with its slot and carrying a davit or standard adapted to enter said slot, and hoisting-tackle carried by said davit, substantially as set forth.

7. The combination with a deck or support, of a sliding boom carrying a davit or standard, a brace pivoted at its upper end to said davit or standard and provided at its lower end with an attachment, and a companion attachment secured to said deck or support in the path of said brace attachment, substantially as set forth.

8. The combination with a deck or support, of a sliding boom carrying a davit or standard, a brace pivoted at its upper end to said davit or standard and provided at its lower end with a hook arranged to slide upon said deck or support, and an eye secured to said deck or support and arranged to receive said hook when the boom and the davit are projected, substantially as set forth.

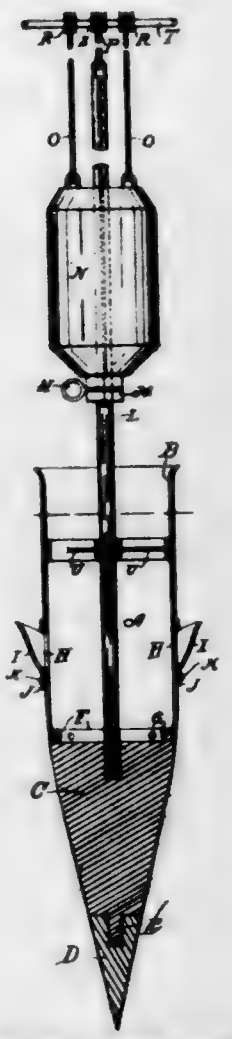
9. The combination with a deck or support having an opening and an attachment secured thereto in front of said opening, of a sliding boom arranged below said deck or support and carrying a davit or standard, and a brace pivoted at its upper end to said davit and provided at its lower end with an attachment arranged to engage with said deck attachment when the davit is projected and to enter the opening of the deck when the davit is retracted, substantially as set forth.

10. The combination with a deck or support having a transverse slot, guard-rails arranged along the edges of said slot and openings arranged on opposite sides of said slot, of a sliding boom arranged below said deck in line with said slot and carrying a davit or standard which is adapted to enter said slot, eyes arranged on the deck in front of said deck-openings and in line therewith, and a brace pivoted at its upper end to said davit and composed of a pair of legs, arranged to straddle said guard-rails and provided at their lower ends with hooks which are arranged to automatically engage with said eyes when the davit is projected and to enter said deck-openings when the davit is retracted, substantially as set forth.

695,068. APPARATUS FOR RAISING SUBMARINE DEPOSITS.

JACOB MARGOLD and GUSTAV A. SCHLIEBOCK, Milwaukee, Wis. Filed Aug. 8, 1901. Serial No. 71,299. (No model.)

Claim.—1. In a device for elevating mineral deposits from submarine surfaces, the combination of a conically-shaped receiver; a central guide-rod for operating said receiver; a reciprocating driving-block supported upon said guide-rod; a contact block or stop rigidly secured to said guide-rod, beneath said driving-block; means for reciprocating said driving-block and forcing said receiver into the ground; and means for raising and lowering said apparatus, substantially as and for the purpose specified.



2. In a device for elevating mineral deposits from submarine surfaces, the combination of a receiver provided at its lower end with a conically-shaped cast-metal portion, and provided in its vertical walls with a plurality of inlet-apertures, having outwardly-diverging flanges; a vertical guide-rod rigidly affixed, at its lower end, to said cast-metal tapered portion; a stop or block rigidly affixed to said guide-rod at a slight distance above said receiver; a reciprocating weight adapted to move upwardly and downwardly on said guide-rod; means for raising and dropping said reciprocating weight when driving said receiver into the ground; and means for raising and lowering said receiver with the weight, substantially as and for the purpose specified.

3. In a device for elevating deposits from submarine surfaces, the combination of a sheet-metal receiver A, provided with a plurality of inlet-apertures H; outwardly-diverging cast-metal flanges or pockets I, secured to said receiver around said apertures; a conical, cast-metal block C secured to the lower end of said receiver; detachable, hard-metal point D, secured to the lower end of said block C; vertical guide-rod L affixed at its lower end to the upper end of said conical block; stop-block M affixed to said guide-rod; driving-block N slidably supported upon said guide-rod; and means for raising said block and operating said apparatus from the surface of the water, all substantially as and for the purpose specified.

695,069. ENGRAVING-MACHINE.

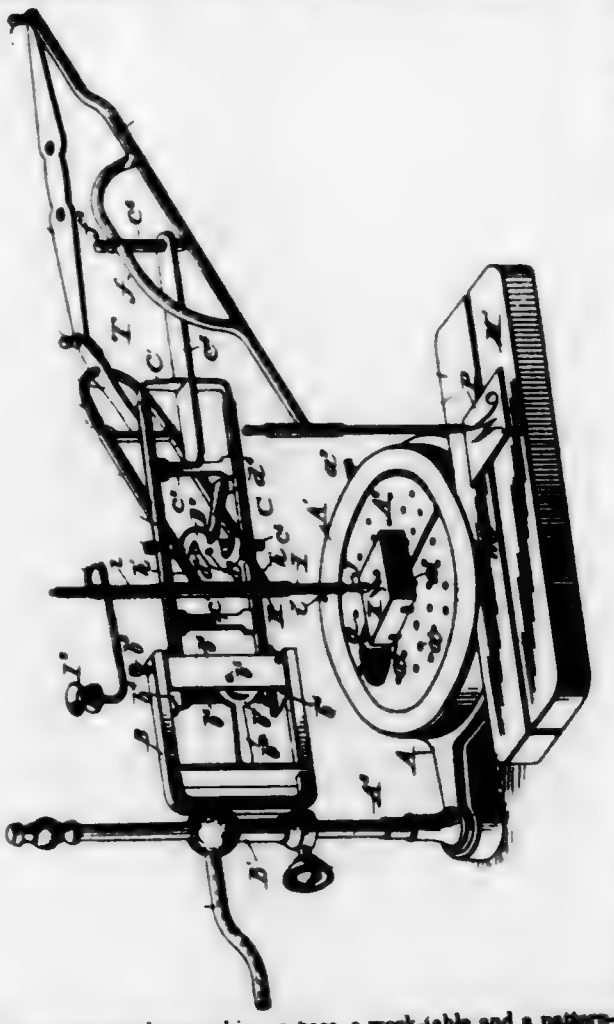
JOSEPH H. MARTIN, Roanoke, Va., assignor of one-half to James S. Persinger, Roanoke, Va. Filed Apr. 6, 1901. Serial No. 54,688. (No model.)

Claim.—1. In an engraving-machine, a parallelogrammatic pantograph-frame, a tracer carried by said frame, a tool, and means for controlling the range of operation of said tool, comprising a pivotal support in which said frame is adjustably mounted, and a support for said tool having an extensible connection with said frame.

2. In an engraving-machine, a parallelogrammatic pantograph-frame, an adjustable support for said frame, a tracer carried by said frame, a tool, and means for controlling the range of operation of said tool, comprising a pivotal adjustable connection between said frame and said support, and a support for said tool having an extensible connection with the frame.

3. In an engraving-machine, a work-holding table, a pattern-carrying table adjustable circumferentially around the work-table, a parallelogrammatic pantograph-frame adjustable vertically and angularly with re-

spect to the work-table, a tracer carried by the pantograph-frame, and a tool having an extensible connection with the pantograph-frame.



4. In an engraving-machine, a base, a work-table and a pattern-table having adjustable connections with said base, a column secured to said base, a vertically and angularly adjustable bracket supported on said column, a clamp pivoted in said bracket, a parallelogrammatic pantograph-frame adjustably supported in said clamp, a tracer carried by said frame, a tool, and a support therefor having an extensible connection with said frame.

5. A work-table for engraving-machines and the like comprising a flanged base forming the support of said machine, a sectional work-table fitted loosely in said flanged base, means on said table to retain the work in approximate position, and means carried by the flange and engaging one of said table-sections to force the sections together and thereby lock the work in position.

6. A work-table for engraving-machines and the like comprising a base provided with an annular flange, said base forming the support of said machine, a work-table comprising two segmental blocks loosely fitted in said flange, means on said blocks to secure the work in approximate position, and means carried by said flange and engaging one of said blocks to force said blocks together and thereby lock the work in position.

7. A pattern-table for engraving-machines and the like comprising two parallel clamping-sections, a pivotal arm connecting said sections to a base, and a locking-clamp comprising a locking-dog engaging said arm and one of said sections and adapted to simultaneously close said clamping-sections on the pattern and lock said table to the base.

8. In an engraving-machine, an annular base, a pattern-table comprising two parallel clamping-sections, an arm pivoted to said base, a sliding connection between said table and said arm, and a locking-clamp engaging said arm and said table and adapted to simultaneously close said clamping-sections on the pattern and lock said table to said base.

695,070. WINDOW-CLEANER. ELIZABETH A. MEALEY and GEORGE M. MEALEY, Chatham, N. Y. Filed Aug. 7, 1901. Serial No. 71,148. (No model.)

Claim.—1. An improved window-cleaner, comprising a handle portion, and a mop-head projecting laterally from the outer end portion of the same; said mop-head consisting of a frame or body portion comprising a top member embodying a plate or head spaced from the handle portion and brace members extending between the top member and the handle portion; said plate or head of the top member being adapted to receive the cleaning material in direct connection.

2. An improved window-cleaner, comprising a handle portion, and a mop-head projecting laterally from the outer end portion of the same; said mop-head consisting of an integral frame or body portion comprising a top member or band the end portions of which are directly connected with the handle portion and the central part of which is formed into a plate or head with which the cleaning material is directly connected, and brace members extending between the top member and the handle portion.

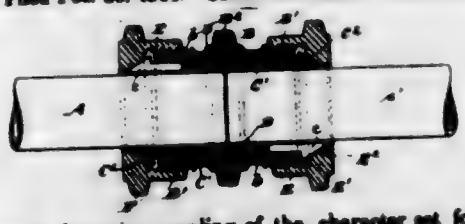


3. An improved window-cleaner, comprising a handle portion, and a mop-head projecting laterally from the outer end portion of the same; said mop-head consisting of an integral frame or body portion comprising a top member or band the end portions of which are directly connected with the handle portion and the central portion of which is formed into a slotted plate or head with which the cleaning material is directly connected, and brace members extending obliquely downwardly from the top member and connected with the handle portion beneath the point of connection of the top member.

4. In an improved window-cleaner, a handle portion, and a mop-head connected with the outer end portion of the same and consisting of an integral frame or body portion comprising a top member or band the end portions of which are connected with the handle portion and are projected from the latter to form spaced arms connected at their outer ends by a transverse plate or head with which the cleaning material is directly connected, and brace members extending between the top member and the handle portion and extending obliquely downwardly into connection with the handle portion at a point beneath the point of connection of said arms of said top member.

5. An improved window-cleaner comprising a separable handle portion, and a mop-head projecting laterally from the outer end portion of the same said mop consisting of a central portion having three parallel spaced bars adapted to receive and hold the cleaning material and side portions adapted to be bent at an angle to such central portion and oblique brace members said side portion and said members being adapted to be secured at their ends to said handle portion.

695,071. PIPE-COUPLING. HERMAN O. MOONEY, Farmington, N. H. Filed Feb. 20, 1901. Serial No. 48,051. (No model.)



Claim.—1. In a pipe-coupling of the character set forth, a sleeve adapted to inclose a pipe end and having an internal annular recess adapted to receive packing, a gland received in said recess and means for compressing it upon said packing, a conical portion integral with said gland having fingers formed by slitting said conical portion, said fingers being all connected to the body portion of the gland for a portion of their length and a conically-recessed nut engaging said sleeve and adapted to engage said fingers and force the latter into strong frictional contact with said pipe end, all combined and arranged to serve substantially as herein specified.

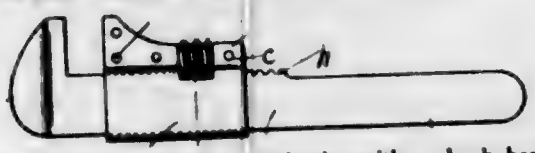
2. In a pipe-coupling of the character set forth, a sleeve adapted to inclose a pipe end and having an internal annular recess at each end

adapted to receive packing, a gland received in said recess and serving to compress said packing, a conical portion integral with said gland, fingers all joined to the body portion of the gland and formed by slitting said conical portion of said gland, and a conically-recessed nut matching to said conical portion and to the exterior of said sleeve on the extremity of which latter it is screwed, adapted to perform the double function of forcing said gland to said packing and also forcing said fingers into strong frictional contact with said pipe end, all combined and arranged to serve substantially as herein specified.

3. The sleeve B threaded exteriorly at each end and having the interior annular recesses *b b* and packing D therein, a gland C for each end having a cylindrical portion C' adapted to compress said packing and a conical portion C² having the fingers C³, and a conically-recessed nut E for each gland engaging said sleeve, all combined and arranged to serve with two adjacent pipe ends substantially as and for the purposes herein specified.

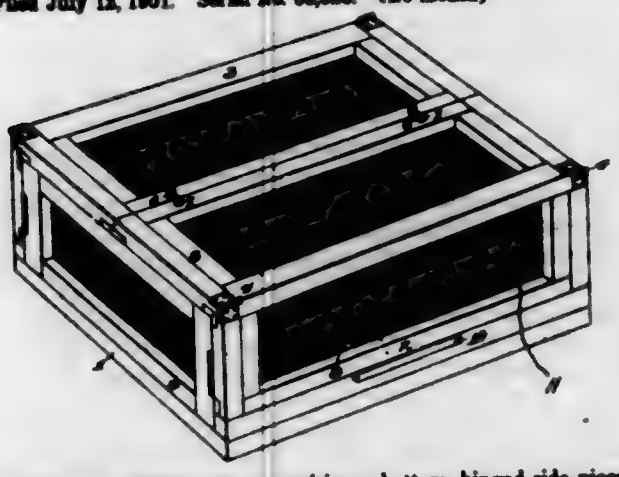
4. The exteriorly-threaded sleeve having interior annular recesses, glands having tubular portions extending within said recesses to compress packing at the inner ends thereof, and slitted conical portions, and nuts engaging said sleeve and having conically-recessed outer ends to receive the conical portions of the glands and adapted to compress the latter as the nuts are screwed on, as set forth.

695,072. WRENCH. FRANK MOSHERR, Attleboro, Mass. Filed Oct. 22, 1901. Serial No. 80,218. (No model.)



Claim.—In a wrench, the combination with a shank having the fixed jaw and having teeth on its inner edge; of a jaw member slidable on said shank, and having a recess extending down to said teeth, the forward wall of the recess having a slot therein, the portion rearward of the recess comprising two wings extending longitudinally of the wrench and transverse to the shank; a plate disposed between said wings; means for securing the plate and wings together, the plate having a reduced portion extending across said recess and engaging the walls of said slot; and a threaded sleeve rotatably mounted on the reduced portion and engaging the teeth of the shank.

695,073. FOLDING BOX. JAMES F. MCGOWAN, Camden, Pa. Filed July 12, 1901. Serial No. 68,080. (No model.)

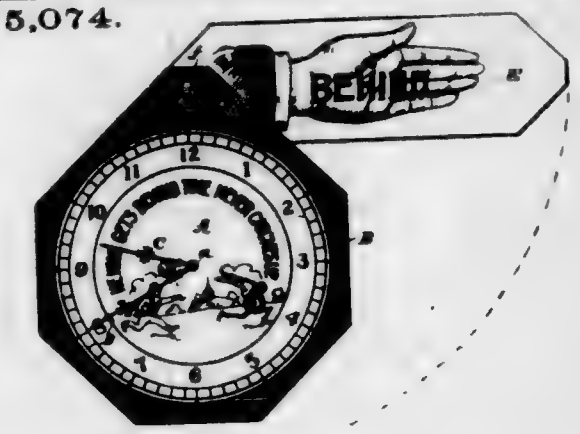


Claim.—A folding crate comprising a bottom, hinged side pieces 2 mounted thereon, cover-sections 5 hinged to said side pieces, the end pieces 8 hinged to the bottom in a plane below the lower hinged edges of said pieces, a tank 9 resting on the upper surface of the bottom of the crate, the inner free longitudinal edge of each end piece 8 designed, when folded, to bear against the opposite ends of said tank, a cover having flanged edges fitted over the tank, the outer end of said cover passing through a slot in one of the side pieces, bent at right angles and engaging the outer face of the side piece, said folded sides adapted to fold over the end piece and over said cover, all as shown and described.

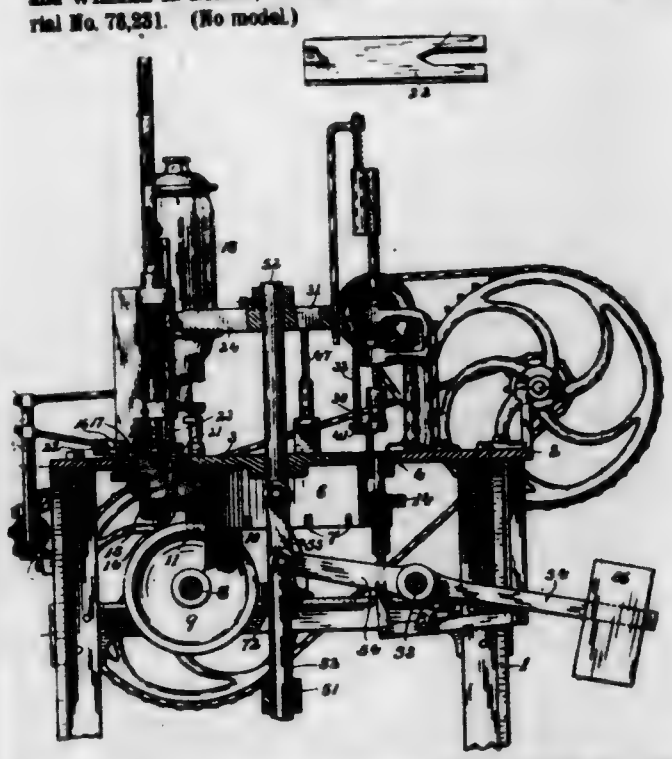
695,074. THREE-HANDED DIAL. WILLIAM H. NEWBY, Indianapolis, Ind. Filed July 11, 1901. Serial No. 67,887. (No model.)

Claim.—In a tardy-signal, a body, an hour-dial thereon, an hour and a minute hand pivotally secured to the front and center of the dial, and a tardy-hand pivoted to swing back of the body when not in use or to be opened out from the body when in use, said tardy-hand having a portion always projecting beyond the body, as and for the purposes specified.

695,074.



695,075. CARTRIDGE-LOADING MACHINE. THOMAS NICHOL and WILLIAM H. NICHOL, Chatham, Canada. Filed Oct. 10, 1901. Serial No. 78,231. (No model.)



Claim.—1. In a cartridge-loading machine, in combination with a rotary shell-carrier provided with a series of openings to receive shells, and a stationary table having an opening to receive said carrier and within which it is supported, a ring-track beneath the openings in said carrier to support the shells, brackets secured at one end to said track, and screws engaging the opposite ends of said brackets to adjustably secure the same to the table and support the track.

2. In a cartridge-loading machine, in combination with the frame thereof, a stationary table, a rotary shell-carrier having a series of openings to receive shells, powder and shot charge feeding devices secured to said table above two of the openings in said carrier, each provided with a slide to admit the charges into the shells, wad-feeding devices secured to said table and provided with slides and plungers, a horizontal power-shaft beneath said carrier, a downwardly-extended flange on said carrier provided with notches, a screw-wheel on said power-shaft to engage said notches and rotate the carrier, cams on the power-shaft, a horizontal rock-shaft journaled on said frame, a vertical shaft longitudinally movable in the axis of said carrier and provided with arms connected to said plungers of the wad-feeding devices, a weighted lever secured on said rock-shaft and pivotally connected to said vertical shaft, a rocker-arm on said rock-shaft having a roll to engage one of said cams and operate the said plungers, a horizontal rocker-bar journaled on the frame having upwardly-projecting posts, rods connecting said posts and the slides of said waddere and powder and shot feeding devices, and a rocker-arm on said rocker-bar having a roll to engage the other cam to operate the said slides.

3. In a cartridge-loading machine, the combination with a wad-feeding device provided with a wad-holder, a way beneath said holder, and a plunger, of a slide longitudinally movable in said ways and adapted to move the wads, one at a time, from the holder to beneath the plunger, said slide being provided with a slot extending inward from one end of the slide and terminating at its inner end with converging sides forming an acute angle.

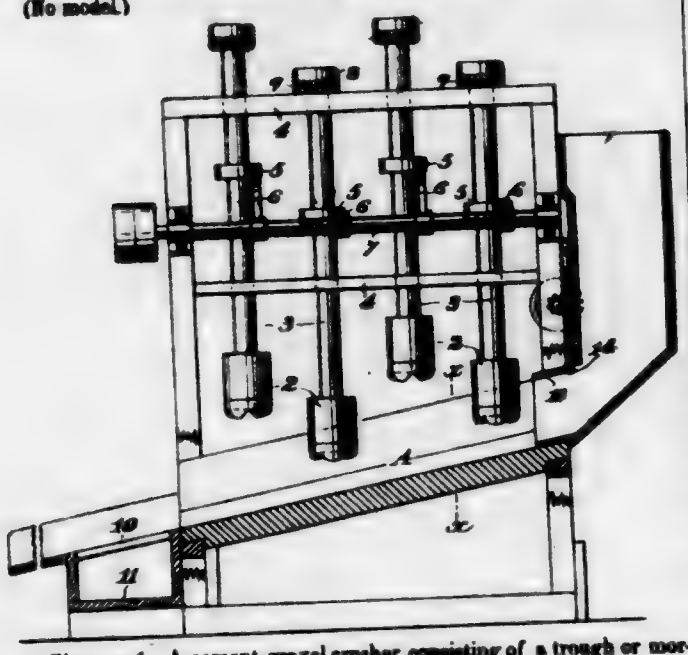
4. In combination with a cartridge-loading machine, having a series of wad, powder and shot charge feeding devices, and vertically-movable

arms for operating the same, a vertically-movable arm, a rod secured to the outer end of said arm, a type-block secured to the lower end of said rod and adapted to be brought into contact with the wad of a cartridge when lowered by the downward movement of said arm, a stationary post, a pad-arm pivoted to said post, an ink-pad on the outer end of said arm, an eye on the end of the said vertically-movable arm, a rod secured at one end to the pad-arm and engaging said eye at the opposite end, and a collar adjustably secured to said rod above the said eye.

5. In combination with a cartridge-loading machine, having a rotary shell-carrier and a ring-track beneath said carrier having a feed-opening, an inclined trough having an upper open end adapted to receive shells in a horizontal position, said trough being twisted at its lower end to bring the shells to a vertical position beneath the feed-opening in the track, a ram adapted to engage the lower end of the shell beneath the feed-opening and lift the same above the track, a vertically-movable shaft, an arm secured to said shaft and provided with an opening at its outer end to receive the same, and collars adjustably secured to said ram above and below said arm.

6. In combination with a cartridge-loading machine, having a stationary table, a rotary shell-carrier provided with openings to receive shells, a track to support the shells and provided with a feed-opening, a series of powder, shot and wad feeding devices secured to the table, and a vertically-movable shaft in the axis of the shell-carrier and a rocker-bar at the side of the table to operate said feeding devices, an inclined trough having an upper open end to receive shells in a horizontal position and having its lower end twisted to bring the shells to a vertical position, a casting secured to the lower side of the track over the feed-opening and provided with a pocket to receive the shells from the trough, a ram having a head to engage the shells, an arm secured to the said vertically-movable shaft and having an opening to receive the lower end of the ram, collars adjustably secured to said ram above and below the arm, a slide adapted to project into the pocket of said casting and prevent the shells from moving into the inner end thereof, a post on said rocker-bar, and a rod connecting said post and slide.

695,076. **CEMENT-GRAVEL CRUSHER AND SEPARATOR.** CHARLES H. OHM, Shellville, Cal. Filed Nov. 29, 1901. Serial No. 84,006. (No model.)



Claim.—1. A cement-gravel crusher consisting of a trough or mortar, means for advancing the material through it, vertically rising and falling stamps located above the mortar, and stops by which the stamps are arrested and prevented from striking the bottom.

2. An apparatus for crushing and separating cement from gravel and stones, consisting of vertically-guided stamps mechanism by which they are raised and allowed to fall, a trough or mortar located beneath the line of stamps having a curved transverse section, heads or stops carried by the stamp-stems and guides upon which they are arrested to prevent the stamps from striking the bottom of the mortar.

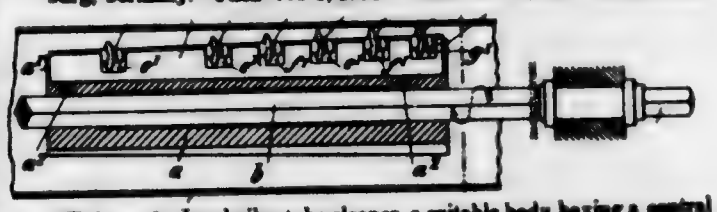
3. An apparatus for crushing and separating cement from gravel and stones consisting of an inclined trough or mortar having the bottom of the channel curved in transverse section, stamps fixed to stems movable in guides above the mortar, a cam-shaft and cams by which the stamps are successively raised and allowed to drop, heads carried by the stamp-stems, and bars or stops by which they are arrested to prevent the stamps from striking the bottom of the mortar.

4. An apparatus for crushing and separating cement from gravel and stones, consisting of an inclined round-bottomed trough, stamps having corrugated bottoms, vertically-guided stems to which the stamps are fixed, heads carried by the stamps and cushion-stops upon which they are arrested before the stamps strike the bottom of the trough, and means by which the stamps are successively raised and allowed to drop.

5. The combination with an inclined hollow round-bottomed trough or mortar of stamps having corrugated bottoms, stems and mechanism by which they are raised and allowed to drop and stops by which they are arrested before striking the bottom of the trough whereby material is separated without crushing the gravel and a screen located beyond the lower end of the trough and inclined in unison therewith to separate the stones from the pulverized material.

6. The combination in an apparatus for pulverizing and separating cement from gravel and stones to which it is adherent, consisting of an inclined trough or mortar having a transversely-curved bottom, a hopper, a feed-pipe discharging into the upper end of the trough and a controlling-gate therefrom, stamps having corrugated bottoms, vertically-guided stems to which the stamps are attached, and mechanism by which they are raised and allowed to fall, heads carried by the stamp-stems and cushioned stops upon which they fall before the stamps strike the bottom of the trough whereby the cement is separated and pulverized without breaking the stones and a screen inclined in the general direction of the trough through which pulverized material falls and over which the stones are discharged.

695,077. **BOILER-TUBE CLEANER.** FRIEDRICH W. PAYS, Hamburg, Germany. Filed Oct. 5, 1901. Serial No. 77,733. (No model.)



Claim.—1. In a boiler-tube cleaner, a suitable body having a central longitudinal perforation, means for securing therein sets of cutters, the cutters of a set arranged on a taper and the cutters of the several sets set to cut a spiral, and a rod of suitable cross-section adapted to be passed through the boiler-tube and perforation at the center of the body but not rotate in the perforation, said body freely slidable on the rod, whereby on rotating the rod the cutters will cut a spiral and simultaneously cause the body to travel along the rod through the tube, substantially as and for the purpose set forth.

2. In a boiler-tube cleaner, a prismatic body having a central bore and seats at the angles, in combination with bars adapted to fit said seats, sets of rotary cutters in the bars arranged on a taper at an angle to the axis of the body and in a spiral from end of said body, a rod through the bore on which said body is free to slide only, whereby said cutters will cut a spiral and simultaneously cause the body to travel along said rod when it is turned, substantially as and for the purpose set forth.

3. In a boiler-tube cleaner, a prismatic body having a rectangular central bore and seats at the angles, in combination with bars adapted to be secured in said seats, rotary cutters journaled in the bars and set in a tapering helical line from end to end of said body, breaking-up cutters also journaled in said bars and set on a helical line intermediate the convolutions of the first and for a portion of the length of said body, rotary scrapers journaled near the rear ends of said bars and a rod slidable in the bore adapted to be rotated, whereby the cutters will cut a helical groove and simultaneously move the body along said rod through the boiler-tube, substantially as and for the purpose set forth.

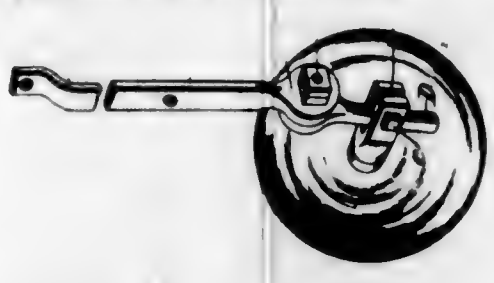
4. In a boiler-tube cleaner, a tapering prismatic body provided with a central bore, rotary cutters at the angles of said body and arranged on a helical line thereon, a driving-rod slidable but not rotatable in the bore of said body and means for rotating the rod, whereby the cutters and body are rotated and simultaneously, axially moved along said rod, substantially as and for the purpose set forth.

5. In a boiler-tube cleaner, a body having a longitudinal bore, not circular in cross-section, means on said body for cutting and scraping the incrustation from a boiler-tube, and simultaneously give said body a longitudinal direction, and a rod through the bore to rotate the body and cutting and scraping means, substantially as and for the purpose set forth.

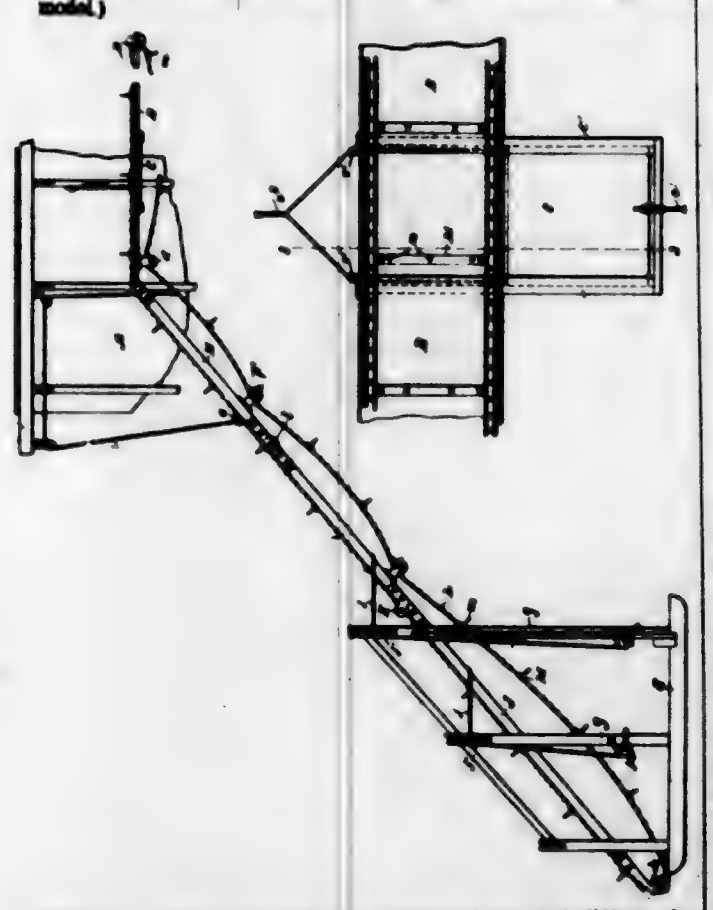
695,078. **STANDARD OR SHANK FOR CULTIVATORS.** IVAN S. PERKINS, David City, Nebr. Filed Nov. 8, 1901. Serial No. 81,518. (No model.)

Claim.—A cultivator-standard, comprising a flat member apertured at its upper end for attachment to a supporting-frame, a brace-bar connected to the frame and to the standard between its ends, a clutch-face on the lower end of the member which is disposed at right angles to the sides of said member, a lower member having a coinciding clutch-face and a rounded depending portion, a bolt for connecting the members together, and a cultivator-blade having a socket and means for clamping

the socket upon the rounded portion of the lower member of the standard substantially as shown and for the purpose set forth.



695,079. HAY ELEVATOR AND DISTRIBUTER. WILLIAM A. PIERCE, Topeka, Kans. Filed May 22, 1901. Serial No. 61,407. (No model.)



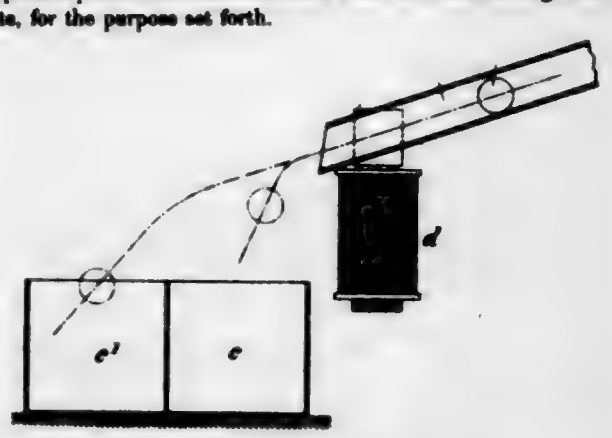
Claim.—1. In an apparatus for elevating hay into buildings, the combination of a horizontal platform permanently secured to the upper part of the building and wholly contained therein, a portable inclined platform located without the building with its upper end in proximity to an opening in the building, a platform-section permanently secured to the stationary platform by a pivotal connection, whereby it may be moved to a position entirely within the building, or to extend outward through the opening therein into operative association with the inclined platform, a single endless carrier adapted to traverse all of said platforms from end to end when in operative position, and means for actuating said carrier, substantially as described.

2. In an apparatus for elevating material into buildings, the combination of a horizontal platform permanently secured in the upper part of the building and wholly contained therein, a platform-section hinged to one end of the stationary platform adjacent to an opening in the building, and capable of being freely moved to a position wholly within the building or to extend out through said opening therein, a movable inclined platform without said building, means for connecting the end of said inclined platform with the free end of the hinged platform-section, an endless carrier traversing all of said platforms when so connected and returning therebeneath through the aforesaid opening in the building, means for operating said carrier, and a series of independently-operable discharge-traps in the stationary platform; substantially as described.

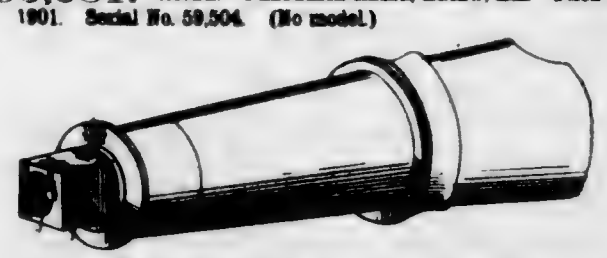
695,080. COIN-ASSORTER. KARL J. RAMPSCH, Altona-Ottensen, Germany. Filed July 2, 1901. Serial No. 66,910. (No model.)

Claim.—1. A coin-selector for separating coins, comprising a coin-chute and means to produce Foucault currents in the coins as they roll past a given point of the chute to modify the speed at which the coins leave the chute, and thereby to alter their natural trajectory when leaving the chute, and means to collect the coins in accordance with the character of the trajectory, for the purpose set forth.

2. Apparatus such as described, comprising an inclined coin-chute, an electromagnet near the discharge end of said chute with its poles on opposite sides of the coins for producing Foucault currents in the latter and thereby varying their speed of discharge and their trajectory, and receptacles placed at suitable distances from the said discharge end of the chute, for the purpose set forth.



695,081. AXLE. FREDERICK REMZ, Eutaw, Ala. Filed May 9, 1901. Serial No. 59,504. (No model.)

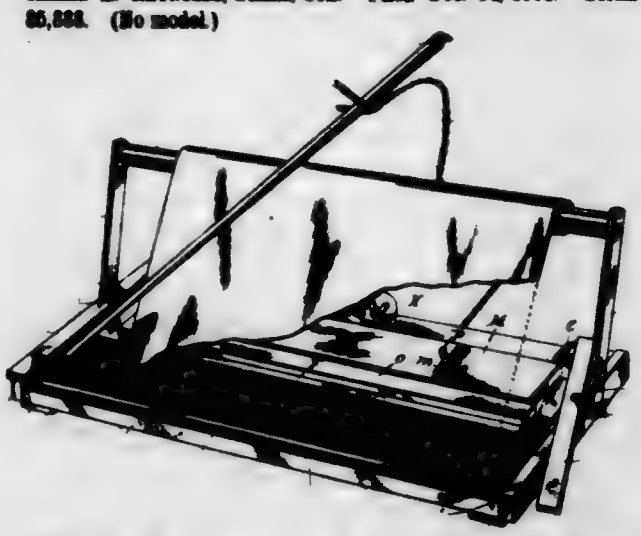


Claim.—1. The combination of a spindle having a threaded outer end and provided adjacent to the same with a polygonal portion, an axle-box, an axle-nut, and a longitudinally-adjustable sleeve arranged on the polygonal portion of the axle at the outer end of the axle-box and extending longitudinally thereof and limiting the inward movement of the axle-nut, said sleeve when removed being adapted to be partially rotated to bring different portions of its surface at the top of the spindle, substantially as described.

2. The combination of an axle provided with a polygonal portion arranged at the inner end of its threaded portion, an axle-box, an adjustable sleeve arranged on the polygonal portion of the axle at the outer end of the axle-box, a threaded collar arranged within the sleeve and engaging the axle and forming an abutment for the said sleeve, and an axle-nut, substantially as described.

3. The combination of an axle provided with a reduced polygonal portion located at the inner end of the threaded portion, a sleeve located at the outer end of the axle and having a polygonal opening to fit the polygonal portion of the axle and provided with inner and outer annular flanges, the outer annular flange being arranged to engage an axle-box, an adjustable collar arranged on the threaded portion of the axle and engaging the inner flange, and an axle-nut, substantially as described.

695,082. PLAITING APPARATUS. CHARLES A. REYNOLDS and SALLIE A. REYNOLDS, Dallas, Tex. Filed Dec. 14, 1901. Serial No. 85,883. (No model.)



Claim.—1. In a plaiter, a plurality of fixed slats, a plurality of movable slats alternating with the fixed slats and pivoted at one end and having their other ends reduced and extending beyond the ends of the fixed slats, and a lifting-bar beneath the projecting ends of the movable slats to elevate the latter.

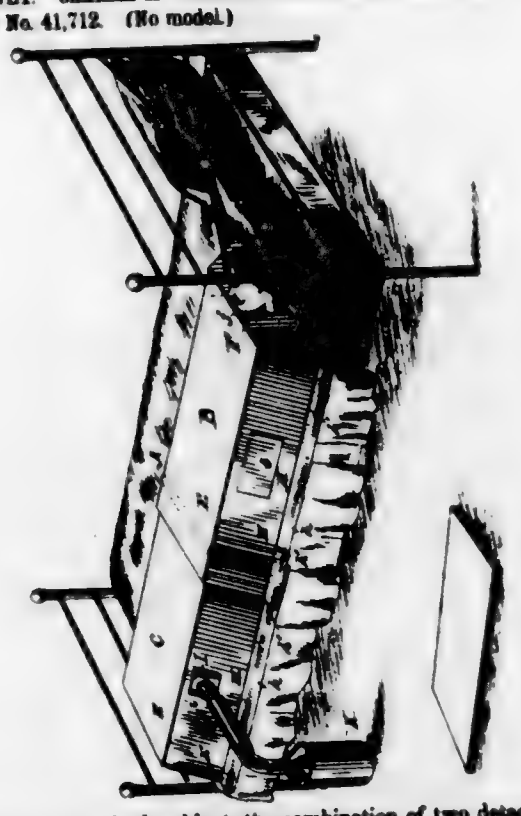
2. In a plaiter, a base, fixed and movable slats thereon, pivoted bars adapted to be moved to confine the ends of the slats, a goods-roller, and pivoted arms supporting the roller and adapted to fold the roller at the front of the base.

3. In a plaiter, a base, fixed and movable slats thereon, a press-board having slots, thumb-screws passed through said slots into the base, and an eccentric lever for moving said press-board.

4. In a plaiter, a slat-support consisting of a frame extending above the plaiter-base and having a shoulder forming a rest for the slats when elevated.

5. In a plaiter, a base, fixed and movable slats, and a device having a crank-handle and an inner bent end and arranged below the extended ends of the movable slats said end being adapted to press the slats together when the device is drawn outwardly, and to elevate the device and movable slats when the device is turned.

695,083. CONVERTIBLE HORIZONTAL AND VERTICAL BATH-CABINET. CHARLES M. ROBINSON, Toledo, Ohio. Filed Dec. 31, 1900. Serial No. 41,712. (No model.)



Claim.—In a bath-cabinet the combination of two detachable sections, means for fastening the same in an upright position, and means for telescoping the same in a horizontal position substantially as described.

695,084. FURNACE. HENRI STURM, Paris, France. Filed June 25, 1901. Serial No. 66,027. (No model.)



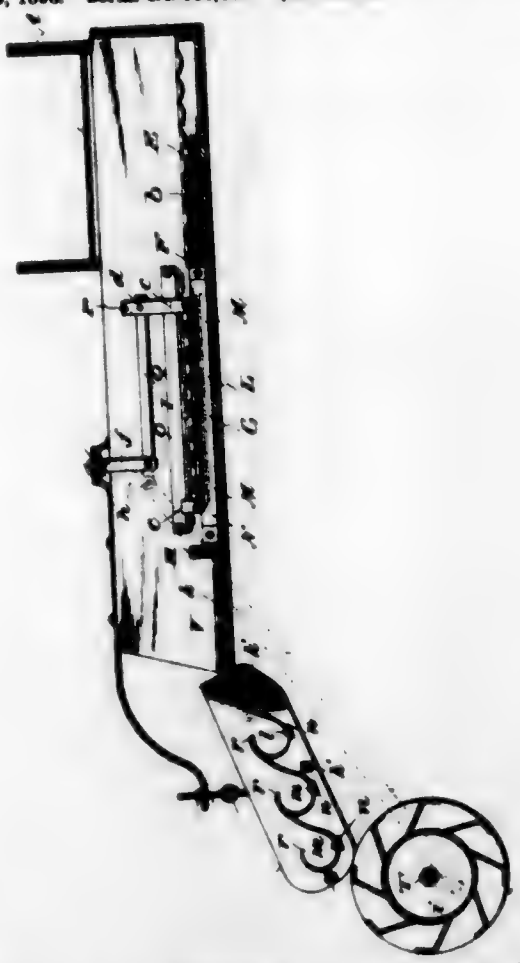
Claim.—1. A devitrifying and rebaking furnace comprising two concentric galleries having movable bottoms, and means for conveying gases to one of said galleries and thence to the other gallery.

2. A devitrifying and rebaking furnace comprising inner and outer concentric furnace-galleries, endless moving bottoms for said galleries, means for supplying gases to the inner gallery and passing them therethrough, and means for conveying said gases from the inner gallery to the outer, substantially as described.

3. In combination, the inner and outer annular galleries, endless conveying means for conveying the articles to be treated through said galleries, means for passing gases through one of said galleries in the direction of travel of the conveyer, and means for conveying the gases from said first-mentioned gallery through the second gallery in the direction of travel of its conveyer, substantially as described.

4. In combination, the inner circular devitrifying-gallery, the outer rebaking-gallery concentric therewith, endless moving bottoms or rolls for said galleries, for supporting the material to be treated, means for supplying heated gases to said inner gallery and passing it therethrough, air-conduits in the walls and roof of said inner chamber whereby air is heated by said heated gases, and means for conveying the heated products from the devitrifying-chamber to the reheating-chamber.

695,085. SLUICE-BOX. LEWIS B. TANNER, Seattle, Wash. Filed May 9, 1898. Serial No. 680,193. (No model.)



Claim.—1. In an amalgamator, the sluice-box provided at one end with the raised amalgamating-plate E formed with circular cups in its surface, a transverse partition F forming a support for one end of the plate and constituting one end of a chamber G which receives water and dirt from said plate, a gate H constituting the opposite end of said chamber and being higher than the partition F, and a flume A having a perforated bottom above the plate E and extending transversely across the sluice-box, substantially as described.

2. In a sluice-box, the combination with an amalgamating-plate located at one end of the box beneath a flume, and an amalgamating-plate at the opposite end of the box, of the cross-partitions located at the adjacent ends of the two amalgamating-plates to form an intermediate chamber to receive the water and dirt from one amalgamating-plate and deliver it to the other, a reciprocating agitator in said intermediate chamber composed of the side bars and a series of transverse bars having a convex top surface and concave bottom surface and connecting the side bars together, and means for reciprocating the agitator-frame, substantially as described.

3. The combination with the sluice-box, of the sliding agitator-frame provided with convexo-concave transverse bars, the convex faces of the bars being uppermost, the bars located at opposite sides of the sluice-box for the agitator-frame to slide on, guide-arms extending upward from the agitator-frame, guide-bars located parallel with the sides of the sluice-box for said guide-arms to bear against, and means for reciprocating the agitator-frame, substantially as described.

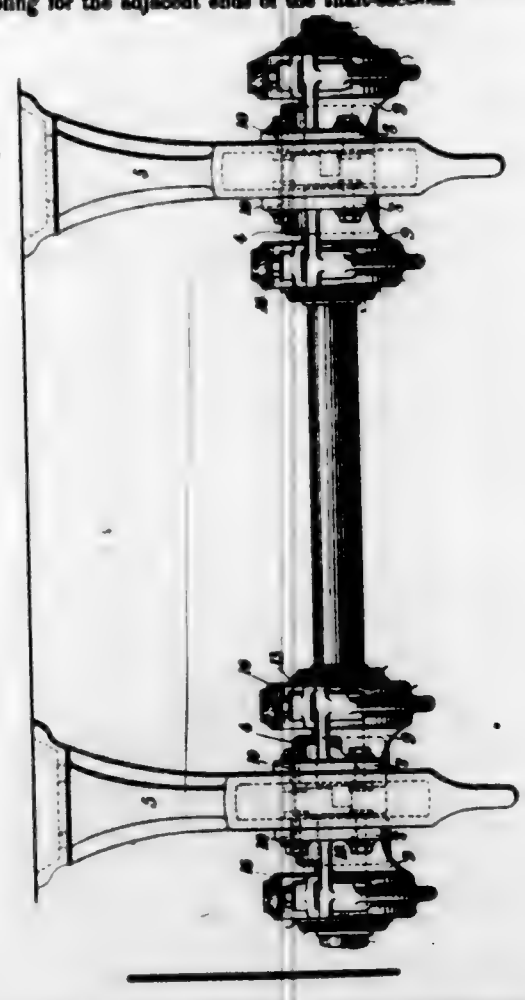
4. The combination with the sluice-box, of the sliding agitator-frame provided with convexo-concave transverse bars, the convex faces of the bars being uppermost, the rock-shaft connected with said agitator-frame, the water-wheel at the end of the sluice-box, the pitman connecting the water-wheel with the rock-shaft of the agitator-frame, and a trap between the end of the sluice-box and the water-wheel for delivering water from the box to the wheel, said trap containing a number of metal plates each formed upon an eccentric curve with their curved ends extending in the direction of the sluice-box, substantially as described.

695,086. SHAFT HANGER AND BEARING. FREDERICK W. WITTE, Chelmsford, England. Filed Apr. 4, 1901. Serial No. 54,243. (No model.)

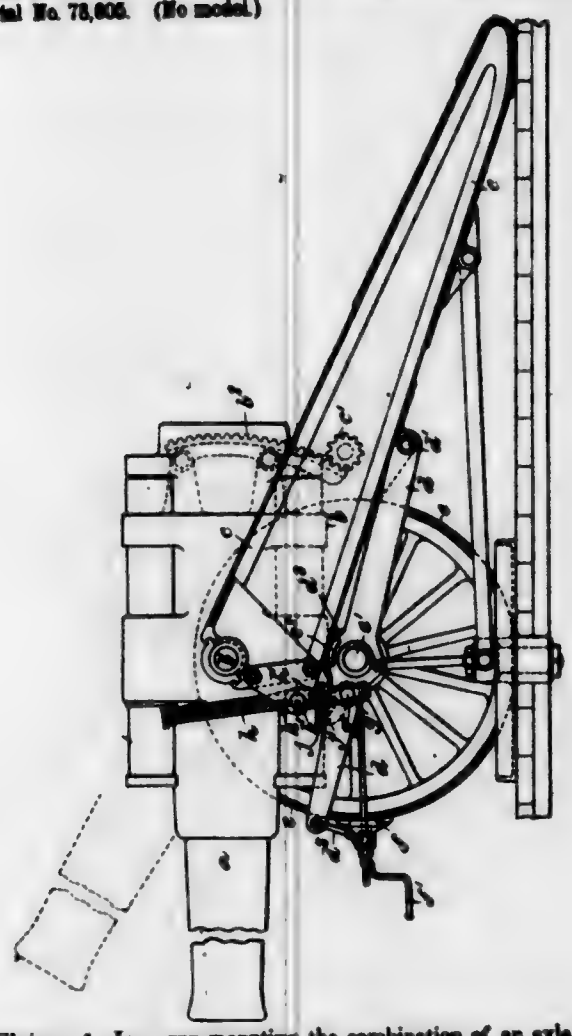
Claim.—1. In a system of line-shafting the combination of two independent shafting-sections and independent bearings, of two independent brackets carried by the hanger for carrying such bearings and connecting means between such brackets and hanger allowing of independent adjustment of the brackets and shafting.

2. In combination, a shaft-hanger, a bracket forming a plumber-

block on each side of same, each having a spherical seat, means for independently adjusting the position of each block on the hanger, a shaft-section for each block, a bearing for each section, having a spherical face, and a coupling for the adjacent ends of the shaft-sections.



695,087. GUN-MOUNTING. RALPH T. BRAKENTON, Newcastle-upon-Tyne, England, assignor to W. G. Armstrong, Whitworth & Company, Limited, Newcastle-upon-Tyne, England. Filed Oct. 14, 1901. Serial No. 78,805. (No model.)



Claim.—1. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever connecting the trail to the axle and means for varying the angle between the lever and trail.

2. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever connecting the trail to the axle, a screw-threaded shaft pivoted to the lever, a nut on the shaft pivoted to the trail, and means for rotating the shaft.

3. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever connecting the trail to the axle, a screw-threaded shaft pivoted to the lever, a nut on the shaft pivoted to the trail, a worm-wheel fixed to the shaft, and a worm pivoted to the lever gearing with the worm-wheel.

4. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever connecting the trail to the axle, means for varying the angle between the lever and trail, a brake-block carried by the lever and means for forcing the block against the wheel.

5. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever connecting the trail to the axle, a screw-threaded shaft pivoted to the lever, a nut on the shaft pivoted to the trail, means for rotating the shaft, a brake-block carried by the lever and means for forcing the block against the wheel.

6. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever connecting the trail to the axle, a screw-threaded shaft pivoted to the lever, a nut on the shaft pivoted to the trail, a worm-wheel fixed to the shaft, a worm pivoted to the lever gearing with the worm-wheel, a brake-block carried by the lever and means for forcing the block against the wheel.

7. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever pivoted to the trail and to the axle, means for varying the angle between the lever and trail and means for causing the trail and the lever to engage with each other at a point other than their pivot when in the traveling position.

8. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever pivoted to the trail and to the axle, a screw-threaded shaft pivoted to the lever, a nut on the shaft pivoted to the trail, means for rotating the shaft and means for causing the trail and the lever to engage with each other at a point other than their pivot when in the traveling position.

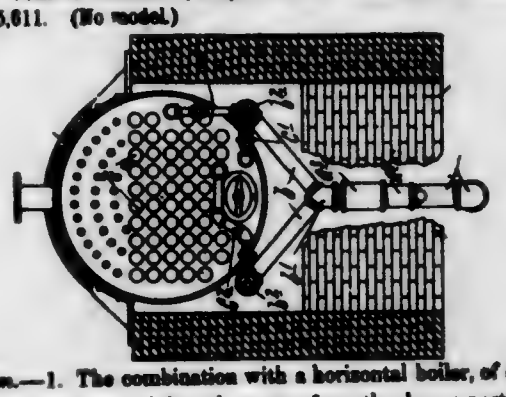
9. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever pivoted to the trail and to the axle, a screw-threaded shaft pivoted to the lever, a nut on the shaft pivoted to the trail, a worm-wheel fixed to the shaft, a worm pivoted to the lever gearing with the worm-wheel and means for causing the trail and the lever to engage with each other at a point other than their pivot when in the traveling position.

10. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever pivoted to the trail and to the axle, means for varying the angle between the lever and trail, a brake-block carried by the lever, means for forcing the block against the wheel and means for causing the trail and the lever to engage with each other at a point other than their pivot when in the traveling position.

11. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever pivoted to the trail and to the axle, a screw-threaded shaft pivoted to the lever, a nut on the shaft pivoted to the trail, means for rotating the shaft, a brake-block carried by the lever, means for forcing the block against the wheel and means for causing the trail and the lever to engage with each other at a point other than their pivot when in the traveling position.

12. In a gun-mounting the combination of an axle, carrying-wheels on the axle, a trail, a lever pivoted to the trail and to the axle, a screw-threaded shaft pivoted to the lever, a nut on the shaft pivoted to the trail, a worm-wheel fixed to the shaft, a worm pivoted to the lever gearing with the worm-wheel, a brake-block carried by the lever, means for forcing the block against the wheel and means for causing the trail and the lever to engage with each other at a point other than their pivot when in the traveling position.

695,088. WATER-CIRCULATING SYSTEM FOR STEAM-BOILERS. JOHN R. CAVANAGH, Cloquet, Minn. Filed Apr. 13, 1901. Serial No. 55,611. (No model.)

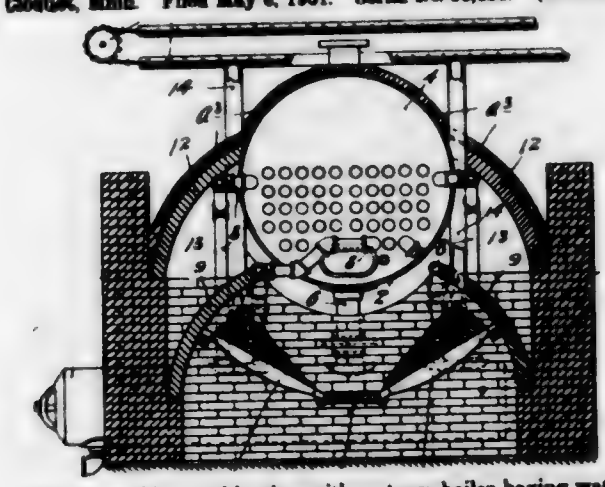


Claim.—1. The combination with a horizontal boiler, of circulating connections therefor receiving the water from the lower portion of one

end of the boiler and delivering the same back into the other end of the boiler, an excessive amount of water being delivered at one side of the boiler and above the point of outlet from the other end of said boiler.

2. The combination with a horizontal boiler having horizontally-extended flues, of circulating connections therefor, receiving the water from the lower central portion of one end of the boiler and delivering the same back into the other end of the boiler, entirely at one side thereof, and above the point of outlet from the other end of the boiler, substantially as described.

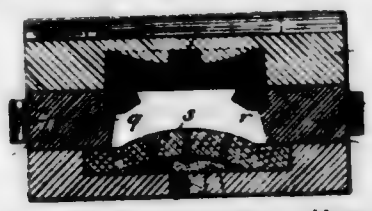
695,089. SMOKE-BURNING FURNACE. JOHN R. CAVANAGH, Cloquet, Minn. Filed May 6, 1901. Serial No. 58,838. (No model.)



Claim.—1. The combination with a steam-boiler having water-circulating pipes on the side of the shell and spaced apart therefrom, of a fire-pot having combined with the grate segmental arches of refractory material disposed parallel to the shell and with their upper ends abutting against said circulating-pipes, substantially as and for the purposes set forth.

2. The combination with a return-flue boiler having water-circulating pipes along the sides of the shell and spaced apart therefrom, of a setting for said boiler, constructed to afford a rear-end extension or breech-chamber, side arches of refractory material connecting the side walls of the setting with the boiler-shell, and a fire-pot having combined with the grate segmental arches of refractory material disposed parallel to the shell, and abutting the lower members of said circulating-pipes, the said side arches and fire-pot arches coöperating with each other and the walls of the setting to afford large flues or flame-chambers, receiving from the fire-pot and communicating with the breech-chamber, substantially as and for the purposes set forth.

695,090. METAL-MOLD FOR FORMING CASTINGS. WILLIAM R. CLARK and HARVEY BOSWORTH, Plattsburg, and WILLIAM O. BOSWORTH, New York, N. Y. Filed Feb. 4, 1901. Serial No. 45,848. (No model.)



Claim.—1. A metal-mold comprising top and bottom sections hinged together and a removable perforated front plate located in the bottom section for permitting the free escape of the gases from the interior of the mold.

2. A metal-mold comprising top and bottom sections hinged together, interposed removable side sections and a sectional sprue having one section removably connected with the top section and its other section removably connected with the bottom section whereby the sprue is parted when the mold is opened.

3. In a mold for casting journal-bearing brasses onto iron or steel backs, a pair of sections hinged together, one of the said sections being arranged to receive the back, a front plate located in the other section and interposed side sections arranged to engage the back for holding it in position.

4. In a mold for casting journal-bearing brasses onto iron or steel backs, a pair of sections hinged together, one of the said sections being arranged to receive the back, a front plate located in the other section and interposed spring-actuated side sections arranged to engage the back for holding it in position.

5. In a mold for casting journal-bearing brasses onto iron or steel backs, a pair of sections hinged together, one of the said sections being arranged to receive the back, a perforated front plate located in the other section, and interposed side sections fitted to engage the back for holding it in position within the mold.

6. In a mold for casting journal-bearing brasses onto iron or steel backs, a pair of sections hinged together, one of the said sections being arranged to receive the back, a perforated front plate located in the other section and interposed spring-actuated sections fitted to engage the back for holding it in position within the mold.

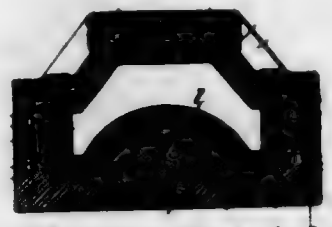
7. A perforated metal-mold, a perforated front plate therein, spaced from the mold, and a filling of granular material, such as dry sand located in the space between the front plate and the mold.

8. A metal-mold comprising a pair of sections hinged together, interposed removable side sections and a perforated front plate seated in one of the sections and forming a space between it and the section and a hole leading from said space to the exterior through the section whereby communication is established between the interior of the mold and the exterior thereof for permitting the free escape of gases.

9. A metal-mold comprising a pair of sections hinged together, interposed side sections, a perforated front plate seated in one of the hinged sections and forming a space between it and the said sections, a hole leading from said space to the exterior through the said hinged section; a filling of some granular material for said space for permitting the rapid escape of the gases from the interior of the mold to the exterior thereof.

10. A perforated graphite-carbon front plate for molds.

695,091. METAL-MOLD FOR FORMING CASTINGS. WILLIAM R. CLARK and HARVEY BOSWORTH, Plattsburg, and WILLIAM O. BOSWORTH, New York, N. Y. Filed Feb. 4, 1901. Serial No. 45,849. (No model.)



Claim.—1. A metal-mold comprising a pair of perforated sections hinged together and a removable perforated front plate carried by one of the sections.

2. A metal-mold comprising a pair of perforated sections hinged together, a removable perforated front plate carried by one section and a removable perforated back plate carried by the other section.

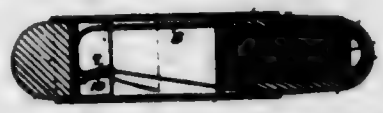
3. A metal-mold comprising a pair of perforated sections hinged together, a perforated front plate and a perforated back plate carried by the said sections and spaced therefrom.

4. A metal-mold comprising a pair of perforated sections hinged together, a perforated front plate and a perforated back plate carried by said sections and spaced therefrom, and a granular filling for the said spaces for conveying the heat from the back plate and front plate to the perforated hinged sections but permitting the free escape of gases from the interior of the mold to the exterior.

5. A metal-mold comprising a pair of sections hinged together, a sprue, and additional mold-sections interposed between the sprue and the first-named sections.

6. A metal-mold comprising a pair of mold-sections hinged together, a sprue, a pair of additional mold-sections interposed between the sprue and the first-named mold-sections and a pair of removable side sections interposed between the mold-sections.

695,092. DENTAL FLOSS-HOLDER. JAMES W. COWAN, Geneseo, N. Y., assignor to the Handy Company, Rochester, N. Y., a Corporation of New York. Filed Sept. 4, 1901. Serial No. 74,257. (No model.)



Claim.—1. The combination with a case, of a holder for floss, and a support for maintaining in position a stretched length of floss, the holder being constructed so that either of its ends may fit into the case, whereby when the holder is in one position the case serves as a handle and when in the other position the case serves to protect the support.

2. The combination with a case, of a holder for floss, said holder being recessed or chambered, whereby it is adapted to receive a cop or bobbin of floss, and a support for maintaining in position a stretched length of floss, said holder being constructed so that either of its ends may fit into the case, whereby when the holder is in one position the case serves as a handle and when in the other position the case serves to protect the support.

3. The combination with a case, of a holder for floss and a support comprising a flexible frame adapted to maintain in position a stretched length of floss, said holder being constructed so that either of its ends may

fit into the case, whereby when the holder is in one position the case serves as a handle and when in the other position the case serves to protect the support.

4. The combination with a case, of a chambered or recessed holder for floss, and a support comprising a flexible frame for maintaining a stretched length of floss in position, said holder being constructed so that either of its ends may fit into the case, whereby when the holder is in one position the case serves as a handle and when in the other position the case serves to protect the support.

5. The combination with a holder for floss, said holder having a cup-shaped recess or chamber which is constructed to receive and inclose a cop or bobbin of floss said recess being open at one end, of a flexible frame extending therefrom and provided with holding means, said frame being constructed to maintain stretched lengths of floss in position

6. The combination with a holder for floss, said holder having a cup-shaped recess constructed to receive and inclose a cop or bobbin of floss said recess being open at one end, and having a retaining device thereon of a flexible frame having gripping-jaws extending from the holder, said frame being constructed to maintain in position stretched lengths of floss.

7. The combination with a case open at both ends of a holder for floss and a support comprising a flexible frame for maintaining stretched lengths of floss in position, said holder being constructed so that either of its ends will fit into one of the ends of the case, and cleft or recessed removable closing means at the other end of the case.

8. A dental appliance comprising a brush having a cleft or recessed handle, a case fitting over the end of said handle, a floss-holder, and a support for maintaining in position a stretched length of floss, said holder being constructed so that either of its ends will fit into the case, whereby when the holder is in one position the brush and case serve as a handle and in the other position the holder and support may be placed in the case with the support in position in the cleft or recess of the handle.

9. A dental appliance comprising a brush having a cleft or recessed handle, a case fitting said handle, a floss-holder, and a support comprising a flexible frame extending from said holder, the holder being constructed so that either of its ends will fit in the case, whereby when the holder is in one position the brush and case serve as a handle and in the other position the holder and support may be placed in the case with the support in position in the recess of the handle.

10. In a dental appliance the combination with a floss-holder having retaining means, of a support having gripping-jaws, whereby a stretched length of floss may be maintained in position between the retaining means of the holder and the jaws of the support, the outer jaw being arranged outside the line of tension of the floss.

11. In a dental appliance the combination with a floss-holder having retaining means, of a support having gripping-jaws, whereby a stretched length of floss may be maintained in position between the retaining means of the holder and the jaws of the support, the outer jaw being arranged outside and at an angle to the line of tension.

12. A dental appliance, comprising a holder for floss having retaining means, a flexible frame having gripping-jaws arranged to nip the floss, whereby a length of floss may be maintained in a stretched position between the retaining means and the jaws, the outer jaw being arranged outside the line of tension of the floss.

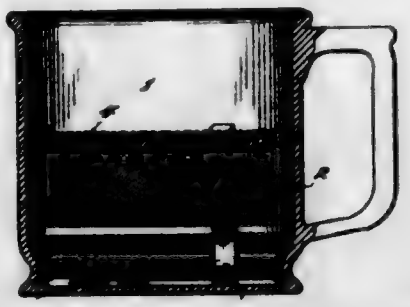
13. A dental appliance, comprising a holder for floss having retaining means, a flexible frame having gripping-jaws arranged to nip the floss, whereby a length of floss may be maintained in a stretched position between the retaining means and the jaws, the outer jaw being arranged outside and at an angle to the line of tension of the floss.

14. A dental appliance comprising a brush having a cleft or recessed handle, a casing fitting said handle, a recessed or chambered holder having retaining means, a support comprising a flexible frame extending from said holder, said frame being provided with gripping-jaws, said holder being constructed so that either of its ends will fit in the case, whereby when the holder is in one position the brush and case serve as a handle and in the other position the holder and support may be placed in the case with the support in position in the recess of the handle.

15. A dental appliance comprising a brush having a cleft or recessed handle, a casing fitting said handle, a recessed or chambered holder having retaining means, a support comprising a flexible frame extending from said holder, said frame being provided with gripping-jaws, the outer one of said jaws being arranged outside the line of tension of the floss, said holder being constructed so that either of its ends will fit in the case, whereby when the holder is in one position the brush and case serve as a handle and in the other position the holder and support may be placed in the case with the support in position in the recess of the handle.

695,093. SOAP-HOLDER FOR SHAVING-CUPS. ULYSSES G. CRAMPTON, Tyrone, Pa. Filed Aug. 30, 1901. Serial No. 73,874. (No model.)

Claim.—1. A soap-holder for shaving-cups, comprising a casing of a diameter less than that of the cup, said casing conforming to the shape of the cake of soap and covering and protecting the sides and bottom of the same from contact with water, and a movable foraminated disk adapted to cover the upper surface of the cake of soap.



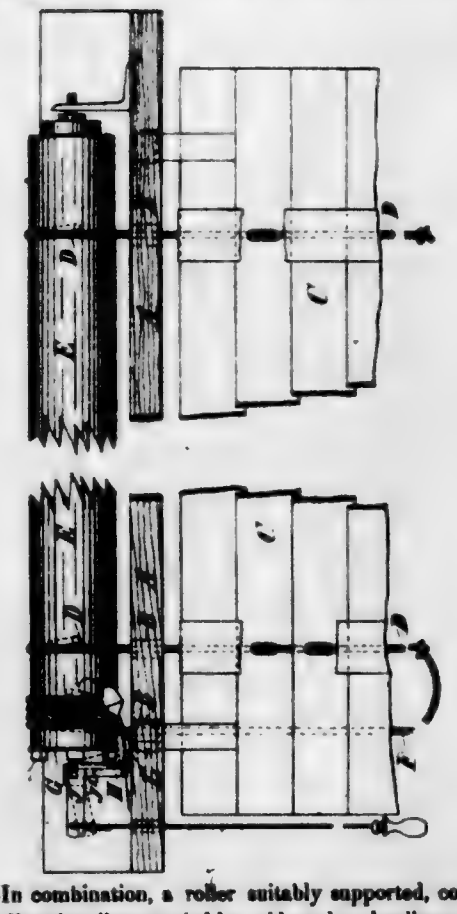
2. A soap-holder for shaving-cups, comprising a casing of a diameter less than that of the cup, and conforming to the shape of the cake of soap and covering and protecting the sides and bottom of the same from the action of water, and a movable foraminated disk adapted to cover the upper surface of the cake of soap, said disk being of a diameter less than the diameter of the casing, substantially as specified.

3. A soap-holder for shaving-cups, comprising a casing of a diameter less than that of the cup and adapted to cover and protect the sides and bottom of a cake of soap, a movable foraminated disk adapted to cover the upper surface of the cake of soap, and means for supporting said casing above the bottom of the shaving-cup.

4. A soap-holder comprising a casing having spacing-springs adapted for contact with the interior of a cup, and a movable foraminated top piece adapted to cover the cake of soap.

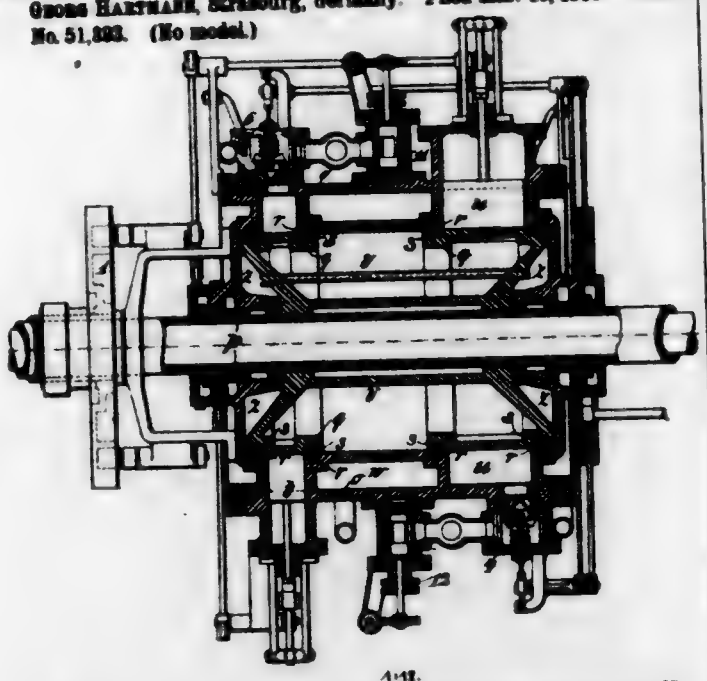
5. A soap-holder comprising a casing, supporting-legs thereon, said legs having their upper portions outwardly bent for engagement with the side of the shaving-cup and having their extreme upper ends inwardly bent, and a foraminated top piece guided between the upper ends of said legs.

695,094. BLIND-ROLLER. WILLIAM F. DUSHIN, Kew, Victoria, Australia, assignor of three-fourths to John James Percival Garrett, Kew, near Melbourne, Australia, and Harry Middleton Todd and Elias Dimant, Melbourne, Victoria, Australia. Filed Apr. 19, 1901. Serial No. 56,624. (No model.)



Claim.—In combination, a roller suitably supported, cords wound thereon in one direction, lines carried by said cords, a hauling-cord wound on said roller in a reverse direction, a plate on the end of the roller having a plurality of projecting studs, a supporting-bracket in which said roller is journaled, a bell-crank lever pivoted to said bracket, said bell-crank lever having a horizontal projecting arm provided with a draw-cord and a vertically-depending arm adapted to engage said projections, and a weighted extension at the lower end of said depending arm, substantially as described.

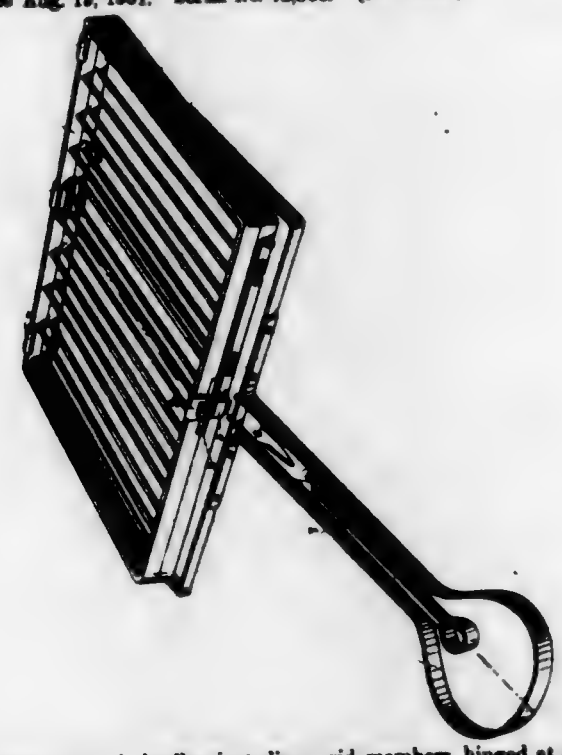
695,095. ROTARY ENGINE. JOHANN B. EDEL, Jr., Kehl, and GEORG HARTMANN, Strasburg, Germany. Filed Mar. 19, 1901. Serial No. 51,393. (No model.)



Claim.—1. In combination in a rotary engine, a piston *q* formed of coaxial portions arranged at a distance from each other, but connected together, separate cylinder-compartments *t*, *u*, for said piston portions, packing-rings between the piston portions and the walls of the compartments, a space *v* between the piston portions and concentric with the piston-shaft, a jacket *w* surrounding and concentric with the space *v* and spaces *z* between the piston portions and the cylinder-casing, substantially as described.

2. In combination in a rotary engine with the piston and cylinder, a receiver-space *v*, a high-pressure compartment inlet-valves 2 and 3, outlet-valves 6 and 7, reversing-cocks 10 and 11 and a by-pass valve 16 arranged between the two reversing-cocks, said reversing-cock 11 being connected with the space *v*, substantially as described.

695,096. BROILER. JACQUES P. FAIVRE, San Francisco, Ca. Filed Aug. 19, 1901. Serial No. 72,508. (No model.)

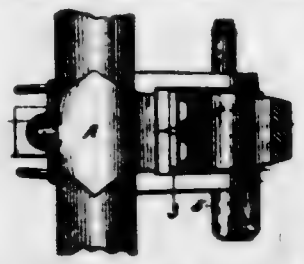


Claim.—1. A broiler including grid members hinged at one side and having their hinges capable of permitting the grid members to be separated a greater or less distance as the said members are folded upon themselves; a handled support in which said members are turnable; and a latch within the handle of the support and extending lengthwise of the same and slidable endwise, and having its inner end to directly engage with and lock the grid members to the support.

2. A broiler consisting of grid members, hinged connections at one side thereof; a hasp hinged to the opposite side of one of said members and a stud on the other member with which the hasp engages to unite the members; a bar slidable transversely across one of the grid members and over the hasp, to secure the latter; a support in which the grids are turnable, said support having a handle; and a latch carried by the handle and having its inner end to directly engage the grids to secure them against turning about their pivotal centers.

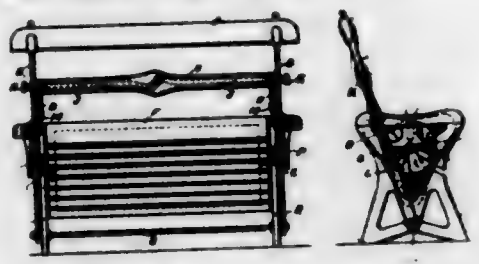
3. A broiler consisting in combination of grid members having their hinges adapted to permit the grids to be separated a greater or less distance as the grids are folded upon themselves, an adjustable lock mechanism therefor, a handle having arms in which said grids are pivoted and turnable, and a sliding latch in said handle extending in the direction of the length thereof whereby the grids may be directly engaged and prevented from turning on said pivots.

695,097. THILL-COUPLING. GEORGE H. FERRALD, Northeast, Pa. Filed Mar. 23, 1901. Serial No. 53,277. (No model.)



Claim.—In an antirattler for thill-couplings, the combination of a clip having separated ears, a thill-strap having an eye inserted between the ears, a substantially U-shaped bar having one arm inserted through the ears and eye of the thill-strap, a bearing-plate carrying upward and downward extensions, arms having outwardly-inclined edges, formed intermediate said upward and downward extensions, an apertured split lug formed integral with said plate to receive the other arm of said substantially U-shaped bar carrying a reduced portion, a spring carrying coils engaging the arms of the plate, an upwardly-extending curved loop carrying an intermediate downwardly-extending curved loop engaging the rear face of said thill-strap, and means whereby said springs are suitably connected together.

695,098. CAR-SEAT. THOMAS PINNEY, Glasgow, Scotland. Filed Sept. 6, 1901. Serial No. 74,504. (No model.)



Claim.—1. In combination, a frame, a reversible seat-body journaled therein, a reversible back-rest supported on the frame and a detachable connection between the seat-body and back-rest whereby the seat-body may be reversed by the movement of the back-rest or independently thereof, substantially as described.

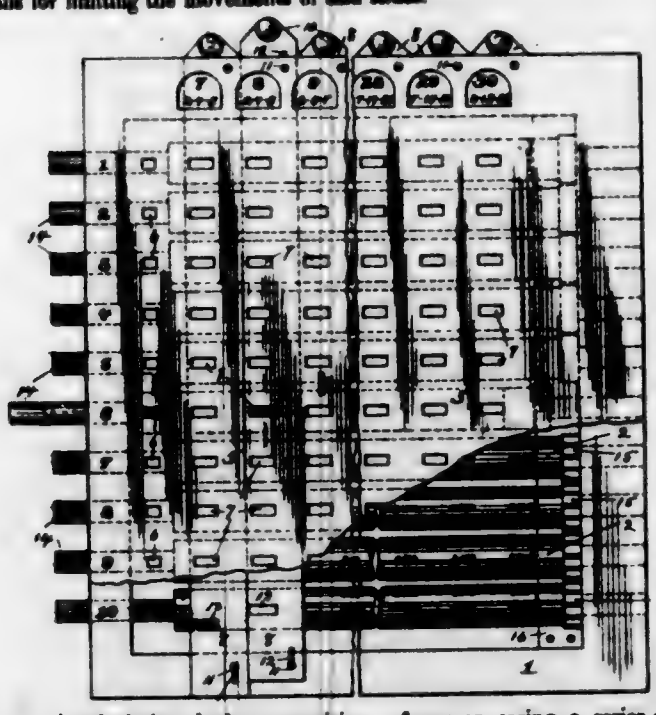
2. In combination, a frame, a reversible seat-body journaled therein, a reversible back-rest supported on the frame and a detachable connection between the seat-body and back-rest whereby the seat-body may be reversed by the movement of the back-rest or independently thereof, said detachable connection including a pair of catches carried by the seat-back and means for operating both of said catches simultaneously, substantially as described.

695,099. CALCULATING-MACHINE. FRANK L. FLEISHMAN, Allegheny, Pa. Filed July 24, 1901. Serial No. 69,512. (No model.)

Claim.—1. A calculating device comprising a frame or casing, a series of endwise-movable rollers journaled therein, said rollers bearing on their faces the calculations and having marked around the same the units of one factor entering into the calculations, the tens of the same factor being marked on the frame or casing opposite the respective rollers, a perforated face-plate covering said rollers, and a series of movable slides having openings therein also mounted over said rollers, said slides being designated by the other factor of the calculations.

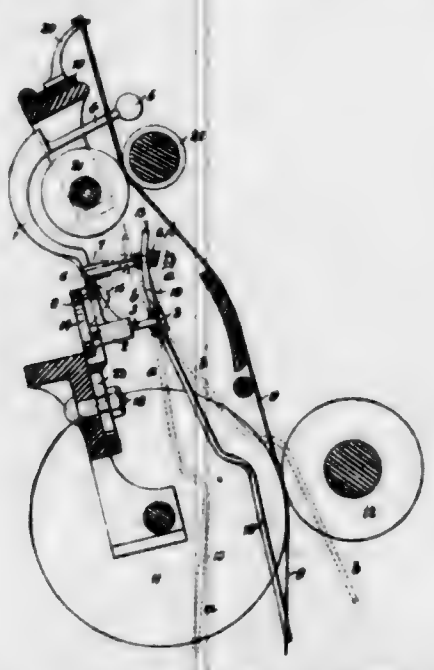
2. A calculating device comprising a frame or casing, a series of endwise-movable rollers journaled in said frame, said rollers bearing on their faces the calculations and having marked thereon around the same the units of one factor entering into the calculations, the tens of the same factor being marked on the frame or casing opposite the respective rollers, a perforated plate covering said rollers, a series of movable slides having slots cut in on one edge thereof also mounted over said rollers, said slides

being designated by the other factor entering into the calculations, and means for limiting the movements of said slides.



3. A calculating device comprising a frame or casing, a series of endwise-movable rollers journaled in said frame, said rollers bearing on their faces the calculations and having marked around the same the units of one of the factors entering into the calculations, the tens of the same factor being marked on the frame or casing opposite the respective rollers, said rollers being provided with a series of notches, a yielding detent for engaging said notches, a perforated face-plate covering said rollers, and a series of slotted slides also mounted over said rollers and being designated by the other factor entering into the calculations.

695,100. ROVE-STOP MECHANISM. JAMES FRASER, Dundee, Scotland, assignor to the Fraser Automatic Rove-Stop Company, Limited, Dundee, Scotland. Filed June 29, 1901. Serial No. 66,499. (No model.)



Claim.—1. A rove-stop mechanism for spinning-machines consisting of a weighted throw-out lever, an oscillating vertical lever, a sustaining and releasing horizontal trigger-rod and a hackle-gill on the upper end of said oscillating vertical lever substantially as herein set forth.

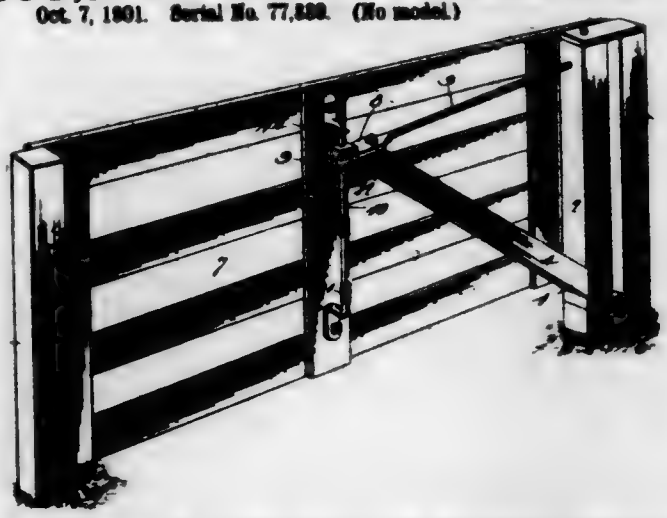
2. Rove-stop mechanism for spinning-machines consisting of a weighted tumbling throwing-out lever formed with an angled projection and provided with means for nice adjustment in normal working position, a sustaining and releasing horizontal trigger-rod and means for sustaining same while the broken yarn is being pieced and a hackle-gill both on the upper part of a vertical oscillating lever all mounted on the machine-frame and horizontally and vertically adjustable thereon substantially as herein set forth.

3. In rove-stop mechanism for spinning-machines and in combination, a weighted throw-out lever having sustaining devices, an oscillating lever 10 to engage the rove, said lever carrying a horizontal trigger to engage the sustaining devices, the hackle-gill carried on the upper end of the oscillating lever, a plate 14 carrying the pivot for the throw-out lever, a set-screw 16 carried by said plate to act as a lateral support for the throw-out lever, said plate being adjustable horizontally and a plate 23 carrying the plate 14, said plate 23 being vertically adjustable, substantially as described.

4. In rove-stop mechanism for spinning-machines the combination of the weighted tumbling throwing-out lever 1 formed with the angled projection 7, with the horizontal trigger-rod 6, the hackle-gill 13 and oscillating lever 10 substantially as herein set forth.

5. In rove-stop mechanism for spinning-machines the adjustable devices for carrying the mechanism consisting of the plate 23, the slotted plates 14 and pinching-screws 17, the lugs or projections 15 and set-screws 16 for the nice adjustment of the levers 1 substantially as herein set forth.

695,101. GATE. JERRY PUMMELMAN, Huntington, Ind. Filed Oct. 7, 1901. Serial No. 77,889. (No model.)



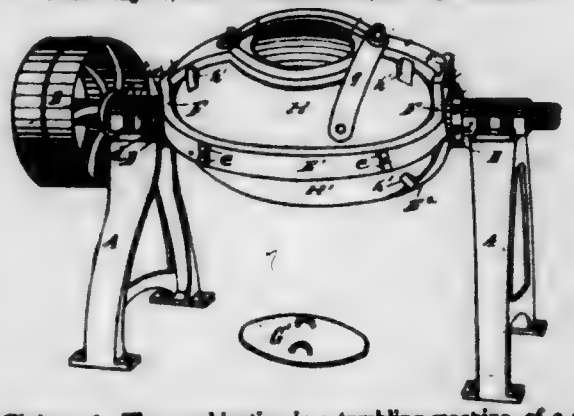
Claim.—1. The combination of a swinging frame or hanger, a gate having a vertical rod hinging the gate to the frame or hanger and provided with screw-threads, and an adjustable block engaging the screw-threads of the rod and provided with an inclined or angularly-disposed face engaging the swinging frame or hanger whereby the block is prevented from turning, substantially as described.

2. The combination of a swinging frame or hanger, a gate having a rod hinging the gate to the frame or hanger and provided with screw-threads, and a block or nut threaded to engage the rod and provided at its lower face with means for engaging the swinging frame or hanger, whereby it is prevented from accidentally unscrewing, substantially as described.

3. The combination of a swinging frame or hanger, a gate having a rod hinging the gate to the frame or hanger and provided at intervals with threaded portions, and a nut engaging the threaded portions of the rod and provided with an inclined face frictionally engaging the swinging frame or hanger, whereby it is prevented from accidentally rotating, substantially as and for the purpose described.

4. The combination of a swinging frame or hanger provided with a rod having an enlarged outer end arranged at an inclination and forming a support, a gate having a rod hinging the gate to the frame or hanger and provided at intervals with threaded portions, and a nut arranged on the rod for engaging the threaded portions thereof and provided with an inclined lower face frictionally engaging the outer end of the rod of the hanger, substantially as described.

695,102. TUMBLING-MACHINE. MATTHEW GRISWOLD, Jr., Erie, Pa. Filed July 11, 1901. Serial No. 67,844. (No model.)

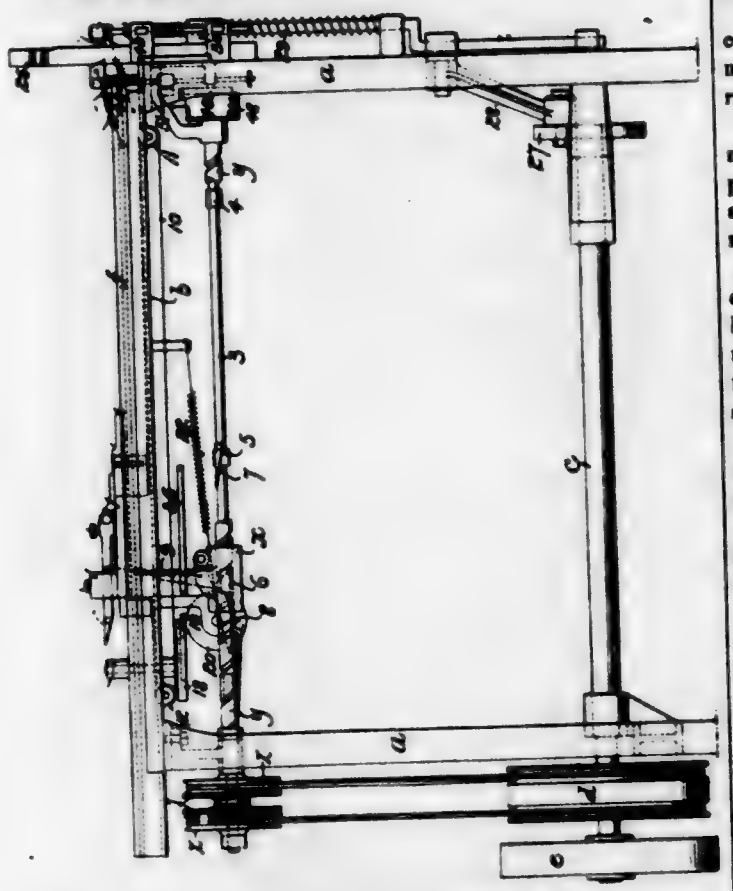


Claim.—1. The combination in a tumbling-machine, of a skeleton shell-frame, with removable half shell-sections therein, substantially as and for the purpose set forth.

2. The combination in a tumbling-machine of a skeleton shell-frame, a removable section in said frame, hollow shafts secured to the ends of said frame, and removable half shell-sections capable of insertion into and removal from said shell-frame, substantially as and for the purpose set forth.

3. The combination in a tumbling-machine, of a frame, bearings thereon, hollow shafts mounted in said bearings, flanges or collars on the inner ends of said shafts, a skeleton frame, having a removable member, secured between the flanges or collars on said shafts, screen-plates between the ends of said frame and the collars on the shafts, a removable shell in said shell-frame, and a cover adapted to be secured to one of the skeleton frame-sections, substantially as and for the purpose set forth.

695,108. **FABRIC-CUTTING MACHINE.** JOHN A. HEANY, Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, East Orange, N. J., a Corporation of New Jersey. Filed Aug. 22, 1900. Serial No. 27,743. (No model.)



Claim.—1. The combination with a reciprocable fabric-feeder, of a fabric-severing device, inner and outer clamps arranged on opposite sides of said device, means for causing the clamps to operate in succession to clamp the fabric and other means for releasing the clamps, as described.

2. The combination with a reciprocable fabric-feeder, of a fabric-severing device, inner and outer clamps arranged on opposite sides of said device, a fabric-feeder, means carried by the feeder to cause the clamps to operate in succession, and other means for releasing the clamps, as described.

3. The combination of a fabric-severing device, a spring-impelled fabric-clamp, a vertically-movable support for the clamp to move and hold the clamp out of action, and means for moving the clamp from the support to permit its clamping operation, as described.

4. The combination of a fabric-severing device, a spring-impelled fabric-clamp, a support for the clamp movable with the severing device to move and hold the clamp out of action, and means for moving the clamp from the support to permit its clamping operation, as described.

5. The combination of a fabric-severing device, a spring-impelled fabric-clamp, a support for the clamp, movable with the severing device to move and hold the clamp out of action, means for moving the clamp from said support to allow it to operate, and a cam for moving the clamp to be again engaged by the support, as described.

6. The combination of a fabric-severing device, a spring-impelled fabric-clamp, a support for the clamp, means for moving the clamp from said support to allow it to operate and a cam having a yielding portion for moving the clamp to be again engaged by the support, as described.

7. In a fabric-cutting machine, the combination of a severing device, a fabric-feeder having a clamping-jaw mounted to move in vertical guides, a pivoted lever, and a connection between the same and said jaw, as described.

8. In a fabric-cutting machine, the combination of a severing device and a fabric-feeder having a pivoted clamping-jaw and a carrier therefor mounted in vertical guides, as described.

9. The combination of a severing device, a fabric-feeder having a vertically-moving jaw, vertical guides for the latter, a pressure-roll, a lever for moving the jaw and roll and a spring interposed between the lever and roll, as described.

10. The combination of a severing device, a fabric-feeder, means including a screw-shaft and nut for reciprocating the feeder and means for automatically determining the limit of movement of the feeder in either direction, as described.

11. The combination of a severing device, a fabric-feeder, means including a screw-shaft and nut for reciprocating the feeder and means for varying the limit of rearward movement of the feeder without effecting the limit of its forward movement as described.

12. The combination of a severing device, a fabric-feeder, means including a screw-shaft and nut for reciprocating the feeder, means for determining the limit of the rearward movement of the feeder, and means for suspending the operation of the said limiting means, as described.

13. The combination of a severing device, a fabric-feeder, means including a screw-shaft and nut for reciprocating the feeder, and automatic means including pawl and stop devices operable upon the absence of fabric to be fed for stopping the reciprocation of the feeder, as described.

14. The combination of a severing device, a fabric-feeder having a nut, a screw-shaft engaging said nut, a pair of oppositely-rotating loose pulleys on said shaft, a clutch for clutching either pulley to the shaft, and a clutch-shaft having stops engaged by a suitable abutment on the carrier, as described.

15. The combination of a severing device, a fabric-feeder, means including a screw-shaft and nut for reciprocating the feeder, a pair of pulleys and a clutch for reversing the reciprocating movements of the feeder, means operable by the feeder for operating the clutch and automatic means for stopping the movement of the feeder at its rearward position, as described.

16. The combination of a severing device, a reciprocative fabric-feeder and an underlying carrying-belt reciprocative concurrently with said feeder, as described.

17. The combination of a severing device, a fabric-feeder, an underlying carrying-belt stretched around rolls and the opposite ends of the belt attached to the feeder, as described.

18. The combination of a vertically-movable knife, a fabric-feeder, a constantly-reciprocated rod and means operable by the feeder for intermittently connecting the rod to the knife, as described.

19. The combination of a vertically-reciprocated knife, a fabric-feeder, a rotating shaft, a reciprocated rod connected to said shaft, and means including a spring-actuated member for connecting said rod with the knife, a device to maintain said member retracted and the rod and knife thereby disconnected, and means operable by the feeder for tripping said device to release the said member, as described.

20. In a fabric-cutting machine, the combination with driving mechanism, stopping mechanism therefor, a severing device, and means for operating said device, of a fabric-feeder, means for reciprocating said feeder, and automatic means on said feeder operable to actuate said stopping mechanism upon the absence of fabric to be fed, substantially as described.

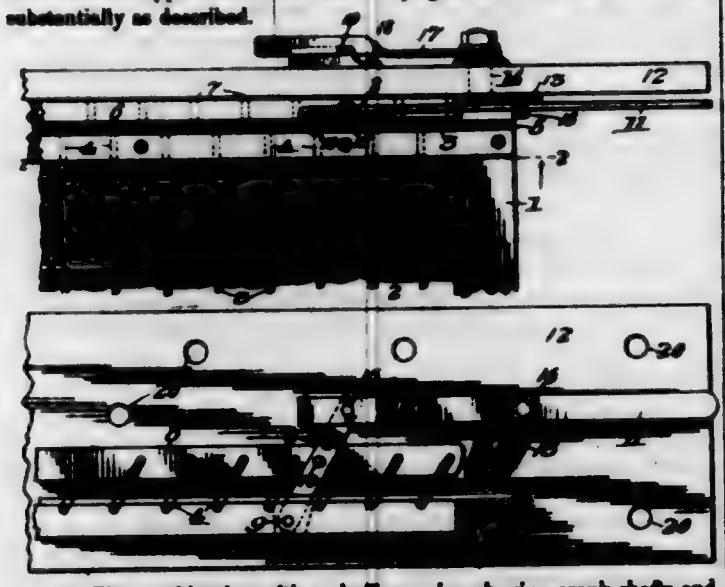
21. In a fabric-cutting machine, the combination with driving mechanism, stopping mechanism therefor, a severing device, and means for operating said device, of a fabric-feeder, means for reciprocating said feeder, a vertically-movable frame on said feeder carrying a roller that contacts with the fabric to be fed, and trip means controlled by said frame and adapted to actuate the said stopping mechanism in the absence of such fabric, substantially as described.

695,104. **ADJUSTABLE SIEVE.** FRANK HIXSON, Ashland, Ohio, assignor to the Ashland Sieve Company. Filed June 1, 1900. Serial No. 18,696. (No model.)

Claim.—1. In a separator, the combination, with a shoe, of a chaffer or sieve mounted therein and comprising a frame, rock-shafts mounted in said frame, extending transversely thereof and provided with crank-arms at one end only, slats secured on the rock-shafts, a rocker-bar located at the side of the frame adjacent to the shoe and connected with the crank-arms of the rock-shafts, an arm or upright pivoted at its lower end on the frame and pivotally connected between its ends to the rocker-bar, a rocker-arm mounted on the inner face of the shoe and having a journal extending through the wall thereof, a lever mounted on the projecting outer end of said journal, means for securing said lever in position after adjustment, and a connecting-bar pivotally connected to the rock-arm and to the upper end of the arm or upright, substantially as described.

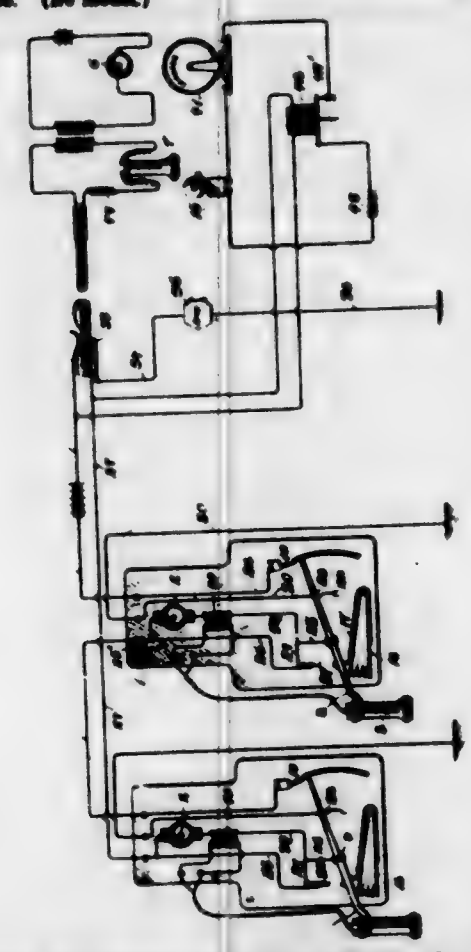
2. In a separator, the combination, with a shoe, of a chaffer or sieve adjustably mounted therein and comprising a frame, rock-shafts journaled therein and extending transversely thereof and provided with crank-arms

at one end only, plate mounted on the rock-shafts, a rocker-bar located at one side of the frame immediately adjacent to the side wall of the shoe and pivotally connected with the crank-arms of the rock-shafts, an arm or upright pivoted at its lower end on the frame and pivotally connected between its ends with the rocker-bar, the side wall of the shoe being provided with a plurality of apertures, a rocker-arm having a journal adapted to extend through any desired one of said apertures, the rocker-arm being on the inner end of said journal and immediately adjacent to the inside wall of the shoe, and a connecting-bar having a separable pivotal connection with the upper end of the arm or upright and with the rocker-arm, substantially as described.



3. The combination with a sheller or sieve having crank-shafts and plate secured to the shafts, of a frame provided with bearings 4; a gutter 5; a rocker-bar 6; an upright 8; a connecting-bar 11; a rocker-arm 13; a lever 17; and a rock-bar.

695,105. TELEPHONE SUBSTATION-REGISTERING SYSTEM. JEFFERSON D. HOSEA, Jersey City, N. J. Filed Jan. 28, 1901. Serial No. 44,823. (No model.)



Claim.—1. In a signaling system, the combination of, a circuit having an indicator located therein in the central office, and a circuit-breaker located therein at a substation, provided with insulating surface-sections corresponding to the number of the substation, mechanism in the substation-circuit adapted to move in contact with the said circuit-breaker for the purpose of interrupting the circuit, and thereby operating the central-office indicator to designate the number of the substation, the speed of movement of said mechanism being pneumatically controlled.

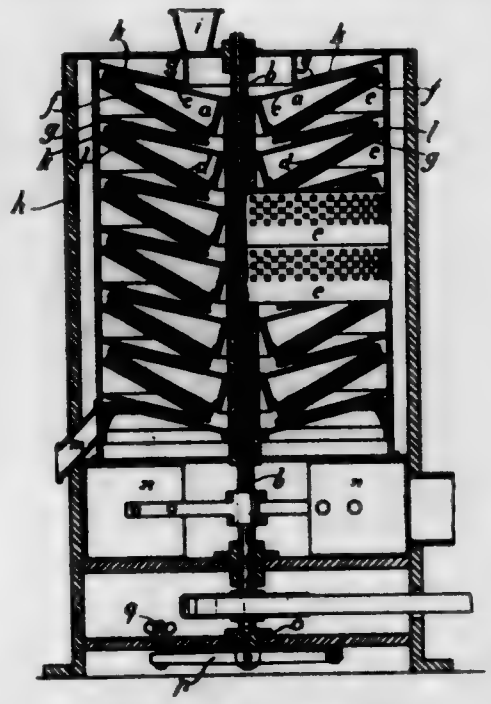
2. In a signaling system, the combination of a circuit having an indicator therein at the central office, and a circuit-breaker therein at a substation, provided with insulating surface-sections corresponding with the number of the substation, a receiver-supporting mechanism in the substation-circuit, adapted, when actuated by the weight of the receiver, to move over the said circuit-breaker, and pneumatical means for controlling the speed of movement of said receiver-supporting mechanism, when the same is being actuated by the weight of the lever, substantially as set forth.

3. In a signaling system, the combination, of a circuit having an indicator therein in the central office, and a circuit-breaker therein at a substation, provided with insulating surface-sections corresponding with the number of the substation, the receiver-supporting lever in the substation-circuit having one end arranged to move over the said circuit-breaker when operated by the weight of the receiver thereon, and a bellows for regulating the speed of movement of said lever when being moved under the weight of the receiver, for the purpose set forth.

4. In a signaling system, the combination, of circuit having an indicator therein in the central office, a plate in the substation-circuit having two connecting-guideways one of which is provided with a circuit-breaker therein provided with insulating surface-sections corresponding with the number of the substation, and the receiver-supporting lever in the substation-circuit having one end extending into said guideway and being movable over the said circuit-breaker therein when operated in one direction, for the purpose set forth.

5. In a signaling system, the combination, of a circuit having an indicator therein in the central office, the receiver-supporting lever in the substation-circuit, and a plate also located in the substation-circuit normally bearing against said lever with a yielding pressure and being provided with two parallel grooves connecting with each other adjacent to their opposite ends in which the end of the said lever travels when raised and lowered, one of said grooves being provided with a circuit-breaker located therein provided with insulating surface-sections corresponding with the number of the substation so as to interrupt the circuit as the lever passes thereover, for the purpose set forth.

695,106. WHEAT-SCOURING MACHINE. GEORG LÜTKENHAUSER, Schlosserbusch, Germany. Filed Mar. 15, 1901. Serial No. 51,252. (No model.)



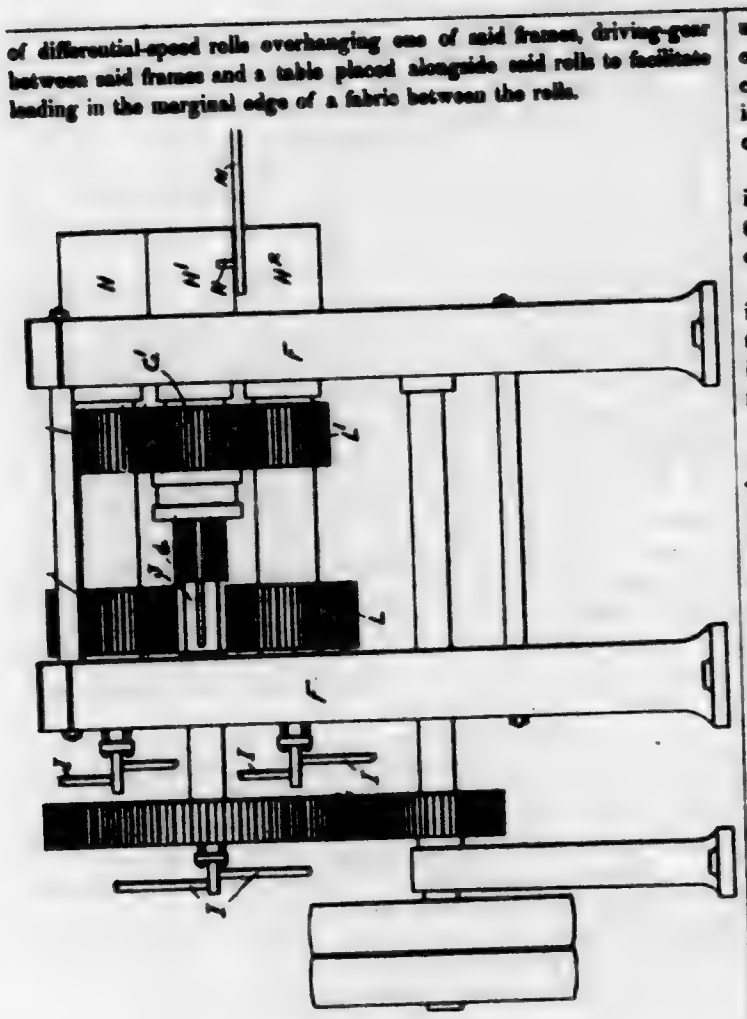
Claim.—In a wheat scouring and husking or decorticating machine the combination of a plurality of alternate fixed and rotating trays, striking-bars *k* mounted obliquely upon the upper surfaces of said rotating trays *a* curved brushes *l* upon the under side of said rotating trays, rasping-surfaces *g* forming the under side of said fixed trays *e*, and emery surfaces *f* upon the upper side of said fixed trays substantially as and for the purpose set forth.

695,107. CALENDERING-MACHINE. PATRICK M. MATTHEW, Edinburgh, Scotland. Filed Oct. 8, 1901. Serial No. 77,993. (No model.)

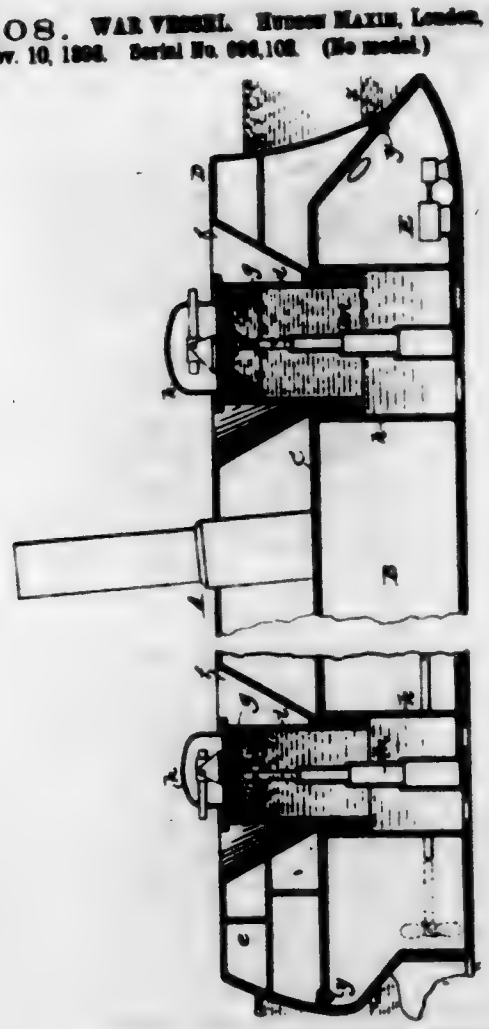
Claim.—1. A calendering-machine constructed with the rolls overhanging one of the side frames and their driving-gear between said frames, said machine being adapted for applying a friction or calendered coating of rubber to the marginal edge of a fabric as set forth.

2. In a calendering-machine the combination with the side frames

of differential-speed rolls overhanging one of said frames, driving-gear between said frames and a table placed alongside said rolls to facilitate leading in the marginal edge of a fabric between the rolls.



695,108. WAR VESSEL. HUDSON MAXIM, London, England. Filed Nov. 10, 1898. Serial No. 696,108. (No model.)



Claim.—1. In a vessel the combination of the main hull, a flotation superstructure secured water-tight upon the main hull, ballast-cylinders formed in the main hull and communicating with the open sea, pistons working in said ballast-cylinders, and power devices for operating said pistons, whereby the main hull may be maintained at the sea-level or depressed below the same as desired.

2. In a vessel the combination of the main hull provided with a protective deck, a cellular flotation superstructure secured water-tight upon the main hull, fixed ballast-cylinders formed in the main hull and communicating with the open sea, movable cylinders playing in said fixed cylinders and in open communication therewith, weighted pistons playing in said movable cylinders, and a power device controlling the movements of said pistons.

3. In a vessel the combination of a main hull, a vertical ballast-cylinder formed therein communicating with the open sea, a weighted piston in the form of a gun-platform playing in said cylinder and a power device controlling the movements of said piston.

4. In a vessel the combination of a main hull, a vertical ballast-cylinder formed therein communicating with the sea, a weighted piston in the form of a gun-platform playing in said cylinder, a telescopic cylinder having its piston connected to said platform and means supplying motive fluid to said telescopic cylinder.

5. In a vessel the combination of a main hull, a cellular flotation superstructure detachably secured water-tight to said hull, a fixed vertical ballast-cylinder formed in said hull communicating with the sea, a movable cylinder playing telescopically in said fixed cylinder through an opening in said superstructure, and a weighted piston in the form of a gun-platform playing in said cylinder, and a power device controlling the movements of said piston, whereby the main hull may be depressed below or raised on a level with the surface of the sea and the gun-platform simultaneously raised or lowered.

6. In a vessel a ballast-chamber consisting of a cylinder in communication with the sea, a weighted piston in the form of a gun-platform playing in said cylinder, and a power device controlling the movements of said piston, whereby the vessel may be lowered and the gun-platform simultaneously raised and vice versa.

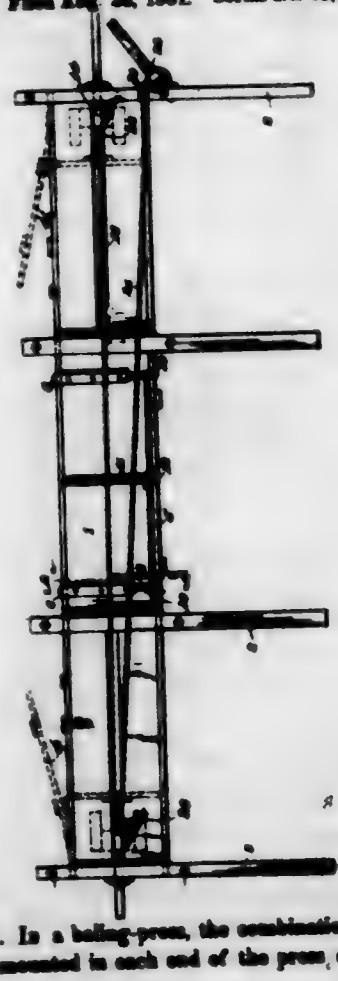
7. In a vessel a main hull and a flotation superstructure secured water-tight thereon, a cylinder extending upward through the hull and said superstructure, a platform-piston playing in said cylinder and a power device controlling the movements of said piston.

8. The combination of a vessel, a gun-platform and means simultaneously lowering the vessel and raising the platform and vice versa.

9. The combination of the main hull and the flotation superstructure secured water-tight thereon with a gun-platform normally within the main hull, and means simultaneously depressing the main hull below the sea-level and elevating the gun-platform into the superstructure.

10. The combination of the main hull, the superstructure secured water-tight thereon, the telescopic ballast-cylinder with the gun-platform piston, and the power devices controlling the movements of said piston, with the automatically-controlled ballast-chambers.

695,109. HAY-PRESS. SAMUEL R. HOOKS and WATSON TATUM, Watervalley, Miss., assignors of one-third to R. F. Kimmons, Watervalley, Miss. Filed Aug. 28, 1901. Serial No. 73,582. (No model.)



Claim.—1. In a baling-press, the combination with two main follo-
lowers slidably mounted in each end of the press, and supplemental fol-

lowers connected to but movably independent of the main followers, of a block-and-tackle connection between the two main followers and a winding-drum.

2. A baling-press comprising the end chambers having openings in the tops thereof, a central baling-chamber having a hinged bottom in combination with the main followers mounted in the end chambers and supplemental followers connected with, but movably independent of the main followers and the means for operating the main followers.

695,110. REVEL. CHARLES F. HUELLER, Elizabeth, N. J. Filed July 22, 1901. Serial No. 69,204. (No model.)



Claim.—1. In a device of the class described, the combination of a stock formed with a transverse slot therethrough and with an internal inclined cavity, a blade pivotally arranged in said slot, an inclined block slidably disposed in said recess in engagement with said blade, antifriction-rollers between said block and the inclined surface of said recess, and means whereby said block may be forcibly moved longitudinally of said stock, substantially as described.

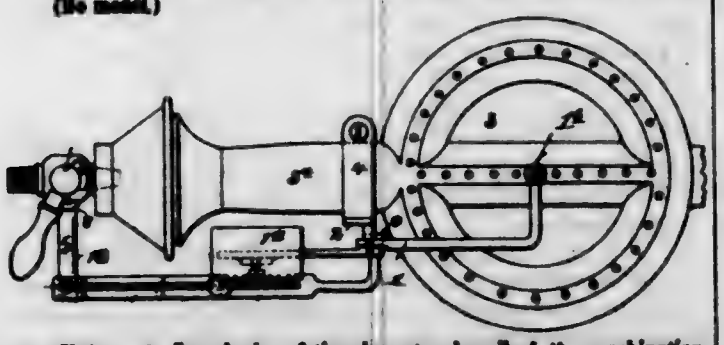
2. In a device of the class described, the combination of a stock formed of two members united at one end and with a transverse cavity between said members, an inclined cavity in one of said members, a blade pivotally disposed in said slot, a block slidably disposed in said cavity and with an inclined surface, antifriction-balls between said inclined surfaces, and means for adjusting said block longitudinally in said cavity and said recess, substantially as described.

3. In a device of the class described, the combination of a stock formed with a transverse open slot therethrough, a blade pivotally secured in said slot, a recess in said stock near its open end, inclined grooves in said recess longitudinally of said stock, a series of antifriction-rollers supported in said grooves, a block having one side inclined corresponding to said grooves and engaged by said balls, and means for forcibly adjusting said block longitudinally of said stock, substantially as described.

4. In a device of the class described, the combination of a stock formed of two members united at one end, a transverse open slot between said members, a recess in one of said members and having an inclined bottom, a block having an inclined surface and disposed in said recess, a blade pivotally mounted in said recess and engaged by said block, a longitudinal cavity in said block, and a screw-rod movably connected in said cavity and screw-threaded in one of said stock members, whereby when said screw-rod is actuated said block is moved diagonally and bodily in said recess and without binding or cramping, substantially as described.

5. In a device of the class described, the combination of a stock formed of two members united at one end and with a transverse slot between said members and with internal inclined recess in one of said members, a blade disposed in said slot and pivotally united to said members, an inclined block in said recess in engagement with said blade, antifriction-balls between the inclined surfaces of said block and recess, a cavity in the larger end of said block, a screw-rod screw-threaded in said stock and secured movably in said cavity, whereby said block may forcibly move diagonally and bodily in said recess, independently of said screw-rod, substantially as described.

695,111. CONTROLLER FOR GAS-BURNERS. PHILIP H. McDERMOTT, New York, N. Y. Filed Apr. 26, 1901. Serial No. 57,257. (No model.)



Claim.—1. In a device of the character described, the combination of a lever having a portion adapted to overlie a burner, means for attaching the same in connection therewith, an arm for attachment to a stem of a cock, means for connecting said arm and lever, and means for permitting independent movement between the arm and said stem, substantially as described.

2. The combination of a lever having a portion adapted to extend over a burner, means for attaching the same in connection with the burner, a stem provided with means for attachment to the key of a cock, an arm associated with said stem, and a link between said arm and lever provided with means for movably connecting it with the arm to permit the cock to have movement independently of the lever, substantially as described.

3. The combination of a lever having a portion adapted to extend over a burner, means for attaching the lever in connection therewith, an arm, means for connecting it with the key of a cock, an extensible connection between said lever and arm, and means for permitting the key of the cock to have movement independent of said devices, substantially as described.

4. The combination of a lever having a portion adapted to extend over a burner, means for attaching the same in connection therewith, a stem connected with the key of a cock, an arm swiveled on said stem, a clutch for adjustably holding said arm and stem, a connection between said lever and arm, and means to permit the stem of the cock to have movement independent of said arm, substantially as described.

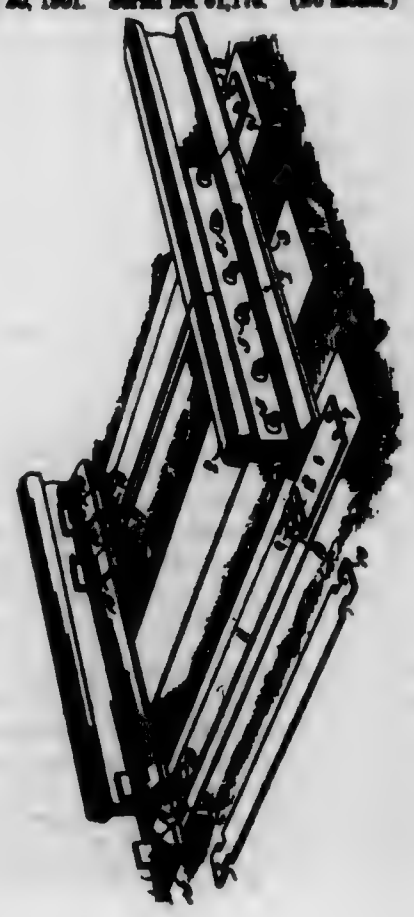
5. The combination of a lever having a portion adapted to extend over a burner, means for attaching the lever in connection with the burner, a stem to be connected with the key of a cock, an arm swiveled on said stem and having a head, a pin-and-socket connection between said arm and head, a link between said lever and arm, and a pin-and-slot connection between the arm and link for permitting said parts to have independent movement, substantially as described.

6. The combination of a lever having a portion adapted to extend over a burner, means for attaching the lever in connection with the burner, a stem to be connected with the key of a cock, an arm connected with said stem and provided with a pin and a head, a link between said lever and arm provided with a slot and a socket, and means for releasing the head from said socket by the movement of the link and arm, substantially as described.

7. The combination of a lever having a portion adapted to extend over a burner, means for attaching the lever in connection with the burner, a stem to be connected with the key of a cock, an arm connected with said stem and provided with a pin and a head, a link between said lever and arm provided with a slot and a socket receiving said pin and head, and an inclined surface adapted to release said head and socket to permit the arm to have movement independent of the link, substantially as described.

8. The combination of a lever having a portion adapted to extend over a burner, a support for the lever, an arm pivotally connected with said support and also pivotally connected with said lever, an arm adapted to be connected to the key of a cock, a link between said arms, and means for permitting movement of the second-mentioned arm independent of said link, substantially as described.

695,112. RAIL-FASTENER. WILLIAM McWILLIE, Canton, Miss. Filed May 20, 1901. Serial No. 61,176. (No model.)



Claim.—1. In a rail-fastener, the combination of a base-plate having a flange at one end, a lug at the other end, and a lug at one side, a clamp-plate having a flange at one end, a lug at the other end, and a lug at one side, a bolt passing through said lugs, and a nut on said bolt, substantially as described.

2. In a rail-fastener, the combination of a base-plate having a flange at one end, a lug at the other end, and a lug at one side, a clamp-plate having a flange at one end, a lug at the other end, and a lug at one side, a bolt passing through said lugs, a nut on said bolt, and a wedge between said nut and lug, substantially as described.

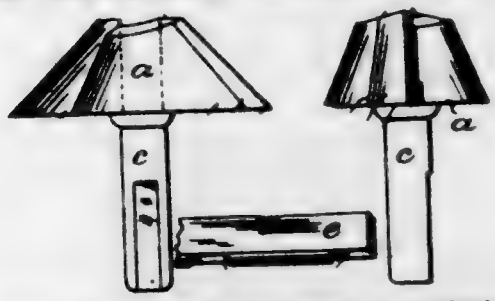
3. In a rail-fastener, the combination of a base-plate having a flange at one end, a lug at the other end, and a lug at one side, a clamp-plate having a flange at one end, a lug at the other end, and a lug at one side, a bolt passing through said lugs, a nut on said bolt, and a wedge between said nut and lug, said wedge having a projection to engage said lug, substantially as described.

Claim.—1. In a device of the class described, the combination of a rail-chair composed of inner and outer sides, and a connecting bottom provided with transversely-disposed plates or extensions projecting inward and outward and located at the ends of the chair beyond the inner and outer sides, and tie-bars secured to the plates or extensions at one end and provided at the other end with clamps, substantially as described.

2. In a device of the class described, the combination of a chair composed of a bottom, and inner and outer sides and provided with a lateral extension having projecting lugs or tongues, a clamp provided with projecting lugs or tongues, and a tie-bar having reduced portions engaged by the lugs or tongues, whereby it is connected with the chair and the clamp, substantially as described.

3. In a device of the class described, the combination of a chair comprising inner and outer sides and a bottom provided at the ends of the chair with transversely-disposed plates or extensions having tongues or lugs, clamps provided with tongues or lugs and having inner and outer jaws, and the tie-bars provided with reduced portions engaged by the tongues or lugs, substantially as described.

695,113. ROTARY CUTTER. ARTHUR J. HORRIS, London, England. Filed Nov. 11, 1901. Serial No. 81,358. (No model.)



Claim.—1. A miter-shaped rotary cutting or shaping tool for wood or the like provided with teeth or cutters having their front or cutting edges formed or arranged longitudinally of and at an angle to the axis of the tool, said edges being ground at a tangent to an imaginary circle drawn around said axis and hollowed on their front side substantially as herein shown and described and for the purpose stated.

2. A miter-shaped rotary cutting or shaping tool for wood or the like provided with teeth or cutters having their front cutting edges formed in right lines and arranged longitudinally of and at an angle to the axis of the tool, said edges being ground at a tangent to an imaginary circle drawn around said axis and the upper ends of said teeth or cutters being ground at an angle to a horizontal plane so as to leave step-like cutting edges and the body of the tool being so constructed that no part thereof projects beyond the cutters, substantially as herein shown and described and for the purpose stated.

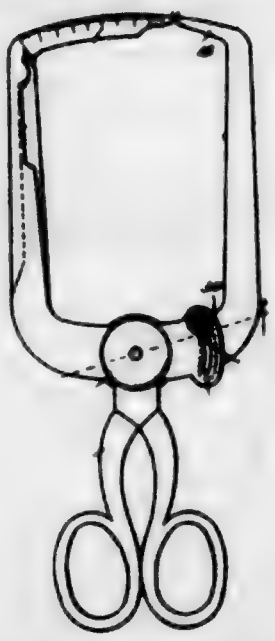
3. A miter-shaped rotary cutting or shaping tool for wood or the like provided with cutters removably fixed therewith and having their front or cutting edges formed in right lines and arranged longitudinally of and at an angle to the axis of the tool, said edges being ground at a tangent to an imaginary circle drawn around said axis and the upper ends of the cutters being ground at an angle to a horizontal plane so as to leave step-like cutting edges and the body of the tool being so constructed that no part thereof projects beyond the cutters substantially as herein shown and described and for the purpose stated.

4. A miter-shaped rotary cutting or shaping tool for wood or the like provided with cutters fixed therewith so as to be removable at will and with capability of longitudinal and transverse adjustment, said cutters having their cutting edges arranged longitudinally of and at an angle to the axis of the tool, said edges being ground at a tangent to an imaginary circle drawn around said axis, substantially as herein shown and described and for the purpose stated.

5. A miter-shaped rotary cutting or shaping tool for wood or the like comprising a pyramidal-shaped upwardly-tapering body presenting inclined planes or faces opposite ones of which are formed with longitudinal dovetail grooves disposed parallel to the inclined edge of the body, dovetail bars sliding in the grooves and provided with threaded studs, cutters provided with transverse slots adapted to receive the studs and nuts screwing onto the studs for clamping and fixing the dovetail bars and cutters in position, substantially as herein shown and described and for the purpose stated.

6. A miter-shaped rotary cutting or shaping tool for wood or the like comprising a pyramidal-shaped upwardly-tapering body presenting inclined planes or faces opposite ones of which are formed with longitudinal dovetail grooves disposed parallel to the inclined edge of the body, dovetail bars sliding in said grooves and provided with threaded studs, cutters provided with transverse slots adapted to receive the studs, nuts screwing onto the studs for clamping and fixing the dovetail bars and cutters in position, grooves at right angles to the dovetail grooves, a set-square having on its inner face a key or projection fitting said groove and means for fixing the set-square in position, substantially as herein shown and described and for the purpose stated.

695,114. CALIPERS. ALBERT R. OSLUND, Harvey, Ill. Filed Aug. 5, 1901. Serial No. 70,901. (No model.)



Claim.—1. A caliper, comprising a pair of caliper-blades pivotally united, one of said blades provided with an inturned calipering end portion having a scale thereon formed to extend concentric with the axis of the pivot and a scale-pointer rigid with the opposite blade member and arranged to traverse the scale.

2. A caliper, comprising a pair of caliper-blades pivotally united, one of said blades provided with an inturned calipering end portion having a scale thereon formed to extend concentric with the axis of the pivot and substantially in the arc of movement of the calipering-points, a scale-pointer rigid with the opposite blade member and arranged to traverse said scale, and a setting device for adjustably limiting the movement of said blades relatively to each other while leaving them free to move in the opposite direction.

3. A caliper, comprising a pair of caliper-blades pivotally united, one of said blades provided with an inturned calipering end portion formed to extend concentric with the axis of the pivot and provided with a scale thereon, a scale-pointer rigid with the opposite blade member and arranged to traverse said scale, and a setting device for adjustably limiting the movement of said blades relatively to each other or permitting them to move freely in the opposite direction, comprising a stop-block movably mounted upon one member in position for engagement with a part upon the opposite member, and a set-screw for locking said stop-block in adjusted position.

4. A caliper, comprising a pair of blades pivotally united and each provided with an inwardly-extending calipering-point, one of said extensions being formed to extend concentrically with the pivotal axis of the blades and provided with a graduated scale thereon, a scale-pointer having the form of an arm rigid with the blade opposite the one provided with said scale and arranged to coöperate with the scale, and means for adjustably limiting the approach of the caliper-blades comprising a segmental slot formed concentrically with the pivotal axis of the blades through an overlocking portion of one member, a stop-block mounted to slide within said slot, a clamping-screw arranged to lock the stop-block in adjusted position and a stop-stud carried by the opposite member and extending within said slot.

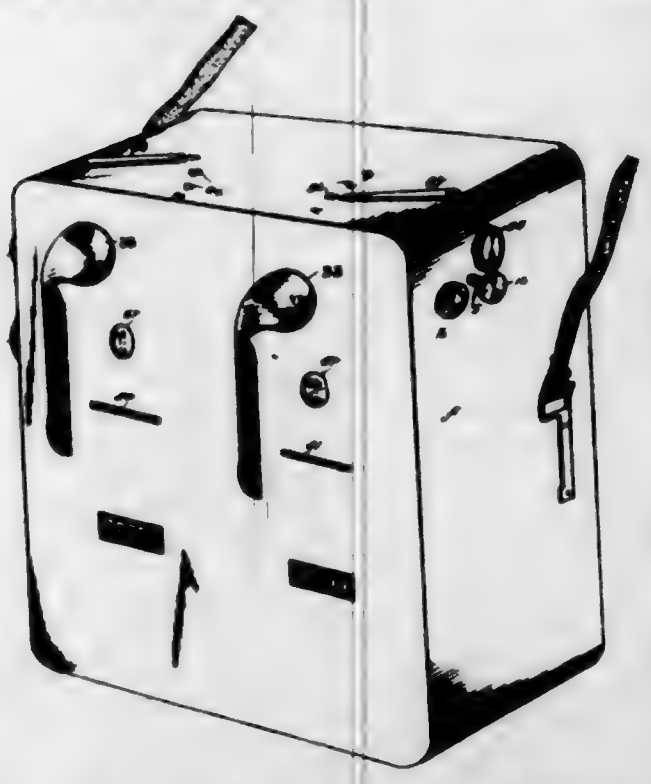
5. A caliper, comprising a pair of blades pivotally united scissor fashion and each member provided at one end with a calipering-point and at its opposite end with an open-looped or scissor-like handle, and means for locking said caliper-blades in rigid relation with each other, substantially as described.

6. A caliper, comprising a pair of caliper-blades pivotally united, one of said blades being provided with an inturned calipering end portion formed to extend concentric with the axis of the pivot and substantially in the arc of movement of the calipering-points, graduated scales upon opposite sides of said inturned end portion and a bifurcated index-hand, the two points of which coöperate with the respective scales, substantially as described.

7. A caliper, comprising a pair of blades pivotally united scissor fashion and each member provided at one of its ends with a caliper-point and at its opposite end with an open-looped scissor-like handle, an indi-

cator and index respectively connected and moving with said blades and means for clamping the blades at any given reading of the indicator.

695,115. TICKET ISSUING, PRINTING, AND RECORDING MACHINE. WILFRED I. OSMER and JOSEPH LEITSCHUH, Dayton, Ohio; said Leitschuh assignor to Wilfred I. Osmer, Dayton, Ohio. Filed Sept. 21, 1900. Serial No. 30,695. (No model.)



Claim.—1. In a ticket-machine, the combination, with a frame structure, of printing characters mounted therein, an inking-roll and an impression-roll adapted to travel over the face of said printing characters, a freely-rotating spool adapted to support and deliver a paper strip or roll, said impression-roll being adapted to press said strip against said printing characters, feeding-rolls for feeding said paper-strip from said machine after being printed, operating mechanism common to said inking and impression and feed rolls for first operating the inking and impression rolls to print the ticket and subsequently operating the feed-rolls to feed out the ticket, the paper strip being unrestrained between the feed-rolls and spool, whereby the inking and impression rolls constitute by their travel means for drawing off the necessary amount of paper from the spool, substantially as described.

2. In a ticket-machine, the combination, with a frame structure, of printing mechanism mounted therein, an inking-roll and an impression-roll adapted to travel over the face of said printing mechanism, a freely-rotating spool adapted to support and deliver a paper strip or roll, said impression-roll being adapted to press said strip against said printing mechanism, feeding-rolls for feeding said paper strip from said machine after being printed, and operating mechanism common to said inking and impression and feed rolls for successively operating first the inking and impression rolls and then the feed-rolls, said feed-rolls gripping one end of the paper while the impression-roll makes its operative movement, whereby the impression-roll serves to partly unwind the strip from its spool during said operation, substantially as described.

3. In a ticket-machine, the combination, with a frame structure, of printing mechanism mounted therein and comprising a pair of independently-adjustable station-printing wheels bearing the names of stations thereon, an inking-roll and an impression-roll adapted to roll over the face of said printing mechanism, a freely-rotating spool adapted to support and deliver a paper strip, said impression-roll being adapted to press said strip against the face of the printing mechanism, feed-rolls for feeding said strip from the machine after being printed, and a lever operatively connected with said inking and printing rolls and with the feed-rolls to successively operate the same, substantially as described.

4. In a ticket-machine, the combination, with a frame structure, of printing mechanism mounted therein and comprising a pair of independently-adjustable station-printing wheels, a fare-indicator and a fare-register mounted on said frame structure, a movable frame carrying an inking-roll and an impression-roll, a freely-movable spool carried by said frame structure and adapted to deliver a paper strip, said impression-roll being adapted to press said paper strip against the face of the printing mechanism, feed-rolls for feeding said strip from the machine after being printed, an operating-lever, and mechanism connecting said operating-lever with the movable frame, feed-rolls, fare-indicator and fare-register, substantially as described.

5. In a ticket-machine, the combination, with a casing having one or more banks of mechanism therein, of means for printing the stations mounted in each of said banks, means for interconnecting the corresponding station-printing rolls of the several banks, whereby when one is operated all are operated, a paper-carrying spool mounted in each bank and adapted to deliver a paper strip, inking and impression rolls carried by each bank, means in each bank for operating said inking and impression rolls over the corresponding printing characters, said impression-roll acting to press the paper strip against the same after they are inked, whereby a ticket is formed, means for delivering said ticket, and means for indicating the number of tickets issued, substantially as described.

6. In a ticket-machine, the combination, with a frame structure, of printing mechanism mounted therein and comprising a pair of independently-adjustable station-printing rolls, a fixed electrotype having openings therein into which said printing-rolls extend, means for rotating said printing-rolls whereby any station may be turned into printing position, an indicator connected with each of said rolls for indicating the position thereof, an inking-roll and an impression-roll swingingly and slidably mounted in said frame structure, a housing surrounding said inking-roll, a paper-spool adapted to deliver a paper strip between the impression-roll and the printing mechanism, said impression-roll acting to impress said strip upon said printing mechanism during the movement of the impression-roll in one direction, means for swinging said inking and impression rolls away from said printing mechanism during their movement in the opposite direction, and feed-rolls for delivering the paper strip from the machine, substantially as described.

7. In a ticket-machine, the combination, with a frame structure, of a pair of rack-bars slidably mounted on said frame structure on opposite sides thereof, a yoke pivotally connected with the rack-bars, an impression-roll and an inking-roll carried by said yoke, printing mechanism mounted in the frame structure, a shaft having gears meshing with said rack-bars, a hand-lever to rotate said shaft, and feed-rolls operatively connected with said hand-lever to deliver the ticket from the machine, substantially as described.

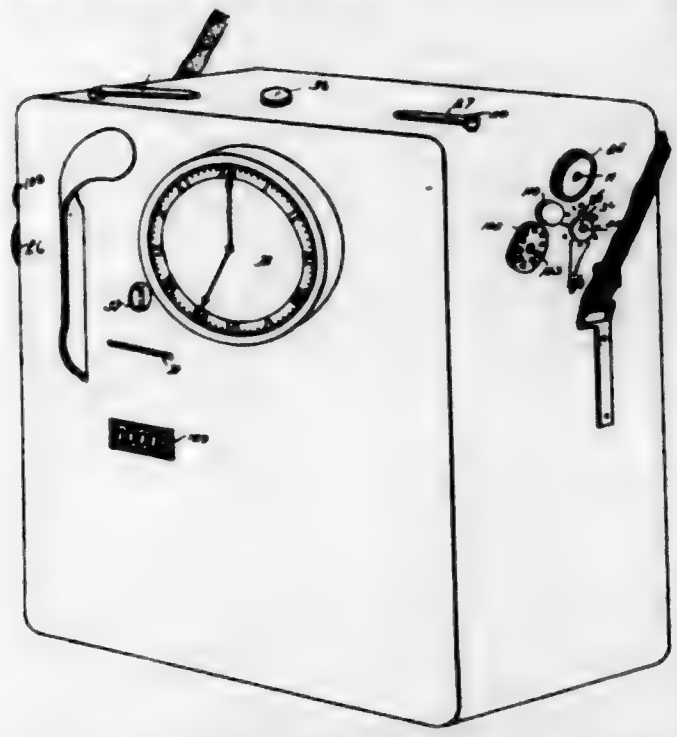
8. In a ticket-machine, the combination, with a frame structure comprising suitably-connected side plates provided with tracks on their inner faces, and printing mechanism carried by said plates adjacent to one of said tracks, of rack-bars slidably mounted on said plates, a yoke pivotally connected with said rack-bars and provided with an inking-roll and an impression-roll, said inking-roll having an independent yielding connection with said yoke, and said tracks being constructed and arranged to cause the inking and impression rolls to travel in proximity to the printing mechanism during their movement in one direction and to recede therefrom during their return movement, a shaft provided with gears meshing with said racks, a hand-lever operatively connected with said shaft, and feed-rolls actuated by the movement of said racks in one direction only to deliver the printed ticket from the machine, substantially as described.

9. In a ticket-machine, the combination, with printing characters, and an inking-roll and impression-roll slidably and swingingly mounted, of means for supplying a paper strip comprising a freely-rotatable spool, feed-rolls for alternately holding stationary the free end of said strip and feeding said strip forward, means for successively pressing said inking-roll and impression-roll upon said strip against said printing characters, means for moving said impression-roll out of contact with said characters as the strip is being fed forward, and means whereby the traverse of said impression-roll serves to draw off the necessary amount of paper for the next impression from the supply-spool, substantially as described.

10. In a ticket-machine, the combination, with a printing mechanism, of a pair of tracks interconnected with each other, one pair being located adjacent to said printing mechanism and the other pair remote therefrom, an inking-roll and an impression-roll, means for moving said rolls across said printing mechanism in the track adjacent thereto and for returning said rolls in the track remote therefrom, means for delivering a paper strip between said rolls and printing mechanism whereby said strip is carried into contact with said printing characters during the movement of the rolls in one direction, and is released from contact therewith during the return movement of the rolls, and means for feeding the printed strip from the machine, substantially as described.

11. The combination with a car-body or other vehicle, of a suitable casing or housing mounted therein, a plurality of banks of ticket-issuing mechanisms in said casing, each provided with an independent operating-lever, a corresponding plurality of concentric operating-shafts mounted the one within the other and respectively connected to the operating-levers of the several banks of ticket-issuing mechanisms, said concentric shafts being suitably supported within the car-body and extending the length thereof, and independent hand-grasps secured to the respective shafts, substantially as described.

695,116. TICKET ISSUING, PRINTING, AND RECORDING MACHINE. WILFRED I. OHMER and JOSEPH LEITSCHUH, Dayton, Ohio; said Leitschuh assignor to Wilfred I. Ohmer, Dayton, Ohio. Filed Sept. 21, 1900. Serial No. 30,696. (No model.)



Claim.—1. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, printing mechanism mounted in each bank, each printing mechanism comprising a fare-printing wheel and two independently-adjustable station-printing wheels, means for interconnecting said printing mechanisms, whereby when one is operated the other is similarly operated, a paper-spool for each bank adapted to deliver a separate paper strip to its bank to be acted upon by said printing mechanism to form tickets, issuing-rolls for issuing the tickets from one of said banks from the casing, and a rotating spool for receiving and storing the pivoted ticket-strip from the other one of said banks, substantially as described.

2. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, printing mechanism mounted in each bank, each printing mechanism comprising a fare-printing wheel, two independently-adjustable station-printing wheels and a time-printing wheel, means for simultaneously and similarly operating the corresponding printing-wheels of each bank, a paper-spool for each bank adapted to deliver a separate paper strip to its bank to be acted upon by said printing mechanism to form tickets, issuing-rolls for issuing the tickets from one of said banks from the casing, and a rotating spool for receiving and storing the printed ticket-strip from the other one of said banks, substantially as described.

3. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein in fixed relation to each other, printing mechanism mounted in each bank, means for interconnecting said printing mechanisms, whereby when one set of mechanism is operated the other is similarly operated, a paper-spool for each bank adapted to deliver a separate paper strip to its bank to be acted upon by said printing mechanism to form tickets, issuing-rolls for issuing the tickets from one of said banks from the casing, and a frictionally-driven storage-spool for receiving the printed ticket-strip from the other one of said banks, substantially as described.

4. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein in fixed relation to each other, printing mechanism mounted in each bank, means for interconnecting said printing mechanisms, whereby when one is operated the other is similarly operated, a paper-spool for each bank adapted to deliver a separate paper strip to its bank to be acted upon by said printing mechanism to form tickets, issuing-rolls for issuing the tickets from one of said banks from the casing, feed-rolls for positively feeding forward the printed ticket-strip from the other one of said banks, and a frictionally-driven storage-spool for receiving and storing said printed ticket-strip from the last-mentioned bank, substantially as described.

5. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, printing mechanism mounted in each bank, each printing mechanism comprising a pair of independently-adjustable station-printing wheels, date printing wheels and time-printing wheels, a clock mechanism for operating both of said time-printing wheels in unison, each of said banks being provided with a reciprocating bracket and each of said brackets being provided with an inking-roll and an impression-roll, means for simultaneously operating the brackets of each bank, a paper-spool for each bank adapted to deliver a separate strip of paper between the printing mechanism and impression-roll of said bank, issuing-rolls for each bank for engaging the paper strip thereof, and means for intermittently operating the issuing-rolls of each bank, said impression-rolls acting to press the paper strips into engagement with the printing mechanisms after they are inked by said inking-rolls and when said issuing-rolls are at rest, substantially as described.

6. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, each of said banks comprising a printing mechanism, a reciprocating bracket having an impression-roll mounted therein, and an inking-roll yieldingly connected with said bracket, and tracks for guiding said bracket, whereby its rolls operate in connection with the printing mechanism during the movement of the bracket in one direction only, a paper-spool adapted to deliver a strip of paper between said printing mechanism and impression-roll, and feeding-rolls for engaging and feeding said strip, means for simultaneously setting the printing mechanisms of each bank, means for simultaneously operating the reciprocating brackets of each bank, means for simultaneously and intermittently operating the feeding-rolls of each bank, and a storage-roll mounted in the storage-bank and having a frictional driving connection, whereby it is intermittently operated in unison with the feeding-rolls of said bank, substantially as described.

7. In a ticket-machine the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, printing mechanism mounted in each of said banks, each printing mechanism comprising a pair of independently-adjustable station-printing wheels, date-printing wheels, a fare-printing wheel, a time-printing wheel, and an apertured plate provided with printing characters, said printing-wheels extending through the apertures in said plate in printing position, a clock mechanism operatively connected with both of said time-printing wheels to operate them in unison, means for supplying a separate paper strip to the printing mechanism of each bank, means for inking said inking characters, means for inking the printing characters of each bank and for impressing the corresponding strip against said characters, means for operating the inking and impression devices of each bank in unison, means for delivering from the casing the printed ticket-strip of one bank, and means for storing the printed ticket-strip of the other bank, substantially as described.

8. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, printing mechanism mounted in each bank and comprising a plate having slots or openings therein, a pair of station-printing wheels mounted in each bank and projecting through the slots or openings of the corresponding plate into printing position, a pair of shafts mounted in said banks extending through the corresponding station-printing wheels of each bank and projecting through the casing and provided with external operating means, whereby each set of station-printing wheels may be simultaneously and similarly adjusted in each bank, a paper-spool for each bank adapted to deliver a separate paper strip to its bank, means for inking each printing mechanism and for pressing the corresponding paper strip against said printing mechanism, whereby each strip receives a corresponding impression, feed-rolls for feeding said strips after printing, a frictionally-driven storage-roll in the ticket-storing bank, and means for simultaneously operating the several mechanisms of each bank, whereby the printed strip from one bank is issued from the casing to constitute a series of tickets, and the printed strip from the other bank is wound upon the storage-roll to constitute a record of the series of tickets issued by the other bank, substantially as described.

9. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, a shaft extending into each of said banks, a clock mechanism connected with said shaft, and time-printing characters in each bank connected with and operated in unison by said shaft, substantially as described.

10. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, a clock mechanism and a shaft operated by said clock mechanism and extending into each of said banks, each bank being provided with an hour-shaft, a minute-shaft mounted in said hour-shaft and provided with a bevel-gear and a spur-gear, bevel-gears mounted on the shaft operated by the clock mechanism and engaging with the bevel-gears on the minute-shafts of the two banks, a spur-gear on the hour-shaft of each bank, intermediate gears between the spur-gear of said hour-shaft and of the corresponding minute-shaft, and printing characters mounted on the end of each shaft, substantially as described.

11. In a ticket-machine, the combination, with a casing having a plurality of banks mounted therein, of a fare-printing wheel mounted in each of said banks, means for interconnecting and setting said fare-printing wheels in the same printing position, an indicator, and means connecting said fare-printing wheels with said indicator, whereby when the fare-printing wheels are operated said indicator is set to agree with said fare-printing wheels, substantially as described.

12. In a ticket-machine, the combination, with a casing, of a plurality of banks mounted therein, a fare-indicator carried by one of said banks, a fare-printing wheel carried by each of said banks, means connecting said fare-indicator with the fare-printing wheel of its bank, a shaft connected with both of said fare-printing wheels for simultaneously setting said wheels and the fare-indicator, means for holding said indicator in indicating position, and means for releasing said indicator and returning the same to its initial position, substantially as described.

13. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank mounted therein, a fare-printing wheel mounted in said bank, a fare-indicator carried by said bank, means for operatively connecting said fare-indicator with said fare-printing wheel, said indicator and wheel being each provided with a corresponding series of fare-indicating characters thereon, whereby when one of said characters is in printing position on the wheel a similar fare is in indicating position on the indicator, means for locking and releasing said indicator, and means for simultaneously returning said indicator and wheel to their initial position, substantially as described.

14. In a ticket-machine, the combination, with a casing, of an issuing-bank mounted therein, a fare-printing wheel mounted in said bank, a fare-indicator pivotally mounted on said bank, means for interconnecting said fare-printing wheel and said fare-indicator, whereby when one is operated the other is similarly operated, means for operating said wheel and indicator, whereby the fare-printing wheel may be set to print any desired fare, and the fare-indicator to indicate the corresponding fare, a stop device for engaging with said indicator, a hand-operated device for disengaging said stop device from said indicator, and a spring for returning said indicator and fare-printing wheel to their initial position, substantially as described.

15. In a ticket-machine, the combination, with a casing, of an issuing-bank mounted therein and provided with a fare-printing wheel and a fare-indicator mounted to rotate therein and operatively connected for simultaneous movement, hand-operated means for simultaneously rotating said fare-printing wheel and indicator, whereby fares of any denomination may be printed and indicated, a push-rod, a stop device engaging with said indicator to hold the indicator and fare-printing wheel in indicating and printing positions respectively, means for connecting said push-rod with said stop device, whereby the stop device may be disengaged from said indicator, a spring to return said indicator and fare-printing wheel to their normal position upon the disengagement of the stop device, and a spring for returning said stop device into engaging position, substantially as described.

16. In a ticket-machine, the combination, with a casing, of an issuing-bank mounted therein, a fare-printing wheel and a fare-indicator rotatably supported on said bank, shafts and gearing connecting said wheel and indicator for simultaneous operation, and means for so operating said wheel and indicator, a ratchet secured to said indicator, a stop device comprising a pivoted pawl and a supporting-arm, said pawl being adapted to engage with said ratchet, a push-rod connected with said arm and adapted to disengage said pawl from said ratchet, a spring for returning said stop device to its normal position, and a spring for holding said pawl in position to engage said ratchet and prevent the same from being turned in one direction, while permitting it to turn in the opposite direction, substantially as described.

17. In a ticket-machine, the combination, with a casing, of an issuing-bank mounted therein, a fare-indicator, means for operating said indicator to indicate different fares, a stop device engaging with said indicator to hold it in each indicating position, a push-rod connected with said stop device, an operating-shaft carried by said bank and provided with a gear, a pawl engaging said gear, a cam device operated by said push-rod, means connected with said pawl and cam device to disengage said pawl from said gear, whereby said gear may operate, and means to disengage said cam from said pawl to permit the pawl to engage the gear and lock the bank, substantially as described.

18. In a ticket-machine, the combination, with a bank mounted therein, of a bell-crank lever pivotally mounted in said bank, one arm of said lever constituting a pawl for engaging with an operating part of said bank, a push-rod, a cam or wedge, a collar mounted on said rod for engaging with said cam or wedge to move the same in one direction, said cam or wedge acting on the other arm of said bell-crank lever to disengage the pawl-arm thereof, means for operating said cam or wedge in the opposite direction, whereby its action upon said bell-crank lever ceases, and means for returning the pawl-arm of said bell-crank lever into engagement with said operating part, substantially as described.

19. In a ticket-machine, the combination, with a casing, of one or more banks mounted therein, each bank having side plates, each side plate provided with a track having a continuous track-groove therein, and stop devices pivotally mounted and extending across said track-groove, a reciprocating swinging bracket, a roller mounted in said bracket and having studs or projections fitting within said track-groove and adapted to throw said stop devices to one side when moving in one direction to permit the roller to pass, said stop devices acting to prevent the return of the roller along said portions of the track-grooves when moving in the opposite direction, substantially as described.

20. In a ticket-machine, the combination, with a track, of a yielding stop adapted to extend across said track, a reciprocating swinging bracket provided with a roller having a stud adapted to travel in said track and engage said stop to throw the same from across the track when said roller is traveling in one direction, to permit the roller to pass, and a spring for returning said stop across the track to prevent the passage of the roller in the opposite direction, substantially as described.

21. In a ticket-machine, the combination, with a casing having one or more ticket-banks mounted therein, each bank having a pair of side plates provided with track-grooves in their opposite inner faces, each groove being continuous and composed of parallel portions connected at their ends, of a pair of yielding stop devices at the opposite ends of said parallel portions, said stop devices being adapted to yield in one direction only, and a reciprocating swinging bracket provided with an impression-roller having studs projecting into said tracks, whereby said roller is permitted to travel along each of said parallel portions in one direction only, substantially as described.

22. In a ticket-machine, the combination, with a casing, of a ticket-issuing bank and a ticket-storing bank mounted therein, operating means connected with both of said banks, whereby when one bank is operated the other bank will be similarly operated, means for automatically locking both banks after each operation, and hand-operated means for unlocking said banks to permit a successive operation thereof by said operating means, substantially as described.

695,117. WOODWORKER'S SCRAPER. JOHN A. OLSON, Downers Grove, Ill. Filed Nov. 16, 1901. Serial No. 82,719. (No model.)



Claim.—The combination with a woodworker's scraper-handle having an inclined tool-face and a fulcrum on said handle, of an adjustable scraper-blade held by clamping-plates extending, longitudinally, beyond each side of said head and whereof one of said plates is held, fixedly, to said head and the other of said plates is held to said fixed plate by screws passing through the first plate and threaded into said fixed plate, substantially as specified.

695,118. CONTROLLER FOR ELECTRIC MOTORS. ROBERT H. READ, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 26, 1901. Serial No. 69,804. (No model.)



Claim.—1. An electric controller comprising a source of fluid-pressure, a plurality of pressure-operated contacts for progressively varying current strength, and means for coupling said contacts in different order by a forward-and-backward controller movement.

2. An electric controller comprising a source of fluid-pressure, a plurality of pressure-operated contacts, a handle for operating the contacts in groups, and means for changing the groups in forward-and-backward movement of the handle.

3. An electric controller comprising a source of fluid-pressure, a plurality of pressure-operated contacts in different circuit relations to translating devices, a handle for grouping the contacts in closed relation to progressively increase current on starting, and means for changing the groups during a reverse handle movement to progressively decrease current.

4. An electric controller comprising a source of fluid-pressure, a plurality of pressure-operated contacts in different circuit relations to translating devices, an operating-handle, a valve-chamber and means for delivering air from said valve-chamber to alter the contact closure by a forward or backward operation of the handle, respectively.

5. An electric controller comprising a source of fluid-pressure, a plurality of pressure-operated contacts in different circuit relations to translating devices, a duplex valve-chamber having pipe connections with the pressure-cavities of the contacts, the grouping for the contacts being different for the two parts of said chamber, and means for delivering pres-

sure from one chamber or the other by forward or backward handle movement.

6. An electric controller comprising a source of fluid-pressure, a plurality of contacts each adapted to extinguish the arc by fluid-pressure on opening the circuit, and containing a duct to confine the arc-gases, and means for operating the contacts in a determinate order.

7. An electric controller provided with a plurality of contacts for varying the circuit connections with a translating device, means for operating the contacts in a determinate order, a source of compressed air, means for delivering air across the several contacts when they open, and a duct to receive and confine the arc-gases.

8. An electric controller provided with a plurality of tubular contacts for varying the circuit connections with a translating device, means for operating the contacts in a determinate order, and means for causing a blast of air in the tubes when the contacts open.

9. An electric controller provided with a plurality of tubular contacts, pressure-operated devices for closing and opening them, means for causing air-pressure in the tubes when they open, and a valve for operating them in determinate order.

10. A circuit-breaking box comprising tubular contacts, a casing around the same, a fluid-pressure pipe opening into the casing and a piston for separating the contacts.

11. A circuit-breaking box comprising separable contacts, a casing inclosing them, a fluid-pressure pipe opening into the casing, means for directing said pressure across the contacts, and a piston for separating the contacts.

12. A circuit-breaking box comprising separable tubular contacts, a casing inclosing the same, a piston connected to the movable contact and means for applying fluid-pressure to close and open the contacts and extinguish the arc.

13. A circuit-breaking box comprising tubular contacts, a casing inclosing them, and ports for opening and closing the contacts and extinguishing the arc, and a leak-opening from the box to the atmosphere to prevent accidental operation.

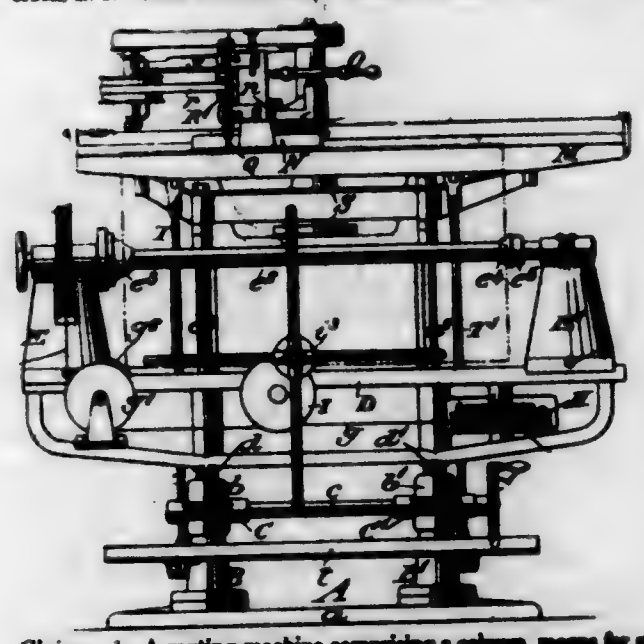
14. A pneumatic controller comprising a valve-chamber, ports leading therefrom, an operating-handle, a valve for putting air-pressure on the ports and means for changing the relation of the valve to the ports by a forward-and-backward handle movement.

15. A pneumatic controller comprising a duplex valve-chamber, independent groups of ports for each section, valves governing admission of air-pressure, and a lost-motion connection with the operating-handle controlling supply of air to the valves by a forward or backward movement, respectively.

16. A pneumatic controller comprising a plurality of air-operated contacts governing the motor connections, and means controlled by the reversing-switch governing admission of air to the contacts.

17. A pneumatic controller comprising an air-controlled reversing-switch and controller, and connections for leading air to the controller through the reversing-switch.

695,119. CYLINDER-ROUTING MACHINE. VERNON BOYLE, Paterson, N. J. Filed Nov. 13, 1899. Serial No. 736,834. (No model.)



Claim.—1. A routing-machine comprising a column, means for supporting the cylinder to be routed from the base of the column, a cutter, a carriage for supporting the cutter, a way located parallel with an element of surface on the cylinder to be routed, the carriage being engaged with and guided by the way and the said way being pivoted at the upper portion of the column to swing toward and away from the cylinder to be routed, means under the control of the operator for moving the carriage along the way during the operation of the cutter and means under the control of the operator for swinging the said way, at pleasure, during the operation of the cutter, substantially as set forth.

2. In combination, a suitable supporting-column, a way supported from the base of the column, means for vertically adjusting the way, head and tail blocks mounted on the way, means for supporting a cylinder on said blocks, means for rotating the cylinder in either of two opposite directions, at pleasure, a cutter and means for moving the cutter toward and away from the cylinder-support, substantially as set forth.

3. In combination, a suitable supporting-column, a way supported from the base of the column, means for vertically adjusting the way, head and tail blocks mounted on the way, a cylinder-supporting shaft mounted in said blocks, means for securing the cylinder to the shaft, means for rotating the shaft in either of two opposite directions, at pleasure, a cutter and means for moving the cutter toward and away from the cylinder-support, substantially as set forth.

4. In combination, a suitable supporting-column, a way supported on the column, means for vertically adjusting the way, head and tail blocks mounted on the way, a cylinder-supporting shaft mounted in the blocks, a movable chuck carried by the shaft for accommodating cylinders of different lengths, means for rotating the shaft in either of two opposite directions, at pleasure, a cutter and means for moving the cutter toward and away from the cylinder-supporting shaft, substantially as set forth.

5. In combination, a suitable supporting-column, a way supported on the column, head and tail blocks mounted on the way, a cylinder-supporting shaft mounted on the blocks, a chuck secured to the shaft, means for adjusting the shaft longitudinally, means for rotating the shaft in either of two opposite directions and a cutter arranged to engage a cylinder mounted on the shaft, substantially as set forth.

6. In combination, a cylinder-supporting shaft, a pair of chucks, one secured to the shaft and another secured to a part independent of the shaft, means for adjusting the shaft with the chuck thereon relative to the part carrying the other chuck, means for adjusting shaft and chucks bodily along a predetermined path and a cutter arranged to engage the cylinder on the shaft, substantially as set forth.

7. In combination a way, head and tail blocks mounted on the way, a cylinder-supporting shaft mounted in the blocks, a pulley fixed to rotate with the shaft, a drive-wire extending around the pulley and along the way, a drive-pulley mounted on the way and engaged with the wire, means for rotating the said pulley, at pleasure, to rock the cylinder-supporting shaft and a cutter arranged to engage the cylinder supported on the shaft, substantially as set forth.

8. In combination a cylinder-supporting shaft, a wire for driving the shaft, a way, a drive-wheel engaged with the wire and supported on the way, means for operating the drive-pulley in either of two opposite directions, at pleasure, and means for adjusting the drive-pulley and its driving mechanism bodily along the way, a cutter arranged to engage the cylinder supported on the shaft, substantially as set forth.

9. The combination with the wire belt arranged to rock the cylinder to be routed, of a drive-wheel engaged with the wire for operating it, a lever for operating the said drive-wheel and means for adjusting the lever bodily along the periphery of the drive-wheel, substantially as set forth.

10. The combination with a wire belt for operating the cylinder to be routed, of a drive-wheel engaged with the belt, a lever for operating the drive-wheel, a support for the said drive-wheel and lever, means for adjusting the drive-wheel and lever bodily along the support and means for adjusting the lever bodily along the periphery of the drive-wheel, substantially as set forth.

11. The combination with the wire belt for operating the cylinder to be routed, of a tension-drum engaged with the wire, the said drum comprising two sections, one engaged with one end of the wire and the other with the opposite end of the wire, gear connecting the two sections and a spring-actuated lever for operating the gear, substantially as set forth.

12. The tension-drum for holding the wire belt under the desired tension comprising two sections, one carrying a gear-wheel and the other a pinion free to rotate relatively to its support, the said pinion having connected therewith an operating-arm and a spring, one end of which is connected to the operating-arm and the other end to the section which carries the pinion with which the operating-arm is connected, substantially as set forth.

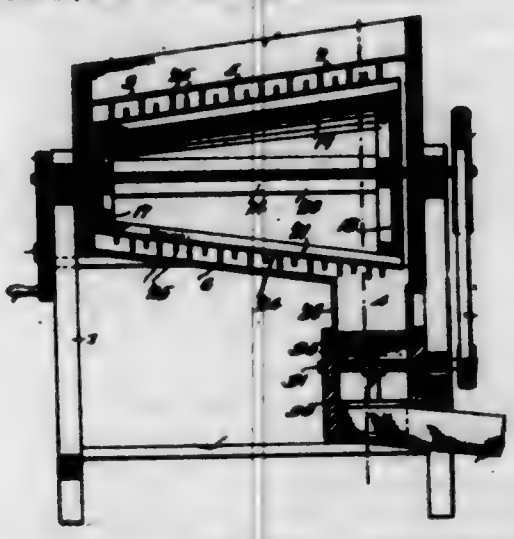
13. The combination with the belt-wheel for operating the cylinder to be routed, means for moving the wheel bodily along the said cylinder and the wire belt for operating the wheel, of a tension-drum for holding the wire under the desired tension, a spindle fixed to rotate with the drum and a screw having a threaded engagement with the spindle for raising and lowering the drum as the wire is unwound from and wound on the drum, substantially as set forth.

14. The combination with a main support and means for supporting a cylinder thereon, of a cutter, a carriage for supporting the cutter, a way located parallel with an element of surface on the cylinder to be operated upon, the carriage being engaged with and guided by the way and the said way being pivoted to swing toward and away from the cylinder to be operated upon, means under the control of the operator for moving the carriage along the way during the operation of the cutter, and means under the control of the operator for swinging the way, at pleasure, during the operation of the cutter, substantially as set forth.

15. The combination with the pivoted way and the cutter-supporting carriage mounted on the way, of a wire extending along the way, a drive-wheel carried by the carriage and engaged with the wire and a lever for rotating the drive-wheel to move the carriage along the way, substantially as set forth.

16. The combination with the cutter-carriage and the way along which it is arranged to travel, of a wire stretched along the said way, a spring-actuated arm connected with the wire at one end for imparting tension thereto, a carriage-operating wheel engaged with the wire and supported by the carriage, and a lever also carried by the carriage and arranged to rotate the wheel to move the carriage along the way, substantially as set forth.

695,120. HULLING-MACHINE. JAMES E. SAWYERS, Dalton, Ga. Filed Feb. 20, 1900. Serial No. 5,904. (No model.)



Claim.—In a hulling-machine, the combination of a two-part conical shell provided internally at each side with teeth, a toothed threshing-cylinder mounted on a horizontal shaft, concentrically within said shell, a feed-hopper above and extending lengthwise of the shell, which forms the inclined hopper-bottom, a discharge-spout arranged at and receiving from the lower end of the bottom of said shell, a receiving-spout below the discharge-spout, and a fan for passing a blast through the falling material.

695,121. WALKING DOLL. EDWARD U. STRONG, Brooklyn, N. Y. Filed June 5, 1901. Serial No. 63,691. (No model.)

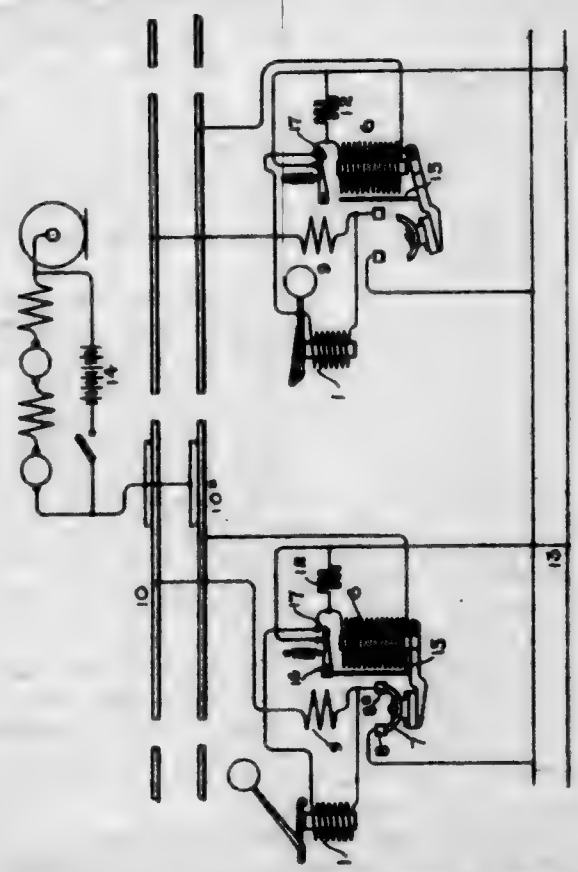


Claim.—1. In a walking mechanism for toy figures the combination with the body, of a frame mounted therein composed of a U-shaped bar, a horizontally-oscillating lever loosely connected with the bar and provided with offset horizontal ends, a rod connecting the ends of the bar, sleeves mounted thereon, bifurcated shanks rigidly secured to the sleeves and extending into engagement at one end with the limbs of the figure, and their bifurcated ends actuating the lever and adapted to engage the bar to limit the movement of the limbs, substantially as specified.

2. In a doll of the class described the combination of a frame mounted in the body, and having shanks pivotally connected therewith, plates mounted in the limbs of the figure and pivotally connected to the shanks, a spring-pressed detent carried by the plates and adapted to be engaged and disengaged from the shanks when it is desired to have the figure assume an upright or sitting position.

3. In a walking mechanism for toy figures a frame forming a horizontal bar at the top provided with four recesses and two sides rectangular thereto, and a rod connecting the bottom ends of the sides, a slidable tube surrounding closely the rod and divided in the center, an oscillating lever pivoted centrally to the inner surface of the top frame-bar bent downward on both sides near the pivot and again rectangular and parallel to the top bar of the frame and rod, and two shanks secured one on each half of the slidable tube extending in width from bottom to top and provided with an incision in the center engaging the lever, and two stops at the top ends coinciding with the recesses, as specified.

695,122. SIGNAL SYSTEM FOR ELECTRIC RAILWAYS. SAMUEL B. STEWART, Jr., Schenectady, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed May 13, 1899. Serial No. 716,637. (No model.)



Claim.—1. The combination with the feeder, of a sectional conductor, normally open connections between the former and the sections of the latter, electromagnetic switches for closing said connections, shunts to ground from said connections, and electrically-operated signals in said shunts.

2. The combination with the feeder, of a sectional conductor, normally open connections between the former and the sections of the latter, electromagnetic switches for closing said connections, shunts to ground from said connections between the switches and the conductor-sections, electromagnet-coils in said shunts, and semaphores actuated by said coils.

3. The combination with the feeder, of a sectional conductor, normally open connections between the former and the sections of the latter, electromagnetic switches for closing said connections, shunts to ground from said connections between the switches and conductor-sections, and electrically-operated signals in said shunts, which are operated when the collector of the car first engages a conductor-section, and which continue to be operated after the switch for that section is closed.

4. The combination with the feeder, of a sectional conductor, connections between the former and the sections of the latter, and connections to ground in shunt to the car-motors, and electrically-operated signals in the ground connections.

5. A signal system for a sectional-contact electric railway, comprising a plurality of signal devices corresponding to contact-sections, a pick-up magnet controlled by the position of a traveling car for rendering the sections alive, and a signal-controlling circuit for each signal device in permanent connection electrically with its corresponding contact-section.

6. In an electric-railway system, the combination with a sectional working conductor, of a return, a connection between each section of the

working conductor and the return, an electrically-operated visual signal for each of such connections, and means for holding the signal in its operated position with less current than that used to move it to that position.

7. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a sectional energizing-conductor, a set of electromagnets each operated through a section of the working conductor, a set of visual signals each operated by one of said electromagnets, a set of electromagnetic pick-up switches each operated through a section of said energizing-conductor to close a circuit between a section of the working conductor and the feeder, and to energize one of the signal-actuating electromagnets.

8. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a sectional energizing-conductor, a set of electromagnets adapted to be energized whenever a section of the working conductor is connected with the feeder, a set of visual signals each operated by one of such electromagnets, and a set of electromagnetic switches each adapted to be operated through a section of the energizing-conductor to cut in a resistance with one of said signal-operating magnet-coils.

9. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a sectional energizing-conductor, a set of electromagnets each adapted to be operated when a section of said working conductor is connected with the feeder, a set of visual signals each operated by one of said electromagnets, a second set of electromagnets, each energized through a section of said energizing-conductor, a set of switches each operated by one of said second set of electromagnets to close the circuit between the feeder and a section of said working conductor to energize one of the signal-actuating electromagnets, and a second set of switches each controlled by one of said second set of electromagnets and adapted to cut in a resistance with the coil of a signal-operating electromagnet.

10. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a sectional energizing-conductor, a set of electromagnets each adapted to be operated when a section of said working conductor is connected with the feeder, a set of visual signals each operated by one of said electromagnets, a set of pick-up magnets each energized through a section of said energizing-conductor, a set of pick-up switches each operated by one of said set of pick-up magnets to close the circuit between the feeder and a section of said working conductor and to energize one of the signal-actuating magnets, and a second set of switches each adapted to cut in a resistance with a coil of a signal-operating magnet and each mechanically connected to one of said pick-up switches, whereby the resistance continues in circuit with the coil of said operating-magnet as long as each pick-up switch is closed.

11. In an electric-railway system, the combination with a feeder, of a sectional working conductor, a set of electrically-operated visual signals, one for each section of said working conductor, and a set of electrically-operated pick-up switches, each of which closes the circuit between a section of said working conductor and the feeder and simultaneously energizes the circuit of the corresponding signal.

12. In an electric-railway system, the combination with a feeder, of a return, a sectional working conductor, a sectional energizing-conductor, a circuit including a pick-up magnet-coil between each section of the energizing-conductor and the return, a normally open circuit between each section of said working conductor and the feeder, a circuit including a signal magnet-coil between each section of said working conductor and the return, a signal operated by said magnet-coil, and means controlled by said pick-up magnet-coil for closing the feeder-circuit through the section of the working conductor and through said signal magnet-coil and for simultaneously inserting a resistance in circuit with said signal magnet-coil.

13. In an electric-railway system, the combination with a feeder, of a return, a sectional working conductor, a sectional energizing-conductor, a circuit including a pick-up magnet-coil between each section of the energizing-conductor and the return, a normally open circuit between each section of said working conductor and the feeder, a circuit including a signal magnet-coil between each section of said working conductor and the return, a visual signal operated by said signal-coil, and means controlled by said pick-up magnet coil for closing the feeder-circuit through the section of working conductor and through the said signal magnet-coil and for inserting a resistance in series with said signal magnet-coil and said pick-up coil at the same time that the feeder and section of the working conductor are connected.

14. In an electric-railway system, the combination with a sectional working conductor, of a feeder, a return, a normally broken connection between each section of the working conductor and the feeder, a set of electromagnets, each having its coil in shunt between one of said connections and the return, and a set of visual signals each operated by one of said sets of electromagnets.

15. In an electric-railway system, the combination with a sectional working conductor, of a set of electromagnets the coil of each of which is in circuit with one section of said working conductor, a set of visual signals, each operated by one of said electromagnets, and means for reducing the current in the coil of such magnet after the signal has been operated.

16. In an electric-railway system, the combination with the feeder, of a sectional conductor, a plurality of electrically-operated signals corresponding in number to the number of sections in the sectional conductor, normally open connections between the feeder and the conductor-sections, electromagnetic switches for closing said connections, a return, and signal-controlling connections from said connections to the return.

17. In an electric-railway system, the combination with the feeder, of a sectional conductor, a plurality of electrically-operated signals, normally open connections between the feeder and conductor-sections, a return, signal-controlling connections from said connections to the return, resistances in said signal connections, shunts to the resistances, and switches controlling the shunts.

18. In an electric-railway system, the combination with the feeder, of a sectional conductor, a plurality of electrically-operated signals, normally open connections between the feeder and conductor sections, electromagnetic feeder-switches for said connections, a return, signal-controlling connections from said normally open connections to the return, resistances in said connections, shunts for the resistances, and switches mechanically connected to the feeder-switches for opening the shunts around the resistances after the signals have been operated.

19. In an electric-railway system, the combination with the feeder, of a sectional conductor, a plurality of electrically-operated signals, normally open connections between the feeder and conductor sections, feeder-switches for closing said connections, a return, connections to the return containing resistances, signal-controlling connections from the feeder connections to said resistance connections, coils operating said feeder-switches and connected in said resistance connections, shunts around the resistances, and switches having mechanical connections with the feeder-switches, whereby when the latter are operated, the shunts are opened to insert the resistances in the signal-coil circuits.

20. In an electric-railway system, the combination with the feeder, of a sectional conductor, normally open connections between the former and the sections of the latter, electromagnetic switches for closing said connections, electromagnetically-operated signals, which are operated while said switches are closed, and means for reducing the flow of current through the signal magnet-coils after the signals have been operated.

21. In an electric railway, the combination with the feeder, of normally dead power conductor-sections from which the car-motors receive current, connections between the feeder and conductor sections, means for automatically closing said connections, branches from points between the feeder and the car-motors, and electrically-operated signals in said branches.

22. In an electric railway, the combination with the mains, of normally dead power conductor-sections and a suitable return whereby the car-motors are connected across the mains, means for automatically energizing said power-sections, branches from the motor-circuits, and electrically-operated signals in said branches.

23. In an electric railway, the combination with the feeder, of conductor-sections from which the car-motors receive current, motor connections between said sections and the feeder, switches for automatically closing said connections, branches from points between the switches and the car-motors, and electrically-operated signals in said branches.

695,128. ILLUMINATING COMPOUND. GEORGE E. J. STREET, Kingston, England. Filed Aug. 3, 1901. Serial No. 70,715. (No specimens.)

Claim.—1. An illuminating compound for fairy-lamps, basket-lamps or lamps for ornamental illumination, containing a mixture of lard-oil and neat's-foot oil.

2. An illuminating compound for fairy-lamps, basket-lamps or lamps for ornamental illumination, consisting of a mixture of lard-oil, neat's-foot oil and camphor.

695,134. SPRING-HINGE. ABRAHAM L. STOUP and FRANCIS BROOKER, Shelby, Ohio, assignors to the Shelby Spring Hinge Company, Shelby, Ohio, a Corporation of Ohio. Filed Oct. 1, 1900. Serial No. 31,676. (No model.)

Claim.—1. A spring-hinge comprising a spring-support, a spring, a bar movable to put the spring under tension, a swinging arm free at one end and pivotally connected at its other end to said bar, and means arranged to engage the free end of said arm and move the same to compress the spring, substantially as described.

2. A spring-hinge comprising a spring-support, a spring, a bar movable to put the spring under tension, a swinging arm free at one end and connected at its other end with said bar, a door-pivot, and means connected with said pivot and adapted to engage the free end of said arm and move the same when the pivot turns, substantially as described.

3. A spring-hinge comprising a spring-support, a spring, a bar movable to put the spring under tension, a pair of swinging arms connected with said bar, a door-pivot, and means connected with said pivot and adapted to engage one or the other of said arms when the pivot turns, to move said bar, substantially as described.



4. A spring-hinge comprising a spring-support, a spring, a bar movable longitudinally of the spring for compressing the same, a pair of swinging arms connected with said bar, a door-pivot, and a cross-head connected with said pivot and adapted to engage one or the other of said arms when the pivot turns, to move the said bar longitudinally, substantially as described.

5. A spring-hinge comprising a spring-support, a spring, a bar movable longitudinally of the spring for compressing the same, a pair of swinging arms connected with said bar, a door-pivot, a cross-head having rounded ends connected with said pivot and adapted to engage one or the other of said arms when the pivot turns, to move said bar longitudinally, said arms having recesses adapted to receive the rounded ends of said cross-head, substantially as described.

6. A spring-hinge comprising a spring-support, a spring, a bar movable longitudinally of the spring for compressing the same, a pair of swinging arms connected with said bar, a door-pivot, means connected with said pivot and adapted to engage one or the other of said arms when the pivot swings, to move said bar longitudinally, and a pin extending between said arms, substantially as and for the purpose specified.

7. A spring-hinge comprising a spring-support, a bar movable to put the spring under tension, a pair of swinging arms connected with said bar, a door-pivot, means connected with said pivot and adapted to engage one or the other of said arms when the pivot turns to move said bar, an adjusting-plate carried by said pivot, and adjusting-screws adapted to engage said plate at opposite sides of the pivot and forming the operative connection between the door and said pivot, substantially as described.

8. The combination of a door-frame, a spring-barrel secured therein, a spring in said spring-barrel, a bar for compressing said spring, a door, a pivot for said door, a pivoted arm connected with said bar, and means engaging said arm and operated by the swinging of the door for reciprocating said bar, substantially as described.

9. The combination of a door frame, a spring-barrel secured therein, a spring in said spring-barrel, a bar for compressing said spring, a pair of arms pivoted to said bar, a door, a pivot for said door, and a cross-head connected with said pivot and engaging said arms, substantially as and for the purpose specified.

10. A spring-hinge comprising a spring-barrel, a spring in said spring-barrel, an extension of said spring-barrel inclosing the outer end of said spring, a bolt supported in the end of said extension and passing through said spring, a nut on the inner end of said bolt, a sliding bar engaging the outer end of said spring, extending over the same and adapted to compress the spring by moving the outer end thereof inwardly, a door-pivot supported in said extension, and means carried by said pivot for operating said bar to compress the spring when the pivot turns, substantially as described.

11. A spring-hinge comprising a spring-barrel, a spring in said spring-barrel, an extension of said spring-barrel inclosing the outer end of said spring, a bolt supported in the end of said extension and passing through said spring, a nut on the inner end of said bolt, a sliding bar engaging the outer end of said spring and extending over said spring and adapted to compress the spring by moving the outer end thereof inwardly, a door-pivot supported in said extension, a cross-head connected with said pivot, and means operated by said cross-head for moving said bar to compress the spring when the pivot turns, substantially as described.

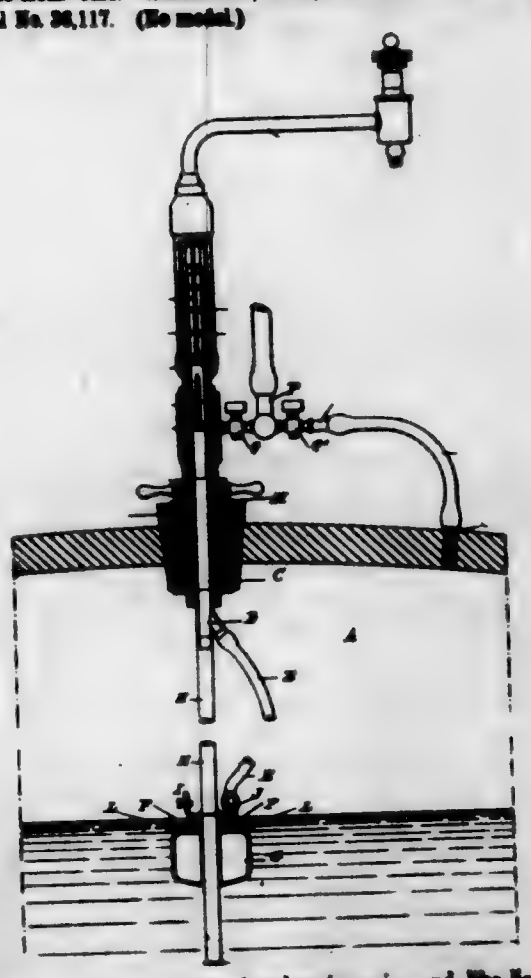
12. A spring-hinge comprising a spring-barrel, a spring in said spring-barrel, an extension of said spring-barrel inclosing the outer end of said spring, a bolt supported in the end of said extension and passing through said spring, a nut on the inner end of said bolt, a sliding bar engaging the outer end of said spring and extending over said spring and adapted to compress the spring by moving the outer end thereof inwardly, a door-pivot supported in said extension, a cross-head connected with said pivot, and a pair of arms pivoted to said bar and engaged by said cross-head for operating said bar to compress the spring when the pivot turns, substantially as described.

13. A spring-hinge comprising a spring-support, a spring carried thereby, a bar having means adapted to engage the outer end of said spring whereby the bar may be caused to act upon said spring to compress the same inwardly, and means operatively connecting said bar with the door whereby the swinging of same operates the bar to compress the spring inwardly, substantially as described.

14. A spring-hinge comprising a spring-support, a spring, a swinging arm free at one end and pivotally supported at its other end, means connecting the swinging arm with the spring, and means arranged to engage the free end of said arm and move the same to compress the spring, substantially as described.

15. A spring-hinge comprising a spring-support, a spring, a pair of swinging arms free at one end and pivotally supported at the other end, a door-pivot, a suitable connection between the arms and said spring, and means connected with said pivot and adapted to engage and move one or the other of said arms when the pivot turns, to put said spring under tension, substantially as described.

695,125. APPARATUS FOR CHARGING LIQUIDS WITH CARBONIC-ACID GAS. HENRY SEE, Paris, France. Filed Nov. 10, 1900. Serial No. 36,117. (No model.)



Claim.—1. An apparatus for charging wine and like liquids with gas comprising a suitable receptacle for the liquid, means for supplying gas thereto, a delivery-tube having a plurality of movable disks provided with oppositely-inclined projections and a floating hollow member having openings beneath the surface of the liquid and having a connection to said delivery-tube, substantially as described.

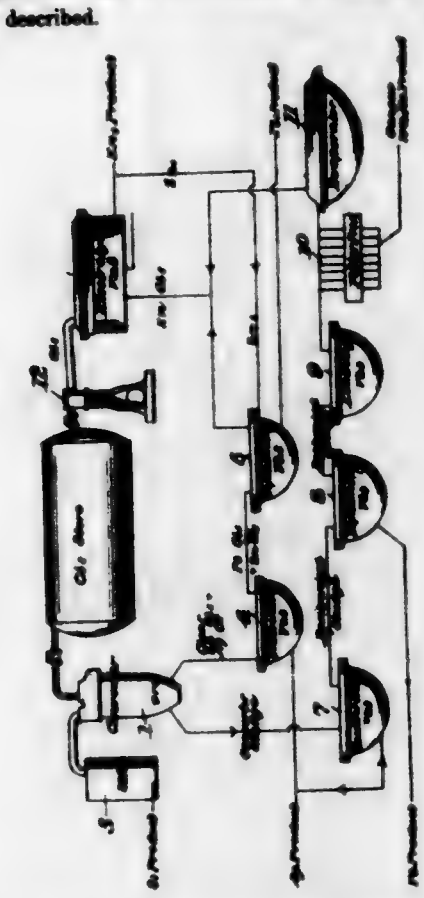
2. In combination with a cask or like receptacle, a delivery-tube, a rod forming a continuation of said delivery-tube, an annular float encircling said rod, a hollow member carried by said float, openings from said hollow member beneath the level of the liquid, a flexible pipe leading from said hollow member to the delivery-tube and a gas-pipe communicating with said flexible pipe, substantially as described.

3. In combination with a cask or like receptacle, a delivery-tube, a rod forming a continuation of said delivery-tube, an annular float encircling said rod, a hollow member carried by said float, openings from said hollow member beneath the level of the liquid, a flexible pipe leading from said hollow member and a gas-pipe extending from the interior of said cask to the delivery-pipe, substantially as described.

695,126. PROCESS OF EXTRACTING METALS FROM SULFID ORES. JAMES SWINBURNE and EDGAR A. ASHCROFT, London, England. Filed Dec. 8, 1900. Serial No. 39,693. (No specimens.)

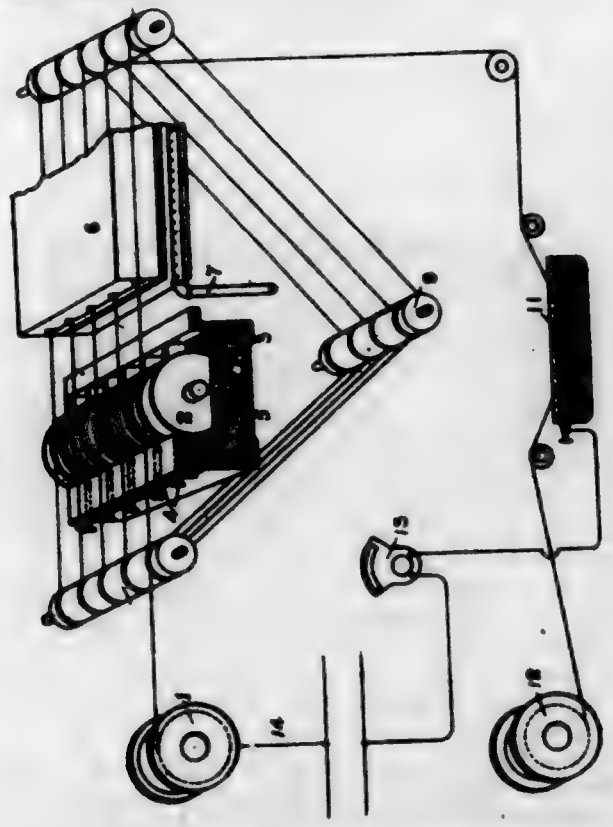
Claim.—1. The herein-described process, consisting in treating sulfid

ores, suspended in a bath of fused chlorid or chlorids, with chlorin, substantially as described.



2. The hereinbefore-described process consisting in treating sulfid ores by passing chlorin through a bath of the ore and a fused chlorid thereby producing free sulfur, the chlorin combining with the metals of the ore.

695,127. INSULATED CONDUCTOR. ELIHU THOMSON, Swampscott, and JOHN G. CALLAR, Lynn, Mass., assignors to General Electric Company, a Corporation of New York. Filed Nov. 7, 1901. Serial No. 81,442. (No model.)



Claim.—1. An insulating compound consisting of an inherent non-explosive cellulose ester attached to a support.

2. An insulating compound consisting of a non-explosive cellulose ester attached to a support by an adhesive binder.

3. An insulated conductor coated with a non-explosive cellulose ester.

4. An insulated conductor coated with a cellulose ester bound to the conductor by an adhesive compound.

5. An insulated conductor coated with a waterproof heat-resisting compound of structureless cellulose.

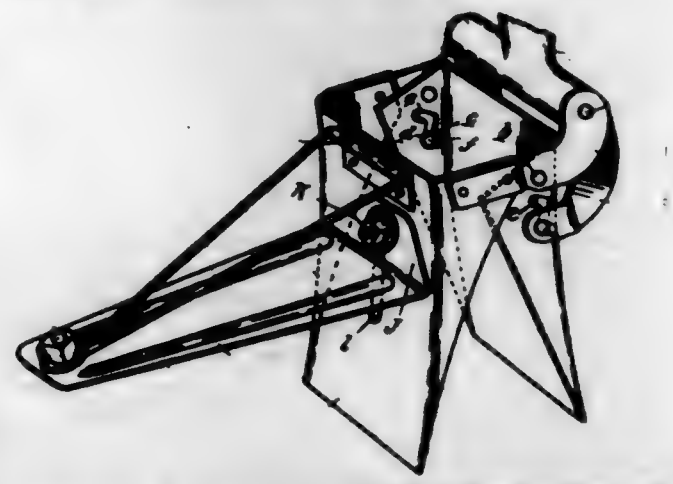
6. An insulated conductor coated with an acetic of cellulose.

7. An insulated conductor coated with tetracetate of cellulose.

8. An insulated conductor coated with a plurality of films of tetracetate of cellulose.

9. An insulated conductor covered with a film of rubber next the metal and an adherent covering of cellulose tetracetate over the rubber.

695,128. PLANTER. FRANK B. WELTON, Detroit, Mich. Filed May 13, 1901. Serial No. 60,069. (No model.)



Claim.—1. In a planter, the combination with a hook having the jaws thereof normally locked from opening, of a handle hinged to swing in relation to said jaws and adapted to open the same and means whereby the initial swinging movement of said handle will unlock said jaws.

2. In a planter, the combination with a hook having the jaws thereof hinged together, of a handle movable in relation to both of said jaws and a connection between said jaws and handle for opening the former by a relative movement of the latter, said connection being adapted to lock said jaws from being opened by internal pressure.

3. A planter comprising a hook having a pivotal connection between the jaws thereof, a handle hinged to one of said jaws at one side of said pivotal connection, an arm extending from said handle to the opposite side of said pivotal connection, and there connected to the other of said jaws.

4. A planter comprising a hook having a pivotal connection between the jaws thereof, a handle hinged to one of said jaws at one side of said pivotal connection, an arm extending from said handle to the opposite side of said pivotal connection and a traveling pivotal connection between said arm and the other of said jaws.

5. A planter comprising a hook having a pivotal connection between the jaws thereof, a handle hinged to the forward jaw in rear of said pivotal connection, and an arm extending from said handle to the opposite side of said pivotal connection and having a sliding pivotal connection with said rear jaw.

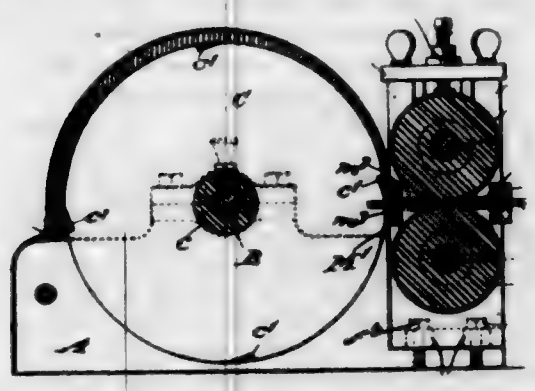
6. A planter comprising a hook having a pivotal connection between the jaws thereof, a handle hinged to one of said jaws in rear of said pivotal connection, and an arm extending from said handle to the opposite side of said pivotal connection having a sliding pivotal connection with the opposite jaw comprising a pin on the one engaging with a radial slot in the other.

7. A planter comprising a hook having a pivotal connection between the jaws thereof, a handle hinged to one of said jaws in rear of said pivotal connection, an arm extending from said handle to the opposite side of said pivotal connection and there engaging with the other of said jaws and a coöperating guide and sliding pin for forming said engagement, the former having a portion extending substantially radially from said pivotal connection permitting said pin to travel therein when said jaws are opened, and an offset portion for preventing movement of said pin to lock said jaws.

8. A planter comprising a hook having a pivotal connection between the jaws thereof, a handle hinged to one of said jaws at one side of said pivotal connection, an arm extending from said handle to the opposite side of said pivotal connection and there slidingly connected to the other of said jaws, said sliding connection comprising a guide extending radially from said pivotal connection and having offsets at opposite ends thereof, and a pin engaging said guide adapted to travel during the movement of the jaw and when in engagement with said offsets to lock said jaws from movement, respectively in their open and closed positions.

9. In a planter, the combination with the hook having stationary and movable jaws, of a foot for said stationary jaw comprising a sheet-metal ground plate vertically adjustably secured to said jaw and a brace-rod hinged to said jaw and adjustably secured to the outer end of said plate.

695,129. POWDER-GRANULATING MACHINE. MONROE P. WILKINS, New York, N. Y., and HENRY C. ASPINWALL, Pompton Lakes, N. J., assignors to the Laflin & Rand Powder Company, New York, N. Y., a Corporation of New York. Filed Jan. 12, 1900. Serial No. 701,916. (No model.)



Claim.—1. A powder-granulating machine comprising a cutting-wheel having its knives set transversely across its periphery with their outer faces in the peripheral surface of the wheel and means for feeding one or more rods or cords of powder along predetermined paths, one for each rod or cord, into the path of the knives, substantially as set forth.

2. The combination with the cutting-wheel comprising a pair of disks spaced apart and cutting-knives fixed transversely to the peripheries of the disks with their outer faces in the plane of the peripheries of the disks, of a guide having its face in proximity to the path of the knives and means for forcing one or more rods or cords of powder along predetermined paths, one for each rod or cord, through the guide into engagement with the knives, substantially as set forth.

3. The combination with the cutting-wheel and its knives, of guides for directing one or more rods or cords of powder to the knives, the said guides being provided with tubular extensions extending toward one another into proximity to the adjacent portions of the feed-rollers and feed-rollers arranged to engage the rods or cords of powder intermediate of the free ends of the tubular guides, substantially as set forth.

4. The combination with the cutting-wheel and the guides for directing one or more rods or cords of powder to the cutting-wheel, of feeding-rollers provided with grooves corresponding to the openings in the guides and arranged to engage the rods or cords of powder intermediate of the guides substantially as set forth.

5. The combination with the cutting-wheel and the guides for directing one or more rods or cords of powder to the cutting-wheel, of the upper and lower feed-rollers arranged to engage the rods or cords of powder intermediate of the guides and means for increasing and diminishing pressure of one set of feed-rollers upon the rods or cords of powder, substantially as set forth.

6. The combination with a skeleton cutting-wheel having its interior space between its ends open for the free passage of grains of powder and cutting-knives extending at intervals transversely across its periphery from end to end, of means for feeding rods or cords of powder positively into the path of the cutting-knives, and means for varying the relative movements of the feed mechanism and cutting-wheel, substantially as set forth.

695,180. BRAKE MECHANISM. WALTER S. ADAMS, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed July 27, 1900. Serial No. 25,002. (No model.)

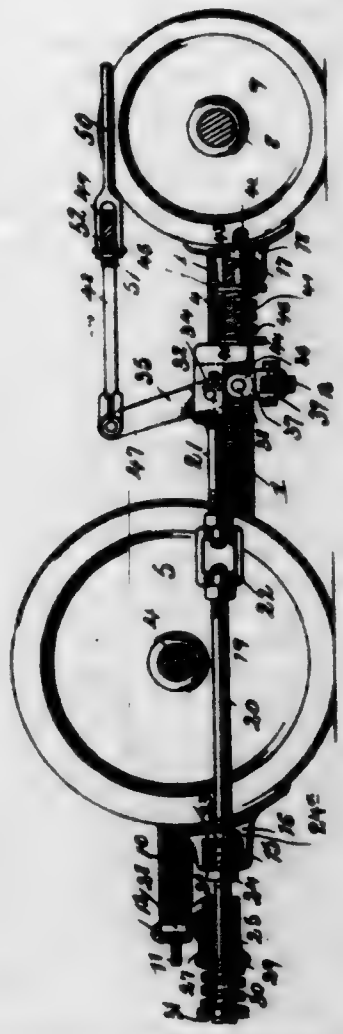
Claim.—1. In a brake mechanism, the combination with the truck-frame, of a brake-rod, brake-beams supported by said rod, and brake-shoes supported by the beams, the rod being movably supported directly upon said frame, substantially as described.

2. In a brake mechanism, the combination with the truck-frame, of the longitudinal brake-rod movably supported on the truck-frame at one end, a brake-beam secured to said rod adjacent said end, shoes supported on and by said beams, a movable support for the rod on the truck-frame at the other end, a brake-beam secured to the rod at the latter end, and brake-shoes supported on and by said beams, substantially as described.

3. In a brake mechanism, the combination with the truck-frame, of a brake-rod supported for longitudinal movement at one end by said frame and pivotally supported by said frame at the other end, pairs of wheels for the truck, and beams and paired shoes supported the former on and by the rod the latter on and by the beams, substantially as described.

4. A brake mechanism comprising brake beams and shoes, a longitudinally-disposed brake-rod upon which the brake-beam is supported, and to which the beam is operatively connected, and means for supporting the brake-rod, substantially as described.

5. A brake mechanism comprising brake beams and shoes, a longitudinally-disposed brake-rod, a bearing for supporting the same to permit it to have longitudinal movement, means for supporting the brake-beam upon said rod, and means for operating the brake-rod, substantially as described.



6. A brake mechanism comprising brake beams and shoes, a brake-rod, means for supporting the same, means for firmly uniting one brake-beam to said rod to support and operate the beam thereby, the other brake-beam being movably supported by said rod, means to cause the rod to operate said beam, and means for operating said rod, substantially as described.

7. A truck-frame combined with a brake mechanism comprising brake beams and shoes, a longitudinally-disposed brake-rod directly supported on the truck-frame and adapted to operate directly one of the brake-beams, a spring interposed between the brake-rod and the other brake-beam, and means for drawing the brake-rod longitudinally to cause said spring to act on the adjacent brake-beam, substantially as described.

8. A truck-frame combined with a brake mechanism comprising brake beams and shoes, a longitudinally-disposed brake-rod directly supported on the truck-frame and adapted to operate one of the brake-beams directly, a spring interposed between the brake-rod and the other brake-beam, a lever to operate said brake-rod to cause said spring to push the adjacent brake-beam toward the wheels, and means for operating said lever, substantially as described.

9. A brake mechanism comprising a pair of brake beams and shoes, a brake-rod to draw one of the brake-beams toward the wheels, a spring to retract the brake-rod, an abutment for said spring, a spring interposed between the brake-rod and the other brake-beam, and means for causing the brake-rod to act upon said spring, substantially as described.

10. A brake mechanism comprising a pair of brake beams and shoes, a longitudinally-disposed brake-rod connected with one beam so as to draw said beam and shoes toward wheels, a spring to retract said brake-rod, an abutment for said spring, said brake-rod having a portion passing through the outer brake-beam, means connected with said rod to retract said beam from wheels, a spring interposed between said beam and the brake-rod, and means for operating said rod, substantially as described.

11. The combination of a truck frame and wheels, with a pair of brake beams and shoes, a longitudinally-disposed brake-rod, a stationary support for said rod carried by the frame, said brake-rod being connected with one brake-beam to draw the same toward wheels, said rod being movably connected with the other brake-beam, a spring interposed between said rod and the last-mentioned beam, and means for operating the rod, substantially as described.

12. The combination of a truck frame and wheels, with a pair of brake beams and shoes, a longitudinally-disposed brake-rod, a stationary support for said rod carried by the frame, said brake rod being connected

with one brake-beam to draw the same toward wheels, said rod being movably connected with the other brake-beam, a spring interposed between said rod and the last-mentioned beam, a lever pivotally supported by said frame and pivotally connected with said rod for operating the same, and means for actuating said lever, substantially as described.

13. The combination of a frame and wheels, with a pair of brake beams and shoes, a longitudinally-disposed brake-rod, a support for the same carried by the frame, a spring interposed between said rod and said support, a connection between said rod and one of the brake-beams to cause the rod to draw the latter toward wheels, said rod being movably connected with the other brake-beam, a spring interposed between the last-mentioned beam and the rod, and means for operating said rod, substantially as described.

14. The combination of a frame and wheels, with a pair of brake beams and shoes, a longitudinally-disposed brake-rod, a support for the same carried by the frame, a spring interposed between said rod and said support, connections between said rod and one of the brake-beams to cause the rod to draw the latter toward wheels against the stress of said spring, said rod being movably connected with the other brake-beam, a spring interposed between the last-mentioned beam and the rod, a lever pivotally supported by said frame and pivotally connected to said rod, and means for actuating the lever, substantially as described.

15. The combination of a truck frame and wheels, with a pair of brake beams and shoes, a longitudinally-disposed rod, a support carried by said frame and having a bearing for the rod to slide in, a spring to retract and oppose the sliding of the rod, means for connecting the rod with one of the brake-beams to draw the latter toward the wheels, the opposite end of said rod being movably connected with the other brake-beam, a spring interposed between said rod and latter beam, and means for operating said rod, substantially as described.

16. The combination of a truck frame and wheels, with a pair of brake beams and shoes, a longitudinally-disposed rod, a support carried by said frame and having a bearing for the rod to slide in, a spring of greater resisting capacity to retract and oppose the sliding of the rod, means for connecting the rod with one of the brake-beams to draw the latter toward the wheels, the opposite end of said rod being movably connected with the other brake-beam, a spring of lesser resisting capacity interposed between said rod and latter beam, and means for operating said rod substantially as described.

17. The combination of a truck frame and wheels, with brake beams and shoes, a longitudinally-disposed rod having a portion on one plane connected with one of the beams, a stationary support for said rod carried by the frame, means to retract the rod, another portion of said rod being on a lower plane than the first-mentioned portion and movably connected with the other beam, a spring surrounding the lower portion of the rod and interposed between the rod and last-mentioned beam, and means for operating said rod, substantially as described.

18. The combination of a truck frame and wheels, with brake beams and shoes, a longitudinally-disposed rod having a portion on one plane connected with one of the beams, a stationary support for said rod carried by the frame, means to retract the rod, another portion of said rod being on a lower plane than the first-mentioned portion and movably connected with the other beam, a spring surrounding the lower portion of the rod and interposed between the rod and the last-mentioned beam, a lever pivotally carried by the said frame and pivotally connected to the rod between its ends, and means for operating the lever, substantially as described.

19. The combination of a truck frame and wheels, with a pair of brake beams and shoes, a longitudinally-disposed rod connected with one of said beams, a stationary support for the rod on the truck-frame, a spring interposed between said rod and the other of said beams, said rod having a slotted yoke, a lever pivoted to said slot and pivotally connected with said frame, said rod having a pendent extension provided with a thrust-bar movably connected with the other brake-beam, and a spring interposed between said extension and said brake-beam, substantially as described.

20. The combination of a truck frame and wheels, with a pair of brake-beams, brake-shoes carried thereby, a longitudinally-disposed rod connected to one of said brake-beams, a stationary support for said rod carried by the truck-frame, a spring interposed between said support and an abutment upon the end of said rod, a slotted yoke carried by said rod, a lever pivoted in and passing through said slot, a pendent end provided upon said bar, a thrust-bar connected to said yoke and movably connected to the other brake-beam, a spring interposed between said extension and said brake-beam, and an abutment carried by said bar on the side of said beam opposite the spring, substantially as described.

21. The combination of a truck frame and wheels with a pair of brake beams and shoes, a longitudinally-disposed rod connected with one of said beams, a slotted yoke carried by said rod, a brake-lever passing through said slot and pivoted in said yoke, a support carried by said frame, through which said rod is adapted to slide, an abutment carried upon the end of said rod, a spring interposed between said abutment and said support, and mechanism movably connecting said rod with the other brake-beam, substantially as described.

22. The combination of a truck frame and wheels, with a pair of brake beams and shoes, a longitudinally-disposed rod connected with one of said beams, a slotted yoke carried by said rod, a brake-lever pivoted in said slot, and pivotally connected to the frame, a thrust-bar connected to said yoke, movably connected to said other brake-beam, a spring interposed between said bar and beam, and an abutment carried upon the end of said bar on the side of said brake-beam opposite said spring, substantially as described.

23. The combination in a car-truck, of the frame comprising side beams and cross-bars, and a brake mechanism comprising a longitudinally-extending rod supported directly from the truck-frame to the end and adapted to slide in its support, a brake-beam and brake-shoes supported by said rod, one of the cross bars being between the wheels, an upwardly-extending operating-lever fulcrumed upon the latter cross-bar, the brake-rod being pivotally secured thereto above the latter's fulcrum, a brake-beam loosely supported upon the other end of the rod, an abutment on the rod between the latter beam and said lever, a spring interposed between said beam and said abutment, and brake-shoes on said latter beam.

24. The combination in a car-truck, of the truck-frame having a cross-bar 11 outside of one set of wheels, a cross-bar 13 between the wheels, the thrust-block secured to the bar 11, and having a longitudinal aperture, a brake-rod having one end extending through the aperture, the other end passing over the bar 13 toward the other set of wheels, a brake beam and shoes supported on the brake-rod adjacent the thrust-block, a brake-beam loosely supported upon the other end of the rod and carrying brake-shoes, an upright lever fulcrumed on the cross-bar 13, and pivotally connected to the brake-rod above said fulcrum, an abutment on the brake-rod, a spring interposed between said abutment and the loosely-connected brake-beam, and a retracting-spring on the end of the rod adjacent the thrust-block.

25. The combination in a car-truck, having a frame, a cross-bar 11 outside of the wheels at one end, another cross-bar 13 between the wheels, with the parallel brake-rods, supports on the cross-bar 11 permitting the rod to slide therein, a brake-beam extending between the rods and having shoes thereon adjacent said support, a retracting-spring cooperating with the ends of the rods at this end of the truck, upright brake-levers fulcrumed on the cross-bar 13 and pivotally secured to the brake-rods above their fulcra, an equalizing-lever connected to said brake-levers above the brake-rods; a brake-beam supported loosely on the ends of the brake-rods opposite said supports and having brake-shoes, an abutment on said brake-rods, and a spring interposed between each of said abutments and the latter brake-beam.

26. In a brake mechanism, the combination with a car-truck having a frame, including a cross-bar as 11, the longitudinally-apertured thrust-block secured to the cross-bar, the brake-rod extending through said aperture, a spring about said extension, a cap fixed on the end of the rod bearing against said spring the other end of the spring bearing against the thrust-block, said rod carrying beams and shoes for the respective sets of truck-wheels, a support for the brake-rod upon the truck-frame other than the thrust-block, and means for longitudinally moving the brake-rod for applying the respective sets of shoes to the sets of wheels.

27. In a car-truck, the combination with a frame thereof, and a brake mechanism comprising a longitudinal brake-rod having the slotted yoke 32, a pendent portion 40, and an extension 41 therefrom; a cross-bar 13 disposed below the said brake-rod, and a brake-lever 35 pivotally secured to the cross-bar 13, passing through the slot, and pivotally secured to the yoke, and brake beams and shoes operated by said lever and rod, substantially as described.

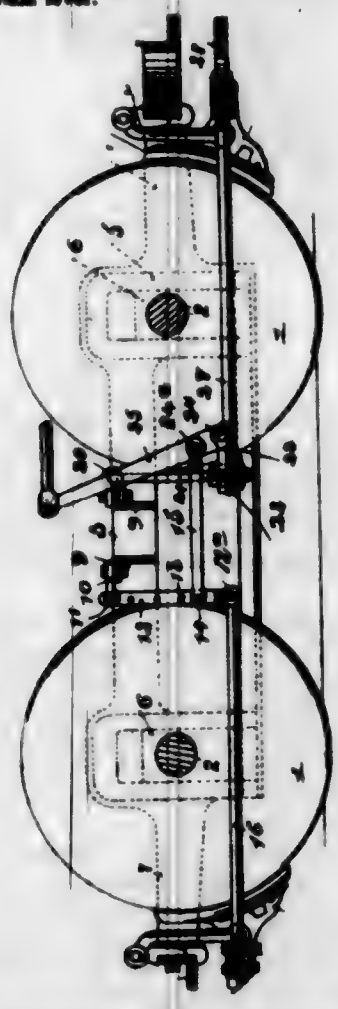
695,181. BRAKE MECHANISM. WALTER S. ADAMS, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Filed Dec. 18, 1900. Serial No. 40,238. (No model.)

Claim.—1. The combination of a pivotal truck, a brake-lever located with its power end near the center thereof, an equalizing-bar suspended from the frame of the truck and to which the lower end of the brake-lever is pivoted, brake-beams, brake-shoes carried thereby and connecting mechanism between the beams and the lever.

2. The combination of a pivotal truck, a brake-lever located with its power end near the center thereof, an equalizing-bar suspended from the frame of the truck and to which the lower end of the brake-lever is pivoted, brake-beams, brake-shoes carried thereby, mechanism connecting said equalizing-bar and one of said brake-beams, and mechanism capable of adjustment interposed between the remaining beam and the lever.

3. The combination of a car-truck having a bolster-transom, outside brake-shoes for the wheels, beams rigidly connecting the shoes for each

pair of wheels and suspended from the ends of the truck-frame, an equalizing-bar connected with one brake-beam and supported from the transom, an upright main brake-lever fulcrumed near its lower end to the said bar and to the upper end of which power is applied to operate the brakes, an equalizing-lever pendent from the transom and connected near its lower end to the other brake-beam, and means connecting the latter lever with the main brake-lever, whereby both sets of shoes are simultaneously operated from said main lever.



4. The combination of a pivotal car-truck, outside sets of brake shoes and beams for the wheels of the truck, an upright brake-lever, a transverse equalizing-bar between the beams, an intermediate equalizing-lever, and intermediate connections between the bar, said levers and beams, to which brake-lever power is applied to operate the said shoes, the power end of said brake-lever being substantially at the center of the truck, and means to connect said brake-lever to the shoes.

5. The combination of a pivotal car-truck, outside sets of brake shoes and beams for the wheels of the truck, an upright brake-lever, a transverse equalizing-bar between the beams, an intermediate equalizing-lever, and intermediate adjustable connections between the bar, said levers, and beams, to which brake-lever power is applied to operate the said shoes, the power end of said lever being substantially at the center of said truck, and means to connect said brake-lever to the shoes.

6. The combination of a pivotal car-truck, outside sets of brake-shoes for the wheels of the truck suspended from the frame thereof, beams connecting the shoes of each set, a floating equalizing-bar suspended from the frame and operatively connected with one of the said brake-beams, and upright main braking-lever to which power is applied to operate the brakes fulcrumed on said bar near the center thereof, and means connecting this lever with the other brake-beam.

7. The combination of a pivotal car-truck, sets of brake-shoes for the wheels outside the wheel base, and suspended from the ends of the truck-frame, brake-beams rigidly connecting the shoes of each set, a floating equalizing-bar also suspended from the truck-frame, means connecting this bar to one of the brake-beams, an upright main lever fulcrumed on said bar near the center thereof, an equalizing-lever fulcrumed at its upper end on the frame, means connecting its lower end with the other brake-beam, and a connecting-rod from the latter lever to the main lever.

8. The combination of a pivotal car-truck, sets of outside brake-shoes, beams connecting shoes of each set, means to suspend the beams and shoes from the ends of the truck-frame, an equalizing-bar suspended from supports on the frame, rods connecting this bar near its ends with the brake-beam on that end of the truck, an upright main lever fulcrumed at its lower end on said bar near the center thereof, and having its other end to which power is applied located near the center of the truck, a pendent equalizing-lever fulcrumed at its upper end to a support on the frame and in a line longitudinally with the main lever, a rod connecting the lower end of this lever with the other brake-beam near the center thereof, and a rod extending between the two levers and connected to them intermediate their ends.

9. The combination of a car-truck frame, having end pieces and centrally-disposed transoms extending between and secured to the side pieces, brake beams and shoes suspended from said end pieces, an equalizing-bar, hangers and links to suspend the same from one of said transoms, rods one near either end of said bar to connect the brake beam on that end of the truck therewith, a jaw-plate secured to the said bar near the center thereof, a main brake-lever with its lower end fulcrumed in this plate, and its upper end to which power is applied located near the center of the truck, means to connect this upper end with the source of power on the car-body, a hanger secured to the middle of the other transom, an equalizing-lever fulcrumed at its upper end thereon, a connecting-rod extending from the lower end of this lever to the other brake-beam, and a connecting means between this equalizing-lever and the main lever.

10. The combination of a car-truck frame, brake shoes and beams suspended from the frame and arranged to brake against the outside of the wheels, means for operating said shoes including a centrally-disposed braking-lever to which power is applied, and rods connecting the said lever with one set of shoes, the rods being arranged to leave a clear open space for a motor, and adjustable connections and a further rod leading from said lever to the other set of shoes.

11. In a brake mechanism, the combination of a brake-beam, shoes carried thereby and adapted to press against the wheels outside of the wheel-base, an equalizing-bar, rods connecting the beam and bar near either end so as to provide room between them for a car-motor, a braking-lever to which power is applied connected with said bar, another set of brake-shoes and means connecting this set with the braking-lever, whereby all brakes may be simultaneously applied, the brakes, beam and bar all being adapted to be suspended from the frame of the truck.

12. The combination of a truck-frame, brake-beams adapted to be swung from the frame, brake-shoes thereon, an equalizing-bar also adapted to be swung from supports on the frame, rods connecting said bar with one of said beams, so as to provide clearance between them for a motor, a braking-lever to which power is applied for operating the brakes and pivoted to the equalizing-bar, and a connecting-rod pivoted to said lever and its other end connected with the other beam, whereby both sets of brakes may be simultaneously applie

13. The combination of a car-truck frame, brake-shoes for the wheels, beams connecting said shoes, and suspended from the frame, a floating equalizing-bar also suspended from the frame, a main brake-lever fulcrumed on the bar to which power is applied to operate the shoes, means connecting the ends of the equalizing-bar with the brake-beams on that end of the truck, said means being spaced apart to provide clearance for a motor, a pendent equalizing-lever also supported from the frame, and a connecting means between said lever and said other brake-beam, and means connecting the said two levers.

14. The combination of a car-truck frame, brake-shoes for the wheels, beams connecting said shoes, and suspended from the frame, a floating equalizing-bar also suspended from the frame, a main brake-lever fulcrumed on the bar and to which power is applied to operate the shoes, means connecting the ends of the equalizing-bar with the brake-beam on one end of the truck, a pendent equalizing-lever also supported from the frame, a rod connecting said equalizing-lever and the other brake-beam, and a rod connecting the said two levers.

15. The combination of a car-truck frame having end pieces and bolster-transoms extending across between the side pieces thereof, brake-shoes suspended from the end pieces, brake-beams rigidly connecting the shoes of each set, a floating equalizing-bar, links near each end thereof to suspend the same from one of the bolster-transoms, rods connecting the ends of said bar with one of said beams to provide clearance between for a motor, a main brake-lever fulcrumed to said bar near its center and to the upper end of which power is applied to operate the mechanism, an equalizing-lever suspended from the other bolster-transom near the center thereof, a rod extending from the lower end of said lever to the center of the other brake-beam, and a link or rod connecting the equalizing-lever with the main operating-lever.

16. The combination of a car-truck, outside brake-shoes for the wheels suspended from the frame of the truck, brake-beams to which the shoes are fixed, an equalizing-bar supported from the frame and inside the wheel-base, rods connecting the bar with the nearest beam, and spaced apart to provide clearance for a motor, an upright main brake-lever pivotally secured to the bar near the center of the power end of said lever being close to the center of the truck, an equalizing-lever pendent from the frame, a connecting-rod from said equalizing-lever to said main lever, and a rod connecting said equalizing-lever with the said other brake-beam.

17. The combination of a truck-frame, of brake sets pendent from the truck-frame, a transverse equalizing-bar suspended from the truck-frame

and connected with one of the brake sets, a braking-lever to which power is applied for manipulating the brakes, one end of which is pivotally connected to the transverse bar, an equalizing-lever depending from the frame and connected with the other brake set and an adjustable connection between the latter lever and the braking-lever for varying the pressure upon the two sets.

18. The combination of a truck-frame, brake-beams, links supporting the beams beneath the frame, a swinging equalizing-bar also supported from the frame above and connected with one of the brake-beams, a braking-lever fulcrumed on the said bar to the other end of which power may be applied, another lever pivotally suspended from the frame and connected with the other set of brakes, and a connecting-rod attached to the braking-lever and adjustably connected with the pendent lever so as to vary the pressure as desired on the two sets of brakes.

19. The combination of a car-truck frame, brake-beams swingingly supported from the ends of the frame, brake-shoes fixed on said beams, bolster-transoms extending across the frame near the middle thereof, an equalizing-bar suspended from one of the transoms and rigidly connected as by rods with one of the brake-beams, a main operating brake-lever fulcrumed on the said bar to the upper end of which the brake-power is applied, an equalizing-lever suspended at its upper end from the other transom, and connected firmly as by a rod with the other brake-beam, and a rod operatively connecting the latter lever with the main lever, the connection with one of them being adjustable along its length to vary the brake-pressure on the shoes.

20. The combination of a car-truck frame, brake-shoes suspended from the frame of the truck, beams to which the shoes are secured, a floating equalizing-bar suspended from the frame near the transverse center of the same, rods connecting the bar with one brake-beam, a main operating brake-lever fulcrumed at its lower end near the middle of the said bar, and to the upper end of which brake-power is applied, a pendent equalizing-lever supported on the framework near the transverse center thereof, and provided with a series of holes along its length, a rod connecting the lower end of this lever with the other brake-beam, and a connecting-rod pivoted to the main lever near its lower end and capable of being joined with the equalizing-lever at any point by a pin or bolt and the series of holes.

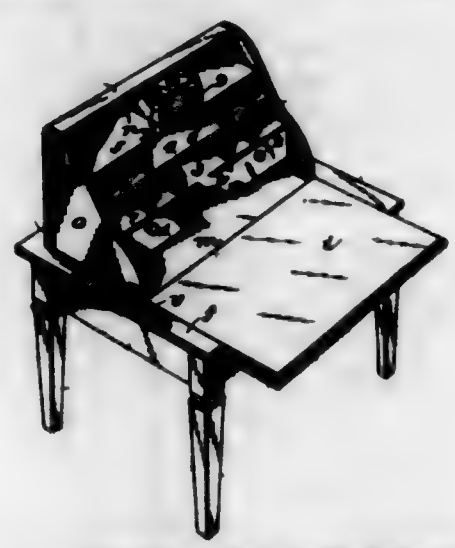
21. The combination of a car-truck frame, brake-shoes for the wheels, beams connecting said shoes and suspended from the frame, a floating equalizing-bar also suspended from the frame, a main brake-lever fulcrumed on the bar to which power is applied to operate the shoes, means connecting the ends of the equalizing-bar with the brake-beam on that end of the truck, said means being spaced apart to provide clearance for a motor, a pendent equalizing-lever also supported from the frame and a connecting means between said lever and said other brake-beam, and adjustable means connecting the said two levers to vary the pressure on the brakes.

22. The combination of a car-truck frame, brake-shoes for the wheels, beams connecting said shoes, and suspended from the frame, a floating equalizing-bar also suspended from the frame, a main brake-lever fulcrumed on the bar to which power is applied to operate the shoes, means connecting the ends of the equalizing-bar with the brake-beams on that end of the truck, said means being spaced apart to provide clearance for a motor, a pendent equalizing-lever also supported from the frame, and a rod connected between said lever and the middle of the other brake-beam, and a rod adjustably connecting the said two levers, whereby the pressure on the two sets of brakes may be varied.

23. The combination of a car-truck frame having end pieces and bolster-transoms extending across between the side pieces thereof, brake-shoes suspended from the end pieces, brake-beams rigidly connecting the shoes of each set, a floating equalizing-bar, links near each end thereof to suspend the same from one of the bolster-transoms, rods connecting the ends of said bar with one of said beams to provide clearance between for a motor, a main brake-lever fulcrumed to said bar near its center and to the upper end of which power is applied to operate the mechanism, an equalizing-lever suspended from the other bolster-transoms near the center thereof, a rod extending from the lower end of said lever to the center of the other brake-beam, and a link or rod connecting the equalizing-lever with the main operating-lever, the connection between the link or rod and one of the levers being adjustable along the length thereof so as to differentiate the pressure on the brake sets to any desired degree.

24. The combination of a car-truck, outside brake-shoes for the wheels suspended from the frame of the truck, brake-beams to which the shoes are fixed, an equalizing-bar supported from the frame and inside the wheelbase, rods connecting the bar with one beam, and spaced apart to provide clearance for a motor, an upright main brake-lever pivotally secured to the bar near the center of the bar, the power end of said lever being adjacent to the center of the truck, an equalizing-lever pendent from the truck-frame, a rod secured between said equalizing-lever, and said main lever with an adjustable connection with one of them, whereby the pressure upon the brake-shoes may be differentiated.

695,182. TABLE-DESK. Victor M. Arana, Notre Dame, Ind. Filed Aug. 26, 1901. Serial No. 73,231. (No model.)



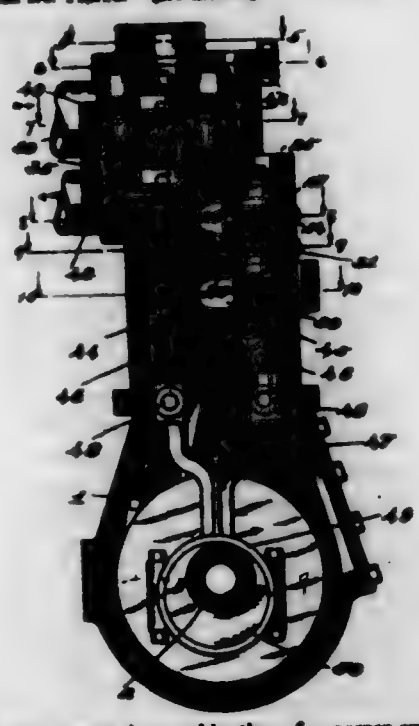
Claim.—1. A table-desk including a table-frame, a desk-cabinet mounted in the frame below the top thereof so that the bottom and the back of the cabinet shall be in diverging inclined planes, supporting members against which the back of the cabinet is supported, pivotal members supporting the forward portions of the cabinet, and supporting members upon which the rear part of the bottom of the cabinet may be supported when elevated.

2. The combination, with a table having an aperture in the top thereof and a sliding top section, of a desk-cabinet substantially triangular in transverse section and mounted under the sliding section so that the plane of the front of the cabinet shall be substantially horizontal, supports for the body of the cabinet attached to the table, independent supporting members connected with the forward portion of the cabinet and also with the table, and independent means whereby the body of the cabinet may be supported in an elevated position.

3. In a table-desk, the combination of a table-frame, a movable top section, a desk-cabinet having sides triangular in plan and mounted in the frame, means whereby the cabinet may be supported, and limiting members whereby the cabinet may be stopped with the bottom and the back thereof in diverging inclined planes and the plane of the front face of the cabinet horizontal.

4. In a table-desk, the combination of the table-legs, the table-rails, the guide-bars having the channels therein, the cabinet, the pivotal members attached to the forward parts of the cabinet and having the pivot-pins in said channels, the hinged top sections mounted slidingly, the temporary fastening for the forward one of said hinged sections, the supports for the cabinet at the rear table-rail, and a pivoted ink-font in said cabinet.

695,183. PUMP. Charles H. Aiken, Chicago, Ill., assignor, by mesne assignments, to Joseph McWilliams, Louisville, Ky. Filed Apr. 25, 1900. Serial No. 14,218. (No model.)



Claim.—1. In a pump the combination of a power-cylinder, a piston therein, a pump-barrel and a plunger in said pump-barrel, a crank-

shaft having a crank to which said piston is connected, an eccentric on said crank-shaft set ninety degrees in advance of said crank and two valves for controlling respectively the fluid-pressure to the power-cylinder and the inlet and discharge of the pump-barrel, both operatively connected with said eccentric, substantially as set forth.

2. In a pump the combination of a casting having formed therein a plurality of power-cylinders each having an extension constituting a pump-barrel, a fluid-pressure inlet and an exhaust common to all of said cylinders, a plurality of valves for controlling admission to and exhaust from said cylinders, water inlet and outlet passages formed in said casting, said pump-barrels having a common inlet and a common discharge, valves individual to said pump-barrels for controlling the inlet and discharge therefrom and means for actuating said valves, substantially as set forth.

3. In a pump, the combination with a power-cylinder and its piston and a pump-barrel and its plunger of two valve devices for controlling respectively the supply and exhaust to the power-cylinder and the admission and discharge of fluid in the pump-barrel and a single eccentric to which both of said valves are connected.

4. In a pump, the combination with a power-cylinder and its piston and a pump-barrel and its plunger of two valve devices arranged side by side for controlling respectively the supply and exhaust to the power-cylinder and the admission and discharge of fluid in the pump-barrel and a single eccentric to which both of said valves are connected.

5. In a pump, the combination with a power-cylinder and its piston and a pump-barrel and its plunger of two valve devices for controlling respectively the supply and exhaust to the power-cylinder and the admission and discharge of fluid in the pump-barrel, a yoke connecting said valve devices together and a single eccentric to which said yoke is connected.

6. In a pump the combination of a crank-shaft, a casing completely inclosing said shaft, power-cylinders opening into said casing and having pump-barrels projecting from them, valve-chambers or housings for said power cylinders and pump-barrels respectively also opening into said casing, pistons in said cylinders having pump-plungers projecting into said barrels, operative connections between said pistons and crank-shaft, and valves in said valve-chambers operatively connected with said crank-shaft, substantially as set forth.

7. In a pump the combination of a power-cylinder, a pump-barrel of smaller diameter than said cylinder arranged axially at the end thereof and opening thereinto, a power-piston in said cylinder having an extension continuing into said barrel and forming a pump-plunger, a crank operatively connected with said piston, means for admitting pressure to and exhausting it from said cylinder at a point between said piston and pump-barrel and means for admitting fluid to and exhausting it from said pump-barrel, substantially as set forth.

8. In a pump the combination of a power-cylinder, a valve-chamber, a crank-chamber into which said power-cylinder and valve-chamber open, a piston in said power-cylinder, a piston-valve in said valve-chamber, a crank-shaft in said crank-chamber, connections between said crank-shaft and power-piston and piston-valve, a piston located in said valve-chamber between said piston-valve and crank-shaft and a pump-plunger actuated by said power-piston, substantially as set forth.

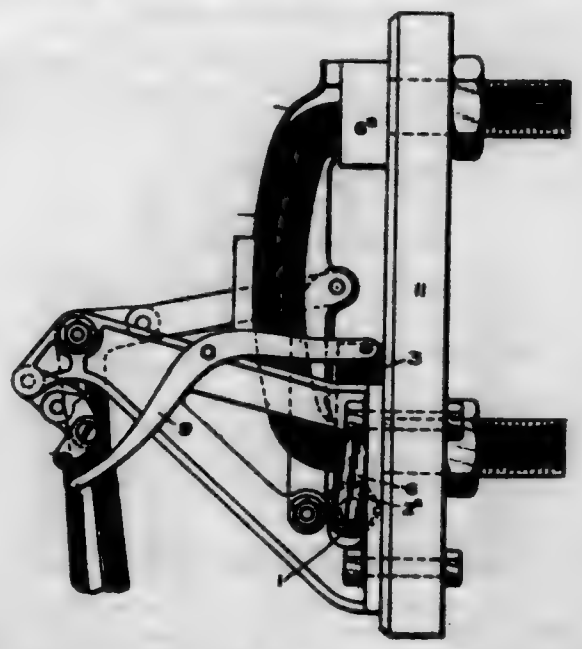
9. In a pump the combination of a crank-shaft, a plurality of perpendicular power-cylinders each having an extension arranged axially at the end thereof and communicating therewith, a power-piston in each of said cylinders having an extension continuing into said barrel above it, a crank-shaft common to all of said pistons, steam inlet and outlet passages arranged one above the other, a steam-valve chamber for each of said cylinders, a port leading from each of said cylinders into the steam-valve chamber adjacent thereto, a steam-valve adapted to place said port in communication with either said inlet or exhaust, water inlet and outlet passages arranged horizontally one above the other, a plurality of water-valve chambers one adjacent to each of said pump-barrels and each having communication with said water-inlet passage, a port connecting each of said water-valve chambers with one of said barrels and a separate port connecting each of said water-valve chambers with said outlet-passage, a valve in each of said water-valve chambers adapted to place said first port alternately in communication with said inlet and the last said port and means for actuating said steam and water valves, substantially as set forth.

10. In a pump the combination of a closed crank-chamber, a crank-shaft arranged therein, caps closing the end of said crank-chamber and having journal-bearings for said crank-shaft, power-cylinders arranged over and communicating with said crank-chamber, pistons arranged in said power-cylinders and having operative connection with said crank-shaft, and pumps actuated by said pistons, substantially as set forth.

11. In a pump the combination of a plurality of parallel power-cylinders having reduced axial extensions communicating therewith and constituting pump-barrels, power-pistons arranged in said cylinders and having extensions continuing into said barrels and constituting pump-plungers, valve-chambers arranged parallel with said pump-barrels and between said cylinders, steam-valves located in some of said chambers for controlling the admission of steam to and the exhaust of steam from said cylinders and water-valves located in the others of said valve-chambers for controlling the admission of water to and the outlet of water from said pump-barrels, substantially as set forth.

12. In a pump the combination of the casting 13 having a plurality of parallel power-cylinders formed therein and provided with reduced extensions communicating with one end thereof and constituting pump-barrels opening through the upper side of said casting, water-valve chambers also formed in said casting and opening through the upper side thereof, a cap 38 having passage 37 arranged over the upper ends of said pump-barrels and water-valve chambers and having a water-inlet, said cap 38 being provided with openings communicating with the upper ends of said water-valve chambers, the horizontal parts 36 connecting said water-valve chambers with the upper ends of said pump-barrels, the horizontal part 41 formed in said casting 13 and communicating with said water-valve chambers at a different point, valves in said water-valve chambers for placing said parts 36 and passage 41 in communication with each other and the passage 36 in communication with the passage 37 alternately, steam-valve chambers also formed in said casting 13, a steam-inlet passage formed in said casting 13 and communicating with all of said steam-valve chambers, a steam-exhaust passage formed in said casting 13 and also communicating with all of said steam-valve chambers, a live-steam-outlet port from each of said steam-valve chambers leading to one of said power-cylinders into the end thereof adjacent to its pump-barrel, a valve in each of said steam-valve chambers adapted to place said live-steam-outlet port alternately in communication with said steam-inlet passage and steam-exhaust passage, a power-piston in each of said power-cylinders having a pump-plunger, a crank-shaft and operative connections between said crank-shaft and said pistons and valves, substantially as set forth.

695,184. CIRCUIT-BREAKER. CHARLES C. BARNES, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 26, 1901. Serial No. 69,647. (No model.)



Claim.—1. In combination with a circuit-breaker and its magnetic tripping device, an auxiliary device to overcome the initial tension of the retractile agent for the trip-armature.

2. In an automatic circuit-breaker, the combination of magnetic tripping device, a retractile agent, and an auxiliary magnet for increasing the density of the tripping field of force.

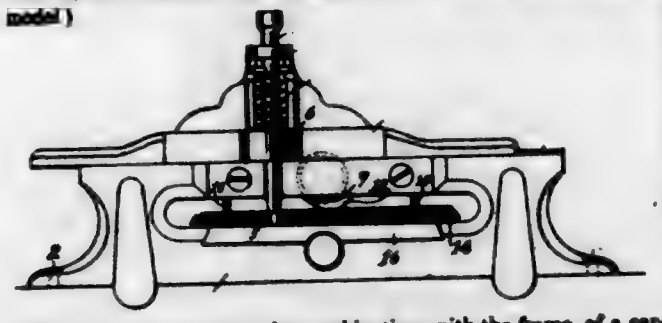
3. In an automatic circuit-breaker, the combination with magnetic tripping device, of a separately-excited auxiliary magnet acting attractively upon the armature to assist the magnetic tripping device.

4. In an automatic circuit-breaker, tripping device controlled by a magnetic circuit embracing the circuit-breaker terminal, and an auxiliary magnet normally furnishing a definite magnetizing force to said tripping magnet.

5. An automatic circuit-breaker provided with a magnetic yoke around a circuit-terminal, an armature acting through an air-gap in said yoke, and a separately-excited coil normally furnishing a definite degree of assisting magnetizing force acting cooperatively with the current through the coil on the tripping device.

6. An automatic circuit-breaker provided with setting device, magnetic tripping device, and an auxiliary magnet acting to overcome the friction of the moving parts.

695,135. SAW-SET. CLARENCE A. BAGBY and ALEXANDER R. CUNNIE, San Jose, Cal. Filed Aug. 5, 1901. Serial No. 70,533. (No model.)



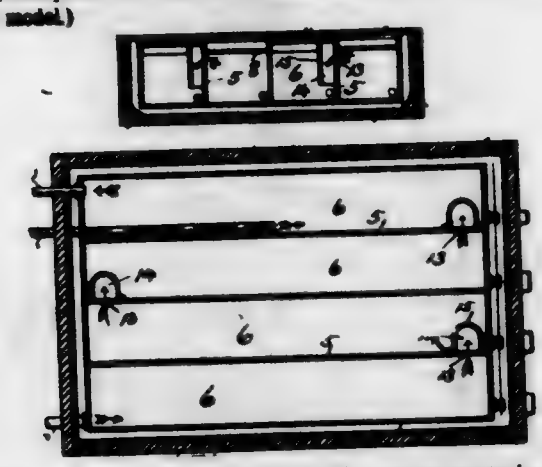
Claim.—1. In a saw-set, the combination, with the frame, of a carriage slidable thereon, means for sliding said carriage, a hammer movable vertically in the carriage, a spring retracting said hammer, an anvil, a vertically-movable spring-clamp, and means for depressing said clamp, substantially as described.

2. In a saw-set, the combination, with the frame, of a carriage slidable thereon, means for sliding said carriage, a hammer movable vertically in the carriage, a spring retracting said hammer, an anvil, means for moving the same laterally, a vertically-movable spring-clamp, and means for depressing said clamp, substantially as described.

3. In a saw-set, the combination, with the frame, of a carriage slidable thereon, means for sliding said carriage, a hammer movable vertically in said carriage, a spring retracting said hammer, an anvil, a vertically-movable clamp, and a cam for depressing said clamp, substantially as described.

4. In a saw-set, the combination, with the frame, of a carriage, slidable thereon, and carrying a rack, a hammer movable in vertical slideways in said carriage, a spring retracting said hammer, an anvil adjustable laterally of the frame, a spring-clamp a shaft and a pinion thereon engaging the rack on the carriage, and a clamping-cam pivoted on said shaft, said cam engaging the clamp to press the same down in position, substantially as described.

695,136. SOLAR WATER HEATER. MILTON M. BAKER, Stockton, Cal., assignor to the Sunshine Water Heater Co., San Francisco, Cal., a Corporation of California. Filed Nov. 12, 1900. Serial No. 36,262. (No model.)



Claim.—1. In a solar water-heater, the water-receptacle described formed entirely of metal and having inner, outer and side walls, and also having a plurality of partitions whereby it is divided into chambers, conduits, each of which extends from one chamber at a point adjacent to the outer wall of the same into the adjacent chamber at a point adjacent the inner wall thereof; said conduit being arranged alternately adjacent the opposite ends of the receptacle, a water-supply pipe connected to one of the outer chambers, and a water-discharge pipe connected to the other outer chamber, substantially as described.

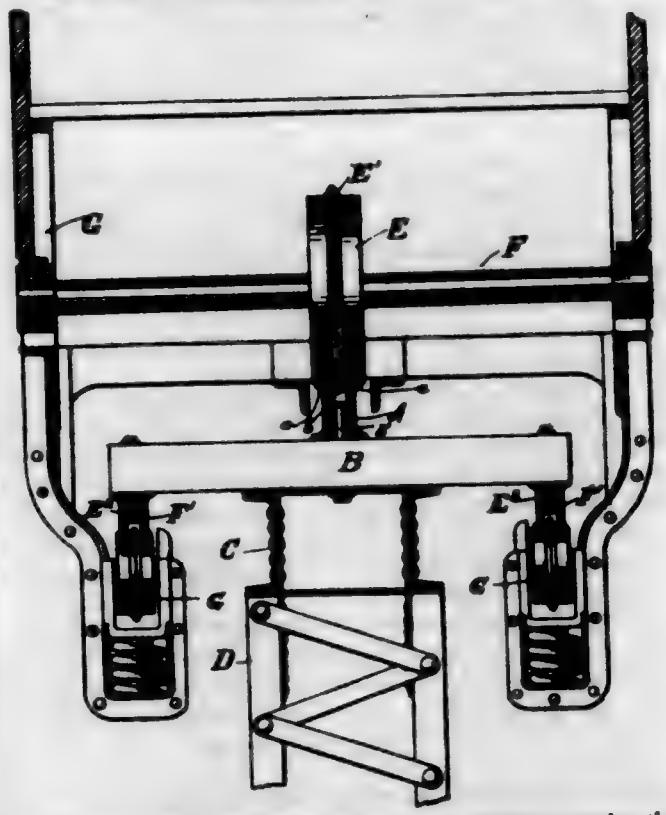
2. In a solar water-heater, the water-receptacle described formed entirely of metal and having the inner and side walls and outer crimped walls and also having partitions whereby it is divided into chambers, conduits, each of which is connected to a partition and extends from an aperture therein communicating with one chamber at a point adjacent to the outer wall of the same and an adjacent chamber at a point adjacent to the inner wall thereof, said conduits being arranged alternately adjacent to opposite ends of the receptacle, a water-supply pipe connected to one of the outer chambers, and a water-discharge pipe connected to the other outer chamber, substantially as described.

3. In a solar water-heater, the confined air-chamber having a glass face, and the water-receptacle arranged in the air-chamber and formed entirely of metal and having inner and side walls and corrugated or crimped outer walls, and also having a plurality of partitions whereby it is divided into chambers, conduits, each of which extends from one chamber at a point adjacent to the outer wall of the same to an adjacent chamber at a point adjacent to the inner wall thereof; said conduits being arranged alternately adjacent the opposite ends of the receptacle, a water-supply pipe connected to one of the outer chambers and a water-discharge pipe connected to the other chamber, substantially as described.

4. A heater comprising a receptacle having an absorption-plate, a plurality of partitions within the receptacle and dividing it into chambers, a perforation in each partition adjacent its upper edge and lying alternately at opposite ends of the receptacle, and a plate secured on one side of each partition, said plates having their edges secured to the partition excepting at their lower ends and separated from the partitions within their edges to form liquid-passages from the perforations to the bottom of the chamber, substantially as described.

5. A heater comprising a receptacle having an absorption-plate, a plurality of partitions within the receptacle and dividing it into chambers, a perforation in each partition adjacent its upper edge and lying alternately at opposite ends of the receptacle, and a conduit leading from each perforation to conduct the liquid from the top of one chamber at its end to near the bottom and at the same end of the adjacent chamber, substantially as described.

695,187. MONORAILWAY. LUSA BEMENT, Batavia, N. Y., assignor, by mesne assignments, to American Construction Company, New York, N. Y. Filed July 26, 1900. Serial No. 24,793. (No model.)



Claim.—In a monorailway, a continuous stringer carrying ties, a traction-rail composed of two longitudinal sections with an intermediate channel secured by bolts which unite the rail-sections upon said ties guide-rails of similar structure pendantly secured in the same manner at the under side of said ties, in combination with a car having a traction-wheel whose periphery is composed of separate contracting surfaces for the rail-sections, and has a central circumferential rib to enter the rail-channel; also guide-wheels of similar structure pendent from the car and arranged in continuous yielding contact with the guide-rails.

695,188. RAIL. LUSA BEMENT, Batavia, N. Y., assignor, by mesne assignments, to American Construction Company, New York, N. Y. Filed July 26, 1900. Serial No. 24,797. (No model.)

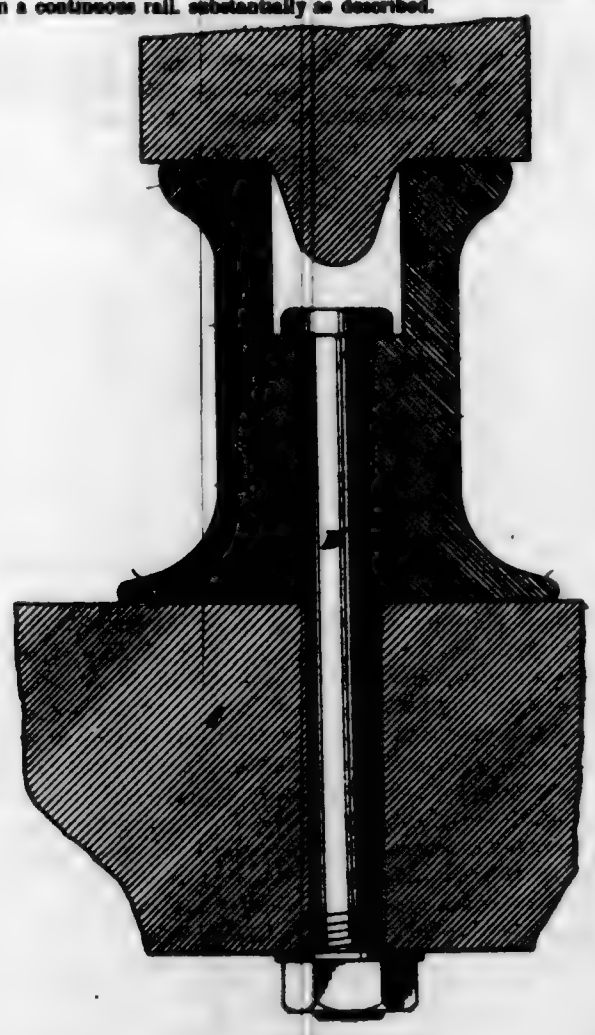
Claim.—1. In a rail, two longitudinal separate traction-sections, inward, lapping flanges on each section, vertical registering bolt-holes in each flange, and bolts for uniting said sections, together and to the rail-tie.

2. In a rail, two longitudinal parallel sections in such juxtaposition as to form an approximately central channel whereby two separate traction-surfaces are presented and means whereby said sections are simultaneously secured to each other and the tie, substantially as described.

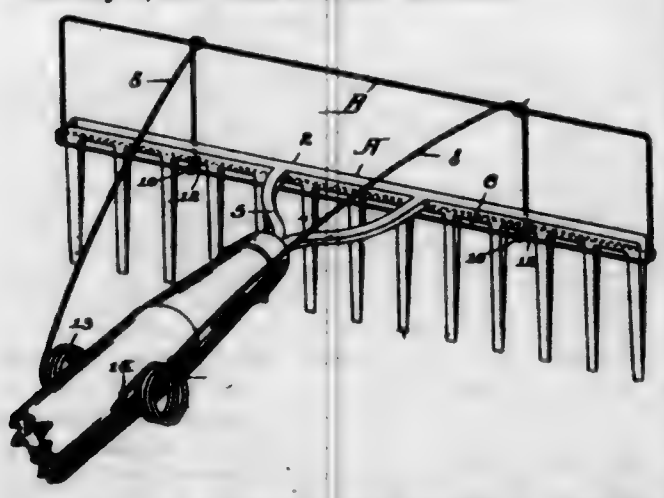
3. In a rail, two longitudinal parallel sections, inwardly-projected overlapping flanges thereon whereby said sections are separated to form an approximately central channel and two traction-surfaces, and bolts passing through said flanges and the tie whereby said sections are simultaneously secured to each other and the tie, substantially as described.

4. In a rail, two longitudinal parallel sections, inwardly-projected overlapping flanges thereon, whereby said sections are separated to form an approximately central channel and two traction-surfaces, and bolts pass-

ing through said flanges and the ties whereby said sections are simultaneously secured to each other and the ties, the ends of successive sections abutting against each other and breaking joints with its parallel section to form a continuous rail, substantially as described.



695,189. RAKE ATTACHMENT. OLAF BENSON, Red Wing, Minn. Filed May 20, 1901. Serial No. 61,022. (No model.)



Claim.—1. An attachment for rakes, consisting of a wire frame formed with an ejector which incloses the head of the rake and having a reinforcing-loop above said head, a pair of spring-arms, diverging toward and connected with said loop and ejector, and which bridge the teeth of the rake to form stops for the ejector against the head of the rake, and a pair of spring-coils formed on the inner ends of said arms and attached to the handle of the rake for the purposes specified.

2. An attachment for rakes, consisting of an ejector 6 formed by a wire frame inclosing the head of the rake, a reinforcing-loop 7 attached to the ends of said ejector, a pair of arms 8 attached to said loop and ejector, a pair of spring-loops formed on said arms and attached to the handle of the rake, and a pair of stops 12, bridging the teeth of the rake and attached to said ejector.

695,140. FIRE-ESCAPE. FREDERICK BEHLEN, St. Joseph, Mo. Filed Nov. 18, 1901. Serial No. 82,725. (No model.)

Claim.—1. A step for a spiral fire-escape, formed in one piece of sheet metal or wrought-iron, and having the following characteristics, namely: its top or tread roughened by burred punch-holes, and having the upturned edge K punctured for bolts and having at its inner end an opening to receive a supporting tubular column, and beaded at its edge, and having the downward part n', and its riser punctured for being bolted to the next lower step, all as shown and described.



2. Combined with a set of metallic steps disposed around a central tubular support, the castings G at their top and bottom made to fit the exterior curve of such support and provided with rows of alternating projecting lugs g' as shown, adapted to receive and embrace within the angles between such lugs the inner end of the riser of the steps, such castings forming also distance-pieces between each two adjacent steps, all as shown and described.

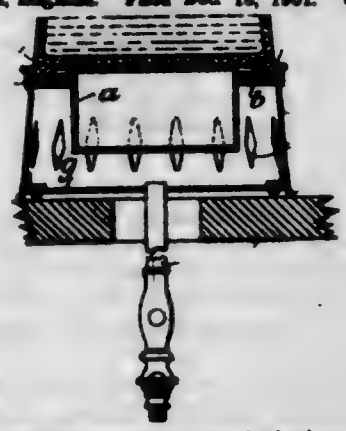
3. In combination with the metal steps each having a downward part n', at its outer end, the spiral band T bolted or secured to such part n', as and for the purposes set forth.

4. Combined with the outer edges of the spiral series of steps, the bands T, the posts j', and the pipe hand-railing S, all substantially as and for the purposes set forth.

5. In a spiral fire-escape, complete sections thereof for each story of a building and ready to be applied to the wall of the building and bolted together and having each portion of the central supporting-column provided with a flange-coupling as described, and whereby one section may be secured to another similar complete section, all as shown and described.

6. In a spiral fire-escape having a central tubular support, the combination with said support, of the inclined or angular casting D, adapted to be secured in a wall of a building and above its base, an inclined support or bracket B, sustained on said casting, a flanged elbow F, on said bracket connected or bolted to the main tubular support, and a bolt securing the elbow to the wall as set forth.

695,141. MEANS FOR MAINTAINING IN HEATED CONDITION DECOCTIONS OF COFFEE, TEA, OR OTHER LIQUIDS. EBENEZER BOYES, Peckham, England. Filed Dec. 16, 1901. Serial No. 86,145. (No model.)



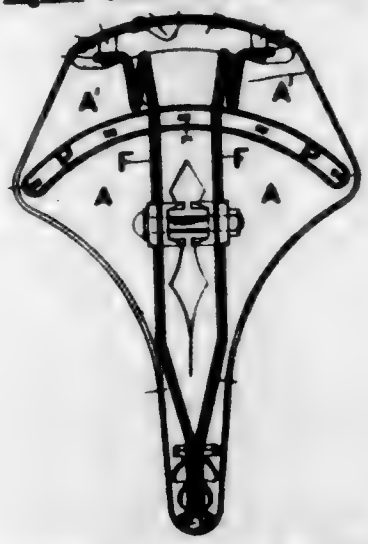
Claim.—1. A heating apparatus for a single jug comprising a circular open-topped boiler adapted to contain water and at its upper part

provided with an annular flange-like trough adapted to receive a ring of packing material, a ring of packing within said trough serving to form a seat for a jug, means for supporting the boiler and means for heating the same substantially as herein shown and described.

2. A heating apparatus for a single jug comprising a circular open-topped boiler adapted to contain water and at its upper part provided with an annular flange-like trough adapted to receive a ring of packing material, a ring of packing within said trough serving to form a seat for a jug, a jug formed at its bottom with a projecting ring or flange to enter the trough, means for supporting the boiler and means for heating the same substantially as herein shown and described.

3. A heating apparatus for a single jug comprising a circular open-topped boiler adapted to contain water and at its upper part provided with an annular flange-like trough adapted to receive a ring of packing material, a ring of packing within said trough serving to form a seat for a jug a circular casing surrounding the boiler and interiorly formed with an annular bead upon which the flange of the boiler rests so as to leave a space beneath the boiler for heating means and means for heating the boiler substantially as herein shown and described.

695,142. CYCLE-SADDLE. WALTER BRAMPTON, Dorridge, near Birmingham, England. Filed Oct. 26, 1901. Serial No. 80,086. (No model.)



Claim.—In a saddle, a suitable supporting-spring, a curved cantle-plate connected to the rear thereof, a saddle-leather secured to the said plate at its rear end and to the spring at its front end, and a second bar curved substantially concentric with the cantle-plate and secured solely to the saddle-leather in advance of said plate, substantially as described.

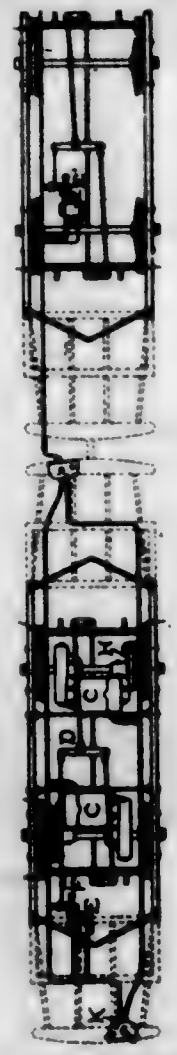
695,148. ELECTRIC MOTOR. THEODOR BEDUHN, Frankfort-on-the-Main, Germany, assignor to Hartmann & Braun, Actiengesellschaft, Frankfort-on-the-Main, Germany, a Firm. Filed Nov. 29, 1901. Serial No. 84,075. (No model.)



Claim.—1. An electric motor, comprising a plurality of conducting systems connected in parallel, each system including an active coil and a resistance connected by a collector-segment arranged between the resistances and active coils, the resistances being connected at a common point, with means for supplying current at said common point of connection, substantially as described.

2. An electric motor, comprising a plurality of conducting systems connected in parallel, each system including an active coil and a resistance with a collector-segment between the same to which they are connected, said resistances being connected at a common point, with means for supplying current at such point, and the active coils being connected to each other, with means for withdrawing current from the collector-segments, substantially as described.

695,144. ELECTRIC BRAKE. FRANK R. CARR, Schenectady, N.Y., assignor to General Electric Company, a Corporation of New York. Filed Apr. 4, 1900. Serial No. 11,673. (No model.)



Claim.—1. A brake system for an electrically-propelled car or train, comprising a propelling motor or motors, a brake, a motor for applying the brake, and a controlling device having contacts for regulating the propelling motor or motors, contacts at one of its positions for actuating the brake-motor in one direction and contacts at another position for actuating the brake-motor in the reverse direction.

2. A brake system for an electrically-propelled car or train, comprising brake-shoes on some or all of the cars, an independent, rotary electric motor or motors for actuating said brake-shoes, propelling-motors, a controlling device for the propelling-motors, and contacts on the said controlling device for connecting the brake motor or motors in circuit for either direction of rotation.

3. An electric-brake system for a car or train, comprising a rotary motor for each car, a drum actuated by each motor and applying or releasing the brake-rigging in accordance with the direction of rotation of the motors, propelling-motors for the car or train and a controlling device regulating both the propelling and the brake motors, the controlling device having contacts at one of its positions for driving the brake-motors in one direction, and contacts at or about the first power-point for reversing them.

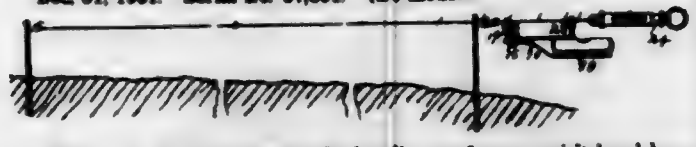
4. An electric-brake system for a car or train, comprising a rotary brake-motor on each car, a drum actuated by each brake-motor to apply or release the brake-rigging in accordance with the direction of rotation of the said motors, a braking device for each of the motors, released or applied by turning on or off of current, propelling-motors for the car or train, and a controlling device regulating all the motors.

5. A controlling device for an electrically-propelled car or train, equipped with propelling-motors and separate braking-motors, having contacts for regulating the propelling-motors, braking contacts utilizing the propelling-motors as generators, and a contact or contacts on the brake side for driving the brake-motors in one direction to apply the brakes, and other contacts for driving them in the opposite direction to release the brakes.

6. The combination of a number of motor-cars united in a train, each car having propelling-motors, rotary braking-motors, and a controller for all the motors of the car, and being a complete unit capable of indi-

vidual operation, with master-controllers at different points in the train, and means regulated by the master-controllers for simultaneously operating all the motor-controllers.

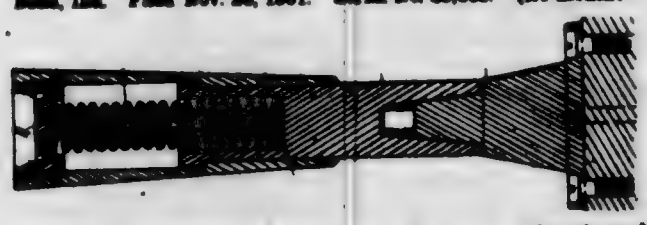
695,145. APPARATUS FOR LEVELING AND MEASURING THE GRADE OF SURFACES. WILLIAM F. COOK, Des Moines, Iowa. Filed Dec. 31, 1901. Serial No. 87,881. (No model.)



Claim.—1. In an apparatus for leveling surfaces, a spirit-level having an extension at one end, a perpendicular post near the end of the extension, a right-angled projection at the top of the post, a screw extended up through a vertical bore in the extension and rotatably connected with the right-angled extension of the post and provided with a groove around its lower end, a screw seated in the end of said extension to enter the said groove in the screw, an elbow-shaped support, having an internal screw-thread in its horizontal portion and an eye at its top and a post fixed at the center of gravity on top of the spirit-level and provided with an aperture at its top, arranged and combined to operate in the manner set forth for the purposes stated.

2. An apparatus for leveling walls and surfaces comprising a spirit-level having an extension at one end, a perpendicular post at its top and center of gravity provided with an aperture at its top and a perpendicular post, at the end of the extension, having a horizontal projection, a screw having a groove around its lower end extended up through the end of the extension and rotatably connected with the horizontal projection of the post, a screw seated in the end of the extension to enter the groove on the screw, an elbow-shaped support having an internal screw in its horizontal portion and an eye in the top of its vertical portion, a cord extended through the eye of the support and the aperture in the top of the post on the spirit-level, knots in the cord on opposite sides of the post and a hook on one end and a tension device on the other end, consisting of a tube having means for fastening the cord to its closed end and a longitudinal slot and scale, a second tube fitted in the open end of the first-mentioned tube, a coil-spring fixed to the closed ends of the two tubes, a pointer on the inner tube projecting through the slot in the outer tube, means for pulling on the closed end of the inner tube and a line having knots or beads at equal distances apart, arranged and combined to operate in the manner set forth for the purposes stated.

695,146. SPRUE-PIN FOR MOLDING-MACHINES. CALVIN E. DAVIS, South Bend, Ind., assignor to Oliver Chilled Plow Works, South Bend, Ind. Filed Nov. 26, 1901. Serial No. 83,903. (No model.)



Claim.—1. A sprue-pattern consisting of a stool and a pin and a head, the said pin being loosely seated on the stool so as to be removable therefrom by a straight pull, and means interposed between the pin and head whereby the latter is permitted to yield under a longitudinal pressure thereagainst.

2. A sprue-pattern consisting of a connected pin and head, a stool adapted to be secured to the pattern-plate and loosely support the pin and head, whereby the latter may be removed by a straight pull, and a spring interposed between the pin and head for normally holding these parts elongated.

3. A sprue-pattern, consisting of a stool, a hollow conical head, a pin mounted within the head, a spring in the head and bearing against the pin and a screw-cap for regulating the tension of the spring.

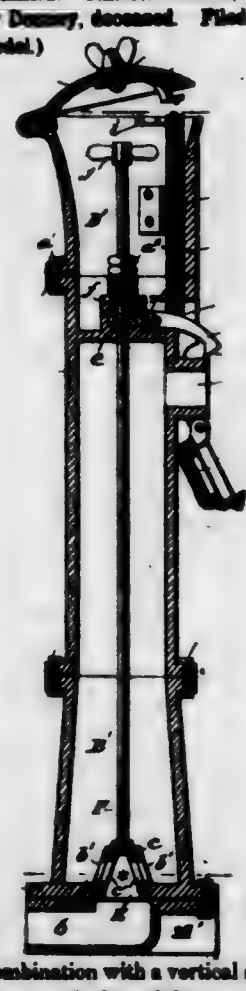
4. A sprue-pattern consisting of a conical stool, a hollow inverted conical head, a pin carried by said head and adapted to be loosely seated on the upper end of the conical stool and removable therefrom by a straight pull and a spring within the head and bearing against the pin.

5. A sprue-pattern, consisting of a conical stool, a hollow inverted conical head, a pin carried by said head, a spring located within the head and bearing against the pin and an adjustable cap for regulating the tension of the spring.

6. A sprue-pattern, consisting of a conical stool, a hollow inverted conical head, a pin carried by the head and provided with a recess in its lower end to receive the upper end of the stool and a cap closing the upper end of the head.

7. A sprue-pattern, consisting of a conical stool, a hollow inverted conical head, a pin carried by the head and provided with a recess at one end to receive the smaller end of the stool, and a recess in its other end to receive one end of a spring, a spring seated in said recess in the pin, and a cap secured to said head and forming a seat for the other end of said spring.

695,147. HYDRANT. THERESA DOWNEY, Brooklyn, N. Y., administratrix of Harmar Downey, deceased. Filed June 26, 1901. Serial No. 66,181. (No model.)



Claim.—1. The combination with a vertical shell composed of superimposed sections having respectively an inlet-passage, a conical valve-seat provided with inlet-ports and with an outlet from said valve-seat to the exterior of the shell, an outlet from the shell and a diaphragm above said outlet, and a stuffing-box, of a conical valve placed in the valve-seat and having inlet-passages to coöperate with the ports of the valve-seat and with an external channel to coöperate with the outlet from said valve-seat to the exterior of the shell, a valve-stem extended upward through the diaphragm and the stuffing-box, a thumb-piece for axially turning the valve stem to operate the valve and means for closing the opening in the top of the shell above said thumb-piece, as described.

2. The combination with a vertical shell having an outlet and also a diaphragm above said outlet, a conical valve-seat at the lower part of said shell and provided with inlet-ports and also with an outlet to the exterior of the shell, a conical valve placed in said valve-seat and having passages which coöperate with the inlet-ports of the valve-seat, and a channel in its outer surface which coöperates with the valve-seat outlet to the exterior of the shell, a valve-stem for axially turning the conical valve, a diaphragm within the shell above the outlet thereof, and a stuffing-box carried by the diaphragm with the valve-stem passed therethrough, of a cap hinged to the lower edge of the outlet of the shell, a cover hinged to the top of the shell and mechanism arranged between the free edge of the cover and the upper edge of the outlet from the shell to secure the cap in place to close the outlet by the pressure of the cover when the same is depressed to close the top of the shell, as described.

3. The combination with a vertical shell having an outlet and also a diaphragm above the said outlet, a valve-seat and valve at the lower part of the shell, a valve-stem for operating the valve to admit or shut off as the case may be, water to the interior of the shell, and a stuffing-box carried by the diaphragm with the valve-stem passed therethrough, of a hinged cover at the top of the shell, a cap hinged to the lower edge of the outlet of the shell, a latch pivoted within the shell and extending through the wall thereof over the upper edge of the outlet, and a vertically-sliding bar arranged in a guide within the shell above the diaphragm and over the latch whereby when the cap is in position to close the outlet of the shell it is held fast by the downward pressure of the hinged cover when depressed and fastened by the clip to close the top of the shell, as described.

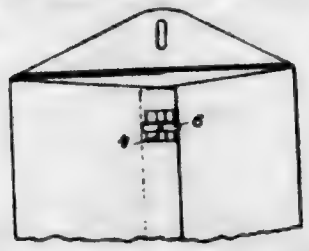
4. The combination with a vertical shell having an outlet and also a diaphragm above the said outlet and an inwardly-projecting lip at its

upper edge, a valve-seat and valve at the lower part of the shell, a valve-stem for operating the valve to admit or shut off as the case may be, water to the interior of the shell, and a stuffing-box carried by the diaphragm with the valve-stem passed therethrough, of a hinged cover at the top of the shell, a pivoted clip arranged to pass below the lip of the shell, means for operating said clip from the outside a cap hinged to the lower edge of the outlet of the shell, a latch pivoted within the shell and extending through the wall thereof over the upper edge of the outlet, and a vertically-sliding bar arranged in a guide within the shell above the diaphragm and over the latch whereby when the cap is in position to close the outlet of the shell it is held fast by the downward pressure of the cover when depressed and fastened by the clip to close the top of the shell, as described.

5. The combination with a vertical shell having an inwardly-projecting lip at its upper edge an outlet below said edge and also a diaphragm above said outlet, a stuffing-box carried by the diaphragm, a cap hinged at the lower edge of said inlet and provided with a projecting stud opposite its hinge, a conical valve-seat at the lower part of the shell having inlet-ports and an outlet to the exterior of the shell, a conical valve placed in said valve-seat, having in its outer surface a channel which coöperates with the outlet from the valve-seat to the exterior of the shell and with inlet-passages which coöperate with the inlet-ports of said valve-seat, an axially-movable stem for operating said valve extended upward through the diaphragm and the stuffing-box, a hinged cover for covering and protecting the upper end of the valve-stem, a vertical pivot in the cover, a swinging clip fast to the lower end of said pivot at the under side of the cover, a thumb-piece at the upper end of said pivot for turning the same to operate the clip, a latch pivoted within the shell, extended through an opening in the side thereof and arranged to hook upon the edge of the cap when the same is raised to close the outlet, a vertically-movable bar working in a guide in the wall of the shell and placed over the latch to hold down the latter to lock the cap in place to close the outlet of the shell when the cover is closed down with its clip under the lip of the shell, as described.

6. The combination with a shell composed of a bottom section having an inlet-passage, a lower section having a conical valve-seat in which are inlet-ports and which has an outlet to the exterior of the section, a superposed section having a diaphragm at its upper part and an outlet below said diaphragm, a cap hinged at the lower edge of said outlet and having opposite its hinge a locking-stud, and an upper section which has a hinged cover for closing the top of the shell, and an inwardly-projecting lip at its upper edge, of a stuffing-box on the diaphragm, a conical valve placed in the valve-seat having in its outer surface a channel which coöperates with the outlet of the valve-seat to the exterior of the section and with inlet-passages which coöperate with the inlet-ports of said valve-seat, an axially-movable stem for operating said valve extended up through the diaphragm and the stuffing-box, a vertical pivot in the hinged cover, a swinging clip fast to the lower end of said pivot at the under side of the cover, a thumb-piece at the upper end of said pivot for turning the same to operate the clip, a latch provided within the shell, extended through an opening in the side of the shell and arranged to hook upon the stud of the cap when the latter is raised to close the outlet of the shell, a vertically-movable bar in a guide within the shell and placed over the latch to hold down the latter when the outlet is closed by the cap and the cover is closed down with its clip under the lip of the shell, as described.

695,148. BAG-FASTENER. WILLIAM A. FIRE, Brooklyn, N. Y. Filed Oct. 23, 1901. Serial No. 80,359. (No model.)

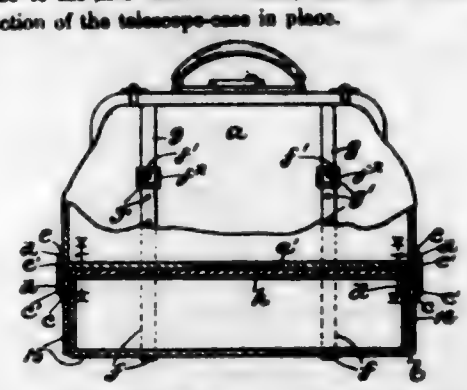


Claim.—1. In a bag-fastener a square blank having ribs for securing same to an object, said blank having the central portion thereof flat, and the two outer portions depressed at the ends, in combination with a cross-bar swiveled centrally to said blank, as set forth.

2. The combination of an envelop having a flap with an eyelet therein, a base-plate secured to the face of the envelop, said base-plate having a flat central portion, and depressed sides with a swiveled bar secured centrally to said base-plate, as set forth.

695,149. TRAVELING-BAG. CHARLES L. GILBERT, Cleveland, Ohio. Filed July 22, 1901. Serial No. 69,222. (No model.)

Claim.—1. A separable traveling-bag comprising a valise or satchel *a*; a telescope-case *b* adapted to be arranged in under the said valise or satchel and comprising two telescoping sections arranged one within the other, with the outer section constituting the cover-forming section of the telescope-case; means for detachably fastening the outer section of the telescope-case to the said valise or satchel, and other means for holding the inner section of the telescope-case in place.



2. A separable traveling-bag comprising a valise or satchel *a* provided, in the under side and centrally of its bottom, with a recess *a'*; a telescope-case *b* adapted to be arranged in under the said valise or satchel and comprising two sliding sections arranged one within the other, with the outer section constituting the cover-forming section of the said case and provided, upon its upper side and centrally, with a handle arranged as required to render it capable, when the valise or satchel and telescope-case are assembled, of engaging the aforesaid recess; means for detachably fastening the outer section of the telescope-case to the valise or satchel, and other means for holding the inner section of the said case in place.

3. A separable traveling-bag comprising a valise or satchel *a*; a telescope-case *b* adapted to be arranged in under the valise or satchel and comprising two sliding sections arranged one within the other, with the outer section constituting the cover-forming section of the telescope-case; means for detachably fastening the outer section of the telescope-case to the valise or satchel; means for holding the inner section of the said case in place, and means for preventing displacement of the valise or satchel and the outer section of the telescope-case relative to each other and arranged or provided between the top of the said outer telescope-case section and the bottom of the valise or satchel.

4. A separable traveling-bag comprising a valise or satchel *a* provided, upon the under side of its bottom, with studs or projections; a telescope-case *b* having its top provided with depressions or cavities arranged to register with the aforesaid studs or projections when the said case and the valise or satchel are assembled, and means for detachably securing the telescope-case to the valise or satchel.

5. A traveling-bag comprising a valise or satchel *a* provided, upon the under side of its bottom, with studs or projections; a telescope-case adapted to be arranged in under the valise or satchel and having plates which are set in the top thereof flush with the upper surface of the said top and have depressions or cavities arranged to register with the aforesaid studs or projections when the said case and the valise or satchel are assembled, and means for detachably fastening the telescope-case to the valise or satchel.

6. A traveling-bag comprising a valise or satchel *a* provided, upon the under side of its bottom, with studs or projections; a telescope-case adapted to be arranged in under the valise or satchel and having plates which are secured to the top thereof adjacent the corners of the case and have depressions or cavities arranged to register with the aforesaid studs or projections when the said telescope-case and the valise or satchel are assembled, and means for detachably fastening the telescope-case to the valise or satchel.

695,150. ELECTRIC SWITCH. CARYL D. HASKINS, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 27, 1901. Serial No. 69,942. (No model.)

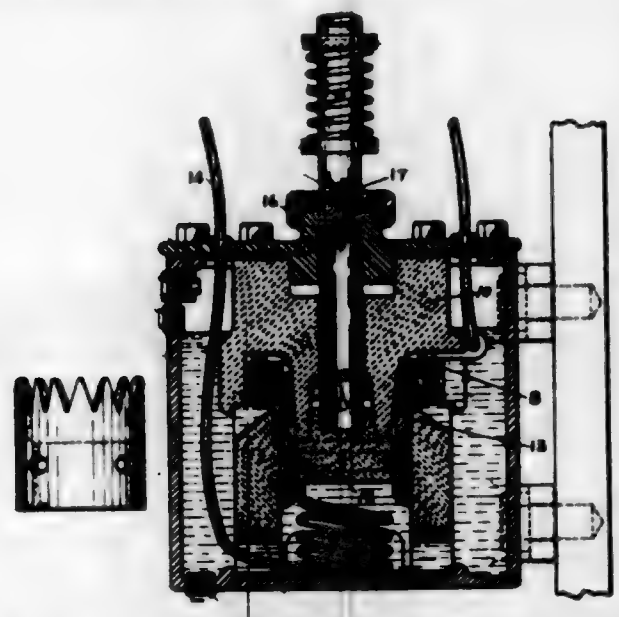
Claim.—1. A high-potential switch comprising a closed chamber containing an insulating liquid, a movable electrode, means for subjecting the liquid to pressure preliminary to the separation of the electrodes, and means for leading the liquid across the electrode-contacts when they part.

2. A high-potential switch comprising a closed vessel containing an insulating liquid, means for subjecting the liquid to pressure during an opening movement of the electrodes, a tubular exit communicating with the arcing ends of the electrodes, and means for permitting a free flow of the oil under pressure into said duct across the arcing faces when the electrodes separate.

3. A high-potential switch comprising an air-tight vessel containing an insulating liquid and an air-space, means for compressing the air during separation of the contacts, a tubular electrode communicating with an exhaust-duct, and means for leading the oil across the contact-faces of the electrodes in opening the circuit.

4. A high-potential switch comprising an air-tight vessel partially filled with oil, an exhaust-duct communicating with the atmosphere, and

means for inducing a flow of oil into said exhaust-duct across the contact-faces of the electrodes when the circuit is opened.

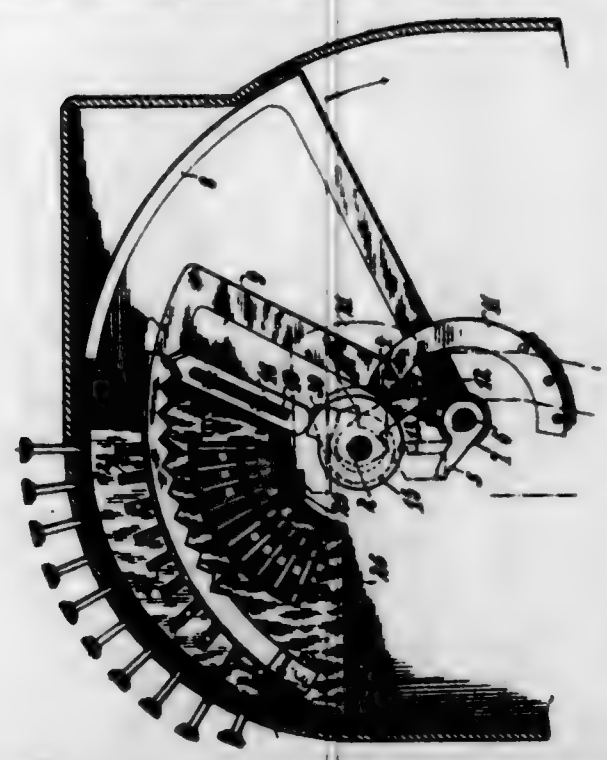


5. A high-potential switch comprising an air-tight oil-tank partially filled with oil, a fixed ring-contact beneath the surface of the oil, a movable electrode engaging said contact adapted to put the oil under pressure in an opening movement, and exhaust-ducts leading from the electrodes put into communication with the oil during such opening movement.

6. A high-potential switch comprising an air-tight tank, an insulating-column between its cover and bottom, a contact-ring beneath the oil-surface secured thereto, and a movable contact adapted to put the oil under pressure in opening movement and drive the oil across the separating contact-faces.

7. A high-potential switch comprising an air-tight tank partially filled with oil, an exhaust-duct communicating with the atmosphere, electrodes beneath the oil-surface, the electrodes having their point of engagement submerged in the oil, the duct being so arranged as to carry oil across the contact-faces, a valve in the air-chamber to equalize the pressure, and means for compressing the air so as to put the oil in movement when the circuit is opened.

695,151. CASH-REGISTER. WOLDEMAR HEINTZE, Dresden, Germany. Filed Mar. 5, 1901. Serial No. 49,900. (No model.)



Claim.—1. In a cash-register, the combination with a plurality of keys; of indicating mechanism comprising a plurality of numeral-bearing segments movable independently to expose an amount, by gravity, the length of movement being controlled by the keys; a shaft forming the support for each segment, said shaft having means for moving said segments in opposition to the gravity movement; a rotatory shaft; and connections between said rotatory and supporting shafts for imparting said opposing movement to the supporting-shaft.

2. In a cash-register, the combination with a plurality of keys; of indicating mechanism comprising a plurality of numeral-bearing segments movable independently to expose an amount, by gravity, the length of movement being controlled by the keys; a shaft forming the support for each segment, said shaft having radially-projecting pins; laterally-projecting pins carried by each of said segments adapted to be engaged by said radially-projecting pins; a rotatory shaft; and connections between said rotatory and supporting shafts for imparting a movement to said radially-projecting pins.

3. In a cash-register, the combination with a plurality of keys; of indicating mechanism comprising a plurality of numeral-bearing segments movable independently to expose an amount, by gravity, the length of movement being controlled by the keys; a shaft forming the support for each segment, said shaft having radially-projecting pins; laterally-projecting pins carried by each of said segments adapted to be engaged by said radially-projecting pins; a rotatory shaft; and connections between said rotatory and supporting shafts and operating during a portion of the movement of said rotatory shaft, for imparting a movement to said radially-projecting pins.

4. In a cash-register, the combination with a plurality of keys; of indicating mechanism comprising a plurality of numeral-bearing segments movable independently to expose an amount, by gravity, the length of movement being controlled by the keys; a shaft forming the support for said segments; a rotatory shaft; a driver carried by said supporting-shaft; and a tappet carried by said rotatory shaft, whereby a movement in opposition to the gravity movement will be imparted to the said segments.

5. In a cash-register, the combination with a plurality of keys; of indicating mechanism comprising a plurality of numeral-bearing segments movable to a position to expose an amount, by gravity; a supplemental segment carried by each of the numeral-bearing segments, said supplemental segments carrying key-engaging means for limiting the gravity movement of the numeral-bearing segments; a rotatory shaft operatively connected to impart a movement in opposition to said gravity movement; and means operated by said shaft and coöperating with the supplemental segments for locking said segments in position.

6. In a cash-register, the combination with a plurality of keys; of indicating mechanism comprising a plurality of numeral-bearing segments movable to a position to expose an amount, by gravity; a supplemental segment carried by each of the numeral-bearing segments, said supplemental segments carrying key-engaging means for limiting the gravity movement of the numeral-bearing segments; said supplemental segments also having a series of notches on their under sides; a rotatory shaft; a cam carried by said rotatory shaft; and a bar adapted to be moved into contact with one of the notches of each of the supplemental segments by said cam, whereby said segments will be locked in position.

7. In a cash-register, the combination with a plurality of keys; of indicating mechanism comprising a plurality of numeral-bearing segments movable to a position to expose an amount, by gravity; a supplemental segment carried by each of the numeral-bearing segments, said supplemental segments carrying key-engaging means for limiting the gravity movement of the numeral-bearing segments; a rotatory shaft operatively connected to impart a movement in opposition to said gravity movement; a cam carried by said rotatory shaft; a rectilinearly-guided bar adapted to be moved into contact with one of the notches of each of the supplemental segments by said cam, whereby said segments will be locked in position; and a spring operating in opposition to said cam.

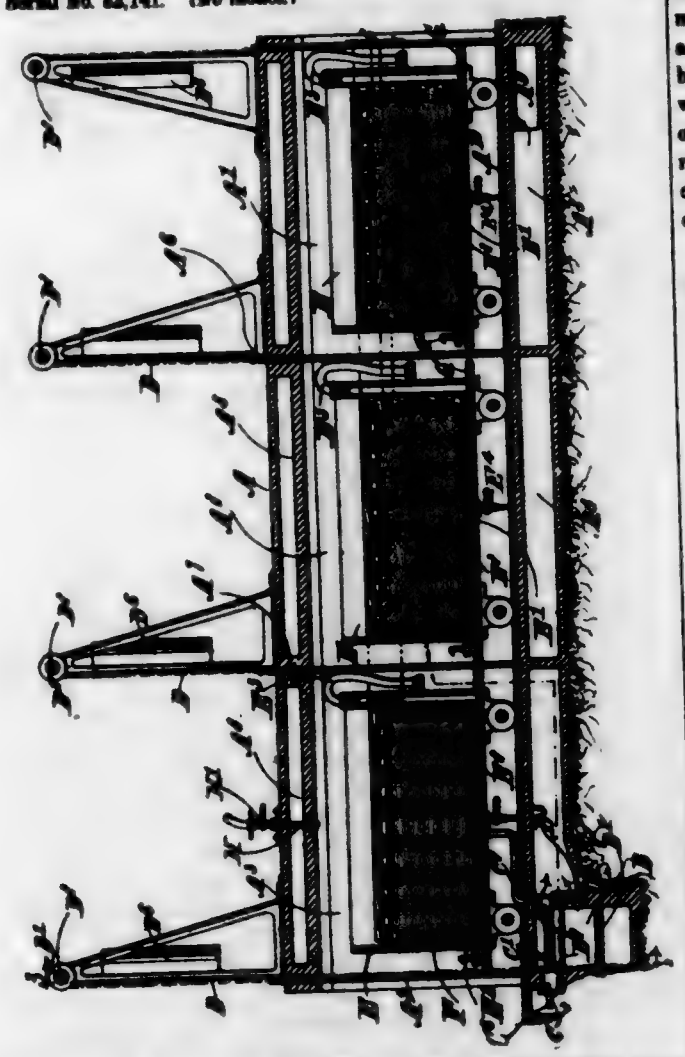
8. In a cash-register, the combination with a plurality of push-keys, each having a laterally-extending pin; of a segment having a pivotal movement; and a spring-actuated pawl carried by said segment, said pawl being adapted to contact with said pin when the key is depressed and said segments are moved to indicate the amount.

9. In a cash-register, the combination with a plurality of push-keys, each having a laterally-extending pin; of a segment having a movement in one direction due solely to gravity, said segment having a pivotal movement; and a spring-actuated pawl carried by said segment and adapted to contact with said pin when the key is depressed, said contact serving to limit the gravity movement of said segment and hold said key depressed.

10. In a cash-register, the combination with a plurality of push-keys including a "naught-key," each of said keys having a pin; of a device by which the "naught-key" is automatically raised and depressed, said device comprising a slotted plate or slide adapted to be displaced by the pins, said plate operating a double-arm lever, the free end of which acts upon the "naught-key" in a manner to displace the said key in the opposite direction to the slotted plate or slide.

11. In a cash-register, a plurality of number-segments adapted to be automatically adjusted by gravity and directly connected with the type-segments; automatic devices for locking and securing said number-segments in their positions; and a "naught-key" connected with the other keys so as to be operated thereby, substantially as described.

695,152. APPARATUS FOR IMPREGNATING AND SEASONING WOOD. HUBERT HIECKEN, Cambridge, England. Filed Nov. 13, 1901. Serial No. 82,141. (No model.)



Claim.—1. The combination with a drying-chamber divided into a series of compartments with adjustable means of communication between each compartment means for passing a fluid into the first compartment, an opening for the exhaust of the same from the last compartment of the series, and openings forming a passage for the fluid between adjacent compartments, of a series of open tanks adapted to be placed in and removed from each compartment and devices for connecting and disconnecting the bottom of each tank when in a compartment with one of the said communicating openings or with the exhaust-opening substantially as described.

2. The combination with a drying-chamber divided into a series of compartments, adjustable means of communication between each compartment, a furnace of which the flue forms a jacket to the chamber, a superheater placed in said furnace and connected with a source of steam and one end compartment of the chamber respectively and an exhaust-opening in the other end compartment, of a series of open tanks and means to connect the bottom of a tank when within a compartment with the interior of an adjacent compartment or with the exhaust-opening so as to pass the superheated steam successively through all the tanks and compartments substantially as specified.

3. The combination with a drying-chamber having a series of compartments, sliding doors between adjacent compartments, a pipe or pipes for introducing a hot fluid into one end compartment of the series and a communication F F' F^2 between adjacent compartments and between one end compartment and the atmosphere, of a series of open tanks each tank having a perforated false bottom and means such as a flexible pipe for connecting the space thus formed with one of the aforesaid communications F F' F^2 substantially as described.

4. The combination with a drying-chamber having a series of compartments, sliding doors between adjacent compartments, a furnace beneath one end of the chamber the flue of which forms the jacket to said chamber, a superheater within said furnace communicating respectively with a source of steam and with the interior of one end compartment of the chamber, and a communication F F' F^2 between adjacent compartments and between the other end compartment and the atmosphere and a series of open tanks, each tank having a perforated false bottom and means such as a flexible pipe for connecting the space thus formed in the bottom of each trunk with one of the aforesaid communications F F' F^2 substantially as described.

5. The combination with a drying-chamber having a series of compartments, sliding doors between adjacent compartments, a furnace beneath one end of the chamber the flue of which forms the jacket to said chamber, a superheater within said furnace communicating respectively with a source of steam and with the interior of one end compartment of the chamber, and a communication F F' F^2 between adjacent compartments and between the other end compartment and the atmosphere and a series of open tanks, each tank having a perforated false bottom and means such as a flexible pipe for connecting the space thus formed in the bottom of each tank with one of the aforesaid communications F F' F^2 substantially as described.

695,153. GAME-BALL AND METHOD OF MAKING SAME. WILLIAM H. HOYT, Wyoming, N. J., assignor to the Burt Company, Milburn, N. J., a Corporation of New Jersey. Filed Mar. 22, 1901. Serial No. 52,572. (No model.)

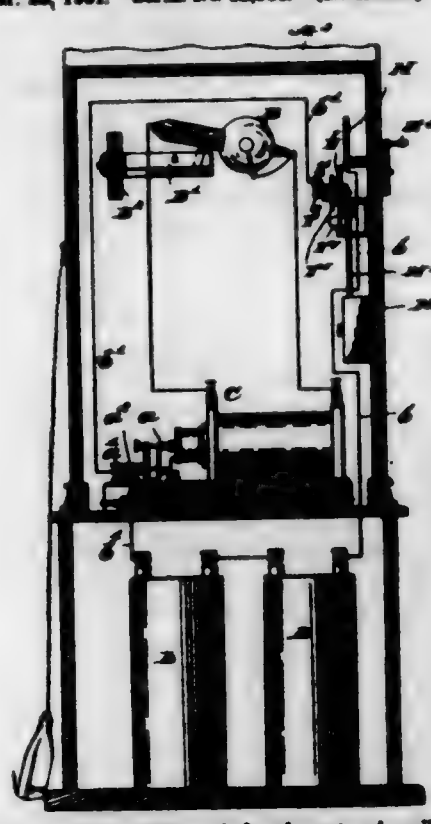


Claim.—1. As a new and useful article of manufacture, a game-ball composed of a body of plastic material and a spot set in said body and having its side surface fluted longitudinally.

2. The process of producing game-balls, which consists in forming a body of plastic material by pressure, forming a spot of plastic material by pressure in a cold state, inserting the spot into a recess of the body with an interposed layer of loose comminuted plastic substance and integrating the spot, body and interposed layer by heat and pressure.

3. As a new and useful article of manufacture, a game-ball composed of a body of compressed plastic material and a solid spot the exposed surface of which has a non-circular outline said spot being inserted in and united to the body to form an integral whole.

695,154. COIN-CONTROLLED X-RAY MACHINE. JAMES M. HEWITT, Chicago, Ill., assignor to William T. Hinton, Chicago, Ill. Filed Mar. 22, 1901. Serial No. 52,261. (No model.)



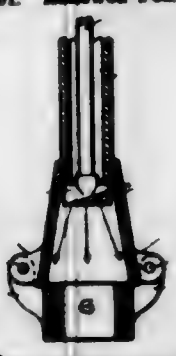
Claim.—1. In a machine of the character described, the combination of a casing, X-ray apparatus installed therein, including a coil having a primary circuit, and coin-controlled mechanism for completing said primary circuit, comprising, in combination, a rotatable contact-wheel, a coin-actuated wheel communicating motion thereto, and a manually-operated coin-engaging device which serves, through the medium of a coin, to move said coin-actuated wheel, substantially as described.

2. In a machine of the character described, the combination of a casing, X-ray apparatus installed therein, and coin-controlled mechanism for controlling the operation of said X-ray apparatus, comprising a rotating

contact-maker, a coin-actuated wheel through the medium of which the said contact-maker is moved, a shaft extending loosely through said wheel, a spring connected with said wheel, a coin-engaging wheel fixed to the inner end of said shaft and located adjacent to said coin-actuated wheel, a coin-passage between said wheels, and an operating-handle connected with said shaft and located outside said casing, substantially as described.

3. In a machine of the character described, the combination of a coin-actuated wheel provided with lugs c', c^2, a shaft extending loosely through said wheel, a wheel fixed to the inner end of said shaft and provided with a lug c located to pass between the lugs c', c^2 when no coin is interposed, a coin-passage between said wheels permitting a coin to pass into contact with the adjacent ends of said three lugs, a spring connected with said coin-actuated wheel, and an operating-handle connected with the outer end of said shaft, substantially as described.

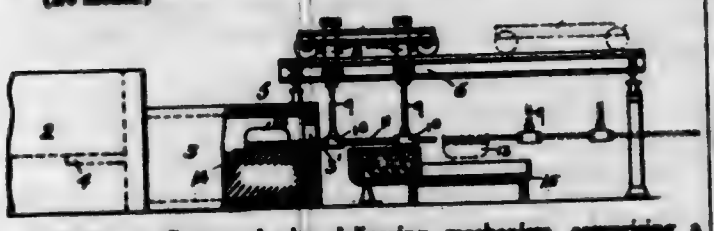
695,155. SMOKE-CONSUMER. JOHN W. JACKSON, Amsterdam, N. Y. Filed Feb. 2, 1901. Renewed Feb. 7, 1902. Serial No. 93,101. (No model.)



Claim.—1. In a smoke-consumer, a nozzle having flaring sides, provided near its end with a removable nozzle, the interior wall of which extends into and forms an angle with the interior wall of said flaring nozzle, against which the steam and air passing through said nozzle will impinge; a means for removably securing said nozzles together; with a means for conveying steam and air into said flaring nozzle; substantially as described.

2. In a smoke-consumer, a mixing-chamber; a pipe conveying air thereto; a pipe conveying steam thereto; said steam-conveying pipe enveloped by said air-conveying pipe; outwardly-flaring sides to said mixing-chamber extending throughout a part of its length; parallel sides to said mixing-chamber extending throughout the remainder of its length; the diameter of the mixing-chamber being less in that portion having parallel sides, than in that having flaring sides, at the point or plane of the union of the two; an abrupt shoulder formed in the interior of the mixing-chamber at the junction between the flaring sides and the parallel sides of said chamber, substantially as described.

695,156. APPARATUS FOR DELIVERING GLASS. WASHINGTON D. KEYES, Kittanning, Pa. Filed Aug. 27, 1900. Serial No. 28,128. (No model.)



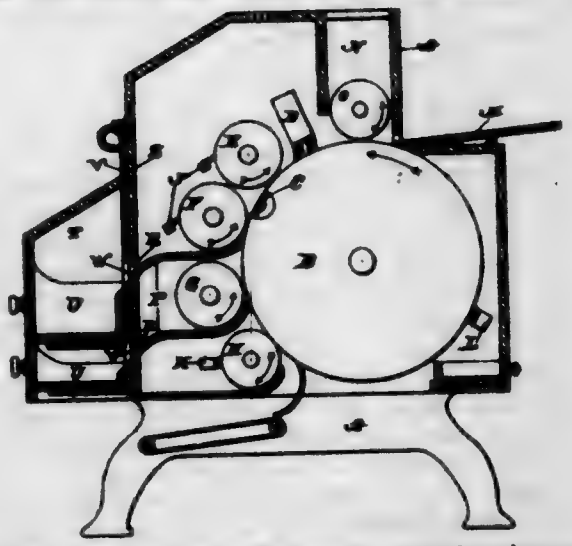
Claim.—1. Improved glass-delivering mechanism, comprising a portable ladle adapted to rotate on a horizontal axis, means for maintaining the ladle-axis constantly in a horizontal plane, mechanism for raising and lowering the horizontally-maintained ladle and means for limiting the throw of said mechanism to a distance equal to the radius of the ladle, substantially as shown and described.

2. Improved glass-delivering apparatus, comprising a refining-chamber having an opening, a ladle-support, a ladle on the support adapted to rotate on a horizontal axis, a ladle-bath in line with the chamber-opening, means for maintaining the ladle-support constantly in horizontal position, means for moving vertically the horizontally-maintained ladle-support, and mechanism for moving the support and ladle to position over the bath and from thence to discharging position, substantially as shown and described.

3. In improved glass-delivering mechanism, the combination with a refining-chamber provided with an opening, and a ladle-bath exterior to the refining-chamber, of a ladle, a rotatable ladle-support to which the ladle is fixed, means for maintaining the ladle-support constantly in horizontal position, means for vertically moving said support, and mechanism for transporting the ladle and its support from the refining-chamber to the bath, and from the latter to position for discharging, substantially as shown and described.

4. In improved glass-delivering apparatus, the combination with the ladle-support and the ladle on the support, of two power-cylinders having their piston-rods secured to the support and sustaining the same in horizontal position, the piston-rods serving to move the support and ladle vertically, substantially as shown and described.

695,157. BRONZING-MACHINE. GEORGE KLAISER, Los Angeles, Cal. Filed July 24, 1901. Serial No. 69,576. (No model.)

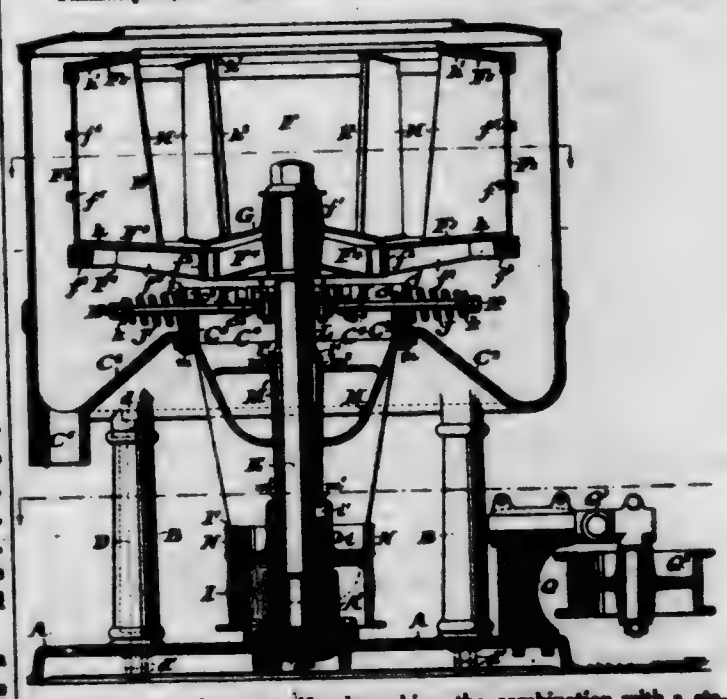


Claim.—1. A bronze-holding attachment for bronzing-machines, comprising a receptacle affixed to the machine in the rear of the duster-rollers; drawers in said receptacle, the rear end of the top of which is below the top surface of the rear end of the pans under the duster-rollers; slots in the casing of the bronzing-machine, above the rear end of the pans under the duster-rollers; and a movable slide provided with slots to register with the slots of the casing, and adapted to be moved to close the slots in the casing.

2. In a bronzing-machine, means to remove the surplus bronze from the machine while in motion, comprising slots in the casing above the pans under the duster-rollers thereof; a slide adapted to close said slots, when desired; a closed receptacle having removable drawers, affixed to the casing at said slots, substantially as described herein.

3. In a bronzing-machine, means to remove the surplus bronze from the machine while in motion, comprising a closed receptacle affixed to the casing of the machine in the rear of the duster-rollers, having means to clean out the interior thereof, when desired; an opening into said receptacle in the rear of said duster-rollers, adapted to permit the bronze to fall into the receptacle; and means to close said opening, when desired.

695,158. CENTRIFUGAL MACHINE. WALTER P. LAFFERTY, Philadelphia, Pa. Filed Dec. 16, 1901. Serial No. 86,085. (No model.)



Claim.—1. In a centrifugal machine, the combination with a stationary casing comprising a discharge-opening; of a spindle arranged to rotate and gyrate in said casing; a drum fixed on the upper end of said spindle within said casing; vanes in said drum; a discharge-opening in said drum in registry with the discharge-opening in said casing; a cover for said opening; a bearing-sleeve embracing said spindle, intermediate of said drum and casing; means connected to said bearing-sleeve arranged

to yieldingly support said spindle; and means to rotate said spindle and drum, substantially as set forth.

2. In a centrifugal machine, the combination with a stationary casing comprising a discharge-opening; of a spindle arranged to rotate and gyrate in said casing; a drum fixed on the upper end of said spindle within said casing; vanes in said drum; a discharge-opening in said drum in registry with the discharge-opening in said casing; a cover for said opening; a bearing-sleeve embracing said spindle, intermediate of said drum and casing; a series of tension-rods extending radially from said bearing-sleeve; springs surrounding said rods and abutting against said casing; means to adjust the stress of said springs upon said rods; and means to rotate said spindle and drum, substantially as set forth.

3. In a centrifugal machine, the combination with a stationary casing comprising a discharge-opening; of a chute secured to said casing in registry with said opening; a sleeve on said chute; a spindle arranged to rotate and gyrate in said sleeve; a drum secured on the upper end of said spindle within said casing; vanes in said drum; a discharge-opening in said drum in registry with the discharge-opening in said casing; a removable cover for said opening; means arranged to yieldingly support the upper end of said spindle; and means to rotate said spindle and drum, substantially as set forth.

4. In a centrifugal machine, the combination with a stationary casing comprising a discharge-opening; of a chute secured to said casing in registry with said opening; a conical sleeve on said chute; a spindle arranged to rotate and gyrate in said sleeve; a drum secured on the upper end of said spindle within said casing; vanes in said drum; a discharge-opening in said drum in registry with the discharge-opening in said casing; a removable cover for said opening; means arranged to yieldingly support the upper end of said spindle; and means to rotate said spindle and drum, substantially as set forth.

5. In a centrifugal machine, the combination with a stationary casing comprising a discharge-opening; of a chute secured to said casing in registry with said opening; a stationary sleeve on said chute; a spindle arranged to rotate and gyrate in said sleeve; a drum secured on the upper end of said spindle within said casing; vanes in said drum; a discharge-opening in said drum in registry with the discharge-opening in said casing; a removable cover for said opening; a bearing-sleeve embracing said spindle and overhanging the upper end of said stationary sleeve; means connected to said bearing-sleeve arranged to yieldingly support the upper end of said spindle; and means to rotate said spindle and drum, substantially as set forth.

6. In a centrifugal machine, the combination with a stationary casing comprising a discharge-opening; of a chute secured to said casing in registry with said opening; a stationary sleeve on said chute; a spindle arranged to rotate and gyrate in said sleeve; a drum secured on the upper end of said spindle within said casing; vanes in said drum; a discharge-opening in said drum in registry with the discharge-opening in said casing; a removable cover for said opening; a vertically-extending flange around the margin of the opening in said casing; openings in said flange; a bearing-sleeve fixed to said spindle; rods, each connected at one end to said bearing-sleeve, and projecting through the respective openings in said flange; nuts on the outer ends of said rods; springs embracing said rods and abutting against said flange and said nuts; and means to rotate said spindle and drum, substantially as set forth.

7. In a centrifugal machine, the combination with a stationary inclosing casing; of a rotary spindle in said casing; an imperforate drum within said casing, fixed upon the top of said spindle; a step bearing in said casing supporting the lower extremity of said spindle; a bearing-sleeve surrounding the upper portion of said spindle, beneath said drum; means to yieldingly support said bearing-sleeve with respect to said casing; radial openings in the bottom of said drum, concentric with said spindle; a removable cover for said openings; a vertically-depending flange on said drum, at the margin of said openings; an opening in the bottom of said casing concentric with said spindle, of greater radius than the openings in said drum; a vertically-extending flange on said casing at the margin of said opening; and a discharge-chute, fixed with respect to said casing, in registry with said openings, substantially as set forth.

695,159. APPARATUS FOR REPRODUCING SOUNDS. THOMAS B. LAMBERT, Chicago, Ill. Filed July 20, 1901. Serial No. 69,135. (No model.)

Claim.—1. In an apparatus of the class described, the combination of a vibratable strip having a sound-record thereon, a sound-curve, and a vibratable body attached thereto, substantially as described.

2. In an apparatus of the class described, the combination of a vibratable strip having a sound-record thereon, a sound-curve, and a vibratable body adapted to vibrate in unison therewith attached thereto, substantially as described.

3. In an apparatus of the class described, the combination of a vibratable strip having a sound-record thereon, a sound-curve, a vibratable body attached thereto, and means for causing the record and vibratable body to vibrate in unison, substantially as described.



4. In an apparatus of the class described, the combination of a vibratable strip having a sound-record thereon, a sound-curve, a vibratable diaphragm attached thereto, a sliding block slidingly mounted on the record, and a spring-stylus mounted on such block engaging the sound-curve, substantially as described.

5. In an apparatus of the class described, the combination of a cup-shaped sounding-box provided with a perforation in the head thereof, and a sound-curve strip passed through such perforation, substantially as described.

6. In an apparatus of the class described, the combination of a cup-shaped sounding-box having a perforation passed through its head portion, a sound-curve strip passed through such perforation and provided with a head loosely engaging the head of the sound-box, and a slide on the sound-curve provided with a spring-pressed stylus engaging the sound-curve, substantially as described.

7. In an apparatus of the class described, the combination of a vibratable strip having a sound-record thereon, and a body portion adapted to vibrate in unison therewith arranged at the end thereof, substantially as described.

8. In an apparatus of the class described, the combination of a vibratable resonant body portion, and a vibratable strip having a sound-record thereon connected with and extending at an angle from the surface of such body portion, substantially as described.

9. In an apparatus of the class described, the combination of a vibratable strip having a sound-record thereon embodying a line of sound-record indentations, and a vibratable resonant body portion attached thereto at a point beyond the end of the line of indentations, substantially as described.

10. In an apparatus of the class described, the combination of a vibratable strip having sound-record indentations extending longitudinally thereof, and a vibratable body portion attached thereto and adapted to vibrate in unison therewith, substantially as described.

11. In an apparatus of the class described, a vibratable strip portion having sound-record indentations extending longitudinally thereof, and a resonant body portion adapted to vibrate in unison with the record portion, substantially as described.

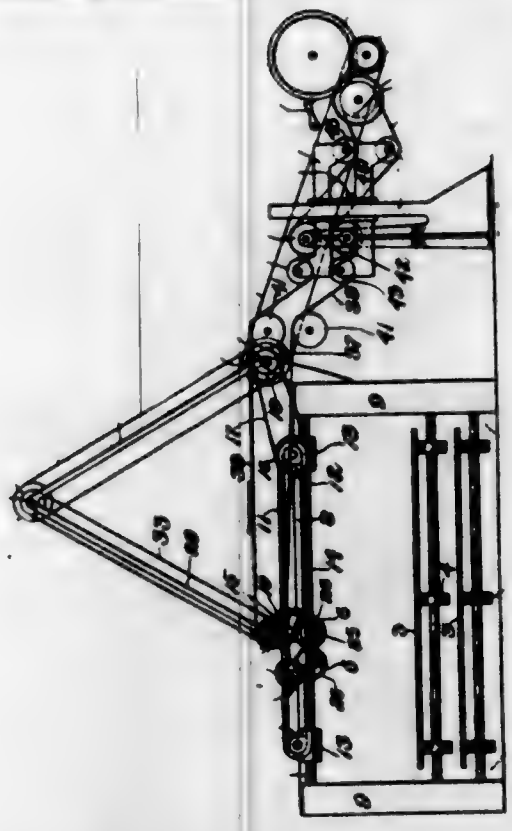
695,160. LAPPING-MACHINE. WILLARD I. LEWIS, Walpole, Mass. Filed Apr. 29, 1901. Serial No. 57,913. (No model.)

Claim.—1. In a machine for forming laps or batts, in combination, a carriage, means to traverse the said carriage, a fleece-conveying apron having a horizontal extension or bight guided upon the said carriage and also extending therefrom, and gravitating take-up devices acting in connection with the apron to take care of the slack therein as the carriage is traversed, substantially as described.

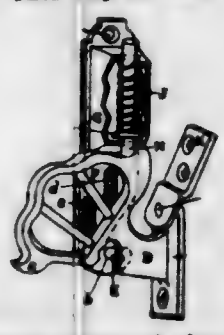
2. In a machine for forming laps or batts, in combination, a carriage, means to traverse the said carriage, a fleece-conveying apron having a horizontal extension or bight guided upon the said carriage and also extending therefrom, take-up rolls acting in connection with intermediate portions of said apron, and guide-rolls to sustain the apron against the action of the take-up rolls, substantially as described.

3. In a machine for forming laps or batts, in combination, a carriage, means to traverse the said carriage, a fleece-conveying apron having a horizontal extension or bight guided upon the said carriage and also extending therefrom, the guide-rolls for said apron, and the gravitating take-

up rolls whereby the slack in the apron is taken care of as the carriage is traversed, substantially as described.

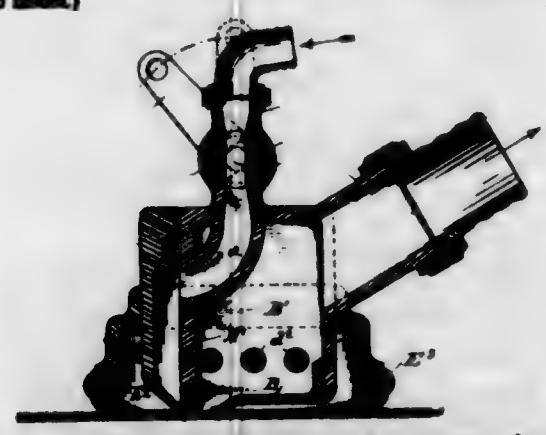


695,161. COMBINED SASH RATCHET AND PIVOT. JOHN S. LEHKERT, Dayton, Ohio, assignor to the Dayton Manufacturing Company, Dayton, Ohio. Filed July 15, 1901. Serial No. 68,620. (No model.)



Claim.—In a sash-sash ratchet and pivot, a pivot-plate provided with an auxiliary plate in pivotal connection therewith, a serrated arm and a pivot, in combination with a plate having a pivot-seat and a spring-actuated bolt engaging the said serrated arm, whereby such engagement will hold the sash in either of several positions, as required.

695,162. APPARATUS FOR CLEANING CARPETS. AUGUSTUS LOTZ, San Francisco, Cal., assignor of one-half to Joseph Haas and Julius Kahn, San Francisco, Cal. Filed Dec. 4, 1900. Serial No. 38,602. (No model.)



Claim.—1. The combination with a casing or frame, of an air-inlet passage-way therethrough, said passage-way terminating in a contracted outlet, a receiving-chamber having a feed-opening therein, of means whereby air under pressure is supplied to the passage-way and ejected against the material being treated with sufficient force to remove dirt and foreign matter therefrom and force same into the receiving-chamber, means whereby the material delivered into the receiving-chamber is automatically removed therefrom, a hood E' surrounding the casing so as to form an auxiliary chamber for collecting any dust or dirt which may escape, and of communication between said chamber and the receiving-chamber.

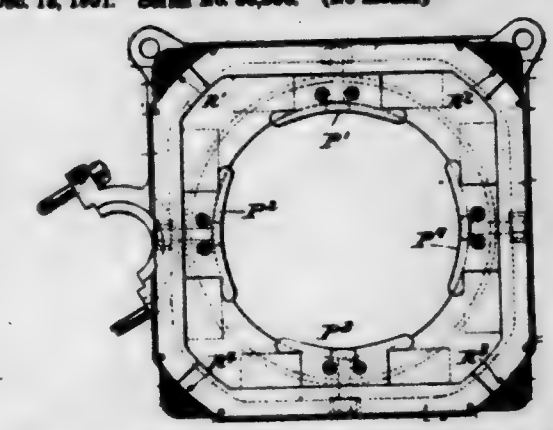
2. The combination in an apparatus for cleaning carpets or similar material, of a casing or frame, of a receiving-chamber in said casing or frame, an air passage-way extending through the casing, of means for supplying air to said passage-way and forcing the same against the carpet with sufficient force to eject the dust and dirt therefrom and deliver same to the receiving-chamber, mechanism whereby the air and dirt are automatically removed from the receiving-chamber, of means for propelling the casing over the surface of the carpet to be cleaned, a valve in the air-supply, and means operatively associated with the propelling means for operating said valve.

3. In an apparatus for the purpose described, the combination with the casing, of a hand device by means of which it is propelled over the carpet to be cleaned, of means for forcing a current of air against the surface of the carpet with sufficient force to eject the dust and dirt therefrom, valve mechanism by means of which the air-supply is controlled, means connected to the hand device for operating the valve mechanism and of means whereby the utilized air and dust ejected from the carpet are automatically removed.

4. The combination, in an apparatus for cleaning carpets or similar material, of a casing or frame, of a receiving-chamber in said casing or frame, a downwardly-projecting lip b^2 at the bottom of said chamber, an air passage-way extending through the casing, of means for supplying air to said passage-way and forcing the same against the carpet to eject the dust and dirt therefrom and deliver the same into the receiving-chamber, and means for automatically removing the dust and dirt from the receiving-chamber, substantially as described.

5. The combination in an apparatus for cleaning carpets or similar material, of a casing or frame, of a receiving-chamber in said casing or frame, an air passage-way extending through the casing, of means for supplying air to said passage-way and forcing the same against the carpet to eject the dirt and dust therefrom and deliver the same into the receiving-chamber, means for automatically removing the dust and air from the receiving-chamber, and a hood E' surrounding the casing and communicating with the receiving-chamber, substantially as described.

695,163. FIELD-MAGNET FOR DYNAMO-ELECTRIC MACHINES OR ELECTRIC MOTORS. ROBERT LUNDELL, New York, N. Y. Filed Dec. 18, 1901. Serial No. 86,396. (No model.)



Claim.—1. A laminated field-magnet inclosed or centered by a rigid skeleton frame with the laminations extending outward between the supporting parts of the frame.

2. A supporting-frame for a laminated field-magnet, consisting of two end brackets with connecting-pieces between them, the frame being absolutely rigid by itself when bolted together, substantially as described.

3. A four-pole form of laminated field-magnet supported by two end brackets having connecting-pieces across the four corners, substantially as described.

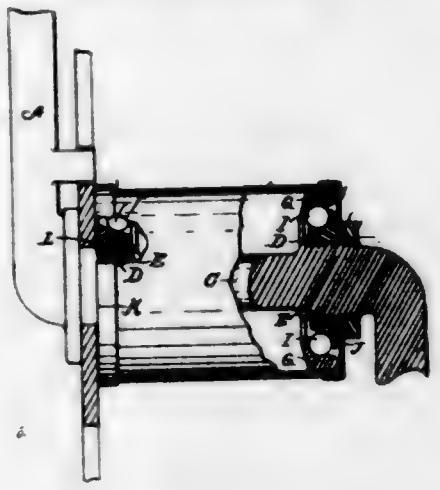
4. A flattened form of laminated field-magnet supported by a rigid skeleton frame provided with means for centering and securing the laminations together *en masse* with their outer edges projecting between the supporting parts of the frame.

5. A flattened form of laminated field-magnet supported by two end brackets having connecting-pieces across the laminated body portion; in combination with bolts through said connecting-pieces, substantially as described.

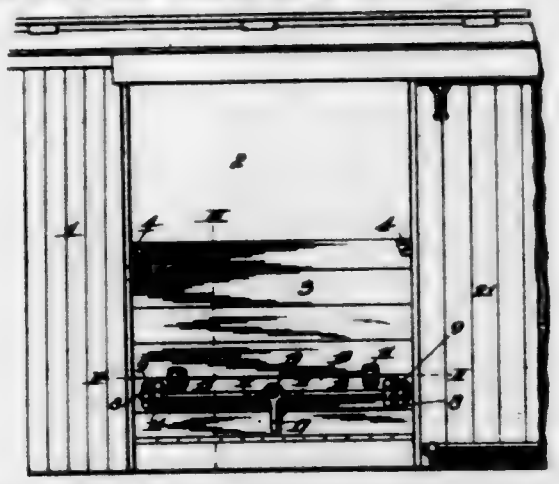
695,164. BICYCLE. ADOLPH H. MILLER, North Milwaukee, Wis. Filed Aug. 5, 1901. Serial No. 70,878. (No model.)

Claim.—In a bicycle, the combination of pedal cranks and axle in a single piece, and provided with screw-threads for the interior bearing-cones, a crank-hanger having exterior ball-bearing collars permanently secured therein and adapted to permit the manipulation of the crank therethrough; interior threaded bearing cones or collars adapted to engage the

screw-threaded portion of the crank-shaft; an annular capping-plate engaged with and covering the ends of the crank-hanger sleeve; said plate and interior bearing-collar having interlocking projections and recesses; and means for securing the annular plate in position.

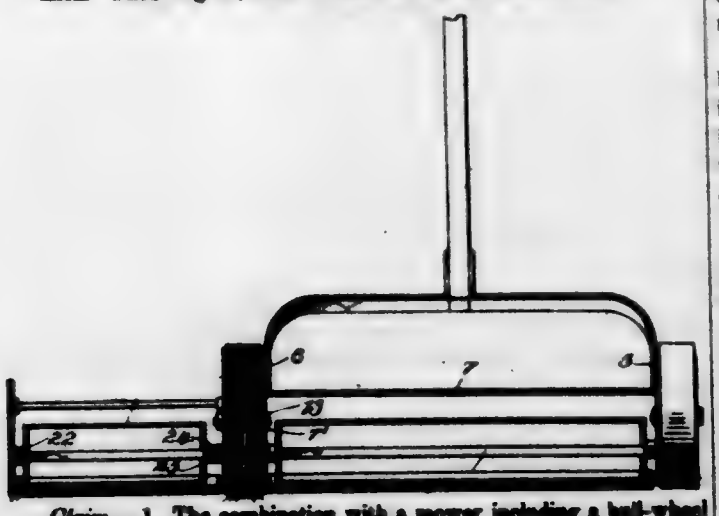


695,165. GRAIN-CAR DOOR. AUGUST MILLER, St. Louis, Mo. Filed June 8, 1901. Serial No. 63,720. (No model.)



Claim.—The combination of a main door having an opening, a panel hinged to cover the opening, keepers upon the main door, and a locking mechanism carried by the panel and comprising a pivot member having a flange and a seat, a lever mounted on the seat, a bolt passing through the pivot member, holding the lever upon the seat and clamping the pivot member to the panel, and locking-bolts secured to the pivot member, the ends of said locking-bolts being adapted to project into the keepers to lock the panel in a closed position.

695,166. LAWN-TRIMMER. WILLIAM H. MOSS, Port Huron, Mich. Filed Aug. 13, 1901. Serial No. 71,951. (No model.)

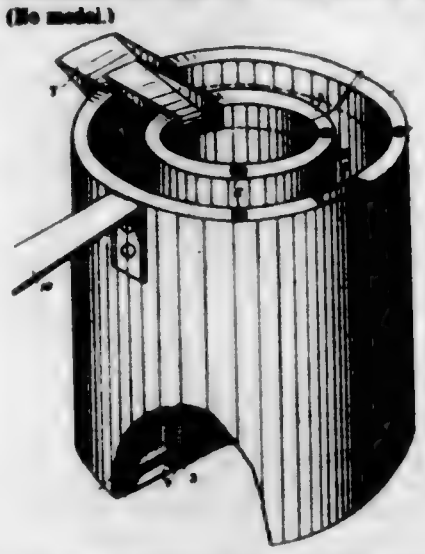


Claim.—1. The combination with a mower including a bull-wheel having a central web, an internal gear at each side of the web, and having a rotary cutter provided with a pinion engaged with one of the gears, of a second rotary cutter having a pinion engaged with the second internal gear, and means for holding the second cutter with its pinion in engagement with the gear, said cutter having a fixed cutter in coöperative relation thereto.

2. The combination with a mower including a bull-wheel having separate internal gears and a rotary cutter operatively connected with one of them for rotation thereby, of a pinion engaged with the other gear, a rotary knife connected with the pinion for rotation thereby, and a fixed knife in operative relation to the rotary knife.

3. The combination with a mower including a fixed knife, a rotary knife in operative relation to the fixed knife, end castings with which the fixed knife is connected, one of the castings having a hollow axle, and a bull-wheel journaled upon the axle, said wheel having spaced gears with one of which the knife is operably connected, a plate disposed against the end of the hollow axle, an attaching-bolt passed through the plate and axle, a guard-board, connections between the plate and guard-board, a pinion engaged with the second gear and having a shaft journaled in the plate, a rotary knife journaled at one end in the guard-board and removably engaged at its other end with the shaft, and a fixed knife in operative relation to the rotary knife.

695,167. COMBINATION LIQUID MEASURE AND STERILIZER. JOHN C. F. MCGRIFF, San Jose, Cal. Filed Mar. 20, 1901. Serial No. 53,402. (No model.)



Claim.—1. The combination of an outer vessel and a vessel interior thereto each of said vessels having a pouring-spout with the spout of the interior vessel extending across the space between the walls of the vessels and leading into the spout of the outer vessel.

2. A measuring vessel including a plurality of compartments one contained within the other to form a single structure, each of said compartments having a pouring-spout with the spout of an interior compartment bridging the space between the wall of said compartment and the wall of the one next to it and entering the spout of the latter.

3. A measuring vessel including concentric compartments separated from each other and containing double walls, each of said compartments having a pouring-spout so arranged in line that the spout of the inner compartment bridges the space between the adjacent walls of the compartments and enters, and discharges into, the spout of the outer compartment.

4. A measuring vessel including a plurality of compartments each of said compartments having a discharge-passage extending substantially horizontally from its upper portion and with the passage of one compartment leading into the passage of the other compartment.

5. A measuring vessel having a plurality of compartments with double walls forming chambers for hot water, each of said compartments having a pouring-passage with the passage of one compartment horizontally in line with and entering the passage of another compartment whereby the contents of each of the compartments is delivered through a discharge common to all compartments.

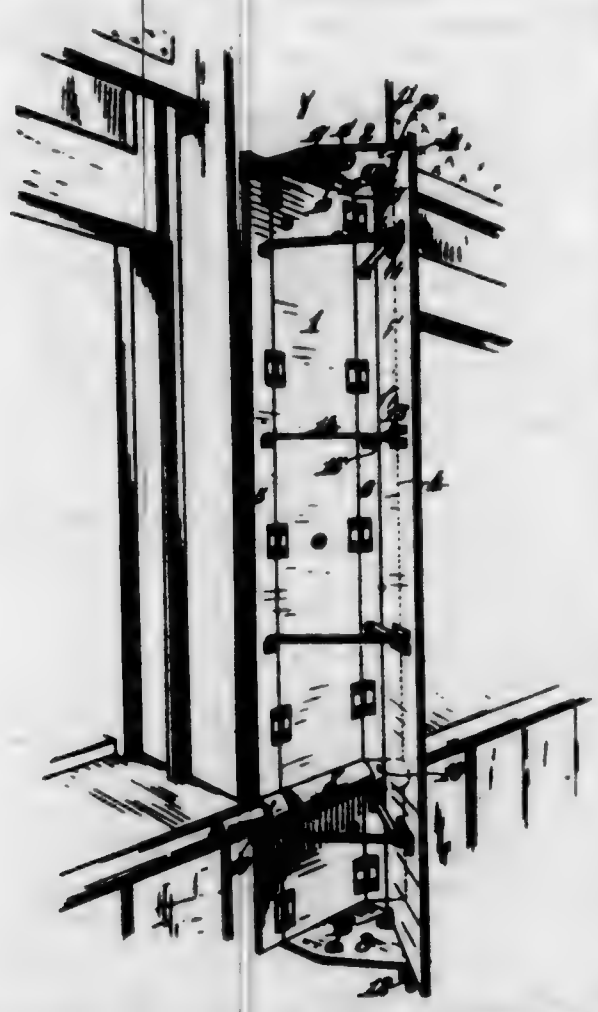
6. A measuring vessel having a plurality of independent compartments, with surrounding connected hot-water chambers, independent pouring-passages leading from each of the compartments, said passages opening into a discharge common to all.

7. A vessel comprising a plurality of compartments, each compartment having inclosing double walls and having separate pouring-passages with the passage of one compartment leading into the passage of the other compartment, and means for introducing a heating medium between said walls and between the bodies of liquid in the compartments.

8. A sterilizing device including an inner and an outer vessel each having double walls, and closures for the upper and lower ends of the spaces between pairs of walls said upper closures having vent-openings and the upper closure of one pair of walls having a filling-opening.

695,168. DEFLECTOR AND VENTILATOR FOR PASSENGER-CARS. FRANK I. NICHOLS, Washington, D. C., assignor to Charles Albert Withers, Augusta, Ga. Filed Jan. 2, 1901. Renewed Feb. 3, 1902. Serial No. 92,695. (No model.)

Claim.—1. A deflector and ventilator for passenger-cars, comprising a deflecting-blade, means for adjusting the position of said blade, and deflecting-wings connected with said blade and adapted to be actuated thereby.



2. A deflector and ventilator for passenger-cars, comprising a pivotally-mounted deflecting-blade, pivotally-mounted deflecting-wings on opposite sides thereof and connections between said blade and said wings, whereby the latter may be turned by the former.

3. A deflector and ventilator for passenger-cars, comprising a pivotally-mounted deflecting-blade, pivotally-mounted deflecting-wings on opposite sides of said blade, and a link connection between said blade and said wings.

4. A deflector and ventilator for passenger-cars, comprising a pivotally-mounted deflecting-blade, pivotally-mounted deflecting-wings on opposite sides thereof, means for adjusting the position of said blade, and connections between said blade and said wings, whereby the latter may be turned by the former.

5. A deflector and ventilator for passenger-cars, comprising a base, brackets secured thereto and projecting outwardly therefrom, a deflecting-blade mounted to turn between said brackets, deflecting-wings pivoted to said base on opposite sides of said blade, and connections between said blade and said wings, whereby the latter may be actuated by the former.

6. A deflector and ventilator for passenger-cars, comprising a base, brackets secured thereto and projecting outwardly therefrom, a shaft mounted to turn in said brackets and having an operating-handle thereon, a deflecting-blade secured to said shaft and located between said brackets, deflecting-wings pivoted to said base, and a link connection between said blade and said wings.

7. A deflector and ventilator for passenger-cars, comprising an adjustable deflecting-blade, deflecting-wings connected thereto and operated thereby and means for locking said blade and wings in adjusted position.

8. A deflector and ventilator for passenger-cars, comprising an adjustable deflecting-blade, deflecting-wings connected thereto and operated thereby and means for automatically locking said blade and wings in adjusted position.

9. A deflector and ventilator for passenger-cars, comprising a pivotally-mounted adjustable deflecting-blade, means for turning the same, deflecting-wings connected thereto and operated thereby and a lock for retaining said blade and wings in adjusted position.

10. A deflector and ventilator for passenger-cars, comprising a pivotally-mounted adjustable deflecting-blade, means for turning the same, deflecting-wings connected thereto and operated thereby and an automatic lock for retaining said blade and wings in adjusted position.

11. A deflector and ventilator for passenger-cars, comprising a pivotally-mounted deflecting-blade, pivotally-mounted deflecting-wings connected with said blade and adapted to be turned thereby, and a lock for retaining said blade and said wings in adjusted position.

12. A deflector and ventilator for passenger-cars, comprising a pivotally-mounted deflecting-blade, pivotally-mounted deflecting-wings on opposite sides thereof, a link connection between said blade and said wings, and a lock for retaining said blade and said wings in adjusted position.

13. A deflector and ventilator for passenger-cars, comprising a base, brackets projecting outwardly therefrom, a vertical shaft mounted in said brackets, a deflecting-blade secured to said shaft, bearing-lugs on the inner side of said blade, deflecting-wings pivoted to said bracket on opposite sides of said blade, and links pivoted at their inner ends to said bearing-lugs and at their outer ends, respectively, to said wings.

14. A deflector and ventilator for passenger-cars, comprising a pivotally-mounted adjustable deflecting-blade, a stationary part in which said blade is mounted and in which it is vertically movable, means for turning said blade, a locking-button on one of said parts, having a head and a contracted shank, and a socket for receiving said button on the other of said parts having a slot therein with a contracted offset, the head of said button adapted to project through said slot and the shank of said button adapted to fit within said contracted offset.

15. A deflector and ventilator for passenger-cars, comprising a base, brackets projecting outwardly therefrom, a vertical shaft mounted to turn in said brackets and capable of vertical movement therein, a deflecting-blade secured to said shaft, lugs secured to one of said brackets and projecting toward the other, each of said lugs having a slot therein provided with a contracted offset, and locking-buttons on said blade having heads thereon and contracted shanks, the heads of said buttons adapted to project through the slots in said lugs and said shanks adapted to fit within said contracted offsets.

16. A deflector and ventilator for passenger-cars, comprising a base, brackets projecting outwardly therefrom, a vertical shaft mounted to turn in said brackets and capable of vertical movement therein, a deflecting-blade secured to said shaft and capable of vertical movement in said brackets, lugs secured to the upper of said brackets and projecting downwardly therefrom, lugs secured to the lower of said brackets and projecting upwardly therefrom, one set of said lugs having slots therein provided with contracted offsets, and locking-buttons on said blade having heads thereon and contracted shanks, the heads of said buttons adapted to project through said slots, when said blade is in its raised position and said shanks adapted to fit within the contracted offsets of said slots when said blade is in its lowermost position, and said blade adapted to engage the imperforate lugs when the same is in its lowermost position.

17. A deflector and ventilator for passenger-cars, secured to the partition between two of the windows thereof and extending downwardly below the window-sill, the same comprising a deflecting-blade and deflecting-wings connected with said blade and adapted to be actuated thereby, the said wings being provided with offset portions for the reception of said sill.

18. A deflector and ventilator for passenger-cars, secured to the partition between two of the windows thereof and extending downwardly below the window-sill, the same comprising a back or base provided with an offset portion for the reception of said sill, a deflecting-blade and deflecting-wings connected with said blade and adapted to be actuated thereby, the said wings being provided with offset portions for the reception of said sill.

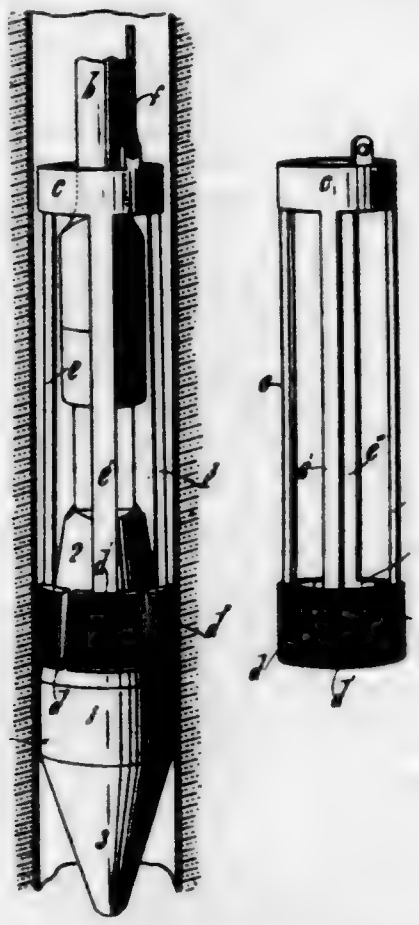
19. A deflector and ventilator for passenger-cars, comprising a base secured to the side of the car and projecting down below the sill of the windows and provided with an offset portion for the reception of said sill, a pivotally-mounted deflecting-blade, and wings pivoted to the side edges of said base and connected with said blade so as to be operated thereby, the said wings being provided with offset portions for the reception of said sill.

695,169. COMBINED SWAGE AND CASING-SPEAR. EDWARD FOSTER, Los Angeles, Cal. Filed Sept. 15, 1900. Serial No. 29,177. (No model.)

Claim.—1. A combined swage and casing-spear comprising a swage tapering at its upper end; means for raising and lowering the same; a set of slips to fit inside the casing and around said swage and adapted to be expanded by the upwardly-tapering portion of said swage; a ring which will pass freely up and down around the support of the swage; means connecting the slips with said ring; and means for lowering the slips into the well above the swage and withdrawing it out of the well independently of the swage or the tools thereto attached.

2. In a combined swage and casing-spear, the combination with a swage tapering at its upper end, of a set of slips, and means for applying the slips to and withdrawing them from the swage after the swage has been lowered into the well-casing.

695,169.



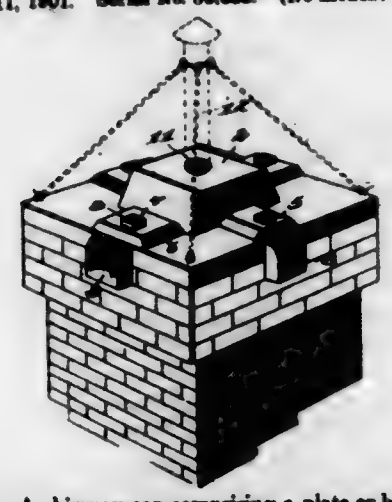
8. A chimney-cap comprising a plate provided at its sides and ends with recesses, plates or offsets covering the recesses, cleats mounted in the recesses, bolts passing through the cleats and through the offsets, and nuts carried by the bolts.

9. A chimney-cap comprising a plate provided at its sides and ends with recesses, and reversible clamps or cleats mounted within the recesses and adapted to secure the plate upon the coping of the chimney-shell interiorly or exteriorly thereof.

10. A chimney-cap comprising a plate provided at the sides and ends with recesses, reversible clamps or cleats mounted within the recesses and adapted to secure the plate on the coping of the chimney either interiorly or exteriorly thereof.

11. A chimney-cap comprising a plate provided at the sides and ends with recesses and at its center with a rectangular opening, clamps or cleats arranged in the recesses, offsets covering the recesses, bolts passing through the cleats and through the offsets for holding the cleats at the desired adjustment, a smoke-chamber covering the center opening of the plate and provided in its top with means for attachment to a smoke-pipe, the smoke-chamber being pyramidal in shape, thereby to concentrate the smoke passing thereto and to direct it to the smoke-pipe.

695,170. CHIMNEY-CAP. CHARLES J. QUINN, Scranton, Iowa. Filed May 11, 1901. Serial No. 59,853. (No model.)



Claim.—1. A chimney-cap comprising a plate or body portion provided upon its under side with recesses, clamps or cleats mounted within the recesses and lying flush with the under side of the plate, and means for holding the clamps at any desired adjustment in the recesses.

2. A chimney-cap, having a plurality of chimney-engaging clamp members which are flush with the under side of the cap to permit of the latter resting flat upon the top of the chimney, and means for adjusting the clamps, said means and the clamps being accessible for adjustment from the top and outer edge of the cap.

3. A chimney-cap having reversible chimney-engaging clamps, which are constructed for external and internal engagement with chimney-walls.

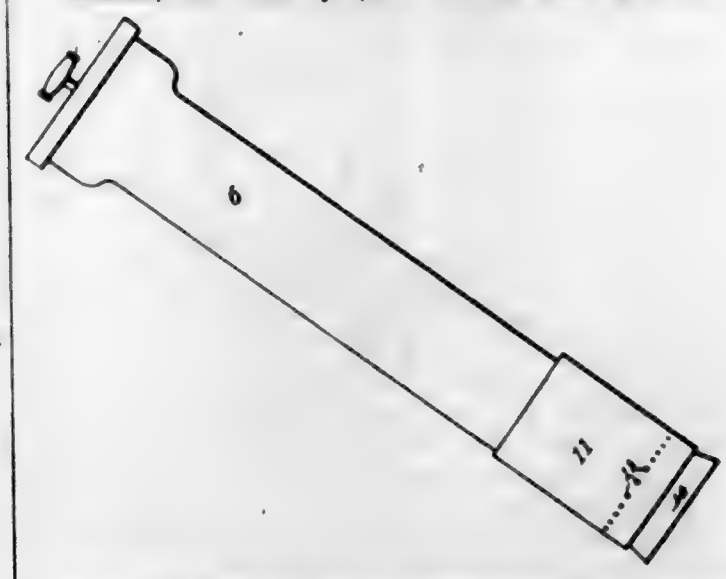
4. A chimney-cap comprising a plate having its under side provided with recesses, laterally-adjustable clamps mounted in the recesses flush with the said under side, and a smoke-chamber carried by the upper side of the plate.

5. A chimney-cap comprising a plate having its sides and ends provided with recesses, adjustable clamps or cleats mounted in the recesses and provided with means for holding them at the desired adjustment therein, and a smoke-chamber carried by the upper side of and integral with the plate.

6. A chamber-cap comprising a plate provided at its sides and ends with recesses, clamps or cleats mounted in the recesses with their faces flush with the lower side of the plate, and bolts passing through the cleats for holding the same at the desired adjustment.

7. A chimney-cap comprising a plate provided at its sides and ends with recesses, plates or offsets covering the recesses, and adjustable cleats mounted within the recesses.

695,171. MILK COOLER AND AERATOR. FRANK M. REYNOLDS, Knoxville, Iowa. Filed July 18, 1901. Serial No. 68,513. (No model.)



Claim.—1. A milk cooler and aerator comprising a valved pump-cylinder having perforations near the lower end thereof, a valved piston therein and a removable elastic plug in the lower end of the cylinder.

2. A milk cooler and aerator comprising a pump-cylinder, a valved piston therein, a reversible cylindrical section screwed to the lower end of the cylinder having perforations adapted to discharge a spray, a valve therein, and a removable elastic plug in the lower end of the said section.

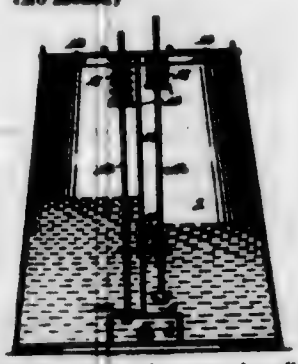
695,172. APPLIANCE FOR MEN'S TROUSERS. EVERETT D. RODGERS, Chicago, Ill. Filed Jan. 21, 1901. Serial No. 43,979. (No model.)



Claim.—An appliance designed for holding straight the inner sides of the trousers-legs of bow-legged men comprising a continuous inelastic, intermediate tape, of substantially uniform width throughout its length and two like-shaped elastic end tapes attached at their upper ends to said intermediate tape and provided at their lower ends with projecting legs or hooks adapted to engage eyeleted plates on the shoes of the wearer,

and means for varying the length of said appliance, said intermediate tape being adapted to be detachably secured to the crotch of the trousers.

695,178. COMBINATION COFFEE AND TEA POT. WILLIAM ROHRBACHER and ROBERT WERDELL, Duquesne, Pa. Filed July 8, 1901. Serial No. 67,534. (No model.)

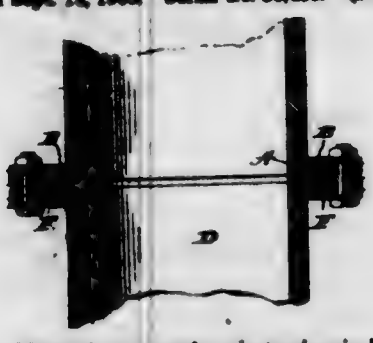


Claim.—1. In a device of the character described, a vessel having a partition therein, a chamber carried by the bottom of the said vessel and extending on each side of said partition, a spout communicating with said chamber, ports in said chamber, valves in said ports, spring-pressed operating-rods connected to said valves, and means carried by the cover for operating said rods independently, substantially as described.

2. In a device of the character described, a vessel having a partition therein, a chamber carried by the bottom of said vessel, ports in said chamber located one on each side of said partition, a spout communicating with said chamber, spring-pressed rods carrying valves, said valves operating in said ports, the upper ends of said rods extending above the top of the vessel, bearings carried by the vessel, and operating-levers connected to the said ends of the rods, substantially as described.

3. In a vessel having compartments therein with a chamber common to each, the chamber being in communication with a spout and having a port in each compartment, rods carrying valves extending to a point in proximity to the top and being independently operated by levers carried by the vessel, substantially as described.

695,174. PACKING OR GASKET. FRANK W. ROLLER, New York, N. Y. Filed Sept. 13, 1900. Serial No. 30,498. (No model.)



Claim.—1. Means for preventing electrochemical action between a metal pipe or other metal part to be packed, and a gasket therefor, such means consisting of the combination with the pipe, of a gasket having its exposed surface formed of a metal which is close to the material of said pipe in the electrochemical series, whereby electrochemical action between such exposed surface and said pipe is prevented, substantially as and for the purpose described.

2. Means for preventing electrochemical action between a metal pipe, or other metal part to be packed, and a gasket therefor, such means consisting of the combination with the pipe, of a gasket having its exposed surface formed of a metal which, under the action of the chemical substances to which the gasket is exposed, becomes coated with a compound which prevents electrochemical action between the gasket and said pipe, substantially as and for the purpose described.

3. Means for preventing electrochemical action between a metal pipe, or other metal part to be packed, and a gasket therefor having a part which is subject to attack, such means consisting of the combination with the pipe, of a gasket having a separate protecting-wall to cover the part of said gasket which is subject to attack, such protecting-wall being formed of a metal which is close to the material of said metal part in the electrochemical series, whereby electrochemical action between such part of the gasket which is subject to attack and said pipe is prevented, substantially as and for the purpose described.

4. Means for preventing electrochemical action between an iron pipe, or iron part to be packed, and a gasket having a copper part, such means consisting of the combination with the iron pipe, of a lead protecting-wall for such copper part, whereby the latter will be protected from electrochemical action, substantially as and for the purpose described.

695,175. FIRE-DOOR. HARRY R. ROSE, Allegheny, Pa. Filed Nov. 20, 1901. Serial No. 83,962. (No model.)



Claim.—1. In a device of the character described, the combination of fire-doors hinged together, rollers or wheels carried by one of said fire-doors, an inclined track, a tripping-hook secured below said doors, means attached to said tripping-hook to retain said doors in an upright position, and means to automatically release said tripping-hook, substantially as described.

2. In a device of the character described, the combination of fire-doors secured on opposite sides of a well, rollers or wheels carried by said doors, inclined tracks not meeting in the center, tripping-hooks secured at opposite sides of said well below said doors, and means carried by said hooks to retain said doors in an upright position, substantially as set forth.

3. In a device of the character described, the combination of fire-doors hinged on opposite sides of a well, rollers or wheels carried by said doors, oppositely-inclined tracks, tripping means secured to the sides of the well, means attached to said tripping means to retain the doors in an upright position, and a fusible connection interposed between said tripping means below said doors, whereby said tripping means and doors are automatically and simultaneously released, substantially as described.

695,176. COMBINED GUN AND CARTRIDGE CARRIER. BENJAMIN RUMSEY, Buffalo, N. Y. Filed May 16, 1901. Serial No. 60,516. (No model.)



Claim.—1. A combined gun and cartridge carrier consisting of a hook, two straps of unequal length attached to the hook and adapted when joined to form the suspending device for the hook, loops attached to the suspending-straps, a cartridge-carrier with inclined ends and a nest of radially-arranged pockets and loops at each end of the cartridge-carrier adapted for removable attachment to the loops on the suspending-straps.

2. A combined gun and cartridge carrier consisting of a frame constructed of stiff wire formed into an elongated loop bent over upon itself to form a flat hook, a covering of leather or other flexible material which envelops the entire bent loop with the exception of the upper portion of one of its ends, two straps of unequal length attached to the uncovered end of the hook-frame and adapted when joined to form the suspending device for the hook, and a cartridge-carrier with inclined ends adapted for adjustable and removable engagement with the suspending-straps.

3. A combined gun and cartridge carrier consisting of a frame constructed of stiff wire formed into an elongated loop bent over upon itself to form a flat hook, a covering of leather or other flexible material which envelops the entire bent loop with the exception of the upper portion of one of its ends, two straps of unequal length attached to the uncovered end of the hook-frame and adapted when joined to form the suspending device for the hook, loops attached to the suspending-straps, a cartridge-carrier with inclined ends and a nest of radially-arranged pockets and

loops at each end of the cartridge-carrier adapted for removable attachment to the loops of the suspending-straps.

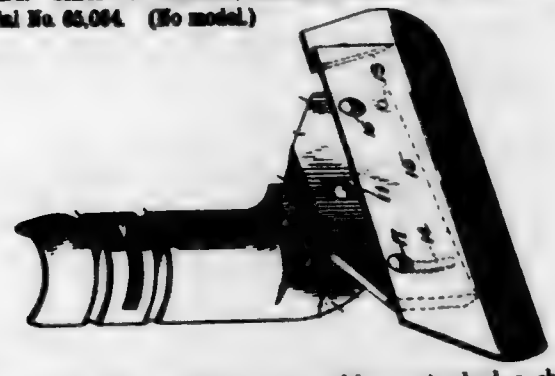
4. In a combined gun and cartridge carrier, the combination with a frame constructed of stiff wire formed into an elongated loop bent over upon itself to form a flat hook, and a covering of leather or other flexible material, which envelops the entire bent loop, with the exception of the upper portion of one of its sides, of two straps of unequal length attached to the uncovered end of the hook-frame and adapted when joined to form the suspending device for the flat hook.

5. In a combined gun and cartridge carrier, the combination with a frame constructed of stiff wire formed into an elongated loop bent over upon itself to form a flat hook, a covering of leather or other flexible material, which envelops the entire bent loop, with the exception of the upper portion of one of its ends, and a retaining-wire for the covering, stretched across the frame just above its uncovered end, of two straps of unequal length attached to the uncovered end of the hook-frame and adapted when joined to form the suspending device for the flat hook.

695,177. METHOD OF TREATING IRON SCRAP. MARCUS L. SLY, Medina, N. Y. Filed Aug. 30, 1898. Serial No. 689,867. (No specimens.)

Claim.—The herein-described method of purifying iron scrap, which consists in placing in a cupola, sheets or plates of iron interposed by fuel and finely-divided oxid of iron and oxid of aluminium, and then subjecting the mass to the action of requisite heat, substantially as and for the purpose specified.

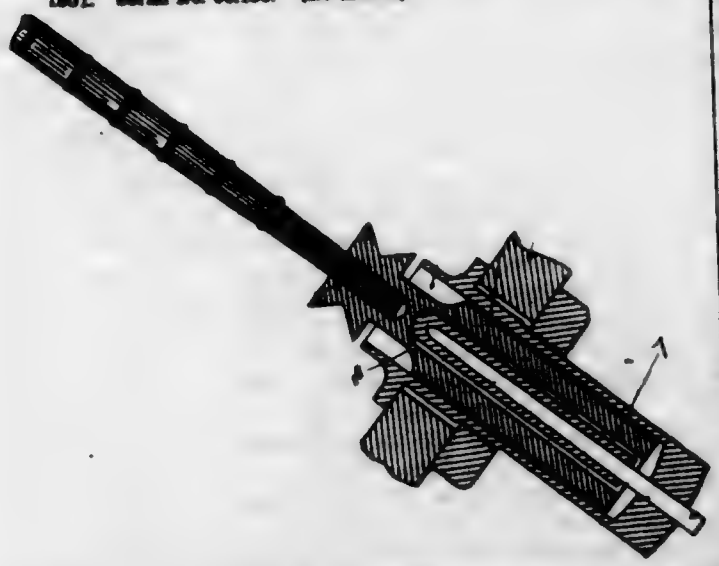
695,178. CULTIVATOR BLADE AND STANDARD ATTACHMENT. SIMON W. SOLOMON, Ainsworth, Nebr. Filed June 18, 1901. Serial No. 65,094. (No model.)



Claim.—1. The combination of a cultivator-standard, a shank secured thereto and adapted to be turned thereon, said shank having a transverse semicylindrical groove at its lower end, on its outer side, a shoe having a semicylindrical head on its rear side, engaged in said groove, means to secure said shoe to said shank and a cultivator-blade secured to said shoe, substantially as described.

2. The combination with a standard having a stud on its front side, of a semicylindrical shank on said standard and adapted to carry a cultivator-blade, said shank having a transverse slot to receive said stud, and a transverse groove, and a clip-bolt bearing in said groove, and embracing said standard, substantially as described.

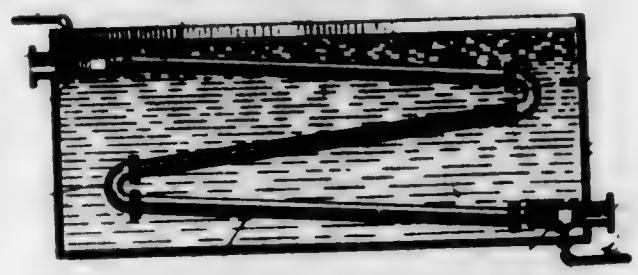
695,179. SPINNING-SPINDLE. GEORGE W. STAFFORD, Providence, and STEPHEN M. HAMBLIN, Central Falls, R. I. Filed July 13, 1901. Serial No. 66,139. (No model.)



Claim.—1. In combination, in a spinning-machine, the rotating whirl part, the shower on which the yarn is received as spun, applied to the said whirl part, remaining connected therewith during the spinning operation, and adapted to be detached therefrom when the said yarn-load has been completed, and the bearing for said whirl part, constructed to permit the latter to move in adjusting itself to an unbalanced load.

2. In combination, in a spinning-machine, the rotating whirl part having the chamber 7 in the lower portion or body thereof, the shower on which the yarn is received as spun, applied to the said whirl part, remaining connected therewith during the spinning operation, and adapted to be detached therefrom when the said yarn-load has been completed, and the upright support loosely fitting within the said chamber.

695,180. APPARATUS FOR COOLING AND ABSORBING SULFURIC ANHYDRID. GEORGE C. STONE, Jersey City, N. J., assignor to the New Jersey Zinc Company, a Corporation of New Jersey. Filed Aug. 22, 1900. Serial No. 27,382. (No model.)



Claim.—1. A cooler and absorber for sulfuric anhydrid, comprising a system of cooling-pipes consisting of lines of oppositely-extending inclined piping formed by return-bends into a continuous closed conduit, said system having a gas-inlet and a liquid-outlet at one end, and a gas-outlet and a liquid-inlet at the other, said pipes having dams anterior to the bends.

2. A cooler and absorber for sulfuric anhydrid, comprising a system of cooling-pipes consisting of lines of oppositely-extending piping formed by return-bends into a continuous closed conduit, said system having a gas-inlet and a liquid-outlet at one end, and a gas-outlet and a liquid-inlet at the other, said pipes also having dams at the return-bends.

3. A cooler and absorber for sulfuric anhydrid, comprising a system of cooling-pipes, having a gas inlet and outlet, an inlet for the supply of absorbing liquid to the system, and an outlet for the recovery of the liquid after absorption, and dams in the cooling-pipes to correspondingly detain the liquid therein, said dams extending transversely at the lower ends of the pipe-sections, and consisting of disks inserted between the pipe-sections and having apertures of less size than the diameter of the pipe; substantially as described.

4. A cooler and absorber for sulfuric anhydrid, comprising a system of oppositely-extending pipes formed by return-bends into a continuous series of closed piping, means for externally cooling the walls of the pipes, and means for introducing a current of absorbing liquid into the pipes in opposition to the current of gas therethrough, said pipes being provided with transverse dams, located at the bends between adjacent pipes; substantially as described

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695,181. CONVEYER FOR ROLLING-MILLS. JAMES D. SWINDELL, Pittsburg, Pa. Filed Apr. 12, 1901. Serial No. 55,726. (No model.)

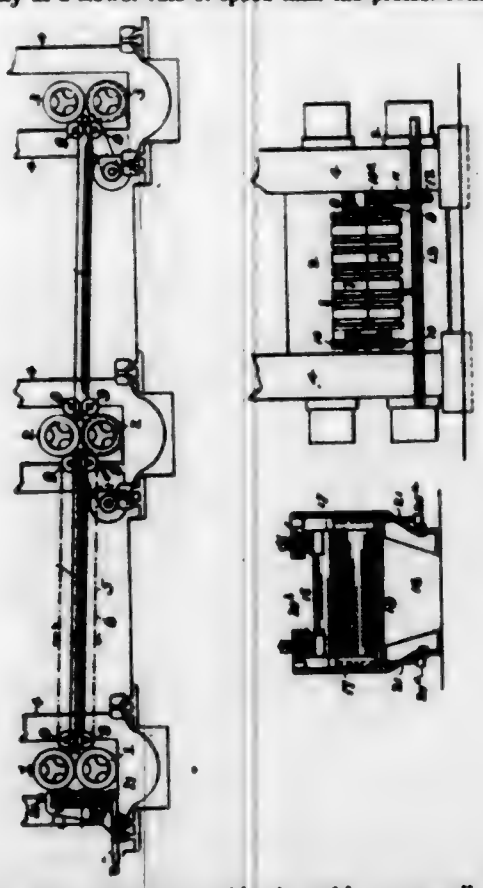
Claim.—1. A conveyer for metal-rolling mills comprising two series of endless chains or belts located one above the other, the chains or belts of the upper series being disposed over the chains or belts of the lower series, bearings for the respective series of chains, the bearings for the upper series of chains being disposed immediately over the bearing of the lower series at both ends of the conveyer.

2. A conveyer for metal-rolling mills, comprising two series of endless chains or belts located one above the other, and a stationary platform over which the lower half of the upper series of chains or belts and the upper half of the lower series of chains or belts, move and bearings for the two series of chains, the bearings for the upper chains located immediately over the bearings of the lower chains at both ends of the conveyer.

3. In a metal-rolling mill, the combination with two pairs of pressure-rolls, of two endless chains or belts located between the pairs of rolls, rollers on which the chains or belts are mounted and mid rollers grooved to receive the endless chains or belts, and a tension device in front of the first pair of rolls, the rollers for the upper chains disposed immediately over the rollers for the lower chains at both ends of the conveyer.

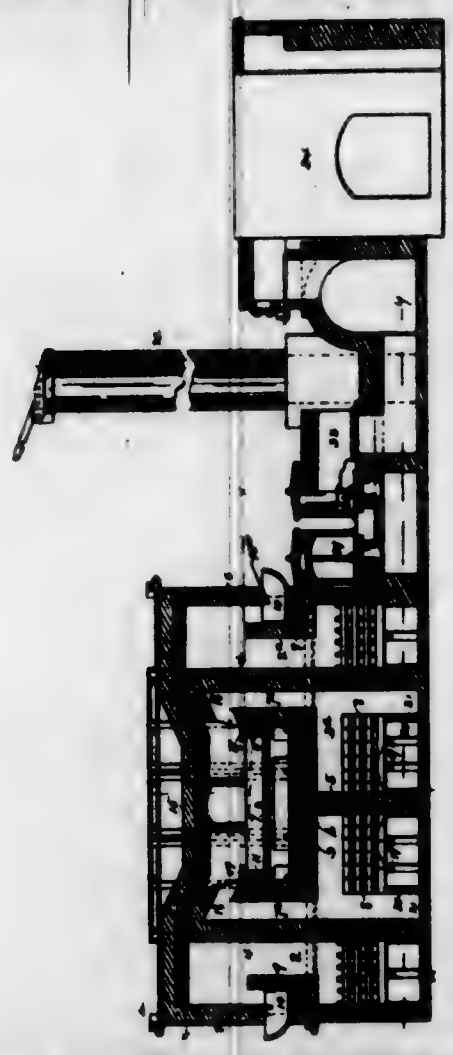
4. The combination of two pairs of rollers, a conveyer for transferring plates from one pair of rolls to another, comprising two pairs of rollers each having a series of peripheral grooves therein, a series of endless chains or belts mounted to run in said grooves, the rollers for the upper chains located immediately over the rollers for the lower chains at both

ends of the conveyer, and means for moving said endless chains or belts simultaneously at a slower rate of speed than the presser-rolls.



5. In a rolling-mill, the combination with presser-rolls, of a frame in front of said presser-rolls, tension-rollers mounted in said frame, set-screws for adjusting the tension of said rollers and a foot-lever for separating said rollers to permit the insertion of an article between them.

695,182. PUDDLING-FURNACE. JAMES D. SWINDELL, Pittsburg, Pa. Filed Apr. 22, 1901. Serial No. 56,999. (No model.)



Claim.—1. In a puddling-furnace, the combination with an outlet for the escape of burned gases and products of combustion, of a water-trap projecting into said outlet between the ends thereof to catch the refuse particles in the waste gases and products of combustion.

2. In a puddling-furnace, the combination of a puddling-chamber, means for supplying air and gas thereto, a flue for carrying off the products of combustion, and a water-trap projecting into said flue for catching the refuse particles in said products of combustion.

3. In a puddling-furnace, the combination with a puddling-chamber, air and gas chambers communicating therewith and means for supplying air and gas to said chambers and for carrying off the products of combustion therefrom, of water-traps projecting into said air-chambers between the ends thereof to catch refuse material and a receptacle in each gas-chamber to catch the refuse material conveyed thereto.

4. In a puddling-furnace, the combination of a puddling-chamber, gas and air chambers communicating therewith, and removable water-traps mounted in the furnace-wall and projecting into the outlets between the ends thereof to catch the refuse particles in the products of combustion and waste gases.

695,188. WINDOW-CLEANER. GEORGE W. WARNER, Beatrice, Nebr. Filed Mar. 7, 1901. Serial No. 50,900. (No model.)



Claim.—1. A window-cleaner, comprising a cleaner-strip, a cleaner-strip holder comprising two cylinders, one within the other, the inner one adapted to receive said cleaner-strip and the outer one adapted to be attached to a head, in combination with a cleaner-strip and a head provided with a stop to keep said cleaner-strip holder in position, substantially as described.

2. In a device of the class described, the combination, with a cleaner-holder composed of a single piece of sheet metal bent to form two cylinders, one within the other, and provided with an extension or lip, of a cleaner-strip, a wire core, said cleaner-strip adapted to be folded over said wire core and inserted into said inner cylinder and its projecting lip adapted to bear against the lip or extension of said holder, substantially as described.

3. In a window-cleaner, the combination, with a pole or handle, of a retaining-head provided on the end thereof, a recess or cavity provided in said head, a cleaner-holder composed of a single piece of sheet metal shaped to be inserted into said cavity or seat and adapted to be retained therein by its own spring, said holder provided with a cylindrical recess or seat provided with an opening registering with an opening in said head, a strip of cleaning material adapted to be folded and its folded portion inserted into said seat in said holder with its edges extending out from said holder and head, and a wire adapted to be inserted between the folds of said cleaner-strip and retain the cleaner-strip therein, substantially as described.

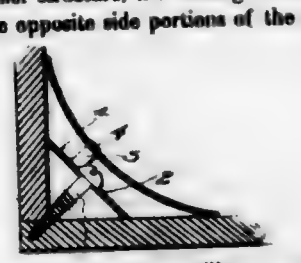
4. In a window-cleaner, the combination, with a pole or handle, of a retaining-head provided on the end thereof, a recess or cavity provided in said head, a cleaner-holder composed of a single piece of metal shaped to be inserted into said cavity or seat and adapted to be retained therein by its own spring, said holder provided with a cylindrical recess or seat provided with an opening registering with an opening in said head, a strip of cleaning material adapted to be folded and its folded portion extending out from said holder and head, the extending edges of said holder adapted to bear against a lip or lug 5 provided on said head, and a wire adapted to be inserted between the folds of said cleaner-strip in said seat and retain the same therein, substantially as described.

5. In a device of the class described, the combination with a pole 2, of a head 3, provided with a lip 5, of a cleaner-holder 4 formed of a single sheet of metal adapted to be inserted into a cavity in said head and retained therein by the spring of said holder, a seat 6 provided in said holder, said seat being open and registering with an opening in said head, said holder 4 having an outwardly-extending lip adapted to rest against said lip 5, a single strip of cleaning material having its folded portion inserted into said seat 6, and a retaining-wire adapted to be inserted between the folds thereof in said seat, substantially as described.

695,184. CORNER-SHIELD. ROBERT L. WEBSTER, Peoria, Ill., assignor of one-half to George B. Puplett, Peoria, Ill. Filed Aug. 22, 1901. Serial No. 72,916. (No model.)

Claim.—1. A corner-cover comprising a locking member adapted to be secured over a corner structure, and a covering member applied

over the locking member and removably held by the latter, the said covering member being of a resilient nature and presenting an outer concave surface when applied, said surface being inclined downwardly and outwardly from the corner structure, the locking member having side arms to removably engage opposite side portions of the covering member.



2. In a corner-cover, an outer resilient covering member having concave edges, and a locking member having forwardly-projecting arms to engage two of the edges of the said covering member

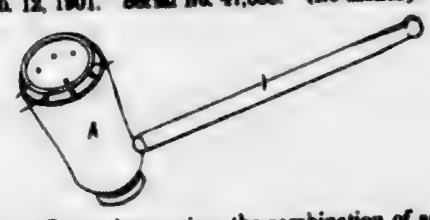
3. In a corner-cover, a locking member, and an outer covering member removably disposed over and engaging portions of the said locking member.

4. A corner-cover having a resilient covering member removably applicable to a corner structure.

5. A corner cover having a covering member removably applicable over a corner structure and adapted to be pressed inwardly into the latter to provide an outer concave surface which is inclined downwardly and outwardly from the said structure.

6. In a corner-cover, the combination of a triangular locking-plate adapted to be secured in permanent position and having forwardly-projecting arms at the opposite side edges with outer locking-lips, and an outer covering member of a resilient nature having slots in the opposite side edges to receive the said arms and lips.

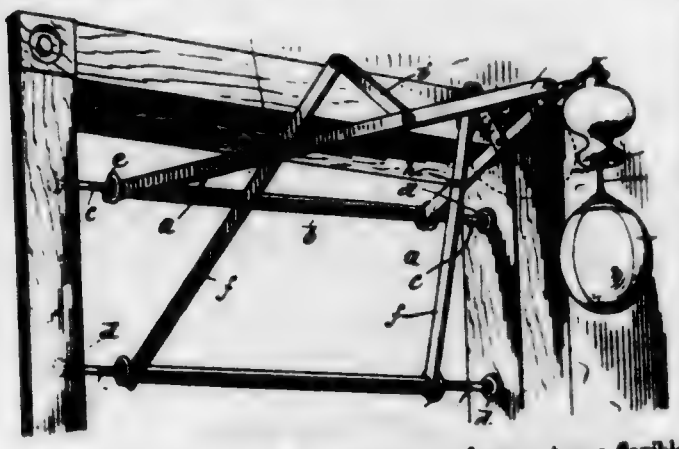
695,185. TOBACCO-PIPE. THOMAS E. WHITE, Rochester, N. Y. Filed Feb. 12, 1901. Serial No. 47,063. (No model.)



Claim.—1. In a tobacco-pipe, the combination of an outer bowl, a smaller bowl adjustable within the outer bowl and adapted to leave a space between such bowls, and having transverse perforations through its walls throughout its length, the rim of the outer bowl fitting the inner bowl, and adapted to cover perforations in the inner bowl when said inner bowl is elevated, substantially as described.

2. In a tobacco-pipe, the combination of an outer bowl, imperforate except for a stem connection; a ring within the outer bowl, extending down from the rim of said bowl; a smaller bowl adjustable within said ring and adapted to leave a space between said bowls, said inner bowl having transverse passages through its side walls leading from its interior to said space between said bowls; and a stem connection communicating with said space between said bowls, whereby air and smoke pass from the inner bowl through said passages into said space and thence to and through the stem connection, substantially as described.

695,186. PUNCHING-BAG. CHARLES B. WHITNEY, Chicopee Falls, Mass. Filed Feb. 15, 1901. Serial No. 47,508. (No model.)



Claim.—1. In a punching-bag apparatus, a frame, a bag, a flexible attachment for suspending the bag, an abutment for the bag to strike against and means located over and near the center of said abutment for securing the latter to the frame, whereby the bag may be free to be swung against said abutment above the point of attachment of said flexible connection to said abutment without coming in contact with the frame, substantially as described.

2. In a punching-bag apparatus, a frame, a bag, a flexible attachment for suspending the bag, an abutment for the bag to strike against, and means located over and near the center of said abutment for securing the latter to the frame, whereby the bag may be free to be swung against said abutment above the point of attachment of said flexible connection to said abutment without coming in contact with the frame, combined with an annular ring located between the abutment for the bag and the latter, substantially as described.

3. In a punching-bag apparatus, a frame, a bag supported therefrom in a depending position, and an annular abutment for said bag located between the latter and said frame, the said abutment having a smaller radius than that of the arc described by the movement of the center of the bag on its axial line, measured from its position of rest to its position at the moment of its impact with the abutment.

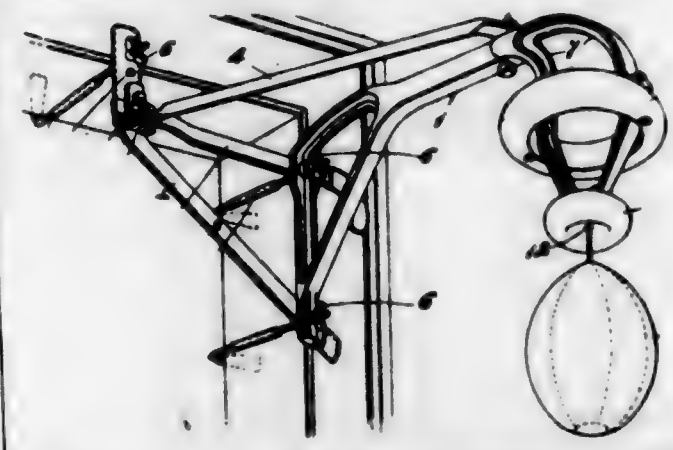
4. In a punching-bag apparatus, a frame, a bag supported therefrom in a depending position, an annular abutment for the bag to strike against located between the bag and the frame, said abutment having a smaller radius than that of the arc described by the movement of the center of the bag on its axial line measured from its position of rest to its position at the moment of its impact with said abutment, in combination with a second annular member between the bag and the abutment whereby the free swinging of the bag may be interrupted and its course altered before it comes in contact with the abutment.

5. In a punching-bag apparatus a bag, a flexible support therefor, and an annular abutment for the bag, the said abutment being of less diameter than that of the arc described by the center of the bag on its axial line, measured from its position of rest to its position at the moment of its impact with said abutment, whereby the direction of the impact of the bag will be toward the vertical axis of the abutment.

6. In a punching-bag apparatus, a bag, a flexible support for the latter, an annular abutment for the bag of less diameter than that of the arc described by the center of the latter, said abutment having an outwardly-facing impact-surface.

7. In a punching-bag apparatus, a bag, a flexible support from which the latter is suspended, an annular abutment of less diameter than that of the arc described by the center of said bag, the point of attachment of said flexible support being located on the axis of the abutment, combined with an annular member supported between the bag and the abutment, and axially of the latter, whereby the radius of the arc described by the swinging movement of the bag will be shortened by the progressive contact of the cord with said annular member, substantially as described.

695,187. PUNCHING-BAG APPARATUS. CHARLES B. WHITNEY, Chicopee Falls, Mass. Filed Sept. 12, 1901. Serial No. 75,318. (No model.)



Claim.—1. A punching-bag apparatus comprising an arm on which the bag is supported, a supporting-frame for said arm, consisting of separable members, and means whereby, by the shifting of said members, the frame may be secured to either side of the doorway.

2. A punching-bag apparatus comprising an arm on which the bag is supported, a supporting-frame for said arm consisting of separable members, and means whereby, by shifting said members, the arm may be adjusted vertically.

3. A punching-bag apparatus comprising an arm on which the bag is supported, a supporting-frame for the arm, and means for attaching the arm to either side of said frame, whereby, when the latter is secured to either of the uprights of a door-frame or similar structure the bag will be located on the same side of the latter.

4. A punching-bag apparatus comprising an arm on which the bag is supported, a supporting-frame for said arm comprising a diagonally-disposed bar for extending from one side to the top of a door-frame, and

a brace-bar having one end secured to said diagonally-disposed bar, and its opposite end adapted to be secured to the side of a door-frame above or below the end of said first-named bar, whereby the position of said arm may be varied vertically, substantially as described.

5. A punching-bag apparatus for attachment to a door-frame, consisting of a bag-supporting arm, a bar extending diagonally across said frame and secured thereto, a brace-bar extending from the first-named bar to the frame, said two bars constituting a support for said arm, and means for securing said brace-bar in different positions relative to said first-named bar to adjust said bar vertically, substantially as described.

6. A punching-bag apparatus for attachment to a door-frame consisting of a bag-supporting arm, a diagonally-disposed bar extending from one side to the top of said frame, a brace-bar extending from the frame to said diagonal bar between the ends of the latter, said bars constituting a support for said arm; clamp-rods for securing the bars to the door-frame, and means for securing the bag-supporting arm to said bars, substantially as described.

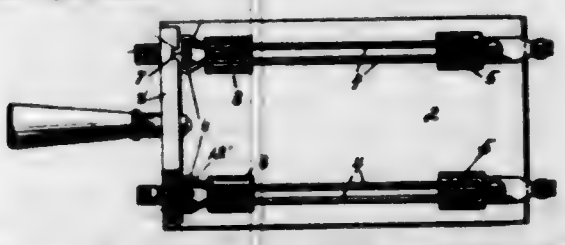
7. A punching-bag apparatus for attachment to a door-frame consisting of a bag-supporting arm, a bar extending diagonally across a corner of said frame, a brace-bar between said first-named bar and the door frame, said bars constituting a support for said bag-supporting arm; a brace-rod for said arm extending from the latter to one of said bars, clamp-rods securing the bars to the door-frame, and means for securing the bag-supporting arm to said bars, substantially as described.

8. A punching-bag apparatus comprising a bag-supporting arm having a forked down-hanging outer end, an annular impact-ring for the bag fitted over said forked end and secured thereto, and a supporting-frame for said arm removably attachable to a door-frame or similar structure, substantially as described.

9. A punching-bag apparatus, an impact-ring or abutment for the bag having an outwardly-facing impact-surface, a deflecting-ring below and in axial alinement with said impact-ring, an L-shaped support for said ring whereby the outwardly-facing surfaces of the latter will not be obstructed.

10. A punching-bag apparatus comprising an L-shaped bag-supporting arm, an annular impact-ring for said bag secured to the down-hanging end of said arm, and means for removably attaching the latter to either side of a door-frame or similar structure.

695,188. KNIFE-SWITCH. JOHN A. WRIGHT, Irwin, and WILLIAM F. O'NEILL, Wilkinsburg, Pa. Filed July 12, 1901. Serial No. 68,015. (No model.)



Claim.—1. The combination of a double switch-blade bulged in opposite directions at its handle end, said double blade having a projecting part outside of the bulge, and a handle member notched to receive said projection, substantially as shown and described.

2. The combination of a double switch-blade oppositely bulged at its handle end and formed with a central longitudinal projecting portion outside of the bulge, said projecting portion being longitudinally apertured, a handle member formed with a notch to receive the blade projection, and a securing-screw extending through the aperture of the blade projection and uniting the blade and handle member, substantially as shown and described.

3. The combination of a double switch-blade formed of two longitudinal members, said members being oppositely bulged at their handle ends and having short extremities flatly engaging each other and projecting longitudinally from the blade bulges, said extremities being longitudinally apertured, a handle member notched to receive the said projecting blade extremities, and a screw extending through said aperture and securing together the blade and handle member, substantially as shown and described.

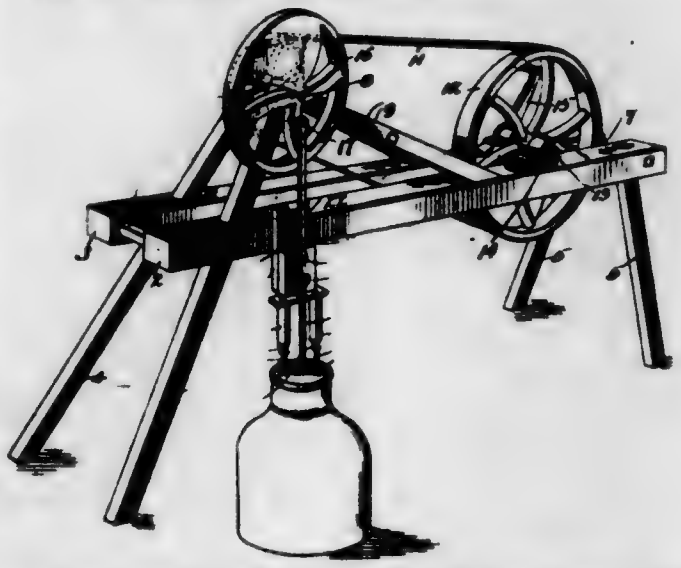
695,189. FLY-KILLER. IRVING H. AMES, Hudson, Mich. Filed Nov. 18, 1901. Serial No. 82,794. (No model.)

Claim.—1. In combination; the switch portion having an outer selvage edge, a clamping member bent upon itself, in which the rear edge of the switch portion is intermeshed, and the handle firmly secured upon said clamping member and rear edge of the switch portion.

2. The combination with a clamping member, comprising arms bent upon themselves; of a switch portion of netted or open-work intermeshed between, over and under the arms of said clamping member, the outer edge of the netted portion being bent upon itself to form a selvage edge, and the handle comprising a single piece of wire bent upon itself and loops on the ends of said handle adapted to be clamped around the clamping member, and the wire intermeshing with said clamping member.



695,190. CHURN. NICHOLAS BOREN, Princeton, Ind. Filed June 12, 1901. Serial No. 64,933. (No model.)



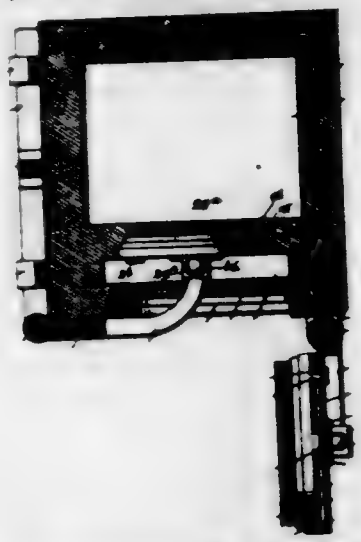
Claim.—1. In a churn, the combination of a frame having a vertical guide, a slide mounted on the guide, a dasher-rod connected with and carried by the slide, a churn-body, and an air-pump composed of an inverted cylinder carried by the slide, and a tubular piston fixed to the churn-body and extending into the same and provided with a piston-head arranged within the cylinder, substantially as described.

2. In a churn, the combination of a frame provided with a guide, a reciprocating slide mounted on the guide, a churn-body, a dasher operating in the churn-body and connected with the slide, a pair of air-pumps located at opposite sides of the dasher-rod and composed of inverted cylinders carried by the slide, and tubular pistons fixed to the cover of the churn-body and extending into the latter and provided with piston-heads arranged within the inverted cylinders, and gearing for reciprocating the slide, substantially as described.

3. In a churn, the combination of a frame provided with a vertical guide, a slide mounted on the vertical guide, a fly-wheel located above the slide, a pitman connecting the fly-wheel and the slide, gearing for rotating the fly-wheel, a churn-body, a dasher having a rod connected with the slide, and the air-pumps composed of inverted cylinders carried by the slide, and the tubular piston-rods provided at their upper ends with piston-heads and having attachment-plates arranged between the ends of the tubular pistons and fixed to the cover of the churn-body, substantially as described.

4. In a churn, the combination of a frame, a vertical guide mounted on the frame and provided with a dovetailed rib or flange, a slide having a dovetailed groove to receive the rib or flange and provided with a cross-piece, a dasher-rod secured to the slide, pump-cylinders mounted on and depending from the cross-piece, the stationary tubes forming pistons and provided at their upper ends with piston-heads arranged within the cylinders, and means for reciprocating the slide, substantially as described.

695,191. SCREW-DOOR SAFE. JOSEPH R. BOYD, Muscatine, Iowa, assignor to himself, C. B. HANNEY, S. H. TITUS, and D. V. JOHNSON. Filed June 25, 1901. Serial No. 65,927. (No model.)



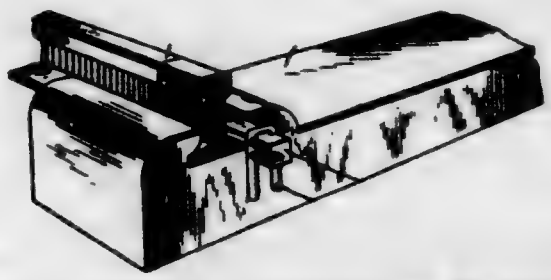
Claim.—1. The combination with a safe having openings to receive an inner and outer screw-door, of a screw-door for the outer opening hinged to the safe, a screw-door for the inner opening and arms detachably connected with the inner screw-door and pivotally connected with the safe.

2. The combination with a safe having openings to receive an inner and an outer screw-door, of a screw-door for the outer opening hinged to the safe, a screw-door for the inner opening and arms detachably connected with the inner screw-door and pivotally and slidingly connected with the safe.

3. The combination with a safe having openings to receive an inner and outer screw-door, of an inner screw-door, of bars slidingly supported at one side of the safe, means for moving said bars forwardly and backwardly in a horizontal plane, a frame hinged to said bars and of such shape as to be capable of engaging the inner door when it is in position, and means for detachably connecting the said frame with the inner door.

4. The combination with a safe having openings to receive an inner and outer screw-door, of a screw-door for the outer opening hinged to the front of the safe, a screw-door for the inner opening having perforated lugs on its outer face, bars slidingly supported at one side of the safe to be capable of movement in a horizontal plane, guides for slidingly supporting said bars capable of vertical adjustment, means for adjusting said guides vertically, a frame having curved arms pivoted to the forward ends of the bars and detachably connected with the inner screw-door, means for moving the sliding bars forwardly and rearwardly, substantially as and for the purposes stated.

695,192. METALLIC TIE AND RAIL FASTENER. JOHN BROSIUS, East Liverpool, Ohio. Filed Dec. 14, 1901. Serial No. 85,988. (No model.)

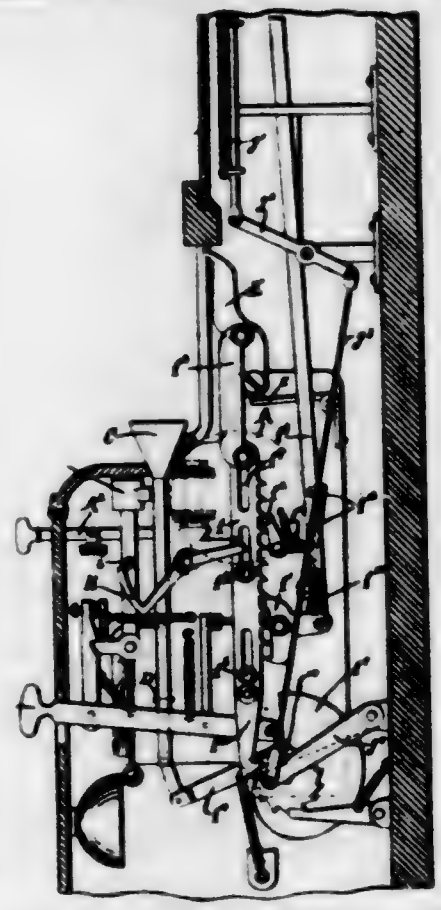


Claim.—1. A metallic tie and rail fastener comprising chairs carried by the tie with a groove formed in the base of the chair, a fastener carrying two lips engaging one side of the rail-base, and a staple straddling said fastener on each end thereof, substantially as described.

2. In a metallic tie and rail fastener, a chair formed integral with the tie on each end thereof with a groove formed in the base of the chair, a fastener carrying two lips seated in said groove, said lips engaging the upper and lower faces of one side of the rail-base and staples secured over the ends of said lips and engaging said tie, substantially as described.

3. In a metallic tie and rail fastener, a chair formed integral with the tie on each end thereof with a groove formed in the base of the chair and a rib on the upper face of the tie extending above and over said groove, a fastener carrying two lips adapted to be seated in said groove and engage one side of the rail-base, said fastener having notches on each end thereof, the upper lip of the fastener being engaged by the said rib, and staples secured over the ends of the fastener and engaging in said notches, substantially as described.

695,193. WORKMAN'S TIME-RECORDER. WILLARD H. BUNDY, Binghamton, N. Y. Filed July 24, 1901. Serial No. 69,509. (No model.)



Claim.—1. The combination of a marker, a card-guide, means for varying the relative position of the marker and the card and thereby determining the position of the impression by the marker upon the card, a closure for the card-guide, said closure being connected to said means, substantially as and for the purpose described.

2. The combination of a marker, a card-guide, means for varying the relative position of the marker and the card and thereby determining the position of the impression by the marker upon the card, a closure for the card-guide, said closure being movable into its operative position for preventing the entrance of the card within the guide and being movable from its operative position to its inoperative position upon the operation of said means, a time-movement, and connections between the closure and the time-movement whereby the closure assumes its operative position when the time-movement makes a predetermined advance, substantially as and for the purpose specified.

3. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, and connections between the stop and the closure actuated by the closure for varying the position of the stop, substantially as and for the purpose described.

4. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, said closure being normally in its inoperative position and being movable manually from its operative position to its inoperative position, and connections between the stop and the closure actuated by the closure for varying the position of the stop, substantially as and for the purpose specified.

5. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, said closure being normally in its inoperative position and being movable by gravity to its operative position after the initial movement thereof from its inoperative position, and connections between the stop and the closure for effecting the initial movement of the closure from its inoperative position, said connections being actuated by

the closure when moved from its operative position to its inoperative position for varying the position of the stop, substantially as and for the purpose set forth.

6. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, said closure being normally in its inoperative position and being movable by gravity to its operative position after the initial movement thereof from its inoperative position, connections between the stop and the closure for effecting the initial movement of the closure from its inoperative position, said connections being actuated by the closure when moved from its operative position to its inoperative position for varying the position of the stop, a time-movement, and connections between the former connections and the time-movement, substantially as and for the purpose described.

7. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, means for holding the closure in its inoperative position, and connections between the stop and the closure for forcing the closure from its inoperative position against the action of said means, said connections being actuated by the closure when moved to its inoperative position for varying the position of the stop, substantially as and for the purpose specified.

8. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, said closure being normally in its inoperative position, being movable by gravity to its operative position after the initial movement thereof from its inoperative position and being movable manually from its operative position to its inoperative position, means for holding the closure in its inoperative position, and connections between the stop and the closure for effecting the initial movement of the closure from its inoperative position against the action of said means, said connections being actuated by the closure when moved from its operative position to its inoperative position for varying the position of the stop, substantially as and for the purpose set forth.

9. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, said closure being normally in its inoperative position, being movable by gravity to its operative position after the initial movement thereof from its inoperative position and being movable manually from its operative position to its inoperative position, connections between the stop and the closure for effecting the initial movement of the closure from its inoperative position, said connections being actuated by the closure when moved from its operative position to its inoperative position for varying the position of the stop, a time-movement, and connections between the former connections and the time-movement, substantially as and for the purpose described.

10. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, an actuating member connected to the closure and movable by the closure, and connections between the stop and the actuating member for varying the position of the stop when the actuating member is moved by the closure, substantially as and for the purpose specified.

11. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide movable from its operative position to its inoperative position and vice versa, an actuating member connected to the closure and movable for effecting movement of the closure, said actuating member being movable independently of the closure when said closure is in its operative position and being movable by the closure when said closure is moved from its operative position to its inoperative position, and connections between the actuating member and the stop for varying the position of the stop when the actuating member is moved by the closure, substantially as and for the purpose set forth.

12. The combination of a marker, a time-movement, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide movable from its operative position to its inoperative position and vice versa, an actuating member connected to the closure and movable by gravity for effecting movement of the closure, said actuating member being movable by the closure when said closure is moved from its operative position to its inoperative position, movable escapement and stop pawls for the actuating member connected to the time-movement, and connections between the actuating member and the stop for varying the position of the stop when the actuating member is moved by the closure, substantially as and for the purpose set forth.

13. The combination of a marker, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, said closure being normally in its inoperative position, being movable by gravity to its operative position after the initial movement thereof from its inoperative position and being movable manually from its operative position to its inoperative position, an actuating member connected to the closure and movable by gravity for effecting the initial movement of the closure from its inoperative position, said actuating member being movable independently of the closure when said closure is in its operative position and being movable by the closure when said closure is moved from its operative position to its inoperative position, connections between the actuating member and the stop for varying the position of the stop when the actuating member is moved by the closure, a time-movement, and connections between the former connections and the time-movement, substantially as and for the purpose described.

14. The combination of a marker, a time-movement, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker, a pivoted closure for the card-guide, an actuating member movable step by step by gravity, a link connecting the closure and the actuating member, movable escapement and stop pawls for the actuating member connected to the time-movement, and connections between the actuating member and the stop for varying the position of the stop, substantially as and for the purpose set forth

15. The combination of a marker, a time-movement, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker, a closure for the card-guide, said closure being normally in its inoperative position, being movable by gravity to its operative position after the initial movement thereof from its inoperative position and being movable manually from its operative position to its inoperative position, means for holding the closure in its inoperative position, an actuating member connected to the closure and movable step by step, and connections between the time-movement, the stop and the actuating member, substantially as and for the purpose described.

16. The combination of a marker, a time-movement, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker, a closure for the card-guide, an actuating member movable step by step by gravity for effecting movement of the closure, movable escapement and stop pawls for the actuating member, a cam actuated by the time-movement and provided with an inwardly-extending cut-out, a movable part having one end connected to means engaged with the cam and movable into the cut-out, and its other end provided with means for actuating the escapement-pawl and for successively actuating the stop-pawl to effect each advance movement of the actuating member, substantially as and for the purpose specified.

17. The combination of a marker, a guide for the article to be marked, a stop for limiting the movement of said article in the guide relatively to the marker, said stop being adjustable relatively to the marker for determining the position of the impression by the marker upon said article, and means for controlling the entrance of said article within the guide, said means being connected to the stop for varying the position thereof, substantially as and for the purpose set forth.

18. The combination of a marker, a time-movement, a card-guide, a stop for limiting the movement of the card in the guide relatively to the marker, said stop being adjustable relatively to the marker for determining the position of the impression by the marker upon the card, means for controlling the entrance of the card within the guide, and connections between the time-movement and said means, substantially as and for the purpose described.

19. The combination of a marker, a time-movement, a card-guide, a stop for limiting the movement of the card in the guide relatively to the marker, said stop being adjustable relatively to the marker for determining the position of the impression by the marker upon the card, a closure for the card-guide connected to the stop and movable manually from its operative position for varying the position of the stop, and connections between the time-movement and the closure, substantially as and for the purpose specified.

20. The combination of a card-guide, a time-movement, a marker, a stop for limiting the movement of the card in the guide relatively to the marker, said stop being adjustable relatively to the marker for determining the position of the marker upon the card, a carriage for the marker movable crosswise of the card-guide, a closure for the card-guide connected to the stop for varying the position thereof, and connections between the time-movement and the closure, substantially as and for the purpose set forth.

21. The combination of a marker, a card-guide, a stop for limiting the movement of the card in the guide relatively to the marker, and

means for preventing the operation of the marker during the movement of the stop, substantially as and for the purpose described.

22. The combination of a marker, a card-guide, a stop for limiting the movement of the card in the guide relatively to the marker and determining the position of the impression by the marker upon the card, means for preventing the operation of the marker during the movement of the stop, a closure for the card-guide, and connections between the stop and the closure actuated by the closure for varying the position of the stop, substantially as and for the purpose specified.

23. The combination of a marker, a card-guide, a stop for limiting the movement of the card in the guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, an actuating member connected to the closure and movable by the closure, means for preventing the operation of the marker during the movement of the stop, said means being operated by the actuating member, and connections between the stop and the actuating member for varying the position of the stop when the actuating member is moved by the closure, substantially as and for the purpose set forth.

24. The combination of a marker, a card-guide, means for varying the relative position of the marker and the card and thereby determining the position of the impression by the marker upon the card, a movable indicator for indicating the position of the impression to be applied by the marker upon the card, a closure for the card-guide, said closure being connected to said means substantially as and for the purpose described.

25. The combination of a marker, a time-movement, a card-guide, a stop for limiting the movement of the card in the guide relatively to the marker and determining the position of the impression by the marker upon the card, a movable indicator for indicating the position of the impression to be applied by the marker upon the card, a closure for the card-guide, and an actuating member connected to the closure and movable step by step during the operation of the time-movement and movable by the closure, said actuating member being connected to the stop and the indicator, substantially as and for the purpose specified.

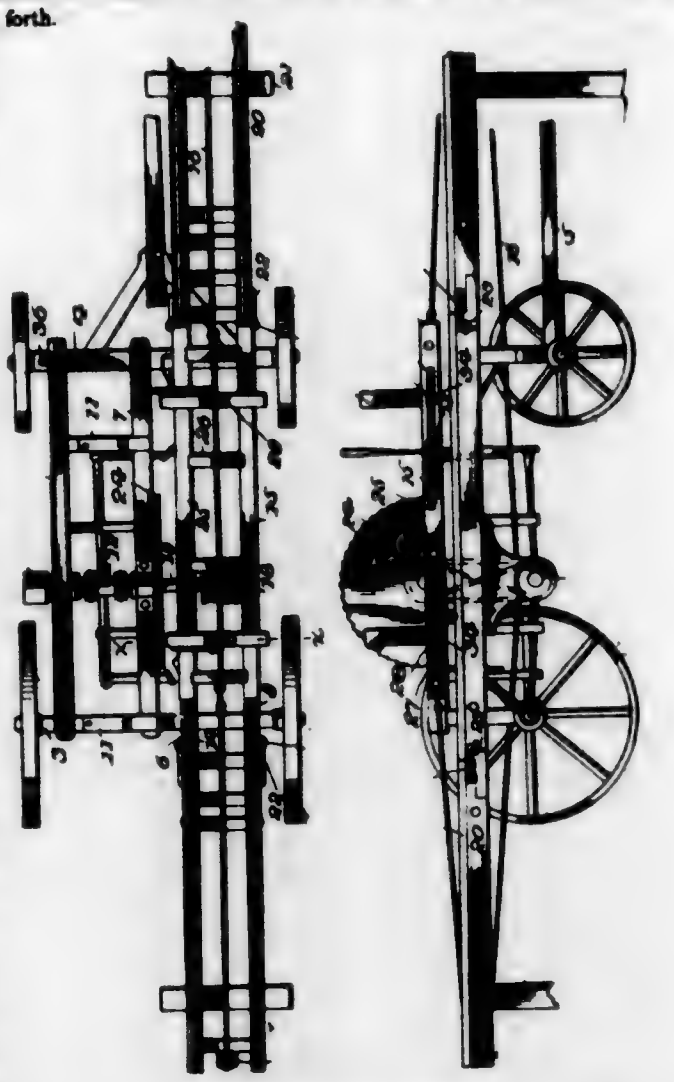
26. The combination of a time-movement, a marker comprising a disk for recording minutes, a second disk for recording hours, and a third disk for recording intervals of time greater than hours, as days and the subdivisions thereof represented by the abbreviations "A. M." and "P. M.," spacing-disks fixed respectively to the second and third recording-disks and formed with peripheral notches, one of the spacing-disks being of greater diameter than the other and having one of its notches of increased depth for registering with the notches of said other spacing-disk, stop-levers for engaging the spacing-disks and preventing rotation thereof, latches mounted on the stop-levers, an actuating member connected to the time-movement and provided with a sliding pawl for entering the notches of the spacing-disks and rotating said second and third recording-disks, said actuating-lever and sliding pawl being provided with means movable into engagement with the latches for rocking the stop-levers from their operative positions, and connections between the time-movement, and the first recording-disk, substantially as and for the purpose set forth.

27. The combination with a marker comprising a disk for recording minutes, a second disk for recording hours, and a third disk for recording intervals of time greater than hours, as days and the subdivisions thereof represented by the abbreviations "A. M." and "P. M.;" of a time-movement, a card-guide, a stop for limiting the movement of the card in said guide relatively to the marker and determining the position of the impression by the marker upon the card, a closure for the card-guide, connections between said disks of the marker and the time-movement for actuating said disks, and connections between the stop and the closure actuated by the closure for varying the position of the stop, substantially as and for the purpose set forth.

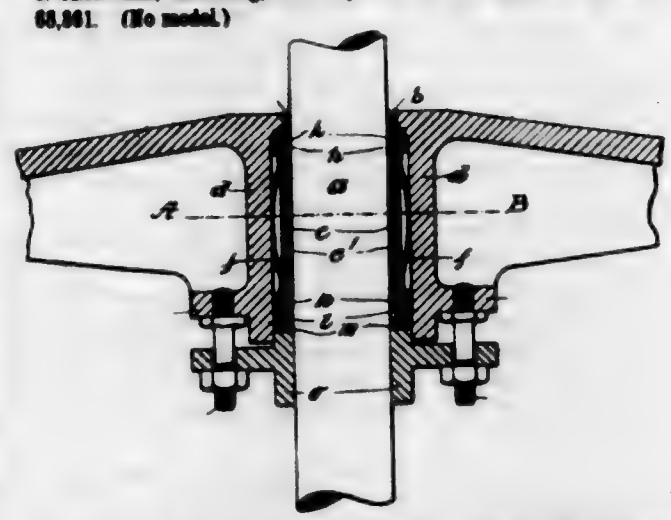
695,194. PORTABLE SAWMILL. SETH GARRET, Prairiegrove, Ark. Filed July 5, 1901. Serial No. 67,191. (No model.)

Claim.—1. In a sawmill, a carriage having its longitudinal bars slotted, longitudinally-slotted base-pieces fitted to the carriage, knees slidably mounted upon the base-pieces, bolts or pins pendent from the knees and passing through the longitudinal slots in the base-pieces, and feed-screws mounted in the longitudinal slots of the carriage having screw-thread connection with the pins or bolts pendent from the knees to hold the latter in place and provided for transverse adjustment thereof upon the carriage, substantially as set forth.

2. In combination, a carriage having its bars longitudinally slotted, and base-pieces fitted upon the carriage and having a longitudinal slot, a knee slidably mounted upon the base-pieces and having a pendent portion passing through the slot thereof, a feed-screw passing through the longitudinal slots of the carriage and having screw-thread engagement with the pendent portion of the knee for holding the latter and the base-piece in place and admitting of transverse adjustment of the knee, and a clamp-nut fitted to the projecting end of the feed-screw for preventing possible movement of the latter in the longitudinal slot, substantially as set forth.



695,195. PISTON-ROD OR OTHER SIMILAR PACKING. NILS O. CROWELL, Hamburg, Germany. Filed July 18, 1901. Serial No. 68,941. (No model.)

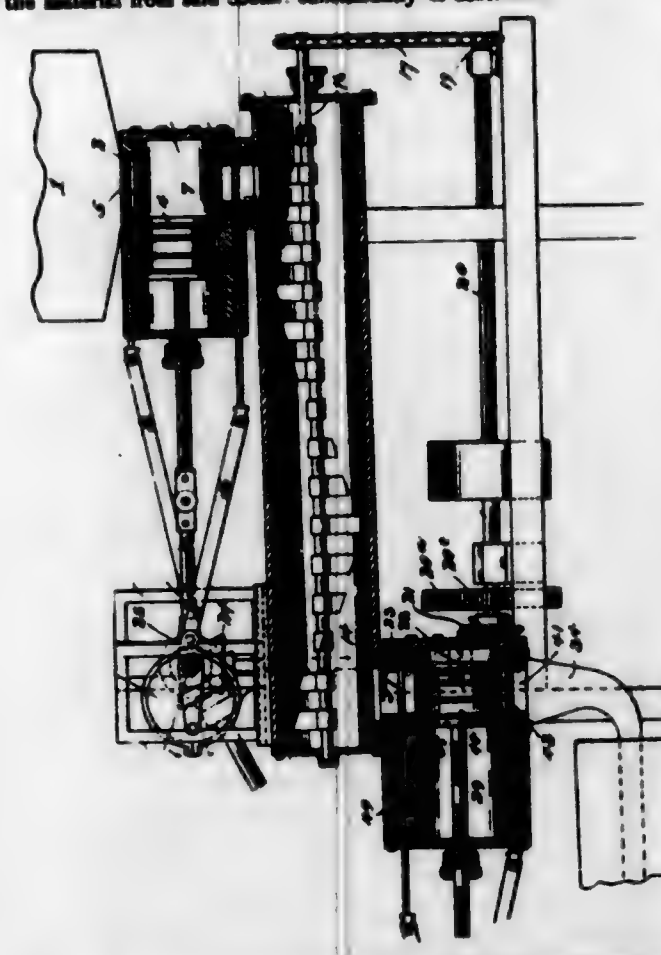


Claim.—1. In a device of the character described, a sleeve having a series of longitudinal slots formed on the periphery thereof, a ring mounted upon one end of said sleeve and secured thereto by pins, springs engaging in said slots and guided by the walls thereof, a ring engaging the other end of said sleeve, spiral springs one end of which engages said ring, a ring engaging the other ends of said spiral springs, and a ring movably mounted on the piston-rod which engages said last-named ring, substantially as described.

2. In a device of the character described, a sleeve composed of sections, the periphery of said sleeve being longitudinally slotted and having springs mounted therein, a ring secured by means of pins to one end of said sleeve, a ring recessed on one face engaging the other end of said sleeve, spiral springs secured in said recesses, a ring recessed on one face which engages the other end of said spiral springs, and a ring movably mounted on the piston-rod and engaging said last-named ring, substantially as described.

695,196. APPARATUS FOR PREPARING CORN FOR CANNING. JACOB R. CUYKENDALL, Hoopeston, Ill. Filed Jan. 2, 1901. Serial No. 41,894. (No model.)

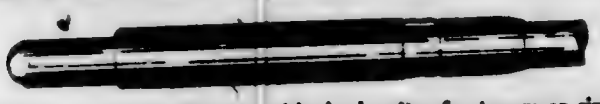
Claim.—1. An apparatus for preparing liquid or semiliquid cooked provisions for canning, comprising a force-pump, a steam-charged cooker into which said force-pump is arranged to discharge, a source of steam-supply communicating with said cooker, means for transferring the material from the cooker to a closed cooler, said cooler being adapted to receive the material after it is cooked, and means for controlling the discharge of the material from said cooler, substantially as described.



2. An apparatus for preparing liquid or semiliquid provisions for canning, comprising a force-pump, a closed cooking-receptacle of elongated form, and into one end of which said force-pump is arranged to discharge, a source of steam-supply admitting steam at a high temperature to said cooking-receptacle, means for agitating and transmitting the material gradually throughout the length of the cooker, a cooler and a valved connection between the cooler and the cooker, the discharge end of the cooker having a plurality of compartments and means for discharging portions of the contents of the several compartments successively, substantially as described.

3. An apparatus for preparing cooked provisions for canning, comprising a closed steam-charged cooking-receptacle, means for positively forcing measured portions of material into said cooking-receptacle, means for moving the material through the receptacle, means for withdrawing regulated quantities of the material from the receptacle, said latter means comprising an expansion-chamber having a movable wall or piston for discharging the material therefrom and a cooler into which said material is discharged, substantially as described.

695,197. ATTACHMENT FOR HANDLES OF BROOMS, HOES, OR LIKE ARTICLES. EDWARD DILLINGHAM, Chelsea, Mass. Filed Sept. 27, 1901. Serial No. 76,705. (No model.)



Claim.—1. In combination with the handle of a broom or similar implement, a stationary tube or collar encircling and rigidly secured to said handle not far from its upper end; a movable tube or sleeve encircling said handle between the stationary tube and the upper end of the handle; and a flexible or collapsible connection between said tubes and rigidly secured at its opposite ends to the stationary and movable tubes, whereby the movable tube is allowed to slide or play longitudinally on the handle between the end thereof and the stationary tube while being anchored to and having its movement limited by the latter, substantially as set forth.

2. In combination with the handle of a broom or similar implement, a stationary tube or collar encircling and rigidly secured to said handle not far from its upper end; a movable tube or sleeve encircling said handle between the stationary tube and the upper end of the handle; and a flexible or collapsible tube between said tubes and rigidly secured at its opposite ends to the stationary and movable tubes, whereby the movable tube is allowed to slide or play longitudinally on the handle between the end thereof and the stationary tube while being anchored to and having its movement limited by the latter, substantially as described.

695,198. INSOLUBLE CASEIN AND PROCESS OF PRODUCING SAME. HENRY V. DUNHAM, New York, N. Y., assignor to Casein Company of America, a Corporation of New Jersey. Filed Sept. 28, 1901. Serial No. 76,864. (No specimens.)

Claim.—1. The herein-described insoluble casein product, suitable for use as a substitute for albumen, the same consisting of a mixture of commercial casein, a salt with an alkaline reaction, and hexamethylene-tetramine, in substantially the proportions specified.

2. The herein-described insoluble casein, suitable for use as a substitute for albumen, the same consisting of a mixture of commercial casein, borax, and hexamethylene-tetramine, in substantially the proportions specified.

3. The herein-described process for producing insoluble casein, consisting in dissolving a mixture of casein and a metallic salt, with an alkaline reaction, in water, then adding hexamethylene-tetramine to the solution, then drying out the solution and subsequently subjecting the dried-out product to heat and moisture.

4. The herein-described process for producing insoluble casein, consisting in adding about fifteen parts of borax to about eighty-five parts of ordinary commercial casein, then dissolving the mixture in about four hundred parts of water, then adding to the solution about fifteen parts of hexamethylene-tetramine, then drying out the solution, and subsequently subjecting the dried-out product to heat and moisture.

695,199. AIR-PUMP. GEORGE W. ENDY, Waterbury, Conn., assignor to the Scovill Manufacturing Company, Waterbury, Conn., a Corporation of Connecticut. Filed June 1, 1900. Renewed Jan. 27, 1902. Serial No. 91,468. (No model.)



Claim.—1. An air-pump, having a discharge-tube of rigid material and provided with a coupling for connecting the same with the inlet of an object to be inflated, and a yielding and detachable joint between the pump and the discharge-tube, substantially as described.

2. An air-pump, having a discharge-tube of inherently rigid material, an attached bracket adapted to be pivotally connected with the pump, and a cushion interposed between the said discharge-tube and the outlet of the pump, substantially as described.

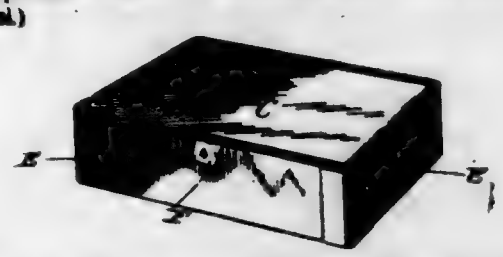
3. An air-pump, having an inherently rigid discharge-tube provided with means for connecting the same with an inlet of an object to be inflated, a bracket affixed to the tube and adapted to be pivotally connected with the pump, and a cushion, of yielding air-tight material, interposed between the said tube and the outlet of the pump, the said discharge-tube

being thereby rendered capable of yielding to the motion of the pump without disturbing its union with the said inlet and also being capable of ready detachment from the pump, substantially as described.

4. An air-pump, having a discharge-tube, a bracket attached thereto and having one end constructed to engage a fixed portion of the pump and the other end adapted to engage a movable member applied to the pump, and a yielding cushion interposed between the said discharge-tube and the outlet of the pump, substantially as described.

5. An air-pump, having a discharge-tube provided with a bracket, one end of which is notched to engage a fixed portion of the pump and the other end of which is constructed as a finger, a slip ring or band on the pump-barrel with which the said finger engages, and a yielding cushion interposed between the said tube and the outlet of the pump, the said slip ring or band being adapted to be disengaged from the finger to permit the detachment of the discharge-tube, substantially as described.

695,200. BOX. JEFFREY T. FERRIS, Anderson, Ind., assignor to J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill., a Corporation of Indiana. Filed Aug. 12, 1901. Serial No. 71,792. (No model.)



Claim.—1. The herein-described box comprising the outer band or case E and the separate inner box composed of the bottom A a rear wall or side B hinged to said bottom, a top C of the same size as the bottom A and hinged to the upper edge of the rear wall B, and the two series of three flanges D hinged respectively to the three outer edges of the bottom A and top C and constituting, when the blank is folded into box form, the front and end walls of the box, said inner box being adapted to be inserted in closed form into and confined by the said outer case E; substantially as described.

2. The herein-described box comprising the outer band or case E open at top and bottom and the separate inner box composed of the bottom A, top C, intermediate rear wall or side B hinged respectively to the said bottom and top and the two series of three flanges D hinged to the three remaining edges of the bottom and top, the corresponding flanges of the bottom and top meeting edge to edge in substantially the same plane and within the said case E; substantially as described.

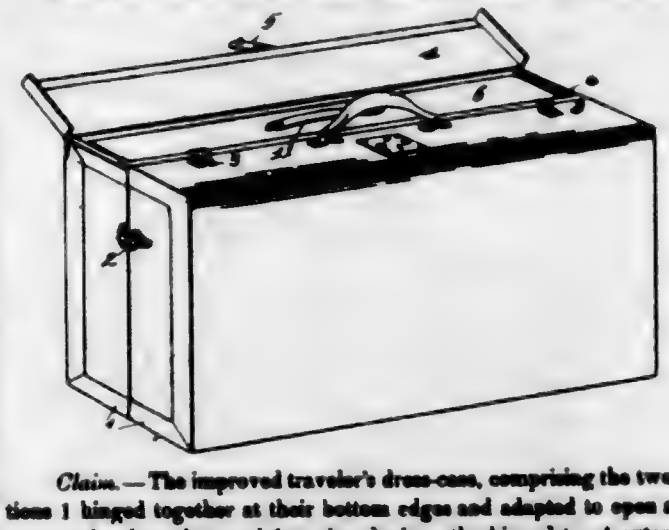
3. The herein-described box comprising the rectangular band or case E and the separate inner box received by said case and composed of the blank having the rectangular bottom A and corresponding top C with an interposed rear wall or side B hinged respectively to the bottom and top, and the rectangular flanges D all of equal width which is one-half of the depth of the box and hinged to the free edges of the bottom and top whereby when the blank is folded into box form its front and the two side walls are formed by corresponding flanges on the bottom and top which flanges meet in a horizontal plane midway of the height of the box; substantially as described.

695,201. SHIPPING-PACKAGE. JEFFREY T. FERRIS, Anderson, Ind., assignor to J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill., a Corporation of Indiana. Filed Aug. 12, 1901. Serial No. 71,793. (No model.)



Claim.—The herein-described shipping-package composed of the two open-ended boxes adapted to receive and close each other and a separate removable bottom C formed of corrugated paper-board and having the four flanges c extending upwardly along the inner walls of the inner box whereby the bottom constitutes a support for the contained articles while being packed and the flanges thereof a protection or packing for such articles; substantially as described.

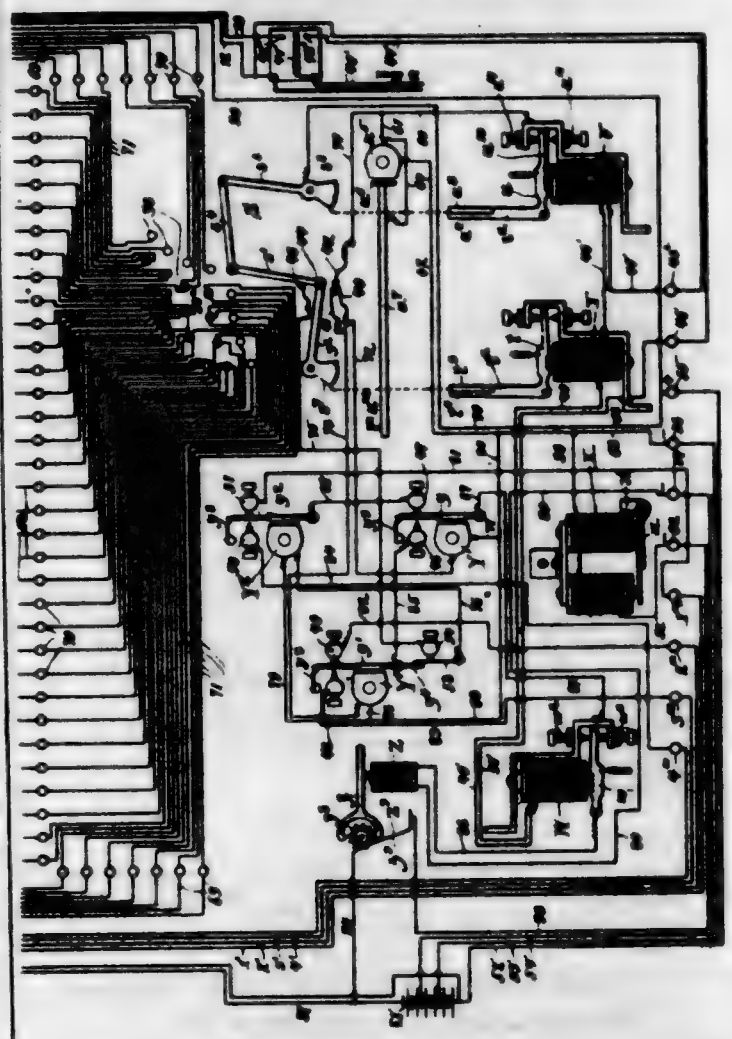
695,202. TRAVELER'S DRESS-CASE. CHARLES B. FRENCH, St. Louis, Mo. Filed May 27, 1901. Serial No. 61,984. (No model.)



Claim.—The improved traveler's dress-case, comprising the two sections 1 hinged together at their bottom edges and adapted to open away from each other, the usual fastening devices, the hinged top 4 extending the full length and width of the edge of one of said sections only, strips 8 on the inside of the latter, the tray 6 extending the full length and width of the section which has the hinged top, the door 9 covering one entire side of said tray, and the strips 7 on the ends of the tray, substantially as specified

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695,203. AUTOMATIC TELEGRAPH. ALFRED C. GILBERT, Chicago, Ill. Filed Apr. 22, 1901. Serial No. 56,294. (No model.)



Claim.—1. In electric selective apparatus, the combination with separate electrical devices relatively quick and slow acting to respond differently to variably-timed current impulses of a signal-code, of means controlled by the combined operation of said devices to make the signal.

2. In electric selective apparatus, the combination with separate electrical devices relatively quick and slow acting to respond differently to variably-timed current impulses of signal-code combinations, of selector mechanism arranged to be variably actuated by said devices into position to make the signal corresponding to the combination of impulses received.

3. In electric selective systems, the combination with a line-circuit, of transmitting apparatus arranged to impart combinations of current impulses of different predetermined lengths to said line-circuit in keeping with a signal-code, and receiving apparatus controlled by said line-circuit and comprising separate electrical devices relatively quick and slow act-

ing to respond differently to the variably-timed current impulses and means actuated by said devices to make the signal.

4. In electric selective apparatus, the combination of separate electrical devices, each arranged to be traversed by electrical signal-code impulses of different lengths but of like intensity, said electrical devices being relatively quick and slow acting to respond differently to the variably-timed current impulses of the signal-code and selector mechanism controlled by the combined operation of said devices to make the signal.

5. In electric selective apparatus, the combination with separate electrical devices relatively quick and slow acting to respond differently to variably-timed current impulses of a dot-and-dash code, of selector-switch mechanism controlled by the combined operation of said devices to make the signal.

6. In electric selective apparatus, the combination with separate electromagnets, relatively quick and slow acting to respond differently to the variably-timed current impulses of a signal-code, of selector-switch mechanism arranged to be variably actuated by the combined operation of said electromagnets to make the signal.

7. In electric selective systems, the combination with a line-circuit, of transmitting apparatus arranged to impart to said circuit combinations of differently-timed impulses in keeping with the dot-and-dash code, and receiving apparatus comprising separate electromagnets arranged to be controlled by said line-circuit, said magnets being of relatively different resistances to respond differently to the variably-timed impulses of the code, and mechanism actuated by the combined operation of said electromagnets to make the signal.

8. In telegraph systems, the combination with the line-circuit, of transmitting apparatus comprising a plurality of character-keys each arranged to transmit a combination of differently-timed impulses to said line-circuit in keeping with a suitable code and receiving apparatus comprising separate electromagnets controlled by said line-circuit, said electromagnets being constructed to respond differently to said variably-timed impulses and switch mechanism controlled by the combined operation of said electromagnets to make the signal.

9. In telegraph systems, the combination with the line-circuit, of transmitting apparatus arranged to impart to said line-circuit combinations of long and short electrical impulses of like intensity in keeping with a dot-and-dash signal-code and receiving apparatus comprising a pair of electromagnets relatively quick and slow acting to respond differently to said long and short impulses and selective switch mechanism arranged to be variably actuated by the combined operation of said electromagnets into position to make the signal.

10. In telegraphs, the combination with separate electromagnets, quick and slow acting, to respectively correspond to the dot-and-dash signals, of a signal-maker, shifters operated by each of said electromagnets for moving said signal-maker in directions at angles to each other to any one of a number of positions to make the signal.

11. In telegraphs, the combination with separate electromagnets, quick and slow acting to respectively correspond to the dot-and-dash signals, of a switch, a series of contacts in the same plane and shifters operated by each of said electromagnets for moving said switch in different directions parallel to the plane of said contacts to any one of a number of positions to engage said contacts.

12. The combination with separate electrical devices relatively quick and slow acting to respond differently to variably-timed current impulses of a signal-code, of means whereby upon the actuation of said slow-acting device said quick-acting device is in effect rendered inoperative and selecting means controlled by the combined operation of said devices to make the signal.

13. The combination with separate electromagnets, quick and slow acting, to correspond to the short and long electric impulses of a dot-and-dash signal-code, respectively, of signal-making means, shifters for said means operated by each of said electromagnets and means coacting with said slow-acting magnet when the latter is operated to prevent the operation of the shifter of the quick-acting electromagnet.

14. The combination with separate electromagnets in the same circuit, of switch mechanism, shifters therefor operated by the armatures of each of said magnets, and a lock operated by one of said magnets for preventing the operation of the shifter of the other of said magnets.

15. The combination with separate electromagnets in the same circuit, quick and slow acting to correspond respectively to the short and long electrical impulses of a dot-and-dash signal-code, of switch mechanism, shifters therefor operated by the armatures of each of said magnets, a lock for the shifter of said quick-acting magnet, an operating electromagnet for said lock, the circuit of which is controlled by said slow-acting magnet.

16. The combination with separate electromagnets in the same circuit, quick and slow acting to correspond to the dot-and-dash signals, of switch mechanism, shifters therefor operated by the armatures of each of said magnets, a lock controlled by the armature of said slow-acting magnet to prevent the operation of said quick-acting shifter, and means for holding said lock in operative position until the armature of said quick-acting magnet is released.

17. The combination with separate electromagnets in the same circuit, quick and slow acting to correspond to the dot-and-dash signals, of switch mechanism, shifters therefor operated by the armatures of each of said magnets, a lock for the shifter of said quick-acting magnet, an operated electromagnet for said lock, the circuit of which is controlled by the armature of said slow-acting magnet, and means for maintaining the circuit through said lock-magnet until the armature of said quick-acting magnet is released.

18. In telegraphs, the combination with separate electromagnets located in the same circuit and with a universally-mounted mechanism, of shifters operatively connected to the armature of said electromagnets and operated thereby to move said signal-making mechanism in different directions at angles to one another to any one of a number of positions to make the signal.

19. In telegraphs, the combination with separate electromagnets located in and operated by the same circuit, with a local circuit having a number of contacts located in the same plane, and with a universally-mounted switch, of shifters operatively connected to the armatures of said electromagnets to move said switch in different directions parallel to the plane of said contacts to any one of a number of positions to engage said contacts.

20. The combination with the separate electromagnets, relatively quick and slow acting, to respond differently to the short and long electric impulses of a dot-and-dash signal-code, of a universal mechanism coacting with each of said electromagnets to make the signal.

21. The combination with signal-making means and with an operating-electromagnet therefor, of a step-by-step feed for said means comprising ratchet-teeth fixed thereto and a shifter operated by said magnet having a fixed detaining-dog and a pivoted spacing-dog engaging said ratchet-teeth, and light and heavy springs arranged to engage opposite faces of said spacing-dog.

22. The combination with a spring-pressed signal-making switch mechanism and with an operating-magnet therefor, of a step-by-step release-feed for said switch mechanism comprising ratchet-teeth fixed thereto, a shifter operated by said magnet having a fixed detaining-dog and a pivoted spring-actuated spacing-dog engaging said ratchet-teeth, and means for returning said switch mechanism to normal position against the tension of its spring.

23. The combination with spring-pressed signal-making means and with separate electromagnets, of release-feed for said signal-making means comprising ratchet-teeth fixed thereto, shifters, operated by each of said magnets having fixed detaining-dogs and pivoted spring-pressed spacing-dogs engaging said ratchet-teeth, and means for returning said switch mechanism to normal position against the tension of its spring.

24. The combination with a universally-mounted spring-pressed signal-making mechanism and with separate electromagnets, of release-feed for said mechanism comprising ratchet-teeth fixed thereto, shifters operated by each of said electromagnets having fixed detaining-dogs and pivoted spring-pressed spacing-dogs engaging said ratchet-teeth, whereby said mechanism may be stepped in different directions at angles to each other, and means for returning said switch mechanism to normal position against the tension of its spring.

25. The combination with signal-making mechanism and with separate electromagnets, of actuating devices for said mechanism comprising ratchet-teeth fixed thereto and shifters operated by each of said magnets having fixed detaining-dogs and pivoted spring-pressed spacing-dogs engaging said ratchet-teeth, and means controlled by the operation of one of said magnets for locking the spacing-dog of the shifter operated by the other of said magnets.

26. The combination with the line-circuit and with means for imparting thereto combinations of electrical impulses, of electrical devices controlled by said circuit, a series of signal-making devices, an operating-circuit therefor, switch mechanism actuated by said electrical devices for closing said operating-circuit through any one of said signal-making devices and a further electrical device controlled by the combinations of impulses in said line-circuit and arranged to prevent the completion of said operating-circuit except at the pauses between completed code combinations.

27. The combination with the line-circuit and with means for imparting thereto combinations of variably-timed electrical impulses in keeping with a dot-and-dash code, of separate electrical devices controlled by said circuit and relatively quick and slow acting to respond differently to said variably-timed impulses, a series of signal-making devices, an operating-circuit therefor, switch mechanism controlled by the combined operation of said electrical devices and arranged to close said operating-circuit through any one of said signal-making devices and a further electrical device controlled by the combinations of impulses on said line-circuit and arranged to prevent the completion of said operating-circuit except at the pauses between the completed code combinations.

28. In telegraphs, the combination with an operating-circuit having a series of contacts, of a signal-maker coöperating with said contacts to close said circuit and to make the signal, electromagnets controlled by a common line-circuit and operated by separate electrical impulses of a signal-code for actuating said signal-maker and an additional magnet controlled by said common line-circuit arranged to prevent the completion of said operating-circuit until the various line impulses forming the completed signal have been received.

29. In telegraphs, the combination with separate electromagnets, relatively quick and slow acting, to respond differently to the dot-and-dash signals, of mechanism controlled by the combined operation of said electromagnets to make the signal, and means for returning said mechanism to the normal after the signal has been made.

30. In telegraphs, the combination with an operating-circuit and with a switch mechanism movable from normal position to close said circuit and make the signal at the end of its traverse, of a movable arm for returning said switch mechanism to normal after the signal has been made, an operating-magnet for said arm and a circuit-closer controlled by said operating-circuit and arranged to complete the circuit through said magnet for an appreciable interval of time.

31. In telegraphs, the combination with an operating-circuit and with a switch mechanism movable from normal position to close said circuit and make the signal at the end of its traverse, of a movable arm for returning said switch mechanism to normal after the signal has been made, an operating-magnet for said arm, a commutator for closing the circuit through said magnet, and actuating means for said commutator operated by a second magnet included in said operating-circuit.

32. In telegraphs, the combination with separate electrical devices, relatively quick and slow acting, to respond differently to the short and long electrical impulses of a dot-and-dash signal-code, of a printing device controlled by the combined operation of said devices for printing the characters corresponding to the signals.

33. In telegraphs, the combination with separate electromagnets, relatively quick and slow acting, to respond differently to the dot-and-dash signals, with a printing device and with an electrical circuit for operating said printing device, of a switch mechanism controlled by the combined operation of said electromagnets to close said circuit, whereby the printing device is operated to print the character corresponding to the signal.

34. In telegraphs, the combination with separate electromagnets, with a printing device, and with an electrical circuit having a series of terminals, of switch mechanism controlled by the combined operation of said magnets to close said circuit through any one of said terminals, whereby said printing device is operated to print the character corresponding to the signal, and means controlled by said operating-circuit for returning said switch mechanism to the normal after the character has been printed.

35. In telegraphs, the combination with a type-writer, with the set of electromagnets, the armatures of which are operatively connected to the type-bars of said type-writer, and with a local circuit for energizing said magnets, of separate electromagnets located in the same circuit, and a switch mechanism coacting with each of said last-mentioned electromagnets to close said local circuit through any one of the electromagnets therein at the end of its traverse, whereby the corresponding type-bar is operated.

36. The combination with the series of signal-making devices divided into "sets" and "groups," the individual members of each "group" being located in different "sets," of means for selecting any particular "group," and supplemental means for selecting a particular "set."

37. In telegraphs, the combination with a series of signal-making devices divided electrically into "sets" and "groups," the individual members of each "group" being located in different "sets," and with an operating-circuit for said signal-making devices, of switch mechanism for closing said circuit through any particular "group," and supplemental switch mechanism for closing the circuit through any particular "set," whereby the signal-making device corresponding to the signal received may be operated.

38. In telegraphs, the combination with a series of signal-making devices divided electrically into "sets" and "groups," the individual members of each "group" being located in different "sets," and with an operating-circuit for said signal-making devices, of switch mechanism for closing said circuit through any particular "group," operating-magnets for said switch mechanism, and supplemental switch mechanism controlled by the operation of said magnets for closing the circuit through any particular "set."

39. In telegraphs, the combination with a series of signal-making devices divided electrically into "sets" and "groups," the individual members of each "group" being located in different "sets," and with an operating-circuit for said signal-making devices having contacts corresponding to said "sets" and "groups," of separate electromagnets operated by the long and short impulses of a dot-and-dash code, switch mechanism actuated by said magnets and coöperating with the "group-contacts" to close said operating-circuit through any particular "group" in correspondence to the number of impulses in the signal received, and supplemental switch mechanism controlled by the operation of said magnets and coöperating with the "set-contacts" for closing said operating-circuit through any particular "set" in correspondence to the order of the impulses in the signal received.

40. In telegraphs, the combination with a series of signal-making devices divided electrically into "sets" and "groups," the individual members of each "group" being located in different "sets," and with an operating-circuit for said signal-making devices, of switch mechanism for closing the circuit through any particular "group," supplemental switch mechanism for closing the circuit through any particular "set," separate actuating-magnets, quick and slow acting, to correspond respectively to the short and long impulses of a dot-and-dash signal-code for operating switch mechanisms, and supplemental magnets for actuating said supplemental switch mechanisms, the circuit through said supplemental magnets being controlled by the operation of said actuating-magnets.

41. In telegraphs, the combination with a series of signal-making devices divided electrically into "sets" and "groups," the individual members of each "group" being located in different "sets," and with an operating-circuit for said signal-making devices having contacts corresponding to said "groups" and "sets," said group-contacts being located in the same plane, of universally-mounted switch mechanism movable in different directions for engaging any one of said "group-contacts" to close said operating-circuit through any particular "group," a number of supplemental switches coöperating with the "set-contacts" for closing said operating-circuit through any particular "set," separate electromagnets operating in response to the short and long impulses of a dot-and-dash signal-code for actuating said switch mechanism, and a number of supplemental magnets for actuating said supplemental switches, the energizing-circuit through said supplemental magnets being controlled by the operation of said first-mentioned magnets.

42. In printing-telegraphs, the combination with a series of type-bars and with a series of operating-magnets therefor, divided electrically into "sets" and "groups," the individual magnets of each "group" being located in different "sets," of an operating-circuit for said electromagnets, switch mechanism for closing said operating-circuit through any particular "group," and supplemental switch mechanism for closing said operating-circuit through any particular "set," whereby the character corresponding to the signal received may be printed.

43. In a combined automatic transmitting and receiving apparatus, the combination with a series of contact-surfaces corresponding to the "dots" and "dashes" of a signal-code, and with transmitter-switches coöperating therewith, of a series of type-bars, means for actuating said type-bars in response to the short and long electrical impulses of the dot-and-dash signal-code, and a series of finger-keys for controlling the operation of said transmitter-switches and of said type-bars.

44. In a combined automatic transmitting and receiving apparatus, the combination with a series of contact-surfaces corresponding to the "dots" and "dashes" of a signal-code, and with transmitter-switches coöperating therewith, of a series of type-bars, a series of magnets for actuating said type-bars, selective-switch mechanism for closing the circuit through any one of said magnets, operating-magnets responding to the short and long electrical impulses of the dot-and-dash signal-code for actuating said selective-switch mechanism, and a series of finger-keys for controlling the operation of said transmitter-switches and said type-bars.

45. In a combined automatic transmitting and receiving apparatus, the combination with a rotatable contact-cylinder and with a series of transmitter-switches coöperating therewith, of a series of type-bars, a series of magnets for operating said type-bars, selective-switch mechanism for closing the circuit through any one of said magnets, and a series of finger-keys operatively connected to said type-bars and to said transmitter-switches.

46. In a combined automatic transmitting and receiving apparatus, the combination with a series of movable contact-surfaces and with transmitter-switches coöperating therewith, of printing mechanism, a reciprocating paper-carriage therefor, mechanism for returning said carriage to its starting-point, and a motor arranged to be operatively connected either to said carriage-return mechanism or to said movable contact-surfaces.

47. In a combined automatic transmitting and receiving apparatus, the combination with a rotatable contact-cylinder and with a series of transmitter-switches coöperating therewith, of printing mechanism, a reciprocating paper-carriage therefor, a train of gears for returning said paper-carriage to its starting-point, a train of gears for rotating said contact-cylinder, and a motor movably mounted and arranged to be coupled with either of said gear-trains.

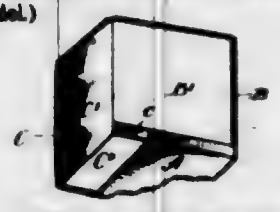
48. In a combined automatic transmitting and receiving apparatus for telegraphs, the combination with a series of contact-surfaces, and with

transmitting-switches coöperating therewith, of a series of type-bars, selective-switch mechanism for controlling the operation of said type-bars, operating-magnets for said switch mechanism, and means for closing the line-circuit through said operating-magnets or through said contacts and transmitter-switches.

49. In telegraphs, the combination with a universally-mounted signal-making mechanism comprising a four-bar linkage mounted intermediate a pair of fixed pivots, the adjacent members of which linkage are arranged substantially at right angles to each other, of means for moving said mechanism in directions at angles to one another to any one of a number of positions to make the signal.

50. In telegraphs, the combination with a universally-mounted signal-making mechanism comprising a four-bar linkage mounted intermediate a pair of fixed pivots, the adjacent members of which linkage are arranged at substantially right angles to each other, of separate electro-magnets, and shifters operated by each of said magnets for moving said mechanism in different directions at angles to one another to any one of a number of positions to make the signal.

695,204. PAPER BOX. CHARLES H. GOODSOW, Chicago, Ill., assignor to J. W. Sefton Manufacturing Company, Chicago, Ill., and Anderson, Ind., a Corporation of Indiana. Filed Dec. 18, 1901. Serial No. 86,157. (No model.)



Claim.—1. In a folding box of the character described, comprising a bottom A, side walls B having the end extensions B″, end walls C having the extensions C′ adapted to be bent downward into the ends of the box to confine the side extensions B″, and provided with the supplemental extensions C″ adapted to rest against the bottom of the box—the locking extensions *c c* projecting from the opposite ends of said supplemental extensions C″ and adapted to catch under suitable abutments provided upon the side walls of the box and positively lock the parts in position; substantially as described.

2. In a folding paper box of the character described—that is to say, comprising a bottom A, outer side walls B provided with end extensions B″ and with the side extensions B′ folded inward against the side walls B and constituting inner side walls for the box, said extensions or inner side walls B′ being of less width than the outer side walls B so as to leave a space between their lower edges and the bottom of the box, the end walls C having the extensions C′ adapted to fold inward over the said extensions B″ and downward inside the box to confine said extensions B″, and provided with the supplemental extensions C″ adapted to rest upon the bottom of the box—the locking extensions *c c* projecting from the opposite ends of the supplemental extensions C″ and adapted as the end-wall extensions C′ and C″ are pressed downward inside the end of the box to ride over the inner side walls B′ and to catch under the lower edges thereof as the parts reach final position and positively lock the parts in such position; substantially as described.

695,205. PAPER BOX. CHARLES H. GOODSOW, Chicago, Ill., assignor to J. W. Sefton Manufacturing Company, Chicago, Ill., and Anderson, Ind., a Corporation of Indiana. Filed Dec. 20, 1901. Serial No. 86,602. (No model.)



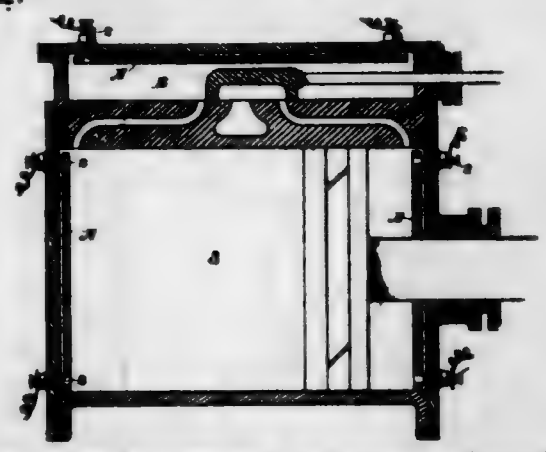
Claim.—1. The herein-described folding box, comprising the bottom A, side walls B B having the end extensions B″ and provided with the recesses *b* upon their inner surfaces adjacent the corners of the box, and the end walls C C having the extensions C′ provided with the locking tongues *c*, said extensions C′ being adapted to fold over the inturned extensions B″ of the side walls and confine them between the end walls C and said extensions C′, and the tongues *c* being adapted to fit in the recesses *b* provided for them on the inner surfaces of the side walls B and lock the end-wall extensions C′ in place against the end walls of the box; substantially as described.

2. The herein-described folding box, comprising the bottom A, side walls B having the end extensions B″ and the side extensions B′, the latter being folded over and pasted to the inner surfaces of the side walls B and having their lower corners cut away to form recesses *b*, and the end walls C having the extensions C′ provided with the locking-tongues *c* and adapted to be bent downward into the ends of the box to confine the side extensions B″, and said locking-tongues *c* being adapted to fit in the substantially correspondingly shaped recesses *b* and lock the extensions C′ in place against the ends of the box; substantially as described.

3. The herein-described paper box comprising the bottom A to which are hinged the opposite sides B and opposite ends C, the ends C being provided with extensions C′ having at each of their outer corners tongues *c*, said sides B having formed on their inner faces abutments against which the tongues *c* are adapted to rest when the box is folded, substantially as described.

4. The herein-described paper box comprising the bottom A to which are hinged the opposite sides B and opposite ends C, the sides B having extensions B′ adapted to fold over upon the sides B and whose free corners are cut away to form abutments, and the ends C having extensions C′ provided at each of their outer corners with tongues *c* which, when the box is folded, are adapted to rest against said abutments; substantially as described.

695,206. ELECTRIC REHEATER FOR STEAM. GUSTAV GRIESHEIM, Berkeley, Cal. Filed July 30, 1901. Serial No. 70,223. (No model.)



Claim.—1. In combination with the steam-space of an engine said space being contained directly within the engine-casing, means for reheating steam consisting of electrical resistance-plates directing in said steam-space, and electrical conductors extending from said plates and through the engine-casing to the exterior thereof.

2. The combination with the steam-space of an engine said space being included within the walls of the engine-casing, of electrical resistance-plates and means suspending them directly within said space, and wires leading from the plates outwardly through the engine-casing.

3. The combination with a steam-engine cylinder of electrical heating-plates located between the cylinder-heads and the ends of the piston-stroke, insulated connections fixed to said plates and extending through the cylinder-heads to the outside of the cylinder, and electrical conducting-wires therefrom.

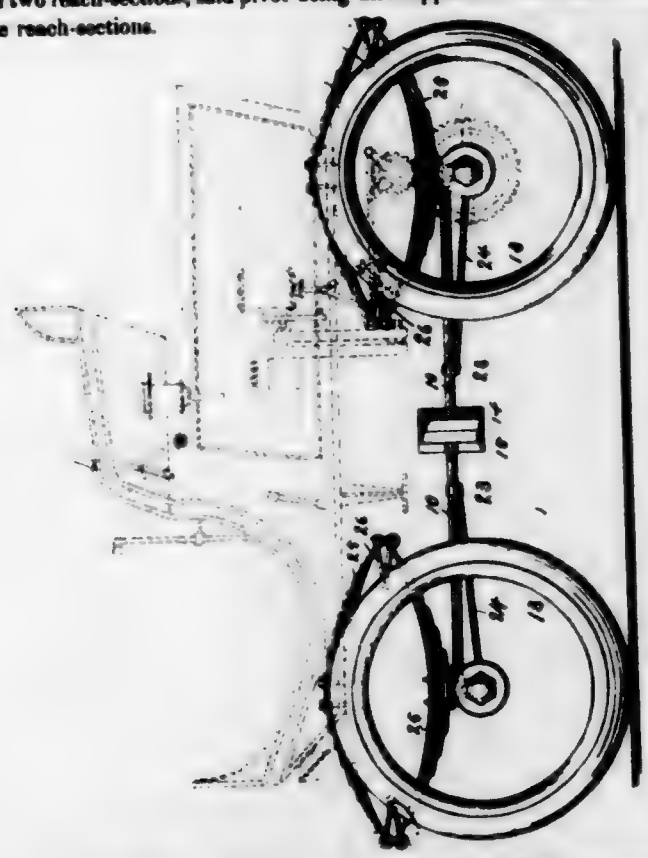
695,207. RUNNING-GEAR FOR MOTOR-VEHICLES. JOHN D. GRIFFIN, New York, N. Y., assignor to Standard Power Company, New York, N. Y., a Corporation of New York. Filed Nov. 26, 1901. Serial No. 83,782. (No model.)

Claim.—1. In an apparatus of the kind described, the reach comprising two generally rectangular sections having means at their front and rear ends for connection with the carriage-axles and having bearing-points at the sides and center where they meet, a central pivot connecting the two reach-sections, and bearings for the pivot independent of the central bearing and in line therewith, the said bearings being supported from the sides of the reach-sections.

2. In an apparatus of the kind described, the reach comprising two front and rear sections adapted to be supported in the usual way on the wheels of a vehicle, each section comprising side rods, cross-bars at the ends of the side rods arranged so that the two end cross-bars shall meet, cross-rods connecting the side rods of each section, and a pivot extending through the central meeting-point of the sections and journaled in the cross-rods thereof, substantially as described.

3. A reach, comprising two independent essentially half-sections, each section having parallel side rods adapted to connect with the bolster of a vehicle, a cross-bar at its inner end connecting the side rods, a cross-rod connecting the side rods, said cross-rod being parallel with the above-said cross-bar, abutments on the two sides of the reach-sections, said abutments being adapted to engage those of the opposed reach-sections, and a pivot extending through the central meeting portion of the cross-bars

of the two reach-sections, said pivot being also supported in the cross-rods of the reach-sections.



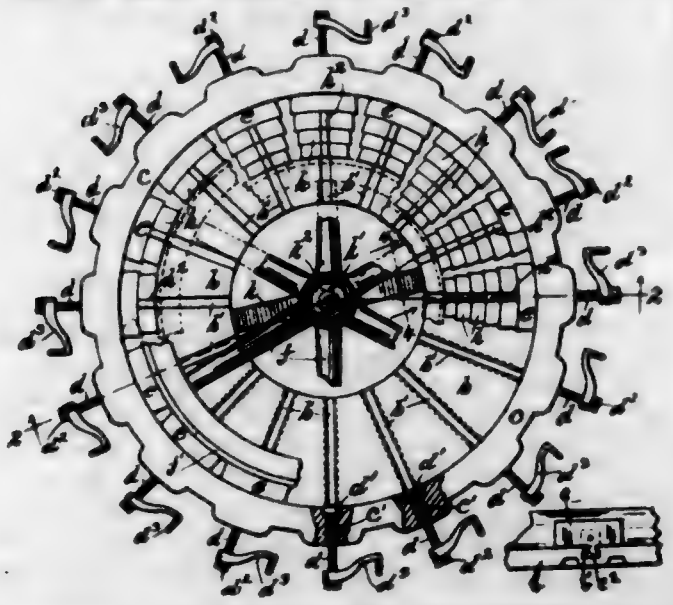
4. The combination with the two-part reach having parallel reach-rods, the central spider and the cross rods connecting the side reach-rods, of a central pivot extending through the spider and journaled on the two cross-rods.

5. In an apparatus of the kind described, the combination with the two-part reach having meeting surfaces near the center, of a central pivot extending through the meeting central portions of the reach so as to permit the end sections to turn vertically in relation to each other, and auxiliary bearings for the central pivot, said auxiliary bearings being independent of the central meeting portions of the reach and in line therewith.

6. The combination with the vehicle axles and bolsters, of the two-part reach connected by a horizontal pivot so that the parts may turn vertically in relation to each other, the upper parts or body portion of the reach-sections being attached to the bolsters, and the braces arranged beneath the body portions of the reach and connecting the reach-sections with the axles.

7. The combination with the axles and the two-part reach connecting them, the parts of the reach being arranged to turn vertically in relation to each other, of the springs and vehicle-body, and a connection between the axles and vehicle-body whereby the body and axles may move vertically independently of each other and of the resilient movement of the spring.

695,208. TIRE-SETTING MACHINE. HENRY T. HENDERSON, Keokuk, Iowa, assignor of one-half to Ralph B. Lourie, Keokuk, Iowa. Filed Jan. 15, 1900. Serial No. 1,574. (No model.)



Claim.—1. In a tire-setting machine, the combination with a bed comprising an annular plate surrounded by a raised rim and having radial channels formed in the upper surface thereof and of a depth less than the thickness of the plate, screws passing through said rim, means whereby said screws may be rotated, follower-blocks having tenons engaging said channels and adapted to be operated by said screws, distance-blocks adapted to fit between said follower-blocks and the tire of the wheel and having tenons also engaging said channels, a hub-depressing device arranged centrally relatively to said annular plate for imparting the desired dish to the wheel during compression, and means to support said device, substantially as described.

2. In a tire-setting machine, the combination with a bed comprising an annular plate surrounded by a raised rim, *c*, and having radial channels, *b'*, *b'*, formed in the upper surface thereof, of a depth less than the thickness of the plate, screws passing through said rim opposite said respective channels, parts carrying tapped holes engaged by said screws and adapted to rest against the inner face of said raised rim, follower-blocks, *e*, *e*, engaged and moved by said screws and having tenons to engage said channels, *b'*, *b'*, distance-blocks, *h*, *h*, adapted to rest between said follower-blocks and the wheel-tire and having tenons engaging said channels, *b'*, *b'*, a diametral support bridging the central opening of said plate, and a hub-depressing device carried thereon for imparting the desired dish to the wheel during compression, substantially as described.

3. A compression-block for tire-setting machines having two of its opposite faces concentric and carrying upon one of the remaining faces a tenon with divergent sides and upon the face opposite thereto a tenon with non-divergent sides, substantially as described.

695,209. MANUFACTURE OF ALKALINE ALGINATES. THOS. INGHAM, Liverpool, England. Filed Aug. 20, 1901. Serial No. 72,702. (No specimens.)

Claim.—1. The process of obtaining a pure solution of alkaline alginate which consists in taking the strongly-alkaline solution of alkaline alginate and neutralizing the same by alginic acid.

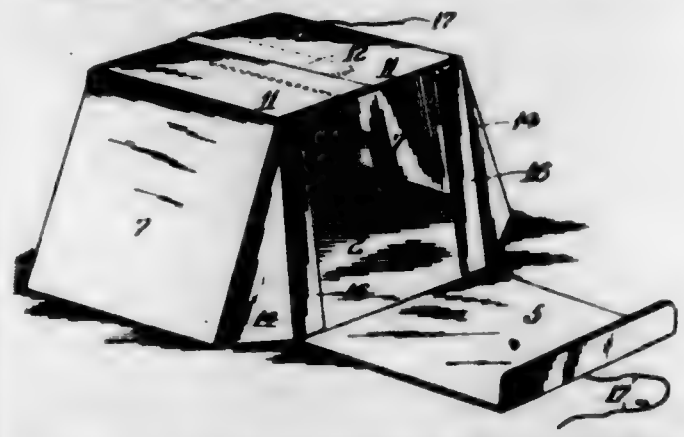
2. The process of making pure alkaline alginate, which consists in adding to the mixture of alkaline alginate and alkali, alginic acid in the proportions requisite to form pure alkaline alginate and evaporating to dryness.

695,210. BRIQUET MANUFACTURE. THOMAS INGHAM, Liverpool, England. Filed Aug. 20, 1901. Serial No. 72,703. (No specimens.)

Claim.—1. The process of manufacturing briquets, which consists in mixing granular solid matter with a solution of alkaline alginate and cellulose, pressing the same, and rendering the alkaline alginate insoluble by treating it with any well-known fixer of alkaline alginate.

2. The process of manufacturing briquets, which consists in mixing granular solid matter with a solution of alkaline alginate, and cellulose, pressing the same and drying by means of hot gases traveling in the reverse direction intermixed with any known gas or vapor which is capable of so acting on the alkaline alginate in the briquet as to render it insoluble in water.

695,211. FOLDING BOX. CHARLES F. KELLER, Chicago, Ill., assignor to the J. W. Sefton Manufacturing Company, Chicago, Ill., and Anderson, Ind., a Corporation of Indiana. Filed Aug. 19, 1901. Serial No. 72,561. (No model.)



Claim.—1. The herein-described folding box composed of an octagon-shaped bottom, a rectangular-shaped top of smaller dimensions than said bottom, inclined side walls connecting the bottom and top, and triangular-shaped outside corner walls the points of which are located at the top of the box and whose bases are adjacent the sides of the octagon bottom, as and for the purpose described.

2. The herein-described folding box, composed of an octagon-shaped bottom, a rectangular-shaped top of smaller dimensions than said bottom, inclined side walls, and triangular-shaped wings hinged to two of said

side walls, and adapted to form inclined corner walls, the points of which are located at the top of the box and whose bases are adjacent the sides of the octagon bottom, as and for the purpose described.

3. A blank for a folding box comprising a central portion, extensions forming a part of the same and adapted to form side walls, two of said extensions having edges substantially parallel with one another, portions forming a continuation of the remaining extensions and adapted to be united to form a top for the box, and triangular-shaped wings forming a part of the last-named extensions, and adapted to form outside corner walls and whose bases are adjacent the sides of the octagon bottom, as and for the purpose described.

4. A blank for a folding box, comprising a central octagon portion adapted to form a bottom, corner portions forming a part of the latter, adapted to be bent upwardly, extensions forming a continuation of said bottom, tongues forming the ends of two of the said extensions, portions forming the ends of the two remaining extensions and adapted to be united to form a top, triangular-shaped side wings forming a part of each of the last-named extensions, and adapted to form corner walls, and abutting walls forming a continuation of said wings, as and for the purpose described.

5. A folding box, comprising a central octagon portion adapted to form a bottom, extensions forming a continuation of said bottom, two of said extensions having parallel opposite edges, tongues forming a part of said last-named extensions, portions forming the ends of the remaining extensions and adapted to be united to form a top, wings forming a continuation of the opposite edges of the last-named extensions and adapted to form corner walls, and abutting walls forming a part of said wings, as and for the purpose described.

6. A folding box, comprising a central, octagon-shaped portion adapted to form a bottom, upwardly-projecting corner portions forming a part of the latter, extensions forming a part of said bottom, two of which are provided with parallel opposite edges, tongues forming the ends of the two last-named extensions, portions forming the ends of the remaining two extensions, and adapted to be united to form a top, triangular-shaped wings forming the sides of the last-named extensions and adapted to be turned against the corner portions of the bottom to form corner walls, and abutting walls forming a part of said wing against which the extensions having the parallel opposite edges are adapted to come in contact, as and for the purposes described.

7. A folding box, comprising a bottom, side walls hinged to the bottom, a top forming a part of two of said side walls, and triangular-shaped wings forming a part of the side walls which form a continuation of the top, and adapted to form outside corner walls, the points or apices of said wings being at the said top, as and for the purpose described.

8. A folding box, comprising an octagon-shaped bottom, extensions forming a part of the latter, portions forming the ends of two of said extensions and adapted to be united to form a top, triangular-shaped wings forming a continuation of said last-named extensions the points of which are located at the top, said wings adapted to form corner walls, abutting walls forming a part of said wings, tongues forming the ends of the remaining extensions and adapted to be inserted below the top, and strings attached to the last-named extensions and adapted to be tied over said top, as and for the purpose described.

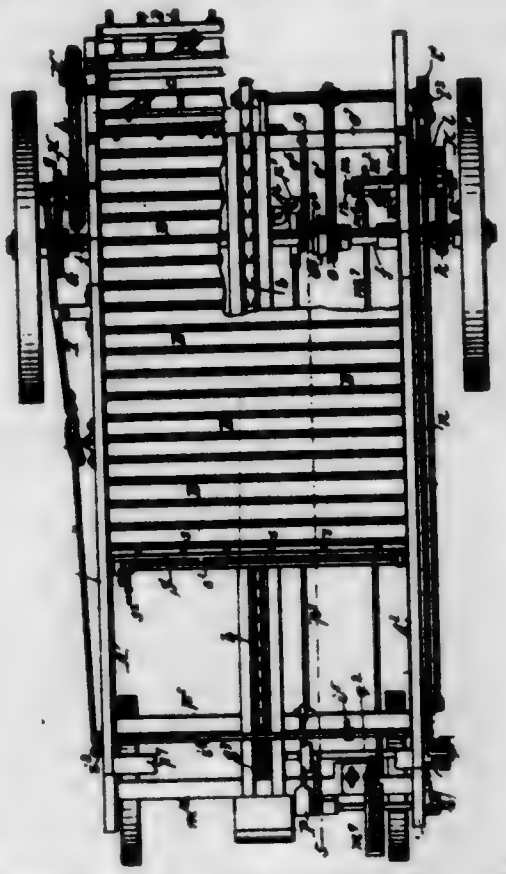
9. A folding box comprising an octagonal bottom, the upturned corners 4, the pairs of sides 5 and 7 hinged to said bottom, the pair of sides 7 having hinged triangular flaps or wings forming four of the outside side walls of the box and substantially rectangular engaging extensions 11 on said sides 7 adapted to form the top of the box; substantially as described.

10. A folding box comprising a bottom of irregular octagon shape having four equal sides of greater length and four corners or sides of lesser length, the four sides 5 and 7 substantially rectangular and hinged to the longer sides of the bottom, the sides 7 having flaps or wings of triangular shape forming four outside walls and whose apex terminates at the top of the box and whose base comes adjacent to the four shorter sides of the bottom, two of the four rectangular sides having extensions to form the top of the box; substantially as described.

11. A folding box comprising an octagonal bottom having the upturned portions 4 at four of the sides of such bottom, the two rectangular sides 5 having end flaps or tongues, the two rectangular sides 7 having extensions 11 adapted to engage to form the top of the box, two opposite edges of the sides 7 having the triangular wings 14 forming outside corner walls or sides and whose bases fit against the portions 4, and substantially rectangular extensions or flaps 16 hinged to said wings and adapted to lie inside the sides 5; substantially as described.

695,212. FERTILIZER-DISTRIBUTER. JOSEPH S. KEEP, Hewlett Valley, N. Y. Filed June 3, 1901. Serial No. 62,262. (No model.)

Claim.—1. In a fertilizer-distributer, the combination of a movable bottom, a driving-axle, a longitudinal shaft interposed between said axle and said bottom for transmitting the feed movement to the latter, a driving-pinion on said shaft, a driving gear-wheel which meshes with said pinion and which is movable toward and from said pinion, means for driving said gear-wheel from said axle, a shifting mechanism whereby said gear-wheel can be moved transversely into and out of mesh with said pinion, a shifting and holding device arranged at the front of the machine, and connecting means extending from said shifting and holding device rearwardly to said shifting mechanism, whereby said gear-wheel can be shifted from the front of the machine into or out of mesh with said gear-wheel for driving or stopping the bottom, substantially as set forth.



2. In a fertilizer-distributer, the combination of a movable bottom, a driving-axle, a longitudinal shaft interposed between said axle and said bottom for transmitting the feed movement to the latter, a driving-pinion which is movable on said shaft in the longitudinal direction thereof, an adjusting and holding device arranged at the front end of the machine and connected with said pinion for adjusting the latter on said shaft and holding it in its adjusted position, a driving gear-wheel provided with concentric gear-rims, either of which can mesh with said pinion, said wheel being movable toward and from the pinion, means for driving said gear-wheel from said axle, a shifting mechanism whereby said gear-wheel can be moved transversely toward and from said pinion, and a shifting and holding device arranged at the front end of the machine and connected with said shifting mechanism, substantially as set forth.

3. In a fertilizer-distributer, the combination of a wagon-body, a movable bottom, a rear axle, a longitudinal shaft which is geared with the bottom for transmitting the feed movement to the same, a driving-pinion on said shaft, a driving gear-wheel which receives motion from said rear axle and which is adapted to mesh with said pinion, a transverse shaft arranged in rear of said axle and carrying said gear-wheel, and means for shifting said shaft lengthwise to throw said gear-wheel into and out of mesh with said pinion, substantially as set forth.

4. In a fertilizer-distributer, the combination of a wagon-body, a movable bottom, a rear axle, a longitudinal shaft which is geared with the bottom for transmitting the feed movement to the same, a driving-pinion on said shaft, a driving gear-wheel which receives motion from said rear axle and which is adapted to mesh with said pinion, a transverse shaft arranged in rear of said axle and carrying said gear-wheel, a shifting cam mounted on said shaft, a fixed guide in which said cam engages, and means whereby said cam is moved in said guide for shifting the shaft and throwing the gear-wheel into and out of mesh, substantially as set forth.

5. In a fertilizer-distributer, the combination of a wagon-body, a movable bottom, a rear axle, a transverse shaft arranged in rear of said axle, a bearing in which said shaft is journaled and in which said shaft can be moved lengthwise, a driving gear-wheel secured to the outer end of said shaft, means for shifting said shaft in said bearing, a longitudinal shaft arranged in rear of said transverse shaft, a bearing journaled upon the outer end of the bearing of said transverse shaft and receiving the front end of said longitudinal shaft, a driving-pinion on said longitudinal shaft, and gearing connecting said longitudinal shaft with said movable bottom, substantially as set forth.

8. In a fertilizer-distributer, the combination of a movable bottom, a driving-axle, a feeding driving mechanism connecting said axle with said bottom and driving said bottom rearwardly, a returning mechanism connecting said axle with said bottom and driving said bottom forwardly, and a frictional driving device arranged in said return mechanism and driving said bottom forwardly but permitting said bottom to be driven rearwardly by the preponderance of the feeding driving mechanism when the latter and the returning mechanism are both in operation at the same time, substantially as set forth.

7. In a fertilizer-distributer, the combination of a movable bottom, an axle, a feeding driving mechanism connected with said bottom for moving the same rearwardly, a returning mechanism embodying a driving-wheel loosely mounted on said axle and provided with a friction-cone, a shifting cone mounted on said axle and driven thereby, a rock-arm for pressing said shifting cone against the cone of said driving-wheel, a shifting rod extending from said rock-arm forwardly, a spring whereby said rod is yieldingly held in the uncoupled position, and a shifting lever arranged at the front of the machine for moving said rod to the coupled position, substantially as set forth.

8. In a fertilizer-distributer, the combination of a movable bottom, a shaft and sprocket-wheel at the front of the machine connected with said bottom, a toothed detent-wheel on said shaft, a locking-pawl for said detent-wheel, a returning mechanism connected with said bottom for moving the latter forwardly, a shifting lever at the front of the machine for throwing said returning mechanism into gear, and a releasing mechanism for said detent-pawl connected with said shifting lever, substantially as set forth.

9. In a fertilizer-distributer, the combination of a movable bottom, a shaft and sprocket-wheel at the front of the machine connected with said bottom, a toothed detent-wheel on said shaft, a locking-pawl for said detent-wheel, a returning mechanism connected with said bottom for moving the latter forwardly, a shifting lever arranged at the front of the machine for throwing said returning mechanism into gear, an elbow-lever interposed between said shifting lever and said returning mechanism, a releasing-finger connected with said elbow-lever, and a lever interposed between said finger and said pawl for releasing the latter by operating said shifting lever, substantially as set forth.

10. The combination of a wagon-body, a beater, a movable bottom, a follower secured thereto, and retarding-teeth arranged on said follower, substantially as set forth.

11. The combination of a wagon-body, a beater, a movable bottom, a follower secured thereto, and retarding-teeth mounted adjustably on said follower, substantially as set forth.

12. The combination of a wagon-body, a beater, a movable bottom, a follower secured thereto, a transverse shaft adjustably mounted on said follower, and retarding-teeth secured to said shaft, substantially as set forth.

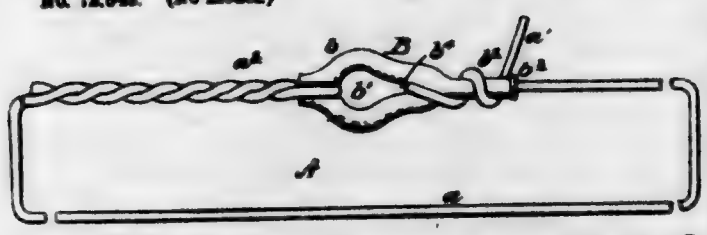
13. The combination of the beater-shaft, beater-staves, and supports for the staves which are loosely mounted on the beater-shaft, and an intermediate driving device connecting the staves with the beater-shaft, substantially as set forth.

14. The combination of the beater-shaft, beater-staves, and yielding arms connecting the staves with the shaft, substantially as set forth.

15. The combination of the beater-shaft, beater-staves, end heads supporting the staves and mounted loosely on the beater-shaft, and yielding arms connecting the staves with the shaft intermediate of the end heads, substantially as set forth.

16. The combination with the beater-staves, of beater-teeth which are composed of shanks secured to the staves and face-plates which are secured to and separable from said shanks, substantially as set forth.

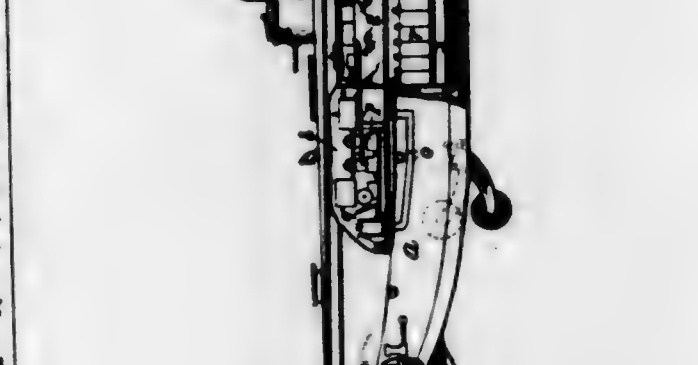
695,213. BALE-TIE. WILLIAM A. KILNER, Bangor, Mich., assignor to Walter A. Scott, Chicago, Ill. Filed Aug. 21, 1901. Serial No. 72,846. (No model.)



Claim.—1. The wire, *a*, in combination with the catching-plate, B, having the enlarged opening, *b'*, and the integral extension, b^2, with the head, b^3.

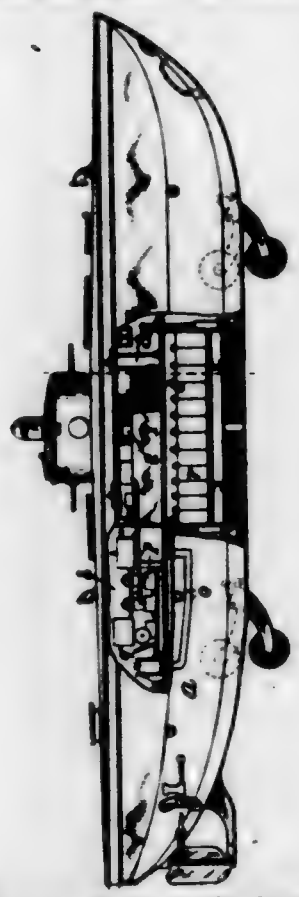
2. The bale-tie shown and described, consisting of the plate, B, having the opening, *b'*, terminating at one end in a "pinching angle," b^4, and having the recess, b^5, and grooves, *b*, at its opposite end, and having the integral extension, b^2 having the head b^3, and a bale-wire, *a*, having one end secured to said plate by being passed through said eye and seated in the recess, b^5, and grooves, b^6, and coiled back upon itself, and having its free end passed through said eye and under said extension and held seated in said "pinching angle," such free end being wrapped around said extension and binding against the head, b^3, as and for the purpose stated.

695,214. BALE-TIE. WILLIAM A. KILNER, Bangor, Mich., assignor to Walter A. Scott, Chicago, Ill. Filed Aug. 27, 1901. Serial No. 73,509. (No model.)



Claim.—A bale-tie made of a single wire, having at one end a loop consisting of several layers of the single wire arranged side by side and having a pinching angle with a closed seat, one of said layers extending out and formed into a projecting end, as set forth.

695,215. SUBMARINE BOAT. SIMON LAKE, Bridgeport, Conn. Original application filed May 28, 1901, Serial No. 62,207. Divided and this application filed Dec. 16, 1901. Serial No. 86,106. (No model.)



Claim.—1. In a submarine boat, a closed battery-compartment containing a series of storage batteries, an air-lock compartment having doors leading, respectively, into said battery-compartment and into the interior of said boat, an air-pump having its inlet connected with said battery-compartment and its exhaust outside of said boat, and air-inlet check-valves between said compartments affording an inflow of air to said battery-compartment from the interior of the boat.

2. In a submarine boat, a closed battery-compartment containing a series of storage batteries, an air-pump having its inlet connected with said battery-compartment and its exhaust outside of said boat, an air-inlet having a check-valve arranged to admit external air to said battery-compartment, a hood or helmet in said compartment adapted to inclose the head of an attendant, and a flexible tube connecting said hood or helmet with said air-inlet.

3. In a submarine boat, a closed battery-compartment containing a series of storage batteries, an air-inlet leading into and an air-outlet leading outward from said compartment, means for inducing a circulation of air through said compartment through said air-inlet and air-outlet, a flexible hose within said compartment connected at one end to said air-inlet, and means applied to the opposite end of said flexible hose for attachment to the head of an attendant for supplying a fresh-air supply to the latter.

4. In a submarine boat, a compartment partitioned from the interior of the boat, a hood or helmet therein, an air-inlet to said compartment, a flexible tube connecting said hood or helmet with said air-inlet, an air-

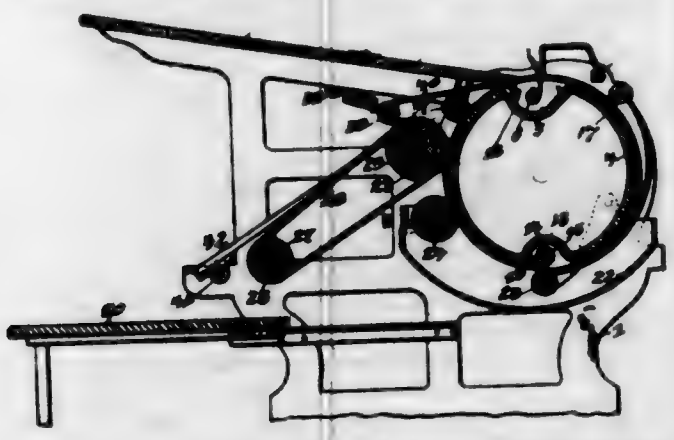
outlet leading outwardly from said compartment, and means for inducing a circulation of air in said compartment through said helmet.

5. In a submarine boat, a closed battery-compartment containing a series of storage batteries, an air-pump having its inlet connected with said battery-compartment and its exhaust outside of said boat, an air-lock compartment having doors leading, respectively, into said battery-compartment and into the interior of said boat, air-inlets intermediate said compartments and having check-valves arranged to permit the passage of air from the interior of the boat through the air-lock to the battery-compartment, a hood or helmet within said battery-compartment adapted to inclose the head of an attendant, and a flexible hose connecting said hood or helmet with said air-inlet leading into said battery-compartment.

6. In a submarine boat, the combination with a closed chamber or compartment and a series of storage batteries contained therein, and an electric generator from which said storage batteries may be charged, of a valved inlet into said compartment, a valved outlet or discharge pipe connecting the said compartment with the exterior of the boat, and means for effecting a circulation of air through said compartment.

7. In a submarine boat, the combination with a closed chamber or compartment and a series of storage batteries contained therein, a second chamber or compartment and an electric generator contained therein from which said storage batteries may be charged, of a valved inlet into said battery-compartment from said generator-compartment, a valved outlet or discharge pipe connecting the said battery-compartment with the exterior of the boat, and means for effecting a circulation of air through said battery-compartment.

695,216. PAPER-DAMPENING MACHINE. CHARLES A. LAND, St. Louis, Mo. Filed June 3, 1901. Serial No. 62,302. (No model.)



Claim.—1. A machine for dampening paper, consisting of a drum, a liquid-receptacle located below the drum, means for rotating the drum, means for holding the paper upon the drum so that it will be carried around therewith and passed through the liquid-receptacle when the drum is rotated, and means for automatically releasing the paper from the drum, substantially as specified.

2. A machine for dampening paper, consisting of a rotary drum, a liquid-receptacle supported below the drum and inclosing a part of the same, means carried by the drum for holding the paper upon the drum so that it will be carried around thereby and passed through the liquid in the receptacle, means for removing the excess moisture from the paper, means for automatically releasing the paper after it has been dampened, means for removing the paper from the drum, means for delivering the paper onto a suitable support, and means for removing the excess moisture from the surface of the drum, substantially as specified.

3. A machine for dampening paper, consisting of a drum, a liquid-receptacle located below the drum, means for rotating the drum, means for holding the paper upon the drum so that it will be carried around therewith when the drum is rotated, and means for automatically releasing the paper from the drum, substantially as specified.

4. A machine for dampening paper, consisting of a rotary drum, a liquid-receptacle supported below the drum, means carried thereby for holding the paper so that the paper will be carried around as the drum rotates and passed through the liquid in the receptacle, means for automatically releasing the paper after it has been passed through the liquid, and means for delivering the paper to a suitable support, substantially as specified.

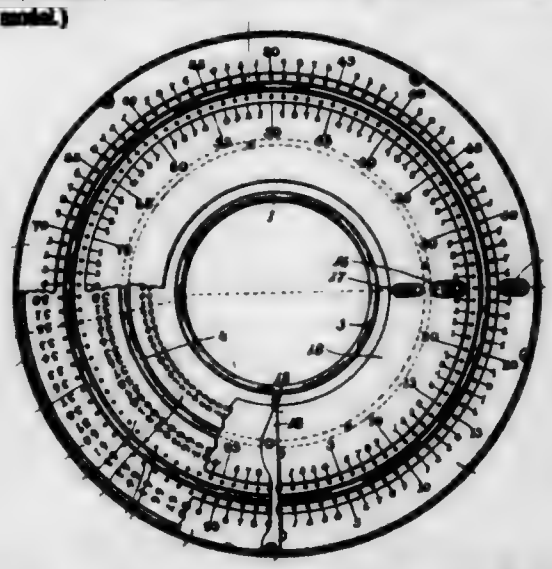
5. A machine for dampening paper, consisting of a drum adapted to be rotated, a liquid-receptacle supported below the drum, fingers for holding the paper on the drum, means for automatically operating the fingers to release the paper after it has been moistened, and means for delivering the paper to a suitable support, substantially as specified.

6. A machine for dampening paper, consisting of a drum, a liquid-receptacle below the drum and inclosing a part of the drum, fingers carried by said drum for holding the paper thereon, means for rotating the drum, and means for automatically removing the paper from the drum after it has been dampened.

7. A machine for dampening paper, consisting of a drum, means for rotating the drum, a series of fingers carried by the drum, means for operating the fingers to hold the paper upon the surface of the drum, a trough or basin supported adjacent to the drum and adapted to contain water whereby the paper will be dampened, means for removing the excess moisture from the paper, means for operating the said fingers to release the paper, a series of arms, and means for operating the said arms to deliver the paper away from the drum, substantially as specified.

8. A machine for dampening paper, consisting of a rotary drum adapted to support the paper, a trough or basin supported adjacent to the drum and within which a portion of the drum extends so that the paper will be dampened while the drum rotates, means for removing the excess moisture from the paper, a series of pulleys supported adjacent to the drum, ropes operating around said pulleys, means whereby the paper will be guided onto said ropes, a series of arms supported between the said ropes and pulleys, and means for operating the said arms to remove the paper from the said ropes, substantially as specified.

695,217. ADDING-MACHINE. WILLIAM A. LARGETON, Detroit, Mich., assignor, by mesne assignments, to Acme Adder Manufacturing Co., Limited, Detroit, Mich. Filed Oct. 23, 1901. Serial No. 80,180. (No model.)



Claim.—1. In an adding-machine, in combination with the casing thereof, rotative annuli mounted in bearings on said casing, a toothed ring secured to the under side of the inner annulus, a dog adapted to engage the toothed ring at one end and provided with a slot, a pivot-pin on the casing to engage said slot, and a fixed pin on the outer annulus to engage the opposite end of said dog to move the same longitudinally in its pivot-pin and actuate the inner annulus.

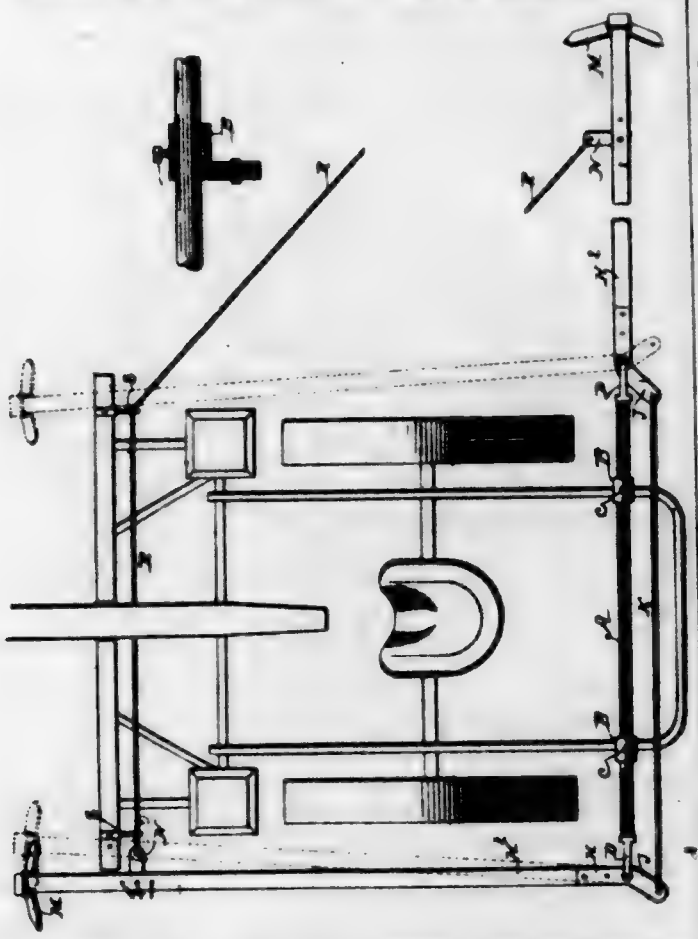
2. In an adding-machine, in combination with the casing thereof, rotative annuli mounted on said casing, a toothed ring secured to the under side of the inner annulus, a dog provided with a slot and adapted to engage the said toothed ring and having a notch in its side, a pivot-pin on the casing engaging said slot, a dog pivoted to the casing and engaging said notch, and a pin on the outer annulus to engage the outer ends of said dogs.

3. In an adding-machine, in combination with the casing thereof, rotative annuli mounted in bearings on said casing, toothed rings on the inner annuli and a rib on the outer annulus, a friction-spring secured to the side of said rib and engaging the said casing, springs having V-shaped ends to engage the toothed rings, dogs having slots and notches and adapted to engage and turn the toothed rings, pivot-pins engaging the slots and pivoted dogs engaging the notches, both the pivoted and slotted dogs being provided with inclines at their outer ends, springs secured to the inner ends of the slotted dogs to hold the same in engagement with the toothed rings, and fixed pins on the outer and intermediate annuli to engage the said inclines of the dogs and operate the same.

4. In an adding-machine, in combination, an annular casing provided with a bottom having a circular opening, an outer peripheral wall having a groove in its upper end and a shoulder on its inner side forming a ball-race, an inner marginal wall provided with a like shoulder, an intermediate annular wall having a shoulder forming a ball-race and cut away at its under side above the circular opening in the bottom of the casing, and a second annular wall also cut away above the circular opening in the bottom and provided with a shoulder at its inner and outer side to form supports for annuli, balls and wire segments in said ball-races, rotative annuli supported by said balls at one of their edges, the outer annulus being provided with a rib having a shoulder to engage and retain the balls in place, and the inner and intermediate annuli provided with toothed

rings having shoulders to retain the balls in the races, a circular plate secured in the opening in the bottom of the casing and having upwardly-projecting pins forming pivots, dogs each having a slot to engage one of said pins and provided with an incline at its ends and a notch in its side, and dogs pivoted on the other pins on the plate and engaging the notches of the slotted dogs at one end and provided with inclines at their opposite ends all of said dogs lying partially beneath the intermediate walls of the casing within the cut-away portion thereof and engaged thereby at their upper sides to hold said dogs on their pivot-pins, a fixed pin on the said rib of the outer annulus and a fixed pin on the toothed ring of the intermediate annulus, a fixed annulus secured within the groove of the peripheral wall and extending inward above the outer rotative annulus and provided with a transverse slot, and a fixed annulus having transverse openings secured to the upper end of one of the intermediate walls and extended laterally above the inner and intermediate annuli.

695,218. MARKER FOR CORN-PLANTERS. LEROY J. LINDSAY, Seymour, Iowa. Filed Nov. 4, 1901. Serial No. 81,060. (No model.)



Claim.—1. In a marker for corn-planters, a bar fixed to the rear end of a carriage-frame to extend across from one side to the other in rear of the carriage-wheels, elbow-shaped levers pivotally connected with the ends of said bar and a rod pivotally connected with the short and rear arms of the levers, arranged and combined to operate in the manner set forth for the purposes stated.

2. In a marker for corn-planters, a bar fixed to the rear end of a carriage-frame to extend across from one side to the other in rear of the carriage-wheels, elbow-shaped levers pivotally connected with the ends of said bar and a rod pivotally connected with the levers, extensions of the long arms of the elbow-shaped levers, markers fixed to the free ends of said extensions, a rope fixed to the same ends of said extensions and means for supporting and directing the sliding motion of the rope, arranged and combined to operate in the manner set forth for the purposes stated.

3. In a marker for corn-planters, a bar having bores in its ends to admit journals fixed to the rear of a carriage, a clevis having a journal at its end pivotally connected with said fixed bar and an elbow-shaped lever pivoted in the clevis, arranged and combined to operate in the manner set forth for the purposes stated.

4. In a marker for corn-planters, a bar fixed across the rear end of a carriage, elbow-shaped levers pivotally connected with the ends of said fixed bar, a rod pivotally connected with the short arms of said levers, markers fixed to the front ends of the long arms of said levers and rope-fasteners connected with the end portions of the same long arms, arranged and combined to operate in the manner set forth for the purposes stated.

5. A marker for corn-planters comprising a bar fixed to the rear end of a carriage, elbow-shaped levers pivotally connected with the ends of said fixed bar, a rod pivotally connected with the rear and short arms of the levers forward extensions of the long arms of the levers, markers fixed to the free ends of said extensions, a rope fixed to the end portions of said extensions and rope supporting and guiding devices fixed to the front portion of the carriage, arranged and combined to operate in the manner set forth for the purposes stated.

695,219. SPLINT-FRAME FOR MATCH-MAKING MACHINERY. EDWARD M. LOCKWOOD, Jr., Philadelphia, Pa. Filed Apr. 27, 1901. Serial No. 57,674. (No model.)



Claim.—1. An apron-frame for a match-making machine consisting of a series of parallel bars or sections each having the end portions thicker than the middle portions and said end portions secured together to form a rigid composite frame and said middle portions provided with a series of parallel holes for the match-sticks.

2. An apron-frame for a match-making machine consisting of a series of parallel bars or sections each having the end portions thicker than the middle portions and secured rigidly together to form a composite frame, said middle portions being provided with a series of parallel holes for the match-sticks and the end portions provided with teeth which constitute rigid racks where the series of sections are secured together.

3. An apron for a match-making machine consisting of a number of frames each composed of a series of parallel bars or sections having the end portions thicker than the middle portions and secured together to form a composite frame, said middle portions being provided with a series of parallel holes for the match-sticks and the end portions provided with teeth which constitute racks in combination with links hinged to the outside bars of each adjacent frame to form a joint between said frames.

4. A composite frame for match-machine aprons consisting of a series of parallel bars or sections thicker at their ends than at their middle portions and fitting side by side in a positive manner, the narrow portions of the bars being provided with holes for holding the match-sticks and the end portions formed with teeth to constitute rigid racks, in combination with long bolts H extending through the series of end portions for uniting the several bars together and making the teeth form rigid racks.

5. An apron-frame for a match-making machine, consisting of the combination of a series of separate parallel grooved bars secured together by bolts each of which is provided with a series of holes for the match sticks or splints and their end portions formed of greater thickness and provided with teeth projecting from said end portions parallel to the holes in the bars to constitute rigid rack structures.

6. A composite frame for a match-machine apron consisting of a series of parallel bars secured together, each bar having a narrow middle portion provided with a series of holes and end portions rectangular in form and provided with teeth to constitute racks, the outer parts of the end portions being curved or chamfered to form a hinge-joint with similar adjacent frame, in combination with hinge-plates I pivoted to the end bars at J.

7. In a bar or section for making a composite frame of an apron of a match-making machine, a middle or body portion A having holes F for the match-sticks, and the end portions B B of greater thickness than the body portion and provided with teeth C and transverse holes D.

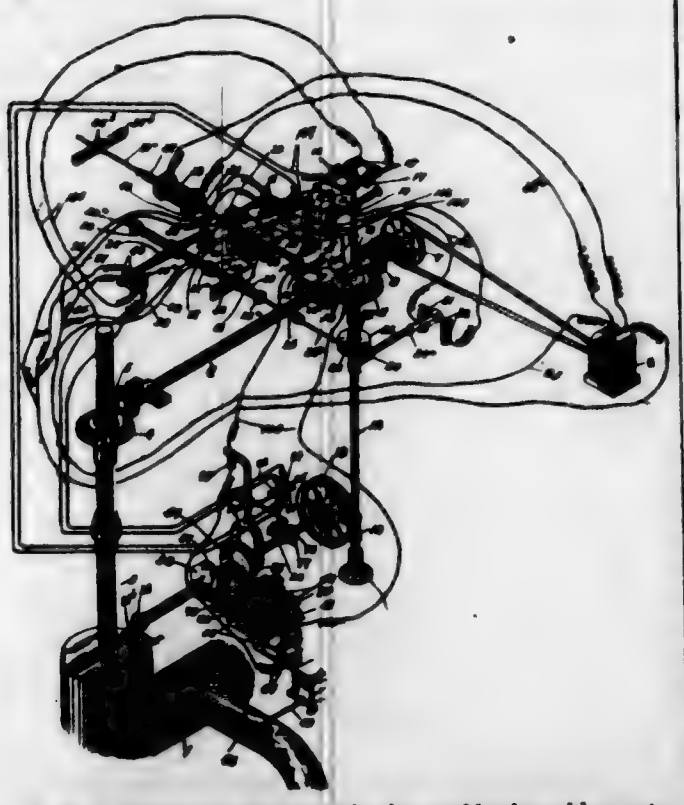
8. In a bar or section for making a composite frame of an apron of a match-making machine, a middle or body portion A having holes F for the match-sticks, and the end portions B B of greater thickness than the body portion and provided with teeth C.

9. In a bar or section for making a composite frame of an apron of a match-making machine, a grooved middle or body portion A having holes F for the match-sticks opening into the groove and the end portions B B of greater thickness than the body portion and provided with teeth C.

695,220. ELECTROMECHANICAL WATER-WHEEL GOVERNOR. LAMAR LYNDON, New York, N. Y. Filed Sept. 13, 1900. Serial No. 29,880. (No model.)

Claim.—1. In a governor for water-wheels, the combination with a water-gate-operating shaft and a driving-shaft, of a reversing clutch-gear, adapted to connect the water-gate-operating shaft to the driving-shaft in reverse driving relations, means for reversely controlling the operation of such clutch-gear, a dynamo connected to be driven from the water-wheel and wound to maintain constant potential for varying cur-

rents therein, but to vary the potential in a greater ratio than the speed, an electromagnetic device connected to such dynamo, and controlling the clutch-gear-controlling means, and means for resisting the action of said electromagnetic device in such manner, that at normal speed the clutch mechanism will be disengaged, but on increase or decrease from normal speed the clutch will be operated to govern the water-gate through its operating-shaft.



2. In a governor for water-wheels, the combination with a water-gate-operating shaft and a driving-shaft, of a reversing clutch-gear, adapted to connect said shafts in reverse driving relations, electromagnetic means controlling such clutch-gear, a dynamo connected to be driven by the water-wheel and wound so as to deliver an electromotive force varying in a greater ratio than the speed of the water-wheel, a solenoid connected to said dynamo and a device controlled by said solenoid and carrying a contact device, and energizing connections for the electromagnetic gear-controlling means, controlled by said contact device.

3. In a water-wheel governor, the combination with a water-gate-operating shaft, and means for operating same in either direction to govern the water-wheel, of a controller for said operating means, responsive to changes of speed of the water-wheel, a returning device for said controller provided with a clutch connection to said operating-shaft, and means, actuated by said controller on movement thereof from normal position to engage said clutch with the said shaft, so as to cause the return of the controller to normal position and interrupt the governing action before it has overrun the proper amount, substantially as and for the purpose set forth.

4. In a water-wheel governor, the combination with a water-gate-operating shaft, a driving-shaft and reversing clutch-gear, adapted to turn the water-gate-operating shaft in either direction, a controller, responsive to changes of speed of the water-wheel and controlling such reversing-gear, and a returning device for said controller provided with actuating means controlled by said controlling means to return the controller to inoperative position, so as to prevent excessive movement of the governor.

5. In a water-wheel governor, the combination with a water-gate-operating shaft, a driving-shaft and a reversing clutch-gear, adapted to connect said shafts so as to cause the water-gate-operating shaft to move in either direction, a dynamo operatively connected to produce an electromotive force responsive to the speed of the water-wheel, a solenoid device energized by said dynamo, a core for said solenoid and a circuit-controller actuated thereby, springs for holding the circuit-controller in normal position, two electromagnetic devices for reversely operating the reversing clutch-gear, a returning device adapted, when operated, to return the circuit-controller to normal position, a clutch adapted to bring said returning device into operative connection with the water-gate-operating shaft, a magnet controlling said clutch and a circuit for said magnet including a circuit-closer operatively connected with the aforesaid circuit-controller and adapted to energize said magnet on movement of the circuit-controller in either direction.

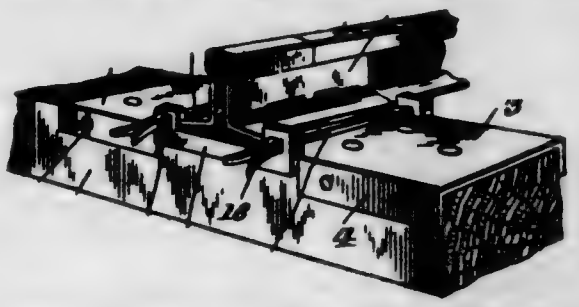
6. In a water-wheel governor, the combination with means for operating the water-gate in either direction, a by-pass for the water-wheel, and a valve controlling said by-pass, of means connected to the water-gate-operating means and operating the by-pass valve inversely to the operation of the water-gate.

7. In a water-wheel governor, the combination with means for operating the water-gate in either direction from normal position, a by-pass for the water-wheel, and a valve for such by-pass, of means connected to the water-gate-operating means and adapted to operate the by-pass valve from normal position in either direction, so as to control such valve inversely to the control of the water-gate, during the governing action of the water-gate, and means for returning the by-pass valve to normal position on completion of governing movement of the water-gate-operating means.

8. In a water-wheel governor, the combination with a shaft for operating the water-gate in either direction from normal position, a by-pass for the water-wheel and a valve for such by-pass normally held in partly-open position, of an operating device for said valve provided with means for returning the valve to normal position, a clutch, adapted to connect said operating device for the by-pass valve with the water-gate-operating shaft to control the by-pass valve inversely to the water-gate, reversing means for operating the water-gate-operating shaft in either direction, a controller, responsive to the speed of the water-wheel and controlling said reversing means, and means operated by said controller to bring the aforesaid clutch into operation and to release said clutch when the governing action is effected.

9. In a water-wheel governor, the combination with a shaft adapted to operate the water-gate in either direction from normal position, a by-pass for the water-wheel and a valve for such by-pass, normally held in partly-open position, of means adapted to operate said valve in either direction and provided with means for returning the valve to normal position, a clutch, adapted to connect such operating means with the water-gate-operating shaft, a driving-shaft, and a reversing-gear for turning the water-gate-operating shaft in either direction, a dynamo connected to the water-wheel, so as to be responsive to the speed thereof, an electromagnetic device connected to said dynamo, a controller operated by said electromagnetic device and controlling the said reversing-gear, a magnetic device controlling the aforesaid clutch for the by-pass-operating means, a circuit for said magnet and means operated by said controller in its movement in either direction to close such circuit.

695,221. RAIL-JOINT. MICHAEL W. MAYER, Allegheny, Pa. Filed Dec. 18, 1901. Serial No. 86,264. (No model.)



Claim.—1. In a rail-joint, the combination with the ties, a tie-plate secured thereon, integral fish-plates carried by said tie-plates, the rails being secured in said fish-plates, removable yokes arranged at each side of said tie-plate, and means passing through the ends of each of said yokes and engaging the upper face of the tie-plate, to fasten said plates together, substantially as described.

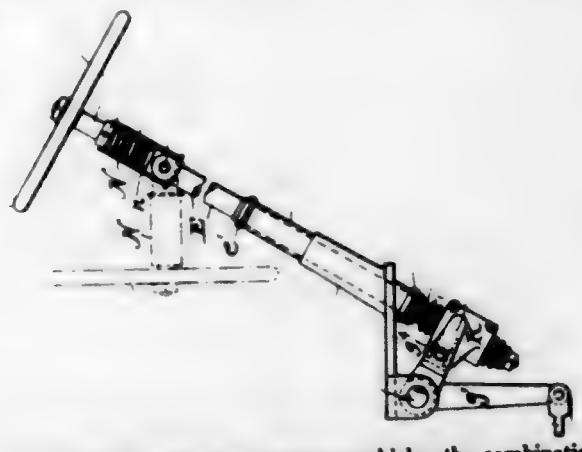
2. In a rail-joint, the combination with the ties, a tie-plate secured thereon, integral fish-plates carried by said tie-plates, the rails being secured in said fish-plates, removable yokes arranged at each side of said tie-plate, and rods carrying heads and split ends to fasten said plates together, substantially as described.

3. In a rail-joint, the combination with the ties, a tie-plate secured thereon, integral fish-plates carried by said tie-plates, a combining-plate securing said tie-plates together, the rails being secured in said fish-plates, removable yokes arranged at each side of said tie-plate, and means to fasten said plates together, substantially as described.

695,222. STEERING MECHANISM FOR MOTOR-VEHICLES. LOUIS P. MOSIER, Cleveland, Ohio, assignor to the Peerless Manufacturing Company, Cleveland, Ohio, a Corporation of Ohio. Filed Oct. 30, 1901. Serial No. 80,457. (No model.)

Claim.—1. In steering mechanism for motor-vehicles, the combination of a bracket adapted to be secured to the running-gear, and having an upwardly-extended inclined bearing-sleeve, a steering-shaft mounted in and projecting through said sleeve and having, at its lower end, a quick-pitch screw, and having, at its upper end, means for turning said shaft, with a nut upon the threaded end of said shaft, a rocker engaging with and adapted to be operated by said nut, means preventing the rotation of the nut, and mechanism connecting the rocker with the steering-wheels of the vehicle, substantially as specified.

2. In steering mechanism for motor-vehicles, the combination of a sleeve, a steering-shaft mounted in and projecting through said sleeve and having, at its lower end, a quick-pitch screw, and having, at its upper end, means for turning said shaft, with a nut upon the threaded end of said shaft, a rocker having a forked arm which embraces said nut, operative connections between the nut and fork-arm, and mechanism connecting the rocker with the steering-wheels of the vehicle, substantially as specified.



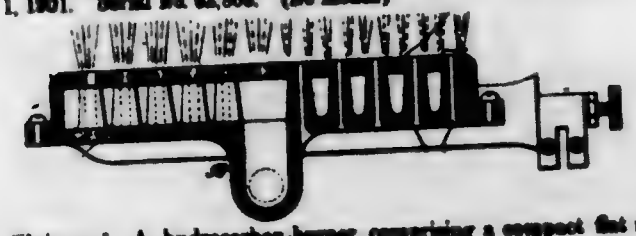
3. In steering mechanism for motor-vehicles, the combination of a bracket adapted to be secured to the running-gear having an upwardly-extended inclined bearing-sleeve and depending supports for a rocker, and a steering-shaft rotatably mounted in said sleeve and projecting beyond both ends thereof and having a quick-pitch screw at its lower end and means for turning it at its upper end, with a nut upon the threaded end of said shaft, a rocker mounted in said bracket and having a forked arm which embraces said nut and is operatively connected therewith, and mechanism connecting the rocker with the steering-wheels of the vehicle, substantially as specified.

4. In steering mechanism for a motor-vehicle, the combination of a sleeve, a steering-shaft mounted in and projecting through said sleeve and having at its lower end a quick-pitch screw and having at its upper end means for turning said shaft, with a nut upon the threaded end of said shaft having flat and approximately parallel sides and having in its rear side a notch, a rocker having a forked arm which embraces and lies against the side of said nut and is provided with a pin extending between the sides of said fork and lying in the notch in the nut, and mechanism connecting said rocker with the steering-wheels of the vehicle, substantially as specified.

5. In steering mechanism for motor vehicles, the combination of an inclined bearing-sleeve secured to the running-gear, a shaft rotatably mounted in said sleeve and having at its upper end means whereby the shaft may be turned and having on its lower end below said sleeve a quick-pitch screw, with a nut upon the threaded end of said shaft and having in its rear side a notch, a rocker having a forked arm which embraces the sides of said nut and is provided with a pin which enters the notch in the nut, said rocker having also an angularly-disposed operating-arm, a bell-crank lever pivoted concentrically with the pivot of one of the steering-wheel axles, a link connecting the angle-arm of the rocker with one of the arms of this angle-lever, and means connecting the other arm of the last-named angle-lever with the said steering-wheel axle, substantially as specified.

6. In steering mechanism for motor-vehicles, the combination of a bearing-sleeve secured to the running-gear, a shaft rotatably mounted in said sleeve, said shaft being made in two sections pivoted together on a transverse pivot near the upper end of the shaft, a sleeve slidable upon the upper section of the shaft and adapted to embrace the joint between the two sections, an external shoulder on said upper shaft-section, and an internal shoulder on the sleeve, a spring within the sleeve around the shaft-section and thrusting against said two shoulders, substantially as specified.

695,223. HYDROCARBON-BURNER. SAMUEL D. MOTT, Passaic, N. J., assignor, by mesne assignments, to Standard Power Company, New York, N. Y., a Corporation of New York. Original application filed Dec. 4, 1900, Serial No. 38,704. Divided and this application filed June 1, 1901. Serial No. 62,908. (No model.)



Claim.—1. A hydrocarbon-burner comprising a compact flat and horizontally-separable drum having a central depressed chamber and air-jets extending vertically through it from top to bottom, gas-openings through the drum-top these being arranged around the air-jets, a fuel-supply discharging into the pilot or depressed chamber, and fuel-supplies for the main chamber all substantially as described.

2. A hydrocarbon-burner comprising a relatively flat two-part drum in the form of a casting, the lower part having cast integral thereon a depressed chamber for a pilot or secondary fuel-supply and having a series of jet-pipes for air leading upward from it and the upper part being adapted to fit upon the lower part so as to form a main gas-chamber between the two parts, the upper part having also openings to surround the air-jets, and connections by which a fuel-supply may be delivered to the main gas-chamber and to the secondary chamber.

695,224. FLOORING-SET. JOHN D. MURPHY, Chicago, Ill. Filed Sept. 20, 1901. Serial No. 77,076. (No model.)



Claim.—1. In an implement for use in laying flooring-strips, the combination with the handle portion and jaw portion of a forward-projecting flooring-strip-engaging head between the ends of the implement and a downward and backward extending rest-piece between the plates of the said jaws, substantially as described.

2. In an implement for use in laying flooring-strips, the combination of a pair of companion levers fulcrumed together, the long arms of the levers forming an operating-handle and the short arms thereof forming jaws, means for locking the long arms of the levers together, a swinging flooring-strip-engaging head on the forward side of the implement between its ends and a downward and backward extending rest-piece and a swinging joist-engaging catch on the rear side of the implement between its ends, substantially as and for the purpose set forth.

3. In an implement for use in laying flooring-strips, the combination of a pair of companion levers fulcrumed together, the long arms of the levers forming an operating-handle and the short arms thereof forming jaws, adjustable joist-engaging screws on the said jaws, means for locking the long arms of the levers together, a swinging flooring-strip-engaging head on the forward side of the implement, between its ends, and a downward and backward extending rest-piece and a swinging joist-engaging catch on the rear side of the implement between its ends, and spring e^3 for the said catch, substantially as and for the purpose set forth.

695,225. SWINGING CHAIR. THOMAS H. McKEE and SILAS B. SAFFELL, Indianapolis, Ind., assignors to National Adjustable Chair Company, Greenfield, Ind., a Corporation of Indiana. Filed May 20, 1901. Serial No. 62,222. (No model.)

Claim.—1. A swinging chair including two pairs of leaning posts, a beam detachably clamped to the posts, a pair of spreading bars each pivoted to a post and detachably connected to an opposing post, a fulcrum-rod connecting each pair of posts below the beam, a pair of springs connected with the beam, limiting-links for the springs, yokes connected with the springs, suspending-bars connected detachably to the yokes, and a chair connected to the suspending-bars.

2. In a swinging chair, the combination of the supporting-frame, the yokes, yielding members connecting the yokes with said frame whereby to support the yokes, the suspending-bars detachably connected to said yokes, the chair-arms pivoted to said bars, the back pivoted to said arms, the front posts pivoted to said arms, the seat-frame pivoted to said back and to said front posts, the pin attached to said back at the lower portion thereof, and the link chain connected to one of said arms and also to said back near said pin.

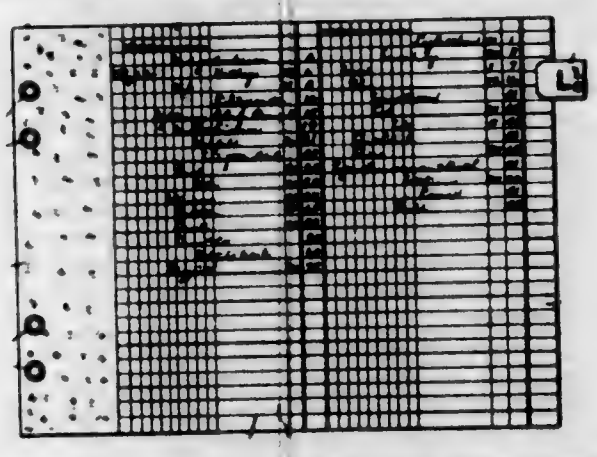
3. In a swinging chair, the combination of the two pairs of leaning posts each pair having a fulcrum-rod and the spreading-bar, the beam detachably clamped by said posts at said rods, the springs connected with said beam, the limiting-links for said springs, the yokes connected with said springs, the suspending-bars having the recesses and the perforations and thereby detachably connected to said yokes, the chair pivoted to said suspending-bars and having the chain connected to an arm thereof and to the back thereof and also having the chain connected to the back thereof and to one of said suspending-bars, whereby said chair may simultaneously swing and rebound and alternately assume sitting and reclining positions and also be fixed in a reclining position, substantially as set forth.



4. In a swinging chair, the combination of the two pairs of leaning posts, the beam, the hooks attached to the beam, the springs connected to said hooks, the yokes each comprising two diverging stems having each a lateral branch and a longitudinal branch having a hook at the end thereof, said yokes being connected to said springs, the suspending-bars connected to said yokes, and the chair connected to the suspending-bars.

5. In a swinging chair, the combination of the two pairs of leaning posts, the beam, the hooks attached to the beam, the suspending-bars having each the perforation and having also the recess between the perforation and the upper end of the bar, and the yoke connected to the spring and having the diverging stems in said recesses and also extending into said perforations, and the chair connected to said suspending-bars.

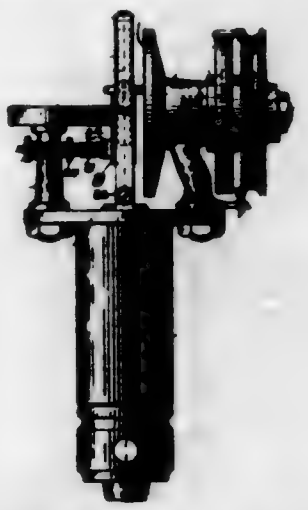
695,226. LEDGER-INDEX. SAMUEL MCMILLEN, Minneapolis, Minn. Filed May 21, 1901. Serial No. 61,234. (No model.)



Claim.—1. A ledger-index, consisting of a page having a tab bearing the initial letter of the names, said page being provided with a series of vertical columns and a horizontal row of letters arranged in groups in said columns at the top of the page, each of said groups representing a combination of two or more successive letters following the tab letter or letters of the name under which an account is indexed.

2. A ledger-index consisting of a page having a tab bearing a letter which corresponds to the initial letter of the names placed on the page, a series of vertical columns provided on said page, and a horizontal row of letters arranged in groups in said columns, there being but one group in each column, said groups representing combinations of the second and third letters of the name under which an account is indexed, whereby the names when written on the page under the combinations corresponding respectively to their second and third letters will be irregularly arranged for the purpose specified.

695,227. STEAM-ENGINE INDICATOR. AUGUSTUS F. EAGLE, Montclair, N. J., assignor to Earle H. Gowing, Reading, Mass. Filed July 6, 1901. Serial No. 67,345. (No model.)



Claim.—1. An integrating-indicator or power-meter comprising a cylinder, a piston therein, a helical spring connecting the same to the cylinder-head, a piston-rod extending from the cylinder, and a yoke affixed to the outer end of the piston-rod and provided with pivots placed in the line of the piston-rod, an elongated gear and a friction-wheel supported by said pivots and a friction-disk adapted to be oscillated and presenting a flat side to said friction-wheel.

2. An integrating-indicator or power-meter, comprising a cylinder, a piston therein, a helical spring connecting the same to the cylinder-head, a piston-rod extending from the cylinder, its upper portion being laterally movable, and an elongated gear and a friction-wheel, both supported by the laterally-movable upper portion of the piston-rod, a friction-disk adapted to be oscillated and presenting a flat side to said friction-wheel, and means for yieldingly pressing the laterally-movable upper portion of the rod and the friction-wheel toward the disk to maintain an operative frictional contact between said wheel and disk.

3. An integrating-indicator, or power-meter, comprising a cylinder, a piston therein, a helical spring connecting the same to the cylinder-head, a piston-rod extending from the cylinder and laterally movable at its upper portion, a yoke affixed to the outer end of the piston-rod, an elongated gear and a friction-wheel supported by said yoke, pivoted guides engaged with said yoke, a friction-disk adapted to be oscillated and presenting a flat side to said friction-wheel, and a spring for yieldingly pressing said pivoted guides toward the disk and thereby maintaining an operative frictional contact between the said friction wheel and disk.

4. An integrating-indicator, or power-meter, comprising a cylinder, a piston therein, a helical spring connecting the same to the cylinder-head, a piston-rod extending from the cylinder and laterally movable at its upper portion, a yoke affixed to the outer end of the piston-rod, an elongated gear and a friction-wheel supported by said yoke, pivoted guides for the yoke, said guides and yoke having antifrictional engaging members such as rollers and grooves, a friction-disk adapted to be oscillated and presenting a flat side to said friction-wheel, and a spring for yieldingly pressing said pivoted guides toward the disk and thereby maintaining an operative frictional contact between the said friction wheel and disk.

5. An integrating-indicator or power-meter, comprising a disk, means for oscillating it, and indicating mechanism operated by the movements of the disk, a cylinder, a spring-propelled piston therein, a helical spring connecting the same to the cylinder-head, a piston-rod connected with said indicating mechanism, a fixed graduated ring concentric with the axis of the disk, and adjustable slides or pointers movable on the graduated periphery of said ring.

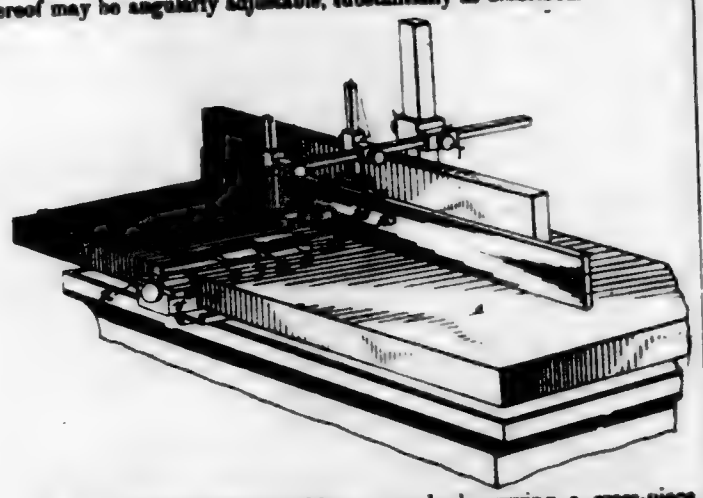
695,228. WOODWORKING-MACHINE. JESSE R. OAKLEY, Homestead, Pa. Filed July 12, 1901. Serial No. 67,969. (No model.)

Claim.—1. In a woodworking-machine, a standard, a sleeve, carried by the said standard, a cross-piece carried by the sleeve, arms carried by the cross-piece, T ends carried by the arms, and springs carried by said T ends, substantially as described.

2. In a woodworking-machine, a standard carried by a base, a sleeve carried by the standard, a cross-piece carried by the sleeve, arms carried by the cross-piece, T ends carrying springs on said arms, and means whereby one of said arms may have its T end angularly adjustable, substantially as described.

3. In a woodworking-machine, a standard carrying a cross-piece, arms adjustably mounted on said cross-piece, means carried by the ends of the said arms for securing springs thereto, and means carried by one of said arms whereby the end thereof may be angularly adjustable, substantially as described.

4. In a woodworking-machine, a base, a standard carried thereby, a sleeve mounted on the standard, said sleeve being adjustable, a cross-piece carried by the standard, said cross-piece being adjustable, sleeves adjustably mounted on said cross-piece, arms mounted in said sleeves, T ends carried by the ends of said arms, springs carried by the said T ends, and a hinged connection formed on one of said arms whereby the ends thereof may be angularly adjustable, substantially as described.



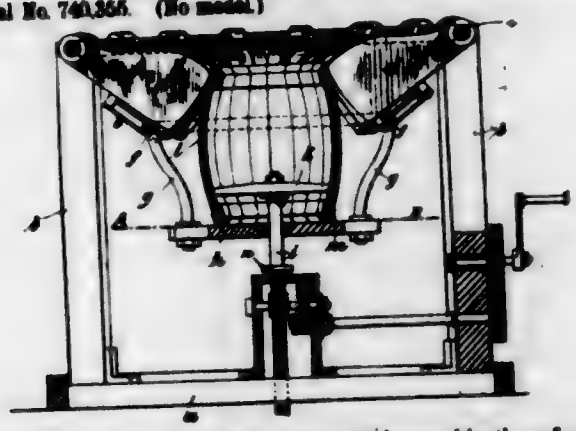
5. In a woodworking-machine, a standard carrying a cross-piece, arms carried by said cross-piece and being vertically and horizontally adjustable, springs, means carried by said arms for supporting said springs, one of said arms being hinged so as to permit angular adjustment of its end, substantially as described.

695,229. FRAME. ERNST OLDENBUCH, Hoboken, N. J., assignor to Kronheimer and Oldenbuch Company, a Corporation of New York. Filed Jan. 2, 1902. Serial No. 88,043. (No model.)



Claim.—In a device of the character described, the combination of a frame member, a band of metal surrounding such frame member, the frame member being provided with a plurality of primary cut-out pieces engaging one side of such surrounding band of metal, and with a plurality of secondary cut-out pieces engaging the other side of such surrounding band of metal, substantially as shown and described.

695,280. MACHINE FOR MAKING CASKS. OTTO POLAND, Gleichenstein, near Halle-on-the-Saale, Germany. Filed Dec. 14, 1899. Serial No. 740,355. (No model.)

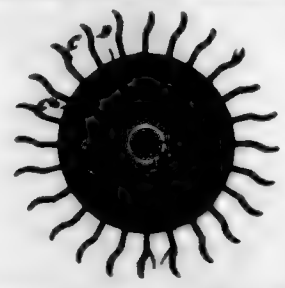


Claim.—1. In a cask-making machine, the combination of a hoop of elliptical, circular or other similar shape, adapted to hold the staves together at one end; presser-pieces adapted to press the free ends of said staves together; a plate, attached to the operating mechanism of said presser-pieces, and supporting said hoop; a rod adapted to operate through the center of said hoop; a brace piece or board secured to said rod, and a pivotal connection between said brace-piece and rod, so constructed and arranged as to allow the said brace piece or board to normally lie in a plane parallel to the said supporting-plate for the purposes set forth.

2. In a cask-making machine, the combination of a movable base-plate A to support a hoop *m*, carried by said plate for securely confining the lower ends of the staves which rest on said plate; presser-pieces *d* adapted to press radially inward against the free ends of the staves; means connected with said base-plate for operating said presser-pieces; an internal brace *k* adapted to bear outwardly against the inclined inner walls of the opposed staves and means for drawing said brace *k* downward whereby the assembled lower ends of the staves are pressed downward on the base-plate A and the latter is forced down and simultaneous movement communicated therefrom to the presser-pieces *d*, as explained.

3. In a cask-making machine, the combination with the frame of the machine, of a ring of elliptical, circular or other similar shape, to conform to the desired shape of the cask, presser-pieces fulcrumed on said ring and adapted to operate in planes radial to said ring, guides on said presser-pieces, a second ring similar in shape to the first-named ring and adapted to engage with said guides, a plate supported from said second ring, a hoop similar in shape to the rings mounted upon said plate and adapted to hold the lower ends of the staves together, a rod adapted to operate through center of said hoop and carrying a stop or collar adapted to engage the under side of the plate and an internal brace piece or board secured to said rod and whose ends are adapted to bear against the inner sides of the staves when the rod is brought to a certain position, for the purpose set forth.

695,281. SCRAPER. DELBERT E. PRESTON and WILLIAM H. ATKINSON, Omaha, Nebr., assignors of one-fourth to Alonzo E. Bean, Omaha, Nebr. Filed Mar. 28, 1901. Serial No. 53,851. (No model.)



Claim.—1. In a scraper, a revolvable disk provided upon its circumference with a series of recesses, each of which comprises an undercut portion to afford anchorage, a blade inserted in each of said recesses, and a block provided with a tongue entering said undercut portion, said block being fitted into said recess against said blade.

2. A scraper, comprising disks provided with blades yieldingly mounted thereon, said blades being provided with widened operating edges, contiguous disks being so disposed that the blades of one disk alternate with the blades of another disk.

3. A scraper, comprising disks provided with blades yieldingly mounted thereon, said blades being provided with widened operating edges, contiguous disks being so disposed that the operating edges of one disk project partially into the path of the operating edges of an adjacent disk, for the purpose of insuring action upon every part of the surface to be scraped.

4. A scraper, comprising a revolvable disk provided with recesses in its edge and also in one of its faces, a blade provided with an enlarged head anchored in one of said recesses and extending radially outward from said disk, and a block mounted in the other of said recesses, for holding said blade.

5. A scraper, comprising a revolvable disk provided in one of its faces with cylindrical recesses and in its edge with L-shaped recesses, blades provided with pivotal heads for engaging said cylindrical recesses, and L-shaped blocks fitting said L-shaped recesses and engaging said blades.

6. A scraper, comprising a revolvable disk provided with outer recesses in its edge and also with inner recesses in one of its faces, said recesses communicating with each other, blades provided with pivotal heads entering said inner recesses and projecting radially through said outer recesses, and compressible members located in said outer recesses and pressing upon said blades for the purpose of rendering said blades yieldable.

7. In a scraper, a revolvable disk provided with recesses, from each of which extend undercut portions, a scraping-tool provided with an enlargement forming a pivotal connection in one of said undercut portions, and a resilient member located in said recess and engaging the other undercut portion, and yieldingly pressing against said scraping-tool, substantially as described.

8. A scraper, comprising a revolvable disk, provided with a plurality of recesses, from each of which extends a plurality of undercut portions, a scraping-tool inserted in each recess and provided with an integral part which forms a direct pivotal connection with one of said undercut portions, and a compressible member located in said recess and engaging the other undercut portion and resting against said scraping-tool, substantially as described

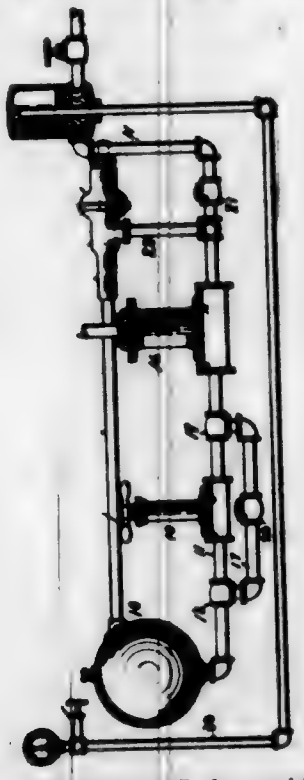
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695,282. FUEL-FEED FOR BURNERS. FRANK A. REYNOLDS, Lewiston, Me., assignor, by direct and mesne assignments, to Herbert C. Parker, trustee, New York, N. Y. Filed Sept. 20, 1901. Serial No. 75,726. (No model.)

Claim.—1. An apparatus of the kind described, comprising a source of fuel-supply, a pressure-chamber, a fuel-pipe leading from the source of supply to the pressure-chamber, a hand-pump and power-pump located in the fuel-pipe, a by-pass pipe provided with a check and leading around the hand-pump, and a fuel-pipe opening from the pressure-chamber.

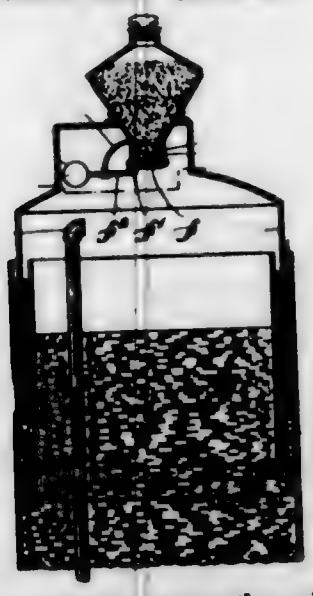
2. An apparatus of the kind described, comprising a source of fuel-supply, a pressure-chamber having a suitable discharge, a fuel-pipe lead-

ing from the source of supply to the pressure-chamber, a hand-pump and power-pump located in the fuel-pipe, a by-pass pipe extending around the hand-pump, said by-pass pipe having a check, an overflow-pipe extending from the fuel-pipe back to the source of fuel-supply, the said pipe being connected with the fuel-pipe between the power-pump and the pressure-chamber, and a pressure-regulator located in the backflow-pipe and controlling the pressure in the said pipe, the fuel-pipe, and pressure-chamber.



3. An apparatus of the kind described, comprising a fuel-supply tank, a pressure-chamber, an air-pipe discharging into the pressure-chamber, a fuel-supply pipe leading from the fuel-tank to the pressure-chamber, a hand-pump and power-pump located in the fuel-pipe, a by-pass pipe connected with the fuel-pipe and extending around the hand-pump, said by-pass pipe having a check, a backflow-pipe leading from the fuel-pipe at a point between the power-pump and the pressure-chamber back to the supply-tank, and a pressure-regulator located in the backflow-pipe.

695,283. ACETYLENE-GAS GENERATOR. JONATHAN B. REYNOLDS, Onset, Mass., assignor to Oliver A. Miller, Brockton, Mass. Filed Aug. 19, 1901. Serial No. 72,462. (No model.)



Claim.—1. In an acetylene-generator, the combination with a fixed liquid-holding tank and a gasometer vertically movable therein, of a carbid-receptacle having an outlet arranged to deliver carbid to the liquid in said tank, a valve coinciding with said outlet, a valve-seat adapted to slide between the valve and the outlet, and means whereby the valve is opened when the gasometer descends to a predetermined position and is closed when the gasometer rises above said position.

2. In an acetylene-generator, the combination with a fixed liquid-holding tank, and a gasometer vertically movable therein, of a carbid-receptacle having an outlet arranged to deliver carbid to the liquid in said tank, a slide movable crosswise of said outlet and having a solid portion forming a closure for the outlet when the slide is in one position, and an apertured portion forming a valve-seat coinciding with said outlet when the slide is in another position, a valve adapted to bear against the bottom surface of said slide in position to cover the valve-seat when the latter coincides with the outlet, and means whereby the valve is opened when the gasometer descends to a predetermined position and is closed when the gasometer rises above said position.

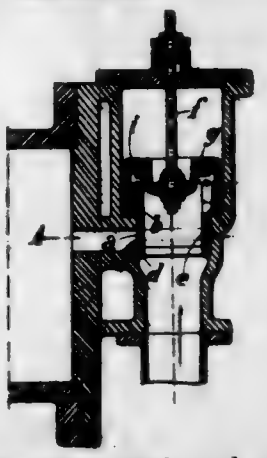
3. An acetylene-generator comprising a fixed liquid-holding tank, a gasometer vertically movable therein, a carbid-holder affixed to the gasometer and having an outlet arranged to deliver carbid to the liquid in the tank, a slide movable crosswise of the said outlet and having a solid outlet-closing portion and an apertured or valve-seat portion adapted to coincide with the outlet, a pivoted valve arranged to close the said outlet, a weighted lever affixed to the valve and adapted to hold the same yieldingly against the slide, and a stop within the tank arranged to displace the weighted lever and open the valve when the gasometer descends to a predetermined position, the lever closing the valve when the gasometer rises above said position.

4. In an acetylene-generator, a carbid-holder, a hinged valve controlling the outlet of said holder, and provided with an operating-lever extending rearwardly of the hinge and a carbid-agitating finger attached to said lever and extending through a hole in the side of the holder into the interior thereof, said finger being arranged to move inwardly when the valve is opening, and outwardly when the valve is closing.

5. In an acetylene-generator, a carbid-holder having an outlet at its lower portion, a valve-seat extending across the lower end of the outlet and movable edgewise, and a hinged valve adapted to be seated on said valve-seat, the movability of the seat enabling it to scrape the upper surface of the valve.

6. In an acetylene-generator, a carbid-holder having an outlet at its lower portion, a valve movable toward and from said outlet, a movable valve-seat interposed between the outlet and the valve, and an outlet-closing gate or shut-off connected with the valve-seat.

695,284. VALVE. PIERRE RICHEMOND, Pantin, France, assignor to Société Anonyme des Etablissements Weyher et Richemond, Pantin, Seine, France. Filed Aug. 19, 1901. Serial No. 72,563. (No model.)



Claim.—1. A valve which may be used as induction or eduction valve for steam or other fluid engines, consisting of a metallic ring having two external tapered parts *a b*, one of which *a* fits in a tapered seat in the valve-box and is provided with a longitudinal split *c* giving elasticity to the said valve, a key *e* in the valve-box and engaging the longitudinal split, for the purpose of preventing angular displacements of the ring, and a conical plug *g h* engaging externally the conical part *b* of the valve so as to contract the diameter of the latter when operated by the valve-gear, substantially as set forth.

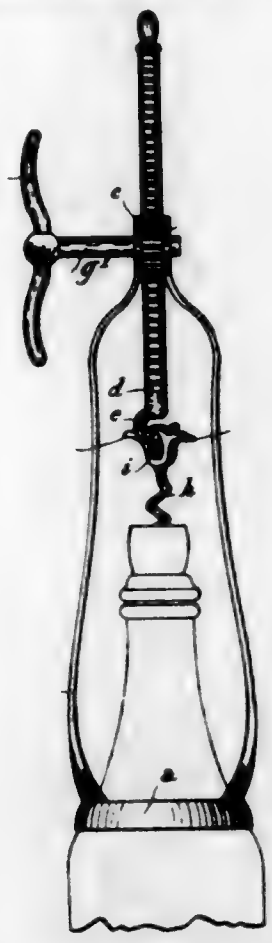
2. A valve which may be used as induction or eduction valve for steam or other fluid engines consisting of a metallic ring having two tapered parts one of which fits a tapered seat in the valve-box and is provided with a longitudinal split *c* giving elasticity to the said valve, a key, engaging in the said split for the purpose of preventing angular displacements of the valve, and a plug engaging the conical part *b* of the valve when operated by the valve-gear, substantially as set forth.

695,285. CORK-EXTRACTOR. FELIX RIEDLE, Geneva, Switzerland. Filed Sept. 20, 1901. Serial No. 75,751. (No model.)

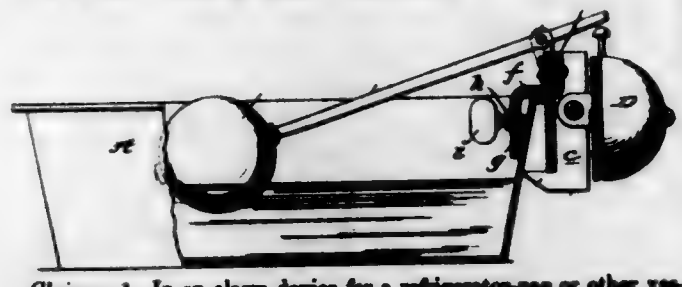
Claim.—1. In a cork-extracting device, the combination, with a corkscrew having a ring-shaped shank, of a base-ring, oppositely-disposed supporting-arms, a head supported at the upper ends of said arms, a rack-bar adapted to reciprocate in said head, a pinion meshing with said rack-bar and journaled in said head, and a hook provided at the lower end of said rack-bar for engaging the ring-shaped shank of said corkscrew, substantially as set forth.

2. In a cork-extracting device, the combination, with a corkscrew having a ring-shaped shank and lugs projecting oppositely therefrom, of

a base-ring, oppositely-disposed supporting-arms converging inwardly at the upper ends thereof, a head supported at the upper end of said arms, a rack-bar arranged in said head and adapted to reciprocate in vertical direction, a pinion journaled in said head to mesh with said rack-bar, a shaft for operating said pinion, and a hook formed at the lower end of said rack-bar, said hook being adapted to engage the ring-shaped shank of said corkscrew, substantially as set forth.



695,236. ALARM DEVICE. JOSEPH A. ROY, Dudley, Mass. Filed Dec. 2, 1901. Serial No. 84,333. (No model.)

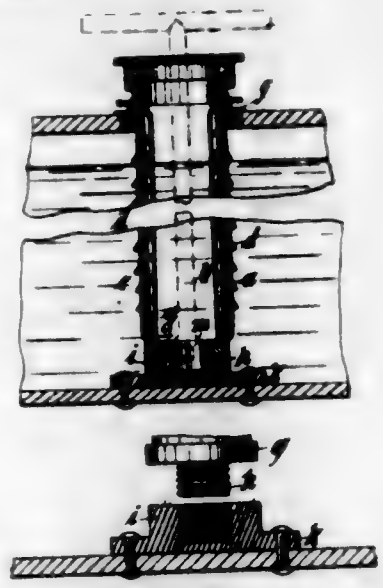


Claim.—1. In an alarm device for a refrigerator-pan or other vessel, the combination of a clamp comprising an outer member having an inwardly-directed point at its lower end, an inner member fixedly connected to the outer member and having a horizontal portion arranged to bear on the upper edge of a pan, and an arm depending from said portion and provided with a threaded aperture, and a screw bearing in said aperture and arranged to engage the wall of the pan, a bell carried by the clamp, and a float-bearing lever fulcrumed on the clamp and arranged when rocked to ring the bell.

2. In an alarm device for a refrigerator-pan or other vessel, the combination of a clamp comprising an outer member having an inwardly-directed point at its lower end, an inner member fixedly connected to the outer member and having a horizontal portion arranged to bear on the upper edge of a pan, and an arm depending from said portion and provided with a threaded aperture, and a screw bearing in said aperture, a bell carried by the clamp and having a plunger the depression of which causes it to ring, and a lever fulcrumed at an intermediate point of its length on the clamp and having a float on its inner arm, and its outer arm disposed over and adapted to engage the plunger of the bell.

695,237. APPARATUS FOR PREVENTING EXPLOSIONS IN VESSELS CONTAINING EXPLOSIVE FLUIDS. ROBERT SCHEUFFGEN, Saarbrücken, Germany. Filed Mar. 26, 1901. Serial No. 52,775. (No model.)

Claim.—1. A safety device for vessels containing explosive liquids constructed as herein described with a perforated cylinder *a*, secured at top by a screw-collar and at bottom by a base-piece *g* having a boss adapted to engage a fixed socket-piece; in combination with a fixed nut *f* for the reception of the screw-collar and a fixed socket-piece *i* in which the boss *h* engages as explained.

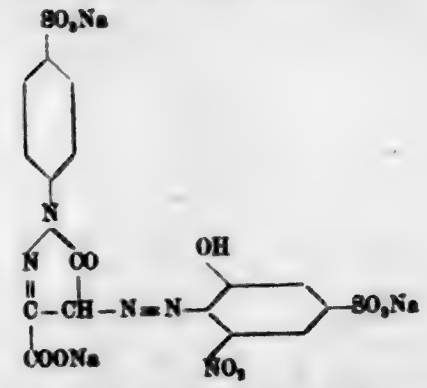


2. The combination of the perforated tube *a*; a screw-collar in which the top of said tube is held; a base-piece *g* by which the bottom of the tube *a* is held, formed at bottom with a boss *h* adapted to engage in a suitable fixed socket and at top to receive a suitable key for turning it into and out of engagement; a fixed nut *f* by which the screw-collar is received and held; and a fixed socket-piece *i* formed to receive and hold the boss *h*, substantially as described.

695,288. ORANGE-RED DYE AND PROCESS OF MAKING SAME. FRANZ SOMELL, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany, a Corporation of Germany. Filed Dec. 21, 1900. Serial No. 40,672. (Specimens.)

Claim.—1. The herein-described process of making mordant dyestuffs, which consists in diazotizing the products of substitution of ortho-amidophenol and combining the diazo compounds thus obtained with substances containing 1-phenyl-5-pyrazolone, substantially as set forth.

2. As a new product, the orange-red mordant dyestuff, having the formula:

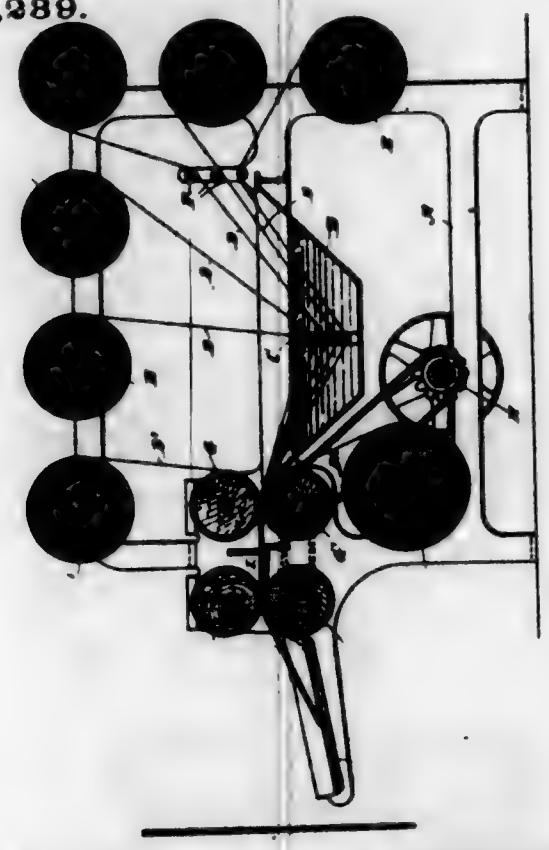


and obtained by the diazotization of 6-nitro-2-amidophenol-4-sulfonic acid and the combination with para-sulfo-1-phenyl-5-pyrazolone-3-carboxylic acid, being an orange-brown crystalline powder, readily soluble in water to an orange-red solution, insoluble in alcohol, ether, benzene and petroleum, soluble in concentrated sulfuric acid to a clear yellow solution, dyeing unmordanted wool in an acid bath red and forming an orange-red chrome-lake, substantially as set forth.

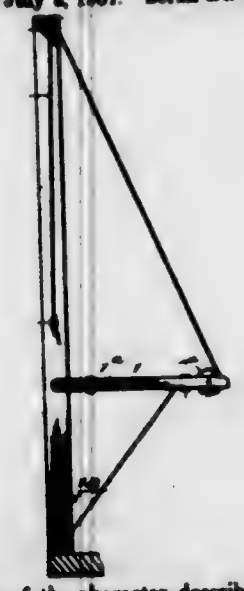
695,289. MACHINE FOR PREPARING PAPER FOR STEREOTYPE-MATRICES. ROBERT M. SEVERN, New York, N. Y. Filed Aug. 20, 1901. Serial No. 72,709. (No model.)

Claim.—A machine for preparing paper for making stereotype-matrices, comprising a frame, a pot for holding a liquid adhesive, a plurality of independent rollers journaled in said pot below the normal upper level of said adhesive, for the purpose of carrying moving webs of paper into and out of contact with said adhesive, pressure-rollers adjacent to said pot for squeezing the webs of paper arriving therefrom, separate rollers located respectively above and below said pressure-rolls, for feeding dry webs of paper respectively above and below said webs arriving from said pot, cutting mechanism adjacent to said pressure-rolls, and separate pressure-rolls adjacent to the said cutting mechanism.

695,289.



695,240. COMBINED AWNING AND WINDOW-SHADE. LEWIS S. SHARPS, Brooklyn, N. Y., assignor of one-half to Edwin Reynolds, Brooklyn, N. Y. Filed July 8, 1901. Serial No. 67,586. (No model.)



Claim.—1. A device of the character described comprising a pivoted frame carrying a spring-actuated roll, a shade or awning applied to said roll, a line or cord connected to said shade or awning at its upper end, and to the window-frame, being intermediately passed over a roll, means for moving the outer or upper end of said pivoted frame away from the window-frame simultaneously with the unrolling of said curtain or awning, and means for the retention of said roll against reverse movement when the shade or awning is unrolled, substantially as set forth.

2. A device of the character described comprising a pivoted frame carrying a spring-actuated roll, a shade or awning applied to said roll, a line or cord connected to said shade or awning, at its upper end, and to the window-frame, being intermediately passed over a roll, an additional line or cord connected to said frame and adapted to move the outer or upper end of said pivoted frame away from said window-frame simultaneously with the unrolling of said shade, and means for the retention of said roll against reverse movement when the shade or awning is unrolled, substantially as set forth.

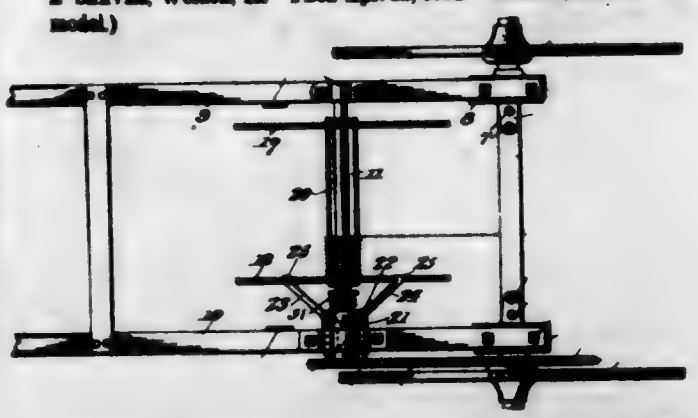
3. A device of the character described comprising a pivoted frame carrying a spring-actuated roll, a shade or awning applied to said roll, a line or cord connected to said shade or awning, at its upper end, and to the window-frame, an additional cord or line connected to said pivoted frame and adapted to move said last-named frame simultaneously with the unrolling of said shade or awning, and a detent for the retention of said roll against reverse movement when the shade or awning is unrolled, substantially as set forth.

4. A device of the character described, comprising a pivoted frame carrying a spring-actuated roll and having, inward from said roll, a cross-bar, a shade or awning applied to said roll, a line or cord connected to said shade at its upper or outer end and to the window-frame, being intermediately passed over a roll, a line connected to said cross-bar and adapted to move said frame away from the window-frame simultaneously with the unrolling of said shade or awning, and means for the retention of said roll against reverse movement when the shade or awning is unrolled, substantially as set forth.

5. A device of the character described, comprising a pivoted frame carrying a spring-actuated roll, a shade or awning applied to said roll, means for the retention of said shade at its upper or outer end when unrolled, means adapted to move said frame away from the window-frame simultaneously with the unrolling of said shade or awning, and a fastening secured to said window-frame for engagement with, and the retention of, said pivoted frame in its lowered position, within said window-frame, substantially as set forth.

6 A device of the character described, comprising a pivoted frame carrying a spring-actuated roll, a shade or awning applied to said roll, means for the retention of said shade at its upper or outer end when unrolled, means adapted to move said frame away from the window-frame simultaneously with the unrolling of said shade and awning, and a spring-snap fastening secured to said window-frame and having a lateral beveled surface adapted to engage said pivoted frame, substantially as set forth.

695,241. COMBINED REEL AND BARREL-CARRIER. WILLIAM E SHAVER, Weldon, Ill. Filed Apr. 22, 1901. Serial No. 56,900. (No model.)



Claim.—1. A combined reel and barrel-carrier, comprising parallel bars, a folding leg to each bar, a plate at one end of each bar, said plates being recessed for the reception of the ends, a depending bearing to each plate, an axle projecting therethrough, a laterally-projecting arm on each plate and secured to the axle, and bearings on the bars adapted to receive a reel-shaft or barrel-trunnion.

2. In a combined reel and barrel-carrier, the combination with an axle and parallel bars, of a shaft supported in bearings on the bars, means for revolving the shaft, a reel mounted on the shaft, a clutch device comprising a member fixed on the shaft, a spring-pressed movable member, and arms projecting from the movable member and having projections engaging the reel, and a brake device comprising a slotted plate adapted to be interposed between the clutch members.

695,242. GUN-LOCK. FRANK SNYDER, Fulton, N. Y., assignor to the Hunter Arms Co., Fulton, N. Y., a Corporation of New York. Filed July 24, 1900. Serial No. 24,663. (No model.)



Claim.—1. A gun-lock comprising a lock-plate, a tumbler having front and rear shoulders, a sear for engaging said shoulders, a spring for actuating the tumbler and sear, and a bridle detachably secured to the plate and having one of its fastening members adapted to engage the spring and limit its action upon the tumbler at about the same time that the forward shoulder of the tumbler is registered with the sear for the purpose described, one end of the bridle forming a stop to prevent endwise movement of the spring.

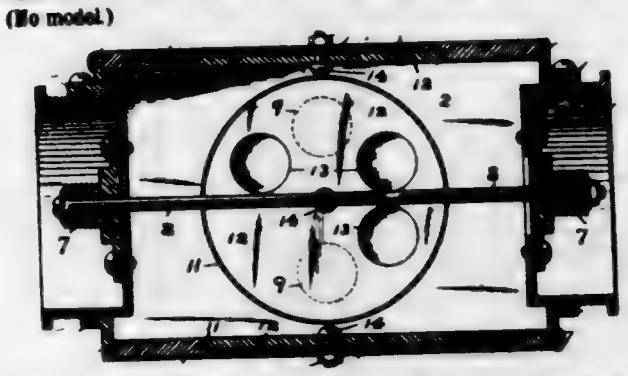
2. A gun-lock comprising a lock-plate, a tumbler, a sear, a spring for actuating the tumbler and sear, and a bridle detachably secured to the plate and having one end forming an abutment for the adjacent end of the spring for the purpose set forth.

3. In combination with a lock-plate and a bridle detachably secured thereto, and having portions thereof disposed at an angle with the main body and engaged with the plate for the purpose described, of a tumbler, sear and spring operating in the manner set forth and interposed between the plate and bridle, one of the angular portions forming an abutment for the adjacent end of the spring.

4. A gun-lock comprising a lock-plate, a tumbler, a sear, a spring for actuating the tumbler and sear, and a bridle detachably secured to the plate and having one end forming an abutment for the adjacent end of the spring for the purpose set forth, and a removable fastening member for holding the spring in position and permitting its removal.

5. A gun-lock comprising a lock-plate, a tumbler having front and rear engaging shoulders and a beaded projection, a sear adapted to engage said shoulders and provided with an abutting face, a V-shaped spring for actuating the tumbler and sear, said spring having one leaf engaged with the beaded projection and its other leaf abutting against the face of the sear, a bridle having portions thereof disposed at an angle with its main body and engaged with the plate, one of said portions forming an abutment for the closed end of the spring to prevent the endwise displacement of the spring, and a fastening member for detachably securing the bridle and spring in position.

695,243. ELECTRIC JUNCTION OR OUTLET BOX. JOHN H. STANLEY, New York, N. Y. Filed Jan. 17, 1902. Serial No. 90,191. (No model.)



Claim.—1. A junction or outlet box for electrical conduits and conductors having one or more openings in one or more of its sides, or in its bottom, and correspondingly-arranged means rotatively placed against one or more of the sides or the bottom of said box and constructed to open and close one or more or all of the said openings, substantially as and for the purposes set forth.

2. A junction or outlet box for electrical conduits and conductors having one or more openings in one or more of its sides, or in its bottom, and a disk slidably arranged against one or more of the sides, or against the bottom, of said box, the disk or disks being provided with one or more openings adapted to register with one or more of the openings in the box or to close said openings, substantially as and for the purposes set forth.

3. In a junction or outlet box for electrical conduits and conductors, the combination, with a side or bottom of the box having a depression or recess and one or more openings, and a disk movably arranged in said depression or recess provided with one or more openings adapted to register with one or more of the openings in the side or bottom or to close said openings, substantially as and for the purposes set forth.

4. In a junction or outlet box for electrical conduits and conductors, the combination, with a side or bottom of the box provided with an opening or openings, of a pivotal pin in said side or bottom, a disk rotatively arranged on said pin, said disk being provided with one or more openings adapted to register with one or more of the openings in the side or bottom or to close said openings, and means on said pin for fixing said disk in its adjusted relation to the said opening or openings in the side or bottom of the box, substantially as and for the purposes set forth.

5. In a junction or outlet box for electrical conduits and conductors, the combination, with a side or bottom of the box provided with a depression or recess and one or more openings, of a pivotal pin in said side or bottom, a disk on said pin and rotatively arranged in said depression or recess, said disk being provided with one or more openings adapted to register with one or more of the openings in the side or bottom or to close said openings, and means on said pin for fixing said disk in its adjusted relation to the said opening or openings in the side or bottom of the box, substantially as and for the purposes set forth.

6. An electric outlet or similar box having an opening or openings for the reception of a conduit or conduits, of a rotatively-arranged opening and closing device in said box, substantially as and for the purposes set forth.

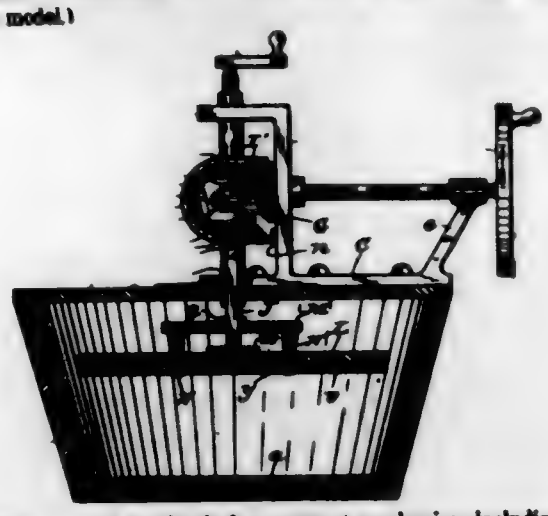
7. An electric outlet or similar box having an opening or openings for the reception of a conduit or conduits, of a slidably-arranged opening and closing device in said box, and means for securing said slidably-arranged opening and closing device in its adjusted position, substantially as and for the purposes set forth.

8. An electric outlet or similar box having an opening or openings for the reception of a conduit or conduits, of a rotatively-arranged opening and closing disk provided with one or more openings adapted to register with the opening or openings in the body of the box, substantially as and for the purposes set forth.

9. An electric outlet or similar box having a pair of openings 9, a pivotal pin in alinement with said openings, and a disk rotatively arranged on said pin, said disk being provided with three openings, two of said openings being in alinement with the central axis of said pivotal pin, substantially as and for the purposes set forth.

10. An electric outlet or similar box having a pair of openings 9, a pivotal pin in alinement with said openings, and a disk rotatively arranged on said pin, said disk being provided with three openings, two of said openings being in alinement with the central axis of said pivotal pin, a screw portion on said pin, and a head and nut connected with said pin for securing said disk in its adjusted relation to the openings in the box, substantially as and for the purposes set forth.

695,244. GEARING FOR WASHING-MACHINES. HARRISON L. STALEY, Martinsville, Ind. Filed May 20, 1901. Serial No. 61,024. (No model.)



Claim.—1. A mechanical movement mechanism including a rotative driving-shaft, a toothed driving-wheel secured to the rotative shaft, a driven shaft, and a dual-reciprocating-motion gear comprising two segments of toothed wheels facing each other and two other connecting-segments of toothed wheels practically facing each other and all connecting alternately with the driving-wheel, whereby the rotative driving-shaft may impart to the driven shaft alternating oscillatory and reciprocating motions.

2. In gearing for washing-machines, a driven spindle or shaft adapted to be attached to the rubber and pounder, a dual-reciprocating-motion gear secured to the driven spindle and comprising two segments of external toothed wheels having an identical axis and two connecting-segments of internal toothed wheels having an identical constructive axis at right angles to the axis of the first-described segments, and a toothed driving-wheel engaging alternately the said segments.

3. In gearing for washing-machines, a vertically-movable rotative shaft, a longitudinally-adjustable shaft supported within said rotative shaft, means for binding said longitudinally-adjustable shaft in said rotative shaft, a toothed driving-wheel, and a dual-reciprocating-motion gear comprising segments of toothed wheels of which two segments are of external wheels and two segments are of internal wheels in different planes connected together and secured to said rotative shaft and engaged by said toothed driving-wheel.

4. In gearing for washing-machines, a gearing-frame, a vertically-movable rotative shaft mounted in the frame, a dual-reciprocating-motion gear comprising a body portion having two parallel channels connected at their ends by curved channels forming an endless channel provided with gear-teeth extending along the course of said channel at the outside thereof, a driving-shaft, a driving toothed wheel secured to the driving-shaft and engaging said gear-teeth, a guide-pin extending into said channel, a guide-bar secured to said gearing-frame, and guide-pins projecting from said dual gear so as to alternately engage opposite sides of said guide-bar.

5. In gearing for washing-machines, a gear-frame, a hollow driven spindle mounted in the frame and movable vertically, a dual-reciprocating-motion gear secured to the driven spindle, a driving-wheel engaging said gear, a longitudinally-adjustable shaft in the said hollow spindle, means whereby to bind said shaft in adjusted positions to said hollow spindle, a guide-bar attached to the gear-frame, guide-pins projecting from said gear so as to engage said bar when said gear traverses in vertical directions, a guide-channel in said gear, and a guide-pin projecting into said channel.

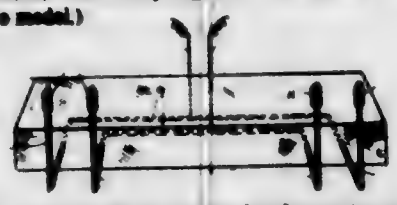
6. In gearing for washing-machines, a vertical hollow spindle movable longitudinally and also rotatively and having the screw-thread in the upper end thereof, a vertical shaft carried in said hollow spindle and movable longitudinally therein and having the slot near the upper end thereof, a screw-rod engaging said screw-thread and having a head in said slot, a dual-reciprocating-motion gear secured to said vertical spindle, a horizon-

tal rotative shaft, a driving-wheel secured to the horizontal shaft and engaging the dual gear, whereby when the driving-wheel is rotated the said vertical shaft is caused to alternately move longitudinally and also move rotatively partially about its axis, and whereby also said vertical shaft may be adjusted in its vertical travel.

7. In gearing for washing-machines, a dual-reciprocating-motion gear comprising a body portion having two parallel channels connected at their ends by curved channels forming an endless channel, and segments of toothed bevel gear-wheels connected together in different planes so as to form an endless curved gear-rack extending partially about the ends and along two sides of the body portion, substantially as shown, in combination with the rotative shaft having the guide-pin operating in said endless channel, and the bevel-toothed wheel engaging said endless rack.

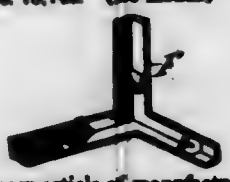
8. In a gearing for washing-machines, the combination of the gearing-frame, the dual-reciprocating-motion gear comprising the four connected segments of toothed wheels and having the endless guide-channel in the body thereof within the contour lines of said segments, the horizontal driving-shaft mounted in said frame and having the guide-pin projecting into said channel, the toothed driving-wheel secured to said driving-shaft and engaging said dual gear, the guide-bar attached to said frame, the guide-pins projecting from said dual gear to engage said guide-bar, the vertical hollow spindle secured to said dual gear, the vertical shaft in said hollow spindle, and a binder for said vertical shaft, substantially as set forth.

695,245. ALARM ATTACHMENT FOR INCUBATORS. ROBERT H. STEVENSON, Jr., Western Springs, Ill. Filed May 4, 1901. Serial No. 58,736. (No model.)



Claim.—In an alarm attachment for incubators, the combination with the balance-rod of the thermostat, said rod being arranged exteriorly of the incubator-casing and fulcrumed thereon intermediate its ends, of a plurality of circuit-closers carried by said rod at opposite sides of the fulcrum, two sets of contact-points arranged at opposite sides of the fulcrum of the balance-rod in the path of movement of the circuit-closers and in an electric alarm-circuit, and an attaching-block applied to the incubator-casing and forming a support for both sets of contact-plates and the electrical conductors therefor.

695,246. TRUNK. WILLIAM H. A. STOUT, Philadelphia, Pa., assignor of one-half to Henry S. Balber, Philadelphia, Pa. Filed Sept. 20, 1901. Serial No. 75,748. (No model.)



Claim.—1. As a new article of manufacture, an edge or corner strip for trunks or other receptacles, consisting of an outer piece formed to an angle in cross-section, and provided on its inner surface with one or more clips or stays, said clips or stays being so constructed and arranged within and against each side of the angle as to brace the sides thereof to prevent spreading.

2. A corner angle-iron provided with one or more securing-clips having bifurcated ends forming prongs, each of said clips abutting against each of the inner sides of the angle, whereby the angle of the corner-iron is maintained.

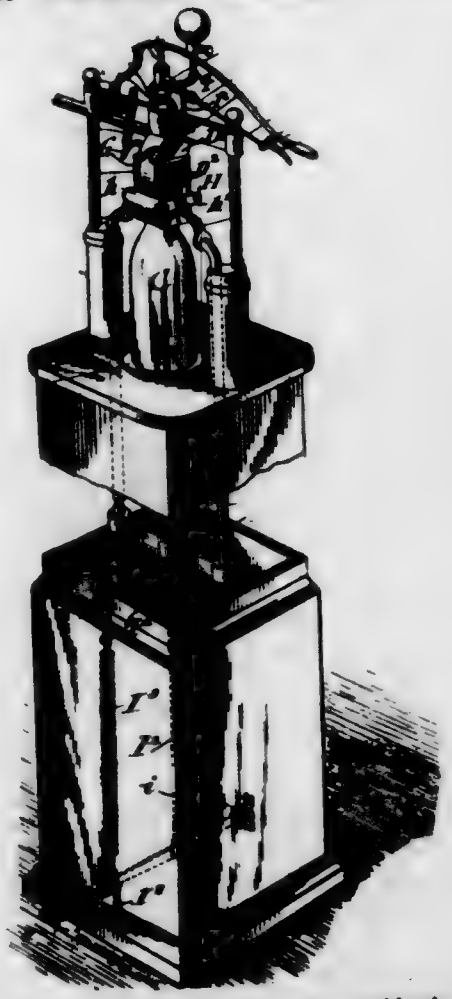
3. A protecting-strip for the meeting edges of trunks or other receptacles, consisting of a piece of metal formed to about a right angle in cross-section, and provided within the angle with clips or prongs, each of said clips or prongs abutting against both sides of said angle, and adapted to be used to secure said strip onto the outer meeting edges of a trunk or other receptacle.

4. A protecting-strip for the meeting edges of trunks or other receptacles, consisting of a piece of metal formed to about a right angle in cross-section, and provided within the angle at a point thereof with clips or prongs adapted to be inserted into and through openings in the meeting edges of the receptacle and the projecting ends thereof turned, whereby said strips will be held onto the outer meeting edges of the receptacle.

5. A protecting-strip for trunks or other receptacles, formed to about a right angle in cross-section, and adapted to fit over and upon the meeting edges of a receptacle, bifurcated clips within and at the point of said angle, and adapted to pass through openings in the meeting edges of the receptacle, and the ends of each clip turned in opposite directions, whereby said strips will be secured to the receptacle over and upon the meeting edges thereof.

6. A corner-iron, consisting of two or more angular branches, each branch provided with bifurcated securing-clips, said clips abutting against the inner sides of the angular branches, in such manner that the angle of each branch will be maintained.

695,247. BOTTLE-FILLING MACHINE. LOUIS STRIEBEL and CHARLES W. WILLIAMS, New York, N. Y., assignors to the Century Stopper Company, New York, N. Y., a Corporation of New Jersey. Filed Mar. 20, 1901. Serial No. 53,427. (No model.)



Claim.—1. In a bottle-filling machine, the combination of a suitably-supported housing or casing adapted to hermetically inclose the upper portion of a bottle to be filled, means for opening and tilting back the stopper of the bottle, means for filling the bottle, and means independent of the means for opening the stopper for swinging forward and closing the stopper, substantially as set forth.

2. In a bottle-filling machine, the combination, with a suitably-supported housing or casing constructed with a swinging member, the latter and the other part of said housing or casing being adapted to coact to hermetically inclose the upper portion of a bottle below the stopper-wires, of means for holding said swinging member normally in open position, means for operating said swinging member, means for filling the bottle, and means for closing the stopper, substantially as set forth.

3. In a bottle-filling machine, the combination of a housing for hermetically inclosing the upper part of a bottle to be filled, means acting in conjunction with said housing for automatically, during the closing of the housing upon the bottle, opening the stopper of the bottle, means for filling the bottle, and means for closing the stopper of the bottle, substantially as set forth.

4. In a bottle-filling machine, the combination, with a suitably-supported housing or casing adapted to hermetically inclose the upper part of a bottle to be filled, and composed of a fixed and a movable member, a spring acting to normally raise said movable member, and means acting to close the movable member against the fixed member, so as to hermetically inclose the upper portion of the bottle, of means for filling the bottle, substantially as set forth.

5. In a bottle-filling machine, the combination, with a housing or casing suitably supported and constructed of sections, one of which sections constitutes a movable member which is hinged to the fixed member, and means for holding the movable member normally open, of a closing-frame inclosing the fixed member and the movable member, and adapted to move along and close the movable member upon the fixed member and means for filling the bottle, substantially as set forth.

6. In a bottle-filling machine, the combination, with a suitably-supported housing or casing adapted to inclose the neck of a bottle to be filled, said housing or casing being composed of a stationary member and a movable member, of fingers fixed rigidly in the upper end of the stationary member and projecting downwardly, said fingers being adapted to automatically open the stopper of a bottle, means for filling the bottle, and suitable means for closing the stopper, substantially as set forth.

7. In a bottle-filling machine, the combination, with a suitably-supported housing or casing adapted to hermetically inclose the neck of a bottle to be filled, of means for filling a bottle, downwardly-projecting fingers arranged in the upper end of the housing, a reciprocating rod guided in the upper end of the housing or casing, a pressure-shoe carried by the lower end of said rod, said pressure-shoe projecting laterally from said rod between said fingers, and being downwardly curved beyond the fingers so as to form a stop for limiting the opening motion of the stopper, and also to engage and close the stopper of a bottle, and means for operating said rod, substantially as set forth.

8. In a bottle-filling machine, the combination, with a suitable housing or casing for hermetically inclosing a bottle below the stopper-wires, of a liquid-supply pipe, and a discharge-nozzle projecting inwardly from one side of a stationary portion of the inner chamber of said housing and connected with the supply-pipe so as to shoot the filling liquid directly into the bottle, substantially as set forth.

9. In a bottle-filling machine, the combination, with a suitably-supported housing or casing, adapted to hermetically inclose the upper portion of a bottle below its mouth, of means for filling the bottle, a relief device or sniff provided with a valved chamber connected with the interior of the housing, an enlarged chamber supported on said valved chamber and adapted to receive some of the air displaced from the bottle, the valve of said valved chamber being adapted to let out the air therefrom, and a valve between the said valved chamber and the enlarged chamber for isolating the latter from said valved chamber when desired, substantially as set forth.

695,248. **BRAKE-SHOE.** ALFRED L. STREETER, Chicago, Ill. Filed June 25, 1901. Serial No. 66,940. (No model.)



Claim.—1. A brake-shoe comprising a body portion provided with an opening or openings in its face or friction-surface and a dressing block or blocks adapted to be removably secured in said opening or openings, substantially as described.

2. A brake-shoe comprising a body portion provided with a transverse opening or openings in its face or friction-surface and a dressing block or blocks adapted to be removably secured in said opening or openings, substantially as described.

3. A brake-shoe comprising a body portion provided with an opening or openings in its face or friction-surface which taper toward the back of the shoe and a dressing block or blocks adapted to be removably secured in said opening or openings, substantially as described.

4. A brake-shoe comprising a body portion provided with an opening or openings in its face or friction-surface, a dressing block or blocks adapted to be removably secured in said opening or openings and a spring applied to the back of said block or blocks and adapted to force said block or blocks outwardly into contact with the car-wheel, substantially as described.

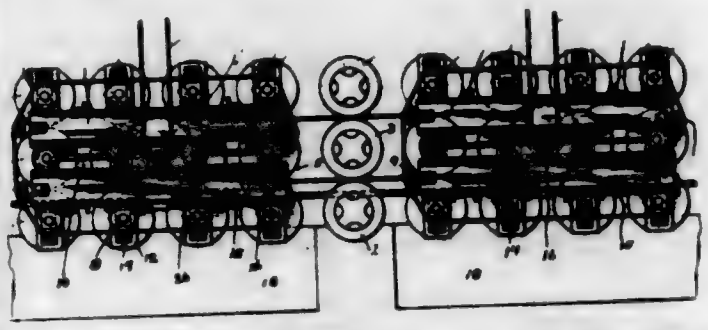
5. A brake-shoe comprising a body portion provided with an opening or openings in its face or friction-surface, a dressing block or blocks adapted to be removably secured in said opening or openings and means to secure said block or blocks in said opening or openings, said means comprising clips secured in said block or blocks adapted to be bent or clamped over the back of the shoe, substantially as described.

6. A brake-shoe comprising a body portion provided with an opening or openings in its face or friction-surface, a dressing block or blocks adapted to be removably secured in said opening or openings and means which project at the back of the shoe to secure said block or blocks in said opening or openings, the back of the shoe being provided with depressions to receive said securing means, substantially as described.

7. A brake-shoe comprising a body portion provided with an opening or openings in its face or friction-surface, a dressing block or blocks adapted to be removably secured in said opening or openings and means which project at the back of the shoe to secure said block or blocks in said opening or openings, the back of the shoe being provided with depressions to receive said securing means, said depressions extending over practically the entire area of the back of the shoe except at the margins thereof which extend up to the line of the back of the shoe, substantially as described.

8. A brake-shoe comprising an attaching-lug, the wedge-opening in which is located above the back of the shoe, the body of said shoe being provided with depressions in its back which extend over practically the entire area thereof except at the margins, which extend up to the line of the back of the shoe, substantially as described.

695,249. **FEED-TABLE FOR SHEET-ROLLS.** FRITZ O. STROMBORG, Pittsburg, Pa. Filed June 26, 1901. Serial No. 66,069. (No model.)



Claim.—1. In a device for feeding plates or packs to sheet-rolls, the combination with the rolls, of mechanism for feeding the plate or sheets to the rolls and mechanism for receiving the same from the rolls, and returning them to the front of the same set of rolls, said last-named mechanism being reversible endwise, whereby the plate or pack is returned to the front of the rolls with its front end foremost.

2. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of endwise-reversible feeding mechanism in front of the same and endwise-reversible feeding mechanism at the rear of the same, whereby said plate or pack is fed through the rolls, reversed endwise, returned to the front of the same set of rolls, again reversed endwise and again fed to the rolls.

3. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of positively-driven feeding means in front of the same, and positively-driven feeding means at the rear of the same, both of said feeding means being reversible endwise in line with the same set of rolls.

4. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of two or more series of live rollers for receiving the plate or pack between the same, and means whereby said series of rollers may be reversed endwise, to return the plate or pack to the front of the same set of rolls from which it was received.

5. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of two or more series of live rollers in front of the same, a similar arrangement of rollers at the rear of the same, and means whereby each of said series of rollers may be reversed endwise, to return the plate or pack to the front of the same set of rolls from which it was received.

6. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of feeding and receiving mechanism in front of the same, feeding and receiving mechanism at the rear of the same, transverse trunnions on which each of said mechanisms are mounted, and means for rotating said mechanisms about said trunnions.

7. In a device for feeding plates or packs to sheet-rolls, the combination with the rolls, of positively-driven feeding means in front of the rolls, positively-driven feeding means at the rear thereof, frames in which each of said feeding means are mounted, said frames being mounted on transverse trunnions, and means for rotating said frames on said trunnions.

8. In a device for feeding plates or packs to sheet-rolls, the combination with the rolls, of a series of positively-driven rollers, a frame in which the same are mounted, said frame being mounted on transverse trunnions at the center thereof, and means for rotating said frame on its trunnions.

9. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of two or more series of live rollers in front of the same, a similar arrangement of live rollers at the rear of the same, frames in which said series of rollers are mounted, transverse trunnions for said frames, and means for rotating said frames about said trunnions.

10. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of two or more positively-driven feeding means in different horizontal planes, a frame in which said means are mounted, means for yieldingly holding one of said means against the other, and means for reversing said frames endwise.

11. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of two or more series of live rollers in different horizontal planes, a frame in which said rollers are mounted, means for holding the rollers of one series yieldingly against the rollers of the other series, and means for reversing said frame endwise.

12. In mechanism for feeding plates or packs to sheet-rolls, the combination with the rolls, of three series of rollers or the like, a frame in which the same are mounted, means for holding the rollers of the two outer series yieldingly against the rollers of the middle series, and means for positively driving the rollers of the middle series.

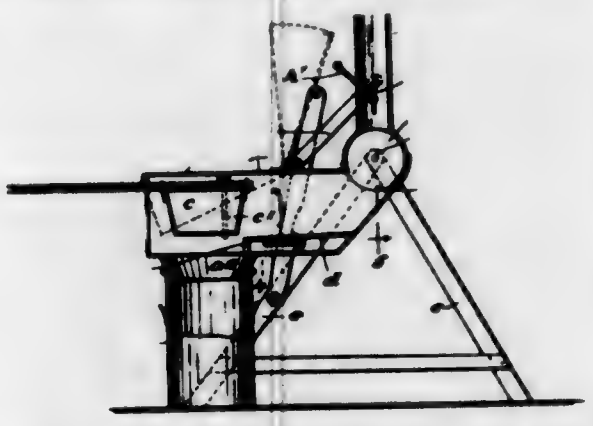
13. In mechanism for feeding plates or packs to sheet-rolls, the combination with three-high rolls, of mechanism at the front thereof for receiving a pack from one pass of said rolls and simultaneously feeding another pack to the other pass of said rolls, and a similar mechanism at the rear of said rolls, said mechanisms being reversible endwise.

14. In mechanism for feeding plates or packs to sheet-rolls, the combination with three-high rolls, of feed mechanisms at the front and rear thereof, said mechanisms each comprising three series of live rollers or the like in different horizontal planes, suitable frames in which said rollers are mounted, and means for reversing said frames endwise

15. In mechanism for feeding plates or packs to sheet-rolls, the combination with a series of positively-driven rollers each composed of disks spaced apart, the disks of said several rollers being staggered with relation to each other.

16. In mechanism for feeding plates or packs to sheet-rolls, the combination of two or more series of live rollers, each of which is composed of disks spaced apart, and means for holding the rollers of one series yieldingly against the rollers of the other series.

695,250. ASH-SIFTER. BARNEY JAN TE BRAKE, Milwaukee, Wis. Filed Feb. 2, 1901. Serial No. 45,726. (No model.)



Claim.—1. An ash-sifter, comprising a body, a support on which the body is pivotally mounted, a pipe communicating with the interior of the body and passing upward therefrom, the pipe being held stationary on the support, a damper commanding the pipe, a connection between the damper and the body, a sifting device within the body, and a means for holding the body in raised or inactive position.

2. An ash-sifter, comprising a support, a body portion pivotally mounted thereon, a cylindrical barrel held stationary on the support and having sliding connection with a part of the body, the interior of the barrel communicating with the interior of the body, a pipe passing up from the barrel, a damper commanding the pipe, a connection between the damper and the body, a sifting device within the body, and means for holding the body in raised or inactive position.

695,251. TYPE-WRITER. JUAN B. VIDAL, Havana, Cuba. Filed Apr. 13, 1901. Serial No. 56,466. (No model.)

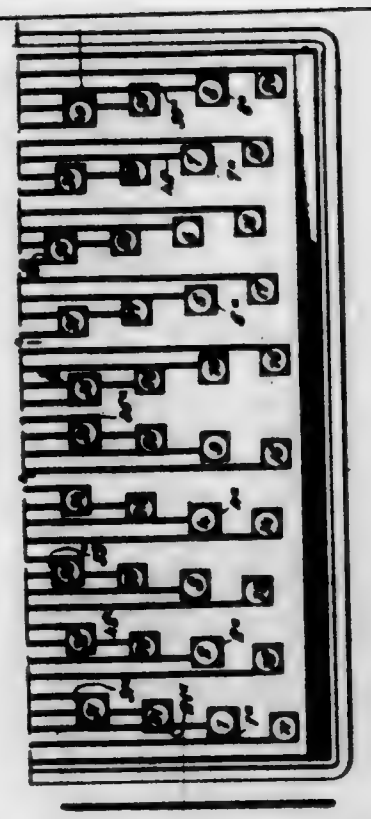
Claim.—1. A keyboard for type-writers and other machines divided into two halves, each adapted for operation by one hand and having the keys arranged in rows and columns, the keys of one row in the same section or half of the keyboard being located at increasingly-higher levels from the center outward.

2. A keyboard for type-writers and other machines, provided with a series of depressible keys arranged to be operated by the finger-tips, and another series of depressible keys arranged in front of the first-named series and projecting upwardly above the same in such proximity thereto as to be adapted to be operated by the first or second phalanges of the fingers.

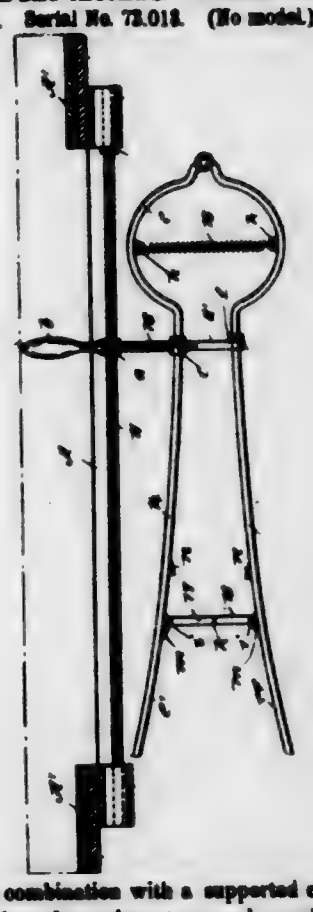
3. A keyboard for type-writers and other machines, comprising a base, and a number of movable keys of differential accessibility, the less accessible keys each being provided with guides upon one of its sides or upon more than one of its sides according to the degree of difficulty in locating said keys by touch.

4. A keyboard for type-writers or other machines, comprising a base, and a plurality of movable keys provided with guides for locating said keys by touch, sundry of said guides being disposed upon the rears, others upon the sides and others upon the fronts of said keys, according to the relative position of said keys.

695,251



695,252. MAIL-BAG CATCHER. BENJAMIN WATSON, Eden, N. Y. Filed Aug. 23, 1901. Serial No. 73,013. (No model.)



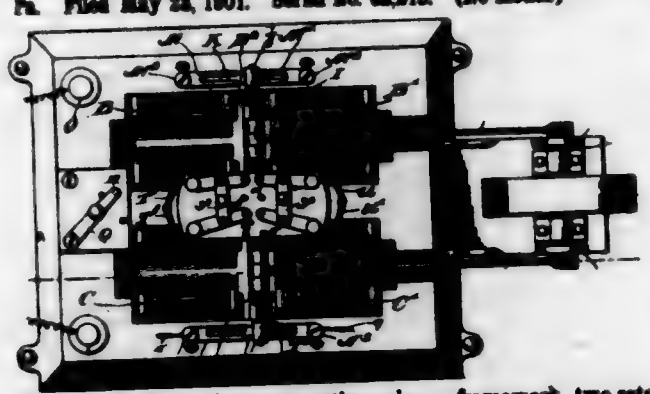
Claim.—1. The combination with a supported carrier-rod, of two similar catcher-arms pivoted together at one end, a spring adapted to pull the free ends of the catcher-arms toward each other, means for temporarily holding the arms spread against the pull of the spring, and means to support the catcher-arm on the supported carrier-rod so as to be rocked therewith.

2. The combination with bracket-blocks at the door of a car, and a carrier-rod loosely supported on said bracket-blocks, of two similar catcher-arms pivoted together at one end, a spring near the pivot-joint adapted to pull the free ends of the catcher-arms toward each other, spreader-arms held to rock on the catcher-arms and adapted to hold the catcher-arms diverged against the pull of the spring, and means to support the catcher-arms on the carrier-rod so as to be rocked therewith.

3. The combination with two catcher-arms oppositely bent near one end, and pivoted together at the terminations of said bent ends, a contractile spring secured by its ends between the bent portion of the catcher-arms, opposite end portions of said arms being bent outwardly in the same plane with the bends whereon the spring is secured, means for temporarily holding the arms spread apart at their free ends against the pull of the spring, and means for rockably supporting the catcher-arms on a car at its door.

4. The combination with a carrier-rod, and bracket-blocks having alined perforations, and secured oppositely on a car-frame at its door-opening, for a loose reception of the carrier-rod, of two similar catcher-arms curve-bent near one end of each arm and pivoted together near said curve-bent ends, a contractile spring held by its ends on the curved bent portions of the catcher-arms, the free ends of these arms being outwardly bent, two spreader-arms hinged oppositely on inner sides of the catcher-arms, said spreader-arms when alined holding the catcher-arms diverged against the pull of the spring, and a transverse arm secured on the carrier-rod and also upon one catcher-arm, the other catcher-arm having a slidable engagement with a slotted portion of the transverse arm.

695,258. ELECTROMAGNETIC ENGINE. PETER R. WATSON, Philadelphia, Pa., assignor of one-half to Robert W. Tunis, Philadelphia, Pa. Filed May 23, 1901. Serial No. 62,215. (No model.)



Claim.—1. In an electromagnetic engine, a framework, two sets of magnets, each set having oppositely-disposed poles set to provide an intervening space, an armature pivoted between each set of magnets, pitmen reciprocated by the armatures, controlling-rods carried by the armatures, rolls on the rods, contact-springs engaged by the rolls, and suitable connections whereby the action of the rolls on the springs cuts off and shifts the current to the sets of magnets as and for the purpose described.

2. In an electromagnetic engine, a framework, two sets of electromagnets supported by said framework, the poles of each set of magnets being arranged opposite to one another, a space between the poles of each set of magnets, two armatures, one pivoted within the space between each set of magnets, a crank-shaft, two pitmen, one end of each of the pitmen being connected to each of the armatures, the other end of the pitmen being connected to the crank-shaft, the cranks of the crank-shaft being set upon a quarter, a pulley secured to the crank-shaft for the purpose of transmitting motion, a contact carried by each of the armatures and insulated therefrom, each of these contacts being connected with the negative pole of the source of electricity, two pairs of contact-springs, each pair located upon opposite sides of the machine and adapted to be alternately contacted by the contact carried by the armature, each of the contact-springs upon one side of the machine connected with the positive pole of the source of electricity through that half of the set of magnets upon the opposite side of the machine diagonally opposite from the end of the machine upon which the contact is located, the spring-contacts upon the opposite side of the machine adapted to be alternately contacted by the contact carried by the opposite armature, each of the last-named spring-contacts connected with the opposite pole of the source of electricity through half of the set of magnets upon the opposite side of the machine working in conjunction with the opposite armature, the said half set of magnets being located upon the same end of the machine as the spring-contact to which they are connected, substantially as and for the purpose specified.

3. In an electromagnetic engine, a framework, two sets of electromagnets supported by said framework, the poles of each set of magnets being arranged opposite to one another, a space between the poles of each set of magnets, two armatures, one pivoted within the space between each set of magnets, a crank-shaft, two pitmen, one end of each of the pitmen being connected to each of the armatures, the other end of the pitmen being connected to the crank-shaft, the cranks of the crank-shaft being set upon a quarter, a pulley secured to the crank-shaft for the purpose of transmitting motion, a contact carried by each of the armatures and insulated therefrom, each of these contacts being connected with the negative pole of the source of electricity, two pairs of contact-springs, each pair located upon opposite sides of the machine and adapted to be alternately contacted by the contact carried by the armature, each of the contact-springs upon one side of the machine connected with the positive pole of the source of electricity through that half of the set of magnets upon the opposite side of the machine diagonally opposite from the end of the machine upon which the contact is located, the spring-contacts upon the opposite side of the machine adapted to be alternately contacted by the contact carried by the opposite armature, each of the last-named spring-contacts connected with the opposite pole of the source of electricity through half of the set of magnets upon the opposite side of the machine working in conjunction with the opposite armature, the said half set of magnets being located upon the same end of the machine as the spring-contact to which they are connected, a reversing-switch interposed between the spring-contacts and the magnets so as to change the connection of the spring-contacts to the opposite half of the set of magnets to which they were formerly connected for the purpose of reversing the last-named position and thus reverse the revolution of the crank-shaft, as and for the purpose specified.

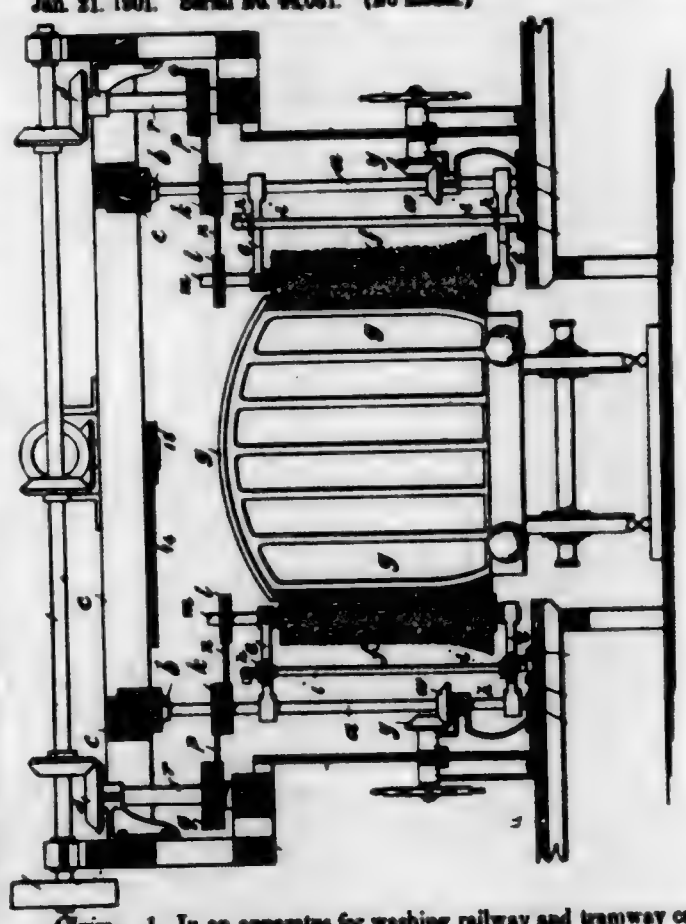
4. In an electromagnetic engine, two sets of electric magnets, the poles of each set arranged opposite to one another, a space between the poles of each set of magnets, a movable armature arranged in these sets between the magnets, a crank-shaft, two pitmen, one end of each pitman being connected to each of the armatures, the other end of the pitmen being connected to the crank-shaft, two traveling contacts, one carried by each of the armatures, said contacts always in connection with the negative pole of the source of power, two pairs of spring-contacts arranged upon opposite sides of the machine, the members of each pair of spring-contacts adapted to be alternately contacted by one of the contacts carried by the armature, each member of each pair of contacts being connected to the positive pole of the source of electricity, the other half of the magnets composing the set of magnets upon the opposite side of the machine from the contacts, to which is connected a reversing-switch, interposed between the spring-contacts and the magnets for the purpose of changing the connection of each of the spring-contacts from half of the opposite set of magnets to which they are connected to the other half, and vice versa, for the purpose of changing the direction of rotation of the crank-shaft, substantially as and for the purpose specified.

695,254. PANCREAS PREPARATION AND PROCESS OF PRODUCING SAME. WILHELM WEBER, Stolberg II, Germany, assignor to Chemische Fabrik Rhenania, Aachen, Germany. Filed Aug. 28, 1900. Serial No. 28,236. (No specimens.)

Claim.—1. A process for preparing a preparation of pancreas capable of resisting stomach-juices, by mixing a solution containing pancreatin with a solution of tannin containing an alkali then adding another acid and then collecting for use the precipitate thus produced.

2. An aseptic composition consisting of one hundred parts of pancreatin chemically combined with twenty parts of tannin and characterized by insolubility in gastric juice and solubility in intestinal juice.

695,255. WASHING APPARATUS FOR RAILWAY OR TRAMWAY CARRIAGES. CHARLES A. WHEELER, Harlesden, England. Filed Jan. 21, 1901. Serial No. 44,061. (No model.)



Claim.—1. In an apparatus for washing railway and tramway carriages, brushes engaging the carriages for cleaning the same, operating means therefor, arms for supporting the brushes, water-pipes, yokes pivoted to said arms for supporting said pipes, and a trunk engaged by the said yokes.

2. In an apparatus for washing railway and tramway carriages, brushes adapted to engage the carriages for cleaning the same, perforated pipes arranged in suitable relation to said brushes, means for supporting brushes, means for rotating said brushes, means for connecting said pipes to the supporting means for the brushes, means for moving said brushes into and out of contact with the carriages and for simultaneously moving said pipes to the desired position, and means engaging the said connecting means for guiding said pipes.

3. In an apparatus for washing railway and tramway carriages, cleaning-brushes for the carriages, arms for supporting said brushes, means for supporting said arms, operating means for said brushes, water-pipes arranged in suitable relation to the brushes, a yoke for suitably connecting the water-pipes to said arms, means connected to the supporting means for the arms for moving the brushes into and out of contact with the carriages, and a track to prevent the contacting of the water-pipes and carriages when the brushes are brought into contact with the latter, substantially as herein shown and described.

4. In an apparatus for washing railway and tramway carriages, brushes for cleaning the carriages, perforated pipes arranged in suitable relation to said brushes, yokes for supporting said pipes, means for moving said brushes into and out of contact with said carriages and for simultaneously moving said pipes, and means engaging with the said yokes to prevent the contacting of the perforated pipes with the carriages when the brushes are brought into contact with the latter.

5. In an apparatus for washing railway and tramway carriages, cleaning-brushes adapted to engage the carriages, supporting means for pivoting the brushes to a suitable support, operating means for said brushes, a screen arranged at one side of said supporting means, a gear mounted upon said supporting means, and means extending through said screen, engaging said gearing and adapted when operated to move the brushes into and out of contact with the carriages.

6. In an apparatus for washing railway and tramway carriages, cleaning-brushes adapted to engage the carriages, supporting means for pivoting the brushes to a suitable support, perforated pipes, yokes for connecting said pipes to said supporting means, operating means for said brushes, a gear carried by said supporting means, a screen arranged at one side of said supporting means, means extending through said screen, engaging said supporting means and adapted when operated to move said brushes into and out of contact with the carriages and for simultaneously moving the said pipes, and a track engaged by the said yokes for guiding the same, substantially as herein shown and described.

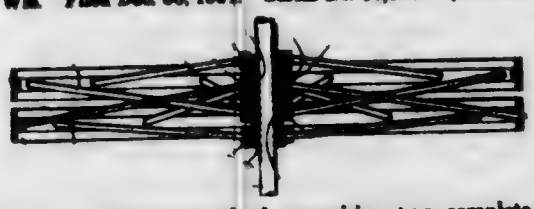
695,256. MANUFACTURE OF STEEL. WILLIAM WHITE, Jr., Pittsburg, Pa. Filed July 11, 1901. Serial No. 67,901. (No specimens.)

Claim.—1. As an improvement in the art of manufacturing steel, the method herein described which consists in charging molten metal into a converter, blowing air through the metal to remove the silicon, neutralizing the heat developed by the burning of the silicon, transferring the desiliconized metal to an open-hearth furnace and subjecting it to the usual or any desired treatment, substantially as set forth.

2. As an improvement in the art of manufacturing steel, the method herein described, which consists in subjecting molten metal to the action of a blast of air for the removal of the silicon, neutralizing the heat developed by the burning of the silicon and finally subjecting the desiliconized metal to treatment in an open-hearth furnace, substantially as set forth.

3. As an improvement in the art of manufacturing steel, the method herein described, which consists in charging molten metal into a converter, forcing air and steam through the metal, transferring the metal when desiliconized to an open-hearth furnace, and treating it therein in the usual or any desired manner, substantially as set forth.

695,257. BAND-SAW WHEEL. THEODORE S. WILKIE, Milwaukee, Wis. Filed Dec. 30, 1901. Serial No. 87,673. (No model.)



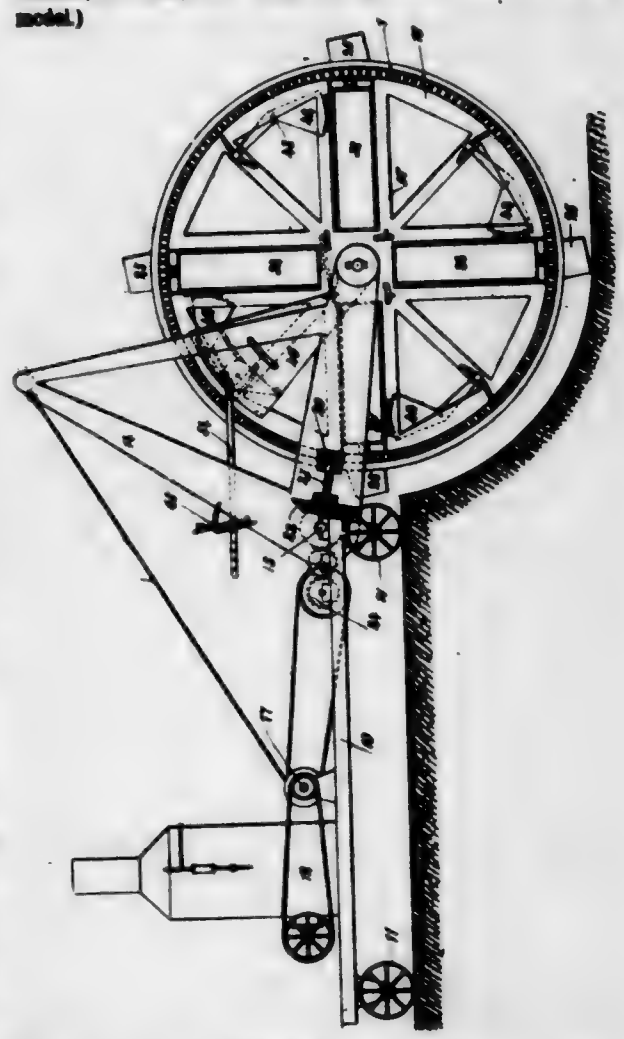
Claim.—1. A band-saw wheel comprising two complete complementary wheel members each wheel member having a plurality of hub members, a hub member of each wheel member being interposed between the hub members of the other wheel member.

2. A band-saw wheel, comprising two complete complementary wheel members each wheel member having a plurality of hub members, a hub member of each wheel member being interposed between hub members of the other wheel member, and distance members securing the separated hub members of one wheel member from each other rigidly, the distance members extending past an interposed hub member of the other wheel.

3. A band-saw wheel, comprising two complete complementary wheel members each wheel member having a plurality of hub members, a hub member of each wheel member being interposed between hub members of the other wheel member, and means for securing the hub members to a shaft adjustably.

4. In combination, a shaft, a band-saw wheel comprising two complete complementary wheel members, each wheel member having two separated hub members, a member of the hub of one wheel member being interposed between the separated hub members of the other wheel member, and means securing the hub members adjustably to the shaft.

695,258. DITCHING AND DREDGING MACHINE. CHARLES E. WILSON, St. Louis, Mo. Filed Sept. 4, 1901. Serial No. 74,575. (No model.)



Claim.—1. The combination with a support, of a wheel mounted thereon, an excavating device carried thereby, and a chute into which the excavating device discharges its load, said chute lying normally in the plane of the wheel and being movable to one side to discharge the material excavated.

2. The combination with a support, of a wheel mounted thereon, an excavating device carried by the wheel, a chute carried by the wheel and receiving the load of the excavating device, the chute normally lying in the plane of the wheel, and means for throwing the chute to project its discharge end laterally beyond the wheel, for the purpose specified.

3. The combination with a support, of a wheel mounted thereon, an excavating device carried by the wheel, a chute mounted on the wheel to receive the load of the excavating device, the chute being movable laterally for the purpose specified, and means controlling the discharge of the excavating device, said means being actuated by the lateral movement of the chute.

4. The combination with a support, of a wheel mounted thereon, an excavating device carried by the wheel, a chute movably mounted on the wheel and receiving the load of the excavating device, means for throwing the chute laterally for the purpose specified, and an operating device for said means, the operating device being mounted stationary with respect to the wheel and having the chute-operating means moved against it by the rotation of the wheel.

5. The combination of a support, a wheel mounted thereon, an excavating device carried by the wheel, a chute carried by the wheel to receive the load of the excavating device, the chute being movable laterally for the purpose specified, means controlling the dumping of the ex-

cavating device, such means being actuated by the movement of the chute, operating means for the chute, and a device held stationary with respect to the wheel against which device the chute-operating means are moved, whereby to actuate them.

6. The combination of a support, a wheel mounted to turn thereon, an excavating device carried on the wheel, a chute carried on the wheel and movable laterally for the purpose specified, a latch for holding the chute within the plane of the wheel, the latch being carried by the wheel, and a member stationary with respect to the wheel against which a part of the latch is movable to release the latch.

7. The combination of a support, a wheel mounted thereon, an excavating device carried by the wheel, a chute mounted on the wheel and movable laterally for the purpose specified, means controlling the dumping of the excavating device, a gear in connection with said means, and a gear-segment carried by the chute and movable into mesh with said gear, whereby periodically to set to operation the means for controlling the dumping of the excavating device.

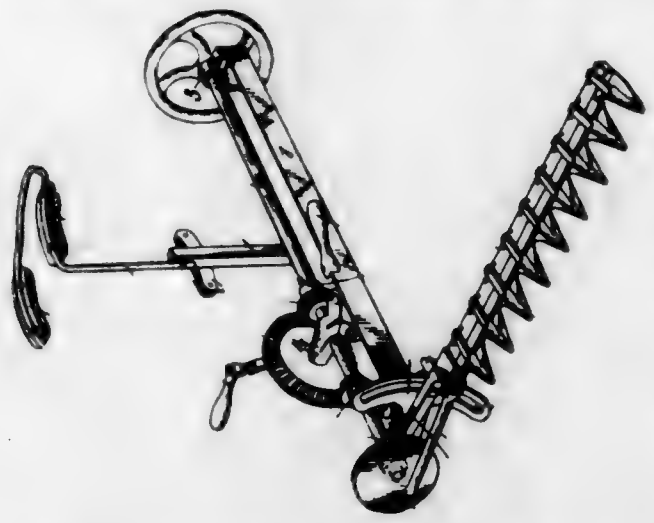
8. The combination with a carrying means, of an excavating device, comprising a section movable to dump the excavating device, a chute receiving the load of the excavating device, a latch for normally holding the movable section of the excavating device in closed position, means for operating the latch, a gear attached to said means, and a gear-segment carried by the chute and movable into mesh with the said gear for the purpose specified.

9. The combination of a support, a wheel mounted thereon, an excavating device carried by the wheel and comprising a movable section, a latch carried by the wheel and holding said section normally closed, a rock-shaft, a connection between the rock-shaft and latch, a gear carried by the rock-shaft, a movable chute carried by the wheel and receiving the load of the excavating device, and a gear-segment on the chute, and movable therewith into mesh with the pinion on the rock-shaft for the purpose specified.

10. The combination with a support, of a wheel mounted thereon, an excavating device carried by the wheel, a chute movably mounted on the wheel and receiving the load of the excavating device, a gear on the chute, a toothed sector carried on the wheel and meshed with the gear, and a means stationary with respect to the wheel for throwing the toothed sector, thereby to tilt the chute.

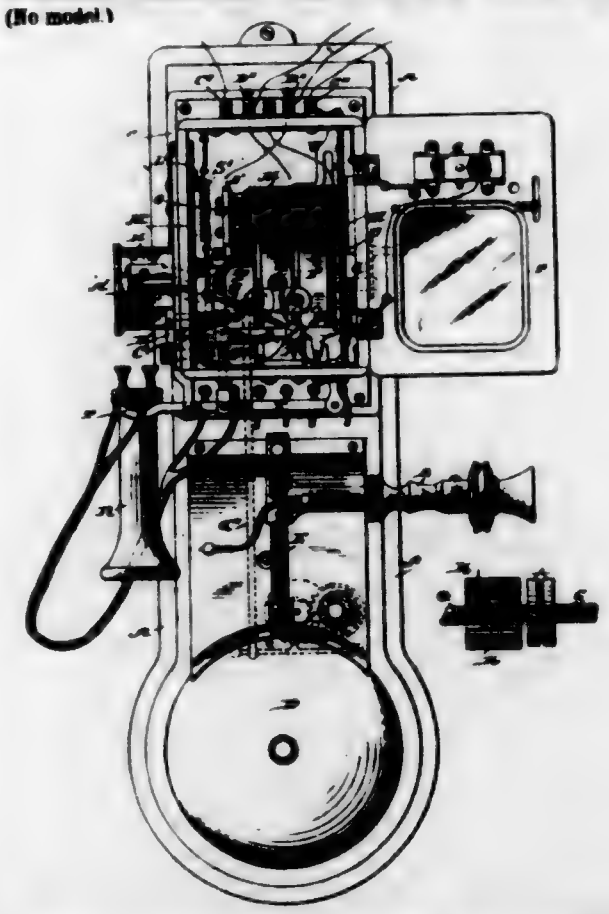
11. The combination with a support, of a wheel mounted thereon, an excavating device carried by the wheel, a tiltable chute carried by the wheel, a gear on the chute, a toothed sector on the wheel and meshed with the gear, and a switch-point adjustably mounted independently of the wheel and against which switch-point a part of the sector is movable, for the purpose specified.

695,259. HEDGE-TRIMMER. ANDREW P. WIMBORN, Leanna, Kans. Filed July 13, 1901. Serial No. 68,197. (No model.)



Claim.—In a hedge-trimmer, the combination with the body carrying bearings, and at one end thereof a plate having an eye in line with said bearings and a sector standing in a plane at right angles to the axis of said bearings, and provided with a slot struck on a curve around said eye, a standard standing at right angles to the body and extending across the same and provided with pads, a clip on the body around the standard, a block between the standard and body, a rod projecting rigidly from the standard and curved to conform with the wearer's shoulders, and pads on the curved portion thereof; of a driving-shaft journaled in the bearings and eye and having a crank, a driving beveled gear mounted in one of said bearings, two driven beveled gears on said main shaft, one of them being fast and the other loose; an arm journaled on the shaft between the eye and crank and extending across said plate, a cutting apparatus carried by this arm, a pitman connecting the apparatus with the crank, and a set-screw in the arm and adjustable within said slot.

695,260. TELEPHONE AND FIRE-ALARM SIGNAL. LEONIDAS G. WOOLLEY, Kenton, Ohio. Filed Dec. 28, 1900. Serial No. 741,315. (No model.)



Claim.—1. In a telephone and fire-alarm signal, a pivoted swinging frame, a spring connected thereto for causing the frame to swing outwardly when the door of the telephone-box is opened or the glass in the door is broken, in combination with a spring-actuated drum, having a projection upon its periphery, the free end of said frame being in contact with the projection on the drum, the short shaft C provided with a lever upon its outer end which is operated by the turning of the drum, and an arm secured to its inner end for forcing the frame outwardly when the short shaft is caused to revolve, substantially as shown.

2. In a telephone and fire-alarm signal, the shaft G made in two parts, the two disks, one of which carries a pawl and the other a ratchet, and which connect the two parts of the shaft together, the spring, the drum H secured to the shaft and provided with a projection, and a handle secured to the opposite end of the shaft for revolving it, combined with a swinging frame, a spring for starting it to move outwardly when the door of the telephone-box is opened or the glass broken therein, and a mechanism operated by the drum for forcing the swinging frame outwardly when the drum is caused to revolve, substantially as set forth.

3. In a telephone, a magneto-electric generator for sending in signals to the central, a spring-actuated mechanism connected to the shaft of the generator, and which is adapted to operate the generator for automatically sending in a signal to central in case of fire, and a swinging automatically-operated frame placed in the box and held pressed inwardly by the door of the telephone-box, and a mechanically-operated alarm which is operated by the outward movement of the swinging frame when the door is opened or the glass in the door is broken, substantially as set forth.

4. In a telephone, a magneto-electric generator for sending signals to central, a spring-actuated mechanism connected to the shaft of the generator, and which will also operate the generator to send in a signal in case of fire, and a pivoted spring-actuated frame which is held pressed inwardly by the door of the telephone, and which frame prevents the spring-actuated mechanism from operating until the door of the telephone-box is opened, or the glass in the door is broken, and a rod or lever operated by the outwardly-moving frame, and a mechanically-operated alarm which is tripped or set off by said rod or lever when the pivoted frame is moved outwardly, substantially as described.

5. In a telephone, a magneto-electric generator, a spring-actuated mechanism connected to the shaft of the generator, and which is adapted to operate the generator when an alarm of fire is to be turned in, a pivoted automatically-operating frame in the box of the telephone, and which prevents the spring-actuated mechanism from operating, and which frame is held pressed inwardly by the door of the telephone-box, and a mech-

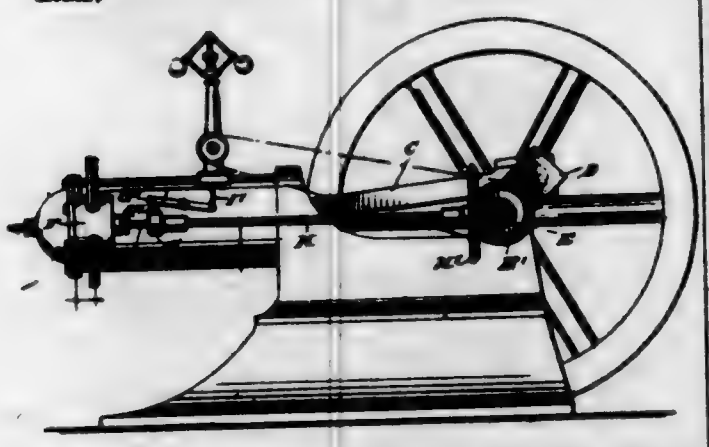
anism operated by said spring-actuated mechanism for forcing the pivoted frame outwardly when the door of the telephone-box is opened, or the glass in the door is broken, substantially as set forth.

6. In a telephone, a magneto-electric generator, a spring-actuated mechanism connected to the shaft of the generator and which is also adapted to operate the generator when a fire-alarm is to be turned in, a pivoted automatically-acting frame pivoted in the telephone-box, and which serves to prevent the spring-actuated mechanism from acting when an alarm of fire is not to be turned in, a mechanism operated by said spring-actuated mechanism for forcing the pivoted frame outward when the door of the telephone-box is opened, or the glass in the door is broken, and a mechanism for raising the lever, upon which the receiver is hung, when an alarm of fire is turned in, and which mechanism for raising the receiver-lever is also operated by the said spring-actuated mechanism connected with the generator, and a mechanically-operated alarm which is tripped or set off by said pivoted frame, substantially as shown.

7. In an apparatus for the purposes described, a magneto-electric generator, a spring-actuated mechanism connected therewith, and adapted to operate the same when a signal or alarm is sent in, a receiver, a lever for sustaining the receiver, means for raising the lever, and a separate mechanism within the box adapted to automatically operate an alarm or signal when the door of the box is opened or the glass is broken, and to set in motion the mechanism for raising the receiver-holding lever as it automatically operates the alarm, all being arranged substantially as shown and described.

8. In a telephone and fire-alarm signal, the spring-actuated drum provided with a projection upon its side, the lever D′ which is operated by the turning of the drum, and which lever is provided with a pin J′, the frame M′ placed in the box and provided with slots L′, N′ at opposite ends, and an extension P′, a spring for raising the frame, and lever L which has its end project through the slot N′, combined with the casting 'T' having a projection U′ which extends outwardly toward the door, the spring W, the pivoted swinging frame to which the spring is secured, the electromagnet M and its armature and the spring V′ secured to the casting, and which serves to operate the armature N in one direction, substantially as shown and described.

695,261. SPEED-REGULATOR FOR EXPLOSIVE-ENGINES. OTTO C. WOVERIN, Dayton, Ohio, assignor of one-half to Edward Berderwisch, Dayton, Ohio. Filed Jan. 30, 1901. Serial No. 45,232. (No model.)



Claim.—1. An explosive-engine having a rotary valve provided with a port adapted to alternately register with an inlet-port and an exhaust-port, and having its stem provided with a disk having a recess on its face, a revolable shaft, a pivoted and spring-pressed arm carried by the shaft and provided intermediate of its ends with a pin adapted to enter the disk of the valve-stem, and a lever for engaging the end of the said arm to operate the same, said lever being under the control of the governor, as set forth.

2. An explosive-engine having a rotary valve, provided with a port adapted to alternately register with an inlet-port and an exhaust-port, a driving connection for said valve, and comprising a disk on the valve-stem and formed with a recess in its face, a shaft rotated from the main driving-shaft of the engine, an arm pivoted on said shaft and having intermediate of its ends a pin adapted to engage said recess, said arm also having a bevel at its end, and a lever under the control of the governor and having at its end a bevel adapted to swing into the path of the bevel on the end of said arm, to swing the latter out of engagement with said disk by the pin of the arm leaving said recess, as set forth.

3. An explosive-engine having a rotary valve, provided with a port adapted to alternately register with an inlet-port and an exhaust-port, a driving connection for said valve, and comprising a disk on the valve-stem and formed with a recess in its face, a shaft rotated from the main driving-shaft of the engine, an arm pivoted on said shaft and having intermediate of its ends a pin adapted to engage said recess, said arm also having a bevel at its ends, a lever under control of the governor and having a beveled end adapted to engage the bevel on said arm, to swing the latter out of engagement with said disk by the pin of the arm leaving said recess, and a spring pressing said arm, to engage the pin with the recess, on the governor-lever swinging out of the path of said arm, as set forth.

4. An explosive-engine having a rotary valve, provided with a port adapted to alternately register with an inlet-port and an exhaust-port, a driving connection for said valve, and comprising a disk on the valve-stem and formed with a recess in its face, a shaft rotated from the main driving-shaft of the engine, a pivoted and spring-pressed arm carried by said shaft and having intermediate of its ends a pin adapted to engage said recess, said arm also having a bevel at its end, and a lever under the control of the governor and having at its end a bevel adapted to swing into the path of the bevel on said arm, to swing the latter out of engagement with said disk by the pin of the arm leaving said recess, said pin and recess being so arranged relatively to said ports that when the pin leaves the recess the rotary-valve port is in register with the exhaust-port, as set forth.

5. In an explosive-engine, a working chamber, a valve-chest, a channel connecting the chest and chamber, a rotary valve having a port adapted to alternately register with an inlet-port and an exhaust-port, a driving mechanism for the valve, a governor controlling the driving mechanism and an igniting device comprising a member projecting from the center of the valve, and a spring-pressed second member secured in the head of the cylinder and extending through the said channel into the valve-chest and into the path of the member carried by the valve.

6. In an explosive-engine, a working chamber, a valve-chest having inlet and exhaust ports, a rotary valve having a port adapted to alternately register with the inlet and exhaust ports, and provided at its end with a disk having a recess in its face, a revolable shaft provided at its end with a slotted casing into which the disk of the valve-stem extends, a pivoted and spring-pressed arm mounted in the casing and having its end projecting out through the slot of the same, said arm being provided intermediate of its ends with a pin adapted to enter the recess of the disk and having a bevel on its projecting end, a pivoted lever having a bevel adapted to engage the bevel of the said arm, and a governor to the stem of which the said lever is pivoted, as set forth.

7. In an explosive-engine, a working chamber, a valve-chest having inlet and exhaust ports, a channel connecting the chest and chamber, a chambered rotary valve open toward the channel and provided with a central projection and with a port adapted to alternately register with the inlet and exhaust ports, a driving mechanism for the valve, a governor controlling the driving mechanism, and an igniting device consisting of an arm on the projection of the valve, an angular and spring-pressed arm secured in the head of the cylinder and extending through the channel into the valve-chest and into the path of the arm carried by the valve, as set forth.

695,262. MAXIMUM THERMOMETER. GILBERT H. ZEAL, London, England. Filed Oct. 30, 1901. Serial No. 80,544. (No model.)



Claim.—1. A maximum thermometer having a compressible glass chamber at its upper end charged with mercury and sealed by the blow-pipe, substantially as herein set forth and for the purpose stated.

2. In a maximum thermometer having a mercury-bulb, a tube communicating therewith, and means for registering the maximum temperature in said tube, the combination therewith of a compressible glass chamber at the upper end of the tube and communicating therewith, a charge of mercury in said compressible chamber, and a small quantity of a gaseous body between the two bodies of mercury, substantially as herein set forth.

3. In a maximum thermometer having a mercury-bulb, a tube communicating therewith, and means for registering the maximum temperature in said tube, the combination therewith of a compressible glass chamber at the upper end of the tube and communicating therewith, a charge of mercury in said compressible chamber, a small quantity of a gaseous body between the two bodies of mercury, and a small chamber or enlargement in the bore of the tube just below the compressible chamber, substantially as herein set forth.

4. In a maximum thermometer having a mercury-bulb, a tube communicating therewith, and means for registering the maximum temperature in said tube, the combination therewith of a compressible glass chamber at the upper end of the tube and communicating therewith, a charge of mercury in said compressible chamber, a small quantity of a gaseous body between the two bodies of mercury, a small chamber or enlargement in the bore of the tube just below the compressible chamber, and another small chamber or enlargement in the bore of the tube a little above the constriction, substantially as herein set forth.

5. In a maximum thermometer having a mercury-bulb, a tube communicating therewith, and means for registering the maximum temperature in said tube, the combination therewith of a compressible glass chamber at the upper end of the tube and communicating therewith, a charge of mercury in said compressible chamber, a small quantity of a gaseous body between the two bodies of mercury, and a small chamber or enlargement of the tube a little above the constriction, substantially as herein set forth.

695,263. SASH-FASTENER. WILLIAM R. ADAMS, Portland, Oreg. Filed June 15, 1901. Serial No. 64,665. (No model.)



Claim.—1. A sash-fastener, comprising a bolt, a finger-lever arranged to throw the bolt, the finger-lever having a projection extending laterally from the axis of its fulcrum, and a spring bearing on said projection to hold the lever in either one of two positions.

2. The combination of a longitudinally-sliding bolt having a groove formed in one side face thereof, a finger-lever lying alongside of the bolt and having its fulcrum disposed transversely thereof, said lever having a part playing loosely in the groove of the bolt, for the purpose specified.

3. The combination of a longitudinally-sliding bolt having a groove formed in one side face thereof, a finger-lever lying alongside of the bolt and having its fulcrum disposed transversely thereof, said lever having a part playing loosely in the groove of the bolt, and the groove in the bolt having a part running transversely therewith and leading into a diagonally-disposed part, for the purpose specified.

695,264. PROCESS OF MANUFACTURING STEEL. THOMAS ANDREW, Richmond, and THOMAS K. BELLIS, London, England. Filed Dec. 13, 1900. Serial No. 39,731. (No specimens.)

Claim.—The process of treating steel which consists in first opening, by the application of heat, the pores or grain of the steel to appreciably expose the carbon of the same; secondly, subjecting said steel, with its pores open and its carbon exposed, to a bath of hydrogen; and, thirdly, finally raising the temperature of the steel, by a second application of heat, and immediately chilling the same precipitously to fix the carbon, substantially as described.

695,265. TUBULAR-RIVET CAP. WILLIAM P. BARTEL, Waltham, Mass., assignor to Judson L. Thomson Manufacturing Company, Waltham, Mass., a Corporation of Maine. Filed Dec. 6, 1901. Serial No. 84,916. (No model.)

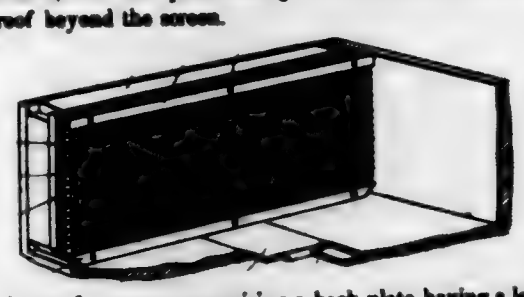


Claim.—A cap for a tubular rivet having a pyramidal spreader, substantially as described.

695,266. MAT FOR PRESSES. CARL G. RAHMSAHTER, Sweet Home, Tex. Filed Oct. 12, 1901. Serial No. 78,430. (No model.)

Claim.—1. A mat for presses comprising a back plate having a longitudinal flange at its lower edge having its upper face concaved, and means upon the face of the plate above the flange and coacting with the flange to receive the foraminous portion of the mat and hold it in spaced relation to the face of the plate.

2. A mat for presses comprising a back plate having vertical ribs and inclosing upper, lower and end flanges, said ribs extending from the upper flange to near the lower flange, the lower flange having a concaved upper face, and the plate having a passage therethrough arranged to conduct liquids from the upper face of the lower flange through the lower edge of the plate, a perforated plate disposed against the flanges and ribs, a press-cloth disposed against the perforated plate, and a screen against the press-cloth, the back plate having a foot projecting from the lower edge thereof beyond the screen.



3. A mat for presses comprising a back plate having a longitudinal flange at its lower edge and having its upper face concaved, spaced ribs upon the face of the plate above the flange, and means coacting with said flange and ribs to hold the foraminous member of the mat in spaced relation to the face of the plate, said plate having a passage arranged to convey liquids from the concaved face of the flange through the lower edge of the plate.

695,267. DOOR-LATCH. ISAAC D. BEACH, Marblehill, Ga., assignor of two-thirds to Robert W. Fisher and Francis M. Wells, Marblehill, Ga. Filed Oct. 4, 1901. Serial No. 77,568. (No model.)



Claim.—1. A latch-bar of wire rod, an integral coiled spring on one end of the latch-bar, an outwardly-looped handle, and a keeper-bar for the latch-bar formed integral with said bar and with the spring and looped handle.

2. The spring-pressed latch-bar, the integral handle formed of a single piece of wire rod, and means to hold the latch-bar free to work on a door, in combination with a rockable tripping-lever adapted to work the latch-bar, and a dog whereon the bar may latch.

3. The spring-pressed latch-bar, the keeper-bar, and looped handle formed of a single piece of wire rod, in combination with a latch-dog comprising a shank and a ring-eye head thereon, engaging the latch-bar.

4. A latch-bar, a spring-coil on one end of the latch-bar, a limb extended from the spring-coil above the latch-bar, a ring-eye at the end of the limb, a depending keeper-bar for the latch-bar and extended from the ring-eye, another ring-eye formed at the lower end of the keeper-bar, and an outwardly-projecting handle-loop having a ring-eye at its lower end, all formed of a single wire rod.

695,268. TELEPHONE-RECEIVER SUPPORT. GEORGE M. BEEBOWER, New York, N. Y. Filed May 27, 1901. Serial No. 62,128. (No model.)

Claim.—1. A telephone-receiver-supporting arm, having a central bore at its outer end, a tube movable in said bore, a receiver-holding shaft extended into the tube, and a spring connection between said shaft and tube, substantially as specified.

2. For connection with a telephone, a receiver-supporting arm connected to move laterally and vertically with relation to the telephone, the said supporting-arm having a central bore at its outer end, a tube adjustable in said bore, a shaft extended into the tube, a spring connection between said shaft and tube, and a clip carried by said shaft for holding the receiver, substantially as specified.

3. For connection with a telephone, a receiver-supporting arm, a casing on one end of said arm, a base-plate on which said casing is mount-

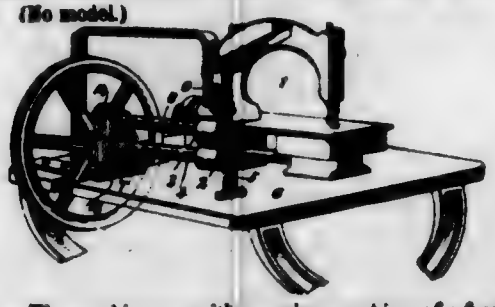
ed to swing, a spring in the casing having one end engaged with the base-plate and the other end connected to the casing, another casing to which the base-plate is attached, a base-plate secured to the telephone-box and upon which the last-named casing is designed to swing, a spring in said last-named casing having connection at one end therewith and at the other end with the last-named base-plate, and a yielding connection between the supporting-arm and the receiver-supporting arm on the telephone, substantially as specified.



4. In connection with a telephone-box, a base-plate, an interiorly-threaded stud extended from the base-plate, a casing mounted to rotate on said base-plate and around the stud, a screw engaging in the stud for holding the casing in place, a spring in the casing having one end attached to the casing and the other end attached to the base-plate, and a receiver-supporting arm having a vertical movement and having connection with said casing whereby the arm may swing laterally, substantially as specified.

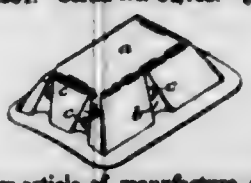
5. In connection with a telephone-box, a base-plate attached to the box, a receiver-supporting arm mounted to swing relatively to the base-plate, a lug extended from the base-plate, and a spring connection between said arm and the switch-arm of the telephone, the said spring passing under the lug, substantially as specified.

695,269. FEEDING MECHANISM FOR SEWING-MACHINES. FREDERICK O. BERG, Spokane, Wash. Filed Aug. 16, 1901. Serial No. 72,255. (No model.)



Claim.—The combination with a sewing-machine, of a feeding-roller having its shaft bearing in standards on the machine-body, a pulley on said shaft, an arm supported on the machine, a brace connection between said arm and the machine-arm, a hanger on said arm and arranged to slide, a spring connection between the arm and hanger, and a roller supported in the hanger above the first-named roller.

695,270. VACCINE-SHIELD. GEORGE M. BEDFORD, Camden, N. J. Filed Dec. 5, 1901. Serial No. 84,768. (No model.)



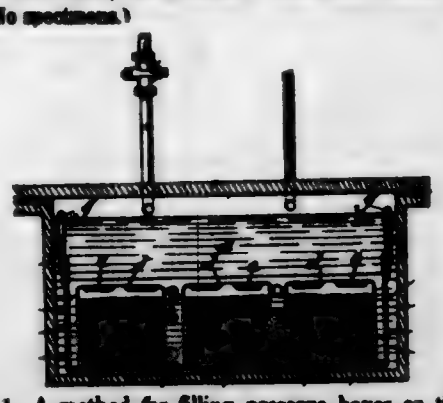
Claim.—1. As a new article of manufacture, a shield for protecting scarified surfaces or other wounds, said shield being shaped to form a crown, and having a base-flange, the side walls of the shield being corrugated, with openings within the corrugations, substantially as described.

2. As a new article of manufacture, a shield for protecting scarified surfaces or other wounds, having a crown and a base-flange and inclined side walls, with corrugations in the side walls only, said corrugations terminating below the crown, substantially as described.

3. As a new article of manufacture, a shield having a base-flange and a crown, inclined side walls having tapered corrugations extending from the base-flange to a point below the crown and openings in the corrugations, substantially as described.

4. As a new article of manufacture, a shield made of celluloid or similar material, having a crown and a base-flange, said base-flange extending entirely around the shield and inclined side walls, with corrugations in the side walls only and perforations within the corrugations, the edge of the crown being rounded so as to provide a smooth surface, substantially as described.

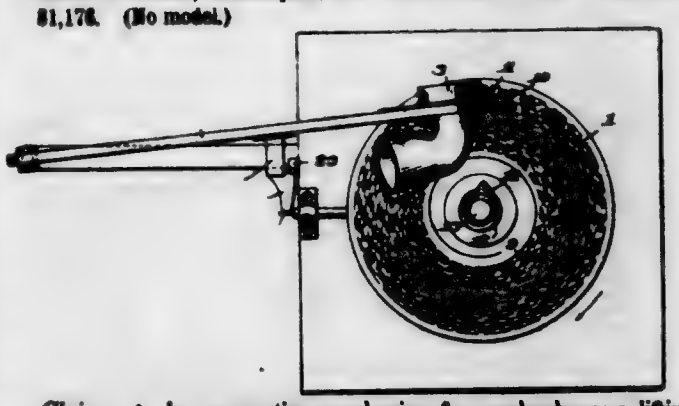
695,271. METHOD OF FILLING PRESERVE-BOXES. EMILE BERTH and LOUIS LUBIN, Paris, France. Filed Nov. 2, 1900. Serial No. 36,255. (No specimens.)



Claim.—1. A method for filling preserve boxes or tins or analogous receptacles with the liquid after having been filled with the solid portion of the preserves and soldered, which method consists in then immersing the boxes or tins so prepared and each having a small hole in its cover in a trough capable of being hermetically closed and containing the liquid to be filled in the boxes, then forming a vacuo as complete as possible in the said trough, and afterward allowing atmospheric air to enter said trough and press on the surface of the liquid so as to compel the liquid to penetrate into the boxes or tins to replace the air exhausted therefrom by the action of the vacuo.

2. A method of filling receptacles with a liquid, which consists in placing the said receptacles in a trough containing the liquid with which they are to be filled and beneath the surface of the liquid, the trough being capable of being closed after the cans have been placed therein, rarefying the air in the said trough to produce a partial vacuum in the receptacles, and then allowing air to enter the trough and press on the surface of the liquid to force the liquid into the receptacles.

695,272. REPEATING MECHANISM FOR PHONOGRAPHS. JOHN J. BILLING, Philadelphia, Pa. Filed Nov. 5, 1901. Serial No. 81,176. (No model.)



Claim.—1. In a repeating mechanism for graphophones a lifting device provided with a spiral incline groove rotatable with the record-table and a projection connected with the reproducer adapted to engage in said spiral incline groove for lifting the reproducer-needle from engagement with the record-table.

2. In a repeating mechanism for graphophones a centrally-located projection from the record-table provided with a spiral incline groove, said groove first contracting and then expanding, and a projection connected with the reproducer adapted to engage with said groove to lift the reproducer-needle from engagement with the record-table and reverse the horizontal movement of said reproducer.

3. In a repeating mechanism for graphophones a centrally-located projection from the record-table provided with a spiral incline groove, said groove first contracting then expanding, a projection connected with the reproducer adapted to engage with said groove to lift the reproducer-needle from engagement with the record-table and reverse the horizontal movement of said reproducer, and frictional means for carrying the reproducer back to the initial position after it leaves said spiral incline groove.

4. In a repeating mechanism for graphophones the combination of a spiral groove in the record-table for coöperating with the needle to continue the movement of the reproducer toward the center of the record-table, a centrally-located post rotatable with the record-table provided with a spiral groove first ascending and contracting then expanding horizontally, a projection connected with the reproducer adapted to engage with said groove to lift the reproducer from the record-table and change its direction of motion, a shoe connected with the reproducer-supporting means and a rotatable shaft adapted to coöperate with the shoe to complete the return movement of the reproducer to the initial position.

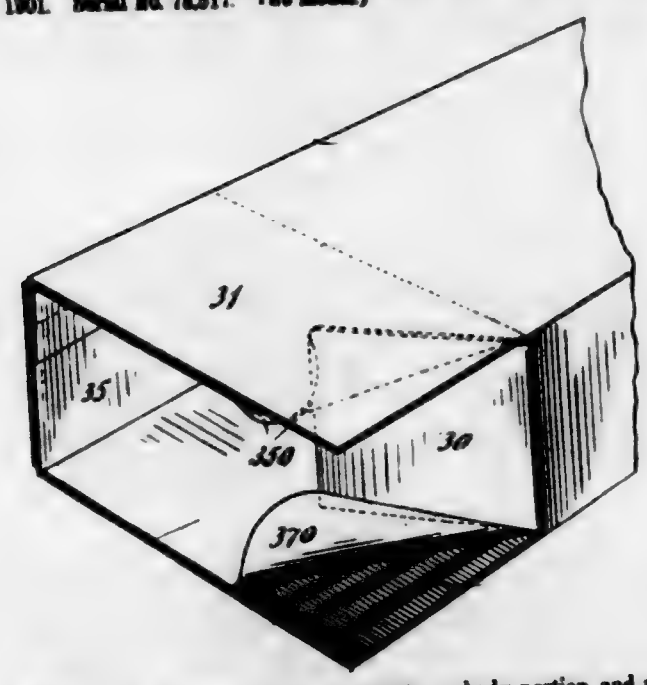
5. In a repeating mechanism for graphophones the combination of a lifting device provided with a spiral incline contracting and expanding groove centrally located and rotatable with the record-table, a projection connected with the reproducer for coöperating with said groove a rotatable shaft and an arm connected with the reproducer-supporting means having frictional engagement with the rotatable shaft.

6. In a graphophone having a horizontal plane-surface record-table, a spirally-grooved post centrally disposed and rotatable with said table, said spiral groove first contracting then expanding, a reproducer-supporting arm, a projection connected therewith to coöperate with the spiral groove, a rotatable shaft and means for communicating motion thereto in connection with the movement of the table and a member connected with the reproducer-supporting arm having frictional engagement with the rotatable shaft after the disengagement of the coöperating projection and spiral groove, substantially as described.

7. In a repeating mechanism for graphophones a rotatable shaft driven by the record-driving mechanism, a friction-shoe connected to the reproducer-supporting arm to coöperate with said rotatable shaft and automatic means for lifting the reproducer out of engagement with the record-table and for carrying the friction-shoe into coöperation with the rotatable shaft.

8. In a repeating mechanism for graphophones a rotatable shaft driven by the record-driving mechanism, a friction-shoe connected to the reproducer-supporting arm to coöperate with said rotatable shaft and automatic means for lifting the reproducer out of engagement with the record-table and for carrying the friction-shoe into coöperation with the rotatable shaft, and an inclined resilient step to limit the return movement of the reproducer and to guide it into the initial position.

695,278. PAPER BOX OR CARTON. ALFRED BERRIE, Springfield, and CHAUNCEY W. GAY, West Springfield, Mass. Filed Oct. 14, 1901. Serial No. 78,517. (No model.)



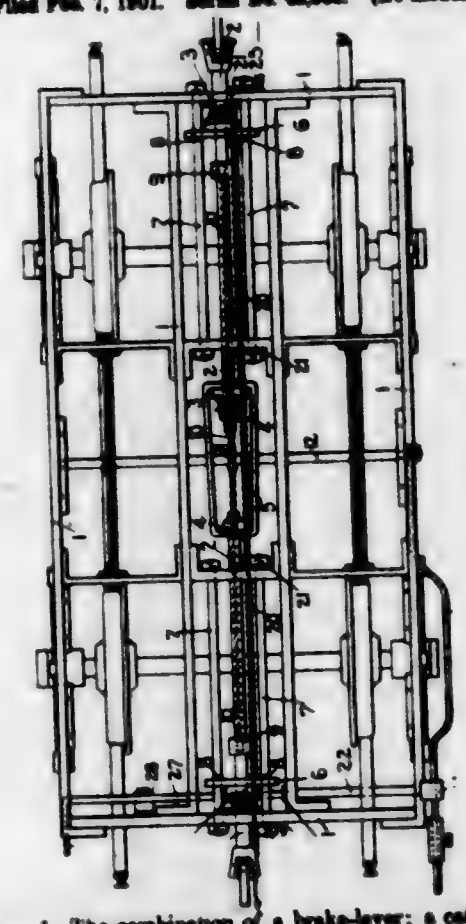
Claim.—1. A box or carton comprising a body portion and marginal flaps at one or both ends, and an inner lining-sheet of non-absorbent material removably adherent thereto whereby in folding down a pair of opposite flaps the lining is adapted to be partly stripped from the adjacent flaps without rupture and turned down onto the plane of the end of the box.

2. A box or carton comprising a body portion and marginal flaps at one or both ends, and an inner lining-sheet of non-absorbent material removably adherent to one of the end flaps whereby in folding down a pair of opposite flaps adjacent to said flap the lining is adapted to be partly stripped from said flap without rupture and folded down onto the plane of the end of the box.

3. A box or carton comprising a body portion and marginal flaps at one or both ends, and an inner lining-sheet of non-absorbent material removably adherent thereto; one pair of opposite folded flaps lying with their extremities in apposition and each having a portion of the lining corresponding to the other opposite flaps lying folded onto their meeting ends; and another pair of box-flaps lying on said latter lining portions.

4. A box or carton comprising a body portion and marginal flaps at one or both ends, and an inner lining-sheet of non-absorbent material removably adherent thereto; one pair of opposite folded end flaps lying with their extremities in apposition and each having a portion of said lining on their inner faces; a flap of the said lining extending from one edge of the body portion adjacent said extremities and overlying a portion of each of said flaps thereby covering their meeting ends; another flap portion of the lining extending from an edge of the body portion opposite said latter edge, and lying partly upon said other flap portion of the lining at said meeting ends; a flap of the body portion of the box adjacent to said first lower lining-flap lying folded down upon said last-mentioned lining-flap and adherent thereto; and another flap of the box overlying said last-mentioned flap.

695,274. MEANS FOR PROVIDING BRAKES TO RAILWAY-VEHICLES. JONATHAN BOWMAN, Petersburg, South Australia, Australia. Filed Feb. 7, 1901. Serial No. 46,202. (No model.)



Claim.—1. The combination of a brake-lever; a catch to support the brake-lever; and a releasing-lever to withdraw the catch and release the brake-lever.

2. In a brake mechanism for vehicles, the combination of a brake-shaft, mounted to rock; a brake-lever rigidly connected with the brake-shaft; means for supporting the brake-lever when in the inoperative position; and a draft device serving to release the brake-lever and permit it to assume a position to apply the brake.

3. In a brake mechanism for vehicles, the combination with a train-chain, of a brake-lever, and means for supporting the brake-lever when in the inoperative position and for releasing the brake-lever when the train-chain is pulled.

4. A brake mechanism for vehicles, comprising draft-rod; brake-applying devices including a brake-shaft; brakes operated by the brake-shaft; a connection between the draft-rod and the brake-shaft, serving the purpose of rocking the said brake-shaft to retract the brakes when the draft-rod is pulled; and a train-chain independent of the draft-rod and serving to release the several brake-applying devices.

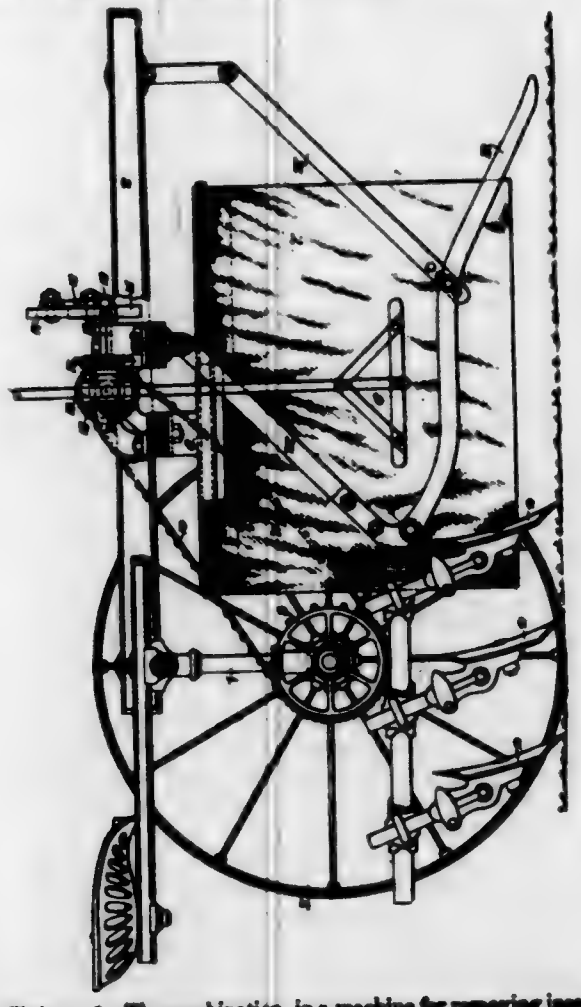
5. In a brake mechanism for vehicles, the combination of a draft-rod; brakes operated by the brake-shaft; a connection between the draft-rod and the brake-shaft, serving the purpose of rocking the said brake-shaft to retract the brakes when the draft-rod is pulled; a train-chain fastened to the body of the vehicle; and a brake-lever secured to the brake-shaft and arranged to apply the brakes when the train-chain is pulled.

6. A brake mechanism for vehicles, comprising a draft-rod; a train-chain fastened to the body of the vehicle; a lever raised by the chain when the latter is pulled; a spring-catch operated in one direction by the lever and in the other direction by the train-chain; and a brake-lever supported, when in an upper position, by the spring-catch.

7. A brake mechanism for vehicles, comprising a draft-rod; lugs on the draft-rod; a brake-shaft; chains connecting the lugs with the brake-shaft; a train-chain attached at one end to the body of the vehicle and at the other end to a winding-drum in the van or on the engine of the train; a lever adapted to be raised when the train-chain is subjected to traction; a pin on the said lever; a spring-catch actuated by the pin when the train-chain is pulled; and a brake-lever supported when in an upper position by the spring-catch.

8. A vehicle-brake mechanism including a brake-lever on one side of the vehicle; means for holding the said lever in an inoperative position; and releasing devices at an end of the vehicle, said releasing devices comprising a transverse hand releasing-lever terminating adjacent to the opposite side of the car, and intermediate devices whereby the releasing-lever will release the brake-lever.

695,275. MACHINE FOR REMOVING INSECT PARASITES FROM VINES OR PLANTS. JOSEPH BRAKELEY, Freehold, N. J. Filed Dec. 10, 1900. Serial No. 39,393. (No model.)



Claim.—1. The combination, in a machine for removing insect parasites from vines or plants, of a supporting-frame, a vibrating beater, means for vibrating the latter, and furrowing blades or teeth following the action of the beater, and serving to bury the insects shaken from the vines or plants by said beater.

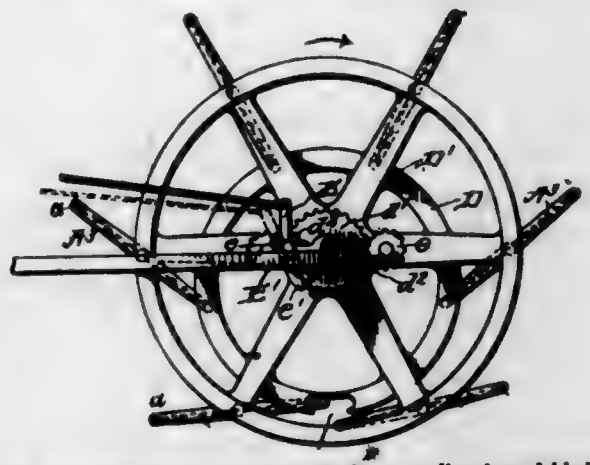
2. The combination, in a machine for removing insect parasites from vines or plants, of a supporting-frame, a vibrating beater-bar forked at the lower end so as to carry a pair of beaters, and means for vibrating said beater-bar.

3. The combination in a machine for removing insect parasites from vines or plants, of a supporting-frame, a vibrating beater, means for vibrating the same, and lifters comprising bars inclined downwardly at their forward ends, terminating near the ground and having elevated portions in the rear of said downwardly-inclined portions whereby said lifters are adapted to run under and raise from the ground fallen plants or vines, thereby supporting the same in the path of the beater, substantially as described.

4. The combination, in a machine for removing insect parasites from vines or plants, of a supporting-frame, a vibrating beater, means for vibrating the same, lifters for raising fallen plants or vines into the path of the beater, furrowing-blades following the action of the beater, and means for hanging said blades and lifters, whereby they can be raised and lowered.

695,276. MARINE PROPELLER. RUSSELL CARMEN, Pittsburg Tex. Filed May 31, 1901. Serial No. 62,809. (No model.)

Claim.—1. In a propeller or motor-wheel, the centrally-pivoted blades, and an eccentric revoluble feathering-wheel arranged to detachably engage the end portions of said blades, and adjustable to vary or reverse the action of said blades, substantially as specified.



2. In a propeller or motor-wheel, the centrally-pivoted blades, having the end projections, and an eccentric revoluble cam or guide way arranged to detachably engage said blade projections to feather the blades, and adjustable to vary or reverse the action of said blades, substantially as specified.

3. In a propeller or motor-wheel, the centrally-pivoted blades, an eccentric revoluble feathering-wheel arranged to detachably engage the end portions of said blades, and means for adjusting said wheel to vary or reverse the action of said blades, substantially as specified.

4. In a propeller or motor-wheel, the opposite revoluble heads, the blades centrally pivoted across the periphery of said heads, and an eccentric revoluble feathering-wheel arranged to detachably engage said blades and adjustable to vary or reverse the action thereof, substantially as specified.

5. In a propeller or motor-wheel, the revoluble heads, the blades centrally pivoted across the periphery of said heads, and having the end projections, an eccentric revoluble cam or guide way arranged to detachably engage the blade projections to feather the blades, and means for adjusting said guideway to vary or reverse the action of said blades, substantially as specified.

6. In a propeller or motor-wheel, the opposite revoluble heads, the blades centrally pivoted across the peripheries of said heads, and having the end projections, the eccentric revoluble cam or guide way between said heads arranged to detachably engage the blade projections, and adjustable to vary or reverse the action of said blades, substantially as specified.

7. In a propeller or motor-wheel, the centrally-pivoted blades, and a revoluble feathering device detachably engaging the end portions of said blades, and adjustable to vary or reverse the action of said blades, substantially as specified.

8. In a propeller or motor-wheel, the centrally-pivoted blades having the end projections, a revoluble feathering device detachably engaging said projections, and means for adjusting said device to vary or reverse the action of the blades, substantially as specified.

9. A submerged motor-wheel, having the pivoted blades arranged across the periphery of said wheel, and having end projections, and the endless eccentric cam or guide ways, having a sleeve connection loosely journaled upon the wheel-shaft, and engaging the end projections of said blades to vary their adjustment, substantially as specified.

10. A submerged motor-wheel, having the pivoted blades arranged across the periphery of said wheel, and having lateral projections or rollers, the endless eccentric cam or guide ways having a sleeve connection loosely journaled upon the wheel-shaft, and engaging the lateral projections of said blades to vary their adjustment, means for adjusting said guideways to vary or reverse the propulsive force of said blades, and for holding said guideways stationary as adjusted, substantially as specified.

11. A submerged motor-wheel, having the pivoted blades arranged across the periphery of said wheel, and having lateral projections or rollers at both sides and at both end portions, the annular eccentric cam or guide way having a sleeve connection loosely journaled upon the wheel-shaft, and engaging the lateral projections of said blades to vary their adjustment, the spur-gear carried by the guideways, the spur-gear loose upon the wheel-shaft and having lateral projections, the double pairs of pinions in mesh with said spur-gears, and carried by the motor-wheel, and the stationary catch device arranged to engage the projections of said spur-gear, substantially as specified.

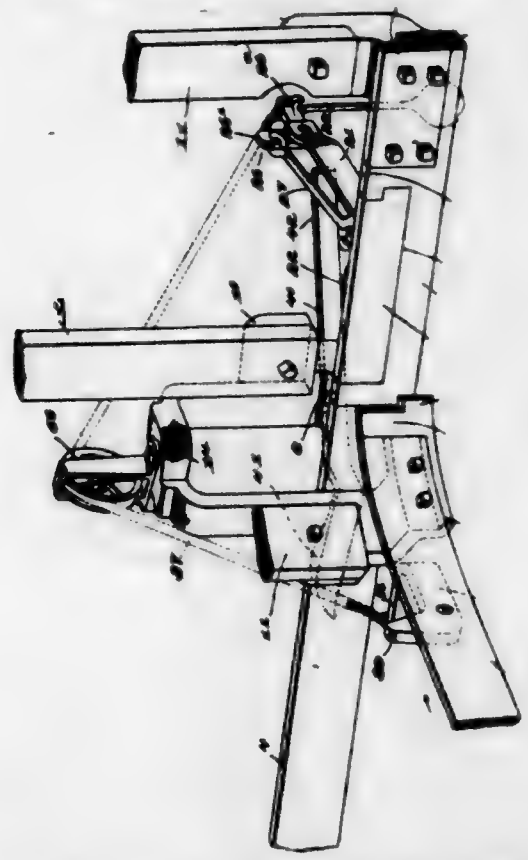
12. The combination with a motor-wheel, having the adjustable blades, of the eccentric endless cam or guide way engaging said blades to vary their adjustment, the spur-wheel carried by said guideway, the spur-wheel loose upon the motor-shaft, and having lateral projections, the double pairs of pinions in mesh with said spur-wheels, and carried by the mo-

tor-wheel, and the stationary catch device arranged to engage the spur-wheel projections, substantially as specified.

13. In a submerged motor-wheel, the opposite heads having the pivoted blades extending between their peripheral portions, and having end projections or rollers, the internal annular eccentric guide or cam way, engaging the end projections of said blades to vary their adjustment, and to reverse their presentation in the course of a single rotation of the wheel, said guideways being arranged to intermittently engage opposite projections of each blade upon successive rotations of the wheel, substantially as specified.

14. In a submerged motor-wheel, the opposite heads, having the pivoted blades extending between their peripheral portions, and having lateral projections or rollers, at both sides and at both end portions, the internal, annular, eccentric guide or cam ways having a sleeve connection loosely journaled upon the motor-shaft, and engaging the lateral projections or rollers of the blades to vary their adjustment, and to reverse their presentation in the course of a single rotation of the wheel, said guideways being arranged to intermittently engage opposite end projections of each blade upon successive rotations of the wheel, and having each an opening to release one such projection, and reëngage the other, substantially as specified.

695,277. OVERHEAD SWITCH. WALTER L. CLARK, Everett, Mass. Filed Aug. 8, 1901. Serial No. 71,233. (No model.)



Claim.—1. In apparatus of the class described, a main rail, two branch rails, a switch to connect said main rail to either branch rail, a bell-crank lever, a link connecting one arm of said lever with the switch, whereby the rocking of said bell-crank operates the switch, and means operated by a carrier moving over the track to actuate said bell-crank, the construction being such that the link and the arm of the bell-crank to which it is attached are in a substantially straight line when the switch is alined with one branch rail, whereby said switch is automatically locked in such position.

2. In an overhead switch, a single, unitary switch-frame having a plurality of rail-sections integral therewith, a switch-tongue pivoted to said frame, and adapted to connect one of said rail-sections to any one of the other sections, rails secured to said frame in alinement with the rail-sections respectively, and means operated by a carrier moving on said rails to actuate the switch-tongue.

3. In apparatus of the class described, a main rail, two branch rails a switch to connect said main rail to either branch rail, a bell-crank lever, a link connecting one arm thereof with the switch, the construction being such that the link and the said arm are in a substantially straight line when the switch is in one extreme position, whereby the switch is automatically locked in such position.

4. In an apparatus of the class described, a main rail, two branch rails, a switch to connect said main rail to either branch rail, a bell-crank lever, a link connecting one arm thereof with the switch and a weighted handle connected to the other arm thereof, the link and the arm of the bell-crank lever to which it is connected being in a substantially straight line when the switch is in one extreme position whereby the switch is automatically locked in such position.

5. In an apparatus of the class described, a main rail, two branch rails, a switch to connect said main rail to either branch rail, a bell-crank lever, a link connecting one arm thereof to the switch, and a weighted handle connected to the other arm thereof, the parts being so constructed that when the switch is in alinement with one branch rail the link and the arm of the bell-crank lever to which it is attached is in a substantially straight line and the point of connection between the weighted handle and the other arm is substantially vertically over the fulcrum of the lever, and when the switch alines with the other branch rail the arm having the weighted handle attached thereto is substantially horizontal whereby the switch is locked in both of its operative positions.

6. In an apparatus of the class described, a main rail, two branch rails, a switch to connect said main rail to either branch rail, a bell-crank lever, a link connecting one arm thereof to the switch, a weighted handle attached to the other arm thereof, a trip connected to one branch rail, connections between said trip and said bell-crank whereby a carrier traveling on said branch rail automatically actuates the trip and throws the switch, the construction of the parts being such that when the switch is in one extreme position the link and the arm of the bell-crank to which it is attached are in a substantially straight line, while in the other position of the switch the arm of the bell-crank to which the handle is attached is horizontal whereby the switch is locked in either position.

7. In an apparatus of the class described, a main rail, two branch rails, a switch to connect said main rail to either branch rail, a bell-crank lever, a link connecting one arm thereof to said switch, a weight attached to the other arm, a trip pivoted to one branch rail and connected to the weighted arm of said bell-crank lever, and a second trip connected to the other branch and adapted to engage the other arm of said lever whereby a carrier traveling on either branch rail will actuate the switch.

8. In an apparatus of the class described, a main rail, two branch rails, a switch to connect said main rail to either branch rail, a bell-crank lever, a link connecting one arm of the latter to the switch, means to actuate said lever in one direction by a carrier traveling on one branch rail, and to actuate said lever in the opposite direction by a carrier traveling on the other branch rail, the construction being such that when the switch is in one extreme position, the link and the arm of the bell-crank to which it is attached are in alinement.

9. In an overhead-switch device, a suspended frame having integral therewith a plurality of diverging rail-sections, rails connected to said rail-sections, and a pivoted switch-tongue adapted to connect one of said rail-sections to either of the other rail-sections.

10. In an overhead-switch device, a suspended frame having integral therewith a plurality of divergent rail-sections, rails connected to said frame and alined with the rail-sections, a pivoted switch-tongue to connect one of said rail-sections to either of the other rail-sections, and means automatically operated by a carrier traveling on one of said rails to actuate the switch.

11. In an apparatus of the class described, a suspended frame including two separated members secured together by an overhanging yoke, two rail-sections integral with one member of said frame and a diverging rail-section integral with the other member thereof, rails secured to said frame in alinement with said rail-sections and a pivoted switch to connect one of said rail-sections with either of the other rail-sections.

12. In an apparatus of the class described, a suspended frame having two separated members rigidly connected together, one of said members having a cut away portion to form at each end a rail-section, and the other of said members having a diverging rail-section, rails secured to said frame in alinement with the rail-sections, a switch-tongue pivoted to the first-named member and adapted to connect one of the rail-sections thereon to either of the other rail-sections.

13. In an apparatus of the class described, a suspended frame having two separated members rigidly connected together, one of said members having a cut-away portion to form at each end a rail-section and the other of said members having a diverging rail-section, rails secured to said frame in alinement with the rail-sections, a switch-tongue pivoted to the first-named member and adapted to connect one of the rail-sections thereon to either of the other rail-sections, said switch having a horizontally-disposed fin or web engaging the bottom of the cut-away portion and serving as a guide and support for said switch-tongue.

14. In an overhead switch, a frame presenting a unitary structure and to which the rails are attached, a switch-tongue pivoted to the frame and hangers detachably connected to said frame to support the same.

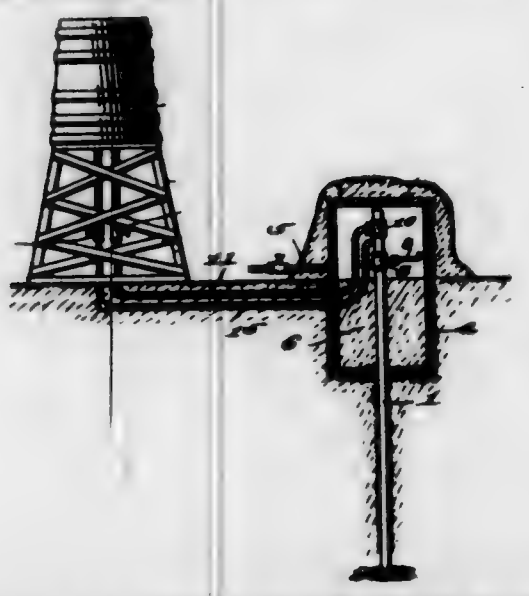
15. In an overhead switch, a unitary frame comprising a shoe member, and a branch member separated from the shoe member but rigid therewith, and hangers detachably connected to said frame to support the same.

16. In an overhead switch, a unitary frame to which the rails are attached, a switch-tongue pivoted to the frame, said frame having integral therewith offset ears or lugs, and hangers detachably secured to said lugs.

17. In an overhead switch, a frame to which the rails are attached, said frame comprising a shoe member and a branch member separated from the shoe member but rigidly connected thereto, offset ears or lugs integral with said frame, and hangers detachably secured to said lugs.

18. In an overhead-switch device, a suspended frame having integral therewith a plurality of diverging rail-sections, rails secured to said frame in line with the rail-sections, and a pivoted switch-tongue adapted to connect one of said rail-sections to either of the other rail-sections.

695,278. APPLIANCE FOR PROTECTING OIL-WELLS FROM FIRES. JAMES M. COCHRAN, Sober, Tex. Filed Nov. 23, 1901. Serial No. 83,454. (No model.)



Claim.—1. In an appliance for protecting oil-wells, the combination with the oil-well pipe or casing, of a water-tank surrounding the upper portion thereof, a protective covering for the said tank, a reservoir, and suitable connections between the said reservoir and the tank and oil-well pipe or casing.

2. In an appliance for protecting oil-wells from fire, the combination with the oil-well pipe or casing, a water-tank surrounding the upper portion of said pipe or casing and adapted to extend below and project above the earth's surface, a protective covering for the said tank, a reservoir, a pipe connection between the reservoir and the said oil-well pipe or casing, and a pipe connection between the reservoir and the said tank.

3. In an appliance for protecting oil-wells from fire, the combination with the oil-well pipe or casing, of a water-tank adapted to surround the upper portion of said pipe or casing, and a protective covering for the said tank.

4. In an appliance for protecting oil-wells from fires, the combination with an oil-well pipe or casing and a cut-off valve suitably arranged therein, of a tank surrounding the upper portion of said oil-well pipe or casing, means for supplying water to the said tank, and means for supplying water to the pipe or casing above the cut-off valve.

5. In an appliance for protecting oil-wells from fires, the combination with an oil-well pipe or casing and a cut-off valve suitably arranged therein, of a tank surrounding the upper portion of said oil-well pipe or casing, means for supplying water to the said tank, means for supplying water to the pipe or casing above the cut-off valve, and a protective covering for the said tank.

6. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a tank surrounding the upper portion thereof, and means for supplying water to the said tank.

7. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a tank surrounding the upper portion thereof, means for supplying water to the said tank, and a protective covering for the said tank.

8. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a water-tank suitably surrounding a portion of the pipe or casing, a cover for the said tank, means for supplying water to the said tank, and a protective covering for the said tank.

9. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a tank suitably surrounding a portion of the pipe or casing, means for supplying water to the tank, and a protective covering for the tank.

10. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a tank suitably surrounding a portion of the said pipe or casing, a cut-off valve connected to said pipe or casing, means for suitably supplying water to said pipe or casing, and means for suitably supplying water to the said tank.

11. In combination, an oil-well pipe or casing, a cut-off valve arranged therein, a protecting means surrounding the upper portion of said pipe and in which is mounted the said valve, and means for suitably supplying water to said protecting means and said pipe.

12. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a protecting means surrounding the upper portion of said pipe, and means for supplying water to the said protecting means.

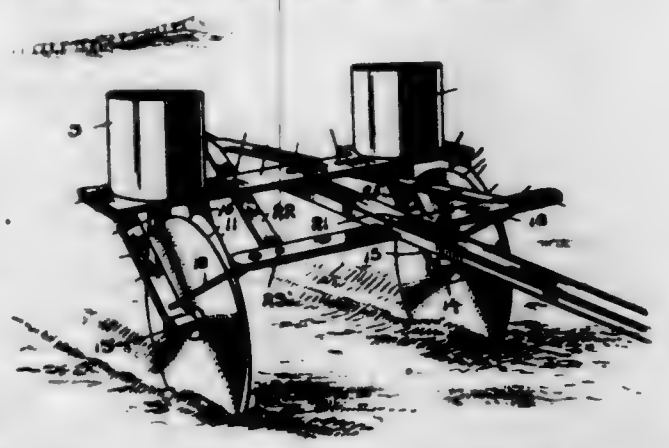
13. In an appliance for protecting oil-wells from fires, the combination with the oil-well pipe or casing, of a protecting means surrounding the upper portion of said pipe, and a quantity of earth within the said protecting means.

14. In combination, an oil-well pipe or casing, a cut-off valve arranged therein, a protecting means surrounding a portion of said pipe, means for suitably supplying water to said protecting means in said pipe, and a quantity of earth arranged within the protecting means.

15. In combination, an oil-well pipe or casing, a cut-off valve therefor, a shell surrounding a portion of the pipe, means for supplying water to the pipe and shell, a protective covering for the shell, and a quantity of earth mounted within the shell.

16. In an appliance for protecting oil-wells from fires, the combination with an oil-well pipe or casing, of a shell surrounding the same, a protective covering for the shell, and a quantity of earth suitably arranged within the shell.

695,279. CORN-PLANTER. BERTIE COLE, Dalesburg, S. D. Filed July 20, 1901. Serial No. 69,124. (No model.)



Claim.—1. The combination with a pair of converging colters, of a furrow-cutting shoe located between the colters, having an upwardly-extending cutter, and the inner colter-scrapers secured to the upper end of the cutter of the shoe.

2. The combination with a pair of converging colters, of a seed-delivery chute crimped at its front edge, a furrow-cutting shoe having an upwardly-extending cutter, side strips, and means whereby the front edge of the chute, the shoe and the strips are secured together.

3. The combination with a pair of converging colters, of a seed-delivery chute, a furrow-cutting shoe having an upwardly-extending cutter, means whereby the chute and shoe are secured together, and the inner colter-scrapers secured to the upper end of the cutter of the shoe.

695,280. CAR-COUPLING. WILLIAM H. CORNELL, Grand View, S. D. Filed Oct. 18, 1901. Serial No. 78,255. (No model.)

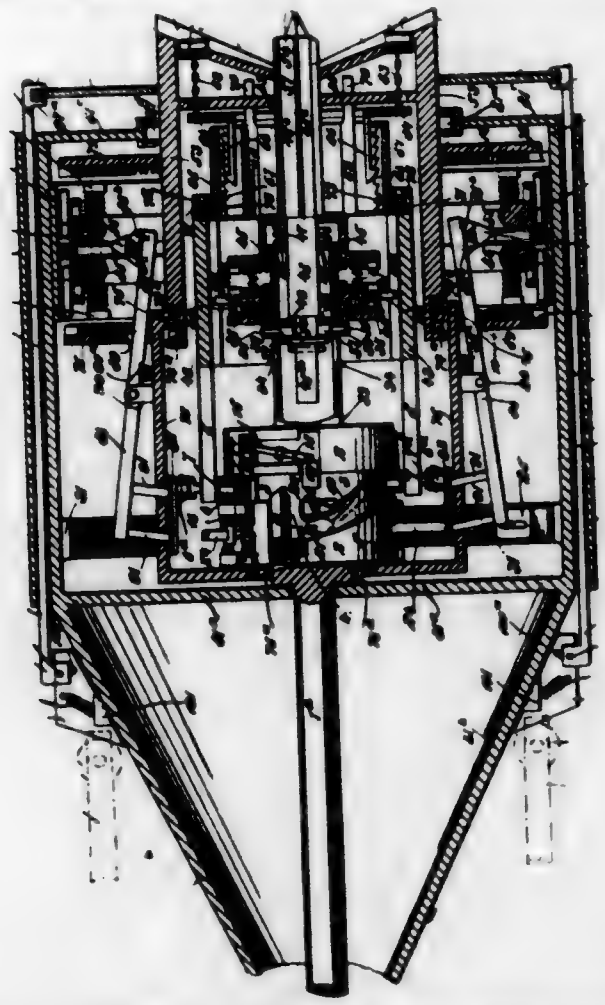
Claim.—1. A coupling comprising a draw-head; swinging coupling-arms mounted on the draw-head; a projection on the draw-head with which the coupling-arms of an opposing draw-head engage when the two draw-heads are brought together; means for holding the coupling-arms in coupling position; and springs connecting the coupling-arms with the draw-head, said springs serving to hold the coupling-arms normally distended.

2. A coupling, comprising a draw-head with swinging, spring-controlled arms mounted thereon; a flange on the draw-head with which the coupling-arms of the opposing draw-head engage when the draw-heads are brought together; a ring located within the coupling-arms and connected therewith; hooks on the ring and hooks within the draw-head with which the ring-hooks engage in coupling.

3. A coupling having a draw-head with swinging, spring-controlled arms mounted thereon; a coupling-head within the draw-head; and operating devices between the coupling-arms and the coupling-head, said operating devices serving to move the coupling-head outward and draw the coupling-arms inward to coupling position when the draw-heads are brought together.

4. A coupling, having a draw-head on which coupling-arms are mounted to swing, a coupling-head inclosed by the draw-head, said coup-

ling-head comprising a casing having hollow teeth at its outer end and spring-controlled catches mounted in the teeth, the teeth of one coupling-head being adapted to interlock with the teeth of an opposing coupling-head, and spring-controlled catches to engage the spring-controlled catches of the opposing coupling-head.



5. A coupling, having a draw-head; coupling-arms mounted to swing on the draw-head; a ring located within and connected within the coupling-arms, said ring having hooks; hooks with the draw-head, said hooks being adapted to engage the ring-hooks; a coupling-head mounted to move within the draw-head; and operating devices serving to move the coupling-head outward to engage an opposing coupling-head when the ring is moved inward by impact with a ring of an opposing coupling.

6. A coupling, comprising a draw-head; coupling-arms mounted to swing on the draw-head; a coupling-head within the draw-head; and operating devices between the coupling-arms and the coupling-head, whereby the coupling-head is caused to move forward to meet the opposing coupling-head when the coupling-arms are swung inward.

7. A coupling, comprising a draw-head; coupling-arms pivoted to the draw-head; a coupling-head mounted within the draw-head; a ring connected with the coupling-arms; a rack-bar connected with the ring and extended within the draw-head; and a second rack-bar actuated by the first-named rack-bar for the purpose of forcing the coupling-head outward when the ring is moved inwardly.

8. In a coupling, the combination with a drum having a circumferential guide, a longitudinal guide intersecting the said circumferential guide, a guide angularly disposed with relation to the other two guides and connecting the same, and spring-actuated barriers arranged in relation to the guides; of a cylinder movable longitudinally and revolubly with respect to the drum, arms projecting from the cylinder and embracing the drum, and rollers on the arms, said rollers having movement in the guides of the drum and being adapted to be locked by the barriers to the drum.

9. In a coupling, the combination with a drum having a circumferential guide, a longitudinal guide communicating with the circumferential guide, a guide angularly disposed with relation to the other two guides and connecting the same, and barriers arranged in relation to the circumferential guides, said barriers comprising a spring-controlled bolt adapted to move in a longitudinal groove in the drum and connected with one end of a pivoted lever, a bolt with which the other end of the lever is connected to be actuated in unison with the first-named bolt, and a spring-controlled bolt arranged to move longitudinally in the drum between the two first-named bolts; of a cylinder movable longitudinally and revolubly with respect to the drum, arms projecting from the cylinder and embracing the drum, and rollers carried by the arms, said rollers having movement in the guides of the drum and being adapted to be locked between the second and third mentioned bolts after having pressed aside the first-mentioned bolt.

10. The combination of a drum having a guideway; a member adapted to be coupled to the drum, said member having its parts received in the guideway; movable barriers for engaging the parts received in the guideway; and means for actuating the barriers to lock or release the parts received in the guideway.

11. In a coupling, coupling-sections which comprise a coupling-head mounted to move longitudinally, and longitudinally-ranging operating devices movable beyond the coupling-head for impact against similar operating devices on an opposing coupling-section; and means acting on the coupling-head and actuated by the said longitudinally-ranging operating devices, to force the coupling-head outward into engagement with the opposing coupling-head.

12. In a coupling, coupling-sections which comprise a coupling-head mounted to move longitudinally, and longitudinally-ranging operating devices movable beyond the coupling-head for impact against similar operating devices on an opposing coupling-section; means acting on the coupling-head and actuated by the said longitudinally-ranging operating devices, to force the coupling-head outward into engagement with the opposing coupling-head; and a retractile spring for returning the coupling-head to inner position.

13. In a coupling, coupling-sections which comprise a coupling-head mounted to move longitudinally, and longitudinally-ranging operating devices movable beyond the coupling-head for impact against similar operating devices on an opposing coupling-section; means acting on the coupling-head and actuated by the said longitudinally-ranging operating devices, to force the coupling-head outward into engagement with the opposing coupling-head; and means for disengaging the coupling-head.

14. A coupling, comprising a draw-head; arms mounted to swing on the draw-head; a coupling-head mounted to have longitudinal movement in the draw-head; operating devices for simultaneously causing the coupling-head to move forward and the coupling-arms to swing inward when two draw-heads are brought together; a drum having a guideway and movable barriers for the guideway; a member arranged to be held between the barriers of the drum-guideway; means for actuating the barriers to lock or release the said member; and means for locking the drum member and the coupling-head together.

15. A coupling, comprising a draw-head; swinging spring-controlled coupling-arms mounted on the draw-head; a ring connected with the coupling-arms; a longitudinally-movable coupling-head within the draw-head; operating devices actuated by the ring for simultaneously forcing the coupling-head forward to engage the coupling-head, and the coupling-arms inward; a drum having guides and movable barriers for the guides; a cylinder, an operative connection between the cylinder and the coupling-head; and arms projecting from the cylinder and embracing the drum, said arms having parts adapted to be locked in barriers in the drum and arranged, when moved longitudinally on the drum, to release the coupling-head from the opposing coupling-head.

16. In a coupling, the combination of a coupling-head having hollow teeth adapted to interlock with the teeth of an opposing coupling-head; catches mounted in the hollow teeth and arranged to engage the catches in the teeth of an opposing coupling-head; a pin on which the coupling-head is arranged to slide, a cylinder, a clutch for connecting or disconnecting the cylinder and pin; a connection between the catches of the coupling-head teeth and the said cylinder; and means for longitudinally moving the cylinder to retract the said catches, whereby the coupling-head is released from the opposing coupling-head.

17. In a coupling, the combination of a longitudinally-movable coupling-head having teeth; catches in the teeth; a cylinder having arms; operating devices for retracting the catches, said operating devices being actuated by a longitudinal movement of the cylinder; and a rotatable drum having arms, and barriers between which the cylinder-arms are locked in the guides, the drum when turned in one direction causing the arms to move the cylinder longitudinally in order to retract the catches of the coupling-head teeth.

18. In a coupling, the combination of a drum having guides and barriers for the guides; a casing for the drum revolubly therewith; a coupling-head having hollow teeth adapted to interlock with the teeth of an opposing coupling-head; spring-pressed catches in the teeth, said catches being adapted to engage similar catches in the teeth of an opposing coupling; means for connecting or disconnecting the drum-casing and the coupling-head; and a cylinder between the drum and the drum-head, said cylinder being connected with the catches of the coupling-head and with the arms received in the guides of the drum, said arms when moved longitudinally on the drum serving to disconnect the catches of the one coupling-head from the catches of the opposing coupling-head.

19. A coupling, comprising a draw-head, swinging, spring-controlled members mounted on the draw-head; a coupling-head mounted to rotate and to reciprocate in the draw-head, said coupling-head having hollow teeth adapted to interlock with the teeth of an opposing coupling-head;

a ring connected with the members on the draw-head, operating devices actuated by the ring on impact with the ring of an opposing coupling to draw the members on the draw-head inwardly and to force the coupling-head outwardly into engagement with the opposing coupling-head; a pin on which the coupling-head is carried; a clutch operated in one direction by the pin and in the other direction by a spring; a drum having guides and movable barriers for the guides; arms received in the guides of the drum and arranged to retract the catches of the coupling-head teeth when moved longitudinally inward on the drum, the barriers of the drum serving to lock the arms in the guides; a casing inclosing the drum; a circular rack mounted on the said casing; a circular rack mounted on the coupling-head; and operating devices for connecting or disconnecting the two circular racks, said devices being actuated by the arms to connect or disconnect the coupling-head and drum-casing.

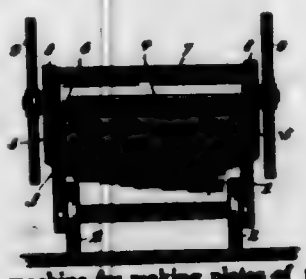
20. In a coupling, the combination of a coupling-head having teeth; spring-pressed catches mounted in the teeth; a pin on which the coupling-head is carried; a drum having guides, and barriers for the guides; a cylinder between the drum and the coupling-head, said cylinder having arms, portions of which are received in the guides and locked between the barriers, the cylinders serving as means for retracting the catches; a casing for the drum; a circular rack on the said casing; a circular rack on the coupling-head; a locking connection between the two racks, and means for releasing the said locking connection, said means being actuated by the arms in the drum-guides.

21. In a coupling, the combination with a drum having a circumferential guide, a longitudinal guide, an annularly-disposed guide connecting the other two guides, and movable barriers for each of the guides; of a spring-pressed rack slidably mounted in the drum and arranged to hold the barriers of the circumferential guide in one position; a rock-arm connected at one end with the said rack, and a circular rack surrounding the drum, against which circular rack the other end of the rock-arm abuts, the rock-arm serving to operate the drum-rack so that the barriers of the circumferential guide of the drum may return to their normal positions.

22. A coupling, comprising a draw-head, swinging, spring-controlled arms mounted on the draw-head; a coupling-head mounted within the draw-head; a casing surrounding the coupling-head, through which casing the coupling-head projects; operating devices whereby the arms on the draw-head are drawn inwardly and the coupling-head and its casing forced outwardly during coupling; and a retractile spring serving the purpose of drawing the coupling-head and its casing back into inoperative position

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695,281. MACHINE FOR MAKING PRISMATIC GLASS. GEORGE K. CUMMINGS, New York, N. Y. Filed May 18, 1900. Serial No. 681,010. (No model.)



Claim.—1. In a machine for making plates of prismatic glass the combination of a revolving plain roller and a supporting-table provided with parallel ribs of a prismatic form corresponding to the depressions to be made in the glass, the said parts having a traversing motion relatively to each other.

2. In a machine for making plates of prismatic glass the combination of a revolving plain roller and a supporting-table provided with parallel ribs of a prismatic form corresponding to the depressions to be made in the glass, the said parts having a traversing motion relatively to each other, the ribs on the table running in a direction parallel to the direction of the traversing movement of the roller and table relatively to each other.

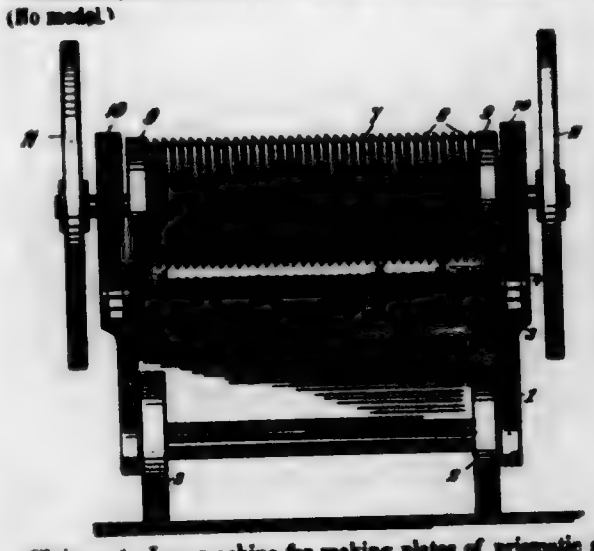
3. In a machine for making plates of prismatic glass the combination of a revolving plain roller and a supporting-table provided with parallel ribs triangular in cross-section, the said parts having a traversing motion relatively to each other.

4. In a machine for making plates of prismatic glass, the combination of a plain revolving roller and a supporting-table provided with continuous ribs parallel with the direction of motion of the movable part and triangular in cross-section and having a cutting edge at their outer angle extending in a direction toward said roller, one of the parts being movable upon the other, substantially as set forth.

5. In a machine for making plates of prismatic glass, the combination of a plain revolving roller and a supporting-table provided with continuous ribs parallel with the direction of motion of the movable part and triangular in cross-section and having a cutting edge at their outer angle extending in a direction toward said roller, the roller being movable on the table, substantially as set forth.

6. The combination of the roller 7, the gear-wheels 8, the table provided with the ribs 4 triangular in cross-section and having a cutting edge at their outer angle extending in a direction toward said roller, the racks 5, and the strips 6, substantially as set forth.

695,282. MACHINE FOR MAKING PRISMATIC GLASS. GEORGE K. CUMMINGS, New York, N. Y. Filed May 18, 1900. Serial No. 681,011. (No model.)



Claim.—1. In a machine for making plates of prismatic glass, the combination of a revolving roller, a supporting device to hold the glass against the roller, the said parts having a traversing motion relatively to each other, one of said parts being provided with parallel ribs of a prismatic form corresponding to the depressions to be made in the glass.

2. In a machine for making plates of prismatic glass, the combination of a revolving roller, a supporting device to hold the glass against the roller, the said parts having a traversing motion relatively to each other, one of said parts being provided with parallel ribs of a prismatic form corresponding to the depressions to be made in the glass, the said ribs running in a direction parallel to the direction of the traverse movement of the roller and supporting device relatively to each other.

3. In a machine for making plates of prismatic glass, the combination of a revolving roller, a supporting device to hold the glass against the roller, the said parts having a traversing motion relatively to each other, one of said parts being provided with parallel ribs triangular in cross-section.

4. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with parallel ribs of a prismatic form corresponding to the depressions to be made in the glass, a supporting device to hold the glass against the roller, the said parts having a traversing motion relatively to each other.

5. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with continuous annular ribs, angular in cross-section, and a supporting device to hold the glass against the roller, one of the parts being movable relatively to the other.

6. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with continuous parallel annular ribs angular in cross-section, and a supporting device to hold the glass against the roller, one of the parts being movable relatively to the other, and the plane of the ribs on the roller being parallel with the direction of motion of the movable part.

7. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with continuous annular ribs triangular in cross-section and having a cutting edge at their outer angle, and a supporting device to hold the glass against the roller and said cutting edges extending in a direction toward said supporting device, one of the parts being movable upon the other, substantially as set forth.

8. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with continuous parallel annular ribs triangular in cross-section and having a cutting edge at their outer angle, and a supporting device to hold the glass against the roller and said cutting edges extending in a direction toward said supporting device, one of the parts being movable upon the other, the plane of the ribs on the roller being parallel with the direction of motion of the movable part, and perpendicular to the axis of the roller, substantially as set forth.

9. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with continuous parallel annular ribs triangular in cross-section and having a cutting edge at their outer angle, and a supporting-table to hold the glass against the roller said cutting edges extending in a direction toward said supporting-table, the roller being movable on the table, substantially as set forth.

10. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with continuous parallel annular ribs

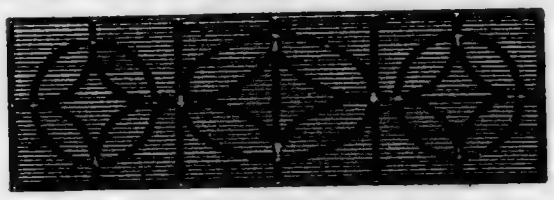
triangular in cross-section and having a cutting edge at their outer angle, and a supporting-table to hold the glass against the roller said cutting edges extending in a direction toward said supporting-table, the roller being movable on the table and the plane of the ribs on the roller being parallel with the direction of motion of the roller, and perpendicular to the axis of the roller, substantially as set forth.

11. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with continuous parallel annular ribs triangular in cross-section and having a cutting edge at their outer angle, and a supporting-table provided with parallel ribs, one of the parts being movable with reference to the other, the plane of the ribs on the roller and the table being parallel with the direction of motion of the movable part, and the plane of the ribs on the roller being perpendicular to the axis of the roller, substantially as set forth.

12. In a machine for making plates of prismatic glass, the combination of a revolving roller provided with continuous parallel annular ribs triangular in cross-section and having a cutting edge at their angle, and a supporting-table provided with parallel ribs, one of the parts being movable with reference to the other, the plane of the ribs on the roller and the table being parallel with the direction of motion of the movable part, the ribs of the table being directly opposite the ribs of the roller, and the plane of the ribs on the roller being perpendicular to the axis of the roller, substantially as set forth.

13. The combination of the roller 7, provided with the ribs 8 triangular in cross-section and having a cutting edge at their outer angle, the gear-wheels 10, the table 3 provided with the ribs 6 directly opposite the ribs 8 of the roller, the racks 4, and the stripe 5, substantially as set forth.

695,283. METHOD OF MAKING SHEETS OR PANES OF PRISMATIC GLASS FOR USE IN MAKING PRISMATIC WINDOWS. Geo. K. CUMMINGS, Center Rutland, Vt. Original application filed Aug. 15, 1898, Serial No. 688,573. Divided and this application filed Nov. 30, 1901. Serial No. 84,207. (No specimens.)



Claim.—1. The method of making panes of prismatic glass adapted to form prismatic windows which consists in rolling the molten glass into a sheet having prismatic projections of the desired outline on the surface, annealing the sheet, and cutting the sheet into one or more panes of the desired outline, substantially as set forth.

2. The method of making panes of prismatic glass adapted to form prismatic windows which consists in rolling the molten glass into a sheet having parallel prismatic projections of the desired outline on the surface, annealing the sheets, and cutting the sheet into one or more panes of the desired outline, substantially as set forth.

3. The method of making panes of prismatic glass adapted to form prismatic windows which consists in melting the glass until it is of the proper consistency, stirring it just before it is rolled so as to make the mass homogeneous in temperature, rolling the molten glass into a sheet having prismatic projections of the desired outline on the surface, annealing the sheet, and cutting the sheet into one or more panes of the desired outline, substantially as set forth.

4. The method of making panes of prismatic glass adapted to be assembled and glazed together to form prismatic windows which consists in rolling the molten glass into one or more sheets, having parallel prismatic projections of the desired outline on the surface, annealing the sheet or sheets, cutting the sheet or sheets into panes of the desired outline and in such a manner that when the panes are combined to form the window, the prismatic projections of all the panes will be parallel, substantially as set forth.

5. The method of making panes of prismatic glass adapted to be assembled and glazed together to form prismatic windows which consists in rolling the molten glass into one or more sheets having parallel prismatic projections of the desired outline on the surface, annealing the sheet or sheets, applying patterns of the separate panes to the sheet or sheets and cutting the panes out according to said patterns, substantially as set forth.

6. The method of making panes of prismatic glass adapted to be assembled and glazed together to form prismatic windows which consists in rolling the molten glass into one or more sheets, having parallel prismatic projections of the desired outline on the surface, annealing the sheet or sheets, applying patterns of the separate panes to the sheet or sheets in such a way that the prismatic projections of all the panes will run in a predetermined direction with reference to one another when the panes are assembled to form the window, and cutting the panes out according to said pattern, substantially as set forth.

7. The method of making panes of prismatic glass adapted to be assembled and glazed together to form prismatic windows which consists in rolling the molten glass into one or more sheets, having parallel prismatic projections of the desired outline on the surface, annealing the sheet or sheets, applying patterns of the separate panes to the sheet or sheets in such a way that the prismatic projections of all the panes will be parallel when the panes are assembled to form the window and cutting the panes out according to said patterns, substantially as set forth.

8. The method of making panes of prismatic glass adapted to be assembled and glazed together to form prismatic windows, which consists in melting the glass until it is of the proper consistency, stirring it just before it is rolled so as to make the mass homogeneous in temperature, rolling the molten glass into one or more sheets having prismatic projections of the desired outline on the surface, annealing the sheet or sheets, applying patterns of the separate panes to the sheet or sheets, and cutting the panes out according to the said patterns, substantially as set forth.

695,284. METHOD OF MAKING PRISMATIC WINDOWS. Geo. K. CUMMINGS, Center Rutland, Vt. Original application filed Aug. 15, 1898, Serial No. 688,573. Divided and this application filed Nov. 30, 1901. Serial No. 84,208. (No model.)



Claim.—1. The method of making windows of prismatic glass which consists in rolling the molten glass into a sheet having prismatic projections of the desired outline on its surface, annealing the sheet, cutting the sheet into panes of the desired outline, then assembling and glazing the panes, substantially as set forth.

2. The method of making windows of prismatic glass which consists in rolling the molten glass into a sheet having prismatic projections of the desired outline on its surface, annealing the sheet, applying patterns of the separate panes to the sheet in such a way that the prismatic projections of the panes will run in a predetermined direction relatively to one another in the completed window, cutting the panes out according to the said patterns, and assembling and glazing the panes, substantially as set forth.

3. The method of making prismatic windows which consists in rolling the molten glass into a sheet having prismatic projections of the desired outline on its surface, annealing the sheet, cutting the sheet into panes of two or more different shapes, combining the panes to form the window, the prismatic projections of the panes having the same shape being parallel and there being at least two sets of panes having the prismatic projections of one set running in a different direction from the prismatic projections of the other set, substantially as set forth.

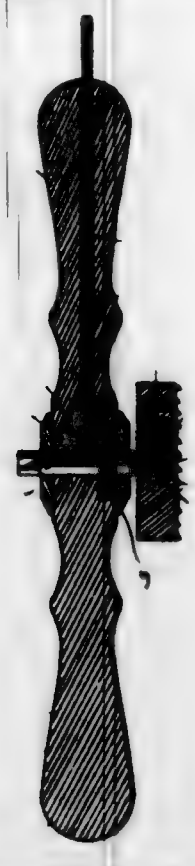
4. The method of making prismatic windows which consists in melting the glass until it is of the proper consistency, stirring it just before it is rolled so as to make the mass homogeneous in temperature, rolling the molten glass into a sheet having prismatic projections of the desired outline on its surface, annealing the sheet, and cutting the sheet into panes of two or more different shapes, combining these panes to form the window, the prismatic projections of the panes having the same shape being parallel and there being at least two sets of panes having the prismatic projections of one set running in a different direction from the prismatic projections of the other set, substantially as set forth.

5. The method of making prismatic windows which consists in rolling the molten glass into a sheet having parallel prismatic projections of the desired outline on its surface, annealing the sheet, cutting the sheet into panes of different shapes, and combining the panes to form a window, the prismatic projections of panes having the same shape being parallel, and the prismatic projections of panes having different shapes being made to run in different directions, substantially as set forth.

6. The method of making prismatic windows which consists in melting the glass until it is of the proper consistency, stirring it just before it is rolled so as to make the mass homogeneous in temperature, rolling the molten glass into a sheet having parallel prismatic projections of the de-

aired outline on its surface, annealing the sheet, cutting the sheet into panes of different shapes and combining these panes to form the window, the prismatic projections of panes having the same shape being parallel, and the prismatic projections of panes having different shapes being made to run in different directions, substantially as set forth.

695,285. HORSESHOEING-RASP. JOHN P. DAGGETT, Fort Worth, and HARDY HEFFARD, Dundee, Tex. Filed Aug. 8, 1901. Serial No. 71,505. (No model.)



Claim.—1. In a device of the character described, the combination with a bar; a shaft carried thereby; a cutting-disk secured to said shaft; gears for driving the shaft; and a second shaft arranged within the bar for driving said gears.

2. In a device of the character described, the combination with a bar formed into handles at each end thereof; a shaft arranged at right angles to said handles; a removable and reversible cutting-disk carried by the shaft; and means for driving said shaft.

3. In a device of the character described, the combination with a bar, the ends of which are formed into handles; a shaft arranged at right angles thereto and having extensions which project through the handle and which are formed into angular heads; a removable and reversible cutting-disk carried by the said shaft and secured to a head; a second shaft arranged longitudinally of and within one of the handles; gears connecting the shafts, and means for driving the second shaft.

695,286. FEED-BAG. GEORGE L. DALE, New York, N. Y. Filed Nov. 9, 1901. Serial No. 81,662. (No model.)



Claim.—1. A feed-bag, having two compartments with a passage from one to the other, one compartment being raised to permit the flow of feed by gravity into the other compartment, a valve controlling said opening between the compartments, and an operating device connected with the valve, said operating device projecting from the valve to be engaged by the lower jaw of the animal, whereby to operate the valve from the motion of the animal's jaw in chewing.

2. A feed-bag having two compartments, one being raised above the other and the feed-bag having an opening leading from one compartment to the other, a valve controlling said opening, a spring pressing the valve yieldingly into closed position, and an operating device connected with the valve and projected forwardly into position to be engaged by the lower jaw of the animal, whereby to operate the valve upon the movement of the jaw in chewing.

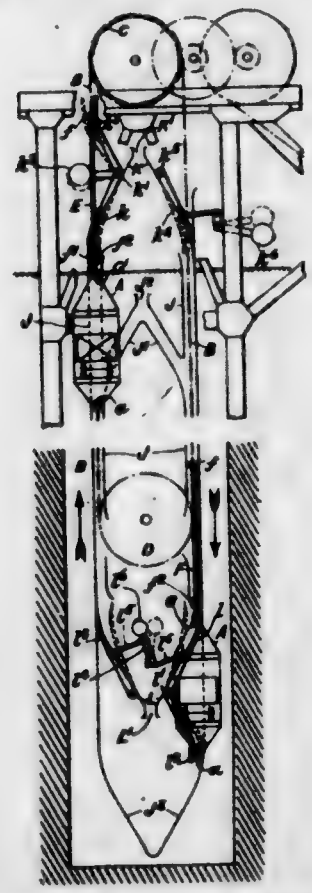
3. A feed-bag, having an essentially vertical wall forming it into two compartments, one compartment having an opening in its bottom leading into the other compartment, and the said wall having an opening near its top adapted to permit the contents of the first-named compartment to overflow into the second compartment, and means for controlling the passage of the feed through the opening in the bottom of the first-named compartment.

4. A feed-bag, having an essentially vertical wall forming it into two compartments, one compartment having an opening in its bottom leading into the other compartment, and the said wall having an opening near its top adapted to permit the contents of the first-named compartment to overflow into the second compartment, means for controlling the passage of the feed through the opening in the bottom of the first-named compartment, said means comprising a valve, and an opening device projecting outwardly from the wall to be engaged by the animal, for the purpose specified.

5. A feed-bag, having two compartments with an opening leading from one to the other, a valve controlling said opening, a rod attached to the valve and projecting laterally, a jaw-bar attached to the rod, and strips of flexible material connected with the ends of the jaw-bar and with the walls of the feed-bag, whereby movably to mount the jaw-bar.

6. A feed-bag, having a wall forming two compartments, said wall having an overflow apparatus therein, a flexible flap arranged adjacent to said opening and movable over it partly or wholly to close it, and means for holding the flap at the desired adjustment.

695,287. RAISING OR LOWERING APPARATUS FOR MINES OR THE LIKE. DAVID DAVY, Sheffield, England. Filed Dec. 7, 1901. Serial No. 85,012. (No model.)



Claim.—1. A continuously-running apparatus for raising and lowering, comprising pendulous cage-carrying slings, a pair of endless chains to which said slings are pivoted, pairs of upper and lower pulleys upon which said chains run, guides adapted to bring the cages and the lower ends of the slings to a mid-position between the ascending and descending chain members at the upper and lower landing-points, means of temporarily supporting the cages at the landing-points, and means of detachable connection between the slings and cages, said means being automatically operated when the cages are stationary to cause the slings to enter into engagement with the cages and to become detached therefrom alter-

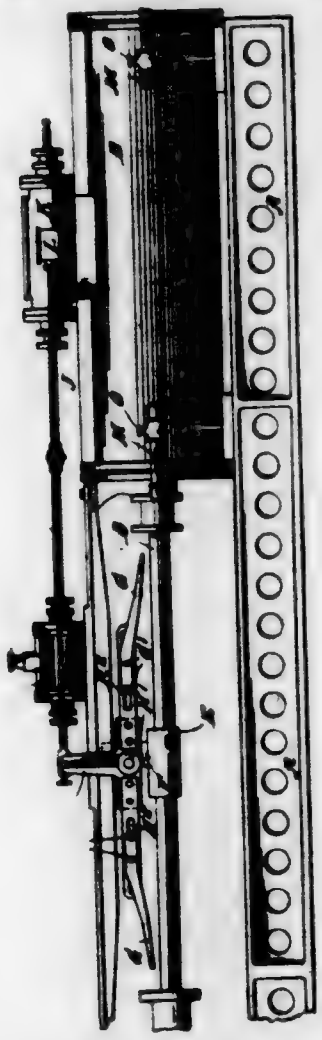
nately, the slings being in number double that of the cages, substantially as and for the purpose described.

2. A continuously-running apparatus for raising and lowering, comprising pendulous cage-carrying slings, a pair of endless chains to which said slings are pivoted, pairs of upper and lower pulleys upon which said chains run, guides adapted to bring the cages and the lower ends of the slings to a mid-position between the ascending and descending chain members at the upper and lower landing-points, means of temporarily supporting the cages at the landing-points, and means of detachable connection between the slings and cages, said means of effecting connection consisting of hooks pivoted to the slings, the hooks of successive slings pointing in opposite directions and being adapted to be pivotally controlled by the guides so as to be thereby caused to enter into engagement with or become disengaged from the cages, as described.

3. In the herein-described continuously-running apparatus for raising and lowering, the cages, the pendulous cage-carrying slings, the carrier for the slings, the hook connections, and means of operating the same for connecting and disconnecting the cages alternately with and from the pendulous slings, substantially as described.

4. In the herein-described continuously-running apparatus for raising and lowering, the cages, the cage-carrying slings, the endless carrier for the same, means for connecting and disconnecting the cages alternately with and from the slings at the landing-stages, removable cage-supports at the upper landing-stage, and means of automatically operating the said cage-supports in proper time relation to the picking-up operation by the slings, as described.

695,288. PUMPING-ENGINE. JAMES J. DELANEY, Shamokin, Pa. Filed Apr. 8, 1901. Serial No. 54,846. (No model.)



Claim.—1. In an engine, a cylinder, a piston held to reciprocate therein, tubes or channels located at each end of the cylinder and communicating therewith at the ends of the cylinder and at points located at a distance from the cylinder-heads greater than the thickness of the piston, a check-valve in each channel and opening toward the outer end thereof to permit the steam to pass from the working end of the cylinder to the dead end to form a cushion, the check-valve closing on increase of pressure thereby preventing live steam passing through the pipe or channel to the other side of the piston on the opening of the inlet-port, and an adjustable stop for limiting the opening movement of the valve, to regulate the flow of steam from the working end of the cylinder to the dead end to increase or lessen the cushioning effect.

2. In an engine, a cylinder, a piston held to reciprocate therein, tubes or channels located at each end of the cylinder and communicating therewith at points situated at different distances from the cylinder end, to admit steam in the end of the cylinder to cushion the piston at the end of the stroke, a steam-chest, a slide-valve controlling the exhaust and inlet ports of the cylinder, and a cataract-cylinder for regulating the movement of the slide-valve to close the exhaust-port at the proper time to form the steam-cushion at the end of the cylinder.

3. In an engine, a cylinder, a piston therein, a piston-rod provided with a block or cross-head, a roller carried by said block, a steam-chest, a main valve therein, a rocker, valve-operating means controlled by the movement of the rocker, and arms adjustable on the rocker toward and from each other and adapted to be engaged alternately by the roller on said block, the said arms having inclined working faces and end extensions at an angle to the working faces.

4. In an engine, a cylinder, a piston reciprocating therein, a piston-rod carrying a projection, a rocker having slots extending lengthwise of the piston-rod, arms adjustable in said slots toward and from each other to regulate the stroke, the said arms being adapted to be moved alternately by the projection on the piston-rod, fastening-screws extending through the slots in the rocker for securing the arms in the adjusted position, a steam-chest, a valve therein, and valve-operating means controlled by the movement of the rocker.

5. In an engine, the combination with the main cylinder, piston, and piston-rod, the steam-chest, the valve therein, and the valve-rod, of a cataract-cylinder through which passes said valve-rod, a piston secured to the valve-rod within said cylinder, two channels or passages each connecting one end of the cataract-cylinder with the other, one of said channels having two end orifices and a central opening in the path of the piston, and outwardly-opening check-valves located in said channel between the central opening and the end orifices.

6. In an engine, the combination with the main cylinder, piston and piston-rod, the steam-chest, the valve therein, and the valve-rod, of a cataract-cylinder through which passes said valve-rod, a piston secured to the valve-rod within said cylinder, two channels or passages each connecting one end of the cataract-cylinder with the other, one of said channels having two end orifices and a central opening in the path of the piston, outwardly-opening check-valves located in said channel between the central opening and the end orifices, and an adjustable throttle-valve in the other channel.

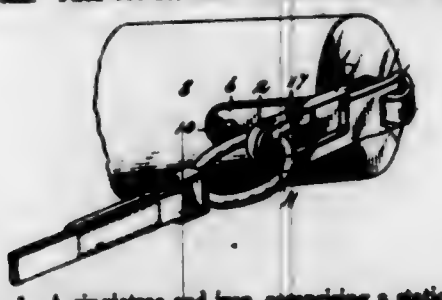
7. In an engine, the combination with the main cylinder, piston and piston-rod, the steam-chest, the main valve, the cylinders connected with the steam-chest, the pistons on the valve-rod and working in said cylinders, and means for controlling the passage of steam to the said cylinders, of a cataract-cylinder through which passes said valve-rod, and a piston secured to the valve-rod, within said cylinder, the cataract-cylinder being provided with two channels or passages each connecting one end of the cylinder with the other, one of said channels having two end orifices and a central opening in the path of the piston.

8. In an engine, the combination with the main cylinder, piston and piston-rod, the steam-chest, the main slide-valve, the cylinders connected with the ends of the steam-chest, the valve-rod provided with pistons working in the said cylinders, the steam-chamber connected with the steam-chest, and with the said cylinders, the supplementary valve in said chamber, and means for imparting motion to the supplementary valve, of a cataract-cylinder through which passes the main-valve rod, a piston secured to the valve-rod within the cataract-cylinder, the said cataract-cylinder being provided with two channels or passages each connecting one end of the cylinder with the other, one of said channels having two end orifices and a central opening in the path of the piston, and outwardly-opening spring-controlled check-valves in said channel between the central opening and the end orifices.

9. In an engine, the combination with the main cylinder, piston and piston-rod, the steam-chest, the main slide-valve, the valve-rod, and means for reciprocating the same, of a cataract-cylinder through which passes the valve-rod, a piston secured to the valve-rod within said cataract-cylinder, the said cataract-cylinder being provided with two channels or passages each connecting one end of the cylinder with the other, one of said channels having two end orifices and a central opening in the path of the piston, the length of said central opening being less than the width of the piston, outwardly-opening spring-controlled check-valves located in said channel between the central opening and the end orifices, and an adjustable throttle-valve located centrally in the other channel.

10. In an engine, the combination with the cylinder, piston, and piston-rod, the steam-chest, the main valve and valve-rod, the supplementary valve and valve-rod, the rocker connected with the supplementary-valve rod, means for moving the rocker from the piston-rod, and means controlled by the supplementary valve for operating the main valve, of a cataract-cylinder through which the main-valve rod passes, and a piston secured to said valve-rod within the cataract-cylinder, the cataract-cylinder being provided with two channels or passages each connecting one end of the cylinder with the other, one of said channels having two end orifices and a central opening in the path of the piston.

695,289. SINGLETREE END IRON. PERKINS H. DE ROCHEMONT, Chattanooga, Tenn., assignor of one-half to Charles Herron, Chattanooga, Tenn. Filed Oct. 26, 1901. Serial No. 80,096. (No model.)



Claim.—1. A singletree end iron comprising a stationary member adapted to be secured to the end of a singletree and having a hook, and a movable member consisting of a hook having its rear end provided with a slot through which the stationary member extends supported upon the stationary member and overlapping the hook thereof.

2. A singletree-iron comprising an angle-plate having a rigid hook projecting from the front thereof, and a laterally-extending arm at the rear curved to form a bearing, and a movable hook slotted at its rear end to receive the rear arm of the angle-plate and overlapping the outer side of the rigid hook.

3. The combination with the parallel arms, end plate and forwardly-projecting rigid hook, of a hook slotted and inwardly curved at its rear end and formed at its forward end with a lug to close the rigid hook.

4. A singletree-iron comprising an angle-plate formed with a bearing, a rigid hook projecting from the front end of the plate, and a movable hook slotted at its rear end to receive one arm of the angle-plate, whereby said end is adapted to bear in the bearing.

5. A singletree-iron comprising an angle-plate, a hook projecting from the front thereof, a laterally-extending arm, a prong formed thereon and projecting inwardly therefrom, a curved offset, and a movable hook having its rear end formed with an elongated slot adapted to receive one arm of the angle-plate, whereby said end is adapted to bear in the offset.

6. The combination with the angle-plate and forwardly-projecting rigid hook, of a movable hook loosely mounted on the angle-plate and formed at its forward end with an inwardly-projecting lug to close the rigid hook.

695,290. POLE-HOISTER. GEORGE R. DOBB, Anderson, S. C. Filed Aug. 26, 1901. Serial No. 73,226. (No model.)



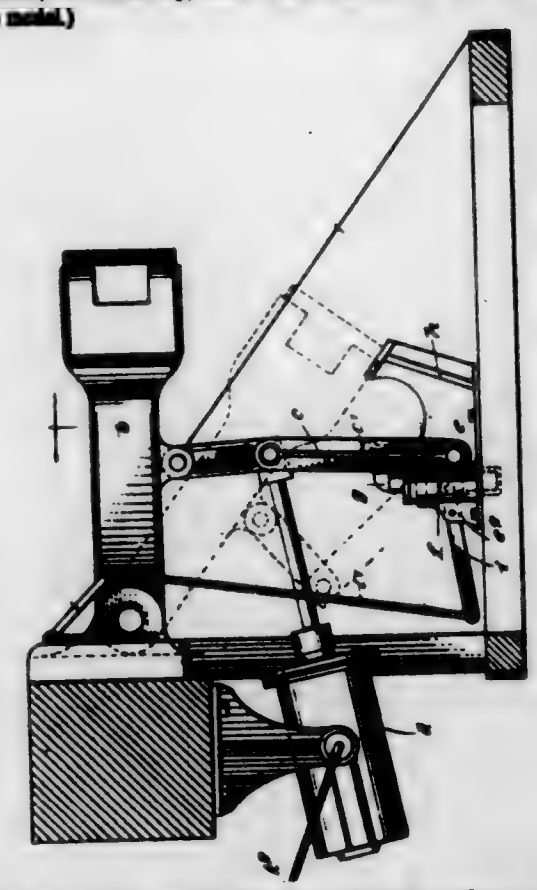
Claim.—1. In a device of the character described, a main frame, a rod working in the same, means for operating the rod, engaging means at top of rod to take into the material operated upon, and locking means for the operating mechanism.

2. In a device of the character described, the combination with the main frame, of a vertical rod working in the same, means for operating the rod, and a fork to hold the timber temporarily when it is elevated.

3. In a device of the character described, the combination with the main frame, of a rod operating in the same, a pulley journaled on the frame, a pulley journaled in the base of the rod, and a band connected to the main frame and passing over the pulleys by means of which the rod may be operated.

4. In a device of the character described, the combination with the main frame, of a rod adapted to be operated in the same, and attaching means at the top of the pole to which a rope or the like may be attached for raising the material.

695,291. LOCOMOTIVE FRONT-END-COUPLING GEAR. JAMES F. DUNN, Salt Lake City, Utah. Filed July 6, 1901. Serial No. 67,205. (No model.)



Claim.—1. The combination of a relatively stationary support, a pivoted coupler mounted above the support, toggle-links bearing between the support and coupler to raise and lower it, and a lock device pressing a member movably into engagement with one of the toggle-links, to prevent the swinging thereof.

2. The combination of a pivoted coupler, means for raising and lowering it, a lock device comprising a bolt movable into engagement with a part of said means for raising and lowering the coupler, whereby to hold the said means in active position and devices for actuating the bolt.

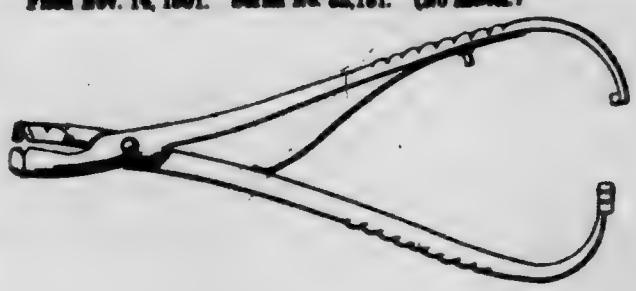
3. The combination of a pivoted coupler, means for raising and lowering it, a lock device comprising a stand and a reciprocal bolt therein, the bolt being movable into engagement with the said means for raising and lowering the said coupler whereby to hold said means in active position, and for actuating the bolt.

4. The combination of a pivoted coupler, means for raising and lowering it, a fluid-pressure motor for driving said means, a fluid-actuated lock device for holding said means inactive, and means for leading the fluid-pressure first to the lock device and next to the said motor, to successively actuate them.

5. The combination of a pivoted coupler, means for raising and lowering it, a stand comprising a cylinder, a bolt in the stand and having a piston-like portion within the said cylinder of the stand, the bolt acting to hold inactive the means for raising and lowering the coupler, and means for leading a motive fluid to and from the said cylinder of the stand.

6. The combination of a pivoted coupler, means for raising and lowering it, a plate mounted below said means and to which said means are pivoted, a lock device carried by the plate to prevent the action of the means for raising and lowering the coupler, and a seat mounted on the plate to sustain the coupler when lowered.

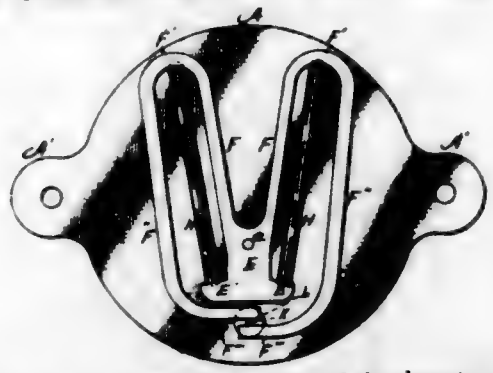
695,292. NEEDLE-HOLDER. GEORGE ERNOLD, Elizabeth, N. J. Filed Nov. 14, 1901. Serial No. 82,181. (No model.)



Claim.—1. A needle-holder for surgical use, consisting of a hollow jaw, a solid jaw adapted to fit into the same, said jaws having recesses, a transverse ridge extending between the apices of the recesses of the hollow jaw, substantially as set forth.

2. A needle-holder for surgical use, consisting of a hollow jaw provided with V-shaped recesses, a transverse ridge extending between the apices of said recesses, and a solid jaw provided with a transverse V-shaped recess converging in opposite direction to the recesses of the hollow jaw, and arranged in the same plane therewith, substantially as set forth.

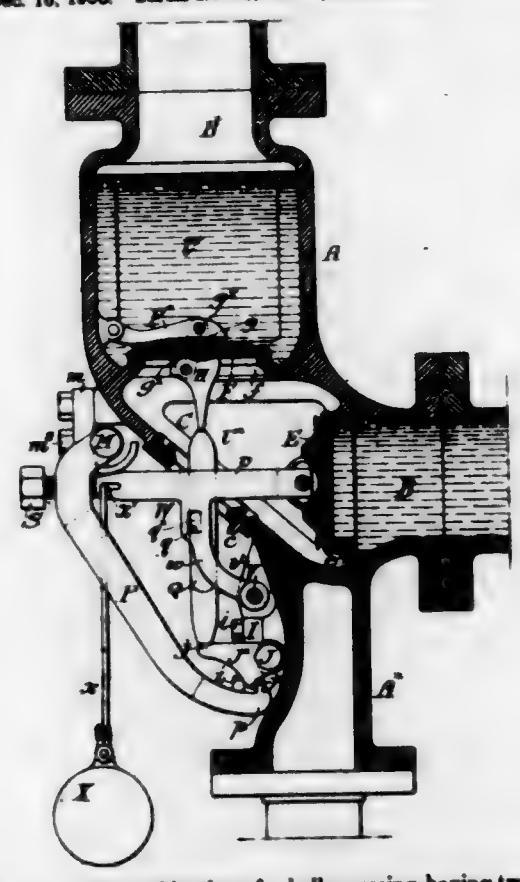
695,298. **OVEN-THERMOMETER.** CHARLES E. EVANS, Taunton, Mass. Filed Dec. 2, 1901. Serial No. 84,299. (No model.)



Claim.—1. In an oven-thermometer of the character described in which the principle of the unequal expansion of metal is employed to indicate changes in temperature, a plate and dial; a frame provided with two oppositely and inwardly extending arms overlapping each other; rods of relatively expansible metal engaging and operating said frame to move said arms oppositely with relation to each other; a spindle held by and between the inner surfaces of said arms; and an indicator extending from said spindle over the dial, whereby the rise of temperature causes said arms to move with relation to each other and roll said spindle between them, substantially as described.

2. In an oven-thermometer of the character described in which the principle of the unequal expansion of metals is employed to indicate changes in temperature, a plate and dial; the frame E provided with the steps E' and arms F, F', F'', F''', the portions F''' overlapping each other and said portions being bifurcated at their ends; the spindle K held by and between said overlapping portions and bent into the indicator K' which extends over the dial; and the disk L on said spindle and extending into the bifurcations in the two overlapping ends F''', substantially as set forth.

695,294. **DRY-PIPE VALVE.** POWELL EVANS, Philadelphia, Pa. Filed Dec. 13, 1900. Serial No. 39,743. (No model.)



Claim.—1. The combination of a hollow casing having two outlets, a third outlet and a valve-seat therein, two valve-seats within the casing, two valves constructed to fit the same, one of said valves being pivoted to the casing and arranged to swing so that it may also fit the valve-seat in the third outlet of the casing, with means for operatively connecting the said two valves, substantially as described.

2. In a water-controlling device for a dry-pipe fire-extinguishing system, the combination of a casing, three chambers therein, one chamber having an opening to the outside of the casing, a valve-seat in said opening and passage-ways from said chamber to each of the other chambers, valve-seats in each passage, a valve pivoted to the casing and normally held seated by air-pressure, a second valve also pivoted to the casing and constructed to fit the seat in said opening in the casing, as well as a valve-seat in one of the passages, and mechanism connecting the valves whereby air-pressure in one chamber acting against one of said valves, keeps the second valve closed against water-pressure acting on the said valve in the other chamber, substantially as described.

3. The combination in a water-controlling device of the character described, of a casing, chambers therein, valve-seats and valves between said chambers, openings into each of said chambers, a valve-seat in one of said openings, one of said valves being hinged to fit two of the valve-seats, and levers connecting the valves whereby pressure on one valve keeps the other closed, substantially as described.

4. The combination of a casing, chambers therein, valves between the chambers, two levers forming part of a connection between the valves, said levers being normally in engagement with one another and rods forming struts extending through an opening into the casing and engaging the said levers and the valves, whereby motion of one of the valves normally permits motion of the other, substantially as described.

5. The combination of a hollow casing having three openings thereinto, of a valve-seat in one of said openings, two other valve-seats in the casing, two valves constructed to fit said seats, one of said valves being also adapted to close the said valve-seated opening, struts normally in engagement with said valves and two levers pivoted to the casing and serving with the said struts to operatively connect the valves, substantially as described.

6. The combination of a casing, two valves therein and normally connected thereto, a compression-lever connected to one of said valves, a lever attached to the casing, one arm thereof engaging said compression-lever, the second arm having a hooked end and a second lever supported by the casing, a bearing edge thereon adapted to engage with the hooked arm of the first lever and a rod between the other arm of the second lever and the second of the valves, substantially as described.

7. The combination of a hollow casing having three openings into it, two valves in the casing, levers forming part of a connection between said valves and engaging one another, said levers being supported by, but outside of said casing, rods forming the balance of the connection between the valves, the said rods extending into the casing through one of the openings in the same, substantially as described.

8. The combination of a casing, three chambers therein, an opening into each chamber, valves and valve-seats between each of two of the chambers and the third, a valve-seat in the opening into the third chamber, said valves being pivotally connected to said casing, one of them being constructed to fit either the seat in the third opening or one of the seats in the chambers, two levers pivoted to the outside of the casing, and rods normally extending through the valve-seated opening into the casing and engaging the valves in their closed position, the whole being so arranged that pressure on one of the valves prevents the other from opening, substantially as described.

9. The combination in an automatic-valve mechanism of the character described, of a casing, valves and valve-seats therein, a rod forming a strut pivoted to one valve and pivotally supported on the casing, a second strut loosely pivoted to the first strut and normally in engagement with the second valve, and levers operatively connecting the two struts, the whole constructed to operate when pressure on one of the valves is diminished, substantially as described.

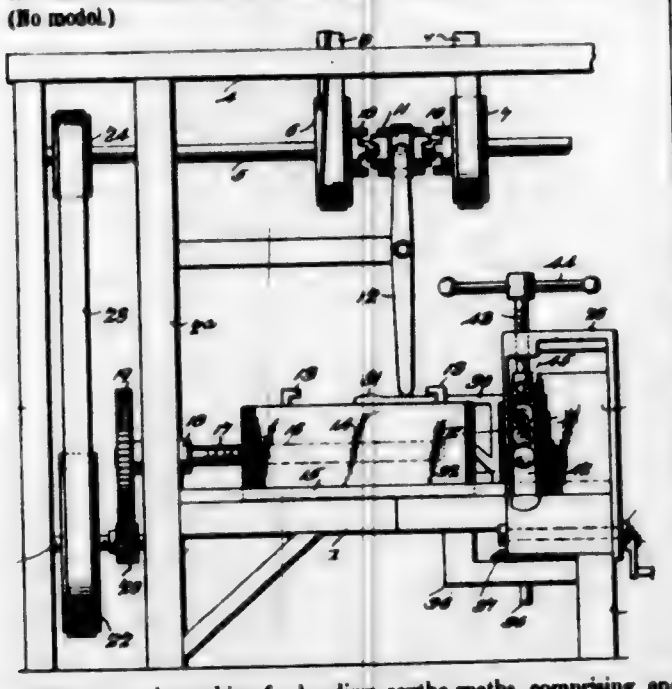
10. The combination in a valve of the character described, of a casing, valves and valve-seats therein, struts pivotally attached to said valves, one of said struts being also pivoted to the casing, two levers pivotally supported on the casing, one of them engaging one of the struts and a third strut normally extending between the second lever and the second pivoted strut, substantially as described.

11. The combination in an automatic-valve mechanism of the character described, of a casing, valves therein, mechanism including levers connecting said valves, and a weight attached to said mechanism whereby the operation of one of the valves is assisted, said weight being constructed to limit the motion of the levers when the valve is operated, substantially as described.

12. The combination in an automatic-valve mechanism of the character described, of a casing, valves therein, struts and levers normally connecting said valves, a weight attached to one of said struts by means of a flexible connection, said connection being adjacent to one of said levers

and so placed as to limit the motion of the lever when the mechanism is operated, substantially as described.

695,295. MACHINE FOR BENDING SCYTHE-SNATHS. GEORGE M. FERN, Charlotte, Mich. Filed Nov. 27, 1901. Serial No. 83,994. (No model.)



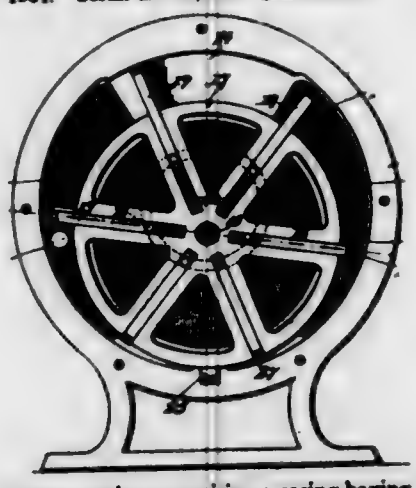
Claim.—1. A machine for bending scythe-snaths, comprising end formers spaced apart and arranged to engage the end portions on one side of the snath-blanks, an intermediate former arranged to engage that portion on the other side of the blanks opposite the space between the said formers, means to advance said intermediate former to bend the blanks in one plane and hold them while so bent, and means operating at right angles to the direction of such bend to impart upward and downward bends to the blanks while so held.

2. In a machine for bending scythe-snaths, a base, a belly-forming plunger movable transversely thereof, means for holding the snath-blank in operative position with suitable formers, and means for automatically checking the movement of the plunger when the desired horizontal bend has been imparted to the blank.

3. In a machine for bending scythe-snaths, the combination of a base carrying formers disposed at each end thereof and to be engaged by the outer end portions of a snath-blank, means for holding the blank against the formers, and a plunger for forcing the blank against the formers and at the same time to impart the desired belly bend to the blank.

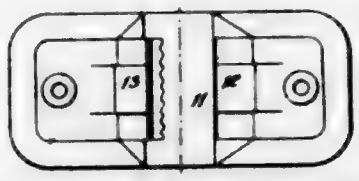
4. In a machine for bending scythe-snaths, the combination of a base, formers mounted on each end thereof, frames for holding the terminals of a snath-blank against the formers, clamping means carried by one of the frames for preventing longitudinal movement of the butt, a roller carried by the other frame to permit longitudinal movement of the tap as the belly is being formed, and means coacting with the latter frame to impart the desired curves to the tap and butt.

695,296. ROTARY ENGINE. ALBERT E. FISH, Hartford, Conn. Filed Apr. 2, 1901. Serial No. 54,663. (No model.)



Claim.—A rotary engine comprising a casing having supply and exhaust ports and formed with an eccentric groove, a piston-drum mounted upon a shaft within the casing, and having a plurality of radial slots, sliding pistons within said slots provided with pins entering said groove, a segmental projection over which the pistons successively pass, said pistons being adapted to receive the impact of steam singly and only as they pass said projection, and being so constructed and relatively arranged that steam will not be confined between any two pistons at any point in their revolution.

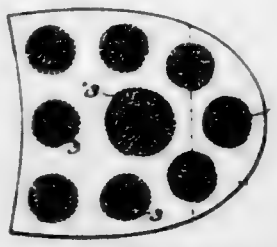
695,297. RAILWAY CHAIR AND RAIL. HARRY A. FORBES, Finchley, London, England. Filed Dec. 9, 1901. Serial No. 85,277. (No model.)



Claim.—1. A railroad-chair having a vertically-corrugated jaw adapted to interlock with the rail, and a rail having its web vertically corrugated on both sides without diminution of its thickness at any point, said corrugations having rounded apices substantially as set forth.

2. In combination, the chair 11, the smooth jaw 12, the vertically-corrugated jaw 13, and a rail having the vertical corrugations 15 adapted to interlock with the corrugated jaw 13.

695,298. RUBBER TREAD. ROLON E. FOSTER, Revere, Mass., assignor to Horace Van Everen, trustee, Cambridge, Mass. Filed Oct. 9, 1901. Serial No. 78,069. (No model.)

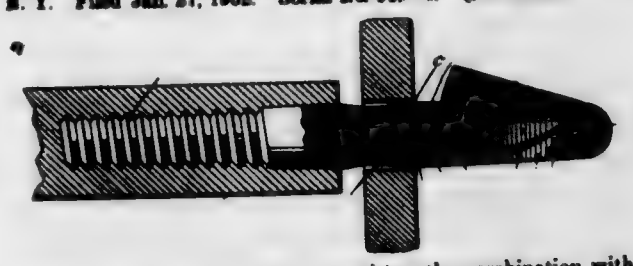


Claim.—1. A tread provided with a body portion of vulcanized rubber, and plugs of vulcanized rubber intimately associated with textile material, the threads or strands of the textile material extending through the plugs in directions to approach the tread-surface of the tread diagonally, substantially as described.

2. A rubber tread, having a plug of textile material and rubber vulcanized therein, the plug being formed of layers of textile material and rubber, the threads or strands of the textile material extending diagonally to the tread-surface of the tread, substantially as described.

3. A rubber tread, consisting of a body portion of rubber provided with a plug of rubber and textile material, the plug and body portion being united by a layer of rubber more highly elastic than the body portion of the tread, the whole being vulcanized into one mass, substantially as described.

695,299. TRACE-FASTENER. WILLIAM FREELAND, Brooklyn, N. Y. Filed Jan. 27, 1902. Serial No. 91,391. (No model.)



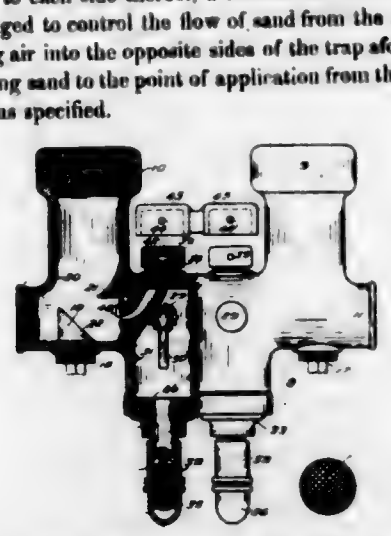
Claim.—1. A trace-fastener, comprising the combination with the neck or body portion, of the two arms projecting therefrom, said neck or body having a cavity between the arms, a dog pivoted between the arms and having a bill thereon, and a spring fitted in the space between the bill and the said cavity, the inner end of the spring being held in the cavity by the pressure of the spring.

2. A trace-fastener, comprising the combination with the neck or body portion, of the two arms projecting therefrom, said neck or body having a cavity between the arms, a dog pivoted between the arms and having a bill thereon, and a spring fitted in the space between the bill and the said cavity, the inner end of the spring being held in the cavity by the pressure of the spring, and said cavity having a wall at one side and a concavity or notch just inward of the wall, the inner end of the spring bearing in the notch and against the wall.

695,300. TRACK-SANDING APPLIANCE. JOHN GAPP, Scranton, Pa. Filed Sept. 25, 1901. Serial No. 76,465. (No model.)

Claim.—1. The herein-described track-sanding appliance for locomotives comprising a sand-box, a pipe leading downward therefrom, a

forked member attached to said pipe and branching into two separate pipes, a trap member having opposite sides alike, and one of the aforesaid pipes leading to each side thereof, a turn-valve in the forked member aforesaid arranged to control the flow of sand from the sand-box, and means for injecting air into the opposite sides of the trap aforesaid for the purpose of delivering sand to the point of application from the pipes aforesaid, substantially as specified.



2. In a track-sanding appliance of the kind described, the combination of a sand-box, a pipe leading downward therefrom, and means for supplying sand into the said pipe slowly, a sand-trap to which the said pipe leads, a drain-valve on the lower end of said sand-trap, and a chamber above the said drain-valve arranged to collect condensation-water, an air-pipe leading into said chamber, and opening downward in the direction of said valve, and an air-passage leading out of the upper part of said chamber and opening into the lower part of the sand-pipe aforesaid for the purpose of forcing sand therethrough at a greator rate than the sand may be accumulated therein, and the said drain-valve provided with a stop controlled by a coiled spring arranged to hold the valve open normally, but permitting it to be closed by the pressure of the air during the operation of the appliance, substantially as specified.

3. In a track-sanding apparatus of the kind described, a sand-box having a pipe leading downward therefrom in combination with a forked member leading to two separate pipes, and having a valve connected therewith, and the said member adapted to be attached to the end of the pipe leading downward, and the valve thereon arranged to close the end of the said downward-leading pipe, whereby the flow of sand is regulated in both the pipes to which the said forked member leads simultaneously, substantially as specified.

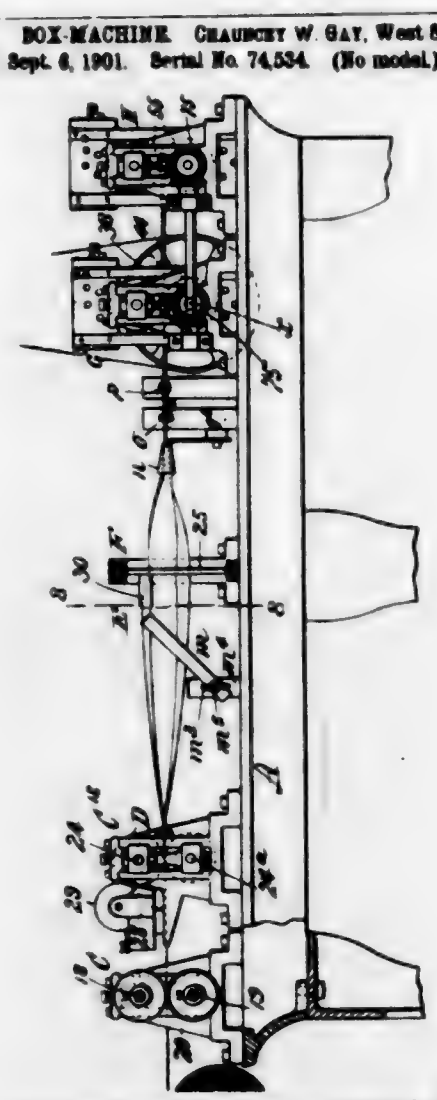
4. In a track-sanding apparatus of the kind described, a sand-box, a pair of pipes leading downward therefrom, a double trap member having opposite sides alike, and the said trap member arranged to close the lower ends of said pipes, and provided with plugs projecting upwardly with sloping projections, pipes leading horizontally from said trap substantially at right angles from the pipes leading downward to it, means for directing jets of air into the trap at the lower end of the sand-pipes aforesaid, and forcing the sand outward through the horizontal pipes, and the plugs aforesaid arranged at the entrance of the air-jets and adapted to be turned for the purpose of presenting varying aspects of their sloping surfaces to the jets of air aforesaid, substantially as specified.

5. In a track-sanding appliance, a sand-trap member having a sand-supply pipe leading downward to it, a sand-delivery pipe leading from it, and a plug with a sloping projection at the junction thereof together with means for injecting a jet of air into the said trap at the said junction, and the said plug arranged to be turned so as to vary the aspect of the sloping projection thereof for the purpose of modifying the effect of the air-jet in ejecting the sand through the delivery-pipe, substantially as and for the purpose specified.

6. In a track-sanding appliance, a sand-trap having a sand supply pipe leading into a sand-chamber thereof, a sand-delivery pipe leading from said chamber, and an air-supply pipe leading into another chamber thereof, and means for extracting condensation-water from the air admitted therein, a plug closing the top of the air-chamber, and the said plug having a U-shaped passage leading therethrough, an air-passage extending from the vicinity of the plug into the chamber aforesaid, and the said plug adjustable into such position that the U-shaped passage thereof may complete a passage-way for air from the air-chamber aforesaid into the sand-chamber aforesaid, whereby the jet of air introduced to the sand is rendered dry, substantially as and for the purpose specified.

7. In the trap of a track-sanding appliance the combination with a sand-chamber, and an air-passage having a passage leading from the air-chamber to the sand-chamber, of a drain-valve arranged in the lower walls of the air-chamber aforesaid, and a pipe leading into the said chamber and directed downward therein, a passage-way leading to the drain-valve aforesaid, and a wire-netting covering the passage leading thereto, whereby condensation-water is permitted to escape to the drain-valve, and other foreign substances arrested, substantially as specified.

695,301. BOX-MACHINE. CHAUNCEY W. GAY, West Springfield, Mass. Filed Sept. 6, 1901. Serial No. 74,534. (No model.)



Claim.—1. In a machine of the character described, the combination with the wheels for longitudinally scoring the strip and means for marginally pasting same, of a pair of parallel slightly-separated rods arranged in advance of and in lines right-angular to the axes of the scoring-wheels, an edge-turning device and a V-shaped deflector, arranged upwardly and forwardly inclining, between the scoring-wheels and said paired rods, said deflector being bodily vertically adjustable, and means in advance of said rods, for forwardly drawing the strip.

2. In a machine of the character described, the combination with the wheels for longitudinally scoring the strip and means for marginally pasting same, of a pair of parallel slightly-separated rods arranged in advance of and in lines right-angular to the axes of the scoring-wheels, an edge-turning device and a V-shaped deflector, arranged upwardly and forwardly inclining, between the scoring-wheels and said paired rods, said deflector being adjustable so as to be swung to vary its inclination, and means in advance of said rods, for forwardly drawing the strip.

3. In a machine of the character described, the combination with the wheels for longitudinally scoring the strip, and means for marginally pasting same, of a pair of parallel slightly-separated rods arranged in advance of and in lines right-angular to the axes of the scoring-wheels, an edge-turning device and a V-shaped deflector arranged upwardly and forwardly inclining between the scoring-wheels and said paired rods, and mounted on a bar which is both vertically bodily adjustable and rotationally adjustable, and means for confining it in its adjustments, and means in advance of said rods for forwardly drawing the strip.

4. In a machine of the character described, the combination with the wheels for longitudinally scoring the strip and means for marginally pasting same, of a pair of parallel slightly-separated rods arranged in advance of and in lines right-angular to the axes of the scoring-wheels, an edge-turning device and a V-shaped deflector between the scoring-wheels and said paired rods, a pair of rolls in advance of said rods, for forwardly drawing the strip, and a flattening device for the tubular-formed stock between the said rods and said rolls, and arranged right-angularly to the lengths of said rods.

5. In a machine of the character described, the combination with the wheels for longitudinally scoring the strip and means for marginally pasting same, of a pair of parallel slightly-separated rods 25, 25, arranged in advance of and in lines right-angular to the axes of the scoring-wheels, an edge-turning device and a V-shaped deflector, arranged upwardly and forwardly inclining, between the scoring-wheels and said paired rods, a pair of rolls in advance of said rods for forwardly drawing the strip, and a device consisting of the bar o^2 and the separated rod o^3 supported thereby and united thereto, between the said paired rods 25 and said rolls.

6. In a machine of the character described, the combination with the wheels for longitudinally scoring the strip and means for marginally pasting same, of a pair of parallel slightly-separated rods 25, 25, arranged in advance of and in lines right-angular to the axes of the scoring-wheels, an edge-turning device and a deflector between the scoring-wheels and said paired rods, a pair of rolls in advance of said rods for forwardly drawing the strip, and a gage-guide between said rods 25, 25, and said rolls, consisting of the transversely-arranged slotted bar having the adjustably-confined collars surrounding slotted portions of the bar.

7. In a machine of the character described, the combination with the wheels for longitudinally scoring the strip and means for marginally pasting same, of a pair of parallel slightly-separated rods 25, 25, arranged in advance of and in lines right-angular to the axes of the scoring-wheels, an edge-turning device and a deflector between the scoring-wheels and said paired rods, a pair of rolls in advance of said rods for forwardly drawing the strip, a gage-guide between said rods 25, 25, and said rolls, consisting of the transversely-arranged slotted bar having the adjustably-confined collars surrounding slotted portions of the bar, and a flattening device adjacent the said gage-guide consisting of the rotationally-adjustable bar o^2, having the parallel separated rod o^3 supported thereby, substantially as described.

8. In a machine of the character described, the combination with means for longitudinally scoring the strip, and means for marginally pasting same, of a pair of parallel slightly-separated rods 25, 25, arranged in advance of and at right angles to the plane of scoring, an edge-turning device, and a deflector between the scoring-wheels and said paired rods, a pair of rolls in advance of said rods, for forwardly drawing the strip, and between the said rods 25 and said rolls, devices viz: the U-shaped guides n n, the flattening device consisting of rotationally-adjustable bar o^2 and parallel separating-rod o^3, and the gage-guide consisting of the rotationally-adjustable slotted bar p having the adjustably-confined collars surrounding the slotted portion of said bar.

9. In a machine of the character described, the combination with a pair of cylinders both having deep longitudinal slots with inclined bases, of encircling cam-ribs adjacent, and separate from, the ends of the cylinders, and severing-blades having inner inclined edges, located in the slots and bodily revoluble with the cylinders, and provided with notches which engage said cam-ribs, substantially as and for the purposes set forth.

10. In a machine of the character described, the combination with a pair of cylinders both having deep longitudinal slots with inclined bases, of encircling cam-ribs adjacent, and separate from, the ends of the cylinders, cutting-blades having inner inclined edges, located in the slots and bodily revoluble with the cylinders, and provided with notches which engage said cam-ribs, and springs supported on the cylinders and bearing radially inwardly against end portions of the severing-blades.

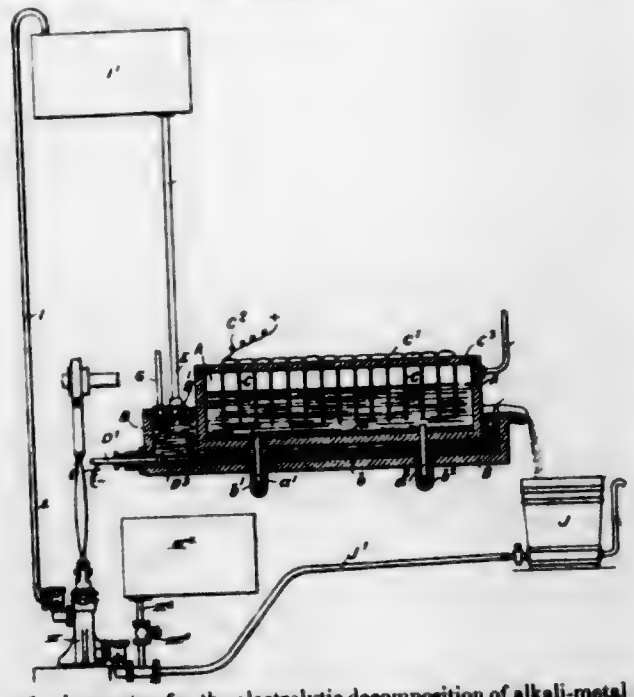
11. In a machine of the character described, the combination with a pair of cylinders both having deep longitudinal slots, plates having inclined edges located in the bases of said slots, and means for adjustably moving said plates endwise, of encircling cam-ribs adjacent, and separate from, the ends of the cylinders, and severing-blades having inner inclined edges, located in the slots and bodily revoluble with the cylinders, and provided with notches which engage said cam-ribs, substantially as and for the purposes set forth.

12. In a machine of the character described, the combination with a pair of cylinders both having deep longitudinal slots, plates having inclined edges located in the bases of said slots, and having end portions thereof notched and protruding beyond the ends of the cylinders, of encircling cam-ribs, adjacent, and separate from, the ends of the cylinders, severing-blades having inner inclined edges, located in the slots and bodily revoluble with the cylinders, and provided with notches which engage said cam-ribs, devices comprising legs which straddle the protruding ends of the inclined plates, and are secured to the ends of the cylinders, and which having spring-tongues bearing radially inwardly on the end portions of the severing-blades, and the screws threading into the ends of the cylinders and provided with flanges which engage in the notches of said protruding plates, for purposes set forth.

695,302. APPARATUS FOR THE ELECTROLYTIC DECOMPOSITION OF ALKALINE SALTS. JAMES D. GILMOUR, Glasgow, Scotland, assignor to the Gilmour Alkali Manufacturing Syndicate Limited, Glasgow, Scotland, a Corporation of Great Britain and Ireland. Filed Apr. 29, 1901. Serial No. 58,023. (No model.)

Claim.—1. Apparatus for the electrolytic decomposition of alkali-metal salts, comprising upper and lower vessels, mercury in the vessels, means whereby the mercury may flow between the vessels and means adapted to cause the mercury to circulate from vessel to vessel by the variation in pressure of the caustic liquor, substantially as described.

2. Apparatus for the electrolytic decomposition of alkali-metal salts, comprising an interior and exterior vessel, anodes in the interior vessel and mercury in the bottom of each vessel acting as cathode, mercury in the exterior vessel and tubes connecting said two vessels, and a pump adapted to force caustic liquor intermittently through the exterior vessel, whereby the mercury is caused to circulate from vessel to vessel, substantially as and for the purpose described.



3. Apparatus for the electrolytic decomposition of alkali-metal salts, comprising an interior vessel, an exterior vessel in which it is fitted, so as to leave a passage beneath the interior vessel, mercury in each vessel and tubes connecting the mercury, and inlet for caustic liquor to the exterior vessel and an outlet therefor and a pulsating pump to pump the caustic liquor, whereby the mercury is caused to circulate by the different pressure of caustic liquor in the exterior vessel, substantially as and for the purpose described.

4. For the electrolytic decomposition of alkali-metal salts, a caustic-liquor pump, in combination with an interior vessel containing an anode and a mercury cathode and an exterior vessel having mercury in electric contact with said mercury cathode, conduits for the circulation of the mercury between the vessels, said conduits having means to prevent the chlorid compounds in the interior vessel from mixing with the liquid in the exterior vessel and means for circulating the mercury by the flow from the caustic-liquor pump, substantially as set forth.

5. Apparatus for the electrolytic decomposition of alkali-metal salts, comprising a pulsating and circulating pump, interior and exterior vessels containing mercury, piping from the pump to the exterior vessel, conduits connecting the vessels which are fitted together to permit the circulating liquor to flow from one end of the exterior vessel down under the bottom of the interior vessel, to scrub the mercury in the exterior vessel and pass out above the mercury at the opposite side of the exterior vessel, an anode in the interior vessel, said mercury acting as cathode, and means to pass continuously electric current between the anode and cathode, substantially as set forth.

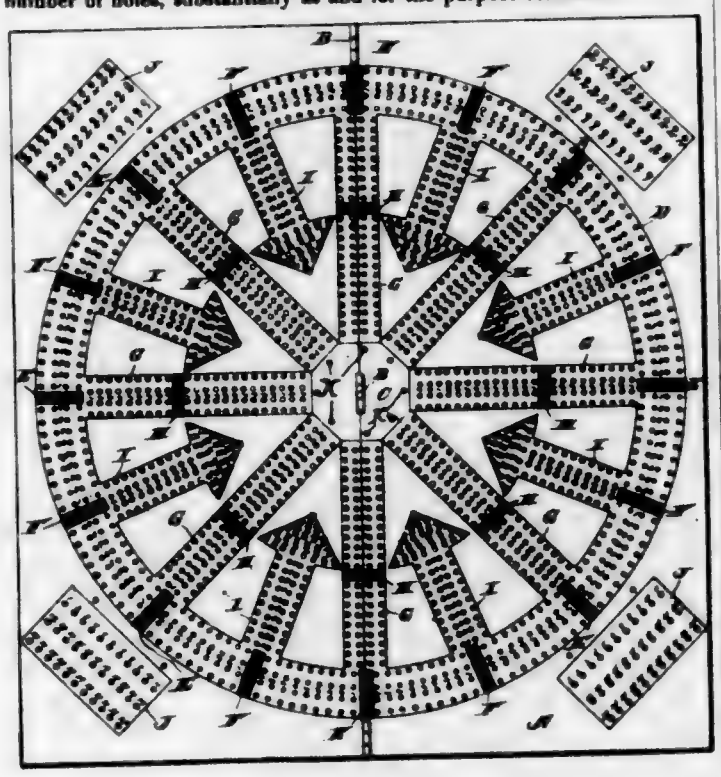
6. Apparatus for the electrolytic decomposition of alkali-metal salts, comprising a pulsating and circulating pump, interior and exterior vessels, piping from the pump to the exterior vessel, an anode in the interior vessel connected to the positive pole and mercury in both vessels, in contact with the negative pole of a source of electric-current supply, said mercury acting as the cathode, and conduits adapted to permit the circulation of the mercury between the interior and exterior vessels upon the varying of pressure in the exterior vessel, substantially as set forth.

7. Apparatus for the electrolytic decomposition of alkali-metal salts, comprising an exterior vessel, a terminal therein surrounded with mercury, an interior vessel, an anode therein, said interior vessel fitting the exterior one to leave a conduit beneath the interior vessel, mercury in the bottom of both vessels, tubes connecting the bodies of mercury and means for supplying caustic liquor with pulsation to the exterior vessel at one side, and a delivery end of higher level than the mercury, whereby on the pulsation of the supply means the mercury is caused to circulate between the two vessels, as and for the purpose described.

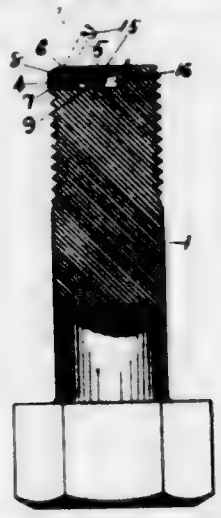
695,303. GAME APPARATUS. ROBERT J. GRAHAM, Philadelphia, Pa. Filed June 26, 1901. Serial No. 66,078. (No model.)

Claim.—In a game apparatus, a board, a central colored section represented in the center of the board, said colored section being designated as a bank, one hundred and sixty series of holes arranged in a circle surrounding the central portion at a distance therefrom, said circle of holes being divided into ten, and each tenth series of holes numbered from "1" to "10," colored sections adapted to surround every ten series of holes in

the circle, a line composed of twenty-three series of holes extending from the circle opposite every alternate colored section in said circle to the central portion or bank, a colored section surrounding the ten series of holes from the circle in these lines numbered from "1" to "10," a series of holes leading inward from the circle of holes part way to the central portion, said series of holes being opposite the colored sections in the circle lying between the colored sections from which the lines of twenty-three series of holes lead, holes formed in the central portion or bank, one hole being opposite each of the lines of twenty-three series of holes leading into said bank, a series of holes arranged in each corner of the board, each hole of said series being numbered from "1" up to the limit of the number of holes, substantially as and for the purpose set forth.



695,804. LOCK-NUT. LAWRENCE R. GRAY, Studley, Va. Filed Oct. 12, 1901. Serial No. 78,446. (No model.)



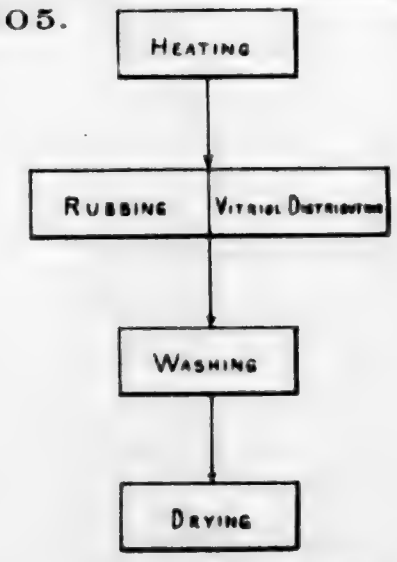
Claim.—1. In the end of a bolt, a recess 16 in which may be inserted casing 9, casing 9 secured in said recess, lever 5 fulcrumed in said casing, and locking-detent 4 operated by lever 5, in combination with said bolt.

2. In the end of a bolt, recess 16 in which may be inserted casing 9, casing 9 secured in said recess, lever 5 fulcrumed in said casing, locking-detent 4 operated by lever 5, and key 12 securing lever 5 when locking-detent 4 is in locked position, in combination with said bolt.

695,805. ART OF REMOVING FIBER FROM COTTON-SEED. JOSHUA J. GREER, Shreveport, La. Filed Dec. 2, 1901. Serial No. 84,459. (No specimens.)

Claim.—The described improvement in the art of removing fibers and gums from cotton-seed consisting in first heating the seed and then distributing strong oil of vitriol onto the hot seed and rubbing the seed against each other to remove successive portions of carbonized fiber and permit access of the vitriol to the successive inner coatings of the seed and subsequently washing the acid from the seed with water, substantially as hereinbefore set forth.

695,805.



695,806. SEPARATION OF THE CONSTITUENTS OF COMPLEX SULFID ORES. MAX M. HAFF, New York, N. Y., assignor to the Ampere Electro-Chemical Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 28, 1901. Serial No. 66,589. (No specimens.)

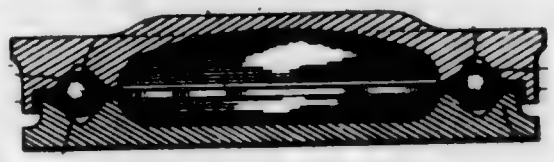
Claim.—1. The process which consists in heating mixed sulfids of zinc and lead with sulfate of an alkali metal, treating the resultant mass with a dissolving agent to dissolve the zinc sulfate and alkali-metal sulfate, while leaving the lead sulfate undissolved and adding barium hydrate to the mixed solution of zinc sulfate and alkali-metal sulfate to precipitate zinc hydrate and barium sulfate.

2. The process which consists in heating mixed sulfids of zinc and lead with acid sulfate of an alkali metal, treating the resultant mass with water to dissolve the sulfates of zinc and alkali metal, and adding barium hydrate to the resulting solution to precipitate zinc hydrate and barium sulfate, leaving the alkali-metal sulfate in solution.

3. The process which consists in heating mixed sulfids of zinc and lead with acid sulfate of an alkali metal, treating the resultant mass with water to dissolve the sulfates of zinc and alkali metal, adding barium hydrate to the resulting solution to precipitate zinc hydrate and barium sulfate, leaving the alkali-metal sulfate in solution, recovering the alkali-metal sulfate, treating it with sulfuric acid to convert it into acid sulfate and utilizing the latter in a repetition of the process.

4. The process which consists in roasting mixed sulfids of zinc and lead with acid sulfate of an alkali metal, thereby producing sulfates of lead and zinc and sulfur dioxid, producing sulfuric acid from the latter by usual means, treating the sulfates of zinc, lead and alkali metal with water to dissolve the sulfates of zinc and alkali metal, adding barium hydrate to the solution to precipitate zinc hydrate and barium sulfate, recovering the alkali-metal sulfate from the solution, and treating it with the sulfuric acid produced from the roasting process to obtain acid sulfate of the alkali metal for utilization in repetition of the process.

695,807. TURN-TABLE. CHARLES M. HAMPSON, Denver, Colo. Filed Nov. 20, 1901. Serial No. 83,031. (No model.)



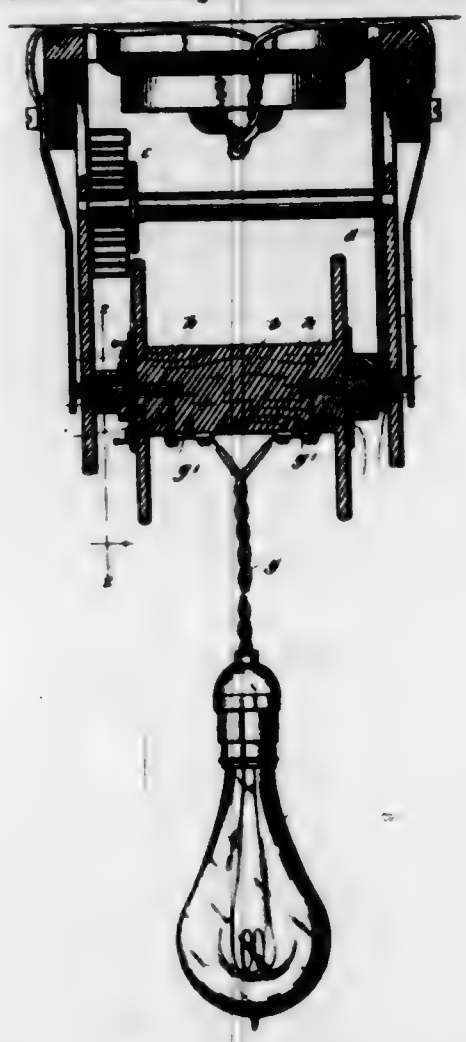
Claim.—1. A turn-table comprising a bottom plate having a raised circular runway V-shaped in cross-section, balls on said runway, an upper plate mounted to turn on said balls, and a central raised portion or dome on the upper face of the upper plate, the said raised portion or dome serving as a guide for the wheels of the vehicle.

2. A turn-table comprising a bottom plate having a raised circular runway the latter being V-shaped in cross-section, balls in said runway, an upper plate mounted to turn on said balls, a flange projecting down from said upper plate to overlap the raised runway on the lower plate, and a central circular raised portion or dome on the upper face of the upper plate, the said raised portion or dome operating as a guide for the wheels of the vehicle.

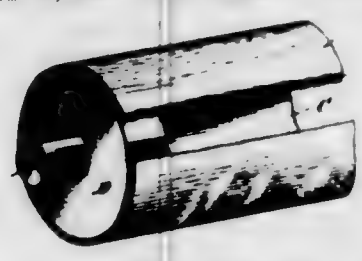
695,808. LAMP-HANGER. HENRY J. HARRISON, Juneau, Alaska. Filed Sept. 5, 1901. Serial No. 74,404. (No model.)

Claim.—A lamp-hanger, comprising a frame having depending parts, a shaft extending between said parts and mounted to turn therein, a spring driving the shaft, a drum, hollow trunnions on the drum, said trunnions

being mounted in the depending parts of the frame, gearing connecting the drum with the shaft, pins projected through the hollow trunnions of the drum and insulated therefrom, said pins extending into the drum and beyond said depending parts of the frame, contact-arms fastened to the upper part of the frame and projecting downward and engaged respectively with said pins of the drum, electrical conductors adapted to be wound on the drum, said conductors being respectively in connection with the pins, and means for controlling the movement of the drum.



695,309. COMPOSITE MATERIAL. EDWIN C. HEGAR, Louisville, Ky. Filed June 22, 1901. Serial No. 65,606. (No specimens.)

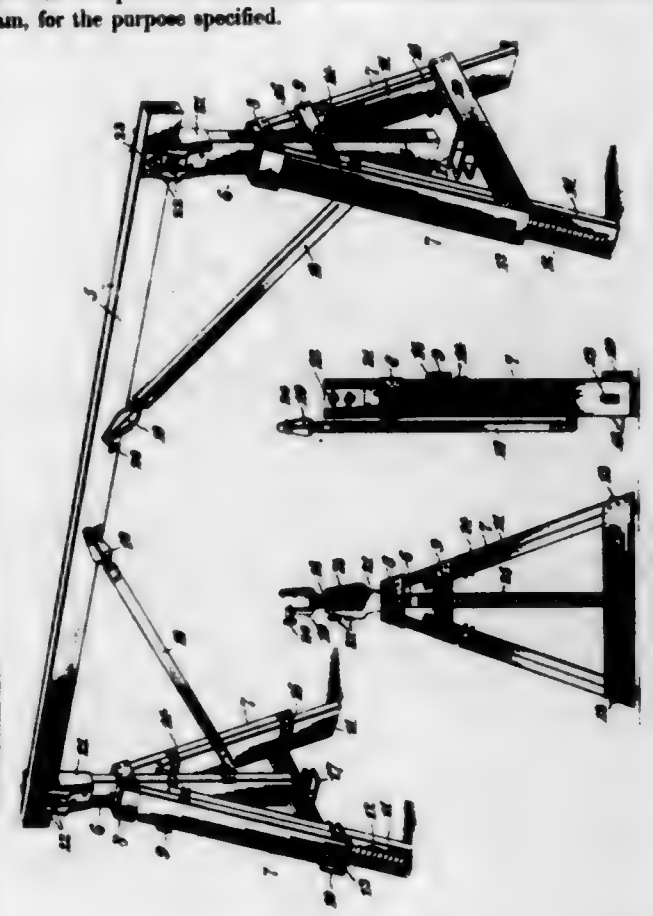


Claim.—1. As a new article of manufacture, a composite material consisting of sheets of veneer cemented together, and a casting of gypsum, as set forth.

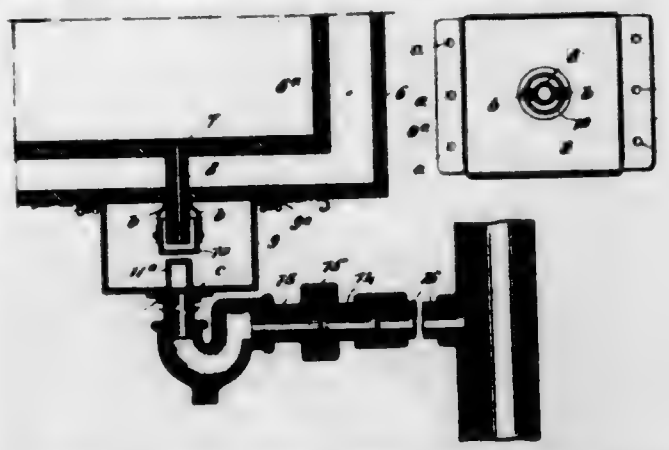
2. As an article of manufacture, a composite material comprising sheets of veneer disposed concentrically in the general form of a hollow cylinder and secured together, the inner sheet being coated with gypsum and provided with plugs in contact with said gypsum for closing the ends of said cylinder.

695,310. KNOCKDOWN TRESTLE. HARVEY E. HEBER, Allentown, Pa., assignor of one-half to Jacob Erhardt, Northampton, Pa. Filed May 22, 1901. Serial No. 61,428. (No model.)

Claim.—A knockdown trestle, comprising a cross-beam 5, triangular rigid end frames 7, a cross-piece 8, mounted on the frames, a vertically-adjustable upright 6, having bearing in said cross-piece, castings 21 carried by said uprights adapted to receive and clamp the cross-beam thereon, a rack 25 on the outer edge of the upright, a cross-brace 9, guides mounted thereon, a pawl 16 mounted on said brace adapted to engage said rack, a cross-brace 10 mounted at the base of the rigid frame, guides 17, carried thereby, yokes 14, 15 secured to the inside of the frame near the top and base, independently-adjustable legs 11 mounted in said yokes, a rack 12 formed on the outside of said legs, a pawl 13 carried by the rigid frame to engage the rack on the legs, a brace 18, hinged to the upright and clamps 19 on the free ends thereof adapted to engage the cross-beam, for the purpose specified.



695,311. WASTE-WATER RECEPTACLE AND DISCHARGE-TRAP FOR ICE-BOXES OR THE LIKE. JOHN J. HICKEY, New York, N. Y. Filed May 15, 1901. Serial No. 60,344. (No model.)



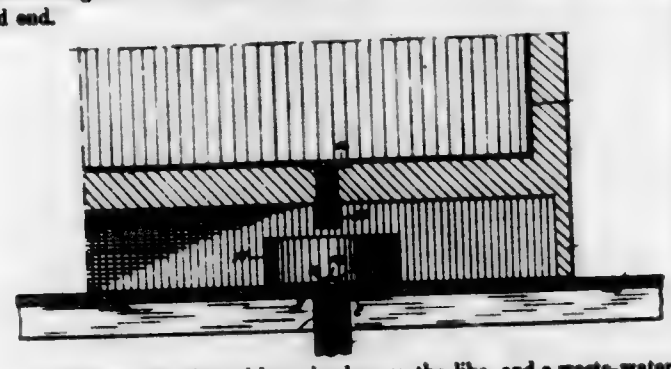
Claim.—1. The combination with a water-escape pipe on an ice-box or the like, of a waste-water receptacle held on the bottom of the ice-box under the escape-pipe, an elongated nipple, means to hold said nipple on the bottom of the receptacle, a tubular screen having a foraminated top and held on the bottom of the receptacle over the nipple, and a trapped extension of the nipple which is adapted to carry away the waste water which escapes from the receptacle through the screen and nipple.

2. The combination with an ice-box or the like, of a box-like receptacle held on the lower side of the ice-box, an escape-pipe depending from the ice-box into said receptacle, a nipple having a flanged tubular screen on its upper end projecting upwardly within the receptacle, a jam-nut screwed on the nipple and engaging the bottom side of the receptacle, a substantially U-shaped trap on the extended end of the nipple, and a waste-water conduit extended from the trap.

695,312. WASTE-WATER RECEPTACLE AND CONNECTION. JOHN J. HICKEY, New York, N. Y. Filed Dec. 12, 1901. Serial No. 85,596. (No model.)

Claim.—1. A waste-water receptacle, having an opening in its bottom wall, a countersunk depression around said opening, a nipple radially flanged at its upper end and seating in the countersunk depression when the nipple extends through the opening, said nipple having an internal thread and an external thread, a tubular screen threaded to screw into the internal thread of the nipple and having a normal open upper end, and a conduit-pipe internally threaded at one end for engagement with the external thread of the nipple.

2. In a device of the character described, the tubular screen, comprising a cylindrical wall having openings therein intermediately of its ends, an external thread on the lower end thereof, and a series of spaced tapered tongues on the upper end which when bent inwardly will close said end.



3. The combination with an ice-box or the like, and a waste-water-escape pipe in the bottom thereof, of a waste-water receptacle supported below the escape-pipe and having a perforation in its bottom, a threaded nipple having a radial flange seated in a countersunk depression formed around the perforation, a screen-plate removably held on the radial flange and over the nipple, and a conduit-pipe connection screwing on the nipple and bearing upon the bottom of the receptacle.

4. The combination, with an ice-box or the like, and a waste-water-escape pipe depending from the bottom of said box, of a waste-water receptacle supported below the escape-pipe and having a perforation in its bottom encircled by a countersunk depression, a nipple interiorly and exteriorly threaded, a radial flange on the upper end of said nipple and seated in the countersunk depression, a tubular screen screwing into the nipple and receiving the lower end of the water-escape pipe, and a conduit-pipe connection screwing on the depending end of the nipple.

695,313. **CURTAIN-POLE RING.** AUGUST HOTHAN, Brooklyn, N. Y., assignor to the John Kroder & Henry Reubel Co., New York, N. Y. Filed Oct. 19, 1901. Serial No. 79,234. (No model.)



Claim.—1. A curtain-pole ring, comprising a ring having a recess at the inside, slots leading into the recess at opposite sides, and apertures at the sides of the slots, a roller extending into the recess, and a bearing having an axle portion for the roller to turn on, and U-shaped ends integral with the axle portion; the inner members of the said ends engaging the slots, and the outer members engaging the said apertures, as set forth.

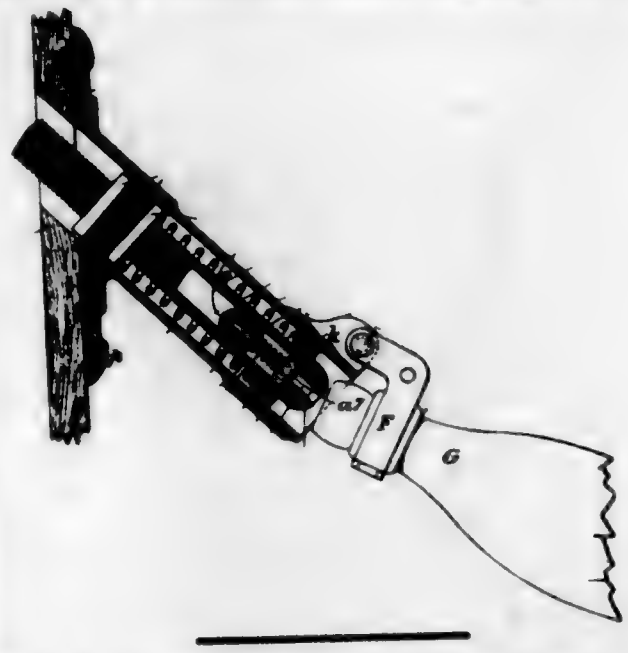
2. A curtain-pole ring, comprising a ring having a recess at the inside, slots leading into the recess at opposite sides, and apertures at the sides of the slots, a roller extending into the recess, and a bearing having an axle portion for the roller to turn on, and U-shaped ends integral with the axle portion; the inner members of the said ends engaging the slots, and the outer members engaging the said apertures, the said outer members having notches engaging the walls of the said apertures, as set forth.

3. In a curtain-pole ring, a roller-bearing having an axle portion and the U-shaped end portions disposed in close relation to each other, and a roller mounted on said axle portion and between said end portions, whereby the U-shaped portions limit the lateral play of the roller on the axle.

4. A slotted curtain-pole ring provided with apertures, a roller-bearing having yieldable retaining end portions on opposite sides of an axle portion and snapped into engagement with said perforated ring, and a roller mounted on the axle portion and projecting into the slot of said ring, said bearing being provided on opposite sides of the axle portion with means for confining said roller against lateral play on said axle-portion.

695,814. **APPARATUS FOR DISPENSING AERATED LIQUIDS.** WILLIAM HUGHES, Jr., London, England. Filed Aug. 5, 1901. Serial No. 70,962. (No model.)

Claim.—In apparatus for dispensing aerated liquids from containers thereof, the combination with the outlet from the container of a valve-seating and a valve provided with a stem projecting outward, a longitudinally-movable closing device, a flexible sleeve extending between the part carrying the valve and the closing device, and a centered carrier adapted to be turned as a lever, and means for normally keeping the valve closed and the closing device protruded, substantially as described.



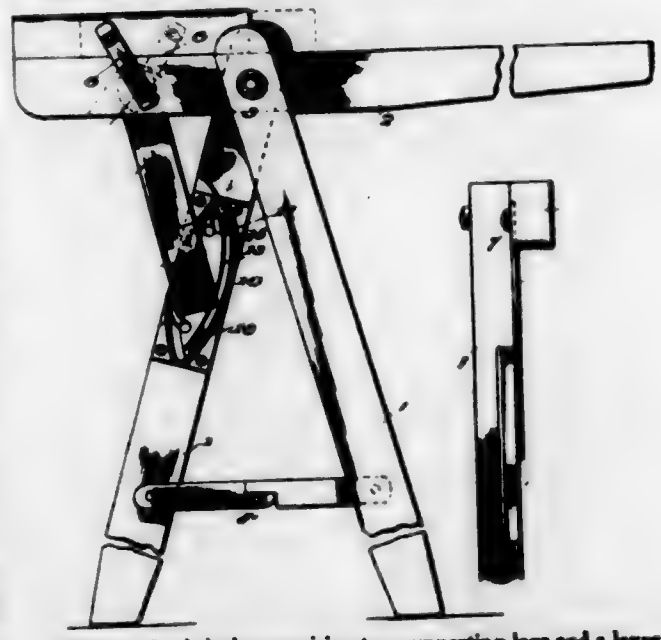
695,815. **CLEANING IMPLEMENT.** HARRY G. HUNTINGTON, Ladoga, Ind. Filed May 23, 1901. Serial No. 61,569. (No model.)



Claim.—1. The combination, in a cleaning implement, of a main handle, a stationary jaw formed of wire the ends whereof are brought together and rigidly attached to the implement-handle, a cleaning-jaw also formed of wire and bent into similar shape as the stationary jaw, the ends of the wire whereof it is formed extending out and forming an operating-handle therefor, and a hinging-wire bent around the parallel inner members of the said two jaws at the central and outer portions thereof and thus connecting them together at said points, substantially as shown and described.

2. The combination in a cleaning implement of a handle, a stationary jaw rigidly connected thereto and formed of wire bent into a suitable shape, the inner member extending at substantially right angles with the handle, the clamping-jaw also formed of wire and bent into similar shape, and a hinging-wire connecting two parallel members of said jaws together, said hinging-wire being first bent back around the handle portion of the clamping-jaw close to its head, thence up around the adjacent portion of the stationary jaw, thence outwardly parallel with the adjacent portions of the two jaws to near their ends, and there coiled around said two portions, substantially as shown and described.

695,316. **LIFTING-JACK.** JOHN H. KOONS, Waynesboro, Pa. Filed Dec. 31, 1901. Serial No. 87,250. (No model.)



Claim.—1. A jack comprising two supporting-legs and a lever, said legs being pivoted together and to the lever, said lever being thus fu-

crumed between said legs, a ratchet-plate secured to one side of one of said legs and having ascending and descending ways or tracks united at their ends, notches being formed in the ascending way, and a pawl pivoted at its upper end to one side of the lever and having a stud normally held in such ways and designed to engage said notches, substantially as set forth.

2. The combination with a lifting-jack comprising a standard and a lever fulcrumed thereon, of a ratchet-plate on such standard having ascending and descending ways or tracks, one being provided with notches having recesses at their inner ends, the other of said ways being smooth but deeper at one end than at the other, and a supporting-pawl connected at one end to said lever and having a stud designed to engage the notches in said ratchet-plate, substantially as set forth.

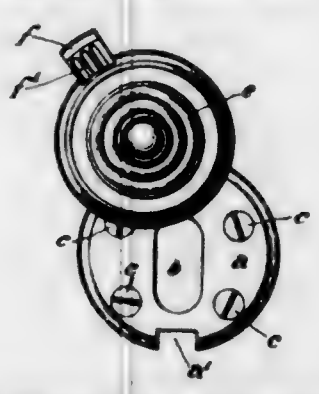
3. The combination with a lifting-jack comprising a standard and a lever fulcrumed thereon, of a ratchet-plate on such standard, having ascending and descending ways or tracks, one being provided with notches having recesses at their inner ends, and also recesses at the outer ends of the notches extending over the way, the other of said ways being deeper at its upper end than at its lower end, and a supporting-pawl connected to said lever and having a stud designed to travel in the ways and engage said notches, substantially as set forth.

695,317. **BOB-SLEIGH.** HERMAN KORTE, Freeport, Minn. Filed May 29, 1901. Serial No. 62,422. (No model.)



Claim.—In a bob-sleigh, the combination with a pair of runners and a connecting-bench; of inverted-V-shaped knees secured to the runners and provided at their upper ends with semicircular offsets, connecting-blocks or knee-seats on the under side of the bench provided with semicylindrical sockets in their lower sides to receive the offsets of the knees and further provided with downwardly and laterally disposed sets of clip-receiving notches, U-shaped clips having their connecting portions received in the offsets of the knees and their terminal portions received in the said notches and passing through openings in the bench, eyebolts on the under side of the bench, and braces each of which has its central portion extended through one of the eyebolts and its terminal portions inclined and diverging and connected to the downwardly-diverging portions of one of the knees.

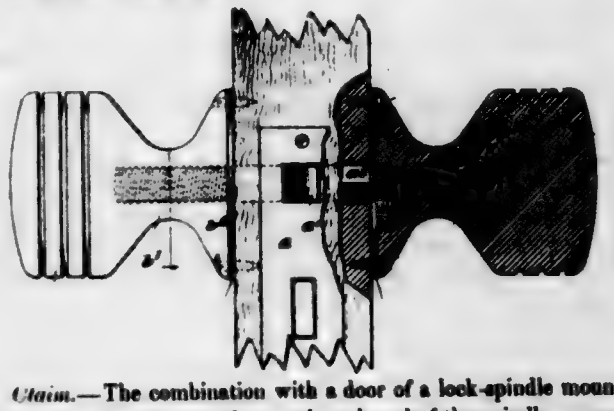
695,318. **KEYHOLE-GUARD.** LOUIS LACROIX and HENRI BRIDELET, Geneva, Switzerland. Filed Sept. 13, 1901. Serial No. 75,256. (No model.)



Claim.—1. An improved safety keyhole-guard essentially composed of a base-plate *a* having an opening *b* and an outcut *a'*, in combination with a rotative cover or obturator proper *e* with sliding bolt *f*, the said cover *e* being connected by means of a pivot *d* to the said plate *a* and to the said sliding bolt *f* being intended to engage the outcut *a'* of the plate *a*, and the said cover *e* having suitable springs *h* fixed to it and engaging suitable notches f^2 of the sliding bolt *f* the whole being combined with a safety-key *g* suitable for disengaging the springs *h* out of the notches f^2 substantially as and for the purpose specified.

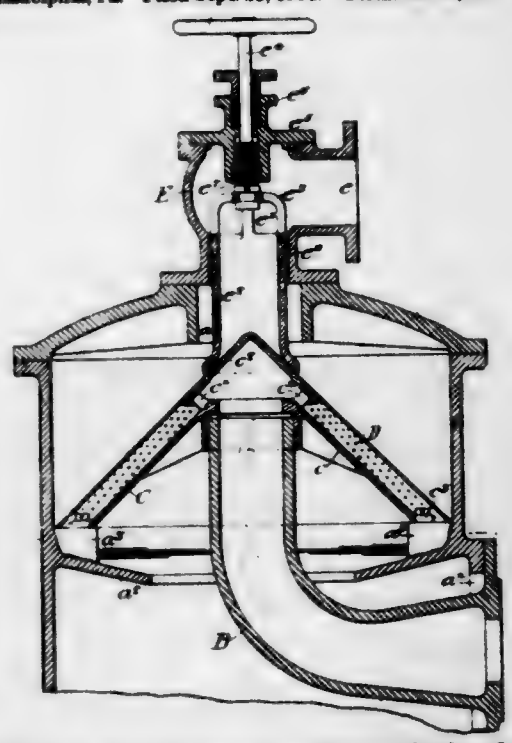
2. An improved safety keyhole-guard, consisting of a base-plate having an opening and an outcut therein, a cover-plate pivotally mounted on said base-plate and adapted to be removed therefrom, means for securing said cover-plate and base-plate in locked position, and a spring releasing means operated by a suitable key, substantially as set forth.

695,319. **DOOR-LATCH-OPERATING DEVICE.** THOMAS G. LESLIE, East Melbourne, Victoria, Australia. Filed July 13, 1901. Serial No. 68,179. (No model.)



Claim.—The combination with a door of a lock-spindle mounted to turn therein, a knob fastened on each each end of the spindle, an annulus fastened to each side of the door, and having the knobs bearing respectively against them, and a pin projecting beyond each annulus, said pins fitting loosely in slots in the knobs to limit the turning movement of the knobs.

695,320. **FEED-WATER HEATER.** FRANCIS B. MATTHEWS, Philadelphia, Pa. Filed Sept. 23, 1901. Serial No. 76,211. (No model.)



Claim.—1. In a feed-water heater, the combination of a casing having an inlet and an outlet for water, a pipe extending into the casing connected to a source of steam-supply, a conical shell surrounding the end of said pipe, a second conical shell over the end of the pipe carried by the first shell and adapted to receive the film of water from the inlet, and a removable screen placed so as to form a continuous surface with the upper surface of the second shell, substantially as described.

2. In a feed-water heater, the combination of a main casing, two conical shells supported within the same adjacent to one another, having a space between them, a steam-pipe connected to the said space between the shells, an opening in the main casing for the admission of water and mechanism in said opening placed to separate water in a film over the surface of one of the shells and means for varying at will the thickness of said film, substantially as described.

3. The combination in a feed-water heater of a main casing, two conical shells supported within the same adjacent to each other, having a space between them, a steam-pipe connected to the space between said shells, a water-inlet to the main casing, a valve connected thereto, and mechanism connected to the valve for spreading the water in a film over the surface of one of the shells and for varying at will the thickness of said film, substantially as described.

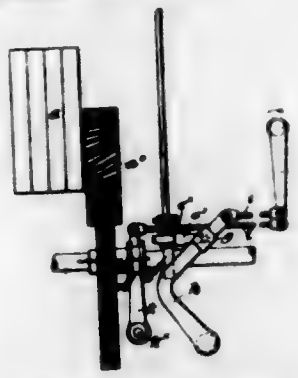
4. The combination in a feed-water heater of a main casing, two conical shells supported within the same adjacent to each other, having a space between them, a steam-pipe connected to the space between said shells, a water-inlet to the main casing over the apex of one of said shells, a valve-casing connected to said inlet having mechanism constructed to

engage with the said shell whereby the thickness of the film of water flowing over the surface of the conical shell can be regulated, substantially as described.

5. The combination in a feed-water heater of a main casing, two conical shells supported within the same adjacent to each other, having a space between them, a steam-pipe connected to the space between said shells, a water-inlet to the main casing over the apex of the outer one of said conical shells, a valve-casing connected to the opening having a movable tubular piece constructed to engage the outer surface of said conical shell, with means for operating said piece whereby the flow of water into the casing and the thickness of the film thereof over the outer shell may be varied, substantially as described.

6. The combination in a feed-water heater of a main casing, two conical shells supported within the same adjacent to each other, having a space between them, a steam-pipe connected to the space between said shells, a water-inlet to the main casing over the apex of the outer end of said conical shells, a valve-casing connected to the opening having a movable tubular piece provided with flared edges, constructed to engage the outer surface of said conical shell, with means for moving said piece in the line of the axis of the conical shell whereby the flow of water into the casing and therefore the thickness of the film thereof over the outer shell may be varied, substantially as described.

695,321. **ELECTRIC IGNITER FOR MOTORS.** WILHELM A. MAYBACH, Cannstadt, Germany, assignor to Daimler Manufacturing Company, New York, N. Y., a Corporation of New York. Filed Mar. 23, 1901. Serial No. 53,342. (No model.)



Claim.—1. The combination of an electric generator, having an armature and a shaft therefor, a driving-shaft, a gear-wheel on each of said shafts, electrodes, mechanism operated from the driving-shaft for causing a spark to be formed between the same, an operating-shaft and mechanism connecting said shaft both with the gear-wheels and with the means for causing a spark to pass between the electrodes, whereby, when said operating-shaft is turned, the spark will be formed at a period of time different from that at which it normally occurs and the position of the gear-wheels is altered relatively to the driving-shaft, substantially as described.

2. The combination of an electric generator having an armature and a shaft therefor, a gear-wheel thereon, a driving-shaft, a gear-wheel loosely mounted on the same meshing with the gear-wheel on the armature-shaft, electrodes, a cam on the driving-shaft, and mechanism transmitting motion from said cam to one of the electrodes, an operating-shaft, mechanism connecting said shaft with the mechanism for moving one of the electrodes, other mechanism connecting the operating-shaft to the gear on the driving-shaft whereby when said shaft is moved, the mechanism for operating the electrode will be brought into contact with the cam at a time other than that at which said contact would normally have occurred, and the said gear-wheel will be moved longitudinally and cause movement of the armature-shaft relatively to the driving-shaft, substantially as described.

3. The combination of an electric generator having an armature and a shaft therefor, a gear-wheel on said shaft, a driving-shaft, a sleeve having a collar carrying a gear-wheel transmitting motion to the gear-wheel on the armature-shaft, said sleeve being keyed to said shaft, but movable longitudinally thereon, a cam also on the driving-shaft, electrodes, and a rod carrying a roller for operating the electrodes so as to cause a spark to pass between them, said roller being constructed to be periodically engaged by the cam, an operating-shaft, mechanism connecting the same to the movable sleeve and other mechanism connecting it to the roller operated on by the cam, the same acting, when the operating-shaft is turned, to cause a spark to be formed at a time differing from that at which it normally occurs and also causes the armature to be moved relatively to the driving-shaft, substantially as described.

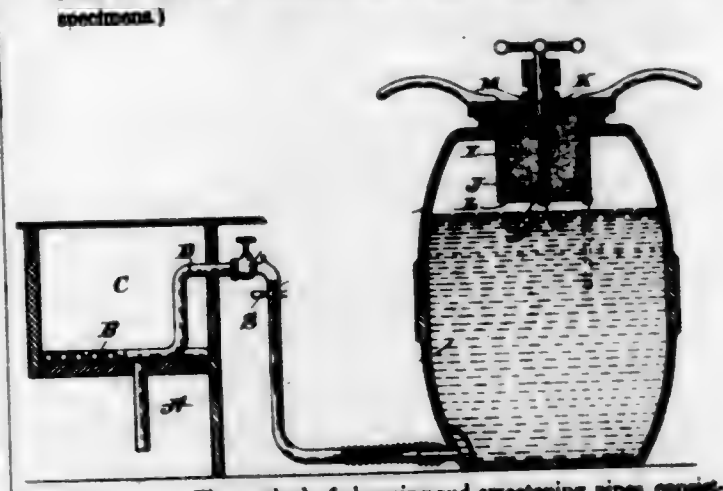
695,322. **THREAD-HOLDER.** JOHN METCALFE and THOMAS BELL, Roscoe, Pa. Filed Sept. 16, 1901. Serial No. 75,522. (No model.)

Claim.—1. The combination with an U-shaped flexible frame having hollow bearings formed integral therewith; of a spring-plate extending across the top of said frame, said plate provided with a cutting edge, and means for securing said plate to one of the arms of said frame.



2. A frame for holding a spool of thread, consisting of an approximately U-shaped flexible frame having its ends formed with transverse tongues, each tongue being also bent inward to semicircular form to provide split cylindrical yielding bearings.

695,323. **METHOD OF CLEANSING PIPES.** GEORGE E. MITTINGER, Jr., Cleveland, Ohio, assignor to William Dunbar, Cleveland, Ohio. Filed Dec. 10, 1900. Renewed Nov. 2, 1901. Serial No. 80,914. (No specimens.)



Claim.—1. The method of cleansing and sweetening pipes, consisting in providing a solution of bicarbonate of soda and water within a closed vessel, subjecting said solution to a charge of bisulfate of soda and creating a cleansing and sweetening solution and charging the closed vessel with a gaseous pressure, and finally forcing the said solution from the closed vessel through a pipe by said created gaseous pressure.

2. The method of cleansing and sweetening pipes, consisting in providing a solution of bicarbonate of soda and water and a separate charge of bisulfate of soda in a closed vessel, suddenly subjecting the said solution to said charge creating a sweetening solution and a gaseous pressure in said vessel, then forcing said solution from the vessel through the pipe to cleanse and sweeten it by said created gaseous pressure.

3. The method of cleansing and sweetening pipes consisting in providing a solution of bicarbonate of soda and water and a separate charge of powdered bisulfate of soda within a closed vessel, subjecting said solution to said powdered charge creating a cleansing and sweetening solution and a gaseous pressure in the said vessel, then forcing the said solution from the vessel through a pipe for cleansing and sweetening it by the said gaseous pressure.

4. The method of cleansing and sweetening pipes consisting in providing a solution within a closed vessel, subjecting the solution to a chemical charge which produces a cleansing and sweetening solution and creates a gaseous pressure within the closed vessel, and finally forcing the said solution from the vessel through a pipe by the gaseous pressure created thereby within the said closed vessel.

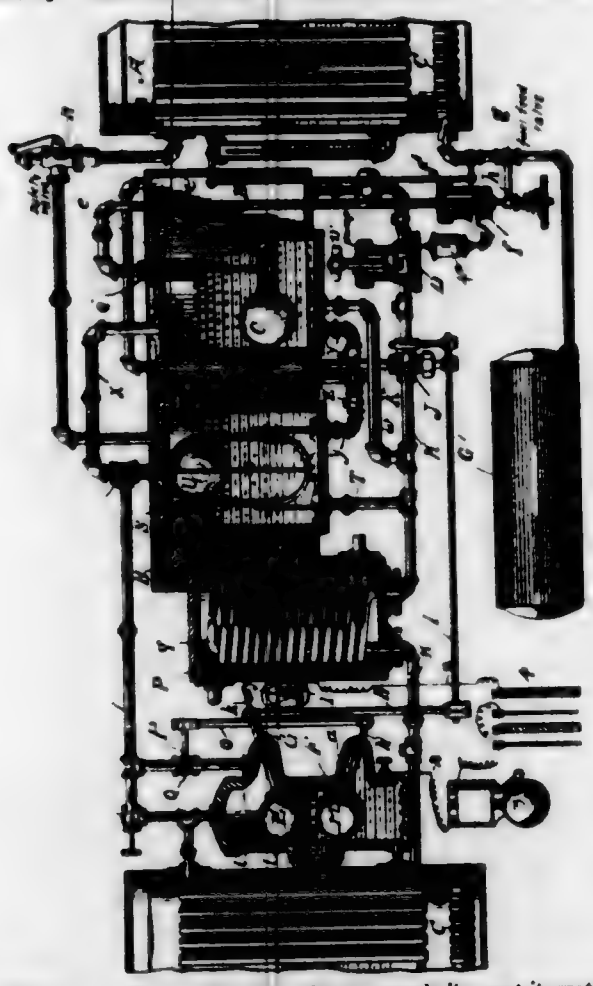
695,324. **IRONING-BOARD.** THOMAS D. MONTAGUE, Mawrglen, Pa. Filed May 18, 1901. Serial No. 60,897. (No model.)



Claim.—The combination of a pair of plates having vertical sockets and adapted to be secured to a wall, a bracket having a horizontal lip and adapted to be secured to the wall above the plates, a board having a supporting-leg, a pair of straps secured to the under side of the board having pendent pins, adapted to engage in the vertical sockets, and a hori-

zontal cam-disk eccentrically pivoted to the board and operating between the latter and the horizontal lip.

695,325. **FEED-WATER REGULATOR AND HIGH OR LOW WATER ALARM FOR STEAM-BOILERS.** THOMAS W. MORAN, Louisville, Ky. Filed June 11, 1901. Serial No. 64,106. (No model.)



Claim.—1. The combination with a steam-boiler and its water-supply, of an auxiliary water-chamber having pipe connections with the boiler at top and bottom thereof, a by-pass valve in the water-feed pipe having a connection with a return-pipe to the water-supply, a float in said auxiliary chamber arranged to control said valve and to sound an alarm when the water in the boiler reaches a dangerously-high point, a supplementary water-supply chamber, and a second low-water float in said auxiliary chamber arranged to control the supply of water thereof to the boiler, substantially as specified.

2. The combination with a steam-boiler, and its water-supply, of an auxiliary water-chamber, having pipe connections with the boiler at top and bottom thereof, a high-water float in said chamber, means operating in connection therewith whereby further supply of water to the boiler is prevented, a low-water float in said chamber, and means operating in connection therewith, whereby the supply of water to the boiler is renewed, substantially as specified.

3. The combination with a steam-boiler and its water-supply, of an auxiliary water-chamber having pipe connections with the boiler at top and bottom thereof, a high-water float in said chamber, means operating in connection therewith, whereby further supply of water to the boiler is prevented, and means operating in connection therewith for sounding an alarm at dangerously-high water, a low-water float in said chamber, means operating in connection therewith, whereby the supply of water to the boiler is renewed, and means operating in connection with said low-water float, whereby an alarm is sounded at dangerously-low water, substantially as specified.

4. The combination with a steam-boiler and its water-supply, of an auxiliary water-chamber having pipe connections with the boiler at top and bottom thereof, a by-pass valve in the water-feed pipe, having a connection with a return-pipe to the water-supply, a float in said chamber arranged to control said valve, two supplementary water-supply chambers, a second low-water float in said auxiliary chamber, and devices in connection therewith for controlling the supply of said supplemental chambers, substantially as specified.

5. The combination with a steam-boiler and its water-supply, of an auxiliary water-chamber having pipe connections with the boiler at top and bottom thereof, a by-pass valve in the water-feed pipe having a communication with a return-pipe to the water-supply, a high-water float in said chamber arranged to control said valve, two supplementary water-supply chambers having a steam connection with the boiler, a valve in such connection, and a second low-water float in said auxiliary chamber controlling said steam-valve, substantially as specified.

6. The combination with a steam-boiler and its water-supply, of an auxiliary water-chamber having pipe connections with the boiler at top and bottom thereof, a by-pass valve in the water-feed pipe having a communication with a return-pipe to the water-supply, a high-water float in said chamber arranged to control said valve, and means operating in connection with said float, whereby an alarm is sounded at dangerously-high water, substantially as specified.

7. The combination with a steam-boiler, and its water-supply, of an auxiliary water-chamber, having pipe connections with the boiler at top and bottom thereof, a high-water float in said chamber having means in connection therewith whereby further supply of water to the boiler is prevented, a supplementary water-supply chamber, having a steam connection with the boiler, a valve in said connection, and a low-water float in said chamber arranged to control such steam-valve, substantially as specified.

8. The combination with a steam-boiler and its water-supply, of an auxiliary water-chamber, having pipe connections with the boiler at top and bottom thereof, a high-water float in said chamber having means in connection therewith whereby further supply of water to the boiler is prevented, two supplementary water-supply chambers having a steam connection with the boiler, a valve in said connection, a low-water float in said auxiliary chamber controlling such steam-valve, a valve for the steam connection of said supplementary chambers, and a float in one of said chambers for controlling such valve, substantially as specified.

9. The combination with a steam-boiler, and its water-supply, of the auxiliary water-chamber having pipe connections at top and bottom thereof with the water-chamber of the boiler, a by-pass valve in the water-feed pipe, a return-pipe to the water-supply, a float in said auxiliary chamber arranged to control said valve, an alarm device, and means for closing an electric circuit and sounding such alarm when the water in the boiler has reached a dangerously-low point, substantially as specified.

10. The combination with a steam-boiler, and its water-supply, of an auxiliary water-chamber connected at top and bottom with said boiler, its upper or high-water float, its lower or low-water float, a by-pass valve in the water-feed pipe, a return-pipe therefrom to the water-supply, alternating condensing water-chambers having connections with the water-supply, the check-valves in such connections, a steam-pipe from the boiler in connection with the condensing water-chambers, a steam-valve therein, and a caged float in one of said condensing water-chambers operating such steam-valve, substantially as specified.

11. The combination with a steam-boiler, and its water-supply, a water-chamber connected to said boiler at top and bottom, and a low-water float therein, of alternately-acting condensing water-chambers having connections with the water-supply, the check-valves in such connections, the steam-pipe, its valve, the float-cage connected to such valve, and the float therein, substantially as specified.

12. The combination with a steam-boiler, and its water-supply, of the auxiliary chamber connected thereto at top and bottom, the alternately-acting condensing water-chambers, in connection with the water-supply, the check-valves, the valved steam connection of said condensing water-chambers with the boiler, and float devices for operating the same, substantially as specified.

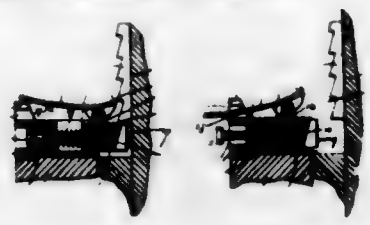
695,826. **SAMPLE-DISPLAY CASE.** CALVIN S. MORRIS, St. Louis, Mo. Filed June 26, 1901. Serial No. 66,126. (No model.)



Claim.—A folding case consisting of a series of trays of equal size hinged together, the inner sections being connected to a pair of base-pieces of equal size hinged together and forming the bottom of the case, and the outer sections being hinged to the outer portions of the inner sections, the meeting edges of the sections or trays being rabbeted to fit each other, the rabbets of the inner sections embodying transverse and convex shoulders and the rabbets of the outer sections embodying transverse and concave shoulders, substantially as described.

695,827. **SASH-FASTENER.** BARNEY MURPHY, New Haven, Conn., assignor of one-half to Henry P. Downes, New Haven, Conn. Filed Dec. 23, 1901. Serial No. 86,688. (No model.)

Claim.—1. A sash-fastener comprising a case, a bolt longitudinally movable therein, a lever arranged above the case and pivotally connected with said bolt and having a transverse rib on its under side adapted to engage with the edge of the case to lock the bolt in its retired position, and means secured to the upper sash of the window on which the bolt is adapted to engage, substantially as described.



2 A sash-fastener comprising a case, a bolt arranged therein, a screw secured to said bolt and extending rearward therefrom through a partition in the case, a lever secured to said bolt whereby it may be moved back and forth, a rib on the under side of said lever adapted for engagement with the edge of the case whereby the bolt may be locked in its retired position, a rack and a dog adapted to trip the said lever substantially as described.

3 In a sash-fastener, the combination with the case, of a bolt longitudinally movable therein, a cam-lever secured to said bolt and having a forwardly-projecting end, a rack with which said bolt and lever may be engaged and means for holding the lever in a depressed position substantially as described.

4. In a sash-fastener, the combination with the case of a bolt longitudinally movable therein, the forward end of said bolt centrally cut away forming an inclined surface and flanges on opposite sides thereof, a lever pivotally connected with said bolt whereby the bolt may be retired and locked in its retired position, and a rack with which said bolt may be engaged when released by the lever substantially as described.

695,828. ANIMAL-POKE. CHARLES H. MCBROOM, Corticelli, Mo. Filed May 25, 1901. Serial No. 61,917. (No model.)



Claim.—In an animal-poke, the combination with a bridle having means whereby it may be adjusted to the animal's head; of a poke proper comprising a stationary member adapted to extend upward from the animal's nose, means thereon for securing the bridle thereto, rigid inwardly-extending nostril-engaging hooks secured at opposite sides of said member, a knob at the free end of each hook, a sleeve at one end of the stationary member, a hinged member, ears at one end thereof, a pin engaging the ears and sleeve, the adjacent ends of the members being adapted to abut and limit the movement of the hinged member in one direction, and a stop upon the hinged member extending over the sleeve and adapted to limit the movement of said member in the opposite direction

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695,829. CHUTE. WILLIAM L. MCCABE, Tacoma, Wash. Filed July 24, 1901. Serial No. 69,518. (No model.)

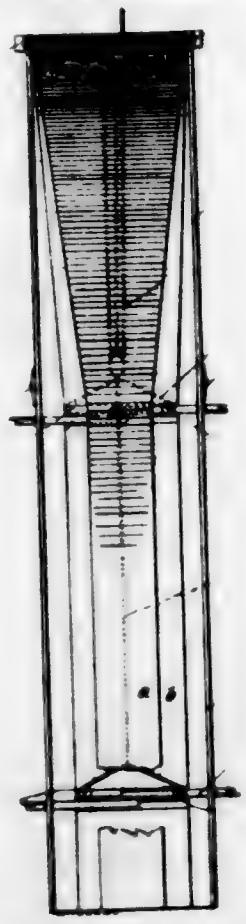
Claim.—1. A chute, having a bottom on which the goods slide by gravity, a brake extending longitudinally along the bottom and movable laterally to press the brake against the goods, as they slide down the chute, whereby to retard the movement of the goods, said bottom being stationary relatively to the brakes.

2. A chute, having a bottom on which the goods slide by gravity oppositely-disposed brakes movable laterally toward and from each other and extending longitudinally along the bottom, between which brakes the goods are adapted to pass, for the purpose specified, said bottom being stationary relatively to the brakes.

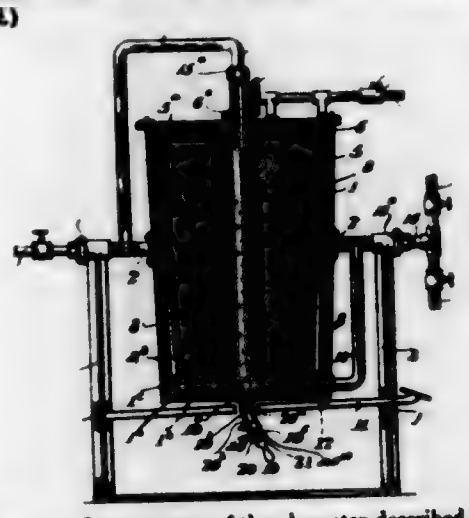
3. A chute, comprising a rigid body portion, brake-boards arranged at the sides thereof and movable laterally toward and from each other to be pressed against the goods as they descend along the chute, and means mounted on the bottom of the body portion, whereby to force the brake-boards toward each other, said bottom being stationary relatively to the brake-boards and adapted to have the goods slide by gravity along it.

4. In a chute, the combination of a rigid bottom, bars mounted to slide transversely thereon, means for moving the bars inward, and brake-boards extending longitudinally along the chute and fastened to the bars and moving therewith, for the purpose specified, the bottom of the chute being stationary relatively to the brake-boards and adapted to have the goods slide by gravity along it.

695,829.



695,880. HOMINY HULLER AND WASHER. WILLIAM J. MCCASLIN, Newcastle, Pa. Filed Aug. 22, 1901. Serial No. 72,921. (No model.)



Claim.—1. In apparatus of the character described, a kettle or receptacle, a tubular shaft vertically arranged therein and having numerous lateral water-passages therethrough, hollow journals secured laterally to said kettle and suitably supported in position, a valved supply-pipe connecting with one of said journals, a pipe having an overhanging elbow, one end of said last-named pipe connecting with one of said journals and the other end of said pipe connecting with said tubular shaft, and means for actuating said tubular shaft, substantially as set forth.

2. In apparatus of the character described, a kettle or receptacle having laterally fixed thereto hollow or bored journals suitably supported in position, a tubular vertical shaft arranged centrally in said kettle and having agitator-blades and numerous lateral passages or openings therethrough, an overhanging pipe connecting with one end of said tubular shaft and one of said journals, a valved supply-pipe having one end connecting with the same journal, and means for actuating said tubular shaft, substantially as set forth.

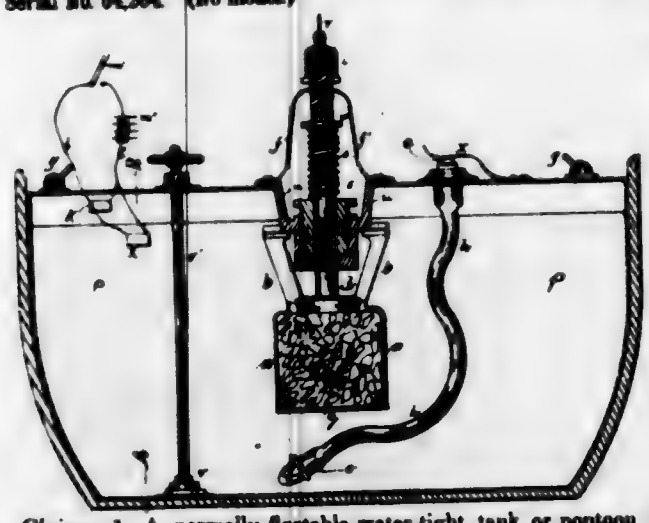
3. In apparatus of the character described, a kettle or receptacle having laterally fixed thereto hollow or bored journals suitably supported in position, a tubular vertical shaft arranged in said kettle or receptacle and having numerous lateral passages or openings therethrough, a valved swiveled pipe connecting with one of said journals, and an overhanging pipe having one end connected to said journal and its other end swiveled to the upper end of said tubular shaft, and means for actuating said tubular shaft, substantially as set forth.

4. In apparatus of the character described, a kettle or receptacle, a tubular vertical shaft arranged in said kettle or receptacle and having numerous lateral passages or openings therethrough and agitator arms or blades, a

driving or actuating shaft geared to the upper end of said tubular shaft, bored or tubular journals secured to said kettle and suitably supported in position, a valved pipe connected to one of said journals, and an overhanging pipe connected to the same journal and having the other end delivering into said tubular shaft, and also having a swiveled connection with said tubular shaft, substantially as set forth.

5. In apparatus of the character described, a kettle or receptacle, bored or hollow journals laterally secured to said kettle and suitably supported in position, a valved steam-pipe having swiveled pipe connection with one of said journals and a pipe connected to the same journal delivering into said kettle near its bottom, substantially as set forth.

695,831. APPARATUS FOR RAISING SUNKEN VESSELS. FRIEDRICH G. HIELSCHER, Sonderburg, Germany. Filed June 12, 1901. Serial No. 64,264. (No model.)



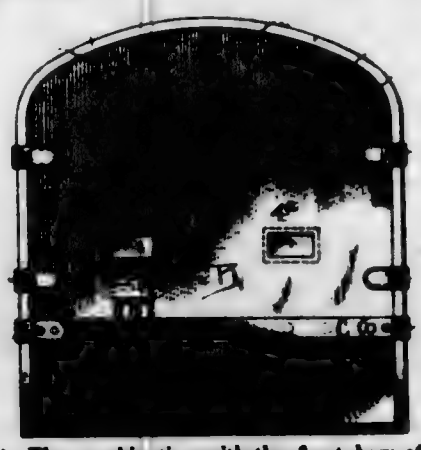
Claim.—1. A normally floatable water-tight tank or pontoon for use in raising sunken objects, provided with means for permitting the entry of water through the bottom, means for discharging water at the top, a holder for a gas-developing salt, and means for discharging salt into the water in the tank while submerged, substantially as described.

2. A normally floatable, water-tight pontoon provided with a water-admitting valve in its bottom, and a water-discharging valve in its top, a tilting holder for gas-developing salt in the tank and having a mouth in its top, a stopper normally pressed in the mouth, and means extending above the surface of the water for removing the stopper when the tank is submerged, substantially as described.

3. A normally floatable tank provided with an inward-opening valve in its bottom, an outward opening in its top, a tube in the tank leading from the top valve to the bottom of the tank, a spring normally closing the top valve, a tipping holder for gas-developing salt pivoted in the tank, and having a mouth in its top, a stopper normally latched in said mouth, a spring normally pressing the stopper outward, and means for unlatching the stopper operated from above the surface of the water, substantially as described.

4. The combination with the tank and its valves of the casting *a*, the box *b* suspended pivotally therefrom below its center and having a mouth, the bar *c* having side grooves and carrying stopper *d* at its lower end fitting in said mouth, the spring *e* normally pressing the bar and stopper upward, the spring-catches *f* and the cap *i* fitting over bar *c* and holding the catches in the side grooves, and means for removing the cap from the bar, substantially as described.

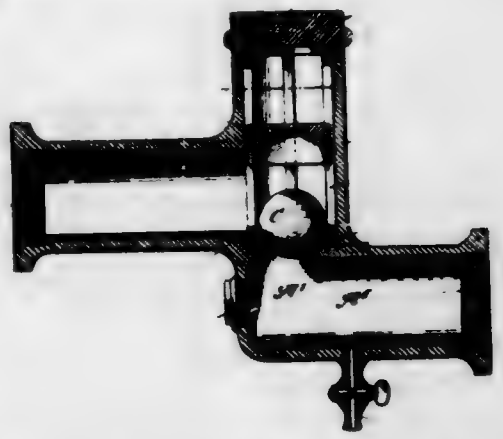
695,832. STORM-CURTAIN FOR VEHICLES. WILLIAM M. NORBERT, Whiteville, Tenn. Filed Sept. 24, 1901. Serial No. 76,389. (No model.)



Claim.—1. The combination with the front bow of a vehicle-top provided with a series of loops or eyes secured in the top piece of the bow, of a storm-protector shaped to close the space between the uprights and top piece of the bow, and provided with hooks to engage the eyes in top piece of the bow and straps at its vertical edges to buckle around the side bars of the bow and provided with buttonholes at its lower end, and a cross-piece detachably secured to the side bars of the bow and provided with studs to engage the buttonholes in the lower end of the protector, and depending hooks adapted to engage in a lap-robe, substantially as described.

2. The combination with the front bow of a vehicle-top provided with a series of loops or eyes in the top piece of the bow of a storm-protector shaped to close the space between the uprights and top piece of the bow, and provided with hooks to engage the eyes in the top piece of the bow and straps at its vertical edges to buckle around the side bars of the bow and provided at its lower end with buttonholes, and cross-piece composed of two pieces hinged together at their middle and having its ends detachably secured to the side bars of the bow and provided with studs to engage the buttonholes in the lower end of the protector and depending hooks adapted to engage a lap-robe, substantially as described.

695,833. VALVE. NICHOLAS OBOLENSKÜ, Hermitage, N. Y. Filed May 31, 1901. Serial No. 62,531. (No model.)



Claim.—1. A check-valve having a valve-body, provided with a continuous passage, a cage removably held in said valve-body and having a valve-seat extending in said passage, a valve proper movable in said cage and adapted to be seated on said valve-seat and a stop mounted in the cage, as set forth.

2. A check-valve having a valve-body provided with a continuous passage, a cage removably and reversibly held in said valve-body and provided at both ends with valve-seats, of which the inner valve-seat extends in the passage, a valve proper movable in said cage and adapted to be seated on the inner valve-seat, and a stop carried by said cage for limiting the opening movement of said valve, as set forth.

3. A check-valve having a valve-body provided with a continuous passage, a cage removably and reversibly held in said valve-body and provided at both ends with valve-seats, of which the inner valve-seat extends in the passage, a valve proper movable in said cage and adapted to be seated on the inner valve-seat, and a stop carried by said cage, for limiting the opening movement of said valve, said stop being reversibly held in said cage, as set forth.

4. A check-valve having a valve-body provided with an extension between the inlet and the outlet and opening into the continuous passage of the valve-body, a cage removably and reversibly held in said extension and provided at each end with a valve-seat, of which the inner valve-seat extends into said passage, and a valve proper in said cage and seated on the inner valve-seat, as set forth.

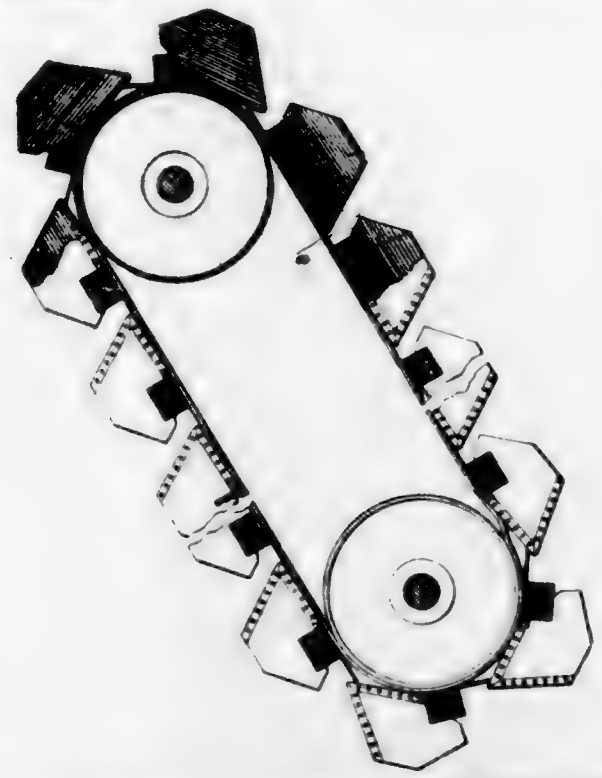
5. A check-valve having a valve-body provided with an extension between the inlet and the outlet and opening into the continuous passage of the valve-body, a cage removably and reversibly held in said extension and provided at each end with a valve-seat, of which the inner valve-seat extends into said passage, a valve proper in said cage and seated on the inner valve-seat, and a stop reversibly held in said cage, as set forth.

6. A check-valve having a valve-body provided with an extension between the inlet and the outlet and opening into the continuous passage of the valve-body, a cage removably and reversibly held in said extension and provided at each end with a valve-seat, of which the inner valve-seat extends into said passage, a valve proper in said cage and seated on the inner valve-seat, and a screw-cap screwing on the outer end of the extension and engaging the outer valve-seat, to hold the cage in place, as set forth.

695,834. ELEVATOR. WILLIAM J. O'BYRNE, Catoosa, Ind. Ter. Filed Nov. 15, 1901. Serial No. 82,381. (No model.)

Claim.—1. An elevator-bucket, having an apron hinged thereto and

projecting therefrom to prevent the material from falling between it and the adjacent bucket.



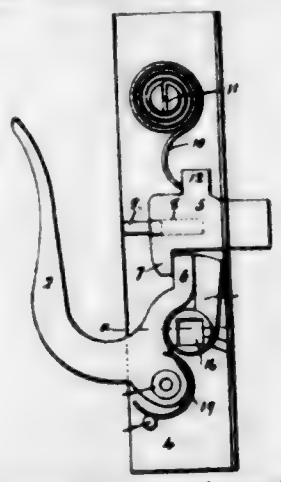
2. The combination of a carrier-belt, a plurality of buckets fastened thereto, and aprons hingedly mounted on the buckets, the aprons extending into engagement with the adjacent buckets, for the purpose specified.

3. An elevator-bucket, having an apron hinged to the open end thereof, and a wing attached to the apron and slidably engaged with the side of the bucket, for the purpose specified.

4. The combination of an elevator-belt, buckets fastened thereto, and aprons hingedly mounted at the open ends of the buckets and extending into engagement with the adjacent buckets, said aprons having wings at the side edges and slidably engaged with the side walls of the buckets.

5. The combination of an elevator-belt, buckets fastened thereto and wings hingedly mounted at the open ends of the buckets and respectively extending to the adjacent buckets, said aprons projecting between the buckets and the belt to prevent material from entering into the space between these parts.

695,835. CARRIAGE-DOOR LOCK. ARTHUR OCHSNER, New Haven, Conn., assignor of one-half to Robert Ochsner, New Haven, Conn. Filed Nov. 29, 1901. Serial No. 83,964. (No model.)



Claim.—In a carriage-door lock, the combination with a narrow, upright casing adapted to be located in the pillar of a carriage-door, of a latch-bolt, a latch-bolt spring located above the bolt, a lever-handle pivoted below the bolt and extending up under the bolt for coaction therewith, and a roll-back located between the bolt and the pivot of the lever-handle and acting on the bolt through the medium of the said lever-handle which itself acts upon the bolt independently of the roll-back, the said bolt being free to be pushed back without disturbing either the lever-handle or the roll-back and the lever-handle free to be operated for the retraction of the bolt without disturbing the roll-back.

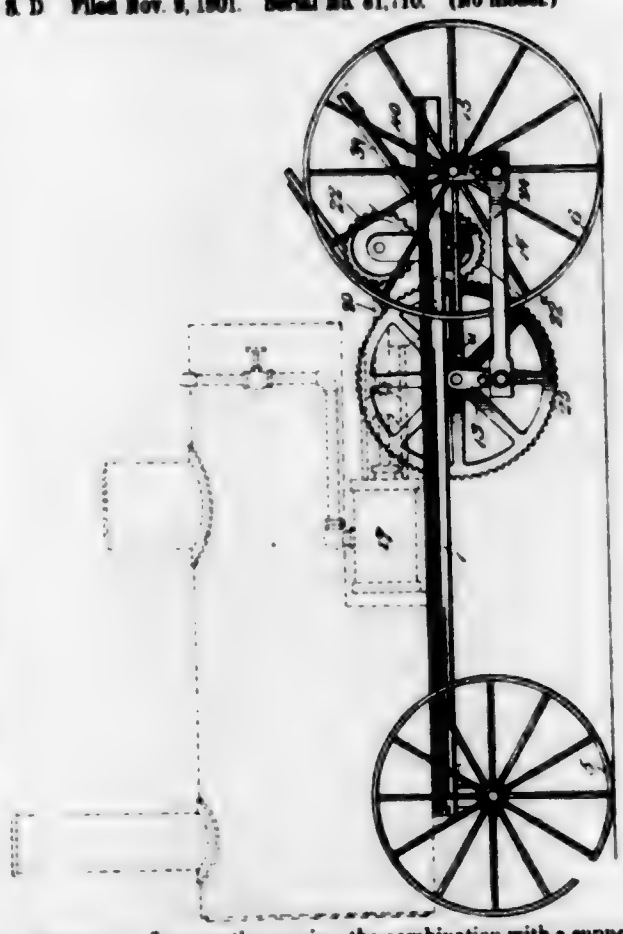
695,886. WEDGE-CUTTER. WESLEY PANGRAC, Ellis, Kans. Filed Oct. 26, 1901. Serial No. 80,073. (No model.)

Claim.—1. The combination with a standard having a recess in one face thereof and a wedge-shaped recess at its upper end; of a lateral extension thereto, a wear-plate secured within the wedge-shaped recess, a cutting-block detachably secured within the face-recess of the standard, the upper edge thereof being in alinement with the lower edge of the wedge-shaped recess, a lever pivotally secured to the standard and having a cutting edge thereto and a vertically-adjustable pivoted bolt to said lever.



2. The combination with a standard having a recess in one face thereof and a wedge-shaped recess at its upper end; of a lateral extension to said standard, an adjustable wear-plate secured within the wedge-shaped recess, a cutting-block detachably secured within the face-recess, the upper edge of said block being in alinement with the lower edge of the wedge-shaped recess, a lever pivoted to the extension and having a cutting edge adapted to bear upon the cutting-block, a pivoted bolt to said lever projecting through the extension and movable vertically therein and means upon the bolt for clamping the same in adjusted position.

695,887. TRACTION-ENGINE. THOMAS G. PAULSON, Estelline, S. D. Filed Nov. 9, 1901. Serial No. 81,710. (No model.)



Claim.—1. In a traction-engine, the combination with a supporting-frame, of a driving crank-shaft, a sleeve loosely mounted on the crank-

shaft having a limited sliding movement thereon, a clutch to lock the sleeve to the shaft, a pinion on the sleeve, a shaft journaled on the frame, provided with crank-arms at its ends, a gear-wheel on the latter-mentioned shaft, in mesh with said pinion, a rear axle having crank-arms, and formed with a middle square portion, wheels on the rear axle having inwardly-extending sleeves provided with bevel-pinions on their inner ends, and compensating pinions on the faces of the squared portion of the rear axle, and connecting-rods between the crank-arms, whereby the machine is moved forward.

2. In a traction-engine, the combination with a propelling mechanism adapted to be released in operative action of a reversing mechanism, comprising a supporting-frame, a driving crank-shaft, a shaft mounted on the frame, a rear axle, having a squared middle portion, said shaft and axle being provided with crank-arms at their ends, rods connecting the crank-arms, wheels mounted on sleeves on the rear axle and having their inner end formed with beveled pinions, beveled pinions journaled on the faces of the squared portion of the rear axle, a sleeve mounted on the crank-shaft and having a limited sliding motion thereon, a clutch to lock the sleeve to the crank-shaft, a pinion on the sleeve, an idle pinion with which the pinion on the sleeve meshes, a gear-wheel loosely mounted on the said shaft, and a clutch to lock the gear-wheel to turn with the shaft.

695,388. **COMBINED LIGHT AND MIRROR.** George J. Payette and Frank C. Watson, Philadelphia, Pa., assignors to Smith-Watson Manufacturing Company, Philadelphia, Pa., a Corporation of Delaware. Filed Aug. 7, 1901. Serial No. 71,338. (No model.)



Claim.—1. In an instrument of the character described, the combination of a suitable support; an electric light carried by one end thereof; and a reflecting-surface secured to said support in front of and over the light, said surface having a central space or opening formed therein for the passage of the light-rays therethrough, whereby the image of an illuminated object may be directly viewed in the reflecting-surface, substantially as described.

2. In an instrument of the character described, the combination of a suitable support; an electric light carried at one end thereof; a reflecting-surface adjustably secured to said support in front of and over the light, said surface having a central space formed therein for the passage of light therethrough.

3. In an instrument of the character described, the combination of a suitable support; an electric light carried at the outer end thereof; a reflecting-surface secured to the support in front of and over the light; and a lens located in the reflecting-surface in line with the light, whereby the image of the illuminated object may be directly viewed in the reflecting-surface.

4. In an instrument of the character described, the combination of a suitable support; an electric light carried at the outer end thereof; a reflecting-surface adjustably secured to said support; and a lens located centrally of the reflecting-surface in line with the light.

5. In an instrument of the character described, the combination of a suitable support; an electric light carried thereby; a reflector secured to said support in front of and over the light, said reflector having a space or opening formed therein in direct alinement with said light, whereby the light-rays may pass directly through said opening and the image of the object thus illuminated may be directly viewed in the reflector.

6. In an instrument of the character described, the combination of a handle having an enlarged rounded head with an opening formed therein; an electric lamp seated within said head; a body-section provided with a socket for said head; and a mirror carried by said body, said mirror having a central space for the passage of light-rays therethrough, substantially as described.

7. In an instrument of the character described, the combination of a handle having a rounded head with an opening formed therein; an electric lamp seated within said head; a body-section provided with a socket for the reception of the head; a mirror carried by said body, said mirror having a central space for the passage of light-rays therethrough; and an arm secured to the body and extending beneath the head.

8. In an instrument of the character described, the combination of a handle having a rounded head with an opening formed therein; an electric lamp seated within said head; a body-section provided with a socket for the reception of the head; a mirror carried by said body; a lens located centrally of the mirror and in line with the opening in the head; and means for adjustably securing the head and body-section together.

695,389. **ROOF-FRAMING TOOL.** Ezra G. Pettit, Marietta, Ohio. Filed May 21, 1901. Serial No. 61,243. (No model.)



Claim.—1. The combination of arms having right-angle extensions and hinged at their adjacent ends, a tube pivoted at one end directly to one arm and having its other end extending toward the other arm, a rod having graduations and pivoted at one end directly to the last-named arm and having its other end extending toward the first-named arm and fitted to the tube, means located on the tube for binding the tube and rod to their adjustment.

2. The combination with arms hinged at their adjacent ends; of a right-angle extension hinged to the free end of each arm, means for adjusting the arms from or toward each other, and means for adjusting the angles of the extensions to each other independently of the arms.

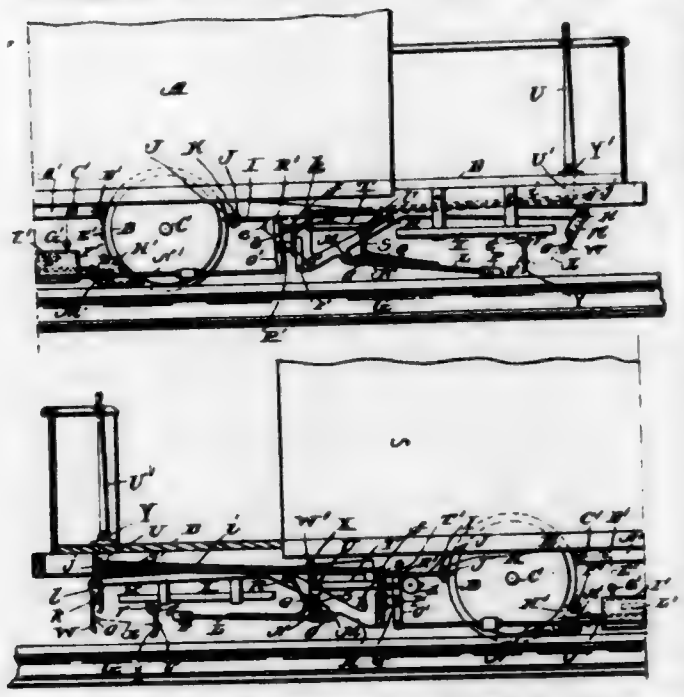
3. The combination with arms hinged at their adjacent ends; of means for adjusting said arms from or toward each other, a plate hinged to the free end of each arm and arranged in a plane at right angles thereto, a tube pivoted to one of the plates, a rod pivoted to the remaining plate and adapted to extend into the tube, said rod being provided with suitable graduations, and means for binding the rod within the tube.

4. The combination with arms hinged together at their adjacent ends; of a tube pivoted to one of the arms, a graduated rod pivoted to the remaining arm and adapted to extend into the tube, means for locking the rod within the tube, a plate hinged to the free end of each arm and adapted to lie at right angles to the arm, a tube pivoted to one of the plates, a graduated rod pivoted to the remaining plate and adapted to extend into said tube, and means for locking the rod within the tube.

5. The combination with arms hinged together at their adjacent ends; of means for adjusting said arms from or toward each other, plates hinged to the ends of the respective arms, of pivoted secondary plates pivoted to the first-named plates and provided with a plurality of graduations adapted to aline with the edges of the first-named plates and means for adjusting the graduated plates with relation thereto.

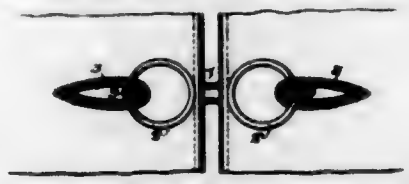
6. The combination with arms hinged together at their adjacent ends, of means for adjusting said arms from and toward each other, of plates pivoted to the free ends of the respective arms, and lie in a plane at right angles thereto, secondary plates hinged to the first-named plates, and having upwardly-projecting pins working in slots in said first-named plates, and means attached to said pins for adjusting the secondary plates with relation to the first-named plate.

695,840. LIFE-SAVING MECHANISM FOR TRAMWAYS. WILLIAM PHILIPSON, THOMAS W. H. PHILIPSON, and PERCY C. PHILIPSON, Bolton, England. Filed Dec. 27, 1901. Serial No. 87,453. (No model.)



Claim.—The combination of life-saving mechanism for tramways consisting of the side and intermediate longitudinal springs L—with or without the canvas bag, cover, or receptacle Q—provided at their outer ends with the "soles" P; the inner ends being secured to the transverse bar N fitted with the clips O pivoted to the side frames or fixings H by the pins or centers M; the transverse bar N being provided with the upright S to which is pivoted the lever T having the "notch" *a* fitting on the pin or center *b* mounted in the fixing V carrying the levers *f* and *g* and the "trip-lever" *y*; the upper ends of the levers *f* and *g* being connected to the rod *i* attached to the lever *j* mounted on the shaft or center *k* carrying the loosely-mounted and separately-hung series of wire, metallic, or other bars W suspended by the levers *l* from the outer ends of the side frames or fixings H; the shaft or center *k* having the levers *n* carrying the transverse rod *o* connected by the chain *x* to the rod *v* located behind the wire, metallic, or other bars Y suspended under the steps X; the hand-lever U' being coupled to the rod S' connecting with the lever R' mounted on the shaft or center P'; the rod S' having the projection W' to operate in conjunction with the lever X' carried from the transverse bar N supporting the side and intermediate longitudinal springs L for resetting the latter; the shaft or center P' having the levers O' connected to the longitudinal adjustable rods N' mounted on and connected with the transverse rods M' attached to the shoes H'; the latter being connected together by the bar J' on which are mounted the weights L' located inside the balance-weight I', the latter being attached to the shoes H' by means of the chains E' passing over the chain-pulleys C' mounted on the pins or centers D' secured to the fixings A' attached to the under side of the bottom framework E of the tram-car A, the whole being constructed connected applied and operating substantially as described and illustrated in the drawings.

695,841. GARMENT-FASTENER. INGOLF S. PIERCE, Philadelphia, Pa. Filed Sept. 17, 1900. Serial No. 30,278. (No model.)



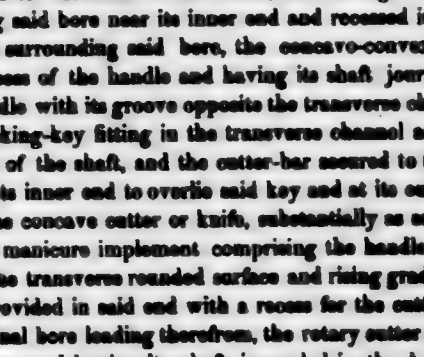
Claim.—1. The within-described garment-fastener consisting of loops connected by a double bar or shank and projecting inwardly but not outwardly beyond the ends of the latter so as to form hooks, said hook portions being composed of continuous runs of the material forming the fastener, substantially as specified.

2. The within-described garment-fastener, consisting of loops connected by a double back bar or shank and projecting inwardly but not outwardly beyond the ends of the latter so as to form hooks facing each other, said hooks being formed of continuous runs of the material composing the fastener and being laterally spread or widened, substantially as specified.

3. The within-described garment-fastener consisting of a double bar or shank terminating in opposite hooks facing each other, said hooks being formed of continuous runs of the material forming the fastener, and being laterally spread or widened, each member of said bar or shank being bent so as to provide laterally spread or widened portions underlying said hooks, substantially as specified.

4. The within-described garment-fastener consisting of a continuous double bar or shank terminating in opposite bent ends forming hooks facing each other, said hooks being formed of continuous runs of the material of which the fastener is composed, the material being twisted at the point where the ends are bent over to form the hooks, substantially as specified.

695,842. MANICURE-KNIFE. WILLARD S. REED, Smyrna, Del. Filed Nov. 1, 1901. Serial No. 80,815. (No model.)



Claim.—1. A manicure implement comprising the handle provided at its end with a longitudinal bore to receive the shank of the cutter and having its end recessed around the outer end of said bore, the rotary cutter or blade provided with a shank fitting in said bore and having near the inner end of said shank an annular groove, the handle having a transverse channel intersecting the bore in line with the groove in the knife-shaft, the antifriction-rollers fitting around the shaft and bearing within the bore of the handle, the knife or blade being fitted within the recess in the end of the handle, the key fitting in the transverse channel of the blade and entering the groove in the cutter-shaft, and the cutter-bar secured to the handle and arranged at its inner end to overlie the said key and lock same in position and at its outer end to coöperate with the rotary cutter, substantially as set forth.

2. A manicure implement comprising the handle, the rotary cutter journaled in the handle, and a cutter-bar arranged to coöperate with the rotary cutter in trimming the nails, substantially as set forth.

3. The combination with a handle having a bore for the shaft of the cutter, the rotary cutter, journaled in said bore and provided near its inner end with a groove, the key fitting in the handle and projecting into said groove, and the cutter-bar arranged to lock said key in position and adapted to coöperate with the rotary cutter, substantially as set forth.

4. The combination in a manicure implement, of the handle, the concave-convex blade or knife journaled in said handle, and the cutter-bar having a portion coöperating with said blade or cutter, substantially as set forth.

5. The combination of the handle provided in its end with a longitudinal bore for the shaft of the cutter, and having a transverse channel intersecting said bore near its inner end and recessed in the outer end of said handle surrounding said bore, the concave-convex cutter fitting in the end recess of the handle and having its shaft journaled in the bore of the handle with its groove opposite the transverse channel in said handle, the locking-key fitting in the transverse channel and projecting into the groove of the shaft, and the cutter-bar secured to the handle and arranged at its inner end to overlie said key and at its outer end to coöperate with the concave cutter or knife, substantially as set forth.

6. A manicure implement comprising the handle provided at one end with the transverse rounded surface and rising gradually toward such end and provided in said end with a recess for the cutter-blade and with a longitudinal bore leading therefrom, the rotary cutter or knife operating in said recess and having its shaft journaled in the bore of the handle, means for securing the cutter in place, and the cutter-bar coöperating with the cutter, substantially as set forth.

7. The combination of the handle having a bore for the shaft of the cutter, and a transverse channel intersecting said bore, the cutter or blade having a shaft journaled in said bar and provided with a groove lying opposite the channel in the handle, the locking-key fitting in said channel and projecting into the groove of the cutter-shaft, means for securing the said locking-key, and a cutter-bar portion for coöperation with the cutter, substantially as set forth.

8. A manicure implement having its handle provided at one end with a recess to receive the rotary cutter and having said recess open at one side and provided with a cutter-bar opposite the open side of the recess, and the rotary cutter journaled to the handle and lying in the recess and arranged to coöperate with the cutter-bar, substantially as set forth.

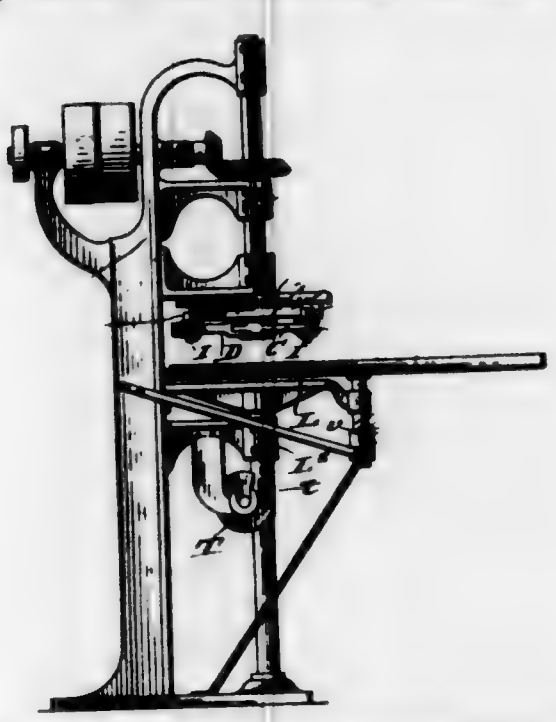
9. The combination with the handle and the rotary cutter-disk, of the cutter-bar having a narrow neck forming a throat opposite the rotary cutter-disk and having a projecting portion arranged to coöperate with the cutter-disk and to form a stop to prevent cutting into the quick, substantially as set forth.

10. The combination with the handle having the hub portion provided with a longitudinal bore for the shaft of the cutter-blade and pro-

vided on one side of such hub with a projection or lug and at the end of said lug with a channel intersecting the bore at the inner end of the latter, the rotary cutter having its shaft journaled in the bore and provided near the inner end of said shaft with a groove opposite the channel in the handle, the antifriction-rollers between the shaft and the hub, the key inserted in the transverse channel and entering the groove of the cutter-shaft, the cutter-bar having a box-like portion fitting on the lug or projection and secured thereto and arranged at its inner end to overlie the key and lock the same in place and provided at its outer end with the neck and with the portion arranged to coöperate with the rotary cutter, substantially as set forth.

11. The combination of the rotary cutter, the cutter-bar opposite said cutter at one side of the handle supporting the cutter and provided on the side opposite the cutter-bar with a guard portion overlying the cutter, substantially as set forth.

695,343. ROUTING-MACHINE. WILLIAM S. RICHARDS, Albany, Oreg. Filed June 18, 1901. Serial No. 64,966. (No model.)



Claim.—1. In a routing-machine, the combination of a rotating head, cutter-heads pivoted thereto, tool-holders rotatably mounted in said cutter-heads, cutting-tools carried by said cutter-heads, and a continuous pattern-form engaging direct surfaces on the tool-holder and governing the angular relation of said tool-holder to the cutter-heads as well as the angular position of the said cutter-heads to the rotating head, substantially as described.

2. In a routing-machine, the combination of a rotating head, cutter-heads pivoted thereto, tool-holders rotatably mounted in said cutter-heads, cutter-tools carried by said cutter-heads, guides upon the rotating head upon which the outer ends of the cutter-heads are slidably mounted and a continuous pattern-form engaging direct surfaces on the tool-holder and governing the angular relation of said tool-holder to the cutter-heads as well as the angular position of the said cutter-heads to the rotating head, substantially as described.

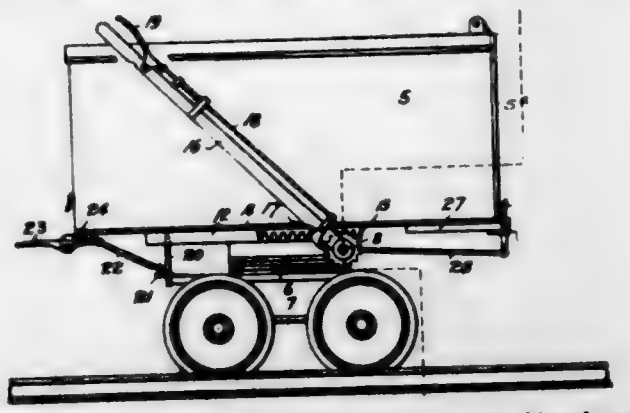
3. In a routing-machine, the combination with a cutter, of a table vertically movable to bring the work thereon into position to be acted upon by the cutter, and means for automatically turning the table upon the descent thereof, substantially as described.

4. In a routing-machine, the combination with a cutter, of a vertically-movable bed, means for operating the bed, a table rotatably mounted upon the bed, means for holding the table against rotation, and means for automatically releasing said holding means for turning the table and restoring said holding means into engagement with the bed upon the descent of the table to a predetermined position, substantially as described.

5. In a routing-machine, the combination with a cutter, of a bed vertically movable toward and from said cutter, means for operating the bed, a shaft rotatably mounted upon the bed, a table mounted upon said shaft and provided with stops to engage the bed to hold it against rotary movement, a cam, and a contact device upon the shaft coöperating with the cam, whereby said shaft is raised and lowered and also turned to turn said table and bring the stops thereon into and out of engagement with the bed, substantially as described.

695,844. CAR-CAR. PETER J. SMITH, Rhoda Springs, Colo. Filed Mar. 26, 1901. Serial No. 53,941. (No model.)

Claim.—1. In a car the combination with a truck, of a track pivotally mounted thereon, and a car-body slidable on the truck.



2. In a car the combination with a truck, of a track hinged or pivoted thereon and a car-body slidable on the track and operatively connected therewith.

3. The combination with the car-truck and platform, of a track pivoted on the platform, and a car-body slidable on the track and mounted to move back and forth thereon for the purpose described.

4. The combination with a car-truck, of a track hinged or pivoted thereon and a car-body connected with the track and arranged to move back and forth in a direction at right angles to the axis of its pivot.

5. The combination with a car-truck of a shaft journaled in suitable bearings on the truck, track-rails pivoted on the shaft, and a car-body movable on the rails.

6. In a car the combination with a truck, of track-rails pivoted on the truck, the car-body movable on the rails in a direction at right angles to the pivot, and suitable means for shifting the car-body on the pivoted track-rails.

7. In a car, the combination with a truck, platform and car-body, of rails pivoted on the platform and having T-shaped upper parts, bars fast on the car-body and having counterpart grooves with which the track-rails engage, and suitable means for shifting the car-body on its track.

8. In a car the combination with the truck, platform and car-body, of a shaft journaled on the platform, a track pivoted on the shaft, the car-body being slidable on the track, a gear mounted on the shaft, and a rack mounted on the car-body and engaged by the gear.

9. In a car the combination with a truck, platform and car-body, of a shaft journaled on the platform, a track mounted on the shaft, the car-body being connected to slide on the track and turned therewith, a gear mounted on the shaft, a rack mounted on the car-body and engaging the gear, a toothed wheel fast on the shaft, and a lever for actuating said wheel.

10. The combination with a truck, platform and car-body, of a shaft journaled on the platform, rails pivoted on the shaft, and having T-shaped upper parts, bars fast on the car-body and having counterpart grooves engaging the T-shaped parts of the rails, racks fast on the car-body and engaged by the pinions, and suitable means for actuating the shaft to shift the car-body.

11. The combination with a truck, and a car-body, of a track hinged or pivoted on the truck, the car-body being slidable on the track and provided with a hinged door, means for locking said door in a closed position, and a connection between the car-truck and said locking means whereby the latter is controlled as the car-body is shifted.

12. The combination with the car-truck, platform and car-body, the car-body being slidable on the platform and having a hinged door, of a shaft journaled on the platform, and on which the car-body is pivoted, a connection between the shaft and car-body whereby the latter is shifted by turning the shaft, a block slidable on the bottom of the car-body, a dog pivoted on the block and arranged to lock the car-body in the closed position, and a rod connecting the said dog with the shaft whereby the dog is automatically actuated as the car-body is shifted.

13. In a car the combination with a truck and a car-body, of a track hinged or pivoted on the truck, the car-body being slidable on the track, and means for locking the car-body against accidental forward movement.

14. In a car the combination with a truck and a car-body, of a track pivotally mounted on the truck, the car-body being slidable on the track, and suitable means for locking the car-body against accidental forward movement, comprising a depending apertured plate hinged to the bottom of the car-body, and a projection on the truck adapted to enter the opening of the plate.

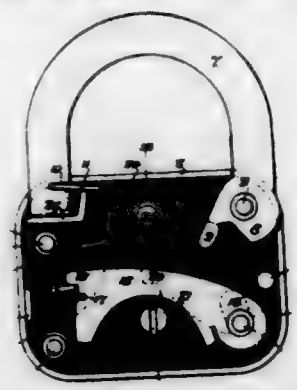
15. In a car the combination with a truck and a car-body, of a track hinged or pivoted on the truck, the car-body being slidable on the track, of a depending apertured plate hinged to the bottom of the car, a projection on the truck adapted to enter the opening in the plate, and means for disengaging the plate from the truck, comprising a lever fulcrumed on the rear part of the car, and a link connecting the plate with the lever.

695,845. PADLOCK. FRANK SOLEY, Philadelphia, Pa., assignor to the Miller Lock Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Apr. 23, 1898. Serial No. 678,600. (No model.)



Claim.—The combination of the shackle, a shackle-retaining lever, a spring for retaining the same in locking position, means operated by the key to release said lever from engagement with the shackle, a guard-plate mounted so as to move into position to lock the lever when a blow is struck upon the lock-casing, and a spring acting on said guard-plate to hold it normally out of action, said spring being lighter than the spring which operates the shackle-retaining lever, substantially as specified.

695,846. PADLOCK. FRANK SOLEY, Philadelphia, Pa., assignor to the Miller Lock Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Aug. 16, 1899. Serial No. 727,297. (No model.)



Claim.—1. A padlock in which are combined a casing, a pivoted shackle having a projecting heel, a series of notched tumblers, and a guided locking-plate adapted to be actuated by the key and having a bolt for engaging with a notch in the shackle, a stump for engaging with the notches in the tumblers, a tail for engaging with the heel of the shackle, and a lug bearing against the casing of the lock when the locking-plate is in its retaining position, substantially as specified.

2. The combination, in a padlock, of the casing, a pivoted shackle having a projecting heel, a series of notched tumblers, and a locking-plate adapted to be actuated by the key, said locking-plate having slots for the reception of guide studs or posts in the lock, a bolt for engaging with the notch in the shackle, a stump for engaging with the notches of the tumblers, and a tail for engaging with the heel of the shackle, the engaging face of said tail and the rear guide-slot of the locking-plate being angularly disposed in respect to the locking-bolt, forward guide-slot and stump, whereby the movement of the locking-plate is a combined sliding and swinging movement, substantially as specified.

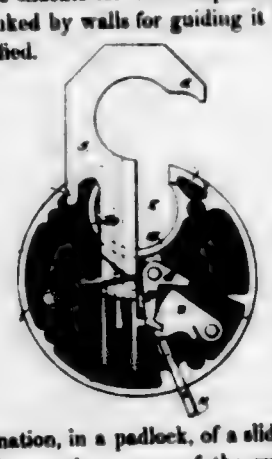
3. The combination, in a padlock, of the casing, the pivoted shackle having a projecting heel, a series of notched tumblers, and a locking-plate having slots for the reception of guide studs or posts in the lock, a locking-bolt for engaging a notch of the shackle, a stump for entering the notches of the tumblers, a tail for engaging with the heel of the shackle, and a lug bearing against the casing of the lock when the latter is closed, the rear guide-slot of the locking-plate and the engaging face of the tail of said plate being angularly disposed in respect to the locking-bolt, forward guide-slot and stump, substantially as specified.

4. The combination in a padlock, of the casing, the shackle, locking devices for the latter, and an angular flange for closing at the bottom and inner side the space within the lock into which the nose of the shackle enters, substantially as specified.

5. The combination in a padlock, of the casing, the shackle, locking devices for the latter, and a plate mounted within the lock-casing and having an angular flange for closing at the bottom and inner side the space within the lock into which the nose of the shackle enters, substantially as specified.

695,847. PADLOCK. FRANK SOLEY, Philadelphia, Pa., assignor to the Miller Lock Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed June 11, 1900. Serial No. 19,880. (No model.)

Claim.—1. The combination, in a padlock, of the casing having a sliding shackle, a retaining-dog therefor, and dog-controlling tumblers, said dog having on the back a projecting lug less in width than the dog, and said shackle having in that face which is adjacent to the dog a recess less in width than the shackle for the reception of the projection of the dog whereby it is flanked by walls for guiding it in its sliding movement, substantially as specified.



2. The combination, in a padlock, of a sliding shackle with a casing having a flanged rim serving as one of the guides for the shackle, said shackle having in one of its faces, a recess or socket for engagement with a retaining element of the lock, said socket being less in width than the shackle, whereby it is flanked by retaining-walls which bear upon the flanged rim of the casing and prevent the tilting of the shackle when the recess or socket of the same is in line with said flanged rim, substantially as specified.

3. The combination, in a padlock, of a casing, a sliding shackle, a locking-dog therefor, and dog-controlling tumblers, an elongated rib projecting inwardly from the side of said casing, and a guide-groove in the side of the shackle into which said rib fits, substantially as described.

4. The combination, in a padlock, of the casing, the sliding shackle, the locking-dog therefor, and the dog-controlling tumblers, said casing having internally-projecting ribs for the guidance and lateral confinement of the shackle, locking-dog and tumblers, substantially as specified.

5. The combination, in a padlock, of the casing, the sliding shackle, the locking-dog and the dog-controlling tumblers, one of said tumblers having a beveled recess whereby it is adapted to project the dog, and springs acting upon said tumblers, the spring which acts upon the dog-projecting tumbler being heavier than the others, substantially as specified.

6. The combination, in a padlock, of the casing and its cover-plate, a sliding shackle having a projecting stop-toe, and a transverse stop-pin having a shoulder bearing against the cover-plate of the casing and having upset or swaged portions occupying countersunk openings in the casing and cap, substantially as specified.

695,848. PROCESS OF MAKING ARTIFICIAL FUEL. ROBERT STEINER, New Orleans, La., assignor to Union Oil Refining & Fuel Company, Jefferson county, Tex., a Corporation. Filed Nov. 18, 1901. Serial No. 82,693. (No specimens.)

Claim.—1. The process of making artificial fuel, which consists in mixing crude petroleum-oil with sawdust and earth, subjecting the mixture to a distilling operation, and pressing the residue into compact masses.

2. The process of making artificial fuel, which consists in mixing crude petroleum-oil with about six per cent. of sawdust and about twelve per cent. of earth, distilling the mixture, and pressing the residue while still hot into compact masses.

3. An artificial fuel, composed of the residuum left after distilling a mixture of crude petroleum-oil, sawdust and earth.

4. An artificial fuel, composed of the residuum left after distilling a mixture of crude petroleum-oil, sawdust and earth molded while hot into a compact mass.

695,349. STOCKING-SUPPORTER. HENRY H. TAYLOR, Bridgeport, Conn. Filed Aug. 9, 1901. Serial No. 71,536. (No model.)



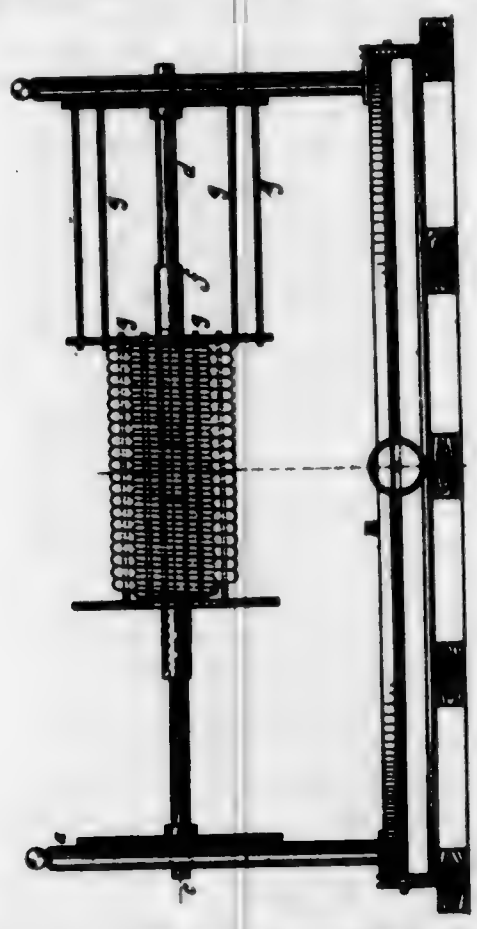
Claim.—1. A garment-supporter comprising an integral pad of comparatively broad elastic material, means secured to the upper portion of

the pad for supporting the pad in position on the body of the wearer, and means secured to the lower portion of the pad for supporting hose or other garments, substantially as set forth.

2. A garment-supporter comprising an integral pad formed of comparatively broad elastic material, a binding piece or strip secured to the upper edge of the pad, and a binding piece or strip secured to the lower edge of the pad, the intermediate portions of said pad being permitted to yield in all directions, means attached to the upper binding-strip for supporting the pad in position on the body of the wearer, and means secured to the lower binding-strip for supporting hose or other garments, substantially as described.

3. A garment-supporter comprising an integral pad of comparatively broad elastic material, means for suspending the pad from the person of the wearer at a point about midway of its upper edge, a laterally-extending stiffening bar or piece secured to the upper portion of said pad, and means secured to the lower portion of the pad for supporting hose or other garments, substantially as set forth.

695,850. PIPE-BENDING MACHINE. ALBERT THEUERKAUF, Dusseldorf, Germany. Filed June 10, 1901. Serial No. 64,030. (No model.)



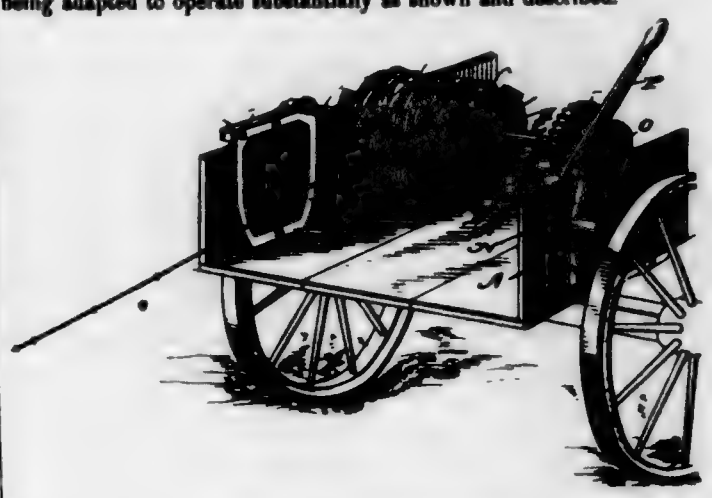
Claim.—1. In a metal-pipe-bending machine the combination with a shaft, of three disks fixed thereon, each disk being provided with perforations registering with those of the other two, and bars or pipes arranged in the perforations of two of the disks in position to compose a form for coiling, whereby the bars or pipes may be slid into or from said positions sliding through the middle disk when so placed in or removed from such positions, substantially as described.

2. In a metal-pipe-bending machine, the combination with a shaft, of three disks fixed thereon, each disk being provided with perforations similarly arranged, bars or pipes in position in the perforations of two disks to compose a small inner form for coiling, and bars or pipes arranged in perforations of two of the disks in position to compose an outer form for coiling whereby the endless pipe may be first coiled about the inner form and the bars of the outer form be slid into position in the perforations of the same disks as the first form in position to receive the endless pipe upon the further rotation of the forms, substantially as described.

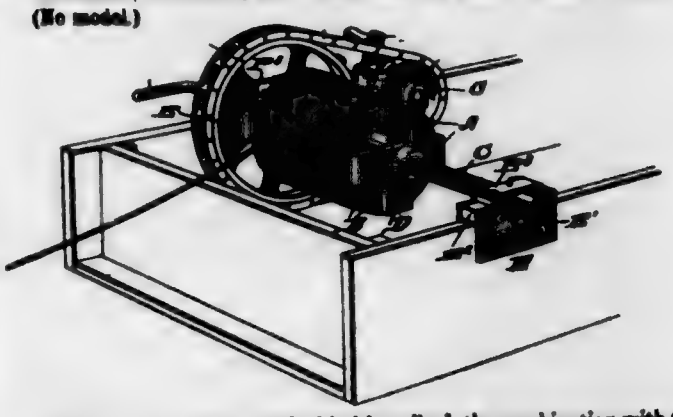
3. In a metal-pipe-bending machine the combination of a shaft, disks supported thereon and provided with registering series of perforations, arranged to form a plurality of outlines of different shapes, and bars or pipes removably and slidably supported in said perforations whereby they may be slid into position to compose forms of various outlines about which to bend or coil endless pipe, into corresponding shapes, substantially as described.

695,851. WIRE-FENCE REEL. OSCAR THOMPSON, Vincennes, Ind., assignor of one-half to James A. Baldridge, Vincennes, Ind. Filed Jan. 28, 1901. Serial No. 45,081. (No model.)

Claim.—In a device of the kind described the combination with the supports adapted to be secured to the sides of the wagon-body, said supports comprising the inner and outer plates, and the bars secured between said plates at their upper ends, each of said bars having a bearing-recess produced in its upper face, of the reel-shaft resting upon the said supports, the hinged sections connected to the bars and adapted to hold the shaft in place, and gear-wheel mounted upon the said shaft and intermeshing gear mounted upon the support and provided with a crank-handle and brake-wheel and lever, said brake-wheel being connected to the reel-shaft, and the lever being connected to the crank-shaft, the said parts being adapted to operate substantially as shown and described.



695,852. WIRE-FENCE REEL. OSCAR THOMPSON and JAMES A. BALDRIDGE, Vincennes, Ind. Filed July 20, 1901. Serial No. 69,117. (No model.)



Claim.—In a device of the kind described, the combination with the tubular shaft, of a reel arranged thereon and comprising the cross-pieces and angled connecting-strips, a sprocket-wheel mounted upon the tubular shaft adjacent to one end of the reel or spool and the blocks secured to the spokes of the sprocket-wheel, said blocks being adapted to fit into the angled connecting-strips of the reel or spool, and thereby connecting the sprocket-wheel and reel or spool, substantially as described.

695,858. TOOL FOR ROSSING AND PEELING PULP-TIMBER. JAMES R. TURNER, Wentworth Location, N. H. Filed Aug. 9, 1901. Serial No. 71,525. (No model.)

Claim.—1. A tool of the class described provided at one end with an arm extending outward at an angle and having a transversely-curved blade connected at one end with the arm and having its other end terminating short of the same, said blade being provided with an inner cutting edge and adapted for rossing trees, substantially as described.

2. A tool of the class described provided with a rossing-iron having an angularly-disposed arm terminating in a transversely-curved approximately cylindrical blade formed integral with the arm and having its outer end arranged adjacent to and spaced from the same, said blade being provided with an inner cutting edge, substantially as described.

3. A tool of the class described comprising a rod or bar, an arm arranged at an angle to the other end of the rod or bar, and a transversely-curved approximately cylindrical blade located at the outer end of the arm and set at an angle and provided with an inner cutting edge, substantially as described.

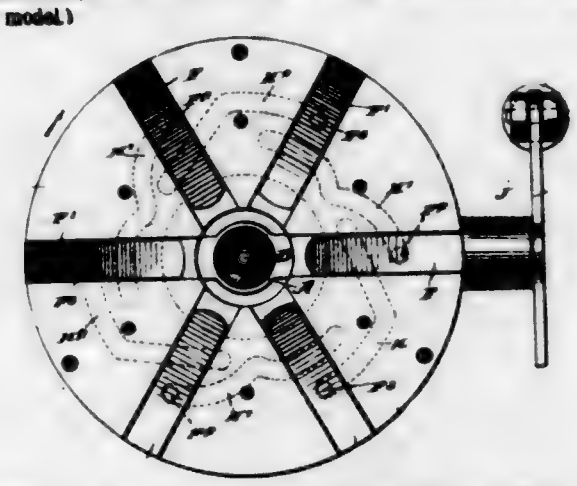
4. A tool of the class described comprising a bar having an L-shaped slot, a rossing-iron provided with a blade and having a tubular shank, said tubular shank being provided with a fixed interiorly-arranged stud or projection to engage the said slot, and a sleeve secured to the shank and capable of a limited rotary movement and provided with a stud or projection adapted to be turned into the transverse portion of the said slot, substantially as described.

5. A tool of the class described comprising a bar provided with an

L-shaped slot, a tubular shank adapted to fit on the slotted end of the bar and provided with a transverse slot, a fixed projection arranged within the tubular shank for engaging the L-shaped slot, a sleeve having a projection extending through the transverse slot of the shank and adapted to engage the L-shaped slot, and a blade arranged at the outer end of the shank, substantially as described.



695,354. MANTLE-TRIMMER. CHARLES WAGNER and WILHELM WENDTLAND, New York, N. Y. Filed Oct. 31, 1901. Serial No. 80,658. (No model.)



Claim.—1. A tubular-fabric-trimming machine, comprising a mandrel, and sets of knives operating in conjunction with the said mandrel for trimming the tubular fabric, one set of knives being arranged to advance and cut a portion of the fabric and hold the latter in position on the mandrel, and the other set being arranged to advance and cut the remaining portion of the fabric, as set forth.

2. A tubular-fabric-trimming machine, comprising a mandrel, sets of knives operating in conjunction with the said mandrel for trimming the tubular fabric, the knives being disposed in a plane at angles to the axis of the mandrel, and means for actuating the knives to move one set first in engagement with the fabric to cut a portion thereof, and to hold the fabric locked in position on the mandrel for the other set of knives to cut the remaining portion of the fabric, as set forth.

3. A tubular-fabric-trimming machine, comprising a mandrel, sets of knives operating in conjunction with the said mandrel for trimming the tubular fabric, the knives being disposed in a plane at angles to the axis of the mandrel, and means for actuating the knives to move one set first in engagement with the fabric to cut a portion thereof, and then recede a short distance to hold the fabric locked in position on the mandrel, the said means then causing the other set of knives to advance and cut the remaining portion of the fabric, as set forth.

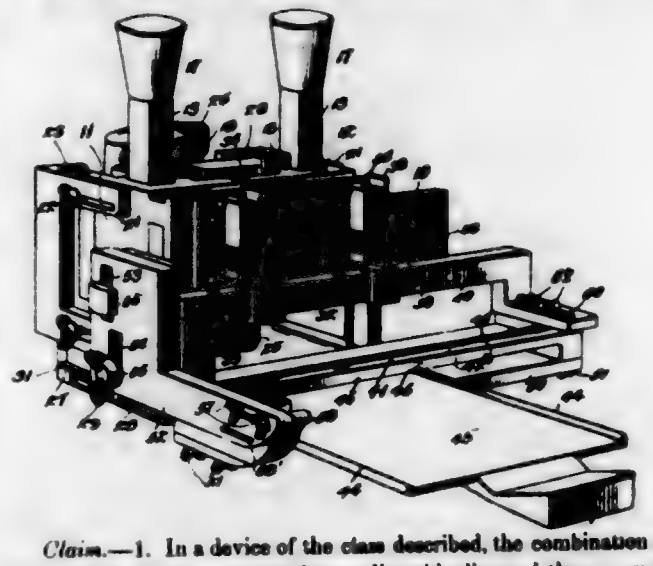
4. A tubular-fabric-trimming machine, comprising a mandrel, sets of knives operating in conjunction with the said mandrel for trimming the tubular fabric, the knives being disposed in a plane at angles to the axis of the mandrel, and means for actuating the knives to move one set first in engagement with the fabric to cut a portion thereof, and then recede a short distance to hold the fabric locked in position on the mandrel, the said means then causing the other set of knives to advance and cut the remaining portion of the fabric, the knives then receding simultaneously to a starting position, as set forth.

5. A tubular-fabric-trimming machine, comprising a mandrel, a support for carrying the tubular fabric, sets of radially-sliding knives and a cam mounted to oscillate, and having different sets of grooves for engaging projections on the knives to impart movement to the latter, one set of cam-grooves being formed to cause one set of knives to first advance and then recede part way, the other set of grooves then causing the other set of knives to advance and then recede with the first set to starting position, as set forth.

6. A tubular-fabric-trimming machine, comprising a mandrel, a support thereon for carrying the tubular fabric, sets of radially-sliding knives, and a cam mounted to turn and having sets of cam-grooves for engaging projections on the knives to impart movement to the latter, the sets of cam-grooves being so arranged that one set actuates one set of knives, to cause the latter to first advance for partly trimming the fabric, and then recede part way for holding the fabric, while the other set of knives advances and completes the trimming of the fabric, as set forth.

7. A tubular-fabric trimming machine, comprising a mandrel, a support thereon for carrying the tubular fabric, sets of radially-sliding knives, a cam mounted to turn and having sets of cam-grooves for engaging projections on the knives to impart movement to the latter, the sets of cam-grooves being so arranged that one set actuates one set of knives, to cause the latter to first advance for partly trimming the fabric, and then recede part way for holding the fabric, while the other set of knives advances and completes the trimming of the fabric, manually-controlled means for turning the said cam in one direction, and a spring device for returning the cam, as set forth.

695,355. HINGE-GAINER. RICHARD B. WARD, San Marcos, TEX., assignor of one-third to Napoleon L. Camp, San Marcos, TEX. Filed Oct. 24, 1901. Serial No. 79,863. (No model.)



Claim.—1. In a device of the class described, the combination with the parallel guiding-bars, of carriages adjustably disposed thereon, cutting knives or chisels carried by said carriages, a lower mortising cutter or chisel, a carriage therefor, and means for adjustably connecting said carriage to the main carriages, substantially as specified.

2. The combination in a hinge-gainer, of the parallel carrying-bars, oppositely-disposed carriages adjustably mounted on said bars, end chisels or cutters supported and guided by said carriages, rearwardly-extending guides adjustably secured to said carriages, and a rear knife or chisel adapted to said guides, substantially as specified.

3. The combination in a gaining-machine, of the parallel guiding-bars, carriages adjustably mounted on said bars, chisel-carrying bars adapted to guides in said carriages, chisels carried by said bars, and springs normally tending to maintain said bars in an elevated position, substantially as specified.

4. The combination in a gaining-machine, of the parallel guiding bars, a pair of tool-carriages adjustably mounted on said bars, chisels carried by said tool-carriages, rearwardly-extending guides adjustably secured to said carriages, an auxiliary guide adapted to be secured to one of said carriages, and a knife or chisel adapted to said guide, substantially as specified.

5. The combination in a gaining-machine, of the adjustable carriages, chisels carried thereby, and adjustable scale-bars mounted on the opposite ends of said carriages, substantially as specified.

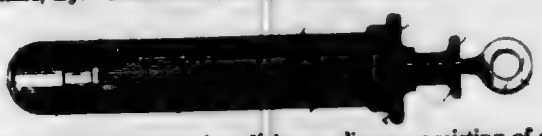
6. The combination in a gaining-machine, of adjustable carriages, horizontally-disposed parallel plates adapted to said carriages, the lower surface of the upper plate being provided with a series of guiding-notches, and a mortising-chisel having inclined edge portions adapted to said notches, substantially as specified.

7. The combination in a gaining-machine, of the adjustable carriages, a pair of guiding-plates arranged in a plane below said carriages, a mortising-chisel carried by said plates, a carrying-bar secured to said plates, guiding-boxes adjustably mounted on the carriages and adapted to receive said carrying-bar, and means for adjusting said boxes, substantially as specified.

8. The combination in a gaining-machine, of the adjustable carriages, a vertically-disposed adjustable plate carried by one of said carriages, a pair of guiding-plates arranged in a plane below said carriages, a mortising-chisel guided between said plates, and means for adjustably securing said plates to the vertically-disposed plate, substantially as specified.

9. The combination in a gaining-machine, of the parallel guiding-bars, a pair of tool-carriages adjustably mounted on said plates, slotted brackets 42 supported from said carriages, a pair of guiding-plates arranged in a plane below said carriages and provided with slots at each end, screws passing through the slots in said bracket and plates and adapted to confine the same in an adjusted position, and a mortising-chisel carried by said plates, substantially as specified.

695,356. MEDICINE-APPLICATOR. BURTON A. WASHBURN, Wickliffe, Ky. Filed Dec. 9, 1901. Serial No. 85,222. (No model.)

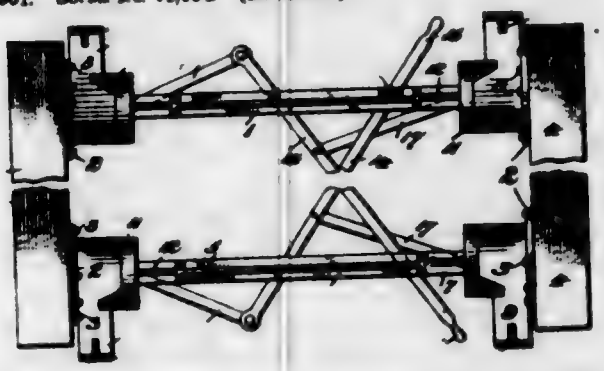


Claim.—1. The improved medicine-applicator consisting of a tubular cylindrical body having its distal end provided with an opening, a cup-like medicine-holder adapted to slide in said body and having a tubular stem, and an ejector adapted to slide in said holder, the stems of both holder and ejector being accessible exteriorly to the body, as shown and described.

2. The improved medicine-applicator comprising the cylindrical tube whose insertible end is conical and provided with a discharge-opening, the medicine-holder adapted to fit and slide in said tube and having its inner end open, a tubular stem for the holder which slides through said cap and is provided with an enlargement at its outer end, the dish-like ejector, adapted to slide in said holder and provided with a stem that extends through the holder-stem, and provided with an enlargement at its outer end, as shown and described.

3. In a vaginal medicine-applicator, the combination with a cylindrical tube having an opening at its insertible end, of a cup-like medicine-holder which is slidable in said tube and open at its outer end, and an ejector working in said holder, and means for operating the holder and ejector independently as and for the purpose specified.

695,357. MEANS FOR RETAINING AND RELEASING LOADS ON LOGGING-CARS. ROBERT R. WHITE, Duluth, Minn. Filed Aug. 5, 1901. Serial No. 71,004. (No model.)



Claim.—1. Logging-car stake-controlling apparatus, comprising one member of a clutch carried by one of the stakes of a logging-car, the said stake being pivotally mounted upon one side of said car and adapted to swing laterally therefrom, a second member to said clutch adapted to engage the first member for preventing the pivoting of said stake in either direction, and means for throwing said second clutch member into and out of engagement with said first clutch member, substantially as described.

2. In a logging-car stake-controlling apparatus, the combination with the front and rear transverse beams of a logging-car, of shafts extending longitudinally of said car and having their ends secured to said beams, a clutch member revolubly mounted upon each end of each of said shafts, a log-supporting stake carried by each of the said clutch members, a locking clutch member slidably mounted near each end of each of the said shafts and adapted to engage said rotatable clutch member for preventing rotation of the same, and means for sliding each of said locking clutch members longitudinally of its respective shaft for throwing the same into and out of locking engagement with its corresponding rotatable clutch member, substantially as described.

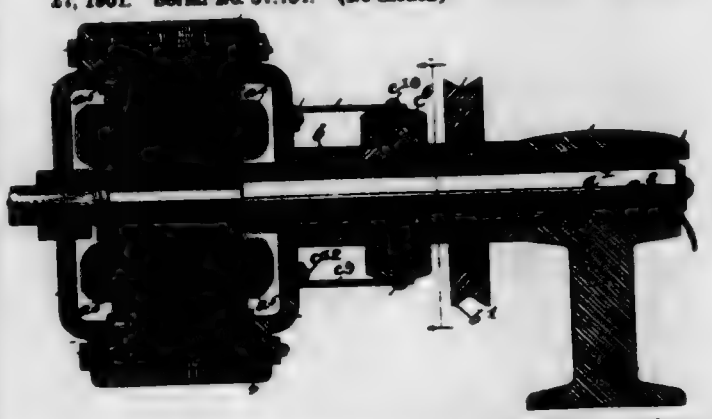
3. In a logging-car stake-controlling apparatus, the combination with the front and rear transverse beams of a logging-car, of a shaft extending longitudinally of said car at either side thereof and secured at either end to said beams, a clutch member revolubly mounted at each end of each of said shafts, a log-supporting stake rigidly secured to each of said revoluble clutch members, a locking clutch member slidably mounted near each end of each of said shafts and adapted to engage its respective revoluble clutch member for preventing rotation of the same, means for throwing said clutch members into and out of locking engagement with each other, the operation of the clutch members of one shaft being independent of those of the other shaft, substantially as described.

4. In a logging-car stake-controlling apparatus, the combination with the end transverse beams of a logging-car, of a shaft extending longitudinally of said car at either side thereof, an annular head or flange carried by each end of each of said shafts, means securing said flanges to said transverse beams, clutch members rotatably mounted near each end of each of said shafts, a log-supporting stake rigidly affixed to each of said clutch members, a slidable clutch member mounted upon each of said shafts near each end thereof and adapted to engage its respective rotatable clutch member for locking the same against rotation, and means for moving said slidable clutch members into and out of engagement with said rotatable clutch members, comprising levers pivoted to said shafts, and links pivotally secured to said levers and to said slidable clutch members, substantially as described.

5. In a logging-car stake-controlling apparatus, the combination with the end transverse beams of a logging-car, of shafts extending longitudinally of said car at either side thereof, and having their ends secured to said beams, each of said shafts being formed with a cylindrical portion at each end thereof, and a squared portion in the rear of the cylindrical portion, said squared portion being formed with a longitudinal slot, a clutch member rotatably mounted upon each of said cylindrical portions, and carrying a log-supporting stake, a locking clutch member slidably mounted upon each of said squared portions, a lug carried by said locking clutch member moving within the groove of said squared portion, and lever-operated links adapted to move the locking clutch members of one of said shafts into and out of locking engagement with their respective rotatable clutch members independently of those of the other shaft, substantially as described.

6. A logging-car-stake apparatus, comprising pivoted stakes mounted on the car, a clutch member carried by each stake, a corresponding clutch member mounted opposite each stake-clutch, and means for moving the clutch into and out of engagement with the clutches on the stakes for holding the stakes positively in their adjusted position, substantially as described.

695,358. MAGNETO-ELECTRIC GENERATOR. JAMES M. WILSON, Battlecreek, Mich., assignor to Electric Sparking and Illuminating Company, Limited, Battlecreek, Mich., a Corporation. Filed Apr. 27, 1901. Serial No. 57,737. (No model.)

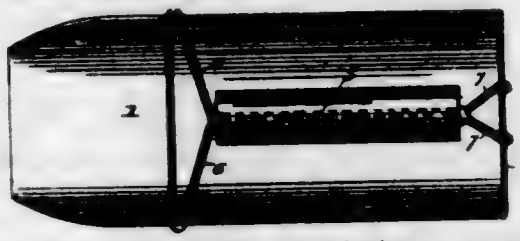


Claim.—1. A magneto-electric generator comprising a stationary shaft, an armature fixed to said shaft, conducting-wires carried by said armature, a field-magnet element adapted to be revolved upon said shaft around said armature, a sleeve adapted to revolve on the said shaft for rotating the said revolving element, a driving-pulley on said sleeve, weights flexibly supported by the said driven element, and adapted to make frictional contact with the said sleeve, and a means for yieldingly holding said weights normally in contact with said sleeve.

2. A magneto-electric generator comprising a stationary shaft, an armature fixed thereto, conducting-wires carried by said armature, a field-magnet comprising a series of circumferentially-arranged, permanent magnets, adapted to be revolved on said shaft around said stationary arma-

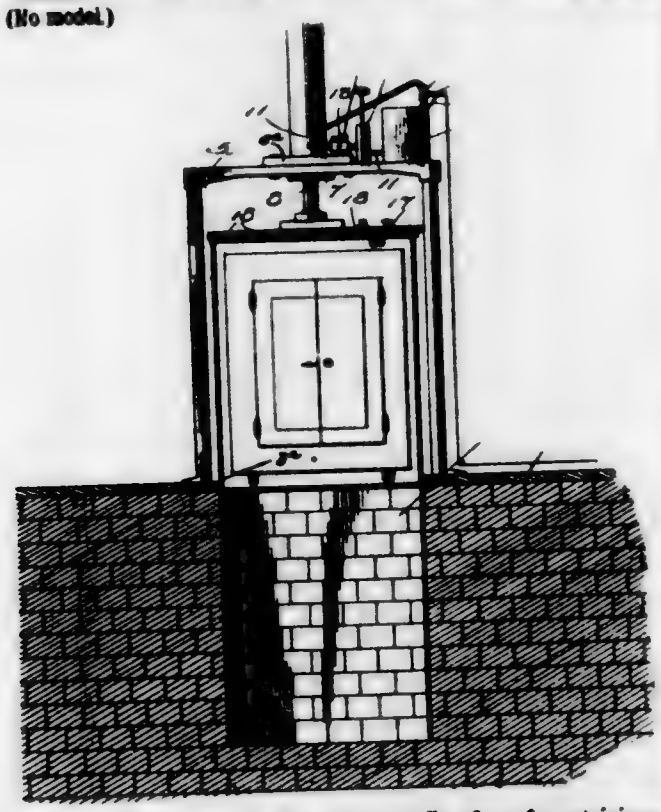
ture, a driving-pulley on said shaft a friction-sleeve to which the said pulley is fixed, centrifugal weights carried by said field-magnets, and having surfaces adapted to make frictional contact with said sleeve, springs for holding said frictional surfaces in contact, and means for adjusting the tension of said springs.

695,859. SCOOP. PHILIP W. WOLFE, Dover, N. J. Filed Sept. 21 1901. Serial No. 76,097. (No model.)



Claim.—The combination with a scoop having an open mouth and top, of a handle extending longitudinally said scoop and having two pairs of arms thereon, one pair being connected to the sides of said scoop and the other pair being connected to the rear of said scoop, the arms connected to the sides of said scoop being connected to each other to brace the scoop and hold it from spreading, substantially as described.

695,860. SAFE AND VAULT. NATHAN M. ABBOTT, Findlay, Ohio, assignor, by direct and mesne assignments, of nineteen-twentieths to William C. Trecce, Findlay, Ohio. Filed May 9, 1901. Serial No. 58,509. (No model.)



Claim.—1. The combination, with a well; of a safe-containing receptacle adapted to be lowered into the well, standards adjacent to the well between which the receptacle is adapted to move, a platform surmounting the standards, a fluid-pressure cylinder surmounting and secured to the platform, a pendent piston-rod surmounting and secured to the safe-containing receptacle, having a piston at its upper end working in the cylinder, and means for actuating the piston.

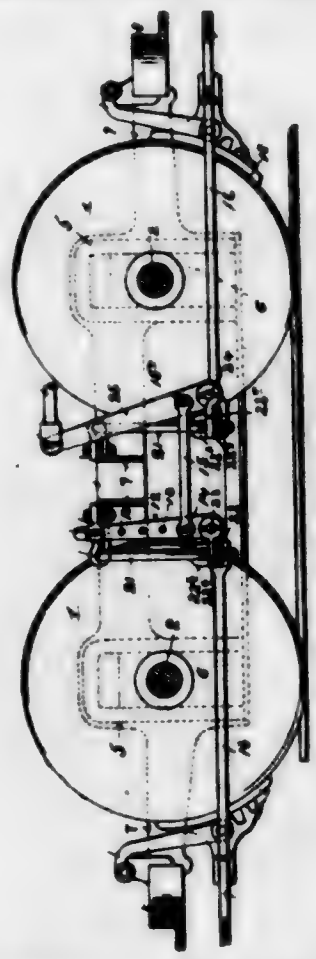
2. The combination with a well, of a cylinder, a platform supporting the cylinder, standards arranged adjacent to the well and supporting the platform, a fluid-reservoir in connection with the cylinder, a pendent rod having a piston working in said cylinder and connected to a safe-containing receptacle, and a pump interposed between the reservoir and cylinder for operating the piston.

3. In a device of the character described, the combination with a well, a safe-containing receptacle adapted to be conveyed into and out of said well, a cylinder, a piston in said cylinder and connected to said safe-containing receptacle, a fluid-reservoir, communicating pipes leading from said reservoir into the cylinder, a valve arranged in one of the pipes, a pump in the path of the other pipe and adapted to force the piston in the cylinder so as to convey the safe-containing receptacle out of the well, and means connected to the valve in the other pipe so as to release the pressure in the cylinder and permit the receptacle to enter the well.

4. In a device of the character described, the combination with a well, of a base having a stepped recess surrounding the opening to the well the safe-containing receptacle having a stepped top and normally resting therein, a time-lock carried by said safe-containing receptacle and bolts controlled by the time-lock adapted to engage the sides of the well, a fluid-pressure cylinder standards for supporting the cylinder arranged adjacent the well, a piston in the cylinder having a rod connected to said safe-containing receptacle, and means for actuating said piston so as to convey the safe-containing receptacle into and out of said well.

5. In a device of the character described, the combination with a well, of a cylinder, a piston therein, a receptacle adapted to be conveyed into and out of said well, a connection between the piston and the receptacle, a fluid-pressure reservoir, a pipe communicating with said reservoir and the cylinder, a valve connected with the pipe and provided with a combination-lock, a pump interposed between said valve and said reservoir, a pipe communicating with the top of the reservoir and with the cylinder below the piston, a valve therein and means for actuating said valve for the purpose described.

695,861. BRAKE MECHANISM. WALTER S. ADAMS, Philadelphia, Pa., assignor to John A. Brill, Philadelphia, Pa. Original application filed Dec. 18, 1900, Serial No. 40,228. Divided and this application filed Apr. 25, 1901. Serial No. 57,420. (No model.)



Claim.—1. The combination with a car-truck having bolster-transoms, outside brake-shoes for the wheels, beams connecting the shoes for each pair of wheels and suspended from the ends of the truck-frame, a plurality of equalizing-bars each connected with one of the brake-beams and each independently supported from the transoms, an upright main brake-lever fulcrumed near its lower end to one of said equalizing-bars, and to the upper end of which power is applied to operate the brakes, an equalizing-lever pendent from one of the transoms and connected with the other equalizing-bar, and means connecting the latter lever with the main brake-lever whereby both sets of shoes are simultaneously operated from said main brake-lever.

2. The combination in a pivotal car-truck, of outside sets of brake shoes and beams, an upright brake-lever, a plurality of transverse equalizing-bars between the beams, an intermediate equalizing-lever, an intermediate connection between the bars, said lever and beams, the power end of the brake-lever being substantially at the center of the truck.

3. The combination in a pivotal car-truck, of outside sets of brake shoes and beams, an upright brake-lever, a plurality of transverse equalizing-bars between the beams, an intermediate equalizing-lever, an intermediate adjustable connection between the bars, said lever and beams, the power end of the brake-lever being substantially at the center of the truck.

4. The combination in a pivotal car-truck, of outside sets of brake shoes for the wheels of the truck suspended from the frame thereof, beams connecting the shoes of each set, a plurality of transversely-disposed equalizing-bars suspended from the frame which operatively connect with

one of the brake-beams, an upright main braking-lever to which power is applied to operate the brakes fulcrumed on one of said equalizing-bars near the center thereof, and means connecting this lever with the other equalizing-bar.

5. The combination in a pivotal car-truck, of sets of brake-shoes for the wheels outside the wheel-base and suspended from the ends of the truck, brake-beams connecting the shoes of each set, a plurality of transversely-extending equalizing-bars suspended from the truck-frame adjacent its center, means for connecting each end of said bars to one of the brake-beams, an upright main brake-lever fulcrumed on the latter bar near the center thereof, an equalizing-lever fulcrumed at its upper end on the truck-frame, and means connecting its lower end with the other equalizing-bar and the equalizing-bar with the other brake-beam, and a connecting-rod from the equalizing-lever to the main lever.

6. In a brake mechanism, the combination of a brake-beam, shoes carried thereby and adapted to press against the wheels outside the wheel-base, a plurality of transversely-extending equalizing-bars, rods extending between the beams and said equalizing-bars adjacent their ends so as to provide room between them for a motor, a brake-lever to which power may be applied connected with one of said equalizing-bars, and means connecting the other equalizing-bar with said brake-lever.

7. The combination with a car-truck frame, brake-beams adapted to be swung from the frame, brake-shoes thereon, a plurality of transversely-disposed and parallel equalizing-bars swung from supports disposed transversely of the frame, rods connecting each of said bars with each of said beams so as to provide clearance between them for a motor at each end of the truck, a braking-lever to which power is applied for operating the brakes pivoted at one end to one of the equalizing-bars, and a connecting-rod pivoted to said lever and its other end connected with the other equalizing-bar.

8. The combination of a car-truck frame, brake-shoes for the wheels, beams connecting said shoes, a plurality of transversely-extending equalizing-bars suspended from a transverse member of said frame, a main brake-lever fulcrumed on one of said bars to which power is applied to operate the shoes, means connecting the ends of the equalizing-bars with the respective brake-beams, said means being spaced apart to provide clearance for a motor, a pendent equalizing-lever also supported from the transverse member and connected with the other equalizing-bar, and connections between said equalizing and brake levers.

9. The combination of a car-truck, brake-shoes for the wheels, beams connecting said shoes and suspended from the frame, a plurality of floating equalizing-bars also suspended from the frame, a main brake-lever fulcrumed on one of the bars and to which lever power is applied to operate the shoes, means connecting the ends of the equalizing-bars with the respective brake-beams, a pendent equalizing-lever and a rod connecting the equalizing-lever and the brake-lever.

10. The combination of a car-truck frame having end pieces and bolster-transoms extending across between the side pieces thereof, brake-shoes suspended from the end pieces, brake-beams rigidly connecting the shoes of each set, a plurality of transversely-extending equalizing-bars, links near each end of said bars to independently suspend said bars from the respective transoms, rods connecting the ends of one of said bars with one of said beams, a main brake-lever fulcrumed on said bar near its center, an equalizing-lever suspended from the other bolster-transom near the center thereof, and connected with the other equalizing-bar, and rods extending from the latter equalizing-bar to the other brake-beam, and a link or rod connecting the equalizing-bar with the brake-lever.

11. The combination of a car-truck, outside brake-shoes for the wheels suspended from the truck, brake-beams to which the shoes are fixed, a plurality of transversely-extending equalizing-bars supported from the frame inside the wheel-base, rods connecting each of the bars with the beam nearest thereto and spaced apart to provide clearance for a motor, an upright main brake-lever pivotally secured to one of said equalizing-bars near the center thereof, the power end of said lever being adjacent to the center of the truck, an equalizing-lever pendent from the frame and connected with the other equalizing-bar, a connecting-rod from the equalizing-lever to the brake-lever.

12. The combination of a car-truck, of brake-shoes pendent from the truck-frame, a plurality of transverse equalizing-bars suspended from the truck-frame and connected with one of the brake-sets, a brake-lever to which power is applied, one end of which is pivotally connected to one of said equalizing-bars, an equalizing-lever depending from the frame and connected with the other equalizing-bar, and an adjustable connection between the latter lever and the brake-lever, for varying the pressure upon the two sets.

13. The combination of a truck-frame, brake-beams, links supporting the beams beneath the frame, a plurality of swinging equalizing-bars supported from the frame and connected with one of the brake-beams, a braking-lever fulcrumed on one of said bars, another lever pivotally suspended from the frame and connected with the other equalizing-bar, and a connection attached to the brake-lever, and adjustably connected with the pendent lever so as to vary the pressure as desired on the two sets of brakes.

14. The combination in a car-truck, of brake-beams swingingly supported from the ends of the frame, brake-beams fixed on said beams, bolster-transoms extending across the frame near the middle thereof, an equalizing-bar suspended from the transom and connected by rods with each one of the brake-beams, a main operating-lever fulcrumed on one of said bars, an equalizing-lever suspended at its upper end from one of the transoms, and connected to the other equalizing-bar, and a rod operatively connecting the brake and equalizing-lever, the connection of said rod with the one of said levers being adjustable along its length to vary the brake-pressure on the shoes.

15. The combination of a car-truck frame, brake-shoes suspended from the frame of the truck, beams to which the shoes are secured, a plurality of equalizing-bars suspended from the frame, near the transverse center of the truck, rods connecting one of the bars with one of the beams, a main operating brake-lever fulcrumed at its lower end upon and near the middle of said equalizing-bar, a pendent equalizing-lever suspended from the frame, near the transverse center thereof, and provided with a series of holes along its length, connections between said equalizing-lever and the other equalizing-bar, a connection between said latter bar and the other brake-beam, and a connecting-rod pivoted to the brake-lever near its lower end and adjustably secured to the equalizing-lever at varying points along its length by a pin or bolt adapted to pass through the holes.

16. The combination of a car-truck, outside brake-shoes for the wheels suspended from the frame of the truck, brake-beams to which the shoes are fixed, a plurality of transversely-extending equalizing-bars supported from the frame inside the wheel-base, rods connecting each of said bars with each beam and spaced apart to provide clearance for a motor, an upright brake-lever pivotally secured to one of said bars near the latter's center the power end of said lever being adjacent the center of the truck, an equalizing-lever pendent from the truck-frame, and secured to the other equalizing-bar, and a rod extending between said equalizing-lever and brake-lever with an adjustable connection with one of them whereby the pressure upon the brake-shoes may be differentiated.

17. The combination of a pivotal car-truck, a set of outside brake-shoes, beams connecting the shoes of each set, means to suspend the beams and shoes from the ends of the truck-frame, an equalizing-bar suspended from supports on the frame, rods connecting the bar near its ends with the brake-beam on that end of the truck, an upright main lever fulcrumed at its lower end on said bar near the center thereof, and having its other end to which power is applied located near the center of the truck, a pendent equalizing-lever fulcrumed at its upper end to a support on the frame and in a line longitudinally with the brake-lever, another equalizing-bar swingingly supported from the frame, rods connecting this bar with the other brake-beam, one rod near either end, means to connect the lower end of said equalizing-lever to the middle of the latter equalizing-bar, and a rod connecting the said two levers.

18. The combination of a car-truck frame, having side frames and end pieces, and centrally-disposed transoms extending between and secured to said pieces, brake beams and shoes suspended from said end pieces, an equalizing-bar, hangers and links to suspend the same at the ends from said transoms, rods, one near either end of said bar to connect the brake-beam on that end of the truck therewith, a jaw-plate secured to said bar near the center thereof, a main brake-lever with its lower end fulcrumed in said plate and its upper end to which power is applied near the center of the truck, hangers or links secured to the other transom, another equalizing-bar suspended thereby, rods connecting this bar with the other brake-beams one near either end, a jaw-plate secured near the middle to the said equalizing-bar, and hangers secured to the transom, an equalizing-lever fulcrumed on said hangers, and connected with said jaw-plate, and a connecting-rod pinned at one end to the equalizing-lever and the other main brake-lever.

19. The combination of a car-truck frame, brake-shoes for the wheels, beams to which said shoes are secured, links to suspend said shoes and beams beneath the frame, an equalizing-bar also suspended by links, rods connecting the bar with one of the beams, and spaced apart to provide clearance between them for a motor, a main brake-lever to one end of which power is applied fulcrumed on the said bar near the middle thereof, another equalizing-bar suspended from the frame of the truck, rods connecting this bar with the other brake-beam, and spaced apart to provide clearance between them for a motor, an equalizing-lever pivoted at one end near the middle of the latter bar and at its upper end to the framework of the truck, and a connecting-rod extending between this lever and the main lever.

20. The combination of a car-truck frame having end pieces and bolster-transoms extending across between the side pieces thereof, brake-shoes suspended from the end pieces, brake-beams rigidly connecting the shoes of each set, a floating equalizing-bar, links near each end thereof to suspend the same from one of the bolster-transoms, rods connecting the ends of said bar with one of said beams to provide clearance between them

for a motor, a main brake-lever fulcrumed to said bar near its center, and to the upper end of which another equalizing-bar is suspended from the other transom, rods connecting the ends of the bar with the other brake-beam to provide room between them for a motor, an equalizing-bar fulcrumed at its upper end near the center of the other transom, and hinged or pinned to the said second equalizing-bar near its lower end, and connecting means as a rod between the equalizing-bar and the main lever, to simultaneously operate both sets of brakes.

21. The combination of a car-truck frame, having end pieces and bolster-transoms extending between and secured to the side pieces of the frame, brake-shoes and brake-beams suspended from the ends of the frame outside the wheels, equalizing-bars suspended from the transoms inside the wheels, rods connecting the beams with the opposite bars, and separated to allow room between them for a motor at either end of the truck, an operating main brake-lever fulcrumed on one bar, an equalizing-lever pivoted to the other bar and to the transom above, and a connecting-rod extending between these two levers to operate both beams and the brake-shoes simultaneously.

22. The combination of a car-truck frame, brake-beams swingingly supported from the ends of the frame, brake-shoes fixed on said beams, bolster-transoms extending across the frame near the middle thereof, an equalizing-bar suspended from one of the transoms and rigidly connected as by rods with one of the brake-beams, a main operating brake-lever fulcrumed on the said bar, to the upper end of which the brake-power is applied, an equalizing-lever suspended at its upper end from the floating equalizing-bar suspended from supports on the frame and from the center of which the said equalizing-bar is connected near its lower end, rods connecting the latter bar with the brake-beam on that end of the truck, and connecting means extending from the equalizing-lever, the connection with one of the levers being adjustable along its length in order to vary the pressure on the brake-shoes for either single-motor or double-motor trucks.

23. The combination of a car-truck frame, brake-shoes suspended from the frame of the truck, beams to which the shoes are secured, a floating equalizing-bar suspended from the framework near the longitudinal center of the same, rods connecting the bar with one brake-beam, a main operating brake-lever fulcrumed at its lower end near the middle of said bar, and to the upper end of which brake-power is applied, a pendent equalizing-lever supported on the frame near the transverse center thereof and provided with an equalizing-bar also suspended from the frame of the truck, and to which the lower end of the equalizing-lever is pivoted, rods connecting this bar with the other brake beam, and a connecting-rod secured to the main lever adjustably pivoted to the equalizing-lever by means of the series of holes.

24. In a truck-brake mechanism, the combination of brake-beams, one for each pair of wheels, shoes carried thereby, transverse equalizing-bars each connected at its ends to each beam, so as to provide room for a motor on each car-axle, the beam and bars all being adapted to be suspended from the car-truck frame, a lever connected with one bar, another lever connected with the other bar, and an adjustable connection between the two levers whereby the truck mechanism may be applied to either a two-motor or a single-motor truck.

25. The combination of a car-truck, brake-shoes for the wheels, beams to which said shoes are fixed, an equalizing-bar also suspended by links beneath the frame, rods connecting the bar with one of the beams, and spaced apart to provide clearance between them for a motor, a main brake-lever to one end of which power is applied, fulcrumed on the said bar near the middle thereof, another equalizing-bar suspended from the frame of the truck, rods connecting this bar with the other brake-beam, and spaced apart to provide clearance between them for a motor, an equalizing-lever pivoted at one end near the middle of the latter bar and at its upper end to the framework of the truck, and a connecting-rod extending between this lever and the main brake-lever, the connection being adjustable along the length of one of them.

26. The combination of a car-truck frame having end pieces and bolster-transoms extending across between the side pieces thereof, brake-shoes suspended from the end pieces, brake-beams rigidly connecting the shoes of each set, a floating equalizing-bar, links near each end thereof to suspend the same from one end of the bolster-transoms, rods connecting the ends of said bar with one of said beams to provide clearance between them for a motor, a main brake-lever fulcrumed to said bar near its center and to the upper end of which another equalizing-bar is suspended from the other transom, rods connecting the ends of the bar with the other beam, to provide room between them for a motor, an equalizing-bar fulcrumed at its upper end, near the center of the other transom, and hinged or pinned to the second equalizing-bar near its lower end, and a connecting-rod secured between the equalizing-lever and the main lever, the connection with one of them being adjustable so as to equalize or differentiate the pressure upon the brakes, and thus adapt the brake mechanism to either single or double motor trucks.

27. The combination of a car-truck frame, having end pieces and bolster-transoms extending between and secured to the side pieces of the frame, brake-shoes and brake-beams suspended from the end of the frame outside the wheels, equalizing-bars suspended from the transoms inside the wheels, rods connecting the beams with the opposite bars, and separated to allow room between them for a motor at either end of the truck, an operating main brake-lever fulcrumed on one bar, an equalizing-lever pivoted to the other bar, and the transom above, and a connecting-rod extending between these two levers and adjustably connected therewith whereby the brake-pressures may be equalized or differentiated to suit the brake mechanism of either a two-motor or a single-motor truck.

695,362. LACING-STRIP. OSCAR A. ALBRECHT, Omaha, Nebr., assignor to O. A. Albrecht Company, a Corporation, Omaha, Nebr. Filed May 18, 1901. Serial No. 60,904. (No specimens.)



Claim.—1. The herein-described process of tipping a lacing, which consists in applying powdered gum to a strip of woven material, pressing and heating same, treating it with oil, and heating, compressing and shaping the same to form a tip.

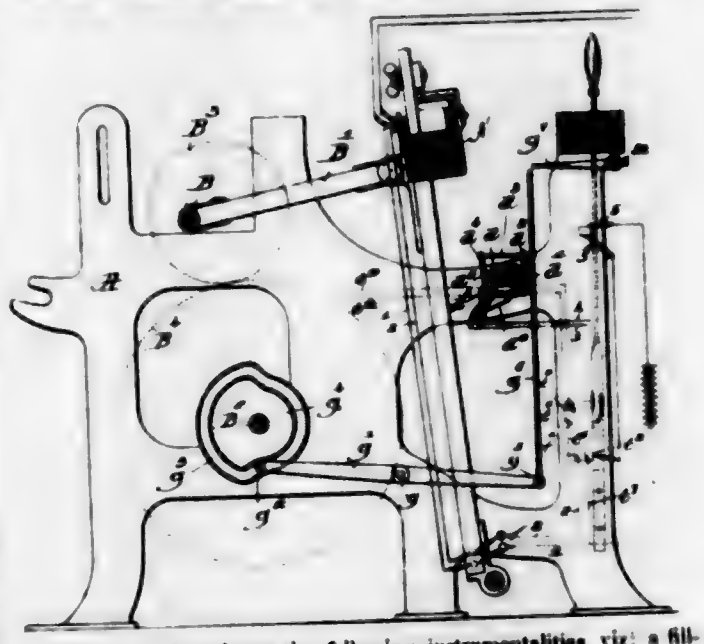
2. The herein-described process of tipping a lacing, which consists in applying powdered gum to a strip of woven material, pressing and heating same, treating it with oil, and finishing the strip by coating the same.

3. The herein-described process of tipping a lacing, which consists in applying powdered gum to a strip of woven material, pressing between pads containing oil, and heating, compressing and shaping the same to form a tip.

4. The method of making tips on lacers, which consists in applying a fusible gum to a portion of the lacing, then simultaneously heating and pressing the gummed portion to incorporate the gum in the lacing, then applying oil to the gummed portion, and then simultaneously heating, and compressing the lacing to form the tips.

5. The method of making tips on lacings, which consists in applying a fusible gum to a portion of the lacing, then simultaneously heating and pressing the gummed portion to incorporate the gum in the lacing, then applying oil to the gummed portion and then simultaneously heating and compressing the lacing to form the tips, and then coating the tips.

695,363. ELECTRIC FILLING-CHANGING MECHANISM FOR LOOMS. FREDERICK M. ARMSTRONG, Pawtucket, R. I., and JOHN A. CLARK, Worcester, Mass., assignors to Crompton & Knowles Loom Works, Worcester, Mass., a Corporation of Rhode Island. Filed Mar 26, 1900. Serial No. 10,272. (No model.)



Claim.—1. In a loom, the following instrumentalities, viz: a filling-changing mechanism, means for controlling the operation thereof including an electric circuit, the electric condition of which is changed on the exhaustion of the filling to a predetermined amount, and a retarding-relay in said circuit.

2. In a loom the following instrumentalities, viz: a filling-changing mechanism, means for controlling the operation thereof including an electric circuit, the electric condition of which is changed on the exhaustion of the filling in an active shuttle to a predetermined amount, and an auxiliary circuit completed by change in the electric condition of the first-named circuit.

3. In a loom the following instrumentalities, viz: a filling-changing

mechanism, means for controlling the operation thereof including an electric circuit completed on the practical exhaustion of the filling in an active shuttle, an auxiliary circuit formed by the completion of the first-named circuit, and a switch to interrupt the auxiliary circuit on the operation of the filling-changing mechanism.

4. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, means including an electric circuit formed by the practical exhaustion of the filling in an active shuttle to place said actuator into operative position, and electric devices for retaining the actuator in operative position after the interruption of the said circuit.

5. In a loom the following instrumentalities, viz: a filling-changing mechanism an actuator therefor, an electric circuit including an electromagnet and completed by the practical exhaustion of the filling in an active shuttle to place said actuator in operative position, electric devices for retaining the actuator in operative position after the interruption of said circuit, and means for rendering said electric devices inoperative on the operation of the filling-changing mechanism.

6. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, an electric circuit including an electromagnet and completed by the practical exhaustion of the filling in an active shuttle to place said actuator in operative position, an auxiliary circuit formed by the completion of the first-named circuit to retain said actuator in operative position after the interruption of the said first-named circuit.

7. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, an electric circuit including an electromagnet and completed by the practical exhaustion of the filling in an active shuttle to place said actuator in operative position, an auxiliary circuit formed by the completion of the first-named circuit and including said electromagnet to retain said actuator in operative position after the interruption of the said first-named circuit.

8. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, an electric circuit including an electromagnet and completed by the practical exhaustion of the filling in an active shuttle to place said actuator in operative position, an auxiliary circuit formed by the completion of the first-named circuit and including said electromagnet to retain said actuator in operative position after the interruption of the said first-named circuit, and a switch operative on movement of the filling-changing mechanism to interrupt the auxiliary circuit.

9. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, an electric circuit including an electromagnet and filling-detectors, the latter of which feel for and complete the circuit on the practical exhaustion of the filling in an active shuttle, an auxiliary circuit also including said electromagnet and a retarding-relay to establish the auxiliary circuit on the completion of the first-named circuit and to continue said auxiliary circuit after the first-named circuit has been interrupted.

10. In a loom the following instrumentalities, viz: a filling-changing mechanism, an actuator therefor, an electric circuit including an electromagnet for controlling the position of said actuator, filling-detectors also included in said circuit and through which the same is completed on the exhaustion of the filling to a predetermined amount, an auxiliary circuit also including said electromagnet, a retarding-relay to establish the auxiliary circuit on the completion of the first-named circuit, and continue the same after the interruption of said first-named circuit, and a switch for interrupting the auxiliary circuit on movement of the filling-changing mechanism.

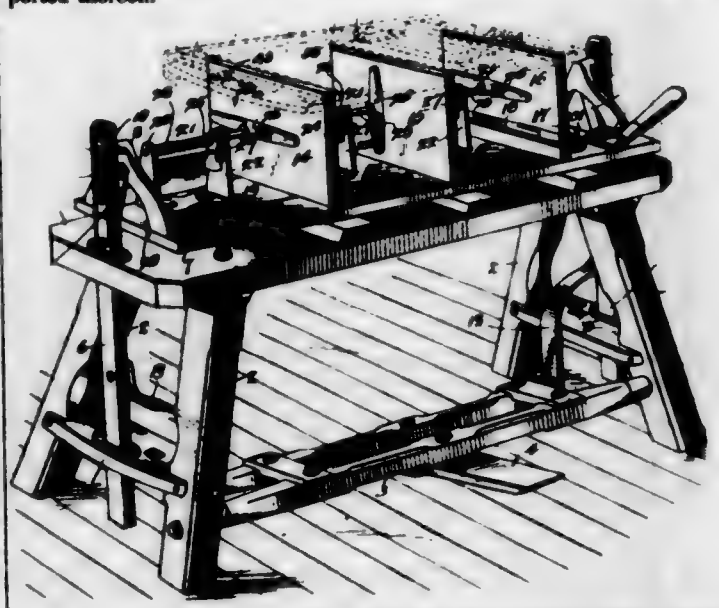
695,364. CASE AND BOX MACHINE. JAMES K. ASHLEY, Rushville, Ill. Filed May 17, 1901. Serial No. 60,770. (No model.)

Claim.—1. In a machine of the class set forth, the combination with a supporting-table, of a revoluble clamping-frame provided with a plurality of backing-frames, a slide longitudinally movable in the clamping-frame and carrying a series of clamps to coact with the backing-frames, and a rock-shaft at one end of the clamping-frame having a crank connected to the one end of the slide and also provided with a grip device at one terminal.

2. In a machine of the class set forth, the combination with a supporting-table, of a clamping-frame provided with a plurality of backing-frames and having end trunnion devices, vertical slides movable through the opposite end portions of the table and having upper slotted ends in which said trunnion devices are slidably mounted, and a treadle having links connected to the said vertical slides.

3. In a machine of the class set forth, the combination with a supporting-table, of a clamping-frame provided with a plurality of backing-frames and having brackets with end trunnion devices, vertical slides movable through the opposite end portions of the table and having upper slotted ends with rollers vertically slidably therein and in which said trunnion devices are movably mounted, fulcrum-links pivotally connected to said brackets and to the slides, and an operating means connected to the lower portions of said vertical slides.

4. In a machine of the class set forth, a plurality of backing-frames and a cleating and lid-making attachment adapted to be removably supported thereon.



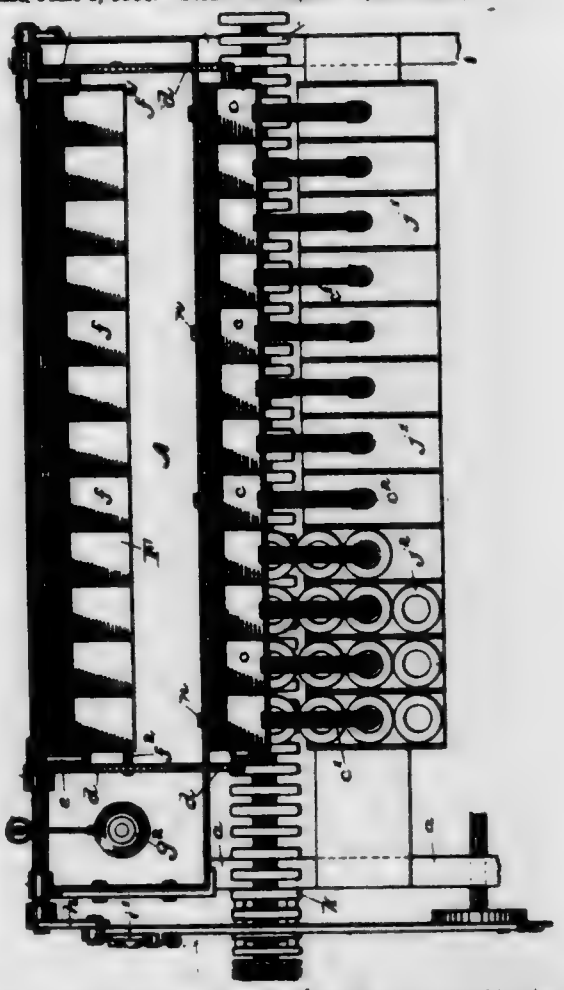
5. A cleating and lid-making attachment for a box-machine having a holding-bar with projecting tongues, and a back strip having a front slot.

6. A cleating and lid-making attachment for a box-machine having holding-strips near the opposite ends thereof, a back strip, and resilient fingers normally bearing against said holding-strips.

7. A cleating and lid-making attachment for a box-machine having holding devices near opposite ends thereof for retaining lid-flanges in place while the lid-board is being secured thereto, and a backing-strip.

8. A cleating and lid-making attachment for a box-machine having holding devices near opposite ends thereof for retaining lid-flanges in place while the lid-board is being secured thereto, an intermediate holding-bar with longitudinally-projecting tongues, and a backing-strip.

695,365. CAN-FILLING MACHINE. CHARLES H. AYARS, Salem, N. J., assignor to Ayars Machine Company, a Corporation of New Jersey. Filed June 6, 1901. Serial No. 63,388. (No model.)



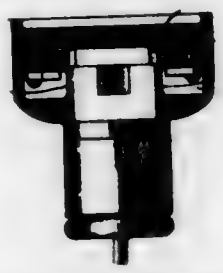
Claim.—1. In a machine of the class described, the combination of a liquid-tank; a rock-shaft extending longthwise of said tank; a cup-receptacle within said tank; means on said shaft for sustaining said cup-receptacle; an arm secured on said shaft on the exterior of said tank; an operating-rod having one end secured to said arm; means at the opposite end of said rod for imparting a reciprocating movement to the arm and

of said rod; and means whereby the rod may be lengthened or shortened to rock the shaft more or less.

2. A machine for filling receptacles such as cans, with liquid, comprising a tank; a series of stationary cup-receptacles secured at the exterior of said tank; a rock-shaft extending lengthwise of said tank; two arms secured to said rock-shaft one near each end thereof and both having movement up and down in said tank; two stationary brackets one being at each end of said tank; a series of cup-receptacles united and pivoted to the free ends of said two arms and movable between the said two brackets; means coacting between said stationary brackets and said movable pivoted cup-receptacles whereby to tilt or incline the latter to discharge the liquid therefrom into the said exterior cup-receptacles.

3. A machine for filling receptacles with liquid, comprising a main tank; a shaft extending lengthwise of said tank; two arms secured on said shaft and projecting into the tank; means for rocking said shaft and arms; a cup-receptacle pivoted to the free ends of said arms and provided at each end with a projecting pin; a stationary bracket at each end of said cup-receptacle, each of said brackets having a groove which receives the pin on the end of said cup-receptacle, whereby when the shaft and arms are rocked the grooves and pins will direct the movement of said cup-receptacle.

695,866. **COMBINATION PLUG-SWITCH.** JAMES I. AYER, Malden, Mass., assignor to the Simplex Electrical Company, Boston, Mass., a Corporation of Massachusetts. Filed Sept. 20, 1901. Serial No. 75,901. (No model.)



Claim.—1. In a compound plug-switch, a plug and its socket, one containing switching or circuit-changing mechanism, and means for preventing the shifting of the said circuit-changing mechanism while in circuit with the supply-current.

2. In a compound plug-switch, a plug and its socket, and a lock preventing the shifting of the circuit-changing mechanism when the plug and socket are in condition to coöperate.

3. In a compound plug-switch, a plug and its socket, and mechanism for preventing the operative coupling of the plug and socket unless the circuit-changing mechanism is in proper working position.

4. In a compound plug-switch, a plug and its socket, one containing circuit-changing mechanism for forming different combinations of circuits, said switch having a lock for preventing the shifting of the said circuit-changing mechanism, said lock being accessible only when the plug and socket are in inoperative position.

5. In a compound plug-switch, a plug having a movable part, and a relatively stationary part, one containing a plurality of contacts and the other containing a plurality of contact-makers.

6. In a compound plug-switch, a plug containing connected insulating-supports capable of a limited movement toward and from each other, and provided in their abutting ends with closely-arranged, coöperating tubular and pin-like contacts and contact-makers.

7. In a compound plug-switch, a plug containing connected insulating-supports capable of a limited movement toward and from each other, and provided in their abutting ends with closely-arranged, coöperating tubular and pin-like contacts and contact-makers, and provided with locking means maintaining them in closed position when in service.

8. A compound switch, containing a movable part and relatively stationary part pivotally connected, one part being included in a main feed-circuit, said two parts containing means for varying the distribution of the feed-current for different effective results, said means comprising a plurality of contacts in one part and a plurality of contact-makers in the other part arranged to coöperate successively in different combinations, one of said pluralities being connected with the feed-circuit and the other provided with a plurality of distributing-wires.

9. In a compound plug-switch, a plug, and its socket, said socket containing two contacts for connecting said plug with the feed-wire or service-line, and said plug containing circuit-changing mechanism for shifting the feed-current to different combinations.

10. In a compound plug-switch, a plug containing two permanently-connected parts, said parts containing a plurality of complementary switching devices and being capable of separation a distance sufficient only for permitting the shifting of said switching devices for making different combinations, and means for preventing the separation of said parts when the plug is in circuit with the feed-wire, thereby permitting a change of circuits with short distances apart of contacts without danger of arcing.

11. In a compound plug-switch, a plug having relatively movable parts, one containing a set of projecting contact-makers and the other containing a set of socket-like contacts to receive said contact-makers, one of said sets being loosely mounted in slightly-larger cavities, leaving room for slight movement for automatically alining the respective contacts and contact-makers when moved into working position.

12. In a compound plug-switch, a plug having two parts movable toward and from each other and pivotally connected, one part being provided with a set of projecting contact-makers, and the other containing a set of socket-like contacts concentrically arranged, one of said sets being loosely mounted in slightly-larger cavities, leaving room for slight movement for automatically alining the respective contacts and contact-makers when moved into working position.

13. In a compound plug-switch, a plug having two parts movable toward and from each other and pivotally connected, one part being provided with a set of projecting contact-makers, and the other containing a set of socket-like contacts concentrically arranged, said contacts being pivotally mounted in recesses, permitting them to swing slightly for automatic alinement with the contact-makers to whatever position the latter may be rotated.

14. In a compound plug-switch, a plug having two parts movable toward and from each other and pivotally connected, one part being provided with a set of projecting contact-makers, and the other containing a set of socket-like contacts concentrically arranged, said contacts being pivotally mounted in recesses, permitting them to swing slightly for automatic alinement with the contact-makers to whatever position the latter may be rotated, said contacts carrying binding-screws mounted therein independently of the part supporting the contacts.

15. A compound plug-switch, comprising two parts movable toward and from each other and centrally connected by a pivot, a spring surrounding said pivot, and acting to move said parts toward each other.

16. A compound plug-switch, comprising two parts movable toward and from each other and centrally connected by a pivot, a spring surrounding said pivot, and acting to move said parts toward each other, each part having complementary portions of a plurality of circuit-changing devices.

17. A compound plug-switch comprising two parts movable toward and from each other and centrally connected by a pivot, a spring surrounding said pivot and acting to move said parts toward each other, each part having complementary portions of a plurality of circuit-changing devices, and a lock connected to one of said parts to engage the other and lock the two together when the circuit-changing devices are in closed position.

18. In a compound plug-switch, a socket, a plug composed of relatively movable parts pivotally connected and each containing complementary portions of a series of circuit-changing devices, a spring surrounding the pivot for moving the parts toward each other, said spring being located in the end of the plug next to the socket when the parts are in operative position.

19. In a compound plug-switch, two parts movable toward and from each other and centrally connected by a pivot, a spring surrounding said pivot and acting to move said parts toward each other, each part having complementary portions of a plurality of circuit-changing devices, and a bar mounted above said spring on said pivot, to turn into locking engagement with the adjacent movable part when the circuit-changing devices are in closed position.

695,867. **WATER-SUPPLYING DEVICE OR THE LIKE.** JEAN BAYARD, Lyons, France. Filed Oct. 15, 1901. Serial No. 78,670. (No model.)



Claim.—1. In a water-supplying apparatus the combination of a valve, a valve-rod and a centrifugal pendulum connected thereto and means for operating the same substantially as described.

2. In a water-supplying apparatus the combination of a water-pipe in communication with the water-main and provided at its end with a tap, a valve, a rod, a pendulum device *e* connected to the rod-gearing to rotate the pendulum device and a stuffing-box *d* substantially as and for the purpose described.

3. In a water-supplying apparatus the combination of a water-pipe in communication with the water-main and provided at its end with a tap, a valve, a rod, a pendulum device *e* connected to the rod-gearing to

rotate the pendulum device, a casing containing wadding and a glycerin-receptacle through which the rod passes substantially as described.

4. In a water-supplying apparatus the combination of a water-tap, a valve, a centrifugal pendulum device connected to the valve and means for operating the pendulum device substantially as described.

695,368. CHAIR-TRUCK. RUSSEL BIGELOW and FRANK E. BIGELOW, Vanwert, Ohio. Filed Aug. 22, 1901. Serial No. 72,855. (No model.)



Claim.—1. A chair-truck having an axle formed of two parts adapted to slide lengthwise upon each other, means for securing the parts of the axle together, the axle being depressed and thereby adapted for engagement with the base of a chair for supporting it in the manner described.

2. The improved truck comprising two wheels, two axle-sections which are adjustable lengthwise upon each other, means for securing the axle-sections in any adjustment, and the said sections having each a downward bend or depression adapted to receive the rockers or other base portion of a chair, substantially as shown and described.

3. The improved chair-truck comprising two wheels, two axle-sections which are adjustable lengthwise upon each other, clips applied to the lapped portions of the axle-sections, means for clamping the said clips upon the latter, the said sections having downward bends or depressions adjacent to the wheels, and plates secured in such depressions at right angles to the axis of the axle, substantially as shown and described.

4. The improved chair-truck composed of two wheels, two axle-sections whose inner portions are lapped one upon the other and adapted for lengthwise adjustment, two clips securing the lapped portions in any adjustment, the said sections having downward bends provided with plates adapted to serve as rests or supports for chair-rockers, and the journals of the said sections being in line with each other above the central lapped portions, substantially as shown and described.

695,369. PAPER-BOX MACHINE. ALFRED BIRNIE, Springfield, and CHAUNCEY W. GAY, West Springfield, Mass. Filed Oct. 28, 1901. Serial No. 80,196. (No model.)

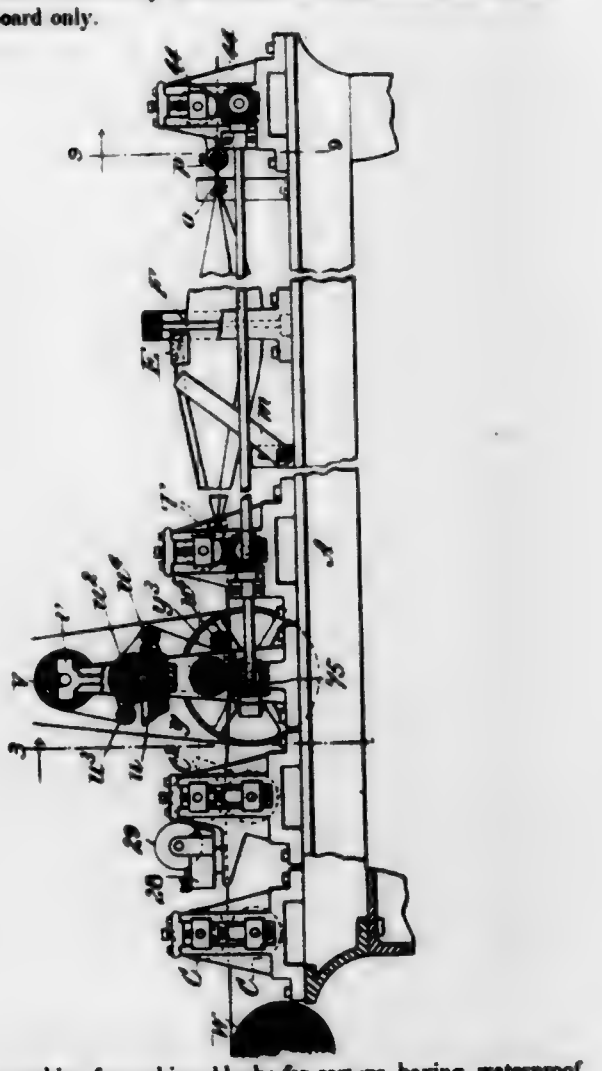
Claim.—1. In a machine for making blanks for cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length, means for applying a strip of wax-paper or analogous material on the surface of the scored and slitted strip, and means for causing the adhesion of the moisture-proof strip, thereon.

2. In a machine for making blanks for cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length, means for supporting a strip of wax-paper, or analogous material, means for applying an adhesive on the surface thereof, means for guiding the so-prepared wax-paper onto the surface of the scored and slitted strip, and means for causing the adhesion of the moisture-proof strip, thereon.

3. In a machine for making blanks for cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length, means for supporting a strip of wax-paper, or analogous material with its one margin offset and relatively inside of the margin of the cardboard strip, means for applying an adhesive on the surface of the wax-paper, means for guiding the so-prepared wax-paper onto the surface of the scored and slitted strip, and means for causing the adhesion thereof, thereon.

4. In a machine for making blanks for cartons having waterproof linings, the combination with means for progressing a strip of cardboard; and means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length; of a support for a supply-strip of wax-paper, a paste-box and paste-roller, means for guiding the wax-paper over the paste-roller, means for guiding the pasted wax-paper strip into running contact on the cardboard strip, and rolls for pressing the wax-paper strip and cardboard strip firmly together.

5. In a machine for making blanks for cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length; means for applying a strip of wax-paper or analogous material on the surface of the scored and slitted strip, and causing the adhesion thereof, thereon, and means for severing the combined strips on lines transversely intersecting the longitudinal slits which are in the cardboard only.



6. In a machine for making blanks for cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for longitudinally scoring the strip, a pair of rolls one of which has arc-formed peripheral blades in planes perpendicular to the axis of the roll, for longitudinally slitting the strip at intervals in its length, means for supporting a strip of wax-paper, or analogous material, and for applying an adhesive on the surface thereof, a roll in advance of the said slitting-roll and adjacent the plane of travel of the cardboard strip, for guiding the so-prepared wax-paper onto the surface of the already scored and slitted strip, and a pair of pressure-rolls thereboyond.

7. In a machine for making cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for marginally pasting such strip; means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length; means for applying a strip of wax-paper or analogous material on the surface of the scored and slitted strip, and causing the adhesion thereof, thereon, and mechanism for bending, and setting, into tubular form the marginally-pasted cardboard strip having the wax-paper adherent therein.

8. In a machine for making cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for marginally pasting such strips; means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length; means for supporting a strip of wax-paper and guiding the same onto the surface of, and with its one edge within the margin of the edgewise pasted and scored and slitted cardboard strip; and means for applying an adhesive on the surface of one of said strips which is brought to facewise contact on the other, and means for pressing said strips together; and mechanism for bending, and setting, into tubular form, the marginally-pasted cardboard strip having the wax-paper adherent therein.

9. In a machine for making cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for marginally pasting such strip; means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length; means for applying a strip of wax-paper or analogous material on the surface of the scored and slitted strip, and causing the adhesion thereof, thereon; mechanism for bending, and setting, into tubular form, the marginally-pasted cardboard strip having the wax-paper adherent therein; and means for severing the so-formed lined tube on transverse lines intersecting the longitudinal slits in the outer cardboard layer thereof.

10. In a machine for making cartons having waterproof linings, the combination of means for progressing a strip of cardboard; means for longitudinally marginally pasting such strip; means for longitudinally scoring the strip, and for longitudinally slitting the strip at intervals in its length; means for supporting a strip of wax-paper and guiding the same onto the surface of scored and slitted cardboard strip; with its one edge inside of the marginally-pasted cardboard strip, and with its opposite edge overlapping beyond the other edge of the cardboard strip; means for applying an adhesive on the surface of one of said strips which is brought to facewise contact on the other, and means for pressing said strips together; mechanism for bending, and setting, into tubular form, the marginally-pasted cardboard strip having the wax-paper adherent therein, and mechanism for severing the tube on transverse lines intersecting the slits in the cardboard outer layer thereof.

11. In a machine of the character described, the combination with longitudinal scoring devices for the cardboard strip; a paste-roll to run on the margin of the strip, and paste-supplying means therefor; a pair of rolls one of which has peripheral partially-encircling slitting-blades w', and a cross-scoring rib y^4, parallel with its axis, and a pair of draft and pressure rolls T T therebeyond; of a support, and surface-pasting apparatus, for a wax-paper strip, means for guiding said strip onto the cardboard between the slitting-rolls and said pressure-rolls; devices for converting the covered strip into the form of a stuck-seam tube; a pair of rolls beyond the tube-forming devices one of which has a cross-severing blade; and means for rotating the slitting and the cross-severing rolls at corresponding surface speed, substantially as described.

12. In a machine of the character described, the combination with longitudinal scoring devices for the cardboard strip; a paste-roll to run on the margin of the strip; and paste-supplying means therefor; a pair of rolls one of which has peripheral partially-encircling slitting-blades w, and a cross-scoring rib y^4 parallel with its axis, and a pair of draft and pressure rolls T T therebeyond; of a support, and surface-pasting apparatus, for a wax-paper strip, rolls between the pasting apparatus and the cardboard strip, one w^3 of which has its location between the slitting-rolls and said pressure-rolls and peripherally adjacent the plane of travel of the cardboard strip; devices for converting the covered strip into the form of a stuck tube; a pair of rolls beyond the tube-forming devices one of which has a cross-severing blade, and means for rotating the slitting, and the cross-severing rolls at corresponding surface speed, substantially as described.

13. In a machine for making cartons having linings of sheet material, the combination of means for progressing a strip of carboard, devices for marginally pasting same, means for supporting a supply of the lining material, means for applying an adhesive on the surface of one of said strips, means for guiding the lining-sheet onto the surface of the cardboard strip, means for pressing said strips together, and mechanism for bending and setting into tubular form the marginally-pasted cardboard strip with the lining adherent therein.

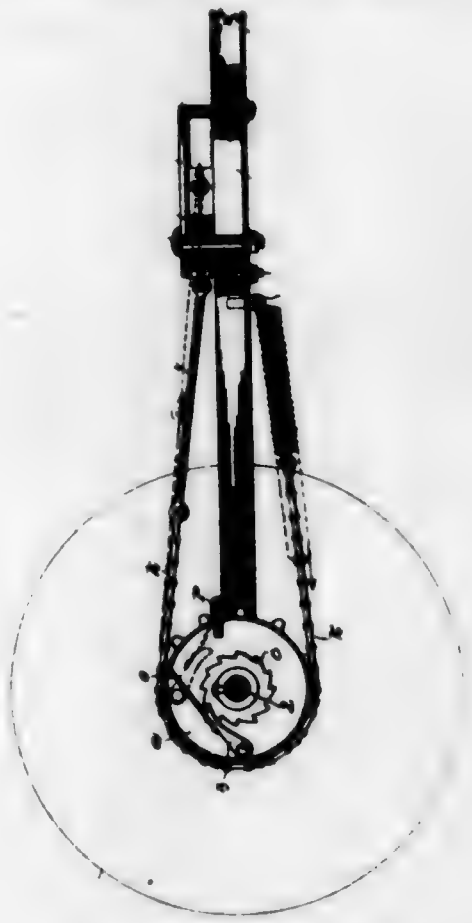
695,870. STARTING MECHANISM FOR HARVESTER CUTTING APPARATUS. BENJAMINE F. BOYDSTON, Edgerton, Mo. Filed Mar. 30, 1901. Serial No. 53,680. (No model.)

Claim.—1. In a mowing-machine or harvester, the combination of a spring-retracted draft element, an initially-effective revoluble element loose on the driving-shaft, a connection between said draft element and said revoluble element, means, including a movable member, to lock said revoluble element to said driving-shaft, to cause said revoluble element to rotate said driving-shaft in one direction, and means independent of the locking means, to automatically trip the movable member thereof after the machine is started, and maintain said tripped member in disengaged position, while the machine continues in operation, and thereby permit said driving-shaft to rotate independently of said revoluble element and the latter to remain at rest, substantially as described.

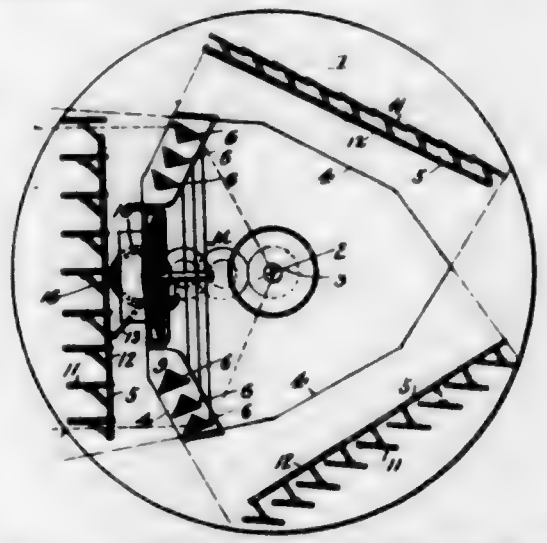
2. In a mowing-machine or harvester, the combination of a spring-retracted draft element, a sprocket-wheel loose on the driving-shaft, pawl-and-ratchet mechanism connecting said sprocket-wheel to said driving-shaft, and a sprocket-chain on said sprocket-wheel and connected to said draft element, substantially as described.

3. In a mowing-machine or harvester, having a driving-shaft revoluble independently of the traction-wheels and connections between said driving-shaft and a cutting apparatus, the combination of a sprocket-wheel on said driving-shaft, a pawl-and-ratchet mechanism to lock the same thereto when said sprocket-wheel is turned in one direction, a spring to turn said sprocket-wheel in the reverse direction, a doubletree movable forward and rearward on the tongue and a sprocket-chain connecting said doubletree to said sprocket-wheel, substantially as described.

4. In a mowing-machine or harvester, the combination of a spring-retracted draft element, a driving-shaft, a ratchet-wheel fast on the latter, a reversely-movable element connected to and operated by said spring-retracted draft element, a pawl carried by said reversely-movable element, to engage said ratchet-wheel and means to automatically disengage said pawl from said ratchet-wheel, substantially as described.



695,871. REVOLVING GROUP-FLASHING APPARATUS. ALAN BRENNER, London, England. Filed Mar. 31, 1900. Serial No. 10,947. (No model.)



Claim.—1. A revolving optical apparatus of two or more sides in combination with a burner and with a complete set of eclipsing-screens, one to each side of the optical apparatus, placed outside and revolving with it, each of said screens composed of a number of interdependent parts opening and closing simultaneously, the whole combination so disposed that the beams of light issuing from each side of the apparatus can be eclipsed or allowed to pass out independently of the beams from the other sides, together with the necessary operative means therefor, substantially as set forth, and for the production of group-flashing lights.

2. A revolving optical apparatus of two or more sides in combination with a burner and with a complete set of eclipsing-screens, one to each side of the optical apparatus, placed inside and revolving with it, each of said screens composed of a number of interdependent parts opening and closing simultaneously, the whole combination so disposed that the light falling on each side of the said optical apparatus can be stopped or allowed to pass on to such side of the said optical apparatus independently of the light falling on the other sides of it, together with the necessary operative means therefor, substantially as set forth, and for the production of group-flashing lights.

3. In combination with a burner, a revolving optical apparatus of

two or more sides, subtending only a portion of the vertical angle of light from the said burner, the other portion of the said vertical angle of light being received by fixed-light optical apparatus, which spreads it uniformly round the horizon, each side of the said revolving-light apparatus having a composite screen of interdependent parts adapted to it, capable of being opened or closed independently of the composite screens adapted to the other sides of the said revolving-light apparatus, together with the necessary operative means therefor, the whole combination so disposed that, while a permanent fixed light emerges from the fixed-light apparatus, the revolving-light apparatus, with its adjuncts, produces a group-flashing light, substantially as set forth.

4. In a device of the character described, a stationary burner, a table adapted to rotate thereabout, a number of single-beam lenses carried by the table, a screen for each lens comprising a number of interdependent pivoted strips, and means for automatically opening and closing the screens, substantially as described.

5. In a device of the character described, a stationary burner, a table adapted to rotate thereabout, a number of single-beam lenses carried by the table, a screen for each lens comprising a number of interdependent pivoted strips, and means carried by the table and receiving its motion from the stationary burner for opening and closing the screens, substantially as described.

6. In a device of the class described, the combination with a stationary burner, a table mounted to rotate about said burner, a plurality of prismatic lenses carried by said table, a screen corresponding to each of said burners, and means for automatically operating said screens to intermittently eclipse the light from said burner, substantially as described.

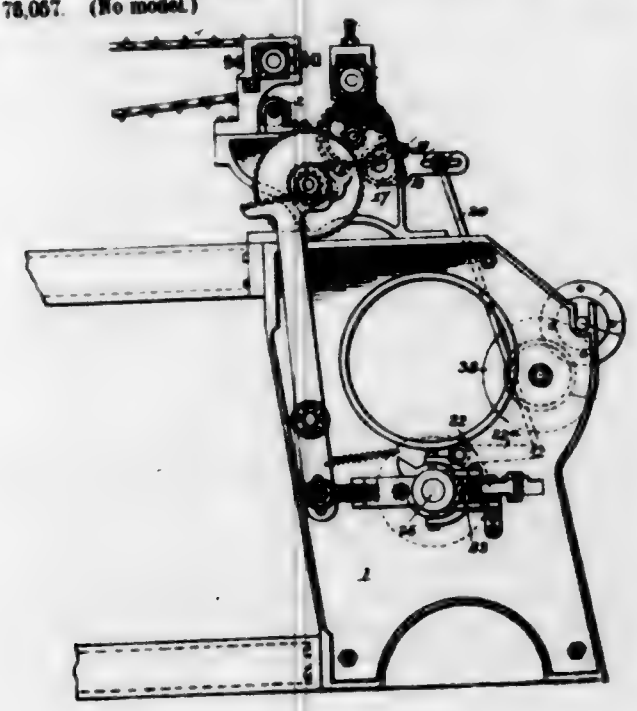
695,372. HANGER-EYE FOR HAMMOCKS. ZEBULON L. CHADBOURNE, New Brighton, N. Y. Filed July 26, 1901. Serial No. 69,092. (No model.)



Claim.—1. In a device of the class described, the combination of an eye, a cylinder open at one end, apertured at the other and formed integral with said eye, said cylinder being slotted longitudinally to accommodate the cords of a hammock, an apertured cap fitting over the open end of said cylinder, and a bolt passing through said cylinder and said cap, substantially as described.

2. In a device of the class described, the combination of a hollow cylinder-casing having an eye formed integral therewith, said cylinder being traversed by a longitudinal slot, and apertured at both ends, a rod extending longitudinally said casing and passing through said apertures, substantially as described.

695,378. TAKE-UP MECHANISM FOR LOOMS. ZEBULON L. CHADBOURNE, New Brighton, N. Y. Filed Sept. 21, 1901. Serial No. 76,057. (No model.)

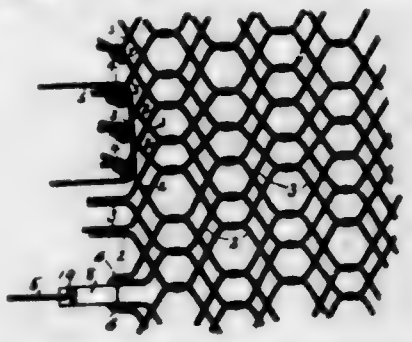


Claim.—1. In a take-up mechanism, the combination with a drum designed to wind fabric on as the weaving progresses, of a friction-disk loosely mounted on one spindle of said drum and having apertures therein, of a disk rigidly mounted parallel to said friction-disk and having threaded apertures therein, pins fitting apertures in said friction-disk and having enlarged threaded heads fitting said threaded apertures in said rigidly-mounted disk, springs mounted on said pins and a friction-disk mounted to bear on said first-mentioned friction-disk, substantially as described.

2. In a take-up mechanism, the combination with a drum constructed to wind fabric on and bearing a spindle, of a friction-disk slidingly mounted on said spindle, of a disk mounted on said spindle parallel to said friction-disk, springs mounted on said disk and bearing on said unyielding friction-disk, and a second friction-disk mounted to contact with and actuate said friction-disk on said spindle, substantially as described.

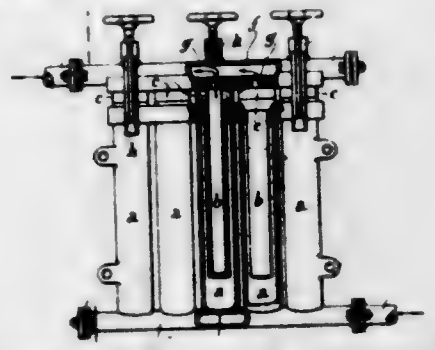
3. In a take-up mechanism, the combination with a drum provided with a spindle, of a friction-disk loosely mounted on said spindle and having apertures therein, of a disk rigidly mounted on said spindle parallel to said friction-disk, pins adjustably mounted in apertures in said fixed disk and engaging said apertures in said friction-disk, springs surrounding said pins and bearing on said friction-disk, and a second friction-disk mounted in contact with said first-named friction-disk, substantially as described.

695,874. HAMMOCK. ZEBULON L. CHADBOURNE, New Brighton, N. Y. Filed Oct. 10, 1901. Serial No. 78,203. (No model.)



Claim.—A hanger-iron for hammocks, comprising a hollow body apertured on opposite sides and having slots joining said apertures, and perforated ears on said body, substantially as described.

695,875. FILTER. CHARLES E. CHAMBERLAND, Paris, France. Filed Aug. 19, 1901. Serial No. 72,561. (No model.)



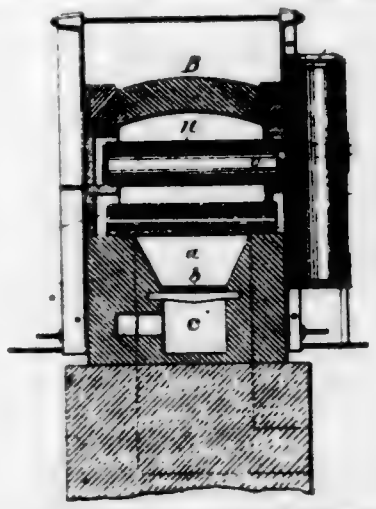
Claim.—A filter comprising a plurality of cylinders for containing each a filtering-body, formed in one piece with the inlet-pipe for the liquid to be filtered, combined with a cover formed in one piece with the outlet-pipe for the filtered liquid, means for securing liquid-tight joints between the filtering-bodies and the said cylinders on the one hand and the said cover on the other, and means for clamping the said cover, substantially as herein described and shown.

695,876. PRODUCTION OF ZINC-DUST. GEORGE G. CONVERS and ARTHUR B. DE SAULLES, South Bethlehem, Pa. Filed Sept. 14, 1898. Serial No. 690,911. (No specimens.)

Claim.—1. The process of obtaining the substantially maximum yield of zinc-dust or blue powder from a given retort charge, which consists in preliminarily heating the charge to effect the distillation of the zinc, receiving the metallic-zinc vapors given off from the charge, in their substantial entirety from the muffle directly into a collecting-chamber, thereby maintaining their temperature throughout above the point of liquefaction of any substantial portion of the vapor until they have entered the collecting-chamber, and immediately condensing them in said chamber under such conditions of temperature and expansion as will precipitate them in substantially their entirety in the form of zinc-dust, substantially as described and for the purposes set forth.

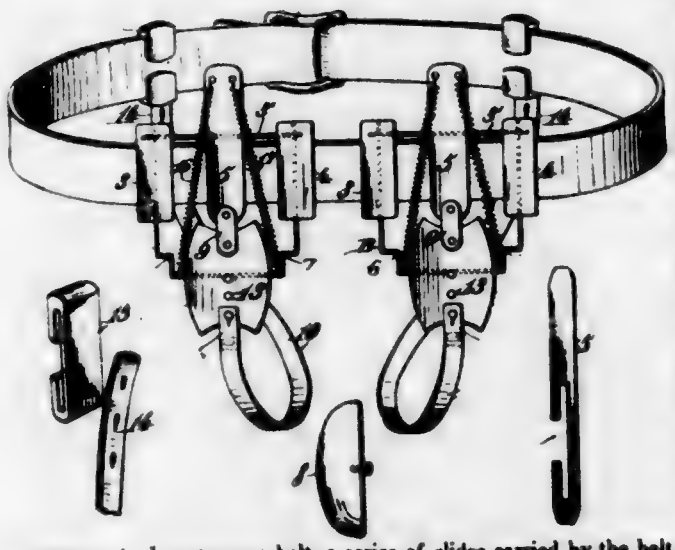
2. The process of obtaining the substantially maximum yield of zinc-

dust or blue powder from a given retort charge, while excluding injurious admixture of zinc oxid therewith, which consists in preliminarily heating the charge to effect the distillation of the zinc, conveying off separately the preliminary oxid-of-zinc vapors generated in the retort, then receiving the metallic-zinc vapors given off from the charge, in their substantial entirety from the muffle directly into a collecting-chamber, thereby maintaining their temperature throughout above the point of liquefaction of any substantial portion of the vapor until they have entered the collecting-chamber, and immediately expanding and condensing them to zinc-dust in said chamber; substantially as described and for the purposes set forth.



3. The process of obtaining the substantially maximum yield of zinc-dust or blue powder from a given retort charge, while excluding injurious admixture of zinc oxid therewith, which consists in preliminarily heating the charge to effect the distillation of the zinc, conveying off separately the preliminary oxid-of-zinc vapors generated in the retort, then receiving the metallic-zinc vapors given off from the charge, in their substantial entirety from the muffle directly into a collecting-chamber, thereby maintaining their temperature throughout above the point of liquefaction of any substantial portion of the vapor until they have entered the collecting-chamber, immediately expanding and condensing them to zinc-dust in said chamber; and interrupting the flow into the collecting-chamber when, at the final stage of the operation, oxid-of-zinc vapors reappear therein; substantially as described.

695,377. HERNIAL TRUSS. JOSEPH A. CORBETT, Medford, Okla. Filed June 11, 1901. Serial No. 64,142. (No model.)



Claim.—1. In a truss, a belt, a series of slides carried by the belt, a pivot supported by two of the slides above the belt, and one of the slides being supported for oscillation by said pivot, and serving as a pad-support.

2. In a truss, a belt, a series of three slides the two outer ones being bored, a pivot seated in said bores above the belt, and the third slide being supported for swinging movement by said pivot, and constituting a pad-support.

3. In a truss, a belt, a series of three slides carried by the belt, a pivot supported by the two outer slides, and the middle slide being supported for swinging movement by said pivot, and means to hold the said outer slides in parallelism.

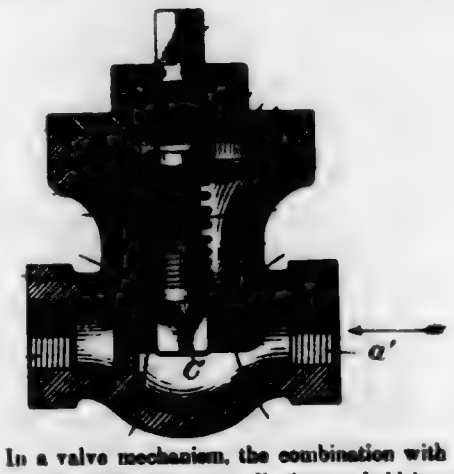
4. In a truss, a belt, a series of three slides carried by the belt, a pivot supported by the two outer slides and the middle slide being supported for swinging movement by said pivot, and a U-shaped spring-frame, the legs of which are connected to the outer slides.

5. In a truss, a belt, a series of three slides carried by the belt, a pivot supported by the two outer slides, and the middle slide being supported for swinging movement by said pivot, a U-shaped spring-frame, the legs of which are connected to the outer slides, and a pad supported for swinging movement by the cross-bar of said frame.

6. In a truss, a belt, two slides carried by said belt having transverse seats and bores extending entirely through the same vertically thereof, a U-shaped spring-frame, the branches of which are inserted in said bores, a pivot the ends of which are fitted in said seats, a third slide supported for swinging movement by said pivot, and a pad supported for swinging movement by the cross-bar of said frame, and connected with the third slide.

7. In a truss, a belt, two slides carried by said belt having transverse seats and bores extending entirely through the same vertically thereof, a U-shaped spring-frame, the branches of which are inserted in said bores, a pivot the ends of which are fitted in said seats, a third slide supported for swinging movement by said pivot, a pad supported for swinging movement by the cross-bar of said frame, and connected with the third slide, and coiled springs connected with the third slide and with the cross-bar of said U-shaped frame.

695,378. CHECK-VALVE. WILLIAM B. COWLES, Cleveland, Ohio, assignor to the Long Arm System Company, Cleveland, Ohio, a Corporation of West Virginia. Filed July 3, 1901. Serial No. 67,019. (No model.)



Claim.—1. In a valve mechanism, the combination with a valve-casing and a cover secured thereon, of a diaphragm held between said cover and said valve-casing, an adjustable stop screwed into said cover and bearing against said diaphragm, and a check-valve having a stem normally clear of said diaphragm but adapted to be engaged thereby when said stop is screwed down, substantially as described.

2. In a valve mechanism, the combination with a closed valve-casing and a flexible diaphragm mounted therein, of a check-valve mounted in said casing beneath said diaphragm, a spring interposed between said check-valve and said diaphragm, and an adjustable stop mounted in said casing and bearing against said diaphragm, substantially as described.

3. A check-valve mechanism, comprising a closed casing, a flexible diaphragm mounted therein, a check-valve mounted in said casing at one side of said diaphragm, a spring interposed between said check-valve and said diaphragm, and an adjustable stop projecting into said casing and bearing against the other side of said diaphragm, substantially as and for the purposes described.

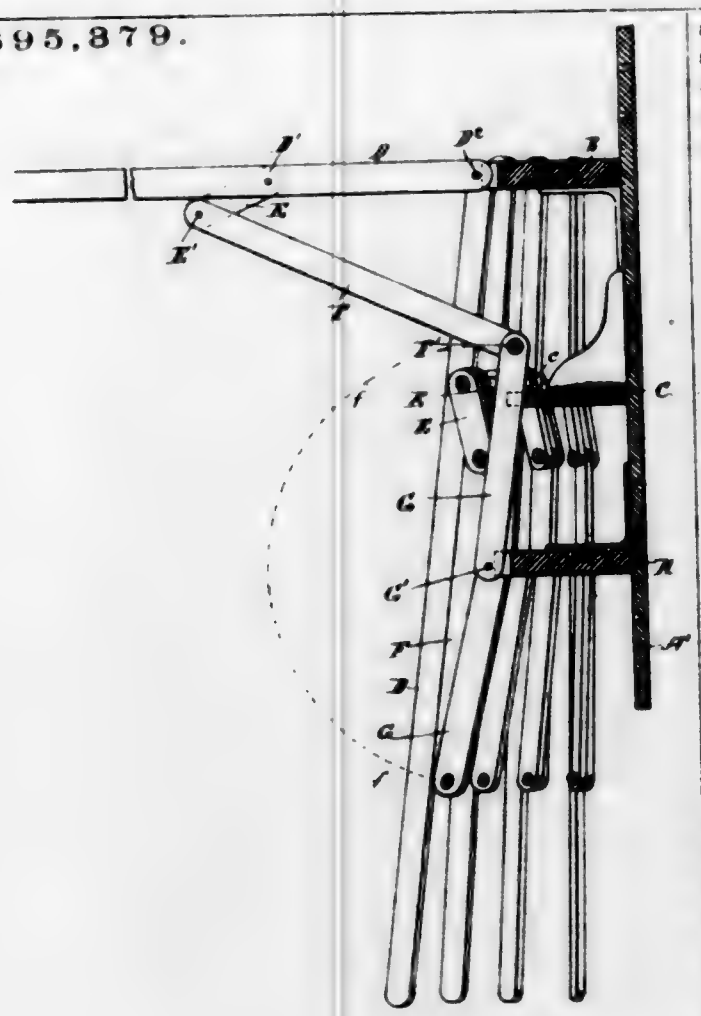
4. In a valve mechanism, the combination with a valve-casing and a cover secured thereon, of a flexible diaphragm held between said cover and said casing, a check-valve mounted in said casing beneath said diaphragm, a spring interposed between said check-valve and said diaphragm, and an adjustable stop mounted in said cover and adapted to bear against said diaphragm, substantially as described.

5. In a valve mechanism, the combination with a valve-casing and a cover mounted thereon, of a diaphragm held between said cover and said valve-casing, an adjustable stop screwed into said cover and bearing against said diaphragm, a check-valve having a stem normally clear of said diaphragm but adapted to be engaged thereby when said stop is screwed down, and a coil-spring inclosing said valve-stem and interposed between said check-valve and said diaphragm, substantially as described.

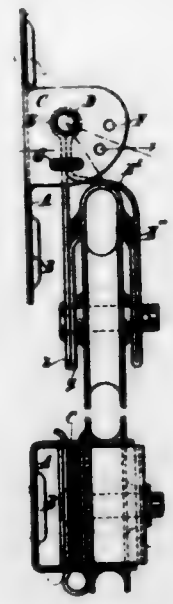
695,379. COLLAPSIBLE WALL CLOTHES-DRIER. HENRY DICKSON, Middleboro, Mass. Filed Dec. 27, 1901. Serial No. 87,439. (No model.)

Claim.—In a clothes-drier the arms, D, each having a system of supporting-links consisting of a link pivoted at its lower end to a bracket-piece, and having a back support as described, a second link pivoted to the upper end of the first-mentioned link, and connected to the said arm by a pair of links, E, E, substantially as and for the purpose set forth.

695,879.

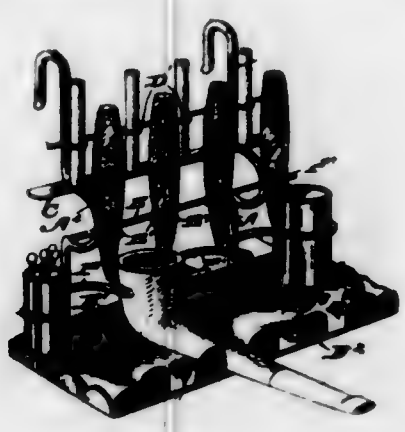


a point below the crown of the arch and corresponding to the contour of a grooved pulley to be contained within the guard portion and a holding device to hold the swinging frame carrying the grooved pulley at any desired angle with relation to the curved series of openings as herein shown and described.



2. In angle-pulleys for signal-wires and other purposes, a bracket having lugs pierced to receive a pivot-pin and with a series of openings arranged in a curve struck from the pivot in combination with a holding device to be inserted in the openings, to hold a pulley-frame swung from the pivot at any desired angle as herein shown and described.

695,880. COMBINED PIPE-HOLDER AND CIGAR-TRAY. LESHA G. DURR, Colorado Springs, Colo., assignor to Mary J. Jordan, Colorado Springs, Colo. Filed July 27, 1901. Serial No. 69,974. (No model.)



Claim.—1. In a device of the kind described, a tray, the front flange of which is cut away at intervals, and the wire F' bent to form recesses corresponding with the cut-away portions and the wires for supporting said tray, the upper ends of said wires being hooked, substantially as shown and described.

2. In a device of the kind described, the supporting-wires having hooked upper ends, the looped cross-wire, and the supporting-plate, all arranged substantially as described.

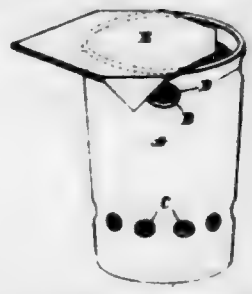
3. In a device of the kind described, the supporting-wires having hooked upper ends and the intermediate bowed portions, the connecting cross-wire having loops, and the supporting-plate resting upon the bowed portions, substantially as shown and described.

695,881. PULLEY FOR SIGNAL-WIRES OR OTHER PURPOSES. SAMUEL T. DUTTON, Worcester, England, assignor, by direct and mesne assignments, to J. F. Pease and Company, Limited, Darlington, England, and Worcester, England, a Corporation of Great Britain. Filed Dec. 6, 1901. Serial No. 84,870. (No model.)

Claim.—1. An angle or swinging pulley for signal-wires and other purposes consisting of a bracket having lugs pierced to receive a pivot-pin and with a series of openings arranged in a curve struck from the pivot in combination with a pulley-frame formed from a strip of steel with a loop or loops and having an arched guard portion indented or nipped in at

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695,882. DEVICE FOR HEATING ORCHARDS. CHARLES FROUDE, Riverside, Cal. Filed Sept. 26, 1901. Serial No. 76,661. (No model.)



Claim.—1. An orchard-heating device, comprising a receptacle for holding the fuel, open at the top and closed at the bottom, and provided with air-vent holes in the sides near the bottom thereof, and draft-openings near the top thereof; and a cover for said receptacle, adapted to be moved along and across the top thereof to regulate the burning of the fuel in said receptacle; the cover consisting of a blank sheet of metal in a square form, three of the corners thereof being bent at right angles to the plane of the body portion.

2. In an orchard-heating device, a cover for said device, formed from a blank, with three corners turned at an angle to the main body of the cover, to hold the cover on the device at different points, and being in area sufficient to cover the top opening in the device.

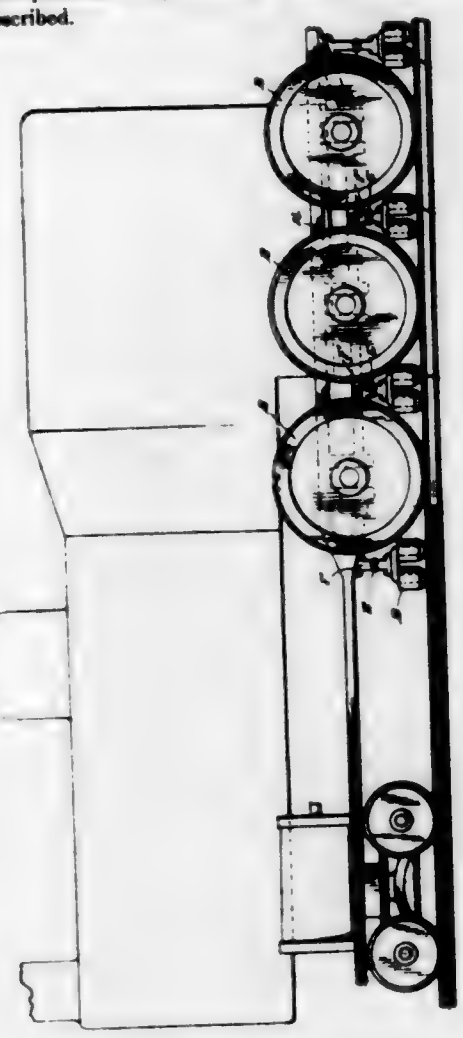
3. An orchard-heating device, comprising a fuel-holding receptacle, in shape the frustum of a cone, the larger and top end of which is open, and the smaller or lower end closed; air-vents and draft-openings in the sides of said receptacle near the bottom and top thereof, respectively, and a cover for said receptacle having three of the corners thereof bent at an angle to the other portions to hold the cover in place over the top opening of said receptacle.

695,883. MAGNETIC TRACTION. SABIN A. GIBBS, Tacoma, Wash. Filed June 19, 1901. Serial No. 65,191. (No model.)

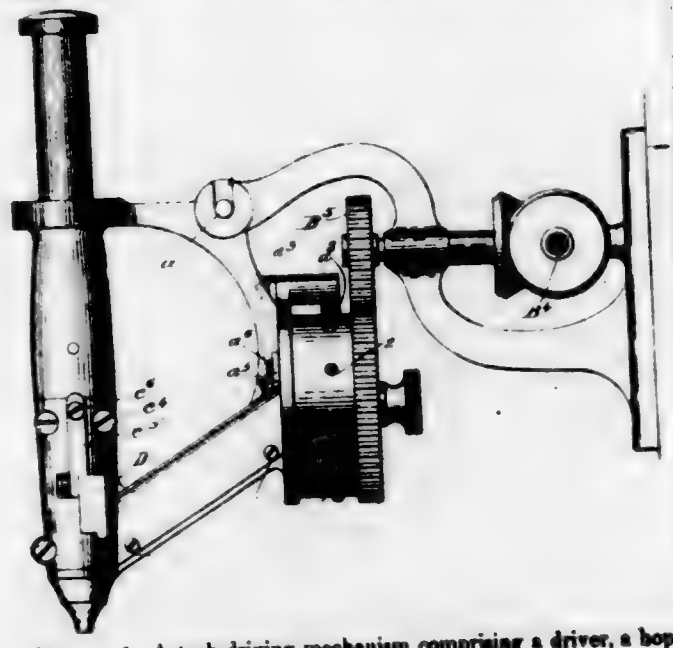
Claim.—1. A railway car or engine comprising a suitable frame, a bracket secured thereto, and an electromagnet hinged to said bracket in position to suspend it with its poles a short distance above a track, the said hinge connection being arranged so as to permit said magnet to be swung inward, transversely of the said car or engine in a vertical plane, and out of operative position, substantially as described.

2. In a railway-car, the combination with a suitable frame, of brackets secured thereto, hinges carried by said brackets, and electromagnets carried by said hinges with their poles a short distance above the traction-surface of said car, the said hinges being so constructed as to permit said magnets to be swung inward, transversely of said car, in a vertical plane

and out of operative position, but preventing lateral movement thereof, substantially as described.



695,384. TACK-DRIVING MECHANISM. PERLEY R. GLASS, Quincy, Mass., assignor to Peerless Machinery Company, Charleston, W. Va., and New York, N. Y. Filed Oct. 30, 1900. Serial No. 34,577. (No model.)



Claim.—1. A tack-driving mechanism comprising a driver, a hopper, a raceway connecting the hopper and driver, said hopper having a connected toothed wheel, and a bracket having gearing, combined with means to detachably sustain said tack-driving mechanism in said bracket to effect the engagement of the toothed wheel of the hopper with gearing sustained in the bracket, and means to actuate said gearing so that the hopper may be rotated to fill the raceway with tacks while the tack-driving mechanism is inoperative.

2. In a tack-driving mechanism, a driver, a rotatable hopper, a raceway connecting said hopper and driver, said hopper having on its inner periphery a series of lifting projections, hopper-rotating mechanism, and means to detachably sustain said tack-driving mechanism with its hopper in operative relation to the hopper-rotating mechanism, whereby, as the hopper is rotated, tacks are lifted by the lifting projections and delivered to the raceway.

3. In a tack-driving mechanism, a driver, a rotatable hopper, a raceway extending into the hopper and connecting the same with the driver, said hopper having on its inner periphery a series of lifting projections, hopper-rotating mechanism, means to detachably sustain said hopper in operative relation to the hopper-rotating mechanism, the construction being such that as the hopper rotates the lifting projections deliver tacks to the projecting end of the raceway.

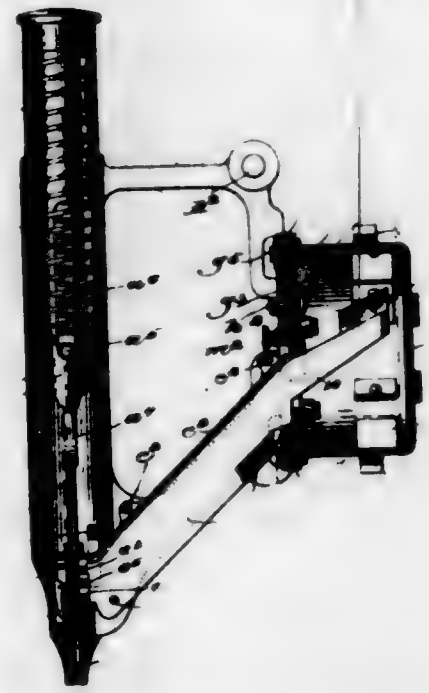
4. In a tack-driving mechanism, a driver, a hopper rotatable about a horizontal axis, a raceway extended into one side of said hopper and connecting the same with the driver, said hopper having on its inner periphery a series of shelves, and hopper-rotating mechanism, and means for detachably sustaining said tack-driving device with the hopper in operative relation with the hopper-rotating mechanism, the construction being such that as the hopper rotates tacks are lifted and deposited on the end of the raceway.

5. In a tack-driving mechanism, a driver, a hopper rotatable about a horizontal axis, a raceway extending into said hopper and terminating in a flattened portion or apron, said raceway connecting the hopper and driver, and said hopper having on its inner periphery a series of shelves combined with hopper-rotating mechanism, and means to detachably sustain the tack-driving mechanism with the hopper in operative relation with the hopper-rotating mechanism, the construction being such that as the hopper is rotated tacks are lifted and deposited upon the apron.

6. In a tack-driving mechanism, a driver, a hopper, a raceway extending into the hopper, hopper-rotating mechanism, means for detachably sustaining said driving mechanism with the hopper in operative relation with the hopper-rotating mechanism, and means within the hopper to deliver tacks to said raceway, a clearer, and means exterior to the hopper to reciprocate said clearer, said means being operated by rotation of the hopper.

7. In a tack-driving mechanism, a frame, a driver supported therein, a raceway to feed tacks to said driver, said raceway being independent from said frame but rigidly secured thereto and a cover for the raceway, said cover being detachably secured to the frame and provided at its lower end with an apertured boss through which the driver reciprocates, said boss acting as a support and guide for the driver.

695,385. NAILING APPARATUS. PERLEY R. GLASS, Quincy, Mass., assignor to Peerless Machinery Company, Charlestown, W. Va., and New York, N. Y. Filed Dec. 17, 1900. Serial No. 40,060. (No model.)



Claim.—1. In a nailing-machine, a raceway, a hopper, a loosely-pivoted clearer inside the hopper, means carried by said hopper to vibrate the clearer transversely of the raceway, a headed guide-pin connected to the clearer and projecting through a slot in the hopper, the head of said pin engaging the outside of the hopper and serving to maintain the clearer in its operative position.

2. In a nailing-machine, a raceway, a cover therefor, a clearer having its lower end beveled, and means to move said clearer transversely of said raceway, and a stop independent from the raceway-cover, and secured to one side of and extended above said raceway to arrest a nail laid crosswise thereon, and prevent said nail from entering the space between the clearer and raceway.

3. In a nailing-machine, a raceway, a cover therefor, a clearer,

means to move the said cleaner transversely of the raceway, a stop secured to one side of the raceway and extended above the same, said stop being independent from the raceway-cover and situated in the same plane as the clearer, the said stop operating to arrest a nail laid crosswise upon the raceway and the clearer operating to dislodge said nail from the raceway.

4. In a nailing-machine, a raceway, a hopper having external teeth, a shaft, a gear thereon, means to detachably sustain said hopper so that the teeth thereon will engage the said gear, means to rotate said shaft when it is desired to rotate the hopper to fill the raceway, and a clutch to stop the rotation of said shaft and hopper when desired.

5. In a nailing-machine, a frame or extension having a circular groove, a hopper having at its periphery a flange seated in said groove, means to secure the flange in the groove, whereby the hopper is supported by the flange, and means to rotate said hopper.

6. A hopper having a flange at one end, and a series of carriage-blocks connected to said flange, combined with a frame having a circular groove in which said blocks travel as the hopper is rotated.

695,386. GAME. EUGENE E. GRAVES, Black River, N. Y. Filed Oct. 7, 1901. Serial No. 77,891. (No model.)



Claim.—1. In game apparatus, a board provided at one end with a pocket, a projector at the opposite end of the board for throwing a missile, a gibbet located near the end of the board having the pocket, pedestals arranged adjacent to the said pocket, and figures connected with the gibbet by cords and adapted to be supported upon the pedestals, substantially as set forth.

2. In game apparatus, a base, pins attached to the base and located a distance apart each provided with a series of crimps, and an elastic adapted to be fitted to any one of the series of crimps of the pins for projecting the missile either slidingly upon the board or in flight through the air, substantially as set forth.

695,387. FASTENING FOR WASHSTANDS. HARRY P. GROSS, Jr., Baltimore, Md. Filed Nov. 4, 1901. Serial No. 81,052. (No model.)



Claim.—1. As an article of manufacture, a fastener designed for attaching washbowls to washstands, comprising a bolt having a cross-head adapted to be secured in the washstand, a nut for securing the bolt to the stand, a clamp fitted over the bolt to clamp the washbowl said clamp having one end bent at right angles thereto and terminating in sharp points, and a nut to secure the said clamp in position on the bolt, substantially as described.

2. As an article of manufacture, a fastener designed for attaching washbowls to washstands, comprising a bolt having a cross-head, one end of which is shorter than and out of line with the other, a nut to secure the bolt to the stand, a clamp fitted over the bolt to clamp the washbowl, and a nut to secure the said clamp in position on the bolt, substantially as described.

3. The combination with the washstand and bowl, of a bolt having a cross-head adapted to be fitted within the washstand, one end of said cross-head being out of line with the other end; a nut to secure the said bolt to the stand; a clamp fitted over the bolt and impinging against the bowl and stand; and a nut to hold the said clamp to the bolt, substantially as described.

4. The combination with the bowl, 1, and stand, 2, of a bolt, 6, having a cross-head formed of a short end, 7, and a long end 8, the end 7 being out of line with the end 8; a nut, 9, to hold the bolt, 6, in position; a clamp, 10, fitted over the bolt, 6, and having one end impinging against the washbowl and the other end bent at right angles and terminating in sharp points and impinging against the stand; and a nut, 15 to hold the clamp in position, substantially as described.

5. The combination of the washbowl; the washstand having apertures 3, 4, and 5; a bolt 6, having a cross-head formed of the short end 7 and a long end 8 and adapted to be fitted in the said apertures, the said end 7 being out of line with the end 8; a nut 9 to secure the said bolt in position; a clamp 10 fitted over the said bolt and having one end impinging against the bowl and the other end bent at right angles and terminating in sharp points and impinging against the stand; and a nut, 15, to secure the clamp 10 in position on the bolt 6 and cause the said points to take into the stand, substantially as described.

695,388. CHUCK FOR ROCK-DRILLS. ROBERT H. HAMILL, Salmo, Canada. Filed Dec. 4, 1900. Serial No. 38,656. (No model.)



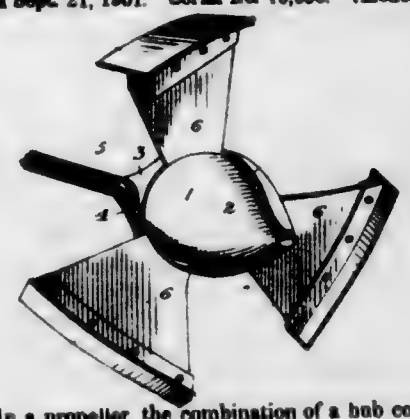
Claim.—1. A drill-chuck comprising a head, bored to receive a drill shank and formed with a slot communicating with the bore, in combination with a chuck-key inserted in the said slot; a bridge crossing the slot and formed with a dovetail groove in its under side; a dovetailed key fitted into the said groove; and a wedge adapted to engage the dovetailed key and the chuck-key, substantially as and for the purpose specified.

2. A drill-chuck comprising a head, bored to receive a drill-shank and formed with a slot communicating with the bore in combination with a chuck-key inserted in the said slot; a bridge crossing the slot and formed with a dovetail tapered groove in its under side; a tapered dovetail key fitted into the said groove; and a wedge adapted to engage the dovetailed key and the chuck-key, substantially as and for the purpose specified.

3. A drill-chuck comprising a head, bored to receive a drill-shank and formed with an inwardly-tapering slot communicating with the bore, in combination with a similarly-tapered chuck-key inserted in the said recess; a bridge crossing the slot and formed with a dovetail groove in its under side; a dovetail key fitted into the said groove; and a wedge adapted to engage the dovetailed key and the chuck-key, substantially as and for the purpose specified.

4. A drill-chuck comprising a head, bored to receive a drill-shank and formed with an inwardly-tapering slot communicating with the bore, in combination with a similarly-tapered chuck-key inserted in the said recess; a bridge crossing the slot and formed with a dovetail tapered groove in its under side; a tapered dovetail key fitted into the said groove and a wedge adapted to engage the dovetailed key and the chuck-key, substantially as and for the purpose specified.

695,389. PROPELLER-WHEEL. LEANDER W. HAMMOND, Plainfield, N. J., assignor of one-half to Samuel A. Wallace, North Plainfield, N. J. Filed Sept. 21, 1901. Serial No. 76,050. (Model.)



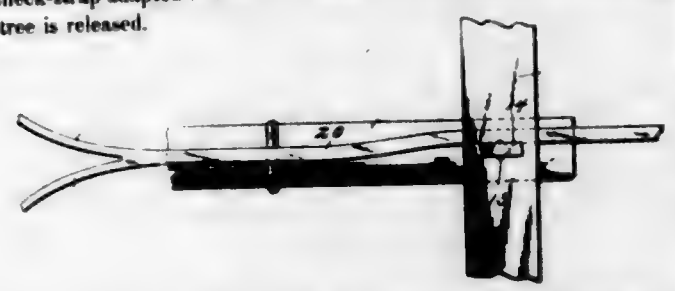
Claim.—In a propeller, the combination of a hub coned off at both ends and having diagonal grooves therein, and blades mounted on said hub, substantially as described.

695,390. HORSE-CHECKING DEVICE. ANDREW P. HANSEN, Omaha, Nebr. Filed May 18, 1901. Serial No. 60,890. (No model.)

Claim.—1. In a horse-checking device, the combination with a vehicle pole or tongue, of a whiffletree adapted to slide bodily on and lengthwise of the tongue, means for pivotally connecting the whiffletree to the tongue and releasing the whiffletree, and a check-strap operating to draw the animals' heads to one side during the sliding movement of the whiffletree.

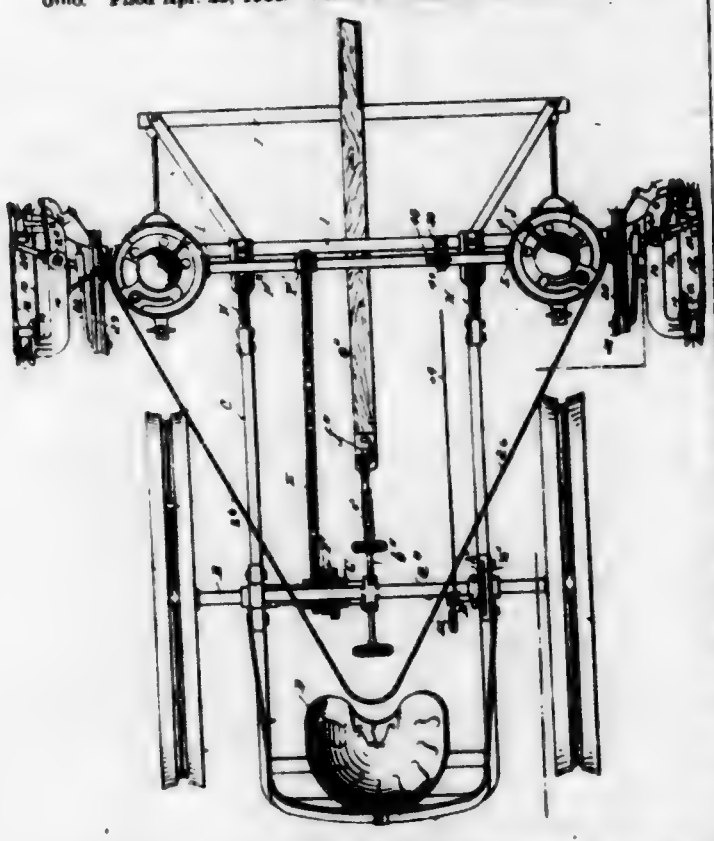
2. In a horse-checking device, the combination with a vehicle pole

or tongue, of a whiffletree having a sliding engagement therewith, a pivot-pin connecting the whiffletree and tongue, a pin-retaining keeper adapted to be thrown out of engagement with the pin for releasing the latter, and a check-strap adapted to draw the animals heads together when the whiffletree is released.



3. In a horse-checking device, the combination with a vehicle pole or tongue provided with longitudinal grooves in opposite sides thereof, of a whiffletree adapted to slide lengthwise of the tongue and having keepers working in the grooves in the tongue, a pivot-pin connecting the whiffletree and tongue, a shiftable pin-retaining keeper carried by the whiffletree, and a check-strap having one end connected to the vehicle and the opposite end bifurcated to form branches for attachment to the bridles of the animals.

695,391. CORN-PLANTER. FRANK C. HARWOOD, GEORGE E. GEDGE, and PHILIP T. J. MONSON, Springfield, Ohio, assignors to the A. C. Evans Manufacturing Company, Springfield, Ohio, a Corporation of Ohio. Filed Apr. 23, 1900. Serial No. 13,892. (No model.)



Claim.—1. In a corn-planter, the combination with a check-row wire frame having a check-row lever pivotally and horizontally mounted thereon and operated in one direction by a check-row wire, a pulley-supporting bar hinged to said frame, a pair of pulleys carried by said bar for carrying a check-row wire for engaging with said check-row lever, a pivoted lever also carried by said frame structure for holding said supporting-bar in position for said pulleys to engage with said wire, and a spring engaging with said holding-lever and with said check-row lever to normally hold the holding-lever in engagement with said supporting-bar and return said check-row lever after being operated by the check-row wire, all substantially as shown and described.

2. In a corn-planter, the combination with a check-row-wire frame carrying a pair of plates, a supporting-bar hinged to said frame, a pair of pulleys carried by said supporting-bar and adapted to normally stand adjacent to said plates, a holding-lever for normally engaging with said supporting-bar to hold said pulleys in normal position, a check-row lever pivoted upon said frame and projecting between said pulleys in a horizontal directionto receive a check-row wire passing through the pulleys, whereby such check-row lever is operated in one direction, a spring for engaging with said check-row lever and with said holding-lever to return said check-row lever after being operated upon by said check-row wire and to retain said holding-lever in holding position with respect to said supporting-bar, all substantially as shown and described.

3. In a corn-planter, the combination with a check-row-wire frame carrying a pair of plates, a roller carried by each of said plates, a supporting-bar hinged to said frame structure, a pair of pulleys carried by said supporting-bar and normally standing adjacent to said plates and said rollers, a holding-lever engaging with said supporting-bar to hold said pulleys in check-row wire-holding position, an arm projecting from said holding-lever, a check-row lever pivotally and horizontally supported upon said frame and projecting between said pulleys, and movable in one direction by a check-row wire, a spring secured to said check-row lever and to the arm on said holding-lever for returning said check-row lever and for normally holding said holding-lever in holding position, and means to release said holding-lever whereby said supporting-bar is permitted to remove the pulleys from said plates and rollers so that the check-row wire may be removed or inserted, all substantially as shown and described.

4. In a corn-planter, the combination, with a dropper-shaft, of a wheel thereon having laterally-projecting pins, a pawl adapted to engage said pins to actuate the dropper-shaft, a rocker-arm pivotally connected with a fixed portion of the frame at one end and similarly connected to the pawl at its other end, said rocker-arm being provided with a projecting stop-arm to successively engage the pins, a check-row lever, and a link connecting said check-row lever with the rock-arm, substantially as described.

5. In a corn-planter, the combination with a grain-hopper, of a base having a stud projecting downward therefrom and integral therewith and also having an opening in said base, a primary dropper-plate pivotally mounted on said stud, having grain-openings therein, one or more lugs extending from the periphery of said plate, an annular driving-ring within which said dropper-plate fits and with which said lugs engage, a supporting-plate mounted beneath said dropper-plate and engaging therewith, as also with said annular ring to support them, said supporting-plate having a grain-discharge opening therein adapted to match with the grain-openings in said dropper-plate, and means for holding said plates in position, all substantially as shown and described.

6. In a corn-planter, the combination with a grain-hopper having a bottom with a grain-discharge opening therein, a hollow stud projecting downward from said base and integral therewith, said stud having a shoulder thereon, a stud-bolt also projecting downward from said bottom through and below said stud-shaft, a dropper-plate rotatably mounted on said stud-shaft, a holding-plate also mounted on said stud-shaft and against said shoulder, a washer fitting on said stud-bolt and secured against the bottom of said holding-plate, said dropper-plate having a series of holes therein for receiving grain from said hopper and said holding-plate also having a hole therein with which the holes in said dropper-plate match, one at a time, and means for rotating said dropper-plate, all substantially as shown and described.

7. In a corn-planter, the combination with a grain-hopper, having an annular opening in its bottom, a stud-shaft projecting downward from said bottom and integral therewith, a primary dropper-plate rotatably mounted on said stud, an auxiliary dropper-plate also mounted on said stud-shaft below said primary dropper-plate, an annular driving-ring about said primary dropper-plate having notches in its inner periphery, lugs extending from the outer periphery of said primary dropper-plate for engaging with said notches, said annular driving-ring being operated by said auxiliary dropper-plate, a shoulder on said stud, a stationary supporting-plate mounted upon said stud and against said shoulder and beneath said auxiliary dropper-plate, and means projecting from said auxiliary dropper-plate to engage with said stationary holding-plate, and means for holding the stationary supporting-plate and the main and auxiliary dropping-plates in operative position upon said stud, all substantially as shown and described.

8. In a corn-planter, the combination with a delivery-spout having a notch in its upper end, of a grain-hopper mounted upon the upper end of said discharge-spout, a stationary supporting-plate carried by said hopper, a lug projecting downward from said plate for engaging with the notch in said delivery-spout or boot, all substantially as shown and described.

9. In a corn-planter, the combination with a grain-hopper, of a stud-shaft projecting downward from the bottom thereof, a primary dropper-plate, an auxiliary dropper-plate and a supporting-plate mounted on said stud-shaft, said primary dropper-plate having a series of holes therein adapted to receive grain from said grain-hopper, said auxiliary dropper-plate and said supporting-plate each having a hole therein adapted to match with each other and also in position to match with the holes in said primary dropper-plate, lugs projecting downward from said auxiliary dropper-plate into said stationary supporting-plate, and means for holding each of said plates upon said stud-shaft, all substantially as shown and described.

10. In a grain-hopper, the combination with a boot or discharge-spout, of a bracket projecting therefrom and having holes therein, one above the other, of a pair of trunnions extending in opposite directions from said bracket and at an angle to said bracket; a pair of furrowing-

disks mounted on said respective trunnions, one slightly back of the other, and having their lower edges in the same horizontal plane, all substantially as shown and described.

11. In a corn-planter, the combination with a delivery-spout or boot, a bearing having a through-bolt extending from said spout, a sleeve loosely mounted thereon, a hub mounted on said sleeve and shorter than the sleeve a disk secured about said hub, a scraper having a cup at one end for fitting over said hub, and means for binding said scraper against said sleeve all substantially as shown and described.

12. In a disk-bearing for corn-planters, the combination with a disk, of a hub having a flange thereon adapted to extend into said disk and have its flange abut against said disk, rivets for securing said disk to said hub, a sleeve adapted to fit within said hub and longer than said hub, a bolt extending from a support and through said sleeve, a scraper, a cup formed on one end of said scraper and adapted to fit over said bolt and on said hub, and a nut on the bolt for binding said cup against said sleeve, and a screw-plug extending through said cup and adapted to be removed for oiling the bearing, all substantially as shown and described.

13. In a bearing for a grain-drill furrowing-disk, the combination with a disk proper, of a hub having a flange thereon and adapted to extend through said disk and have its flange fit against said disk, an annular flange projecting outward from said flange, a sleeve mounted within said hub, a through-bolt engaging with a stationary body and extending through and beyond said sleeve, a scraper formed into a cup at one end, a scraper-plate adjustably mounted thereon, said cup fitting over said hub and under said second-named annular flange, a nut adapted to screw upon said through-bolt to snugly draw the cup against said sleeve, whereby the scraper will remain in a fixed position, said cup having an oil-passage therein for oiling said bearing, all substantially as shown and described.

14. In a corn-planter, the combination with a frame structure, of a casing secured thereto, a dropper-shaft projecting through said casing, a sliding block in said casing, a pair of pawls carried by said block, a spring connecting said pawls together, a wheel carried by said shaft, pins carried by said wheel and adapted to be engaged by said pawls, a hand-lever for raising and lowering said block, one of said pawls being adapted to engage with one of said pins when the pawls are raised and the other adapted to engage with one of said pins when the pawls are forced downward, all substantially as shown and described.

15. In a corn-planter, the combination with a frame structure, of a casing secured thereto, a dropper-shaft passing through said casing, an operating-wheel rigidly connected with said shaft and within said casing, pins carried by said operating-wheel, a sliding block carried by said casing, a pair of pawls pivotally connected with said block and adapted to engage with said pins, one at a time, a spring connecting said pawls together for holding them in position to engage with said pins, a lever pivoted to said casing, a curved slotted finger extending from said lever, a bolt adapted to extend through said sliding block and the slot in said finger, said block being raised and lowered by said slotted finger on operating said lever, and one of said pawls acting to rotate said wheel and dropper-shaft, both on raising and lowering said block, all substantially as shown and described.

16. In a corn-planter, the combination with a discharge spout or boot, of a dropper-shaft extending into said boot, a lever-operating wheel mounted thereon, said operating-wheel having a notch therein at one side thereof, a clutch-sleeve mounted on said dropper-shaft and having lugs or extensions for engaging the notch in said wheel, and a cotter-pin for securing said clutch-sleeve upon the shaft, all substantially as shown and described.

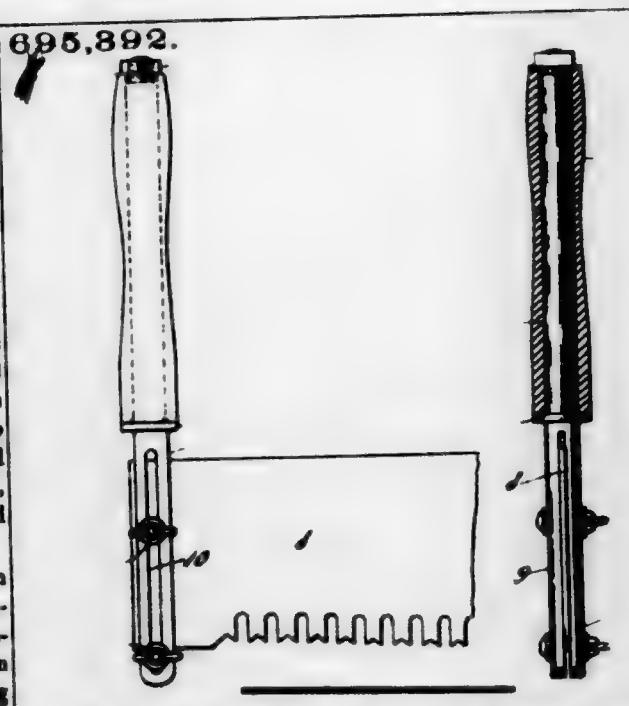
17. In a corn-planter, a furrow-opener consisting of two disks of different diameters arranged at an angle to each other and to the line of draft, the edge of the smaller disk lying against the rear face of the larger disks at a point below and in front of their axes, and the lower edges of the two disks being in substantially the same plane, substantially as described.

695,892. SAW-HANDLE. GEORGE R. HAWKINS, Vicksburg, Miss. Filed May 14, 1901. Renewed Feb. 11, 1902. Serial No. 93,648. (No model.)

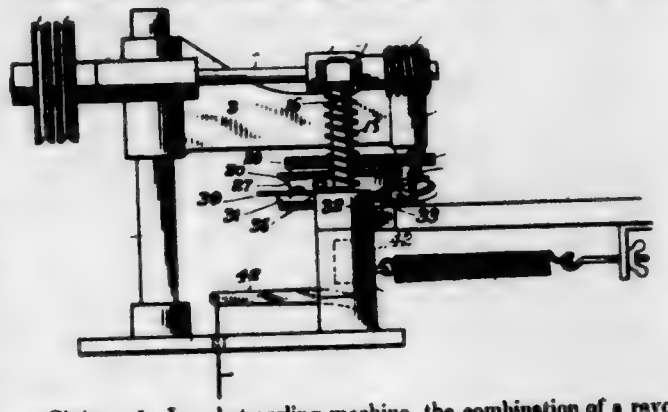
Claim.—1. A handle for saws comprising a tubular member, a metal member passing therethrough and projecting at one end therefrom, the projecting portion of the metal member being provided with a longitudinal slot adapted to receive one end of the saw and at right angles thereto, with other slots and bolts passed therethrough, substantially as shown and described.

2. A handle for saws comprising a tubular member, a metal member passing therethrough and projecting at one end therefrom, the projecting portion of the metal member being provided with a longitudinal slot adapted to receive one end of the saw and at right angles thereto with other slots and bolts passed therethrough, one of said bolts being also passed through the saw, substantially as shown and described.

695,892.



695,898. HAT-CURLING MACHINE. LEWIS R. HEIM, Danbury, Conn., assignor to Fernando C. Olmstead, Danbury, Conn. Filed Aug. 26, 1901. Serial No. 73,290. (No model.)



Claim.—1. In a hat-curling machine, the combination of a revoluble button, two revoluble disks having concave peripheries, means for revolving said disks and button, means for moving said disks toward and away from said button, and means for preventing heating of one of said disks while the other is being heated, substantially as described.

2. In a hat-curling machine, the combination of the two disks journaled in a movable resilient bracket and having concave peripheries which are complementary parts of a semicircle, the revoluble button having a convex periphery and stationary except as to movements about its axis, means for heating the upper disk, means for deflecting the heat from the lower disk, means for imparting revolution to said button and disks, the curling-shackle carried by said bracket and arranged in proximity to said button and disks, and means for moving said disks toward and away from said button, substantially as set forth.

3. In a hat-curling machine, the combination of the two separate disks capable of revolution upon a common axle and having concave peripheries which are complementary parts of a semicircle, means for heating one of said disks, means for deflecting the heating agent from the other of said disks, the revoluble button having a convex periphery in close proximity to the heated disk, said button being stationary except as to movement around its axis, the curling-shackle having a flaring downwardly-opening mouth in proximity to said button and heated disk, means for revolving said button and disks, and means for moving said disks and curling-shackle toward and away from said button, substantially as set forth.

4. In a curling-machine, the combination of the movable bracket, the divided disks having concave peripheries which are complementary parts of a semicircle and which are carried by said bracket, means for heating one of said disks, means for deflecting the heating agent from the other of said disks, the revoluble button having a convex periphery in close proximity to the heated disk and stationary except as to movement about its axis, a spring attached to said bracket on the frame of the machine whereby said disks are normally kept in proximity to said button, means—as a lever operated by a treadle—whereby said disks are moved away from said button, the curling-shackle carried by said bracket and having a flaring downwardly-opening mouth in close proximity to said button and heated disk, and means for imparting revolution to said disks and button, substantially as set forth.

5. In a hat-curling machine, the combination of the frame, the bracket pivoted thereto and capable of an upward resilient movement, the divided

disks journaled within the outer end of said bracket and having concave peripheries which are complementary parts of a semicircle, the revoluble button in close proximity to one of said disks and having a convex periphery and stationary except as to movements about its axis, the curling-shackle carried by said bracket and having a flaring mouth opening downwardly and in close proximity to said disks and button, means for heating one of said disks, means for deflecting the heating agent from the other of said disks, and means for moving said bracket and the parts carried thereby toward and away from said button, substantially as set forth.

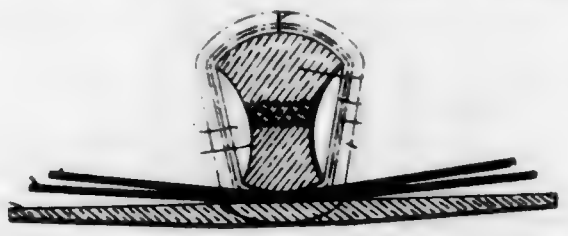
6. In a hat-curling machine, the combination of the divided disks having concave peripheries which are complementary parts of a semicircle, the revoluble button having a convex periphery in close proximity to said disks, the curling-shackle having a flaring downwardly-opening mouth in proximity to said button and disks, means for heating one of said disks, means for deflecting the heating agent from the other of said disks, and the shield extending in front of the heated disk adjacent to said button substantially as set forth.

7. In a hat-curling machine, the combination of a pair of disks journaled in a movable bracket and having registering concave peripheries, a revoluble button having a convex periphery, means for rotating said button and disks, means for heating one of said disks during rotation, and means for preventing heating of the other of said disks, substantially as described.

8. In a hat-curling machine, the combination of a movable bracket a pair of disks journaled therein and having concaved peripheries, a curling-button revolubly mounted near said disks, means for revolving said disks, means for heating one of said disks, and a fender near said heating means for preventing heating of the other of said disks, substantially as described.

9. In a hat-curling machine, the combination with a resilient bracket pivoted to swing in a horizontal plane, of a disk journaled therein, a button revolubly mounted near said disk, means for retaining said button against longitudinal or lateral movement, means for rotating said disk, and a curling-shackle carried by said bracket, arranged in proximity to said button and disk, and means for moving said shackle away from the button to free the hat curled, substantially as described.

695,894. CUSHION-TIRE. CHARLES HIRD, Woonsocket, R. I., assignor of forty-nine one-hundredths to Patrick J. McCarthy, Providence, R. I. Filed Nov. 1, 1901. Serial No. 80,806. (No model.)

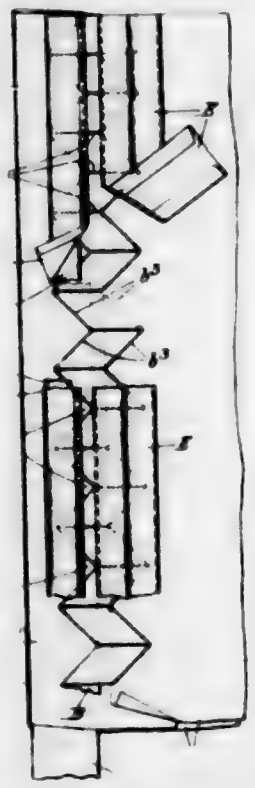


Claim.—1. In a vehicle-tire, a core composed of two grades of rubber, one grade of which is of harder quality to form the inner and outer portions of the core, and the other grade being interposed between the first-said grade of rubber and of finer quality to more readily yield, said core cast in one piece to form the circle of the tire, and exposing inner and outer convex surfaces and provided with concave sides which are divided equidistant apart by ribs that extend radially to the axial center of the core, in combination therewith, of a casing consisting of three separate strips, each of rubber, fabric, and rubber, respectively, and of a length and width to encircle the said core, all of said parts arranged in a suitable flask and given the proper degree of heat whereby the said rubber parts unite and form a continuous tire, substantially as set forth.

2. In a vehicle-tire, a core composed of different grades of rubber as described, and cast together in one continuous piece to form the circle of the tire, said core having circular top and bottom surfaces and provided with concave sides that are divided apart by vertical ribs situated opposite of each other and having their front faces inwardly inclined from the top surface of the core, said core braided upon its exterior surface by suitable means, the combination therewith, of a casing consisting of a series of strips, each made of rubber, fabric, and rubber, respectively, and each of said strips of a size to encircle the said core, all of said parts adapted to be mounted in a suitable flask and given the proper degree of heat to vulcanize and make the said rubber strips integral with each other throughout the circle of the tire, substantially as set forth.

3. In a vehicle-tire, a circular core cast in one continuous piece and composed of two grades of rubber the softer grade of which being located centrally of the core, said core provided with concave sides having ribs divided equidistant apart around the circle of the core, in combination therewith, of a casing consisting of three strips, each of rubber, fabric, and rubber, respectively, and all of a length and width to fold over the said core, so arranged that when placed in a suitable flask and given the proper degree of heat the vulcanization makes the said rubber parts continuous of each other throughout the circle of the tire, substantially as set forth.

695,895. GARMENT-CLOSURE. CHARLES B. HOWD, Chicago, Ill., assignor to Sahlin Corset Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 30, 1901. Serial No. 87,711. (No model.)



Claim.—1. A closure for garments, comprising a flat strip of tape or fabric folded obliquely on itself to cause each lateral edge to cross only the opposite lateral edge without crossing itself, and a band secured across the oblique folds at one side of such folded strip, the other side being secured to the main part of the garment.

2. A closure for garments comprising a flat strip of tape or fabric folded obliquely on itself to cause each lateral edge to cross only the opposite lateral edge without crossing itself, a band secured across the oblique folds at one side of such folded strip, and means attached to the opposite side for securing such obliquely-folded strip to the main part of the garment.

3. A closure for garments comprising a strip of fabric folded obliquely upon itself back and forth across the line of the holes or eyelets to cause each lateral edge to cross only the opposite lateral edge without crossing itself forming a zigzag; a band secured across the projections of the zigzag at one side of the line of the holes; and means for securing the projections at the other side to the garment.

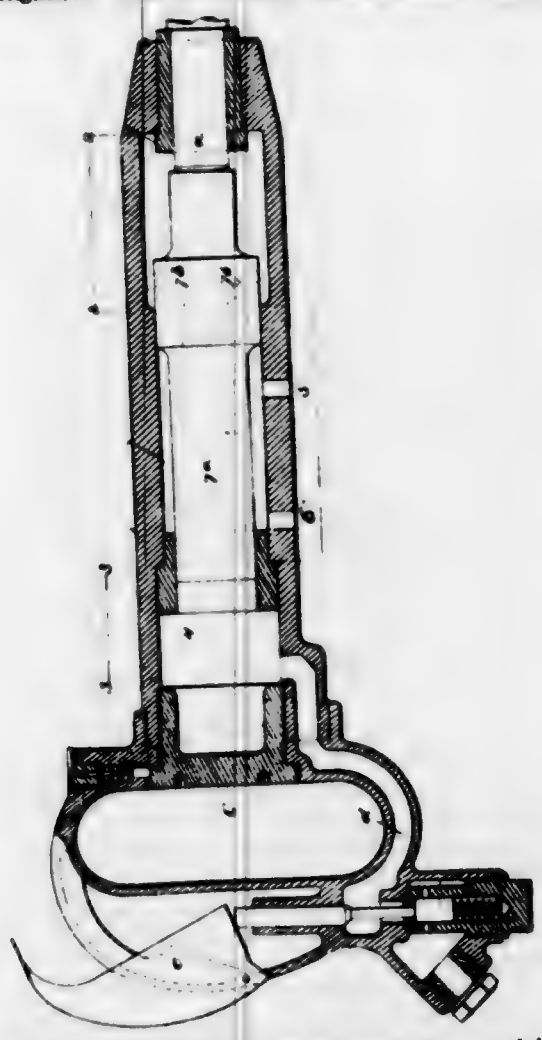
4. A closure for garments formed by a strip of fabric folded obliquely upon itself to cause each lateral edge to cross only the opposite lateral edge without crossing itself, the oblique folds being in pairs, the two of each pair being at right angles, and consecutive pairs having the adjacent folds parallel; whereby a zigzag tape is formed combined with a band secured across the lateral projections of the zigzag at one side; and means for securing those at the other side to the garment.

5. A closure for garments formed by a strip of fabric folded obliquely on itself to cause each lateral edge to cross only the opposite lateral edge without crossing itself; a binding spanning the angular notches which result from such folding and infolding the outer portion of the edges thereof; whereby triangular openings are left at the apex of the notches; and means for securing the opposite oblique folds to the garment.

6. A closure for garments formed by a strip of fabric folded obliquely on itself to cause each lateral edge to cross only the opposite edge without crossing itself producing a zigzag; a binding infolding the projections of the zigzag at one side; a stay or "bone" also infolded in such binding, the projections of the opposite side of the zigzag being secured to the garment.

7. A garment having a lacing edge comprising an eyelet-fly formed by a strip of fabric folded obliquely upon itself to cause each lateral edge to cross only the opposite edge without crossing itself forming a zigzag; a binding infolding the zigzag projections at one side, the other side being secured upon the face of the garment at a distance back from the edge greater than the width of the eyelet-fly and its binding; whereby the edge portion of the garment constitutes a fly projecting beyond the bound edge of the eyelet-fly under the lacing.

695,396. PNEUMATIC HAMMER. CHARLES H. JOHNSON, Chicago Heights, Ill. Filed June 10, 1901. Serial No. 63,957. (No model.)



Claim.—1. In a constant-pressure motive-fluid-operated hammer, the combination with a cylinder having an exhaust-port, of a differential piston having a through supply port or passage which is constantly open to the motive-fluid-pressure supply, and means for closing the delivery end of the through-passage before the exhaust-port of the cylinder is opened, substantially as and for the purposes specified.

2. In a constant-pressure motive-fluid-operated hammer, the combination with a cylinder having an exhaust-port, of a hollow differential piston open at the head having the lesser area and provided with a radial supply port or passage at its opposite end, substantially as and for the purposes specified.

3. In a motive-fluid-operated hammer, the combination of a cylinder and a differential piston, the piston having a supply-port therethrough and which opens on the lesser head of the piston, and the cylinder having an exhaust-port at that end of the cylinder which contains the head of the piston having the greater area, and means for maintaining a constant motive-fluid pressure in that end of the cylinder which contains the piston-head having the lesser area, substantially as and for the purposes specified.

695,397. CLOTHES-LINE ATTACHMENT. JAMES JOHNSON, Antwerp, N. Y. Filed Nov. 16, 1901. Serial No. 82,532. (No model.)



Claim.—1. A device of the kind described comprising a horizontal member having obliquely-arranged recesses formed therein, the lower ends of which terminate in grooves extending to the ends thereof, and the upper ends being connected by a groove formed in the upper face of the horizontal member and a post projecting from the horizontal member and having a slot arranged therein, one side of the said post being cut away to provide an entrance to the slot and means for closing the said entrance substantially as shown and described.

2. A device of the kind described comprising the horizontal member having recesses arranged in the ends and upon opposite sides thereof, a slotted post projecting from the said horizontal member and having an entrance formed therein to the slot, and means for closing the said entrance, substantially as shown and described.

3. A device of the kind described, comprising a horizontal member having obliquely-arranged recesses produced in the ends thereof, that extend from the top to the bottom of the said member, and a slotted post projecting from the said horizontal member, one side of the said post being cut away to form an entrance to the said slot, and a turn-button for closing the slot, substantially as shown and described.

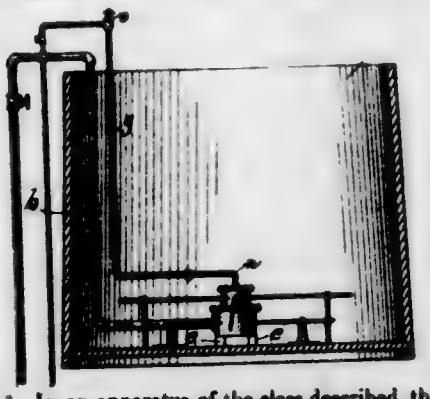
695,398. CIRCUIT-MAKER FOR ELECTRIC FIRE-ALARMS. FRANK W. JORDAN, Norwood, Mass. Filed July 19, 1901. Serial No. 68,968. (No model.)



Claim.—1. The combination, with a strip of wall-molding, and two wires carried by the said strip one above the other; of a pivoted gravity-lever arranged in circuit with the lower of the said wires, a plate pivoted to the molding, and fusible metal normally connecting the said plate with the heavy end of the said lever and holding it out of contact with the upper wire, substantially as set forth.

2. The combination, with a strip of wall-molding having a recess in its back and two longitudinal grooves one above the other; of an upper and a lower wire arranged in the said grooves, a pivoted gravity-lever arranged in the said recess in circuit with the lower wire, a plate pivoted at the lower part of the recess, and fusible metal normally connecting the said plate with the heavy end of the said lever and holding it out of contact with the upper wire, substantially as set forth.

695,899. APPARATUS FOR PURIFYING WATER. ISAAC P KIMBEY, Chicago, Ill. Filed Jan. 4, 1902. Serial No. 88,412. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a tank, of a liquid-receiving chamber therein having a plurality of liquid-discharging apertures connected therewith, a pipe for connecting said chamber with a source of liquid-supply, a gas-receiving chamber having a corresponding plurality of gas-discharging apertures located adjacent to the liquid-discharging apertures, and a pipe for conveying into said gas-receiving chamber gas under pressure: substantially as and for the purpose described.

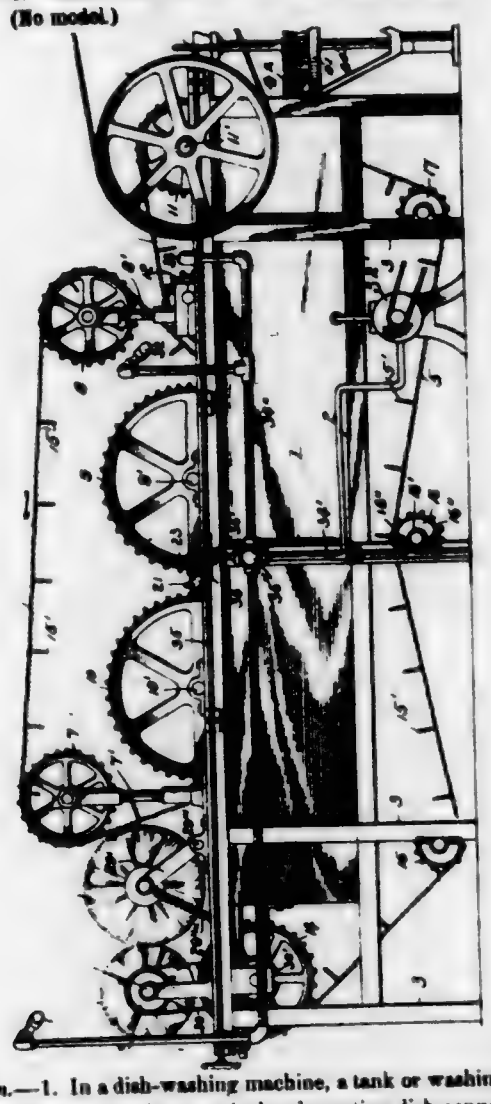
2. In an apparatus of the class described, the combination with a tank, of a liquid-receiving chamber therein having a plurality of discharge-pipes radiating therefrom and provided with discharge-apertures at their outer ends, a supply-pipe for connecting said chamber with a source of liquid-supply, a gas-receiving chamber located adjacent said liquid-receiving chamber and having a corresponding plurality of gas-discharging pipes radiating therefrom having discharge-apertures at their outer ends in the vicinity of the liquid-discharging apertures, and a gas-supply pipe for conveying into said gas-receiving chamber gas under pressure; substantially as and for the purpose described.

3. In an apparatus of the class described, the combination with a tank, of a liquid-receiving chamber therein having a plurality of liquid-discharge pipes radiating therefrom and having their outer ends curved so as to direct the discharge therefrom tangentially, a supply-pipe for connecting said liquid-receiving chamber with a source of liquid-supply, a gas-receiving chamber located adjacent said liquid-receiving chamber and having a corresponding plurality of gas-discharging pipes radiating therefrom and having their outer ends curved so as to direct the discharge therefrom tangentially and into the line of discharge of the liquid-discharging pipes, and a pipe for conveying into said gas-receiving chamber gas under pressure; substantially as and for the purpose described.

4. In an apparatus of the class described, the combination with a tank, of a liquid-receiving chamber therein consisting of a hollow cylinder having a plurality of liquid-discharging pipes radiating from the sides thereof with their ends curved so as to direct the liquid discharge there-

from tangentially, a supply-pipe for connecting such chamber with a source of liquid-supply, a gas-receiving chamber consisting of a hollow cylinder having its bottom bolted to the top of the liquid-receiving chamber and provided with a plurality of gas-discharging pipes radiating from its sides alternately with the liquid-discharging pipes and having their ends curved so as to direct the gas-discharge tangentially into the line of discharge of the liquid, and a supply-pipe for conveying into said gas-receiving chamber gas under pressure and opening into the top of said gas-receiving chamber; substantially as and for the purpose described.

695,400. **DISH-WASHING MACHINE.** CLARENCE B. KNOTT, New York, N. Y. Filed Nov. 13, 1899. Renewed Jan. 22, 1902. Serial No. 90,836. (No model.)



Claim.—1. In a dish-washing machine, a tank or washing-compartment, in combination with two reticulated coacting dish-conveyers which travel together in and out of the compartment, with dishes between them, and means whereby the conveyers automatically adapt themselves to various sizes of dishes, substantially as described.

2. In a dish-washing machine, a tank or washing-chamber in combination with a pair of reticulated conveyers arranged to travel together through the tank with dishes between them, and means for regulating the tension of the conveyers and hence their relation to each other.

3. In a dish-washing machine, a tank or washing-chamber and two reticulated dish-conveyers adapted to travel together through the tank, in combination with agitating and rinsing devices, substantially as described.

4. In a dish-washing machine, two oppositely-disposed dish-conveyers adapted to grasp dishes of various sizes between them and provided with means for regulating their tension in relation to each other, in combination with a washing-compartment through which the dishes pass, and means for projecting the contents of the tank against the dishes as they pass through the compartment, substantially as described.

5. In a dish-washing machine, a tank or washing-chamber, in combination with two endless reticulated conveyers movable together through the tank, and an agitator, substantially as described.

6. In a dish-washing machine, the combination of a tank for holding the washing fluid, devices for continuously conveying dishes in and out of the tank, devices for dashing the fluid against the dishes while in transit, and devices for continuously removing foreign matter from the fluid, substantially as described.

7. In a dish-washing machine, a suds-tank provided with a pair of conveyers traveling through the fluid in the tank and adapted to hold dishes between them, in combination with rinsing devices, substantially as described.

8. In a dish-washing machine, a suds-tank provided with a pair of adjustable reticulated conveyers traveling through the fluid in the tank and adapted to hold dishes between them, in combination with rinsing devices, substantially as described.

9. In a dish-washing machine, a suds-tank provided with a pair of adjustable reticulated conveyers traveling through the fluid in the tank and adapted to hold dishes between them in combination with rinsing devices and an agitator, substantially as described.

10. In a dish-washing machine, a suds-tank, in combination with an endless conveyer composed of network and provided with bowed spread bars, which are attached to and span from edge to edge of the conveyer, substantially as described.

11. In a dish-washing machine, a suds-tank, in combination with an endless conveyer composed of network and provided with arched spread bars, substantially as described.

12. In a dish-washing machine, a tank, in combination with a pair of endless conveyers, an agitator, brushes and devices for washing the brushes.

13. In a dish-washing machine, a tank, in combination with a pair of endless conveyers, an agitator, automatically-adjustable brushes and devices for washing the brushes.

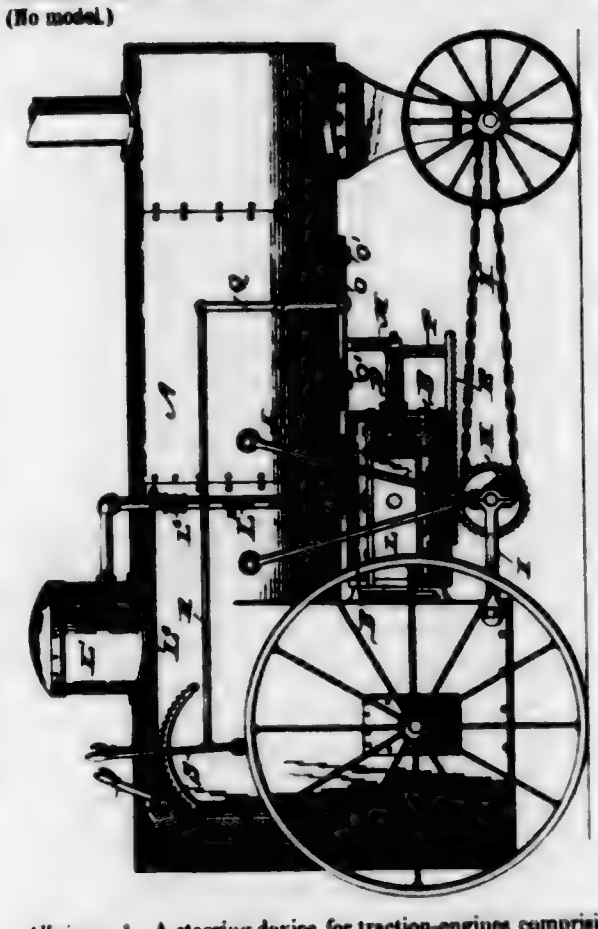
14. In a dish-washing machine, a water-tank, in combination with endless conveyers submerged in said tank and means for keeping said conveyers clean.

15. In a dish-washing machine, a water-tank, in combination with endless conveyers submerged in said tank and revolving brushes operating on the conveyers.

16. In a dish-washing machine, the combination of a pair of endless conveyers composed of network traveling together through a tank, sprocket-chains to which the network is attached and sprocket-wheels over which the chains pass, and an agitator.

17. In a dish-washing machine, a washing-chamber and means for agitating the water therein, of means for automatically engaging dishes of various sizes and conveying them into and out of the chamber, and means for automatically removing foreign matter from the water, substantially as described.

695,401. **STEERING APPARATUS FOR TRACTION-ENGINES.** FRANK KOONS, Moorcland, Ind. Filed June 22, 1901. Serial No. 65,689. (No model.)



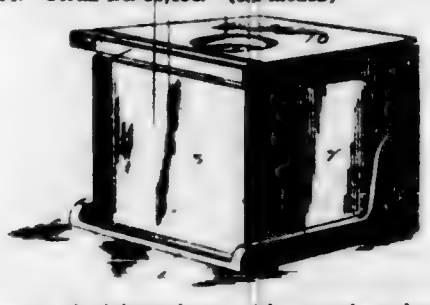
Claim.—1. A steering device for traction-engines comprising a cylinder and steam-chest, the piston and rod, the chain and spools and a rack-bar connected to the piston-rod and adapted to operate upon a pinion arranged between the spools, substantially as described.

2. In a device of the kind described, the combination with the steam-chest, cylinder, piston and rod, of the rack-bar rigidly connected to the piston-rod, the steering chains and spools, the pinion arranged between the spools for engagement with the rack-bar, and means for regulating the passage of steam to the chest and cylinder, substantially as described.

3. In a device of the kind described, the combination with the steam-chest, cylinder, piston and rod, of the chains and spools, the rack-bar rigidly connected to the piston-rod, the pinion arranged between the spools, the valve stem or rod, and means for connecting the piston-rod and valve stem or rod, and the hand-lever with operative connections for controlling the steam-valve, substantially as described.

4. In a device of the kind described, the combination with the steam chest and cylinder, piston and rod, of the rack-bar connected to the piston-rod, the pinion arranged for engagement with said rack-bar, the steering chains and spools, the valve stem or rod, the arm connecting the said valve stem or rod and piston-rod, the slide-bar to which said arm is attached and the hand-lever and operating connections between the hand-lever and slide-bar, substantially as described.

695,402. **INKSTAND.** JOHN V. LA GRANGE, Cairo, Ill. Filed June 26, 1901. Serial No. 65,150. (No model.)



Claim.—1. An inkstand comprising a casing adapted to support an ink-well, a tilting frame pivotally secured within said casing provided with a trip-bar, and formed with a central slot and side slots, a top recessed on its under side, a sliding cover below the top, a pair of horizontally-disposed levers fulcrumed on the under side of the top having pins on their outer ends entering the side slots of the frame and connected at their inner ends with the cover, retracting-springs for said levers, and a retracting-spring for the frame extending into the central slot of said frame.

2. An inkstand comprising a casing adapted to support an ink-well, a tilting frame pivotally secured within said casing and formed with side slots, a trip-bar on said frame, a top recessed on its under side, a sliding cover guided below the top and having a horizontal slot and a pin, and a pair of horizontally-disposed levers fulcrumed on the under side of the top, slotted at their inner ends to engage the pin on the cover, pins depending from the outer ends of the levers and projecting into the side slots of the frame, and retracting-springs for said frame and levers.

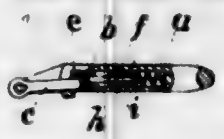
3. The combination with a casing; of a tilting frame pivotally secured thereto and formed with slots; a trip-bar secured to said frame; a top fitting said casing; levers fulcrumed upon the under side of said top and provided with pins projecting into the slots of the frame; a retracting-spring for said frame; a cover supported below said top and formed with a horizontal slot to receive the inner ends of the levers, a pin carried by the cover engaging the levers; and a catch device for said cover.

695,403. **FACE-PROTECTOR.** MARY LOUDEN, Yates Center, Kans., assignor of one-half to H. Andrew Fuller, Hastings, Mich. Filed Nov. 14, 1901. Serial No. 82,262. (No model.)



Claim.—The improved face protector or mask, comprising a body of flexible material having a central opening and above the same a nose-strap provided with a flexible piece of metal which is adapted to conform closely to the nose of the wearer and retain in use the shape thus imparted to it, and the reticulated concavo-convex pieces of wire-netting covering the said opening, and sponge filling held therein, as shown and described.

695,404. **LOCK-BUCKLE.** MATTHEW W. LYNCH, Madison, Wis. Filed May 9, 1900. Serial No. 16,082. (No model.)



Claim.—1. The combination in a lock-buckle, of a flat bolt having horizontal projecting ledge *e* and oppositely-disposed outwardly-projecting elastic wing *g* and notch *h*, a lock-pin adapted to engage said notch, and a buckle-tongue *c* adapted to be engaged by said ledge when the parts are in their locked position, as set forth.

2. The combination, in a lock-buckle, of a flat bolt having projecting ledge *e* extending horizontally, and a key-channel *i* upon the opposite edge extending from end to end and a notch *h* formed in said channel, and an elastic wing *g*, a lock-pin adapted to engage in said notch, and a buckle-tongue *c* over which said ledge rides when the bolt is moved into its locked position, substantially as described.

695,405. **LOCK-BUCKLE FRAME.** MATTHEW W. LYNCH, Madison, Wis. Filed May 9, 1900. Serial No. 16,083. (No model.)



Claim.—In a lock-buckle frame, the combination with the body having lugs *f* and transverse mortise *g* for the bolt, and a recess in its face communicating with the said mortise, of a staple having tenons passed through said lugs and secured to the under face of the said body in recesses therein, a tongue pivoted on the cross portion of said staple, and a flat bolt mounted to move endwise in said mortise and to intersect said recess when in its locked position and prevent removal of the said tongue substantially as shown and described.

695,406. **TROLLEY-SUPPORT.** ROBERT LYNN, Holyoke, Mass. Filed Aug. 27, 1901. Serial No. 73,507. (No model.)



Claim.—1. In a device of the character described, the combination with a truck, of wheels mounted thereon in intersecting planes and their respective axes intersecting a common line substantially as described.

2. In a device of the character described, the combination with a truck, of sets of wheels, each set being mounted upon the truck in a plane intersecting the plane of another set and their respective axes intersecting a common line substantially as described.

3. In a device of the character described, the combination with a truck, of wheels mounted thereon in planes intersecting at right angles and their respective axes intersecting a common line substantially as described.

4. In a device of the character specified, the combination with a movable truck carrying wheels mounted in intersecting planes, of a tubular casing inclosing said truck and adapted to serve as a track for the wheels, substantially as described.

5. In a device of the character described, the combination with a truck provided with wheels mounted in intersecting planes of a track inclosing said truck and having surfaces for the engagement of said wheels, substantially as described.

6. In a device of the character described, a truck provided with wheels mounted in intersecting planes, of a tubular track therefor sur-

rounding said truck, the inner diameter of said tubular track being greater than the diameter of said wheels, substantially as described.

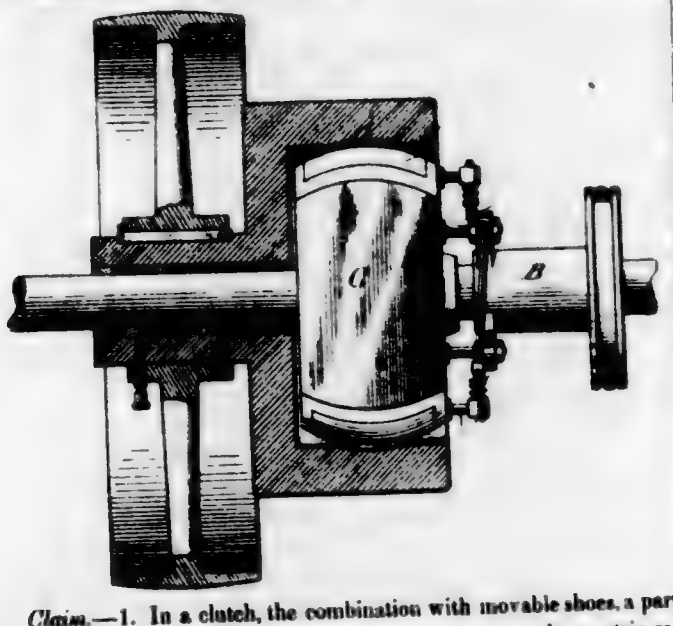
7. In a device of the character described, the combination of a truck provided with wheels mounted in intersecting planes, and a hanger secured to said truck, of a tubular track, the inner diameter of which is greater than the diameter of said wheels, said tube being provided with a longitudinal slot or split to permit the projection of said hanger, substantially as described.

8. In a device of the character described, the combination with a truck provided with wheels mounted in intersecting planes and projecting on opposite sides from the body of said truck, of a tubular track having an internal diameter greater than the diameter of said wheels and provided with a longitudinal slot, and a hanger secured to the truck and projecting through said slot, substantially as described.

9. In a device of the character described, the combination with a truck comprising a body portion, wheels mounted in intersecting planes upon said body portion and extending therethrough of a track inclosing said truck and having surfaces to be engaged by said wheels, substantially as described.

10. In a device of the character described, the combination with a track having a cylindrical body portion, slots arranged in said body portion and lying in intersecting planes, wheels mounted on the truck within said slots and projecting upon opposite sides of the body portion, of a slotted tubular inclosing track for said truck, the internal diameter of said track being greater than the diameter of said wheels, said track being provided with a longitudinal slot, and said truck having a hanger projecting through said slot, substantially as described.

695,407. CLUTCH. JOHN MACCALLUM, Jr., Wilkesbarre, Pa., assignor of two-thirds to Charles R. Dougherty and William Sharpe, Wilkesbarre, Pa. Filed Nov. 1, 1901. Serial No. 80,813. (No model.)



Claim.—1. In a clutch, the combination with movable shoes, a part to be driven, provided with concentric friction-surfaces and eccentric recesses to be engaged by said shoes, and means for positively moving said shoes to cause them to engage the frictional surface of the part to be driven, and finally to positively enter said recesses; substantially as described.

2. In a clutch, the combination with movable shoes and a part to be driven, provided with recesses whose inner periphery is continuous and eccentric to the inner periphery of the part to be driven, means for positively operating said shoes to cause them to frictionally engage the inner periphery of the part to be driven outside the recess, and finally to enter said recesses; substantially as described.

3. In a clutch, the combination with movable combined frictional and positive locking members, of a part to be driven having recesses; the outer periphery of each recess being eccentric to the inner periphery of the part to be driven, but formed on a continuous curve without teeth, and means for moving said frictional and positive locking members into engagement, first with the inner periphery of the part to be driven outside the recesses, and finally into the recesses; substantially as described.

4. In a clutch, the combination with radially-movable shoes with a spring connection between the same normally acting to keep them depressed, a part to be driven, having eccentric oppositely-placed recesses and concentric friction-surfaces, means for positively moving the shoes radially against the pressure of the retaining-spring, first into frictional engagement with the part to be driven outside the recesses, and finally into engagement with said recesses; substantially as described.

5. In a clutch, the combination with movable combined frictional and positive locking members, of a part to be driven, provided with recesses and having a frictional surface extending between the recesses, means for positively operating said locking members, to cause them first to engage the friction-surface of the part to be driven, and auxiliary means acting upon said locking members in conjunction with the positive means for causing said locking members to engage the recesses; substantially as described.

6. In a clutch, the combination with movable combined frictional and positive locking members, of a sliding sleeve provided with mechanism for moving said members, and auxiliary means coöperating therewith to cause said members to positively engage the part to be driven; substantially as described.

7. In a clutch, in combination with the part to be driven, having frictional bearing-surfaces, and eccentric recesses adjacent the same, of movable shoes with means for operating them to cause them first to engage the frictional surfaces, and then the recesses; substantially as described.

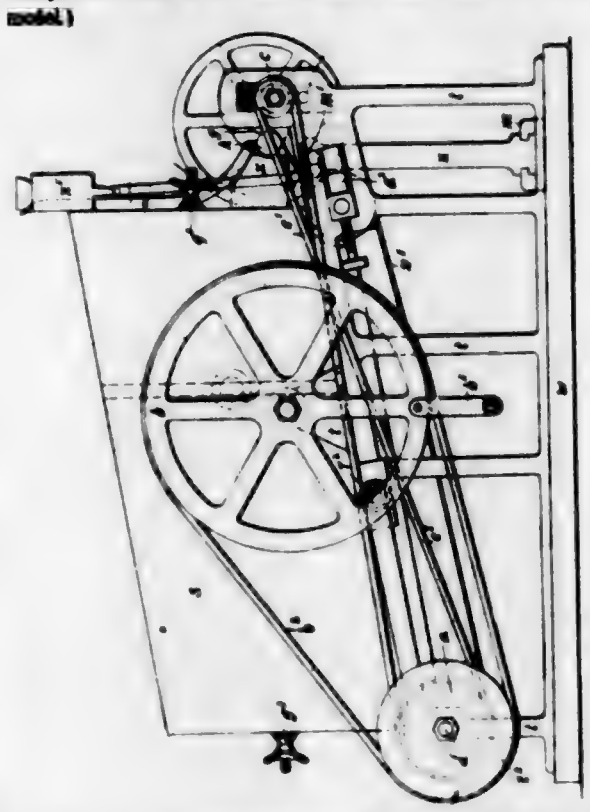
8. In a clutch, in combination with the part to be driven, having frictional bearing-surfaces, and recesses adjacent the same, of movable shoes, with positive means for operating them to cause them first to engage the frictional surfaces, and automatic auxiliary means to cause them to positively engage the recesses; substantially as described.

9. In a clutch, in combination with a part to be driven, movable shoes, and a sliding sleeve, with connections between the sleeve and the shoes for positively operating the same, means for retarding the action of the operating means to prevent shock, and auxiliary means operable when the sleeve has reached a predetermined point in its movement, to cause the shoes to positively lock the driven part; substantially as described.

10. In a clutch, in combination with the sliding shoes, means for positively forcing them outwardly operated by a sliding sleeve, a toggle-lever and spring device for resisting the first movement of said sliding sleeve, whereby a slow progressive frictional locking takes place, and for aiding in the final forcing outward of the shoes, whereby a quick positive locking takes place; substantially as described.

11. In combination with the shoes, antifriction-wedges for forcing the same outwardly, and a lever and spring connection between the shoe-carrier, and the sliding sleeve, whereby said spring acts first against the movement of the sleeve to cause the shoes to be pressed outwardly gradually, but whereby when the levers have passed over the center, the sleeve is drawn quickly along the shaft to cause a rapid final positive engagement of the shoes with the part to be driven; substantially as described.

695,408. AUTOMATIC ENVELOP-SEALER AND STAMP-AFFIXER. LOUIS MADAS, New York, N.Y., assignor, by direct and mesne assignments, of two-thirds to Stephen Hoeberman and H. Seymour Geary, New York, N.Y. Filed Mar. 27, 1901. Serial No. 53,055. (No model.)



Claim.—1. An automatic sealing and stamping device, consisting of an envelop-receiving box, means for feeding envelops therefrom, means for moistening the flap of the envelop, a stamp-chute, means for moistening the stamp and dropping the same upon the envelop, and compression-rollers for setting the stamp and flap of the envelop, substantially as set forth.

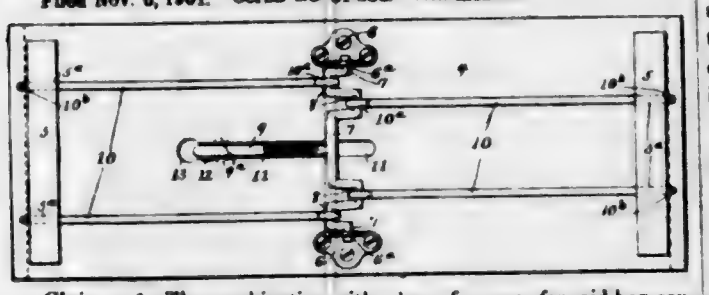
2. An automatic sealing and stamping machine, consisting of an

envelop-receiving box, a feed-belt having means for engaging and carrying forward the envelop, means for operating the feed-belt, a moistening-pad for moistening the flap of the envelop, a stamp-chute, means for moistening and feeding the stamp to the envelop, and compression-rollers for setting the stamp and flap of the envelop, substantially as set forth.

3. An automatic sealing and stamping device, consisting of an envelop-receiving box, means for feeding the envelops therefrom, a moistening-pad, a supporting-finger under said pad, a stamp-chute, a moistening-roller and feed-roller coöperating therewith, compression-rollers, and means for imparting motion to the feed-belt, moistening-roller and compression-roller, substantially as set forth.

4. An automatic envelop stamping and sealing device, consisting of an envelop-receiving box, adjustable partitions therein, suitable supports for the box, power-transmitting mechanism mounted in said supports, a feed-belt, a finger provided thereon, a flap-moistening pad, a slidable support for the same, a supporting-finger under said pad and cooperating with the same, a sponge-box for moistening said moistening-roller, means for supplying water to said moistening-pad and sponge-box, compression-rollers, and means for operating said compression-rollers, moistening-rollers and feed-belt, substantially as set forth.

695,409. **BOX-FASTENER.** TABOR G. MANDT, Stoughton, Wis. Filed Nov. 6, 1901. Serial No. 81,336. (No model.)



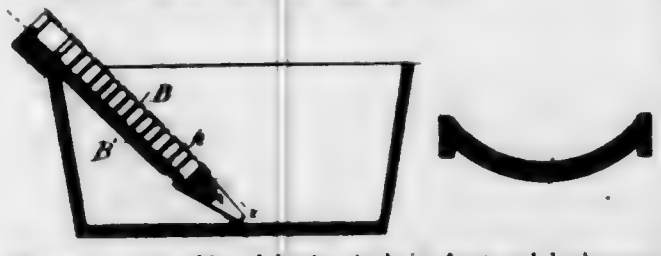
Claim.—1. The combination with a box of a cover for said box constructed to fit over the edges of the same, a shaft mounted on the under side of said cover and having oppositely-extending cranks, a lever for operating said shaft, means for locking said lever against accidental displacement, bolts connected to said cranks and having sharpened ends beveled on their upper sides to adapt them to engage the box ends to draw the cover down when the lever is operated, and guides for said bolts, substantially as described.

2. The combination with a box of a cover for said box constructed to fit over the edges of the same, transverse cleats on the under side of said cover, a shaft having oppositely-extending cranks, a lever for operating said shaft, means for securing said lever against accidental displacement, bolts connected to said cranks and mounted to slide in apertures in said cleats, said bolts having sharpened ends beveled on their upper sides to adapt them to draw the cover down to snugly fit said box, substantially as described.

3. The combination with a box-cover, having a slot therein, of a crank-shaft mounted on the under side of said cover, and having a lever extending through said slot and provided with a catch located to engage the edge of said slot, and sliding bolts connected to said cranks and constructed to secure the cover on a box, substantially as described.

4. The combination with a box-cover, having a slot therein, of a crank mounted on the under side of said cover and bearing a lever extending through said slot and provided with a catch located to engage the edge of the slot and lugs located to engage the lid to limit the movement of the lever, and sliding bolts connected to said cranks and constructed to secure the cover on a box, substantially as described.

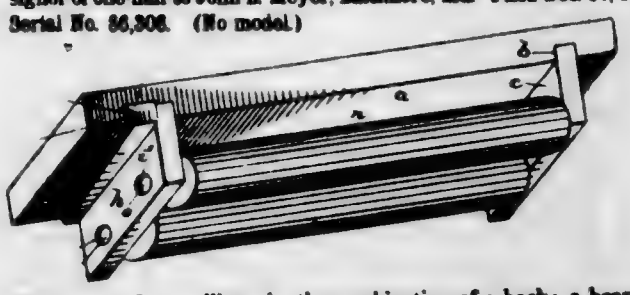
695,410. **WASHBOARD.** WILLIAM H. MANEY, Franklin, Tenn., assignor of one-half to Nathan R. Morris, Jr., Franklin, Tenn. Filed Dec. 21, 1901. Serial No. 86,747. (No model.)



Claim.—1. A washboard having both its front and back curved about a longitudinal axis, the front being concaved, and the back convex and having side pieces whose rear edges are in advance of the middle part of the convex back, substantially as and for the purpose described.

2. A washboard having both its front and back curved about a longitudinal axis, the front being concave, and the back convex, and having side pieces whose rear edges are in advance of the middle part of the convex back, and also a curved soap-receptacle at its upper end projecting on the back beyond the lower portion to form a shoulder adapted to catch against the sides of a tub substantially as and for the purpose described.

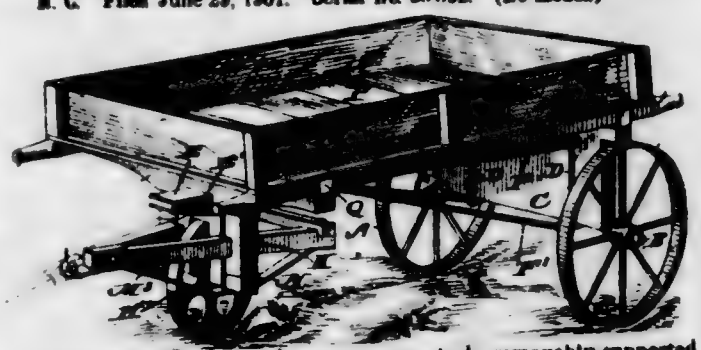
695,411. **ROLLING-PIN.** GEORGE J. MILLER, Baltimore, Md., assignor of one-half to John B. Meyer, Baltimore, Md. Filed Dec. 17, 1901. Serial No. 86,306. (No model.)



Claim.—1. In a rolling-pin, the combination of a back; a bearing-block permanently secured to the under side of said back; a removable bearing-block having one edge in a crosswise slot in said back; a clamping device coacting with said crosswise slot and holding the said removable block; and rollers journaled in the two blocks.

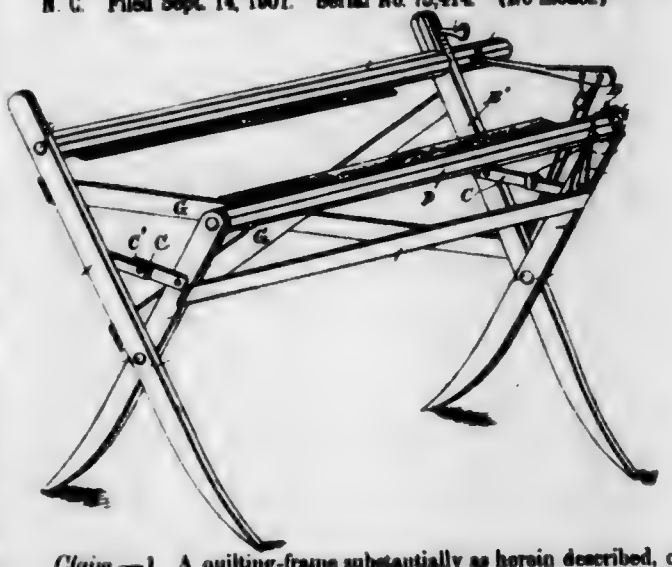
2. In a rolling-pin, the combination of a back provided on its under side near one end with a tapered slot; a bearing-block in said groove or slot; a wedge coacting between said groove and bearing-block to clamp the latter in place; a second bearing-block secured at the opposite end of said back; and a plurality of rollers supported between said two bearing-blocks.

695,412. **TOBACCO-TRUCK.** CHARLIE F. MOORE, Ormondsville, N. C. Filed June 29, 1901. Serial No. 66,592. (No model.)



Claim.—A tobacco-truck comprising a body removably supported upon a running-gear, said running-gear comprising a rear and front bolster having supporting-brackets at each end, the connecting pole or reach, the rest-block slotted vertically and adapted to receive the front wheel, a fifth-wheel arranged upon the upper end of said rest-block, the forward end of the pole or reach and the bolster being adapted to turn upon the said fifth-wheel, a king-bolt passing through the said bolster, reach and upper portion of the rest-block, the front and rear hounds and the front and rear brace-rods all arranged and adapted to operate substantially as shown and described.

695,413. **QUILTING-FRAME.** BENJAMIN F. MURRAY, Cleveland, N. C. Filed Sept. 14, 1901. Serial No. 75,414. (No model.)



Claim.—1. A quilting-frame substantially as herein described, consisting of the side uprights, each composed of two legs pivoted together and the upper portions of the legs above the pivots being of different lengths, whereby the outer legs of each pair may extend beyond the outer ends of the inner legs of said pairs, and the portions of the inner legs above the pivot being of an extreme width not exceeding the space between the upper portions of the outer legs, the brace devices between

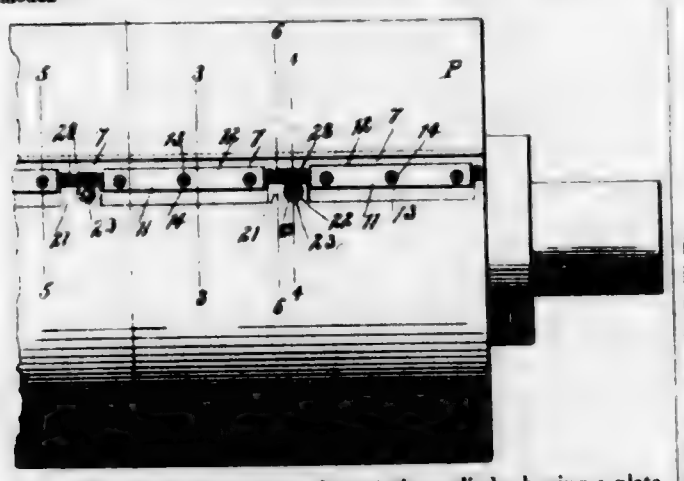
the opposite uprights, and the rollers journaled in the outer and inner legs of the opposite uprights, the roller carried by the inner legs being adjustable to a position between the outer legs, all substantially as described, whereby the inner legs may be folded within the outer legs and the roller carried by the inner legs may fold beneath the roller carried by the outer legs, substantially as and for the purposes set forth.

2. The combination in a quilting-frame of the front and rear rollers, the supports for same, the lever-arm extending from the rear roller toward the front roller, whereby it may be conveniently manipulated from the front of the frame, and the adjustable cord connection between said lever and the frame, substantially as set forth.

3. The combination in a quilting-frame of the side uprights, each composed of inner and outer legs pivoted together, the inner legs above the pivot being shorter than the outer legs, and the portions of the inner legs above the pivot being of an extreme width not exceeding the space between the upper portions of the outer legs, the roller carried by the inner legs at their upper ends, and adjustable to a position between the outer legs and the roller carried by the outer legs and arranged at a greater distance from the pivot than the inner legs, substantially as described, whereby the inner legs and their roller can be folded within the outer legs and beneath the roller thereof, substantially as set forth.

4. The combination substantially as herein described, of the side uprights composed of inner and outer legs pivoted together, the length of the inner legs above the pivot being less than that of the outer legs, the rollers carried by the inner and outer legs and arranged to fold with the roller of the inner legs beneath the roller of the outer legs, the link connections between the inner and outer legs, the bracing devices connecting the opposite uprights, the lever-rod extending from the upper roller toward the inner or front roller, and the adjustable cord connection between said lever-rod and the frame, substantially as set forth.

695,414. PLATE-CLAMPING DEVICE FOR PRINTING-PRESSES. THOMAS M. NORTH, Plainfield, N. J., assignor to the Aluminum Plate and Press Company, Plainfield, N. J., and New York, N. Y., a Corporation of West Virginia. Filed Feb. 21, 1901. Serial No. 48,364. (No model.)



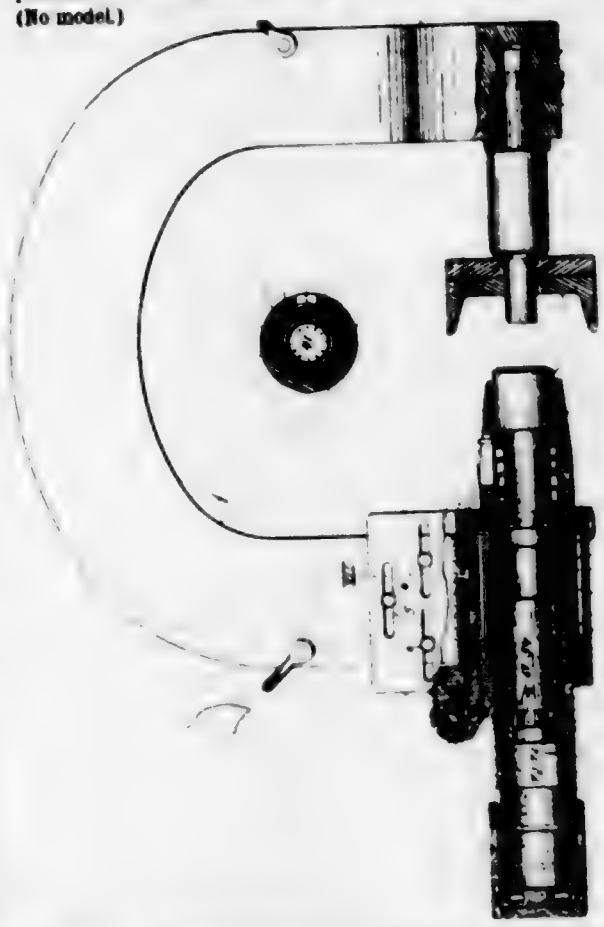
Claim.—1. The combination of a printing-cylinder having a plate-supporting surface, a plurality of independent plate straining and clamping rolls arranged end to end and journaled in the cylinder adjacent to the edge of the plate-supporting surface, independent means upon the several straining and clamping rolls for engaging the edge of the printing-plate, and independent means for rotating each of the rolls in its bearing, substantially as set forth.

2. The combination of a printing-cylinder having a plate-supporting surface and a roll-supporting socket adjacent to one edge of the plate-supporting surface, with a plate straining and clamping roll journaled in said socket and provided with means for rotating it, and means for clamping the edge of a printing-plate to the roll, said roll-supporting socket in the cylinder having a longitudinal opening or cut-out portion of less than half the circumference of the socket so as to inclose more than half the circumference of the roll, substantially as and for the purpose set forth.

3. The combination of a printing-cylinder having a plate-supporting surface and a roll-supporting socket adjacent to one edge of the plate-supporting surface, a plurality of plate straining and clamping rolls journaled in said socket, each of the said rolls being provided with a segment-gear and with a plate-clamping device, a series of independent operating-gears journaled in the printing-cylinder and supported in mesh with the several segment-gears of the rolls, substantially as set forth.

4. The combination of a printing-cylinder having a plate-supporting surface and a roll-supporting socket adjacent to one edge of the plate-supporting surface, a plurality of plate straining and clamping rolls journaled in said roll-supporting socket, a segment-gear upon each roll, a plate-clamp mounted upon each roll, recesses or pockets formed in the printing-cylinder adjacent to and parallel with the roll-supporting socket for the reception of the plate-clamps when the rolls are rotated, dividing lugs or walls separating said clamp-receiving recesses or pockets, and independent operating-gears journaled in said dividing lugs or walls and engaging the segment-gears of the rolls, substantially as set forth.

695,415. PNEUMATIC RIVETER. CHARLES B. RICHARDS, Cleveland, Ohio, assignor, by direct and mesne assignments, to the Cleveland Pneumatic Tool Company, Cleveland, Ohio, a Corporation of Ohio, and the Philadelphia Pneumatic Tool Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Dec. 19, 1900. Serial No. 40,347. (No model.)



Claim.—1. The combination of a suitably-supported cylinder having openings at both ends, a fluid-actuated hammer having a sliding fit in the end openings of said cylinder and having a piston around it fitted to slide in the cylinder, and means for controlling admission and exhaust of the actuating fluid into and out of said cylinder, substantially as set forth.

2. The combination of a suitably-supported cylinder, a fluid-actuated hammer within such cylinder and provided with a piston fitted to slide within the same, and means for admitting the actuating fluid into said cylinder at either side of the piston for moving the hammer in either direction, substantially as set forth.

3. The combination of a suitably-supported cylinder, a fluid-actuated hammer within such cylinder and provided with a piston fitted to slide within the same, means for admitting the actuating fluid into said cylinder at either side of the piston for moving the hammer in either direction, and a connection for the actuating fluid from behind the piston to the hammer for admitting such fluid to operate the hammer after the latter has been moved forward by admission of the fluid behind the piston, substantially as set forth.

4. The combination of a suitably-supported cylinder, a fluid-actuated hammer within said cylinder and provided with a piston fitted to slide within the same and having a passage for the actuating fluid opening into the cylinder behind the piston, and means for controlling the admission of the actuating fluid into the cylinder at either side of the piston for moving the hammer in either direction, substantially as set forth.

5. The combination of a suitably-supported cylinder, a fluid-actuated hammer within such cylinder and provided with a piston fitted to slide within the same and having a passage for the actuating fluid opening into the cylinder behind the piston, distributing-passages for the fluid to the ends of the cylinder, and a valve formed with live air passages adapted to alternately register with either of said distributing-passages and exhaust-passage adapted to alternately register with the live-air passages and register with the distributing-passages, substantially as set forth.

6. The combination of a fluid-actuated hammer-barrel, a tool-socket having longitudinal telescoping movement in the outer end of said barrel, and a plunger reciprocating within said barrel, substantially as set forth.

7. The combination of a fluid-actuated hammer-barrel having distributing-ports, a tube having longitudinal telescoping movement within said barrel and having a tool-socket at its end and a distributing-port at said socket communicating with the corresponding distributing-port in the barrel, and a plunger reciprocating within said barrel and tube, substantially as set forth.

8. The combination with a fluid-actuated hammer-barrel having a distributing-port in its bore and a tube telescoping within said barrel and having a distributing-port and formed with a tool-socket at its outer end, one of said elements having a longitudinal recess formed at the distributing-port and registering with the other port to form communication between said ports at all parts of the telescoping play, of a plunger reciprocating within said barrel and tube, substantially as set forth.

9. The combination of a fluid-actuated hammer-barrel provided with a nosepiece at its outer end adapted to bear against the surface of the work to be acted upon, a tool-socket telescoping in the outer end of the barrel, and a plunger reciprocating in said barrel, substantially as set forth.

10. The combination of a fluid-actuated hammer-barrel provided with a nosepiece at its outer end adapted to bear against the surface of the work to be acted upon and having distributing-ports, a tube telescoping within said barrel and having a tool-socket at its end and a distributing-port at said socket communicating with the corresponding distributing-port in the barrel, and a plunger reciprocating within said barrel and tube, substantially as set forth.

11. The combination of a yoke, a cylinder on one leg of said yoke, a holder-on on the other leg of the yoke and opposed to the cylinder, a fluid-actuated hammer fitted to slide within the cylinder and provided with a nosepiece upon its end adapted to bear against the work in opposition to the holder-on, means for admitting the actuating fluid behind the hammer to slide the same forward in the cylinder, and a tool longitudinally movable within the outer end of the hammer-barrel, substantially as set forth.

12. The combination of a yoke, a cylinder on one leg of said yoke, a holder-on on the other leg of the yoke and opposed to the cylinder, a barrel fitted to slide within the cylinder and provided with a nosepiece upon its end adapted to bear against the work in opposition to the holder-on, means for admitting the actuating fluid behind the barrel to slide the same forward in the cylinder, a barrel-tube telescoping within the barrel and provided with a tool-socket at its outer end, a plunger reciprocating within said barrel-tube, and means for distributing the actuating fluid to reciprocate said plunger, substantially as set forth.

13. The combination of a fluid-actuated hammer-barrel having distributing-ports for the actuating fluid, a tube telescoping within said barrel and having a tool-socket at its outer end and formed with distributing-ports having permanent connection to the ports in the barrel through longitudinal recesses registering with the ports for the entire play of the tube, a valve controlling the admission and exhaust through the distributing-ports and controlled by such fluid through distributing-ports in the tube and barrel, and a plunger reciprocating within the tube and barrel and provided with valve-controlling fluid-channels around it for admitting the actuating fluid to the valve and registering with ports for said fluid in the tube, substantially as set forth.

14. The combination of a hammer-barrel having an axial bore and provided with a live-air-inlet channel extending rearward in its wall and formed with a port opening into the bore near its middle, a distributing-channel in the wall and having a port near the outer end, and two rearwardly-extending valve-controlling channels having ports near the middle of the bore; a barrel-tube telescoping within the bore of the barrel and having a tool-socket at its outer end and provided with a port at its outer end opening into a longitudinal recess in the outer side registering with the distributing-port in the barrel, a longitudinal recess in its outer side registering with the inlet-port and having a port into the tube at each end, and ports registering with said latter ports and opening into longitudinal recesses in the outer side registering with the ports of the rearwardly-extending valve-controlling channels; a valve-chamber having all of the channels extending into it; a valve in said chamber controlling and controlled by said channels, and a plunger in the barrel-tube having two annular channels around it which will connect the live-air ports in the tube with the registering ports at the extremes of the throw of the plunger, substantially as set forth.

15. In a pneumatic hammer, the combination of a tubular valve-block having a live-air-inlet channel extending through its wall and opening at its rear end and formed with an annular live-air port near the rear end and communicating with the live-air channel and an adjoining annular distributing-port and with an annular exhaust-port and an annular piston-chamber having permanently open exhaust-ports at its ends and controlled inlet-ports, a cap against the rear end of the valve-block and formed with an annular inlet-channel and a flange around the center formed with an annular inlet-port, and a tubular valve having play within the chamber of the block and having its rear end sliding between the flange and the block into the annular channel in the cap and formed with an annular distributing-channel near its rear end and with an annular series of exhaust-holes at its middle and with a piston sliding in the piston-chamber, substantially as set forth.

16. In a pneumatic hammer, the combination of a tubular valve-block, a cap bearing against the end of said block and having an annular inlet-channel and an annular flange overhanging the channel from the center of the cap and formed with an annular port, and a tubular valve having its end sliding between the bore of the valve-block and the flange into the channel, substantially as set forth.

17. The combination of a yoke having the edge of one leg formed with ratchet-teeth, a riveter-cylinder formed with longitudinally-slotted lips between which said leg fits, a dog engaging the ratchet-teeth and movable in the bottom of the space between the lips, and fastening-bolts passed through the slots in the lips and the leg of the yoke, substantially as set forth.

18. The combination of a tool-socket having a segmental slot, a segmental dog fitting in said slot and having an angular inner edge, a spring forcing said dog inward, and a tool having its shank inserted into the socket and engaged by the angular edge of the dog, substantially as set forth.

19. The combination of a casing, a yoke connected therewith, a pneumatic tool mounted in said casing and means operated by fluid-pressure for moving said tool toward and away from the work, substantially as set forth.

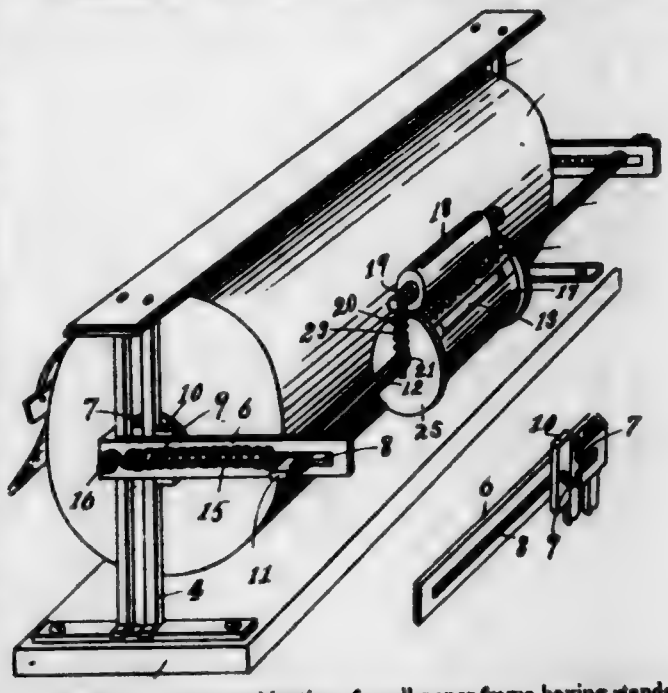
20. The combination of a cylinder, a hammer-barrel contained in said cylinder, a plunger in said barrel, and means for admitting fluid-pressure to opposite parts of said cylinder so as to move said barrel in either direction.

21. The combination of a cylinder, a barrel in said cylinder and having differential-pressure areas, a plunger in said barrel, and means for admitting fluid-pressure to said differential-pressure areas.

22. The combination of a cylinder, a barrel in said cylinder and having differential-pressure areas, a plunger in said barrel, and means for admitting and exhausting fluid-pressure to said differential-pressure areas.

23. The combination of a cylinder, a barrel within said cylinder provided with a piston on a suitable portion thereof, and means for admitting the actuating fluid into said cylinder at either side of said piston for moving the latter in either direction.

695,416. PRINTING ATTACHMENT FOR ROLL-PAPER. BYRON RIPS, San Francisco, Cal., assignor of one-half to Hendrie Marshal, San Francisco, Cal. Filed Apr. 15, 1901. Serial No. 55,996. (No model.)



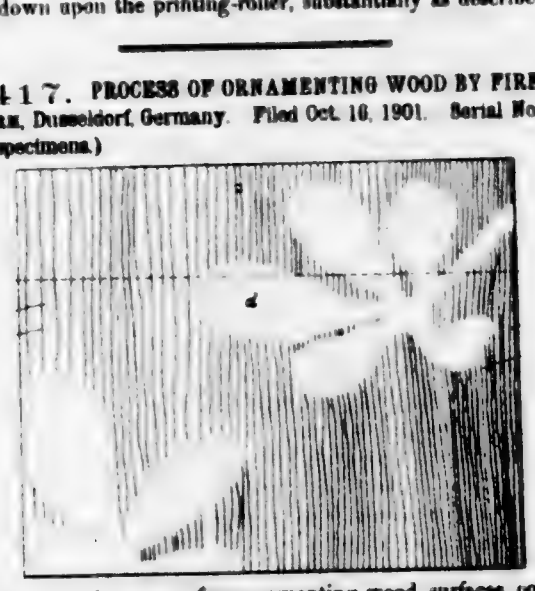
Claim.—1. The combination of a roll-paper frame having standards, a roll of paper supported between said standards, slotted arms extending from said standards, a shaft having squared ends sliding in said slots, resilient means for moving said shaft toward said standards, a roller 13 on said shaft, a printing device 16 and an ink-pad 17 on said roller, an inking-roller 18 supported by said shaft, and rods sliding transversely to said shaft to the ends of which rods the inking-roller 18 is attached, substantially as described.

2. In a printing attachment for roll-paper the combination with the standards of the roll-paper frame, of slotted arms removably attached thereto, a shaft having squared ends sliding in said slots, springs for drawing said shaft toward the frame, a printing-cylinder on said shaft carrying a printing-surface, an ink-pad on said cylinder, an inking-roller, rods slid-

ing transversely to said shaft to the ends of which rods the inking-roller is attached, and springs for drawing said inking-roller down upon the printing-roller, substantially as described.

3. In a printing attachment for roll-paper, the combination with the standards of the roll-paper frame, of slotted arms removably attached thereto, a shaft having squared ends sliding in said slots, springs for drawing said shaft toward the frame, a printing-surface, an ink-pad on said cylinder, an inking-roller, rods sliding transversely to said shaft to the ends of which rods the inking-roller is attached, and springs for drawing said inking-roller down upon the printing-roller, substantially as described.

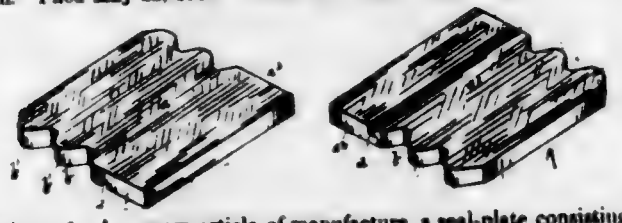
695,417. **PROCESS OF ORNAMENTING WOOD BY FIRE.** MAX SCHIRM, Düsseldorf, Germany. Filed Oct. 16, 1901. Serial No. 78,882. (No specimens.)



Claim.—1. A process for ornamenting wood surfaces comprising the covering of part of the surface with fireproof material and the submission of the uncovered parts of such surfaces to the action of a fire-blast or jet-flame, substantially as described.

2. A process for ornamenting wood surfaces comprising the supplying of minute particles of metal to a fire-blast or jet-flame, and causing said blast or flame to impinge upon the surface to be ornamented, substantially as described.

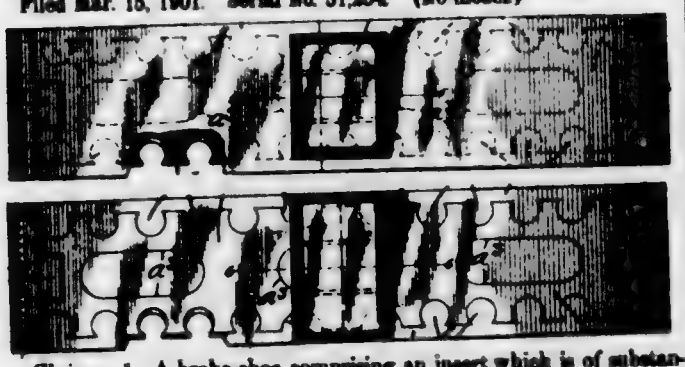
695,418. **SEAL FOR SEAL-LOCKS.** JOHN W. STEVENS, St. Paul, Minn. Filed May 22, 1900. Serial No. 17,615. (No model.)



Claim.—1. As a new article of manufacture, a seal-plate consisting of a plate of fragile material having on each of two opposite edges a series of alternating indentations and teeth having reversely angular sides, and adapted to engage with a movable retaining device having correspondingly alternately disposed angular teeth and indentations, whereby it is adapted to engage with a retaining device at either edge, substantially as set forth.

2. As a new article of manufacture a seal-plate consisting of a flat plate of uniform thickness throughout and having a series of alternating indentations and teeth having reversely angular sides at its edge, each extending entirely through from the front to the back face, and each indentation of the series being a counterpart of the other whereby the engagement of the seal with the retaining device by one or another of the said serrations or teeth is insured, substantially as set forth.

695,419. **BRAKE-SHOE.** ALFRED L. STREETER, Chicago, Ill. Filed Mar. 15, 1901. Serial No. 51,264. (No model.)

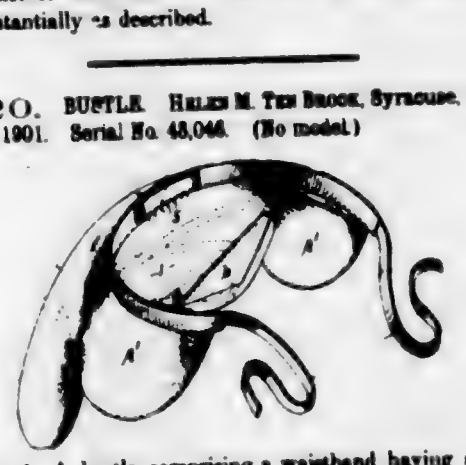


Claim.—1. A brake-shoe comprising an insert which is of substantially the same length as the shoe and extends practically through the shoe from front to back thereof and an attaching lug secured directly to said insert, substantially as described.

2. A brake-shoe comprising an insert of strong, tough metal which is of substantially the same length as the shoe and extends practically entirely through the shoe from front to back thereof and an attaching-lug formed integral with said insert, substantially as described.

3. A brake-shoe comprising a body portion and a rigid insert inclosed within the body portion of the shoe and which extends to within a short distance of the back and of the initial face or friction-surface of the shoe, substantially as described.

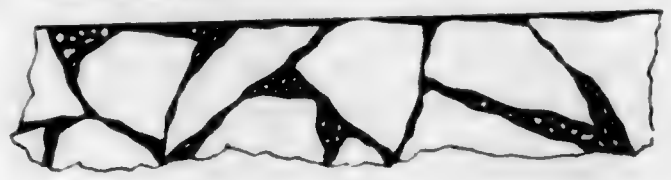
695,420. **BUSTLE.** HELEN M. TEN BROOK, Syracuse, N. Y. Filed Feb. 20, 1901. Serial No. 48,046. (No model.)



Claim.—1. A bustle comprising a waistband having a depending body of fabric or equivalent material, upright spring-stays secured to the opposite ends of the body, and a transverse spring-stay secured to the lower edge of the fabric body and having its opposite ends in close proximity to the lower ends of the upright stays, and a flat metal plate secured to the inner face of the waistband in a position above and between the upper ends of the upright stays and substantially parallel with the lower transverse stay and provided with depending teeth for the purpose described.

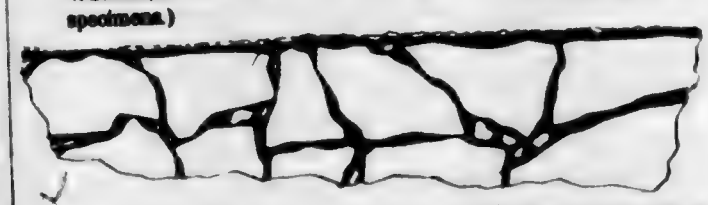
2. A bustle comprising inner and outer layers of fabric or equivalent material, spring stays or bars extending diagonally in intersecting planes across and between the layers of fabric and secured thereto, upright stays secured between the layers and extended upwardly from the lower ends of the former stays, and a metal plate secured to the inner face of upper edge of the bustle above and between the upper ends of the upright stays and provided with depending teeth for the purpose set forth.

695,421. **PAVEMENT.** FREDERICK J. WARREN, Newton, Mass. Filed Jan. 10, 1902. Serial No. 89,162. (No specimens.)



Claim.—A wearing layer of a street sheet-pavement composed of a dense mineral body consisting only of relatively large elements, one-half inch and upward in diameter, and relatively small elements, one-tenth of an inch in diameter and less, having predetermined proportions and intimately and uniformly associated throughout the body to eliminate voids, provide stability and a wearing-surface and a uniting weatherproof, bituminous vehicle intimately associated with all the mineral elements serving to combine and unite them, fill the voids remaining unfilled and to form with the mineral body a solid, stable, homogeneous, tenacious, elastic, bituminous wearing layer.

695,422. **BITUMINOUS STREET-PAVEMENT.** FREDERICK J. WARREN, Newton, Mass. Filed Jan. 10, 1902. Serial No. 89,163. (No specimens.)



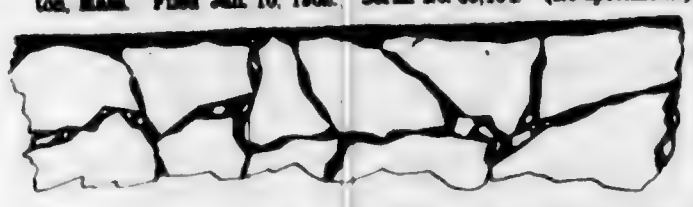
Claim.—1. The application to the wearing-surface of a bituminous street-pavement having a cellular or porous character, for the purpose of closing its pores and preserving its life, of a cell or pore sealing coating of bituminous cement.

2. The application to the wearing-surface of a bituminous street-pavement of a thin coating of bituminous cement applied thereto in a plas-

tic condition and combined while plastic with suitable stone, gravel or sand of a character to provide a roughness to the surface of the pavement.

3. The application to the surface of a bituminous street-pavement having a cellular or porous character, for the purpose of closing its pores, preserving its life and providing a wearing-surface of a more durable character than it, of a thin coil-coating coating of bituminous cement combined and united with mineral of a flinty or other hard character.

695,423. STREET-PAVEMENT. FREDERICK J. WARREN, Newton, Mass. Filed Jan. 10, 1902. Serial No. 89,164. (No specimens.)



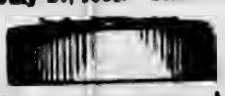
Claim.—1. The application to the wearing-surface of a bituminous street-pavement having a cellular or porous character for the purpose of closing its pores, preserving its life and increasing its resistance to wear, of a cell and pore sealing coating of bituminous cement and iron, steel or other metal filings, chips or particles.

2. The application to the wearing-surface of a bituminous street-pavement of a thin coating of bituminous cement applied thereto in a plastic condition and combined while plastic with metal filings, chips or particles and whereby the wearing-surface is provided with increased durability.

3. The application to the wearing-surface of a bituminous street-pavement of a layer or coating of relatively pure bitumen, a layer or coating of iron, steel or other metal filings, chips or particles and a bituminous cement intimately commingled and a layer or coating of relatively pure bitumen applied to the surface of the metal and bituminous layer.

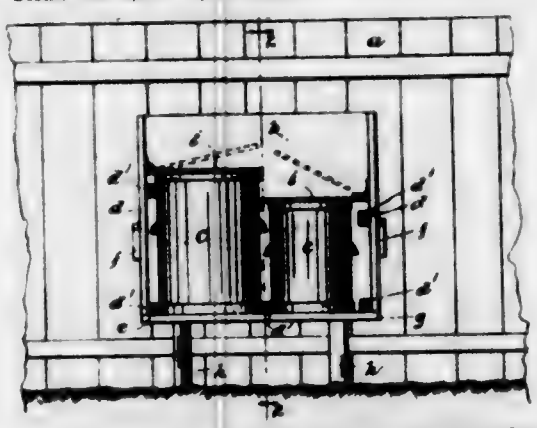
4. The application to the wearing-surface of a bituminous street-pavement of a coating consisting of a composition of bitumen, stony ingredients and iron or steel filings, chips or particles mingled to form a homogeneous body of stone, metal and bitumen, and whereby the wearing-surface of the pavement is provided with increased durability and also with frictional properties.

695,424. SECURING SWIVEL-PLATES TO PERFORATED COVERS. CHARLES E. WILLIAMS, Brooklyn, N. Y., assignor to American Can Company, Jersey City, N. J., and New York, N. Y., a Corporation of New Jersey. Filed July 27, 1901. Serial No. 69,936. (No model.)



Claim.—A cover for condiment-boxes, having centrally a solid, drawn-up portion, a plate or disk with a central aperture in which the drawn-up portion rests, said drawn-up portion having its edges crimped, or compressed downwardly, to slightly overlap and hold the apertured disk, said cover and disk having registering perforations as set forth.

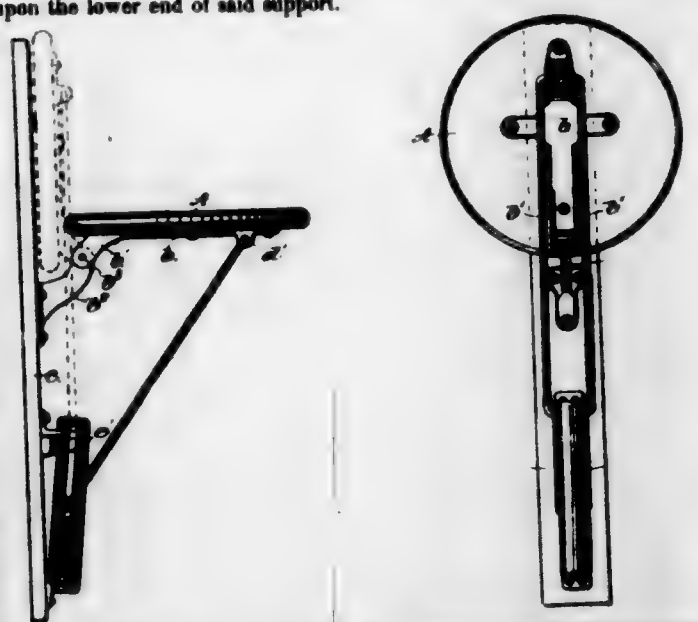
695,425. TIPPING SHELF FOR THE PRESERVATION OF GARBAGE OR ASH CANS. HENRY P. BERCK, Chicago, Ill. Filed June 19 1901. Serial No. 65,216. (No model.)



Claim.—In a tipping shelf, for the preservation of garbage-cans, having vertical back and side pieces supporting a shelf, the stop-cleats *f* fixed to each side, adapted to engage the fence or wall, the covers hinged to the inner sides arranged to fall inwardly on top of the cans, the fender-cleats *d'*, the stakes *h*, adapted to support the shelf as set forth.

695,426. COLLAPSIBLE SEAT. ATWATER E. BROCKETT, Boston, Mass. Filed Apr. 12, 1901. Serial No. 55,471. (No model.)

Claim.—1. A collapsible seat comprising an upwardly-swinging seat member, a swinging support for the free end of said seat, a supporting member having a slot in which slides the lower end of said swinging support and a spring interposed between the lower sliding end of said support and the bottom of said supporting member, said spring being compressed under the weight of a person occupying the seat and operating on removal of such weight to swing the seat upwardly by pushing upon the lower end of said support.

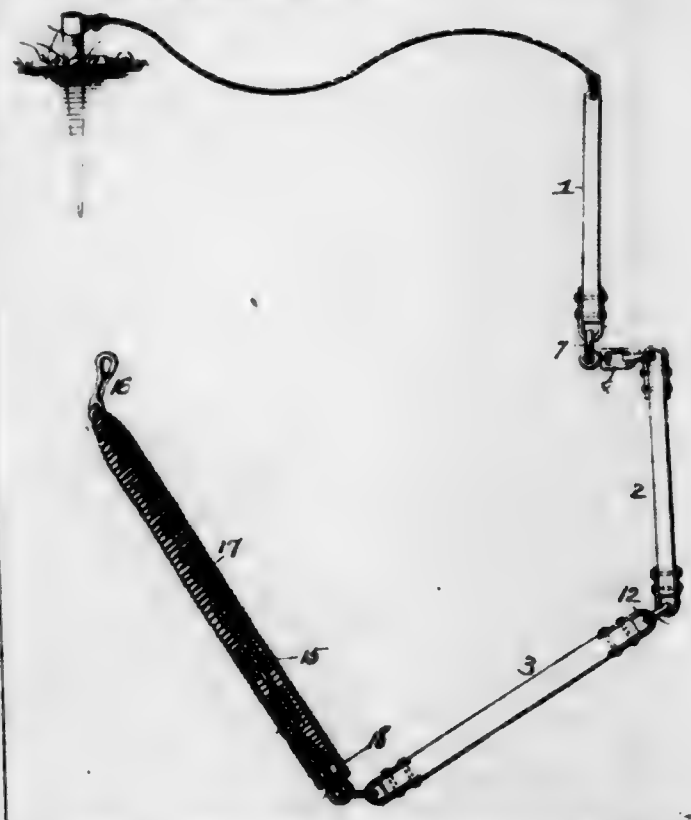


2. A collapsible seat comprising an upwardly-swinging seat member, a swinging looped supporting-link for the free end of said seat, a supporting member slotted to receive the lower end of said link and arranged between the side members thereof, and a spring pressing upwardly upon the bottom of said supporting-link.

3. A collapsible seat comprising an upwardly-swinging seat member and swinging support for the outer end thereof, a tubular supporting member slotted to receive the lower end of said swinging support and a spiral spring within said tubular supporting member and pressing upwardly against the lower end of said swinging support.

4. A collapsible seat comprising an upwardly-swinging seat member, a swinging support for the outer end of said seat member, and a supporting member having a slot inclined upwardly and outwardly from its lower to its upper end and receiving the lower end of said swinging support, and a spring pressing upwardly against the bottom of said swinging support.

695,427. TETHER. HENRY J. DAVIS, Waynesboro, Ga., assignor of one-half to William Hudson Davis, Waynesboro, Ga. Filed July 26, 1901. Serial No. 69,837. (No model.)



Claim.—1. A tether comprising a series of wooden bars, clips secured to and projecting beyond said bars, loose connections between said

clips, a flexible device for connecting the bars to a stake, a chain attached to one end of one of said bars, and a spring inclosing said chain

2. A tether comprising a series of wooden bars connected loosely together, a chain attached to one end bar, a rope attached to the other end bar, and a coiled spring inclosing said chain.

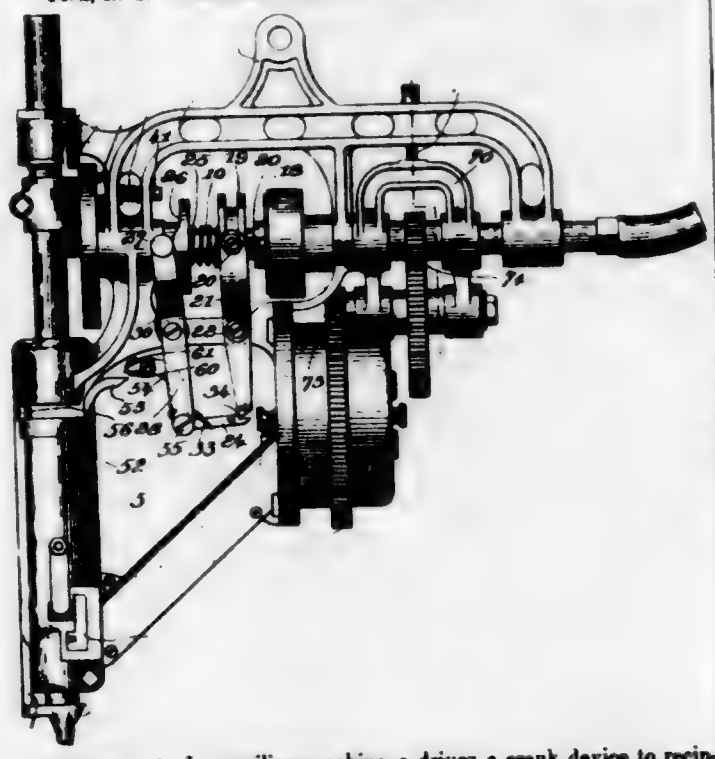
3. A tether comprising a series of bars loosely connected together, a flexible device secured to one end bar, a chain attached to the other end bar and a spring through which said chain passes, and from both ends of which it protrudes.

4. In a tether, the combination with a coil, of a flexible device longer than said coil disposed within the latter and extending freely through one end thereof and means for closing the ends of the coil around the flexible device.

5. In a tether, the combination with a coil having a conical end, of a flexible device longer than the coil and disposed within the same and projecting freely through said conical end, means for attaching the flexible device to an animal and means for connecting it with a stake.

6. In a tether, the combination of a coil, a flexible device longer than the coil disposed within the same, and projecting beyond both of its ends and freely movable through one end, a block in the other end of the coil surrounding the flexible device, means for connecting one end of the flexible device with a stake and means for attaching the other end of the flexible device to an animal.

695,428. NAILING-MACHINE. PERLEY R. GLASS, Quincy, Mass., assignor to Peerless Machinery Company, Charlestown, W. Va., and New York, N. Y. Filed July 18, 1901. Serial No. 68,714. (No model.)



Claim.—1. In a nailing-machine, a driver, a crank device to reciprocate the same, a continuously-rotating driving member, a clutch between said driving member and crank, a clutch-operating lever, a spring-controlled lever, a latch pivoted thereto, and engaging the clutch-operating lever to normally hold said clutch inactive, means operated by the work as it is brought into operative position to trip the latch, means to bring the clutch into action when the latch is tripped whereby the crank is rotated, a cam connected to the crank device and engaging said spring-controlled lever, said cam operating to vibrate the lever as the driver reciprocates, and bring the latch into engagement with the clutch-lever whereby the clutch is disengaged.

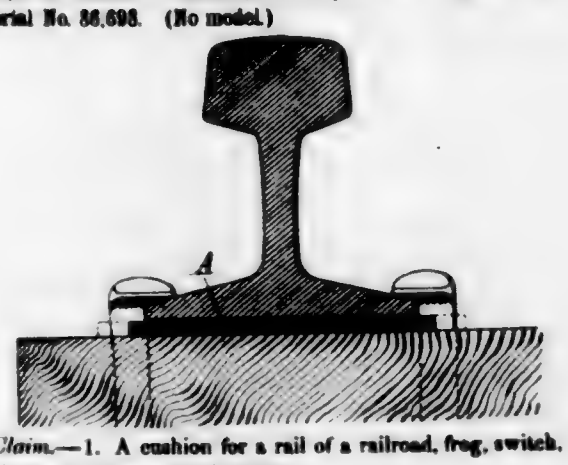
2. In a nailing-machine, a frame having a tubular portion, a driver reciprocating therein, driver-reciprocating mechanism including a clutch, a latch to normally hold said mechanism inactive, a movable nose at the end of the tubular part of the frame, a shank connected to said nose and extending longitudinally of the frame and guided thereby, an offset on said shank adapted to engage and trip the latch, means to throw the clutch into operation when the latch is tripped and means to restore the clutch to its inactive position when the driver has made one reciprocation.

3. In a tacking mechanism, a driver, a raceway to deliver nails thereto, a continuously-rotating shaft to operate the driver, a rotatable hopper to deliver nails to the raceway, a swinging frame supported on the shaft, and gears on said frame adapted to mesh with gears on the shaft and hopper respectively, whereby the hopper may be rotated or allowed to remain at rest according to the position of the swinging frame.

4. In a nailing-machine, a driver, a raceway to deliver tacks thereto, a continuously-rotating shaft to operate the driver, a rotatable hopper to deliver tacks to the raceway, a gear on the shaft, and gear-teeth on the periphery of the hopper, a swinging frame supported on the shaft, connected gears carried thereby, one of said gears meshing with the gear on the shaft and the other of said gears adapted to mesh with the gear-teeth on the hopper when the frame is in one extreme position.

5. In a nailing-machine, a driver, a raceway to deliver tacks thereto, a continuously-rotating shaft to operate the driver, a rotatable hopper to deliver tacks to the raceway, a gear on the shaft, and gear-teeth on the periphery of the hopper, a swinging frame supported on the shaft, connected gears carried thereby, one of said gears meshing with the gear on the shaft and the other of said gears adapted to mesh with the gear-teeth on the hopper, and means to hold said frame either in such position that the gears on the frame and hopper will be in mesh or in such position that the said gears will be disengaged.

695,429. CUSHION FOR RAILROAD-RAILS, FROG AND SWITCH RAILS, &c. ANGE B. GOMBAR, Cornwells, Pa., assignor, by direct and mesne assignments, of three-fourths to William Barklie Henry, trustee, and Horace H. Burrell, Philadelphia, Pa. Filed Dec. 20, 1901. Serial No. 86,698. (No model.)

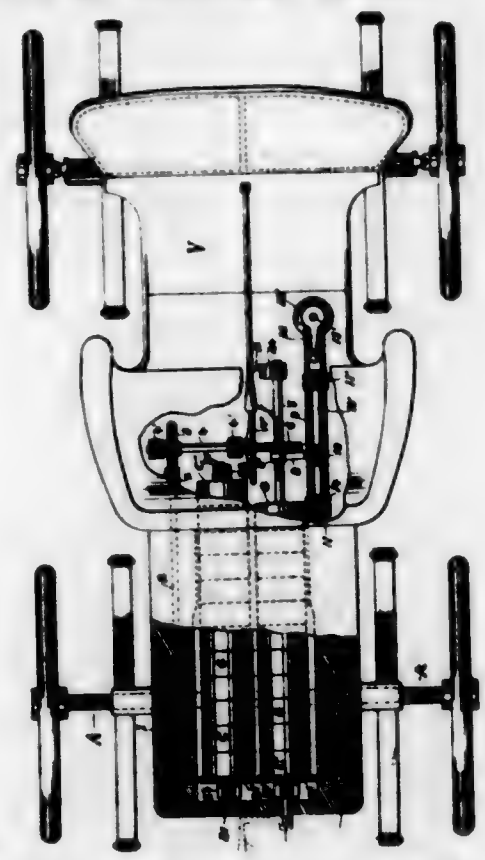


Claim.—1. A cushion for a rail of a railroad, frog, switch, or other part of a track, composed of asbestos.

2. A cushion of asbestos interposed between a rail of a railroad, frog, switch or other part of a track and the supporting tie or sleeper therefor.

3. A cushion for a rail of a railroad, frog, switch or other part of a track composed of an immutable porous substance between said part and a support therefor, allowing sufficient space to permit the wave motion of the rail, &c., to pass through the spikes or fastening, leaving them unaffected in their driven position.

695,430. SPRING-MOTOR VEHICLE. CYRUS A. HAAS, St. Louis Mo., assignor to Charles H. Dodge and Edward Chase, St. Louis, Mo. Filed Dec. 12, 1901. Serial No. 85,637. (No model.)



Claim.—1. In a spring-motor vehicle, a suitable spring-motor, a winding-bar for the same, a friction spur-disk slidingly feathered on said

bar and rotatable therewith, a grooved hub forming a part of said disk, a forked arm embracing said hub, a block coupled to the opposite end of said arm, a rod along which the block is free to slide, a hollow post mounted on the vehicle, a staff in said post, a sprocket-wheel on said staff, a second sprocket-wheel rearward of said post, a chain connecting said sprocket-wheels, and having one lap coupled to the block aforesaid, and an operating-handle for said staff, whereby upon rotation of the staff, the block and arm, and consequently the spur-disk may be adjusted at will, substantially as set forth.

2. In a spring-motor vehicle, a suitable rotatable winding-bar, a gear-wheel loosely mounted at one end thereof, a cup carried by said gear-wheel, a series of cups each having a hub portion passed over the bar, the hub of one cup being inserted into the chamber of the next adjacent cup, the last cup of the series farthest removed from the gear-wheel being passed over a ring secured to the winding-bar, springs having each one end secured to the wall of one cup and the opposite end to the hub of the next adjacent cup, an axle mounted adjacent and parallel to the winding-bar, a gear-wheel loosely mounted at one end thereof and meshing with the first-named gear-wheel, a hub forming part of said second gear, a series of cups nesting with the hub of the gear-wheel and the hubs of the cups each respectively inserted into the chamber of the next succeeding cup, the last cup of the series farthest removed from the gear-wheel being rigidly secured or fixed to serve as an abutment, a series of springs coiled in reverse order from the first-named series and having each one end secured to the hub of one cup and to the peripheral wall of the next succeeding cup, the parts operating substantially as and for the purpose set forth.

3. In a spring-motor vehicle, a winding-bar, springs for actuating the same, a friction spur-disk carried by said winding-bar, a drive-shaft, a contact-disk on said shaft actuated by the spur-disk, and means for disengaging the spur-disk from the contact-disk during the winding of the motor, substantially as set forth.

4. In a spring-motor vehicle, a spring-actuated winding-bar, a friction spur-disk slidingly feathered to, and rotatable with said bar, a drive-shaft for the vehicle, a contact-disk on said shaft adapted to be actuated by the spur-disk, means for disengaging the spur-disk from the contact-disk during the winding of the motor, a controller-staff, and intermediate connections between said staff and spur-disk for shifting the position of the latter along the winding-bar and shifting the point of contact between the contact-disk and spur-disk, substantially as set forth.

REISSUES.

11,975. TOWER. FRANCIS H. DAVIS, New York, N. Y., assignor to the Davis Calyx Drill Company, New York, N. Y. Filed Aug. 15, 1901. Serial No. 72,191. Original No. 642,588, dated Feb. 6, 1900.

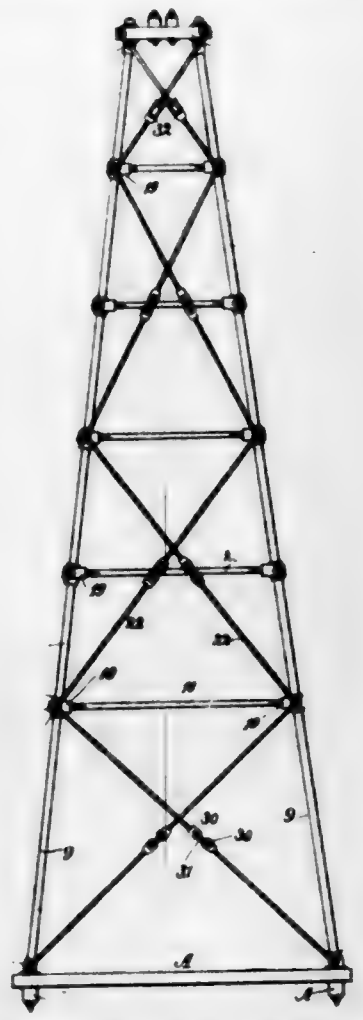
Claim.—1. In a tower, the combination of a series of uprights, each made in detachable tubular sections, a sleeve disposed between each two sections, and having internal shoulders forming abutments for the ends of said sections, a bar passing through each sleeve and projecting a distance above and below the same into the tubular sections of the upright, pins projecting outwardly from each sleeve, horizontal cross-braces removably attached at their ends to said pins, and diagonal truss-rods detachably connected at their ends to the said pins.

2. In a tower or derrick, the combination with a terminal, of bolts passing through said terminal and projecting upwardly in an inclined direction from said terminal, sleeves seated on said terminal, through which said bolts pass and tubular uprights inclosing said bolts and seated on said sleeves.

3. A skeleton tower or derrick comprising a plurality of separable and superposed sections, each of which comprises legs or uprights, horizontal brace-rods, diagonal truss-rods, each comprising a turnbuckle, and couples between adjacent sections to which the horizontal brace-rods are connected, said couples having projecting pins and the truss-rods having eyes adapted to receive said pins, whereby the truss-rods are connected to said couples.

4. A collapsible derrick or skeleton tower comprising a plurality of uprights, each formed in separate sections, a coupling between adjacent sections in each upright, having projecting pins, horizontal brace-rods connecting a pair of couplings directly opposite on a side of the tower or derrick, and diagonal truss-rods also connecting a pair of couplings on a side of the tower or derrick and having eyes receiving said pins.

5. A collapsible derrick or skeleton tower consisting of a plurality of hollow sectional uprights, a coupling between adjacent sections, each of which couplings comprises a collar against which the ends of adjacent sections of the uprights bear, a bar formed separately from and held in said collar and having its end portions extending into the adjacent sections, horizontal brace-rods connecting a pair of couplings directly opposite on a side of the tower or derrick, and diagonal brace-rods also connecting a pair of couplings diagonally opposite on a side of the tower or derrick.



6. In a collapsible derrick or skeleton tower consisting of a plurality of hollow uprights, each formed in separate sections, the combination, with such sections, of couplings for connecting together adjacent sections, horizontal brace-rods, and diagonal truss-rods, said couplings comprising collars against which the ends of the said sections abut, and bars held in said collars and projecting into the ends of the adjacent sections; reinforcing-collars being likewise provided which receive and reinforce the ends of the sections abutting against said couplings.

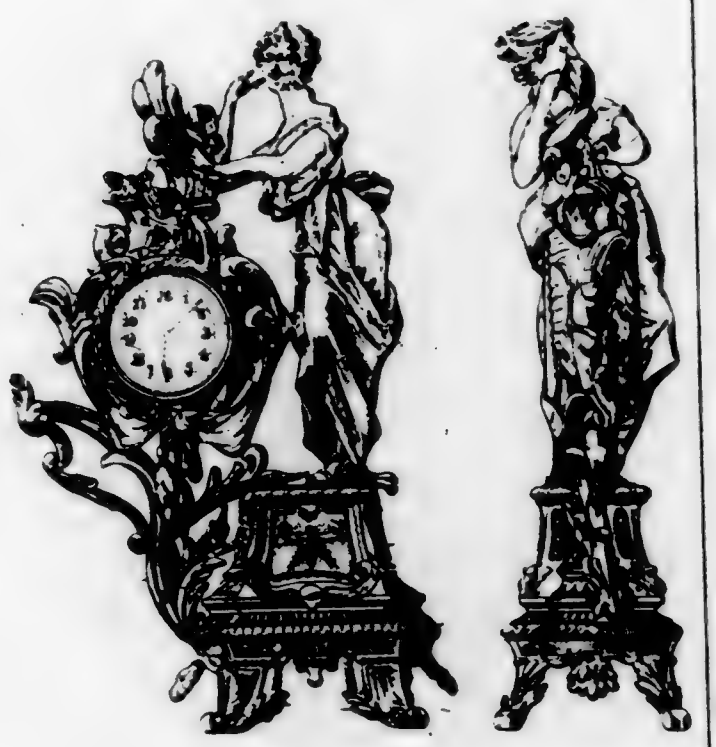
DESIGNS.

35,795. RING. MAGNUS SCHIEBEL, St. Louis, Mo. Filed Feb. 17, 1902. Serial No. 94,571. Term of patent 7 years.



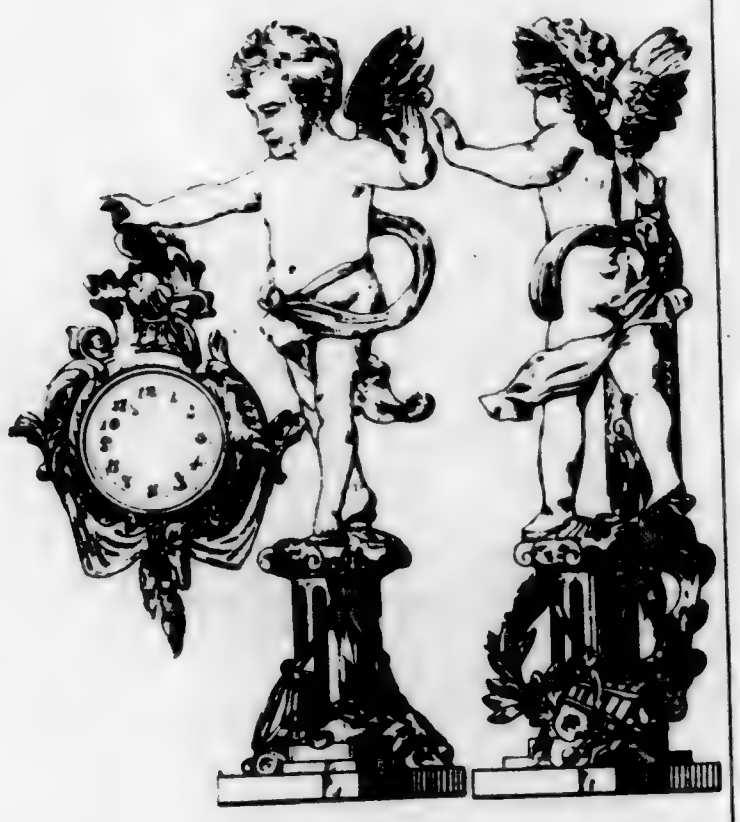
Claim.—The design for a ring, as herein shown and described.

35,796. CLOCK-CASE. Louis V. Aronson, Newark, N. J. Filed Feb. 11, 1902. Serial No. 93,630. Term of patent 3½ years.



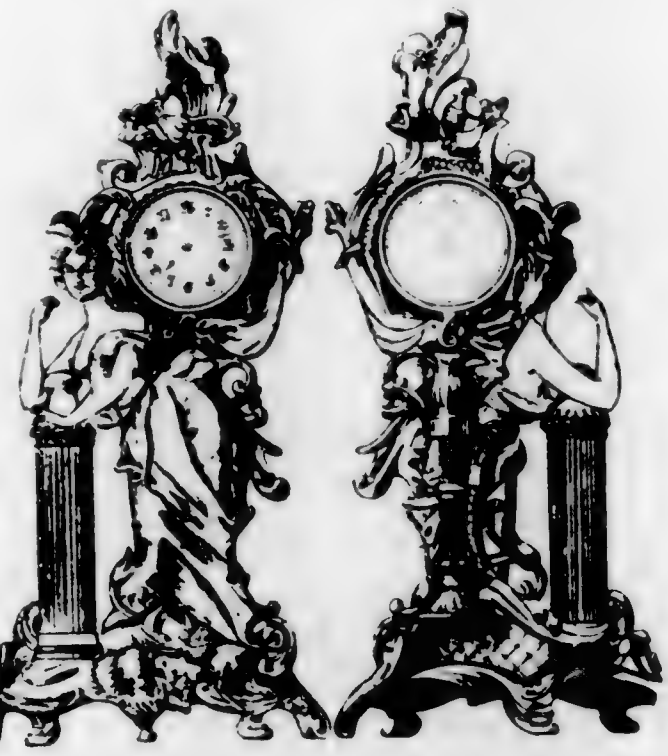
Claim.—The design for a clock-case as herein shown and described.

35,797. CLOCK-CASE. Louis V. Aronson, Newark, N. J. Filed Feb. 11, 1902. Serial No. 93,631. Term of patent 3½ years.



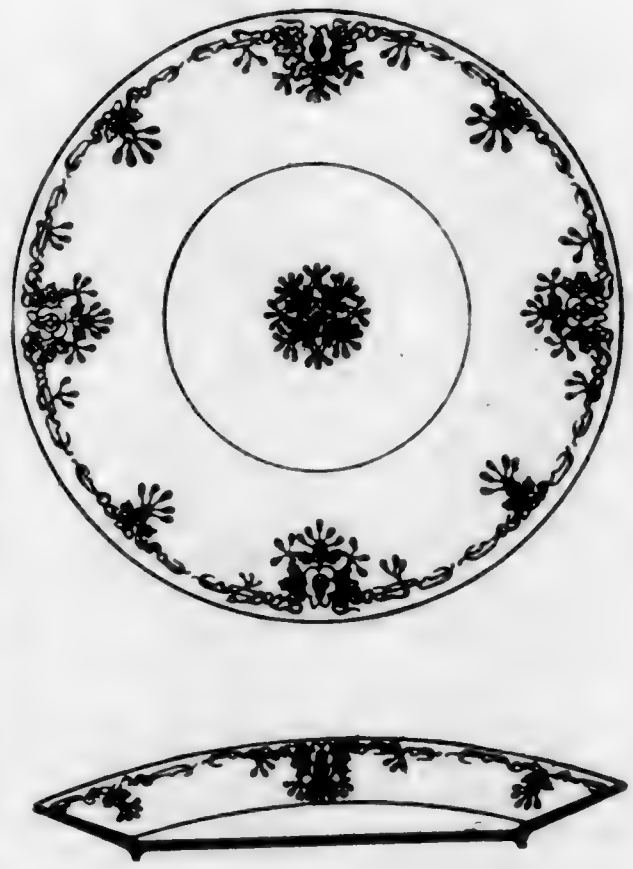
Claim.—The design for a clock-case as herein shown and described.

35,798. CLOCK-CASE. Louis V. Aronson, Newark, N. J. Filed Feb. 11, 1902. Serial No. 93,632. Term of patent 3½ years.



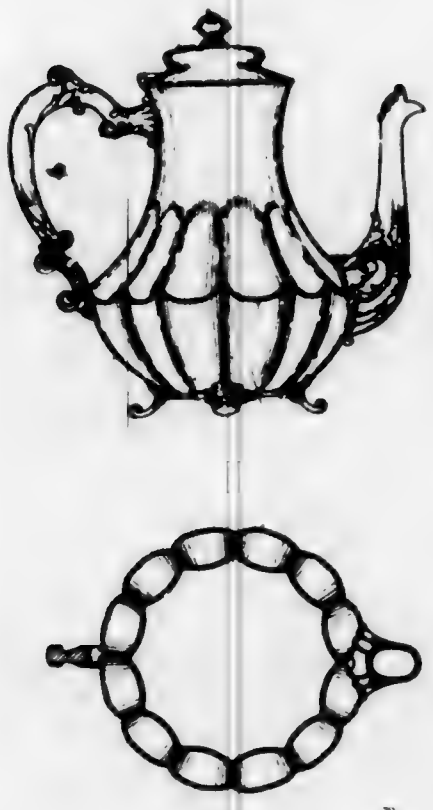
Claim.—The design for a clock-case as herein shown and described.

35,799. PLATE OR SIMILAR ARTICLE. Charles J. Aberenfeldt, New York, N. Y. Filed Feb. 7, 1902. Serial No. 93,089. Term of patent 7 years.



Claim.—The design for a plate or similar article substantially as herein shown and described.

35,800. COFFEE-POT OR SIMILAR VESSEL. SETH H. LEAVENWORTH, Cincinnati, Ohio, assignor to the Homan Silver Plate Company, Cincinnati, Ohio, a Corporation of Ohio. Filed Nov. 4, 1901. Serial No. 81,160. Term of patent 7 years.



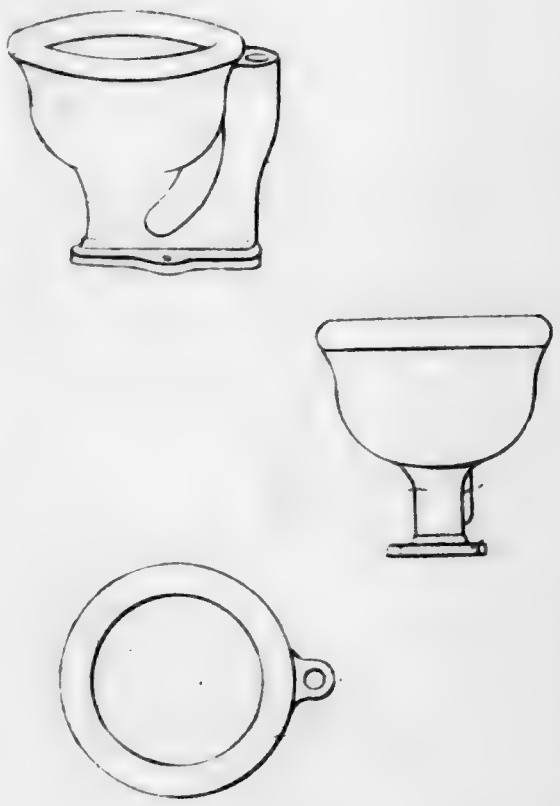
Claim.—The design for a coffee-pot or similar vessel as herein shown and described.

35,801. SIPHON-JET SLOP-SINK. STEPHEN D. BAKER, New Haven, Conn., assignor to the Peck Bros. & Co., New Haven, Conn., a Corporation. Filed Jan. 24, 1902. Serial No. 91,134. Term of patent 14 years.



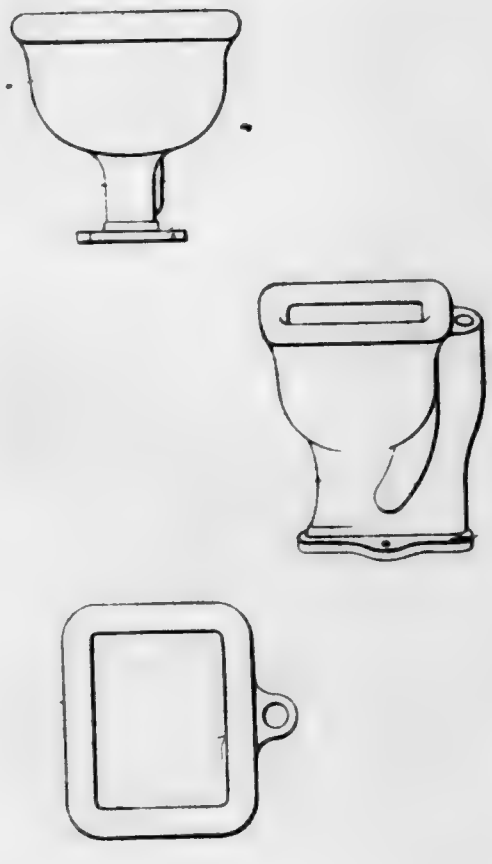
Claim.—The design for a siphon-jet slop-sink, as herein shown and described.

35,802. SIPHON-JET SLOP-SINK. STEPHEN D. BAKER, New Haven, Conn., assignor to the Peck Bros. & Co., New Haven, Conn., a Corporation. Filed Jan. 24, 1902. Serial No. 91,135. Term of patent 14 years.



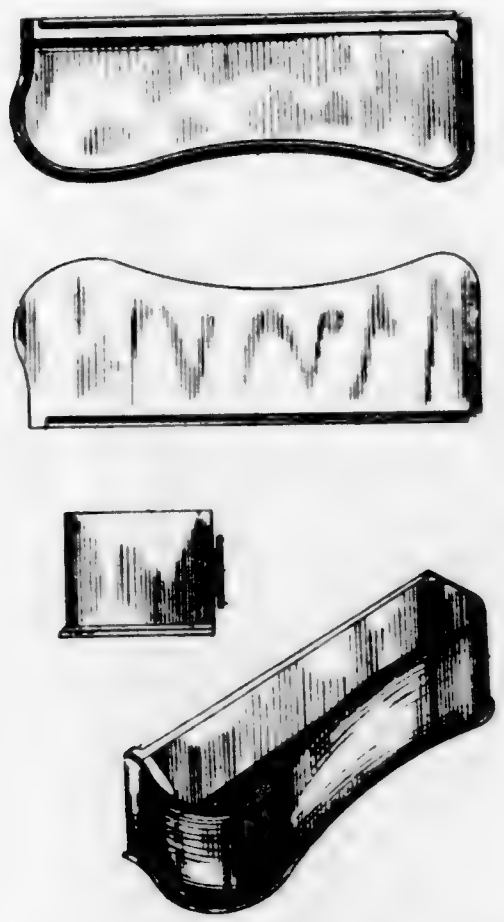
Claim.—The design for a siphon-jet slop-sink, as herein shown and described.

35,803. SIPHON-JET SLOP-SINK. STEPHEN D. BAKER, New Haven, Conn., assignor to the Peck Bros. & Co., New Haven, Conn., a Corporation. Filed Jan. 24, 1902. Serial No. 91,136. Term of patent 14 years.



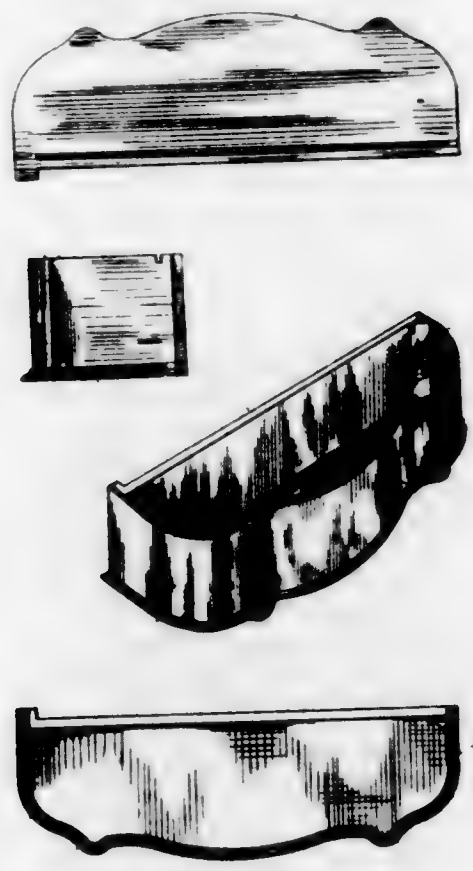
Claim.—The design for a siphon-jet slop-sink, as herein shown and described.

35,804. DRAWER FOR SEWING-MACHINE CABINETS. THEODOR KUNDTZ, Lakewood, Ohio. Filed Nov. 12, 1901. Serial No. 82,058. Term of patent 7 years.



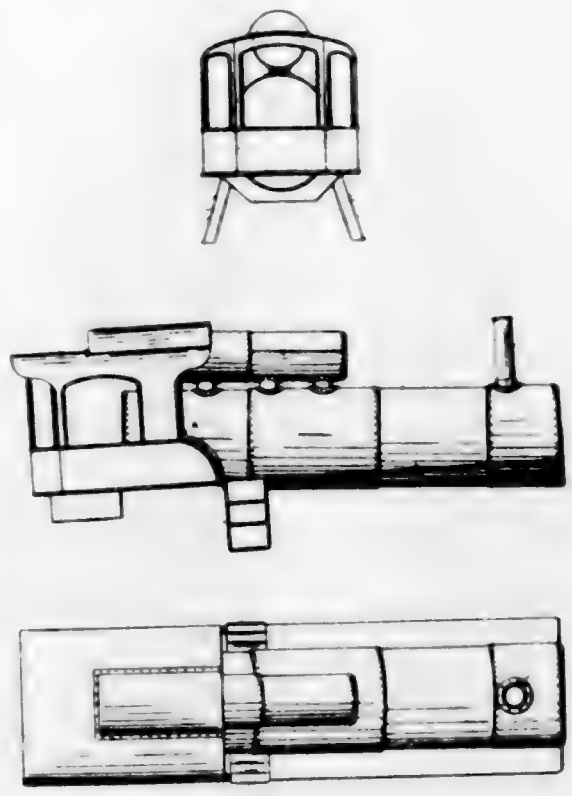
Claim.—The design for a drawer as herein shown and described.

35,805. DRAWER FOR SEWING-MACHINE CABINETS. THEODOR KUNDTZ, Lakewood, Ohio. Filed Nov. 15, 1901. Serial No. 82,458. Term of patent 7 years.



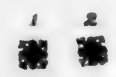
Claim.—The design for a drawer as herein shown and described.

35,806. LOCOMOTIVE-BODY. JAMES B. STETSON, San Francisco, and WILLIAM J. THOMAS, Sausalito, Cal. Filed Nov. 25, 1901. Serial No. 83,664. Term of patent 14 years.



Claim.—The design for a locomotive-body substantially as shown and described.

35,807. FONT OF TYPE ORNAMENTS. BERNE NADALL, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed Jan. 25, 1902. Serial No. 91,287. Term of patent 14 years.



Claim.—The design for a font of type ornaments, substantially as herein shown and described.

35,808. FONT OF TYPE ORNAMENTS. BERNE NADALL, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed Jan. 25, 1902. Serial No. 91,288. Term of patent 14 years.



Claim.—The design for a font of type ornaments, substantially as herein shown and described.

35,809. FONT OF TYPE ORNAMENTS. BERNE NADALL, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed Jan. 25, 1902. Serial No. 91,290. Term of patent 14 years.



Claim.—The design for a font of type ornaments, substantially as herein shown and described.

35,810. FONT OF TYPE ORNAMENTS. BERNE NADALL, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed Jan. 25, 1902. Serial No. 91,291. Term of patent 14 years.



Claim.—The design for a font of type ornaments, substantially as herein shown and described.

35,811. FONT OF TYPE ORNAMENTS. BERNE NADALL, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed Jan. 25, 1902. Serial No. 91,292. Term of patent 14 years.



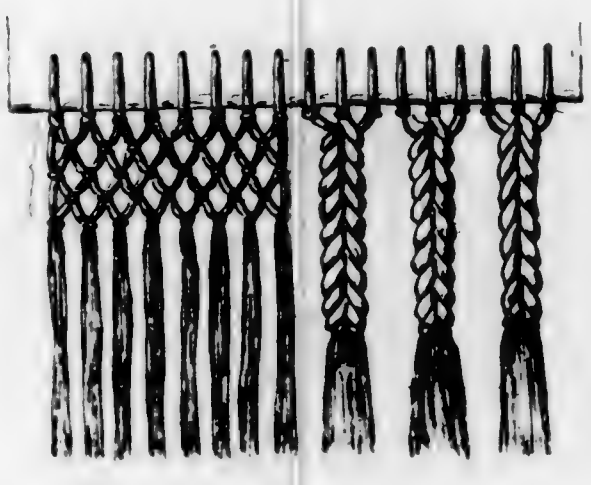
Claim.—The design for a font of type ornaments, substantially as herein shown and described.

35,812. FONT OF TYPE ORNAMENTS. BERNE NADALL, Kingston-upon-Thames, England, assignor to the Linotype Company, Limited, London, England. Filed Jan. 25, 1902. Serial No. 91,294. Term of patent 14 years.



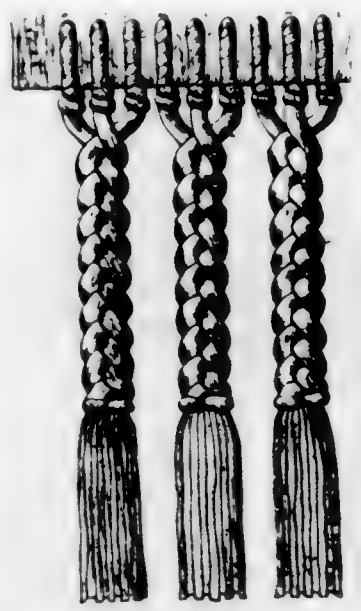
Claim.—The design for a font of type ornaments, substantially as herein shown and described.

35,813. FRINGE. WILLIAM T. SMITH, Philadelphia, Pa. Filed Feb. 17, 1902. Serial No. 94,569. Term of patent 14 years.



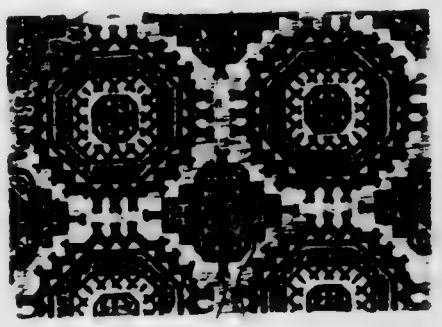
Claim.—The design for a fringe for fabrics, substantially as described and as shown in the accompanying drawing.

35,814. FRINGE. WILLIAM T. SMITH, Philadelphia, Pa. Filed Feb. 17, 1902. Serial No. 94,570. Term of patent 14 years.



Claim.—The design for a fringe for fabrics, substantially as described and as shown in the accompanying drawing.

35,815. CARPET. ALPHONSE MASON, Boston, Mass., assignor to Cochrane Manufacturing Company, East Dedham, Mass., a Corporation of Massachusetts. Filed Feb. 17, 1902. Serial No. 94,565. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as shown and described.

35,816. CARPET. ALPHONSE MASON, Boston, Mass., assignor to Cochrane Manufacturing Company, East Dedham, Mass., a Corporation of Massachusetts. Filed Feb. 17, 1902. Serial No. 94,566. Term of patent 3½ years.



Claim.—The design for a carpet, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 11, 1902.

37,914. LADIES' AND MISSES' SHOES. J. K. Orr Shoe Co., Atlanta, Ga. Filed Feb. 3, 1902.



Essential feature.—The words "QUEEN BESS" and the picture of England's sometime queen, Queen Elizabeth. Used since April, 1900.

37,915. BOOTS AND SHOES. FRIEDMAN BROS. SHOE CO., St. Louis, Mo. Filed Dec. 31, 1901.

Atlantic

Essential feature.—The word "ATLANTIC." Used since March 15, 1900.

37,916. PHOTOGRAPHIC PLATES AND FILMS. ACTIEN-GESELLSCHAFT FÜR ANILIN-FABRIKATION, Berlin, Germany. Filed Feb. 4, 1902.

Isolar.

Essential feature.—The word "ISOLAR." Used since September 20, 1892.

37,917. SENSITIZED PHOTOGRAPHIC PAPERS. BERNHARD RUMROGER, New York, N. Y. Filed Jan. 28, 1902.

EMERA

Essential feature.—The word "EMERA." Used since January 1 1902.

37,918. ORNAMENTAL CHAINS AND PARTS THEREOF AND ATTACHMENTS THEREFOR. Owen B. Barron, North Attleboro, Mass., special administrator of Oscar M. Draper, deceased. Filed Dec. 23, 1901.

O.M.D.

Essential feature.—The letters "O. M. D." Used since 1885.

37,919. NECKWEAR. J. & J. CASH, LTD., Coventry, England, and New York, N. Y. Filed Feb. 1, 1902.



Essential feature.—The representation of a group of church edifices with spires. Used since June 29, 1876.

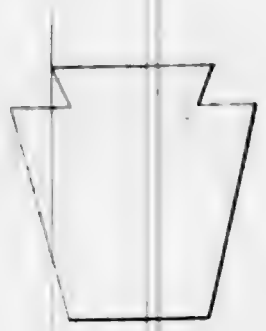
37,920. SHEETINGS. HERMANN NORDEN, New York, N.Y. Filed Dec. 21, 1901.



Essential feature.—The representation of a Chinese infantryman or foot-soldier carrying a gun. Used since November 23, 1901.

37,921. BRUSHES. ELDER & JENKS, Philadelphia, Pa. Filed Feb. 5, 1902.

KEYSTONE.



Essential feature.—"KEYSTONE," expressed pictorially or by word. Used since January 1, 1899.

37,922. PERFUMES. RICHARD HUDNUT, New York, N. Y. Filed Feb. 10, 1902.

CARDINAL

Essential feature.—The word "CARDINAL." Used since January, 1902.

37,923. EAU-DE-COLOGNE, SOAPS, WATERS, AND LOTIONS FOR TOILET PURPOSES. NAAMLOOZE VENNOOTSCHAP EAU DE COLOGNE FABRIEK VOORHEEN J. C. BOLDOOT, Amsterdam, Netherlands. Filed Dec. 17, 1901.



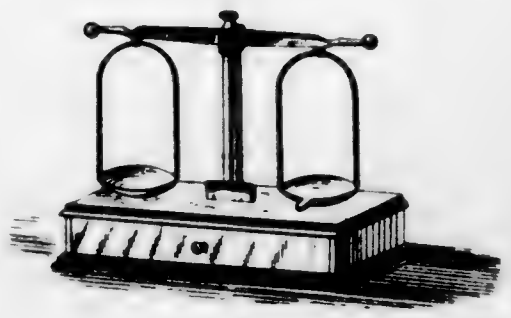
Essential feature.—The representation of a building having three towers. Used since June 21 1851.

37,924. ANTIBLENNORRHAGIC. HENRY S. CLARK, New York, N. Y. Filed Jan. 30, 1902.

URIFORM

Essential feature.—The word "URIFORM." Used since January 1, 1901.

37,925. REMEDIES FOR THE CURE OF RHEUMATISM. JOHN C. BILBO, Laurel, Tex. Filed Jan. 27, 1902.



Essential feature.—The representation of a druggist's balance, consisting of a rectangular base having a standard mounted thereon, supporting a beam bearing hangers, which carry weighing-pans. Used since December 22, 1901.

37,926. BLOOD REMEDY. THE POKE ROOT AND BURDOCK MEDICINE CO., Columbus, Ohio. Filed Feb. 10, 1902.

PODOCK

Essential feature.—The word "PODOCK." Used since January 25, 1902.

37,927. SEDATIVE COMPOUND. ALLEN H. STILL, New York, N. Y. Filed Feb. 11, 1902.

MODOVERI

Essential feature.—The word "MODOVERI." Used since October 10, 1901.

37,928. LAXATIVE AND DIURETIC COMPOUND. ALLEN H STILL, New York, N. Y. Filed Feb. 11, 1902.

MODOLITHIA

Essential feature.—The words "MODO LITHIA." Used since October 10, 1901.

87,929. LIQUID LAXATIVES. WILLIAM D. REA, Minneapolis, Minn. Filed Jan. 27, 1902.

CASCOLA

Essential feature.—The word "CASCOLA." Used since December 1, 1901.

87,930. STOMACH-BITTERS. MUNYON'S HOMŒOPATHIC HOME REMEDY CO., Philadelphia, Pa. Filed Jan. 29, 1902.



Essential feature.—The representation of a tree with a sign-board projected across the trunk thereof. Used since October 1, 1901.

87,931. CIGARS, CHEROOTS, CIGARROS, AND CIGARETTES. RUY LOPEZ CA., New York, N. Y. Filed Feb. 5, 1902.



Essential feature.—The representations of the chess-figures known as a "castle" and the horse's head part of a "knight." Used since January 1, 1900.

87,932. CHOCOLATE, BROMA, AND COCOA PREPARATIONS. WALTER BAKER & CO., LTD., Boston Mass. Filed Jan. 6, 1902.



The last drop is as good as the first.

Essential feature.—The words "THE LAST DROP IS AS GOOD AS THE FIRST" in connection with a figure of a child in the act of drinking from a cup. Used since December 7, 1901.

87,933. TEA. GEO. K. MCGAW & CO., Baltimore, Md. Filed Feb. 4, 1902.

PEGGY STEWART.

Essential feature.—The name "PEGGY STEWART." Used since May 10, 1898.

87,934. TEA. GEO. K. MCGAW & CO., Baltimore, Md. Filed Feb. 4, 1902.



Essential feature.—The representation of a sailing vessel burning upon the water and seen beyond a wharf upon which a number of persons are standing in various attitudes. Used since May 10, 1898.

87,935. BUTTER. CHAPIN-SACKS MFG. CO., Washington, D. C. Filed Feb. 8, 1902.

MAGNOLIA



Essential feature.—The word "MAGNOLIA" or the representation of a magnolia. Used since January 25, 1902.

87,936. CERTAIN NAMED GROCERIES. THE DOLAN MERCANTILE COMPANY, Atchison, Kans. Filed Nov. 30, 1901.



Essential feature.—The words "SUN FLOWER" and the representation of a sunflower. Used since 1898.

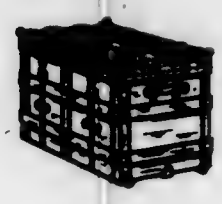
87,937. GLUTEN-MEAL. NATIONAL STARCH COMPANY, New York, N. Y. Filed Feb. 1, 1902.



Essential feature.—The representation of the head of a bull. Used since 1894.

87,938. MATCHES. THE LOUIS HILFER COMPANY, St. Louis, Mo. Filed Feb. 4, 1902.

TRUNK



Essential feature.—The word "TRUNK" and the representation of a trunk. Used since January, 1902.

87,939. ELECTROPLATED METAL WARE. GORHAM MFG. CO., Providence, R. I. Filed Jan. 31, 1902.

G M Co
E P

Essential feature.—The representation of a shield having on it the representation of an anchor and the letters "G M Co E P." Used since January 1, 1902.

87,940. WHITE OR BABBITT METAL. THE RUNSKOOL METAL COMPANY, Portland, Me. Filed Jan. 13, 1902.

RUNSKOOL

P
D G

Essential feature.—The word "RUNSKOOL" in connection with an equilateral triangular-shaped figure and the capital letters "P," "D," and "G," arranged, respectively, in the upper corner, left-hand corner, and right-hand corner of the triangle. Used since September 1, 1900.

87,941. CERTAIN NAMED HARDWARE ARTICLES AND METAL MANUFACTURES. THE RACINE MALLEABLE & WROUGHT IRON CO., Racine, Wis. Filed Jan. 13, 1902.

R

Essential feature.—The letter "R" used with a diamond-shaped representation. Used since November 1, 1900.

87,942. HORSESHOE-PADS. THE CONSOLIDATED HOOF PAD COMPANY, New York, N. Y. Filed Feb. 5, 1902.

A.C.

Essential feature.—The letters "A. C." Used since December 14 1901.

87,943. EXPLOSIVES. SAFETY EXPLOSIVE COMPANY, New York, N. Y. Filed Feb. 6, 1902.

MASURITE

Essential feature.—The word "MASURITE." Used since February 1, 1902.

87,944. JAPAN. MAYER & LOEWENSTEIN, New York, N. Y. Filed Feb. 4, 1902.

Adamant

Essential feature.—The word "ADAMANT." Used since 1891.

87,945. CERTAIN NAMED PAINTERS' SUPPLIES. GOODYEAR-SEARS BROS., New York, N. Y. Filed Feb. 6, 1902.

SAPOLIN

Essential feature.—The word "SAPOLIN." Used since January 2, 1902.

THE NORRIS PETERS CO. PHOTO LITH.

LABELS

REGISTERED MARCH 11, 1902.

9,008.—*Title:* "THE AMERICAN CORSET WAISTS." (For Corset-Waists.) HERMAN GREENBERG, ISAAC BERGER, and LOUIS WALDMANN, New York, N. Y. Filed February 7, 1902.

9,009.—*Title:* "OVERLAND SHOE." (For Shoes.) DIXON, BARTLETT Co., Baltimore, Md. Filed February 13, 1902.

9,010.—*Title:* "TRUNK MATCHES." (For Matches.) LOUIS HILFER, St. Louis, Mo. Filed February 13, 1902.

9,011.—*Title:* "ROYAL WELSH SAUCE." (For Sauce.) JOHN MARSHALL, San Francisco, Cal. Filed February 17, 1902.

9,012.—*Title:* "SNIDER'S OYSTER COCKTAIL SAUCE." (For Oyster-Cocktail Sauce.) THE T. A. SNIDER PRESERVE COMPANY, Cincinnati, Ohio. Filed February 12, 1902.

9,013.—*Title:* "THE CARDINAL KIDNEY CURE AND TONIC." (For a Medicine.) CHARLES W. JOHNSON, New York, N. Y. Filed January 10, 1902.

9,014.—*Title:* "EU-CAL-HYDRA." (For an Ointment.) CHARLES W. DEAN, Chardon, Ohio. Filed February 14, 1902.

9,015.—*Title:* "BELGIAN HAIR GROWER." (For Hair-Tonic.) WILLIAM C. BALLOWITZ, Chicago, Ill. Filed February 17, 1902.

9,016.—*Title:* "I WASH THE OLD WAY; I USE THE I V WASHING TABLETS." (For Washing-Tablets.) R. L. HOTTENSTEIN & Co., Philadelphia, Pa. Filed November 2, 1901.

9,017.—*Title:* "WEBER'S VARNISH." (For Varnish.) THE WEBER VARNISH COMPANY, Washington, D. C. Filed February 13, 1902.

9,018.—*Title:* "THE TWO-BITE." (For Chewing-Gum.) CHARLES H. WOODMAN, Malden, Mass. Filed January 24, 1902.

9,019.—*Title:* "LA ROSA DE JUNCOS." (For Cigars.) SCHMIDT & Co., New York, N. Y. Filed February 13, 1902.

9,020.—*Title:* "UNCLE JOHN." (For Cigars.) DANIEL SPANGLER, Red Lion, Pa. Filed January 24, 1902.

9,021.—*Title:* "MALT MYRRH." (For Malt Tonic Liquor.) BARRETT & BARRETT, Chicago, Ill. Filed February 14, 1902.

PRINTS

REGISTERED MARCH 11, 1902.

472.—*Title:* "TRUSTWORTHY TAILORING." (For Tailor-Made Garments.) HELLER & BENSON, Chicago, Ill. Filed February 15, 1902.

473.—*Title:* "CLOTHING." (For Clothing.) WM. C. BOTH, Chicago, Ill. Filed February 12, 1902.

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474.—*Title:* "HAS NO EQUAL." (For Condensed Milk.) BORDENS CONDENSED MILK Co., New York, N. Y. Filed January 28, 1902.

475.—*Title:* "PRATTS OFFICIAL CHART DIFFERENT BREEDS OF HORSES." (For a Food.) PRATT FOOD Co., Philadelphia, Pa. Filed February 17, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE GAMMONS.

Decided January 17, 1902.

1. FINAL REJECTION, WHEN NOT PROPER.

Where an Examiner after rejecting a claim a second time on the grounds of record, in the same letter discussed the state of the art and cited new references to support a statement that it was not possible for applicant to make an allowable claim, *Held* that the claim was not properly finally rejected.

2. SAME—INTENTION SHOULD BE CLEARLY INDICATED.

An Examiner's letter which is intended to close the consideration of the case before him should state such intention in clear and unmistakable terms.

3. SAME—REOPENING CASE.

The citation of new references in the letter finally rejecting the claims in effect reopens the case when they are cited to show that the subject-matter of the application is unpatentable.

ON petition.

SEAM FOR SEWED ARTICLES.

Application of Welcome P. Gammons, Jr., filed August 10, 1898, No. 688,283.

Mr. James J. Sheehy for the applicant.

ALLEN, *Commissioner:*

This is a petition that the Examiner in charge of the above-entitled application be advised that the action of March 10, 1899, was not a proper final rejection and that the case did not become abandoned March 10, 1900.

The sole question to be determined is whether or not the action above referred to was a proper final rejection, for if it was not it would follow as a matter of course that applicant was entitled to further amend and to receive action on the case as so amended.

The Examiner's letter of March 10, 1899, contains the following statement:

Renewed consideration has been had in connection with applicant's amendment of the 1st instant. The claim is a second time rejected on the grounds of record.

The Examiner then discusses the state of the art, citing two new references and concluding with the statement that—

for this reason it is not thought possible for applicant to make a tenable claim in the matter of his application.

It is believed to be in the interest of good practice, and it has been so held, that the Examiner's letter which is intended to close the consideration of the case before him should state such intention in unmistakable terms. For this reason it was directed in the decision in *ex parte Kendall* (93 O. G., 754) that Examiners should—

hereafter state in the letter which is intended as closing the consideration of the case before them that the claims are *finally* rejected.

See also *ex parte Byrnes*, (97 O. G., 191.)

The letter now under consideration is clearly not of the character required in such a case. Furthermore, the discussion of the state of the art which follows the rejection contained in said letter is of such a nature that the burden is thrown upon applicant of judging whether or not such discussion contains new reasons for rejection. This burden should not be placed upon applicant. (See *ex parte Byrnes, supra.*)

Moreover, the citation of these new references was in effect a reopening of the case, for while they were not cited in terms against the claim rejected they were cited to show that the subject-matter of the application was unpatentable. Under these conditions applicant should have the right of further amendment. (See *ex parte Lawton*, 97 O. G., 167.)

It must be held that the letter of March 10, 1899, did not finally reject the claims.

The petition is granted.

EX PARTE ZACHARIAS.

Decided January 30, 1902.

1. AMENDMENT TO DRAWING—CHANGE IN POSITION OF SIGNATURE.

When the signatures appear on a sheet of drawings in the wrong place, upon filing a blue-print of the original sheet the signatures may be erased and written correctly thereon by the identical people, if the same can be done without mutilating the sheet or removing it from the Office.

2. SAME—SAME.

If a new attorney appears in the case or it is necessary to have different witnesses from the original ones, such a change would be a departure from the original record and cannot be permitted. The only remedy in such a case is to file a new sheet of drawings. (Order 480, 43 O. G., 1119.)

ON petition.

STOVE AND FURNACE ATTACHMENTS.

Application of August Zacharias filed August 28, 1901, No. 73,556.

Messrs. W. T. Fitz Gerald & Co. for the applicant.

ALLEN, *Commissioner:*

This is a petition from the refusal of the Examiner to permit the petitioner to change the signatures from the right to the left end of Sheet 1 of the drawings.

The signatures are now placed on Sheet 1 in violation of the requirements of Rule 51.

The question to be decided is whether or not such a change would so alter the original records as to be improper.

It is well settled that a drawing may be amended, in order to cure certain defects, upon first filing blue-prints of the original drawing, provided these amendments are within the scope of the original disclosure and no new matter is incorporated into the case.

Any amendment of the original drawing which results in changing the substance of the same cannot be permitted.

The signature of the inventor on the drawing, whether signed by the inventor in person or by an attorney having power to sign the inventor's name, and the signatures of the witnesses are not placed upon the drawing as a mere matter of form.

Section 4889 relating to the drawing is as follows:

Sec. 4889. When the nature of the case admits of drawings, the applicant shall furnish one copy signed by the inventor or his attorney in fact, and attested by two witnesses, which shall be filed in the Patent Office; and a copy of the drawing, to be furnished by the Patent Office, shall be attached to the patent as a part of the specification.

The Office has designated in the Rules of Practice the exact place upon the drawing where the signature required by the statute shall be placed.

When these signatures appear on a sheet of drawing in the wrong place, upon filing a blue-print of the original sheet the signatures may be erased and written correctly thereon by the identical people, if the same can be done without mutilating the sheet or removing it from the Office.

If a new attorney appears in the case or it be necessary to have different witnesses from the original ones, such a change would be a departure from the original record and cannot be permitted. The only remedy in such a case is to file a new sheet of drawings. (Order 480, 43 O. G., 1119.)

The petition is granted to the extent indicated.

EX PARTE CUTTEN AND FRASER.

Decided January 29, 1902.

1. AMENDMENT AFTER DECISION OF EXAMINERS-IN-CHIEF—STATUS OF CASE NOT CHANGED.

The mere presentation of an amendment, which is not in order after a decision by the Examiners-in-Chief, does not change the status of the case as subject to appeal to the next higher tribunal or relieve the applicant from the necessity of taking that appeal within the time fixed by law.

2. SAME—FAILURE TO APPEAL—ABANDONED APPLICATION.

Where, instead of appealing from the decision of the Examiners-in-Chief or canceling the rejected claims within the time allowed by law, the applicant filed an amendment which was refused admission, *Held* that the application is abandoned.

ON petition.

ELECTRIC SIGNALS FOR RAILWAYS.

Application of Elisha B. Cutten and Arthur C. Fraser filed February 6, 1891, No. 380,444.

Messrs. A. C. Fraser & Co. for the applicants.

ALLEN, *Commissioner:*

This is a petition asking that the Primary Examiner be instructed to enter and act upon certain claims presented by an amendment filed December 5, 1899.

On October 22, 1895, five claims in this case were finally rejected, four of them covering processes and one covering the apparatus. On October 16, 1897, an appeal was taken to the Examiners-in-Chief, and on December 7, 1897, the decision of the Examiner was affirmed as to the process claims and reversed as to the apparatus claim. No appeal was taken from that decision within the two years allowed by law; but two days before that time expired the amendment in regard to which this petition was taken was filed. It was refused admission to the case on December 9, 1899, and on December 7, 1901, this petition was filed.

On and after December 7, 1897, this case was in condition for appeal to the Commissioner of Patents from the decision of the Examiners-in-Chief, and, aside from the cancellation of the rejected claims, that was the only action which was in order. A period of more than four years has elapsed and no such appeal has been taken, and therefore the application is abandoned.

Rule 68 expressly provides that after a case is in condition for appeal to the Examiners-in Chief, or after such an appeal has been taken, amendments canceling claims or placing them in better form may be admitted—

but the admission of such an amendment or its refusal, and any proceedings relative thereto, shall not operate to relieve the application from its condition as subject to appeal, or to save it from abandonment under Rule 171.

For the same reasons the mere presentation of an amendment which is not in order after a decision by the Examiners-in-Chief does not change the status of the case as subject to appeal to the next higher tribunal or relieve the applicant from the necessity of taking that appeal within the time fixed by law. Under the settled practice of the Office a party cannot demand the consideration of new claims after a decision upon appeal. (*Ex parte Snow*, 80 O. G., 1271.)

The change in the Office practice in regard to division between process and apparatus claims furnishes no good ground for the applicant's action, or rather inaction, in this case. He should have presented all claims upon which he wished to rely before the consideration of the case before the Examiner was closed, and there was nothing in the practice of the Office at that time upon the question of division which would have prevented the presentation of such claims.

The petition is denied.

WIGHTMAN v. ROTHENSTEIN.

Decided January 29, 1902.

INTERFERENCE—EXTENSION OF TIME FOR TAKING TESTIMONY.

Where it appears that a party to an interference has been prevented by poverty from taking his testimony within the time set for this purpose, but is now able and desirous to do so, and where a refusal to permit time to take testimony would work a hardship to him greater than would be caused to the other party by the delay, *Held* that an opportunity should be given to take the testimony.

APPEAL on motion.

THERMO-ELECTRIC GENERATORS.

Application of Merle J. Wightman filed July 13,

1900, No. 23,454. Application of Otto Rothenstein filed June 12, 1900, No. 20,019.

Mr. H. C. Townsend for Wightman.

Messrs. Bakewell & Byrnes for Rothenstein.

ALLEN, *Commissioner:*

This is an appeal by Rothenstein from the decision of the Examiner of Interferences denying his motion for an extension of time for taking his testimony.

It appears from the record that times for taking testimony were originally set December 22, 1900; but these times have been extended six times, either upon stipulation or on motion. Wightman filed his testimony May 21, 1901, since which time two extensions have been granted on stipulation. At the last extension, granted August 15, 1901, the hearing was fixed for November 8, 1901. On October 3, 1901, a request for further extension was made by Rothenstein, which was dismissed by the Examiner of Interferences because it did not comply with the requirements of Rule 154 (4). On October 22 Rothenstein brought the present motion. In support of this motion Rothenstein made affidavit to the effect that he has been and is financially unable to defray the expenses of taking testimony, that he has endeavored to interest parties in his invention, and that he is still engaged in doing so and expects through these efforts to be able soon to pay for the expense of taking testimony.

That Rothenstein has been prevented by poverty from taking his testimony within the required time seems to be established by his affidavit and the exhibits accompanying the same. It would be unjust to Wightman to hold up his case in the Office upon a mere hope on the part of Rothenstein that he might obtain financial assistance. It appears now, however, that since bringing his motion Rothenstein has obtained a position with a manufacturing company and is obtaining a fair salary. He makes affidavit that he is and shall be in a position to be able to take testimony.

Under these circumstances it appears to be for the interest of all concerned that Rothenstein should be allowed a reasonable time for taking his testimony. To refuse to permit this might work a far greater injury to him than would be caused to Wightman by the delay to which the latter will be subjected.

The decision of the Examiner of Interferences is therefore reversed, and the case is remanded to him in order that he may set new times for taking testimony.

EX PARTE KUGLER.

Decided January 30, 1902.

1. DIVISION—AMENDMENT TO AVOID.

Where in response to a requirement of division between claims for a knot-forming mechanism and claims for a tension device applicant filed an amendment which would put the claims for the tension device in the form of claims for the tension device in combination with the knot-forming device, *Held* that the amendment should be entered.

2. SAME—SAME—EX PARTE BROWNELL (94 O. G., 988) EXPLAINED.

The operation of the rule quoted in *ex parte Brownell* (94 O. G., 88) does not require that such amendment be refused admission. *Ex parte Brownell* commented on and explained.

ON petition.

STITCHING-MACHINES.

Application of Friedrich Kugler filed February 19, 1900, No. 5,715.

Mr. Max Georgii for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner refusing to enter a certain amendment in the above-entitled application.

It appears from the record that the Examiner on March 30, 1901, required division between claims 1 to 6, inclusive, for a knot-forming mechanism and 7 to 9, inclusive, for a tension device. On May 15, 1901, applicant filed an amendment to claims 7, 8, and 9 by which they were made to include as an element "a knot-forming device." This amendment, if admitted, would put these claims in the form of a combination of elements, including both the knot-forming device and the tension device; but the Examiner has refused its admission on the ground that the operation of the rule given in *ex parte Brownell* (94 O. G., 988) requires such action.

A comparison of the state of facts given above with that in *ex parte Brownell* will show that the Examiner is in error in his interpretation of this decision. In the latter case the Examiner had required division between claims for independent inventions; but the applicant instead of attempting to overcome this requirement had filed an amendment containing an additional claim for an alleged combination of the independent inventions. To admit such an amendment would result in the raising of an entirely new question while that of division was still unsettled. It is clearly in the interest of good practice that the prosecution of applications shall not be delayed in this manner; but in the present case an entirely different state of affairs is presented. There has been no attempt to amend the claims, as was done in *ex parte Brownell*, by inserting an entirely new claim, leaving the original claims still in the case; but, on the contrary, it is desired to overcome the requirement for division by amending one set of the claims to change their scope in such a way that a requirement of division can no longer be made. Such a course is an entirely proper one. If the division were to be insisted upon and applicant in compliance therewith should erase one set of claims, he would be at liberty to present by amendment the alleged aggregation claims which the Examiner now refuses to admit, and by so doing the case would be placed in the same condition as it would be by the amendment now sought to be introduced. The case as so amended would then include claims for an alleged combination and claims for one of the elements thereof. Such claims must be considered upon their merits, for there is no warrant for a requirement of division between the claims for the combination and those for the single element. If, in the opinion of the Examiner, the alleged combination claims are really for aggregations, they should be rejected for this reason and for all others applicable thereto.

In the present case the amendment of May 15,

1901, should have been admitted and the case considered upon its merits.

The petition is granted.

EX PARTE HALL.

Decided February 27, 1902.

1. TRADE-MARK—ESSENTIAL FEATURES.

The essential features of a trade-mark are to be determined from an inspection thereof. Those features which upon inspection would be impressed upon the minds of purchasers and by which they would remember and identify the marks are the essential features. (Citing *ex parte Diamond Ink Co.*, 98 O. G., 1483.)

2. SAME—SAME.

The mere fact that an applicant may choose to state that a certain feature is the essential feature does not make it in fact the only essential feature.

3. SAME—SAME—STATEMENT OF.

A statement which omits reference to certain features of the mark which are in fact essential is defective, since it seeks to cover something different from the mark which is in actual use, as shown by the facsimile.

4. SAME—GENERIC TRADE-MARK REGISTRATION.

The statute does not provide for the registration of a generic trade-mark—one embracing something more than has been used and more than applicant is entitled to use.

ON appeal.

TRADE-MARK FOR PAINTS.

Application of William A. Hall filed August 13, 1901, No. 63,969.

Mr. Henry Calver for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register as a trade-mark for paints a mark described as follows:

My trade-mark consists of a lozenge-shaped figure, preferably with serrated edges, and which figure forms a background surrounding a trade-mark word which is preferably the word "Indurine;" the letters of said word being largest in the middle and reduced toward either end of said word. This lozenge-shaped background is preferably printed in black with the letters of the trade-mark word in white, in contrast thereto; but other colors may be employed, or other trade-mark words than the word "Indurine" might appear on the lozenge-shaped figure without materially altering the character of my trade-mark.

The essential feature of this mark is said to be—

the lozenge-shaped figure and a trade-mark word thereon of a color contrasting with the background of the said figure and the letters of which word are largest in the middle of said figure and are reduced in size toward both ends thereof.

Appellant has already registered the mark shown in the facsimile. In this registration the essential feature of the mark is said to be the word "Indurine." He now seeks to register the lozenge shaped figure with any word thereon, with the limitation that the color of the word shall contrast with the color of the background and the letters of the word shall be largest in the middle and reduced in size toward the ends thereof.

As above noted, the drawing of this application shows in facsimile the mark as it is actually used, and this facsimile shows that the mark consists of the word "Indurine" arranged on a lozenge-shaped background, as above described.

The word "Indurine" therefore is as prominent a feature of this mark as the lozenge-shaped background, and it cannot be successfully maintained that this word is not an essential feature of the mark. The essential features of a mark are to be determined from an inspection thereof. Those features which upon inspection would be impressed upon the minds of purchasers and by which they would remember and identify the marks are the essential features. (See *ex parte Diamond Ink Company*, 98 O. G., 1483.) The mere fact that an applicant may choose to state that a certain feature is the essential feature does not make it in fact the only essential feature.

In the case now under consideration the statement of essential features is defective, because it seeks to cover something different from the mark which is shown and which is the one used by appellant. To this end it omits reference to the word "Indurine" as an essential feature and includes merely a trade-mark word of a color contrasting with the background of the lozenge-shaped figure—that is, it seeks to cover something different from the mark which is in actual use, as shown by the facsimile.

There is no provision in law for such a registration. The statute of 1881 provides—

* * * that the owners of trade-marks used in commerce with foreign nations or Indian tribes * * * may obtain registration * * * first, by causing to be recorded in the Patent Office * * * a description of the trade-mark itself, with facsimiles thereof.

This section of the statute clearly means that the mark which is shown and described in the registration must be the same as the mark which is actually used. It does not provide for the registration of a mark not in actual use or which differs from that in actual use.

To grant the registration now sought would be in effect to grant a registration for marks which are not shown and which have not been used in the way contemplated by the statute. It would grant registration for a generic trade-mark—one embracing something more than has been used and more than applicant is entitled to use. Such a mark as is covered by this application is devoid of those indicia which must be borne by the symbols known to commerce and jurisprudence as trade-marks. Such symbols must have invariability. They must be fixed, positive, unmistakable. (See *Browne on Trade-Marks*, sec. 143.) To grant such registration would clearly be illegal.

The decision of the Examiner of Trade-Marks was correct, and it is accordingly affirmed.

EX PARTE BASSETT.

Decided March 3, 1902.

1. ABANDONMENT OF APPLICATION—ACTION OF APPLICANT A MERE PRETEXT—PETITION FROM REQUIREMENT OF DIVISION.

Where division was required between apparatus and process claims under the plain and unmistakable provisions of Rule 41 and the applicant waited nearly one year and then filed a request for reconsideration and thereafter waited one year and filed a petition to the Commissioner, but presented no brief or argument in support of any allegation of error, *Held* that the action of the applicant is obviously a mere pretext and that the case is abandoned.

2. SAME—SAME—RULES ADEQUATE TO INFORCE REQUIREMENT FOR PROPER ACTION.

The law and the rules are not so defective as to permit a party by action which is obviously a mere pretext to avoid the requirement that he shall take action in prosecution of the application within one year from the last Office action.

3. SAME—ACTION MUST MAKE ADVANCE TOWARD CLOSING CASE.

An action which is taken without any intention or expectation of making an advance toward closing the consideration of a case is not an action in prosecution thereof within the meaning of section 4894, Revised Statutes.

4. SAME—ACTION INTENDED TO KEEP CASE PENDING.

An action taken with the sole purpose of saving the case from abandonment and keeping it in this Office as a pending application is not such action as the condition of the case requires.

5. SAME—JUDICIAL NOTICE OF CONDUCT IN OTHER CASES—EVIDENCE OF INTENTION.

As evidence that the actions in this case were not taken in good faith with the purpose and expectation of advancing the prosecution judicial notice is taken of the procedure in many other applications filed by the same applicant and the same attorney.

ON petition.

CONTROLLING ELECTRIC MOTORS.

Application of Norman C. Bassett filed January 31, 1900, Serial No. 3,402.

Mr. Albert G. Davis for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring division in the above-entitled case between claims to a process and claims to an apparatus.

This requirement was made by the Examiner in his first letter in the case, dated February 23, 1900. Rule 41, which was then in force and which is still in force, so clearly and specifically stated that claims to a machine and to a process cannot be retained in one application that there is no possibility that this petitioner or his attorney misunderstood it. They knew that the Examiner had no authority to take any other action than that announced on February 23, 1900, and that there was no possibility of his taking any other action. Notwithstanding that knowledge the petitioner waited until February 9, 1901, just before the expiration of the year within which the statute requires action to save an application from abandonment, and then filed a request for reconsideration, which he well knew could be disposed of by the Examiner in only one way. No argument whatever accompanied that request pointing out wherein it was supposed that the Examiner had erred, for the very good reason that the petitioner was fully aware of the fact that there was no error in the Examiner's action.

The Examiner repeated his requirement on February 18, 1901, and after waiting nearly one year thereafter, and until February 8, 1902, the present petition was filed.

This application and invention were assigned, and the assignee has within the past year presented many petitions in other cases by the present attorney in regard to this same question of division between process and apparatus claims. The first of these petitions was presented in good faith, with the sole purpose of inducing the Commissioner to change Rule 41, and was accompanied by an admission of the attorney that the requirement for division was proper and necessary under the rule as it stood. His only hope was for a change in the rule. The entire question of division between process and apparatus was argued at length by counsel, and they were notified by the decision in that case that the rule was regarded as proper and that a change was considered unnecessary. Since that date the present attorney, on behalf of the owner of the present invention, has filed petitions in many cases upon this same question, when the lapse of time since the last Office action made it necessary for some action to be taken by the applicant in order to avoid abandonment of the application. The attorney did not appear in support of those petitions or the present one or file a brief, since he was fully aware that the petitions would be denied, as a matter of course, under the rule, and it is obvious that they were not filed with the purpose of making an advance toward closing the prosecution of the cases, but with the sole purpose of saving the cases from abandonment and keeping them in the Office as pending applications. Judicial notice is taken of these facts shown by the records of this Office and within the knowledge of the petitioner and attorney in this case.

The law and the rules are not so defective as to permit a party by any such action, which is obviously a mere pretext, to avoid the requirement that he shall take action in prosecution of the application within one year from the last Office action. The petition in this case was under the circumstances no more an action in prosecution of it (sec. 4894, R. S.) than would be a second petition in the same case in regard to the same question within one year from the date of the first. It is not every communication or amendment filed or action taken by the applicant in a case which will save it from abandonment under the statute, for, as said in Rule 171—

> prosecution of an application to save it from abandonment must include such proper action as the condition of the case may require—

and, as said in *ex parte Vaughen et al.*, (97 O. G., 957)—

> it must be an action made in good faith, with the purpose and effect of making a substantial advance toward closing the prosecution of the case. This is the only purpose had in view in the rules in regard to the prosecution of applications. There is no warrant in the rules for actions the purpose and effect of which are merely to "keep the case alive" or "avoid abandonment," and such actions cannot be considered such proper actions as the condition of the case requires.

An action which is taken without any intention or expectation of making an advance toward closing the consideration of a case is not an action in prosecution thereof within the meaning of section 4894, Revised Statutes.

It is held that this application is abandoned through lack of prosecution on behalf of the applicant, and therefore this petition is dismissed.

OPINION OF THE ATTORNEY-GENERAL

Trade-Marks—Rights of Residents of Porto Rico, Cuba, and Philippine Islands to Register.

1. TRADE-MARK LAW—CONSTRUCTION OF THE WORDS "UNITED STATES."

The trade-mark law regulating our arrangements with foreign countries and referring to treaties and conventions upon the same subject should be liberally construed and treated as concerning the United States in a very broad sense and as including not only the States, but all organized Territories.

2. SAME—RESIDENTS OF PORTO RICO—RIGHT TO REGISTRATION.

Porto Rico has been added to the other Territories similarly and completely organized, and therefore residents thereof are entitled to register trade-marks in this country.

3. SAME—RESIDENTS OF CUBA—RIGHT TO REGISTRATION—TREATY RELATIONS.

Cuba is a foreign country and persons domiciled there are not domiciled in the United States within the meaning of the trade-mark law; but that country is now governed by ourselves and laws have been passed there giving to citizens of the United States privileges in regard to trade-marks similar to those given here. *Held*, therefore, that residents of Cuba may register trade-marks in this country.

4. SAME—RESIDENTS OF PHILIPPINE ISLANDS—NOT DOMICILED IN THE UNITED STATES—NO TREATY RELATIONS.

The Philippine Islands are not a part of the United States or completely-organized Territories within the meaning of section 1981 of the Revised Statutes, and the legislation and Executive orders relating to them cannot be considered a treaty or convention within the meaning of the trade-mark law. *Held*, therefore, that residents of the Philippines are not entitled to register trade-marks in this country.

DEPARTMENT OF JUSTICE,
Washington, D. C., February 19, 1902.

SIR: I have received your letter of the eleventh instant asking my opinion "as to the rights of residents of the Philippine Islands, Cuba, and Porto Rico in regard to the registration of trade-marks in the United States, in view of the treaty of peace and the subsequent legislation by Congress relating to those islands."

The trade-mark act of Congress of March 3, 1881, provides—

> that owners of trade-marks used in commerce with foreign nations or with the Indian tribes, provided such owners shall be domiciled in the United States or located in any foreign country or tribes, which, by treaty, convention, or law, affords similar privileges to citizens of the United States, may obtain registration of such trade-marks by complying with the following requirements.

In so far as residents of Porto Rico are concerned, laws of Congress "not locally inapplicable" have, by the act for the government of that island and by Revised Statutes, section 1981, been extended to it.

What laws are locally inapplicable is sometimes a difficult question; but in *Hornbuckle* v. *Toombs* (18 Wall., 654) the Supreme Court says:

> That clause has the effect, undoubtedly, of importing into the territory the laws passed by Congress to prevent and punish offenses against the revenue, the mail-service, and other laws of a general character and universal application, but not those of specific application. The act of March 2, 1831, has a specific application to the courts of the United States by its very terms, and is not of universal application, and cannot be made to apply to the territorial courts under said clause of said organic act.

See also *Commonwealth* v. *Knowlton*, (2 Mass., 534;) *Commissioners of Silver Bow Co.* v. *Davis*, (6 Mont., 312;) *Ardmore Coal Co.* v. *Bevil*, (61 Fed. Rep., 759;) *Territory* v *Murray*, (7 Mont., 261.)

Porto Rico has been fully organized under a law of Congress providing the details of its government and organized for the most part upon the plan adopted for the territories contiguous to the States of the Union. The presumption from the whole tenor of this organic act is that a liberal construction of the provision extending the laws of the United States would comport with the design of Congress.

The trade-mark act, however, is confined, so far as our country is concerned, to owners of trade-marks domiciled in the United States, and it may be argued that persons domiciled in Porto Rico are a different class and that by the terms of the act of Congress the law is inapplicable in Porto Rico. But it seems to me that in inquiring into the applicability of a law transferred as part of a system undoubtedly intended only for another country when passed we should pay more attention to substance than to words. While it is true that persons domiciled in the United States have a distinct status as such, it is also true that the trade-mark law is not based upon anything specific or peculiar in that status which should lead us to narrow its application, since it equally embraces foreigners who are not residents at all in the United States, but in their own foreign countries or tribes. Nor is there anything peculiar in the relations between the Government of the United States and a person domiciled in the United States different from the relations between the Government of the United States and a person domiciled in Porto Rico which should prevent us from regarding this law as extending to the latter. The rights, privileges, and immunities of citizens as such are not involved, and, in short, there is no perceivable reason why Congress should make a distinction between residents of the United States and residents of Porto Rico. In addition to this the trade-mark act undoubtedly applied to the United States in the sense of the States, the organized Territories, and the District of Columbia and not in the sense of the States united. The law was therefore broad originally and intended to apply to Territories as well as States. To these organized Territories, Porto Rico, similarly and completely organized, has now been added. In addition to these suggestions it is apparent that a law regulating our arrangements with foreign countries and referring to treaties and conventions upon the same subject should be treated as concerning the United States in a very broad sense. (*Downes* v. *Bidwell*, 182 U. S., 244.)

I am of opinion, therefore, that residents of Porto Rico are entitled to register trade-marks under the act of Congress first referred to.

As for the Philippine Islands, I do not regard them as completely-organized territories in contemplation of Revised Statutes, section 1981. The general course of governmental legislation and action concerning them seems to me to indicate that Congress and the Executive have taken the same view of them, and the trade-mark act, especially that part which concerns persons domiciled in the United States, is not a treaty or convention or other international act such that the phrase "the United States" employed in it has been regarded by the courts as extending to all places, however remote, within our dominions. Moreover, the phrase "United States" is converted in sections 5 and 13 into "this country," which may well be regarded as too narrow to embrace an after-acquired archipelago eight thousand miles across the ocean.

I think, therefore, that the residents of the Philippines are not, as such, entitled to the privileges of the trade-mark law.

Cuba is a foreign country, and persons domiciled there are not domiciled in the United States. The treaties of Spain no longer apply in Cuba, and we have no treaty or convention with Cuba, unless what is known as the Platt amendment (31 Stat. L., 897) may be regarded as such. That does not concern trade-marks.

Cuba is at present governed by ourselves, and the law there purporting to give "similar privileges to citizens of the United States" as those given by our trade-mark law (General Order No. 160) will doubtless be continued, since it is itself but a continuation of the arrangement made by our treaty with Spain.

Cuba may therefore be regarded as one of the countries with which we have reciprocal arrangements, and a person located there is entitled to register trade-marks under our law.

Respectfully,

P. C. KNOX,
Attorney-General.

THE SECRETARY OF THE INTERIOR.

Patents Nos. 695,431 to 695,897.

THE OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

Vol. 98.—No. 11. TUESDAY, MARCH 18, 1902. Price—$5 per year.

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Trade-Marks	28—No.	87,946 to No. 87,973, inclusive.
Labels	8—No.	9,022 to No. 9,029, inclusive.
Prints	2—No.	476 to No. 477, inclusive.
Reissues	None.	
Total issue	513	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	4	----	Nebraska	5	----
Alaska Territory	----	----	Nevada	----	----
Arizona Territory	----	----	New Hampshire	3	----
Arkansas	----	----	New Jersey	16	----
California	23	----	New Mexico Territ'y	----	----
Colorado	5	----	New York	67	8
Connecticut	15	----	North Carolina	3	1
Delaware	----	----	North Dakota	----	----
District of Columbia	8	----	Ohio	42	1
Florida	3	----	Oklahoma Territ'y	1	----
Georgia	6	----	Oregon	1	1
Hawaii Territory	----	----	Pennsylvania	45	----
Idaho	----	----	Rhode Island	6	----
Illinois	42	3	South Carolina	1	----
Indian Territory	----	----	South Dakota	1	----
Indiana	12	----	Tennessee	7	----
Iowa	6	----	Texas	2	----
Kansas	7	1	Utah	1	----
Kentucky	8	2	Vermont	----	1
Louisiana	2	----	Virginia	3	----
Maine	----	----	Washington	8	----
Maryland	3	1	West Virginia	----	----
Massachusetts	18	8	Wisconsin	5	1
Michigan	16	4	Wyoming	----	----
Minnesota	4	1	U. S. Army	----	----
Mississippi	2	----			
Missouri	8	1	Total to citizens of the United States	408	34
Montana	----	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	----	----	Natal	1	----
Austria-Hungary	1	----	Netherlands	----	----
Barbadoes	----	----	Newfoundland	----	----
Belgium	1	1	New South Wales	----	----
Bermuda	----	----	New Zealand	2	----
Brazil	----	----	Norway	----	----
Canada	4	----	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile	----	----	Russia	2	----
China	----	----	Scotland	4	----
Colombia	----	----	South African Republic	----	----
Cuba	----	----	South Australia	----	----
Denmark	1	----	Spain	----	----
Egypt	1	----	Sweden	1	----
England	19	1	Switzerland	1	1
France	6	1	Turkey in Asia	----	----
Germany	22	----	Victoria	1	----
Guatemala	----	----	Western Australia	----	----
Haiti	----	----			
India	----	----	Total to citizens of foreign countries	67	4
Ireland	----	----			
Italy	----	----			

Classification Bulletin.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 14, 1902.

Orders revising classification will be published as a CLASSIFICATION BULLETIN. The first issue of this BULLETIN forms No. 5 of a series of which the preceding numbers appeared in Vols. 91, 93, 95, and 97 of the OFFICIAL GAZETTE.

These BULLETINS are sold by the Office at ten cents per copy.

F. I. ALLEN,
Commissioner.

Attorneys.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 13, 1902.

This Office has been advised of the disbarment by the Secretary of the Interior of the following attorney from practice before the Department or any Bureau thereof: Thomas J. Swearingen, Washington, D. C., March 10, 1902.

C. M. IRELAN,
Chief Clerk.

Patents to Assignees.

RULE 201. In every case where it is desired that the patents shall issue to an assignee the assignment must be recorded in the Patent Office at a date not later than the day on which the final fee is paid. (See Rule 26.) The date of the record is the date of the receipt of the assignment at the Office.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 11, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
	In arrears—Under one month.			
217	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Feb. 20	Feb. 27	60
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Feb. 19	Feb. 27	201
253	X. Carriages and Wagons	Feb. 17	Feb. 20	132
256	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Feb. 14	Feb. 25	210
246	I. Tillage, etc., and Fences	Feb. 13	Feb. 25	136
261	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Feb. 12	Feb. 26	148
219	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Feb. 12	Feb. 25	181
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Feb. 12	Feb. 25	160
209	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Feb. 12	Feb. 25	198
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Feb. 12	Feb. 24	375
223	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 12	Feb. 19	163
90	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Feb. 12	Feb. 18	296
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Feb. 11	Feb. 25	187
207	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Feb. 11	Feb. 25	227
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Feb. 11	Feb. 25	276
102	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Feb. 11	Feb. 24	260
281	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Feb. 11	Feb. 24	249
221	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Feb. 11	Feb. 17	206
	Between one and two months.			
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Feb. 10	Feb. 25	200
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Feb. 10	Feb. 20	149
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Feb. 8	Feb. 25	207
255	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Feb. 7	Feb. 25	182
123	XXIX. Wood-Working Machines, Coopering and Roofing.	Feb. 6	Feb. 15	178
123	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Feb. 5	Feb. 19	180

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action.		No. of applications awaiting action.
		New.	Amended	
97	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Jan. 31	Feb. 13	154
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Jan. 25	Feb. 12	166
	Between two and three months.			
98	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Jan. 10	Jan. 13	394
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Jan. 9	Jan. 6	552
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 8	Feb. 8	398
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Jan. 8	Jan. 9	441
248	XVIII. Steam-Engineering, etc	Jan. 6	Jan. 28	436
142	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Jan. 3	Dec. 28	343
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Jan. 2	Jan. 20	461
243	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Jan. 2	Jan. 2	459
240	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Dec 28	Jan. 18	330
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 16	Feb. 3	316

Total number of applications awaiting action.....9,201

Under one month.			
*Designs	Feb. 15	Feb. 24	167
†Trade-Marks	Feb. 21	Mar. 3	143
‡Labels and Prints	Mar. 4	Mar. 6	22

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1896, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 96 pages. In paper covers, $1.50.

Vol. 11. Appendix No. 11, July 1, 1891, to June 30, 1892. One volume, 86 pages. In paper covers, $1.50.

Vol. 12. Appendix No. 12, July 1, 1892, to June 30, 1893. One volume, 80 pages. In paper covers, $1.50.

Vol. 13. Appendix No. 13, July 1, 1893, to June 30, 1894. One volume, 70pages. In paper covers, $1.50.

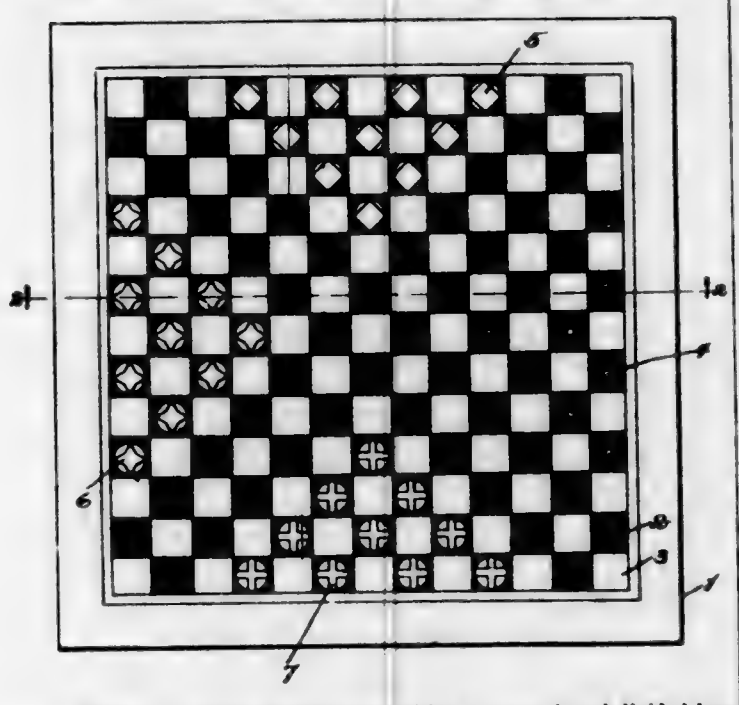
Vol. 14. Appendix No. 14, July 1, 1894, to June 30, 1895. One volume, 63 pages. In paper covers, $1.50.

Vol. 15. Appendix No. 15, July 1, 1895, to June 30, 1896. One volume, 88 pages. In paper covers, $1.50.

PATENTS

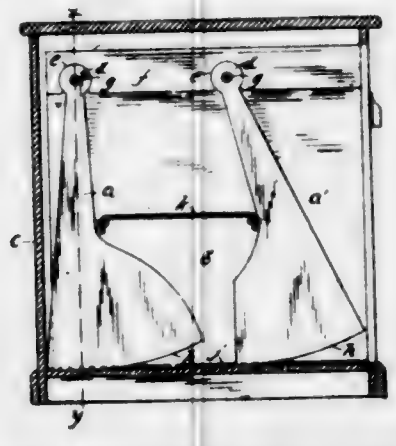
GRANTED MARCH 18, 1902.

695,431. GAME APPARATUS. WILLIAM H. ATWOOD, Lincoln, Nebr. Filed Oct. 22, 1900. Serial No. 33,813. (No model.)



Claim.—A game apparatus comprising a square board divided into an odd number of rows of spaces starting from each side of the board, each alternate row of spaces containing an odd number of blank spaces and an even number of men-spaces and the remaining rows of spaces each containing an odd number of men-spaces and an even number of blank spaces, and four sets of men, each set of men containing such a number of men as to form triangular figures centrally of the sides of the board with their bases located at the sides; thus leaving two men-spaces between the sides of the triangular figures and also between the spaces of the triangular figures for starting the game.

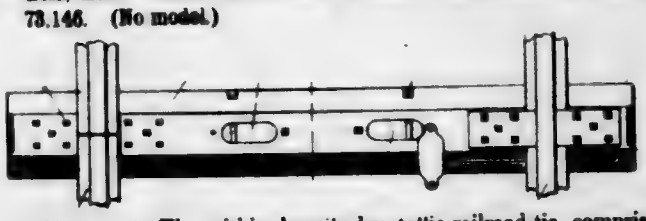
695,432. DRAWER-OPENING DEVICE. CHARLES H. BAKEMAN, Snohomish, Wash. Filed Apr. 13, 1901. Serial No. 55,608. (No model.)



Claim.—1. In a drawer-opening device, in combination with the drawer *b* and the case *c* provided with bearing-strips *j*; of sector-shaped members *a a'* pivotally connected to the drawer in proximity to the upper edges thereof so that their arcs *h* will bear upon the strips *j*, and the pivots *g* positioned so as to be central of their respective arcs, substantially as and for the purposes described.

2. In a drawer-opening device, in combination with the case *c* and a drawer *b* provided near its upper edges with cleats *f* having sockets *e* formed therein; of sector-shaped members *a a'* terminating in disks *d* registering with the said sockets and the sector-arcs *h* bearing upon the bottom of the case, substantially as and for the purpose described.

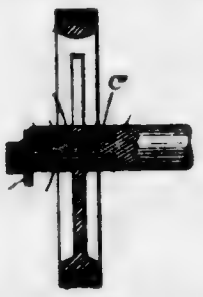
695,433. METALLIC RAILROAD-TIE. VINCENT E. BARNES, West field, Mass. Filed Dec. 27, 1900. Renewed Aug. 24, 1901. Serial No. 73,146. (No model.)



Claim.—1. The within-described metallic railroad-tie, comprising a hollow shell with flat top and flaring sides, closed ends, transverse partitions disposed one centrally and one under each rail, openings in the top on each side of the central partition, with openings in each end of the tie and provision for closing said openings—and squared bolt-holes through the top accessible from the end and top openings, all combined and operating as and for the purpose set forth.

2. The railroad tie, adapted to be filled by tamping, and comprising a hollow shell with open bottom, flat top, flaring sides and closed ends, provided with a plurality of compartments formed by transverse partitions, two of which are located under the rails; and with end and top openings for inserting the filling, with means for closing said openings.

695,434. CARPET-SWEEPER. THOMAS H. BEDELL, Marion, Ind. Filed June 10, 1901. Serial No. 63,967. (No model.)



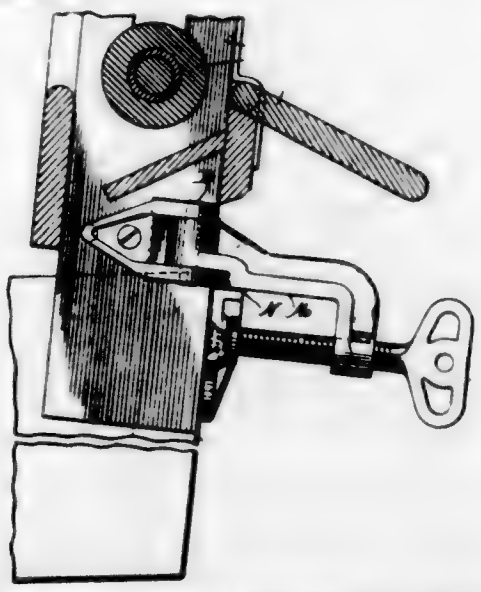
Claim.—In a roller-bearing for carpet-sweepers, the combination of an axle having a shoulder and a projecting spindle, with a wheel having a hub adapted to bear against the shoulder on the axle, but shorter than the spindle, a series of rollers in the raceway between the hub and the spindle, an exterior washer covering the end of the raceway in which the rollers lie and tightly encircling the spindle, a second washer on the spindle between the shoulder of the axle and the end of the hub and rollers, said washers composed of a suitable material to serve as a dust-guard and thus to keep the roller-cavity dust-proof, and a spring-bar across the end of the spindle and hub to hold the parts together and the washers in position and perforated to receive the end of the spindle to act as a journal-bearing for such spindle, substantially as shown and described.

695,435. WRINGER-CLAMP. THOMAS H. BEDELL, Marion, Ind. Filed Sept. 28, 1901. Serial No. 76,826. (No model.)

Claim.—1. In a clamp for wringers, the combination of an outwardly-projecting arm with a lower bearing-face, a recess at the inner end of the arm and above such bearing-face and adapted to receive the metal rim, with a movable pressure-bar adapted to clamp the sheet metal of the tub beneath the rim positively and to close the recess in which the rim lies from below and to engage the lower bearing-face of the arm beyond the recess.

2. In a clamp for wringers, the combination of an outwardly-projecting arm with a lower bearing-face, a recess at the inner end of the arm and above such bearing-face and adapted to receive the metal rim,

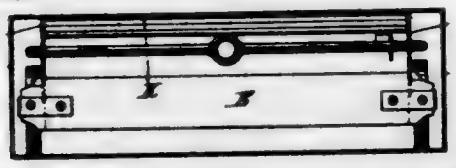
with a movable pressure-bar adapted to clamp the sheet metal of the tub beneath the rim positively and to close the recess in which the rim lies from below and to engage the lower bearing-face of the arm beyond the recess, the lower bearing-face of the arm and the upper face of the pressure-bar being shaped so as to engage each other and prevent rotation of the pressure-bar.



3. In a clamp for wringers, the combination of an outwardly-projecting arm with a lower bearing-face, a recess at the inner end of the arm and above such bearing-face and adapted to receive the metal rim, with a movable pressure-bar adapted to clamp the sheet metal of the tub beneath the rim positively and to close the recess in which the rim lies from below and to engage the lower bearing-face of the arm beyond the recess, the outer edges of the lower bearing-face of the arm being lower than the inner surface of such face and the movable pressure-bar having a face corresponding thereto.

4. In a clamp for wringers, the combination of an arm having a recess to receive the metal rim of the tub, with a pressure-bar having an extended face to engage the sheet metal of the tub beneath the rim and an upper face to pass under the recess and close the same.

695,486. **DEVICE FOR PACKING SWEEPERS OR THE LIKE.** THOMAS H. BEDELL, Marion, Ind. Filed Dec. 3, 1901. Serial No. 84,506. (No model.)



Claim.—1. A device for packing carpet-sweepers, comprising an exterior box-like body, with a bottom and surrounding side vertical portions to inclose the sweeper, duplicate vertical portions within and near to but separated from the side portions, said duplicate portions resting upon and held in a vertical position by some portions of the sweeper, and a cover which rests upon such duplicate portions and the side portions of the box from which the duplicate portions are so separated.

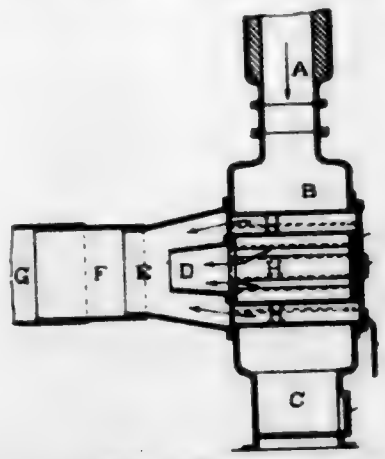
2. A device for packing carpet-sweepers, comprising an exterior box-like body, with a bottom and surrounding side vertical portions to inclose the sweeper, duplicate vertical portions within and near to but separated from the side portions, said duplicate portions resting upon and held in a vertical position by some portions of the sweeper and projecting beyond the side portions, and a cover which rests upon such duplicate portions and the side portions of the box from which the duplicate portions are so separated.

3. A device for packing carpet-sweepers, comprising an exterior box-like body, with a bottom and surrounding side vertical portions to inclose the sweeper, duplicate vertical portions within and near to but separated from the side portions, said duplicate portions resting upon and held in a vertical position by some portions of the sweeper, and a cover which rests upon such duplicate portions, and the side portions of the box from which the duplicate portions are so separated, said duplicate portions between the sweeper-wheels and body.

4. A device for packing sweepers, comprising a box-like body, with a cover and vertical supports within such box, held in a vertical position by some portion of the sweeper and near to but separated from the side so that the cover is given supports at more than two points along a given transverse line drawn through the middle portion of the box from side to side, so as to keep it from bending downwardly at the middle.

5. A device for packing sweepers, comprising an exterior box-like body, with a bottom and surrounding side vertical portions to inclose the sweeper, duplicate vertical portions within, slightly separated from and substantially parallel with some portions of the side vertical portions, so as to form a double support for the top and any load which may be put thereon.

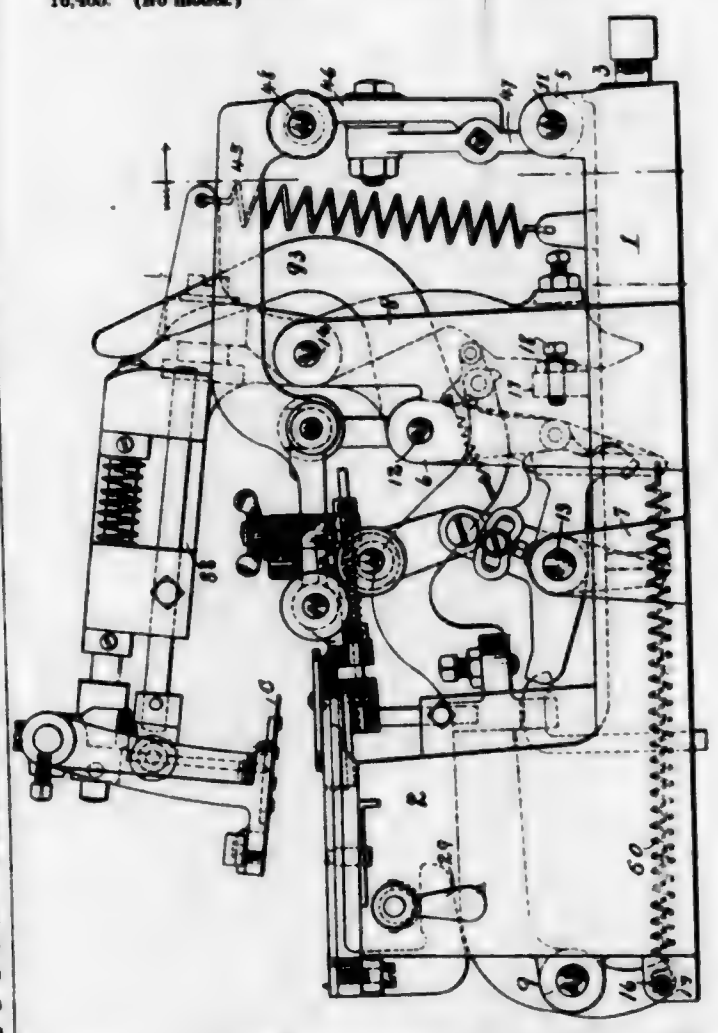
695,487. **AIR MIXER AND HEATER FOR GAS-BURNERS FOR BLAST-FURNACE STOVES.** CHARLES H. BÖECKNER, Lorain, Ohio. Filed Feb. 9, 1900. Renewed Dec. 30, 1901. Serial No. 87,668. (No model.)



Claim.—1. A substantially cylindrical chamber having a gas-inlet and provided with a centrally-arranged discharge-nozzle projecting from one end thereof and with an outer conical nozzle surrounding the former nozzle and spaced therefrom, a series of air-tubes extending through said cylinder from end to end and intermediate of the two nozzles and a mixing-tube into which said nozzles discharge substantially as described.

2. A gas-chamber having a gas-inlet and provided with a centrally-arranged discharge-nozzle projecting from one end thereof with an outer nozzle surrounding the former nozzle and spaced therefrom, a series of air-tubes extending through said cylinder and opening intermediate of the two nozzles and the mixing-tube into which said nozzles discharge, substantially as described.

695,488. **UPPER-FOLDING MACHINE.** QUENTIN W. BOOTH and IRVING E. BOOTH, Rochester, N. Y. Filed May 12, 1900. Serial No. 16,403. (No model.)



Claim.—1. A folding-machine having, in combination, a folder-frame and a pivoted compound link to which said frame is pivoted, said

link being composed of two adjustable members pivoted together on an axis arranged crosswise of the pivotal connection between said frame and link.

2. A machine of the character described having, in combination, a work-table, an approximately horizontally-disposed head, folding devices carried by the head, an approximately vertically-disposed lever, and a yielding buffer interposed between the upper end of the lever and the head, substantially as described.

3. A folding-machine having a rigid base provided with a permanent groove in its surface, and a folder having a projecting lip adapted to register with said groove, substantially as described.

4. A folding-machine having, in combination, a table, a folder having a lip thereon adjacent to said table, means for operating said folder in an upward, forward and downward direction, a former and a holder, said former not contacting with the material on said table, and means for moving said former outwardly while said holder is stationary.

5. In combination with a table, a folder, and means for pivotally supporting the folder at a point approximately in the plane of the table, the upper and lower working faces of said folder occupying planes approximately radial to its pivot.

6. In combination with a grooved support, a former, a folder, and a projection carried by the folder at its working edge and projecting below its under surface to coöperate with the groove in the support to prevent the material being operated upon from being displaced by the withdrawal of the former.

7. A folder, and a toggle adapted when moved in one direction to both raise and lower the folder, in combination with a lever and a cam to move said folder horizontally.

8. A work-table, a pivoted folder having its under working face approximately radial from the center about which it pivots, in combination with a link supporting said pivot, said link being made in two parts pivoted together, whereby the axis about which the folder pivots can be adjusted so that the under surface of the folder will press squarely on the work-table.

9. The combination of a pivoted folder whose pressing-face is approximately radial from the axis about which it pivots and a toggle for raising the folder to bend the material and to depress it to press the edge of the material after being folded, upon the movement of said toggle in one direction.

10. A folding-machine having, in combination, a table, a pivoted folder whose under or pressing surface is approximately radial from the axis about which it pivots, a stop slidable over said pressing-surface and adapted to contact against the edge of the table, and means for operating said folder and stop, substantially as described.

11. A folding-machine having, in combination, a frame, an adjustable table mounted on said frame, a pivoted compound link, a folder cooperating with said table, said folder pivotally secured to said link, a head pivotally mounted above said table and having a presser thereon, and connected mechanisms for moving said folder, lever, and head.

12. A folding-machine having, in combination, a frame, an adjustable table mounted on said frame, a hook on said table, a shaft or stud mounted independently of the hook, and an eccentric turning on said shaft or stud and acting on said hook for securing said table.

13. A folding-machine having, in combination, a table; a former; a pivoted folder; means for imparting to the folder a vertical movement to bend the work, a horizontal movement to fold it over the former, and a downward movement to press it on the table; and a stop beneath the folder to hold the material against the former before the work is pressed and to prevent it from straightening while being pressed.

14. A folding-machine having a base provided with a permanent groove, and a folder having a projecting lip adapted to register with said groove, substantially as described.

15. A folding-machine having, in combination, a folder, a swinging head, a rod slidably supported by said head, a lever acting on said rod, a cross-head carried by said rod and adapted to slide therewith, a foot-plate fixedly secured to said cross-head, a former fixed to said foot-plate, a holder supported by said foot-plate, connections between said holder and head which restrain said holder from sliding with said foot-plate, and connected mechanisms for operating said folder, swinging said head, and moving said lever.

16. A folding-machine having, in combination, a work-table; a folder; a movable head; a former-carrier carried by and movable on said head; a holder movable with said head but not partaking of the independent movement of said former-carrier; devices connecting said holder with said former-carrier and head, said devices comprising a clamp-plate secured to the holder by connections extending through slots in the former, a guide-block secured to the head, and pins connecting said guide-block and clamp-plate, and connected mechanisms operating said folder, head, and former-carrier.

17. A folding-machine having, in combination, a work-table, a folder, a head carrying a former and holder, a pivoted master-lever, means for operating said master-lever, a toggle connected to said folder and operated by said master-lever for elevating and drawing down the same, and a lever which operates the former and holder-head, said lever being acted upon by said master-lever.

18. A folding-machine having, in combination, a work-table, a folder, a head, a former and holder carried by the head, said former being movable on said head, independent operators acting upon said head and former respectively, a master-lever which acts successively first upon the head-operator, and afterward upon the former-operator, and means operatively associated with the master-lever for automatically releasing the head.

19. A folder made of two parts pivoted together and overlapping, and means engaging said overlapping portions to rigidly secure the same together.

20. A work-table, in combination with a folder having a stop, means for forcing the stop toward the work-table, and means on the folder for limiting the movement of said stop toward said table, substantially as described.

21. A former, and a clamp-plate resting on its upper face and slidingly connected therewith, in combination with a plurality of depending rods for holding the clamp-plate stationary while the former is being withdrawn, a holder beneath the former, and connections between the holder and clamp-plate which are remote from the working edge of said former.

22. A work-table, in combination with a folder having a gage upon its upper surface to gage the depth of the fold, a stop on its under working surface, and means which normally hold the stop even with the edge of the folder.

23. A work-table, in combination with a folder having a stop on its under surface arranged to normally lie flush with the edge of the folder and be forced backward by coming in contact with a portion of the table when the folder is operated, and automatic means for retaining the stop in its normal position.

24. In a folding-machine, a folder, a stop on its under working surface, means on the folder for normally retaining the edge of the stop flush with the edge thereof, and means for elevating said folder and stop and for projecting the folder beyond the edge of the stop, substantially as described.

25. The combination of a work-table, a folder, means for raising said folder above and projecting it over the face of the work-table, and an eccentric for adjusting the height to which said folder is raised relatively to the work-table.

26. The combination of a work-table, a pivoted folder, and an eccentric connection at the folder-pivot for adjusting the height of said folder relatively to said work-table.

27. A folding-machine having, in combination, a folder-frame composed of two sections detachably connected together, and held against independent movement when in operation and operating mechanism operatively connected with the permanent one of said sections.

28. A folding-machine having, in combination, a folder-frame composed of two sections pivotally and detachably connected, a thumb-screw for holding the two sections together against independent movement, and operating mechanism operatively connected with the permanent one of said sections.

29. In combination with a table, a folder, and means for pivotally supporting the folder at a point approximately in the plane of the table, the working face of said folder occupying a plane approximately radial to its pivot, substantially as described.

30. A folder, a toggle to raise and lower the same, and means to advance the folder between its elevation and depression by the toggle, substantially as described.

31. A pivoted folder, a toggle to raise and lower the same, and means to advance and retract the folder between its elevation and depression by the toggle, substantially as described.

32. A folder, a toggle to raise and lower the same, and means to advance and retract the folder between its elevation and depression by the toggle, substantially as described.

33. A folder, and work-table, in combination, with means for adjusting said folder horizontally to the plane of the work-table, so as to level said folder relatively to said table.

34. A head, a slotted former, a clamp-plate resting on the upper face of and adapted to slide on the former, and means whereby both the former and clamp-plate are simultaneously raised and lowered, in combination with projecting portions carried by the clamp-plate and passing through the slots in the former, substantially as described

35. A head, a slotted former, a clamp-plate resting on the upper face of and sliding on the former, and means whereby both the former and clamp-plate are simultaneously raised and lowered in relation to the work-table, in combination with screws or pins secured in the clamp-plate passing loosely through said slots, and projecting below the under face of the former.

36. A pivoted folder, a toggle to raise and lower it, and means to advance the folder between its elevations and depression by the toggle, in combination with an eccentric connection to adjust the length of the toggle.

37. In a folding-machine, a work-table, a folder, a movable stop associated with the under surface of the folder, a former, the edge of said folder being even with the edge of said table and said stop being even with the edge of said folder, and means on the folder for normally limiting the outward movement of the stop, substantially as described.

38. A folding-machine having in combination a folder-frame and a pivoted compound link to which said frame is pivotally connected, said link comprising two members pivoted together on an axis arranged crosswise of the pivotal connection between said frame and link.

39. A folding machine having in combination, a work-table, a folder, a head, a former carried by the head, a lever, actuating means at one end of the lever, and a yielding buffer interposed between the opposite end of the lever and the head, substantially as described.

40. A folding-machine having, in combination, a work-table, a folder, a head, a former carried by the head, an approximately vertically disposed lever for moving said head, cam mechanism at the lower end of the lever for actuating the same, and a yieldable buffer interposed between the upper end of the lever and the head, substantially as described.

41. A folder and work-table, in combination, with means for adjusting said folder laterally so as to level the same relative to said table, substantially as described.

42. A folder and work-table, in combination, with means for adjusting said folder comprising a compound link pivotally connected thereto, said link comprising two pivoted members 46 and 47, and screws 52 adjustable in the member 47 and abutting opposite surfaces of the member 46, substantially as described.

43. A folding mechanism having, in combination, a frame, a table mounted on said frame, a hook on said table, a shaft or stud mounted independently of the hook, and an eccentric on said shaft or stud acting on the upper surface of said hook for securing said table.

44. A folding mechanism having, in combination, a frame, a table mounted on said frame, a hook carried by the table, and an eccentric mounted independently of the hook adapted to engage the same for securing said table.

45. A folding mechanism having, in combination, a frame, a table mounted on said frame, a hook carried by the table, and means mounted independently of the hook adapted to engage the same for securing said table.

695,439. IRON FENCE-POST. PERRY BORCHERS, Amanda, Ohio. Filed June 28, 1901. Serial No. 66,406. (No model.)



Claim.—A fence comprising a post having transverse angular openings therethrough and slots leading from the openings for application and removal of wires, the rear wall of each opening having transverse grooves to receive wires interchangeably, a wedge for each opening and having a grooved face to receive a corresponding wire, and set-screws engaged with the post and disposed to impinge the wedges to hold them in their engaged positions.

695,440. ELECTRICAL SWITCH. RUPERT L. BORDER, Pittsburg, Pa., assignor of one-half to Wilbur H. Tudor, Pittsburg, Pa. Filed July 15, 1901. Serial No. 68,351. (No model.)

Claim.—A trolley-switch mechanism, comprising in combination with the main and branching trolley-lines and contacts in each, electromagnets, mounted one above the other, and casing supporting the same, electrical connections between said contacts and magnets, a boxing, on which said trolley-supporting casing rests, an armature working between said electromagnets, a rod connected to said armature, and guide-plates through which said rod works, a shaft 15 pivoted in the walls thereof, an angle-lever mounted on said shaft and having slotted arms, a pin carried by said rod and having a play in said slot, the rod 17 and pin at one end thereof, which pin works in a slot in the other arm of said angle-lever, the switch-point-supporting casing at the end of said box, registering apertures in the adjacent walls of said box and switch-point-supporting casing, through which apertures, the rod 17 is guided, the pivoted switch-point and connection between the same and said rod, all arranged substantially as shown and described.



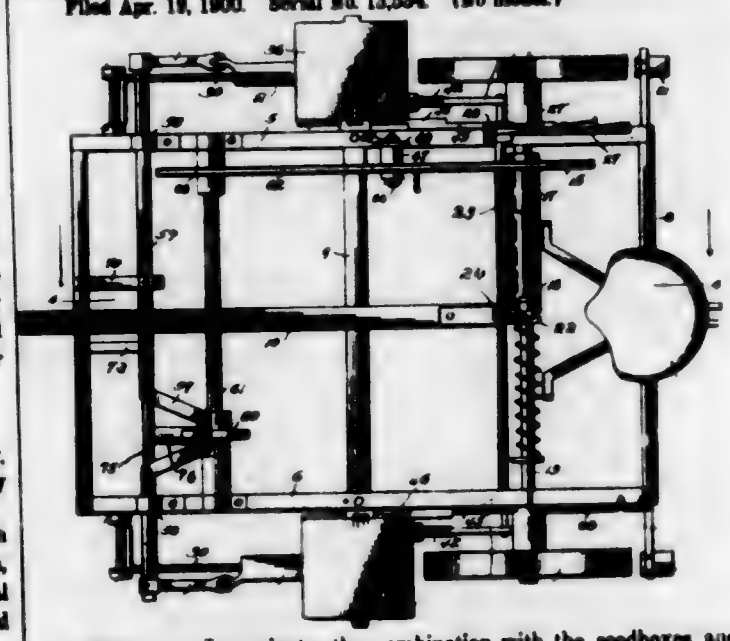
695,441. PROCESS OF MAKING PHTHALEIN DYES. JOHANN J. BRACK, Basle, Switzerland, assignor to Firm of Basle Chemical Works, Basle, Switzerland. Filed Dec. 17, 1901. Serial No. 86,230. (No specimens.)

Claim.—1. A process for the manufacture of fast dyestuffs of the phthalein series by heating one molecule of an alkyl-ester of a dialkylamidoöxybenzoylbenzoic acid with one molecule of a metaamido-phenol in a mixture of sulfuric acid and methylsulfuric acid.

2. The described process for the manufacture of fast dyestuffs of the phthalein series by heating to over 100° centigrade one molecule of an alkylester of a dialkylamidoöxybenzoylbenzoic acid with one molecule orthoamidoparacresol in a mixture of sulfuric acid and methylsulfuric acid

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695,442. CORN-PLANTER. JOSEPH L. BRADSHAW, Elbridge, Tenn. Filed Apr. 19, 1900. Serial No. 13,534. (No model.)

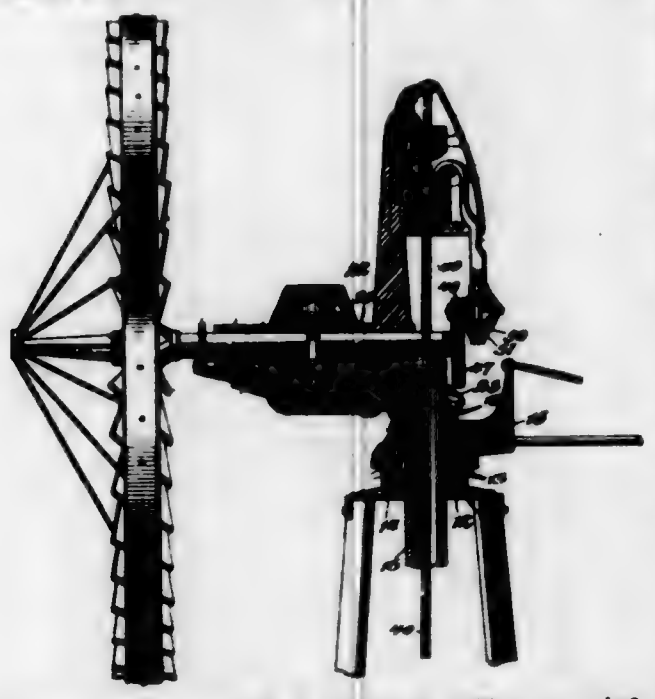


Claim.—1. In a planter the combination with the seedboxes and their slides, of a rock-shaft operatively connected with the slides and hav-

ing an arm, a cam-wheel arranged for engagement of its cams with the arm to rock the shaft, a second shaft having a marker mounted thereon and a finger carried by the second shaft and projecting into the path of movement of the cams for actuation thereby to raise and lower the marker simultaneously with the operation of the slide.

2. In a planter the combination with the frame having supporting-wheels and a shaft mounted in the frame, of furrow-openers pivotally connected to the frame, seedboxes upon the furrow-openers and having discharge-spouts, slides for opening and closing the spouts, a rock-shaft having connection with the slides for actuating them, a third shaft having a cam-wheel, an arm upon the rock-shaft in the path of movement of the cams for engagement thereby to move the rock-shaft, a spring-finger fixed to the rock-shaft and bearing upon the frame to hold the rock-shaft yieldably in normal position, a pivoted marker having a finger in the path of the cams of the cam-wheel for raising and releasing the marker, drive connections between the first and the third shaft for rotating the latter, a laterally-movable clutch mechanism upon the first shaft for connecting and disconnecting the drive connections and means for actuating the clutch mechanism.

695,443. WINDMILL. STEPHEN E. BURKE, Edon, Ohio. Filed June 27, 1901. Serial No. 66,274. (No model.)



Claim.—1. In a windmill, the combination with a rotary shaft, of a bearing for the shaft having an enlarged portion located upon one side of said shaft, an oil-conveyer disk carried by the shaft and located adjacent to the enlarged portion of the bearing, a scraper secured at its lower end to the enlarged portion of the bearing and having its upper end resting against the disk, said bearing being provided with an oil-conducting channel leading from the lower end of the scraper to the portion of the shaft passing through the bearing.

2. In a windmill, the combination with a rotary shaft, of spaced bearings for the shaft, an oil-receptacle located beneath the shaft, an oil-conveyer disk secured to the shaft between the bearings and passing through the oil-receptacle, and scraper-blades mounted upon the bearings and having their upper ends resting against the opposite faces of the disk, each bearing being provided with an oil-conducting channel that leads from the lower portion of the scraper to the portions of the shaft located in said bearing.

3. In a windmill, the combination with a rotary shaft, of a bearing for the shaft having a transverse slot, an oil-receptacle arranged below the slot, an oil-conveyer disk secured to the shaft and located in the slot of the bearing, and a scraper secured at its lower end to the bearing on one side of the slot and having its upper end resting against the disk, said bearing having an oil-conducting channel leading from the lower end of the scraper to the portion of the shaft passing through the bearing.

4. In a windmill, the combination with a rotary shaft, of a bearing for the shaft having a transverse slot intermediate its ends, an oil-receptacle arranged below the slot, an oil-conveyer disk secured to the shaft and located in the slot, and scraper-blades secured at their lower ends to the bearing on both sides of the slot and having their upper ends resting against the opposite side faces of the disk, said bearing having oil-conducting channels leading from the lower ends of the scraper-blades to the portions of the shaft that are located on opposite sides of the slot.

5. In a windmill, the combination with a rotary shaft, of a bearing for the shaft having an enlarged central portion provided with an intermediate slot that extends transversely across the bearing, an oil-reservoir arranged beneath the bearing and extending beyond the ends thereof, an oil-conveyer disk secured to the shaft and located in the transverse slot of the bearing, scraper-blades secured at their lower ends to the enlarged portion of the bearings on opposite sides of the slot thereof and having their upper ends resting against the opposite side faces of the conveyer-disk, said bearing having oil-conducting channels leading from the lower ends of the scraper-blades to the portions of the shaft arranged on opposite sides of the slot, and oil-stop collars secured to the shaft contiguous to the ends of the bearing, said collars having their lower ends located in the oil-reservoir.

6. In a windmill, the combination with a support having an upright bearing, of a reciprocating element having a sliding engagement with the bearing, and an oil-cup carried by the reciprocating element beneath the bearing, said cup being movable with the element and being carried upwardly thereby, so that portions of the bearings are immersed in the lubricant contained in the cup upon the reciprocation of said element.

7. In a windmill, the combination with a support having an upright bearing, of a reciprocating element having a sliding engagement with the bearing, an oil-cup carried by the reciprocating element and located beneath the bearing, said cup being movable with the element and being carried upwardly thereby, so that portions of the bearing are immersed in the lubricant contained in the cup upon the reciprocation of said element, and a hood covering the bearing and the portion of the reciprocating element carrying the cup.

8. In a windmill, the combination with a supporting-standard having an offset depending head provided with a substantially vertically disposed opening, of a reciprocating rod having a portion slidably mounted within the opening of the head, and an oil-cup carried by the reciprocating rod and located beneath the head, said cup being movable with the rod and being carried upwardly thereby so that portions of the head are immersed in the lubricant contained in the cup during the reciprocation of said rod.

9. In a windmill, the combination with a supporting-standard having an offset depending head provided with a substantially vertically disposed opening, of a reciprocating rod having a portion slidably mounted within the opening of the head, an oil-cup carried by the reciprocating rod and located beneath the head, said cup being movable with the rod and being carried upwardly thereby so that portions of the head are immersed in the lubricant contained in the cup during the reciprocation of said rod, and a hood secured to the standard and covering the head, the portion of the rod passing therethrough, and the oil-cup.

10. In a windmill, the combination with a rotatable shaft, of a reciprocatory rod, an oil-cup arranged upon the rod, a bolt passing through the cup and rod and securing the same together, a portion of said bolt projecting into the cup, and a pitman connecting the shaft and rod, said pitman having a connection with the projecting portion of the bolt.

11. In a windmill, the combination with a rotatable shaft, of a reciprocatory rod, a wrist-pin having an eccentric connection with the shaft and provided with a bearing-disk, a pitman connected to the reciprocatory rod, and a sectional boxing secured to the pitman and surrounding the bearing-disk, one of said sections having its side walls spaced from the adjacent faces of the disk and constituting an oil-cup said section being located beneath the disk.

12. In a windmill, the combination with a rotatable shaft, of a reciprocatory rod, a wrist-pin having an eccentric connection with the shaft and provided with a bearing-disk, a pitman connected to the reciprocatory rod, and a sectional boxing secured to the pitman and surrounding the bearing-disk, one of said sections constituting an oil-cup and being located beneath the disk, and another section being located over the disk and having its lower edges located within the upper edges of the lower section.

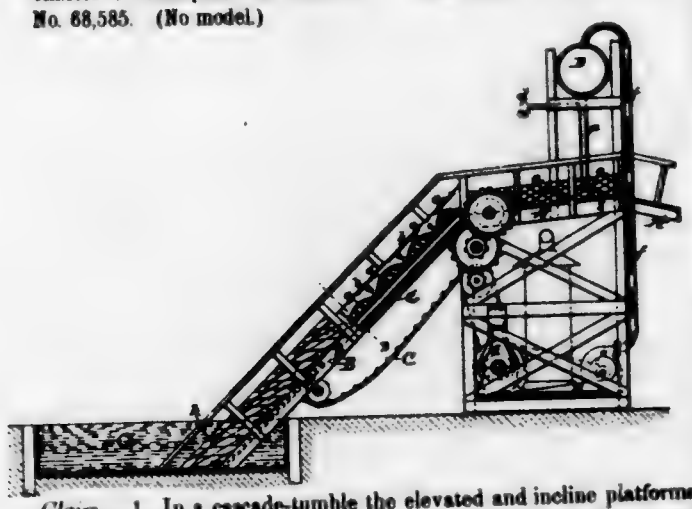
13. In a windmill, the combination with a rotatable shaft, of a reciprocatory rod, a wrist-pin having an eccentric connection with the shaft and provided with a bearing-disk, a pitman connected to the reciprocatory rod, a sectional boxing secured to the pitman and surrounding the bearing-disk, one of said sections constituting an oil-cup and being located beneath the disk, and another section being located over the disk and having its lower edges located within the upper edges of the section, and a guard-sleeve secured to the upper section and covering the joint between the two.

14. In a windmill, the combination with a supporting-frame, of a turn-table base located upon the frame and provided with spaced upstanding annular walls forming an intermediate annular oil-groove, a turn-table body rotatably mounted upon the base and having a depending annular bearing-flange that is located in the oil-groove of said base, and a cap or hood detachably secured to the turn-table body and covering the walls and groove of the base.

15. In a windmill, the combination with a rotatable shaft, of a reciprocatory rod, a wrist-pin having an eccentric connection with the shaft at one end and a bearing-disk at the other, a pitman connected to the re-

ciprocatory rod and having a boxing surrounding the disk, said boxing constituting an oil-receptacle, and an oil-stop collar secured to the wrist-pin and located within the boxing.

695,444. CASCADE-TUMBLE. ROBERT J. CARSON, Buffalo, N. Y., and EDWARD D. CUNDELL, Paterson, N. J.; said Carson assignor to Charles G. Holzapfel, New York, N. Y. Filed July 17, 1901. Serial No. 68,585. (No model.)



Claim.—1. In a cascade-tumble the elevated and incline platforms covered with flexible material secured to said platforms and inflated with air or water to make a yielding undulated surface and sides; in combination with water-tank at base of incline platform substantially as and for the purpose specified.

2. In a cascade-tumble the elevated and incline platforms covered with flexible material; in combination with a water-supply reservoir for inflating the flexible material secured to the deck of elevated and incline platforms to make an undulated and yielding surface, substantially as and for the purpose specified.

3. In a cascade-tumble the elevated and incline platforms covered with inflated undulating yielding surface; in combination with spraying device attached to water-supply reservoir for flooding the surface of said platforms substantially as and for the purpose specified.

4. In a cascade-tumble the elevated and incline platforms covered with an inflated yielding surface; in combination with traveling stairway or incline elevator, substantially as and for the purpose specified.

5. In a cascade-tumble the combination of the elevated and incline platforms covered with flexible material secured to the deck and sides of platforms, inflated to form the undulated yielding surface, the plunging water-tank at base of incline; water-supply reservoir attached to flexible deck covering and surface; flooding-pipe; the traveling stairway or incline elevator, all as substantially described and specified.

695,445. VALVE-GEAR. HENRY DAMERELL, Racine, Wis., assignor of one-half to Frank Way, Chillicothe, Mo. Filed Aug. 27, 1901. Serial No. 73,455. (No model.)

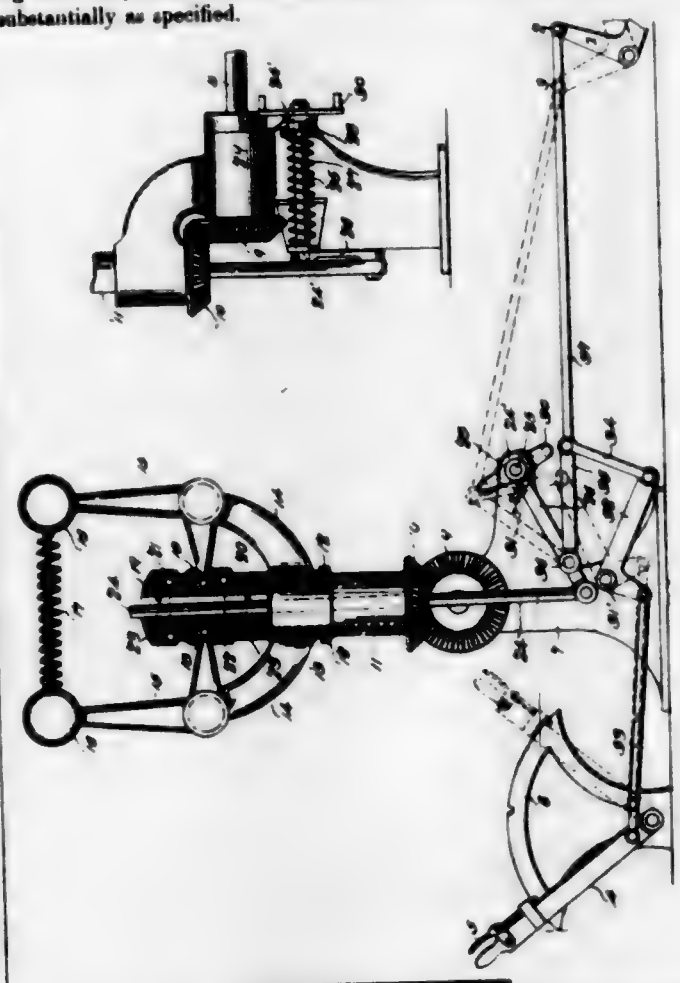
Claim.—1. In a device of the class specified, a governor, a longitudinally-movable rod operatively connected thereto, an arm pivotally connected at one end to the rod and at the opposite end to a fixed fulcrum, a reversing mechanism, a rod and link pivoted together and connected respectively to the reversing mechanism and the said pivoted arm, a reversing-lever, and mechanism operatively connecting the same to the rod and link to effect the movement of their pivotal connections to points on one or other side of the fixed fulcrum of said pivoted arm.

2. The combination with a reversing-gear of an operating-lever, the governing device having as one of its elements a movable rod 24, a pivoted arm 26 connected to said rod, and a series of jointed levers connected to the reversing-lever, the reversing mechanism, and the arm 26, substantially as specified.

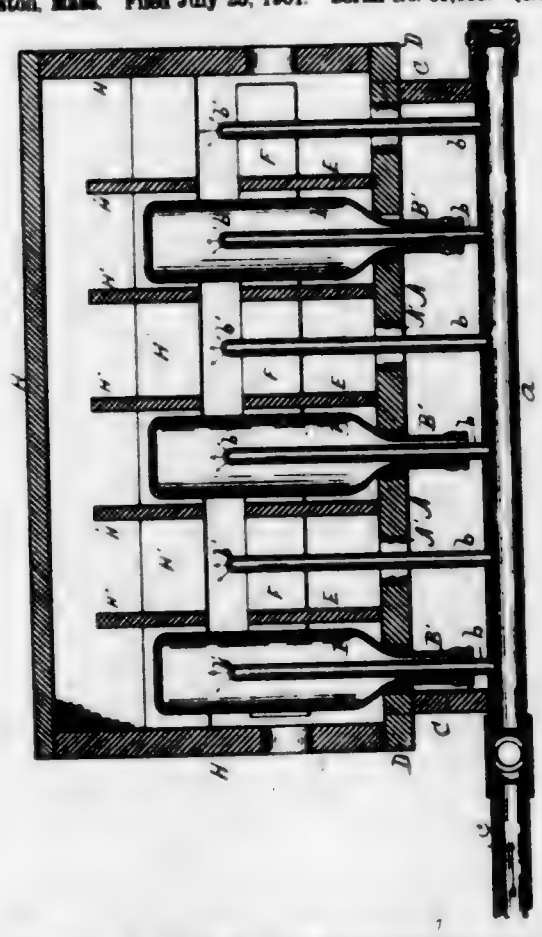
3. The combination with a reversing mechanism, of a governor, a fulcrumed arm adapted to be operated by said governor, connections between said arm and said reversing mechanism and means for adjusting said connections to opposite sides of the fulcrum of said arm, whereby the movement in one direction of said arm may be transmitted in the reverse direction to said reversing mechanism, substantially as specified.

4. The combination with a reversing mechanism, of an operating-lever, a governor, a fulcrumed arm 26 operatively connected to said governor, a bell-crank lever 32 fulcrumed to a fixed point and having one of its arms connected to the operating-lever, and a series of links connecting the opposite end of said bell-crank lever to the arm 26 and to the reversing mechanism, substantially as specified.

5. The combination with a reversing mechanism, of a reversing-lever, a governing device, a vertically-operated rod 24 connected to the governor, a lever 26 fulcrumed to a fixed point and connected at one end to the rod 24, a bell-crank lever 32, a link 33 connecting one arm to the bell-crank lever to the reversing-lever, links 34 and 35 connecting the bell-crank lever to the reversing-lever, links 34 and 35 connecting the opposite end of the bell-crank lever to the arm 26, and a rod 37 extending from the juncture of the links 34 and 35 to the reversing mechanism, substantially as specified.



695,446. BOTTLE-RINSING MACHINE. GEORGE DOHERTY, Boston, Mass. Filed July 25, 1901. Serial No. 69,693. (No model.)

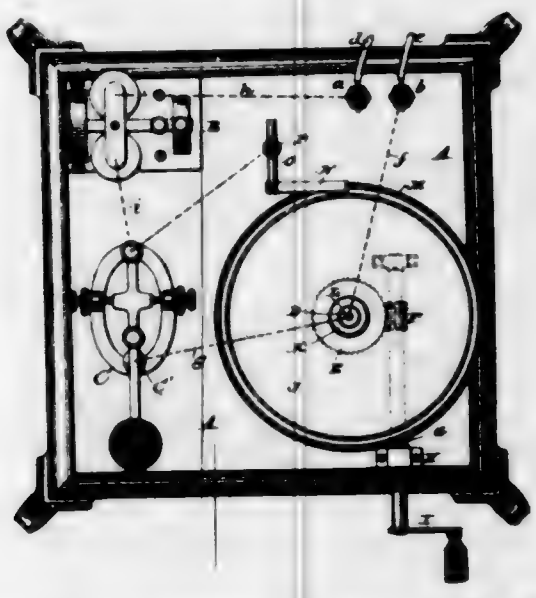


Claim.—1. In combination, the rinsing-machine proper comprising the pipes *a*, *c* and rinsing-spindles *b*; the bottle-frame comprising the base A provided with the holes A′, the transverse partitions E and longitudinal partitions F, the feet C, and the lifting-handles or supporting-ledges D; and the case H, H′, all substantially as and for the purpose set forth.

2. In a rinsing-machine, the bottle-frame comprising the base A provided with the holes A′, the transverse partitions E, and longitudinal

partitions F; the feet C for supporting the frame on the rinsing-machine; the horizontal lifting-handles or supporting-ledges D secured to the opposite ends of the frame; and the case H, H', all substantially as and for the purpose described.

695,447. **APPARATUS FOR TEACHING TELEGRAPHY.** CHAS E. EGAN, Durham, N. C., assignor to Julian S. Carr, Durham, N. C. Filed Mar. 11, 1901. Serial No. 50,619. (No model.)



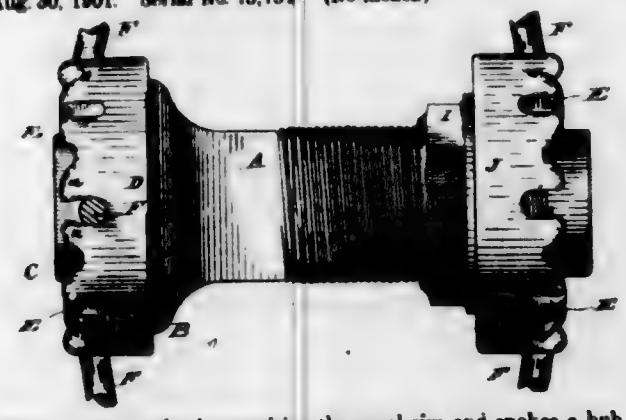
Claim.—1. In an apparatus of the character described, the combination of a sounder; a sending-key; a disk having a series of make-and-break contacts formed thereon; means for rotating said disk; an adjustable contact-finger working in conjunction with said series of contacts, whereby one or the other of the series may be brought into operative relation therewith; a source of electric energy; and suitable electrical connections intermediate said source of energy and the other parts of the apparatus.

2. In an apparatus of the character described, the combination of a suitable base; a sounder mounted thereon; a sender likewise mounted on said base; a stem or spindle extending upwardly from said base; a disk or plate removably mounted upon said spindle and provided with a series of contacts formed upon said disk or plate; means for revolving said disk; an adjustable contact-finger for making connection with one or another of the series of contacts on the disks according to its adjustment; a source of electric energy; and connections intermediate said source of energy and the other portions of the apparatus.

3. In an apparatus of the character described, the combination of a sounder; a disk having a series of sentences formed thereon; a source of electric energy; connections intermediate said source, the sounder, and the disk; and means for bringing one or another of said sentences carried by the disk into operative relation with the sounder.

4. In an apparatus of the character described, the combination of a suitable base; a sounder; a sending-key; a spindle extending upwardly from said base; a worm-wheel E mounted on the spindle; a worm in operative connection with said worm-wheel; a disk J removably connected to said rack, said disk having a series of contacts extending from the upper face thereof; an adjustable contact-finger N; a source of electric energy; and connections intermediate said source, the sounder, the key, the disk, and said contact-finger, substantially as described.

695,448. **WHEEL.** GEORGE E. EVANS, Peoria, Ill., assignor to Kingman Plow Company, Peoria, Ill., a Corporation of Illinois. Filed Aug. 30, 1901. Serial No. 73,784. (No model.)



Claim.—1. A wheel comprising the usual rim and spokes, a hub for said wheel, one end of which is screw-threaded, the other end being smooth but provided with a flange, as shown, a spoke-holder D on the smooth end of the hub adapted to bear against the said flange, the holder J at the other, a series of slots in the said holders for receiving the spokes with the heads of the latter beneath the slots whereby said spokes may be pushed into and withdrawn laterally from the said slots so that the entire hub and holders may be removed as described.

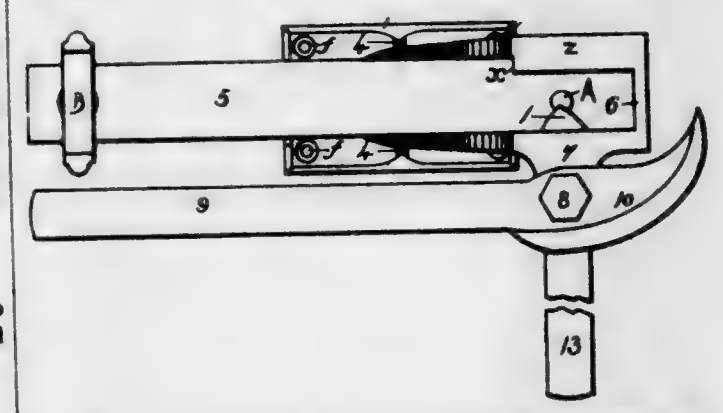
2. In a wheel of the character described, the combination of the usual rim, the hub A having a removable spoke-holder at each end, a flange B at one end of the hub as shown, one of the said spoke-holders being held against movement by means of said flanges and the other adapted to slide along the hub, slots in the said spoke-holders, said slots opening through the outer edges of the holders, the spokes F for entering the slots laterally, the same having heads for passing beneath the slots and bearing against the holders as set forth, and means on the hub for shifting the movable spoke-holder to tighten the spokes as set forth.

3. In a wheel of the character described the combination of the wheel-rim, the spokes F of a fixed length, the hub A having a flange B near one end, a spoke-holder D at one end of the hub, the same adapted to bear against the said flange, the spoke-holder J on the opposite end of the hub, an adjustable nut I on the hub adapted to bear against and shift the holder J when turned, a series of slots E in the outer edges of the two holders within which the ends of the spokes are adapted to be held and arranged whereby said spokes may be swung laterally to engage the holders by means of said slots or be released therefrom, but adapted to be tightened after entrance by means of the nut I as described.

4. In a wheel of the character described, the combination of the wheel-rim, the hub A, the flange B near one end of the latter, a spoke-holder D placed upon the end of the hub and adapted to bear inward against said flange, the opposite end of the hub being screw-threaded, the nut I adapted to run on the screw-threads, the holder J outside the nut, slots in the outer edges of each holder as set forth, the spokes F of a fixed length and headed at each end and held in the rim by one of such heads, the other end adapted to enter the slots in a sidewise manner whereby said heads are carried beneath the slots, and against the holder as described in tightening the said nut I, said nut also adapted to tighten the wheel uniformly as set forth.

5. In a wheel of the character described, the combination of the rim of the wheel, the hub A having a flange near one end, a spoke-holder on the end of the hub and adapted to bear against said flange, notches in the holder and lugs on the hub for engaging said notches to prevent the holder turning on the hub, screw-threads on the opposite end of the hub, a nut therefor, a holder J on the said threaded end and adapted to shift back and forth thereon, slots in the outer edges of the holders as shown, spokes of a fixed length adapted to enter the slots by a sidewise movement substantially as set forth, all the spokes being tightened by pressure of the nut against the movable holder all being arranged substantially as set forth.

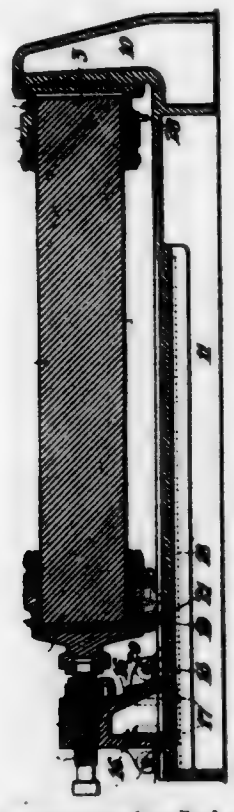
695,449. **SPOKE CUTTER AND BEVELER.** WILLIAM H. EXLEY, Palmyra, Nebr. Filed June 28, 1901. Serial No. 66,396. (No model.)



Claim.—1. In a spoke cutter and beveler, the combination with a base-plate, of a topless housing secured near one end to said base-plate, said housing being provided with a suitable slot upon one side, of a knife secured to the top of said housing, a clamping-lever extending through the slot within said housing, and an adjustable holder secured to the remaining end of said base-plate.

2. The combination with a suitable base-plate provided near one end with a three-sided topless housing, said housing being provided interiorly upon one side with a projecting shoulder and upon the opposite side with a slot, of a lever pivoted to said housing and extending into the same through the said slot, a cutter-knife secured to the top of said housing, an adjusting-screw entering the bottom of said housing, and a holder adjustably secured to the opposite remaining end of said base-plate, substantially as set forth.

695,450. **PROCESS OF IMPREGNATING WOOD WITH FIRE-PROOFING PRESERVATIVES, &c.** JOSEPH L. FERRELL, Philadelphia, Pa. Original application filed May 18, 1901, Serial No. 60,800. Divided and this application filed July 25, 1901. Serial No. 69,626. (No specimens.)



Claim.—1. The hereinbefore-described process of impregnating a body of wood, which consists in injecting a fluid reagent in said body, in the direction of the grain of the wood; discharging the fluid from one end of said body until the specific gravity of the fluid being emitted is substantially equal to that of the fluid being injected; thereupon preventing the escape of the fluid from said body at the ends thereof; and, continuing the injection of the fluid at both ends of said body until said fluid is distributed radially through the substance of the wood and appears at the circumference thereof, substantially as set forth.

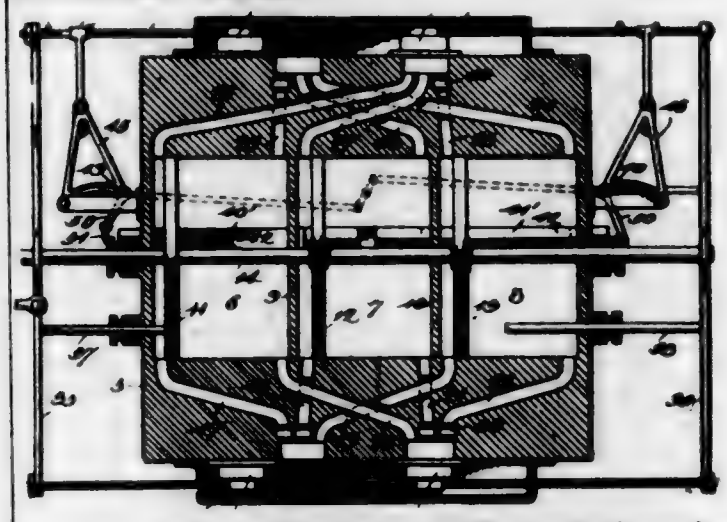
2. The hereinbefore-described process of impregnating a body of wood, which consists in injecting a fluid reagent in said body in the direction of the grain of the wood and solely from one end thereof; discharging the fluid from the opposite end of said body until the specific gravity of the fluid being emitted is substantially equal to that of the fluid being injected; thereupon preventing the escape of the fluid from said body at the ends thereof; and, continuing the injection of the fluid at both ends of said body until said fluid is distributed radially through the substance of the wood and appears at the circumference thereof, substantially as set forth.

3. The hereinbefore-described process of impregnating a body of wood, with a mixed salt, which consists in injecting a fluid reagent in said body in the direction of the grain of the wood; discharging the fluid from the end of said body until the specific gravity of the fluid being emitted is substantially equal to that of the fluid being injected; thereupon preventing the escape of the fluid from said body at the discharge end thereof; continuing the injection of the fluid until it is distributed radially from the center through the substance of the wood and appears at the circumference thereof; terminating the injection of said first reagent; injecting a second fluid reagent in said body in the direction of the grain of the wood; preventing the escape of said second fluid from said body at the discharge end thereof; and, continuing the injection of said second fluid at both ends of said body until said second fluid is distributed radially through the substance of the wood and, in association with said first fluid, produces a mixed salt throughout the substance of the wood, from the center to the circumference thereof, substantially as set forth.

695,451. **STEAM-ENGINE.** KIRBY FITZPATRICK, Hartsville, Tenn. Filed Mar. 8, 1901. Serial No. 50,379. (No model.)

Claim.—1. An engine comprising a cylinder having partitions and resultant end chambers and an intermediate expansion-chamber, a piston in each expansion-chamber and having a common piston-rod, inlet-ports for supplying steam to the inner ends of the outer chambers, outlet-ports for exhausting from the outer ends of the outer chambers and both ends of the idler chamber, and valved ports for communicating the expansion-ends of the outer chambers alternately with the adjacent ends of the inner chamber.

2. An engine comprising a cylinder having partitions and resultant end chambers and an intermediate expansion-chamber, a piston in each expansion-chamber and having a common piston-rod, means for supplying steam alternately to the inner ends of the end chambers, ports through the partitions and the pistons in the end cylinders, valves for opening and closing the ports in the pistons and their adjacent partitions, to permit of access of steam to opposite sides of the inner piston alternately, and exhaust-ports for the chambers.



3. An engine comprising a cylinder including a series of expansion-chambers having each a piston and having a common rod, inlet and outlet ports for each end of each chamber, valved ports through the partitions between the chambers, and means for alternately opening all feed and exhaust ports to operation, and for closing certain of said ports simultaneously with the opening of the ports in the pistons and partitions.

4. An engine comprising a cylinder having end chambers and an intermediate expansion-chamber, a piston in each chamber having a common piston-rod, inlet and exhaust ports for the chambers, valve mechanism for connecting the exhaust-ports of the outer cylinders interchangeably with the ends of the intermediate chamber, a common feed-pipe, a common exhaust-pipe, and valve mechanism for connecting the cylinders in multiple between the feed and exhaust pipes.

5. A multiple-cylinder engine adapted for use as a direct-acting or as a compound engine and comprising in combination, three cylinders arranged in tandem, and having separating-partitions provided with valved ports, pistons in each of said cylinders, a piston-rod common to all of said pistons, the end pistons having valved ports to permit the passage of steam therethrough, means for opening and closing the valved ports of the partitions and pistons, inlet and exhaust ports leading to all of said cylinders, and means for closing certain of said ports to direct the exhaust of the end cylinders to the intermediate cylinder when the engine is changed from a direct-acting to a compound.

695,452. **QUILTING-FRAME.** DAVID H. FOX, Severy, Kans. Filed July 23, 1901. Serial No. 69,360. (No model.)



Claim.—1. A quilting-frame for sewing-machines, provided with parallel "lining" and "quilt" rollers, a frame hinged to the shaft of the "quilt-roller," and formed with a depression contiguous to the latter, a "top" roller journaled in the free end of the hinged frame and having its shaft resting in a notch of and projecting beyond an end bar of the quilting-frame proper, and gearing mounted on the shafts of said rollers outward of the quilting-frame, and connected so as to operate synchronously, substantially as described.

2. A quilting-frame for sewing-machines, provided with parallel "lining" and "quilt" rollers, a frame hinged on the shaft of the "quilt-roller" and formed with a depression contiguous to the latter and having one of its end bars fitting snugly in a notch of the quilting-frame, a "top" roller journaled at one end in the free end of said bar, and having the op-

posite end of its shaft projecting through a notch in the opposite end bar of the frame, a bar forming the opposite end of the hinged frame at the outer side of the notched end bar of the quilting-frame, and hinged at one end on the "quilt-roller" shaft and forming a journal at its opposite end for the "top" roller, sprocket-wheels upon the "quilt" and "top" roller shafts, and sprocket-chains connecting the same, pawl-and-ratchet mechanism to prevent back rotation thereof, a train of gearing connecting the "top" roller shaft with the "lining-roller" shaft, and means to prevent back rotation of the latter, all arranged substantially as and for the purpose described.

3. A quilting-frame for sewing-machines, provided with "lining," "top" and "quilt" rollers, and with quadrant-shaped arms having terminals parallel with said frame, a bar adjustable on said terminals, and a traveling carriage suitably supported and connected to said bar, substantially as described.

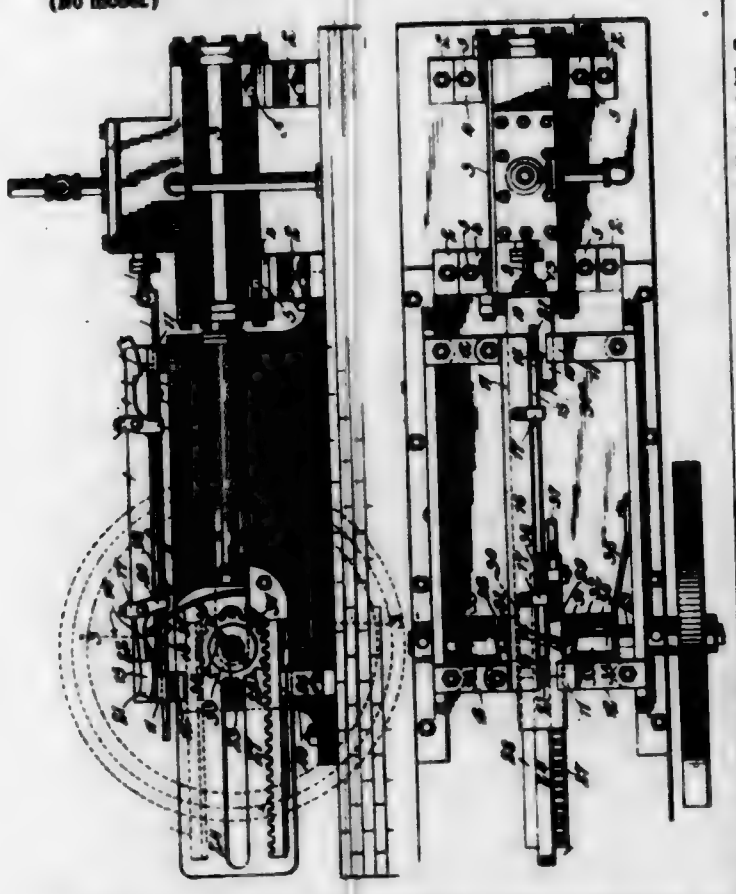
4. A quilting-frame for sewing-machines, provided with "lining," "top" and "quilt" rollers, and with quadrant-shaped arms having terminals parallel with said frame, and longitudinally slotted, a bar resting upon said terminals, bolts extending up through said slots and said bar, clamping-nuts engaging said bolts and bar, and a traveling carriage supporting said frame, substantially as described.

695,458. HINGE. ROSE FRANK, Pasadena, Cal., assignor to Jacques Franc, Pasadena, Cal. Filed Jan. 2, 1901. Serial No. 41,842. (No model.)



Claim.—A hinge, the two leaves of which are adapted to be cut from a single piece of metal without any waste of material, each of said leaves being provided with an offset portion and an angular projection on said offset portion, said offset portion and said angular projection being adapted to be bent to form the knuckle, and said offset portion and angular projection of one leaf corresponding to the cut-away portion of the other, substantially as described.

695,454. VALVE-GEAR FOR STEAM-ENGINES. CHARLES W. FREEMAN, Mount Carmel, Ill. Filed May 8, 1901. Serial No. 59,358. (No model.)



Claim.—1. In an engine, the combination with a reciprocatory piston-rod, of a reciprocatory valve-rod, locking means for holding the valve-rod against movement at the opposite ends of its stroke, a yielding operating device carried by the piston-rod and arranged to engage the valve-rod to move the same, and means separate from the operating device and mounted independently upon the piston-rod to move the locking means to an inoperative position.

2. In an engine, the combination with a reciprocatory piston-rod, of a reciprocatory valve-rod, devices for locking the valve-rod against movement at the opposite ends of its stroke, diverging springs carried by the piston-rod and arranged to engage the valve-rod to move the same in opposite directions, and means located between the divergent springs and movable with the piston-rod to alternately engage the locking devices and throw them to inoperative positions.

3. In an engine, the combination with a reciprocatory piston-rod, of a reciprocatory valve-rod located above the piston-rod, pivoted tappets for locking the valve-rod against movement at the opposite ends of its stroke, divergent springs secured at their lower ends to the piston-rod and arranged to engage the valve-rod to move the same in opposite directions, and an upstanding arm rigidly mounted upon the piston-rod between the divergent springs, said arm being arranged to alternately engage the tappets and throw them to inoperative positions.

4. In a steam-engine, the combination with a valve-stem, of a valve-rod provided with two roller-bearing arms, tappets pivoted intermediate their ends above the rod, each tappet comprising a short depending arm and a long arm, the long arms having shoulders to engage with lugs or projections on the valve-rod, stops for limiting the swinging of the tappets, spring-arms carried by the piston-rod to engage alternately with the rollers of the valve-rod to engage the short arms of and exert end thrust thereon, and a projection carried by the piston-rod and operating to release the tappets to permit shifting of the valve through the agency of the spring-arms.

5. In an engine, the combination with a reciprocatory piston-head, of a reciprocatory valve-rod located adjacent to the piston-rod, bell-crank tappets pivoted contiguous to the valve-rod, one of the arms of each tappet being provided with a shoulder which is arranged to engage the valve-rod and prevent movement of the same, the other arm being free, means carried by the piston-rod and arranged to engage the valve-rod to move the latter, and a device also carried by the piston-rod and arranged to engage the free arms of the tappets to alternately move said tappets to inoperative positions.

6. In a steam-engine, the combination with a valve-stem, of a valve-rod guided for longitudinal movement, the rod being provided at opposite ends with an upwardly-extending lug, and with a roller-bearing arm adjacent to the lug, two tappets mounted for swinging movement above the rod, each tappet having a long arm provided with a shoulder for engaging a lug and with a depending short arm, a piston carrying two diverging springs adapted alternately to engage with the roller-bearing arms of the valve rod, and a projection carried by the piston-rod and adapted alternately to engage with the short arms of the tappets.

7. In an engine, the combination with a reciprocatory piston-rod, of a reciprocatory valve-rod located above the piston-rod, bell-crank tappets pivoted above the valve-rod, one of the arms of each tappet being provided with a shoulder which is arranged to engage the valve-rod and prevent movement of the same, the other arm being disposed in depending relation, means carried by the piston-rod and arranged to engage the valve-rod to move the latter, and an upstanding arm also carried by the piston-rod and arranged to engage the depending arms of the tappets to alternately move said tappets to inoperative positions.

695,455. PUZZLE. ALBERT G. HARMON, Westhaven, Conn., assignor to Lewis I. De Meritte, Lee, N. H. Filed July 13, 1901. Serial No. 68,126. (No model.)

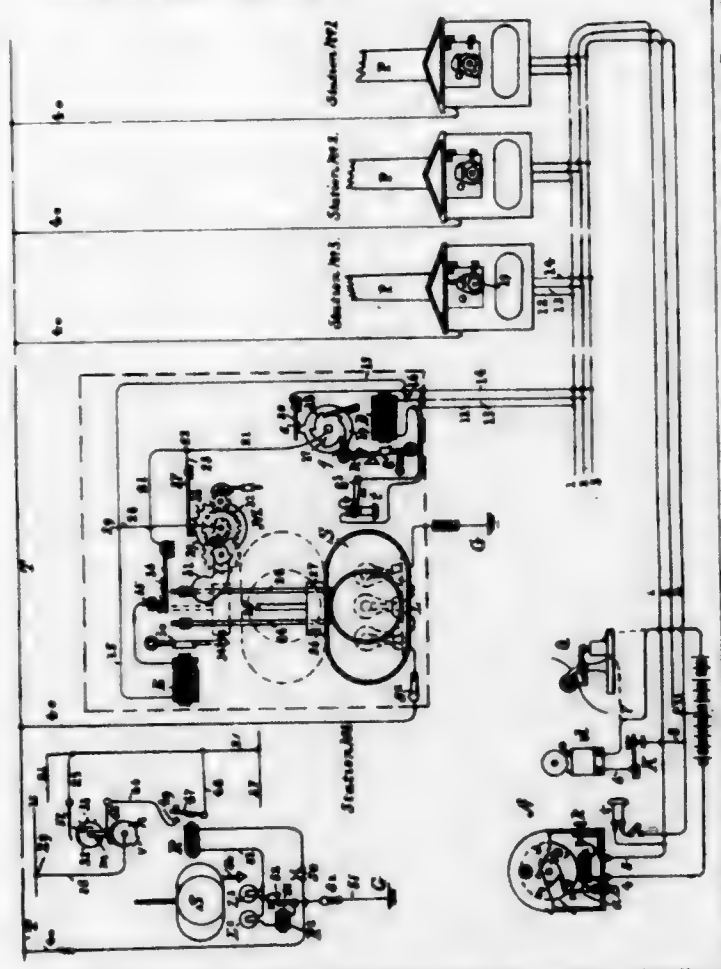


Claim.—1. A puzzle consisting of a base-piece of wire bent upon itself provided with an end loop, a center piece secured to the other end of the base-piece having a loop lying in the same direction as the loop of the base-piece, the end wire of which loop extends up through the loop of the base-piece down through the loop of the center piece and under the loop of the base-piece, and an endless loop of flexible material, substantially as shown and described.

2. A puzzle consisting of a base-piece of wire bent upon itself at both ends and having a large loop formed in one end, and a small loop formed in the other end in a plane at a right angle to the first loop, a center piece having a large loop secured in the small loop, which large loop extends under the large loop of the center piece, and one end of the wire of which center piece extends up through the large loop of the center piece and in a large loop at a right angle to both loops dogs through

the loop of the center piece and back under the large loop of the base-piece, and an endless loop of flexible material, substantially as shown and described.

695,456. ELECTRIC-RAILROAD SIGNALING. ORLANDO W. HART, Fall River, Mass., assignor to the Union Stop and Signal Company, Fall River, Mass., a Corporation of Maine. Filed Apr. 9, 1901. Serial No. 55,012. (No model.)



Claim.—1. In a signaling system for electric railroads, a plurality of signal-stations, at each of which are electric lamps, a signal, a selective switching device, and a return-signal device; electric circuits extending to each signal-station, and to a central station; with means at the central station for sending electric impulses to the signal-stations to operate the selective switching device at any one station, and to set the signal, and means for receiving a selective return-signal, as set forth.

2. In a signaling system for electric railroads, a plurality of signal-stations at each of which are electric lamps, a signal, a selective switching device, and a return-signal brake-wheel; electric circuits extending to each signal-station and to a central station; with means at the central station for sending electric impulses to the signal-stations to operate the selective switching device at any one station and to set the signal, and a bell to receive a selective return-signal, as set forth.

3. In a signaling system for electric railroads, a plurality of signal-stations at each of which are electric lamps in a circuit from the trolley-wire, a signal, a selective switching device, and a mechanically-operative selective return-signal device, electric circuits extending to each signal-station, and to a central station, with means at the central station for sending electric impulses to the signal-stations to operate the selective switching device, consisting of a circuit-closing key which when closed is adapted to operate an indicator at the central station and to rotate the cams of all the selective switching devices and to close a circuit at one signal-station only, means at the central station for sending successive impulses over the said closed circuit to set the signal, release the clock-train of the selective return-signal device, and operate the same, as set forth.

4. In a signaling system for electric railroads, a plurality of signal-stations, at each of which are electric lamps, a signal, a selective switching device, a return-signal device adapted to transmit a predetermined box number or indication, and a return-signal device adapted to transmit an indication of the closure of the lamp-signal circuit and the lighting of the lamp; electric circuits extending to each signal-station and to a central station; with means at the central station for sending electric impulses to the signal-stations to operate the selective switching device at any one station, and to set the signal, and means for receiving the selective box number or indication and the lamp-signal indication, as set forth.

5. In a signaling system for electric railroads, a plurality of signal-stations, at each of which are electric lamps, a semaphore-signal, a selective switching device, a return-signal device adapted to transmit predetermined box numbers or indications, and a return-signal device adapted to transmit an indication of the closure of the lamp-signal circuit and the lighting of the lamp-signal, an automatic device for simultaneously switching out a disabled lamp and switching in a second lamp; electric circuits extending to each signal-station and to a central station; with means at the central station for sending electric impulses to the signal-stations to operate the selective switching device at any one station, and to set the semaphore-signal, and means as a register for receiving the selective box-number and the lamp-signal indication, as set forth.

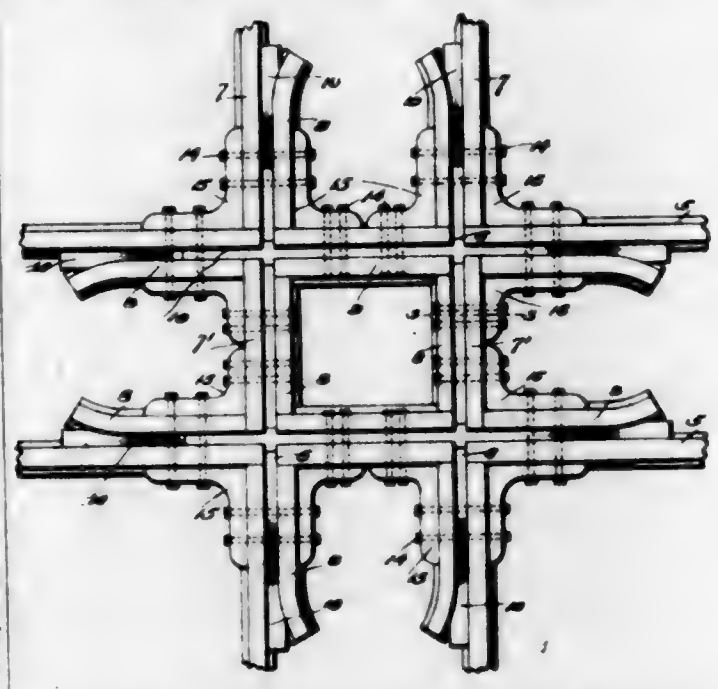
6. In a signaling system for electric railroads, a plurality of signal-stations, at each of which are electric lamps, a semaphore signal normally held retracted, a selective switching device, a return-signal device adapted upon the tripping of the semaphore to transmit a predetermined box number or indication, and a second return-signal device adapted to transmit an indication of the closure of the lamp-signal circuit and the lighting of the lamp-signal by the semaphore; electric circuits extending to each signal-station and to a central station; with means at the central station for sending electric impulses to the signal-stations to operate the selective switching device at any one station, to trip the semaphore-signal and operate the return-signals, with means for receiving the selective box number or indication, and the lamp-signal indication, as set forth.

7. In a signaling system for electric railroads, a plurality of signal-stations at each of which are electric lamps, a signal, a selective switching device, and a return-signal device; electric circuits extending to each signal station and to a central station; with means at the central station for sending electric impulses to the signal-stations to operate the selective device at any one station, and set the signal, and means for receiving a return-signal characteristic to the station selected, as set forth.

8. In a signaling system for electric railroads, a plurality of signal-stations, at each of which are electric lamps, a signal, a selective switching device, a return-signal device, and a return-lamp-circuit-indicating device; electric circuits extending to each signal-station and to a central station; with means at the central station for sending electric impulses to the signal-stations to operate the selective signal device at any one station and to set the signal, means for receiving a return-signal characteristic of the station selected, and means for indicating the condition of the said lamp-circuit.

9. In a signaling system for electric railroads, a plurality of signal-stations, at each of which are electric lamps, a signal, a selective switching device, a return-signal device, and a return-lamp-circuit-indicator device; electric circuits extending to each signal-station and to a central station; with means at the central stations for sending electric impulses to the signal-stations to operate the selective signal device at any one station and to set the signal, means for receiving a return-signal characteristic of the station selected, and means for receiving a signal indicative of the closure of a circuit through the said lamps and the lighting of the same.

695,457. RAILWAY-CROSSING. JAMES H. HIGGINS, Wanatah, Ind. Filed Aug. 24, 1901. Serial No. 73,159. (No model.)



Claim.—The combination in a railway-crossing, of the flange-supporting rails 10, notched at their crossing-points for a distance approximately equal to half their vertical height, the notched portions being interfitted to form a strong, rigid, rectangular frame, the edges of said flange-rails being shaped to conform to the adjacent faces of supporting and guard rails of the usual type, main-line-supporting rails 5 having notches

6, crossing-rails 7 terminating at the outer sides of the main-line rails, separate rail-sections 7′ between said main-line rails and in alinement with the rails 7, guard-rails 8 having their upper surfaces in the horizontal plane of the main-line and crossing rails, said guard-rails being arranged parallel with and in proximity to all of the rail-sections, angle-bars 15 connecting the main-line and the crossing rails, angle-bars connecting the main-line and guard rails, angle-bars connecting the crossing-rails and guard-rails, and securing-bolts extending through the several rails and angle-bars to form a rigidly-braced structure, substantially as specified.

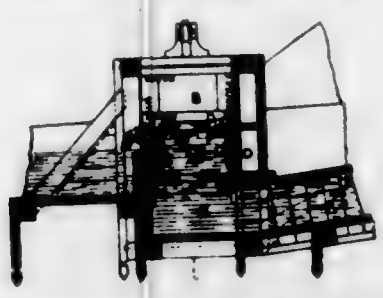
695,458. PADLOCK FOR SECURING COATS, &c., TO WARDROBE-HOOKS. LAMBERT HÜLSER and RICHARD KEMPER, Essen, Germany. Filed Apr. 17, 1901. Serial No. 56,296. (No model.)



Claim.—1. In a lock for holding suspended articles, the combination of a lock-case a band attached thereto at one end and having its other end normally free to pass down into the said case for fastening the latter to a hook, a catch for engaging the movable end of said band within the case, devices for attaching movable articles to said case, catches for engaging the same and a key arranged to release all the aforesaid catches as it reaches them successively substantially as set forth

2. In a lock for holding suspended articles, the combination of a lock-case a device arranged for suspending said case from a support a catch carried by said case for engaging the said device, devices for attaching movable articles to said case, catches for engaging the same and a key arranged to release all the aforesaid catches as it reaches them successively substantially as set forth.

695,459. MEASURING-WEIR. HENRY A. ICKE, Pietermaritzburg, Natal. Filed Sept. 1, 1900. Serial No. 28,762. (No model.)



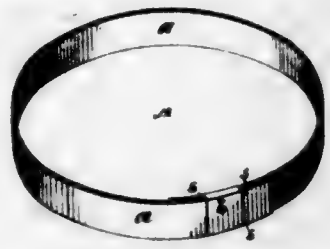
Claim.—1. A measuring-weir consisting of a fixed vertical pipe directly connected at its lower end with the supply-water, a vertical movable pipe within the fixed pipe having a weir-crest, means for making a working joint between the said two pipes, floats and adjustable ballast device arranged in connection with the said movable pipe, a portion of the upper edge of the fixed pipe being arranged at a lower level to form an outlet for the water and an adjacent portion of the movable pipe being also lower to form a weir-crest so that the water is retained in the fixed pipe at the level of or at a given level below the supply in order to float the weir-crest of the movable pipe at a definite distance below the surface of the supply-water and of the surface of water within itself.

2. A measuring-weir consisting of a fixed vertical pipe directly connected at its lower end with the supply-water a vertical movable pipe within the fixed pipe having a weir-crest, continuous flexible roller-packing for making a working joint between the said two pipes, floats and adjustable ballast device arranged upon the said movable pipe, means upon the fixed pipe for retaining within it the water at the level of supply, and compensating weights attached to the movable pipe and adapted to enter the water so as to compensate the difference of pressure on the roller-packing at varying heights of the one tube in the other.

3. In combination with a measuring-weir having a fixed pipe and movable pipe with a weir-crest, floats and adjustable ballast device arranged in connection with the movable pipe, a graduated transparent observation-tube, a float within the same, an inlet to the tube from the weir controlled by a non-return valve and adjustable outlet, substantially as described.

695,460. HOOP FOR BARRELS, &c. BENAIAH G. JAYNE, New York, N. Y., assignor to Horace Craighead, Flushing, N. Y. Filed Mar. 18, 1901. Serial No. 50,994. (No model.)

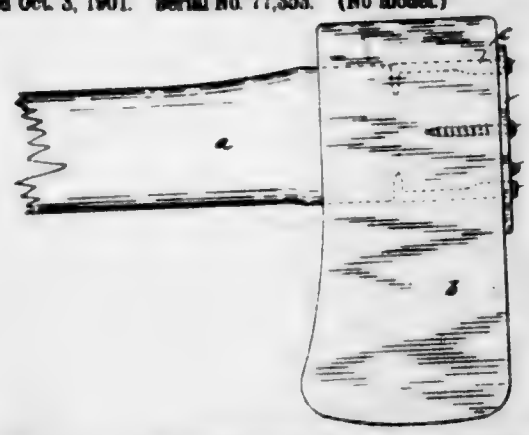
Claim.—1. A hoop for barrels, casks or the like, consisting of two metal bands, one having its ends overlapped to form the hoop proper, and the other being clamped around the overlapping ends, the hoop-band being provided with shoulders near each end and on each edge thereof, the shoulders on one edge being nearer together than the shoulders on the other edge, whereby when the clamping-band is housed between the shoulders on the opposite ends of the band the hoop is larger around at one edge than at the other.



2. A hoop for barrels, casks or the like, comprising two metal bands, one having its ends overlapped to form the hoop proper, and the other being clamped around the overlapping ends, the hoop-band being provided with shallow recesses near each end and on each edge thereof, the recesses on one edge being situated nearer together than the recesses on the other edge, substantially as described.

3. A hoop for barrels, casks or the like, formed entirely from a strip of metal of uniform thickness, cut into two blanks, one provided with recesses equal to the width and thickness of the strip of metal, near each end and at each edge of the band, the recesses on one edge being situated nearer together than the recesses on the other edge, the said blank being bent round and the ends overlapped until the recesses coincide, and the other blank being clamped around and housed in the said recesses, whereby the ends of the first blank are tightly joined, the joint is flush with the hoop-band at the top and bottom edges, and the said hoop-band is larger around at one edge than at the other.

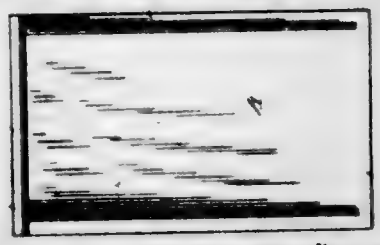
695,461. AX-HANDLE CLAMP. LEWIS JOHNSEN, Seattle, Wash. Filed Oct. 3, 1901. Serial No. 77,353. (No model.)



Claim.—1. An ax-head-clamping device, comprising two hook-shaped members provided with heads adapted to engage over slots in a plate, said plate having an aperture adapted to receive the head of one of the said members and said slots extending, respectively, in the same direction from the said aperture and an end of the plate, and a set-screw, substantially as described.

2. In combination with two headed clips adapted to engage with an ax-handle, of a locking-plate provided with an aperture and two longitudinal slots adapted to receive the shanks of said clips, one of said slots *h* extending from an end of the plate and the other *i* terminating in the said aperture *g*, said slot and said aperture, substantially as and for the purposes set forth.

695,462. CAN-BODY BLANK. JOHN LEE, San Francisco, Cal. Filed Dec. 7, 1900. Serial No. 39,044. (No model.)



Claim.—1. A sheet-metal blank having a line or ridge of solder extending parallel and in proximity to an edge, but removed from said edge, leaving a seam-section, said seam-section of said blank being entirely free from any solder film or coating.

2. A sheet-metal blank having a plane flat surface, and provided with a plurality of lines or ridges of solder extending each in proximity

to an edge, leaving a seam-section, said seam-section of said blank being entirely free from any solder film or coating.

3. A sheet-metal blank having a line or ridge of solder for subsequently soldering an end seam extending parallel to an edge, but removed from, and terminating at both ends short of those edges of the blank at right angles to it, the corners of the blank being free from any solder line or ridge.

4. A sheet-metal blank having a line or ridge of solder, for subsequently soldering a side seam, extending parallel to one edge of the blank but removed therefrom and terminating at both ends at those edges which are at right angles to it, such blank having also one or more lines or ridges of solder, for subsequently soldering an end seam or seams, extending at right angles to the first-mentioned line or ridge and parallel to an edge or edges of the blank, and terminating at both ends short of those edges of the blank which are at right angles to it, or them.

695,463. PIPE-WRENCH. MORTIMER G. LEWIS, New York, N. Y. Filed June 26, 1901. Serial No. 66,074. (No model.)



Claim.—1. In a pipe-wrench, the combination with the wrench-bar of the movable head mounted thereon, said head having the interiorly-threaded opening in the top and the locking-screw and connected locking-block located within the opening in the head and protected thereby, substantially as and for the purposes set forth.

2. In combination with the movable wrench-head, a locking-screw located within the interiorly-threaded opening in the head and below the top thereof, the locking-block connected with said screw and entering a recess within the head whereby the block is prevented from being turned by the screw, substantially as and for the purposes set forth.

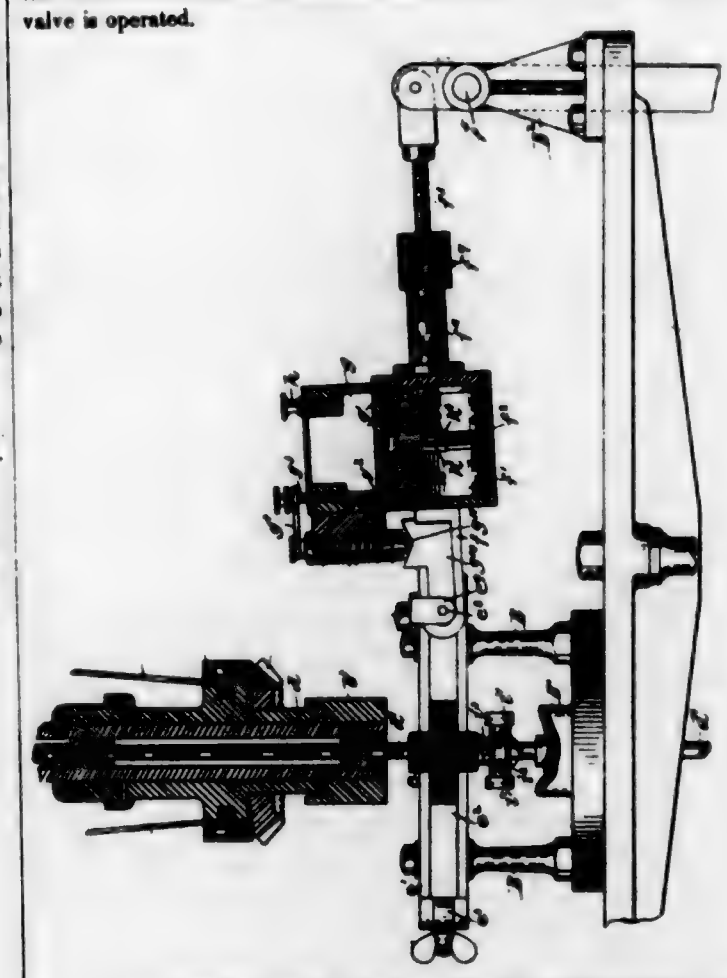
3. In a pipe-wrench, the movable head, a locking-screw and locking-block located within the head and below the top thereof, and a removable stop located in the wall of the head and arranged to limit the upward travel of the locking-screw, the parts being arranged and combined substantially as and for the purposes set forth

4. In a pipe-wrench, the movable head recessed as explained, the movable jaw seated in the recessed head, the hinge-pin and springs above and below the jaw, the head being supplied with a clearing-opening beneath the jaw, the parts being combined and arranged substantially as and for the purposes set forth.

695,464. SPEED-REGULATOR. NATHANIEL LOMBARD, Boston, Mass., assignor to the Lombard Governor Company, Boston, Mass., a Corporation of New Jersey. Filed Dec. 12, 1901. Serial No. 85,623. (No model.)

Claim.—1. In combination with a speed-governor for a prime motor, a secondary valve to control the operation of the primary valve, a regulator for the secondary valve which is first operated by the primary-valve mechanism in a direction opposite to a given movement of the secondary valve caused by the governor, and is then moved in the other direction automatically and independently of the primary-valve mechanism, and devices to lock the regulator mechanism when the governor is in its normal position.

2. In combination with a speed-governor for a prime motor, a secondary valve acted upon by the governor, to furnish motive power to operate the primary valve of said motor, a normally closed liquid-circulation chamber to regulate the movements of the secondary valve to counteract those produced by the governor, and independent means to open the valve of said circulation-chamber automatically, whenever the primary valve is operated.



3. In combination with a speed-governor for a prime motor, a secondary valve acted upon by the governor to control the motive power which operates the primary valve of the motor, independent devices which connect the primary-valve mechanism and the secondary valve to counteract the action of said governor upon the latter valve, and a liquid-circulation chamber interposed in said connecting devices, the ports of which chamber are automatically opened and closed to regulate the counteraction upon the secondary valve.

4. In combination with a motor speed-governor, a valve, controlled thereby, a supply motive power, a regulator for said governor, the operation of which is opposite to the action of the governor, a liquid-circulation chamber in the regulator system, the ports of which chamber are automatically opened whenever the governor departs from its normal speed, and are automatically closed while the governor is returning to its normal speed.

5. In combination with a motor speed-governor, a valve operated thereby to control the supply of motive power, independent mechanical connections between said valve and the motor mechanism, which counteract the governor's movements of the valve, a normally closed liquid-circulation chamber and piston therein, as a part of said mechanical connections, and devices to open the ports of the circulation-chamber automatically, whenever said motive-power valve is opened by variation of speed of the governor, and to close said ports automatically while the governor is assuming its normal speed.

6. A speed-regulator consisting of a liquid-circulation cylinder provided with a rod and piston, means to connect said cylinder and rod with the mechanism to be moved, a valve for the circulation-port of said cylinder, and mechanism independent of the cylinder to act upon said valve and automatically open or close said port to accommodate variations of speed in the moving parts.

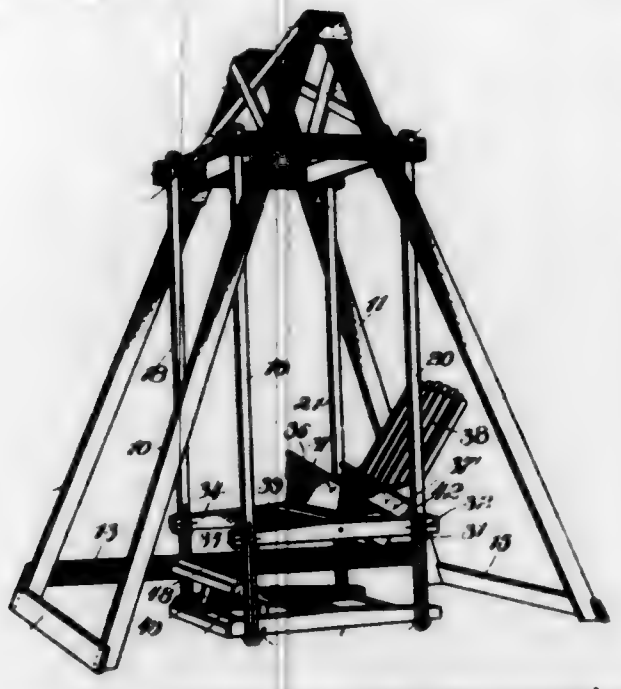
695,465. SWING. CHAUNCEY O. LYMAN, Brockwayville, Pa. Filed June 22, 1901. Serial No. 65,694. (No model.)

Claim.—1. A swing comprising a supporting-frame including hanger-beams, T-pipe connections engaged with the beams with their stems disposed upwardly to form oil-cups, shafts engaged with the heads of the connections and hangers mounted upon the shafts and provided with a seat.

2. A swing comprising a supporting-frame, hangers suspended pivotally from the frame, seat-supporting beams connected to the hangers and having a transverse connecting-rod, said beams having also eyes, and a seat having hooks for engagement pivotally with the rod and having bolts for engagement with the eyes to hold the seat against pivotal movement on the rod, the hooks being removably engaged with the rod.

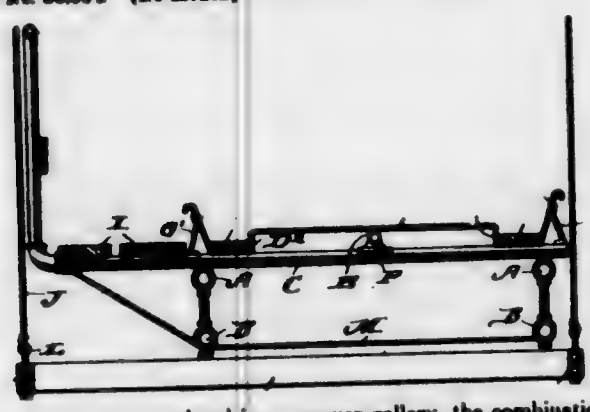
3. A swing comprising pivoted hangers, supporting-beams connected

to the hangers and having a transverse rod and eyes spaced therefrom, and a seat having hooks removably engaged with the rod and having bolts disposed to engage the eyes.



4. A swing comprising hangers, supporting-beams connected to the hangers and having a transverse bar and eyes spaced therefrom, and a seat having rearwardly-directed hooks removably and pivotally engaged with the bar, bolts upon the seat for engagement with the eyes to hold the seat at one point of pivotal movement, and stops upon the seat for engagement to rest upon the beams to limit the pivotal movement of the seat in one direction.

695,466. SECTIONAL ICE-CONVEYER GALLERY. THOMAS M LYNCH and VALENTINE HUEY, Tobyhanna, Pa. Filed May 1, 1901. Serial No. 58,364. (No model.)



Claim.—1. In a sectional ice-conveyer gallery, the combination of a frame having a slideway arranged thereon, guards arranged at either side of the slideway and a gangway formed at one side of the said slideway, substantially as shown and described.

2. In a sectional ice-conveyer gallery the combination of a frame comprising the longitudinal beams, cross-beams and brace-rods, a slideway supported by the said cross-beams, guide-rails arranged upon the cross-beams at either side of the slideway, alleys intervening the slideway and guide-rails, a gangway arranged upon the cross-beams and to one side of the slideway and means for supporting the gallery, substantially as shown and described.

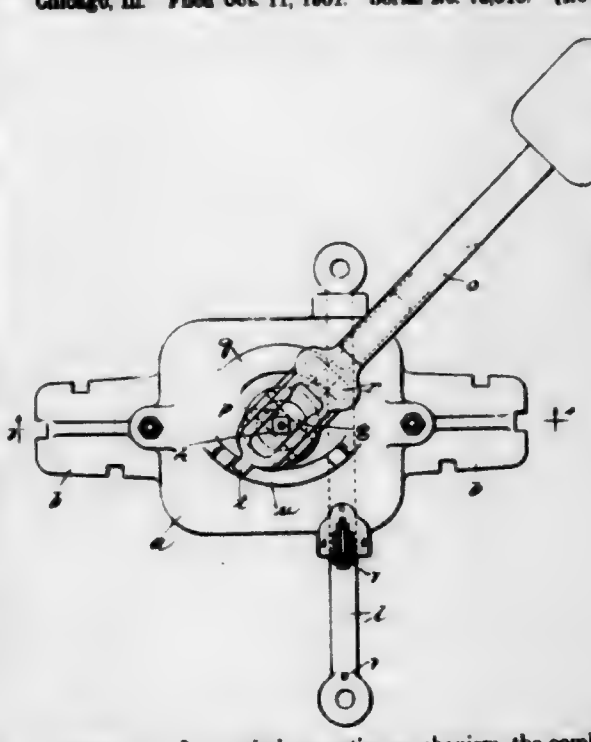
3. A sectional ice-conveyer gallery comprising the upper and lower longitudinal beams having their ends held in castings and brace-bars connecting the said beams intermediate their ends, cross-beams supported by the said upper longitudinal beams, some of which have vertical extending portions whose upper ends are connected by a rail, a slideway supported by the said cross-beams and having its central portion supported by a beam, guide-rails arranged upon either side of the said slideway and a gangway supported by the cross-beams to one side of the slideway and adjacent the hand-rail, substantially as shown and described.

4. A sectional ice-conveyer gallery comprising the longitudinal beams, cross-beams arranged thereon, a slideway positioned upon the cross-beams and having alleys arranged upon either side thereof, and a gangway supported by the cross-beams, substantially as shown and described.

5. In a sectional ice-conveyer gallery the combination of the upper and lower longitudinal beams having their ends united by castings, brace-bars connecting the said beams, truss-bars connected to the said castings, and having their central portions engaged by the said brace-bars, each of the truss-bars having a turnbuckle interposed therein, cross-beams arranged upon the upper longitudinal beams, a slideway supported by the said beams and having guide-rails arranged upon either side thereof and supported by the cross-beams, substantially as shown and described.

6. A sectional ice-conveyer gallery comprising the upper and lower longitudinal beams having their ends united by castings, cross-beams arranged upon the said longitudinal beams, a slideway arranged upon the cross-beams, saddles arranged upon the said cross-beams and carrying a pipe that is designed to strengthen or support the central portion of the slideway, guide-rails arranged upon the side of the slideway, alleys arranged between the slideway and guide-rails and a gangway arranged upon one side of the frame, substantially as and for the purpose described.

695,467. SWITCHING MECHANISM. GEORGE L. MANSFIELD, Chicago, Ill. Filed Oct. 11, 1901. Serial No. 78,313. (No model.)



Claim.—1. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, and a stationary cam retaining the actuating-arm with the actuating-bar in an operative position, substantially as described.

2. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm, and a cam in the form of an inverted V located between operative positions of the arm to limit the arm, according to its adjustment, to one of such positions, substantially as described.

3. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm, and a V-cam located between operative positions of the arm to retain the arm, according to its adjustment, in one of such positions, substantially as described.

4. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, and a vertical lug interposed between operative positions of the arm for causing the actuating-arm, with the actuating-bar, to retain an operative position and to force vertical movement of the arm when moving the actuating-bar, substantially as described.

5. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft having engagement with the actuating-arm and actuating-bar, and a vertical lug interposed between operative positions of the actuating-arm for causing the actuating-arm with the actuating-bar to retain an operative position and to force vertical movement of the arm when moving the actuating-bar, substantially as described.

6. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft having engagement with the actuating-arm and actuating-bar, and a cam for causing the actuating-arm with the actuating-bar to retain an operative position, substantially as described.

7. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm, a rotating shaft having engagement with the actuating-arm and actuating-bar, and a V-cam located between operative positions of the arm to retain the arm, according to its adjustment, in one of such positions, substantially as described.

8. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft, a crank-arm secured to the rotating shaft and having connection with the actuating-bar, and a vertical lug interposed between operative positions of the actuating-arm for causing the actuating-arm with the actuating-bar

to retain an operative position and to force vertical movement of the arm when moving the actuating-bar, substantially as described.

9. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft, a crank-arm secured to the rotating shaft and having connection with the actuating-bar, and a cam for causing the actuating-arm with the actuating-bar to retain an operative position, substantially as described.

10. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm, a rotating shaft, a crank-arm secured to the rotating shaft and having connection with the actuating-bar, and a cam in the form of an inverted V located between operative positions of the actuating-arm to limit the actuating-arm, according to its adjustment, to one of such positions, substantially as described.

11. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm, a rotating shaft, a crank-arm secured to the rotating-shaft and having connection with the actuating-bar, and a V-cam located between operative positions of the actuating-arm to retain the actuating-arm, according to its adjustment, in one of such positions, substantially as described.

12. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft, a crank-arm secured to the rotating shaft and having connection with the actuating-bar, and a vertical mechanical obstruction interposed between operative positions of the actuating-arm for causing the actuating-arm with the actuating-bar to retain an operative position and to force vertical movement of the arm when moving the actuating-bar, substantially as described.

13. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft, a crank-arm secured to the rotating shaft and having sliding connection with the actuating-bar, a vertical lug interposed between operative positions of the actuating-arm for causing the actuating-arm with the actuating-bar to retain an operative position and to force vertical movement of the arm when moving the actuating-bar, and means for confining the actuating-bar to substantially a straight-line travel, substantially as described.

14. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft, a crank-arm secured to the rotating shaft and having sliding connection with the actuating-bar, a cam interposed between operative positions of the actuating-arm for causing the actuating-arm with the actuating-bar to retain an operative position, and means for confining the actuating-bar to substantially a straight-line travel, substantially as described.

15. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm having a mounting that is stationary in location, a rotating shaft, a crank-arm secured to the rotating shaft and having sliding connection with the actuating-bar, a cam in the form of an inverted V located between operative positions of the arm to limit the arm, according to its adjustment, to one of such positions, and means for confining the actuating-bar to substantially a straight-line travel, substantially as described.

16. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm having a mounting that is stationary in location, a rotating shaft, a crank-arm secured to the rotating shaft and having sliding connection with the actuating-bar, a V-cam located between operative positions of the arm to retain the arm, according to its adjustment, in one of such positions, and means for confining the actuating-bar to substantially a straight-line travel, substantially as described.

17. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft, a crank-arm secured to the rotating shaft and having sliding connection with the actuating-bar, a mechanical obstruction interposed between operative positions of the arm for causing the actuating-arm with the actuating-bar to retain an operative position, and means for confining the actuating-bar to substantially a straight-line travel, substantially as described.

18. A lock, comprising a reciprocating member *l*, having a recess *v*, a cam *x* provided with a nose *w*, and a lug *y* upon which the said cam is pivoted, the cam being provided with an aperture *z*, while the lug is provided with a corresponding catch, whereby a locking-hasp may be passed through the said aperture to secure the nose of the cam in locking engagement with the reciprocating member, substantially as described.

19. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm, a cam in the form of an inverted V located between operative positions of the arm to limit the arm according to its adjustment to one of such positions, and a second cam for preventing material elevation of the actuating-arm above the aforesaid cam, substantially as described.

20. In a switch-operating mechanism, the combination with an actuating-bar, of means for confining the same to a straight-line travel, a rotating shaft, a crank-arm secured thereto having sliding connection with the actuating-bar, an actuating-arm having pivotal connection with the operating-shaft, and a cam interposed between alternative positions of the actuating-arm to cause the arm to elevate and lower in being swung from one position to another, substantially as described.

21. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, and a vertical stationary lug interposed between operative positions of the actuating-arm for retaining the actuating arm with the actuating-bar in an operative position and to force vertical movement of the arm when moving the actuating-bar, substantially as described.

22. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, and a stationary vertically-projecting mechanical obstruction interposed between operative positions of the arm for causing the actuating-arm, with the actuating-bar, to retain an operative position and to force vertical movement of the arm when moving the actuating-bar, substantially as described.

23. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft having engagement with the actuating-arm and actuating-bar, and a stationary vertically-projecting mechanical obstruction interposed between operative positions of the actuating-arm for causing the actuating-arm with the actuating-bar to retain an operative position and to force vertical movement of the arm when moving the actuating-bar, substantially as described.

24. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft having engagement with the actuating-arm and actuating-bar, and a cam interposed between operative positions of the arm for causing the actuating-arm with the actuating-bar to retain an operative position, substantially as described.

25. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft, a crank-arm secured to the rotating shaft and having connection with the actuating-bar, and a stationary mechanical obstruction interposed between operative positions of the actuating-arm for causing the actuating-arm with the actuating-bar to retain an operative position, substantially as described.

26. In a switch-operating mechanism, the combination with an actuating-bar, of an actuating-arm for operating the same, a rotating shaft, a crank-arm secured to the rotating shaft and having sliding connection with the actuating-bar, a stationary mechanical obstruction interposed between operative positions of the actuating-arm for causing the actuating-arm with the actuating-bar to retain an operative position, and means for confining the actuating-bar to substantially a straight-line travel, substantially as described.

27. In a switch-operating mechanism, the combination with an actuating-bar, of a rotating shaft, a crank-arm engaging the shaft with the bar, an actuating-arm having swinging connection with the rotating shaft, and a cam interposed between alternative positions of the actuating-arm to force the elevation of the actuating-arm and permit its depression as it is being swung from one position to another, substantially as described.

28. In a switch-operating mechanism, the combination with an actuating-bar, of a rotating shaft, a crank-arm engaging the shaft with the bar, an actuating-arm having swinging connection with the rotating shaft, and a lug interposed between alternative positions of the actuating-arm to force the elevation of the actuating-arm and permit its depression as it is being swung from one position to another, substantially as described.

29. In a switch-operating mechanism, the combination with an actuating-bar, of a rotating shaft for operating the bar, an actuating-arm having swinging connection with the rotating shaft, and a cam interposed between alternative positions of the actuating-arm to force the elevation of the actuating-arm and permit its depression as it is being swung from one position to another, substantially as described.

30. In a switch-operating mechanism, the combination with an actuating-bar, of a rotating shaft for operating the bar, an actuating-arm having swinging connection with the rotating shaft, and a lug interposed between alternative positions of the actuating-arm to force the elevation of the actuating-arm and permit its depression as it is being swung from one position to another, substantially as described.

695,468. TUFTING-BUTTON. FREDERICK MARGRAFF, Augusta, Ky., assignor to Fred A. Nedler, Augusta, Ky. Filed Nov. 2, 1901. Serial No. 80,845. (No model.)

Claim.—1. A tufting-button having its back and prongs integral and having a rib struck up from the back and the base of the prongs thereof, substantially as shown and described.

2. A tufting-button having the prongs near their bases cut into the back thereof, and having a rib struck up from the back and the base of the prongs thereof, substantially as shown and described.

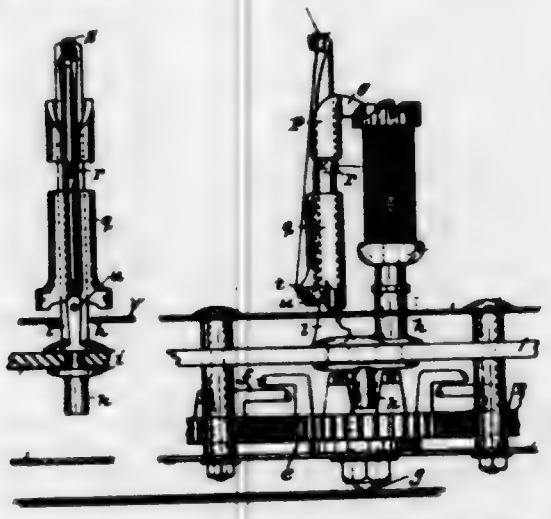
3. As a new article of manufacture a blank cut from a sheet of metal having a central enlarged portion to form the back of a tufting-button,

prongs projecting from opposite sides of the enlarged portion, and a rib struck up from the back and extending into the bases of the prongs, substantially as shown and described.



4. As a new article of manufacture a blank cut from a sheet of metal having a central enlarged portion to form the back of a tufting-button, prongs projecting from opposite sides of the enlarged portion, cuts extending into the enlarged portion in alinement with the edges of the prongs, and a rib struck up from the back and extending into the bases of the prongs, substantially as shown and described.

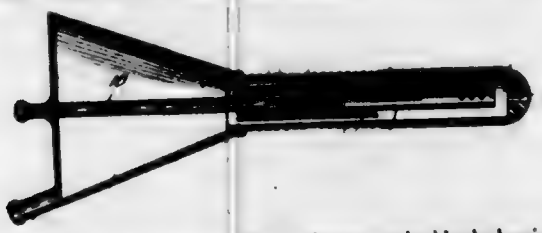
695,469. **BRAIDING-MACHINE.** FRANK MEYER, Paterson, N. J. Filed Oct. 28, 1901. Serial No. 80,166. (No model.)



Claim.—1. In a braiding-machine, the combination, with the slotted plate in which the carriers move, of the carriers, driving means for said carriers, and a fender-plate arranged above said first-named plate, substantially as described.

2. In a braiding-machine, the combination, with the slotted plate in which the carriers move, of a carrier having a vertically-movable sliding part, and another plate disposed above said first-named plate and projecting under a portion of said sliding part and adapted to limit the downward movement of the latter, substantially as described.

695,470. **SYRINGE.** YOUNG M. MILAM, Lake Charles, La., assignor of one-fourth to Rudolph Krause, Lake Charles, La. Filed Apr. 29, 1901. Serial No. 57,997. (No model.)



Claim.—1. A syringe comprising a frusto-conical body having a single thickness of wall at the side and bottom and provided with a smooth outer surface to serve as an occluding-plug, the bottom of the body being closed and flush with the lower terminal of the side wall, the body being hollow for full occupancy by the outflowing injected liquid which enters the same at the upper reduced end, the latter end having an interior screw-threaded portion and the body having an outlet-nozzle extending away from the bottom at the periphery and partaking of the same inclination as the side of the said body to form a perfect drain, an injecting-tube extending through the center of the body and adjustable in relation to the upper reduced end thereof to regulate the projection of the same above the said reduced end, and a nozzle fitted over the upper extremity of the said injecting-tube and having means for permitting the outflow of the injected liquid and openings in the side portion below said means to permit the return flow of the said fluid to pass down to and through the upper reduced end of the body.

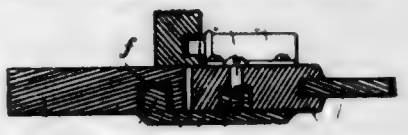
2. A syringe comprising a frusto-conical hollow body, an injecting-tube held by the said body and comprising adjustable sections, and a nozzle adjustably mounted in the upper reduced end of the body over the tube and having an outlet for the injected fluid and longitudinal slots for the passage of the return flow of the said fluid therethrough into the body, said longitudinal slots being controlled as to extent of exposure by the adjustment of said nozzle in relation to the body.

695,471. **FRUIT-CRATE.** HENRY T. MILLER, Norman, Okla. Filed July 12, 1901. Serial No. 68,051. (No model.)



Claim.—A fruit-shipping crate, consisting of perforated side walls provided at each end with vertical dovetail slots; perforated end walls provided at each end with dovetail extensions, adapted to fit in the dovetail slots in the side walls, and also provided with longitudinal slots; perforated shelving-boards provided alternately with small and large perforations; the small perforations of the upper board being immediately over the large perforations of the lower board, and the large perforations of the upper board being immediately over the small perforations of the lower board; cornucopias adapted to fit alternately in the large and small perforations; said cornucopias having flaps, adapted to be turned down over the fruit; a top and bottom adapted to be screwed onto the upper and lower edges of the end and side walls, substantially as shown and described and for the purposes set forth.

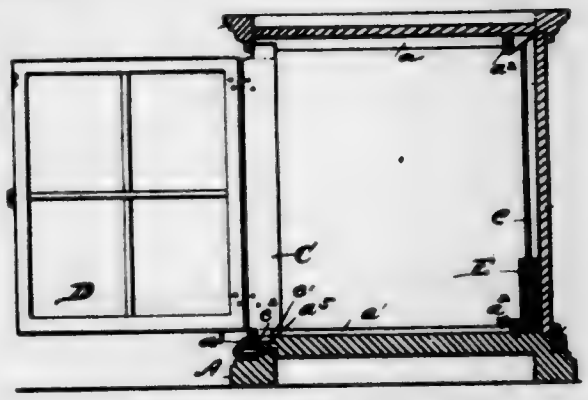
695,472. **ESCUTCHEON-PLATE.** JAMES B. MILLER, Kent, Ohio. Filed July 22, 1901. Serial No. 69,276. (No model.)



Claim.—1. An escutcheon-plate formed and proportioned to project beyond the edge of a door when properly applied thereto; the part for projecting beyond the door formed to interlock with the door-frame, substantially as set forth.

2. An escutcheon-plate formed and proportioned to project beyond the edge of a door when properly applied thereto, and having bosses for receiving retaining-screws; the part for projecting beyond the door formed to interlock with the door-frame, substantially as shown and described.

695,473. **CABINET FOR DISPLAYING MERCHANDISE.** JOHN W. MORGAN, Detroit, Mich. Filed Jan. 31, 1900. Serial No. 3,430. (No model.)



Claim.—1. The combination of the case, provided with the upper and lower tracks, the stiles the sash hinged to the stiles the bottom of the case being provided with a cross-channel into which the stiles drop to lock the lower ends, substantially as described.

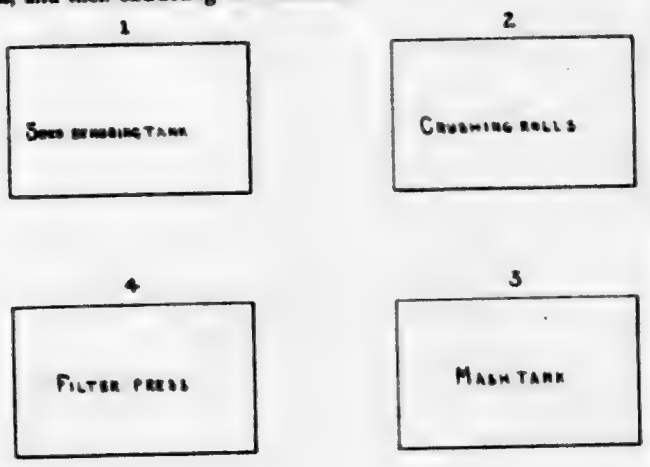
2. The combination of the case, provided with the upper and lower tracks and with the cross-channel to receive the ends of the stiles, the stiles grooved to engage the tracks, the lower track extending over the channel in the bottom of the case whereby the stiles remain in engagement with the track while fixed at the front end of the case, substantially as described.

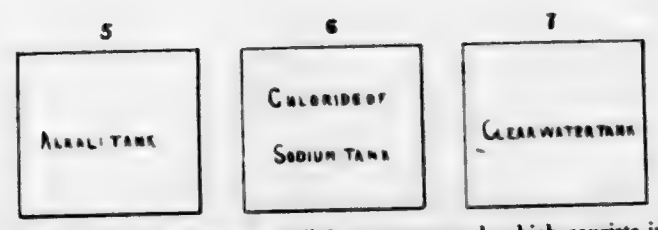
695,474. **PROCESS OF EXTRACTING OIL FROM COTTON-SEED.** JOHN MCFARLANE and DAVID C. REINOHL, Washington, D. C. Filed Aug. 29, 1901. Serial No. 73,675. (No specimens.)

Claim.—1. The process of extracting oil from cotton-seed, which consists in denuding seed of their hulls and softening the whole kernels, and then extracting oil therefrom.

2. The process of extracting oil from cotton-seed, which consists in

denuding seed of their hulls and softening the whole kernels, crushing the kernels, and then extracting oil therefrom.





3. The process of extracting oil from cotton-seed, which consists in denuding seed of their hulls, by subjecting the seed to a solution containing alkali until the hulls open and the kernels separate therefrom, and then extracting oil from the kernels.

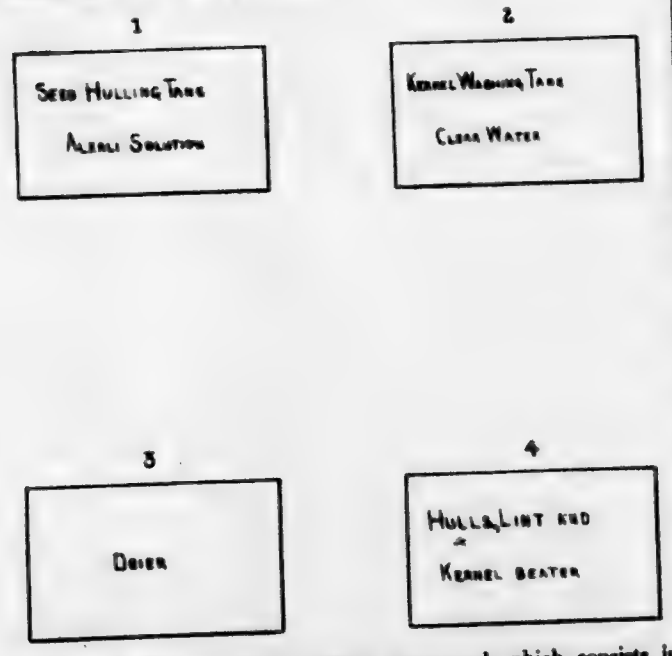
4. The process of extracting oil from cotton-seed, which consists in subjecting seed to a solution of alkali and saccharine matter in which corrosive agents have been developed until the hulls open and the kernels separate therefrom, and then extracting oil from the kernels.

5. The process of extracting oil from cotton-seed, which consists in subjecting seed to a solution containing alkali until the hulls open and the kernels separate therefrom and the kernels soften, extracting oil from the kernels saturated with alkali, and then refining the oil.

6. The process of extracting oil from cotton-seed, which consists in subjecting seed to a solution containing alkali until the hulls open and the kernels separate therefrom, crushing the kernels, extracting oil from the kernels, then adding alkali to the oil and agitating the oil, then supplying chlorid of sodium to and continuing the agitation of the oil, and then washing the oil.

7. The process of extracting oil from cotton-seed, which consists in denuding seed of their hulls and softening the whole kernels, crushing the kernels, then filtering the mash of kernels and liquid, and then refining the oil.

695,475. PROCESS OF HULLING COTTON-SEED. JOHN MCFARLANE and DAVID C. REINOHL, Washington, D. C. Filed Aug. 29, 1901. Serial No. 73,676. (No specimens.)

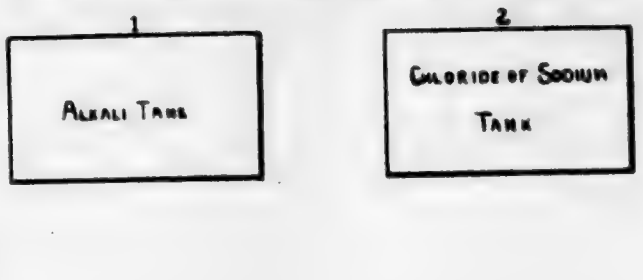


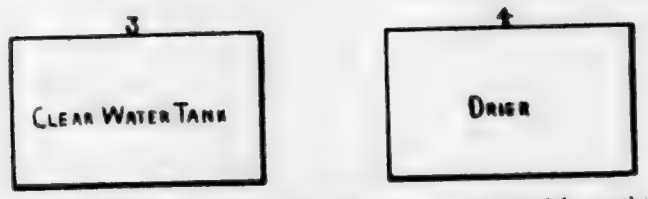
Claim.—1. The process of hulling cotton-seed, which consists in subjecting seed incased in their hulls to a solution of alkali and saccharine matter in which corrosive agents have been developed until the hulls open and the kernels separate therefrom.

2. The process of hulling cotton-seed, which consists in subjecting seed incased in their hulls to a solution of alkali and black molasses, until the hulls open and the kernels separate therefrom.

3. The process of hulling cotton-seed, which consists in subjecting seed incased in their hulls and lint to a solution of alkali and saccharine matter until the hulls open and the kernels separate therefrom, collecting the free kernels from the surface of the liquid, then removing the hulls, lint, and entangled kernels and agitating the same to recover the kernels.

695,476. PROCESS OF HULLING COTTON-SEED. JOHN MCFARLANE, Washington, D. C., assignor of one-half to David C. Reinohl, Washington, D. C. Filed Sept. 3, 1901. Serial No. 74,134. (No specimens.)





Claim.—1. The process of hulling cotton-seed, which consists in subjecting the seed to a solution of alkali until the hulls open and the kernels separate therefrom.

2. The process of hulling cotton-seed, which consists in subjecting seed to a solution of alkali until the hulls open and the kernels separate therefrom, then subjecting the kernels to a liquid to eradicate the alkali, and then washing the kernels.

3. The process of hulling cotton-seed, which consists in subjecting seed to a solution of alkali until the hulls open and the kernels separate therefrom while the seed are immersed in the solution, then subjecting the kernels to an alkali-eradicating solution, and then washing the kernels.

4. The process of hulling cotton-seed, which consists in subjecting seed incased in their hulls to a solution of alkali of about 4° Baumé and of a temperature above normal until the hulls open and the kernels separate therefrom.

5. The process of hulling cotton-seed, which consists in subjecting seed incased in their hulls to a solution of alkali until the hulls open and the kernels separate therefrom, and then drying the kernels.

6. The process of hulling cotton-seed, which consists in subjecting seed incased in their hulls to a solution of alkali until the hulls open and the kernels separate therefrom, then subjecting the kernels to a solution of chlorid of sodium to eradicate the alkali, then washing the kernels and finally drying the kernels.

7. The process of hulling cotton-seed, which consists in subjecting seed incased in their hulls and lint to a diluted solution of concentrated lye of commerce until the hulls open and the kernels separate therefrom, then subjecting the kernels to a solution of chlorid of sodium to eradicate the lye, and then washing the kernels.

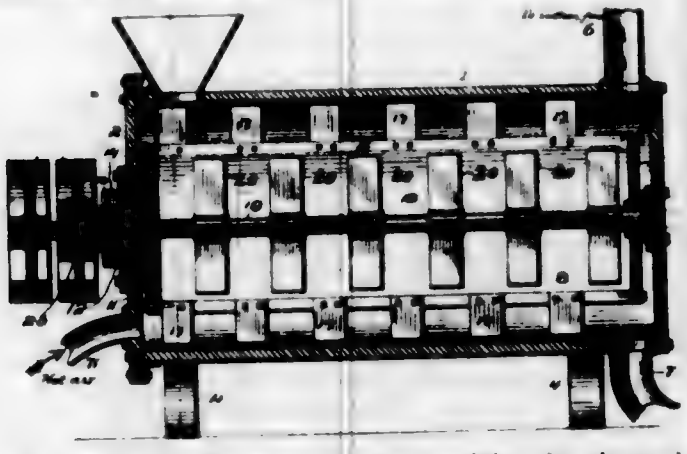
8. The product described, whole cotton-seed kernels denuded of their lint and hulls, and dried.

695,477. MEANS FOR SEPARATING COTTON-SEED KERNELS FROM THEIR HULLS AND LINT. JOHN MCFARLANE and DAVID C. REINOHL, Washington, D. C. Filed Nov. 11, 1901. Serial No. 81,846. (No model.)

Claim.—1. A machine for the purpose described, consisting of an elongated cylinder provided with an inlet-passage on the upper side and at one end thereof, two separate discharge-passages for the material being treated communicating with the cylinder at the end opposite the inlet to the cylinder, one above and the other below the horizontal center thereof, and concentric and oppositely-revolvable beaters.

2. A machine for the purpose described, consisting of an elongated cylinder provided with an inlet-passage on the upper side and at one end

thereof, a hot-air supply at the same end of the cylinder, two separate discharge-passages for the material operated upon at the opposite end of the cylinder, one above the other below the horizontal center thereof and communicating with the cylinder, and oppositely-revolubie beaters.

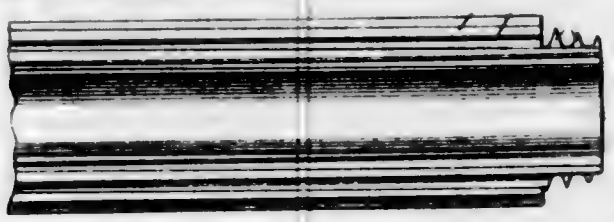


3. A machine for the purpose described, consisting of an elongated cylinder provided with an inlet for the material to be treated, and a supply-passage for hot air at or near one end thereof, a discharge for the light material operated upon at the upper side and communicating with said cylinder, a discharge for the heavy material operated upon at the lower side and communicating with the cylinder, both of said discharges being at the end of the cylinder opposite the inlet for the material to be treated, and concentric and oppositely-revoluble beaters.

4. A machine for the purpose described, consisting of an elongated cylinder provided with an inlet for the material to be treated at one end and at the upper side thereof, a hot-air supply at the same end and near the lower side of the cylinder, a discharge for the light material at the upper side thereof, a discharge for the heavy material at the lower side, both of said discharges being at the end opposite the inlet for the material to be treated, and concentric and oppositely-revoluble beaters.

5. A machine for the purpose described, consisting of an elongated cylinder provided with an inlet for the material to be treated, an inlet for hot air, a discharge for the light material, a discharge for the heavy material, an outer revoluble beater, and an inner revoluble beater concentric with the outer beater and having arms intermediate of the arms of the outer beater and revoluble in the opposite direction.

695,478. CONDUIT. PERCY A. MCGEORGE, New York, N. Y. Filed July 13, 1901. Serial No. 68,184. (No model.)



Claim.—1. A hollow article of the character described, comprising a series of sections united together by a wedge connection, substantially as described

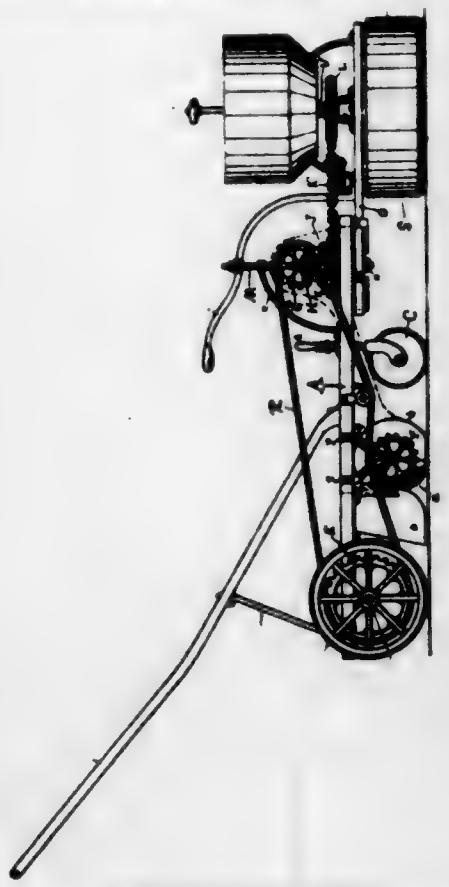
2. A hollow article of the character described, comprising a series of longitudinally-arranged sections, a rib on one of the sections tapered throughout a portion of its length, and a correspondingly-shaped groove in the opposite section, the projection and groove being adapted to cooperate in forming a wedge-joint between the sections, substantially as described.

3. A hollow article of the character described, comprising a series of longitudinally-arranged sections having at their adjacent edges a series of dovetailed ribs and grooves tapered throughout and adapted to cooperate in forming wedge-joints between the sections, substantially as described.

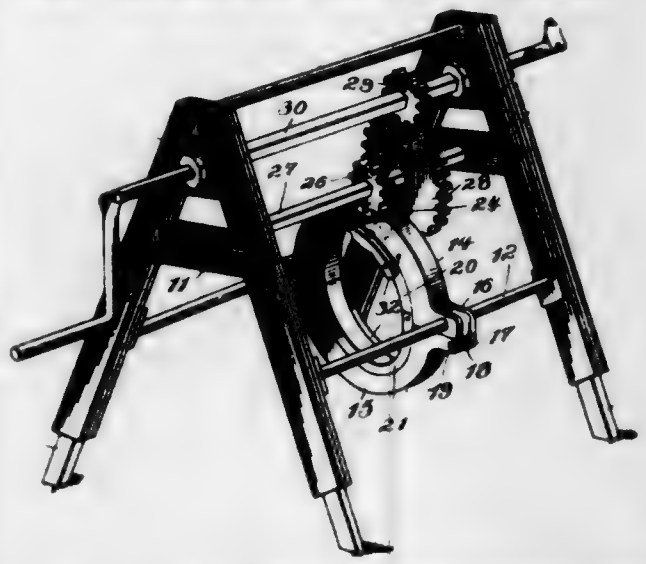
4. A hollow article of the character described, comprising a series of longitudinally-disposed sections, a wedge-joint uniting the sections longitudinally, and a wedge-coupling at the ends of the sections, substantially as described.

695,479. SCRUBBING-MACHINE. JOHN A. NELSON, Salina Kans. Filed July 5, 1901. Serial No. 67,146. (No model.)

Claim.—In a mechanism of the class described, the combination of the base supported at its rear and carried by a pair of wheels, a caster-wheel near the center of the base with means for adjusting same to raise or lower the forward part of the base, so that the contact of the scrubbing-brush with reference to the floor may be adjusted at will, a beam pivotally mounted to the forward end of the base and carrying the scrubbing-brush revolubly mounted near its forward end, a revolving mopping-wheel mounted in the rear of the scrubbing-wheel and a receptacle for holding the water taken up by the mopping-wheel, the water-supply tank mounted above the scrubbing-wheel, and sprocket-chains and wheels for operating the rotation of the scrubbing and mopping wheels, all substantially as shown and described and for the purposes set forth.



695,480. PIPE-MACHINE. GERHART NORDSTROM, Kearsarge, Mich. Filed June 24, 1901. Serial No. 65,896. (No model.)



Claim.—1. A device of the class described comprising a supporting-frame, a carrier mounted upon the frame, a clutch-ring rotatably mounted in the carrier and having means for rotating it, and clutching-jaws carried by the ring for engagement with a pipe passed through the carrier.

2. A device of the class described comprising a supporting-frame, a carrier consisting of a split collar mounted upon the frame and having means for holding the sections of the collar together, said collar having an inner annular groove and an opening communicating with said groove, a split ring engaged with the groove and having teeth upon its outer periphery disposed to project through the opening in the sleeve, means carried by the ring for engagement with a pipe passed through the ring, and a crank-shaft having operative connection with the split ring, said connection including a gear disposed in the opening of the sleeve and engaged with the teeth therein.

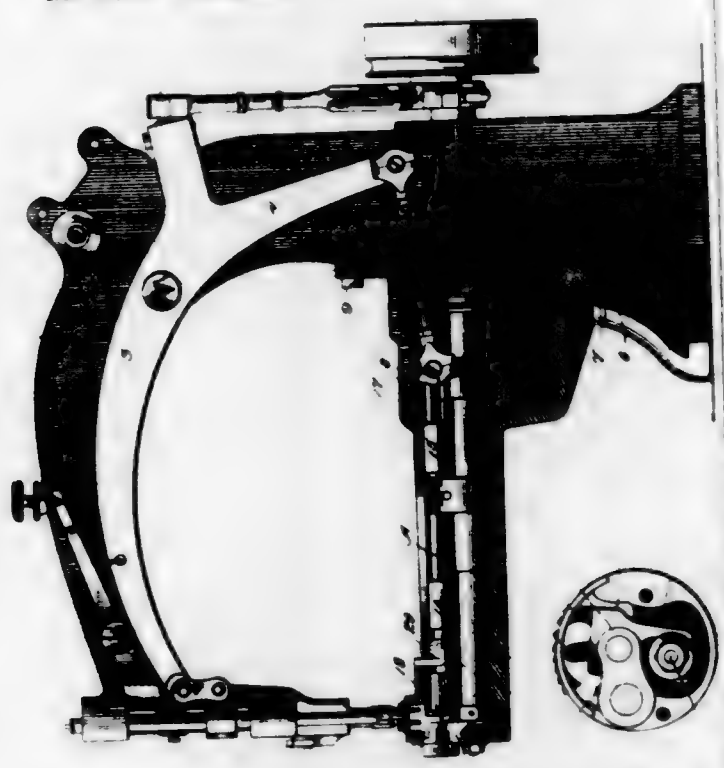
3. A device of the class described comprising a supporting-frame, a split carrier mounted in the frame, said carrier having a groove in its inner face and a recess in its outer face communicating with the groove, a split ring disposed in the groove and having an exterior gear exposed through the recess, a gear engaged with the teeth in the recess, means for rotating the gear-and-clutch mechanism carried by the split ring for engagement with a pipe passed therethrough.

4. A machine of the class described comprising a frame a split collar mounted upon the frame and having a groove in its inner face, a split ring mounted in the groove and having teeth on its outer periphery, said

collar having an opening through which the teeth are exposed, a train of gearing including a pinion engaged with the teeth, clutch-fingers pivoted upon the split ring and having spaced ears at their ends, and a chain attached to the outer face of each of the fingers and adapted to engage between the ears thereof, the fingers having heads at their ends provided with convex serrated inner faces for engagement with a pipe passed through the ring.

5. A machine of the class described comprising a frame including end pieces and tie-rods, a carrier mounted upon the tie-rods, and having an interior groove, a clutch-ring rotatably mounted in the groove and having clutch-fingers adapted for engagement with a pipe passed through the ring, said fingers having means for holding them in engaged positions, a second split ring slidably mounted upon the tie-rod and cutting and threading tools mounted upon the second split ring for movement interchangeably to engage a pipe passed through the ring.

695,481. CYLINDER SEWING-MACHINE. LAWRENCE ONDERDONK, New York, N. Y., assignor to The Union Special Sewing Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Apr. 4, 1898. Serial No. 676,431. (No model.)



Claim.—1. In a sewing-machine, a driving-shaft, a second shaft parallel therewith with connections between the two for oscillating the latter, a feed-dog carrier pivotally supported on the oscillating shaft, so as to be raised and lowered as the shaft oscillates, and a crank or eccentric carried on the forward end of the driving-shaft, which engages the feed-dog carrier and swings it on its pivot to give the forward and backward movements to the feed-dog; substantially as described.

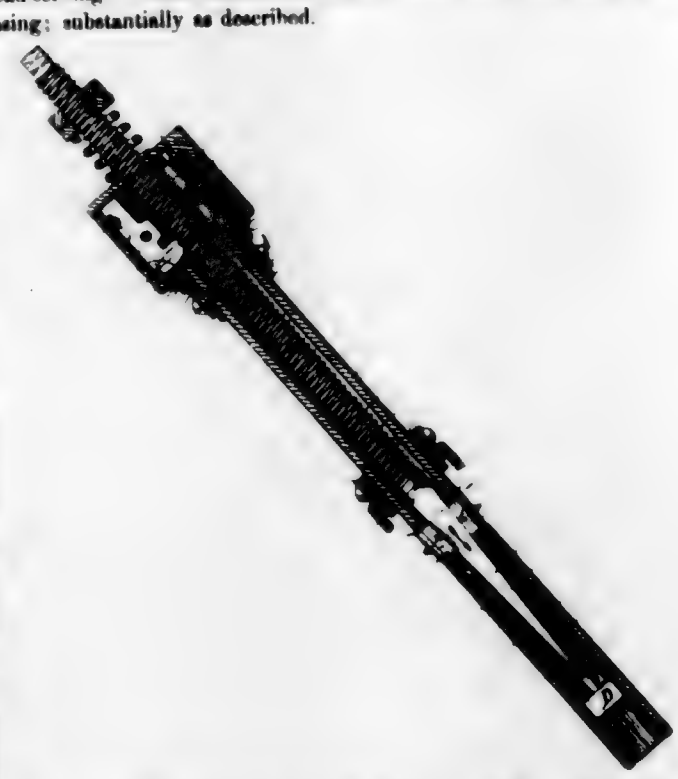
2. In a sewing-machine, a driving-shaft, a second shaft parallel therewith, with connections between the two for oscillating the latter, a feed-dog carrier pivotally supported on the oscillating shaft, so as to be raised and lowered as the shaft oscillates, and provided with a forked downward extension, a crank or eccentric carried on the forward end of the driving-shaft, and which is embraced by the forked extension; substantially as described.

695,482. PIPE-CUTTER. RICHARD J. O'NEILL, Lafayette, Ind., and TIMOTHY BYRNE, Bloomington, Ill. Filed May 20, 1901. Serial No. 61,016. (No model.)

Claim.—1. In a pipe-cutter, the combination with suitable cutter disks and carriers having overhanging guide edges, of a feed-screw and a wedge having guiding-grooves in engagement with the overhanging edges of the carriers and formed with grooves in its wedge-faces adapted to receive a portion of the cutter-disks to permit them to be moved to the end of the wedge; substantially as described.

2. In a pipe-cutter, the combination of a suitable casing, a cutter-disk and cutter-carrier guided transversely in said casing, means for moving said cutter-carrier transversely of said casing, a head upon the end of the casing rotatable thereon and adapted to be moved into working engagement with the cutter-carrier-moving element, whereby, when said head is held stationary and the cutter-carrier-moving means is rotated with respect thereto, said cutter-carrier will be moved out to its work and will be bodily rotated; substantially as described.

3. In a pipe-cutter, the combination of a casing, a cutter-disk, a cutter-carrier guided transversely in said casing, a feed-screw adapted to move said cutter-carrier transversely of the casing, a head free to turn upon the end of the casing and having suitable means in working engagement with the feed-screw, the rotation of the feed-screw with respect to said head serving to rotate the cutter-disks and move them transversely of the casing; substantially as described.



4. In a pipe-cutter, the combination of a casing, a cutter-disk and cutter-carrier guided transversely therein, a feed-screw adapted, by longitudinal movement with respect to said casing, to move the cutter-disks transversely of the casing, a head turning freely upon the end of said casing and adapted to be thrown into or out of engagement with said feed-screw, means for throwing said head into working engagement with the feed-screw, whereby, when said head is in working engagement with the feed-screw and the feed-screw is rotated with respect thereto, said cutter-disk will be bodily rotated and moved transversely of the casing; substantially as described.

5. In a pipe-cutter, the combination with cutter-disks, of a feed-screw adapted to advance said cutter-disks to their work, a pivoted dog, adapted for engagement with said feed-screw to move said feed-screw longitudinally; substantially as described.

6. In a pipe-cutter, the combination with cutter-disks and a feed-screw for advancing them to their work, of dogs having threaded fingers for engagement with the feed-screw, and devices for alternately engaging or disengaging said fingers from said feed-screw; substantially as described.

7. In a pipe-cutter, the combination with cutter-disks and a feed-screw for advancing them to their work, of pivoted dogs having threaded fingers adapted for engagement with the feed-screw, a rotatable cap and cams thereon adapted by the rotation of the cap in one direction to throw said dogs into engagement with the feed-screw; substantially as described.

8. In a pipe-cutter, the combination with a casing, cutter-disks and a feed-screw for advancing said disks to their work, of a head secured upon said casing, but free to turn thereon, dogs pivoted in said head, adapted for engagement with the feed-screw, a rotatable cap having two sets of cams for engagement with the dogs, whereby the partial rotation of the cap in one direction throws the dogs into engagement with the feed-screw, and in the opposite direction, throws them out of engagement therewith; substantially as described.

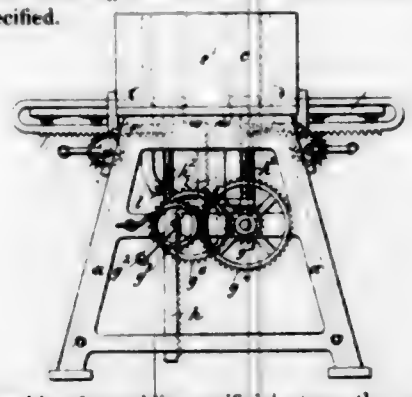
9. In a pipe-cutter, the combination with a cutter-advancing feed-screw, of means for advancing said feed-screw, and a spring adapted to withdraw said feed-screw when the latter is released; substantially as described.

695,483. MACHINE FOR MOLDING ARTIFICIAL STONE. NOYES P. PALMER, Brooklyn, N. Y. Filed Nov. 18, 1901. Serial No. 82,720. (No model.)

Claim.—1. In a machine for molding artificial stone, the combination of a mold-box, with an inclosed core, a perforated false bottom embracing the core, means for raising the false bottom, means for lowering the core, and means for simultaneously operating the false-bottom-raising means and the core-lowering means, substantially as specified.

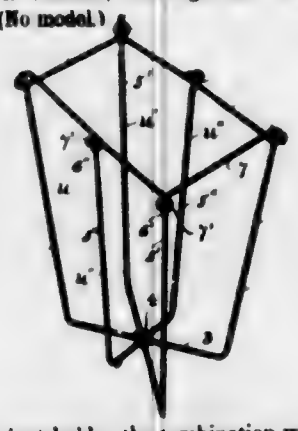
2. In a machine for molding artificial stone, the combination of a mold-box having sliding sides and ends, with an inclosed core, a perfo-

rated false bottom embracing the core, means for raising the false bottom, means for lowering the core, and means for simultaneously operating the false-bottom-raising means and the core-lowering means, substantially as specified.



3. In a machine for molding artificial stone, the combination of a mold-box, with an inclosed movable core, an inclosed movable false bottom, racks for operating the core and false bottom, and pinions engaging the racks, substantially as specified.

695,484. MEANS FOR GROWING AND TRANSPLANTING PLANTS. ROBERT R. PARKER, Rawlings, Md. Filed June 14, 1901. Serial No. 64,500. (No model.)



Claim.—1. In a plant-holder the combination with three U-shaped frame-pieces, two of which cross diagonally and the other of which crosses transversely to the first two and all of which are connected at the center of the bottom of each to form a basket bottom, of a substantially oblong frame connected at its corners and at the centers of its long sides to the upper ends of the side arms of said U-shaped frame-pieces.

2. The combination with the U-shaped frame-pieces *u*, *u'* and *u''*, connected at their middle parts so as to form six supporting-arms as specified; and the eyes 6, 6' and 6'', formed upon the ends of said frame-pieces; of the wire 7, formed with the eyes 7', connected to the said frame-pieces by the said eyes 7', engaging the eyes 6, 6' and 6'', and holding the upper ends of said frame-pieces in proper position, all substantially as and for the purpose set forth.

695,485. FIREARM. HIRAM H. PASSAGE, Plymouth, Mich., assignor to Frank C. Trowbridge, Detroit, Mich. Filed May 22, 1901. Serial No. 61,469. (No model.)

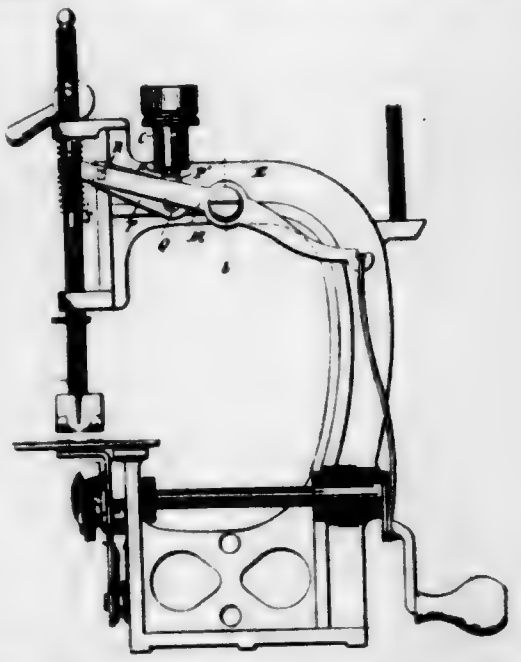


Claim.—1. In a sporting rifle, the combination of a barrel adapted to receive a cartridge, a receiver, a breech-bolt in said receiver normally contiguous to the end of the barrel, a stem extending rearwardly from the breech-bolt adapted to be engaged by the trigger, a spring of comparatively weak tension engaging the rear of said breech-bolt and a spring of greater tension interposed between said first-mentioned spring and the rear end of the receiver.

2. In a sporting rifle, the combination of a barrel having a bore for the cartridge, a breech-bolt carrying a firing-pin, means for driving the breech-bolt forcibly forward in the receiver to explode the cartridge and a spring for allowing a slight recoil of said breech-bolt as the cartridge is exploded.

3. In a sporting rifle, the combination of a barrel, a receiver, a reciprocatory breech-bolt carrying a firing-pin, a stem projecting rearwardly from said breech-bolt adapted to be engaged by the trigger, a spring of strong tension surrounding the stem of said breech-bolt and a spring of less tension mounted upon said stem and interposed between the end of the breech-bolt and the end of said first-mentioned spring, and means for holding said springs so as to apply tension thereto as the breech-bolt is retracted.

695,486. TENSION DEVICE FOR SEWING-MACHINES. ROBERT PIERPONT, New Haven, Conn. Filed May 22, 1900. Serial No. 17,523. (No model.)



Claim.—1. A tension device for sewing-machines, comprising a tension-weight, a tension-washer upon which the weight rests, a tension-spring, and means whereby the spring operates to hold the weight upon the washer except when in the operation of the device the power of the spring is removed from the washer, at which time the tension is maintained by the gravity action of the weight.

2. In a tension device for sewing-machines, the combination with a chambered hub, of a tension-washer resting thereupon, a tension-weight resting upon the washer, a tension-spring located within the hub, a plunger arranged to be operated by a moving part of the machine, and a stem passing through the spring, the washer, and the weight with which the stem is connected for movement in a downward, but not in an upward direction.

3. A tension device for sewing-machines, comprising a chambered hub, a tension-washer resting thereupon, a weight resting upon the washer, a spiral spring located within the hub, a plunger located within the lower end of the hub, a stem passing upward from the plunger through the spring, through the washer and through the weight, and a nut located upon the upper end of the stem and connecting the weight therewith for downward movement, but not for upward movement, whereby the spring operates to draw the weight down upon the washer, except when the tension of the spring is cut off by the lifting of the plunger, which does not disturb the weight, which then rests by the action of gravity upon the washer.

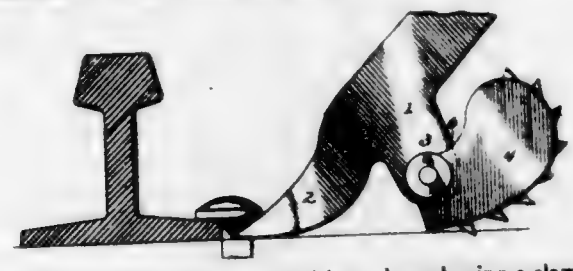
4. In a sewing-machine, the combination with the needle-bar and needle-bar lever, of a stud for connecting the said lever with the frame of the machine, the said stud being formed with an eccentric providing for adjusting the position of the lever with respect to the frame, and thus enabling the needle to be set in height with respect to the cloth-plate.

5. In a sewing-machine, the combination with the frame thereof, of a cloth-plate, a needle-bar adapted at its lower end to receive a needle, a needle-bar lever connected at one end with the needle-bar, and a stud mounted in the said frame and supporting the needle-bar lever, and provided with an eccentric with which the said lever engages, and which shifts the position of the lever when the stud is turned, whereby the le-

ver may be adjusted for setting the needle in height with respect to the cloth-plate.

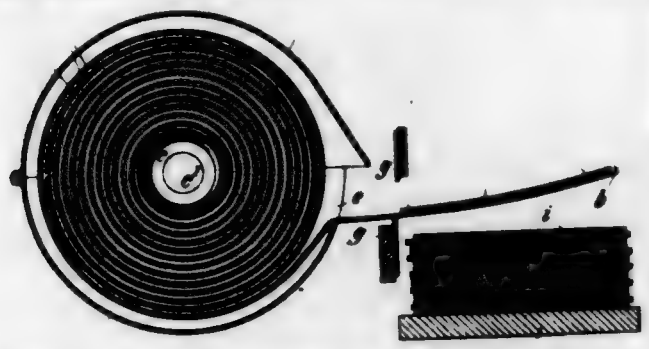
6. In a sewing-machine, the combination with a tension device of the plunger type, of a needle-bar lever, and an intermediate lever pivotally connected with the frame of the machine at a point directly below the plunger of the tension device and forward of the pivot of the needle-bar lever, and the said intermediate lever having its forward end loosely connected with the said needle-bar lever by which it is actuated, and having its pivotal or inner end formed with a cam coacting directly with the plunger of the tension device.

695,487. SPIKE-EXTRACTOR. JOSEPH W. PITTS, Augusta, Ga. Filed Mar. 13, 1901. Serial No. 50,934. (No model.)



Claim.—A spike-extractor comprising a lever having a claw at one end and provided adjacent to the same with a depending heel arranged at an acute angle to the claw and having the rounded outer end and the block, curved longitudinally from one end to the other, and presenting a concave upper face and a convex lower face and having its outer end rounded and provided with a convexly-curved face forming a continuation of the curved lower face of the block, the inner end of the block being provided with a straight face and having a recess receiving the heel, and the tapering spurs having front or inner beveled faces and rear or outer shoulders and arranged at intervals, substantially as described.

695,488. COPYING-PAPER ROLL. FRIEDRICH G. J. POST, Hamburg, Germany. Filed July 20, 1901. Serial No. 69,077. (No model.)

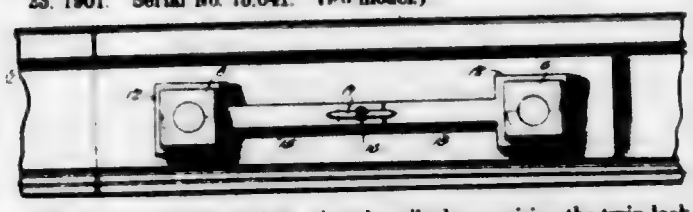


Claim.—1. A copying-pad comprising one or more webs of copying-paper and one or more webs of a moisture absorbent superposed as described and rolled into a roll, for the purpose set forth.

2. A copying-pad comprising one or more webs of copying-paper and one or more webs of a moisture absorbent superposed as described and wound into a roll on a carrier having journal-terminals projecting from either end of the roll of webbing, for the purpose set forth.

3. A copying-pad comprising one or more webs of copying-paper and one or more webs of a moisture absorbent superposed as described and wound into a roll on a carrier having journals projecting from either end of the roll; in combination with a casing having journal-bearings for said terminals and a slot through which the pad is drawn, and a cutter arranged proximate to said slot for cutting up the pad into sections of any desired length, for the purpose set forth.

695,489. NUT-LOCK. CHARLES S. PRUDEN, Rome, Ga. Filed Aug. 23, 1901. Serial No. 73,041. (No model.)



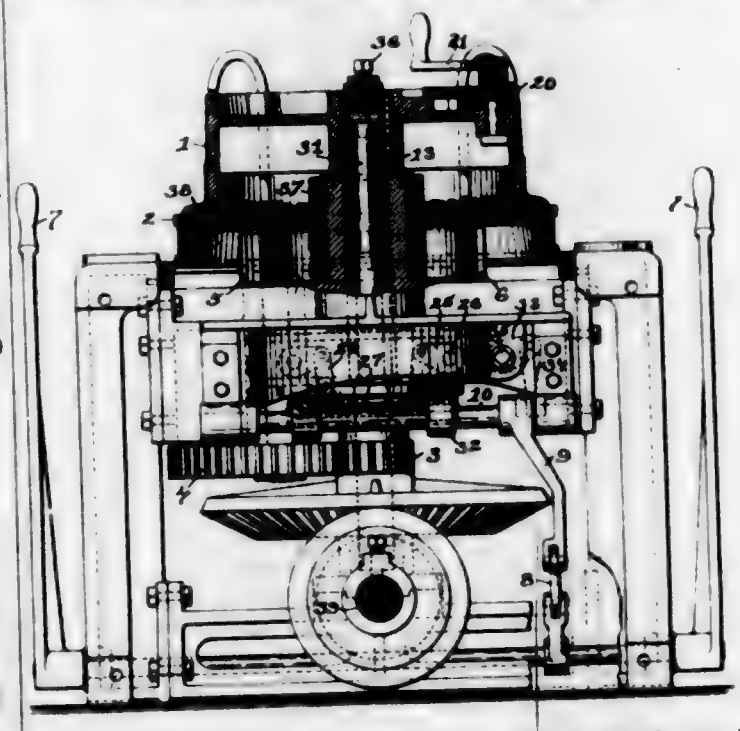
Claim.—1. A device of the class described comprising the twin locking plates or members having bolt-openings and provided with means for engaging nuts, said locking plates or members being also provided with inwardly-extending temporarily-connected arms forming handles and adapted, when separated, to be bent outward to permit the locking plates or members and the nuts to be screwed off the bolts, substantially as described

2. A device of the class described comprising the twin locking plates or members having bolt-openings and provided with means for engaging nuts, arms extending inward from the plates or members and having their terminals arranged adjacent to each other and adapted, when separated, to be bent outward to form handles for enabling the plates or members and the nuts to be unscrewed from the bolts, and a central connecting means uniting the arms and adapted to permit the same to be readily separated, substantially as described.

3. In a nut-lock, the combination of twin convertible nut-locking and wrench members, comprising nut-engaging heads and inwardly-extending temporarily-connected arms or levers respectively projecting from said heads, and adapted when disconnected to form handles whereby the heads may be rotated to operate the nuts engaged thereby, substantially as described.

4. In a nut-lock, the combination of twin convertible nut-locking and wrench members, comprising nut-engaging heads and pliable inwardly-extending temporarily-connected arms or levers respectively projecting from said heads, and adapted when disconnected to be deflected and form handles whereby the heads may be turned to operate the nuts engaged thereby, substantially as described.

695,490. WIRE-DRAWING MACHINE. MARCELLUS REID, Providence, R. I., assignor to Charles De Hart Brower, trustee, New York, N. Y. Filed June 27, 1901. Serial No. 66,202. (No model.)



Claim.—1. In a wire-drawing machine, a wire-drawing drum and a friction draw-out drum for starting the wire through the die, substantially as described.

2. In a wire-drawing machine, a friction wire-drawing drum, a friction-band encircling the periphery of said friction-drum adapted to grip said drum and a lever and cam attached to the friction-band, substantially as described.

3. In a wire-drawing machine, a friction draw-out drum, a friction-band encircling said drum and a gripping device adapted to tighten the band upon the drum, of a pair of wire-starting tongs attached to said friction-band, substantially as described.

4. A wire-drawing machine, having the wire-drawing drum driven at a higher speed than the wire-starting friction draw-out drum, as described.

5. In a wire-drawing machine, a wire-drawing drum, a wire-starting friction-drum concentric with and below the wire-drawing drum, driven independent of and at a slower speed than the wire-drawing drum, substantially as described.

6. In a wire-drawing machine, the combination of the following instrumentalities: a vertical spindle, means for driving the spindle, a sleeve surrounding the spindle, a wire-drawing drum connected with the sleeve, a clutch mechanism connecting the sleeve with the spindle, a brake mechanism controlling the wire-drawing drum, means for releasing the clutch mechanism and applying the brake mechanism or vice versa simultaneously, a draw-out drum, mechanism connected with the spindle for rotating the draw-out drum, a friction-strap on the draw-out drum and means for connecting the wire to the friction-strap and the strap to the draw-out drum, as described.

7. In a wire-drawing machine, a wire-drawing drum, means for driving said drum, a friction-band encircling the periphery of said drum

adapted to grip the said drum by means of a lever and cam attached to the friction-band, a wire-gripping device connected to such friction-band, and means for automatically releasing the grip of said band on said drum at a predetermined point in the revolution of said drum.

8. In a wire-drawing machine, in combination, a spindle, means for driving the spindle, a wire-drawing drum, a friction clutch mechanism connecting said drum with said spindle, a brake mechanism controlling the wire-drawing drum, and means for releasing the clutch mechanism and applying the brake mechanism, or vice versa, simultaneously.

9. In a wire-drawing machine, in combination, a draw-out drum and means for rotating it, a friction-strap on the draw-out drum, means for connecting the wire to the friction-strap and the strap to the draw-out drum.

10. In a wire-drawing machine, a continuously-driven drum, a friction-band encircling the periphery of said drum adapted to grip said drum by means of a lever and cam attached to the friction-band, and means whereby a wire can be attached to said band, substantially as described.

11. In a wire-drawing machine, a wire-drawing drum, and a draw-out drum concentric therewith but driven independently thereof.

12. In a wire-drawing machine, a wire-drawing drum, a draw-out drum concentric therewith, means for driving each of said drums, a friction-band encircling said draw-out drum, a device adapted to tighten the band upon the drum, and a wire-gripping device attached to said band.

13. In a wire-drawing machine, a driven spindle, a draw-out drum, and means for rotating said drum from the said spindle at a lower rate of speed than said spindle is driven, a wire-drawing drum, and means for driving said drum with said spindle.

14. In a wire-drawing machine, a driven spindle, a draw-out drum, and means for rotating said drum from the said spindle at a lower rate of speed than said spindle is driven, a wire-drawing drum, and means for driving said drum from said spindle including a friction-clutch interposed between said spindle and said drum.

15. In a wire-drawing machine, a wire-drawing drum, a die adjacent thereto, a draw-out drum concentric therewith and adapted to start the wire through the die through which it is drawn by the main wire-drawing drum, means for driving the drawing-drum, and means for driving the draw-out drum.

16. In a wire-drawing machine, a wire-drawing drum, a die-box adjacent thereto, a draw-out drum concentric therewith and adapted to start the wire through the die through which it is drawn by the main wire-drawing drum, and means for driving said drums independently.

17. In a wire-drawing machine, a wire-drawing drum, a die adjacent thereto, a draw-out drum concentric therewith and adapted to start the wire through the die, means for driving the wire-drawing drum, and means for driving the draw-out drum independently and at a slower speed than the wire-drawing drum.

18. In a wire-drawing machine, a die-box containing a plurality of dies, a wire-drawing drum for drawing wire through said dies, a draw-out drum in connection with said wire-drawing drum adapted to draw out the wire through the same dies, and means for operating said drums independently of each other.

19. In a wire-drawing machine, a die-box containing a plurality of dies, a wire-drawing drum for drawing wire through said dies, a draw-out drum in connection with said wire-drawing drum adapted to draw out the wire through the same dies, and means for operating said drums independently of each other from the same source of power.

20. In a wire-drawing machine, a die-box containing a plurality of dies, a wire-drawing drum for drawing the wire through said dies, a draw-out drum concentric therewith adapted to draw out the wire through the same dies, and means for operating said drums independently of each other.

21. In a wire-drawing machine, a die-box containing a plurality of dies, a wire-drawing drum for drawing the wire through said dies, a draw-out drum concentric therewith adapted to draw out the wire through the same dies, and means for operating said drums independently of each other from the same source of power.

22. In a wire-drawing machine, a die-box containing a plurality of dies, a wire-drawing drum for drawing wire through said dies, a draw-out drum concentric therewith adapted to draw out the wire through the same dies, and means for operating said draw-out drum from the same source of power as the wire-drawing drum but at a slower speed.

23. In a wire-drawing machine, in combination die-box 22, a wire-drawing drum 1, a vertical spindle 31 for driving said wire-drawing drum, a draw-out drum concentric with said vertical spindle for starting the wires through said die-box, and a chain of speed-reducing gears for driving the said draw-out drum from spindle 31.

24. In a wire-drawing machine, in combination, a wire-drawing drum, means for driving said drum, a continuously-driven draw-out drum, a friction-strap encircling said draw-out drum, means for binding said friction-strap upon said draw-out drum, a wire-gripping device in connection with said friction-strap, and a die-box located in operative relation to said drums, whereby a wire may be started through one die and attached to the wire-drawing drum, and other wires as desired started through the die-box while the wire or wires first started are being drawn on the main drum, substantially as and for the purposes set forth.

25. In a wire-drawing machine, in combination a wire-drawing drum, a continuously-driven draw-out drum in connection therewith, a friction-strap encircling said draw-out drum, means for binding said strap upon said draw-out drum, a wire-gripping device in connection with said strap, a die-box containing a plurality of dies in operative relation to said drums whereby the starting of the wire through the dies may be carried on simultaneously with the main drawing operation.

26. In a wire-drawing block, a wire-drawing drum, a friction-clutch by which said drum is adapted to be driven from a suitable source of power, a brake for said drum, and a controlling-lever by the movement of which in one direction the drum may be unclutched, by a further movement in the same direction the brake applied, and upon the reverse movement the brake released and the clutch thrown in.

27. In a wire-drawing block, a wire-drawing drum and a friction-clutch whereby said drum is adapted to be driven from a suitable source of power, a brake for said drum, and a controlling-lever having an oscillating movement, the construction and arrangement being such that in one extreme position of the lever the drum is clutched to the source of power, in the central position it is unclutched, and in the opposite extreme position the brake is applied to stop the rotation of the drum.

28. In a wire-drawing machine, a wire-drawing drum, a clutch-drum in connection therewith, friction clutch shoes on the inner face thereof, a braking-strap on the outer face thereof, and means for actuating said clutch and strap whereby the one is applied as the other is released.

29. In a wire-drawing machine, a wire-drawing drum, a cylindrical clutch-surface in connection therewith, friction clutch-shoes on the inner face thereof, a braking-strap on the outer face thereof, a threaded operating-rod in connection with such shoes, a threaded rod controlling the ends of such strap, and means for actuating each of said rods simultaneously in opposite directions.

30. In a wire-drawing machine, in combination the drawing-drum 1, clutch-drum 12 rotating therewith, clutch-shoes 29 and brake-strap 14 in connection therewith, double screws 26 and 35 for actuating the clutch-shoes and strap respectively, and means for oscillating said screws simultaneously in opposite directions.

31. In a wire-drawing machine, in combination a drawing-drum 1, clutch-drum 12 rotating therewith, clutch-shoes 29 and brake-strap 14 in connection with said clutch-drum, double screws 26 and 35 for actuating the clutch-shoes and strap respectively, levers 25, links 28, sliding collars 27, and levers 32 for actuating said screws 26 from rock-shaft 10, lever 33, link 34, and link 9 for oscillating said screw 35 from shaft 10, means for rocking said shaft, and a continuously-driven spindle with which said clutch-shoes are driven.

32. In a wire-drawing machine, in combination, a vertical spindle, means for driving said spindle, suitable framework, an elongated sleeve in connection with said framework surrounding said spindle below its upper end, a wire-drawing drum having a central sleeve surrounding the upper part of said spindle and driven therefrom, the construction and arrangement being such that the upper end of said first-mentioned sleeve is above the point at which wire is normally drawn on said wire-drawing drum, substantially as described and for the purposes set forth.

33. In a wire-drawing machine, in combination, a driven spindle 31, a wire-drawing drum 1 having a central sleeve surrounding the upper end of said spindle and keyed to rotate therewith, a sleeve 37 in connection with the framework surrounding said spindle, the upper end of said sleeve being above the plane of the lower end of the outer flange of drum 1, substantially as described and for the purposes set forth.

34. In a wire-drawing machine, in combination, a driven spindle 31, sleeve 13, drum 1 keyed to said sleeve, sleeve 37 supported on the framework, said spindle and sleeves being concentric and sleeve 37 extending above the point at which wire is usually drawn on drum 1, whereby the strain of drawing the wire is absorbed by said sleeve in connection with the framework, substantially as described.

695,491. TOOTHPICK-PACKAGE. WILHELM REINHARD, Berlin, Germany. Filed June 14, 1901. Serial No. 64,573. (No model.)

Claim.—1. The combination of a series of splints connected at one end, and an enlarged base or stand engaging said connected ends and supporting the splints in position.

2. The combination of a series of splints connected at one end, an enlarged base engaged with the connected ends and supporting said splints, and a cover arranged over the free ends of the splints.

3. The combination of a series of splints connected at one end, and a fixed cover arranged over the free ends of the splints and obstructing the detachment of any but the end splints of the series.

4. The combination of a base or stand, a series of splints connected together and to said base at one end, and a cover or shield protecting the free ends of the splints, said splints being of such length that the opposite sides of an intermediate section of each are exposed between the base and the shield or cover.



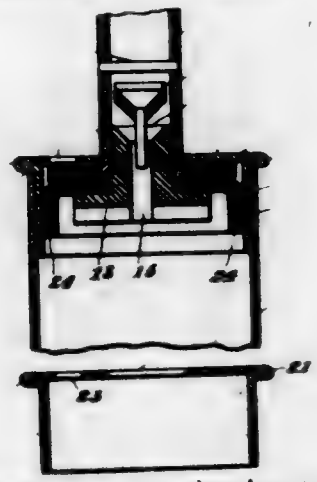
5. The combination of a series of splints connected at one end, an intermediate one of said series being of greater width than the others, and a shield secured to said intermediate, wider, splint and protecting the free ends of the others of the series.

6. The combination of a series of splints connected at one end, a base having a groove in its upper surface to receive said connected ends, and a cover arranged over the free, upper, ends of the splints.

7. The combination of a series of splints connected at one end, a base having a groove in its upper surface to receive the connected ends of said splints, a cover arranged over the free ends of the splints, and means for locking the connected ends of the splints against movement longitudinally of the groove in which they are fitted

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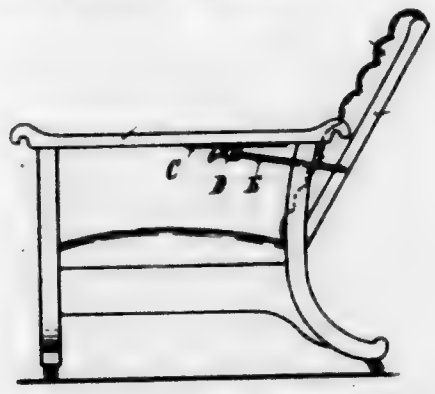
695,492. AIR-PUMP. JOHN ROBERTSON, Cincinnati, Ohio. Filed Nov. 3, 1899. Serial No. 735,867. (No model.)



Claim.—1. In an air-pump, a cup-shaped cap to receive and shape a collapsible plunger and hold it in position while it is being inserted into the open end of the cylinder.

2. In a pump, the combination of an open-ended barrel or cylinder, a piston therein and provided with an expansible packing to fit the walls of the cylinder or barrel, and a cap or closure for the barrel or cylinder adapted to fit inside of the open end thereof and having in its under side a cavity to receive shape and house the piston to facilitate the insertion thereof within the barrel or cylinder, substantially as set forth.

695,493. RECLINING-CHAIR. FRANK ROSE, Dayton, Ky., assignor to Henry Schmit & Co., Cincinnati, Ohio, a Firm. Filed Feb 25, 1901. Serial No. 48,697. (No model.)



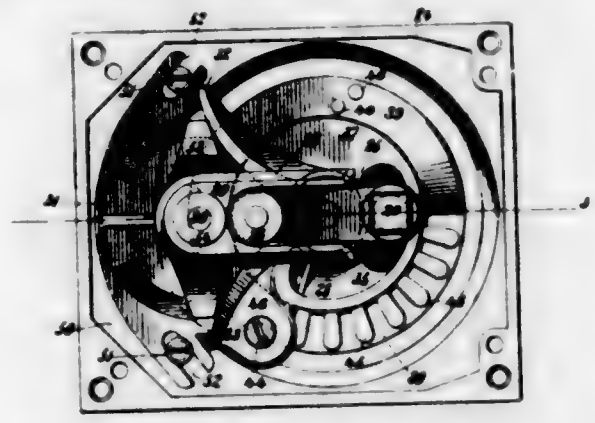
Claim.—1. In a reclining-chair having a swinging back the combination of longitudinal plates secured to the arms of the chair, a catch sliding in contact with the plates and having a stud above and immediately below the plates, and a coupling-rod journaled at one end in the catch and at the other end in the chair-back so that the weight of the back normally exercises a backward and downward pull upon the rod causing the studs to grip the plate, substantially as shown and described.

2. In a reclining-chair having a swinging back the combination of a longitudinally-slotted plate secured to the under side of each arm, a catch sliding in each slot having a horizontal stud above the plate and a similar stud below it, and a rod journaled at one end in the catch below the studs and at the other end in the chair-back so that the weight of the back normally exercises a backward and downward pull upon the rod and causes the studs to grip the plate, substantially as shown and described.

3. In a reclining-chair having a swinging back the combination of a slotted plate secured to the under side of each arm, a catch sliding in the slot having a stud above and below the plate and a vertical guide extending into the slot and having horizontal lugs to bear upon the under side of the plate in a position such that when they touch the plate the studs exercise no gripping action upon the plate, and a rod at one end journaled in the catch and at the other end journaled in the chair-back so that the weight of the back causes the studs to grip the plate, substantially as shown and described.

4. In a reclining-chair having a swinging back the combination of a longitudinally-slotted plate secured to the arm of the chair, a catch sliding in the slot having a stud above and below the plate a vertical arm extending into the slot and having horizontal lugs and a finger-piece, and a rod journaled at one end in the catch and at the other end in the back so that the weight of the back causes the studs to grip the plate to lock the movement of the sliding catch and that by pressing upon the finger-piece to bring the lugs into contact with the plate the catch is free to slide, substantially as shown and described.

695,494. SPRING-HINGE. ALBERT J. ROSENTRETER, Boonton, N. J., assignor to Joseph Bardsley, Montclair, N. J. Filed July 17, 1901. Serial No. 68,590. (No model.)



Claim.—1. In a spring-hinge, the actuating-spindle to receive the door, the vertical shaft 34 at one side of said spindle, the hub 35 having a sleeve 36 mounted on said shaft, the hub 37 having the sleeve 38 mounted upon the said sleeve 36, and the coiled spring connected at its ends with said hubs, combined with the lever-arms respectively connected with said hubs for turning the same and winding said spring during the opening of the door, stops for arresting said lever-arms at their initial position, and the actuating-arm connected with said spindle and adapted to engage either of said lever-arms for turning the same and winding the spring during the opening of the door; substantially as set forth.

2. In a spring-hinge, the actuating-spindle to receive the door, the upper and lower rotary hubs, and the coiled spring connected at its ends with said hubs, said upper hub comprising as a member thereof the rotary ring 39 having the series of teeth 45, combined with the rotary chuck 44 connected with said upper hub and having on its lower end the studs 48 to engage said teeth and effect the rotation of said ring for adjusting the tension of the said spring, the lever-arms respectively connected with said hubs for turning the same and winding the spring during the opening of the door, stops for arresting said lever-arms at their initial position, and the actuating-arm connected with said spindle and adapted to engage either of said lever-arms for turning the same and winding the spring during the opening of the door; substantially as set forth.

3. In a spring-hinge, the actuating-spindle to receive the door, combined with the coiled door-closing spring, the pivotally-mounted lever-arms respectively connected with the ends of said spring for winding said spring during the opening of the door, stops for arresting said lever-arms at their initial position, the actuating-arm connected with said spindle and adapted at its outer end to engage either of said lever-arms for turning

the same and winding the spring during the opening of the door, and means operable from said spindle for, during the opening of the door, acting against the other of said lever-arms while said actuating-arm is moving its lever-arm and then arresting said other lever-arm, whereby during the starting portion of the opening of the door, said spring will be wound from both its ends and then, during the continued opening of the door, said other lever-arm having been arrested, said spring will be wound from one of its ends only; substantially as set forth.

4. In a spring-hinge, the actuating-spindle to receive the door, combined with the coiled door-closing spring, the pivotally-mounted lever-arms respectively connected with the ends of said spring for winding said spring during the opening of the door, stops for arresting said lever-arms at their initial position, the actuating-arm connected with said spindle and adapted at its outer end to engage either of said lever-arms for turning the same and winding the spring during the opening of the door, and the pivoted bifurcated frame 29 in engagement with said actuating-arm and having arms 55, for engagement with said lever-arms, one of said arms 55 being for coöperation with one of said lever-arms, and the other of said arms 55 being for coöperation with the other of said lever-arms, and said frame 29 being so disposed with respect to said lever-arms that while said actuating-arm is moving one of said lever-arms, said frame 29 through one of its arms 55 will actuate the other of said lever-arms; substantially as set forth.

5. In a spring-hinge, the actuating-spindle to receive the door, combined with the coiled door-closing spring, the pivotally-mounted lever-arms respectively connected with the ends of said spring for winding said spring during the opening of the door, the plate 31 affording stops for arresting said lever-arms at their initial position, means for adjusting the position of said plate 31 so as to regulate the initial position of said lever-arms in accordance with the condition of the door, the actuating-arm connected with said spindle and having the rollers 26, 27, and adapted, through said roller 27, to engage either of said lever-arms for turning the same and winding the spring during the opening of the door, and the pivotally-mounted frame 29 carried by said plate 31 and in engagement with said roller 26 for actuating the other of said lever-arms to wind its end of the spring while said actuating-arm is moving its lever-arm, whereby during the starting portion of the opening of the door, said spring will be wound from both its ends; substantially as set forth.

6. In a spring-hinge, the inclosing casing having a cap-plate, and the actuating-spindle to receive the door, combined with a door-closing spring, the pivotally-mounted lever-arms respectively, connected with the ends of said spring for winding said spring during the opening of the door, stops for arresting said lever-arms at their initial position, the vertical screws 51 separated from one another a distance somewhat greater than the thickness of a door for binding said stops and having their heads exposed through the said cap-plate to admit of their operation without removing said cap-plate for adjusting the parts of the hinge from the door, and the actuating-arm connected with said spindle and adapted at its outer end to engage either of said lever-arms for turning the same and winding the spring during the opening of the door, said spindle being mounted eccentrically to said lever-arms; substantially as set forth.

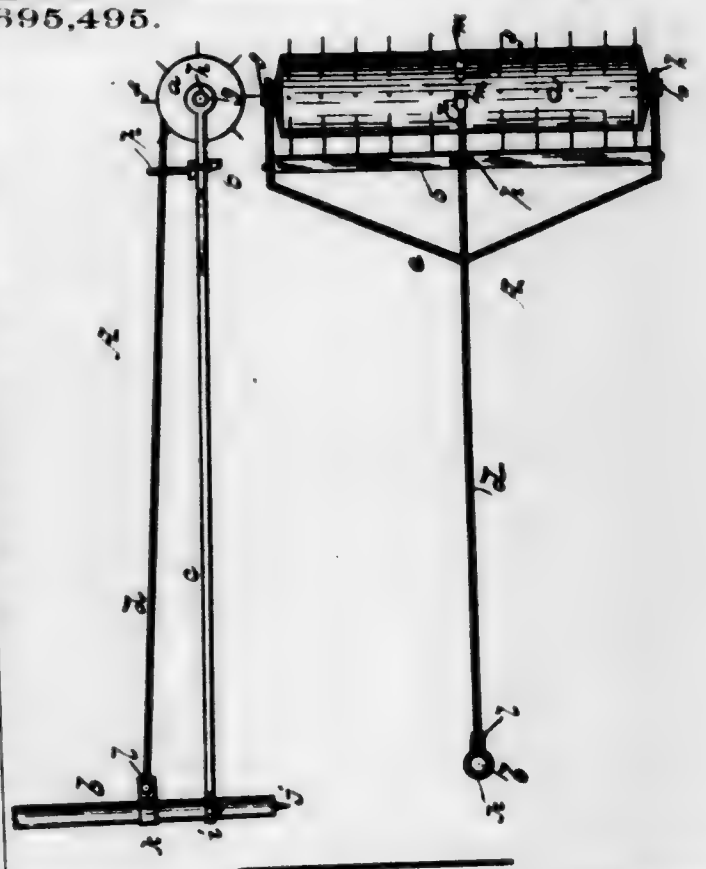
7. In a spring-hinge, the actuating-spindle to receive the door, combined with a door-closing spring, the pivotally-mounted lever-arms respectively connected with the ends of said spring for winding said spring during the opening of the door, the adjustable plate 31 affording stops for arresting said lever-arms at their initial position, the vertical screws 51 separated from one another a distance somewhat greater than the thickness of a door for binding said plate and when loosened to admit of the adjustment of the same from the door, and the actuating-arm connected with said spindle and adapted at its outer end to engage either of said lever-arms for turning the same and winding the spring during the opening of the door, said spindle being mounted eccentrically to said lever-arms; substantially as set forth.

8. A door-closing spring, combined with means for the adjustment of said spring, said means comprising a plate 39 to which one end of the spring is connected and which is adapted to move in the direction the spring is wound during its adjustment, the teeth 45 on said plate, and the axially-rotatable chuck 44 having the studs 48 to engage and move around the ends of said teeth for moving said plate and adjusting said spring; substantially as set forth.

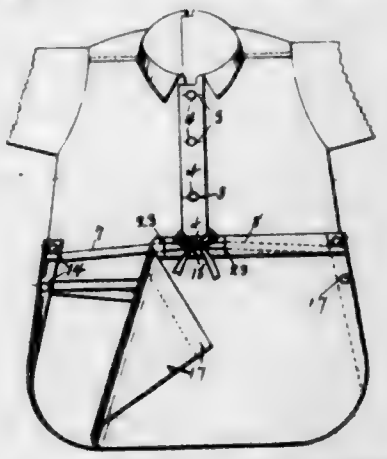
695,495. CARPET-STRETCHER. Jacob B. Russel, Delray, Mich. Filed Dec. 2, 1901. Serial No. 84,338. (No model.)

Claim.—The within-described carpet-stretcher, comprising the toothed roller *a* provided with the ratchet-teeth *m* and openings *n* arranged midway between the opposite ends thereof, a frame *c* to which the roller is pivoted, a cross-bar *o* having a guide *p*, secured to the frame, a pawl *d* and hand-lever *b* and *e*, said pawl being pivoted at one end to the lever *b* and its free end passing through the guide *p* engaging the teeth *m*, the whole constructed and arranged as shown and described.

695,495.



695,496. INVALID'S ROBE. Adeline Schermerhorn, Troy N. Y. Filed July 11, 1901. Serial No. 67,864. (No model.)

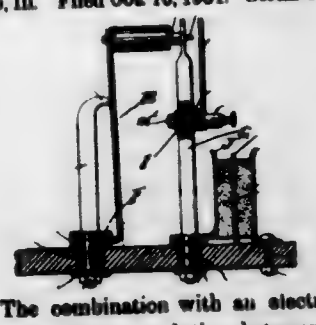


Claim.—1. An invalid's robe comprising an adjustable body composed of two similar detachable sections and means for adjustably securing such sections together; detachable front and back flaps; and means for detachably and adjustably securing such flaps to the adjusted body, substantially as described.

2. An invalid's robe comprising a body and detachable front and back body-lapping flaps having tape-openings in the lapping parts at or near the waist-line; and shirring-tapes passed through such openings for detachably and adjustably securing the flaps to the body and at the same time adjusting the size of the waist, substantially as described.

3. An invalid's robe comprising a body and detachable interchangeable front and back flaps, and means for detachably and interchangeably securing the flaps to the body, substantially as described.

695,497. AUTOMATIC CUT-OUT. Aaron A. Seeley and Charles Siley, Chicago, Ill. Filed Oct. 10, 1901. Serial No. 78,180. (No model.)



Claim.—1. The combination with an electric circuit, of a pair of electrodes, a fusible plug interposed therebetween, means interposed in said circuit for automatically fusing said plug, and means for automatically moving one of said electrodes in the direction of the other electrode whenever said plug is fused.

2. The combination with an electric circuit, of a spring-contact, an electrode, a fusible plug interposed in said circuit between said spring-contact and said electrode so as to deflect said spring-contact against spring-pressure, and means interposed in said circuit for automatically fusing said plug.

3. The combination with an electric circuit, of a pair of electrodes, a wedge interposed between said electrodes, said wedge comprising a fusible plug, and means for completing said circuit between said electrodes, means for automatically fusing said plug, and means for automatically deflecting one of said electrodes in the direction of the other electrode whenever said plug is fused.

4. The combination with an electric circuit, of a pair of electrodes, a wedge interposed between said electrodes and completing said circuit, said wedge comprising a heat-coil, contacts and a fusible plug, and means for automatically moving one of said electrodes in the direction of the other electrode whenever said plug is fused.

5. The combination with an electric circuit, of a pair of electrodes, a contact-maker, a wedge interposed between said contact-maker and one of said electrodes so as to hold said contact-maker in contact with the other of said electrodes, said wedge comprising a fusible plug, means for automatically fusing said plug and means for automatically throwing said contact-maker out of contact whenever said plug is fused, substantially as described.

6. In an automatic cut-out device, the combination with a pair of electrodes, of a spring-contact arranged to make contact with one of said electrodes, but normally out of contact therewith, a circuit-closing device comprising a fusible plug interposed between said spring-contact and one of said electrodes so as to force said spring-contact into contact with the other of said electrodes, and means for automatically fusing said fusible plug, substantially as described.

7. The combination with an electric circuit, of a pair of electrodes, a contact-maker arranged to make contact with one of said electrodes but normally out of contact therewith, a fusible plug interposed between the other of said electrodes and said contact-maker so as to force said contact-maker into contact with the first-mentioned electrode, means for automatically fusing said plug and releasing said contact-maker, and means actuated by the movement of said contact-maker, when so released, for automatically closing a second circuit.

8. In an automatic cut-out device, the combination with a spring-electrode, of a fusible plug interposed between said spring-electrode and a stationary part of the device so as to force said spring-electrode out of its normal position and complete said circuit, means for automatically fusing said plug, and means, set in motion upon the release of said spring-electrode, for breaking said circuit, substantially as described.

9. In an automatic cut-out device, the combination with a spring-electrode, of a fusible plug interposed between said spring-electrode and a stationary part of the device so as to complete said circuit and force said spring-electrode out of its normal position, means for automatically fusing said plug, and means, set in motion upon the release of said spring-electrode, for breaking said circuit and for closing a second and independent circuit, substantially as described.

10. In an automatic cut-out device, the combination with a spring-electrode, of a fusible plug interposed between said spring-electrode and a stationary part of the device so as to complete said circuit and force said spring-electrode out of its normal position, means for automatically fusing said plug, and means, set in motion upon the release of said spring-electrode, for breaking said circuit and for closing a shunt-circuit, substantially as described.

11. In a circuit breaking and closing device, the combination with a pair of electrodes, of a contact-maker arranged to make contact with one of said electrodes but normally out of contact therewith, a circuit-closing device comprising a fusible plug interposed between said contact-maker and the other of said electrodes so as to force said contact-maker into contact with the first-mentioned electrode, means for automatically fusing said plug, a third electrode, and means actuated by the movement of said contact-maker upon the fusing of said plug for electrically connecting said third electrode with one of the aforesaid electrodes, substantially as described.

12. In an automatic cut-out device, the combination with a spring-electrode, of a fusible plug interposed between said spring-electrode and a stationary part of the device so as to complete said circuit and force said spring-electrode out of its normal position, means for automatically fusing said plug, and means, set in motion upon the release of said spring-electrode, for breaking said circuit, closing a shunt-circuit and also closing an independent circuit, substantially as described.

13. In an automatic cut-out device, the combination with a spring-electrode, of a fusible plug interposed between said spring-electrode and a stationary portion of the device so as to force said spring-electrode out of its normal position, means for automatically fusing said plug, a trip automatically operated by the movement of said spring-electrode when released, an arm engaged by said trip, a pair of electrodes, a circuit-closing bridge arranged therebetween and held by said arm in contact with said pair of electrodes, and means for automatically throwing said bridge out of contact with said pair of electrodes upon the release of said arm, substantially as described.

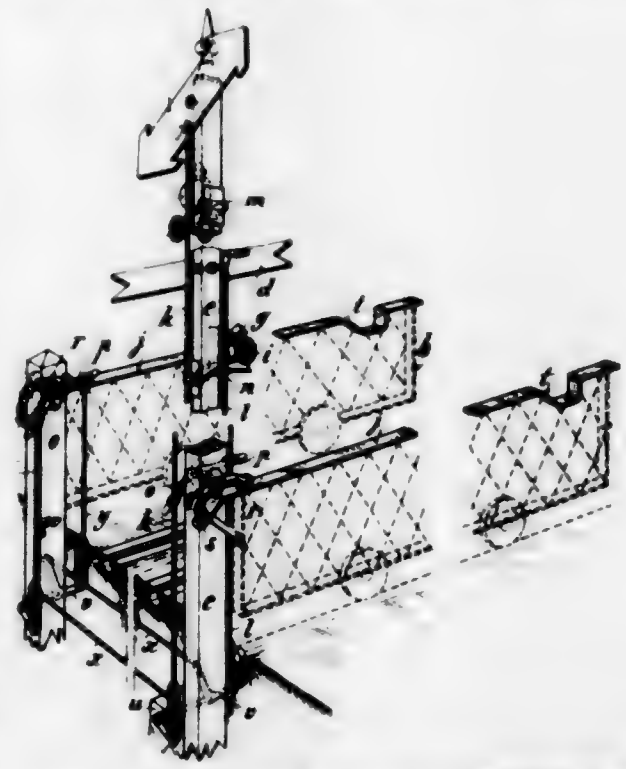
14. A circuit-closing plug comprising a cell formed of insulating material, a heat-coil arranged within said cell, an exposed metallic contact arranged at each end of said heat-coil, and a loose fusible plug arranged adjacent to one of said metallic contacts.

15. A circuit-closing plug comprising a cell made of insulating material and provided at one end with a projection of like material, a heat-coil arranged within said cell, a metallic contact mounted upon said projection and electrically connected with one end of said heat-coil, an exposed metallic contact electrically connected with the other end of said heat-coil, and a fusible plug arranged externally of said cell and adjacent to said metallic contact.

16. The combination with an electric circuit, of a freely-removable fusible plug interposed therein to complete said circuit, and means for automatically fusing said plug, said means being adapted to be operated by the entrance of an excessive current to said circuit, substantially as described.

17. The combination with an electric circuit, of a pair of contacts and a fusible plug forming a part of said circuit and interposed between one of said contacts and another portion of the apparatus, so as to complete said circuit by deflecting one of said contacts into electrical contact with the other of said contacts, substantially as described.

695,498. MEANS FOR OPERATING SIGNALS AUTOMATICALLY AT LEVEL CROSSINGS, &c. LAURENT SEMAT, Cairo, Egypt. Filed Jan. 2, 1902. Serial No. 88,150. (No model.)



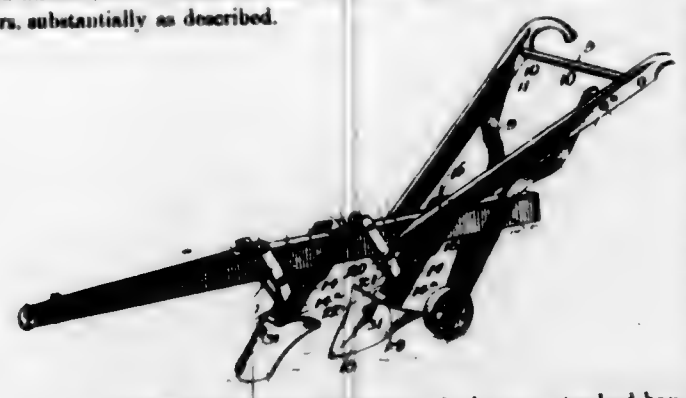
Claim.—1. An automatically-acting signal system for railway level crossings and the like comprising a double mechanism operated by the movement of the barriers in opening and closing, the said mechanism consisting of a signal for the railway-track and a signal for the roadway, a plate on the barrier having inclined portions at predetermined points and pivoted levers resting upon said plate and connected to their respective signals, substantially as set forth.

2. A device of the kind described comprising a railway-track signal and a roadway-track signal, a plate on one barrier having inclined portions at predetermined points, pivoted levers resting on the plate and rods connecting the levers to their signals, and means for transmitting the action of one set of levers to similar levers of a second plate on the second barrier substantially as set forth.

695,499. CULTIVATOR-PLOW. JAMES A. D. SHEFFIELD and JOHN C. SHEFFIELD, Houston county, Tex. Filed Oct. 5, 1901. Serial No. 77,709. (No model.)

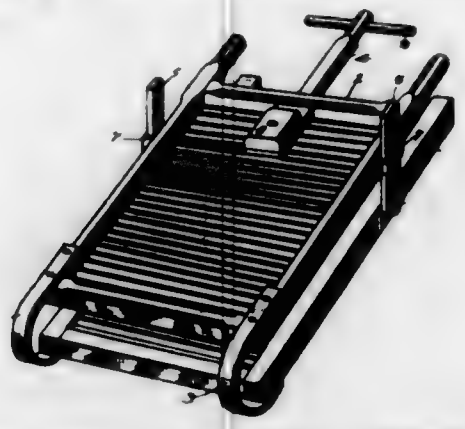
Claim.—1. In a plow, the combination of a beam, handles pivotally connected at their lower front ends thereto, a standard comprising a pair of bars, disposed on opposite sides of the beam and pivotally connected thereto, the upper ends of said bars being adjustably attached to

said handles, and a wheel mounted between the lower portions of said bars, substantially as described.



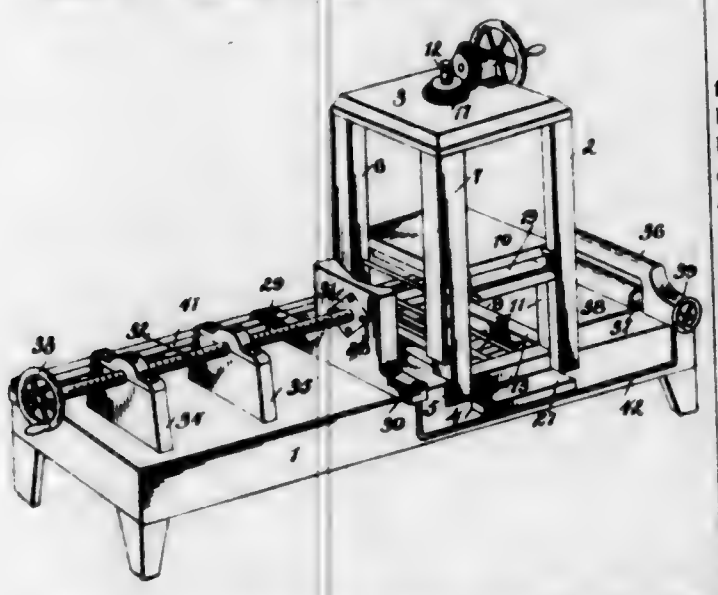
2. In a cultivator-plow, the combination of a beam, a standard having its upper end forked, to provide arms which bear against opposite sides of the beam, clamping-bolts connecting said arms above and below the beam, whereby the upper end of the standard is adjustable longitudinally of the beam, an adjusting-plate on the latter, notched on its upper side, a brace-link connected to said standard, extending forwardly and upwardly therefrom and provided with arms which bear against opposite sides of said beam, and bolts connecting said arms and extending transversely above and below the beam, the upper of said bolts engaging said notched adjusting-plate, substantially as described.

695,500. WASHING-MACHINE. WILLIAM R. SIMPSON, Gilliam, La. Filed Apr. 17, 1901. Serial No. 56,299. (No model.)



Claim.—A device of the class described comprising the upper and lower washboards, the approximately U-shaped springs located at opposite sides of the washboards and connecting their lower ends, the guides located at the opposite sides of the washboards near the upper ends thereof and secured to one of the boards and slidingly connected with the other, and means for moving clothes over the rubbing-surfaces of the washboards, substantially as described.

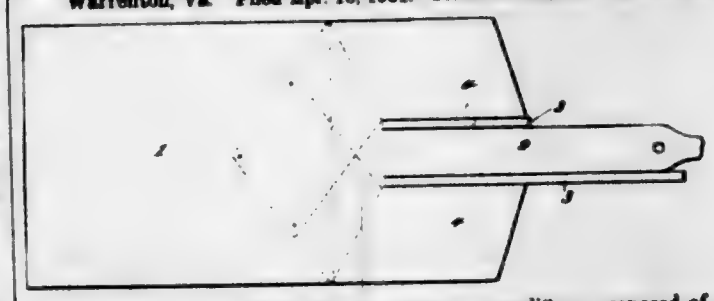
695,501. BUTTER CUTTING MACHINE. GEORGE L. SMITH, Good Ground, N. Y. Filed May 11, 1901. Serial No. 59,777. (No model.)



Claim.—1. In a butter-cutting machine, a supporting-table a pressure-plate and apron-roller longitudinally movable thereon, a vertical frame provided with adjustable primary cutting-knives, a vertically-movable cutting-frame, means for operating the same, a pivoted plate for resisting the upward pressure of the butter and means for releasing the plate before the frame reaches the limit of its upward movement, substantially as described.

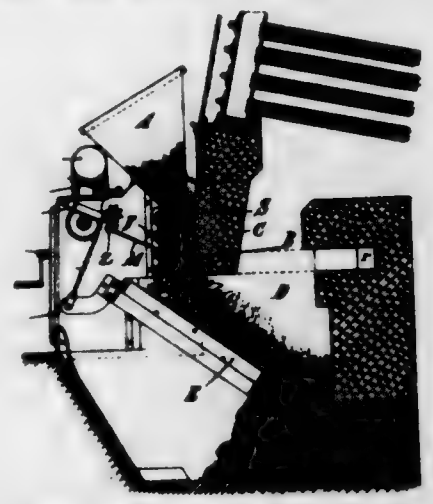
2. In a butter-cutting machine a supporting-table a pressure-plate adapted to force the butter through primary cutting-knives, an apron, a roller for withdrawing the same, rigid connections between the roller and pressure-plate, a vertical frame carrying a bevel-gear engaging the screw-threaded rod 12, for controlling the vertical movement of the inner frame, a hand-wheel for operating the said gear, horizontal adjustable cutting-knives adapted to cut the butter into blocks or squares, a pivoted plate, a U-shaped bail holding the said plate normally down, the upwardly-extending rod 25 connected with the U-shaped bail and adapted to be tripped by the inner frame in its upward movement, a removable or sliding plate for receiving the butter after it has been cut into blocks, substantially as described.

695,502. AUTOMATIC PAN-LIFTER. THOMAS T. SMITH, near Warrenton, Va. Filed Apr. 16, 1901. Serial No. 56,137. (No model.)



Claim.—As an article of manufacture, a pan-lifter composed of a body portion, a handle extending therefrom, reinforcing portions turned upon and secured to said body portion, automatic spring pan-holders formed on either side of said handle, and provided with rounded bottoms, whereby said holders automatically engage the edge of the pan after the same is slid under said holders; all the parts being integral and stamped out of a single sheet of metal, substantially as described.

695,503. FURNACE. CARL W. STAUSS, Berlin, Germany. Filed July 1, 1901. Serial No. 66,746. (No model.)



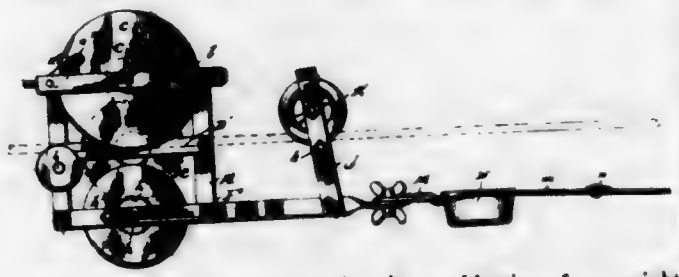
Claim.—1. The combination with a grate of a hopper for feeding fuel thereto, a gasifying-chamber between the hopper and grate, a fire-brick bridge situated directly above the grate and adjacent to said chamber for imparting heat thereto, a vertical grid forming a boundary to said chamber, means for admitting air under pressure through said grid to the chamber and also to the grate, means for raising and lowering the latter, a reciprocating rake for retaining the fuel in the hopper and gasification-chamber when desired, means for operating said rake, an inclosing casing provided with doors for admitting air to the furnace, and means for admittance of secondary air, substantially as described.

2. The combination with an inclined grate of a hopper for feeding fuel thereto, a gasifying-chamber between the hopper and grate, a fire-brick bridge situated directly above the grate and adjacent to said chamber for imparting heat thereto, a vertical hinged grid forming a boundary to said chamber, a pipe for admitting air under pressure through said grid to the chamber and also to the grate, chains attached to the grate for raising and lowering same, means for operating said chains, a reciprocating rake for retaining the fuel in the hopper and gasification-chamber when desired, means for operating said rake, an inclosing casing provided with doors for admitting air to the furnace, and conduits for admittance of secondary air, substantially as described.

3. The combination with an inclined grate of a hopper for feeding fuel thereto, a gasifying-chamber between the hopper and grate, a fire-brick bridge situated directly above the grate and adjacent to said cham-

ber for imparting heat thereto, a vertical hinged grid forming a boundary to said chamber, a pipe for admitting air under pressure through said grid to the chamber and also to the grate, chains attached to the grate for raising and lowering same, a device for operating said chains, a reciprocating rake moving in a guide for retaining the fuel in the hopper and gasification-chamber when desired, a rack, pinion and crank for operating said rake, an inclosing casing provided with doors for admitting air to the furnace, and conduits for admittance of secondary air, substantially as described.

695,504. CONDUCTOR-CARRIER. AUSTIN H. STEWART, Nashville, Tenn. Filed Dec. 9, 1901. Serial No. 85,229. (No model.)



Claim.—1. In a conductor-carrier, the combination of an upright frame, a plurality of lateral frames carried thereby, driving-gear and a driving-wheel mounted in said frames, and a trolley-wheel arranged in line with the driving-wheel and supported by the upright frame.

2. The combination with two uprights, of a transverse frame at the top thereof, a driving-wheel mounted in said transverse frame, driving mechanism secured to the lower ends of the uprights, a trolley-wheel secured to the frame and means for locking the driving-wheel against movement.

3. The combination with two uprights of a transversely-arranged frame carried thereby, a driving-wheel mounted in said frame, mechanism for driving said driving-wheel located below the same and carried by the uprights, a longitudinally-extended bar secured to the uprights, and a trolley on said bar arranged in line with the driving-wheel.

4. In a conductor-carrier, the combination with a driving mechanism and a carrying-wheel, a frame supporting the same and means for preventing the escape of the wire from the carrier-wheel, comprising a grooved wheel of a thickness greater than the thickness of the driving-wheel.

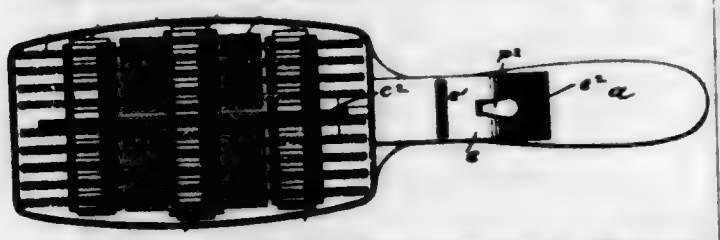
5. The combination with a frame, a driving-wheel and driving mechanism located below the wheel, a trolley-wheel in advance of the driving-wheel, a standard carrying the trolley-wheel having two parallel members, and a bolt connecting the ends of the members having means for preventing its escape from one of the members.

6. In a conductor-carrier, the combination with the carrier, of a plate adjustably secured thereto, diverging arms on the plate and a burner or torch carried by the arms.

7. The combination with the conductor-carrier, of a plate adjustably secured thereto, diverging arms on the plate, a torch carried by the arms and located adjacent to the plate, and a cross-piece between the arms, substantially as described.

8. In a carrier for conductors, a single upright frame having secured thereto a plurality of transversely-arranged frames, supporting and driving means mounted respectively in said transverse frames, an extension on one of said frames and a trolley carried by said extension, substantially as described.

695,505. COIN-OPERATED HAIR-BRUSH. CLARENCE M. STINER, New York, N. Y. Filed July 27, 1901. Serial No. 69,800. (No model.)



Claim.—1. The combination with a hair-brush having shiftable bristles, of a coin-operated device, whereby the said bristles may be shifted.

2. A hair-brush provided with rotatable wheels carrying bristles, in combination with a coin-operated device for rotating said wheels.

3. A hair-brush provided with rotatable wheels carrying bristles, gearing connecting said wheels together, and a coin-operated device adapted to move said gearing.

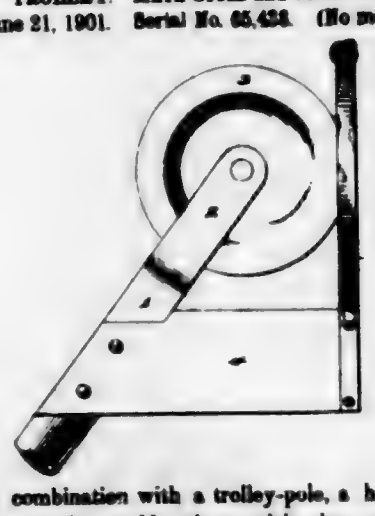
4. A hair-brush having movable bristles, in combination with means for moving the same, whereby fresh bristles may be obtained when desired.

5. A hair-brush provided with movable bristles, a pivoted lever adapted to move said bristles, said lever carrying a coin-chute, a second lever pivoted concentrically with the first and means whereby the two levers will be interlocked when coin is inserted in the chute, substantially as described.

6. In a hair-brush, the combination of a series of wheels carrying bristles and geared together, of a lever carrying a pawl engaging with said wheels and also carrying a coin-chute, a second lever pivoted concentrically with the first and provided with pivoted thumb-pieces adapted to engage with the coin in the coin-chute on the first lever, whereby the two levers and the wheels will be moved simultaneously.

7. The combination of a brush whose frame and brushing surface are movable with respect to each other, and a coin-operated device whereby such movement can be effected.

695,506. TROLLEY. MATH STOLL and JOHN W. ROCK, Pittsburg, Pa. Filed June 21, 1901. Serial No. 65,428. (No model.)



Claim.—In combination with a trolley-pole, a harp and trolley-wheel, a block attached to said pole, semicircular spring-arms, cross-pieces mounted in said arms, bearings arranged in said semicircular spring-arms and cross-pieces, and spherical antifriction-rollers mounted in said bearings, all parts being arranged and operating substantially as described and for the purpose set forth.

695,507. JEWELER'S MOLD. FRANK D. STRAUB, Cleveland, Ohio. Filed June 20, 1900. Serial No. 21,001. (No model.)



Claim.—1. In a jeweler's ring-mold, the combination of two upper sections having on their inner faces grooves which coöperate to form a mold for the body of the ring, a section which is the base for said mold and contains the part of the mold which forms the setting for said ring, said base having a recess, and a core removably held within said recess, substantially as described.

2. In a jeweler's ring-mold, the combination of two upper sections having on their inner faces grooves which coöperate to form a mold for the body of the ring, a section which is the base for said mold and contains the part of the mold which forms the setting for said ring, said base having a recess, and a core having a projection taking into the recess in said base, the upper end of said core contacting the bottom face of said upper sections whereby said core is held in place, substantially as described.

3. In a jeweler's ring-mold, two upper sections having on their inner faces grooves which coöperate to form the body of the ring, a base-section fitting against said upper sections, said base having a main recess adapted to connect with said coöperating grooves and a reduced recess at the bottom of the main recess, combined with a core adapted to occupy said main recess and having a shank fitting said reduced recess, substantially as described.

4. In a jeweler's ring-mold, a pair of side sections, each of which has on its face an incomplete annular groove, the bottom of said sections being substantially tangent to the inner edge of said groove, combined with a bottom section which contains a recess adapted to continue the opening comprised by said coöperating grooves, and a core contained within said

recess and abutting with its upper extremity the bottom face of said side sections, substantially as described.

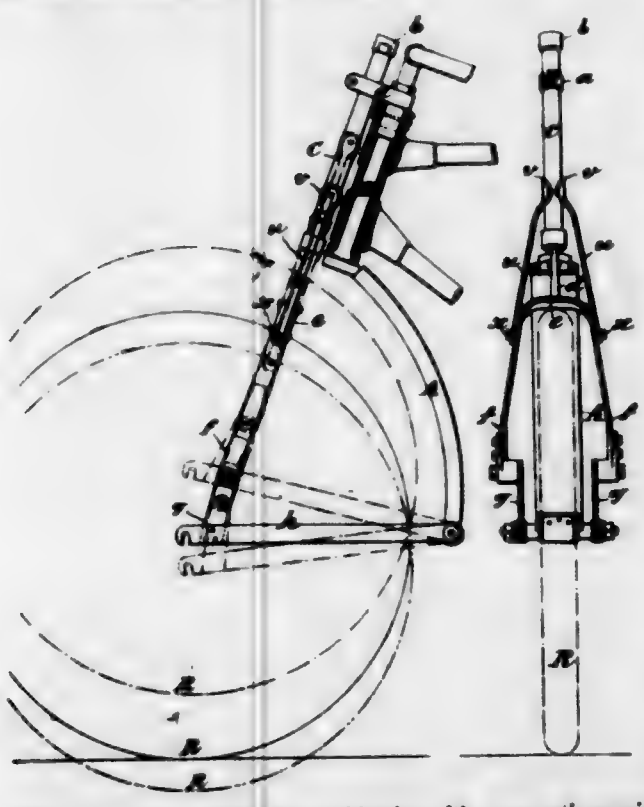
5. A mold made of metal and comprising a plurality of body-sections disposed face to face and each having a parti-annular chamber, said chambers registering to form a body-mold space, each chamber being cut away on a line making a chord to said parti-annular chamber, to thereby expose a part of each chamber, a core in said chamber, the face of the core constituting one wall of said chamber to thereby define the internal diameter of the ring, and a crown-mold section having a crown-mold space in communication with the body-mold space, said crown-mold section abutting the face of the body-section left by the cut as a chord and forming that portion of the other wall of the annular chamber which lies between the points where the chord cuts said annular chamber.

6. A mold made of metal and comprising a plurality of body-sections disposed face to face and each having a parti-annular chamber of variable depths, said chambers registering to form a body-mold space, each chamber being cut away on a line making a chord to said annular chamber to thereby expose a part of each chamber, a core in said chamber, the face of the core constituting one wall of said chamber to thereby define the internal diameter of the ring, and a crown-mold section having a crown-mold space in communication with the body-mold space, said crown-mold section abutting the face of the body-section left by the cut as a chord and forming that portion of the other wall of the annular chamber which lies between the points where the chord cuts said annular chamber.

7. A mold made of metal and comprising a plurality of body-sections disposed face to face and having parti-circular chambers registering to form a body-mold space, said sections being cut away on a line making a chord to the circle, to thereby expose part of the mold-space, a pin to unite the two sections, a core to define the internal diameter of the ring, and a crown-mold section having a flat face to fit against the body-sections of the mold, and having a mold-space in communication with the body-mold space.

8. A multipart mold made of metal and consisting of two main separable substantially duplicate sections having like parti-annular chambers adapted to register one with the other, and a runaway, said chambers being cut away on a line making a chord to said circular chambers to thereby expose a part of each chamber, a core centered in said chamber, and a third or auxiliary mold-section adapted to fit against the face of the mold material left by the cut made as a chord, said auxiliary mold-section having a projection surrounded by a space, said space communicating with the mold-space of each main section and defining the exterior shape of the crown of the ring to be cast the said projection defining the size and location of the jewel-space in the crown, said auxiliary section being confined to the main section during casting.

695,508. FRICTIONAL RETARDING MEANS FOR SPRING-VEHICLES. JULES M. M. TRUFFAULT, Paris, France, assignor of fifty-one one-hundredths to Edward Vassallo Hartford, Orange, N.J. Filed Sept. 4, 1900. Serial No. 28,956. (No model.)



Claim.—1. In an vehicle, the combination with a supporting-spring between the parts of the vehicle movable relatively to each other, of non-pneumatic frictional means between the parts which provides a yielding resistance to movement, said means producing a retarding effect on the reaction of the spring.

2. In a vehicle, the combination with the wheel thereof, the frame carried by said wheel, and a spring interposed between said wheel and frame, of non-pneumatic frictional mechanism which provides a yielding resistance to the movements of the parts, said means serving to materially and uniformly exert a retarding effect on the said movements of the parts in both directions.

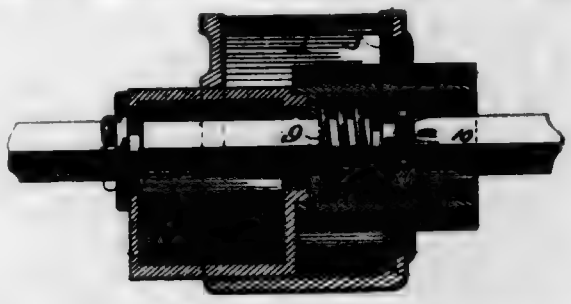
3. In a vehicle, the combination with the wheel thereof, the frame above the wheel, and the spring mechanism between the frame and the wheel, said spring mechanism comprising a tubular casing, a closely-fitting piston therein, the rod of said piston coupled to the arms carrying the wheel, the said arms, and a spring in the said casing composed of two or more telescoped coil-springs immersed in a pasty mass of grease which retards the action of the spring, substantially as set forth.

4. In a vehicle, the combination with the wheel thereof, the frame above the wheel, arms pivotally attached to said frame and carrying the wheel, the spring-casing, the spring therein, the closely-fitting piston therein, the rod of said piston, the fork between said piston and the arms carrying the wheel, the arms *u*, and the pads *v* on said arms and gripping the spring-casing frictionally and producing a retarding effect on the reaction of the spring, substantially as set forth.

5. In a vehicle, the combination with the frame, the spring-casing thereon, the spring therein, the closely-fitting piston therein, the rod of said piston, the fork coupled to said rod, and the arms *A*, pivoted to the frame with frictional pivot-joints, and also to the branches of the said fork with frictional pivot-joints the friction sufficing to materially resist the recoil of the spring, substantially as set forth.

6. In a vehicle, the combination with the wheel, the frame, the arms pivoted to the frame at one end, and the spring between said arms and frame, of the frictional pivot-bearings between the arms and the frame, each of these bearings comprising a bolt *o*, fixed in one of the parts and bearing cones *p* and *s*, and a nut *t*, the said cones and nut, and the coned leather washers *q* and *q'* in the eye of the other part, substantially as set forth.

695,509. SEEDING-MACHINE. WILLARD A. VAN BRUNT, Horicon, Wis. Filed Sept. 16, 1901. Serial No. 75,548. (No model.)



Claim.—1. In a seeding device, the combination with a cup and a feed-wheel, of means for controlling the amount of grain fed by the feed-wheel and a separate adjustable device for regulating the feed of different sizes of grains from the cup.

2. In a seeding device, the combination with a cup and a feed-wheel therein, of means for regulating the size of the discharge-outlet according to the size of the grain being sown, and a device for locking said means in position to partially close the outlet of the cup.

3. In a seeding device, the combination with a cup and a feed-wheel therein, of a hinged gate at the outlet end of the cup, and a catch for holding said gate in position to partially close the seed-outlet.

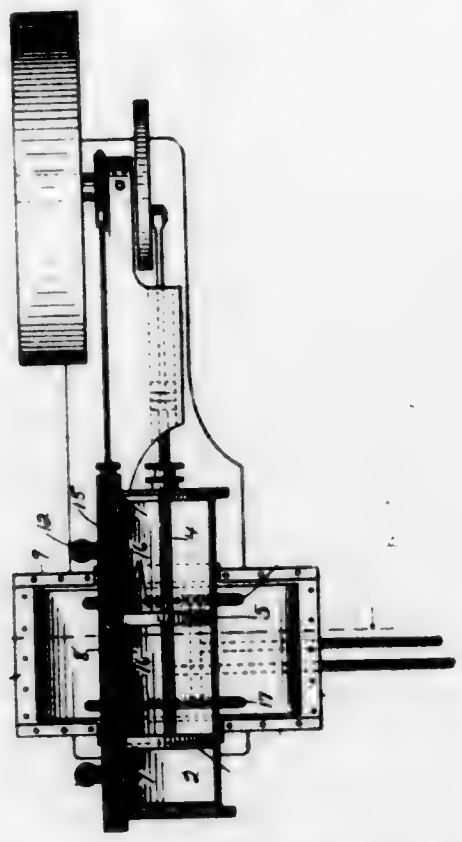
4. In a seeding device, the combination with a cup, a feed-wheel and a follower adapted to limit the amount of grain passing through the cup, of means below said feed-wheel and follower for contracting the outlet of said cup when sowing small seed or grain.

5. In a seeding device, the combination with a cup, having a circular opening in one side, of a rosette-ring flanged at one side and disposed in said opening the periphery of said rosette projecting beyond the outer face of the cup and provided with an annular flange or lip disposed against said outer face of the cup, and a feed-wheel in said rosette-ring.

6. In a seeding device the combination with a cup and a feed-wheel therein, of a movable gate at the outlet end of the cup and means arranged to engage the gate and lock it in position to partially close the seed-outlet.

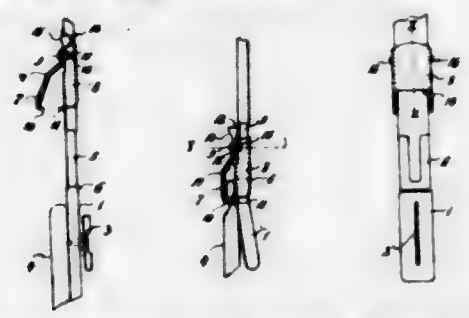
7. In a seeding device, the combination with a cup having an opening through one side, of a rosette-ring having a laterally-projecting cylindrical flange passing through said opening, the outer edge of said flange being upset and forming an annular flange or lip disposed against the outer face of the cup.

695,510. STEAM-ENGINE. JOHN A. VIRTUE, Delphos, Kans. Filed Apr. 22, 1901. Serial No. 56,812. (No model.)



Claim.—In a steam-engine, a piston-cylinder; two sets of exhaust-ports in said cylinder; each set comprising a series of openings arranged in a ring around said cylinder; a condensing-drum secured air-tightly around said cylinder, or around that portion thereof containing said exhaust-ports, annular water-pipes arranged around said exhaust-ports within said condensing-drum, said pipes having inwardly-directed perforations for spraying water toward said exhaust-ports; and a supply-pipe connected to said annular perforated pipes for supplying them with cold water, substantially as described.

695,511. GARMENT-SUPPORTER. OSCAR WARLICH, Chicago, Ill., assignor to Frank William Peterson, Zion City, Ill. Filed Dec. 15, 1900. Serial No. 40,059. (No model.)



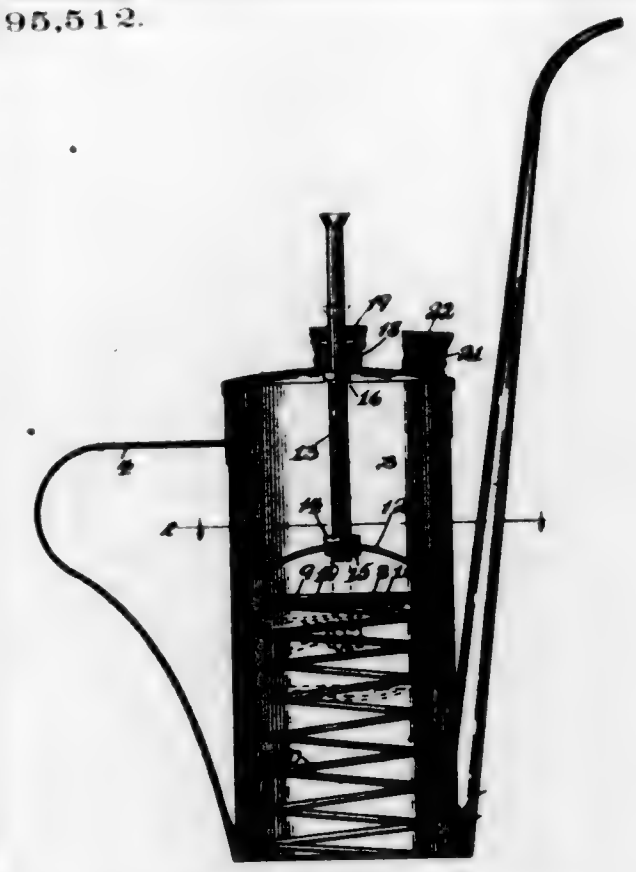
Claim.—In a garment-supporter a supporting-strap or suspender-end being provided with a plain metallic sleeve whereon a pair of lever-jaws are mounted, which are vertically movable thereon; one of the said jaws having the two wedge portions 12 thereon and bearing against the upper rear part of the metallic sleeve 5 whereby in conjunction with the member 8 the jaws are forced together.

695,512. OIL-CAN. WILLIAM S. WEIR, Monmouth, Ill. Filed Oct. 14, 1901. Serial No. 78,559. (No model.)

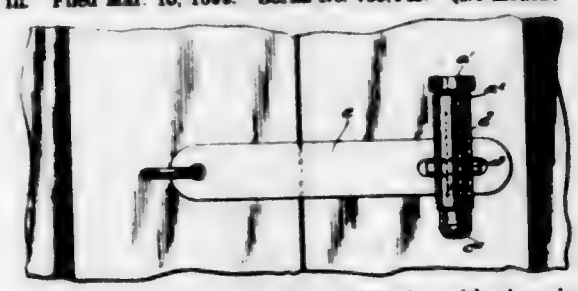
Claim.—1. In an oil-can, the combination with a can-body having a discharge-spout, of a piston movable therein and provided with an opening therethrough, a valve on the under side of said piston for controlling said opening, a spring for holding said valve up in place, a spring adapted to hold said piston up, and a piston-rod extending through the can-body, substantially as specified.

2. In an oil-can, the combination with a can-body having a discharge-spout, of a piston movable therein and provided with an opening therethrough, a valve adapted to close said opening upon the downward movement of the piston, means for normally holding said piston in a raised position, and a piston-rod extending through the can-body, substantially as specified.

695,512.



695,513. SEAL-LOCK. THOMAS S. WHEELWRIGHT, Highland Park, Ill. Filed Mar. 15, 1899. Serial No. 709,145. (No model.)



Claim.—1. In a seal-lock, the combination with a barrel carrying a seal-holding device, of a second seal-holding device adapted to cooperate therewith to hold a breakable seal in position, said second seal-holding device being mounted upon a part which is adapted to rotate relatively to said barrel and which is adapted to be moved longitudinally relatively thereto, and a lock for holding said part in position to maintain the seal in the locked position, substantially as described.

2. In a seal-lock, a barrel carrying a seal-holding device, a plunger arranged to move therein and carrying a second seal-holding device, between which devices a breakable seal is adapted to be held, and a lock for holding said plunger in its inner position until the same is rotated to separate the seal-holding devices laterally and thereby break the seal, substantially as described.

3. In a seal-lock, a barrel carrying an interlocking pin, a plunger moving therein carrying an interlocking pin, between which interlocking pins a breakable seal is adapted to be held, and a lock for holding said plunger in its inner position until the same is rotated to separate the interlocking pins laterally and thereby break the seal, substantially as described.

4. In a seal-lock, the combination with a breakable seal having openings in the ends surrounded by fragile and breakable walls, of seal-holding parts arranged to be approached to engage said openings, a lock for holding said parts in the approached position to lock the seal, and means for permitting the relative movement of said parts transverse to the axis of said seal to break said fragile walls and unlock said parts, substantially as described.

695,514. PROCESS OF SECURING HEADS TO CANS. GEORGE WILCOX, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Mar. 9, 1900. Renewed June 4, 1901. Serial No. 63,155. (No specimens.)

Claim.—1. The improvement in the art of forming seams in sheet-metal cans, consisting in dipping one member into molten solder, forming a rib-like deposit above the seam-section thereof, arranging the members of said seam, and applying heat to cause the rib to melt and soak down into the seam, substantially as described.

2. The improvement in the art of seaming sheet-metal cans, consisting in dipping one seam edge into a bath of molten solder, wiping said edge along the seam-section thereof, allowing the solder to cool in a rib beyond the wiped section and separated from the edge by said section, fitting the members of the seam and arranging them with said rib uppermost, and applying heat to melt the rib and cause it to soak down into the seam.



3. The improvement in the art of seaming sheet-metal cans, consisting in dipping one seam edge into molten solder, inverting to bring said edge uppermost while the solder thereon is still in a state of fusion, and permitting said solder to creep down and cool on the metal in a rib-like deposit parallel with said edge but clear of the seam-section thereof, fitting the members of said seam and arranging them with the rib above the upper line thereof, and applying heat to cause said rib to melt and soak down into the seam.

4. The improvement in the art of applying heads to can-bodies, consisting in taking the can-body after the side seam has been formed, dipping the end into a bath of molten solder, causing said solder to cool in a rib thereon removed from and practically parallel with the dipped edge, applying a head to said end, placing the can with headed end down, and applying heat to fuse the rib of solder and cause it to soak into the seam.

5. The improvement in the art of applying heads to cans, consisting in taking the can-body after the side seam has been formed, dipping the end into a bath of molten solder, wiping said can circumferentially adjacent to the dipped edge, allowing the solder to cool in an annular rib around said body beyond the wiped end thereof, applying a head over the wiped end, placing the can with headed end down, and applying heat, whereby said solder is caused to melt and run down into the seam between head and body.

6. The improvement in the art of applying heads to can-bodies, consisting in taking the can-body after the side seam has been formed, dipping the end into a bath of molten solder, inverting the body to allow the solder to creep down the side and cool in an annular rib thereon, applying a head over the dipped and cooled end, positioning the body to bring the head underneath, and applying heat to fuse the rib and collect the molten solder in the seam.

7. The improvement in the art of applying heads to can-bodies, consisting in taking the can-body after the side seam has been formed, dipping the end into a bath of molten solder, inverting the body to allow the solder to creep down the side and cool in an annular rib thereon, applying a head over the dipped and cooled edge, positioning the body at an inclination with head down, and then applying heat beneath and concurrently imparting a rolling movement to said headed can to fuse and agitate the solder and cause it to soak into the seam.

8. The improvement in the art of applying heads to can-bodies, consisting in taking the can-body after the side seam has been formed, dipping the end into a bath of molten solder, inverting the body to allow the solder to creep down the side and cool in an annular rib thereon, applying flux to the end thus dipped, fitting a head over said end, positioning the body to bring the head underneath, and applying heat.

9. The improvement in the art of applying heads to can-bodies, consisting in taking the can-body after the side seam has been formed, dipping first one end and then the other into a bath of molten solder, with an inversion of the body after each dipping to permit the solder to creep away from the dipped edge and cool in an annular rib parallel therewith but removed therefrom, applying heads to both ends, and then positioning the can first with one head downward and then the other and applying heat while so positioned.

10. The improvement in the art of applying heads to can-bodies, consisting in taking the can-body after the side seam has been formed, dipping first one end and then the other into a bath of molten solder with an inversion of the body after each dipping to permit the solder to creep away from the dipped edge and cool in an annular rib parallel therewith but removed therefrom, fluxing both of said ends, applying heads thereto, and then positioning the can first with one head below and then the other and applying heat while so positioned.

11. The improvement in the art of applying heads to can-bodies, consisting in taking the can-body after the side seam has been formed, dipping first one end and then the other into a bath of molten solder with an inversion of the body after each dipping to permit the solder to creep away from the dipped edge and cool in a rib on the body removed from said edge, applying heads to said ends, then placing the can in an inclined position first with one head down and then the other and applying heat beneath or adjacent to the lowermost head accompanied with a rolling or rotary movement imparted to said can.

12. The improvement substantially as herein described, the same consisting in forming seams, in sheet metal, by first forming upon the sheet constituting one member, an adhering rib or bead of solder, said solder being applied when molten and located at a distance from the edge but adjacent to the seam-section of said sheet when it is allowed to set, then applying to said member the other member to be soldered thereto, then placing the united members in position with the said rib or bead above the seam, and finally applying heat to melt the solder and flow the seam, substantially as described.

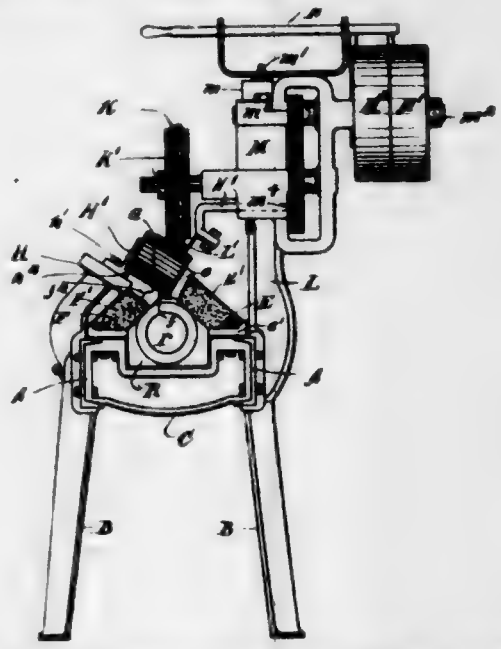
13. The process herein described consisting in forming on the sheet metal back from the seaming-section of the blank adjacent thereto and on the plain surface of the metal a bead or rib of solder by applying said solder when molten, allowing the same to set, then applying to said member the other member in the position in which it is to be united thereto, and with the rib or bead above the seam and then applying heat to melt the solder and flow the seam, substantially as described.

14. The process consisting in immersing the end of a can-body in a bath of molten solder, removing or separating it therefrom and inverting it before the solder sets to allow the solder to creep down and cool in a rib-like deposit thereon, substantially as described.

15. The process consisting in immersing the edge of a sheet-metal blank in a bath of molten solder, removing or separating it therefrom and inverting it before the solder sets to allow the solder to creep down and cool in a rib-like deposit thereon, substantially as described.

16. The process consisting in applying molten solder to the edge of a sheet-metal blank and holding the blank with its molten-solder-coated edge uppermost before and while the solder thereon sets to allow the solder to creep down and cool in a rib-like deposit thereon removed from the extreme edge or seam-section of the sheet-metal blank, substantially as described.

695,515. CAN-FUSING MACHINE. GEORGE WILCOX, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 7, 1900. Renewed Oct. 29, 1901. Serial No. 80,457. (No model.)



Claim.—1. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of a head-rest and track for the lower end of the can, a track for the upper end thereof, a burner-shield F, arranged to leave on the one hand a narrow flame-slot between said track *f* and the head-rest, and on the other a wide heat-insulating gap between said track and the upper track, and the burner-pipe extending beneath and parallel with said flame-slot.

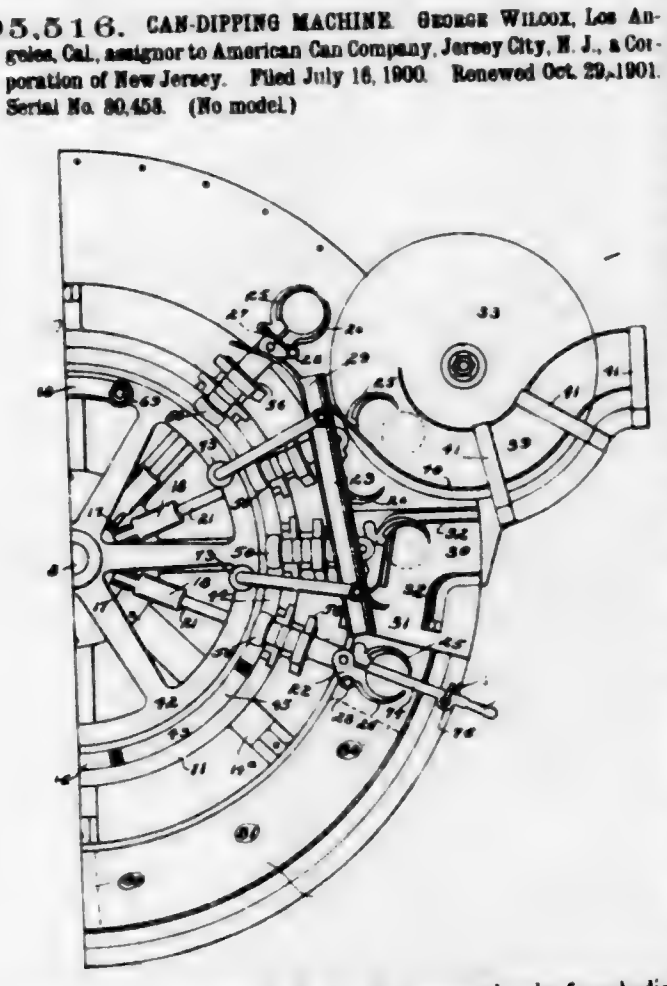
2. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of a head-rest for the lower end of the can, a track for the upper end thereof, a burner-shield F, terminating in a track *f* for the lower part of the body of said can and arranged to leave on the one hand a narrow flame-slot between said track *f* and the head-rest, and on the other a wide heat-insulating gap between said track and the upper track, and the burner-pipe extending beneath and parallel with said flame-slot.

3. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of a rear burner-shield terminating in a head-rest for the lower end of the can, a front burner-shield terminating in a track for the lower part of the body of the can, and separated from the rear shield and head-rest by a narrow flame-slot, a burner-pipe between said shields beneath said flame-slot, and a track for the upper end of the can separated from the front shield and lower track

by a wide heat-insulating gap, a burner and heat-insulating material interposed between said front shield and the upper track.

4. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of the rear burner-shield, having head-rest for the lower end of the can, a jacket of heat-insulating material covering said rear shield and the head-rest, the front burner-shield with its track for the lower part of the can-body and leaving a narrow flame-slot between said track and the head-rest and rear shield, the burner-pipe between said shields beneath the flame-slot, the upper track separated from said lower track by a wide gap, and the heat-insulating block or jacket covering the front shield and interposed between it and the upper track.

695,516. CAN-DIPPING MACHINE. GEORGE WILCOX, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed July 16, 1900. Renewed Oct. 29, 1901. Serial No. 80,458. (No model.)



Claim.—1. A machine for dipping the uncovered ends of can-bodies and the like, comprising a trough for holding the bath into which they are to be dipped, traveling grippers which take and carry the can-bodies over said bath, mechanism whereby said grippers are automatically caused to approximate the surface of said bath with the can held in a vertical direction, to evenly dip the exposed ends of the can-bodies, and then depart from said surface, mechanism reversing the grippers a half-rotation while elevated away from the bath, and mechanism automatically opening the gripping-jaws toward the end of their traverse to release said bodies.

2. The combination with a trough for holding a bath into which the uncovered ends of can-bodies and the like are to be dipped, of traveling grippers which take and carry said bodies over the bath, automatic mechanism actuating said grippers to dip first one end of the can-body and then the other perpendicularly into the bath, and mechanism automatically opening said grippers toward the termination of their traverse after the final dipping, to release the can-bodies.

3. The combination with a trough holding a bath, of traveling grippers which take and carry can-bodies thereover, mechanism automatically actuating said grippers to present and dip one end of the can and then the other perpendicularly in the bath, mechanism automatically elevating the grippers after each dipping operation, and mechanism automatically opening the grippers after the final dipping and reversal.

4. The combination with an annular trough for holding solder or other material, of a series of grippers above said trough and traveling around the axis thereof, a feedway delivering can-bodies to the open grippers, automatic mechanism causing said grippers to close upon and grasp said bodies while passing said feedway, mechanism whereby said grippers are automatically approximated to the surface of the solder to dip the ends of the can-bodies perpendicularly therein, and then removed therefrom, mechanism automatically rocking the grippers on their horizontally-trending axes after an end has been dipped, and mechanism whereby the grippers are automatically opened toward the end of the circuit.

5. The combination with an annular trough for holding material into which the uncovered ends of can-bodies are to be dipped, of a series of grippers above said trough and traveling around the axis thereof, a feedway delivering can-bodies in an upright position to the open grippers, a cam-track supporting said grippers in their journey and having depressed and elevated reaches to cause them to dip and rise to immerse the ends of the can-bodies perpendicularly in an upright position in the contents of the trough and lift them therefrom, means for giving said grippers a semirotation on their horizontally-trending axes while elevated in intervals between dipping, and means for automatically releasing the can-bodies from said grippers.

6. The combination with an annular trough for holding solder or like material, of a series of grippers overhanging said trough, means for concurrently and coördinately revolving said trough and grippers around a vertical axis, a feedway delivering can-bodies into the path of the grippers, means whereby said grippers are caused to grasp the can-bodies as they pass the feedway, means whereby the grippers are caused to descend toward the trough to dip the ends of said can-bodies and then rise away therefrom, means for giving the grippers a semirotation on their longitudinally-trending axes while elevated away from the trough, and means whereby the can-bodies are discharged from the grippers after the final dipping.

7. The combination with an annular trough for holding a bath into which the ends of can-bodies are to be dipped, of a series of grippers overhanging said trough, means for concurrently and coördinately revolving said trough and grippers around a vertical axis, a circular cam-track with depressed and elevated reaches, by which said grippers are supported in their journey and whereby they are caused to fall toward the bath and rise away therefrom to dip the ends of the cans and lift them clear of the bath, means for imparting a semirotation to the grippers while raised, and means for discharging the dipped bodies.

8. The combination with an annular trough for holding a bath into which the ends of can-bodies are to be dipped, of a series of grippers overhanging said trough, means for concurrently and coördinately revolving said trough and grippers around a vertical axis, a circular cam-track with elevated and depressed reaches by which said grippers are supported in their journey and whereby they are caused to fall toward the bath and rise away therefrom, means for imparting a semirotation to the grippers while raised, means for varying the point at which said semirotation is effected, and means for discharging the dipped bodies.

9. The combination with the solder-trough and the grippers revolving about the axis thereof, of the revolving table to which the grippers deliver the can-bodies, and means for driving said table at a greater speed than the speed of the grippers.

10. The combination with the solder-trough and the grippers revolving about the axis thereof, of the revolving table to which the grippers deliver the can-bodies, the spirally-curved guideway above said table, and mechanism driving said table at a speed greater than the speed of the grippers.

11. The combination with the solder-trough and concentric stationary cam-track, of the revolving carrier, the sleeve-arms pivoted to lugs carried thereon, the gripper-shafts mounted in said arms, and supported by the cam-track, the gripper-jaws at the outer ends of said shafts adapted to receive the can-bodies in an upright position and automatically dip their edges in essentially perpendicular lines coincidently with the depressions in said cam-track, a rack or racks for giving said gripper-shafts a semirotation at definite points in the revolution of the carrier, and locking devices for holding them against rotation in the intervals between engagement with said rack or racks.

12. The combination with the solder-trough and concentric stationary cam-track, of the revolving carrier, the sleeve-arms pivoted to lugs carried thereon, the gripper-shafts mounted in said arms, and supported by the cam-track, the gripper-jaws at the outer ends of said shafts, floating bearing-brackets in the lower ends of which said shafts are journaled and having trucks at their upper ends taking over the cam-track, pawls upon said brackets and ratchet-disks upon the shafts to lock said shafts against movement, toothed gears on said shafts, and stationary racks or stops in the path of said gears, whereby said shafts are intermittently rocked as they revolve with the carrier.

13. The combination with the revolving carrier and concentric stationary cam-track, of sleeve-arms hinged to lugs upon said carrier to have a rising-and-falling movement following the outlines of the cam-track, gripper-shafts mounted in said arms, gripper-jaws at the outer ends of said shafts, floating bearing-brackets in the lower ends of which said shafts are journaled and which carry trucks at the upper end taking over said cam-track, and vertical guide-brackets fixed to the outer rim of the carrier and receiving said floating bearing-brackets.

14. The combination with the revolving carrier and concentric stationary cam-track, of swiveling bracket-lugs secured thereto by a vertical pivot-bolt, sleeve-arms hinged to said swiveling bracket-lugs, gripper-

shafts borne in said arms, gripper-jaws at the outer ends of said shafts, floating bearing-brackets in the lower ends of which said shafts are journaled and which carry tracks at the upper end taking over said cam-track, and vertical guide-brackets fixed to the outer rim of said carrier to receive and direct said floating brackets, and cut away at the forward side to permit the gripper-arm to be swung upon its swiveling connection.

15. The combination with the revolving carrier and with gripper-arms hinged thereto to have a rising-and-falling movement, of a cam-track whereby the outer ends of said arms are automatically caused to rise and sink, a feedway opposite an elevation of said cam-track, and an inclined flooring to said feedway, parallel with the inclination of the gripper-arm lifted by said elevation, lateral guards above said flooring directing the can-bodies to the grippers on an upright position, and means for giving said grippers a semirotation succeeding each rising movement.

16. The combination with the rotating carrier and gripper-arms borne thereby, and with the fixed rear jaw and spring-held pivoted front jaw of the grippers, of the gripper-opening cam arranged as a chord to the arc in which said jaws are swept, and acting upon a pin or roller from said front jaw, and the spring for holding said jaws normally closed.

17. The combination with the rotating carrier and grippers borne thereby, of the stop-arms and the pin racks or stops at their outer ends, the adjusting-segments, and the clamps whereby said arms are secured to said segments.

18. The combination with the rotating carrier and a sleeve arm pivoted to lugs therefrom, of the gripper-shaft journaled in said arm, the reversing-cam of the outline described keyed to said shaft the double-toothed pin-rack for operating said cam, and the pawl and double-toothed ratchet for locking the shaft.

19. The combination with the rotating carrier and a sleeve-arm pivoted to lugs therefrom, of the gripper-shaft journaled in said arm, the reversing-cam of the outline described keyed to said shaft, the double-toothed pin-rack, the locking-pawl, and the trapezoidal ratchet having two teeth with intermediate plane surfaces whereby said pawl is enabled to act as a brake upon the shaft.

20. The combination with the rotating annular solder-trough, of the stationary burner-ring, and the adjustable brackets therefor.

21. The combination with a solder-bath, of means for dipping the end edge of a can-body therein and turning the dipped edge uppermost before the solder thereon sets to allow it to creep down and form a rib-like deposit removed from the extreme end edge of the can-body, substantially as specified.

22. The combination with means for applying molten solder to the end of a can-body of means for holding the can-body with its molten-solder-coated end uppermost before and while the solder thereon sets to allow the solder to creep down and form a rib-like deposit removed from the extreme end edge of the can-body and seam-section, substantially as specified.

23. The combination with means for applying molten solder to the end of a can-body of means for turning the can-body into a position with its molten-solder-coated end uppermost before the solder thereon sets and holding its solder-coated end uppermost while the solder sets to allow the solder to creep down and form a rib-like deposit removed from the extreme end edge of the can-body and seam-section, substantially as specified.

24. The combination with means for applying molten solder to the edge of a piece of sheet metal, of means for holding said sheet-metal piece with its molten-solder-coated edge uppermost before and while the solder thereon sets to allow the solder to creep down and form a rib-like deposit removed from the extreme edge of the sheet-metal piece and seam-section, substantially as specified.

25. The combination with a solder-bath of means for dipping the edge of a piece of sheet metal therein and means for turning the same with its dipped edge uppermost before the solder thereon sets and holding it in such position to allow the solder to flow down and form a rib-like deposit removed from the extreme edge of the piece, substantially as specified.

26. In combination, means for applying molten solder to a sheet-metal piece and means for turning the sheet-metal piece with the solder-coated end uppermost before and while the solder thereon sets to allow the solder to creep down and form a rib-like deposit removed from the extreme edge of the piece and seam-section, substantially as described.

27. In combination with a solder-bath, means for dipping the edge of a piece of sheet metal therein and for turning the molten-solder-coated edge uppermost before the solder thereon sets to allow it to creep down and form a rib-like deposit removed from the extreme edge of the piece and seam-section and means whereby the metal pieces are automatically supplied to and discharged from the dipping means, substantially as described.

28. A machine for forming on a piece of sheet metal a plurality of rib-like deposits of solder comprising means for applying molten solder to first one edge of the piece and then the other and for holding the piece with its newly solder-coated edge uppermost before and while the solder thereon sets to allow the solder to creep down and form a rib-like deposit removed from the extreme edge of the metal piece and seam-section, substantially as described.

29. A machine for forming on a piece of sheet metal a plurality of rib-like deposits of solder comprising means for applying molten solder to different edges of the piece and for moving the piece so that its solder-coated edges will be uppermost before and while the solder sets to allow the solder to creep down and form rib-like deposits removed from the extreme edges and seam-sections of the piece, substantially as described.

30. A machine for forming rib-like deposits on different edges of sheet-metal pieces, said means including a bath and means for holding the sheet-metal piece and for inverting it after each immersion of an edge so that the newly-coated edge will be held uppermost before the solder thereon sets to allow it to creep down and form the rib-like deposit removed from the extreme edge of the piece and seam-section, substantially as described.

31. Means for forming a rib like deposit of solder on a piece of sheet metal consisting of means for applying molten solder to the edge portion of said piece and means for holding said piece with its molten-solder-coated edge uppermost and in a substantially horizontal plane before the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge and seam-section and parallel to said edge, substantially as described.

32. Means for forming a rib-like deposit on a sheet-metal piece including a solder-bath and a holder for the piece and means whereby the sheet-metal piece is dipped into the bath with its edge in substantially a horizontal plane and for turning the said piece with its molten-solder-coated edge uppermost before and while the solder thereon sets while maintaining the horizontal position of the edge to allow the solder to creep down and form a rib-like deposit removed from the extreme edge and seam-section and parallel to said edge, substantially as described.

33. In combination with a traveling bath, means traveling in unison therewith for automatically dipping a sheet-metal piece into the bath and removing it therefrom, substantially as described.

34. In combination with a traveling bath, means traveling in unison therewith for automatically dipping a sheet-metal piece into the bath and removing it therefrom and for inverting the piece so that the dipped edge will lie uppermost before the solder thereon sets to allow said solder to creep down and form a rib-like deposit removed from the edge and seam-section, substantially as described.

35. In combination, a bath, carrier means for the sheet-metal pieces, said bath and carrier having a traveling movement in unison in substantially a horizontal plane and one of said parts having in addition to its traveling movement a movement to cause the dipping of the sheet-metal piece into the bath and its removal therefrom with the edge of said piece maintained during said operation in a horizontal plane

36. In combination with a bath, a series of traveling grippers, a feedway delivering the pieces to be dipped to the grippers, means for moving the grippers toward and from the bath with the edges of the pieces in a substantially horizontal plane, and means for turning the grippers before the molten-solder coating sets on the pieces to present the coated edge uppermost and horizontal so that the molten solder is allowed to creep down and form a rib-like deposit removed from the edge and seam-section and parallel to said edge, substantially as described.

37. In combination, a solder-bath, a gripper, means for delivering metal pieces to the grippers in upright position, means for operating the grippers to dip the piece in the solder-bath and then turn it with its molten-solder-coated portion uppermost before the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge and seam-section, substantially as described.

38. In combination, a solder-bath, automatically-operating grippers for seizing the metal pieces, automatic means for depressing the grippers to dip the edge of the metal pieces into the solder, automatic means for turning the grippers to invert the metal piece so that its molten-solder-coated edge lies uppermost before and while the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge and seam-section and means for operating the grippers to release the metal pieces, substantially as described.

39. In combination, a solder-bath, automatically-operating grippers for seizing the metal pieces, automatic means for depressing the grippers to dip the edge of the metal pieces into the solder, automatic means for raising and then turning the grippers to invert the metal piece so that its molten-solder-coated edge lies uppermost before and while the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge and seam-section and means for operating the grippers to release the metal pieces, substantially as described.

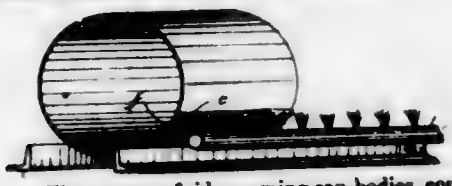
40. In combination, a solder-bath, automatically-operating grippers for seizing the metal pieces, automatic means for depressing the grippers to dip the edge of the metal piece into the solder, automatic means for

turning the grippers to invert the metal piece so as to dip the other edge and to make its molten-solder-coated edge lie uppermost before the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge and seam-section, and means for raising the grippers and giving them another turning movement to make the last-coated edge assume an uppermost position for the formation of the rib-like deposit thereon, substantially as described.

41. In combination with a bath, traveling grippers for manipulating the sheet-metal pieces in connection with the bath and traveling discharge means moving at a greater rate of speed than the grippers, substantially as described.

42. In combination, a solder-bath, grippers for dipping the metal pieces into and removing them from the bath and means for opening and closing the said grippers, said grippers having means for giving the piece an initial discharging impulse when the gripper opens, substantially as described.

695,517. **PROCESS OF SIDE-SEAMING METAL CANS.** GEORGE WILCOX, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 13, 1900. Renewed Oct. 29, 1901. Serial No. 80,459. (No specimens.)



Claim.—1. The process of side-seaming can-bodies, consisting in primarily forming a rib of solder parallel with but removed from one edge of the blank, then bending an interlocking fold along the margin thus left and away from the rib, and a reverse interlocking fold along the opposite edge, bringing the two folds together to form an interlocked seam with the rib immediately adjacent to the mouth thereof, and finally placing the can-body thus assembled in or about a horizontal position with the seam at the side and the rib above said seam and subjecting said seam and rib to heat to fuse the solder and fill the seam.

2. The process of side-seaming can-bodies, consisting in initially dipping one edge of the blank in a bath of molten solder, next inverting said blank to permit the solder to creep down and cool in a rib parallel with but measurably removed from said edge, then bending an interlocking fold along the margin thus left and a reverse fold along the opposite edge, then bringing the two folds together and interlocking them, and finally placing the can-body thus assembled in or about a horizontal position with the seam at the side and the rib above the seam, and applying heat to fuse the rib and cause it to run down into and fill the seam.

3. The process of side-seaming can-bodies, consisting in initially dipping one edge of the blank in a bath of molten solder, inverting said blank to permit the solder to creep down and cool in a rib parallel with but measurably removed from one edge, wiping or scraping the solder from the reverse side of the blank before such cooling is effected, bending an interlocking fold in the margin between said rib and edge and away from the rib, and a reverse interlocking fold in the opposite edge, bringing said folds together and interlocking them, and then placing the can-body thus assembled in or about a horizontal position with the seam at the side and the rib above said seam and applying heat along said seam and rib to fuse the rib.

4. The process of making can-bodies consisting in first dipping the end edge of the blank in molten solder, turning the dipped edge uppermost to form a solder rib thereon, forming the can-body lapping or bringing the edges thereof together, turning the can-body to bring its lapped edges or seam to one side of the vertical and applying heat to the solder rib on the can-body, substantially as specified.

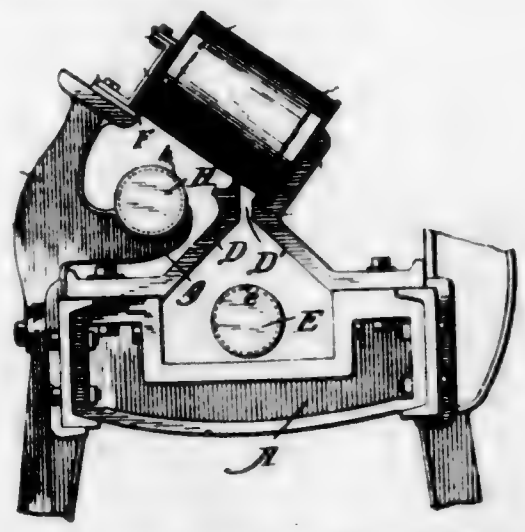
5. The process consisting in first forming a rib-like deposit of solder on a can-body blank at one end adjacent to but removed from the seam-section forming the can-body, and fusing the solder rib and flowing the solder into the seam substantially as specified.

6. The process of making can-bodies consisting in applying molten solder to the end edge of the can-body blank, turning such edge uppermost before the solder sets, forming the can-body and applying heat to fuse the solder and flow it into the seam, substantially as specified.

7. The process consisting in dipping the end edge of a can-body blank into a bath of molten solder, turning the dipped edge uppermost before the solder sets, forming the can-body and fusing the solder and flowing it into the seam, substantially as specified.

695,518. **CAN-SOLDERING MACHINE.** GEORGE WILCOX, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 16, 1900. Serial No. 33,315. (No model.)

Claim.—1. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of a head-rest for the lower end of the can, a guard protecting the head-rim and seam from the flame and smoke, a burner-shield D on the outer side of this guard, leaving a narrow flame-slot therebetween, burners beneath said flame-slot, and a track for the upper end of the can.

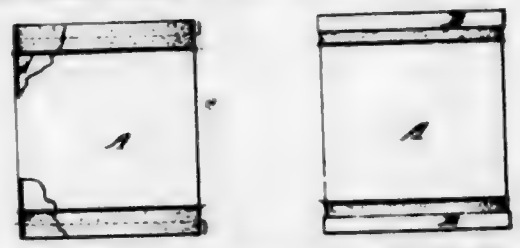


2. In a can-soldering machine, having a laterally-inclined way along which the cans are rolled, the combination of a head-rest for the lower end of the can, a guard protecting the head-rim and seam from the flame and smoke, a burner-shield D on the outer side of this guard leaving a narrow flame-slot therebetween, burners beneath said flame-slot, a track for the upper end of the can leaving an air-gap between said track and burner-shield, and a blast-pipe between said track and burner-shield, adapted to direct jets of air upon the body of the can between the solder at the upper and lower ends.

3. In a can-soldering machine having a laterally-inclined way along which the cans are rolled, the combination of the rear and front burner-shields with a flame-slot between the head-rest for the lower end of the can, the flame-guard for the seam at said lower end, the burners beneath said flame-slot, the track for the upper end of the can spaced off from the front burner-guard, and the blast-pipe between said track and guard.

4. In a soldering-machine having a laterally-inclined way along which the cans are rolled, the combination with said way of brackets N adjustable in and out along the inclined top of the way, and a guide-bar for the upper ends of said cans adjustable upon the tops of said brackets.

695,519. **SOLDER-CHARGED CAN-BODY AND SHEET-METAL BLANK.** GEORGE WILCOX, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 11, 1901. Serial No. 64,162. (No model.)



Claim.—1. A blank for can-bodies comprising a metal sheet having a line or ridge of solder attached to it, said body-blank having below said solder ridge and between the same and the edge a surface upon which the flange of the can head or bottom is to be fitted, substantially as described.

2. As a new article of manufacture, a tin-plate blank charged or provided with narrow ribs or fillets of solder on both sides thereof, removed from but adjacent to the seam-section of the blank, substantially as described.

3. As a new article of manufacture, a sheet-metal blank charged or provided with a narrow rib or fillet of solder necessary for forming a seam, removed from but adjacent to the seam-section of the blank and united to the blank, said blank having its raw or cut edge coated and protected with solder, substantially as specified.

4. A tin-plate blank furnished with narrow ribs or strips of solder for forming the side and end seams of the can, removed from but adjacent to the seam-sections of the blank, the said solder strips being attached to the plain surface of the body-blank, substantially as specified.

5. A tin-plate blank furnished with narrow ribs or strips of solder for forming the side and end seams of the can removed from but adjacent to the seam-sections of the blank, said narrow ribs or strips of solder being on both sides of the blank, substantially as specified.

6. A can-body charged or provided with a narrow rib or strip of solder necessary for forming the seam, removed from but adjacent to the seam-section of the can-body and united to said body, said solder strip being attached to the plain surface of the body, substantially as described.

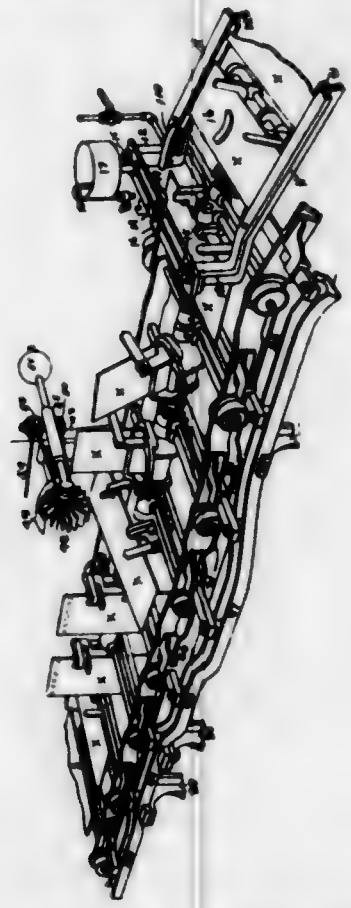
7. A can-body charged or provided with narrow ribs or strips of solder on both sides thereof, removed from but adjacent to the seam-section thereof, the can-body having its raw or cut edge coated with solder, substantially as specified.

8. A can-body charged or provided with a narrow rib or strip of solder necessary for forming the seam, removed from but adjacent to the seam section of the can-body and united to said body, the said solder strip being attached to the plain surface of the body and the raw or cut edge of the body being coated with solder, substantially as described.

695,520. MACHINE FOR APPLYING SOLDER TO SHEET-METAL BLANKS.

GEORGE WILCOX, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey.

Filed Oct. 17, 1901. Serial No. 79,042. (No model.)



Claim.—1. An apparatus of the character described provided with conveying mechanism constructed to receive a body plate or blank in the flat and dip the same in adhesive material and invert the blank to cause the material to recede from the edge of the blank.

2. An apparatus of the character described provided with wheels and conveyer mechanism passing thereover constructed to dip a blank into adhesive material and invert the same to cause the material to recede from the edge of the blank.

3. In combination, with octagonal wheels, a conveyer made up of links pivoted together and arranged to pass over said wheels, means for applying solder to the blank, and means carried by the conveyer for holding the blank and for inverting it before the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge, substantially as described.

4. In combination, means for applying adhesive material to both sides of a sheet-metal piece, means for wiping the adhesive material from one side of the said piece and means for inverting the piece to allow the adhesive material to recede from the edge before setting to form a rib-like deposit, substantially as described.

5. In combination, a bath, a conveyer for the sheet-metal pieces, means carried thereby for holding and dipping the sheet-metal piece into the bath and removing it therefrom, means for wiping one side of the sheet-metal piece, and means for inverting the sheet-metal piece to allow the solder to creep down before setting to form a rib-like deposit, substantially as described.

6. In combination, a conveyer, cradles carried thereby to rock in a direction transversely of the conveyer, a bath for the solder, a camway and means operated by the camway and connected with the cradles to dip the sheet-metal pieces into the bath, remove them therefrom and to invert and hold them in inverted position to allow the solder to recede from the edge of the sheet-metal pieces, substantially as described.

7. An apparatus of the character described provided with a camway, devices in engagement therewith carrying rack-bars, cradles carrying pinions meshing therewith, whereby the cradles are rocked by the passage of said devices through said way and means for conveying said cradles, the said rack-bars being reciprocated by the camway, substantially as described.

8. An endless conveyer provided with links wheeled shafts movably connecting said links bearings on said shafts, spindles in said bearings and cradles upon said spindles.

9. An endless conveyer provided with links, wheeled shafts movably connecting said links and having bearings, transverse shafts mounted in said bearings and cradles carried by the latter shaft constructed to rock thereon.

10. An endless conveyer provided with links, wheeled shafts movably connecting said links and having bearings, transverse shafts mounted in said bearings, cross-bars having bearings to support one end of said transverse shafts, cradles upon the latter shafts and means for rocking the cradles.

11. An endless conveyer provided with pivoted links, shafts mounted between the links and parallel thereto, cradles on said shafts, rack-bars mounted in said links meshing with pinions on said shaft and means for actuating the rack-bars to rock the cradles.

12. An endless conveyer provided with pivoted links, shafts mounted between the links and parallel thereto, cradles on said shafts, rack-bars mounted in said links meshing with pinions on said shafts and carrying rollers and a camway in which the rollers travel to rock the cradles.

13. An endless conveyer provided with wheeled shafts, links mounted thereon, cross-bars between the links, bearings on said shafts and bars, transverse shafts mounted in said bearings and carrying pinions, cradles on the transverse shafts and means for operating said pinions to rock the cradles.

14. An endless conveyer provided with wheeled shafts, links mounted thereon, cross-bars between the links, bearings on said shafts and bars, transverse shafts mounted in said bearings and carrying pinions, cradles on the transverse shafts and a rack-bar mounted in said links and meshing with said pinions and carrying a roller and means engaging the roller to reciprocate the rack-bar.

15. A transversely-rocking cradle provided with retaining-fingers, grippers mounted upon the cradle, an arm for releasing the grippers, a spring to force the grippers upon the cradle and means for conveying the cradles and operating said arm, said cradle and grippers being arranged to hold a sheet-metal piece in flat form, substantially as described.

16. A transversely-rocking cradle provided with retaining-fingers, grippers mounted upon the cradle, an arm for releasing the grippers, a spring to force the grippers upon the cradle, wheels to depress said arms as the cradles pass thereover to release the grippers and means for conveying the cradle, said cradle and grippers being arranged to hold a sheet-metal piece in flat form, substantially as described.

17. The combination with means for applying molten solder to the edge of a piece of sheet metal in flat form, of means for holding said sheet-metal piece in flat form with its molten-solder-coated edge uppermost before and while the solder sets to allow the solder to creep down and form a rib-like deposit removed from the extreme edge of the sheet-metal piece and seam-section, substantially as specified.

18. The combination with a solder-bath, of means for dipping the edge of a piec of sheet metal therein while in flat form, and means for turning the said sheet-metal piece in flat form with its dipped edge uppermost before the solder thereon sets and holding it in such position to allow the solder to flow down and form a rib-like deposit removed from the extreme edge of the piece and seam-section, substantially as described.

19. Means for forming a rib-like deposit on a sheet-metal piece of flat form consisting of means for applying molten solder to the edge portion of said piece, means for holding said piece with its molten-solder-coated edge uppermost in a substantially horizontal line before the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge and seam-section and parallel to said edge, substantially as described.

20. Means for forming a rib-like deposit on a sheet-metal piece including a solder-bath and a holder for the piece to hold it in flat form and means whereby the edge of the sheet-metal piece in flat form is dipped into the bath with its edge in substantially a horizontal line and for turning the said piece in flat form with its molten-solder-coated edge uppermost before and while the solder thereon sets while maintaining the horizontal position of the edge to allow the solder to creep down and form a rib-like deposit removed from the extreme edge and seam-section and parallel to said edge, substantially as described.

21. In combination, means for applying solder to a sheet-metal piece in flat form including a bath and holding means, said holding means receiving the sheet-metal piece in flat form and in a substantially horizon-

tal position and having movement to turn the flat sheet-metal piece so that its edge will dip into the bath and for then inverting the flat sheet-metal piece so that its dipped edge will be uppermost to allow the solder to recede from the dipped edge before setting, substantially as described.

22. In combination, means for applying solder to a sheet-metal piece in flat form including a bath and holding means, said holding means receiving the sheet-metal piece in flat form and in a substantially horizontal position and having movement to turn the flat sheet-metal piece so that its edge will dip into the bath and for then inverting the flat sheet-metal piece so that its dipped edge will be uppermost to allow the solder to recede from the dipped edge before setting, and means for wiping one side of the blank before it is inverted, substantially as described.

23. Means for applying solder to sheet-metal pieces in flat form comprising a bath for the molten solder, a holder to receive and hold the sheet-metal piece in flat form, said holder having movement to dip one edge of the sheet-metal piece into the bath, to then turn the same into a substantially horizontal position, wiping means for removing the solder from the upper side of the sheet-metal piece, said holder having a further movement to turn the sheet-metal piece with its solder-coated edge uppermost before setting, substantially as described.

24. In combination with a bath, means for holding a sheet-metal piece in flat form and carrying the same edgewise along the bath with one edge dipping therein and means for turning the blank with the dipped edge uppermost before the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge, substantially as described.

25. In combination with a conveyer, a cradle carried thereby and supported to rock in a direction transversely of the direction of movement of the conveyer, said cradle being arranged to hold a sheet-metal piece in flat form, means for supplying solder to the sheet-metal piece and means for turning the blank with the dipped edge uppermost before the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge, substantially as described.

26. In combination, a conveyer, a cradle arranged to rock in a direction transversely to the direction of movement of the conveyer and a bath, said cradle serving to dip the sheet-metal piece therein and to invert the same before the solder sets to allow the solder to creep down and form a rib-like deposit removed from the edge, substantially as described.

27. In combination in a machine for forming solder-ribs upon sheet-metal blanks in flat form, a traveling carrier, means thereon for receiving the sheet-metal pieces in flat form and in a substantially horizontal position, means for turning the said flat sheet-metal pieces up on edge, a solder-bath for applying solder to the lower edges of said sheet-metal pieces and means for turning the flat sheet-metal pieces with their solder-coated edges uppermost before the solder sets, substantially as described.

695,521. APPARATUS FOR SIDE-SEAMING METAL CANS.

GEORGE WILCOX, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J., a Corporation of New Jersey. Filed Oct. 22, 1901. Serial No. 79,724. (No model.)

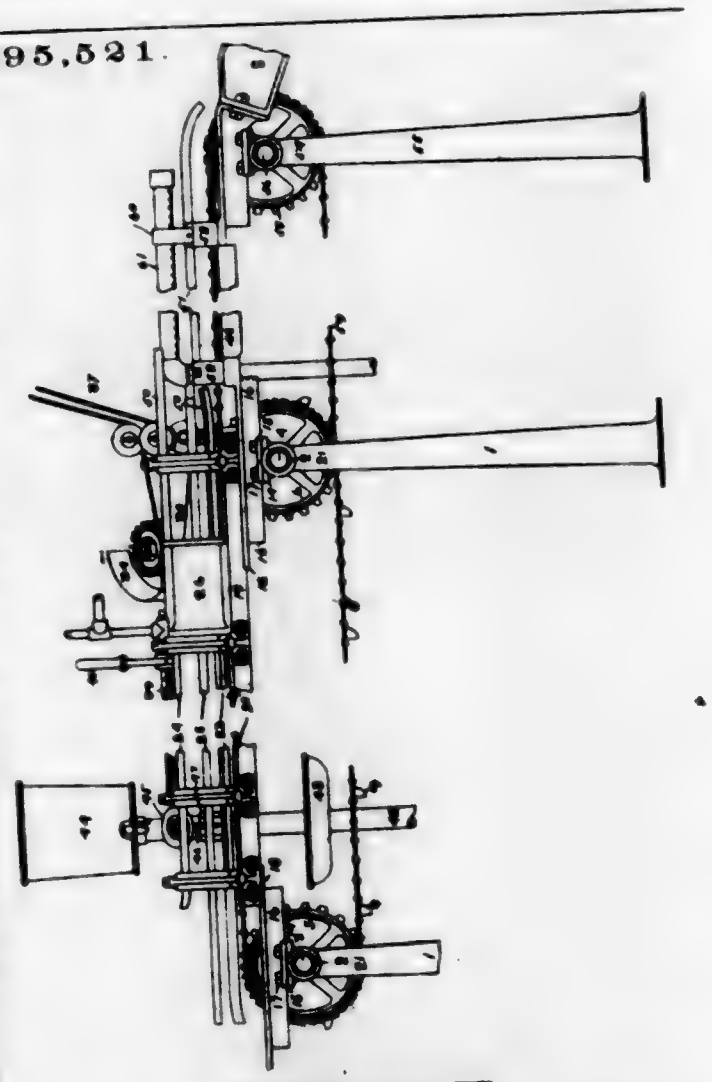
Claim.—1. An apparatus for side-seaming metallic bodies comprising heating means directed to heat the attached solder rib-like deposit above the seam and the seam while the same lies to one side of the axial vertical plane of the body and means for holding the body with the seam so located to one side of the vertical axial plane of the body, whereby the solder is caused to flow down into the seam, substantially as described.

2. In combination in a soldering-machine with heating means, means for holding and carrying a can with its side seam and its solder rib-like deposit thereabove located to one side of the vertical axial plane of the can, said holding and carrying means being arranged to convey the can-body so that its side seam and solder rib will be carried longitudinally past the heating means whereby the solder is caused to flow down into the seam, substantially as described.

3. In combination, a conveyer for holding and conveying a can-body with its side seam and its solder rib-like deposit thereabove substantially horizontal and to one side of the vertical axial plane of the can-body, and a soldering device consisting of a heating-jet directed to the said side seam and solder rib, whereby the solder is caused to flow down into the seam, substantially as described.

4. In combination, a conveyer for holding and conveying a can-body with its side seam and its solder rib-like deposit thereabove, substantially horizontal and to one side of the vertical plane of the can-body, a soldering device consisting of a soldering-jet directed to the side seam and the soldering-rib thereabove, whereby the solder is caused to flow down into the seam and a wiper acting after the soldering operation to wipe the surplus molten solder from the exterior of the can.

695,521.



695,522. SCREEN-PLATE FASTENER.

MILTON R. WILKINSON, Groveton, N. H. Filed Dec. 5, 1901. Serial No. 84,720. (No model.)



Claim.—1. The combination with an inclosing frame and screen-plates, of detachable means for holding said plates, embodying a movable rectangular crane, means on the crane movable therewith, and means guided on the frame and connected by swivel with said means on the crane for actuating said crane and means engaging the end of one of the plates to hold them together.

2. The combination with the inclosing frame and its slatted bottom, of plates having tongue-and-groove union, and swiveled means for holding the said plates to the said slats.

3. The combination with an inclosing frame and plates, of a rectangular crane movable within the inclosing frame, swiveled means connected with said crane for elevating the same, and means movable at right angles to such means for clamping the plates together.

4. The combination with the inclosing frame and bottom slats with slotted plates, of plates detachably united and means on the plates to engage the said slotted plates.

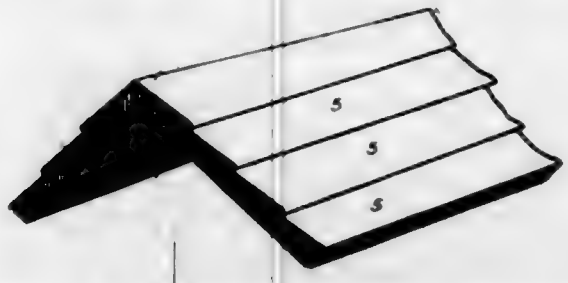
5. The combination with the inclosing frame and its slatted bottom, of slotted plates on said slats, screen-plates and headed means on the plates to coöperate with the slotted plates.

6. The combination with the inclosing frame and the screen-plates, of the crane fitted within the inclosing frame, the ends of the inclosing frame having vertical grooves, and means for raising and lowering the said crane located in said grooves.

7. The combination with the inclosing frame having grooves in its end pieces, of the crane fitted within the said frame, plates on the ends of the crane having horizontal portions working in said grooves and screws working in said grooves and having swiveled connection with said horizontal portions.

8. The combination with the inclosing frame having vertical grooves in its end pieces, of a crane fitted to move within the said frame, plates on the ends of the crane with horizontal portions working in said grooves, screws working in said grooves and having swiveled connection at their lower ends in said horizontal portions, and plates on the upper edges of the ends of the inclosing frame through which the said screws are threaded.

695,528. SHEET-METAL COVERING FOR ROOFS OR OTHER SURFACES AND FASTENING DEVICE THEREFOR. GEORGE T. WILLIAMS, Denver, Colo. Filed Mar. 2, 1901. Serial No. 49,658. (No model.)



Claim.—1. The herein-described sheet-metal covering for roofs or other surfaces, comprising pieces or sections of sheet metal, each of which has its longitudinal edges bent outwardly and inwardly respectively, a fastening device consisting of a shank driven into the surface to be covered, and having a head extending at an angle to the shank and overlapping the outwardly-turned edge of one section, whereby the latter is locked in place, the inwardly-turned edge of the adjacent section being arranged to interlock with the said outwardly-turned edge of the fastened section and so on until any desired surface area is covered.

2. A sheet-metal covering for roofs or other surfaces, comprising a number of sections, each of which has one edge outwardly bent and turned back toward the body of the section, and the other edge bent inwardly and turned back toward the body of the section or part, means for detachably securing the outwardly-turned edge of each section, comprising fastening devices having shanks driven into the roof-sheathing and having angle-heads overlapping the outwardly-turned edge of the section, the arrangement being such that the inwardly-turned edge of any section interlocks with the outwardly-turned edge of the adjacent section, the section having the inwardly-turned edge, being arranged to cover the fastening means of the section having the outwardly-turned coöperating edge, the interlocking edges when pressed or hammered together, forming a tight joint or seam.

3. A sheet-metal covering for roofs or other surfaces, comprising a section having an outwardly-turned edge, a fastening device having a shank adapted to be driven into the roof-sheathing, and an angle-head adapted to overlap the outwardly-turned edge of the section, whereby the section is detachably secured in place, and another section concealing the fastening means of the first section and having an inwardly-turned edge arranged to interlock with the outwardly-turned edge of the adjacent section, whereby the two interlocking edges when pressed together form a tight joint or seam.

4. A sheet-metal covering for apex roofs, comprising sections each of which has an inwardly-turned lower edge and an outwardly-turned upper edge, nails fastened to the surface to be covered, and having bent heads overlapping the upper edge of each section, whereby the section is detachably held in place, the lower inwardly-turned edge of each section being arranged to interlock with the outwardly-turned edge of the adjacent section, the upper section always concealing the fastening means of the lower section, and a section shaped to conform to the apex of the roof, and having inwardly-turned edges arranged to interlock with the outwardly-turned edges of the adjacent section on opposite sides of the apex.

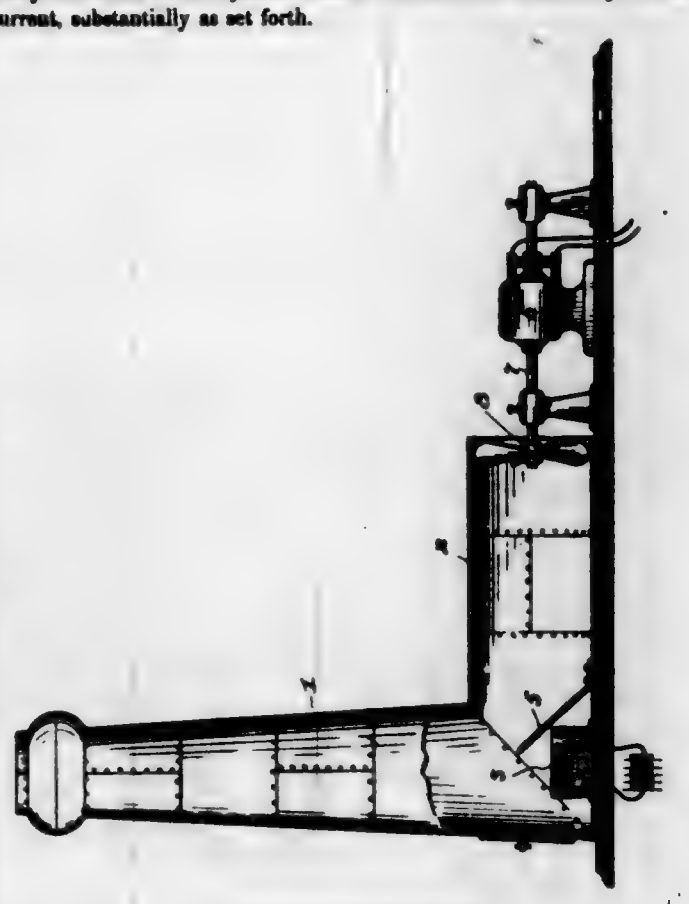
5. A sheet-metal covering for roofs and other surfaces, said covering being composed of sections and fastening devices secured to the covered surface and concealed by the said covering, the fastening devices being composed of nails whose shanks are adapted to be driven into the sheathing, said nails having heads bent at an angle to their shanks and arranged to overlap the concealed edges of, without penetrating the said sections.

695,524. ELECTRIC GENERATOR. ENOCH G. WOODELL, High point, N. C. Filed Aug. 29, 1901. Serial No. 73,786. (No model.)

Claim.—1. A dynamo-electric machine, in combination with a flue, a heater for causing a suction in said flue, and a fan or propeller connected to the armature-shaft of the dynamo-machine and extended within the force of the suction, substantially as set forth.

2. The combination with a vertical flue having a horizontal branch communicating therewith and open to the atmosphere, a heater arranged within the horizontal branch of the flue immediately below the uptake, a deflector for deflecting the heat directly into the uptake, a dynamo-electric machine, and a fan or propeller fixed to the shaft of the armature and projecting within the open end of the horizontal branch and rotated by the air passing into said branch and entrained by the heat from the heater, substantially as set forth.

3. A dynamo-electric machine, in combination with a flue, a heater for producing a current of air in said flue, and a fan or propeller operatively connected to said dynamo-electric machine and actuated by the air-current, substantially as set forth.



695,525. WINDOW SHADE OR CURTAIN HANGER. FREDERICK WUHRT, Lawrenceburg, Ind. Filed Jan. 6, 1902. Serial No. 88,676. (No model.)

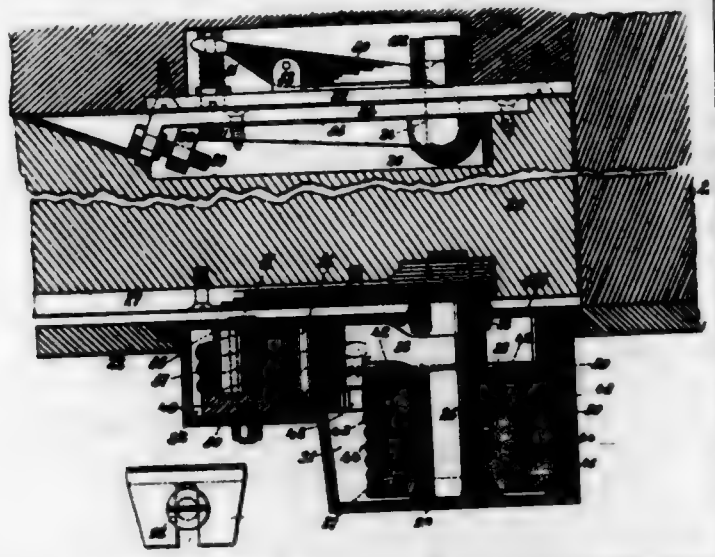


Claim.—1. The combination with the window-frame; of lock-pulleys at the top and bottom of the frame, a bracket, a bar connected to the bracket and carrying hangers, a spring-actuated shade-roller mounted in said hangers, the bar being weighted to counteract the spring and the hangers inbent to cause said bar to hold the curtain pressed snugly against the face of the frame, and a cord passing around said pulleys and connected at its ends to the bracket and to the shade, substantially as described.

2. The combination with the window-frame; of lock-pulleys at the top and bottom of the frame, a bracket having a pair of downwardly-extending arms, hangers, a spring-actuated shade-roller mounted in said hangers, a bar carrying the hangers and connected to the bracket-arms and weighted to counteract the shade-spring and to press the curtain against the face of the window-frame, means for independently adjusting the bar upon the bracket-arms, and a cord passing around said pulleys and connected at its ends to the bracket and to the shade, substantially as set forth.

695,526. SPRING-HINGE. JOSEPH BARDSLEY, Montclair, N. J. Filed July 6, 1900. Serial No. 22,660. (No model.)

Claim.—1. In a spring-hinge, the rotary spindle 25 to be engaged and operated by the door, the lower hub 37 loosely mounted on the lower part of said spindle and having the arm 35 which extends upwardly from the lower edge of said hub, the upper hub encompassing said spindle and having the arm 36 which extends downwardly from the upper edge of said upper hub, and the stop 48 intermediate said arms 35, 36, and serving to receive the contact of the vertical facing side edges of said arms, combined with a coiled spring encompassing and connected at its ends to said hubs and confined intermediate said arms 35, 36, and said hubs, and the spindle-arm 33 extending over the upper end of the said upper hub and having the portion 34 extending intermediate said arms 35, 36, and above said stop 48; substantially as set forth.



2. In a spring-hinge, the rotatory spindle adapted to be operated by the door carrying the arm, and a door-closing spring encompassing said spindle for coöperation with said arm, and means operatively engaging said spring with said arm combined with a yielding arm to be engaged by said lever-arm during the opening and closing of the door, the said yielding arm resisting the opening of the door during the early portion of the movement of the latter and then aiding the further opening of the door; substantially as set forth.

3. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the door-closing spring encompassing said spindle for coöperation with said arm, and means operatively engaging said spring with said arm combined with a pair of yielding arms extending laterally from a point in line with said spindle-arm when the latter is in its normal at-rest position, and being in the path of said spindle-arm, the said spindle-arm being compelled to move against one of said yielding arms when the door is being opened in one direction, and against the other of said yielding arms when the door is being opened in the opposite direction; substantially as set forth.

4. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the door-closing spring encompassing said spindle for coöperation with said arm, and means operatively engaging said spring with said arm combined with the yielding arm for engagement with said spindle-arm during the opening and closing of the door, the said yielding arm being formed with the convex surface for contact with said spindle-arm; substantially as set forth.

5. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the door-closing spring encompassing said spindle for coöperation with said arm, and means operatively engaging said spring with said arm combined with the pivotally-mounted spring-pressed lever-arm to be engaged by said spindle-arm during the opening and closing of the door; substantially as set forth.

6. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the door-closing spring encompassing said spindle for coöperation with said arm, and means operatively engaging said spring with said arm combined with the pair of spring-pressed arms in the path of said spindle-arm and adapted for coöperation therewith during the opening and closing of the door; substantially as set forth.

7. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the door-closing spring encompassing said spindle for coöperation with said arm, and means operatively engaging said spring with said arm combined with the pair of spring-pressed arms in the path of said spindle-arm for coöperation with said spindle-arm, said pair of arms having, intermediate their inner or shank portions, the socket to receive the end of the said spindle-arm when the latter is in its normal at-rest position; substantially as set forth.

8. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the door-closing spring encompassing said spindle for coöperation with said spindle-arm, and means operatively engaging said spring with said arm combined with the pair of yielding arms in the path of said spindle-arm, and means for adjusting said yielding arms, spindle and spindle-arm to effect the proper closed position of the door; substantially as set forth.

9. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the door-closing spring for cooperation with said arm, means operatively engaging said spring with said arm and the pair of yielding arms in the path of and for coöperation with said spindle-arm for controlling said spring, combined with the plate carrying said yielding arms, means for adjusting said plate, yielding arms, spindle and spindle-arm into proper alinement to effect the proper closed position of the door; substantially as set forth.

10. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the door-closing spring for coöperation with said arm, means operatively engaging said spring with said arm and the pair of yielding or spring-pressed arms in the path of and for coöperation with said spindle-arm, the plate carrying said yielding arms, and the screws engaging said plate, said plate being adjustable with respect to the door, and said screws having their heads exposed through the top plate of the casing of the spring-hinge; substantially as set forth.

11. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm carried by said spindle, the stop-arms at opposite sides of said spindle-arm, and the spring connected with said stop-arms, combined with the stop to engage one of said stop-arms while the other is in action, and the pair of yielding or spring-pressed arms in the path of said spindle-arm for controlling the said spring during the opening and closing of the door; substantially as set forth.

12. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm connected with said spindle, the stop-arms at opposite sides of said arm, and the door-closing spring connected at its opposite ends with said stop-arms, combined with the plate carrying the stop-arm intermediate the above-mentioned stop-arms, the pair of yielding or spring-pressed arms in the path of said spindle-arm and carried by said plate, and means for adjusting said plate so as to give to said plate, said arms and said spindle the proper adjustment with respect to the normal closed position of the door; substantially as set forth.

13. In a spring-hinge, the rotatory spindle adapted to be operated by the door, the arm connected with said spindle, the stop-arms at the opposite sides of said spindle-arm, and the door-closing spring connected to said stop-arms, combined with the plate having the stop-arm intermediate the above-mentioned stop-arms, the studs 55 and 56 carried by said plate, the arms 58 mounted upon said stud 55 and being in the path of said lever-arm, and the spring 57 upon said stud 56 and having its ends in engagement with the said arms 58; substantially as set forth.

14. The door, and a pivot for the lower end thereof, combined with the stud or pivot for the upper end of the door, the plate 84, and the socket 26 supported by said plate and adapted to receive the said stud, said socket 26 having the annular shoulder 96, the series of balls 97 thereon, and the plate or washer 98 for said balls; substantially as set forth.

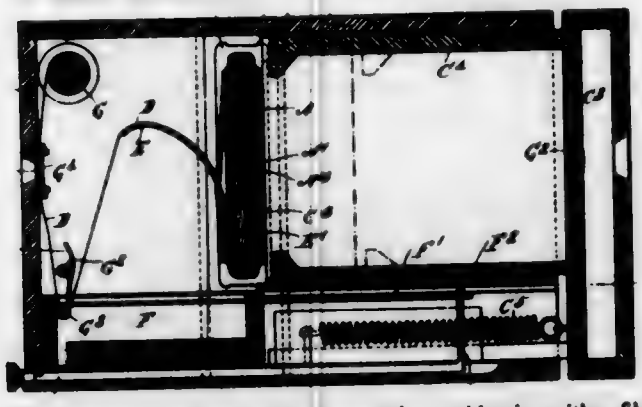
15. The door, the pivot for the lower end of the door, and the stud or pivot 24 for the upper end of the door, combined with the plate 84 having the arm 92, the socket 26 supported by said plate 84 to receive said stud or pivot 24, the plate or arm 85 connected with said socket and having the arm 90, and the screw 89 engaging the said arms 92 and 90 for adjusting the position of the said socket 24 without removing the plate 84; substantially as set forth.

16. The door, the pivot receiving the lower end of the door, and the stud or pivot 24 for the upper end of the door, combined with the plate 84 having the opening 95 and slots 88, the socket 26 supported by said plate 84 in line with said opening 95, the arm or plate 85 connected with said socket and having the pins 86 within said slots 88, and means for adjusting said socket and plate or arm 85 and maintaining said socket in its adjusted position; substantially as set forth.

17. The door, and the pivot for the lower end thereof, combined with the stud or pivot for the upper end of the door, the plate 84, and the socket 26 supported by said plate and adapted to receive the said stud, said socket 26 having adjacent to its entrance the annular shoulder 96 and the series of balls 97; substantially as set forth.

18. In a spring-hinge for doors, the rotatory spindle adapted to be operated by the door, the arm connected with said spindle, the stop-arms at the opposite sides of the said spindle-arm, and the door-closing spring connected with said stop-arms, combined with the adjustable plate 49 having the stop 48 intermediate the said stop-arms, and the vertical screws 51 for binding against and securing said plate 49 in its adjusted positions, said screws being separated from each other a distance somewhat greater than the thickness of the door; substantially as and for the purposes set forth.

695,527. PHOTOGRAPHIC CAMERA. EDWIN D. BARTLETT, South Tottenham, England. Original application filed Apr. 22, 1901, Serial No. 56,963. Divided and this application filed Nov. 14, 1901. Serial No. 82,259. (No model.)



Claim.—1. In a photographic camera, the combination with a film-carrying spool, of a tube carrying the lens, means for moving the tube forward, and means for returning said tube to its normal position.

2. In a photographic camera the combination of a flat film-carrying spool, a reciprocating tube carrying the lens in operative engagement with the spool, and means for returning the tube after it has been cammed forward by the spool, substantially as set forth.

3. In a photographic camera the combination of a flat film-carrying spool, a reciprocating tube carrying the lens in operative engagement with the spool, and springs connected to the tube and to the body of the camera, substantially as and for the purpose set forth.

4. In a photographic camera the combination of a flat film-carrying spool, a reciprocating tube carrying the lens in operative engagement with the spool, a film binding and releasing band around the spool, means for operating the band, and means for reciprocating the tube, substantially as set forth.

5. In a photographic camera the combination of a flat film-carrying spool provided with flexible retaining devices, a film binding and releasing band upon the spool, a reciprocating tube carrying the lens, means for retaining the end of the tube in contact with the flexible devices upon the spool, and means for reciprocating the tube, substantially as and for the purpose set forth.

6. In a photographic camera the combination of a flat film-carrying spool, a film binding and releasing band upon the spool, means for operating the band, flexible edge-retaining devices for the band and films, a reciprocating tube carrying the lens, said tube being normally in contact with the edge-retainers for the purpose described, and means for operating the tube, substantially as set forth.

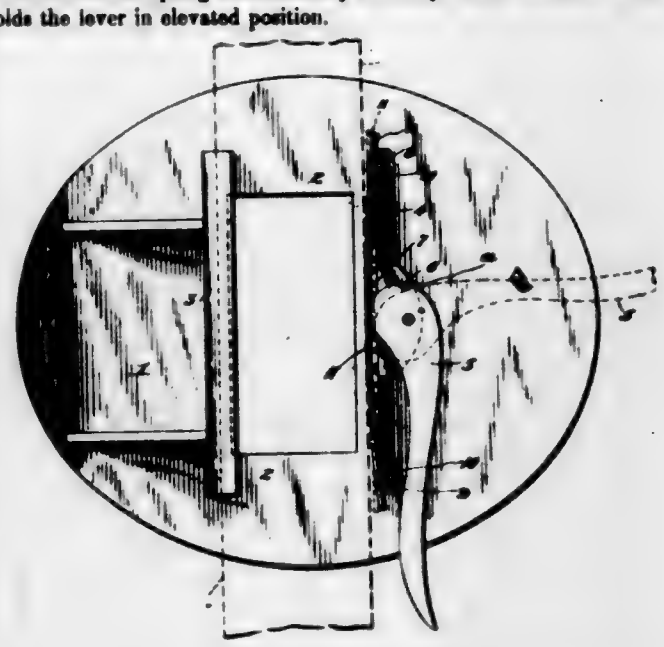
7. In a photographic camera the combination of a flat film-carrying spool, means for operating the spool, a binding and releasing band upon the spool, a roller for guiding the band and a winding-roller for operating the band, flexible edge-retaining devices for the band and films, a reciprocating tube carrying the lens, said tube being normally in contact with the edge-retainers for the purpose described, and means for operating the tube, substantially as set forth.

8. In a photographic camera the combination of a flat film-carrying spool, means for operating the spool, a binding and releasing band upon the spool, a roller for guiding the band and a plate for guiding the films, a winding-roller for operating the band, flexible edge-retaining devices for the band and films, a reciprocating tube carrying the lens, said tube being normally in contact with the edge-retainers for the purpose described, and means for operating the tube, substantially as set forth.

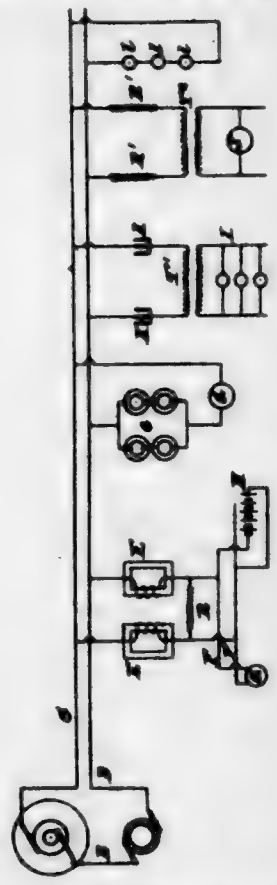
9. In a photographic camera the combination of a flat film-carrying spool, means for operating the spool, a binding and releasing band upon the spool, a roller for guiding the band and a plate for guiding the films, a winding-roller for operating the band, flexible edge-retaining devices for the band and films, a reciprocating tube carrying the lens, said tube being normally in contact with the edge-retainers for the purpose described, means for operating the tube, a receptacle beneath the guide-plate for the films, a slotted cover for the receptacle, and means for engaging and automatically disengaging an arm with said slot for operating the cover, substantially as set forth.

695,528. ENGINEER'S LEVELING-ROD. JOHN H. BECKLEY, Lebanon, Pa. Filed Jan. 9, 1902. Serial No. 89,037. (No model.)

Claim.—The combination with a target having guide-flanges, one of which is provided with an aperture intermediate its ends and with slots at its ends, of a rod upon which said flanges are mounted to slide, a lever pivoted to one of said flanges and projecting through the aperture arranged intermediate its ends, a flat spring mounted on the inner side of the flange and having studs which project through the slots at the ends of the flange, said spring being arranged within the path of movement of the lever, whereby in one position of the lever, the spring is clamped to the rod to hold the target in adjusted position, and in another position of the lever, the spring automatically unclamps itself from the rod and holds the lever in elevated position.



695,529. SYSTEM OF ELECTRICAL TRANSMISSION. FREDERICK BEDELL, Ithaca, N. Y. Filed July 10, 1899. Serial No. 723,253. (No model.)



Claim.—1. The combination with main conductors having both an alternating and a direct electromotive force impressed thereon of direct-current-translating devices connected to said mains through a choking-coil and a bridging resistance for permanently energizing the said coil.

2. The combination with main conductors having both an alternating and a direct electromotive force impressed thereon and a rotary converter with direct-current commutator and alternating-current collector-rings connected to a common armature-winding, of a choking-coil of low resistance and high self-induction interposed between the said mains and commutator.

3. The combination with main conductors having both an alternating and a direct electromotive force impressed thereon and direct-current-receiving apparatus connected to said mains through interposed direct-current selective apparatus, of a resistance between the ground and the said direct-current-receiving apparatus.

4. The combination with main conductors having both an alternating and a direct electromotive force impressed thereon, of direct-current-translating apparatus connected to said mains through interposed direct-current selective devices, and a bridging resistance for maintaining a flow of current through said devices.

5. The combination with main conductors having both an alternating and a direct electromotive force impressed thereon and a rotary converter with direct-current commutator and alternating-current collector-rings, of a direct-current selective device interposed between the said main and commutator.

6. The combination with main conductors having both an alternating and a direct electromotive force impressed thereon, of direct-current-translating apparatus connected to said mains through interposed direct-current selective devices, and a connection between the ground and said translating apparatus.

7. The combination of a source of direct and a source of alternating electromotive force, a rotary converter with direct-current commutator and alternating-current collector-rings connected to a common armature-winding, of two line conductors acting respectively as an outgoing and a return conductor, for direct and for alternating currents derived from said sources of electromotive force, means for connecting the commutator of said converter to said line conductors so as to derive direct current therefrom, and means for then connecting the collector-rings of the converter to the line conductors so as to derive alternating current therefrom.

8. The combination with a rotary converter with direct-current commutator and alternating-current collector-rings connected to a common armature-winding, of two line conductors, a source of direct electromotive, means for deriving direct current therefrom and transmitting said current over said line conductor acting as an outgoing and a return conductor respectively to the commutator of said converter, a source of alternating electromotive force, and means for transmitting alternating current derived therefrom over said line conductors, acting as an outgoing and a return conductor respectively, to the collector-rings of the converter.

9. The combination with a rotary converter having a direct-current commutator and alternating-current collector-rings connected to a common armature-winding, of a source of direct and a source of alternating electromotive force, an outgoing and a return line conductor, means for deriving direct current from the source of direct electromotive force and transmitting said current over said outgoing and return conductors to the commutator of said converter, and means for deriving alternating current from the source of alternating electromotive force and transmitting said alternating current over said conductors to the collector-rings of the converter.

10. The combination of a line-circuit consisting of an outgoing and a return conductor, a source of direct and a source of alternating electromotive force, means for applying said electromotive forces to said circuit, a rotary converter with direct-current commutator and alternating-current collector-rings connected to a common armature-winding, means for connecting said commutator to said circuit so as to employ the two conductors thereof as outgoing and return conductors, respectively, and to derive direct current from the source of direct electromotive force, and means for connecting the collector-rings of the converter to said circuit, so as to derive alternating current from said alternating electromotive force.

11. The combination with a source of alternating current, of a transformer connected thereto, a source of direct current connected to a coil of said transformer, a second coil wound upon the core of said transformer and connected to a source of direct current of such polarity that the magnetomotive forces resulting from the direct currents in the two coils are opposite in direction, and automatic means for regulating the direct current in the second coil whereby said two magnetomotive forces are maintained substantially equal and the oversaturation of the core is avoided.

695,530. BALLAST-DRESSING MECHANISM. VICTOR BERFORD, Tara, Canada. Filed June 10, 1901. Serial No. 63,858. (No model.)



Claim.—1. In an apparatus of the class described, the combination with a car, of a suitable framework extending outwardly from the car, weed-destroying devices mounted on the framework, and a ballast-dresser mechanism trailing after the weed-destroying devices and connected with said framework, substantially as set forth.

2. In an apparatus of the class described, the combination with a car, of a suitable framework connected therewith, a gang of weed-destroying devices supported by the framework, and a dresser-rake arranged to trail in rear of said weed-destroying devices and of the framework and disposed in a rearwardly and inwardly inclined position with relation to said car, substantially as set forth.

3. In an apparatus of the class described, the combination with a car, and a suitable framework connected therewith, of weed-destroying devices supported by the framework, an inclined rake arranged to traverse the face of the slope or shoulder of a track and to trail after said weed-destroying devices, means adjustably connecting the outer end of said rake to the framework, and independent devices connecting the inner end of said rake to the framework, substantially as set forth.

4. In an apparatus of the class described, the combination with a carriage and a suitable framework connected therewith, of a ballast-dressing rake arranged to traverse the slope or shoulder of a track, a shank adjustably connecting said rake and said framework, and an extensible rod connecting the inner portion of the rake and the framework, substantially as set forth.

5. In an apparatus of the class described, the combination with a carriage and a suitable framework connected therewith, of a slope-dresser rake, a tie-dresser rake disposed in rear of the slope-dresser rake, and suitable means for holding said rakes in operative positions, substantially as set forth.

6. In an apparatus of the class described, the combination with a slope-dresser rake, of a tie-dresser rake disposed in rear thereof, and means for yieldably holding said tie-dresser rake in its operative relation to the slope-dresser rake, substantially as set forth.

7. In an apparatus of the class described, the combination with a slope-dresser rake, of a tie-dresser rake disposed in a reversely-inclined position to the slope-dresser rake, and an equalizer mechanism between the two rakes, whereby the tie-dresser rake is held yieldably in its operative position by pressure against the slope-dresser rake, substantially as set forth.

8. In an apparatus of the class described, the combination with a slope-dresser rake and a suitable framework, of a tie-dresser rake disposed in rear of and in inclined relation to the slope-dresser rake, and an equalizer mechanism having operative connection with the framework and the two rakes, for the purposes described, substantially as set forth.

9. In an apparatus of the class described, the combination with a framework, of a slope-dresser rake attached at one end to the framework, an equalizer mechanism connecting the other end of said slope-dresser rake with the framework, and a tie-dresser rake having its end portions connected with the slope-dresser rake and an element of the equalizer mechanism respectively, substantially as set forth.

10. In an apparatus of the class described, the combination with a suitable framework, of a dresser-rake connected at one end thereto, the prime and secondary levers connected to the dresser-rake and the framework respectively, rods connecting said levers, and a tie-dresser rake yieldably connected to the slope-dresser rake and to said prime lever, substantially as set forth.

11. In an apparatus of the class described, the combination with a carriage and a suitable framework, of a slope-dresser rake connected with the framework, a tie-dresser rake in rear of the slope-dresser rake, connections between the two rakes to hold one in place by the resistance encountered by the other, and a suspension-bar mounted on the carriage and having an operative connection with a part of the ballast-dressing mechanism, substantially as set forth.

12. In an apparatus of the class described, the combination with a suitable framework and a carriage, of a ballast-dressing mechanism connected with said carriage, a weighted arm attached to a part of said ballast-dressing mechanism, a yoke on the carriage, a suspension-bar fitted to the yoke, and a chain connected to the bar and to a part of said ballast-dressing mechanism, substantially as set forth.

13. In an apparatus of the class described, the combination with a suitable framework, of a slope-dresser rake connected at one end with the framework, a prime lever fulcrumed at the other end of the dresser-rake, a secondary lever fulcrumed on the framework, an extensible rod between said slope-dresser rake and said secondary lever, another extensible rod between the prime and secondary levers, a tie-dresser rake having a yieldable connection with the slope-dresser rake, and a link connecting said tie-dresser rake with the prime lever, substantially as set forth.

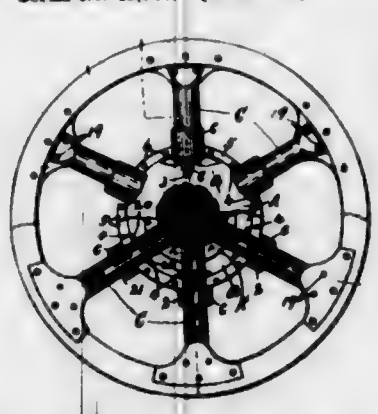
695,581. GATE. ROBERT H. BRENNEMAN, York, Pa. Filed June 18, 1901. Serial No. 65,087. (No model.)

Claim.—The combination of a frame comprising end posts, and a gate-post located intermediate of the same, a tilting track-rail, a gate suspended therefrom, a frame extending at right angles to the movement of the gate secured to one end post, levers pivoted thereto, and a connection between the same and one end of the tilting rail, a frame arranged parallel to the movement of the gate secured to the other post, levers pivoted thereto having their rear ends connected to said rail, the forward ends

of the levers extending to the intermediate post and being deflected therefrom in a direction at right angles to the movement of the gate.



695,582. WHEEL. CHARLES H. BICALKY, Oneida, N. Y. Filed Mar. 5, 1901. Serial No. 49,963. (No model.)



Claim.—1. A wheel comprising a hub and rim, tubular spokes having their inner ends secured to the hub and their outer ends terminating in a flange at the inner face of the rim, and sheet-metal plates secured to the rim and to the adjacent ends of the spokes.

2. A wheel comprising a hub and rim, tubular spokes having their inner ends secured to the hub and their outer ends flanged against the inner face of the rim, said flanged ends of the spokes being provided with slots, and plates secured to the rim and projecting into the slots and secured to the spokes.

3. In a wheel, a hub composed of opposite concavo-convex sections arranged base to base and formed with recesses in their meeting faces for forming spoke-openings, in combination with spokes inserted in the openings, and sleeves surrounding the spokes and interlocked with the sections of the hub.

4. The combination with a wheel-hub consisting of opposite sheet-metal sections arranged end to end and having their meeting faces provided with substantially radial arms or flanges for forming nipples, of metal sleeves inclosing the arms or flanges for locking said sections together.

5. In a wheel, a hub comprising hollow sheet-metal sections arranged end to end and provided with substantially radial arms having recesses in their meeting faces for forming spoke-openings, in combination with spokes inserted in the openings, and sleeves inclosing the arms and adjacent portions of the spokes and secured to the hub-sections.

6. In a wheel, a hub comprising hollow sheet-metal sections arranged end to end and provided with substantially radial arms having recesses in their meeting faces for forming spoke-openings, in combination with tubular spokes inserted in the openings, and sleeves encircling the arms of the hub and secured to the hub-sections for locking the sections together and holding the spokes in position.

7. The herein-described hub for wheels consisting of opposite concavo-convex sheet-metal sections secured base to base and provided with concavo-convex substantially radial arms at their bases for forming hollow nipples in combination with tubular sleeves encircling the nipples for holding the sections base to base.

8. The herein-described hub for wheels consisting of opposite concavo-convex sheet-metal sections secured base to base and provided with concavo-convex substantially radial arms at their bases for forming hollow nipples in combination with tubular sleeves encircling the nipples and provided with annular shoulders engaging the end faces of the nipples.

9. The herein-described hub for wheels consisting of opposite concavo-convex sheet-metal sections secured base to base and provided with concavo-convex substantially radial arms at their bases for forming hollow nipples, said sections being formed with apertures in proximity to the bases of the nipples, in combination with sheet-metal sleeves encircling the nipples, and provided with shoulders extending into the apertures.

10. A wheel-hub composed of concavo-convex sheet-metal sections arranged base to base and having peripheral concavo-convex arms or flanges opening from their meeting faces, said sections being formed with apertures in their walls adjacent to the arms or flanges, in combination with sheet-metal sleeves inclosing the arms or flanges and having their inner ends engaged with the peripheries of the sections and formed with shoulders extending through the apertures, the outer ends of the sleeves being provided with annular flanges engaged with the outer end faces of the arms of the hub-sections.

11. In a wheel, a hollow sheet-metal hub provided with a shaft-opening and having its opposite ends formed with interned annular flanges, in combination with a shaft and a key locked to the shaft and projecting between the inner edges of the interned flanges.

12. In a wheel, a hollow sheet-metal hub provided with shaft and set-screw openings and having its opposite ends formed with interned annular flanges, in combination with a threaded member inside the hub, a set-screw movable in the opening therefor and engaged with the threaded member, a shaft, and a key adapted to be forced into engagement with the shaft by the set-screw for locking the hub to the shaft.

13. A wheel-hub comprising concavo-convex sheet-metal sections arranged base to base and having their outer ends open and provided with interned annular flanges, said sections being each formed with semi-annular arms or flanges adapted to form hollow peripheral nipples, and sleeves inclosing the arms or flanges and secured to the hub-sections.

14. In a wheel, a hub comprising sheet-metal shells arranged one within the other, the outer shell being provided with substantially radial openings, in combination with spokes arranged in the openings and having their inner ends engaged with the inner shell.

15. In a wheel, a hub comprising sheet-metal shells arranged one within the other, the outer shell being provided with substantially radial openings, in combination with spokes arranged in the openings and having their inner ends engaged with the inner shell, and a rim secured to the outer ends of the spokes.

16. A wheel-hub comprising an outer shell composed of concavo-convex sheet-metal sections arranged base to base and provided with a shaft-opening and substantially radial spoke-openings, and a second shell arranged within the former shell concentric with the shaft-opening, in combination with spokes inserted through the spoke-openings and having their inner ends engaged with the periphery of the inner shell.

17. In a wheel, a hub comprising sheet-metal shells arranged one within the other, the outer shell being provided with substantially radial openings, in combination with tubular spokes inserted through the radial openings and having their inner ends engaged with the inner shell.

18. A wheel-hub comprising sheet-metal shells arranged one within the other, the inner shell being formed with a key-opening, in combination with a shaft having a key-seat, and a key arranged in the seat and projecting into the key-opening of the inner shell.

19. A wheel-hub comprising sheet-metal shells arranged one within the other, the inner shell being formed with a key-opening, in combination with a shaft having a key-seat, a key arranged in the seat and projecting into the opening therefor, a threaded member between the shells, and a set-screw engaged with the threaded member and key for the purpose set forth.

20. The combination with a shaft and the hub of a wheel, a hollow sheet-metal ring encircling the shaft and provided with a set-screw opening, a threaded member between the shaft and ring, a key for engaging the shaft, and a set-screw engaged with the threaded member and key.

21. The combination with a shaft and the hub of a wheel, sheet-metal rings arranged one within the other and encircling the shaft, said rings being formed with set-screw openings, a threaded member within said shells, a key for engaging the shaft, and a set-screw engaged with the threaded member and key.

22. In combination with a wheel-hub consisting of sheet-metal shells arranged one within the other, the outer shell being formed with an aperture, a ring encircling the inner shell and provided with an aperture alined with the former aperture, a threaded member between the inner shell and ring, a key for engaging the shaft, and a set-screw passed through said apertures and engaged with the threaded member and key.

23. In a wheel, a hub comprising an outer shell composed of sheet-metal sections arranged end to end and provided with an aperture, a second shell within the former shell and provided with a key-opening, in combination with rings arranged one within the other and each provided with an aperture alined with the former aperture, said rings encircling the inner shell within the outer shell, a key for engaging the shaft, a threaded member interposed between the rings and inner shell, and a set-screw movable in said apertures, and engaged with the threaded member and key.

24. In combination with a wheel-hub consisting of sheet-metal shells arranged one within the other, the outer shell being formed with spoke-openings and the inner shell being provided with apertures, and tubular spokes inserted through the spoke-openings and having their inner ends

formed with shoulders extending into the apertures of the inner shell for the purpose set forth.

25. In a wheel, a hub consisting of an outer shell composed of sheet-metal sections arranged end to end and provided with spoke-openings, a second shell within the former shell and formed with apertures, spokes inserted through the spoke-openings of the outer shell and having their inner ends provided with shoulders extending into the apertures.

26. In a wheel, the combination of a hub shell composed of concavo-convex sheet-metal sections arranged base to base and having their adjacent ends provided with substantially radial concavo-convex arms for forming hollow nipples, the opposite ends of said outer shell being provided with inturned annular flanges, a second hub-shell within the former shell and encircling said annular flanges, said second shell being provided with a key-opening and with flared ends engaging the inner face of the outer shell, a key movable in the opening and adapted to engage the shaft, a collar encircling the inner shell and key within the outer shell, a threaded member within the collar, a set-screw engaged with the threaded member and key, tubular spokes inserted through the radial nipples and having their inner ends engaged with the periphery of the inner shell, and a rim secured to the outer ends of the spokes.

27. The combination with a wheel-hub consisting of opposite sheet-metal sections arranged end to end and secured at their meeting edges, of a ring within the hub having a shaft-opening, and means for locking the hub and ring to each other and to the shaft.

28. The combination with a wheel-hub consisting of opposite sheet-metal sections arranged end to end and secured at their meeting edges, of telescoping rings within the hub provided with shaft-openings, and means for locking the hub and rings to each other and to the shaft.

29. The combination with a wheel-hub consisting of opposite sheet-metal sections arranged end to end and secured at their meeting edges, of a ring within the hub having a shaft-opening, said hub and ring having substantially radial openings alined with each other, a nut within the ring, and a set-screw arranged in said radial openings and engaged with the nut for locking the hub and ring together.

695,533. SULFUR DYE AND PROCESS OF MAKING SAME.

ANTON BOHATI, Biebrich, Germany, assignor to The Firm of Kalle and Company, Biebrich, Germany. Filed Jan. 8, 1902. Serial No. 88,906. (No specimens.)

Claim.—1. The herein-described process of making a substantive cotton-dye containing sulfur, which consists in boiling the partial-reduction product of ortho-para-dinitro-para-oxydiphenylamin with carbon bisulfid, and melting the so-obtained condensation product, having the character of a thiocarbamid, together with sodium sulfid and sulfur at an elevated temperature.

2. As a new product the dyestuff obtainable by melting the condensation product of nitro-amido-para-oxydiphenylamin and carbon bisulfid together with sodium sulfid and sulfur, soluble in water with greenish-blue color, changing to blue by addition of sodium sulfid and to light green on subsequent boiling, dyeing unmordanted cotton a grayish-green shade which is developed to greenish blue by a subsequent treatment with hydrogen peroxid and stannic chlorid.

695,534. SULFUR DYE AND PROCESS OF MAKING SAME.

ANTON BOHATI, Biebrich, Germany, assignor to The Firm of Kalle and Company, Biebrich, Germany. Filed Jan. 8, 1902. Serial No. 88,907. (No specimens.)

Claim.—1. The herein-described process of making a sulfur dye, which consists in dissolving in water the crude melt obtained by melting the thiocarbamid of the para-nitro-ortho-amido para (1) oxydiphenylamin together with sodium sulfid and sulfur, and passing a current of air through the so-obtained solution adding common salt, until no more of the coloring-matter is precipitated.

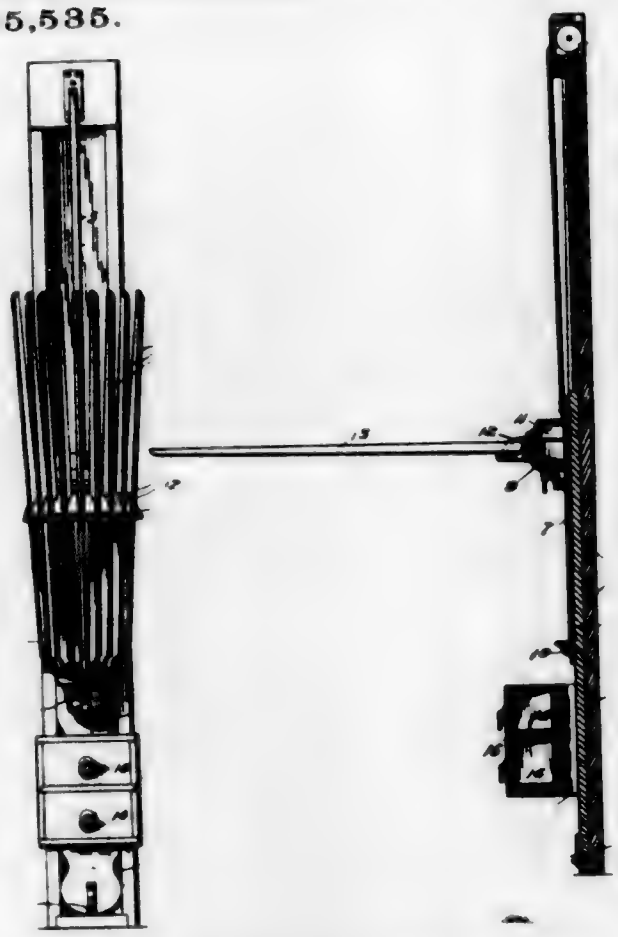
2. As a new product the sulfur dye soluble in water with greenish-blue color, which turns blue on addition of sodium sulfid and pale yellow to green on subsequent boiling, dyeing on unmordanted cotton greenish-blue shades which become brighter and more reddish blue on treatment with hydrogen peroxid and stannic chlorid.

695,535. CLOTHES-DRIER.

DANIEL T. BROWN, Pawtucket, R. I. Filed Dec. 5, 1901. Serial No. 84,762. (No model.)

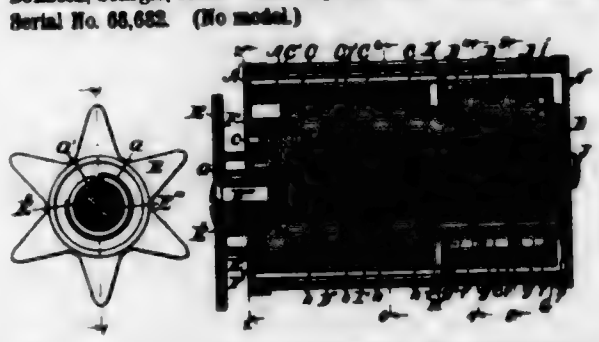
Claim.—In an adjustable rack, the combination of a back, a base adjustably mounted therein, a guide-strip secured to the base and having at its lower end a stop and at its upper end a semihemispherical slotted brace, a slide engaging the guide, arms pivoted to the slide and extending through the slots in the brace, means for counterbalancing the weight of the base and parts applied thereto, and means for locking said base in adjusted position, substantially in the manner specified.

695,535.



695,536. CYCLOMETER AND REGISTER MECHANISM.

LEO J. BURDICK, Sturgis, Mich. Filed Sept. 28, 1898. Renewed July 17, 1901. Serial No. 68,682. (No model.)



Claim.—1. In a cyclometer mechanism, the combination of a central shaft B, a cylindrical case A; an initial mechanism at one end to be acted upon by a striker or other means, a main register mechanism consisting of wheels C, C, C, C, adjacent to and actuated by said initial mechanism; a cylindrical drum D', surrounding the said register mechanism having windows therein through which the numbers of the main register mechanism show and secured to the first wheel C', actuated by the initial mechanism and formed into a suitable hub at the opposite end; a single-trip or detail register mechanism consisting of wheels D, D, supported on the shaft beyond the total-register mechanism; a pawl on the hub of said drum D', to permit the independent movement of the single-trip or detail mechanism, a cylindrical drum G, embracing the single-trip portion having a spring-pawl G', adapted to rest on the periphery of each number-wheel of the single-trip mechanism; little lugs e', on the peripheries of each wheel D, to be actuated by the said pawls when traveling in one direction; a head A'', to the register pivoted at J, on the central shaft and secured to the drum G, and having a cap extending over the outer casing A, to permit the rotation of the said drum G, to carry the single-trip register past the pawl between it and the drum D', to zero, all coacting together substantially as described for the purpose specified.

2. In a cyclometer or register mechanism, a central shaft, a main register mechanism to one end thereof consisting of parallel wheels, a detail or single-trip registering mechanism on the opposite end of said shaft, an initial mechanism for actuating both of said register mechanisms, a cylindrical drum surrounding the main register mechanism and connected to the initial mechanism having windows through which the main mechanism is visible; a ratchet between said drum and the single-trip or detail mechanism to permit of independent rotation thereof, a ratchet mechanism adapted to engage all of the number-wheels of the single-trip mechanism at the same relative point and means of rotating the same to carry all of the wheels thereof to the initial position, for the purpose specified.

3. In a cyclometer or register mechanism, a central shaft, a main

register mechanism to one end thereof consisting of parallel wheels, a detail or single-trip register mechanism on the opposite end of said shaft, an initial mechanism for actuating both of said register mechanisms, a cylindrical drum surrounding the main register mechanism and connected to the initial mechanism having windows through which the main mechanism is visible; and a ratchet between said drum and the single-trip or detail mechanism to permit of independent rotation thereof, for the purpose specified.

4. In a cyclometer or register mechanism, the combination of a suitable shaft; parallel number-wheels thereon having transfer mechanism between them; projecting lugs on the periphery of said number-wheels; and a rotatable shell open on one side and divided to form fingers or pawls to engage said lugs on the peripheries of the number-wheels and carry the said number-wheels forward to the initial position, for the purpose specified.

5. In a cyclometer or register mechanism, the combination of a shaft consisting of narrow transverse sections or portions formed into successive cam-notches, the said parts having full portions opposite, a number-wheel, the hub of which is of sufficient length to embrace two sections, a second number-wheel having internal gear-teeth projecting over the first and springs on the hub corresponding to the number of sections of shaft, with a movable tooth to be held out by the full portions of the shaft to engage the next number-wheel, the full portions of the shaft being opposite so that the movable teeth will be thrown into engagement on opposite sides of the shaft to distribute the power evenly and lessen the friction to transfer for the purpose specified.

6. In a cyclometer or register mechanism of the class described, the combination of the shaft consisting of narrow transverse sections or portions, each section being provided with successive cam-notches with a portion left full, the said full portions being distributed at different points of the circumference of the shaft; a number-wheel, the hub of which is of sufficient length to embrace a plurality of sections of the shaft; a second number-wheel having internal gear-teeth; and springs on the said hub of said number-wheel corresponding to the number of sections embraced thereby and each having a movable tooth in contact with the shaft to be raised by the full portion into engagement with the next number-wheel so that in transferring from a lower to a higher number-wheel a plurality of teeth will engage the higher number-wheel to reduce the friction on the shaft, as specified.

7. In a cyclometer or register mechanism, the combination of a shaft bearing parallel number-wheels, gear-teeth on said number-wheels, a plurality of movable teeth carried by the lower number-wheel and distributed at intervals around the same, cams to engage each movable tooth at the same time and force it into engagement with the next higher number-wheel to distribute the power evenly and relieve friction on the shaft for the purpose specified.

8. In a cyclometer or register mechanism, the combination of the shaft having longitudinal grooves therein, a plurality of number-wheels, a spring with a movable tooth on the hub of a number-wheel for transferring from a lower to a higher number-wheel and an additional spring on the hub of said number-wheel to engage the notches in the shaft at a different point from the movable tooth to serve as a brake and locating means for the number-wheel as specified.

9. In a cyclometer or register mechanism, the combination of the shaft, number-wheels on said shaft, a spring carrying a movable tooth, a suitable cam to actuate said teeth which has depressions to pass the movable tooth by all of the teeth on the next wheel except the one to be actuated, and an additional spring carried by a suitable number-wheel having a portion to engage said cam to serve as a brake and locating means for the number-wheel, as specified.

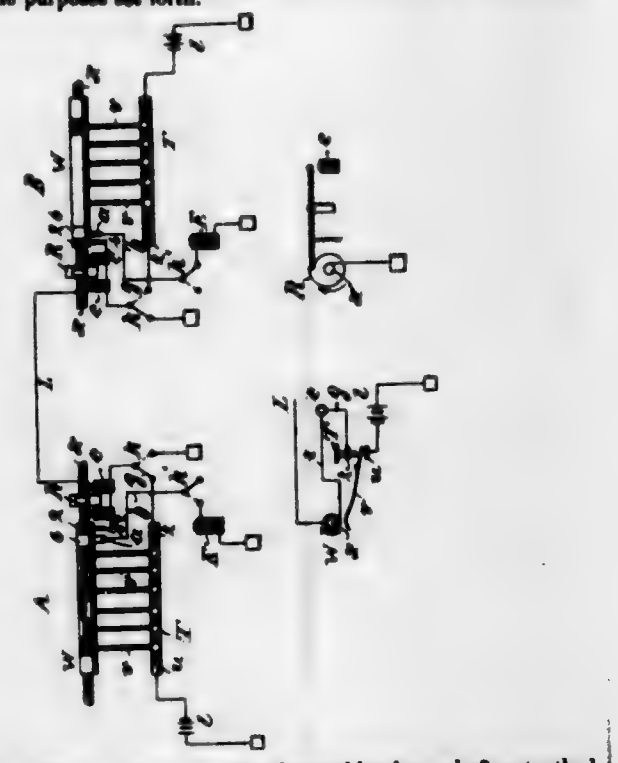
10. In a cyclometer or register mechanism having a single trip or detail portion, the combination between the two portions of a ratchet consisting of a wheel and hub with a suitable guideway struck up therefrom and a spring wrapped around the hub and folded to project inwardly through the guide to form an incline portion on one side and an engaging portion on the other, for the purpose specified.

11. In a cyclometer or register mechanism, the combination of a number-wheel, a thin continuous band *c*, of metal around the same on which the numbers are printed and having lugs *c'* struck up therefrom to be engaged by suitable pawls for the purpose specified.

12. In a cyclometer or register mechanism, the combination of a ring or hub containing gear-teeth and a spring with movable teeth formed from a single strip of metal having the teeth formed by being punched through the same and a portion extended to lap by the full ring and projecting over one of the spaces forming the teeth to be actuated by a suitable cam or projecting portion for the purpose specified.

695,587. PRINTING-TELEGRAPH. LUDEN CHERBOVARI, Munich, Germany, assignor of one-half to Carl Morandell, Munich, Germany. Filed May 1, 1900. Serial No. 15,146. (No model.)

Claim.—1. A printing-telegraph comprising a line-battery *l*, key device *v u*, contact-springs *v*, cylinder-shaft *x*, cylinder W having transmitting and receiving zones arranged as described, a spring *s* contacting with said shaft *x*, a line-relay LR, a local battery LB, electromagnets E E' D *c*, a printing device operated by said electromagnets E E' D and switches *k k'* and electrical connecting-wires as shown, all substantially as and for the purposes set forth.

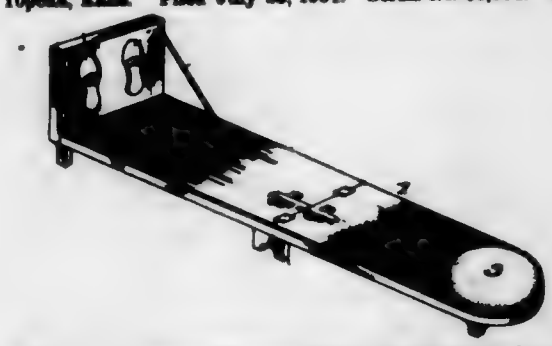


2. The printing device comprising in combination a shaft *y*, toothed wheel 8 rigidly mounted on said shaft and driven by clockwork, escapement-wheel 18 controlling said clockwork, feed and check devices 9, 12 rigidly mounted on said shaft *y*, sliding sleeve 7, means for sliding said sleeve on the shaft *y*, a type-wheel 20 rigidly mounted on said sleeve, toothed wheels 15, 16 rigidly connected with the axle of said type-wheel, a loosely-mounted sleeve 10 on said shaft, wheelwork 24, 25 operating said sleeve 10 and escapement-wheel 17, 19 controlling same, and feed and check devices 11, 13 rigidly connected with said sleeve 10 all substantially as and for the purposes set forth.

3. The cylinder W mounted on a shaft, comprising a transmitting and a receiving department, respectively containing transmitter and receiver zones arranged as described, each being composed of bright and insulated parts, the bright parts of the transmitter zone being all in metallic connection with the said shaft, and the bright parts of the receiving zones I-V being metallically connected together, but insulated from said shaft, substantially as and for the purposes set forth.

4. A printing-telegraph comprising a line-battery *l*, key device *v u*, contact-springs *v*, cylinder-shaft *x*, cylinder W having transmitting and receiving zones arranged as described, a spring *s* contacting with said shaft *x*, a line-relay LR, a local battery LB, electromagnets E E' D *c*, a relay *p*, an inductor J, a coherer *f*, a printing device operated by said electromagnets E E' D and switches *k k'* and electrical connecting-wires as shown, all substantially as and for the purposes set forth.

695,588. EXERCISING-MACHINE. ADOLPH DE CLAIRMONT, Topeka, Kans. Filed July 23, 1901. Serial No. 69,391. (No model.)



Claim.—1. An exercising-machine of the character described, comprising a bed, a footboard arranged at a right angle to the bed and having detachable connection therewith, braces between the footboard and bed, and holders attached to the footboard for securing the feet thereto, substantially as set forth.

2. In exercising apparatus of the character described, a bed, a footboard arranged about at a right angle to the bed, means for detachably connecting the footboard to the bed, braces between the footboard and

bed and pivotally connected to each to admit of the footboard folding upon the bed, and holders applied to the footboard for securing the feet thereto, substantially as specified.

3. In exercising apparatus of the character described, a bed having a tenon, a footboard notched in its lower edge to receive the tenon, coöperating fastenings as hooks and eyes between the footboard and bed, braces having pivotal connection with the footboard and bed, and holders applied to the footboard for securement of the feet thereto, substantially as set forth.

4. In exercising apparatus of the character described, a bed composed of parts hinged together, feet applied to the bed, the intermediate foot overlapping the hinge-joint and secured to one of the parts, and a folding footboard provided with holders for securement of the feet thereto, substantially as described.

5. An exercising apparatus of the character described, comprising a bed cushioned at one end, a footboard provided with holders and detachably connected with the opposite end of the bed, and braces having pivotal connection with the footboard and bed and adapted to admit of the folding of the footboard upon the bed, substantially as set forth.

695,539. ELECTROMAGNETIC APPARATUS. FRANK B. COOK, Chicago, Ill. Filed Aug. 29, 1899. Serial No. 728,820. (No model.)



Claim.—1. In an electromagnetic apparatus, a two-part armature approximately centrally pivoted, an electromagnet and a plurality of pole-pieces of said magnet arranged on either side of said armature and above and below the pivot thereof, a latching-lever and a drop or shutter normally held by said lever.

2. In an electromagnetic apparatus, a two-part magnetic shell formed with pole-pieces at its proximate ends, an electromagnet connected therewith, and an armature the opposite sides of which are acted upon by the poles of said shell.

3. In an electromagnetic apparatus, a two-part magnetic shell formed with pole-pieces at its proximate ends, an electromagnet connected therewith, and an armature mounted on an axis located between the poles of said two-part shell.

4. In an electromagnetic apparatus, a two-part magnetic shell, an electromagnet connected therewith, and an armature centrally pivoted and positioned between the poles of the shell.

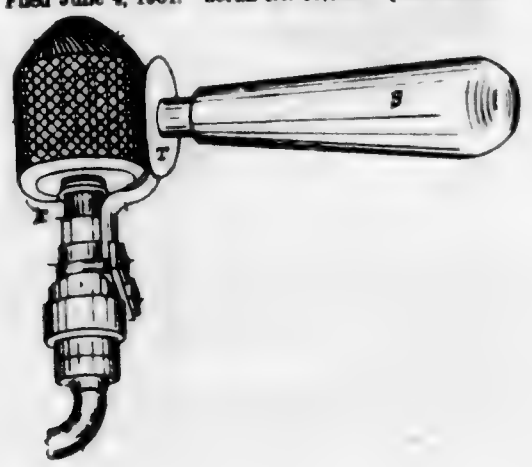
5. In an electric magnetic apparatus, a two-part magnetic shell, an electromagnet connected therewith and a centrally-pivoted ring-shaped armature positioned between the poles of the shell and surrounding the electromagnet.

6. In an electromagnetic apparatus, a two-part magnetic shell, an electromagnet connected therewith and a centrally-pivoted ring-shaped armature which surrounds the electromagnet and the pole-pieces of the shell whereby said armature remains within the field of force of said pole-pieces.

7. In an electromagnetic apparatus, a magnetic shell formed in two parts each of which is connected with the electromagnet and each having a pole-piece and a two-part armature together with supplemental pole-pieces on the ends of the magnetic shell.

8. In an electromagnetic apparatus, a two-part magnetic shell, an electromagnet connected therewith and a ring-shaped armature, suitably pivoted encircling said electromagnet and positioned between the poles of the shell.

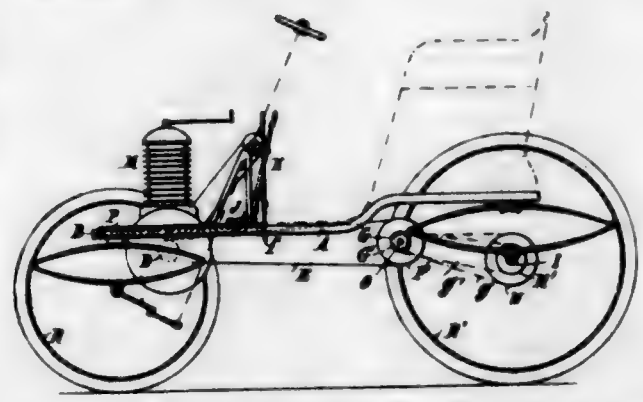
695,540. HOOF-TRIMMER. ALDON R. CORRINGTON, Meriden, Iowa. Filed June 4, 1901. Serial No. 63,066. (No model.)



Claim.—1. In a hoof-trimmer, a rotatable shaft having a cylindrical rasp rigidly secured thereto, the end of which terminates in a cone provided with file-teeth, a sleeve loosely mounted upon the rotatable shaft, combined with a handle detachably clamped to the sleeve and extending outwardly and at right angles to the side of the rasp, substantially as set forth.

2. In a hoof-trimmer, a rotatable shaft having a cylindrical rasp rigidly secured thereto, said rasp terminating in a cone provided with fine file-teeth, a sleeve loosely mounted upon the shaft, means mounted on the shaft at each end of the sleeve to prevent longitudinal movement of the latter, combined with a detachable handle extending at right angles to the sides of the rasp and provided with a guard and a laterally-extended arm at its inner end, and a clamp upon the sleeve to engage said arm, substantially as described.

695,541. DRIVING MECHANISM FOR MOTOR-VEHICLES. LOUIS CRÉANCHE, Paris, France. Filed July 15, 1899. Serial No. 723,983. (No model.)



Claim.—1. In a motor-vehicle, the combination with the frame, of a support movable upon the frame lengthwise of the vehicle, a motor carried by the said support, driving mechanism comprising pulleys arranged side by side and independently rotatable, an intermediate axle, a transmission-belt intermediate the motor and the pulleys, differential gearing intermediate the driving-wheels and the pulleys, means for shifting the belt from one pulley to the other, an operating-lever and a connection between the same and the motor-support.

2. In a motor-vehicle, the combination with the frame, of a support movable upon the frame lengthwise of the vehicle, a motor carried by the said support, guides on the frame for said support, whereby the latter may be moved longitudinally to slacken or tighten the transmission-belt driving mechanism comprising pulleys arranged side by side and independently rotatable, a transmission-belt intermediate the motor and the pulleys, toothed disks of different diameters carried by the pulleys, means for shifting the belt from one pulley to the other, an operating-lever, a connection between the same and the motor-support, pinions of different diameters geared to the toothed disks, and gearing between the pinions and the driving-wheel shaft of the vehicle.

3. In a motor-vehicle, a motor carried on a movable support, connected by a belt E to intermediate pulleys F F', provided with disks G G' respectively, chains g g', and pinions H H' on the rear axle a lever and eccentric for moving said support longitudinally to slacken or tighten said belt, substantially as described.

695,542. EMBOSSING-PRESS. SAMUEL CURTIS, Kirkwood, Mo. Filed May 2, 1901. Serial No. 58,453. (No model.)

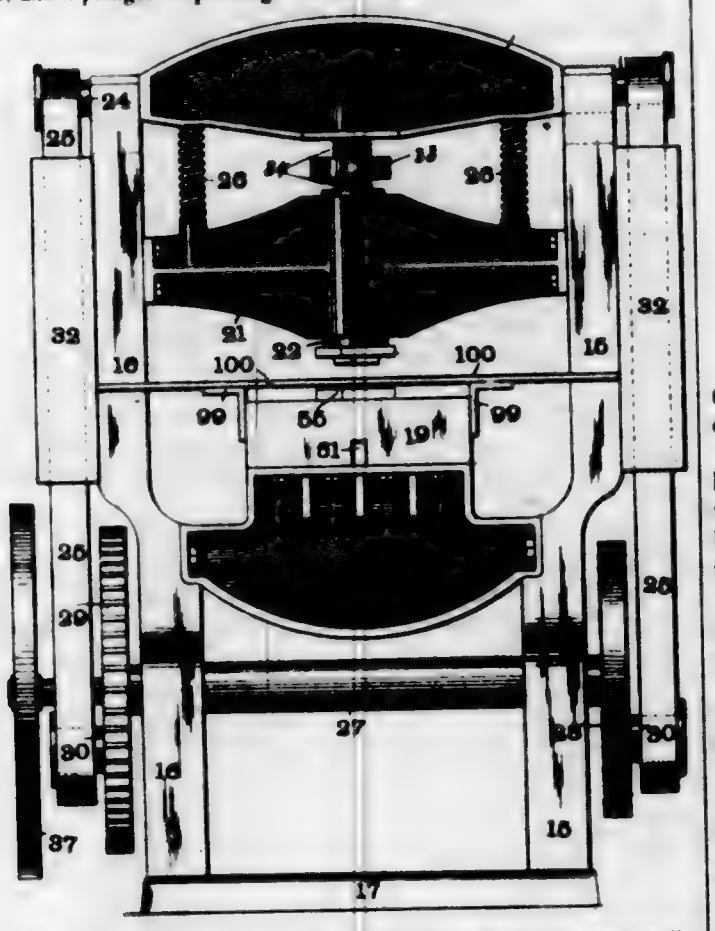
Claim.—1. In an embossing-press, the combination with a reciprocating die, of a plunger coöperating therewith, an inking device for inking said die, a rotary member reciprocating said die, a cam-track carried by said rotary member, a sliding bar riding on said cam-track, and connections between said sliding bar and said inking device for operating the latter.

2. In an embossing-press, the combination with a reciprocating die, of a plunger coöperating therewith, means for inking said die, a wiping device for said die, a rotary member reciprocating said die, a cam-track carried by said rotary member, a sliding bar riding on said cam-track, and connections between said sliding bar and said wiping device for operating the latter.

3. In an embossing-press, the combination with a reciprocating die, of a plunger coöperating therewith, an inking device for inking said die, a wiping device for said die, a rotary member reciprocating said die, a pair of cam-tracks carried by said rotary member, a pair of sliding bars riding on said cam-tracks, and connections between said sliding bars and said inking and wiping devices for actuating said devices.

4. In an embossing-machine, the combination with a reciprocating

die, of an oscillating member for actuating said die, a rotary member, a link pivoted at one end to said rotary member and at the other to said oscillating member, whereby a variable movement is imparted to the latter, and a plunger coöperating with said die.



5. In an embossing-press, the combination with a reciprocating die, of an oscillating member for actuating said die, a rotary member, a link pivoted at one end to said rotary member and at the other to said oscillating member whereby a variable movement is imparted to the latter, an inking device for said die, means for operating said inking device from said rotary member, and a plunger coöperating with said die.

6. In an embossing-press, the combination with a reciprocating die, of an oscillating member for actuating said die, a rotary member, a link pivoted at one end to said rotary member and at the other to said oscillating member whereby a variable movement is imparted to the latter, an inking device for said die, a wiping device, means for operating said wiping device from said rotary member, and a plunger coöperating with said die.

7. In an embossing-press, the combination with a reciprocating die, of an oscillating member for actuating said die, a rotary member, a link pivoted at one end to said oscillating member and at the other to said rotary member whereby a variable movement is imparted to the said oscillating member, an inking device for said die, a wiping device, means for operating said inking and wiping devices from said rotary member, and a plunger coöperating with said die.

8. In an embossing-press, the combination with a movable bed-plate carrying a die, of an oscillating member, a reciprocating member actuated by said oscillating member and engaging with said bed-plate, means for intermittently disengaging said reciprocating member from said bed-plate, and a plunger coöperating with said die.

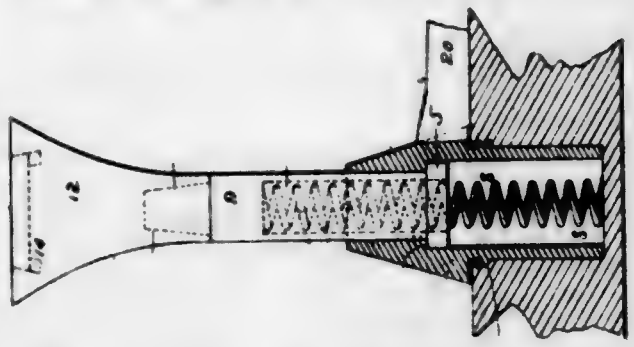
9. In an embossing-press, the combination with a movable bed-plate carrying a die, of an oscillating member, flexible connections for driving said bed-plate from said oscillating member, and means for intermittently disengaging said bed-plate from its driving connection.

10. In an embossing-press, the combination with a movable bed-plate carrying a die, of an oscillating member, a sliding member, flexible connections between said oscillating and sliding members, and means for driving said bed-plate from said sliding member.

11. In an embossing-press, the combination with a movable bed-plate carrying a die, of an oscillating member, a sliding member, flexible connections between said oscillating and sliding members, connections between said sliding members and bed-plate for driving the latter, and means for intermittently disengaging said bed-plate from its driving connections.

12. In an embossing-press, the combination with a rotary member, of an oscillating member, a link pivoted at one end to said rotary member and at the other to said oscillating member, a sliding member, flexible connections between said oscillating and sliding members, a movable bed-plate carrying a die and driven from said sliding member.

695,543. SPRUE FOR MOLDING APPARATUS. CALVIN R. DAVIS, South Bend, Ind., assignor to South Bend Iron Works, South Bend, Ind. Filed Sept. 24, 1901. Serial No. 76,395. (No model.)



Claim.—1. In a sprue-pattern the combination with a bar adapted to yield longitudinally under pressure and a seat or support for said bar, of a head loosely seated on one end of said bar, substantially as set forth.

2. In a sprue-pattern, the combination with a bar adapted to yield longitudinally under pressure and a seat or support for said bar, of an inverted conical head, loosely resting on one end of the bar, the base of the head being of greater diameter than the end of the bar on which the head is seated.

3. In a sprue-pattern the combination with a stud, a bar movably mounted therein and a spring within the stud and supporting the bar, of an inverted conical head loosely resting on the free end of said bar.

4. In a sprue-pattern, the combination with a tubular stud adapted to be secured to the pattern-plate of a mold, of a bar carried by said stud and adapted to yield longitudinally under pressure, and a head loosely seated on said bar.

5. In a sprue-pattern, the combination with a tubular stud adapted to be secured to the pattern-plate of a mold, of a bar carried by said stud, and movable longitudinally therein, a spring for yieldingly supporting said bar and a head loosely seated on the free end of the bar.

6. In a sprue-pattern, the combination with a tubular stud adapted to be secured to the pattern-plate of a mold and an annular shoulder within said stud, of a bar movable longitudinally through said stud and provided with a collar or shoulder to engage the shoulder within the stud.

7. In a sprue-pattern, the combination with a tubular stud provided at its upper end with a conical head, of a bar movable through said stud and a removable head on the upper end of said bar.

8. In a sprue-pattern, the combination of a tubular stud, a conical head at the upper end of said stud, a bar movable longitudinally through said stud, a spring under said bar, and a conical head removably disposed upon said bar.

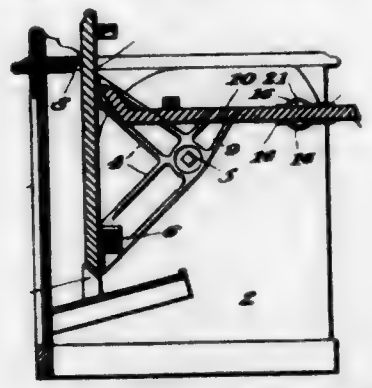
695,544. DIE. JOHN DEWEY, New York, N. Y. Filed Apr. 27, 1901. Serial No. 57,657. (No model.)



Claim.—The combination, with a cutting-die which embodies an endless knife, of a plunger comprising a sheet-metal bottom plate, integrally-formed longitudinal flanges and end blocks, and springs for moving the plunger, and hangers for limiting the outward movement of the plunger, each hanger embodying a lower-link portion and an upper-link

portion hinged together, the part of each upper link having a bearing-surface to abut against the wall of the die, and means connecting the hangers, substantially as shown and described.

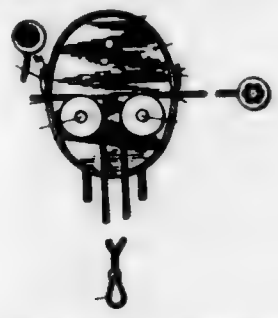
695,543. DESK-LEAF SUPPORT. JOHN F. DIETZ, Cincinnati, Ohio. Filed Mar. 25, 1901. Serial No. 52,742. (No model.)



Claim.—1. In a desk-leaf support for desks and the like, the combination of a part held for pivotal movement upon the desk or other article near the outer edge thereof and having spaced arms extended from it to produce a guideway between them, the arms being undercut upon adjacent sides, and a leaf having a part projecting beyond the faces of said leaf, the edge portions of which part are gripped and engaged for sliding movement in the undercut portions of the arms of the rotative part substantially as set forth.

2. In a leaf-support, the combination of a part having spaced arms extended from it to produce a guideway between them and provided with a central perforation opening into the said guideway, the arms being undercut upon adjacent sides, a screw passed through said central opening for holding said part for free rotative movement upon a desk or the like and a desk-leaf having a flat slide-plate extended along its edge portion with parts projected above and below the upper and lower surfaces of the leaf, the said slide-plate having sliding engagement in said guideway outside of the screw and having its projecting parts engaged in the undercuts of the arms between which the guideway is produced for holding the slide-plate against removal from the guideway and also for holding the screw against endwise movement, substantially as set forth.

695,546. LADY'S SKIRT-ELEVATOR. GEORGE V. EGAN, San Francisco, Cal. Filed Aug. 23, 1901. Serial No. 73,071. (No model.)



Claim.—1. In a dress-elevator, two plates joined at their edges to an apertured rim, two of the apertures being diametrically opposite to each other and the other one midway between them on the lower side, two supports between the plates substantially in line with the side apertures and above the lower one, two cords through the lower aperture, the lower ends of which are provided with means for connecting them with a skirt, and the upper ends are passed over said supports, and out through the other apertures in opposite directions, and means for fastening the plates at the waist.

2. In a dress-elevator, two plates joined at their edges to an apertured rim, two of the apertures being located opposite to each other and the other one midway between them on the lower side, two studs between the plates above the lower aperture and substantially on a line between the side apertures, a roller on each stud, two cords through the lower aperture, the lower ends of which are provided with a hook and the other ends are passed over the rollers and out through the side apertures and each provided with a fastener, means for fastening the plates at the waist and means for detachably connecting a skirt with the hook on the ends of the cords.

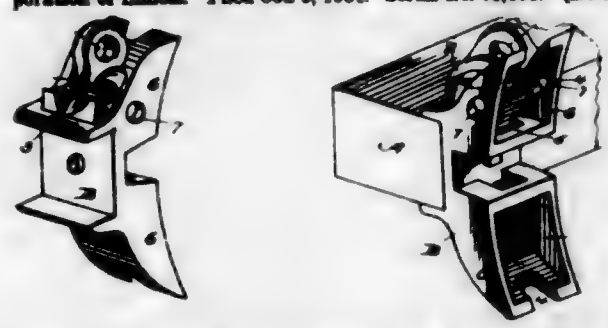
3. In a dress-elevator, two plates joined at their edges to an apertured rim, means for detachably connecting one of said plates to a waist-ribbon, two supports between the plates, and two cords through the lower aperture, the lower ends of which are provided with means for detachably connecting them with a dress-skirt, and the other ends are passed over the supports and in opposite directions through the other apertures in the rim.

4. In a dress-elevator, a casing having diametrically opposite perforations and provided with supports upon the interior thereof, clamps on one side of the casing for connecting a waist-ribbon therewith and elevating-cords passed in opposite directions through the perforations and over the supports.

5. In a dress-elevator, a radially-perforated casing provided with independent supports upon the interior thereof for guiding the cords laterally in opposite directions, means for supporting the casing at the waist, a catch at each side of the casing adjacent to a perforation, and elevating-cords united at their lower ends and passed in opposite directions laterally through the perforations and over the supports, the free ends of which are adapted to be engaged by the catches.

6. In a dress-elevator, a plate provided with a perforated rim, a cover therefor, supports upon the plate within the rim above one of the perforations and substantially in line with the other two, means for securing the plate at the waist, elevating-cords passed in opposite directions laterally over the supports and through the perforations, the cords being united and provided with means for connecting them at a common point with a dress-skirt at one end and means for securing the other ends in position to elevate the skirt.

695,547. BRAKE-HEAD. JAMES FARLEY, Waukesha, Wis., assignor to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Oct. 9, 1901. Serial No. 78,080. (No model.)



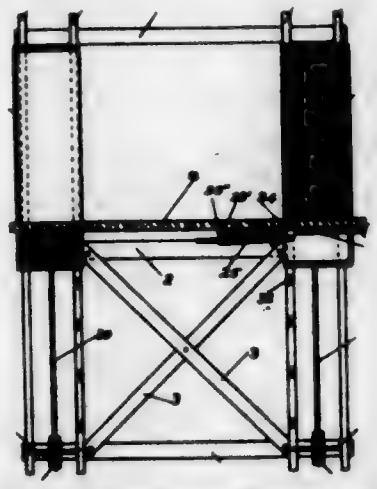
Claim.—1. A brake-head provided with a backwardly-projecting hanger-hook or beak, and means for confining the hanger within the hook or beak, substantially as and for the purposes specified.

2. A brake-head provided with a backwardly-projecting hanger-hook or beak, and having a channel or groove in line with and beneath the beak, substantially as and for the purposes specified.

3. A brake-head provided with longitudinal flanges and transversely-disposed ribs arranged to support the shoe at its lateral margins and intermediately of its ends, substantially as and for the purposes specified.

4. A brake-head having at its upper end a backwardly and downwardly extending beak or hanger-hook and provided with a hanger-hole in said beak; substantially as and for the purposes specified.

695,548. AUTOMATIC LANTERN-SLIDE-MOVING DEVICE. WILLIAM FREDRICK, Clyde, Ohio. Filed Nov. 9, 1901. Serial No. 81,687. (No model.)



Claim.—1. In an automatic lantern-slide-moving device, the combination of a base, runners on opposite sides of base, discharging and receiving cabinets, a guideway comprising two horizontal members and side strips, extending transversely of the runners and connecting the cabinets, and means to move the receiving-cabinet intermittently, substantially as specified.

2. In an automatic lantern-slide-moving device, the combination of a base, a series of tracks on said base, antifriction-rollers pivotally secured in their surfaces, discharging and receiving cabinets, a guideway connect-

ing said cabinets and comprising transverse horizontal members and side strips, and means provided for the intermittent consecutive movement of the cabinets on said tracks, substantially as specified.

3. In an automatic lantern-slide-moving device, the combination of a series of tracks, magazines on said tracks, slides in the magazines, a guideway connecting said magazines and comprising upper and lower horizontal members having grooved inner surfaces, side pieces connecting said members, a ratchet-bar located in said guideway, a lever adapted to impart a longitudinally-reciprocating motion to said ratchet-bar, means to permit the magazines to move longitudinally of the tracks, weights attached to said magazines to cause said longitudinal movement, and means provided for feeding slides into the guideway as magazines are moved on said tracks, substantially as specified.

4. In an automatic lantern-slide-moving device, the combination of a base, tracks arranged on opposite sides of base, magazines movable on said tracks, a guideway connecting the magazines and consisting of upper and lower transverse members having grooved inner surfaces, and rigidly held in proper adjustment to each other by side strips, the said upper member extending out over the magazines and lower member reaching to and its grooved surface being on a level with the magazine bottoms, and means for simultaneously moving magazines longitudinally of the tracks, substantially as specified.

5. In an automatic lantern-slide-moving device, the combination of a base, tracks on opposite sides of base, magazines movably placed on said tracks, a series of stalls arranged in the magazines, a slide-carrier connecting said magazines and consisting of an upper member extending over and past the magazines, a lower member extending to and on a level with magazine-bottoms, side strips, a ratchet-bar longitudinally movable in said lower member and having projecting ends, springs on said projecting ends, the ends and springs notched, a pin on the lower member, racks secured to the lower inner portion of magazines and arranged to engage with ratchet-bar and springs and alternately pass through notches in said bar and springs, means providing for the longitudinal reciprocation of ratchet member and means to impart a lengthwise movement of the magazines, substantially as specified.

6. An automatic lantern-slide-moving device, comprising a base, two slide-boxes, runners on opposite sides of base having a series of antifriction-rollers in their surfaces, means for simultaneously moving boxes longitudinally of the runners, a guideway consisting of two horizontal members having grooved inner surfaces, one member projecting over and beyond the boxes, the other being intermediate and on a level with bottom of boxes, side strips connecting said members, a lever fulcrumed to said lower member, a guide-strip secured to rear side of one end of upper member, a sleeve on said guide-strip, an L-shaped finger projecting downwardly from said sleeve and to engage with and push a slide into guideway, a push-rod engaging with said sleeve and lever, substantially as specified.

7. In an automatic lantern-slide-moving device, the combination of a base, tracks on opposite sides of base, discharging and receiving magazines, a guideway connecting magazines and comprising upper and lower horizontal members, said upper member projecting over and slightly beyond magazines and lower member interposed between lower portion of magazines, longitudinally-reciprocating bar movably secured in said lower member and having projecting ends, means for holding bar in place, springs on said projecting ends, said ends and springs provided with notches, racks secured to inner lower portion of magazines and adapted to engage with said projecting ends and springs and alternately pass through notches, means to impart a longitudinally-reciprocating motion to said bar and means to impart an intermittent consecutive rearward movement to magazines, substantially as specified.

8. In an automatic lantern-slide-moving device, the combination of a base, a series of runners on opposite sides of base, discharging and receiving cabinets on said runners, a guideway communicating with said cabinets and comprising upper horizontal member projecting over and past said cabinets, a lower horizontal member interposed between and extending to said cabinets, said members having grooved inner surfaces, a lever fulcrumed to lower member, a guide-strip secured to upper horizontal member, a sleeve movable on said strip, means provided to secure movement to said sleeve, a pin on under side of upper horizontal member to limit movement of said sleeve, a downwardly-extending L-shaped finger attached to said sleeve and adapted to engage with and draw the slides into guideway, substantially as described.

9. In a lantern-slide-moving device, the combination of discharging and receiving cabinets, a connecting-guideway between said cabinets, a base, tracks on opposite sides of base, a series of antifriction-rollers, pivotally secured in their surfaces, a rod between each set of tracks, wheels on said rods, strings passing over said wheels, weights at one end of said strings, the other ends being secured to said cabinets, a longitudinally-reciprocating ratchet-bar in lower portion of guideway and having projecting ends, springs on said ends, said ends and springs provided with notches, racks on lower inner sides of cabinets and extending slightly below the same, and adapted to engage said ends and springs and alternately pass through said notches as bar is reciprocated producing a rearward movement to said cabinets, substantially as specified.

10. A lantern-slide-moving device, comprising a base, a series of runners on opposite sides of base, discharging and receiving cabinets, racks on lower inner sides of said cabinets, a guideway connecting cabinets and consisting of upper and lower horizontal members, projecting arms on upper member extending over and beyond said cabinets, side pieces connecting said members, an oscillating member on said guideway, a guide-strip secured to one of the projecting arms, a sleeve on said guide-strip, a push-bar connecting said sleeve and oscillating member, a pin to limit movement of said sleeve, a downwardly-projecting L-shaped finger secured to said sleeve and adapted to engage with and move a slide as member is oscillated, substantially as specified.

11. A lantern-slide-moving device, comprising a base, a series of runners on opposite sides of base, discharging and receiving cabinets, partitions in said cabinets, a guideway comprising upper and lower horizontal members and having grooved inner surfaces, projecting arms on upper member, said projecting arms provided with recesses, racks on said cabinets, a longitudinally-reciprocating bar in said guideway and engaging said racks, springs on its projecting ends, notches in said springs and ends, an oscillating member to impart motion to said bar, a guide-strip on upper projecting member, a sleeve on said guide-strip and means for reciprocating sleeve, substantially as specified.

12. In a lantern-slide-moving device, the combination of a base, a series of runners on opposite sides of base, discharging and receiving cabinets, a guideway connecting said cabinets, and comprising transverse horizontal members and side pieces, means for the simultaneous rearward movement of the cabinets and means providing for the moving of slides in guideway, substantially as specified.

13. In an automatic lantern-slide-moving device, the combination with a base, a series of tracks, discharging and receiving cabinets, slides in one of said cabinets, a guideway comprising upper and lower horizontal members and side strips, of means providing for the movement of the cabinets on said tracks, and means for actuating the movement of the slides in said guideway comprising a lever, a guide-strip, a sleeve on said guide-strip, a projecting finger, and connection between said lever and sleeve, substantially as specified.

14. In a lantern-slide-moving device, the combination with a base, runners on opposite sides of base, discharging and receiving cabinets, of slides in said discharging-cabinet, a guideway consisting of an upper transverse member, projecting arms on said member, a lower transverse member, a downwardly-projecting finger movably located on one of said projecting arms and adapted to engage with slides, means for reciprocating said finger and moving slides through said guideway from one cabinet to the other, and means provided for the simultaneous lengthwise movement of the cabinets as slides are moved in said guideway, substantially as specified.

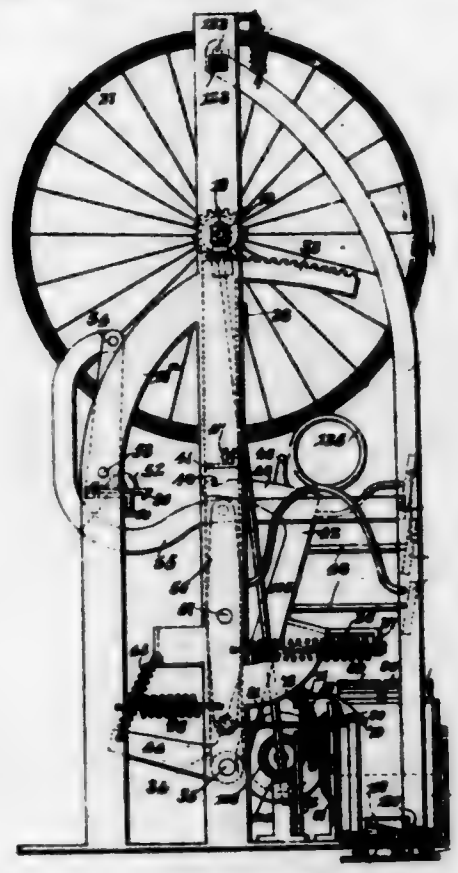
695,549. BELT. MYRTA C. GARLAND, New Haven, Conn. Filed Apr. 16, 1901. Serial No. 56,032. (No model.)



Claim.—1. In a waist-belt, the combination with a buckle having two side bars, two cross-bars joining either end to said side bars and two intermediate cross-bars between said end cross-bars with a tongue secured to one of said intermediate cross-bars and extending across the other of said intermediate cross-bars and terminating over the end cross-bar; of a band secured at one end to one of the side bars of said buckle between said intermediate bars and having a plurality of tongue-holes therethrough adjacent to the opposite end, all constructed and operating substantially as described.

2. In a waist-belt, the combination with a buckle having two side bars, two cross-bars joining either end of said side bars and two intermediate cross-bars between said end cross-bars with a tongue secured to one of said intermediate cross-bars and extending across the other of said intermediate cross-bars and terminating over the end cross-bar; of a band 1 having strap ends 2 and 2^a of less width than the intermediate portion of said belt, the strap end 2 being secured to one of the side bars of said buckle between the said intermediate bars and the strap end 2^a having a plurality of tongue-holes 4 therethrough, and when secured within the buckle the strap ends 2 and 2^a lie in the same plane at substantially a right angle to each other, all constructed and operating substantially as described.

695,550. FARE-REGISTER. HENRY HART, Quincy, Ill. Filed Apr. 1, 1899. Serial No. 711,345. (No model.)



Claim.—1. In a device of the class described, the combination with indicating-drums and rotating means connected therewith, of keys for operating said rotating means to move the drums during the movement of the keys, said keys having different degrees of operative and lost motion with respect to the rotating means to operate the rotating means and to different extents and simultaneously move the drums through different distances, an automatic locking device for securing the drums and the keys in their adjusted positions, recording mechanism connected with the rotating means for operation by return movement thereof to record, releasing devices, and means for returning the drums and keys to their normal positions when released to actuate the recording mechanism.

2. In a device of the class described, the combination with indicating-drums, of drum-actuating devices yieldably held in their normal positions, key-levers, operating-keys for each drum connected with their respective levers, said levers having equal movement with respect to each other and having different degrees of effective and lost motion with respect to the drum-actuating devices, a rocker connected to all the levers, a separate locking device for each key-lever and having its members carried respectively by the rocker and the key-levers for holding the levers to hold the drums in their adjusted positions, means for actuating the rocker to release all the key-levers engaged therewith, and means for returning the drums.

3. In a device of the class described, the combination of indicating-drums, drum-actuating devices consisting of rack-bars meshing with pinions on said drums, and oscillatory supporting-arms carrying said rack-bars, return-springs connected with the supporting-arms, universal bars carried by the supporting-arms, key-levers and connected keys, said key-levers being provided with lugs or ears for engagement with the universal bars and having different degrees of effective and lost motion with respect thereto to move the supporting-arms through different distances, separate locking devices for securing the key-levers in their adjusted positions, and means for moving the locking devices simultaneously to release the key-levers simultaneously, substantially as described.

4. In a device of the class described, the combination of indicating-drums, drum-actuating devices consisting of rack-bars meshing with pinions on said drums, and oscillatory supporting-arms carrying said rack-bars, return-springs for the supporting-arms, universal bars carried by the supporting-arms, key-levers and connected keys, a fixed stop for limiting the movement of the key-levers, return-springs for the key-levers, said key-levers being provided with lugs or ears in the paths of which said universal bars are arranged, and the lugs or ears being normally arranged at different distances from the universal bars whereby the levers will have different degrees of effective and lost motion with respect to the universal bars to move them different distances and correspondingly move the drums, locking devices for securing the key-levers in their adjusted positions and releasing devices.

5. In a device of the class described, the combination of indicating-drums, drum-actuating devices consisting of rack-bars meshing with pinions on said drums, and oscillatory supporting-arms carrying said rack-bars, return-springs for the supporting-arms, universal bars carried by the supporting-arms, key-levers and connected keys, said key-levers having return-springs and being provided with lugs or ears in the paths of which said universal bars are arranged, and being spaced at different distances respectively from said universal bars, whereby the levers will have different degrees of effective and lost motion with respect to the universal bars to move them through different distances and correspondingly move the drums, a rocker having a stop arranged in the paths of movement of the key-levers, locking-dogs carried by said rocker for engaging the key-levers, and a release-key operatively connected with the rocker.

6. In a device of the class described, the combination of indicating members, key-actuated operating devices for advancing said indicating members, means for returning the indicating members to their normal positions, said means including a common release-key, recording mechanism comprising type-rolls operatively connected with their respective indicating members, a recording medium for receiving impressions from the type-rolls, a movable platen, a feeding device for the recording medium, a platen-carrying lever, cushion-springs interposed between the platen and said lever, and means actuated by the release-key for operating said feeding device and the platen-carrying lever.

7. In a device of the class described, the combination of indicating members, key-actuated operating devices for advancing said indicating members, locking means for holding said operating device with the indicating members advanced, said means comprising an element common to the indicating members, means for returning the indicating members to their normal positions, said means including a common release-key, a recording mechanism comprising type-rolls operatively connected respectively with said indicating members, a recording medium, a platen for advancing the recording medium into operative relation with the type-rolls, a platen-operating lever having a cam-face, and an operating-arm actuated by said release-key for operating the platen-carrying lever and arranged in operative relation with said cam-face.

8. In a device of the class described, the combination of indicating members, key-actuated operating devices, for advancing said indicating members, locking means for holding said operating device with the indicating members advanced, said means comprising an element common to the indicating members, means for returning the indicating members to their normal positions, said means including a common release-key, a recording mechanism comprising type-rolls operatively connected respectively with said indicating members, a recording medium, a platen for advancing the recording medium into operative relation with the type-rolls, a platen-operating lever having a cam-face, and a yielding operating-arm carrying a release-key, and having a foot, in the path of advance movement of which said cam-face is arranged.

9. In a device of the class described, the combination of indicating members, key-actuated operating devices for advancing said indicating members, individual locking devices for the keys holding said operating device with the indicating members advanced, said means comprising an element common to the indicating members, means for returning the indicating members to their normal positions, said means including a common release-key, a recording mechanism comprising type-rolls operatively connected respectively with said indicating members, a recording medium and means for feeding the same, a printing-lever, and an operating-arm actuated by said release-key and having a releasing connection with the printing-lever, to communicate motion thereto when the operating-arm is moved in one direction.

10. In a device of the class described, the combination of indicating members, key-actuated operating devices for advancing said indicating members, locking means for holding said operating device with the indicating members advanced, said means comprising an element common to the indicating members, means for returning the indicating members to their normal positions, said means including a common release-key, a recording mechanism comprising type-rolls operatively connected respectively with said indicating members, a recording medium and means for feeding the same, a printing-lever having a cam-face, an operating-arm actuated by said release-key and arranged in operative relation with said cam of the printing-lever, said operating-arm having a movable fulcrum-point, and a spring for yieldingly maintaining said operating-arm in operative relation with said cam-face.

11. In a device of the class described, the combination of indicating members, key-actuated operating devices for advancing said indicating members, locking means for holding said operating device with the indicating members advanced, said means comprising an element common to the indicating members, means for returning the indicating members to their normal positions, said means including a common release-key, a recording mechanism comprising type-rolls operatively connected respectively with said indicating members, a recording medium and means for feeding the same, a printing-lever having a cam-face and a return-spring,

and an operating-arm actuated by said release-key and provided with a foot to traverse said cam-face and adapted to yield in the direction of operative movement of the cam-carrying end of the printing-lever.

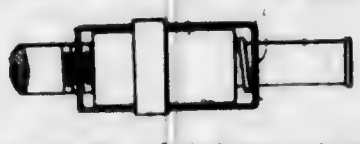
12. In a device of the class described, the combination of indicating members, key-actuated operating devices for advancing said indicating members, locking means for holding said operating devices with the indicating members advanced, said means comprising an element common to the indicating members, means for returning the indicating members to their normal positions, said means including a common release-key, a recording mechanism comprising inscribing and recording mediums, the former of which is operatively connected with said indicating members, a feeding device for the recording medium including a feed-roll, pawl-and-ratchet roll-operating means, a rocking lever actuated by said releasing-key, and connections between the rocking lever and said pawl.

13. In a device of the class described, the combination of indicating members, key-actuated operating devices for advancing said indicating members, locking means for holding said operating device with the indicating members advanced, said means comprising an element common to the indicating members, means for returning the indicating members to their normal positions, said means including a common release-key, a recording mechanism comprising inscribing and recording mediums, the former of which is operatively connected with said indicating members, a feeding device for the recording medium having a roll, roll-feeding ratchet mechanism, brake devices for preventing excessive movement of the roll, and means actuated by the release-key for operating said ratchet mechanism.

14. In a device of the class described, the combination of telescoped station-indicating drums, and tens and units, fare-indicating drums, the exterior station-indicating drum being slotted to form an inspection-opening, operating-keys and connections for communicating rotary motion in one direction respectively to the drums, locking devices comprising a common element, for maintaining the drums in their adjusted positions, a release-key connected with said common element, recording mechanism having type-rolls, a recording medium, and means for bringing the recording medium into operative relation with the type-rolls, and connections between the type-rolls and their respective drums, the same including gears connected respectively with the type-rolls, telescoped spindles having gears meshing with those of the type-rolls, and means for communicating rotary motion from the drums, respectively, to said type-rolls.

15. In a device of the class described, the combination of telescoped station-indicating drums, and tens and units, fare-indicating drums, the exterior station-indicating drum being slotted to form an inspection-opening, operating-keys and connections for communicating rotary motion in one direction respectively to the drums, locking devices comprising a common element for maintaining the drums in their adjusted positions, a release-key connected with said common element for releasing the drums, recording mechanism having a plurality of type-rolls provided with telescoped spindles bearing bevel-gears, a recording medium, and means for arranging the recording medium in operative relation with the type-rolls, oppositely-extending spindles 100, 100ª having gears meshing with the gear of one of the type-rolls, connections between the station-indicating drums and said oppositely-extending spindles and including clutches for allowing independent rotation of said spindles, and other spindles operatively connected with said fare-indicating drums and having gears meshing with those of the other type-rolls.

695,551. COUPLING FOR BICYCLE-PUMPS. JAMES H. HAVOR, Streator, Ill. Filed Feb. 5, 1901. Serial No. 46,071. (No model.)

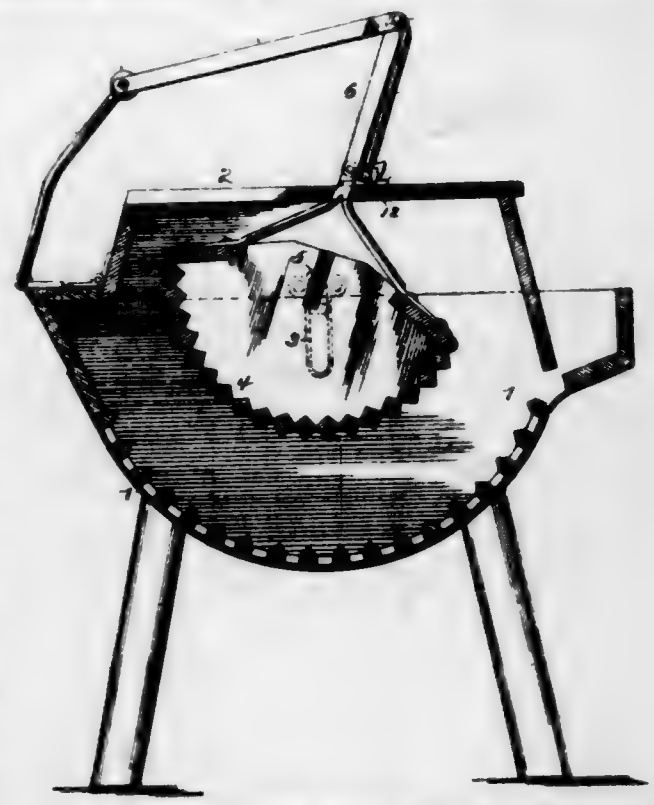


Claim.—1. In a coupling, a body having a stem thereon, a spring-clamp and lugs formed in a single piece adapted to slide on said stem, said body limiting the longitudinal movement of said clamp, and a ring for locking said clamp, the movement of said ring being limited by said lugs, substantially as specified.

2. In a coupling, a body having a stem thereon, a seat in said body having a gasket therein, a spring-clamp integrally formed and longitudinally movable on said stem, said body being made of such length as to operate to limit the movement of said clamp, a ring for closing and locking said clamp, and a spring for the purpose specified, substantially as set forth.

695,552. WASHING-MACHINE. JOSEPH R. HAUSFELD, Cincinnati, Ohio, and JESSE R. CARTER, Augusta, Ky., assignors to Ernst H. Huenefeld, Cincinnati, Ohio. Filed Apr. 9, 1901. Serial No. 55,057. (No model.)

Claim.—1. In a washing-machine, the combination with a body and a cover therefor, of a rubber, operating mechanism for the rubber and lifting means attached to and operated by the operating mechanism.



2. In a washing-machine, the combination with a body and a cover therefor, of a rubber, operating mechanism for the rubber, a lifting-bar carried and operated by the operating mechanism to raise the rubber into the cover and means also carried by said operating mechanism for locking the rubber in its raised position.

3. In a washing-machine, the combination with a body and a cover therefor having alined elongated bearings, of a rubber, pintles on opposite sides of the rubber mounted in said bearings, operating mechanism for reciprocating the rubber, and a bar carried and operated by the operating mechanism to raise the rubber so as to hold the pintles thereon in the bearings in the cover.

4. In a washing-machine, the combination with a body and a cover therefor, of a rubber mounted to reciprocate in the body, a lever secured to the rubber and projecting through the cover, a pitman for moving the lever, a lifting-bar pivotally attached to the lever and operated thereby and means on the cover for temporarily fulcruming the free end of the bar to raise the rubber when the pitman is forced forward.

5. In a washing-machine, the combination with a body and a cover therefor, of a rubber mounted to reciprocate in the body, a lever secured to the rubber and projecting through the cover, means for swinging the lever, a lifting-bar pivotally connected with the lever, a notched block to receive and fulcrum the bar, and a dog or hook pivotally connected to the lever and adapted to automatically lock the lever to the free end of the bar when the rubber is in its highest position.

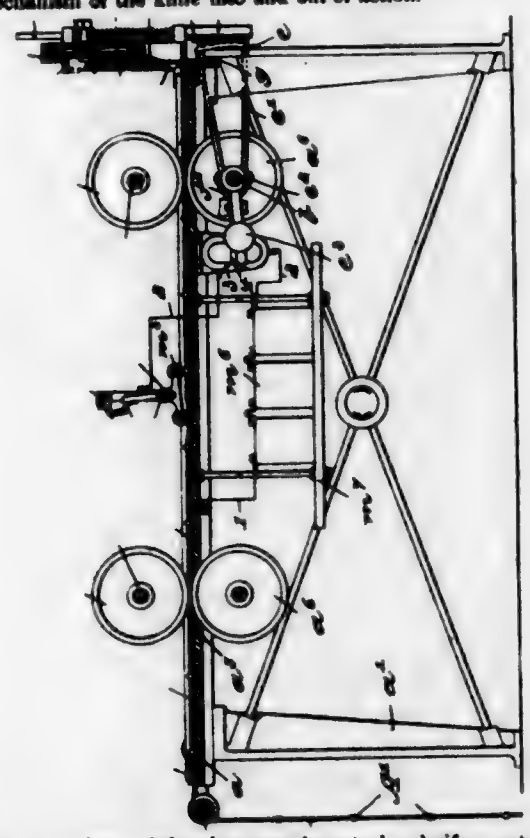
6. In a washing-machine, the combination with a body and a cover therefor having alined elongated bearings, of a rubber supported by pintles in said bearings, a lever secured to the rubber and projecting up through a slot in the cover, operating mechanism connected with and adapted to move the lever backward and forward, a lifting-bar pivotally connected with the lever, a notched block secured on the cover to one side of the slot therein, an arm or lug on the bar projecting at right angles thereto and adapted to seat in said notched block, and a dog or hook carried by the lever and adapted to automatically lock the lever to the lug or arm on the lifting-bar when the rubber is raised by the lifting-bar into the cover.

7. In a washing-machine, the combination with a rubber and operating mechanism for reciprocating the rubber, of means cooperating with the operating mechanism of the rubber to lift the rubber, and a device carried by said operating mechanism and adapted to engage the lifting means for automatically locking the rubber in its raised position.

695,553. FABRIC-CUTTING MACHINE. JOHN A. HEANY, Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, East Orange, N. J., a Corporation of New Jersey. Filed June 24, 1901. Serial No. 65,749. (No model.)

Claim.—1. In a machine for cutting hose or similar fabrics, a knife and its operating mechanism, combined with means for feeding the hose to the knife, and means controlled by the feeding of the hose and adapted to throw the operating mechanism for the knife into and out of action.

2. In a machine for cutting hose or similar fabrics, a knife and mechanism for reciprocating said knife during the cutting of the hose, combined with means for feeding the hose to the knife, and electrical means controlled by the feeding of the hose and adapted to throw the reciprocating mechanism of the knife into and out of action.



3. In a machine of the character described, a knife, mechanism for reciprocating said knife, mechanical means for feeding the hose, and electrical means controlling the reciprocating mechanism for the knife, said electrical means being automatically and periodically set in operation during the feeding of the hose.

4. In a machine of the character described, a knife, mechanism for reciprocating the knife and a table upon which the fabric is fed toward the knife, electrical means for periodically actuating the reciprocating mechanism for the knife, means for positively feeding the fabric toward the knife, and a circuit making and breaking device controlling the electrical means and adapted to be operated by the travel of the fabric.

5. In a machine of the character described, a main or power shaft, a sector adapted to be coupled to or uncoupled from said shaft, a frame, a knife carried by said frame, a rack secured to said frame and in mesh with said sector and electric means controlled by the travel of the fabric to the knife and adapted to couple or uncouple the sector and shaft.

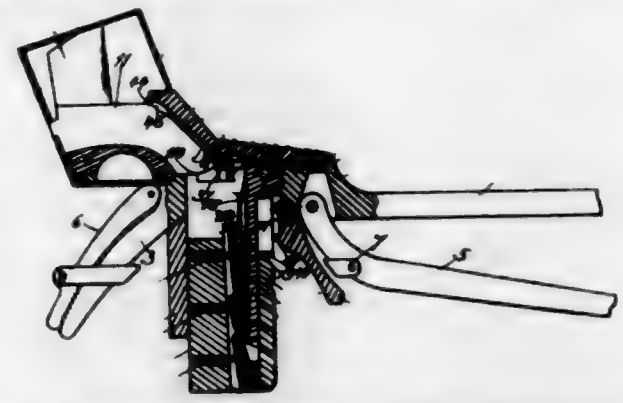
6. In a machine of the character described, a cutting mechanism, comprising a knife, a cross-head to which the knife is secured, two vertical rods secured to the ends of said cross-head, a stationary framework in which the rods have a range of reciprocatory movement, said framework adapted to be traversed by the knife, a bracket to which the lower ends of said rods are secured, a rack formed on one side of said bracket, a sector engaging said rack, and means controlled by the travel of the fabric for periodically oscillating said sector and thereby operate said knife.

7. In a machine of the character described, two sets of feed-rollers, between opposite rollers of each of said sets the fabric is adapted to be advanced, means for positively driving both feed-rollers of that set adjacent to the cutting mechanism, and means for driving either of the feed-rollers of the other set at a speed less than the speed of the first feed-rollers.

8. In a machine of the character described, a bed, a guideway formed therein for the reception of the fabric, a reciprocatory knife located at the discharge end of the guideway, a tension-finger located at the entrance end of said guideway and under which the fabric passes as it enters said guideway, and one or more sets of feed-rollers arranged intermediate of the ends of the guideway, the lowermost feed-roller of each set extending upward through the bottom of the guideway to engage the fabric.

695,554. HAND TACKING-TOOL. ARSENE HERBERT, Manchester, N. H., assignor to Herbert B. Newton, Haverhill, Mass. Filed May 16, 1901. Serial No. 60,464. (No model.)

Claim.—1. A hand tacking-tool comprising a relatively fixed member and a spring-pressed member which is adapted to reciprocate with respect thereto, one of said members being provided with a tack-passage which extends therethrough, a driver which is secured to said fixed member and is located in said tack-passage, a notched latch which is located in said passage, a spring which acts normally to press said latch against said driver, means for feeding a tack into said passage and positively moving the notched portion of said latch away from said driver when said reciprocating member is forced inwardly so that a tack may pass into said passage between said driver and latch and below the notch in the latter, and means for causing said latch to positively engage the tack by the time the reciprocating member has moved to its outermost position and hold the same from backward movement.



2. A hand tacking-tool comprising a relatively fixed member and a spring-pressed member which is adapted to reciprocate with respect thereto, one of said members being provided with a tack-passage which extends therethrough, a driver which is secured to said fixed member and is located in said passage, a latch which is located in said passage, means which acts constantly to press said latch against said driver, means for feeding a tack into said passage and for positively moving the upper end of said latch away from the driver when said reciprocating member is forced inwardly, so that a tack may pass into said passage between said driver and the upper end of said latch, and means for releasing said latch so that it may be pressed against the tack by the time the reciprocating member has reached the outer limit of its movements, thereby positively holding the tack against backward movement.

3. A hand tacking-tool comprising a relatively fixed member having a hammer secured thereto, a spring-pressed member which is adapted to reciprocate with respect thereto and is provided with a tack-passage which extends therethrough, a driver which is secured to said hammer and is arranged in said passage, a spring-pressed latch which is arranged in said passage, is pivoted to said reciprocating member, and is normally forced against said driver, and means carried by said fixed member for engaging said latch and moving the upper end thereof away from said driver as the reciprocating member is forced inwardly, means for feeding a tack into said passage as the movable member reaches the limit of its inward movement, and means for releasing said latch.

4. A hand tacking-tool comprising a relatively fixed member having a hammer secured thereto, a spring-pressed member which is adapted to reciprocate within said hammer and is provided with a tack-passage which extends therethrough, a driver which is secured to said hammer, a latch having a notch, said latch being pivoted to said reciprocating member, a spring for pressing the same against the face of said driver, means for moving the notched portion of said latch away from the driver and for feeding a tack into said passage as the reciprocating member is moved inwardly, whereby a tack may be lodged between the latch and driver below said notch, and a notch in the face of said driver which is so arranged that the notch in said latch passes beyond it when said reciprocating member moves outwardly to its limit.

5. A hand tacking-tool comprising a relatively fixed member and a spring pressed member which is adapted to reciprocate with respect thereto, said latter member being provided with a tack-passage therethrough, a latch which is pivoted to said reciprocating member and is arranged in said passage, a tack-driver which is arranged in said passage and is secured to said fixed member, a spring for pressing said latch against the face of said driver, a projection on said driver which is adapted to engage said latch and move it away from the driver as the reciprocating member is moved inwardly, and means for feeding a tack into said passage while the latch is held in this position.

6. A hand tacking-tool comprising a relatively fixed member having a hammer secured thereto, a spring-pressed member which is adapted to reciprocate within said hammer and has the lower end portion thereof projecting laterally beyond the periphery of the hammer, said reciprocating member having a tack-passage extending therethrough, the lower or discharge end of said passage being located partially in said projecting portion, a driver which has its lower end arranged in the outermost portion of said passage, and means for feeding the tacks in position to be engaged by the end of said driver, whereby the tacks may be driven beyond the periphery of the hammer.

7. A hand tacking-tool comprising a hammer and a feed-tube, one of which is adapted to reciprocate relatively to the other, said feed-tube being located partially without the hammer, and a driver which is located

in the passage of said feed-tube with its end arranged partially outside the periphery of said hammer, and means for feeding the tacks in position to be engaged by the end of said driver, whereby two tacks may be driven closely adjacent to each other without either being struck by the hammer.

8. A hand tacking-tool comprising a relatively fixed hammer and a spring-pressed block which is adapted to reciprocate within said hammer, a flat-sided projection on said block which projects beyond the periphery of said hammer and is provided with a tack-passage, a tack-driver which is located in said passage, and means for feeding the tacks in position to be engaged by said driver as said block is forced inwardly, whereby two tacks may be driven in close proximity without either being struck by the hammer.

9. A hand tacking-tool comprising a tack-magazine, a tack-raceway leading therefrom, a feed-tube and a hammer, one of which is adapted to reciprocate with respect to the other, a tack-feeder comprising a notched plate which when actuated is adapted to conduct the tacks one by one from the raceway to the feed-tube, means for actuating said plate which are controlled by the relative positions of said feed-tube and hammer, and a slotted support above said plate which is arranged to receive the tacks from the raceway and support them by their heads while said plate is in engagement therewith.

10. A hand tacking-tool comprising a hammer and a feed-tube, one of which is adapted to reciprocate with respect to the other, a tack-magazine and a raceway leading therefrom, a tack-feeder which is arranged above and closely adjacent to said raceway at its end, said feeder comprising a notched plate which when actuated is adapted to separate and conduct the tacks one by one from the raceway to the feed-tube, means for actuating said feeder which are controlled by the relative positions of said hammer and feed-tube, a slotted support which is arranged directly over said feeder and is adapted to receive the tacks as they pass down the raceway and support the same by their heads while the feeder is in engagement therewith, the slot in said support being enlarged beyond the feeder so that the tacks will be allowed to drop from said support as they are discharged from the feeder.

11. A hand tacking-tool comprising a relatively fixed member having a hammer firmly secured thereto, a spring-pressed block which is arranged to slide within said hammer, a tack-passage which extends through said block from end to end, a tack-driver which is secured to said fixed member and is arranged in said passage, a spring-pressed latch which is normally forced toward said driver, a tack-raceway, a feeder which is adapted to receive the tacks from the raceway and discharge them into said passage, means for actuating said feeder and for causing the same to discharge a tack on each reciprocation of said block, a projection on the upper end of said latch, means for moving said latch away from said driver so that said projection passes between the tack which is about to be fed into said passage and the next succeeding tack as the block reaches its inward position, said means permitting said latch to move toward the driver as the block moves outwardly and after the tack has been discharged by the feeder.

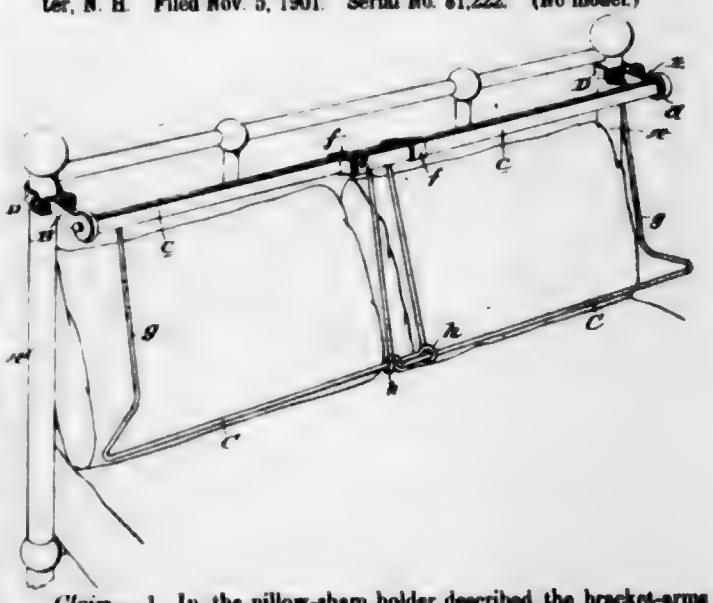
12. A hand tacking-tool comprising a relatively fixed member having a hammer firmly secured thereto, a feed-tube which is arranged to slide within said hammer, a projecting lug on each side of said tube, said hammer being provided with corresponding grooves which terminate above the face of the hammer, and springs arranged between a relatively fixed portion of the tool and the upper sides of each of said lugs, whereby said springs act constantly to force said tube outwardly.

13. A hand tacking tool comprising a relatively fixed member, comprising a hammer which is fixed thereon, a block which is adapted and arranged to slide within said hammer, a lateral projection on said block which extends beyond the periphery of the face of the hammer, a tack-passage in said projection which extends through the bottom thereof, a driver in said passage which is secured to the hammer, means for feeding a tack in position to be engaged by the driver as the block is forced inwardly, the face of said projection being substantially flush with the face of the hammer when in its innermost position and being provided with a rounded corner at its outer edge

14. An automatic tacking device comprising a tack-magazine, a tack-raceway leading therefrom, a relatively fixed member and a movable member, one of said members being provided with a tack-passage, a tack-feeder which when actuated is adapted to separate the tacks and conduct them one by one from the raceway to said passage, means for actuating said feeder, and a slotted support above said feeder which is arranged to receive the tacks from the raceway and support them by their heads while the feeder is in engagement therewith.

15. A hand tacking-tool comprising a relatively fixed member and a spring-pressed member which is adapted to reciprocate with respect thereto, one of said members being provided with a tack-passage which extends therethrough, a driver which is secured to said fixed member and is located in said passage, a latch which is located in said passage, means for feeding a tack into said passage and for positively moving the upper end of said latch away from the driver when said reciprocating member is forced inwardly, so that a tack may pass into said passage between said driver and the upper end of said latch, and means for releasing said latch and for pressing the same against the tack by the time the reciprocating member has reached the outer limit of its movements, thereby positively holding the tack against backward movement.

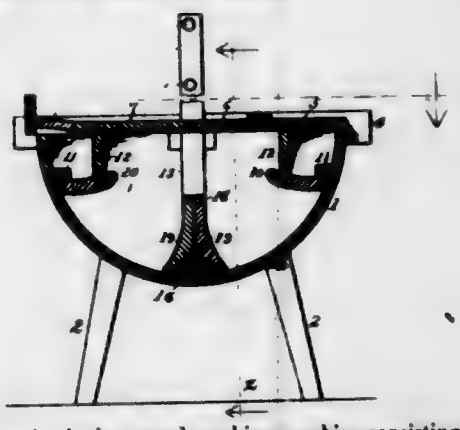
695,555. PILLOW-SHAM HOLDER. ISRAEL HERBERT, Manchester, N. H. Filed Nov. 5, 1901. Serial No. 81,222. (No model.)



Claim.—1. In the pillow-sham holder described, the bracket-arms having circular recesses in their inner sides adjacent to their outer ends, and transverse apertures in the outer walls of said recesses, and also having T-heads at their inner ends, recessed at *k* and provided with apertures *j*, the swinging sham-frame comprising supporting-bars adjustably connected together, and having circular disks at their outer ends journaled in the recesses of the bracket-arms, and wires connected to and carried by said bars, trunnion-screws passed through the transverse apertures of the bracket-arms and into the ends of the bars of the sham-frame, resilient, sheet-metal clip-bows adapted to straddle the head-posts of a bedstead, and having integral barrels at their ends, and bolts secured in said barrels and adapted to be passed through the apertures of the bracket-arms, and nuts on said bolts.

2. In the pillow-sham holder described, the bracket-arms having T-heads at their inner ends, recessed at *k* and having apertures *j*, a swinging sham-frame journaled in said arms, clips adapted to straddle the head-posts of a bedstead and comprising resilient, sheet-metal bows, barrels formed integral with the bows at the ends thereof, and bolts secured in said barrels and adapted to be passed through the apertures of the bracket-arms, and nuts on said bolts.

695,556. WASHING-MACHINE. SAMUEL HESS, Akron, Ohio, assignor of one-half to William H. Neese, Akron, Ohio. Filed Nov. 4, 1901. Serial No. 81,073. (No model.)

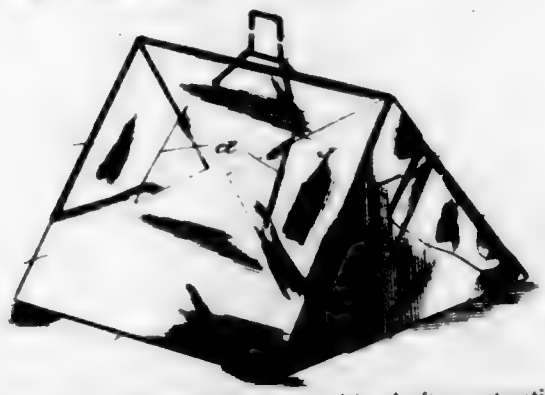


Claim.—1. An improved washing-machine consisting of a tub having a curved bottom, ranks of curved fingers on its inner opposite ends, the back ends of which are fastened to a strip that rests against the interior wall of the curved bottom and near their front ends are secured to a cross-bar the ends of which rest in grooves in the inner faces of the sides of the tub, and a removable swinging squeezer pivoted in the sides of said tub and having ranks of curved blades on its opposite sides alternating with said fingers and arranged to be brought into juxtaposition therewith, substantially as shown and described.

2. The combination with a tub having a curved bottom of ranks of curved fingers on its inner opposite ends and a swinging squeezer consist-

ing of two side levers united at their upper ends by a handle-bar and at their lower ends by two cross-bars having ranks of blades on opposite sides alternating with said fingers, of substantially like curvature and secured at their ends in said cross-bars and arranged to be alternately brought into juxtaposition with said curved fingers at opposite ends of said tub, substantially as shown and described.

695,557. BOX. FRANK H. HOUGHLAND, St. Louis, Mo. Filed Oct 9, 1901. Serial No. 78,078. (No model.)

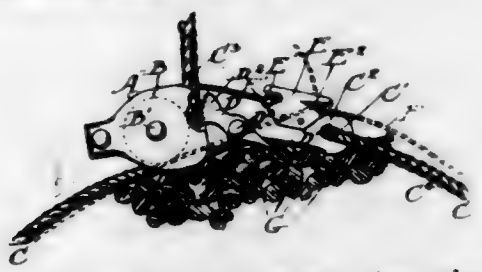


Claim.—1. A triangular box comprising in its construction a strip or sheet of material interfolded at its ends to form end braces, and an extension on one of said end braces adapted to extend over upon one of the sides of the box and be locked thereto, substantially as described.

2. A triangular box comprising in its construction a strip or sheet of material bent to form a bottom, sides and ends, the material being interfolded at the ends to form end braces, and an extension on one of said end braces adapted to extend over upon one of the sides of the box and a tongue for locking said extension to said side, substantially as described.

3. A triangular box comprising in its construction a strip or sheet of material bent to form a bottom, sides and ends, the sides projecting from the bottom and meeting at a point at the top, and the material at the end being interfolded to form end braces, one of said end braces having a tongue adapted to extend over upon the side of the triangular box and be interlocked thereto, substantially as described.

695,558. HAND-BINDER. HARLOW M. HUNTINGTON, Belvidere, Ill. Filed Nov. 30, 1900. Serial No. 38,163. (No model.)



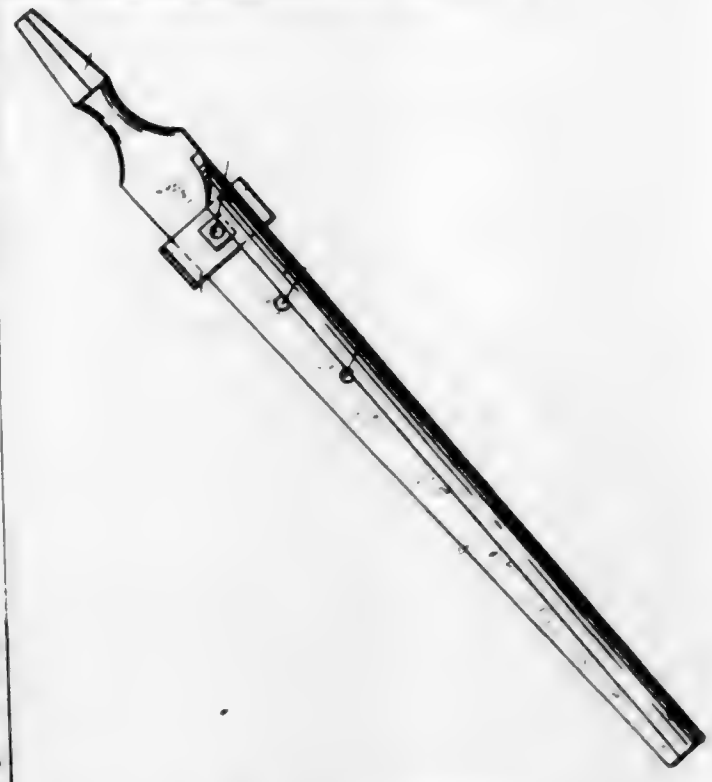
Claim.—In a hand-binder, in combination, a base, a sheave mounted therein, a compressing-rope, fast by one end to the base, and adapted to be engaged with, and disengaged from, the sheave, and a grip-lever, operated by the resiliency of the stalks being bound and coacting with the sheave to grip and hold taut the compressor portion of the compressing-rope, and the metal strip E, fast to the base and having therein a slot E' to temporarily connect one end of a line of binding-twine with the base, and also provided with an edged indentation E^2 for cutting off the requisite amount of twine for binding a bundle, substantially as and for the purpose specified.

695,559. REAMER. WILLIAM JACKSON, Shuqualak, Miss. Filed Aug. 27, 1901. Serial No. 73,476. (No model.)

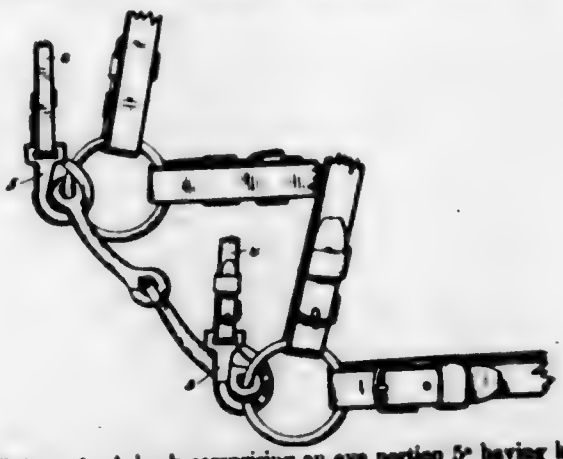
Claim.—1. In a reamer, the combination, with a tapered bar provided with curved cutting-knives at its edges which project over its sides, of two flat knives secured to the sides of the said bar with their cutting edges overlapping the said curved cutting-knives, substantially as set forth.

2. In a reamer, the combination, with a tapered bar provided with curved cutting-knives at its edges which project over its sides and a series of holes extending through it, of two flat knives having their heels bearing against the said curved cutting-knives and their cutting edges projecting over them, and a single bolt engaging with any of the said holes and securing the said flat cutting-knives to the bar, substantially as set forth.

3. In a reamer, the combination, with a tapered bar formed of two adjustable parts secured side by side, of curved cutting-knives secured to the edges of the said bar and projecting over its sides, and two flat knives secured to the sides of the said bar with their cutting edges overlapping the said curved cutting-knives, substantially as set forth.



695,560. HOOK. CHARLES B. JOHNSON, Columbus, Ohio. Filed Oct. 16, 1901. Serial No. 78,860. (No model.)



Claim.—1. A hook comprising an eye portion 5^a having hook extension 5^b, and pivoted thereto a tongue portion 6 and a flexible prolongation 6^a thereof, the said portions sliding on each other, and a protuberance 5^c and a recess 6^c on the opposing faces of the parts 5^b and 6^a whereby the flexible portion 6^a must be flexed laterally and ride over the protuberance 5^c to effect the locking and unlocking of the parts, substantially as described.

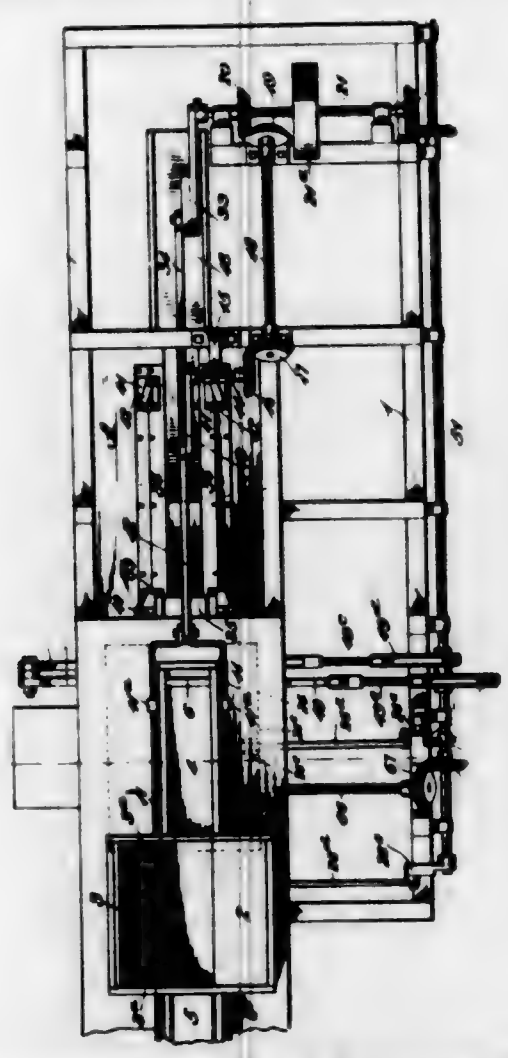
2. A hook comprising a stationary part and a movable laterally-flexible closing-arm pivoted thereto and sliding thereon, a protuberance on the face of one part, and a recess in the face of the other to be engaged by the aforesaid protuberance to lock the parts in closed position, the closing part to be flexed laterally to effect the engagement and disengagement of the said protuberance and recess, substantially as described.

695,561. CORN-HUSKING MACHINE. RALPH C. JOHNSON, Edgewater, Colo. Filed July 8, 1901. Serial No. 67,473. (No model.)

Claim.—1. In a corn-husker the combination with a suitable supporting-frame, of a hopper provided with an ear-agitator comprising a plate slidably supported in said hopper, means for reciprocating said ear-agitator, a trough below said hopper, an ear-husker arranged to move each ear laterally a predetermined distance from the discharge-outlet of said hopper, an ear-receiver under said hopper comprising a fluted roller, a pawl-and-ratchet mechanism arranged to rotate said ear-receiver step by step intermittently, a slide in the bottom of said hopper, and a trough arranged and adapted to discharge an ear intermittently into one of the flutes of said ear-receiver, substantially as described.

2. In a corn-husker, the combination of the hopper the hopper-trough, the ear-husker, and the slides, with the ear-receiver compressing a roller provided with tapering flutes containing each a plurality of short husk-piercing pins, a pawl-and-ratchet mechanism at one end of said roller

arranged to impart a predetermined step-by-step movement to said ear-receiver, a pawl-and-ratchet mechanism at the opposite end of said ear-receiver arranged to lock automatically said ear-receiver at the end of each operative, rotative movement against accidental displacement, circumferential grooves in said ear-receiver, and springs arranged in said grooves to resiliently hold the ears of corn in the flutes of said ear-receiver during a predetermined portion of its rotative movement, substantially as described.



3. In a corn-husker, the combination with the supporting-frame, the hopper and the ear-receiver, of a clamp comprising a block reciprocatively supported below said ear-receiver and provided with a concaved, ear-holding groove arranged to register opposite said ear-receiver, a plurality of short pins in said concaved ear-receiving portion of said clamp, a support for said clamp having a yielding and resilient portion adapted to allow said clamp to adjust itself to ears of different sizes, and means including a cam for moving said clamp to and from said ear-receiver to clamp and release said ears at intermittent and predetermined periods of time substantially as described.

4. In a corn-husking machine, the combination with the frame, the ear-receiver and the ear-clamp, of husk and butt-cutting knives comprising a pair of double knives arranged with their cutting ends opposite each other and to reciprocate to and from each other in shearing relation to each other, and having one set of knives arranged to cut the husks free from the ear immediately adjacent to the butt-end of the ear and the other set arranged to cut the butt from the ear close to the corn, and means for supporting and for reciprocating said knives in unison with the intermittent movements of said ears from the hopper to the said ear-clamp and ear-receiver, substantially as described.

5. In a corn-husker, the combination with the supporting-frame, the hopper, the ear-receiver, the ear-clamp and the ear husk and butt cutting knives, of an ear-gripping device for gripping and removing an ear from its husks while clamped between said clamp and said ear-receiver when cut free from its husks comprising a pair of ear-gripping jaws arranged to reciprocate to and from said clamp and ear-receiver and comprising a pair of oppositely-arranged toothed finger-jaws, means including a spring for holding said finger-jaws normally closed, means for opening said jaws to allow them to move over an ear and for instantly releasing them to allow said spring to force them to grip an ear at the end of its stroke adjacent to said clamp and ear-receiver, and means for releasing the said ear from said finger-jaws, and for reciprocating said jaws in unison with the operative movements of said ears in said clamp and ear-receiver, substantially as described.

6. In a corn-husker, the combination with the frame, the hopper, the step-by-step rotating ear-receiver, the ear-clamping block, the knives and the ear gripping, removing and discharging device, with a husk removing and discharging device comprising a plurality of fingers arranged and adapted to move in under the husks as they are held in the ear-receiver after the ear has been extracted by said ear gripping and removing and discharging device, a system of gearing arranged between said ear-receiver and said husk-removing fingers arranged and adapted to move said fingers in an opposite direction from the direction the ear-receiver rotates in, and adapted to operate them at the same time and in unison with the movement of said ear-receiver, substantially as described.

7. In a corn-husker, the combination with the supporting-frame, of the driving-shaft operatively mounted in said frame, a slideway on said supporting-frame, a reciprocating cross-head operatively mounted in said slideway, the ear-gripping jaws pivotally mounted intermediate of their ends on said cross-head and projecting beyond it, having their projecting end introverted and formed into teeth and their opposite ends diverged outward from one another, a spring between said diverging ends arranged to normally hold said jaws in gripping position, stops arranged to define the gripping position of said jaws, a crank-arm connected to said driving-shaft, a connecting-rod pivotally and adjustably secured at one end to said crank-arm and at its opposite end pivotally connected to said cross-head and adapted to impart a reciprocal movement to said cross-head and ear-gripping jaws, means including inclined planes arranged on each side of said slideway and in the path of the backward or return reciprocal stroke of the outward diverging ends of said gripping-jaws and at the end of said return reciprocal movement for opening said jaws, substantially as described.

8. In a corn-husking machine, the combination with a suitable supporting-frame, of an ear-holding hopper supported on said frame, a trough under said hopper, an ear-pusher reciprocatively mounted in said hopper, an actuating-lever arranged in engagement with said pusher, compensating springs arranged between said lever and pusher, a stop arranged in said trough to define the movement of said pusher, a reciprocating slide arranged in the bottom of said trough adjacent to said stop, a spring controlled in one direction of its movement, a reciprocating ear-agitator arranged in said hopper, means for reciprocating said slide, means for reciprocating said ear-pusher and its actuating-lever, and means for instantaneously opening and closing the slide in the bottom of said trough, substantially as described.

9. In a corn-husking machine, the combination with a suitable frame, of an ear-feeding hopper mounted thereon, means for discharging said ears from said hopper intermittently, with an ear-receiver positioned to receive said ears from said hopper, and comprising a roller rotatably mounted on said frame and provided with a plurality of tapering ear-receiving recesses arranged longitudinally with its axis, a plurality of circumferential recesses in said ear-receiving roller spaced at suitable distances apart, springs arranged to project into said recesses and to surround a predetermined portion of the circumference of said roller, and means for intermittently rotating said roller, substantially as described.

10. In a corn-husking machine, the combination with a suitable frame, of an ear-holding hopper mounted thereon, means for feeding ears of corn one at a time intermittently from said hopper, an ear-receiver arranged under said hopper and arranged to turn intermittently step by step, means including springs for temporarily holding said ears in said receiver, means for intermittently rotating said receiver step by step in unison with the ear-feeding mechanism of said hopper, and an ear-clamping device comprising a block positioned under said ear-receiver provided with a concaved face and arranged to vertically reciprocate to and from said receiver, a vertical shaft depending from said block, suitably-arranged guides depending from said block, a cam arranged at the lower end of said shaft arranged and adapted to raise said clamping-block into operative relation to clamp an ear of corn in said receiver and to allow said block to drop to a position of disuse after a predetermined period of time, and means for rotating said cam to operate said clamping-block in unison with the rotative movement of said ear-receiver and at predetermined periods of time, substantially as described.

11. In a corn-husking machine, the combination with a suitable supporting-frame, of a hopper mounted on said frame and arranged and adapted to feed ears of corn one by one intermittently, an ear-receiving device arranged to receive said ears at its top portion from said hopper one at a time and to rotatively convey them step by step to its under side, an ear-clamping device arranged to intermittently engage clamp and release each ear of corn against the bottom side of said ear-receiver at predetermined periods of time, with two pairs of reciprocating knives arranged side by side at a short space apart and at right angles to said ear-receiver, one pair of which is provided with a central, circumferential cutting-recess that cooperatively closes on each ear and cuts through the husk of the ear into the corn immediately adjacent to the butt-end of the ear, and the other set of which is provided with V-shaped cutting-recesses arranged to reciprocate overlappingly by each other and cut the butt from the ear, and means for reciprocating each set of knives to and from each other so

that they will meet each other in cutting relation intermittently in the axial path in which each ear of corn is held by said clamp against said ear-receiver, substantially as described.

12. In a corn-husking machine, the combination with a suitable supporting-frame, the hopper and the ear-receiver of a clamp comprising a block reciprocatively supported below said ear-receiver and provided with a concaved, ear-holding groove arranged to register opposite said ear-receiver, a plurality of short pins in said concaved ear-receiving portion of said clamp, a support for said clamp having a yielding and resilient portion adapted to allow said clamp to adjust itself to ears of different sizes, and means including a cam for moving said clamp to and from said ear-receiver, and an ear gripping and discharging device arranged and adapted to reciprocate to and from said ear-receiver and ear-clamping block comprising a pair of oppositely-arranged jaws having one of their ends introverted toward each other and serrated into teeth, and pivotally secured intermediate of their ends to a reciprocating cross-head operatively mounted in a slideway arranged in axial alinement with said husking-ear and having their opposite ends spring-controlled to normally hold said gripping-jaws in operative gripping relation, means including a spring-controlled, pivotal clip arranged on each side of said slideway in the reciprocal path of said gripping-jaws and of said cross-head within operative gripping relation to the ear of corn held by said clamp against said ear-receiver and arranged and adapted to open said gripping-jaws as they pass them at the end of the operative reciprocal movement, and to allow said jaws to snap under the action of their controlling-springs against and grip the opposite side of the ear held between said clamps and receiver, and to withdraw said ear from said husks, and an inclined member secured on each side of said cross-head to the opposite end of said slideway and arranged to engage the opposite ends of said gripping-jaws at the end of their backward reciprocal stroke arranged and adapted to open said jaws and release said ears, an arm arranged close to but out of the gripping plane of the end of each of said jaws, and adapted to disengage from the teeth of said jaws any adhering portions of said ears or husks, an opening between the opposite sides of said slideway and a chute below said opening onto which said ear drops, and means including a crank and connecting-rod for reciprocating said gripping-jaws in unison with the operative movements of said hopper, ear-receiver, clamp and knives, substantially as described.

13. In a corn-husking machine the combination with the frame, the ear-receiver and the clamp, of husk and butt cutting knives comprising a pair of double knives arranged with their cutting ends opposite each other and to reciprocate to and from each other in shearing relation to each other and having one set of knives arranged to cut the husks free from the ear immediately adjacent to the butt-end of the ear and the other set arranged to cut the butt from the ear close to the corn, and means for supporting and for reciprocating said knives in unison with the intermittent movements of said ears from the hopper to the said ear-clamp and ear-receiver and with a husk removing and discharging device comprising a shaft mounted parallel with a plurality of fingers operatively mounted on said shaft and arranged under said husk after the ear is withdrawn from them by said gripping-knives, and means for operating said fingers in unison with the rotative movement of said ear-receiver, substantially as described.

14. In a corn-husking machine, the combination with a suitable supporting-frame, of a driving-shaft, a crank connected to said shaft, a connecting-rod adjustably connected at one end to said crank, a cross-head pivotally connected to said connecting-rod, a way in which said cross-head is reciprocatively mounted, and spring-controlled ear-gripping jaws, substantially as described.

15. In a corn-husker the combination of the supporting-frame, the driving-shaft, the crank-arm connected thereto, the slideway in said frame, the cross-head in said slideway, the connecting-rod pivotally connecting said cross-head with said crank-arm, with spring-controlled ear-gripping jaws pivotally secured intermediate of their ends to said cross-head and projecting beyond its opposite end from said connecting-rod, the inclined planes secured to said slideway adapted to open said jaws at the end of their return reciprocal stroke, and the levers pivoted on each side of said slideway at their opposite ends and arranged to be engaged by said jaws as they pass them and to open said jaws against their spring as said jaws pass them, and to release said jaws in operative gripping relation to an ear of corn, and arranged to move out of the path of said jaws on their return stroke, substantially as described.

16. In a corn-husking machine, the combination of the supporting-frame, the driving-shaft, the crank-arm, the slideway, the cross-head, the gripping-jaws pivotally mounted on said cross-head and the inclined planes for opening said jaws at the end of their return stroke, with the device at the forward end of said slideway for actuating said jaws to grip an ear of corn comprising a lever pivoted intermediate of its ends on each side of said slideway in the path of said gripping-jaws, a stop arranged to prevent the movement of said levers out of the path of said jaws as they pass them, whereby said jaws are spread apart and spring together after passing said lever and arranged to be moved by said jaws out of their path on their return stroke and a spring for returning said levers to their normal positions, substantially as described.

17. In a corn-husker, the combination with the supporting-frame, the hopper, the ear-receiver and the ear-clamp, and the ear gripping and removing and discharging device, of the husk-cutting and the stalk-butt-cutting knives, comprising two knives reciprocally mounted in suitable bearings and arranged in end-to-end shearing alinement, and each knife consisting of two parallel knives spaced a short distance apart, connecting-rods pivotally connected to each knife, and a pair of eccentrics operatively mounted on said driving-shaft and set at diametrically opposite points of their throw and each operatively connected to the said connecting-rods of said knives, and arranged and adapted to reciprocate said knives to and from each other and to and from the axial position and path of the corn to be husked, substantially as described.

18. In a corn-husking machine, the combination of the supporting-frame, and the transversely-arranged driving-shaft, of the ear-feeding hopper, the slideway in said hopper adapted to agitate said corn, the trough below said hopper, with an ear-pusher block fitting slidably in said trough below said hopper, a slot transversely through said pusher, a slot in the sides of said trough, a yoke-shaped lever arranged with its sides extending alongside of said trough and its yoke end extending through said slot in said pusher-block, compression-springs arranged between the yoke end of said lever and the end of said slot nearest its ear-engaging end, whereby a flexible or yielding connection is established between said block and said yoke-lever, a connecting-rod pivotally connected at one end to said yoke-lever, and means including a crank-arm connected to said connecting-rod and to said driving-shaft for imparting a reciprocating movement to said yoke-lever and said ear-pusher block, substantially as described.

19. In a corn-husker, the combination with the supporting-frame, of the hopper, a reciprocating slide arranged in said hopper, a trough arranged under the discharge-outlet of said hopper, an ear-pusher block arranged in said trough, a lever connecting to said pusher-block with said yielding or resilient connection, a toothed rack on said lever and a pinion supported to be rotated by the reciprocal movement of said rack and lever, a crank-pin secured to the side of said pinion and a connecting-rod arranged to connect said crank-pin and said ear-agitating slide of said hopper together, and a stop in the end of said trough to define the operative movement of said pusher-block, substantially as described.

20. In a corn-husker, the combination with the supporting-frame, a driving-shaft in said frame, the hopper on said frame, the ear-agitator in said hopper, the trough under said hopper, the push-block, the push-block-actuating lever yieldingly connected to said push-block and the stop in the end of the trough to define the operative movement of said push-block, an ear-discharge slot in said trough adjacent to said stop, a slide arranged to normally close said discharge-slot, a spring arranged to operate said slide in one direction of its movement, a trip-cam mounted in said driving-shaft, and means including a connecting-rod and a cam mounted on said driving-shaft for operating said slide on its opposite movement to open said discharge-slot, substantially as described.

21. In a corn-husker, the combination with the frame, a driving-shaft operatively journaled in said frame, husk-cutting knives operatively arranged to engage an ear of corn and cut the husks free from the ear, and comprising knives slidably journaled in suitable bearings and arranged to reciprocate to and from each other, and to and from the axial path of the movement of said ears of corn, and means including an oppositely-arranged pair of eccentrics operatively mounted on said driving-shaft and connected to said knives for reciprocating said knives to and from each other synchronously, substantially as set forth.

22. In a corn-husker, the combination with the frame, a driving-shaft operatively journaled in said frame, husk-cutting knives operatively arranged to engage an ear of corn and cut the husks from the ear, and comprising knives slidably journaled in suitable bearings and arranged to reciprocate to and from each other, and to and from the axial path of the movement of said ears of corn, and means including an oppositely-arranged pair of eccentrics operatively mounted on said driving-shaft and connected to said knives for reciprocating said knives to and from each other synchronously, and a knife, husk-cleaning device secured to each knife comprising a two-armed lever secured to each knife and movable with said knives a predetermined distance and having one arm arranged to lay normally along the side of the cutting edges of said knives and down by the end of the supporting-bearing of said knives and having the opposite end journaled to said knives and having said lever arranged to be moved by and with said knives on their operative husk-cutting movement, and a spring arranged on the journaled end of said lever adapted to move said lever back into its normal position, and a stop arranged to stop the backward movement of the husk-cleaning end of said lever before the said knives reach the end of their backward movement whereby

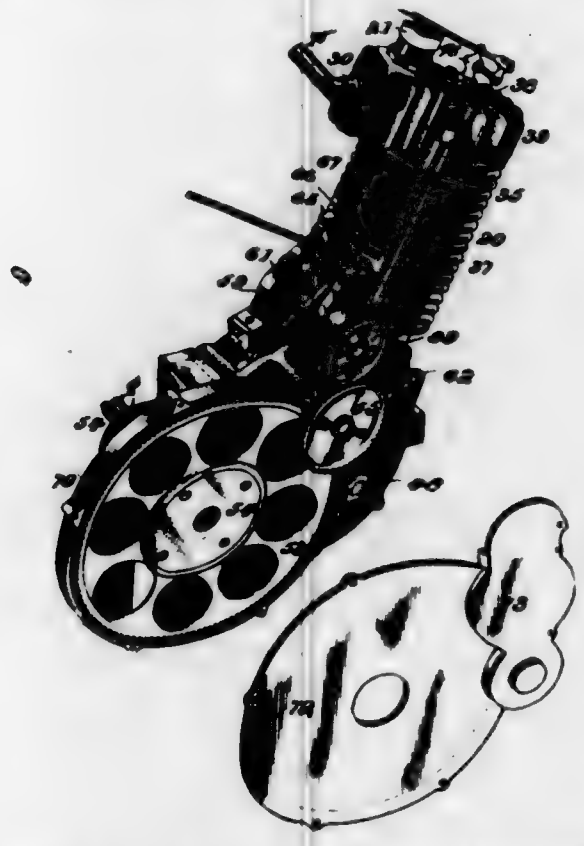
said knives move backward past the depending end of said lever and brush from the knives any adhering husks, substantially as described.

23. In a corn-husking machine, the combination of the frame, the double knives and the husk-cleaner journaled to said knives and arranged to depend between them and arranged to be moved with said knives a portion of their forward husk-cutting movement, a spring arranged to return them to their normal position on the backward stroke, and a stop arranged and adapted to stop said husk-cleaner at a predetermined portion of the backward stroke of said husk-cutting knives, whereby said knives are passed by said husk-cleaner and any adhering husks are brushed from them, substantially as described.

24. In a corn-husking machine, the combination with the supporting-frame, of a transverse driving-shaft, and a longitudinal driving-shaft operatively supported in said frame, means for rotating said transverse shaft, means for rotating said longitudinal shaft from said transverse driving-shaft, with the hopper and the ear-receiver and an ear-clamping device comprising a block arranged below said ear-receiver to reciprocate intermittently to and from said ear-receiver, a depending shaft on said block, a vertically-reciprocating shaft having a tubular upper end arranged to extend over said depending shaft slidably, a slot through the tubular end of said vertical shaft, a pin through said depending shaft extending through said slot, a compression-spring between the end of said depending shaft and the bottom of said tubular end of said vertical shaft, suitable supports for said vertical shaft, a spring surrounding said vertical shaft and arranged to be compressed when said shaft is raised vertically, and adapted to move said vertical shaft downward when released from its vertical movement, a roller pivotally mounted in the end of said vertical shaft, a drop-off cam rotatably supported in said frame in operative engagement with said vertical shaft to raise and lower it to and from said ear-receiver, and means including suitable gearing for connecting said cam operatively to said longitudinal driving-shaft, substantially as described

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695,562. BICYCLE-MOTOR. ROBERT M. KEATING, Middletown, Conn., assignor to the R. M. Keating Motor Company, Portland, Me., a Corporation of Maine. Filed Dec. 8, 1900. Serial No. 39,174. (No model.)



Claim.—1. In a gasolene-engine as described, the combination of the engine-cylinder, the perforated, hollow piston moving in said cylinder, and having external grooves, the perforated pitman extending into said hollow piston and connected to the crank, a pin passing through the said piston and through the hole in the piston-rod, said pin having grooves in its outer ends, and a packing-ring lying in the grooves in the ends of the said pin and a groove in the pitman, and retained in said groove in the piston by the bearing of the cylinder thereon, substantially as described.

2. The combination, in an engine of the character described, of the engine-cylinder, the grooved hollow piston therein having a transverse passage; the pitman-rod entering said piston-head and a conical pin with grooved ends passing through said piston and pitman rod, a packing-ring lying in a groove in the piston and the grooves in the conical pin, and held in place by the cylinder, and the fly-wheel composed of two disks having inward projections and a surrounding sleeve, around which sleeve the pitman extends, all substantially as described.

3. In a gasolene-engine as described, and adapted for use with a motor-bicycle, the combination with the cylinder, of the fly-wheel casing directly under the cylinder, and consisting of two parts forming a drum with its axis transverse to the cylinder, said casing or drum having removable inwardly-projecting sleeves forming journals for the fly-wheel, the sectional fly-wheel journaled on said sleeves, and the piston having its pitman connected to pins on the fly-wheel sections, substantially as described.

4. The combination with the cylinder, of the fly-wheel casing in form of a drum directly under the cylinder, the fly-wheel and its driving connections within the casing, the driving-pinion in a housing outside the casing, a large reduction-gear lying flat against the casing and engaging said driving-pinion, and a gear on the pedal-shaft with which said reduction-gear engages.

5. In a gasolene-engine, the cylinder, piston, and a pitman connected to the piston, a fly-wheel consisting of two journaled disks with projecting pins, a sleeve surrounding such pins, and the pitman surrounding such sleeve, substantially as described.

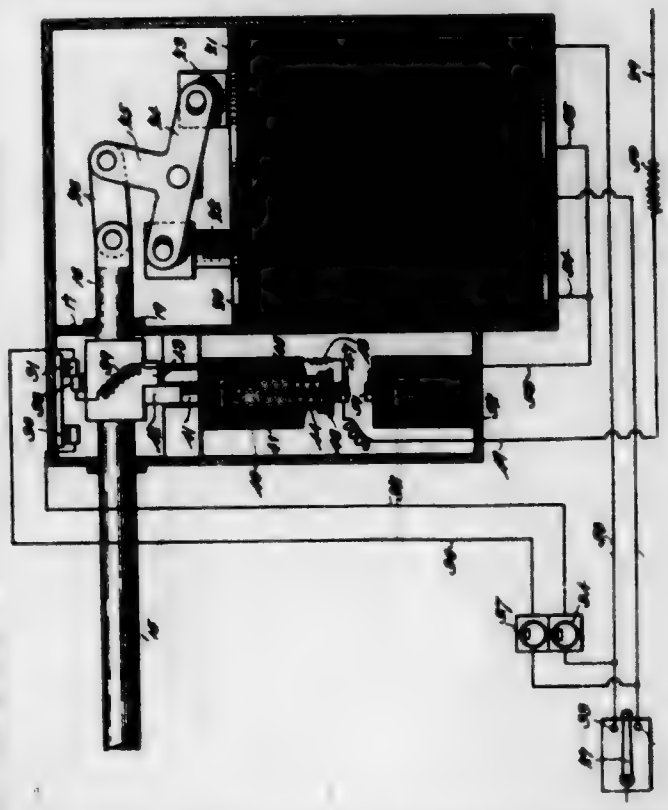
6. In a gasolene-engine, the cylinder, piston, and a pitman connected to the piston, a fly-wheel consisting of two disks with projecting pins which are inclosed by the pitman, a tie-bolt extending through the two sections and pins of the fly-wheel and uniting them within the pitman, and journal-bearings for said fly-wheel, substantially as described.

7. In combination with the inclosing casing 36, the flanged sleeves 41 with their flanges secured in said casing, and the fly-wheel having annular grooves into which grooves said sleeves extend, substantially as described.

8. In a gasolene-engine, the fly-wheel and driving-pinion connected thereto, a large gear-wheel engaging said pinion and serving as a reduction-gear, the bicycle driving-shaft connected to said reduction-gear, an intermediate pinion also engaging the fly-wheel pinion, and a gear engaging said intermediate pinion and connected to the valve-controlling cam-shaft, all combined substantially as described.

9. In a gasolene-engine, the combination with the two retaining-rods 37, of a two-horned bracket through which said rods pass, and a clamp at the side of said bracket, said clamp composed of separable pieces adapted to embrace a cylinder or tube, substantially as described.

695,563. ELECTRICALLY-OPERATED SWITCH. EDGAR V. R. KETCHUM, New York, N. Y. Filed May 15, 1901. Serial No. 60,363 (No model.)



Claim.—1. A device of the class described, comprising a shift-rod, electromagnetic devices connected with the rod to move it in opposite directions, a switch for connecting the electromagnetic devices interchangeably with a source of electricity, a shunt around the electromagnetic devices and including an electromagnetic switch for closing the circuit between the first-named switch and the electromagnetic device in operative

relation thereto, and means operably connected with the said electromagnetic devices for shifting the shant-circuit around the electromagnetic device that is out of operative relation to the first-named switch.

2. A device of the class described, comprising a shift-rod, solenoids having cores operably connected with the shift-rod to reversely move it, a switch having a point connected with one terminal of the winding of each solenoid for connecting them with a source of electricity, said solenoids having a common return, an electromagnetic switch for controlling the common return, and an electromagnet in the common return for holding the switch closed.

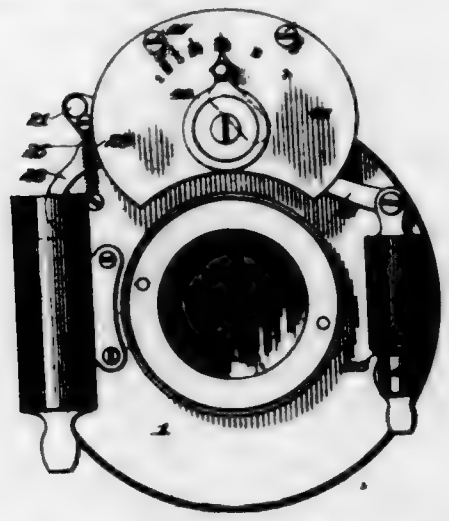
3. A device of the class described, comprising a shift-rod having a contact, fixed contacts with which the first contact is adapted for engagement interchangeably, solenoids having cores connected with the rod to operate it reversely, a switch having separate points with which the fixed contacts are connected through separate indicators, said points being connected also with one terminal of the windings of their respective solenoids, a common return for the solenoids, and an electromagnetic circuit-closer for the common return and disposed between the contact on the shift-rod and the return-conductor beyond the point of closure thereof.

4. A device of the class described, comprising a shift-rod having a contact, fixed contacts with which the first contact is adapted for engagement interchangeably, electromagnetic devices for reversely operating the shift-rod, a switch having separate points with which the fixed contacts are connected through separate indicators, said points being also connected each with one terminal of the winding of its respective electromagnetic device, a common return for the electromagnetic devices, an electromagnetic switch for closing the common return and electrically connected between the contact on the shift-rod and the return-conductor at a point beyond the point of closure thereof, and an electromagnetic device for holding the circuit-closer in active position when its operating-circuit is broken by movement of the shift-rod.

5. In a device of the class described, a track-switch, electromechanical means for shifting said switch in both directions, main and supplemental conductor-rails, a plow having a separate contact-shoe for each rail, current-conductors leading from the supplemental rails to opposing portions of the shifting devices, a switch carried by the car and connected to the main conductor, said switch having contact-points connected separately to the shoes of the supplemental rails, and a return leading from such shifting devices to the main return-rails, whereby said shifting devices may be energized for movement in either direction.

6. In a device of the class described, the combination with a track-switch, of a pair of solenoids operatively connected to move said switch in opposite direction, main feed and return rails, a return-conductor common to both solenoids and connected to main return-rail, supplemental conductor-rails, conductors leading from each of the supplemental conductor-rails to separate solenoids, a plow on the vehicle carrying a separate shoe for engagement with the main and supplemental rails, a switch carried by the car connected to the main feed-conductor and having points connected with the shoes engaging the supplemental rails for supplying current from the feed-rail to the supplemental rails interchangeably.

695,564. **PHOTOGRAPHIC SHUTTER.** RUDOLPH KLEIB, Rochester, N. Y., assignor to the Bausch & Lomb Optical Co., Rochester, N. Y., a Corporation of New York. Filed May 15, 1900. Renewed Dec. 31, 1900. Serial No. 41,722. (Model.)



Claim.—1. In a photographic shutter, the combination with a shutter proper, a spring-operated master member and a movable operating member for operating the master member against its spring and releasing it by a continued movement in one direction, of a single detaining member having time and bulb stops adapted to coöperate separately with the master member, and means for holding said member with both stops out of engagement with the master member.

2. In a photographic shutter, the combination with a shutter proper, a spring-operated master member and a movable operating member for operating the master member against its spring and releasing it, of a single detaining member having time and bulb stops either of which may coöperate with and control the movement of the master member, and a setting device for controlling the position of the detaining member.

3. In a photographic shutter, the combination with a master member, of a single detaining member having time and bulb stops, either of which may coöperate with and control the movement of the master member, a setting device for controlling the position of the detaining member, and an operating member for actuating the master member and engaging and controlling the detaining member.

4. In a photographic shutter, the combination with a master member, of a single detaining member having time and bulb stops, either of which may coöperate with and control the movement of the master member, a setting device for adjusting the detaining member to cause one stop to engage the master member, an operating member coöperating with the master member to actuate it when moved in one direction and coöperating with the detaining member to release the master member when operated in the other direction.

5. In a photographic shutter, the combination with a master member, of a single detaining member having time and bulb stops, either of which may coöperate with and control the movement of the master member, a setting device for adjusting the detaining member to cause one stop to engage the master member, an operating member coöperating with the master member to actuate it when moved in one direction and coöperating with the detaining member to hold it, said master member coöperating with and operating the detaining member to normal position when the latter is released by the operating member.

6. In a photographic shutter, the combination with a master member, of a single detaining member having time and bulb stops, either of which may coöperate with and control the movement of the master member, a setting device for adjusting the detaining member to cause either stop to engage the master member, an operating member for actuating the master member in one direction and coöperating with the detaining member to hold the latter in engagement with the master member.

7. In a photographic shutter, the combination with a master member, of a single detaining member having two time-stops adapted to be engaged successively by the master member to arrest the latter, and a movable operating member for actuating the master member in one direction and coöperating with the detaining member to hold the second stop on the latter in engagement with the master member.

8. In a photographic shutter, the combination with a master member, of a single detaining member having two time-stops adapted to be engaged successively by the master member for a time exposure, and a stop adapted to be engaged for a bulb exposure, an operating member for operating the master member in one direction and coöperating with the detaining member, and setting devices for controlling the position of the detaining member.

9. In a photographic shutter, the combination with the master member, of a single movable detaining member having stops thereon coöperating with the master member for time and bulb exposures, means for controlling the position of the detaining member to bring either set of stops into position to engage the master member, and an operating member operating to move the master member in one direction and coöperating with the detaining member.

10. In a photographic shutter, the combination with the master member, of a single movable detaining member having three stops thereon, two adapted to coöperate in succession with the master member for time exposures and one for bulb exposures, setting devices for bringing the time or bulb stops into coöperative relation with the master member, and an operating member adapted to actuate the master member in one direction and coöperating with the detaining member to control it.

11. The combination with the master member, of the detaining member having the stop 62 and incline 61, and the operating member for actuating the master member and coöperating with the detaining member when the incline 61 is in engagement with the master member.

12. The combination with the master member having the stop or projection thereon, the detaining member having the stop 62 and incline 61, and the spring for operating it with the stop 62 in the path of the stop on the master-lever, of the catch 33 engaging the detaining member to move it against its spring and then arrest it with the stop 62 engaging the incline.

13. The combination with the master member having the stop 60, of the movable detaining member having the stop 62, incline 61 and the stop 63 thereon, setting devices for controlling the movement of the detaining member, and means for operating and releasing the detaining member.

14. In a photographic shutter, the combination with the master member, the operating member coöperating therewith, of the detaining member having the stops 62 and 63 and the incline 61, the spring for operating the detaining member, setting devices for limiting the movement of the detaining member, and connections between the operating member and the detaining member for moving the latter against its spring and for holding it.

15. The combination with the master member, the detaining member having the stops 62 and 63, the incline 61, and catch 66, and the spring for operating the member, of devices for controlling the movement of the detaining member, and the lever 33 having the catch 37 thereon.

16. The combination with a shutter, a movable projection or member, of a pivoted detaining member having time-stops and a bulb-stop adapted to coöperate with said projection and control its movement, means for controlling the movement of the detaining member on its pivot to bring either set of stops into position to engage the projection, and means for operating said member on its pivot to cause the successive release of the time-stops when in operative relation with the projection and to cause the release of the bulb-stop when the latter is in coöperative relation therewith.

17. In a photographic shutter, the combination with a master member, an operating member for actuating it in one direction, and detaining devices for the master member controlled by the operating member, of a retarding device for governing the movement of the master member and detachably connected thereto.

18. In a photographic shutter, the combination with a master member, an operating member for actuating it in one direction, and detaining devices for the master member controlled by the operating member, of a retarding device for governing the movement of the master member, adjustably and detachably connected thereto, whereby the speed of movement of the master member may be governed.

19. In a photographic shutter, the combination with a master member, an operating member for actuating it in one direction, and detaining devices for the master member controlled by the operating member, of a retarding device of constant force, and adjustable connections between said device and the master member for varying the leverage between the parts to change the speed of operation.

20. In a photographic shutter, the combination with a spring-operated master member, an operating member for actuating and releasing it by a continued movement in one direction, of a retarding device of constant force, and an adjustable connection between said device and the master member, whereby the speed of operation of the latter may be varied.

21. The combination with a spring-actuated shutter proper, a master member, a latch connection between it and the shutter, an operating member, a spring for operating it in one direction, and a latch connection between the operating member and the master member, of a retarding device, and adjustable connections between it and the master member for controlling the latter.

22. The combination with a shutter proper, a master member for opening and closing the shutter by a movement in one direction, an operating member for moving the master member to operate the shutter, and means for returning the member to first or normal position, of a retarding device for regulating the speed of the master member.

23. The combination with a shutter proper, a master member for opening and closing the shutter by a movement in one direction, an operating device for setting the master member to operate the shutter, and means for automatically returning it to normal position, of an adjustable retarding device for retarding the movement of the master member in a direction to cause the closing of the shutter.

24. The combination with a shutter proper, a master member for opening and closing the shutter by a movement in one direction, an operating device for setting the master member to operate the shutter, and means for automatically returning it to normal position, of a retarding device of constant force, and an adjustable connection between it and the master member for varying the leverage between the retarding device and master member.

25. The combination with a shutter proper, a spring for closing it, a master member, a spring for operating it in a direction to open the shutter, a latch connection between said member and the shutter, an operating member, a latch connection between it and the master member, and a spring for returning the operating member, of an adjustable retarding device connected to the master member for retarding the movement of the latter when operated by its spring.

26. The combination with a shutter proper, a spring for closing it, a master member, a spring for operating it in a direction to open the shutter, a latch connection between the said member and the shutter, an operating member, a latch connection between it and the master member, and a spring for returning the operating member, of a retarding device of constant force, and an adjustable connection between it and the master member for changing the leverage between them.

27. The combination with a shutter proper, a spring for closing it, a master member, a spring for operating it in a direction to open the shutter, a latch connection between said member and the shutter, an operating member, a latch connection between it and the master member, and a spring for returning the operating member, of detaining devices coöperating with the master member, and operated by the operating member, a retarding device coöperating with the master member and a setting device operating to control the detaining devices and the relation of the master member and retarding device.

28. The combination with a shutter, a master member for operating it, and an operating member having a latch connection with the master member, of adjustable time-stops for arresting the master member operated by the operating member, a retarding device for governing the operation of the master member, and a setting device controlling the relation of the time-stops to the master member and also the connection of the retarding device therewith.

29. The combination with a shutter, a master member for operating it, an operating member having a latch connection with the master member, of two time-stops and a bulb-stop for coöperating with the master member and operated by the operating member, a retarding device, and a movable setting device for controlling the relation of the stops and master member and also adjusting the master member and the retarding device relatively to vary the movement of the former.

30. In a shutter, the combination with the pivoted master member having the engaging and releasing projections thereon, of the lever 18 having the pivoted latch provided with a shoulder engaging the projection on the master member, and the extension engaging the releasing projection, and the spring engaging the pivoted arm and operating it and the lever 18 in one direction.

31. In a shutter, the combination with the spring-operated master member, of the lever 18, the pivoted latch thereon coöperating with the master member to move it in one direction, the lever 33 connected to the lever 18, detaining devices coöperating with the master member and operated upon by the lever 33.

32. In a shutter, the combination with the spring-operated master member having the stop thereon, of the lever 18, a latch connection between it and the master member, the lever 33 connected to the lever 18, and the detaining member having stops engaging the master member and operated upon and detained by the lever 33.

33. In a photographic shutter, the combination with the shutter proper, a master member for operating it, of a movable operating member coöperating with the master member to actuate it in one direction, a single detaining member having a plurality of stops thereon adapted to coöperate separately with the master member, and a detachable connection between the detaining and operating members.

34. In a photographic shutter, the combination with the shutter proper, and a master member for operating it, of a movable operating member coöperating with the master member to actuate it in one direction, a single detaining member having a plurality of stops thereon adapted to coöperate separately with the master member and actuated by the operating member, and means for controlling the position of the detaining member and the relation of its stops with the master member.

35. In a photographic shutter having mechanism adapted for instantaneous, time and bulb exposures, of an automatic timing device for regulating the length of the exposure, a setting device for operating the time and bulb exposure devices into and out of coöperative relation with the shutter mechanism and varying the operation of the timing device, and an operating member automatically movable in one direction and manually operable to cause the actuation of the shutter and to control it when set for time or bulb exposures.

36. The combination with the shutter proper, the master member, and the single detaining member having the bulb and time stops thereon, of the controlling-lever coöperating with the detaining member, the retarding device having the slotted lever, and the movable setting device coöperating with the master member and the retarding device and with the controlling-lever.

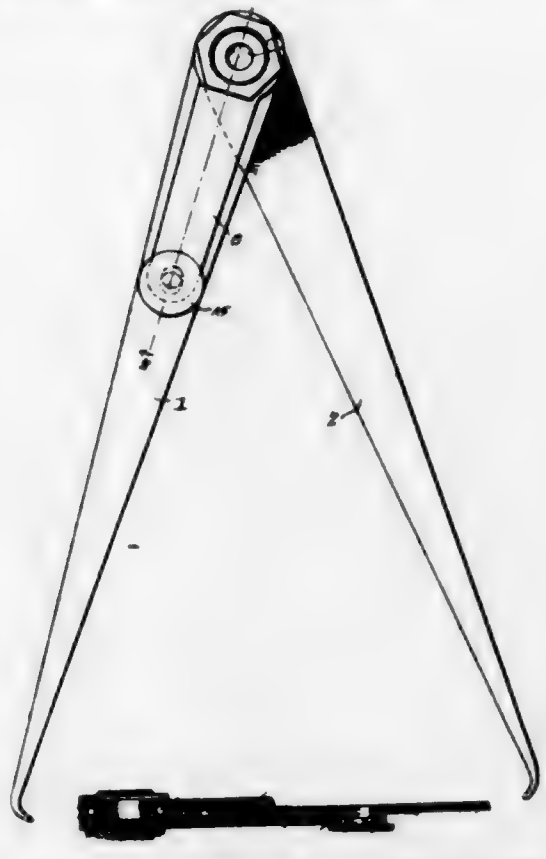
37. In a shutter, the combination with the pivoted master member having the engaging and releasing projections, of the pivoted lever 18, the pivoted latch thereon having the shoulder engaging the projection on the master member, and the extension engaging the releasing projection.

38. In a photographic shutter, the combination with a master member, an operating member for actuating it in one direction, movable and adjustable detaining devices for the master member for making bulb and time exposures and controlled by the operating member, of a retarding device for governing the movement of the master member, and setting devices coöperating with the detaining devices and with the retarding device for varying their relation to the master member.

39. In a photographic shutter, the combination with a master mem-

ber, an operating member for actuating it in one direction and releasing it, movable and adjustable detaining devices for the master member for time and bulb exposures and controlled by the operating member, of a retarding device for governing the movement of the master member and a single movable part for controlling the detaining and retarding devices to vary their relations with the master member.

695,565. CALIPERS. GEORGE KNAPP, Defiance, Ohio. Filed Apr. 15, 1901. Serial No. 55,970. (No model.)



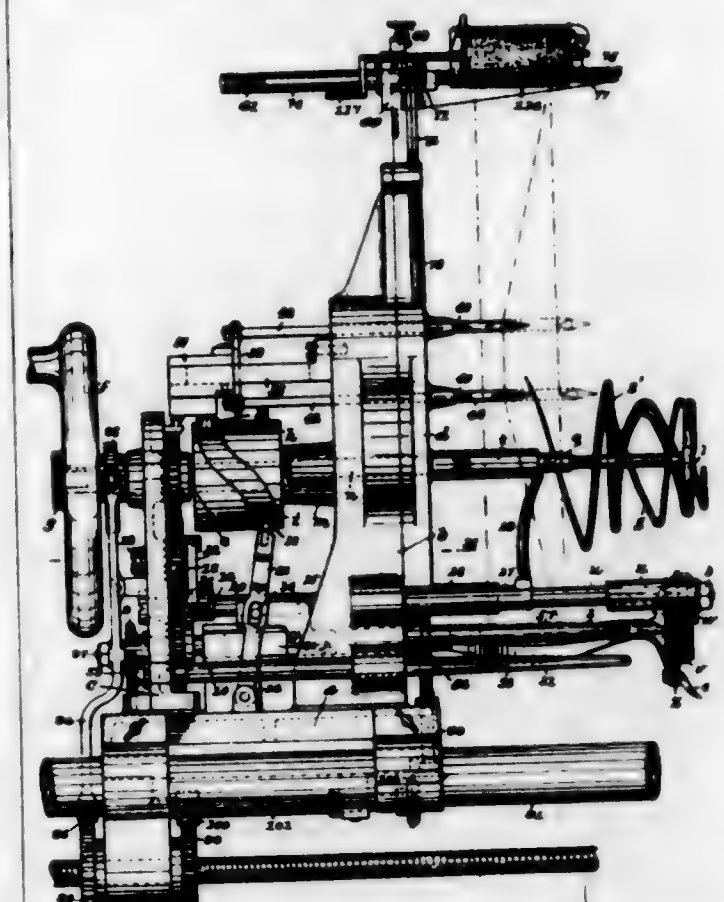
Claim.—1. A pair of calipers having one of its legs provided with an opening, an arm rigidly secured to the pivot-pin of the leg and having its free end provided with a slot and a circular socket or recess arranged eccentric to the slot, and a disk carrying a concentric end bearing to engage the said opening, an intermediate eccentric bearing to engage the slot, and a lateral projection to engage the recess.

2. A measuring instrument, comprising a pair of pivotally-connected members, one of which has a circular opening formed therein, an arm rigidly carried by the pivotal connection, and provided with a slot, the outer end of which corresponds to the outer side of the opening in one of the members, the inner side of the arm also having a socket corresponding to the slot and projecting at opposite sides and at the outer end thereof, and a finger-piece, having a pivot-stud within the opening in the member, a lateral flange within the socket, and an eccentric working frictionally in the slot in the arm.

3. A measuring device having a plurality of pivotally-connected members, one of which has a circular opening formed therein, an arm rigidly carried by the pivotal connection and overlapping the opening in the said member, the arm having a slot therein adjacent to the opening in the member, and a socket in the inner side of the arm corresponding to the slot thereof and extending outwardly beyond the same, and a pivotal finger-piece, having a pivot-stud mounted in the opening in the member, and an eccentric frictionally working in the slot in the arm, the eccentric normally lying in the intermediate portion of the slot, and the outer end wall of the latter forming a stop for engagement with the eccentric to limit the movement thereof in opposite directions.

4. A measuring instrument, comprising a pair of members, corresponding terminals of which have concentric circular openings, and the inner faces having corresponding circular grooves arranged concentrically with respect to the openings, antifriction devices loosely mounted in the corresponding grooves, a headed pivot-pin having a cylindrical portion passing through the openings in the members, the outer extremity of the pin being screw-threaded, and the portion between the screw-threaded terminal and the adjacent member being polygonal, an arm having a polygonal opening snugly fitting the polygonal portion of the pin and lying parallel with the adjacent member, a nut applied to the screw-threaded portion of the pin, and a rotatable adjusting device having a pivot-stud mounted in an opening in one of the members, and an eccentric working frictionally in an opening in the arm.

695,566. WARP-TWISTING MACHINE. WILLIAM R. KREY, New York, N. Y., and ANTON DUPPLER, Jersey City, N. J., assignors to the Automatic Twisting-In Machine Company, a Corporation of New Jersey. Filed Apr. 16, 1901. Serial No. 56,065. (No model.)



Claim.—1. The combination of a frame, a mechanism, carried by said frame, for successively uniting the threads of a warp, said frame being movable substantially transversely of the warp, and mechanism for holding the ends of the warp arranged to move in the frame in the direction opposite to that of the movement of the frame.

2. The combination of a frame, a mechanism, carried by said frame for successively uniting the threads of a warp said frame being movable substantially transversely of the warp, mechanism for holding the ends of the warp movably arranged in said frame, means for moving said frame, and power-transmitting mechanism operatively connecting the thread-holding mechanism and said frame-moving means.

3. The combination of a frame, a mechanism, carried by said frame, for successively uniting the threads of a warp, said frame being movable substantially transversely of the warp, a carriage arranged in said frame for movement in a direction opposite to that of the movement of said frame, warp-holding clamps carried by said carriage, means for moving the frame, and power-transmitting mechanism operatively connecting said carriage and the frame-moving means.

4. In a machine for successively uniting warp-threads, the combination, with the frame, of a uniting mechanism, means for successively advancing the threads to be united to said uniting mechanism, and thread-sustaining means arranged in said frame and movable in the direction of movement of the threads toward said uniting mechanism, substantially as described.

5. In a machine for successively uniting warp-threads, the combination, with the frame, of a uniting mechanism, means for successively advancing the threads to be united to said uniting mechanism, guides arranged in said frame, a carriage movable on said guides, means for moving said carriage, and warp-sustaining clamps mounted on said carriage, substantially as described.

6. In a machine for successively uniting warp-threads, the combination, with the frame, of a uniting mechanism, means for successively advancing the threads to be united to said uniting mechanism, a support arranged in said frame, a carriage guided on said support, a screw swiveled in said carriage and engaging the support, a gear keyed on said screw, a worm engaging said gear, and warp-sustaining clamps mounted on said carriage, substantially as described.

7. In a thread-releasing mechanism for twisting-machines, the combination, with a support, of a pair of reciprocatory and revolvable hook-bars mounted in said support and having their hooks projecting laterally therefrom and in relatively opposite directions, the hook-carrying portion

of each hook-bar being offset out of alinement with the other portion of said hook-bar, substantially as described.

8. In a machine for successively uniting warp-threads, the combination, with the frame, of spaced thread-holding means, and a pair of reciprocatory and revoluble hook-bars arranged in said frame between said holding means substantially in the plane in which the threads extend between said holding means and having their hooks projecting laterally therefrom and in relatively opposite directions, the hook-carrying portion of each hook-bar being offset out of said plane, substantially as described.

9. In a thread-releasing mechanism for twisting-machines, the combination, with a support, of hook-bars penetrating said support, sleeves journaled in said support and penetrated by and revoluble with said hook-bars, a pinion loosely arranged on each sleeve and having a ratchet-like engagement therewith, a gear engaging the several pinions, a combined gear and star-wheel, said last-named gear engaging one of the pinions, and a pin-wheel engaging said star-wheel, substantially as described.

10. In a twisting mechanism for twisting-machines, the combination, with a frame, of a stationary member, a revoluble member adapted to wipe against said stationary member, a rotary, longitudinally-yielding and spring-actuated shaft-like support carrying said revoluble member and journaled in said frame, substantially as described.

11. In a twisting mechanism for twisting-machines, the combination, with a frame, of a stationary member, a revoluble member adapted to wipe against said stationary member, a rotary spindle carrying said revoluble member, a sleeve removably arranged on said spindle, a collar arranged on said sleeve, and a spring interposed between said collar and a portion of the frame, substantially as described.

12. The combination, with a frame, of a rotary spiral arranged in said frame, a shaft carrying said spiral, a rock-shaft, a finger carried by said rock-shaft, a crank on said rock-shaft, a gear, a link connecting said crank with an eccentric point on the gear, and power-transmitting mechanism operatively connecting said gear and the spiral-carrying shaft, substantially as described.

13. The combination, with a frame, of a rock-shaft journaled in said frame, a finger carried by said rock-shaft, a fork arranged to reciprocate substantially parallel with said shaft, a gear journaled in said frame, a crank on said rock-shaft, a link connecting said crank with an eccentric point on the gear, and power-transmitting mechanism operatively connecting said gear and said fork, substantially as described.

14. In a machine for successively uniting warp-threads, a thread-deflecting device comprising two spirals intercoiled with each other about a common axis, substantially as described.

15. In a warp-sustaining clamp, the combination of three coacting members pivotally connected together at one end, a clip adapted to bind together the free ends of two of said members, and means for binding the third member against said first-named members, a part of said means being carried by the clip, substantially as described.

16. In a mechanism for holding one portion of a warp at a narrower width than another portion thereof, a device adapted to be engaged by the threads to maintain a turn therein and having a concave thread-engaging surface on the side thereof away from the wide portion of the warp, substantially as described.

17. In a mechanism for holding one portion of each of two warps at a narrower width than another portion thereof, a bifurcated device adapted to receive and be engaged by the threads to maintain a turn therein, the members of said device having concave thread-engaging surfaces on the sides thereof away from the wide portions of the warps, substantially as described.

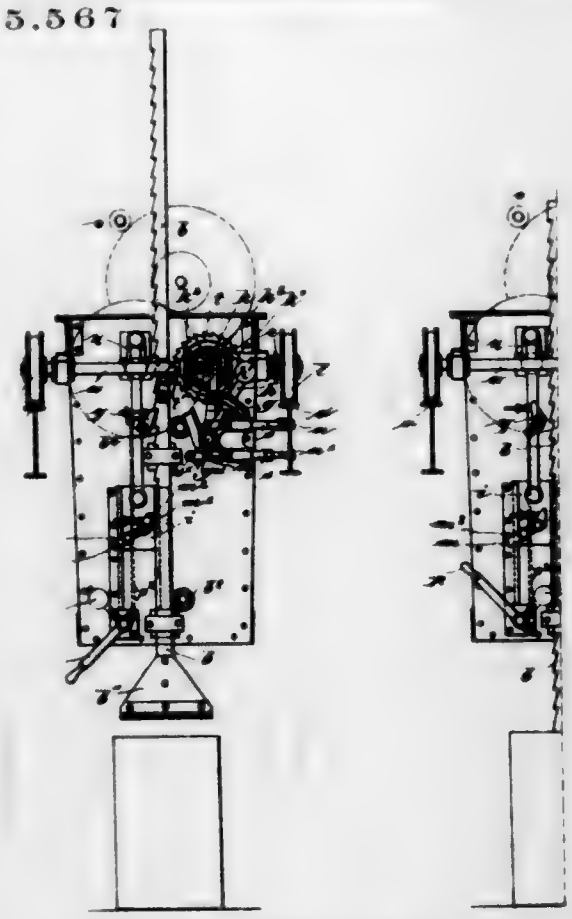
695,567. MACHINE FOR STAMPING COAL. RUDOLF KUHN, Bruck, Germany. Filed Jan. 24, 1901. Serial No. 44,494. (No model.)

Claim.—1. In a coal-stamper, the combination of a carriage, with a vertically-movable slide carried thereby, a drop-plunger, means for removably connecting said plunger to the slide, means for releasing the plunger from the slide, and means for propelling the carriage by the movement of the plunger, substantially as specified.

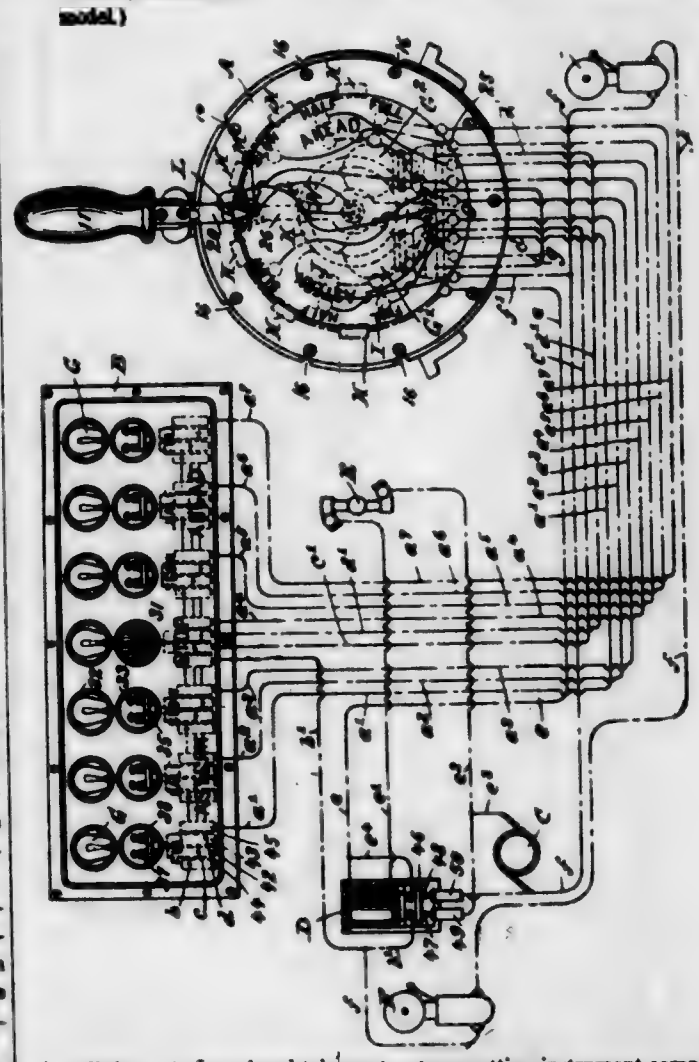
2. In a coal-stamper, the combination of a carriage, with a vertically-movable slide carried thereby, a drop-plunger, means for removably connecting said plunger to the slide, means for releasing the plunger from the slide, a pawl-and-ratchet mechanism that transmits motion from the plunger to the carriage, and means for reversing the motion of the carriage at the ends of its race, substantially as specified.

3. In a coal-stamper, the combination of a vertically-movable slide having a pawl, with a plunger having a rack adapted to be engaged by the pawl, means for releasing the rack from the pawl, a carriage from which the plunger is suspended, a pawl and ratchet-wheel that connect the plunger to the carriage, a pair of bevel-wheels operated by the ratchet-wheel, a clutch for coupling either one of said wheels to the carriage-axle, and means for automatically setting said clutch at the ends of the carriage-race, substantially as specified.

695,567



695,568. SIGNAL-TELEGRAPH. ERWIN LAVERS and EDWARD J. LAVERS, Brooklyn, N. Y. Filed Jan. 7, 1901. Serial No. 42,448. (No model.)



Claim.—1. In a signal-telegraph, a transmitting instrument comprising an inclosing casing having a series of slots upon its periphery, a disk of insulating material mounted upon the interior of the casing provided with a series of connected plates interposed in position between said slots, two series of contact-buttons which correspond in position with said slots, a contact-ring, an oscillating handle provided with an arm carrying contact-pins which coact with said contacts, and a plunger which coacts with said slots.

2. In a signal-telegraph, a transmitting instrument embodying a casing, a series of slots on the periphery of the casing, an oscillating handle, a lever, a plunger controlled by said lever mounted in said handle and cooperating with said slots, and a normally closed switch in the handle adapted to be opened by the lever when employed to lift the plunger.

3. In a signal-telegraph, the combination of a transmitting instrument, a receiving instrument, an independent electromagnetic circuit-controlling device interposed between the two, means energized by the transmitting instrument to close a circuit through the controlling device, and means actuated by the controlling device to close a series of circuits between the transmitting and receiving instruments.

4. In a signal-telegraph, the combination of a transmitting instrument, a receiving instrument, an electromagnetic circuit-controlling device between the two, means energized by the transmitting instrument to close the circuit through the controlling device, means actuated by the controlling device to close a series of circuits between the transmitting and receiving instruments, and means under the control of the operator of the receiving instrument for breaking the circuit between the transmitting instrument and controlling device.

5. In a signal-telegraph, the combination of a transmitting instrument provided with two lamps, a receiving instrument provided with a series of lamps individually in series with one of said lamps, and a series of magnets individually in series with the other of said lamps; and a controlling device interposed between said transmitting and receiving instruments, energized by the action of the transmitting instrument and which will act to close circuits between said lamps and magnets.

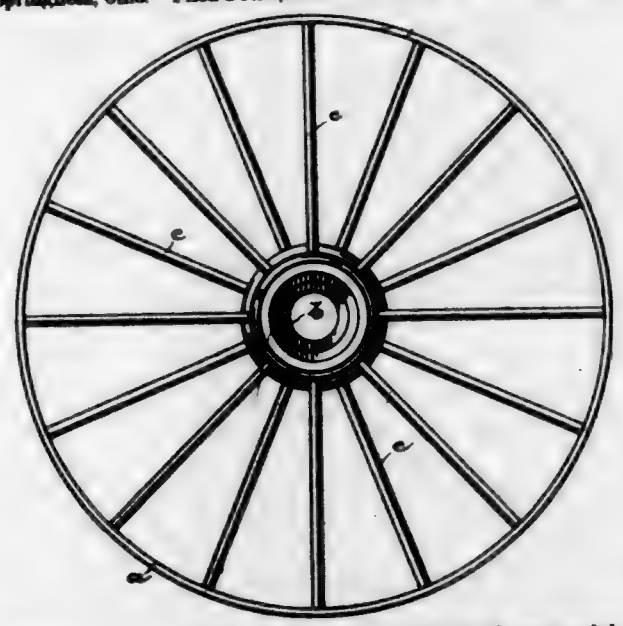
6. In a signal-telegraph, the combination of a transmitting instrument provided with two lamps, a receiving instrument provided with a series of lamps and a series of magnets, independently in series relation and in circuit with the separate lamps at the transmitting instrument, a series of magnets at the receiving instrument in series and circuit relation with the transmitting instrument, and a controlling device energized by the transmitting instrument for closing said circuits through said parts.

7. In a signal-telegraph, the combination of a transmitting instrument, a receiving instrument, a circuit-controlling device, a circuit between said transmitting instrument and controlling device, and three circuits under the control of the controlling device containing respectively a lamp at the transmitting instrument, and a lamp at the receiving instrument; a lamp at the transmitting instrument and a magnet at the receiving instrument; the transmitting instrument and a magnet at the receiving instrument.

8. In a signal-telegraph, the combination of a transmitting instrument, a receiving instrument, a device for making audible signals, and a circuit-controlling device energized from the transmitting instrument and adapted to close three circuits; one through the audible signals, one to the receiving instrument; one to maintain the circuit connections through its magnet.

9. In a signal-telegraph, the combination of a transmitting instrument, a receiving instrument, a circuit-controlling device energized by the transmitting instrument, an independent circuit including bells at the receiving and transmitting stations and under the control of the controlling device, and circuits including lamps and magnets at the transmitting and receiving instruments also under the control of the controlling device.

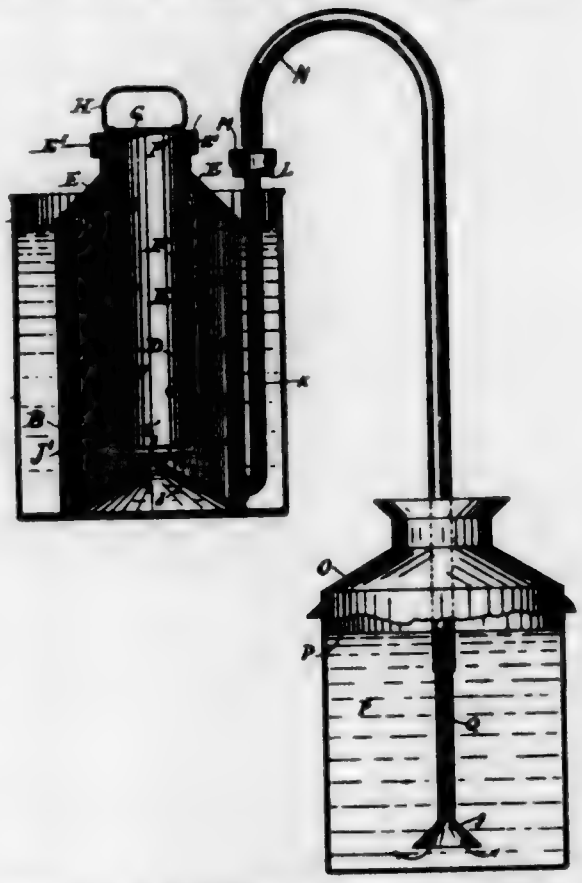
695,569. **HUB FOR VEHICLE-WHEELS.** JOHN S. LAYTON, Springfield, Ohio. Filed Dec. 7, 1901. Serial No. 85,107. (No model.)



Claim.—1. In a vehicle-wheel, a hub provided with two peripheral flanges formed integrally with said hub, one on each side of the center thereof, said hubs having reduced ends extending from said flanges, sleeves on each of said reduced ends making the hub, when the sleeves are in place, of substantially the same thickness, said sleeves being provided at their inner ends with peripheral flanges, adjacent to the respective hub-flanges, recesses in the respective hub and sleeve flanges, arranged opposite each other, so as to form inner channels, radial grooves or notches in said flanges, extending from said recesses to the outer periphery of said flanges, spokes provided with heads adapted to fit in said grooves and recesses, said sleeves also having extended projecting portions forming the point and heel bands of said hub and provided with shoulders adapted to stand flush with the ends of the hub proper, between the collar and nut of the axle, substantially as specified.

2. In a vehicle-wheel, the combination of a rim, spokes provided with screw-threaded outer ends connected to said rim and formed at their inner ends with heads, a hub provided with a flange on each side of the center thereof, sleeves on the respective ends of said hub having flanges corresponding to said hub-flanges, each sleeve also having an extended projecting portion forming a shoulder adapted to stand flush with the end of the hub, inner grooves or channels formed in the respective sets of flanges to receive said spoke-heads, a series of openings leading from said channels to the outer peripheries of said flanges to receive said spokes, and means for removably securing said sleeve-flanges to the respective hub-flanges, substantially as specified.

695,570. **AERATOR FOR MILK.** GEORGE W. LOOK, Quincy, Miss. Filed Jan. 10, 1902. Serial No. 88,111. (No model.)

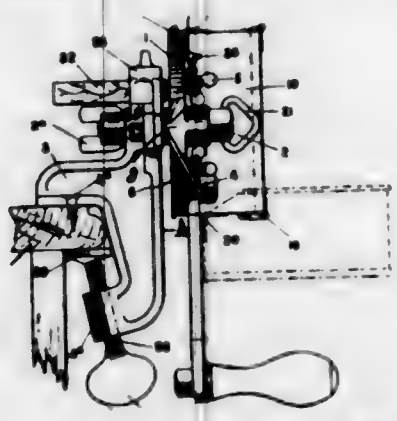


Claim.—1. In an aerator and milk-cooler, the combination of a receptacle, a cylindrical partition in the receptacle, an additional receptacle fitting loosely in the cylindrical partition of the first-named receptacle, a longitudinally-movable cylinder, a valve in the upper end of the cylinder, an outlet to the first-named receptacle, a check-valve in such outlet, and a flexible connection from such outlet, and an outer receptacle in which the first-named receptacle may be placed, such outer receptacle arranged to hold a cooling liquid, whereby air may be cooled and forced through such flexible connection and through the liquid in which the end of the connection is immersed: substantially as described.

2. In an aerator and milk-cooler, the combination of a receptacle, a cylindrical partition in the receptacle, an aperture in the bottom of the receptacle opening into the chamber within the cylindrical partition, an additional receptacle within the cylindrical partition, whereby cooling liquid surrounding the first-named receptacle may enter the bottom thereof and surround the last-named and inner receptacle, a longitudinally-movable cylinder in the receptacle, such cylinder closed at its upper end, a valve in the upper end of the cylinder opening on the upward movement thereof to admit air into such cylinder and to close on the downward movement of such cylinder, an outlet from the receptacle, a check-valve in the outlet, a flexible pipe connected with the outlet, and a packing interposed between the neck of the first-named receptacle and the longi-

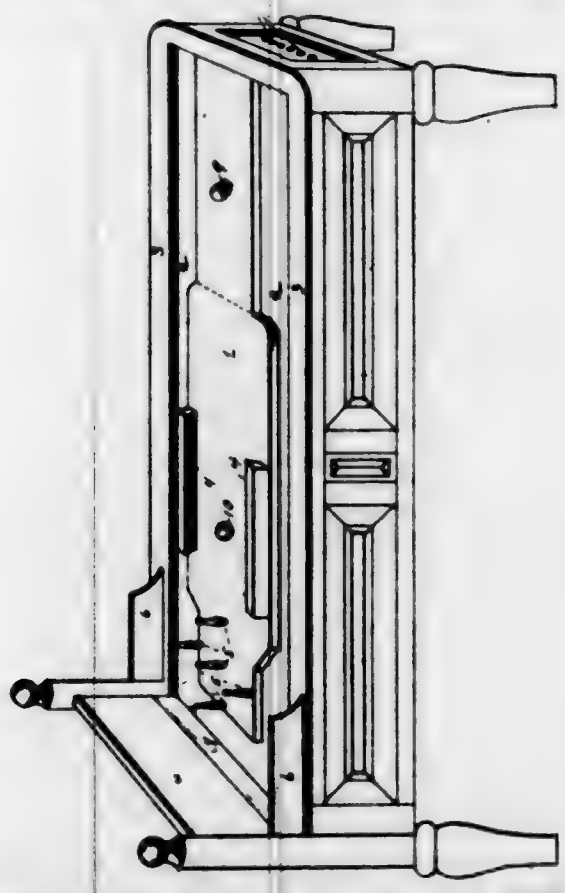
tudinally-movable cylinder; and an outer receptacle in which the first-named cylinder may be placed, such outer receptacle arranged to hold a cooling liquid; whereby air may be cooled in the apparatus and such air then forced through the outlet thereof and through the flexible connection attached thereto; substantially as described.

695,571. MACHINE FOR CUTTING TOBACCO. FREDERICK L. LORDEN, Wellington, New Zealand. Filed July 15, 1901. Serial No. 68,413. (No model.)



Claim.—In a tobacco-cutter, the combination of a disk having knives, a handle secured to the disk, a box hinged to the handle and a spring-catch for holding the box to the disk substantially as described.

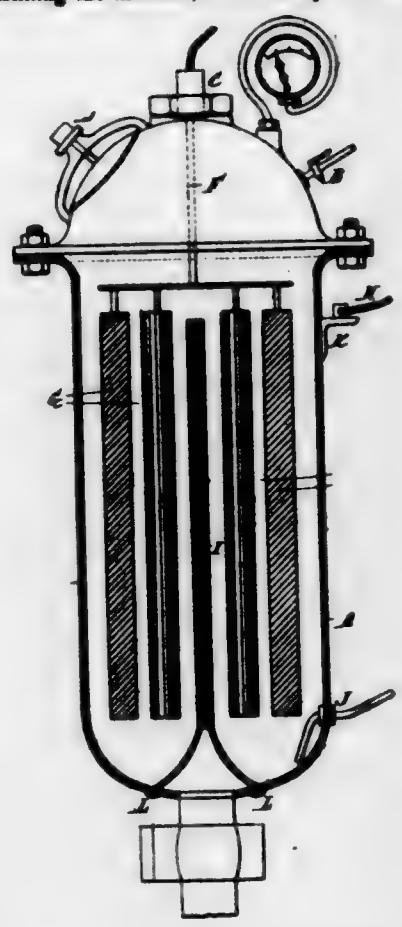
695,572. GAME AND LIBRARY TABLE. EUSTACHE LOYER, Cleveland, Ohio. Filed Mar. 18, 1901. Serial No. 51,658. (No model.)



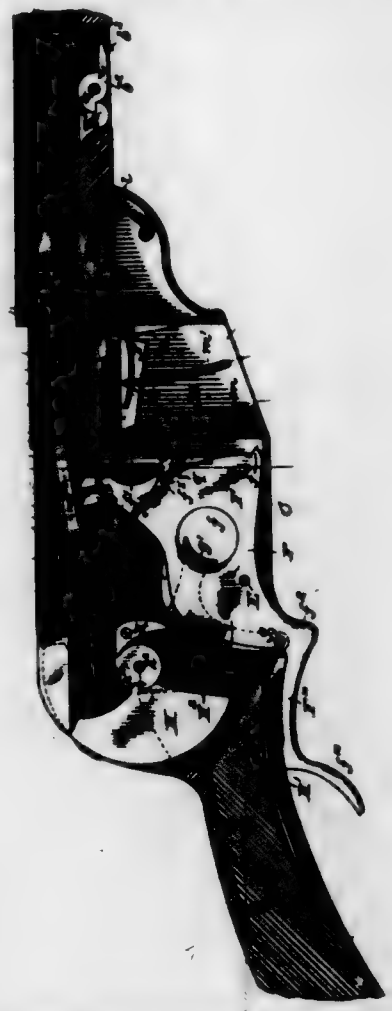
Claim.—In a combined billiard and pin table, a sectional folding top, constructed and arranged to form a headboard when folded, a cushion on the last segment, an elevated game-board, gutters on either side of the board, billiard-cushions centrally placed on either side of the game-board, spots on said board for the placing of the pins and spotting and cue balls, and receptacles in the table for the cues, substantially as described.

695,573. PROCESS OF CONVERTING WOOD, WOOD SHAVINGS, &c., INTO DEXTRINE, GLUCOSE, AND ALCOHOL. PAUL MASSIER, Billancourt, and PIERRE A. BRASSIER, Estrées, France. Filed July 25, 1900. Serial No. 725,096. (No specimens.)

Claim.—The herein-described process consisting in digesting wood, woody fiber, shavings and the like at 100° centigrade with water containing two per cent. of a mixture of sulfuric and phosphoric acids, then heating to a high temperature in a closed digester, neutralizing the material, passing an electric current through the material, while under pressure, then adding albuminoid substances to the material, and then fermenting and distilling the material, substantially as described.



695,574. MAGAZINE-FIREARM. JOHN R. MAHANA, Kelso, Wash., assignor of one-half to Adrian A. Pompe, Toledo, Wash. Filed Mar. 21, 1901. Serial No. 52,226. (No model.)



Claim.—1. In a magazine-firearm, a pivoted actuating-lever combined with mechanism for loading and firing and for discharging empty shells by the exertion of pressure alternately applied above and below the pivoting-point by separate fingers of the user or operator on said actuating-lever, substantially as set forth.

2. In a magazine-firearm, the combination of an actuating-lever, a breech-bolt for carrying a cartridge into the barrel and closing the breech, a firing-pin passing through said breech-bolt, and a recoil-block, pivoted to the breech-bolt and having a depending lug connected to the actuating-lever, for disengaging the firing-pin and locking the breech bolt when the breech is closed, and for unlocking said bolt and engaging said pin before the breech is opened, substantially as set forth.

3. In a magazine-firearm, the combination of an actuating-lever, a breech-bolt for carrying a cartridge into the barrel and closing the breech, a firing-pin through said breech-bolt, and a recoil-block, pivoted to the breech-bolt and having a depending slotted lug connected to the actuating-lever, for disengaging the firing-pin and locking the breech-bolt when the breech is closed, and for unlocking said bolt and engaging said pin before the breech is opened, substantially as set forth.

4. In a magazine-firearm, the combination of an actuating-lever, a pivot therefor, said lever having an opening through it above the pivot and an extension below the pivot, and a trigger carried by the lever adapted to be actuated by means introduced through the opening, substantially as set forth.

5. In a magazine-firearm, a pivoted actuating-lever having a recess formed in its rear edge, in combination with a trigger mounted in said recess, one end of which projects into an opening formed in the actuating-lever above the pivoting-point while the other end is pivoted thereto below the pivoting-point, substantially as set forth.

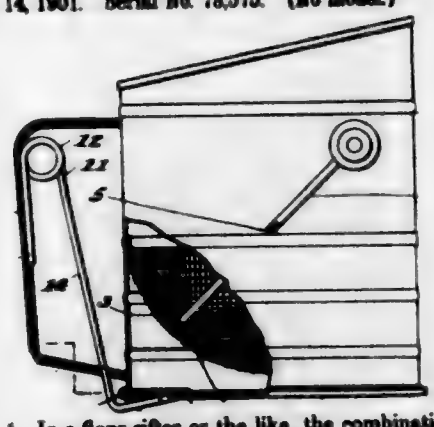
6. A magazine-firearm, having a frame, a barrel, and a vertical socket formed through the frame in the rear of the barrel, combined with a magazine-box adapted to enter said socket, an upwardly-forced carrier in said box, a horizontal shaft mounted above the carrier and below the barrel, a series of arms upon said shaft, and means operated by the actuating-lever for intermittently rotating the said arms whereby the cartridges may be brought into line with the barrel and the empty shells discharged.

7. In a magazine-firearm, the combination of a magazine-box, a carrier adapted to be continuously forced upwardly, pins projecting from each side of the carrier and passing through slots in each side of the magazine, a spring to actuate the carrier, and means for acting on the spring to lower the carrier to the bottom of the magazine, substantially as set forth.

8. In a magazine for a firearm, the combination of a box or receptacle, a carrier therein, a spring for elevating the carrier, a series of intermittently-rotatable arms in the upper section of the box or magazine, a ratchet-wheel and a stop-wheel on the shaft of said rotatable arms, and means for operating the ratchet-wheel, substantially as set forth.

9. In a magazine-firearm, the combination of a frame, a magazine, a carrier therein, a spring for raising the carrier, a yoke, one arm of which serves as a pivot, and the other within the frame to depress the spring, and a catch outside the frame for holding the yoke in a raised or lowered position, substantially as set forth.

695,575. FLOUR-SIFTER. THOMAS G. MELLEN, Cincinnati, Ohio. Filed Oct. 14, 1901. Serial No. 78,575. (No model.)

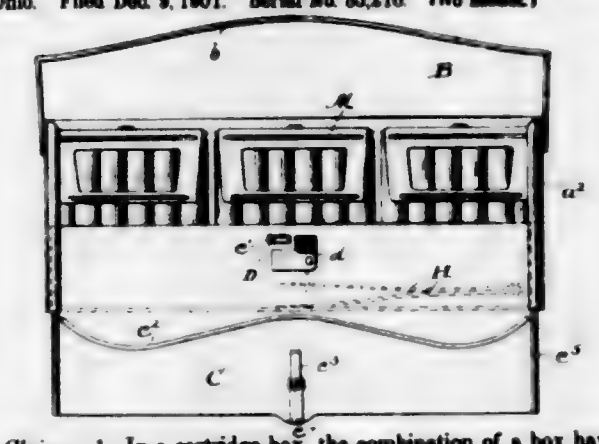


Claim.—1. In a flour-sifter or the like, the combination of a casing having an opening at its bottom and provided with a handle, a plate pivotally held on the casing and adapted, when raised, to close the opening at the bottom thereof, and a spring having one end held in fixed relation with respect to said handle and having its other end movable and adapted for engagement with said hinged plate to hold the same normally raised in position to close the opening in the bottom of the casing, said spring having a portion extended alongside of and adapted for movement with respect to the handle for actuating the movable end of the spring to permit said bottom plate to be lowered, substantially as set forth.

2. In a flour-sifter or the like, the combination of a casing having an opening at its bottom and provided with a handle, a plate hinged to the casing at a point beneath the handle and adapted, when in raised position, to close the opening at the bottom of the casing, and a spring having one end secured to the handle and having its other end movable and rested on the hinged plate to hold the same normally in raised position, said spring having an intermediate portion extended alongside the handle in position to be grasped by the hand for actuating the movable end of the spring to release the hinged plate and permit the same to drop, substantially as set forth.

3. In a flour-sifter or the like, the combination of a casing having a handle slotted at its lower part, said casing having an opening at its bottom, a plate hinged to the casing at a point beneath the handle and adapted, when raised, to close the opening at the bottom of the casing, and a spring bent at its central part to produce two arms, one of which is connected to the inner side of the handle and the other of which is extended down between the handle and the casing-wall, through the slot at the lower part of the handle, and has its lower end movable and rested beneath the bottom plate for holding the same normally in raised position, substantially as set forth.

695,576. CARTRIDGE-BOX. GIOVANNI MIGLIARDI, Cleveland, Ohio. Filed Dec. 9, 1901. Serial No. 85,210. (No model.)



Claim.—1. In a cartridge-box, the combination of a box having a vertically-movable front section, a spring for sliding it upward, a hinged cover and mechanism connecting said cover and front section adapted to transmit motion from the latter to the former.

2. In a cartridge-box, the combination of the box containing a plurality of upright spring cartridge-clasps, a cover hinged to said box, a sliding front section, a spring for sliding it upward, and mechanism connecting said cover and front section and adapted to transmit motion from the latter to the former, substantially as and for the purpose specified.

3. In a cartridge-box, the combination of a box, a vertically-movable front section therefor, an arm c^4 secured to said section and extended under its lower edge and under the box, a cover hinged to the rear side of the box and having a rearwardly-projecting arm, a vertically-movable bar mounted in a guideway on the rear side of the box and having a horizontal arm b^3 extending under the box, a link connecting the upper end of said bar with the arm on the cover, a stud having a head on its upper end which stud passes through a hole in the arm b^3 and is secured to the arm c^4.

4. In a cartridge-box, the combination of the box and a plurality of upright spring cartridge-clamps secured therein, said clamps being deeper than the projecting end of the projectile of the cartridge which the box is designed to hold, and said clamps being also of such diameter that they will grasp the cartridge-shell but cannot grasp the projecting end of said projectile, substantially as and for the purpose specified.

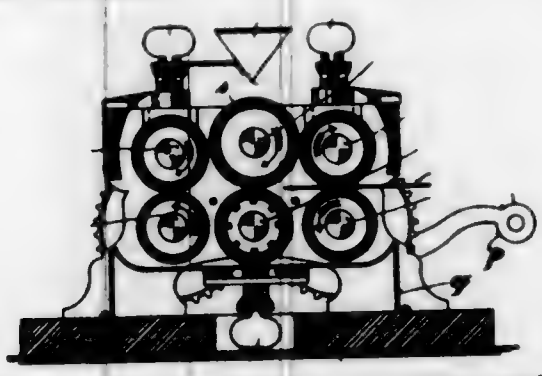
5. In a cartridge-box, the combination of a box having a permanent front side which extends only part of the distance between the bottom and top edge of the box, transverse bars g extending between and secured to said front section and to the back side of the box, a plurality of spring cartridge-clamps secured to said bars, a cover hinged to the rear side of the box, a spring-actuated vertically-movable front section, and mechanism connecting said cover and front section and adapted to transmit motion from the latter to the former.

6. In a cartridge-box, the combination of a box whose permanent front side extends only a short distance up from the bottom, and whose ends extend in front of said permanent front side, a spring-raised sliding front section whose ends operate in vertical grooves in the front vertical edges of said sides, an outwardly-projecting flange secured to the outer side thereof, a hinged cover, a spring-latch carried by the sliding front section and adapted to engage with the cover, a push-plate for operating said spring-latch carried by said front section above said flange, and mechanism connecting said cover and front section and adapted to transmit motion from said section to the cover.

7. In a cartridge-box, the combination of a box having a permanent front side which extends only part of the distance between the bottom and top of the box, and whose ends extend in front of said permanent front side, a vertically-movable spring-actuated front section, whose ends operate in vertical grooves in the vertical front edges of said ends, a cover hinged to the rear side of the box, mechanism connecting the cover and movable front section and adapted to transmit motion from the latter to the former, a spring-latch secured to said sliding section and adapted to

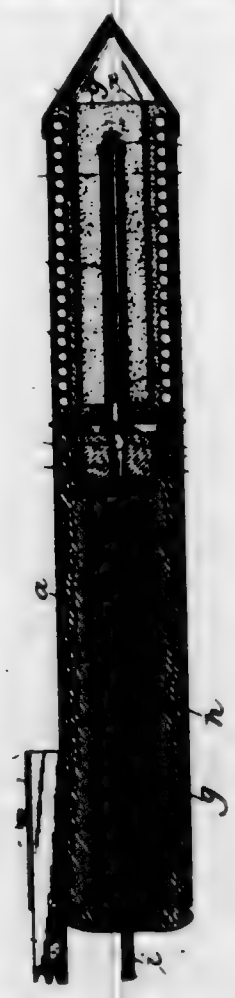
engage with the flange of the cover, a rearwardly-projecting catch-pin connected with said latch and a spring secured to the permanent front section and adapted to be engaged by said catch-pin to hold the box open.

695,577. MACHINE FOR CLEANING PLAYING-CARDS. EMIL O. MOCKEL, Crottendorf, Germany. Filed May 20, 1901. Serial No. 61,134. (No model.)



Claim.—In combination a feed-hopper for polishing material, a rotary roller beneath the same, a rotary roller on each side and in contact with said first-named roller, a rotary roller beneath and in contact with each side roller, and a stationary roller between the lower rollers and in contact with the central roller, substantially as described.

695,578. PROJECTILE. JOSEPH J. MCINTYRE, Brooklyn, N. Y. Filed Oct. 19, 1900. Serial No. 33,662. (No model.)



Claim.—1. In projectiles, a shell, an inner jacket or lining for the shell, constructed of a plastic material, an incased explosive located within the jacket, solid ammunition in the form of a chain of balls supported in the said plastic lining, a tube extending from the base of the shell within the explosive material, terminating in a detonating cap at its forward end, a loaded hammer-plug adapted to travel in the tube, a disk of a material such as pasteboard secured to the hammer-plug, a needle at the forward end of the plug, wires temporarily securing the disk to the shell, and means for exploding the charge in the hammer-plug, as specified.

2. In projectiles, the combination, with a rear section comprising a shell having means for attachment to a stick, a plastic lining located within the shell, an explosive material contained within the plastic material, a fuse extending from the rear end of the shell, which fuse is in communication with the explosive material, and a plug at the forward end of the shell, which plug is provided with an opening extending through the same and communicating with the chamber in which the explosive material is placed, of a second section also comprising a shell, and a connection between the shells of the first and second sections, a plastic jacket or lining located within the shell of the second section, chains of connected solid ammunition located within the plastic lining or jacket, an explosive material located within the plastic jacket or lining, a tube extending from the rear end of the second section, partially through the explosive material therein and terminating at its forward end in a detonating cap, a hammer-plug having a needle at its forward end, which hammer-plug extends normally within the tube of the second section at the base of said section, the rear end of the hammer-plug being over an opening in the end plug of the first section, and means, substantially as described, for temporarily holding the hammer-plug in its normal position, as and for the purpose set forth.

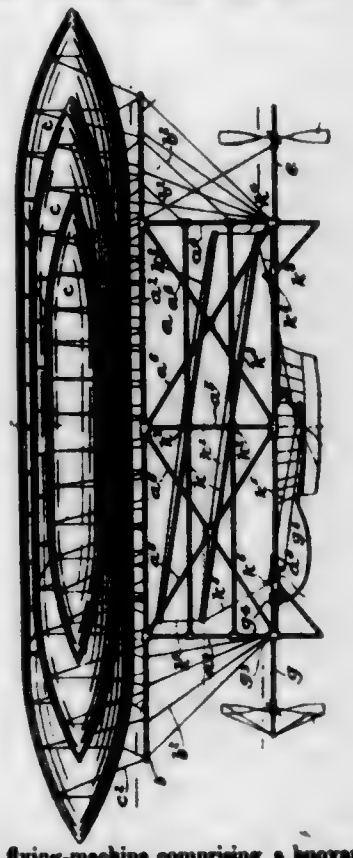
695,579. GOLF-CLUB. CHARLES R. PARMELE, New York, N. Y. Filed Sept. 24, 1901. Serial No. 76,416. (No model.)



Claim.—1. A golf-club consisting of a head, a shaft, a ferrule on the lower end of said shaft and a chamber within said lower end, a connection consisting of a springy-metal rod having its lower end secured to the head and its upper end received adjustably within said chamber, and a clamping device securing said connection to the shaft, substantially as described.

2. In a golf-club the combination of a head, a shaft, a ferrule on the end of said shaft, said end having a chamber therein and a clamping device alongside thereof, with a springy-metal connection having its lower end secured to the head and its upper end adjustably received and clamped within said chamber, substantially as described.

695,580. AIR-SHIP. CASSIUS M. RICHMOND, New York, N. Y. Filed Oct. 26, 1900. Serial No. 34,453. (No model.)

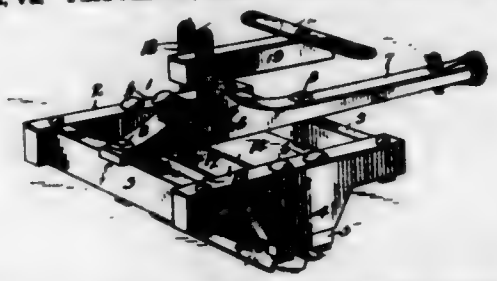


Claim.—1. A flying-machine comprising a buoyant body, a main oblong and rectangular frame suspended from said body and the top and bottom portions of which are parallel and formed into aeroplanes, pivoted

aeroplanes mounted centrally in said main frame, propelling devices mounted in one end of the main frame, a steering-shaft pivoted in the opposite end of the main frame and adapted to swing in a horizontal plane, and a car suspended from the main frame, said pivoted aeroplanes, said propelling devices and said steering-shaft being adapted to be operated by a party or parties within the car.

2. A flying-machine comprising a main buoyant body composed of a plurality of buoyant bodies bound together side by side each of which is cylindrical in cross-section and pointed at both ends, the diameter and length of the separate buoyant bodies at each side and the central buoyant body decreasing from the central buoyant body outwardly, a main oblong rectangular frame suspended from the main buoyant body, propelling and steering devices mounted in the opposite ends of said main frame, pivoted aeroplanes mounted in said main frame longitudinally thereof and adapted to swing vertically therein, and means for operating the propelling and steering devices and the pivoted aeroplanes, substantially as shown and described.

695,581. CORNSTALK-CUTTER. BENJAMIN C. ROBERTS, Windsor Station, Va. Filed June 27, 1901. Serial No. 66,313. (No model.)



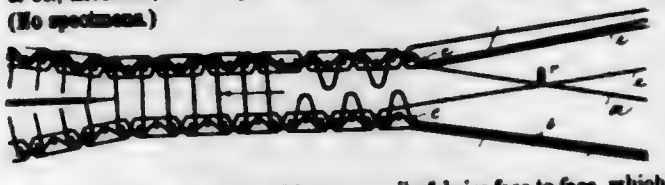
Claim.—1. A stalk-cutter of the class described, having a draft-beam, upwardly-extending links pivotally connected to said draft-beam, and a draft-link flexibly connected to said link and extending forwardly therefrom, said draft-link being adapted to be attached to a wagon-truck, substantially as described.

2. A stalk-cutter of the class described having a draft-beam, upwardly-extending links pivotally and detachably connected to said draft-beam, and a draft-link flexibly connected to said links and extending forwardly therefrom, for the purpose set forth, substantially as described.

3. A stalk-cutter of the class described having a draft-beam, upwardly-extending links pivotally connected to said draft-beam, and a draft-link flexibly connected to said links and extending forwardly therefrom, said draft-link having a cross-bar at its front end, for the purpose set forth, substantially as described.

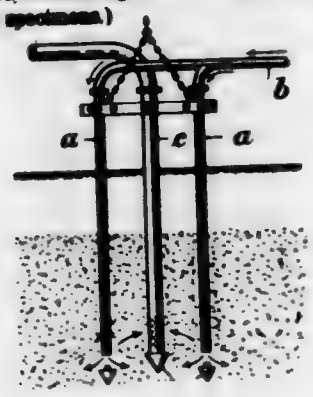
4. A stalk-cutter of the class described, having a draft-beam, upwardly-extending links pivotally connected to said draft-beam, and a draft-link flexibly and adjustably connected to said links and extending forwardly therefrom, for the purpose set forth, substantially as described.

695,582. METHOD OF WEAVING PILE FABRICS. HERMANN RIEGER, Erkrath, Germany, assignor to The Firm of M. C. Burcharts & Co., Elberfeld, Germany. Filed Dec. 26, 1899. Serial No. 741,630. (No specimens.)



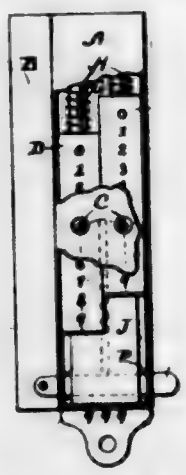
Claim.—The method of making terry pile fabrics face to face, which consists in raising and lowering the pile-warp threads of each fabric alternately, and introducing the loop-wires simultaneously with the shoot of filling in the opposite fabrics.

695,583. PROCESS OF PREPARING FOUNDATIONS. NICOLAS SCHIEFKIEWICS, St. Petersburg, Russia. Filed Aug. 22, 1901. Serial No. 72,919. (No specimens.)



Claim.—A process for forming foundations in loose soil such as sand or gravel, which consists in feeding thin fluid cement to the said soil and simultaneously drawing water from the same part by suction in the manner and for the purpose substantially as described.

695,584. IDENTITY-INDICATING DEVICE. CHARLES W. SMITH, Columbus, Ohio. Filed Sept. 9, 1901. Serial No. 74,811. (No model.)



Claim.—1. In a register-indicator, the combination with a casing provided with a place of observation, of a plurality of members movable within the casing and provided each with a series of characters, and an operating device adapted to engage one of the said members and so move it within the casing as to present at the place of observation certain characters representing the said operating device, substantially as described.

2. In a register-indicator, the combination with a casing provided with a place of observation, of a plurality of members movable within the casing and provided each with a series of characters, and a plurality of operating devices each adapted to engage one or both of said members and so move them within the casing as to present at the place of observation certain characters representing the said operating device, substantially as described.

3. In a register-indicator, the combination with a casing provided with a place of observation, of a plurality of members movable within the casing and provided each with a series of numerals representing zero and the digits, and a plurality of operating-keys differing from each other and adapted each when engaged with the said movable members to so move them as to present at the place of observation the numerals representing the said key, substantially as described.

4. In a register-indicator, the combination with a casing provided with a place of observation, of a member movable within the casing and provided with a series of characters, an operating-key adapted to engage the said member and so move it within the casing as to present at the place of observation a character representing the said key, and means for retracting the movable member after the key has been disengaged therefrom, substantially as described.

5. In a register-indicator, the combination with a casing provided with a place of observation, of a member movable within the casing and provided with a series of characters, an operating-key adapted to engage the said member and so move it within the casing as to present at the place of observation a character representing the said key, and a spring for retracting the movable member after the disengagement of the key therefrom, substantially as described.

6. In a register-indicator, the combination with a casing provided with a place of observation, of a member movable within the casing and provided with a series of characters, an operating-key adapted to be inserted within the casing and when so inserted to engage the said member and so move it as to present at the place of observation a character representing the said key, and a releasable locking device for retaining the key after its insertion within the casing, substantially as described.

7. In a register-indicator, the combination with a casing provided with a place of observation, of a member movable within the casing and provided with a series of characters, an operating-key adapted to be inserted within the casing and when so inserted to engage and so move the said member as to present at the place of observation a character representing the said key, a releasable locking device for retaining the key after its insertion, and means for retracting the said member after the withdrawal of the key, substantially as described.

8. In a register-indicator, the combination with a casing provided with a place of observation, of a plurality of members movable within the casing and provided each with a series of characters, a plurality of keys adapted each to be inserted within the casing and when so inserted to engage with and so move the members as to present at the place of obser-

vation the characters representing the particular key inserted, and a releasable locking device for retaining the key after its insertion, substantially as described.

9. In a register-indicator, the combination with a casing provided with a place of observation, of a plurality of members movable within the casing and provided each with a series of characters, a plurality of keys adapted each to be inserted within the casing and when so inserted to engage with and so move the members as to present at the place of observation the characters representing the particular key inserted, a releasable locking device for retaining the key after its insertion, and means for retracting the movable members after the withdrawal of the keys from the casing, substantially as described.

10. In a register-indicator, the combination with a casing provided with a place of observation, of two members movable within the casing and provided each with a series of numerals representing zero and the digits, and a plurality of keys each representing a certain number and provided part of the keys with means for engaging one of the said members and the rest of the keys with means for engaging both of said members and so moving them within the casing as to present at the place of observation the numerals representing the respective number of the particular key inserted, substantially as described.

11. In a register-indicator, the combination with a casing provided with a place of observation, of two members movable within the casing and provided each with a series of numerals representing zero and the digits, a plurality of keys separately insertible within the casing and each representing a certain number, part of the keys being provided with means for engaging but one of the said members and the rest of the keys provided with means for engaging both of said members and so moving them as to present at the place of observation the numerals representing the number of the particular key inserted, and a locking device for retaining the inserted key, substantially as described.

12. In a register-indicator, the combination with a casing provided with a place of observation, of two members slidably mounted in the casing and provided each with a series of numerals representing zero and the digits, and a plurality of keys adapted for insertion within the casing so as to engage with the slidable members and so move them as to present at the place of observation the numerals representing the particular key inserted, some of the keys being provided with means for engaging but one of the slidable members and the others provided with means for engaging both of the said members, substantially as described.

13. In a register-indicator, the combination with a casing provided with a place of observation, of two members slidably mounted in the casing and provided each with a series of numerals representing zero and the digits, so disposed as to pass consecutively before the place of observation when the members are properly moved, an opening in the casing for the insertion of an operating-key, a spring adjacent to said opening for engaging the key when inserted and means for retracting the slidable members, substantially as described.

14. In a register-indicator, the combination with a casing provided with a place of observation, of a plurality of movable members provided each with a series of numerals representing zero and the digits, a plurality of keys adapted to be inserted into the casing and provided with means by which they cannot be inserted in any but the proper manner, some of the keys being provided with means for engaging but one of the members and the other keys provided with means for engaging all the members and to move them forward so that the numerals opposite the place of observation indicate the number of the particular key inserted, and a locking device for retaining a key when inserted, substantially as described.

15. In a register-indicator, the combination with a casing provided with a place of observation, of two members mounted slidably in the casing and provided each on the side in front of the place of observation with a series of numerals representing zero and the digits, a plurality of keys adapted when inserted in the casing to slide the members so as to have the numerals thereon appear at the place of observation, a releasable locking device for retaining a key when inserted into the casing, means for retracting the slidable members after the withdrawal of a key, and each key differing from the others in the relative manner of engaging the slidable members whereby the positions of the slidable members relative to each other and the place of observation are different with the insertion of each key from the positions assumed by the slidable members upon the insertion of any of the other keys, substantially as described.

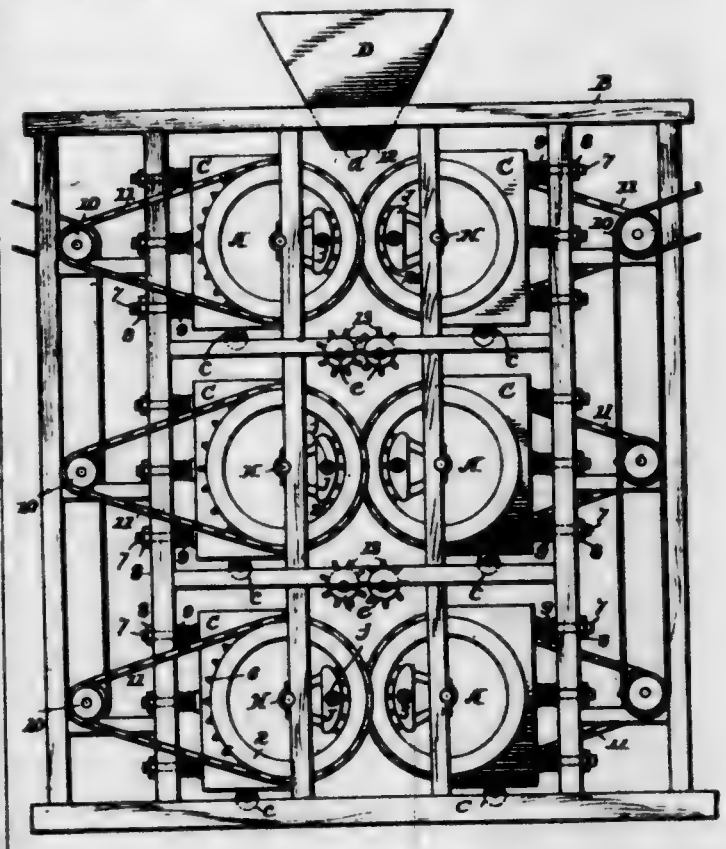
16. In a register-indicator, the combination with a register-casing provided with a key-slot, a key-guiding groove, and a place of observation, of a member movable in the casing and provided with a series of characters adapted to appear one at a time at the place of observation when the member is properly moved, and a key adapted to be inserted through the said slot and provided with a guiding device adapted to engage the said guiding-slot, and having also means for engaging the said member for the purpose of moving it so as to display at the place of observation, the character representing the particular key, substantially as described.

17. In a register-indicator, the combination with a register-casing provided with a key-slot, a key-guiding groove and a place of observation, of two members movable in the casing and provided each with a series of characters adapted to appear one at a time at the place of observation when the member is properly moved, and a key adapted to be inserted through the said slot and provided with a guiding device adapted to engage the said guiding-slot, and having also means for engaging one or both of said members for the purpose of moving them so as to display at the place of observation characters representing the said key, substantially as described.

18. In a register-indicator, the combination with a register-casing provided with a key-slot, a key-guiding groove and a place of observation, of two members movable in the casing and provided each with a series of characters adapted to appear one at a time at the place of observation when the member is properly moved, and a plurality of keys adapted to be separately inserted through the said slot and provided each with a guiding device adapted to engage the said guiding-groove, and having each means for engaging one or both members for the purpose of so moving them as to display at the place of observation characters representing the particular key inserted, substantially as described.

19. In a register-indicator, the combination with a register-casing provided with a key-slot, a key-guiding groove and a place of observation, of two members movable in the casing and provided each with a series of characters adapted to appear one at a time at the place of observation when the member is properly moved, a plurality of keys adapted to be separately inserted through the said slot and provided with each a guiding device adapted to engage the said guiding-groove, and having each means for engaging one or both members for the purpose of so moving them as to display at the place of observation the characters representing the particular key inserted, and a releasable locking device for engaging and retaining a key when it is inserted, substantially as described.

695,585. APPARATUS FOR EXPRESSING MOISTURE FROM BREWERS' GRAIN, &c. JOHN C. W. STANLEY, London, England. Filed July 1, 1901. Serial No. 66,733. (No model.)



Claim.—1. The combination with a pair of perforated expressing-cylinders supported side by side, and means to rotate them in opposite directions, of a feed-hopper supported above the cylinders, breaking-rolls in the bottom of the hopper, a casing supported within each cylinder, pipes radiating from the casings and engaging with their outer ends the interior surfaces of the respective cylinders, and means to create suction within the casings and pipes, substantially as set forth.

2. The combination of a perforated expressing-cylinder, a casing supported within it, a series of tubes radiating from and communicating with the interior of the casing and engaging with their outer ends the inner surface of the cylinder, and means to create suction within the casing and tubes, substantially as and for the purpose specified.

3. The combination of a perforated expressing-cylinder, a casing supported within it, a series of tubes radiating from and communicating with

the interior of the casing and engaging with their outer ends the inner surface of the cylinder, a pump connected to said casing, a tank, and a pipe leading from the pump to the tank, substantially as set forth.

4. In an apparatus for expressing moisture from cooked fish, &c., the combination of a series of pairs of perforated expressing-cylinders arranged one above the other, a feed-hopper, breaking-rolls in the bottom of the hopper, breaking-rolls between successive pairs of cylinders, means to rotate the cylinders, and a suction device within each cylinder to collect the moisture forced through its perforation to its inner surface, substantially as set forth.

695,586. GLOVE. HENRY H. STEELE, Gloversville, N. Y., assignor to H. H. Steele & Company, Gloversville, N. Y. Filed Dec. 18, 1901. Serial No. 86,419. (No model.)



Claim.—1. In a glove, the combination with the body and thumb portions, suitably stitched together, of a reinforcing-strip overlapping said stitching and having a tongue portion extending over the inside of the thumb and suitably secured thereto, substantially as described.

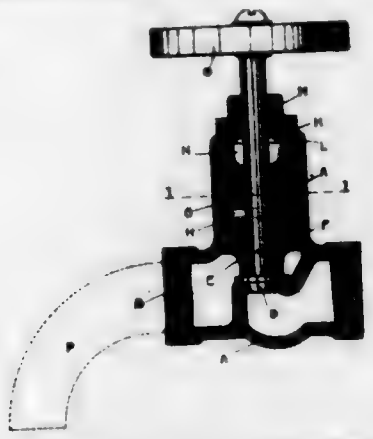
2. In a glove, the combination with the body and thumb portions suitably stitched together, of a reinforcing-strip overlapping said stitching and having a tongue portion extending over the inside of the thumb, the inside edge of the tongue being inserted in the seam of the thumb and secured by the same stitching, substantially as described.

695,587. INSULATING SUBSTANCE AND PROCESS OF MANUFACTURING SAME. JOHANNES STOCKER and HERMANN ZANDER, Berlin, Germany. Filed Apr. 19, 1901. Serial No. 56,607. (No specimens.)

Claim.—1. The herein-described process consisting in forming a mixture of a caustic potash-solution, ground lardite and borax which latter is used in order to fully dissolve the lardite, allowing the mixture to stand for a time under exclusion of air, then adding alum and magnesia, allowing the mixture to dry, then adding chlorid of calcium and grease and mixing the same and finally heating and pressing the mixture, substantially as described.

2. The herein-described compound consisting of caustic potash, lardite, borax, alum and magnesia, chlorid of calcium and grease, substantially as described.

695,588. SELF-GRINDING VALVE. OLE O. STORLE, Tacoma, Wash. Filed Apr. 18, 1901. Serial No. 56,474. (No model.)



Claim.—1. A combined valve and seat grinding device comprising a movable apertured member forming a part of the valve, a shaft passing through the aperture of said member and carrying a valve-gate between said member and the valve-seat, said shaft being revoluble in said member, and a connection between said member and shaft adapted to permit the shaft and its valve-gate to turn without moving said member and by a further rotation of the shaft to adjust said member to seat and unseat the valve-gate, substantially as described.

2. A combined valve and seat grinding device comprising a movable apertured member forming a part of the valve, a shaft passing through the aperture of said member and carrying a valve-gate between said member and the valve-seat, said shaft being revoluble in said member, and projections on said member and shaft adapted to be brought into and out of engagement with each other by rotation of the shaft whereby when in engagement the shaft and member will be moved together and when out of engagement the shaft will move independently of the member, substantially as described.

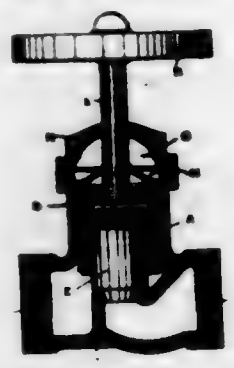
3. A combined valve and seat grinding device comprising a movable apertured member formed with screw-threads adapted to engage with threads on a part of a valve-casing, a shaft passing through the aperture of said member and carrying a valve-gate between said member and the valve-seat, said shaft being revoluble in said member, and a connection between said member and shaft adapted to permit the shaft and its valve-gate to turn without moving said member and by a further rotation of the shaft to screw or unscrew said member to seat and hold the valve-gate to its seat and by rotation in the opposite direction to unseat said valve, substantially as described.

4. A self-grinding valve comprising a suitably-constructed valve-body, a valve-disk and shaft located therein and having a cylindrical interior nut loosely mounted thereon, a fixed pin or tooth projecting from said nut and shaft so as to engage each other when the shaft is turned to the right or left, and said valve disk or gate left free to turn on its seat between the right and left engagements of said fixed pins or teeth as described and shown and for the purposes set forth.

5. A self-grinding valve, comprising a valve-disk and shaft, a cylindrical nut loosely mounted thereon, said cylindrical nut turned by engaging pins, suitably fixed in said nut and shaft, and said valve-disk being free to turn on its seat between the right and left engagements of said fixed pins, and all operated in a suitably-constructed valve-body as described and shown.

6. A suitably-constructed valve having a self-grinding disk or gate, said disk or gate being free to turn on its seat between the right and left engagements of the mechanism of its operating shaft and screw as described and shown.

695,589. VALVE. OLE O. STORLE, Tacoma, Wash. Filed July 8, 1901. Serial No. 67,501. (No model.)



Claim.—1. An improvement in valves comprising a wooden gate or disk set within a cylindrical operating-screw, a bell-shaped collar above said screw, said collar fitted to the neck of the valve and a cap-nut on the neck of the valve forming a packing-chamber with said bell-shaped collar substantially as described and shown.

2. A suitably-constructed valve having a wooden disk or gate mounted in the valve-screw, and the neck of said valve having a packing-chamber constructed by means of a bell-shaped collar within and a nut-cap over the neck of said valve as shown and described.

3. In combination with the valve-casing and valve-seat, the casing having an interiorly-threaded neck, a valve stem or shaft having at its lower end a hollow cylindrical-shaped screw whose threads engage the threads in the neck of the valve-casing, and a block of wood lying partially within and partially without the hollow cylindrical-shaped screw and tightly secured within the same so as to rotate with the screw and turn upon the seat, substantially as described.

695,590. BRICK AND KILN FURNACE. FRANK E. SWIFT, Washington, Iowa. Filed July 29, 1901. Serial No. 70,069. (No model.)

Claim.—A furnace of the character described having combustion-chambers provided at the front with doors or openings, a coking-chamber also provided at the front with a door or opening, a coking-table in said chamber, discharge-openings in the rear of the furnace communicating with the coking and combustion chambers, an air-heating chamber, flues connecting said chamber with the discharge-openings, a flue for con-

ducting air to the air-heating chamber, and flues for conducting the heated air from the air-heating chamber to the combustion-chambers, substantially as described



695,591. **ANISIC-ACID ETHERS OF THE CINCHONA ALKALOIDS.** HEINRICH TRON, Frankfort-on-the-Main, Germany, assignor to Vereinigte Chininfabriken Zimmer & Co., Frankfort-on-the-Main, Germany. Filed Jan. 8, 1902. Serial No. 88,933. (Specimens.)

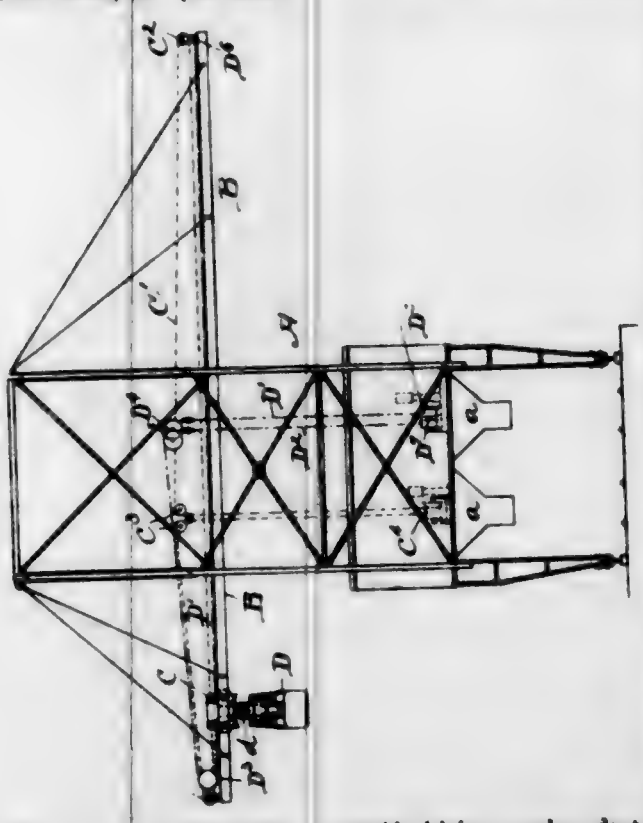
Claim.—1. The herein-described new anisic-acid ethers of the cinchona alkaloids being insoluble in water, readily soluble in alcohol, benzene and chloroform, still possessing basic properties and forming with organic and inorganic acids well-characterized salts, substantially as hereinbefore described.

2. The herein-described new anisic-acid ether of quinin having most probably the formula:

$$C_6H_4OCH_3COOC_{20}H_{23}N_2O$$

forming tasteless fine needles, melting at 87° to 88° centigrade insoluble in water, readily soluble in alcohol, benzene and chloroform, forming well-characterized salts with organic and inorganic acids, substantially as described herein.

695,592. **HOISTING AND CONVEYING APPARATUS.** GEORGE B. TYCOMB, Cleveland, Ohio, assignor of one-half to the McMyler Manufacturing Company, Cleveland, Ohio, a Partnership. Filed Apr. 23, 1901. Serial No. 56,992. (No model.)



Claim.—1. A bucket having a rotatable driving member adapted by its rotation to close the bucket, combined with a cable depending in a bight and adapted to rotate said mechanism and also adapted to play idly through the bucket when one ply of the cables moves up and the other down at the same rate, substantially as described.

2. A bucket having a rotatable operating mechanism which carries an equalizer-sheave, combined with a cable double on itself to make a bight, both plies wrapping around said operating mechanism and the bight lying around said equalizer-sheave, substantially as described.

3. The combination of a clam-shell bucket, a pair of cables depending in bights on which said bucket is hung, a rotatable driving mechanism adapted by its rotation to wind up a flexible member to close the bucket, means operated by one of the cables for so rotating the driving mechanism, and means for shifting the bucket laterally independently of its elevation, substantially as described.

4. A bucket having an upper support, hinged scoops, a rotatable driving mechanism and a flexible member adapted to be wound up by the rotation of said driving mechanism, said driving mechanism and flexible member forming a connection between the hinge of said scoops and said support above the same, combined with a pair of cables depending in bights one adapted to support the bucket and the other adapted to rotate said driving mechanism, substantially as described.

5. A bucket having a support, links depending therefrom, scoops hinged together and supported near their outer edges by said links, a rotatable driving mechanism at the common hinge of the scoops, a flexible member connecting said driving mechanism and support, a sheave carrying said support combined with a pair of cables depending in bights, one around said sheave and the other around said driving mechanism, substantially as described.

6. A clam-shell bucket having a pair of cross-bars one above the other, a pair of scoops hinged at the lower cross-bar, links connecting the upper bar and the scoops, a rotatable driving mechanism mounted on the lower bar, a chain connecting said mechanism with the upper bar, a cable depending in a bight and adapted to rotate said driving mechanism, and another cable depending in a bight for supporting the bucket, substantially as described.

7. The combination of a bucket of the clam-shell type, an equalizer-sheave carried thereby, an elevating-cable passing in a bight around said equalizer-sheave, driving mechanism adapted by its rotation to close said bucket, a connection between the same and the elevating-cable whereby the cable may rotate said mechanism to close the bucket, said cable being adapted to also play idly through the bucket, substantially as described.

8. The combination of a clam-shell bucket, an elevating-cable therefor depending in a bight, a pair of driving members on said bucket carrying idler-sheaves, mechanism connected with said members whereby the rotation of said members closes the bucket, an equalizer-sheave, and an elevating-cable passing around the idler-sheaves and intermediately around the equalizer-sheave, substantially as described.

9. The combination of a clam-shell bucket, driving mechanism adapted to close the same, an equalizer-sheave and a supporting-sheave carried by the bucket, an elevating and a holding cable each depending in a bight one around the equalizer-sheave and the other around the supporting-sheave, and a connection between the elevating-cable and the driving mechanism whereby the movement of said cable may operate to close the bucket, substantially as described.

10. A bucket, driving mechanism for closing it, said driving mechanism including a series of idler-sheaves, whose rotation is idle but whose bodily translation is adapted to operate said driving mechanism, and an elevating-cable hanging in a bight around said idler-sheaves, whereby when one ply of the cable moves up and the other down at the same rate the closing mechanism is not altered but when the movement of the plies is otherwise the closing mechanism is driven accordingly, substantially as described.

11. The combination of a bucket, a rotatable spindle adapted to close the same, a series of idler-sheaves carried by said spindle, said sheaves being independently rotatable idly but having their bodily translation adapted to rotate the spindle, an elevating-cable passing down beneath one series of idlers and then across and beneath the other series in the same direction, whereby if the cable move down in one ply and up in the other at the same rate the tendency of one set of idlers to bodily translate is neutralized by the tendency of the other to translate in the other direction, while if both plies move upward or downward the spindle may be rotated thereby accordingly, substantially as described.

12. In combination, a bucket, a pair of rotatable members whose rotation is adapted to close the bucket, an annular row of idler-sheaves carried by each member, an equalizer-sheave between said members extending into the space within each annular row of idlers, and an elevating-cable which may make somewhat more than one complete turn about one set of said idlers and then pass across to the other set of idlers, and make a similar turn thereabout, said cable intermediately lying on the periphery of the equalizer-sheave, substantially as described.

13. A bucket having driving mechanism for closing it, which mechanism includes a series of idler-sheaves whose rotation is idle but whose bodily translation is adapted to operate said driving mechanism, substantially as described.

14. A trolley, means for racking the trolley in and out, an elevating-cable and a holding-cable depending in bights from said trolley, combined with a bucket having a pair of sheaves about which said cables pass respectively, and rotatable mechanism for closing the bucket adapted to be operated by one of said cables, said cable being adapted to also play idly through the bucket, substantially as described.

15. The combination, with suitable trackway, of a laterally-movable trolley thereon, means for racking said trolley in or out, guide-sheaves

carried by the trolley, a pair of cables passing over said guide-sheaves and depending in bights between them, a clam-shell bucket having scoops pivoted on a lower cross-rod and connected by links to an upper cross-rod, a supporting-sheave from which the upper cross-rod depends, one of said cables passing beneath and supporting said sheave, driving mechanism for closing the bucket carried by the lower cross-rod, idler-sheaves whose rotation is idle but whose bodily translation is adapted to operate said mechanism, an equalizer-sheave, the elevating-cable passing around said idler-sheaves and equalizer-sheave, substantially as described.

16. The combination of a bucket, rotatable mechanism carried by the bucket adapted to operate the same, and a series of idler-sheaves carried by such mechanism and adapted to rotate idly or to circularly translate and thus rotate said mechanism, substantially as described.

17. In a clam-shell bucket, a pair of scoops, rotatable mechanism for closing the scoops, and a series of idler-sheaves carried by such mechanism and adapted to rotate idly or to circularly translate and thus rotate said mechanism, substantially as described.

18. The combination of a clam-shell bucket, a rotatable spindle, driving mechanism operated by the rotation of the spindle to close the bucket, a plate or member carried by said spindle, and a series of idler-sheaves carried by said member, substantially as described.

19. In a bucket, in combination, a rotatable spindle, driving mechanism connected therewith whereby the rotation of the spindle may close the bucket, a series of idler-sheaves having their axes supported stationary with respect to said spindle, said idler-sheaves being idly rotatable but having their translation bodily adapted to rotate said spindle, and an equalizer-sheave carried by said spindle, substantially as described.

20. In combination, a bucket, a pair of rotatable members whose rotation is adapted to close the bucket, an annular row of idler-sheaves carried by each member, and an equalizer-sheave between said member extending into the the space within each annular row of idlers, substantially as described.

21. In a bucket, in combination, a spindle whose rotation is adapted to close the bucket, a pair of plates carried by said spindle, an annular row of idler-sheaves carried by each plate and a transverse equalizer-sheave carried by the spindle, substantially as described.

22. In a bucket, in combination, a spindle whose rotation is adapted to close the bucket, a pair of plates carried by said spindle, an annular row of idler-sheaves carried by each plate, and a transverse equalizer-sheave on an axis rigid with reference to the spindle and at right angles to the axis thereof, substantially as described.

23. In a bucket, the combination of a spindle whose rotation is adapted to close the bucket, a pair of plates carried by said spindle, an annular row of idler-sheaves carried by each plate and a transverse equalizer-sheave carried by the spindle, said equalizer-sheave being carried within a casing rigid with the spindle, substantially as described.

24. In a bucket, the combination of a rotatable spindle, suitable mechanism operated thereby to close the bucket, a pair of parallel radial plates carried by said spindle, an annular row of idler-sheaves carried by each plate, a transverse equalizer-sheave, said equalizer-sheave being contained within a casing formed partly by an extension of the spindle and partly by a removable member which carries some of the idler-sheaves and is secured to the said radial plates, substantially as described.

25. In a bucket, a supporting-bar, a rotatable floating spindle, a flexible connection between the bar and spindle adapted to be wound up by the rotation of the spindle, a series of idler-sheaves supported about the spindle on axes rigid therewith, whereby the sheaves may rotate idly but their circular translation rotates the spindle, combined with pivoted scoops connected with the spindle and the supporting-bar, substantially as described.

26. In a clam-shell bucket, a pair of cross-rods one above the other, a pair of scoops pivoted on the lower cross-rod, links connecting the outer part of said scoops with the upper cross-rod, a hollow spindle journaled on said lower cross-rod, a flexible member secured at one end to said spindle and at the other to the upper cross-rod and adapted to be wound up by the rotation of said spindle, a pair of radial members rigid with said spindle, an annular row of idler-sheaves supported on each member, an equalizer-sheave carried by the spindle at right angles to the idler-sheaves, substantially as described.

27. The combination in a clam-shell bucket, of a pair of scoops pivoted on a lower rod, and links running from the scoops to an upper rod, a flexible connection between the two rods, a rotatable member for winding the same up to draw the two rods together and close the bucket, a series of idler-sheaves carried by said member, and a supporting-sheave carried by said upper rod, substantially as described.

28. A bucket having a pair of scoops combined with a rotatable spindle, mechanism driven thereby for closing the bucket, a pair of radial members rigid with said spindle, an annular row of idler-sheaves carried by each member, and a pair of stationary guards rigid with one of the scoops and each extending partly around one of said rows of idler-sheaves, substantially as described.

29. In a bucket, in combination, a supporting-bar, a housing consisting of vertical plates secured to said bar, a supporting-sheave journaled between said plates, pivoted scoops, links connecting them with said bar, and a flexible connection between said bar and the pivot of the scoops, substantially as described.

30. In a bucket, in combination, a supporting-bar having flat sides intermediate of its ends, a pair of parallel plates lying against said flat sides and bolted thereto, a sheave housed between said plates, and a bucket-body depending from said bar near its ends, substantially as described.

31. In a bucket, in combination, a supporting-bar, a pair of parallel plates secured to opposite sides of said bar, a pair of cross-plates secured to the ends of said parallel plates, a supporting-sheave housed between said plates, guide-sheaves carried by said bar and said cross-plates, and a bucket-body depending from said bar, substantially as described.

32. In a bucket, in combination, a housing consisting of a pair of parallel plates and a pair of cross-plates secured at the ends of said parallel plates and projecting therefrom, a supporting-sheave within said housing, a supporting-bar secured to the housing, an axle carried by said cross-plates, two pairs of guide-sheaves, each pair being carried one member by said bar and the other by said axle, and a bucket-body depending from said bar, substantially as described.

695,593. **STRAINER.** MAGGIE WARNER, Chicago, Ill. Filed Sept. 20, 1901. Serial No. 75,730. (No model.)



Claim.—1. A strainer for kettles and similar articles, comprising a bar adapted to be placed across the mouth of the kettle, means on the bar to clutch the edge of the vessel, and a foraminous plate secured to the bar and longitudinally adjustable thereof.

2. A strainer for kettles or similar articles comprising a bar adapted to be placed across the mouth of the vessel, a longitudinally-adjustable foraminous plate attached thereto, a lug at the end of the bar adapted to engage one edge of the vessel, and a catch adjustable longitudinally on the bar and adapted to engage the opposite edge of the vessel.

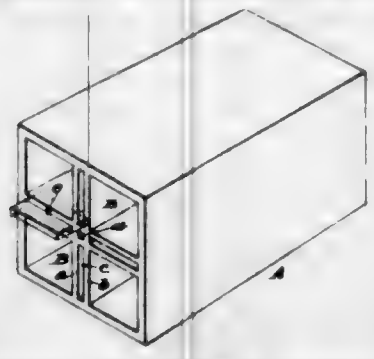
695,594. **CONDUIT.** VERNON H. YARNALL, New York, N. Y. Filed Dec. 10, 1901. Serial No. 85,241. (No model.)

Claim.—1. A clay conduit-section having a plurality of ducts and provided with partitions separating the ducts, which are formed of two walls and an intermediate air-space, substantially as set forth.

2. A clay conduit-section having a plurality of ducts in different horizontal and vertical planes and provided with partitions separating the ducts composed of two walls and an intermediate air-space, and an additional longitudinal opening at the intersection of crossing partitions, substantially as set forth.

3. The combination with adjoining clay conduit-sections having in-

termediate oblong spaces in the partitions separating the ducts, of a key oblong in cross-section entering these spaces in the adjoining sections for maintaining the alinement of the sections, substantially as set forth.



4. The combination with adjoining clay conduit-sections having a plurality of ducts located at different horizontal and vertical planes and provided with intermediate oblong spaces in the vertical and horizontal partitions separating the ducts, of keys oblong in cross-section inserted both in the horizontal and vertical partition-spaces, substantially as set forth.

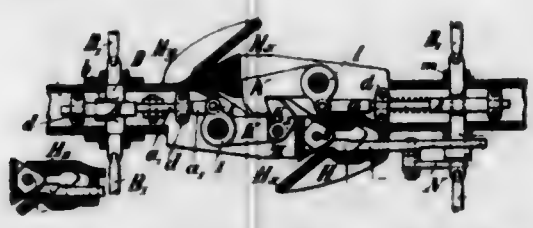
5. The combination with adjoining clay conduit-sections having oblong key-spaces in their ends, of alining-keys of oblong cross-section made of insulating material, substantially as set forth.

6. The combination with adjoining clay conduit-sections having a plurality of ducts and oblong spaces in the partitions separating the ducts extending the entire length of such partitions, of separators inserted in these spaces and crossing the joints between sections to cut off communication between the ducts at the joints, substantially as set forth.

7. A clay conduit-section, having a plurality of ducts and provided with partitions separating the ducts, such partitions having a thickness double that of the outside walls of the conduit-section, substantially as set forth.

8. A clay conduit-section, having a plurality of ducts and provided with hollow partitions separating the ducts, such partitions having a thickness double that of the outside walls of the conduit-section, substantially as set forth.

695,595. ENGAGING OR DISENGAGING DEVICE FOR AUTOMATIC RAILWAY-CARRIAGE COUPLINGS. CAJETÁN BAROVITS, Budapest, Austria-Hungary. Filed July 23, 1900. Serial No. 25,193. (No model.)



Claim.—1. In an automatic coupling having hooks adapted to engage automatically when the draw-bars meet, the combination of a sliding bar connected to and moved by the rotation of the coupling-hook, means for normally and yieldingly retaining said bar in the position to keep the hooks coupled when engaged, and means operated by hand for positively locking said sliding bar in the coupled or uncoupled position of the hooks and for allowing the said bar and hook free movement when the locking mechanism is in the central position between the positive locking positions substantially as described.

2. In a coupling of the automatic class having movable hooks to engage each other when the draw-bar ends meet, the combination of a sliding bar in engagement with and adapted to be moved by the rotation of the said hook on its pivot and a key operated by hand for positively locking the said bar to retain the hook in its coupled or uncoupled position and for releasing the parts when the key is in its intermediate position substantially as described.

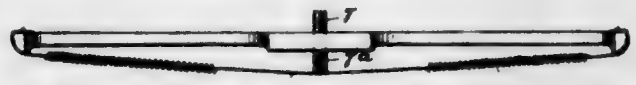
3. In an automatic coupling having self-engaging hooks, the combination of a sliding bar in engagement with and moved by the rotation of the coupling-hook and a key in engagement with said bar for positively locking the said bar in either of its end positions, and for allowing it free movement when the said key is in its intermediate position, and means for normally holding the said bar in the coupled position when the key is in the position to release the same in the manner and for the purpose substantially as described.

4. In an automatic coupling having self-engaging hooks as specified, the combination of a sliding bar and means for moving the same by the rotation of the coupling-hook on its pivot to effect the coupling or release the same, an orifice formed in the said bar, a key having a bit to lie in the said orifice and means for actuating the said key by hand from the outside of the coupling, the said bit and orifice being adapted to lock the said bar in either of its end positions and to release it when the bit is in its central position substantially as described.

5. In an automatic coupling having self-engaging hooks, the combination of a sliding bar and means for moving it when the hook is rotated on its pivot, a cam-orifice formed in the said bar, a key operated by hand and having a bit to lie in said orifice and adapted to lock the said bar when turned, in either of its end positions and release the same when in its central position and means for normally retaining the said bar and coupling-hook in the engaged position but yieldingly, when the said bar is released by the key-bit in the manner and for the purpose substantially as described.

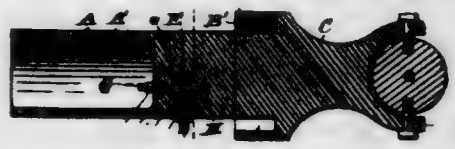
6. In an automatic coupling having self-engaging hooks, the combination of locking mechanism positively operable from the outside of the coupling and adapted to lock the said coupling-hooks in the coupled or uncoupled position or allow the same free play when the locking mechanism is in its intermediate position, an auxiliary coupling adapted to engage simultaneously with the main coupling and means controlled by the said locking mechanism to engage positively the said auxiliary coupling when the main coupling is positively locked substantially as described.

695,596. TOY BOW. HYRAM J. BAYARD, Chicago, Ill. Filed Nov. 8, 1901. Serial No. 81,528. (No model.)



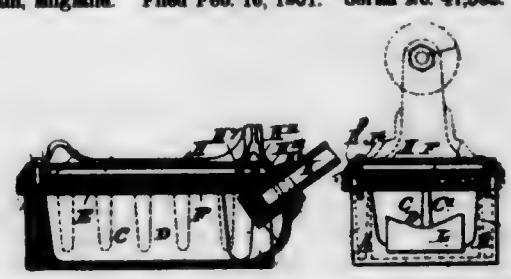
Claim.—A bow having a bowstring formed of a continuous wire having coiled end portions axially contractible to give elasticity and a plain flexible middle portion to engage the butt of the arrow.

695,597. BOILER-TUBE CUTTER. GEORGE A. BELAND, Centralia, Ill. Filed Aug. 3, 1901. Serial No. 70,801. (No model.)



Claim.—In a boiler-tube cutter, the combination of a cylinder rotated by means of a shaft and universal joint, an enlarged shoulder on said cylinder grooved annularly, a segmental groove cut into said cylinder by non-radial planes at an obtuse angle to each other, said cylinder having an annular recess cut into its end and a hole screw-threaded for a portion of its distance cut into said cylinder parallel with the sides of the cylinder and intersecting said segmental groove near the angle formed by said non-radial planes, a cutting-blade having a heavy body portion and a narrowed cutting edge integral therewith inserted in said segmental groove and having a hole in its body portion to register with the hole in the cylinder, and a pin screw-threaded near its end to seat in the hole in said cylinder and cutting-blade, substantially as shown and described.

695,598. GAS-HEATED SAD-IRON. DUNCAN R. BLAIR, Birmingham, England. Filed Feb. 16, 1901. Serial No. 47,593. (No model.)



Claim.—1. A chimneyless gas-heated sad-iron comprising a body having side openings, screens for said openings, said screens being open at their ends farthest from the burner-tube, a mid-feather, a lid portion, a diaphragm between the lid portion and the body portion, and a burner-tube, substantially as described.

2. A gas-heated sad-iron comprising a body having side openings, screens for said openings and a mid-feather, all cast in one, in combination with a lid, a diaphragm-plate over the body portion and having its edges extending beyond the sides of the lid, substantially as described.

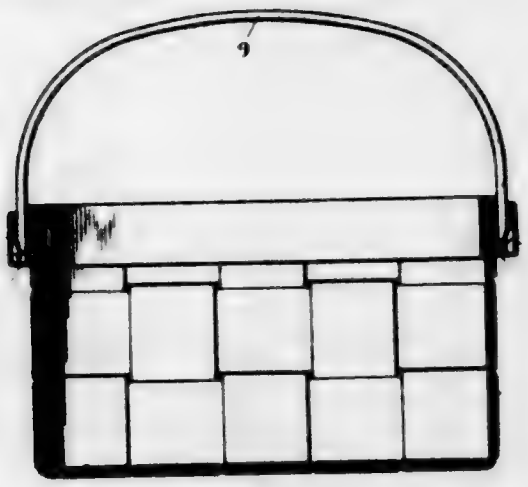
3. A gas-heated sad-iron having a body with deep open-topped side openings, screens for said openings and a mid-feather, in combination with a lid, a diaphragm-plate between the lid and the body and an inclined tail-bracket on the lid, substantially as and for the purpose described.

4. In a gas-heated sad-iron, a body portion, a lid, and a diaphragm between the lid and the body portion and extending beyond them, horns on the body portion and stops on the lid against which the horns are

adapted to abut, said diaphragm having openings through which the horns freely pass to allow expansion of the diaphragm, substantially as described.

5. A gas-heated sad-iron having a body portion, a lid, and a diaphragm between the body and the lid, heat-insulating material between the diaphragm and lid, an air-space above said material, horns on the body portion, stops on the lid and openings in the diaphragm for the horns, and ribs on and extending across the lid and bearing on the insulating material, as and for the purpose described.

695,599. HANDLE-CLASP. CHILTON W. BLUE, Montgomery, Ala. Filed Aug. 1, 1901. Serial No. 70,531. (No model.)



Claim.—A handle-clasp consisting of a sheet of metal including a central body portion having its ends bent at an angle thereto and then outwardly to form attaching-feet, said body portion having an extension at its upper edge which is bent downwardly between the attaching-feet and in close proximity to the body of the plate and having its lower portion bent away from the body of the plate and at an acute angle thereto to form a spring-tongue.

695,600. PROCESS OF MANUFACTURING CONTACT-PIECES BETWEEN FIRST AND SECOND CLASS CONDUCTORS. WILHELM BORRE, Berlin, Germany. Filed Feb. 26, 1900. Serial No. 6,561. (No specimens.)

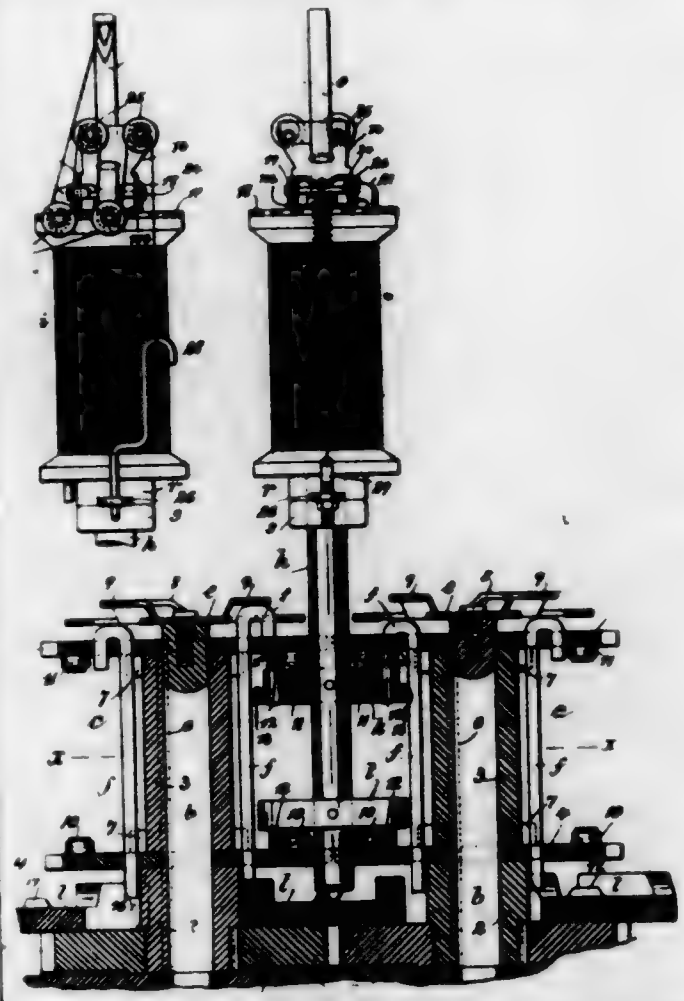
Claim.—1. A process for producing a conducting union between first and second class conductors by first condensing and overcoming the porosity of second-class conductors serving as contact-pieces by the fritting or melting action of a powerful heating agent, finely dividing the product after fusion, subsequently forming it into bodies of any desired shape, and inserting such highly-condensed bodies between the joints.

2. A process for producing a conducting union between first and second class conductors by subjecting a material to a melting action of suitable duration by means of a powerful heating agent collecting the vapors produced and forming rods, tubes and other bodies therefrom and finally applying such bodies to the joints, substantially as described.

695,601. BRAIDING-MACHINE. ALBERT B. DICK, Brooklyn, N. Y., assignor to the United States Braid Machine Manufacturing Company, Newark, N. J., a Corporation of New Jersey. Filed Apr. 8, 1901. Serial No. 54,796. (No model.)

Claim.—1. In a braiding-machine, the combination with a platform, revolving heads supported upon said platform and gears for actuating the same in opposite directions, of spool-spindles and exchange-plates connected therewith, switches pivoted in opposite directions upon said platform, locking-pins moving vertically in the revolving heads and raised by the switches and permitted to drop by gravity, stop-pins independent of the locking-pins and raised by the exchange-plates and permitted to fall by gravity, and devices connected respectively to parts of the head and to the exchange-plates and which parts are adapted to come into engagement and to coöperate with the locking and stop pins for engaging and holding the exchange-plates and spool-spindles to the revolving heads, substantially as set forth.

2. In a braiding-machine, the combination with a platform, revolving heads supported upon said platform and gears for actuating the same in opposite directions, of spool-spindles and exchange-plates connected therewith, switches pivoted in opposite directions upon said platform, locking-pins moving vertically in the revolving heads and raised by the switches and permitted to drop by gravity, stop-pins independent of the locking-pins and raised by the exchange-plates and permitted to fall by gravity, pins upon the exchange-plates and rollers upon the revolving heads adapted to come into engagement and opposition whereby the exchange-plates are held to the revolving heads, the locking-pins and stop-pins holding the exchange-plates so as to prevent a swinging movement of the same and the spool-spindles, substantially as set forth.



3. In a braiding-machine, the combination with a platform, revolving heads supported upon said platform and gears for actuating the same in opposite directions, of spool-spindles and exchange-plates connected therewith, switches pivoted in opposite directions upon said platform, locking-pins moving vertically in the revolving heads and raised by the switches and permitted to drop by gravity, stop-pins independent of the locking-pins and raised by the exchange-plates and permitted to fall by gravity, and devices connected respectively to parts of the head and to the exchange-plates and which parts are adapted to come into engagement and to coöperate with the locking and stop pins for engaging and holding the exchange-plates and spool-spindles to the revolving heads, and stationary cam-disks above the revolving heads and adapted to permit the vertical movements of the locking and stop pins and to force the same downward if they do not quickly fall by gravity, substantially as set forth.

4. In a braiding-machine, the combination with a platform and pivot-posts mounted thereon, of revolving heads each comprising a lower and upper sleeve and intermediate disk and a disk above the upper sleeve and pins passing through the sleeves and disks and riveted up for securely connecting the respective parts and a gear surrounding the lower sleeve and by which the head is revolved, substantially as set forth.

5. In a braiding-machine, the combination with a platform and pivot-posts mounted thereon, of revolving heads each comprising a lower and upper sleeve an intermediate disk and a disk above the upper sleeve and pins passing through the sleeves and disks and riveted up for securely connecting the respective parts and a gear surrounding the lower sleeve and by which the head is revolved, and lugs at spaced apart intervals projecting from the respective ends of the upper sleeve and coming above the lower disk and below the upper disk to insure the parallelism of the respective disks, substantially as set forth.

6. In a braiding-machine, the combination with a platform and pivot-posts mounted thereon, of revolving heads each comprising a lower and upper sleeve an intermediate disk and a disk above the upper sleeve, and pins passing through the sleeves and disks and riveted up for securely connecting the respective parts, and a gear surrounding the lower sleeve and by which the head is revolved, and means for insuring the parallelism of the respective disks, locking-pins and stop-pins having stems passing vertically through both disks and guided thereby and hook ends passing through the upper disk, said locking and stop pins being at spaced-apart intervals around the head and rollers upon the upper surface of the

lower disk and under surface of the upper disk also at spaced-apart intervals, substantially as set forth.

7. In a braiding-machine the combination with a platform and pivot-posts mounted thereon, of revolving heads each comprising a lower and upper sleeve, an intermediate disk and a disk above the upper sleeve, and pins passing through the sleeves and disks and riveted up for securely connecting the respective parts, and a gear surrounding the lower sleeve and by which the head is revolved, and means for insuring the parallelism of the respective disks, locking-pins and stop-pins having stems passing vertically through both disks and guided thereby and hook ends passing through the upper disk, said locking and stop pins being at spaced-apart intervals around the head and rollers upon the upper surface of the lower disk and under surface of the upper disk also at spaced-apart intervals, and a stationary cam-disk above and secured to the upper end of the pivot-post and having cam-faces that are concentric and formed by bending up portions of the disk to permit of the vertical movements of the locking and stop pins and to force the same down when they do not fall quickly by gravity, substantially as set forth.

8. In a braiding-machine, the combination with a platform, pivot-posts mounted thereon, revolving heads upon said pivot-posts and gears for operating the same, of spool-spindles adapted to be received in peripheral vertically-placed notches in the surfaces of the revolving head, exchange-plates two in number connected to each spool-spindle and devices connected to the exchange-plates and other devices connected to the revolving heads adapted to come into connection to hold each spool-spindle at its exchange-plates to a revolving head and locking-pins adapted to contact with the aforesaid connecting devices and stop-pins adapted to contact with one of the exchange-plates and means for periodically raising the locking and stop pins for permitting the progressive movements of the machine, substantially as set forth.

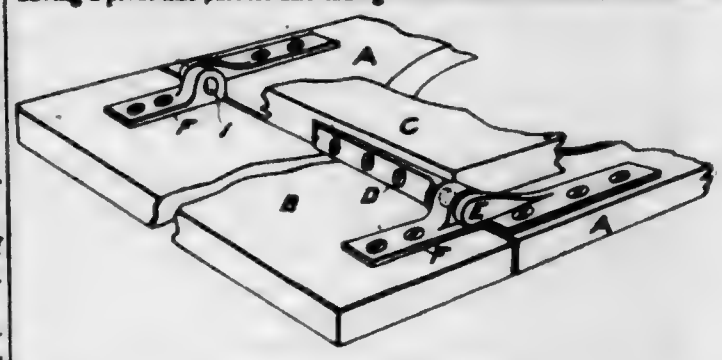
9. In a braiding-machine, the combination with a platform, pivot-posts mounted thereon, revolving heads upon said pivot-posts and gears for operating the same, of spool-spindles adapted to be received in peripheral vertically-placed notches in the surface of the revolving head, exchange-plates two in number connected to each spool-spindle, pins connected to the lowermost exchange-plate and extending downward, similar pins connected to the upper exchange-plate and extending upward, cam edges on opposite sides of the upper exchange-plate and notches in the back edges of the upper exchange-plate, devices connected to the heads and adapted to engage the pins of the exchange-plates and to come between the said pins and the spool-spindle, locking-pins adapted progressively to come in front of the pins of the upper exchange-plate and stop-pins adapted to come progressively into the notches in the back edges of the upper exchange-plate, so that the exchange-plates and spool-spindles are not only held to the revolving heads, but prevented from turning and becoming disengaged in their relation thereto, substantially as set forth.

10. In a braiding-machine, the combination with a platform and pivot-posts mounted thereon, of revolving heads upon said pivot-posts comprising connected portions and upper and lower disks and rollers upon the upper surface of the lower disk and under surface of the upper disk at spaced-apart intervals and peripheral notches adjacent to said rollers and spool-spindles adapted to be received in said notches, two exchange-plates mounted upon each spool-spindle and coming between the upper and lower disks of the revolving heads, and means connected to said exchange-plates and engaged by said rollers, and locking-pins moving vertically in said heads and adapted to engage said means and stop-pins also moving vertically in said revolving heads and adapted to engage the exchange-plates, substantially as set forth.

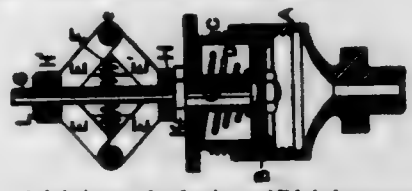
11. In a braiding-machine, the combination with a platform and pivot-posts mounted thereon, of revolving heads upon said pivot-posts comprising connected portions and upper and lower disks and rollers upon the upper surface of the lower disk and under surface of the upper disk at spaced-apart intervals and peripheral notches adjacent to said rollers and spool-spindles adapted to be received in said notches, two exchange-plates mounted upon each spool-spindle and coming between the upper and lower disks of the revolving heads, pins secured in said exchange-plates and extending in opposite directions toward the said disks and adapted to come into engagement with the said rollers, locking-pins moving vertically in said revolving heads and progressively coming into a forward position against said pins, switches for periodically and progressively raising the said locking-pins, stop-pins moving vertically in said revolving heads, cam edges on one of said exchange-plates adapted to raise the stop-pins progressively and pass the same over the exchange-plate and permit the same to fall behind the exchange-plate whereby the stop-pins coact with the locking-pins to prevent a swinging movement of the exchange-plates and insure their being held in position by the pins and rollers, substantially as set forth.

695,602. CLOSET-SEAT HINGE. CHARLES EVANS, Ashton-under-Lyne, England. Filed June 3, 1901. Serial No. 63,027. (No model.)

Claim.—In combination in a hinge for closet seats and lids, a plate with holes for attachment to the upper face of the seat-rail and with an upstanding part having a round hole in it, a further plate with holes for attachment to the rear edge of the seat-lid and with a round pivot-like part for taking into the hole aforesaid, and another plate with holes for attachment to the face of the closet-seat and with an upstanding portion having a pivot-like part for also taking into the hole aforesaid, as set forth.



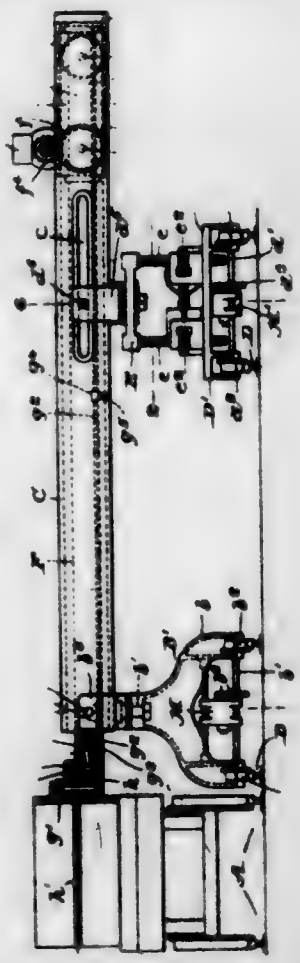
695,608. LUBRICATOR. GEERVI FISHER, Leeds, England. Filed May 26, 1900. Serial No. 18,152. (No model.)



Claim.—1. A lubricator for forcing stiff lubricants comprising in its construction a piston, levers attached to same, one set of springs to actuate the piston attached to the levers which act at an increasingly disadvantageous leverage as the force of the spring is increased in combination with a direct-acting spring, compressed between the piston and the oil-cup lid, substantially as described.

2. In a lubricator for stiff lubricants the combination with the lubricator-cup A, the piston B, and the direct-acting spring D compressed between the piston and the oil-cup lid, of the levers E E' pivoted together and the springs F placed between them, substantially as described.

695,604. FURNACE-CHARGING APPARATUS. BENJAMIN A. FRANKLIN, Philadelphia, Pa. Filed July 20, 1901. Serial No. 69,089. (No model.)



Claim.—1. In a furnace-charger, the combination of a frame, a charging-bar movable longitudinally thereof, and two independent carriages

upon which the respective ends of said frame are pivotally supported, substantially as described.

2. In a furnace-charger, the combination with two independent carriages, of a frame having at one end a horizontal and a vertical pivotal connection with one of said carriages, and having at the other end a similar connection with the other carriage, and a charging-bar longitudinally movable in said frame, substantially as described.

3. In a furnace-charger, the combination of a carriage mounted on rails in front of the furnace, a vertically-movable bed on said carriage, means for adjusting said bed, a second carriage mounted on rails between the rails first named and the furnace, a frame having pivotal connections with said second carriage and bed, and a charging-bar longitudinally movable in said frame, substantially as described.

4. In a furnace-charger, the combination of a carriage mounted on rails in front of the furnace, a vertically-movable bed on said carriage, means for adjusting said bed, a support having a vertical pivot connection with said bed, a second carriage mounted on rails located between the rails first named and the furnace, a support having a vertical pivot connection with said latter carriage, a frame having at one end thereof a horizontal sliding pivot connection with the support on said bed, and having at the opposite end a horizontal pivot connection with the support on the second carriage, and a charging-bar longitudinally movable in said frame, substantially as described.

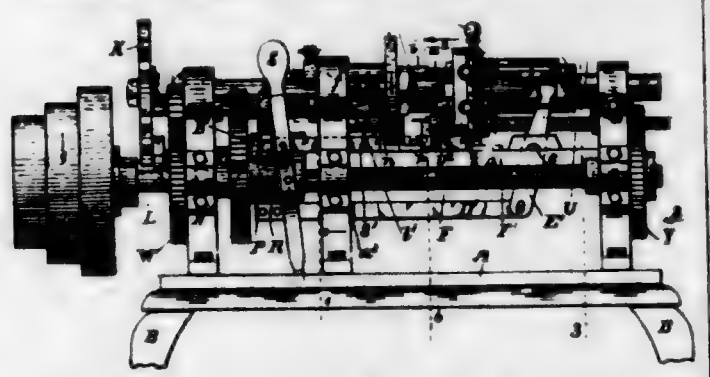
5. In a furnace-charging apparatus, a frame including channel-bars and a transverse connecting-piece therefor provided with a bearing, a longitudinally-movable charging-bar supported in said bearing, and a carriage adapted to support the rearward end of said bar and provided with wheels which are mounted in the channels of the channel-bars, substantially as described.

6. In a furnace-charger, the combination with the charging-bar, of a bracket pivotally supported on the forward end of said bar and provided with an eccentric portion to support a charging-box, substantially as described.

7. In a furnace-charger, the combination with the charging-bar, of a bracket pivotally supported on the forward end of said bar and provided with an eccentric portion to support a charging-box, and a latch device for said bracket, substantially as described.

8. In a furnace-charger, the combination with the charging-bar, of a bracket pivotally supported on the forward end of said bar and provided with an eccentric portion to support a charging-box, a latch device for said bracket, and means for automatically operating said device to release the bracket, substantially as described.

695,605. MACHINE FOR FORMING RING-PACKING. OLIN J. GARLOCK, Palmyra, N. Y., assignor to Garlock Packing Company, Palmyra, N. Y. Filed June 21, 1901. Serial No. 65,518. (No model.)



Claim.—1 A machine for forming packing-rings, having a plate formed with a series of perforations, and a carrying head or body adapted to carry a series of operating-tools to enter said perforations, and means for giving said head or body reciprocal motions, substantially as and for the purpose specified.

2. A machine for forming packing-rings, having a circular body or plate formed with a series of perforations arranged in a circle, in combination with a carrying-head having perforations arranged in a circle corresponding with the perforations in said plate, and means for turning the latter and for reciprocating the carrying-head, substantially as and for the purpose specified.

3. A machine for forming packing-rings, having a plate formed with a series of circular longitudinal perforations equally spaced and arranged in a circle concentric with the plate, in combination with a carrying-head having a series of longitudinal perforations in a circle coaxial with the perforations in the plate, with means for reciprocating the carrying-head and for giving the plate intermitting circular motion, substantially as shown and described.

4. A machine for forming packing-rings, comprising a perforated plate, and a carrying-head adapted for holding a series of operating-tools on one side of the plate, and a tool-carrying shaft on the other side of the plate, the latter and the carrying-head being coaxial with said tool-carrying shaft, with means for moving the latter and said carrying-head alternately toward and from said plate, substantially as shown and set forth.

5. A machine for forming packing-rings, comprising a perforated plate, and a carrying-head adapted for holding a series of operating-tools on one side of the plate, and a tool-carrying shaft on the other side of the plate, the latter and the carrying-head being coaxial with said tool-carrying shaft, with means for moving the latter and the carrying-head simultaneously toward and then from the plate, with periods of rest after each backward motion of said parts, substantially as described.

6. A machine for forming packing-rings, comprising a plate, a tool-carrying head and a tool-carrying shaft on opposite sides of the plate, with means for moving said head and shaft simultaneously toward and then from the plate, followed by periods of rest, and means for turning the plate during said periods of rest of the tool-carrying parts, substantially as set forth.

7. A machine for forming packing-rings, comprising a plate adapted to turn upon its axis, and a tool-carrying head adapted to move toward and from the plate, with means for giving said plate and the head intermittent motions, the motions of each occurring during the periods of rest of the other, substantially as and for the purpose specified.

8. A machine for forming packing-rings, comprising a circular plate having a series of circular longitudinal perforations equally spaced around a circle concentric with the plate, in combination with a carrying-head for carrying a series of tools, and means for reciprocating the head to cause the tools to enter said perforations at intervals, and for turning the plate intermittently through parts of a revolution equal to the circular distance between the centers of adjacent perforations, substantially as set forth.

9. A machine for forming packing-rings, comprising a rotary shaft, a circular plate on the shaft, and a wheel rigid with the shaft, and means to turn said wheel, in combination with a fixed shaft coaxial with said rotatory shaft, and a carrying-head on the fixed shaft, with means to reciprocate said head, substantially as shown and described.

10. A machine for forming packing-rings, comprising a shaft, a plate on the shaft, a wheel rigid with the shaft, the plate having a series of perforations in a circle equally spaced, and means for turning the wheel intermittently through parts of a revolution equal to the distance between adjacent perforations in the plate, substantially as shown and set forth.

11. A machine for forming packing-rings, comprising a shaft, a circular plate on the shaft, a wheel rigid with the shaft, the plate having a series of perforations, and the wheel having indentations equal in number to the perforations in the plate, and means for turning said wheel intermittently through parts of a revolution equal to the distance between two adjacent indentations therein, and a carrying-head adapted to move successively toward and from said plate, and means for reciprocating said carrying-head, substantially as set forth.

12. A machine for forming packing-rings, comprising a shaft, a circular plate on the shaft, a wheel rigid with the shaft, the plate having equally-spaced perforations and the wheel having equally-spaced openings equal in number with the perforations in the plate, and a crank adapted to engage with the openings in the wheel to intermittently turn the latter, and means for turning the crank, substantially as specified.

13. A machine for forming packing-rings, comprising a rotatory shaft, a circular plate on the shaft, and a wheel rigid with the shaft, the plate having a series of perforations equally spaced around a circle concentric with the shaft, and the wheel having equally-spaced peripheral indentations equal in number to the perforations in the plate, and means for turning said wheel intermittently through parts of a revolution equal to the circular distance between adjacent indentations, in combination with a fixed shaft coaxial with said rotatory shaft, and a carrying-head on the fixed shaft, with means to reciprocate it toward and from the plate, said head having perforations or seats for holding a series of tools opposite the perforations in the plate and adapted to enter the latter as the carrying-head is advanced, substantially as specified.

14. A machine for forming packing-rings, comprising a rotatory shaft, a circular plate on the shaft, and a wheel rigid with the shaft, the plate having a series of perforations equally spaced in a circle concentric with the axis of the shaft, and the wheel having equally-spaced peripheral indentations equal in number to the perforations in the plate, a counter-shaft and crank thereon having a pin adapted to engage with the indentations in the wheel to turn the latter, with means to rotate said counter-shaft, and a fixed shaft and carrying-head thereon, and means to reciprocate said carrying-head, substantially as described and shown.

15. A machine of the kind described, comprising a rotatory shaft and circular plate thereon, a wheel rigid with the shaft, and means for turning the wheel, in combination with a fixed shaft coaxial with said rotatory shaft and having a bearing thereon, and a non-rotatory carrying-head on

the fixed shaft, with means for giving said carrying-head reciprocal motions, substantially as shown and described.

16. A machine for forming packing-rings, having a rotatory shaft provided with a circular plate and a wheel, a counter-shaft with crank to engage the wheel, a fixed shaft concentric with said rotatory shaft, a carrying-head on the fixed shaft on one side of said plate, a cutter-shaft on the other side of said plate, a cam on the counter-shaft, and means for connecting said cam with said cutter-shaft and the carrying-head and for rotating the counter-shaft, substantially as and for the purpose specified.

17. A machine for forming packing-rings, having a rotatory shaft provided with a circular plate and a wheel, a counter-shaft with crank to engage the wheel, a fixed shaft concentric with said rotatory shaft, a carrying-head on the fixed shaft at one side of the circular plate, a cutter-shaft on the other side of said plate, a cam on the counter-shaft, a pair of rocker-arms engaging said carrying-head, a link connected with the cutter-shaft and actuated by said cam, and a connecting-bar for the link and said rocker-arms, with means to rotate said counter-shaft, whereby the cutter-shaft and the carrying-head are caused to move simultaneously alternately toward and from the circular plate, substantially as shown and described.

18. A machine of the kind described, having a driving-shaft provided with engaging clutch members one being shiftable, a fixed shaft parallel with the driving-shaft, a carrying-head on the fixed shaft, with means for reciprocating the carrying-head, a trip-bolt held by the carrying-head, a lever for actuating the shiftable clutch member, a bar connected with said lever, and adapted to be engaged by the trip-bolt, and means for actuating the latter, substantially as and for the purpose specified.

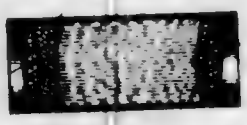
19. A machine of the kind described, having a driving-shaft provided with a rigid clutch, and a movable clutch to engage the rigid clutch, a carrying-head with means to reciprocate it, a trip-bolt held by the carrying-head, mechanism connecting the trip-bolt and the said movable clutch, a barrel held by the carrying-head parallel with the driving-shaft, a spring-pressed axial shaft in said barrel, a spring held by the barrel to engage said trip-bolt, and to be engaged by said axial shaft, substantially as and for the purpose specified.

20. A machine of the kind described, comprising a circular plate, a carrying-head having a cutter-holder on one side of said plate, and a longitudinally-movable cutter-carrying shaft on the other side of the plate, with means for reciprocating said carrying-head and the cutter-carrying shaft simultaneously toward and from said plate in lines parallel with the axis of the latter, and for rotating said cutter-holders, substantially as and for the purpose specified.

21. A machine of the kind described, having a circular plate formed with equally-spaced perforations in a circle, a carrying-head having a rotatory cutter-holder on one side of said plate coaxial with a perforation in the plate and adapted to move longitudinally toward or from said perforation, and a rotatory shaft carrying a cutter on the other side of the plate, coaxial with a perforation in the plate and adapted to move toward or from the perforation, with means for reciprocating the carrying-head and said cutter-carrying shaft to cause the cutters to enter said opposing perforations at intervals, and for rotating said cutter-holders, substantially as shown and described.

22. A machine of the kind described, having a perforated rotatory plate, a rigid body on one side of the plate formed with a cavity opposite and coacting with said perforation in the plate, and a reciprocating part or shaft on the other side of the plate adapted to enter said perforation in the plate, with means for operating said reciprocating part, substantially as shown and described.

695,606. **LENS SYSTEM.** EDWARD F. GEBS, Southwick, England. Filed July 3, 1901. Serial No. 67,022. (No model.)

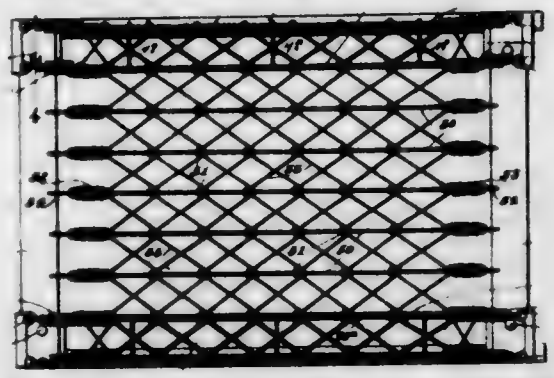


Claim.—1. In a wide-angle lens system the combination with two achromatic lenses at some distance apart of a body of fluid disposed in the space between the achromatic lenses and having approximately the same refractive index as the lenses substantially as and for the purpose described.

2. In a wide-angle lens system the combination with two achromatic lenses at some distance apart of a body of cedar-oil disposed in the space between the lenses and having approximately the same refractive index as the lenses substantially as and for the purpose described.

3. In a wide-angle lens system the combination with a plurality of achromatic lenses at some distance apart of a body of fluid disposed in the space between two of the achromatic lenses and having approximately the same refractive index as the lenses substantially as and for the purpose described.

695,607. **BED-SPRING.** ALFRED GUAY, Maxville, Canada. Filed Nov. 8, 1900. Serial No. 35,782. (No model.)



Claim.—1. A spring-bed comprising a frame having its side and cross members slidable with relation one to the other, corner-irons connecting the members of said frame, means for adjusting some of the members of the frame with respect to other members of the same frame, and a sectional bed-bottom having one portion thereof carried by non-adjustable members of the frame, and its other portions connected to the corner-irons, substantially as described.

2. A spring-bed comprising a frame having its cross and side rails slidable with relation one to the other, corner irons connecting cross and side rails, means for adjusting the side rails relative to the cross-rails, a main bed-bottom section carried by the cross-rails of the frame, and the independent auxiliary bed-bottom sections each supported by a pair of the corner-irons and arranged to fill the space between one side rail and the adjacent edge of the main bed-bottom section, substantially as described.

3. A spring-bed comprising a main bed-bottom fabric, a frame having side and cross rails, said cross-rails arranged to project beyond the main bed-bottom fabric, means for shifting the cross-rails of the frame relative to the side rails thereof and thereby leave a space or spaces between the main bed-bottom fabric and the side rail or rails when the frame is increased in width by adjustment of one or both side rails, corner-irons connecting the side and cross rails of the frame together, and auxiliary bed-bottom sections each supported by a pair of the corner-irons and arranged to fill the before-mentioned space between an edge of the main bed-bottom fabric and the side rail adjacent thereto, as set forth.

4. A spring-bed comprising the side rails, the cross-rails, corner-irons connecting said side and cross rails together adjustably, means for shifting the side rails with respect to the cross rails, a main bed-bottom section carried by the cross-rails, and auxiliary bed-bottom sections each supported by a pair of corner-irons and shiftable therewith and with the side rails, substantially as described.

5. A spring-bed comprising side rails, the cross-rails, the corner-irons connecting said side and cross rails, means for shifting the corner-irons and the side rails with respect to the cross-rails, a main bed-bottom section on the cross-rails, and auxiliary bed-bottom sections each attached to a pair of the corner-irons and supported thereby in shiftable relation to the main bed-bottom section, substantially as described.

6. In a spring-bed, corner-irons each comprising a slotted base-plate, a back-plate, and a front flange, combined with side rails to which the corner-irons are secured, cross-rails shiftably fitted in the corner-irons, a bed-bottom section connected to the cross-rails, and auxiliary bed-bottom sections connected to the corner-irons, substantially as described.

7. In a spring-bed, a corner-iron fashioned to embrace a cross-rail and provided with a dovetailed rib, and a cross-rail having a recess arranged to receive said rib, combined with means for securing the corner-iron upon a side rail, and means for adjusting one rail relative to the other, substantially as described.

8. In a spring-bed, the combination of corner-irons each provided with a slotted base-plates, the side rails, the cross-rails slidably fitted in the base-plates, a bolt attached to each cross-rail and arranged to play in the slotted base-plate of one corner-iron, an adjusting-spindle connected to said bolt, and a nut held against endwise movement by the corner-iron and having threaded engagement with the spindle, substantially as described.

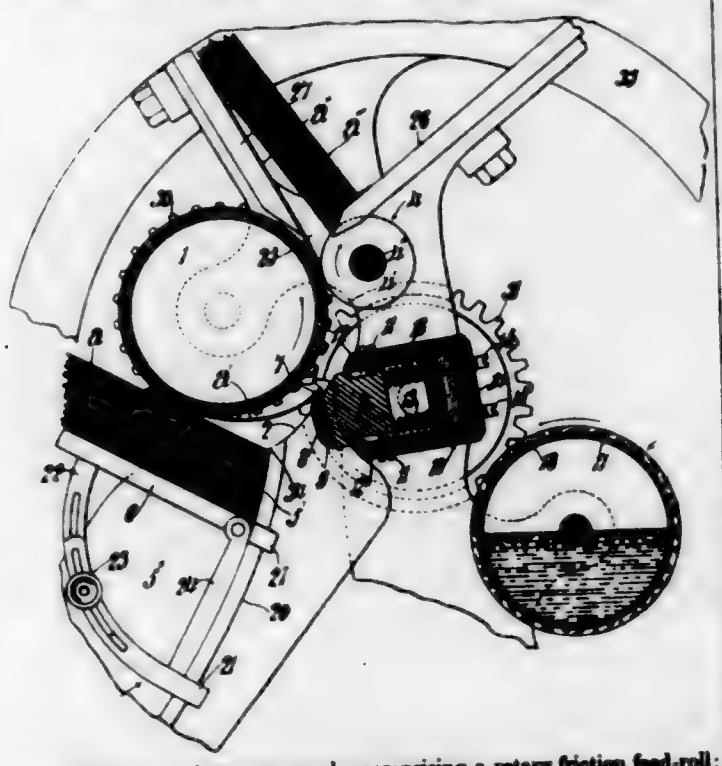
9. In a bed-spring, the combination of the side and cross rails, the corner-irons attached to the side rails a bed-bottom attached to the cross-rails, means for shifting the side rails laterally with respect to the cross-rails, and auxiliary bed-bottom sections each attached to two of the corner-irons and comprising the longitudinal strands, the springs attached to the strands, links connecting the strands, and a filling or weaving crossing the strands and attached to the latter, substantially as described.

10. In a bed-spring, an elastic bed-bottom comprising a main section and two side sections, each of said sections having longitudinal strands, springs attached to the ends of said strands, and diagonal filling or weaving wires crossing one another between the strands and attached

to the latter; in combination with a frame having side and cross rails; means for connecting the main bed-bottom section to the cross-rails; and adjustable means substantially as described connected with the adjustable bed-bottom sections and also joining the side and cross rails of the frame together, whereby the side bed-bottom sections may be adjusted with the side rails of the frame.

11. In a spring-bed, an elastic bed-bottom comprising a main section and the adjustable sections, each of said sections having the longitudinal strands each having a plurality of loops or eyes arranged in positions corresponding to the loops of adjacent strands, the coiled springs attached to opposite ends of each strand, and the filling-wires crossing each other between the strands and threaded through the loops or eyes thereof to form a weaving which gives an increased effective area to the bed-bottom, in combination with a sectional frame having means for adjusting the side rails relative to the cross-rails, substantially as described.

695,608. **STAMP-CANCELER.** JOSEPH GUIDINGER, Los Angeles, Cal. Filed Dec. 22, 1899. Serial No. 741,315. (No model.)



Claim.—1. A stamp-canceler comprising a rotary friction feed-roll; a letter-guide for guiding a letter in the direction of the rotation of said roll; means for holding a bunch of letters with one of said letters in contact with said roll and guide; a rotary type-holder arranged to carry its type in the path of the letter to clamp the letter between the feed-roll and the type; and a withdrawing-roll arranged adjacent the friction feed roll to operate in conjunction with said feed-roll to carry the letter away from the path of the type.

2. A stamp-canceler comprising a rotary friction feed-roll; a letter-guide for guiding a letter in the direction of the rotation of said roll; means for holding a bunch of letters with one of said letters in contact with said roll and guide; a rotary type-holder arranged to carry its type in the path of the letter to clamp the letter between the feed-roll and the type; a stop to stop the letter and hold it in the path of the type and being arranged with a letter-passage between the stop and the feed-roll; and a withdrawing-roll arranged to carry the letter away from the path of the type.

3. A stamp-canceler comprising a rotary friction feed-roll; means for holding a bunch of letters with one of said letters in contact with the feed-roll; a stop for stopping said letter; and a rotary type-holder and type arranged to throw the letter away from the stop onto the feed-roll to clamp the letter between the type and the feed-roll.

4. The combination of a rotary friction feed-roll; a letter-guide arranged in proximity to the roll; a follower arranged below the roll to carry a bunch of letters up toward the roll; a stop arranged in proximity to the roll in the path of the letter driven by the roll, a passage for the letter being provided between the stop and the roll; a rotary type-holder with type arranged to lift the letter from the stop and to clamp the letter between the type and the roll; and a withdrawing-roll arranged in proximity to the feed-roll to receive the letters between the withdrawing-roll and the feed-roll to withdraw the letter from the path of the type.

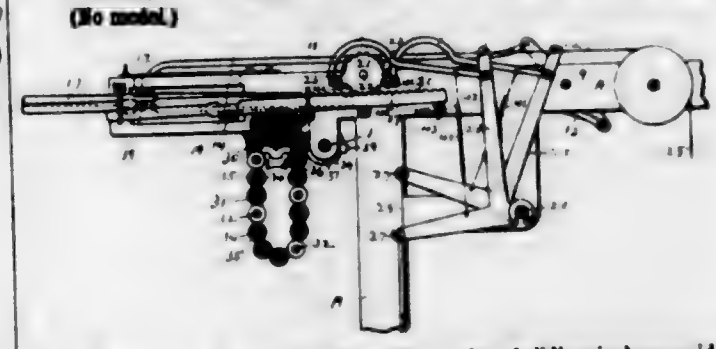
5. In a stamp-canceler, the combination with the feed-roll, of a withdrawing-roll arranged in proximity to the feed-roll to receive a letter; and a letter-rack arranged above the withdrawing-roll to receive the letter from said rolls and furnished in its bottom with an opening in which the upper face of the withdrawing-roll rotates.

6. A stamp-canceler comprising a feed-roll; a type-holder arranged to rotate with said feed-roll to print upon a letter carried between said roll and holder; a guide to guide a letter into the path of the type; a stop extending toward the feed-roll and radially thereof to hold the letter on the guide in the path of the type; and means for rotating the feed-roll and type-holder.

7. In a stamp-canceler, the combination with a rotary feed-roll and a rotary type-holder; of an upwardly and outwardly curving way along which a bunch of letters may be slid toward the feed-roll; and a curved guide in close proximity to and in convergence with the feed-roll and at an angle with the said way; a projecting angle being at the junction of the way and the guide to separate from the letters on the way, the letter which contacts with the feed-roll.

8. In a stamp-canceler, the combination with a rotary feed-roll and a rotary type-holder, of an upwardly-sloping curved way leading toward the feed-roll; a curved guide at the upper end of the way to guide a letter into the path of the type in the type-holder; a projecting angle being at the junction of the way and guide; and a stop to stop a letter on the guide in the path of the type.

695,609. **SHEDDING MECHANISM FOR LOOMS.** RAPHAEL HILBERT, Worcester, Mass. Filed Aug. 7, 1897. Serial No. 647,426. (No model.)

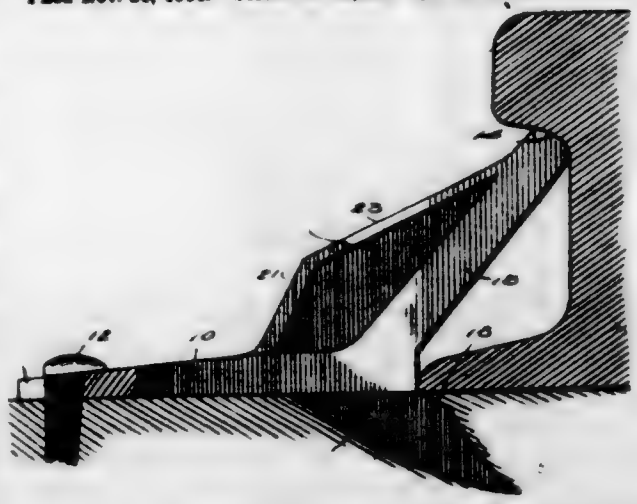


Claim.—1. The combination with a series of sliding jacks provided with rack-teeth, of segmental gears engaging said rack-teeth, harness-frame levers operatively connected with said gears, and a series of spring-actuated pins applied beneath the inner ends of said sliding jacks to counterbalance the weight of said inner ends, substantially as described.

2. The combination of a series of rocking segmental gears, fixed pins by which their motion is limited, sliding jacks provided with rack-teeth engaging said segmental gears, radial arms projecting from said gears, a series of bell-crank levers operatively connected with the harness-frames, links connecting one of the arms of said bell-crank levers with the radial arms of said gears, and springs connecting said links with the outer arms of said bell-crank levers, whereby said gears are held against said fixed pins at each end of their movement, substantially as described.

3. The combination of a series of rocking segmental gears, toothed jacks engaging said gears, reciprocating knife-bars engaging said jacks, a transverse supporting-bar beneath said jacks, spring-actuated pins bearing against the inner ends of said jacks on one side of said transverse supporting-bar in order to counterbalance said inner ends of the jacks and depress the outer ends, substantially as described.

695,610. **RAIL-BRACE.** JOSEPH JENSEN, Black Diamond, Wash. Filed Nov. 20, 1901. Serial No. 83,044. (No model.)



Claim.—1. A rail-brace comprising a base-plate adapted to be fastened flatwise to a tie, a brace proper extending obliquely upward therefrom and adapted to engage beneath the head of a rail, a raised impact-surface located in the angle between the base-plate and brace proper, and one or more teeth projecting downward from the lower side of the base.

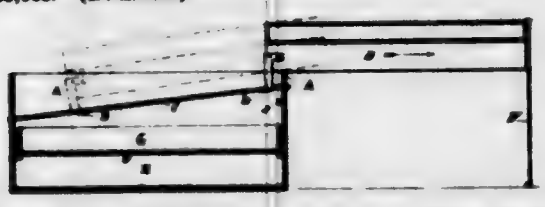
2. A rail-brace comprising a base adapted to lie flatwise upon a tie, a brace proper extending obliquely upward from the inner end thereof and adapted to bear beneath the head of a rail, a raised impact-surface located between the base and brace, and one or more teeth projecting from the lower side of the base and provided at their inner sides with sharpened cutting edges.

3. A rail-brace comprising a base, a brace proper extending obliquely upward from the inner end thereof and adapted to engage under the head of a rail, a raised impact-surface located between the base and brace, and crescent-shaped teeth projecting downward and inward from the base and having their inner sides sharpened and beveled in opposite directions so as to cleave a wooden tie and force the fiber thereof laterally in opposite directions.

4. A rail-brace comprising a base, a brace therefor extending obliquely upward therefrom and adapted to bear against the head of a rail, an offset impact-surface located between the base and brace, and a plurality of teeth extending downward and inward from the base, each tooth comprising a forward cutting edge, a beveled side, and an inclined ledge, the highest portion of which is in line with the lower surface of the base, said ledge being adapted to pass beneath the adjacent base-flange of the rail.

5. A rail-brace comprising a base, a brace therefor extending obliquely upward therefrom and adapted to bear beneath the head of a rail, teeth projecting downward from the base, one or more ribs located in the angle between the base and brace, and a web supported by said rib or ribs and constituting an impact-surface.

695,611. **TRUNK.** ADAM KING, Columbus, Ohio, assignor of one-third to John Hasenmahl, Columbus, Ohio. Filed Dec. 12, 1901. Serial No. 85,908. (No model.)



Claim.—In a trunk a movable tray or compartment, D, having at one end thereof a mounting device composed of a pair of brackets attached each to a corner of the tray, and each with a vertical arm with a loop on the lower end thereof, and around an inclined rod set parallel with a similar rod similarly located on the opposite side of the trunk and attached to the ends of the trunk, whereby said tray may be drawn outward longitudinally and held in a horizontal position, projecting from one end of said trunk substantially as herein set forth.

695,612. **CORN-PLANTER.** FRANK KOSTLAN, Traer, Iowa, assignor of one-half to J. F. Kindivo, Traer, Iowa. Filed July 5, 1901. Serial No. 67,115. (No model.)



Claim.—1. In a corn-planter, the combination with a pivotally-connected runner-frame and wheel-frame, substantially as described, of a tongue pivotally attached to the forward part of the frame, a spring secured to the upper part of the tongue, a bail mounted on the rear frame, a lever to tilt the same, and links attached to the tongue and embracing the bail, said links being slotted to allow movement of the bail toward the tongue, substantially as described.

2. In a corn-planter, the combination with a space-wheel and seed-dropping mechanism, substantially as described, of an adjustable tripping device clamped to the hub of the space-wheel, and adapted to engage the tripping-lever of the dropper.

3. In a corn-planter, the combination with the forward or runner frame of the planter, of a space-wheel yoke hinged to the forward beam and passing over the rear beam of said frame, a spring secured to the front beam and passing under the rear beam, and a connection of the rear end of said spring with said yoke, substantially as described.

695,613. **AIR-PUMP.** JOHN E. LAMBERT, Detroit, Mich. Filed Aug. 28, 1901. Serial No. 73,239. (No model.)



Claim.—1. In an air-pump for the purpose described, in combination with the cylinder and piston thereof, a conical discharge-nipple, and a valve to engage the outer end of said nipple consisting of a block of yielding material, guides for said block, and springs to engage said guides and force the block against the discharge end of the said nipple whereby the said nipple becomes embedded in said block.

2. In an air-pump, in combination with the cylinder and piston thereof, a conical nipple formed at one end of said cylinder, guide-rods secured at one end to the cylinder and connected at their opposite ends by a guide-bar, a valve consisting of a block of yielding material adapted to engage and close the nipple, a guide-bar movable longitudinally on said guide-rods and provided with ears to engage and hold said valve-block, a valve-stem to guide said valve, and springs sleeved on said guide-rods and engaging said bars to hold said valve against said nipple.

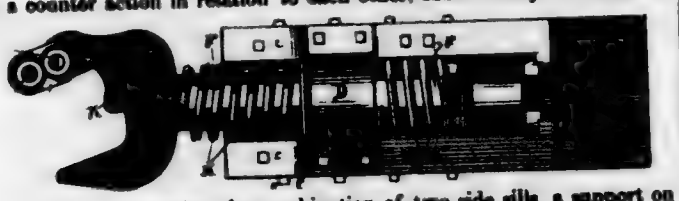
695,614. **BOILER.** CHARLES F. LAPE, San Bernardino, Cal. Filed Aug. 10, 1899. Serial No. 726,776. (No model.)



Claim.—In a steam-boiler, a tube-sheet provided with counterbored perforations, each perforation having its counterbore extended inward and decreasing the thickness of the tube-sheet around the perforation, in combination with a tube for each perforation each tube having its end entered into and passing through the perforation to lie within the counterbore and within the plane of the outer face of the tube-sheet, a thimble of calking metal around the end of each tube, an outwardly-extending flange formed on the outer end of each tube and its surrounding thimble engaging the end face or wall of the counterbore, and a bead turned out from the body of the tube adjacent to the tube-sheet and engaging therewith for locking and securing the end of the tube in the tube-sheet with the extreme outer end in the space of the counterbore in close proximity to the interior of the boiler and the water therein to have this end of the tube protected in the counterbore against heat and subject to the cooling effect of the water against burning, substantially as described.

695,615. **CAR-COUPLING.** JAMES C. LEIDY, Galesburg, Ill. Filed Apr. 29, 1901. Serial No. 57,976. (No model.)

Claim.—1. In a car-coupler, the combination of two supports, a fixed yoke or socket transversely between and attached to the supports, a movable yoke or socket transversely between and slidably connected with the supports, a draw-bar or stem mounted in and passing through the fixed yoke or socket and slidable therein and having its end adjustably entered into the movable yoke or socket and having a restricted endwise movement therein, and resistance-springs, one on each side of the yoke or socket and encircling the draw-bar or stem, the two springs having a counter action in relation to each other, substantially as described.



2. In a car-coupler, the combination of two side sills, a support on each sill, a fixed yoke or socket transversely of and attached to the supports, a movable yoke or socket transversely of and slidably connected with the supports, a draw-bar or stem mounted in and passing through the fixed yoke or socket and slidable therein and having on its outer end a draw-head and having its inner end adjustably entered into the movable yoke or socket and having a restricted endwise movement therein, and resistance-springs one on each side of the fixed yoke or socket, one spring engaging the draw-head and the other spring engaging the movable yoke or socket, the two springs having a counter action in relation to each other, substantially as described.

3. In a car-coupler, the combination of two side sills, two plates on each side sill, one plate overlapping the other, a fixed yoke or socket transversely of and attached to one of the plates, a slot between the overlapping plate and the face of the side sill, a movable yoke or socket transversely of and movable in the slot, a draw-bar or stem passing through the fixed yoke or socket and having its inner end entered into the movable yoke or socket and carrying a draw-head on its outer end and resistance-springs, one on each side of the fixed yoke or socket, one spring engaging the draw-head and the other spring engaging the movable yoke or socket, the two springs having a counter action in relation to each other, substantially as described.

4. In a car-coupler, the combination of two side sills, a support on each side sill, each support formed of two plates one plate overlapping the other, a fixed yoke or socket transversely of and attached to the forward plates of the support, a slot for the rear plate, a movable yoke or socket transversely of and movable in the slot, a draw-bar or stem passing through the fixed yoke or socket and having its inner end entered into the movable yoke or socket and carrying a draw-head on its outer end, an adjusting bolt or screw passing through the end wall of the movable yoke or socket and screw-threaded into the rear end of the draw-bar or stem and resistance-springs, one on each side of the fixed yoke or socket, one spring engaging the draw-head and the other spring engaging the movable yoke or socket, the two springs having a counter action in relation to each other, substantially as described.

5. In a car-coupler, the combination of two side sills, a support on each sill, each support formed of two plates one plate overlapping the other, a fixed yoke or socket having on opposite sides wings or ears for attachment of the yoke or socket to the forward plates of the support and transversely of the support, a slot for the rear plate of the support formed between the face of the plate and the side sill, a yoke or socket having on opposite sides wings or ears to enter the slots of the support and slidably mount the yoke or socket transversely of the support, a draw-bar or stem passing through the fixed yoke or socket and having its inner end entered into the movable yoke or socket and carrying a draw-head on its outer end, an adjusting bolt or screw passing through the end wall of the movable yoke or socket and screw-threaded into the rear end of the draw-bar or stem, and resistance-springs, one on each side of the fixed yoke or socket, one spring engaging the draw-head and the other spring engaging the movable yoke or socket, the two springs having a counter action in relation to each other, substantially as described.

695,616. AIR-VALVE FOR RADIATORS. FRED W. LEUTHESSER, Chicago, Ill., assignor to the Monash-Younker Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 2, 1901. Serial No. 84,231. (No model.)

Claim.—1. In an air-valve for radiators, the combination of a base or cup having an interior chamber and a neck with an inlet opening into the interior chamber, an outer wall or shell fixedly entered into the base or cup and having in its top or upper end an inlet or vent passage, an inner wall or shell seated at its lower end in the base or cup and closed at its lower end against communication with the chamber of the base or cup and having a body of less diameter than the interior diameter of the outer wall or shell leaving a channel or passage between the two walls or shells a float loosely entered into the inner wall or shell and having a body of less diameter than the diameter of the inner wall or shell leaving a channel or space between the float and the inner wall or shell, and a head carried by the float at the upper end for closing and opening the outlet or vent-passage with the fall and rise of the float, substantially as described.



2. In an air-valve for radiators, the combination of a base or cup having an interior chamber and a neck with an inlet opening into the interior chamber, a rim on the upper face of the base or cup around the interior chamber and having an interior screw-thread, a rim on the bottom of the base or cup extending into the chamber and having a smooth interior face, a cylindrical outer wall or shell having the lower portion of its body of greater diameter than the upper portion and having in its top an outlet or vent-passage and screw-threaded at its lower end into the outer rim of the base or cup, an inner wall or shell open at both ends and having its lower end contracted and seated in the inner rim of the base or cup and closed at its lower end against communication with the chamber of the base or cup and of a less diameter than the interior diameter of the outer wall or shell leaving a channel or passage between the two walls or shells, a float having an open lower end and loosely entered into the inner wall or shell and having a body of less diameter than the diameter of the inner wall or shell leaving a channel or space between the float and the inner wall or shell, and a head carried by the float at its upper end for closing and opening the outlet or vent-passage with the fall and rise of the float, substantially as described.

3. In an air-valve for radiators, the combination of a base or cup having an interior chamber and a neck with an inlet opening into the interior chamber, a rim on the upper face of the base or cup around the interior chamber and having an interior screw-thread, a rim on the bottom of the base or cup extending into the chamber and having a smooth interior face, a cylindrical outer wall or shell having the lower portion of its body of a greater diameter than the upper portion with a curve at the juncture of the upper and lower portions and having in its top an outlet or vent-passage and screw-threaded at its lower end into the outer rim of the base or cup, an inner wall or shell open at both ends and having its lower end contracted and seated in the inner rim of the base or cup and closed against communication with the chamber of the base or cup and of a length approximately the same as the length of the lower portion of the outer wall or shell and of a less diameter than the interior diameter of the outer wall or shell leaving a channel or passage between the two walls or shells and an opening at the upper end of the inner wall or shell, a float having an open lower end and loosely entered into the inner wall or shell, having a body of a less diameter than the diameter of the interior wall or shell leaving a channel or space between the float and the inner wall or shell in communication with the channel or passage around the inner wall or shell at the opening around the top, and a head carried by the float at its upper end for closing and opening the outlet or vent-passage with the fall and rise of the float, substantially as described.

4. In an air-valve for radiators, the combination of a base or cup having an interior chamber and a neck with an inlet opening into the interior chamber, a rim on the upper face of the base or cup around the interior chamber and having an interior screw-thread, a rim on the bottom of the base or cup extending into the chamber and having a smooth interior face, a cylindrical outer wall or shell having the lower portion of its body of a greater diameter than the upper portion with a curve at the juncture of the upper and lower portions and having in its top an outlet or vent-passage and screw-threaded at its lower end into the outer rim of the base or cup, an inner wall or shell open at both ends and having its lower end contracted and seated in the inner rim of the base or cup and

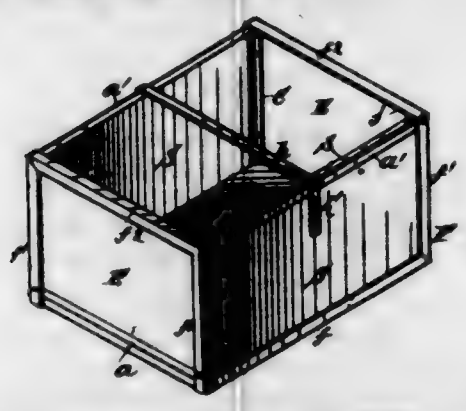
of a length approximately the same as the length of the lower portion of the outer wall or shell and of a less diameter than the interior diameter of the outer wall or shell leaving a channel or passage between the two walls or shells and an opening at the upper end of the inner wall or shell, a float having an open lower end and loosely entered into the inner wall or shell and having a body with a lower portion of greater diameter than the upper portion with the lower portion of a less diameter than the interior diameter of the inner wall or shell leaving a channel or space between the float and the inner wall or shell having communication with the channel or passage around the inner wall or shell through the opening at the top, a head carried by the float at its upper end for closing and opening the outlet or vent-passage with the fall and rise of the float, a guide ring or band entered onto the upper portion of the body of the float for centering the float, and a screen located in the inlet and controlling the flow into and out of the valve from the radiator, substantially as described.

695,617. POSTAL ADVERTISING-BLOTTER. WICKLIFFE C. LYNE, Wilkinsburg, Pa. Filed May 13, 1901. Serial No. 59,974. (No model.)



Claim.—As an advertising medium, the combination of a series of blotting-leaves bound together, constituting a pad, provided with an imprint or inscription constituting an advertisement, and also an imprint directing attention to the interior of the leaves, and an already stamped and addressed mailing device detachably bound in with the blotting-leaves in such a manner as to become an integral permanent portion thereof, or to permit of its removal therefrom, constituting a means of establishing communication between the sender of the blotter and the receiver thereof, and provided with printed matter having especial reference to the printed matter of the blotter, substantially as set forth.

695,618. BOX. AUGUSTUS F. MACK, Brooklyn, N. Y. Filed Aug 26, 1901. Serial No. 73,375. (No model.)



Claim.—1. As an article of manufacture a skeleton for boxes consisting of a continuous piece of metallic angle-bar bent to form upper cross members, corner-posts, and floor members, the ends of the said angle-bar being rigidly united to form a one-piece frame, together with metallic braces extending between and riveted to opposed parallel members of said continuous one-piece frame, substantially as set forth.

2. A skeleton frame for boxes consisting of a continuous piece of metallic angle-bar bent to form upper cross members, corner-posts, and floor members, the ends of the said angle-bar being rigidly united to form a one-piece frame, together with metallic braces extending between and riveted to opposed parallel members of said continuous one-piece frame, in combination with bottom, side, and end boards fitting in said rectangular metallic frame, and means for locking the said bottom, side, and end boards in position substantially as set forth.

3. A metallic skeleton for boxes consisting of upper cross-bars, corner-posts and floor members formed of flanged bars substantially rectangular in cross-section, said rectangular bars being united integrally to form one continuous piece, in combination with braces extending between and riveted to opposite parallel members of the frame, and with the transverse brace secured to the upper side braces and constituting a handle for the frame substantially as set forth.

4. A frame for boxes consisting of the skeleton F, constructed by bending a single continuous piece of metallic angle-bar to form the upper cross-bars f^2, f^2, corner-posts f', f', and floor members f, f, the ends of the said piece of angle-bar being welded to constitute a one-piece frame, and braces a, a, a', a', secured to and between the corner-posts f', f', for the purpose and substantially in the manner set forth.

5. In a box, the combination of the skeleton frame consisting of a continuous piece of metallic angle-bar bent to form upper cross members, corner-posts, and floor members, the ends of said angle-bar being rigidly united to form a one-piece frame, metallic braces rigidly secured to and between the corner-posts of said frame, floor-boards fitting into and between the said floor members, side boards fitting over the edges of the floor-boards and into the corner-posts, and end boards fitting over the floor-boards and between the side boards and under the cross members of the frame, substantially in the manner and for the purpose described.

6. In a box, the combination of the skeleton frame consisting of a continuous piece of metallic angle-bar bent to form upper cross members, corner-posts, and floor members, the ends of said angle-bar being rigidly united to form a one-piece frame, metallic braces rigidly secured to and between the corner-posts of said frame, floor-boards fitting into and between the rectangular floor members, side boards fitting over the edges of the floor-boards and into the corner-posts, end boards fitting over the floor-boards and between the side boards, and under the cross members of the frame, and angle-brackets fitting into the corners formed by the junction of the side and end boards, said angle-brackets being secured rigidly to said metallic frame, substantially as and for the purpose set forth.

7. A metallic skeleton for boxes consisting of the frame F, formed of the upper cross-bars f^2, f^2, corner-posts f', f', and floor members f, f, all made of L-bars substantially rectangular in cross-section and united integrally, the braces a, a, a', a', secured to and between the corner-posts f', f', and the transverse handle h, secured to the upper braces a', a', for the purpose described.

8. The combination with the metallic skeleton consisting of the rectangular frame of L-bars constituting the floor members, corner-posts and upper cross-bars, and of the braces rigidly secured to and between the said corner-posts, of the floor fitting into the said rectangular floor members, the side pieces fitting over the floor and into the corner-posts and formed with the rabbeted upper edges to receive the side braces of the frame and the end pieces fitting over the floor between the side pieces and under the end cross-bars and formed with the rabbeting lower edges for the reception of the end braces of the frame, substantially as described.

9. The combination with the metallic skeleton consisting of the rectangular frame of L-bars constituting the floor members, corner-posts and upper cross-bars, and of the braces rigidly secured to and between the said corner-posts, of the floor fitting into the said rectangular floor members, the side pieces fitting over the floor and into the corner-posts and formed with the rabbeted upper edges to receive the side braces of the frame, the end pieces fitting over the floor between the side pieces and under the end cross-bars and formed with the rabbeting lower edges for the reception of the end braces of the frame, and the angle-brackets fitting into the corners formed by the junction of the side and end pieces and secured rigidly to the metallic frame for the purpose set forth.

10. In a box the combination with the frame F, formed of L-bars constituting the floor members f, f, the corner-posts f', f', and the end bars f^2, f^2, all formed in one integral piece and of the braces a, a, a', a', rigidly riveted to the end posts f', f', of the floor-pieces B, B', the side pieces S, S, the end pieces E, E, and the angle-brackets C, C, fitting in the corners of the box and riveted to the corner-posts f', f', substantially as set forth.

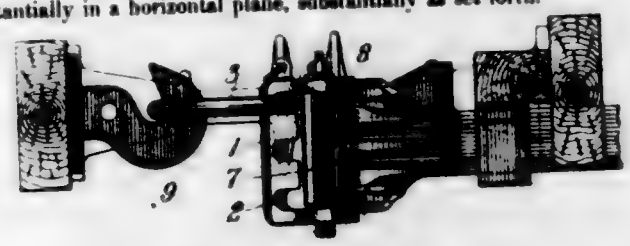
11. In a box the combination of the frame E, formed of L-bars constituting the floor members f, f, the corner-posts f', f', and the end bars f^2, f^2, all formed in an integral piece, and of the braces a, a', a, a', riveted to the end posts f', f', with the floor-pieces B, B', the side pieces S, S, formed with the rabbeted edges s, s, the end pieces E, E, formed with the rabbeted edges s^2, s^2, and the angle-brackets C, C, riveted to the corner-posts f', f', as set forth.

12. The combination in a box of the rectangular frame F, formed of L-bars constituting the floor members f, f, the corner-posts f', f', and end bars f^2, f^2, and of the braces a, a', a, a', and transverse handle-brace h, with the floor-pieces B, B', the side pieces S, S, the end pieces E, E, and the corner angle-brackets C, C, riveted to the corner-posts f', f', the whole arranged substantially as and for the purpose herein set forth.

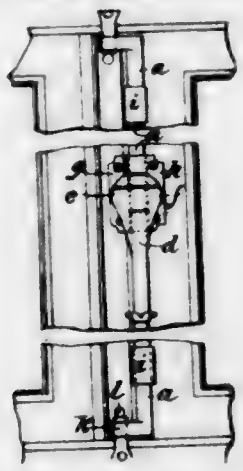
695,619. CAR-COUPLING. STEPHEN C. MASON, Pittsburg, Pa., assignor to McConway & Torley Company, Pittsburg, Pa., a Corporation of Pennsylvania. Filed Nov. 16, 1901. Serial No. 82,512. (No model.)

Claim.—A means for connecting couplers differing in structure, having in combination a clevis, means for connecting the clevis to one coupler and a link adapted to engage with the other coupler, the clevis being

provided with means for supporting one end of the link at different heights whereby the line of draft between adjacent cars can be maintained in or substantially in a horizontal plane, substantially as set forth.

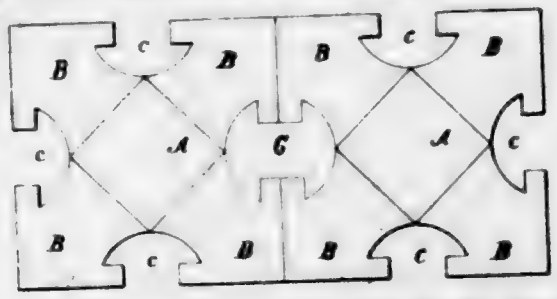


695,620. ESPAGNOLETTE-LOCK. JOHANN MEYER, Bremen, Germany. Filed May 17, 1901. Serial No. 60,751. (No model.)



Claim.—In an espagnolette-lock for windows the combination of a vertical, rotatable locking-rod, bearings on the window-sash for said rod, hooks on said rod at each end thereof, studs on said window adapted to engage said hooks, a collar on said rod, a lever or handle pivoted to said collar so as to allow a free vertical swinging motion, plates on said sashes adjacent to said collar, cam-like noses of different length eccentrically acting against said plates, when said lever, in the locking position of said rod, is swung downwardly thereby pressing the sashes tightly against each other, substantially as described.

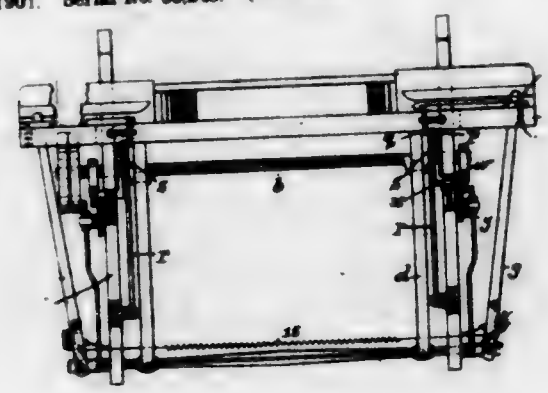
695,621. TILE FLOOR. RICHARD L. MOYLE, New York, N. Y., assignor of one-third to James Harold Warner, New York, N. Y. Filed Aug. 17, 1901. Serial No. 72,391. (No model.)



Claim.—1. A flooring formed of a combination tile, the parts of which are of three different forms, A, B, and C, the four adjoining parts B, having recesses into which fits the tie C, substantially as described.

2. A flooring formed of a combination tile, a central part A, being unconnected with the adjoining parts B, four adjoining parts B, having recesses into which fits the tie C, substantially as described.

695,622. LOOM. CHARLES J. MAUER, Paterson, N. J. Filed Dec 17, 1901. Serial No. 86,243. (No model.)



Claim.—1. In a loom, the combination of the batten, a weft-carrier arranged on said batten, and a spring-controlled weft-carrier-actuating means, said actuating means being controlled by said weft-carrier, substantially as described.

2. In a loom, the combination of the batten, a weft-carrier arranged on said batten, a spring-controlled weft-carrier-actuating means, mechanism for maintaining said actuating means set against the tension of its spring, and means, controlled by said weft-carrier, for actuating said mechanism to release the actuating means, substantially as described.

3. In a loom, the combination of the batten, a shuttle arranged on said batten, a spring-controlled shuttle-actuating means, mechanism for maintaining said actuating means set against the tension of its spring, and means, comprising a part movable into the path of the shuttle on the batten and adapted to be moved by said shuttle, for actuating said mechanism to release the actuating means, substantially as described.

4. In a loom, the combination of the batten, a shuttle arranged on said batten, a spring-controlled shuttle-actuating means, mechanism for maintaining said actuating means set against the tension of its spring, means for moving said actuating means into engagement with said mechanism, and means, controlled by said shuttle, for actuating said mechanism to release the actuating means, substantially as described.

5. In a loom, the combination of the batten, a shuttle arranged on said batten, a spring-controlled shuttle-actuating means, a system of levers, means for moving said shuttle-actuating means into engagement with said levers to maintain said means set against the tension of its spring, and means, controlled by said shuttle, for actuating said system of levers to release said shuttle-actuating means, substantially as described.

6. In a loom, the combination of the batten, a shuttle arranged on said batten, a spring-controlled shuttle-actuating means, a system of levers, a rotating cam-shaft, said shuttle-actuating means being adapted to be moved by said cam shaft into engagement with said levers to maintain said means set against the tension of its spring, and means, controlled by said shuttle, for actuating said system of levers to release said shuttle-actuating means, substantially as described.

695,628. GONDOLA FREIGHT-CAR. THOMAS J. NEWBERRY and JOHN V. ERICSON, Chicago, Ill. Filed Dec. 20, 1901. Serial No. 86,700. (No model.)



Claim.—1. The combination with longitudinally central beams, extending from truck to truck, of a cylindrical bottom attached directly to said beams, substantially as specified.

2. The combination with longitudinally central beams, extending from truck to truck, of a cylindrical car-bottom, secured directly to said beams, having its side edges below the wheel-tops, substantially as specified.

3. The combination with longitudinally central beams, extending from truck to truck, and a cylindrical car-body bottom, attached directly to said beams, having its edges below the wheel-tops, of a car-body having discharging-doors with free edges locked to said side edges, substantially as specified.

4. The combination with longitudinally central beams, extending from truck to truck, and a cylindrical car-body bottom, attached directly to said beams, having its side edges below the wheel-tops, of a car-body having discharging-doors whereof their free edges are locked to said side edges, and means to lock said doors to said edges, substantially as specified.

5. The combination with a cylindrical car-bottom having its side edges below the wheel-tops, of a car-body with compound discharging-doors immediately above said edges, substantially as specified.

6. The combination with a cylindrical car-body bottom, of a flat bottom with closable openings through it above said cylindrical bottom, substantially as specified.

7. The combination with a car-body having a cylindrical bottom, of a flat bottom above said cylindrical bottom having closable passages, side doors to hold said closures and means to operate said doors, substantially as specified.

8. The combination with a car-body having a cylindrical bottom and transverse frames dividing said car-body into sections, of discharging-doors immediately above the edges of said bottom, substantially as specified.

695,624. **BOWLING-ALLEY.** EMIL REISKY, Rochester, N. Y., assignor to Charles Reisky, Rochester, N. Y. Filed Aug. 20, 1900. Serial No. 28,504. (No model.)



Claim.—1. In a bowling-alley, the run, a ball-rack higher than the run, and a return-way adapted to convey balls from the pit to the ball-rack, and having a portion adjacent to the run depressed below the surface of the alley.

2. In a bowling-alley, the run, a ball-rack higher than the run, a ball-guide shelf against the rear wall of the pit and above the run; and a return-way adapted to convey balls from the guide-shelf to the ball-rack and having the portion adjacent to the run depressed below the surface of the alley.

3. In a bowling-alley, a ball-guide shelf against the rear wall of the pit and above the run, a return-way set between adjacent alleys and running from said shelf to the ball-rack and having the portion adjacent to the run depressed below the surface of the alleys; and a ball-rack higher than and set back of the run.

4. In a bowling-alley, a pair of alleys, a ball-rack higher than the run; a single trough between the alleys for balls that run off the alleys; and a return-way under said trough adapted to convey balls from the pit to the ball-rack.

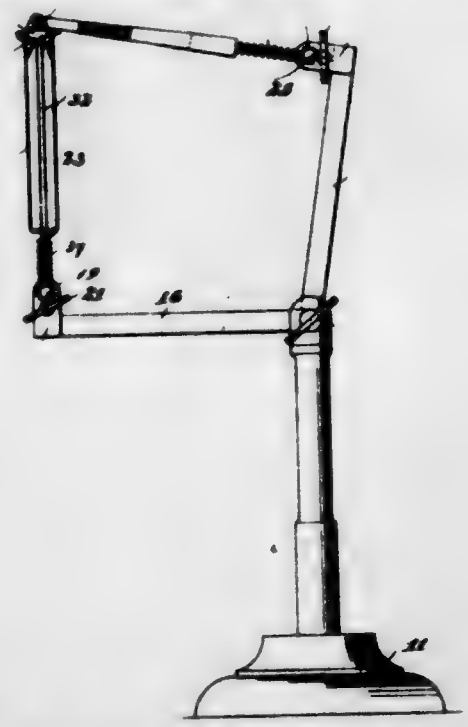
5. In a bowling-alley, a pair of alleys, a single trough between the same for the balls that run off the alleys, said trough being only of such width as to permit the passage of a single ball, and a return-way extending from the pit to the ball-rack at the player's end under said trough, a ball-rack back of the run, and a screen or dividing-board supported between the pin portions of the alleys and over the trough.

6. In a bowling-alley, a pair of alleys, a single trough between the same for balls that run off the alleys, said trough being only of such width as to permit the passage of a single ball, and a return-way extending from the pit to the ball-rack at the player's end under said trough, a ball-rack back of the run, a screen or dividing-board supported between the pin portions of the alleys and over the trough, and a buffer for checking the balls passing through the trough into the pit.

695,625. **CROWN-SOLDERING PLIERS.** FRED E. ROACH, Chicago, Ill. Filed May 20, 1901. Serial No. 61,063. (No model.)

Claim.—1. A pair of soldering-pliers, comprising in combination a supporting-standard, a pair of arms pivotally clamped in said standard, a pair of holding-arms swiveled on universal joints in said first-named arms, and spring-actuated longitudinally-movable clamping devices carried on said holding-arms, whereby two elements that are to be permanently united as by solder may be securely held in proper relative positions during the soldering operation, substantially as described.

2. A pair of soldering-pliers, comprising a supporting-standard, a pair of arms pivotally clamped in said standard, a pair of holding-arms swiveled on universal joints in said first-named arms and adapted to be fixedly clamped therein, suitable receiving devices on the outer ends of said holding-arms, and longitudinally-slidable clamps carried by said holding-arms respectively and coöperating with said receiving devices to hold in proper relative positions two elements that are to be permanently united by soldering or otherwise, substantially as described.



3. A pair of soldering-pliers for permanently uniting two elements of an artificial tooth, comprising in combination a standard, a pair of arms pivotally clamped in said standard, a pair of holding-arms mounted on universal joints at the outer extremities of said first-named arms, appropriate devices on the extremities of said holding-arms for receiving the elements to be united, longitudinally-slidable clamping devices on said holding-arms respectively, and springs located at the inner extremities of said holding-arms adjacent the swiveled joints thereof and actuating the clamps to effect a coöperation between the latter and the receiving devices in firmly holding the parts of the tooth to be joined, substantially as described.

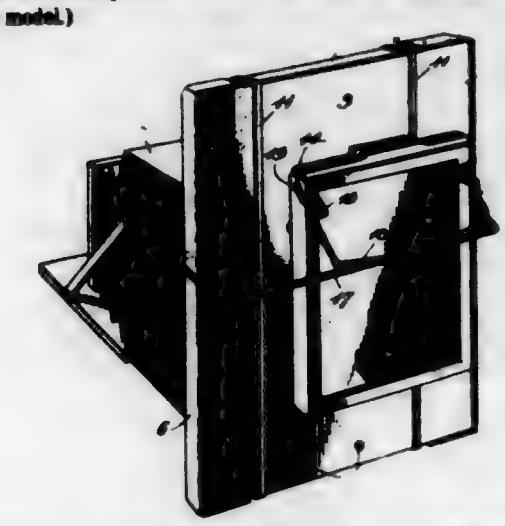
4. In an instrument of the character described, the combination with a pair of suitably-supported and universally-swiveled holding-arms, one of said arms at its free end being adapted to receive the post of an artificial tooth, and the other to receive an element of the crown, of longitudinally-slidable spring-actuated clamping devices mounted on said arms, the outer extremities of said clamping devices engaging and holding said post and crown portions of the tooth in proper relative positions for the application of a permanent binding agent thereto, substantially as described.

5. In an instrument of the character described, the combination with a pair of suitably-supported and universally-swiveled holding-arms, one of said arms being slotted at its outer end to receive the post of an artificial tooth, and the other arm being headed at its outer extremity to engage a coöperating fastening device formed on the crown portion of the tooth, of a pair of longitudinally-slidable clamping devices mounted on said arms respectively, and a pair of springs mounted on said arms between their swivel-joints and the inner ends of the clamping devices respectively and operating to thrust the latter outwardly and cause their outer ends to engage and firmly hold said post and crown portions of the tooth, substantially as described.

6. In an instrument of the character described, the combination with a standard and a pair of arms adjustably pivoted therein so as to occupy any desired angular relation to said standard and each other, of socket-pieces formed on the outer ends of said arms respectively, a pair of holding-arms, universally swiveled in said socket-pieces respectively, and clamping devices applied to said socket-pieces whereby said holding-arms may rigidly be held in predetermined positions in said socket-pieces, substantially as described.

7. In an instrument of the character described, the combination with a standard and a pair of arms adjustably pivoted therein so as to occupy any desired angular relation to said standard and each other, of socket-pieces formed on the outer ends of said arms respectively, a pair of holding-arms universally swiveled in said socket-pieces respectively, clamping devices applied to said socket-pieces for securing said holding-arms fixedly therein, and a pair of longitudinally-movable connected spring-pressed clamping-arms disposed in approximately parallel relation on opposite sides of each holding-arm and adapted to perform their functions solely through an endwise thrust thereon, substantially as described.

695,626. MULTIPLYING ATTACHMENT FOR CAMERAS. WAYLAND L. ROOT, Spokane, Wash. Filed Feb. 16, 1901. Serial No. 47,632. (No model.)



Claim.—1. A camera, having a multiple-exposure attachment, comprising a body of greater area than that of the back of the camera, and having an exposure-opening, a frame carried by the front of the body, surrounding the exposure-opening thereof, and detachably fitted to the camera in the place of the usual focusing-glass, thereby forming a supporting connection between the attachment and the camera, and means for adjustably supporting a photographic plate upon the outer or rear side of the body.

2. A multiple-exposure attachment for cameras, comprising a plate-like body, having an exposure-opening, a frame carried by the front of the body, surrounding the exposure-opening, and constructed to take the place of the usual focusing-glass of a camera, means for interchangeably connecting a plurality of such frames to the body, and means for adjustably supporting a photographic plate upon the outer or rear side of the body.

3. A multiple-exposure attachment for cameras, comprising a body, having an exposure-opening, a diagram-card fitted to the outer or rear side of the body, and provided with a soft or yieldable outer packing-face, there being a plurality of perforations formed through the card and arranged in a predetermined order to form a diagram, a plate-holder carrier and means for adjustably supporting said carrier upon and against the outer packing-face of the card and in coöperative relation to the perforations.

4. In a multiple-exposure device for cameras, the combination of a body having an exposure-opening, a carrier for a photographically-sensitive member, and a separable frictional connection between the members, one of the latter having a frictional surface which is inclined with respect to the plane of the seat for a sensitive member.

5. In a multiple-exposure device for cameras, the combination of a body having an exposure-opening, a carrier for a photographically-sensitive member, one of these parts having a frictional surface which is inclined with respect to the plane of the seat for a sensitive member, and a fastening device connecting the parts and in frictional engagement with the inclined surface.

6. In a multiple-exposure device for cameras, the combination of a body having an exposure-opening, a carrier for a photographically-sensitive member, embodying an outer frictional portion which is inclined with respect to the plane of the seat for a sensitive member, and a fastening having a slidable connection with the body and in frictional engagement with the inclined portion of the carrier.

7. In a multiple-exposure device for cameras, the combination of a body having an exposure-opening, a carrier for a photographically-sensitive member, embodying an outer frictional portion which is inclined with respect to the plane of the seat for a sensitive member, and a substantially U-shaped clamp-fastening having its intermediate portion constructed for frictional engagement with the inclined portion of the carrier, and its opposite ends provided with slidable connections with the body.

8. In a multiple-exposure device for cameras, a carrier for a photographically-sensitive member, embodying a frictional portion which is inclined with respect to the plane of the seat for a sensitive member and formed by a bail having its opposite ends fixed and its intermediate portion inclined across and away from the plane of the seat for a sensitive member.

9. In a multiple-exposure device for cameras, a carrier for a photographically-sensitive member, embodying an outer frictional portion which is inclined with respect to the seat for a sensitive member, and formed by a bail having its opposite ends fixed, and an intermediate brace device to support the bail at an inclination to the plane of the seat for a photographically-sensitive member.

10. In a multiple-exposure device for cameras, a carrier for a photographically-sensitive member, embodying a frictional portion which is adjustable to opposite sides of the seat for the sensitive member and inclined with respect to the plane of said seat, and formed by a bail having its opposite ends pivotally supported and constructed to be swung to opposite sides of the seat for a sensitive member, there being an intermediate brace to support the bail in its inclined position at either side of said seat.

11. A plate-holder having an inclined frictional portion disposed at an angle to the plane of the seat for a plate, and formed by a bail having its opposite ends connected to the holder, and its opposite side members provided with corresponding inwardly-directed lateral projections normally lying against the adjacent sides of the holder to form braces for supporting the bail at an angle to the seat for a plate.

12. A plate-holder having an inclined frictional portion disposed at an angle to the plane of the seat for a photographically-sensitive member, and formed by a bail having its opposite ends pivotally connected to the holder, and its opposite side portions having corresponding intermediate inwardly-bent projections normally lying against the adjacent sides of the plate-holder to incline the bail with respect to the plane of the seat for a sensitive plate.

13. In a multiple-exposure device for cameras, the combination with a body having an exposure-opening, of a plate-holder carrier, having a bail which is inclined away from the body, and a substantially U-shaped clamp to extend transversely across the bail, and having its opposite ends constructed for adjustably-slidable engagement with the body.

14. In a multiple-exposure device for cameras, the combination with a body, having an exposure-opening, of a plate-holder carrier, having a bail, which is inclined away from the back or body, and has its intermediate end portion provided with a lateral projection, and a substantially U-shaped clamp to lie transversely across the projection, and having its opposite ends constructed to slidably embrace the opposite edges of the body.

15. In a multiple-exposure device for cameras, the combination with a body, having an exposure-opening therein, of a plate-holder carrier, having a pivotal bail, which is constructed to be swung to opposite sides of a plate-holder, there being an intermediate engagement between the side arms of the bail and the plate-holder, and a substantially U-shaped clamp to lie across the bail, and having its opposite ends constructed to slidably embrace the opposite edges of the body.

16. A multiple-exposure attachment for cameras, comprising a body having an exposure-opening formed therein, a plate-holder, having a marginal packing-strip upon one side thereof, a bail-shaped carrier carried by the plate-holder and inclined transversely across and away from the same, and a clamp extending across the carrier and detachably connected to the body.

17. In a multiple-exposure device for cameras, the combination with a body having an exposure-opening, of a plate-holder carrier, having a bail, the opposite ends of which are connected to the carrier, and the opposite sides having corresponding intermediate bearings upon the carrier, whereby the bail is inclined away therefrom, and a yoke-shaped clamp, having its intermediate portion lying across and against the outer side of the outer end portion of the bail, and its opposite ends constructed for detachable engagement with the body.

18. A plate-holder having an inclined frictional portion disposed at an angle with respect to the seat for a sensitive plate, and formed by a bail having its opposite sides embracing opposite edges of the holder, and its opposite ends pivotally connected to the respective edges of the holder and at one end thereof, the bail being capable of a swinging movement to opposite sides of the plate-holder, and the opposite sides of the bail being provided with corresponding brace devices constructed for engagement with either side of the plate-holder to support the bail in an inclined position.

19. A plate-holder having an inclined frictional portion disposed at an angle to the seat for a sensitive plate, and formed by a bail having its opposite ends connected to the holder, and means for holding the bail inclined outwardly from its connection with the holder.

20. A plate-holder having an inclined frictional portion disposed at an angle to the seat for a sensitive plate, and formed by a swinging bail having its opposite ends sprung into openings formed in opposite edges of the plate-holder and adjacent to one end thereof, whereby the bail is capable of a swinging movement to opposite sides of the holder the opposite sides of the bail having corresponding intermediate brace devices for engagement with the holder at either side thereof to incline the bail away from the holder.

695,627. IMITATION LEATHER AND PROCESS OF PRODUCING IT. HERMAN ROSENBERG, New York, N. Y., assignor to Standard Varnish Works, New York, N. Y., a Corporation of New York. Filed Jan. 15, 1902. Serial No. 89,853. (No specimens.)

Claim.—1. The process of producing imitation leather consisting in coating a textile fabric with rubber, vulcanizing the rubber coating on the fabric, applying a liquid coat composed of vegetable oil, sulfur, turpen-

tine, benzene and coloring-matter, and vulcanizing the said coat on the vulcanized rubber coat.

2. An imitation leather composed of a textile fabric, a coat of rubber vulcanized on the textile fabric and a coat consisting of oil, sulfur turpentine, benzene and coloring-matter, vulcanized on the vulcanized rubber coat.

695,628. FASTENING DEVICE. CHARLES R. SCHLIEPER, Elliott, Pa., assignor of one-half to Edward R. Erikson, Pittsburg, Pa. Filed Dec. 28, 1901. Serial No. 87,535. (No model.)



Claim.—1. A fastening device comprising a bar provided with a loop, a plate or bar having an orifice therein adapted to receive said loop, and a pin adapted to be inserted in said loop and straddle the orifice in said bar or plate.

2. A support for carrying tin-plate or metal plates comprising a bracket, one member of which is provided with a horizontally-disposed loop, in combination with a plate or bar having an opening or perforation therein adapted to receive said loop, and a split pin adapted to be inserted in said loop and straddle the opening in said plate or bar.

695,629. SHIRT. JAMES T. SHIPLEY, Detroit, Mich. Filed Oct. 26, 1900. Serial No. 34,413. (No model.)



Claim.—1. A shirt provided with vertical slits arranged in pairs in front and back and of a length adapted to receive the fingers and through which the buttoning-straps of a pair of suspenders are adapted to pass, loops attached to said shirt above the slits, one for each slit and adapted to cover the same, and means for detachably securing said loops to the upper portion of the trousers, said loops being adapted to receive a belt to encircle the body of the wearer.

2. In combination with a shirt having a series of vertical slits formed in front and back of the shirt, a series of loops attached to said shirt above the slits and adapted to cover the same, buttonholes formed in the inner member of said loops near their lower edge and adapted to be buttoned to the trousers, said loops being adapted to receive a belt to encircle the body of the wearer, substantially as and for the purpose described.

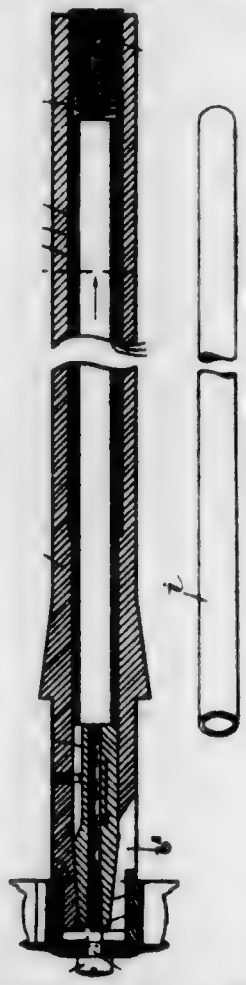
3. In a shirt or waist, a series of slits formed in front and back of the shirt, a series of loops attached to said shirt above the slits and adapted to reach down over the trousers top, said loops being adapted to receive a belt to encircle the body of the wearer.

695,680. ROTARY-CUTTER HOLDER. CHARLES G. BELMER, Chelsea, Mass., assignor of one-half to Arthur A. Briggs, Haverhill, Mass. Filed July 10, 1899. Serial No. 723,284. (No model.)

Claim.—1. A rotary-tool holder comprising a shaft having a tubular outer end which is formed externally as a tool-seat and is longitudinally slotted to make said seat expansible, the interior surface of the tool-seat portion of the shaft being tapered, a wedge movable within the shaft and comprising a conical collar having a reduced portion behind it, said collar being formed to coöperate with the tapered inner surface of said shaft, and a screw engaged with said wedge and having a tool-securing head projecting from the tool-seat end of the shaft.

2. A rotary-tool holder comprising a shaft having a tubular expansible tool-seat at one end, a seat-expanding wedge movable in said shaft, an adjusting-screw engaged with said wedge and having a tool-engaging head projecting from the end of the shaft, and a spring adapted to force the wedge outwardly toward the screw.

3. A rotary-tool holder comprising a tubular shaft having an expansible tool-seat at one end, a seat-expanding wedge movable longitudinally in said shaft, and adapted to be withdrawn from the rear end thereof, an adjusting-screw engaged with said wedge and having a tool-engaging head projecting from the end of the shaft, a spring adapted to force the wedge outwardly toward the screw, and a stop or abutment detachably secured to the shaft to support the spring, the spring and wedge being removable from the shaft when said stop is displaced.



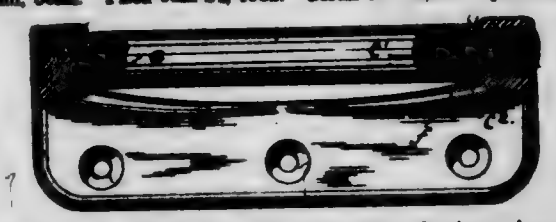
4. A rotary-tool holder comprising a shaft having an expansible tool-seat at one end, a seat-expanding wedge movable longitudinally in said shaft, an adjusting-screw engaged with the wedge and bearing a tool-engaging head projecting from the end of the shaft, a spring adapted to force the wedge outwardly toward the screw, and means for varying or adjusting the pressure of said spring.

5. A rotary-tool holder comprising a tubular shaft one end of which is formed as an expansible tool-seat, the bore of the shaft extending through the entire length thereof and having a tapered portion within the expansible part of the shaft, a detachable stop near the opposite end, and a movable filling-piece interposed between the stop and wedge.

6. A rotary-tool holder comprising a tubular shaft one end of which is formed as an expansible tool-seat, the bore of the shaft extending through the entire length thereof and having a tapered portion within the expansible part of the shaft, and a detachable spring seat or stop near the opposite end, a spring bearing on said seat within the shaft, and a sliding tube interposed between the spring and wedge.

7. A rotary-tool holder comprising a tubular shaft one end of which is formed as an expansible tool-seat, the bore of the shaft extending through the entire length thereof and having a tapered portion within the expansible part of the shaft, and a spring-seat near the opposite end of the shaft, a spring bearing on said seat within the shaft, a sliding tube interposed between the spring and wedge, and a sleeve of yielding material between said tube and the internal surface of the shaft.

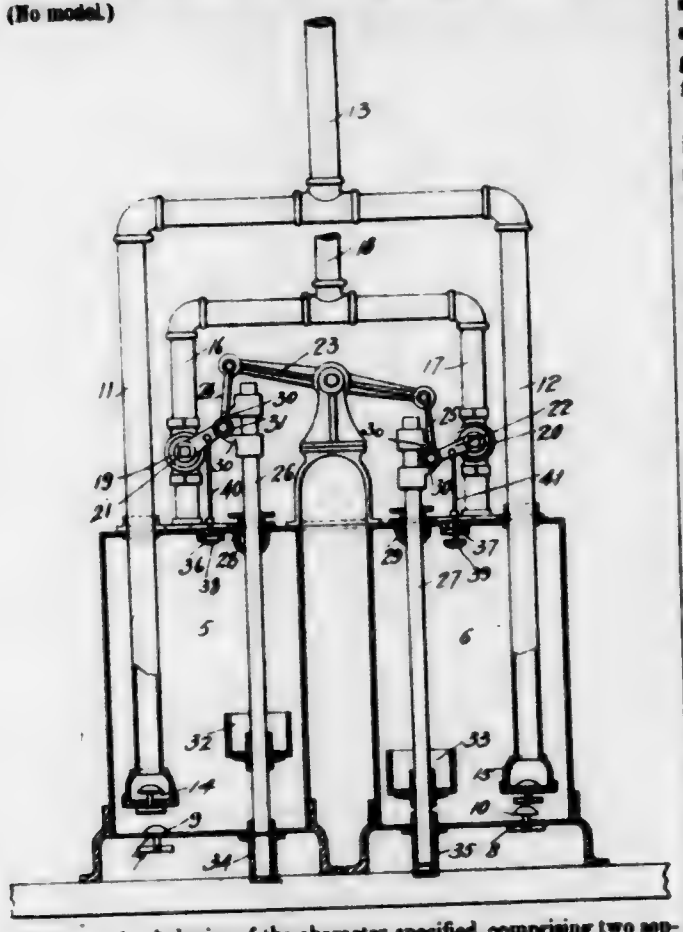
695,681. ROLLER CHAFE-IRON. THOMAS H. BRADY, New Britain, Conn. Filed Jan. 24, 1902. Serial No. 91,068. (No model.)



Claim.—In combination; the journal-box having a journal-socket and partial ball-race; the roller having at one end a journal-pintle adapted to enter said journal-socket and a partial ball-race and having at its opposite end a journal-socket and partial ball-race; the screw having a journal-pintle adapted to enter said last-mentioned journal-socket and a partial

ball-race; an internally-threaded support for said screw; and the two sets of balls all substantially as described and for the purposes set forth.

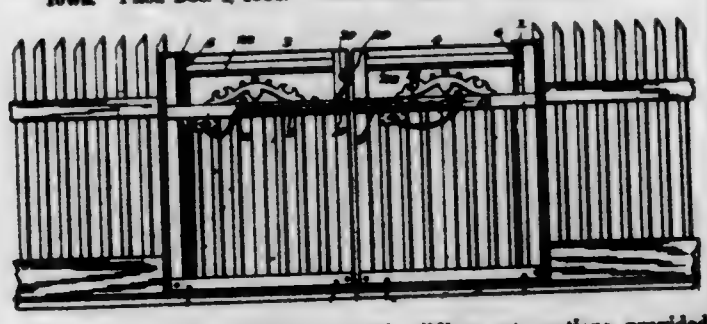
695,632. COMPRESSED-AIR WATER-ELEVATOR. GRENVILLE D. BUCHANAN, Jacksonville, Fla. Filed May 1, 1901. Serial No. 58,368. (No model.)



Claim.—1. A device of the character specified, comprising two separate water-chambers, each having a valved water-inlet at its bottom and a valved air-vent at its top, an air-supply pipe connected with each of the chambers, a rotary valve carried by each of the said pipes and provided each with a crank-arm, a walking-beam, a link carried by each of the ends of the walking-beam and connected to the said crank-arms, a rod connecting with each crank and with the air-vent valve, a shift-rod in each of the chambers, a water-holding cup carried by each of the shift-rods, a connection between each shift-rod and the cranks of the rotary valve, and valved discharge-pipes having their lower ends disposed adjacent to the lower ends of the said chamber.

2. A device of the character specified, comprising two separate water-chambers, each having a valved water-inlet at its bottom and a valved air-vent at its top, an air-supply pipe connected with each of the chambers, a rotary valve carried by each of the said pipes and provided each with a crank-arm provided at its extremity with a friction-roller, a walking-beam, a link carried by each of the ends of the walking-beam and connected with the outer ends of the crank-arms, a rod connected with each crank-arm intermediate of its ends and with the air-vent valve, a cup-bearing shift-rod in each of the chambers, pairs of tappets carried by each shift-rod and engaging the friction-rollers of the crank-arms, and discharge-pipes having their lower ends provided with upward-opening valves, substantially as and for the purpose specified.

695,688. FARM OR YARD GATE. DANIEL M. COX, Moulton, Iowa. Filed Dec. 4, 1901. Serial No. 84,642. (No model.)



Claim.—1. The combination with sliding gate-sections provided with keepers, of a locking-bar mounted in said keepers and provided with recesses or corrugations in its edge, and a curved key to wedge between the said keepers and said recesses, substantially as set forth.

2. The combination with roller-supported sliding gate-sections and keepers for guiding said sections in their sliding movement, of a guard-bar spanning the opening between the same, and means for holding the gate-sections spaced apart, substantially as set forth.

3. The combination with roller-supported sliding gate-sections and keepers for guiding said sections in their sliding movement, of a guard-bar spanning the opening between the same, and means for holding the gate-sections spaced apart, said means consisting of shoulders carried by said gate-sections engaging recesses formed in the said bar, substantially as set forth.

4. A guard-bar for the purpose set forth, having elevated heads at its ends, bolts extending diagonally through said heads and provided with nuts at their lower ends and eyes at their upper ends, and a barbed wire having its ends connected to the eyes of said bolts, substantially as set forth.

5. The combination with sliding gate-sections, of rods connecting their vertical stiles, the outer ends of which are provided with threads to receive nuts and the inner ends of which are provided with eyes, and means for connecting the eyes together, substantially as set forth.

6. A gate-section provided with brackets and a turn-button adapted to support and retain a guard-bar, in combination with said guard-bar, substantially as set forth.

7. The combination with a sill, the gate-posts and the stop-posts, of sliding gate-sections carrying rollers to engage the sills, said keepers connecting said gate-sections with said gate-posts, a set of keepers carried by the gate-sections, a movable locking-bar engaged with said keepers and provided with recesses or corrugations in its upper edge, and curved keys adapted to be inserted between said last-named keepers and the walls of said recesses or corrugations and lock the bar in adjusted position, substantially as set forth.

695,684. LIFE-BOAT. CHARLES DICKERSON, Washington, D. C. Filed Sept. 5, 1899. Renewed Feb. 15, 1902. Serial No. 94,184. (No model.)



Claim.—1. The combination with a life-boat provided with a sunken deck and hoods extending above said sunken deck—one hood at each end of said boat; each of said hoods provided with an air-tube extending above and opening outside of said hood: open shelves 25 secured to the body of the vessel below the deck thereof in near proximity to the lower ends of said hoods; and the self-acting pivot-valve 22; the chain 23 provided with the ball 24, whereby the self-acting valves will be operative when said boat is on its bilge or when entirely inverted; substantially as and for the purpose set forth.

2. A life-boat comprising a hull; a sunken deck; a centerboard-well

forming a self-bailing compartment in communication with said sunken deck; longitudinal bulkheads forming continuations of said centerboard-well, and forming also, part of the longitudinal bulkheads beneath said sunken deck; and fresh-water tanks located at the opposite ends of said centerboard-well; substantially as and for the purpose set forth.

3. A life-boat comprising a hull, a sunken deck and the raised hoods, in combination with the diagonal pipes, 27, the cable, 30, and the cable, 32, provided with the dead-eye, 31, substantially as and for the purpose set forth.

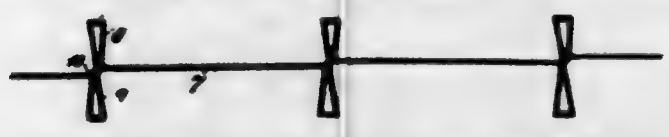
4. A life-boat comprising the hull, the deck and the raised hoods, in combination with the diagonal pipes, 27 and 28, extending through the hood, deck and hull, and the windlass, 29, and its cables, 30 30, extending in opposite directions through said pipes, 27 28, substantially as and for the purpose set forth.

695,685. PROCESS OF MAKING METAL TUBES. ELISHA ENNEVER, Providence, R. I. Filed July 28, 1900. Serial No. 725,376. (No specimens.)



Claim.—The process herein described for making tubes and cylinders by electrodeposition, the same consisting in forming a thin sheet of metal by electrodeposition on a metal cathode, removing the sheet, forming the sheet into a tube or cylinder by uniting the edges, placing the tube or cylinder on a support in an electrolytic vat and depositing metal until the required thickness of metal is secured.

695,686. SPRING BED OR SLAT BOTTOM. ELMER E. RYSTER, Ashland, Ohio, assignor of one-half to William Ryster, Ashland, Ohio. Filed May 4, 1901. Serial No. 58,732. (No model.)



Claim.—1. A tie-wire for spring bed-bottoms, seats, and the like comprising a single piece of wire having loops extending in opposite directions, the wire extending from the straight body portion and doubling back upon itself to form one loop, thence extending across the body portion and doubling back upon itself forming the second loop, the portion after forming the second loop extending under and interlocking with the bend formed at the union of the first loop and the body portion and thence extending forward to the next set of loops, substantially as described.

2. In combination, a frame, a plurality of springs arranged in rows, cross-rods extending across the springs, a continuous tie-wire extending from side to side of the frame between the rows of springs and having integral transverse extensions connecting the cross-rods to the springs and the adjoining springs to each other, substantially as described.

3. In combination, a plurality of springs arranged in rows, continuous tie-wires extending between said screws, integral loops extending at right angles from the body portion of said wires, said loops having angular bent ends engaging the coils of the springs, and straight stay-rods extending through said ends on the opposite sides of said coils, substantially as described.

695,687. VALVE FOR GAS-BURNERS. MERRITT G. GILBERT, Battlecreek, Mich. Filed Aug. 3, 1901. Serial No. 70,723. (No model.)



Claim.—1. In an automatic cut-off and controlling device for gas-burners, the combination of the casing B, a hand-valve C controlling the same, a T-shaped chamber within the valve, a pitman *e* with an auxiliary valve *e'* on one end to rest against a suitable valve-seat, a spring *i* for holding the same normally against the seat, a rock-shaft D extending through one branch of the T across the center of the same, a lever E connected to said rock-shaft; a sleeve *a* in the opposite branch of said chamber embracing the rock-shaft D, a stop-pin *a''* projecting inwardly from the inner end of the sleeve, a notched thumb-nut or button embracing a pin in the extended end *a'* of the sleeve *a* for adjusting the same, a transverse pin *d* through the rock-shaft D engaging the hole in the end of the pitman *e*, all constructed substantially as described for the purpose specified.

2. In an automatic cut-off and controlling device for gas-burners, the combination of the casing B, a hand-valve C controlling the same, a T-shaped chamber within the valve, a pitman *e* with an auxiliary valve *e'* on one end to rest against a suitable valve-seat, a spring *i* for holding the same normally against the seat, a rock-shaft D extending through one branch of the T across the center of the same, a lever E connected to said rock-shaft, a sleeve *a* in the opposite branch of said chamber embracing the rock-shaft D, a stop-pin *a''* projecting inwardly from the inner end of the sleeve, a transverse pin *d* through the rock-shaft D engaging the hole in the end of the pitman *e*, all constructed substantially as described for the purpose specified.

3. In an automatic cut-off and controlling device for gas-burners, the combination of the casing B, a T-shaped chamber within the valve, a pitman *e* with an auxiliary valve *e'* on one end to rest against a suitable valve-seat, a spring *i* for holding the same normally against the seat, a rock-shaft D extending through one branch of the T across the center of the same, a lever E connected to said rock-shaft, a sleeve *a* in the opposite branch of said chamber embracing the rock-shaft D, a stop-pin *a''* projecting inwardly from the inner end of the sleeve, a notched thumb-nut or button embracing a pin in the extended end *a'* of the sleeve *a* for adjusting the same, a transverse pin *d* through the rock-shaft D engaging the hole in the end of the pitman *e*, all constructed substantially as described for the purpose specified.

4. In an automatic cut-off and controlling device for gas-burners, the combination of a suitable valve-casing having a T-shaped chamber therein, a valve in the main body of the T having a spring for holding it normally closed and a pitman extending therefrom, a rock-shaft in one branch of the T with a lever extending above the surface of the burner or burner-grate, an adjustable stop to engage the said rock-shaft to hold the valve slightly open and a connection between the rock-shaft and the valve.

5. In an automatic cut-off and controlling device for gas-burners, the combination of a suitable valve-casing having a T-shaped chamber therein, a valve in the main body of the T having a spring for holding it normally closed and a pitman extending therefrom, a rock-shaft in one branch of the T with a lever extending above the surface of the burner or burner-grate, a stop to engage the said rock-shaft to hold the valve slightly open and a connection between the rock-shaft and the valve.

695,688. MAGAZINE PLATE-HOLDER. CARL P. GOERZ, Friedenau, Germany. Filed Jan. 3, 1901. Serial No. 41,966. (No model.)



Claim.—In a magazine plate-holder the combination, with a flat box, open at one of its narrow sides, having in its top side a removable shutter, closing a window-like opening therein, of a flat frame of U shape, inserted with its open end ahead into the aforesaid box, a flexible shutter fastened to said box and sliding in a groove of the aforesaid frame, springs for pressing the plates against the top of the box, a casing adapted to surround the pile of plates and adapted to be inserted into the aforesaid frame, removable shutters closing said casing at the top and bottom; a cover adapted to close the open side of the aforesaid box, said cover being provided with automatically-closing slots, adapted to permit the removal and insertion of the shutters of said casing; substantially as and for the purpose described.

695,689. PHOTOGRAPHIC-ROLL HOLDER. CARL P. GOERZ, Friedenau, Germany. Filed May 1, 1901. Serial No. 58,313. (No model.)

Claim.—1. In a photographic-roll holder, the combination with a casing having one end closed, one of its sides being open, and guides located adjacent to said open side; of a removable roll-holder comprising a cover for the open end of said casing, said cover carrying a depending wall of a length to rest on the lower end of the casing when in position; film holding and moving mechanism carried by said cover and wall and removable therewith; and guides carried by said casing adapted to move the lower end of said roll-holder temporarily out of alinement with the normal position of the holder during its movement, at a point adjacent to the lower end of the casing.

2. In a photographic-roll holder, the combination with a casing having one end closed, one of its sides being open, and guides located adjacent to said open side; of a removable roll-holder comprising a cover for the open end of said casing, said cover carrying a depending wall of a length to rest on the lower end of the casing when in position; spring-

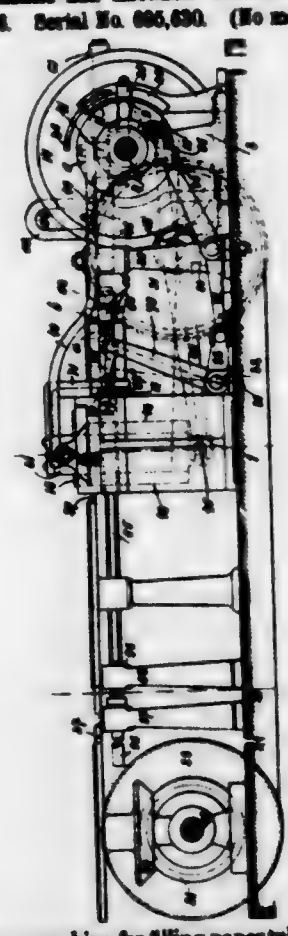
actuated slides located at the lower end of said wall, said cover and slides having opposing spool-bearings; winding mechanism carried by said cover for winding the film from one of the spools; and guides carried by said casing adapted to move the lower end of said roll-holder temporarily out of alinement with the normal position of the holder, at a point adjacent to the lower end of the casing.



3. In a photographic-roll holder, the combination with a casing having one end closed, one of its sides being open, and guides located adjacent to said open side; of a removable roll-holder comprising a cover for the open end of said casing, said cover carrying a depending wall of a length to rest on the lower end of the casing when in position; sliding spool-supports carried by said wall; a ratchet mechanism movable into and out of operative connection with one of the spools for holding the film taut; a film-perforating mechanism connected to and operable with said ratchet mechanism; and guides carried by said casing adapted to move the lower end of said roll holder temporarily out of alinement with the normal position of the holder, at a point adjacent to the lower end of the casing.

4. In a photographic-roll holder, an outer casing, guide-rails for the inner part attached to the longer narrow sides of the said casing and having their lower ends curved toward the back, and the depending wall *f*, all substantially as shown and described.

695,640. MACHINE FOR FILLING PAPER CIGARETTE-TUBES. GUSTAF A. HAGELBERG and LEONARD LINDELÖF, Helsingfors, Russia. Filed Nov. 5, 1896. Serial No. 695,630. (No model.)



Claim.—1. In a machine for filling paper tubes for cigarettes with tobacco, the combination with feeding-belts, the mechanism for periodically moving the same, and knives for cutting off the required length of string of tobacco fed forward by said belts, of a slide movable just above the bottom belt in a plane parallel to the same and at right angles to the direction of said bottom belt, means for moving said slide, and mechanism for compressing the part of the string of tobacco pushed off the bottom belt by said slide and for filling the paper tubes therewith, substantially as and for the purpose set forth.

2. In a machine for filling paper tubes for cigarettes with tobacco, the combination with feeding-belts, the mechanism for periodically moving the same, and knives for cutting off the required length of string of tobacco fed forward by said belts, of a slide movable just above the bottom belt in a plane parallel to the same and at right angles to the direction of said bottom belt, means for moving said slide, a second slide movable at a right angle to the former slide and provided with a semicylindrical cavity at the lower end, a part provided with an aperture the bottom of which is semicylindrical, said second slide moving into said aperture so that the said second slide in its lowest position and the bottom of the aperture constitute a tobacco filler, means for moving said second slide, and means for moving the tobacco from the said tobacco filler into the paper tube to be filled, substantially as and for the purpose set forth.

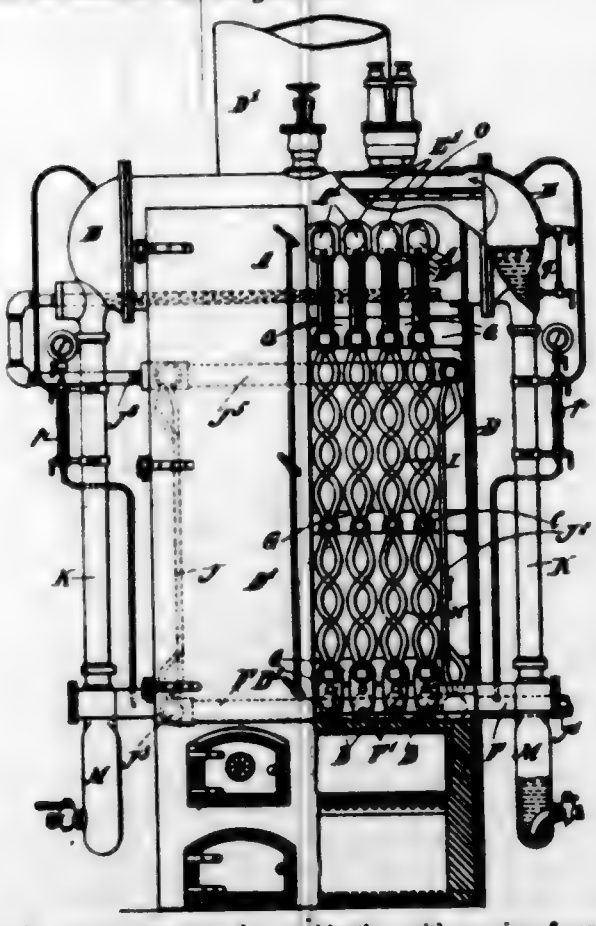
3. In a machine for filling paper tubes for cigarettes with tobacco, the combination with the bed-plate, the main shaft, belts running on pulleys so as to form a trough, mechanical connections between the main shaft and said pulleys adapted to move the latter intermittently, and knives for cutting off the string of tobacco fed forward by said belts, of a slide movable just above the bottom belt in a plane parallel to the same and at a right angle to the direction of the same, mechanical connection between the said slide and main shaft, a second slide movable at right angles to the former slide at the end of the same and provided with a semicylindrical cavity at its lower end, a part provided with an aperture having a semicylindrical bottom, mechanical connection such as a cam and lever between said second slide and the main shaft, a plunger adapted to move into the tobacco filler, means for actuating said plunger, a tube in line with said tobacco filler, and means for feeding forward and holding the tubes while being filled, substantially as and for the purpose set forth.

4. In a machine for filling empty paper tubes for cigarettes with tobacco, the combination with the bed-plate, the main shaft, belts running on pulleys so as to form a trough, and mechanical connections between the main shaft and said pulleys adapted to move the said pulleys so that the string of tobacco is fed forward intermittently, of a slide movable just above the bottom belt in a plane parallel to the same and at a right angle to the direction of the same, mechanical connection between the said slide and main shaft, a knife on said slide, a fixed knife opposite the former knife, a second slide movable at right angle to the former slide at the end of the same and provided with a semicylindrical cavity at its lower end, a part provided with an aperture having a semicylindrical bottom, mechanical connection such as a cam and lever between said second slide and the main shaft, a plunger adapted to move into the tobacco filler formed by the said semicylindrical bottom and the lower end of the said second slide when it stands in its lowermost position, mechanical connection between the main shaft and said plunger, a tube in line with said tobacco filler, a pair of grippers, a cam on the main shaft, a two-armed lever actuated by said cam, a shaft provided with two arms one of which is actuated by the said two-armed lever, a wedge on the other of said arms, a roller provided with grooves, and mechanical connections between said roller and main shaft for periodically rotating and reciprocating the same, substantially as and for the purpose set forth.

5. In a machine for filling paper tubes for cigarettes with tobacco, the combination with the bed-plate and the main shaft, of three belts running on pulleys so as to form a trough, mechanical connections comprising an intermittently-actuated clutch and gearing between the main shaft and said pulleys, adapted to move the said pulleys so that the string of tobacco is fed forward intermittently, a slide movable just above the bottom belt in a plane parallel to the same and at right angles to the direction of the same, mechanical connection between the said slide and main shaft, a knife on said slide, a fixed knife opposite the first-mentioned knife, a second slide movable at the end of the former slide at right angle to the same and provided with a semicylindrical cavity at its lower end, a part provided with an aperture having a semicylindrical bottom, mechanical connection comprising a cam and lever between said second slide and the main shaft, a plunger adapted to move into the tobacco filler formed by the said semicylindrical bottom and the lower end of the said second slide when it stands in its lowermost position, mechanical connection between the main shaft and said plunger, a tube in line with said tobacco filler, a pair of grippers normally closed, a cam on the main shaft, a two-armed lever actuated by said cam, a shaft provided with two arms one of which is actuated by the said two-armed lever, a wedge on the other of said arms, a roller provided with grooves, and mechanical connections between said roller and main shaft for periodically rotating and reciprocating the same, substantially as and for the purpose set forth.

695,641. WATER-TUBE BOILER. FRANK G HAMPSON, Clapham, England. Filed June 4, 1901. Serial No. 63,131. (No model.)

Claim.—1. In a steam-generator the combination of a series of removable elements comprising upper lower and intermediate manifolds connected together by vertical tubes *a*, of a steam-drum, a feed-water pipe or drum, connections between the upper part of each element and the steam-drum and between the lower part of each element and the feed-water pipe, the connections being such that each element can readily be detached and removed from the generator.



2. In a steam-generator the combination with a series of separate and removable elements comprising upper, lower and intermediate manifolds the lower manifolds being located above the fire-box, of a steam-drum, a feed-water pipe or drum, vertical tubes connecting the manifolds, readily-detachable connections between the elements and the steam-drum and between the elements and the feed-water pipe; substantially as described.

3. In a steam-generator the combination with a removable element, of a steam-drum, a feed-water pipe or drum, a manifold communicating with the steam-drum, a manifold communicating with the feed-water pipe an intermediate manifold and tubes connecting the intermediate manifold with the end manifolds, substantially as described.

4. In a steam-generator the combination with a removable element, of a steam-drum, a feed-water pipe or drum, an end manifold communicating with the steam-drum, an end manifold communicating with the feed-water pipe, an intermediate manifold, and tubes connecting the intermediate with the end manifolds substantially as described.

5. In a removable element for a steam-generator the combination of an upper manifold, a lower manifold, an intermediate manifold and of vertical tubes connecting the intermediate with the upper and lower manifolds.

6. In a steam-generator the combination with a removable element, of an upper manifold a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold tube and the steam-drum, a conduit between the lower manifold and the feed-water pipe and a conduit between the steam-drum and the feed-water pipe.

7. In a steam-generator the combination with a removable element of an upper "manifold," a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate one, a steam-drum, a feed-water pipe, a chamber connecting the upper manifold and the steam-drum, a chamber connecting the lower-manifold tube and the feed-water pipe and a conduit between the steam-drum and the feed-water pipe.

8. In a steam-generator the combination with a removable element, of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe and a pipe for conveying the feed-water from the steam-drum to the lower part of the element substantially as described.

9. In a removable element the combination of an upper manifold, a lower manifold, an intermediate manifold vertical tubes connecting the intermediate manifold with the top and bottom manifolds a steam-drum, a feed-water pipe or drum and a tube connecting the lower part of the steam-drum with the lower part of the element substantially as described.

10. In a steam-generator the combination with a removable element of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element and a mud-collector substantially as described.

11. In a steam-generator the combination with a removable element of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element and portions on the manifolds having decreased diameter to permit the heating-gases to pass between adjacent manifolds substantially as described.

12. In a steam-generator the combination with a removable element of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element, stop-pieces between the manifolds and of portions of reduced diameter at the ends of the manifolds.

13. In a steam-generator the combination with a removable element of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element and stop-pieces between the manifolds.

14. In a removable element for a steam-generator the combination of an upper manifold, of a lower manifold, of an intermediate manifold, of vertical tubes connecting the intermediate manifold with the top and bottom manifolds, a steam-drum, a feed-water pipe, a conduit between the top manifold and the steam-drum, a conduit between the bottom manifold and the feed-water pipe, portions of reduced diameter on the manifolds for the passage of the heating-gases between the manifolds and of a tube connecting the lower part of the steam-drum with the lower part of the element substantially as described.

15. In a removable element for a steam-generator the combination of an upper manifold, a lower manifold, an intermediate manifold, of vertical tubes connecting the intermediate manifold with the top and bottom manifolds, a divided pipe one part of which communicates with the top manifold and with the upper part of the steam-drum, and the other part with the lower part of the steam-drum and some of the vertical tubes, of a horizontal diaphragm in the upper manifold, substantially as and for the purpose described.

16. In a steam-generator the combination with the removable elements the feed-water pipe and the steam-drum, of vertical heating-tubes at the back and at each side of the elements, and communicating with the feed-water supply and through which the water circulates before entering the steam-drum to pass to the elements substantially as described.

17. In a steam-generator the combination with the removable elements the feed-water pipe and the steam-drum, of vertical heating-tubes at the back and at each side of the elements, a pipe connecting the heating-pipes with the feed-water pipe, a conduit between the heating-tubes and the steam-drum, and a pipe for conveying the water from the steam-drum to the feed-pipe of the elements substantially as described.

18. In a steam-generator the combination with a removable element of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper tube and the steam-drum, a conduit between the lower tube and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element and deflecting plates on the vertical tubes as and for the purpose described.

19. In a steam-generator the combination with removable elements the feed-water pipe, the steam-drum and vertical heating-tubes at the back and at each side of the elements, of a pipe connecting the heating-tubes with the steam-drum a pipe conveying the water from the steam-drum to the feed-pipe of the elements, a baffle-plate in the steam-drum arranged in the manner and for the purpose described.

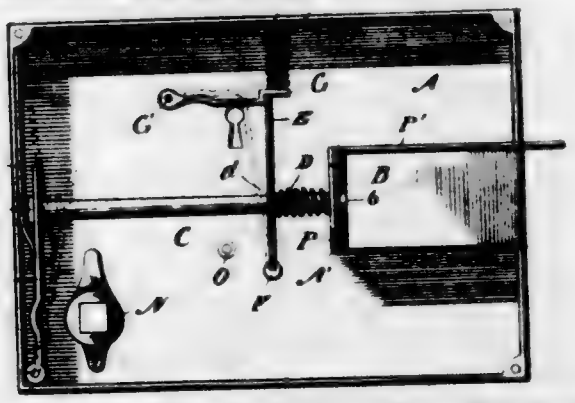
20. In a steam-generator the combination with a removable element, of an upper manifold, a lower manifold an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element, stop-pieces between the horizontal pipes of a high-level water-gage and of a low-level water-gage.

21. In a steam-generator the combination with a removable element, of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element, a high-level water-gage and a low-level water-gage.

22. In a steam-generator the combination with a removable element, of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element, stop-pieces between the horizontal pipes, a high-level water-gage, a low-level water-gage, and a furnace beneath the bottom manifolds.

23. In a steam-generator the combination with a removable element, of an upper manifold, a lower manifold, an intermediate manifold, vertical tubes connecting the upper and lower manifolds with the intermediate manifold, a steam-drum, a feed-water pipe, a conduit between the upper manifold and the steam-drum, a conduit between the lower manifold and the feed-water pipe, a pipe connecting the lower part of the steam-drum with the feed-water pipe of the element, stop-pieces between the horizontal pipes, a high-level water-gage, a low-level water-gage, a furnace beneath the bottom horizontal tubes, a surrounding casing inclosing the tubes and doors on said casing.

695,642. LOCK. ROBERT H. HEARN, Dyer, Tenn. Filed June 1, 1901. Serial No. 62,768. (No model.)



Claim.—1. A lock, comprising a bolt, a rod secured thereto a spring designed to throw said bolt to its farthest outward limit, an apertured plate through which said rod passes, a pivoted locking-bar E held at right angles to said rod, a spring interposed between said bar and the apertured plate P, and designed to hold the latter at an inclination with reference to said rod, whereby as the rod and bolt carried thereby are drawn back, the edge of the margin of the aperture in said plate will bite into the rod and hold same retracted, and means for tripping the apertured plate to allow the bolt to be thrown forward, as set forth.

2. A lock, comprising a bolt, a rod secured thereto, a spring adapted to throw said bolt to its farthest outward limit, an apertured plate through which said rod passes, a pivoted locking-bar having an aperture through which the rod passes, a spring interposed between said bar and plate, the casing having an elongated slot through which one end of said plate projects, and means for tripping said plate and an angle-bar for normally holding said locking-bar at right angles to the rod, as set forth.

3. A lock, comprising the casing, a bolt and rod secured to said bolt and working in said casing, a spring for throwing said bolt to its farthest outward limit, an apertured plate through which said rod passes, a locking-bar pivoted at one end within the casing and having an aperture through which said rod passes, a trip-arm to said plate, an angled bar pivoted to the casing and a spring designed to hold the angled end of said bar over the free end of the locking-bar, a spring interposed between said locking-bar and apertured plate, a pivoted member engaging the headed end of said rod, and knob-plate bearing against said member, as set forth.

4. A lock, comprising in combination with the casing a bolt made up of two interlocking sections, a rod secured to one of said sections and designed to actuate same, an apertured plate through which said rod passes a trip-arm on said plate, the catch against which said trip-arm is adapted to contact, a locking-bar, and means for normally holding same at right angles to said rod, a spring interposed between said apertured plate and bar, the end of said plate engaging the edge of an aperture in said casing, a spring bearing against the end of the bolt-engaging rod, and means for retracting the bolt, as set forth.

5. In combination, in a lock, the casing, the bolt-sections B and B', the former of which sections is notched to receive an angled projection on the other section, the inner faces of said sections near their outer ends being beveled away forming a V-shaped space, a catch angled to receive the bolt-sections, the apertured plate the rod secured to one of said sections and passing through said plate, the locking-bar, the spring interposed between said plate and bar, the outer end of said plate held against the margin of an elongated aperture in the wall of the casing, the spring bearing against the end of the rod, the trip-arm to said plate, and means for retracting the bolt-sections and rod, as set forth.

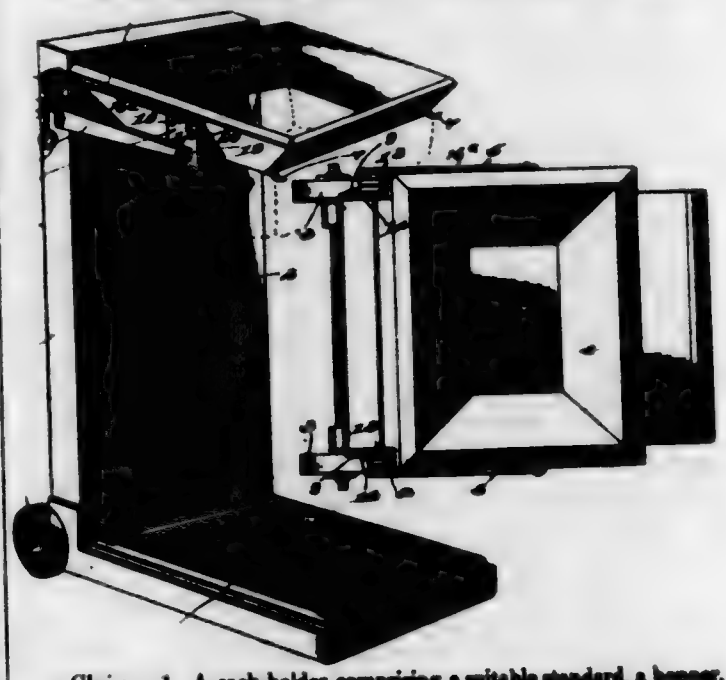
695,643. CLEVIS. WILLIAM L. HUDSON, Lewisburg, Tenn. Filed Jan. 11, 1902. Serial No. 89,991. (No model.)



Claim.—1. A clevis for doubletrees comprising two clamping-plates connected to the doubletree, the outer one of said plates having retaining-lugs, and a clevis detachably connected to the inner one of the plates and provided with lugs to engage the lugs on the outer clamping-plate to hold the clevis against lateral movement, substantially as and for the purpose set forth.

2. In a clevis, suitable clamping-plates for connecting to the doubletree having a ring and eye and retaining-lugs respectively, and a clevis detachably connected to one of the plates and having lugs to engage the lugs on one of the plates, substantially as and for the purpose described.

695,644. SACK-HOLDER. HERMAN M. LILLO and OLE A. GIERE, Rockdell, Minn. Filed May 16, 1901. Serial No. 60,541. (No model.)



Claim.—1. A sack-holder comprising a suitable standard, a hopper, a pair of horizontally-disposed guide-arms pivoted to the standard and to the hopper, and a pair of resilient supporting-arms connecting the hopper and the standard.

2. A sack-holder comprising a support, a hopper, and opposite sets of horizontally-disposed arms, the members of each set being vertically alined and having their corresponding ends pivotally connected in vertical alinement to the support and hopper, respectively.

3. A sack-holder comprising a hopper and two sets of horizontally-

disposed supporting-arms pivotally connected to a suitable standard and with the hopper, one of the arms of each set being rigid and the other being resilient.

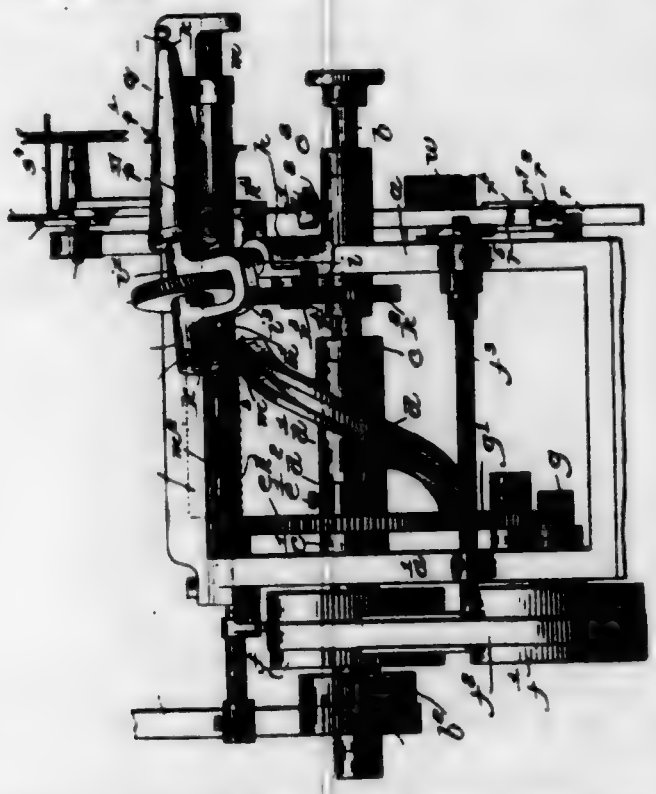
4. A sack-holder comprising a suitable standard, a hopper provided with means to engage a sack, and two sets of supporting-arms pivotally connected with the standard and with the hopper, the members of each set being disposed one above the other, one arm of each set being rigid and the other arm being resilient.

5. A sack-holder comprising a suitable standard, a hopper having downwardly-converged walls and provided with means to engage a sack, lugs or bosses carried externally by the ends of the hopper and having their outer faces disposed in a vertical line, and supporting-arms pivotally connected to the hopper and to the standard, the pivotal points of attachment of the arms with the hopper being in vertical alinement upon the outer vertical faces of the bosses, thereby always to cause the hopper to occupy a horizontal plane when depressed.

6. A sack-holder comprising a suitable standard, a hopper, and sets of supporting-arms pivotally connected with the standard and with the hopper, the members of each set being disposed one above the other, one of the supporting-arms of each set being constructed of a piece of wire having coils intermediate of its ends, and the other arm being rigid and having an offset near its point of attachment with the standard, thereby to cause the outer supporting members of the two arms to occupy the same vertical plane.

7. A sack-holder comprising a standard, a hopper having sack-engaging means, opposite sets of swinging arms pivotally connecting the hopper to the standard, the members of each set being located in vertical alinement and also having their outer ends pivotally connected to the hopper in vertical alinement, the lower arm being rigid, and the upper arm comprising angularly-related parts having an intermediate spring-coil connecting the same, and opposite stop projections carried by the standard and lying in the path of the downward movement of that part of the spring-arm that is connected to the standard.

695,645. WINDING-MACHINE. ALFRED B. MORSE, Boston, Mass., assignor, by mesne assignments, to the Universal Winding Company, Boston, Mass., a Corporation of Maine. Filed June 27, 1898. Serial No. 684,585. (No model.)



Claim.—1. A thread-winding machine, having a main or driving shaft, a throw-cam loosely mounted thereon, driving means for said throw-cam, a bracket loosely pivoted on said shaft, a quill-spindle carried by said bracket, gearing fast on the main shaft and on the quill-spindle, connections for said gearing, whereby the quill-spindle is positively rotated by said shaft, a thread-guide coöperating with the quill-spindle on said swinging bracket, and means to reciprocate said thread-guide, substantially as described.

2. A thread-winding machine comprising a main or driving shaft, a throw-cam loosely mounted thereon, means driven by said shaft for driving said throw-cam in the same direction of rotation as said main shaft, a quill-spindle, and a thread-guide, and means to reciprocate said thread-guide, substantially as described.

3. A thread-winding machine having a main or driving shaft, a throw-cam loosely mounted thereon, driving means for said throw-cam, a bracket loosely pivoted on said shaft, a spindle extending radially of said shaft and pivotally mounted in said bracket, bearings carried by the outer end of said spindle, a quill-spindle mounted in said bearings transversely of said pivoted spindle, gearing between said shaft and said quill-spindle for driving the latter from the former, a thread-guide, and means actuated by said throw-cam for reciprocating said thread-guide, substantially as described.

4. In a winding-machine, a thread-guide, a stationary bearing therefor, means for reciprocating said thread-guide, a quill-spindle adjacent said thread-guide, a swinging support for said quill-spindle, means for adjusting said quill-spindle in said support angularly to the path of movement of said thread-guide, and means mounted to swing with said swinging support, for rotating the spindle, substantially as described.

5. In a winding-machine, a stationary bearing for a thread-guide, said thread-guide, means to reciprocate it, said thread-guide traveling always in the same plane, a swinging quill-spindle arranged to swing in an arc approximately including the path of movement of the button of the thread-guide, said thread-guide and quill-spindle being arranged tangentially for the thread mass to bear directly against the thread-guide as the thread is being wound, and means to uniformly rotate said spindle, substantially as described.

6. In a winding-machine, a stationary bearing for a thread-guide, said thread-guide, means to reciprocate it, said thread-guide traveling always in the same plane, a swinging quill spindle arranged to swing in an arc approximately including the path of movement of the button of the thread-guide, said thread-guide and quill-spindle being arranged tangentially for the thread mass to bear directly against the thread-guide as the thread is being wound, and driving devices to positively and uniformly rotate said spindle, substantially as described.

7. In a winding-machine, a thread-guide, means to reciprocate it, a quill-spindle, means permitting relative swinging movement of said quill-spindles and said thread-guide, means to rotate said spindle, and an automatic friction device freely permitting the quill-spindle and the said thread-guide to separate and automatically preventing an opposite movement thereof, said friction device comprising a bearing-surface, a pivoted lever, a rod connected to a moving part of said separating members and moving between said bearing-surface and lever, said lever engaging said rod obliquely thereto, and a means normally tending to make said lever bite said rod, substantially as described.

8. In a winding-machine, a thread-guide, means to reciprocate it, a quill-spindle, a swinging support therefor, means to rotate said spindle, and an automatic friction device freely permitting the quill-spindle to swing away from the said thread-guide, and automatically preventing an opposite swinging movement thereof, said friction device comprising a bearing-surface, a pivoted lever, a rod connected to said swinging spindle and moving between said bearing-surface and lever, said lever engaging said rod obliquely thereto, and a spring device normally tending to make said lever bite said rod, substantially as described.

9. In a winding-machine having a movable quill-spindle, means to rotate it, a thread-guide, and means to reciprocate it, an automatic tension device, said tension device having a pinion for adjusting it, and a rack-bar engaging said pinion and connected to move with said quill-spindle.

10. In a winding-machine, a thread-guide, a stationary bearing therefor, and a slide-bar mounted on said bearing, said bar being in the form of a thin tube or cylinder provided with a lug for reciprocating the same and said tube being supported at its ends out of frictional contact with the said bearing, substantially as described.

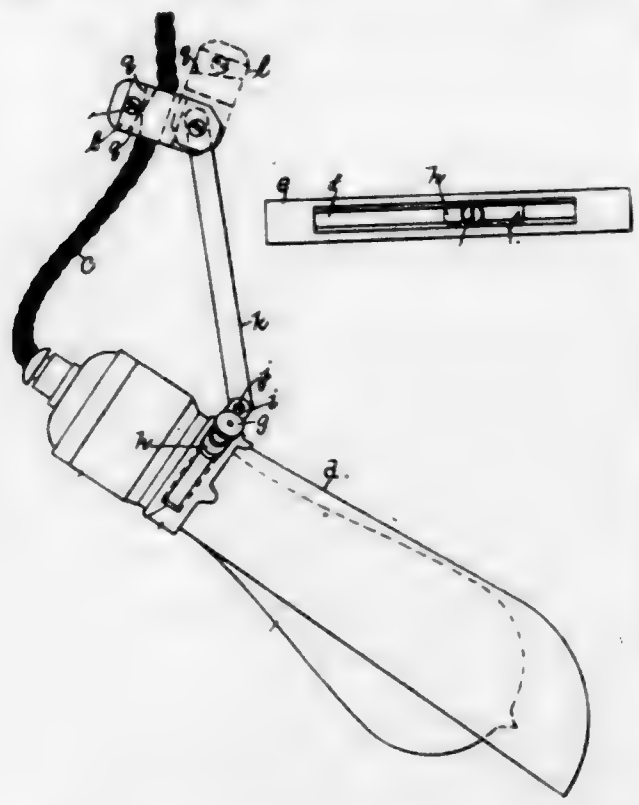
11. In a winding-machine, a bearing mounted in the frame of the machine, a slot formed in the frame of the machine adjacent and parallel to said bearing, a throw-cam mounted to rotate adjacent said bearing, a slide-bar mounted on said bearing a thread-guide carried by said slide-bar, said slide-bar being tubular, and having a stud projecting therefrom and traveling in the path of the throw-cam, and a lug also projecting therefrom and traveling in said slot in the frame for keeping the thread-guide steady, substantially as described.

12. In a winding-machine, a stationary bearing, and a slide-bar mounted on said bearing, said bar comprising a thin tube supported coaxially of the rod by an annulus adjacent, each end, a thread-guide surrounding said tube at one end and holding the tube between it and the contained annulus, and a ring carrying a stud at the other end, the tube being held between said ring and the adjacent annulus at the said end, substantially as described.

13. A thread-winding machine, comprising a thread-guide, a guide-way for the same, means to carry a quill to receive the material to be wound, a shaft, intermediate devices to rotate said quill-carrying means, a throw-cam mounted loosely on said shaft, and means to rotate said throw-cam at any desired speed about said shaft and in the direction of its rotation, substantially as described.

14. A thread-winding machine, comprising a thread-guide, a fixed guideway therefor, a rotatable throw-cam for reciprocating said thread-guide, a bracket mounted to turn about the center of rotation of said throw-cam, and a quill-carrier sustained revolubly on said bracket and automatically movable about the pivot of the bracket as the mass of thread being wound increases in diameter, substantially as described.

695,646. INCANDESCENT-LAMP SUPPORT. FRANK W MORSE, Boston, Mass. Filed Dec. 27, 1901. Serial No. 87,448. (No model.)



Claim.—1. In an incandescent-lamp support, the combination with a lamp-shade having a circumferential slot, of a clamping-block adapted to engage the flexible conducting-cord of said lamp, and a rigid connection between said block and shade comprising a member pivoted to said clamping-block, and a second member adjustably secured in said circumferential slot and pivotally attached to the first-mentioned member, substantially as described.

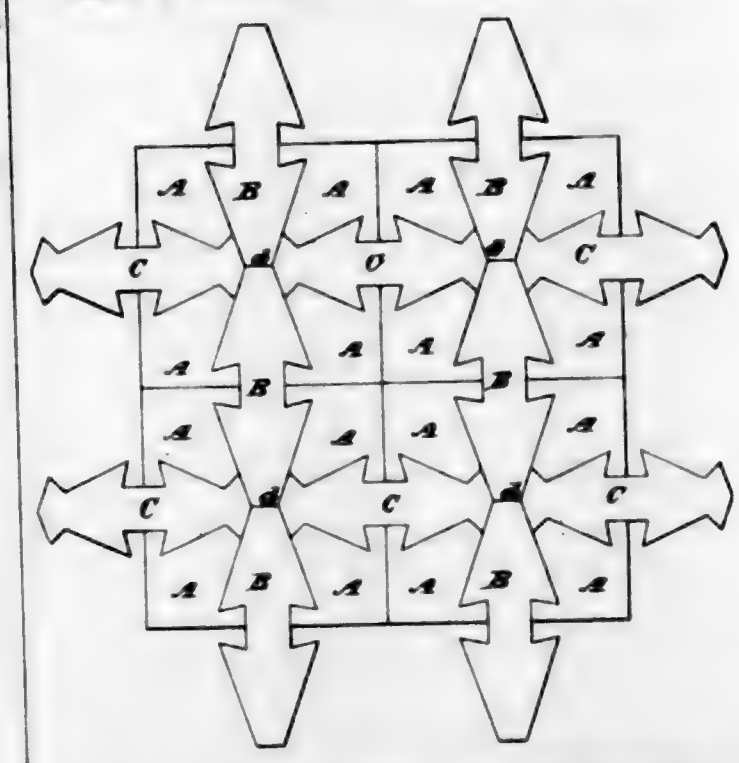
2. In an incandescent-lamp support, the combination with a lamp-shade having a circumferential slot, and a clamping-block adapted to engage the conducting-cord of said lamp and comprising two members pivoted together and provided with transverse slots having inclined walls oppositely arranged, and means to bind the two members upon the conducting-cord, of a rigid connection between said clamping-block and said shade, comprising one member pivoted to the clamping-block and a second member adjustably secured in the circumferential slot in said lamp-shade and pivotally attached to said first member, substantially as described.

3. In an incandescent-lamp support, the combination with a lamp-shade provided with a circumferential slot, of a slide adjustably secured in said slot and provided with a lug or ear extended substantially at right angles thereto, a bar pivoted to said lug or ear, a clamping-block comprising two members pivoted together and provided with coöperating slots which engage the connecting-cord of the lamp, means to secure said members together and clamp the cord between them, and a bar pivoted to the clamping-block and to the lug or ear on said slide, substantially as described.

4. In an incandescent-lamp support, the combination with the lamp-shade provided with a circumferential slot, of means for engaging said slot to permit rotary movement of said lamp and shade, a device to engage the conducting-cord for said lamp, and means pivotally attached to said device and to the slot-engaging means for permitting pivotal movement of the lamp and shade in a vertical direction, substantially as described.

5. In an incandescent-lamp support, the combination with a lamp-shade, of a clamping-block adapted to engage the flexible conducting-cord of said lamp and capable of adjustment on said cord without detaching it therefrom, and a rigid connection between said clamping-block and said shade, pivotally attached to said block and to the rear portion of said shade, whereby when the said shade is placed on the lamp, the pivotal connection with the shade constitutes a fulcrum for the lamp and its attached shade to permit of vertical adjustment of said shade and its lamp, substantially as described.

695,647. COMBINATION-TILE FOR FLOORS. RICHARD L. HOYLE, New York, N. Y., assignor of one-third to James Harold Warner, New York, N. Y. Filed Oct. 30, 1901. Serial No. 80,531. (No model.)

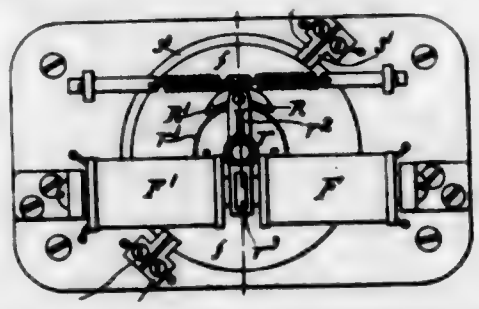


Claim.—1. A flooring, composed of three differently-formed parts of tiles, each presenting a recess and projection on one or more of its faces having their faces forming angles of any suitable degrees, so that recesses in one part will conform to the projections in the others, substantially as described.

2. A flooring formed of the parts of tiles, of three different forms, one of which is arrow-shaped, and the other two having their faces to form angles of any suitable degree, so that the recesses in parts B and C, will conform to the projections of the heads of the arrow-shaped part substantially as described.

3. A tile floor formed of the parts of tiles of three different forms, each presenting a recess and projection on one or more of its faces so shaped and arranged that no single one interlocks with the other two; the three parts being joined together by recesses and projections in one fitting into the projections and recesses of the others, substantially as described.

695,648. BLOCK SYSTEM FOR RAILWAYS. BURTON C. ROWELL, Chicago, Ill., assignor to the Rowell Potter Safety Stop Company, Portland, Me., a Corporation of Maine. Filed Feb. 13, 1899. Serial No. 705,422. (No model.)



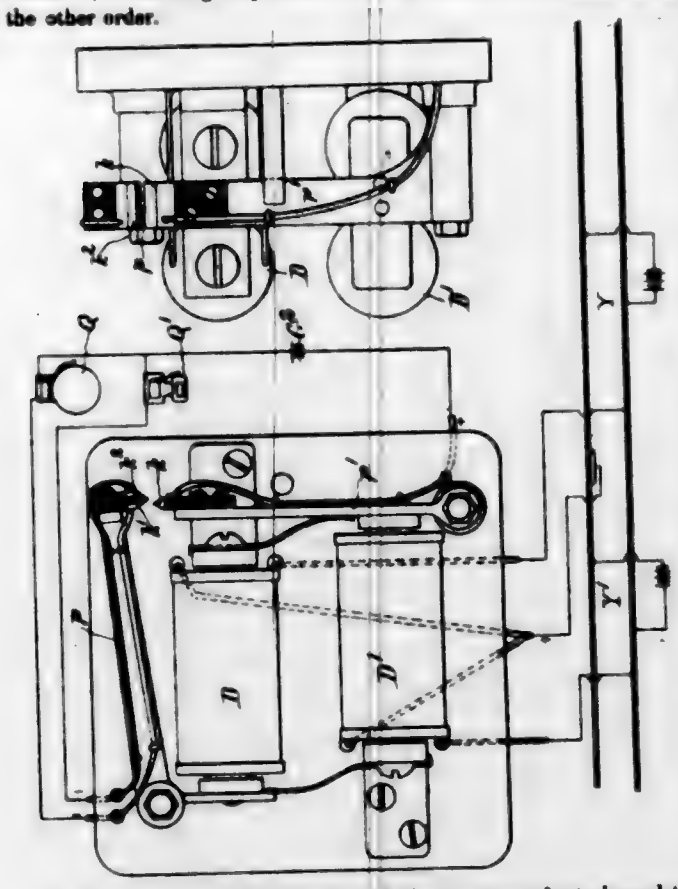
Claim.—1. In a railway block system the combination of two blocking appliances; two circuits one controlling one, the other controlling the other, blocking appliance; and a step-by-step apparatus controlling both these circuits.

2. In a railway block system the combination of two blocking appliances; two circuits, one controlling one, the other controlling the other, blocking appliance; a step-by-step apparatus controlling both these circuits; and means by which the step-by-step apparatus is actuated one step in one direction by an entering train and one step back by a departing train.

695,649. TRAIN-INDICATING APPARATUS. BURTON C. ROWELL, Chicago, Ill., assignor to the Rowell Potter Safety Stop Company, Portland, Me., a Corporation of Maine. Filed Feb. 13, 1899. Serial No. 705,424. (No model.)

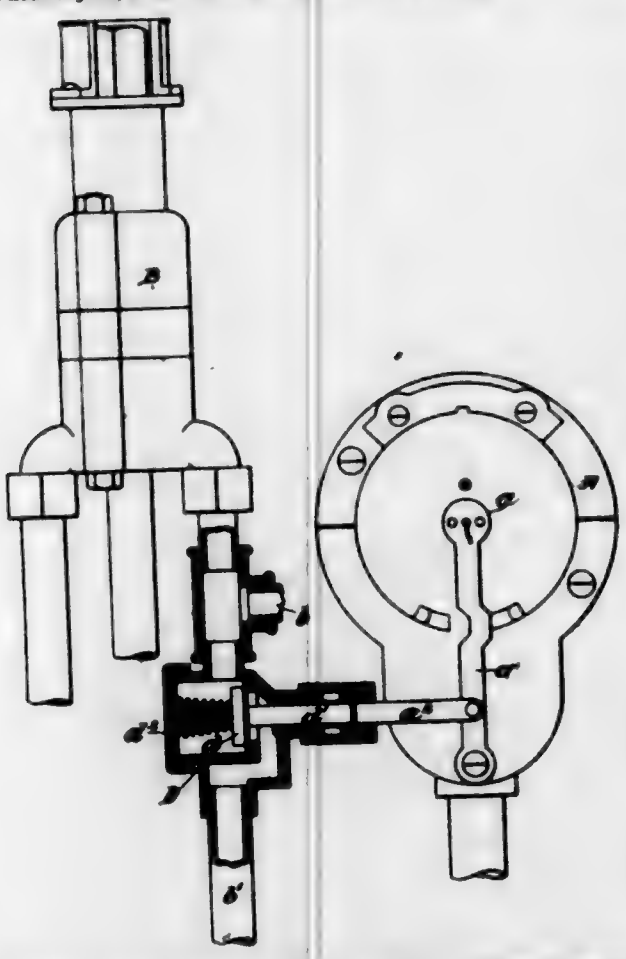
Claim.—1. An automatic signaling apparatus comprising two circuits; means by which a passing train controls both these circuits; and an indicator-circuit made operative by the action of the train-circuits in

one order but remaining inoperative under the action of the train-circuits in the other order.



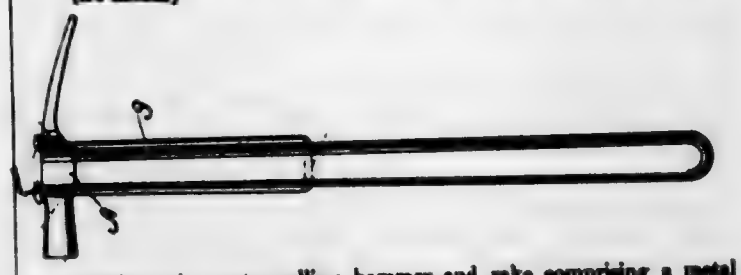
2. An apparatus for indicating both the presence of a train and the direction in which it is running comprising two circuits; means by which a train controls those circuits in one order when running in one direction, and in another order when running in an opposed direction; and two indicator-circuits one made operative by the action of the train-circuits in one order, the other made operative by the action of the train-circuits in the other order.

695,650. TRUCK-MACHINE FOR AUTOMATICALLY APPLYING BRAKES. BARTON C. ROWELL, Chicago, Ill., assignor to the Rowell Potter Safety Stop Company, Portland, Me., a Corporation of Maine. Filed May 19, 1900. Serial No. 17,242. (No model.)



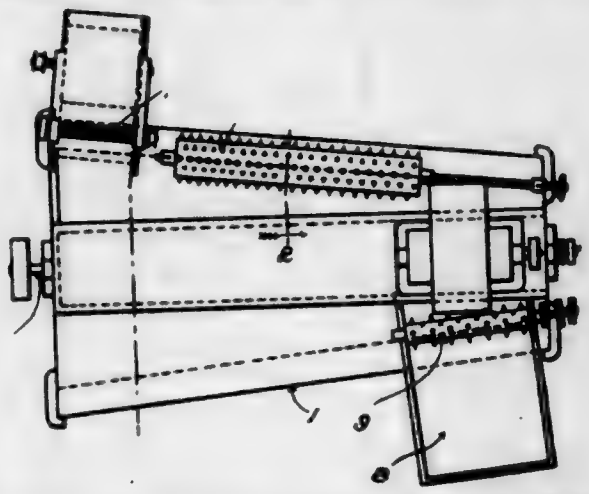
Claim.—In combination with an engineer's valve and an electric controller, the truck-pipe, its vent-valve, means for operating the vent-valve, an additional valve controlling the passage from the engineer's valve to the truck-pipe, and a connection between that additional valve and the electric controller such that when the controller is made ready for operation the truck-machine is also made ready for operation.

695,651. HAMMER AND RAKE FOR CULLING OYSTERS. JOHN W. RUSSELL, Baltimore, Md. Filed Oct. 24, 1901. Serial No. 79,756. (No model.)



Claim.—An oyster-culling hammer and rake comprising a metal head provided with a pick end and a hammer end, and also provided with a handle-eye in whose walls are formed diametrically opposite recesses in alinement with the said two ends of the head; a wood handle fitted in said eye and provided at a point remote from said head with a transverse hole; and a fastening-wire secured in said hole and provided with two guard members extending longitudinally along opposite sides of the handle below the head and entirely exposed and projecting beyond the said sides of the handle and each of said members passing through one of the recesses in the head, with its extremity forming a hook in contact with the outer face of the latter, as set forth.

695,652. WOOL-CLEANING MACHINE. FREDERICK G. SARGENT, Graniteville, Mass. Filed Dec. 10, 1900. Serial No. 39,265. (No model.)



Claim.—1. A wool-cleaning machine comprising essentially, a rotating beater, a casing, a toothed opening-cylinder receiving the wool carried around by the said beater and coöperating with the latter intermediate the feed of the wool to the beater and its final delivery from the latter to open the wool and loosen burs and other impurities, and an air-inlet admitting an inwardly-flowing current of air which impinges upon the said periphery and strips the wool from the teeth of said cylinder, returning it to the action of the beater, substantially as described.

2. In a wool-cleaning machine, the combination of a rotating beater, a casing therefor, having an air-inlet therein, an auxiliary toothed cylinder occupying the said air-inlet and adapted to receive wool from the beater, and means to vary the opening between the edge of the said air-inlet and the said auxiliary cylinder, and thereby vary the indraft of air through the said air-inlet.

3. In a wool-cleaning machine, the combination of a rotating beater, a casing therefor having an air-inlet therein, an auxiliary toothed cylinder occupying the said air-inlet and adapted to receive wool from the beater, said toothed cylinder coöperating with the beater intermediate the feed of the wool to the latter and its final delivery from the latter to open up the wool and loosen burs and other impurities, and a plate adjacent the said auxiliary cylinder provided with means of adjustment whereby to vary the opening between the casing and the cylinder and thereby regulate the indraft of air through the said air-inlet.

4. In a wool-cleaning machine, the combination of a rotating beater, a casing therefor, having an air-inlet therein, an auxiliary toothed cylinder occupying the said air-inlet and adapted to receive wool from the beater, said toothed cylinder coöperating with the beater intermediate the feed of the wool to the beater and its final delivery from the latter to open up the wool and loosen burs and other impurities, a regulating-plate mounted in position to slide toward and from the point of approximate contact of the beater and auxiliary cylinder and thereby vary the indraft of

air between the said regulating-plate and the auxiliary cylinder whereby the fiber carried on the latter is stripped therefrom and returned to the action of the beater, while burs are discharged from the machine.

5. In a wool-cleaning machine, the combination of a rotating beater, a casing therefor, having an air-inlet therein, an auxiliary toothed cylinder occupying the said air-inlet and adapted to receive wool from the said beater, said toothed cylinder coöperating with the beater intermediate the feed of the wool to the beater and its final delivery from the latter to open up the wool and loosen burs and other impurities, a fan connected with the beater-chamber to produce an indraft of air through the said air-inlet, and thereby strip or doff the wool from said cylinder and return it to the action of the beater, and a regulating-door coöperating with the said fan and rendered adjustable to vary the strength of the said indraft.

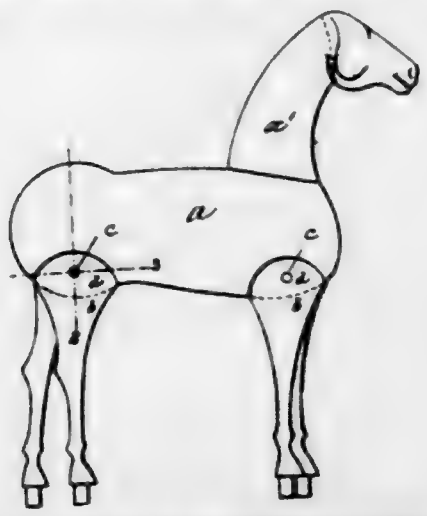
6. In a wool-cleaning machine, the combination of a rotating beater, a casing therefor, having an air-inlet in that side thereof at which the teeth of the beater are descending, and an auxiliary toothed cylinder occupying the said aperture and receiving the wool from the beater, the indraft of air through the said air-inlet acting to strip the fiber from the teeth of the auxiliary cylinder and return it to the action of the beater, said toothed cylinder coöperating with the beater intermediate the feed of the wool to the beater and its final delivery from the latter to open up the wool and loosen burs and other impurities.

7. In a wool-cleaning machine, the combination of a rotating beater, a casing therefor, having an air-inlet therein, an auxiliary toothed cylinder occupying the said air-inlet, said toothed cylinder coöperating with the beater intermediate the feed of the wool to the beater and its final delivery from the latter to open up the wool and loosen burs and other impurities, and means to rotate the beater and auxiliary cylinder in opposite directions, the said air-inlet causing the indraft of air through the same acting to strip the fiber from the teeth of the auxiliary cylinder and return it to the action of the beater.

8. In a wool-cleaning machine, the combination of a rotating beater, a casing for the same, having an air-inlet therein, an auxiliary toothed cylinder occupying the said air-inlet and receiving wool from the beater, said toothed cylinder coöperating with the beater intermediate the feed of the wool to the beater and its final delivery from the latter to open up the wool and loosen burs and other impurities, and means for creating an indraft of air through the said air-inlet to strip or doff the wool from the auxiliary cylinder and return it to the action of the beater.

9. In a wool-cleaning machine, the combination of a rotating beater adapted to give the wool a progressive spiral motion in the direction of the length of said beater, means to feed wool to said beater at or adjacent one end of the latter, a toothed burring-cylinder lengthwise of which the wool is worked by the action of the beater, and by which the wool is taken away from the said beater, a guard by which burs are removed from the said burring-cylinder, and means to strip the fiber from the latter, and discharge the same from the machine, substantially as described.

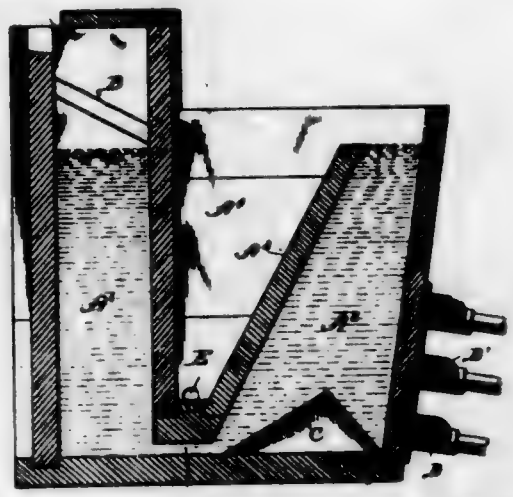
695,658. TOY ANIMAL. George Schieler, Dumont, N. J. Filed Jan. 4, 1902. Serial No. 88,430. (No model.)



Claim.—In a toy animal, the combination of a body having mortises, with legs set back within said mortises and having flattened upper ends, a cement covering over said flattened ends that closes the mortises, and nails penetrating said flattened ends, substantially as specified.

695,654. ORE-PULP DISTRIBUTER. Frederic W. Sherman, Park City, Utah, assignor to the Gates Iron Works, Chicago, Ill., a Corporation of Illinois. Filed Mar. 3, 1900. Serial No. 7,188. (No model.)

Claim.—1. In an apparatus of the class described, a receptacle provided with a pressure-chamber and a sizing-chamber connected together by means of a narrow channel at the lower portion thereof, and discharge-valve mechanism in the sizing-chamber to draw off the classified product, substantially as described.



2. In an apparatus of the class described, a receptacle provided with a pressure-chamber and a sizing-chamber connected together by means of a narrow passage at the lower portion thereof, an overflow-chamber arranged to take the overflow from the sizing-chamber and provided with a discharge-opening at or near the lower portion thereof, and discharge-valve mechanism in the sizing-chamber arranged to draw off the classified product, substantially as described.

3. In an apparatus of the class described, a receptacle provided with a pressure-chamber having a supply-opening and a sizing-chamber connected together by means of a narrow passage at the lower part thereof, a screen in the pressure-chamber arranged underneath the supply-opening, a baffle-board in the sizing-chamber to break up the current therein, and valve mechanism in the sizing-chamber to draw off the classified product, substantially as described.

4. In an apparatus of the class described, a receptacle provided with a pressure-chamber having a supply-opening and a sizing-chamber connected with it at the lower portion thereof, an overflow-chamber arranged to take care of the overflow from the sizing-chamber and provided with a discharge-pipe at or near the lower part thereof, a screen in the pressure-chamber arranged underneath the supply-opening, a baffle-board in the sizing-chamber arranged adjacent to the connecting-channel to break up the current or aid therein, and discharge-valve mechanism connected with the sizing-chamber to draw off the classified product, substantially as described.

5. In an apparatus of the class described, a receptacle provided with a pressure chamber having a supply-opening, a sizing-chamber connected therewith at or near the lower portion of the same, and an overflow-chamber arranged to take care of the overflow from the sizing-chamber and provided with a discharge-passage at or near its lower portion, a screen in the pressure-chamber arranged adjacent to and underneath the supply-opening, an inclined baffle-board in the sizing-chamber arranged adjacent to the connecting-passage to break up the eddy or current of pulp, and several multiple discharge-valves connected with the sizing-chamber and arranged in different horizontal planes to take care of the classified product and distribute the same uniformly through their several discharge-openings, substantially as described.

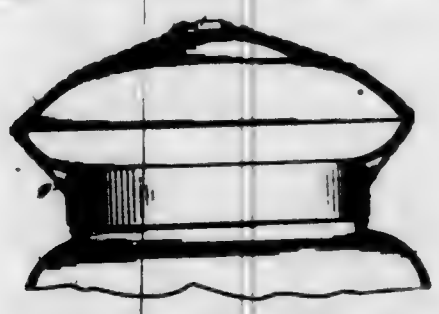
695,655. THERMOSTAT. George R. Sherman, Providence, R. I. Filed June 27, 1901. Serial No. 66,216. (No model.)



Claim.—1. A thermostat having one terminal wire connected with a contact secured in a block of insulating material, a cap rotatably mounted on the block, a detent projecting beyond the inner surface of the cap and secured to the outer surface of the cap by fusible solder, means for securing the cap to the block, in combination with a terminal connected with a spirally-wound wire, having a contact-arm swinging when released horizontally to make or break the circuit, as described.

2. In a thermostat, the combination with the post c, the wire b, the loop b', the post c', the wire d coiled around the post a^3, the looped arm d', and the block a, of the cap rotatably supported on the block, the slot e^3 in the cap, the detent e' extending through the slot and secured to the cap by fusible solder and the pins e^4 e^5, as described.

695,656. FASTENING DEVICE FOR CAN-COVERS. WILLIAM H. SHALLEY, Yonkers, N. Y. Filed June 1, 1901. Serial No. 62,741. (No model.)



Claim.—1. A fastening device for can-covers comprising a collar adapted to encompass the neck of the can, a lock in connection with said collar for securing the same to the neck of the can, a second lock located above the can-cover, and connections between the collar and said second lock—the said two locks being adapted to be operated by distinct keys, substantially as and for the purpose specified.

2. A fastening device for can-covers comprising an adjustable collar adapted to encompass the neck of the can, a lock in connection with said collar for securing the same to the neck of the can, a second lock located above the can-cover, and flexible adjustable connections between the collar and said second lock—the said two locks being adapted to be operated by distinct keys, substantially as and for the purpose specified.

3. A fastening device for can-covers comprising a collar having hinged sections adapted to encompass the neck of the can and provided at their respective ends with a plurality of interlocking devices for rendering the collar adjustable combined with means passing over and encompassing the can-cover and attached to said collar, and a lock for securing said means above the can-cover, substantially as described.

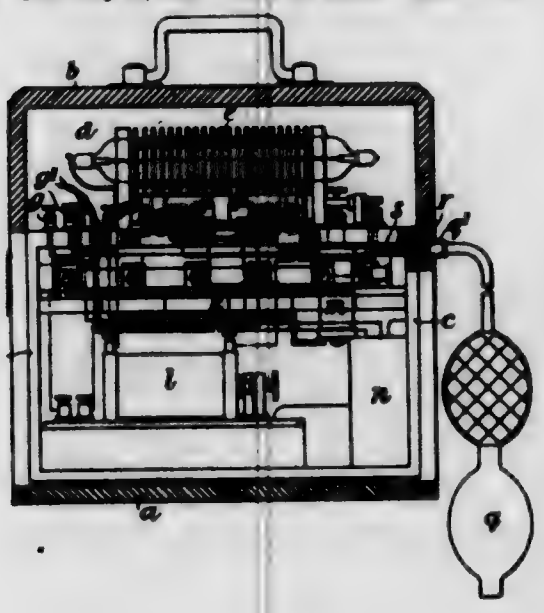
4. A fastening device for can-covers comprising a collar adapted to encompass the neck of the can and provided with a lock for securing the same to the neck of the can, means secured to and extending upwardly from said collar for the purpose of encompassing the can-cover, and a second lock engaging with said connections for securing the same above the can-cover, substantially as and for the purpose specified.

695,657. OZONIZER FOR WOUNDS, &c. ROBERT F. W. SMITH, London, England, assignor to the Electric Ozone Syndicate Limited, London, England. Filed May 10, 1901. Serial No. 59,653. (No model.)



Claim.—The combination with an ozonizer of a cord passing over a pulley mounted upon a suspension-bar and attached at one end to the ozonizer and at the other to a counterweight, and of spring-wires secured respectively to the terminals of the ozonizer and to terminals upon the suspension-bar, substantially as hereinbefore described.

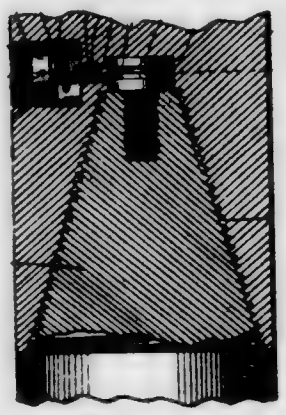
695,658. OZONE-INHALER. ROBERT F. W. SMITH, London, England, assignor to the Electric Ozone Syndicate Limited, London, England. Filed May 10, 1901. Serial No. 59,654. (No model.)



Claim.—1. The combination with a portable box provided with a horizontal partition, forming a chamber above and a chamber below said partition, of an electric battery located in the lower chamber, an ozonizer located in the upper chamber, means for electrically connecting said ozonizer and battery including a circuit-controller, a discharge-mouthpiece communicating with said upper chamber, an air-forcing device connected to said upper chamber, and a movable cover for said box to give access to said upper chamber, substantially as described.

2. The combination with a portable box, having a horizontal partition therein forming a battery-chamber below said partition, of an electric battery located in said chamber, a hollow cover hinged to said box and forming an ozonizing-chamber above said partition, when closed, an ozonizer mounted on said partition, an electric circuit-controller mounted on said partition and connected with the ozonizer and with the battery, a discharge-mouthpiece secured to said cover and communicating with the interior thereof and an air-forcing device communicating with the ozonizing-chamber adjacent to the ozonizer, substantially as described.

695,659. COUPLING FOR WELL-DRILLING TOOLS. WILLIAM D. SNYDER, Rives, Ohio. Filed Aug. 31, 1901. Serial No. 74,081. (No model.)



Claim.—1. A locking device for well-drilling tools, comprising a bolt, a ratchet mounted for sliding movement thereon and carrying a pin projecting beyond the bolt, and a rotatable ratchet adapted to be turned into engagement with the slidable ratchet and having an opening through which the said pin projects.

2. A locking device for well-drilling tools, comprising a bolt, a ratchet member mounted for sliding movement thereon, a spring bearing against the ratchet member, a push-pin operatively connected with the ratchet member and projecting beyond the outer end thereof, and a rotatable ratchet member adapted to be turned into engagement with the sliding member, and having an opening through which the pin projects.

3. A locking device for well-drilling tools, comprising a bolt having its body portion rectangular in cross-section, and one terminal threaded, the rectangular portion being provided with a longitudinal slot, a slidable ratchet member mounted on the rectangular portion of the bolt, a push-pin seated in a longitudinal opening in the bolt and extending beyond the head thereof, fastening means passing through the ratchet member and the push-pin and engaging the slot in the bolt, and a rotatable ratchet member adapted to be turned into engagement with the slidable ratchet member and provided with an opening for the reception of the said pin.

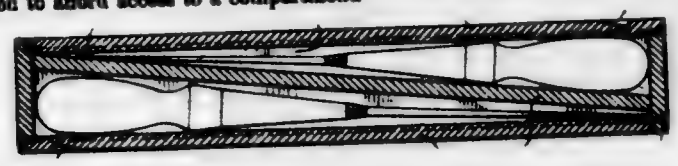
4. A coupling for well-drilling tools comprising, in combination, a drill having a peripherally-grooved terminal, a stock having a lateral orifice in alinement with the groove, a bolt housed in the orifice and having a conical point engaging the groove, a spring-pressed ratchet member slidable on the bolt and in the orifice, and a threaded ratchet member adapted to be turned into engagement with the slidable ratchet member and to bear upon the head of the bolt.

5. A coupling for well-drilling tools comprising, in combination, a drill having a peripherally-grooved terminal, a stock having a lateral orifice in alinement with the groove, a left-hand-threaded bolt housed in the orifice and having a conical point engaging the groove, a slidable spring-pressed ratchet member mounted on the bolt and in the orifice, a push-pin operatively connected with the said ratchet member, and a right-hand-threaded ratchet member adapted to be turned into engagement with the slidable ratchet member and to bear upon the head thereof, the latter member being provided with an opening through which the said pin projects.

695,660. TOOL-BOX. JAMES SWAN, Seymour, Conn. Filed Dec. 13, 1901. Serial No. 85,769. (No model.)

Claim.—A tool-box of the character described provided with an intermediate inclined partition and with covers on opposite sides thereof said covers being capable of independent movement to give access to

either compartment of the box, a tool-retaining stop attached to the partition and adapted to prevent lengthwise movement of the tool, and means for preserving the connection of each cover with the box when partially open to afford access to a compartment.



695,661. CALIPER-GAGE. ALBERT E. THERAULT, Chicago, Ill. Filed Jan. 2, 1902. Serial No. 88,194. (No model.)



Claim.—1. In a caliper-gage, in combination, a tube having a longitudinal slot provided with graduations at the side thereof, a stem located in the end of the tube adjacent to the slot and having a pointer for the said graduations, a second stem located in the opposite end of the said tube and provided with graduations, a sight-aperture in the tube through which the graduations of said stem are visible, and means for securing the said stems against movement.

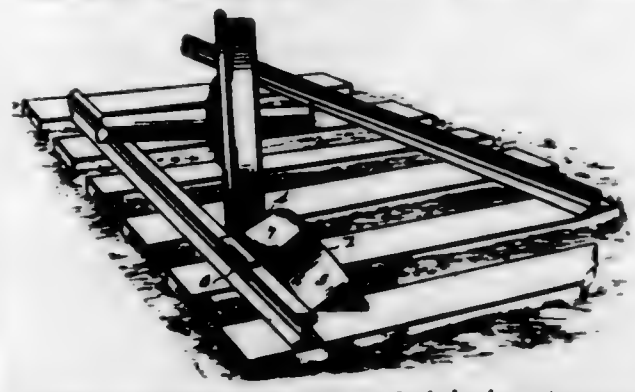
2. In a caliper-gage, in combination, a tube having a longitudinal slot, a stem sliding in one end of the tube and having a finger-piece projecting through the said slot, a second stem located in the opposite end of the said tube and provided with graduations, a sight-aperture in the tube through which the graduations of the stem are visible, the ends of the said tube being slitted, and nuts for clamping the slitted ends about the stems.

3. In a caliper-gage, in combination, a tube having a longitudinal slot provided with graduations along one edge thereof, a stem sliding in the end of the tube adjacent to the slot and having a pointer for the said graduations and a tapering recess in one side, a cap-closed sleeve opening through the wall of the tube, a spring-pressed pin seated in said sleeve and having a conical point adapted to engage the recess in the stem, a second stem located in the opposite end of the tube and provided with graduations, a sight-aperture in the tube through which the stem-graduations are visible, and means for securing the stems against movement.

4. In a caliper-gage, in combination, a tube having a longitudinal slot provided with graduations at the side thereof, a stem located in one end of the tube and having a pointer which plays in the slot, a second stem located in the opposite end of the tube, trammel-points, a clamp for securing a trammel-point to each stem and which comprises a cup having apertures at opposite sides thereof and a block having a threaded portion projecting therefrom and a diametrical aperture adapted to register with the apertures in the cup, and a nut screwed upon the threaded portion to slide the block in the cup to secure the stem passing through the apertures of the cup and block.

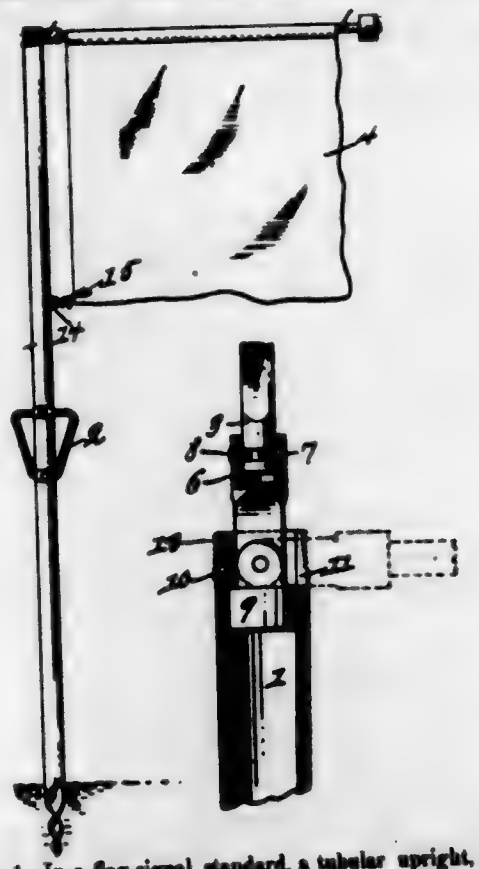
5. In a caliper-gage, in combination, a tube, a stem sliding into each end of the tube, nuts on the ends of the tube to clamp the stems against movement, a trammel-point for each of the said stems, a cup to which each trammel-point is secured and having apertures through opposite sides thereof, a block located in the cup and having a diametrical aperture registering with the apertures in the cup, and through which apertures the stem passes, a threaded portion projecting from the block, and a nut upon the threaded portion adapted to be screwed against the upper end of the cup to clamp the trammel-point to the stem.

695,662. DISPLACING DEVICE FOR USE ON RAILROADS. GEORGE VOET, Corbin, Ky., assignor of one-half to Edward O. Eberenle, Corbin, Ky. Filed July 23, 1901. Serial No. 68,441. (No model.)



Claim.—A device of the class set forth having a transversely-inclined body with opposite inwardly-inclined parallel sides, a flat base and an upper face or surface inclined downwardly toward one side, the said face or surface being convex and regularly extending in a longitudinal direction from one end terminal of the base to the other, and an attaching device comprising an embracing member which removably extends over the central portion of the face or surface and the widest side, and a hook member extending outwardly beyond the narrower side of the body and having a terminal hook to removably engage a rail-head.

695,663. PORTABLE FLAG-SIGNAL STANDARD. JAMES E. WEIRICH, Toledo, Ohio. Filed Dec. 20, 1901. Serial No. 86,644. (No model.)



Claim.—1. In a flag-signal standard, a tubular upright, slotted at its upper end, a movable piece therein, a stop for said piece near the upper end of the upright, and a flag-spindle hinged at its end to said movable piece and adapted to occupy the interior of the tubular upright when the flag-signal is to be housed and to extend at right angles thereto and enter the slot at its upper end when the flag-signal is to be displayed, as set forth.

2. In a flag-signal standard, the tubular upright provided with a slot at its upper end, a piece movable within said upright, a stop for said piece near the upper end of the upright, the socket-piece hinged to said movable piece and the flag-spindle swiveled to said socket-piece.

695,664. MOTOR FOR TOOLS. CHESTER B. ALBREE, Allegheny, Pa. Filed May 18, 1901. Serial No. 60,823. (No model.)



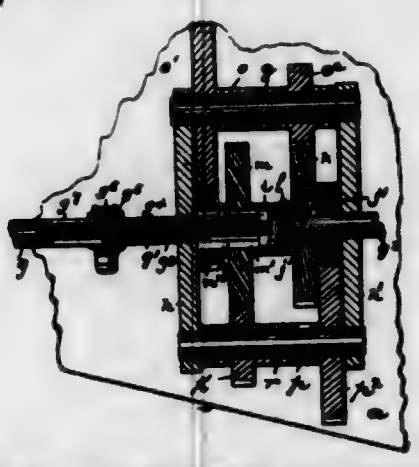
Claim.—1. A motor having a piston with differential areas, a valve carried by the piston, and arranged to be moved longitudinally of the piston by inertia when the motion of the piston is checked, a port affording communication between the spaces at the smaller and larger piston areas, said port being controlled by the inertia-valve, the cylinder having a separate exhaust-port also controlled by said valve, and a fluid cushion device arranged to cushion the valve at one end of its stroke; substantially as described.

2. A motor having a piston with differential areas, a valve carried by the piston, and arranged to be moved longitudinally of the piston by inertia when the motion of the piston is checked, a port affording communication between the spaces at the smaller and larger piston areas, said port being controlled by the inertia-valve, the cylinder having a separate exhaust-port also controlled by said valve, said inertia-valve having a by-pass port arranged to cushion the valve at the end of its stroke; substantially as described.

3. A motor having a piston with differential areas, a valve carried by the piston, and arranged to be moved longitudinally of the piston by inertia when the motion of the piston is checked, a port affording communication between the spaces at the smaller and larger piston areas, said port being controlled by the inertia-valve, the cylinder having a separate exhaust-port controlled by said valve, the inertia-valve having a projection arranged to reciprocate between two fixed surfaces, and a by-pass connecting the opposite sides of the projection and permitting the passage of air or other fluid; substantially as described.

4. A motor having a piston with differential areas, a valve carried by the piston and arranged to be moved longitudinally of the piston by inertia when the motion of the piston is checked, a port affording communication between the spaces at the smaller and larger piston areas, said port being controlled by the inertia-valve, the cylinder having a separate exhaust-port also controlled by said valve, said valve having an annular projection movable within the bore of the piston, and a by-pass from one side of the projection to its other side; substantially as described.

695,665. FEED MECHANISM FOR MACHINE-TOOLS. HENRY B. RIEMER, New York, N. Y. Filed Dec. 2, 1901. Serial No. 84,966. (No model.)

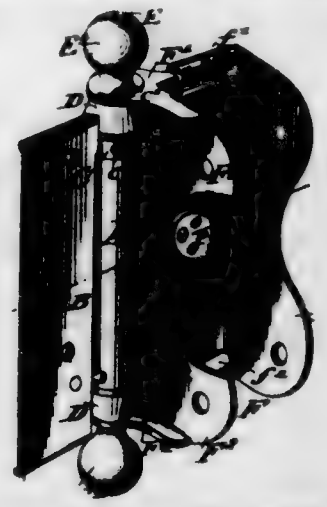


Claim.—1. The combination with the shaft or bar *b*, and feed-rack *c*, pinion *d*, and worm and screw shaft *g*, the last being slotted and hollow to receive the rod or shaft g^4, a slotted shaft g^3, in longitudinal alinement with the shaft *g*, and a train of gear-wheels for transmitting power from the shaft g^3 to said shaft or bar *b*, of said shaft g^4, arranged in said hollow shaft and having a key working in a slot in said shaft *g*, loose wheels *m*, *n*, having keyways and arranged on said shaft *g*, and meshing with trains of gear-wheels connecting with the shaft g^3, and means for shifting the key rod or shaft and its key, substantially as set forth.

2. In a boring-machine, the combination with the bar or shaft *b*, shaft g^3, and a train of gear-wheels for transmitting power from said bar or shaft to the shaft g^3, of supplemental gearing, interposed between said shaft g^3, and the screw-shaft *g*, whereby the speed of the said screw-shaft may be varied, a key for coupling said shaft g^3, or one or another train of gear-wheels to the shaft *g*, a shifter for operating said key, said screw-shaft, a worm-wheel, pinion and feed-rack, all arranged and adapted to operate, substantially as set forth.

3. In a boring-machine, the combination with the bar or shaft *b*, slotted shaft g^3, and a train of gear-wheels for transmitting power from said bar or shaft to the shaft g^3, of supplemental gearing interposed between said shaft g^3, and a hollow shaft *g*, said gearing comprising a sleeve *o*, having wheels o', o^2, a sleeve *p*, having wheels p', p^2, loose wheels *n*, *m*, having keyways and wheels j', *k*, fixed to the shaft g^3, said hollow shaft and means for rotating the same, a shaft or rod g^4, movable in said hollow shaft and having a key to enter the keyway of either the wheel *m* or *n*, or the slot of the shaft g^3, and means for shifting said rod, a feeding-rack and means for transmitting movement from said hollow shaft to the feeding-rack, substantially as set forth.

695,666. SPRING-HINGE. EMIL BOEHER, Brooklyn, N. Y. Filed Jan. 23, 1901. Serial No. 44,372. (No model.)



Claim.—1. A spring-hinge for marble or other partitions, provided with a box-flange made in two sections of right-angular transverse cross-section, the barrel-section of said box-flange being provided with perforated ears extending from the upper and lower corners, guideways of U-shaped cross-section provided at the upper and lower edges of the back portion of the other section, the barrel-section being adjustable in said guideways, and means for adjusting said sections to different thicknesses of partitions.

2. In a spring-hinge for marble or other partitions, a box-flange made in two portions, the portion adjacent to the barrel being provided with perforated ears extending from its upper and lower corners, and the other portion being guided on said first portion, and an eccentric pivoted to one of the portions and engaging a recess of the other portion, substantially as set forth.

3. In a spring-hinge, a box-flange formed in two portions, one guided on and adjustable relatively to the other, and a toothed eccentric pivoted to one portion and engaging corresponding serrations of the other portion, substantially as set forth.

695,667. PROCESS OF PRODUCING EXPLOSIVES. JOSEPH BONNET, Paris, France. Filed Dec. 5, 1900. Serial No. 38,795. (No specimens.)

Claim.—1. The herein-described process of producing an explosive compound consisting in dissolving a nitro derivative in free fatty acid.

2. The herein-described process of producing an explosive compound consisting in dissolving a nitro derivative in free fatty acid and then adding a suitable substance to support combustion.

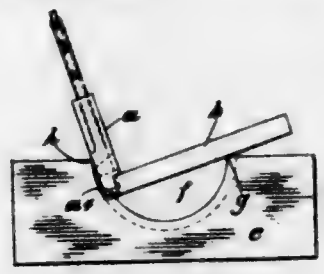
3. The herein-described process of producing an explosive compound consisting in dissolving a derivative of picric acid in free fatty acid.

4. The herein-described process of producing an explosive compound consisting in dissolving a derivative of picric acid in free fatty acid and then adding a suitable substance to support combustion.

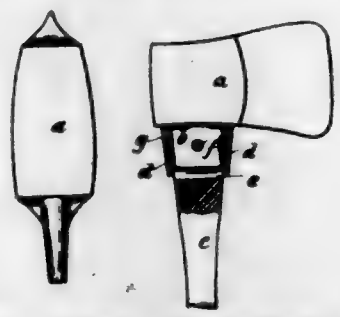
695,668. CORE-BOX PLANE. ALFRED S. BROWER, Yonkers, N. Y. Filed Dec. 26, 1901. Serial No. 87,200. (No model.)

Claim.—1. A core-box plane comprising a body portion or frame formed of an angularly-connected or L-shaped side and base, and a cutter-blade projecting through the upright side of the plane, and a rabbet groove or kerf formed in the under surface of the plane which extends from the edge of the cutter to the front end of the body of the plane, and the rear portion of the said under surface lying flush with the edge of the cutter whereby in the planing of a core-box the base and side of the plane will be accurately disposed relatively to the cutter and to the core-box.

2. A core-box plane which is L-shaped in cross-section and the upright section of which is provided with a cutter which is passed therethrough, said upright portion being provided in the bottom thereof with a rabbet groove or kerf which extends from the cutting edge of the tool to the front end of the body portion.



695,669. AX-HEAD AND HANDLE THEREFOR. ROBERT H. CARTER, Kimbolton, New Zealand. Filed Oct. 2, 1901. Serial No. 77,342. (No model.)

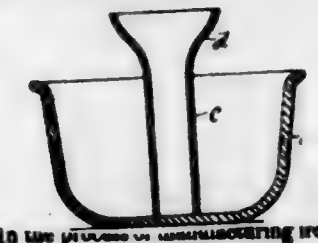


Claim.—1. The combination of the tool-head *a* having a tapered tongue *b* formed integral therewith; the handle *c* flaring at its outer end, so as to form a wedge transversely and be flush with the edges of the tongue and having a tapering slot *e* in which said tongue fits; and the tapered sleeve *d* sliding on the flaring end of the handle and driven over the same so as to clamp the slotted end of the handle tightly on the tongue *b* with a wedging action, as described.

2. In combination with an ax-head or other implement having a tapered tongue formed integral therewith, a handle the bottom of which is tapered outward and is provided with a V-shaped slot, a metal sleeve fitting over the tapered portion of the handle and a set-screw passing through the sleeve and the tongue, as herein specified.

3. In combination with an ax-head or other implement having a tapered tongue formed integral therewith, a handle, the bottom of which is tapered outward and provided with a V-shaped slot, a metal sleeve fitting over the tapered portion of the handle and a strip of rubber or other elastic material inserted between the inside of the metal sleeve and the back of the tongue, as herein set forth.

695,670. PROCESS OF MANUFACTURING IRON AND IRON ALLOYS. FRANCIS C. CREAN, Montreal, Canada. Filed Aug. 27, 1901. Serial No. 73,505. (No specimens.)



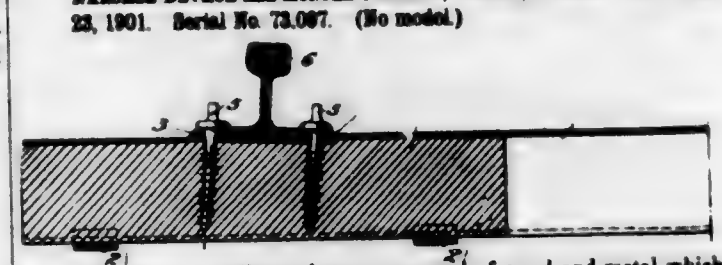
Claim.—1. In the process of manufacturing iron or iron alloy by mixing iron particles and a molten metal, feeding one of the ingredients first to the bottom of a vessel containing the other ingredient and then changing the point of feeding.

2. In the process of manufacturing iron or iron alloy by mixing iron particles and a molten metal, feeding one of the ingredients first to the bottom of a vessel containing the other ingredient and then changing the point of feeding gradually from the bottom to the top, substantially as described and for the purpose set forth.

3. In the process of manufacturing iron or iron alloy by mixing iron particles and a molten metal, feeding the iron particles first to the bottom of a vessel containing the molten metal and then changing the point of feeding.

4. In the process of manufacturing iron or iron alloy by mixing iron particles and a molten metal, feeding the iron particles first to the bottom of a vessel containing the molten metal and then changing the point of feeding gradually from the bottom to the top, substantially as described and for the purpose set forth.

695,671. RAILWAY-SLEEPER MADE OF METAL AND WOOD. MARCISSE DEVAUX and HONORÉ RICHARD, Vouneuil, France. Filed Aug. 23, 1901. Serial No. 73,097. (No model.)



Claim.—1. A railway-sleeper composed of wood and metal which is distinguished by a metal case the sides of which have a trapezoid section open at the bottom and are protected against displacement by cross-pieces 2 placed below the fastening-points of the rails, so as to allow this fastening by means of wedge-shaped pieces of wood, held firmly within the metal case by means of wood-screws which act as regulating or adjusting screws, substantially as described and as shown.

2. In a railway-sleeper composed of an iron casing and wooden parts, the combination of two wooden blocks, each composed of three wedges, the two lateral ones being held firmly in the metal case by the introduction of wood-screws into the middle one, upon which they act as adjusting-screws, substantially as described and as shown.

3. A railway-sleeper composed of an iron casing provided internally with wooden parts, arranged for the use of symmetrically-placed screws and consisting of three wedge-shaped pieces of wood of which the two lateral ones are drawn upwardly to be held firmly against the middle wedge, substantially as described and as shown.

4. A railway-sleeper composed of an iron casing provided internally with a wedge-shaped wooden block into which are fixed wood-screws, by means of which the said block is drawn upwardly, thereby pressing against two lateral wooden blocks unprovided with wood-screws, substantially as described and as shown.

5. A railway-sleeper composed of an iron casing provided internally with only one wooden block which, lifted upwardly by wood-screws, bears tightly against the lateral sides of the metal casing having a trapezoidal section, substantially as described and as shown.

695,672. IMPLEMENT FOR OPENING CIGAR-BOXES. FRANCISCO R. DIAZ, Tampa, Fla. Filed Mar. 12, 1901. Serial No. 50,808. (No model.)



Claim.—1. A tool for opening cigar-boxes comprising a handle, a paper-cutting blade, a flange opposite thereto serving as a guide to cause the blade to coincide with the joint to be slit, and means for limiting the insertion of the paper-cutting blade.

2. A tool for opening cigar-boxes comprising a handle, a paper-cutting blade, a lateral shoulder above the cutting edge of the blade, and a flange parallel with the paper-cutting blade.

3. A tool for opening cigar-boxes comprising a handle, means for prying open the lid, extending beyond the handle on one side, and a projecting cutting-blade on the opposite side of said handle parallel with said means for prying open the lid but of less length than the same.

4. A tool for opening cigar-boxes comprising the handle 1, the chisel 3 extending longitudinally thereof, the paper-cutting blade 7 parallel with said chisel, and the shoulder 6 intermediate the chisel and the paper-cutting blade.

5. A tool for opening cigar-boxes, comprising a handle having at one end both means for slitting the paper and means for prying the box-lid open, both said means extending longitudinally of the handle and arranged on opposite sides thereof, and the slitting means being arranged back of the means for prying open the lid.

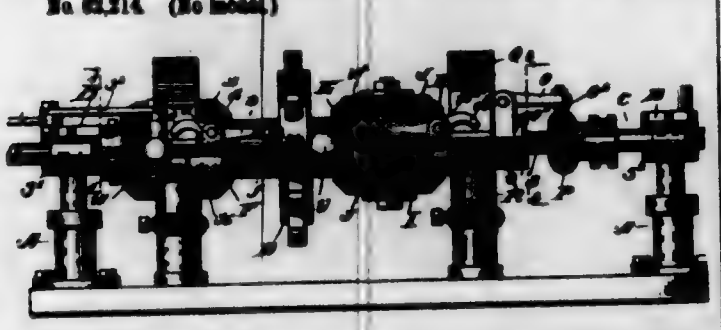
6. A tool for opening cigar-boxes comprising a handle, a chisel for raising the lid, a separate paper-cutting blade, and means for preventing the cutting edge of the latter from entering the interior of the box.

7. A tool for opening cigar-boxes comprising a handle, a chisel for raising the lid, and a separate paper-cutting blade of less length than the thickness of the wood of the box.

8. A tool for opening cigar-boxes comprising a handle, a paper-cutting blade of less length than the thickness of the wood of the box, and means for mechanically determining the covered joints where the cuts are to be made in the edging papers or binders.

9. A tool for opening cigar-boxes, comprising a handle having at one end a quadrilateral portion 5, from one side of which projects a cutter 7 and from the opposite side of which projects a chisel 3.

695,673. DIFFERENTIAL-SPEED AND REVERSING MECHANISM. WILLIAM DIEBEL, Philadelphia, Pa. Filed May 28, 1901. Serial No. 62,214. (No model.)

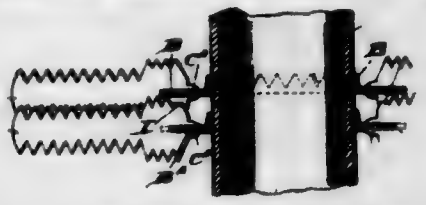


Claim.—1. In a differential-speed and reversing mechanism, a power-shaft, a transmission-wheel D journaled loosely upon said power-shaft, a bevel-gear E secured to and adapted to revolve with the transmission-wheel upon the power-shaft, a bevel-gear H journaled loosely upon the power-shaft, a shifting rod, means for shifting said rod, means adapted to be operated by the shifting of said rod to connect or disconnect the gear-wheel H with the power-shaft, means also adapted to be operated upon by the shifting rod for the purpose of causing the gear-wheel H to remain stationary, bevel-gears J journaled loosely upon an axle, said axle secured rigidly to the power-shaft so as to revolve therewith, said gears adapted to be always in mesh with both the bevel-gears E and H, a bevel-gear W secured to and adapted to revolve with the power-shaft, a bevel-gear F secured to the transmission-wheel D and adapted to revolve therewith loosely upon the power-shaft, gears X, an axle upon the ends of which the gears are adapted to be journaled loosely, said axle adapted to be journaled loosely upon the power-shaft, means controlled by the shifting of the shifting bar to cause the gears X to remain stationary for the purpose of reversing the direction of rotation of the transmission-wheel, substantially as described and for the purpose specified.

2. In a device of the character described, a continuously-running power-shaft, a transmission-wheel D journaled loosely upon said shaft, a bevel-wheel E formed with and adapted to revolve with the transmission-wheel, a bevel-wheel H journaled loosely upon the power-shaft, means under the control of the operator adapted to connect and disconnect the bevel-gear H from the power-shaft, two bevel-gears J interposed between the bevel-gears E and H and adapted to be always in mesh therewith, an axle upon the ends of which the gears are adapted to be journaled loosely, said axle adapted to be rigidly secured to the power-shaft, means under the control of the operator to cause the gear H to remain stationary, a bevel-gear W secured rigidly to the power-shaft, a bevel-gear F secured to and adapted to revolve with the transmission-gear D, two bevel-gears X interposed between and adapted to mesh with both of the gears W and F, an axle upon the ends of which the bevel-gears X are journaled loosely, said axle journaled loosely upon the power-shaft, means under the control of the operator to cause the bevel-gears X to remain stationary upon the power-shaft, as and for the purpose specified.

3. In combination with a machine of the character described, a power-shaft, a transmission-wheel journaled loosely upon said power-shaft, a bevel-gear E secured with and adapted to revolve with the transmission-wheel, a bevel-gear H journaled loosely upon the power-shaft, two bevel-gears J interposed between the bevel-gears E and H and adapted to mesh therewith, an axle, upon the ends of which the bevel-gears J are journaled loosely, said axle secured rigidly to the power-shaft, a bevel-gear W secured rigidly to the power-shaft, a bevel-gear F secured to and adapted to revolve with the transmission-wheel D, two bevel-gears X interposed between and adapted to mesh with each of the bevel-gears W and F, an axle upon the ends of which the bevel-gears X are journaled, said axle journaled loosely upon the power-shaft, a slide-rod, suitable bearings in which said rod is adapted to slide, means for sliding said rod, means adapted to be actuated by said rod to connect and disconnect the bevel-wheel H with the power-shaft, means adapted to be actuated by said rod to cause the wheel H to remain stationary and to release the same, means adapted to be actuated by said slide-rod to cause the bevel-gears X to remain stationary upon the power-shaft and to release the same, substantially as and for the purpose specified.

695,674. HEAT-RADIATING DEVICE. WILLIAM DIEBEL, Philadelphia, Pa. Filed June 11, 1901. Serial No. 64,080. (No model.)



Claim.—1. In a heat-radiating device for cylinders, a plurality of rings adapted to surround the cylinder, a plurality of thin flat fingers extending out radially from said rings, a plurality of points formed upon each edge of said thin flat fingers, substantially as and for the purpose specified.

2. In a heat-radiating device for cylinders, a plurality of rings secured to and surrounding said cylinder, a plurality of fingers extending out radially from said rings, a plurality of points formed in the upper and lower edges of said fingers, the structure of the parts being such that the fingers of each ring are held between the fingers of the rings immediately above and below the same, substantially as described and for the purpose set forth.

3. In a device of the character described, a plurality of rings surrounding the cylinder, means for securing said rings upon the cylinder, a plurality of flat fingers extending out radially from said rings, means for securing said fingers to the ring, a plurality of points formed upon the upper and lower edges of each of the fingers, points bent over upon certain fingers for the purpose of causing the fingers of one ring to be held between the fingers of the rings immediately above and below the same, substantially as and for the purpose specified.

4. In a heat-radiating device for cylinders, a plurality of rings adapted to surround the cylinder, upturned annular flanges formed with the ring, points formed in said flanges, said flanges adapted to grip the cylinder and hold the ring in position, a series of fingers extending out radially from the rings, notches B^2 formed in the edge of the ring in which the fingers are adapted to fit, slots C' formed in the inner ends of the fingers in which the ring is adapted to fit, holes formed through the ring, projections C^2 carried by the fingers adapted to be indented within the holes for the purpose of securing the fingers to the ring, a plurality of points formed in the upper and lower edges of the fingers, and means for centering the finger of each ring between the fingers of the ring above and below the same, substantially as described and for the purpose set forth.

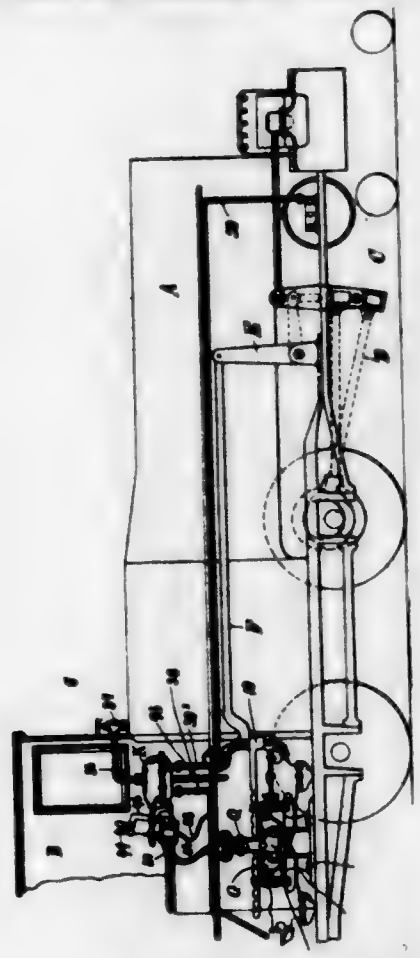
695,675. REVERSING-GEAR FOR ENGINES. GEORGE H. EELL, St. Paul, Minn. Filed Aug. 15, 1901. Serial No. 72,067. (No model.)

Claim.—1. In an engine, the combination with a reversing-gear, of a toothed quadrant-bar in actuating connection therewith, a main cylinder adjacent to the quadrant-bar, a piston reciprocating in the cylinder in actuating connection with the quadrant-bar, a fluid-pressure supply, means for bringing such fluid-pressure supply into and out of communication with the two ends of the cylinder so as to reciprocate the piston therein, and means for locking the toothed locking-bar in any required position, substantially as shown and described.

2. In an engine, the combination with a reversing-gear, of a toothed quadrant-bar in actuating connection therewith, a main cylinder adjacent to the quadrant-bar, a fluid-pressure supply, means for bringing such fluid-pressure supply into and out of communication with the two ends of the cylinder so as to reciprocate the piston therein, and means for locking the toothed locking-bar in any required position, substantially as shown and described.

3. In an engine, the combination with a reversing-gear, of a toothed quadrant-bar in actuating connection therewith, a main cylinder adjacent to the quadrant-bar, a piston reciprocating in the cylinder in actuating connection with the quadrant-bar, a locking-cylinder adjacent to the quadrant-bar a piston reciprocating in the locking-cylinder, a locking-lug carried by the piston adapted to coact with the teeth of the quadrant so as to lock the same in position, a fluid-pressure supply in communication with the main cylinder, a fluid-pressure supply in communication with the locking-cylinder, and means for regulating the flow of the fluid to and from each cylinders, substantially as shown and described.

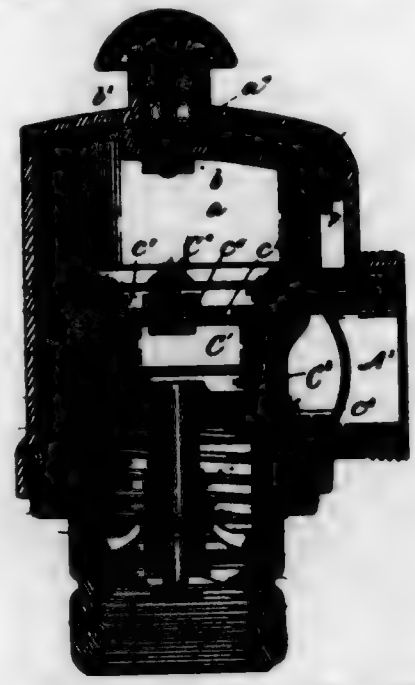
4. In an engine, the combination with a reversing-gear, of a toothed quadrant-bar in actuating connection with the reversing-gear, a main cylinder, a piston reciprocating in the main cylinder in actuating connection with the reversing-gear, a main cylinder, a piston reciprocating in the main cylinder in actuating connection with the quadrant-bar, a main-valve casing in communication with a fluid-pressure supply and with both ends of the main cylinder, a slide-valve reciprocating in the casing, a locking-cylinder, a piston reciprocating in the locking-cylinder, a locking-lug adapted to coact with the teeth of the quadrant-bar to lock the same against movement carried by the locking-piston, a vibrating valve-cylinder in communication with the fluid-pressure pipe, two pipes forming a communication between such valve-cylinder and the locking-cylinder, a valve-slide reciprocating in the vibrating cylinder, a valve-rod for actuating the valve-slide, a lever for vibrating the vibrating valve-cylinder, a toothed rack for locking the same in position, a rod connecting such lever with the valve-slide of the main valve, and means for locking such lever at any desired point upon the toothed rack, substantially as shown and described.



5. In a device of the class described, the combination with a cylinder of a piston reciprocating in the cylinder, a spring-valve chamber located at either end of the cylinder in communication therewith, the chamber at one end being in communication with the opposite end thereof, a piston-valve located in each of such valve-chambers, a spring for normally forcing such spring-valve in one direction, an exhaust-passage for each of such valve-chambers, a slide-valve chamber in the spring-valve casing cutting the exhaust-passage transversely, an exhaust-passage through the slide-valve, an inlet recess or port formed in one side of the slide-valve, a fluid-pressure-supply pipe in communication with the slide-valve chamber so as to form a communication with the steam-valve by way of the side port and exhaust-passage when the same is in the proper position, a spring for normally keeping the slide-valve in position so that the side port is in communication with the exhaust passage and inlet, and means for forcing such slide-valve in the opposite direction upon the reciprocation of the piston to that end of the cylinder, substantially as shown and described

6. In a device of the class described, the combination with a cylinder, of a piston reciprocating in the cylinder, a spring-valve chamber located at either end of the cylinder in communication therewith, a piston-valve located in each of such valve-chambers, a spring for normally forcing such spring-valve in one direction, an exhaust-passage for each of such valve-chambers, a slide-valve casing cutting the exhaust-passage transversely, an exhaust-passage through the slide-valve, an inlet-recess or port-slot formed in one side with a slide-valve, a fluid-pressure-supply pipe in communication with the slide-valve chamber so as to form a communication with the steam-valve chamber by way of the side port and exhaust-passage when the same is in the proper position, a spring for normally keeping the slide-valve in position so that the side port is in communication with the exhaust passage and inlet, and means for forcing such slide-valve in the opposite direction upon the reciprocation of the piston to that end of the cylinder, substantially as shown and described.

695,676. **AUTOMATIC FLUSHING-VALVE.** ORIN J. FAIRCHILD, Corry, Pa., assignor of one-half to Horace W. Tibbals, Jamestown, N.Y. Filed July 26, 1901. Serial No. 69,845. (No model.)



Claim.—1. The combination with the casing, provided with a main-valve seat, two cylinders of different diameters and a vent-aperture for the larger cylinder, of a movable valve for engaging said main-valve seat, a piston in each cylinder connected with said valve, the smaller piston being provided with a spring-valve, to allow the fluid to pass through said piston, means for admitting fluid from one side of the smaller piston to the opposite side of the larger piston, and a trip-valve for said vent-aperture, substantially as described.

2. The combination with the casing provided with a main-valve seat, two cylinders, of different diameters, and a vent-passage communicating with the larger cylinder, of a main valve for engaging said main-valve seat, a piston in each cylinder connected with said main valve, the smaller piston having a movable part to provide a passage for the fluid therethrough, a spring normally holding said movable part in closed position, means for admitting fluid from one side of the smaller piston to the opposite side of the larger piston, and a trip-valve for said vent-passage, having a part in the path of a part connected with the larger piston, for automatically closing said trip-valve, substantially as described.

3. The combination with the casing provided with a main-valve seat, two cylinders, of different diameters and a vent-passage communicating with the larger cylinder, of a piston in each of said cylinders, a hollow stem connecting said pistons and providing a passage for the fluid through both of said pistons, a regulating device for said passage, a main valve connected with said pistons and adapted to engage the main-valve seat, the smaller piston being provided with a movable part to permit the passage of fluid therethrough, a spring holding said movable part normally closed, and a trip-valve for said vent-passage, substantially as described.

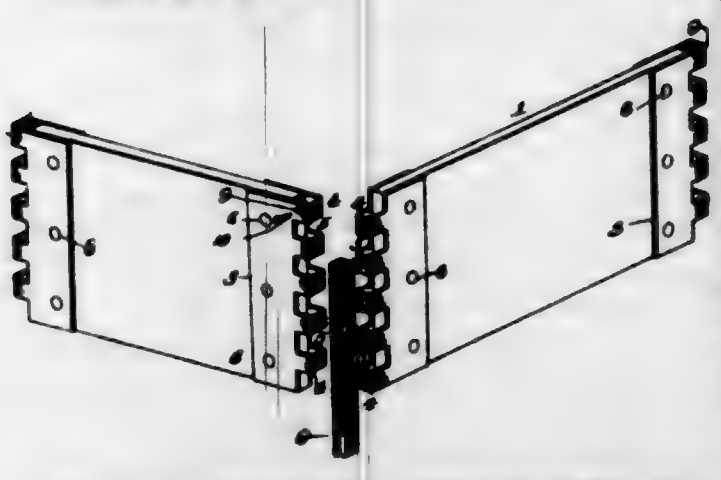
4. The combination with the casing provided with a main-valve seat, two cylinders of different diameters and a vent-passage communicating with said larger cylinder, of a perforated piston in the larger cylinder, a perforated piston in the smaller cylinder, a hollow stem connecting said pistons, a movable ring forming part of said smaller piston, a spring normally holding said ring in closed position, a main-valve seat, provided with a part adapted to project into said seat and cut off the flow of fluid gradually before the valve engages the said seat, and a trip-valve for said vent-passage, substantially as described.

5. The combination with the casing provided with a main-valve seat, two cylinders of different diameters and a vent-passage communicating with said larger cylinder, of a perforated piston in the larger cylinder, a perforated piston in the smaller cylinder, a hollow stem connecting said pistons, a movable ring forming part of said smaller piston, a spring normally holding said ring in closed position, a main-valve seat provided with an annular part having an outer beveled face, adapted to project into said seat and cut off the flow of fluid gradually before the valve engages said seat, and a trip-valve for said vent-passage, substantially as described.

6. The combination with the casing provided with a main-valve seat, two cylinders of different diameters and a vent-passage communicating with said larger cylinder, of a perforated piston in the larger cylinder, a

perforated piston in the smaller cylinder, a hollow stem connecting said pistons, a movable ring forming part of said smaller piston, a spring normally holding said ring in closed position, a main valve adapted to engage the main-valve seat provided with an annular part having an outer beveled face provided with notches adapted to project through the said seat and gradually cut off the flow of fluid, a trip-valve for said vent-passage, and an adjustable part on said larger cylinder for engaging and automatically closing said trip-valve, substantially as described.

695,677. BOX. JAMES H. FARR, Kansas City, Mo., assignor of one-half to James H. Oglesby, Kansas City, Mo. Filed Nov. 14, 1901. Serial No. 82,183. (No model.)



Claim.—A box having its sides or sections equipped with brackets, provided with alined and alternating loops and notches beyond the ends of said sides or sections, said loops being of angular form in plan view, with those of one bracket fitting snugly in the notches of the contiguous bracket, angular corner-posts fitting snugly and non-rotatably in said loops, and screws extending through certain of said loops and into said posts.

695,678. FIREPROOFED WOOD AND METHOD OF MAKING SAME. JOSEPH L. FERRELL, Philadelphia, Pa. Filed Apr. 20, 1901. Serial No. 56,098. (No specimens.)

Claim.—1. The hereinbefore-described product, characterized by capacity to resist flame, and consisting of wood impregnated with aluminium sulfate, substantially as set forth.

2. The hereinbefore-described product, characterized by capacity to resist flame, and consisting of wood impregnated with aluminium sulfate, mixed with another chemical capable of obviating the discoloring effect of the aluminium sulfate, *per se*, substantially as set forth.

3. The hereinbefore-described product, characterized by capacity to resist flame, and consisting of wood impregnated with aluminium sulfate mixed with the residue of a carbonate decomposed in presence of said sulfate, substantially as set forth.

4. The process of making the hereinbefore-described product, characterized by capacity to resist flame, which consists in impregnating wood with an aqueous solution of aluminium sulfate; and, subsequently evaporating the moisture from the wood, substantially as set forth.

5. The process of making the hereinbefore-described product, characterized by capacity to resist flame, which consists in impregnating wood with an aqueous solution of aluminium sulfate mixed with another chemical capable of obviating the discoloring effect of the aluminium sulfate, *per se*; and, subsequently evaporating the moisture from the wood, substantially as set forth.

695,679. FIREPROOFING COMPOUND AND METHOD OF MAKING SAME. JOSEPH L. FERRELL, Philadelphia, Pa. Filed Apr. 20, 1901. Serial No. 56,099. (No specimens.)

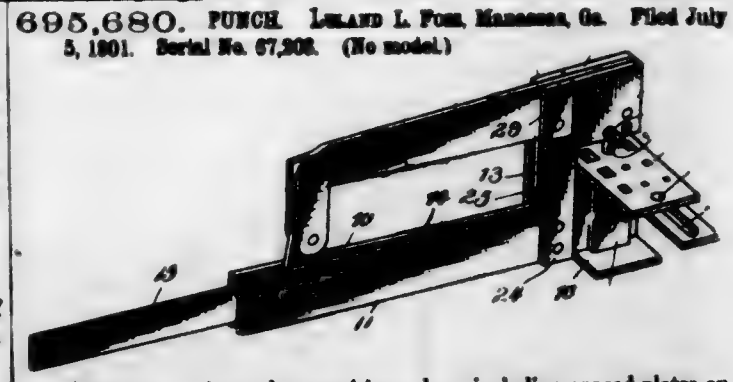
Claim.—1. The hereinbefore-described fireproofing compound, consisting of an aqueous solution of aluminium sulfate mixed with another chemical capable of obviating the discoloring effect of the aluminium sulfate *per se*, substantially as set forth.

2. The hereinbefore-described fireproofing compound, consisting of an aqueous solution of aluminium sulfate mixed with the residue of a carbonate decomposed in the presence of said sulfate, substantially as set forth.

3. The hereinbefore-described process of making a fireproofing compound, which consists in making an aqueous solution of aluminium sulfate, and mixing with said solution another chemical capable of obviating the discoloring effect of the aluminium sulfate *per se*, substantially as set forth.

4. The hereinbefore-described process of making a fireproofing compound, which consists in making an aqueous solution of aluminium sulfate, and mixing with said solution a carbonate, substantially as set forth.

695,680. PUNCH. LELAND L. FOSS, Manassas, Ga. Filed July 5, 1901. Serial No. 67,208. (No model.)



Claim.—1. A punch comprising a base including spaced plates, angle-plates secured against the side faces of the first-named plate and extending thereabove, additional angle-plates secured to the first angle-plates and having horizontally-disposed slotted members forming a table-support, a table disposed upon the angle-plates and having clamping-bolts passed through the slots thereof to permit of adjustment of the table, said table having laterally-extending series of openings, and a movable head adapted to hold the punch-bits interchangeably.

2. A punch comprising a base including spaced plates, having a spacing-plate disposed therebetween and projecting thereabove additional plates secured against the outer faces of the base-plates and projecting thereabove, a lever having plates disposed against its opposite sides and extending therebelow and between the spacing-plate and the plates against the outer face of the base-plate, additional plates secured against the side face of the upper lever and extending therebelow, one of the plates having threaded perforations to receive a clamping set-screw to hold the bits between the said plates, a table mounted upon the base, and a lever pivoted between the base-plates and having linked connections with the upper lever.

695,681. NOSEPIECE FOR SPECTACLES OR EYEGLASSES. IVAN FOX, Lansdowne, Pa. Filed Mar. 5, 1901. Serial No. 49,880. (No model.)



Claim.—1. A nose piece for a spectacle or eye glass, the same consisting of a U-shaped loop formed from a strip of plate metal, one leg of which is adapted to be attached to a lens, lens frame, or mounting, and the other provided with an enlarged bearing plate arranged at its upper end and forming a direct continuation of it, but out of line with the upper end of the first mentioned or basal leg, said bearing plate and its leg existing in approximately the same plane so that in use both are in acting contact with the nose of the wearer, and said bearing plate embodying a large skin receiving opening, substantially as set forth.

2. A nose piece for a spectacle or eye glass, the same consisting of a U-shaped loop formed from a strip of plate metal, one leg of which is adapted to be attached to a lens, lens frame, or mounting, and the other provided with an enlargement constituting a bearing plate arranged at its upper end and forming a direct continuation of it, but set out edgewise from it, said bearing plate and leg existing in approximately the same plane so that in use both are in acting contact with the nose of the wearer, and said bearing plate embodying a large skin receiving aperture cut directly through it, substantially as set forth.

695,682. VELOCIPEDE-BEARING. CHARLES GLOVER, New Britain, Conn. Filed May 1, 1900. Serial No. 15,044. (No model.)



Claim.—1. In a chainless bicycle of the free-running type, in combination, the rear forks of the frame, the wheel-hub having bearing-cases located in each end thereof, the driving-gear, the driven gear mounted on a sleeve independent of the hub and meshing with the driving-gear, the axle, independent cones slidingly mounted on the axle, and an abutment adjustably mounted in the rear forks of the frame and bearing against one of the sliding cones, and means operating against the other cone for moving the parts to adjust the bearings, substantially as described.

2. In a chainless bicycle of the free-running type in combination, the rear forks of the frame, the driving-gear, the wheel-hub, the driven gear meshing with said driving-gear, the axle, independent cones slidingly mounted on said axle, an abutment adjustably mounted in the rear forks of the frame and forming an abutment for one of said sliding cones, and a bushing screw-threaded onto the axle and bearing against the opposite cone and adapted by its movement to move the parts to effect the adjustment of the bearings.

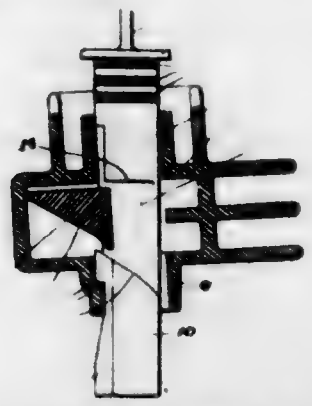
3. In a chainless bicycle in combination the frame, the rotating side shaft, the rear gear secured to said side shaft, the wheel-hub, the driven gear mounted in operative relation thereto and meshing with the first-mentioned gear, and bearing-cases located in each end of said wheel-hub, a nut threaded into the frame of the machine and forming an abutment to determine and maintain the proper meshing of the gears, the axle threaded into said nut, a cone slidingly mounted on said axle, and abutting against said nut, a second cone slidingly mounted on the opposite end of said axle, and an adjusting-nut threaded onto the axle and adapted to move the last-mentioned cone to adjust the bearings, substantially as described.

4. In a chainless bicycle in combination the frame, the rotating side shaft, a gear fixedly secured thereto, the wheel-hub, the driven gear mounted in operative relation thereto and meshing with the driving-gear, bearing-cases located in each end of the hub, the axle and cones slidingly mounted on said axle and coacting with said bearing-cases, a nut threaded into the frame at the gear end of the hub and forming an abutment for one of the cones, the axle threaded into said nut, and an adjusting-nut at the opposite end of said axle adapted to move the parts to adjust the bearings, substantially as described and for the purposes set forth.

5. In combination in a chainless bicycle the rear forks of the frame, the driving-gear, the driven gear, the bearing-cases, the axle, cones mounted to slide on the axle, an abutment for the cone at the gear end of the hub adjustably mounted in the rear forks of the frame, and an adjusting-nut or bushing threaded onto the opposite end of the axle and adapted to move the parts to adjust the bearings.

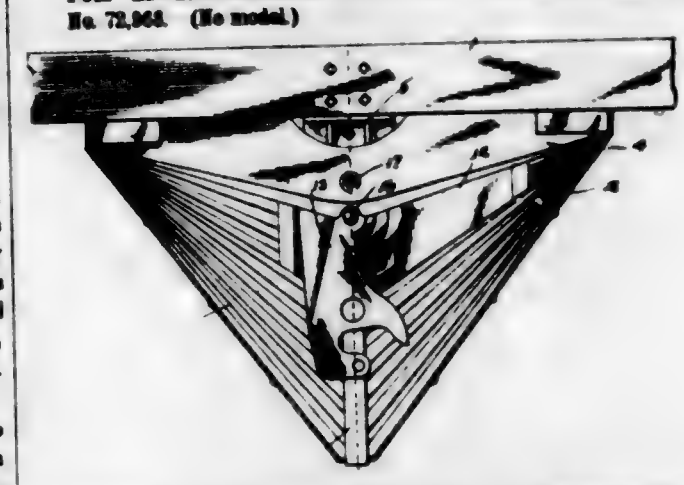
6. In a device for adjusting the meshing of the gears, and the bearings in a chainless bicycle of the free-running type, in combination, the wheel-hub and bearing-cases for each end thereof, the sleeve upon which the gear is mounted, the bearing-surfaces on the outside of the sleeve adapted to coact with one of the cases, a sleeve slidingly mounted on the axle and having a bearing-surface coacting with the other bearing-cases, means for positively connecting the gear-sleeve with the hub or with the second sleeve, a cone slidingly mounted on the axle and coöperating with a bearing-surface on the under side of the gear-sleeve, an adjustable abutment for said cone and an adjusting-nut located at the opposite end of the axle, as and for the purposes specified.

695,683. CAR-COUPLING. EDWARD GRAFTRON, Columbus, Ohio, assignor to Henry S. Hallwood, Columbus, Ohio. Filed Nov. 13, 1899. Serial No. 736,733. (No model.)



Claim.—In a car-coupling, the combination with a recessed draw-head and a fulcrumed knuckle therein, said draw-head having a neck extension 8 provided on opposing sides with internal notches, of a knuckle lock-pin adapted to extend through said neck portion, said lock-pin having formed on opposing sides thereof tooth projections, substantially as specified.

695,684. LOCOMOTIVE-PILOT AND CAR-COUPLING THEREFOR. EDWARD GRAFTRON, Topeka, Kans. Filed Aug. 23, 1901. Serial No. 72,968. (No model.)

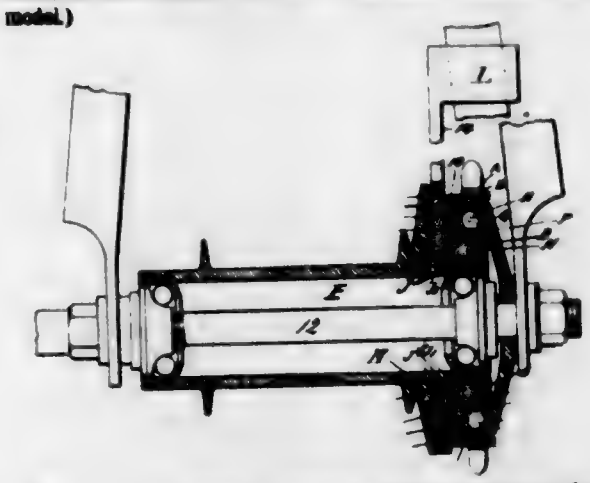


Claim.—1. In a locomotive-pilot and car-coupler therefor, the combination with the pilot-framework having a recess 12 in its upper portion, of a fixed bracket extending from the locomotive-sill and a car-coupler connected with said bracket by a vertical pivot-pin and adapted to be swung into said pilot-recess, substantially as specified.

2. In a locomotive-pilot and car-coupler, the combination with a pilot-frame having a recess 12 in its upper portion and a fixed bracket extending from the locomotive-sill, of a car-coupler mounted to swing in its bracket on a vertical pivot and a detachable stop-pin adapted to intersect said bracket and car-coupler, substantially as specified.

3. In a locomotive-pilot and car-coupler, the combination with the pilot-frame having an upper recessed portion 12, a fixed bracket extending from the locomotive-sill and having separated jaws, of a car-coupler having its rear portion bifurcated to embrace one of said bracket-jaws, a vertical pivot-pin hinging said coupler and bracket and a detachable stop-pin intersecting said coupler and bracket, substantially as specified.

695,685. COASTER-BRAKE. CONRAD HANSOTT and HAROLD O. SEYD, London, England. Filed June 12, 1901. Serial No. 64,297. (No model.)

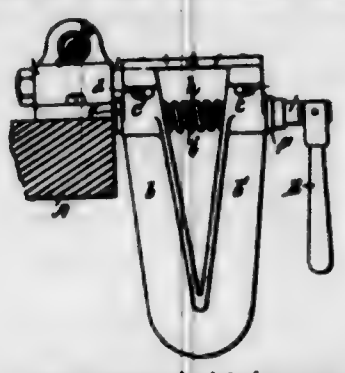


Claim.—1. In a driving, coasting and brake mechanism for bicycles and similar vehicles, the combination of a driven member secured to a rotating wheel-hub, a driving ring or member surrounding the driven member and the inner face of which is provided with lugs or cams adapted to lock the driven and driving members together when the driven member is rotated in one direction, a cam disk or ring secured to the driving member and provided on its outer face with locking lugs or cams which extend in a direction opposite to that of the locking lugs or cams of the driving member, a friction-disk mounted on the wheel-hub inwardly of the cam ring or disk, an engaging disk connected with the shaft or axle outside of the driving and driven members, and a plurality of balls placed between the driving and driven members and operating in connection with said lugs or cams of the driving member so as to lock the same to the driven member when the driving member is rotated in one direction and to coact with the locking lugs or cams upon the cam ring or disk, so as to force said cam ring or disk and driving member away from the engaging disk when the driving member is rotated in a reverse direction, substantially as shown and described.

2. In a driving, coasting and brake mechanism for bicycles and similar vehicles, the combination of a driven member secured to a rotating wheel-hub, a driving ring or member surrounding the driven member and the inner face of which is provided with lugs or cams adapted to lock the driven and driving members together when the driven member is rotated in one direction, a cam or ring secured to the driving member and provided on its outer face with locking lugs or cams which extend in a di-

rection opposite to that of the locking lugs or cams of the driving member, a friction-disk mounted on the wheel-hub inwardly of the cam ring or disk, an engaging disk connected with the shaft or axle outside of the driving and driven members, a plurality of balls placed between the driving and driven members and operating in connection with said lugs or cams of the driving member so as to lock the same to the driven member when the driven member is rotated in one direction and to coact with the locking lugs or cams upon the cam ring or disk, so as to force said cam ring or disk and driving member away from the engaging disk when the driving member is rotated in a reverse direction, and a cage-ring for holding said balls in proper relative position, said cage-ring being held in position by the engaging disk, substantially as shown and described.

695,686. CLAMP FOR FILING SHAFT-KEYS. BENJAMIN HOLLAND, Providence, R. I. Filed Mar. 1, 1901. Serial No. 49,497. (No model.)

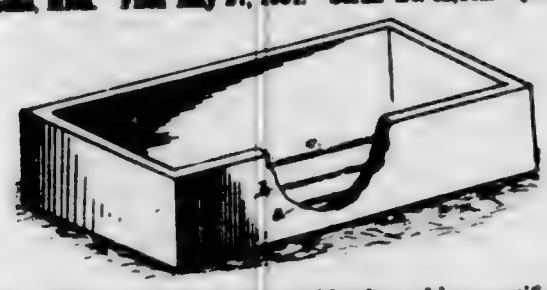


Claim.—1. A clamp having the jointless arms, and the separately-formed holding-jaws adapted for filing the opposite sides of a shaft-key blank to an exact size without requiring the removal of the blank from the holding-jaws, the tightening-screws for fastening the jaws to the ends of the arms the conically-pointed screws for effecting the adjustment of the jaws, and the screw for closing the jaws upon the sides of the blank, substantially as described.

2. A clamp having the jointless arms, and the separately-formed holding-jaws adapted for filing the opposite sides of a shaft-key blank to an exact size without requiring the removal of the blank from the holding-jaws, the spring for opening the jaws, and the screw for closing the jaws upon the sides of the blank, substantially as described.

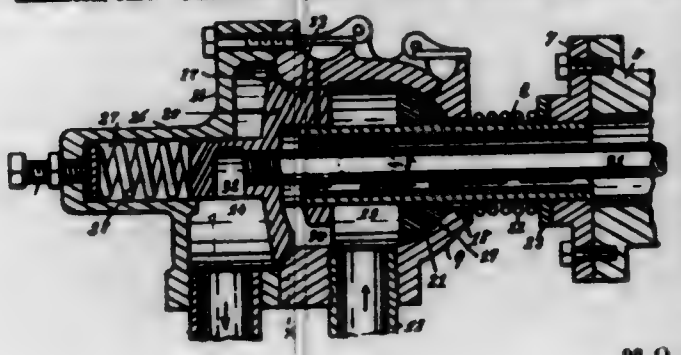
3. A clamp having the jointless arms and the holding-jaws adapted for filing the opposite sides of a shaft-key blank to an exact size, without requiring the removal of the blank from the holding-jaws, the spring for opening the jaws, the screw for closing the jaws, and means for limiting the inward movement of the jaws, under the action of the screw.

695,687. ARTIFICIAL-STONE TANK. CHARLES I. HUXLEY, Athens, Mich. Filed May 27, 1901. Serial No. 62,162. (No model.)



Claim.—In a water-tank the combination with an artificial-stone foundation and side walls thereof, a series of metallic bands interposed within said walls and distributed equidistant from the top and bottom thereof, of eyelets *a*, *a*, located upon the top band *c*, midway between the ends of said tank and a turnbuckle *d* connecting said eyelets, substantially as set forth and described.

695,688. EQUABLE SAFETY PACKING-BOX. JOHN A. KELLER, Hamilton, Ohio. Filed Nov. 23, 1901. Serial No. 83,207. (No model.)



Claim.—1. In a musical toy, the combination with a casing, a toothed drum mounted for rotation in the casing, and vibrating fingers in the path of the drum, of a spindle journaled in the casing, means carried by the spindle to rotate the drum, a sleeve connected to the spindle, a clamping member engaging the top of the sleeve and having a threaded shank engaging in the sleeve, and a series of wings having their lower portions secured between the top of the sleeve and the clamping member, and means carried by the clamping member for securing the ends of the wings thereto, substantially as described.

2. In a musical toy, the combination with a casing having a transparent wall, a removable toothed drum rotatably mounted in said casing, a bracket rigidly secured in said casing, vibrating fingers secured upon

Claim.—1. The combination with a casing, a movable valve separating its interior into a steam and an exhaust chamber, a spring arranged to permit the valve to be opened by predetermined pressure within the steam-chamber, of a rotative pipe leading from the steam-chamber, a collar thereon arranged to rotate in a seat formed in the chamber, and a siphon-pipe within the rotative pipe and secured at one end to the movable valve, and communicating therethrough with the exhaust-chamber.

2. The combination with a casing containing a steam-chamber and an exhaust-chamber, a valve between said chambers, an adjustable spring arranged to permit said valve to be automatically opened by a predetermined pressure in the steam-chamber, of a rotative pipe extending from within the steam-chamber through an opening formed in the casing and without contact therewith, and a spherical packing-collar on the pipe arranged to be maintained in contact with a seat formed in the casing concentric to said opening, whereby the escape of steam through said opening is prevented during the rotation of the pipe in different angles to the casing.

3. The combination with a casing containing a steam and an exhaust chamber, a valve between the chambers, and a spring to close the valve, of a rotative pipe leading from the steam-chamber, a seat formed within the chamber, and a collar on the pipe and arranged to rotate in said seat.

4. The combination with a casing formed in two sections and removably secured together, a steam-chamber in one section, an exhaust-chamber in the other section, a non-rotative valve between the sections, an adjustable spring arranged to permit the valve to be automatically opened by different predetermined pressures within the steam-chamber, of a rotative pipe journaled at one end in a bearing formed in the face of the valve and extending through the steam-chamber and through an opening in the casing, said pipe containing ports within the steam-chamber, and a collar thereon arranged to rotate in a seat formed within the casing to prevent the escape of the steam through said opening.

5. The combination with a casing containing a steam-chamber, a safety-valve therein, and an adjustable spring arranged to control the pressure of the valve, of a rotative pipe communicating with the chamber through an opening in the casing, a collar on the pipe within the chamber and movable on a seat formed on the inside of the wall of the casing, and spring mechanism arranged to maintain the collar properly in contact with the seat.

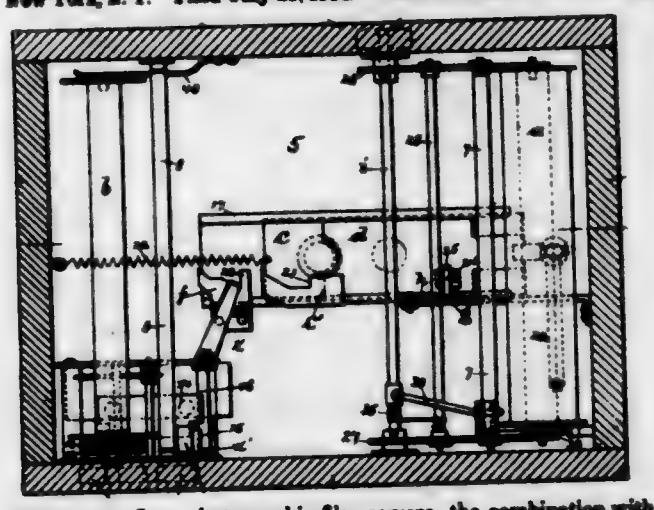
6. The combination with a casing containing a steam-chamber, and a spring-actuated safety-valve in one end thereof and formed with a recess in its inner face and with ports leading therein from the chamber, of a rotative pipe communicating with the interior of the chamber through an opening formed in the opposite end thereof and terminating within said recess, and means to prevent the escape of steam from the chamber through the opening around the pipe.

695,689. TOY. SACKVILLE G. LEYSON, Solvay, N. Y. Filed Mar. 27, 1901. Serial No. 53,065. (No model.)



said bracket engaging said toothed drum, of a spindle journaled in said casing, means carried by the spindle to rotate said drum, a sleeve connected to said spindle, a clamp carried by said sleeve, wings engaging said clamp and sleeve, and means carried by the clamp for securing the ends of the wings, and a removable handle, all parts being arranged and operating substantially as described and for the purpose set forth.

695,690. PHOTOGRAPHIC CAMERA. WILLIAM D. MACDONALD, New York, N. Y. Filed July 23, 1901. Serial No. 69,206. (No model.)



Claim.—1. In a photographic-film camera, the combination with a shutter and means for actuating the same, and a spring-actuated device for positively winding the film from one spool onto another, of a swinging device adapted to hold and prevent the unrolling of the unexposed roll of film and move toward the spring-actuated device as the same winds up the exposed portion of the film, and means actuated by the swinging device for covering the shutter-opening and engaging the same preparatory to a return of the parts, and devices for disengaging the unexposed roll of film upon the completion of the movement of the swinging device and for returning the swinging device to its normal position and paying out the film and simultaneously returning the shutter device to a normal position preparatory to repeating the movements, substantially as set forth.

2. In a photographic-film camera, the combination with a shutter mechanism and a swinging device adapted to operate the shutter mechanism in one direction and for carrying the roll of unexposed film, of a spring-actuated device carrying a roll upon which the exposed film is wound up, and a lever device adapted at one end to be actuated and released by the movement of the shutter for releasing the said spring-actuated device at its other end and which lever device is adapted to be engaged by the aforesaid swinging device for the purpose of resetting the same and stopping the movement of the spring-actuated device, substantially as set forth.

3. In a photographic-film camera, the combination with a spring-actuated device carrying a spool upon which the exposed film is to be wound up and a swinging device carrying the roll of unexposed film, of a shutter mechanism comprising parallel adjacent plates, the one having an opening and forming the shutter-plate and the other the cover-plate, slideways in which these plates move separately or together, a spring for actuating the shutter-plate in one direction, a push-button and means actuated thereby for releasing the shutter-plate, means actuated by the movement of the shutter for releasing the spring-actuated device and means actuated by the movement of the swinging device for moving the cover-plate, engaging the shutter-plate and then moving the two plates together to a normal position, substantially as set forth.

4. In a photographic-film camera, the combination with a spring-actuated device carrying a spool upon which the exposed film is to be wound up and a swinging device carrying the roll of unexposed film, of a shutter mechanism comprising parallel adjacent plates, the one having an opening and forming the shutter-plate and the other the cover-plate, slideways in which these plates move separately or together, a spring for actuating the shutter-plate in one direction; means for releasing the shutter-plate, means for releasing the spring-actuated device, and a device connected to the shutter-plate and acting upon the said means for shifting the same, substantially as set forth.

5. In a photographic-film camera, the combination with a spring-actuated device carrying a spool upon which the exposed film is to be wound up and a swinging device carrying the roll of unexposed film, of a shutter mechanism comprising parallel adjacent plates, the one having an opening and forming the shutter-plate and the other the cover-plate, slideways in which these plates move separately or together, a spring for actuating the shutter-plate in one direction, means for releasing the shutter-plate, means for releasing the spring-actuated device, a device connected to the shutter-plate and acting upon the said means for shifting the same, and a pawl mounted upon the swinging device and holding the roll of unexposed film and adapted simultaneously to be acted upon by the spring-actuated device and to act upon the means for releasing and stopping the said spring-actuated device, substantially as set forth.

6. In a photographic-film camera, the combination with a spring-actuated device carrying a spool upon which the exposed film is to be wound up, and a swinging device carrying the roll of unexposed film, of a shutter mechanism comprising parallel adjacent plates, the one having an opening to pass the lens and give the exposure and forming the shutter-plate and also having a small opening at its opposite end, and the other forming the cover-plate and having a tooth adapted to engage the small opening of the shutter-plate whereby the two plates are held in a fixed relation to one another until released and by which the two plates may be returned together to a normal position, and means substantially as specified for actuating the said shutter and cover plates, and slideways for the said plates in the case of the camera, substantially as set forth.

7. In a photographic-film camera, the combination with slideways secured upon the inner surface of the camera, and a spring-actuated push-button *e*, of a shutter-plate *c* having an opening for giving the exposure and a small opening at one end and a cam-arm *c'* at the other end provided with a vertical edge 21, a cover-plate *d* adjacent to and parallel with the shutter-plate and with the shutter-plate movable in the slideways, a spring-arm 19 at one end of the cover-plate and a tooth 18 adjacent thereto and adapted to engage the small opening of the shutter-plate, the free end of the spring-arm 19 being adapted to bear on the spring of the push-button, substantially as and for the purposes set forth.

8. In a photographic-film camera, the combination with slideways secured upon the inner surface of the camera, and a spring-actuated push-button *e*, of a shutter-plate *c* having an opening for giving the exposure, and a small opening at one end and a cam-arm *c'* at the other end provided with a vertical edge 21, a cover-plate *d* adjacent to and parallel with the shutter-plate and with the shutter-plate movable in the slideways, a spring-arm 19 at one end of the cover-plate and a tooth 18 adjacent thereto and adapted to engage the small opening of the shutter-plate, the free end of the spring-arm 19 being adapted to bear on the spring of the push-button, a spring-actuated device carrying a spool upon which the exposed film is to be wound up, and a release-lever device pivoted thereto and actuated with the movement of the shutter by the cam-arm *c'*, a swinging device carrying the roll of unexposed film, a slotted projection 24 on the cover-plate *d* and means connected therewith and with the swinging device for effecting the movement of the cover-plate in one direction and the same and the shutter-plate in the reverse direction with the movement of the swinging device, substantially as set forth.

9. In a photographic camera the combination with a spring-actuated device carrying a spool upon which the exposed film is to be wound up, a pivot-arbor 16 connected therewith, a two-part release-lever *k k'* connected to the pivot-arbor with the end of the part *k'* upturned at 15 to form a stop for the governer of the spring-actuated device, a cam-bracket *f* secured to the camera-box and upon which the free end of the release-lever *k* rests, the upper edge of the cam-bracket having an inclined part, a horizontal part and an upright end, a shutter-plate, means for releasing the shutter-plate, and a spring for moving the same when released, a cam-arm attached to the shutter-plate, movable therewith and having an upright edge adapted with the movement of the shutter to come in contact with the free end of the release-lever *k* to move the same and start the movement of the spring-actuated device, substantially as set forth.

10. In a photographic-film camera, the combination with a swinging device and a shutter mechanism, of a bracket *g* secured to the side of the camera-case, a slotted lever *h* pivoted thereto, a slotted projection 24 upon the shutter device and engaged by a portion of the slotted lever *h*, and a rod forming part of the swinging device and engaging the slot of the lever *h* whereby with the movement of the swinging device the shutter mechanism is operated, substantially as set forth.

11. In a photographic-film camera, the combination with a shutter device and means for releasing the same, of a swinging device carrying the roll of unexposed film and comprising top and bottom plates, a pivot-post *i* upon which the said plates are mounted, rods 28 29 and a roller and rod 7 connecting the said parts and forming substantially a frame, a ratchet-and-pawl device connected to the free end of the bottom plate of said frame and adapted to engage the lower end of the roll of unexposed film and hold the same, springs connected to the said swinging device and for maintaining the same in and returning the same to a normal position, substantially as set forth.

12. In a photographic-film camera, the combination with a shutter device and means for releasing the same, of a swinging device carrying the roll of unexposed film and comprising top and bottom plates, a pivot-post *i* upon which the said plates are mounted, rods 28 29 and a roller and rod 7 connecting the said plates and forming substantially a frame, a ratchet-and-pawl device connected to the free end of the bottom plate of

said frame and adapted to engage the lower end of the roll of unexposed film and hold the same, springs connected to the said swinging device and for maintaining the same in and returning the same to a normal position, and a device for releasing the said pawl to insure the unwinding of the unexposed film, and means operated by the said swinging device and connected to the shutter device for the movement of the shutter device by the swinging device, and a spring for insuring the engagement of the pawl-and-ratchet device, substantially as set forth.

13. In a photographic-film camera, the combination with a spring-actuated device carrying the spool upon which the exposed film is to be wound up, a swinging device carrying the roll of unexposed film, rollers around which the film passes, a shutter mechanism and means for actuating the same, of a release-lever device pivoted to the spring-actuated device and adapted in one position to hold the governer-fan of the spring-actuated device, means connected to the shutter device for actuating the said release-lever, a pawl-and-ratchet device connected to the swinging device for holding the roll of unexposed film in position, the said pawl device having an arm adapted to engage the said release-lever and to come in contact with the governer-fan of the spring-actuated device, substantially in the manner and for the purposes set forth.

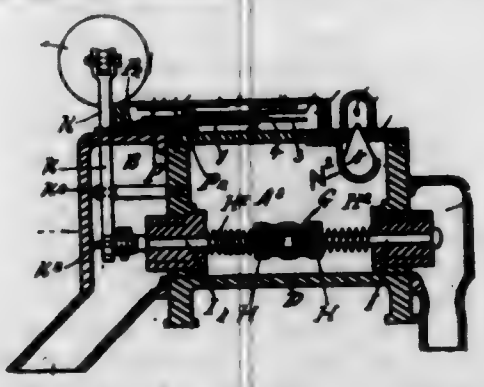
14. In a photographic-film camera, the combination with a shutter device and means for actuating the same, and a spring-actuated device for automatically and positively winding the film as exposed onto a spool, of a swinging device in the form of a frame carrying and holding the spool of unexposed film and adapted in its movement to effect the measuring of each exposed strip of film and means for automatically releasing the said swinging device and spool of film, substantially as set forth.

15. In a photographic-film camera, the combination with a spring-actuated device for positively winding the film from one spool onto another and a device for supporting the second spool of film, and rollers over which the strip of film passes, of a finger-button connected to part of the spring-actuated device and adapted for turning the empty spool and winding thereon sufficient of the backing and film for bringing the first exposure into position, said parts slipping in their movements in connection with the spring-actuated mechanism, substantially as set forth.

16. In a photographic-film camera, the combination with a shutter device, a spring-actuated device for positively winding the film from one spool onto another and having a weighted fan with a notched edge, and a swinging device adapted to hold and having a ratchet-and-pawl device for preventing the unrolling of the unexposed roll of film, of a release-lever device pivoted to the spring-actuated device and moved in one direction by the shutter device and having upturned ends 15, one of which forms a stop for the fan and the other of which is inclined, the said spool device having an arm with an inclined end adapted to come against the inclined portion 15 to swing the release-lever device and simultaneously come in the path of the fan so that the fan may not only insure the position of the release-lever device, but unlatch the pawl device and release the ratchet so that the swinging device may be returned to its normal position, substantially as set forth

17. In a photographic-film camera. the combination with a spring-actuated device and a swinging device acting together for positively winding the film from one spool to another, of a shutter device and means for actuating the same, a spring-arm 19 connected to the cover-plate of the shutter device, a push-button c and a spring for actuating the same, the free end of the spring-arm 19 being moved by the push-button for releasing the shutter device and the spring-arm yielding as its end comes against the push-button spring in case said parts are accidentally held by the finger of the operator, substantially as set forth.

695,691. LIQUID MEASURING AND REGISTERING DEVICE. GEORGE M. MARSHALL, Edinburgh, Scotland. Filed July 27, 1901. Serial No. 69,825. (No model.)



Claim.—1. A liquid measuring and registering device comprising a casing divided longitudinally into two measuring-chambers and provided at one end with a well or supply-chamber and at the opposite end with a discharge-chamber, said measuring-chambers and well and discharge-chambers being in communication; valves connected in pairs in each of the measuring-chambers for controlling said communications, a lever pivoted within the discharge-chamber and connected with each of said pairs of valves, an operating-lever connected with said first-named lever and extending upwardly through the top of the discharge-chamber and a registering apparatus in connection with said operating-lever and adapted to be operated thereby, substantially as shown and described.

2. In a liquid measuring and registering device, a casing divided longitudinally into two separate measuring-chambers, a well or supply-chamber at one end of said casing and a discharge-chamber at the other end thereof, said measuring-chambers being in communication with said well or supply, and said measuring-chambers, valves arranged in pairs in each of the measuring-chambers for controlling the said communications, said valves being connected by spindles provided with box-nuts and also with springs which operate between the box-nuts, and the valves and means for operating said pairs or valves, substantially as shown and described

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695,692. HOLDING-FIXTURE FOR CURTAINS OR SHADES. JOSEPH H. MILLARD, Washington, D. C., assignor to Curtain Supply Company, Jersey City, N. J., and Chicago, Ill., a Corporation of New Jersey. Filed May 25, 1901. Serial No. 61,865. (No model.)



Claim.—1. The combination with a shade stick and posts having confining-grooves, of means for retaining the stick in various positions of adjustment, comprising elongated trucks having springs extending above and below the stick engaging one wall of the groove and opposing means engaging an opposite wall thereof, substantially as described.

2. The combination with a shade stick and posts having confining-grooves, of means for retaining the stick in various positions of adjustment, comprising trucks having springs extending above and below the stick, opposing projections and antifriction-rollers on the opposing projections.

3. The combination with a shade stick and posts having confining-grooves with overhanging flanges, of friction-trucks in the grooves comprising spring-arms extending above and below the stick and resting against the flanges and oppositely-arranged projections adapted to engage the bottom of the groove, substantially as described.

4. The combination with a shade stick and posts having guide-grooves, of heads in the grooves, a loose connection between the heads and stick, and elongated springs carried by the heads having their opposite ends projected against one wall of the grooves to force the heads against an opposite wall, substantially as described.

5. The combination with side posts having guide-grooves, and a shade-stick, of elongated trucks carried by the stick and confined within the grooves, each truck comprising a head engaging one wall of its groove and a flat metallic spring engaging the opposite wall thereof, substantially as described.

6. The combination with side posts having guide-grooves, of a shade-stick, elongated trucks carried by the stick and confined within the grooves, each truck comprising a head engaging one wall of its groove, a flat metallic spring engaging an opposite wall thereof, and a slidable connection between one of the trucks and the stick, substantially as described.

7. The combination with side posts having guide-grooves, and a shade-stick, of frictional holding devices carried by the stick, each comprising an elongated head engaging one wall of its groove, and springs projecting away from the opposite ends of said head at one side thereof and engaging the opposite wall of said groove, substantially as described.

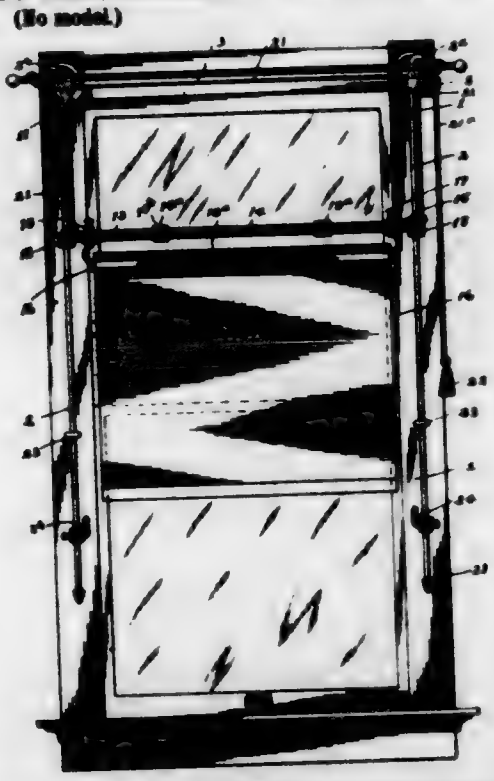
695,693. ORE OR GRAIN SACK. WILLIAM R. MOORE, Cripple Creek, Colo. Filed Nov. 11, 1901. Serial No. 81,918. (No model.)

Claim.—A bag or sack provided on its outside and at or near the mouth of the bag proper with a reinforcing portion extending entirely around the same, an extension or flap above the mouth of the bag proper, and a plurality of two-part fastening means applied at intervals on the

reinforcing portion, the two members of each fastener being on opposite sides of the bag, the extension or flap being designed to be formed into a tight roll, and when thus formed to have its ends project beyond the sides of the bag to form handholds, and also to permit the fastening means to be secured over the same so as to completely close the sack, and a part of the reinforcing portion to be brought over the roll, substantially as described.



695,694. ADJUSTABLE SHADE AND CURTAIN FIXTURE. CHARLES S. MYERS, Columbus, Ohio. Filed Sept. 20, 1901. Serial No. 75,675. (No model.)



Claim.—1. In a fixture, a pulley block or bracket comprising an inner fixed section and an outer detachable section, said sections adapted to interlock with each other and a pulley journaled between said sections, substantially as specified.

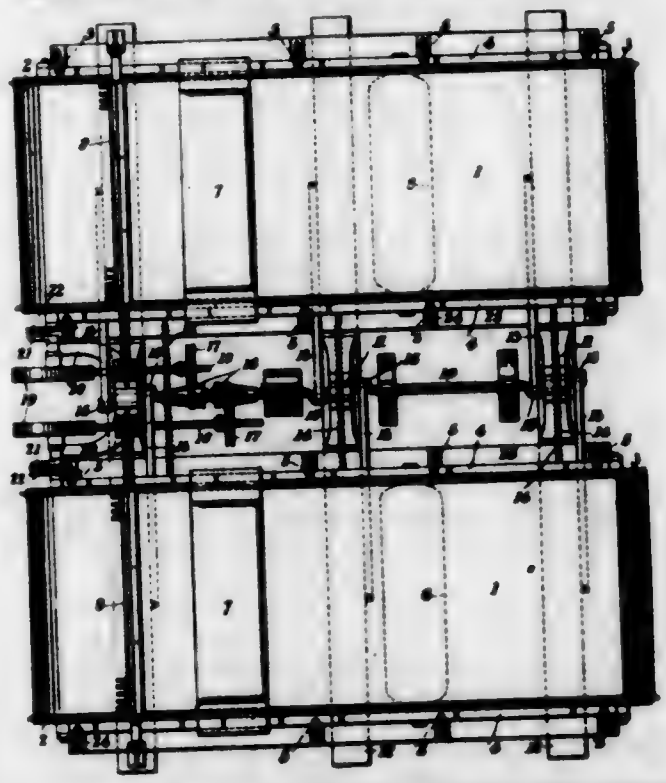
2. In a curtain-fixture, the combination with the rods shaped at their upper ends to support a pole, of brackets comprising a section adapted to be rigidly connected with the window-frame and a section adapted to interlock therewith without additional means of connection, a pulley mounted between said bracket-sections, said brackets adapted to embrace and support said rods, substantially as specified.

3. In a curtain-fixture, the combination with the rods 2 adapted to support a pole at their upper ends and having inclined recesses 12, of brackets each comprising a section 4 having means for detachably connecting the same with a window-frame and having a tapering groove 6 and inclined ends, of an outer bracket-section 8 having angular inclined ends adapted to receive and interlock with the inclined ends of said section 4, the recessed portions of said rods adapted to engage as described the inclined grooves 6, substantially as specified.

4. In an adjustable shade-supporting fixture, the combination with the rods 2 having their upper ends adapted to support a curtain-pole, brackets each comprising an inner section adapted to be secured to the window-frame and an outer section adapted to interlock with said inner section and a pulley journaled between said sections, of an adjustable shade-supporting bar having its ends adapted to slide on said rods and suspending-cords running upward from said bar over said pulleys and a counterbalance on said cord, substantially as specified.

5. In an adjustable shade and curtain supporting fixture, the combination with the rods 2 having their upper ends adapted to support a curtain-pole, of brackets supporting the upper portions of said rods, keepers through which the lower portions of the rods pass loosely and bracket-arms 24 vertically adjustable on the rods 2, substantially as specified.

695,695. ORE-CONCENTRATING MACHINE. WALTER MCDERMOTT and FRANCIS B. ELMORE, London, England, assignors to the Frue Vanning Machine Company, Detroit, Mich., a Corporation of Michigan. Filed Jan. 4, 1901. Serial No. 42,048. (No model.)



Claim.—1. In a concentrator of the class described the combination with two belts 1, frames for supporting same and means for causing said belts to travel, of a common operating-shaft 10, connecting-rods 13 carried by the frames, cranks carried by the shaft and acting on the connecting-rods for moving both frames in opposite directions, connecting-rods engaging with the cranks without caps whereby a thrusting motion only is imparted to them, springs 14 connected to said frames for producing a reverse movement of same, whereby an even motion without jar is obtained, two cone-pulleys 16 on the shaft, a driving-roller 2 for each belt 1 and means connecting each cone-pulley with a roller so that the two belts while driven from the shaft 10 may be independently regulated with reference to the speed of the latter.

2. In a concentrator of the class described, the combination with two belts 1, 1 means for causing same to travel and frames 4 supporting same of a common operating-shaft 10, foundation-beams 12 transversely arranged to the belts, pedestals 11 for carrying the shaft centrally located on same, connecting-rods 13 carried by the frames, cranks 15 without caps carried by the shafts and acting on the connecting-rods for moving both frames in opposite directions, and springs 14 for producing a reverse movement of the frames whereby an even motion without jar is obtained.

695,696. WEFT-REPLENISHING MECHANISM FOR LOOMS. FELIX O'DONNELL, Pawtucket, R. I. Filed Apr. 20, 1901. Serial No. 57,202. (No model.)

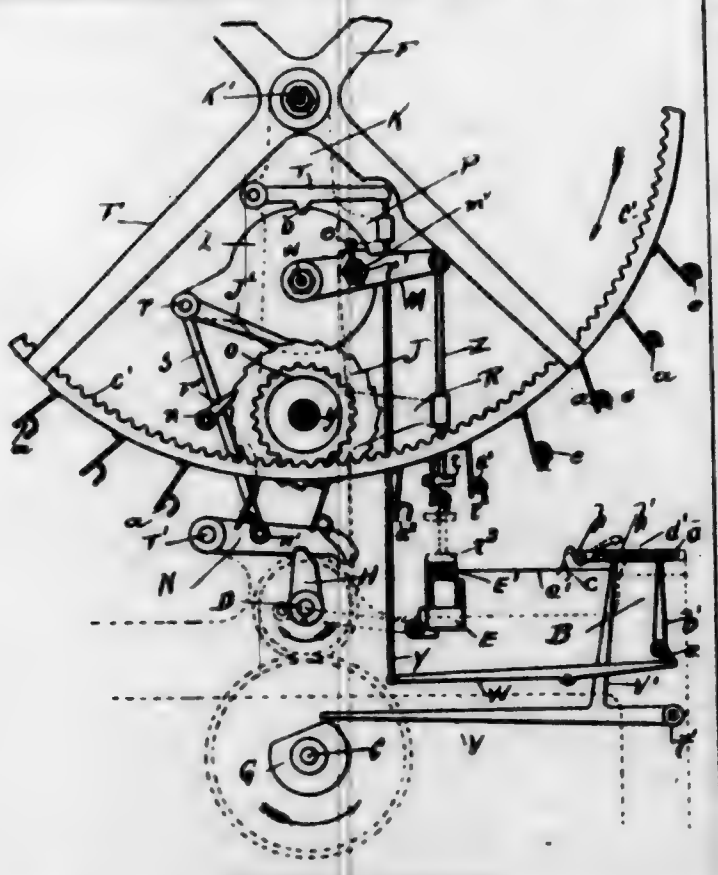
Claim.—1. In a weft-replenishing motion for looms the combination of a carrier-wheel, a series of cop-holders arranged on its periphery, gear-teeth made on the inside of said wheel, a pinion-gear engaging with said gear-teeth, a ratchet-wheel fast on said pinion-gear, a cam fast on the crank-shaft, the crank-shaft, a lever arranged to be operated by said cam, a connecting-rod between said lever and a pawl engaging in said ratchet-wheel, and said pawl, substantially as described.

2. In a weft-replenishing motion for looms the combination of a cam fast on the crank-shaft, the crank-shaft, a lever operated by said cam, a rocking plate connected with said lever, a cop-carrier wheel, a rod to push the cops from said wheel into the shuttle, an arm on said plate to operate the rod, means for turning said cop-carrier wheel, substantially as described.

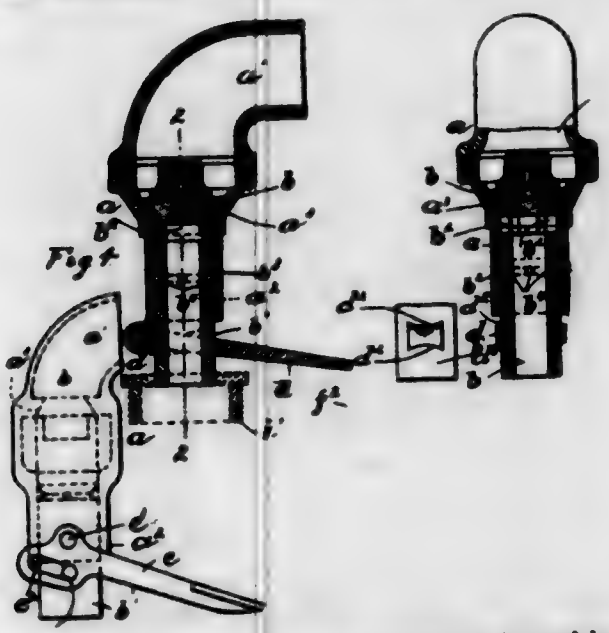
3. In a weft-replenishing motion for looms the combination of a cam fast on the crank-shaft, a lever operated by said cam, a rocking plate connected with said lever, a cop-carrier wheel, a rod to push the cops from said wheel into the shuttle, an arm on said plate to operate the rod, means for turning said cop-carrier wheel, a lever having a detent to enter a notch in said plate, a weft-fork, mechanism for raising said detent-lever by means of said weft-fork when the weft is leaking, substantially as described.

4. In a weft-replenishing motion for looms a cop-carrier wheel in combination with mechanism to actuate said wheel and to release the cops from it, a sliding weft-fork plate, a vertical lever operated by said plate,

a horizontal lever operated by said vertical lever, a rod connected with said horizontal lever to release said actuating mechanism, a cam fast on the cam-shaft, a cam-shaft, a lever operated by said cam with an arm to move said weft-fork plate, substantially as described.



695,697. FAUCET. JAMES H. O'LALLY, Boston, Mass., assignor to Patrick H. O'Lally, Boston, Mass. Filed July 25, 1901. Serial No. 69,613. (No model.)

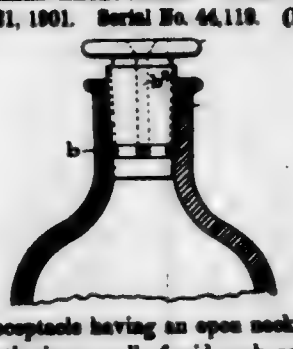


Claim.—1. A faucet comprising, first, a casing having an inlet at one end, a guide at the other end, and a valve-seat between the inlet and guide; secondly, a sliding outlet-tube movable lengthwise in the guide and provided at one end with a valve formed to fit the said seat and with ports adjacent to and below said valve, whereby liquid is permitted to enter the outlet-tube from the casing when the valve is open; thirdly, means for moving the tube lengthwise to open or close the valve; and fourthly, means for preventing leakage of water between the outlet-tube and the lower end of the guide.

2. A faucet comprising, first, a casing having an inlet at one end, and a guide at the other end, and a valve-seat between the inlet and guide; secondly, a sliding outlet-tube movable lengthwise in the guide and provided at its upper end with a valve formed to fit the said seat and with ports adjacent to and below said valves, the lower end of the said outlet-tube being provided with external grooves on opposite sides thereof, and a forked lever pivoted to the lower end of the casing and having its branches engaging the edges of the grooves in the outlet-tube.

3. A faucet comprising a casing having an inlet, a guide, and an intermediate valve-seat, a sliding outlet-tube movable in the guide and provided with a valve, ports adjacent thereto, an external peripheral groove, and orifices connecting the groove with the interior of the tube, said groove and orifices permitting liquid to pass from between the guide and the tube into the latter, and means for moving the tube to open and close the valve.

695,698. SEALED RECEPTACLE. HENRY C. OSBORN, Cleveland, Ohio. Filed Jan. 21, 1901. Serial No. 44,119. (No model.)

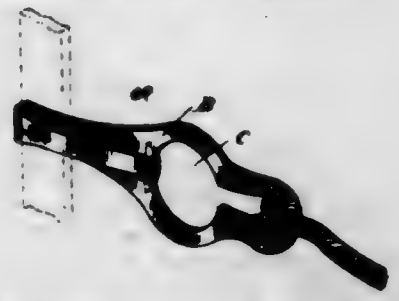


Claim.—1. A receptacle having an open neck, with a circumferential groove formed on the inner wall of said neck, combined with a stopper having a circumferential groove which may register with the first when said stopper is seated, said stopper further having a diametrical transverse duct connecting opposite points of the circumferential groove of said stopper and a central aperture connecting with said duct, the surface of said stopper having longitudinal grooves leading to said annular recess, substantially as described.

2. In glass or other containing vessels, a tapered receiving-aperture having an internal annular groove, in combination with the stopper therefor adapted to be placed within said aperture, a groove formed on the stopper so as to register with the groove formed around the receiving-aperture, a central opening leading from the outside of the stopper to about opposite the annular groove formed around the stopper and a radial duct connecting the same, substantially as set forth.

3. In glass or other sealing vessels a tapered filling-aperture, an annular groove formed therein, a stopper having tapering side walls, an annular groove formed in said stopper, an opening leading from the outside of the stopper to about opposite the annular groove in the side walls thereof, means of communication between said groove and said opening, in combination with one or more air-vents leading from the annular groove in the side walls of the stopper to a point of free access with the outside air.

695,699. PLOW-LINE SNAP. WILLIAM I. PETTERSON, Vidalia, Ga. Filed July 6, 1901. Serial No. 67,260. (No model.)



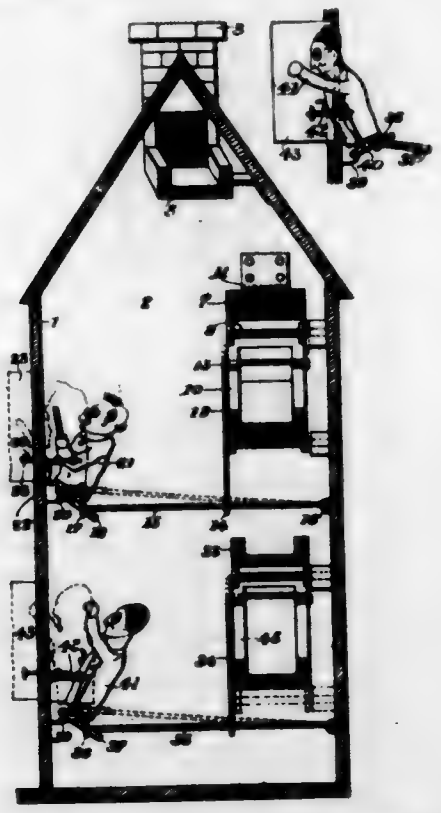
Claim.—1. In a plow-line snap, a body portion, an opening formed through the body portion, a spring-arm formed with and extending out from the body portion, said spring-arm adapted to be bent around the bridle-rein, means for securing the end of the spring-arm to the body portion after being bent, an extension formed with the body portion and extending forward from the same, a slot formed in said extension, said slot opening into the opening through the body portion but being closed at its outer end, substantially as and for the purpose specified.

2. A plow-line snap constructed of thin sheet metal, and consisting of a body portion B, a spring-arm D extending rearwardly therefrom, said spring-arm adapted to be bent around the bridle-rein, an enlarged head formed upon the end of the spring-arm, an opening formed through the body portion, a notch formed in the spring-arm side of the opening in which the end of the spring-arm is adapted to be inserted and held by means of the enlarged head, an extension formed upon the opposite side of the body from the spring-arm, a slot formed in such extension, the inner end of such slot opening into the opening in the body portion, the outer end of the slot adapted to be closed, said slot adapted to be formed narrower at the point where it enters the opening through the body than at any other point, substantially as described and for the purpose specified.

695,700. TOY. CHARLES W. REYNER, Philadelphia, Pa. Filed Jan. 12, 1901. Serial No. 43,403. (No model.)

Claim.—1. In a device of the kind specified, a frame, a plurality of movable chutes mounted thereon, a plurality of figures connected with said chutes and adapted to be actuated by the movement of the chutes,

the receiving end of each successive chute being situated adjacent the delivery end of the preceding chute.



2. In a device of the kind specified, a casing provided with apertures, movable closures for said apertures, movable figures mounted adjacent said apertures and connected with said closures, and a plurality of movable chutes connected with said figures.

3. In a device of the kind specified, a casing having apertures, a plurality of successively-arranged chutes mounted therein, the receiving end of each successive chute being situated adjacent the delivery end of the preceding chute, a stationary chute situated above the upper movable chute, an inlet-opening being formed in the casing adjacent the upper end of said stationary chute, and a plurality of movable figures situated adjacent said apertures and connected with said movable chutes and adapted to be actuated by the movement thereof.

4. In a device of the kind specified, a casing having apertures, a plurality of inclined chutes pivotally mounted therein, a plurality of movable figures situated adjacent the apertures in the casing and connected with said chutes to be actuated thereby, and closures for said apertures connected with said figures.

5. In a device of the kind specified, a casing having apertures, movable chutes adapted to be operated by the passage of a ball or weight, movable figures pivotally mounted adjacent said apertures, closures for said apertures connected with said figures, and a connection between said figures and said chutes whereby the latter serve to actuate the former.

6. In a device of the kind specified, a casing having an inlet at the upper end and apertures, a stationary chute situated below said inlet, a plurality of pivoted inclined chutes situated below said stationary chute, said chutes being arranged to successively deliver a traveling object from one to the other, a plurality of figures situated adjacent said apertures, and connected with the movable chutes to be operated thereby, a stationary chute leading from the delivery end of the lower movable chute, and a self-closing door in the lower side of the casing situated at the end of said lower stationary chute.

7. In a device of the kind specified, a casing having apertures, a plurality of movable chutes, a plurality of movable figures, situated adjacent said apertures and carried by rock-shafts mounted upon said casing, and connections between said rock-shafts and said movable chutes for actuating said figures.

8. In a device of the kind specified, a casing having apertures, a plurality of movable figures carried by rock-shafts mounted upon bearings adjacent said apertures, said rock-shafts having angular end portions, a lever mounted upon the casing and engaging said angular end portions of the rock-shafts, and connections between said chutes and said levers.

9. In a device of the kind specified, a casing having an opening therein, a movable closure for said opening, a movable figure situated within the casing adjacent said opening, devices for opening and closing said closure, and for moving said figure toward and withdrawing the same from said opening and an independent movable weight adapted in its passage to contact with said devices to automatically operate the same.

10. In a device of the kind specified, a casing having a plurality of openings, movable closures for said openings, movable figures situated within the casing adjacent openings, devices for successively opening and closing the different closures, and for moving the corresponding figures toward and away from said openings as the closure is opened and closed and an independent weight adapted in its passage to contact successively with said devices to automatically operate the same.

11. In a device of the kind specified, a casing provided with openings, movable closures for said openings, an independent weight, movable figures mounted adjacent said openings, and means actuated by the passage of the independent weight for operating said figures and closures, whereby said closures are opened and closed, and said figures caused to appear at said openings when said closures are opened.

695,701. SUSPENDER-END. JOSEPH S. SHIELDS, Aurora, Ill., assignor to American Suspender Company, Aurora, Ill., a Corporation of Illinois. Filed Nov. 18, 1901. Serial No. 82,894. (No model.)



Claim.—1. The combination with the web of a suspender and a loop carried thereby, of a cast-off detachably connected therewith and comprising a mounting having its lower part looped and its upper part formed into a flap to pass through the loop on the web and be folded on and fastened to the looped part of the mounting, a plate bent to form a loop and arranged within the loop of the mounting, a fastening device passing through the mounting and both ends of said plate to secure said parts together and close the loops, and a suspender-end operating in the loops of said plate and mounting.

2. The combination with the web of a suspender and a loop carried thereby, of a cast-off detachably connected therewith and comprising a mounting having its lower part looped and its upper part made in the form of a flap to engage the loop on the web, a metal plate bent to form a loop and arranged in the loop of the mounting with its ends extending upward, said looped plate having a straight back and a bulged front to form the loop, a device passing through the mounting and both ends of the plate and securing the parts together and closing the loops, a suspender-end operating in the loops of said plate and mounting and permanently secured therein, and a fastening device for securing the flap to the looped part of the mounting.

3. The combination with the web of a suspender, of a loop carried by said web, a cast-off comprising a mounting having its lower part looped, a looped metal plate arranged in the loop of the mounting the upper part of the mounting being formed into a flap to pass through the loop on the web and be folded on the looped part of the mounting, a drawers-support, and a fastening device comprising a head member carried by the flap and a shank member passing through the drawers-support, the looped part of the mounting and the ends of the metal loop therein, and a suspender-end operating in said metal loop and permanently connected with the cast-off, substantially as described.

695,702. PROCESS OF RECOVERING SUGAR. ALFRED WOHL, Charlottenburg, and ALEXANDER KOLLREPP, Berlin, Germany. Filed Oct. 20, 1900. Serial No. 33,774. (No specimens.)

Claim.—1. The herein-described process of recovering sugar, which consists in expressing the lye from a mixture of alkali-lye and lead saccrate, treating the lead saccrate with warm wash-lye, washing the saccrate and saturating the saccrate with carbonic acid, substantially as set forth.

2. The herein-described process of recovering sugar, which consists in expressing the lye from a mixture of alkali-lye and lead saccrate, treating the lead saccrate with warm wash-lye, washing the saccrate, saturating the same with carbonic acid, interrupting the saturation when the sugar is entirely liberated, separating the sugar solution from the precipitate, and subjecting the precipitate to additional saturation with carbonic acid, substantially as set forth.

3. The herein-described process of recovering sugar, which consists in expressing the lye from a mixture of alkali-lye and lead saccrate, treating the lead saccrate with warm wash-lye, washing the saccrate, saturating the same with carbonic acid, interrupting the saturation when the sugar is entirely liberated, separating the sugar solution from the precipitate, and subjecting the precipitate in a dilute acid solution to additional saturation with carbonic acid, substantially as set forth.

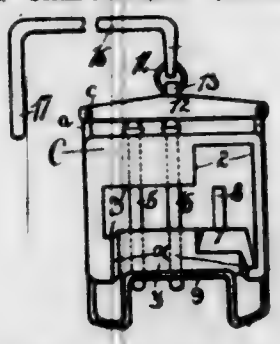
695,708. PLATFORM ROCKING-CHAIR. JOHN A. SKEWOLDT, Boraas, Sweden. Filed June 14, 1901. Serial No. 64,562. (No model.)

Claim.—In a rocking-chair, the combination with the longitudinally-channeled rockers and longitudinally-channeled lateral bars of the base, of the flexible and elastic bands attached to the opposite ends of each rocker and the reverse ends of each lateral base-bar, and arranged to close

into said channels as the chair is rocked, so that the rockers may come into working contact with the surface of said base-bars and be guided by the interlocking of said bands with the grooves.



695,704. CAR-COUPLING. CHARLES ALTHAR, Wilber, Nebr. Filed Jan. 21, 1902. Serial No. 90,642. (No model.)



Claim.—A car-coupling provided with a small and a large chamber, a seating within the lower forward portion of said coupling, an inclined face leading up to said larger chamber, a lug positioned within said larger chamber, a spanner extending transversely across the top of said coupling, grooves vertically disposed upon opposite sides upon the exterior of said coupling, a link-lifting bar secured to said spanner and passing down said vertical grooves, said lifting-link being provided with an upwardly-extending lip adjustably held within said lower forward seating and a lever secured to said spanner to raise and lower said link-lifters as and for the purpose set forth.

695,705. INSULATED JOINT FOR ELECTRICAL CONDUCTORS. EDWARD W. BATCHELOR, Harrington, N. J. Filed Oct. 26, 1901. Serial No. 80,092. (No model.)



Claim.—1. An electric conductor having a joint or junction consisting of twisted and soldered terminals with a sheet of metal foil applied directly upon said soldered joint.

2. A conductor having a joint or junction formed of twisted and soldered terminals, a layer of metal foil helically disposed in direct contact with said soldered junction, and a helical layer of insulating-tape applied to the exterior of said foil.

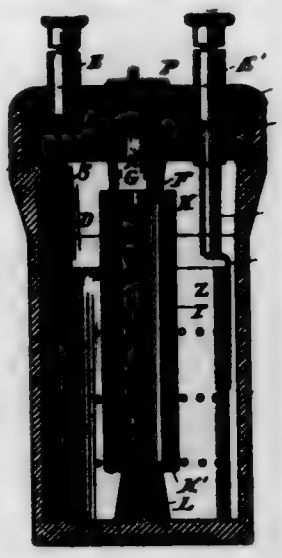
695,706. SPRING-HINGE. EMIL BOEHME, Brooklyn, N. Y. Filed Feb. 14, 1901. Serial No. 47,311. (No model.)



Claim.—1. A spring-hinge for hanging doors to marble and other partitions, provided with a spring-barrel, a flange having perforated ears bent over at the upper and lower edges of the barrel, a box-flange made integral with said spring-barrel, and partially-circular portions connecting the outer leaf and the back of said box-flange, substantially as set forth.

2. A spring-hinge for hanging doors to marble and other partitions, consisting of a spring-barrel, pintle-sockets at the upper and lower ends of said spring-barrel, a flange provided with bent perforated ears, a pintle passing through the ears and pintle-sockets and a U-shaped box-flange made integral with the spring-barrel, portions of said box-flange at one side of the barrel being connected with the back of the box-flange, and other portions of the same side bent up to form the leaf adjacent to the barrel, substantially as set forth.

695,707. ELECTRICAL STORAGE BATTERY. OWEN T. BURR, Jr., New York, N. Y., assignor to the United States Battery Company, New York, N. Y. Filed July 19, 1900. Serial No. 24,164. (No model.)



Claim.—1. An electric battery having one electrode and its terminal secured directly to the lid or cover thereof, said electrode consisting of a series of cup-shaped plates secured together upon a supporting standard or stem and so arranged relatively to each other that free circulation of an electrolyte is afforded therethrough in all directions, said battery having the other electrode carried or supported within the interior of the containing jar or vessel and a second terminal secured directly to the lid or cover and adapted to form electrical connection with the last-named electrode when the lid or cover is secured in place, substantially as described.

2. An electric battery having its terminals permanently secured in the lid or cover thereof, an electrode secured to one of said terminals and composed of a series of slotted plates secured upon a supporting standard or stem, said plates being so arranged that the slots in any one plate do not exactly register with the slots in the plates immediately above or below, and the second electrode in frictional engagement with said second terminal, substantially as described.

3. An electric battery having both its terminals permanently secured to the lid or cover thereof, an electrode secured to one of said terminals and consisting of a series of plates slotted radially and mounted upon a supporting standard or stem, said slots being elliptical in form, and a second electrode fitting snugly within the inner surface of the containing jar or vessel, said second electrode being in frictional engagement with said second terminal, substantially as described.

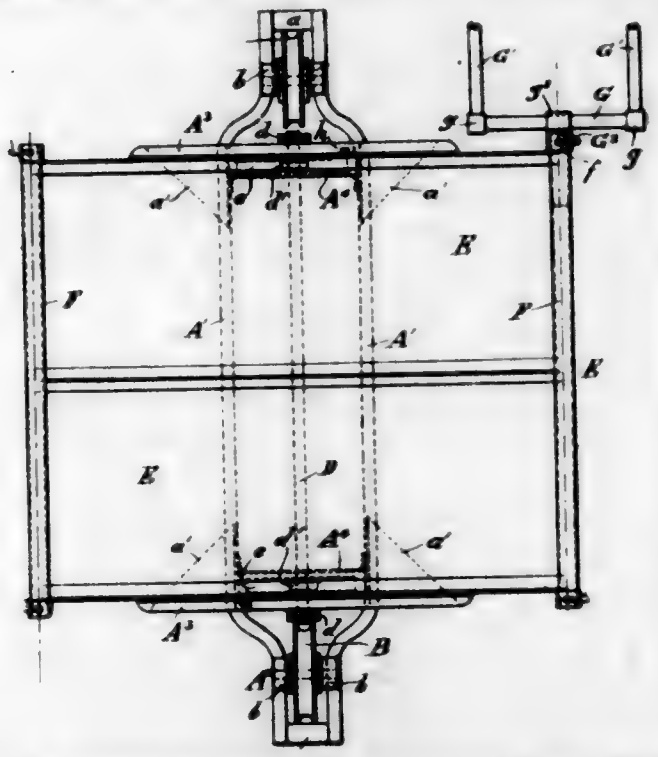
4. An electric battery having both its terminals permanently connected to the lid or cover thereof, an electrode secured to one of said terminals and consisting of a series of cup-shaped plates slotted radially and mounted upon a supporting standard or stem, said slots being elliptical in form, said plates being so arranged upon the stem that the slots in any plate do not register with the slots in the plates immediately above or below, whereby pockets for the active material are formed, and a second electrode fitting snugly within the inner surface of the containing jar or vessel, said second electrode being in frictional engagement with said second terminal, substantially as described.

695,708. ROLLING-STOCK. JOHN A. BURNS, New York, N. Y. Filed Dec. 9, 1901. Serial No. 85,194. (No model.)

Claim.—1. The combination with a truck or frame having the longitudinally-disposed wheels adapted for a single truck, of a car-body mounted and laterally movable thereon, and draft devices connected to one side of the body.

2. The combination with a truck or frame having the longitudinally-disposed wheels adapted for a single truck, of a car-body mounted and

laterally movable thereon, means for securing said body in any of its adjusted positions, and draft devices connected to one side of the body.



3. The combination with a truck or frame having the longitudinally-disposed wheels adapted for a single track, and provided with transverse guides, of a car-body mounted and laterally movable on said truck between said guides, and draft devices connected to one side of the body.

4. The combination with a truck or frame having the longitudinally-disposed wheels adapted for a single track and provided with transverse guides, of a car-body mounted and laterally movable on said truck between said guides, bolts bearing in said guides for engaging said body to hold it in its adjusted position, and draft devices connected to one side of the body.

5. The combination with a truck or frame having the longitudinally-disposed wheels adapted for a single track and having the transverse guides extending at each side of the truck, angle-plates connecting the guide extensions with the truck and bent to form part of a top bearing-surface, a body laterally movable upon the latter between the guides, and draft devices secured to one side of the body.

6. The combination with a truck or frame having the longitudinally-disposed wheels adapted for a single track, of a longitudinal shaft bearing in said truck and provided with pinions, a body having lower transverse racks engaged by said pinions, means for rotating said shaft, and draft devices connected to one side of the body.

7. The combination with a truck or frame having the longitudinally-disposed wheels adapted for a single track, and transverse guides, of a longitudinal shaft bearing in said truck and provided with pinions and an end jack-wheel, a body laterally movable between said guides and having lower racks engaged by said pinions, and draft devices connected to one side of the body.

8. In rolling-stock adapted for a single rail, the combination with a body having sockets and clamping provision at its upper corners, of a draft device comprising a neck for bearing and clamping in either of the sockets.

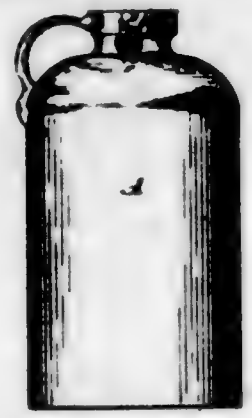
9. In rolling-stock adapted for a single rail, the combination with a body provided with upper open-ended tubes, and clamping-screws at the ends thereof, of draft devices comprising a tubular neck or butt for bearing and clamping in either of the ends of said tubes.

10. In rolling-stock for a single rail, the combination with a body having vertical-corner channel-irons, with one of the leaves removed, and the other bent and riveted to present a loop; of a clamping-screw bearing in the latter, and draft devices comprising a tubular neck or butt, for being clamped in the said loop, and detached therefrom.

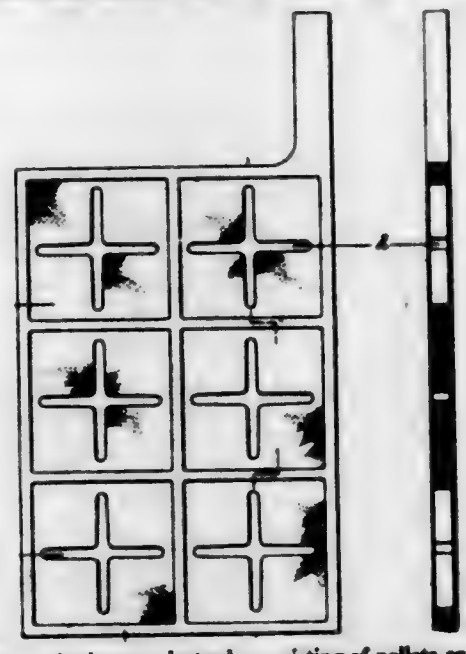
11. In rolling-stock adapted for a single rail, and including a body, draft devices including the transverse tube G, having end loops, in which such draft devices are socketed, and a longitudinal neck, having a loop embracing the tube, and connected to one side of the body.

695,709. SEAL FOR JUGS OR BOTTLES. JOHN P. DAVY, Louisville, Ky. Filed Aug. 19, 1901. Serial No. 71,571. (No model.)

Claim.—In a sealing device for jugs, &c., the combination, of the neck of the jug having holes through the same and a reduced opening below said holes, a cork placed in the reduced opening, a disk placed upon the cork and having an eye *e*, a looped wire passed through the holes in the neck to bear upon the disk, and a lead seal engaging the ends of the wire loop and holding said wire in locked engagement with the neck of the jug, substantially as shown and for the purpose set forth.

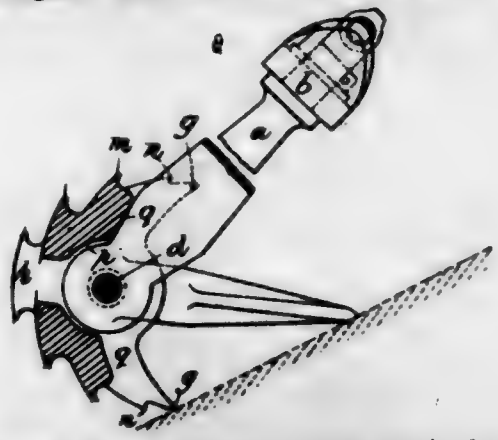


695,710. STORAGE BATTERY. JOSEPH R. ERTZ, Philadelphia, Pa. Filed July 8, 1900. Serial No. 23,059. (No model.)



Claim.—A plate or electrode consisting of pellets or pieces of active material or material adapted to become active having cruciform slots extending from face to face through them and nearly across them, and a frame or support fitted to said pellets, substantially as described.

695,711. ANCHOR. JOHN EYRES, Gateshead, England, assignor of two-thirds to William Summerbell Richardson, Gateshead, Durham county, England, and Edward John Williams Powell, Newcastle-upon-Tyne, England. Filed Nov. 8, 1901. Serial No. 81,536. (No model.)



Claim.—1. In a tripping-anchor, a head capable of partial rotary movement relatively to the shank, and a member disposed between the flukes and provided with projections upon opposite sides of the shank forming successive trips, substantially as described.

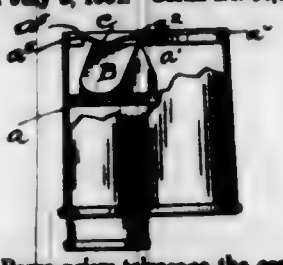
2. In a tripping-anchor, a head capable of partial rotary movement relatively to the shank, a crown having auxiliary trips, and a member disposed between the flukes and provided with a series of projections forming successive trips, substantially as described.

3. In a tripping-anchor, a head capable of partial rotary movement relatively to the shank, a crown having auxiliary trips, and a member

disposed between the flukes and provided with a series of projections forming successive trips, the trips on the crown being in alinement with the said projections, substantially as shown and described.

4. In a tripping-anchor, a shank, a crown, a head having a recess *q*, and recess *p* to fit the base of the shank, the auxiliary trips *k* on the crown, the trip-arms with trips *g*, and the projections *l*, *m*, *n* disposed between the flukes and in line with the trips *g* and *k*, all substantially as shown and described and for the purpose specified.

695,712. TELESCOPE. GOTTLIEB PORRES, Cleveland, Ohio, assignor to the Warner & Swasey Company, Cleveland, Ohio, a Corporation of Ohio. Filed July 5, 1901. Serial No. 67,131. (No model.)

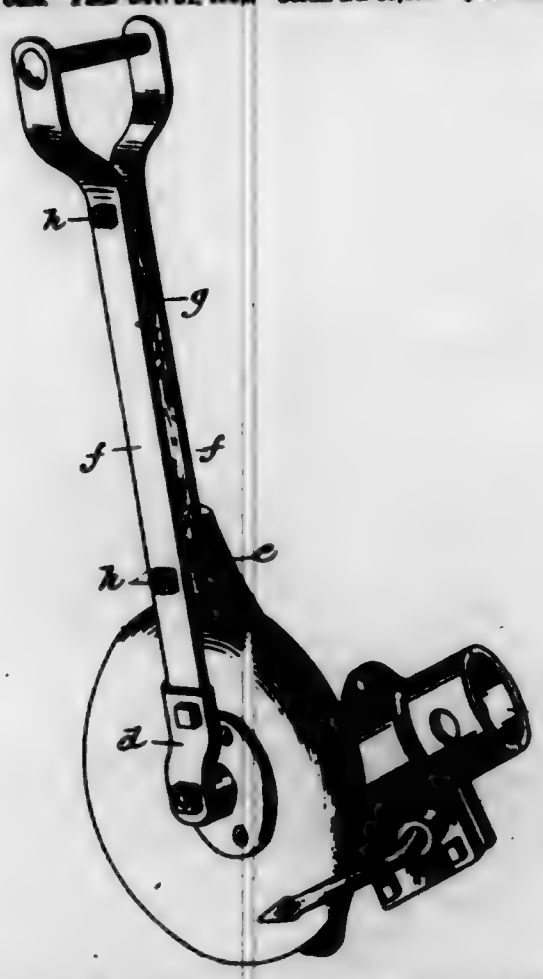


Claim.—1. In a Porro-prism telescope, the combination of a triple-tube barrel having a transverse seat for the base of the prism, a cross-bar near the end of the barrel, and two inwardly-extended flanges on said cross-bar and the wall of the barrel respectively, with a prism resting against said seat, and a bent leaf-spring a part of which bears upon the top of the prism and whose ends engage beneath said flanges, substantially as described.

2. In a Porro-prism telescope, the combination of a triple-tube barrel having a transverse seat for the base of the prism, and, near its end, a cross-bar, and, in the wall of the barrel and on the cross-bar respectively, a kerf a^6 and an inwardly-turned flange a^5 in which is a notch a^8, with a prism resting upon said seat and a bent leaf-spring whose middle part bears upon the top of the prism and whose ends when the spring is in place engage in said kerf and notch respectively, substantially as described.

3. In a Porro-prism telescope, the combination of the barrel having an internal transverse seat for the base of the prism, and two inwardly-extended shoulders outside of said base, with a prism whose base rests upon said seat, and a bent leaf-spring, which, between its ends, bears upon the top of the prism, and whose ends engage beneath said shoulders, substantially as described.

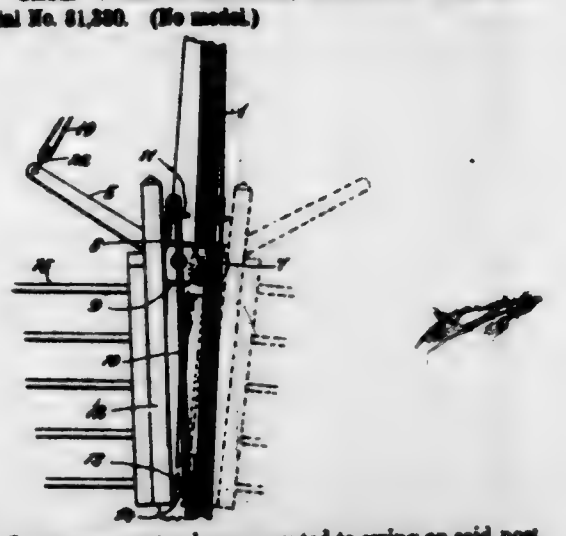
695,718. DRAG-BAR FOR DRILLS. WILLIAM PETERS, Middletown, Ohio. Filed Nov. 21, 1901. Serial No. 83,126. (No model.)



Claim.—1. In a disk drill, the combination to form a drag-bar, of two metallic bars secured together in parallel relation, and a non-metallic filling-piece interposed between them so as to close the intermediate space between and clamp the filling-piece between them so as to form a cushion for the metallic bars, and also strengthen them against torsional strains.

2. In a disk drill, the combination to form a drag-bar, of two metallic bars secured together in parallel relation, and a wooden filling-piece interposed between them so as to close the intermediate space between and form a cushion for the metallic bars, and also to strengthen them against torsional strains.

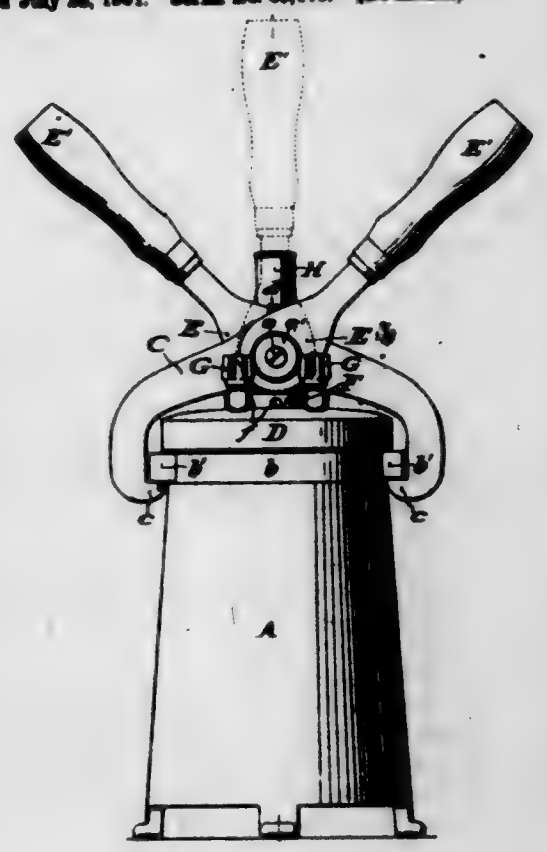
695,714. GATE. PETER C. FORRESTER, Streator, Ill. Filed Nov. 7, 1901. Serial No. 81,280. (No model.)



Claim.—1. In a gate, a post, a lever mounted to swing on said post, a crank-plate pivoted to said lever between the pivotal point of the lever and its free end, the said crank-plate being provided with an opening in its forwardly-extended portion, a perforated plate at the lower portion of the post, a perforated plate at the upper end of the gate, a perforated plate at the lower end of the gate, a pintle extended through said plates and projection, and means for operating the lever from opposite sides of the gate, substantially as specified.

2. In a gate, a post arranged at the gate-opening, a lever mounted to swing on said post, a crank-plate pivoted to said lever between its fulcrum-point and free end, the said crank-plate being provided with openings in its forwardly-extended portions, a gate, a perforated plate on said gate above said crank-plate, a perforated plate extended outward from the lower portion of the gate, a perforated plate extended forward from the lower portion of the post, a pintle-rod extended through the perforations of said plates and projections, bars extended in opposite directions from the upper portion of the post, and a draw-line passing over pulleys at the ends of said bars, over pulleys on the post and around a pulley on the end of the lever, substantially as specified.

695,715. VULCANIZER. CHARLES P. PETIT, Philadelphia, Pa. Filed July 22, 1901. Serial No. 69,178. (No model.)



Claim.—1. In a disk drill, the combination to form a drag-bar, of two metallic bars secured together in parallel relation, and a non-metallic

Claim.—1. In a vulcanizer, the combination with a retort; of a lid fitted thereto; a stud fixed concentrically in said lid; a yoke mounted to rotate and to slide longitudinally upon said stud; a head upon said stud arranged to prevent the removal of said yoke from said lid; laterally-extending lugs upon said retort; hooked extremities on said yoke arranged to engage beneath the lugs on said retort; an eccentric mounted upon said yoke; and means arranged upon said yoke to rotate said eccentric and thereby effect the relative movement of said lid and yoke, in the direction of the length of said stud, substantially as set forth.

2. In a vulcanizer, the combination with a retort; of a lid fitted to said retort; a stud fixed in said lid; a yoke mounted to rotate and to slide longitudinally upon said stud; means upon said yoke arranged to engage said retort; and an eccentric mounted to rotate upon said yoke independently of said retort, and arranged to effect the relative movement of said lid and said yoke, in the direction of the length of said stud, substantially as set forth.

3. In a vulcanizer, the combination with a retort; of laterally-extending lugs upon said retort; a lid fitted to said retort; a stud fixed in said lid; a yoke mounted to rotate and to slide longitudinally upon said stud; hooked extremities on said yoke arranged to engage the lugs on said retort; a stud-shaft fixed in said yoke; an eccentric journaled upon said shaft; and an adjustable abutment upon said lid opposed to said eccentric, substantially as set forth.

4. In a vulcanizer, the combination with a retort; of a lid fitted to said retort; a stud fixed in the top of said lid, in concentric relation therewith; a yoke mounted to rotate and to slide longitudinally upon said stud; a head upon said stud, arranged to prevent the removal of said yoke; an adjustable abutment upon said lid; an eccentric journaled upon said yoke in opposition to said abutment; and a handle-lever upon said eccentric, arranged to effect rotation of the latter and the relative movement of the lid and yoke, in the direction of the length of said stud, substantially as set forth.

5. In a vulcanizer, the combination with a retort; of a lid fitted to said retort; a stud fixed in the top of said lid, in concentric relation therewith; a yoke mounted to rotate and to slide longitudinally upon said stud; means upon said stud, arranged to prevent the removal of said yoke; a stud-shaft fixed in said yoke; two eccentrics respectively journaled upon the opposite extremities of said shaft; means to retain said eccentrics upon said shaft; an abutment upon said lid, opposed to said eccentrics; and means to adjust said abutment toward and away from said eccentrics, substantially as set forth.

6. In a vulcanizer, the combination with a retort; of a lid fitted to said retort; diametrically opposite lugs projecting laterally from said retort; a stud fixed concentrically in said lid; a yoke mounted to rotate upon said stud; hooked extremities on said yoke arranged to engage the lugs on said retort; a stud-shaft fixed in said yoke; two counterpart eccentrics respectively journaled upon the opposite extremities of said shaft; handles upon the respective levers arranged to effect rotation thereof; an abutment upon said lid opposed to both of said eccentrics; and means to adjust said abutment, substantially as set forth.

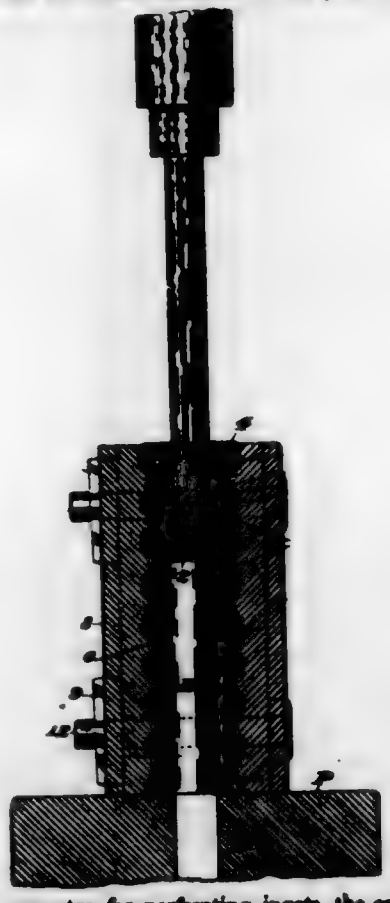
7. In a vulcanizer, the combination with a casing; of a retort fitted to said casing; an annular flange at the top of said retort overhanging said casing; diametrically opposite lugs projecting laterally from said flange; a lid fitted to said retort; a stud fixed concentrically in said lid; a yoke mounted to rotate upon said stud, independently of said casing; a head upon said stud arranged to limit the movement of said yoke longitudinally with respect to said stud; hooked extremities upon said yoke, arranged to engage the lugs on said retort; counterpart eccentrics journaled upon said yoke and arranged to effect the relative movement of said lid and yoke in the direction of the length of said stud, substantially as set forth.

8. In a vulcanizer, the combination with a retort; of a lid fitted to said retort; a yoke mounted to rotate upon said lid; means to prevent the removal of said yoke from said lid; lugs upon said retort, projecting laterally beneath said lid; hooked extremities upon said yoke, overhanging the periphery of said lid and engaged beneath said lugs; an eccentric mounted to rotate upon said yoke, independently of said retort; and means to rotate said eccentric, arranged to relatively shift said yoke and said lid, and compress the latter upon said retort, substantially as set forth.

695,716. APPARATUS FOR PERFORATING BLOOMS. JOHN FRITH, Bethlehem, Pa. Filed May 28, 1900. Serial No. 17,926. (No model.)

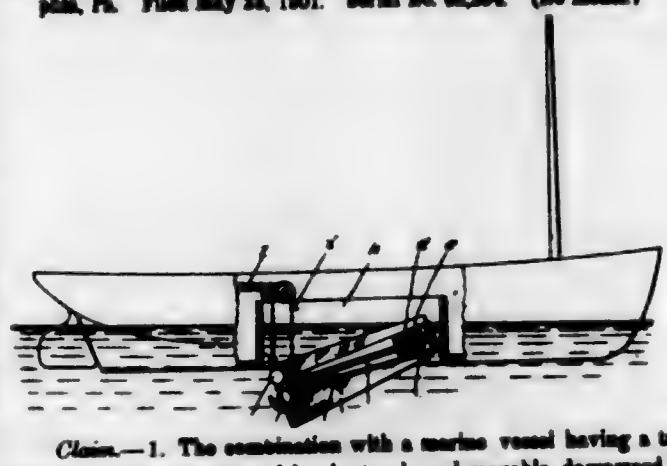
Claim.—1. An apparatus for perforating ingots or blooms comprising a punch and a mold provided interiorly with projections adapted to engage an expanding ingot or bloom as it is expanded by the punch and to forge projections thereon and to hold it against the longitudinal force of the punch and maintain it from crushing without the side walls of the mold intimately engaging it.

2. A guide or mold for use in perforated ingots or blooms provided on its interior walls with projections adapted to engage an expanding ingot and maintain the same without the wall proper of the mold engaging it.



3. In an apparatus for perforating ingots, the combination with a guide or mold provided on its interior walls with projections adapted to engage an expanding ingot and maintain the same without the wall proper of the mold engaging it; and means for perforating said ingot, the organization being such that its end will, simultaneously with the perforation of such end, be forced into position to engage the uppermost projection, thereby to hold the ingot throughout the further continued punching thereof against longitudinal displacement.

695,717. PROPELLER-GEAR. GEORGE W. GARDNER, Philadelphia, Pa. Filed May 23, 1901. Serial No. 62,264. (No model.)



Claim.—1. The combination with a marine vessel having a trunk therein, of a frame mounted in the trunk and movable downward to a point below the vessel, a propeller-gear carried in the frame, and a centerboard working in the trunk independently of the said frame.

2. The combination with a marine vessel having a trunk therein, of a frame mounted in the trunk and movable downward to a point below the vessel, a propeller carried by the frame, and a centerboard working in the trunk independently of said frame.

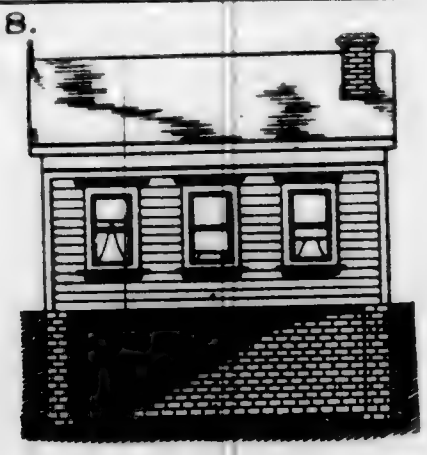
695,718. BUILDING CONSTRUCTION. ABRAHAM GOODMAN, San Francisco, Cal. Filed Nov. 25, 1901. Serial No. 83,533. (No specimens.)

Claim.—1. In building construction, a packing or filling interposed between the foundation of the building and the earth and composed of coal-cinders.

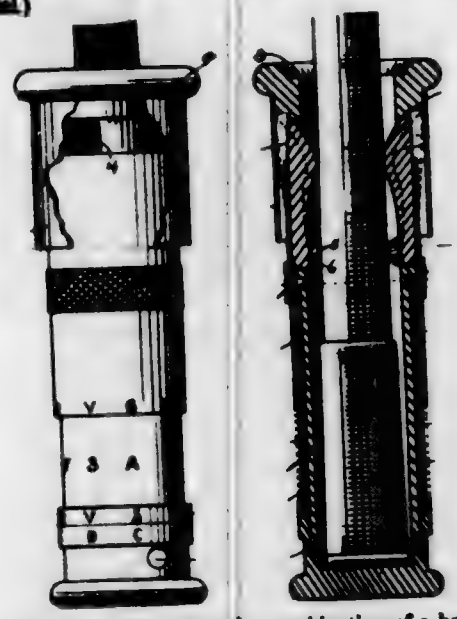
2. In building construction, a packing or filling of coal-cinders, underlying and also surrounding the foundation of the building.

3. In building construction, a packing or filling of coal-cinders, reduced to substantially uniform size, and tamped and compressed between the foundation of the building and the earth.

695,718.



695,719. WHIP-SOCKET. JOHN M. GROFF and EDWARD P. COULTER, North Lawrence, Ohio. Filed Sept. 5, 1901. Serial No. 74,336. (No model.)



Claim.—1. In a whip-socket the combination of a base, a cylinder or socket connected thereto, dogs pivotally connected to the cylinder or socket and provided with upper beveled ends, an annular groove formed upon the outer periphery of the cylinder or socket, a groove leading downward from the annular groove, cylinders located around the socket or cylinder and provided with slots, the inner cylinder provided with a collar at its bottom or lower end, a sliding cylinder provided with a pin and characters located upon the base the inner and outer cylinders and the sliding cylinder respectively, substantially as and for the purpose specified.

2. In a whip-socket of the class described, the combination of a base, a socket connected thereto, said socket provided with pivoted dogs, a band connected to the upper end of the socket and extended downward over the upper ends of the dogs, an annular groove formed in the cylinder or socket, and a downward-extending groove leading therefrom, rotatable cylinders provided with slots, a sliding cylinder rotatable in an elevated position and non-rotatable in a lowered position, and a pin secured to the sliding cylinder, and characters adapted to give a predetermined combination, substantially as and for the purpose specified.

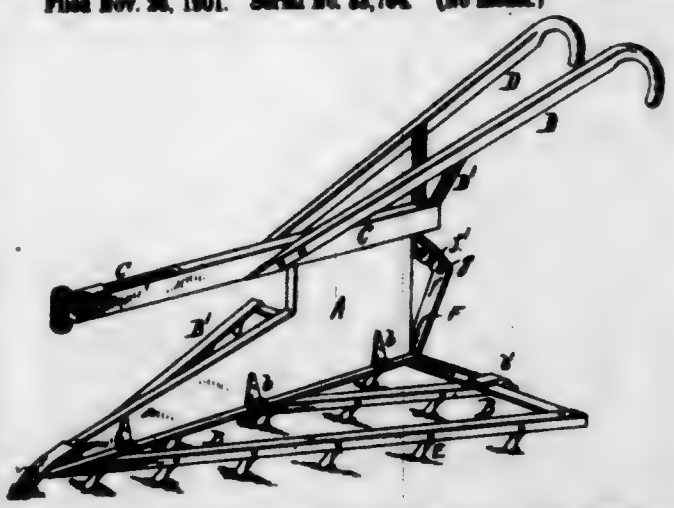
3. In a whip-socket of the class described, the combination of a base, a socket connected thereto, said socket provided with pivoted dogs, a fixed band located over the dogs, a sliding cylinder rotatable when in an elevated position and provided with a pin, an annular groove formed upon the periphery of the socket, a slot formed in the socket and communicating with the groove, rotatable cylinders located concentrically around the socket and provided with notches at their upper ends, substantially as and for the purpose specified.

695,720. METHOD OF UTILIZING GLUTEN TAILINGS. EDWARD GUDEMAN, Chicago, Ill. Filed Oct. 17, 1901. Serial No. 78,999. (No specimens.)

Claim.—1. In the manufacture of corn-starch by crushing the maize-kernels, floating off the husks and germs, regrinding the kernels and washing away the associated gluten as tailings from the detained starch granules, the process of utilizing such tailings which consists in heating the same to gelatinize the starch remnant, digesting the charge with malt at proper temperature for conversion of said starch, isolating the resultant solution for economic recovery of the contained maltose and finally removing the separated gluten residue in condensed form characterized by the presence of a higher content of proteids than usual, substantially as described.

2. In the manufacture of corn-starch by crushing the maize-kernels, floating off the husks and germs, regrinding the kernels and washing away the associated gluten as tailings from the detained starch granules, the process of utilizing such tailings which consists in separating the water excess therefrom, heating the charge to gelatinize the starch remnant in the presence of a preliminary malt addition, digesting the mass at proper temperature with the final malt addition for conversion of such starch, and isolating the resultant solution to recover the maltose, thus leaving the separated gluten residue in condensed form characterized by the presence of a higher content of proteids than usual, substantially as described.

695,721. WEEDER. VALENTINE H. HALLOCK, New York, N. Y. Filed Nov. 26, 1901. Serial No. 83,704. (No model.)



Claim.—1. A weeding-machine consisting of a central upright frame with handles and with side frames secured to the opposite sides of said central frame and carrying short forwardly-projecting cultivator-teeth, substantially as described.

2. A weeder, comprising an upright frame having side frames hinged to the opposite sides of the upright frame and carrying short forwardly-projecting cultivator-teeth, as and for the purpose described.

3. A weeder, comprising an upright frame having its upper edge downwardly inclined toward the front, a longitudinal draft-beam at the top of its rear part and side frames secured to the opposite sides of the upright frame, near its lower edge, said side frames carrying short forwardly-projecting cultivator-teeth, substantially as described.

4. A weeder, comprising an upright frame with side frames hinged to the opposite sides of the upright frame and having cultivator-teeth, elbow-levers pivoted to the frame and connected at their lower outer ends to the rake-frames and provided at their upper ends with means for securing the levers in different adjusted positions.

695,722. FIREPROOF COVERING FOR FRAME STRUCTURES. RUDOLPH HEILBRAHE, Brooklyn, N. Y. Filed June 21, 1901. Serial No. 65,413. (No model.)



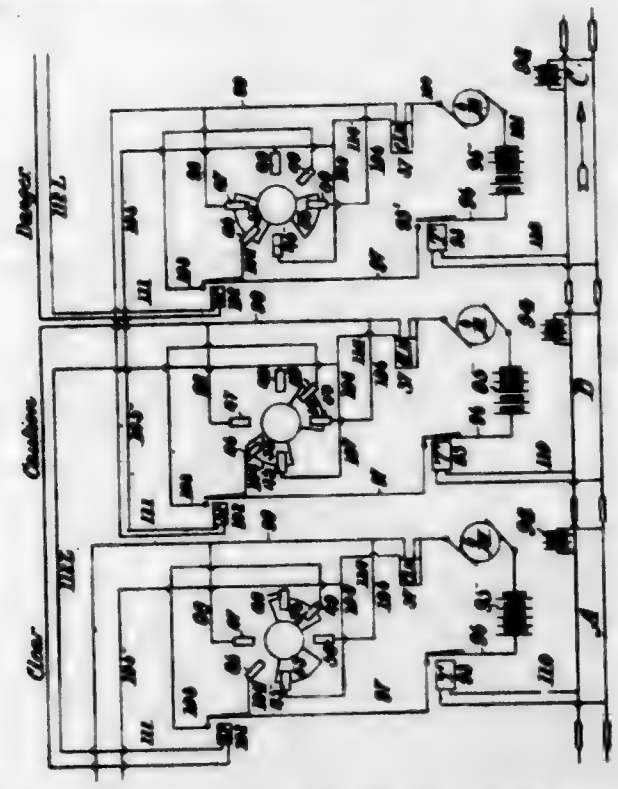
Claim.—The combination, with a portion of a building or structure to be faced or covered, of a facing or covering, consisting of a series of slabs, plates or blocks provided each with edge grooves, washers inserted into the grooves of the adjacent slabs, plates or blocks, and provided with ribs or shoulders defining the width of the joints, said washers and shoulders being perforated, and fastenings passing through the perforations of the washers and shoulders, and entering the building or structure, substantially as set forth.

695,723. SIGNALING MECHANISM. REINHOLD MERMAN, Crafton, Pa. Filed Aug. 5, 1901. Serial No. 70,957. (No model.)

Claim.—1. In a signal mechanism, the combination of a signal automatically movable to danger position, electrically-operated mechanism including a clutch-lock magnet and a swinging clutch-lever for locking the signal at caution and clear positions, a circuit-controller operated by the driving means for controlling the lock-circuit during the movement of the signal from danger to clear position, and means normally acting to operate the circuit-controller during the movement of the signal from clear to danger position.

2. In a signal mechanism, the combination of a signal automatically movable to danger position, electrically-operated mechanism including a clutch-lock magnet for shifting the signal, a motor for operating said mechanism, a circuit-controller operated by train movements and adapted

to continuously maintain a closed motor-circuit through the clutch-lock magnet during the movement of the signal to a caution and clear position, and mechanical locking means for holding the signal at caution position.



3. In a signal mechanism, the combination of a signal automatically movable to danger and caution positions, electrically-operated mechanism including a clutch-lock magnet for shifting the signal and holding the same at caution and clear positions, a motor for operating said mechanism, means in the motor-circuit and adapted to be operated by train movements for continuously maintaining a closed motor-circuit through the clutch-lock magnet during the shifting of the signal, and mechanical locking means for engagement with the operating mechanism to hold signal after being shifted to position.

4. In a signal mechanism, the combination of a signal automatically movable to danger position, electrically-operated mechanism controlled by train movements for operating the signal, a clutch-lock magnet included in the operating mechanism and having compound windings over one of which the current is directed as the signal is being shifted into position and over the other of which the current is directed when the signal is at caution or danger position, and means electrically controlled and operated by train movements for controlling the circuit in the manner set forth.

5. In a signal mechanism, the combination of a signal automatically movable to danger position, electrically-operated mechanism for operating said signal, a motor for operating said mechanism, and a clutch-lock magnet having compound windings over the coarser of which windings the current is directed during the driving of the signal, and over the finer winding of which the current is directed when the signal has been driven into position.

6. In a signal mechanism, the combination of a signal automatically movable to danger position, electrically-operated mechanism for operating said signal, a motor for operating said mechanism, a clutch-lock magnet having compound windings over the coarser winding of which the current is directed during the driving of the signal into position, and over the finer winding of which the current is directed when the signal has been driven into position, and a circuit-controller for continuously maintaining a closed motor-circuit during the shifting of the signal.

7. In a signal mechanism, the combination of a signal automatically movable to danger position, means controlled by train movements for operating said signal, a clutch-lock magnet having compound windings over one of which the current is directed during the driving of the signal into position and over the other of which the current is directed when the signal is in position, means controlled by train movements for controlling the circuit and for maintaining a continuously-closed circuit through the clutch-lock magnet during the shifting of the signal from clear to danger and danger to caution positions, and mechanical means for locking the signal after same is driven into position.

8. In a signal mechanism, the combination of a signal automatically movable to danger and caution positions, mechanism for shifting the signal to caution and clear positions, a motor for actuating said mechanism, an automatic rotary circuit-controller in the motor-circuit for continuously maintaining a closed motor-circuit during the shifting of the signal from danger to caution and from caution to clear positions, and a clutch-lock magnet acting both to drive the signal to, and lock the same in position.

9. In a signal mechanism, the combination of a signal automatically movable to danger position, mechanism including an arm connected to the signal for shifting the signal to caution and clear positions, a motor for operating said mechanism, means in the motor-circuit for continuously maintaining a closed motor-circuit during the movement of the signal from danger to caution and from caution to clear positions, and mechanical means for engagement with the signal mechanism to hold the signal against drifting after having been shifted into caution position.

10. In a signal mechanism, the combination of a signal automatically movable to danger position, mechanism including a driving clutch-wheel and a clutch-lock magnet for operating said signal, a motor for operating said mechanism, the clutch-lock magnet adapted to engage with the clutch-driving wheel to drive the signal into position and to remain locked with said wheel after the signal has been driven into position.

11. In a signal mechanism, the combination of a signal automatically movable to danger position, mechanism, including a driving clutch-wheel and a clutch-lock magnet for operating said signal, a motor for operating said mechanism, the clutch-lock magnet adapted to engage with the clutch-driving wheel to drive the signal into position and to remain locked with the wheel after the signal has been driven into position, and means adapted to engage said wheel to hold the signal after same is driven into position.

12. In a signal mechanism, the combination of a signal automatically movable to danger position, mechanism including a clutch-driving wheel and a clutch-lock magnet for operating said signal, means for operating said mechanism, the clutch-lock magnet adapted to engage with one side of the clutch-driving wheel to drive the signal into position and remain locked with the wheel after the signal has been driven into position, and means adapted to engage with the opposite side of said wheel to hold the signal after the same is driven into position.

13. In a signal mechanism, the combination of a signal automatically movable to danger position, mechanism including a clutch-driving wheel and a clutch-lock magnet for operating said signal, means for operating said mechanism, said clutch-driving wheel having notches in one side and ratchet-teeth on the other side, a swinging clutch-lever connected to the clutch-lock magnet and adapted to engage in one of the notches in the drive-wheel to drive the signal into position, and a pawl adapted to engage with the ratchet-teeth on the opposite side of said wheel to hold the signal after same has been driven into position.

14. The combination of a drive-shaft, an arm mounted on said drive-shaft, a signal-arm connected to the arm mounted on the drive-shaft, a driving clutch-wheel mounted on the drive-shaft, said wheel having notches in one face and a corresponding number of ratchet-teeth on the opposite face, a motor geared to the driving clutch-wheel, a swinging clutch-lever, a clutch-lock magnet to which the said lever is connected, and a pawl for engagement with the ratchet-teeth on the driving clutch-wheel, substantially as described.

15. In a signal mechanism, the combination of a signal automatically movable to danger position, means controlled by train movements for operating said signal, a clutch-lock magnet having compound windings over one of which the current is directed during the driving of the signal into position and over the other of which the current is directed when the signal is in position, and means controlled by train movements for controlling the circuit.

16. In a signal mechanism, the combination of a signal automatically movable to danger position, means controlled by train movements for operating said signal, a clutch-lock magnet having compound windings over one of which the current is directed during the driving of the signal into position and over the other of which the current is directed when the signal is in position, means controlled by train movements for controlling the circuit, and supplemental means for holding the signal when the same has been driven into position.

17. The combination of a signal-operating mechanism including a drive-shaft, a drive-wheel mounted thereon, a swinging lock-lever adapted for locking engagement with said drive-wheel, an arm mounted on the drive-shaft, a signal-arm connected to the arm on the drive-shaft, and means connected to the signal-arm and so mounted as to exert the greatest amount of counterweight to the signal-arm when the latter is in the danger position, substantially as described.

18. The combination of a signal-operating mechanism including a drive-shaft, a drive-wheel mounted thereon, a lock-lever adapted for locking engagement with said drive-wheel, a signal-arm connected to the drive-shaft, and a spectacle frame or casting to which the signal-arm is connected, said spectacle frame or casting being so mounted as to exert the greatest amount of counterweight to the signal-arm when the latter is in the danger position, substantially as described.

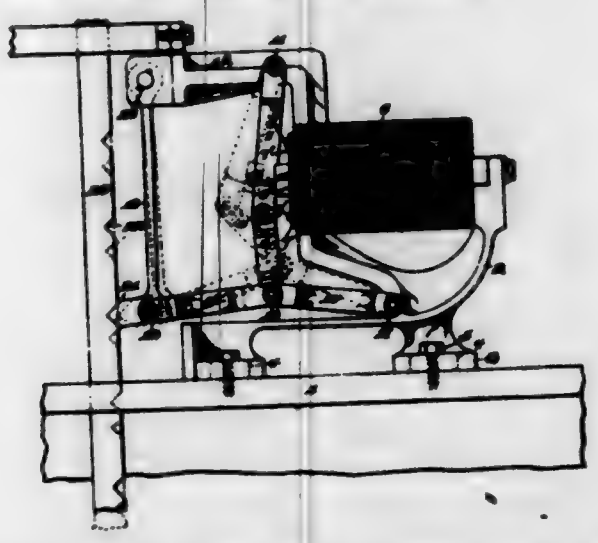
19. In a signal mechanism, the combination of a signal, mechanism for operating said signal including a drive-shaft, a drive-wheel mounted

thereon, and a lock-lever adapted for locking engagement with the drive-wheel, a motor for operating said mechanism, and a heat-producing coil surrounding the commutator of said motor, substantially as described.

20. In a signal mechanism, the combination of a signal, electrically-operated mechanism for shifting said signal, a circuit-controller operated by train movements and adapted to continuously maintain a closed motor-circuit during the shifting of the signal, a motor for operating said mechanism, and a heat-producing coil for the commutator of said motor, the said coil connected direct to the same source of electricity as supplies the motor, substantially as described

21. In a signal mechanism, the combination of a signal, electrically-operated mechanism controlled by train movements for operating the signal, a motor for operating said mechanism, and a heat-producing coil for the commutator of said motor, the coil having its ends connected to the same source of electricity as supplies the motor, substantially as described.

695,724. ELECTRIC LOCK. REINHOLD HEBERAH, Crafton, Pa. Filed Sept. 26, 1901. Serial No. 76,856. (No model.)



Claim.—1. In an electric lock, the combination with an adjustable frame having an extending arm, of an electromagnet mounted in said frame, a pair of vertical toggle-levers pivoted together and one lever pivoted to the arm of the frame, a pair of horizontal toggle-levers pivoted together and pivoted to the vertical levers, a swinging locking-arm pivoted to one of the horizontal toggle-levers and to the arm of the frame, and having a heel for engagement with the part to be locked.

2. The combination with a movable member adapted for locking, of an electric lock comprising an adjustably-mounted frame, an electromagnet carried thereby, two pair of toggle-levers pivoted in said frame with the armature of the magnet carried by one pair of the levers, and a swinging locking-arm pivoted to the frame and to one of the toggle-levers, the said locking-arm adapted when the magnet is energized, to engage with the member to be locked.

3. The combination with a movable member adapted to be locked, of an electric lock comprising in connection with a suitably-mounted frame, electromagnets mounted in the frame, toggle-levers pivoted together and to the frame and carrying the armature of the magnets, a locking-plate secured to the ends of the magnets and having apertures to receive the cores of the magnets, said locking-plate adapted to receive the blow of the armature when the magnets are energized, and a swinging locking-arm pivoted to the frame and one of the toggle-levers, the said locking-arm adapted, when the electromagnets are energized, to engage with the member to be locked.

4. The combination with a movable member adapted to be locked of a frame adjustably mounted on a suitable support, a pair of electromagnets mounted in said frame, toggle-levers pivoted to the frame and carrying the armature of the magnets, toggle-levers pivoted to the frame and to the first-mentioned toggle-levers, a locking-plate secured to the ends of the magnets and having apertures to receive the cores of the magnets, and a swinging locking-arm pivoted to one of the toggle-levers and to the frame, said locking-arm adapted when the magnets are energized, to engage the member to be locked, substantially as described.

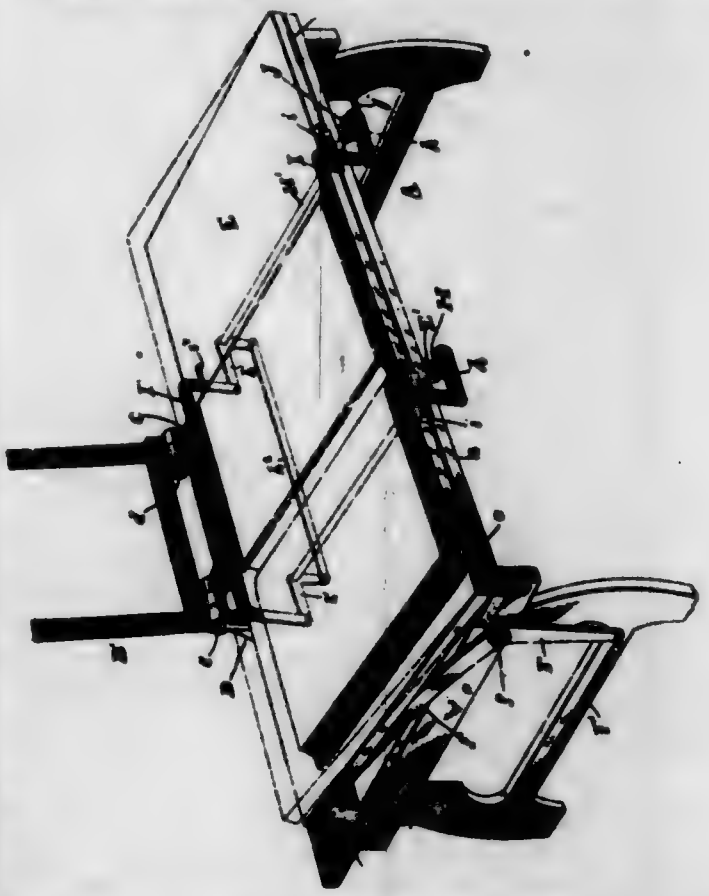
5. In combination with a movable member adapted to be locked, a frame adjustably mounted on a stationary support and provided with an extending arm, an electromagnet carried by said frame, a pair of vertical toggle-levers arranged in the frame with the armature of the magnet carried thereby, horizontal toggle-levers pivoted to the vertical toggle-levers and to the frame, and a swinging locking-arm pivoted to the arm of the frame and to one of the horizontal toggle-levers for engagement with the member to be locked upon the energizing of the magnet, substantially as described.

6. The combination with a movable member adapted to be locked, of a frame, an electromagnet mounted in said frame, vertical toggle-levers pivoted in the frame and carrying the armature of the magnet, a swinging locking-arm pivoted at one end to the frame and at its other end to one of the toggle-levers, and toggle-levers pivotally connected to the swinging locking-arm, to the vertical toggle-levers, and to the frame, said locking-arm adapted when the magnet is energized to engage the member to be locked.

7. The combination with a movable member having notches and adapted to be locked, of a pair of suitably-mounted electromagnets, a pair of pivoted vertically-arranged toggle-levers carrying the armature of said magnets, a pair of second toggle-levers pivoted to the frame and to the vertical toggle-levers, and a swinging locking-arm pivoted at one end to the support for the magnets and at its other end to one of the second toggle-levers, said locking-arm having a heel adapted when the magnets are energized to engage in one of the notches in the movable member to lock the latter.

8. In electric locks employing electromagnets, a locking-plate secured to the ends of the magnets and having openings to receive the cores thereof and aline the magnets, said locking-plate receiving the blow of the armature when the magnets are energized, substantially as described.

695,725. BOOK-TYPE-WRITER TABLE. FREDERIC W. HILLARD, Tottenville, N. Y., assignor to the Elliott & Hatch Book Typewriter Company, New York, N. Y., a Corporation of New York. Filed Aug. 31, 1901. Serial No. 74,014. (No model.)



Claim.—1. In a book type-writer, the combination of a writing mechanism supported from a horizontal axis, and an underlying book-support also supported from and turning around a horizontal axis remote from the first-named and parallel therewith, whereby the writing mechanism and the book-supports are adapted to maintain their parallelism when confining books of varying thicknesses between them.

2. In a type-writer for writing on flat sheets, a writing mechanism supported as a whole from a horizontal axis whereby it may assume different inclinations, an underlying book-support hinged or pivoted, that it may adjust itself to the varying inclination of the overlying mechanism, and means for raising the book-support to confine a book of greater or less thickness between it and the overlying writing mechanism.

3. In a book-type-writer table, the combination, with a self-adjusting book-rest, mounted so as to slant at different angles, of a platen hinged independently of the book-rest, substantially as described.

4. In a book-type-writer table, the combination, with the hinged platen, of a swinging book-rest, and means for swinging the book-rest around its pivotal point into parallelism with the platen, substantially as described.

5. In a book-type-writer table, the combination, with the platen pivoted at a fixed point, of a book-rest pivoted at a fixed point relatively to the platen to slant at different angles, substantially as described.

6. In a book-type-writer table the combination of a book-rest and a platen located above the book-rest, the platen and book-rest being independently hinged at their opposite ends, substantially as described.

7. In a book-type-writer table the combination of a book-rest, and a platen located above the book-rest, the platen and book-rest being independently hinged at their opposite ends to swing upon points located in different vertical planes, substantially as described.

8. In a book-type-writer table, the combination, with the swinging platen, of a swinging book-rest mounted on a relatively lower support than the platen and pivoted to slant at different angles, substantially as described.

9. In a book type-writer, a flat gravitating platen mounted on a horizontal axis at one end, in combination with an underlying book-support mounted on a horizontal axis remote from that of the platen, and a lifting device acting under the free end of the book-support, whereby the platen and the book-support are permitted to retain their parallelism and adapted to confine books of different thicknesses between them, substantially as described.

10. In a type-writing machine, a hinged gravitating platen, the underlying book-support hinged at its end opposite the hinging point of the platen, and lifting-springs connecting with the free end of the book-support, substantially as described.

11. In combination with the gravitating platen hinged at one end, the underlying book-support hinged at its end opposite the hinged end of the platen, the lifting-arm mounted on fixed pivots and acting under the free end of the book-support, and a spring acting on said arm, substantially as described.

12. In a type-writing machine, the flat platen hinged to swing upward and downward, the underlying book-support hinged at its end opposite the hinging-point of the platen, and a clamping device to fix the book-support at different inclinations, substantially as described.

13. In a book-type-writer table, the combination, with the platen, of a spring-actuated hinged book-rest pivoted to slant at different angles, substantially as described.

14. In a book-type-writer table, the combination, with a movable book-rest, of a platen pivoted independently of the book-rest, and platen-supporting means mounted on the book-rest and adjustable relatively thereto, substantially as described.

15. In a book-type-writer table the combination with a hinged book-rest and a platen hinged independently of the book rest, of two platen-abutments upon the book-rest, located adjacent to the pivotal point of the book-rest and platen respectively, substantially as described.

16. In a book-type-writer table the combination with a hinged book-rest and a platen hinged independently of the book-rest, of two adjustable platen-abutments upon the book-rest, located adjacent to the pivotal point of the book-rest and platen respectively, substantially as described.

17. In a book-type-writer table, the combination, with the movable platen, of a spring-actuated book-rest, and adjustable platen-abutments on the book-rest, substantially as described.

18. In a book-type-writer table, the combination, with the movable platen, of a yielding book-rest, and platen-abutments thereon, upon which the platen is adapted to be rested so as to automatically change the position of the book-rest, substantially as described.

19. In a book-type-writer table, the combination, with the movable platen, of a yielding book-rest, platen-abutments thereon, upon which the platen is adapted to abut and automatically change the position of the book-rest, and means for fastening the book-rest in position, substantially as described.

20. In a book-type-writer table, the combination, with the table-frame, of a hinged book-rest, provided with a keeper, means, on the table-frame, for engaging and setting the same, and platen-abutments on the book-rest, substantially as described.

21. In a book-type-writer table, the combination of a movable book-rest, movable platen-abutments extending above the upper surface thereof, and means below and carried by the book-rest for adjusting the platen-abutments, substantially as described.

22. In a book-type-writer table, the combination of a movable book-rest, movable U-shaped platen-abutments, and means for adjusting the platen-abutments, substantially as described.

23. In a book-type-writer table, the combination of a yielding book-rest provided with an upper abutment, and a lever pivoted so as to exert a pressure on said abutment to automatically lower the book-rest, substantially as described.

24. In a book-type-writer table, the combination of a yielding book-rest, and a platen pivoted beyond the rear of the same, said book-rest having a book-rest-depressing abutment for receiving the downward thrust of the platen, substantially as described.

25. In a book-type-writer table, the combination of a hinged book-rest provided with an upper abutment near its free edge, and a lever pivoted so as to exert a downward thrust on the said abutment, substantially as described.

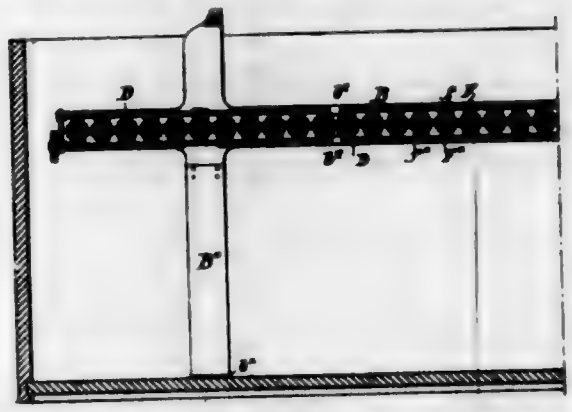
26. In a book-type-writer table, the combination of a book-rest hinged at its front edge, and a platen, said book-rest having a platen-supporting abutment near its hinged edge, substantially as described.

695,726. COVERING FOR PIPES, RODS, ELECTRIC LINE CONDUCTORS, OR THE LIKE. Oliver T. Hungerford, Brooklyn, N. Y. Filed Aug. 20, 1901. Serial No. 72,726. (No model.)



Claim.—A pipe, bar or conductor coated with a compound of silica, resin and resin-oil, and with paper.

695,727. DYEING APPARATUS. Joseph Hunter, Camden, N. J. Filed May 14, 1901. Serial No. 60,184. (No model.)



Claim.—1. The combination of a dye-vat, a frame mounted therein, a series of sticks carried by said frame and upon which yarn is mounted, with mechanism connected to the sticks and constructed to move certain of said sticks independently of the others, substantially as described.

2. The combination of a dye-vat, sticks carrying the yarn to be dyed, means for supporting said sticks and mechanism connected to the sticks constructed to move certain of said sticks independently of the others, said mechanism being capable of adjustment so as to allow of all the sticks being moved at will, substantially as described.

3. The combination of a dye-vat, a frame, a series of sticks mounted on said frame, a worm-wheel on each stick, two longitudinal driving-shafts a series of worms on each shaft the worms of one shaft meshing with the worm-wheels on the alternate sticks, and the worms on the other driving-shaft meshing with the other worm-wheels, substantially as described.

4. The combination of a dye-vat, a frame, a series of sticks mounted on said frame, a worm-wheel on each stick, two longitudinal driving-shafts, a series of worms on each shaft, the worm of one shaft meshing with the worm-wheels on the alternate sticks, and the worms on the other driving-shaft meshing with the other worm-wheels, and a socket in each shaft, one shaft having a gear-wheel, and a crank having a portion arranged to enter either of the sockets and carrying a gear-wheel, substantially as described.

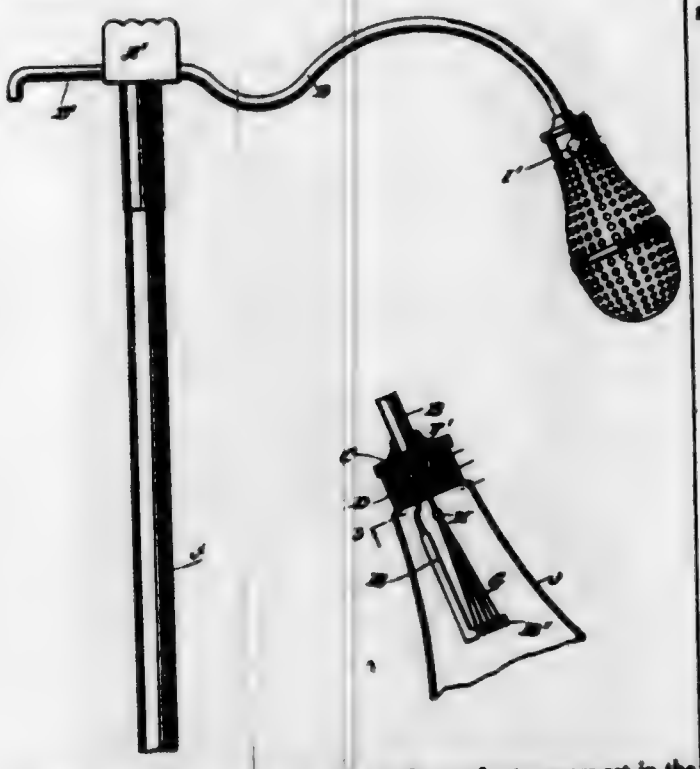
5. The combination of a dye-vat, a frame, a series of shafts carried by said frame, sticks secured to each end of said shaft, a worm-wheel on each shaft, two longitudinal driving-shafts, one above and one below the series of stick-shafts, worms on the driving-shafts, the worms of one shaft meshing with the worm-wheels on the alternate stick-shafts, and the worms of the other driving-shaft meshing with the worm-wheels on the other shafts, substantially as described.

6. The combination of a vat, a frame, yarn-sticks carried by said frame, means for turning said sticks, slat-frames mounted above the yarn-sticks, the slats of said frame being situated over the spaces between the sticks, said slat-frames being hinged so as to be raised clear of the sticks substantially as and for the purpose set forth.

7. The combination of a vat, a frame, yarn-sticks carried by said frame, means for turning said yarn-sticks, a slat-frame mounted above the sticks, said slat-frame having a flange resting against the outer ends of the yarn-sticks, substantially as described.

8. The combination of a dye-vat, a frame mounted in the vat, a series of dye-sticks extending from each side of the frame, slat-frames mounted above each set of sticks and pivoted to the said central frame, brackets, rods extending from the brackets, and means for attaching the free ends of the slat-frames to the rods so that they will be clear of the sticks, substantially as described.

695,738. GAS-LIGHTER. ROBERT E. JAMES, New York, N. Y. Filed July 8, 1900. Renewed Apr. 8, 1901. Serial No. 54,918. (No model.)



Claim.—1. The combination of a body, a refractory core set in the body, a notched arm carried by the body, a wire having its outer runs wound on the notched arm, and its inner runs secured to the core, and finely-divided platinum secured to the wire.

2. The combination of a body, an axially-apertured refractory core set in the body, an arm carried by the body, a wire having its outer runs wound on the arm and its inner runs converged and passed into the aperture of the core, and finely-divided platinum secured to the wire.

3. The combination of an apertured body, an arm carried thereby and provided with a cross member, a wire having its outer runs wound on the said cross member and its inner runs converged toward the aperture of the body and secured within the same, and finely-divided platinum carried by the wire.

4. A gas-lighter, comprising a handle, a body secured to the handle and having a recess in its outer surface, a sleeve set in said recess, an arm projecting from the sleeve and provided at its outer end with a notched cross member, a refractory, apertured core set in the sleeve, screws passing through the body and engaging the sleeve, a wire the outer runs of which are wound on said notched cross member while the inner runs converge and are passed into the aperture of the core, finely-divided platinum secured to said wire, and an apertured head inclosing the said arm, wire and platinum and having bayonet-slots for the reception of the screws on the body.

5. The combination of a body, an arm carried thereby and provided with a cross member, a wire having its outer runs wound on the said cross member and its inner ends converged toward the body and secured thereto, and finely-divided platinum carried by the wire.

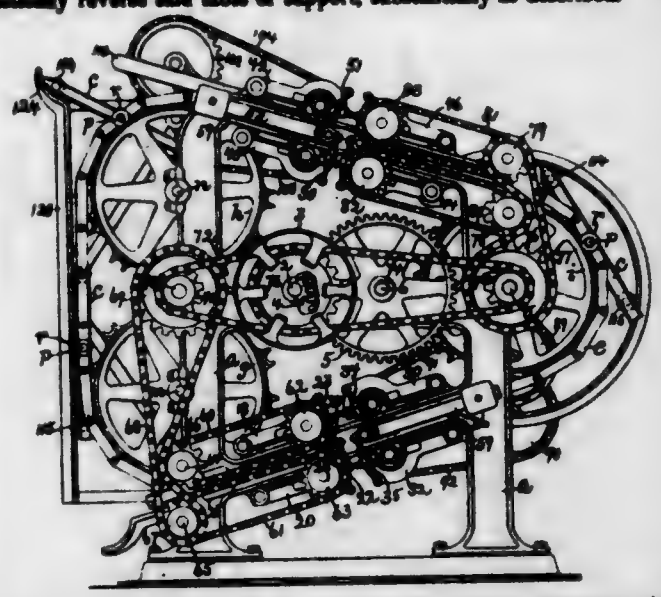
6. The combination, in an automatic gas-lighter, of a handle, a hub at the end of said handle having a central perforation, a cartridge inserted within said perforation, a shield covering said cartridge and secured upon said hub, and a screw passing through the neck of said shield and into said hub and impinging against the said cartridge.

7. The combination, in an automatic gas-lighter, of a suitable handle-rod, a hub on the end thereof, a suitable lighting-cartridge mounted therein, a perforated shield covering said cartridge and engaging around said hub, and a screw inserted through a perforation in said shield and into a perforation in said hub and adapted to impinge against the base of said cartridge, whereby said several parts are secured in place, substantially as set forth.

695,729. LEATHER-WORKING MACHINE. ALBERT F. JOHNS, Salem, Mass., assignor, by mesne assignments, to Vaughn Machine Company, Boston, Mass., a Corporation of West Virginia. Filed Nov. 20, 1900. Serial No. 37,116. (No model.)

Claim.—1. In an apparatus of the class described, the combination with an endless carrier, of a table or support pivotally attached to said carrier intermediate of the ends of said table, means to move said carrier and cause the table or support to be carried about the machine, and means to automatically reverse the movement of said table, substantially as and for the purpose specified.

2. In an apparatus of the class described, the combination with an endless carrier, a table or support pivotally attached to said carrier intermediate of its ends to enable said table to be turned in opposite directions, working tools to act on a hide or skin on said table, and means to automatically reverse said table or support, substantially as described.



3. In an apparatus of the class described, the combination with an endless carrier movable in a substantially triangular path, of a table pivotally attached to said carrier and capable of being turned in opposite directions, a guide to direct the table on its movement from one inclined path to the other, and means to automatically change the position of the table and cause it to be moved in a substantially vertical path, substantially as described.

4. In an apparatus of the class described, the combination with a series of tables provided at their sides with substantially central pivots, means to which said pivots are connected to carry said tables in an endless path, means to automatically reverse the position of each of the said tables while being carried through a portion of its endless path, and means coöperating with said table to act on a hide or skin placed thereon, substantially as described.

5. In an apparatus of the class described, the combination with an endless carrier, a table pivoted thereto, working tools coöperating with the said table as it is moved from the front to the rear of the apparatus, and working tools coöperating with said table as it is moved from the rear to the front of the apparatus, substantially as and for the purpose specified.

6. In an apparatus of the character described, the combination with a carrier movable in an endless path, of a table or support pivoted to said carrier intermediate of its ends to enable said table to be reversed in its movement, and means for reversing said table, substantially as described.

7. In an apparatus of the character described, the combination with an endless carrier movable in a substantially triangular path having a substantially vertical portion at the front of the apparatus, of a table pivotally attached to said carrier, and a guide to direct the table on its movement from one portion to another portion of said triangular path, substantially as described.

8. In an apparatus of the class described, the combination with an endless carrier movable in a substantially triangular path, of a table pivotally attached to said carrier intermediate the ends of said table, and capable of being turned in opposite directions, and a guide to direct the table on its movement from one inclined path to the other, substantially as described.

695,730. COMPOSITION OF MATTER. FRANK JOHNS and CHARLES L. PERRELL, Massillon, Ohio. Filed Apr. 16, 1901. Serial No. 56,091. (No specimens.)

Claim.—1. A composition of matter to be used as a core for casting pipes and other tubular articles, containing peat, clay and soda-ash, substantially as specified.

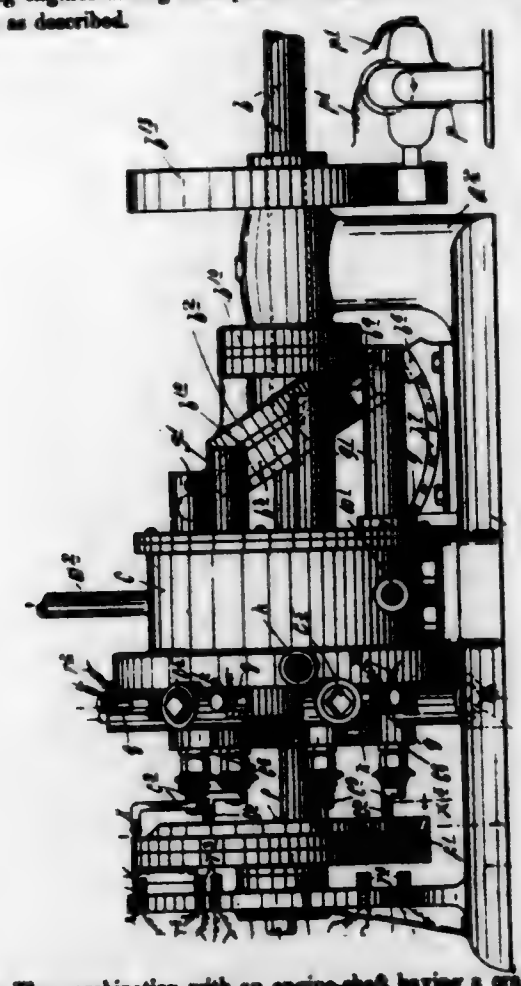
2. A composition of matter to be used as a core for casting pipes and other tubular articles containing peat, clay, soda-ash and lime, substantially as specified.

3. A composition of matter to be used as a core for casting pipes and other tubular articles, consisting of peat, clay, straw, tar, soda-ash and lime, substantially as specified.

695,731. EXPLOSIVE-ENGINE. WHITCOMB L. JUDSON, Chicago, Ill. Filed Jan. 11, 1901. Serial No. 42,894. (No model.)

Claim.—1. The combination with an engine-shaft having a crank set at an oblique angle thereto, of a thrust-ring loosely seated on the crank, at the same angle to the shaft as the crank itself, and a plurality of re-

ciprocating engines having their pistons coupled to said thrust-ring, substantially as described.



2. The combination with an engine-shaft having a crank set at an oblique angle to the axis of the shaft, of a thrust-ring loosely seated on the crank at the same angle to the shaft as the crank itself, a plurality of reciprocating engines having their pistons coupled to said thrust-ring, and means for preventing the rotation of the thrust-ring, substantially as and for the purposes set forth.

3. The combination with a plurality of engine-cylinders, of the engine-shaft having a crank set on an oblique angle to the cylinder-axes, the thrust-ring loosely seated on the crank and provided with a cross-head and guide restraining the same from rotary motion, and the reciprocating pistons in said cylinders coupled to said thrust-ring, substantially as and for the purposes set forth.

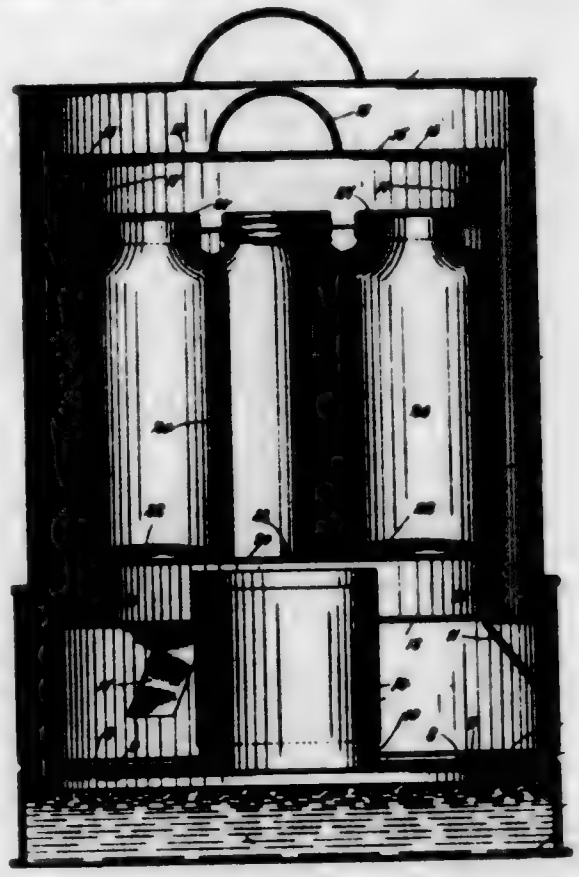
4. The combination with a plurality of engine-cylinders, of a shaft having a crank set at an oblique angle to the axes of said cylinders, reciprocating pistons in said cylinders coupled to said crank, a rotary controller having an internal gear engaging teeth on said shaft and provided with cams for operating the exhaust-valves of said engines with the properly-timed action for explosive-engines of the four-cycle type, substantially as described.

5. The combination with a plurality of engine-cylinders, of a shaft having a crank set at an oblique angle to the axes of said cylinders, reciprocating pistons in said cylinders coupled to said crank, a rotary controller having an internal gear engaging teeth on said shaft, with said gear-connected parts related as one to two, a series of cams on said controller for actuating the exhaust-valves of said engines, electric igniters for said engines, and electric connections for the same, including a series of pairs of insulated contacts held in a stationary position, and a controlling-contact carried by said rotary controller for coöperation with said fixed pairs of contacts to close the circuit through the proper igniters in the proper succession, substantially as described.

6. The combination with an engine-shaft having a crank set at an oblique angle thereto, of a thrust-ring loosely seated on said crank, at the same angle to said shaft as said crank itself, and a plurality of reciprocating engines provided with yielding or spring pistons which are coupled to said thrust-ring, substantially as described.

695,732. APPARATUS FOR PRESERVING FRUITS OR VEGETABLES. KATHRYN M. KEMPE, Walshville, Ill. Filed Nov. 20, 1901. Serial No. 84,024. (No model.)

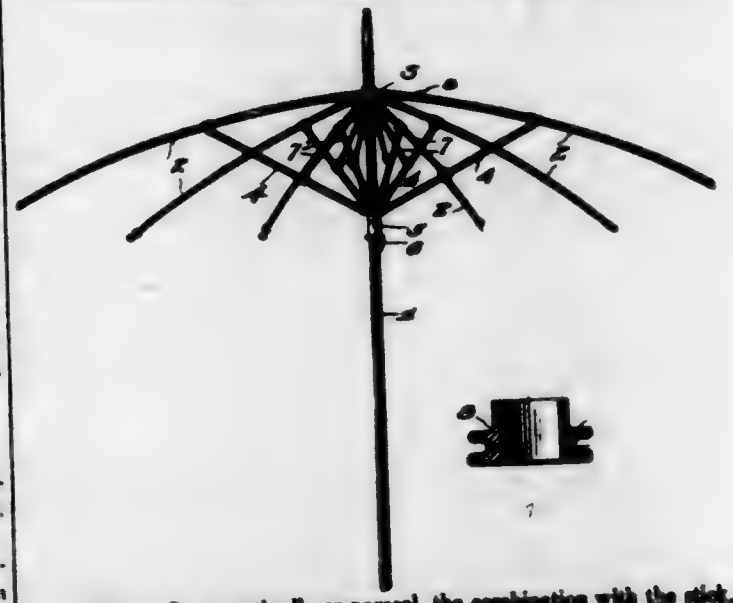
Claim.—1. A preserving apparatus comprising a steaming-tank having a horizontal partition, an upstanding tube attached to the partition and communicating with the chamber of the tank, a receptacle fitted in and supported by the tank and provided on its bottom with a tube which is fitted to said upstanding tube, and a perforated vessel-supporting diaphragm fitting in the receptacle and having a depending flange resting on the bottom of said receptacle, said diaphragm lying across the connected tubes of the tank and the receptacle.



2. A preserving apparatus comprising a steaming-tank provided with a perforated horizontal partition, an upstanding tube attached to the partition and communicating with the chamber of said tank, a receptacle supported by said tank and having its bottom fitted to the upstanding tube, a perforated vessel-supporting diaphragm having a depending flange and fitted in said receptacle, said flange of the diaphragm resting on the bottom of the receptacle, said diaphragm snugly filling the receptacle and extending across the tube, and an external jacket surrounding the receptacle and supported within the steaming-tank.

3. A preserving apparatus comprising a steaming-tank provided with a perforated horizontal partition, a tube extending upwardly from the tank and communicating with the chamber thereof, brackets in the tank around said tube and above the partition, a receptacle mounted on said brackets for support thereby in the tank and communicating with the tube, a jacket surrounding the receptacle and also resting on the brackets for support within the tank, and a flanged perforated diaphragm snugly filling the lower part of the receptacle and supported therein across the tube, said diaphragm adapted to support one or more vessels in the receptacle.

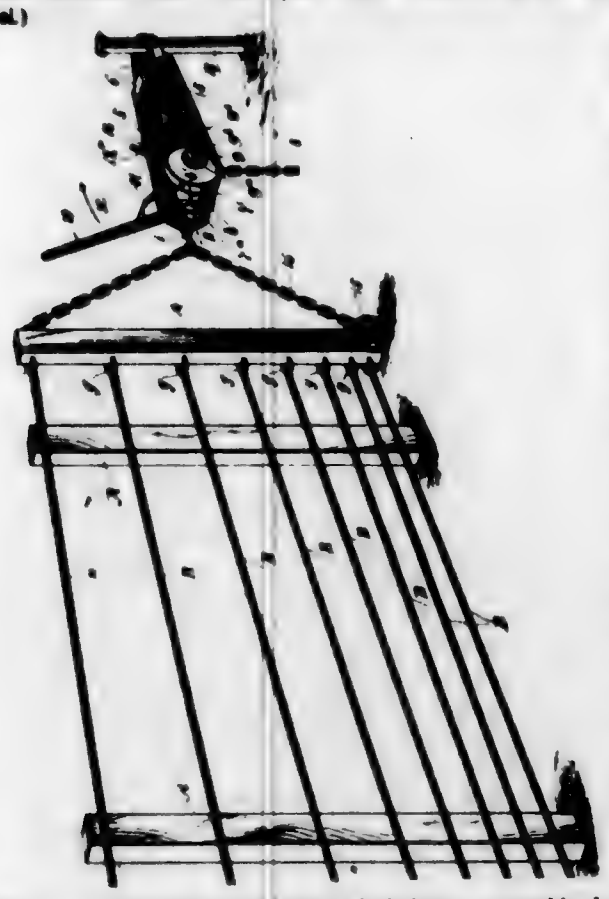
695,788. UMBRELLA. HUGO KELLER and FRANK J. GALLAGHER, Frankfort, Pa. Filed July 2, 1901. Serial No. 66,844. (No model.)



Claim.—In an umbrella or parasol, the combination with the stick, the top notch, the ribs pivoted thereto, the runner, sprenders pivoted thereto and to the ribs, and a spring-stop mounted in said stick, of a sliding collar mounted above the runner and provided with a fixed inclined cor-

face to depress said stop in the vertical movement of the collar and allow the collar to pass above and below the same in the sliding movement on said stick, and braces pivoted at their upper ends to said collar and at their lower ends to said spreaders intermediate their ends, substantially as set forth.

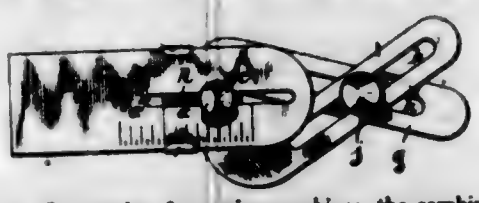
695,784. FENCE-JACK. LEWIS C. KELLY and CHARLES E. ARSPACHER, Charlotte, Mich. Filed Sept. 12, 1901. Serial No. 75,163. (No model.)



Claim.—1. A fence-jack, comprising a jack-frame, a rotatable shaft near one end of said frame, a sprocket-pinion held on the shaft, a lever-and-ratchet device adapted to rotate the shaft and pinion, a tension device controlling the reverse movement of the pinion, comprising a washer and nut on one end of the shaft pressing upon a side of the jack-frame, a draft-bar connected with the fence-wires, and a sprocket-chain connection between the draft-bar and the sprocket-pinion.

2. In a fence-jack, the wire straining and tension device, comprising a substantially U-shaped frame, a bracket-loop at the closed end of the frame for engagement with a stationary support, a transverse shaft journaled in sides of the frame near its open end, a ratchet-wheel, and a sprocket-pinion secured together and loosely mounted on the shaft between sides of the frame, a rockable lever on the shaft at one side of the ratchet-wheel, a pawl thereon meshing with the ratchet-wheel, a clamping-washer on an angular-shaped end of the shaft which projects at one side of the frame, a nut on a threaded extension of the shaft adapted to press upon the washer, and a chain engaging the sprocket-pinion, and thence extending for connection with the fence-wire-supporting device.

695,785. TUCKER FOR SEWING-MACHINES. RICHARD J. KELLEY, Syracuse, N. Y., assignor of one-half to Frank M. Grimes, Syracuse, N. Y. Filed June 10, 1901. Serial No. 63,848. (No model.)



Claim.—1. In a tucker for sewing-machines, the combination of a laterally and longitudinally adjustable main plate bent transversely so as to dispose one portion thereof in a higher plane than the remaining portion and parallel therewith, and provided on its lower portion with two pivots, said bend forming a folding-guide, longitudinally-slotted attaching-arms connected to said pivots and crossing each other and clamped jointly and adjustably on the table, and a supplemental plate mounted longitudinally adjustable on the higher portion of said main plate and provided with a tuck-gage at its free end as set forth.

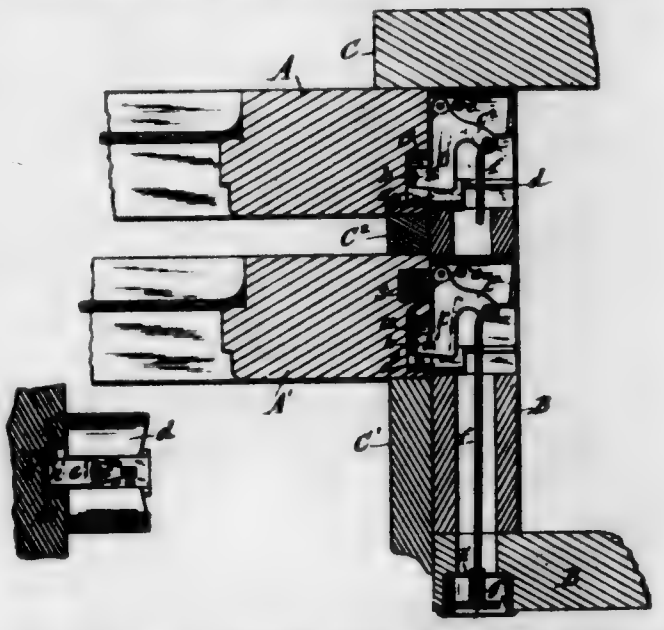
2. In a tucker for sewing-machines, the combination of a laterally and longitudinally adjustable main plate provided with two pivots, attaching-arms connected to said pivots and provided with means for clamping them jointly on the table, a folding-guide on said main plate, a supplemental plate mounted longitudinally adjustable on the main plate and bearing on the ends of said pivots to retain the attaching-arms in their connection therewith and provided with a tuck-gage on its free end as set forth.

3. The combination of the main plate formed with a raised front portion and provided on its rear portion with two pivots and with a screw-threaded socket between said pivots, longitudinally-slotted attaching-arms connected to said pivots and crossing each other, the attaching-screw passing through the slots of the arms, a folding-guide formed integral with the rear portion of the main plate, a supplemental plate mounted on the front portion of the main plate and provided with a longitudinal slot and having its free end formed with the tuck-gage, a set-screw passing through the said slot and into the socket of the main plate and terminated therein as set forth.

4. The combination of the main plate formed with its front portion in a higher plane than its rear portion and parallel therewith and provided at the intermediate offset with a guide-lip projecting from the rear portion of the plate, a hub projecting from the top of the rear portion of the plate and formed with a screw-threaded socket, a supplemental plate mounted on the front portion of the main plate and formed at one end with a tuck-gage and provided in the opposite end portion with a longitudinal slot, a set-screw passing through the slot and into the aforesaid socket and terminated therein, and attaching-arms pivoted to the rear portion of the main plate at opposite sides of the tubular hub and clamped jointly and adjustably on the table as set forth.

5. The combination of the main plate formed with its front portion in a higher plane than its rear portion and with the intermediate offset to constitute the folding-guide, said front portion having its opposite edges formed with parallel guides, the rear portion folded under onto itself and projecting beyond the aforesaid offset, a screw-threaded tubular hub projecting from the top of the rear portion of the plate to a height even with the plane of the front portion of the plate, and pivots projecting from the top of the plate at opposite sides of the said hub in combination with attaching-arms connected to said pivots and provided with longitudinal slots, a set-screw passing through said slots and fastening the arms jointly to the table, the supplemental plate mounted on the front portion of the main plate between the guides thereof and provided with a longitudinal slot and formed with a tuck-gage on its free end, and a clamping-screw passing through said slot and into the aforesaid hub of the main plate, all constructed and combined in the manner set forth and shown.

695,786. SASH-LOCK. HILAND H. KENDRICK, Fulton, N. Y. Filed Apr. 25, 1901. Serial No. 57,444. (No model.)

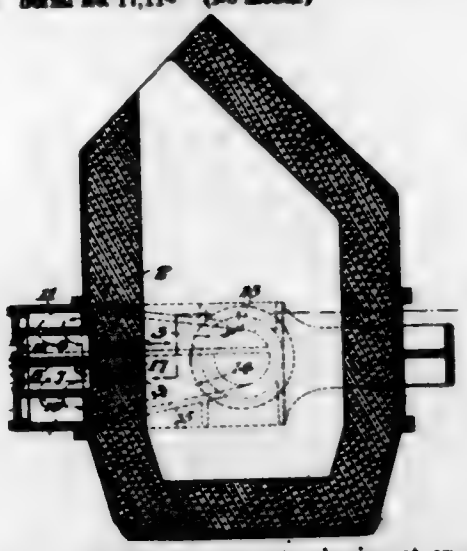


Claim.—1. The combination with the sash provided with a recess in its side edge, a lug secured to the sash within said recess and a case seated in the window-casing, of an arm pivoted at one end to said case, a catch projecting laterally from the opposite end of said arm and integral therewith, a supplemental arm projecting in the opposite direction from said pivoted arm, a push-bar connected to said supplemental arm, and a spring connected to the pivoted arm and bearing with its free end on the aforesaid case, all constructed and combined in the manner set forth.

2. The combination of the sash provided with a recess in its side edge, a lug provided with a head and secured in the recess with a space below and back of the head of the lug to release the catch by a vertical movement of the sash, a case seated in the window-casing, an arm in-

closed in said case and pivoted at one end thereto and formed at the opposite end with an integral catch projecting laterally therefrom and provided with a notch for engaging the bottom edge of the head of the lug, a supplemental arm projecting in the opposite direction from the pivoted arm, a push-bar connected to said supplemental arm, and a spring connected to the pivoted arm and bearing with its free end on the case to automatically force the catch to its engaging position all constructed and arranged to require an upward movement of the sash to release the catch as set forth.

695,787. CONVERTER. JOHN S. KLEIN, Oil City, Pa. Filed May 18, 1900. Serial No. 17,114. (No model.)



Claim.—1. A side-blowing converter, having at an intermediate part of its height a surrounding supporting-band provided with trunnions, said converter being provided with a substantially continuous blast-slot extending across one side intermediate of its height, continuous lining-plates for the slot, spacers to hold the plates apart, and a wind-box covering the slot; substantially as described.

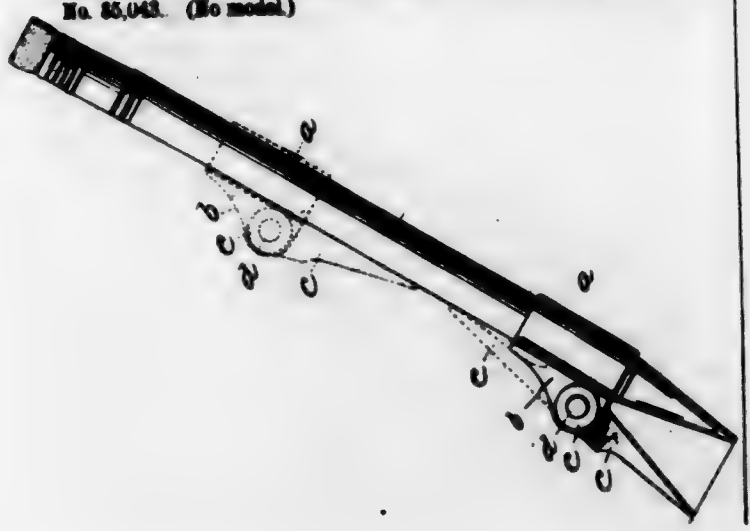
2. A side-blowing converter supported at an intermediate part of its height by a surrounding band provided with trunnions, said converter having a rammed lining cut through at one side by a substantially continuous slot extending across one side of the converter at a point intermediate of its height, said slot being arranged to direct air upon the metal bath at or near its surface to refine it, a metal lining-plate for the slot, and a wind-box covering said slot; substantially as described.

3. A side-blowing converter having a substantially continuous slot across one side thereof above the bottom, a wind-box covering the slot, a rear cover-plate for the box, having separated openings therein arranged to give access to all parts of the slot, detachable closures for the openings, and locking mechanism for the closures; substantially as described.

4. A side-blowing converter having a wind-box provided with a rear cover-plate having a hole therein, a swinging inside door for the opening, and a locking device arranged to lock the door in closed position; substantially as described.

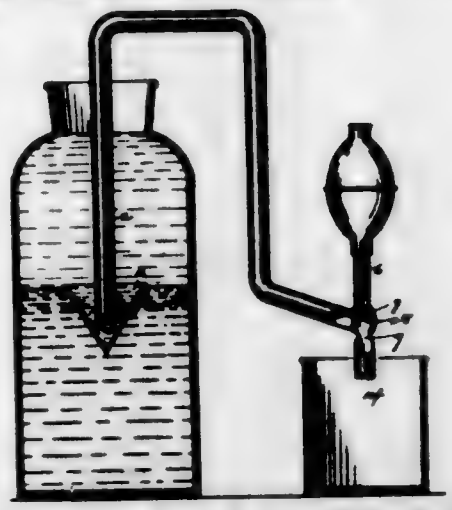
5. A converter having two substantially continuous blast-slots extending across one side and having metal linings, a wind-box having two separated chambers leading to the two twyers respectively, and separate air-chambers extending along each wind-box chamber and connected therewith by a series of holes; substantially as described.

695,788. PEN OR PENCIL ATTACHMENT FOR SPACING LINES IN RULING PLAIN PAPER. EMIL KRAUSS, Hackensack, N. J., assignor to Eagle Pencil Company, New York, N. Y. Filed Dec. 7, 1901. Serial No. 85,043. (No model.)



Claim.—1. The pen or pencil attachment for ruling lines, comprising two sheet-metal clips having ears *b* and semicylindrical portions *a* adapted to clasp and to be adjusted lengthwise of the pencil, the lug *c* interposed between the ears *b*, and having an outer edge adapted to run smoothly against the edge of the rule, and a smooth blunt rounded point or outer end, and the pivot-pin *d*, all constructed as and for the purposes hereinbefore set forth.

695,789. SIPHON. DAVID A. KREIDER, New Haven, Conn. Filed May 1, 1901. Serial No. 58,205. (No model.)



Claim.—1. A siphon having its discharge end formed with a chamber, of an aspirator-tube having its lower end tapered and inserted into the upper end of the said chamber, and formed with an orifice smaller in diameter than the discharge end of the siphon which is contracted at a point near the said orifice and at the lower end of said chamber which is interposed in the said discharge end of the siphon.

2. A siphon having its inlet end provided with a feeder constructed and arranged to prevent the direct upward movement of any liquid into the said end of the siphon, and the said feeder being formed with yielding arms receiving the said end of the siphon between them.

695,740. MACHINE FOR MOLDING JOURNAL-BEARINGS. FREDERIC J. LASH, Aurora, Ill. Filed May 31, 1901. Serial No. 62,504. (No model.)



Claim.—1. In a machine of the class described, the combination of a main portion forming the body of a car-journal-bearing pattern and provided with pockets or depressions in its concave section, pivoted lever

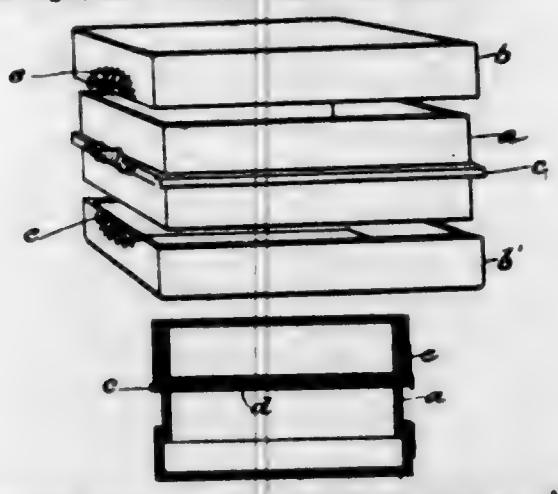
mechanism forming a plurality of tongue portions entering the depressions in the concave portions, locking-lever mechanism for locking the pivoted levers in operative holding position, and means for releasing the locking-lever mechanism and operating the pivoted levers to move the tongues out of and into position, substantially as described.

2. In a machine of the class described, the combination of a main portion forming the body of a car-journal-bearing pattern and provided with a plurality of depressions in its concave surface, two pivoted interlocking levers provided with a plurality of tongues arranged at an angle to the horizontal and vertical planes entering such depressions to complete the pattern, locking-lever for locking the pivoted levers in operative holding position, and means for releasing the locking-lever and operating the pivoted levers to move the tongues out of and into position, substantially as described.

3. In a machine of the class described, the combination of a main portion forming the body of a journal-bearing pattern provided with a concave surface having a plurality of depressions or pockets therein, two intermeshing levers provided with a plurality of tongues entering such depressions at an angle to the vertical and horizontal planes, a locking-lever for locking the intermeshing levers in operative position, and means for operating the parts to release the locking-lever and permit the operation of the intermeshing levers, substantially as described.

4. In a machine of the class described, the combination of a main portion forming the body of a journal-bearing pattern provided with a concave surface having a plurality of depressions therein, two intermeshing levers mounted thereon provided with a plurality of tongues entering the depressions in the concaved portions of the pattern, an operating-arm on one of such levers, a locking-leg on one of such levers, spring mechanism on the operating lever-arm, a locking-lever engaging with the locking-leg and with the spring on the operating lever-arm, and an operating-rod for releasing the locking-lever and operating the intermeshing levers, substantially as described.

695,741. CANDY-BOX. WILLIAM H. LEASE, Cincinnati, Ohio. Filed Aug. 2, 1901. Serial No. 70,634. (No model.)



Claim.—1. A box having two equal compartments on opposite sides of a fixed central partition, two telescoping covers fitting over said compartments and of equal height therewith and fitting flush against their rims and against a flange formed by extending the said partition outside the walls of the box on all sides, as described and for the purpose set forth.

2. A box open at both ends and divided by a central fixed partition into two compartments, an outside flange in line with the partition and two telescoping covers, each cover being of the same height as the compartment it closes.

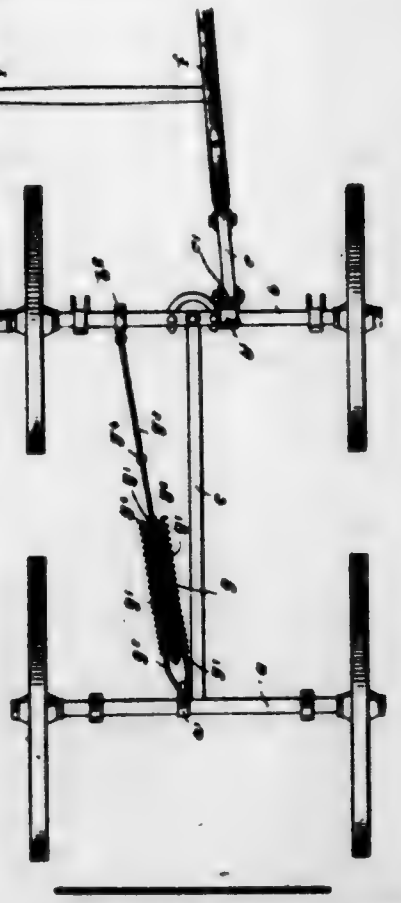
3. The open-ended box *a* provided with fixed central partition *d*, the projecting flange *e* of the same thickness as the partition, the two telescoping covers *b b'* of the same height as the compartments, and sealed by a single wafer *c* pasted at once on the box-flange and the two covers.

695,742. VEHICLE ATTACHMENT. WILLIAM P. LEE, Fairfax, Minn. Filed May 20, 1901. Serial No. 61,974. (No model.)

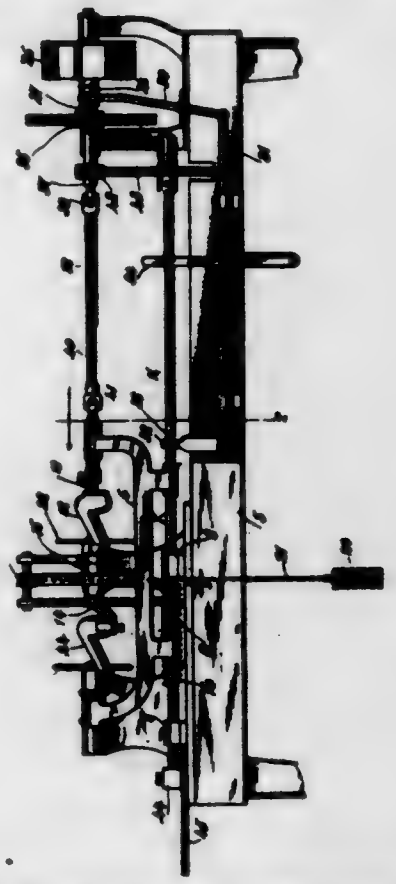
Claim.—1. A vehicle having thills attached to the front axle at one side of the center thereof, and a compensating spring, one end of which is connected with the rear axle adjacent to the middle thereof and the other end of which is connected to the front axle at one side of its center, for the purpose specified.

2. The combination with a vehicle having a front and rear axle, of an extension fastened to the end of the front axle, said extension serving as a means of holding the adjacent wheel in place, thills attached to the front axle intermediate its ends and to the said axle extension outside of the adjacent wheel, and a connection between the rear and front axles said connection being attached to the front axle near the extension thereof.

695,742.



695,743. MACHINE FOR TURNING IRREGULAR FORMS. ADOLF LEHMANN, New York, N. Y. Filed Nov. 5, 1901. Serial No. 81,190. (No model.)



Claim.—1. In a machine for turning irregular forms, a shaft having universal-joint connections and telescopic members, a model or form carried by said shaft, a plate against which said model or form is designed to bear, a swinging frame for supporting the model or form and for supporting the work, a cutting-tool for the work, and means for moving the frame lengthwise of the machine, substantially as specified.

2. A machine for turning irregular forms, comprising a swinging work-holding frame, a shaft having a bearing in said frame and adapted to support a form or model and also to support the work, telescopic members in said shaft, universal-joint connections in the shaft, a screw-shaft, and a screw on the work-holding frame engaging with the screw of said screw-shaft, substantially as specified.

3. In a machine for turning irregular forms, a swinging work-holding frame, a screw on said frame, the said screw being flattened at one

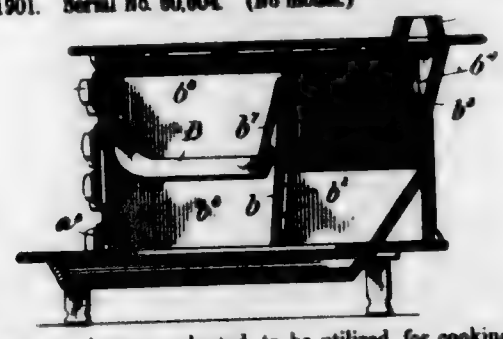
side, a screw-shaft having its screw engaging with the first-named screw, a work-holding shaft mounted in the swinging frame, a driving-gear, and a telescopic and swinging section for said shaft between the swinging frame and said driving-gear, substantially as specified.

4. In a machine for turning irregular forms, a work-holding frame having longitudinal and swinging movements, a shaft carried by the frame, a driving-gear and a shaft having sliding sections and universal-joint connections with the first-named shaft and the driving-gear, substantially as specified.

5. In a machine for turning irregular forms, a bed-frame, a work-holding frame, a shaft supported in the work-holding frame, a rod on which the frame is secured, the said rod being mounted to turn in bearings on the bed-frame, an angular block on said rod, and a lever pivoted to the bed-frame and adapted to engage underneath said block, substantially as specified.

6. In a machine for turning irregular forms, a work-holding shaft having a curved end, a post mounted on said curved end, jaws mounted to swing on said post in opposite directions, the said jaws having inclined lower ends, and a screw for engaging against said inclined ends, substantially as specified.

695,744. STOVE. JOHN T. LESHER, Berrysburg, Pa. Filed May 16, 1901. Serial No. 60,604. (No model.)



Claim.—1. A stove adapted to be utilized for cooking, kettle, or heating purposes, provided interiorly with means for supporting grates of different sizes and at different levels and having removable partitions and removable hollow side portions.

2. A stove adapted to be utilized for cooking, kettle, or heating purposes, provided interiorly with means for supporting grates of different sizes and at different levels and having a removable partition between the smaller grate and the rear wall of the stove, and formed with an opening through which the removable parts may be taken out and others substituted.

3. A stove of a character substantially as specified, comprising a top having a large opening closed by a plate carrying lids, a grate arranged below the opening and of comparatively short length, a partition arranged back of the grate, a horizontal plate extending from the partition to the back of the stove, removable hollow fire-bricks on each side of the fire-chamber, and suitable doors or dampers in front of the stove, substantially as described.

4. A stove of the character specified, comprising a casing having a removable top plate provided with openings adapted to be engaged by ordinary lids, and provided interiorly with means for supporting removable grates of different sizes at different levels, and a removable partition adapted to be inserted between the smaller grate and the rear wall of the stove-casing, substantially as described.

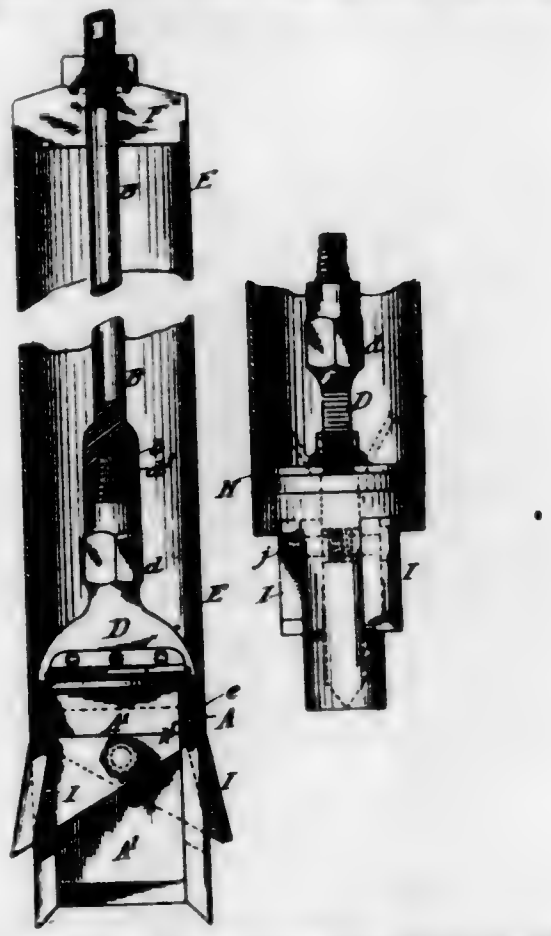
5. A stove of the character specified, comprising a casing having a removable top plate provided with openings adapted to be engaged by ordinary lids, and provided interiorly with means for supporting removable grates of different sizes at different levels, a removable partition adapted to be inserted between the smaller grate and the rear wall of the stove-casing, and removable sections of fire-brick lining, substantially as described.

6. A stove of the character specified, comprising a casing having a removable top plate provided with openings adapted to be engaged by ordinary lids, and provided interiorly with means for supporting removable grates of different sizes at different levels, a removable partition adapted to be inserted between the smaller grate and the rear wall of the stove-casing, and a removable plate adapted to underlie the top of the stove-casing, substantially as described.

7. A stove of the character specified, comprising a casing having a removable top plate provided with openings adapted to be engaged by ordinary lids, and provided interiorly with means for supporting removable grates of different sizes at different levels, a removable partition adapted to be inserted between the smaller grate and the rear wall of the stove-casing, removable sections of fire-brick lining, and a removable plate adapted to underlie the top of the stove-casing, substantially as described.

8. A stove of the character specified, comprising a casing having a removable top plate provided with openings adapted to be engaged by ordinary lids, and provided interiorly with means for supporting removable grates of different sizes at different levels, the smaller grate being supported above the larger grate, a removable partition adapted to be inserted between the smaller grate and the rear wall of the stove-casing, removable sections of fire-brick lining, and a removable plate adapted to underlie the top of the stove-casing and extend from the first-named partition to the rear wall of the stove-casing, substantially as described.

695,745. DRILL FOR DEEP WELLS. JOHN W. LIVERMORE, Berkeley, Cal. Filed Jan. 14, 1901. Serial No. 43,170. (No model.)



Claim.—1. In a drill, a drill-tool comprising an open base-ring, having a rabbeted edge, a diametrical web extending across and also below said ring, and formed at the bottom into two arc-shaped cutters connected by a diametrical cutter, a solid neck projecting upwardly from the base-ring and hinged valves for opening and closing said ring; all in combination with a casing fitted to said rabbeted edge, a drill-rod having a screw connection to said neck, a threaded section on the drill-rod adjacent to the upper end of the casing, and means for securing the upper end of the casing to said threaded section.

2. A drill for boring and finishing wells at one operation, comprising a drilling-tool for forming the main bore, a chamber connected thereto, and having a valved bottom for receiving and retaining drillings, and oppositely-located spring-pressed reaming-bits connected to said drilling-tool and normally projecting beyond its radius of operations, but capable of yielding inwardly to permit the withdrawal of the entire tool from the well.

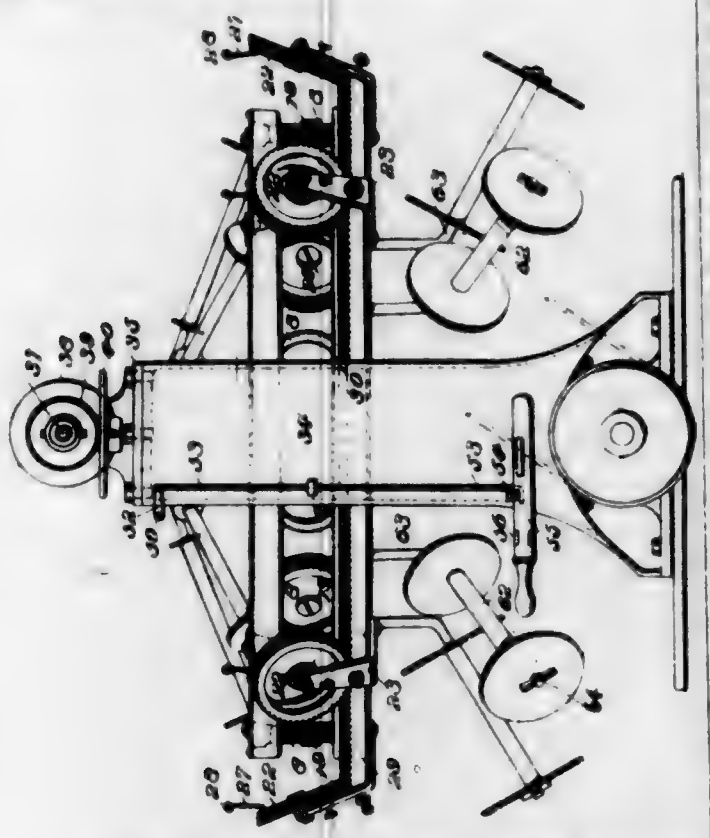
3. A drill for boring and finishing oil-wells comprising a ring having a diametric and arc-shaped cutters depending therefrom, a casing having its lower edge seated in a rabbet in said ring, pivoted valves controlling the opening in said ring, reaming-cutters having inwardly-extending pivoted portions and having portions for abutting against the lower edge of said ring for holding them rigid on the downward thrust of the rod, substantially as described.

695,746. BRAIDING-MACHINE. JACOB LUDERMS, Philadelphia, Pa., assignor to Henry M. Harley, Gloucester City, N. J. Filed July 23, 1901. Serial No. 69,402. (No model.)

Claim.—1. In a machine of the character specified, the combination of a series of upper and lower bobbins and means to operatively mount said bobbins that each series will move in an opposite direction, of a rotating member and means to actuate the same whereby a thread from the lower bobbin will extend through said rotating member and be directed thereby under and over each alternate bobbin of the upper series, substantially as specified and for the purpose set forth.

2. In braiding-machines a suitable supporting-frame, a stationary table 3, a rotating spider 6, a continuous radial track-section for each of said parts combined with a series of upper bobbins carried by said table,

a series of lower bobbins carried by said spider, a rotating member having a central bore adapted to receive a thread from the lower bobbins and means carried by said rotating member adapted to elevate and depress said thread whereby the thread will be so disposed that it will be directed under and over each alternate bobbin of the upper series and thereby insure that the threads from the upper and lower bobbins will be thoroughly incorporated or plaited, all combined substantially as specified and for the purpose set forth.



3. In a machine of the character specified, a suitable frame, a stationary table carried by said frame and having a radial flange upon its outer edge, a trackway carried by said flange, a plurality of segmental rack-bars, a plurality of gears carried by said flange and coöperating with said rack-bars, an individual bobbin-spindle for each of said racks, in combination with a rotating disk or spider 6 having a radial rack-bar or track 21 adapted to coöperate with the gears carried by said flange, and a plurality of rotating members 22 having means to receive the thread from the lower bobbins and permit the same to extend through the axial point thereof and additional means carried by said rotating member to dispose the thread from the lower bobbin whereby it will be directed under and over each alternate upper bobbin as the latter are moved through their connection with said stationary member, all combined substantially as specified and for the purpose set forth.

4. In a braiding-machine, a rotating thread-directing member 22, means to carry the thread through the central portion of said member and an arm 27 having means to engage said thread whereby it will be elevated and depressed during the travel of the rotating member all substantially as specified and for the purpose set forth.

5. In a braiding-machine having a stationary table provided with a flange 5, and also having a rotating spider of a stationary track-section 29 connected to said table; a trackway or rack-bar 21 carried by said spider, a plurality of gears 18 carried by said flange and coöperating with said trackway 21, a guideway carried by said flange, a plurality of segmental rack-bars 14 having teeth adapted to coöperate with said gears each segmental rack-bar being adapted to carry a bobbin-spindle, a plurality of lower bobbins carried by said spider and a plurality of rotating members 22 coöperating with said stationary track 29 said members having means to permit the extension of the thread from the lower bobbin through the axial point thereof and additional means carried by said members adapted to elevate and depress said thread during the bodily travel of said rotating members whereby the thread will be directed downward in the recess 37 under an approaching carrier 14 and elevated out of said recess in time for the next carrier to pass under the same, all operatively combined substantially as specified and for the purpose set forth.

6. In a machine of the character specified, the herein-described rotating member 22 having an axial bore and a thread-engaging arm 27 and suitable means to rotate said member whereby the thread from the lower bobbin may be elevated and depressed for the purpose specified and as set forth.

7. In a braiding-machine, a thread-directing member comprising a wheel having a central bore; a tubular axle fitting said bore; an arm carried by said wheel and having a thread-engaging device whereby a thread may be extended through the true diametrical axis of the wheel into engagement with said arm and delivered without twisting, substantially as specified and for the purpose set forth.

8. In a braiding-machine a plurality of upper and lower bobbins, means to rotatably mount said bobbins in position and additional means to move each series in an opposite direction, combined with a rotating thread-directing member 22 having an axial aperture adapted to receive the thread from the lower bobbins, said rotating member also having a thread-directing arm 27 adapted to engage the thread after it extends through said bore and elevate and depress the same during the travel of said member thereby permitting each alternate upper bobbin to travel under and over said thread all substantially as specified and for the purpose set forth.

9. In a braiding-machine, a suitable support having a tubular post, a table fixedly secured on said post and a rotating member 6 mounted thereon combined with a trackway carried by said table and a plurality of rotating members 18 mounted beneath said trackway; a plurality of spindle-carriers 14 disposed in said trackway and coöperating with said rotating members and means carried by said spider to actuate said members whereby they will successively engage each of said carriers and actuate the same, all substantially as specified and for the purpose set forth.

10. In a braiding-machine a suitable support and a stationary table having a flange carried by said support, in combination with a rotating member or spider 6, a trackway carried by said table, a plurality of spindle-carriers mounted on said trackway, suitable means to communicate motion from the rotating spider-section 6 to said carriers, and a rotating member 22 having a tubular bore adapted to receive the thread from the lower bobbins and direct the same under and over each alternate upper bobbin and means carried by the stationary table to cause the rotation of said thread-directing member, all combined substantially as specified and for the purpose set forth.

11. In a braiding-machine, a rotating thread-directing member comprising a wheel having a beveled edge and a plurality of teeth upon said edge and also provided with a central bore in combination with a tubular axle adapted to fit said bore, and an arm attached to the inner face of said member and provided with a thread-engaging loop at the end thereof all substantially as set forth.

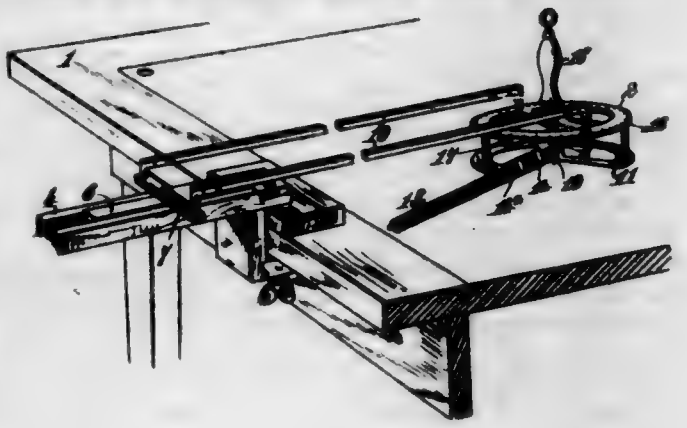
12. In a braiding-machine, a rotating member 22 comprising a wheel having a toothed periphery, and an axial bore and further provided with a rigid arm having at its end a thread-engaging device, substantially as set forth.

13. In a braiding-machine, the combination with a stationary table 3 and a rotating spider 6 and an upper and lower series of bobbins therefor respectively, of suitable coöperating devices carried by said parts whereby said series of bobbins will be moved in an opposite direction and a rotating member carried by said spider and actuated by said table adapted to direct the thread from the lower bobbin under and over each alternate upper bobbin as set forth.

14. In a machine of the character specified, a bobbin-spindle formed of two parts and so hinged that the outer free end may be freely elevated but cannot pass below the plane occupied by the fixed part thereof substantially as specified and for the purpose set forth.

15. In a braiding-machine having a plurality of upper bobbin-spindles, the combination of a thread-engaging hook pivoted to each spindle; a crank-shaft mounted upon the frame of the machine and having at its inner end a depending section while its opposite end is operatively connected with the driving-pulley whereby when said pivoted hook is released by a broken thread it will be directed upward by centrifugal force into engagement with said depending section and thereby partially rotate said shaft and operate to shift the driving-belt to an idler-pulley and stop the machine all combined substantially as specified and for the purpose set forth.

695,747. **DRAFTING APPARATUS.** HENRY S. LYDICK, Pittsburg, Pa. Filed June 22, 1901. Serial No. 65,582. (No model.)



Claim.—1. In drafting apparatus the combination with a card, of a support therefor which is capable of rotation with respect to the card, and means independent of the support for preventing rotation of the card, substantially as described.

2. In drafting apparatus the combination with a card, of a support therefor which is capable of rotation with respect to the card, a slide, a guide therefor, and parallel members connecting the card and slide, whereby rotation of the card is prevented, substantially as described.

3. In drafting apparatus, the combination with a card, of a support therefor capable of rotation with respect to the card, and provided with a rule, and means independent of the support for preventing rotation of the card, substantially as described.

4. In drafting apparatus, the combination with a card, of a support therefor capable of rotation with respect thereto, and provided with an arm and pointer, and means independent of the support for preventing rotation of the card.

5. In drafting apparatus, the combination of a card, a support therefor capable of rotation with respect thereto, a guide-frame provided with a raceway, a slide arranged in said raceway, and provided with a cross-head, and parallel members connected to the card and cross-head, substantially as described.

6. In drafting apparatus, the combination with a loosely-mounted card, of a support for said card capable of rotation with respect thereto, a guide-frame provided with a raceway, a slide arranged in the raceway, and rigid, parallel members connecting the card and slide.

7. In drafting apparatus, the combination with the loosely-mounted card, of a guide-frame provided with a raceway, a slide arranged in said raceway and provided with a cross-head, and parallel members connected to the card and the cross-head.

8. In drafting apparatus, the combination with the loosely-mounted card, of a guide-frame provided with a raceway, a slide arranged in said raceway and provided with a cross-head, and rigid parallel members connected to the card and the cross-head.

9. In drafting apparatus, the combination with a support, of the card loosely mounted thereon, a slide, a guide therefor and parallel members connecting the card and slide.

10. In drafting apparatus, the combination with a support, of the card loosely mounted thereon, a slide, a guide therefor and rigid parallel members connecting the card and slide.

11. In drafting apparatus, the combination with a support, of the card loosely mounted thereon and provided with pivot-studs, of a guide, a slide guided thereby and provided with pivot-studs, and rigid parallel members engaged with said pivot-studs.

12. In drafting apparatus, the combination with a support, provided with means for receiving a rule, of the card loosely mounted thereon, a slide, a guide therefor and parallel members connecting the card and slide.

13. In drafting apparatus, the combination with a support provided with means for receiving a rule, of the card loosely mounted thereon, a slide, a guide therefor and rigid parallel members connecting the card and slide.

14. In drafting apparatus the combination with a support having an arm provided with means to receive a rule, of the card loosely mounted thereon, a slide, a guide therefor and parallel members connecting the card and slide.

15. In drafting apparatus, the combination with a support provided with an arm having means to receive a rule, and provided also with a pointer, of the card loosely mounted thereon, a slide, a guide therefor and parallel members connecting the card and slide.

16. In drafting apparatus, the combination with a loosely-mounted card, of a support therefor capable of rotation with respect thereto and provided with an arm and a pointer, and means independent of the support for preventing rotation of the card.

17. In drafting apparatus, the combination of a loosely-mounted card, of a support therefor capable of rotation with respect thereto and provided with means to receive a rule, and means independent of the support for preventing rotation of the card.

18. In drafting apparatus, the combination with a support provided with an arm having means to receive a rule, and provided also with a pointer, of a card loosely mounted thereon, a slide, a guide therefor and parallel members connecting the card and slide.

19. In drafting apparatus, the combination with a support provided with means to receive a rule and with a pointer, of the card loosely mounted thereon, and means for preventing rotation of the card.

20. In drafting apparatus, the combination with a support provided with means to receive a rule and with a pointer, of the card loosely mounted thereon, a slide, a guide therefor and parallel members connecting the card and slide.

21. In drafting apparatus, the combination with a support provided with tangential arms, of a card loosely mounted thereon, a slide, a guide therefor, and parallel members connecting said card and slide, substantially as described.

22. In drafting apparatus, the combination with a loosely-mounted card, of a support therefor capable of rotation with respect thereto and provided with tangential arms having means to receive a rule, and means independent of the support for preventing rotation of the card.

23. In drafting apparatus, the combination with a disk having tangential arms and a spindle at its center, of a card loosely mounted on this spindle, and means independent of the disk for preventing rotation of the card.

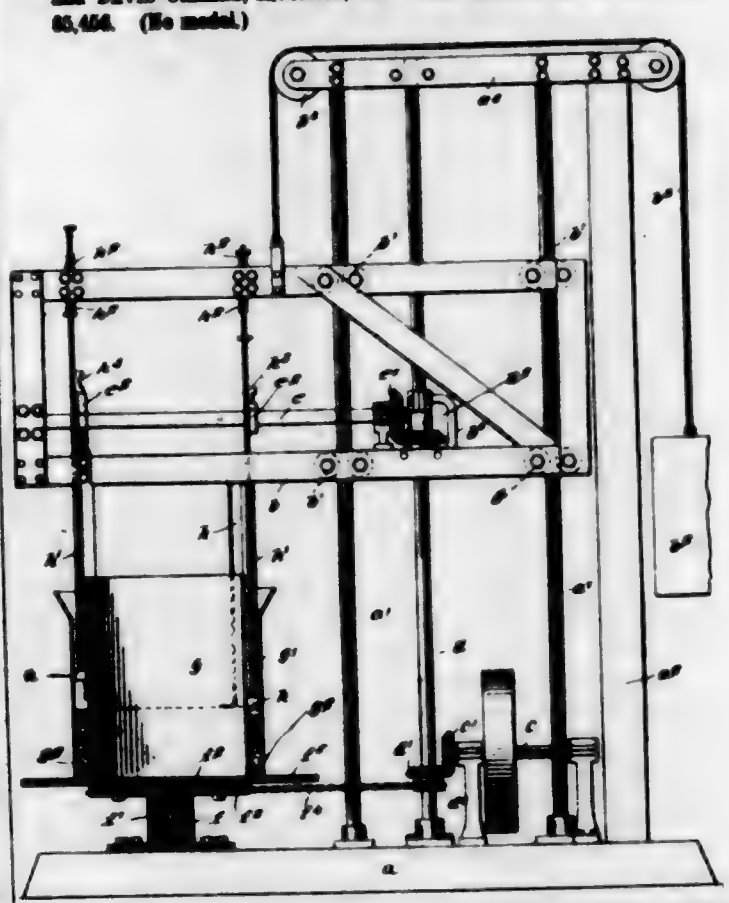
24. In drafting apparatus, the combination with a disk having tangential arms provided with means to receive the rule, and having a spindle at its center, a card loosely mounted on said spindle, and means for preventing the rotation of the card.

25. In drafting apparatus, the combination with a support provided with an arm and a pointer, of a card mounted on said support, a slide, a guide therefor, and parallel members connecting the card and slide.

26. In drafting apparatus, the combination with a card provided with conical pivot-studs, of a slide provided with conical pivot-studs, a guide for said slide, and removable parallel members having conical sockets fitting the pivot-studs of the card and slide, substantially as described.

27. In drafting apparatus, the combination of a table, a guide extending laterally therefrom, a slide guided thereby, a card, and parallel members connecting the card and slide and a support for the card rotatable with respect to the latter, substantially as described.

695,748. MACHINE FOR MAKING PIPE. JOSEPH H. MARTIN and DAVID ORNAUD, Riverside, Cal. Filed June 21, 1901. Serial No. 65,466. (No model.)



Claim.—1. The combination of a mold, a stamp, means carrying and operating the stamp, said means and the mold being relatively movable in parallel planes, and the means carrying the stamp being movable toward and from the mold, and a trailer connected with said means for carrying the stamp and projected into the mold to engage the material molded, for the purpose specified.

2. The combination of a mold, a stamp working therein, means for carrying and driving the stamp, said means being movable toward and from the mold, and a trailer connected with said means and projected into the mold, for the purpose specified.

3. The combination of a movable mold, a stamp working therein, means carrying and operating the stamp, said means being movable toward and from the mold, and a trailer connected with said means and projected into the mold.

4. The combination of an annular revoluble mold, a stamp working therein, means for carrying and driving the stamp, and a trailer attached to said means and extending into the mold to move the stamp-carrying means away from the mold as the volume of the material therein increases.

5. The combination of an annular revoluble mold, a stamp working

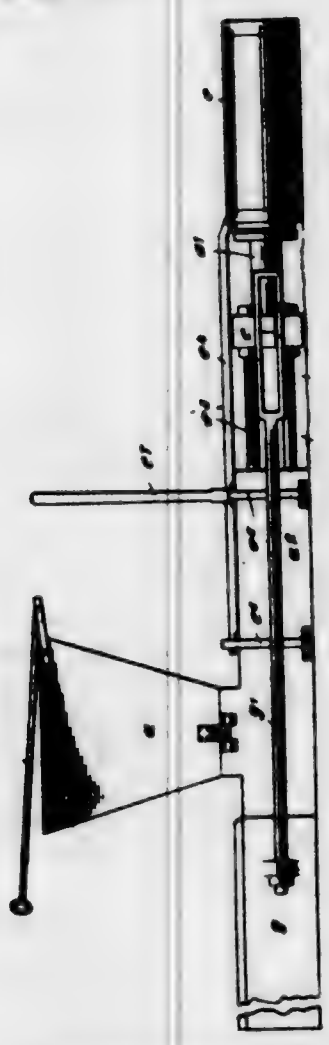
therein, means for carrying and driving the stamp, a leveler carried by the stamp-carrying means and located in advance of the stamp, and a trailer fastened to the stamp-carrying means and extending into the mold behind the stamp.

6. The combination of a revolvable table, a mold mounted thereon, a stamp working in the mold, a frame carrying the stamp, and movable toward and from the mold, and a trailer attached to the frame and extending into the mold.

7. The combination of an annular revolvable mold, a stamp working therein, and a leveler extending into the mold ahead of the stamp.

8. The combination of a movable mold, a stamp working therein, means carrying and operating the stamp, said means being movable toward and from the mold, a counterbalance for said means, and a trailer connected with said means and projecting into the mold.

695,749. MACHINE FOR MAKING PIPE. JOSEPH H MARTIN and DAVID OSBAER, Riverside, Cal. Filed June 21, 1901. Serial No. 65,457. (No model.)



Claim.—1. A machine for making pipe, the machine having a mold comprising a chambered core, a means for forcing the material into and through the mold, and means for circulating a fluid through the chambered core.

2. In a machine for making pipe, a mold comprising portions forming an exterior wall and a core, said core being made up of removably-connected sections, and means for forcing the material into and through the mold.

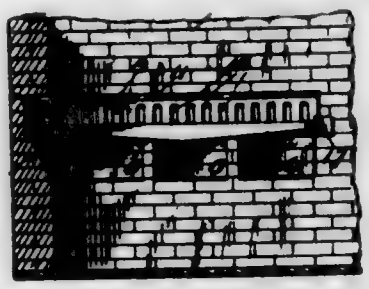
3. In a machine for making pipe, a mold comprising portions forming an exterior wall and a core, an extension removably fastened to the core, said extension having a chamber therein, and means for circulating a fluid through the chamber in the core.

4. A machine for making pipe, having a mold comprising an exterior wall and a core, an extension fastened to the core and having a chamber therein, and fluid-conducting pipes passing through the core and into the chamber of the core extension, for the purpose specified.

5. A machine for making pipe, comprising a casing forming the exterior wall of a mold, a plurality of cores arranged in the casing, a plunger working in the casing and having orifices to receive the cores, and means for driving the plunger.

695,750. FURNACE. ARCHIE J. F. HILLER, Centralia, Ill., assignor of one-half to Charles P. Marshall, Centralia, Ill. Filed June 27, 1901. Serial No. 65,597. (No model.)

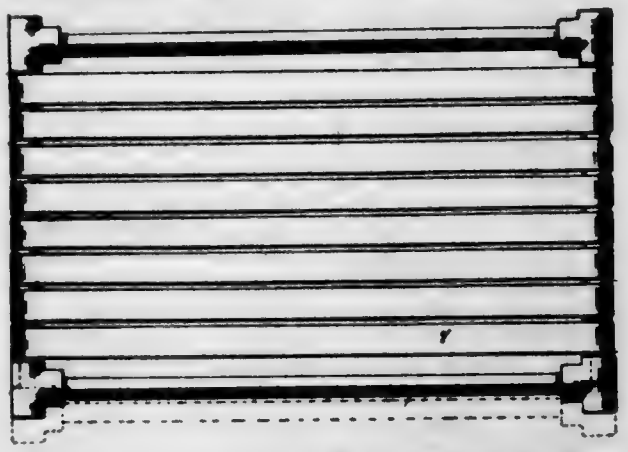
Claim.—The combination, in a furnace, of a furnace-wall having a longitudinal chamber having an inclined base-wall, lugs or supports projecting from said inclined base-wall, and a grate-lining consisting of a strip of metal the vertical side of which is perforated and is provided on its outer face with webs to engage said lugs or supports and provided at its upper edge with an outwardly-projecting flange or ledge having blocks upon its upper surface to engage the top wall of the chamber and form a space between said outwardly-projecting flange and top wall whereby the air passing into said chamber from below, partly escapes through the slots or apertures in said lining and through the space between the flange of the lining and the top wall of the chamber, substantially as set forth.



695,751. PROCESS OF EXTRACTING GUTTA-PERCHA OR THE LIKE FROM LEAVES OR TWIGS CONTAINING IT. GEORGE MITCHELL, Westminster, London, England. Filed July 10, 1901. Serial No. 67,776. (No specimens.)

Claim.—The method of extracting gutta-percha or similar substance from foreign substances, such as leaves or twigs, consisting in mixing the same with carbon bisulfid, and dissolving the gutta-percha, separating the solution from the solid particles of foreign matter, filtering the solution, and then distilling the gutta-percha solution to obtain the gutta-percha; substantially as described.

695,752. BED-SPRING. FREDERICK MOSELE, Sheffield, Iowa. Filed Oct. 25, 1901. Serial No. 79,954. (No model.)



Claim.—1. A bed spring or bottom, comprising a frame, consisting of side rails, corner-castings with which said side rails removably connect, head and foot bars extended from the corner-castings and each bar consisting of two sections movable lengthwise with relation to each other, tubes mounted to rotate on said head and foot bars, spring-plates extending around said tubes, and helical-spring connections between the ends of said spring-plates, substantially as specified.

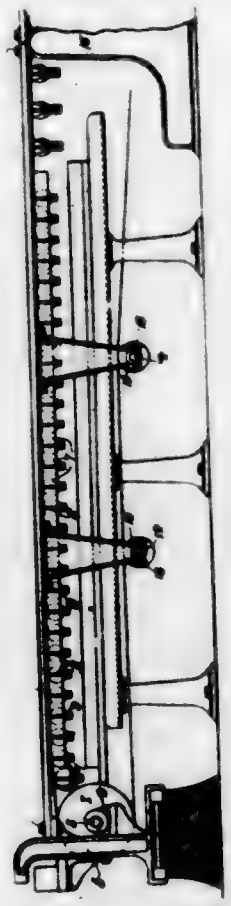
2. A bed spring or bottom, comprising a frame consisting of side rails, corner-castings with which said side rails connect, head and foot bars extended from the corner-castings, each bar consisting of two sections movable lengthwise with relation to each other, tubes mounted to rotate on said head and foot bars, spring-plates extending around said tubes, and yielding connections between the ends of said spring-plates substantially as specified.

695,758. FOURDRINIER PAPER-MAKING MACHINE. JOHN W. HOGUE and JOSEPH A. WHITE, Philadelphia, Pa. Filed July 19, 1897. Serial No. 645,157. (No model.)

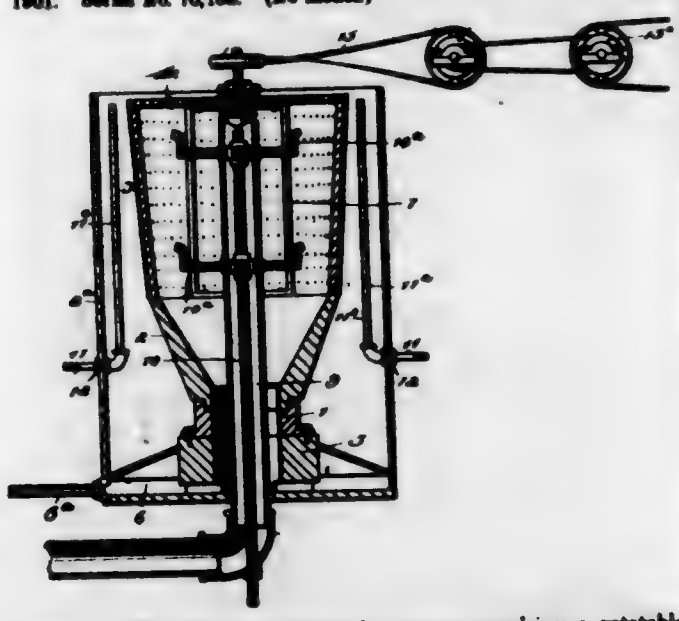
Claim.—1. The combination in a Fourdrinier paper-making machine, of a shake-frame connected at one end by vertical pivots to a fixed frame and supported at the opposite end so as to be free to vibrate in a horizontal plane, said shake-frame consisting of an end frame and side rails together with supporting-rollers carried by the side rails, return-rollers and bearings therefor depending from the shake-frame, and a breast-roll having its bearings on the end frame, substantially as described.

2. The combination in a paper-making machine of a shake-frame

having an end frame and side bars, the said end frame being pivoted to the side bars, and the side bars in turn being pivoted to the fixed frame of the machine by vertical pivots, thereby allowing said bars to vibrate freely in a horizontal plane, a breast-roll carried by the end frame, and supported rolls for the wire, and guide-rolls for the return run of the wire, all carried by the shake-frame, and means for vibrating the shake-frame, substantially as described.



695,754. PULP-SCREEN. ORVILLE H. MOORE, Sandyhill, N. Y., assignor of one-half to E. G. Murphy, Sandyhill, N. Y. Filed July 20, 1901. Serial No. 70,132. (No model.)



Claim.—1. A pulp or paper-stock screen, comprising a rotatable screen proper, having a lower end portion or head, provided with a downwardly-tapered chamber, a tubular support for said lower end portion, a corresponding bearing for said support, and a base-chamber surrounding said bearing, said tapered chambered lower end portion precipitating the discharge of the coarse material from said screen, and said support, bearing, and base-chamber forming a continuation of the discharge-passage thus formed by said head or lower end portion, substantially as set forth.

2. In a device of the character described, the combination of a casing or cylinder, a screen, rotatably mounted interiorly of said casing, a paper-stock or pulp pipe extending up interiorly of said screen, a water-pipe having delivery arms or nozzles connected thereto, and a base-chamber, communicating with the interior of said screen and a discharging-pipe connecting with said base-chamber, substantially as set forth.

3. In a device of the character described, the combination of a rotary screen, an inclosing cylinder or casing therefor, a pulp-delivery pipe and a water-delivery pipe arranged concentrically of said screen, and a pipe extended through the wall of said casing and having an upstanding arm, between said screen and casing, provided with a series of laterally-discharging apertures, substantially as set forth.

4. In a device of the character described, the combination of a rotary screen, an inclosing casing therefor, a pulp-delivery pipe and a water-delivery pipe arranged concentrically of said screen, and a series of pipes arranged at certain intervals apart and extending through the wall of said casing, said pipes having inside of said casing upstanding arms provided with laterally-discharging apertures, substantially as set forth.

5. In a device of the character described, the combination of a rotary screen, interiorly pulp-delivering pipes, exteriorly water-supplying pipes, and a variable-speed mechanism for said screen to provide for holding the refuse in suspension in the water in the screen a greater or less length of time according to circumstances, substantially as set forth.

6. In a device of the character described, the combination of a rotary screen, means or medium arranged concentrically within said screen for delivering the pulp interiorly of said screen, means arranged within the pulp delivering medium for delivering water laterally or radially upon the screen contents or pulp, substantially as set forth.

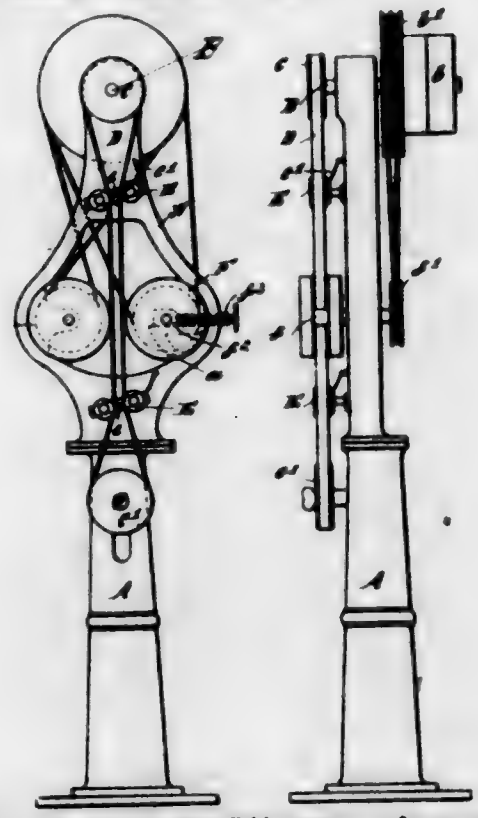
7. In a device of the character described, the combination of a rotary screen, a pulp-delivery pipe arranged concentrically of said screen, and a water-delivery pipe also similarly arranged in said screen, and adapted to deliver the water laterally or radially upon the screen contents or pulp, substantially as set forth.

8. In a device of the character described, the combination of a rotary screen, a pulp-delivery pipe extending upwardly and concentrically of said screen, and discharging at the upper end thereof, and a water-delivery pipe also extending upwardly and concentrically of said screen, and delivering the water laterally or radially upon the screen contents or pulp substantially as set forth.

9. In a device of the character described, the combination of a rotary screen, a pulp-delivering pipe arranged concentrically within said screen, means or medium arranged in said pipe for forcing the screen contents or pulp radially or laterally upon the interior of said screen and therethrough, and a water-pipe adapted to deliver the water upon the exterior of said screen, substantially as set forth.

10. In a device of the character described, the combination of a rotary screen, means arranged concentrically within said screen for delivering the pulp interiorly of said screen, means or medium arranged within the pulp-delivering medium for forcing said pulp radially upon the interior of the screen and therethrough, and means for transmitting a variable speed to said screen for holding said pulp a greater or less time in suspension within said screen, substantially as set forth.

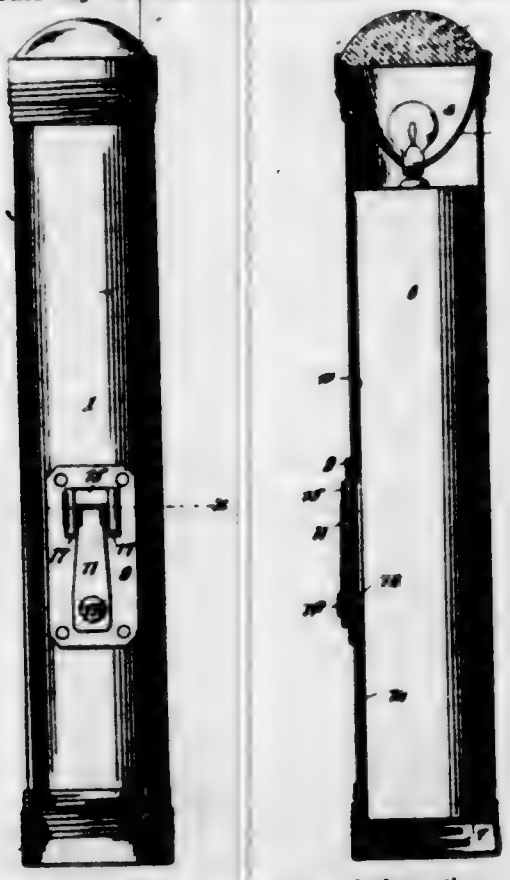
695,755. APPARATUS FOR CLEANING OR POLISHING SIPHONS. SIDNEY MUSCHTON, Bournemouth England. Filed Apr. 26, 1901. Serial No. 57,488. (No model.)



Claim.—In apparatus for polishing siphons, a frame carrying an endless polishing-band passing over suitable pulleys, and two double polish-

ing-disks placed on each side of the band at about the middle, substantially as and for the purposes specified.

695,756. ELECTRIC LAMP. WILLIAM MCCONNELL, Brooklyn, N. Y. Filed July 12, 1901. Serial No. 67,997. (No model.)



Claim.—An electric lamp, comprising a body portion, an electric coil arranged therein, a lamp in connection with one pole of the coil, a spring-plate on the body in electrical connection with the other pole of the coil, a keeper-plate mounted to slide on the body for engaging with the spring-plate, and an electrical connection between the keeper and lamp, the said spring-plate being adapted to close the circuit independently of the keeper, substantially as specified.

695,757. RAKING DEVICE FOR FURNACE-GRATES. JAMES C. MCDONALD and MICHAEL BRENNAN, Sidney, N. Y. Filed Oct. 27, 1900. Serial No. 34,637. (No model.)



Claim.—1. A raking device for furnace-grates, comprising a raking-frame normally located under the grate and provided with spaced bars adapted to pass between the grate-bars, a revoluble crank-shaft with which one end of the raking-frame is connected, and means for supporting the other end of the said frame to permit it to have an up-and-down movement, whereby when the crank-shaft is operated the raking-frame will have an up-and-down swinging and lengthwise-traveling motion imparted to it, as set forth.

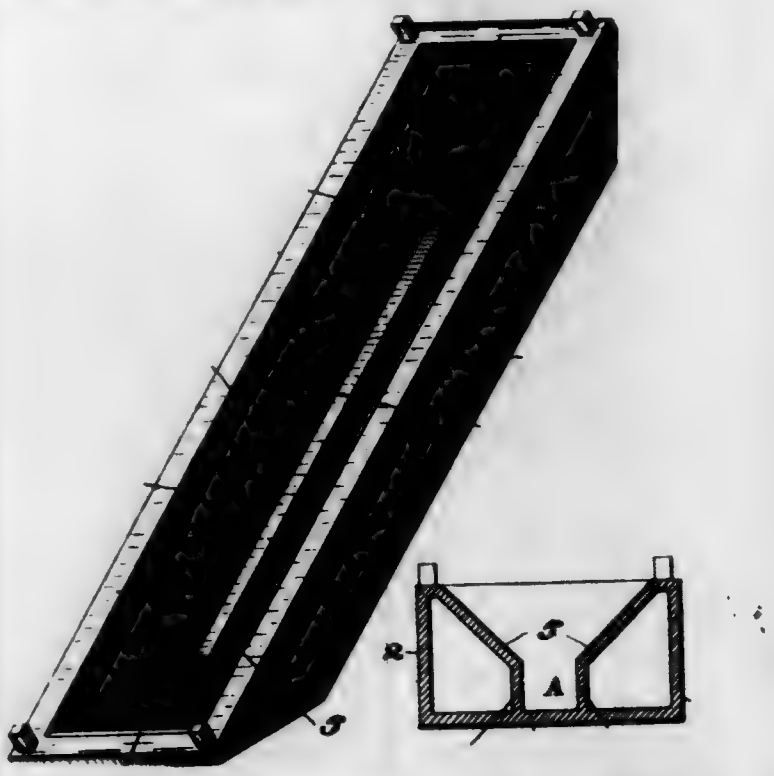
2. A raking device for furnace-grates, comprising a raking-frame normally below the grate, an incline below the grate and on which one end of the frame is mounted to travel, and a revoluble crank-shaft connected with the other end of said frame, to impart motion to the latter, as set forth.

3. A raking device for furnace-grates, comprising a raking-frame normally located under the grate, and provided with longitudinally-extending and spaced bars adapted to pass up between the bars of the grate, an incline below the grate and on which one end of said frame is mounted to travel, and a crank-shaft revolubly mounted and connected with the other end of the frame, to impart a reciprocating motion thereto, as set forth.

4. A raking device for furnace-grates, comprising a raking-frame normally below the grate, consisting of a plurality of spaced longitudinally-extending bars having notches at the top edges, and cross-rods for connecting the said longitudinal bars with each other at the front and rear ends, inclines below the grate and on which the rear cross-bar is mounted to travel, and a revoluble crank-shaft mounted to rotate and journaled in the sides of the furnace, said crank-shaft being pivotally connected at its cranks with the cross-rod at the front end of said raking-frame as set forth.

5. A raking device for furnace-grates, comprising a raking-frame normally below the grate, an incline below the grate and on which one end of the frame is mounted to travel, a revoluble crank-shaft connected with the other end of said frame, to impart motion to the latter, and an engine connected with the crank-shaft for operating the same, as set forth.

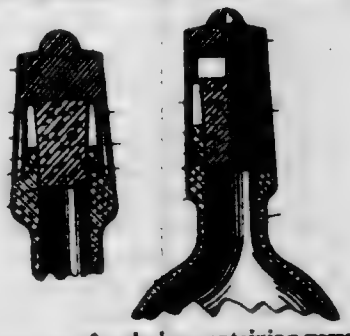
695,758. BOAT. WILLIAM C. MCELHENY, Pittsburg, Pa. Filed Dec. 4, 1901. Serial No. 84,688. (No model.)



Claim.—1. The combination with an open flat-bottomed boat having external vertical sides and inclined ends, of supplemental internal side walls inclining toward the bottom and thence extending vertically to said bottom, said walls forming one continuous passage or receptacle from one end of the boat to the other.

2. The combination with an open flat-bottomed boat having external vertical sides and inclined ends, of supplemental internal side walls inclining from the upper edge toward the bottom and thence extending vertically to said bottom, said walls forming one continuous passage or receptacle from one end of the boat to the other.

695,759. CLOSING CONTAINING VESSEL. THOMAS T. MCILHENY, Allegheny, Pa. Filed Jan. 2, 1902. Serial No. 88,237. (No model.)



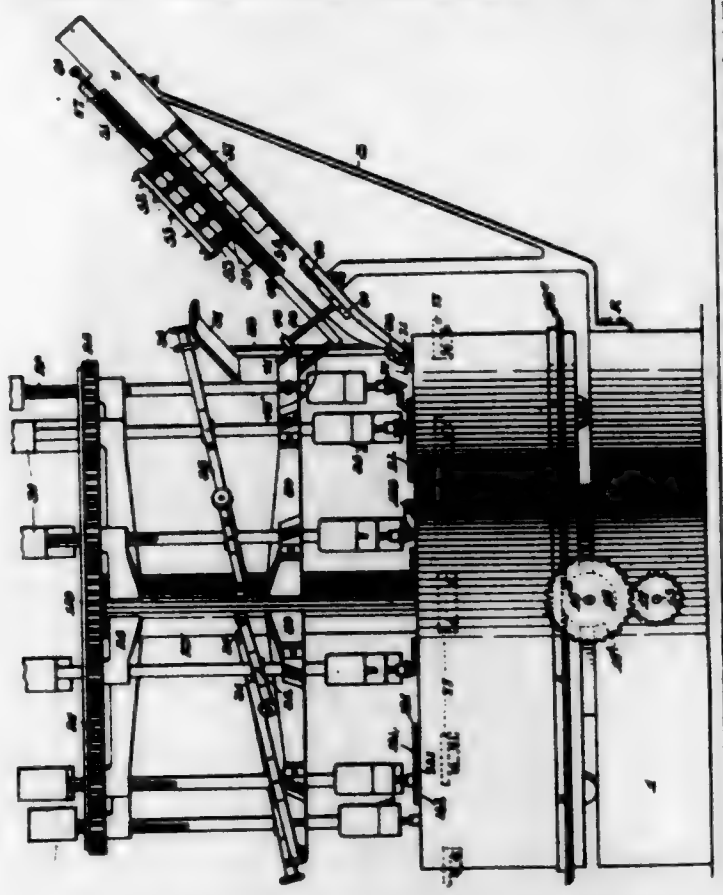
Claim.—1. As a means for closing containing vessels, such as bottles, boxes, &c., a cap formed of frangible material and having its side wall slit longitudinally to form a series of resilient fingers closely adjacent to each other and provided with inwardly-projecting shoulders adjacent to their lower ends, substantially as set forth.

2. As a means for closing containing vessels, such as bottles, boxes, &c., a cap formed of frangible material and having its side walls longitudinally slit to form a series of resilient fingers provided with inwardly-projecting shoulders adjacent to their lower ends in combination with a certain or inclosed wall independent of and outside of the fingers and integral with the cap, substantially as set forth.

3. The combination of a containing vessel, such as a bottle, box, &c., provided with a locking-rib with a cap formed of frangible material having its side wall longitudinally slit to form a series of resilient fingers

closely adjacent to each other and provided with inwardly-projecting shoulders adjacent to their lower ends, and a curtain or inclosed wall outside of the fingers and integral with the cap, substantially as set forth.

695,760. NUT-TAPPING MACHINE. MICHAEL R. NOLAN, Mount Oliver, Pa. Filed June 4, 1901. Serial No. 63,071. (No model.)



Claim.—1. In a nut-tapping machine, a base, a rotatable table having pockets, a rotatable frame, a series of radial arms carried by the frame having cam-faces on their outer ends, a rod carrying a tap slidably mounted in each of said arms, means for rotating the rods, means for elevating the rods, an inclined hopper and chute carried by the base, means operating in the chute for feeding the blank nuts to said pockets carried by the table, and means actuated by said cam-faces and connected to said last-named means for feeding the blanks, substantially as described.

2. In a nut-tapping machine, a base, a rotatable table, a rotatable frame, rods carried by the frame, means for elevating said rods, means for rotating the rods, a tap removably secured in said rods, means for releasing the tap, means for engaging said tap when released, means actuated by the table for elevating said means engaging the tap, means carried by the table for removing the nuts after the same have been tapped, means carried by the base for actuating said last-named means, means for feeding the nuts, and arms having cam-faces carried by the frame for actuating said means, substantially as described.

3. In a nut-tapping machine, a base carrying a hollow cylinder, a rotatable table, a rotatable frame, rods vertically movable carried by the frame, means for elevating said rods at one point in their revolution, means for rotating said rods, a tap removably mounted on said rods, means carried by the table for releasing said tap, means actuated by the frame for elevating said taps, and means actuated by the hollow cylinder for removing the nuts after the same been tapped, substantially as described.

4. In a nut-tapping machine, a base, a rotatable table, a rotatable frame, rods carrying weights at their upper ends carried by the frame, a stationary cam-face for elevating said rods, means for rotating said rods, spring-pressed means for removably securing a tap to the rods, means carried by the table for actuating said means to release the tap, means actuated by the table for elevating said tap, spring-pressed means for removing the nut after the same has been tapped, and means carried by the base for actuating said means, substantially as described.

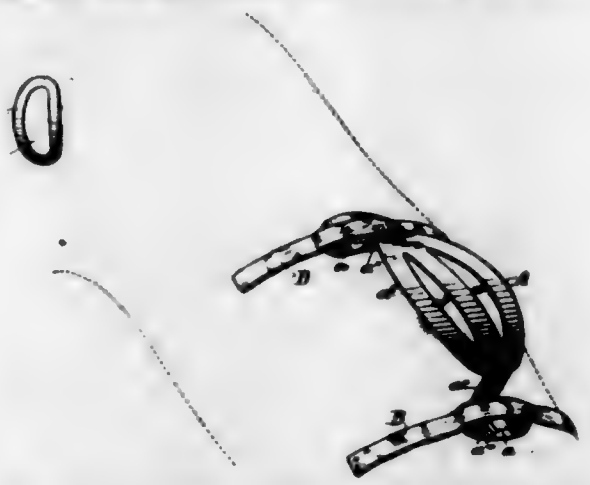
5. In a nut-tapping machine, the combination with the base, the rotatable frame and table, of a series of rods carrying taps mounted in the frame, means for rotating the rods, means for releasing the taps, plungers engaging the taps when the same are released, levers pivotally mounted on the base, and arms carried by the table and rotating therewith for actuating said levers and elevating said plunger, substantially as described.

6. In a nut-tapping machine, a base, a rotatable frame, a rotatable table, rods carried by the frame, means for rotating said rods, means for elevating said rods, said table carrying a series of oil-pockets having partitions therein with a tube carried by the partitions, a tap removably secured to the rods, means for releasing said tap to permit the same to descend into said tube, means operating in the pocket to engage said tap, means for elevating said last-named means, and means actuated by the table for operating said means, substantially as described.

7. In a nut-tapping machine, a base carrying a cylinder having a cut-away portion, a rotatable table and frame, a series of rods carrying taps mounted in said frame, means for rotating the rods, said table having pockets, for the reception of the blank nuts, a series of spring-pressed levers actuated by said cut-away portion of the cylinder, fingers connected to said spring-pressed levers extending into said pockets and engaging the blanks for removing the same after they have been tapped, substantially as described.

8. In a nut-tapping machine, a base carrying a cylinder, a rotatable table and frame, a series of rods carrying taps mounted in the frame, means for rotating and elevating the rods, a yoke secured to the rotatable table for releasing said taps, said table having pockets, spring-pressed fingers extending into said pocket for engagement with the blanks and operated by said cylinder, a plunger beneath said pockets for engagement with the tap when released, a lever engaging said plunger and means actuated by the table for engagement with said lever to elevate said plunger and tap, substantially as described.

695,761. VACCINATION-SHIELD. JESSE C. PEACOCK, Philadelphia, Pa. Filed Dec. 2, 1901. Serial No. 84,348. (No model.)



Claim.—1. A vaccination-shield having laterally-extending feet with contact-surfaces of relatively limited area, the said feet being constructed to receive devices for holding the shield in position, said shield having a bridge-section supported above the feet, with substantially vertical leg-sections connecting said feet and the bridge-section, substantially as described.

2. A vaccination-shield consisting of an elongated bridge-section, substantially vertical legs depending from the ends thereof and feet on said legs, said feet having a relatively limited area of contact-surface and being curved to conform to the surface of a portion of the human body, substantially as described.

3. A vaccination-shield having a bridge-section of elongated form, substantially vertical legs depending from the ends of said bridge-section and having a limited area of bearing-surface extending substantially at right angles to said legs, said bridge-section being arched, substantially as described.

4. A vaccination-shield having an elongated arched bridge-section, said section being provided with perforations, a leg depending from each end of said section and a foot at the lower end of each leg, with means for retaining said shield in position, substantially as described.

5. A vaccination-shield having an elongated arched bridge-section, said section being provided with perforations, a leg depending from each end of said section and a foot at the lower end of each leg, said feet being of relatively limited area and having their ends curved downwardly whereby they are made to conform to the surface of a portion of the human body, substantially as described.

6. A vaccination-shield having an elongated bridge-section provided with elongated longitudinal slots, substantially vertical legs depending from the ends of said section and elongated feet attached to said legs extending at right angles to the length of the bridge-section, substantially as described.

7. A vaccination-shield having an elongated bridge-section provided with elongated slots, substantially vertical legs depending from the ends of said section and elongated feet attached to said legs extending at right angles to the length of the bridge-section, the ends of said feet being bent downwardly whereby they are made to conform to the shape of the human limb to which they are applied, substantially as described.

8. A vaccination-shield having laterally-extending feet of relatively

limited superficial area, the same being of comparatively thin material so that they may receive retaining-bands without causing the same to be projected materially above the surface of the limb to which the shield is applied, a bridge-section supported above the level of said feet, and substantially vertical legs connecting the feet with said bridge-section, the shield being open at the sides and thereby allowing free access to a wound under the same, substantially as described.

9. A vaccination-shield having feet and a bridge-section connected to the same, said bridge-section being held at a distance above the level of the feet and open at the side thereof allowing free access to a wound under said shield, said feet being of relatively thin material and extending laterally so as to permit of the application of retaining-bands of adhesive material without raising the said material above the level of the surface of the limb to which the shield is applied, substantially as described.

695,762. PROCESS OF PURIFYING ALUMINOUS ORES. DMITRY A. PIHLAKOFF, Brussels, Belgium. Filed Nov. 17, 1900. Serial No. 36,594. (No specimens.)

Claim.—1. In the treatment of ferro-aluminous ores, such as bauxites, the process which consists in converting the iron compounds therein into sulfids and then extracting the iron sulfid thus formed with an acid capable of attacking the iron sulfid.

2. In the art of treatment of ferro-aluminous ores, the process which consists in subjecting such ores to a current of hydrogen sulfid and then extracting the iron by an acid capable of attacking the iron sulfid.

3. In the treatment of ferro-aluminous ores, the process which consists in converting the iron compounds contained therein into iron sulfid, then subjecting the resultant product to an acid which converts the sulfid into a soluble iron compound.

4. In the treatment of ferro-aluminous ores, the process which consists in converting the iron compounds contained therein into iron sulfid, then subjecting the resultant product to an acid which converts the sulfid into a soluble iron compound, and finally washing the mass thus obtained for the purpose of dissolving out the iron salt from the alumina.

5. The process which consists in treating a product containing aluminium and iron sulfid with an acid capable of converting the iron sulfid to a soluble iron compound.

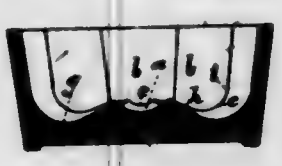
6. The process of treating a sulfurized iron aluminium ore with sulfurous acid, substantially as set forth.

7. The process of treating a sulfurized iron aluminium compound with sulfurous acid, then dissolving out the resultant hyposulfite of iron and finally recovering the sulfur in the hyposulfite of iron by converting the latter into an alkaline hyposulfite.

8. The process of treating iron aluminous ores, which consists in first converting the iron compounds of the same into iron sulfid, then treating the resultant mass with sulfurous acid, then washing the same for the purpose of dissolving out the hyposulfite of iron.

9. The process of treating iron aluminous ores, which consists in first converting the iron compounds of the same into iron sulfid, then treating the resultant mass with sulfurous acid, then washing the same for the purpose of dissolving out the hyposulfite of iron, and, finally, recovering the sulfur introduced in the above reactions by converting the hyposulfite of iron into alkaline hyposulfite.

695,763. TRINKET-BOX. ADAMS P. PRENTISS, Chicago, Ill. Filed Aug. 23, 1901. Serial No. 73,594. (No model.)



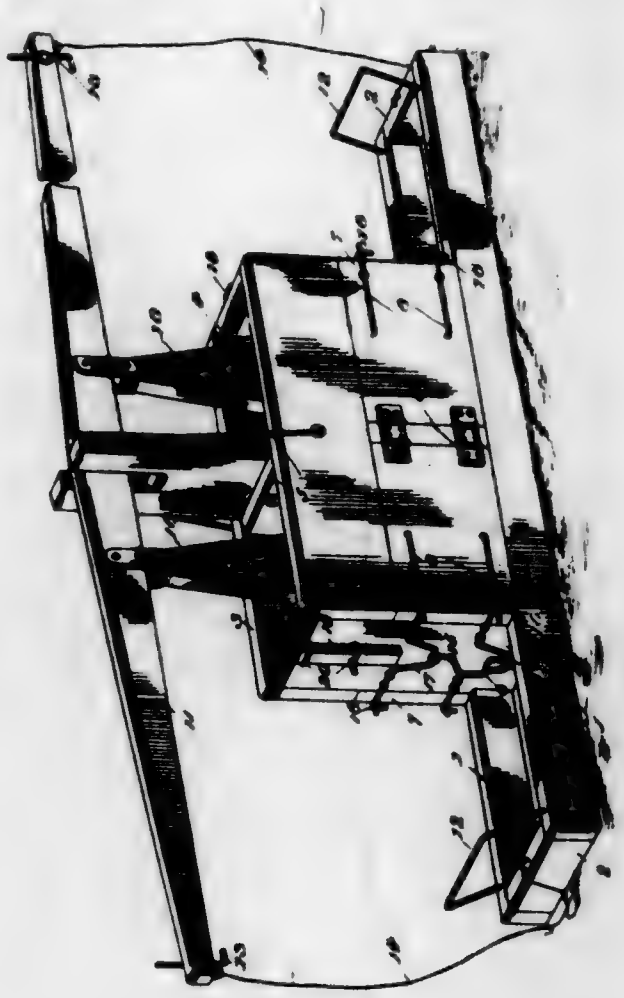
Claim.—A trinket-box having its inner bottom part provided with a central concavity and alternating depressions and ridges converging toward said central concavity and their inner ends forming the border-line of said central concavity, as and for the purpose substantially as set forth and described

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695,764. HAY-PRESS. ELIAS B. RAHAGE and RICHARD O. SLAUGHTER, Fivepointe, Ala. Filed Dec. 26, 1901. Serial No. 87,263. (No model.)

Claim.—In a press, a baling-chamber, doors closing opposite sides of said baling-chamber, a series of rocking rods or bars having their end portions bent to engage with both doors and hold them closed, each rocking bar or rod having a crank portion, and a tie-rod connecting the crank portions of the rocking rods or bars and provided with a handle whereby said rods or bars are simultaneously locked, substantially as set forth.

695,764.



695,765. PLUMPING AND TANNING PROCESS. SIGMUND SAXE, New York, N. Y. Filed Jan. 9, 1902. Serial No. 88,073. (No specimens.)

Claim.—1. The process herein described, of plumping and tanning hides, which consists in subjecting said hides to the action of a double solution containing commercial lactic acid and also a commercial tanning extract.

2. The process herein described, of plumping and tanning hides, which consists in subjecting said hides to the successive action of progressively-stronger solutions containing a commercial tanning extract and commercial lactic acid.

3. The process herein described of plumping and tanning hides, which consists in subjecting said hides to the action of a solution containing artificially-prepared commercial lactic acid and a commercial vegetable tanning extract.

4. The process herein described of plumping and tanning hides, which consists in subjecting said hides to the action of a double solution containing commercial lactic acid and a tanning liquor, said tanning liquor containing an active agent made partly from leaching bark and partly from adding a commercial vegetable tanning extract.

5. The process herein described, of plumping and tanning hides, which consists in forming a tanning solution by leaching natural bark in water, adding to said solution a quantity of an artificially-prepared tanning extract and also a quantity of commercial lactic acid, and then subjecting the hides to the action of the liquor thus prepared.

6. The process herein described, of plumping and tanning hides, which consists in subjecting said hides to the action of a solution made by leaching natural tan-bark in water, adding to the fluid thus produced a quantity of commercial tanning extract commensurate with the weakness of said fluid, and finally adding commercial lactic acid in an arbitrary proportion commensurate with the weight of said hides.

7. The process herein described, of plumping and tanning hides, which consists in subjecting said hides first to weak and then to progressively-stronger solutions, containing both a commercial tanning extract and an extract of natural bark, and also containing commercial lactic acid.

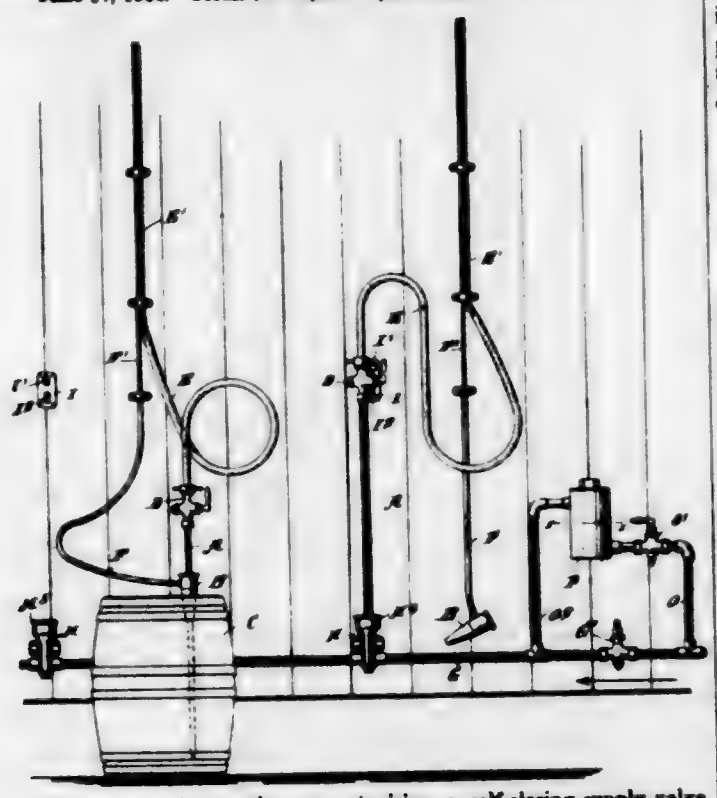
695,766. WASHBOILER ATTACHMENT. MARY C. SHUMMONS, Laporte, Ind. Filed Apr. 12, 1901. Serial No. 55,669. (No model.)

Claim.—A washboiler attachment comprising a plurality of members made up of pairs of rigid plates hinged together and adapted to be located one above the other for the purpose of supporting clothes, said

plates being suspended by books of different lengths, said books normally engaging the rim of the boiler, and a frame mounted upon the rim of the boiler and provided with depending hooks for engaging said hooks of different lengths, the arrangement being such that said rigid plates successively fold toward each other and exert pressure upon the clothes as said members are successively raised and suspended.



695,767. PIPE-CLEANER. JOHN L. STEVIS, Chicago, Ill. Filed June 17, 1901. Serial No. 64,867. (No model.)



Claim.—1. A pipe-cleaner, comprising a self-closing supply-valve connected with the supply of a cleansing liquid under pressure, the valve being arranged to receive the tapping-tube which, when forced downward, opens the valve and connects the supply with the tapping-tube, so that the cleansing liquid flows through the tapping-tube and the parts connected therewith and means whereby the tapping-tube will be held in position to hold the valve open, as set forth.

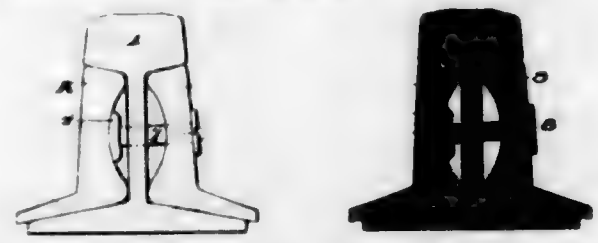
2. A pipe-cleaner, comprising a self-closing supply-valve connected with the supply of a cleansing liquid under pressure, a tapping-tube having a manually-controlled valve and adapted to engage the said supply-valve to open the same, and means for holding the said tapping-tube in position in the supply-valve to hold the latter open, as set forth

3. A pipe-cleaner, comprising a self-closing supply-valve connected with the supply of a cleansing liquid under pressure, a tapping-tube for engaging and opening the said supply-valve, and a hanger for the said tapping-tube and arranged to move the latter downward on engaging the tapping-tube with the hanger, as set forth.

4. A pipe-cleaner, having a supply-pipe connected with the supply of a cleansing liquid under pressure, a valve-body connected with the said pipe and having a valve-seat, a spring-pressed valve held normally on the said seat, a tapping-tube adapted to engage the said valve-body to move the said valve off its seat to allow the cleansing liquid to flow from the pipe through the valve-seat into the tapping-tube and a hanger with which the tapping-tube engages to hold the valve open, as set forth.

5. A pipe-cleaner, comprising a self-closing supply-valve connected with the supply of a cleansing liquid under pressure, a tapping-tube for engaging and opening the said supply-valve, a valve in the tube, a forked hanger between the members of which the valve of the tapping-tube passes to move the latter downward and open the valve, and means for rendering the said tapping-tube water-tight when inserted into the valve-body, as set forth.

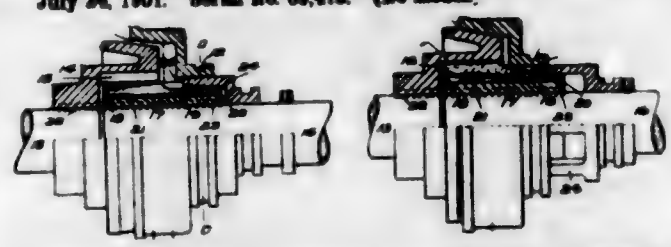
695,768. RAIL-JOINT. ORBET M. STEWART, Pittsburg, Pa. Filed Aug. 3, 1901. Serial No. 70,733. (No model.)



Claim.—1. In a rail-joint, the combination with the rails of fish-plates, a rectangular locking-plate rigidly secured to the inner face of one of said fish-plates, a series of extensions rectangular in cross-section secured to said locking-plate, the ends of said extensions being split and extending through apertures provided therefor in the other of said fish-plates and bent in opposite directions to engage the outer face thereof, substantially as described.

2. In a rail-joint, the combination with the rails of fish-plates, a locking-plate removably secured to the inner face of one of said fish-plates, a series of extensions formed integral with said locking-plate and extending at an angle through the web of the rail and the other of said fish-plates, the ends of said extensions being split and bent in opposite directions to engage the outer face of said second-named fish-plate, and spikes engaging said fish-plates and the ties, substantially as described.

695,769. CLUTCH. JOHN TURNBULL, Dundee, Scotland. Filed July 24, 1901. Serial No. 69,475. (No model.)



Claim.—1. A clutch, comprising an outer member provided with recesses on its inner peripheral surface, an inner member fitting in the outer member and provided with spring-pressed fingers engaging the recesses of the outer member, and means for disengaging the fingers from the said recesses, as set forth.

2. A clutch, comprising an outer member provided with recesses on its inner peripheral surface, a recessed inner member fitting in the outer member and provided with pivoted and spring-pressed fingers in the recesses thereof and engaging the recesses of the said outer member, and means for disengaging the fingers from the recesses of the outer member, as set forth.

3. A clutch, comprising an outer member provided with recesses on its inner peripheral surface, an inner member fitting in the outer member and provided with spring-pressed fingers engaging the recesses of the said outer member, and a sliding member embracing the fingers of the inner member, as and for the purpose set forth.

4. A clutch, comprising two cones sliding one upon the other, one of the cones being chambered and provided with grooves in the peripheral wall thereof, a head fitting in the chamber of the cone and provided with spring-pressed fingers engaging the grooves of said chamber, and means for disengaging the fingers from the recesses, as set forth.

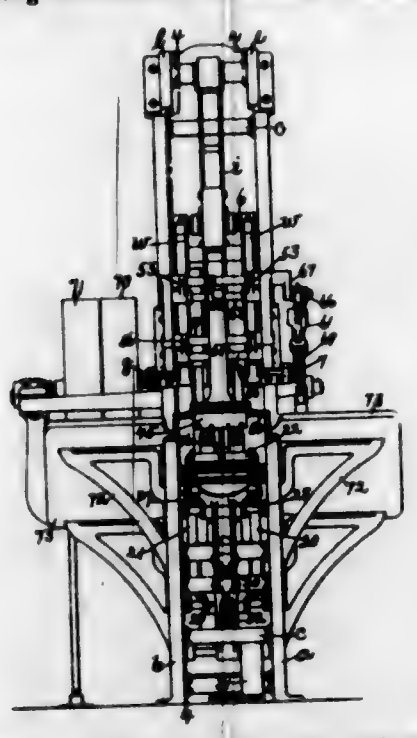
5. A clutch, comprising two cones sliding one upon the other, one of the cones being chambered and provided with grooves in the peripheral wall thereof, a head fitting in the chamber of the cone and provided with spring-pressed fingers engaging the grooves of the said chamber, and a sliding ring embracing the fingers of the said head, as set forth.

6. A clutch, comprising two cones fitted to slide one upon the other, one of the cones being chambered and provided with grooves in the peripheral wall thereof, a head fitting in the chamber of the cone and provided with pivoted and spring-pressed fingers engaging the said grooves, and a ring carried by the sliding cone and embracing the fingers of the head, as set forth.

695,770. LEATHER-WORKING MACHINE. CHARLES P. VAUGHN, Peabody, Mass., assignor to Vaughn Machine Company, of West Virginia. Filed Sept. 7, 1901. Serial No. 74,634. (No model.)

Claim.—1. In a machine of the class described, the combination with a pendulum, a head pivoted thereto, a bell-crank pivoted to said head, a tool connected with said bell-crank, a cam-lever pivoted to said head

and connected to said bell-crank to operate said tool, of a reciprocating bed, a connecting rod or bar pivoted to said bed and attached to said head, a rod or bar pivoted to the rod connecting said bed and head and connected with said tool, a supporting-frame upon which said bed reciprocates, a tool carried by said bed and coöperating with the tool movable with said pendulum, bell-crank levers supporting said bed-frame, and means to effect reciprocation of said bed and oscillation of said pendulum, and means for operating said cam-lever, substantially as described.



2. In a machine of the class described, in combination, a pendulum pivoted at its upper end to swing in a substantially vertical plane, a tool-carrier connected to the lower end of said pendulum to be supported thereby and move therewith, a reciprocating bed, means located above said bed for connecting it to said pendulum, and means to effect reciprocation of said bed and oscillation of said pendulum, substantially as described.

3. In a machine of the class described, the combination with a pendulum pivoted at its upper end to swing in a substantially vertical plane, a head or piece pivoted to the lower end of said pendulum, a cam-lever pivoted to said head or piece, a tool-carrier connected to said head or piece to move therewith, means for connecting said tool-carrier with said cam-lever, means to oscillate said pendulum, and means for operating said cam-lever, substantially as described.

4. In a machine of the class described, the combination with a reciprocating bed provided with a table to support the leather, of a flexible support coöperating with said bed and table, and means for holding said flexible support from movement with said bed when the latter is reciprocated, substantially as described.

5. In a machine of the class described, the combination with a reciprocating bed provided with a table to support the leather, a supporting-frame upon which said bed reciprocates, and a flexible support attached to said supporting-frame and coöperating with said reciprocating bed and table to form an extension thereof when said bed is moved in one direction, and means for holding said flexible support from movement with said bed when the latter is reciprocated, substantially as described.

6. In a machine of the class described, the combination with a reciprocating bed provided with a table to support the leather, of a flexible support coöperating with said bed to form an extension thereof when said bed is moved in one direction means for holding said flexible support from movement with said bed when the latter is reciprocated, and means to take up the slack in said flexible support, substantially as described.

7. In a machine of the class described, the combination with a framework comprising side frames, of a reciprocating bed located between said side frames, an inclined supporting-frame for said reciprocating bed, and means pivotally connected with said supporting-frame and with said framework to secure the said inclined supporting-frame from longitudinal movement while permitting said frame to be moved in a direction substantially at right angles to the path of movement of the bed, substantially as described.

8. In a machine of the class described, the combination with a reciprocating bed comprising cross-heads, an adjustable link or rod connecting said cross-heads, a supporting-frame upon which said cross-heads move, a flexible support secured against movement with said bed but in sliding engagement with one of said cross-heads, substantially as described.

9. In a machine of the class described, the combination with a framework, a reciprocating bed, an inclined supporting-frame upon which said bed reciprocates, and means pivotally connected with said framework and with said supporting-frame to restrain said inclined frame from longitudinal movement while permitting it to be moved in a vertical direction, substantially as and for the purpose specified.

10. The combination with a reciprocating bed, of an oscillating lever or pendulum arranged substantially at right angles to the said bed and pivoted at its upper end to swing in a substantially vertical plane, and means located above said bed for connecting it with said lever, substantially as described.

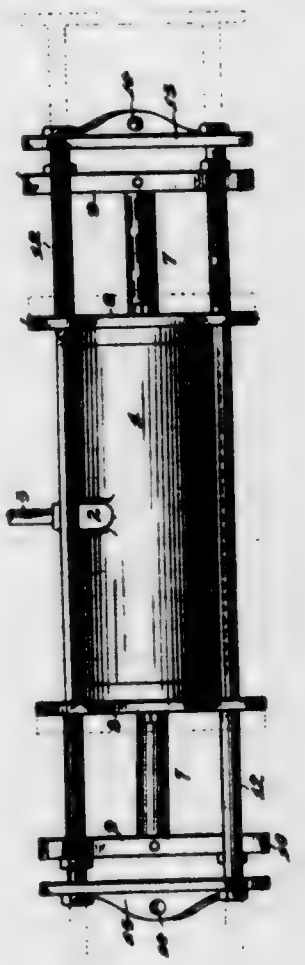
11. In a machine of the class described, the combination with a pendulum, a head pivoted thereto, a tool, a carrier for said tool pivoted to said head, a cam-lever pivoted to said head, means to connect said cam-lever with said tool-carrier, and means to operate said cam-lever, substantially as described.

12. In an apparatus of the class described, the combination with a reciprocating bed or table, of an auxiliary table or support restrained from movement with said bed but in sliding engagement therewith, substantially as described.

13. In an apparatus of the class described, the combination with a reciprocating bed provided with a cross-head having curved surfaces, of a flexible support extended through said cross-head with its upper surface in engagement with one of said curved surfaces, and with its lower surface in engagement with the other of said curved surfaces, substantially as described.

14. The combination with a lever or pendulum having an oscillating and a longitudinal movement, a reciprocating bed movable in a path substantially at right angles to the longitudinal movement of said pendulum, and means for connecting said bed with said pendulum, substantially as described.

695,771. AIR-BRAKE. PHILIP W. VOGT, St. Louis, Mo. Filed Dec. 30, 1901. Serial No. 87,677. (No model.)



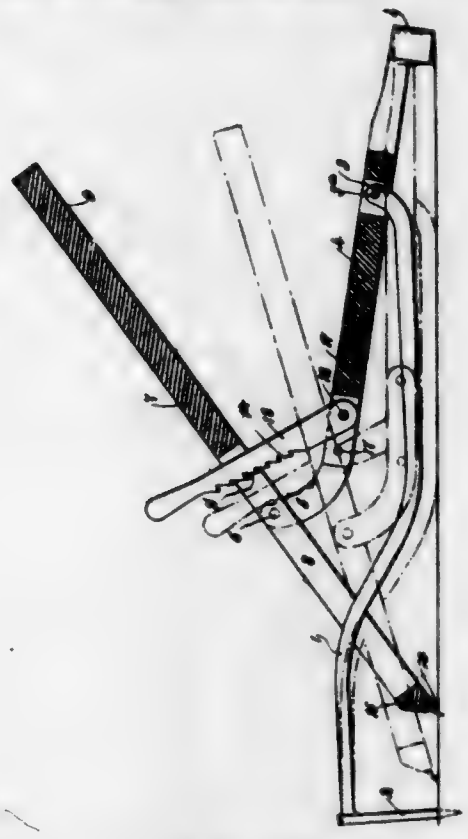
Claim.—1. In an air-brake, a suitable steam or air cylinder having central inlet and outlet openings; pistons mounted in said steam or air cylinder, one on each side of said openings; piston-rods extending from said pistons outwardly through the heads of said cylinder; and means of connecting said piston-rods to the brakes, said connections being crossed so that the brakes are tightened by admitting steam or air between the pistons, and loosened by exhausting steam or air from between the pistons, substantially as specified.

2. A brake-cylinder having a central induction and eduction passage, two pistons mounted in said cylinder and adapted to move simultaneously in opposite directions, connections to which the brake-rods may be attached exterior of said cylinder, piston-rods connected to said pistons, cross-heads connected to said piston-rods, pairs of connecting-rods

secured at one end to said cross-heads, and cross-bars secured to the opposite ends of said connecting-rods, substantially as specified.

3. In an air-brake, a suitable steam or air cylinder having a central induction and eduction passage; two pistons mounted in said cylinder, one on each side of said passage; piston-rods extending outwardly from said pistons through the heads of the cylinder; cross-heads connected to the outer ends of the piston-rods; connecting-rods extending from the cross-heads parallel with the cylinder; and second cross-heads connecting the opposite ends of said connecting-rods and adapted to be attached to the brakes so that the brakes will be tightened by admitting pressure between the pistons, the connections between the said pistons being crossed by said connecting-rods, substantially as specified.

695,772. CARPET-STRETCHER. JOHN WEIKHART, Zanesville, Ohio. Filed Nov. 23, 1901. Serial No. 84,000. (No model.)



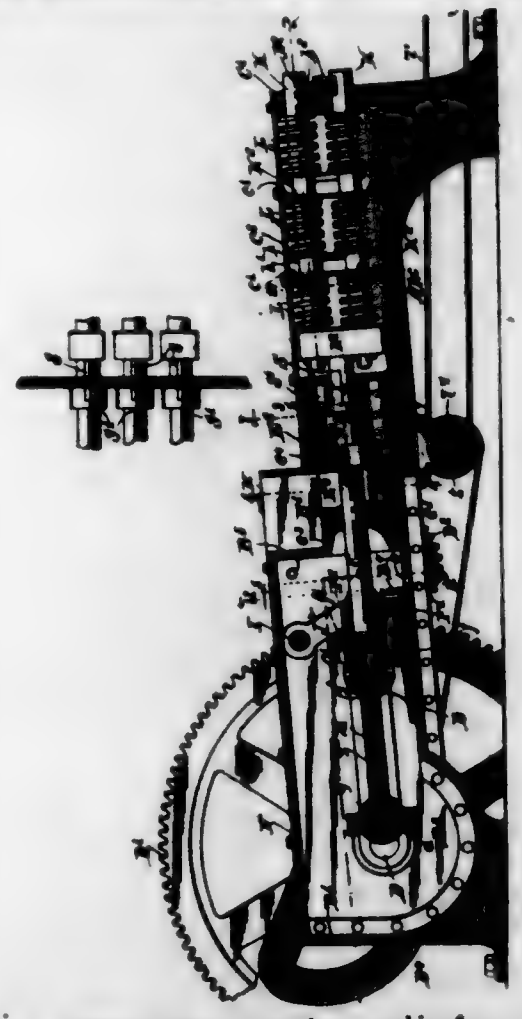
Claim.—1. As an article of manufacture, a carpet-stretcher, comprising a longitudinal member provided at one end with an anchor for engaging the floor and at the other with a bent portion, a T-shaped board provided with a slot in which said longitudinal member is pivoted by means of said bent portion, brackets mounted upon said T-shaped member, a lever provided with a toothed bar and also provided with a longitudinal slot through which said longitudinal member passes, a second lever provided with a rack and pivoted upon said T-shaped board, and a boss upon said first-mentioned lever, for engaging the teeth of said second-mentioned lever.

2. As an article of manufacture, a carpet-stretcher, comprising a T-shaped board provided with a slot, a longitudinal member provided with an anchor for engaging a floor and pivoted within said slot, brackets secured upon said T-shaped board and curved out of alinement with the general plane thereof, a lever pivoted in said brackets and provided with a toothed bar for engaging a carpet, and means for securing said T-shaped board and said lever in predetermined relative positions at will.

3. As an article of manufacture, a carpet-stretcher, comprising a T-shaped board provided with a slot and also provided with upwardly-curved brackets, a longitudinal member provided with a fastening for engaging the floor, said member being bent upward at one of its ends and pivoted at said end to said T-shaped board within the slot in said board, a lever pivoted to said brackets and provided with a toothed bar for engaging the floor, and means for securing said lever and said T-shaped board in predetermined positions at will, the arrangement being such that said lever, said T-shaped member and said longitudinal member are free to assume positions substantially parallel with each other.

695,778. MOLDING-MACHINE. REUBEN C. WHITE, Pittsburg, Pa. Filed June 28, 1901. Serial No. 66,463. (No model.)

Claim.—1. A molding-machine comprising a machine-frame, a mold-plate having reciprocatory motion on the machine-frame and which is provided with a mold-recess, an inclosure confining the material to be molded adjacent to the mold-plate, a reciprocating plunger adapted to enter said mold-recess, and a piston for closing the outer end of the mold-recess, said piston being mounted on the machine-frame and being yieldingly held thereon in operative position by a backing spring or springs.



2. A molding-machine comprising a machine-frame, a mold-plate provided with a plurality of mold-recesses, an inclosure confining the material to be molded adjacent to the mold-plate, a plurality of reciprocating plungers arranged to enter the mold-recesses, and a plurality of pistons for closing the outer ends of the several mold-recesses, said pistons being mounted on the machine-frame and having separate yielding connection with said frame.

3. A molding-machine comprising a machine-frame, a mold-plate provided with mold-recesses, a plurality of plungers arranged to enter said mold-recesses, pistons for closing the outer ends of said mold-recesses, a plurality of rods for supporting the several pistons, said rods having endwise-sliding movement on the machine-frame, and a spring or springs applied between a shoulder or shoulders on each rod, and an opposing bearing surface or surfaces on the machine-frame whereby each piston is yieldingly held in operative position and is adapted to yield independently of the other pistons under the pressure of its opposing plunger.

4. The combination with a machine-frame, of a reciprocatory mold-plate provided with mold-recesses, an inclosure confining the material to be molded adjacent to said mold-plate, a plurality of reciprocating plungers adapted to enter the said mold-recesses, a plurality of pistons for closing the outer ends of said mold-recesses, said pistons having separate endwise-movable connections with the machine-frame, and backing-springs applied between said pistons and the machine-frame.

5. A molding-machine comprising a reciprocating mold-plate provided with mold-recesses, an inclosure confining the material to be molded adjacent to said mold-plate, a reciprocating plunger adapted to enter said mold-recesses, a piston for closing the outer ends of said mold-recesses, backing-springs applied between said pistons and the machine-frame, and means for adjusting the tension of said backing-springs.

6. A molding-machine comprising a reciprocating mold-plate, provided with a mold-recess, an inclosure confining the material to be molded adjacent to said mold-plate, a piston for closing the outer end of said mold-recess, a rod mounted to slide in the machine-frame to which the said piston is attached, a spring or springs interposed between a shoulder or shoulders on said rod and said frame for holding said piston in operative position, and means for adjustably controlling the position in which said rod is held by the action of said spring or springs, whereby the tension of said spring or springs at the time of compression may be varied.

7. A molding machine comprising a reciprocating mold-plate provided with a mold-recess, an inclosure confining the material to be molded adjacent to said mold-plate, a reciprocating plunger adapted to enter said mold-recess, a piston for closing the outer end of said mold-recess, an end-

wise-movable rod for supporting said piston, a spring or springs applied to said rod to hold the piston in its advanced position, means for varying the tension of said spring or springs, and means for varying the position of the working face of said piston with respect to the said rod.

8. A molding-machine comprising a reciprocating mold-plate provided with a mold-recess, an inclosure confining the material to be molded adjacent to the said mold-plate, a reciprocating plunger adapted to enter said mold-recess, a piston for closing the outer end of said mold-recess, a rod mounted to slide in said machine-frame and adapted to support said piston, a spring or springs applied to said rod, means for adjustably limiting the movement of the said rod under the action of said spring or springs, and means for adjusting the position longitudinally of the working face of the piston with respect to the said rod.

9. A molding-machine comprising a reciprocating mold-plate provided with a mold-recess, an inclosure confining the material to be molded adjacent to the mold-plate, a reciprocating plunger adapted to enter said mold-recess, a piston for closing the outer end of said mold-recess, a rod mounted to slide endwise on the machine-frame for supporting said piston, a backing spring or springs applied between said rod and the machine-frame, an adjustable stop on the machine-frame adapted to engage said rod for varying the tension of said spring or springs, and means for varying the position of the working face of the piston with respect to said rod.

10. A molding-machine comprising a reciprocating mold-plate, provided with a mold-recess, a plunger adapted to enter said mold-recess, a piston for closing the outer end of said mold-recess, a rod on which said piston is supported, said rod being mounted to slide endwise on the machine-frame, and being provided with a plurality of bearing-shoulders, and a plurality of springs interposed between said shoulders on the rod and opposing bearing-surfaces on the machine-frame, an adjustable stop on the machine-frame for limiting the forward movement of said rod under the action of said spring or springs, and means for adjusting the position of the working face of the piston with respect to the said rod.

11. A molding-machine comprising a reciprocating mold-plate provided with mold-recess, an inclosure confining the material to be molded adjacent to said mold-plate, a reciprocating plunger adapted to enter said mold-recess, a piston for closing the outer end of said mold-recess, a plurality of rods mounted in the machine-frame, and connected by a cross-head with said piston, and backing-springs applied between shoulders on the several rods and opposing bearing-surfaces on the machine-frame.

12. A molding-machine comprising a mold-plate provided with a mold-recess, an inclosure confining the material to be molded adjacent to said mold-plate, a plunger adapted to enter said mold-recess, a piston for closing the outer end of said mold-recess, said piston having endwise-movable connection with the machine-frame, and a backing spring or springs for said piston, said piston consisting of two relatively adjustable parts and being provided with spacing plates or washers between said parts.

13. A molding-machine comprising a mold-plate provided with mold-recesses, an inclosure confining the material to be molded adjacent to said mold-plate, a plurality of reciprocating plungers adapted to enter said mold-recesses, pistons for closing the outer ends of said mold-recesses, two rods connected with each of said rods by a cross-head, said rods being mounted to slide endwise on the machine-frame, backing-springs interposed between shoulders on the said rods, and opposing shoulders on the machine-frame, a stop-plate attached to the machine-frame between said rods and engaging shoulders on the several rods for limiting their movement under the action of the backing-springs, and spacing plates or shims inserted between said stop-plate and the part of the machine-frame to which it is attached, for adjusting the position of the said stop-plate.

14. A molding-machine comprising a machine-frame, a mold-plate provided with a mold-recess, an inclosure confining the material to be molded adjacent to said mold-plate, a reciprocating plunger adapted to enter the said mold-recess, a piston for closing the outer end of the mold-recess, a rod on which said piston is supported, a hollow casting in which said rod is mounted, said casting being pivotally and adjustably connected with the machine-frame, and a plurality of springs interposed between a shoulder or shoulders on said rod and an opposing surface in said hollow casting.

15. A molding-machine comprising a machine-frame, a mold-plate provided with an inclosure confining the material to be molded adjacent to said mold-plate, a reciprocating plunger adapted to enter said mold-recess, a piston for closing the outer end of said mold-recess, a rod on which said piston is supported, a hollow casting attached to the machine-frame with which said rod has endwise sliding engagement, one or more transverse bearing-plates mounted in the said casting and provided with apertures for the passage of said rod, and coiled backing-springs surrounding the rod, said springs being interposed between shoulders on said rod, the rear end of said casting and said bearing plate or plates.

16. The combination with a machine-frame, of a mold-plate provided with mold-recesses, reciprocating plungers, pistons for closing the outer ends of said mold-recesses, rods supporting said pistons, a hollow casting attached to the machine-frame in which said rods are mounted to slide, said hollow casting having a removable wall and being provided with a rear end wall having apertures for said rods, and with inwardly-projecting ribs forming interior bearing surfaces or shoulders on its top, bottom and side walls, a bearing plate or plates inserted within said casting and bearing against said interior shoulders, bearing-shoulders on the said rods, and coiled springs surrounding the rods and abutting against said end wall and bearing plate or plates and the shoulders on the rods.

17. The combination with a machine-frame, of a mold-plate provided with mold-recesses, reciprocating plungers, pistons for closing the outer ends of the mold-recesses, two rods, located one above the other, and connected with each piston by a cross-head, a hollow casting in which said rods are mounted, said casting being provided with apertures in its end wall through which the ends of said rods project, springs applied between shoulders on said rods and opposing surfaces in said casting, a stop-plate attached to the outer face of said end wall, and arranged to enter notches in the several rods, and plates or shims inserted between said stop-plate and said end wall to adjust the position of said stop-plate.

18. A molding-machine comprising a mold-plate provided with a mold-recess, a reciprocating plunger adapted to enter the mold-recess, a piston for closing the outer end of the mold-recess, a rod supporting the piston, a backing spring or springs applied to said rod, a crank-shaft for giving motion to said plunger, and a machine-frame embracing two longitudinal side plates in which said crank-shaft is mounted, and a hollow casting in which said rod and backing spring or springs are mounted, said casting being inserted between and rigidly attached to said side plates.

19. A molding-machine comprising a mold-plate, a reciprocating plunger, a piston, a rod carrying the piston, a backing spring or springs for said rod, a crank-shaft and a machine-frame embracing two longitudinal side plates in which said crank-shaft is mounted, and a hollow casting in which said rod and its backing spring or springs are mounted, said casting being interposed between the side plates and connected with the same by connecting pins or trunnions engaging apertures in its side wall and in the frame-plates and by clamping-bolts.

20. A molding apparatus comprising a reciprocating mold-box provided with a mold-recess, a reciprocating plunger adapted to pass through the mold-box and to enter the mold-recess, a piston for closing the outer end of the mold-recess, and means for giving reciprocatory motion to said mold-box and to the said plunger constructed to advance the plunger into the mold-recess and to retract the plunger from the mold-recess while the mold-box is stationary, to thereafter simultaneously retract both the plunger and the mold-box, and in the retractive movement, retracting the mold-box more rapidly than the plunger, thereby moving the mold-box with respect to the plunger to eject the contents of the mold-recess, and then continuing the retractive movement of the plunger until the latter is withdrawn from the mold-recess into the cavity of the mold-box.

21. A molding-machine comprising a reciprocating mold-plate provided with a mold-recess, a reciprocating plunger adapted to enter the said mold-recess, a piston for closing the outer end of said mold-recess, a backing spring or springs for the piston, and means for giving reciprocatory motion to the said mold-plate and to the said plunger, constructed to advance the plunger into the mold-recess while the mold-plate is stationary, to compress the material therein, to then retract the mold-plate and plunger at the same rate of speed to relieve the endwise pressure of the piston against the block or briquet within the mold-recess, and to thereafter further retract both the mold-box and plunger while moving said mold-plate relatively to the plunger to eject the finished block or briquet from the said mold-recess.

22. A molding-machine comprising a reciprocating mold-plate, provided with a mold-recess, a reciprocating plunger constructed to enter the said mold-recess, a piston for closing the outer end of the mold-recess, means for giving reciprocatory motion to the said plunger and the said mold-plate, and stationary stops upon the machine-frame located in position for contact with the mold-plate at the forward limit of its movement and to thereby relieve the actuating devices of the mold-plate from stress during the act of compressing the material within the mold-recess.

23. A molding-machine comprising a machine-frame, a reciprocatory mold-box provided with a mold-recess, a reciprocating plunger adapted to pass through the mold-box and enter said mold-recess, and a feed-box mounted on the machine-frame over the mold-box, said mold-box having flat top surfaces sliding in contact with the bottom of the feed-box.

24. The combination with a machine-frame, of a mold-box, a reciprocating plunger, a rotative crank-shaft connected with and actuating said plunger, and a feed-box mounted on the machine-frame over and having sliding engagement with the top of said mold-box, said machine-frame being provided with a closed housing which surrounds the said crank-shaft and actuating devices, and which affords bearings for said mold-box at its bottom and side faces and serves with the feed-box to prevent access of dust or dirt to the parts within said housing.

25. A molding-machine comprising two vertical side frame-plates, a bottom plate connecting the same, a feed-box secured to said frame-plate, a mold-box which fits and slides between the side frame-plates, the bottom plate and the bottom of the feed-box, a crank-shaft mounted in the said frame-plates, a plunger, operative connections between said crank-shaft and the said plunger, a rock-shaft mounted in said frame-plates, operative connections between said rock-shaft and the feed-box, a wall forming an extension of the said bottom plate which extends upwardly outside of the said crank-shaft, and a top plate secured to the side frame-plates, and to the upper end of said wall and to the feed-box and forming with said bottom plate, wall, side plates and feed-box, an inclosure for the operative parts by which the plungers and feed-box are operated.

26. The combination of a machine-frame, a mold-plate provided with a mold-recess, an inclosure confining the material to be molded adjacent to the said mold-plate, a reciprocating plunger adapted to enter said mold-recess, a cross-head sliding on the machine-frame, to which said plunger is attached, a crank-shaft, the crank of which is connected by a pitman with said cross-head, a cam carried by the crank-shaft, and a lever having an arm which is engaged with said cam and a second arm which is connected with and gives movement to said mold-plate.

27. The combination with a machine-frame, embracing two side plates and a bottom plate, of a mold-box resting and sliding on said bottom plate, a reciprocating plunger passing through said mold-box, a cross-head also sliding on said bottom plate to which said plunger is secured, a crank-shaft the crank of which is connected by the pitman with said cross-head, and means actuated by the crank-shaft for giving reciprocatory motion to said mold-box.

28. The combination with a machine-frame embracing two side plates and a bottom plate connected therewith, of a reciprocating mold-box, a reciprocating plunger passing through said mold-box, and a feed-hopper attached to said side plates and extending over the mold-box, said mold-box being provided with flat top bearing-surfaces in contact with the lower surface of the feed-hopper.

29. A molding-machine comprising two parallel vertical side plates, a bottom plate, a feed-box, a reciprocating mold-box which slides on the bottom plate with its end and top surfaces in contact with the side plates and the bottom of the feed-box, a crank-shaft mounted in said side plates, a cross-head sliding on said bottom plate, a pitman connecting said cross-head with the crank-shaft, plungers attached to the cross-head, a hollow casting inserted between and secured to said side plates, yielding pistons, rods for supporting said pistons mounted in said casting, and backing-springs for said rods located within said casting.

30. The combination with a plunger and a cross-head of means for securing the plunger to the cross-head embracing an aperture in the cross-head to receive the end of the plunger, a cap-piece over said aperture adapted to be clamped against the plunger therein, a groove or recess in the cross-head transverse to the said aperture, and one or more plates or shims inserted in said groove between the end of the plunger and the rear wall of the groove.

31. The combination with a machine-frame, of a reciprocating mold-plate provided with a mold-recess, a plunger adapted to enter said mold-recess, a piston for closing the outer end of the mold-recess, and a knock-off device embracing a part mounted on the mold-box and which is movable into and out of line with the mold-recess, and actuating means operated through the movement of the mold-box relatively to the machine-frame, for giving movement to said part.

32. The combination with a machine-frame and reciprocating mold-plate provided with a mold-recess, a reciprocating plunger adapted to enter said mold-recess, and a knock-off device embracing a part mounted movably on the mold-plate, and means for actuating the same embracing a cam on the machine-frame, and a part which engages said cam during the reciprocatory movement of the mold-plate.

33. The combination with a machine-frame, of a reciprocating mold-plate provided with a plurality of mold-recesses, reciprocating plungers adapted to enter said mold-recesses, and a knock-off device comprising a rocking bar mounted on the mold-plate adjacent to said mold-recesses, a cam on the machine-frame, and an arm on the rocking bar engaging said cam on the frame.

34. The combination with a machine-frame, a reciprocating mold-plate provided with mold-recesses, reciprocating plungers, pistons for closing the outer ends of the mold-recesses, and backing-springs for said pistons, of rods attached to and moving with the pistons, and scale-plates attached to the frame and acting in conjunction with said rods to show the pressures to which the several pistons are subjected.

35. A molding-machine comprising two side frame-plates, a bottom plate secured thereto, a reciprocating mold-box sliding on said bottom plate in contact at its ends with the side frame-plates, a crank-shaft mounted in said frame-plates, a reciprocating plunger, operative connections between said plunger and said crank-shaft, said bottom plate being depressed at its end beneath the shaft to form an oil-receptacle, and being extended upwardly outside of said shaft.

36. A molding-machine comprising two side frame-plates, a bottom plate secured thereto, a reciprocating mold-box sliding on said bottom plate between the side frame-plates, a crank-shaft mounted in said frame-plates, a reciprocating plunger, operative connections between said crank-shaft and the plunger, said bottom plate being depressed at its end beneath the shaft to form an oil-receptacle, and being extended upwardly outside of said crank-shaft, said bottom plate being inclined downwardly toward the said receptacle.

37. A molding-machine comprising two side frame-plates, a bottom plate attached thereto, a mold-box which slides on said bottom plate between the side plates, a plunger, a cross-head carrying said plunger adapted to slide on said bottom plate, a crank-shaft mounted in said side plates and connected with said cross-head, said bottom plate being depressed beneath the crank-shaft to form an oil-receptacle, and being inclined downwardly toward the oil-receptacle so that the cross-head may enter the lubricant which overflows the lower end of the bottom plate from said receptacle.

38. The combination with a machine-frame embracing two side frame plates, and a bottom plate, of a reciprocating mold-box sliding on said bottom plate, reciprocating plungers, a cross-head carrying said plungers, also sliding on said bottom plate, and a partition-wall rising from the bottom plate between the cross-head and the mold-box, said bottom plate being provided with a hole or holes located between the said partition-wall and the mold-box.

39. The combination with a machine frame, a mold-plate, a reciprocating plunger and a cross-head carrying said plunger, a crank-shaft mounted in the frame, a pitman connecting the crank-pin of the crank-shaft with said cross-head, and an oil-receptacle located below the crank-shaft, of means for lubricating the bearings between the pitman and the cross-head, embracing a longitudinal channel in the top surface of said pitman, and holes in the heads of the pitman extending from the ends of said channel to the bearing-surfaces of the crank-pin and cross-head.

40. The combination with the reciprocating plungers of a molding-machine, and a machine-frame provided with an inclosure surrounding the said plungers, of lubricating means consisting of a rotative pipe extending across said inclosure above the plungers, said pipe being provided outside of said inclosure with a valved inlet and within the inclosure with discharge-apertures through which oil within the pipe may be discharged upon the plungers by the turning of the pipe to direct the said discharge-apertures downwardly.

41. The combination with a reciprocating mold-box provided with a flat top surface, of a machine-frame provided with an inclosure for the parts which actuate the mold-box, and which embraces a part which has sliding contact with the flat top surface of the mold-box, and a lubricating-pipe rotatively mounted in said inclosure adjacent to the part thereof which engages the top of the mold-box, said pipe being provided outside of the inclosure with a valved inlet, and within the inclosure with discharge-apertures through which a lubricant may be discharged upon said flat top surface of the mold-box, by turning the pipe to direct the said discharge-apertures downwardly.

695,774. INSCRIPTION-FRAME FOR MONUMENTS. THOMAS B. WHITE, Warsaw, Mo. Filed Apr. 4, 1901. Serial No. 54,276. (No model.)

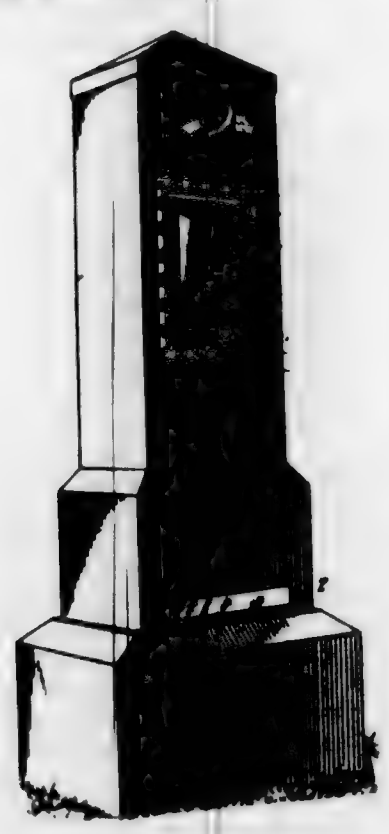
Claim.—1. An inscription-frame for monuments and the like, comprising opposite side portions provided with vertical slots located at or near the top of the frame, a bottom sill having a sloping upper surface, and a door hinged at the top to the frame and having hinge-pintles at its upper corners mounted to slide in the slots, whereby the bottom edge of the door is adapted to wedge and bind against the sill, substantially as described.

2. An inscription-frame for monuments and the like, comprising oppositely-arranged top and bottom bars with reversely-inclined inner surfaces, in combination with a door mounted with a wedging fit between and adapted to coöperate with said inclined surfaces and having a hinged and limited vertical sliding engagement with the frame.

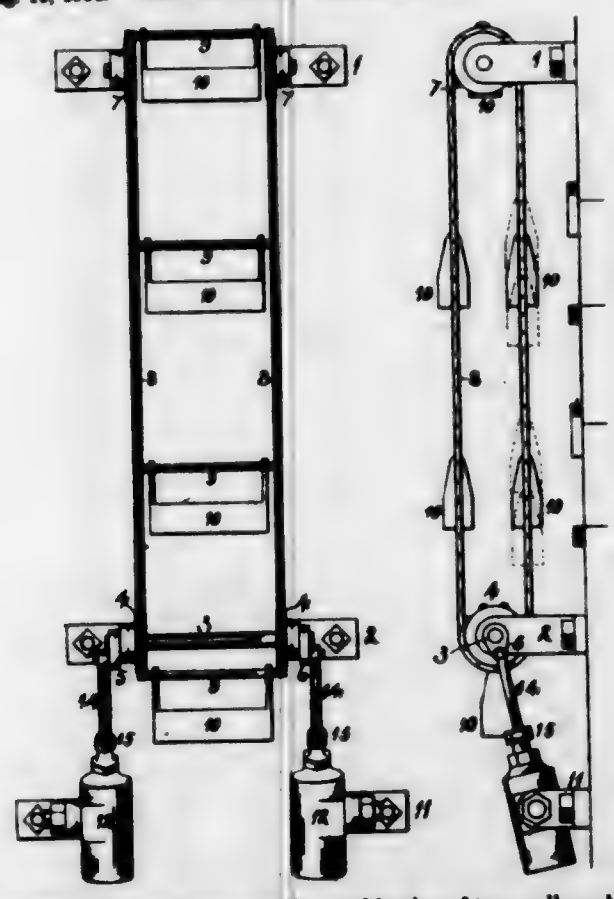
3. An inscription-frame for monuments and the like, comprising a continuous internal bead, an inclosed door at one side of the bead, an inclosed inscription-holder at the opposite side of the bead consisting of parallel plates one of which is transparent, a weatherproof binder uniting said plates, a cushion surrounding the holder, a layer of flexible cement arranged next to the cushion, a seal of weatherproof cement inclosing the cushion, flexible cement and edges of the holder, and a holder-retaining cross-bar connected to opposite parts of the frame.

4. An inscription-frame for monuments and the like, comprising a continuous internal bead, a door inclosed by the frame at one side of the

head, an inscription-holder inclosed by the frame at the opposite side of the head consisting of transparent parallel plates, a weatherproof binder-strip uniting all the edges of said plates, a cushion of mineral fiber surrounding the edges of the holder, a layer of flexible cement arranged next to the cushion and serving to inclose the same, and a seal of weatherproof cement covering the flexible cement.



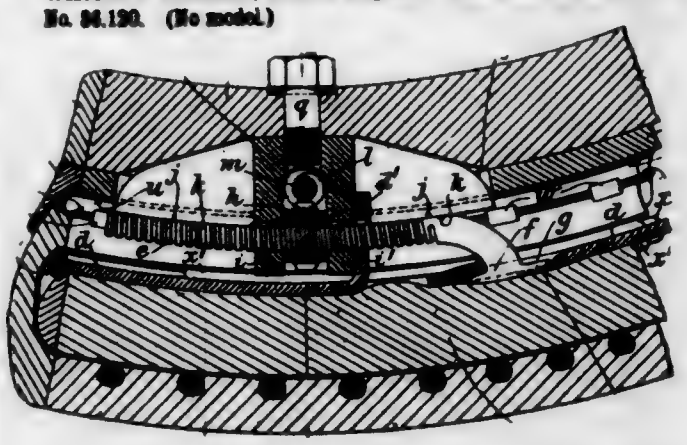
695,775. FIRE-ESCAPE. JOHN WILLIAMS, Belvidere, Ill. Filed Aug. 19, 1901. Serial No. 72,502. (No model.)



Claim.—1. In a fire-escape, the combination of two endless chains, sprocket-wheels for the chains, cars supported by the chains, a crank rotated by the chains, a cylinder provided with a lengthwise tapered groove and being larger at the crank end of the cylinder, a cylindrical piston and piston-rod connecting the crank and piston.

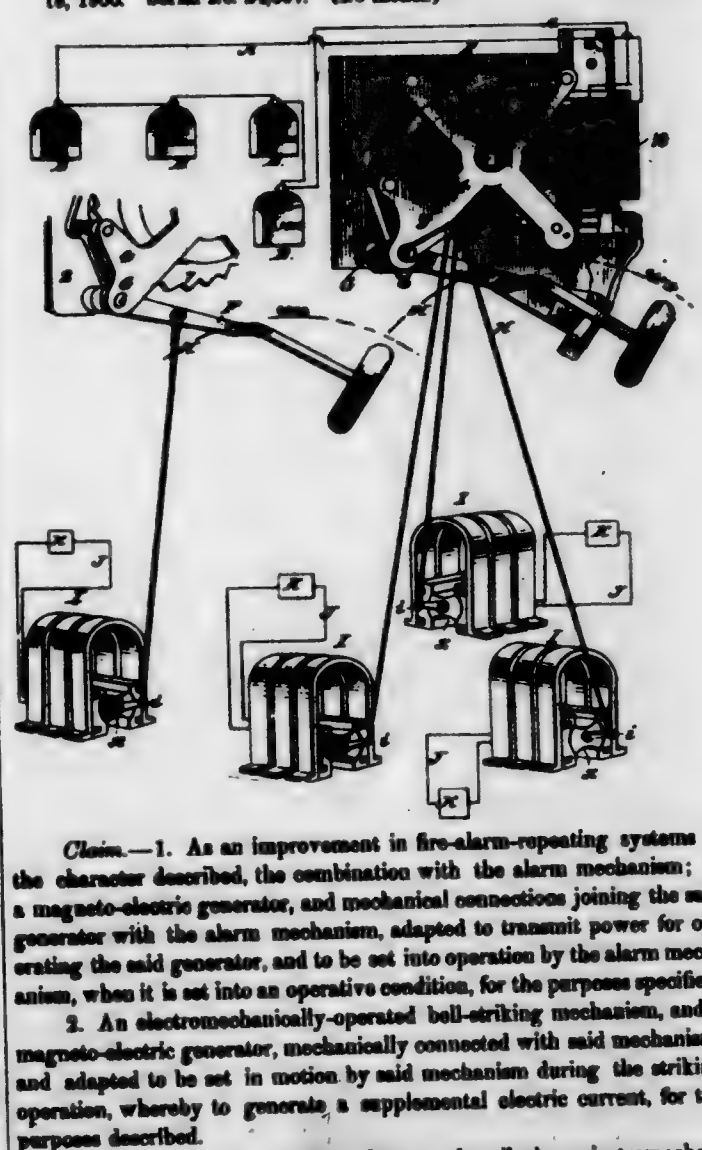
2. In a fire-escape, the combination of two endless chains, sprocket-wheels for the chains, a crank rotated by the chains, a cylinder having a portion of its bore cylindrical and remainder tapered and a lengthwise groove in the tapered portion of the bore, a cylindrical piston for the cylinder and a piston-rod connecting the crank and piston.

695,776. MEANS FOR SECURING ELASTIC TIRES TO WHEELS. WILLIAM F. WILLIAMS, London, England. Filed Dec. 16, 1901. Serial No. 86,120. (No model.)



Claim.—Means of tightening and securing the internal holding-on band of an elastic tire, consisting in the combination of a tension-screw adapted to make detachable engagement with the band and prevented from revolving while free to move longitudinally, a worm-wheel revolving as a nut on the screw but prevented from moving longitudinally thereof, a worm in gear with the worm-wheel, a bracket wherein the screw, worm-wheel and worm are mounted, a seat in the wheel-rim for the reception of said bracket, and means whereby the bracket may be drawn to and secured in its seat after the engagement of the tension-screw with the holding-on band and the placing of the tire on the wheel-rim have been effected, substantially as described.

695,777. FIRE-ALARM-TELEGRAPH REPEATER. LEONIDAS G. WOOLLEY, Kenton, Ohio, assignor to The Magneto Electric Company, Incorporated, New York, N. Y., a Corporation of New York. Filed July 18, 1900. Serial No. 24,087. (No model.)



Claim.—1. As an improvement in fire-alarm-repeating systems of the character described, the combination with the alarm mechanism; of a magneto-electric generator, and mechanical connections joining the said generator with the alarm mechanism, adapted to transmit power for operating the said generator, and to be set into operation by the alarm mechanism, when it is set into an operative condition, for the purposes specified.

2. An electromechanically-operated bell-striking mechanism, and a magneto-electric generator, mechanically connected with said mechanism, and adapted to be set in motion by said mechanism during the striking operation, whereby to generate a supplemental electric current, for the purposes described.

3. A fire-alarm system of the character described, an electromechanical striking mechanism, a supplemental electric circuit, a magneto-electric generator in said circuit, and mechanical connections joining said generator and the striking mechanism, put in motion when the striking mechanism is released, for operating the said generator, as specified.

4. An electromechanically-operated bell-striking mechanism, com-

bined with a magneto-electric generator, mechanically connected with said striking mechanism and adapted to be operated by the striking movement of said mechanism, a circuit connected with the generator, and an electrically-operated mechanism in said circuit, as set forth.

5. In a fire-alarm system of the character described, an electromechanically-operated bell-striking mechanism, combined with a series of magneto-electric generators, each having an independent electric circuit, and mechanical devices connecting all of the generators with the striking mechanism, adapted to put in motion the said generators when the striking mechanism is in operation.

6. In a fire-alarm system of the character described, the combination with the striking mechanism, said striking mechanism including a rocking member; of a magneto-electric generator, having a circuit of its own, an electrically-operated mechanism in said circuit, and connections between the rocking member of the striking mechanism and the generator-armature, for the purposes specified.

7. In an electromechanically-operated mechanism in the circuit of a fire-alarm, alarm devices controlled by said circuit, combined with a magneto-electric generator operated by said mechanism, a circuit connected to the generator, and an electrically-operated mechanism placed in the circuit of the generator, substantially as shown and described.

8. The combination with the electromechanically-operated striking mechanism, said mechanism including the rock-shaft G and arm *g;* of the magneto-electric generator I, the armature of which has a crank member *i*, and the rod H, connected to the arm *g*, and the member *i*, all being arranged substantially as shown and described.

9. In combination with an electromechanically-operated mechanism, including a circuit, and means for electrically actuating said mechanism at predetermined times; of a magneto-electric generator, a separate circuit arranged to be energized therefrom, an electrically-operated mechanism in said magneto-circuit, and mechanical connections joining the magneto-electric generator with electromechanically-operated mechanism, for the purposes described.

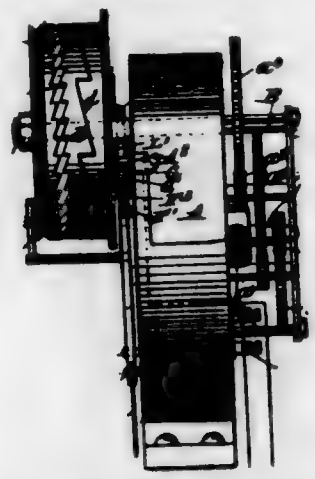
695,778. SIZING PAPER. CASIMIR WURSTER, London, England. Filed Aug. 14, 1901. Serial No. 71,995. (No specimens.)

Claim.—1. The improvement in sizing paper consisting in decomposing the resin-soap used for sizing paper by a bisulfate.

2. The improvement in sizing paper which consists in adding to the resin-soap used in sizing paper a bisulfate and an aluminium salt

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695,779. TYPE-WRITER. NEAL L. ANDERSON, Montgomery, Ala. Filed July 17, 1901. Serial No. 68,609. (No model.)



Claim.—1. A type-writer having means for impelling the paper-carriage in one direction, a motor for impelling said carriage in the opposite direction, and an additional motor operatively connected with said first-mentioned motor said latter motor operating during the return movement of the carriage, and until the required power of said first-mentioned motor is restored, and means to start and stop said motors.

2. A type-writer having a paper-carriage, means for impelling said carriage in its advance movement, a spring-motor for impelling said carriage in the opposite direction, an additional motor operatively connected with said first-mentioned motor, said additional motor operating during the return movement of the carriage and until the required energy of said first-mentioned motor is restored, and means to start and stop said motors.

3. A type-writer having means for impelling the paper-carriage in one direction, a motor for impelling said carriage in the opposite direction, an additional motor operatively connected with said first-mentioned motor, said additional motor beginning its operation substantially coincidently with that of said first-mentioned motor and continuing such operation during the return movement of said carriage and until the required power of said first-mentioned motor is restored, and means to start and stop said motors.

4. A type-writer having a paper-carriage, means for impelling said carriage in its advance movement, a spring-motor for impelling said carriage in the opposite direction, said motor being disconnected from the carriage during the advance movement of the latter, an additional motor operatively connected with said first-mentioned motor, said additional motor operating during the return movement of the carriage and until the tension of the spring is restored, means to connect the spring-motor to the carriage to reverse the latter, and means to start and stop both motors.

5. A type-writer having a paper-carriage, means for impelling said carriage in its advance movement, a spring-motor for impelling said carriage in the opposite direction, and mechanism adapted to connect said carriage and said spring-motor during the reverse movement of the carriage, said mechanism comprising a pulley-wheel connected to the carriage, and a series of cams connected to the spring-motor and the pulley-wheel in such way that the carriage and spring-motor are automatically thrown into engagement at the beginning of the return movement and automatically released when the beginning of a new line is reached.

6. A type-writer having a paper-carriage, means for impelling said carriage in its advance movement, a spring-motor for impelling said carriage in the opposite direction, and mechanism adapted to connect said carriage and said spring-motor during the reverse movement of the carriage, said mechanism comprising a pulley-wheel connected to the carriage, cam-rims on said pulley and said spring-motor respectively, and a ring intermediate of said pulley and motor provided with cams coöperating with the respective cam-rings on the pulley and motor, so related that the carriage and spring-motor are automatically thrown into engagement at the beginning of the return movement, and automatically released when the beginning of a new line is reached.

7. A type-writer having a paper-carriage, means for impelling said carriage in its advance movement, a spring-motor for impelling said carriage in the opposite direction, a clutch adapted to connect said carriage and said spring-motor during the reverse movement of said carriage, an additional motor operatively connected with said first-mentioned motor, said additional motor operating during the return movement of the carriage and until the tension of the spring is restored, and means to start and stop said motors.

8. A type-writer having a paper-carriage, a spring-motor for impelling said carriage in its advance movement, a spring-motor for impelling the carriage in the opposite direction, and an additional motor operatively connected with said second-mentioned spring-motor, said additional motor operating during the return movement of the carriage and until the tension of the spring of the second-mentioned motor is restored, means for connecting said second spring-motor and the carriage during the reverse movement of the latter, and means to start and stop said second motor and said additional motor to reverse the carriage and restore the tension of said second spring-motor.

9. A type-writer having a paper-carriage, a spring-motor for impelling said carriage in its advance movement, a spring-motor for impelling the carriage in the opposite direction, a clutch adapted to connect said carriage and said second spring-motor during the reverse movement of said carriage, and an additional motor operatively connected with said second spring-motor, said additional motor operating during the return movement of the carriage and until the tension of the spring of the second-mentioned motor is restored, and means to start and stop said last-mentioned motors to reverse the carriage and restore the tension of said second spring-motor.

10. A type-writer having a paper-carriage, a spring-motor for impelling the carriage in its advance movement, a spring-motor for impelling the carriage in the opposite direction, a clutch adapted to connect said carriage and said second spring-motor during the reverse movement of said carriage, an electric motor operatively connected to said second spring-motor to restore the tension of the spring, and means to start and stop said last-mentioned motors, comprising a lever having a lat-off and stop for said second spring-motor, and a circuit-closer for said electric motor.

11. A type-writer having a paper-carriage, means for impelling said carriage in its advance movement, a spring-motor for impelling the carriage in the opposite direction, a clutch for connecting said carriage and said spring-motor during the reverse movement of the carriage, said clutch comprising a cam-rim on the spring-motor, a cam-rim on the return-pulley, and an intermediate ring having cam edges adapted to coöperate with the respective cam-rims, an electric motor operatively connected to said spring-motor to restore the tension of the spring, and means to start and stop said motors comprising a key-actuated lat-off and stop for said spring-motor, and an automatic circuit-closer for said electric motor.

12. A type-writer having a paper-carriage, means for impelling said carriage in its advance movement, a spring-motor for impelling the car-

riage in the opposite direction, a clutch adapted to connect said carriage and said spring-motor during the reverse movement of said carriage, an electric motor geared to said spring-motor, means for starting and stopping the spring-motor comprising a ratchet connected to said spring-motor, and a key-actuated pawl-lever coöperating with said ratchet, and switch mechanism for starting and stopping said electric motor, said mechanism comprising insulated circuit-terminals on the motor-casing, a revoluble brush on the spring-motor shaft coöperating with said circuit-terminals, and a pin on said spring-motor adapted to engage said brush and break the circuit to the motor.

13. An actuating mechanism for reversing type-writer paper-carriages and the like, comprising a prime motor, a spring-motor operatively connected therewith, a driving member actuated by said spring-motor, a clutch for connecting said spring-motor and said driving-member, and means to start and stop said spring-motor and said prime motor, said prime motor operating during the return movement of the paper-carriage and until the normal tension of the spring-motor has been restored.

14. An actuating mechanism for reversing type-writer paper-carriages and the like, comprising an electric motor, said electric motor operating during the movement of said spring-motor, a spring-drum motor operatively connected therewith, a driving-pulley actuated by said spring-motor, a clutch for connecting said pulley and said spring-motor, and means for starting said motors and for stopping the spring-motor when the beginning of a line has been reached, and for stopping the electric motor when the energy of the return-spring has been restored.

15. An actuating mechanism for reversing type-writer paper-carriages and the like, comprising an electric motor, a spring-drum motor operatively connected therewith, a driving-pulley actuated by said spring-motor, a clutch for connecting said pulley and said spring-motor, a let-off and stop for said spring-motor, and an automatic circuit-closer for said electric motor comprising two circuit-terminal conductor-rings secured to the electric-motor casing, a brush fixed to the spring-motor shaft and adapted to engage said rings, and a pin on said spring-motor coöperating with said brush to break the circuit.

16. A type-writer having means for impelling the paper-carriage in one direction, a motor for impelling said carriage in the opposite direction, an auxiliary electric motor, and reducing-gearing connecting said electric motor and said first-mentioned motor whereby the energy of the first-mentioned motor is restored and the power of said electric motor expended in such restoration is reduced to a minimum measured at any given instant during its operation.

17. A type-writer having means for impelling the paper-carriage in one direction, a spring-motor for impelling said carriage in the opposite direction, an auxiliary electric motor, and reducing-gearing connecting said electric motor and said spring-motor, whereby the energy of the spring-motor is restored and the power of the electric motor required to wind the spring-motor is reduced to a minimum measured at any given instant during its operation.

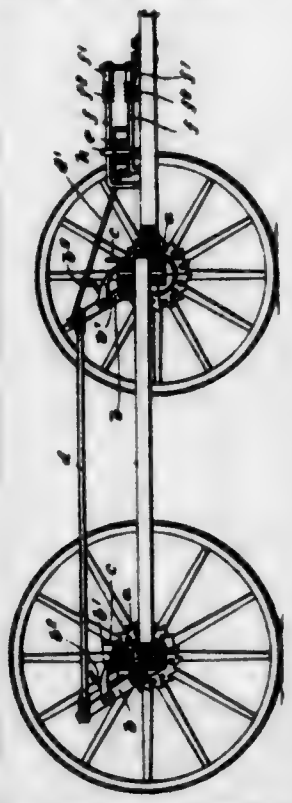
18. A type-writer having means for impelling the paper-carriage in one direction, a spring-motor for impelling said carriage in the opposite direction, mechanism adapted to connect said carriage and said spring-motor during the reverse movement of the carriage, an auxiliary electric motor, and reducing-gearing connecting said electric motor and said spring-motor, whereby the power of said electric motor required to wind the spring-motor is reduced to a minimum measured at any given instant during its operation.

19. A type-writer having means for impelling the paper-carriage in one direction, a spring-motor for impelling the carriage in the opposite direction, and mechanism for connecting said carriage and said spring-motor during the reverse movement of the carriage, said mechanism comprising a loose pulley on said spring-motor shaft, a loose ring on said shaft adjacent to said pulley, said ring having means for engaging the pulley and the spring-motor when the latter is actuated, whereby the carriage and the spring-motor are automatically thrown into engagement at the beginning of the return movement and automatically released when the beginning of a new line is reached.

20. A type-writer having means for impelling the paper-carriage in one direction, a spring-motor for impelling said carriage in the opposite direction, a clutch adapted to connect said carriage and said spring-motor during the reverse movement of said carriage, an auxiliary electric motor geared to said spring-motor, means for starting and stopping said spring-motor and switch mechanism for starting and stopping said electric motor, said switch mechanism being operated by the relative advance of the spring-motor and its shaft, whereby the switch will be closed by the starting of said spring-motor, and opened when the shaft has revolved through an angular distance equal to that described by the spring-motor in returning the carriage, thus exactly restoring the return-spring to its normal tension.

21. An actuating mechanism for reversing type-writer paper-carriages and the like, comprising an electric motor, a spring-motor, reducing-gearing connecting said electric motor with said spring-motor, a driving-pulley actuated by said spring-motor, a clutch for connecting said pulley and said spring-motor during the operation of the latter, means for starting and stopping said spring-motor, and switch mechanism for starting and stopping said electric motor, said switch mechanism being actuated to close the motor-circuit by the relative advance of the spring-motor in starting with respect to the shaft of said spring-motor, and to open the motor-circuit by the corresponding advance of the said shaft.

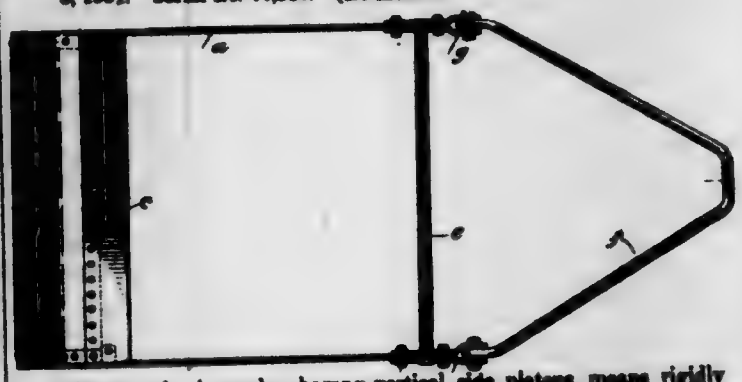
695,780. WAGON-GEAR. JOHN AUSTIN, Pitkin, Colo. Filed May 17, 1901. Serial No. 60,712. (No model.)



Claim.—1. The combination with a vehicle, of a number of sector-like sections fitting the hub and having flanges extending alongside of the spokes, said flanges being ratcheted on their outer edges and matching together to form a ratchet-wheel, means passing through the flanges and engaging the spokes of the wheel to fasten them in place, a band passed over the hub parts of the said sections also to hold them in place, a pawl adapted to engage the ratchet-wheel, and means carrying the pawl, said means being in connection with the draft devices, to be actuated therefrom, for the purpose specified.

2. The combination with a wheeled vehicle, of ratchet-wheels fastened to the vehicle-wheels coincident with the axes thereof, levers mounted on the frame respectively, adjacent to the ratchet-wheels, pawls carried by the levers and working with the ratchet-wheels so that upon a forward movement of the levers the ratchet-wheels are turned in the same direction, connections between the levers at the front and rear axles, a whiffletree mounted to slide on the tongue of the vehicle, and connections between the ends of the whiffletree and the levers of the front axle, the said ratchet-wheels being each formed of sector-like sections fitting the hub of the vehicle-wheel and having flanges extending alongside of the spokes, the outer edges of the flanges being ratcheted, and means passing through the flanges and engaging the spokes of the vehicle-wheel to fasten the ratchet-wheel in place.

695,781. GRADER. JOHN BAGLEY, Tacoma, Wash. Filed Oct. 3, 1901. Serial No. 77,287. (No model.)

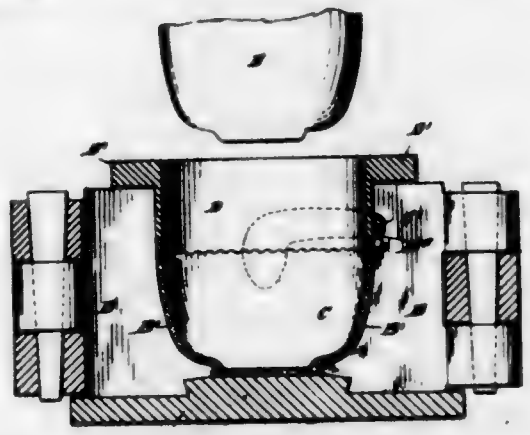


Claim.—1. A grader, having vertical side plates, means rigidly connecting their front ends together, a rear end plate extending between

the side plates and curved around a horizontal axis presenting the concave side to the front of the grader to form a bucket, blades extending along and secured to the longitudinal edges of the rear end plate, brackets fastened to the ends of the blades and to the side plates at points adjacent thereto, and draft devices adjustably connected to the grader, for the purpose specified.

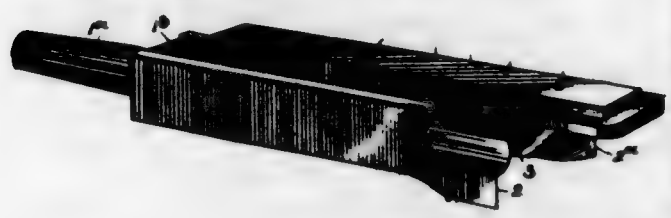
2. A grader, having vertical side plates, the top and bottom edges of which extend essentially parallel to each other, thus giving the plates uniform width, means connecting the front portions of the side plates together, a rear end plate extending between the side plates and curved around a horizontal axis presenting the concave side to the front of the grader to form a bucket, the top and bottom edges of the rear end plate lying approximately in the plane of the top and bottom edges of the side plates, and draft devices capable of attachment to the front portions of the side plates adjacent to either edge thereof, for the purpose specified.

695,782. MANUFACTURE OF HANDLED GLASSWARE. HARRY BARROW, Steubenville, Ohio. Filed June 10, 1901. Serial No. 63,891. (No model.)



Claim.—The herein-described method for forming handled glassware, consisting in molding the body and handle from the same mass, the handle being integral with the body at opposite points thereof, said handle extending approximately parallel with the upper edge of the body, and then reheating the body and handle and bending the latter to extend transversely of the body in a vertical plane passing approximately through the axis of the body, as set forth.

695,788. COPING TOOL OR CHISEL. ELI BEAM, Vancouver, Canada. Filed Apr. 4, 1901. Serial No. 54,238. (No model.)



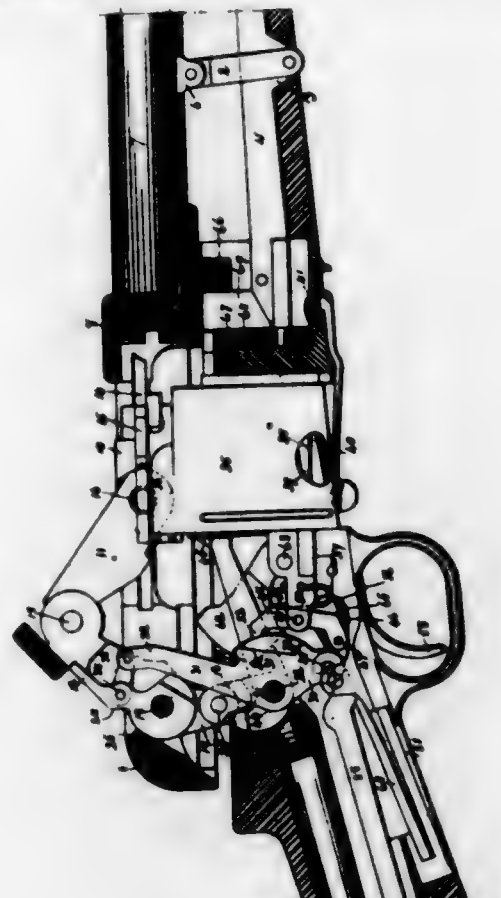
Claim.—1. A tool of the class described having two cutting edges adapted to cut, exterior to the tool, the ends of a desired molding in right and left hand contour; a clearance-space between such cutting edges and in combination a taper shank, integral with the tool, to fit the tool-socket of a suitable machine, all substantially as described.

2. In a tool of the class described having double exterior cutting edges and a space between; a guide-piece removably attached to the back of the tool and designed to slide in a vertical groove in the frame of the machine; and a stem integral with the tool whereby it is connected with the tool-socket of an ordinary mortising or similar machine, specifically as and for the purpose specified.

3. In a tool of the class described, having two cutting edges adapted to cut the right and left hand contour of the desired molding; the guide-piece 4 attached to the body of the tool and adapted to slide in a corresponding guide on the machine, and the gage-piece 5 removably secured to 4, designed to stop the progress of the cutting when the required depth has been attained, substantially as specified.

4. In a tool of the kind and for the purpose described in combination; the body of the tool having a shallow recess; a guide-piece to fit in the recess and to be secured therein with a countersunk screw; a gage-piece sunk below the flush on the tool side of the guide-piece; a V-shaped end to the guide-piece recess; a corresponding end in the guide-piece, and a countersunk screw which shall secure the gage-piece to the guide-piece, substantially as and for the purposes specified.

695,784. AUTOMATIC FIREARM. THOMAS G. BENNETT and WILLIAM MASON, New Haven, Conn., assignors to Winchester Repeating Arms Co., New Haven, Conn., a Corporation. Filed Sept. 30, 1901. Serial No. 77,002. (No model.)



Claim.—1. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, and means connecting the barrel and barrel extension with the receiver to cause the barrel and barrel extension to recoil and return in a circular path.

2. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, and link connection between the barrel and barrel extension and the receiver, whereby the recoiling and returning action of the barrel and barrel extension is in a circular path.

3. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, a link connecting the rear end of the barrel with the forward end of the receiver, and a link connecting the rear end of the barrel extension with the receiver, whereby the recoiling movement of the barrel and barrel extension is in a circular path.

4. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, a breech-block mounted in the barrel extension, forward and rear toggle-links, the breech-block being connected with the forward end of the forward link, and a link connecting the rear toggle-link with the receiver at a point to the rear of the pivot of the said link whereby the recoiling movement of the barrel and barrel extension is in a circular path.

5. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, a breech-block mounted in the said extension, rearward and forward toggle-links for operating the breech-block, the rear link being formed with a rearwardly-projecting arm, and a link connecting the said arm with the receiver.

6. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, a link connecting the barrel with the receiver, a breech-block mounted in the said barrel extension, rear and forward toggle-links of which the rear link is provided with a rearwardly and downwardly projecting arm, and a link connecting the said arm with the receiver.

7. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, a link connecting the barrel with the receiver, a breech-block mounted in the said barrel extension, rear and forward toggle-links of which the rear link is provided with an arm located to the rear of and below its pivot, a gun-opening link connecting the said arm with the receiver, and an abutment-surface located in the receiver for engagement by the said gun-opening link which swings rearward and engages with the said face, after which the toggle-links are thrown upward for the retraction of the breech-block.

8. In a firearm, the combination with the breech mechanism there-

of, of a box-magazine movable in consonance with the movement thereof at a right angle to the longitudinal axis of the gun-barrel.

9. In a firearm, the combination with the receiver and the breech mechanism thereof, of a box-magazine mounted in the receiver in which it is vertically movable in consonance with the movement of the breech mechanism, and a spring coacting with the magazine and maintaining it in a predetermined position of engagement with the breech mechanism.

10. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, connections between the barrel and barrel extension and the receiver, whereby the barrel and barrel extension are caused to recoil in a curved path, and a box-magazine moving in consonance with the described movement of the barrel and barrel extension to compensate for the vertical movement thereof with respect to the receiver.

11. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, a box-magazine located in the receiver in which it is vertically movable and having its upper portion adapted to be engaged with the said barrel extension, and means for maintaining the said box-magazine in engagement with the barrel extension during the recoiling movement thereof.

12. In an automatic firearm, the combination with the receiver thereof, of a breech mechanism, a box-magazine located in the receiver and movable in consonance with the movement of the breech mechanism, and a spring pivotally connected with the receiver, engaging with the lower end of the box-magazine to yieldingly hold it in place and adapted to be swung to one side for the introduction and removal of the said box-magazine.

13. In an automatic firearm, the combination with the stock and the receiver thereof, of a recoiling barrel and barrel extension, a breech-block, a rear and a forward toggle-link therefor, means for folding the links upward for the retraction of the said block, a gun-closing lever pivotally connected with the receiver, and with the rear toggle-link at a point forward of the pivot thereof, and a spring located in the stock of the gun, connected with the said lever, and exerting a constant effort to draw the links downward and forward and so close the arm.

14. In an automatic firearm, the combination with the stock and the receiver thereof, of a recoiling barrel and barrel extension, a breech-block, a rear and a forward toggle-link therefor, a link connecting the rear end of the rear toggle-link with the said receiver, a gun-closing lever connected at its upper end with the rear toggle-link, and a gun-closing spring located in the stock of the gun and connected with the gun-closing lever.

15. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, a breech-block, rear and forward toggle-links therefor, a gun-closing lever connected with the rear toggle-link, a spring connected with the said lever, exerting a constant effort to draw the links downward and forward, and a pivotal ejector coacting with the gun-closing lever which strikes the ejector and causes it to eject the spent shell.

16. In an automatic firearm, the combination with the receiver thereof, of a recoiling barrel and barrel extension, a breech-block, rear and forward toggle-links therefor, an opening link pivoted to the receiver and to the rear toggle-link, a closing-lever and spring for the operation thereof and an ejector, the said opening link, the closing-lever and ejector having the same center of movement.

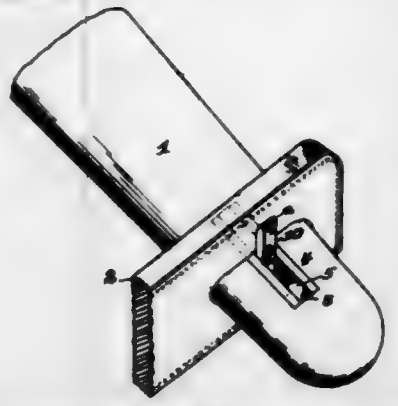
17. In an automatic firearm, the combination with the breech-block thereof, of rear and forward toggle-links therefor, a pivotal gun-closing lever connected with the said links for moving them into their closed positions, a hammer, sear and trigger, a sear-fly and a sear-fly carrier coacting with the said pivotal gun-closing lever.

18. In an automatic firearm, the combination with the receiver thereof, of a breech-block, rear and forward toggle-links therefor, a pivotal gun-closing lever, a spring coacting therewith for exerting a constant effort to move the breech-block and links into their closed positions, and a locking-piece mounted in the receiver of the arm and adapted to be engaged with the said pivotal gun-closing lever for locking the gun in its fully-open position.

19. In an automatic firearm, the combination with a receiver provided at its forward end with a clearance-space and with a transversely-arranged bridge or web forming the rear wall of the said space, of a recoiling barrel and barrel extension, a stop-lug located at the rear end of the barrel upon the lower face thereof, and a buffer located at the rear end of the said space and against the forward face of the said bridge or web, the said lug moving back and forth in the said space during the recoiling movements of the barrel and barrel extension.

695,785. TRACE CATCH AND HOLDER. CHARLES H. BLANCHARD, St. Louis, Mo. Filed Dec. 12, 1901. Serial No. 85,606. (No model.)

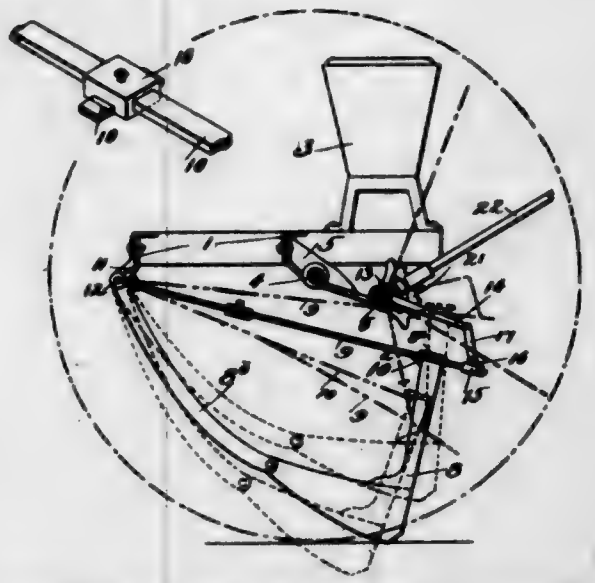
Claim.—1. A trace catch and holder, consisting of a casing having opposite flanges adapted to engage opposite sides of the singletree and by means of which the entire device is held within a slot in the singletree, and means in said casing for holding the trace upon the singletree, substantially as specified.



2. A trace catch and holder having a casing formed from a single sheet, bent and provided with integral opposite flanges adapted to engage opposite sides of the singletree, and a catch pivotally mounted within the casing, substantially as specified.

3. A device of the class described, comprising a casing stamped and formed from a single sheet, flanges formed on the top and tongues at the bottom, said flanges and tongues securing the casing within a slot formed in the singletree, a double-armed catch mounted within said casing, and a spring for holding the catch in a position in which it may be placed, substantially as specified.

695,786. GRAIN-DRILL. WILLIAM G. BOLIN, Peoria, Ill., assignor to Selby, Starr & Company, Peoria, Ill., a Corporation of Illinois. Filed July 25, 1901. Serial No. 69,663. (No model.)



Claim.—1. In a grain-drill, the combination with conducting-tube, shoe and draft-rods, the draft-rods pivoted to trunnions of the frame, a suitable casting having a pivotal connection with said trunnions, spring-pressure bars connecting with the casting and having a bearing relation with devices of the tube, a supplemental spring-pressure bar attached one end to the tube and the opposite end to the casting and a slidable member on the supplemental bar having a bearing relation to the aforesaid bars, substantially for the purpose described.

2. In combination with the frame of a grain-drill, and a tube having a pivotal connection therewith through suitable draft-rods, of spring-pressure bars pivotally connected to the frame and their free ends lying adjacent to extended devices of the tube, mechanism for raising or lowering said bars, a slidably-arranged member engaging the lower faces of the bars having connection with means connected direct to the tube, arranged when the spring-pressure bars are depressed to force the tube into the earth, substantially in the manner herein shown.

3. In a grain-drill, the mechanism for applying spring-pressure to the shoes thereof, comprising the pressure-bars 9 and 10, said bars connected in a single casting pivotally connected with the frame, of the slidably-arranged member 18 on the bar 10, and extensions 19 lying adjacent to the faces of the bars 9, in combination with connecting devices of a rock-shaft and extensions of the shoes for raising the same or imparting direct pressure upon the shoes for depressing the same, substantially as described.

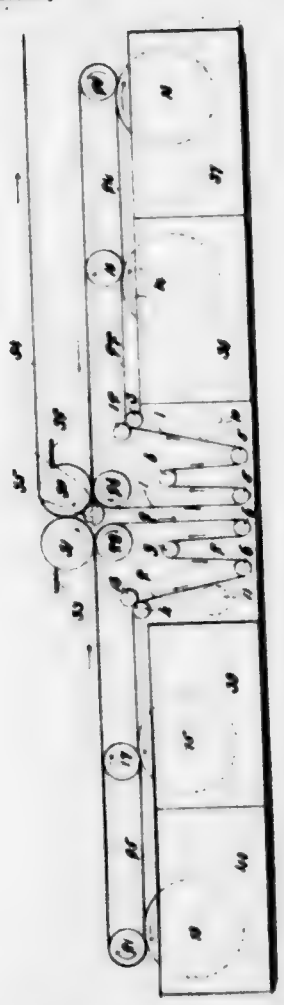
4. The mechanism for depressing or raising drill-shoes of a grain-drill, comprising in combination with the tube, shoe and draft-rods, a swinging casting pivoted to trunnions of the frame, duplicate spring-pressure bars detachably connected with said casting and their rear ends engag-

ing laterally-extended lips of the tube, and joined by a casting having connection with mechanism carried by a rock-shaft, a spring-pressure bar lying between and approximately parallel with the aforesaid bars, its front end connected with the casting and its rear end secured in a socket of the tube, and a slidably-arranged member of the bar having devices engaging the lower surfaces of the duplicate bars, the adjustment of the member on the bar increasing or decreasing the tension of the spring-pressure devices, substantially as described.

5. In combination with tube, shoe and draft-rods, the casting 11, pivoted to the frame and provided with a series of perforations or slots, a series of spring-pressure bars connected with the casting in the perforations, one of said bars having a positive connection with the tube, adjustably-carried tension devices between the bars, and a rock-shaft arranged with castings having connection with devices of the outer bars of the series for raising the shoes or depressing the same through the bar having a positive connection therewith, substantially as described.

6. In combination with ground-wheels and frame, the tube, shoe and connections of the shoe with the frame, casting 11, the spring-pressure bars 9 extending rearwardly of the tube and joined in the casting 15, rock-shaft 6 and connections substantially as shown between the rock-shaft and bars 9, of the spring-pressure bar 10 carried between the bars 9 with a slidable member having lips 19 engaging the bars 9, and the means of raising the tube and shoe through the bars 9 and for depressing the shoe through direct pressure applied to the bar 10 connected one end to the tube, through the bars 9 and movement of the rock-shaft, all substantially as herein arranged and described.

695,787. MACHINE FOR MAKING COMPOUND PAPER. CURTIS P. BROWN, Comstocks Bridge, Conn. Filed July 6, 1901. Serial No. 67,261. (No model.)



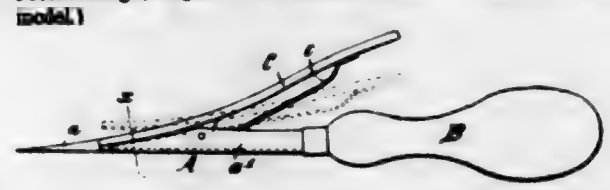
Claim.—1. A pasting device for paper-machines, comprising a plurality of press-rolls arranged in the form of a hollow square, and a paste-roll located in said square.

2. A pasting device, comprising means for disengaging webs of soft unfinished paper from belts carrying the same, and for bending said webs outward from said belts in such manner that the particular surfaces disengaged from the belts are rendered mutually contiguous, and means for pressing said webs together so that the particular surfaces disengaged from the belts are hidden and are secured together.

3. A pasting device, comprising means for disengaging webs of soft unfinished paper from belts carrying the same, and for bending said webs outward from said belts in such manner that the particular surfaces disengaged from the belts are rendered mutually contiguous, a roll for applying an adhesive substance to one of said contiguous surfaces, and means for pressing said webs together so that the particular surfaces disengaged from the belts are hidden and are also secured together by said adhesive substance.

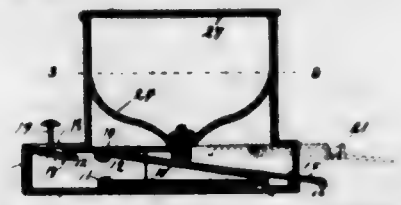
4. An apparatus of the kind described, comprising a plurality of rolls for forming webs of unfinished paper, a pair of endless belts for receiving and carrying said webs while soft, means for disengaging said webs from said belts, a roll for applying paste to one of said webs upon the particular surface thereof disengaged from a belt, and rolls for pressing said webs together into one sheet of paper, the arrangement of said belts and rolls being such that when the webs move into engagement and are pasted together, the adjacent surfaces thereof are the particular surfaces disengaged from the belts.

695,788. TAPE-NEEDLE. JOHN BROWN and HARRY H. BROWN, Peterborough, England. Filed July 8, 1901. Serial No. 67,462. (No model.)



Claim.—An improved device for use in making cloth hearth-rugs, consisting of a needle A, having the pivoted end *a* and the channeled part *a'*, the handle B, the gripping-arm C having the rib *c'* and the spring *c*; substantially as herein described and shown.

695,789. DEVICE FOR DELIVERING AND IGNITING MATCHES. WILLIAM H. BURDEN, Wilkinsburg, Pa. Filed May 16, 1901. Serial No. 60,503. (No model.)



Claim.—1. The combination of a base, a raised slide having depending side flanges forming runners which bear on the base, mechanism positioned beneath the raised slide for actuating the same, the slide being formed with a match-receiving depression, and a match-receptacle formed with a bottom opening adapted to deliver matches to the slide-depression, substantially as shown and described.

2. The combination of a base open at its forward end, an elevated slide movable horizontally within the base, a resilient band secured at one end to the rear portion of the base and at its opposite end secured to the under side of the slide, a transverse pin secured to the forward portion of the base over which said band passes, the slide being formed with a match-holding depression, and a match-receptacle above the slide and formed with a bottom opening adapted to deliver matches to the slide, substantially as shown and described.

3. The combination of a base, an elevated slide movable horizontally therein and formed with a match-holding depression, mechanism beneath the slide for projecting the latter, a latch for holding the same normally retracted, a forward projection on the slide extending without the base and forming a pushing device for retracting the slide, and a match-receptacle formed with a bottom opening adapted to deliver matches to the slide-depression, substantially as shown and described.

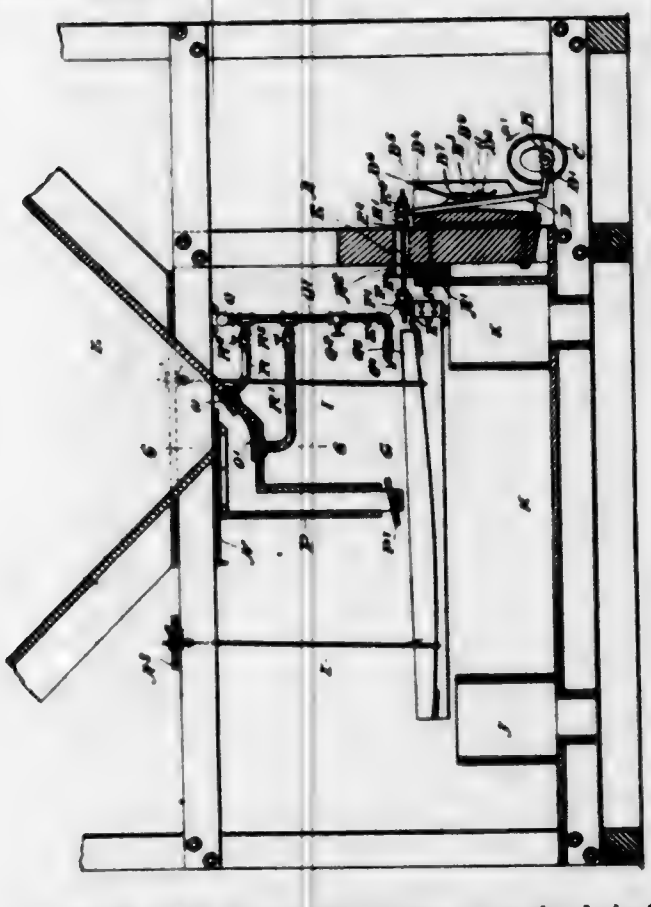
695,790. COAL-WASHER AND ORE-CONCENTRATOR. ALONZO C. CAMPBELL, Asheville, N. C. Filed Mar. 30, 1901. Serial No. 53,626. (No model.)

Claim.—1. A machine of the class described, provided with a pan, and means for oscillating the pan and imparting a percussive action to the same, said pan having a true bottom and a false bottom, a chamber being between the bottoms and increasing in depth toward the discharge end and in the direction in which the percussion takes place, said false bottom consisting of spaced riffles having perforated pockets at the forward ends, substantially as shown and described.

2. A machine of the class described, provided with a pan, and means for oscillating the pan and imparting a percussive action to the same, said pan having a true bottom and a false bottom, a chamber being between the bottoms and increasing in depth toward the discharge end and in the direction in which the percussion takes place, said false bottom consisting of diagonally arranged and spaced riffles having perforated pockets at the forward ends, substantially as shown and described.

3. A machine of the class described, provided with a pan having a true bottom and a false bottom of which the true bottom terminates at

the head end of the pan in a pocket having discharge-openings, said false bottom forming with the true bottom a water-chamber increasing in depth from the tail end of the pan to the head end thereof, the false bottom being formed with spaced slats having perforated pockets at the top, forward end, substantially as shown and described.



4. A machine of the class described, having an actuating device for the pan, comprising a cam-wheel, a lever engaged by the said cam-wheel, a connecting-rod engaged by the said lever and connected with the pan, a fixed rocker engaged by said lever, a fixed bumper-block and an elastic bumper on the said connecting-rod, and a suspending adjustable loop for the said lever, as set forth.

5. A machine of the class described, having an actuating device for the pan, comprising a cam-wheel, a lever engaged by said cam-wheel, a connecting-rod engaged by the said lever and connected with the pan, a fixed rocker engaged by the said lever, a fixed bumper-block and an elastic bumper on the said connecting-rod, and a polygonal block provided with a pivot eccentric to the center thereof and adjustable relatively to said pivot, thus forming an adjustable fulcrum for the said lever, as set forth.

6. A machine of the class described, provided with a pan, and means for oscillating the pan and imparting a percussive action to the pan, said pan having a working surface consisting of spaced riffles having perforated pockets at the forward ends, as set forth.

7. A machine of the class described, provided with a pan, and means for oscillating the pan and imparting a percussive action to the pan, said pan having a working surface consisting of diagonally-spaced riffles having perforated pockets at the forward ends, as set forth.

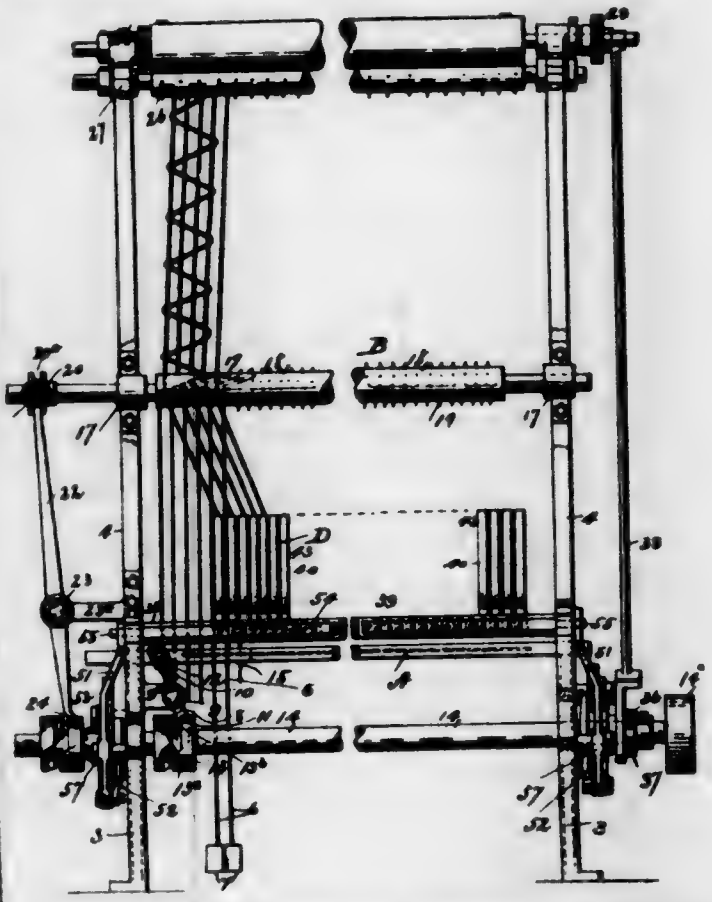
8. A machine of the class described, having an actuating device for the pan, comprising a cam-wheel, a lever engaged by said cam-wheel, a connecting-rod engaged by said lever and connected with the pan, a fixed rocker engaged by said lever, a polygonal fulcrum-block, and a bolt adjustable in L-shaped slots, as set forth.

695,791. WEAVING-MACHINE. REGULUS L. CHADBOURNE, New Brighton, N. Y. Filed Sept. 12, 1900. Renewed July 1, 1901. Serial No. 66,792. (No model.)

Claim.—1. In a loom, the combination, substantially as described, of a tension-board provided with means for regulating the tension of the warp, a pin-bearing roller, means for intermittently actuating said tension-board and said pin-roll in unison, a drum or feed-roller, and means for intermittently actuating said drum or feed-roller.

2. In a loom, a shuttle, comprising the combination of a rim provided with grooves, a bobbin or spool provided with heads, the edges of which are constructed to fit said grooves in said rim, and adjustable means for clamping the ends of said rim together to regulate the force necessary to turn said spool in said rim, substantially as described.

3. In a loom, the combination, substantially as described, of a tension-board provided with means for regulating the tension of the warp-threads, a pin-bearing roller, means for intermittently actuating said tension-bar and pin-roller in unison, shuttles constructed to be reciprocated, and means for intermittently actuating said shuttles.



4. In a loom, the combination, substantially as described, of a pin-bearing roller mounted to revolve on its axis and to be reciprocated longitudinally, a tension-board bearing means for regulating the tension of the warp-threads, said board being mounted to be reciprocated longitudinally and means for intermittently reciprocating said pin-roller and tension-board in unison.

5. In a loom, the combination, substantially as described, of a pin-bearing roller mounted to revolve on its axis and to move longitudinally, means for intermittently reciprocating said pin-roller longitudinally, means for regulating the tension of the warp, shuttles, and means for reciprocating said shuttles.

6. In a loom, the combination, substantially as described, of a pin-bearing roll mounted to be rotated and to move longitudinally, a grooved wheel keyed on said roll, a cam-wheel having a groove therein, a lever fulcrumed intermediate its ends and positioned with one arm engaging said grooved wheel on the pin-roll, the other arm engaging the said grooved cam-wheel, means for regulating the tension of the warp, shuttles, and means for reciprocating said shuttles.

7. In a loom, the combination, substantially as described, of a tension-board bearing means for regulating the tension of the thread, and mounted to be longitudinally reciprocated, a stud secured in said board, a grooved cam-wheel mounted to be revolved, a lever fulcrumed intermediate its ends and having a slotted arm, said lever being located with its slotted arm engaging said stud and its other arm engaging said grooved cam-wheel, shuttles, and means for reciprocating said shuttles.

8. In a loom, the combination, substantially as described, of a pin-roller mounted to move longitudinally and to be revolved, means for moving said pin-roller longitudinally and back, the distance in each direction being traversed in two stages, means for regulating the tension of the warp, shuttles, and means for reciprocating said shuttles.

9. In a loom, the combination, substantially as described, of a tension-board constructed to bear the warp-threads, and mounted to move longitudinally, a pin-roller, means for moving said pin-roller longitudinally and back to its initial position, the distance in each direction being covered by two distinct movements, shuttles and means for reciprocating said shuttles.

10. In a machine of the class described, the combination of means for holding one end of the weft-threads and the warp-threads stretched taut, means for moving said warp-threads and the said end of the weft-threads transversely the warp, shuttles carrying the other ends of the weft-threads, means for actuating said shuttles to pass them back and forth through said warp, and means for feeding said warp and weft threads longitudinally, substantially as described.

11. In a machine of the class described, the combination of means for holding the warp-threads stretched parallel and taut and one end of the weft-threads located intermediate the warp-threads, shuttles for hold-

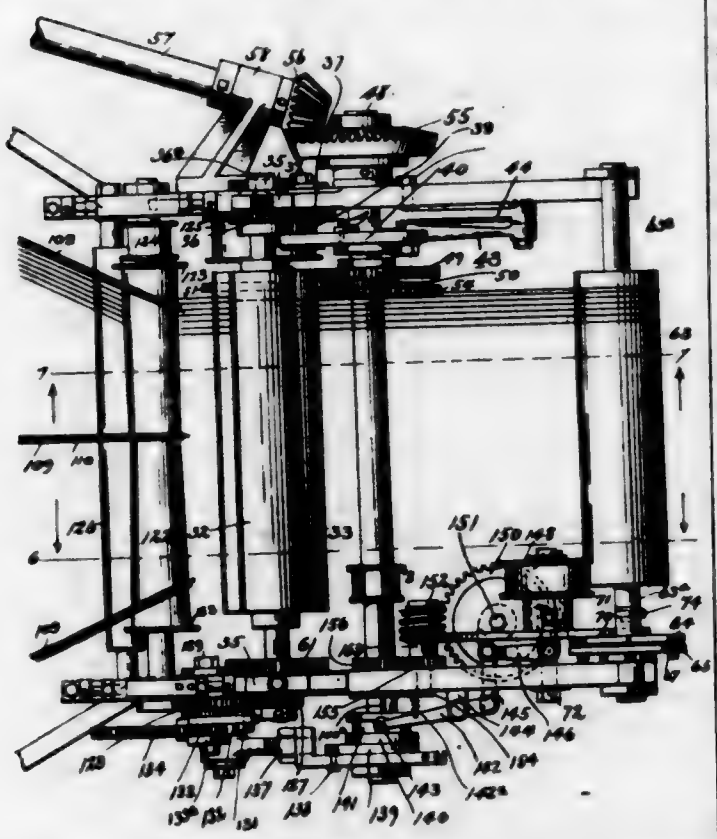
ing the free ends of the weft-threads, and means for intermittently actuating said shuttles to pass them back and forth through said warp.

12. In a machine of the class described, the combination of means for holding the warp-threads stretched and parallel and for holding the weft-threads at one point leaving one end free, means for intermittently moving the warp and the secured end of said weft transversely the warp, shuttles carrying the free end of said weft, means for intermittently actuating said shuttles to pass them back and forth through the warp, means for feeding said warp and weft longitudinally, substantially as described.

13. In a machine of the class described, the combination of means for holding the warp-threads stretched taut and for holding the weft-threads leaving one end of each free, means for intermittently moving the said warp and the held end of said weft transversely the warp going a distance of two threads each movement, progressing four threads in one direction and four threads back, shuttles containing said free ends of the weft-thread, and means for intermittently actuating said shuttles to pass them back and forth through the warp.

14. In a machine of the class described, the combination of means for holding the warp-threads stretched taut and for holding one end of the weft-threads leaving the other end free, means for intermittently moving the said warp and the held end of the weft transversely the warp going a distance of two threads of the warp each movement, progressing four threads in one direction and then four threads back, shuttles carrying the free ends of said weft-threads, means for intermittently actuating said shuttles to pass them back and forth through the warp, and means for feeding said warp and weft longitudinally, substantially as described.

695,792. HAMMOCK-LOOM. ZEBULON L. CHADBOURNE, New Brighton, N. Y. Filed May 7, 1901. Serial No. 59,118. (No model.)



Claim.—1. In a machine of the class described, the combination with means for holding series of warp and weft threads and means for weaving said weft-threads diagonally said warp, of carrier-chains provided with lugs adapted to engage the crossed threads, sheaves bearing said carrier-chains at one end, a roller bearing said carrier-chains at the other end, and means for operating said roller, substantially as described.

2. In a machine of the class described, the combination with means for holding series of warp and weft threads and means for weaving said weft-threads diagonally said warp, of converging carrier-chains provided with lugs adapted to engage the crossed threads, sheaves supporting said chains, a roller beveled both ways toward the middle, and means for driving said roller, substantially as described.

3. In a machine of the class described, the combination with means for holding series of warp and weft threads and means for weaving said weft-threads diagonally said warp, of converging carrier-chains, yieldingly-mounted sheaves set at an angle and supporting said chains, a roller beveled each way toward the center and means for operating said roller.

4. In a machine of the class described, the combination with means for holding series of warp and weft threads and means for weaving said weft-threads diagonally said warp, of a rail mounted to slide longitudinally, sheaves mounted in said rail, a roller, carrier-chains having lugs thereon adapted to engage the mesh, said chains being mounted to run on said roller and said sheave, means for moving said rail longitudinally, and means for driving said chains, substantially as described.

5. In a machine of the class described, the combination with means for holding series of warp and weft threads and means for weaving said weft-threads diagonally said warp, of a pin-roller mounted to be moved longitudinally and to be revolved, a rail connected to said pin-roller and bearing a series of sheaves, means for moving said pin-roller longitudinally, a roller, carrier-chains bearing lugs and mounted on said sheaves and said roller, and means for driving said carrier-chains, substantially as described.

6. In a machine of the class described, the combination with means for holding series of warp and weft threads and means for weaving said weft-threads diagonally said warp, of carrier-chains bearing lugs constructed to engage the crossed threads and beat them back, and means for driving said chains, substantially as described.

7. In a machine of the class described, the combination with means for holding one end of a series of warp and weft threads of a pin-roller mounted to move longitudinally and to be revolved, means for moving said pin-roller longitudinally, and carrier-chains bearing lugs and mounted to be moved transversely in unison with said pin-roller, substantially as described.

8. In a machine of the class described, the combination, of a tension-board mounted to move longitudinally and bearing a rack, a pin-roller mounted to revolve and to move longitudinally, a rack connected to said pin-roller, gears meshing with said rack-bars, a cam mounted to be driven, a fork operated by said cam and bearing a rack meshing with said gears, substantially as described.

9. In a machine of the class described, the combination with a tension-board and a pin-roller both mounted to move longitudinally and provided with racks, gears meshing with said racks, a rack-bar meshing with said gears, a cam mounted on a shaft and constructed to actuate said tension-bar and pin-roller intermittently, substantially as described.

10. In a loom the combination, with feed-rollers, a gear connected to drive said rollers, a sector meshing with said gear, a cam slidingly mounted on a shaft, a fork bearing a roller and connected to said sector, said roller being located to be engaged by said cam, means for driving said shaft, and means for sliding said cam on said shaft, substantially as described.

11. In a loom of the class described, the combination of means for yieldingly holding series of warp and weft threads, means for weaving each of said weft-threads diagonally said warp-threads forming crosses, means for feeding said warp and weft ahead, and means for engaging said crosses to beat them back to close up the mesh, substantially as described.

12. In a device of the class described, the combination with a pair of feed-rollers connected to revolve in unison, a gear carrying a ratchet and connected to operate said feed-rollers, a gear bearing a plate carrying a pawl engaging said ratchet, a sector meshing with said plate-bearing gear, and means for intermittently operating said sector, substantially as described.

13. In a loom, the combination, with feed-rollers connected to turn in unison, a sector, means engaged by said sector to operate said rollers, a fork connected to said sector, a cam located to operate said fork, and means for driving said cam, substantially as described.

14. In a loom of the class described, the combination with a worm and means for driving it, of a worm-gear meshing with said worm and carrying a single cam, a bell-crank lever mounted to be engaged by said cam, a shaft having a grooved hub slidingly mounted thereon and bearing a cam, a fork engaging said grooved hub, a link-bar connecting said fork and said bell-crank lever, feed-rolls and means operated by said sliding cam to actuate the feed-rolls, substantially as described.

15. In a loom of the class described, the combination with a worm and means for driving it, of a worm-gear meshing with said worm and carrying a single cam, a bell-crank lever located to be engaged by said cam, a grooved hub bearing a cam slidingly mounted, means for connecting said bell-crank lever and said grooved hub to slide said hub back and forth, feed-rolls, and means operated by said cam on said sliding hub to actuate the feed-rolls, substantially as described.

16. In a loom, the combination with feed-rollers connected to be driven in unison, of a gear connected to operate said rollers, a sector meshing with said gear, a fork bearing a roller and connected to said sector, a shaft bearing a cam slidingly mounted thereon, means for intermittently operating said cam to slide it on said shaft, and means for driving said shaft, substantially as described.

17. In a loom of the class described, the combination of means for yieldingly holding series of warp and weft threads, means for weaving each of said weft-threads diagonally said warp-threads form ingcrosses,

and means for engaging said crosses to beat them back to close up the mesh, substantially as described.

18. A shuttle comprising the combination of an apertured block, a rim secured to said block, a tension mounted on said rim, side bars secured to said rim, and a spindle journaled in apertures in said side bars, said spindle being constructed to support a bobbin, substantially as described.

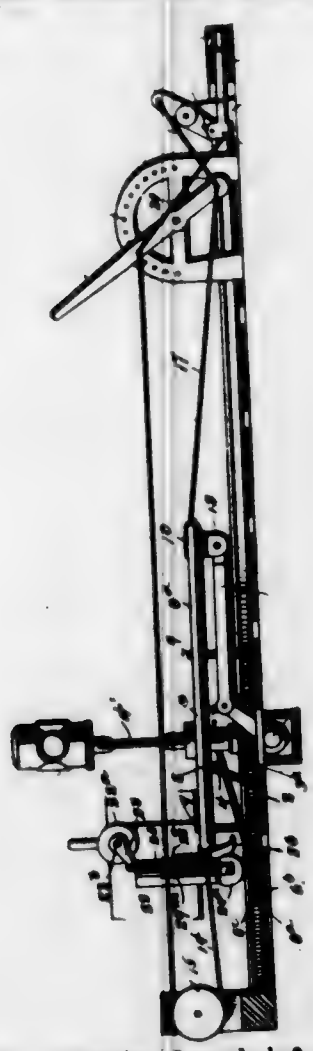
19. A shuttle comprising the combination of an apertured block, a rim secured to said block, a first side bar secured to said rim, a second side bar hinged to said first side bar, and a spindle journaled in said side bars, substantially as described.

695,793. SETTING INSTRUMENT. MORRIS CHAMBERLAIN, Bartley, N. J. Filed Oct. 9, 1901. Serial No. 78,082. (No model.)



Claim.—A setting instrument, comprising a body having a top plate with a linear graduation, a spirit-level indicating on the top plate the zero position of the bubble coinciding with the zero-line of the graduation, and inclined legs integral with the said body and having their apex standing in vertical alinement with the zero position of the bubble, as set forth.

695,794. RAILWAY-SIGNAL. JAMES R. CLARK, Portage, Wis. Filed Sept. 23, 1901. Serial No. 76,274. (No model.)



Claim.—1. The combination of a rock-shaft carrying cam-lugs, its actuating-lever, a slide arranged intermediately of, and connected to, said rock shaft and lever, cam-plates acted upon by said cam-lugs, and means carried by a moving object adapted to be acted upon by said cam-plates, substantially as set forth.

2. The combination of a rock-shaft carrying cam-lugs, its actuating-lever, a slide or rod, a crank-arm and link connection between said rock-shaft and slide or rod, cam-plates adapted to be engaged by said cam-lugs, means effecting connection between said slide and said lever, and means carried by a moving object adapted to be acted upon by said cam-plates, substantially as set forth.

3. The combination of a rock-shaft equipped with cams or lugs, its actuating-lever, a slide or rod, a crank-arm and link connection between said rod or slide and rock-shaft, a wire or cable composing a pulley or wheel and connected to said rod or slide and lever, cam-plates adapted to be engaged by said cams or lugs, and means carried by a moving object, adapted to be acted upon by said cam-plates, substantially as set forth.

4. The combination of a rock-shaft equipped with cams or lugs, a lever for actuating said shaft, cam-plates adapted to be acted upon by said cams or lugs, a slide or rod carrying a block or coupling at, or near, one end, a crank-arm carried by said rock-shaft, a link connected to said crank-arm and block or coupling, means for connecting said rod to said lever, and means carried by a moving object adapted to be engaged by said cam-plates, substantially as set forth.

5. The combination of a rock-shaft carrying cams or lugs, pivoted or hinged cam-plates adapted to be engaged and moved into an inclined position by said cams or lugs, an actuating-lever for said shaft, a slide or rod, means of connection between said rod or slide and said lever, and means for effecting connection between said slide and rocking shaft, substantially as set forth.

6. The combination of a rock-shaft equipped with cams or lugs, pivoted cam-plates adapted to be engaged by said cams or lugs, a slide or rod, a crank-arm and link connection between said rock-shaft and rod, a wire or cable composing a pulley or wheel and connected to said rod or slide and lever, substantially as set forth.

7. The combination of a rock-shaft equipped with lugs or cams, means for actuating said rock-shaft, cam-plates adapted to be engaged by said cams or lugs, an air-brake-setting valve comprising an axial stem or spindle, a slide adapted to be engaged by said cam-plate, a crank-arm carried by said stem or spindle, and a link pivoted in a slot in said slide and connected to said crank-arm, substantially as set forth.

8. The combination of a rock-shaft equipped with lugs or cams, means for actuating said rock-shaft, pivoted cam-plates adapted to be engaged by said cams or lugs, an air-brake-setting valve, a slide or bar adapted to be engaged by said cam-plates and connected to the stem or spindle of said valve, and having a plow attachment, substantially as set forth.

9. The combination of a rock-shaft equipped with cams or lugs, means for actuating said rock-shaft, pivoted cam-plates adapted to be engaged by said lugs or cams, an air-brake-setting valve, a slide or bar adapted to be engaged by said cam-plates, means effecting communication between said slide and valve, a casing or tube carried by an offset of a bracket attached to a moving part, and containing said slide, said slide or bar having lateral vertically-extending portions let into corresponding slots in said casing or tube, substantially as set forth.

10. The combination of a signal-displaying device and means for connecting said device with a bolt or fastening, a centrally-fulcrumed lever having pivotal connection with said bolt or fastening, at its rear end, an actuating-lever, and wires or cables connected to said actuating-lever, at points upon opposite sides of its fulcrum and to the first-referred-to lever, at its upper end, and said bolt or fastening, substantially as set forth.

11. The combination of a signal-displaying device and means for connecting said device with a bolt or fastening, a centrally-pivoted lever, a bracket forming the fulcrum for said lever, said bolt or fastening having upon its upper surface, at the rear end thereof, a slotted or bifurcated extension receiving the lower end of said lever, a pin-and-slot connection between said extension and said actuating-lever, and means effecting connection between said actuating-lever and bolt and centrally-pivoted lever, substantially as set forth.

12. The combination of a signal-displaying device and means for connecting said device with its actuating-lever, a bolt, a centrally-pivoted lever having pivotal connection with said bolt, and means for effecting connection between said actuating-lever and said bolt and centrally-pivoted lever, substantially as set forth.

13. The combination of a signal-displaying device and means for connecting said device with a signal-displaying device and its actuating-lever, a bolt, a centrally-pivoted lever having pivotal connection with said bolt, and wires or cables effecting connection between said actuating-lever and said bolt and centrally-pivoted lever, substantially as set forth.

695,795. PROCESS OF CONVERTING CELLULOSE INTO SUGAR. ALEXANDER CLASSEN, Aachen, Germany. Original application filed Dec. 8, 1900, Serial No. 39,200. Divided and this application filed July 30, 1901. Serial No. 70,282. (No specimens.)

Claim.—1. The process for converting cellulose into sugar which consists in heating the cellulose in a closed vessel with chlorin to about 120° to 145° and then introducing compounds of sulfur that will produce sulfuric acid by the reaction with chlorin, substantially as described.

2. The process for converting cellulose into sugar which consists in heating the cellulose in a closed vessel with chlorin-yielding substances to about 120° to 145° and then introducing compounds of sulfur that will produce sulfuric acid by the reaction with chlorin, substantially as described.

695,796. ARTIFICIAL DENTURE. ASA F. CORNWELL, Creta, Nebr. Filed Nov. 29, 1901. Serial No. 84,130. (No model.)

Claim.—1. An artificial denture substantially as described, comprising the crown provided with a longitudinal opening leading out of its biting-surface and made non-circular in cross-section, the metallic backing fitted to said biting-surface and extending throughout the same, and the anchor-post secured to the metallic backing and extending through the opening in the crown and conformed in cross-section thereto and projecting at its point beyond the crown, substantially as and for the purpose set forth.



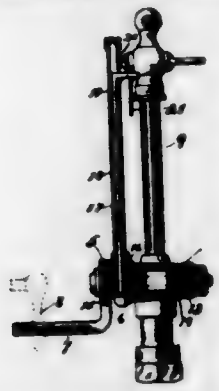
2. An artificial denture comprising the crown having an opening extending through it and leading out of its biting-surface, the metallic backing fitted to said biting-surface and the anchor-post secured to the metallic backing and extending through the opening in the crown, substantially as set forth.

3. In an artificial denture the anchor-mounting consisting of a metallic backing for application to the biting-surface of the tooth, and an anchor post or prong secured to and projecting from the inner surface of the metallic backing, substantially as set forth.

4. In an artificial denture, the metallic backing dished longitudinally and transversely and the anchor-post secured to the inner side of the metallic backing, substantially as described.

695,797. VALVE-LOCKING MECHANISM FOR GAS-BURNERS.

MORRIS I. COHEN, Chicago, Ill. Filed Oct. 4, 1901. Serial No. 77,590. (No model.)



Claim.—1. In a valve-locking device for gas-burners, the combination with a cock in the main gas-supply pipe and a cock in the ignition-burner-supply pipe, of means for automatically locking said main supply-cock when closed, and connecting means between said cocks for automatically releasing said main supply-cock by operation of said ignition-burner cock.

2. In a valve-locking device for gas-burners, the combination of a normally locked gas-supply cock, an ignition-burner-supply cock, and means for automatically releasing said gas-supply cock by operation of said ignition-burner cock.

3. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a suitable stop-cock in each of said pipes, means for automatically locking said main supply-cock in its closed position, and means dependent upon the operation of said ignition-burner cock for automatically releasing said locking means.

4. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a suitable stop-cock in each of said pipes, gravity-controlled means for automatically locking said main supply-cock in its closed position, and means for automatically releasing said main supply-cock to permit the opening thereof by the operation of opening the said ignition-burner cock.

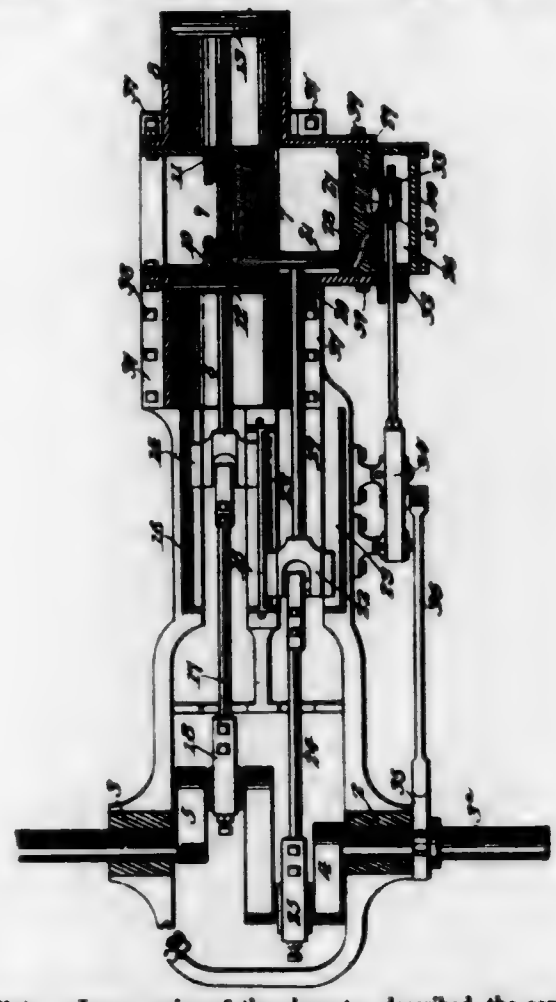
5. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a rotary valve in said main supply-pipe, a socket extending through the bearings and into the plug of said valve, a vertical rod adapted to drop by gravity into said socket when said valve is closed, a suitable stop-cock in said ignition-pipe, and means dependent upon the opening of said ignition-burner stop-cock to raise said rod free of said socket to permit the rotation of said plug.

6. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a rotary valve in said main supply-pipe, a socket extending through the bearings and into the plug of said valve, a vertical rod adapted to drop by gravity into said socket when said valve is closed, a guide-tube to retain said rod in a vertical position, a suitable stop-cock in said ignition-pipe, and means dependent upon the opening of said ignition-burner stop-cock to raise said rod free of said socket to permit the rotation of said plug.

7. In a valve-locking device for gas-burners, the combination with a main gas-supply pipe to the combustion-chamber and an auxiliary supply-pipe to the ignition-burner, of a lever-controlled rotary valve in said main supply-pipe, a socket extending through the bearings and into the plug of said valve, a vertical rod adapted to drop by gravity into said socket when said valve is closed, a guide-tube to retain said rod in a vertical position, a horizontal arm on said rod slidable through a suitable vertical slot in said guide-tube, a suitable stop-cock in said ignition-pipe, a lever-arm mounted upon the axis of said stop-cock to rotate therewith and adjusted to engage with said horizontal arm and raise said rod when said stop-cock is opened.

695,798. ENGINE.

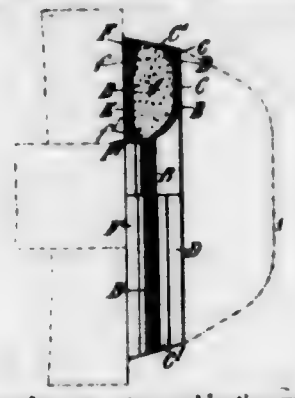
ANDREW A. DARBY and WILLIAM L. DARBY, Vidalia, Ga. Filed Sept. 16, 1901. Serial No. 75,289. (No model.)



Claim.—In an engine of the character described, the combination with a shaft formed with oppositely-disposed cranks; of alining cylinders spaced apart, a piston-rod connected to one of the cranks and extending into said cylinders, a piston in each cylinder and secured to said rod, an intermediate cylinder removed from the rod and communicating at its ends with the alining cylinders, a single piston-rod in said cylinder and connected to a crank on the shaft, a piston on said rod and in the intermediate cylinder, the piston-rods being parallel, an inlet and an exhaust at opposite ends of the intermediate cylinder, a chest upon the intermediate cylinder, and a valve therein operated from the crank-shaft.

695,799. OBTURATOR FOR BREECH-LOADING ORDNANCE.

ARTHUR T. DAWSON and GEORGE T. BUNKHAM, Westminster, England, assignors to Vickers Sons & Maxim, Limited, Westminster, England. Filed Sept. 6, 1901. Serial No. 74,512. (No model.)

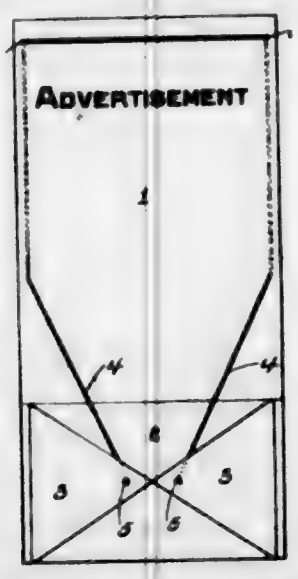


Claim.—1. In an obturator, the combination with the pad, of a forward metallic split ring of triangular cross-section, a protective metallic

facing to said pad having a beveled portion near its periphery and flanged rearwardly, and two concentric rear rings, the outer one of which is split, substantially as and for the purpose specified.

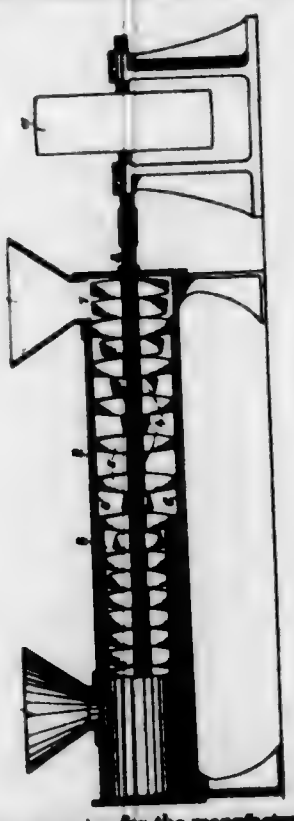
2. In an obturator, the combination with the pad, of a forward metallic split ring of triangular cross-section, a protective metallic facing to said pad having a beveled portion near its periphery and flanged and tapered rearwardly, a protective metallic backing to said pad, and two concentric rear metallic rings of triangular cross-section, the outer one of which is split, substantially as and for the purpose specified.

695,800. COLLAPSIBLE MATCH-BOX. JOHN DELLINGER, Buffalo, N. Y. Filed Nov. 14, 1901. Serial No. 82,227. (No model.)



Claim.—An advertising collapsible box or receptacle for matches or other articles comprising a body upon which advertisements may be printed, a rectangular foldable front flap at the lower extreme of the body and two triangular foldable side flaps at the side edges of the front flap, and a cord passing through openings in the body and attached at its ends to the inner ends of the side flaps, substantially as set forth.

695,801. CONFECTIONERY-MACHINE. WILLIAM S. DILLON, San Francisco, Cal. Filed Dec. 19, 1901. Serial No. 86,542. (No model.)



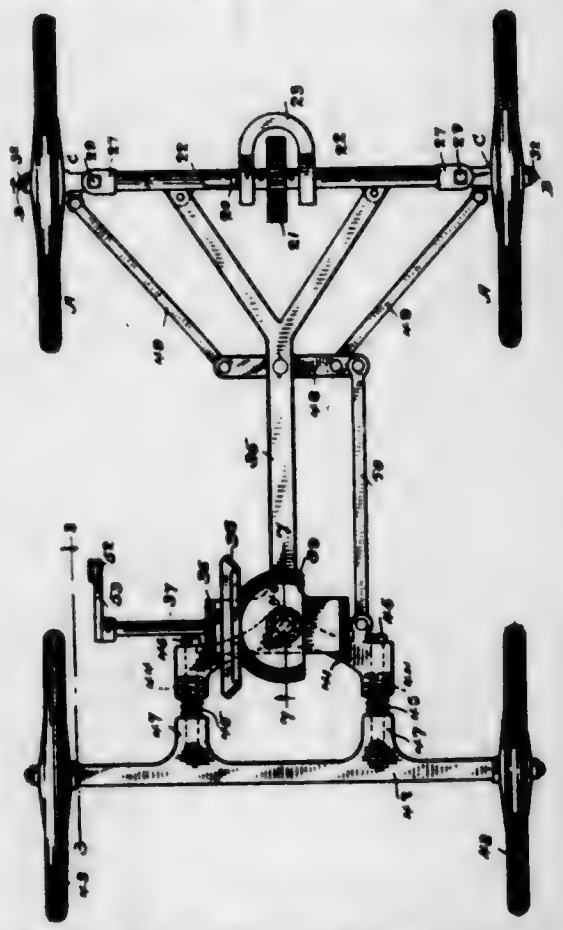
Claim.—1. An apparatus for the manufacture of sugar-cream consisting of a casing having an open side extending the greater portion of its length, for the admission of air, said casing having fixed spirally-twisted blades, a shaft extending axially through said casing, having oppositely-twisted spiral blades fixed to and revolvable with it contiguous to the stationary blades.

2. An apparatus for the manufacture of sugar-cream consisting of a casing having spiral blades fixed radially therein at intervals from one end to the other, an axially-revolvable shaft having oppositely-twisted spiral blades revolvable therewith contiguous to the fixed blades, an opening extending from end to end of the casing for the admission of air and a hopper with open connection through which material is delivered into the receiving end of the casing.

3. An apparatus for the manufacture of sugar-cream consisting of an exterior casing, a stationary frame supported therein, having spirally-twisted blades fixed thereto and extending approximately radial from side to side, an axially-revoluble shaft extending through the casing having blades fixed thereto contiguous to the stationary blades and oppositely twisted therefrom, a hopper located at one end and an opening through which material is delivered into the casing and carried from one end to the other by the action of the blades, and an opening extending from end to end of the casing whereby air is admitted to the moving material which is being acted upon by the blades.

4. In an apparatus for the manufacture of confectionery a casing having a wall slotted for the greater portion of its length, for the admission of air, said casing having internally-fixed spirally-twisted and approximately-radial blades, a shaft carrying oppositely-twisted blades contiguous to the fixed ones, a driving-shaft journaled in line with said shaft, and a detachable coupling.

695,802. MOTOR-VEHICLE. LOUIS J. DIRARD, Torrington, Conn. Filed July 6, 1901. Serial No. 67,361. (No model.)



Claim.—1. A vehicle running-gear frame having a power-driven axle in fixed relation to one end thereof and provided with wheels fixed to spindles connected to said axle by universal joints, an axle pivotally connected to the other end of said frame, wheels mounted to freely rotate on the last-mentioned axle, and steering connections between said pivoted axle and the power-driven spindles.

2. A vehicle of the character described having a power-driven rear axle, spindles connected to the ends of said axle by universal joints, wheels fixed to said spindles, a pivotally-connected front axle having wheels mounted to freely rotate on the ends thereof, and steering connections between said pivoted front axle and the spindles of the power-driven axle.

3. In a vehicle of the character described the combination with a rear driven axle and fixed sleeves in which it is inclosed, of spindle-carriers pivoted to the sleeves so as to swing in the horizontal plane, spindles lying within the carriers and connected to the axle by universal joints, a pivoted front axle, and steering connections between the said pivoted axle and the said spindle-carriers.

4. In a vehicle of the character described the combination with a rear driven axle and fixed sleeves in which it is inclosed, of spindle-carriers pivoted to the sleeves so as to swing in the horizontal plane, spindles lying within the carriers, universal joints by which the spindles are connected to the axle, wheels whose hubs are rigidly secured to the spindles, a pivoted front axle having wheels, and steering connections between said pivoted axle and the said spindle-carriers.

5. In a vehicle of the character described the combination with a rear driven axle and fixed sleeves in which it is inclosed, of spindle-carriers pivoted to the sleeves so as to swing in the horizontal plane, spindles lying within the carriers and having angular portions 30, universal joints by which the spindles are connected to the axle, wheels which rigidly engage the angular portions of the spindles, a pivoted front axle having wheels, and steering connections between said pivoted axle and the said spindle-carriers.

6. In a vehicle of the character described the combination with a rear driven axle and fixed sleeves in which it is inclosed, of spindle-carriers pivoted to the sleeves so as to swing in the horizontal plane, spindles lying within the carriers, universal joints by which the spindles are connected to the axle, wheels whose hubs are rigidly secured to the spindles, fixed roller-bearings lying between the hubs and the spindles, a pivoted front axle having wheels, and steering connections between said pivoted axle and the said spindle-carriers.

7. In a vehicle of the character described the combination with a rear driven axle and sleeves 22 in which it is inclosed, of spindle-carriers pivoted to said sleeve so as to swing in the horizontal plane and comprising sleeves 33 having slots with rollers journaled therein, universal joints by which the spindles are connected to the axle, wheels whose hubs are rigidly secured to the spindles, the rollers carried by the sleeves being engaged both by the spindles and the hubs, a pivoted front axle having wheels, and steering connections between said pivoted axle and the said spindle-carriers.

8. A vehicle of the character described having rear wheels fixed to spindles which are connected by universal joints to a power-driven rear axle, front wheels mounted to turn on their spindles and yielding steering connections intermediate the front wheels and the spindle-carriers, whereby both front and rear wheels are oscillated in the horizontal plane in the act of steering.

9. A vehicle of the character described having rear wheels fixed to spindles which are connected by universal joints to a power-driven rear axle, front wheels mounted to turn on their spindles, steering connections intermediate the front wheels and the spindle-carriers and yielding connections intermediate the front axle and the steering connections, whereby the force of blows caused by engagement of the front wheels with obstructions is taken up.

10. A vehicle of the character described having rear wheels fixed to spindles which are connected by universal joints to a power-driven rear axle, front wheels mounted to turn on their spindles, a reach connected to the rear axle and having at its forward end a bracket, a shaft journaled in said bracket and carrying a cross-piece 41, bolts passing loosely through the cross-piece and engaging the front axle, springs interposed between the cross-piece and the front axle, a cross-bar 48 pivoted to the reach and links intermediate the cross-bar and the cross-piece and intermediate the cross-bar and the spindle-carriers, whereby oscillation of the shaft will cause oscillation of both front and rear wheels in the horizontal plane.

11. In a vehicle of the character described the combination with a reach having a shaft journaled at its forward end and carrying a cross-piece, of a front axle, bolts passing loosely through the cross-piece and engaging the axle and springs interposed between the cross-piece and the axle.

12. In a vehicle of the character described the combination with a front axle, of a reach carrying a pivoted cross-piece and yielding connections intermediate the cross-piece and the axle.

13. In a vehicle of the character described the combination with a front axle having bosses, of a reach carrying a pivoted cross-piece having sockets, springs lying in the sockets and bearing on the bosses and bolts passing loosely through the cross-piece and engaging the bosses.

14. In a vehicle of the character described the combination with a front axle having wheels mounted to turn thereon, a reach carrying a pivoted cross-piece and yielding connections intermediate the cross-piece and said axle, of rear wheels fixed to spindles which are connected to a power-driven rear axle by universal joints, sleeves inclosing said axle, spindle-carriers pivoted to the sleeves and steering connections intermediate the pivoted cross-piece and the spindle-carriers.

15. In a vehicle of the character described the combination with a front axle having wheels mounted to turn thereon, a reach carrying at its forward end a bracket, a shaft journaled in said bracket and carrying a cross-piece, means for oscillating said shaft and yielding connections intermediate the cross-piece and said axle, of rear wheels fixed to spindles which are connected to a power-driven rear axle by universal joints, sleeves inclosing said axle, spindle-carriers pivoted to the sleeves and steering connections intermediate the cross-piece and the spindle-carriers.

16. In a vehicle of the character described the combination with a front axle, a reach having at its forward end a bracket and a shaft journaled in said bracket and carrying a cross-piece, of yielding connections intermediate the cross-piece and the axle and means for oscillating the shaft.

17. In a vehicle of the character described the combination with a front axle, a reach having at its forward end a bracket and a shaft journaled in the base of said bracket and carrying a cross-piece and a bevel gear-wheel, of yielding connections intermediate the cross-piece and the axle, a rock-shaft journaled in the bracket and carrying an intermeshing gear-wheel and a steering-lever detachably connected to the rock-shaft.

18. In a vehicle of the character described the rock-shaft 37 having socket 52 in combination with the U-shaped steering-lever adapted to engage the socket and having a spring-controlled hooked latch by which it is detachably secured to the socket.

19. The U-shaped steering-lever having pivoted therein the hooked latch 54, substantially as shown, for the purpose specified.

695,808. DUMPING-CAR. FREDERICK C. DURHAM, Flemington, N. J. Filed Oct. 12, 1901. Serial No. 78,444. (No model.)



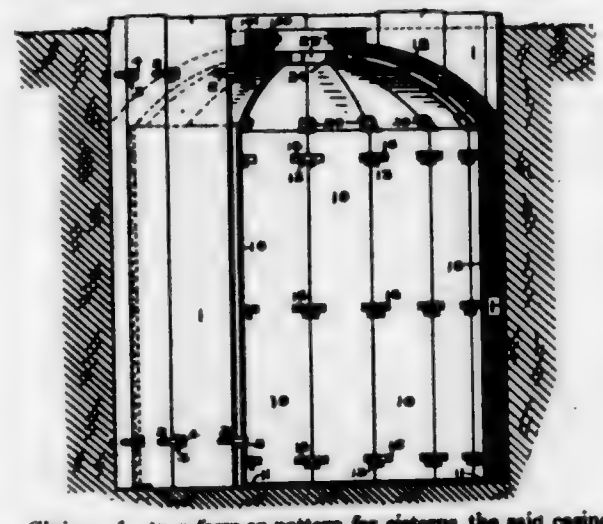
Claim.—1. A dumping-car with a winding-shaft in combination with a ratchet-wheel, a fulcrum and web formed with the wheel and a projection *g*, on the face of said wheel.

2. A dumping-car with winding-shaft A in combination with a ratchet-wheel W having on its surface a fulcrum *d*, strengthened by web *f* and a projection *g* with webs *k* and *k'* substantially as described and for purposes set forth.

3. A ratchet-wheel W for dumping-cars having on its outer surface a projecting pin *d* with web *f* inclining from the face of wheel to one-half the length of pin, in combination with the projection *g* and the webs *k* and *k'* inclining from face of wheel to the same length as projection *g*, as and for the purposes specified.

4. A ratchet-wheel W with two notches *c* and *c'* in its outer periphery in combination with the fulcrum *d* and its inclined web *f* and the projection *g* with the inclined webs *k* and *k'* on each side of same, substantially as described.

695,804. FORM OR PATTERN FOR CEMENT CISTERNS. SIMON L. DUNLAP, Indianapolis, Ind. Filed Oct. 25, 1901. Serial No. 79,945. (No model.)



Claim.—1. In a form or pattern for cisterns, the said casings being composed of an inner and an outer casing, each of said casings being composed of a plurality of segments, the outer casing carrying a series of rigidly-secured hooks the nose of which having its edge next the segment cut on an inclination, the foot of said inclination being at the bottom of the nose, eyes formed in the ears which are rigidly secured to the adjacent segments which eyes register and engage with the inclined nose of the hooks, thereby providing a means for drawing and securing the segments together, substantially as shown and for the purposes set forth.

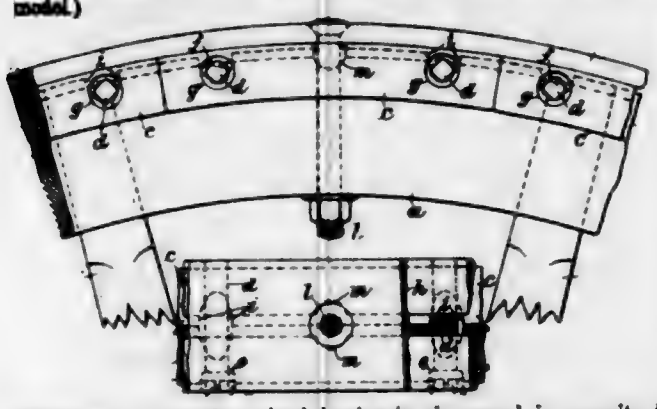
2. In a form or pattern for cisterns, of an inner casing composed of a plurality of segments having a multiplicity of widths, the lower ends of the segments being turned inward and form the foot therefor, two or more series of slots cut through each segment which receive the inward extensions 13, a wedge-shaped notch cut into the upper edge of the extensions,

a wedge 16 carrying the notches 17 which engage with the notches 14 in the projections 13, thereby providing a means for uniting and securing the segments, substantially as shown and described.

3. In a form or pattern for cisterns, a plurality of convex and wedge-shaped segments which form the dome for the cistern, straps terminating into ears secured to the base-corners of the segments, the said ears resting on the upper edge of the side wall, a groove cut into the inner ends of the segments which receive the ends of the horizontal screw-bolts in the collar, thereby providing a support for the inner ends of the segments, substantially as shown and described.

4. In a form or pattern for cisterns, a centrally-located collar 23, carrying the screw-bolts 24, the bolts adapted to engage with the inner grooved ends of the dome-segments and whereby said segments are supported, a collar 100 adapted to rest on the dome-segments, the inner surface of the said collar being flush with the aperture formed between the inner ends of the segments 18, an outer collar 101, having a greater radius than the collar 100, surrounds the same, the intervening space between the collars adapted to receive the cement that forms the neck for the cistern, substantially as shown and described.

695,805. WHEEL FOR VEHICLES. HAROLD EDENBOROUGH, Smaresbrook, England, assignor of one-half to G. H. Price and Co., London, England, a Firm. Filed Aug. 21, 1901. Serial No. 72,765. (No model.)



Claim.—1. A wooden wheel having its rim coned in opposite directions on the external circumference, in combination with an outer encircling tire-band forming the tread of the wheel, two opposed series of segmental wedges located between the rim and tire-band, said series of wedges being oppositely coned on their internal circumference to correspond to the double-coned circumference of the wheel-rim, and transverse bolts adapted to draw the oppositely-coned segments toward each other with a wedge-like action so as to take up slackness of the joints of the wooden part of the wheel and tighten the tire-band on the wheel, as described.

2. In a wheel, the combination of a rim having its external surface inclined from the center downwardly and outwardly and provided with transverse grooves or notches, a flat tire-band, segmental wedges arranged between the band and rim and having flat outer faces and inclined inner faces, and transverse bolts engaging the wedges to draw them toward each other, said bolts being in the grooves or notches of the rim, as set forth.

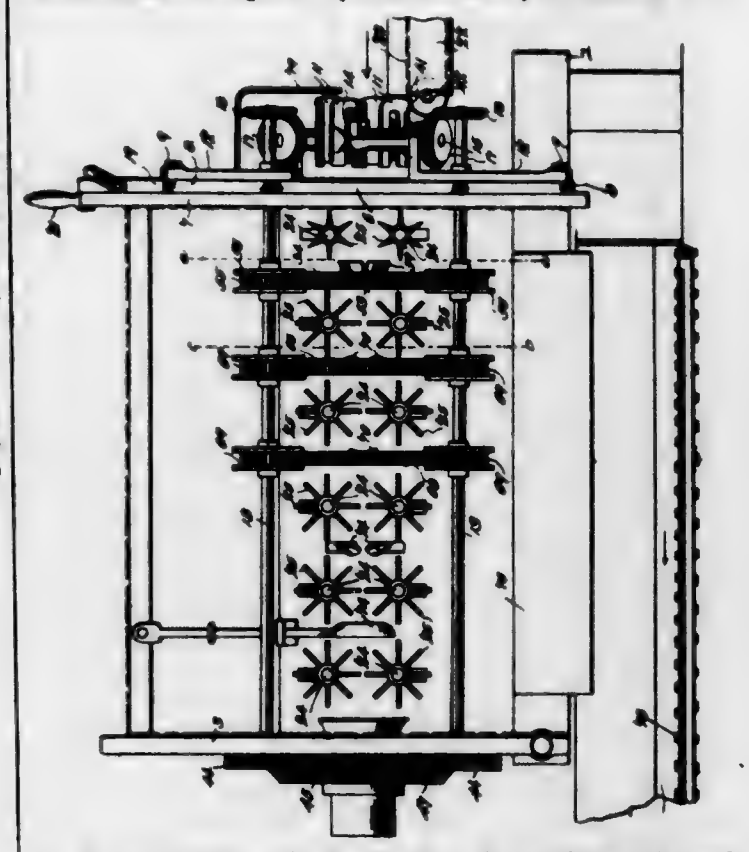
3. In a wheel, the combination with a rim having its external surface inclined from the center downwardly and outwardly and provided with transverse grooves or notches, a flat tire-band, bolts passing through the rim and band, segmental wedges arranged between the band and rim and having flat outer faces and inclined inner faces and provided with notches at their inner edges opposite the bolts securing the band to the rim, and transverse bolts engaging the wedges to draw them together, said bolts being in the grooves or notches of the rim, as set forth.

695,806. MACHINE FOR CUTTING GREEN CORN FROM THE COB. CLARENCE M. FENTON, Buffalo, and ADAM WODE, Jr., North Collins, N. Y.; said Wode assignor to said Fenton. Filed Mar. 11, 1901. Serial No. 50,690. (No model.)

Claim.—1. In a machine of the class described, the combination of means to feed an ear of corn endwise, a revoluble element through which the ear passes, and a spring-pressed arm attached to and carried by said revoluble element, said spring-pressed arm having one or more cutters arranged and operating to split the grains circumferentially of the ear, and a guide to bear on the ear, substantially as described.

2. In a machine of the class described, the combination of means to positively feed an ear of corn endwise, initial means operating to split the grains, and spring-pressed centering-arms carried by a revolving element and carrying squeezing-rollers acting on the circumference of the endwise-moving ear to express the meat and juices from the split grains, substantially as described.

3. In a machine of the class described, the combination with means to feed an ear of corn endwise, a plurality of revoluble wheels, disposed one in rear of another, and each having a central opening and spring-pressed centering-arms, said arms of the said front wheel having flared segmental guides 59 at their inner ends and cutter-blades 65 at the rear sides of said guides, and said arms of the rear wheels having rollers 70, all constructed and designed to operate, substantially as described.

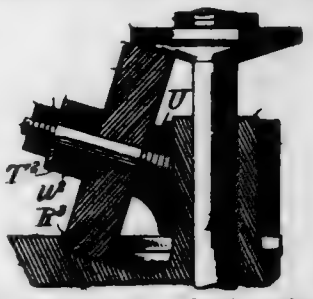


4. In a machine of the class described, the combination of a fixed-ring frame, arms pivotally connected thereto, guide-plates and feed-wheels carried by said pivotal arms, means to operate said feed-wheels, an oscillatory ring connected to said pivoted arms, and a shield 79, attached to said fixed ring and disposed in front on said guide-plates and feed-wheels, substantially as described.

5. In a machine of the class described, in combination with means to feed an ear of corn endwise, the wheel 53 having the central opening, the annular plate 57 on its rear side and the radial arms 58, supporting-arms 61 pivotally connected to said radial arms, and disposed on the front side of said annular plate, said supporting-arms having flared segmental guides 59 at their inner ends, and cutter-blades 65 secured to the rear sides of said guides, and springs 64 attached to said wheel and bearing against said supporting-arms, and means to rotate said wheel, substantially as described.

6. In a machine of the class described, the combination of means to positively feed an ear of corn endwise, a revoluble element through which the ear passes, and a spring-pressed arm attached to and carried by said revoluble element, said spring-pressed arm having one or more cutters arranged and operating to split the grains circumferentially of the ear, and a guide to bear on the ear, with spring-pressed centering-arms carried by a revolving element and carrying squeezing-rollers acting on the circumference of the endwise-moving ear to express the meat and juices from the split grains, substantially as described.

695,807. THRUST-BEARING FOR SHAFTS. SAMUEL M. FULTON and ALDEN T. AMES, Galt, Cal.; said Fulton assignor to said Ames. Original application filed Sept. 7, 1901, Serial No. 74,694. Divided and this application filed Dec. 10, 1901. Serial No. 85,386. (No model.)



Claim.—1. In a thrust-bearing, a head portion comprising an oil-reservoir having an inclined bearing-track and an upwardly-extending collar, a driving-shaft passing through said collar and provided with a bearing-disk at its upper portion having its bearing-face parallel to said track,

a cage rotatably mounted upon said collar, and a roller rotatably mounted upon said cage and having its bearing-face parallel to said track and disk; substantially as specified.

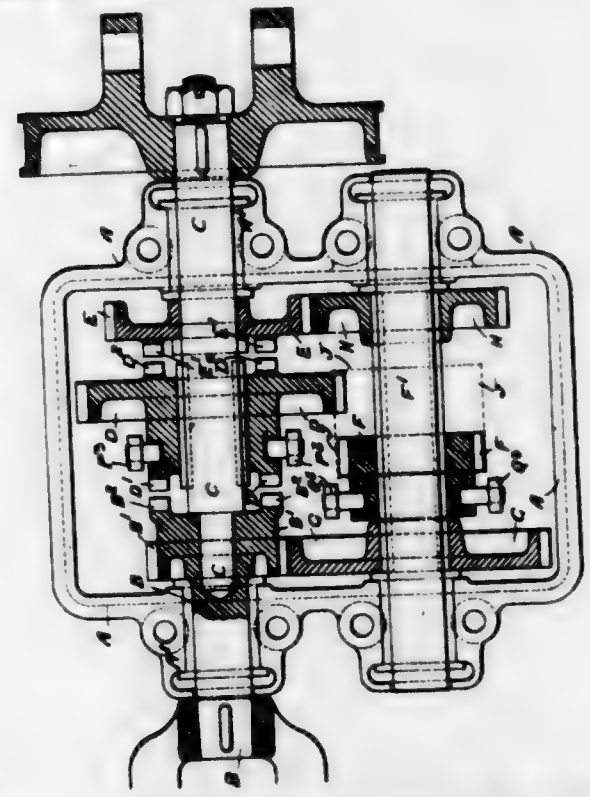
2. In a thrust-bearing, a head portion comprising an inclined bearing-track and an upwardly-extending collar, a driving-shaft passing through said collar and provided with an inclined bearing-disk at its upper portion parallel to said track, a cage rotatably mounted upon said collar, a stud extending laterally from said cage and diagonally to the driving-shaft, and an inclined roller disposed at an angle to said shaft and parallel to said disk and track; substantially as specified.

3. In a thrust-bearing, a head portion comprising a bearing-track and an upwardly-extending collar, a driving-shaft passing through said collar and provided with a bearing-disk at its upper portion, a cage rotatably mounted upon said collar, a stud extending laterally from said cage, and an inclined roller mounted upon said stud and having an inclined face at its outer edge to coöperate with a face of the track or way; substantially as specified.

4. In a thrust-bearing, a head portion comprising an oil-reservoir and having a bearing-track and an upwardly-extending collar, a driving-shaft passing through said collar and provided with a bearing-disk at its upper portion, a cage rotatably mounted upon said collar, a stud extending laterally from said cage, an inclined roller mounted upon said stud and having an inclined face at its outer edge to coöperate with a face of the track or way; and a casing surrounding all of said parts; substantially as specified.

5. In a thrust-bearing, a head portion comprising a hollow track inclined toward its center and forming an oil-reservoir, a driving-shaft passing through said head portion and provided with a bearing-disk at its upper end having its contact-face parallel with said track, and a bearing-roller having its face parallel to said track and disk and adapted to travel in the hollow track of said head and in contact with said disk to feed oil to the latter and sustain the weight of the driving-draft, substantially as specified.

695,808. **DRIVING-GEAR FOR MOTOR-VEHICLES.** ALEXANDER GOVAN, Bridgeton, Glasgow, Scotland. Filed Oct. 17, 1901. Serial No. 79,032. (No model.)



Claim.—1. In a driving-gear, the combination with a motor-shaft and a driven shaft in line therewith, of a spur-wheel fast on the motor-shaft, a clutch-faced spur-wheel fast on the driven shaft and adapted to slide into engagement with said spur-wheel, a free spur-wheel on the driven shaft, adapted to be engaged by the sliding spur-wheel, a counter-shaft, spur-wheels fast thereon, meshing with the spur-wheels on the motor and driven shafts, a sliding spur-wheel on the counter-shaft adapted to be thrown into and out of gear with the clutch-faced spur-wheel, and an intermediate or reversing spur-wheel capable of being geared with the clutch-faced spur-wheel and with the sliding spur-wheel on the counter-shaft, substantially as set forth.

2. In a driving-gear, the combination with a motor-shaft and a driven shaft in line therewith, of a spur-wheel fast on the motor-shaft, a clutch-faced spur-wheel fast on the driven shaft and adapted to slide into engagement with said spur-wheel, a free spur-wheel on the driven shaft adapted to be engaged by the sliding spur-wheel, a counter-shaft, spur-wheels fast thereon, meshing with the spur-wheels on the motor and driven shafts, and a sliding spur-wheel on the counter-shaft adapted to be thrown into and out of gear with the clutch faced spur-wheel.

3. The combination of the driving-shaft, a counter-shaft, connections between the driving-shaft and the counter-shaft, a driven shaft, a spur-wheel carried by the driven shaft, a sliding spur-wheel carried by the counter-shaft and adapted to be thrown into engagement with the spur-wheel on the driven shaft, and a spur-wheel adapted to be thrown into engagement with the spur-wheel on the driven shaft and the sliding spur-wheel on the counter-shaft, to reverse the motion of the driven shaft.

4. The combination of the driving-shaft, a counter-shaft, connection between the driving-shaft and counter-shaft, a driven shaft, a sliding spur-wheel carried thereby and adapted to be thrown into engagement with the driving-shaft, a sliding spur-wheel carried by the counter-shaft and adapted to be thrown into engagement with the sliding spur-wheel on the driven shaft, and a spur-wheel adapted to be thrown into engagement with the sliding spur-wheel on the counter-shaft and the sliding spur-wheel on the driven shaft to reverse the motion of the latter shaft.

5. The combination of a driving-shaft, a spur-wheel carried by the driving-shaft, a counter-shaft, a spur-wheel mounted on the counter-shaft, connecting with the spur-wheel on the driving-shaft; a driven shaft, a spur mounted loosely on the driven shaft, connection between the counter-shaft and the loosely-mounted spur-wheel on the driven shaft, and a clutch carried by the driven shaft and adapted for engagement with the driving-shaft or for engagement with the loosely-mounted spur-wheel on the driven shaft.

6. In a driving-gear, the combination of a longitudinally-shiftable gear, a lever connected thereto, a rock-shaft to which the said lever is connected, a lever carrying studs, also connected to the rock-shaft, and a lever provided with cam-shaped slots in which the pins work, and means for shifting the slotted lever to shift the gear-wheel.

7. The combination of a plurality of shiftable gear-wheels, levers connected to each gear-wheel, a rock-shaft to which each of said levers is connected, a lever provided with a pin connected to each rock-shaft, and a lever having a plurality of cam-slots in which the pins of the last-mentioned levers work, and means for shifting the slotted lever to shift the sliding spur-wheels.

8. The combination of two longitudinally-shiftable gear-wheels, a lever connected to each gear-wheel, a hollow rock-shaft connected to one of said levers, a rock-shaft connected to the other lever and mounted within the hollow rock-shaft, a lever carrying a pin connected to each of said rock-shafts, a lever provided with a plurality of cam-slots, in which the pin works, and means for shifting the slotted lever to shift the gears.

9. The combination of a driving-shaft, a spur-wheel carried thereby, a counter-shaft, a spur-wheel carried by the counter-shaft, connecting with the spur-wheel on the driving-shaft, a driven shaft in alinement with the driving-shaft, a spur-wheel loosely mounted on the driven shaft, a second spur-wheel mounted on the counter-shaft, connecting with the loosely-mounted spur-wheel on the driven shaft, a sliding clutch spur-wheel on the driven shaft adapted for engagement with the driving-shaft or with the loosely-mounted spur-wheel on the driven shaft, a sliding spur-wheel on the counter-shaft, a hollow rock-shaft, connections between the hollow rock-shaft and the sliding clutch spur-wheel on the driven shaft, a rock-shaft mounted within the hollow rock-shaft and connected with the sliding spur-wheel on the counter-shaft, a lever carrying pins, connected to each of the rock-shafts, a lever provided with cam-slots in which the pins work, and means for shifting the slotted lever to shift the sliding spur-wheels.

695,809. **CARTRIDGE.** GEORGE O. HAWK, Greenfield, Ind. Filed May 18, 1901. Serial No. 60,874. (No model.)

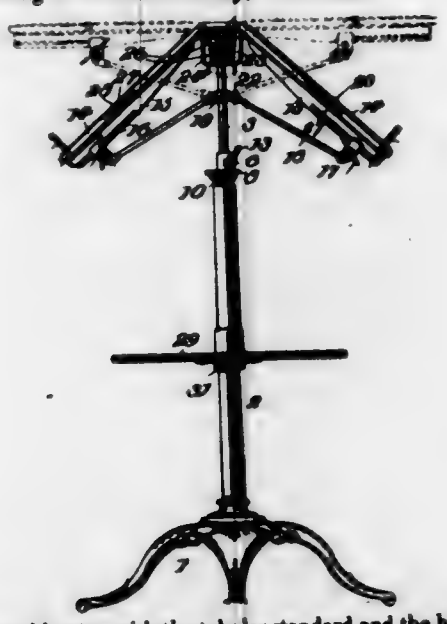


Claim.—The combination of a cartridge formed with a central longitudinal bore and a plurality of series of forwardly-inclined cylindrical passages radiating from the longitudinal bore through the surface of the cartridge, a projectile having a longitudinal bore, a pin fitting in the adjacent ends of the longitudinal bores for connecting the cartridge and projectile, and a cap-plate having a central opening and a plurality of forwardly-projecting pins whereby the cartridge is secured thereto.

695,810. **BOOK-REST.** JOHN R. HILL, Washington, D. C. Filed May 18, 1901. Serial No. 60,873. (No model.)

Claim.—1. The combination with the tubular standard and the hinged leaves, of the rod for supporting said leaves extended down into said standard, a coupling in the upper end of said standard, a clamp, en-

gaging and holding said rod, extended through said coupling, and means, on the inner end of said clamp, for holding it as against longitudinal movement, but allowing it to revolve axially, as set forth.



2. The combination with the tubular standard and the hinged leaves, of the rod for supporting said leaves extended into said standard, the coupling fitted in the upper end of the latter, the clamp on said rod comprising a split jaw, a thumb-screw, a disk carrying said jaw and having a sleeve extending through said coupling, and a collar on the lower end of said sleeve, substantially as set forth.

3. The combination with the tubular standard, of the rod, the clamp securing said rod to said standard, means for permitting said clamp to move axially, the table having a central section to which said rod is secured, and leaves hinged to said section, said leaves having depending narrow portions on their under sides, links pivotally secured to said rod at their inner ends, and clamps pivoted to the outer ends of said links for hugging the sides of said depending portions of said leaves, substantially as set forth.

4. The combination with the tubular standard, the rod and the clamp holding the latter in said standard, of the table having a central section to which said rod is secured, leaves hinged to said section having depending plates formed with lateral flanges, a collar fast on said rod, links pivotally secured at their inner ends to said collar, two-part clamps having grooves in their opposite faces and pivotally secured to the outer ends of said links, and thumb screws for binding said clamps against the flanged plates on the end under sides of the leaves, as set forth.

5. The combination with the table having a central section and leaves hinged thereto, of the stop-boards removably secured to said leaves near their outer ends, and pockets on the under side of said central board for holding said stop-boards when not in use, substantially as set forth

6. The combination with the table having a central board and leaves hinged thereto, of the stop-boards having pins for fitting in holes in said leaves, and pockets depending from said center board for holding said stop-board when not in use, substantially as set forth.

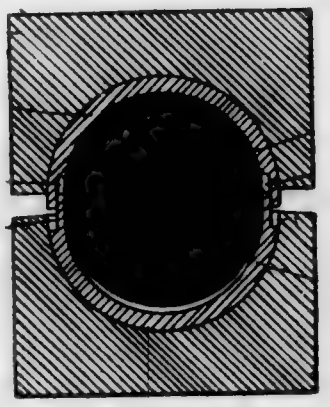
695,811. **RED AZO DYE.** PAUL JULIUS and FRITZ GÜNTHER, Ludwigshafen, Germany, assignors to Badische Anilin und Soda Fabrik, Ludwigshafen, Bavaria, Germany, a Corporation of Germany. Filed Dec. 23, 1901. Serial No. 87,003. (No specimens.)

Claim.—As a new article of manufacture the azo dye which can be obtained from diazotized 2-amido-1-naphthyl-methane sulfo-acid and beta-naphthol, which dyes wool from the acid-bath a red shade and yields a blue-violet color with concentrated sulfuric acid, and on suitable reduction yields 2-amido-1-naphthyl-methane sulfo-acid.

695,812. **CHLORANISIDIN.** PAUL JULIUS, Ludwigshafen, and FRIEDRICH M. JAEGGARDT, Mannheim, Germany, assignors to Badische Anilin und Soda Fabrik, Ludwigshafen, Bavaria, Germany, a Corporation of Germany. Filed Dec. 23, 1901. Serial No. 87,008. (No specimens.)

Claim.—As a new article of manufacture chlor-anisidin having a composition corresponding to the formula C_7H_6ONCl, which occurs as a white substance melting at about eighty-three (83) degrees, and which chlor-anisidin in the form of its salt with sulfuric acid is a white substance melting at about one hundred and seventy (170) degrees, and which chlor-anisidin in the form of its acetyl derivative is a white substance melting at about one hundred and three (103) degrees, and which chlor-anisidin in the form of its salts with nitric acid and with hydrochloric acid forms white substances which when heated decompose, and which chlor-anisidin when diazotized and then combined with beta-naphthol yields a red substance practically insoluble in water, which red substance gives a violet-red color with concentrated sulfuric acid.

695,813. **MANUFACTURE OF GOLF-BALLS.** ELEAZER KEMPSHALL, Boston, Mass. Filed Dec. 18, 1901. Serial No. 86,348. (No model.)



Claim.—1. A process in producing playing-balls, consisting in forcing lap-jointed shell-segments together over a filling whose original bulk exceeds the capacity of the shell, so as to compress said filling.

2. A process in producing playing-balls, consisting in forcing lap-jointed shell-segments over a filling whose original bulk exceeds the capacity of the shell, so as to compress said filling.

3. A process in producing playing-balls, consisting of inserting within lap-jointed shell-segments an elastic mass whose original bulk exceeds the capacity of the finished shell, forcing the segments together, and causing their contacting portions to adhere.

4. A process in producing playing-balls, consisting of inserting within lap-jointed shell-segments an elastic mass whose original bulk exceeds the capacity of the finished shell, forcing the segments together, causing their contacting portions to adhere, and compressing the shell to size.

5. A process in producing playing-balls, consisting in inserting within lap-jointed shell-segments an elastic mass whose original bulk exceeds the capacity of the finished shell, forcing the segments together, and heating the contacting edges of the segments.

6. A process in making playing-balls, consisting in making a filling of elastic material formed oversize, making a shell in lap-jointed segments, uniting the shell-segments, and compressing them together upon the filling so as also to compress the latter, so that said filling may resist distortion of the shell when the ball is in use.

7. A process in making playing-balls, consisting of making a filling of gutta-percha whose original bulk is too great for the capacity of the finished shell, making lap-jointed spherical celluloid segments, pressing the segments together over the fillings so as to compress the latter, and uniting the edges of the segments.

8. The method of producing playing-balls, consisting in forcing previously-formed shell-segments together over a filling whose original bulk exceeds the capacity of the shell, so as to compress said filling, and uniting the segments.

9. The method of producing playing-balls, consisting in forcing previously formed shell-segments over a filling whose original bulk exceeds the capacity of the shell, so as to compress said filling, and pressing the segments together so as to cause their edges to adhere.

10. The method of producing playing-balls, consisting of inserting within shell-segments an elastic mass whose original bulk exceeds the capacity of the finished shell, forcing the segments together, causing their contacting portions to adhere, and compressing the shell to size.

11. The method of producing playing-balls, consisting in inserting within shell-segments an elastic mass whose original bulk exceeds the capacity of the finished shell, forcing the segments together, and heating the contacting edges of the segments.

12. The method of producing playing-balls, consisting in inserting within shell-segments an elastic mass whose original bulk exceeds the capacity of the finished shell, forcing the segments together, heating the segments, and compressing the shell to size.

13. The method of making playing-balls, consisting in making a filling of elastic material formed oversize, making a shell in segments which approximate their final form, uniting the shell-segments, and compressing them to final form, upon the filling so as also to compress the latter, so that said filling may resist distortion of the shell when the ball is in use.

14. The method of making playing-balls, consisting of making a filling of gutta-percha whose original bulk is too great for the capacity of the finished shell, making spherical celluloid segments, pressing the segments together over the filling so as to compress the latter, and uniting the edges of the segments.

15. The method of making playing-balls, consisting of making a fill-

ing of gutta-percha whose original bulk is too great for the capacity of the finished shell, making hemispherical celluloid segments, and pressing the segments together over the filling so as both to compress the latter and also to cause the edges of the segments to adhere.

16. The method of making playing-balls, consisting of making by compression a filling of gutta-percha whose bulk is too great for the capacity of the finished shell, making hemispherical celluloid segments, and pressing the segments together over the filling so as both to further compress the latter and also to cause the edges of the segments to adhere.

17. The method of making playing-balls, consisting of making a filling of gutta-percha whose original bulk is too great for the capacity of the finished shell, making hemispherical celluloid segments, and pressing the segments together over the filling so as to compress the latter, cause the edges of the segments to adhere, and also compress the ball to final size.

18. The method of making playing-balls, consisting of making a filling of gutta-percha whose original bulk is too great for the capacity of the finished ball, making hemispherical celluloid segments, preparing the edges of the segments for adhesion, and pressing the segments together over the filling, so as both to compress the latter and also to cause the edges of the segments to join.

19. The method of producing playing-balls, consisting in reducing in bulk under heat and compression a ball comprising a hard, wear-resisting, relatively thin springy shell and a relatively bulky elastic filling, the bulk of the filling being somewhat reduced by means of the compression, and in consequence tending thereafter by its expanding power to preserve the spherical form of the ball.

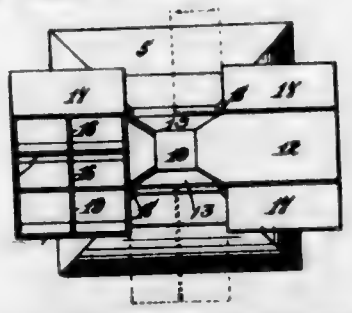
20. The method of producing playing-balls, consisting in reducing in bulk, under heat and compression, a previously assembled or formed ball comprising a relatively thin celluloid shell and a relatively massive yielding core, the celluloid shell being compressed and toughened and the filling being also somewhat reduced in bulk by the compression, so that the filling may, by tending to expand the thin shell, constantly resist distortion of the shell by a blow.

21. The method of producing a playing-ball consisting in reducing in bulk, under heat and compression, a previously assembled or formed ball, comprising a shell consisting largely or wholly of celluloid and a core consisting largely or wholly of gutta-percha; the celluloid of the shell being compressed and toughened and the core being reduced in bulk by the pressure, so that the latter may by reason of its expanding tendency constantly resist distortion of the shell by a blow.

22. The method of completing a playing-ball, consisting in rendering a celluloid shell plastic by heat, compressing the plastic shell upon a resisting core, and maintaining the ball in a compressed condition until the shell hardens.

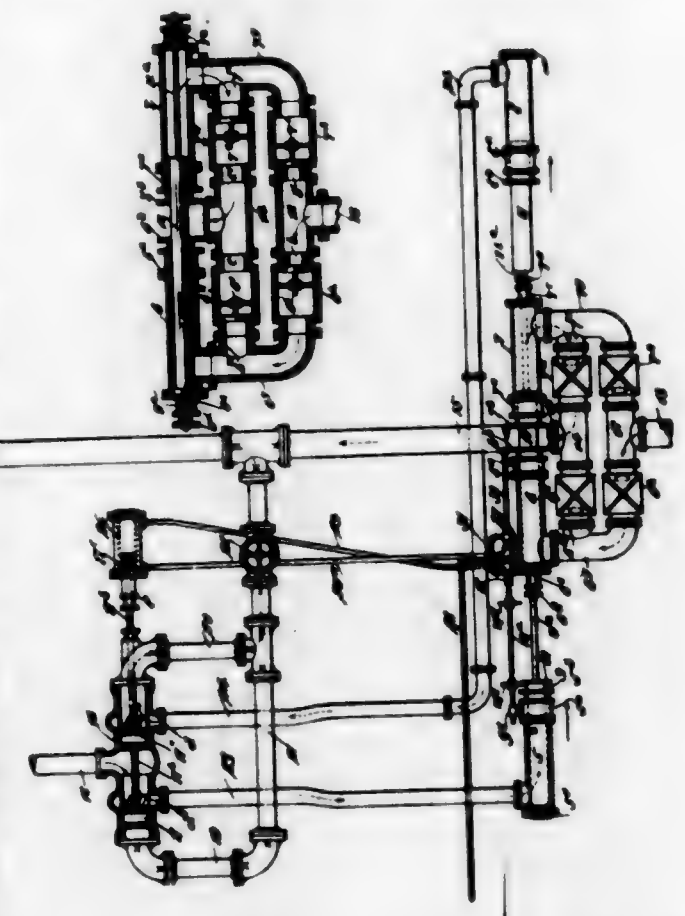
23. The method or process of making playing-balls, consisting in forming shell-segments which approximate their final form, placing them upon a previously-formed filling of springy material, heating the segments, subjecting them to compression so as both to weld them together and also to cramp or compress the core, and maintaining the compression while the shell hardens, so that the shell may thereafter hold the filling under compression.

695,814. BOOK-FILE. THOMAS A. KIRK, Sioux City, Iowa. Filed Mar. 30, 1901. Serial No. 53,696. (No model.)



Claim.—In a file of the class described, a support, central portion on said support having a pair of main book-carrying sections extending oppositely therefrom and each open upon opposite sides and of box-like form, the opposite faces of the said central portion being depressed, a pair of auxiliary book-carrying sections hinged at their inner ends to the opposite sides of each main book-carrying section and of box-like form, said auxiliary book-carrying sections being open upon their inner sides and being arranged to fit edgewise against the opposite edges of the main book-carrying sections and being open upon their inner sides and closed upon their opposite sides, webs connecting the main book-carrying sections and against which the auxiliary book-carrying sections are adapted to abut when swung open, said webs extending outward from the faces of the said central depressed portion and a base or standard provided with means for rotatively sustaining said support.

695,815. HYDRAULIC PUMP. CORNELIUS B. LAKEMAN, Grass Valley, Cal. Filed Dec. 4, 1899. Serial No. 739,159. (No model.)



Claim.—1. In a pumping apparatus the combination of four cylinders having their axes in line and in the same horizontal plane, the outer cylinders being spaced substantially an equal distance from the adjacent ends of the inner cylinders and which distance is less than the length of either cylinder and its packing-box, and the inner cylinders separated a short distance at their adjacent ends; packing-boxes affixed upon the ends of the cylinders and exterior to said cylinders whereby interior packing is obviated; three plungers axially in line, two of said plungers occupying the outermost cylinders and having a length about equal to the combined length of the cylinder and the exterior packing-box which it occupies, and the intermediate plunger operating in the two inner cylinders and having such proportionate length as will permit it to fully occupy one of said cylinders, and also pass through the packing-boxes on the adjacent ends of said inner cylinders; branch pipes leading from the sides of the inner cylinders and turned toward each other and axially coincident; valve-boxes secured upon said branch pipes and provided with valves; a water-inlet; a pipe connection between the branch pipes and provided with valve-boxes; and a discharge-pipe leading from the said pipe connection.

2. In a pumping apparatus the combination with the four cylinders axially in line and the pistons reciprocable in line in said cylinders, the inlet and outlet pipes and the valve mechanism, of a primary motor including a valve-chamber and two connected piston-valves therein, a pipe leading from a source of water-supply and entering the valve-chamber between the valves, waste-water branches from the valve-chamber and a discharge-pipe connecting them with the outlet-pipe said discharge-pipe having a controlling-valve and said valve-chamber having annular enlargements with conduits leading thereto from the outer ends of the outermost cylinders.

3. The combination of four cylinders axially in line and pistons reciprocable in line in said cylinders; a hydraulic chamber 25; a hydraulic valve-chamber 27 and a valve-rod to reciprocate in said chamber; two piston-valves on said rod and reciprocable in said valve-chamber; a water-supply pipe 28 tapping the valve-chamber at a point between the said piston-valves; two outlets from the valve-chamber, one of said outlets having communication with the chamber between the piston-valves, and the other outlet intersecting the bore of the chamber at a suitable point beyond the inward travel of the adjacent valve; two pipes extending from the said outlets to opposite ends of the hydraulic chamber 25, to convey water thereto; a waste-water pipe 30 extending from the head end of the valve-chamber; the pipe 15 with which said waste-water pipe connects; two spaced disks secured to the valve-rod, and a flange on one of the pump-plungers of such diameter as will permit the disks to be engaged on their inner sides to reciprocate the valve rod.

695,816. MACHINE FOR PRINTING IN A PLURALITY OF COLORS. EDOUARD LAMBERT, Paris, France. Filed Jan. 22, 1901. Serial No. 44,316. (No model.)

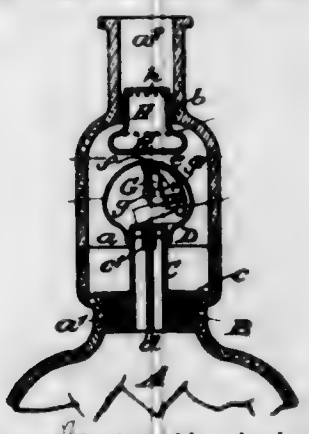


Claim.—1. In a machine for printing in a plurality of colors and having a plurality of step-cylinders, printing-forms, and inking devices all arranged in succession, a traveling frame above the cylinders which takes sheets from one cylinder and carries them to the next and rests at each end of the stroke during the time necessary to take the sheets from the cylinders or to lay them on the cylinders, devices for effecting said motion, wheels geared with the bed and racks having a to-and-fro motion, toothed wheels moved by said racks and geared with fixed racks and pins on said wheels having a cycloidal motion and connected with the traveling frame, fixed notches which hold these pins during the end and the beginning of each stroke of the bed and determine the exact position of the traveling carriage till the sheet has been taken from the cylinder to the conveyer or reciprocally substantially as described.

2. In combination a traveling frame above the cylinders, wheels and racks for reciprocating said carriage and notches to hold it fixed, clamping-grippers carried by said cylinders, a carriage traveling above the said cylinders, clamping-grippers carried by said carriage, means for raising and lowering the said clamping-grippers in relation to the cylinder, grippers and means for opening and closing said clamping-grippers, said means comprising the bar 65 for raising and lowering the clamping-grippers and the bar 85 for opening and closing the same, substantially as described.

3. In combination, the cylinders having grippers, the carriage movable above the said cylinders, the pivoted levers 50, 51, carried by the carriage, the clamping-grippers carried by the said levers, means for raising and lowering the said levers in relation to the cylinders and means for opening and closing the grippers, substantially as described.

695,817. NON-REFILLABLE BOTTLE. JAMES R. LATHAM, New York, N. Y., assignor of one-half to Robert Milbank, New York, N. Y. Filed May 3, 1899. Serial No. 715,411. (No model.)

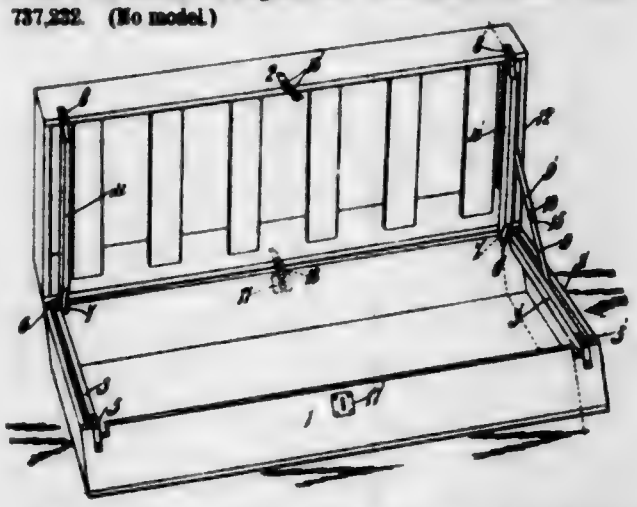


Claim.—1. The combination with a bottle or other vessel and a tube seated in its neck forming the means of communication between the neck and the interior of the bottle, of a valve seated in the tube to open and close communication therethrough, a gravity-lever arranged to hold the valve closed when the bottle is above a horizontal position and means for automatically locking the lever against movement when the bottle is in a substantially upright position, substantially as set forth.

2. The combination with a bottle or other vessel and a tube seated in its neck forming the means of communication between the neck and the interior of the bottle, of a valve seated in the tube to open and close communication therethrough, a gravity-operated lever arranged to hold the valve closed when the bottle is above a horizontal position and a gravity-operated device for positively locking the lever in position to hold the valve closed when the bottle is in a substantially upright position, substantially as set forth.

3. The combination with a bottle or other vessel and a tube seated in its neck forming the means of communication between the neck and the interior of the bottle, a valve seated in the tube to open and close communication therethrough, a loop-support carried by the tube, a swinging bracket swiveled in the said support, a weighted lever hinged to said bracket and arranged in position to close the valve when the bottle is above a horizontal position and a gravity-operated detent hinged to the bracket in position to lock the lever in position to hold the valve closed when the bottle is in a substantially upright position, substantially as set forth.

695,818. WARDROBE SOFA-COUCH OR OTHER RECEPTACLE. LOUIS C LE COUNT, Los Angeles, Cal. Filed Nov. 16, 1899. Serial No. 737,232. (No model.)



Claim.—1. A sofa-bed comprising a box; a top fitted to the box; hinges hinging said top to said box, one of which hinges is pivoted by one end to the sofa-box at one side of the bed and pivoted at the other end to the sofa-top at the other side of the bed and the other hinge being pivoted to said box at said other side of the bed and to said top at the first-mentioned side of the bed; and an adjustable reversible brace for holding the top at an incline in either direction.

2. The combination of a box-body; a top fitted to the box-body; hinges 3, 4, at one end of the box and body, one of which hinges is pivoted by one end to the box-body at one side of the box and pivoted at the other end to the box-top at the other side of the box, the other hinge 4 being pivoted to said box-body at said other side of the box and to the top at the first-mentioned side; hinges 3', 4', at the other end of the box, one of which hinges is pivoted by one end to the box-body at one side of the box and pivoted at the other end to the top at the other side of the box and the other hinge being pivoted to the box at said other side of the box and to the top at the first-mentioned side, substantially as set forth.

3. A sofa-bed comprising a box; a top fitted to the box; hinges hinging said top to said box; one of which hinges is pivoted by one end to the sofa-box at one side of the bed and is pivoted at the other end to the sofa-top at the other side of the bed and the other hinge is pivoted to said box at said other side of the bed and to said top at the first-mentioned side of the bed; a hasp and a lock detachably securing the box and top together at one side; and a hasp and a lock detachably securing the box and top together at the other side.

4. The combination of a box; a top fitted to the box to form a closed receptacle; a hinge pivoted at one end to one side of the box and at the other end to the top at the other side of the receptacle; a hinge pivoted at one end to the box at said other side of the receptacle and to the top at the first-mentioned side of the receptacle; and a jointed brace pivoted to an end piece of the box and to an end piece of the cover at the mid-width of the receptacle.

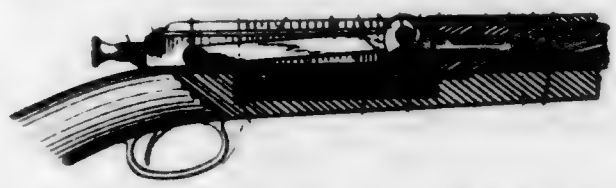
5. The combination of a box; a top fitted to the box to form a closed receptacle; a hinge pivoted at one end to one side of the box and at the other end to the top at the other side of the receptacle; a hinge pivoted at one end to the box at said other side of the receptacle and to the top at the first-mentioned side of the receptacle; a jointed brace pivoted to an end piece of the box and to an end piece of the cover at the mid-

width of the receptacle; and oppositely-arranged locking devices for detachably fastening the box and top together.

6. A base member; a top member on the base member; a hinge pivoted at one end to one side of the base member and at the other end to the top member at the other side of the device; a hinge pivoted at one end to the base member at said other side and to the top member at the first-mentioned side; hinged means at one side of the device constructed to detachably secure the base and top members together; and hinged means at the other side constructed to detachably secure the base and top members together.

7. A base member; a top member on the base member; a hinge pivoted at one end to one side of the base member and at the other end to the top member at the other side of the device; and hinged fastening devices detachably hinging the opposite sides of the top member to the corresponding sides of the base member.

695,819. **BREECH-LOADING FIREARM.** MYRON C. LESLIE, Grand Rapids, Mich., assignor of one-half to Frank A. Simonds, Grand Rapids, Mich. Filed Jan. 28, 1900. Serial No. 2,870. (No model.)



Claim.—1. In a gun, the combination of a rifled barrel, and means for forcing the projectile into the rifled portion of the barrel by the manual operation of the breech-bolt, whereby the form of the projectile is changed to correspond with, and fit into the rifling within the barrel, prior to firing the propelling charge.

2. In a gun, the combination of a rifled barrel, a longitudinally-movable breech-bolt, and means for moving and locking the breech-bolt when combined, arranged, and operated to force the projectile into the rifled portion of the barrel, and to simultaneously change the form of the projectile to accurately fit the rifling previous to firing the propelling charge, substantially as described.

3. In a gun, the combination of a barrel having a smooth shell-chamber and a rifled bore of substantially uniform diameter extending wholly to the shell-chamber, and means for forcing the projectile into the rifled portion of the barrel by manual power previous to firing the propelling charge, whereby the projectile is changed in form and accurately fitted to the rifling, substantially as described.

4. The combination of a gun-barrel, having a smooth shell-chamber and a rifled portion extending wholly to the shell-chamber, a longitudinally-movable breech-bolt to close the rear of the barrel, a cam to move the bolt, and means for manually operating the cam, whereby the projectile is forced by the breech-bolt into the rifled portion of the barrel previous to firing the propelling charge, and whereby the projectile is changed in form to fit the rifling of the barrel, substantially as described.

5. In a breech-loading gun, a longitudinally-movable bolt to close the breech, a transverse shaft journaled in the bolt, means for rotating the shaft, cams on the shaft, and spring-actuated bars to engage the cams, substantially as described.

6. In a breech-loading gun, the combination of a longitudinally-movable bolt, rectangular in cross-section, pivoted bars at each side of the bolt, a transverse shaft journaled in the bolt, cams on the shaft to engage the bars, and a crank on the shaft, substantially as described.

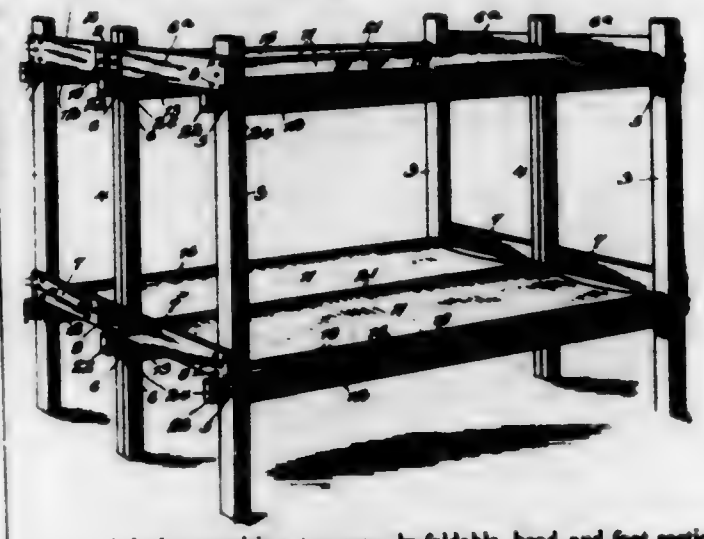
7. In a breech-loading gun, the combination of a longitudinally-movable bolt, bars at each side of the bolt pivoted at their rear and supported at the front by springs, a transverse shaft journaled in the bolt, a crank on the shaft, cams on the shaft engaging the bars, and stops on the cams, substantially as described.

8. In a breech-loading gun, the combination of a longitudinally-movable bolt, a transverse shaft journaled in the bolt, a crank and cams on the shaft, bars to engage one side of the cams, and abutments to engage the opposite side of the cams, substantially as described.

9. In a breech-loading gun, the combination of a longitudinally-movable bolt, rectangular in cross-section, bars at each side of the bolt pivoted at their rear ends and having a limited vertical movement at their forward ends, springs to raise said bars, a transverse shaft journaled in the bolt, a crank on the shaft, cams on the shaft engaging the bars, stops on the cams, and abutments opposite the bars to engage the cams, substantially as described.

695,820. **KNOCKDOWN BED.** WILLIAM W. LOCHER, Newcastle, Pa. Filed June 29, 1901. Serial No. 66,545. (No model.)

Claim.—1. In a bed, the combination with foldable head and foot sections each comprising corner-posts and intermediate posts, the latter posts having a hinged joint which is capable of breaking inwardly with respect to the bed, and a foldable bottom comprising side and intermediate rails, and flexible material connecting said rails, the ends of the latter having detachable interlocking connecting means with the posts to rigidly connect all the parts of the bed and to prevent accidental inward folding of the head and foot sections.



2. A bed, comprising transversely-foldable head and foot sections which have hinged connections at their inner edges, said edges also being provided with registering mortises, and a bed-bottom having side and intermediate rails, the side rails having detachable connections with the head and foot sections, and the intermediate rail having opposite terminal tenons to fit within the corresponding mortises at the inner edges of the respective head and foot sections.

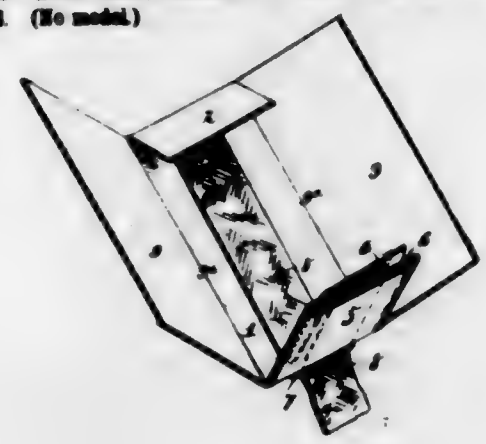
3. A bed, comprising transversely-foldable head and foot sections which have hinged connections at their inner edges, said inner edges also being provided with registering mortises, a bed-bottom having side and intermediate rails, the side rails having detachable connections with the respective members of the head and foot sections, the intermediate rail having opposite terminal tenons to fit within the corresponding mortises in the inner edges of the head and foot board sections, and locking-pins removably fitted in openings in the tenons and lying transversely across the hinged joint of the head and foot sections.

4. A bed comprising transversely-foldable head and foot sections, each section composed of two corner-posts and a two-part center post, mortises in the corner-posts and between the meeting faces of the center posts, a bed-bottom having tenons to engage the mortises, and locking means coacting with the tenons.

5. A bed comprising transversely-foldable head and foot sections each composed of corner-posts provided with mortises, and a two-part center post having mortises in the opposed faces of the parts, two-part brace-boards, constituting head and foot boards secured to the corner-posts, hinges having their leaves secured to the ends of the brace-boards and to the two-part center post at its division-line, a bed-bottom having tenons engaging the mortises, and locking means coacting with the tenons.

6. In a bed, the combination of foldable head and foot sections, each of which has outer and intermediate posts, of which the outer posts have corresponding sockets, and the intermediate post is formed in longitudinal half-sections, the contiguous faces of which are provided with registering sockets, side and intermediate rails having their ends formed to enter the corresponding sockets of the posts, a flexible bottom supported upon the rails, and means for locking the rails to the posts.

695,821. **ENVELOP FOR HOLDING SAMPLES OF DRESS GOODS.** LOUIS LYON, Sumter, S. C. Filed July 2, 1901. Serial No. 66,906. (No model.)

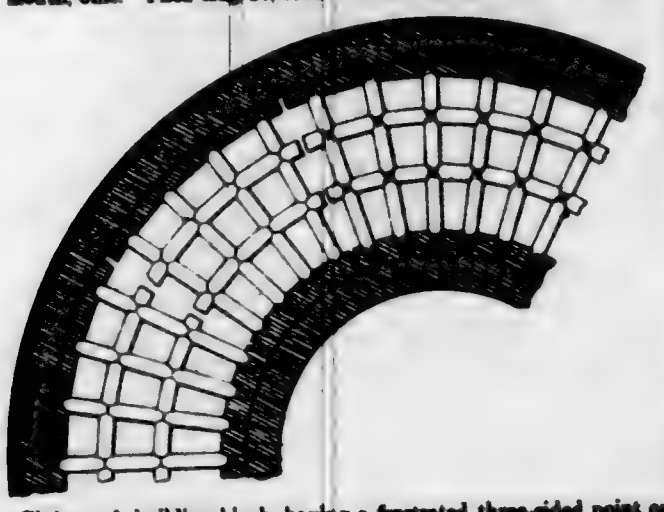


Claim.—1. An envelop of the class described, comprising a back portion, a bottom flap connected to the lower edge of said back and having a transverse slit therein to accommodate a strip of cloth, side flaps connected to the side edges of said back, said side flaps being constructed to be folded over to hold said bottom flap when folded up, adapted to receive a strip of cloth extending through said slit and held by said flaps, substantially as described.

2. In an envelop of the class described, comprising a rectangular back portion, a bottom flap connected to the lower edge of said back, and having a slit at its junction with the said back to accommodate a piece of goods, side flaps connected to the side edges of said bottom flap, and side flaps connected to the side edges of said back and designed to be folded over to hold said bottom flap when folded up, substantially as described.

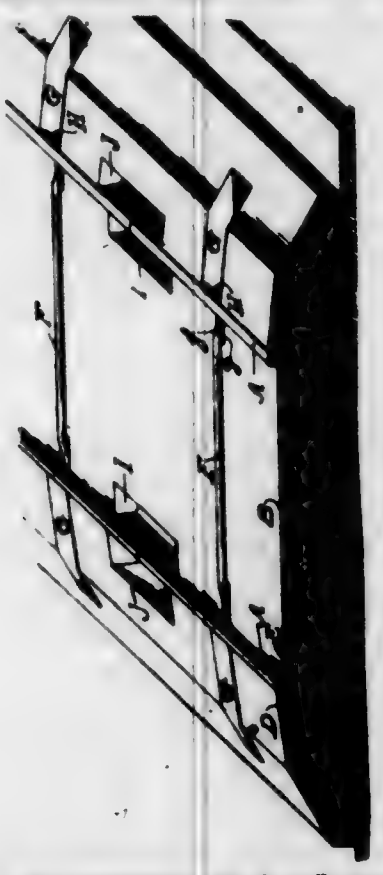
3. An envelop of the class described, comprising a back, a bottom flap connected to the lower edge of said back, and having a slit at its junction with said back to accommodate a piece of goods, a top flap connected to the upper edge of said back, and side flaps connected to the side edges of said back and designed to be folded over to hold said top and bottom flaps, adapted to receive a strip of cloth extending through said slit and held in place by said flaps, substantially as described.

695,822. BUILDING-BLOCK FOR FLUES. ENOS L. MOORE, Portsmouth, Ohio. Filed Aug. 27, 1901. Serial No. 73,605. (No model.)



Claim.—A building-block having a frustrated three-sided point on one end and a two-sided wedge-shaped point on its opposite end, substantially as described.

695,823. RAILROAD BED OR TIE. PATRICK J. MORAN, Memphis, Tenn. Filed Jan. 31, 1901. Serial No. 44,101. (No model.)



Claim.—1. The combination with the rails properly spaced, of a support of concrete surrounding the rails on three sides but leaving the top and inside edges of the balls of same free, and tie-rods extending across the top of said support substantially at right angles to the rails, substantially as shown and described.

2. The combination with rails properly spaced, of a continuous support of concrete surrounding the rails on three sides, but leaving the top of the rails and the inside edges of the balls of same free, and tie-rods extending across the top of said support at right angles to the rails, substantially as shown and described.

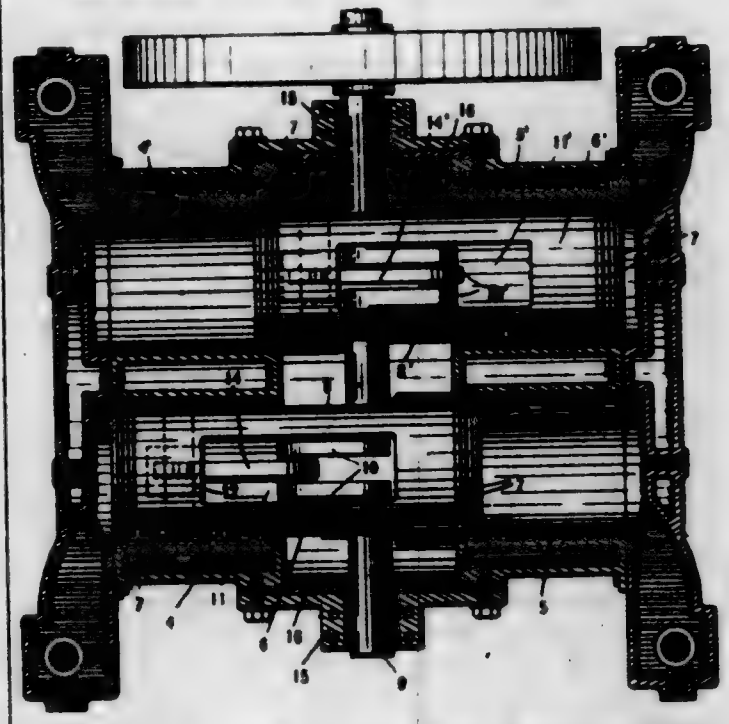
3. The combination with rails properly spaced, of a continuous bed of concrete surrounding the rails on three sides and supporting and binding same but leaving the top of the rail and the inside edges of the balls of same free, the said bed having openings at the rail joints to permit access to the angle-bars and tie-rods crossing over the top of the bed substantially at right angles to the rails, the ends of said tie-rods being bent down to pass through the web of the rail, substantially as shown and described.

4. The combination with rails properly spaced, of a continuous bed of concrete surrounding the rails on three sides and supporting and binding same, but leaving the top of the rail and the inside edges of the balls of same free, the said bed having openings at the rail-joints to permit access to the angle-bars, and tie-rods crossing over the top of the bed substantially at right angles to the rails, the ends of said tie-rods being bent down to pass through the web of the rail, nuts on the ends of said rods and openings outside the rails in the said concrete bed to permit access to the said nuts, substantially as shown and described

5. The combination with rails properly spaced, of a continuous bed of concrete supporting and surrounding the rails and tie-rods extending across the top of the bed at right angles to the rails, substantially as shown and described.

6. The combination with rails properly spaced, of a support of concrete binding and bracing the rail on the bottom and sides, the said support having openings at the rail-joints to permit access to the angle-bars, and tie-rods crossing over the top of the bed substantially at right angles to the rails, the ends of said tie-rods being bent down to pass through the web of the rail, substantially as shown and described.

695,824. ENGINE. HOMER E. MOSHEIMER, Pendleton, Ind. Filed Mar. 26, 1901. Serial No. 52,710. (No model.)

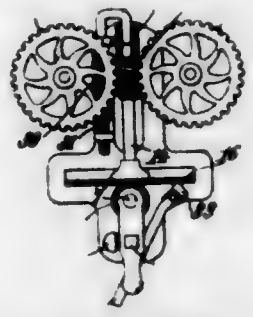


Claim.—In an engine, a pair of parallel cylinders formed in one piece, a second pair of parallel cylinders also formed in one piece, plates connecting said pieces with the pairs of cylinders in alinement, a pair of pistons each provided with a medial diametrical slot and each mounted in a pair of cylinders, a crank-shaft passing through the slots of the pistons, a pair of pitmen connected to said cranks and pistons, and bearings for the crank-shaft, substantially as shown and described.

695,825. COTTON-GIN FEEDER. STEPHEN D. MURRAY, Dallas, Tex. Filed June 27, 1901. Serial No. 66,268. (No model.)

Claim.—1. In a cotton-gin feeder, the combination with the casing thereof having an opening in one side, feeding mechanism and a drive-shaft, of a disk extending through said opening and operatively connected with said feeding mechanism and connections between said drive-shaft and said disk.

2. In a cotton-gin feeder, the combination with the casing thereof having an opening in one side, a picker-roller within said casing having a cavity at the end thereof adjacent to said opening, and feeding mechanism, of a disk extending through said opening into the cavity in said roller and operatively connected with said feeding mechanism, and connections between the shaft of said roller and said disk.



3. In a cotton-gin feeder, the combination with the casing thereof having an opening in one side, a picker-roller within said casing having a cavity at the end thereof opposite said opening, and a pair of feeding-rollers above said picker-roller, of a plate or casting secured to the outside of said casing, a friction-wheel on the shaft of said picker-roller, a disk in contact with said friction-wheel projecting into said casing through said opening, a shaft or spindle secured to said disk and longitudinally movable in bearings in said plate or casting, operative connections between said shaft or spindle and said feeding-rollers, and means for throwing said disk out of contact with said friction-wheel.

4. In a cotton-gin feeder, the combination with the casing thereof having an opening in one side, a picker-roller within said casing having a cavity at the end thereof opposite said opening, and a pair of feeding-rollers above said picker-roller, of a plate or casting secured to the outside of said casing, a friction-wheel longitudinally adjustable on and rotated by the shaft of said picker-roller, a disk in contact with said friction-wheel projecting into said casing through said opening, a shaft or spindle secured to said disk and longitudinally movable in bearings in said plate or casting, operative connections between said shaft or spindle and said feeding-rollers, and means for throwing said disk out of contact with said friction-wheel.

5. In a cotton-gin feeder, the combination with a picker-roller, and a pair of feeding-rollers above the same intergeared with each other, of a worm-wheel on the shaft of one of said feeding-rollers, a friction-wheel on the shaft of said picker-roller, a plate or casting secured to the side of the feeder-casing, a disk in contact with said friction-wheel and rotated thereby, a shaft or spindle secured to said disk, mounted in bearings in said plate or casting and capable of longitudinal and rotary movement, a worm on said shaft or spindle meshing with said worm-wheel, a spring-actuated presser-rod acting upon the upper end of said shaft or spindle for holding said disk normally in contact with said friction-wheel, and a controlling-lever fulcrumed on said plate or casting and adapted to engage the under side of said disk for moving the same out of contact with said friction-wheel.

6. In a cotton-gin feeder, the combination with a picker-roller and a pair of feeding-rollers above the same intergeared with each other, of a worm-wheel secured to the shaft of one of said feeding-rollers, a plate or casting secured to the side of the feeder-casing, a guide-rod thereon, a frame having a yoke thereon adjustable on said guide-rod, a friction-wheel located between the branches of said yoke, longitudinally movable on, and rotated by, the shaft of said picker-roller, a disk in contact with said friction-wheel, a shaft or spindle secured to said disk, mounted in bearings in said plate or casting and capable of longitudinal and rotary movement, a worm on said shaft or spindle meshing with said worm-wheel, a spring for normally holding said disk in contact with said friction-wheel, and a controlling-lever acting upon the under side of said disk for moving the latter away from said friction-wheel.

695,826. RAILWAY-VELOCIPEDE. MARION F. MCCORMICK, Knox, Ind., assignor of one-half to Frank E. Dumas, Knox, Ind. Filed Aug. 16, 1901. Serial No. 72,306. (No model.)

Claim.—1. An attachment for adapting bicycles to be propelled along railways, comprising a main frame-bar, means for coupling said bar at one end to the frame of the bicycle, a double fork at the outer end of said frame-bar, a vertical supporting-wheel mounted in one fork, an inclined guard-wheel mounted in the other fork and adapted to roll in contact with the inner side of the head of the rail, both of said wheels being equipped with rubber tires, and braces connecting said frame-bar with the frame of the bicycle.

2. The combination with a bicycle, of an attachment adapting the same to be ridden on railways, said attachment comprising a main frame-bar, means for coupling said bar to the machine-frame, inclined and vertical forks at the outer end of said frame-bar, rubber-tired supporting and guard wheels mounted in said forks and adapted to roll in contact with one of the rails, a cross-head near the outer end of said frame-bar, and braces connected to said cross-head and having provision for their attachment to the frame of the bicycle.



3. The combination with a bicycle, of an attachment adapting the same to be propelled along a railway, the attachment comprising a main frame-bar, means for coupling said bar to the machine-frame, vertical and inclined forks at the outer end of said frame-bar, rubber-tired supporting and guard wheels journaled in said forks and adapted to roll in contact with one of the rails, a cross-head on the main frame-bar consisting of oppositely-extending yokes connected by a common pivot with the main frame-bar, and braces interposed between said yokes and the machine-frame and detachably connected with the latter.

4. The combination with a bicycle, of an attachment adapting the same to be ridden upon a railway, the attachment comprising a main frame-bar, means for coupling said bar to the machine-frame, a supporting-wheel carried by the outer end of said bar, braces extending from the outer end of said bar inward, and spring-clamps for connecting the inner ends of the braces to the machine-frame, each of said clamps comprising means for connecting the same to one of the axles of the bicycle, spring-arms with inwardly-projecting lips for engaging the braces, and a combined pivot and clamping-bolt connecting the clamp and braces.

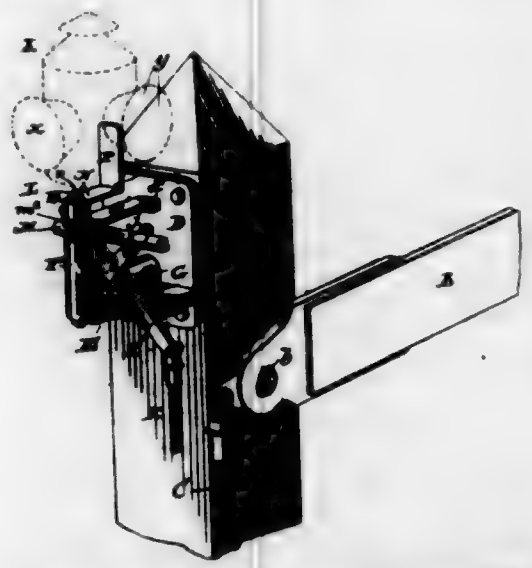
5. The combination with a bicycle, of an attachment adapting the same to be propelled along a railway, the attachment comprising a main frame-bar, means for coupling said bar to the machine-frame, vertical and inclined rubber-tired wheels carried by the outer end of said arm and adapted to roll in contact with one of the rails, braces connecting the outer end of said arm with the machine-frame, and auxiliary folding arms connected to the front and rear axles of the bicycle and provided with grooved pilot and trailer wheels adapted to operate against the rail in advance and in rear of the machine-wheels.

6. The combination with a bicycle, of an attachment adapting the same to be propelled along a railway, the attachment comprising a main frame-bar, means for coupling said bar to the machine-frame, vertical and inclined forks at the outer end of said frame-bar, the vertical fork having its outer blade provided with a slotted horizontal extension, a supporting-wheel journaled in the outer fork with its axle adjustably mounted in said slotted extension, a guard-wheel journaled in the inclined fork, and braces interposed between the main frame-bar and the frame of the bicycle.

695,827. RAILWAY-SIGNAL. EDWARD MCMAHON, Elmira, N. Y. Filed Oct. 22, 1901. Serial No. 79,504. (No model.)

Claim.—1. In a railway-signal, the combination of a horizontally-journaled rocking lever, an elbow-lever for supporting a lantern or other signal and pivoted on a vertical axis, said elbow-lever being adapted to be turned through an arc of ninety degrees by the direct contact of one arm of said rocking lever with the arms of the said elbow-lever, substantially as set forth.

2. In a railway-signal, the combination of a horizontally-journaled rocking lever, a vertically-pivoted elbow-lever adapted to be vibrated and held in any position within its limit of movement by the engagement of the arm J of said rocking lever with the arm *m* or *m'* of said elbow-lever, a lantern-bracket or other signal-support adapted to be secured to the elbow-lever at varying horizontal angles, and a support for the said levers, substantially as set forth.



3. In a railway-signal, the combination of a horizontally-journaled rocking lever, a vertically-pivoted elbow-lever adapted to be vibrated by the rocking lever through an arc of ninety degrees, a stop for limiting the movement of the arms of the elbow-lever, a lantern-bracket adapted to be secured to the elbow-lever at varying horizontal angles, and a support for the said levers, substantially as set forth.

4. In a railway-signal, the combination of a rocking lever, an elbow-lever supporting a lantern and having its axis at a right angle to the rocking lever, and an arm extending from the rocking lever between the arms of the elbow-lever for moving said elbow-lever, substantially as set forth.

5. In a railway-signal, the combination of a rocking lever, an elbow-lever supporting a lantern and having its axis at a right angle to the rocking lever, a stop for limiting the movement of the arms of the elbow-lever, and an arm extending from the rocking lever between the arms of the elbow-lever for moving said elbow-lever, substantially as set forth.

6. In a railway-signal, the combination of an upright shaft, an elbow-lever attached thereto, a lantern-support adjustably secured to the elbow-lever, a rocking lever horizontally journaled, a rod attached to the rocking lever for imparting motion thereto, an arm extending from the rocking lever for turning it through an arc of ninety degrees, and a bracket for supporting the several parts, substantially as set forth.

7. In a railway-signal, the combination of an upright shaft, an elbow-lever attached thereto, a lantern-support adjustably secured to the elbow-lever, a rocking lever horizontally journaled, a rod attached to the rocking lever for imparting motion thereto, an arm extending from the rocking lever to the elbow-lever for turning it through an arc of ninety degrees, a stop for limiting the movement of the arms of the elbow-lever, and a bracket for supporting the several parts, substantially as set forth.

8. In a device for giving rotation to a lantern or other signal, the combination of a horizontally-journaled rocking lever, a vertically-journaled elbow-lever, the latter carrying a lantern or signal, and the former being attached to the source of power or moving element, and a stop for limiting the movement of the arms of the elbow-lever, substantially as set forth.

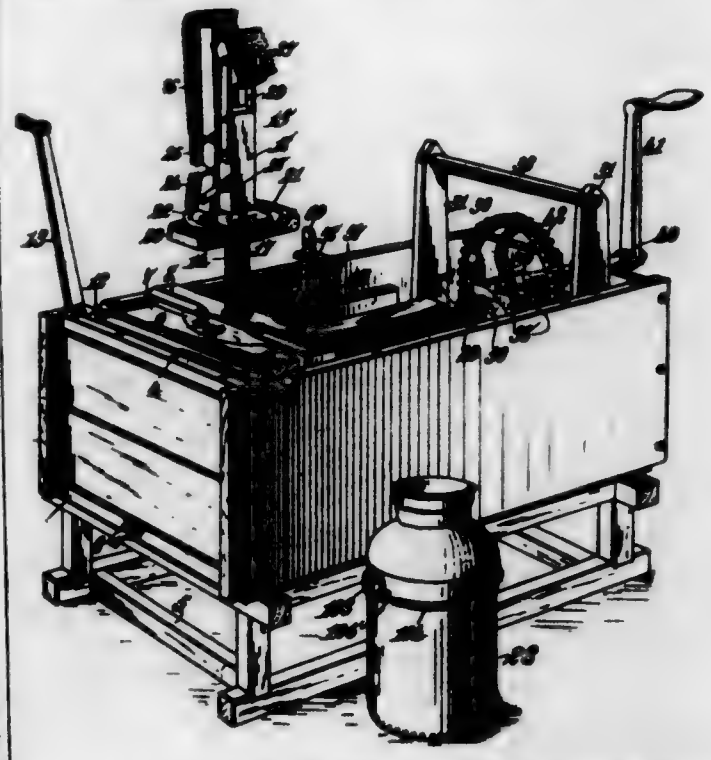
695,828. APPARATUS FOR SCRUBBING MILK-CANS. RICHARD HELEOS, Hankton, Md. Filed Mar. 21, 1901. Serial No. 52,237. (No model.)

Claim.—1. In a scrubbing apparatus, the combination with a tank and a brush for the inner surface of the article to be scrubbed, of a rocking frame fulcrumed on said tank and movable toward and away from said brush, a rotary shaft carried by said frame, and means for securing the article to be scrubbed to said shaft.

2. In a scrubbing apparatus, the combination with a tank, of a frame pivoted thereto, a brush whose stem is secured to said frame, a second frame movable toward and away from said brush, a rotary shaft carried by the latter frame, and means for securing the article to be scrubbed to said shaft.

3. In a scrubbing apparatus, the combination with a tank and a brush for the inner surface of the article to be scrubbed, of a rotatable chuck for gripping the article to be scrubbed, and a rocking frame fulcrumed on said tank, carrying said chuck and movable toward and away from said brush.

4. In an apparatus for scrubbing milk-cans, the combination with a tank, of a stationary brush for the interior of the can, a laterally-adjustable and longitudinally-movable brush for the exterior of the can, and means for rotating said can in contact with said brushes.



5. In an apparatus for scrubbing milk-cans, the combination with a tank, of a collapsible brush adapted to be introduced into the can and afterward expanded, a laterally-adjustable and longitudinally-movable brush for the exterior of the can, and means for rotating said can in contact with said brushes.

6. In an apparatus for scrubbing milk-cans, the combination with a tank, of a brush-carrying frame pivoted thereto, a brush adapted to be introduced into the can, the stem of said brush being secured to said frame, a block constituting a chuck for the neck of the can loosely mounted on the stem of said brush, a spring acting upon the rear side of said block, a rotatable bodily-movable chuck for the base of the can, and means for locking the latter chuck to said can.

7. In an apparatus for scrubbing milk-cans, the combination with a tank, of a brush-carrying frame pivoted thereto, a collapsible brush adapted to be introduced into the can and afterward expanded, a block constituting a chuck for the neck of the can loosely mounted on the stem of said brush and having a V-shaped channel therein for receiving said neck, a spring acting upon the rear side of said block, a bodily-movable rotatable chuck for the base of the can, and means for locking said can to the latter chuck.

8. In an apparatus for scrubbing milk-cans, the combination with a tank, of a brush-carrying frame pivoted to said tank and adapted when in one position, to engage one end of said tank, means for turning said frame, a brush adapted to be introduced into the can, the stem of said brush being secured to said frame, a block constituting a chuck for the neck of said can having V-shaped grooves or channels therein, and a metallic ring surrounding said groove, a coil-spring surrounding the stem of said brush and acting upon the rear side of said block, a bodily-movable rotatable chuck for the base of the can, and means for locking said can to the latter chuck.

9. In an apparatus for scrubbing milk-cans, the combination with a tank, of a brush adapted to be introduced into the can for scrubbing the inner surface thereof, a second brush pivoted to the side of said tank for scrubbing the outer surface of the can, means for adjusting the latter brush toward and away from the can, a rotatable chuck for the base of the can and means for locking the can to said chuck.

10. In an apparatus for scrubbing milk-cans, the combination with a tank, of a brush adapted to be introduced into the can for scrubbing the inner surface thereof, a second brush for scrubbing the outer surface of the can, a base for the latter brush on which the same is slidingly mounted, the said base being pivoted to the side of the tank, means for adjusting the base for moving the brush carried thereby toward or away from the can, a rotatable chuck for the base of the can, and means for locking the can to the chuck.

11. In an apparatus for scrubbing milk-cans, a collapsible brush for the inner surface of the can, comprising a fixed stem, parallel arms secured to the free end of said stem and extending in line therewith, and a plurality of brush-sections, the section for the bottom of the can being pivoted at a point intermediate its ends to and between said parallel arms and projecting on opposite sides of said arms, the section for the neck of

the can having a pivoted link connection with said stem and the remaining sections being pivoted to each other and pivoted respectively to the section for the bottom of the can and to that for the neck.

12. In an apparatus for scrubbing milk-cans, the combination with a brush and a rotatable longitudinally-yielding support for one end of the can, of a rotary shaft and a chuck thereon for locking the other end of said can to said shaft.

13. In an apparatus for scrubbing milk-cans, the combination with a brush and a longitudinally-movable yieldingly-mounted rotatable support for one end of the can of a rotary shaft, and an expansible chuck carried by said shaft for locking the other end of the milk-can thereto.

14. In an apparatus for scrubbing milk-cans, the combination with a brush and a yieldingly-mounted rotatable support for one end of the can, of a frame movable toward and away from said support, a rotary shaft carried by said frame, and an expansible chuck on said shaft for locking the other end of the can thereto.

15. In an apparatus for scrubbing milk-cans, the combination with a brush and a yieldingly-mounted rotatable support for one end of the can, of a frame movable toward and away from said support, a rotary shaft mounted in said frame, a plurality of radially-movable locking-dogs adapted to engage the base-flange of the can, and a cam carried by said shaft for throwing said dogs outwardly into locking engagement with said base-flange.

16. In an apparatus for scrubbing milk-cans, the combination with a brush and a yieldingly-mounted rotatable support for one end of the can, of a rotary shaft bodily movable toward and away from said support, a disk loosely connected with said shaft having a plurality of radiating arms thereon, locking-dogs for the base-flange of the can, slidingly mounted on said arms, and a cam secured to said shaft and adapted to engage the inner ends of said dogs for forcing the same outwardly into locking engagement with said flange.

17. In an apparatus for scrubbing milk-cans, the combination with a brush and a yieldingly-mounted rotatable support for one end of the can, of a rotary shaft bodily movable toward and away from said support, a disk loosely connected with said shaft having a plurality of radiating arms thereon, locking-dogs for the base-flange of the can, slidingly mounted on said arms, springs for retaining said dogs in their innermost positions, and a cam secured to said shaft and engaging the inner ends of said dogs for forcing the same outwardly into locking engagement with said flange.

18. In an apparatus for scrubbing milk-cans, the combination with a brush and a yieldingly-mounted rotatable support for one end of the can, of a rotary shaft bodily movable toward and away from said support, a disk loosely connected with said shaft having a plurality of radiating arms thereon, locking-dogs for the base-flange of the can, slidingly mounted on said arms, and having notched outer ends, a cam secured to said shaft and adapted to engage the inner ends of said dogs for forcing the same outwardly into locking engagement with said flange, a ring surrounding said shaft, and springs connecting said ring with said dogs.

19. In an apparatus for scrubbing milk-cans, the combination with a brush and a yieldingly-mounted rotatable support for one end of the can, of a rotary shaft bodily movable toward and away from said support, a disk loosely connected with said shaft having a plurality of radiating arms thereon, locking-dogs for the base-flange of the can slidingly mounted on said arms, a cam secured to said shaft having projections thereon adapted to engage the inner ends of said dogs for forcing the same outwardly into locking engagement with said flange, and means for limiting the turning movement of said cam with respect to said dogs.

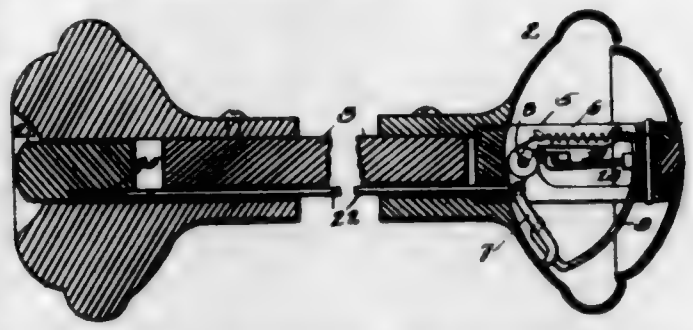
20. In an apparatus for scrubbing milk-cans, the combination with a brush and a yieldingly-mounted rotatable support for one end of the can, of a rotary shaft bodily movable toward and away from said support, a disk loosely connected with said shaft having a plurality of radiating arms thereon, locking-dogs for the base-flange of the can, slidingly mounted on said arms, a cam secured to said shaft having projections thereon adapted to engage the inner ends of said dogs for forcing the same outwardly into locking engagement with said flange, and a lock carried by said cam and adapted to engage one of said arms for limiting the turning movement of said cam with respect to said dogs.

21. In an apparatus for scrubbing milk-cans, the combination with a brush and a yieldingly-mounted rotatable support for one end of the can, of a rotary shaft bodily movable toward and away from said support, a disk loosely connected with said shaft having a plurality of radiating arms thereon, locking-dogs for the base-flange of the can, slidingly mounted on said arms, and a curved rod pivoted to said cam and projecting beyond the periphery thereof, the said rod being adapted to engage one or the other of said arms for limiting the turning movement of said cam with respect to said dogs.

22. In an apparatus for scrubbing milk-cans, the combination with a tank, a brush and a yieldingly-mounted rotatable support for one end of the can, of fixed trunnions secured to one end of said tank and projecting inwardly therefrom, a horizontally-disposed rod connecting the sides of said tank beneath said trunnions, a frame comprising parallel side pieces having slots in their lower ends which embrace said rod, and a pivotally-mounted beam connected to said side pieces and supported upon said trunnions, a rotary shaft mounted on said beam, and an expansible chuck carried by said shaft for connecting the end of the milk-can opposite said support to said shaft.

23. In an apparatus for scrubbing milk-cans, the combination with a tank, a brush and a yieldingly-mounted rotatable support for one end of the can, of fixed trunnions secured to one end of said tank and projecting inwardly therefrom, a horizontally-disposed rod connecting the sides of said tank beneath said trunnions, a frame comprising parallel side pieces having slots in their lower ends which embrace said rod, and a pivotally-mounted beam connected to said side pieces and supported upon said trunnions, a rotary shaft mounted on said beam, a bolt secured to said shaft, in line therewith, a disk loosely mounted on said bolt having radiating arms thereon, locking-dogs slidingly mounted on said arms, and a cam secured to said shaft and adapted to engage the inner ends of the said dogs for forcing the same outwardly into locking engagement with the base-flange of the can.

695,829. BELL. CHARLES L. NEWTON, Pueblo, Colo. Filed Nov. 2, 1901. Serial No. 80,946. (No model.)



Claim.—1. In a bell, a hammer, a vibrating hammer-rod having an engaging portion thereon, and comprising two parallel wires located on opposite sides of said engaging portion and connected to said hammer, and a rocking lever or frame having a segmental portion thereon movable between said wires, the said segmental portion being concentric in its curvature with the fulcrum of said lever or frame, and provided with zigzag walls cooperating with the engaging portion on said hammer-rod.

2. In a bell, a hammer, a vibrating hammer-rod having a slot or opening therein, and comprising two parallel wires located on opposite sides of said slot or opening and connected to said hammer, and a rocking lever or frame having a segmental zigzag wire thereon movable between the wires of said hammer-rod and within said slot or opening, the said segmental zigzag wire being concentric in its curvature with the fulcrum of said lever or frame.

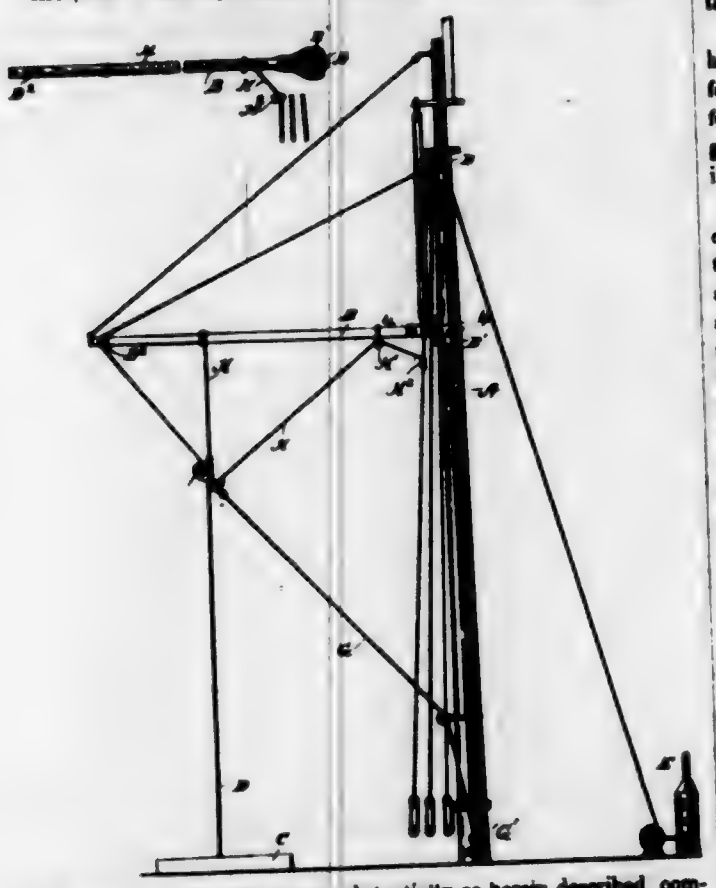
3. The combination with a pair of door-knobs connected together on opposite sides of a door, of a bell secured to or forming part of one of said knobs, a bell-hammer, a vibrating hammer-rod having an engaging portion thereon, and comprising two parallel wires located on opposite sides of said engaging portion, and connected to said hammer, a lever having a segmental portion thereon movable between said wires, the said segmental portion being provided with inclined walls cooperating with said engaging portion, a push button or bar in the other of said knobs, and connections between said push-button and said lever, as and for the purpose set forth.

4. The combination with a pair of door-knobs connected together on opposite sides of a door, of a bell secured to or forming part of one of said knobs, a bell-hammer, a vibrating hammer-rod having a slot or opening therein and comprising two parallel wires located on opposite sides of said slot or opening, and connected to said hammer, a lever having a segmental zigzag wire thereon movable between the wires of said hammer rod and within said slot, said segmental zigzag wire being concentric in its curvature with the fulcrum of said lever, a push button or bar in the other of said knobs, and connections between said push-button and said lever, as and for the purpose set forth.

5. The combination with a pair of door-knobs connected together on opposite sides of a door, of a bell secured to or forming part of one of said knobs, a pivotally-mounted hammer-rod comprising a plate having a slot or opening therein and parallel wires leading outwardly therefrom and having their ends bent upwardly, a hammer connected to the upbent ends of said wires, a bell-crank lever having a segmental zigzag wire connecting the two arms thereof, said wire being concentric in its curvature with the fulcrum of said lever and movable in said slot, a push button or bar in the other of said knobs and a rod connecting said push-button with one of the arms of said bell-crank lever, as and for the purpose set forth.

6. The combination with a pair of door-knobs connected with each other on opposite sides of the door, of a bell secured to or forming part of one of said knobs, a pivotally-mounted hammer-rod having an engaging portion thereon, a lever having a segmental portion thereon concentric in its curvature with the fulcrum of said lever and provided with inclined walls coöperating with said engaging portion, a crank-arm on said lever, a spring connected with said crank-arm for returning said lever to its normal position, a push button or bar in the other of said knobs and connections between said push-button and said lever, the said connections acting on said lever in opposition to said spring, as and for the purpose set forth.

695,880. HOISTING-GEAR. FREDERIK V. HJELMEN, San Francisco, Cal. Filed Sept. 5, 1901. Serial No. 74,886. (No model.)



Claim.—1. A hoisting-gear substantially as herein described, comprising in combination, the mast, the cargo-gaff arranged to swing thereon and provided at its outer end with a guide for the lift-rope, an adjustable guide for said rope supported from the cargo-gaff and arranged to swing in and out with respect to the end of the cargo-gaff and the tail-rope, whereby said adjustable guide may be swung inward and held in any suitable adjustment, substantially as set forth.

2. The combination in a hoisting-gear, of the swinging cargo-gaff, a support therefor, a guide at the outer end of the cargo-gaff for the lift-rope, an adjustable guide past which the lift-rope passes, said guide being located below the cargo-gaff, and means operating independently of the movements of the lift-rope for operating said adjustable guide, the latter being fixed as against vertical movement with the load being lifted.

3. The combination of the cargo-gaff, provided with a guide for the lift-rope, and the lift-rope, of an adjustable guide for said rope, past which the lift-rope passes, said guide being located below the cargo-gaff, and fixed as against vertical movement with the load being lifted and arranged for operation independently of the hoisting devices, substantially as set forth.

4. The combination of the swinging cargo-gaff, the lift-rope, and guide devices for said lift-rope arranged for operation independently of the hoisting devices, whereby the lift-rope may be adjusted to depend in different lines below the cargo-gaff, the lift-rope being arranged to pass the said guide devices, and the latter being fixed as against vertical movement with the load being lifted, substantially as set forth.

5. The combination of the cargo-gaff, the lift-rope, an adjustable guide past which the lift-rope passes, said guide being arranged to operate independently of the hoisting devices whereby the lift-rope may be arranged to operate within the hatch or at a greater distance from the mast to clear the ship's side, said adjustable guide being fixed as against vertical movement with the load being lifted.

6. The combination with the cargo-gaff and the lift-rope, of an adjustable guide for said rope past which the rope passes, said guide being arranged for operation independently of the hoisting devices, and a gaff-swinging rope, the adjustable guide being fixed as against vertical movement with the load being lifted, substantially as set forth.

7. The combination with the cargo-gaff having a guide for the lift-rope, and the lift-rope, of an adjustable guide for the lift-rope, a rope by which said adjustable guide is supported from the gaff, and a tail-rope by which the adjustable guide may be adjusted, substantially as set forth.

8. The combination with the mast and the swinging cargo-gaff, having a guide for the lift-rope, of the lift-rope, the adjustable guide therefor, a rope by which said adjustable guide is suspended from the cargo-gaff, the tail-rope connected with said adjustable guide, and the gaff-swinging rope connected with said guide, substantially as set forth.

9. The combination with the cargo-gaff, having a guide for the lift-rope, the lift-rope and the tail-rope, of the adjustable guide-block having a yoke F^2 and a hook F', the hanger-rope connected with the yoke and with the gaff, and the gaff-swinging rope connected with the hook F', the tail-rope being also connected with said hook, all substantially as and for the purposes set forth.

10. The combination with the mast and the swinging cargo-gaff having a guide for the lift-rope, of the lift-rope, the adjustable guide therefor, means whereby said guide is suspended from the gaff, the tail-rope for operating said guide, a gaff-swinging rope in connection with the guide, and a guide on the cargo-gaff for said swinging-rope, the latter being suitably secured, substantially as set forth.

11. The combination of the cargo-gaff, a support upon which the cargo-gaff swings laterally, a guide at the outer end of the cargo-gaff for the lift-rope, the lift-rope passing said guide, and a guide for the lift-rope arranged below the guide on the gaff, the lower guide being fixed as against vertical movement with the load being lifted arranged to operate upon the lift-rope and being adjustable laterally independently of the hoisting movement of the lift-rope, whereby it may be operated to adjust the lift-rope laterally below the guide on the cargo-gaff, substantially as set forth.

695,831. SAMPLE-DISPLAYING APPARATUS. CHRISTEN OLSEN, Ishpeming, Mich. Filed Oct. 18, 1901. Serial No. 79,108. (No model.)



Claim.—1. In a device of the class described, the combination of a drum mounted to be rotated, means for rotating said drum, and a sample-detacher comprising arms slidingly mounted and bearing a flange located to engage the face of said drum, guides for said arms, and means for reciprocating said arms to operate said detacher, substantially as described.

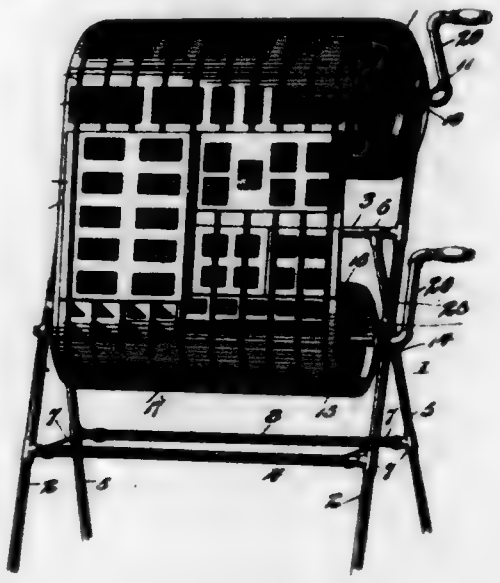
2. In a device of the class described, the combination of a sample-drum supported on spindles, an internal ratchet mounted on said drum, a lever fulcramed on one of said spindles and carrying a pawl located to engage the teeth on said ratchet, a brake-shoe bearing on said drum, a detacher comprising an arm slidingly mounted and bearing a flange located to engage the face of said drum, guides for said arms, mechanism connecting said lever and said arm, and means for operating said lever to intermittently turn said drum a distance of one tooth of said ratchet and simultaneously reciprocate said detacher, substantially as described.

695,832. SAMPLE-REGISTER. PETER OLSON, Lexington, Nebr. Filed May 2, 1901. Serial No. 58,532. (No model.)

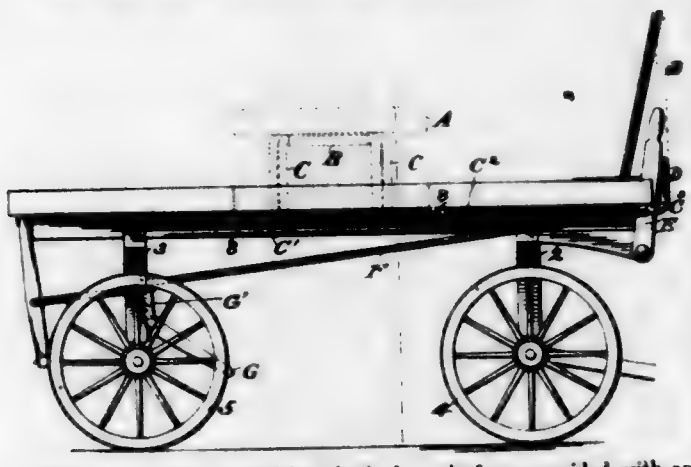
Claim.—1. A sample-register comprising a supporting-stand, rollers journaled thereon, means for operating said rollers; an apron having its opposite ends connected to the rollers and wound thereon; and tapes extending longitudinally of the outer surface of the apron, and having their opposite ends connected to the rollers with the apron and wound thereon, substantially as and for the purpose specified.

2. A sample-register, comprising a stand, rollers journaled thereon and provided with operating-cranks; an apron having its ends connected to the rollers and composed of sections; tapes extending longitudinally of the outer surface of the apron and having their ends connected to the ends of the apron-sections; and complemental fasteners for coupling together the ends of the apron-sections and tapes.

3. A sample-register comprising a supporting frame or stand; rollers journaled thereon and provided with operating-cranks; an apron wound upon said rollers; supporting-legs connected pivotally to the main body of the supporting-frame; rotatable cross-bars connecting the side bars of the frame and the supporting-legs; and flexible straps or connections having their opposite ends connected to and wound upon said rotatable cross-bars.

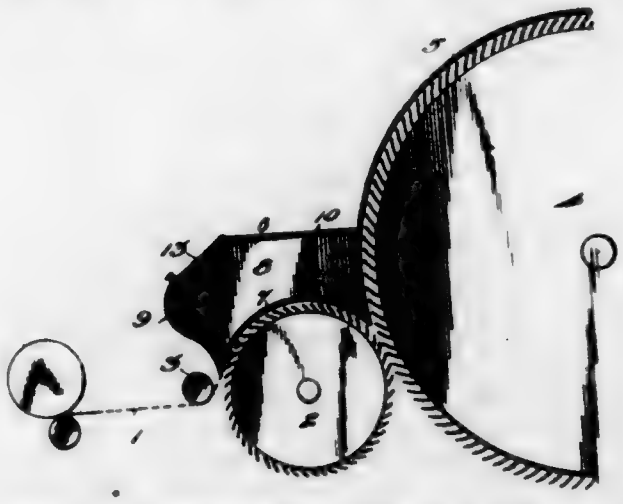


695,833. TRUCK. ENOCH S. PERKINS, Simpson county, Ky. Filed June 27, 1900. Serial No. 21,300. (No model.)



Claim.—A truck comprising the bed or platform provided with an opening, a platform-section movable vertically into and out of said section, and crank-frames journaled to the bed or platform on axes extending in the direction of length of the bed or platform, and having their wrists connected with the movable platform, substantially as set forth.

695,884. CARDING-MACHINE. CHARLES H. POTTER, New Bedford, Mass., assignor of one-half to Frank McCann, New Bedford, Mass. Filed Apr. 5, 1900. Renewed Dec. 16, 1901. Serial No. 86,106. (No model.)

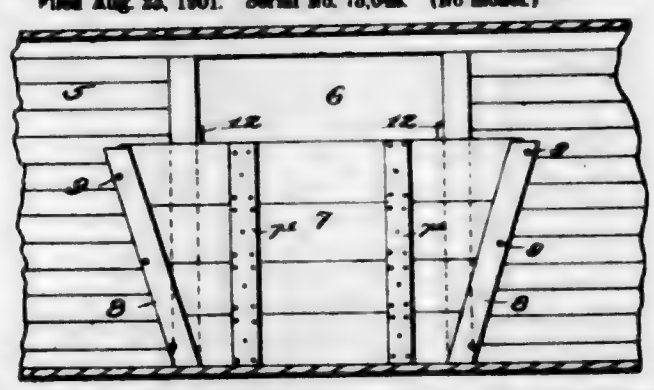


Claim.—In a machine of the character described, the combination with the top plate of the main cylinder, the lower edge of which extends down between the main cylinder and the licker-in, of a receptacle arranged adjacent to the licker-in and formed integral with said top plate, said receptacle comprising a substantially closed hollow box having a curved bottom plate conforming to the contour of the licker-in and formed with a transverse slot in its bottom above the licker-in teeth and adjacent to the lower edge of the top plate whereby foreign substances may be deposited into the receptacle by the licker-in during its revolution, and a knife or knives carried by the bottom of said box adjacent to the edge of the slot and adapted to contact with the licker-in teeth.

695,885. BLACK SULFUR DYE AND PROCESS OF MAKING SAME. FRIEDRICH REINOLD, Ludwigshafen, Germany, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany, a Corporation of Germany. Filed Dec. 23, 1901. Serial No. 87,012. (No specimens.)

Claim.—As a new article of manufacture black coloring-matter which can be made from dipara-hydroxy-diphenyl-trinitro-meta-phenylene-diamin, sulfur and sodium sulfid, which is a black substance soluble in water giving a greenish-colored solution which solution becomes bluer on treatment with sodium sulfid, which coloring-matter gives a dirty-green color with concentrated sulfuric acid and dyes unmordanted cotton a greenish-black shade which is rendered of a bluer cast by treatment with a solution of hydrogen peroxid to which some ammonia has been added.

695,886. CAR-DOOR. HERVEY J. RHODES, East St. Louis, Ill. Filed Aug. 23, 1901. Serial No. 73,042. (No model.)



Claim.—The combination of a car having a door-opening, longitudinally-disposed cleats upon the inside of said car, said cleats diverging toward the top of said car and the lower ends thereof being in proximity to said opening, and having grooves right-angular in cross-section and open upon the sides next said car, and a door fitted in said grooves and the cleats serving as the sole means to prevent inward displacement of said door when the same is down and the inclination of the inner edges of the cleats and the grooves in said cleats exactly agreeing with that of the door and the outer surface of the door resting against the inner surface of the car, and the opposite edges of said door being at right angles to the outer and inner surfaces thereof, and said door consisting of a plurality of boards and transverse strips fastened to the inside faces of the boards and the depth of said grooves being such relatively to the inclination of the cleats that when the door is elevated a short distance the opposite inclined edges of said door will be brought into alinement with the inner and correspondingly inclined edges of the cleats to thereby effect the release of said door.

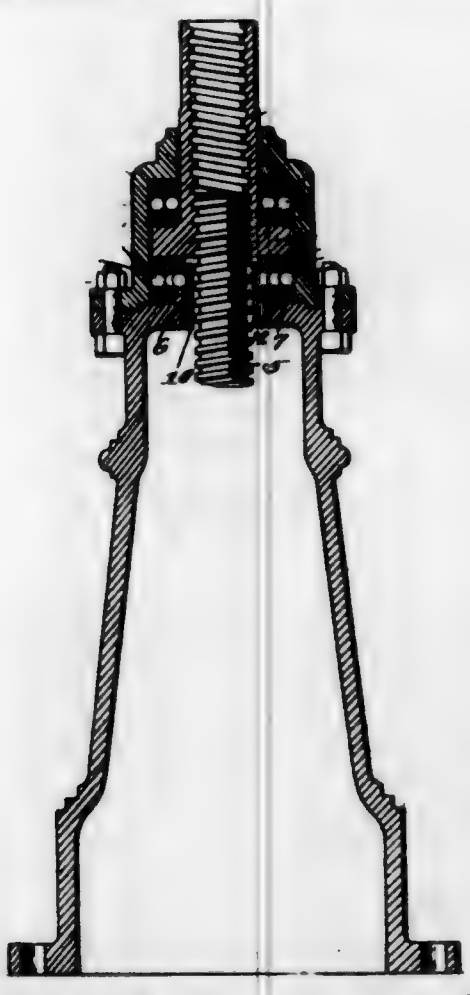
695,887. CARPET-RAG LOOPER. VINSON R. RICHARDSON, McConnelsville, Ohio. Filed Aug. 5, 1901. Serial No. 70,906. (No model.)



Claim.—A carpet-rag looper comprising an elongated conical needle tapering from its lower enlarged end upwardly, said needle having a flattened point provided with a slot, the lower enlarged extremity of said needle being formed with divergent legs provided with means for securing them to a support for holding the needle in positive upright position.

695,888. MECHANISM FOR OPERATING SLUICE-GATES. WILLIAM J. RITCHIE, Hoboken, N. J. Filed Nov. 12, 1901. Serial No. 82,065. (No model.)

Claim.—1. The combination with a rotatable nut and a screw-shaft longitudinally movable thereby, of a thrust-bearing for said nut comprising a plurality of annular rows or series of balls, plane-faced bearing-rings for said balls, and means for preventing radial movement of said balls, as and for the purpose set forth.



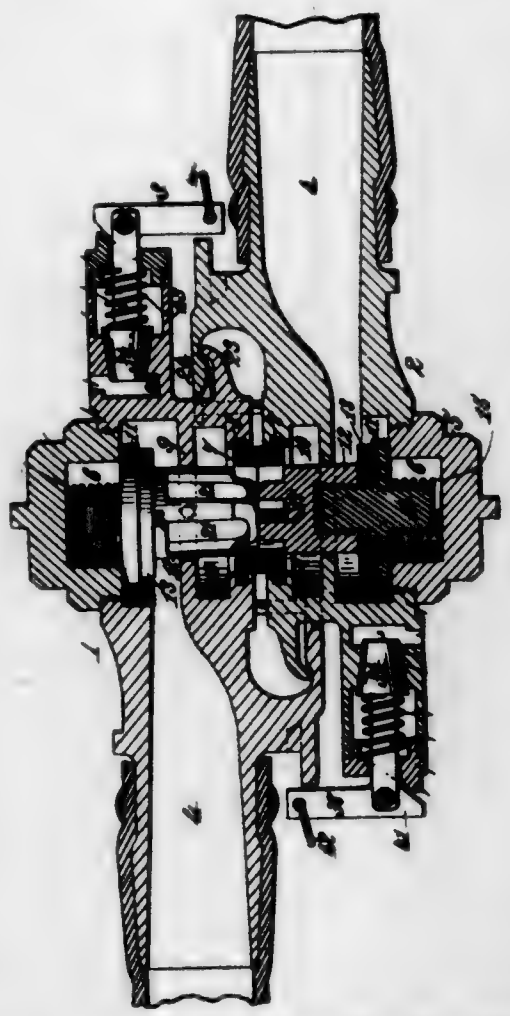
2. The combination with a rotatable nut and a screw-shaft longitudinally movable thereby, of a thrust-bearing for said nut comprising an annular ball-race, and a plurality of annular rows or series of balls therein, the balls in one of said rows or series being in constant contact with each other, the balls in all of said rows or series being in constant contact with the balls in the adjacent rows or series, the balls in the outer row or series being in constant contact with the outer wall of said race and the balls in the inner row or series being in constant contact with the inner wall of said race, as and for the purpose set forth.

3. The combination with a rotatable nut having a flange thereon, a cap having a contracted upper end within which said nut is mounted to turn, an annular support for said cap and a shaft longitudinally movable by said nut, of a pair of plane-faced bearing rings located between said support and said base-flange and within said cap, balls between said bearing-rings, and a tube secured to the inner surface of said annular support and projecting up above said balls, the said balls being arranged in a plurality of annular rows or series, the balls of one of said rows or series being in constant contact with each other, the balls in the outer row or series being in constant contact with the inner surface of said cap, the balls in the inner row or series being in constant contact with said tube, and the balls in each of said rows or series being in constant contact with the balls in the adjacent rows or series, as and for the purpose set forth.

4. The combination with a rotatable nut having a flange thereon, a cap having a contracted upper end within which said nut is mounted to turn, an annular support for said cap, and a shaft longitudinally movable by said nut, of a pair of plane-faced bearing-rings located between said support and said base-flange and within said cap, balls between said bearing-rings, a tube secured to the inner surface of said annular support and projecting up above said balls, a pair of plane-faced bearing-rings located above said flange, below the contracted upper end of said cap and between said nut and the inner side wall of said cap, and balls arranged between the latter bearing-rings, the balls in each set being arranged in a plurality of annular rows or series concentric with said nut, the balls in one of said rows or series being in constant contact with each other, the balls in the outer row or series being in constant contact with the inner surface of said cap, the balls in the inner row or series being in constant contact with said tube, and the balls in each of said rows or series being in constant contact with the balls in the adjacent rows or series, as and for the purpose set forth.

5. The combination with a rotatable nut having a flange thereon, a cap or casing within which said nut is mounted to turn, provided with openings leading through the side walls thereof, an annular support for said cap or casing having notches around the edge of the opening therein, and a screw-shaft longitudinally movable by said nut, of a pair of bearing-rings between said support and said flange and within said cap, balls located between said rings opposite the inner ends of the openings through said cap, and a tube secured to the inner surface of said support, projecting upwardly above said balls and slightly separated from the inner surfaces of said rings, the said openings, the space between said tube and the lower of said rings, and the notches in said support forming passages for the introduction and discharge of cleansing material for the bearings, as and for the purpose set forth.

695,889. HOSE-COUPLING FOR AIR-BRAKES, VACUUM-BRAKES, OR STEAM-BRAKES. JOHN D. ROBERTS, New Decatur, and FRED KNEISLER, Birmingham, Ala. Filed Aug. 3, 1901. Serial No. 70,768. (No model.)



Claim.—1. In a coupling for air-brake hose, the combination with the two coupling members provided with means for coupling them together and with check-valves, of an emergency-valve for controlling a vent in one of said members, means for normally holding said emergency-valve closed, and mechanism for opening said emergency-valve and positively locking it in its open position, substantially as described.

2. In a coupling for air-brake hose, the combination with the two coupling members provided with means for coupling them together and with check-valves, of an emergency-valve for controlling a vent in one of said members, means for normally holding the emergency-valve closed and mechanism arranged to automatically open the emergency-valve and lock it in its open position upon the forcible separation of the coupling members in an endwise direction, substantially as described.

3. In a coupling for air-brake hose, the combination with the two coupling members provided with means for coupling them together and with check-valves, of an emergency-valve for controlling a vent in one of said members, a spring operating to normally hold the emergency-valve closed, a lever pivoted to the end of the stem of the emergency-valve and provided with an eccentric arranged, when the lever is oscillated, to engage a fixed projection and open said valve, and means for oscillating said lever, substantially as described.

4. In a coupling for air-brake hose, the combination with the two coupling members provided with means for coupling them together and with check-valves, of an emergency-valve for controlling a vent in one of said members and provided with a stem projecting through an aperture in a fixed cap, a spring operating to normally hold said valve closed, a lever pivoted to the end of the valve-stem and provided with an eccentric arranged, when the lever is oscillated, to engage said cap and

open said valve, said eccentric when turned to open the valve straddling the aperture in the cap and locking the emergency-valve in its open position, and means for oscillating said lever, substantially as described.

5. In a coupling for air-brake hose, the combination with the two coupling members provided with means for coupling them together and with check-valves, of a cylindrical valve-casing carried by one of said members, a valve-seat in said casing, an emergency-valve arranged to fit in and close said valve-seat, an air-passage in the casing communicating at one end with the interior of the coupling member and terminating at its other end in a port formed in the wall of the valve-seat and opening against the side of the valve, a chamber in the casing communicating with the valve-seat and provided with a port opening into the atmosphere, means for normally holding the emergency-valve closed, and mechanism arranged to automatically open the emergency-valve upon the forcible separation of the coupling members in an endwise direction, substantially as described.

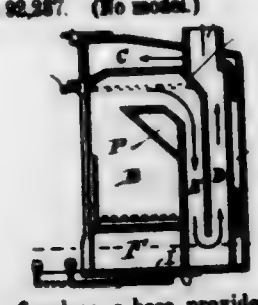
6. In a coupling for air-brake hose, the combination of two coupling members provided with means for coupling them together, each of said members comprising a cylindrical valve-casing having a valve-seat opening to the exterior of the casing, a valve arranged in the casing and comprising a disk adapted to seat on the valve-seat and a cylindrical portion arranged to project through the valve-seat to the exterior of the casing, said cylindrical portion of said valve being provided with longitudinal recesses on its periphery forming passages for the air when the disk is raised from its seat, and a spring for forcing the valve to its seat, substantially as described.

7. In a coupling for air-brake hose, the combination of two coupling members provided with means for coupling them together, each of said members comprising a cylindrical valve-casing having a valve-seat opening to the exterior of the casing, a valve arranged in the casing and comprising a disk adapted to seat on the valve-seat and a cylindrical portion arranged to project through the valve-seat to the exterior of the casing, said cylindrical portion of the valve having longitudinal recesses in its periphery forming passages for the air when the disk is raised from its seat and having a perfectly cylindrical portion above said recesses arranged to close the opening in the valve-seat when the valve is seated, and a spring for forcing the valve to its seat, substantially as described.

8. In a coupling for air-brake hose, the combination of two coupling members provided with means for coupling them together, each of said members comprising a cylindrical valve-casing having a valve-seat opening to the exterior of the casing, a valve arranged in the casing and comprising a disk adapted to seat on the valve-seat and a cylindrical portion arranged to project through the valve-seat to the exterior of the casing, said cylindrical portion of the valve having a bayonet-groove in its periphery, a pin on the valve-seat engaging said groove, a spring for forcing the valve to its seat, and a key-seat in the outer end of said cylindrical portion for the reception of a key to press back the valve from its seat and to turn it to cause the pin to interlock with the bayonet-joint and hold the valve open, substantially as described.

9. In a coupling for air-brake hose, the combination of two coupling members provided with means for coupling them together, each of said members comprising a cylindrical valve-casing having a valve-seat opening to the exterior of the casing, a valve arranged in the casing and adapted to seat on said valve-seat, a spring for holding the valve to its seat, an aperture in the casing opposite the valve-seat, and a dust-chamber in the casing between said aperture and valve-seat, substantially as described.

695,840. **HEATING-GRATE.** JOHN A. ROSE and WILLIAM P. BROCKSCHMIDT, Grand Rapids, Mich., assignors to the Alkine Manufacturing Company, Grand Rapids, Mich. Filed Jan. 14, 1901. Renewed Feb. 3, 1902. Serial No. 92,257. (No model.)



Claim.—1. In a fireplace, a base provided with an opening communicating with the ash-space and smoke-flue, a horizontally-sliding damper for closing said opening, and a handle at the front of the fireplace for operating said damper and having its main portion arranged below the floor-level.

2. In a fireplace, a base provided with an opening registering with the ash-space and smoke-flue, a sliding damper arranged below the floor-level for closing the opening, and a handle at the front of the fireplace for operating said damper and connected to the lower face of the latter.

3. A fireplace, provided with an air-chamber at the top, rear and sides thereof, an air-passage connecting the sides together, air outlets and inlets, down and up flues communicating with the smoke-flue, and a base provided with an opening registering with the flues and an ash-space; a sliding damper engaging the lower face of the base for suitably closing said opening, and a damper M for opening or closing the top of the said down or up flues for obtaining a direct or indirect draft.

4. A fireplace provided with an air-chamber at the top, rear and sides thereof, an air-passage connecting the sides together, air outlets and inlets, down and up flues communicating with the smoke-flue, and a base provided with an opening registering with the flues and an ash-space; a sliding damper for suitably closing said opening, a handle connected to said damper for operating the same and arranged below the floor-level, a damper M for opening and closing the top of the said down and up flues for obtaining a direct or indirect draft, and means for operating said chamber M.

695,841. **SAP-SPOUT.** DAVID RUBB, Laconia, N. Y. Filed Mar. 19, 1901. Serial No. 51,918. (No model.)



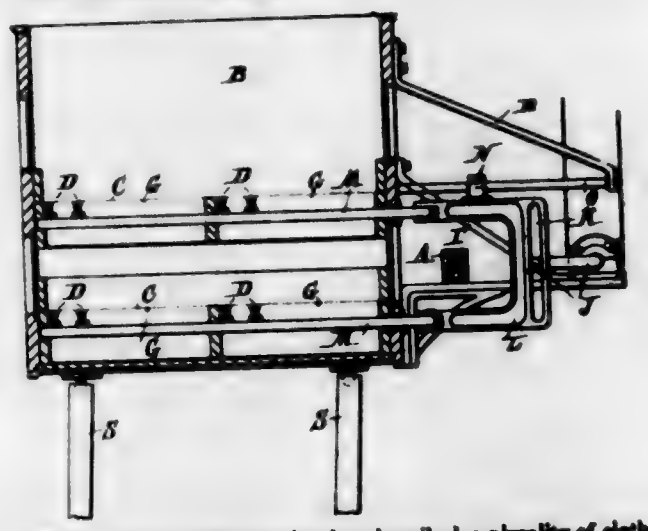
Claim.—1. A sap-spout consisting of a tubular body having a major plugging portion and a minor plugging portion separated by a bearing-shoulder.

2. A sap-spout consisting of a tubular body having a major plugging portion and a minor plugging portion separated by an abrupt bearing-shoulder, and a bearing-shoulder upon the body at the outer end of the major plugging portion.

3. A sap-spout consisting of a tubular body portion having a major bearing portion and a minor bearing portion separated by an abrupt bearing-shoulder, the faces of the bearing portions being cut away at the inner ends thereof to form sap-ducts.

4. A sap-spout consisting of a tubular body having a major bearing portion and a minor bearing portion separated by an abrupt shoulder, the faces of the inner ends of said bearing portions being cut away to form cross-sectionally angular portions, and a bearing-shoulder upon the body at the outer end of the major bearing portion.

695,842. **CLOTH-CLEANING ATTACHMENT FOR GYRATORY SIFTERS.** THOMAS SCOTT, Bendigo, Victoria, Australia. Filed Oct. 26, 1900. Serial No. 34,482. (No model.)

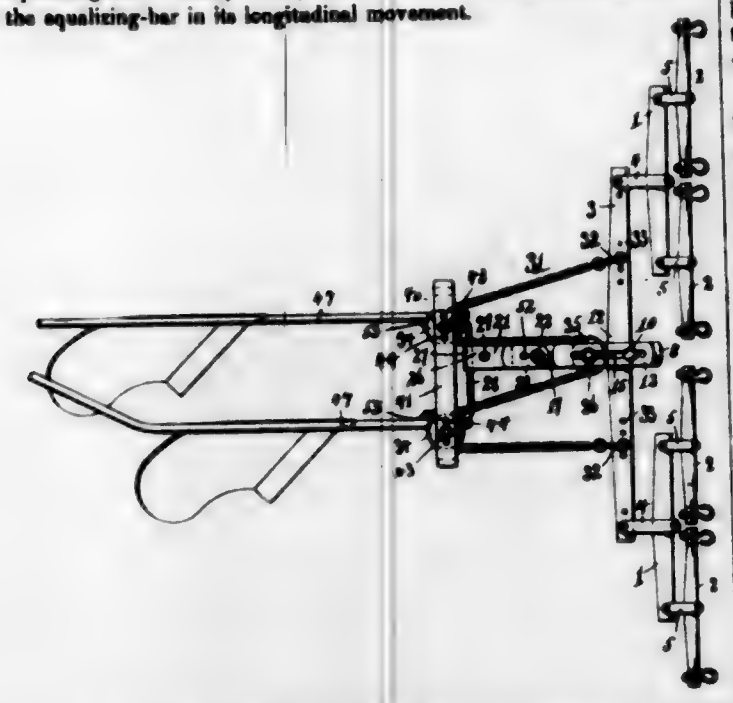


Claim.—In a machine of the class described, a plurality of cloths arranged to have a gyrating or oscillating motion, brushes extending across and contacting with the under side of the cloths and reciprocating independent of them, rods for reciprocating the brushes, a bracket, a slotted cross-head slidable on and supported by said bracket to which said rods are secured, and a driven crank slidable in the slot of said cross-head, substantially as set forth.

695,843. **DRAFT-EQUALIZER.** JESSE L. SUTTON, Brimfield, Ill. Filed Jan. 23, 1902. Serial No. 90,260. (No model.)

Claim.—1. In a draft-equalizer, the combination of a draft-frame, an equalizing-bar pivotally mounted relative to said frame, a flexible draft device connecting said frame with the arms of the equalizing-bar, the said bar having a longitudinal movement relative to the draft-frame, and a connection between the median portion of the flexible draft device and the

equalizing-bar, whereby said portion of the draft device is carried with the equalizing-bar in its longitudinal movement.



2. In a draft-equalizer, the combination of a draft-frame, an equalizing-bar mounted to turn in horizontal planes relative to said frame, pulleys on said frame and bar, and a flexible draft device connected with the ends of said bar and passing around the pulleys, the equalizing-bar having a longitudinal movement relative to the draft-frame.

3. In a draft-equalizer, the combination of a draft-frame, an equalizing-bar mounted to turn in horizontal planes relative to said frame, a slide carrying said bar, a guide for said slide carried by said frame, and a flexible draft device connecting the arms of the equalizing-bar with the draft-frame.

4. In a draft-equalizer, the combination of a draft-frame, an equalizing-bar mounted to turn in horizontal planes relative to said frame, a slide-clevis carrying said bar, a guide-clevis in which said slide-clevis is longitudinally movable, a clamp-clevis carrying said guide-clevis and connected with said frame, and a flexible draft device connecting the arms of the equalizing-bar with the draft-frame.

5. In a draft-equalizer, the combination of an equalizing-bar, a slide-clevis carrying said bar and in which the bar is mounted to turn in horizontal planes, a guide-clevis in which said slide-clevis is longitudinally movable, a clamp-clevis carrying said guide-clevis and having means for adjustable connection with the draft-frame, pulleys adapted to be attached to a draft-frame and a flexible draft device connected with the arms of the equalizing-bar and passing around said pulleys.

6. In a draft-equalizer, the combination of an equalizing-bar, a support in which said bar is mounted to turn in horizontal planes, means for connecting said support pivotally with the draft-frame, and a locking device whereby said support may be held from turning on its pivot, said equalizing-bar having a flexible draft device whereby it may be connected with a draft-frame.

7. In a draft-equalizer, the combination of an equalizing-bar, a support in which said bar is mounted to turn in horizontal planes, means for connecting the said support with the draft-frame, a central pulley connected with the equalizing-bar, pulleys and a carrier therefor adapted for removable connection with a draft-frame, and a flexible draft device connected with the equalizing-bar and passing around said pulleys.

8. The combination with plow-beams carrying plows or gangs thereon, of a draft-equalizer having pulleys mounted substantially in the lines of draft of said beams respectively, an equalizing-bar mounted to turn in horizontal planes, means for supporting said bar relative to the plow-beams, a pulley connected with said bar and a flexible draft device connected with the arms of said bar and passing around said pulleys.

9. The combination with plow-beams carrying plows or gangs thereof, of a draft-equalizer having an equalizing-bar and a flexible draft device having attachments to two of said beams, in substantially the lines of draft thereof, and to the equalizing-bar.

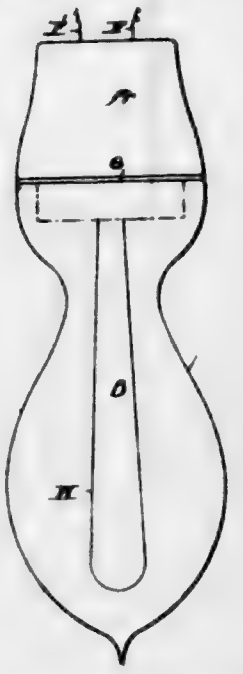
10. The combination with plow-beams carrying plows or gangs thereof, of a draft-equalizer having an equalizing-bar, a flexible draft device having attachments to two of said beams and to the equalizing-bar, and means for adjusting the equalizing-bar and its pivot laterally relative to said attachments to said beams.

11. The combination of a draft-frame and a draft-equalizer having an equalizing-bar, a flexible draft device having two points of attachment to said frame and having attachments to said bar, and means for adjusting the equalizing-bar and its pivot laterally relative to said attachments to said frame.

12. The combination of a draft-frame, an equalizing-bar having a pivot and for said pivot a support which is vertically adjustable relative to said frame, and a flexible draft device connecting the equalizing-bar with the draft-frame.

13. In a draft-equalizer for plows and other purposes, the combination of an equalizing-bar, a pivotal support for the same, a pulley connected with the equalizing-bar, a transverse draft-bar adapted for attachment to the plows, pulleys connected with the draft-bar, a flexible draft device passing around said pulleys and connected at its ends with the equalizing-bar, and means for adjusting the said pivotal support laterally relative to the latter pulleys.

695,844. INCANDESCENT LAMP. LESTER THAYER, Peoria, Ill. Filed July 17, 1900. Serial No. 23,895. (No model.)



Claim.—1. In a weatherproof incandescent lamp, the combination of a socket and bulb provided with matching flanges and grooves with screw connections, an annular ring or gasket interposed between the matching or engaging faces of the socket and bulb, the arrangement of the gasket and general contour of the socket and bulb presenting a continuous matching external surface of the socket and bulb, substantially in the manner herein shown and described.

2. In a weatherproof socket and bulb, a socket provided with an annular depending flange engaging the matching walls of an annular groove in the bulb, of a flexible gasket or ring interposed between the matching faces of the socket and bulb, the same being carried around the depending flange or ring of the socket, substantially in the manner described.

3. The herein-described weatherproof socket and bulb, consisting of the socket A, and the bulb B, a depending flange or ring from the socket carried in an annular groove in the bulb, of a centrally-disposed lug or extension from the bulb, and an annular flange forming an extension of the outer wall thereof, screw connections between the socket and bulb and suitable contacts, for the leading-in wires and filament, of suitable packing interposed between the socket and bulb and adapted to serve the purpose herein described and presenting a continuous matching external circumference substantially of the same contour, as set forth.

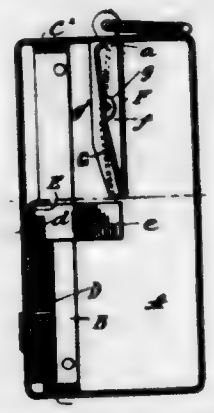
4. An incandescent bulb provided with a base of an annular flange forming a part of the external wall of the bulb, a centrally-disposed stud integral with the body of the base, the arrangement of flange and stud forming an annular groove, substantially for the purpose described.

5. An incandescent lamp comprising a socket and bulb, the bulb with a base of an annular flange with an interior thread, a stud centrally disposed in the base of relatively small diameter and externally threaded, the socket having a flange externally and internally threaded to match the threads of the flange and stud of the base of the bulb, substantially for the purpose described.

695,845. COIN-DEPOSIT BANK. HARRY J. VALENTINE, Hempstead, N. Y., assignor to William Vogel & Brothers, borough of Brooklyn, New York, N. Y., a Firm. Filed Aug. 29, 1901. Serial No. 73,754. (No model.)

Claim.—1. A coin-bank comprising a detached cover member and a box-body member, a locking-bolt carried by one of said members, a device positioned centrally in the open side and within the other member, to be engaged by the locking-bolt and means preventing relative lateral movement between the parts.

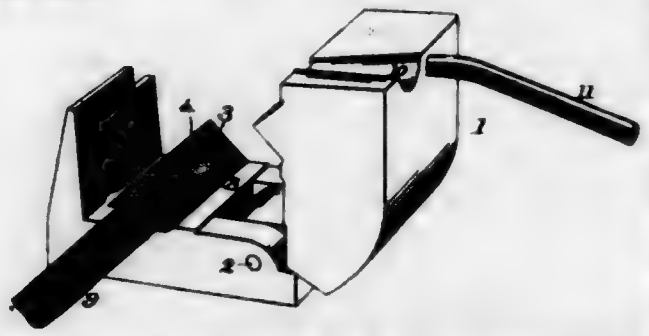
2. In a coin-bank, the combination of a detached box-body, a cover, each having the same exterior area and having an interfitting connection, a bar secured at the middle of opposite sides of one of them, across the open part thereof, and a locking device carried by the other and adapted to engage with said bar; whereby the lock is made effective at or near the center of the receptacle.



3. A pocket-bank comprising a receptacle constructed of a body portion and a separable cover jointed thereto by a rabbet joint, a lock secured at an intermediate point within the cover, and a bar adapted to be engaged by the bolt of the lock, connecting the inner sides of the body portion at opposite intermediate points; whereby the bolt is made effective at or near the center of the receptacle.

4. A coin-bank having a coin-slot, a chute leading from said slot and having a fixed wall in alinement with one of the walls of the coin-slot, a pivoted guard-plate forming a back for the chute, and its lower end closing the lower end of the chute when in normal position, and a flange integral with the upper end of the guard-plate and extending into the coin-chute to limit the movement of the guard-plate toward the fixed wall of the coin-chute.

695,846. **MANUFACTURE OF METALLIC BEDSTEADS.** ISAAC VAN HAGEN, Chicago, Ill. Filed Dec. 24, 1897. Serial No. 663,415. (No model.)



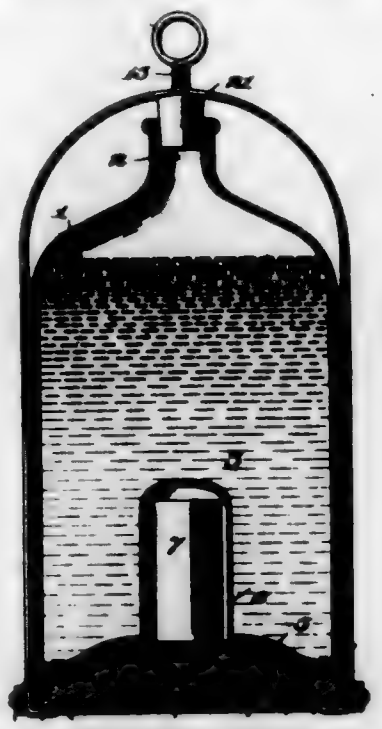
Claim.—1. The method herein described of constructing a section of the joint of a metallic bedstead, the same consisting in placing within the chill-mold that part of the bedstead on which a joint is to be formed, also placing within the mold, and in contact with the inner face thereof, a fusible lining or sleeve, pouring molten metal into the said chill-mold and sleeve and thereby uniting, under the heat of the poured metal, the said fusible lining or sleeve with the section of the joint, thus giving a soft outer surface to the latter, substantially as and for the purpose set forth.

2. The herein-described method of forming on a rod or tube one part of a separable joint, the same consisting in placing within a chill-mold such portion of the rod or tube on which the joint is to be formed, also placing within the mold, and in contact with the inner face thereof, a fusible lining or sleeve, and lastly pouring molten metal into the said chill-mold around the rod or tube and within or about said lining or sleeve, whereby the part of the lining or sleeve in contact with the molten metal is partly fused and unites therewith on cooling, thus giving a comparatively soft outer surface to the connecting portion of the joint, substantially as set forth.

695,847. **FIRE-EXTINGUISHER.** RANDALL T. VAN VALKENBURG, Newcastle, Pa., and CHARLES J. VAN VALKENBURG, Manchester, Mich.; said Charles J. Van Valkenburg assignor to William R. Crichton, Laporte, Ind. Filed Jan. 12, 1901. Serial No. 42,668. (No model.)

Claim.—1. A fire-extinguisher comprising a frangible vessel containing a fire-extinguishing agent, a frangible holder for an explosive cartridge, an ignition-chamber separated from the main body of the vessel by a frangible wall, and a closure for the ignition-chamber.

2. A fire-extinguisher comprising a frangible vessel containing a fire-extinguishing agent, an explosive cartridge having a fuse, and an igniter, the fuse being bedded in the igniter, and the explosive agent and igniter being separated, all the agents being wholly confined within the receptacle.



3. A frangible vessel for the purpose specified, comprising a main body portion, a bottom formed integral therewith and set inward to present a continuous flange which extends below the bottom, an inwardly-extending chamber arranged centrally within the vessel, and open at one end and communicating with the space beneath the bottom, and a closure for the said space.

4. A fire-extinguisher comprising a frangible receptacle having a frangible partition extending from one side to the other thereof, and dividing the receptacle into opposite compartments, a fire-extinguishing agent in one compartment, an igniter in the other compartment, and an explosive agent having a fuse embedded in the igniter, all of these elements being wholly contained within the receptacle.

5. A fire-extinguisher comprising a vessel inclosing and wholly confining a fire-extinguishing agent, an explosive cartridge having a fuse, and an igniter in contact with the fuse, the igniter and fire-extinguishing agent being separated by a frangible wall.

6. A fire-extinguisher comprising a frangible vessel containing a fire-extinguishing agent, a bottom integral with the vessel, and a cylindrical open-ended cartridge-holder wholly contained within the vessel and forming an integral part of the bottom.

7. A fire-extinguisher comprising a frangible vessel containing a fire-extinguishing agent, a compartment separated from the fire-extinguishing agent by a frangible wall and containing an igniting agent, a chamber carried by the said wall and housing an explosive agent having its fuse bedded in the igniting agent, and a closure for the said compartment.

8. A fire-extinguisher comprising a frangible vessel containing a fire-extinguishing agent, a compartment separated from the fire-extinguishing agent by a frangible wall and containing an igniting agent, an open-bottomed chamber carried by the said wall and housing an explosive agent having its fuse bedded in the igniting agent, and a closure for the said compartment.

9. The combination with a vessel, and a supporting base or yoke, of a carrying-frame composed of a metal strip, such as wire, the terminal portions thereof being bent to form hooks which engage the base or yoke, and the central portion thereof being twisted upon itself above the vessel and formed into a carrying or suspending loop.

10. The combination with a vessel and a base or yoke upon which the vessel is adapted to rest, of a carrying-frame composed of wire and having its central portion bent to form a carrying or suspending loop, the terminal portions being inserted through the yoke and clenched against the lower side thereof.

11. The combination with a bottle-shaped vessel, and a stopper therefor, of a base or yoke extending diametrically across the bottom of the vessel, and a carrying-frame composed of wire and having its terminal portions bent inwardly and clenched against the yoke, the central portion of said frame being twisted upon itself and brought to bear against the stopper and also fashioned into a carrying or suspending loop.

12. A fire-extinguisher comprising a frangible vessel having a filling-opening, a reëntrant end, the projected side walls of the vessel forming an ignition-chamber, an igniter within the chamber, a closure therefor, an explosive agent having a fuse in communication with the igniter, and a fire-extinguishing agent within the vessel.

13. A fire-extinguisher comprising a frangible vessel having a filling-opening, a reëntrant frangible bottom, the projected bottom walls forming an ignition-chamber, an igniter therein, a closure for said chamber, a fire-extinguishing agent within the vessel, and an explosive within the vessel and in communication with the igniter.

695,848. WHEEL. ALFREDO A. VÉREL, Glasgow, Scotland. Filed Sept. 6, 1901. Serial No. 74,553. (No model.)

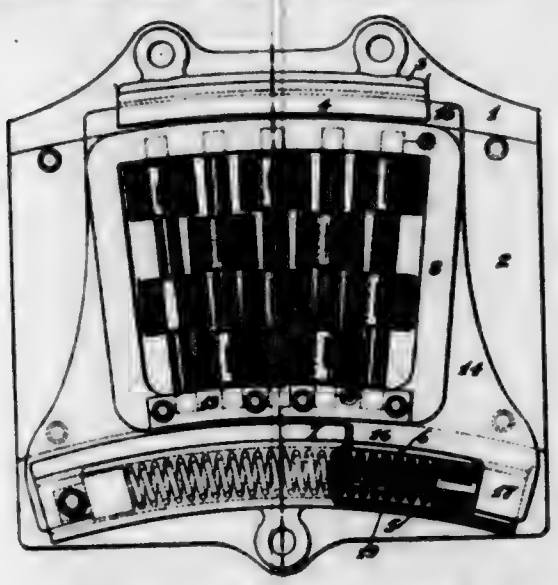


Claim.—1. The improved wheel composed of a hub, rigid spokes, and the rim fixed on the latter and having a series of slots, an outer rim separated from the first one, a series of spokes attached to such outer rim and passing through the slots of the inner one, and tension and compression springs applied to the inner ends of such spokes and interposed between them and the hub, substantially as shown and described.

2. The improved wheel composed of a hub, rigid spokes, and a rim fixed thereon and having a series of slots, an outer rim separated from the first one, a series of spokes hinged to such outer rim and passing through the slots of the inner one, and springs connecting their inner ends with the central portion of the wheel, substantially as shown and described.

3. The improved wheel, comprising a hub, spokes fixed thereto, and a rim applied to the spokes and provided with slots, rings secured to the spokes on opposite sides concentrically with the hub, an outer rim separated from the first one, a series of spokes connected therewith and passing through the slots in the inner rim, and springs connecting such spokes with the aforesaid rings, substantially as shown and described.

695,849. ROLLER SIDE BEARING. JOHN C. WARDE, St. Louis, Mo. Filed Nov. 8, 1901. Serial No. 81,584. (No model.)



Claim.—1. In a side bearing for cars, the combination with an antifriction device having lateral fins, and curved guideways coöperating with said fins, one of said guideways forming a spring-housing; substantially as described.

2. In a side bearing for cars, the combination with an antifriction device having lateral guiding projections, of a spring-housing in which said projections operate, and a spring in said housing; substantially as described.

3. In a side bearing for cars, the combination with an antifriction device having lateral projections, of a spring-housing forming a guideway with which said projections coöperate, followers in said housing, and a centering-spring coöperating with said followers; substantially as described.

4. In a side bearing for cars, the combination with an antifriction device, of guideways therefor, and a single centering-spring for the antifriction device arranged in one of said guideways; substantially as described.

5. In a side bearing for cars, the combination with an antifriction device having guiding-fins, of curved guideways coöperating with said fins, one of said guideways forming a spring-housing, and a spring in said housing which coöperates with said guiding-fins; substantially as described.

6. In a side bearing for cars, the combination with an antifriction device provided with projections, of a spring-housing into which said projections extend, a spring in said housings for coöperating with said projections, and fixed abutments in said housing one of said abutments being removable; substantially as described.

7. In a side bearing for cars, the combination with an antifriction device, of a centering-spring therefor arranged to one side and in horizontal plane of said antifriction device, and a housing for said spring; substantially as described.

8. In a side bearing for cars, the combination with an antifriction device, of a slotted spring-housing, projections extending from said antifriction device through the slot into said housing, and a spring in said housing coöperating with said projections; substantially as described.

9. In a side bearing for cars, the combination with an antifriction device, of a spring-housing formed with a slot in its inner wall, projections at the corners of the antifriction device which extend through the slot into the housing, a spring in said housing coöperating with said projections, and fixed stops in said housing for coöperating with said spring; substantially as described.

10. In a side bearing for cars, the combination with an antifriction device, of a spring-housing formed with a slot in its inner wall, projections at the corners of the antifriction device which extend through the slot into the housing, a spring in said housing coöperating with said projections, and fixed stops in said housing for coöperating with said spring, one of said stops being removable; substantially as described.

11. In a side bearing for cars, the combination with an antifriction device, of a slotted spring-bolting, a spring in said housing for centering the antifriction device, and an overhanging lip extending over the spring-housing to guide the antifriction device in its movement; substantially as described.

12. In a side bearing for cars, the combination with a base-plate having an overhanging guiding wall at one side and a spring-housing at the opposite side, the inner wall of said spring-housing being slotted, of fixed abutments in said spring-housing, spring-followers, a spring, and an antifriction device provided with projections which pass through the slot and coöperate with the spring-followers; substantially as described.

13. In a side bearing for cars, the combination with a frame formed with vertically-enlarged sockets in one side and recesses in the opposite side, of spindles arranged in said sockets and recesses, a removable plate fitting over said recesses, and sectional rollers loosely arranged on said spindles; substantially as described.

14. In a side bearing for cars, the combination with a frame, of spindles loosely journaled therein, sectional rollers loosely mounted on said spindles, guiding-fins 15 and 16 on said frame, projections 17, and a centering-spring coöperating with said projections 17; substantially as described.

695,850. BURNER. CARL WOLFF, New York, N. Y. Filed June 8, 1901. Serial No. 63,766. (No model.)

Claim.—1. A burner-conduit and a combustible-supply tip therefor arranged at an obtuse angle thereto the tip being so arranged that it causes the combustible initially to touch a point upon the wall of the conduit intermediate its receiving and discharging ends.

2. A burner-conduit having a constricted portion and a tip for said conduit arranged eccentrically relatively to the lower end of said conduit.

3. A burner-conduit and a combustible-supply tip arranged at an angle to each other and a coupling device uniting said parts having openings to admit air to the conduit.

4. A burner-conduit having a constriction or narrow part and a tip arranged to point to or against the conduit-wall at or in proximity to the constriction substantially as described.

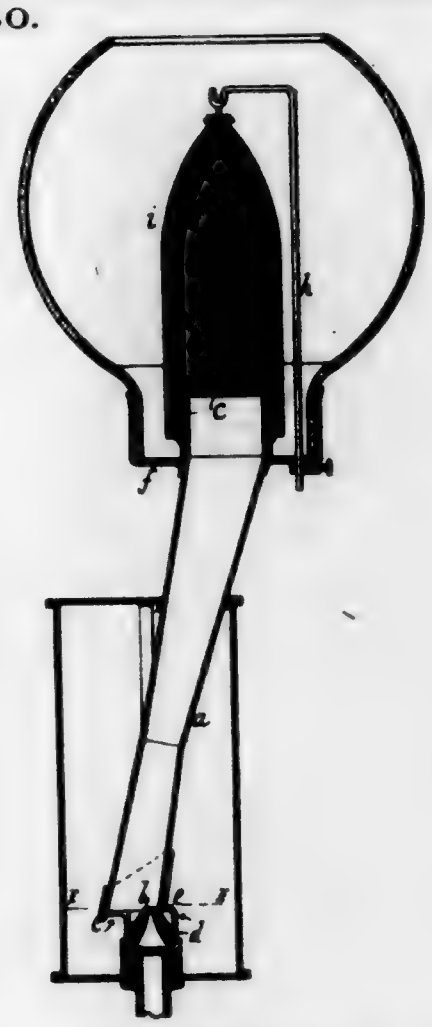
5. A burner-conduit the inner surface of which tapers inwardly from opposite ends and a combustible-supply tip arranged at an angle to said conduit and eccentrically relatively to the lower end of said conduit.

6. A burner-conduit having an open lower end or inlet, a tip attachment, and braces made to eccentrically secure the tip attachment to the conduit without obstructing the inlet substantially as described.

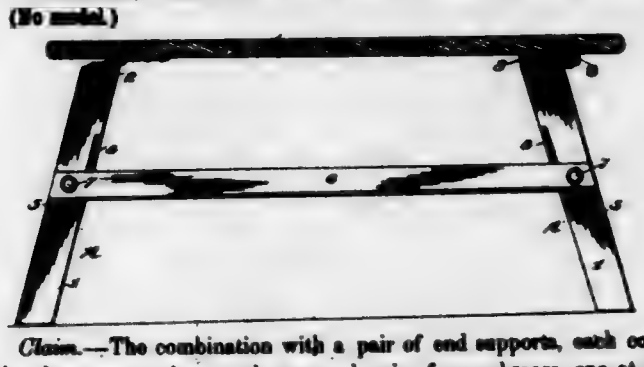
7. A burner-conduit and a tip, said conduit being placed at an angle to the tip and having a constriction intermediate its ends and nearer one end than the other substantially as described.

8. A burner-conduit having a screen at its outlet and a combustible-supply tip said conduit and tip being arranged at angles to each other, and the inner surface of said conduit being tapered inwardly from the opposite ends thereof and being unobstructed from the tip to said screen.

695,850.

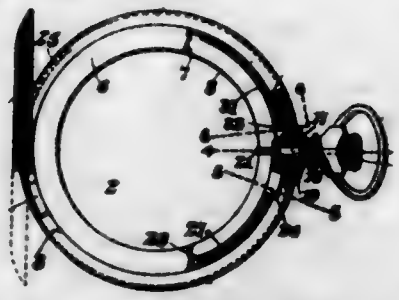


695,851. FOLDING IRONING-TABLE. JOHN M. WOODS and JOHN R. CRUMPLAR, Cordele, Ga. Filed June 4, 1901. Serial No. 62,077. (No model.)



Claim.—The combination with a pair of end supports, each comprising legs, a cross-bar at the top and pair of cross-braces, one at the inner edge of the legs and the other at the outer edge, the inner braces above the outer ones, and connecting-strips pivoted at or near their ends to the legs at points between the cross-braces whereby when in erected position the parts are all securely braced, of a board hinged at or near one end to one support and having a catch at or near the other end to secure it to the opposite end support whereby to lock the board down and hold the end supports rigidly in place and against spreading at the top.

695,852. INTERCHANGEABLE WATCH MOVEMENT AND PENDANT. JOHN KELLY, Baton, Ohio. Filed Oct. 3, 1900. Serial No. 31,988. (No model.)



Claim.—1. The combination with a watchcase of a movement-ring removably retained therein, and a separate pendant having detachable connection with the ring and interlocking engagement with the case to prevent its detachment from the ring while the movement is in the case.

2. The combination with a watchcase, of a movement-ring removably retained therein, a pendant having detachable connection with the ring and interlocking engagement with the case to prevent the detachment of the pendant while the ring is in the case, and means cooperating with the pendant to normally retain the ring within the case.

3. The combination with a watchcase and a movement-ring removably retained therein, of a pendant having detachable connection with the ring and interlocking engagement with the case, a winding-stem carried by the pendant, and a movement-catch serving to retain the movement-ring and located to be operated to release said ring by the movement of the stem relative to the pendant.

4. The combination with a movement-ring, of a relatively movable pendant carried thereby, a pendant-latch disposed to resist the movement of the pendant relative to the movement-ring, and a winding-stem disposed to actuate the pendant-latch, so that the pendant can be removed from the movement-ring.

5. The combination with a watchcase and a removable movement-ring, of a case-catch retaining a portion of the case, a movement-catch retaining the movement-ring within the case, and an actuating member common to said catches and disposed to operate them by different periods of movement in the same direction to effect the release of the case and movement, respectively.

6. The combination with a case and a movement-ring therein, of a catch-spring, a case-catch and a movement-catch operatively related to said spring, said movement-catch having a locking element extended from the periphery of the movement-ring into engagement with the case, and a stem in operative relation to said catches to effect their successive release through continued movement of the stem in the same direction.

7. The combination of a watchcase, a movement-ring fitted therein and removable therefrom, a catch for a cap of the case, a catch to secure said movement-ring in the case, said catches having outwardly-extending engaging elements of unequal length, and a winding-stem to operate the said catches and disengage the same successively by different degrees of inward movement, substantially as described.

8. The combination with a watchcase, of a removable movement-ring therein, provided with a relatively movable pendant, a movement-catch retaining the movement-ring within the case, a pendant-catch controlling the movement of the pendant with respect to the ring, and actuating means common to said catches.

9. The combination with a watchcase, removable movement-ring and a pendant movable upon the ring, of a shiftable stem within the pendant, a movement-catch retaining the movement-ring in the case, and a pendant-catch engaging the pendant to retain it against movement relative to the ring, said catches being in operative relation to the stem for actuation thereby.

10. The combination with a watchcase, a removable movement-ring therein and a movable pendant carried by the movement-ring, of a movement-catch retaining the movement-ring within the case, a case-catch retaining a portion of the case, and a pendant-catch engaging the pendant.

11. The combination with a watchcase, a removable movement-ring therein and a movable pendant carried by the ring, of a movement-catch retaining the movement-ring within the case, a case-catch retaining a portion of the case, a pendant-catch engaging the pendant, and operating means common to the several catches to effect their release and the consequent dissociation of the case, movement-ring and pendant.

12. The combination with a watchcase, a removable movement-ring therein and a movable pendant carried by the ring, of a movement-catch retaining the movement-ring within the case, a case-catch retaining a portion of the case, a pendant-catch engaging the pendant, and a stem carried by the pendant and arranged to operate the several catches by different degrees of endwise movement.

13. The combination with a watchcase, and a removable movement-ring, of a pendant detachably connected to the ring said ring and pendant being locked together by the case.

14. The combination with a watchcase comprising the case proper and a movable cap, of a removable movement-ring mounted in the case, and a pendant detachably carried by the movement-ring, the watchcase proper and the case-cap being disposed to cooperate to lock the movement-ring and pendant together, and to prevent the withdrawal of the movement-ring from the case.

15. The combination with a watchcase and a removable movement-ring, of a pendant detachably carried by said ring and adjustable thereon, and a winding-stem removable from the movement-ring with the pendant and arranged to be shifted to its winding and setting positions through the adjustment of the pendant relative to the movement-ring, and a pendant-catch retaining the pendant and disposed for release by the stem.

16. The combination with a movement-ring, and a relatively movable pendant carried thereby, of a winding and setting stem shiftably carried by the pendant, and a pendant-catch engaging the pendant and disposed for operation by the movement of the stem relative to the pendant.

17. The combination with a movement-ring, and a relatively mov-

able pendant carried thereby, of a winding and setting stem shiftably carried by the pendant, a pendant-catch carried by the ring and engaging the pendant, and means for operating the pendant-catch by the endwise movement of the stem.

18. In combination with a watchcase and a removable movement-ring carrying the movement, the removable and interchangeable pendant attached to the movement-ring and removable in connected relation therewith from the case and separable from the movement-ring only when the latter is out of the case, whereby the movement-ring and its movement may be interchangeably used with different pendants and cases.

19. The combination with a watchcase and a removable movement-ring, of a pendant removably mounted upon the movement-ring but removable therefrom only after the movement-ring is withdrawn from the case.

20. The combination with a watchcase and a removable movement-ring, of a pendant removably mounted upon the ring and held by the case against detachment from the ring, whereby said pendant can be removed from the movement-ring only when the latter has been withdrawn from the case.

21. The combination with a watchcase and a removable movement-ring, of a pendant removably mounted upon the movement-ring and locked by the case against movement, said pendant being removable from the movement-ring when the movement is withdrawn from the case, whereby the pendant serves as a handle to facilitate the withdrawal of the movement from the case.

22. The combination with a watchcase and a removable movement-ring, of a pendant removably mounted upon the movement-ring, and means for locking the pendant to the movement-ring while the latter is in the case and for releasing the pendant to permit its removal from the movement-ring after said movement-ring has been withdrawn from the case.

23. In a watch, the combination with a movement-ring and a shiftable winding and setting stem, of a pendant movable with respect to the movement-ring to effect the shifting of said stem, and means for normally locking the pendant against such movement.

24. In a watch, the combination with a movement-ring, and an endwise-shiftable winding and setting stem, of a pendant movable with respect to the movement-ring and operatively connected with the winding and setting stem to shift the latter, and a locking device engaging the pendant to normally prevent such movement of the latter as would serve to shift the stem.

25. In a watch, the combination with a movement-ring and case, of a pendant having threaded connection with one of said elements, an endwise-shiftable winding and setting stem operatively related to the pendant, and arranged to be shifted by the movement of the pendant, and means for normally locking said pendant to prevent the accidental unscrewing thereof.

26. In a watch, the combination with the case and movement-ring, of a pendant having threaded connection with the movement-ring and engaged by the case to prevent accidental unscrewing of the pendant, and an endwise-shiftable winding and setting stem operatively related to the pendant to be shifted by the movement of the latter relative to the movement-ring.

27. In a watch, the combination with the movement-ring and case, of a shiftable winding and setting stem, a pendant having threaded connection with the movement-ring and interlocking engagement with the case, said pendant being operatively connected to the winding and setting stem to shift the latter.

695,858. HAT TIP OR LINING. CLARENCE F. BEATTY, New York, N. Y. Filed Nov. 28, 1901. Serial No. 84,082. (No model.)



Claim.—A hat tip or lining for soft hats of Alpine form, consisting of a strip of flexible material, narrower at its central portion than at its ends and provided with flexible stiffening-strips along the two side edges thereof, whereby when the ends of said lining are inserted between the sweat-band and the adjacent sides of a hat, said lining will conform to the shape of the hat.

695,854. FLUID-BRAKE FOR GUNS. OTTO [illegible], Essen, Germany, assignor to Fried. Krupp, Essen, Germany. Filed Mar. 26, 1901. Serial No. 52,900. (No model.)

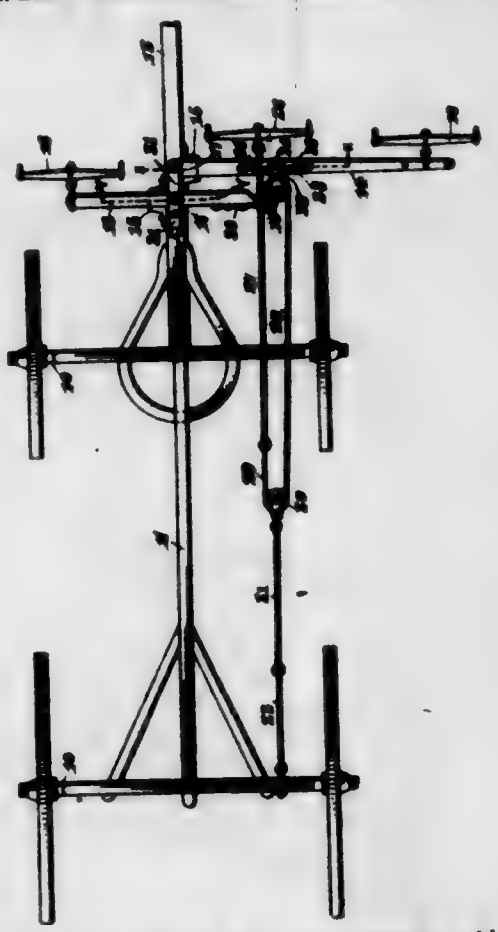
Claim.—1. A fluid-brake comprising a piston provided with radially-hinging throttling-flaps, and a cylinder having by-pass channels entered and restricted by the throttling-flaps at one end of the piston's stroke, and guides intercepting portions of the paths of said throttling-flaps and holding them out of said channels for a portion of the piston's stroke.



2. A fluid-brake, comprising a piston having outwardly and inwardly hinging throttling-flaps, and a cylinder formed with longitudinal channels entered and restricted by the flaps, at one end of the piston's stroke; the walls of said channels intercepting portions of the paths of travel of said flaps, and providing guides holding the flaps out of the channels for a portion of the piston's stroke.

3. In a fluid-brake of the character specified, a piston provided with throttling-flaps, and a cylinder provided with channels consisting of a wider and a narrow part, which latter is located at the end where the piston commences its running-out motion, and which gradually slopes into the wider one, while the width of the throttling-flaps corresponds to the broader part, so that during the first part of the running-out motion the flaps glide upon the edges of the narrower part without entering the same, but on passing the transition part gradually enter the channels.

695,855. DRAFT-EQUALIZER. JOHN C. BELL and JOHN BELL, Enterprise, Kans. Filed Jan. 28, 1902. Serial No. 91,695. (No model.)



Claim.—1. In a draft-equaliser, the combination with independently-swinging draft members movable away from each other, of singletrees attached to said members, another singletree, and connections between the latter singletree and the draft members to move them toward each other when draft strain is applied to said last-mentioned singletree.

2. In a draft-equaliser, the combination with a tongue, of oppositely-extending draft members pivoted to the tongue, one of said members projecting across the tongue and located contiguous to the other member, singletrees connected to the members on opposite sides of the tongue, and another singletree having connections with one member and the adjacent projecting portion of the other.

3. In a draft-equaliser, the combination with a tongue, of a whiffletree pivoted on the tongue and projecting on opposite sides thereof, an evener-lever also pivoted to the tongue in front of the whiffletree, a singletree, and a flexible connection between the singletree and the whiffletree, said connection also having a movable engagement with the evener lever.

4. In a draft-equaliser, the combination with a tongue, of a whiffle-

tree pivoted on the tongue and projecting on opposite sides of the same, an evener-lever also pivoted to the tongue in front of the whiffletree and provided with a pulley, a singletree, and a flexible connection secured to the singletree and passing about the pulley of the evener-lever, said connection being attached to the whiffletree.

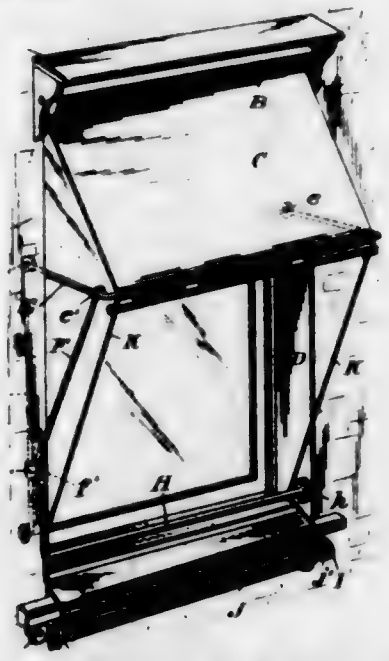
5. In a draft equalizer, the combination with a tongue, of a whiffletree pivoted to the tongue and projecting on opposite sides of the same, an evener-lever also pivoted to the tongue and projecting from one side thereof in front of the whiffletree, said evener-lever being provided with a pulley, a pulley secured to the vehicle, a singletree, and a flexible connection between the singletree and the whiffletree, said connection passing about the pulley of the vehicle and the pulley of the evener-lever.

6. In a draft-equalizer, the combination with a tongue, of a whiffletree pivoted on the tongue and projecting on opposite sides of the same, an evener-lever also pivoted to the tongue in front of the whiffletree, said evener-lever being provided with a pulley, a pulley secured to the vehicle, a supporting-bracket attached to the evener-lever, a singletree having a link that is slidably mounted in the supporting-bracket, and a flexible connection between the link and the whiffletree, said connection passing about the pulley of the vehicle and the pulley of the evener-lever.

7. In a three-horse equalizer, the combination with the tongue, of two draft members independently pivoted to the tongue and arranged on opposite sides thereof, each draft member having a singletree connected to the outer end thereof, a flexible running connection between the two draft members, and a singletree fastened to the free end of said flexible connection and located on one side of the tongue.

8. In a three-horse equalizer, the combination with the tongue, of two draft members independently pivoted to the tongue and arranged on opposite sides thereof, one of said draft members extending from the tongue to a greater distance than the other member, each draft member having a singletree connected to the outer end thereof, a flexible running connection between the two draft members, and a singletree fastened to the free end of said flexible connection and located on that side of the tongue which has the long draft member, and means thereon for supporting the singletree in proper position.

695,856. CONVERTIBLE WINDOW SHADE AND AWNING. ROBERT O. BOLLES, Bloomington, Ill. Filed Oct. 11, 1901. Serial No. 78,380. (No model.)

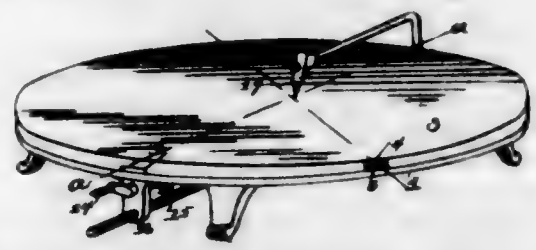


Claim.—1. The combination with the shade or curtain, of means adapted to engage said curtain for holding the same in an angular position, a suitably-journaled guide-roller, a drum or roller in proximity to said guide-roller, a flexible means engaging said guide-roller secured to said curtain at one end, and to said drum at its other end, and means for operating said drum.

2. The combination with the shade or curtain, of an adjustable frame adapted to engage said curtain, a drum and means connecting said drum and curtain for operating said curtain, a crank provided with a pivoted handle engaging said drum, and a bearing for said crank, comprising a slotted angle-plate, for locking the pivoted handle and operating parts.

3. The combination with the shade or curtain, of a pivoted frame adapted to engage said curtain, an adjustable rod supporting said frame, a drum, and flexible means connecting said drum with the curtain, a guiding-roller engaging said flexible means, a crank in proximity to said drum, and bevel-gearing connecting said crank and drum for operating said drum.

695,857. ELLIPSOGRAPH. OTTO H. BOEHM, Cleveland, Ohio. Filed Mar. 30, 1901. Serial No. 53,645. (No model.)



Claim.—1. In combination, a platform provided with a circular slot in its upper face, a ring in said slot, and diametrical bar thereon, diametrically-placed guides on said platform, a head adjustably movable thereon, a pivoted bar on said head, and an upper plate provided with slots crossing at right angles in its under face, in which said pivoted bar and diametrical bar are inserted, substantially as and for the purpose set forth.

2. In combination with a circular platform, diametrically-placed guides thereon, a sliding head in said guides, means for adjusting said head in said guides, a bar pivoted thereon, a circular groove on said platform, a ring in said groove, a diametrically-placed bar rigidly secured to said ring at a higher level than said pivoted bar, an upper plate, diametrical grooves, one deeper than the other in said plate, in which said bars are adapted to move, and an adjustable pencil-bar, substantially as described.

695,858. MINE-GATE. NEWTON K. BOWERS, North Lawrence, Ohio. Filed July 5, 1901. Serial No. 67,202. (No model.)



Claim.—1. In combination with a gate, a lock therefor upon each side, a trip at each side of the gate a distance therefrom, and connecting means between the trips and the gate, including bars mounted for longitudinal movement in opposite directions, the parts being combined, whereby the actuation of a trip upon one side of the gate by the approach of a car effects an opening of the gate and sets the lock upon the opposite or far side of the gate to hold the latter open and whereby operation of the remote trip effects a release of the lock and permits the gate to close, substantially as set forth.

2. In combination with a gate, trip mechanisms therefor at each side for actuation by a car when approaching and receding from the gate, a lock at each side of the gate, connections between the gate and trips adapted to cooperate with the respective locking devices, and including oppositely-movable bars and pairs of toggle-levers arranged to break joint

in opposite directions, the lock upon the remote side of the gate being set by a car approaching the gate and actuating the trip upon the inner side and the said lock being released by actuation of the trip upon the remote side of the gate as a car recedes therefrom, substantially as set forth.

3. In combination with a gate and trips at opposite sides thereof, a locking device at each side of the gate, bars extending in opposite directions from the gate and having loose connection with elements of the respective trips and adapted to be engaged by the said locking devices, and means for releasing the bars from the locking devices to permit the gate to close, substantially as set forth.

4. In combination with a gate and a trip mechanism at each side thereof, a locking device at each side of the gate, bars having connection with the gate and extending therefrom in opposite directions and adapted to interlock with the said locking devices, and a movable part connected with each of the trip devices and having loose connection with the outer end portion of the respective bars to effect a release of the gate-locking means, substantially as set forth.

5. In combination with a gate, and trip devices at each side thereof, toggle-levers connecting the gate with a fixed part at one side thereof, bars having connection at their inner ends with the toggle-levers and having their outer end portions longitudinally slotted, and arms connected with the respective trip devices and having loose connection with the outer ends of the said bars, substantially as set forth.

6. In combination with a gate, and trip devices at each side thereof, bars having connection with the gate and extended in opposite directions therefrom, a locking device at each side of the gate for coöperation with the respective bars, and a connection between corresponding trip devices and bars for effecting an opening, a locking, and a release of the gate, substantially as set forth.

7. In combination with a gate and a trip mechanism at each side thereof, a locking device at each side of the gate, bars extended in opposite directions from the gate and connected therewith and adapted for coöperation with the lock devices for holding the gate open, and connecting means between the respective trip devices and bars having a loose connection with the latter, whereby actuation of the trip device upon one side of the gate will set the lock upon the opposite side and actuation of the trip upon the latter side will release the lock and permit automatic closure of the gate, substantially as specified.

8. In combination with a gate and a trip device, a locking device, a bar having connection with the gate and adapted to interlock with the locking device to hold the gate open and provided with a deflected portion, and a connection between the trip device and bar having loose connection with the latter and adapted to exert lateral pressure upon the deflected part of the bar to effect disengagement thereof from the locking device, substantially as set forth.

9. In combination, a gate, a trip device, a rock-shaft having an offstanding arm, a lock device, a bar having connection with the gate and provided with a deflected portion and a part to interlock with the said locking device, and connecting means between the deflected part of the bar and the aforesaid arm of the rock-shaft, whereby disengagement of the bar from the locking device is effected, substantially as set forth.

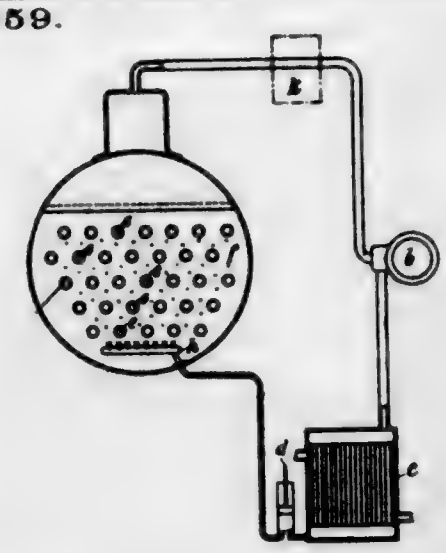
10. In combination with a gate, and a trip device at each side thereof, a rock-shaft for each trip device having an offstanding arm, a locking device, toggle-levers connecting the gate with a fixed part, oppositely-extended bars connected with the respective toggle-levers and having their outer end portions deflected and hooked for coöperation with the locking devices, and connecting means between the arms of the rock-shafts and the deflected portions of the respective bars, substantially as and for the purpose set forth.

11. In a mine-gate, oppositely-inclined wings adapted to open in opposite directions, links connecting the wings for simultaneous action, trip devices at each side of the gate, oppositely-extended bars connected with one of the wings of the gate, locking devices for the outer ends thereof, and connecting means between the outer ends of the bars and the trip devices adapted to effect a release of the said bars from the coöperating locking devices, substantially as set forth.

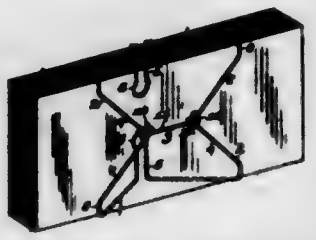
695,859. SYSTEM OF OBTAINING POWER FROM VOLATILE LIQUIDS. JULIUS BRODE and PAUL STRINNER, Copenhagen, Denmark. Filed Sept. 30, 1901. Serial No. 77,040. (No model.)

Claim.—The system of obtaining power from volatile liquids which consists in heating said liquids in the presence of a non-commingling agency in an extended area, utilizing the resultant vapor as a source of power, reclaiming the exhaust-vapor, condensing the same, and finally discharging the condensed fluid into the non-commingling agency for further service.

695,859.



695,860. HOLDER FOR PAPERS, ENVELOPS, &c. ARCH BURNS, Canonsburg, Pa. Filed Nov. 2, 1901. Serial No. 80,908. (No model.)



Claim.—1. A holder for envelops, papers, &c., consisting of a wire formed of parallel side members having inwardly-projecting looped spring portions thereon adapted to bear against one side of the package, parallel connecting end members joining the side members and provided with inwardly-projecting portions thereon connected together at their ends for bearing against the opposite side of the package, and a bar connecting the ends of the said inwardly projecting portions on the end members.

2. A holder for envelops, papers, &c., consisting of a wire formed of side members having inwardly-projecting looped spring portions thereon adapted to bear against one side of the package, end members joining the side members by right-angle portions, inwardly-projecting portions on said end members joining the right-angle portions and connected together at their ends for bearing against the opposite side of the package, and a bar connecting the ends of the said inwardly-projecting portions on the end members

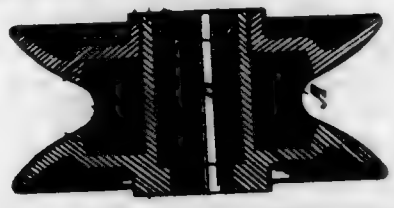
3. A holder for envelops, papers, &c., consisting of a wire formed of side members having inwardly-projecting looped spring portions thereon adapted to bear against one side of the package, end members joining the side members by right-angle portions, inwardly-projecting portions on said end members joining the right-angle portions and connected together by loops at their ends for bearing against the opposite side of the package, and a bar connecting the loop ends of the said inwardly-projecting portions on the end members.

4. A holder for envelops, papers, &c., consisting of a wire formed of parallel side members having inwardly-projecting looped spring portions thereon adapted to bear against one side of the package, parallel connecting end members joining the side members and provided with inwardly-projecting portions thereon connected together at their ends for bearing against the opposite side of the package, and a spring-bar connecting the ends of the said inwardly-projecting portions on the end members.

5. A holder for envelops, papers, &c., consisting of a wire formed of side members having inwardly-projecting looped spring portions thereon adapted to bear against one side of the package, end members joining the side members by right-angle portions, inwardly-projecting portions on said end members joining the right-angle portions and connected together at their ends for bearing against the opposite side of the package, and a spring-bar connecting the ends of the said inwardly-projecting portions on the end members.

6. A holder for envelops, papers, &c., consisting of a wire formed of side members having inwardly-projecting looped spring portions thereon adapted to bear against one side of the package, end members joining the side members by right-angle portions, inwardly-projecting portions on said end members joining the right-angle portions and connected together by loops at their ends for bearing against the opposite side of the package, and a spring-bar connecting the loop ends of the said inwardly-projecting portions on the end members.

695,861. **ELECTRIC CONTACT DEVICE.** NELSON C. COTABISH, Lakewood, Ohio. Filed Apr. 16, 1901. Serial No. 56,115. (No model.)



Claims.—1. In electric-current contacts, a non-metallic conductive central portion of high specific resistance, in combination with protecting and guiding members of greater radial extension secured thereon of a relatively low specific resistance, substantially as set forth.

2. In electric-current contacts, a carbon central portion, metallic protecting and guiding flanges secured to each other and supporting said carbon center, in combination with a conductive lubricating-bushing concentric with the axis of said flanges.

3. In electric-current contacts, a plurality of contact-surfaces comprising in combination, a conductive center of high specific resistance and conductive side flanges projecting beyond said center, of relatively low specific resistance, substantially as set forth.

4. A composite contact device, comprising in combination, guiding metallic flanges of maximum radial extension and a carbon center of smaller diameter clamped between said flanges, substantially as set forth.

5. A composite device comprising a metallic flange, a projection formed thereon and a recess therein, a second metallic recess-formed flange, means for supporting and holding the second flange on said projection and a removable carbon member clamped between said flanges, within the recess thereof, substantially as set forth.

6. A composite contact device, comprising supporting and guiding flanges, oppositely-related tapering recesses formed therein, a removable carbon portion having tapering rims formed thereon supported between said flanges and within the recesses thereof, substantially as set forth.

7. A composite contact device, comprising side flanges and a non-metallic conducting member supported between said flanges, such member being formed of less diameter than said flanges.

8. A composite contact device comprising separable side flanges, a non-metallic conducting member removably held between the flanges, a lubricative conducting-bushing in one of the flanges, means for holding said bushing therein and the flanges against separation, substantially as set forth.

9. A non-metallic conducting member having tapering rims, guiding and supporting flanges having tapering recesses adapted to engage the said rims, and means for holding said flanges and rims against displacement.

10. A composite contact device, a central non-metallic portion supporting and guiding flanges therefor, a conductive lubricating-bushing within one of said flanges, and one or more retaining-rings in axial alinement and opposition to said bushing, substantially as set forth.

11. A contact device comprising a non-metallic contact portion means for holding said contact portion in position and a self-lubricating conductive bushing.

12. A contact device comprising two flanged plates, a carbon contact-block between said plates and an axial self-lubricating conductive bushing.

13. In a contact device, the combination with two flanged plates, one plate having an integral sleeve on which the other plate is removably secured, a non-metallic contact-block mounted on the sleeve and clamped between said plates and a lubricating conductive bushing disposed within said sleeve.

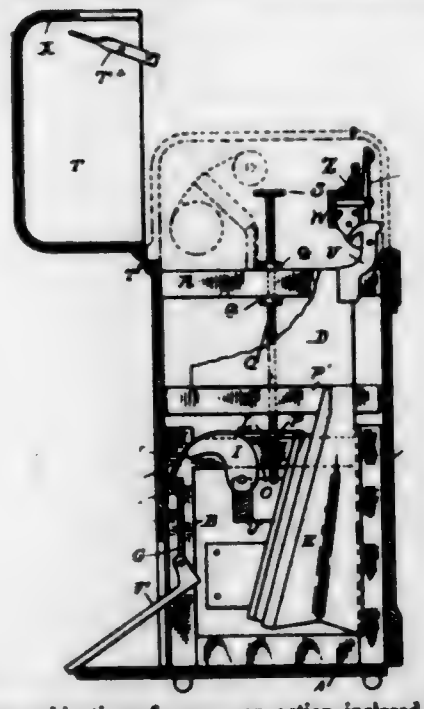
14. In electric-current contacts, a plurality of contact-surfaces comprising in combination, a conductive center and conductive side flanges projecting beyond the center, said center and said flanges being of different specific resistances, substantially as set forth.

695,862. **PIANO-PLAYER.** JOSEPH COURVILLE, Detroit, Mich., assignor to Farrand & Votey Organ Company, Detroit, Mich., a Corporation of Michigan. Filed May 13, 1901. Serial No. 60,055. (No model.)

Claim.—1. The combination of a base, a case mounted thereon on vertical guides, an adjusting device for raising and lowering the case on the base located within the case and extending up near the top and a movable top for the case adapted when open to expose the adjusting devices, and when closed to inclose the same.

2. The combination of a base, a case mounted thereon on vertical guides, screw-shafts journaled in the bearing inside the case and having a screw-threaded engagement with the base, hand wheels or levers at the top of the shafts, and a movable cover for the case inclosing said adjusting-wheels in its closed position but exposing them in its open position.

3. The combination of a case, an action inclosed within the case, playing-fingers, a fulcrum-bar to which the playing-fingers are pivoted, movable to carry the fingers within or without the case, and a finished cap for the projecting portion secured to and removable with the fulcrum-bar.



4. The combination of a case, an action inclosed within the case, playing-fingers, a fulcrum-bar to which the playing-fingers are pivoted, movable to carry the fingers within or without the case, a cover for the aperture through which the fingers move in and out, and a finished cap movable with the fulcrum-bar covering the fulcrum-bar and fingers, substantially as described.

695,868. **JUNCTION-SLEEVE FOR ELECTRICAL CONDUCTORS.** THOMAS J. DONOVAN and ERNEST G. ALDERSON, Nashville, Tenn. Filed Dec. 31, 1901. Serial No. 87,914. (No model.)

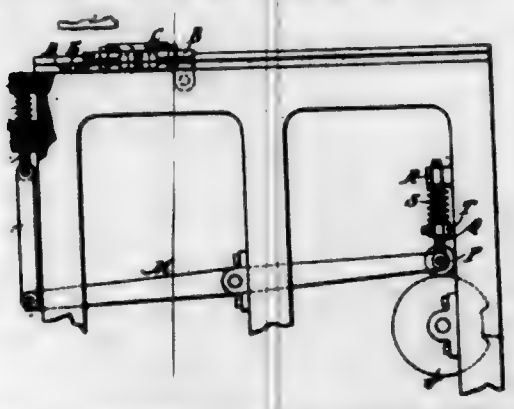


Claim.—1. The combination with the terminals of two electrical conductors and an externally-screw-threaded collar on one of said conductors, of a junction-sleeve comprising a body having screw-threaded ends, and caps screwing upon said ends, one of said conductors being secured to and passing through one of said caps and the other of said caps being provided with an internally-screw-threaded stem into which said collar screws.

2. The combination with the terminals of two electric cables, one of which is provided with a covering or sheathing, and an externally-screw-threaded collar secured to said sheathing, of a junction-sleeve comprising a cylindrical body having screw-threaded ends, and caps adapted to screw upon said ends, one of said cables being secured to and passing through one of said caps to the inside of said body and the other of said caps being provided with an internally-screw-threaded stem into which said collar screws.

3. The combination with a series of electric cables, each of which is provided with a lead covering or sheathing and with an externally-screw-threaded collar, of a junction-sleeve comprising a cylindrical body provided with screw-threaded ends, a cap screwing upon one end of said body and provided with an internally-screw-threaded stem into which the collar on one of said cables screws, a cap screwing upon the other end of said body provided with a plurality of externally-screw-threaded nipples through which the other of said cables pass to the interior of said body, and coupling-sleeves having internal right and left hand screw-threads, for connecting said nipples with the collars on the cables which pass therethrough.

695,864. PLATE-PRINTING AND EMBOSSING PRESS. WILLIAM FULLARD, Colwyn, Pa., assignor of one-half to William R. Weber, Wyncote, Pa. Filed Mar. 15, 1901. Serial No. 51,586. (No model.)



Claim.—1. In a plate-printing and embossing machine, a plunger, a die-chuck and a bolt adapted to enter said chuck when in the proper position beneath the plunger and lock the same.

2. In a plate-printing and embossing machine, a plunger, a die-chuck, a bolt mounted in the frame of the machine as guide and adapted to engage with said chuck to positively lock the same during the period of embossing, and means for causing said bolt to automatically engage with and disengage from said chuck.

3. In a plate-printing and embossing machine, a plunger, a die-chuck, a bolt carried by the frame and adapted to move in a vertical direction, a lever connected therewith, and means for automatically operating said lever to cause said bolt to engage with and be disengaged from said chuck.

4. In a plate-printing and embossing machine, a plunger, a die-chuck to which motion is imparted, an opening therein and a bolt adapted to be operated to enter the opening in said chuck to lock the same in perfect alinement with said plunger which insures perfect registration.

5. In a plate-printing and embossing machine, a plunger, a bed, an opening therein, a bolt adapted to move in said opening in the bed as a guide and to fit the same closely, a die-chuck, an opening therein which is adapted to register with the opening in the bed when the die-chuck is in perfect alinement with the plunger, and means for causing said bolt to enter and leave the opening of the chuck, whereby the latter is locked to the bed at the proper time.

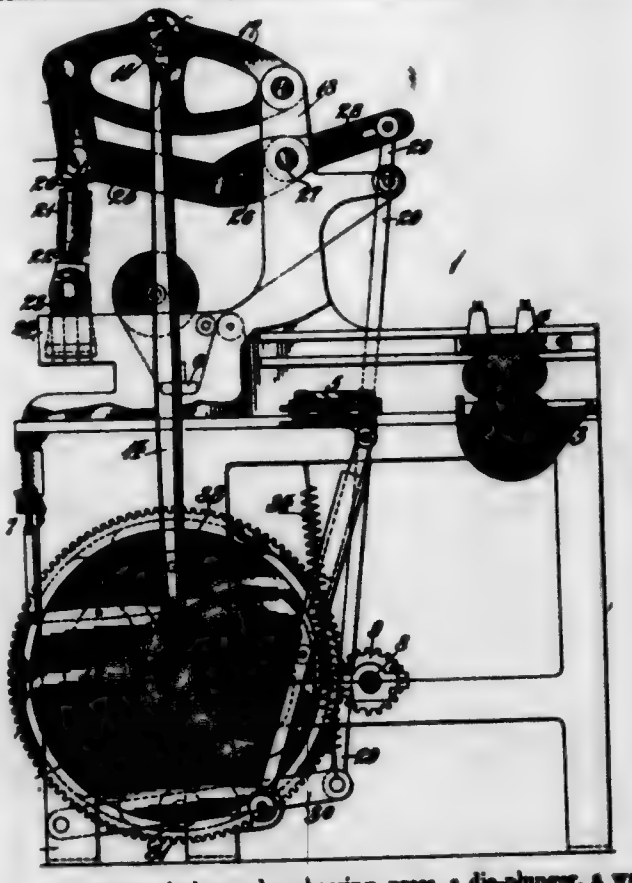
6. In a plate-printing and embossing machine, a bolt suitably mounted in the frame of the machine, a lever, a connection between one end of said lever and said bolt, a cam adapted to contact with the opposite end of said lever in order to raise and lower the same, whereby said bolt is operated.

7. In a plate-printing and embossing machine, a bolt, a die-chuck suitably guided, a lever suitably connected to the frame of the machine a connection common to one end of the lever and said bolt, an arm carried by the other end of said lever, and being suitably pivoted, a cam suitably supported adjacent to the end of the lever and a spring adapted to hold said lever in contact with said cam.

695,865. PLATE-PRINTING AND EMBOSSING PRESS. WILLIAM FULLARD, Colwyn, Pa., assignor of one-half to William R. Weber, Wyncote, Pa. Filed Mar. 27, 1901. Serial No. 53,022. (No model.)

Claim.—1. In a plate-printing and embossing press, a die-plunger, means for imparting a motion thereto and separate means for imparting a quicker action thereto at a proper time.

2. In a plate-printing and embossing press, a die-plunger, means for supporting the same, means for imparting a movement thereto and separate means connected with said plunger for imparting a quick action thereto.



3. In a plate-printing and embossing press, a die-plunger, a walking-beam supporting the same, a rod connected with said walking-beam, a power-shaft, a cam on said power-shaft adapted to operate said rod to impart an up-and-down movement thereto, and separate means for imparting a quick action to said plunger after the walking-beam has been lowered.

4. In a plate-printing and embossing press, a die-plunger, a toggle-lever connected therewith, means for operating said toggle-lever and separate means for imparting a slow up-and-down movement to said die-plunger.

5. In a plate-printing and embossing press, a die-plunger, a toggle-lever connected therewith, a rod adapted to operate said toggle-lever, a lever connected with said rod, means for actuating said lever, a walking-beam supporting said die-plunger, and means for imparting a slow up-and-down movement to said walking-beam.

6. In a plate-printing and embossing press, a die-plunger, a lever pivoted at one end to a support and carrying said plunger, means for imparting an up-and-down movement to said walking-beam, separate means for imparting a quick movement to said lever and an eccentric suitably connected with said lever whereby the latter can be adjusted to prevent an impression being made.

7. In a plate-printing and embossing press, a die-plunger, a walking-beam supporting the same, means for imparting an up-and-down movement to said walking-beam, an arm connected with said die-plunger, and a cam adapted to operate said arm in order to impart a quick motion to said plunger.

8. In a plate-printing and embossing press, a die-plunger, a walking-beam supporting the same, means for imparting an up-and-down movement to said walking-beam, an arm connected with said plunger, a cam adapted to operate said arm, a shaft carrying said cam and means for imparting motion to said shaft.

695,866. GOLF-BALL. ELEAZER KEMPSHALL, Boston, Mass. Filed Sept. 26, 1901. Serial No. 76,814. (No model.)



Claim.—1. A playing-ball comprising a relatively stiff, springy, substantial shell of compressed plastic material, and a core of solid, elastic material strongly gripped thereby.

2. A playing-ball comprising a stiff, springy shell of compressed plastic material, and a filling consisting wholly or largely of gutta-percha and held under compression by said shell.

3. A playing-ball comprising a stiff, springy shell of compressed plastic material, and a filling consisting wholly or largely of gutta-percha and held under compression by said shell; said core forming the larger portion of the bulk of the ball.

4. A playing-ball comprising a shell of compressed hardened plastic material and a springy core held under compression thereby.

5. A playing-ball comprising a shell and a filling, said shell consisting of welded segments of stiff, springy material, and said core consisting of softer springy material held under compression by said shell.

6. A playing-ball comprising a shell consisting largely or wholly of celluloid, and a filling consisting largely or wholly of gutta-percha held under compression by said shell.

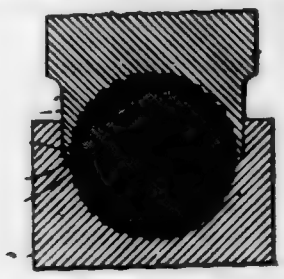
7. A playing-ball comprising a springy, solid, relatively soft core and a shell consisting largely or wholly of celluloid compressed upon the core.

8. A playing-ball comprising celluloid shell-segments welded together and a core of solid, elastic material gripped or held under compression thereby.

9. A playing-ball comprising a shell consisting of welded segments of celluloid, and a core consisting largely or wholly of gutta-percha and held under compression by said shell.

10. A playing-ball comprising a shell consisting of hemispherical welded segments of celluloid, and a core consisting largely or wholly of gutta-percha and held under compression by said shell.

695,867. MANUFACTURE OF PLAYING-BALLS. ELBAHER KEMPSHALL, Boston, Mass. Filed Dec. 31, 1901. Serial No. 87,976. (No model.)



Claim.—1. A process in producing a ball, consisting in subjecting to pressure a filled shell so as to cause the material of the shell to squeeze or flow outwardly, confining the outflowing material, and by further pressure forcing said confined material to flow inwardly, and simultaneously placing the filling of the shell under compression.

2. A process in producing a ball, consisting in subjecting to heat and pressure a filled shell so as to cause the material of the shell to squeeze or flow outwardly, confining the outflowing material, and by further pressure forcing said confined material to flow inwardly, and simultaneously placing the filling of the shell under compression.

3. A process in producing a ball, consisting in forming an annular flange thereon and forcing the material of said flange inward until substantially flush with the surface of the ball.

4. A process in producing a filled ball, consisting in forming the ball with a projecting portion and forcing the material of said projecting portion inwardly.

5. A process in producing a ball, consisting in providing a yielding core with a shell, forming a protuberance upon said shell, and forcing said protuberance inwardly so as to form upon the inner side of the shell a protuberance indenting said core.

6. A process in producing a ball, consisting in providing a yielding core with a shell, forming an encircling flange upon said shell, and forcing the material of said flange inwardly so as to form upon the inner side of the shell a welt which crosses the core.

7. A process in producing a ball, consisting in applying a hard shell to a yielding filling, heating the shell, compressing the same so as to form an encircling flange thereon, and further compressing the shell and forcing the material of the flange inwardly.

8. A process in producing a ball, consisting in applying a hard shell to a yielding filling which will withstand a degree of heat sufficient to soften the shell, heating the shell, compressing the same upon the filling and causing the material of the shell to squeeze outwardly, and then forcing said material inwardly so as to form an inner protuberance upon the shell.

9. A process in producing a ball, consisting in placing shell-segments upon a filling, pressing said segments together and squeezing outwardly the material at their edges, and then forcing said material inwardly so as to form an extra thick weld.

10. A process in producing a ball, consisting in placing hard shell-segments upon a filling, heating said segments, pressing them together and squeezing outwardly the material at their edges, and then forcing said material inwardly so as to form an extra thick weld and simultaneously compress the filling.

11. A process in producing a filled ball, consisting in forming an annular flange thereon and forcing the material of said flange, while rendered plastic by heat, inwardly until substantially flush with the surface of the ball, thereby producing a welt upon the inner side of the shell.

12. A process in producing a filled ball, consisting in forming the ball with a projecting portion and forcing the material of said projecting portion, while rendered plastic by heat, inwardly until it is substantially flush with the surface of the ball, thereby producing a protuberance upon the inner side of the shell.

13. A process in producing a ball, consisting in inserting a yielding core in a shell and forming from the material of the shell a welt which pinches or creases the core.

14. A process in producing a ball, consisting in inserting a yielding core within a shell made of segments, and joining the segments and also forming the material of the shell at the edges of the segments, while rendered plastic by heat, into a welt which pinches or creases the core.

15. A process in producing playing-balls consisting in softening a gutta-percha shell, compressing it upon a filling consisting largely or wholly of soft rubber, to the extent of compressing said soft rubber, and causing the shell to harden while the compression is maintained, so that said shell may hold the filling permanently under compression.

16. A process in producing playing-balls, consisting in heating a gutta-percha shell, compressing it upon a filling of well-vulcanized soft rubber, to the extent of compressing said soft rubber, and maintaining the compression until the shell cools and hardens.

17. A process in making playing-balls, consisting in heating and pressing gutta-percha segments together over soft rubber so as to compress the latter and also to cause the edges of the segments to weld.

18. A process in making playing-balls, consisting of making a filling of soft rubber whose original bulk is too great for the capacity of the finished shell, and pressing gutta-percha segments together over said filling so as to cause the edges of the segments to unite and so also to compress the filling and reduce the shell to final size.

19. A process in making playing-balls, consisting of making a filling of highly-vulcanized soft rubber whose original bulk is too great for the capacity of the finished shell, making hemispherical gutta-percha segments, and heating and compressing the segments over the filling, so as both to compress the latter and also to cause the edges of the segments to weld.

20. A process in making playing-balls, consisting of making a filling of highly-vulcanized soft rubber whose original bulk is too great for the capacity of the finished shell, making hemispherical gutta-percha segments, heating and compressing the segments over the filling, so as both to compress the latter and also to cause the edges of the segments to weld, and hardening the shell while the compression is maintained.

21. A process of making playing-balls, consisting of making a filling of highly-vulcanized soft rubber whose original bulk is too great for the capacity of the finished shell, making hemispherical gutta-percha segments, and heating and compressing the segments over the filling, so as both to compress the latter and also to cause the edges of the segments to weld and form a thickening of the shell.

22. A process in making playing-balls, consisting of making a filling of highly-vulcanized soft rubber whose original bulk is too great for the capacity of the finished shell, making hemispherical gutta-percha segments, heating and compressing the segments over the filling, so as both to compress the latter and also to cause the edges of the segments to weld and form a thickening of the shell, and cooling the shell while the compression is maintained.

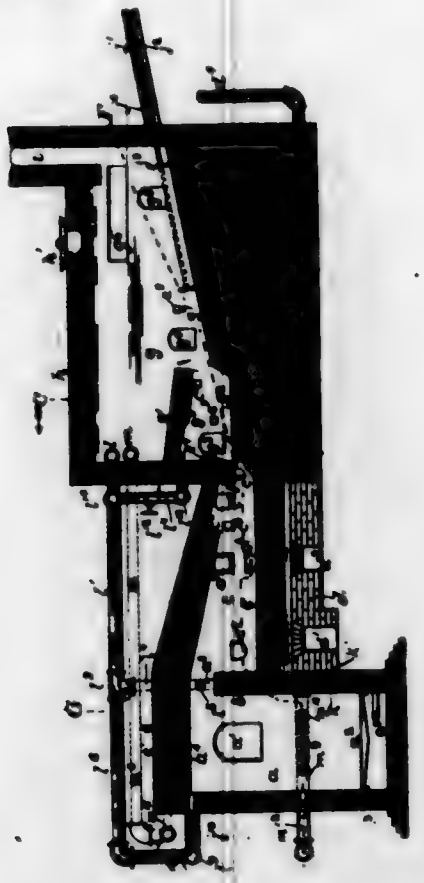
23. A process in producing a ball, consisting in subjecting to pressure a filled shell so as to cause the material of the shell to squeeze or flow outwardly, confining the outflowing material, and by further pressure forcing said confined material to flow inwardly, and simultaneously placing the filling of the shell under compression, and then causing the shell to harden while the compression is maintained.

24. A process in producing a ball, consisting in subjecting to heat and pressure a filled shell so as to cause the material of the shell to squeeze or flow outwardly, confining the outflowing material, and by further pressure forcing said confined material to flow inwardly, and simultaneously placing the filling of the shell under compression, and then cooling the shell while compression is maintained.

25. A process in producing a ball, consisting in applying a hard shell to a yielding filling which will withstand a degree of heat sufficient to soften the shell, compressing the same upon the filling and causing the material of the shell to squeeze outwardly, then forcing said material inwardly so as to thicken the shell, and then hardening the shell under compression.

26. A process in producing a ball, consisting in placing hard-shell segments upon a filling, heating said segments, pressing them together and squeezing outwardly the material at their edges, then forcing said material inwardly so as to form an extra-thick weld and simultaneously compress the filling, and then cooling the shell while compressed.

695,868. REVERBERATORY SMELTING-FURNACE. FREDERICK HEYBROLD, Portland, Oreg. Filed Apr. 20, 1900. Serial No. 13,603. (No model.)



Claim.—1. In a smelting-furnace, the combination of a fire-chamber, a smelting-chamber and an intermediate concentrating-chamber; a bridge-wall between the fire-chamber and the concentrating-chamber; a reverberating roof over both the last-mentioned chambers; a wall between the concentrating and smelting chambers having an upper passage-way, or flue, and a lower passage-way for the fluid smelted material; and an auxiliary fire-chamber under the concentrating-chamber, substantially as described.

2. In a smelting-furnace, the combination of a fire-chamber, a smelting-chamber and an intermediate concentrating-chamber; a bridge-wall between the fire-chamber and the concentrating-chamber; a reverberating roof over both of the last-mentioned chambers; a wall between the concentrating-chamber and smelting-chamber having an upper passage-way, or flue, and a lower passage-way for the fluid smelted material; an auxiliary fire-chamber under the concentrating-chamber; and means for causing a blast into the auxiliary fire-chamber, substantially as described.

3. In a smelting-furnace, the combination of a fire-chamber, a smelting-chamber and an intermediate concentrating-chamber; a bridge-wall between the concentrating-chamber and the fire-chamber; a reverberating roof over both the last-mentioned chambers; a false roof, extending over the fire-chamber and for the greater length of the concentrating-chamber, and providing an intermediate heating-chamber, discharging into the concentrating-chamber; means for producing a blast through the base of the fire-chamber, and a secondary blast through the said heating-chamber, means for regulating said blasts relatively to each other; a wall between the concentrating-chamber and smelting-chamber having an upper passage-way, or flue, and a lower passage-way for the fluid smelted material, substantially as described.

4. In a smelting-furnace, the combination of a fire-chamber, a smelting-chamber and an intermediate concentrating-chamber; a bridge-wall between the fire-chamber and concentrating-chamber; a reverberating roof over both the last-mentioned chambers; a false roof, extending over the fire-chamber and for the greater length of the concentrating-chamber, and providing an intermediate concentrating-chamber, discharging into the concentrating-chamber; means for producing a blast through the base of the fire-chamber, and a secondary blast through the said heating-chamber; means for regulating said blasts relatively to each other; means for throwing a continuous current of air or vapor under the false roof, to protect the same against the heat of the fire-chamber; and a wall between the concentrating-chamber and fire-chamber, having an upper passage-way, or flue, and a lower passage-way for the fluid smelted material, substantially as described.

5. The combination in a reverberatory furnace, comprising communicating concentrating and smelting chambers, and a wall dividing the former from the latter with separate passage-ways for the products of combustion, and the melted material, respectively, of means for throwing a blast on the smelting-hearth immediately in front of said dividing-wall; and an arch projecting from such wall and extending from side to side of the smelting-chamber, over the smelting-hearth for the purpose of there concentrating and intensifying the heat, substantially as described.

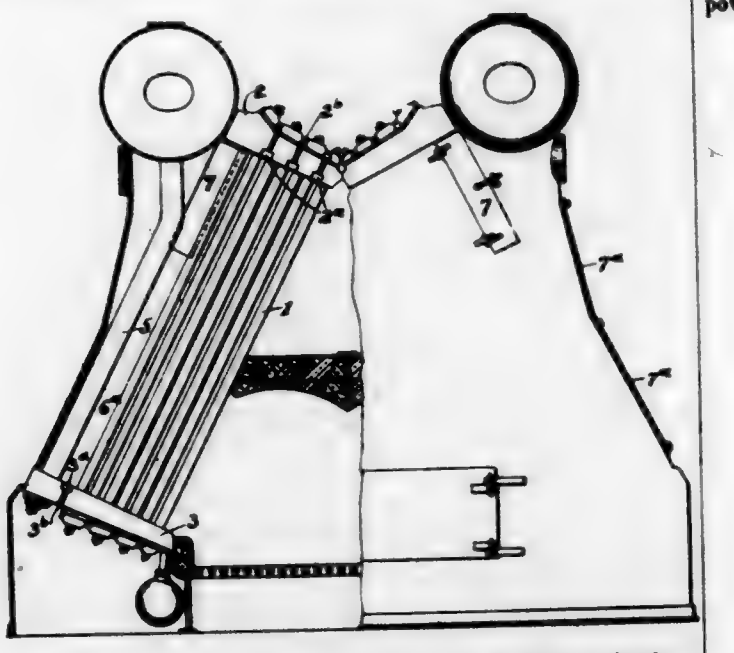
6. The combination in a reverberatory furnace comprising communicating concentrating and smelting chambers, and a wall dividing the former from the latter with separate passage-ways for the products of combustion, and the melted material, respectively, of means for throwing a blast on the smelting-hearth immediately in front of said dividing-wall; an arch projecting from such wall and extending from side to side of the smelting-chamber, over the smelting-hearth for the purpose of there concentrating and intensifying the heat; and means for injecting a continuous current of air or vapor under said arch to protect the same, substantially as described.

7. The combination in a reverberatory furnace, of a fire-chamber, a smelting-chamber and an intermediate concentrating-chamber; a bridge-wall separating the fire-chamber from the concentrating-chamber; a wall dividing the smelting chamber from the concentrating-chamber, with separate passage-ways for the heated products of combustion, and the melted material, respectively; a reverberatory roof over the fire-chamber and concentrating chamber; the floor of the smelting-chamber comprising an inclined roasting-hearth and a smelting-hearth, on a lower level than the former, with a steep decline from the former to the latter, an arch, g' over the smelting-hearth for concentrating and intensifying the heat, the floor of the passage through the wall, f, for the melted material, declining precipitously to promote separation of the matte from the slag by gravity; blast-pipes adapted to inject air-blasts under said reverberatory roof and under the arch, g', and slag-taps in the walls of the concentrating-chamber on a level with the entrance of such passage-way, substantially as described.

8. The combination in a reverberatory furnace, of a fire-chamber, a smelting-chamber, and an intermediate concentrating-chamber; a bridge-wall separating the fire-chamber from the concentrating-chamber; a wall dividing the smelting-chamber from the concentrating-chamber, with separate passage-ways for the heated products of combustion, and the melted material, respectively; the roof of the passage-way for the melted material being low so as to skim the melted material passing through said passage-way and hold back insufficiently-melted matter; a reverberatory roof, over the fire-chamber and concentrating-chamber, suitably-disposed blasts, the floor of the smelting-chamber comprising an inclined roasting-hearth and a smelting-hearth, on a lower level than the former, with a steep decline from the former to the latter, an arch, g', over the smelting-hearth for concentrating and intensifying the heat; the floor of the passage through the wall, f, for the melted material, declining precipitously to promote separation of the matte from the slag by gravity; and slag-taps in the walls of the concentrating-chamber on a level with the entrance of such passage-way, substantially as described.

9. In a reverberatory furnace, the combination of a fire-chamber a smelting-chamber, and an intermediate concentrating-chamber, the smelting-chamber being on a higher plane than the concentrating-chamber, an inclined floor portion or roasting-hearth, g^3 in the smelting-chamber; a bridge-wall, b, separating fire-chamber from concentrating-chamber, a reverberating roof over the fire-chamber and concentrating-chamber, a false roof extending over the fire-chamber, and for the greater length of the concentrating-chamber, providing with the reverberating roof an intermediate heating-chamber, discharging into the forward end of the concentrating-chamber; means for producing a blast through the base of the fire-chamber, and a secondary blast through the said heating-chamber; means for regulating said blasts relatively to each other; means for throwing a continuous current of air or vapor under the false roof, to protect the same against the heat, a dividing-wall, f, between the concentrating and smelting chambers, having an upper passage-way, or flue, c^3, and a lower passage-way, c^3, for the fluid smelted material, said upper passage-way being adapted to direct the blast of volatile matter issuing out of the concentrating-chamber onto the smelting-hearth, and the roof of said lower passage-way being low so as to skim the melted material passing through said passage-way and hold back insufficiently-fused matter, the walls of the concentrating-chamber being provided with slag-taps arranged on a level with said lower passage-way; an arch, g', projecting from the wall f, over the smelting-hearth for the purpose of there concentrating the heat; suitably-disposed doors in the concentrating and smelting chambers for supplying fuel; means for injecting a continuous current of air or vapors under the arch, g' to protect the same; an auxiliary fire-chamber, d; and means for injecting a blast therein, substantially as described.

695,869. WATER-TUBE STEAM-BOILER. CHARLES R. REARICK, New York, N. Y. Filed May 22, 1901. Serial No. 61,455. (No model.)



Claim.—1. In a water-tube boiler, the combination of two headers, banks of tubes in communication at their respective ends with such headers, free spaces between the banks of tubes, such free spaces having a width greater than the diameter of the tubes, with pockets or indentations in the headers, such pockets opening into the said free spaces.

2. In a water-tube boiler, the combination of two headers, banks of tubes in communication at their respective ends with such headers, free spaces between the banks of tubes, such free spaces having a width greater than the diameter of the tubes, pockets in the headers, such pockets opening into the said free spaces, with suitable openings through the headers and communicating with the said pockets, as and for the purpose set forth.

3. In a water-tube boiler, the combination of two headers, banks of tubes in communication at their respective ends with such headers, free spaces between the banks of tubes, such free spaces having a width greater than the diameter of the tubes, pockets in the headers, such pockets opening into the said free spaces, with openings through the boiler-casing and in communication with the said free spaces.

4. In a water-tube boiler, the combination of banks of tubes in communication at each of their respective ends with a series of headers, free spaces between the banks of tubes, such free spaces having a width greater than the diameter of the tubes, with pockets or indentations formed by the said headers, such pockets opening into said free spaces.

5. In a water-tube boiler, the combination of banks of tubes in communication at each of their respective ends with a series of headers, free spaces between the banks of tubes, such free spaces having a width greater than the diameter of the tubes, pockets formed by the said headers, such pockets opening into the said free spaces, with suitable openings formed by the headers and establishing communication between such pockets and the free space without the boiler, as and for the purpose set forth.

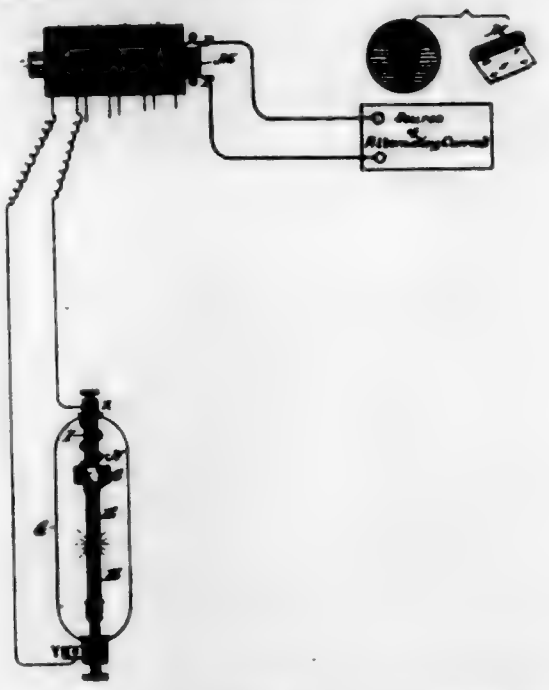
6. In a water-tube boiler, the combination of banks of tubes in communication at each of their respective ends with a series of headers, free spaces between the banks of tubes, such free spaces having a width greater than the diameter of the tubes, pockets formed by the said headers, such pockets opening into the said free spaces with openings through the boiler-casing and in communication with the said free spaces.

695,870. ELECTRIC-LIGHTING SYSTEM. ELIHU THOMSON, Lynn, Mass., and EDWIN J. HOUSTON, Philadelphia, Pa. Filed Feb. 19, 1887. Serial No. 228,183. (No model.)

Claim.—1. In a system of electric lighting the combination substantially as described, of an alternating-current circuit, an induction-coil primary in said circuit, an induction-coil secondary acted upon by said primary and having an electrical resistance as low as that of the primary, and apparatus as described connected to said secondary.

2. The combination substantially as described in a system of electric lighting, of an alternating-current circuit, an induction-coil having its primary in said circuit, a local or separate circuit containing a translating device such as an electric light, and a secondary coil for the induction apparatus connected to said local or separate circuit and having an electric resistance less than that of the translating device.

3. In a system of electric distribution, a single alternating-current circuit fed from any suitable source, in combination with an induction-coil whose primary is included in said circuit, two or more local circuits each containing apparatus as described, and secondary coils for said induction-coil each connected to the circuit of an electric-light or motive-power apparatus.



4. The combination in an apparatus for electric distribution, of an alternating-current circuit supplied with current from any suitable source, an induction-coil whose primary is connected to said circuit, an electric-lighting apparatus in an independent circuit, and a secondary for said induction-coil whose conductor is of substantially the same size as the primary and is connected to the local circuit, as and for the purpose described.

5. The combination in a system of electric distribution, of a main electric circuit supplied with an alternating current from any suitable source, and at a local point an induction-coil whose primary is connected to the said circuit while its secondary consists of a number of coarse-wire conductors each connected to a separate circuit containing electric lighting or motive-power apparatus as described.

6. An induction apparatus as described consisting of a magnetically continuous core with a primary wire or coil and a series of secondary coils having independent terminals.

7. In an induction apparatus, a series of cores joined end to end to form a magnetically continuous endless core, and having a series of primary coils connected into circuit with one another as described, in combination with secondary coils wound on the core-sections and having separate or independent terminals, as and for the purpose described.

8. In an induction apparatus, a series of iron cores connected end to end in a magnetically continuous or endless series, a primary coil on each core-section, an alternating-current circuit from which currents pass through to said primaries in series, and secondary coils on each core having independent terminals by which the current of each secondary may supply a circuit without passing through the other coils.

9. The combination with the endless core, of a set of primary coils embracing substantially the entire peripheral length and supplied with an alternating varying or intermittent current in series, in combination with secondary coils embracing also substantially the entire peripheral length of the core but having a multiplicity of free or independent terminals by which the several coil-sections may supply currents independently of one another.

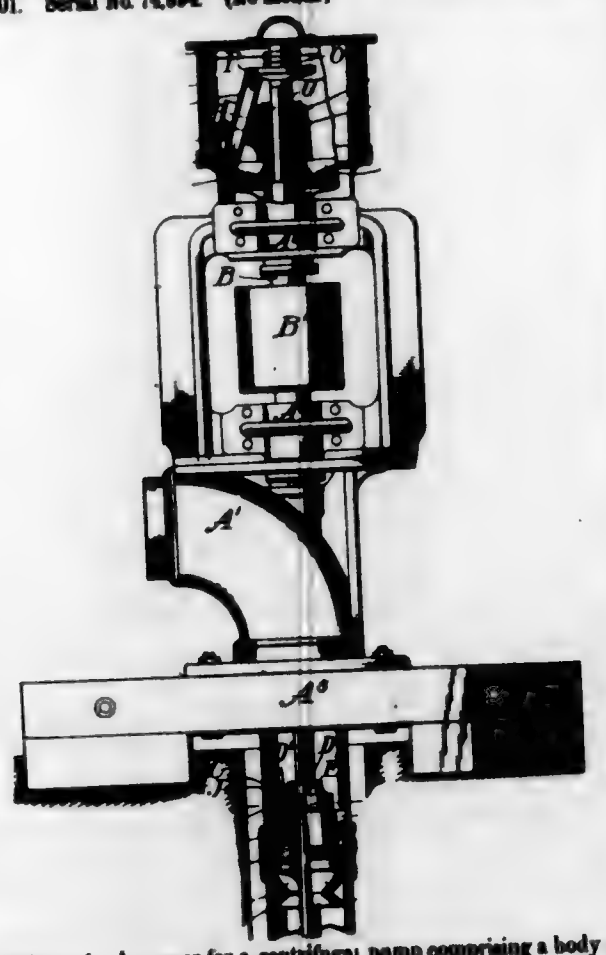
10. The combination in a system of electric lighting of a circuit connected with a source of alternating currents, an induction-coil wound with two conductors of substantially the same gage, one of which is included in said circuit, and an electric light connected to the other conductor.

11. In a system of electric distribution, an alternating-current primary line wound around an iron core, with a set of secondary coils in inductive relation thereto, and of a section greater than the primary, as described, the sum total of the currents in the secondary coils combined exceeding the current in the single primary.

12. A system of electrical distribution comprising a main line having alternating currents, and induction-coils having their primaries fed from the main line and their secondaries feeding translating devices, the electrical resistance of each secondary being lower than that of the translating devices fed from the same, substantially as described.

13. As a part of a system of distribution of alternating currents, an inductorium the primary of which is fed from the main line and the secondary of which is in the consumption-circuit and has a lower electrical resistance than the latter, substantially as described.

695,871. CENTRIFUGAL PUMP. ALDEN T. AMES and SAMUEL M. FULTON, Galt, Cal.; said Fulton assignor to said Ames. Filed Sept. 7, 1901. Serial No. 74,694. (No model.)



Claim.—1. A runner for a centrifugal pump comprising a body portion to be secured to a shaft having a longitudinally-disposed outwardly-inclined annular opening with an outer wall concave throughout its length and an inner wall convex at its upper portion and concave at its lower portion, partitions disposed within said opening, and an inwardly-inclined open funnel portion of diameter substantially equal to that of the runner proper and extended from the body at the lower end of said partitions therein; substantially as specified.

2. In a centrifugal pump, the combination with a pipe, of a hub secured therein and provided with spiral blades upon its periphery, a driving-shaft passing through said hub, a roller-bearing between said shaft and hub, means carried by said shaft for producing a centrifugal movement of the body of liquid, a ring connecting the lower portion of said blades, and means for detachably securing said ring to said pipe; substantially as specified.

3. In a centrifugal pump, the combination with a pipe, of a hub secured therein and provided with spiral blades upon its periphery, a driving-shaft passing through said hub, a roller-bearing between said shaft and hub, means carried by said shaft for producing a centrifugal movement of the body of liquid, a ring at the lower portion of said blades, means for securing said ring to said pipe, a cap secured to said shaft above said hub and overlapping the upper end thereof; substantially as specified.

4. A guide for a centrifugal pump comprising a cylindrical hub having upon its outer periphery a series of spirally-disposed blades, and an exteriorly-threaded ring connecting the lower portions of said blades; substantially as specified

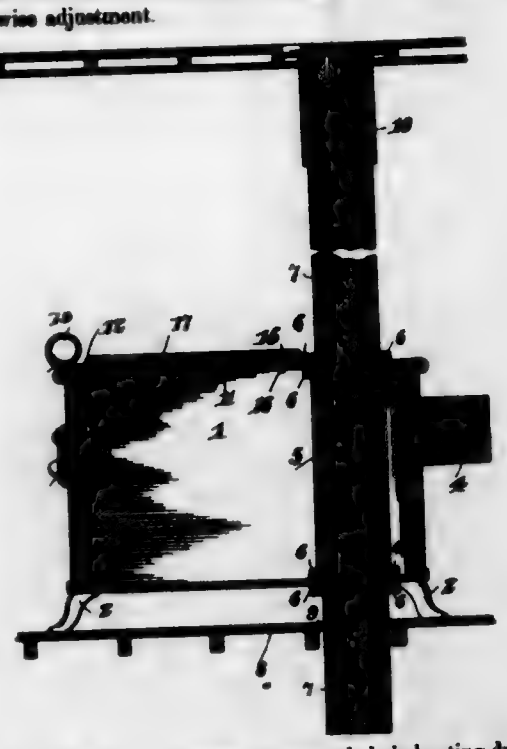
695,872. HEATING-STOVE. JOSEPH L. BARSLEY, Suffolk, Va., assignor of one-half to Thomas Jackson Hoy and Henry W. Campbell, Suffolk, Va. Filed Sept. 11, 1901. Serial No. 75,067. (No model.)

Claim.—1. A heating-stove, having a heating-drum provided with an exit-opening in communication with the air surrounding the stove, and an endwise-adjustable inlet-pipe communicating with the interior of the drum and piercing the bottom of the stove, the lower end of the inlet-pipe being normally in communication with the air surrounding the stove and adjustable vertically to accommodate the inlet end of the pipe to the conditions of said air.

2. A heating-stove, having an upright air-heating pipe piercing the top and bottom of the stove, the lower end of the pipe being normally in communication with the air surrounding the stove, and the entire pipe also being endwise shiftable to accommodate the same to the conditions of the said air.

3. A heating-stove, having an open-ended air-heating drum fixed to and piercing opposite sides of the stove, and an open-ended endwise-adjustable pipe fitted within the drum.

4. A heating-stove, having an open-ended air-heating drum fixed to and piercing opposite sides of the stove, and an endwise-adjustable air-pipe frictionally fitting the inner walls of the drum, the frictional engagement between the drum and the pipe forming means to hold the latter at any endwise adjustment.



5. A heating-stove, having an open-ended air-heating drum piercing opposite sides of the stove and projected outwardly beyond the same, the opposite ends of the drum being screw-threaded, inner and outer nuts applied to each end of the drum and snugly clamping the adjacent side of the stove between the same, and an endwise-adjustable air-pipe mounted within the drum.

6. A heating-stove, having a smoke-pipe connected at its rear end, an open-ended upright air-heating drum piercing the top and bottom of the stove at the rear ends thereof, and an endwise-adjustable air-pipe fitted within the drum and projected both above and below the stove, the lower end of the pipe being constructed to form an inlet, and the upper end of the pipe being constructed to discharge the heated air, the top of the stove being provided with a fuel-opening located in front of the drum.

7. A stove having a fuel-opening, external guideways provided at opposite sides of the fuel-opening, and an endwise-slidable closure having upstanding flanges slidably engaging the guideways, and having its inner end folded upon its under side to stiffen the closure and then bent downwardly to form a stop-flange for engagement with the inner edge of the fuel-opening, the opposite ends of the flange being cut away to permit of the flange working between the opposite sides of the fuel-opening, and the outer end of the closure being rolled over upon the upper side thereof to form a handle, the free portion of the roll being secured to the closure.

8. The combination of a heating-stove having alined openings at the top and bottom thereof, an open-ended endwise-shiftable pipe fitted in said openings and projected above and below the stove, and a pipe-section to telescopically engage the upper end of the shiftable pipe and capable of being connected to the ceiling of a room so as to form a continuation of the shiftable pipe.

695,873. DOUBLING AND SHEARING APPARATUS. CHARLES W. BRAY, Pittsburg, Pa., assignor to the American Tin Plate Corporation, Orange, N. J., a Corporation of New Jersey. Filed July 13, 1901. Serial No. 68,222. (No model.)

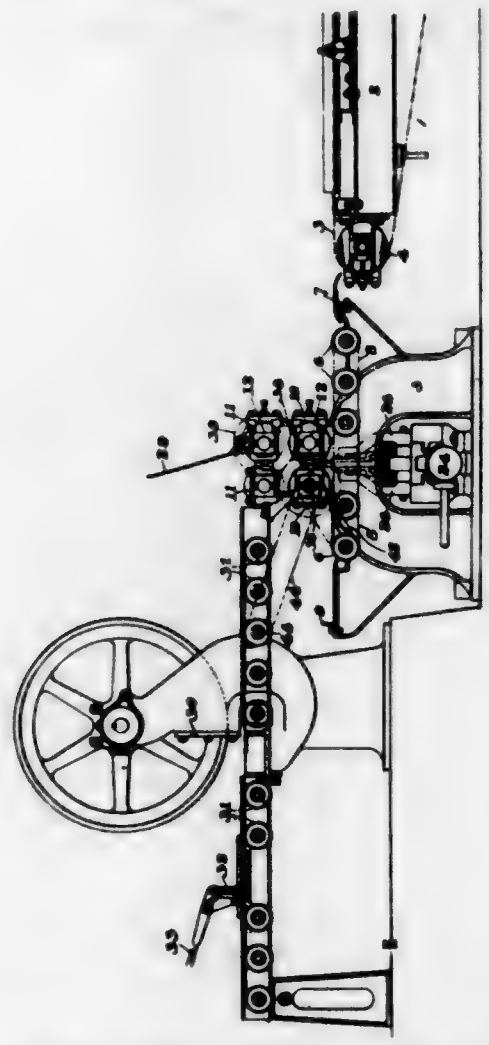
Claim.—1. In doubling apparatus, a pair of doubling-rollers arranged horizontally, a table or support for the sheet beneath the said rollers, an opening in the support registering with the rollers, a pusher-blade movable through the opening, and mechanism for moving the pusher-blade vertically to force the intermediate part of the sheet lying on the support upwardly between the doubling-rollers; substantially as described.

2. In doubling apparatus, a pair of grooved rollers, and a pusher having parts arranged to enter the grooves and force the intermediate parts of the sheet between the doubling-rolls; substantially as described.

3. In doubling apparatus, a pair of grooved rolls, a pair of plain-faced rolls in tandem therewith, and a pusher arranged to force the intermediate part of the sheet into the bite of the grooved rolls; substantially as described.

4. In doubling apparatus, a feed-table, a stop, a pair of doubling-rollers mounted over the middle part of the table, and a pusher-blade arranged to force the intermediate part of the sheet upwardly between the rolls; substantially as described.

5. In doubling apparatus, a feed-table, doubling-rollers thereover, mechanism for forcing the intermediate part of the sheet upwardly between the rollers, a feed-table above and to one side of the rollers, and a deflector arranged to cause the rising doubled sheet to drop upon the upper feed-table; substantially as described.



6. In doubling apparatus, a feed-table having a stop, two pairs of doubling-rollers arranged above the intermediate part of the table, the lower pair having grooves while the upper are plain-faced, a vertically-movable pusher-blade arranged to bend and force the intermediate part of the sheets between the lower pair of rolls, and mechanism for driving the rolls; substantially as described.

7. In doubling apparatus, a pair of grooved rolls, a blade movable toward and from the bite of the rolls, and pusher-bars arranged to project beyond the blade and enter the grooved portions of the rolls; substantially as described.

8. In doubling and shearing apparatus, a pair of doubling-rolls, mechanism for bending and feeding the intermediate part of the sheet thereinto, a shear-table arranged to receive the sheet from the bending-rolls, and a shear arranged to trim the ends of the doubled sheets; substantially as described.

9. In doubling and shearing apparatus, a doubling feed-table, doubling-rolls above the same, an upper deflector, a shear feed-table upon which the deflector guides the doubled sheet, a stop on the shear-table, and a shear arranged to trim the edges of the sheet; substantially as described.

10. In doubling apparatus, a pair of grooved rolls a blade movable toward and from the bite of the rolls, pusher-bars movable relatively to the blade, and mechanism for moving said bars relatively to the blade and into the grooved portions of the roll; substantially as described.

695,874. SODA-WATER FOUNTAIN. PETER DE LACY, New York, N. Y., assignor to Elizabeth Cochrane Seaman, New York, N. Y. Filed Feb. 14, 1901. Serial No. 47,198. (No model.)

Claim.—1. A receptacle comprising a body and a head, said body extending beyond its point of engagement with the head proper and said head comprising a cup-shaped member having its edge beveled or chamfered and located interiorly of said body, and an outwardly-extending flange secured to the extension of said body and located in position to directly support the outer side of said plate, a lining located in said receptacle and closely conforming to the walls thereof, the part of the lining overlapping said head being continuous and unbroken, the organization being such that by the provision of the chamfered or beveled edge the formation of sharp angles in the lining is prevented and the head is maintained in position without injuring or weakening the lining, and an exterior hoop located on said body adjacent to the bottom thereof.

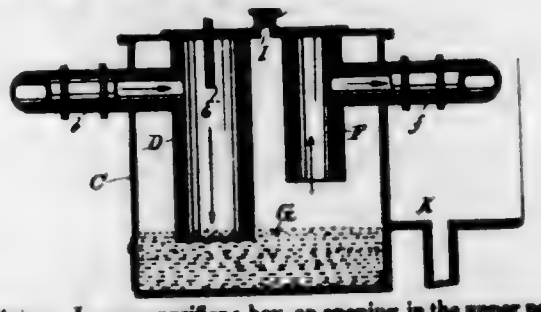


2. A receptacle comprising a body and a head, said body extending beyond its point of engagement with the head proper said head comprising a cup-shaped member having its edge beveled or chamfered and located interiorly of said body and an outwardly-extending flange secured to the extension of said body and located to support the under side of said member adjacent to its outer edge, and a lining located in said receptacle and closely conforming to the walls thereof, that part of said lining overlapping said head being continuous and unbroken, the organization being such that by the provision of the chamfered or beveled edge the formation of sharp angles in the lining is prevented.

3. A receptacle comprising a body having a lining and a head, the said head comprising a plate having an inwardly-extending flange, located intermediate the body-wall and said lining and said body extending beyond the point of engagement with the plate, said plate having an outwardly-extending flange secured to the extension of the said body, that portion of said lining overlapping the metal of said head, being continuous and unbroken.

4. A receptacle comprising in its structure a lining 3, outer shell 2 and a reinforcing-head comprising a plate 5 of a single thickness of metal having its edge formed into an inwardly-extending flange 7 having a beveled or chamfered edge 8, the said flange being surrounded by said shell an outwardly-extending reinforcing-flange 9, also surrounded by the said shell and secured directly by its edge to the outer circumference of the plate; also secured to the said shell by rivets substantially as described, the said lining lapping and covering the joint between the flange 7 and the shell, the said lining closely conforming to the walls of the shell and joint, that part of said lining overlapping the said joint being continuous and unbroken throughout its entire extent.

695,875. GAS-PURIFIER. JAMES S. DONOHUE, Georgetown, D. C., assignor of one half to James W. Whelan, Georgetown, D. C. Filed Jan. 2, 1902. Serial No. 88,077. (No model.)



Claim.—In a gas-purifier a box, an opening in the upper part thereof provided with a cover, a door in its side, an overflow attachment, a vertical chamber in the box having an open bottom adapted to be immersed in a naphthalene-arresting liquid, an inflow gas-pipe provided with a valve connecting with said chamber, a steam-pipe opening into said chamber, an outlet-pipe and a by-pass provided with a valve substantially as herein set forth.

695,876. PROTECTOR FOR RING-SPINNING FRAMES. JOHN C. WALL and MICHAEL H. SCHEIDBAUER, Jr., Amsterdam, N. Y., assignors to the Ring Frame Thread Protector Company, Amsterdam, N. Y. Filed June 27, 1901. Serial No. 66,222. (No model.)

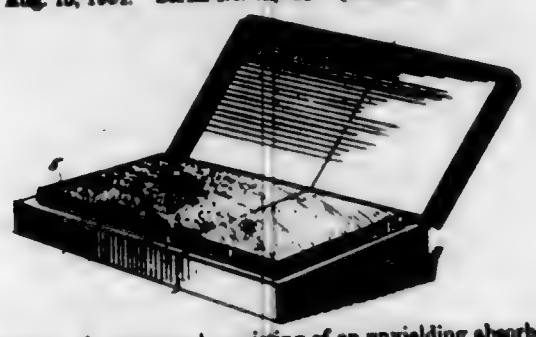
Claim.—1. A protector for ring-spinning frames comprising parallel annular guards joined or connected at one point by outstanding reversely-inclined lips, and attaching-stems at diametrically opposite points.



2. A protector for ring-spinning frames comprising parallel annular guards having entrance-throats at one point, and reversely-inclined, outwardly-extending guard-lips common to both guards.

3. A protector for ring-spinning frames comprising parallel annular guards having entrance-throats at one point, reversely-inclined, outwardly-extending guard-lips common to both guards and forming guiding means to the said throats, and depending stems diametrically opposite the lips and having lower shouldered terminals.

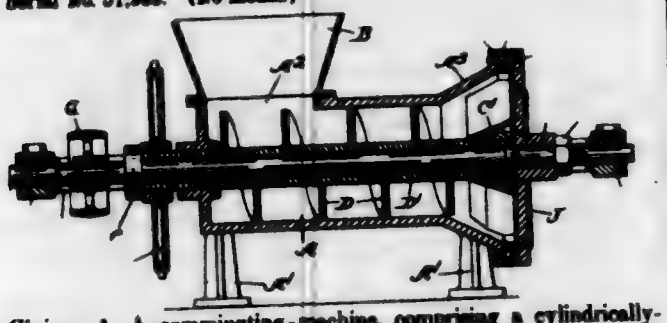
695,877. STAMP-PAD. EDWARD G WOODY, New York, N. Y. Filed Aug. 15, 1901. Serial No. 72,144. (No model.)



Claim.—1. A stamp-pad consisting of an unyielding absorbent material impregnated with ink and having a rough surface, substantially as specified.

2. A stamp-pad, consisting of open-grain wood impregnated with ink and having a rough surface, substantially as specified.

695,878. COMMINUTING-MACHINE. CHARLES R GEIGER and JOHN R TORREY, Louisville, Ky., assignors to the Turney Drier Company, Louisville, Ky., a Corporation of Illinois. Filed Mar. 20, 1901. Serial No. 51,963. (No model.)



Claim.—1. A comminuting-machine, comprising a cylindrically-chambered body having its chamber conically expanded toward the discharge end; a face-plate at the expanded end having a tapering boss projecting inwardly at the center, and having radially outward from such boss apertures separated by radiating-bars; a cutter-head outside the face-plate having cutters whose cutting edges are substantially in the plane of the outer surface of the face-plate, and apertured adjacent to the cutters respectively; means for advancing the material through the chamber toward the face-plate; and means for rotating the cutter-head.

2. A comminuting-machine comprising a cylindrically-chambered body having the chamber conically expanded toward the discharge end; a face-plate at the expanded end, having a tapering boss projecting inwardly at the center, substantially to the extent of the expanded portion, and having between the boss and the periphery apertures separated by radiating-bars extending inwardly in said expanded portion; the cutter-head outside the face-plate having cutters whose cutting edges are substantially in the outer plane of the face-plate, and apertures adjacent to the cutters respectively; means for advancing material through the chamber toward the face-plate into the expanded portion of the chamber and means for rotating the cutter-head.

3. A comminuting-machine comprising a cylindrically-chambered body having the chamber conically expanded toward the discharge end; a face-plate at the expanded end, having a tapering boss projecting inwardly at the center, and having radially outward from such boss apertures separated by radiating-bars extended inwardly in said expanded portion; a cutter-head outside the face-plate, having cutters whose cutting edges are substantially in the plane of the outer surface of the face-plate and apertured adjacent to the cutters respectively; a spiral element occupying the chamber from the receiving end to the commencement of the expanded portion but not within the latter, and means for rotating it to feed the material into said expanded portion, and means for rotating the cutter-head.

4. A comminuting-machine comprising a cylindrically-chambered body having its chamber conically expanded toward the discharge end; a face-plate at the expanded end, having a tapering boss projecting inwardly at the center, substantially to the extent of the expanded portion, and having between the boss and the periphery apertures separated by radiating-bars extending inwardly in said expanded portion; a cutter-head outside the face-plate and means for rotating it; a spiral element occupying the cylindrical portion of the chamber from the receiving end substantially to the commencement of the expanded conical portion of the chamber and having a hollow shaft; means for rotating the same to feed the material by the spiral into the expanded portion of the chamber; a second shaft extending through such hollow shaft and through the face-plate and carrying the cutter-head on its protruding portion; and means for rotating such interior shaft independently of the hollow shaft.

5. A comminuting-machine, comprising a cylindrically-chambered body having its chamber conically expanded toward the discharge end; a face-plate at the expanded end, having a tapering boss projecting inwardly at the center substantially to the extent of the expanded portion, and having between the boss and the periphery apertures separated by radiating-bars extended inwardly in said expanded portion, substantially as far as the boss, the cutter-head outside the face-plate, having cutters whose cutting edges are substantially in the outer plane of the face-plate, and apertures adjacent to the cutters respectively; means for advancing the material through the chamber toward the face-plate to the expanded portion of the chamber, and means for rotating the cutter-head.

6. A comminuting-machine comprising a cylindrically-chambered body having its chamber conically expanded toward the discharge end; a face-plate at the discharge end having a tapering boss projecting inwardly at the center, having between such boss and the periphery a plurality of apertures separated by radiating bars or spokes extending inward substantially to the extent of the boss within the expanded portion of the chamber, and beveled or sharpened at their inner edges; and a cutter-head outside the face-plate; means for advancing material through the chamber to the expanded portion and means for rotating the cutter-head.

695,879. CAN. MAX GRANT, Chicago, Ill., assignor to Harry W. Stannard, James F. Melody, and William H Wade, Chicago, Ill. Filed Apr. 29, 1901. Serial No. 57,906. (No model.)



Claim.—1. The combination with a can-body provided at its upper margin with an inwardly-extending ring which is provided at its inner margin with a short raised flange having an upwardly-directed free edge, of a top having inside of its outer margin a downwardly-directed annular wall fitting closely within said raised flange and having a marginal rim which overlaps and has interlocking engagement with the upper margin of the can-body.

2. The combination with a can-body provided at its upper margin with an inwardly-extending ring having at its inner margin a short raised flange approximately cylindric in form and having an upwardly-directed free edge, of a cover provided with a marginal rim which extends downwardly over and has interlocking engagement with the upper margin of the can-body, with a horizontal part which extends inwardly from the top edge of said rim and with a downwardly-extending conical part which fits within said raised flange.

3. The combination with a can-body provided below its upper margin with an inwardly-extending ring which is provided at its inner margin with a short raised flange, of a top having inside its outer margin a downwardly-directed annular wall fitting closely within said raised flange and provided with a marginal rim which overlaps the upper margin of

the can-body, and interlocking projections and recesses on the can-body and rim located above said ring.

4. The combination with a can-body provided at its upper margin with an inwardly-extending ring which is provided at its inner margin with a short raised flange, of a top having inside of its outer margin a downwardly-directed annular wall fitting closely within said raised flange, and having a marginal rim which overlaps the upper margin of the can-body, and locking means on the can-body and rim consisting of a plurality of circumferentially-separated ribs having oblique contact-surfaces.

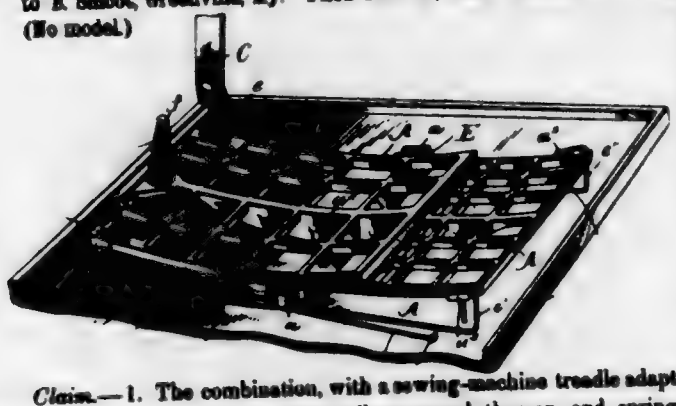
5. The combination with a can-body provided below its upper edge with an interior inwardly-projecting ring having at its inner margin a short raised flange, of a cover provided inside of its outer margin with an annular wall which fits closely within said raised flange and having a depending marginal rim which extends around and embraces the upper part of said body, said can-body and the flange of the cover being provided with interlocking circumferentially-arranged ribs integral with the metal of the can-body and cover said ribs extending outwardly from the can-body above said ring and inwardly from the depending rim of the cover.

695,880. CHECK-HOOK. SPENCER F. HALL, Racine, Wis. Filed Jan. 10, 1901. Serial No. 42,723. (No model.)



Claim.—A check-book comprising a horizontal head-plate having a depending longitudinally-recessed rear shank attachable to a harness-saddle, a sleeve loose on the shank adjacent to the head-plate, a friction-spring arranged in the shank-recess to impinge against the sleeve, a sleeve-support arranged to oppose the upper portion of the saddle, and a vertical tongue in offset union with the lower portion of said sleeve to swing therewith, working position of the tongue being under the forward portion of the said head-plate.

695,881. ROCKER ATTACHMENT FOR SEWING-MACHINE TREADLES. FRANKLIN P. HARRIS, Greenville, Ky., assignor of one-half to R. Smoot, Greenville, Ky. Filed Dec. 21, 1901. Serial No. 86,740. (No model.)



Claim.—1. The combination, with a sewing-machine treadle adapted to oscillate, of a foot-rocker pivotally mounted thereon, and springs connected therewith and tending to throw the ends of the same downward, substantially as shown and described.

2. The combination, with the sewing-machine treadle adapted to oscillate as described, of a rocker pivoted thereon, and side balance-springs connected with the same centrally and extending to and connected with the ends of the rocker and exerting downward pressure thereon, substantially as shown and described.

3. The combination, with a sewing-machine treadle, of a foot-rocker pivotally mounted thereon, and side springs connected with the same at its pivotal point and extending toward its ends, the ends of said springs engaging the rocker, substantially as shown and described.

4. The combination, with the treadle, of the convex rocker having lateral projections, side balance-springs which are attached to the said projections and raised at such points above the treadle, and their ends engaging the ends of the rocker and tending to press the same alternately downward when the rocker oscillates, substantially as shown and described.

5. The combination, with the sewing-machine treadle, of a convex rocker pivoted centrally thereon, and wire springs connected with the rocker at its pivotal point, and extending along the side of the latter, and turned inward at their ends to form hooks as specified, the rocker having a slot at one end to receive one of said hooks and a lateral projection at the other for engagement of the lower hook, substantially as shown and described.

6. The combination, with a sewing-machine treadle, of a rocker pivotally mounted thereon, side springs connected with the pivotal portion of the rocker and having hooks at their ends which engage the latter, and a supplemental block or piece of suitable material interposed between said hooks and the engaged portion of the rocker, as and for the purpose specified.

7. The combination, with a sewing-machine treadle, of a rocker pivotally mounted thereon and having lengthwise slots at one end, and side balance-springs composed of wire and extending alongside the rocker and having booked ends which engage the latter, the forward ends entering the said slots, substantially as shown and described.

8. The combination, with the sewing-machine treadle, of the rocker having a central, convex, longitudinal rib on its under side, and a straight transverse rib at right angles to the longitudinal one, and side springs connected with the rocker centrally and at their ends, to operate as specified.

9. The combination, with a sewing-machine treadle, a convex rocker, and spring attachment therefor, of means for securing and pivoting the same, consisting of wires secured to the lateral projections of the rocker and at their ends to the treadle proper, in the manner shown and described.

10. The combination, with a sewing-machine treadle and a rocker pivotally mounted thereon, of a spring connected with both treadle and rocker at their upper ends and tending to resist the upward movement of the rocker at that point, substantially as shown and described.

11. The combination, with a sewing-machine treadle and a rocker pivotally mounted thereon, of a compression-spring arranged on the rocker and connected with the treadle in the manner shown and described.

12. An improved foot-rocker attachment for sewing-machine treadles comprising a convex plate or rocker proper, side springs connected with the rocker at its pivotal points, and extending along the sides of the same and connected with it at or near its ends, substantially as shown and described.

13. An improved rocker attachment comprising a foot-support having a convex longitudinal rib and straight transverse rib on the under side, and side balance-springs attached to the foot-support at center and ends, as shown and described.

14. The improved rocker attachment for sewing-machine treadles, comprising a foot-support having a convex under side and lateral projections, and side balance-springs secured to such projections, and raised above the highest convexity of the support, and connected with the ends of the latter, as shown and described.

15. An improved rocker attachment for sewing-machine treadles comprising a foot-support proper having a central longitudinal and convex rib and lateral supports having the same height as the central portion of the convex rib substantially as shown and described.

16. As an improved article of manufacture a rocker attachment for sewing-machine treadles comprising a reticulated plate or frame which is provided with a lengthwise convex rib on the under side the same being cast integrally with the body of the rocker, substantially as shown and described.

17. An improved rocker attachment for sewing-machine treadles comprising a foot-support having a convex lengthwise rib on the under side and balance-springs attached thereto, substantially as shown and described.

695,882. MAGAZINE-FIREARM. STEPHEN A. HUNTLEY, Elkpoint, S. D. Filed Feb. 2, 1900. Renewed Aug. 15, 1901. Serial No. 72,064. (No model.)

Claim.—1. In a firearm, the combination of a stock, a barrel, a receiver rigid with the barrel and movable on the stock, a breech-block in said receiver, mechanism carried by the receiver for reciprocating said block, a spring for restoring the receiver to its normal position, and rack-and-pinion connection between said stock and said mechanism, whereby said mechanism is caused to positively reciprocate the breech-block during the movement of the receiver, substantially as and for the purpose set forth.

2. In a firearm, the combination of a stock, a barrel, a receiver rigid with the barrel and movable on the stock, a breech-block in said receiver, mechanism carried by the receiver for reciprocating said block, a spring for restoring the receiver to its normal position, a pinion connected with said mechanism and carried by said receiver, and a rack fixed to said stock and engaging said pinion, substantially as and for the purpose set forth.

3. In a firearm, the combination of a stock, a barrel, a receiver rigid with the barrel and movable on the stock, a breech-block in said receiver, mechanism carried by the receiver for reciprocating said block, a spring for restoring the receiver to its normal position, an operating-pinion connected with said mechanism and carried by said receiver and running idly in one direction and operatively in the other direction, and a rack fixed to said stock and engaging said pinion, substantially as and for the purpose set forth.

4. In a firearm, the combination of a barrel, a receiver rigid therewith provided with a rearward extension, a stock receiving said extension, a restoring-spring between said receiver and stock, a reciprocable breech-block in said receiver, a crank pivoted in said extension, connecting means between said crank and block, a pinion fixed to the axis of said crank to rotate therewith, and a rack fixed to said stock through the medium of which rotary motion is imparted to the pinion, substantially as and for the purpose set forth.



5. In a firearm, the combination of a barrel, a receiver rigid therewith provided with a rearward extension, a stock receiving said extension, a restoring-spring between said receiver and stock, a reciprocable breech-block in said receiver, a crank pivoted in said extension, connecting means between said crank and block, mechanism connected with stock and crank for actuating the crank, and a buffer in the stock for engaging said crank after each rotation, substantially as and for the purpose set forth.

6. In a firearm, the combination of a barrel, a receiver rigid therewith provided with a rearward extension, a stock receiving said extension, a restoring-spring between said receiver and stock, a reciprocable breech-block in said receiver, a crank pivoted in said extension, connecting means between said crank and block, mechanism connected with stock and crank for actuating the crank, a buffer in the stock for engaging said crank after each rotation, and a device for locking the crank against said buffer, substantially as and for the purpose set forth.

7. In a firearm, the combination of a barrel, a receiver rigid therewith provided with a rearward extension, a stock receiving said extension, a restoring-spring between said receiver and stock, a reciprocable breech-block in said receiver, a crank pivoted in said extension, connecting means between said crank and block, and hand-operated means projecting through the stock for engaging said receiver to lock it in the retracted position, substantially as and for the purpose set forth.

8. In a firearm, the combination of a stock, a trigger connected therewith, a barrel, a receiver rigid therewith and projecting into and movable in said stock, a reciprocating breech-block in said receiver, a firing-pin therein, an actuating-spring for said pin, a sear engaging said pin to hold it retracted, and a lever connected with said sear and pivoted in the receiver and contacting at its free end with said trigger in the firing position, substantially as and for the purpose set forth.

9. In a firearm, the combination with barrel, receiver, stock, and restoring-spring between receiver and stock, of a reciprocating breech-block in said receiver, a pivoted locking-bolt connected with said block and carrying means for engaging the receiver to lock the block, reciprocating mechanism, and connecting means between said mechanism and locking-bolt, which serves first to swing said locking-bolt and unlock said block, and then, through the medium of said locking-bolt, to reciprocate the block, substantially as and for the purpose set forth.

10. In a firearm, the combination with barrel, receiver, stock, and restoring-spring between receiver and stock, of a reciprocating breech-block in said receiver, a pivoted locking-bolt connected with said block and carrying means for engaging the receiver to lock the block, a firing-pin in said block provided with a shoulder, an actuating-spring for said pin, a lug on said locking-bolt for engaging said shoulder and locking said pin, reciprocating mechanism, and connecting means between said mechanism and locking-bolt, which serves to swing said locking-bolt and unlock said block, lock the firing-pin and reciprocate the block, substantially as and for the purpose set forth.

11. In a firearm, the combination with a receiver and reciprocating breech-block, of a shell-carrier, a carrier-actuating lever pivoted in the frame and having one end engaging said carrier and the other provided with a gear-sector, a pivoted sector F^3 engaging said first-named sector, and a movable catch between the breech-block and the sector F^3 operating during the forward movement of the breech-block to rotate said sector, substantially as and for the purpose set forth.

12. In a firearm, the combination with a receiver, of a pivoted ejector, a reciprocating breech-block provided with an ejector-arm groove, a locking-bolt pivotally connected to said block and provided with an ejector-arm groove, a stock telescopically receiving said receiver, and a restoring-spring between stock and receiver, substantially as and for the purpose set forth.

13. In a firearm, the combination with a receiver, a reciprocable breech-block therein provided with an ejector-engaging lug, and an ejector comprising an arm pivoted adjacent to its rear end on a vertical pivot and left free at its opposite end to engage a shell, a lug pivoted in a slot in said arm and projecting normally at right angles to said arm and having a shoulder engaging the rear wall of the slot in which it is pivoted, and a common spring fixed to the receiver and bearing upon said arm and lug and tending to hold the arm to the side of the receiver and the lug at right angles to the arm, substantially as and for the purpose set forth.

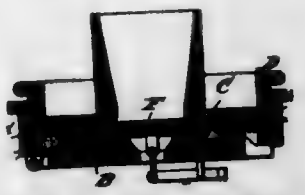
14. In a firearm, the combination with a receiver provided with an ejector-receiving slot, of a slotted ejector-arm frame in said slot and fixed to the receiver, an ejector-arm pivoted in said ejector-arm frame, and provided with a slot, a lug in the slot of said arm and on a common pivot with the arm, said lug being provided with a spring-engaging shoulder and with a shoulder for engaging the rear wall of the slot of said arm, and a spring secured to said ejector-arm and bearing against said arm and said lug and tending to keep the arm sheathed and the lug at right angles to the arm, substantially as and for the purpose set forth.

15. In a firearm, a stock, a barrel movably connected therewith, a restoring-spring in the stock, a forearm slidably connected to the barrel, and a rearward extension of said forearm connected with said stock, substantially as and for the purpose set forth.

16. In a firearm, a stock, a barrel movably connected therewith, a restoring-spring in the stock, a forearm slidably connected to the barrel, a rearward extension of said forearm, and a trigger-guard pivotally connected to stock and extension, substantially as and for the purpose set forth.

17. In a firearm the combination with a barrel and receiver, of a two-part magazine parallel to the barrel, comprising a fixed rear part, D^4, a swinging part, D^4, pivotally joined at its front end to the barrel by a pivot perpendicular to the barrel, a fixed locking-ring D^5 on one of said magazine parts, and a movable locking-ring D^6 on the other of said magazine parts, substantially as and for the purpose set forth.

695,888. MEANS FOR REGULATING THE TENSION OF DIAPHRAGMS OF SOUND-PRODUCING INSTRUMENTS. JOHN F. LESCOHIER, Boston, Mass. Filed May 16, 1901. Serial No. 60,440. (No model.)

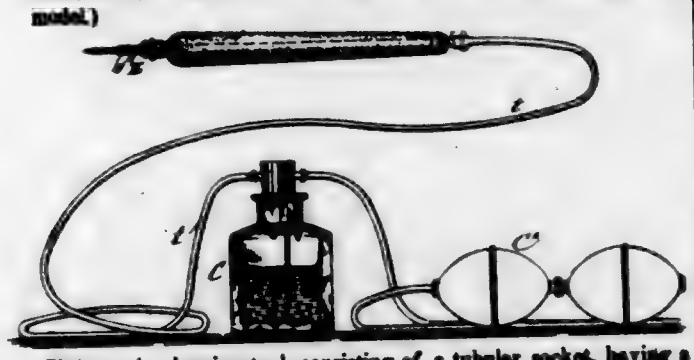


Claim.—1. In a sound reproducing, recording or transmitting instrument, a suitable frame, a reproducer-diaphragm secured between rings at its outer edge, said rings being removably supported in the frame, a pressure-ring of less diameter than the outer ring and held within the same and supported upon the diaphragm and of greater thickness than said rings, a disk or plate above the pressure-ring to give pressure thereto, and said disk engaging the pressure-ring out of the plane of rings, and a screw-ring engaging the screw-threads of the frame and adapted to force the disk or plate against the pressure-ring, the said pressure-ring being retained between the upper ring and the said plate, all substantially as shown and described.

2. In a sound recording, reproducing or transmitting instrument, a suitable frame, a reproducer-diaphragm, removable rings between which

the diaphragm is held, an independent pressure-ring bearing on the diaphragm inside said rings and of greater thickness than the adjacent ring, and a disk or plate resting thereon and provided with a circumferential shoulder upon its under side to act as a stop, and against the inner wall of which the pressure-ring may bear, and a screw-ring bearing on the outer edge of the said disk out of the plane of the pressure-ring, substantially as and for the purpose described.

695,884. CHARRING-TOOL FOR ORNAMENTING WOOD. JOHN P. MÜLLER, New York, N. Y., assignor to E. M. Gubsch & Co., New York, N. Y., a Firm. Filed June 21, 1901. Serial No. 65,408. (No model.)



Claim.—A charring-tool, consisting of a tubular socket, having a perforation in its wall, a supply-tube inserted in said socket and having a reduced forward end, a nozzle of smaller diameter than said end projecting forwardly from the same beyond said perforation, and a tubular stylus closed at its forward end and inserted at its open rear end between said socket and supply-tube, said stylus covering the inner surface of the socket, forward of the supply-tube, and having a perforation registering with the perforation of said socket, substantially as set forth.

695,885. SEWING-AWL. JOHN S. PADON, Westplains, Mo., assignor of one-half to Joseph L. Van Wormer, Westplains, Mo. Filed Sept. 20, 1901. Serial No. 75,754. (No model.)



Claim.—1. A sewing-awl, comprising a handle having a needle-holder at one end thereof, and a thread-spool mounted externally upon said end of the handle and in substantially longitudinal alinement with the needle-holder.

2. A sewing-awl, comprising a handle having one end provided with a cylindrical stem, a needle-holder carried by the outer end of the stem, and a rotatable thread-spool mounted upon the stem in rear of the needle-holder and in substantially longitudinal alinement therewith.

3. A sewing-awl, comprising a handle having one end provided with a reduced cylindrical stem, a needle-holder carried by the outer end of the stem, and a rotatable thread-spool mounted upon the stem and in substantially longitudinal alinement with the needle-holder.

4. A sewing-awl, comprising a handle, needle-holding jaws projected at one end of the handle, a clamping device embracing the jaws, and a thread-spool mounted externally upon the handle and in substantially longitudinal alinement with respect to the needle-holding jaws, the clamping device also forming means to prevent outward displacement of the spool.

5. A sewing-awl, comprising a handle, a plurality of externally-threaded needle-clamping jaws carried by and projected at one end of the handle, a thread-spool mounted externally upon said end of the handle and located inwardly from and in substantially longitudinal alinement with respect to the projected jaws, and a clamping-nut detachably fitted to the jaws and also forming means to prevent endwise displacement of the spool.

6. A sewing-awl, comprising a handle, a thread-spool mounted externally at one end thereof, means to prevent outward displacement of the spool and located at the outer end thereof, a thread-guide having its opposite ends supported upon the handle and the said means, and also provided with an intermediate perforation for the reception of the thread, and a needle-holder carried by the spool end of the handle.

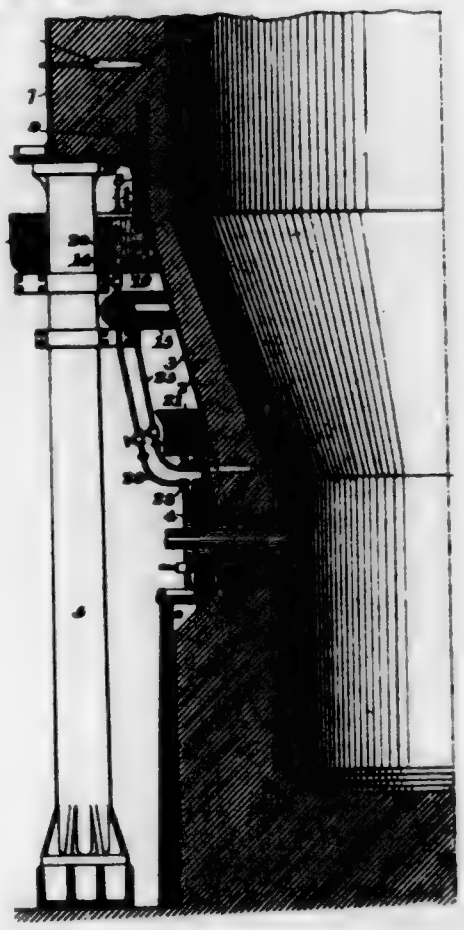
7. A sewing-awl, comprising a handle, a thread-spool mounted at one end thereof, a stop device located at the outer end of the spool to prevent displacement thereof, and also provided with a seat, and a thread-guide having one end connected to the handle and its opposite end received within the seat of the stop device, the intermediate portion of the guide being provided with an eye for the reception of the thread.

8. A sewing-awl, comprising a handle, a thread spool mounted upon one end of the handle, a washer carried by the outer portion of said end of the handle to prevent displacement of the spool and provided with an edge notch or seat, and a thread-guide having one end secured to the handle and its opposite end received within the seat of the washer and also provided with a lateral projection engaging across the outer side of the washer, the intermediate portion of the guide bridging the spool and provided with an eye for the reception of the thread.

9. A sewing-awl, comprising a handle having one end provided with a reduced stem, a thread-spool rotatably mounted upon the stem, externally-screw-threaded needle-holding jaws projected longitudinally from said end of the handle, a washer embracing the base of said jaws and provided with an edge notch or seat, a clamping-nut applied to the threaded portions of the jaws, and a thread-guide having its inner end secured to the handle and its opposite end received within the notch or seat of the washer, and also provided with a lateral projection engaging the outer side of the washer, the intermediate portion of the guide bridging the spool and provided with a perforation for the reception of the thread.

10. A sewing-awl, comprising a handle, an external rotatable thread-spool mounted upon the handle, and needle-holding means carried by one end of the handle and forming means to prevent accidental endwise displacement of the spool, the latter being disposed concentrically with respect to the needle-holding means.

695,886. BLAST-FURNACE. CHARLES I. RADER, Youngstown, Ohio, assignor of one-half to William H. Hassinger. Filed May 22, 1901. Serial No. 61,386. (No model.)



Claim.—1. A blast-furnace having a mantle, vertical water-cooled plates in its walls at the level of the mantle, a jacket surrounding the plates, means for cooling the plates, a bosh-jacket surrounding the furnace-bosh, and means for cooling the said bosh-jacket; substantially as described.

2. A blast-furnace having a mantle, vertical plates embedded in the masonry wall of the furnace at the level of the mantle, and containing

cooling-passages, the furnace-bosh having a surrounding jacket, and means for cooling said plates and bosh-jacket; substantially as described.

3. A blast-furnace having a mantle, vertical plates at the level of the mantle, means for water-cooling said plates, a jacket surrounding the furnace-bosh, means for cooling said bosh-jacket, and an offset jacket portion extending from the bosh-jacket around the water-cooled mantle-plates; substantially as described.

4. A blast-furnace having a mantle, vertical plates at the mantle level, and having outwardly-projecting lips or flanges, supports for said lips, and means for water-cooling the plates; substantially as described.

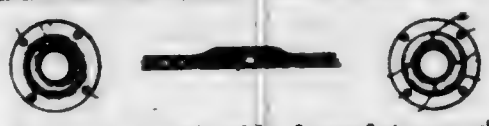
5. A blast-furnace having a bosh-jacket, means for water-cooling the same, twyer-coolers below the bosh-jacket, a row of horizontal plates between the twyer-coolers and the lower part of the bosh-jacket, said plates extending inwardly beyond the jacket and acting as shelves for the wall or lining and means for water-cooling said horizontal plate; substantially as described.

6. A blast-furnace having a mantle, vertically-extending plates embedded in the masonry wall at the mantle level, means for water-cooling said plates, and a horizontal row of cooling-plates embedded in the furnace-walls above the level of the mantle; substantially as described.

7. A blast-furnace having a mantle, vertically-extending plates at the level of the mantle, means for water-cooling said plates, and a horizontal row of cooling-plates embedded in the furnace-wall above the mantle, said upper plates extending inwardly to the vertical plane of the plates at the mantle level; substantially as described.

8. A blast-furnace having a mantle, vertically-extending plates at the mantle level, means for water-cooling the plates, a bosh-jacket, means for water-cooling said jacket, twyer-coolers below the bosh-jacket, a row of horizontal plates embedded in the bosh between the lower end of the jacket and the twyer-coolers and acting as shelves, and means for cooling said horizontal plates; substantially as described.

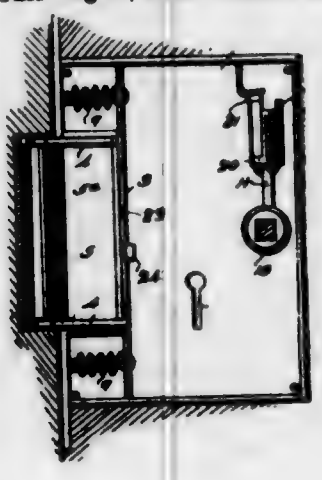
695,887. **RUG OR GARMENT FASTENER.** WILLIAM S. RICHARDSON, Boston, Mass., assignor to the Ball & Socket Fastener Company, of Nashua, New Hampshire, Boston, Mass., a Corporation of New Hampshire. Filed June 28, 1897. Serial No. 641,572. (No model.)



Claim.—1. As an improved article of manufacture a socket member of a rug or garment fastener having a circular inner wall surrounding a socket-entrance, a circular outer wall integral with the inner wall and a narrow, continuous, circular flange integral with and surrounding the outer wall, the said flange having small thread-receiving holes, and the fastener having one or more slits extending from said socket-entrance into or through said walls, but out of line with the said thread-holes, as and for the purposes set forth.

2. As an improved article of manufacture, a socket member of a rug or garment fastener made from a single piece of metal, shaped to provide an inner wall surrounding at one end a socket-entrance, an outer wall integral at one end with the inner wall and surrounding it, and a continuous flange integral with and surrounding the outer wall, the said flange having a number of thread-receiving holes, and the fastener having one or more slits extending from said socket-entrance into or through said walls but not through the flange and whereby the spring of the socket-entrance is increased, and whereby also the socket member may be attached by sewing to a garment without regard to the position which the slit or slits may bear to the lines of draft and whereby further a continuous smooth inner surface is obtained.

695,888. **DOOR CATCH AND LOCK.** ROBERT C. SHEKER, Southampton, N. Y. Filed Aug. 23, 1901. Serial No. 73,048. (No model.)



Claim.—1. A device of the class described comprising a casing, a reciprocating frame extending through the casing and provided with means for engaging a keeper, an oscillatory arm pivoted at one end in rear of the frame and adapted to be swung into and out of a position in alinement with the frame, and a reciprocating key-actuated bolt also arranged to engage the frame, substantially as described.

2. A device of the class described comprising a reciprocating frame provided with means for engaging a keeper, an oscillatory arm mounted in rear of the frame and adapted to engage the same, and a key-operated bolt carried by the arm and adapted to engage the frame, whereby the arm is locked in engagement with the same, substantially as described.

3. A device of the class described comprising a casing, a spring-actuated frame mounted in the casing and provided with a recess or opening, a pivoted locking-arm mounted in the casing and adapted to engage the frame, and a bolt mounted on the locking-arm and adapted to be operated by a key to engage it with and disengage it from the said recess or opening, substantially as described.

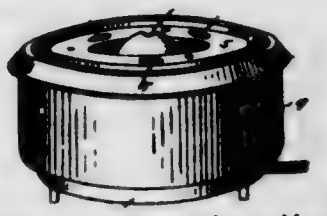
4. A device of the class described comprising a casing, a sliding frame mounted in the casing and having arms extending through the same, a roller carried by the arms, springs connected with the frame and adapted to throw the same outward, a locking-arm mounted in the casing and arranged to engage the frame, an exterior knob connected with the locking-arm, and a key-operated bolt carried by the locking-arm and arranged to engage the frame, substantially as described.

5. A device of the class described comprising a casing, a frame slidingly mounted in the casing, a locking-arm pivotally mounted in the casing and provided with a rib, a sliding bolt mounted on and interlocked with the rib and arranged to be engaged by a key, and means for operating the arm, substantially as described.

6. A device of the class described comprising a casing, a movable frame, a locking-arm provided at its ends with lugs and having a rib terminating short of the lugs, and a sliding bolt interlocked with the rib and provided with a projecting portion adapted to be engaged by a key, substantially as described.

7. A device of the class described comprising a casing, a movable frame, a locking-arm grooved at one side and provided at the opposite side with a rib, and a sliding bolt mounted on and interlocked with the rib and having a projecting portion or lug adapted to be engaged by a key, substantially as described.

695,889. **VAPOR-BURNER.** JOHN S. SHERMAN and GEORGE H. HARRIS, Detroit, Mich. Filed Mar. 14, 1896. Serial No. 673,718. (No model.)



Claim.—1. In a hydrocarbon-burner, the combination of a plurality of distinct cylinders of cast metal, each of which is provided with longitudinal ribs and with circumferential slots which divide the cylinders into rings held together by said ribs, said slots extending into said ribs, the several cylinders being arranged to form combustion-chambers and air-chambers arranged alternately, and cover-plates above the tops of the air-chambers, substantially as described.

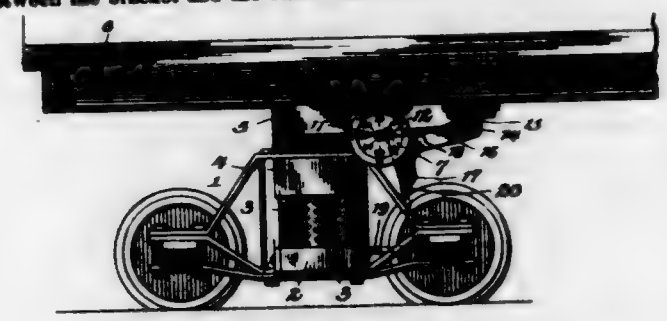
2. In a hydrocarbon-burner, the combination of annular, concentric combustion-chambers, an annular air-chamber between the combustion-chambers, and a dividing-ring located in the annular air-chamber, substantially as described.

3. In a hydrocarbon-burner, an outer cast cylinder provided with external longitudinal ribs and transverse slots dividing the cylinder into rings and which slots extend into said ribs, and an inner separate cast cylinder provided with internal longitudinal ribs, and transverse slots dividing the cylinder into rings and which slots extend into said ribs, said cylinders forming between them an annular combustion-chamber, substantially as described.

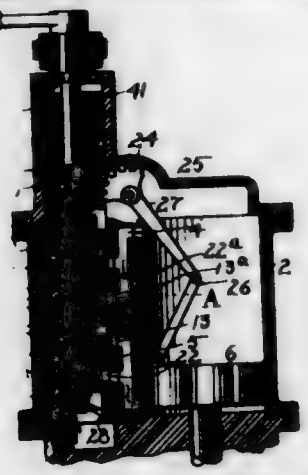
695,890. **LOAD-INDICATOR.** MILLARD F. SINCLAIR, Okolona, Miss., assignor of one-half to Mack F. Harbour, Okolona, Miss. Filed Nov. 18, 1901. Serial No. 82,743. (No model.)

Claim.—The combination with a car-truck having a spring-plank, and a car-body yieldably supported upon the truck, of a load-indicator comprising a dial hung from the bottom of the car and at one side thereof, a rotatable pointer or index for the dial, a bracket connected to the car and supporting the dial, a pinion journaled in the bracket and operatively connected to the pointer or index, a rock-shaft mounted upon the bottom of the car and provided at opposite ends with crank-arms, a sag-

mental rack or gear carried by one of the crank-arms and in mesh with the pinion, a bracket carried by the spring-plank, and a link connection between the bracket and the other crank-arm.



695,891. **VALVE FOR STEAM-ENGINES.** GARY B. SMITH, Cleveland, Ohio, assignor of two-thirds to J. H. Colwell and W. H. Elliott, Cleveland, Ohio. Filed June 26, 1901. Serial No. 66,063. (No model.)



Claim.—1. In a steam-engine, the cylinder and piston therein, a valve-chest having inlet and exhaust ports leading to and from said cylinder, a valve within the valve-chest comprising a stem having steam-passages and a slidable sleeve on said stem provided with ports, means to limit the movement of said stem within said sleeve whereby all the steam passages and ports therin, except the exhaust-ports, are closed at the limit of the movement of said stem within said sleeve, and means to reciprocate both stem and sleeve within the valve-chest, substantially as described.

2. In a steam-engine, the combination of a cylinder and piston therein and a valve-chest having steam ducts and ports leading thereto, a reciprocating and rotatable valve within said chest comprising a stem and a sleeve mounted thereon and provided with ports, and means to reciprocate and means to rotate said valve, substantially as described.

3. In a steam-engine, the cylinder and piston therein, the valve-chest and valve therein, steam-ducts between said valve-chest and cylinder, and inlet and exhaust ports in said chest and valve, said valve comprising a rotatable and reciprocating stem and a sleeve mounted to slide thereon, whereby reversing and throttling of the engine is obtained and means to operate said valve, substantially as described.

4. In a steam-engine, the cylinder and piston therein and a valve-chest having inlet and exhaust ports and ducts leading to said cylinder, in combination with a reciprocating valve comprising a stem provided with steam-passages and a sleeve mounted to slide thereon and provided with ports, and an adjustable connection between said stem and sleeve to limit the sliding movement of said sleeve, and means to operate said valve, substantially as described.

5. In a steam-engine, the cylinder and piston therein, the valve-chest, inlet and exhaust ports between said cylinder and valve-chest, a valve within said chest comprising a stem having steam-passages and a sleeve mounted to slide on said stem and provided with ports, a chain connection between said stem and sleeve to limit the movement of said sleeve upon the stem, and means to operate the valve to open and close the inlet and exhaust ports, substantially as described.

6. The combination of a rotatable and reciprocal valve for steam-engines comprising a stem provided with steam passages, a sleeve having steam inlet and exhaust ports in its sides and mounted to slide upon said stem, means to limit the movement of said sleeve on said stem, and means to carry both stem and sleeve along together at the limit of the movement of said sleeve on said stem, substantially as described.

7. The combination of a rotatable and reciprocal valve for steam-engines comprising a stem provided with steam-passages, a sleeve provided with steam inlet and exhaust ports, and mounted to slide upon said stem, a flexible connection between said stem and sleeve whereby the movement of the stem is limited before carrying both sleeve and stem along together, and adjusting mechanism attached to said flexible connection whereby said stem and sleeve are set to work in different relations to each other, substantially as described.

8. In a steam-engine, a single casting having the piston-cylinder and valve-chest with their connecting steam inlet and exhaust ports and ducts all formed therein, and a separate bushing provided with ports and constructed to fit and fasten within said valve-chest, in combination with a reciprocating valve having ports and arranged to slide in said bushing, substantially as described.

9. In a steam-engine, a single casting having the piston-cylinder and valve-chest with their steam inlet and exhaust ports and passages all formed therein, and a separate bushing having inlet and exhaust ports and constructed to fit within said valve-chest, in combination with a reciprocating valve arranged to slide in said bushing and comprising a stem with passages and a sleeve with ports, said sleeve being mounted to slide upon said stem, substantially as described.

10. The single casting comprising a steam-engine piston-cylinder and a valve-chest with their inlet and exhaust ports and ducts all formed therein, in combination with a separate bushing adapted to fit and fasten in said valve-chest, and having inlet and exhaust ports arranged to open into said cylinder and valve-chest inlet and exhaust ports and passages, substantially as described.

11. In a steam-engine, the cylinder and piston therein, the valve-chest and its connecting-passages with said cylinder, and inlet and exhaust ports and passages to said valve-chest, in combination with a valve comprising a reciprocal stem with passages therein and a sleeve thereon with ports in its sides, said steam-passages comprising two intermediate passages arranged at one side of said stem and end passages arranged on both sides of the stem and at right angles to the intermediate passages and having a central vertical dividing-wall between them thus forming a set of two passages at either end, substantially as described.

12. The combination of a rotatable and reciprocal valve for steam-engines comprising a stem provided with steam-passages and a sliding sleeve on said stem provided with ports, a connection between said stem and sleeve providing a limited movement one with the other, means to reciprocate said stem and sleeve and spring-rings on said sleeve to retard said sleeve during part movement of said stem, substantially as described.

13. In a steam-engine, the combination of a piston and a valved stem connected to operate therewith, said stem having an adjustable rack and said piston a link-and-gear segment whereby the movement of said piston is conveyed to said stem and timed therewith, substantially as described.

14. The combination of a rotatable throttling and reversing valve for steam-engines comprising a stem having steam-passages, a sleeve having steam-ports, a flexible connection between said stem and sleeve and adjustable take-up mechanism for said connection to shorten or lengthen the movement of said stem in relation to said sleeve, substantially as described.

695,892. **VERMIN-DESTROYING NEST-EGG.** EDWIN T. STUART, Ottawa, Kans., assignor of one-half to James O. Bledgett, Lahaipe, Kans. Filed July 20, 1901. Serial No. 68,096. (No model.)



Claim.—1. As a new article of manufacture, a hollow, elastic, perforate nest-egg.

2. A vermin-destroying nest-egg, consisting of a perforate hollow, elastically-yieldable body, having a normally closed filling-opening for the introduction of an insecticide.

3. A vermin-destroying nest-egg, comprising a hollow, elastically-yieldable and perforate body having a filling-opening, and a closure for the opening and provided with a marginal seat for the reception of the edges of said opening to prevent accidental displacement of the closure.

4. A vermin-destroying nest-egg having an opening formed therein, a hollow plug removably fitted in the opening and projected into the interior of the body, the inner end of the plug being closed and the outer end thereof having an opening, and an absorbent material within the plug to hold a liquid insecticide.

5. A hollow perforate vermin-destroying nest-egg having a filling-opening for the introduction of an insecticide, and a hollow closure-plug removably fitted in the opening and projected into the interior of the device and also capable of containing an insecticide, the inner end of the plug being closed and the outer end thereof having an opening to permit of the escape of vermin-destroying fumes from the insecticide therein.

6. A hollow elastic perforate vermin-destroying nest-egg having a filling-opening for the introduction of an insecticide, a hollow closure-plug removably fitted in the opening and projected into the interior of the body, the inner end of the plug being closed and the outer end having an opening, and absorbent material within the plug to hold a liquid insecticide.

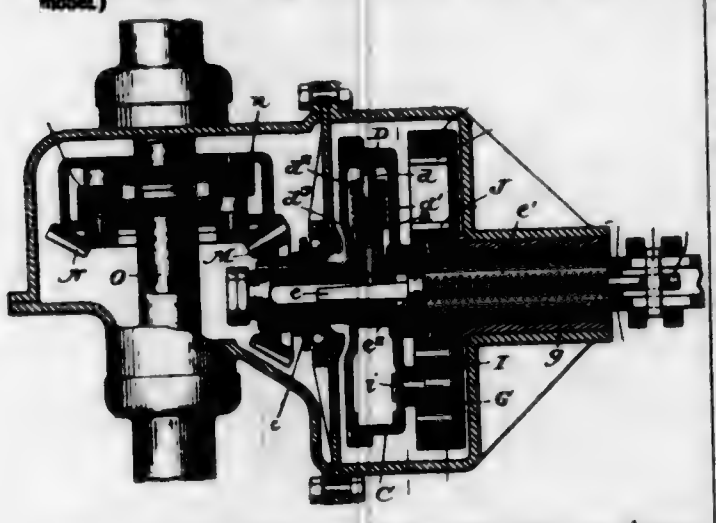
7. A vermin-destroying nest-egg, comprising a hollow elastic perforate egg-shaped body, a powdered insecticide contained within the body and capable of being intermittently discharged through the perforations thereof by pressure upon the body, and means for containing a liquid insecticide within the body and for giving off the fumes of the insecticide to the exterior of the body.

695,893. LID ATTACHMENT FOR TEA-KETTLES. THOMAS L. TISCHER, Chicago, Ill. Filed Jan. 2, 1901. Serial No. 41,861. (No model.)



Claim.—A cooking utensil having a pivoted swinging bail-handle 3, a lid 2 movable in substantially the same plane with the handle, a hinge comprising leaves 7 and 8 secured to the lid and to the body of the utensil respectively, said leaf 7 having an integral vertically-extended and perforated member 6, and a substantially horizontal lid-controlling bail 4 having its intermediate portion adapted to the opening in the member 6 and its opposite ends being pivotally connected to the opposite portion of the bail-handle adjacent to the terminal hinged connections thereof with the body of the utensil, substantially as specified.

695,894. CHANGEABLE-SPEED GEARING. VIGGO V. TORRENSEN, Bloomfield, N. J. Filed June 26, 1901. Serial No. 66,084. (No model.)



Claim.—1. The combination with the main shaft, arms thereon, movable clutch devices carried by said arms, a clutch member on said shaft adapted to be rendered fast or loose thereon by actuation of said devices, means contained within the shaft for actuating said devices, an internal gear loosely mounted on the shaft, a fixed gear on said shaft, pinions on the clutch member coacting with said internal and fixed gears, and brake mechanism for said internal gear.

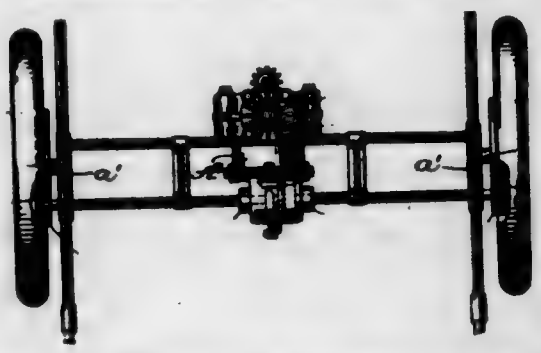
2. The combination with the main shaft provided with radially-extending tubular arms, segments carried by stems fitted to said arms, springs to maintain said segments normally retracted, a clutch member loosely mounted on the shaft and adapted to be rendered fast or loose thereon by actuation of said segments, a spindle contained within said shaft and provided with a tapering portion engaged by said stems, means for operating said spindle, and gearing between said shaft and the clutch member.

3. The combination with the main shaft provided with radially-extending tubular arms, segments carried by stems fitted to said arms, springs to maintain said segments normally retracted, a clutch member loosely mounted on the shaft and adapted to be rendered fast or loose thereon by actuation of said segments, a spindle contained within said shaft and provided with a tapering portion engaged by said stems, a spring acting upon said spindle to maintain the segments normally engaged with the clutch member, means for retracting said spindle, and gearing between said shaft and the clutch member.

4. The combination with the main shaft, arms thereon, movable clutch devices carried by said arms, a clutch member on said shaft adapted to be rendered fast or loose thereon by actuation of said devices, means contained within the shaft for actuating said devices, a lever for operating said means, a wheel loosely mounted on said shaft and provided with internal gear-teeth, a fixed gear on said shaft, pinions on the clutch member coacting with said internal gear-teeth and fixed gear, a brake-band on said wheel, and connections between said lever and band.

5. The combination with the main shaft provided with radially-extending tubular arms, segments carried by stems fitted to said arms, springs to maintain said segments normally retracted, a clutch member loosely mounted on the shaft and adapted to be rendered fast or loose thereon by actuation of said segments, a spindle contained within said shaft and provided with a tapering portion engaged by said stem, a spring acting upon said spindle to maintain the segments normally engaged with the clutch member, a lever for retracting said spindle, a wheel loose on said shaft provided with internal gear-teeth, a fixed gear on said shaft, pinions on the clutch member coacting with said internal gear-teeth and fixed gear, a brake for said wheel, and connections between said brake and lever.

695,895. MOTOR-VEHICLE. VIGGO V. TORRENSEN, Bloomfield, N. J. Filed June 26, 1901. Serial No. 66,085. (No model.)



Claim.—1. In a motor-vehicle, an axle, supports at the ends thereof, a driving-shaft having its bearings in said supports, carrying-wheels mounted on said supports and having their axes between the axle and said shaft, gearing between the said shaft and the carrying-wheels, a motor, and gearing between said motor and the driving-shaft.

2. In a motor-vehicle, the combination with supports, a rigid connection and a driving shaft between said supports, carrying-wheels, axial studs located on said supports, at points thereon between the rigid connection and the driving-shaft, gearing between said shaft and the carrying-wheels, a motor, including a shaft intersecting the said connection, and gearing between said latter shaft and the driving-shaft.

3. In a motor-vehicle, an axle comprising a plurality of bars, supports at the ends thereof, a casing supported by said bars, carrying-wheels mounted on said supports, a motor the shaft whereof extends into said casing, changeable-speed gearing in said casing, and operative connection between said gearing and the driving-shaft.

4. In a motor-vehicle, an axle comprising a plurality of bars, supports at the ends thereof, casings supported by said bars, carrying-wheels on said supports, a divided driving-shaft having its bearings in said supports, a motor the shaft whereof extends into one of said casings, changeable-speed gearing in the casing into which said motor-shaft extends, and coacting differential-speed gearing mounted in the other casing and connected with the driving-shaft.

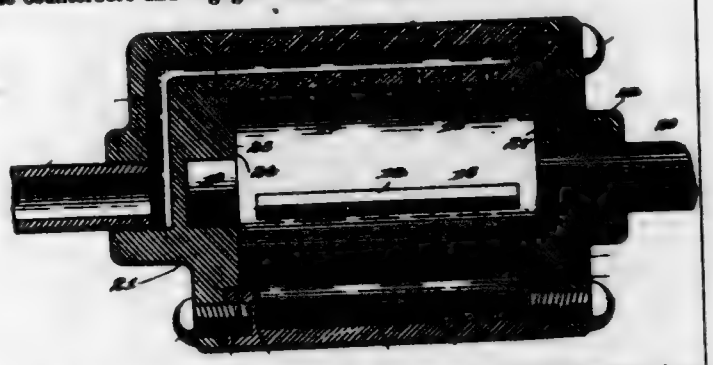
5. In a motor-vehicle, an axle, a casing thereon, a motor having its shaft at right angles to the said axle and entering the said casing, a driving-shaft, carrying-wheels having their axes between the shaft and axle, gearing between the said driving-shaft and the wheels, and transmission-gearing between the said driving-shaft and the motor-shaft, said latter gearing including mechanism contained in the said casing.

6. In a motor-vehicle, an axle comprising bars, supports at the ends thereof, and a motor-casing supported by the bars between said supports, a motor in said casing, a second casing supported by the motor-casing, and into which second casing the motor-shaft extends at right angles to said axle, a driving-shaft, carrying-wheels having their axes between the shaft and axle, gearing between the said driving-shaft and the wheels, and transmission-gearing between the said driving-shaft and the motor-shaft, said latter gearing including mechanism contained in said second casing.

695,896. ROTARY MOTOR. LAURENCE B. TROXLER, Louisville, Ky., assignor of one-half to Charles G. Schaefer, Jr., and O. H. Schaefer, Louisville, Ky. Filed May 18, 1901. Serial No. 60,887. (No model.)

Claim.—1. In a rotary motor, the combination with a cylinder having a smooth peripheral face and a longitudinally-disposed bore, said cylinder being also provided with a counterbore eccentric to the axis of the

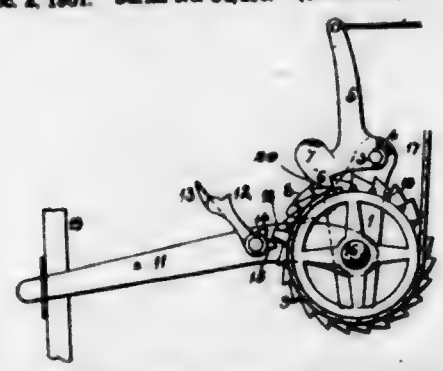
longitudinal bore and terminating short of the ends of the cylinder, thereby forming integral bearing-flanges, of cylinder-heads closing the ends of the cylinder, a motive-fluid-supply pipe connected to one of the cylinder-heads and having communication with the bore of the cylinder, a rotary piston located within the concentric bore and bearing against said integral flanges, said piston extending across the counterbore, and movable piston-heads carried by the rotary piston and arranged to project across the counterbore and engage the walls thereof.



2. In a rotary motor, the combination with a cylinder having a longitudinal bore, of a piston rotatably mounted in the bore, movable piston-heads carried by the piston, heads secured to the cylinder and covering the ends of the bore, one of said cylinder-heads being provided with an inlet-port, a shaft connected to the piston and projecting from the other head, and a motive-fluid-supply pipe secured to the head having the inlet-port, said supply-pipe being located in substantial alinement with the shaft.

3. In a rotary motor, the combination with a cylinder having a longitudinally-disposed concentric bore and a counterbore eccentric to the axis of the concentric bore and terminating short of the ends of the cylinder thus forming integral bearing-flanges, said cylinder being furthermore provided with a longitudinally-disposed inlet-port terminating at one end of the cylinder and provided with a plurality of inlet-orifices communicating with the bore, of a rotary piston located longitudinally in the concentric bore and bearing upon the flanges, said piston being provided at one end with a concentric shaft, and at the other end with a concentric gudgeon, piston-heads carried by the piston and movable across the eccentric counterbore, a head closing one end of the cylinder and provided with an inlet-port communicating with the port of the cylinder, said cylinder-head being also provided with a bearing-socket that receives the gudgeon of the piston, and another head closing the opposite end of the cylinder and having an opening through which the piston-shaft passes, said latter head being furthermore provided with an exhaust-port.

695,897. WINDMILL-REGULATOR. JAMES A. WALKER, Rockford, Ill., assignor of one-half to Charles W. Weaver, Rockford, Ill. Filed Dec. 2, 1901. Serial No. 84,416. (No model.)



Claim.—1. In a windmill-regulator, the combination of a suitable support, a ratchet-wheel, a pivoted bar, a dog pivotally supported by the bar, a lever having a hook engaging the ratchet-wheel and provided with a projection serving to hold the dog free of the ratchet-wheel, and a projection movable with the ratchet-wheel adapted to move the dog into and out of engagement with the ratchet-wheel.

2. In a windmill-regulator, the combination of a suitable support, a ratchet-wheel, a pivoted bar, a dog pivotally supported by the bar having two projections, a lever having a hook engaging the ratchet-wheel and provided with a projection serving to hold the dog free of the ratchet-wheel, a band connected to the ratchet-wheel carrying a projection adapted to engage the projection of the dog.

3. In a windmill-regulator, the combination of a suitable support, a ratchet-wheel, a pivoted bar, a dog pivotally supported by the bar and having two projections, a projection movable with the ratchet-wheel adapted to engage the projections of the dog and move the dog into and out of engagement with the ratchet-wheel, and a dog holding the ratchet-wheel against backward movement.

DESIGNS.

35,817. CLOCK-CASE. LOUIS V. ARONSON, Newark, N. J. Filed Feb. 24, 1902. Serial No. 96,488. Term of patent 3½ years.



Claim.—The design for a clock-case as herein shown and described.

35,818. FERRULE. ROBERT A. KOELSCH, Wallingford, Conn., assignor to Landers, Frary and Clark, New Britain, Conn. Filed Feb. 19, 1902. Serial No. 94,341. Term of patent 7 years.



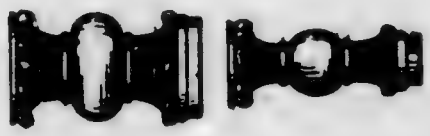
Claim.—The design for a ferrule, as herein shown and described.

35,819. FERRULE. ROBERT A. KOELSCH, Wallingford, Conn., assignor to Landers, Frary and Clark, New Britain, Conn. Filed Feb. 19, 1902. Serial No. 94,342. Term of patent 7 years.



Claim.—The design for a ferrule, as herein shown and described.

35,820. FERRULE. ROBERT A. KOELSCH, Wallingford, Conn., assignor to Landers, Frary and Clark, New Britain, Conn. Filed Feb. 19, 1902. Serial No. 94,343. Term of patent 7 years.



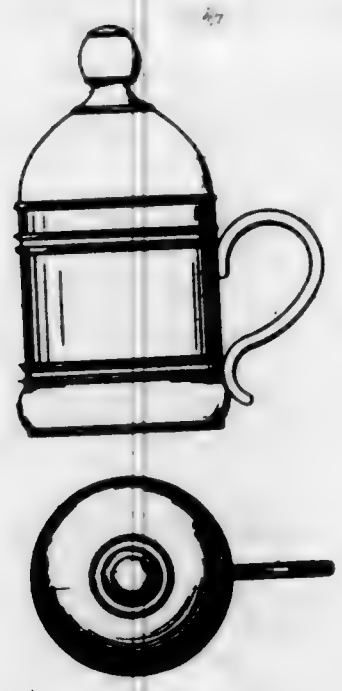
Claim.—The design for a ferrule, as herein shown and described.

35,821. HANDLE FOR SPOONS OR SIMILAR ARTICLES. FREDERICK S. WILSON, Syracuse, N. Y., assignor to Joseph Seymour Manufacturing Company, Syracuse, N. Y., a Corporation of New York. Filed Feb. 18, 1902. Serial No. 94,695. Term of patent 7 years.



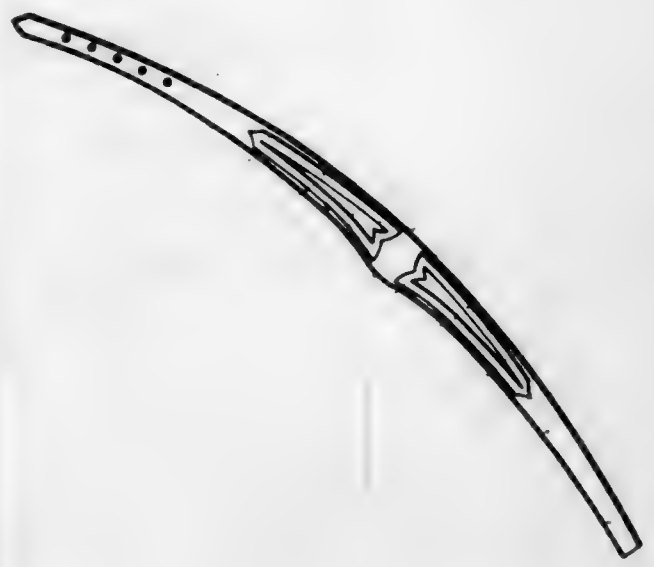
Claim.—The design for a handle for spoons, or similar articles, as herein described and shown.

35,822. CONDIMENT-CUP. EDGAR A. RUSSELL, Wallingford, Conn. Filed Nov. 5, 1901. Serial No. 81,207. Term of patent 7 years.



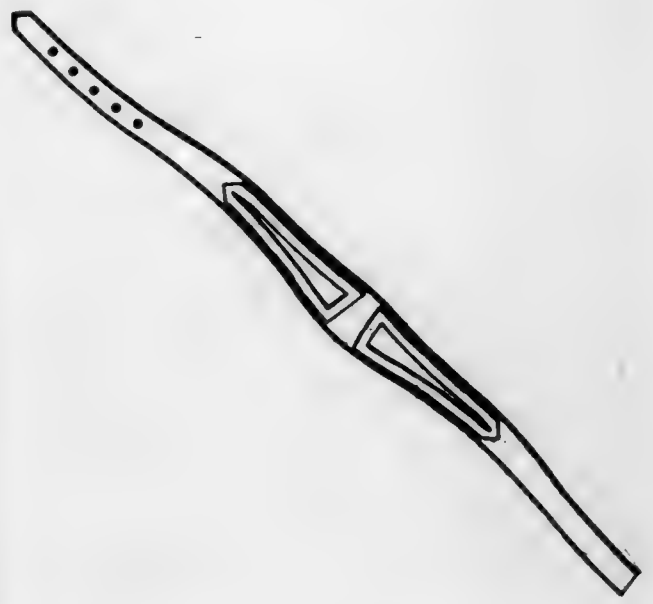
Claim.—The design for a condiment-cup, substantially as herein shown and described.

35,823. APPAREL-BELT. OTTO A. LEHMAN, Hoboken, N. J. Filed Feb. 20, 1902. Serial No. 94,985. Term of patent 3½ years.



Claim.—The design for an apparel-belt, substantially as herein shown and described.

35,824. APPAREL-BELT. OTTO A. LEHMAN, Hoboken, N. J. Filed Feb. 20, 1902. Serial No. 94,986. Term of patent 3½ years.



Claim.—The design for an apparel-belt, substantially as herein shown and described.

TRADE-MARKS

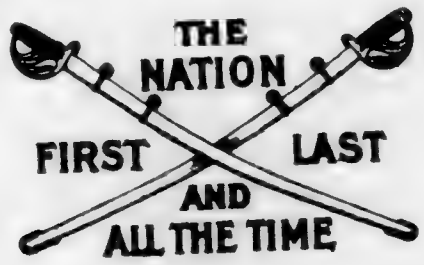
REGISTERED MARCH 18, 1902.

87,946. WATERPROOF CLOTH. FLINT WOOLEN MILLS CO., Flint, Mich. Filed Feb. 14, 1902.



Essential feature.—The word "NEPTUNUS" and the representation of Neptune standing in a shell chariot driving a shoal of dolphins. Used since January 15, 1902.

87,947. CERTAIN NAMED FABRICS. GRINNELL WILLIS, New York, N. Y. Filed Jan. 24, 1902.



Essential feature.—The representation of crossed and sheathed cavalry or rough-rider swords and the phrase "THE NATION FIRST, LAST AND ALL THE TIME." Used since January 1, 1902.

87,948. SHEETINGS AND DRILLS. HERMANN HORDEM, New York, N. Y. Filed Feb. 11, 1902.



Essential feature.—The representation of a flying boy holding a globe or sphere. Used since June 29, 1901.

87,949. MEN'S AND BOYS' TROUSERS, OVERALLS, JUMPERS, AND SHIRTS. THE MAY PANTS CO., Mayfield, Ky. Filed Jan. 28, 1902.



Essential feature.—The representation of a goat. Used since May 1, 1901.

87,950. BOOTS AND SHOES. STERNBACH TRADING CO., New York, N. Y. Filed Feb. 5, 1902.

THE COBBLER'S ENEMY

Essential feature.—The phrase "THE COBBLER'S ENEMY." Used since September 20, 1899.

87,951. ENAMEL-COATED METAL ARTICLES. THE NOVELTY STAMPING CO., Bellaire, Ohio. Filed July 8, 1901.

VAN DYKE

Essential feature.—The words "VAN DYKE." Used since December, 1900.

87,952. WHEAT-FLOUR. BENJAMIN S. BULL, Minneapolis, Minn. Filed Feb. 8, 1902.

FEDERAL.

Essential feature.—The word "FEDERAL." Used since January 23, 1902.

87,953. WHEAT-FLOUR. EDWARDS WATER MILL CO., Burlington, Kans. Filed Feb. 8, 1902.

KATY FLYER

Essential feature.—The words "KATY FLYER." Used since January 17, 1902.

37,954. CERTAIN NAMED BEVERAGES. JOHN A. CROWLEY, Hydepark, Mass. Filed Feb. 22, 1901.

IT

Essential feature.—The word "IT." Used since November 1, 1900.

37,955. CIGARETTES. WELLS-WHITEHEAD TOBACCO CO., Wilson, N. C. Filed Jan. 24, 1902.



Essential feature.—A fan-shaped design surmounted with a head representing an Egyptian princess, the words "EGYPTIAN PRINCESS," and a monogram of the letters "W W T Co." Used since December 1, 1901.

37,956. PLUG, ROLL, TWIST, AND GRANULATED TOBACCO. M. B. HAHN TOBACCO CO., Paducah, Ky. Filed Jan. 16, 1902.

OLD

PADUKE

Essential feature.—The words "OLD PADUKE." Used since May 17, 1899.

37,957. INKS AND WRITING FLUIDS. DIAMOND INK COMPANY, Milwaukee, Wis. Filed May 20, 1901.



Essential feature.—The conventional representation of a diamond or lozenge shaped figure of a red color. Used since 1875.

37,958. CERTAIN NAMED TOILET PREPARATIONS. "TRYBOL." ACTIENGES. F. FABRIK U. VERTRIEB HYG.-MED. PRÄPARATE SCHAFFHAUSEN, Schaffhausen, Switzerland. Filed Jan. 31, 1901.

TRYBOL

Essential feature.—The word "TRYBOL." Used since May, 1900.

37,959. PERFUMES. RICHARD HUDNUT, New York, N. Y. Filed Feb. 10, 1902.

DU BARRY

Essential feature.—The word "DUBARRY." Used since August, 1900.

37,960. BREATH-PERFUME. THE PERFUMOL COMPANY, Battle-creek, Mich. Filed Jan. 27, 1902.

PERFUMOL

Essential feature.—The word "PERFUMOL." Used since December 15, 1901.

37,961. CERTAIN NAMED MEDICINE. ALLEN & HANBURYS, Limited, London, England. Filed Dec. 11, 1901.

QUINACOL

Essential feature.—The word "QUINACOL." Used since September 6, 1901.

37,962. CLEANING FLUIDS AND COMPOUNDS IN CONCENTRATED FORM. JOHN H. SMITHERS, St. Louis, Mo. Filed Feb. 12, 1902.

Sapo-Elixir

Essential feature.—The words "SAPO-ELIXIR." Used since March 1, 1901.

37,963. ABSORBENT WADDING. VANDENBERGHE & CIE., Brussels, Belgium. Filed Feb. 14, 1902.

THERMOGÈNE

Essential feature.—The word "THERMOGÈNE." Used since February 20, 1897.

37,964. CERTAIN NAMED AMMUNITION AND EXPLOSIVES. THE ROBIN HOOD POWDER COMPANY, Swanton, Vt. Filed Nov. 8, 1901.

87,964.

ROBIN HOOD



Essential feature.—The words "Robin Hood" and a pictorial representation of Robin Hood. Used since December 1, 1900.

87,965. Bituminous composition or cement. Warren Brothers Company, Boston, Mass. Filed Feb. 13, 1902.

KIOLA

Essential feature.—The word "Kiola." Used since March 1, 1900.

87,966. Bituminous composition or cement. Warren Brothers Company, Boston, Mass. Filed Feb. 13, 1902.

ASPHALTO

PITCH

Essential feature.—The word "Asphaltopitch." Used since January 1, 1902.

87,967. Bituminous composition or cement. Warren Brothers Company, Boston, Mass. Filed Feb. 13, 1902.

ASPHALTO

LITHIC

Essential feature.—The word "Asphaltolithic." Used since January 1, 1902.

87,968. Bituminous composition or cement. Warren Brothers Company, Boston, Mass. Filed Feb. 13, 1902.

PURITAN

Essential feature.—The word "Puritan." Used since March 1, 1900.

87,969. Bituminous composition or cement. Warren Brothers Company, Boston, Mass. Filed Feb. 13, 1902.

BITUPITCH

Essential feature.—The word "Bitupitch." Used since January 1, 1902.

87,970. Bituminous composition or cement. Warren Brothers Company, Boston, Mass. Filed Feb. 13, 1902.

BITULENE

Essential feature.—The word "Bitulene." Used since January 1, 1902.

87,971. Bituminous composition or cement. Warren Brothers Co., Boston, Mass. Filed Feb. 13, 1902.

BITULITHIC

Essential feature.—The word "Bitulithic." Used since January 1, 1902.

87,972. Swings and chairs. Alfred P. Perkins, New York, N. Y. Filed Feb. 12, 1902.

Hi-Lo

Essential feature.—The word "Hi-Lo." Used since November 27, 1901.

87,978. Bottle-filling machines. William Miles Fowler, New York, N. Y. Filed Aug. 5, 1897.

SUCCESS

Essential feature.—The word "Success." Used since February 16, 1898.

LABELS

REGISTERED MARCH 18, 1902.

9,022.—*Title:* "YENDIK BEANS." (For Canned Beans.) GIBSON CANNING CO., Gibson City, Ill. Filed February 14, 1902.

9,023.—*Title:* "LIBERTY BRAND." (For Dried Prunes.) HENRY A. TOWNSEND, Salem, Oreg. Filed February 24, 1902.

9,024.—*Title:* "CREAM OF OATS." (For a Cereal Product.) HARRISON L. MILNES, Coldwater, Mich. Filed January 31, 1902.

9,025.—*Title:* "AMERICAN HULLED BEANS." (For a Food Preparation.) AMERICAN HULLED BEAN COMPANY, LIMITED, Battlecreek, Mich. Filed February 24, 1902.

9,026.—*Title:* "ARBELLOT & CIE. COGNAC." (For Cognac.) A. J. GUISLIN, New York, N. Y Filed February 12, 1902.

9,027.—*Title:* "LA NUEVA BOLSA." (For Cigars.) ANTHONY SCHULTE, New York, N. Y. Filed February 25, 1902.

9,028.—*Title:* "DERMA DETERGENT." (For a Complexion Preparation.) HERBERT WALKER, Chicago, Ill. Filed February 10, 1902.

9,029.—*Title:* "O. W. BOURKE'S LOT SYNDICATE FORMS." (For Printed Forms.) OLIVER W. BOURKE, Blue Island, Ill. Filed January 20, 1902.

PRINTS

REGISTERED MARCH 18, 1902.

476.—*Title:* "FINE AND CHOICE FRENCH CHINA WARE." (For Chinaware.) GUSTAVE VOGT, Limoges, France. Filed February 10, 1902.

477.—*Title:* "HIGH GRADE PERFECT FITTING." (For Clothing.) J. MANN & SONS, Baltimore, Md. Filed February 18, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

WATSON v. THOMAS.

Decided January 23, 1903.

1. REOPENING DECIDED CASES—CLEAR SHOWING REQUIRED—EXTENSION OF TIME DISTINGUISHED.

In order to warrant reopening a decided case to take more testimony, a showing of the utmost diligence and a very clear and satisfactory showing of newly-discovered evidence are required; but the rule is not so strictly enforced where a party in effect merely wishes more time to take testimony.

2. MOTION TO TAKE MORE TESTIMONY - DELAY—NO INJURY TO OPPONENT.

To permit a party to take more testimony where it appears that his opponent has taken none would work no injury to that opponent, except in so far as delay may be injurious, and therefore the strict rule in regard to reopening cases does not apply.

3. SAME—NEWLY-DISCOVERED EVIDENCE.

Where a nominal party although not the real party in interest is unable to find drawings which he remembers making and is not called as a witness because hostile and he afterward discovers the drawings and is willing to testify, *Held* that the party in interest should be permitted to introduce the new evidence.

APPEAL on motion.

AUTOMATIC WEIGHING-MACHINES.

Patent granted to George W. Watson September 26, 1899, No. 633,675. Application of Edward G. Thomas filed December 17, 1896, No. 616,068.

Mr. W. A. Copeland, *Mr. J. Lewis Stackpole*, and *Mr. A. P. Greeley* for Watson.

Mr. E. D. Chadwick and *Mr. Benjamin Phillips* for Thomas.

ALLEN, *Commissioner:*

This is an appeal by Watson from the decision of the Examiner of Interferences denying his motion for leave to take additional testimony. When this motion was filed, Watson had finished taking his testimony, and Thomas, relying upon his record date, had allowed his time to expire without taking any testimony. The case was ready for final hearing, which was set for October 28, 1901; but it had not actually gone to final hearing.

In order to warrant reopening a case after it is decided upon its merits, the rule is well settled that a very clear and satisfactory showing of newly-discovered evidence and diligence must be made out. The appellant in the present case, however, does not ask for the reopening of a decided case; but his motion is, in view of the facts above stated, more analogous to a mere request for an extension of time for taking testimony.

If Watson's testimony is admitted now, Thomas, who has taken no testimony, will not have been injured by Watson's failure to present it originally except in so far as the delay may be injurious. Under such circumstances the rule as to the character of the showing required is not so strict. The Office is desirous of having all material evidence before it in deciding a case and will admit newly-discovered evidence upon a showing of reasonable diligence.

Watson is not a real party in interest to these proceedings, since the interference is being prosecuted by his assignee. In the taking of testimony Watson was not called as a witness, and the purpose of the present request is to obtain his testimony. It appears from affidavits filed that Watson was not friendly with his assignee and stated that he would not willingly testify. He stated that he had made drawings of the invention, but that after a search he was unable to find them. The assignee could have compelled Watson's attendance as a witness, but could not have compelled him to find the drawings, which were the things desired, or to remember pertinent facts, and he was therefore not called as a witness. Since the taking of testimony Watson has found the drawings to which he referred and is willing to testify.

If this were an attempt to reopen a decided case, the showing would not be sufficient, since the exercise of the utmost diligence would have required that Watson be compelled to testify whether willing or not—in other words, that every effort should have been made to obtain the evidence desired. Such extreme diligence is not required in a case of this kind, and the facts stated show that the assignee exercised reasonable diligence. The drawings found by Watson constitute newly-discovered evidence.

The decision of the Examiner of Interferences is reversed, and he is directed to set times for the taking of the additional testimony for Watson and times within which Thomas may take testimony in reply.

SILVER v. EUSTIS.

Decided January 24, 1903.

INTERFERENCE—PRELIMINARY STATEMENT—AMENDMENT.

An amendment to a preliminary statement to set back the date of conception and reduction to practice of the invention should be permitted when a refusal to do so might result in the allowance of a patent to one who is not the inventor and where it appears, further, that the opposing party will not be injured except as the true state of facts may injure him and that he will not be misled nor the expenses of the proceeding increased.

APPEAL on motion.

BATH-SEATS.

Application of William H. Silver filed March 26, 1901, No. 52,921. Application of John P. Eustis filed February 14, 1901, No. 47,200.

Mr. James L. Ewin for Silver.

Messrs. Wilkinson & Fisher for Eustis.

ALLEN, *Commissioner:*

This is an appeal by Silver from the decision of the Examiner of Interferences granting a motion by Eustis to amend his preliminary statement.

Eustis's original statement was filed July 15, 1901, and Silver's August 29, 1901. The motion by Eustis to amend was brought October 14, 1901.

In support of the motion Eustis alleges that in making his original statement he gave to the matter what he supposed to be due and careful attention and consulted such memoranda as he had in his possession and that it was not until October 2, 1901, that he became—

suspicious that said preliminary statement was substantially incorrect in support of said dates.

On that day a friend of his, Kellogg, in the course of a conversation told him that he was "in serious error respecting the dates." Kellogg stated, further, that Eustis had disclosed the invention to him at a much earlier date than June 15, 1899, and that he (Kellogg) had helped him to make the bath-tub seat in question early in 1898. An affidavit in support of these statements is made by Kellogg. An affidavit is also filed by one Chamberlain, who fixes the date on which Kellogg told him that Eustis was making a machine for bending something by the fact that on May 28, 1898, he went to Washington to bring his sister and child North. Counsel for Silver makes a counter-affidavit to the effect that Chamberlain's sister and also her husband have informed him that she went North in 1897 and also in 1899, but not in 1898.

It does not appear that any testimony has been taken.

In making a preliminary statement the utmost care and diligence are required. The exercise of reasonable diligence is not sufficient. (*Henderson* v. *Noakes*, 59 O. G., 1762.) Hence—

an amendment to a preliminary statement which takes the date of him who makes it back of the corresponding date of his opponent should never be allowed upon a state of facts which is consistent with the reasonable supposition that the exercise of the utmost care and diligence would have ascertained and permitted him to state the correct date originally. (*Henderson* v. *Noakes*, 59 O. G., 1431.)

This rule is a salutary one and is not to be relaxed unless under circumstances which would render its strict application inequitable. In the present case Eustis states in his affidavit that he had forgotten the date of his earliest conception and reduction to practice. The affidavits of Kellogg and Chamberlain corroborate that of Eustis, so that if the facts alleged are true they prove that Eustis conceived the invention, disclosed it to others, and reduced to practice at a time prior to that set forth in his original statement. Should the Office refuse to permit the amendment to the statement, it might result in the allowance of a patent to one who is not the prior inventor. Justice demands that the possibility of such a result be removed so far as it can be done without injury to others. In this case Silver will not be injured except as the true state of facts will injure him. He will not be misled, nor will the expenses of the proceeding be increased. Under these circumstances it is believed that Eustis should not be bound by the strict rule noted above, but that in justice to all concerned he should be allowed to amend his statement. (*Whitney* v. *Gibson*, 86 O. G., 1983.)

The decision of the Examiner of Interferences is affirmed.

EX PARTE WEBBER.

Decided February 15, 1902.

COIN-CONTROLLED APPARATUS—VENDING-MACHINE—COMBINATION CLAIM—REJECTION (EX PARTE CASLER, 90 O. G., 446)—APPEAL LIES TO EXAMINERS-IN-CHIEF—PETITION DISMISSED.

Where claims covering combinations between a specific form of vending apparatus and a coin-controlled apparatus are rejected on the ground that the specific form of vending apparatus does not affect the action of the coin-controlled apparatus, (*ex parte Casler*, 90 O. G., 446,) *Held* that said action relates to the merits, and an appeal therefrom lies in the first instance to the Examiners-in-Chief, and a petition from an action rejecting the claims on the ground that there is no such combination claimed should be dismissed.

ON petition.

COIN-CONTROLLED DELIVERY-MACHINE.

Application of Wesley Webber filed April 4, 1900, No. 11,418.

Mr. H. A. West for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner contained in the official letter of December 10, 1901, which action is as follows:

* * * * * * *

Inasmuch as the broad combination of coin-controlled apparatus with a vending device is old, as shown by the references cited, applicant will not be allowed claims in which he claims the combination with coin-controlled apparatus of a specific form of vending device. See *ex parte Casler*, of record, third syllabus.

In view of the art, applicant's inventive thought does not lie in the combination of these devices, but in one or the other, or both of the constituent elements.

The claims are all rejected.

The invention here disclosed relates to a coin-controlled delivery-machine. The delivery-machine is for the purpose of delivering towels. To this machine is operatively attached a specially-constructed coin-controlled device.

The record shows that the application as originally filed contained thirteen claims. The first three claims were held by the Examiner in his first action to specifically cover the construction of the vending apparatus and the ninth claim to specifically cover the coin-controlled device. The remaining claims were evidently, in the opinion of the Examiner, drawn to cover alleged combinations of elements relating to the vending apparatus and the coin-controlled apparatus, as they were not specifically referred to by the Examiner, but were merely mentioned in a general way in a discussion of the application to these claims of the doctrine laid down in *ex parte Casler*, (90 O. G., 446.)

The petitioner responded by canceling the first three claims and claim 9. After certain other

amendments and actions on the part of the Office, which it is not necessary to here refer to, the application was amended so that it now contains twelve claims. These claims received action on their merits under date of December 10, 1901. All the claims, with the exception of claims 1, 2, 7, and 10, were rejected on references.

The letter of December 10, 1901, concluded with the action quoted above, and from this action the petition was taken.

The petitioner has mistaken his remedy. The action of December 10, 1901, throughout relates to the merits and does not relate to matters of form. Under the doctrine laid down in the decision of *ex parte Casler*, *supra*, the petitioner is entitled to the claims in question, provided the state of the art permits, and provided, further, that the specific form of the vending apparatus is not merely an improvement in that apparatus, but actually enters into the combination affecting the action of the coin-controlled apparatus.

This is a question to be determined on appeal in the first instance by the Examiners-in-Chief, and a petition from an action rejecting the claims on the ground that there is no such combination claimed does not lie.

The petition is dismissed.

EX PARTE MANSFIELD AND HAYES.

Decided February 28, 1902.

1. DIVISION — COMBINATION CLAIMS — DIFFERENCE MERELY IN SCOPE.

   Where all of the claims in a case cover combinations of a burner and a chamber forming a heater adapted to be submerged and differ from each other merely in scope, *Held* that division cannot properly be required.

2. SAME—SAME—CANNOT BE DEPRIVED OF COMBINATION BY REQUIREMENT FOR DIVISION.

   A party cannot be deprived of combination claims by the requirement for division between the elements entering into it notwithstanding the fact that the Examiner regards those elements as constituting independent inventions.

3. SAME—AGGREGATION CLAIMS SHOULD BE REJECTED.

   Where the claims aggregate independent inventions, the proper treatment is a rejection for that reason and not a requirement for division.

4. SAME—COMBINATION CLAIMS DO NOT PREVENT DIVISION BETWEEN OTHERS.

   Where a case includes separate claims to independent inventions and also claims to combinations of the two, *Held* that it is not necessary to settle the question as to the legitimacy of the combinations before the question of division can be intelligently determined.

5. SAME—COMBINATION AND ELEMENTS INDEPENDENT INVENTIONS.

   A combination claimed may constitute an independent invention from the specific elements separately claimed which enter into that combination.

6. SAME—PRACTICE OF REJECTING AGGREGATION CLAIMS BEFORE DIVISION OVERRULED.

   The recent practice of rejecting aggregation claims preparatory to requiring division between other claims in the case will not be followed hereafter; but the question of division will be first settled. (*Ex parte Feucht* and similar decisions overruled.)

7. SAME—SAME—PIECEMEAL ACTION.

   The rejection of aggregation claims preparatory to requiring division between other claims without an examination of the prior art amounts to piecemeal action upon the merits of the case, and that is contrary to the well-settled policy of the Office.

ON petition.

COMBINATION-HEATER.

Application of Charles A. Mansfield and George D. Hayes filed February 2, 1901, No. 45,758.

Mr. E. G. Siggers for the applicants.

ALLEN, *Commissioner:*

This is a petition from the action of the Primary Examiner requiring division between claims 11, 12, and 18 and the remaining claims and from his action refusing to enter an amendment filed December 18, 1901.

The applicants disclose a heater of that class which is adapted to heat a liquid by being submerged in it. It includes a burner and a particular form of chamber in which the burner is placed when it is to be submerged. The Examiner takes the position that claims 11, 12, and 13 cover the features which adapt the heater to be submerged and that the remaining claims cover the burner, which is adapted for use in other relations. It is not disputed by the applicants that a burner which is capable of general application is a different invention from a chamber adapted to be submerged and to contain burners of various kinds; but they contend that they are not making claim to such independent things in this case.

An examination of the claims in this application shows that they are all drawn to cover the heater shown in Figure 1 of the drawings, which is adapted to be submerged, and that none of them covers separately the burner, which is capable of use in other relations. Some of them do include a burner having certain specified features in combination with the heating-chamber having certain features; but the mere fact that they mention some features of the burner does not limit them to the burner as an independent thing. It is true that a burner may be an independent invention from the combination of a burner with something else; but in the present case all of the claims are for combinations of the burner with the heating-chamber, and they differ from each other merely in scope. There is no clear line of division between the claims, and therefore the requirement should not be insisted upon.

The applicants have in Fig. 2 shown their burner applied to other uses than a submerged heater, and this may have had some influence in inducing the Examiner to conclude that they were attempting to claim it as a separate thing. The amendment of December 18, 1901, requested the cancellation of that figure, and this amendment should now be entered.

The Examiner in some of his letters rejected some of the claims as covering mere aggregations and not true combinations between the burner and the features of the submerged heater. This action was regular, and the question whether or not the Examiner is right in his contention that the claims do not cover legitimate combinations involves the merits and is reviewable in the first instance by the Examiners-in-Chief upon appeal. If the Examiner is right in his contention as to aggregation, a re-

jection of the claims was the correct action in order to reach a proper conclusion upon all of the questions at issue. If he is incorrect and the claims cover allowable combinations, the applicants cannot properly be deprived of those claims by a requirement for division between the elements entering into the combinations. (*Ex parte Gillette*, 44 O. G., 819; *ex parte Carter*, 46 O. G., 1391; *ex parte Connelly*, 59 O. G., 787.)

As was said in *ex parte Gillette:*

I am of the opinion that applicant has a right to present his claim for the combination, and that such claim cannot be legally disposed of in any other way than by either allowing or rejecting it. He has the right to appeal from a rejection of the claim and to obtain the judgment of the Examiners-in-Chief and the Commissioner, and if the practice alluded to were followed in this case it would practically deny him that right, because if he is required to divide he is deprived of the right to take this appeal, for the reason that the Office refuses to give him a second rejection until this formal and vital requirement of division is first carried into effect.

These and other decisions upon the same line have gradually been extended until it has become the practice of the Office to require that all claims aggregating two independent inventions be rejected before division can be insisted upon between other claims in the case drawn to the independent inventions separately. In *ex parte Carter*, *supra*; it was said:

Whenever, therefore, a claim for an illegitimate combination is presented in an application, which also contains claims for different elements constituting distinct and separate inventions, which ought not to be claimed in one and the same application, a vital objection as to form is presented and the claim may be rejected for the very purpose of enabling the Office to require division.

This practice was restated in the following decisions: *Ex parte Willcox & Borton*, (45 O. G., 455;) *ex parte Bullard*, (45 O. G., 1569;) *ex parte Speckbaugh*, (54 O. G., 1265;) *ex parte Tymoson & Borland*, (83 O. G., 593;) *ex parte Feucht*, (88 O. G., 2066.)

It is undoubtedly proper and necessary to settle the question of aggregation first where the inventions are claimed only in combination, as in the present case; but there are not the same reasons for settling it first where the applicant in addition makes separate claims to the different inventions. The mere presence of the alleged combination claims does not prevent a proper conclusion being reached upon the question whether the other claims cover two or more independent inventions, and therefore no good reason is seen for postponing a decision upon that question until the legitimacy of the combination claims is determined. In very few, if any, cases will a knowledge whether or not the alleged combination claims are really for mere aggregations assist in determining whether the inventions covered by the remaining claims are independent of each other. They may be for true combinations, and at the same time division between specific claims to the separate elements claimed in combination may be proper, and, in fact, the combination itself may constitute a third invention independent of the specific elements. (*Ex parte Willcox & Borton*, *supra; ex parte Johnston*, 92 O. G., 1275.)

If the question as to the legitimacy of the combination claims is raised and settled preparatory to requiring division between the other claims and before action upon the merits of those other claims, as is the present practice, it amounts to piecemeal consideration of the merits of the application. The applicant has an undoubted right to insist that the claims cover true combinations and to resort to all of the appeals provided by law in regard to that matter. Under the present practice he is forced to do this before any complete examination upon the question of novelty has been made, and at a subsequent time after the examination is made he may have to take the same claims up on appeal in regard to the question of novelty. At any rate he has to meet and consider questions of novelty raised against those and other claims in the case at a subsequent time. Such piecemeal action is contrary to the general policy of the Office, which is and should be to expedite the final disposition of cases pending before it. It would not be warranted by anything which did not amount to a practical necessity, and there is clearly none such in the class of cases under consideration.

Aside from the question of unnecessary delay the Office would be better able to reach a correct conclusion upon the question of aggregation in a particular case after having a knowledge of the prior art bearing upon the invention than before. While it is true that there may be an aggregation of things which are all absolutely new, it is equally true that a knowledge of what has been done in the art is of great assistance in determining whether or not a party has invented a new combination or has merely aggregated independent features.

The practice announced in some of the above-noted decisions of rejecting aggregation claims preparatory to requiring division between other claims will not be followed hereafter; but the question of division will first be settled.

The petition is granted.

EX PARTE ALEXANDER.

Decided March 3, 1902.

1. REISSUE—CERTIFICATE OF CORRECTION—MISTAKE BY OFFICE.

Where the word "advance" was by a typographical error printed in the claim of a patent "adverse" and it appears from an examination of the entire case that the meaning of the claim is not changed, *Held* that a certificate of correction will be indorsed upon the patent, but that the Office will refuse to go to the expense of reissuing it.

2. SAME—MISTAKES AFFECTING SCOPE OR LEGAL EFFECT OF PATENT.

This Office will correct, by reissue, mistakes made by it affecting the scope or legal effect of a patent; but where the mistake is not such as would change the construction given to the patent or deprive the patentee of any of the protection intended to be accorded him by the patent the trouble and expense of a reissue are not warranted.

3. CERTIFICATE OF CORRECTION—INCONSEQUENTIAL ERRORS.

An obvious error, or one which although not obvious would not change the meaning or effect of the patent, needs no correction, and a certificate of correction is sufficient to avoid any possibility of mistake.

PETITION for reissue.

PRESSES FOR FORGING AXES, ETC.

Patent granted to Elmer P. Alexander February 4, 1902, No. 692,587.

Messrs. Howson & Howson for the patentee.

ALLEN, *Commissioner:*

This is a petition for the reissue of a patent without fee, under Rule 170, because of a mistake incurred through the fault of the Office.

It seems that by a mistake of the type-setter the word "adverse" was printed in claim 1 of the patent where the word "advance" appears in the original papers on file in this Office. The patentee was notified that this error would be rectified by a certificate of correction indorsed upon the patent, if he so desired; but he refuses to accept such certificate and insists upon a reissue.

It is so clear as to need no argument that this Office should not be put to the trouble and expense of reissuing patents to correct all clerical mistakes, however trivial and inconsequential, made by it. It will correct by reissue mistakes affecting the scope or legal effect of the patent, since the rights of the patentee are involved; but where the mistake is not such as would change the construction given to the patent or deprive the patentee of any of the protection intended to be accorded him by the patent a reissue is not necessary. An obvious error, or one which although not obvious would not change the meaning or effect of the patent, needs no correction. Such inconsequential errors, however, may be corrected by a certificate of correction which calls attention to the error, so that there can be no possibility of mistake as to what was intended. While there may be a question whether a patent may be changed in a vital respect by a certificate of correction, the appropriateness and validity of such certificates in the classes of errors stated seem clear. (*Ex parte Condit*, 93 O. G., 551.)

The substitution of the word "adverse" for the word "advance" in this case is one of those errors which is apparent upon a consideration of the entire patent and which could not in any event give to the claim a different meaning from that intended. While the words "adverse" and "advance" may not have the same meaning in ordinary use, there can be no question what the claim in this case means. The drawing shows and the specification describes when the head-block receives the thrust of expanding metal, and whether the claim says it is during the "adverse" or the "advance" movement that claim means the same thing and would be so understood.

The patent would not be invalid in its present form, and it is thought that it would not be inoperative to give to the patentee the protection intended. The error is not of such a character as would warrant the trouble and expense of a reissue.

The petition is denied.

EX PARTE OSBORNE.

Decided March 8, 1902.

AMENDMENT NECESSITATING REQUIREMENT FOR DIVISION.

An amendment containing claims for a process should not be entered in an application containing claims for an apparatus, because division would be necessitated by such entry under the provisions of Rule 41.

ON petition.

REFRIGERATING APPARATUS.

Application of Eugene F. Osborne filed June 14, 1892, No. 436,655.

Messrs. Poole & Brown for the applicant.

ALLEN, *Commissioner:*

This is a petition that the Examiner be advised to enter a certain amendment in the above-entitled application and directed to proceed with the examination of the claims on their merits.

It appears that the claims now in the case cover an apparatus. The proposed amendment, presented eight years after the filing of the application, contains claims covering a process. Entry of said amendment has been refused by the Examiner because a requirement for division would be necessitated by such entry under the provisions of Rule 41.

The action of the Examiner was clearly correct and in accordance with the practice of the Office. Under the provisions of Rule 41 apparatus and process claims must be made in separate applications, and the practice laid down in *ex parte Richter* (85 O. G., 1908) and *ex parte Bailey* (52 O. G., 608) requires that an amendment shall not be entered when such entry would necessitate a requirement for division. It is clear, therefore, that if applicant is entitled to make the claims now proposed he can only do so in a separate application. Whether such new application could be considered as a division of the earlier one it is not necessary now to determine.

The petition is denied.

EX PARTE CIRCLE MANUFACTURING COMPANY.

Decided March 11, 1902.

1. TRADE-MARK—USE A PREREQUISITE FOR REGISTRATION.

The law provides for the registration of trade-marks which have been actually used in commerce with foreign nations or with Indian tribes, and such actual use is a prerequisite for registration.

2. SAME—ESSENTIAL FEATURE.

A party may not change that which in fact constitutes his mark by a mere statement that one feature is essential and another is not, when in fact both are essential and together constitute what would from inspection be impressed upon the mind as the mark.

3. SAME—SHOWING OF.

If a party has used one feature separately as a trade-mark and wishes protection upon it as such, he should not show it in connection with other arbitrary features which would inevitably be associated with it in the mind of the person inspecting it.

ON appeal.

TRADE-MARK FOR DRESSING AND POLISH.

Application of Circle Manufacturing Company filed December 20, 1901, No. 64,717.

Mr. E. G. Siggers for the applicants.

ALLEN, *Commissioner:*

This is an appeal from the action of the Examiner of Trade-Marks refusing to register a mark which is described in the statement of essential feature as the word "Circle" or the representation of a circle.

The drawing, which shows a facsimile of the mark as used, discloses two concentric circles with the words "Circle Polish" in the space between them and in the field within the inner circle the letters "C P" arranged in the form of a monogram.

The Examiner has refused registration because, in his opinion, the mark as shown cannot be said to be an alternative mark consisting of the word "Circle" or the representation of a circle.

The law provides for the registration of trade-marks which have been actually used in commerce with foreign nations or with Indian tribes, and such actual use is a prerequisite for registration. (*U. S., ex rel. South Carolina*, v. *Seymour*, 66 O. G., 1167.) There is no provision for the registration of a mark not in actual use or which differs from that in actual use.

To enable the Commissioner to carry out the intent of Congress in the registration of trade-marks, certain rules to be observed by applicants have been established, among them one requiring in the application a discrimination between the essential and non-essential features of the mark. (Rule 21*b*.) It is not the intent of this rule to permit a party to change that which in fact constitutes his mark by a mere statement that one feature is essential and another is not, when in fact both are essential and together constitute what would from inspection be impressed upon the mind as the mark. If a party has used one feature separately as a trade-mark and wishes protection upon it as such, he should not show it in connection with other arbitrary features which would inevitably be associated with it in the mind of the person inspecting it. The showing of such other matter which is not intended to be a part of the mark upon which protection is desired merely leads to confusion. It is the purpose of the trade-mark rules to have certainty in the registration, and this Office should not permit a party to introduce confusion by attempts to define its scope. The scope of the mark is a matter for judicial decision, and attempts to define it by what amounts to broad claims similar to those in a patent will certainly lead to confusion. The function of the statement of essential features is to call attention—

to those predominant and controlling features which would be impressed on the minds of purchasers and by which they would remember and identify the marks. (*Ex parte Diamond Ink Co.*, 98 O. G., 1488.)

What these essential features are is not to be determined from applicants' statement thereof, but from an inspection of the mark itself as it is used. If on such inspection certain arbitrary and distinctive features appear which would be impressed upon the minds of purchasers, these features must be essential and should be included in the statement which is required by the rule.

In the case now under consideration the concentric circles and the monogram are clearly arbitrary and distinctive features of the mark and are as prominent as the word "Circle" contained therein. These features therefore should all be included in the statement of essential features. There is no showing that applicants use a mark which differs from that shown, and it is not allowable under one registration to embrace marks which are not shown and which have not been used in the way contemplated by the statute. (*Ex parte Hall*, 98 O. G., 2174.) Applicants on their showing have not used the word "Circle" alone nor the representation of a circle alone. Their use has been of the mark shown in the facsimile, including all the essential features thereof. These features should therefore be included in the statement.

The decision of the Examiner of Trade-Marks refusing registration is affirmed.

EX PARTE BALL.

Decided March 12, 1902.

1. PRINT—REQUISITE FOR.
   It is necessary that the goods in connection with which a print is used be identified in some way in the print.
2. SAME—UNITED STATES FLAG.
   It is contrary to public policy to detract in any way from the honor which is due to the flag. This result certainly follows from its use as an advertisement in trade. Such use is not to be aided or encouraged by this Office.
3. SAME—CURRENCY OF THE UNITED STATES.
   The simulation of the currency of the United States is expressly forbidden by the statute. (Sec. 5430, R. S.) The fact that a print for which registration is sought contains such simulation is of itself sufficient to prevent its registration.

ON appeal.

PRINT FOR BOOKS.

Application of John Sanford Ball filed February 3, 1902, No. 2,475.

Mr. Ball pro se.

ALLEN, *Commissioner:*

This is an appeal from the action of the Examiner refusing to register a print—

to be used for advertising purposes for a book publication bound in tablet form, in decorating and displaying the departments of the same and to appear in connection with advertisements of the work from time to time in newspapers.

The print for which registration is sought is an artistic production entitled "White Eagle Reformation." It comprises simulations of the flag and seal of the United States and of a row of gold coins, a row of silver coins, and a row of greenback currency. The copies of the print, however, do not contain anything which is descriptive of "a book publication bound in tablet form" or of any other article of manufacture—that is, there is nothing whatever about the print to indicate that it is in any way connected with an article of manufacture.

It is well settled that a label must identify the article upon which it is used, (*ex parte Mahn*, 82 O. G., 1210; *ex parte American Weavers Protective Association*, 94 O. G., 586,) and the same is true of a print, which differs from a label in that the latter is attached to the goods in connection with which it is used, while the former is not so attached. In both cases, however, it is necessary that the goods be identified in some way.

This lack of identification of the goods is alone a sufficient reason for refusing registration; but an additional reason for this refusal is found in the fact that the print comprises, as above noted, simulations of the flag, seal, and currency of the United States. It is contrary to public policy to detract in any way from the honor which is due to the flag. This result certainly follows from its use as an advertisement in trade, and such use is not to be aided or encouraged by this Office. Furthermore, the simulation of the currency of the United States is expressly forbidden by the statutes. (See sec. 5430, R. S.) The fact that the print for which registration is sought contains such simulations is of itself sufficient to prevent its registration.

The decision of the Examiner is affirmed.

THE

OFFICIAL GAZETTE

OF THE

United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

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Designs	4—No. 35,825 to No. 35,828,	inclusive.
Trade-Marks	22—No. 37,974 to No. 37,995,	inclusive.
Labels	16—No. 9,030 to No. 9,045,	inclusive.
Prints	1—No. 478.	
Reissues	2—No. 11,976 to No. 11,977,	inclusive.
Total issue	540	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks, Labels, and Prints.	States.	Patents and Designs.	Trade-Marks, Labels, and Prints.
Alabama	1	----	Nebraska	4	----
Alaska Territory	----	----	Nevada	----	----
Arizona Territory	----	----	New Hampshire	1	----
Arkansas	2	----	New Jersey	18	3
California	17	----	New Mexico Territ'y	1	----
Colorado	9	----	New York	73	6
Connecticut	31	1	North Carolina	2	----
Delaware	----	----	North Dakota	----	----
District of Columbia	6	1	Ohio	33	3
Florida	----	----	Oklahoma Territ'y	----	----
Georgia	2	1	Oregon	3	----
Hawaii Territory	----	----	Pennsylvania	51	3
Idaho	----	----	Rhode Island	5	----
Illinois	38	1	South Carolina	----	----
Indian Territory	----	----	South Dakota	2	----
Indiana	13	1	Tennessee	3	----
Iowa	8	----	Texas	4	2
Kansas	3	----	Utah	1	----
Kentucky	5	1	Vermont	2	1
Louisiana	2	----	Virginia	5	2
Maine	7	----	Washington	5	----
Maryland	7	----	West Virginia	2	----
Massachusetts	48	2	Wisconsin	9	1
Michigan	10	5	Wyoming	----	----
Minnesota	11	3	U. S. Army	----	----
Mississippi	----	----			
Missouri	17	----	Total to citizens of the United States	446	37
Montana	1	----			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Prints.	Countries.	Patents and Designs.	Trade-Marks and Prints.
Algeria	----	----	Mexico	1	----
Austria-Hungary	6	----	Netherlands	----	----
Barbadoes	----	----	Newfoundland	----	----
Belgium	1	----	New South Wales	1	----
Bermuda	----	----	New Zealand	1	----
Brazil	----	----	Norway	----	----
Canada	----	1	Queensland	----	----
Cape Colony	----	----	Roumania	----	----
Chile	----	----	Russia	2	----
China	----	----	Scotland	3	----
Colombia	----	----	South African Republic	1	----
Cuba	2	----	South Australia	----	----
Denmark	----	----	Spain	----	----
Egypt	----	----	Sweden	----	----
England	15	1	Switzerland	1	----
France	7	----	Turkey in Asia	----	----
Germany	12	----	Victoria	----	----
Guatemala	----	----	Western Australia	----	----
Haiti	----	----			
India	----	----	Total to citizens of foreign countries	53	2
Ireland	----	----			
Italy	----	----			

Disclaimer.

600,443.—*Albert L. Kull*, Camden, N. J. Improvement in Speed-Regulators for Explosive-Engines. Patent dated January 7, 1902. Disclaimer filed March 15, 1902, by the patentee.

Enters his disclaimer—

"To that claim in the specification which is in the following words, to wit:

"2. In an explosive-engine, a sparking device, a finger controlling said sparking device, a sleeve having a cam-surface over which the finger is adapted to ride, a shaft carrying said sleeve, a sprocket-sleeve adapted to be rotated directly by the engine, an interior sleeve to which the sprocket-sleeve is splined, said interior sleeve turning with and adapted to be shifted in the sprocket-sleeve, and a pin projecting from the shaft and adapted to enter an inclined slot in the walls of the interior sleeve, all arranged so that when the interior sleeve is shifted in the sprocket-sleeve, the shaft and cam-sleeve may be turned with respect to the sprocket-sleeve, whereby the relative position of the cam-surface with respect to the curved finger may be varied, substantially as and for the purposes described."

Classification Bulletin.

Department of the Interior,
United States Patent Office,
Washington, D. C., March 14, 1902.

Orders revising classification will be published as a Classification Bulletin. The first issue of this Bulletin forms No. 5 of a series of which the preceding numbers appeared in Vols. 91, 93, 95, and 97 of the Official Gazette.

These Bulletins are sold by the Office at ten cents per copy.

F. I. ALLEN,
Commissioner.

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business March 18, 1902.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	In arrears—Under one month.			
917	XXXIII. *Designs, †Trade-Marks, ‡Labels and Prints, Optics, and Photography.	Feb. 27	Mar. 4	57
106	II. Farm Stock, Products, etc., Lubricators, Presses, Stationery, etc.	Feb. 26	Mar. 6	204
253	X. Carriages and Wagons	Feb. 26	Mar. 6	117
851	XIII. Metal-Working, Arms and Projectiles, Making, Boring and Drilling, Hardware-Making, Nails and Spikes, Needles and Pins, Turning, etc.	Feb. 19	Mar. 5	151
918	XVII. Printing, Type-Writing Machines, Linotyping, and Matrix-Making.	Feb. 19	Mar. 5	183
258	VI. Chemistry, Explosives, Fertilizers, Medicines, Sugar and Salt, Surgery, etc.	Feb. 19	Mar. 4	233
155	XX. Builders' Hardware, Artificial Limbs, Dentistry, Locks and Latches, Safes, and Undertaking.	Feb. 19	Mar. 4	165
909	XIV. Metal Bending, Ornamenting, and Personal Wear, Farriery, Nut and Bolt Locks, Tools, Wire-Working, Sheet-Metal Ware, Making, etc.	Feb. 19	Mar. 4	295
993	XXVII. Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Feb. 19	Mar. 4	161
102	XIX. Stoves and Furnaces and Steam-Boiler Furnaces.	Feb. 19	Mar. 4	251
250	VIII. Furniture, Store Furniture, Beds, Kitchen and Table Articles, and Check-Controlled Apparatus.	Feb. 19	Mar. 3	390
149	III. Metallurgy, Metal-Founding, Electro-Chemistry, Coating with Metal, etc.	Feb. 19	Mar. 3	204
80	IV. Cranes and Derricks, Bridges, Fire-Proof Buildings, Excavating, Iron Structures, Conveyers, Hoisting, etc.	Feb. 19	Feb. 24	270
44	XXXV. Accoutrements, Baggage, Buckles, Buttons, and Clasps, Card, Picture, and Sign Exhibiting, Educational Appliances, Fluid-Pressure Regulators, Packing and Storing Vessels, etc.	Feb. 18	Mar. 5	257
346	I. Tillage, etc., and Fences	Feb. 18	Mar. 4	163
256	XXXVI. Curtains, Shades, and Screens, Drafting, Driers, Measuring Instruments, and Wind-Wheels.	Feb. 18	Mar. 4	211
907	XV. Plastics, Paper-Making, Paving, Cutlery, Glass, Fuel, Bread-Making, etc.	Feb. 18	Mar. 4	241
981	XXXIV. Railways, Railway-Brakes, Draft Appliances, and Rolling-Stock, Signals, and Store-Service.	Feb. 18	Mar. 3	290
127	XXX. Paper Manufactures, Lamps and Gas-Fittings.	Feb. 18	Mar. 3	208
	Between one and two months.			
955	XII. Elevators, Journal-Boxes, Pulleys and Shafting, and Machine Elements.	Feb. 17	Mar. 4	191
921	XXIII. Acoustics, Electric Signaling, Horology, Recorders, and Registers.	Feb. 14	Feb. 27	219
129	XXIV. Sewing-Machines, Apparel, Tents, Umbrellas, and Canes, and Toilet.	Feb. 13	Mar. 4	176
198	XXIX. Wood-Working Machines, Coopering and Roofing.	Feb. 7	Feb. 15	195
147	XXXI. Gas, Ammonia, Water, and Wood Distillation, Charcoal and Coke, Hides, Skins, and Leather, Oils, Fats, and Glue, Painting, etc.	Feb. 4	Mar. 4	161

Applications Under Examination—Continued.

Room No.	Divisions and subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
109	XXII. Fire-Arms, Ordnance, Projectiles, Navigation.	Jan. 25	Feb. 12	167
87	XXVI. Electricity, Generation, Conductors, Motive Power, Medical and Surgical, and Electric Railways.	Jan. 23	Feb. 17	125
89	XXVIII. Pneumatics, Air and Gas Engines and Pumps.	Jan. 21	Jan. 22	431
248	XVIII. Steam-Engineering, etc	Jan. 20	Feb. 1	447
93	XXI. Textiles, Carding, Knitting, Spinning, Weaving, etc.	Jan. 20	Jan. 15	389
	Between two and three months.			
91	XVI. Telegraphy, Telephony, Electric Lighting, and Special Applications.	Jan. 14	Jan. 20	509
126	XXXII. Bottles and Jars, Carbonating and Dispensing Beverages, Metallic Shipping and Storing Vessels, Refrigeration, etc.	Jan. 8	Feb. 19	408
143	V. Fine Arts, Book-Binding, Harvesters, Jewelry, and Music.	Jan. 7	Jan. 7	341
943	XXV. Artesian and Oil Wells, Butchering, Mills, Stone-Working, Threshing, and Vegetable Cutters and Crushers.	Jan. 4	Jan. 7	473
940	VII. Velocipedes, Clutches, Fire-Escapes, Games and Toys, Ladders, Mechanical Motors, and Fishing and Trapping.	Jan. 3	Feb. 9	386
120	IX. Hydraulics, Fire-Extinguishers, Baths and Closets, Pumps, Sewerage, and Water Distribution.	Jan. 2	Jan. 20	490
105	XI. Boots and Shoes, Harness, Hose and Belting, Leather Manufactures, Nailing and Stapling, Button-Setting, and Whips.	Dec. 23	Feb. 6	339

Total number of applications awaiting action.....9,416

Under one month.			
*Designs	Feb. 24	Mar. 1	152
†Trade-Marks	Mar. 1	Mar. 18	120
‡Labels and Prints	Mar. 12	Mar. 15	9

Amendment to English Patent Law.

CHAPTER 18.

An Act to amend the Law with reference to International Arrangements for Patents, 17th August 1901.

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:

1.—(1.) In the first proviso to subsection one of section one hundred and three of the Patents, Designs, and Trade Marks Act, 1883 (which section relates to the time for making applications for protection under international arrangements), the words "twelve months" shall be substituted for the words "seven months."

(2.) An application under that section shall be accompanied by a complete specification, which, if it be not accepted within the period of twelve months, shall, with the drawings (if any), be open to public inspection at the expiration of that period.

2.—(1.) This Act may be cited as the Patents Act, 1901, and may be cited and shall be construed as one with the Patents, Designs, and Trade Marks Acts, 1883 to 1888.

(2.) This Act shall come into operation on the first day of January one thousand nine hundred and two.

File-Wrappers—Entries On.

(ORDER No. 767.)

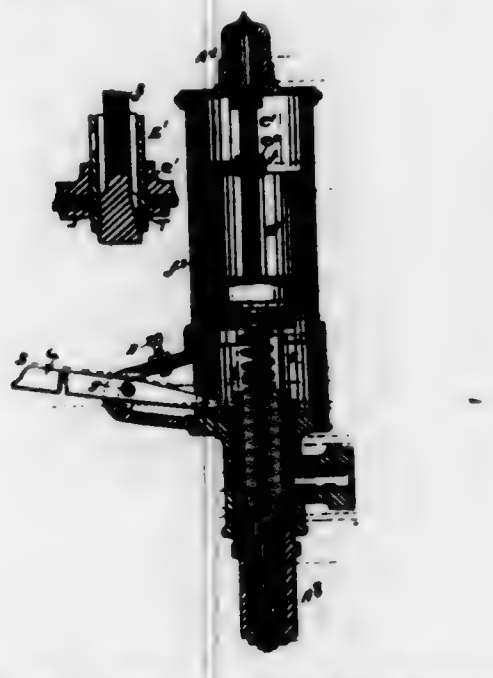
It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-264 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

PATENTS

GRANTED MARCH 25, 1902.

695,898. WATER-CLOSET VALVE. ALEXANDER C. ALEXANDER, Detroit, Mich. Filed Dec. 17, 1900. Serial No. 40,104. (No model.)



Claim.—1. The combination with a case provided with a valve-seat and with an inlet-opening, of an equalized cylindrical valve above said seat, packing about said valve above said opening, a dash-pot cylinder provided with a piston and its plunger to govern the seating of the valve, a yoke engaging said valve and said plunger, and a lever to lift said yoke.

2. The combination with a case provided with a valve-seat and with an inlet-opening, of an equalized cylindrical valve above said seat, a packing about said valve above said opening, a dash-pot cylinder provided with a piston and its plunger, and a packing-nut to hold the packing in place, said cylinder supported upon said packing-nut.

3. The combination with a case provided with a valve-seat and with an inlet-opening above the seat, of a cylindrical valve above said seat provided with an opening through its base, means to lift the valve off its seat, means to govern the seating of the valve, and means to close said opening in the valve when the valve is lifted off its seat.

4. The combination with a case provided with a valve-seat and with an inlet opening, of a valve above said seat provided with an opening therethrough, a dash-pot cylinder provided with a piston and its plunger, and a valve-rod connected with said cylinder to close the opening through the valve when the valve is lifted, and means to lift the valve off its seat, said dash-pot cylinder constructed to govern the descent of the valve.

5. A water-closet valve having a case forming a water-inlet chamber, a working chamber thereabove, an inlet-opening into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber below the inlet-opening, valve-operating mechanism in said working chamber, an equalized cylindrical valve above said seat reciprocatory in both said chambers, packing about said valve above said inlet-opening between the inlet-chamber and the working chamber, a dash-pot cylinder provided with a piston and its plunger above said valve, means to simultaneously lift said valve and piston, and means to regulate the flow of liquid in said cylinder from one side of the piston to the other, said inlet-chamber discharging beneath the valve when the valve is open.

6. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, valve-operating mechanism in said working chamber, and means to govern the seating of the valve, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet chamber being prevented by said packing from rising into said working chamber.

7. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, valve-operating mechanism in said working chamber, means to govern the seating of the valve, and means to regulate the stroke of the valve, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve.

8. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, valve-operating mechanism in said working chamber, a lever projecting into the working chamber to actuate said mechanism, means to govern the seating of the valve, and means to regulate the stroke of said lever, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve.

9. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, a yoke within the working chamber engaging said valve, a lever to lift said yoke, and means to govern the seating of the valve, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve.

10. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, a discharge-pipe communicating with the inlet-chamber when the valve is opened, valve-operating mechanism in the working chamber, and means to govern the seating of the valve, said valve opening at its upper end into the working chamber, and at its lower end opening into the discharge-pipe, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve.

11. A water-closet valve having a case constructed with a water-

inlet chamber, with a working chamber thereabove, and with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, a discharge-pipe communicating with the base of the inlet-chamber, a tube surrounding the discharge-pipe and carrying the valve-seat, means to lift the valve off its seat, and means to govern the seating of the valve, whereby the water from a city water-main would be admitted only into the inlet-chamber and be discharged therefrom by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve.

12. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, valve-operating mechanism in the working chamber, and means to govern the seating of the valve, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve, said valve provided with a drain-pipe communicating therethrough.

13. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, a dash-pot cylinder within the working chamber provided with a piston and its plunger, means within the working chamber connecting said plunger with said valve, means to raise said piston and valve, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve, said cylinder and piston constructed to govern the descent of the valve.

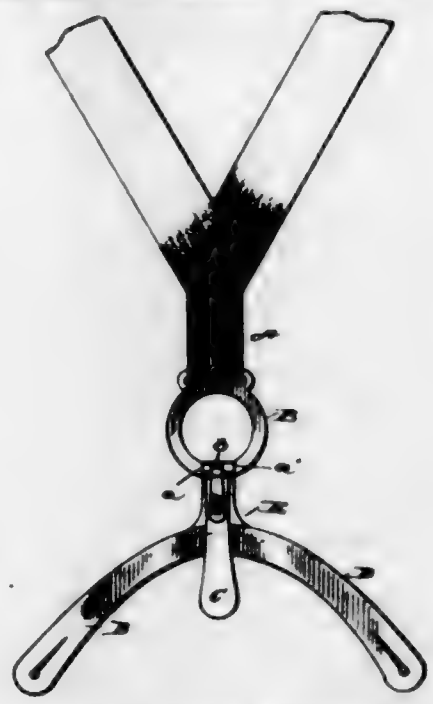
14. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, a dash-pot cylinder within the working chamber provided with a piston and its plunger, a spring engaging the valve with said cylinder, means connecting said piston and valve, means to lift the piston and valve and compress said spring, and means to govern the descent of the valve, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve.

15. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe arranged to communicate directly with the city water-main leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, a dash-pot cylinder within the working chamber provided with a piston and its plunger, means connecting said valve and piston, means to simultaneously lift the valve with said piston and its plunger, and a spring extending into the valve and exerting its tension thereupon to restore the valve and piston to normal position, whereby the water from a city water-main would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber into contact with the working parts of the valve.

16. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe leading into the side of the inlet-chamber, and with an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, operative devices for actuating the valve located in the working chamber, a lever to actuate said operative devices to lift the valve off its seat, means to regulate the stroke of the lever, said operative devices provided with means to regulate the seating of the valve, said valve-case provided with a shoulder projecting inwardly at the base of the inlet-chamber above the valve-seat, whereby the water would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve, and whereby the afterflush of the closet-bowl will be determined by the speed of the travel of the valve past said shoulder, the means to regulate the stroke of the valve, and the means to regulate the speed of the seating of the valve being independent.

17. A water-closet valve having a case constructed with a water-inlet chamber, with a working chamber thereabove, with an inlet-pipe leading into the side of the inlet-chamber, and an outlet-opening at the base of said chamber, of a valve-seat at the base of the inlet-chamber, operative devices for actuating the valve located in the working chamber, an equalized cylindrical valve reciprocatory within said chambers above the valve-seat, packing about said valve between said chambers and above the inlet-pipe, whereby the water from the inlet-pipe would be admitted only into the inlet-chamber above the valve-seat and be discharged therefrom below the valve by the opening of said valve, the water in the inlet-chamber being prevented by said packing from rising thereabove into the working chamber and into contact with the working parts of the valve, and two independent means to control the operation of the valve.

695,899. SUSPENDERS. MOSES BARNETT, Washington, D. C. Filed Jan. 18, 1902. Serial No. 90,239. (No model.)



Claim.—1. The herein-described improvement in suspenders, consisting of the hook portion E provided with the gravity-tongue F, loop D, ring B, depending flap C and elastic web A, substantially as and for the purpose specified.

2. The herein-described improvement in suspenders, consisting of the loop D, provided with the hook portion E and gravity-tongue F, in combination with the ring B, depending flap C and elastic web A, substantially as specified.

695,900. SYSTEM OF DISTRIBUTION FOR ELECTRIC LAMPS CONNECTED IN SERIES. MURRAY G. BURNS, Pittsburg, Pa., assignor to George Westinghouse, Pittsburg, Pa. Filed Oct. 27, 1900. Serial No. 34,639. (No model.)



Claim.—1. In a system of distribution for electric lamps, the combination with a plurality of glowers or sets of glowers connected in series,

of a plurality of heaters respectively in shunt to the glowers or sets of glowers and two impedance-bodies for each lamp one of which is connected in series and the other in shunt with the heater.

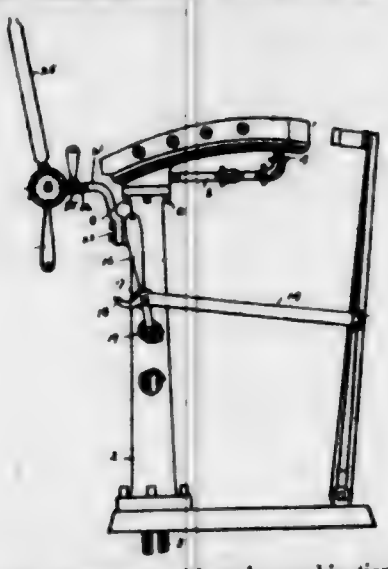
2. In a system of electrical distribution, a plurality of lamps of the type described, each of which comprises a glower or set of glowers, a heater in shunt thereto and two impedance-bodies one of which is in series and the other in shunt with the heater.

3. In a system of electrical distribution, a plurality of lamps of the type described, each of which comprises a glower or set of glowers, a heater in shunt thereto, and an impedance-body in series with the heater, in combination with a condenser in series with the lamps.

4. In a system of electrical distribution, a plurality of lamps of the type described, each of which comprises a glower or set of glowers, a heater in shunt thereto, an impedance-body in shunt to the heater and an impedance-body in series therewith, in combination with a condenser in series with the lamps.

5. In a system of electrical distribution, a plurality of lamps each of which comprises a glower or set of glowers, a heater in shunt thereto and an impedance-body in series with the heater, in combination with a neutralizing means for the impedance-bodies connected in series with the lamps.

695,901. IRONING-MACHINE. DANA H. BENJAMIN, Ionia, Mich., assignor to Barnes & Ely Company, Philadelphia, Pa., a Corporation of West Virginia. Filed Dec. 3, 1900. Serial No. 38,901. (No model.)



Claim.—1. In an ironing-machine, the combination of a standard, an ironing-plate fixed thereto and adapted to be internally heated and provided with a polished upper face adapted to have a garment stretched tightly thereover with the inner surface of the garment in intimate contact with said polished face, a movable jaw below said upper face of the plate and beyond and coöperating with one end edge of said plate, and stretching means arranged beyond the opposite end of the plate, substantially as described.

2. An ironing-machine for producing a "dead" finish consisting essentially of a support, a curved internally-heated ironing-plate having a smooth upper surface adapted to have a garment tightly and smoothly stretched over the same with the inner surface thereof in intimate contact with said heated surface and the outer garment-surface to be finished exposed, a movable clamp opposite and coöperating with one end edge of said plate, and a stretching device at the opposite end of the plate to draw the garment over and hold the same smoothly down on the heated surface of the plate, substantially as described.

3. An ironing-machine for producing a "dead" finish consisting essentially of a standard, a hollow internally-heated ironing-plate at one end fixed to the upper end of said standard and longitudinally curved upwardly therefrom and provided with a water-exit at its lower end, a steam-supply pipe opening into said plate, said plate having the polished longitudinally-curved top surface, a manually-operated clamp coöperating with one end of said plate to clamp the garment thereto, and a stretching device arranged at the opposite end of said plate, substantially as described.

4. In combination, a base, a vertical post rigid therewith, a horizontally-disposed internally-heated ironing-plate above and secured on the upper end of said post and having a smooth top surface to receive the garment to be finished, a vertically-disposed arm at its lower end fulcrumed to the base, a jaw carried by the upper end of said arm and arranged opposite and coöperating with one end edge of the plate in clamping the garment thereto; a hand-lever fulcrumed to said post, a connection from said hand-lever to said arm, and a stretching device for stretching the garment on said plate, substantially as described.

5. In combination, a base, a post, an ironing-plate adapted to be internally heated and fixed on said post and having a smooth top surface to receive the garment, a swinging arm provided with a jaw movable toward and from one end of said plate to coöperate therewith in clamping the garment to said end of the plate, a hand-lever fulcrumed to the post, a connection pivotally joined to said arm and at its opposite portion pivotally joined to said lever and provided with an extension adapted to engage the lever when moved to its limit of movement in one direction to lock the jaw in clamping position, substantially as described.

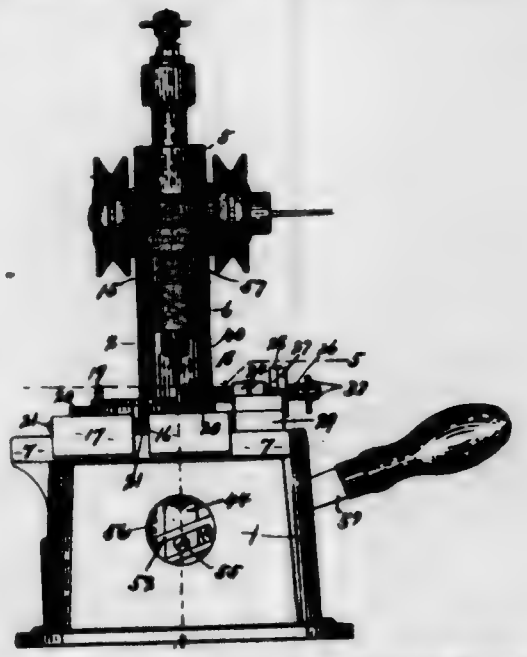
6. In combination, a post, an ironing-plate fixed on the upper end thereof and adapted to be internally heated and having a smooth top surface to receive the garment, means to clamp the garment at one end of said plate, a bracket at the opposite end of said plate and secured to said post, a stretching-roller mounted in said bracket and provided with means for clamping the garment thereto and for winding the same thereon, substantially as described.

7. In combination, a post, a horizontally-disposed heated ironing-plate rigidly secured on the upper end of said post and having a smooth top surface, means to secure a garment at one end of said plate, a bracket, a stretching-roller mounted in said bracket and provided with a hinged clamping-section, and a slotted sleeve having a limited axial movement on said roller and adapted to receive the free end of said section through the slot and clamp the same between the inner surface of the sleeve and surface of the roller, substantially as described.

8. In combination, a post, a horizontally-disposed heated ironing-plate secured on the upper end of said post and having a smooth upper surface and a rounded end edge, a vertically-swinging arm provided with a clamping-jaw beyond and conforming to said end edge and coöperating therewith, means to swing and lock said arm, and stretching means beyond the opposite end of the heated plate, substantially as described.

9. In combination, a post, a heated horizontally-disposed plate rigidly secured thereon, stretching means opposite one end of said plate, a swinging arm fulcrumed at its lower end and at its upper end provided with a clamping-jaw coöperating with the opposite end of said plate, and an operating and locking mechanism for said arm comprising a hand-lever fulcrumed to said post, a pull connection therefrom to said arm, and a stop device, whereby the lever and connection can be held beyond the dead-center to lock said jaw to said plate, substantially as described.

695,902. MACHINE FOR DRILLING LENSES. WILLIAM BOWKER, ELI M. LOWE, and CHAUNCY W. HOWLAND, Geneva, N. Y., assignors to the Standard Optical Company, Geneva, N. Y., a Corporation of New York. Filed July 25, 1901. Serial No. 69,649. (No model.)



Claim.—1. A lens-centering device consisting of sliding supports each having a separate pair of contact-points arranged to engage the edges of the lens at different points for the purpose described.

2. A lens-centering device consisting of separate pairs of contact-points arranged to engage the lens at different perimetric points, each pair being mounted on an independent support adjustable toward and away from the other.

3. A machine for centering and drilling lenses comprising a lens-support composed of independently-movable sections, a drill, and an adjustable lens-stop adapted to engage the edge of the lens said sections being movable toward and away from the stop for the purpose described.

4. A machine for centering and drilling lenses comprising a lens-support, a drill and an adjusting-screw having a stop-face adapted to engage the edge of the lens, said support being movable independently of the adjusting-screw.

5. A machine for centering and drilling lenses comprising a lens-support, a drill and an adjusting-screw having a stop-face adapted to engage the edge of the lens, said screw being provided with a graduated member adjustably secured thereto and coacting with a fixed indicator for indicating the position of the stop-face relative to the drilling-point.

6. A machine for centering and drilling lenses comprising a lens-support composed of sliding heads each having a pair of centering-pins, a drill, and an adjustable lens-stop adapted to engage the edge of the lens and having a member adjustable thereon and provided with a plurality of series of graduations, one series for each reverse movement of the stop.

7. A movable lens-support comprising sliding heads having lens-centering means, in combination with a drill, and an adjustable lens-stop for engaging the edge of the lens.

8. A movable lens-support, in combination with a drill, and an adjustable lens-stop having a graduated member adjustable relative thereto for the purpose described.

9. A movable lens-support having means for centering the lens thereon, in combination with a drill, and an adjusting-screw having a stop-face to engage the edge of the lens, and a collar adjustably secured to the screw and provided with separate series of graduations coacting with a fixed indicator for the purpose specified.

10. A lens-drill comprising a lens-support having sliding heads provided with lens-centering means, a drill-support having rotary and reciprocal movements, and adjustable means for limiting the movement of the drill-support toward the lens.

11. The combination with a lens-support consisting of sliding heads having means for centering the lens thereon, of a drill having rotary and reciprocal movements, and adjustable means for limiting the movement of the drill into the lens.

12. The combination with a movable lens-support consisting of independently-slidable heads having means for centering the lens thereon, of a drill having rotary and reciprocal movements, means for limiting the movement of the drill into the lens, and a lens-stop for regulating the position of the lens relative to the drill.

13. A lens drill and centering device comprising a frame, a movable lens-support having independently-slidable heads provided with means for centering the lens thereon, a drill having rotary and endwise movements, adjustable means for limiting the endwise movement of the drill into the lens, and additional adjustable means for regulating the position of the lens relative to the axis of the drill.

14. A lens drill and centering device comprising a frame, a movable lens-support, means for centering the lens, a rotary drill having endwise movement, an adjustable lens-stop having a graduated surface coöperating with a fixed indicator to indicate the position of the lens relative to the drill-point, an adjustable drill-stop for limiting the endwise movement of the drill into the lens, means for moving the drill endwise, additional means for rotating the drill, and a rotary chuck actuated by the latter means and adapted to carry a reamer or other lens-finishing tool.

15. The combination with a frame, of independent sliding heads or blocks each having a pair of pins or studs adapted to engage the edges of the lens for centering the lens, and a rotary drill for drilling the lens.

16. The combination with a frame, of sliding heads or blocks having removable platens or rests for the lens, each of the blocks or heads having a pair of pins for centering the lens, a rotary drill having an endwise movement for the purpose described, and means for regulating the position of the lens relative to the axis of the drilling-point.

17. A rotary drill having an endwise movement, combined with movable means for centering the major axis of the lens so that the lens may be moved parallel with its axis and the axis will always aline with the drill-point, and additional means for decentering the lens to drill the lens at one side of its major axis.

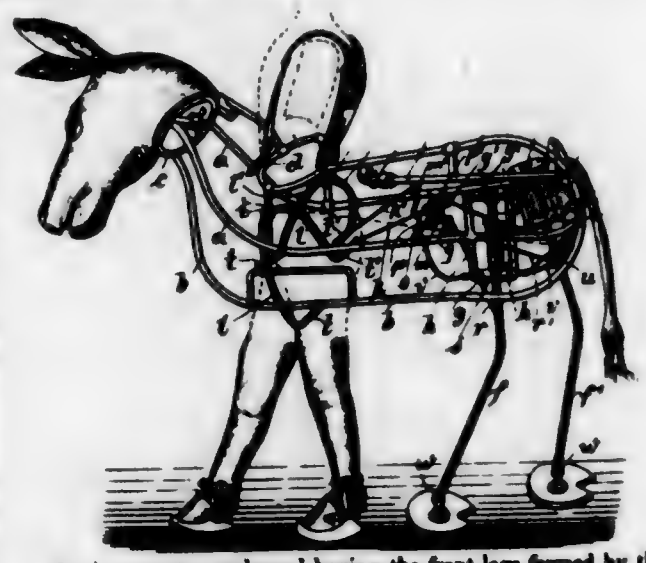
18. A lens-support having a plurality of shoulders adapted to engage the edge of the lens, and an invertible member mounted on the support and provided with contact-faces of unequal projection for varying the position of the major axis of the lens.

19. The combination with a series of lens-centering pins adapted to engage the edges of the lens at opposite sides of its major and minor axes, of a decentering-gage detachably mounted on one of the pins and provided with annular faces of unequal diameters.

695,908. PROPERTY QUADRUPED FOR STAGE PURPOSES. ALEXANDER BRAATZ, Oranienburg, near Berlin, Germany. Filed June 19, 1901. Serial No. 65,194. (No model.)

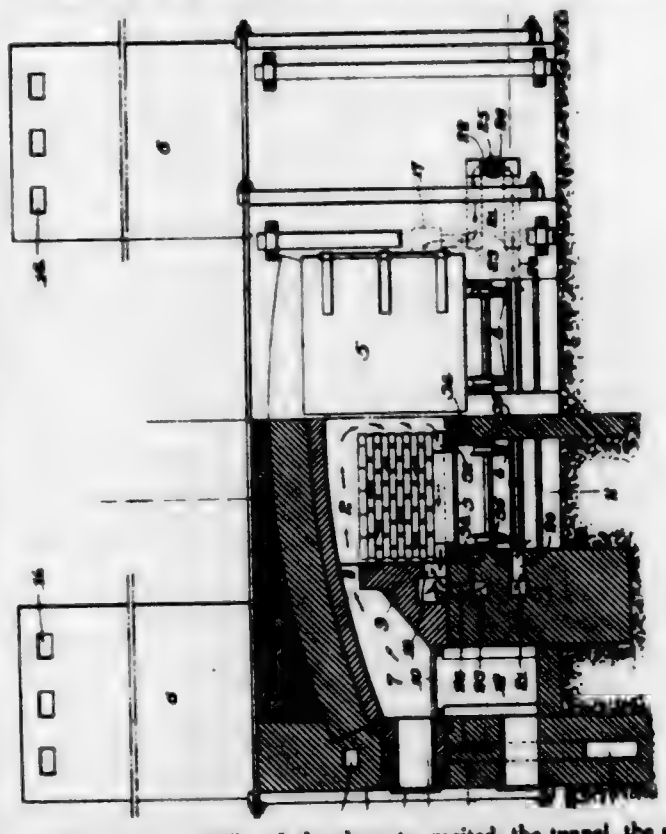
Claim.—1. A property quadruped for stage and pantomimic purposes having the front legs formed by the legs of the performer, imitation pivotally-attached hind legs and lever systems to connect the front legs to the hind legs crosswise and move the said hind legs by the movement of the legs of the performer in the manner and for the purpose substantially as described.

2. A property quadruped having the front legs formed by the legs of the performer, imitation hind legs, pivotally supported and means for enabling the same to telescope into the body to a certain extent, a pair of pivotally-supported levers to engage the legs of the performer and means for transmitting their motion to the hind legs in the manner and for the purpose substantially as described.



3. A property quadruped having the front legs formed by the legs of the performer, hind-leg bars, pivotally-mounted sleeves into which said leg-bars pass and may slide, elastic means for retaining the said leg-bars in the normal position as regards the said sleeves, a pair of pivotally-mounted levers to engage the legs of the performer and be moved thereby and means for transmitting the motion of said leg-operated levers to the hind-leg bars in the manner and for the purpose substantially as described.

695,904. KILN FOR BURNING BRICKS, &c. EDWARD C. BRICE, Colwyn, Pa. Filed June 7, 1901. Serial No. 63,502. (No model.)



Claim.—1. In a kiln of the character recited, the tunnel, the sections having the fire-boxes arranged at the sides thereof and communicating with the upper part of the tunnel, the end sections of the kiln being devoid of fire-boxes; the smoke-stack midway between the ends of the kiln, the kiln being otherwise devoid of smoke-stacks, and the heat-flue communicating with the smoke-stack and having lateral openings leading into the tunnel adjacent to the side of the track-platforms, all constructed, combined and adapted to operate substantially as and for the purpose set forth.

2. In a kiln of the character recited, the combination of the tunnel, the sections having the fire-boxes arranged at the side thereof and communicating with the upper part of the tunnel, the end sections of the kiln being devoid of fire-boxes, the smoke-stack midway between the ends of the kiln, the kiln being otherwise devoid of smoke-stacks, and the heat-

flue communicating with the interior of the smoke-stack, and having lateral openings leading into the tunnel adjacent to the side of the truck-platforms; and having also conduits communicating with the space of the tunnel beneath the truck-platforms, substantially as and for the purpose set forth.

3. In a kiln of the character recited, the combination of the tunnel, the smoke-stack, the fire-boxes arranged at the sides thereof and having passage-ways leading into the upper part of said tunnel, the heat-flue communicating with the smoke-stack, and having lateral openings leading into the tunnel through the side wall thereof, and the trucks having the beds provided with transverse channels in substantially the same horizontal plane with said openings of the heat-flue, substantially as and for purpose set forth.

4. In a kiln of the character recited, the combination of the tunnel, the smoke-stack, the fire-boxes arranged at the sides of said tunnel, and having passage-ways leading into the upper part of the tunnel, the heat-flue communicating with the smoke-stack and having the lateral openings leading into said tunnel, the trucks, the piles of bricks thereon, those bricks of the top course being set closely together and those of the underlying courses with interspaces between them, substantially as and for the purpose set forth.

5. In a kiln of the character recited, the combination of the tunnel, the smoke-stack, the fire-boxes arranged at the sides of said tunnel, and having passage-ways leading into the upper part of the tunnel, the heat-flue communicating with the smoke-stack, and having the lateral openings leading into said tunnel through the side wall thereof, the air-supply conduits leading into said flue, the trucks having the beds with the series of transverse channels in substantially the same horizontal plane with said openings, and the pile of bricks supported by and upon said truck-beds the bricks of the top course of which are set closely together and those of the underlying courses with interspaces between the bricks, and the side of said piles being closely adjacent to the inner side of the tunnel-wall, substantially as and for the purpose set forth.

6. In a kiln of the character recited, the combination of the tunnel, the fire-boxes arranged at the side thereof, and having passage-ways leading into the upper part of the tunnel, the smoke-stack, the heat-flue communicating with the latter and having the lateral passage-ways leading into said tunnel adjacent to the truck-platforms, and means for supplying heated air to said fire-boxes, said means consisting of the conduits leading to the latter from a hot-air space around the smoke-stack, substantially as and for the purpose set forth.

7. In a kiln of the character recited, the combination with the series of trucks, of the plates secured thereto respectively, and having the forwardly-projecting ends adapted to pass respectively closely under the platform of the contiguous truck in advance, and means for elevating the forward truck of the series above the plane of the platform of the contiguous rear truck, when the said forward truck is advanced out of the kiln, substantially as and for the purpose set forth.

8. In a kiln of the character recited, the combination of the series of trucks, the respective plates secured thereto, and having the forwardly-projecting ends adapted to pass closely under the platform of the contiguous truck in advance, the trackway within the kiln upon which said trucks are adapted to travel, the trackway in a plane above that of the first-mentioned trackway, and the incline connecting the former and the said elevated trackway, substantially as and for the purpose set forth.

9. In a kiln of the character recited, the combination of the series of trucks having the side flanges, the troughs into which said flanges depend, and means for supplying sand to said troughs consisting of the conduits whose lower ends lead into said troughs, respectively, at a point adjacent to the rear end of the latter, substantially as and for the purpose set forth.

10. In a kiln of the character recited, the combination of the tunnel, the fire-boxes arranged at the sides thereof and having passage-ways leading into the upper part of the tunnel, the heat-flue communicating with the smoke-stack and having the lateral openings leading into the tunnel through the side wall thereof, the conduit, 21, communicating with the open air, the conduit, 23, communicating with the latter conduit and having branches leading into the said heat-flue, together with the regulating-valve in the connection between said conduits, substantially as and for the purpose set forth.

695,905. ANIMAL-TRAP. GEORGE BROWN, Santiam, Oreg. Filed Nov. 29, 1901. Serial No. 84,078. (No model.)

Claim.—1. A trap comprising a frame composed of a base having projecting side pieces and provided with upwardly-extending inclined sides spaced apart at their upper ends, a guide receiving the upper portions of the sides of the frame and having a forwardly-projecting loop, and provided with a rearwardly-extending arm, a spring-actuated bar passing through the guide, a lever fulcrumed between the sides of the frame and arranged to support the bar in an elevated position, and a trigger fulcrumed on the arm and engaging the lever, substantially as described.

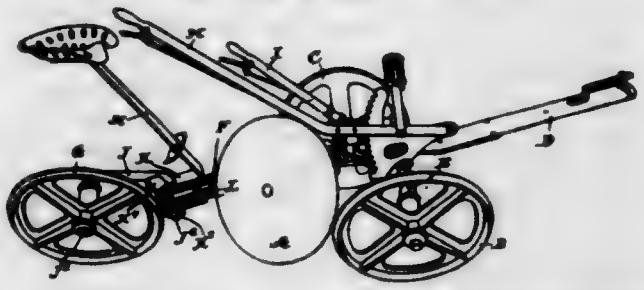


2. A trap comprising a frame having a guide, a spring-actuated bar passing through the guide and provided with a tapering loop adapted to pass through the guide, a lever fulcrumed on the frame and engaging the loop, and a trigger mounted on the guide and engaging the lever, substantially as described.

3. A trap comprising a frame, a spring-actuated bar, a lever for supporting the bar in an elevated position, and a trigger engaging the lever and pivotally mounted and composed of an upper section having an arm, and a lower section provided with a longitudinal slot or kurf to receive the arm and having an adjusting device connecting the sides of the lower section, substantially as described.

4. A trap comprising a frame having an arm, a spring-actuated bar, a lever fulcrumed on the frame and arranged to support the bar in an elevated position and provided with a laterally-extending portion, and a trigger composed of an upper section fulcrumed on the arm and provided with a hook for engaging the laterally-extending portion of the lever, and a lower section adjustably secured to the upper section, substantially as described.

695,906. WHEEL-PLOW. JUDSON BUCHANAN, Chattanooga, Tenn., assignor to Chattanooga Plow Co., a Corporation of Tennessee. Filed Sept. 28, 1901. Serial No. 76,837. (No model.)



Claim.—1. In a wheel-plow, the combination of a caster-wheel, a caster-wheel arm having a vertical journal, bolts, two members, one a beam supporting the moldboard and the other a bearing-block for said journal and having a shoulder, K^4, the meeting faces of said members being vertical and provided with interlocking ribs, and one of said members being adapted to receive said bolts while said member is at any one of a plurality of elevations compared with the other of said members, substantially as described.

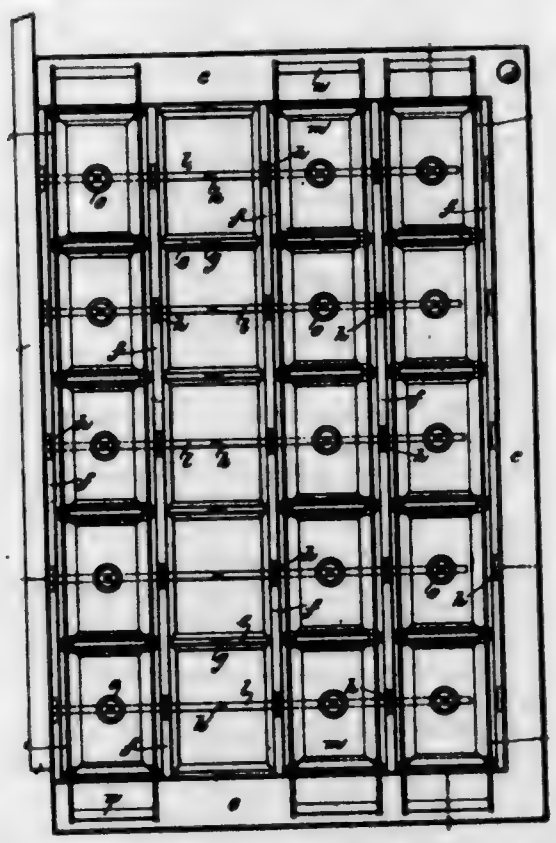
2. In a wheel-plow, the combination of a caster-wheel, a caster-

wheel arm having a vertical journal, two members, one a beam supporting the moldboard and the other a bearing-block for said journal and having a shoulder, K⁴, one of said members having vertical slots to receive bolts, substantially as described.

3. In a wheel-plow, the combination of a caster-wheel, a caster-wheel arm having a vertical journal, bolts, two members, one a beam supporting the moldboard and the other a bearing-block for said journal, the meeting faces of said members being vertical and parallel to the length of said beam and provided with interlocking ribs, and one of said members being adapted to receive said bolts while said member is at any one of a plurality of elevations compared with the other of said members, substantially as described.

4. In a wheel-plow, the combination of a caster-wheel, a caster-wheel arm having a vertical journal, bolts, two members, one a beam supporting the moldboard and the other a bearing-block for said journal and having a shoulder, K⁴, the meeting faces of said members being vertical and parallel to the length of said beam and provided with interlocking ribs, and one of said members being adapted to receive said bolts while said member is at any one of a plurality of elevations compared with the other of said members, substantially as described.

695,907. APPARATUS FOR MANUFACTURING BLOCKS OF ICE. GEORGE F. BUCKINGHAM, London, England. Filed June 24, 1901. Serial No. 65,853. (No model.)



Claim.—1. The combination of a trough, longitudinal and transverse passages at the bottom of the trough, a brine-supply to the trough, an overflow from it into the passages and a mold consisting of a number of separate compartments connected together at the top suspended in it.

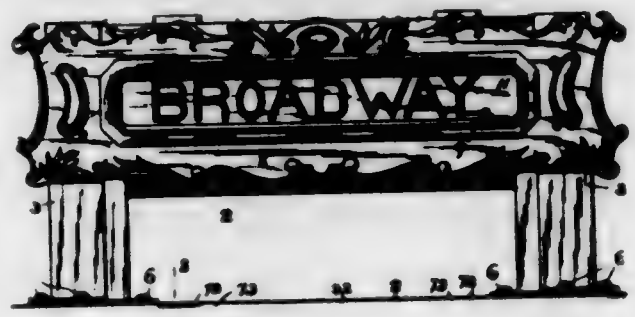
2. The combination of a trough, brine-supply pipes standing up from the bottom of the trough, an overflow from the trough, a mold consisting of a number of separate compartments connected together at the top suspended in the trough and an indentation in the bottom of each compartment corresponding to the stand-pipes.

3. The combination of a trough, brine-supply pipes standing up from the bottom of the trough, longitudinal and transverse passages at the bottom of the trough, an overflow from the trough into the passages, a mold consisting of a number of separate compartments connected together at the top suspended in the trough and an indentation in the bottom of each compartment corresponding to the stand-pipes.

695,908. REVOLVING INDICATOR. JOHN W. CAP, Newark, N. J. Filed May 29, 1901. Serial No. 62,312. (No model.)

Claim.—1. In a revolving indicator, the combination, with a fixed casing having an opening through which names or words are exposed to view, of a pair of standards inclosed by said casing, each standard having a circular portion provided with a broken or open part, a sign-carrier rotatively mounted between said standards, and a face-plate having a window secured to said standards in front of the open parts of said circular portions, substantially as and for the purposes set forth.

2. In a revolving indicator, the combination, with a fixed casing having an opening through which names or words are exposed to view, of a pair of standards inclosed by said casing, each standard having a circular portion provided with a broken or open part, a sign-carrier rotatively mounted between said standards consisting, essentially, of a pair of end plates and tie-rods, and plate-holders on said rods, each plate-holder having a pair of oppositely-placed guides 32, and signs slidably arranged in said guides, substantially as and for the purposes set forth.



3. In a revolving indicator, the combination, with a fixed casing having an opening through which names or words are exposed to view, of a pair of standards inclosed by said casing, each standard having a circular portion provided with a broken or open part, a sign-carrier rotatively mounted between said standards, and means on one of said standards for causing an intermittent rotary motion of said sign-carrier, consisting, of a collar having a star-shaped flange, a pivoted pawl, a spring-actuated slide connected with said pawl, and means for operating said slide, and a face-plate having a window secured to said standards in front of the open parts of said circular portions, substantially as and for the purpose set forth.

4. In a revolving indicator, the combination, with a fixed casing having an opening through which names or words are exposed to view, of a pair of standards inclosed by said casing, each standard having a circular portion provided with a broken or open part, a sign-carrier rotatively mounted between said standards, consisting, essentially, of a pair of end plates and tie-rods, plate-holders on said rods bearing a sign or word, and means on one of said standards for causing an intermittent rotary motion of said sign-carrier, comprising a collar having a star-shaped flange, and means for operatively connecting said flange to one of said end plates, a pivoted pawl, a spring-actuated slide connected with said pawl, and means for operating said slide, substantially as and for the purpose set forth.

5. In a revolving indicator, the combination, with a fixed casing having an opening through which names or words are exposed to view, of a pair of standards inclosed by said casing, each standard having a circular portion provided with a broken or open part, a sign-carrier rotatively mounted between said standards, consisting, essentially, of a pair of end plates and tie-rods, plate-holders on said rods, each plate-holder having a pair of oppositely-placed guides, and signs slidably arranged in said guides, and means on one of said standards for causing an intermittent rotary motion of said sign-carrier, comprising, a collar having a star-shaped flange, and means for operatively connecting said flange to one of said end plates, a pivoted pawl, a spring-actuated slide connected with said pawl, and means for operating said slide, substantially as and for the purpose set forth.

6. In a revolving indicator, a revolving sign-carrier, an actuating mechanism for revolving said sign-carrier, an electromagnet for operating said actuating mechanism, an electric circuit in which said electromagnet is placed, and a controller in the same circuit, provided with a dial bearing signs or words on both said controller and the sign-carrier to be displayed simultaneously, consisting, essentially, of a ratchet device and pawl, an electromagnet in said electric circuit, and means in said circuit for completing the electric circuit through the said electromagnets, substantially as and for the purpose set forth.

7. In a revolving indicator, the herein-described sign-carrier, consisting, essentially, of a pair of end plates, connecting tie-rods, and plate-holders on each rod, said plate-holders consisting, essentially, of a tube-like part 33 fitted upon the tie-rod, and having a pair of oppositely-curved edge portions 34, bent to form guides 35, and sign-plates slidably arranged between said guides, substantially as and for the purposes set forth.

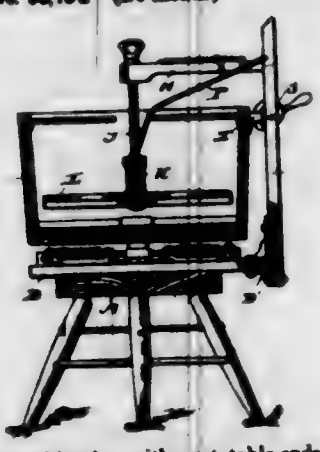
8. In a revolving indicator, the combination, with a pair of standards having perforated hubs, of tubes fixed in said hubs, a flanged collar on one of said tubes, and a sign-carrier, comprising a pair of end plates, one end plate being rotatably arranged on one of said tubes and the other end plate being connected with said flanged collar, and means for causing an intermittent rotary motion of said collar and the sign-carrier, connecting tie-rods between the said plates, and plate-holders upon said rods, each plate-holder consisting, essentially, of a tube-like part 33 fitted upon the tie-rod, and having a pair of oppositely-curved edge portions 34, bent

to form guides 35, and sign-plates slidably arranged between said guides, substantially as and for the purposes set forth.

9. In a revolving indicator, the combination, with a pair of standards having perforated hubs, of tubes fixed in said hubs, a flanged collar on one of said tubes, and a sign-carrier, comprising a pair of end plates, one end plate being rotatably arranged on one of said tubes and the other end plate being connected with said flanged collar, and means for causing an intermittent rotary motion of said collar and the sign-carrier, consisting, essentially, of star-shaped projections on the flange of said collar, a pawl pivotally arranged on one of said standards, provided with a downwardly-extending shoe adapted to engage said star-shaped projections, a spring-actuated slide connected with said pawl, and means for operating said slide, substantially as and for the purposes set forth.

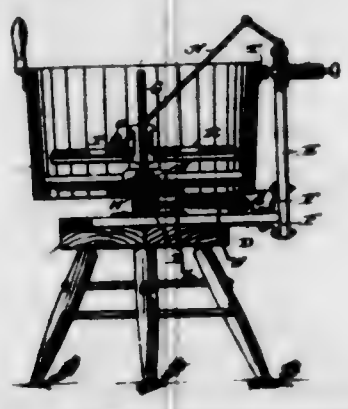
10. In a revolving indicator, the combination, with a pair of standards having perforated hubs, of tubes fixed in said hubs, a flanged collar on one of said tubes, and a sign-carrier, comprising a pair of end plates, one end plate being rotatably arranged on one of said tubes and the other end plate being connected with said flanged collar, and means for causing an intermittent rotary motion of said collar and the sign-carrier, consisting, essentially, of star-shaped projections on the flange of said collar, a pawl pivotally arranged on one of said standards, provided with a downwardly-extending shoe adapted to engage said star-shaped projections, a spring-actuated slide connected with said pawl, and an electromagnet for operating said slide, substantially as and for the purposes set forth.

695,909. WASHING-MACHINE. ALONZO A. CARLEE, Mansfield, Ohio, assignor to Thomas B. Crary, Binghamton, N. Y. Filed May 17, 1901. Serial No. 60,734. (No model.)



Claim.—The combination with a rotatable suds-tub, of a base, a platform thereon, a vertical post rising from the platform, an arm hinged on the post and extended horizontally over the suds-tub, the upper rubbing-disk, a vertical sleeve carried thereby, a rod passed through an opening in said arm, and into said sleeve, a ring upon said sleeve, a pin projecting from each side of said ring, a guide and a locking-bar having one end passed loosely through said guide, and its lower end formed into an inverted loop with eyes loosely receiving said pins, all substantially as shown and described.

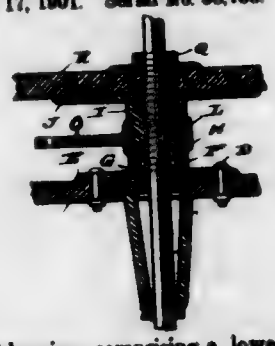
695,910. WASHING-MACHINE. ALONZO A. CARLEE, Mansfield, Ohio, assignor to Thomas B. Crary, Binghamton, N. Y. Filed May 17, 1901. Serial No. 60,735. (No model.)



Claim.—1. In a washing-machine, the combination with a frame and a vertical post forming a part thereof, of a rotating suds-tub, an upper rubbing-disk, and a locking device comprising an arm hinged to the top of said post, and divergent rods hinged to said arm and having their outer ends detachably connected with the said rubbing-disk, as set forth.

2. In a washing-machine, the combination with the frame and a vertical post forming a part thereof, of a rotating suds-tub, an upper rubbing-disk provided with eyes on the upper side thereof, and a locking device comprising an arm hinged to the top of said post, and two divergent rods hinged to the arm, the lower ends of the rods being bent outward and inserted into said eyes, substantially as shown and described.

695,911. BEARING FOR WASHING-MACHINES. ALONZO A. CARLEE, Mansfield, Ohio, assignor to Thomas B. Crary, Binghamton, N. Y. Filed May 17, 1901. Serial No. 60,738. (No model.)



Claim.—A ball-bearing, comprising a lower open hanger having upon its upper end an outwardly-extending flange and a rim projecting above said flange, a hub, a series of balls within said rim, beneath said hub, a shaft surrounded by said balls and passed through the hanger and into the hub, a washer placed above said balls, and a ring embracing said hub and washer and resting on said rim, all substantially as shown and described.

695,912. SPINDLE FOR BOBBINS. THOMAS W. COCKER, Paterson, N. J., assignor to the Shaw & Cocker Company, Paterson, N. J., a Corporation of New Jersey. Filed Nov. 20, 1901. Serial No. 33,964. (No model.)



Claim.—1. A bobbin-carrier consisting of a spindle, a head securely mounted thereon, the spindle being provided with two sets of elongated grooves or recesses, diametrically opposite each other, one set being at right angles to the other, and spring-wires arranged in the corresponding recesses but projecting beyond the periphery of the spindle, all said parts substantially as and for the purposes described.

2. A bobbin-carrier comprising a spindle, a head securely mounted thereon, the spindle being provided with two sets of elongated grooves or recesses arranged diametrically opposite each other, one set being shorter than the other and at right angles thereto, and spring-wires arranged in the respective grooves or recesses, all said parts substantially as and for the purposes described.

3. The combination of a spindle, a head secured on said spindle, and a spring-wire penetrating said spindle and having its end portions projecting into said head and interposed between the same and the spindle, substantially as described.

4. In a bobbin-carrier, the combination of a spindle, a head secured on said spindle, and a spring-wire penetrating said spindle and having its end portions normally held spaced at approximately the diameter of the adjacent portion of the spindle, the intermediate portions of said wire being normally spaced greater than the diameter of the spindle, substantially as described.

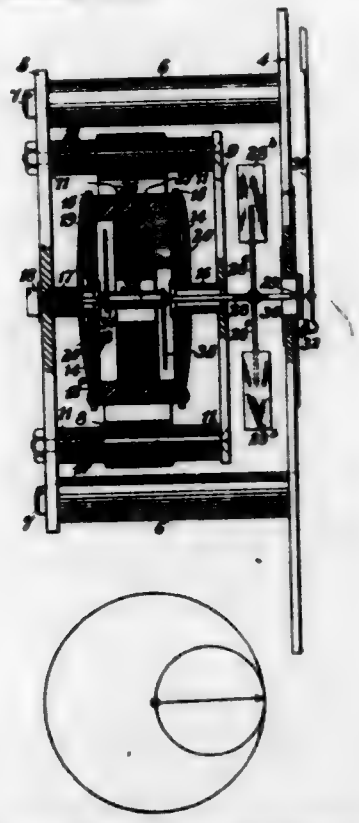
695,918. INSTRUMENT FOR INDICATING THE PHASE AND FREQUENCY RELATIONS OF ALTERNATING CURRENTS. FRANK CONRAD, Wilkinsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed July 12, 1901. Serial No. 68,046. (No model.)

Claim.—1. An instrument for indicating the phase relation of two alternating-current circuits comprising a rotatable, magnetizable armature, a stationary magnetizing-coil connected to one of said circuits and a plurality of stationary coils connected to the other circuit and energized by currents received therefrom to produce a rotary magnetic field.

2. An instrument for indicating the phase relation of two polyphase alternating-current circuits comprising a rotatable, magnetizable armature, a stationary magnetizing-coil connected to the conductors of one of said circuits which correspond to one phase and a plurality of stationary coils connected to the other circuit and energized by currents received therefrom to produce a rotary magnetic field and means for indicating the difference in phase relation between the two circuits.

3. An instrument for indicating the phase relation of two polyphase alternating-current circuits comprising a rotatable, magnetizable armature, a stationary magnetizing-coil connected to the conductors of one of said circuits which correspond to one phase and a plurality of stationary coils connected to the other circuit and energized by currents received there-

from to produce a rotary magnetic field, means for indicating the difference in phase relation between the two circuits and a damping device for the armature and indicating device.



4. An instrument for indicating the phase relation of two polyphase alternating-current circuits comprising a laminated ring, a magnetizing-coil concentric therewith and connected to one of said circuits, a plurality of coils connected to the other circuit and energized by currents received therefrom to produce a rotary magnetic field, a magnetizable armature in inductive relation to all of said coils and means for indicating the positions assumed by said armature.

5. An instrument for indicating the phase relation of two alternating-current circuits comprising stationary coils for producing a rotary magnetic field, one of the phases of current for producing said field corresponding to a phase of one of said circuits, a stationary coil traversed by a current corresponding in phase to the other circuit and a rotatable, magnetizable body in inductive relation to all of said coils.

6. An instrument for indicating the phase relation of two polyphase alternating-current circuits comprising a rotatable, magnetizable armature, a stationary magnetizing-coil connected to the conductors of one of said circuits which correspond to one phase and a plurality of stationary coils connected to the other circuit and having an angular relation that corresponds to the phase displacement of said circuit.

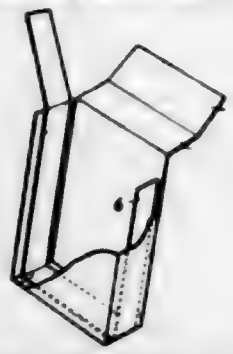
7. An instrument for indicating the phase relation of two polyphase alternating-current circuits comprising a plurality of coils having an angular displacement that corresponds to the phase displacement of one of said circuits, a coil disposed at an angle to each of the first-named coils and connected to the second circuit, a rotatable armature arranged to divert the magnetic flux due to the last-named coil into the path of the flux of one of the first-named coils and means for indicating the positions of the armature.

8. An instrument for indicating the phase and frequency relations of two alternating-current circuits comprising two coils disposed at right angles to each other for connection to one of said circuits, a coil disposed at right angles to both of the first-named coils for connection to the second circuit, a rotatable armature having two arms that project in opposite directions at the ends of the last-named coil and substantially parallel to said ends, and means for indicating the positions of said armature.

9. An instrument for indicating the phase and frequency relations of two alternating-current circuits comprising a plurality of stationary coils connected to one of said circuits and energized by currents received therefrom to produce a rotary magnetic field, a stationary coil in a plane at right angles to the planes of the other coils and connected to the second circuit, a rotatable armature having two arms that project in opposite directions at the ends of the last-named coil and means for indicating the positions of said armature.

695,914. POCKET-CASE FOR CIGARETTES OR CIGARS. GEORGE E. CRESSLER, Fort Wayne, Ind. Filed Aug. 18, 1900. Serial No. 27,226. (No model.)

Claim.—1. As an improved article of manufacture, a case or holder for cigarettes and analogous articles, comprising a box having one of its ends closed and a closing-flap hinged to its open end, and a flexible lifting-strip arranged in said box and having one of its ends projecting on the exterior of the box and at a point to move in a plane at right angles to the plane of movement of the closing-flap, whereby said projecting end is always maintained at the exterior of the box and in convenient position to be grasped for elevating the contents of the box.



2. As an improved article of manufacture, a case or holder for cigarettes and analogous articles, comprising a box having one of its ends closed and a closing-flap hinged to its open end, and a flexible lifting-strip arranged in said box and having one of its ends secured to one side of the box, said strip traversing the bottom and sides of the box and providing a support for the contents, the free end of said strip projecting on the exterior of the box and at a point to move in a plane at right angles to the plane of movement of the closing-flap, whereby said projecting end is always maintained at the exterior of the box and in convenient position to be grasped for elevating the contents of the box.

695,915. TAKE-UP FOR SEWING-MACHINES. WILBUR F. DEAL and GEORGE H. DUNCAN, Bridgeport, Conn., assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Filed Apr. 27, 1900. Serial No. 14,539. (No model.)



Claim.—1. A sewing-machine comprising a needle-bar, an eye-pointed needle, a revolvable crank-pin operatively connected with the said needle-bar, a loop-taker rotating continuously at a uniform speed, and means for giving the same a plurality of rotations for each complete reciprocation of the needle-bar, and a vibrating take-up arm deriving its movement from the movement of the crank-pin which actuates the needle-bar and needle whereby the machine is capable of a high rate of speed.

2. A sewing-machine comprising a needle-bar, an eye-pointed needle, a revolvable crank-pin operatively connected with the said needle-bar, a loop-taker rotating continuously at a uniform speed, and means for giving the same a plurality of rotations for each complete reciprocation of the needle-bar, a vibrating take-up arm fulcrumed at a point above and to one side of the center of motion of the said crank-pin and deriving its movement from the movement of said crank-pin whereby the machine is capable of a high rate of speed.

3. A sewing-machine comprising a needle-bar, an eye-pointed needle, a revolvable crank-pin, a link connecting the crank-pin and the needle-bar and provided with a lateral projection, a take-up arm having its fulcrum above and to one side of the center of motion of said crank-pin, an actuator connected with the take-up arm and pivoted on the said lateral projection, a loop-taker rotating continuously at a uniform speed, and means for imparting to the said loop-taker a plurality of rotations for each complete reciprocation of the needle-bar whereby the machine is capable of a high rate of speed.

4. A sewing-machine comprising a needle-bar, an eye-pointed needle, a revolvable crank-pin, a link connecting the crank-pin and the needle bar and provided with a lateral projection, a take-up having its fulcrum above and to one side of the center of motion of said crank-pin and provided with an engaging device, an actuator cooperating with said engaging device and pivoted on the said lateral projection, the actuator and engaging device operating in a plane between the needle-bar and the crank-

pin, a loop-taker rotating continuously at a uniform speed, and means for imparting to the said loop-taker a plurality of rotations for each complete reciprocation of the needle-bar, whereby the machine is capable of a high rate of speed.

5. A sewing-machine comprising a needle-bar provided with an eye-pointed needle, a shaft for operating the needle-bar, a loop-taker rotating continuously at a uniform speed, means for giving the looper a plurality of rotations for each complete reciprocation of the needle-bar, a take-up arm, an actuator therefor pivoted to the moving part of the machine, the pivot of the said actuator having a continuous motion in an ovoidal path the major axis of which is at an oblique angle to the horizontal whereby the machine is capable of a high rate of speed.

6. A sewing-machine comprising a needle-bar provided with an eye-pointed needle, a shaft for operating the needle-bar, a loop-taker rotating continuously at a uniform speed, means for giving the loop-taker a plurality of rotations for each complete reciprocation of the needle-bar, a take-up arm having its fulcrum located above and to one side of the center of the needle-bar-operating shaft, an actuator connected with the take-up arm and pivoted upon a moving part of the machine, the pivot of the said actuator having a continuous motion in an ovoidal path the major axis of which is at an oblique angle to the horizontal whereby the machine is capable of a high rate of speed.

7. A sewing-machine comprising a revolubie crank-pin, a rectilinearly-movable needle-bar, a link connecting the crank-pin and the needle-bar and provided with a lateral projection, a take-up arm fulcrumed above the center of motion of the crank-pin, an actuator connected with the take-up arm and pivoted on said lateral projection.

8. A sewing-machine comprising a revolubie crank-pin, a rectilinearly-movable needle-bar, a link connecting the crank-pin and needle-bar and provided with a lateral projection forming an oblique angle with the link, a take-up arm fulcrumed above the center of motion of said crank-pin, an actuator connected with the take-up arm and pivoted on said lateral projection.

9. A sewing-machine comprising a revolubie crank-pin, a rectilinearly-movable needle-bar, a link connecting the crank-pin and needle-bar and provided with a lateral projection forming an oblique angle with the link, a take-up arm fulcrumed above and to one side of the center of motion of said crank-pin, an actuator connected with the take-up arm and pivoted on said lateral projection.

10. In a sewing-machine, a rectilinearly-movable needle-bar, a revolubie crank-pin, a link connecting the crank-pin and needle-bar and having a projection extending laterally therefrom, a take-up arm fulcrumed above and at one side of the center of motion of the crank-pin and provided with an engaging device rigidly connected therewith, an actuator pivoted upon the lateral projection of the link and slidingly connected with the said engaging device.

11. In a sewing-machine a rectilinearly-movable needle-bar, a revolubie crank-pin, a link connecting the crank-pin and needle-bar and having a projection extending laterally therefrom, a take-up fulcrumed above and at one side of the center of motion of the crank-pin and provided with an engaging device rigidly connected therewith, an actuator pivoted upon the lateral projection of the link and slidingly connected with the said engaging device, the said actuator and engaging device operating in a plane between the needle-bar and link.

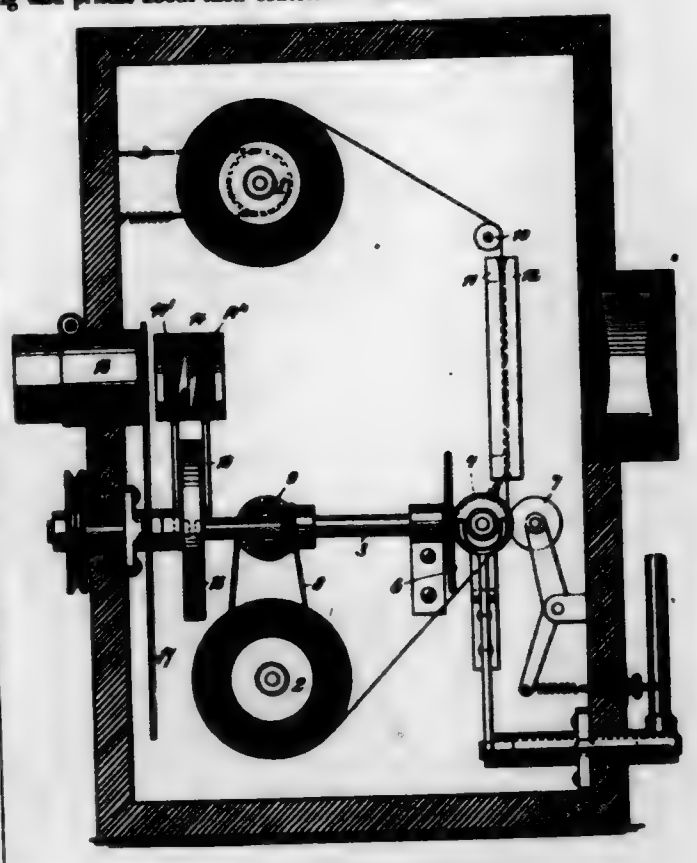
12. In a sewing-machine, a rectilinearly-movable needle-bar, a revolubie crank-pin, a link connecting the crank pin and needle-bar and having a projection extending laterally therefrom and at an oblique angle thereto, a take-up arm fulcrumed above and at one side of the center of motion of the crank-pin and provided with an engaging device rigidly connected therewith, an actuator pivoted upon the lateral projection of the link and slidingly connected with the said engaging device.

695,916. CONSECUTIVE-VIEW APPARATUS. WILLIAM KENNEDY-LAURIE DICKSON, London, England, assignor to the American Mutoscope Company, New York, N. Y., a Corporation of New Jersey. Filed Oct. 22, 1898. Serial No. 694,202. (No model.)

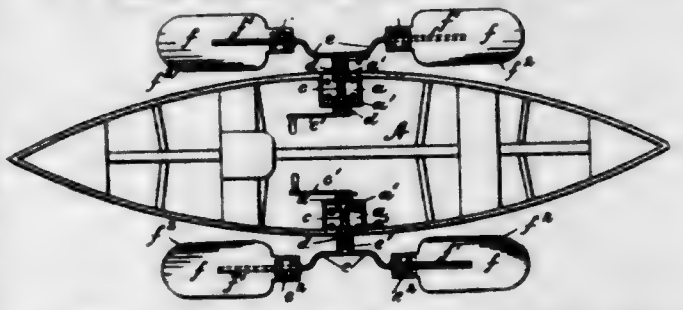
Claim.—1. In a consecutive-view apparatus, the combination, with means for feeding a view-carrier through the field of the apparatus, of two prisms revolubly mounted and together constituting a prism of variable angle, and means for vibrating said prisms about their centers of rotation.

2. In a consecutive-view apparatus, the combination, with means for feeding a view-carrier through the field of the apparatus, of two prisms revolubly mounted and together constituting a prism of variable angle, and means for vibrating said prisms in opposite directions about their centers of rotation.

3. In a consecutive-view apparatus, the combination, with a main driving-shaft, and mechanism for feeding a view-carrier through the field of the apparatus, driven from said shaft, of two prisms revolubly mounted and together constituting a prism of variable angle, a cam deriving its motion from said driving-shaft, and means operated by said cam for vibrating said prisms about their centers of rotation.



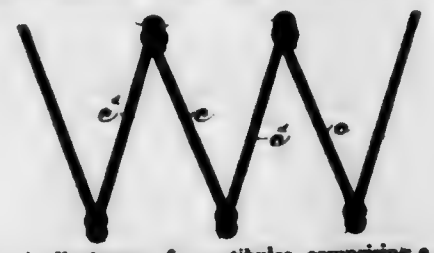
695,917. BOAT. ARRIEL DOMINICK and LOUIS KREBS, New York, N. Y. Filed Jan. 4, 1902. Serial No. 88,417. (No model.)



Claim.—1. In a boat, a pair of crank-shafts combined with boat arms mounted thereon and having their ends placed at a greater distance from the boat than their center, and with blades connected to said arms and bent to form laterally-opening scoops, substantially as specified.

2. In a boat, a pair of crank-shafts combined with boat arms mounted thereon and having outwardly-projecting flattened ends, and with blades connected to said ends and having bent inner ends to form laterally-opening scoops, substantially as specified.

695,918. DIAPHRAGM FOR CAR-VESTIBULES. JAMES H. DOUGLASS and HARRY H. SCHROYER, Chicago, Ill., assignors to themselves and E. J. Ward Company, Chicago, Ill., a Corporation of Illinois. Filed Aug. 22, 1901. Serial No. 72,891. (No model.)



Claim.—1. A diaphragm for vestibules, comprising a plurality of stripe of fabric each having one edge bent over longitudinally and forming a lap-seam in which is engaged the margin of the next adjacent strip by means of rivets or the like.

2. A diaphragm for vestibules, comprising a plurality of stripe of fabric each having one edge bent over longitudinally and forming a lap-seam in which is engaged the margin of the next adjacent strip by means of rivets or the like and a rigid strip secured in said lap-seam.

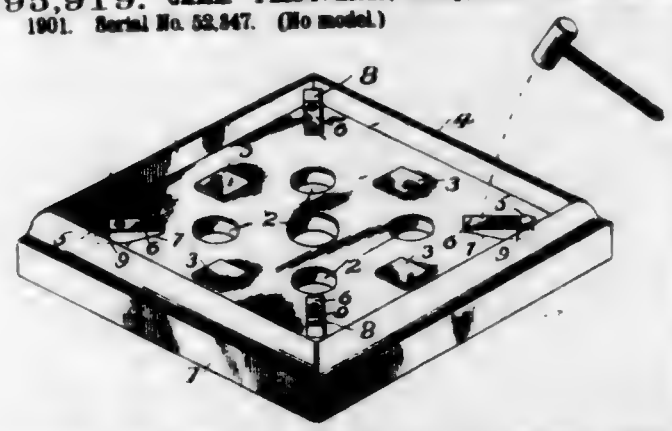
3. A diaphragm for car-vestibules, comprising a plurality of stripe of material bent longitudinally at one of its edges and forming a lap-seam with a corresponding strip, said stripe being constructed integrally to conform to the curvature of the top of the diaphragm.

4. In a car diaphragm, a plurality of strips of fabric each having one edge bent longitudinally thereof and adapted to receive and lap over the edge of an adjacent strip, a rod secured in said bend or fold and means passing through and through said strips and said lap and acting to bind the same rigidly together.

5. In a car-diaphragm, a plurality of strips each formed to correspond with the general contour of a diaphragm-section and comprising two unequal sides or parts, one of which is folded or bent longitudinally to receive and form a lap-seam with the plane portion of the next adjacent strip, a metallic rod secured in each fold or bend of the diaphragm thus formed and extending along the sides and top of the same.

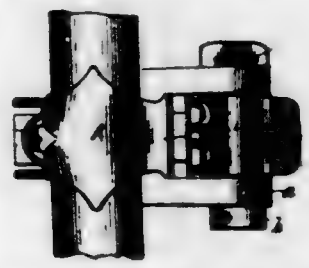
6. In a car-diaphragm, a plurality of strips each formed to correspond with the general contour of a diaphragm-section and comprising two unequal sides or parts, one of which is folded or bent longitudinally to receive and form a lap-seam with the plane portion of the next adjacent strip and metallic rods inclosed in each seam and extending across the top of the diaphragm and down each side thereof.

695,919. GAME. FRED F. BAKER, Ackley, Iowa. Filed Mar. 25, 1901. Serial No. 52,847. (No model.)



Claim.—In a game, a substantially square base having a rim extended upward from its edges, and having a central pocket and other pockets intermediate the central pocket and the corners of the base, rests or elevations near the edges of the base and midway between the corners thereof, and flips or jacks near the corners of the base and mounted for pivotal and tilting movement and adapted to project pieces into the air for alighting upon the base, substantially as and for the purpose specified.

695,920. THILL-COUPLING. GEORGE H. FERRALD, Northeast, Pa. Filed Mar. 9, 1901. Serial No. 50,443. (No model.)

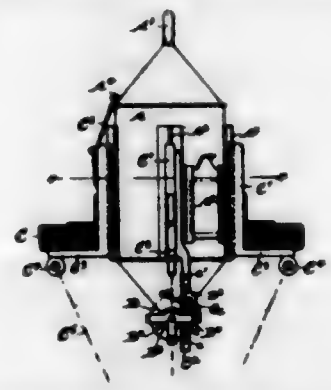


Claim.—1. The combination with a clip, a thill-strap hinged thereto, and a slip-plate, of a spring formed from a single piece of wire bent to form loop-arms at one end and a loop at its other end which bears against the thill-strap, with coils intermediate the loop-arms and the loop, and a bearing-plate having laterally-projecting arms the opposite edges of which are arranged in inclined planes tapering toward each other whereby said arms when inserted in the coils hold the bearing-plate in position, the upper end of the bearing-plate impinging on the outer face of the loop, substantially as described.

2. An antirattler for thill-couplings comprising a spring-coil terminating in outwardly-extending arms and an upwardly-extending loop, and a bearing-plate having laterally-projecting arms the opposite edges of which are arranged in inclined planes tapering toward each other and project into the coil, the upper end of the bearing-plate impinging against the outer face of the loop, as and for the purpose described.

695,921. CHUM-FEEDING MACHINE. FERDINAND B. FORSTER, New York, N. Y. Filed Aug. 8, 1901. Serial No. 71,305. (No model.)

Claim.—1. An apparatus adapted to be suspended in water and means for alternately raising and lowering it therein, the said apparatus comprising two portions, one offering greater resistance to such rising and sinking movements than the other, one of said portions free to move relatively to the first and serving as a receptacle for chum and having a feed mechanism, and the other portion adapted to operate said feed mechanism by the changes in relative positions of the two portions, all combined and arranged to serve substantially as herein specified.



2. An apparatus adapted to be suspended in water from a float subject to the rising and falling action of the waves and to partake in such motion, comprising two portions, one offering greater resistance to such motion than the other, one of said portions serving as a receptacle for chum and having a feed mechanism, and the other portion free to move relatively to the first and adapted to operate said feed mechanism by the changes in relative positions of the two portions, all combined and arranged to serve substantially as herein specified.

3. A receptacle adapted to be suspended in water from a float subject to the rising and falling action of the waves, a plate connected to said receptacle and free to move relatively thereto and formed to resist such rising and sinking movements, and a feed mechanism operated by the changes in relative positions of said receptacle and plate, all combined and arranged to serve substantially as herein specified.

4. A receptacle adapted to contain chum and to be suspended in water from a float subject to the rising and falling action of the waves and to partake in such motion, an annular plate encircling said receptacle and guided thereon and adapted to offer greater resistance to such motion than said receptacle, in combination with a feed mechanism on said receptacle and means for operating it by changes in relative positions of said receptacle and plate, all substantially as herein specified.

5. A receptacle adapted to contain chum, an annular plate encircling said receptacle and free to rise and sink relatively thereto, a feed mechanism on said receptacle, and means for operating it by the rising and sinking of said receptacle relatively to said plate, all combined substantially as herein specified.

6. The receptacle A and casing B thereon having the feed-screw B' therein, the shaft B^2 for the latter, and pinion B^3, ratchet B^4 and pawl B^5 carried on said shaft, in combination with the plate C and rack C^3 thereon adapted to engage said pinion and to turn said feed-screw by the rising and sinking of said receptacle relatively to said plate, substantially as herein specified.

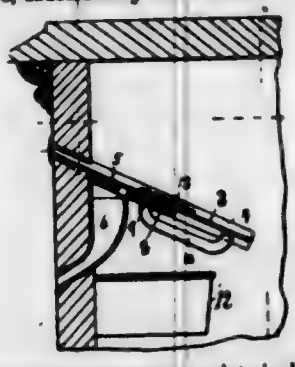
7. The receptacle A adapted to contain chum, and the casing B thereon containing the feed-screw B', shaft B^2 for the latter, and the pinion B^3, ratchet B^4 and pawl B^5 carried on said shaft, in combination with the annular plate C encircling said receptacle and guided thereon, the rack C^3 carried by said plate and engaged with said pinion to turn said feed-screw by the rising and sinking of said receptacle relatively to said plate, and means as the series of holes *c* in said rack and the pins c' c^2 and frame B^6 for limiting the extent of such relative motion and thereby controlling the amount of chum delivered by said feed-screw, substantially as and for the purposes herein set forth.

8. In an apparatus for delivering chum, the receptacle A and casing B thereon containing the feed-screw B', the shaft B^2 for the latter, and the pinion B^3, ratchet B^4 and pawl B^5 carried on said shaft, in combination with the annular plate C, rack C^3 carried thereon and adapted to engage said pinion, the flexible connections from said plate to a suspended sinker D, and connections from the plate to the upper portion of said receptacle, the whole adapted to be submerged and suspended from a float at the water-surface and be operated by the action of waves on said float, all substantially as herein specified.

695,922. COIN-CONTROLLED APPARATUS. BENJAMIN F. FOWLER, Minneapolis, Minn. Filed Feb. 15, 1901. Serial No. 47,485. (No model.)

Claim.—1. In a coin-controlled apparatus, an inclined plate over whose surface the coin is adapted to pass and with an aperture therethrough substantially equal to the diameter of the coin, a stop-plate covering a portion of the under side of said aperture, and a projection centrally of said aperture and extending a short distance above the surface of said plate, whereby washers or other perforated spurious articles are retained and caused to fall through said aperture, substantially as set forth.

2. In a coin-controlled apparatus, a plate inclined longitudinally and transversely and with a guard-rib projecting vertically therefrom at a point at or near its lowermost edge and down which plate the coin is adapted to move with one edge in contact with said rib, said plate having an aperture substantially equal to the diameter of the coin, a stop-plate covering a portion of the under side of said aperture, and a projection centrally of said aperture and extending a short distance above the surface of said plate, whereby washers or other perforated spurious articles are caused to pass down said plate in uniform lines and retained and caused to fall through said aperture, substantially as set forth.



3. In a coin-controlled apparatus, a plate inclined longitudinally and also transversely, and with a guard-rib projecting vertically therefrom near its lowermost edge and down which plate the coin is adapted to move with one edge in contact with said rib, said rib having an aperture next the plate of a less width than the thickness of the legitimate coin and set upon said plate back from its lower edge whereby any spurious article thinner than the legitimate coin will pass through said contracted opening, and a projection, 14, provided to support said spurious article and insure its escape.

695,928. **SAFETY DEVICE FOR SHAFTING.** WILLIAM FRANCIS, Philadelphia, Pa. Filed Apr. 30, 1901. Serial No. 58,150. (No model.)



Claim.—1. The combination of the clamp-hanger *g*, shaft *a*, hollow shaft a^2, pulley a^3, the safety-pulley *c*, provided with the conical hub c^2 and the concaved collar *f*, secured to the shaft *a*, all of said parts, except the shaft *a* and pulley a^3 being split, substantially as shown and described.

2. The combination of the clamp-hanger *g*, shaft *a* hollow shaft c^2 shifting-lever *h*, pulley a^3 loose pulley *c*, and the collar *f*, secured to the shaft *a*, and concaved to receive the conical end c^2 of the hub of said pulley *c*, substantially as shown and described.

695,924. **GARMENT-STRETCHER.** WILLIAM J. GROTENHUIS, Chicago, Ill. Filed Apr. 20, 1901. Serial No. 56,080. (No model.)



Claim.—1. In a trousers-hanger of the class described, the combination of an extensible supporting-bar, means for holding the bar in its extended condition, and clamping mechanism at each end of the bar for grasping the trousers-legs, substantially as described.

2. In a trousers-hanger of the class described, the combination of an extensible supporting-bar made in two sections telescopically fitted together, means for holding the bar in its extended condition, and clamping mechanism at each end of the bar for grasping the trousers-legs, substantially as described.

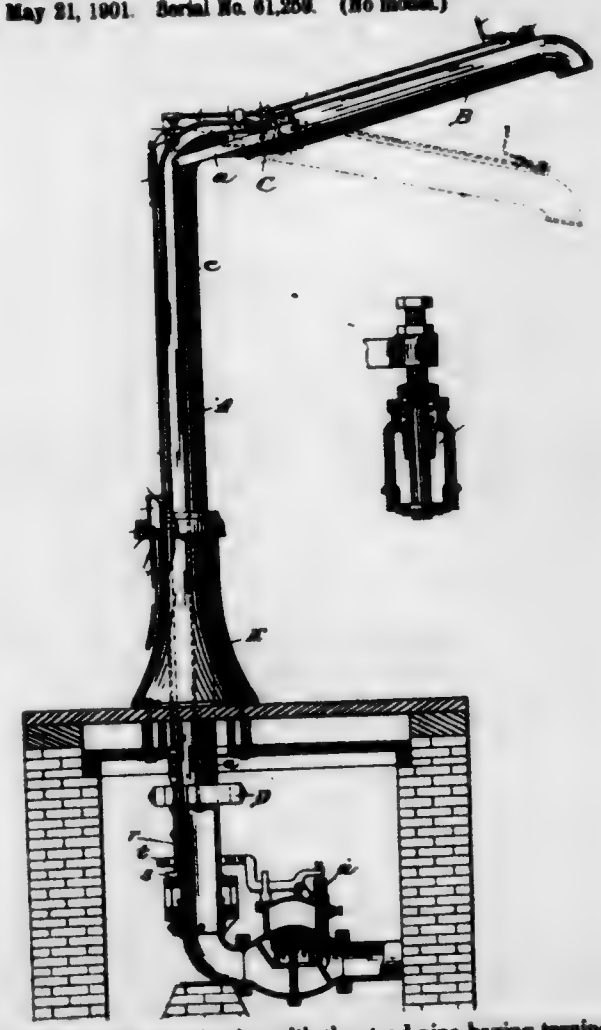
3. In a trousers-hanger of the class described, an extensible supporting-bar, means for holding the bar in its extended condition, a pair of pins at each end of the bar adapted to be inserted within the trousers-legs, and means for clamping the trousers-legs against the pins, substantially as described.

4. In a trousers-hanger of the class described, the combination of an extensible supporting-bar made in at least two sections telescopically fitted together, a spring for holding the bar in its extended condition, a pair of pins arranged at each end of the bar and adapted to be inserted within the trousers-legs, and a clamping-block for grasping the trousers-legs between it and the pair of pins, substantially as described.

5. In a trousers-hanger of the class described, the combination of an extensible bar made in two sections, a shell secured to one section and in which the other is slidingly mounted, a helical spring for holding the sections of the supporting-bar in their extended condition, a pair of pins at each end of the bar and adapted to be inserted within the trousers-legs, a clamping-block outside of each pair of pins for grasping the trousers between it and the pins, and lever mechanism for locking and unlocking the clamping-block, substantially as described.

6. In a trousers-hanger of the class described, the combination of an extensible supporting-bar made in at least two sections, a shell in which both of such sections is mounted and in which one is slidingly mounted, a helical spring between such sections to hold them in their extended condition, a pair of pins at each end of the supporting-bar adapted to be inserted within the trousers-legs for separating the same, a clamping-block outside of each pair of pins for grasping the trousers-legs between it and the pins, spring mechanism for throwing the clamping-blocks outwardly away from the pins, and lever mechanism secured to the bar for operating the clamping-blocks, substantially as described.

695,925. **STAND-PIPE.** CHARLES GULLAND, Pittsburg, Pa. Filed May 21, 1901. Serial No. 61,259. (No model.)



Claim.—In combination with the stand-pipe having turning movement, means for locking the stand-pipe in position, a valve controlling the inflow of water and a single operating connection adapted to actuate both the locking means and the valve-controller, substantially as described.

695,926. **ADHESIVE.** WILLIAM A. HALL, Bellows Falls, Vt. Filed Apr. 11, 1901. Serial No. 55,235. (No specimens.)

Claim.—1. The herein-described casein-glue consisting of casein, zinc oxid, ammonium hydrate and water, in substantially the proportions specified.

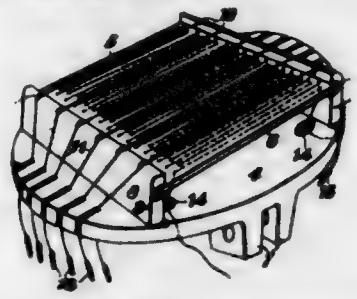
2. The herein-described casein-glue composition consisting of dry powdered casein and powdered zinc oxid, in substantially the proportions specified.

695,927. CASEIN SOLUTION. WILLIAM A. HALL, Bellows Falls, Vt. Filed July 27, 1901. Serial No. 69,223. (No specimens.)

Claim.—1. The herein-described casein solution, formed of muriatic-acid precipitated casein, phosphate of soda, and water, in substantially the proportions stated.

2. The herein-described casein solution formed of muriatic-acid precipitated casein, triphosphate of soda, and water, in substantially the proportions stated.

695,928. REMOVABLE HEATER FOR ELECTRIC LAMPS. MARSHALL W. HANER, Pittsburg, Pa., assignor to George Westinghouse, Pittsburg, Pa. Filed Mar. 22, 1901. Serial No. 52,650. (No model.)



Claim.—1. In an electric lamp of the type described, the combination with one or more glowers, of a non-conducting support having guideways and a heater mounted in said guideways and removable therefrom.

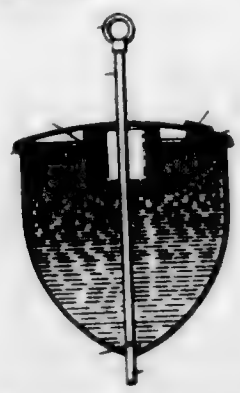
2. In an electric lamp of the type described, the combination with a plurality of glowers, of a non-conducting holder having guideways substantially parallel to the plane of the glowers and a plate-heater mounted in and movable along said guideways.

3. In an electric lamp of the type described, the combination with one or more glowers, and a non-conducting holder provided with supporting-recesses, of a heater, the ends of which are removably located in said recesses.

4. In an electric lamp of the type described, the combination with one or more glowers and a non-conducting holder having guideways, of a non-conducting plate having a heater-wire disposed thereon and removably supported in said guideways.

5. In an electric lamp of the type described, the combination with one or more glowers, and a non-conducting holder provided with recesses adjacent to the glower or glowers, of a heater having its ends removably supported in said recesses.

695,929. SAFETY DEVICE FOR USE IN FILLING FLUID-RESERVOIRS. JOHN F. HARDY, Monticello, Ind. Filed Sept. 21, 1900. Serial No. 30,711. (No model.)



Claim.—1. A fluid safety-reservoir provided with means for retaining therein a shiftable body with its principal part below the highest level to which the reservoir may be filled, at the time the reservoir is being filled, and which, at the time the reservoir is filled, has its principal part located below the level of the fluid, the parts being arranged to permit the reservoir to be filled to its maximum available capacity at the time of such filling, and said body thereafter shifting upwardly and having its principal part emerged from the body of the fluid to permit the general level of the fluid in the reservoir to be lowered.

2. A fluid-reservoir provided with means for retaining therein a shiftable body with its principal part below the highest level to which the reservoir may be filled, at the time the reservoir is being filled, and which, at the time the reservoir is filled, has its principal part located below the level of the fluid, and means causing said body to thereafter automatically shift upwardly, with its principal part emerged from the body of the fluid to permit the general level of the fluid in the reservoir to be lowered.

3. The combination with a fluid-reservoir and a discharge-pipe leading therefrom, of means acting to limit the supply of fluid to the reservoir during the replenishment thereof, and constructed to automatically lower the level of the fluid within the reservoir after the replenishment thereof.

4. A fluid-reservoir provided with a discharge-passage and with means for automatically lowering the level of the fluid in the reservoir after the reservoir has been filled, while retaining the entire volume of the fluid within the reservoir.

5. A fluid-reservoir provided with a discharge-passage, a chamber containing a body of air and means affording communication between said reservoir and chamber, said body of air being located above said communicating means, and said means being constructed to temporarily retard the entrance of fluid to the said air-chamber while the reservoir is being filled, and after such filling permitting a portion of said fluid to enter said chamber to thereby displace a quantity of said body of air whereby the general level of the fluid in said reservoir is lowered.

6. A fluid-reservoir provided with a discharge-passage, a chamber containing a body of air, said discharge-passage being independent of said chamber, and means affording communication between said reservoir and chamber, said means being constructed to temporarily retard entrance of fluid to said air-chamber while the reservoir is being filled and after said filling permitting a portion of such fluid to enter said chamber to thereby displace a quantity of the said body of air, whereby the general level of the fluid in said reservoir is lowered.

7. A fluid-reservoir provided with a discharge-passage and communicating with a chamber which is constructed to retain therein a body of air above the level of the discharge-opening of the reservoir, when the reservoir is being filled, and means automatically causing the body of air to be thereafter displaced by a like volume of fluid from the reservoir to lower the general level of the fluid within the reservoir.

8. A fluid-reservoir communicating with a chamber which is constructed to retain therein a body of air above the discharge-orifice of the reservoir, at the time the reservoir is being filled, and provided with a discharge-passage independent of said chamber adapted to communicate directly with a burner, and means automatically causing the body of air to be thereafter displaced by a like volume of fluid from the reservoir to lower the general level of the fluid in the reservoir.

9. A fluid-reservoir communicating with a chamber having its principal part located below the highest level to which the reservoir may be filled, and above the level of the discharge-orifice of the reservoir, and means automatically causing a body of air in said chamber to be thereafter displaced by a like volume of fluid from the reservoir.

10. A fluid-reservoir communicating with a chamber which is constructed to retain therein a body of air during the time the reservoir is being replenished and automatic means thereafter effecting an interchange of the air and fluid, whereby the general level of the fluid in the reservoir is lowered.

11. The combination with a fluid-reservoir, of a chamber having its principal part located below the highest level to which the reservoir may be filled, said chamber being provided at its top and bottom with openings through which it communicates with the reservoir, one of said openings being made of such size relative to the size of the filling-opening of the reservoir and to the capacity of the chamber, that the filling of the chamber is appreciably retarded as compared with the flow of fluid to the reservoir.

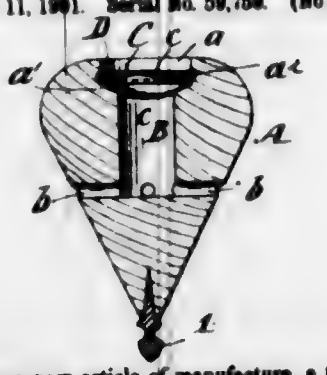
12. The combination with a fluid-reservoir, of a chamber therein which has an opening at its top located above the highest level to which the reservoir may be filled and provided in its bottom with an opening through which it communicates with the reservoir, said last-mentioned opening being made of such size relative to the size of the filling-orifice of the reservoir and the capacity of the chamber that the filling of the chamber by the entrance of fluid through the opening is appreciably retarded as compared to the flow of fluid to the reservoir.

13. The combination with a fluid-reservoir, of a discharge-pipe passing upwardly therethrough and means supported on said pipe within the reservoir acting to limit the supply of fluid to the reservoir during the period of replenishment thereof, and constructed to bring the final level of the fluid in the reservoir a distance below the filling-orifice thereof.

14. The combination with a fluid-reservoir, of a feed-pipe passing upwardly therethrough and provided inside the reservoir with an orifice through which the fluid is discharged from the reservoir, and a casing supported on said pipe which has communication with the reservoir through an opening of such size relative to the size of the filling-orifice of the reservoir and the capacity of the chamber that the filling of the chamber by the entrance of fluid through the opening is appreciably retarded as compared with the flow of fluid to the reservoir and said chamber being pro-

vided also with another opening located above the highest level to which the reservoir may be filled.

695,980. SPINNING-TOP. JOHN J. HERRMEY, New Kensington, Pa. Filed May 11, 1901. Serial No. 59,759. (No model.)

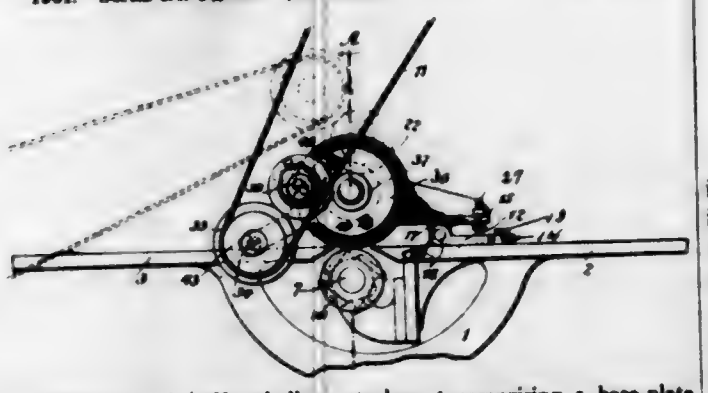


Claim.—1. As a new article of manufacture, a top having a vertical central opening, a plurality of radial openings leading therefrom through the sides of the top, a vertical central recess communicating with the said vertical central opening and having a concaved bottom and an annular groove, the bottom of said recess adapted to engage a whistle having a convex surface, and the annular groove adapted to engage a fastening device for securing the whistle, substantially as shown and described.

2. The combination, with a top having a vertical central opening, a plurality of radial openings leading outwardly therefrom, a vertical central cylindrical recess communicating with the said opening and which has a concave bottom and an annular groove, of a whistle embodying two convex disks secured together at their meeting edges, and a spring-fastener engaging partly within the said annular groove and partly over the top edge of the whistle, whereby said whistle cannot be shaken out of place and it is located for protection with its top surface below the upper surface of the top-body, substantially as shown and described.

3. The combination, with the top A, having the vertical central opening B, and a plurality of radial openings *b*, leading outwardly therefrom, the cylindrical recess *a*, having the concave bottom *a'*, and the annular groove a^2; of a hollow whistle embodying two convex disks centrally pierced and secured to each other at their periphery and fitting snugly within the bottom of the recess, and means embodying a split ring engaging within the groove and over the edge of the whistle to keep said whistle securely in place, substantially as shown and described.

695,981. KNIFE-GRINDING ATTACHMENT FOR PLANING-MACHINES. BENJAMIN HEYWOOD, East Orange, N. J. Filed June 12 1901. Serial No. 64,296. (No model.)



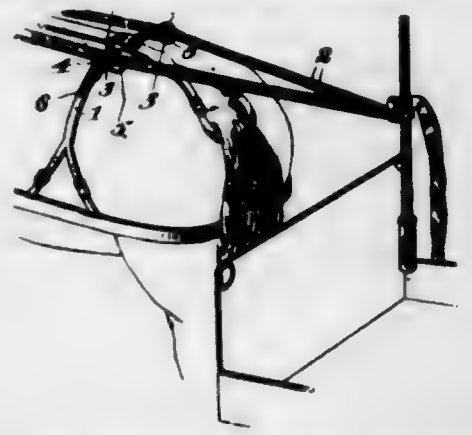
Claim.—1. A knife-grinding attachment comprising a base-plate fitted to be removably secured to the top of the table of a planing-machine in proximity to its cutter-head, a rocking plate hinged to the base-plate, arms projecting from the rocking plate, a shaft mounted to rotate in the arms, a grinding-wheel mounted to rotate with the shaft and free to slide along the same in position to grind the knives in the cutter-head, and means for adjusting the rocking plate and thereby the grinding-wheel toward and away from the cutter-head, substantially as set forth.

2. A knife-grinding attachment comprising a base-plate, a rocking plate hinged thereto, a grinding-wheel, a grinding-wheel shaft mounted in the rocking plate, a rocking disk mounted concentric with the shaft, a driving-pulley carried by the disk and connected with the shaft for driving it and means for clamping the disk in its different positions, substantially as set forth.

3. A knife-grinding attachment comprising a base-plate, a rocking plate hinged thereto, arms projecting therefrom, a grinding-wheel, a grinding-wheel shaft mounted to rotate in said arms, a rocking disk concentric to the said shaft and having an annular tongue-and-groove connection therewith, a driving-pulley carried by said disk connected with the shaft and means for locking the disk in its different positions, substantially as set forth.

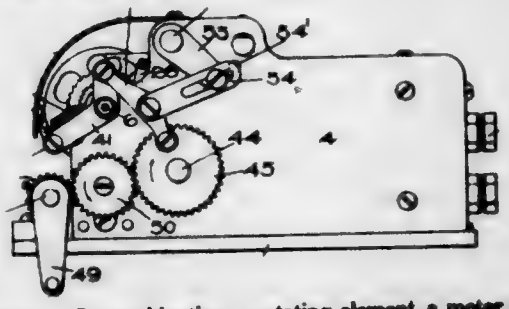
4. A knife-grinding attachment comprising a base-plate, a rocking plate, arms projecting therefrom, a grinding-wheel, a grinding-wheel shaft mounted to rotate in said arms, one of the said arms having a dovetailed annular groove therein concentric with the shaft, a rocking disk having an annular tongue fitted to the narrowed portion of the annular dovetailed groove in the arm and guide-bolts having their heads located in said dovetailed groove and their shanks projected through the disk, clamp-nuts engaging the shanks for clamping the rocking disk to the arm in its several positions and a driving-pulley carried by the disk connected with the shaft for driving it, substantially as set forth.

695,982. REIN-GUARD. GEORGE W. HIXMAN, Lake Charles, La. Filed Apr. 18, 1901. Serial No. 56,407. (No model.)



Claim.—The combination with the harness, of a rein-support comprising a strap, one end of which is attached to the hip-strap and the other end of which is formed with a flat, circular enlargement, a loop secured to said strap, and a ring loosely hung on said strap and adapted when laid flat to surround the edges of said circular enlargement, substantially as set forth.

695,983. ELECTRICALLY-ACTUATED COUNTER. HERMAN HOLLERITH, Washington, D. C., assignor to the Tabulating Machine Company, a Corporation of New York. Filed May 22, 1901. Serial No. 61,454. (No model.)



Claim.—1. In combination, a rotating element, a motor for actuating said element, a resetting means which moves said element toward an initial position, actuating devices for said resetting means, and means controlled by said actuating devices for completing said movement independently of the resetting means.

2. In combination, a rotating member, a motor for driving the member in a step-by-step manner, a resetting means which moves the member in the same direction as the motor toward an initial position, and a means for causing the motor to complete the act of resetting.

3. In combination, a counter-wheel, a motor device for moving the wheel, a resetting-bar for moving the wheel to a point approximating an initial position, and means acting directly on the motor device for completing the act of resetting.

4. In combination, a wheel, a motor device for moving the wheel, a resetting-bar for moving the wheel to a point approximating an initial position, means comprising a spring, for acting on the motor device to complete the act of resetting.

5. In combination, a plurality of rotary counting members, a resetting-bar for moving the members toward an initial position, means for producing corresponding movements at opposite ends of the bar, and other means for completing the act of resetting.

6. In combination, a plurality of rotary wheels, motors for moving certain of the wheels, means for imparting motion between the motor-driven wheels and the others, a resetting-bar which acts on all of the wheels and moves them toward an initial position, and means acting through the motors for completing the act of resetting.

7. In combination, a plurality of rotary counter-wheels, motors for moving certain of the wheels, a resetting-bar which acts on all of the wheels, and moves them toward an initial position, a cam and pawl for

transmitting motion from the driven to the adjacent wheels, and manually operated means which impart movement to the motors and through them complete the act of resetting.

8. In combination, a plurality of rotary counter-wheels, motors for actuating the wheels, a resetting-bar which extends parallel with the wheels, levers located on opposite ends of the bar for actuating it, gearing for moving the levers, means acting on the motors for completing the act of resetting, and mechanical connections between the means and the gearing.

9. In combination, a plurality of rotary counter-wheels, motors for moving the wheels, a resetting-bar which moves the wheels toward an initial position, gearing for imparting corresponding movements to the ends of the bar, an oscillating shaft which acts on the motors, for completing the act of resetting, and gearing between the resetting-bar and the shaft whereby the parts are made to move in proper sequence.

10. In combination, a counter-wheel, a magnet, an armature therefor which advances the wheel, a resetting-bar which moves the wheel toward an initial position, an oscillating shaft, a means carried by the shaft for engaging with the armature and causing it to move the wheel to an initial position, and gearing between the resetting-bar and the shaft.

11. In combination, a plurality of rotary counter-wheels, a pin located in the periphery of each wheel, a motor for actuating the wheels, a bar arranged to engage with the pins for the purpose of resetting the wheels, a means pivoted on the wheel-shaft for moving the bar, a driving-shaft, and gearing between said means and the driving-shaft.

12. In combination, a rotary member, a cam carried thereby, a second rotary member having the same axis of rotation, a lever which engages with the cam, a pawl mounted on the lever, and a single spring for holding the lever in engagement with the cam and the pawl in engagement with the second rotary member.

13. In combination, a plurality of rotary counter-wheels having the same axis of rotation, a cam and a ratchet mounted on opposite sides of the wheels, a lever which extends between each pair of wheels and engages with the cam of one wheel and the ratchet of another for transmitting motion from one to the other, and a motor for imparting an initial movement to the wheels.

14. In combination a plurality of counter-wheels of equal diameter bearing a series of numbers on their peripheries, a shaft on which each wheel is directly but rotatively mounted, a ratchet concentrically mounted on each wheel, transfer devices comprising a spring-actuated lever which stands between each pair of wheels and supports a pawl entirely inside the peripheral line of the wheels for engaging said ratchet, a stop-pawl for each wheel arranged to engage said ratchet, a shaft closely adjacent to the periphery of said wheels on which all the levers and all the stop-pawls are pivotally mounted and springs for actuating the levers and pawls, substantially as shown and described.

15. In a counter, the combination of a plurality of wheels mounted on a common shaft, a frame on which the shaft is supported, pawls for holding the wheels in position, levers for transferring motion from one to the other, a support common to the pawls and levers, springs for actuating the levers, other springs for actuating the pawls, a support which is common to the springs, and a motor for imparting an initial movement to the wheels.

16. In a counting mechanism, the combination of a set of counter-wheels, motion-transmitting mechanism interposed between the wheels, an electromagnetically-operated actuating mechanism for the first wheel of each train, projections on the wheels, a resetting-bar for coöperating with the projections, pivoted means for supporting the bar, and a resetting-shaft having pinions coöperating with the pivoted means.

17. In a counting mechanism, the combination of a frame, a plurality of rotary wheels divided into groups, ratchets on the wheels, a shaft for the wheels mounted in the frame, a base connecting the front and back of the frame, electromagnets mounted on the base, each magnet being located directly back of the set of wheels it operates and having its poles arranged in a line at right angles to the wheel-shaft, armatures for the magnets pivotally secured to a common support, retractile springs for the armatures, actuating means carried by the armatures which engage with ratchet-wheels on the sides of the wheels at a point below the periphery, and a resetting-bar which oscillates outside of the path of the actuating means.

18. In a counter the combination of a plurality of revolvable counter-wheels having a common axis, an electromagnet for each counter located behind the wheels and having its poles alined at right angles to the axis of the wheels, an armature for the magnet carrying a pawl which engages with a ratchet on the units-wheel to advance the said wheel one tooth when the armature is actuated, a transfer-lever arranged between each pair of wheels, a cam on the wheel of lower denomination for gradually setting and quickly releasing the transfer-lever, a pawl carried by the transfer-lever and arranged to engage the wheel of higher denomination, a spring for actuating the lever to effect the transfer, and resetting means comprising fixed projections on the wheels, an oscillating bar, and means for oscillating said bar back and forth over the peripheries of all the wheels in the counter, substantially as shown and described.

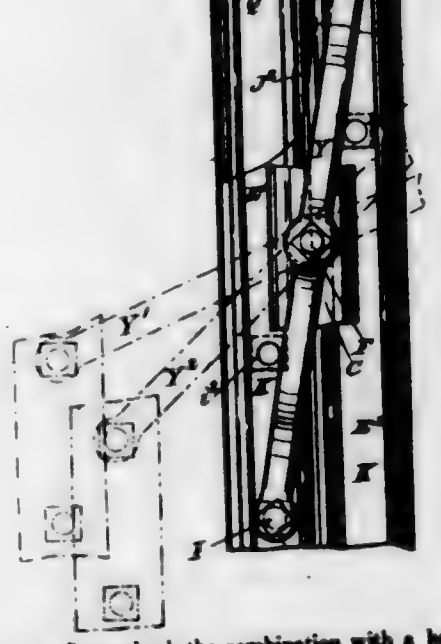
19. In a counter, the combination of a plurality of revoluble counter-wheels having a common axis, an electromagnet for each counter located behind the wheels and having its poles alined at right angles to the axis of the wheels, an armature for the magnet carrying a projection which engages with a ratchet on the units-wheel to prevent overthrow, and a pawl which engages with another ratchet on the units-wheel to advance said wheel one tooth when the armature is actuated, a transfer-lever arranged between each pair of wheels, a cam on the wheel of lower denomination for gradually setting and quickly releasing the transfer-lever, a pawl carried by the transfer-lever and arranged to engage the wheel of higher denomination, a spring for actuating the lever to effect the transfer and resetting means comprising fixed projections on the wheels, an oscillating bar and means for oscillating said bar back and forth over the peripheries of all the wheels in the counter, substantially as shown and described.

20. In an electrically-actuated counter the combination with a plurality of counter-wheels, comprising a units-wheel and wheels of higher denomination, resetting means for moving all the wheels simultaneously toward an initial position and for moving the units-wheel into its initial position and means actuated by the movement of the units-wheel into its initial position for moving the remaining wheels into their initial positions.

21. In combination, a plurality of counter-wheels, including a driving-wheel and wheels of higher denomination driven thereby, resetting mechanism common to all of the wheels for moving them toward an initial position, and a means coöperating with said mechanism for causing the driving-wheel to complete the act of resetting.

22. In combination, a plurality of rotary counter-wheels, motors for moving certain of the wheels, means for imparting motion between the motor-driven wheels and the others, a resetting member which acts on all the wheels simultaneously and moves them toward an initial position and means for completing the act of resetting.

695,984. WHEEL. CHARLES L. HORACK, New York, N. Y. Filed Aug. 3, 1898. Serial No. 687,582. (No model.)



Claim.—1. In a wheel, the combination with a hub, of two rims, each provided with a proper bearing-surface, means for connecting said hub with said rims, and mechanism for varying the distance between said bearing-surfaces.

2. In a wheel, the combination with a hub, of two rims, each provided with a flexible tire, means for connecting said hub with said rims, and mechanism for varying the relative positions of said rims.

3. The combination with two wheel-rims, of a hub and continuous braces secured to said rims and attached to said hub, and means for varying the relative positions of said braces and said rims.

4. The combination with two wheel-rims, of a support for said rims constructed as a wheel comprising a hub, a rim and intermediate spokes, and adjustable connections between said rims and said wheel.

5. The combination with two wheel-rims, one adapted to be revolved with reference to the other, of a hub, and means interposed between said hub and said rims for confining the latter in varying relative positions.

6. The combination with two wheel-rims one adapted to be revolved

and to be displaced laterally with reference to the other, of a hub, and means interposed between the hub and said rims for confining the latter in proper relative positions.

7. The combination with two wheel-rims, of a hub, braces interposed between the rims and the hub, and means for attaching such braces at oblique angles relative to the longitudinal planes of said rims.

8. The combination with two wheel-rims, of a hub, braces interposed between the rims and the hub, and means for attaching said braces at varying angles relative to the longitudinal planes of said rims.

9. The combination with two wheel-rims, of a hub, and braces attached to the rims and the hub, and means for attaching alternate braces at oblique angles relative to the longitudinal planes of said rims, intermediate braces being placed staggering with reference to said alternate braces.

10. The combination with two wheel-rims, of a hub, braces secured to said rims and said hub, elastic bolsters and means for interposing the same between said hub and said braces.

11. The combination with two wheel-rims, of a hub, means for adjusting said rims at varying relative positions, and contact portions on said rims adapted to interlock.

12. In a wheel-rim, the combination with two annular members adapted to be adjusted in a lateral direction, of a suitable tire, and proper stays between said members.

13. In a wheel-rim, the combination with two annular members adapted to be adjusted in a lateral direction of a suitable tire and independent stays between the upper portions and between the lower portions of said members.

14. In a wheel, the combination with a rim, comprising two upright annular metallic members and lateral stays between the same capable of relative adjustment, combined with a hub and proper connections between rim and hub.

15. In a wheel-rim, the combination of a series of the members forming the same arranged in a continuous U-shaped body, with an elastic membrane interposed between portions of three such members and placed between the branches of said U-shaped body.

16. In a wheel-rim the combination with a continuous body of U-shaped cross-section comprising three annular members, of a continuous membrane interposed between said three members and forming with the same a body of annular cross-section.

17. In a wheel-rim, the combination with two rigid vertical members, of an interior and an exterior elastic member each interposed between said rigid members, the four members inclosing an air-space, and proper stays for maintaining said members in position.

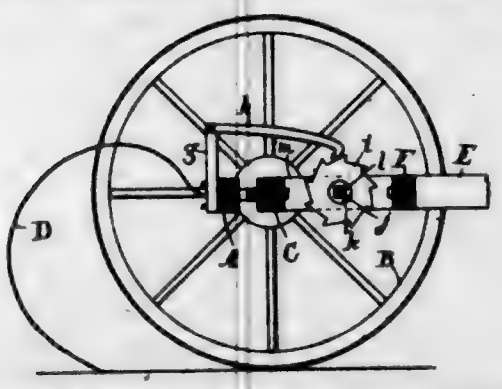
18. In a wheel-rim, the combination with two rigid upright members and an inner and an outer lateral member interposed between the same, of an inner and an outer flexible member interposed between the upright members and together with the same inclosing an air-space.

19. In a wheel-rim, the combination with two rigid upright members and an inner and an outer lateral member interposed between the same, of an inner and an outer flexible member interposed between the upright members and together with the same inclosing an air-space, and an inflating-valve.

20. In a wheel, the combination with its hub, of a hollow rim and a flexible tire jointly inclosing an air-space, and a continuous flexible membrane between the portion of the rim to which said stays are attached and the air-space between rim and tire.

21. In a wheel-rim, the combination with two lateral members and two interposed upright members, of independent detachable securing means for holding one of the upright members to other members of the rim.

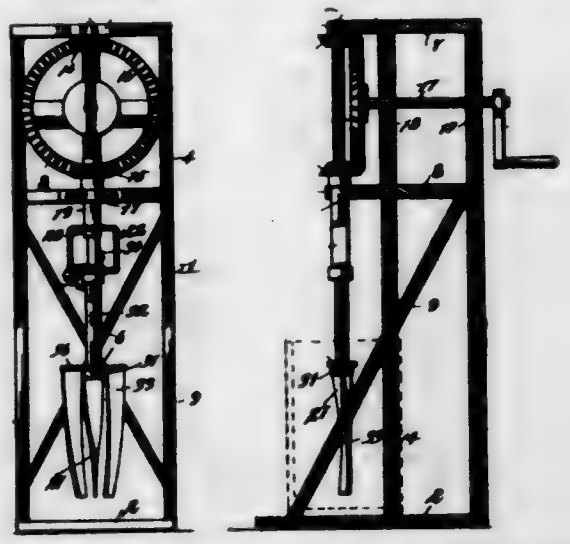
695,935. **ATTACHMENT FOR HORSE-RAKES.** MARTIN JEWELL, Clinton, Mo. Filed Nov. 11, 1901. Serial No. 81,932. (No model.)



Claim.—1. In a horse hay-rake the combination of a ratchet-wheel pivoted to the body of the rake, means for applying friction to said wheel and a pawl pivoted to the rake-head adapted to engage said ratchet.

2. In a horse hay-rake the combination of a ratchet-wheel pivoted to the body of the rake, means for applying friction to said wheel an arm secured to the rake-head, a pawl pivoted to said arm and adapted to engage said wheel.

695,986. **CHURN.** TRACY S. KITCHEN, Willard, Ky. Filed July 23, 1901. Serial No. 69,431. (No model.)

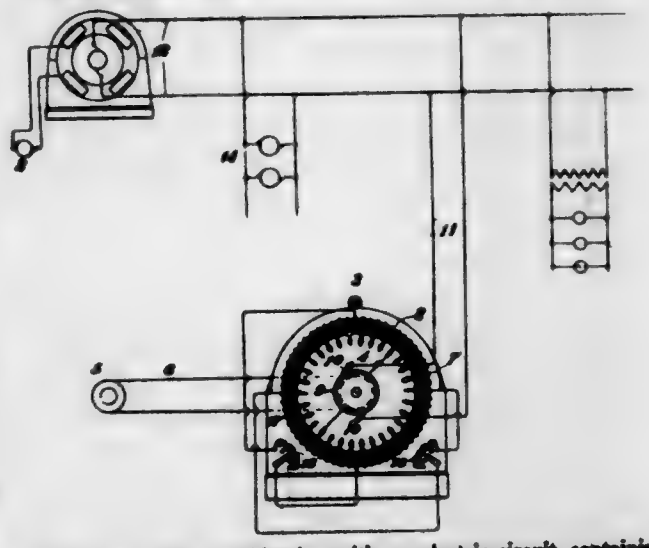


Claim.—1. The combination of a frame, a vertical shaft provided at its lower end with a socket, a rotary sleeve arranged on the shaft and having a loop at its lower end, an inner dasher having a stem fitting in the socket of the shaft, a catch mounted on the shaft and located within the loop and engaging the stem of the inner dasher, an outer dasher having a tubular stem arranged on and supported by the stem of the inner dasher and detachably interlocked at its upper end with the bottom of the loop and retained in such engagement by the said catch, and gearing for rotating the sleeve and the shaft, substantially as described.

2. The combination of a frame, a vertical shaft, a rotary sleeve mounted on the shaft and provided at its bottom with a loop, an outer dasher having a tubular stem provided with a lug interlocked with the bottom of the loop, an inner dasher having a stem extending through the tubular dasher-stem and engaging and supporting the outer dasher, a fastening device located within the loop and securing the stem of the inner dasher to the shaft and holding both dashers in position, and gearing for rotating the dashers, substantially as described.

3. The combination of a frame, a vertical shaft, a sleeve mounted on the vertical shaft and provided at its lower end with a loop, an outer dasher having a tubular stem interlocked with the loop and provided with spiral blades spaced apart, an inner dasher arranged in the space between the said blades and provided with a spiral blade, said inner dasher engaging the outer dasher to hold the same in engagement with the loop, and a locking device located within the loop and securing the inner dasher to the shaft, substantially as described.

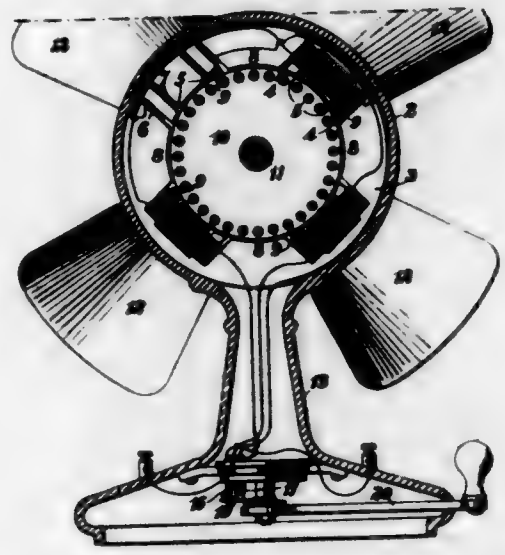
695,987. **ALTERNATING-ELECTRIC-CURRENT GENERATING AND DISTRIBUTING SYSTEM.** BENJAMIN G. LAMME, Pittsburg, Pa., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed July 31, 1896. Serial No. 601,182. (No model.)



Claim.—1. The combination with an electric circuit containing a motor or motors having field-magnets of fixed polarity, of a machine having a secondary winding closed upon itself and having a primary winding connected to said circuit and receiving its exciting-current solely from said motor or motors and driven as a generator to supply current to said circuit.

2. In an alternating-current generating and distributing system, the combination with a work-circuit containing motors having field-magnets of fixed polarity, of a generator for said circuit having a primary winding receiving exciting-current solely from said motors and supplying working current to said circuit and having a secondary winding closed upon itself and excited by induction from said primary winding.

695,938. ALTERNATING-CURRENT MOTOR. BENJAMIN G. LAMME, Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed July 14, 1900. Serial No. 23,653. (No model.)



Claim.—1. In an induction-motor, a primary member having a cylindrical core provided with a plurality of sets of slots, those of each set being parallel to a radial plane and having concentric coils therein, in combination with a secondary member rotatably mounted within said primary member.

2. In an induction-motor, a primary member having a laminated, cylindrical core provided with a plurality of sets of slots and comparatively wide intervening spaces, the slots of each set being parallel to a radial plane and containing concentric coils, in combination with a secondary member rotatably mounted within the primary member.

3. In an induction-motor, the combination with a plurality of actuating-coils or sets of coils in combination with a switch for connecting said coils or sets of coils in two parallel groups for a minimum number of corresponding magnetic poles which shall be alternately of opposite sign and for connecting said coils or sets of coils in series to produce a maximum number of magnetic poles, those corresponding in position to the coils being of the same sign.

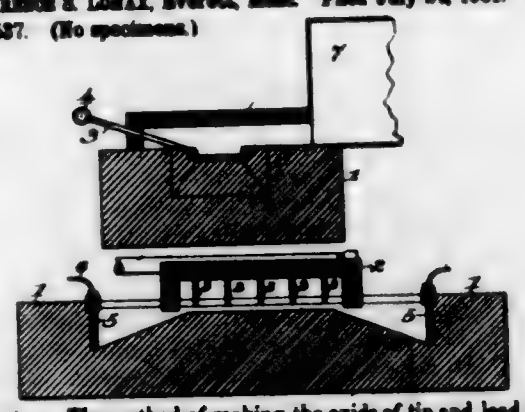
4. In an alternating-current induction-motor, a primary member comprising a core having a cylindrical inner periphery provided with slots localized in sets, and with intervening relatively wide, unslotted spaces and coils located in said slots, in combination with a controlling device adjustable to so connect the coils as to produce poles alternating in sign and corresponding to the coils in number and position for one rate of speed and also adjustable to so connect the coils as to produce corresponding poles of one sign and intervening consequent poles of the opposite sign.

5. In an alternating-current, two-speed motor, a primary member comprising a core having a cylindrical inner periphery provided with localized slots and relatively wide intervening spaces and coils located in said slots, in combination with means for connecting said coils to produce either poles corresponding in number and position to the coils or double that number.

6. In an alternating-current motor, a primary member comprising a core having a cylindrical inner periphery provided with localized slots and relatively wide intervening spaces and coils located in said slots, in combination with means for connecting said coils to produce poles corresponding in number and position to the coils and alternating in sign and for connecting said coils to produce corresponding poles of the same sign and intervening, consequent poles of the opposite sign.

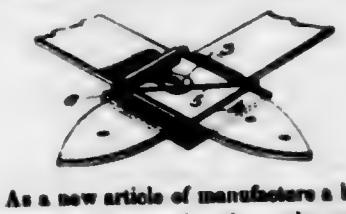
7. In an alternating-current motor, a primary member comprising a core having a cylindrical inner periphery provided with localized slots containing coils, the core portions between the coils being approximately equal to the portions surrounded by them, in combination with means for connecting said coils to produce poles corresponding in number and position to the coils and alternating in sign and for connecting said coils to produce corresponding poles of the same sign and intervening, consequent poles of the opposite sign.

695,939. METHOD OF MAKING OXIDS OF TIN AND LEAD. CLARENCE S. LOMAX, Everett, Mass. Filed July 24, 1901. Serial No. 69,537. (No specimens.)



Claim.—The method of making the oxids of tin and lead which consists in maintaining a horizontal layer of the metal of uniform cross-sectional area throughout its length in an oxidizing-chamber in a molten condition and at a suitable temperature for rapid oxidation by the action of a current of electricity conducted thereto by bodies of the metal of larger cross-sectional area, and in subjecting the metal in the oxidizing-chamber to the action of a current of oxidizing reagent which oxidizes the metal and carries away the metallic oxid, substantially as described.

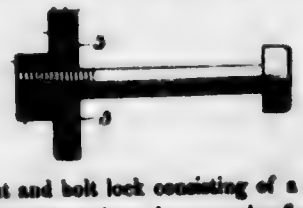
695,940. DIP-WAIST-BELT BUCKLE. ELI R. LOWRY, New York, N. Y., assignor of one-half to James J. Frawley, New York, N. Y. Filed July 8, 1901. Serial No. 67,519. (No model.)



Claim.—1. As a new article of manufacture a buckle-frame having a tongue on one side and a clasp and a pin on the opposite side disposed in relation to each other whereby a belt is fastened around the waist of the wearer with its ends in crossed dipping form.

2. A dip-waist-belt buckle having its frame provided with a tongue on one side, a clasp hinged on the other so as to stand at right angles to the tongue, and a pin hinged on the same side so as to obliquely cross the tongue and the pin whereby the ends of the belt are fastened in crossed dipping form and secured to the wearer with the pin standing horizontally across the crossed ends of the belt.

695,941. NUT-LOCK. HENRY J. MEEKS, Boardstown, Ill. Filed Aug. 2, 1901. Serial No. 70,576. (No model.)



Claim.—1. A nut and bolt lock consisting of a disk having a perforation adapted to receive the bolt, and an annular flange located on said disk, a segment having on one edge serrations adapted to engage said flange and on its other edge saw-tooth projections adapted to engage the bolt, and a means for securing the nut to the disk.

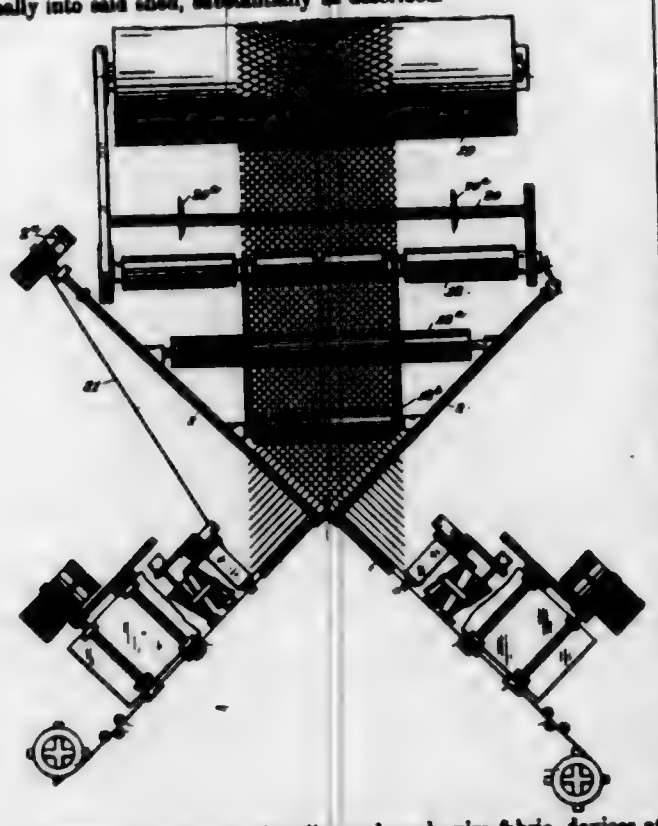
2. A nut and bolt lock consisting of a disk having a central perforation adapted to receive the bolt, and an annular flange located on the disk, segments having at their outer edges serrations adapted to engage the flange and at their inner edges saw-tooth projections adapted to engage the bolt, a plate having a perforation adapted to receive the bolt, said plate having a lug adapted to enter a recess on the outer face of the disk, the end of the said plate adapted to be bent at an angle along the side of the nut.

695,942. WIRE-WEAVING MACHINE. WILLIAM W. MCCALLIP, Columbus, Ohio. Filed June 3, 1901. Serial No. 62,962. (No model.)

Claim.—1. In a machine for weaving diamond-mesh wire fabric, devices for elevating and depressing alternate wires to form a shed, combined with means for automatically inserting separate strands diagonally into said shed at angles to one another, substantially as described.

2. In a machine for weaving diamond-mesh wire fabric, devices at opposite sides of the fabric for elevating and depressing alternate wires to form sheds, combined with means for automatically inserting separate strands diagonally into said sheds at angles to one another, substantially as described.

3. In a machine for weaving diamond-mesh wire fabric, devices for elevating and depressing alternate wires to form a shed, combined with mechanism for crimping and automatically inserting separate strands diagonally into said shed, substantially as described.



4. In a machine for weaving diamond-mesh wire fabric, devices at opposite sides of the machine for elevating and depressing alternate wires to form sheds, means for moving the fabric so that the strands shall be carried laterally from the elevators to the depressors, guiding-channels for directing wires into said sheds having their exit ends lying in different planes, substantially as described.

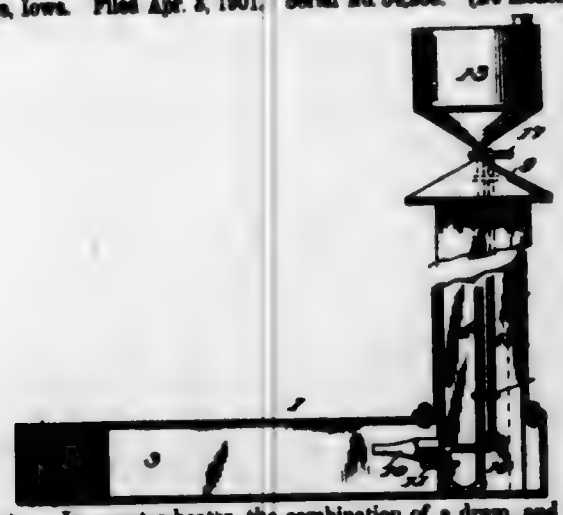
5. In a machine for weaving wire fabric, a series of alternating wire elevating and depressing fingers provided with wire-guiding openings, substantially as described.

6. In a machine for weaving wire fabric, a series of alternating wire elevating and depressing fingers provided with wire-guiding openings located in said fingers beyond the ends thereof, substantially as described.

7. In a machine for weaving wire fabric, a series of alternating wire elevating and depressing fingers provided with conical wire-guiding openings, substantially as described.

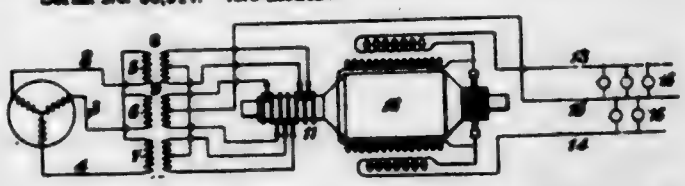
8. In a machine for weaving diamond-mesh wire fabric, a pair of rotary shafts carrying wire elevating and depressing fingers adapted to form a shed in the fabric, means for automatically inserting wire into said shed, means for moving the fabric laterally from the elevators to the depressors, mechanism for cutting the wire into definite lengths, and means for automatically operating the wire elevators and depressors upon the operation of the cutting mechanism, substantially as described.

695,948. TANK-HEATER AND FEED-COOKER. ELECK PAULSON, Omaha, Iowa. Filed Apr. 3, 1901. Serial No. 54,208. (No model.)



Claim.—In a water-heater, the combination of a drum, and a vertical tube communicating with one end of the drum, said drum and tube being divided by vertical partitions, the partition of the tube being hinged to the side thereof, and a removable burner adapted to be lowered into said tube and to extend into one side of the drum, said burner being of greater length than the width of said tube, substantially as described.

695,944. SYSTEM OF ELECTRICAL DISTRIBUTION. JOHN S. PEEK, Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed May 18, 1901. Serial No. 60,917. (No model.)



Claim.—1. The combination with an electrical machine for supplying energy to a three-wire, direct-current circuit, of three transformers each of which has two windings that are connected to the armature of said electrical machine and are also reversely connected to the balancing-conductor of the three-wire circuit so that currents flowing through said balancing-conductor will exert zero magnetizing effects upon the transformer-cores.

2. The combination with an electrical machine for supplying energy to a three-wire, direct-current circuit, of three transformers each of which has two windings that are connected to the armature of said machine and also reversely connected to the balancing-conductor in star arrangement so that the said windings of each transformer are opposed to each other when traversed by balancing-current.

3. The combination with an electrical machine for supplying energy to a three-wire, direct-current circuit, of three transformers each of which has two secondary windings which are connected to the armature and are also reversely connected to the balancing-conductor of the three-wire circuit, whereby balancing-currents exert zero magnetizing effects upon the transformer-cores.

4. The combination with a rotary converter for converting three-phase, alternating-current energy into direct-current energy for three-wire circuits, of three transformers for supplying the energy to the converter, each of which has two secondary windings that are reversely connected to the balancing-conductor of the three-wire circuit, all of said secondary windings being coupled together in star connection.

5. The combination with a rotary converter for converting three-phase alternating-current energy into direct-current energy for three-wire circuits, of three transformers for supplying energy to the converter, each of which has two secondary windings that are reversely connected to the balancing-conductor of the three-wire circuit, all of said secondary windings being interconnected for supplying energy to the rotary converter.

695,945. FOUNTAIN LIQUID-HOLDER. MAX PFEIFER, Vienna, Austria-Hungary, assignor to Ludwig Weiss, Vienna, Austria-Hungary. Filed June 10, 1901. Serial No. 63,867. (No model.)



Claim.—In combination, with a tubular fountain liquid-holder having one end formed of porous material and the other end portion formed with a filling-opening, a spring-pressed follower, a brush, and a cap, said cap constituting both a covering for the holder and a mounting means for said follower and brush, substantially as described.

695,946. HEATER-WIRE SUPPORT FOR ELECTRIC LAMPS AND METHOD OF MAKING SAME. HENRY H. POTTER, Pittsburg, Pa., assignor to George Westinghouse, Pittsburg, Pa. Filed June 20, 1900. Serial No. 20,968. (No model.)

Claim.—1. The method of making heaters for electric lamps which consists in forming rods of powdered quartz and a binder, baking such rods, then fusing and drawing the baked rods and finally winding heating-conductors around the rods or threads thus formed.

2. A heater for electric lamps comprising a coil of wire, a curved support therefor and transparent braces for such support.

3. A heater for electric lamps comprising a heater-coil and support therefor one end of which is bent to form an eye or loop, as and for the purpose set forth.

4. A heater for electric lamps comprising a transparent, non-conducting body and a heating-coil disposed thereon, one end of said supporting-body being bent to form an eye or loop, substantially as described.

5. The method of making curved heaters for the glowers of electric lamps which consists in winding a conducting-wire about a rod or bundle of rods of transparent, vitreous material then rendering such rod or bundle

of rods plastic by means of heat and bending the heated material into the desired form.

6. A heater for electric lamps comprising a bundle of rods or threads of transparent, refractory material and a coil of wire helically wound thereon.

7. A heater for electric lamps comprising a spiral, transparent rod bent at one end to form an eye or loop and a heater-wire coiled thereon, substantially as described.

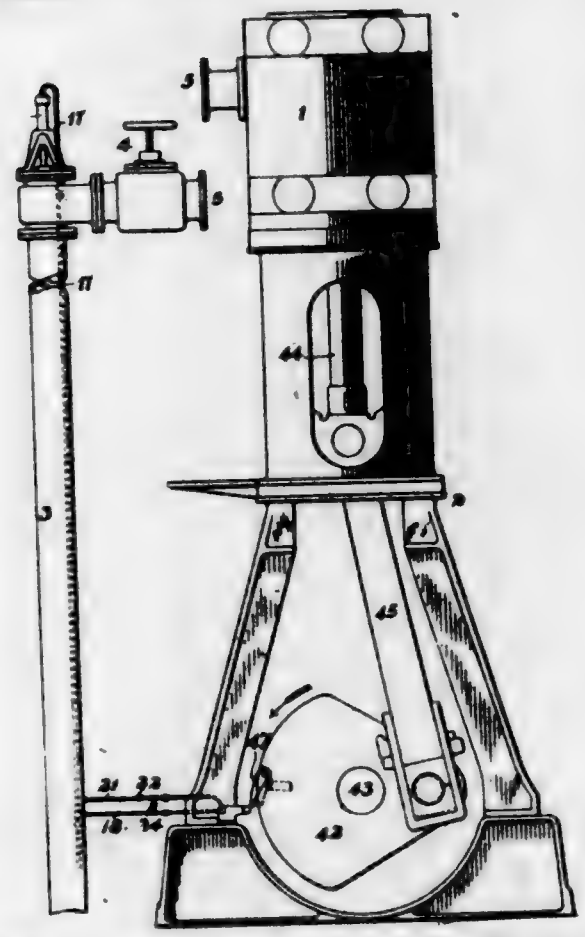
8. A heater for electric lamps, comprising a helical rod of non-conducting, refractory material, a heating-coil wound around said rod and one or more braces of transparent material.

9. A heater for electric lamps, comprising a helical rod of transparent, refractory material, a heating-coil wound thereon and one or more braces of transparent material fastened to said rod.

10. The herein-described process of manufacturing heating-bodies for warming or preheating electrical glowers, which consists in forming a hard rod or core of fireproof material winding the same with a conductor, thereupon bringing the said rod or core into a soft or pliable condition, forming the rod or core while in such condition into the desired shape, and finally causing the rod or core to harden.

11. The herein-described process of manufacturing heating-bodies for warming or preheating electrical glowers, which consists in forming a hard rod or core of fireproof material winding the same with a conductor, thereupon bringing the said rod or core into a soft or pliable condition by the application of heat, forming the rod or core while in such condition into the desired shape and finally causing the rod or core to harden.

695,947. **FLUID-PRESSURE ENGINE.** CYRUS ROSEBROOK, Edgewood Park, Pa., assignor to the Westinghouse Machine Company, a Corporation of Pennsylvania. Filed Apr. 27, 1900. Serial No. 14,642. (No model.)



Claim.—1. In a steam-engine, the combination with a steam-supply pipe having an adjustable piston-valve, an operating-piston and a stem for rigidly connecting said valve and said operating-piston for said valve, of pipe connections between a live-steam holder or conduit and the cylinder containing said piston and means operated by the engine to admit steam to said cylinder, said means being operated only when the speed of the engine exceeds a predetermined limit.

2. In a steam-engine, the combination with a main supply-pipe having an adjustable piston-valve provided with a directly-connected operating-piston, of valved pipe connections between a body of live steam and the cylinder containing said operating-piston, and a device carried by the engine-shaft for opening said pipe connections, said device being movable into operative position by centrifugal force when the speed of the shaft exceeds a predetermined limit.

3. In a steam-engine, the combination with a main supply-pipe having an adjustable piston-valve provided with a directly-connected operating-piston, of a pipe connection between the main supply-pipe and the cylinder containing said operating-piston, a valve in said pipe connection, means for opening and closing said valve and a valve-opening device pivotally mounted on a crank cheek of the engine, said device being thrown into operative position by centrifugal force when the engine speed exceeds a predetermined safe limit.

4. In a fluid-pressure engine, the combination with a main supply-pipe and a piston-valve for cutting off communication between said pipe and the engine-cylinder, a directly-connected actuating-piston for said valve and a cylinder therefor, a pipe connection between the main steam-pipe and said cylinder, a controlling-valve for opening said pipe connection, an operating-lever for said controlling-valve and a block pivotally supported by the crank-cheek of the engine so as to be moved by centrifugal force into position to strike said lever and effect the opening of the controlling-valve.

5. A controlling-valve for fluid-pressure engines having an operating-arm, in combination with a pivoted lever one end of which is normally located beneath said arm and the other end of which is located adjacent to the engine crank, and a block so mounted upon said crank as to be thrown outward by centrifugal force to strike the adjacent end of the lever.

6. A valve-tripping lever embodying one turn of a spiral and projecting therefrom in opposite directions.

7. A valve-tripping lever embodying one turn of a spiral and projecting therefrom in opposite directions, in combination with a supporting-stud surrounded by said spiral.

8. In a fluid-pressure engine, the combination with a supply-pipe having a normally open main piston-valve, of a piston directly connected to said valve and operated by fluid-pressure to close the same, a controlling-valve and means for opening the same when the engine speed becomes excessive, said main valve being automatically closed by fluid-pressure upon opening the controlling-valve.

9. In a fluid-pressure engine, the combination with a supply-pipe having a main piston-valve provided with an operating-piston, of a cylinder for said operating-piston, a pipe connection between said cylinder and a source of fluid-pressure, a governing-valve and an exhaust-valve in said pipe connections, said main valve being opened by opening the exhaust-valve and closing the governing-valve.

10. In a fluid-pressure engine, the combination with a main supply-pipe having a piston-valve that is closed by the application of fluid-pressure to both of its ends and opened by the withdrawal of the pressure from one end, of means operated automatically when the engine speed becomes excessive to apply the valve-closing pressure and manually operated to withdraw such pressure when it is desired to start the engine.

11. A spring-lever embodying one turn of a spiral and projecting in approximately opposite directions therefrom, substantially as described.

12. A spring-lever embodying one turn of a spiral at a point intermediate its ends, in combination with a supporting structure having a bearing-stud upon which the spiral portion of said lever is mounted.

13. The combination with a spring-lever embodying one turn of a spiral and having an adjustable head at one end, of a supporting structure having a stud upon which said lever is mounted.

14. In an engine, a rotatable member having a part that is movable outwardly under the action of centrifugal force, in combination with a spring-lever that is bent to form one turn of a spiral and projects therefrom in opposite directions, a supporting structure having a bearing-stud for said lever and a valve having an arm located in the path of movement of one end of the lever.

695,948. **AIR-VENT.** ALFRED ROSSER, Bridgeport, Conn., assignor to the Davis & Rosser Temperature Controlling Co., a Corporation of New Jersey. Filed May 5, 1900. Serial No. 715,708. (No model.)



Claim.—1. In an air-vent for heating systems, the combination with a tube constituting an air-discharge, of a valve for controlling said discharge, a rod carrying said valve, a thermostat supporting said rod and adapted to raise the rod or permit the rod to lower to correspondingly move the valve under variation in temperature, and a diaphragm adapted to raise and lower said rod independently of said thermostat under variations in pressures.

2. In an automatic air-vent for heating systems, the combination with an air-discharge of a valve adapted to close same, said valve being carried by a valve-rod arranged substantially vertically, and adapted to have a limited longitudinal movement, a thermostat supporting the lower end of said rod and adapted to raise and lower same to close and open the valve under variations in temperature, a diaphragm below said thermostat and adapted to raise and lower said valve-rod to close and open said valve independently of said thermostat under variations in pressure, and a float secured to said valve-rod, adapted to raise and lower same independently of said thermostat and said diaphragm to prevent the passage of liquid, substantially as specified.

3. The combination in an automatic air-vent for heating systems, of a casing which is adapted to be in communication with the system, said casing having an air-discharge, of a valve for controlling said discharge, a rod carrying said valve, a float carried by said rod, a thermostat supporting said rod and adapted to raise the rod, or permit the rod to lower to correspondingly move the valve under variation in temperature, and a diaphragm for controlling said valve under variation in pressure.

4. The combination in an automatic air-vent for heating systems, of a casing which is in communication with the heating system, a second communication between the heating system and casing arranged at a higher altitude than the first-mentioned communication, a dome for said casing, a tube within said casing in communication with the dome and atmosphere, a valve for controlling the communication between the tube and dome or casing, a thermostat for controlling the valve under variations of temperatures, and a diaphragm for controlling the valve under variations in pressures.

5. In an automatic air-vent for heating systems, the combination of a casing in communication with said system, a dome carried by said casing and in communication with the casing, a second communication between the heating system and casing arranged at a higher altitude than the first-mentioned communication, a tube located within said dome, and having one end closed and its other end, which is open, in communication with the atmosphere outside of the casing, and said tube also having an opening which forms a communication between the tube and the dome, a valve for controlling said opening, a rod carrying said valve and also a float, and a thermostat provided in the casing and on which said rod rests.

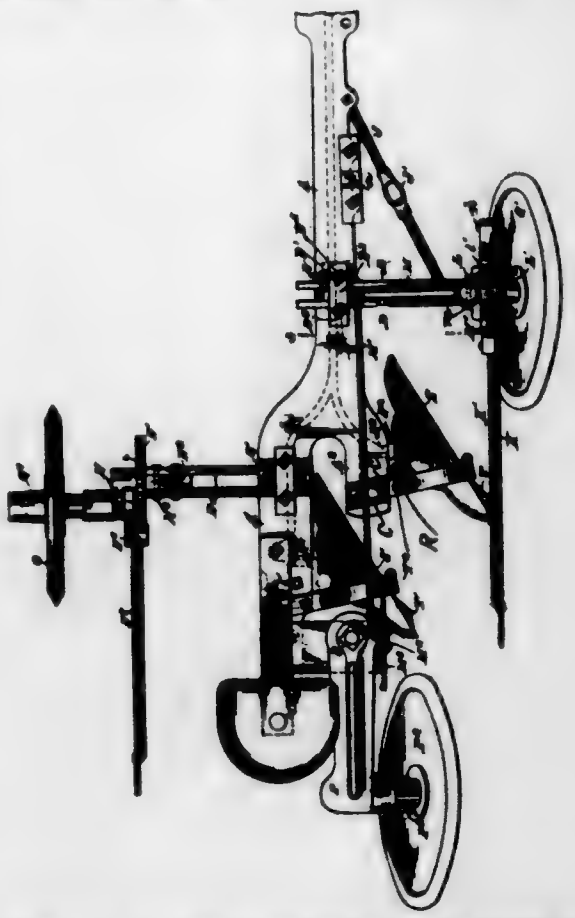
695,949. FOLDING SUPPORT FOR GAME OR OTHER BOARDS. HERBERT R. SANN, Cleveland, Ohio. Filed Apr. 22, 1901. Serial No. 56,226. (No model.)



Claim.—1. In a fotang stand, the combination with a supporting-post having a plate on its lower end formed with inclined extensions having apertures therein, of legs slidably held in the apertures and provided with suitable enlargements on their ends, a pivoted plate on the upper end of the post, and supporting-arms adjustably carried by the plate, substantially as described.

2. The combination with a supporting-post having suitable legs, of a pivoted disk on the upper end of the post having at the outer edge thereof downwardly-inclined extensions formed with openings therein, and upwardly-extending arms slidably supported in the openings having means at both ends to prevent their escaping from the openings and yielding supporting devices at their outer ends, substantially as described.

695,950. PLOW. JAMES SCHOFIELD, Marshall, Tex. Filed Oct. 22, 1900. Serial No. 34,089. (No model.)



Claim.—1. In a plow, in combination, a single metallic bar having a strengthening-rib on its under side and a lug projecting from its upper face, and laterally-adjustable wheel-carrying bars clamped to the beam on each side of the lug.

2. In combination with a plow, of a metallic beam, a lug projecting from the upper surface of the beam, oppositely-disposed bars D the inner ends of which embrace the lug on the beam, means associated with the bars for supporting the plow, a plate D^2 bearing upon the upper edges of the bars, and bolts engaging the beam and plate to clamp the bars therebetween, substantially as described.

3. In combination with a plow, and scraper therefor, of means for supporting the same comprising a metal beam, lugs C on the upper surface of the beam to which the scraper is secured, and bearing-brackets R for the plow also secured to the beam in close proximity to lugs C, substantially as described.

4. In combination with a flanged metal beam, of a plow, a spindle therefor, and a bracket adapted to secure the plow to the beam comprising a spindle-bearing, a portion R^2 integral therewith contacting with one edge of the beam, and an oppositely-disposed integral portion rigidly secured to the flange of the beam, substantially as described.

5. In a plow, a beam having on the upper face thereof a lug, a support for the wheel-axle comprising separated arms secured to the beam on each side of the lug by means of a U-bolt passing through holes in the beam and a clamp-plate above the bars through which said bolt passes, and nuts for the bolt, substantially as described.

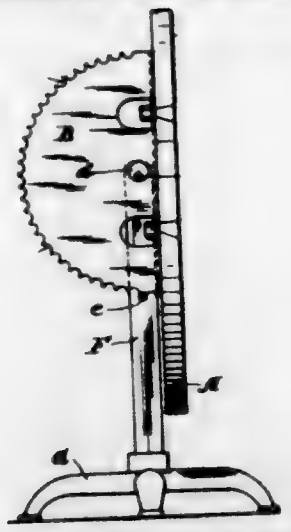
6. In a plow, the combination of a beam, separated bars secured to said beam, an axle-bracket secured to said bars and provided with a portion lying between and spacing the bars apart, an axle in said axle-bracket, and means for turning said axle in said bracket, substantially as described.

7. In a plow, the combination of a beam, separated bars secured to said beam, an axle-bracket having a web portion extending between and secured to said bars, said bracket having an opening, an axle extending within said opening, a rack secured to said axle-bracket, a lever pivoted to said bracket, and a connection between said lever and said axle for raising and lowering the same, substantially as described.

8. In a plow, the combination with a beam, a lateral support secured thereto, a bracket secured to the outer end of said support, a brace from said bracket to said beam, a rack secured to said bracket, a lever pivoted to said rack, an axle passing through said bracket, a connection from said lever to said axle, said lever having holding means adapted to engage said rack, substantially as described.

9. A plural disk-plow beam comprising a bar terminating in a plurality of arms at the rear end thereof, laterally-adjustable wheel-carrying bars clamped to the beam, and a strengthening-flange on the under side of said bar and arms terminating in bearing-supporting enlargements at the rear end of the arms.

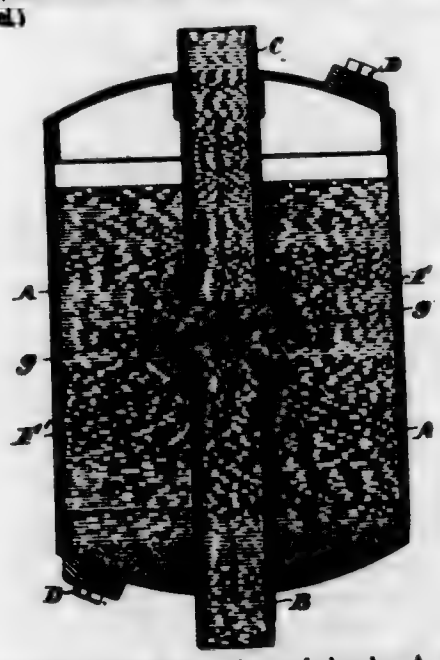
695,951. ADJUSTABLE STAND FOR MIRRORS, TABLES, OR THE LIKE. HARRY A. SEYMOUR, Chicago, Ill., assignor of one-half to Jacob Lowenthal, Chicago, Ill. Filed Aug 30, 1901. Serial No. 73,823. (No model.)



Claim.—1. In an adjustable stand, an upright, projections on the sides of the upright forming upper and lower pins, one thereof on each side of the upright located adjacent to the upper end of such upright, in combination with a head consisting of a sheet-metal blank having ears cut out of the body thereof and sides bent substantially at right angles to the ears, such sides provided with holes, the axial lines whereof are substantially identical, the peripheral edges of the sides concentric with the holes and provided with laterally-extending grooves, the upper pins fitting loosely in such holes and the lower pins positioned in the upright, relative to the upper pins, so as to engage with the laterally-extending peripheral grooves when the upper pins are adjacent to the upper edges of the holes and to not engage with such grooves when the upper pins are adjacent to the lower edges of such holes; substantially as described.

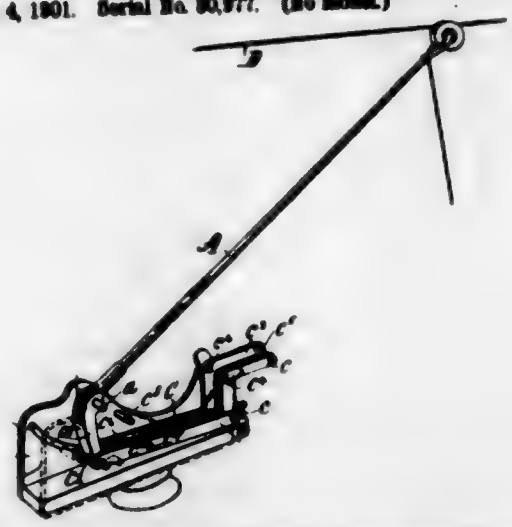
2. In an adjustable stand, the combination of a base, an upright rotatably mounted in the base, pins at the upper end of the upright, and additional pins in such upright below the first-named pins, and a head consisting of a central part provided with ears and provided with sides substantially at right angles to the central body part, the sides provided with holes therethrough, the axial line of one of such holes being substantially a prolongation of the axial line of the other hole, and such sides provided with peripheral edges concentric to the holes, respectively, and such edges provided with laterally-extending grooves, the head and the upright related so that the upper pins loosely fit in the holes in the sides and the lower pins positioned relatively to the pins in the holes and to the laterally-extending peripheral grooves so that such lower pins are in one of the laterally-extending grooves as such head is there maintained by gravity; substantially as described.

695,952. SAND-TRAP FOR ARTESIAN OR DRIVEN WELLS. BENJAMIN F. SMITH, Somerville, Mass., assignor of one-half to Charles G. Smith, Somerville, Mass. Filed Jan. 3, 1902. Serial No. 88,317. (No model.)



Claim.—The combination of the sand-chamber A, inlet and outlet pipes B, C, connected to the ends of said chamber and a deflector-coupling secured to the inner ends of said pipes, said coupling consisting of a shell E, provided with sockets at its ends attached to the respective ends of the pipes B, C, and having an inclined deflector-wall or diaphragm G, terminating as deflector or guide lips g, g', and having diametrically-arranged mouths or openings A, A', substantially as and for the purpose set forth.

695,958. ELECTRIC TROLLEY. CYRUS B. SMITH, Fall River, Mass., assignor of one-half to Edward Shove, Fall River, Mass. Filed Nov. 4, 1901. Serial No. 80,977. (No model.)



Claim.—The combination of a pivoted electric contact-arm provided with a catch; apparatus to force said contact-arm toward an electric conductor, said apparatus consisting of a spring, a link, and a latch to engage said catch; means to disconnect said latch and catch, when the contact-arm has moved a predetermined distance; a lever, the end portion of one of whose arms may be in operative engagement with said contact-arm, the other end portion of said lever being pivotally connected to said link; and means to guide the said latch on said link, into locking engagement with said catch of said contact-arm.

695,954. WIRE-FASTENER. FANNIE S. SMITH, Kansas City, Mo. Filed July 6, 1901. Serial No. 67,311. (No model.)



Claim.—1. A fence-post having a metal bar or strip attached thereto at one side, said bar or strip being bent twice upon itself at regular intervals providing a seat for the reception of the wire strand, and an upwardly-projecting portion adjacent to each side and the rings or bands having loops, the ring or band proper being adapted to encircle the post, the loop being adapted to engage the upwardly-projecting portion of the metal bar or strip for the purpose of securing the wire strand within the bend, substantially as shown and described.

2. In a fence-post, a metallic bar or strip bent at its upper end to engage the top of the post and pointed at its lower end to be projected into the ground, the intermediate portion being bent twice upon itself at definite intervals as at B^4, substantially as set forth.

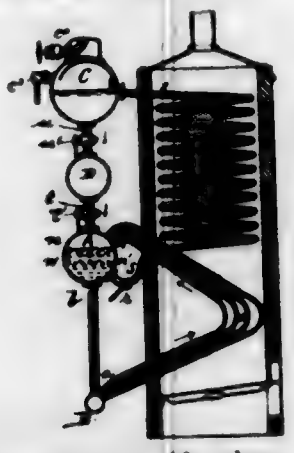
695,955. BICYCLE. GEORGE W. SMITH, Dallas, Tex. Filed June 22, 1901. Serial No. 65,677. (No model.)



Claim.—1. A bicycle-frame comprising a crank-hanger, a reach-bar, top and bottom runs, rear braces, pivoted links connecting the top run and rear braces, a crank-axle pivotally connecting the reach-bar and bottom runs, a seat-post having its upper end pivotally secured to the pivoted links, and its lower end bifurcated to provide arms having clips adapted to embrace the crank-hanger.

2. A bicycle-frame comprising a reach-bar, top and bottom runs, rear braces, pivoted links connecting the top run and rear braces, a knuckle provided with tubular extensions secured to the front end of the reach-bar, knuckles provided with sockets adapted to receive the tubular extensions of the said reach-bar knuckle secured to the forward end of the bottom runs, whereby a crank-hanger is formed, a seat-post loosely mounted upon the crank-hanger, and spring-bows arranged at opposite sides of the seat-post tube and extending between the lower and upper bars of the frame.

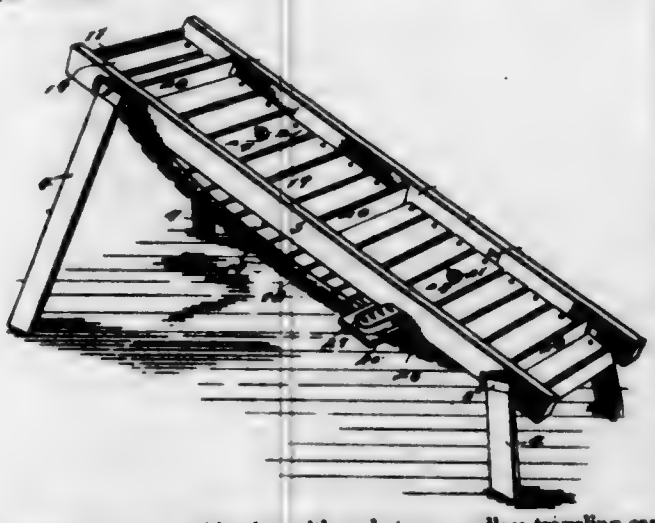
695,956. BOILER. EMILE SOLOMIAC, Paris, France. Filed Mar. 31, 1900. Serial No. 10,948. (No model.)



Claim.—1. The combination with a lower reservoir, a water-distributer arranged below the reservoir, a connection between the lower part of the reservoir and the distributer, and a connection between the latter and the upper part of the reservoir, of an upper reservoir, a valved connection between the lower part of the lower reservoir and the upper part of the upper reservoir, and means for heating the connection between the two reservoirs and between the water-distributer and the upper part of the lower reservoir.

2. The combination with a lower reservoir, a water-distributer arranged below the reservoir, a connection between the lower part of the reservoir and the distributer, and a connection between the latter and the upper part of the reservoir, of an upper reservoir, a valved connection between the lower part of the lower reservoir and the upper part of the upper reservoir, a reservoir located intermediate the two first-named reservoirs, a valved connection between the lower reservoir and the intermediate reservoir, a valved connection between the upper reservoir and the intermediate reservoir, and means for heating the connection between the lower part of the lower reservoir and the upper part of the upper reservoir and the connection between the water-distributer and the upper part of the lower reservoir.

695,957. SELF-REGISTERING CONVEYER-CHUTE. CHARLES H. SPENCER, St. Paul, Minn. Filed Sept. 28, 1901. Serial No. 76,911. (No model.)



Claim.—1. In combination with a chute, an endless traveling carrier having one lead adapted to operate on the bottom of the chute, said carrier having a plurality of spring-pressed tappets normally projected from the said carrier, and adapted to be depressed by the weight of articles placed on said carrier, and a registering mechanism having an operating element in the path of said spring-pressed tappets and adapted to be operated by the latter when said tappets are depressed, substantially as described.

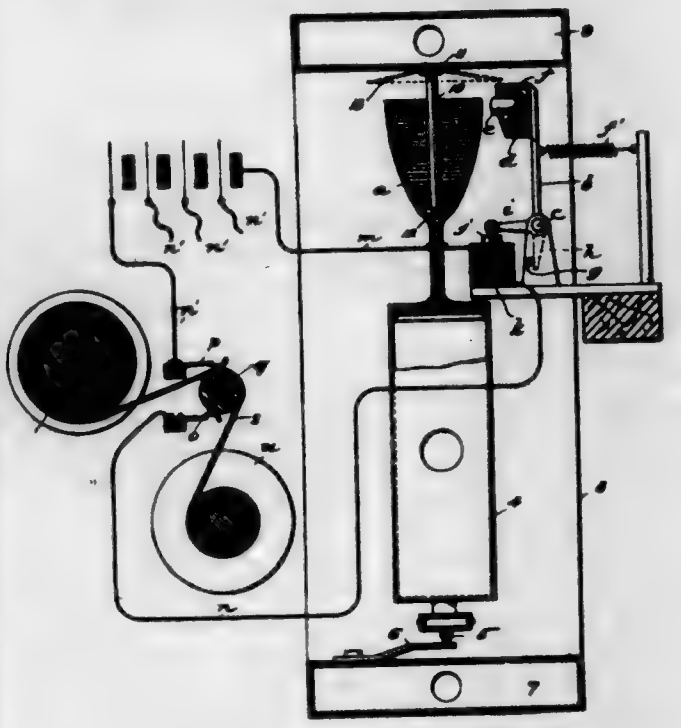
2. In combination with a chute, an endless traveling carrier divided into compartments, each provided with a spring-pressed tappet normally projected from said carrier and adapted to be depressed by the weight of articles placed on said carrier in said compartments, and a registering mechanism having an operating element in the path of said spring-pressed tappets and adapted to be operated by the latter when said tappets are depressed, substantially as described.

3. In combination with a fixed registering mechanism having a movable operating element, a yieldably-mounted tappet on said operating element, a buffer-spring connecting said yieldably-mounted tappet to said operating element and a movable carrier element having a tappet to engage said yieldably-mounted tappet, as it passes the same and thereby automatically operate said registering mechanism without concussion, substantially as described.

4. In combination with a chute, an endless traveling carrier having one lead disposed for operation on the bottom of the chute, a spring-pressed button normally projected from the upper surface of said carrier, a tappet-stud operated by said button when the latter is depressed, and a fixed registering mechanism having an operating element disposed in the path of said tappet when the latter is depressed, substantially as described.

5. In combination with a fixed registering mechanism having a movable operating element and a spring-pressed yieldably-mounted tappet connected to said operating element, a movable carrier having a tappet to engage said yieldably-mounted tappet, as it passes the same and thereby automatically operate said registering mechanism without concussion, substantially as described.

695,958. MUSICAL INSTRUMENT. WILLIAM G. SPIRKL, New York, N. Y., assignor of one-half to the Aeolian Company, New York, N. Y. Filed June 11, 1901. Serial No. 64,128. (No model.)



Claim.—1. The combination with a rotatory tumbler and a rotatory sound-box connected therewith, of a friction-rubber to take effect on the tumbler, means to automatically press the rubber on the tumbler, and means to automatically interrupt the pressure of the rubber on the tumbler.

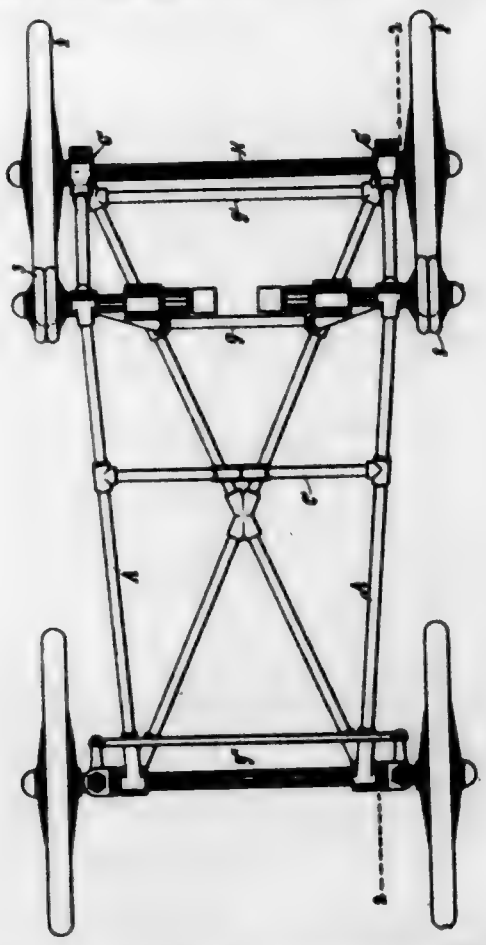
2. The combination with a rotatory tumbler and a rotatory sound-box connected therewith, of a friction-rubber to take effect on the tumbler, means to automatically press the rubber on the tumbler and means to automatically interrupt the pressure of the rubber on the tumbler, said means to cause and interrupt the pressure controlled by a movable perforated paper strip.

3. The combination with a plurality of rotatory tumblers graduated in a musical scale, rotatory sound-boxes incorporated with and forming parts of the spindles of said rotating tumblers, means to automatically press the rubbers on the tumblers successively, and means to automatically interrupt the pressure of the rubbers on said tumblers.

4. The combination with a rotatory tumbler, a friction-rubber for said tumbler and means for automatically pressing the rubber on the tumbler and releasing said pressure, of a rotatory and swinging sound-box connected with the tumbler.

5. The combination with a rotatory tumbler, of a friction-rubber for said tumbler, means for automatically pressing it on the tumbler and releasing its pressure therefrom, and means for automatically supplying moisture to the rubber.

695,959. MOTOR-VEHICLE RUNNING-GEAR. PHILIP K. STERN, New York, N. Y. Filed Mar. 21, 1901. Serial No. 52,123. (No model.)



Claim.—1. In a running-gear for motor-vehicles, a driver wheel or wheels adapted to carry the tractive weight of the vehicle and adapted to rotate the vehicle driving-wheels by the traction due to the said weight, said driver-wheels being swung radially from the axle or cross-bar upon which the steering-wheels of the vehicle are mounted; substantially as described.

2. In a motor-vehicle running-gear, a structural framework swung radially at one extremity from the axle of the steering-wheels, the opposite extremity of the said structural framework having an adjustable connection with the axle of the driving-wheels, and a motor-driven traction-gear carried by the said structural framework, also carried by the driving-wheels of the said running-gear; substantially as described.

3. A running-gear for motor-vehicles having running-wheels and driving-wheels and a structural framework swung radially at one extremity from the axle or support of the said running-wheels, the same having freedom of motion at the other extremity of said framework, drive-wheels carried by the said structural framework toward the free or opposite extremity thereof, said drive-wheels being disposed upon the aforesaid driving-wheels, whereby, upon rotation of the drive-wheels, the said driving-wheels will be set into rotation by the tractive weight of the free extremity of the said structural framework and the load carried by the same, and an adjustable connection between said free extremity of said structural framework and the axle or support of the said driving-wheels; substantially as described.

4. In a motor-vehicle running-gear, having running-wheels and driving-wheels and a structural framework swung radially at one extremity from the axle of the running-wheels as the center of an arc, the opposite or free extremity of said structural framework being free to swing in said arc from said center, an axle or support of said driving-wheels being located in said arc, and a working connection between said free extremity of the structural framework and said axle, and drive-wheels carried by the said structural framework, also carried by the said driving-wheels, whereby the weight of the said free end of the structural framework and its load, upon the rotation of the drive-wheels, will rotate the driving-wheels by adhesion due to the tractive weight of the said swinging structural framework and its said load; substantially as described.

5. In a motor-vehicle running-gear having framework swung radially at one extremity from the axle of the running-wheels, motor-driven wheels carried by the other extremity of said framework, driving-wheels interposed between the motor-driven wheels and the tractive source, whereby tractive weight is transmitted through the said motor-driven wheels to and through said driving-wheels to the tractive source, and a self-adjusting connection between the said framework and said driving-wheels; substantially as described.

6. In a motor-vehicle running-gear, a framework swung radially at one extremity from the axle of the running-wheels, motor-driven wheels carried by the other extremity of said framework, driving-wheels interposed between the motor-driven wheels and the source of traction, whereby the tractive weight is transmitted, through said motor-driven wheels, to and through said driving-wheels, to the said source of traction, and an adjusting connection between said framework and said driving-wheels, and means carried by the said running-gear for disengaging the said motor-driven wheels from said driving-wheels; substantially as described.

7. In a motor-vehicle running-gear, a framework comprising longitudinal trussed beams as the side rails, cross-ties connecting said side rails to brace the same against gyration, and diagonal ties between the said side rails to prevent racking; substantially as shown and described.

8. In a motor-vehicle structural framework, a bridge trussed in a vertical and horizontal plane, said bridge being braced to resist end, axial and diagonal thrusts, vertical loads and gyration, said bridge being adapted, at its extremities, to carry the running and driving wheels; substantially as shown and described.

9. In a motor-vehicle structural framework, a bridge trussed in a vertical and horizontal plane, said bridge being braced to resist diagonal thrusts, vertical loads and gyration, running-wheels and driving-wheels connected to terminals of said bridge, a terminal of the said bridge being swung from the said running-wheels, motor-driven wheels carried by the said bridge and resting upon the said driving-wheels, an adjustable connection between the driving-wheels and said bridge-terminals, and means for raising the said motor-driven wheels from the driving-wheels; substantially as described.

10. In a motor-vehicle running-gear, a bridge having running-wheels and driving-wheels carried by its terminals, a concentric circular track carried by each of the said driving-wheels and motor-driven traction-wheels also carried by a terminal or terminals of the said bridge, each adapted to engage one of the said circular tracks; substantially as described.

11. In a motor vehicle running-gear, a bridge having running-wheels and driving-wheels carried by its terminals and swung radially from the axle of the said running-wheels, a concentric circular track carried by each of the said driving-wheels, and motor-driven traction-wheels also carried by a terminal or terminals of the said bridge, each adapted to engage one of the said circular tracks; substantially as described.

12. In a motor-vehicle running-gear, a bridge having running-wheels and driving-wheels carried by its terminals, a vertical segmental fifth-wheel connection between one of the said bridge-terminals and the axle of the said running-wheels, a concentric circular track carried by each of the said driving-wheels and motor-driven traction-wheels also carried by a bridge terminal or terminals, each adapted to engage one of the said circular tracks; substantially as described.

13. In a motor-vehicle running-gear, a bridge having running-wheels and driving-wheels carried by its terminals and swung radially from the axle of the said running-wheels, a vertical segmental fifth-wheel connection between one of the said bridge-terminals and said running-wheel axle, a concentric circular track carried by each of the said driving-wheels, and motor-driven traction-wheels also carried by a bridge terminal or terminals, each adapted to engage one of the said circular tracks; substantially as described.

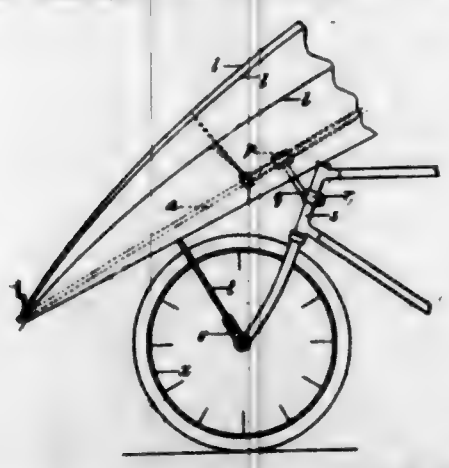
14. In a motor-vehicle running-gear, a bridge having running and driving wheels, carried by its terminals, motor-driven traction-wheels also carried by a terminal or terminals of the said bridge, adapted to engage a concentric circular track carried by a driving-wheel of the said motor-vehicle running-gear, a jaw or fork at the terminal of the said bridge, a guide-block bearing-box disposed within the said fork carrying a journal of the driving-wheel axle of the said running-gear, said guide-block having a vertical slide adjustment within the said jaw or fork, transverse braces bridging the opposite beams of the said bridge at the jawed terminals of said bridge, a motor-shaft secured to the aforesaid motor-driven wheels, said shaft having bearings carried by the aforesaid cross-braces; substantially as described.

15. In a motor-vehicle running-gear, having a trussed-bridge framework, intermediate ties connecting opposite beams at the crown of the said beams, said ties and intermediate portions of the aforesaid beams forming, at the crown of the said beams, a seat-base or carrier-base for the portable load to be carried by the vehicle.

16. In a motor-vehicle running-gear, having a structural framework swung radially from the steering-axle or cross-bar which is adapted to carry the steering-wheels of the said motor-vehicle running-gear, a terminal cross-bar for the said structural framework and a vertical segmental fifth-wheel connection between the said terminal cross-bar and the said steering-wheel axle, said framework carrying a traction drive-gearing and motive-power apparatus for operating the same, and said framework being adapted to carry the load of the said motor-vehicle running-gear, and terminal forks for the said structural framework at the opposite extremity to the said terminal cross-bar, said terminal forks adapted to engage the

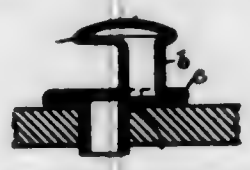
axle of the driving-wheels of the said motor-vehicle running-gear, whereby the said structural framework will be swung from the said steering-wheel axle or cross-bar, so as to concentrate the weight of the free extremity of the said structural framework upon the driving-wheels of the said motor-vehicle running-gear through the said traction drive-gear; substantially as described.

695,960. WIND-SHIELD FOR CYCLES. BENNET STEVENS, Chicago, Ill. Filed Jan. 6, 1902. Serial No. 88,672. (No model.)



Claim.—In a wind-shield for cycles the combination of a square stick: a long sleeve sliding on the said stick: a short sleeve sliding on the said long sleeve: a stop on the said stick: a stop on the said long sleeve: a ring on the said long sleeve: a number of stretchers hinged to the ring on the long sleeve: a number of longer stretchers hinged to the said short sleeve: ribs hinged to the outer ends of the said stretchers: a ring near the point of the said stick to which ring are hinged the converging ends of the ribs: a spring-clip to embrace the said stick: a spring-clip to grasp the steering-socket: a rod connecting the said spring-clips: sockets attached to the outer ends of the hub of the front wheel of the cycle: stay-rods having their upper ends hinged to the outer of the said ribs and their lower ends inserted in the said sockets: a foldable fabric covering the space between the said ribs: a triangular piece of foldable fabric on each side of the front wheel and attached by two of its sides to the forward part of the outer of the ribs and to the said stays, substantially as described in the above specification.

695,961. LACING STUD OR HOOK. JOHN D. SPINDLER, Boston, Mass., assignor of two-thirds to William P. Stratton and Charles J. Groves, Boston, Mass. Filed Dec. 19, 1901. Serial No. 86,512. (No model.)



Claim.—1. A lacing stud or hook made from sheet metal and provided with a head having a round circumferential edge, and a hollow post eccentrically attached to said head, substantially as described.

2. A lacing stud or hook made from sheet metal and provided with a head, a round hollow post eccentric to said head, a base, and an eyelet or fastening projection located below said base, substantially as described.

3. A lacing stud or hook made in one piece from sheet metal and comprising a base, a hollow post, and a head eccentric to said post, substantially as described.

4. A lacing stud or hook made in one piece from sheet metal and comprising a head, a hollow post eccentric thereto, a base-plate having a folded under portion provided with a hollow fastening projection, substantially as described,

5. A lacing stud or hook made in one piece from sheet metal and comprising a head, a hollow post eccentric thereto, a base-plate having a folded under portion provided with a hollow fastening projection eccentric to said head, substantially as described.

6. A sheet-metal lacing stud or hook provided with a head, a hollow post eccentric thereto and a base, the said head having a rounded edge, and the said post having a smooth round exterior surface, substantially as described.

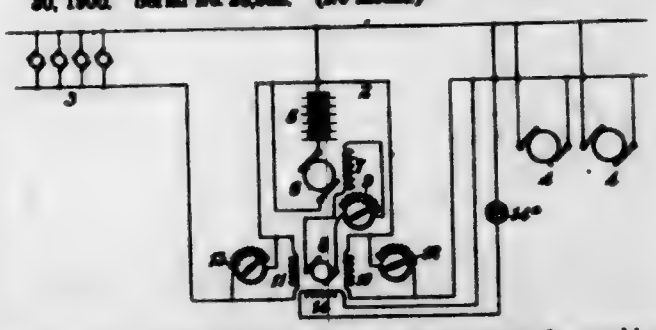
7. A sheet-metal stud or hook provided with a head, a post, a base, and a fastening projection located below said base and eccentric to said head, substantially as described.

8. A lacing stud or hook made from sheet metal and provided with a head, and with a hollow post eccentrically attached to said head, substantially as described.

9. A lacing stud or hook made from sheet metal and provided with a chambered head provided with upper and lower walls integral with each other, and a hollow post integral with the lower wall of said chambered head and eccentric with relation thereto, substantially as described.

10. A lacing stud or hook made from sheet metal and comprising a hollow head circular in form, and a hollow post eccentrically attached to the lower wall of said hollow head within the circumferential edge of the same, substantially as described.

695,962. SYSTEM OF ELECTRICAL DISTRIBUTION. NORMAN W. STORER, Edgewood Park, Pa., assignor to Westinghouse Electric & Manufacturing Company, a Corporation of Pennsylvania. Filed Aug. 30, 1900. Serial No. 28,522. (No model.)



Claim.—1. In a system of electrical distribution, the combination with one or more dynamo-electric generators for supplying energy to translating devices in parallel, of a secondary battery and an auxiliary dynamo-electric generator connected in series with each other and in parallel with the main generator or generators and an exciter for said auxiliary generator provided with two field-magnet windings respectively having a series connection with the line between the main generator or generators and the secondary battery and between the battery and the translating devices; and with a high-resistance opposing field-magnet winding connected across the line between the main generator or generators and the battery.

2. In a system of electrical distribution one or more main generators in combination with a regulating dynamo-electric generator for producing and maintaining an approximately constant load on the main generator or generators and having a single field-magnet winding, of an exciter for said winding having a series field-magnet winding connected in the main circuit between said regulating-generator and the translating devices and an opposing field-magnet winding connected across the main circuit between the main generator or generators and the regulating-generator.

3. In a system of electrical distribution, the combination with a main generator and a regulating-generator for maintaining an approximately constant load on the main generator, of an exciter for the field-magnet winding of said regulating-generator having differential windings respectively connected across the main circuit between the main generator and the regulating-generator and in series with the main generator and the translating devices.

4. In a system of electrical distribution, the combination with a main generator for supplying energy to a variable load requiring an approximately constant voltage, of a secondary battery and an auxiliary dynamo connected in series with each other across the main circuit and an exciter for said auxiliary dynamo having differential field-magnet windings respectively connected across the main circuit between the main generator and the auxiliary generator and in series between the main generator and the translating devices so as to control the output of the auxiliary generator and battery in accordance with the amount of load.

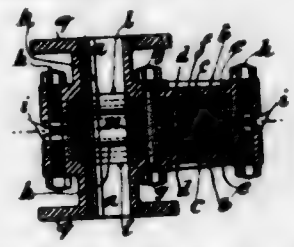
5. In a system of electrical distribution, the combination with a main generator supplying an approximately constant voltage to translating devices, of an auxiliary dynamo and a secondary battery connected to the line in series with each other and an exciter having differential field-magnet windings respectively connected across the main line between the main generator and the battery and auxiliary generator and in series between the main generator and the translating devices and serving to insure an adjusting-current from the battery and auxiliary dynamo that compensates for changes in the load of the system.

6. The combination with a main circuit and a dynamo-electric generator having its armature connected to said circuit and having a single field-magnet winding, of an exciter therefor having a plurality of field-magnet windings connected to the main circuit and means for adjusting the current supplied to said windings either relatively or independently so as to insure the performance of the desired work by the generator.

695,968. STRAIGHT FULLWAY VALVE. SIMON J. SNYDER, Warrington, England. Filed July 16, 1901. Serial No. 68,480. (No model.)

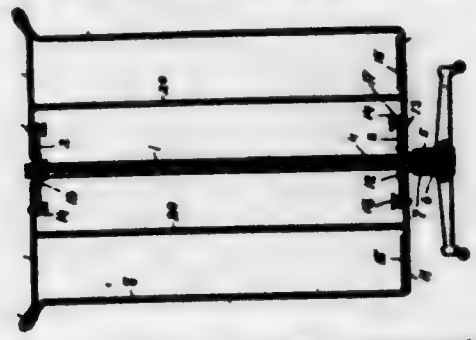
Claim.—1. In a straight fullway valve, a casing formed in two parts

each having the passage *a* in line with each other and the plate *b* eccentric thereto, the opposing faces of which plates are each formed with the circular recesses *c*, the disk *f* having the port *m*, the disks *e*, *e* on each side of the disk *f* and the cushions *d*, *d* upon the disks *e*, *e* in the said recesses, the said cushions *d*, *d* and disks *e*, *e* being each formed with a port *k* forming a continuation of the passages *a*, *a*, all combined substantially as and for the purpose set forth.



2. In a straight fullway valve, the disk *f* held in between the plates *b*, *b* of the two parts of the valve-casing, by bolts *h*, *h* passing through and having nuts adapted to be screwed against each side of the said plates, all substantially as and for the purpose set forth.

695,964. DISPLAY-RACK FOR HATS. ROLLIN C. TAGGART, Toledo, Ohio. Filed May 2, 1901. Serial No. 58,474. (No model.)

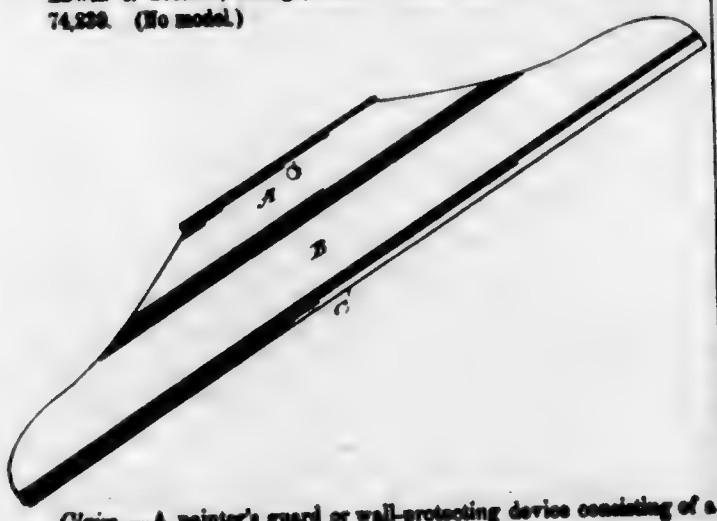


Claim.—1. In a display-rack for hats, a vertical revoluble support having disks near its ends; a series of vertical outer rods having upper and lower horizontal arms connecting with said disks respectively, and being adapted to be swung laterally for the purpose of adjustment; a series of vertical inner rods having upper and lower horizontal arms connecting with said disks respectively, and being adapted to be moved inwardly or outwardly relative to said disks for the purpose of adjustment; and means for securing all of said horizontal arms in adjusted position to said disks, substantially as shown and described.

2. In a display-rack for hats, a vertical revoluble support having upper and lower disks; a series of vertical outer rods having upper and lower horizontal arms supported by said disks; a series of vertical inner rods having upper and lower horizontal arms supported by said disks; and a circular platform resting upon the lower arms of said outer rods, substantially as shown and described.

3. In a display-rack for hats, a vertical revoluble support having upper and lower disks; a series of vertical outer rods having projecting loops at their upper ends, and upper and lower horizontal arms supported by said disks; a series of vertical inner rods having upper and lower horizontal arms supported by said disks; and means for adjusting all of said horizontal arms relative to said disks, substantially as shown and described.

695,965. WALL-PROTECTING DEVICE. FRANK L. TAYLOR and EDWIN C. TOLMAN, Orange, Mass. Filed Sept. 3, 1901. Serial No. 74,239. (No model.)



Claim.—A painter's guard or wall-protecting device consisting of a longitudinal body B formed with a straight downwardly-bent edge C at one side, whereby liquids are prevented from being drawn under the body, and an opposite upwardly-bent side A forming a handle whereby the tool is grasped, as described.

695,966. PIE-LIFTER. ELIZA R. THOMAS, St. Johns, Mich. Filed July 27, 1901. Serial No. 69,963. (No model.)



Claim.—A pie-lifter comprising a flat blade formed with converging grooves in the back and countersinks in the face thereof, a handle formed with arms fitting in the grooves, with a twisted shank, and with a loop at the outer end of the shank, and rivets whereby the arms are secured to the blade, having their inner ends seated in the countersinks.

695,967. BLAST-NOZZLE. JOHN S. THURMAN, St. Louis, Mo. Filed Dec. 17, 1901. Serial No. 86,269. (No model.)



Claim.—1. A blast-nozzle composed of like sections having spacing-washers arranged between them for determining the thickness of the blast, and means for securing said sections together; substantially as described.

2. A blast-nozzle composed of like sections whose inner marginal faces are finished flush, spacing-washers for determining the thickness of the blast, and means for securing said sections together; substantially as described.

3. A blast-nozzle divided horizontally, the two like sections thereof having flanges 6 and lip 7, washers between said flanges, and securing means passing through the flanges; substantially as described.

4. A blast-nozzle composed of like sections each section having securing-flanges, a lip 7 and a spreading-post 8, and washers interposed between said flanges and posts; substantially as described.

5. A broad-mouthed blast-nozzle provided with a spreading-post adjacent the mouth thereof and in the duct or passage; substantially as described.

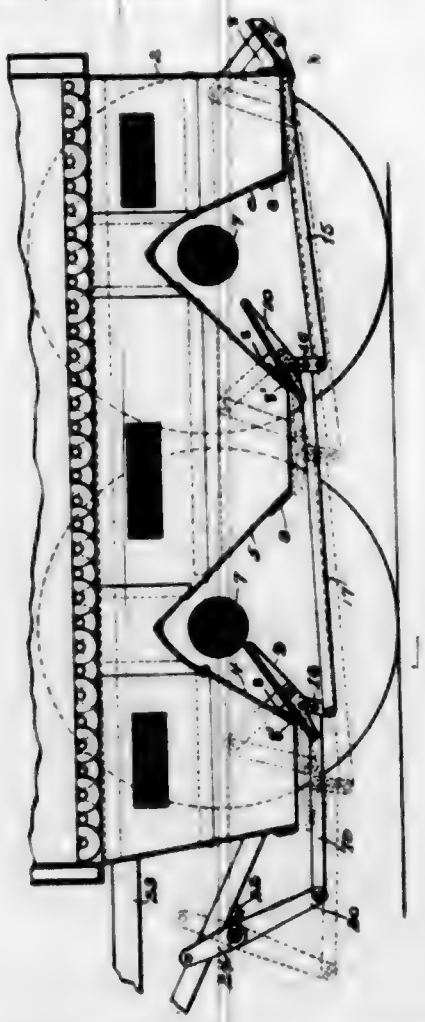
6. A blast-nozzle composed of like sections, each section having lateral flanges 6, a lip 7, and a spreading-post 8, washers interposed between the flanges and posts, securing devices passing through said flanges and posts, and a coupling 4; substantially as described.

695,968. LOCOMOTIVE ASH-PAN. MAX TOLTZ, St. Paul, Minn., and ARTHUR LEPSCHUTZ, St. Louis, Mo. Filed July 1, 1901. Serial No. 66,627. (No model.)

Claim.—1. In a locomotive ash-pan having a hoppered bottom, the combination of a counterweighted bottom plate or closer, supporting-links pivoted to the sides of said plate or closer and to some stationary part of the ash-pan, respectively, the pivotal axes being so located that as the plate moves horizontally said supporting-links move past the normal, whereby said plate or closer is pulled up to or forced from its seat and caused to scrape along a corner or heel of said hopper in opening and closing, substantially as described.

2. In a locomotive ash-pan having its bottom provided with a pla-

rality of hoppers, the combination of a bottom plate or closer for each of said hoppers and means adapted for starting and seating said plates or closers non-simultaneously, substantially as described.



3. In a locomotive ash-pan having its bottom provided with a plurality of hoppers, the combination of a bottom plate or closer for each of said hoppers, equalizing-levers pivotally connected to said plates or closers, rods connecting said equalizing-levers and means for applying force to said rods whereby said plates or closers may be seated and started non-simultaneously, substantially as described.

4. In a locomotive ash-pan having its bottom provided with a plurality of hoppers, the combination of a bottom plate or closer for each of said hoppers, equalizing-levers pivotally connected at their upper ends to each of said plates or closers, except the rearmost rods pivotally connected to the said rearmost plate or closer and to the lower ends of the levers of the adjacent forward plate or closer, other rods pivotally connected to the levers of each of the plates or closers except the said rearmost and to the lower ends of the levers of each adjacent forward plate or closer and means for applying pressure to the levers of the foremost plate or closer, substantially as described.

5. In a locomotive ash-pan having its bottom provided with a plurality of hoppers, the combination of a plurality of bottom plates or closers one for each hopper, means for operating said plates or closers comprising an actuating-lever and shaft, two rock-arms connected to said shaft, a system of equalizing-levers and rods connected to said plates or closers and connecting-rods pivotally connected to the free ends of said arms and to the said system of equalizer-levers and rods, substantially as described.

6. In a locomotive ash-pan having its bottom provided with a plurality of hoppers, the combination of a plurality of bottom plates or closers one for each hopper, links pivotally connected to each of said bottom plates or closers and to some stationary part and means adapted for starting and seating said plates or closers non-simultaneously, substantially as described.

7. The combination of the ash-pan having a plurality of hoppers, with the flat bottom for each hopper hung to close upwardly and slide thereon and the equalizing-levers connecting said bottoms and operable to open and close all thereof in regular and irregular succession, substantially as described.

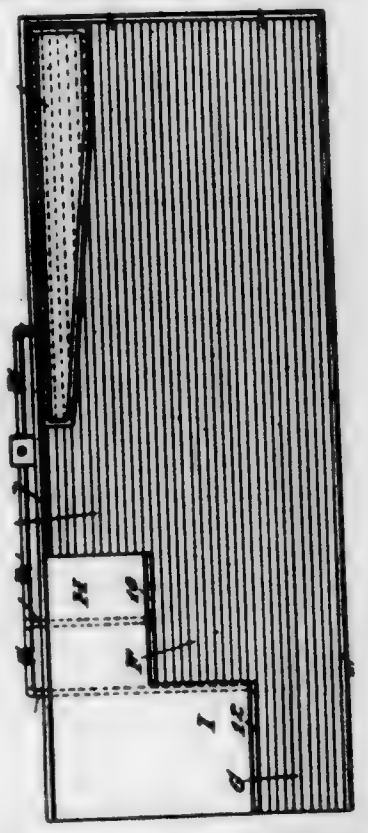
8. The locomotive ash-pan having a plurality of hoppers, in combination with the plates or closers therefor occupying substantially horizontal positions when closed and occupying inclined positions when open, swinging supports for said bottoms and the system of equalizing-levers connecting and for operating said plates, substantially as described.

9. The locomotive ash-pan having a plurality of hoppers, in combination with the bottom plates or closers suitably supported and adapted to close upwardly upon the lower edges of respective hoppers, and means for moving said plates longitudinally away from their hoppers or toward the same to open and close the hoppers non-simultaneously, substantially as described.

10. The locomotive ash-pan having a plurality of hoppers, in combination with a bottom plate for each hopper, the supporting-links for each plate attached to the middle thereof, the system of equalizing-levers connected to said plates at other points thereon and the power-applying mechanism, substantially as described.

11. The locomotive ash-pan having a plurality of hoppers, in combination with the bottom plates therefor, the links 12 pivoted upon said hoppers and supporting said plates to swing and move vertically beneath the respective hoppers, the toggle-links and the connecting-bars connected together and to said plates, and means for operating said bars to move said plates non-simultaneously, substantially as described.

695,969. CONCENTRATOR. BRUCE W. TRAYLOR, Denver, Colo.
Filed Jan. 7, 1901. Serial No. 42,336. (No model.)



Claim.—1. A transversely-inclined concentrating-table mounted to reciprocate and composed of a number of sections extending rearwardly different distances, giving the rear edge of the table a stepped appearance in the plane of its concentrating surface or bed, the uppermost section on the transversely-inclined surface, extending the shortest distance toward the rear, and the other sections in the order of their location, the lowermost section extending the farthest distance toward the rear, a wash-water feed located at the upper edge of the uppermost section, and a separate wash-water feed for each of the other sections, the wash-water feed of any lower section, extending rearwardly from the rear extremity of the section next above, along the upper edge or step of the said lower section.

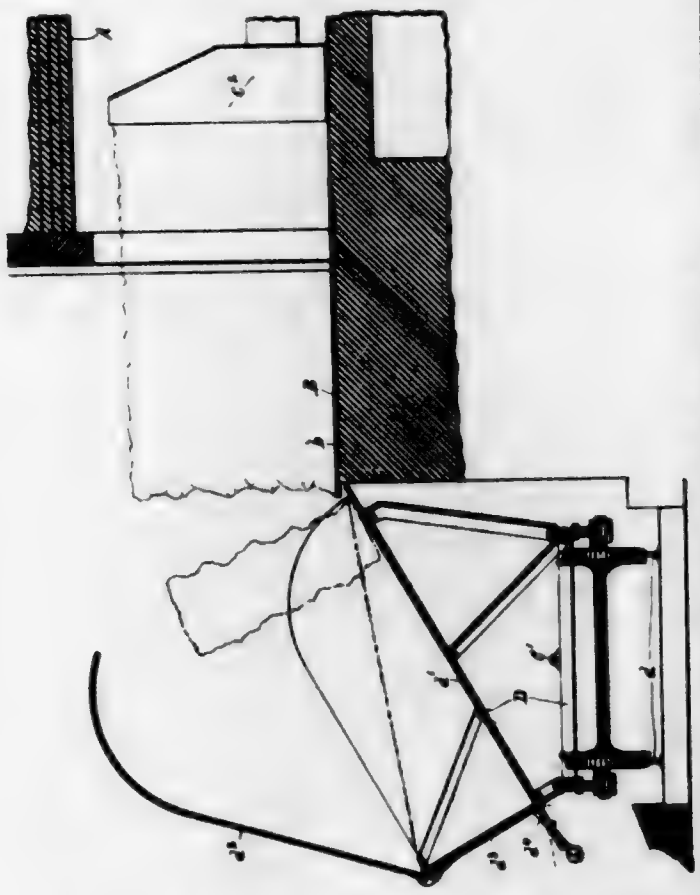
2. A transversely-inclined concentrating-surface mounted to reciprocate and arranged in sections which extend rearwardly unequal distances, the lowermost section extending farthest toward the rear, the next section above a less distance and so on to the uppermost section which extends the shortest distance rearwardly, a wash-water feed located at the upper edge of the uppermost section, and a separate wash-water feed for each of the lower sections, the wash-water feed of any lower section, extending rearwardly from the rear extremity of the section next above, along the upper edge of the said lower section, and a depressed portion adapted to receive the concentrates as they are discharged from the different sections of the table.

3. A concentrating-table mounted to reciprocate and having its concentrating-surface arranged in sections which extend rearwardly unequal distances, the first section with which the mineral particles come in contact, extending the shortest distance toward the rear, a wash-water feed for the first section, and a separate wash-water feed for each of the other sections, the wash-water feed of any section except the first, extending rearwardly from the rear extremity of the adjacent section.

695,970. COKE-HANDLING APPARATUS. EDWARD H. TEMP, Syracuse, N. Y. Filed Dec. 7, 1897. Serial No. 661,093. (No model.)

Claim.—1. The combination with an oven, of a device for discharg-

ing the body of coke in a substantially horizontal plane from the oven, and means provided with a platform of a length greater than the width of the body of coke for receiving and retaining the coke, said means being movable for moving the platform crosswise of the path of the body of coke during the discharge of said body of coke, and coöperating with said device for causing the advancing end portions of the body of coke to become detached therefrom in masses which are caused to tumble or fall from the advancing body of coke successively directly upon the platform and to become distributed on said platform in a broken condition and in a layer of substantially uniform thickness extending crosswise of the path of the body of coke, substantially as and for the purpose described.



2. The combination with an oven; of a device for discharging the body of coke in a substantially horizontal plane from the oven, and means provided with a platform of a length greater than the width of the body of coke for receiving and retaining the coke, the portion of said platform adjacent to the oven being depressed below the path of the body of coke a less distance than the height of said body of coke, and said means being movable for moving the depressed platform crosswise of the path of the body of coke during the discharge of said body of coke, and coöperating with said device for causing the advancing end portions of the body of coke to become detached therefrom in masses which are caused to tumble or fall from the advancing body of coke successively directly upon the depressed platform and to become distributed on said platform in a broken condition and in a layer of substantially uniform thickness extending crosswise of the path of the body of coke, substantially as and for the purpose set forth.

3. The combination with an oven; of a device for discharging the body of coke in a substantially horizontal plane from the oven, and means provided with a platform of a length greater than the width of the body of coke for receiving and retaining the coke, said platform being inclined downwardly from the path of the body of coke, and said means being movable for moving the inclined platform crosswise of the path of the body of coke during the discharge of said body of coke and coöperating with said device for causing the advancing end portions of the body of coke to become detached therefrom in masses which are caused to tumble or fall from the advancing body of coke successively directly upon the inclined platform and to become distributed on said platform in a broken condition and in a layer of substantially uniform thickness extending crosswise of the path of the body of coke, substantially as described.

4. The combination with an oven; of a device for discharging the body of coke in a substantially horizontal plane from the oven, and means provided with a platform of a length greater than the width of the body of coke for receiving and retaining the coke, said platform being inclined downwardly from the path of the body of coke and having its upper inclined portion depressed below said path a less distance than the height of said body of coke, and said means being movable for moving the inclined depressed platform crosswise of the path of the body of coke during the discharge of said body of coke, and coöperating with said device for causing the advancing end portions of the body of coke to become detached therefrom in masses which are caused to tumble or fall from the advancing body of coke successively directly upon the inclined depressed platform and to become distributed successively upon the inclined depressed platform in a layer of substantially uniform thickness extending crosswise of the path of the body of coke, substantially as and for the purpose set forth.

5. The combination with an oven; of a device for discharging the body of heated coke in a substantially horizontal plane from the oven, means provided with a platform of a length greater than the width of the body of heated coke for receiving and retaining the coke, said means being movable for moving the platform crosswise of the path of the body of heated coke during the discharge of said body of coke, and coöperating with said device for causing the advancing end portions of the body of heated coke to become detached therefrom in masses which are caused to tumble or fall from the advancing body of coke successively directly upon the platform and to become distributed on said platform in a broken condition and in a layer of substantially uniform thickness extending crosswise of the path of the body of coke, and means for quenching said layer of heated coke upon said platform, substantially as and for the purpose specified.

6. The combination with an oven; of a device for discharging the body of heated coke in a substantially horizontal plane from the oven, means provided with a platform of a length greater than the width of the body of heated coke for receiving and retaining the coke, said platform being inclined downwardly from the path of the body of heated coke and having its upper inclined portion depressed below said path a less distance than the height of said body of heated coke, and said means being movable for moving the inclined depressed platform crosswise of the path of the body of heated coke during the discharge of said body of coke and coöperating with said device for causing the advancing end portions of the body of heated coke to become detached and to become distributed successively upon the inclined depressed platform in a layer of substantially uniform thickness extending crosswise of the path of the body of coke, and means for quenching said layer of heated coke upon said platform, substantially as and for the purpose described.

7. The combination with an oven; of a device for discharging the body of coke in a substantially horizontal plane from the oven, means provided with a platform of a length greater than the width of the body of coke for receiving and retaining the coke, said means being movable for moving the platform crosswise of the path of the body of coke during the discharge of said body of coke, and coöperating with said device for causing the advancing end portions of the body of coke to become detached therefrom in masses which are caused to tumble or fall from the advancing body of coke successively directly upon the platform and to become distributed on said platform in a broken condition and in a layer of substantially uniform thickness extending crosswise of the path of the body of coke, and means for causing the automatic discharge of the layer of coke from said platform, substantially as and for the purpose set forth.

8. The combination with an oven; of a device for discharging the body of coke in a substantially horizontal plane from the oven, means provided with a platform of a length greater than the width of the body of coke for receiving and retaining the coke, said platform being inclined downwardly from the path of the body of coke and having its upper inclined portion depressed below said path a less distance than the height of said body of coke, and said means being movable for moving the inclined depressed platform crosswise of the path of the body of coke during the discharge of said body of coke, and coöperating with said device for causing the advancing end portions of the body of coke to become detached and to become distributed successively upon the inclined depressed platform in a layer of substantially uniform thickness extending crosswise of the path of the body of coke, and movable means at substantially the base of the inclined platform for normally preventing the discharge of the layer of coke therefrom and for permitting the automatic discharge of said layer of coke.

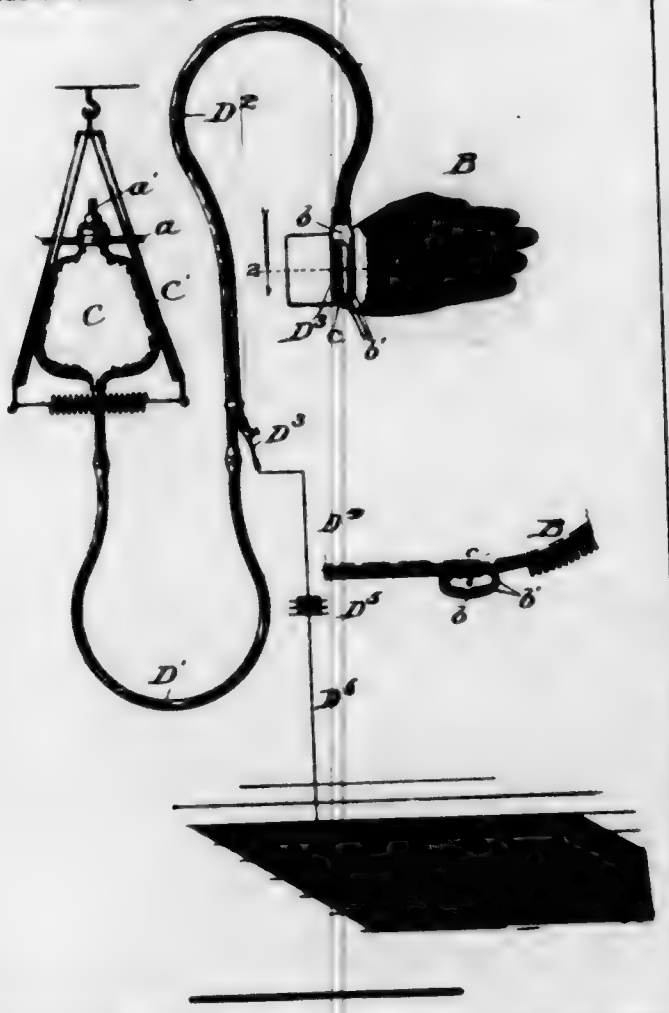
695,971. ELECTRIC MASSAGE APPARATUS. PERCEE B. TURCK, Chicago, Ill., assignor, by mesne assignments, to Personal Hygiene Company, a Corporation of Illinois. Filed Aug. 12, 1901. Serial No. 71,794. (No model.)

Claim.—1. The combination of a massaging-mitten equipped with a douche, and a flexible tube communicating with said douche, substantially as described.

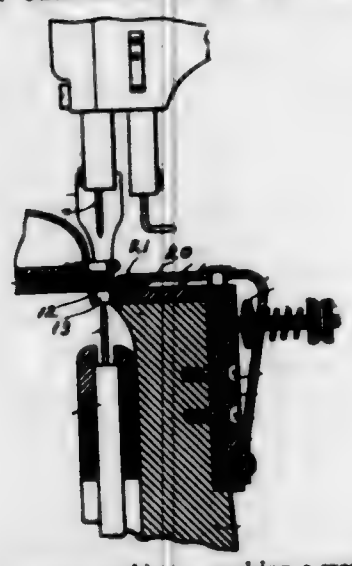
2. The combination of a douche, a flexible water-bag, a tube connecting said bag with said douche, and spring-actuated means for collapsing said water-bag.

3. The combination of a massaging-mitten equipped at its front or palm side with a douche, a fluid-supply tube communicating with said douche, an electric conductor having an uninsulated portion projecting into said douche, an electric source connected with said conductor, and a body contact connected with said electric source.

4. The combination of a massaging-mitten equipped with a douche, a fluid-supply tube communicating with said douche, a water-bag communicating with said tube, an electric conductor having an uninsulated portion projecting into said douche, an electric generator connected with said conductor, and a body contact connected with said generator.



695,972. GAGE FOR SEWING-MACHINES. EDWARD F. TURNER, Brockton, Mass. Filed June 3, 1901. Serial No. 62,554. (No model.)



Claim.—1. A sewing-machine comprising a work-support, stitching mechanism, a laterally-yielding gage above the work-support adjacent to the stitching mechanism and yieldingly impelled toward the latter, and means for positively adjusting the operative position of said gage with respect to the stitching mechanism between two extremes.

2. A sewing-machine comprising a work-support, stitching mechanism, a gage-roller above said support adjacent to the stitching mechanism, a holder for said roller free to move against spring-pressure in a direction to retract the gage-roller from the stitching mechanism, a spring device to move said holder in the opposite direction, and an adjustable stop to positively limit the movement of said holder between two extremes.

695,978. BEARING FOR SCALE-PIVOTS. GUSTAVUS A. E. WARLEN, Detroit, Mich. Filed Oct. 23, 1901. Serial No. 79,560. (No model.)

Claim.—1. The combination with a block-bearing inclosing the bearing-block in contact with the bottom and sides thereof and provided with retaining face portions, of a bearing-block seated in said block-bearing and composed of two parts, one an agate forming only the face portion of the block, the other forming a complementary base portion of cheaper material being interposed between the bottom of the bearing and the agate to hold the agate in contact with the retaining face portions of the bearing.



2. The combination with a block-bearing inclosing the bearing-block in contact with the bottom and sides thereof and provided with retaining face portions for said bearing-block, of a bearing-block composed of two parts, one forming the face thereof being an agate and the other of cheaper material being interposed between the bottom of the bearing and the agate and forming a complementary base adapted to hold the agate in contact with the retaining face portion of the bearing, and means on said base whereby the independent endwise movement of said agate is prevented.

3. The combination with a support and recess in said support forming a bearing for the bearing-block whereby said bearing-block is prevented from lateral and vertical movement in said bearing but is free to be removed therefrom endwise, a bearing-block seated in said bearing in contact with the inner faces thereof, said bearing-block composed of two parts, one of agate forming the face and the other of cheaper material forming a complementary base, means for interlocking said base with the bearing to prevent endwise displacement of said base in the bearing and means for interlocking said base with the agate to prevent the endwise displacement of said agate.

4. The combination with a support and a recess in said support forming a bearing for the bearing-block adapted to hold said bearing-block against lateral and vertical movement but free to be inserted and removed therefrom endwise, of a bearing-block seated in said bearing in contact with the inner faces thereof and a pin passing transversely through the support and through the bearing-block, said bearing-block composed of two parts, one forming the face portion and the other a complementary base portion through which the pin passes, the face portion being held from independent endwise displacement by means of projections on said base portion.

5. The combination with a block-bearing adapted to inclose the bearing-block upon three sides and partially upon the fourth to prevent the vertical displacement thereof, the ends being open and unobstructed to permit the endwise removal and insertion of the block, of a bearing-block composed of a face portion of agate and a base portion of cheaper material and adapted to hold the face portion from endwise movement in the bearing independently thereof and means for removably holding the base portion in the bearing against endwise displacement independently of the face portion of the block.

6. The combination with a block-bearing adapted to inclose the bearing-block upon three sides and partially upon the fourth side to a sufficient extent to prevent vertical displacement of said bearing-block, the ends of the bearing being open and unobstructed for the free insertion and removal of said bearing-block, of a bearing-block composed of a face portion of agate and a base portion of cheaper material, said parts having interlocking meeting faces to prevent the endwise removal of either part separately and means applied to the base portion for holding it in position in the bearing against endwise movement.

7. The combination with a block-bearing inclosing the bearing-block upon three sides and partially upon the fourth side, of a bearing-block composed of a face portion of agate of standard size and form and a base portion of cheaper material and unitedly forming with the agate portion a bearing-block adapted to be endwise inserted into said bearing and held therein against vertical displacement, and a locking-pin passing transversely through the base portion of the bearing-block and through the inclosing sides of the bearing and removably holding the bearing-block in position in the bearing against endwise displacement, the ends of the agate being beveled and the base provided with counterpart projections to engage therewith to prevent independent endwise movement of the agate in relation to the base.

8. In a scale-loop, the combination of a bearing-block composed of two parts, one of agate forming the face portion and one of cheaper material forming a complementary base portion, the agate having beveled ends and the base portion having counterpart projections to prevent relative endwise movement of the parts, a bearing inclosing said block upon three sides and partly upon the fourth side or face, the ends of the bearing being open and unobstructed to permit the insertion and removal of the bearing-block, a pivot-pin passing through said base portion and through the sides of the bearing and having reduced necks, and a supporting-loop detachably engaging with the ends of the pivot-pin.

9. The combination with a block-bearing and block supported in

said bearing, of a pivot-pin passing through said bearing and block, and provided with ends projecting beyond the walls of the bearing and formed with reduced necks, and a supporting-loop formed with apertures in the ends adapted to permit the passage of the pivot-pin therethrough and with offsets communicating with said apertures and adapted to engage with the necks of the pivot-pin.

10. In a scale-bearing, a bearing-block composed of two parts, one part of agate forming the face portion of the block and the other of cheaper material and forming a complementary base portion thereof of the same horizontal dimensions as the face portion, the agate provided with bevels a^2 and the base portion provided with counterpart raised lips a' to interlock therewith, substantially as and for the purpose described.

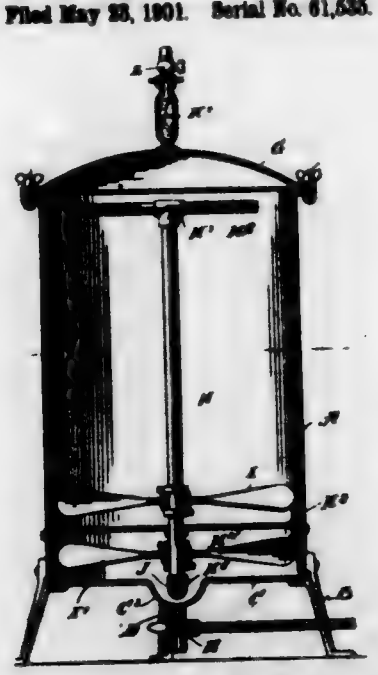
11. The combination with a block-bearing, of a bearing-block seated in said bearing in contact with the inner faces thereof, whereby said bearing-block is held against lateral and vertical movement in said bearing but free to be removed endwise therefrom without distorting the bearing, of a bearing-block composed of two parts one forming the face of the block and the other forming a complementary base, said parts interlocking with each other, whereby the independent removal from the bearing of either portion without the other is prevented.

12. The combination with a block-bearing, of a bearing-block seated in said bearing in contact with the inner faces thereof, whereby said bearing-block is held against lateral and vertical movement in said bearing but free to be removed therefrom endwise, of a bearing-block composed of two parts, one forming the face portion thereof and the other forming a complementary base portion, said parts interlocking with each other whereby the endwise removal of one without the other is prevented, and a pin passing transversely through the block-bearing and through the base portion of the bearing-block.

13. The combination with a block-bearing, of a bearing-block seated in said bearing in contact with the inner faces thereof, whereby said bearing-block is held against lateral and vertical movement in said bearing but free to be removed therefrom endwise, of a bearing-block composed of two interlocking parts, one forming the face portion of the block and the other forming a complementary base portion, said portions interlocking to prevent the independent removal of either portion without the other, a pin passing transversely through the block-bearing and the base portion of the bearing-block and having projecting ends formed with reduced necks and an open-ended supporting-loop engaging with the reduced necks and removably locking the pin in position in the loop.

14. The combination with a block-bearing adapted to hold the bearing-block in position against lateral and vertical movement, of a bearing-block seated in said bearing in contact with the inner faces thereof, said bearing-block composed of a face portion and of a complementary base portion interposed between said face portion and the bottom of the bearing and adapted to interlock with the face portion, a transverse groove in the under side of said base portion and a locking-pin passing through said groove and the sides of the bearing and adapted to removably hold the bearing-block in position in the bearing.

695,974. APPARATUS FOR MIXING WORT AND YEAST AND AERATING THEM. MAX WALLERSTEIN and HANS H. FREUND, New York, N. Y. Filed May 23, 1901. Serial No. 61,535. (No model.)



Claim.—1. A device of the kind described, comprising a cylindrical containing vessel, a pair of agitating members located therein and revoluble in opposite directions, and a movable disk provided with perforations and located between said agitating members.

2. A device of the kind described, comprising a cylindrical containing vessel, a disk provided with perforations and free to slide therein, a movable stem passing through said disk and rigidly secured to the same, and a pair of agitating members loosely mounted upon said stem and provided with blades of opposite pitch, said members being located one above the other below said disk, and free to rotate in opposite directions.

3. A device of the kind described, comprising a cylindrical containing vessel, a disk provided with perforations and free to slide therein, a hollow air-stem provided with a valve rigidly secured to said disk and serving as a handle for the same, a pair of agitating members loosely mounted upon said stem and provided with blades of opposite pitch, said members being located one above the other below said disk and free to rotate in opposite directions, all of said parts being free to act simultaneously.

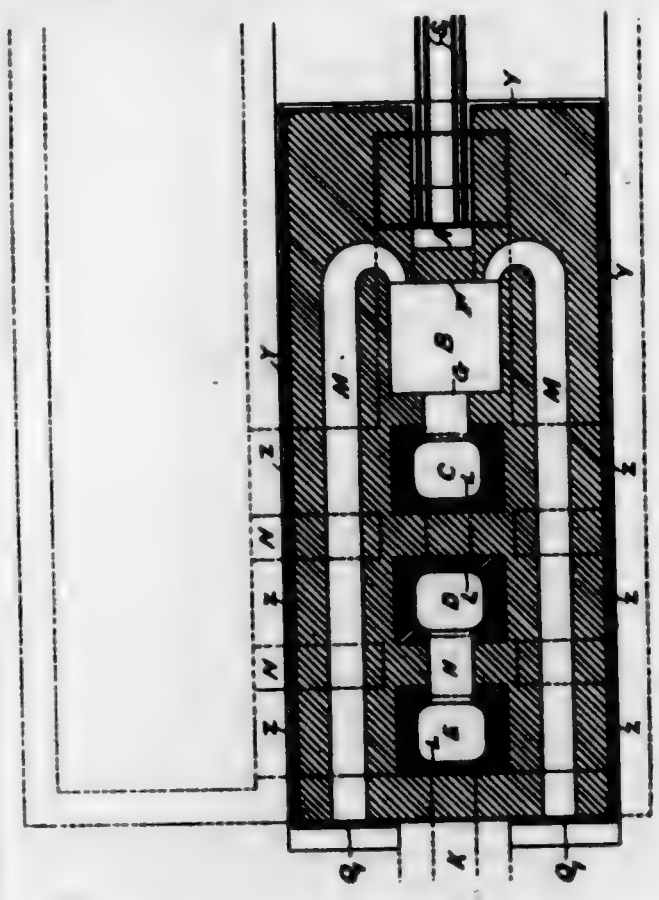
4. A device of the kind described, comprising a cylindrical containing vessel provided at its bottom with a pocket for virtually increasing the depth of a liquid contained therein, an air-inlet extending into the lower part of said pocket for the purpose of lengthening the flow of air-bubbles escaping through said liquid, and an agitating device located in said containing vessel and in the path of said escaping air-bubbles.

5. A device of the kind described, comprising a cylindrical containing vessel provided at its bottom with a pocket, an air-inlet extending into the power part of said pocket, and agitating devices located in said containing vessel.

6. A device of the kind described, comprising a cylindrical containing vessel, an agitating device mounted to slide therein, and an annular rest secured within said containing vessel for the purpose of supporting said agitating device and of spacing the same from the bottom of said containing vessel.

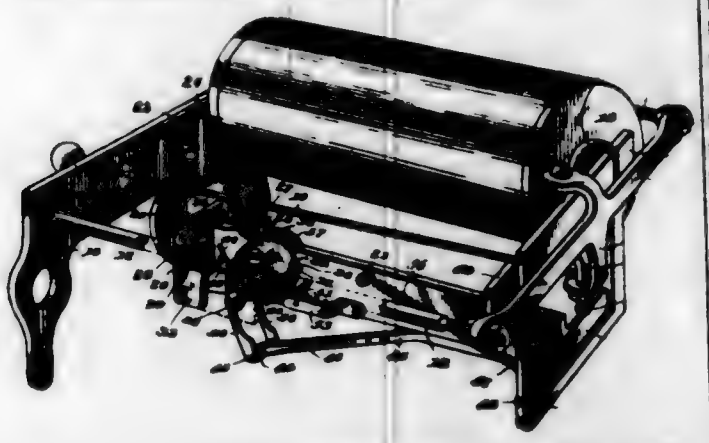
7. A device of the kind described, comprising a cylindrical containing vessel, a perforated disk free to slide therein, a manually-operated tube provided with an air-inlet and extending through said disk and rigidly secured thereto, and a pair of agitating members provided with blades of opposite pitch, said members being free to move in opposite directions when said manually-operated tube is actuated.

695,975. FURNACE. JAMES WARD, Newcastle-upon-Tyne, England, assignor to International Oil Furnace Company, Limited, Newcastle-upon-Tyne, England. Filed Dec. 21, 1901. Serial No. 86,841. (No model.)



Claim.—In a furnace, the combination, with a series of communicating chambers arranged in a horizontal plane, of vaporizers for liquid fuel arranged in the first chamber, and air-inlet passages formed in the walls of the furnace and extending longitudinally of all the melting-chambers and connected to the said second chamber which forms a combined mixing and heating chamber between the first or vaporizing chamber and the melting-chambers, substantially as set forth.

695,976. TELEPHONE-SELECTING DEVICE. WILLIAM D. WATKINS, San Jose, Cal., assignor of one-half to John W. Bolster, San Jose, Cal. Filed May 11, 1901. Serial No. 59,858. (No model.)



Claim.—1. In a device of the class described, a movable member, a tumbler movable into and out of engagement therewith, a notched locking-disk normally holding said tumbler in locking position, means for moving said disk to unlocking position, a guard-disk also engaging the tumbler, and means for effecting a rapid oscillatory movement of said guard-disk during the movement of the notched disk to unlocking position, substantially as described.

2. In a device of the class described, a movable member, a tumbler movable into and out of engagement therewith, a toothed disk having a notch for the reception of said tumbler to permit the movement of the latter to the unlocked position, means for effecting a step-by-step rotative movement of said disk, a guard-disk also having an unlocking-notch normally in position for the reception of the tumbler, and means for effecting a rapid oscillatory movement of said guard-disk during the movement of the said locking-disk, substantially as described.

3. In a device of the class described, a movable member, a tumbler movable into and out of engagement therewith, a toothed disk having a notch for the reception of said tumbler to permit the movement of the latter to the unlocked position, a guard-disk also engaging said tumbler and having an unlocking-notch adapted for the reception of the said tumbler, said guard-disk having its center of gravity so disposed as to normally maintain the tumbler-receiving notch in position for the entrance of the tumbler, and means for effecting a rapid oscillatory movement of said guard-disk during the movement of the said locking-disk, substantially as described.

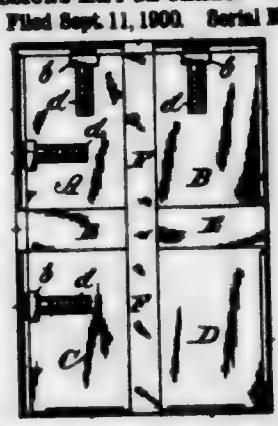
4. In a device of the class described, an electromagnet, a movable polarized armature, and a member carried by and movable therewith, means for locking the movable member and for unlocking the same to permit of its movement with the armature, said means comprising a movable tumbler, a disk having a tumbler-receiving notch normally in inactive position, a second or guard disk having a notch normally in position to receive the tumbler, a soft-iron armature for the electromagnet, and mechanism connecting said soft-iron armature to the two disks, substantially as specified.

5. The combination with an electromagnet and a member movable thereby, of a locking device for holding said member normally against movement, pivoted ratchets having notches disposed to receive the locking device simultaneously to permit of movement thereof from operative position, one of said ratchets being constructed to stand normally with its notch out of active position and the other ratchet being constructed to stand with its notch normally in active position a second armature for the electromagnet, a pawl for each ratchet connected with the second armature for movement thereby to shift the ratchets from their normal positions to carry the notch of the normally inactive ratchet to active position and to move the normally active notch from active position, and means in the path of the pawl of the ratchet with the normally active notch for moving the pawl from the ratchet to permit it to return to its normal position.

6. A device of the class described comprising a tumbler, a ratchet-disk for holding the tumbler normally active and having a notch normally out of active position and adapted when in active position to receive the tumbler to permit it to move from operative position, an electromagnet having an armature, a pawl connected with the armature and in operative relation to the ratchet-disk for moving it with its notch to and beyond its active position, a second ratchet-disk mounted for swinging movement into and out of normal position and having a normally active notch to receive the tumbler, a pawl connected with the armature and in operative relation to the second ratchet-disk to swing it, and means in the path of movement of the second pawl for deflecting it from the ratchet-disk to permit the latter to return to its normal position.

7. A device of the class described comprising a tumbler, ratchet-disks having notches for alinement to receive the tumbler and permit it to move from operative position, one of said disks being arranged to stand normally with its notch out of active position and the other disk being arranged to stand with its notch normally in active position, a pawl for moving each ratchet from its normal position, the normally inactive disk being adapted for movement with its notch beyond the active position thereof, means for moving the pawl of the normally active disk to permit the latter to return to its normal or active position, a retaining-pawl for the first ratchet-disk, and means for engagement by the second disk to move the retaining-pawl from active position when the second disk is released, whereby the first disk may return when released by its rotating pawl.

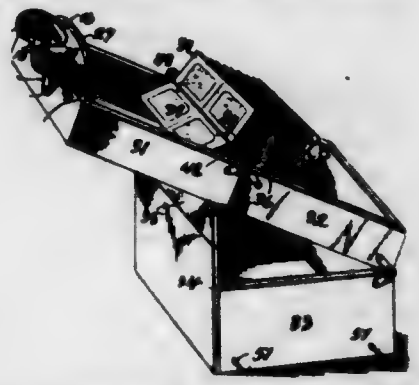
695,977. BLOCK OR BASE FOR HOLDING PLATES FROM WHICH PRINTED IMPRESSIONS MAY BE TAKEN. SIDNEY M. WEATHERLY, New York, N. Y. Filed Sept. 11, 1900. Serial No. 29,691. (No model.)



Claim.—1. A block or base for holding a plate from which printed impressions may be taken, said block or base having four separable corners, all constructed to be brought together, an interposed strip or strips extending in four different directions from a center and separating all of said corner-pieces from each other, and said block provided with opposing clamping members, extending above its upper surface, one of such members having means for adjusting it relative to its opposing member, the tops of the corner-pieces provided with a recessed track on either side of the operating means for the adjustable member, and two of the diverging interposed strips between the corner-pieces provided with recesses on their ends having no outward boundary-walls, and the bottoms of said recesses forming continuations of the tracks in the corner-pieces, all substantially as and for the purposes set forth.

2. A block or base for holding a plate from which printed impressions may be taken, said block or base having four separable corners, all constructed to be brought together, an integral interposed strip or strips extending in four different directions from a center and separating all of said corner-pieces from each other, and said block provided with opposing clamping members, extending above its upper surface, one of such members having means for adjusting it relative to its opposing member, the tops of the corner-pieces provided with a recessed track on either side of the operating means for the adjustable member, and two of the diverging interposed strips between the corner-pieces provided with recesses on their ends having no outward boundary-walls, and the bottoms of said recesses forming continuations of the tracks in the corner-pieces, all substantially as and for the purposes set forth.

695,978. VIEW OUTFIT. RICHARD R. WHITING, Cincinnati, Ohio. Filed June 28, 1900. Serial No. 21,279. (No model.)



Claim.—1. A lens-holder consisting of the two plates with a space between them, connected so as to permit separation and each having two openings which register with those of the other plate and projections bent up at right angles from one of these plates and into this space for confining the lenses in position by engaging them edgewise.

2. A lens-holder consisting of two plates hingedly secured to each other, so as to permit them to be swung apart and with a space between them, two openings in each which register with those of the other plate,

projections bent up from one of these plates and into this space for confining the lenses in position within the openings in the plates and a locking device to hold the plates in position on each other.

3. The combination of a lens-holder, a hood fitted around the same and projecting from one side thereof, perforations near the free edge of the hood and a cushion covering this edge, consisting of strips of fabric wound around this edge and held in place by being passed through the perforations thereat.

4. In a view outfit, the combination of a lens-holder, a picture-carrying support, a storage-box for pictures adapted to receive them when not in use, said storage-box being in sections hingedly secured to each other, thereby permitting it to be opened out so as to serve as a support for the lens-holder and picture-carrying support, a hinge whereby the lens-holder is secured to one of the sections of the storage-box, a combined storage-box and base to which this sectional storage-box is hinged, a support projecting upwardly therefrom upon which this sectional storage-box is adapted to rest in an inclined position when opened out and a hinge to hold it to its base while in such position as well as after taken off from this support and folded up.

5. In a view outfit, the combination of a lens holder, consisting of two plates between which the lenses are confined, a support adapted to be adjusted to an inclined position, a hinge whereby the two plates of the lens-holder are hinged to each other and the latter also as a whole to this support and a picture-carrying slide resting upon this latter.

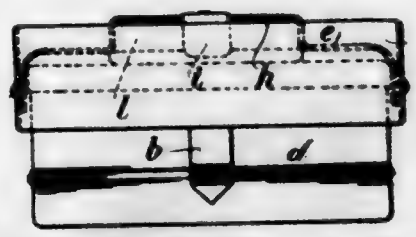
6. A view-glass consisting of two lenses substantially square and thinner on one edge than on the other, two plates spaced sufficiently apart to admit these lenses between them, two openings in each of these plates which in one register with those of the other plate, said openings conforming in outline to the lenses, but of dimensions somewhat smaller than those latter projections bent up at right angles into the space between the lens-holder plates whereby the lenses are removably held within the openings and shorter projections adapted to support the thinner edges of the lenses.

7. In a view outfit, the combination of a box 33, another box consisting of two sections 31, 32, hinged to each other and adapted to be opened out in a manner that their flat sides form an unbroken surface, a support for these sections when so opened out to sustain them in an inclined position, being furnished by the upward extension of one of the sides of base 33 and a hinge whereby the sectional box is held to box 33 in all its positions.

8. In a view outfit, the combination of a box 33 having one of its sides extended upwardly beyond the other three sides and another box divided horizontally in two equal-sized sections 31, 32, hingedly connected, said divided box hingedly connected to the side of box 33 opposite the extended side thereof and adapted when opened out to rest upon the upper edge of said extended side and a lens-holder hingedly secured to section 31.

9. In a view outfit, the combination of a lens-holder consisting of two separable parts between which the lenses are confined, a support for the lens-holder, a hinge whereby the two parts of it are secured to each other and means on the hinge to secure this lens-holder to the support thereof.

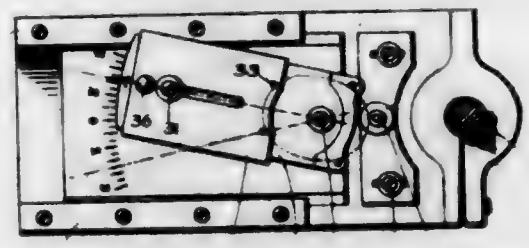
695,979. PORTABLE COOKING APPARATUS. JAKOB WIDMER, Zurich, Switzerland. Filed Oct. 14, 1901. Serial No. 78,599. (No model.)



Claim.—A transportable cooking apparatus, consisting of a stand and of a cooking vessel, the former being adapted to be placed over and secured to the latter for transport and to carry a fuel-box capable of being set into use below the cooking vessel and above the same in packing up the apparatus, all substantially as and for the purpose set forth.

695,980. MACHINE FOR DRILLING LENSES. LOUIS WILHELM, Southbridge, Mass., assignor to the Standard Optical Company, Geneva, N. Y., a Corporation of New York. Filed Jan. 30, 1901. Serial No. 45,306. (No model.)

Claim.—1. In an apparatus for drilling spectacle or eyeglass lenses, the combination of a longitudinally-movable drill-spindle, a gage-roll or stop, a slide or carriage having abutments, a clamping-slide also having pins or abutments, said two sets of pins or abutments coöperating to hold a lens while the same is being drilled, a spring for normally moving forward the main slide or carriage, and a stronger spring for moving forward the clamping-slide, said parts being arranged so that when the clamping-slide is retracted the lens will first be drawn back from its stop before being released from the clamping-abutments, substantially as described.



2. In an apparatus for drilling spectacle or eyeglass lenses, the combination of a longitudinally-movable drill-spindle, a gage-roll or stop arranged to be engaged by the edge of the lens being drilled, a slide or carriage, an adjustable piece mounted on the slide or carriage, so that the same can be swung or adjusted transversely on the carriage, a secondary slide mounted on said adjustable piece, and clamping pins or abutments mounted on the adjustable piece and secondary slide respectively for clamping a lens and holding the same up into engagement with its stop while being drilled, substantially as described.

3. In an apparatus for drilling spectacle or eyeglass lenses, the combination of a longitudinally-movable drill-spindle, a gage-roll or stop arranged to be engaged by the edge of the lens being drilled, a slide or carriage, an adjustable piece mounted on the slide or carriage so that the same can be swung or adjusted transversely, a secondary slide mounted on said adjustable piece, clamping pins or abutments carried by the adjustable piece and secondary slide respectively, a spring normally tending to move the carriage forward, and a stronger spring for moving forward the secondary slide, said parts being arranged so that when the secondary slide is retracted the lens will first be drawn back from the stop before being released from the clamping-abutments, substantially as described.

4. In an apparatus for drilling spectacle or eyeglass lenses, the combination of a base-piece or frame, a drill-standard, a vertically-movable drill-spindle mounted therein an adjustable piece having a gage-roll or stop, screws for clamping the gage-roll or stop in its adjusted position, a carriage or slide, an adjustable piece pivotally mounted on said carriage, said parts being graduated so that the adjustable piece may be set to corresponding positions at each side of the central line of the carriage, a secondary slide mounted on the adjustable piece, a screw for holding the secondary slide in place, pins or clamping-abutments extending up from the adjustable piece and secondary slide respectively, a spring for moving forward the carriage, and a stronger spring for moving forward the secondary slide, said parts being arranged so that when the secondary slide is retracted the lens will first be drawn back from its stop before being released from the clamping-abutments, substantially as described.

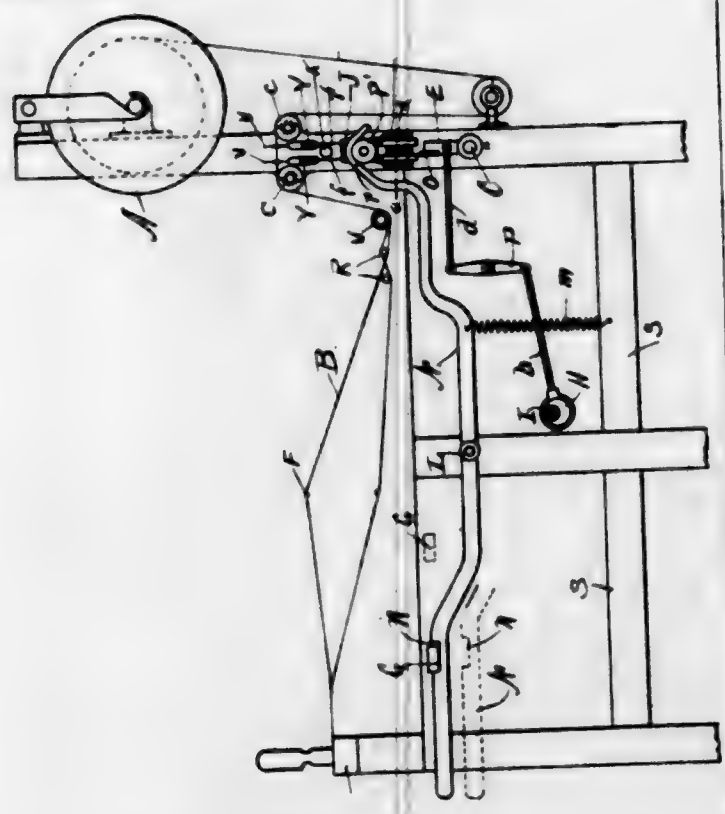
5. In an apparatus for drilling spectacle or eyeglass lenses, the combination of a base-piece, a drill-standard adjustably mounted therein, a drill-spindle journaled in bearings carried by the drill-standard a fork-piece secured on the upper end of the drill-spindle, a friction-roll journaled in the fork-piece, a forked lever fitting into the fork-piece and engaging the friction-roll, a gage-roll or stop, a carriage or slide mounted on the base-piece, a secondary slide, pins or clamping-abutments carried by the carriage and secondary slide respectively, a spring for moving forward the carriage, and a stronger spring for moving forward the secondary slide, said parts being arranged so that when the secondary slide is retracted the lens will first be drawn back from its stop before being released from the clamping-abutments, substantially as described.

695,981. WARP STOP-MOTION FOR NARROW-WARE LOOMS. FRED R. WILKINS, Woonsocket, R. I. Filed Nov. 22, 1901. Serial No. 83,263. (No model.)

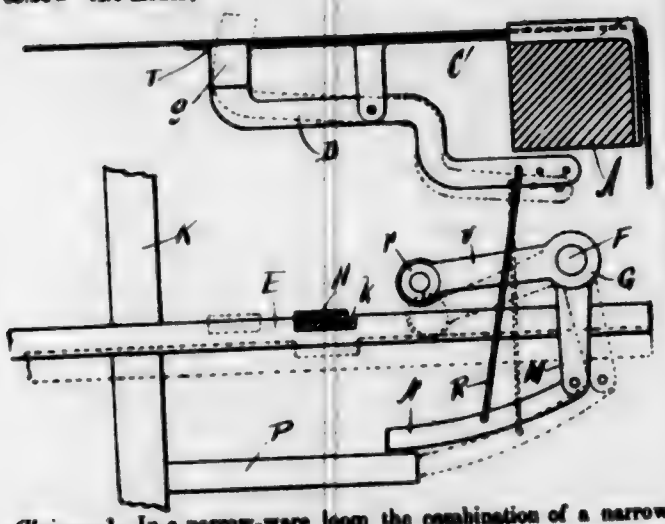
Claim.—1. The combination of a warp stop-motion for looms of a rocker-shaft, means for rocking said shaft, vertical arms held on said shaft, a bar connecting the outer end of said arms, swinging arms held on pivots over said shaft, two rolls held above said swinging arms to support the warp-threads, sets of drop-wires held between bars on the swinging arms, hooks attached to said drop-wires and having eyes to receive the warp-threads and loops to receive the bars on the swinging arms, a roll held on one of said swinging arms, a lever held on a pivot in the frame and extending from the front to the back of the loom, a double incline on the back end of said lever, a notch in the front arm to hold the belt-shipper, substantially as described.

2. In a warp stop-motion for looms, the combination of a series of drop-wires held on bars on swinging arms, a roll held on one of said swinging arms, a lever pivoted on the end frame and having a double incline at one end to receive said roll and connected with the belt-shipper, a rocker-shaft held in bearings in the end frames, arms fast in said rocker-

shaft and connected together by a bar, a lever pivoted on said frame connected at its upper end with the arm on the rocker-shaft and its lower end with an eccentric-cam on the cam-shaft, and said eccentric, substantially as described.



695,982. **WEFT STOP-MOTION FOR NARROW-WARE LOOMS.** FRED R. WILKINS, Woonsocket, R. I. Filed Nov. 22, 1901. Serial No. 83,264. (No model.)



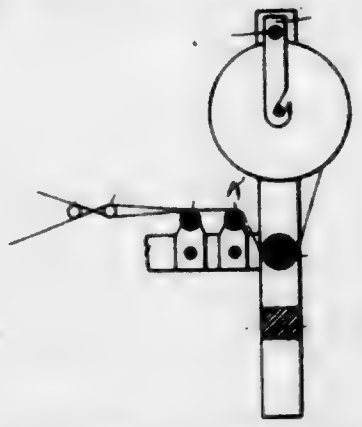
Claim.—1. In a narrow-ware loom the combination of a narrow plate held to slide in ways on the top of the breast-beam and having a hole in it near its inner end, a notch in said plate, a spring-detent to enter said notch in the plate and detain it in normal position, a lever hold on a pivot in a stud on the under side of said plate, thin vertical plates held on the top of the inner end of said lever and under the hole in said narrow plate, and means for connecting said lever with the belt-shipper, substantially as described.

2. In a narrow-ware loom, a plate held on the top of the breast-beam extending nearly to the reed when beating up and having a hole in it near its inner end, in combination with a horizontal lever held on a pivot on its under side and having thin vertical plates on the upper side of its inner end, a knee-lever held to swing on a shaft under the breast-beam and having a dagger in the end of one arm and a stud in the end of the other arm, a lever holding the belt-shipper and arranged to be struck by said stud, a connecting-link between said dagger and the horizontal lever, substantially as described.

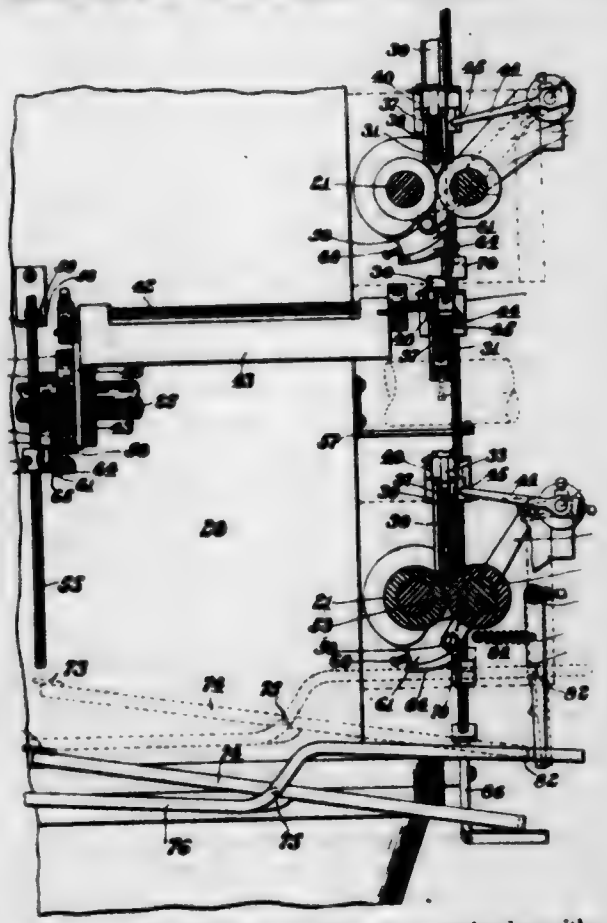
695,983. **WARP-BEAM SUPPORT FOR NARROW-WARE LOOMS.** FRED R. WILKINS, Woonsocket, R. I. Filed Nov. 22, 1901. Serial No. 83,265. (No model.)

Claim.—1. In a loom the combination of a bar held at each end in the end frames of the loom, a series of pendent warp-spool frames held to swing independently of each other on said bar, spools held to turn on shafts in said frames, and the said shafts, substantially as described.

2. In a loom the combination of a bar held at each end in the end frames of the loom, a series of pendent warp-spool frames held to swing independently of each other on shafts held in said frames, the said shafts, and a strap and weight for each pulley, substantially as described.



695,984. **MACHINE FOR FORGING HORSESHOE-NAILS OR OTHER ARTICLES.** HENRY A. WILLIAMS, Quincy, Mass., assignor to Putnam Nail Company, Boston, Mass., a Corporation of Massachusetts. Filed Jan. 15, 1902. Serial No. 89,917. (No model.)



Claim.—1. In a forging-machine, the combination with a pair of die-grooved rolls and a conducting-tube leading thereto, of a reciprocating spring-pressed blank-pusher coöperating therewith, means for actuating the same, and a stop-motion controlled by said pusher, whereby the failure of the pusher to descend to the limit of its normal downward movement by reason of the conducting-tube being obstructed will cause the stop-motion to be tripped to stop the machine.

2. In a forging-machine, the combination with a pair of die-grooved rolls and a conducting-tube leading thereto, of a reciprocating spring-pressed blank-pusher adapted to enter said conductor after a blank has been dropped therein and exert a yielding pressure on said blank, lever mechanism for actuating said pusher, and a stop-motion controlled by and adapted to be tripped by said pusher-actuating mechanism when the pusher is prevented from descending to the normal limit of its downward movement.

3. In a forging-machine, the combination with a pair of die-grooved rolls and a conducting-tube leading thereto, of a reciprocating spring-pressed blank-pusher adapted to enter said conductor after a blank has been dropped therein and exert a yielding pressure on said blank, lever mechanism for actuating said pusher, a cam for actuating said lever mechanism, a spring-pressed lever pivoted to said cam and having at its free end a laterally-projecting pin, said spring-pressed lever being adapted to be swung outward by contact with the pusher-actuating mechanism when said pusher fails to descend to its normal limit, a drop-rod and means for supporting the same, said drop-rod having a laterally-projecting arm adapt-

ed to be struck by the laterally-projecting pin of the cam-lever when swung outward from its normal position, and stop-motion mechanism adapted to be tripped by the descent of the drop-rod to stop the machine.

4. In a forging-machine, the combination of a pair of die-grooved rolls, a conducting-tube leading thereto, a spring-pressed reciprocating pusher adapted to enter said conductor after a blank has been dropped therein and exert a pressure on said blank, lever mechanism for raising the pusher and withdrawing the same from the conductor, a cam for actuating said lever mechanism, a spring-pressed lever pivoted to said cam and provided at its free end with a laterally-extending pin, a drop-rod and means for supporting the same, said drop-rod having a laterally-projecting arm adapted to be struck by said pin to turn said drop-rod and release the same when said cam-lever is forced outward by contact with the lever mechanism connected with the pusher, a drop-lever, a notched arm for supporting the same, a tripper-lever for releasing the drop-lever, said tripper-lever being actuated by the descent of the drop-rod thereupon, and means controlled by the drop-lever for arresting the movement of the driving-shaft.

5. In a forging-machine, the combination with the blank-pusher-actuating cam, of a spring-pressed lever pivoted thereto and carrying at its free end a laterally-projecting tripping-pin, and an adjustable stop for determining the normal position of said lever and the distance of its tripping-pin from the center of the cam.

6. In a forging-machine, the combination with the blank-pusher-actuating cam and a spring-pressed lever pivoted thereto and carrying at its free end a laterally-projecting tripping-pin, of a drop-rod provided with an arm vertically adjustable thereon to bring it into the path of the tripping-pin when the latter is moved outward beyond its normal position, said tripping-pin being adapted to turn the drop-rod to release the same.

7. In a forging-machine, the combination with the blank-pusher-actuating cam, of a spring-pressed lever pivoted thereto and carrying at its free end a laterally-projecting tripping-pin, an adjustable stop for determining the normal position of said lever and the distance of its tripping-pin from the center of the cam, a drop-rod provided with an arm vertically adjustable thereon to bring it into the path of the tripping-pin when the latter is moved outward beyond its normal position, said pin being adapted to turn the drop-rod to release the same, and stop-motion mechanism adapted to be tripped by the descent of the drop-rod.

8. In a forging-machine, the combination with the vertically-sliding drop-rod provided with a laterally-extending pin, of a bracket provided with an opening for the passage of said rod and having a slot communicating with said opening through which said pin may pass when brought into line therewith by the axial movement of the rod, means for turning said rod, and stop-motion mechanism adapted to be tripped by the descent of the drop-rod.

9. In a forging-machine, the combination with a vertically-sliding drop rod having a laterally-extending pin, of a bracket provided with an opening for the passage of the drop-rod and forming a rest for its pin, whereby said drop-rod is held suspended, said bracket having a slot through which said pin may pass when brought into line therewith by the partial rotation of the drop-rod, and a pin projecting from the upper side of the bracket near said slot and forming a stop for the drop-rod pin.

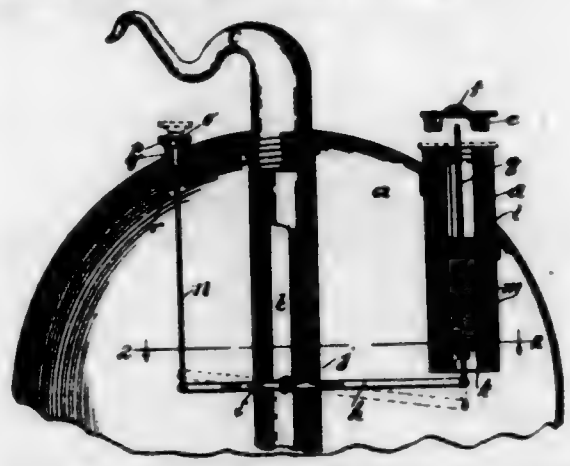
10. In a forging-machine, the combination with the drop-lever and means controlled thereby for arresting the movement of the driving-shaft, of a notched arm for supporting said drop-lever, a tripper-lever pivoted to the drop-lever and adapted to act on the notched arm to release said drop-lever, a vertically-sliding drop-rod adapted to fall upon and actuate the tripper-lever, and means for supporting and releasing the drop-rod.

11. In a forging-machine, the combination with the drop-lever and the notched arm for supporting the same, of a tripper-lever pivoted thereto and adapted to act on the notched arm to release the drop-lever, a second tripper-lever extending beneath and adapted to actuate the first-named tripper-lever, a drop-rod for each of said tripper-levers, and means for releasing said drop-rods, whereby the descent of either one will effect the release of the drop-lever to stop the machine.

695,985. LAMP. WILLIAM R. WILLSON, MAGGIE City, Oreg. Filed July 3, 1901. Serial No. 66,262. (No model.)

Claim.—1. The combination with the font or reservoir of a lamp, of a filling-tube extending down into the interior of said font or reservoir, a removable cover for said tube, an opening in said font or reservoir for the escape of gas, a valve for said opening, and means operated through the securing of said cover in place to open said valve, substantially as specified.

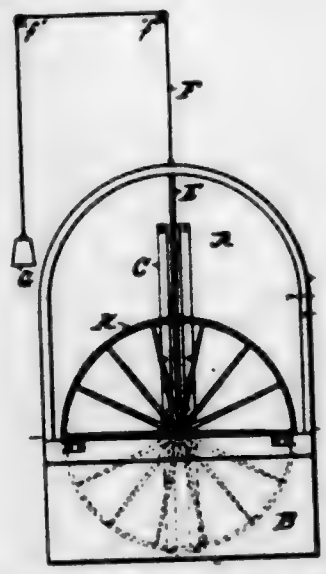
2. The combination with the font or reservoir of a lamp, of a filling-tube extending down into the interior of said font or reservoir, a removable cover for said tube, an opening in said font or reservoir for the escape of gas, a valve for said opening, and means operated through the securing of said cover in place to open said valve and hold it open until the removal of said cover, substantially as specified.



3. The combination with the font or reservoir of a lamp, of a filling-tube extending down into the interior thereof, a removable cover for said tube, an opening in said font or reservoir for the escape of gas, a valve for said opening, a pivoted lever in said font or reservoir, a rod connecting said valve with one end of said lever, a second rod connected to the opposite end of said lever and projecting up into said filling-tube, and a spring acting on said last-named rod to force it upward, substantially as specified.

4. The combination with a font or reservoir of a lamp, said font provided with an opening, of a pipe *b* extending through the said font for supporting the lamp, the filling-tube *d* depending into said font and suitably connected thereto, the cover *e* for said tube, the lever *h* provided with a yoke *i* adapted to surround said pipe *b* and be pivotally attached thereto, the valve *o* for closing the said opening, the rod *n* connected at one end to the said lever and at its opposite end to said valve for operating the latter, thereby closing the said opening, the rod *g* connected to the opposite end of said lever and extending upwardly in the said tube, and the spring *m* arranged in said tube and adapted to force the said rod *g* upwardly, substantially as specified.

695,986. PAINT-DIP FOR WHEELS. JOSEPH H. WILSON, Buffalo, N. Y., assignor to Acme White Lead and Color Works, Detroit, Mich., a Corporation of Michigan. Filed May 24, 1901. Serial No. 61,734. (No model.)



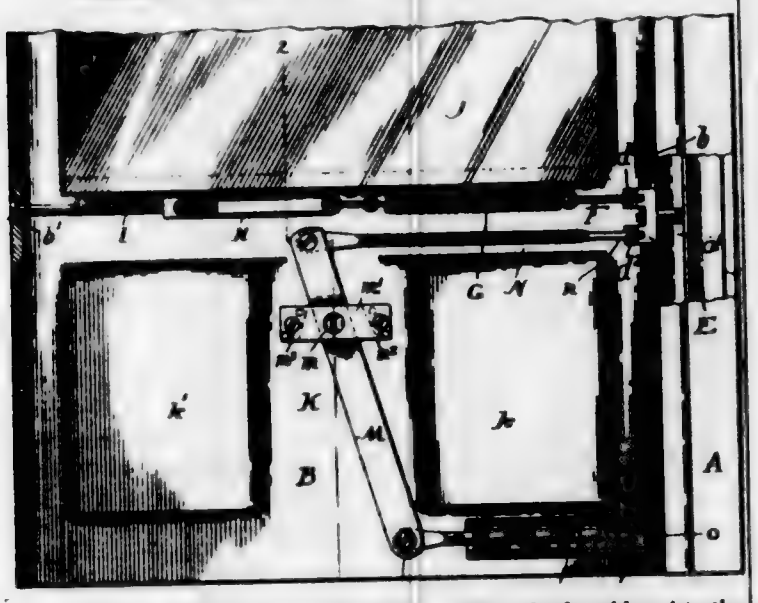
Claim.—1. In a wheel-painting device, the combination with a vertical paint-dip of a semicylindrical hood, positioned above and over said dip, a standard secured to said hood, a traveling plate moving in said standard, means for securing the wheel to said plate, and suitable means for raising and lowering the wheel into and out of said paint-dip, for the purposes set forth.

2. In a wheel-painting device, the combination with a vertical paint-dip of a semicylindrical hood positioned above and over said dip, a standard secured to said hood, a T-slot formed in said standard, a traveling plate adapted to move up and down in said T-slot, a hollow lug secured at right angles to said plate, suitable means for raising and lowering said plate, so that when a wheel is attached thereto, it can be submerged in and drawn out of said paint-dip, and a crank adapted to engage with the lug on said plate and between the spokes of the wheel whereby the wheel after being submerged in the paint can be rapidly revolved and the surplus paint caught by the hood and conducted back into the dip, as and for the purposes set forth.

3. In a wheel-painting device, the combination with a vertical paint-dip of a semicylindrical hood positioned above and over said dip, a standard secured to said hood, a traveling plate moving in said standard, means for securing the wheel to said plate, suitable means for raising and lowering the wheel into and out of said dip, suitable means for revolving said wheel after being immersed in said dip, and an inclined support for receiving said wheel after being thus revolved, which support is adapted also for a cover over the front of the hood as and for the purposes set forth.

4. In a wheel-painting device, the combination with a vertical paint-dip of a semicylindrical hood positioned above and over said dip, a standard secured to said hood, a traveling plate moving up and down in a slot formed in said standard, a guide rod or bar attached to said plate, a rope attached to said guide-bar, pulleys over which said rope runs, a weight attached to the end of said rope, suitable means for securing the wheel to said plate, and suitable means for revolving said wheel after it is immersed in said dip, substantially as specified.

695,987. **DOOR CLOSER AND CHECK.** FRANCIS A. WINSLOW, Chicago, Ill. Filed Apr. 5, 1901. Serial No. 54,462. (No model.)



Claim.—1. The combination with a casing, of a door hinged to the casing and provided with an internal recess to receive and allow the lateral movement of an approximately vertical lever, a lever centrally pivoted in said recess, a checking-cylinder within the door and having its plunger pivotally connected to one arm of the lever, and a link pivoted to the opposite arm of the lever, extending toward the hinged side of the door, and secured to the casing by a pivotal connection, substantially as described.

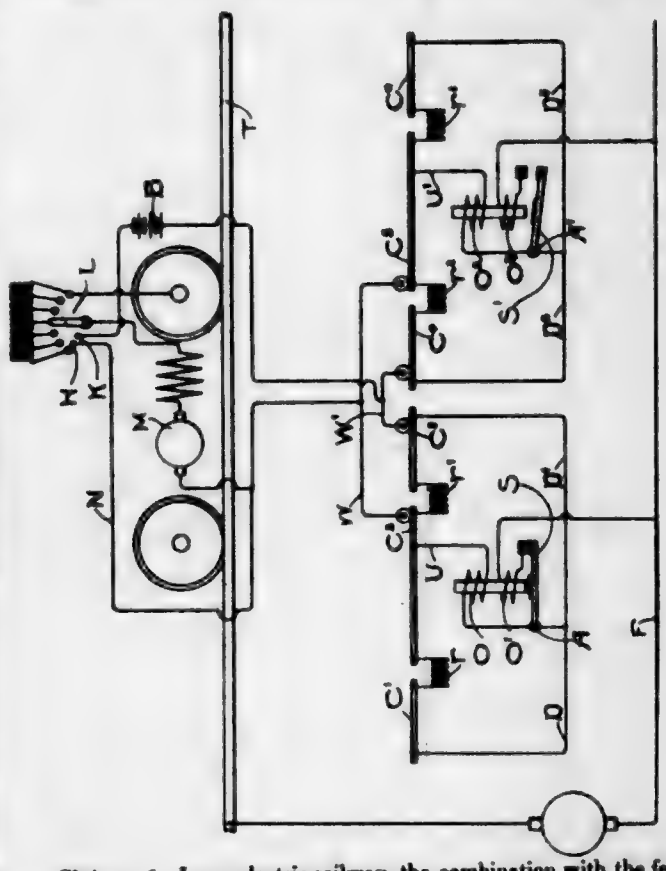
2. The combination with a side jamb or casing of a door hinged to the casing and provided with a recess extending from edge to edge thereof, a bearing secured to the casing eccentrically to the pintle-line of the hinges and in the plane of the door, a tension-adjusting screw working in the free edge of the door and extending inward therefrom toward the opposite edge, and an extensible spring located in said recess and having one end connected to said bearing and the other attached to said screw by connections allowing independent rotation of the latter, substantially as described.

3. The combination with a side jamb or casing, of a door hinged thereto and provided with a recess extending from edge to edge thereof, a bearing secured to the casing eccentrically to the pintle-line of the hinges, a link pivotally attached to said bearing and extending into said recess when the door is closed, a tension-adjusting screw seated in the opposite end of the recess with its head accessible at the door's free edge, an extensible spring located in said recess and having one end connected to the free end of said link and the other attached to said screw by a swivel connection, a checking-cylinder and its plunger within the door, a lever centrally pivoted within the door and having one end pivotally connected to said plunger, and a link pivotally connecting the opposite end of the lever to said bearing, substantially as described.

4. The combination with a casing, of a door laterally hinged thereto and provided with an internal recess extending from edge to edge, of a bearing secured to the casing upon the hinged side of the door and when the door is closed projecting into said recess, a curved link pivoted to said bearing, a spring-coil having one end attached to the free end of the link, a nut secured to the opposite end of the coil, a socket secured in the recess at the free side of the door, and a screw arranged to rotate without advance in said socket and extending inward in said recess and engaging said nut, substantially as described.

5. The combination with a door hinged to a casing and having the parts surrounding its panels hollow, of a check-cylinder located in the cavity on one side of a panel, a link similarly located upon the opposite side of the same panel and pivotally connected to the casing on the hinge side of the door, an approximately vertical centrally-pivoted lever lying in the cavity upon the third side of said panel and having its arms, respectively, pivotally connected to the link and the plunger of the check-cylinder, substantially as described.

695,988. **ELECTRIC RAILWAY.** GRANVILLE T. WOODS, New York, N. Y., assignor to the General Electric Company, a Corporation of New York. Filed Aug. 24, 1900. Serial No. 27,902. (No model.)



Claim.—1. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches for connecting the latter with the former, a motor-collector and a switch-energizing contact device carried by the car, and resistances connecting adjacent conductor-sections engaged by said collector and contact device, said resistances serving to shunt a portion of the current flowing to the collector, through the switch-energizing contact device and the magnet of the switch of an advance section.

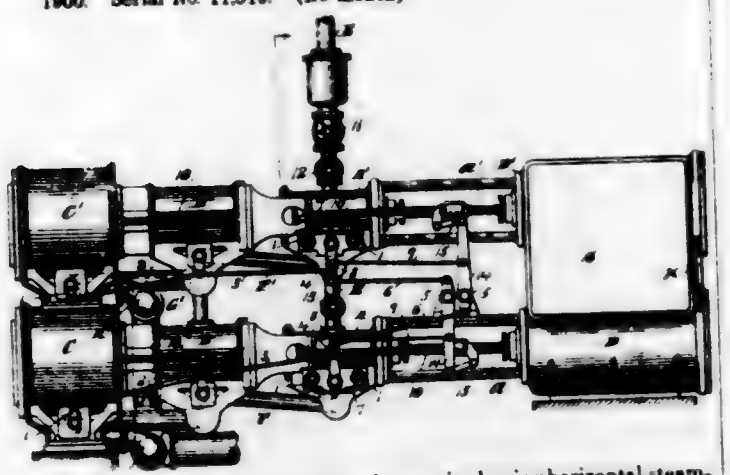
2. In an electric railway, the combination with the feeder, of a single line of conductor-sections, electromagnetic switches for connecting the latter with the former, a plurality of successive conductor-sections constituting a set, resistances connecting together the members of each set, a motor-collector and a switch-energizing contact device carried by the car, said resistances serving to shunt the portion of the current flowing to the motor-collector through the switch-energizing device and the magnet of the switch of an advance section.

3. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches for connecting the latter with the former, three successive conductor-sections constituting a set, resistances connecting together the sections of each set, a connection between the switch of a set and the sections thereof, a connection between the magnet-coil of the switch of a set and the sections thereof, and a motor-collector and a switch-energizing contact device carried by the car, which bridge adjacent sets of sections.

4. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches for connecting the latter with the former, and closed circuits for the secondary discharge of the magnet-coils.

5. In an electric railway, the combination with the feeder, of conductor-sections, electromagnetic switches for connecting the latter with the former, several conductor-sections constituting a set, resistances connecting together the sections of each set, a connection between the switch of a set and the sections thereof, a connection between the magnet-coil of the switch of a set and the sections thereof, and a motor-collector and a switch-energizing contact device which bridge adjacent sets of sections, said resistances being sufficiently large to shunt a part of the main current through the switch-energizing device, and sufficiently small to receive the secondary discharge of the magnets around the closed circuits formed by the sections of a set and the connections described.

695,989. DUPLEX STEAM-PUMP OR OTHER DUPLEX STEAM-ENGINE. CHARLES C. WORTHINGTON, Dunnfield, N. J. Filed Apr. 4, 1900. Serial No. 11,519. (No model.)



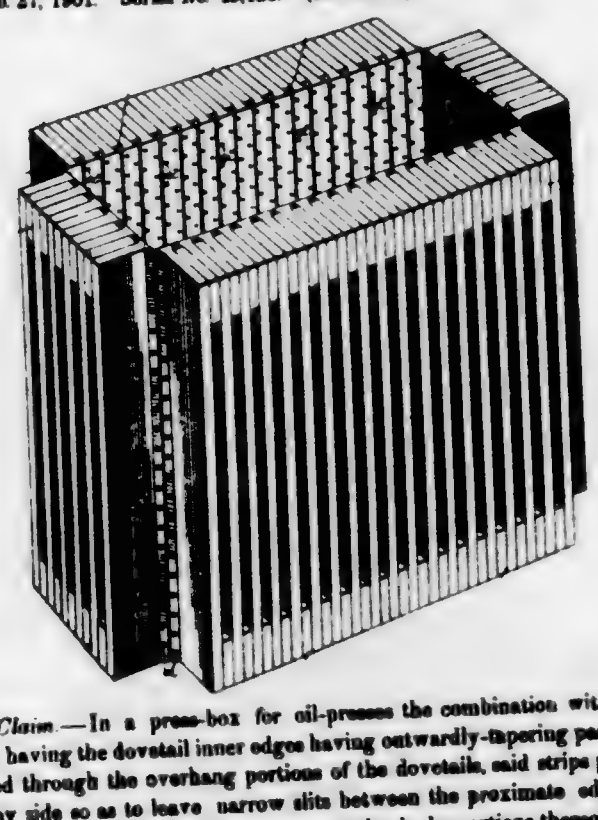
Claim.—1. A duplex steam pumping-engine having horizontal steam-cylinders arranged in line one above the other and horizontal pump-cylinders arranged in line one above the other, and having a steam-valve movement for operating the steam-valves of each side of the engine by the piston of the opposite side provided with valve-levers actuated by the pistons and arranged to swing in vertical planes on one side of the engine, substantially as described.

2. A duplex steam pumping-engine having horizontal steam and pump cylinders arranged in line one above the other and having the steam-valves for each side of the engine operated by the piston of the opposite side with the steam-valve movement arranged on one side of the engine and a removable cover for access to the pump-valves on the same side of the engine as the valve-movement, substantially as described.

3. A duplex steam pumping-engine having horizontal steam and pump cylinders arranged in line one above the other and having the steam-valves for each side of the engine operated by the piston of the opposite side and having its steam-valve movement arranged on one side of the engine and its steam and pumping connection-pipes extending in planes parallel with the cylinders, substantially as described.

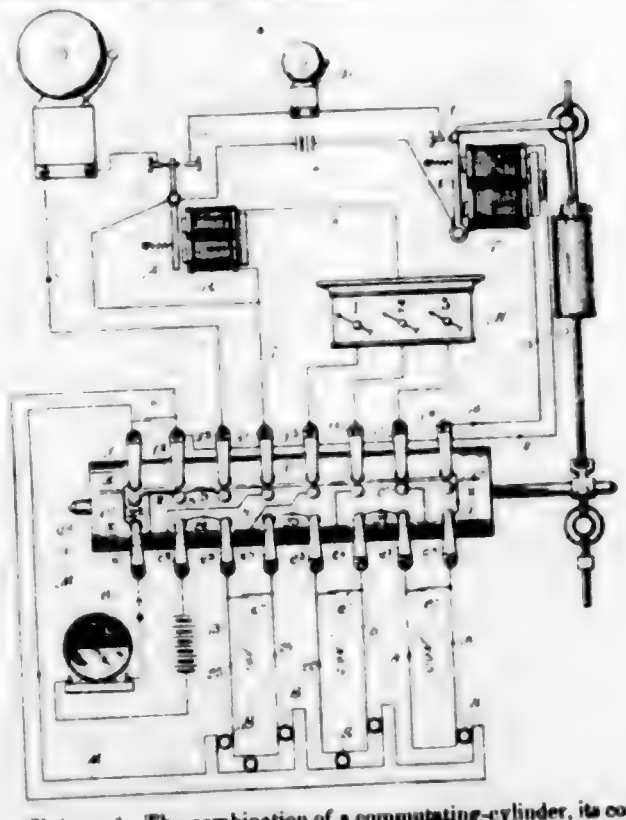
4. A duplex steam pumping-engine having horizontal steam and pump cylinders arranged in line one above the other, and force and suction main connections at the end of the pump in line horizontally and on opposite sides of a plane central to the pump-cylinders, and having the steam-valves for each side of the engine operated by the piston of the opposite side and its steam-valve movement arranged on one side of the engine and its steam connection-pipes extending in planes parallel with the cylinders, substantially as described.

695,990. PRESS-BOX. GEORGE W. ZODER, Boyce, La. Filed Feb. 27, 1901. Serial No. 49,129. (No model.)



Claim.—In a press-box for oil-presses the combination with the strips having the dovetail inner edges having outwardly-tapering passages formed through the overhang portions of the dovetails, said strips placed side by side so as to leave narrow slits between the proximate edges of the dovetails and wide channels between the body portions thereof, into which channels the tapered passages lead, and the spacers located between the strips; substantially as described.

695,991. ELECTRIC SIGNALING AND CIRCUIT-CONTROLLING APPARATUS. THEODORE J. ZOELLER, Nashville, Tenn. Filed Feb. 9, 1901. Serial No. 46,701. (No model.)

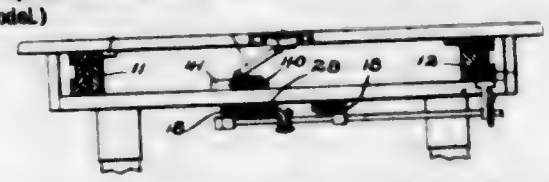


Claim.—1. The combination of a commutating-cylinder, its contact-points and spring contact-pieces, with a drop-indicator and a relay, and circuit-wires normally in closed-circuit series and adapted to be thrown into a number of closed loops in parallel.

2. The combination of an oscillating commutator-cylinder; contact-buttons and spring-pieces resting thereon, with circuit-wires normally in closed-circuit series and open spring-keys, connecting the terminals of the wiring system.

3. In an electric-alarm system operated by a continuous-current battery, the combination with an indicator and alarm-bell, of a controlling-magnet, a locking-trip adapted to be held in its normal position by said magnet, a movable guide-rod, a dropping weight located on said guide-rod, an oscillating cylinder for controlling the current and adapted to be operated by said dropping weight, said guide-rod having a stop adapted to bring the cylinder to its normal position when the said weight is elevated.

695,992. SELF-CONTAINED EXTENSION-TABLE. FREDERICK R. ALLEN, Boston, Mass., assignor to the Improvements Manufacturing Company, Boston, Mass. Filed Nov. 5, 1900. Serial No. 35,434. (No model.)



Claim.—1. In an extension-table, two movable end members carrying permanent tops, a relatively fixed central member, one or more independent supplemental leaves, means connecting each leaf and said central member whereby each leaf is confined against lateral motion but movement thereof is permitted in a plane at an angle to the top of the table whereby each leaf occupies a predetermined place when in operative position or when housed and may be positioned for use or housed by a movement in the same plane, and stops whereby the supplemental leaves are held from endwise or vertical movements when positioned for use.

2. An extension-table comprising two end members carrying permanent tops, a central member carrying one or more supplemental divided leaves normally arranged below the surface of the top, a hinge connecting the two parts of said leaves, and means when said leaves are extended to form a part of the top of the table, to draw the pintle of said hinge below the surface of the table.

3. An extension-table comprising two end members carrying permanent tops, a central member carrying one or more supplemental divided leaves normally arranged below the surface of the top, a hinge connecting the two parts of said leaves, and means when said leaves are extended to form a part of the top of the table, to draw the pintle of said hinge below the surface of the table, the butts of said hinge being yieldingly attached to said leaves, and means connected to one member of said hinge whereby the butts may be moved with relation to the leaves, as the lat-

ter are brought into alinement to depress the pintle of the hinge below the top of the table.

4. A hinge comprising two butts, each having a pintle member arranged at an angle to its butt, means for uniting said members, one of the hinge members being formed with a toepiece extending toward the other hinge member when the hinge member is extended, adapted for engagement by some part moving with its complemental hinge member, for the purpose described.

5. In an extension-table, two end members carrying permanent tops, an independent supplemental leaf laterally divided to form two members, a hinge joining said members, and means for causing said hinge to be depressed below the surface of said leaf when its members are unfolded in the plane of said tops.

6. In an extension-table, two end members carrying permanent tops, an independent supplemental leaf laterally divided to form two members, a hinge joining said members, pivotal connections joining said leaf to the framework, and provisions on the leaf for coöperating with said connections to maintain the leaf in its operative position.

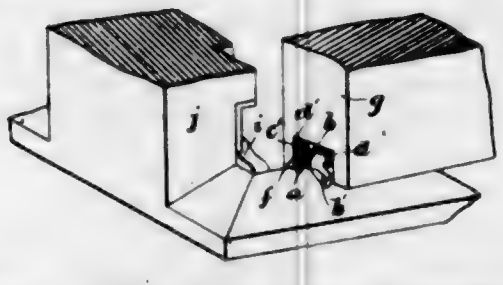
7. In an extension-table, two end members carrying permanent tops, a supplemental leaf arranged to be normally housed below the surface of the top of the table and confined against lateral movement, a strut having a pivotal connection with said leaf at one end, and with the table at the other, whereby said leaf may be brought into or out of the plane of the top of the table by a vertical movement of translation, and a stop on the under side of the leaf and adapted to coact with the frame of the table to resist a downward swinging movement of the strut.

8. In an extension-table, two end members carrying permanent tops, two or more independent supplemental leaves arranged to be normally housed below the surface of the top of the table, means for confining them against lateral movement, said leaves being pivotally connected to the framework of said table, whereby each leaf when housed will occupy a position directly under the position occupied by said leaf when elevated to the plane of the top, said supplemental leaves having stops to prevent their endwise movement when elevated.

9. In an extension-table, two end members carrying permanent tops, an independent supplemental leaf laterally divided to form two members, a hinge joining said members, a pivotal strut-support joining said leaf to said frame, and stops carried by said leaf to prevent endwise movement when the leaf is in raised position.

10. In an extension-table, two end members carrying permanent tops, a laterally-divided fixedly-positioned supplemental leaf, and hinge connections between said leaf and the framework of the table, constructed so as to permit the housing or positioning of the leaf in a vertical plane only, said leaf having stops to prevent endwise movement when in raised position for use.

695,993. WEATHER-STRIP. FREDERICK E. ALLEN, Boston, Mass., assignor to Improvements Manufacturing Company, Boston, Mass., a Corporation of Maine. Filed Mar. 26, 1901. Serial No. 52,936. (No model.)



Claim.—1. A weather-strip comprising an elongated socket or journal-bearing having a longitudinal opening in its lower side and means for attachment to a door, an elongated journal fitted to turn in said bearing, a strip or flap projecting from the journal and through the said opening, the width of the opening being less than the diameter of the journal, and means for oscillating the journal to raise the lower edge of the strip clear of frictional contact with objects below it.

2. A weather-strip comprising an elongated socket or journal-bearing having a longitudinal opening in its lower side, and a flange adapted for attachment to a door, an elongated journal fitted to turn in said bearing, a strip or flap projecting from the journal and through said opening, the width of the opening being less than the diameter of the journal, and means for oscillating the journal to raise the lower edge of the strip clear of frictional contact with objects below it.

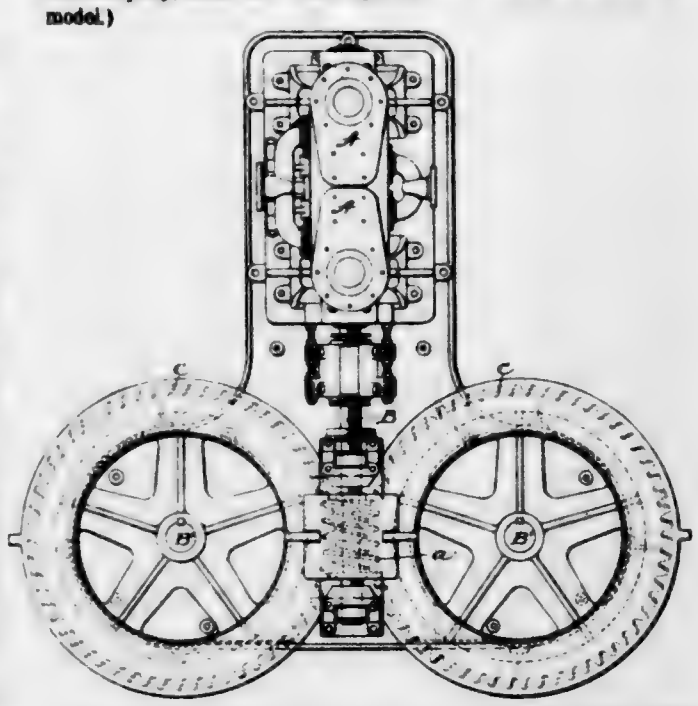
3. A weather-strip comprising an elongated socket or journal-bearing having a longitudinal opening and an attaching-flange, an elongated journal fitted to turn in said bearing and a strip or flap projecting from the journal and through said opening, said journal being composed of a rod, and a sleeve placed upon the rod and having flanges between which the strip is held.

4. A weather-strip comprising an elongated socket or journal-bearing having a longitudinal opening on one side, and an attaching flange, an elongated journal fitted to turn in the bearing, a strip or flap projecting from the journal and through said opening, and a spring engaged with the socket and journal and adapted to normally hold the journal and flap in the raised position of the flap, the journal being provided with a flap-depressing member adapted to coöperate with a complemental fixed member to depress the flap when the door is closed.

5. A weather-strip comprising an elongated socket or journal-bearing having a longitudinal opening on one side, and an attaching-flange, a journal fitted to turn in said bearing, a strip or flap projecting from said journal and through said opening, a spring engaged with the socket and journal and adapted to raise the flap, and an arm on one end of said journal adapted to engage a fixed cam or striker to depress the flap when the door is closed.

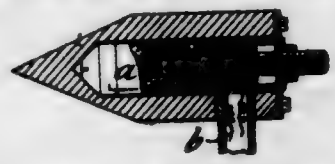
6. A weather-strip comprising an elongated socket or journal-bearing having a longitudinal opening on one side, and an attaching-flange combined with a cam or striker affixed to the door-casing and formed to move the arm against the force of the spring when the door is being closed.

695,994. WINDLASS AND CAPSTAN AND MEANS FOR DRIVING SAME. JACOB R. ANDREWS, Bath, Me., assignor to Hyde Windlass Company, Bath, Me. Filed Apr. 12, 1901. Serial No. 55,482. (No model.)



Claim.—The horizontal crank-shaft connected with suitable driving-engines and provided with a worm in combination with worm-gears c on vertical capstan-shafts, one upon each shaft, the said worm-gears being arranged one on each side of the worm, and meshing therewith whereby the same worm upon the crank-shaft operates a pair of capstans, all the parts being constructed and arranged substantially as described.

695,995. ELECTRICAL HEATING APPLIANCE. JOSEF F. BACHMANN and ADOLF VOGT, Vienna, Austria-Hungary, assignors to the Electric Resistance and Heating Co., Ltd., London, England. Filed Nov. 22, 1898. Serial No. 697,191. (No model.)



Claim.—1. An electric heating appliance comprising a hollow body to be heated, an electric resistance therein composed of a refractory non-conductive and a conductive material, the outer portion of said resistance being devoid of conductive material and porous, said pores closed by a refractory non-conductive substance to form a refractory electrically-insulating heat-transmitting envelop for the resistance, and means for including the same in an electric circuit, for the purpose set forth.

2. An electrical heating apparatus for heating hollow bodies in the direction from within outward, consisting of an electric resistance composed of a mixture of conductive and non-conductive materials, said body being made of a form to fit the internal cavity of the body to be heated, with the interposition of an insulating-layer, a screw-threaded hollow in said heating-body, a screw-plug of conducting material screwed more or less into such hollow and contacts adapted to convey current from an elec-

tric circuit into said body through such conducting screw-plug and from the said body back to the circuit, for the purpose of varying the resistance offered by said body to the current, substantially as described.

3. An electric heating appliance comprising a hollow body to be heated, an electric resistance-body therein composed of a mixture of a refractory non-conductive material and a conductive material, the outer portion of the resistance-body free from conductive material and porous and the pores closed by a refractory non-conductive substance to form a refractory, electrically-insulating heat-transmitting envelop for said resistance-body, means for including the same in an electric circuit and means for varying the resistance to the passage therethrough of the electric current, for the purposes set forth.

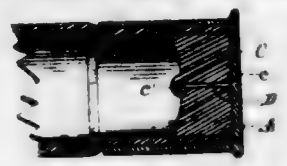
4. An electric heating appliance comprising a hollow body to be heated, an electric resistance-body therein composed of a mixture of a refractory non-conductive material and a conductive material, the outer portion of the resistance-body free from conductive material and porous and the pores closed by a refractory non-conductive substance to form a refractory, electrically-insulating, heat-transmitting envelop for said resistance-body, means for including the same in an electric circuit and means for lengthening or shortening the path of the electric current therethrough, for the purposes set forth.

5. The combination with a hollow body to be heated, of an electric resistance-body therein made of refractory non-conductive and conductive materials, consisting substantially of an insulated outer portion and conductive inner portion, means for connecting opposite ends thereof to an electric circuit and a metallic screw arranged to be received into and out of said heater to vary the resistance therein, substantially as described.

6. The combination with a hollow body to be heated, of an internally-screw-threaded heater therein composed of electrically-conductive and refractory non-conductive materials, a metallic ring at one end of said heater forming an electric terminal, means for connecting a second electric terminal to the opposite end of said heater, and a metallic screw cooperating with the thread therein to vary the resistance, substantially as described.

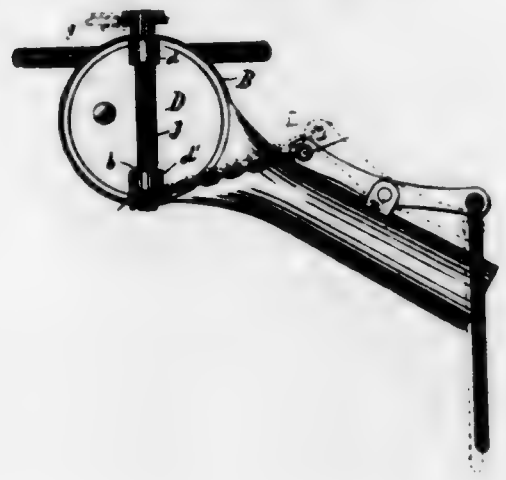
7. A soldering-iron comprising a hollow metallic body, an internally-threaded heater therein composed of electrically-conductive and refractory non-conductive materials, a metallic point on the end of said heater contacting with the iron, metallic bands forming electric circuit-terminals near each end of said heater, a plate closing the end of the soldering-iron and a screw organized to cooperate with the threaded portion of the heater and projecting beyond said plate, substantially as described.

695,996. CARTRIDGE. CHARLES A. BAILEY, Cromwell, Conn.
Filed Aug. 28, 1899. Serial No. 728,735. (No model.)



Claim.—In a cartridge, the combination with the cap, of a breech-block C having an opening extending through the center from the inner end of said breech-block and terminating in a recess forming a thin wall at the outer end of said breech-block, the fulminate being applied on the inner side of said thin wall; together with a firing-pin fitting the opening closely and abutting against the fulminate and head of the cap, as herein shown and described.

695,997. TROLLEY-WHEEL RETAINER. ARTHUR D. BARTON, Ravenna, Ohio, assignor of one-half to Byron J. Sanford, Ravenna, Ohio.
Filed Dec. 3, 1900. Serial No. 38,475. (No model.)



Claim.—1. A trolley-wheel retainer, comprising a trolley-harp carrying a trolley-wheel, pivoted spindles mounted outside of the harp at each side thereof with their upper ends turned inwardly, wheels mounted in said inturned ends of the spindles to lie normally over the trolley-wheel, springs mounted on said spindles to normally hold the wheels over the trolley-wheel, and means connected to the lower ends of the spindles to shift the wheels and permit the engagement and disengagement of the trolley-wheel with the trolley-wire.

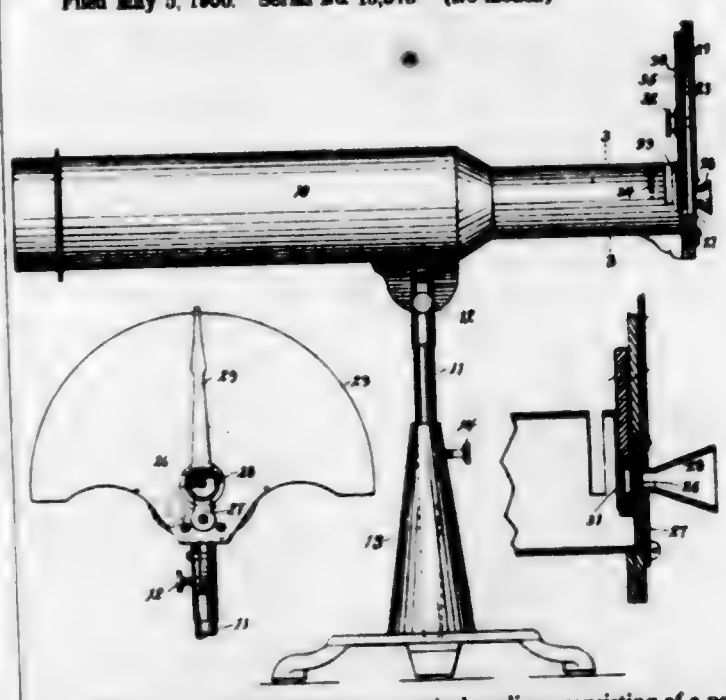
2. In a trolley-wheel retainer, the combination with the harp carrying the trolley-wheel, and bearings mounted on the outer faces of said harp, of spindles mounted to swing in said bearings, wheels mounted for rotation in the upper ends of said spindles and lying normally over the trolley-wheel, means mounted on the spindles intermediate the bearings to retain said wheels in their normal position, arms carried by said spindles below the bearings, and means connected to said arms for operating the spindles to permit engagement and disengagement of the trolley-wheel with the trolley-wire.

3. In a trolley-wheel retainer, the combination with the harp, the trolley-wheel mounted in said harp, and bearings mounted on the outer side faces of the said harp, of trolley-retainers mounted to swing in said bearings with wheels in their upper ends which lie normally over the trolley-wheel, springs for holding said wheels in their normal position, and means including a lever pivoted on the trolley-pole, arms on the trolley-retainers, and connections between the said arms and lever, substantially as described.

4. In combination with a trolley-pole, a harp mounted thereon, and a trolley-wheel mounted in said harp, of spindles mounted to swing in bearings on the outer faces of the harp with their upper ends turned inwardly, wheels mounted in said upper ends of the spindles and lying normally over the trolley-wheel, springs mounted on the spindles between the bearings thereof to retain said wheels in their normal position, a lever pivoted on the trolley-pole and carrying a cross-arm, and connections between the cross-arm and the spindles for operating the latter when the lever is actuated, substantially as described.

5. In a trolley-retainer, the combination with a trolley-pole, the harp carried thereby, the trolley-wheel, and bearings carried on the outer face of the cheek-pieces of said harp, of spindles mounted to swing in said bearings, wheels carried by the upper ends of said spindles and lying normally over the trolley-wheel, means for retaining said wheels in their normal position, arms carried by said spindles, and means connected to said arms for actuating the spindles to swing the same within their bearings, as and for the purpose described.

695,998. OPTOMETER. EUGENE W. BESS, Milwaukee, Wis.
Filed May 5, 1900. Serial No. 15,573. (No model.)



Claim.—1. In an optometer, an optical medium, consisting of a pair of slabs or segments of a cylinder in a common plane with their apices abutting on a line centrally of the line of vision.

2. In an optometer, a plate having a sight-aperture, and an optical medium consisting of a pair of slabs or segments of a cylinder set in a common plane in the aperture of the plate, their apices abutting on a line diametrically of the aperture in the plate.

3. In combination an optical tube, a plate affixed to and closing the front end of the tube except a central sight-aperture, an eye-plate provided with a sight-aperture and having a pair of optical segmental slabs of cylinders fixed in the plate, the eye-plate being revolubly on and re-

movable from the fixed plate the sight-apertures registering one with the other, and a swinging arm provided with a sight-aperture arranged to be swung over the eye-plate so that the aperture will register with the sight-aperture in the eye-plate and adapted to hold the eye-plate in position removably on the fixed plate.

4. In combination, an optical tube, a plate affixed to and closing the front end of the tube except a central sight-aperture, an angle-scale arranged in an arc on the fixed plate concentric with the sight-aperture, an eye-plate revoluble on the fixed plate and provided with optical segmental slabs of a cylinder fixed with their apices abutting against each other in a sight-aperture in the eye-plate, a finger on the eye-plate disposed as an index on the scale on the fixed plate, and a transversely-disposed scale on the tube near the front end adjacent to a transverse slot therein, the two scales being adapted to indicate angles of inclination to a common plane.

5. In combination an optical tube, a plate at a right angle thereto affixed to and closing the front end of the tube except a sight-aperture and provided with an angle-measuring scale, an eye-plate provided with optical mediums and an index-finger, the eye-plate being revoluble in front of the fixed plate, a lens-plate provided with lenses of varying strengths so mounted in the plate as to be capable of being severally brought into registration with the sight-aperture in the fixed plate, and a transversely-disposed angle-scale on the tube adjacent to a transverse slot therein.

6. In combination, an optical tube, optical mediums mounted therein at the front end of the tube, means near the rear end of the tube for closing the tube except a small circular aperture centrally thereof, and a movable plate having a plurality of apertures one of which has a translucent closure, the plate being located adjacent to and adapted to be moved to bring the apertures therein severally into registration with the small central aperture in said means for partially closing the tube.

7. In combination, an optical tube, a lens or lenses at the front end of the tube adapted for accommodating the eye to see clearly and distinctly the field of light through a smaller circular aperture near the rear end of the tube, other optical means at the front end of the tube for testing the sight for astigmatism, and a plate having circular apertures, one of which apertures is smaller than the normal field of light admitted at the rear end of the tube and another of which apertures has a translucent closure adapted to be placed in and transversely of the tube near its rear end to limit the field of sight through the sight medium at the front end of the tube.

8. In combination, an optical tube, a transverse wall near its rear end at a distance from the patient's eyepiece provided with a sight-aperture, an eccentrically-apertured object-plate pivoted on said wall in a transverse slot therefor in the tube and adapted to be rotated so as to bring its apertures severally into registration with the aperture in said wall, and eye-testing optical mediums on the tube at the front end thereof.

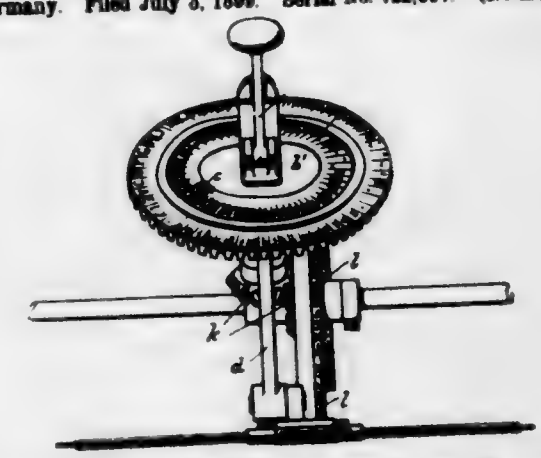
9. In combination in an optometer, a tube provided with optical mediums at its front end, a transverse wall provided with a central aperture, the wall being located in the tube at substantially the normal focal distance for reading from the optical mediums at the front end of the tube, a circular object-plate pivoted on said wall eccentrically and provided with a plurality of openings one of which is covered by a light-transmitting medium having flat surfaces in parallel planes, and all of said openings in said disk being so disposed as when the disk is revolved to register severally with the central sight-aperture in the wall, and means adapted to lock the object-plate releasably in registration with the transverse wall.

10. In combination, an optical tube, a plate closing the front end of the tube except a central sight-aperture, a revoluble eye-plate provided with a sight-aperture and having fixed therein a pair of optical segmental slabs of cylinders meeting on the straight line formed on each slab by the interception of its curved and its flat surface, the flat surfaces of the two slabs being in the same plane, a rotatable lens-plate mounted at the rear of the fixed plate, a tube-closing wall provided with a central aperture and located in the tube at substantially the normal focal distance for reading from the eye-plate, and a circular object-plate pivoted on said wall eccentrically and provided with circular apertures arranged at equal distances from its axis and so disposed as to register severally with the sight-aperture in the wall.

11. In combination in an optometer, a tube provided with optical mediums at its front end, a transverse wall provided with a central aperture, the wall being located in the tube at substantially the normal focal distance for reading from the optical mediums at the front end of the tube, a circular object-plate pivoted on said wall eccentrically and provided with a circular opening located at a distance from its axis and so disposed as to register with the central sight-aperture in the wall, and means adapted to lock the object-plate releasably in registration with the transverse wall.

12. In combination in an optometer, a tube provided with optical mediums at its front end, a transverse wall provided with a central aperture the wall being located in the tube at substantially the normal focal distance for reading from the optical mediums at the front end of the tube, a circular object-plate pivoted on said wall eccentrically and provided with a circular opening covered by a light-transmitting medium of a form and quality adapted to permit light to pass through it in line straight with and continuous of the lines of light coming thereto arranged at a distance from its axis and so disposed as to register with the central sight-aperture in the wall, and means adapted to lock the object-plate releasably in registration with the transverse wall.

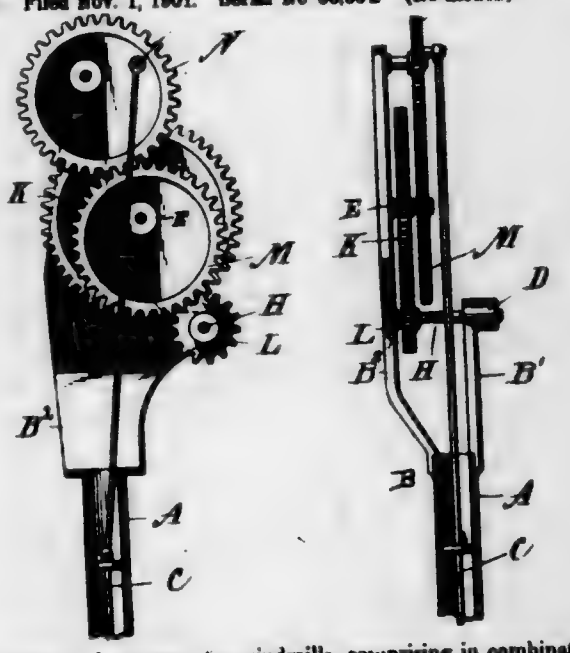
695,999. **TYPE-WRITING MACHINE.** RICHARD BROSE, Deuben, Germany. Filed July 3, 1899. Serial No. 722,667. (No model.)



Claim.—1. The combination with two horizontally-arranged concentric sign-rings, one of which is relatively movable as regards the other, a type-wheel arranged vertically below the rings, an operating shaft extending centrally through the inner ring and rotatable independently thereof, and gearing between the shaft and the type-wheel.

2. The combination with two horizontally-arranged concentric sign-rings *a*, *b*, one of which is relatively movable as regards the other, a type-wheel arranged vertically below the rings, disks *a' b'* carrying the rings, a shaft passing loosely through the disks, centrally thereof, a key carried by the shaft, teeth on the under side of the disk *a'* adapted to be engaged by the key, and gearing between the type-wheel and shaft.

696,000. **GEAR FOR WINDMILLS.** CHARLES S. BROSS, Ashland, Ill. Filed Nov. 1, 1901. Serial No. 80,804. (No model.)



Claim.—A gearing for windmills, comprising in combination with a hollow standard a bracket B having two arms B' and B², the former of which is bent at right angles at D, a shaft H having a bearing in said angled end, the other arm bent at an inclination, and thence in a vertical direction and forming a bearing for one end of said shaft, a gear-wheel mounted on said shaft, the upper end of the arm B² having a lateral projection, a stub-shaft journaled in said projection, an eccentrically-mounted wheel journaled on said stub-shaft, a reciprocating rod, a pitman connected to said eccentrically-mounted wheel, and to said rod, a shaft E journaled in the arm B², a gear-wheel K mounted on said shaft E and in mesh with the gear-wheel L, and the eccentrically-journaled gear-wheel M on shaft E, and in mesh with the wheel to which the pitman is connected, as set forth.

696,001. **MOTOR-CYCLE FRAME.** VINCENT H. BENDIX, New York, N. Y. Filed July 6, 1901. Serial No. 67,202. (No model.)

Claim.—1. A motor-cycle frame having a front member provided with a seat for the rider and a rear member provided with a motor-support, the front and rear members being connected by means adapted to confine the vibration of the motor to the rear member.



2. A motor-cycle frame having a front member provided with a crank-bracket and with a seat for the rider and a rear member provided with a motor-support, the front and rear members being connected by means adapted to confine the vibration of the motor to the rear member.

3. A motor-cycle frame having a front member provided with a seat for the rider and a rear member having its fork ends connected by bars to a cross-bar adapted to form a motor-support, the front and rear members being connected by means adapted to confine the vibration of the motor to the rear member.

4. A motor-cycle frame having a front member provided with a seat for the rider and a rear member having its fork ends connected by bars to a cross-bar turned up at the bottom to form a seat and support for the motor, the front and rear members being connected by means adapted to confine the vibration of the motor to the rear member.

5. A motor-cycle frame having a front member consisting of a head, seat-post and connecting-bars held in place on the crank-bracket, and a rear member consisting of top and bottom bars connected to the fork ends and to a cross-bar turned up at the bottom to form a seat for a motor, the front and rear members being connected by springs connecting the motor-support and the seat-post at the top and the motor-support and the crank-bracket at the bottom, substantially as described.

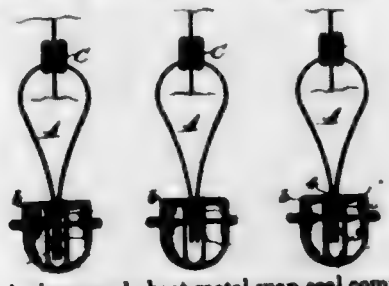
6. A motor-cycle frame having a front member consisting of a head, seat-post and connecting-bars held in place on the crank-bracket and a rear member consisting of top and bottom bars connected to the fork ends and to a cross-bar curved forwardly at the bottom to form a seat for a motor, the front and rear members being connected at the top by a cushion-spring pivoted at one end on the motor-support and the other on the seat-post and at the bottom by a spring connected at one end to the forwardly-curved portion of the motor-support and at the other to the crank-bracket, substantially as described.

7. A motor-cycle frame having a front rigid member provided with a seat for the rider and a rear rigid member having its fork ends secured by bars to a cross bar forming a motor-support, the rigid members being connected by means adapted to confine the vibrations of the motor to the rear member.

8. A motor-cycle frame having a front member provided with a seat for the rider and a rear member having its fork ends connected by bars to a cross-bar adapted to form a motor-support, the front and rear members being connected by yielding means forming a connection between the motor-support and the front member and adapted to confine the vibration of the motor to the rear member.

9. A motor-cycle frame having a front member provided with a seat-post supported by the crank-bracket and a rear member having its fork ends connected by bars to a cross-bar adapted to form a motor-support, the front and rear members being connected by yielding means forming a connection between the motor-support and the seat-post at the top and the motor-support and the crank-bracket at the bottom and adapted to confine the vibration of the motor to the rear member.

696,002. SNAP-SEAL. EDWARD J. BROOKS, East Orange, N. J.
Filed Oct. 16, 1901. Serial No. 78,819. (No model.)



Claim.—1. An improved sheet-metal snap-seal composed of a flexible shackle and a hollow seal part, one shackle end being preliminarily attached to the seal part, the other shackle end having a catch-hole, and the seal part comprising a shell consisting of body and cap pieces, permanently united with each other by a circumferential joint, and a rigidly-supported middle piece having a snap-catch to interlock with said catch-hole and portions which project into said joint between the body and cap pieces and are tightly clamped within said joint.

2. The combination, in a snap-seal, of a flexible sheet-metal shackle preliminarily attached at one end and having its second shackle end provided with a catch-hole, and a hollow seal part comprising body and cap pieces permanently united with each other by a circumferential joint to form a shell, said cap being provided with an inlet for said second shackle end, and a U-shaped middle piece within the seal part, having its open end alined with said inlet, and provided with a snap-catch integral therewith to interlock with said catch-hole when the seal is fastened.

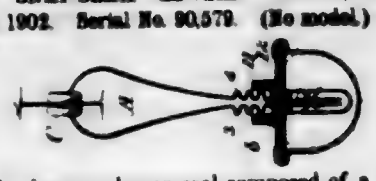
3. The combination, in a snap-seal, of a flexible sheet-metal shackle preliminarily attached at one end and having its second shackle end provided with a catch-hole, and a hollow sheet-metal seal part provided with an inlet, and inwardly-projecting vestibule-walls at such inlet and comprising body and cap pieces, permanently united with each other by a circumferential joint, and a U-shaped middle piece having an inlet end which is alined with said inlet-hole and kept wide open by said vestibule-walls and provided with a snap-catch to interlock with said catch-hole when the seal is fastened.

4. The combination, in a snap-seal, of a flexible sheet-metal shackle, preliminarily attached at one end and having its second shackle end provided with a catch-hole, and a hollow sheet-metal seal part provided with an inlet and comprising body and cap pieces, permanently united with each other by a circumferential joint, and a U-shaped middle piece within the seal part rigidly held in said joint and provided with a short inwardly-projecting snap-catch to interlock with said catch-hole.

5. An improved sheet-metal snap-seal composed of a flexible shackle having its ends provided with catch-holes, and a hollow seal part composed of body and cap pieces permanently united with each other by a circumferential joint to form a shell which is provided with an inlet, and a U-shaped middle piece held at its ends within said joint, and provided with a snap-catch integral therewith arranged to interlock with said catch-holes as the shackle ends are successively introduced through said inlet.

6. An improved sheet-metal snap-seal composed of a flexible shackle having its ends provided with catch-holes and with embossed inlet-guards, and a hollow seal part composed of body and cap pieces permanently united with each other by a circumferential joint to form a shell which is provided with an inlet common to both shackle ends and vestibule-walls at said inlet to coöperate with said inlet-guards of both shackle ends, and a U-shaped middle piece held at its ends within said joint, and provided with snap-catch integral therewith arranged to interlock with said catch-holes as the shackle ends are successively introduced through said inlet, substantially as hereinbefore specified.

696,003. SNAP-SEAL. EDWARD J. BROOKS, East Orange, N. J.
Filed Jan. 20, 1902. Serial No. 90,579. (No model.)



Claim.—1. An improved snap-seal composed of a flexible shackle of sheet metal provided with inlet-guards, a seal-part shell composed of body and cap pieces permanently united with each other by a circumferential joint, such cap-piece being provided with an inlet and with an upwardly-projecting curb surrounding such inlet, and a snap-catch device within such shell to fasten one shackle end, the other shackle end being preliminarily attached to the seal part in any approved way.

2. An improved snap-seal composed of a flexible shackle of sheet metal having its ends provided with catch-holes and with outwardly-projecting inlet-guards, a seal-part shell composed of body and cap pieces permanently united with each other by a circumferential joint, such cap-piece being provided with an inlet and with an upwardly-projecting curb surrounding such inlet to coact with such inlet-guards, and a snap-catch device within such shell to fasten the shackle ends.

3. An improved snap-seal composed of a flexible shackle of sheet metal having its ends provided with outwardly-projecting inlet-guards, a seal-part shell composed of body and cap pieces permanently united with each other by a circumferential joint, such cap-piece being provided with an inlet, gutters at the sides of such inlet and an upwardly-projecting curb surrounding such inlet and gutters to coact with such inlet-guards, and a snap-catch device within such shell to fasten the shackle ends.

4. An improved snap-seal composed of a flexible shackle of sheet metal having its ends provided with inlet-guarding corrugations, a seal-part shell composed of body and cap pieces permanently united with each

other by a circumferential joint, such cap-piece being provided with an inlet and an upwardly-projecting curb surrounding such inlet to coact with such corrugations, and a snap catch device within such shell to fasten the shackle ends.

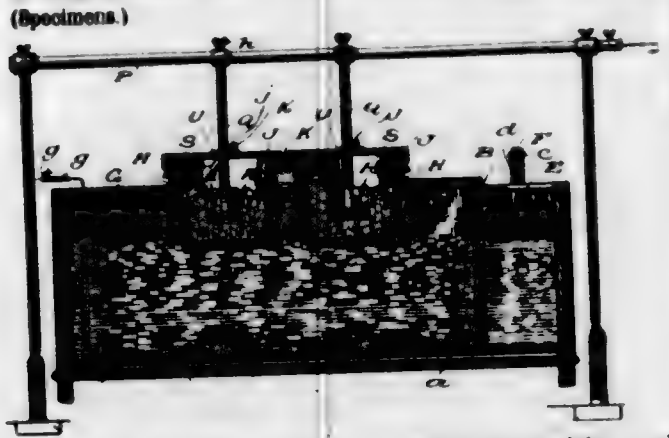
5. An improved snap-seal composed of a flexible shackle of sheet metal having its ends provided with inlet-guarding corrugations projecting outwardly and with inwardly-projecting guards arranged to clear each other when the shackle ends are successively inserted, a seal-part shell composed of body and cap pieces permanently united with each other by a circumferential joint, such cap-piece being provided with an inlet and with an upwardly-projecting curb surrounding such inlet to coact with such corrugations, and a snap-catch device within such shell to fasten the shackle ends.

6. An improved snap-seal composed of a flexible shackle of sheet metal having its ends provided with inlet-guards, a seal-part shell composed of a sheet-metal body-piece and a cap-piece permanently united with each other by a circumferential joint, such cap-piece being of brittle material and provided with a slot-shaped inlet and an upwardly-projecting curb surrounding such inlet to coact with such inlet-guards, and a snap-catch device within such shell to fasten the shackle ends.

7. An improved snap-seal composed of a flexible shackle of sheet metal having its ends provided with snap-holes, a seal-part shell composed of body and cap pieces permanently united with each other by a circumferential joint, such cap-piece being provided with an inlet, and a snap-catch device in the form of a U-shaped middle piece provided with inwardly and downwardly projecting pointed catches at both sides to interlock with said catch-holes, and holes within which the points of the respective catches are normally masked.

8. An improved snap-seal composed of a hollow seal part comprising body or cap pieces permanently united with each other by a circumferential joint, such cap-piece being provided with an inlet, and a snap-catch device in the form of a U-shaped middle piece provided with inwardly and downwardly projecting catches at both sides, and a flexible shackle of sheet metal having one end provided with a snap-hole to interlock with said catches, the other shackle end being preliminarily attached to the seal part in any approved way, substantially as hereinbefore specified.

696,004. ELECTRIC METAL-WORKING APPARATUS. GEORGE D. BURTON, Boston, Mass. Filed Feb. 23, 1897. Serial No. 624,602. (Specimens.)



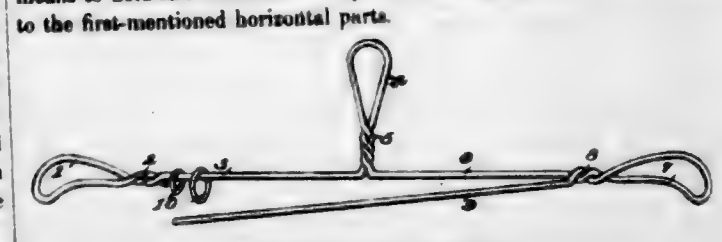
Claim.—1. The combination of a receptacle for containing a substance to be treated, said receptacle having perforations in the bottom thereof adapted to admit an electrolyte into said receptacle, and to permit the treated substance to pass out therethrough, a cover for said receptacle provided with a slot therein, an electrode adapted to extend through said slot into said receptacle, and means for bringing the electrolyte into contact with the substance being treated.

2. The combination of a receptacle for containing a substance to be treated, said receptacle having perforations in the bottom thereof, a cover for said receptacle provided with a slot therein, an electrode extending through said slot into said receptacle, a recessed sliding cover for said slot adapted to fit closely around said electrode, and means for bringing an electrolyte into contact with the substance being treated.

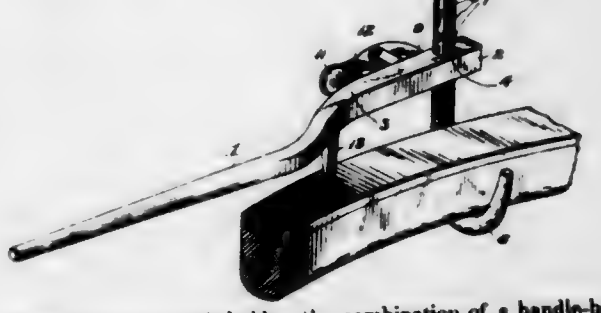
3. The combination of a closed receptacle for containing a substance to be treated, an adjustable electrode adapted to automatically maintain contact with the substance being treated, means for clamping said electrode in any desired position and thereby rendering it non-automatic, a pipe connected with said receptacle for carrying off the by-products therefrom, and means for bringing an electrolyte into contact with said substance.

696,005. GARMENT-HANGER. BENJAMIN F. CAREY, Washington, D. C. Filed June 17, 1901. Serial No. 64,842. (No model.)

Claim.—A garment-hanger made of a single length of material, bent near one end to form a shoulder-loop, then projected horizontally, then extended upward and bent to form a supporting-loop, then projected horizontally in a plane with the first-mentioned horizontal part, then bent to form a shoulder-loop, and finally projected in the same horizontal plane with the above-mentioned horizontal parts and having its end free, and means to hold said last-mentioned part in clamping position with relation to the first-mentioned horizontal parts.



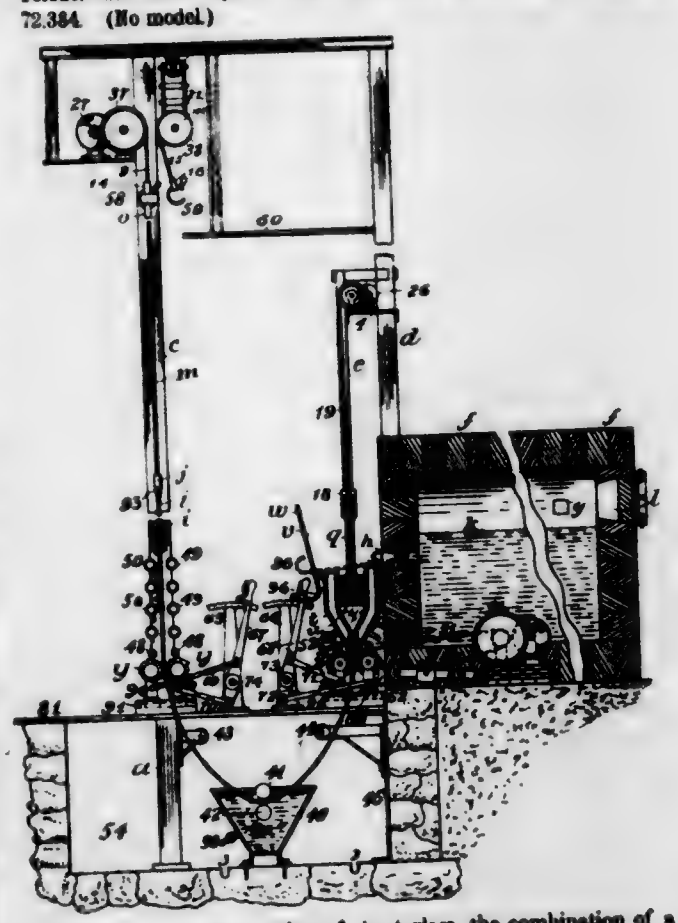
696,006. BOLT-HOLDER. HIRAM C. CARTER, Greenbeck, Tex. Filed Nov. 18, 1901. Serial No. 82,636. (No model.)



Claim.—1. In a bolt-holder, the combination of a handle-bar provided with an opening, a hooked bar slidable longitudinally in said opening and also axially adjustable therein and provided with rows of seats or indentations arranged in staggered relation, and a catch or detent to engage either one of the aforesaid seats or indentations to lock the hooked bar in adjusted position, substantially as described.

2. In a bolt-holder, the combination of a handle-bar provided with means for engaging the head of the bolt and having a transverse rectangular opening, a rectangular hooked bar slidable longitudinally in said opening and also adjustable axially therein, said bar being provided in its sides or faces with rows of recesses or seats for operation upon the turning of the bar to its different positions, the seats of one row alternating with the seats of another row, and a catch or detent to engage said seats and hold said bar in adjusted position, substantially as specified.

696,007. GLASS-WORKING MACHINE. IRVING W. COLBURN, Toledo, Ohio. Filed Apr. 17, 1899. Renewed Aug. 17, 1901. Serial No. 72,384. (No model.)



Claim.—1. In the making of sheet-glass, the combination of a receptacle for holding a measured portion of molten glass, a water-jacket

surrounding said receptacle to regulate its temperature, means for supplying said jacket with a water circulation, means for withdrawing plastic glass from said receptacle in a continuous stream, means for cooling said plastic stream, means for progressively compressing and flattening said plastic stream into a sheet, and positive traction means applied at the end of the sheet after it leaves said compressing and flattening mechanism, for drawing, stretching and attenuating said sheet into a transparent and finished condition, substantially as specified.

2. In the making of sheet-glass, the combination of a jacketed receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, means for cooling said plastic stream, a piston under regulated control for forcing the glass from said receptacle auxiliary to the withdrawing means, and means for progressively flattening said stream of glass into a sheet, substantially as specified.

3. In the making of sheet-glass, the combination of a jacketed receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, means for progressively compressing and flattening said stream of plastic glass into a sheet, means for further cooling said plastic sheet, means for frictionally grasping said sheet on both sides by regulated pressure, and traction means engaging the end of said sheet to pull the same positively and draw, stretch and attenuate the same against the resistance of the said grasping means, substantially as specified.

4. In the making of sheet-glass, the combination of a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of rolls for progressively flattening said stream of plastic glass into a continuous sheet as it issues from said receptacle, traction means at the end of said sheet for forcibly withdrawing the same against resistance, and non-rotary in action but revolubly-adjustable pressure-bars for frictionally grasping said moving sheet, whereby the latter is drawn, stretched and attenuated into a transparent sheet above the said pressure-bars by the withdrawing force, substantially as specified.

5. In the making of sheet-glass, the combination of a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of rolls for progressively flattening said stream of plastic glass into a continuous sheet, a pair of non-rotary in action but revolubly-adjustable pressure-bars for frictionally grasping said sheet as it is withdrawn, means for regulating and controlling the distance between said rolls, and means for regulating and controlling the distance between said pressure-bars, substantially as specified.

6. In the making of sheet-glass, the combination of a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, means for cooling said plastic glass as it issues from said receptacle, a pair of rolls for flattening said glass into a continuous sheet, a cooling-tank in the path of said sheet, for still further cooling the same, a pair of pressure-bars for frictionally grasping said moving sheet, spraying-pipes provided with means for throwing jets or sprays of water upon said sheet above said pressure-bars, and a series of air cooling-pipes provided with means for throwing regulated jets of cool air upon said sheet, whereby the latter is reduced from its plastic state to a finished sheet, substantially as specified.

7. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of rolls in juxtaposition to said receptacle, means for internally cooling said rolls, means for regulating the distance between the rolls, a pair of non-rotatory in action but revolubly-adjustable pressure-bars, means for internally cooling the same, means for regulating the distance between said pressure-bars, and means for externally cooling a sheet of glass passing between said pressure-bars, substantially as specified.

8. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, having a slit or aperture in the bottom of the same, a means for closing said slit or aperture, a jacket surrounding said receptacle, with means for supplying the interspace with a current of cooling liquid, and a tilting cover c provided with an upturned edge 96, substantially as specified.

9. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, having a slit or aperture in the bottom of the same, a means for closing said slit or aperture, a water-jacket surrounding said receptacle, with means for supplying the interspace with cooling liquid, a weight suspended above said receptacle of such dimensions as to fit the mouth thereof, and means for raising, lowering and regulating the descent of said weight upon the surface of the glass, whereby the latter is forced in regulated quantity through said aperture in a continuous stream, substantially as specified.

10. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, having a slit or aperture in the bottom of the same, a bar *j* of dimensions to fit said aperture, said bar having T-shaped projections 93 formed thereon, traction means attached to said bar, and means for controlling and regulating the force and speed of said traction, substantially as specified.

11. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, means for flattening said glass into a plastic sheet as it is withdrawn, means for grasping said sheet frictionally, traction means at the end of said sheet for forcibly pulling the same against said frictional grasping means, whereby it is drawn, stretched and attenuated into a sheet of the requisite thinness and transparency, and means for cooling and setting said plastic sheet to a finished condition, substantially as specified.

12. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of rolls in proximity to said stream for flattening the same into a continuous sheet, means for applying regulated pressure to said sheet through the rolls, a pair of pressure-bars for grasping said sheet after it leaves the rolls, means for applying regulated pressure to said sheet through the pressure-bars, traction means engaging the end of said sheet to pull the same forcibly and thereby draw it against the frictional resistance of the pressure-bars, whereby it is stretched and attenuated to the required thinness and transparency, and means for cooling and setting the sheet, substantially as specified.

13. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of hollow rolls in proximity to said stream for flattening the same into a sheet, a means for producing a water circulation through the interiors of said rolls for cooling the same, a pair of non-revolving hollow pressure-bars for grasping said sheet after it leaves the rolls, a water circulation through the interiors of said pressure-bars, and traction means for positively drawing the said sheet against the resistance of the said pressure-bars and thereby elongating the sheet substantially as specified.

14. In an apparatus for making sheet-glass, a jacketed receptacle for holding a measured portion of molten glass, regulated means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of rolls in proximity to said stream of plastic glass for flattening the same into a sheet, regulated means for driving said rolls continuously in the same direction with respect to their adjacent surfaces, means for controlling the distance between said rolls, means for grasping said sheet frictionally, means for exerting a regulated pull engaging the end of said sheet, whereby it is drawn and stretched beyond said grasping means, and means for cooling and setting the plastic sheet, substantially as specified.

15. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, having an inclined top, and a cover v hinged thereto, said cover having an upturned edge forming the receptacle 96, as and for the purpose specified.

16. In an apparatus for making sheet-glass, the combination of a jacketed receptacle for holding a measured portion of molten glass, having a slot or aperture in the same, means for withdrawing plastic glass through said aperture in a continuous stream, a pair of rolls having the space between them in alinement with said aperture, means for regulating the space between said rolls, so as to be in constant alinement with said slot or aperture, and means for driving said rolls simultaneously in the same direction with respect to their adjacent surfaces, consisting of sprocket-wheels on the ends of the roll-shafts, an endless slack sprocket-chain passing over and between said sprocket-wheels, a motor in gear with said chain, and a weighted idle sprocket-pulley carried in the bight of the slack of said chain, whereby the rolls are driven without interference with the variable adjustment of the interspace of the said rolls, substantially as specified.

17. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of rolls for flattening said stream into a sheet, means for driving said rolls continuously in the same direction with respect to their adjacent surfaces, movable pedestals in which said rolls are mounted, and means whereby said pedestals and rolls may be simultaneously approximated or separated, thereby regulating the space between said rolls, and keeping it in perfect alinement with the plane of the plastic sheet, substantially as specified.

18. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of rolls for flattening said stream into a sheet, means for driving said rolls continuously in the same direction with respect to their adjacent surfaces, movable pedestals in which said rolls are mounted, rocking shaft 73, rocking levers on the ends of said shaft, lever-handle 68, and links connecting said rocking levers with said movable pedestals, whereby the distance between said

rolls is regulated, and the space thereof kept in constant alinement with the plane of the plastic glass, substantially as specified.

19. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, means for withdrawing plastic glass from said receptacle in a continuous stream, a pair of rolls for flattening said stream into a sheet, a pair of pressure-bars for frictionally grasping said sheet of plastic glass, movable pedestals in which said pressure-bars are mounted, rocking shaft 74, rocking levers on the ends of said shaft, lever-handle 67, and links connecting said rocking levers with said movable pedestals, whereby the distance between said pressure-bars is regulated, and the interspace kept in the same position, substantially as specified.

20. In an apparatus for making sheet-glass, a pair of rolls for rolling plastic glass into a sheet, means for driving said rolls simultaneously in the same direction with respect to their adjacent surfaces, means for simultaneously moving the rolls to vary the distance between them with respect to a fixed central plane, means for internally cooling said rolls by a fluid circulation therethrough, and means for externally cooling said rolls and the sheet of plastic glass compressed thereby, substantially as specified.

21. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, means for delivering hot plastic glass from said receptacle in a continuous stream, a pair of rolls for rolling said stream of glass into a sheet, a pair of pressure-bars for frictionally grasping said plastic sheet, means for varying the distance between said pressure-bars, means for internally cooling said pressure-bars by a fluid circulation therethrough, and means for cooling the sheet of plastic glass as it passes between and beyond the pressure-bars, substantially as specified.

22. In an apparatus for making sheet-glass, means for delivering hot plastic glass in a continuous stream, a pair of rolls for rolling said continuous delivery of plastic glass into a sheet, means for cooling said sheet of plastic glass as delivered by the rolls, a pair of non-revolving pressure-bars for frictionally grasping said plastic sheet, and means for varying the distance between said pressure-bars, and thereby regulating the degree of frictional retardation of the plastic sheet, all combined substantially as specified.

23. In an apparatus for making sheet-glass, in combination, a means for delivering a continuous stream of plastic glass, means for flattening said stream into a sheet, means for grasping said plastic sheet on both sides by non-rotary contact, means engaging the end of said sheet to pull the same positively against the resistance of said grasping means, whereby it is elongated, and means for cooling and setting the plastic sheet, arranged beyond the grasping means and on each side of the sheet, substantially as specified.

24. In an apparatus for making sheet-glass, in combination, a means for delivering a continuous stream of plastic glass, means for flattening said stream into a sheet, means for engaging the end of said sheet for positively pulling it forward, means for retarding the sheet at a given point, whereby it is elongated and attenuated between the retarding-point and its extremity, and a means for cooling and setting the said plastic sheet, substantially as specified.

25. In an apparatus for making sheet-glass, a means for delivering hot plastic glass in a continuous stream, means for forming said continuously-delivered stream of glass into a sheet, a means for cooling said plastic sheet, a pair of non-rotatory pressure-bars, for frictionally grasping said plastic sheet, a means for drawing said plastic sheet progressively through said frictional grasping means, whereby the sheet is stretched and attenuated to the requisite degree of thinness and transparency, and means for cooling and setting the said sheet into a finished condition, all combined substantially as specified.

26. In an apparatus for making sheet-glass, a receptacle for plastic glass, an upright frame having parallel guideways thereon, a bar traversing upon said guideways, an electric motor for moving said bar, with means for starting, stopping and reversing the direction of motion of said motor and bar, traction devices *m m* connected with said bar, and a bar *j* at the extremities of said traction devices, formed with projections 93 for attachment to plastic glass, whereby the latter may be assisted and guided in its delivery in a continuous stream from said receptacle, substantially as specified.

27. In an apparatus for making sheet-glass, a means for delivering hot plastic glass in a continuous stream, a traction device for making juncture with said delivery, means for positively pulling the said device with its attached glass, a pair of rolls for flattening said stream of glass into a sheet, an electric motor for driving said rolls, and means for starting and stopping said motor and for regulating the speed of said motor and rolls, all combined substantially as specified.

28. In an apparatus for making sheet-glass, a means for delivering hot plastic glass in a continuous stream, a traction device for making juncture with said delivery, means for positively pulling said traction device, means for cooling said delivery, means for flattening said stream progressively into a sheet, an electric motor for operating said traction device, and means for starting, stopping and reversing said motor, and for regulating the speed thereof, all combined substantially as specified

29. In an apparatus for making sheet-glass, a receptacle for plastic glass, an upright frame, an elevated trackway 57, a traveling carrier running on said trackway, a rotary shaft on said carrier, winding-drums on said shaft, bands or cords on said drums, with detachable hooks at the extremities, a transverse bar 59 with means for attachment to said detachable hooks, traction-chains *m m*, and a traction-bar *j* at the extremities of said chains, formed with means for making a connection with plastic glass, whereby the latter may be assisted and guided in its delivery in a continuous stream from said receptacle, substantially as specified.

30. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, with forcing means for expelling plastic glass therefrom in a continuous stream, rolls for rolling said plastic stream progressively into a sheet, traction means for drawing, stretching and attenuating said sheet, and a traversing carrier for lifting, carrying away and depositing the product, with lifting and depositing means, in combination with a motor for operating the forcing means, a motor for operating the rolls, a motor operating the traction means, and a motor for operating the lifting and depositing means on the carrier, with means for starting, stopping, reversing and regulating the speed of the respective motors, all substantially as specified.

31. In an apparatus for making sheet-glass, hollow pressure-bars *y, y*, adjustable rotatably, having facets 22, 22 formed thereon, whereby new faces may be presented to the glass, substantially as specified.

32. In an apparatus for making sheet-glass, in combination, a hopper-shaped receptacle for molten glass, having a water-jacket surrounding the same, and a slot or elongated aperture in the bottom of said hopper-shaped receptacle, a bar *j*, having T-shaped projections thereon, fitted to said aperture, and levers 94, 94, pivoted to the bottom of said receptacle, for holding said bar in place to stop the aperture thereof, substantially as specified.

33. In an apparatus for making sheet-glass, a receptacle for holding a measured portion of molten glass, having a water-jacket surrounding said receptacle with means for maintaining a fluid circulation therethrough, and having a slot or aperture in the bottom of said receptacle, spraying-pipes on each side of said aperture, a suspended weight above said receptacle, fitting the mouth thereof, means for lifting and lowering said weight, and means for regulating and controlling said lifting and lowering means, substantially as specified.

34. The combination of a measuring-tank, having an aperture in the bottom, means for expelling plastic glass from said aperture, means for forming said expelled glass into a sheet, a water-tank in which sheet is immersed, for cooling the same, pressure-bars for grasping said sheet, drawing and stretching means for elongating and attenuating said sheet, and means for cooling and setting the plastic sheet, substantially as specified.

35. The combination of the rolls *z, z*, movable pedestals 89, 90, rocking lever 68, shaft 73, standard 66, and adjustable links 71, 72, substantially as specified.

36. The combination of pressure-bars *y, y*, movable pedestals 89, 90, rocking lever 67, rock-shaft 74, and adjustable links 69, 70, substantially as specified.

37. The combination of hopper-shaped apertured receptacle *t*, provided with water-jacket *u*, hinged cover *v*, provided with receptacle 96, suspensory weight *q*, with means for raising and lowering the same, bar *j*, provided with T-shaped projections 93, and means for removably retaining said bar in place in the aperture of said receptacle, substantially as specified.

38. In an apparatus for making sheet-glass, a receptacle for hot plastic glass, means for withdrawing glass from said receptacle, a pair of rolls for compressing said glass into a plate or sheet, means for varying and regulating the space between said rolls, and means for driving said rolls, consisting of a slack sprocket-chain, sprocket-wheels on the ends of the rolls, and a weighted idle sprocket-pulley in the bight of the slack of the sprocket-chain, whereby the rolls are driven without interfering with the variable adjustment of the interspace of the said rolls, substantially as specified.

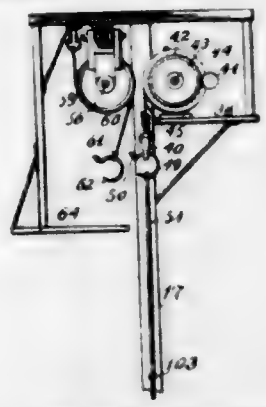
39. In an apparatus for making sheet-glass a pair of rolls for rolling plastic glass into a sheet or plate, a pair of non-rotatory pressure-bars for frictionally grasping said sheet or plate, means for varying the distance between said pressure-bars, and means for internally cooling said pressure-bars by a fluid circulation, substantially as specified.

40. In an apparatus for making sheet-glass, in combination, an upright frame having parallel guideways thereon, a bar traversing upon said guideways, an electric motor for moving said bar, with means for reversing the direction of motion of said motor and bar, and means attached to said bar and moving therewith, for forming attachment to hot plastic glass, substantially as specified.

41. In an apparatus for making sheet-glass, an upright frame with parallel guideways, an elevated platform, an electric motor thereon, a trans-

verse shaft with winding-drums, geared to and operated by said motor, an elevated trackway, a carrier traveling on said trackway, a rotary shaft with winding-drums borne on said carrier, and a traveling motor on said carrier, geared to and operating said rotary shaft, with reversing means, substantially as specified.

696,008. GLASS-WORKING MACHINE. IRVING W. COLBURN, Toledo, Ohio. Filed Mar. 22, 1899. Renewed Aug. 17, 1901. Serial No. 72,385. (No model.)



Claim.—1. In the making of sheet-glass, in combination, a receptacle for hot plastic glass, means for gathering a portion of plastic glass from said receptacle, means for compressing said portion of glass into a sheet or plate, and means for positively drawing said sheet by the outer extremity thereof against the resistance of said compressing means, whereby it is stretched and attenuated to a state of clearness and transparency, substantially as specified.

2. In the making of sheet-glass, in combination, a receptacle for hot plastic glass, a gathering-plate for withdrawing a portion of plastic glass from said receptacle, means for guiding said withdrawn portion in a straight, non-torsional path, means for progressively compressing said portion into a sheet or plate, and means for positively drawing said sheet by the outer extremity thereof against the resistance of said compressing means, whereby it is stretched and attenuated to a state of clearness and transparency, substantially as specified.

3. In the making of sheet-glass, in combination, a metal plate, means for bringing said plate edgewise into contact with hot plastic glass, means for withdrawing said plate with glass attached to its contacting edge portion, and means for compressing said glass into a sheet as it is withdrawn, substantially as specified.

4. In the making of sheet-glass, in combination, a metal plate, means for moving and guiding said plate in a straight path, means for contacting the advancing edge portion of said plate with glass at a plastic temperature, means for withdrawing said metal plate with glass attached, means for compressing said glass into a sheet as it is withdrawn, and means for grasping said sheet frictionally, whereby it is stretched and elongated by the withdrawing force, substantially as specified.

5. In the making of sheet-glass, in combination, a vertically rising and falling metal plate, means for guiding said plate in a straight non-torsional path, a tank for holding plastic glass in said path, means for contacting said plate with plastic glass in said tank by its lower edge portion, means for elevating said plate and attached glass, means for rolling said glass into a sheet or plate of desired thickness as it rises, and means for pressing, drawing and stretching said sheet or plate of glass by frictional restraint as it is drawn upward, substantially as specified.

6. In the making of sheet-glass, in combination, a tank for holding hot plastic glass, a metal sheet or plate, means for moving said plate into contact with said plastic glass and withdrawing the same with glass attached, rolls for rolling said plastic glass into a thin sheet, means for graduating the distance between said rolls, means for heating said rolls, means for cooling said rolls, pressure-bars for grasping said rolled sheets, means for graduating and regulating the pressure of said pressure-bars, and means for cooling said pressure-bars, substantially as specified.

7. In an apparatus for making sheet-glass, in combination, a tank for holding hot plastic glass, a vessel floating on said plastic glass, means for procuring a measured quantity of plastic glass in said vessel, a metal plate, having a seal of glass adhering to its lower edge, means for contacting said seal with the measured quantity of plastic glass in said vessel, and withdrawing the same with the adherent glass, means for rolling the glass adhering to said seal into a sheet or plate, and means for pressing, drawing and stretching said sheet or plate to the required thickness and transparency, substantially as specified.

8. In an apparatus for making sheet-glass, in combination, a receptacle for segregating a measured quantity of plastic glass, a metal plate with a glass seal on its edge, and means for making adhesive contact of the seal with said plastic glass in said receptacle, means for withdrawing said metal plate and attached glass, and a pair of rolls for compressing said glass into a sheet or plate as it moves between the said rolls, substantially as specified.

9. In an apparatus for making sheet-glass, in combination, a receptacle for segregating a measured quantity of plastic glass, a gathering-plate for lifting glass from said receptacle by adhesion, means for compressing said glass into a plate or sheet as it rises, means for grasping said plate frictionally as it continues to rise, whereby it is pressed, drawn and stretched to a sheet of the requisite thickness and transparency, and means for cooling and setting said sheet, substantially as specified.

10. In an apparatus for making sheet-glass, in combination, a receptacle for segregating a measured quantity of plastic glass, a gathering-plate for lifting glass from said receptacle by adhesion, a pair of rolls, with means for applying regulated pressure through said rolls to the plastic glass passed between the rolls, whereby the glass is flattened into a sheet or plate, a pair of pressure-bars, with means for applying regulated frictional pressure to said sheet or plate of glass after it leaves the rolls, whereby it is drawn and stretched to a sheet of the requisite thickness and transparency, and means for cooling and setting said sheet, substantially as specified.

11. In an apparatus for making sheet-glass, in combination, a receptacle for segregating a measured quantity of plastic glass, a gathering-plate for lifting glass from said receptacle by adhesion, a pair of rolls with means for applying regulated pressure to said glass as it rises, whereby it is flattened into a sheet or plate, and means for cooling said rolls by a water circulation therethrough, substantially as specified.

12. In an apparatus for making sheet-glass, in combination, a receptacle for segregating a measured quantity of plastic glass, a gathering-plate for lifting glass from said receptacle by adhesion, a pair of rolls with means for applying regulated pressure to said glass as it rises, to flatten the same into a sheet or plate, a pair of pressure-bars with means for applying regulated frictional pressure to said plate, whereby it is drawn and stretched into a thin transparent sheet, as it passes beyond the pressure-bars, and means for cooling said pressure-bars by a water circulation therethrough, substantially as specified.

13. In an apparatus for making sheet-glass, a tank for holding plastic glass, arched with fire-brick, a slit through said arch for permitting the withdrawal of plastic glass, and guttered guards 16 for protecting said slit, substantially as specified.

14. In an apparatus for making sheet-glass, a receptacle for hot plastic glass, means for gathering glass from said receptacle, a pair of rolls between which said glass is compressed into a sheet or plate, a pair of movable pedestals in which the bearings of said rolls are mounted, rocking shaft 117, rocking levers on the ends of said shaft, lever-handle 76, and links connecting said rocking levers with said movable pedestals, whereby the distance between said rolls is regulated at will, substantially as specified.

15. In an apparatus for making sheet-glass, a receptacle for hot plastic glass, means for gathering glass from said receptacle, a pair of rolls for compressing said glass into a sheet or plate, a pair of pressure-bars for making frictional contact with said sheet of glass, movable pedestals in which said pressure-bars are mounted, rocking shaft 116, rocking levers on the ends of said shaft, lever-handle 75, and links connecting said rocking levers with said movable pedestals, whereby the distance between said pressure-bars is regulated at will, substantially as specified.

16. In an apparatus for making sheet-glass, a means for gathering a portion and forming said gathered portion of plastic glass into a sheet, a means for frictionally grasping said sheet, a means for drawing and stretching said sheet when frictionally held, and a means for cooling and setting the said plastic sheet arranged above the said grasping means, substantially as specified.

17. In an apparatus for making sheet-glass, in combination, a gathering-plate for gathering a portion of plastic glass, a means for compressing said gathering into a plate, and a means for positively drawing or extending said plate by its extremity longitudinally without torsion into a sheet of the requisite thinness and transparency, substantially as specified.

18. In an apparatus for making sheet-glass, in combination, a means for gathering a portion of plastic glass, a means for progressively compressing said gathering into a plate, a means for frictionally holding said plate, and a means for drawing said plate in right lines progressively through said frictional holding means, whereby the plate is stretched to the requisite degree of thinness and transparency, substantially as specified.

19. In an apparatus for making sheet-glass, in combination, an upright frame having parallel guideways thereon, a bar traversing upon said guideways, means for moving said bar, a means for securing a gathering of plastic glass attached to said bar, a means for progressively compressing said gathering into a plate as the bar is moved, a means for frictionally holding and pressing said plate by non-rotatory grasping appliances as it is drawn by the bar, whereby the plate is stretched to a sheet of the

required thinness and transparency, and means for cooling and setting the plastic material of said sheet, substantially as specified.

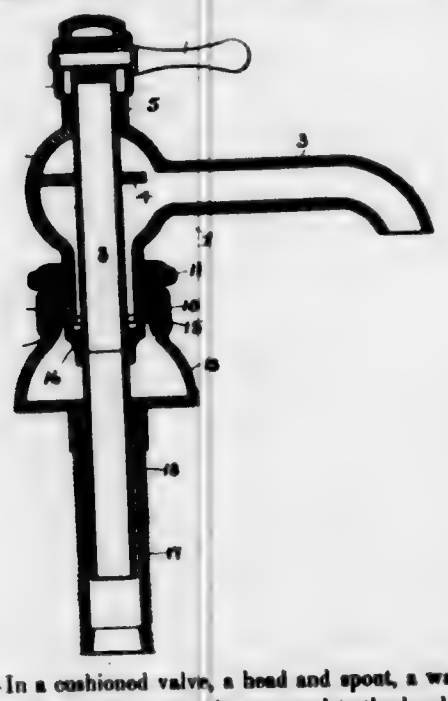
20. In an apparatus for making sheet-glass, in combination, a gathering-plate for securing a gathering of plastic glass by adhesion thereto, a pair of rolls for compressing said gathering into a plate or sheet, an electric motor for driving said rolls, and means for starting and stopping said motor, for reversing said motor and rolls, and for regulating the speed of said motor and rolls, substantially as specified.

21. In an apparatus for making sheet-glass, in combination, a gathering-plate for securing a gathering of plastic glass, a means for guiding said gathering longitudinally in right lines, a means for progressively compressing said gathering into a plate as it is drawn forward, an electric motor for moving said gathering and plate, means for starting, stopping, and reversing said motor, and means for regulating the speed of said motor, substantially as specified.

22. In an apparatus for making sheet-glass, in combination, an upright frame, a gathering-plate 51, an elevated trackway sustained in part by said frame, a traveling carrier running on said trackway, a rotary shaft on said carrier, winding-drums on said shaft, bands, ropes or chains on said drums, with means for attachment to said plate 51, and an electric motor connected with said rotary shaft, with means for starting, stopping, and reversing said motor, and means for regulating the speed of said motor, substantially as specified.

23. In an apparatus for making sheet-glass, in combination, a pair of rolls, means for heating the same, means for cooling the same, means for regulating the distance between the same, a pair of non-revolving pressure-bars, means for cooling the said bars, means for regulating the distance between said pressure-bars, and means for blowing a stream of air on both sides of a sheet of glass passing between said pressure-bars, substantially as specified.

696,009. AIR-CUSHION FOR VALVES. JOSHUA W. CREGAR, Philadelphia, Pa. Filed Feb. 4, 1901. Serial No. 45,884. (No model.)



Claim.—In a cushioned valve, a head and spout, a water-chamber having a connection for the water-pipe, secured to the head, a valve-seat at the junction of the head and chamber, an air-tube extending through the head and chamber, a lever connected to the upper end of the air-tube, a valve on the air-tube intermediate of its length to engage the valve-seat substantially as described.

696,010. HYDRAULIC PRESS. FRANZ DAHL, Bruckhausen, Germany. Filed Dec. 31, 1901. Serial No. 87,884. (No model.)



Claim.—1. In a press, the combination of a matrix, with levers adapted to engage the work-piece, and with means for imparting successively a vertical and a tilting movement to the levers, substantially as specified.

2. In a press, the combination of a matrix, with levers engaging the work-piece and movable vertically at their pivoted end, a beam engaging the levers, and a plunger engaging the beam, substantially as specified.

696,011. AUTOMATIC VENDING-MACHINE. BETHUEL M. DAVIS, Chicago, Ill., assignor to Advance Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Feb. 21, 1901. Serial No. 48,258. (No model.)



Claim.—1. In a machine for the purpose described the combination of a hopper having an aperture therein, a measure open at top and bottom arranged under said aperture, a valve or shutter actuated by said measure for closing said aperture, a runway closing the bottom of said measure and on which said measure slides, said runway having an aperture with which said measure coincides, a chute arranged under and leading from said aperture, exterior means for operating said measure disconnected therefrom, means for causing a coin to connect said measure and exterior operating means and means for closing the outer end of said chute as the measure approaches said aperture in the runway, substantially as set forth.

2. In a machine for the purpose described the combination of a hopper having an aperture, a measure open at top and bottom arranged under said aperture, a valve or shutter actuated by said measure for closing said aperture, a runway closing the bottom of said measure and on which said measure slides, a plate secured under the line of movement of said measure and constituting the bottom of a chute for receiving the material from said measure, exterior means for operating said measure disconnected therefrom and having side wings embracing said plate and constituting the sides of said chute and means for causing a coin to connect said measure and exterior operating means, substantially as set forth.

3. In a machine for the purpose described the combination of a hopper having an aperture in the bottom, a measure arranged under said aperture and having a shutter for closing said aperture, an arm for actuating said measure, a runway on which said measure slides having an aperture with which said measure coincides for the discharge of the material therefrom, and a slot for the back-and-forth movement of said arm, a member on said measure having a bifurcation coincident with said slot also for receiving said arm, a cross-slot or coin-seat in said member for holding a coin in front of said arm, and means for oscillating said arm against said coin for advancing said measure, substantially as set forth.

4. In a machine for the purpose described the combination of a hopper having an aperture in the bottom, a measure arranged under said aperture and having a shutter for closing said aperture, an arm for actuating said measure, a runway on which said measure slides having an aperture for the discharge of the material from said measure and a slot for the back-and-forth movement of said arm, a member on said measure having a bifurcation coincident with said slot also for the reception of said arm, a cross-slot or coin-seat in said member for receiving and holding a coin in front of said arm, means for oscillating said arm against said coin for moving it and the measure in one direction and ratchet-teeth on the edge of said slot for engaging said coin when moved in the reverse direction, substantially as set forth.

5. In a machine for the purpose described the combination of a hopper having an aperture in the bottom, a measure arranged under said aperture, an arm for actuating said measure, means for closing said aperture when the measure moves forward, a runway on which said measure slides, a bifurcated member on said measure for the reception of said arm having a cross-slot or coin-seat for holding a coin in front of said arm, ratchet-teeth arranged adjacent to the line of movement of the coin as it rests in said seat and means for elevating said coin out of engagement with said

ratchet-teeth as the coin advances with the measure, substantially as set forth.

6. In a machine for the purpose described the combination of a hopper having an aperture in the bottom, a measure arranged under said aperture, an arm for actuating said measure, means for closing said aperture when the measure moves forward, a runway on which said measure slides, a bifurcated member on said measure for the reception of said arm having a cross-slot or coin-seat for holding a coin in front of said arm, ratchet-teeth arranged adjacent to the line of movement of the coin as it rests in said seat, and a shoulder on said arm for engaging under and elevating said coin out of engagement with said ratchet-teeth as the coin advances with said measure, substantially as set forth.

7. In a machine for the purpose described the combination of a hopper having an aperture, a measure arranged to receive material through said aperture, a member connected with said measure and having a cross-slot for the reception of a coin, an arm for engaging the coin in said slot and having a shoulder adapted to support the coin against downward movement while resting therein, a coin-display chute having its upper end arranged under said cross-slot when the measure reaches the forward extremity of its movement, said shoulder being adapted to turn from under said coin at said extremity and means for actuating said arm from the exterior, substantially as set forth.

8. In a machine for the purpose described the combination of a measure, a member connected with said measure and having a coin-seat, an actuating-arm for said measure adapted to pass said coin-seat, a coin-stop arranged back of said coin-seat, means for directing a coin against said coin-stop and thereby deflecting it into said seat, means for supplying said measure with material and means for actuating said arm from the exterior, substantially as set forth.

9. In a machine for the purpose described the combination of the base-box 7 having a discharge-aperture in the side thereof, the plate 11 extending across the top of said base-box and constituting a runway, the plate 15 secured to said plate 11 and constituting the bottom of a chute leading to said discharge-aperture, a measure sliding upon said plate 11, the open frame member 6 supported on said box 7, a receptacle supported on said frame member 6 and having a hopper in the bottom thereof provided with an aperture arranged over said measure, means for securing said base-box, a member 6 and receptacle together, a coin-seat connected with said measure, a coin-incline formed on said member 6 and leading downwardly to said coin-seat and means for actuating said measure through the medium of the coin on said seat, substantially as set forth.

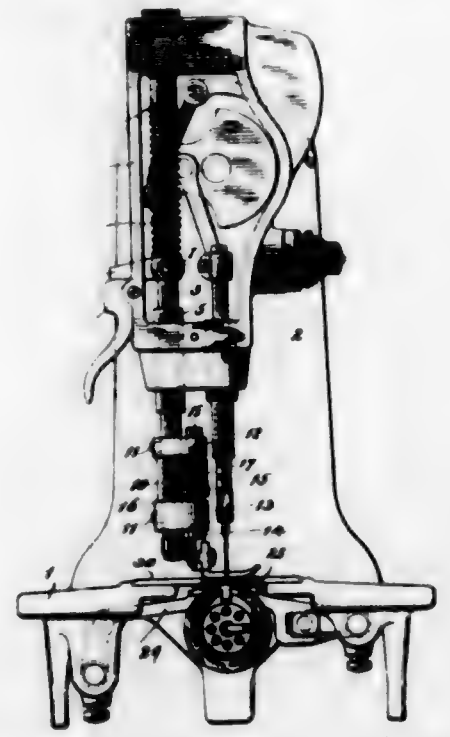
10. In a device for the purpose described the combination of a hopper having an aperture therein, a measure movable into and out of register with said aperture, means affixed to and movable with said measure comprising two side supports for engaging the side edges of a coin, said supports being a sufficient distance apart at their lower edges to permit the coin to slip downwardly from between them, means for holding the coin against said downward movement during a part of the movement of the measure, an exterior operating means having a member movable on the arc of a circle between said supports and provided with means adapted to engage under and support said coin throughout another part of the movement of the measure, and also means for impinging the back of the coin while resting between said supports, whereby said operating means will move said measure through the medium of the coin throughout the stroke of the measure and support the coin against downward movement throughout a part of the stroke, substantially as set forth.

696,012. SEWING-MACHINE CLOTH-PRESSER. GEORGE H. DIMOND and WILBUR F. DIAL, Bridgeport, Conn., assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn., a Corporation of Connecticut. Filed Oct. 31, 1901. Serial No. 80,693. (No model.)

Claim.—1. In a sewing-machine, the combination of a main spring-pressed presser-bar, and a sleeve mounted thereon and having laterally-projecting ears, with an auxiliary spring-pressed presser-bar mounted in said ears and having a presser-foot holder, and a presser-foot applied to said holder, the spring-pressure of the main presser-bar being in excess of the spring-pressure of said auxiliary presser-bar.

2. In a sewing-machine, the combination of a main presser-bar, with an auxiliary presser-bar, a presser-foot thereon, a sleeve carried by said main presser-bar and having ears in which the auxiliary presser-bar is mounted, means for limiting the vertical movements of said auxiliary presser-bar, and differential springs applied to the main presser-bar and the auxiliary presser-bar, whereby the pressure of the presser-foot upon the material is increased when thick portions of the work are encountered and decreased upon the plain thin surfaces of the work.

3. In a sewing-machine, the combination of a main spring-pressed presser-bar, with an auxiliary spring-pressed presser-bar, a horizontally-grooved presser-foot holder on said auxiliary bar, a presser-foot adjustable in said holder, a grooved sleeve rigid with the main presser-bar, and having ears in which the auxiliary presser-bar is mounted, and a finger on the holder engaging the groove in the sleeve for restraining said auxiliary presser-bar against turning.



4. In a sewing-machine, the combination of a main spring-pressed presser-bar, with an auxiliary spring-pressed presser-bar, a sleeve having a vertical groove or slit and rigid with the main presser-bar and having ears to receive the auxiliary presser-bar, a presser-foot holder on the auxiliary presser-bar having a horizontal groove, a laterally-adjustable presser-foot provided with a ribbed shank adapted to fit within said horizontal groove in said presser-foot holder, and a finger on the holder engaging the groove or slit in the sleeve to restrain the auxiliary presser-foot from turning.

696,013. TRAP FISH-HOOK. GEORGE H. DOERING, Brooklyn, N. Y. Filed Jan. 11, 1902. Serial No. 89,260. (No model.)



Claim.—1. A trap-hook comprised of a supporting-plate, a pair of gaff-hooks pivoted thereto and formed with curved enlargements on their inner edges adjacent the pivot, a notch being formed in said curved enlargements, a sliding plate mounted on the supporting-plate and formed with a latch-lug adapted to fit the notches in the gaff-hooks, a spring secured to the sliding plate and to the supporting-plate to normally draw the sliding plate upward whereby the latch-lug will be held in the notches against accidental displacement and will be held against the curved surface of the enlargements of the gaff-hooks when the said hooks are in their closed position and will ride on said enlargements while the gaff-hooks are being opened, a bait-hook carried by the sliding plate, and a spring normally closing the gaff-hooks.

2. A trap fish-hook comprised of a supporting-plate, a pair of gaff-hooks pivoted thereto, the pivots thereof being in substantially the same axial line, the gaff-hooks extending outward and downward from their pivots in opposite directions each gaff-hook being formed with a latch-receiving jaw, said jaws being adapted to register when said hooks are moved outward to their set position, a spring normally acting to close said hooks, a latch device adapted to slip into engagement with said jaws when they are in register to lock said hooks in their open or set position and a bait-hook connected to said latch device, whereby a pull on the bait-hook will release the gaff-hooks.

3. A trap-hook comprised of a supporting-plate, a pair of gaff-hooks pivoted thereto, the pivots thereof being in substantially the same axial line, the gaff-hooks extending outward and downward from the pivots in opposite directions, each gaff-hook being formed with a latch-receiving part, said parts being adapted to be brought into position to be simultaneously engaged by a latch when said hooks are moved outward to their set position, a spring normally acting to close said hooks, a latch device adapted to slip into engagement with said latch-receiving parts when the hooks are in their outer or set position to lock said hooks in their open or set position and a bait-hook connected to said latch device whereby a pull on the bait-hook will release the gaff-hooks.

4. A trap-hook comprised of a supporting-plate, a pair of gaff-hooks pivoted thereto, the pivots thereof being in substantially the same axial

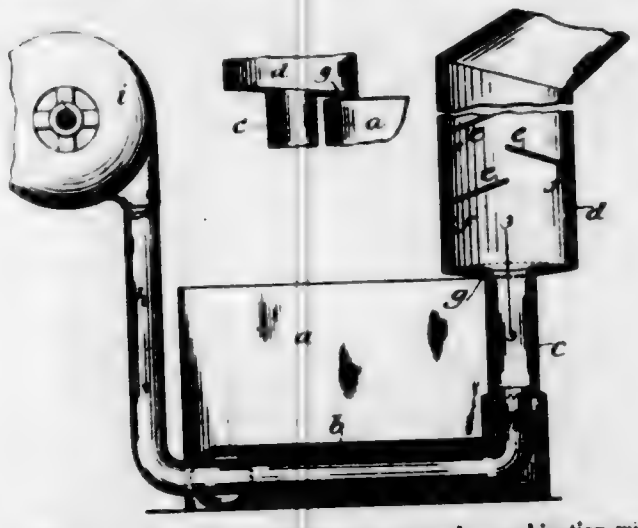
line, the gaff-hooks extending outward and downward from the pivots in opposite directions, each gaff-hook being formed with a latch-receiving part, said parts being adapted to register when said hooks are moved outward to their set position, a spring normally acting to close said hooks, a latch device adapted to automatically slip into engagement with said latch-receiving parts when they are in register to lock said hooks in their open or set position and a bait-hook connected to said latch device whereby a pull on the bait-hook will release the gaff-hooks.

5. A trap-hook comprised of a supporting-plate, a pair of gaff-hooks arranged to cross each other near their upper ends and pivoted to the supporting-plate at their point of intersection, and formed with the upper shorter arms 3 and the lower longer arms 2, a latch-receiving part formed on each of the gaff-hooks at their point of intersection said parts being adapted to register with each other when the gaff-hooks are in their open or set position, a sliding latch device carried by the supporting-plate and adapted to engage the latch-receiving parts when they are in register to hold the gaff-hooks in their open position, a bait-hook carried by said sliding latch device, a spring normally closing the gaff-hooks and a stop-lug on the supporting-plate between the upper arms of the gaff-hooks and adapted to act as a stop to limit the inward movement of said arms.

6. A trap-hook comprised of a supporting-plate, a pair of gaff-hooks, arranged to cross each other near their upper ends and pivoted to the supporting-plate at their point of intersection, and formed with the longer arms 2 and the upper arms 3, a latch-receiving part formed on each of the gaff-hooks at their point of intersection said parts being adapted to register with each other when the gaff-hooks are in their open or set position, a sliding latch device carried by the supporting-plate and adapted to engage the latch-receiving parts when they are in register to lock the hooks in their open or set position, a bait-hook carried by said latch device, a spring connected to the upper arms of the gaff-hooks and normally closing said hooks, and enlargements formed on the inner edges of the smaller arms of the gaff-hooks, said enlargements being adapted to contact with each other when the latch is released.

7. A trap-hook comprised of a supporting-plate, a pair of gaff-hooks arranged to cross each other near their upper ends and pivoted to the supporting-plate at their point of intersection and formed with lower hook-arms 2 and the upper shorter arms 3, a latch-receiving part formed on each of the gaff-hooks at their point of intersection, said parts being adapted to register with each other when the gaff-hooks are in their open or set position, a sliding latch device carried by the supporting-plate, and adapted to engage the latch-receiving parts when they are in register to lock the hooks in their open or set position, a bait-hook carried by said latch device, a spring connected to the ends of the shorter arms of the gaff-hooks and normally closing said hooks, said spring extending upward and being formed at its upper end into an eye for the reception of the line.

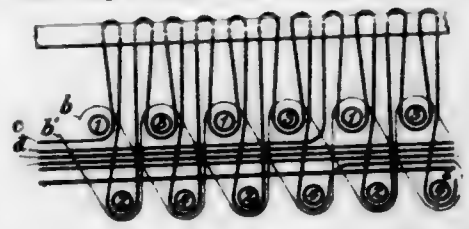
696,014. OIL-QUENCHING APPARATUS. MELVIN E. DOOLLY, Brooklyn, N. Y. Filed Nov. 20, 1900. Serial No. 37,108. (No model.)



Claim.—1. In an oil-quenching apparatus the combination with a tank of a pipe connected therewith near the bottom a pipe carried upward to a considerable height above and forming a continuation of the first-named pipe and having an opening through which the oil may be returned to the tank, and means for introducing an air-blast within the first-named pipe, whereby the oil is carried upward in the form of spray within the last-named pipe and gathers or is condensed therein and returned to the tank, substantially as shown and described.

2. In an oil-quenching apparatus, the combination with a tank, of a pipe connected therewith near the bottom and having a substantially vertical portion of reduced diameter, a second pipe of larger diameter carried upward to a considerable height above and forming a continuation of the first-named pipe and having an opening through which the oil may be returned to the tank, an air-pipe terminating within the reduced portion of the first-named pipe below the level of the oil in the tank, and means for creating an air-blast through said air-pipe, substantially as shown and described.

696,015. WOVEN PILE FABRIC. THOMAS B. DORNAN, Philadelphia, Pa. Filed July 17, 1901. Serial No. 68,564. (No specimens.)



Claim.—1. A pile fabric comprising binder weft-threads and binder warp-threads and pile-forming figuring warp-threads, the binder weft-threads and binder warp-threads being interwoven to form a plurality of plies and the pile-forming figuring warp-threads forming a pile projecting at one face only of the fabric and the pile being composed of threads bound by each weft-thread in the different plies of the fabric and extending outwardly to form the pile on each side of each weft-thread on the pile-face only of the fabric.

2. A pile fabric comprising binder weft-threads and binder warp-threads and pile-forming figuring warp-threads, the binder weft-threads and binder warp-threads being interwoven to form an upper and a lower ply and the pile-forming figuring warp-threads forming a pile projecting at one face of the fabric and the pile being composed of threads bound by each of the weft-threads in the upper and lower plies and extending outwardly to form the pile on each side of each weft-thread on the pile-face only of the fabric.

3. A pile fabric having an upper and a lower ply and comprising binder weft-threads and binder warp-threads and pile-forming figuring warp-threads, the pile-forming figuring warp-threads forming a pile projecting at one face only of the fabric and the pile being composed of threads alternately bound in the upper and lower plies of the fabric, and looped around and extending outwardly to form the pile on each side of each weft-thread on the pile-face only of the fabric.

4. A pile fabric having an upper and a lower ply and comprising binder weft-threads and binder warp-threads and pile-forming figuring warp-threads, the binder weft-threads being arranged alternately in the upper and lower plies of the fabric and the pile-forming figuring warp-threads forming a pile projecting at one face only of the fabric and the pile being composed of threads bound by each binder weft-thread, and extending outwardly to form the pile on each side of each weft-thread on the pile-face only of the fabric, substantially as set forth.

5. A two-ply pile fabric comprising binder weft-threads and binder warp-threads and pile forming figuring warp-threads, the binder weft-threads being arranged alternately in the upper and lower plies of the fabric and the pile-forming figuring warp-threads forming a pile projecting at one face only of the fabric and the pile being composed of threads bound by each binder weft-thread, and extending outwardly to form the pile on each side of each weft-thread on the pile-face only of the fabric, substantially as set forth.

6. A cut-pile fabric comprising binder weft-threads and binder warp-threads and pile-forming figuring warp-threads, the binder warp-threads and binder weft-threads being interwoven to form a plurality of plies and the pile-forming figuring warp-threads forming a pile consisting of tufts projecting at one face only of the fabric and the pile being composed of threads bound by each weft-thread of the different plies of the fabric and extending outwardly to form the pile on each side of each weft-thread on the pile-face only of the fabric, substantially as set forth.

7. A pile fabric having an upper and a lower ply and composed of binder weft-threads arranged in sets of four weft-threads each, such weft-threads being disposed alternately in the upper and lower plies of the fabric, and of binder warp threads arranged in two sets and passing alternately from ply to ply and binding the weft-threads, and of a plurality of pile-forming figuring warp-threads bound in the pile-forming portions thereof alternately at the upper and lower plies of the fabric by each binder weft-thread thereof, substantially as set forth.

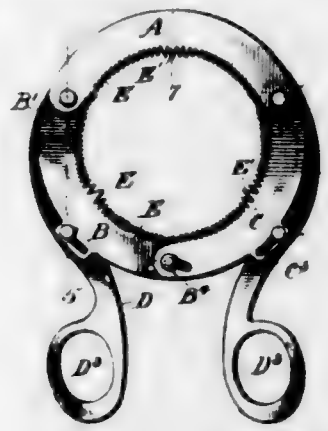
8. A cut-pile fabric having an upper and a lower ply and composed of binder weft-threads arranged in sets of four weft-threads each, such weft-threads being disposed alternately in the upper and lower plies of the fabric, and of binder warp-threads arranged in two sets and passing alternately from ply to ply and binding the weft-threads, and of a plurality of pile-forming figuring warp-threads successively bound by each of the weft-threads at the upper and lower plies of the fabric, substantially as set forth.

9. A pile fabric having an upper and a lower ply and composed of binder weft-threads arranged in sets of four weft-threads each, such weft-

threads being disposed alternately in the upper and lower plies of the fabric, and of binder warp-threads arranged in two sets and passing alternately from ply to ply and binding the weft-threads, and of a plurality of pile-forming figuring warp-threads forming a pile projecting from one face only of the fabric and the pile-threads being bound alternately at the upper and lower plies of the fabric by each binder weft-thread thereof, and extending outwardly to form the pile on each side of each weft-thread on the pile-face only of the fabric, substantially as set forth.

10. A cut-pile fabric having an upper and a lower ply and composed of binder weft-threads arranged in sets of four weft-threads each, such weft-threads being disposed alternately in the upper and lower plies of the fabric, and of binder warp-threads arranged in two sets and passing alternately from ply to ply and binding the weft-threads, and of a plurality of pile-forming figuring warp-threads forming a pile consisting of threads projecting from one face only of the fabric and the pile-threads being successively bound by each of the weft-threads at the upper and lower plies of the fabric and extending outwardly to form the pile on each side of each weft-thread on the pile-face only of the fabric, substantially as set forth.

696,016. **EGG-OPENER.** HIRAM S. DOTTS, Thoburn, W. Va., assignor of one-half to J. C. Nay, Monongah, W. Va. Filed May 16, 1901. Serial No. 60,532. (No model.)



Claim.—1. In an egg-opener, a series of jaws having each end slidably connected to an adjacent jaw and forming a continuous annular frame adapted to be varied in diameter; substantially as specified.

2. In an egg-opener, a series of jaws having each end slidably connected to an adjacent jaw and forming a continuous annular frame, and opposite handles to engage said jaws and produce a relative movement of the same toward and from each other; substantially as specified.

3. In an egg-opener, a series of jaws slidably connected by slotted connection with each other, and pivotally-mounted handles adapted to engage and move said jaws toward and from each other; substantially as specified.

4. In an egg-opener, a cutting-jaw provided with pivoting-sockets at opposite ends, handles mounted at one end in said sockets, movable jaws provided at opposite ends with slots, those at the adjacent ends of said jaws being connected to permit relative movement of the jaws, and pins carried by said handles and adapted to bear upon the outer face of said movable jaws; substantially as specified.

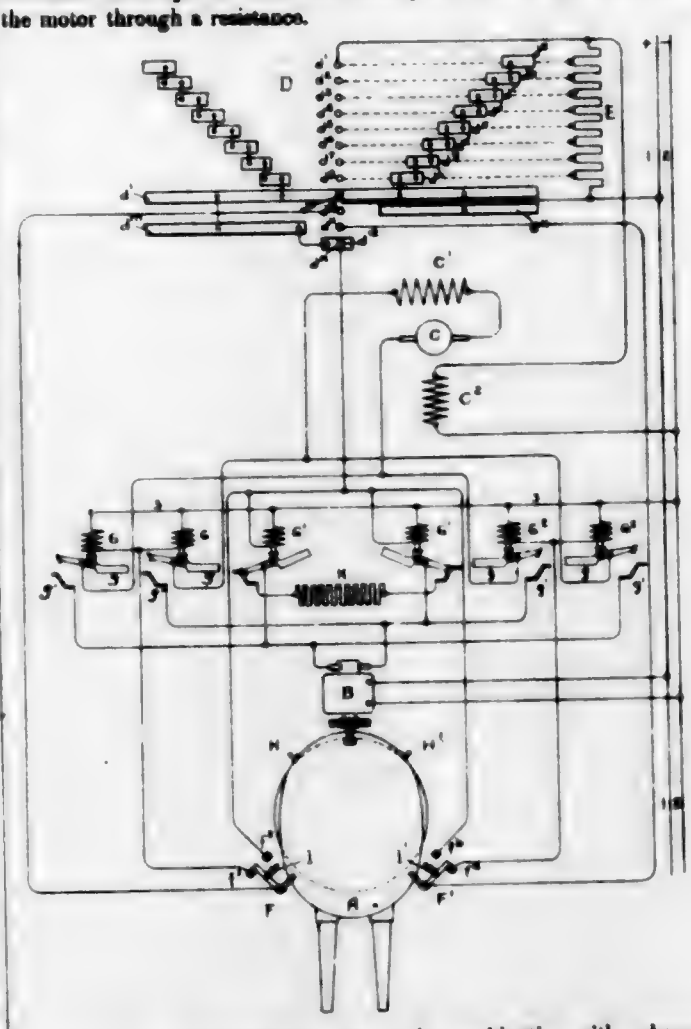
5. An egg-opener comprising relatively movable jaws each of which is provided with a series of interiorly-projecting teeth, the center tooth of each series being of greater length than the remaining ones; substantially as specified.

6. An egg-opener comprising relatively movable jaws each of which is provided with a series of inwardly-projecting teeth, the center tooth of each series being of greater length than the remaining ones, and operating-handles pivotally secured to one of said jaws and provided with operating-pins adapted to engage the remaining jaws in the movement of the handles; substantially as specified.

7. An egg-opener comprising a jaw having pivoting-sockets therein, relatively movable jaws slotted at opposite ends at an angle to their inner periphery, a connecting-pin passing through the slots at the overlapping meeting ends of said slotted jaws, a slotted extension upon the periphery of said slotted jaws, a handle pivoted in said sockets and provided with pins extending into the slots of said extension; substantially as specified.

696,017. **CONTROLLER FOR ELECTRIC MOTORS.** EDGAR F. DUTTON, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 9, 1901. Serial No. 71,478. (No model.)

Claim.—1. In a motor-regulating system, the combination with a dynamo, of a motor, an object movable by said motor, and a switch located near said object and movable thereby and operating to short-circuit the motor through a resistance.



2. In a motor-regulating system, the combination with a dynamo, of a motor, an object movable by said motor, a switch adapted to be moved by said object, and two circuits controlled by said switch and operating to connect said motor for power and braking, respectively.

3. In a motor-regulating system, the combination with a dynamo, of a motor, an object movable by said motor, a switch adapted to be moved by said object, two circuits controlled by said switch, and electromagnetic switches in said circuits operating to connect said motor for power and braking, respectively.

4. In a motor-regulating system, the combination with a dynamo, of a motor, an object movable by said motor, a switch adapted to be moved by said object, two circuits adapted to be operatively connected with said motor, and means for keeping one of said circuits normally closed through said switch.

5. In a motor-regulating system, the combination with a dynamo, of a motor, an object movable by said motor, a switch adapted to be moved by said object, a spring attached to said switch, and two circuits operatively connected with said motor, one of which is kept normally closed by said switch.

6. In a motor-regulating system, the combination with a dynamo, of a motor, an object movable by said motor, a switch adapted to be moved by said object, a spring attached to said switch, a power-circuit for the motor normally closed through said switch, and a braking-circuit for the motor closed temporarily by the switch when moved by the object.

7. In a motor-regulating system, the combination with a dynamo, of a motor, an object movable by said motor, two sets of electromagnetic switches for connecting said motor with the dynamo for forward and reverse rotation respectively, a set of similar switches for short-circuiting the motor through a braking resistance, two limit-switches each normally in circuit with one set of the power-controlling electromagnetic switches, contacts for connecting said limit-switches with the braking-circuit, and tappets on the movable object for temporarily closing the limit-switches on said contacts.

696,018. **FISH-HOOK.** BUTLER EDGAR, Danville, Pa. Filed Aug. 9, 1901. Serial No. 71,506. (No model.)



Claim.—1. As a new article of manufacture, a fish-hook constructed of a single piece of wire having a shank, a hook portion and a guard, said

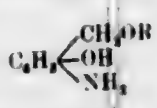
guard consisting of a return-bend in the wire formed between the shank and hook portion and extending across the latter.

2. As a new article of manufacture, a fish-hook constructed of a single piece of wire having a shank, a hook portion and a guard, said guard extending forwardly from the lower end of the shank to the upward extension of the hook, forming a lower arm, thence upwardly and rearwardly above and at one side of said lower arm, and thence downwardly at the opposite side of said arm to the hook portion.

3. As a new article of manufacture, a fish-hook constructed of a single piece of wire having a shank, a hook portion and guard, said guard extending forwardly from the lower end of the shank to the upper extension of the hook, forming a lower arm, thence upwardly and rearwardly above and at one side of the lower arm, forming an upper arm, and thence downwardly at the opposite side of said lower arm to the hook portion, said arms being separate from one another to form a loop.

696,019. PROCESS OF DEVELOPING PHOTOGRAPHIC PICTURES. ARTHUR EICHENGRÜN and KARL DENEKEN, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Aug. 5, 1901. Serial No. 70,926. (No specimens.)

Claim.—1. The herein-described process of developing photographic pictures by means of amido compounds having the hereinbefore-defined general formula:



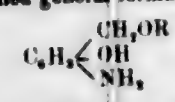
substantially as hereinbefore described.

2. The herein-described process of developing photographic pictures consisting in subjecting them to the action of a solution containing amido-paraoxybenzyl alcohol, substantially as hereinbefore described.

3. The herein-described process of developing photographic pictures consisting in subjecting them to the action of an aqueous solution containing amidoparaoxybenzyl alcohol, hydrochlorid sodium sulfite and potassium carbonate, substantially as hereinbefore described.

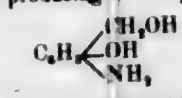
696,020. AMIDOÖXYBENZYL COMPOUND AND PROCESS OF MAKING SAME. ARTHUR EICHENGRÜN and KARL DENEKEN, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y., a Corporation of New York. Filed Aug. 5, 1901. Serial No. 70,927. (Specimens.)

Claim.—1. The process for producing new amido compounds having the hereinbefore-defined general formula



by first treating nitrophenols with the so-called halogen methylic alcohols in the presence of suitable condensing agents, secondly treating the resulting derivatives of nitrophenols with water, alcohols, organic acids or the alkaline salts of these acids and finally reducing the so-produced nitroöxybenzyl alcohols their ethers and esters, substantially as hereinbefore described.

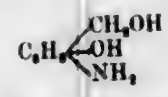
2. The process for producing a new product having the formula



by first treating para-nitrophenol with chloromethylic alcohol, secondly heating the resulting chloromethylparanitrophenol with water and finally reducing the paranitroöxybenzyl alcohol thus produced, substantially as hereinbefore described.

3. The herein-described new amido compounds which are crystalline substances readily soluble in dilute acids and in diluted solutions of caustic alkalies and carbonates of alkalies, soluble in alcohol and soluble with difficulty in water and in ether, forming salts with alkalies and with mineral acids, substantially as hereinbefore described.

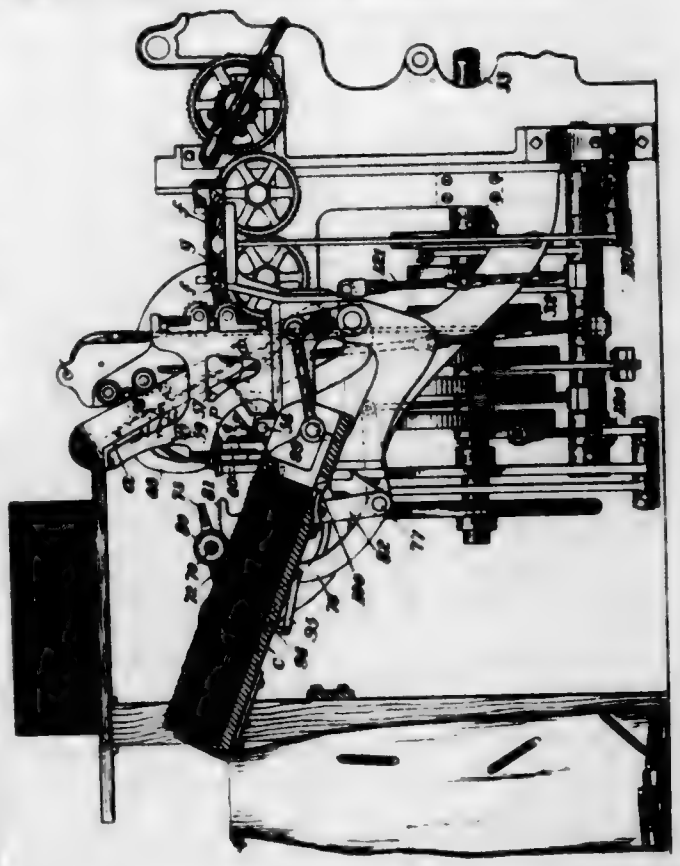
4. The herein-described amidoparaoxybenzyl alcohol having the formula



which represents in free state colorless leaves which are decomposed in contact with the air, soluble in hot water, alcohol and ether, forming salts with caustic alkalies and acids and having the melting-point of 135° to 142° centigrade and which as hydrochlorid forms white needles, substantially as hereinbefore described.

696,021. MACHINE FOR FOLDING AND WRAPPING. STERLING ELLIOTT, Boston, Mass. Filed June 7, 1901. Serial No. 63,650. (No model.)

Claim.—1. The combination with a table and with means for folding a sheet and conveying it to the table, of a carrier-blade 7 adapted to receive the folded sheet when carried longitudinally thereon, a movable support for the carrier-blade, and means for shifting the latter to convey the sheet to a second folder device, substantially as set forth.



2. The combination with a table and with means for presenting the folded paper thereto, of a conveyer-blade 7 for receiving and conveying the folded paper, and means for moving the folded paper upon the table and onto said blade, substantially as set forth.

3. The combination with the table *f* and with means for presenting a folded paper thereto and with a conveyer-blade 7 and movable support therefor, of a pusher *g* for carrying the paper along the table and onto the blade, substantially as set forth.

4. The combination with the table and with means for presenting a folded paper thereto and with a conveyer-blade and movable support therefor, of a pusher for carrying the paper along the table and onto the blade, and a presser-finger *i*, substantially as set forth.

5. The combination of the table, carrier-blade and pusher, of a guide-rib 114 on the table, yielding fingers on the pusher, and means for supporting them at an angle to the direction in which the pusher travels, substantially as set forth.

6. The combination with the table, pusher and carrier-blade, of a movable device for bringing the blade to position at the end to receive the paper pushed from the table, substantially as set forth.

7. The combination with the table and means for carrying the paper thereto and folding it and means for carrying the paper along the table, of a blade and a support therefor, and means for moving said support to bring the blade into position to receive the folded paper and to carry the blade to a position adjacent to a second folding device, substantially as set forth.

8. The combination of a support carrying a series of blades 7, means for presenting folded papers endwise to and placing them upon the blades, and a folding device to which the blades with the papers hanging thereon are successively carried substantially as set forth.

9. The combination with the table, means for presenting a folded paper thereto and means for carrying the paper along and from the same, of a rotating head carrying a series of blades, means for turning the head intermittently to present each blade in position to receive the folded paper from the table, and a folding device to which the papers are successively carried by the blade, substantially as set forth.

10. The combination of a carrier-blade and movable support therefor, means for presenting a folded paper to and carrying it onto said blade, means for depositing a wrapper-sheet upon the folded paper, means for carrying the blade with the paper and wrapper to a position adjacent a folder device, and means for bending the edge of the wrapper over the edge of the folded paper, substantially as set forth.

11. The combination with the carrier-blade 7 and means for conveying a folded paper thereto, of a device *j*[3] for bringing the end of the blade in position to enter the fold of the paper, substantially as set forth.

12. The combination with the carrier-blade and means for present-

ing a folded paper thereto, of means for feeding a wrapper-sheet above the paper, substantially as set forth.

13. The combination with the blade 7 and means for placing a folded paper thereon, of means for feeding a wrapper-strip across said paper, a gage 26 and cutters for severing the strip, substantially as set forth.

14. The combination with the carrier-blade 7 and movable support therefor, of a bar *n* and means for rocking the latter over the edge of the blade, substantially as set forth.

15. The combination of the carrier-blade 7, its movable support, rocking bar *n*, and means for clamping the edge of the wrapper folded over the blade by the rocking of said bar, substantially as set forth

16. The combination of the table for receiving the folded paper, carrier-blade and movable support therefor, a stationary plate 25 against which the blade is brought, bar *n* rocking over the edge of the blade and clamping-blade 18, and means for actuating the latter, substantially as set forth.

17. The combination with the movable support turning about an axis, of a carrier-blade, an arm supporting the blade and pivoted to said support, and means whereby said arm is carried to different positions on its pivot, substantially as set forth.

18. The combination with the movable support or head *h*, of arms pivoted thereto which support a carrier and clamping blades, and means for moving the arms on their pivot to different positions, substantially as set forth.

19. The combination of the movable support, carrying-blade connected therewith, means for applying a folded paper thereto, folding-rolls, and a blade for folding the paper and wrapper and passing the same between the rolls while carried by the blade, substantially as set forth.

20. The combination with the intermittently-revolving head carrying pivoted arms which support carrier and clamping blades, of means for swinging said blades to different positions, substantially as set forth.

21. The combination of the intermittently-rotating head, arms pivoted thereto and supporting carrying and clamping blades, means for bending the edges of wrapper-strips successively over the carrier-blades, folding-rolls, and means for bending the paper and wrapper and introducing the same between the rolls while supported by the carrier-blades, substantially as set forth.

22. The combination of the intermittently-rotating head, arms pivoted thereto and supporting carrier and clamping blades, folding-rolls in position to permit the said blades to pass between the same, and means for turning the pivoted arms to a position tangential to the head prior to passing between said folding-rolls, substantially as set forth.

23. The combination of the intermittently-rotating head, arms pivoted thereto and supporting carrying and clamping blades, means for locking the blades in their separated position, and devices for actuating the locking means to permit the blades to come together, substantially as set forth.

24. The combination of the intermittently-rotating head, arms pivoted thereto and supporting carrying and clamping blades, folding-rolls, and folding-blades 16 carried by the head in position to pass between the folding-rolls, substantially as set forth.

25. The combination with the movable support, pivoted arms and carrier-blade supported thereby, of means for carrying the said arms to radial and tangential positions, means for folding the paper supported by said blade, means for passing the folded paper onto said blade, and means for carrying the paper away from said blade longitudinally after being folded, substantially as set forth.

26. The combination of the intermittently-rotating head, pivoted arms carrying clamping and folding blades, means for introducing the folded papers to the carrying-blade, and means for carrying the papers longitudinally from the carrying and folding blades, substantially as set forth.

27. The combination of the movable support, carrying and folding blades connected therewith, means for bending paper supported on the carrying-blade around the folding-blade, jaws, means for operating them to clamp the paper, and means for moving the jaws to carry the paper longitudinally from its supporting-blade, substantially as set forth.

28. The combination with the devices for folding and wrapping the paper, of jaws for gripping the folded paper, and a trough arranged to receive the paper carried by the jaws and to hold it in its folded position, substantially as set forth.

29. The combination with the means for folding and applying a wrapper to the paper, of a sliding carriage, a pair of gripper-jaws supported thereby, means for locking the jaws in an open position, and means for unlocking the jaws to grip the paper, substantially as set forth.

30. The combination of the sliding carriage and arms supporting two pairs of gripper-jaws, a paster device and a receptacle for the folded and pasted paper, all arranged to enable one pair of gripper-jaws to convey a paper and wrapper to the paster while the other conveys the wrapped paper from the paster to the receptacle, substantially as set forth.

31. The combination with means for folding a paper and applying a wrapper thereto with one edge projecting beyond the paper, of a folder-bar, jaws for gripping and carrying the folded and wrapped paper to a position opposite the folder-bar, and means for rocking the latter to turn the edge of the wrapper over the edge of the paper, substantially as set forth.

32. The combination with the plate 44 and means for bringing the paper with the wrapper standing above the same opposite said plate, of a clamping-blade 45 and actuating means, and folder-bar 50 carrying fingers for folding down the edge of the wrapper, substantially as set forth.

33. The combination with the bar 50 and fingers 51, of rock-shafts connected with the bar, vibrating arms 53 having bearings for the rock-shafts, and means for turning said rock-shafts, substantially as set forth.

34. The combination of the arms 53, rock-shaft, bar 50 and fingers 51, one or more pinions on the rock-shaft, a rack engaging each pinion, and vibrating arms supporting the racks, substantially as set forth

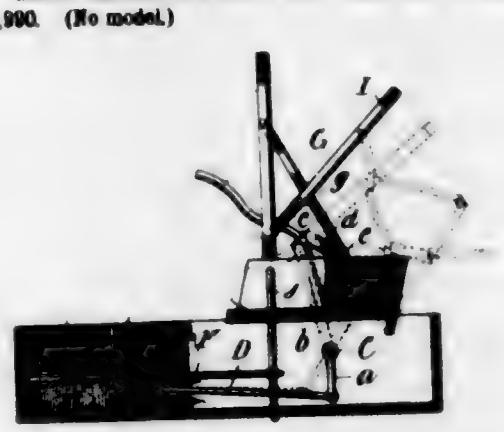
35. The combination with the means for supporting the wrapped paper, of a paster device consisting of a frame carrying paster-strips on the edges, arms carrying said frame, a paste-roll, and means for carrying the frame to and from the wrapped paper and paste-roll and for turning it a half-revolution at alternate movements of said arms, substantially as set forth.

36. The combination of arms carrying the paster-frame, means for turning the frame a part revolution at alternate movements of the arms, and a device for locking the frame in place substantially as set forth.

37. The combination in the paster-frame of a rock-shaft, spring-supported bars parallel to and carried by cross-bars on said shaft, and removable paster-strips at the edges of the said bars, substantially as set forth.

38. The combination of the devices for folding and wrapping a paper, jaws for carrying the same to one side after pasting, a receptacle for the wrapped and pasted paper, a reciprocating pusher, and hooks for holding the articles as the pusher moves away, substantially as set forth.

696,022. MEANS FOR RAISING OR LOWERING VEHICLE-TOPS. DAVID ELWELL, Coal Creek, Ind. Filed Oct. 17, 1901. Serial No. 78,990. (No model.)



Claim.—The combination in a vehicle-top, of a rock-shaft having its bearings in the sides of the vehicle-body beneath the seat, said top having the jointed braces at the sides, vertical upstanding arms secured to projecting portions of said shaft and movably connected to said braces, an operating hand-lever secured to one part of the rock-shaft, a downwardly-extending arm secured to the shaft within the body, a footpiece, a guide therefor along one side of the body also within the latter, and a reciprocatory rod connecting said last-named arm with said footpiece, substantially as described.

696,023. ELECTRIC RAILWAY. ED W. FARNHAM, Chicago, Ill. Filed Sept. 23, 1901. Serial No. 76,259. (No model.)

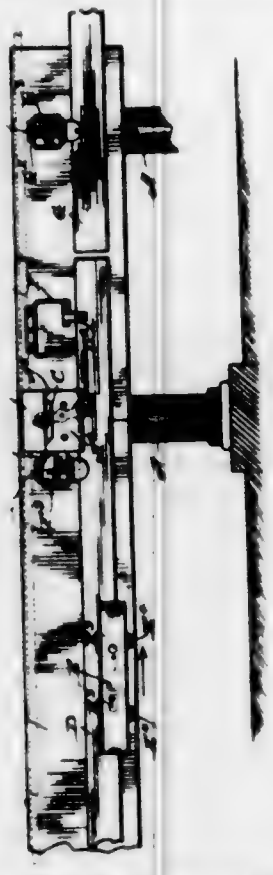
Claim.—1. In an electric railway, in combination, a conductor-main; a series of guide-rails; means for supporting said guide-rails; a series of standards; a bracket secured to each of said standards; a pivotal link suspended in each of said brackets; and a moving contact-rail having a pivotal connection with the lower end of said pivotal link.

2. In an electric railway, in combination, a conductor-main; a contact-rail comprising a number of independent sections, alternately fixed and movable; a series of standards; a bracket for each of said standards; a hanger supported in certain of said brackets; and a pivotal link suspended in said hanger and having a pivotal connection with the movable section of the contact-rail.

3. In a means for suspending a contact-rail for electric railways, in combination, a standard; a bracket secured thereto; a pivotal link suspended in said bracket; and a contact-rail having a pivotal connection with the lower end of said pivotal link

4. In a means for suspending a contact-rail for electric railways, in combination, a standard; a bracket secured thereto; a hanger in said

bracket; a pivot in said hanger; a link suspended upon said pivot; and a contact-rail pivotally suspended in the lower end of said pivotal link.



5. In a means for suspending a contact-rail for electric railways, in combination, a standard; a bracket secured thereto; insulating-blocks in said bracket; a hanger mounted upon said insulating-blocks; a pivot in said hanger; a link suspended upon said pivot; and a contact-rail having a pivotal connection with the lower end of said pivotal link.

6. In a means for suspending a contact-rail for electric railways, in combination, a standard; a bracket secured thereto; two insulating-blocks in said bracket; a hanger mounted upon said insulating-blocks; a knife-edge pivot in said hanger; a link suspended upon the knife-edge of said pivot, having an opening in each of its ends; and a contact-rail having a knife-edge pivot adapted to lie within the opening in the lower end of said pivotal link.

7. In a means for suspending a contact-rail for electric railways, in combination, a standard; a bracket secured thereto; insulating-blocks in said bracket; a hanger mounted upon said insulating-blocks, said hanger having two depending perforated ears; a knife edge pivot supported in the perforations of said ears; a link provided with perforations in its opposite ends, suspended upon said knife-edge pivot; a contact-rail having a knife-edge pivot adapted to lie within the opening in the lower end of said pivotal link; and a cap-plate secured to the link for holding said rail-pivot in position.

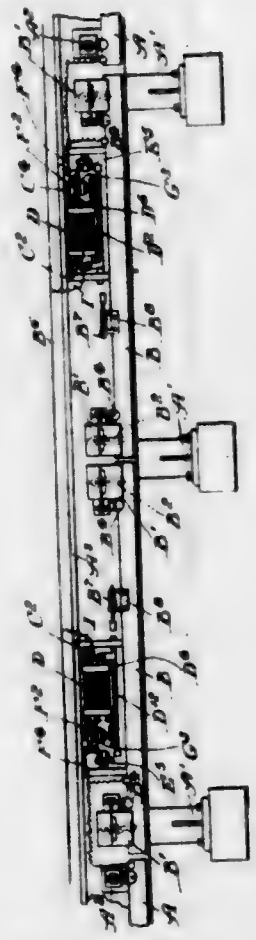
8. In a means for suspending a contact rail for electric railways, in combination, a standard; a bracket secured thereto, said bracket being provided with depressions at its ends to receive the conductor-main; insulating-blocks in said bracket; a hanger mounted upon said insulating blocks, said hanger having a transverse depression for receiving the conductor-main, also having two depending perforated ears; a knife-edge pivot supported in the perforations of said ears; a two-part link suspended upon said knife-edge pivot, said link being provided with openings at its upper and its lower ends; cap-plates secured to the sides of said link, for covering the openings at the lower end thereof; and a contact-rail having a knife-edge pivot adapted to lie in the lower opening of said pivotal link.

9. In a means for suspending a guide-rail for electric railways, in combination, a standard; a bracket secured thereto; an insulating-bushing; a supporting-block within said bushing, bifurcated in its lower end; and means for securing the contact-rail between the bifurcated ends of said block.

10. In a means for suspending a guide-rail for electric railways, in combination, a standard; a bracket secured thereto; a pivotal link suspended in said bracket; a contact-rail having a pivotal connection with the lower end of said pivotal link; a guide-block bifurcated at its lower end; an insulating-bushing for said guide-block; and means for securing said guide-block and bushing to said bracket.

696,024. ELECTRIC RAILWAY. Eb W. Farnham, Chicago, Ill. Filed Feb. 6, 1902. Serial No. 92,897. (No model.)

Claim.—1. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, and means adapted to be actuated by the movement of said movable rail, to place the block in electric communication with the conductor-main.



2. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, a projection on said movable rail, and means adapted to be engaged by said projection, to place the block in electric communication with the conductor-main.

3. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, a projection on said movable rail, and a circuit-closer adapted to be engaged by said projection, to place the block in electric communication with the conductor-main.

4. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, and a circuit-closer adapted to be actuated by a movement of said movable rail, to place the block in electric communication with the conductor-main.

5. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail having a projection extending therefrom, and a switch adapted to be engaged by said projection, to place the block in electric communication with the conductor-main.

6. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail having a spring-plunger, and means adapted to be actuated by the movement of said movable contact-rail, to place the block in electric communication with the conductor-main.

7. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail having a spring-plunger, and a circuit-closer adapted to be actuated by the movement of said movable contact-rail, to place the block in electric communication with the conductor-main.

8. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, and a switch device adapted to be actuated by a movement of said movable rail, said switch device comprising an electromagnet, an armature, and two contact-points for closing the electric circuit.

9. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, and a switch device adapted to be actuated by the movement of said movable rail, to place the block in electric communication with the conductor-main, said switch device com-

prising an electromagnet, a movable armature, a fixed contact-point, and a contact-point adapted to be moved by said armature.

10. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, and a switch device adapted to be actuated by the movement of said movable rail, said switch device having an electromagnet, an armature, the primary windings of said electromagnet being in circuit with the conductor-main, also with the fixed contact-rail, and two contact-points adapted to close said circuit to energize said electromagnet when the switch device is actuated by said movable rail.

11. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, and a device comprising an electromagnet, the main windings of said magnet being in electric connection with said conductor-main, also with the fixed contact-rail, the shunt-windings of said magnet also being in electric connection with said conductor-main and said fixed contact-rail, an armature, two main contacts, and two primary contacts, the latter adapted to close the circuit through the shunt-windings of the magnet to cause it to attract its armature and to complete the main circuit through the main contacts when the device is actuated by the movement of the movable rail.

12. In an electric railway, in combination, a conductor-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, a movable contact-rail, and a switch device having a main circuit normally open, in electric connection with said conductor-main, an electromagnet, the main windings of which are included in said main circuit, a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt windings of said electromagnet, and means actuated by the movement of said movable rail, for closing said shunt-circuit to place the block in electric communication with the conductor-main.

13. In an electric railway, in combination, a conducter-main; and a contact-rail made up of a plurality of "blocks," each block comprising a fixed contact-rail, two movable contact-rails, a switch device for each of said movable contact-rails, each switch device having a main circuit normally open, in electric communication with said conductor-main, an electromagnet, the main windings of which are included in said main circuit, and a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt-windings of said electromagnet, and means for actuating each of said switch devices by the movement of its movable contact-rail.

14. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt-windings of said electromagnet; a circuit-closer mechanically actuated by the passing of a car for closing said shunt-circuit; and means actuated by the electromagnet for closing the main circuit.

15. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt-windings of said electromagnet; an armature mechanically actuated by the passing of a car for closing said shunt-circuit; and means actuated by the electromagnet for closing the main circuit.

16. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; an armature, the movement of which is adapted to close the main circuit; a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt-windings of said electromagnet; and a circuit-closer mechanically actuated by the passing of a car for closing said shunt-circuit.

17. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a contact-point in the main circuit, movable with said armature; a circuit normally open, in shunt to the break in the main circuit, which shunt-circuit includes the shunt-windings of said electromagnet; and a circuit-closer mechanically actuated by the passing of a car for closing said shunt-circuit.

18. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in the main circuit; a circuit-closer in said main circuit; a circuit in shunt to the break in the main circuit; a circuit-closer normally open in the shunt-circuit; mechanical means for operating the last-mentioned circuit-closer; and means controlled by the circuit-closer in the shunt-circuit for closing the main circuit.

19. In an electric switch device, in combination, a main circuit, normally open; an electromagnet, the main windings of which are included in the main circuit; a circuit normally open, in shunt to the break in the main circuit; an armature for said magnet, adapted to be mechanically actuated by the passing of a car to close the shunt-circuit, and to be electrically actuated by said magnet to close the main circuit.

20. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable contact-point for the main circuit; a fixed contact-point for said main circuit; a circuit normally open, in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of said electromagnet; a circuit-closer mechanically actuated by the passing of a car for closing said shunt-circuit; and means actuated by the electromagnet for moving said movable contact-point to close the main circuit.

21. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable contact-point for the main circuit; a fixed contact-point for said main circuit; a circuit normally open, in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet, and two primary contact-points (one fixed and one movable); means mechanically actuated by the passing of a car for moving one of said primary contact-points into engagement with the other of said points; and means actuated by the electromagnet for moving one of said main-circuit contact-points into engagement with the other of said contact-points.

22. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; an armature, the movement of which is adapted to close the main circuit; a circuit in shunt to the break in said main circuit, which shunt-circuit is normally open and includes the shunt-windings of said electromagnets; a circuit-closer mechanically actuated by the passing of a car for closing the shunt-circuit; and means actuated by the electromagnet for closing the main circuit.

23. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a movable contact-point for the main circuit; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of said primary contact-points being movable with said armature; and means mechanically actuated by the passing of a car for moving one of said primary contact-points into engagement with the other primary contact-point to close the main circuit.

24. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable armature for said magnet; a contact-point for the main circuit, movable with said armature; a fixed contact-point for said main circuit, a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points; and mechanical means for moving one of said primary contact-points.

25. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a movable arm for supporting said armature; a contact-point for the main circuit movable with said armature; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points; and mechanical means for moving one of said primary contact-points.

26. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a pivoted arm for supporting said armature; a movable contact-point for the main circuit, carried by said pivoted arm; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of which primary contact-points is carried by said pivoted arm; and mechanical means for moving said arm.

27. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable armature for said magnet; a contact-point for the main circuit, movable with said armature; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of which primary contact-points is movable with said armature, and the other of which primary contact-points is yieldingly supported; and mechanical means for moving the first mentioned of said primary contact-points.

28. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a pivoted arm in said main circuit, for supporting said armature; a movable contact-point for the main circuit, carried by said pivoted arm; a base-plate in said main circuit; an electric connection between said base-plate and said movable contact-point;

a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of which primary contact-points is carried by said arm; and mechanical means for moving said arm.

29. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a pivoted arm in said main circuit, for supporting said armature; a rod yieldingly supported by said pivoted arm; a movable contact-point fixed to said rod; a base-plate in said main circuit; an electric connection between said base-plate and said movable contact-point; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of which primary contact-points is carried by said arm, the other of said primary contact-points being pivotally mounted and yieldingly held in its normal position; and mechanical means for moving said arm.

30. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt-windings of said electromagnet; means for closing said shunt-circuit; means actuated by the closing of the shunt-circuit, for closing the main circuit; a controller in said main circuit; and a circuit in shunt to said controller

31. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt-windings of said electromagnet; mechanical means for closing said shunt-circuit; means actuated by the closing of the shunt-circuit, for closing the main circuit; a controller in said main circuit; and a circuit in shunt to said controller.

32. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; an armature, the movement of which is adapted to close the main circuit; a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt-windings of said electromagnet; mechanical means for closing said shunt-circuit; a controller in said main circuit; and a circuit in shunt to said controller.

33. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a contact-point in the main circuit, movable with said armature; a circuit normally open, in shunt to the break in the main circuit, which shunt-circuit includes the shunt-windings of said electromagnet; mechanical means for closing said shunt-circuit; a controller in said main circuit; and a circuit in shunt to said controller.

34. In an electric switch device, in combination, a main circuit normally open; an electromagnet, the main windings of which are included in the main circuit; an armature for said magnet; a contact-point for said main circuit, movable with said armature; a circuit normally open, in shunt to the break in said main circuit, which shunt-circuit includes the shunt-windings of said electromagnet and two primary contact-points, one of which primary contact-points is movable with said armature; mechanical means for moving said last-mentioned primary contact-point; a controller in said main circuit; and a circuit in shunt to said controller.

35. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable contact-point for the main circuit; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of said electromagnet and two primary contact-points; a controller in said main circuit; and a circuit in shunt to said controller.

36. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable contact-point for the main circuit; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of said electromagnet; means for closing said shunt-circuit; a controller in said main circuit; and a circuit in shunt to said controller.

37. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable contact-point for the main circuit; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points; mechanical means for moving one of said primary contact-points; a controller in said main circuit; and a circuit in shunt to said controller.

38. In an electric switch device, in combination, a main circuit, normally open; an electromagnet, the main windings of which are included in said main circuit; a circuit in shunt to the break in said main circuit, which shunt-circuit is normally open and includes the shunt-windings of said electromagnet; mechanical means for closing the shunt-circuit; means actuated by the closing of the shunt-circuit, for closing the main circuit; a controller in said main circuit; and a circuit in shunt to said controller.

39. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a movable contact-point for the main circuit; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points; mechanical means for moving one of said primary contact-points; a controller in said main circuit; and a circuit in shunt to said controller

40. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable armature for said magnet; a contact-point for the main circuit, movable with said armature; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points; mechanical means for moving one of said primary contact-points; a controller in said main circuit; and a circuit in shunt to said controller.

41. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a movable arm for supporting said armature; a contact-point for the main circuit, movable with said armature; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points; mechanical means for moving one of said primary contact-points; a controller in said main circuit, and a circuit in shunt to said controlle..

42. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a pivoted arm for supporting said armature; a movable contact-point for the main circuit, carried by said pivoted arm; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of which primary contact-points is carried by said pivoted arm; mechanical means for moving said arm; a controller in said main circuit; and a circuit in shunt to said controller.

43. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; a movable armature for said magnet; a contact-point for the main circuit, movable with said armature; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of which primary contact-points is movable with said armature, and the other of which primary contact-points is yieldingly supported; mechanical means for moving the first-mentioned of said primary contact-points; a controller in said main circuit; and a circuit in shunt to said controller.

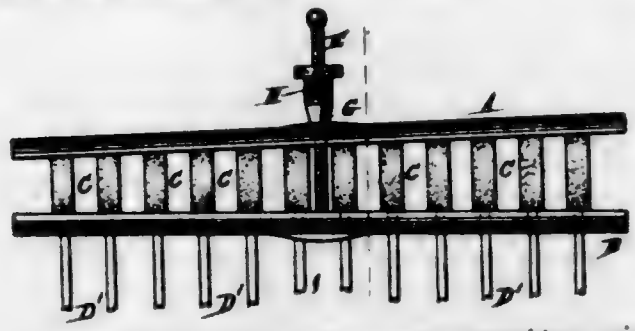
44. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a pivoted arm in said main circuit, for supporting said armature; a movable contact-point for the main circuit, carried by said pivoted arm; a base-plate in said main circuit; an electric connection between said base-plate and said movable contact-point; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of which primary contact-points is carried by said arm; mechanical means for moving said arm; a controller in said main circuit; and a circuit in shunt to said controller.

45. In an electric switch device, in combination, a main circuit; an electromagnet, the main windings of which are included in said main circuit; an armature for said magnet; a pivoted arm in said main circuit, for supporting said armature; a rod yieldingly supported by said pivoted arm; a movable contact-point fixed to said rod; a base-plate in said main circuit; an electric connection between said base-plate and said movable contact-point; a fixed contact-point for said main circuit; a circuit in shunt to said main contact-points, which shunt-circuit includes the shunt-windings of the electromagnet and two primary contact-points, one of which primary contact-points is carried by said arm, the other of said primary contact-points being pivotally mounted and yieldingly held in its normal position; mechanical means for moving said arm; a controller in said main circuit; and a circuit in shunt to said controller.

696,025. DEVICE FOR VOICING PIANO-HAMMERS. HENRY E. PIERCY, Chicago, Ill. Filed Mar. 5, 1901. Serial No. 49,897. (No model.)

Claim.—1. A device for use in voicing piano-hammers, comprising

a pair of clamp-bars respectively adapted for engaging the upper and the lower sides of a series of piano-hammers, and an adjustable connection between the clamp-bars adapted to cause them to rigidly tie together the hammers in series; said clamp-bars being also relatively self-adjustable in directions to permit them when applied to a series of keys to assume positions in planes converging from one to the other end of the clamp with reference to the diminishing sizes of the hammers.



2. A device for use in voicing piano-hammers comprising a pair of oppositely-arranged clamp-bars adapted to respectively engage the upper and lower sides of a series of such hammers; a threaded stem connected with one clamp-bar; and a nut adjustably arranged on the end portion of the threaded stem which projects from one of said clamp-bars; the clamp-bars being adjustable independently of the stem with reference to the varying sizes of hammers in a series tied together by said clamp-bars.

3. A device for use in voicing piano-hammers, comprising a pair of clamp-bars adapted to respectively engage the upper and lower sides of a series of hammers; and connecting means adapted for clamping said clamp-bars upon the hammers and involving a stem which detachably interlocks with one clamp-bar and extends through an opening in the other clamp-bar, and a clamping-nut upon the threaded end portion of the stem which projects from said last-mentioned clamp-bar.

4. A device for use in voicing piano-hammers, comprising a pair of clamp-bars adapted to respectively engage the upper and lower sides of a series of hammers; a stem connected with the middle portion of one clamp-bar and passing through an opening in the middle portion of the other clamp-bar and having its threaded end portion projecting outwardly therefrom; and a clamp-nut arranged for adjustment upon such projecting end portion of the stem; the clamp-bars being self-adjusting independently of the stem and with reference to the form and size of the hammers.

5. A device for use in voicing piano-hammers, comprising a pair of clamp-bars respectively adapted for engaging the upper and lower sides of a series of hammers; a stem connected with one clamp-bar and passing through an opening in the other clamp-bar having its threaded end portion projecting therefrom; a sleeve arranged upon the projecting end portion of the stem and having a tapered seat or recess; and a divided nut also arranged upon such projecting end portion of the stem and having a tapered end portion arranged to engage and wedge within the tapered seat or recess in the sleeve, for the purpose set forth.

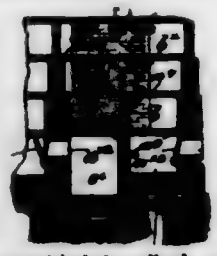
6. A device for voicing piano-hammers comprising a pair of clamp-bars respectively adapted to engage the upper and lower side of a series of such hammers; a threaded stem connected with one clamp-bar and extending through and projecting outwardly from an opening in the other clamp-bar; a tapered socket through which the projecting portion of the stem passes; and a longitudinally-divided nut arranged upon such projecting portion of the stem and having a tapered end portion arranged to enter and wedge within said tapered socket, for the purpose set forth.

7. A device for voicing piano-hammers, comprising a pair of clamp-bars respectively adapted to engage the upper and lower sides of a series of such hammers; a stem interlocked with one clamp-bar and passing through an opening in the other clamp-bar; and means for adjusting the last-mentioned clamp-bar along the stem; the clamp-bar with which the stem interlocks being provided with a keyhole for the admission of the end of the stem which is adapted to form a key whereby after entrance through such keyhole, a turn on the part of the stem will cause it to interlock with the clamp-bar; and a spring which is engaged and flexed by the stem when the latter enters said keyhole for the purpose set forth.

696,026. BRICK-DRIER. JONATHAN P. B. PIERCE, Newton, Mass. Filed Jan. 23, 1901. Serial No. 44,379. (No model.)

Claim.—1. An apparatus of the kind described, comprising a series of chambers, means for closing and opening communication between them, a heat-supply passage, means for opening communication from said passage with any of said chambers, as may be desired, branch passages, extending from said passage, underneath the bottoms of said chambers, said chambers having means permitting heat from said branch passages to pass freely thereinto, and means for creating a draft for causing the heat received from said passage to circulate properly through said chambers.

2. An apparatus of the kind described, comprising a series of chambers, means for closing and opening communication between them, a heat-supply passage, means for opening communication from said passage with any of said chambers, as may be desired, branch passages, extending from said passages, underneath the bottoms of said chambers, said chambers having means permitting heat from said branch passages to pass freely thereinto, and means for creating a draft for causing the heat received from said passage to circulate properly through said chambers, a return-passage for conducting the heat from the end of said series to the beginning thereof, and means for throwing said return-passage into or out of the circuit including said draft-creating means.



3. An apparatus of the kind described, comprising a series of chambers, means for closing and opening communication between them, a heat-supply passage, means for opening communication from said passage with any of said chambers, as may be desired, branch passages, extending from said passage, underneath the bottoms of said chambers, said chambers having means permitting heat from said branch passages to pass freely thereinto, a heat-exhaust passage, means for creating a draft for causing the heat received from said supply-passage to circulate properly, a return-passage for conducting the heat from the end of said series to the beginning thereof, and means for throwing said return-passage into or out of the circuit including said draft-creating means.

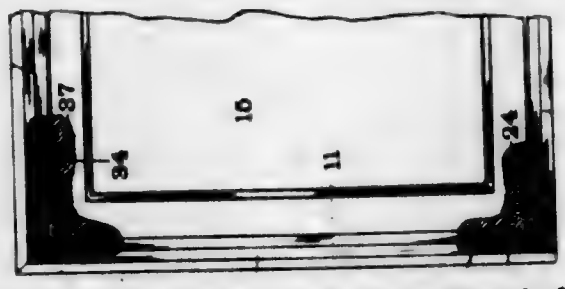
4. An apparatus of the kind described, comprising a series of communicating chambers arranged side by side and having heat-inlet passages extending beneath the bottoms of the respective chambers, and outlet-passages also extending beneath the said bottoms, heat-supplying means communicating with said inlet-passages, draft-creating means communicating with said outlet-passages, and means for bringing into action said heat-supply passage and draft-passage for any set of said chambers desired.

5. A kiln comprising a plurality of chambers arranged side by side in a longitudinal series, means for supplying and removing heat from any set of the chambers, as may be desired, and opposite return-flues extending transversely across the ends of the chambers and connecting the first and last chambers of the series at both ends and opposite sides of the kiln, and means for introducing said return-flues into the heat-circulation system when it is desired to include the first and last chambers in the set of chambers being operated.

6. A kiln comprising a plurality of chambers arranged in a longitudinal series and having heat-passages extending along the ends of said chambers at the sides of the kiln, branch passages extending from said first-mentioned passages beneath each chamber, said branch passages having their bottoms inclined from their respective heat-passages and extending past each other to the opposite end of the chamber.

7. A kiln comprising a plurality of chambers arranged side by side, and having a heat-circulation system for operating several chambers simultaneously, each chamber having its walls provided with ledges for removably receiving successive series of superposed stacks of bricks and their supporting-platforms.

696,027. HINGE. CHARLES H. FOSTER, Omaha, Nebr. Filed Feb. 15, 1901. Serial No. 47,391. (No model.)

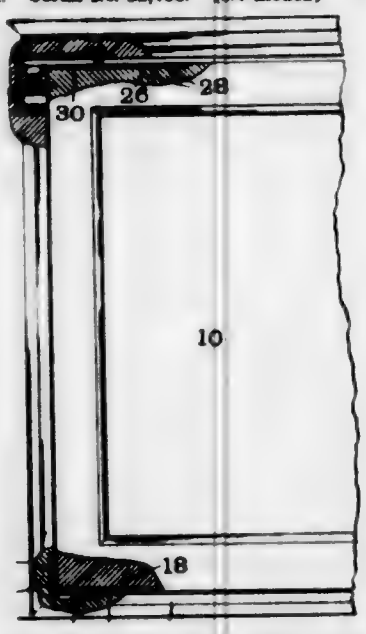


Claim.—1. A hinge for doors or the like consisting of a fixed part and a movable part, one of said parts being provided with a pair of bearings and a pair of intersecting curved guideways extending from said bearings, and the other of said parts being provided with a pair of bearing-pins coöperating with said bearings and traveling in said guideways.

2. A hinge for doors or the like consisting of a fixed part and a movable part, one of said parts being provided with a pair of bearings and a pair of curved guideways of less width than said bearings and extending therefrom, and the other of said parts being provided with a pair of elon-

gated bearing-pins coöperating with said bearings and traveling in said guideways.

696,028. HINGE. CHARLES H. FOSTER, Omaha, Nebr. Filed Mar. 26, 1901. Serial No. 52,735. (No model.)



Claim.—1. The combination with a door, of a rear jamb, a lintel, a sill, a hinge situated between the upper edge of said door and said lintel and provided with a single pivot, and a hinge situated between the lower edge of said door and said sill and provided with two pivots, said upper hinge having its pivotal point at a greater distance from the rear jamb than said lower hinge.

2. A hinge for doors or the like consisting of a fixed part and a movable part, one of said parts being provided with a pair of bearings, and the other of said parts being provided with a pair of intersecting curved guideways having a recess formed at the outer sides of the rear ends thereof.

3. A hinge for doors or the like consisting of a fixed part and a movable part, one of said parts being provided with a pair of intersecting curved guideways, and the other of said parts being provided with a pair of bearings having rounded projections formed on the faces thereof.

4. In a hinge for doors or the like, a fixed part, a movable part, a track carried by one of said parts, and a spring-mounted member carried by the other of said parts and traveling on said track.

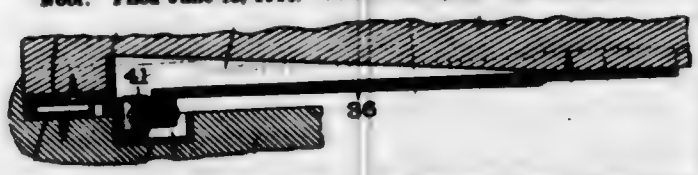
5. In a hinge for doors or the like, a fixed part, a track carried by said fixed part, a movable part, and a spring-mounted member carried by said movable part and traveling on said track.

6. In a hinge for doors or the like, a fixed part, a movable part, a track carried by one of said parts, and a spring-mounted roller carried by the other of said parts and traveling on said track.

7. In a hinge for doors or the like, a fixed part, a track carried by said fixed part, a movable part, and a spring-mounted roller carried by said movable part and traveling on said track.

8. In a hinge for doors or the like, a fixed part, a track carried by said fixed part and having a recess in the central portion thereof, a movable part, and a spring-mounted roller carried by said movable part and traveling on said track.

696,029. HINGE FOR DOORS. CHARLES H. FOSTER, Omaha, Nebr. Filed June 13, 1901. Serial No. 64,422. (No model.)



Claim.—1. A hinge for doors or the like consisting of a fixed part, a movable part, a spring-mounted member carried by one of said parts, and a track carried by the other of said parts provided with a depression at its central part, and inclines connecting said track with said depression.

2. A hinge for doors or the like consisting of a movable part, a spring-mounted member carried by said movable part, a fixed part, a track carried by said fixed part and provided with a depression at the central portion of said track and with inclines connecting said track with said depression.

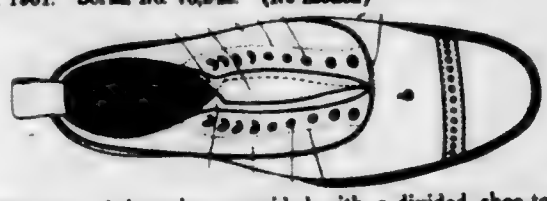
3. A hinge for doors or the like consisting of a fixed part, a movable part, a track carried by one of said parts, a central spring-blade carried by the other of said parts and bearing on said track, and two lateral spring-blades also carried by said last-named part and coöperating with said central blade.

4. A hinge for doors or the like consisting of a fixed part, a track carried thereby, a movable part, a central spring-blade carried by said movable part and bearing on said track, and two lateral spring-blades also carried by said movable part and coöperating with said central blade.

5. A hinge for doors or the like consisting of a fixed part, a movable part, a bearing-pin carried by one of said parts, an opening formed in the other of said parts and adapted to receive said bearing-pin, and a key adapted to embrace said bearing-pin and to be secured to one of said parts.

6. A hinge for doors or the like consisting of a fixed part, a pair of downwardly-projecting stops carried by said fixed part, a movable part adapted to be secured to the top of a door, and a pair of wings carried by said movable part and adapted to come in contact with said stops.

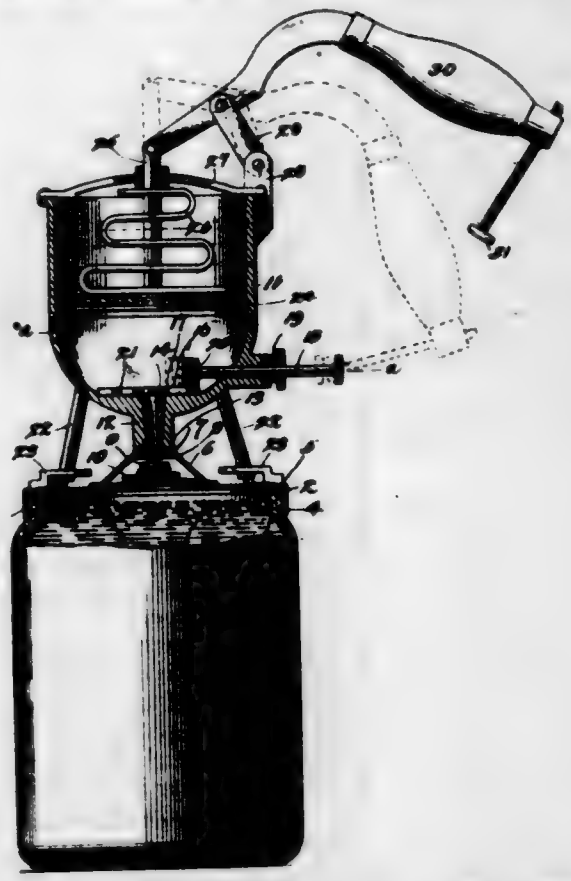
696,030. SHOE. HENRY P. FOUQUÉ, Brooklyn, N. Y. Filed July 30, 1901. Serial No. 70,242. (No model.)



Claim.—1. A lace-shoe provided with a divided shoe-tongue secured to the opposite sides of the foot-opening and arranged to overlap along the longitudinal medial line, each member of said tongue being provided with a pocket and a flexible stiffener located in said pockets, substantially as described.

2. A lace-shoe provided with a divided shoe-tongue secured to the opposite sides of the foot-opening and arranged to overlap along the longitudinal medial line, each member of said tongue being provided with a pocket, and an internal flexible stiffener located in said pockets each stiffener being slit from its outer edge toward its inner edge, substantially as described.

696,031. CANNING DEVICE. WILLIAM H. FREDERICKS, Portland, Oreg. Filed July 2, 1901. Serial No. 66,892. (No model.)



Claim.—1. A canning device of the class described, comprising a barrel, a piston therein, a lever connected to the piston to operate the latter, a plunger-connector, a releaser, and means actuated by the lever to operate said releaser, substantially as described.

2. In combination with a jar having a cover provided with a vent, and a spring-pressed valve to close said vent, an air-exhausting mechanism having a connector to open said valve and establish communication between said air-exhauster and said can or jar and to release said valve when the air has been exhausted from said can or jar, substantially as described.

3. A canning device of the class described, comprising a barrel, a plunger-connector to establish communication between the same and the

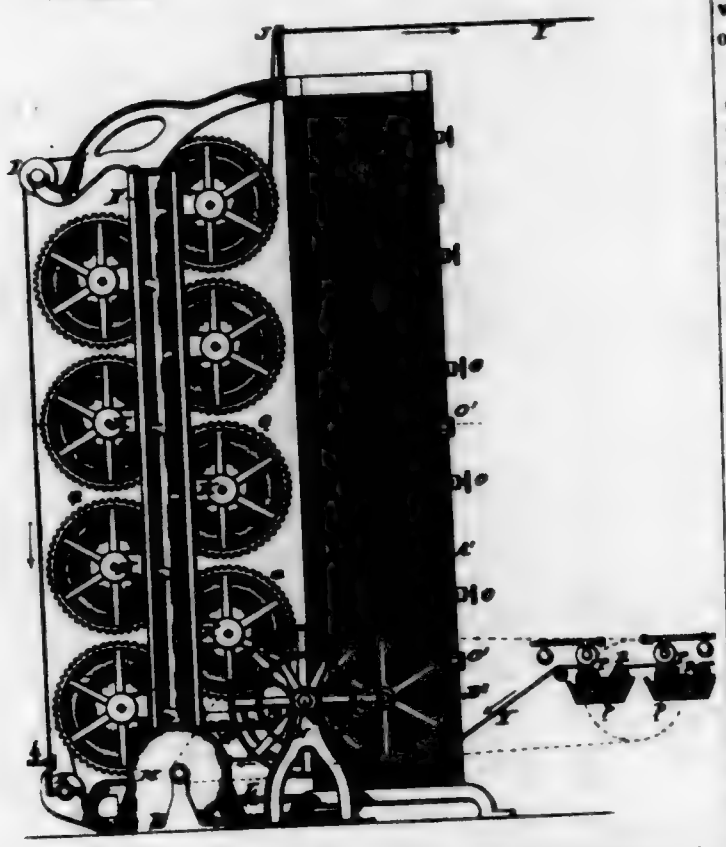
interior of a can or jar, a piston in said barrel, means to operate said piston, a releaser to lock and disengage said plunger-connector and means to operate said releaser, substantially as described.

4. In a canning device of the class described, the combination of a barrel, a plunger therein, a lever to operate said plunger, a tubular longitudinally-movable plunger-connector in an opening with which said barrel is provided, a pivoted releaser, having an opening to clear and release said plunger-connector, a spring to engage said releaser with said plunger-connector, and means, actuated by said lever to disengage said releaser from said plunger-connector, substantially as described.

5. In combination with a vessel having a valved vent, an air-exhausting device to create a vacuum in said vessel, said device having means to open said valve while the air is being exhausted from said vessel and means to close said valve when a vacuum has been created in said vessel, substantially as described.

6. In combination with a vessel having a vent and a spring-pressed valve to close said vent, an air-exhauster, and a connection, between said air-exhauster and said vent, said connection including means to open said valve against the tension of its spring, while a vacuum is being formed in said vessel, and to release said valve to close said vent, before disconnecting said air-exhauster from said vessel, substantially as described.

696,032. MACHINE FOR OXIDIZING YARN, &c. JOHN W. FRIES, Winston Salem, N. C. Filed Oct. 23, 1901. Serial No. 79,663. (No model.)



Claim.—1. In a machine for treating yarn, the combination of a closed chamber provided with guide-cylinders at top and bottom and radiating coils interposed between said cylinders, a series of drying-cylinders arranged outside of said chamber, means to drive the drying-cylinders and the cylinders within the closed chamber at the same surface speeds, means for supplying steam to the drying-cylinders, and an exhaust device for removing the air, water and moist steam from the closed chamber.

2. In a machine for treating yarn, the combination of a closed chamber provided with guide-cylinders at top and bottom and radiating coils interposed between said cylinders, a series of drying-cylinders arranged outside of said chamber, means to drive the drying-cylinders and the cylinders within the closed chamber at the same surface speeds, means for supplying steam to the drying-cylinders, an exhaust device for removing the air, moist steam and water from the closed chamber, and a discharge-pipe for the steam from the drying-cylinders to the exhaust device.

3. In a machine for treating yarn, the combination of a closed chamber provided with guide-cylinders at top and bottom and radiating coils interposed between said cylinders, a series of drying-cylinders arranged outside of said chamber, means to drive the drying-cylinders and the cylinders within the closed chamber at the same surface speeds, means for supplying steam to the drying-cylinders, a pipe for conveying the steam from the drying-cylinders into the closed chamber, and an exhaust device for removing the air, moist steam and water from the closed chamber and also inducing the circulation of steam through the drying-cylinders.

4. In a machine for treating yarn, the combination of a closed chamber provided with guide-cylinders at top and bottom and radiating coils interposed between said cylinders, a series of drying-cylinders arranged outside of said closed chamber, means to drive the drying-cylinders and the cylinders within the closed chamber at the same surface speeds, means for supplying steam to the drying-cylinders, an exhaust device for removing the air, moist steam and water from the closed chamber, a series of guides arranged within the closed chamber for guiding the yarn into an advancing position as it passes successively over the two cylinders, guide-rollers arranged parallel to the drying-cylinders and respectively near each end of the series for receiving the yarn from the drying-cylinders and directing it back again thereto, and a series of guides arranged at fixed intervals lengthwise of the axes of the drying-cylinders for causing the yarn to advance over the surface of said cylinders each time it is led back to them.

5. In a machine for treating yarn, the combination of a closed chamber provided with guide-cylinders at top and bottom and radiating coils interposed between said cylinders, a series of drying-cylinders arranged outside of said closed chamber, means to drive the drying-cylinders and the cylinders within the closed chamber at the same surface speeds, means for supplying steam to the drying-cylinders, a series of guides arranged within the closed chamber for guiding the yarn into an advancing position as it passes successively over the two cylinders, guide-rollers arranged parallel to the drying-cylinders and respectively near each end of the series for receiving the yarn from the drying-cylinders and directing it back again thereto, and a series of guides arranged at fixed intervals lengthwise of the axes of the drying-cylinders for causing the yarn to advance over the surface of said cylinders each time it is led back to them.

6. In an apparatus for drying yarn, the combination of a series of drying-cylinders rotating in opposite directions and about which the yarn is passed, with means for heating the said cylinders by steam, guide-rollers arranged parallel to the drying-cylinders and respectively near each end of the series for receiving the yarn from the drying-cylinders and directing it back again thereto, and a series of guides arranged at fixed intervals lengthwise of the axes of the drying-cylinders for causing the yarn to advance over the surface of said cylinders each time it is led back to them.

7. In an apparatus for drying yarn, the combination of a series of drying-cylinders rotating in opposite directions and about which the yarn is passed, with means for heating the said cylinders by steam, guide-rollers arranged parallel to the drying-cylinders and respectively near each end of the series for receiving the yarn from the drying-cylinders and directing it back again thereto, a series of guides arranged at fixed intervals lengthwise of the axes of the drying-cylinders for causing the yarn to advance over the surface of said cylinders each time it is led back to them, and an exhaust apparatus for exhausting the waste steam and water from the drying-cylinders.

8. In a machine for treating textile material, the combination of means for applying a coloring-matter to a continuous length of textile material, a steaming and heating chamber provided with apertures for admitting and removing the colored textile material to and from the lower part thereof and further with an outlet for the air water and moist steam also at the lower part thereof, guiding-cylinders located within the chamber at the upper and lower portions thereof and about which the textile material is guided, and steam coils or pipes for supplying high-temperature radiant heat to the interior of the chamber arranged intermediate of the levels of the upper and lower guiding-cylinders.

9. In means for drying yarn, two upright standards containing vertical steam-passages, and a series of hollow journal-bearings communicating with said steam-passages, in combination with a series of drying-cylinders having hollow journals and carried by the hollow journal-bearings so as to be arranged in two vertical series and whereby they are supplied with steam from the upright standard on one side and discharge the waste steam and water of condensation through the vertical standard on the other side, gearing connecting the several drying-cylinders so as to make them move at the same surface speeds and adjacent surfaces to revolve in opposite directions, and an exhaust device connected with the tubular part of the standard on the discharge side of the drying-cylinders.

10. In means for drying yarn, two upright standards containing vertical steam-passages, and a series of hollow journal-bearings communicating with said steam-passages, in combination with a series of drying-cylinders having hollow journals and carried by the hollow journal-bearings so as to be arranged in two vertical series and whereby they are supplied with steam from the upright standard on one side and discharge the waste steam and water of condensation through the vertical standard on the other side, gearing connecting the several drying-cylinders so as to make them move at the same surface speeds and adjacent surfaces to revolve in opposite directions, guide-rollers arranged parallel to the drying-cylinders and arranged respectively near each end of the series for receiving the yarn from the drying-cylinders and directing it back again thereto,

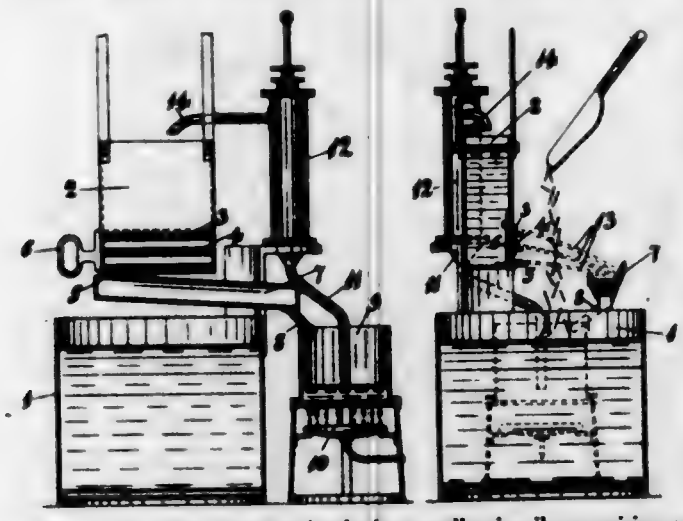
and a series of guides arranged at fixed intervals lengthwise of the axes of the drying-cylinders for causing the yarn to advance over the surface of said cylinders each time it is led back to them.

11. In apparatus for drying yarn, the combination of an upright closed chamber, a large revolving cylinder at the top, a similar cylinder at the bottom, means to revolve the cylinders at the same surface speeds, a coil of steam-pipe arranged within the chamber, an aperture for leading the yarn into the chamber, a guide-aperture leading the yarn out of the chamber, and a series of guides within the chamber arranged parallel to the axes of the cylinders for causing the yarn to advance a given distance in the length of the cylinders with each complete travel about said cylinders.

12. In a machine for treating textile material, the combination of means for applying a coloring-matter to a continuous length of textile material, a steaming and heating chamber provided with guiding-cylinders at top and bottom portions thereof about which the textile material is guided, steam coils or pipes for supplying high-temperature radiant heat to the interior of the chamber, and an outlet for the air, water and moist steam at the bottom of the chamber, the said parts being further combined with a series of steam-heated drying-cylinders arranged in the open air adjacent to the steaming-chamber and adapted to receive the textile material therefrom and dry it in the open atmosphere.

13. The combination of means for applying coloring-matter to a continuous length of textile material, a series of steam-heated drying-cylinders about which the textile material is passed, and a steaming and heating chamber having an opening at the bottom, guide-cylinders for guiding the textile material through the chamber and high-temperature steam-coils for supplying high-temperature radiant heat to the chamber, the textile material being caused to pass first through the means for applying the coloring-matter, then through the steaming and heating chamber and finally through the drying-cylinders.

696,038. APPARATUS FOR TEMPERING NEEDLES. JOHANN FUHLER, Aachen, Germany. Filed Dec. 8, 1900. Serial No. 39,208. (No model.)



Claim.—1. Apparatus for hardening needles in oil comprising an oil-reservoir, means for heating and supplying oil thereto, a hot-oil tank, slots in the lower part of said tank, an adjustable slide capable of regulating the flow of oil through said slots, an inclined channel adapted to receive the heated oil from said tank and a storage-reservoir for oil, substantially as set forth.

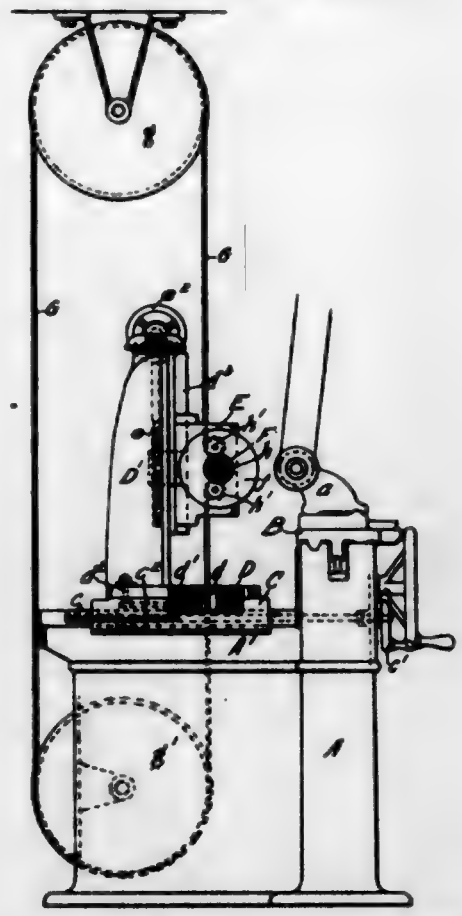
2. In apparatus for hardening needles in oil, the storage-reservoir 1, the heating-tank 9, the burner 10 underneath said heating-tank, the feed vessel 12 located above the said heating-tank and adapted to draw hot oil from it, the hot-oil tank 2 adapted to receive supply from the feed vessel 12, slots 3 and 4 in said tank 2, the slide 6 adapted to open or close said slots, the channel 7 receiving the outflow from the tank 2 and the exit-pipe 8 returning the oil to the heating-tank 9.

696,084. GRINDING-MACHINE. CHARLES R. GABRIEL, Providence, R. I., assignor to The Brown and Sharpe Manufacturing Company, Providence, R. I., a Corporation of Rhode Island. Filed Jan. 28, 1901. Serial No. 44,998. (No model.)

Claim.—1. In a grinding-machine a support for the grinding-spindle comprising a horizontally-movable member, a vertically-movable member, and a swivel member, the grinding-spindle being mounted for rotation in the vertically-movable member.

2. The combination of a horizontally-sliding bed, a swivel-bed mounted to turn on said sliding bed, a spindle-supporting head vertically adjustable on said swivel-bed, and a grinding-spindle mounted to rotate in said supporting-head.

3. The combination with a work-support of a grinding-spindle, a support for said grinding-spindle which is angularly adjustable with relation to said work-support, and a belt for rotating said grinding-spindle, one leg of said belt standing substantially in the axis about which said spindle-support turns in effecting said angular adjustment.



4. The combination with a work-support, of a grinding-spindle, a support for said grinding-spindle which is vertically and angularly adjustable with relation to said work-support, and a belt for rotating said grinding-spindle, one leg of said belt standing substantially in the axis about which said spindle-support turns in effecting said angular adjustment.

5. The combination with a work-support, of a grinding-spindle, and a support therefor, said grinding-spindle support embodying a swivel-bed provided with a hole or opening at or near the axis about which said swivel-bed turns.

6. The combination with a work-support, of a grinding-spindle, a support for said grinding-spindle embodying a swivel-bed provided with a hole or opening at or near the axis of said swivel-bed, and a belt passing through said opening for rotating said grinding-spindle.

7. The combination of a horizontally-sliding bed, a swivel-bed mounted to turn on said sliding bed, and a spindle-supporting head vertically adjustable on said swivel-bed, said swivel-bed being provided with a hole or opening at or near its axis.

8. The combination of a horizontally-sliding bed, a swivel-bed mounted to turn on said sliding bed, a spindle-supporting head vertically adjustable on said swivel-bed, and a grinding-spindle mounted to rotate in said supporting-head, said swivel-bed being provided with a hole or opening at or near its axis for the passage of a belt for rotating said grinding-spindle.

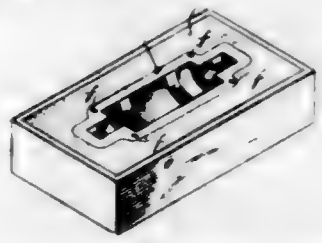
9. The combination with a work-support, of a grinding-spindle, a support therefor embodying a vertically-adjustable member, a belt for rotating said grinding-spindle, one leg of said belt standing substantially parallel to the line of movement of said vertically-adjustable member and engaging said grinding-spindle, to rotate the same, said grinding-spindle being adjustable vertically along the line of the standing belt.

10. The combination with a work-support, of a grinding-spindle, a support therefor embodying a swivel member and a vertically-adjustable member, said swivel member being provided with a hole or opening at or near its axis, a belt for rotating said grinding-spindle, one leg of said belt extending through said opening and standing substantially parallel with the line of movement of said vertically-adjustable member and engaging the grinding-spindle to rotate the same, said grinding-spindle being angularly adjustable about the line of the standing belt and being vertically adjustable along the line of said standing belt.

696,085. METAL-FOUNDING. JOHN GILLEN, Port Washington, Wis. Filed Apr. 18, 1900. Serial No. 13,464. (No model.)

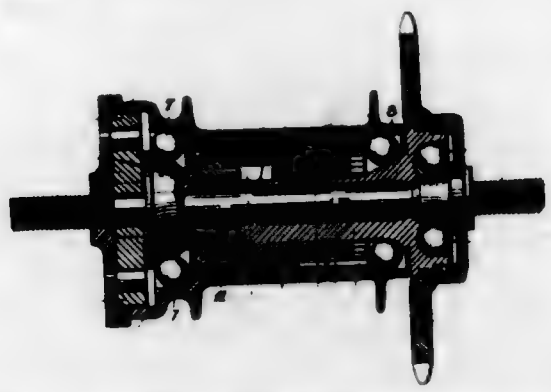
Claim.—1. A process of making pattern-matchers consisting in

forming a sand mold on a pattern, parting the mold, channeling a section of said mold adjacent to the contour of the pattern-print therein, removing the pattern, cross-channeling said pattern-print, incasing said pattern in the mold, pouring said mold, and subsequently setting the casting in a hardened plastic bed.



2. A process of making pattern-matchers consisting in forming a sand mold on a pattern, parting the mold, channeling a section of said mold adjacent to the contour of the pattern-print therein, removing the pattern, cross-channeling said pattern-print, incasing said pattern in the mold, pouring said mold, setting up the pattern in a mold-section with the casting inverted on said pattern, surmounting the mold-section with an inverted box, filling the box, through an aperture therein, with a material that will solidify about said casting, and finally making the aforesaid casting fast in the surrounding material.

696,036. **COASTER-BRAKE OR THE LIKE.** CHARLES GLOVER, New Britain, Conn., assignor to P. & F. Corbin, New Britain, Conn., a Corporation of Connecticut. Filed Oct. 1, 1901. Serial No. 77,190. (No model.)



Claim.—1. In a device of the character described, an axle, a driver, an extension therefrom, a wheel-hub, a brake adapted to act upon the wheel-hub, a brake-actuator, teeth on the brake-actuator and upon said wheel-hub, and a pawl between the brake-actuator and the driver extension, and an oppositely-arranged pawl between the wheel-hub and the driver extension, a frame carrying said pawls said frame having limited rotative movement relatively to said driver.

2. In a device of the character described, an axle, a driver, an extension therefrom, a wheel-hub, a brake adapted to act upon the wheel-hub, a brake-actuator, teeth on the brake-actuator and upon said wheel-hub, and pivoted pawls between the brake-actuator and the driver extension and between the wheel-hub and the driver extension, said pawls being oppositely arranged, a frame carrying said pawls, said frame having limited rotative movement relatively to said driver.

3. In a device of the character described, a wheel-hub, a brake therefor, means for operating the brake, a driver, an extension therefrom, and oppositely-arranged pawls operated by said extension, a frame carrying said pawls, said frame having limited rotative movement relatively to said driver extension.

4. In a device of the character described, a wheel hub, a brake therefor, means for operating the brake, a driver, an extension therefrom, said extension having flat bearing-faces, a frame mounted upon said driver extension adjacent to said flat bearing-faces, said frame having limited rotative movement relatively to said driver extension, and two oppositely-arranged sets of pawls carried by said frame, one set being located between said driver extension and said wheel-hub, the other set being located between said driver extension and said brake-operating means.

5. A coaster-brake comprising a wheel-hub, a brake-actuator, a driver, means located between said parts whereby by radial action controlled by the rotation of the driver either the wheel-hub or the brake-actuator may be connected or disconnected with said driver, a frame carrying said connecting and disconnecting means, said frame having limited rotative movement relatively to said driver.

696,087. **WINDOW-SHADE GUIDE FOR SHADE-ROLLERS.** HENRY P. GROSS, Baltimore, Md. Filed May 7, 1901. Serial No. 59,073. (No model.)

Claim.—1. As an article of manufacture, a window-shade guide consisting of a piece of wire formed into a ring with a plurality of laterally-projecting ears, and having its ends twisted together and bent at right angles to the said ears, the extremities of said ends being pointed and bent at right angles thereto, as and for the purpose described.

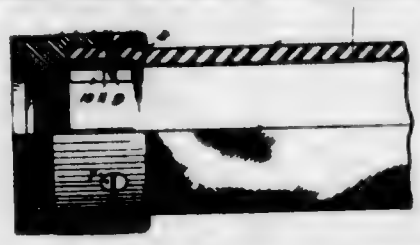


2. As an article of manufacture, a window-shade guide consisting of two pieces of wire formed into a ring with a plurality of laterally-projecting ears, and having the ends twisted together diametrically opposite each other and bent at right angles to the said ears, the extremities of the said ends being pointed and bent at right angles to the said ends, substantially as and for the purpose described.

3. The combination with a wooden shade-roller, of a shade-guide designed for attachment thereto, and comprising a wire ring formed with a plurality of laterally-projecting ears, and having the ends thereof twisted together and bent at right angles to the said ears, said ends terminating in annular bent points, as and for the purpose described.

4. The combination with a wooden shade-roller, of a shade-guide designed for attachment thereto, and consisting of a wire ring formed with a plurality of laterally-projecting ears, and having its ends twisted together and bent at right angles to said ears, the extremities of said ends being pointed and bent at right angles thereto, as and for the purpose described.

696,088. **HOSE CONNECTION.** ELMER E. GROVE, Springfield, Ohio, assignor to Horatio S. Bradley, Henry F. Weinland, and James W. Gunn, copartners under name of Lagonda Manufacturing Company, Springfield, Ohio. Filed Dec. 20, 1901. Serial No. 86,696. (No model.)



Claim.—1. A hose connection comprising a flexible hose, a sleeve within which said hose is inserted, said sleeve being provided with radial apertures, segmental clamping-plates located within the hose and having threaded apertures, and screws passing through the apertures of the sleeve and through the hose and engaging the threaded apertures of the clamping-plates, substantially as described.

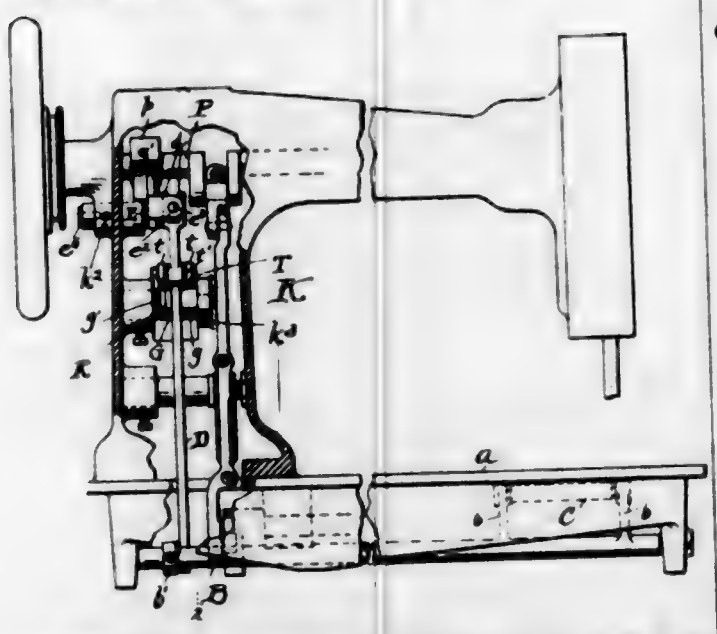
2. A hose connection comprising a flexible hose, a sleeve within which said hose is inserted, said sleeve being provided with radial apertures and with an internal shoulder against which the end of the hose member may abut, segmental clamping-plates located within the hose and having threaded apertures, and screws passing through the apertures of the sleeve and through the hose and engaging the threaded apertures of the clamping-plates, the internal shoulder of the sleeve serving as a means to prevent the rotation of the clamping-plates along with the screws, substantially as described.

3. A hose connection comprising a flexible hose, a sleeve within which said hose is inserted, said sleeve being provided with radial apertures and with an internal shoulder against which the end of the hose member may abut, said sleeve being also provided at its hose-receiving mouth with an inwardly-projecting rib, segmental clamping-plates located within the hose and having threaded apertures, said clamping-plates fitting between the shoulder and rib of the sleeve, and screws passing through the apertures of the sleeve and through the hose and engaging the threaded apertures of the clamping-plates, the internal shoulder of the sleeve serving to prevent rotation of the plates along with the screws, substantially as described.

4. A hose connection comprising a flexible hose, a sleeve within which said hose is inserted, said sleeve being provided with radial apertures, segmental clamping-plates located within the hose and having threaded apertures, and screws provided with pointed or sharpened ends, said screws passing through the apertures of the sleeve and through the hose, which they are thus adapted to penetrate, and engaging the threaded apertures of the clamping-plates, substantially as described.

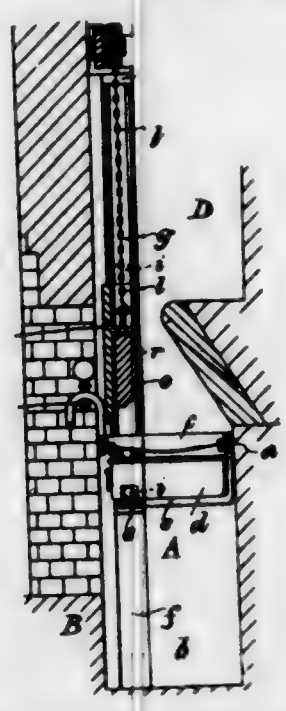
5. A hose connection comprising a flexible hose, a sleeve within which said hose is inserted, said sleeve being provided with radial apertures having countersunk outer ends, segmental clamping-plates located within the hose and having threaded apertures, and screws provided with beveled heads to fit the countersinks, said screws passing through the apertures of the sleeve and through the heads and engaging the threaded apertures of the clamping-plates, substantially as described.

696,039. FEED MECHANISM FOR SEWING-MACHINES. WILLIAM GROTER, Cleveland, Ohio, assignor to the White Sewing Machine Company, Cleveland, Ohio, a Corporation of Ohio. Filed Feb. 1, 1901. Serial No. 45,536. (No model.)



Claim.—In a sewing-machine, a feed-dog, mechanism, including a rock-shaft B, for actuating it, and a crank-arm *b'* secured to said rock-shaft, combined with a sleeve, a rock-shaft E mounted in the sleeve, the elongated hollow projection of the machine-head in which said sleeve is adjustably fixed, a crank-arm *e* secured to said rock-shaft, a pitman pivotally connected to the two crank-arms, and means for sliding the connection between the upper end of the pitman and the crank-arm *e* with which it is connected toward and from the axis of the shaft, substantially as and for the purpose specified.

696,040. DOMESTIC FIREPLACE OR HEARTH. WILLIAM H. HASLAM, Bolton, England. Filed Apr. 8, 1901. Serial No. 54,887. (No model.)



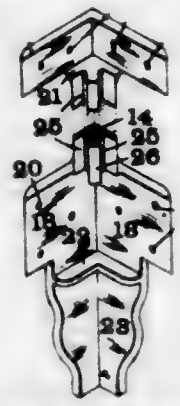
Claim.—1. In a fireplace having a recess below the level of the floor, the combination therewith of a grate portions of which normally rest in said recess below the level of the floor, means for moving the grate vertically, and stops for limiting its range of movement to approximately the height of the opening to said fireplace.

2. In a fireplace having a recess below the level of the floor, the combination of a grate having an ash-receptacle below it normally resting in said recess below the level of the floor, and means for vertically moving the grate and ash-receptacle, means being provided whereby the ash-receptacle may be withdrawn through the fireplace-opening when the grate is elevated.

3. A domestic fireplace or hearth having a vertically-movable grate, and a vertically-movable blower, the grate and blower being connected to move simultaneously in opposite directions.

4. The combination with a fireplace provided with an ash-pit below the level of the floor, of a vertically-movable grate adapted to be lowered into the ash-pit, a combined counterweight and blower, and means for moving said combined counterweight and blower and grate simultaneously in opposite directions.

696,041. SHOW-CASE. MORRIS A. HEINMANN, St. Louis, Mo. Filed Aug. 9, 1901. Serial No. 71,482. (No model.)

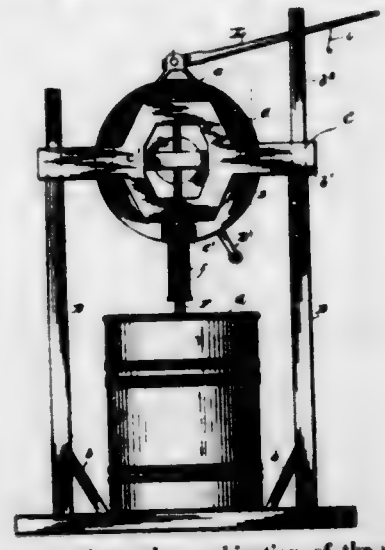


Claim.—1. In a show-case, the combination with a top and a bottom, of a pair of wings for attachment to said top, a second pair of wings for attachment to said bottom, an inwardly-offset portion connecting said pairs of wings and supporting said top, and grooves in said offset portion for receiving the side glasses of said show-case.

2. In a show-case, the combination with a top and a bottom, of a pair of wings for attachment to said top, a second pair of wings for attachment to said bottom, an offset formed integral with said pairs of wings and supporting said top, grooves in said offset portion for receiving the side glasses of said show-case, and a second offset portion for supporting said bottom and situated below said first-named offset to form a pocket for the reception of said bottom.

3. In a corner-piece for show-cases, a grooved portion for receiving and retaining in position the show-case side glasses, a pair of vertically-disposed wings carried by the upper end of said grooved portion and formed integral therewith, said wings being so placed as to leave a free passage for the downward insertion of said side glasses, and a second pair of wings carried by the lower end of said grooved portion.

696,042. CHURN. CHARLIE HIGHERS, Vicksburg, Ky., assignor of one-half to George Q. Jarrett, Vicksburg, Ky. Filed July 6, 1901. Serial No. 67,318. (No model.)

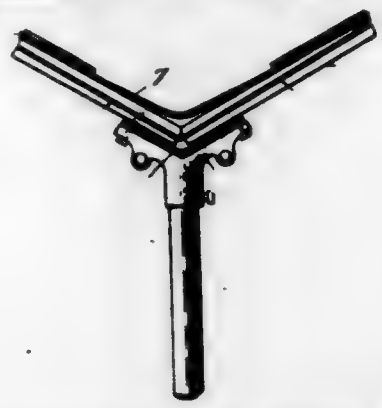


Claim.—1. In a churn, the combination, of the uprights B B having reduced upper ends, shoulders *b'* formed at the lower end of said reduced portions, a frame C slidable vertically upon the reduced ends of the uprights, a vertical shaft mounted in the movable frame, a pinion attached to the upper end of the shaft and adapted to bear upon the upper edge of the frame, a pinion on the lower end of the shaft adapted to bear against the lower edge of the frame, a sleeve *f* secured to the lower pinion and provided with a squared opening in its lower end, a mutilated gear D adapted to mesh with the pinions alternately and a dasher-rod stepped in the churn and having a squared upper end adapted to fit in the aforesaid sleeve; together with a lever fulcrumed to the upper end of one of the uprights and connected to the movable frame, substantially as shown and for the purpose set forth.

2. In a churn, the combination with the dasher-rod and means for imparting a rotary vibratory motion thereto, of cross-bars *h' h'* attached to the dasher-rod, vertical dashers or boards *h* hinged at one edge to said cross-bars and adapted to swing outwardly, and loops or bails attached to

the boards and extending around the cross-bars to limit the swinging movement of said boards, as shown and for the purpose set forth.

696,048. VALLEY-GUTTER FOR GREENHOUSES. EMANUEL HIFFARD, Youngstown, Ohio. Filed Apr. 6, 1901. Serial No. 54,669. (No model.)

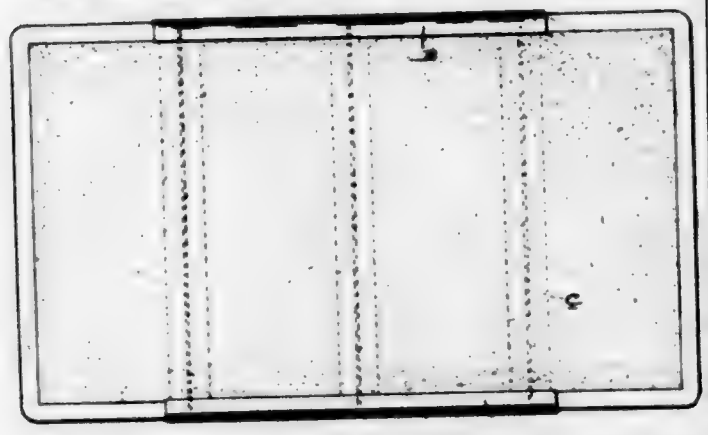


Claim.—1. In greenhouses or similar structures, the combination with the sash-bars thereof, said sash-bars having their lower ends extended toward each other, approximately in the form of a V, of a main gutter supported upon and secured to said extended ends, and a drip-gutter secured to the under side of the extended sash-bars and below the main gutter.

2. In greenhouses or similar structures, the combination with the sash-bars thereof, said sash-bars having their sides grooved longitudinally and their ends extended toward each other, approximately in the form of a V, of a main gutter supported upon and secured to said extended ends, and a drip-gutter secured to the under side of the extended ends, substantially as specified.

3. In a greenhouse or similar structure the combination with the sash-bars thereof, said bars having longitudinal grooves in their sides, and extended lower ends, of a main gutter supported upon and secured to said extended ends, and a drip-gutter secured to the under sides of the extended ends, below the main gutter, and suitable gutter-supports, as set forth.

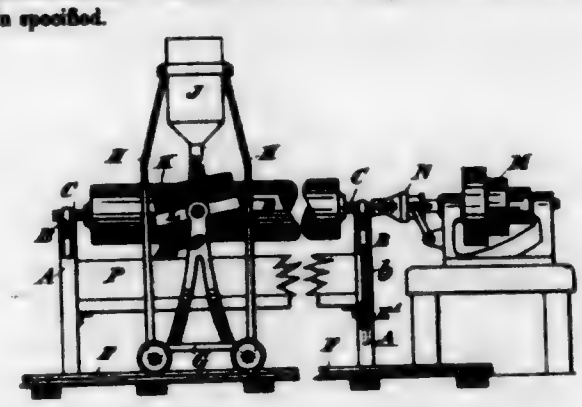
696,044. LAP-BOARD. WILLIAM R. HOFFMANN, St. Joseph Mo. Filed May 4, 1901. Serial No. 58,777. (No model.)



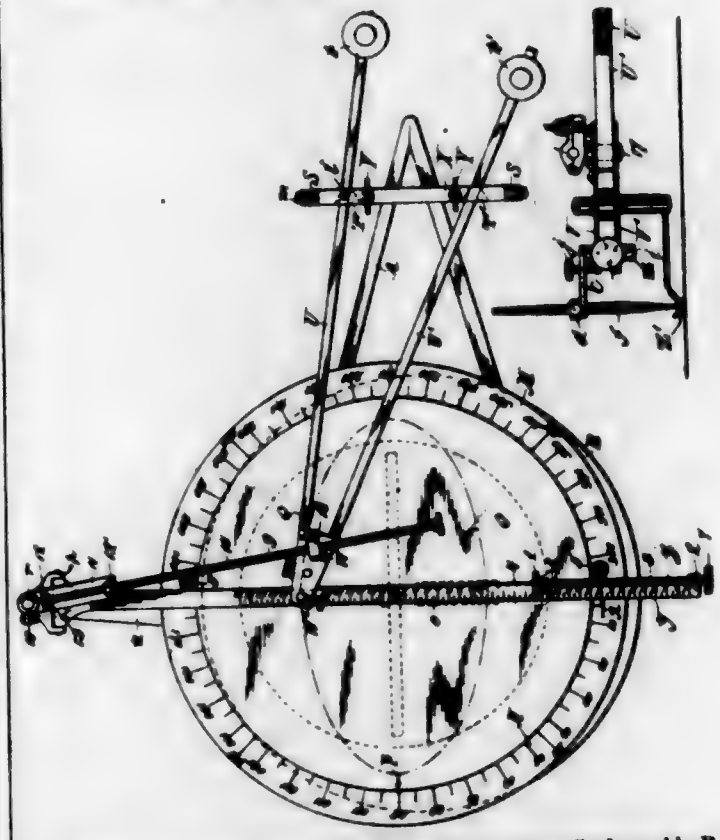
Claim.—The herein-described lap-board consisting essentially of the plurality of sections having the countersinks in their sides and at their edges, the strips c of textile material arranged in said countersinks and connected to the sections and flexibly connecting said sections together so as to permit of them being folded one upon the other, protective sheet-metal coverings on the end edges and outer side edges of the end sections, similar coverings on the end edges of the intermediate sections, and resilient sheet-metal strips of channel form; the said resilient strips being adapted in use to straddle the opposite longitudinal edges of the board and bridge the joints between the sections, and, when not in use, to be similarly applied to the transverse or outer side edges of the end sections, and being also adapted by reason of their resiliency to hold themselves against casual displacement from said edges of the sections.

696,045. MACHINE FOR MAKING CYLINDRICAL CORES FOR CASTINGS. GEORGE J. HOSKIN, Sydney, New South Wales, Australia. Filed Sept. 10, 1901. Serial No. 74,946. (No model.)

Claim.—In a machine for making cylindrical cores for castings, the combination of a rotating core-barrel with a trunk or traveler which carries a feed-hopper, and a gauze-wire cylinder on an inclined axis so disposed and arranged that the gauze-wire cylinder shall be caused to impinge against the periphery of the core-barrel or against the surface of the composition which is fed onto it from the hopper, as and for the purposes herein specified.



696,046. ELLIPSOGRAPH. ARTHUR R. HOTCHKISS, New York, N. Y., assignor to Mary Hanna, New York, N. Y. Filed Nov. 21, 1899. Serial No. 737,791. (No model.)



Claim.—1. In an instrument of the character described, a table B, a rotating frame C on said table, said rotating frame having a slot or way D across the same and also another slot or way D′ across the same on a different plane than the slot or way D and at right angles to the latter, a fixed stud E projecting into the slot or way D, a keeper J attached to said stud and held thereby in the space between the said ways D and D′, a movable plate K held to slide in said keeper J and a stud F attached to said movable plate and projecting into the slot or way D′, substantially as described.

2. In an instrument of the character described, a table B, a rotating frame C on said table, said rotating frame having a slot or way D across the same and also another slot or way D′ across the same on a different plane and at right angles to slot or way D, a fixed stud E projecting into the slot or way D, a keeper J attached to said stud and held thereby in the space between the said ways D and D′, a movable plate K, held to slide in said keeper, a stud F attached to said movable plate and projecting into the slot or way D′ and a set-screw L in said stationary stud E adapted to fasten the sliding plate K for holding the stud F in line with the stud E or any desired position at one side thereof, substantially as described.

3. In an instrument of the character described, a base-plate B, a stationary stud E secured therein and passing through the slot D and having a bearing in said slot, and having arranged on its upper end a dovetailed arm J, a movable slide K adapted to move therein, said dovetailed arm and slide being disposed between the planes of the slots D D′ and a stud F secured in said slide and having its bearing in the slot D′, said latter slot being disposed above the aforementioned parts substantially as and for the purposes described.

4. In an instrument of the character described, a bracket S having pivotally disposed therein a rock-shaft R, provided with recesses T T′, a clamping-bar X and tightening-screws Y Y, in combination with the bars U U′ of the tool-carrying arm, substantially as described.

5. In an instrument of the character described, a main rotatable table, means for imparting an elliptical movement to said table during its rotation, a tool carrying arm adapted to be laid across said table, a graduated bar adapted to be laid across said table and micrometer for adjusting the table, substantially as described.

696,047. ROTARY ENGINE. JAMES H. HOUSEMAN, Conrad, Iowa. Filed Apr. 4, 1901. Serial No. 54,288. (No model.)



Claim.—1. In a rotary engine, the combination with a cylinder including a central expansion-chamber and reduced end portions, a piston in the cylinder and having its ends disposed in the reduced portions of the cylinder, said piston having longitudinal slots therein, heads slidably mounted in the slots and having means for holding them yieldably projected and in contact with the periphery and end walls of the expansion-chamber, means for moving the heads into the piston, a chamber opening at one side into the cylinder, a plug disposed centrally in the chamber and spaced from the walls thereof to form ports leading to the cylinder, an abutment in the plug and entering the cylinder at a point between the ports, a valve-seat in the upper side of the plug, a steam-supply, a valve in the seat for communicating the ports alternately with the steam-supply, a steam-exhaust, said valve being adapted to communicate the ports with the exhaust alternately with their communication with the supply, and a cut-off valve for the steam-supply operably connected with the piston.

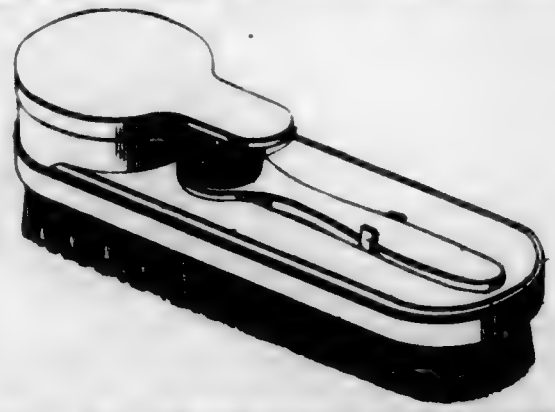
2. A rotary engine comprising a cylinder having a piston rotatably mounted therein, a chest for the cylinder, a chamber communicating with the chest and cylinder, a plug in the chamber and separated from the walls thereof to form steam-ports leading from the chest to the cylinder at an abutment in the plug between the ports, a hollow oscillatory plug-valve disposed in the chest and having a port opening thereinto and adapted for registration with the ports interchangeably, to communicate them with the interior of the plug, an exhaust-pipe with which the plug-valve communicates, said valve having also peripheral channels communicating with the chest and adapted for registration with their respective ports interchangeably with the registration of the port in the plug-valve therewith, a steam-supply leading to the chest and a cut-off valve between the supply and the plug-valve and operably connected with the piston.

3. In a rotary engine, the combination with a cylinder and its piston, of an abutment, a socket in which said abutment is guided, said abutment having a widened base about equal to the width of the socket and converging side walls so disposed with respect to the socket-walls that the abutment, under pressure of the steam, will present a sharp edge or corner for contact with the periphery of the piston in both directions of movement of the engine.

4. A rotary engine comprising a cylinder having a piston therein and provided with heads, an abutment in the cylinder, a steam-chest having ports leading to the cylinder at opposite sides of the abutment, an exhaust, a valve for communicating the ports alternately and interchangeably with the chest and the exhaust, a steam-inlet for the chest, a cut-off valve between the steam-inlet and the reversing-valve and having a spindle, a gear-wheel mounted loosely upon the spindle and having a segmentally-recessed portion fitting over a spline or pin on said spindle, and gearing connecting said gear-wheels to the main shaft of the engine, substantially as specified.

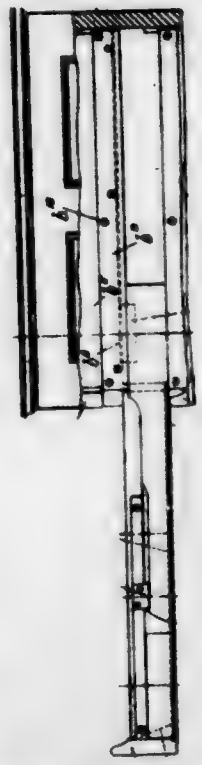
5. In a rotary engine, the combination with a cylinder having openings in its ends, of bushings engaged with the openings and having their bores tapered outwardly, a piston in the cylinder and having a shaft disposed through the bushings, frusto-conical rollers disposed between the shaft and bushings, and stuffing-glands engaged with the bushings, said glands and rollers having washers disposed therebetween.

696,048. SHOE-BLACKING KIT. WILLIAM F. HUCKEL, Frankford, Pa. Filed Apr. 16, 1901. Serial No. 56,054. (No model.)



Claim.—In a device of the character described, a polishing-brush, a box adapted to contain blacking arranged upon the back of said brush, spring-clips secured to the back of said blacking-brush, a dauber adapted to be held upon the back of the brush by said spring-clips, a cover for covering the blacking-box, an extension projecting outward from said cover and adapted to cover the bristles of the dauber, substantially as described and for the purpose specified.

696,049. FILE-CABINET. DAVID B. HUNTER, Cambridge, Mass. assignor to Library Bureau, Boston, Mass., a Corporation of Massachusetts. Filed July 26, 1900. Serial No. 24,773. (No model.)



Claim.—In a file-cabinet, a drawer having a relatively high front and shallow sides, adapted to contain cards substantially as high as said high front, said sides having level top edges extending from the said higher front to the rear of the drawer, and said cabinet having stationary tracks projecting over said level top edges of the drawer to be engaged by the latter to prevent tipping up of the drawer and secure free and easy movement, and slides located between the sides of the drawer and the sides of the cabinet and beneath said tracks, said slides being connected to and for longitudinal movement relatively of both the drawer and said tracks, and provided with means for limiting said movement.

696,050. KNIFE FOR CUTTING HAY, CANE, &c. WILLIAM L. IWAN, Streator, Ill. Filed Jan. 15, 1900. Serial No. 1,514. (No model.)

Claim.—1. In a knife for cutting hay, or the like, a shank having a handle-attaching head, and a handle having a head matching the aforesaid head and adjustably secured thereto, and provided with grips for two hands, said grips extending in opposite directions in approximately the same plane.

2. In a knife for cutting hay, or the like, a shank having at each side a handle-attaching head, and a handle having a head matching the aforesaid heads and adapted to be adjustably secured at either side of the knife, said handle provided with two grips extending in opposite directions.

3. In a knife for cutting hay, or the like, a shank having a handle-

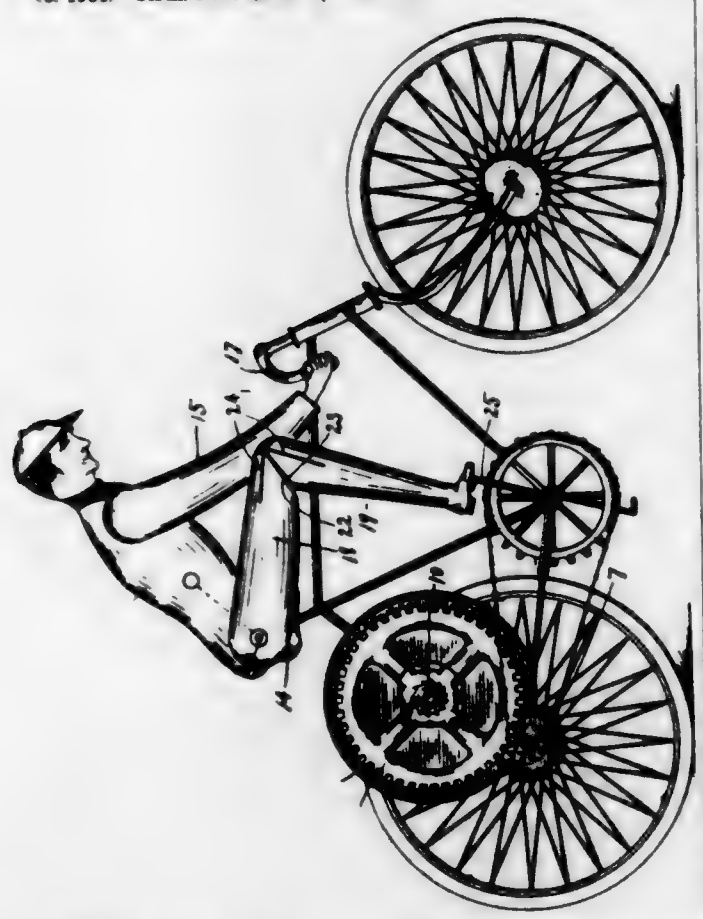
attaching head, and a handle having a head matching the aforesaid head and adjustably secured thereto, said handle having integral therewith two oppositely-extending grips offset from the head.



4. In a knife for cutting hay, or the like, the combination with a shank provided with a handle-attaching head, of an adjustable handle provided with a head c, with a grip c', a member c^3 and a grip c^4 at an angle to the member c^3, substantially as and for the purpose set forth.

5. In a knife of the character described, the combination of a shank provided with a flanged back, and cutting-sections abutting against the flange of said back, the point-section being provided with a pointed extremity and with a cutting-ridge in the rear of which the cutting edge inclines toward the back of the shank, and each of the remaining sections being provided with a projecting cutting-ridge which protects the point where the cutting-line crosses from that section to the succeeding section, all said sections being provided with serrations throughout the length of their cutting edges, all of which serrations slant in a direction to take hold of the material in the downward stroke, substantially as and for the purpose set forth.

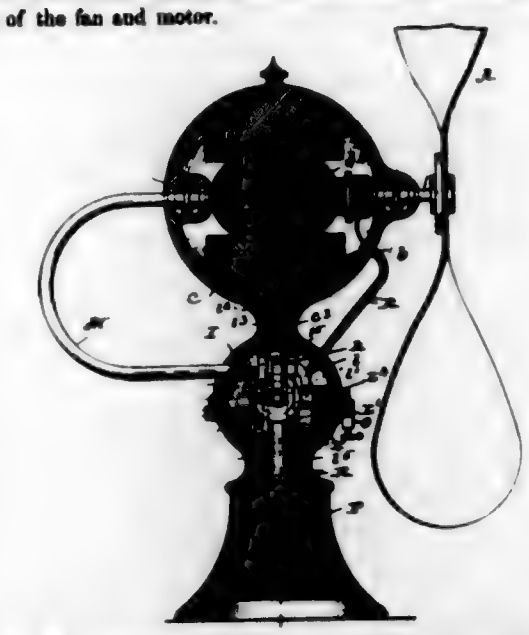
696,051. TOY. OTTO H. JAHNS, Mogollon, N. Mex. Filed Apr. 18, 1901. Serial No. 56,409. (No model.)



Claim.—In a toy of the character specified, a toy figure having its lower ends formed of sections 18 and 19 beveled at their articulating ends and each provided with a single transversely-disposed slit and a single section of flexible material having its ends disposed in said slits at the outer surface of the joints, said slits and flexible material extended parallel with said sections near the outer faces thereof, with the flexible material bridging the joint between the sections, whereby the limb thus constructed may be freely extended or prevented from having lateral movement substantially as set forth.

696,052. ELECTRIC FAN. WALTER J. H. JONES, Philadelphia, Pa., assignor to Max Rolle, Philadelphia, Pa. Filed Jan. 15, 1901. Serial No. 43,363. (No model.)

Claim.—1. The combination, with the fan, of a motor for imparting thereto a movement of rotation about its own axis, driven mechanism for rotating the fan bodily about a vertical axis, adjusting means for setting the fan and motor at different angles to the horizontal and a driving connection, independent of the fan, adapted to be maintained in engagement with the motor and the driven mechanism at different adjusted positions of the fan and motor.



2. The combination, with a motor and its shaft, of a fan on said shaft, whereby the fan has imparted to it a movement of rotation about its own axis, driven mechanism for rotating the motor and fan bodily about a vertical axis, adjusting means for setting the fan and motor-shaft at different angles to the horizontal and the driven mechanism, and a flexible shaft connecting the fan and motor-shaft and the driven mechanism.

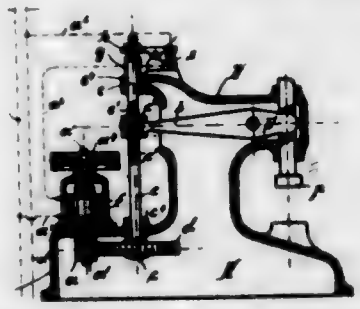
3. The combination, with the fan and the motor for rotating the fan on its own axis, of a worm, a driving connection between the motor and the worm, a worm-wheel driven by the worm, a bevel-wheel on the worm-wheel shaft, a pair of bevel-wheels on a second shaft, means for moving either of the last-mentioned bevel-wheels into engagement with the first-named bevel-wheel, a pinion on the second shaft, a stationary circular rack in engagement with the pinion, and a support upholding the motor, worm, worm-wheel, bevel-wheels and pinion.

4. The combination, with the fan and the motor for rotating the fan on its own axis, of a worm, a driving connection between the motor and the worm, a worm-wheel driven by the worm, a bevel-wheel on the worm-wheel shaft, a pair of bevel-wheels on a second shaft, an operating-lever for moving either of the last-mentioned bevel-wheels into engagement with the first-named bevel-wheel, a pinion on the second shaft, a stationary circular rack in engagement with the pinion, a support upholding the motor, worm, worm-wheel, bevel-wheels, pinion, and operating-lever, and stationary stops in line of travel of the operating-lever.

5. The combination, with the fan, of an electric motor for rotating the same about its own axis, a support upholding the motor and fan, a base on which the support is adapted to rotate, driven mechanism for imparting to the support, motor and fan a movement of rotation about a vertical axis, a driving connection from the motor to the driven mechanism, a resistance-coil, the base and support being shaped to inclose the driven mechanism and the base being shaped to inclose the resistance-coil.

6. The combination, with a motor-casing, of a motor rotatable in said casing, a fan on the motor-shaft, a base having a circular rack, a horizontal shaft above said base, a pinion on said shaft engaging said rack, driven mechanism above said base adapted to rotate said shaft, a support sustaining said motor-casing above it and said driven mechanism, shaft and pinion below it, and a driving connection from the motor to the driven mechanism, said support and base inclosing said driven mechanism, shaft, pinion and rack.

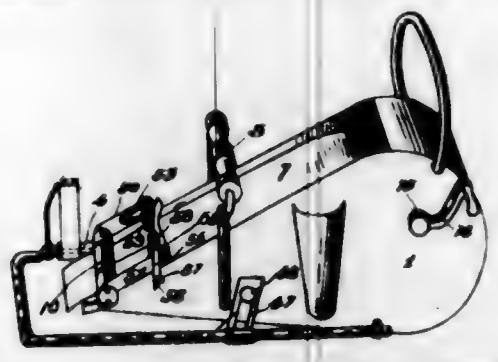
696,053. ELECTRICAL PRESS. OTTO KAMMERER, Charlottenburg, Germany. Filed May 19, 1900. Serial No. 17,396. (No model.)



Claim.—In electrical presses, the combination of an electromotor, a fly-wheel rotated by this electromotor and a pressing mechanism, with a

circuit-interrupting mechanism situated in the circuit of the electromotor and means for automatically actuating the circuit-interrupting mechanism, when a certain pressure has been reached, substantially as described and for the purpose set forth.

696,054. ADDRESSING-MACHINE. MICHAEL P. KENNA, Dubuque, Iowa. Filed Apr. 24, 1901. Serial No. 57,237. (No model.)



Claim.—1. In an addressing-machine, a box, a feed-roller journaled in the box, means to impart a partial revolution to the feed-roller, means to reset the roller to insure the delivery of strips of uniform length, a cutting device mounted at one end of the box and means to operate the feed-roller and the cutting device synchronously and conjointly.

2. In an addressing-machine, a box, a feed-roller journaled in the box, a plate carried by the feed-roller, means to engage the plate and impart a partial revolution to the roller, and mechanism to reset the feed-roller should the same be turned too far, whereby strips of uniform length are delivered.

3. In an addressing-machine, a box, a feed-roller, journaled in the box, a frame pivotally secured to the box, a spring-arm carried by the frame to impart a partial rotation to the feed-roller, said arm also serving to reset the roller when it is turned too far, a stop to limit the backward movement of the roller when reset by the arm, and a cutting mechanism operated by the frame for severing the strips

4. In an addressing-machine, the combination with a box having a feed-roller journaled therein, and a plate carried by said roller extending on the outside of the box, of a frame pivotally attached to the box and enveloping one end thereof, said frame provided with means to engage the plate to rotate the feed-roller, and to engage the plate to reset the roller when the latter has been turned too far, and a cutting mechanism for the strips.

5. In an addressing-machine, a box adapted to hold an addressing-strip, a reel on which the strip is rolled, a feed-roller, a plate having four equal sides attached to the roller, means for turning said roller one-fourth around, a stop for preventing further movement of the roller, a frame pivoted to the upper portion of the box a roller having a yieldable bearing in said frame, springs for holding said roller in contact with the feed-roller, a knife, a frame pivoted to the box and means connected with the frame for operating the knife, as and for the purposes shown.

6. In an addressing-machine, a box carrying an addressing-strip, a feed-roller, means for operating the feed-roller, a frame pivoted in the upper portion of the box, a roller having a yieldable bearing in the frame, a hook for holding the frame in engagement with the box, one or more springs for holding said roller in engagement with the feed-roller a knife for severing the strip and means for operating said knife, as and for the purposes shown.

7. In an addressing-machine, a box, a feed-roller pivoted to the box, a plate having four equal edges secured to one of the feed-rollers, lugs upon the said plate, a frame pivoted to the box, a spring carrying a hook adapted to engage the plate upon the roller, and a spring-actuated pawl secured to the box, and adapted to engage said plate to prevent its reverse movement, and means carried by the frame and engaging the plate to prevent excessive rotation of the feed-roller, as and for the purposes shown.

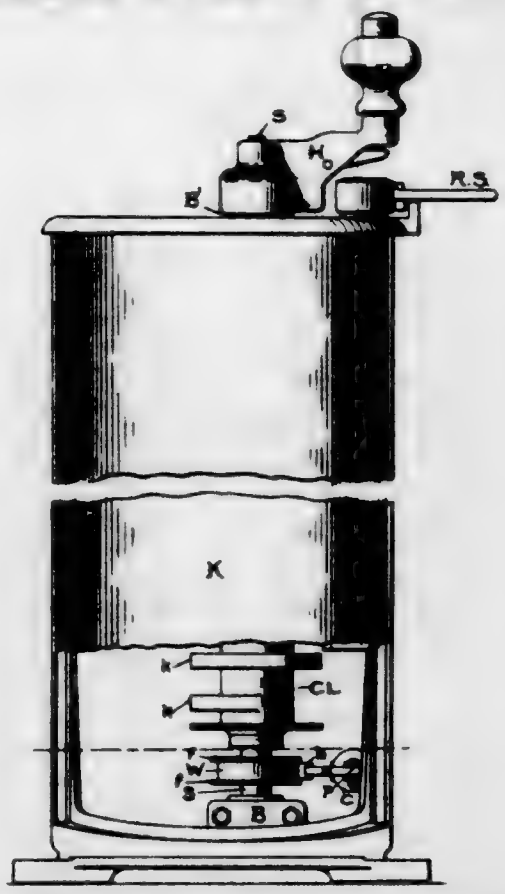
8. In an addressing-machine, a box, a cutting device comprising a stationary jaw secured to the end of the box and a movable jaw pivoted to the stationary jaw and provided with a sleeve thereon, a frame pivoted to the side of the box, an arm pivoted to the frame and extended into the sleeve for operating the pivoted jaw, two feed-rollers pivoted in the box, a plate attached to the shaft of one of the feed-rollers, said plate having four equal sides which are provided with lugs at their ends, and a hook attached to the frame and engaging said plate for operating said feed-rollers.

9. In an addressing-machine, a box, a cutting device secured to the forward end of the box, feed-rollers pivoted in the box, carrying-rollers pivoted in the box forward of the feed-rollers, a frame pivoted to the sides of the box, a plate having four edges secured to one of the feed-rollers, a spring carrying a hook attached to the frame, said hook adapted to engage the plate and revolve the feeding-rollers one-fourth of a revolution, a spring-pressed pawl on the box to prevent backward movement of the rollers, and means whereby the roller is reset when the same is turned more than one-fourth of a revolution.

10. In an addressing-machine, a box, one jaw of the knife, rigidly secured to the end of the box, a second jaw of the knife pivoted to the first, a frame pivoted to the sides of the box, means connected with the frame for operating the pivoted jaw, feed-rollers pivoted in the sides of the box, a plate having four equal edges rigidly fixed upon the shaft of the feed-roller, a spring-actuated hook attached to the frame and adapted to engage the plate for advancing the roller, said spring also serving to reset the roller to insure the delivery of strips of the proper length, and a spring-actuated pawl adapted to engage the opposite edges of the plate, to prevent the reverse movement of the roller, as and for the purposes shown.

11. In an addressing-machine, a box, a cutting device comprising a stationary jaw and a pivoted jaw mounted on one end of the box, a feed-roller journaled in the box and provided with teeth upon its periphery, a frame pivoted to the top of the box behind the cutting device and provided with an upper set of feed-rollers, means to hold the frame and upper set of feed-rollers in operative relation to the lower feed-roller, a frame pivoted to the bottom of the box, and means on the frame to operate the feed-rollers and the pivoted jaw conjointly, substantially as described.

898,055. CURRENT-LIMITING DEVICE. SAMUEL L. G. KNOX, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed July 31, 1901. Serial No. 70,358. (No model.)



Claim.—1. The combination in a current-controller of an engaging surface upon a movable member thereof, a shoe adapted to engage with said engaging surface and a coil, the whole so arranged and constructed that the magnetic circuit of the coil is directed through said shoe and said engaging surface and the said shoe so mounted that when it is in contact with the said engaging surface, effort to move the movable body in one direction will wedge them together but effort in the opposite direction will reverse such wedging action.

2. The combination in a current-controller of an engaging surface upon a movable member thereof, a pivoted arm, a shoe carried by said arm and adapted to engage with said engaging surface, a spring normally holding said shoe away from said engaging surface, means for preventing the spring from drawing said shoe too far away from said surface, a coil, and means for adjusting the operation of the device to respond to certain currents in said coil, the whole so arranged and constructed that the magnetic circuit of the coil is directed through said shoe and said engaging surface and said shoe so mounted that when it is in contact with said engaging surface effort to move the movable body in one direction will wedge them together but effort in the opposite direction will reverse such wedging action.

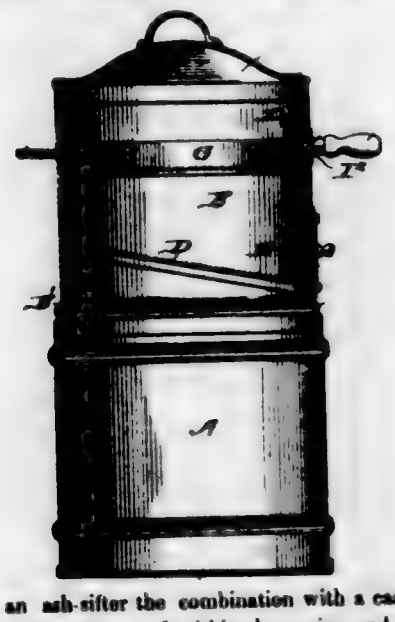
3. The combination of a current-controller, an engaging surface on a movable portion thereof, a pivoted arm, a shoe carried by said arm and

adapted to engage with said engaging surface, a spring normally holding said shoe away from said engaging surface, means for preventing the spring from drawing said shoe too far away from said engaging surface, a coil and means for adjusting the operation of the device to respond to any given current in the coil, the whole so arranged and constructed that the magnetic circuit of the coil is directed through said shoe and said engaging surface and said shoe so mounted that when it is in contact with said engaging surface, effort to move the movable portion in one direction will wedge them together but effort in the opposite direction will reverse such wedging action.

4. The combination of a cylindrical current-controller, a wheel mounted on the cylinder-shaft, a pivoted arm, a shoe carried by said arm and adapted to engage with the periphery of said wheel, an adjustable spring normally holding said shoe away from said wheel, a stop for preventing the spring from drawing said shoe too far away from said wheel and a coil connected in the circuit controlled by the controller, the whole so arranged and constructed that the magnetic circuit of the coil is directed through said shoe and said wheel, and said shoe so mounted that when it is in contact with said wheel, effort to turn on controller will wedge them together but effort to turn it off will reverse such wedging action.

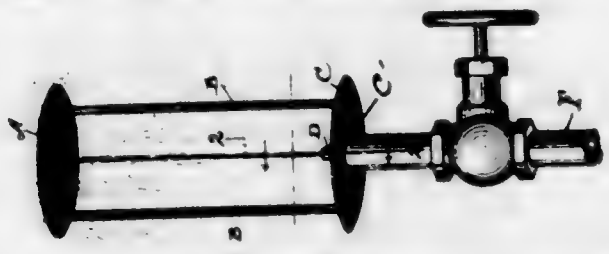
5. The combination in a current-controller of an engaging surface upon a movable member thereof, a shoe adapted to engage with said engaging surface and an electrically-actuated device tending to bring said shoe in contact with said engaging surface, the said shoe being so mounted that when it is in contact with said engaging surface, effort to move the movable body in one direction will wedge them together, but effort in the opposite direction will reverse such wedging action.

696,056. ASH-SIFTER. WILLIAM T. LAMB, Buffalo, N. Y. Filed July 6, 1901. Serial No. 67,328. (No model.)



Claim.—In an ash-sifter the combination with a casing, having a horizontal slot, of a sieve arranged within the casing and having oppositely-extending rods, the front one of said rods passing through the horizontal slot and having a square portion resting in said slot, and a coil-spring surrounding the said rod between the sieve and casing for the purpose of normally holding the square portion of the rod within the horizontal slot, the rear rod passing through the opposite side of the case, said rear rod being of sufficient length to permit the front rod to be pulled out to remove the square portion from the slot for the purpose of rotating the sieve, substantially as set forth.

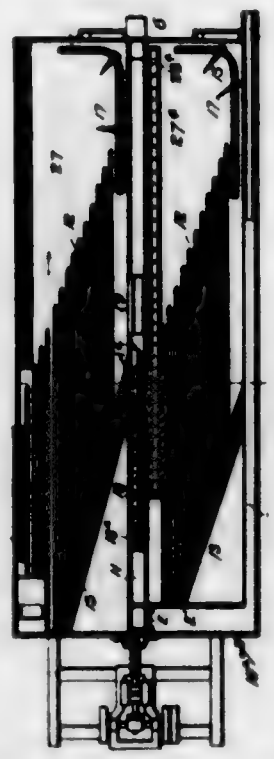
696,057. SPRAYING DEVICE. CHRISTIAN E. LARSTRUP, Galesburg, Ill. Filed Mar. 16, 1901. Serial No. 51,534. (No model.)



Claim.—1. In combination, an upper plate or disk A, a lower plate or disk C, a tube or pipe D, having a discharge-opening E, as and for the purposes described.

2. In combination, an upper plate or disk A, a lower plate or disk C, a discharge-opening through said disk C, and posts connecting said disks, substantially as and for the purpose described.

696,058. CONCENTRATOR. JOHN A. LEHRITTER, Denver, Colo. Filed Oct. 30, 1900. Serial No. 34,955. (No model.)



Claim.—1. A concentrating apparatus comprising a laterally-inclined, riffled table, having a slime-trough extending diagonally across its head at the extremities of the riffles, and provided with a screen through which the slimes pass to the trough, and a rib arranged along the slime-trough between the lower edge of the screen and the riffled portion of the table, to dam the water and also prevent any of the settled concentrates from passing through the screen into the slime-trough.

2. In a concentrating apparatus the combination of two laterally-inclined table-sections, the lower of which is adapted to receive the tailings discharge from the lower edge of the upper table, a slime-trough arranged across the head of the upper table, riffles extending longitudinally on the upper table and terminating at the slime-trough, a return-conveyer for carrying the tailings from the lower edge of the upper table to the head of the lower table, and a compartment separated from the return-conveyer and adapted to receive the slimes from the slime-trough of the upper table, the said compartment being provided with an outlet allowing the slimes to pass to the lower table in the rear of the discharge from the return-conveyer.

3. The combination of two laterally-inclined table-sections, the upper section overlapping the lower section, a return-conveyer arranged along the lower edge of the upper table and adapted to carry the middlings from the upper table to the head of the lower table, a slime-trough arranged across the head of the upper table, and a compartment separated from the return-conveyer and adapted to receive the slimes from the slime-trough of the upper table, the bottom of the slime-trough being provided with escape-openings allowing the slimes to pass to the lower table in the rear of the discharge from the return-conveyer.

4. The combination of two laterally-inclined table-sections, so arranged that the lower edge of the upper table overlaps the upper edge of the lower table, a return-conveyer arranged along the lower edge of the upper table, and adapted to carry the middlings discharge to the head of the lower table, and an auxiliary conveyer located above the return-conveyer and adapted to catch the worthless portion of the tailings and discharge them from the machine.

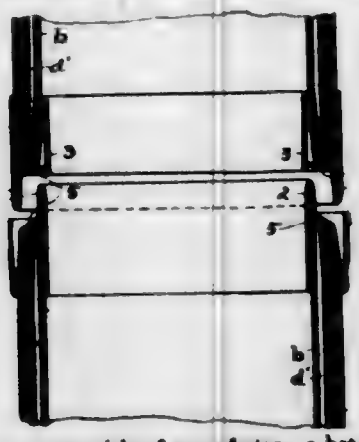
5. The combination with a laterally-inclined concentrating-table, having a movement adapted to carry the concentrates over the tail of the table, of a slotted bar extending around the lower corner of the tail of the table, set-screws passing through the slot of the bar, and separating-fingers attached to the set-screws whereby the fingers may be adjusted at pleasure.

6. The combination of two laterally-inclined table-sections, a return-conveyer arranged along the lower edge of the upper table and adapted to carry the middlings from the upper table to the head of the lower table, a slime-trough arranged diagonally across the head of the upper table, and a compartment separated from the return-conveyer and adapted to receive the slimes from the slime-trough of the upper table, the said compartment being provided with an outlet allowing the slimes to pass to the lower table in the rear of the discharge from the return-conveyer.

7. The combination with a laterally-inclined concentrating-table having a movement adapted to carry the concentrates over one extremity or the tail of the table, of a bar located at the lower corner of the tail of

the table and one or more jointed separating-fingers connected with said bar and adjustable bodily thereon.

696,059. AIR-CONDUCTING PIPE. FRANCIS LEE, Cleveland, Ohio. Filed June 27, 1899. Serial No. 722,050. (No model.)



Claim.—As a new article of manufacture, a hot-air pipe formed of a series of plain asbestos tubes and corrugated asbestos filling the space between said tubes, whereby air-cells are formed in the pipe between the tubes, and a joint for connecting the tubes comprising two members each provided with an inner and outer vertical portion, connected by an inclined portion having a shoulder, and inner and outer oppositely-disposed recesses, the inner recess adapted to receive the ends of the tubes, and the outer recess adapted to receive the outer vertical portion of the opposite member of the joint, substantially as described.

696,060. HORSESHOE. BERNARD F. LOCRAFT, Washington, D. C. Filed Dec. 31, 1901. Serial No. 87,901. (No model.)



Claim.—1. A horseshoe comprising a shell or socket and a tread-plate, the said shell and plate being formed of sections adjustable to suit different sizes and shapes of hoofs and also different lengths of hoofs, fastenings adjustably uniting the sections, and fasteners detachably connecting the plate and shell.

2. In a horseshoe, the combination of a socket or shell adapted to receive and surround the hoof, said socket or shell comprising a plate and a wall formed of corresponding hinged sections permitting of the adjustment of the socket to hoofs of different sizes, a strap for fastening the shell to the hoof, a shoe or tread-plate detachably connected with the plate of the shell, and a key or supporting-strip detachably connected with the strap and bifurcated at its lower end to straddle the front hinge of the plate of the shell and detachably connected with said plate of the shell.

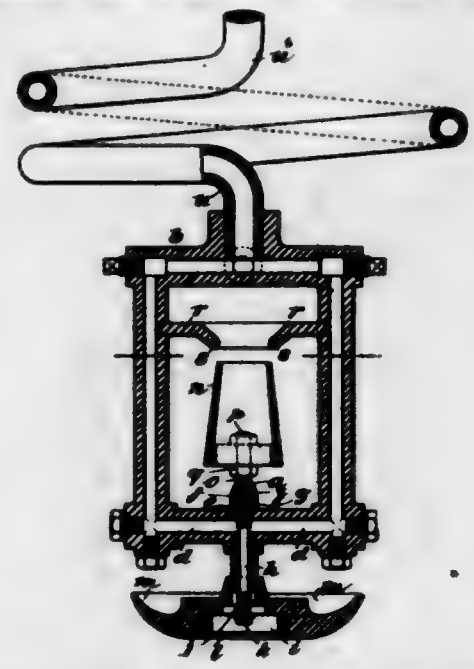
3. A horseshoe comprising a shell or socket to receive the hoof and a tread-plate, said shell and plate being provided with interfitting lugs and recesses, the lugs being formed with threaded perforations, and screws connecting the plate and shell and entering said perforations.

4. In a horseshoe, the combination of a socket or shell adapted to receive and surround the hoof, said socket or shell comprising a plate and a wall formed of corresponding hinged sections permitting of the adjustment of the socket to hoofs of different sizes, a strap for fastening the shell to the hoof, a key or supporting-strip holding the strap in position upon the shell and having a detachable connection with the plate and wall of the shell, and a shoe or tread-plate detachably connected with the plate of the shell, substantially as described.

5. In a horseshoe, the combination of a shell or socket adapted to receive and surround the hoof, said shell or socket comprising in its construction a bottom plate and a surrounding wall composed of hinged or jointed sections adjustable to hoofs of different sizes, the heel-sections of the plate having also longitudinally-adjustable members to adjust the length of the socket, and flanges rising therefrom, straps connected to said flanges and extending forwardly and bearing against the wall of the socket, lugs upon the wall of the socket to limit the upward movement of said straps, a fastening connecting the forward ends of the straps, a key or supporting-strip holding the front ends of said straps in proper position and detachably connected at its lower end to the plate and wall of the shell, and a shoe or tread-plate detachably secured to the plate of the shell, substantially as described.

6. In a horseshoe the combination of a shell or socket formed of hinged sections and a longitudinally-adjustable section, a plate connected to the shell and formed of corresponding hinged sections and longitudinally-adjustable sections, slotted arms connected to the rear portions of the plate, a fastening adjustably connecting said arms, a tread-plate detachably secured to the sectional plate of the shell, straps connected to the longitudinally-adjustable part of the shell and extending forwardly therefrom, and a key detachably connecting the free ends of said straps and detachably secured to the shell, substantially as set forth.

696,061. GAS OR VAPOR BURNER. HERBERT H. LYTLE, London, England. Filed Jan. 19, 1901. Serial No. 43,871. (No model.)

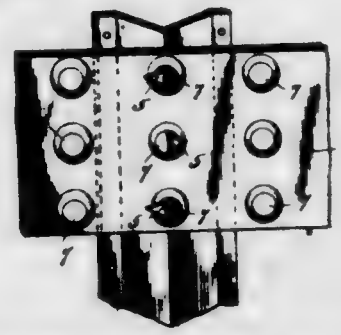


Claim.—1. In an apparatus for generating and burning gas or vapor, the combination of the burner *z* with a valve *f*, an adjustable cone *n* above the burner, a generator *b* above the cone, a conduit extending from the generator to the burner and an annular deflector-plate *r* having a central opening with a downwardly and inwardly projecting part *s* extending about the opening, said downwardly-projecting part together with the main part of the deflector-plate serving to deflect a portion of the flame outwardly against the conduit, substantially as described.

2. In combination in an apparatus for generating and burning gas or vapor, a burner *z*, an adjustable cone *n* above the burner and a deflector *r* above the cone, said deflector having a central opening with a downwardly and inwardly projecting part *s* about said opening, the said projecting part together with the horizontal part of the deflector serving to deflect a portion of the flame outwardly, substantially as described.

3. In combination in an apparatus for generating and burning gas or vapor, an adjustable cone *n*, and a deflector-plate above the same having a central opening with a downwardly and inwardly inclined part *s* extending about the opening, said part with the horizontal portion of the deflector-plate serving to deflect a portion of the flame outwardly, substantially as described.

696,062. BUILDING MATERIAL. MARK W. MARSDEN, Philadelphia, Pa. Filed Aug. 23, 1900. Renewed Feb. 18, 1902. Serial No. 94,677. (No model.)



Claim.—1. In a wall, ceiling, partition or like construction, the combination with plaster-sustaining means, of supports for said means comprising tie or distance pieces equipped with flanges and provided with serrations or tangs which extend in opposite directions to one another and engage said plaster-sustaining means, substantially as described.

2. A tie or distance piece consisting of a folded plate of sheet metal equipped with flanges and having serrations or tangs extending beyond its folded portion in opposite relation, substantially as described.

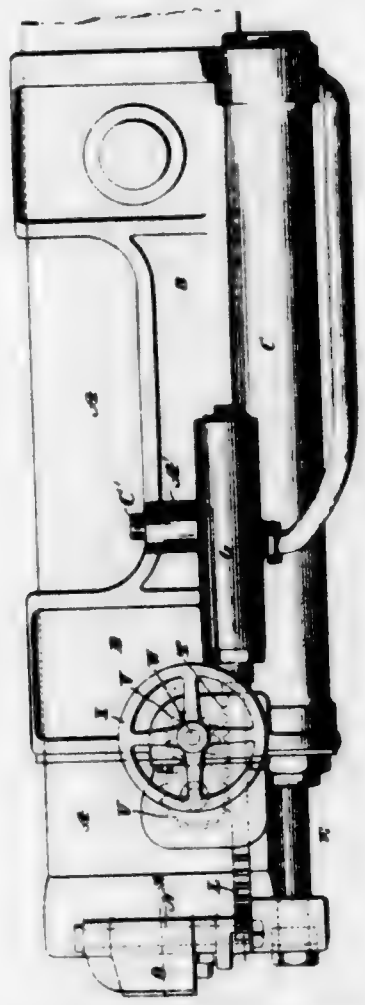
3. A tie or distance piece consisting of a folded plate of sheet metal having serrations or tangs projecting beyond its folded portion, in opposite arrangement, substantially as described.

4. A tie or distance piece consisting of sheet metal fluted to provide a support, the fluted portion or support being provided with tangs or serrations arranged in opposite relation, substantially as described.

5. A ceiling, wall or like construction consisting of flanged tie or distance pieces having oppositely-disposed serrations or tangs, and supports for said pieces, in combination with perforated plates penetrated and secured by said serrations or tangs and adapted for the reception of plaster, substantially as described.

6. A ceiling, partition or wall consisting of fluted tie or distance pieces having serrations or tangs struck up from their fluted portions, which project in opposite directions, and supports for said pieces, in combination with perforated plates attached to said serrations and adapted for the reception of plaster, substantially as described.

696,068. BREECH-LOADING GUN. JOHN F. METZ and SIGARD A. S. HARNAR, South Bethlehem, Pa., assignors to the Bethlehem Steel Company, South Bethlehem, Pa. Filed Sept. 2, 1899. Serial No. 729,353. (No model.)



Claim.—1. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, means for opening the breech and means for closing the breech comprising two intermeshing gears, one of which is journaled on a recoiling part of the gun, and the other on a non-recoiling part, and an operating device connected to the latter gear, substantially as and for the purpose described.

2. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, means for opening the breech and means for closing the breech comprising two intermeshing gears, one of which is secured to a recoiling part, and the other is secured to a non-recoiling part, and a hand-operated device connected to the latter gear, substantially as and for the purpose described.

3. In a breech-loading gun, mounted to recoil, the combination of a breech-block, a rack, connections between the latter and the block, means for automatically moving the rack to open the breech, and hand-operated gearing in mesh with the rack, said gearing comprising two wheels mounted, respectively, on relatively fixed and movable parts of the gun, substantially as and for the purpose described.

4. In a breech-loading gun mounted to recoil, the combination of breech mechanism, means for operating the latter comprising a cylinder and piston, a recoil cylinder and piston, relative movement of which, from recoil, is in a direction to increase the cubic contents of the part of the cylinder into which fluid is forced by the recoil, and a passage connecting the two cylinders, substantially as and for the purpose described.

5. In a breech-loading gun mounted to recoil, the combination of breech mechanism, means for operating the latter comprising a cylinder and piston, means for causing relative movement of cylinder and piston by the recoil and counter-recoil of the gun, a recoil cylinder and piston, and a passage connecting the two cylinders that communicates with the operating-cylinder at a point intermediate the limits of travel of the piston therein, substantially as described.

6. In a breech-loading gun mounted to recoil, the combination of breech mechanism, means for operating the latter comprising a cylinder and piston, means connecting the piston and gun, whereby the latter may partake of the movements of the gun from recoil and counter-recoil, a recoil cylinder and piston, and a passage connecting the two cylinders that communicates with the operating-cylinder at a point intermediate the limits of travel of the piston therein, substantially as described.

7. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, means for operating the latter comprising a cylinder and piston, a recoil-cylinder, a piston therein, and a passage that establishes communication between the recoil-cylinder at a point from which the piston moves under recoil, and the operating-cylinder at a point intermediate the limits of travel of the operating-piston, substantially as and for the purpose described.

8. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, and means for operating the latter comprising a cylinder, a piston in the cylinder, means for causing relative movement of cylinder and piston by the recoil and counter-recoil of the gun, and means for holding them immovable relative to each other during a part of counter-recoil, substantially as and for the purpose described.

9. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, and means for operating the latter, comprising a stationary cylinder, a piston in the cylinder, a connection between the breech mechanism and the piston, whereby gun and piston move together during recoil and for a part of counter-recoil, and means for stopping movement of the piston during counter-recoil, substantially as and for the purpose described.

10. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, a stationary cylinder, a piston in the cylinder, a connection between the breech mechanism and the piston, whereby gun and piston move together during recoil and for a part of counter-recoil, a recoil mechanism comprising a cylinder and piston, a passage between the two cylinders, and means for closing communication between the cylinders, during counter-recoil, substantially as and for the purpose described.

11. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, a stationary cylinder, a breech-operating piston in the cylinder, a connection between the breech mechanism and the piston, whereby gun and piston move together during recoil and for a part of counter-recoil, a recoil mechanism comprising a cylinder and piston, a pipe between the two cylinders, and means whereby the operating-piston closes the inlet into its cylinder from said pipe, substantially as and for the purpose described.

12. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, a stationary cylinder, a breech-operating piston in the cylinder, a connection between the breech mechanism and the piston whereby gun and piston move together during recoil and for a part of counter-recoil, a recoil mechanism comprising a cylinder and piston, a pipe between the two cylinders, means whereby the operating-piston closes the inlet into its cylinder from said pipe, and means for regulating the flow of fluid into the part of the recoil-cylinder back of its piston, substantially as and for the purpose described.

13. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, means for operating the same during counter-recoil, comprising an operating cylinder and piston, a recoil cylinder and piston, a pipe connecting the two cylinders, and means to regulate the flow of fluid into the part of the recoil-cylinder back of its piston, substantially as described.

14. In a breech-loading gun mounted to recoil, the combination of breech mechanism, a recoil cylinder and piston, an operating cylinder and piston, connections between the latter and the breech mechanism, whereby the recoil and counter-recoil of the gun cause the piston to move with the gun, means whereby during a part of the counter-recoil, there is relative movement of gun and piston to open the breech, and hand-operated means, connected with said piston, for closing the breech, substantially as described.

15. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, a cylinder and piston one of which is connected with the breech mechanism whereby the recoil and counter-recoil of the gun cause the same to move with the gun, means whereby during a part of counter-recoil there is relative movement of the gun and said part which is connected with the breech mechanism, to open the breech, and hand-

operated means connected with said part, for closing the breech, substantially as described.

16. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, and liquid-containing recoil-operated mechanism, provided with means for discharging air therefrom, substantially as described.

17. In a breech-loading gun, mounted to recoil, the combination of breech mechanism, a liquid-containing operating cylinder and piston, said cylinder being provided with an air-escape, and connections between the piston and the breech mechanism, substantially as described.

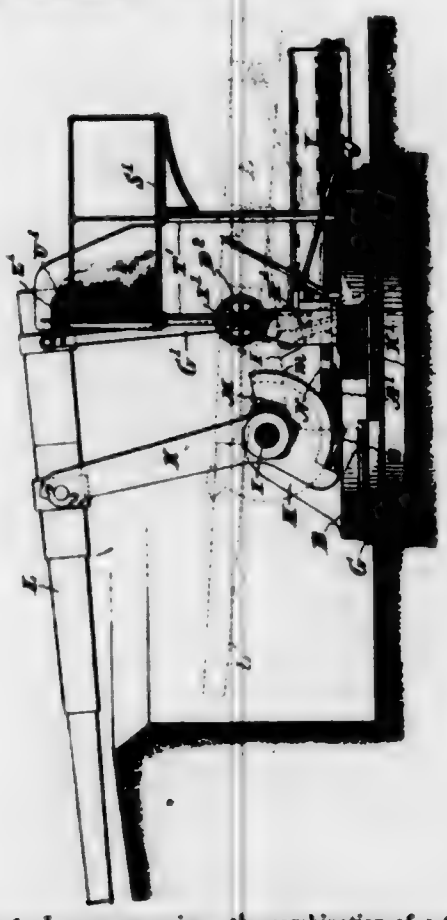
18. In a breech-loading gun mounted to recoil, the combination of breech mechanism, a liquid-containing operating cylinder and piston, said cylinder being provided with an air-escape adapted to be closed by the piston, and connections between the piston and the breech mechanism, substantially as described.

19. In combination with the operating-cylinder of a recoil mechanism, a supplemental liquid reservoir or chamber, substantially as and for the purpose described.

20. In combination with the operating-cylinder of a recoil mechanism, a supplemental, liquid reservoir or chamber, in constant communication therewith, substantially as and for the purpose described.

21. In combination with the operating-cylinder of a recoil mechanism, a supplemental liquid reservoir or chamber, having a sight-opening, substantially as and for the purpose described.

696,064. GUN CARRIAGE OR MOUNT. JOHN F. METZ and ROBERT P. STOUT, South Bethlehem, Pa., assignors to the Bethlehem Steel Company, South Bethlehem, Pa. Filed Jan. 20, 1900. Serial No. 3,330. (No model.)



Claim.—1. In a gun-carriage, the combination of a turn-table, its bearings, and a liquid-form guard for the latter, substantially as described.

2. In a gun-carriage, the combination of a turn-table, its bearings, and a liquid-holding device around the latter, substantially as described.

3. In a gun-carriage, the combination of a turn-table, its bearings, a liquid-holding gutter or well adjacent the latter, and a flange projecting from the turn-table into said gutter or well, substantially as described.

4. In a gun-carriage, the combination of a base having a ring-form flange, a turn-table, rolling supports between the latter and the top of the flange, a liquid-holding gutter or well on said flange, and a flange projecting from the turn-table into said gutter or well, substantially as described.

5. In a gun-carriage, the combination of a base, a turn-table, rolling supports between the latter and the base, in a recess in the turn-table, a spring-pressed bearing-plate for said supports, in said recess, and a removable flange forming one side of said recess, substantially as described.

6. In a gun-carriage, the combination of a turn-table, a base having a circular bearing for the turn-table, a flange projecting from the turn-table, outside of the base, and an extension of the turn-table within and adjacent to the base adapted to engage the latter to prevent the thrust from recoil falling on said flange, substantially as and for the purpose described.

7. In a gun-carriage, the combination of a turn-table, mechanism for turning the same, gun-elevating mechanism, and two sets of operating devices for said mechanisms, comprising each concentric shafts, and an operating device for each shaft, substantially as and for the purpose described.

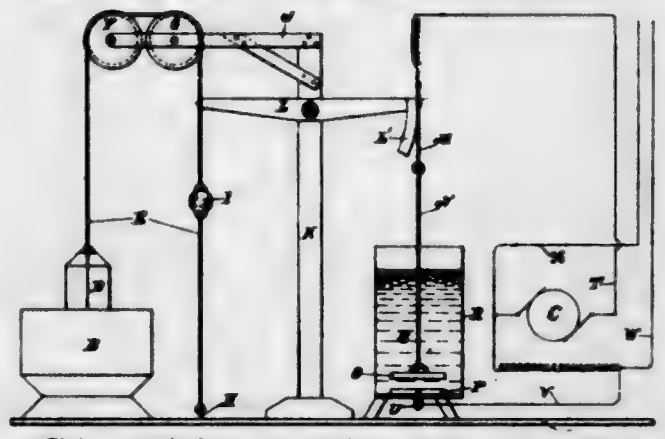
8. In a gun-carriage, the combination of a turn-table, mechanism for turning the same, gun-elevating mechanism, two sets of operating devices for said mechanisms, comprising each concentric shafts, and operating devices for the shafts, the operating devices for one set of shafts being higher than those for the other set, substantially as and for the purpose described.

9. A gun-carriage having a movably-supported gun, and provided with a platform adapted to yield before the gun, substantially as described.

10. A gun carriage having a movable gun-support and provided with a platform with a section adapted to yield before the gun without injury to the remainder of the platform, substantially as described.

11. In a gun-carriage, the combination of a gun-supporting lever having a segment-shaped portion, a recoil mechanism, a flexible connection between such segment-shaped portion and the recoil mechanism, teeth on said segment-shaped portion, a pawl to engage said teeth, a projection from said segment-shaped portion and a stop device in the path of said projection, substantially as and for the purpose described.

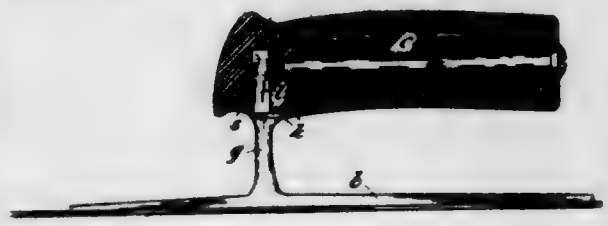
696,065. AUTOMATICALLY-CONTROLLED RHEOSTAT FOR USE IN ELECTRIC-MOTOR CIRCUITS. HAROLD L. MILLER, Pasadena, Cal. Filed Nov. 7, 1901. Serial No. 81,504. (No model.)



Claim.—1. A rheostat for use in an electric-motor circuit for controlling a motor used in operating a pipe-organ, comprising a non-conducting receptacle; a resistance fluid in said receptacle; a fixed circuit-plate in the bottom of said receptacle, connected to and in the feed-circuit of the motor; a movable circuit-plate suspended in said resistance fluid by a resilient metallic support, affixed to one end of a rock-lever; a circuit feed-wire attached to said metallic support at one end and to the motor at the other end; a cord affixed at one end to the floor and passing up and affixed to the end of the rock-lever opposite to the circuit-plate support, thence up to and over a pulley and down upon the other side thereof and terminating above the organ-bellows; a larger rock-lever-operating weight affixed to the free end of said cord; a small rock-lever-operating weight affixed to said cord intermediate the rock-lever and the end thereof attached to the floor.

2. The combination of a pipe-organ bellows, an electric motor adapted to pump air for use in said organ-bellows and a rheostat for use in the motor-circuit, said rheostat comprising a non-conducting receptacle; a resistance fluid in said receptacle; a fixed circuit-plate in the bottom of said receptacle connected to and forming part of one of the circuit feed-wires; a movable circuit-plate suspended above the fixed circuit-plate by the circuit feed-wire, and forming part of said line; and means to cause the movement of the movable circuit-plate away from and toward the fixed plate upon the rise and fall of the organ-bellows.

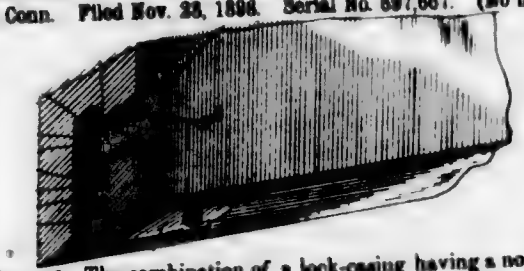
696,066. PLASTERING-TROWEL. PHILIP S. MILLER, Seattle, Wash. Filed Apr. 2, 1901. Serial No. 54,014. (No model.)



Claim.—1. In a plastering-trowel, the combination with a blade and a stiffening-rib having a rectangular shank projecting therefrom and a shoulder or shelf thereon intermediate of the length of the shank, of a handle mortised to register over the said shank as far as the said shoulder, and formed with a thumb-bearing surface on the end of the handle, and a grooved or hollow thumb-gripping surface on the under side of the handle between the said thumb-bearing surface and the said shank, and means to secure the said handle to the said shank, substantially as described.

2. In a plastering-trowel, the combination with a blade, of a stiffening-rib having a shank projecting at a right angle therefrom and integral therewith, a shoulder on said shank intermediate of its length, a handle having on the end thereof a thumb-bearing surface and a peripheral concave thumb-gripping surface positioned between the said thumb-bearing surface and the said shank, and a bolt for securing the said handle to the said shank, substantially as described.

696,067. CYLINDER FOR LOCKS. EDWARD H. MIX, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, Stamford, Conn. Filed Nov. 23, 1898. Serial No. 697,667. (No model.)

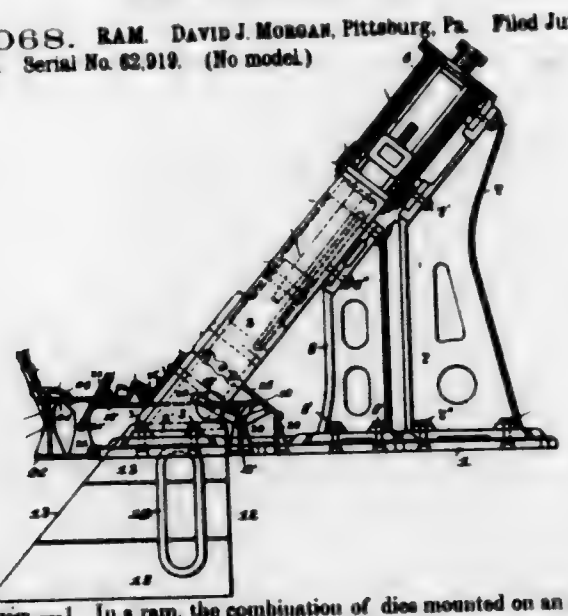


Claim.—1. The combination of a lock-casing having a non-circular opening, a key-plug, a flanged head at one end of said plug adapted to be fitted in the opening of the casing and rotated with the plug to engage the inner wall of the casing, and means holding the plug in adjusted position.

2. The combination of a lock-casing having a non-circular opening, a key-plug, a flanged head at one end of said plug adapted to be fitted in the opening of the casing and rotated with the plug to engage the inner wall of the casing, and a set-screw carried by the casing and adapted to engage the rotatable plug.

3. The combination of a lock-casing, having a polygonal-shaped opening therein, a key-plug provided with a round neck of less diameter than the said opening, a polygonal-shaped flanged head on the plug, the corners of which are adapted to engage with the inner walls of the casing, and means holding the plug in adjusted position.

696,068. RAM. DAVID J. MORGAN, Pittsburg, Pa. Filed June 3, 1901. Serial No. 62,919. (No model.)



Claim.—1. In a ram, the combination of dies mounted on an angle, and means within or between the dies for supporting and turning the metal within said dies.

2. In a ram, the combination of dies mounted on an angle, a shaft within or between the dies for supporting the metal within said dies, and means connected to said shaft for turning the same and the metal.

3. In a ram, the combination of dies mounted on an angle, a serrated shaft within or between the dies for biting into and supporting the metal within said dies, and means connected to said shaft for turning the same and the metal.

4. In a ram, the combination of dies mounted on an angle, a shaft within or between the dies for supporting the metal within said dies, a gear-wheel on said shaft, and means connected to said gear-wheel for turning said shaft and the metal.

5. In a ram, the combination of dies mounted on an angle, a shaft for supporting the metal within the dies, a ratchet-wheel on said shaft, and a pawl on one of said dies for engaging with said ratchet-wheel to turn said shaft and metal.

6. In a ram, the combination of dies mounted on an angle, a shaft for supporting the metal within the dies, a ratchet-wheel on said shaft, and a spring-operated pawl on one of said dies for engaging with said ratchet-wheel to turn said shaft and the metal.

7. In a ram, the combination of dies mounted on an angle, a shaft for supporting the metal within the dies, a ratchet-wheel on said shaft, a pawl on one of said dies for engaging with said ratchet-wheel to turn said shaft and the metal, and an eccentric on said die engaging with the pawl to vary the turning of said shaft and metal.

8. In a ram, the combination of an upper die mounted on an angle and having depressions therein, a lower die mounted on the same angle as the upper die and having depressions therein, means for supporting and turning the metal within the depressions in the lower die, and means for raising the metal from one depression to another in the lower die.

9. In a ram, the combination of an upper die mounted at an angle and having depressions therein, a lower die mounted on the same angle as the upper die and having depressions therein, a shaft for supporting and turning the metal within the depressions in the lower die, and means connected to said shaft for raising the metal from one depression to another in the lower die.

10. In a ram, the combination of an upper die mounted at an angle and having depressions therein, a lower die mounted on the same angle as the upper die and having depressions therein, a shaft for supporting and turning the metal within the depressions in the lower die, plates journaled around said shaft, and means connected to said plates for raising the shaft and with it the metal from one depression to another in the lower die.

11. In a ram, the combination of an upper die mounted at an angle and having depressions therein, a lower die mounted on the same angle as the upper die and having depressions therein, a shaft for supporting and turning the metal within the depressions in the lower die, plates journaled around said shaft, a cross-shaft, and means connected to said plates and cross-shaft for raising the first-named shaft and with it the metal from one depression to another in the lower die.

12. In a ram, the combination with columns of an upper die mounted at an angle between said columns and having depressions therein, a lower die mounted between said columns on the same angle as the upper die and having depressions therein, a shaft for supporting and turning the metal within the depressions in the lower die, plates journaled around said shaft, a cross-shaft having arms thereon connected to said plates, and a lever connected to said cross-shaft for raising the first-named shaft and with it the metal from one depression to another in the lower die.

13. In a ram, the combination of an upper die mounted at an angle and having depressions therein, a lower die mounted on the same angle as the upper die and having depressions therein, a shaft for supporting and turning the metal within the depressions in the lower die, plates journaled around said shaft, a cross-shaft having arms thereon connected to said plates, a weighted arm on said cross-shaft, a rod connected to an arm on said cross-shaft, and a lever connected to said rod for raising the first-named shaft and with it the metal from one depression to another in the lower die.

14. In a ram, the combination with columns, of an upper die mounted at an angle between said columns and having depressions therein, a lower die mounted between said columns on the same angle as the upper die and having depressions therein, a shaft for supporting and turning the metal within the depressions in the lower die, plates journaled around said shaft, means connected to said plates for raising the shaft and with it the metal from one depression to another in the lower die, and means connected to said plates and to said columns for permitting said plates to slide from one position to another.

15. In a ram, the combination with columns, of an upper die mounted at an angle between said columns and having depressions therein, a lower die mounted between said columns on the same angle with the upper die and having depressions therein, a shaft for supporting and turning the metal within the depressions in the lower die, plates journaled around said shaft, means connected to said plates for raising the shaft and with it the metal from one depression to another in the lower die, guides on said plates, and a rod connected to said columns and to a standard for engaging with said guides to permit said plates to slide from one position to another.

16. In a ram, the combination of dies mounted on an angle, means for supporting and turning the metal within the dies, means for raising the metal within the dies, and means for engaging with said dies to hold the same open while the metal therein is being raised.

17. In a ram, the combination of dies mounted on an angle, means for supporting and turning the metal within the dies, means for raising the metal within the dies, and means for engaging between said dies to hold the same open while the metal is being raised.

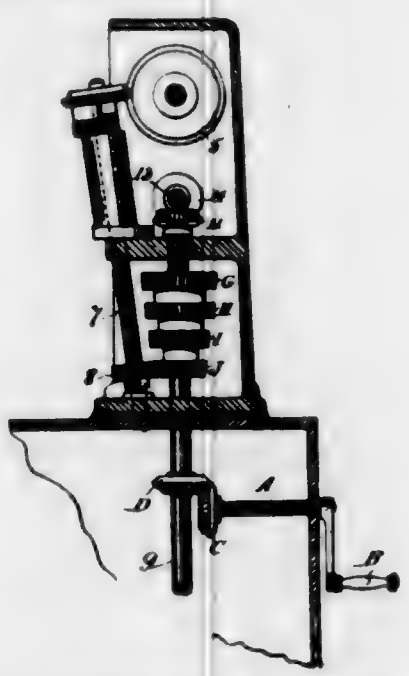
18. In a ram, the combination of dies mounted on an angle, means for supporting and turning the metal within the dies, means for raising the metal within the dies, a movable block adapted to enter between said dies to hold the same open while the metal therein is being raised, and means for inserting and withdrawing the block.

19. In a ram, the combination of dies mounted on an angle, means for supporting and turning the metal within the dies, means for raising the metal within the dies, a bar, a movable block pivoted to said bar and adapted to enter between said dies to hold the same open while the metal therein is being raised, and means connected to said rod for inserting and withdrawing said block.

20. In a ram, the combination of dies mounted on an angle, means for supporting and turning the metal within the dies, means for raising the metal within the dies, a bar, a movable block pivoted to said bar and adapted to enter between said dies to hold the same open while the metal therein is being raised, a shaft having an arm thereon connected to said bar, and a lever connected to said shaft for raising and lowering said bar to insert and withdraw said block.

21. In a ram, the combination of dies mounted on an angle, means for supporting and turning the metal within the dies, means for raising the metal within the dies, a bar, a movable block pivoted to said bar and adapted to enter between said dies and hold the same open while the metal therein is being raised, a shaft having an arm thereon connected to said bar, a rod connected to said shaft by an arm, and a lever connected to said rod for turning said shaft to raise and lower said bar and insert or withdraw said block.

696,069. **EYELET-SEWING MACHINE.** WILLIAM U. MORTON and JAMES R. U. MORTON, Glasgow, Scotland. Filed Apr. 22, 1901. Serial No. 56,943. (No model.)



Claim.—1. In a sewing-machine, the combination of stitch-forming mechanism, comprising a needle-bar tube and a needle set eccentrically therein, with means for rotating said tube, comprising a driving-cam, the shaft 7 adapted to be driven by said cam, suitable connection between said tube and shaft, and a second device for rotating said tube and shaft, and means carried by said shaft, whereby said tube may be rotated by said second device without imparting motion to said driving-cam.

2. In a sewing-machine, the combination of stitch-forming mechanism, comprising a needle-bar tube and a needle set eccentrically therein, with means for rotating said tube, comprising a driving-cam, the shaft 7, suitable connection between said tube and shaft, a spur-wheel mounted loosely upon said shaft, and adapted to be driven by said cam, a pawl carried by said spur-wheel, a ratchet rigidly mounted on said shaft, said pawl engaging said ratchet, whereby rotation is imparted to said shaft, and a second device for rotating said tube and shaft, said pawl-and-ratchet mechanism permitting rotation of said shaft by said second device without motion being imparted to said driving-cam.

3. In a sewing-machine, the combination of stitch-forming mechanism, comprising a needle-bar tube and a needle set eccentrically therein, with means for rotating said tube, comprising a driving-cam, the shaft 7 adapted to be driven by said cam, the shafts 9 and 13 connecting said tube and shaft 7, of a second device for rotating said tube, comprising a crank-handle and suitable bevel-gearing connecting said handle with the shaft 9, and means carried by the shaft 7, whereby said tube may be rotated by said crank-handle without imparting motion to the driving-cam

4. In a sewing-machine, the combination of stitch-forming mechanism, comprising a needle-bar tube and a needle set eccentrically therein, with means for rotating said tube, comprising a driving-cam, the shaft 7, the shafts 9 and 13, connecting said tube and shaft 7, a spur-wheel mounted loosely upon the shaft 7 and driven by said cam, a pawl carried by said spur-wheel, a ratchet rigidly mounted on the shaft 7, said pawl engaging said ratchet to rotate the shaft 7, and a crank-handle and suitable bevel-gearing adapted also to rotate the tube, said pawl-and-ratchet mechanism permitting rotation of the tube by said crank-handle without imparting motion to said driving-cam.

5. In a sewing-machine, the combination of stitch-forming mechanism, comprising a needle-bar tube and a needle set eccentrically therein, with means for rotating said tube, comprising a driving-cam, the shaft 7 and the shafts 9 and 13, a series of bevel-wheels of different diameter carried by the shaft 9, and an adjustable bevel-wheel carried by the shaft 7 and engaging any one of said series of bevel-wheels, whereby the number of stitches to a rotation of the needle-bar tube may be varied at will, a spur-wheel loosely mounted at the upper end of the shaft 7, said driving-cam engaging said spur-wheel, a pawl carried by said spur-wheel, a ratchet rigidly secured on the shaft 7, said pawl engaging said ratchet, of a second device for rotating said needle-bar tube, comprising a crank-handle and suitable bevel-gear connecting said handle and the shaft 9, said pawl and ratchet permitting the rotation of the needle bar tube by said second device without imparting motion to the driving-cam.

696,070. **MINING-CAR.** JOHN MCALISTER, Birwindale, Pa. Filed Oct. 17, 1901. Serial No. 78,021. (No model.)



Claim.—In a car-truck, a wheel having an outwardly-extending sleeve; a journal extending through said wheel and having means to hold the wheel in place thereon, in combination with a cap 18 fitting over the extended end of said sleeve and said journal and provided with a spirally-disposed rib upon its internal surface to direct the oil normally inward, all combined substantially as specified and for the purpose set forth.

696,071. **HARNESS ATTACHMENT.** JAMES P. MCCORMICK, Wamego, Kans. Filed Oct. 6, 1900. Serial No. 32,216. (No model.)



Claim.—In a harness, the combination with the pole-strap and holdback-straps, of a connecting device consisting of a stem having a loop at one end for engagement with the holdback-strap and having a lateral extension for engagement with the loop on the pole-strap, and an eye at the free end of the extension for detachable connection with the other holdback-strap, the loop, the stem, and the lateral extension lying in the same plane, as set forth.

696,072. **CONDUIT AND CONDUCTOR.** PERCY A. MCGEORGE, New York, N. Y. Filed July 13, 1901. Serial No. 68,185. (No model.)

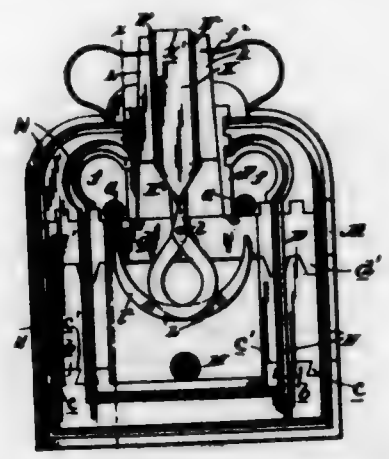
Claim.—1. In combination, a conduit having a slot, feeding means within the conduit, and a conducting-closure for the slot having wedge means adapted to cause a contact with the feeding means.

2. In combination, a conduit having a slot, feed-wires within the conduit, contact-pieces within the conduit normally out of contact with the wires, and a conducting-closure for the slot having a wedge adapted to spread the contact-pieces to contact with the wires.

3. In combination substantially as described, a conduit, oppositely-disposed wires supported in the conduit, oppositely-disposed swinging contacts, and a contact-carrying member K having inclined lower surfaces adapted to enter between the swinging contacts and spread the same as a wedge to throw the same into contact with the wires.

4. In combination substantially as described, a conduit, a wire in the conduit, contact instrumentalities working through the slot of the conduit

and extending outside the same, and an elongated bowed spring secured along its edges respectively to a portion of the conduit and to the contact outside the conduit for normally supporting the contact in elevated position.



5. In combination substantially as described, a conduit, oppositely-disposed wires supported in the conduit, swinging contacts in the conduit provided with tailpieces adapted to be thrown into and out of engagement with the wires, a contact device working through the slot of the conduit adapted to engage the upper ends of the swinging contacts to operate the same, and means for normally retaining the contact device in elevated position.

6. In combination substantially as described, a conduit, oppositely-disposed wires in the conduit, swinging contacts in the conduit, and wedge means for simultaneously spreading the swinging contacts to cause the same to contact with the respective wires.

7. In combination substantially as described, a conduit, oppositely-disposed wires in the conduit, oppositely-disposed swinging contacts provided with tailpieces supported in the conduit, rods connecting the alined tailpieces at the respective ends of the swinging contacts to throw the tailpieces into engagement with the wires.

8. In combination substantially as described, a conduit comprising a body portion and an arched top, oppositely-disposed wires supported adjacent to the arches, partitions separating the wires from the spaces beneath the slot in the conduit, and contact instrumentalities working through the slot adapted to be thrown into and out of contact with the wires.

9. In combination substantially as described, a conduit comprising a body portion, an intermediate portion, oppositely-disposed wires resting on said intermediate portion, arch members extending above the wires, partitions separating the wires from the spaces beneath the slot in the conduit, and suitable contacts adapted to be thrown into and out of contact with the wires.

10. In combination substantially as described, a conduit, pockets adjacent to the respective sides of the conduit, longitudinally-disposed wires in said pockets, partitions separating said pockets from the spaces immediately below the slot in the conduit, and wedge-joints between the partitions and the adjacent edges of the conduit to which they are attached.

11. A conduit comprising a series of longitudinally-arranged sections united by wedge-joints, and locking or coupling plates uniting the sections transversely through the medium of similar wedge-joints, substantially as described.

12. A conduit comprising a series of longitudinally-disposed sections, a coupling or lock H for said sections, and wedge-joints between said coupling or lock and the respective sections, substantially as described.

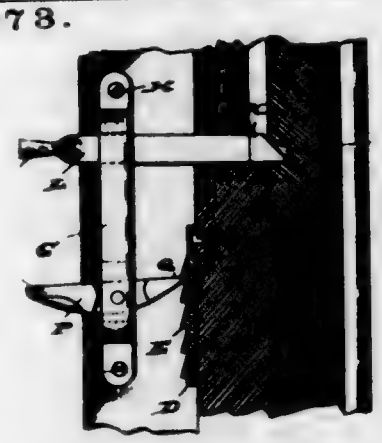
13. A conduit comprising a series of detachable sections, each composed of a plurality of longitudinally-disposed parts united by wedge-joints provided at their opposite ends with continuous grooves N and projections O, substantially as and for the purpose described.

14. A conduit comprising a series of longitudinally-arranged united sections, and locking or coupling plates connecting the sections transversely, substantially as described.

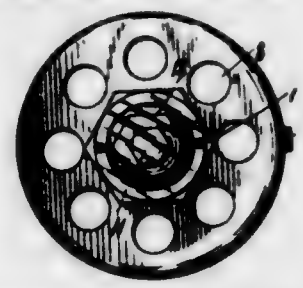
696,073. SASH STOP AND FASTENER. JAMES O'DONNELL, Rhinelander, Wis. Filed Dec. 31, 1900. Serial No. 41,709. (No model.)

Claim.—As an improved article of manufacture, a sash-fastener comprising in combination a casting provided with fastening-ears, and formed with transverse parallel recesses, a locking-bolt slidable in one of the recesses, said bolt having a beveled forward end, a handle at the rear end, and stop-shoulders adjacent to the front and rear ends, a pawl pivoted in the other recess, and a ratchet-plate adapted to be arranged for engagement with the pawl, substantially as shown and described.

696,073.



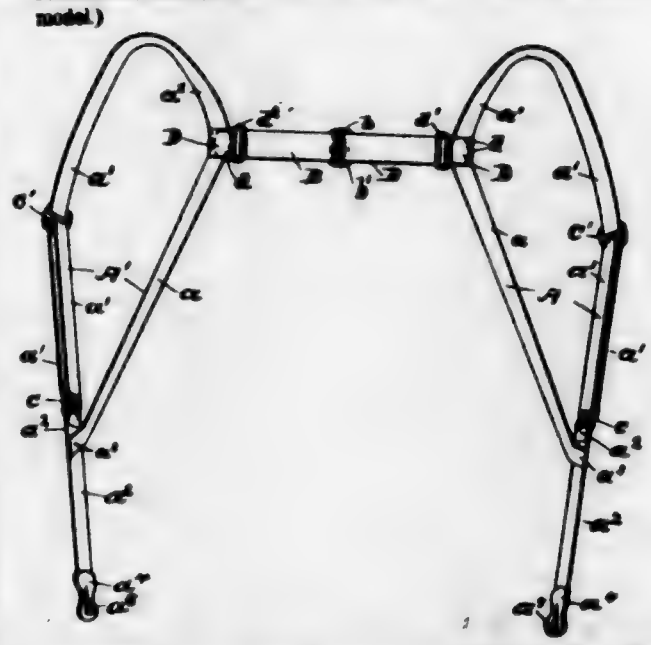
696,074. SAFETY-VALVE. JOHN H. OSHEL, Clinton, Iowa. Filed Sept. 20, 1901. Serial No. 77,041. (No model.)



Claim.—1. In a safety-valve for steam-boilers, the combination with the valve-casing provided with concentric valve-seats of different radii and with a dash-pot, a balancing-chamber and an equalizing-chamber, of a spring-controlled piston to coöperate with said dash-pot, said piston being provided with valves of different radii to engage said valve-seats and provided with ports which, when the valves are unseated, afford auxiliary communication between the balancing and equalizing chambers, whereby the steam is admitted directly and indirectly from the balancing-chamber into the equalizing-chamber, substantially as set forth.

2. In a safety-valve for steam-boilers, the combination with the valve-casing provided with concentric valve-seats of different radii, one located above the other, and with a dash-pot having vent-openings, a balancing-chamber and an equalizing-chamber, of a spring-controlled piston to coöperate with said dash-pot, said piston being provided with valves of different radii and located in different planes to engage said valve-seats, with an annular groove or recess and with ports leading from said annular groove or recess to and communicating with the equalizing-chamber, substantially as set forth.

696,075. COMBINED BRACE AND SUSPENDERS. SAMUEL W. PATTERSON, Chicago, Ill. Filed Aug. 2, 1901. Serial No. 70,684. (No model.)

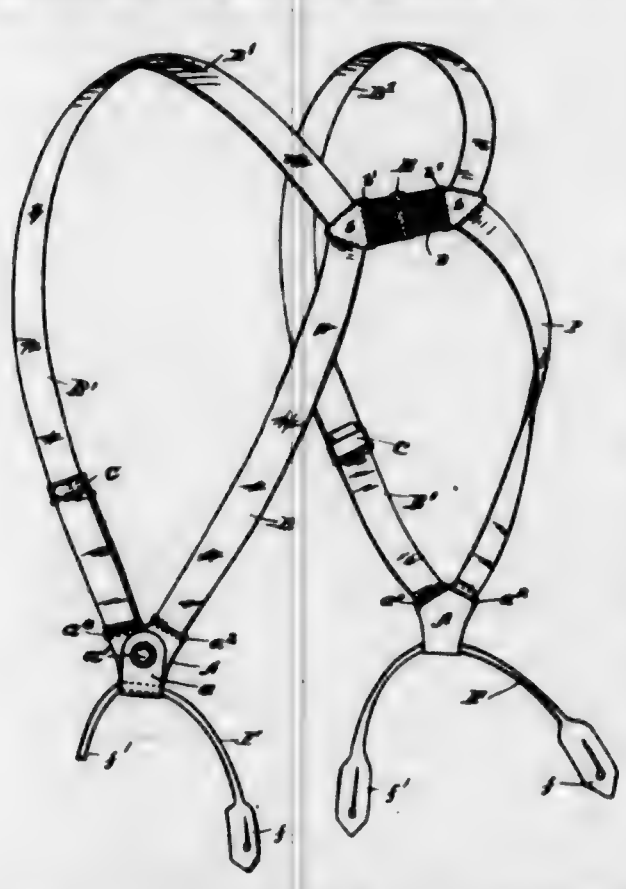


Claim.—1. In a combined brace and suspenders, an adjustable back connection of suspender fabric, fitting between the shoulders of the wearer thereof, suspender fabric attached to the ends of such back connection to extend upward over the shoulders and downward underneath the arms of the wearer, adjusting-buckles on the forward ones of such suspender fabrics, metal loops, around one bar of which, respectively, the suspender

fabric provided with the adjusting-buckle extends and from thence runs back to the adjusting-buckle and is attached thereto, additional suspender fabric attached to the remaining bars of the respective metal loops, such additional suspender fabric provided with buttonholes at the lower ends thereof, and the suspender fabric extending downward from the ends of the back connection attached to such additional suspender fabric at an angle thereto; substantially as described.

2. In a combined brace and suspenders, the combination of metal loops, C, C, d', d^2, adjustable shoulder-loops, A, A', of suspender fabric, an adjustable strap, B, connecting the shoulder-loops, and buttonhole ends, a^4, a^4, such shoulder-loops, respectively, consisting of suspender fabric a, a', and a^3, the suspender fabric a^3 attached to fabric a' by the metal loop C, the buttonhole ends a^4, a^4, attached to fabrics a^3, a^3, respectively, and the suspender fabrics a, a' attached together at an angle and, by means of metal loops d', d^2, attached to the adjustable connecting-strap B, the suspender fabric a of the shoulder-loop extending downward and forward and attached at an angle thereto to the suspender fabric a^3 between the metal loop C and the buttonhole end, a^4, and the fabric a' of such shoulder-loop extending upward and over the shoulder of the wearer, through sliding buckle C', to and through the metal loop C and back to the sliding buckle C' and attached to one of the bars thereof; substantially as described.

696,076. SUSPENDERS. SAMUEL W. PATTERSON, Chicago, Ill. Filed Aug. 31, 1901. Serial No. 74,022. (No model.)

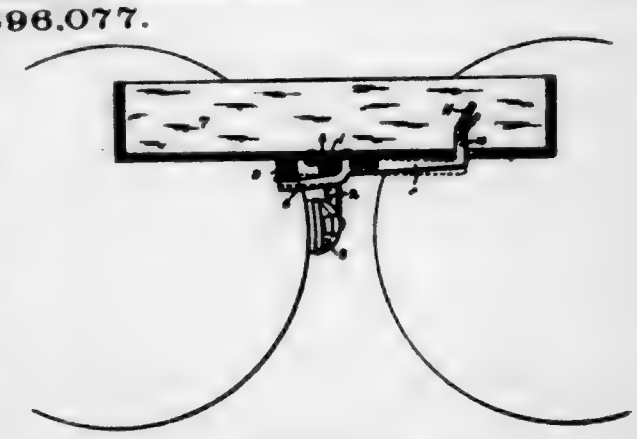


Claim.—In suspenders, the combination of end pieces, metal loops, a plurality of such metal loops being respectively attached by one of the bars thereof to the respective end pieces, each of said end pieces having an additional and detachable loop of flexible material, equalizing-straps to engage with the respective detachable loops, triangular-shaped joining-pieces, metal loops respectively attached by one of the bars thereof to one of the sides of the triangular-shaped joining-pieces respectively, an adjustable connecting-strap attached to the remaining bars of such metal loops, suspender fabric attached to the remaining sides of the triangular-shaped joining-pieces and to the loops on the end pieces, the suspender fabric attached to the upper one of such remaining sides extending around one of the bars of the forward metal loops on such end pieces and to an adjusting-buckle mounted on such suspender fabric; substantially as described.

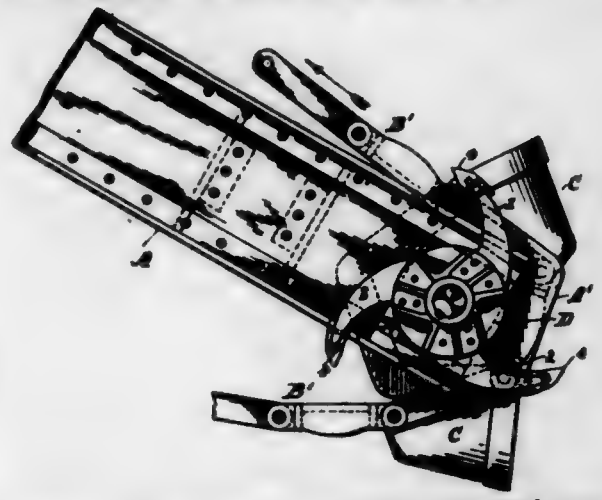
696,077. VEHICLE-BRAKE. JOSIAH B. PERKINS, Mansfield, Ohio, assignor of one-half to Lorenzo D. Patton and Samuel Marriott, Mansfield, Ohio. Filed Aug. 19, 1901. Serial No. 72,680. (No model.)

Claim.—In a brake for vehicles a brake-bar having connected thereto brake-shoes, a brake-lever fixed to the brake-bar and provided with a rearward extension, and a spring located between the top of the rearward extension and the bottom of the vehicle-body, and the forward end of the brake-lever provided with an upward-curved portion, substantially as and for the purpose specified.

696,077.



696,078. AUXILIARY CUTTER FOR GOLD-DREDGERS. ROBERT H. POSTLETHWAITE, San Francisco, Cal., assignor to Risdon Iron and Locomotive Works, San Francisco, Cal., a Corporation of California. Filed Aug. 7, 1901. Serial No. 71,195. (No model.)

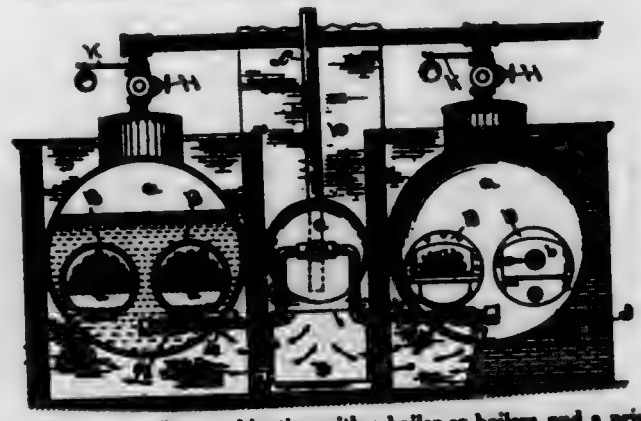


Claim.—1. In combination substantially as described, a rotary tumbler, a shaft therefor, a disk secured to the outer end of said shaft and provided with pockets around its periphery, and laterally-curved cutting-teeth riveted in said pockets, substantially as described.

2. In combination substantially as described, a rotary shaft, oppositely-disposed disks secured thereto and provided with pockets in their peripheries, and cutting-teeth rigidly secured, one in each pocket, substantially as described.

3. In combination substantially as described, a rotary tumbler, a shaft therefor, disks D secured to the outer ends of the shaft, laterally-curved cutting-teeth secured to each disk, and removable cutting-points 4 at the outer ends of said curved teeth, substantially as described.

696,079. STEAM-BOILER. GOTTLIEB RAEBLE, South Bend, Ind. Filed May 1, 1901. Serial No. 58,947. (No model.)

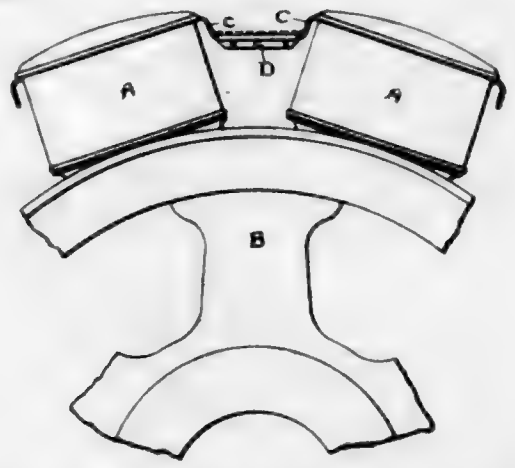


Claim.—1. The combination with a boiler or boilers, and a primary heater located between the same, of a boiler-furnace setting surrounding the boiler and heater and separating the boilers from the heater, longitudinal fire-tubes within the boilers provided with a fire-chamber, a chamber beneath the boilers through which the products pass after leaving the fire-tube and by means of which the entire lower surface of the boiler is subjected a second time to the action of the products, openings in the walls which separate the boilers from the heaters to conduct the products into the chamber beneath the heater, and which heater is subjected to the action of the products as they pass through said chamber, a steam-pipe connected with the two boilers, and a supply-pipe connected with the

heater, valves for controlling the steam from each boiler to the steam-pipe, whereby either one or both the boilers may be used, substantially as and for the purpose set forth.

2. The combination with boilers, each having fire-tubes interiorly and longitudinally arranged in pairs mounted therein, of a fire-chamber within the fire-tubes, a chamber beneath the boilers through which the products return to the front thereof and whereby the boilers are a second time subjected to the heat of the products, of a primary heater intermediately disposed with and in the same plane with the boilers, walls separating the heater from contact with the boilers, openings in the said walls for admitting the products from the chambers under the boilers into the chamber under the primary heater, said heater being subjected to the action of the products passing through the last-mentioned chamber, a supply-pipe connected with the primary heater, means for supplying the boilers from the heater, upwardly-directed valved pipes connected with the dome of each boiler, and a steam-supply pipe communicating with the said upwardly-directed valved pipes.

696,080. **CONNECTOR FOR SPOOLS OF DYNAMOS.** HENRY G. REIST, Schenectady, N. Y., assignor to General Electric Company, a Corporation of New York. Filed Aug. 30, 1901. Serial No. 73,774. (No model.)



Claim.—1. The combination with the revolving spools of a dynamo-electric machine, of a light, rigid connector for the terminals of the windings.

2. The combination with the spools of a revolving-field dynamo, of a rigid metal connector between the terminals of the windings.

3. The combination with the spools of a revolving-field dynamo, of a sheet-metal connector for the terminals of the windings, said sheet metal being bent to form a rigid structure.

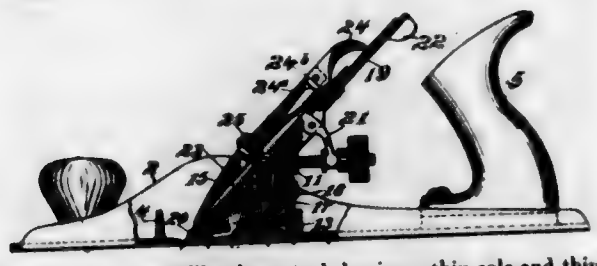
4. A connector consisting of a flat tube having a stiffening-web.

5. A connector for the windings of dynamo-spools, consisting of a flat tube having a stiffening-web, and being cut away on one side at one or both ends.

6. The combination with the spools of a dynamo, of windings therefor having their terminals bent inward, and a rigid, light connector attached to the tips of said inwardly-bent terminals.

7. In a revolving-field dynamo, means for preventing the vibration of the connections between the several spools.

696,081. **PLANE.** HENRY RICHARDS, Pine Meadow, Conn., assignor to Stanley Rule & Level Company, New Britain, Conn., a Corporation of Connecticut. Filed Nov. 2, 1901. Serial No. 80,354. (No model.)



Claim.—1. A metallic plane-stock having a thin sole and thin side flanges, and also having at the rear edge of the throat a depressed step, and well in rear thereof an elevated step; the upper surfaces of said steps being finished parallel with each other and substantially parallel with the working surface of the stock, so as to form a chair for a frog; and said elevated step being in the form of a high rib erected upon the sole and trussing the side flanges, so as to form a box-like device.

2. A metallic plane-stock having a thin sole and thin side flanges, and also having at the rear edge of the throat a depressed step, and well in rear thereof an elevated step; said depressed step being in the form of a slight thickening of the edge of the sole along the rear side of the throat, and said elevated step being in the form of a high rib erected upon the sole and trussing the side flanges, so as to form a box-like device; the upper surfaces of said steps being finished parallel with each other and substantially parallel with the working surface of the stock, so as to form a chair for a frog.

3. A metallic plane-stock having a high step which is provided with a deep threaded hole for receiving a frog-clamping screw; said stock also having at the rear edge of the throat and forward of said high step a depressed step; and said steps being finished in parallelism with the working surface of the stock and coöperatively adapted to form a chair for a frog.

4. A metallic plane-stock having a thin sole and thin side flanges, and also having well in rear of the throat a thin high transverse rib which trusses said flanges and also forms a rear step, said rib being provided with two deep holes for receiving frog-clamping devices, one hole at each side of the stock; said stock also having at the rear edge of the throat a depressed forward step which is formed by thickening the throat edge of the sole; said step being coöperatively adapted to form a chair for a frog, and each thereof being finished parallel with the working surface of the stock.

5. A metallic plane-stock having a rear step provided at its front side with a threaded hole for receiving a frog-clamping screw; and also having at the rear edge of the throat and forward of said threaded hole a depressed step; said steps being finished in parallelism with the working surface of the stock and coöperatively adapted to form a chair for a frog.

6. A metallic plane-stock having a sole and side flanges and also having well in rear of the throat a narrow high transverse rib which trusses the flanges and also forms a rear step; said step having at its forward side two threaded holes, one at each side of the median line of the stock, for receiving frog-clamping screws; said sole also having at the rear edge of the throat, a thickening which forms a depressed forward step; said steps being finished in parallelism and coöperatively adapted to form a chair for a frog.

7. A metallic plane-stock having a sole and side flanges, and also having well in rear of the throat a narrow high transverse rib which trusses said flanges and also forms a rear step; said rib having a fore-and-aft threaded perforation for receiving a long frog-adjusting screw, which may project forwardly through said rib; and also having an up-and-down threaded hole for receiving a frog-clamping screw; said stock also having at the rear edge of the throat a depressed forward step; said steps being coöperatively adapted to form a chair for a frog, and being finished parallel with the working surface of the stock.

8. A metallic plane-stock having a sole and side flanges and also having well in rear of the throat a narrow high transverse rib which trusses said flanges and also forms a rear step; said rib having a fore-and-aft threaded perforation for receiving a long frog-adjusting screw, which may project forwardly through said rib; and said sole also having at the rear edge of the throat a depressed forward step; said steps being finished in parallelism and being substantially parallel with the working surface of the stock, and being coöperatively adapted to form a chair for a frog.

9. A metallic plane-stock having a sole and side flanges and also having well in rear of the throat a narrow high transverse rib which trusses said flanges and also forms a rear step; said rib having a fore-and-aft threaded perforation for receiving a frog-adjusting screw, and also having at its front side two vertical threaded holes, one upon each side of said perforation, for receiving frog-clamping screws; said sole being also thickened at the rear edge of the throat so as to form a depressed forward step; said steps being finished in parallelism and substantially parallel with the working surface of the stock, and being coöperatively adapted to form a chair for a frog.

10. A metallic plane-stock having well in rear of the throat a pair of vertically bored and threaded bosses formed upon the front side of a rear step; said stock also having at the rear edge of said throat and forward of said bosses a thickening which forms a depressed forward step; and said steps being finished in parallelism with the working surface of the stock and coöperatively adapted to form a chair for a frog.

11. A metallic plane-stock having a sole and side flanges and also having well in rear of the throat a pair of vertically-bored bosses formed upon the front side of a narrow high transverse rib that trusses said flanges, and also forms a rear step; said stock also having at the rear of said throat a depressed forward step; said steps being coöperatively adapted to form a chair for a frog; and said rib being also provided between said bosses with a fore-and-aft threaded perforation for receiving a frog-adjusting device.

12. In a plane, the combination of a stock and a frog; the stock having a thin sole and thin side flanges, and also having at the rear edge of the throat a depressed step, and well in rear thereof an elevated step; the upper surfaces of said steps being finished parallel with each other

and substantially parallel with the working surface of the stock; said elevated step being in the form of a high rib erected upon the sole and trussing the side flanges, so as to form a box-like device; and said frog being fitted to and adjustably secured upon said steps.

13. In a plane, the combination of a stock and a frog; the stock having a sole and side flanges, and also having well in rear of the throat a narrow high transverse rib which trusses said flanges and also forms a rear step; said step also having at the rear edge of the throat a depressed forward step; and said frog being fitted upon said steps and secured thereto by one or more screws which pass down into deep holes formed in said truss, and being also connected to a fore-and-aft screw which engages a threaded perforation also formed in said truss.

14. In a plane, the combination with a stock having a chair consisting of separated seats, of a frog fastened upon said chair by means of a device which bears upon the frog at a point between said seats and thereby causes the frog to bear upon both seats.

15. In a plane, the combination with a stock having a chair consisting of separated seats, of a frog fastened upon said chair by means of a device which bears upon the frog at a point between said seats but close to one thereof, so as to cause the frog to bear unequally upon the seats.

16. In a plane, the combination with a stock, of a frog fastened thereon and capable of fore-and-aft adjustment; said stock having a sole and side flanges, and having at the rear edge of the throat a depressed step, and well in rear of the throat a narrow high transverse rib which trusses said flanges and also forms a rear step; and said frog being fastened by one or more screws placed at the forward side of said rear step, and bearing upon the frog between its fore-and-aft supports, so that the frog is rigidly seated upon the rear step and is also caused to bear firmly upon the front step at all such adjustments of said frog.

17. In a plane, the combination of a stock and a frog; the stock having a thin sole and thin side flanges, and also having at the rear edge of the throat a depressed step, and well in rear thereof an elevated step; the upper surfaces of said steps being finished parallel with each other and substantially parallel with the working surface of the stock; said elevated step being in the form of a high rib erected upon the sole and trussing the side flanges, so as to form a box-like device; and said frog being fitted to and adjustably secured upon said steps; plane-irons; a clamping-bow; and a cam-lever formed with a curved working surface 24^a, which as the lever is turned gradually forces the bow against the plane-irons, said surface 24^a terminating in a tangential stop-surface 24^b, which arrests the lever just as the point of greatest compression is reached.

18. In a plane, the combination of a stock and a frog; said stock having at the rear border of the throat a depressed step, and said frog having a foot bearing upon said step; at least one of said step and foot elements being finished in substantial parallelism with the working surface of the stock and also engaging with and guiding the other thereof; said stock also having well in rear of said throat an elevated step, and said frog also having a base adapted to rest upon said elevated step; and at least one of said elevated-step and frog-base elements being also finished in parallelism with the working surface of said stock and engaging with and guiding the other thereof; whereby said frog may be adjusted forth and back in substantial parallelism with the said working surface, so as to close and open the throat, and be always conjointly supported by said steps.

19. In a plane, the combination of a stock and a frog; said stock having at the rear border of the throat a depressed step, and said frog having a foot bearing upon said step; at least one of said step and foot elements being finished in substantial parallelism with the surface of the plane and also engaging with and guiding the other thereof; said stock also having well in rear of said throat an elevated step, and said frog also having a base adapted to rest upon said elevated step; and at least one of said elevated-step and frog-base elements being also finished in parallelism with the working surface of said stock and engaging with and guiding the other thereof; whereby said frog may be adjusted forth and back in substantial parallelism with the said working surface, so as to close and open the throat, and be always conjointly supported by said steps; a fore-and-aft screw threaded into the material of said stock beneath the base of said frog; and a connection between said frog and said screw; whereby said frog may be adjusted forth and back.

20. In a plane, the combination of a stock and a frog; said stock having at the rear border of the throat a depressed step, and said frog having a foot bearing upon said step; at least one of said step and foot elements being finished in substantial parallelism with the surface of the plane and also engaging with and guiding the other thereof; said stock also having well in rear of said throat an elevated step, and said frog also having a base adapted to rest upon said elevated step; at least one of said elevated-step and frog-base elements being also finished in parallelism with the working surface of said stock and engaging with and guiding the other thereof; whereby said frog may be adjusted forth and back in substantial parallelism with the said working surface, so as to close and open the throat, and still be firmly supported upon said steps conjointly; and a screw threaded down into the material of said elevated step, and effective to clamp said frog to said stock at all adjustments of the former.

21. In a plane, the combination of a stock and a frog; said stock having at the rear edge of the throat a depressed step, and said frog having a foot bearing upon said step; at least one of said step and foot elements being finished in substantial parallelism with the surface of the plane and also engaging with and guiding the other thereof; said stock also having well in rear of said throat an elevated step, and said frog also having a base adapted to rest upon said elevated step; at least one of said elevated-step and frog-base elements being also finished in parallelism with the working surface of said stock and engaging with and guiding the other thereof; whereby said frog may be adjusted forth and back in substantial parallelism with the said working face so as to close and open the throat, and always be supported by said steps; a fore-and-aft screw threaded into the material of said stock beneath the base of said frog; a connection between said frog and said screw whereby said frog may be adjusted forth and back; and a screw threaded down into the material of said step and effective to clamp said frog to said stock at all adjustments of the former.

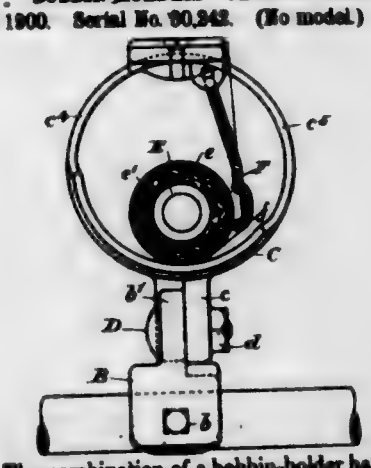
22. A metal plane-stock having a thin sole and thin side flanges and also having a high rib erected upon the sole and trussing the side flanges, so as to form a box-like device well in rear of the throat; said stock being also provided forwardly of said rib with a depressed step, and having also a rear elevated bearing-surface having a stepwise relation to said depressed step and which cojointly with said depressed step forms a chair in combination with a frog formed to engage and be guided by the parallel surfaces of said steps, whereby it may be adjusted forth and back said steps being finished in substantial parallelism with the working surface of said stock.

23. In a plane, the combination with a stock, of a frog thereon adjustable fore and aft in parallelism with the working surface of said stock; and plane-irons carried by said frog; said frog at its forward end both affording a direct support for the lower ends of the plane-irons, and also at said forward end and close to the lower ends of said plane-irons bearing upon the sole of the stock at all positions to which said frog may be adjusted; and separate means for supporting the main portion or body of said frog in such a manner as to permit said adjustment thereof; said separate supporting means being engaged by said frog at a material elevation above the sole of said stock.

24. In a plane, the combination with a stock, of a frog bearing upon the sole of the plane at the rear border of the throat; an elevated support well in rear of the throat; said frog having a main seat resting upon said elevated support; means for clamping said frog; a fore-and-aft screw threaded into said support beneath said frog; and an ear provided upon said frog and connected to said screw, whereby the frog may be adjusted by turning said screw; said frog, at all such adjustments thereof, bearing at its front end upon the sole at the rear border of the throat.

25. In a plane, the combination of a stock and a frog clamped thereon; a main support for said frog being provided upon said stock and rising to a material elevation above the sole thereof; and a fore-and-aft screw threaded into said main support beneath said frog and connected to the latter so as to effect fore-and-aft adjustments thereof; said frog having a part which extends forwardly and downwardly from said support and bears at its lower end upon the sole of the stock at the rear border of the throat, at all adjustments effected by said screw.

696,082. BOBBIN-HOLDER. ORRIN M. ROLFE, Lowell, Mass. Filed Sept. 17, 1900. Serial No. 30,242. (No model.)



Claim.—1. The combination of a bobbin-holder having an approximately hollow cylindrical body, provided at one side with an unobstructed longitudinal opening to receive a bobbin, the bottom of said opening being arranged to be above the axis of a full bobbin to be sustained in said holder, and provided on the opposite side with another longitudinal yarn-delivery opening, with a pivoted guard-wire to prevent the contained bobbin from passing through said last-named opening.

2. The combination with the body of a bobbin-holder, provided with

a yarn-delivery opening, of a swinging guard provided with a tension-bar, concaved on its inner side to bear at its ends only upon the end portions of the cylindrical surface of the cop of a bobbin arranged in said holder to steady said bobbin in said holder.

696,083. **WARP-STOP-MOTION MECHANISM.** CHARLES F. ROPER, Hopedale, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Filed Aug. 26, 1901. Serial No. 73,387. (No model.)



Claim.—1. In a loom, a series of warp-stop-motion-controlling detectors, a support upon which they are mounted, separators detachably connected with the support, to divide the detectors thereon into small groups, and means to prevent lateral displacement of the separators.

2. In a loom, a series of warp-stop-motion-controlling detectors, a support upon which they are mounted, separators each having a spring-clip for detachable connection with the support, to divide the detectors thereon into small groups, and means to prevent lateral movement of the separators on the support.

3. In a loom, a series of warp-stop-motion-controlling detectors, a support upon which they are mounted, and a series of separators detachably connected with the support to divide the detectors thereon into small groups, each separator comprising a body, and a spring-clip to engage the detector-support.

4. In a loom, a series of longitudinally-slotted warp-stop-motion-controlling detectors, a transverse support for and extended through the slots of the detectors, a series of recesses in the support, and a plurality of separators detachably connected with the support and in engagement with the recesses therein, to divide the detectors into groups, the recesses preventing lateral displacement of the separators.

5. In a loom, a series of longitudinally-slotted warp-stop-motion-controlling detectors, a flat supporting-bar of less depth than the length of the slots and extended therethrough, a series of recesses in the bar, and detachable separators having resilient attaching means to engage the upper and lower edges of the bar, to divide the detectors into groups, a separator engaging one of the recesses in the bar, to thereby be held from lateral displacement.

6. In a loom, a series of stop-motion detectors longitudinally movable into operative position by breakage of the warp-threads, a transverse support for and relatively to which the detectors have a limited independent vertical movement, detachable separators mounted on the support and each having a body portion to extend at right angles from the support, to divide the detectors into groups, and means to position the separators on the support and prevent their lateral displacement.

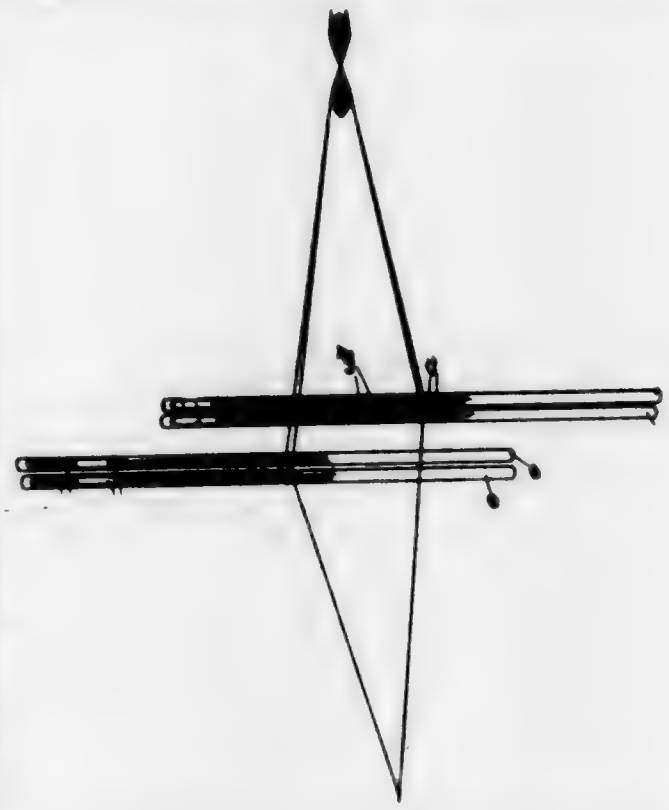
7. A separator for attachment to detector-supports in warp-stop-motion apparatus, consisting of a spring-wire bent between its ends to form a loop-like body, the wire being bent at opposite sides of the body to form a spring-clip.

8. A harness-frame having a cross-bar, in combination with heddles suspended from said cross-bar, each heddle having a warp-eye below said bar, and separators which divide said heddles into small groups or sections, said separators being mounted on the cross-bar and located above the warp-eyes, whereby lateral movement of said heddles is restricted.

9. A harness-frame having a cross-bar, in combination with heddles constituting warp-detectors suspended from said cross-bar and having a limited vertical movement thereon, each heddle having a warp-eye below said bar, said heddles being supported by the warp-threads when occupying the lower plane of the shed, and detachable separators which divide said heddles into small groups or sections, said separators being mounted on the said cross-bar and located above the warp-eyes, whereby lateral movement of said heddles is restricted.

696,084. **HEDDLE FOR LOOMS.** CHARLES F. ROPER, Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me., a Corporation of Maine. Filed Sept. 20, 1901. Serial No. 75,831. (No model.)

Claim.—1. A harness having a cross-bar, and heddles strung thereon, each heddle having a slot through which said bar is strung and an eye below said slot, said slot being longer than the vertical width of said bar so that the heddle is capable of an independent vertical movement on the harness-frame (whereby it is capacitated to act as a warp-stop-motion detector,) said cross-bar acting to pull said heddle up and to push it down, and said heddle being stiffened between the eye and slot to withstand the pushing strain, said stiffening being by corrugation so as to offset the two longitudinal edges of the heddle, said corrugation being extended to include the eye so as to permit the heddle to hang parallel with the line of warp travel, but said corrugation being omitted at the lower part of the heddle, whereby during the formation of the lower plane of the shed the threads therein do not chafe on the heddles of an oppositely-moving harness.



2. A harness having a cross-bar, and heddles strung thereon, each heddle having a slot through which said bar is strung and an eye below said slot, said cross-bar acting to pull said heddle up and to push it down, and said heddle being stiffened by corrugation between the eye and slot to withstand the pushing strain, but said corrugation being omitted at the lower part of the heddle.

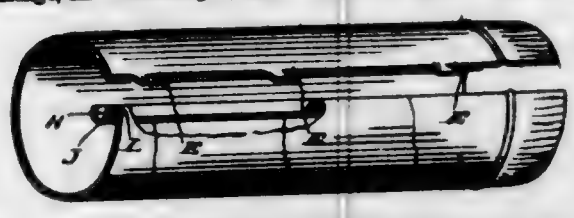
696,085. **CAR-WHEEL BEARING.** MORRIS B. SCHAFFER and CLARENCE H. HOWARD, St. Louis, Mo. Filed Nov. 29, 1901. Serial No. 84,054. (No model.)



Claim.—1. In a car-wheel bearing, the combination with the arch-bars or framework of the car-truck, of an axle, two opposite wheels fixed on the axle and having respectively a recess concentric with the axle, balls within the recess, two opposite blocks surrounding, but clear of the axle, and having respectively a reduced circular portion and shoulder engaging the said balls, a brace extending between and fixed to the said blocks, and means for securing the blocks with the said brace to the said framework, substantially as described.

2. In a car-wheel bearing, the combination of the axle, two opposite wheels fixed on the axle and having respectively a recess concentric with the axle, balls within the recess, two opposite blocks surrounding, but clear of the axle, and having respectively a reduced circular portion and shoulder engaging the said balls, a brace extending between and secured to the said blocks, and means for laterally adjusting the blocks for taking up the wear of the balls, substantially as described.

696,086. SHEET-METAL STOVEPIPING. ALBERT G. SCHERER, Chicago, Ill. Filed Aug. 3, 1901. Serial No. 70,711. (No model.)

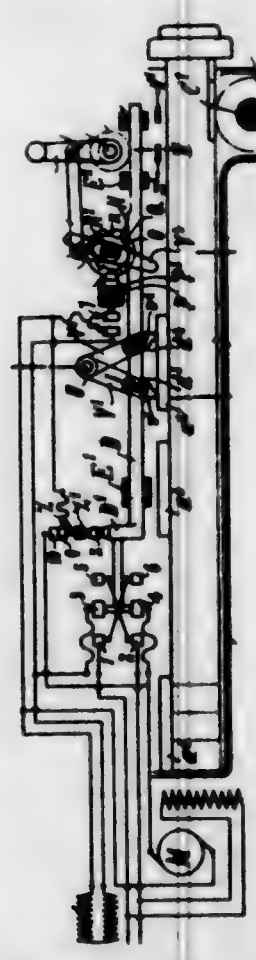


Claim.—1. The joint for sheet-metal pipe having one edge provided with a series of tangs, said tangs being provided with a straight outer edge and an angular joint, and the other edge being substantially S-shaped in cross-section and having a series of slits or openings to receive each its proper tang so that the point thereof overhangs the other edge of the slit to form a lock; said bent edge being compressed under said tang to make a tight seam.

2. The joint for sheet-metal piping, having provided on one edge thereof at suitable intervals a series of projections which are provided with an inclined point so as to provide a pointed space between the point and the edge of the piping, and the other edge of the piping being bent so as to be S-shaped in cross-section and have a series of vertical slits provided in the outer curve so that the lower edge of the slit is in line with the upper edge of the opening space formed between the ends of the tang and the edge of the pipe.

3. The joint for sheet-metal piping, consisting of two edges being provided with a series of projecting tangs whose outer edges are parallel with the edge of the piping and each has a point which provides a V-shaped recess between it and the edge of the section, and the other edge being rolled to have an S-shaped edge in cross-section and provided with a series of slits through the body in the outer curve, said slits being adapted to receive the tangs, whose base of its V-shaped recess is in line with the upper edge of its corresponding slit, in which it is locked.

696,087. AMMUNITION CONVEYER OR RAMMER FOR GUNS. GUSTAV A. SCHOELLER, Mülheim-on-the-Ruhr, Germany, assignor to Fried. Krupp, Essen, Germany. Filed Jan. 2, 1902. Serial No. 88,093. (No model.)



Claim.—1. In an ammunition conveyer or rammer for ordnance, the combination of a system of telescopically-arranged rack-bars, a pinion-wheel engaging successively said rack-bars, an electric motor operating said pinion-wheel, and a controlling-bar for throwing said motor into or out of action, with at least one pair of stops, one stop of each pair being rigidly attached to the rammer itself and moving therewith, while the other stop is movably attached to the rammer-casing so as to be in the path of the rigid stop and engages the controlling-bar, substantially as and for the purpose specified.

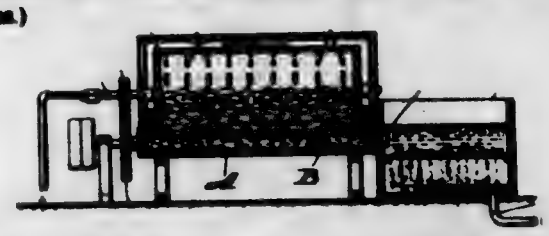
2. In an ammunition conveyer or rammer for ordnance, the combination of a system of telescopically-arranged rack-bars, a pinion-wheel engaging successively said rack-bars, an electric motor operating said pinion-wheel, and a controlling-bar for throwing said motor into or out of action, with at least one pair of stops, one stop of each pair being rigidly attached to the rammer itself and moving therewith, while the other stop is movably attached to the rammer-casing so as to be in the path of the rigid stop and engages the controlling-bar, said two stops being adapted to form a lock against returning of the controlling-bar immediately from its position of rest to a working position which would cause a continuation of the motor movement terminated, substantially as and for the purpose specified.

3. In an ammunition conveyer or rammer for ordnance, the combination of a system of telescopically-arranged rack-bars, a pinion-wheel engaging successively said rack-bars, an electric motor operating said pinion-wheel, and a controlling-bar for throwing said motor into or out of action, with two pairs of stops, one stop of each pair being rigidly attached respectively to the rear and to the forward end of the rammer itself and moving therewith, while the other stop of each pair is movably attached to the rammer-casing so as to be in the path of the corresponding rigid stop and engages the controlling-bar, for stopping the motor at or near the end of the complete extending or pushing-in movement of the rammer, substantially as specified.

4. In an ammunition conveyer or rammer for ordnance, the combination of a system of telescopically-arranged rack-bars, a pinion-wheel engaging successively said rack-bars, an electric motor operating said pinion-wheel, a controlling-bar for throwing said motor into or out of action, and a controlling-lever actuating said controlling-bar, with two pairs of stops, one stop of each pair being rigidly attached respectively to the rear and to the forward end of the rammer itself and moving therewith, while the other stop of each pair is movably attached to the rammer-casing so as to be in the path of the corresponding rigid stops and engages the controlling-bar and a third pair of stops, one stop of which is rigidly attached to a central part of the rammer and moving therewith, while the other stop by means of a ratchet device connected to the controlling-lever is during the outward movements of the rammer alternately thrown into the path of the corresponding rigid stop, for automatically stopping the motor at a shortened outward stroke of the rammer, substantially as specified.

5. In an ammunition conveyer or rammer for ordnance, the combination of a system of telescopically-arranged rack-bars, a pinion-wheel engaging successively said rack-bars, an electric motor operating said pinion-wheel, a controlling-bar for throwing the motor into or out of action, and a controlling-lever actuating the controlling-bar with a resistance alternately inserted in the armature-circuit during the outward movements of the rammer by means of a ratchet device connected to the controlling-lever, for automatically decreasing the speed of the rammer substantially as specified.

696,088. METHOD OF MAKING FLOUR FROM SWEET POTATOES. ELBE STRAUB, Vineland, N. J., assignor to Henry S. Morris, Vineland, N. J. Filed Oct. 30, 1900. Serial No. 34,897. (No specimens.)



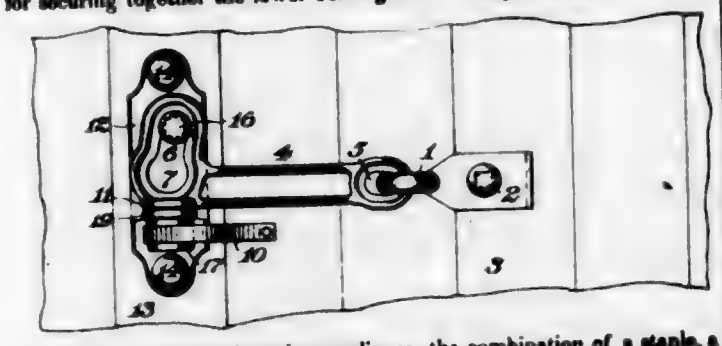
Claim.—The method or process of making a flour from sweet potatoes which consists, first, in removing therefrom the outer surface or skin, second, in grating or reducing the sweet potatoes to a pulp-like mass, third, in removing from such mass the hydrated matter which contains a portion of the starch, fourth, in removing substantially all of the remaining starch from the residual product, fifth, in evaporating or drying such residual material, and lastly, in grinding or finely dividing the residual material into flour, substantially as specified.

696,089. CAR-DOOR LOCK. CHARLES W. BOOTH, Milwaukee, Wis. Filed Oct. 31, 1901. Serial No. 80,669. (No model.)

Claim.—1. In a car-door-fastening appliance, the combination of a staple, a hasp swinging thereon and having upper and lower bearings at its end further therefrom, and a door-stile plate having upper and lower bearings or abutments adapted, respectively, to be engaged, with a positive locking connection, by the upper and the lower bearing of the hasp.

2. In a car-door-fastening appliance, the combination of a staple, a hasp swinging thereon and having upper and lower bearings at its end further therefrom; a door-stile plate having upper and lower bearings or abutments adapted, respectively, to be engaged, with a positive locking

connection, by the upper and the lower bearing of the hasp, and means for securing together the lower bearings of the hasp and door-stile plate.



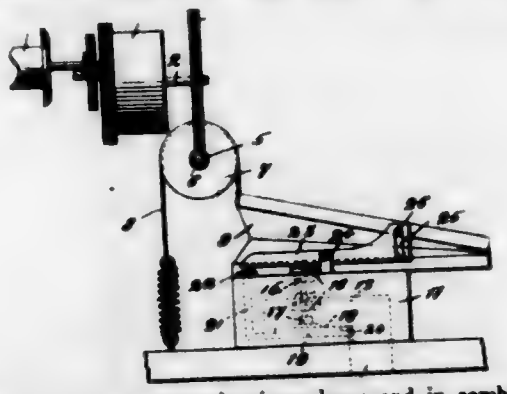
3. In a car-door-fastening appliance, the combination of a staple, a hasp swinging thereon and having, at its end farther from the staple, an upper radial slot and a lower seal-pin, a door-stile plate having an upper pin and a lower socket, adapted, respectively, to be engaged by the radial slot and the seal-pin of the hasp, and means for connecting the seal-pin and the socket.

4. In a car-door-fastening appliance, the combination of a staple, a hasp swinging thereon and having, at its end farther from the staple, an upper radial slot and a lower seal-pin provided with a transverse sealway, and a door-stile plate having an upper pin adapted to be engaged by the radial slot, and a lower socket adapted to be engaged by the seal-pin and provided with a transverse sealway registering with the sealway of the said pin.

5. In a car-door-fastening appliance, the combination of a staple, a hasp swinging thereon and having, at its end farther from the staple, an upper radial slot terminating at bottom in an enlarged eye, and a lower seal-pin provided with a transverse sealway, and a door-stile plate having an upper pin, adapted to fit in the radial slot and provided with a head adapted to enter the enlarged eye of said slot, and a lower socket adapted to be engaged by the seal-pin and provided with a transverse sealway registering with the sealway of said pin.

6. In a car-door-fastening appliance, the combination of a staple, a hasp swinging thereon and having, at its end farther from the staple, an upper radial slot and a lower seal-pin and padlock-lug, and a door-stile plate having an upper pin and a lower socket, adapted, respectively, to be engaged by the radial slot and the seal-pin of the hasp, and a padlock-lug adapted to register with the padlock-lug of the hasp.

696,090. WINDING MECHANISM. THEODORE P. BROWN, Worcester, Mass. Filed June 8, 1901. Serial No. 63,784. (No model.)



Claim.—1. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, means for winding the motor-spring, a power-pneumatic in communication with and operable from a source of air-supply, and connections between the working flap of said power-pneumatic and said winding means whereby the latter is actuated by the movement of said working flap.

2. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a power-pneumatic in communication with and operable from the main bellows, and connections between the working flap of said power-pneumatic and said winding means; whereby said winding means is actuated by the downward movement of said working flap as the power-pneumatic is collapsed.

3. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft connected with the motor-shaft, a power-pneumatic in communication with and operable from the main bellows, and connections between the working flap of said power-pneumatic and said winding-shaft; whereby said winding-shaft is actuated at each collapse of said pneumatic.

4. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft connected with said motor-shaft, a pulley on said winding-shaft, a power-pneumatic, and a strap connection between the working flap of said power-pneumatic and said pulley; whereby intermittent, rotary movements are imparted to said pulley and winding-shaft at each collapse of said pneumatic.

5. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a worm gear-wheel on the motor-shaft, a winding-shaft, a worm on the said winding-shaft engaging the worm gear-wheel on the motor-shaft, a pulley on said winding-shaft, a strap running over said pulley, a power-pneumatic with which said strap is connected at one end so as to impart a rotary movement to said pulley and winding-shaft when the pneumatic is collapsed, and means for returning the strap to its normal position.

6. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, means for winding the motor-spring, a power-pneumatic to actuate said winding means as it collapses, said power-pneumatic being in communication with the main bellows and operable therefrom, and means for breaking the vacuum in said power-pneumatic to allow it to distend at regular intervals, whereby a regular, intermittent movement is imparted to said winding means by said power-pneumatic.

7. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, means for winding the motor-spring, a power-pneumatic to actuate said winding means as it collapses, said power-pneumatic being in communication with the main bellows and operable therefrom, and automatic means for breaking the vacuum in said power-pneumatic to allow it to distend at regular intervals, whereby a regular, intermittent movement is imparted to said winding means by said power-pneumatic.

8. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, means for winding the motor-spring, a power-pneumatic to actuate said winding means as it collapses, said power-pneumatic being in communication with the main bellows and operable therefrom, and automatic means operated by the said power-pneumatic to break the vacuum in said power-pneumatic and allow it to distend at regular intervals, whereby a regular, intermittent movement is imparted to said winding means by said power-pneumatic.

9. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft for the motor-spring geared to the motor-shaft, a friction-pulley on said winding-shaft, a friction-strap running over said pulley and spring-held at one end, a power-pneumatic to the working flap of which the other end of said strap is secured, and means for causing an automatic, alternating collapse and distention of said power-pneumatic, whereby a regular, intermittent rotation is imparted to said winding-shaft.

10. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft for the motor-spring geared to the motor-shaft, a friction-pulley on said winding-shaft, a friction-strap running over said friction-pulley and spring-held at one end, a power-pneumatic to the working flap of which the other end of said strap is secured, a vacuum-chamber with which said pneumatic is in communication, a puppet-valve controlling the port between said chamber and said pneumatic, an open-air port, pneumatically-operated means to move said puppet-valve, and an automatically-operated valve to control the action of said pneumatically-operated means.

11. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft for the motor-spring geared to the motor-shaft, a friction-pulley on said winding-shaft, a friction-strap running over said pulley and spring-held at one end, a power-pneumatic to the working flap of which the other end of said strap is secured, a vacuum-chamber having a port entering said power-pneumatic and an open-air port, a double puppet-valve controlling said ports, a flexible diaphragm to actuate said puppet-valve, a diaphragm-pocket having an open-air port, a valve controlling said port, and means for opening and closing said valve.

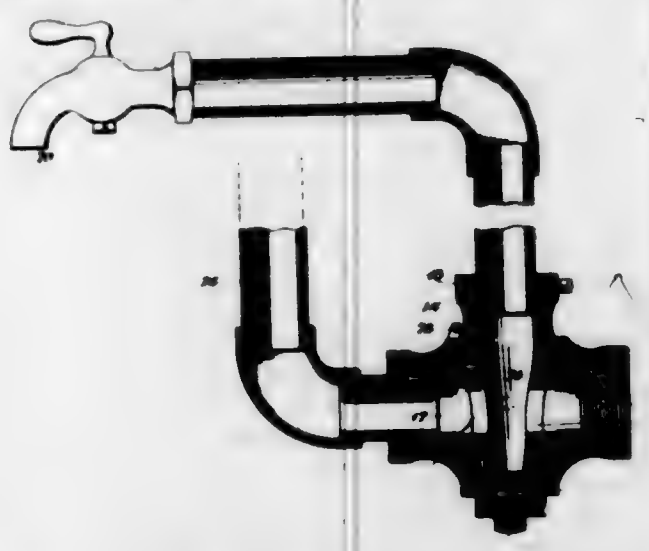
12. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft for the motor-spring geared to the motor-shaft, a friction-pulley on said winding-shaft, a friction-strap running over said friction-pulley and spring-held at one end, a power-pneumatic to the working flap of which the other end of said strap is secured, a vacuum-chamber having a port entering said power-pneumatic and an open-air port, a double puppet-valve controlling said ports, a flexible diaphragm to actuate said puppet-valve, a diaphragm-pocket having an open-air port, a valve controlling said port, and automatic means operated by said power-pneumatic for opening and closing said valve.

13. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft for the motor-spring geared to the motor-shaft, a friction-pulley on said winding-shaft, a friction-strap running over said friction-pulley and spring-held at one end, a power-pneumatic to the working flap of which the other end of said strap is secured, a vacuum-chamber having a port entering said power-pneumatic and an open-air port, a double puppet-valve controlling said ports, a flexible diaphragm to actuate said puppet-valve, a diaphragm-pocket having an open-air port, and automatic means operated by said power-pneumatic for opening and closing said valve.

14. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft for the motor-spring geared to the motor-shaft, a friction-pulley on said winding-shaft, a friction-strap running over said friction-pulley and spring-held at one end, a power-pneumatic to the working flap of which the other end of said strap is secured, a vacuum-chamber having a port entering said power-pneumatic and an open-air port, a double puppet-valve controlling said ports, a flexible diaphragm to actuate said puppet-valve, a diaphragm-pocket having an open-air port, a valve controlling said port, a lever operatively connected at one end with said valve, and connections between the said lever and the working flap of said power-pneumatic to operate said lever and open and close said valve as the pneumatic collapses and distends.

15. In an automatic piano-player and in combination, a spring-motor for moving the music-sheet, a winding-shaft for the motor-spring geared to the motor-shaft, a friction-pulley on said winding-shaft, a friction-strap running over said friction-pulley and spring-held at one end, a power-pneumatic to the working flap of which the other end of said strap is secured, a vacuum-chamber having a port entering said power-pneumatic and an open-air port, a double puppet-valve controlling said ports, a flexible diaphragm to actuate said puppet-valve, a diaphragm-pocket having an open-air port, a valve controlling said port, a lever operatively connected at one end with said valve, and a slot-and-pin connection between said lever and the working flap of said power-pneumatic to operate said lever when the said working flap approaches the limit of its movements in collapsing and distending to open and close said valve.

696,091. **WASTE-COCK.** HARRY H. BUTLER and WILLIAM A. DAILEY, Brockwayville, Pa. Filed May 17, 1901. Renewed Feb. 15, 1902. Serial No. 94,325. (No model.)



Claim.—1. A drain-cock comprising a casing having a plug-seat and inlet and outlet passages opening through the walls of said plug-seat and having a drain-passage also opening through the wall of the plug-seat, and a plug rotatably disposed in the seat and adapted for attachment of a service-pipe thereto, said plug being hollow and having ports adapted to register with the inlet and outlet openings simultaneously, and one of said ports being adapted to register with the drain passage, said plug having also a port for registration with the outlet-passage when a first-named port is in registration with the drain-passage.

2. A drain-cock comprising a casing having a plug-seat and inlet and outlet passages and a drain-passage opening into the plug-seat, and a hollow plug rotatably disposed in the plug-seat, and adapted for attachment of a service-pipe thereto said plug having ports opening thereinto and adapted to register with the inlet and outlet openings simultaneously, and to register one of them with the drain-passage when the plug is rotated to close the inlet-passage, said plug having also a port for registration with the outlet-passage when the plug is in position to close the inlet-passage, the cross-sectional area of the last-named port being less than the corresponding dimensions of either of the first-named ports and of the drain-passage.

696,092. **METHOD OF PRODUCING METALS.** GUILLIAM H. CLAMER, Philadelphia, Pa. Filed Nov. 3, 1900. Serial No. 35,344. (No specimens.)

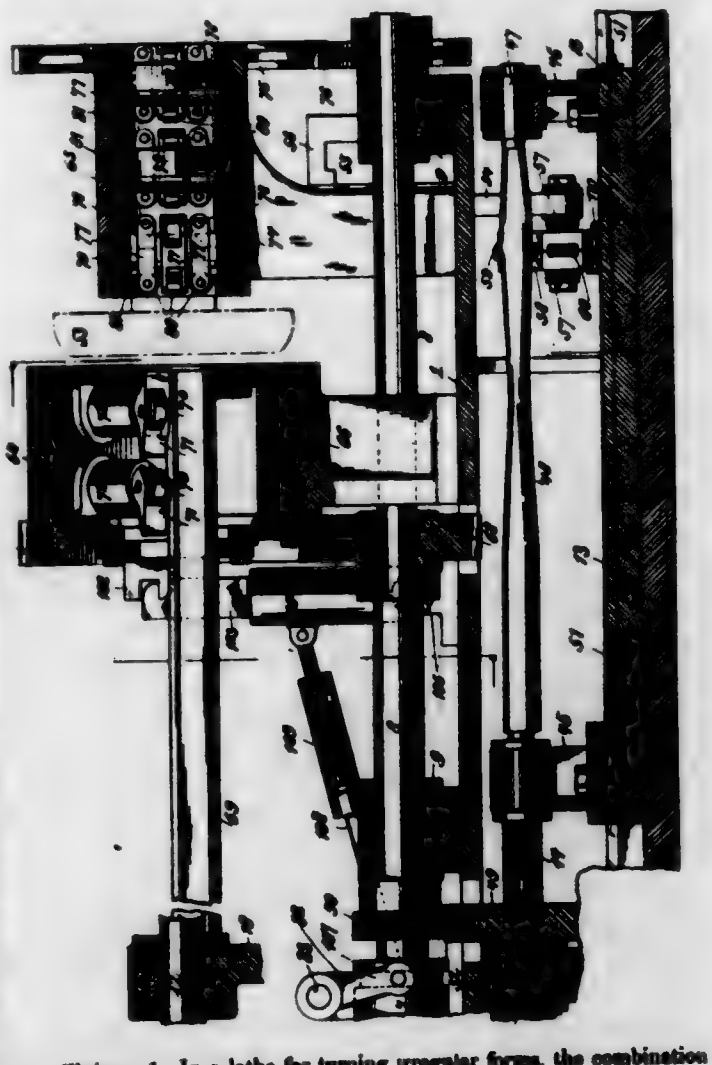
Claim.—1. The art of reducing a metal from its ores, which consists in bringing the ore into contact with a flux and an alloy composed of the same kind of metal as the metal of the ore and an element more electropositive than that metal, heating all said substances and effecting the combination of the electropositive element with the substance with which the metal was combined in the ore, fluxing the compound of the electropositive element, and recovering the metal set free from the alloy and from the ore, substantially as described.

2. The art of reducing iron-oxid ores which consists in bringing a flux and an alloy consisting of carbon and iron and an element more electropositive than iron into contact with the ore, heating all said substances and effecting the combination of the electropositive element with the oxygen of the ore, and recovering the iron of the ore and of the alloy in combination with small proportions of carbon originally contained as impurities in the alloy, substantially as described.

3. The herein-described method of reducing iron-oxid ores which consists in bringing a flux and ferrosilicon into contact with the ore, heating said substances and effecting the combination of the silicon with the oxygen of the ore, fluxing the oxid of the silicon, and recovering the iron of the oxid and of the ferrosilicon, substantially as described.

4. The herein-described method of reducing iron-oxid ores which consists in bringing a flux and ferrosilicon into contact with the ore and with low-carbon iron, heating all these substances and effecting the combination of the silicon with the oxygen of the ore, fluxing the oxid of silicon, and recovering the iron of the ore and of the ferrosilicon along with the low-carbon iron of the charge, as steel, substantially as described.

696,093. **LATHE FOR TURNING IRREGULAR FORMS.** WILLIAM L. COLE, Brooklyn, N. Y., assignor of one-half to Wallace A. Downs, New York, N. Y. Filed Feb. 25, 1901. Serial No. 48,734. (No model.)



Claim.—1. In a lathe for turning irregular forms, the combination with a revoluble head, of means for feeding stock therethrough, a rotary cutter, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

2. In a lathe for turning irregular forms, the combination with a revoluble head, of means for feeding stock therethrough, a rotary cutter, a pattern, a pattern-follower adapted to control the position of the rotary cutter, means for causing a relative movement of the pattern and follower, the one with the other, in a direction lengthwise of the axis of rotation of the follower, and means for simultaneously revolving the pattern and the head.

3. In a lathe for turning irregular forms, the combination with a revoluble head, of means for feeding stock therethrough, a pattern-controlled rotary cutter, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the head.

4. In a lathe for turning irregular forms, the combination with a revoluble head, of a feed-plunger adapted in its movement to bear against the end of the stock to be operated upon, and to feed it lengthwise through the revolving head, a rotary cutter, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in direction both lengthwise and circumferential of the longitudinal axis of the pattern.

5. In a lathe for turning irregular forms, the combination with a revoluble head, of a feed-plunger adapted in its movement to bear against the end of the stock to be operated upon, and to feed it lengthwise through the revolving head, a pattern-controlled rotary cutter, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the head.

6. In a lathe for turning irregular forms, the combination with a revoluble head, of a revoluble feed-plunger adapted in its movement to bear against the end of the stock to be operated upon, and to feed it lengthwise through the revolving head, a rotary cutter, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

7. In a lathe for turning irregular forms, the combination with a revoluble head, of a revoluble feed-plunger adapted in its movement to bear against the end of the stock to be operated upon, and to feed it lengthwise through the revolving head, a pattern-controlled rotary cutter, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the head.

8. In a lathe for turning irregular forms, the combination with a revoluble head having a receiving-trough projecting rearwardly therefrom, of means for feeding stock, received by said receiving-trough, through the said head, a rotary cutter, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

9. In a lathe for turning irregular forms, the combination with a revoluble head having a receiving-trough projecting rearwardly therefrom, of means for feeding stock, received by said receiving-trough, through the said head, a pattern-controlled rotary cutter, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the head.

10. In a lathe for turning irregular forms, the combination with a revoluble head having an open-sided receiving-trough projecting rearwardly therefrom, of means for feeding stock, received by said receiving-trough, through the said head, a rotary cutter, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

11. In a lathe for turning irregular forms, the combination with a revoluble head having an open-sided receiving-trough projecting rearwardly therefrom, of means for feeding stock, received by said receiving-trough, through the said head, a pattern-controlled rotary cutter, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the head.

12. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, means for feeding the stock therethrough and means for stopping the revoluble head in a predetermined position.

13. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head having an open-sided receiving-trough, means for revolving the said head, and means for stopping the revoluble head with the open side of the feed-trough uppermost.

14. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, means for feeding the stock therethrough, means for disconnecting the revoluble head with its source of power, and automatic means for stopping the said head in a predetermined position when so disconnected.

15. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, means for feeding the stock through the revoluble head, and automatic means, operated by the feeding means in its movement, for disconnecting the revoluble head from its source of power after the stock has been fed entirely through, and past, the said head.

16. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, means for feeding the stock through the revoluble head, and automatic means, operated by the feeding means in its movement, for disconnecting the revoluble head from its source of power after the stock has been fed entirely through, and past, the said head, and for stopping the said head in a predetermined position when so disconnected.

17. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, the said head having a notch or shoulder, means for feeding the stock through said head, a stop fixedly secured against rotation with the head and means for causing a relative movement of said stop and said notch or shoulder, whereby said stop is caused to engage and disengage the said notch or shoulder of the said head.

18. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, the said head having a notch or shoulder, means for feeding the stock through said head, a stop pivotally mounted at one end to a fixed point and means adapted, when said stop is rocked upon its pivotal support to cause same to engage or disengage the said notch or shoulder of the said head.

19. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, the said head having a notch or shoulder, means for feeding the stock through said head, a cushioned stop fixedly secured against rotation with the head, and means for causing a relative movement of said stop and said notch or shoulder, whereby said stop is caused to engage and disengage the said notch or shoulder of the said head.

20. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, the said head having a notch or shoulder, means for feeding the stock through said head, a spring-cushioned stop fixedly secured against rotation with the head, and means for causing a relative movement of said stop and said notch or shoulder, whereby said stop is caused to engage and disengage the said notch or shoulder of the said head.

21. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, the said head having a notch or shoulder, an air-cushioned stop fixedly secured against rotation with the head, and means for causing a relative movement of said stop and said notch or shoulder, whereby said stop is caused to engage and disengage the said notch or shoulder of the said head.

22. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, the said head having a notch or shoulder, a spring and air cushioned stop fixedly secured against rotation with the head, and means for causing a relative movement of said stop and said notch or shoulder, whereby said stop is caused to engage and disengage the said notch or shoulder of the said head.

23. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, the said head having a notch or shoulder, a stop fixedly secured against rotation with the head, and means, having an elastic connection with the said stop, for causing the same to engage with the said notch or shoulder of the said head.

24. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of a revoluble head for receiving and revolving the stock to be operated upon, the said head having a notch or shoulder, a stop fixedly secured against rotation with the head, means for causing the same to engage with the said notch or shoulder of the said head, and a spring-link between the said means and the said stop.

25. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter and a revoluble head, of means for primarily feeding the stock into the head while the said head is stationary and subsequently for simultaneously revolving the said head and feeding the said stock therethrough.

26. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter and a revoluble head having an open-sided receiving-trough projecting rearwardly therefrom, of means for primarily feeding the stock into the head while the said head is stationary and subsequently for simultaneously revolving the said head and feeding the stock therethrough.

27. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter and a revoluble head having an open-sided receiving-trough projecting rearwardly therefrom, of means for primarily feeding the stock into the head while the said head is stationary and subsequently for simultaneously revolving the said head and feeding the said stock therethrough, and means for stopping the head and trough in a predetermined position.

28. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of means for feeding the stock through the said head, and means operatively connected by the said feeding means after the feeding means has passed through a portion of its forward movement, for revolving the said head.

29. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of means for feeding the stock through the said head, and means whereby the head is held stationary while the stock is fed into the same, and whereby the head is revolved while the stock is fed through the same.

30. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of a feed-plunger for feeding the stock through the said head, means whereby the said head may be rotated while the feed-plunger is feeding the stock therethrough, a clutch for connecting the said means with a source of power, and means carried by the feed-plunger for operating said clutch after the feed-plunger has moved through a portion of its stroke.

31. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of a feed-plunger for feeding the stock through the said head, a drive-shaft, means for operating the feed-plunger from the drive-shaft, a secondary shaft, a clutch between said primary and said secondary shaft, means for revolving the head from the secondary shaft, and means carried by the feed-plunger for operating said clutch after the feed-plunger has moved through a portion of its stroke in one direction.

32. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of means for feeding the stock through the said head, means operatively connected by the said feeding means after the feeding means has passed through a portion of its movement in one direction, and during the time it is operating to feed the stock through the head, for revolving the said head, and means operated by the said feeding means at substantially the completion of its forward movement for stopping the said head in a predetermined position.

33. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of a feed-plunger for feeding the stock through the said head, means whereby the said head may be rotated, a clutch for operatively connecting and disconnecting the said means with a source of power, and means carried by the feed-plunger for operatively connecting the said clutch, after the feed-plunger has moved through a portion of its forward movement, and for disconnecting the said clutch at substantially the completion of the forward movement thereof.

34. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of a feed-plunger for feeding the stock through the said head, means whereby the said head may be rotated, a clutch for operatively connecting and disconnecting the said means with a source of power, means carried by the feed-plunger for operatively connecting the said clutch, after the feed-plunger has moved through a portion of its forward movement, and for disconnecting the said clutch at substantially the completion of the forward movement thereof, and means for stopping the said head in a predetermined position.

35. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of a feed-plunger for feeding the stock through the said head, a drive-shaft, means for operating the feed-plunger from the drive-shaft, a secondary shaft, means for revolving the head from the secondary shaft, a clutch between the drive-shaft and the secondary shaft, and means carried by the feed-plunger whereby the clutch will be operatively connected after the feed-plunger has moved through a portion of its forward movement, and whereby it will be disconnected after the feed-plunger has substantially completed its forward movement.

36. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, and a revoluble head for receiving and revolving the stock to be operated upon, of a feed-plunger for feeding the stock through the said head, a drive-shaft, means for operating the feed-plunger from the drive-shaft, a secondary shaft, means for revolving the head from the secondary shaft, a clutch between the drive-shaft, and the secondary shaft, means carried by the feed-plunger whereby the clutch will be operatively connected after the feed-plunger has moved through a portion of its forward movement, and whereby it will be disconnected after the feed-plunger has substantially completed its forward movement, and means for stopping the said head in a predetermined position.

37. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the head and for imparting lengthwise movement to the pattern after, and only after, the feeding means has passed through a portion of its forward movement.

38. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for primarily feeding the stock into the head while the pattern is out of operative connection, and subsequently for simultaneously operating the pattern and feeding the stock through the head.

39. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for primarily feeding the stock into the head, and subsequently for simultaneously moving the pattern lengthwise and feeding the stock through the head.

40. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a revoluble pattern for controlling same, of means for primarily feeding the stock into the head, and subsequently for simultaneously moving the pattern lengthwise of its axis of rotation and feeding the stock through the head.

41. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for primarily feeding the stock into the head while the said head is stationary and the pattern out of operative connection, and subsequently for operating the pattern and simultaneously revolving the said head and feeding the said stock therethrough.

42. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for primarily feeding the stock into the head while the said head is stationary, and subsequently for moving the pattern lengthwise and simultaneously revolving the said head and feeding the said stock therethrough.

43. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a revoluble pattern for controlling same, of means for primarily feeding the stock into the head while the said head is stationary, and subsequently for moving the pattern lengthwise of its axis of rotation and simultaneously revolving the said head and feeding the said stock therethrough.

44. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the head, said means adapted in its movement to impart lengthwise movement to the said pattern.

45. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the head, said means adapted, during a portion of its movement only, to impart lengthwise movement to the said pattern.

46. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of a plunger for feeding the stock through the head, said plunger having a shoulder adapted, during a portion of the movement of the plunger, to impart lengthwise movement to the pattern.

47. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of a support for said pattern and a feed-carriage, carrying means for feeding the stock through the head, said feed-carriage and support adapted to operatively engage each other during a portion of the movement of the feed-carriage.

48. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the head, and means operatively connected by the said feeding means, after the feeding means has passed through a portion of its forward movement, for revolving the said head and for imparting lengthwise movement to the pattern.

49. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the head, and means operatively connected by the said feeding means, after the feeding means has passed through a portion of its forward movement, for revolving the said pattern, and for imparting lengthwise movement thereto.

50. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the head, and means operatively connected by the said feeding means, after the feeding means has passed through a portion of its forward movement, for revolving the said head and the said pattern, and for imparting lengthwise movement to the pattern.

51. In a lathe for turning irregular forms, the combination with a revoluble head for receiving and revolving the stock to be operated upon, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the said head, and means whereby the head is held stationary while the stock is fed into same, and whereby the head is revolved, and the pattern moved lengthwise, while the stock is fed through the said head.

52. In a lathe for turning irregular forms, the combination with a revoluble head for receiving and revolving the stock to be operated upon, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the said head, means whereby the said head and pattern may be rotated in unison, a clutch for connecting the said means, and means operated by the said feeding means, in its movement, for operating the said clutch.

53. In a lathe for turning irregular forms, the combination with a revoluble head for receiving and revolving the stock to be operated upon, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the said head, means whereby the said head and pattern may be rotated in unison, a clutch for connecting the said means, and means operated by the said feeding means, in its movement, for operating the said clutch, and for imparting lengthwise movement to the said pattern.

54. In a lathe for turning irregular forms, the combination with a revoluble head for receiving and revolving the stock to be operated upon, a rotary cutter, and a pattern for controlling same, of a feed-plunger for feeding the stock through the said head, a drive-shaft, means for operating the feed-plunger from the drive-shaft, a secondary shaft, means for revolving the head and the pattern from the secondary shaft, a clutch between the drive-shaft and the secondary shaft, and means carried by the feed-plunger for operating said clutch.

55. In a lathe for turning irregular forms, the combination with a revoluble head for receiving and revolving the stock to be operated upon, a rotary cutter, and a pattern for controlling same, of a feed-plunger for feeding the stock through the said head, a drive-shaft, means for operating the feed-plunger from the drive-shaft, a secondary shaft, means for revolving the head and the pattern from the secondary shaft, a clutch between the drive-shaft and the secondary shaft, and means carried by the feed-plunger for operating said clutch, and for imparting lengthwise movement to the said pattern.

56. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the revoluble head, and simultaneously operating upon the same with the rotary cutter, and means for adjusting the extent of movement of the said feeding means.

57. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the revoluble head, and an adjustable back-stop for limiting the extent of movement of the said feeding means.

58. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of a feed-carriage provided with a plunger for feeding the stock through the revoluble head, a guide-rod for said carriage, and an adjustable back-stop on said guide-rod for limiting the extent of movement of the said feed-carriage.

59. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, a pattern for controlling same, and adjustable supports for the pattern, of means for feeding the stock through the revoluble head, and means for adjusting the extent of movement of the said feeding means.

60. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, a pattern for controlling same, and supports for the pattern, of means for feeding the stock through the revoluble head, means for adjusting the extent of movement of the said feeding means, and means whereby the relative position of the said pattern-supports may be adjusted.

61. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, a pattern for controlling same, and supports for the pattern relatively adjustable toward and away from each other, of a feed-carriage provided with a plunger for feeding the stock through the revoluble head, and an adjustable back-stop for limiting the extent of movement of the feed-carriage.

62. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the revoluble head, and a cushion back-stop for limiting the return movement of the said feeding means.

63. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the revoluble head, and an adjustable cushion back-stop for limiting the return movement of the said feeding means.

64. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the revoluble head, and an air-cushion back-stop for limiting the return movement of the said feeding means.

65. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of means for feeding the stock through the revoluble head, and an adjustable air-cushion back-stop for limiting the return movement of said feeding means.

66. In a lathe for turning irregular forms, the combination with a revoluble head, a rotary cutter, and a pattern for controlling same, of a feed-carriage provided with a plunger for feeding the stock through the revoluble head, a guide-rod for said feed-carriage, and an adjustable back-stop on said guide-rod, said back-stop having a plunger projecting therefrom, said plunger fitting, and adapted to engage, a recess in the carriage.

67. In a lathe for turning irregular forms, the combination with a revoluble head, and a pattern-controlled rotary cutter, of means for revolving the head and for feeding the stock therethrough, hand-operated means for first throwing in the feed, automatic means for throwing in the head-revolving means, after the feed has passed through a portion of its forward stroke, and automatic means for throwing both said means out of operation at substantially the end of a forward stroke.

68. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, means for revolving the head, and means independent thereof for feeding the stock through the said head, of hand-operated means for connecting and disconnecting the feeding means independently of the head-revolving means, while the head-revolving means is disconnected, and for simultaneously disconnecting the feeding means and the head-revolving means when they are both operatively connected.

69. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of means for connecting, with a source of power, the feeding means and the head-revolving means independently of each other, and means for dependently disconnecting both of the said means.

70. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of means for connecting, with a source of power, the feeding means and the head-revolving means independently of each other, and hand-operated means for dependently disconnecting both of the said means.

71. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of means for connecting, with a source of power, the feeding means and the head-revolving means independently of each other, and automatic means for dependently disconnecting both of the said means.

72. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of a hand-lever for disconnecting and connecting the feeding means, and an automatic means for connecting the head-revolving means after the feeding means has passed through a portion of its stroke.

73. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of a hand-lever for connecting and disconnecting the feeding means, and means, operated by the feeding means in its movement, for connecting the head-revolving means after the said feeding means has passed through a portion of its forward movement, and for disconnecting the feeding means after it has substantially completed its forward movement.

74. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of a hand-lever for connecting and disconnecting the feeding means, and means operated by the feeding means for connecting the head-revolving means after the said feeding means has passed through a portion of its forward stroke, and for disconnecting both the head-revolving means and the feeding means after it has substantially completed its forward movement.

75. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of a hand-lever for connecting and disconnecting the feeding means, a clutch for connecting and disconnecting the head-revolving means, and a loose connection between the said hand-lever and the said clutch.

76. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of a hand-lever for connecting and disconnecting the feeding means, a clutch for connecting and disconnecting the head-revolving means, and a slotted link connection between the said hand-lever and the said clutch.

77. In a lathe for turning irregular forms, the combination with a revoluble head, a pattern-controlled rotary cutter, and means for revolving the head and for feeding the stock therethrough, of a hand-lever for connecting and disconnecting the feeding means, a clutch for connecting and disconnecting the head-revolving means, a clutch-operating lever, a slotted connection between the said hand-lever, and the clutch-operating lever, and means carried by the feeding means for moving the clutch-le-

ver in one direction during one portion of its forward movement, and for operating the hand-lever and moving the clutch-lever in the opposite direction during another portion of its forward movement.

78. In a lathe for turning irregular forms, the combination with two revoluble heads, of means for feeding stock therethrough, a rotary cutter, arranged intermediate of the said heads, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

79. In a lathe for turning irregular forms, the combination with two revoluble heads, of means for feeding stock therethrough, a rotary cutter arranged intermediate of the said heads, a pattern, a pattern-follower adapted to control the position of the rotary cutter, means for causing a relative movement of the pattern and follower, the one with the other, in a direction lengthwise of the axis of rotation of the pattern, and means for simultaneously revolving the pattern and the heads.

80. In a lathe for turning irregular forms, the combination with two revoluble heads, of means for feeding stock therethrough, a pattern-controlled rotary cutter arranged intermediate of the said heads, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the heads.

81. In a lathe for turning irregular forms, the combination with two revoluble heads, of a feed-plunger adapted in its movement to bear against the end of the stock to be operated upon, and to feed it lengthwise through the revolving heads, a rotary cutter arranged intermediate of the said heads, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

82. In a lathe for turning irregular forms, the combination with two revoluble heads, of a feed-plunger adapted in its movement to bear against the end of the stock to be operated upon, and to feed it lengthwise through the revolving heads, a pattern-controlled rotary cutter arranged intermediate of the said heads, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the heads.

83. In a lathe for turning irregular forms, the combination with two revoluble heads, of a revoluble feed-plunger adapted in its movement to bear against the end of the stock to be operated upon, and to feed it lengthwise through the revolving heads, a rotary cutter arranged intermediate of the said heads, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

84. In a lathe for turning irregular forms, the combination with two revoluble heads, of a revoluble feed-plunger adapted in its movement to bear against the end of the stock to be operated upon, and to feed it lengthwise through the revolving heads, a pattern-controlled rotary cutter arranged intermediate of the said heads, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the heads.

85. In a lathe for turning irregular forms, the combination with two revoluble heads, one of which has a receiving-trough projecting rearwardly therefrom, of means for feeding stock, received by said receiving-trough, through both the said heads, a rotary cutter arranged intermediate of the said heads, a pattern, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

86. In a lathe for turning irregular forms, the combination with two revoluble heads, one of which has a receiving-trough projecting rearwardly therefrom, of means for feeding stock, received by said receiving-trough, through both the said heads, a pattern-controlled rotary cutter arranged intermediate of the said heads, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the heads.

87. In a lathe for turning irregular forms, the combination with two revoluble heads, one of which has an open-sided receiving-trough projecting rearwardly therefrom, of means for feeding stock, received by said receiving-trough, through both the said heads, a rotary cutter arranged intermediate of the said heads, a pattern-follower adapted to control the position of the rotary cutter, and means for causing a relative movement of the pattern and follower, the one with the other, in directions both lengthwise and circumferential of the longitudinal axis of the pattern.

88. In a lathe for turning irregular forms, the combination with two revoluble heads, one of which has an open-sided receiving-trough projecting rearwardly therefrom, of means for feeding stock, received by said receiving-trough, through both the said heads, a pattern-controlled rotary cutter arranged intermediate of the said heads, a pattern, means for feeding the pattern lengthwise of its axis of rotation, and means for simultaneously revolving the pattern and the heads.

89. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of two revoluble heads one arranged forwardly and the other rearwardly of the said cutter, said heads adapted to receive and revolve the stock to be operated upon, means for feeding the stock through the said heads, and means for stopping the rearward head in a predetermined position.

90. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of two revoluble heads one arranged forwardly and the other rearwardly of the said cutter, the rearward head having an open-sided receiving-trough, means for revolving the said heads and means for stopping the said rearward head with the open side of the feed-trough uppermost.

91. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of two revoluble heads one arranged forwardly and the other rearwardly of the said cutter, said heads adapted to receive and revolve the stock to be operated upon, means for feeding the stock through the said heads, means for disconnecting the rearward revoluble head with its source of power, and automatic means for stopping the said head in a predetermined position when so disconnected.

92. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of two revoluble heads one arranged forwardly and the other rearwardly of the said cutter, said heads adapted to receive and revolve the stock to be operated upon, means for feeding the stock through the revoluble heads, and automatic means, operated by the feeding means in its movement, for disconnecting the rearward revoluble head from its source of power after the stock has been fed entirely through and past, the said head.

93. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of two revoluble heads one arranged forwardly and the other rearwardly of the said cutter, said heads adapted to receive and revolve the stock to be operated upon, means for feeding the stock through the revoluble heads, and automatic means, operated by the feeding means in its movement, for disconnecting the rearward revoluble head from its source of power after the stock has been fed entirely through, and past, the said head, and for stopping the said head in a predetermined position when so disconnected.

94. In a lathe for turning irregular forms, the combination with a pattern-controlled rotary cutter, of two revoluble heads one arranged forwardly and the other rearwardly of the said cutter, said heads adapted to receive and revolve the stock to be operated upon, the said rearward head having a notch or shoulder, means for feeding the stock through said head, a stop fixedly secured against rotation with the head, and means for causing a relative movement with the said stop with said notch or shoulder whereby said stop is caused to engage and disengage the said notch or shoulder of the said head.

95. In a lathe for turning irregular forms, the combination with two revoluble heads, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of means for primarily feeding the stock into the first head while the pattern is out of operative connection, and subsequently for simultaneously operating the pattern and feeding the stock through both the heads.

96. In a lathe for turning irregular forms, the combination with two revoluble heads, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of means for primarily feeding the stock into the first head, and subsequently for simultaneously moving the pattern lengthwise and feeding the stock through both the heads.

97. In a lathe for turning irregular forms, the combination with two revoluble heads, a rotary cutter arranged between the said heads, and a revoluble pattern for controlling said cutter, of means for primarily feeding the stock into the first head, and subsequently for simultaneously moving the pattern lengthwise of its axis of rotation and feeding the stock through both the said heads.

98. In a lathe for turning irregular forms, the combination with two revoluble heads, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of means for primarily feeding the stock into the first head while the said head is stationary and the pattern out of operative connection, and subsequently for operating the pattern and simultaneously revolving both the said heads and feeding the said stock therethrough.

99. In a lathe for turning irregular forms, the combination with two revoluble heads, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of means for primarily feeding the stock into the first head while the said head is stationary, and subsequently for moving the pattern lengthwise and simultaneously revolving both the said heads and feeding the said stock therethrough.

100. In a lathe for turning irregular forms, the combination with two revoluble heads, a rotary cutter arranged between said heads, and a revoluble pattern for controlling same, of means for primarily feeding the

stock into the first head while the said head is stationary, and subsequently for moving the pattern lengthwise of its axis of rotation and simultaneously revolving both the said heads and feeding the said stock therethrough.

101. In a lathe for turning irregular forms, the combination with two revoluble heads for receiving and revolving the stock to be operated upon, a rotary cutter arranged between the said heads, and a pattern for controlling same, of means for feeding the stock through the said heads, and means whereby the heads are held stationary while the stock is fed into the first head, and whereby the heads are revolved, and the pattern moved lengthwise, while the stock is fed through both the said heads.

102. In a lathe for turning irregular forms, the combination with two revoluble heads for receiving and revolving the stock to be operated upon, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of a feed-plunger for feeding the stock through the said heads, a drive-shaft, means for operating the feed-plunger from the drive-shaft, a secondary shaft, means for revolving both the heads and the pattern from the secondary shaft, a clutch between the drive-shaft and the secondary shaft, and means carried by the feed-plunger for operating said clutch.

103. In a lathe for turning irregular forms, the combination with two revoluble heads for receiving and revolving the stock to be operated upon, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of a feed-plunger for feeding the stock through the said heads, a drive-shaft, means for operating the feed-plunger from the drive-shaft, a secondary shaft, means for revolving both the heads and the pattern from a secondary shaft, a clutch between the drive-shaft and the secondary shaft, and means carried by the feed-plunger for operating said clutch, and for imparting lengthwise movement to the said pattern.

104. In a lathe for turning irregular forms, the combination with two revoluble heads, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of means for primarily feeding the stock into the first head while the said head is stationary, and subsequently for simultaneously revolving both the said heads and feeding the stock therethrough.

105. In a lathe for turning irregular forms, the combination with two revoluble heads, the first one of which has an open-sided receiving-trough projecting rearwardly therefrom, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of means for primarily feeding the stock into the first head while the said head is stationary, and subsequently for simultaneously revolving both the said heads and feeding the stock therethrough.

106. In a lathe for turning irregular forms, the combination with two revoluble heads, a rotary cutter arranged between the said heads, and a pattern for controlling said cutter, of a feed-plunger for feeding the stock through the said heads, means whereby the said heads may be rotated, a clutch for connecting the said means with a source of power, and means carried by the feed-plunger for operating said clutch after the feed-plunger has moved through a portion of its stroke, and at such time as the forward end of the stock has reached a point substantially opposite the said cutter.

107. A revoluble head, for a lathe for turning irregular forms, and through which stock is adapted to feed and by which it may be rotated, having a fixed angular way or trough for receiving the stock, and a spring-pressure or follower roller arranged oppositely thereto, and adapted to force the stock with a yielding pressure against the said angular way or trough.

108. A revoluble head, for a lathe for turning irregular forms, and through which stock is adapted to feed and by which it may be rotated, having a fixed right-angled way or trough, and two spring-pressure rollers, arranged to operate in lines at right angles to each other, and perpendicular to the sides of the said way or trough.

109. In a lathe for turning irregular forms, the combination of two revoluble heads for receiving and rotating the stock to be operated upon, and a pattern-controlled rotary cutter arranged between said heads, one the of the said heads having therein a fixed support adapted to hold the stock and to cause same to be fed in a predetermined axial line, and the other of the said heads having a plurality of spring-pressure devices adapted to grasp the stock with a yielding pressure at different points around its periphery.

110. In a lathe for turning irregular forms, the combination of two revoluble heads for receiving and rotating the stock to be operated upon, and a pattern-controlled rotary cutter arranged between the said heads, one of the said heads having therein a fixed support adapted to hold the stock and to cause same to be fed in a predetermined axial line, and the other of said heads having a plurality of arms pivotally mounted therein, and springs adapted to draw the arms together with a yielding pressure.

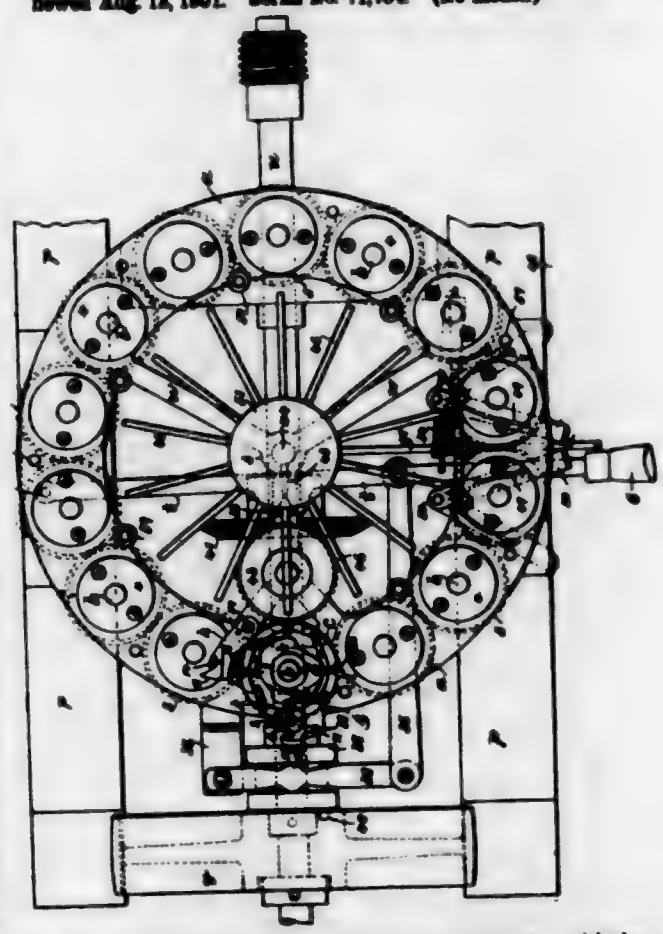
111. In a lathe for turning irregular forms, the combination of two revoluble heads for receiving and rotating the stock to be operated upon, and a pattern-controlled rotary cutter arranged between the said heads, one of the said heads having therein a fixed support adapted to hold the stock and to cause same to be fed in a predetermined axial line, and the other of said heads having a plurality of arms pivotally mounted therein, and a coil-spring surrounding the said arms, and tending to draw them together.

112. In a lathe for turning irregular forms, the combination of two revoluble heads for receiving and rotating the stock to be operated upon, and a pattern-controlled rotary cutter arranged between the said heads, one of the said heads having therein a fixed support adapted to hold the stock and to cause same to be fed in a predetermined axial line, and the other of said heads having several sets of pressure devices therein, each set comprising a plurality of arms pivotally mounted around the axis of rotation of the said head, and a coil-spring surrounding the said arms, and tending to draw them together.

113. A revoluble head, for a lathe for turning irregular forms, and through which stock is adapted to be fed, and by which it may be rotated, having a plurality of arms pivotally mounted therein, and springs connected with said arms and connecting the said arms together, said springs adapted to draw the said arms together with a yielding pressure.

114. A revoluble head, for a lathe for turning irregular forms, and through which stock is adapted to be fed, and by which it may be rotated, having a plurality of arms pivotally mounted therein, and a coil-spring surrounding the said arms, and tending to draw them together.

696,094. BRAIDING-MACHINE. ALBERT B. DICK, Brooklyn, N. Y., assignor to the United States Braid Machine Manufacturing Company, Newark, N. J., a Corporation of New Jersey. Filed Nov. 24, 1900. Renewed Aug. 12, 1901. Serial No. 71,784. (No model.)



Claim.—1. In a braiding-machine, the combination with the power mechanism, of a platform, revolving heads supported upon said platform, gears for actuating the same in opposite directions, spool-spindles and exchange-plates connected therewith, switches pivoted in opposite directions upon the said platform, locking-pins moving vertically in the revolving heads and raised by the switches or permitted to drop for disengaging or engaging the exchange-plates and stop-pins independent of the locking-pins and swinging in the said revolving heads and adapted to engage a portion of the exchange-plate, so that between the locking-pins and the stop-pins the exchange-plates are positively held in position to the revolving heads, substantially as set forth.

2. In a braiding-machine, the combination with the platform and pivot-posts mounted thereon at spaced-apart intervals, of revolving heads mounted upon said pivot-posts, each head being constructed with an integral gear at the base, with an annular groove between the gear and the head, with a second annular groove about midway of the head, with a cavity in the top of the head and with semicircular recesses extending vertically in the surface of the head and at spaced-apart intervals, spindles adapted to be received in the semicircular vertical recesses of the

head, exchange-plates connected to the spindles and adapted to pass into the midway annular groove in the head, locking-pins moving vertically in said head, and means for actuating the same to cause the locking-pins to engage the exchange-plate, and stop-pins in said head capable of a swinging movement and adapted to engage the said exchange-plate and a cam device mounted upon the upper end of the said pivot-post and acting upon the locking-pins and stop-pins, substantially as set forth.

3. In a braiding-machine, the combination with the platform and pivot-posts mounted thereon at spaced-apart intervals, of revolving heads mounted upon said pivot-posts, each head being constructed with an integral gear at the base, with an annular groove between the gear and the head, with a second annular groove about midway of the head, with a cavity in the top of the head and with semicircular recesses extending vertically in the surface of the head and at spaced-apart intervals, locking-pins each composed of a bent portion and a long and short member, the long member extending through the head into the cavity above the gear and the short member through the head into the midway cavity, stop-pins in the upper portion of the head, each having a bent part and a long and short member, the long member passing through the upper part of the head and acting as a pivot for the pin, and the short member passing through the cavity and through an opening below the same in the top of the head and having a notched end projecting into the midway cavity, a cam stationary in the cavity in the top of the head and fixed to the upper end of the pivot-post and having peripheral inclines adapted to act upon the stop-pins, and under cam-surfaces adapted to act upon the locking-pins, and means acting against the point of the longer end of the locking-pins for raising the same, substantially as set forth.

4. In a braiding-machine, the combination with the platform and pivot-posts mounted thereon at spaced-apart intervals, of revolving heads mounted upon said pivot-posts each head being constructed with an integral gear at the base, with an annular groove between the gear and the head, with a second annular groove about midway of the head, with a cavity in the top of the head, and with semicircular recesses extending vertically in the surface of the head and at spaced-apart intervals, locking-pins each composed of a bent portion and a long and short member, the long member extending through the head into the cavity above the gear, and the short member through the head into the midway cavity, stop-pins in the upper portion of the head each having a bent part and a long and short member, the long member passing through the upper part of the head and acting as a pivot for the pin, and a short member passing through the cavity and through an opening below the same in the top of the head, and having a notched end projecting into the midway cavity, the cam stationary in the cavity in the top of the head and fixed to the upper end of the pivot-post and having peripheral inclines adapted to act upon the stop-pins, and under cam-surfaces adapted to act upon the locking-pins, spindles *e* and exchange-plates *g* formed with the spindles, each exchange-plate being composed of a thick and thin portion, the thick portion having edge notches 10 at opposite sides of the spindle and an undercut edge 12 adjacent to the thin portion—the notches 10 being engaged by the short parts of the locking-pins, and the undercut edge by the notched end of the short part of the stop-pins so as to positively lock the exchange-plate to the head from opposite points, and switches pivoted to the platform and moving in the annular groove above the gear and each comprising converging cams 14, a central elliptical cam projection 15 and a two-part curved advancing edge or cam face 13 with which the base of the spindle is adapted to contact for moving the cam, substantially as set forth.

5. In a braiding-machine, the combination with the platform and pivot-posts mounted thereon at spaced-apart intervals, of revolving heads mounted upon said pivot-posts, each head being constructed with an integral gear at the base, with an annular groove between the gear and the head, with a second annular groove about midway of the head, with a cavity in the top of the head and with semicircular recesses extending vertically in the surface of the head and at spaced-apart intervals, locking-pins each composed of a bent portion and a long and short member, the long member extending through the head into the cavity above the gear, and the short member through the head into the midway cavity, stop-pins in the upper portion of the head each having a bent part and a long and short member, the long member passing through the upper part of the head and forming a pivot for the pin, and a short member passing through the cavity and through an opening below the same in the top of the head, and having a notched end projecting into the midway cavity, a cam stationary in the cavity in the top of the head and fixed to the upper end of the pivot-post and having peripheral inclines adapted to act upon the stop-pins, and under cam-surfaces adapted to act upon the locking-pins, spindles *e* and exchange-plates *g* formed with the spindles, each exchange-plate being composed of a thick and thin portion, the thick portion having edge notches 10 at opposite sides of the spindle and an undercut edge 12 adjacent to the thin portion, the notches 10 being engaged by the short parts of the locking-pins, and the undercut edge by the notched end of the short part of the stop-pins so as to positively lock the exchange-plate to the head from opposite points, and switches pivoted to

6. In a braiding-machine, the combination with a platform, of a series of heads and gears connected therewith mounted upon said platform, and means for revolving the adjacent heads in opposite directions, each head having a midway annular groove and semicircular vertical grooves at spaced-apart intervals, a series of spool-spindles and exchange-plates connected therewith, the exchange-plates being adapted to pass into the annular midway grooves of the heads and each exchange-plate having a thick portion to fit said grooves, and a thinner rear portion, an undercut edge at the junction of the thick and thin portions and edge notches at opposite sides of the spool-spindle, devices connected to the head and adapted to successively engage one of the edge notches of the exchange-plate and the undercut edge thereof at the same time to hold the exchange-plates in a fixed relation to the heads, means for controlling the movements of the engaging devices, and means operated by the spindle in its circular motion with the heads for transferring the spindles from one head to the other progressively in opposite directions, substantially as set forth.

7. In a braiding-machine, the combination with a platform, pivot-posts mounted thereon, revolving heads and gears upon said pivot-posts, of switches set in alternate opposite directions on radial lines from the center of the platform and between the heads and having thereon cam forms, stationary cams mounted upon the upper end of the pivot-posts above the heads and having peripheral inclines, notches, under cam-faces and flat faces, spool-spindles and exchange-plates connected therewith and two sets of devices connected to, rotating with and vertically movable in said heads and one set actuated and controlled by the switches and the other set by stationary cams for progressively engaging and positively holding the exchange-plates to the heads and alternately transferring the same from one head to the next in opposite directions, substantially as set forth.

8. In a braiding-machine, the combination with revolving heads spool-spindles, exchange-plates connected therewith and means for operating the same, of thread-bobbins mounted upon said spindles, means for frictionally holding the thread-bobbins to the spindles, means for periodically and progressively supplying thread and applying tension thereto, and means for adjusting the tension, and means carrying the thread and acting in connection with the tension for releasing the holding devices, substantially as set forth.

9. In a braiding-machine, the combination with revolving heads, spool-spindles, exchange-plates connected therewith and means for operating the same, of thread-bobbins mounted upon said spindles, a toothed disk secured upon the top of each thread-bobbin, a shaft fitting the upper end of the spindle and projecting therefrom, a bracket-plate having two parts at right angles to one another with one part in a vertical position and the other part in a horizontal position and passing over the same shaft, thread-guides connected to the vertical part of the bracket-plate, means pivotally connected to the bracket-plate and adapted to engage the toothed disk, a grooved roller around which the thread passes and devices for applying tension thereto, and means for adjusting said tension and a guide for the thread from the grooved roller, substantially as set forth.

10. In a braiding-machine the combination with revolving heads spool-spindles, exchange-plates connected therewith and means for operating the same, of thread-bobbins mounted upon said spindles, a toothed disk secured upon the top of each thread-bobbin, a shaft fitting the upper end of the spindle and projecting therefrom, a bracket-plate having two parts at right angles to one another with one part in a vertical position and the other part in a horizontal position and passing over the said shaft, thread-guides connected to the vertical part of the bracket-plate, a pawl-plate having a beveled extension pivoted to the upright part of the bracket-plate and having a point engaging the toothed disk, and a spring for holding the same normally in place, a hollow head having a central hub surrounding the said shaft with a notched flange to the said head, and a spring-finger connected to the bracket-plate and engaging the said notched flange for holding the head in a fixed relation to the bracket, a coiled spring within the head with one end connected to the hub, a bracket above the head loose upon the said shaft, and a grooved roller carried thereby with the free end of the coiled spring fastened to the said bracket and the bracket adapted to swing with the roller, a thread-guide connected to and extending above the said shaft for the thread as the same passes away to the braiding mechanism, whereby the grooved roller, as the thread is used, is adapted to come against the upward extension of the pawl-plate to release the parts and allow the thread to pay out and the grooved roller is moved by the spring to take up the slack and return the parts into a normal position of engagement, substantially as set forth.

11. The combination in a braiding-machine, with the spindles, the exchange-plates connected therewith, and means for supporting and op-

erating the same, of the thread-bobbins mounted upon said spindles and devices connected therewith for periodically and progressively supplying thread and applying tension thereto, collars upon the spindles, hook-ended wires connected to the collars and rising therefrom and beneath which the threads from the thread-bobbins pass so that the said collars and wires are held in an elevated position by the threads and fall when the threads break, a spindle having a head mounted central in the frame of the machine, arms extending radially and upwardly and connected to the said head, a radial pin connected to the lower end of the spindle, the said radial arms being so placed as to come in the path of and contact with a fallen collar upon a spindle and to be then moved thereby to swing the pin at the base of the spindle out of its normal position, devices acting in connection with the said pin and controlling the movements of the power mechanism of the machine for holding the same in a normally operative position which are released and disengaged and the machine stopped when the said pin is swung out of its normal position, substantially as set forth.

12. The combination in a braiding-machine with the spindles, the exchange-plates connected therewith, and means for supporting and operating the same, of the thread-bobbins mounted upon said spindles and devices connected therewith for periodically and progressively supplying thread and applying tension thereto, collars upon the spindles, hook-ended wires connected to the collars and rising therefrom and beneath which the threads from the thread-bobbins pass so that the said collars and wires are held in an elevated position by the thread and fall when the threads break, a spindle having a head mounted central in the frame of the machine, arms extending radially and upwardly and connected to the said head, a radial pin connected to the lower end of the spindle, the said radial arms being so placed as to come in the path of and contact with a fallen collar upon a spindle and to be then moved thereby to swing the pin at the base of the spindle out of its normal position, devices acting in connection with the said pin and controlling the movements of the power mechanism of the machine for holding the same in a normally operative position which are released and disengaged and the machine stopped when the said pin is swung out of its normal position, and devices adapted to return the radial arms, spindle and pin to a normal position when the devices acting in connection with the pin are shifted into a position of engagement by hand, substantially as set forth.

13. The combination in a braiding-machine, with the spindles, the exchange-plates connected therewith and means for supporting and operating the same, of the thread-bobbins mounted upon said spindles and devices connected therewith for periodically and progressively supplying thread and applying tension thereto, collars upon the spindles, hook-ended wires connected to the collars and rising therefrom and beneath which the threads from the thread-bobbins pass so that the said collars and wires are held in an elevated position by the threads and fall when the threads break, an arm *t* pivoted to the frame of the machine at one end and extending across the machine and projecting and terminating with a handle, a main shaft to the machine, an engaging clutch and gears connected therewith and devices extending from the arm *t* for operating the clutch and a spring for operating the arm, and a cam projection 33 upon said arm centrally of the machine and devices contacting with said cam projection 33 and set in operation by the fall of the collars upon the spindles whereby the said arm *t* is released and moved by its spring and the clutch disengaged and the mechanism stopped, substantially as set forth.

14. The combination in a braiding-machine, with the spindles, the exchange-plates connected therewith and means for supporting and operating the same, of the thread-bobbins mounted upon said spindles and devices connected therewith for periodically and progressively supplying thread and applying tension thereto, collars upon the spindles, hook-ended wires connected to the collars and rising therefrom and beneath which the threads from the thread bobbins pass so that the said collars and wires are held in an elevated position by the thread and fall when the thread breaks, an arm *t* pivoted to the frame of the machine at one end and extending across the machine and projecting and terminating with a handle, a main shaft to the machine, an engaging clutch and gears connected therewith and devices extending from the arm *t* for operating the clutch and a spring for operating the arm, and a cam projection 33 upon said arm centrally of the machine, a revoluble spindle centrally mounted in the frame of the machine, radial and rising arms 46 connected therewith at the upper end and agreeing in number with the number of the revolving heads, a radial pin 45 projecting from the lower end of the spindle and adapted to engage the point of the cam projection 33 upon the arm *t*, a stop-pin 48 on the frame of the machine, a radial arm 47 projecting from the spindle 44 and normally occupying a position beneath the stop 48, and spring-actuated arms 50 with upturned ends simultaneously engaging the end of the arm 47 and stop-pin 48 to hold the same in alinement and in a normal position in which the point of the pin 45 contacts with the point of the cam projection 33, and the parts are held in their normal position of operation and by which the parts are returned to a normal position with the operation of the arm *t* by hand, substantially as set forth.

696,095. CAR-SEAT. GEORGE W. DRYER, New York, N. Y.
Filed July 12, 1901. Serial No. 67,954. (No model.)



Claim.—1. In a car-seat, seat ends having supporting-ribs formed thereon, rocker-levers and upper levers pivoted to said seat ends, said upper levers being longer than said rocker-levers, curved links pivoted to said upper levers and said rocker-levers, the link-pivots of said upper levers being farther from the center of said upper levers than the link-pivots of said rocker-levers are from the center of said rocker-levers, a seat-back pivotally connected to said rocker-levers and said upper levers, a rod to connect said rocker-levers, seat-rockers supported upon said seat ends and formed with guiding-pieces and eccentrically-mounted projections on said rocker-levers to engage said guiding-pieces.

2. In a car-seat, a seat end having supporting-ribs formed thereon, a rocker-lever pivoted to said seat end, an upper lever pivoted to said seat end, a link pivoted to said upper lever and said rocker-lever, the link-pivot of said upper lever being farther from the center of said upper lever than the link-pivot of said rocker-lever is from the center of said rocker-lever, a seat-back pivotally connected to said rocker-lever and said upper lever, said rocker-lever being shorter than said upper lever, a seat-rocker movably supported upon said seat end and formed with guiding-pieces and an eccentrically-mounted projection on said rocker-lever to engage said guiding-pieces.

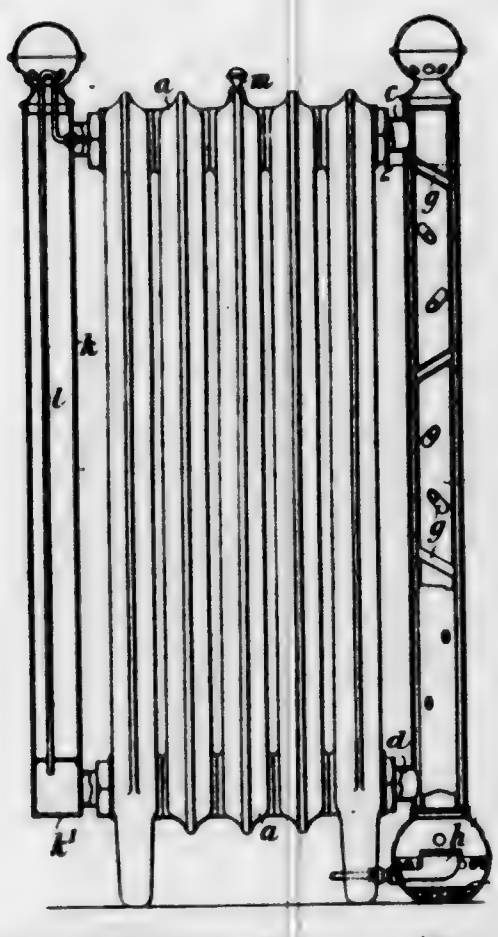
3. In a car-seat, a seat end formed with supporting-ribs thereon, a rocker-lever pivoted to said seat end, an upper lever longer than said rocker-lever pivoted to said seat end, said levers being adapted to be pivotally connected at their ends to a seat-back, a link pivoted to said upper lever and said rocker-lever, the link-pivot of said upper lever being farther from the center of said upper lever than the link-pivot of said rocker-lever is from the center of said rocker-lever, said upper lever being adapted to be supported by said supporting-ribs, a seat-rocker movably supported upon said seat end and formed with guiding-pieces and an eccentrically-mounted projection on said rocker-lever to engage said guiding-pieces.

4. In a car-seat, a seat end, formed with supporting-ribs, a rocker-lever pivoted to said seat end, an upper lever pivoted to said seat end, a link pivoted to said upper lever and said rocker-lever, the link-pivot of said upper lever being farther from the center of said lever than the link-pivot of said rocker-lever is from the center of said rocker-lever, a seat-back pivotally connected to said rocker-lever and said upper lever, said rocker-lever being shorter than said upper lever.

5. In a car-seat, a seat end formed with supporting-ribs thereon, a rocker-lever pivoted to said seat end, an upper lever longer than said rocker-lever pivoted to said seat end, said levers being adapted to be pivotally connected at their ends to a seat-back, a link pivoted to said upper lever and said rocker-lever, the link-pivot of said upper lever being farther from the center of said upper lever than the link-pivot of said rocker-lever is from the center of said rocker-lever, said upper lever being adapted to be supported by said supporting-ribs.

6. In a car-seat, a seat end formed with two sets of supporting-ribs thereon, a rocker-lever pivoted to said seat end, an upper lever longer than said rocker-lever pivoted to said seat end, the free ends of said levers being adapted to be pivotally connected to a seat-back, a link pivoted to said rocker-lever and said upper lever, the distance of said link-pivot of said rocker-lever from the center of said rocker-lever being less than the distance of the link-pivot of the upper lever from the center of said upper lever, a seat-rocker having an inclined lower surface engaging with the second set of said supporting-ribs, guiding-pieces formed on said seat-rocker and an eccentric projection on said rocker-lever engaging said guiding-pieces to shift and tilt said seat-rocker.

696,096. HOT-WATER RADIATOR OR HEATING-STOVE. JOHN W. EWART, London, England. Filed Nov. 26, 1901. Serial No. 83,723. (No model.)



Claim.—1. The combination with a hot-water radiator, of an overflow-receptacle immediately adjacent thereto, closed at the bottom and open at the top, said receptacle extending above and below the top of said radiator and an overflow-tube connected to said radiator adjacent to the top of the same and having its discharge end opening into said receptacle adjacent to the bottom thereof, substantially as described.

2. The combination with a hot-water radiator, of an overflow-receptacle immediately adjacent thereto and supported thereby, said receptacle extending above and below the top of the radiator and being closed at its lower end and open at its upper end, and an overflow-tube connected to said radiator adjacent to the top thereof and its lower end discharging into said receptacle adjacent to the bottom thereof, a portion of said tube extending above the top of the water-space within said radiator, substantially as described.

3. The combination with a hot-water radiator, of a vertical shell connected thereto adjacent to its upper and lower ends, an inner shell within said first shell forming a water-space between said shells, a plurality of inclined water-conducting pipes communicating with said water-space and extending across said inner shell, a heater below said shells, an overflow-pipe supported by said radiator and extending above and below the top of said radiator, said overflow-pipe being closed at its lower end and open at its upper end, and an overflow-tube connected with the radiator adjacent to the upper end thereof and having its other end discharging within said overflow-pipe adjacent to the bottom thereof, substantially as described.

696,097. AUTOMATICALLY-PROPELLED MULTIPLE-HULL VESSEL. JAMES GRAHAM, New York, N. Y. Filed Jan. 28, 1901. Serial No. 45,150. (No model.)

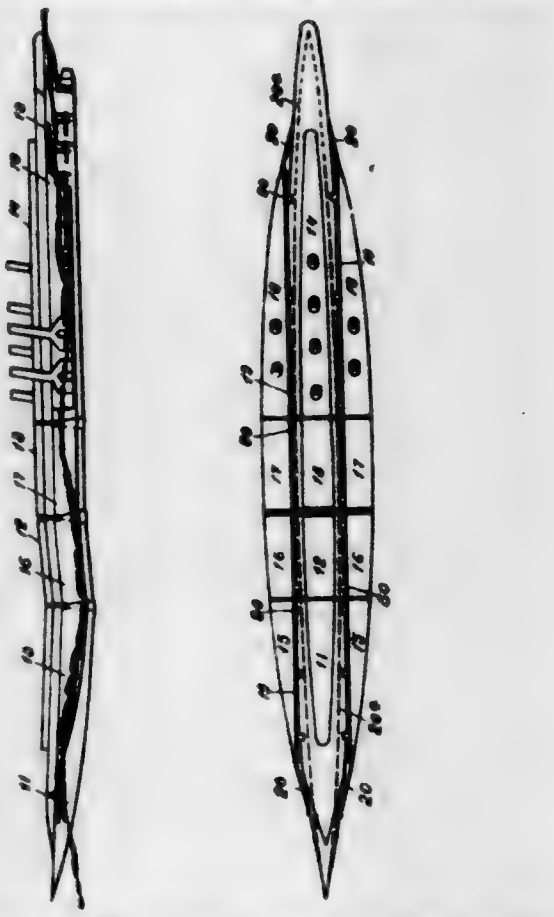
Claim.—1. A series of floats or hulls hinged together transversely and longitudinally and having power-generating mechanism connected therewith for propelling said floating structure.

2. A series of floats or hulls hinged together fore and aft and adapted to oscillate as they move through the water of flotation and having power-generating mechanism attached to the connecting hulls above and below the hinged points.

3. A series of floats or hulls hinged together side by side and adapted to rock in the water of flotation, said hinged hulls having mechanism connected therewith for generating power.

4. A main train of floats or hulls secured together by transversely-swinging motion and twin auxiliary floats, also transversely hinged together, said main and auxiliary hulls being hinged together longitudinally.

5. A main line of floats or hulls secured together fore and aft by transversely-swinging hinges, and twin auxiliary floats; similarly hinged together, said main and auxiliary floats being hinged together longitudinally, and having mechanism connected therewith for generating power.



6. A floating structure comprising separate hulls hinged together transversely and longitudinally and adapted to oscillate and rock in the water of flotation.

7. A floating structure comprising a plurality of hulls, hinged together transversely and longitudinally and adapted to oscillate and rock in the water of flotation and said structure having therein mechanism operated by said oscillatory and rocking motion whereby power may be generated.

8. A floating structure comprising a main series of hulls, secured together by transversely-swinging hinges, a series of auxiliary hulls on each side, similarly hinged to each other, and also longitudinally hinged to said main series, the midship hulls being shorter than the fore and aft sections, as set forth.

9. A floating structure comprising a series of hulls fore and aft, the abutting hulls having bulkheads with the horizontal mid-sections approaching each other and hinged together to provide an oscillatory and a torsional movement, as set forth.

10. A floating structure comprising a main series of hulls fore and aft, and an auxiliary series of hulls on each side, the abutting ends of said main and auxiliary hulls having bulkheads with their horizontal mid-sections approaching each other and hinged together to provide for oscillatory and torsional movements, and the auxiliary hulls secured longitudinally to the main hulls to provide a rocking motion, as set forth.

11. A floating structure comprising a main series of hulls fore and aft, and an auxiliary series of hulls on each side, the abutting ends of said main and auxiliary hulls having bulkheads with their horizontal mid-sections approaching each other and hinged together to provide an oscillatory and torsional movement, and the auxiliary hulls secured longitudinally to the main hulls, to provide a rocking motion, said rocking points having mechanism attached thereto for generating power, as set forth.

12. A floating structure comprising a plurality of hulls, hinged together fore and aft to provide an oscillatory movement, the bulkhead of one abutting hull having therein a series of cylinders, above and below said hinged connection between the bulkheads, the connecting-rods of said cylinders hinged to a transverse connecting-bar between the bulkheads, and the head of the other abutting hull having swinging arms on opposite sides of each connecting-rod, provided with bifurcated ends and anti-friction-rollers engaging with said transverse connecting-bar, said bar being held in alinement by links secured to one of the bulkheads, as set forth.

13. A floating structure comprising a plurality of hulls, the abutting ends of said hulls having the horizontal mid-sections approaching each other and the upper and lower ends of said hull receding from each other, to provide an oscillatory movement between said hulls, each side of the abutting bulkheads having, on a horizontal line, a buffer-head, and the sub-

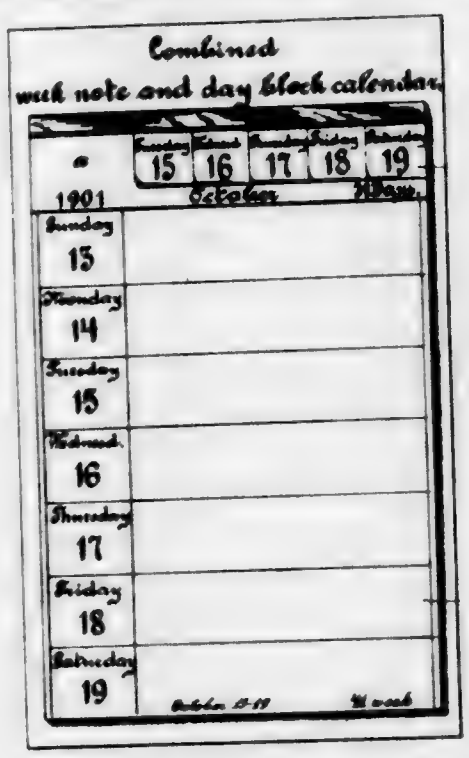
merged portion of said hulls having shields which project beyond the abutting ends of the hulls and overlap each other, as set forth.

14. A floating structure comprising a plurality of main hulls hinged together fore and aft by transverse hinges, a plurality of auxiliary hulls on each side longitudinally secured thereto by sheaves, to provide a rocking or rolling motion, the opposite ends of which sheaves rest in recesses in the adjoining hulls, said sheaves being connected at each end with cylinders whereby the rocking motion of said hulls will operate the piston of said cylinders, as set forth.

15. A floating structure comprising a plurality of main hulls, hinged together fore and aft to provide an oscillatory movement between said hulls, a plurality of auxiliary hulls secured together to provide a rocking motion, each hull having near its abutting end a buffer which projects past the end of said hull, and has a curved longitudinal contact-line between the main and auxiliary hulls, said hulls being longitudinally hinged together at said bulging surfaces, as set forth.

16. A floating structure comprising a main train of hulls hinged together in tandem, in combination with an auxiliary train of hulls secured thereto to provide a rolling motion, said auxiliary line having fore and aft hulls shorter than the corresponding fore and aft sections of the main hull.

696,098. COMBINED WEEK-NOTE AND DAY BLOCK-CALENDAR. MORITZ HAMBURGER and AUGUST J. BERKHOLZ, Budapest, Austria-Hungary. Filed Nov. 4, 1901. Serial No. 81,120. (No model.)



Claim.—A combined week-note and day block-calendar comprising an ordinary week-note calendar with strips in separable divisions interleaved therein and bearing thereon the days of the week in the order given in the week-note calendar, whereby the current day may be indicated daily by detaching one of said divisions.

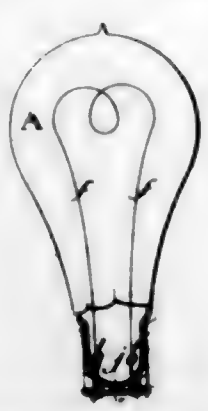
696,099. ARTIFICIAL TOOTH. MERRILL W. HOLLINGSWORTH, Philadelphia, Pa., assignor to The S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed July 1, 1901. Serial No. 66,633. (No model.)



Claim.—1. An artificial tooth formed with a cavity extending into it from its base, and with one or more lugs projecting into said cavity at the base of the tooth, a space being formed between each lug and the end or floor of said cavity, the vertical walls of said cavity being substantially parallel, smooth and uninterrupted, with the exception of said lug or lugs, which project into said cavity beyond the vertical walls thereof, substantially as and for the purpose described.

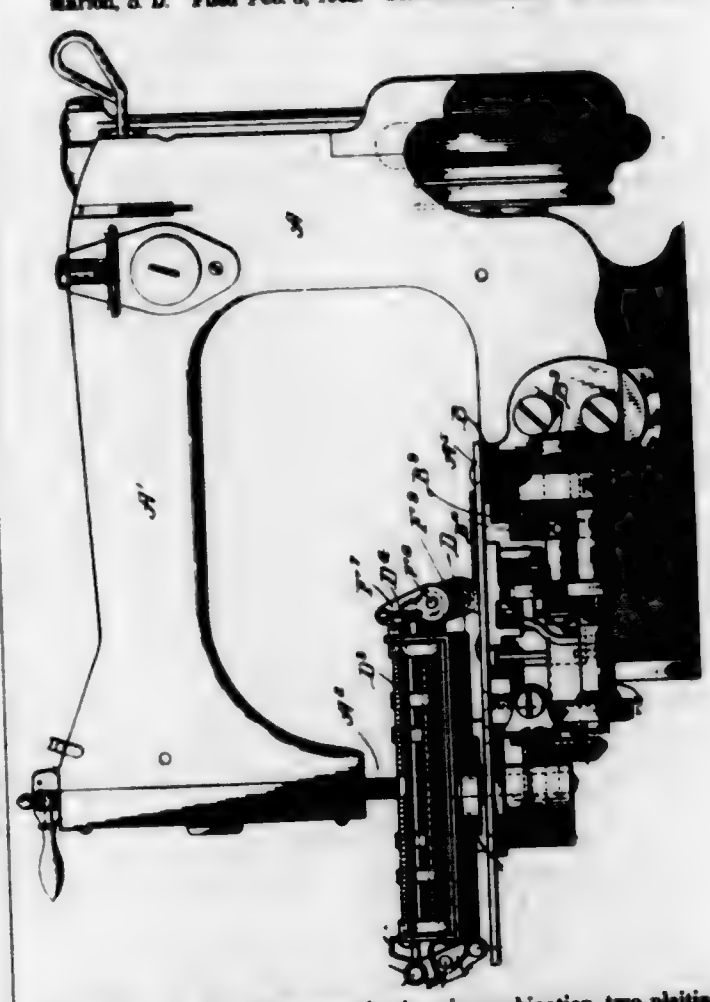
2. An artificial tooth formed with a cavity extending into it from its base, and with one or more lugs which project into said cavity, said lug, when formed by the mold, extending from the base of the tooth to the end or floor of said cavity, and then undercut before the tooth is fired, substantially as and for the purpose described.

696,100. INCANDESCENT LAMP. PAUL M. J. JUEN and ALPHONSE E. GRISEL, Paris, France; said Juge assignor to John Peter Persch, New York, N. Y. Filed Sept. 3, 1900. Serial No. 29,361. (No model.)



Claim.—An incandescent lamp, comprising a bulb constructed wholly of glass and provided at its base with an exteriorly-screw-threaded closed foot or neck formed integrally with the body of the bulb, two conducting-wires sealed in the wall and base of the foot or neck and thereby insulated from each other, a head or button formed on each wire outside the neck or foot, and a filament located within the bulb and secured to the conducting-wires, in combination with a cap adapted to be screwed upon the exterior of the foot or neck, an insulating-disk formed in the base of said cap and two metallic contacts secured to said disk and adapted to register with the heads or buttons of the neck or foot of the bulb.

696,101. PLAITING APPARATUS FOR SEWING-MACHINES. FRED L. KOEHLER, Chicago, Ill., assignor of one-half to Thomas J. Dunne, Marion, S. D. Filed Feb. 6, 1902. Serial No. 92,627. (No model.)



Claim.—1. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; an oscillatory blade-carrying bar having a throatway therein; a cam-bar for each blade, each cam-bar having means by which it is adapted to move the adjacent blade forward and backward relatively to the other blade; means for oscillating said blade-carrying bar; means for bodily reciprocating said blades; and means for fixing the formed plaits.

2. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; an oscillatory blade-carrying bar having a throatway therein; a cam-bar having a cam-slot; a stud on one of the blades, adapted to enter the cam-slot of the cam-bar; means for operating the cam-bar to move one of said blades forward and backward relatively to the other blade; a spring for oscillating

the cam-bar; means for bodily reciprocating said blades; and means for fixing the formed plaits.

3. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the materials to be plaited between them; an oscillatory blade-carrying bar having a throatway therein; a cam-bar for each of said blades, each cam-bar having a cam-slot; a stud on each of the blades, adapted to lie within the cam-slot of its adjacent cam-bar; means for moving the cam-bars; means for oscillating said blade-carrying bar to bodily rock the plaiting-blades; means for bodily reciprocating said blades; and means for fixing the formed plaits.

4. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the materials to be plaited between them; a carriage for said blades; means for reciprocating said carriage; a blade-carrying bar pivotally supported on said carriage; a cam-bar for each of said blades, each of which cam-bars has a cam-groove, and is slidably connected with said blade-carrying bar; a stud on each of the blades, adapted to lie within the cam-groove of its adjacent cam-bar; means for moving said cam-bars to move the blades forward and backward relatively to each other; means operated by the movement of the cam-bars for oscillating said blade-carrying bar to bodily tilt the blades; and means for fixing the formed plaits.

5. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a reciprocatory carriage; an oscillatory blade-carrying bar mounted on said carriage, said blades having a sliding connection with said blade-carrying bar; a cam-bar having means by which it is adapted to shift said blades forward and backward relatively to each other; means for oscillating the blade-carrying bar; an eccentric for moving the carriage; and means for fixing the formed plaits.

6. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a reciprocatory carriage; an oscillatory blade-carrying bar mounted on said carriage; said blades having a sliding connection with said blade-carrying bar; a cam-bar for each of said blades, each cam-bar having a cam-slot; a stud on each of the blades, adapted to lie within the cam-slot of its adjacent cam-bar; means for moving the cam-bars; means for oscillating said blade-carrying bar to bodily tilt the plaiting-blades; and means for fixing the formed plaits.

7. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a reciprocatory carriage; an oscillatory blade-carrying bar mounted on said carriage, said blades having a sliding connection with said blade-carrying bar; a cam-bar for each of said blades, each cam-bar having a cam-slot; a stud on each of said blades, adapted to lie within the cam-slot of its adjacent cam-bar; means for moving the cam-bars; a spring for tilting the blades upward; a spring for tilting them downward; an eccentric for moving the carriage; and means for fixing the formed plaits.

8. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a carriage for supporting said blades; means for reciprocating said carriage; a guide-rod extending transversely of said carriage; a pair of guide-fingers for the fabric to be plaited, mounted upon said guide-rod; and a right and left screw-threaded rod having a screw-thread connection with said guide-fingers for moving them longitudinally of said guide-rod toward or from one another.

9. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; an oscillatory blade-carrying bar having a throatway therein; a cam-bar for said blades, each cam-bar having means by which it is adapted to shift its said blade forward and backward relatively to the other blade; a slidable carriage for bodily carrying said blades; ways for supporting said carriage; an eccentric for moving said carriage on said ways; means for oscillating said blade-carrying bar to bodily rock the plaiting-blades; a sewing-machine for fixing the formed plaits, which sewing-machine has a rotatory shaft; and a mechanism for connecting said shaft with said eccentric for rotating the latter.

10. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; an oscillatory blade-carrying bar having a throatway therein; a cam-bar for each of said blades, for shifting said blades forward and backward relatively to each other; means for actuating said cam-bar; a slidable carriage for bodily carrying said blades; ways for supporting said carriage; an eccentric for moving said carriage in one direction on said ways; a spring for moving said carriage in the contrary direction on said ways; a sewing-machine for fixing the plaits, said sewing-machine having a rotatory shaft and intermeshing gear for imparting the motion of said shaft to said eccentric to rotate the latter to slide said carriage forward and backward; and means for bodily rocking the plaiting-blades.

11. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a blade-carrying bar; a cam-bar for shifting one of said blades forward and backward relatively to the other blade; means for bodily reciprocating said blades; a pattern-cam; means for moving said cam; a mechanism controlled by said cam, for moving said cam-bar; and means for fixing the formed plaits.

12. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a blade-carrying bar; a cam-bar for shifting one of said blades forward and backward relatively to the other blade; means for bodily reciprocating said blades; a pattern-cam; means for moving said cam; a mechanism controlled by said cam, for moving said cam-bar; means actuated by the movement of said cam-bar, for tilting the blades bodily; and means for fixing the formed plaits.

13. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a blade-carrying bar; a cam-bar for shifting one of said blades forward and backward relatively to the other blade; means for bodily reciprocating said blades; a pattern-cam having a cam-groove in its face; means for rotating said cam; a lever adapted to engage said groove; a mechanism for transmitting movement from said lever to said cam-bar; and means for fixing the formed plaits.

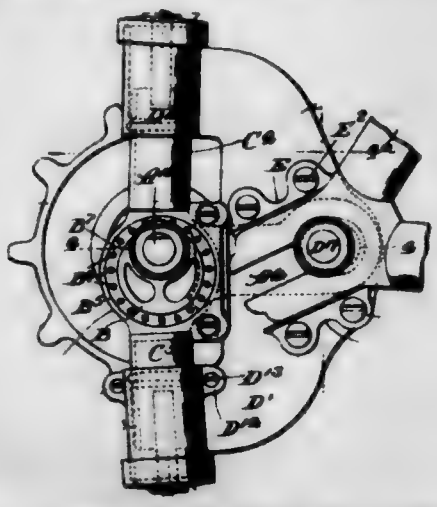
14. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a blade-carrying bar having a throatway therein; a cam-bar for each blade; a carriage; means for reciprocating said carriage; a pattern-cam having a cam-groove in its face; means for rotating said cam; a lever adapted to engage said groove; a yoke adapted to be moved by said lever; a pivoted link for communicating motion from said yoke to said cam-bar; and means for fixing the formed plaits.

15. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a carriage for supporting said blades; an eccentric for moving said carriage in one direction; a spring for moving the carriage in the opposite direction; a pattern-cam; means for moving said cam; a mechanism controlled by said cam for shifting one of said plaiting-blades relatively to the other blade; a mechanism controlled by said pattern-cam, for withdrawing said carriage from the operation of the eccentric; and means for fixing the formed plaits.

16. In a plaiting mechanism, in combination, two plaiting-blades adapted to pass the material to be plaited between them; a reciprocatory carriage for supporting said blades; an eccentric for moving said carriage in one direction; a spring for moving said carriage in a contrary direction; a pattern-cam; means for moving said cam; a mechanism controlled by said cam for shifting one of said blades relatively to the other blade; a mechanism controlled by said pattern-cam, which mechanism comprises a finger adapted to hold the carriage forward against said spring; and means for fixing the formed plaits.

696,102. SPRING-BEARING FOR BICYCLES OR OTHER VEHICLES.

FRED L. KOEHLER, Chicago, Ill., assignor of one-third to Thomas J. Dunne, Marion, S. D. Filed Feb. 6, 1902. Serial No. 93,390. (No model.)



Claim.—1. In a spring-bearing for bicycles and other vehicles, in combination, a supporting-frame; a wheel; an axle therefor; and means comprising a pivoted member, for connecting the wheel-axle to the frame, and for maintaining said axle at a constant distance from the driving-axle of the bicycle.

2. In a spring-bearing for bicycles and other vehicles, in combination, a supporting-frame; a wheel; an axle therefor; and means comprising a member having a pivotal engagement with the supporting-frame and a rigid connection with the wheel-axle, for maintaining said axle at a constant distance from the driving-axle of the bicycle.

3. In a spring-bearing for bicycles and other vehicles, in combina-

tion, a supporting-frame; a wheel; an axle therefor; and means comprising an eccentric pivotally mounted on the frame, for supporting the wheel-axle, and maintaining it at a constant distance from the driving-axle of the bicycle.

4. In a spring-bearing for bicycles and other vehicles, in combination, a supporting-frame; an eccentric having a yielding connection with said frame; an axle mounted on said eccentric; and an arm fixed with relation to the eccentric and adapted to rotate the same, said arm having a pivotal engagement with the supporting-frame.

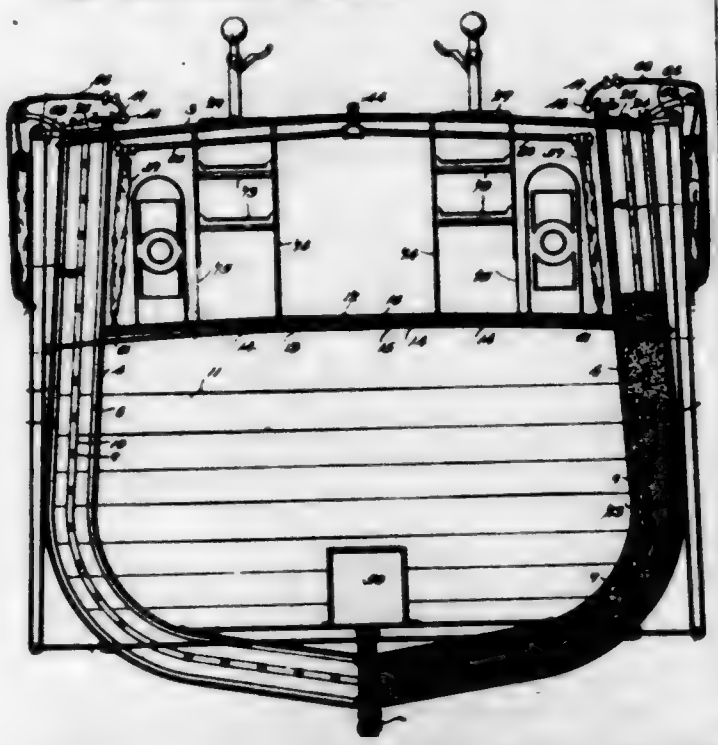
5. In a spring-bearing for bicycles and other vehicles, in combination, a supporting-frame; a bracket having a yielding connection with said frame; an eccentric rotatably mounted in said bracket; an axle mounted on said eccentric; and an arm fixed with relation to the eccentric and adapted to rotate the same, said arm having a pivotal engagement with said supporting-frame.

6. In a spring-bearing for bicycles and other vehicles, in combination, a supporting-frame; a bracket having a sliding connection with the supporting-frame; a spring interposed between the bracket and the frame; an eccentric rotatably mounted in said bracket; an axle mounted on said eccentric; an arm fixed with relation to the eccentric, said arm having an elongated opening therein; and a stud fixed with relation to said frame, adapted to enter the elongated opening in said arm, to move said arm and rotate said eccentric, and thereby move said axle to retain it in the arc of a circle having its center in the driving-axle of the bicycle.

7. In a spring-bearing for bicycles and other vehicles, in combination, a supporting-frame; a bracket having a spring-casing; a spring for said casing, said supporting-frame resting upon said spring; an eccentric rotatably mounted in said bracket; an axle mounted on said eccentric; an arm formed integral with said eccentric, said arm having an elongated opening therein; and a stud fixed with relation to said frame, adapted to lie within the elongated opening in said arm, to rotate said eccentric, and to move said axle to retain it in the arc of a circle having its center in the driving-axle of the bicycle.

8. In a spring-bearing for bicycles and other vehicles, in combination, a supporting-frame; two brackets having oppositely-extending tubular spring-casings; two yokes for the supporting-frame, each yoke having a cap for inclosing each of said spring-casings; a spring for each of the casings; each of said brackets having a vertical guide-groove for its yoke; bearing-rollers in said grooves; an eccentric rotatably mounted in each of said brackets; an axle extending through both of said eccentrics; and an arm for each eccentric, having a pivotal engagement with the supporting-frame.

696,103. SHIP. JOHN K. LEEDY, Roanoke, Va. Filed Apr. 30, 1901. Serial No. 58,171. (No model.)



Claim.—1. A ship provided with a hull consisting of a series of ribs composed of inner and outer upright plates curved to conform to the configuration of the hull and spaced apart, and the transverse plates connecting the inner and outer upright plates and interposed between the ribs, substantially as described.

2. A ship provided with a hull consisting of ribs composed of inner and outer plates 4 and 5, curved to conform to the configuration of the bottom of the hull and spaced apart and provided at their longitudinal edges with side flanges, and the transverse plates secured to the side flanges of the plates 4 and 5 and coöperating with the latter to form separate spaces or compartments, substantially as described.

3. A ship provided with a hull consisting of the upright rib-plates 4 and 5, spaced apart and forming inner and outer walls, the transverse plates connecting the rib-plates and coöperating with the same to form separate compartments, and the horizontal rods extending longitudinally of the hull and located between the inner and outer rib-plates and forming a series of ladders, substantially as described.

4. A ship provided with a hull consisting of the upright rib-plates 4 and 5 spaced apart and forming inner and outer walls, the transverse side plates connecting the inner and outer plates 4 and 5, the braces extending longitudinally of the rib-plates and arranged at opposite sides of the transverse plates, and the horizontal rungs supported by and arranged in openings of the braces and located between the transverse plates and forming a series of ladders, substantially as described.

5. A ship provided with a hull consisting of a keel composed of a series of plates secured together, the inner and outer rib-plates 4 and 5 spaced apart and secured to the keel and extending upward therefrom, the transverse plates connecting the rib-plates, the upper and lower decks, means for closing the spaces formed by the ribs and the transverse plates at the top of the ribs, and a filling of suitable material arranged in the spaces formed by the ribs and the transverse plates and extending upward from the keel to a point above the lower deck, substantially as described.

6. In a ship, the combination of a hull consisting of inner and outer rib-plates spaced apart, the transverse plates connecting the rib-plates and coöperating with the same to form spaces, the lower deck extending across the hull and forming an air-tight hold, the filling arranged in the spaces between the ribs and the transverse plates and extending upward from the bottom of the hull to a point above the lower deck, means for supplying compressed air, and supply-pipes extending from such means to the hold and to the spaces within the upper portions of the ribs, substantially as described.

7. In a ship, the combination of a hull consisting of hollow ribs, the lower deck extending across the hull and forming an air-tight hold, and the filling extending from the bottom of the hull to a point above the lower deck, the side feed-pipes provided with short branches having cut-offs and connected with the hollow upper portions of the ribs, and means for supplying compressed air to the feed-pipes, substantially as described.

8. In a ship, the combination of a hull having hollow ribs, the side feed-tubes provided with short branches connected with the hollow ribs and provided with cut-offs, and means for supplying air to the feed-tubes, substantially as described.

9. In a ship, the combination of a hull having an air-tight hold and provided with hollow ribs, an air tank or reservoir, feed tubes or pipes extending from the reservoir to the hold and to the hollow ribs, and an air-compressor designed to be arranged on the deck of the ship for supplying compressed air to the tank or reservoir, substantially as described.

696,104. METHOD OF MAKING BRUSHES. JOSEPH F. MUNFORD, Philadelphia, Pa. Filed May 1, 1900. Serial No. 15,120. (No model.)



Claim.—1. That improvement in the art of manufacturing brush-knots, which consists, first, in inserting between portions of brush-stock, a central strip of corrugated sheet material, a portion of said strip having recesses and triangular tongues cut therein; second, clamping the brush-stock to central strip with the tongues cut in said strip; third, securing two outer binding-strips and central strip together, on each side of brush-stock, by means of projections and recesses in said strips, thereby forming a brush-knot, substantially as set forth.

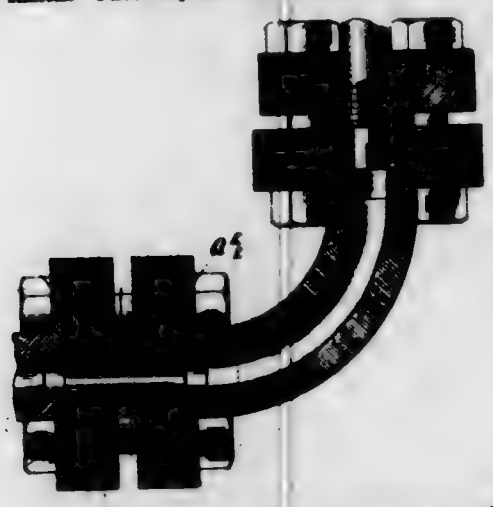
2. That improvement, in the art of manufacturing brush-knots, which consists, first, in inserting a central strip between portions of brush-stock; second, clamping brush-stock to said strip by the tongues cut therein; third, securing the two outer strips to central strip, between the brush-stock, thereby forming a brush-knot; fourth, the projecting portion of central strip above brush-stock as a means to secure the knot to a handle, substantially as described.

696,105. DISINFECTANT. AMEL W. HELSER, New London, Conn. Filed May 6, 1901. Serial No. 58,957. (No specimens.)

Claim.—The herein-described composition of matter, consisting of

waste-wood products saturated with sulfate of aluminium and coated with sulfate of calcium, substantially as described.

696,106. PIPE-JOINT. EUGENE F. OSBORNE, Chicago, Ill., assignor to the Osborne Steam Engineering Company, Chicago, Ill., a Corporation of Illinois. Filed July 26, 1900. Serial No. 24,886. (No model.)



Claim.—1. The combination with two relatively-movable pipe-fittings having at their adjacent ends orifices forming continuations of the passages, of a fitting-nipple comprising a tube which is contained at its opposite ends within said orifices of the fittings and has close peripheral contact with each of said fittings, a flange surrounding said tube between the said fittings, packing-rings surrounding said tube and interposed between said flange and the fittings and means for drawing said fittings together to compress the packing-rings by bringing pressure to bear upon all parts of the external surfaces of said rings.

2. The combination with two relatively-movable pipe-fittings having at their adjacent ends orifices forming continuations of the passages therethrough, of a fitting-nipple comprising a tube which is contained at its opposite ends within said orifices of the fittings, said ends of the tube being slightly exteriorly tapered and having close peripheral contact with the fittings, a flange surrounding said tube between said fittings, packing-rings surrounding said tube, and interposed between said flange and the fittings and means for drawing said fittings together to compress the packing-rings by bringing pressure to bear upon all parts of the external surfaces of said rings.

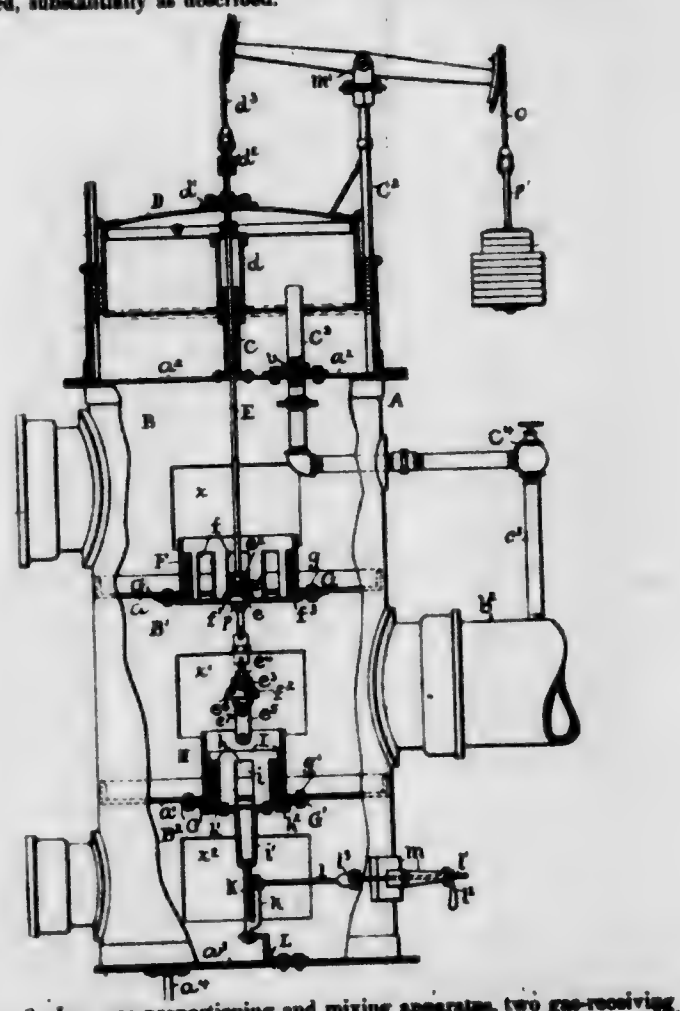
3. The combination with two relatively-movable fittings having at their adjacent ends orifices forming continuations of the passages therethrough and provided in their end faces with recesses surrounding said orifices, of a fitting-nipple comprising a tube which fits at its opposite ends within said orifices of the fittings and has close peripheral engagement with each of said fittings, a flange surrounding said tube between said fittings and designed to enter at its edges said recesses in the end faces of the fittings, packing-rings interposed between said flanges and the fittings and made of a diameter to fit within said recesses of the fittings, and means for drawing said fittings together to compress the packing-rings.

4. The combination with two relatively-movable fittings having at their adjacent ends orifices forming continuations of the passages therethrough and provided in their end faces with concave recesses surrounding said orifices, of a fitting-nipple comprising a tube which fits at its opposite ends within said orifices of the fittings, a flange surrounding said tube between said fittings and having concave side surfaces facing the concave bottoms of said recesses, the peripheral margins of said flanges entering said recesses, conical packing-rings interposed between said flanges and fittings and designed to fit within said recesses of the fittings, and means for drawing said fittings together to compress the packing-rings.

696,107. APPARATUS FOR PROPORTIONING AND MIXING GAS. HAWLEY PETTIBONE, New Rochelle, N. Y. Filed Aug. 8, 1900. Serial No. 26,260. (No model.)

Claim.—1. In a gas proportioning and mixing apparatus, two gas-receiving chambers and an intermediate mixing-chamber, separated one from the other, by partition-plates, each having a valve-opening and an annular seat, a cup-valve having ports and bearing on said seat, a governing-holder above said gas-chambers, a rod connecting said holder with said cup-valves, means connecting with one of the cup-valves for varying the size of its ports and a pipe connection from the mixing-chamber to the governing-holder, substantially as described.

2. In a gas proportioning and mixing apparatus, the combination with two gas-receiving chambers, two connected supply-valves having ports, and a governing-holder connecting with said valves for supplying gases of different calorific value in the desired proportions, of means for delivering a mixed gas of fixed and uniform calorific value, consisting of a mixing-chamber having a gas-delivery pipe, and connections with said supply-valves, a regulating-gate in one of said supply-valves, a thermostatic device, operating devices connecting the thermostat with said regulating-gate, and a small gas-pipe connecting with the delivery-pipe for mixed gas and terminating in a burner of the thermostatic device, whereby the delivery of mixed gas of a uniform calorific value is automatically effected, substantially as described.



3. In a gas proportioning and mixing apparatus, two gas-receiving chambers and an intermediate mixing-chamber, separated one from the other, by partition-plates, each having a valve-opening and an annular seat, a cup-valve having ports and arranged to bear, one on each seat, a governing-holder above said gas-chambers, a rod connecting with said holder, and having a ball-and-socket connection with each of said cup-valves, whereby the valves may be accurately adjusted on the rod to make tight joints with their annular seats, and a pipe connection from the mixing-chamber to the governing-holder, substantially as described.

4. In a gas proportioning and mixing apparatus, the combination with two gas-chambers separated by a partition having a valve-opening and an annular seat, of a governing-holder above the same, a cup-valve having an attached socket, and adapted to bear on said seat, a valve-rod connecting with said holder and having a ball or part ball, and means for engaging the latter with said socket for accurately adjusting said valve on the rod to make a tight joint with its annular seat, substantially as described.

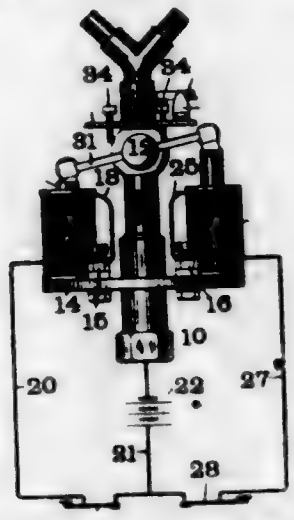
5. In a gas proportioning and mixing apparatus, two adjacent gas-chambers separated by a partition-plate, having a valve-opening and an annular seat, in combination with a cup-valve having ports in its wall, a cylindrical gate in said cup and having ports arranged to register with the ports thereof, a yoke connecting with said gate and having an angular opening at its lower end, an operating-rod working in said opening and having a lateral arm, and a jointed rod pivotally connecting with said arm, and extending through the wall of the chamber, whereby the gate may be turned in the cup-valve to control the ports thereof, substantially as described.

696,108. ELECTRIC GAS-LIGHTER. C. A. R. REESE, St. Louis, Mo., assignor of one-half to E. H. R. Green, Terrell, Tex. Filed Aug. 9, 1901. Serial No. 71,492. (No model.)

Claim.—1. In an electric gas-lighting device, the combination with a main burner, of an auxiliary burner, a valve for said main burner, an electromagnet for opening said valve, a valve in said auxiliary burner, a second electromagnet for operating said auxiliary valve, and a sparking device for said auxiliary burner controlled by said second electromagnet

2. In an electric gas-lighting device, the combination with a main burner, of an auxiliary burner, a valve for said main burner, an electro-

magnet for opening said valve, a valve for said auxiliary burner, a second electromagnet for controlling said valve, and a third electromagnet for closing said main valve.



3. In an electric gas-lighting device, the combination with a main burner, of an auxiliary burner, a valve for said main burner, an electromagnet for opening said valve, a valve for said auxiliary burner, a second electromagnet for operating said auxiliary valve, both said valves being in the same circuit, and a sparking device for said auxiliary burner controlled by said second electromagnet.

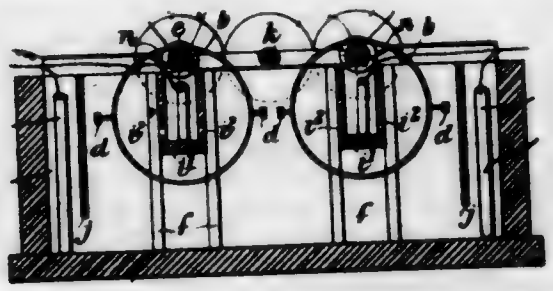
4. In an electric gas-lighting device, the combination with a main burner, of an auxiliary burner, a valve for said main burner, an electromagnet for opening said valve, a valve for said auxiliary burner, a second electromagnet for controlling said valve, both said electromagnets being in the same circuit, and a third electromagnet for closing said main valve.

5. In an electric gas-lighting device, the combination with a main burner, of an auxiliary burner, a valve for said main burner, an electromagnet for opening said valve, a valve for said auxiliary burner, a second electromagnet controlling said auxiliary valve, a sparking device arranged adjacent to said auxiliary burner and controlled by said second electromagnet, and a third electromagnet for closing said main valve.

6. In an electric gas-lighting device, the combination with a main burner, of an auxiliary burner for lighting said main burner, a valve for said main burner, an electromagnet for closing said valve, a second electromagnet for opening said valve, a valve for said auxiliary burner, an electromagnet for operating said valve, a spring normally closing said latter valve, and a sparking device for said auxiliary burner controlled by said latter-named electromagnet.

7. In an electric gas-lighting device, the combination with a main burner, of a rocking valve therefor, an auxiliary burner, a valve for said auxiliary burner, an electromagnet for closing said main valve, a second electromagnet for opening said main valve, a third electromagnet for operating said auxiliary valve, said second and third magnets being connected in series, a sparking device for said auxiliary burner, and means controlled by the movement of said third electromagnet for operating said sparking device.

696,109. APPARATUS FOR THE MANUFACTURE OF COMPOUND WIRE BARS BY ELECTRODEPOSITION. RICHARD D. SANDERS, Blackheath, England. Filed July 1, 1901. Serial No. 66,704. (No model.)



Claim.—1. In apparatus for the manufacture of wire or the like by electrodeposition upon a mother wire in the form of a coil, the combination with the tank for containing the electrolyte liquid, of a shaft above the same provided with a coating of insulating material for supporting and rotating the coil, an anode located within said tank and a cathode connection between the coil and said shaft, substantially as described.

2. In apparatus for the manufacture of wire or the like by electrodeposition upon a mother wire in the form of a coil, the combination with the tank for containing the electrolyte liquid, of a shaft above the same provided with a coating of insulating material for supporting and rotating the coil, an anode located within said tank and a cathode connection between the coil and said shaft, and a partition located in said tank between the anode and said coil and extending from the top of the tank to a point adjacent to the bottom thereof, substantially as described.

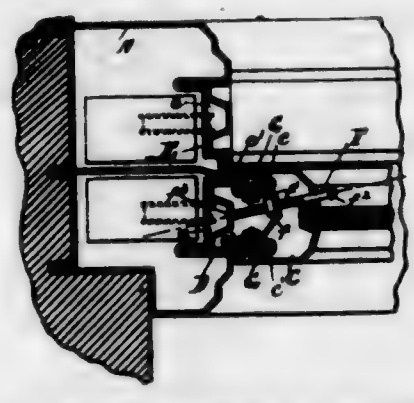
3. In apparatus for the manufacture of wire or the like by electrodeposition upon a mother wire in the form of a coil, the combination with the tank for containing the electrolyte liquid, of a shaft above the same provided with a coating of insulating material for supporting and rotating the coil, an anode located within said tank and a cathode connection between the coil and said shaft, and a partition located in said tank between the anode and said coil and extending from the top of the tank to a point adjacent the bottom thereof, a compartment located within the coil to be acted upon and provided with apertures for the circulation of the electrolyte and an anode located in said compartment, substantially as described.

4. In apparatus for the manufacture of wire or the like by electrodeposition upon a mother wire in the form of a coil, the combination with the tank for containing the electrolyte, of a shaft above the same provided with a smooth coating of insulating material, collars of insulating material to prevent the endwise movement of the coil and collars of conducting material to engage the end of the coil, an anode within said tank and a cathode connection with said conducting-collars, substantially as described.

5. In apparatus for the manufacture of wire or the like by electrodeposition upon a mother wire in the form of a coil, the combination with the tank for containing the electrolyte, of a supporting-shaft of smaller diameter than the coil of mother wire for supporting said coil, said shaft being provided with a coating of insulating material, means for rotating said shaft, a cathode connection between said coil and said shaft, and coil-engaging devices on each side of said shaft and below the same for retaining the coil against lateral movement, substantially as described.

6. In apparatus for the manufacture of wire or the like by electrodeposition upon a mother wire in the form of a coil, the combination with the tank for containing the electrolyte, of a supporting-shaft of smaller diameter than the coil of mother wire for supporting said coil, said shaft being provided with a coating of insulating material, means for rotating said shaft, a cathode connection between said coil and said shaft and struts secured to said tank on each side of the said shaft and below the level thereof for engaging said coil and preventing the lateral movement thereof, substantially as described.

696,110. METAL WINDOW-SASH. HENRY C. SMITH, Cambridge, Mass., assignor to Smith-Warren Company, Boston, Mass., a Corporation of Massachusetts. Filed June 8, 1901. Serial No. 63,682. (No model.)



Claim.—1. A window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash, a movable section parallel thereto and horizontally removable therefrom, so increasing or diminishing the width of the sash, and means for obtaining such horizontal adjustment substantially as described.

2. A window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash, a telescopic section fitting into said permanent section and horizontally movable with relation thereto, so increasing or diminishing the width of the sash, and means for accomplishing such telescopic adjustment substantially as described.

3. A sheet-metal window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash and being so formed as to provide a relatively deep recess along the outer edge, a movable section fitting into the recess aforesaid and forming with the permanent section a telescopic joint permitting of the movable section being moved in and out without disengagement, and means for obtaining such telescopic adjustment substantially as described.

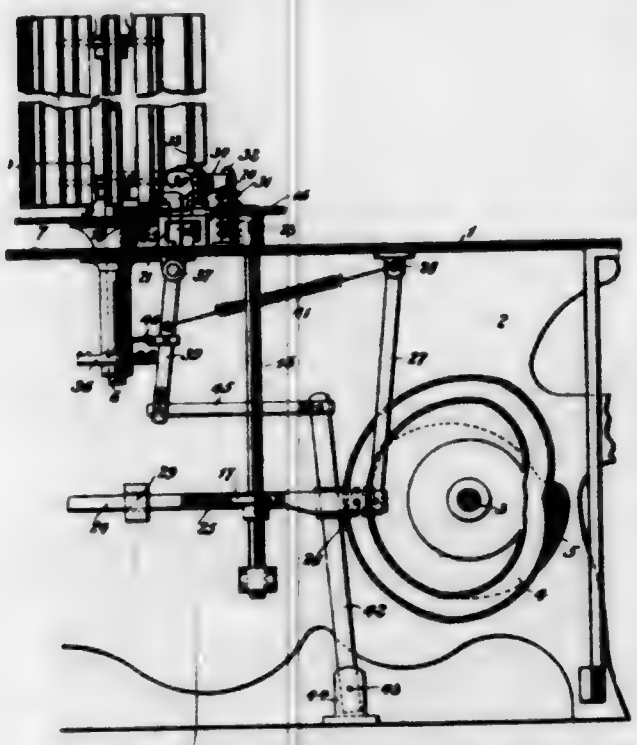
4. A sheet-metal window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bot-

tom rails of the sash, the sides of which section project outwardly to form a relatively deep recess vertically extending along its outer edge, while the edges are folded to form a locking-joint with the edges of a telescopic section horizontally adjustable from the fixed section of the rail aforesaid, said telescopic section and means for moving the same outward and retaining the same at the end of any degree of outward movement substantially as described.

5. A sheet-metal window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash and having the longitudinal recesses c, c' formed in its edge, the movable section D having sides c', c^2 to enter said recesses in which they are horizontally movable, means such as the bolt F attached to the fixed section of the sash side and bearing against the movable section for moving the same outward, and means like bolts for locking the movable section of the sash side to the fixed section when in its adjusted position.

6. A sheet-metal window-sash having an adjustable side rail, the same consisting of a fixed section permanently secured to the top and bottom rails of the sash and having its edges turned to enter and receive the turned edges of and so form an interlocking connection with a section telescopically movable from the fixed section aforesaid, said telescopic section horizontally movable within the limits of said locking-joint, and means like the bolt F' screwing through the reinforced edge of the fixed section and bearing against the movable section for adjusting and holding the same at any point within the range of its adjustment.

696,111. AUTOMATIC PACKAGE-FEEDING ATTACHMENT. ALBERT STEARNS, Syracuse, N. Y. Filed Aug. 1, 1901. Serial No. 70,508. (No model.)



Claim.—1. A package-feeding attachment comprising a compartment for receiving a stack of packages, a longitudinally-reciprocating feed-bar normally located to the rear of the bottom package of the stack, means for advancing the feed-bar for feeding the bottom package laterally from the stack to a predetermined point and means independent of the feed-bar for temporarily supporting the remainder of the stack while the bottom package is being removed, the said package-supporting means being automatically released by the feed-bar when the feed-bar returns to its normal position to the rear of the stack, substantially as set forth.

2. A package-feeding attachment comprising a compartment for receiving a stack of packages, a longitudinally-reciprocating feed-bar normally located to the rear of the bottom package of the stack, means for advancing the feed-bar for feeding the bottom package laterally from the stack to a predetermined point, and a spring-actuated arm for temporarily supporting the remainder of the stack while the bottom package is being removed, the said spring-actuated arm being released by the feed-bar when the feed-bar returns to its normal position to the rear of the stack, substantially as set forth.

3. A package-feeding attachment comprising a compartment for receiving a stack of packages, a longitudinally-reciprocating package-feed bar normally located to the rear of the bottom package of the stack, a spring-actuated arm and a rocking lever engaging the said arm and feed-bar for holding the arm out of engagement with the stack when the feed-bar is in its normal position and permitting the arm to engage the stack to temporarily support it when the package-feed bar is out of its normal position, substantially as set forth.

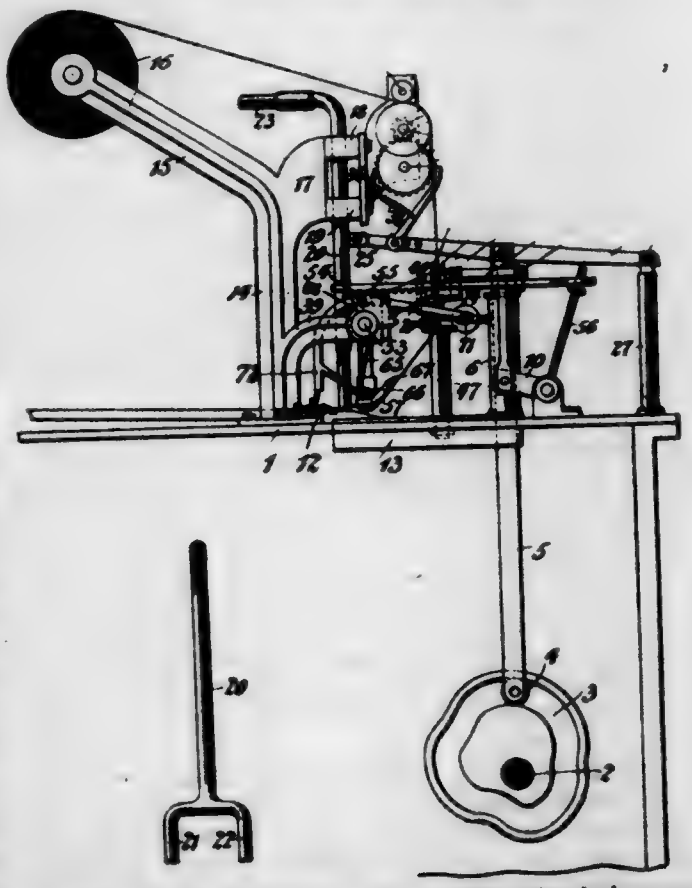
4. A package-feeding attachment comprising a series of compartments for receiving stacks of packages, means for feeding the bottom package of a stack laterally from its compartment, a pawl for advancing the compartments step by step in position to have their packages removed and a pawl-controlling lever engaging the stack of packages for holding the pawl out of operative position until the packages are exhausted, substantially as set forth.

5. A package-feeding attachment comprising a series of compartments for receiving stacks of packages, a rotary support therefor, means for feeding the bottom package of a stack laterally from its compartment, a pawl-controlling lever, a pawl-and-ratchet connection between the lever and the package-support, the said lever being engaged by the stack for preventing the operation of the pawl until the lever is released by the removal of the last package from the stack, and means for operating the lever and thereby the pawl when the lever is released from engagement with the stack for advancing the next succeeding compartment into position to have its packages removed, substantially as set forth.

6. In combination a stationary table, a rotary table mounted thereon for supporting stacks of packages, a reciprocating feed-bar for successively feeding the packages laterally from the packages to a predetermined point, a pawl-controlling lever, a ratchet carried by the rotary table, a pawl carried by the said lever, the said lever being held in inoperative position by the stack of packages, means for returning the lever into operative position when the packages are exhausted and means for operating the lever and thereby the pawl when the lever is in its operative position for advancing the next succeeding compartment, substantially as set forth.

7. In combination, a stationary table, a rotary table for supporting stacks of packages and annular series of partitions located above and spaced from the rotary table, forming compartments for receiving stacks of packages and a feed-bar arranged to reciprocate longitudinally upon the rotary table for successively feeding the packages laterally from each compartment, substantially as set forth.

696,112. WRAPPING-MACHINE. ALBERT STEARNS, Syracuse, N. Y. Filed Aug. 8, 1901. Serial No. 71,310. (No model.)



Claim.—1. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, means for presenting the strip leading from the roll, to the wrapper-withdrawing device, a cutter, means for actuating the cutter and means operated by the wrapper-withdrawing device for releasing the cutter-actuating means for severing the strip to form a wrapper, substantially as set forth.

2. In combination, means for supplying outer wrappers, a wrapper-withdrawing device, means for presenting the outer wrappers to the withdrawing device, means for supporting a roll of inner-wrapper-supply material, means for presenting the strip leading from the roll, to the wrap-

per-withdrawing device, a cutter, means for actuating the cutter and means operated by the wrapper-withdrawing device for releasing the cutter-actuating means for severing the strip to form an inner wrapper, substantially as set forth.

3. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, means for drawing the strip from the roll, independent means for presenting the advance edge of the strip to the wrapper-withdrawing device, an automatically-operated clamp arranged to prevent the reverse movement of the strip and means for severing the strip to form a wrapper, substantially as set forth.

4. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a positive feeding device for withdrawing the strip of material from the roll, an automatically-operated clamp through which the strip passes, arranged to prevent the reverse movement of the strip, a swinging gripper arranged to engage the advance edge of the strip and present it to the wrapper-withdrawing device, a cutter, means for actuating the cutter and means operated by the wrapper-withdrawing device for releasing the cutter-actuating means for severing the strip to form a wrapper, substantially as set forth.

5. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a gripper for presenting the advance edge of the strip of material leading from the roll, to the wrapper-withdrawing device, a cutter, means for actuating the cutter, means operated by the said gripper to open the cutter and means operated by the said wrapper-withdrawing device for releasing the cutter for severing the strip to form a wrapper, substantially as set forth.

6. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a rocking gripper for presenting the strip of material from the roll to the wrapper-withdrawing device, a spring tending to close the jaws of the gripper, means for engaging the gripper at the limit of its upward movement for releasing the jaws to permit them to close, and means for positively opening the jaws of the gripper when the gripper reaches the limit of its downward movement the said jaw-opening means being operated by the wrapper-withdrawing device, substantially as set forth.

7. In combination, a stationary support, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a rocking gripper for presenting the strip of material leading from the roll, to the wrapper-withdrawing device, means tending to close the jaws of the gripper, a stop carried by the stationary support for releasing the jaws of the gripper at the limit of its upward movement to cause them to close and means for opening the jaws of the gripper at the limit of its downward movement, and means for automatically locking the jaws open, substantially as set forth.

8. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a rocking gripper for presenting the strip of material leading from the roll, to the wrapper-withdrawing device, a spring tending to close the jaws of the gripper, means for releasing the jaws of the gripper at the limit of its upward movement to permit them to close and a rocking lever operated by the wrapper-withdrawing device for positively opening the jaws of the gripper at the limit of its downward movement, and means for holding the jaws open, substantially as set forth.

9. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a cutter, a rocking gripper for presenting the strip of material from the roll, to the wrapper-withdrawing device, a spring for normally closing the jaws of the gripper, means for actuating the cutter, means for opening the cutter as the rocking gripper swings to the limit of its upward movement, means for releasing the jaws of gripper to permit them to close when the gripper is at the limit of its upward movement, and a rocking lever operated by the wrapper-withdrawing device for simultaneously actuating the cutter-operating means to permit it to close and sever the strip and also open the jaws of the gripper when the gripper is at the limit of its downward movement, substantially as set forth.

10. In combination, a wrapper-withdrawing device, means for supporting a roll of wrapper-supply material, a rocking gripper for presenting the strip of material from the roll, to the wrapper-withdrawing device, a cutter, means for actuating the cutter, means controlled by the gripper for opening the cutter as the gripper swings to the limit of its upward movement, a rocking lever arranged to temporarily lock the cutter in its open position, the said lever being operated by the wrapper-withdrawing device for releasing the cutter-actuating means when the gripper is at the limit of its downward movement for severing the strip to form a wrapper, substantially as set forth.

11. In combination, a wrapper-withdrawing device, means for supplying outer wrappers, a pneumatic lifter therefor for feeding the outer wrappers one by one to the wrapper withdrawing device, means for supporting a roll of inner-wrapper-supply material, a gripper for presenting the strip of material therefrom to the wrapper-withdrawing device, and a rotary cam-shaft for controlling the movements of the pneumatic lifter and the gripper, substantially as set forth.

12. In combination, a wrapper-withdrawing device, means for supplying outer wrappers, a pneumatic lifter therefor for feeding the outer wrappers one by one to the wrapper-withdrawing device, means for supporting a roll of inner-wrapper-supply material, means for positively feeding the strip of material from the roll, a rocking gripper arranged to present the advance edge of the strip to the wrapper-withdrawing device and a rotary cam-shaft for controlling the movements of the pneumatic lifter, the strip-feeding mechanism and the gripper, substantially as set forth.

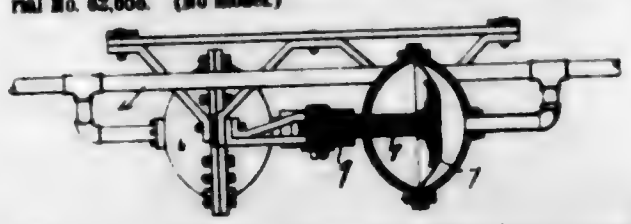
13. In combination, means for supplying outer wrappers, a pneumatic lifter therefor having a tube provided with branches, means for supporting a roll of inner-wrapper-supply material, a gripper arranged to present the advance edge of the strip of material leading from the roll to a point between the branches of the pneumatic lifter and means for severing the strip to form an inner wrapper, substantially as set forth.

696,113. JAR COVER AND FASTENER. HAROLD H. STEVENS, Los Angeles, Cal. Filed Apr. 2, 1901. Serial No. 54,043. (No model.)



Claim.—The combination with a fruit-jar and its cover, of cover-securing means comprising a clamp spanning the cover and secured to the jar; a thumb-screw extending through the clamp and formed with an opening; and a locking-bail extending through said opening and adapted to straddle the clamp.

696,114. CAR-BRAKE. WILLIE J. STEVENS, Skowhegan, Me., assignor, by direct and mesne assignments, to the Stevens Air Brake Company, Skowhegan, Me., a Corporation. Filed May 31, 1901. Serial No. 62,656. (No model.)



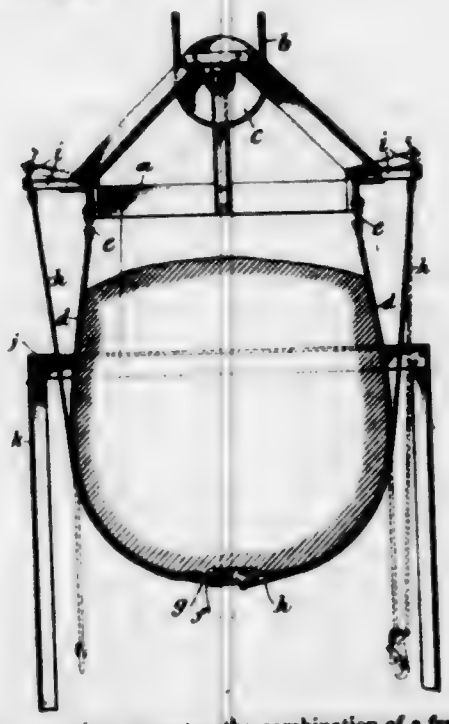
Claim.—In a car-brake, an air-pump operated from a car-axle, a reservoir into which the pump forces air, diaphragm-chambers and reservoir-valves in the pipes for admitting air to the diaphragm-chambers and allowing the air to escape, rods operated by the diaphragm, an equalizing-lever pivoted centrally, operated by the rods, levers pivoted to the car-frame at each end, brake-beams, links connecting each lever to its respective brake-beam and rods leading from each brake-beam to the lever at the opposite end of the car, substantially as described.

696,115. CONVEYING APPARATUS. OSCAR R. STILLMAN, New York, N. Y. Filed June 14, 1901. Serial No. 64,508. (No model.)

Claim.—1. In a conveying apparatus, the combination of a frame, means for raising and lowering same, a carrier secured to said frame comprising two parts detachably connected at or near the middle thereof, and means for automatically detaching said parts when the frame is lowered, substantially as described.

2. In a conveying apparatus, the combination with a frame, of a plurality of carriers secured to said frame, each carrier comprising two parts detachably secured together at or near the middle thereof, a movable trip-beam and means operatively connected with said trip-beam for automat-

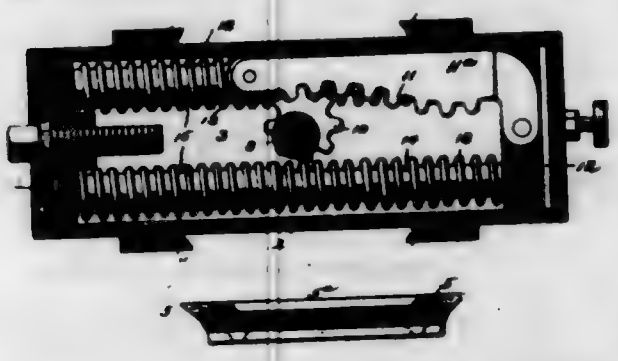
ically detaching the parts of the carrier by the movement of the frame substantially as described.



3. In a conveying apparatus, the combination of a frame, means for raising and lowering same, a plurality of carriers secured to the frame, a detachable catch arranged at or about the middle of each carrier, a trip-bar operatively connected with said catch, and a stationary beam arranged in the path of the trip-bar to hold same stationary as the frame is lowered and thereby release the catch, substantially as described.

4. In a conveying apparatus, the combination with a frame and means for raising and lowering the same, of a plurality of carriers secured to the frame, each carrier comprising two parts, a catch arranged at or about the middle of the carrier for holding said parts together, a trip-bar movably secured to the frame, a cord secured to said trip-bar and the catch whereby said catch may be released when the trip-bar is moved, and means for automatically actuating the trip-bar and releasing the parts of the carrier when the frame is lowered, substantially as described.

696,116. DOOR-CHECK. WARREN H. TAYLOR, Stamford, Conn., assignor to The Yale and Towne Manufacturing Company, Stamford, Conn. Filed June 11, 1897. Serial No. 640,379. (No model.)

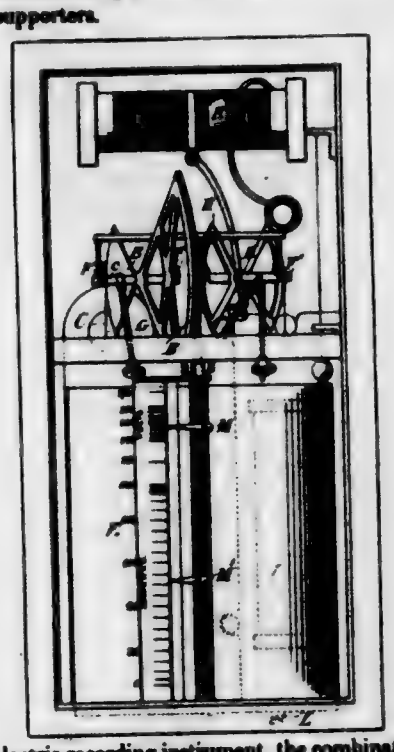


Claim.—1. In a door-check provided with spring and piston chambers, the combination of a sliding head or carrier within said spring-chamber, of springs also within said spring-chamber and bearing against said head or carrier, of an ogee-shaped rack pivoted to said head or carrier, an eccentrically-arranged gear engaging said rack, and a shaft or spindle connected to the piston in the piston-chamber and to the door, said gear carried by said shaft or spindle.

2. In a door-check provided with spring and piston chambers, the combination of a sliding head or carrier within said spring-chamber, of springs also within said spring-chamber, and bearing against said head, or carrier, of an ogee-shaped rack pivoted at one end to said head or carrier, of a friction-roller carried by the free end of said rack, of a shaft or spindle connected at one end to the piston in said piston-chamber and at the other end to the door, and an eccentrically-arranged gear carried by said shaft or spindle and adapted to engage said rack.

696,117. APPARATUS FOR INDICATING AND RECORDING ELECTRIC PRESSURE AND CURRENT. WILLIAM THOMSON, Netherhall, Scotland. Filed Oct. 29, 1900. Serial No. 34,867. (No model.)

Claim.—1. In an electric recording instrument, the combination of a plurality of pivoted marker-supporters in the same horizontal plane, converging toward one another, causing them to be brought together at one of their sides, and a marking device secured to each of said sides of the pivoted marker-supporters.



2. In an electric recording instrument, the combination of a plurality of double sectors converging toward one another, causing them to be brought together at one of their sides, and a marking device secured to each of said sides of the sectors.

3. In an electric recording instrument, the combination with a record-receiving member, of a plurality of marker-supporters mounted above the record-receiving member and converging toward one another, causing them to be brought together at one of their sides, and a marking device secured to each of said sides of the marker-supporters.

4. In an electric recording instrument, the combination of two double sectors converging toward one another, causing them to be brought together at one of their sides and to be separated at their other sides, solenoids of different potential, a soft-iron core suspended in the respective solenoids from each of the separated sides of the sectors; and a pen suspended from each of the sides of the sectors which are together.

5. In an electric recording instrument, the combination of a recording-drum, two double sectors pivotally mounted above the drums and converging toward one another, causing them to be brought together at one of their sides and to be separated at their other sides; solenoids of different potential, a soft-iron core suspended in the respective solenoids from each of the separated sides of the sectors; and a pen suspended from each of the sides which are together.

6. In an electric recording instrument, the combination with a pivoted marker-supporter and a marker carried thereby, of an indicating-pointer also carried by said marker-supporter and moving therewith.

7. In an electric recording instrument, the combination of a marker-supporter, a marker, and a thread suspending the marker from the supporter; of an arm carried by the marker, and a guide in which the arm works.

8. In an electric recording instrument, the combination of a marker-supporter, a marker, and a thread suspending the marker from the supporter; of an arm carried by the marker, a guide in which the arm works, and an indicating-pointer carried by said arm.

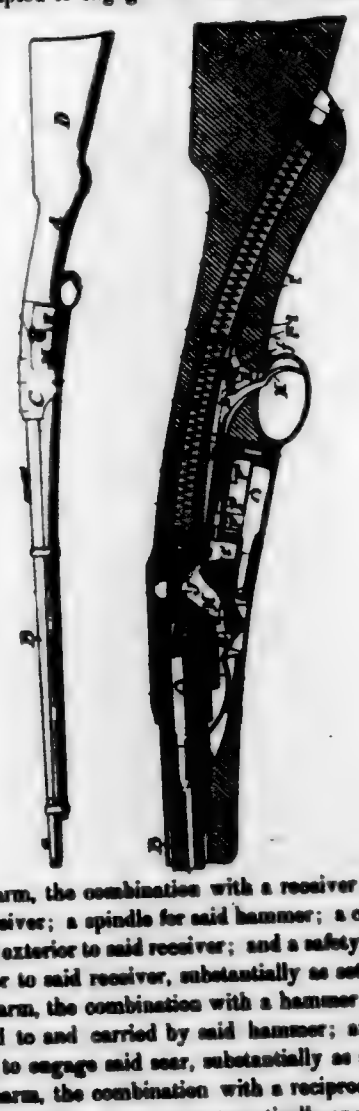
9. In an electric recording instrument of the character described the combination with the double sectors of pens suspended from one side of the respective sectors vertically over each other and weights suspended from each pen.

10. In an electric measuring instrument the combination with a double sector, a solenoid, a soft-iron plunger suspended from one side of the sectors, in said solenoid, of a pen suspended from the other side of the same sector, a weight suspended from said pen, of another double sector, a solenoid of fine wire, a soft-iron plunger suspended therein from one side of the last-named sector, a pen suspended from the other side of the same sector vertically over the first-named pen, a weight suspended from said pen, and a controlling resistance R for the last-named solenoid.

696,118. AUTOMATIC FIREARM. THEODORE M. THOMSEN, Philadelphia, Pa. Filed Feb. 20, 1901. Serial No. 48,080. (No model.)

Claim.—1. In a firearm, the combination with a receiver; of a breech-bolt mounted to reciprocate in said receiver; a slot in the side of said receiver; a handle fixed upon said bolt and extending through said

slot; a recess in the margin of said slot; and a detent-lever secured to said handle and adapted to engage said recess, substantially as set forth.



2. In a firearm, the combination with a receiver; of a hammer inclosed by said receiver; a spindle for said hammer; a cocking-piece fixed upon said spindle exterior to said receiver; and a safety-lock for said cocking-piece, exterior to said receiver, substantially as set forth.

3. In a firearm, the combination with a hammer; of a spring-actuated sear pivoted to and carried by said hammer; and a reciprocatory trigger arranged to engage said sear, substantially as set forth.

4. In a firearm, the combination with a reciprocatory barrel; of a reciprocatory breech-bolt; means to automatically engage and disengage said breech-bolt with respect to said barrel; a hammer; a trigger; and a safety-key operated by said breech-bolt to automatically return said trigger to its normal position when the barrel and breech-bolt are disengaged, substantially as set forth.

5. In a firearm, the combination with a reciprocatory barrel; of a reciprocatory breech-bolt; a locking mechanism; means to automatically operate said locking mechanism, by the recoil of the barrel, to disengage and reengage said breech-bolt and barrel; a hammer; a spring-actuated sear pivoted to and carried by said hammer; and a reciprocatory trigger arranged to engage said sear, substantially as set forth.

6. In a firearm, the combination with a reciprocatory barrel; of a reciprocatory breech-bolt; a locking mechanism; means to automatically operate said locking mechanism, by the recoil of the barrel, to disengage and reengage said breech-bolt and barrel; a hammer; a trigger; means to automatically operate said hammer repeatedly when said trigger is compressed; and a safety-key operated by said breech-bolt to automatically return said trigger to its normal position when the barrel, and breech-bolt are disengaged, substantially as set forth.

7. In a firearm, the combination with a receiver; of a breech-bolt mounted to reciprocate in said receiver; a slot in the side of said receiver; a handle fixed upon said bolt and extending through said slot; a slide-cover for said slot arranged to be opened by said handle; a recess in the margin of said slot; and a detent-lever pivoted to said handle, and adapted to engage said recess, substantially as set forth.

8. In a firearm, the combination with a receiver; of a breech-bolt mounted to reciprocate in said receiver; a hammer inclosed by said receiver; a spindle for said hammer; a cocking-piece fixed upon said spindle exterior to said receiver; a safety-lock for said cocking-piece exterior to said receiver; a trigger; and a safety-key operated by said breech-bolt to automatically return said trigger to its normal position when the breech-bolt is disengaged, substantially as set forth.

9. In a firearm, the combination with a frame; of a barrel arranged to reciprocate in said frame; a reciprocatory breech-bolt; a locking-plunger carried by the barrel; a link pivoted at one extremity to said locking-plunger, and at the other extremity to the barrel; and another link pivoted at one extremity to said locking-plunger and at the other extremity to the frame, whereby said locking-plunger is withdrawn and the barrel and breech-bolt disengaged by the recoil of the barrel, substantially as set forth.

10. In a firearm, the combination with a frame; of a barrel arranged to reciprocate in said frame; a reciprocatory breech-bolt; a locking-plunger carried by the barrel; a link pivoted at one extremity to said locking-plunger, and at the other extremity to the frame, whereby said locking-plunger is withdrawn and the barrel and breech-bolt disengaged by the recoil of the barrel, substantially as set forth.

11. In a firearm, the combination with a frame; of a barrel arranged to reciprocate longitudinally in said frame; a receiver fixed in said frame and curved in the direction of its length; a cartridge-inlet in said receiver; a breech-bolt curved in the direction of its length to reciprocate in said receiver and normally closing said inlet; mechanism connecting said barrel and breech-bolt, said breech-bolt being shifted to uncover said inlet by the rectilinear recoil of said barrel; a cartridge-magazine fixed beneath said receiver in registry with said inlet; a rock-shaft mounted in said magazine; a cartridge-carrier lever fixed upon said rock-shaft to force the cartridges of the magazine charge through said inlet into the receiver; a spring in operative relation with said carrier-lever; a gate for said magazine; and means operatively connecting said carrier-lever and said gate, arranged to permit the movement of said lever independently of said gate when the latter is closed, and to reset said lever in its initial position when said gate is opened, substantially as set forth.

12. In a firearm, the combination with a frame; of a barrel arranged to reciprocate longitudinally in said frame; a receiver fixed in said frame and curved in the direction of its length; a cartridge-inlet in said receiver; a breech-bolt curved in the direction of its length to reciprocate in said receiver, and normally closing said inlet; mechanism connecting said barrel and breech-bolt, said breech-bolt being shifted to uncover said inlet by the rectilinear recoil of said barrel; a cartridge-magazine fixed beneath said receiver in registry with said inlet; a rock-shaft mounted in said magazine; a cartridge-carrier lever fixed upon said rock-shaft to force the cartridges of the magazine charge through said inlet into the receiver; a spring in operative relation with said carrier-lever; the cut-off lever R, provided with the toe *r*, normally retained exterior to the magazine; and means to secure said lever with its toe *r*, projecting within the magazine, to prevent the delivery of the cartridges through said inlet, substantially as set forth.

13. In a firearm, the combination with a frame, and a receiver; of a barrel arranged to reciprocate in said frame; a breech-bolt mounted to reciprocate in said receiver; a locking mechanism operated by the recoil of the barrel to disengage and reengage said bolt and barrel; a hammer; a spindle for said hammer; a cocking-piece fixed upon said spindle exterior to said receiver; a sear pivoted to and carried by said hammer; a trigger arranged to engage said sear; and a safety-key operated by said breech-bolt to automatically return said trigger to its normal position when the breech-bolt is disengaged, substantially as set forth.

14. In a firearm, the combination with a frame; of a barrel arranged to reciprocate longitudinally in said frame; a receiver fixed in said frame and curved in the direction of its length; a breech-bolt curved in the direction of its length and fitted to reciprocate in said receiver; locking mechanism, operated by the recoil of the barrel, to disengage said bolt and barrel; a spring, operative to return said bolt and barrel to the initial position; a hammer; a sear pivoted to and carried by said hammer; a trigger arranged to engage said sear; and a safety-key operated by said breech-bolt to automatically return said trigger to its normal position when the barrel and breech-bolt are disengaged, substantially as set forth.

696,119. SAWING-MACHINE. WILLIAM W. TREVOR and FRANCIS E. TREVOR, Lockport, N. Y. Filed Aug. 17, 1901. Serial No. 72,304. (No model.)

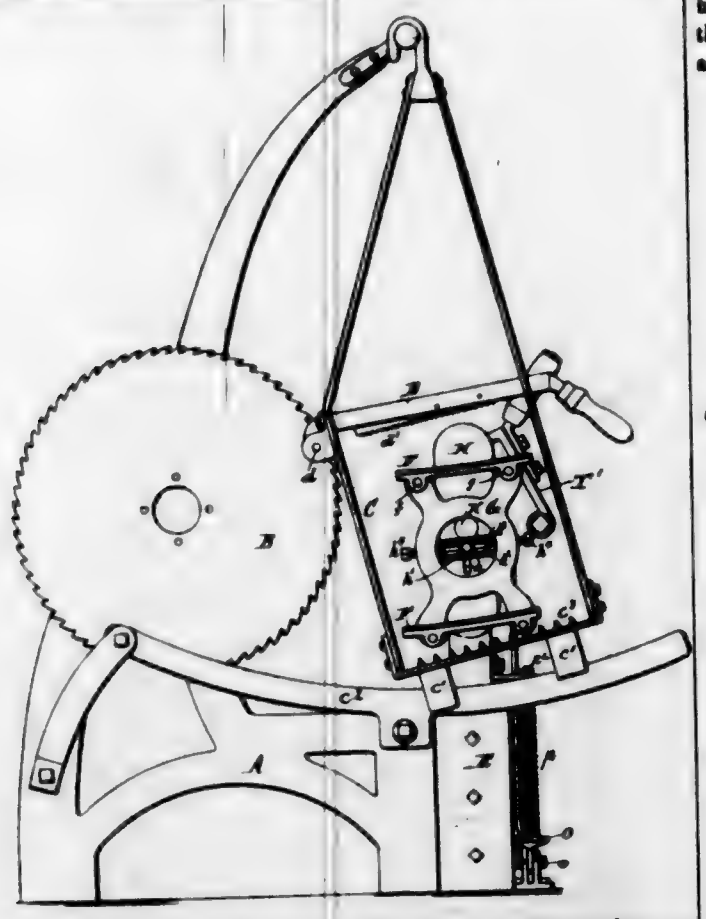
Claim.—1. The combination of a saw, a bolt-carriage, a gage movable bodily toward and from the bolt-carriage, mechanism for moving the gage out of a normal position with reference to the line of cut and the bolt-carriage and for returning the gage to this normal position, and means for stopping the return movement when the gage reaches said normal position, substantially as set forth.

2. The combination of a saw, a bolt-carriage, a gage movable bodily toward and from the bolt-carriage, means for moving the gage out of a normal position with reference to the line of cut and the bolt-carriage, means for returning the gage, and a stop to limit said return movement, substantially as set forth

3. The combination of a saw, a bolt-carriage, a gage movable toward and from the bolt-carriage, a lever connected to said gage, a treadle connected to said lever for moving the gage in one direction, a spring for returning said gage, and a stop for limiting said return movement, substantially as set forth.

4. The combination of a saw, a bolt-carriage, a gage movable bodily toward and from the latter, a stop for fixing the normal position of the gage with reference to the line of cut and the bolt-carriage, means for shifting the gage bodily to an abnormal position, a stop for fixing this ab-

normal position of the gage, and means for returning the gage to its normal position, substantially as set forth.



5. The combination of a saw, a bolt-carriage, a stationary frame, a gage-frame mounted in said stationary frame to move bodily toward and from said carriage, gage members adjustably attached to said gage-frame, means for moving said gage-frame and the gage members carried thereby bodily in one direction, means for returning the gage-frame, and means for arresting the return movement of the gage-frame in the normal position of the latter, substantially as set forth.

6. The combination of a saw, a bolt-carriage, a stationary frame, a gage provided with a horizontal rod which is capable of sliding in said stationary frame, a lever pivoted to said stationary frame, a link connecting the lever with said gage-frame, a treadle for moving said gage out of a normal position, a link connecting the treadle with said lever, means for returning said gage, and means for stopping the return movement of the gage when said normal position is reached, substantially as set forth.

7. The combination with a stationary frame, a saw, a bolt-carriage, a gage slidably mounted on said frame to move toward and from said carriage, a lever pivoted on said frame, a link connecting said lever and said gage, a treadle connected to said lever for moving said gage away from the carriage, means for returning said gage, a rod connected to said gage and passing through an opening in a part of said frame, and an adjusting-stop carried by said rod and adapted to engage said frame to limit the return movement of the gage, substantially as set forth.

8. The combination of a saw, a bolt-carriage, a gage movable bodily toward and from said bolt-carriage, means for moving the gage away from said carriage, an adjustable stop device for limiting the movement away from the carriage, means for returning the gage, and a stop for limiting said return movement, substantially as set forth.

9. The combination of stationary frame, a saw, a bolt-carriage, a gage movably mounted on said frame to move toward and from said bolt-carriage and provided with a stop, a regulating-wedge for determining the movement of said gage, said wedge being movable in the path of said stop, and means for holding said regulating-wedge in its adjusted position, substantially as set forth.

10. The combination of a stationary frame, a saw, a bolt-carriage, a gage movably mounted on said frame to move toward and from said bolt-carriage, a pivoted regulating-wedge for determining the movement of said gage, a stop carried by said gage, said wedge being arc-shaped and movable in the path of said stop, and means for holding said regulating-wedge in its adjusted position, substantially as set forth.

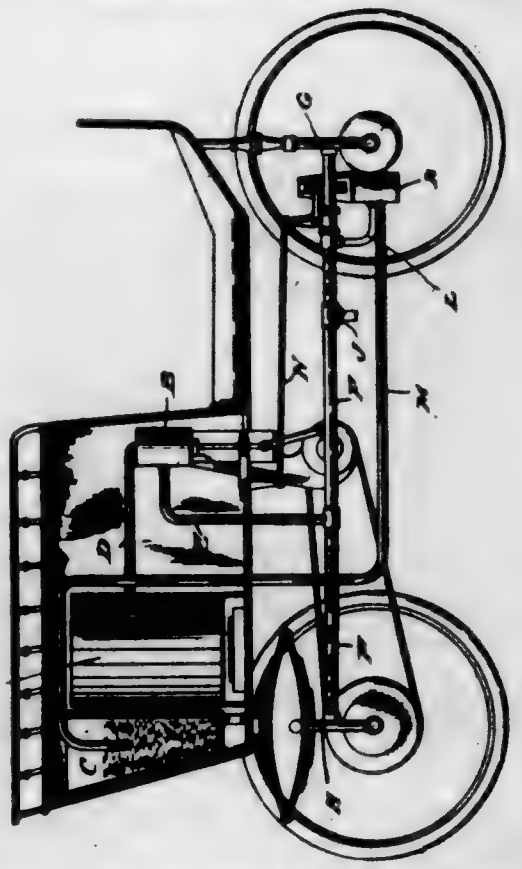
696,120. DENTAL GAGE. CLARENCE R. VANDERFOOT, Grand Rapids, Mich. Filed June 24, 1901. Serial No. 65,282. (No model.)

Claim.—1. In a dental gage, a supporting-standard, arms projecting at right angles therefrom, one of said arms being adjustable upon said standard and a head-plate and a chin-plate supported upon said arms, substantially as and for the purpose set forth.

2. In a dental gage, a supporting-standard, a fixed arm and an adjustable arm projecting therefrom, adjustable supports on said arms, a head-plate on the upper support, a gage projecting from said plate over the forehead, and a chin-plate on the lower of said supports, substantially as and for the purpose set forth.



696,121. MOTOR-VEHICLE. FREDERICK A. WALDRON, Stamford, Conn. Filed Mar. 8, 1901. Serial No. 50,361. (No model.)



Claim.—1. In a steam-actuated vehicle, the combination with a hollow closed air-tight framework constituting the running-gear of the vehicle, of means for creating a vacuum in said framework and means whereby the exhaust-steam from the engine passes into said vacuum.

2. In a steam-actuated vehicle, the combination with a hollow closed air-tight framework constituting the running-gear of the vehicle, and an air-pump connected therewith to create a vacuum in said framework, of means whereby the exhaust-steam from the engine passes into said vacuum, and a relief-valve connected to said framework between the exhaust-passage of the engine and the inlet-passage of the air-pump.

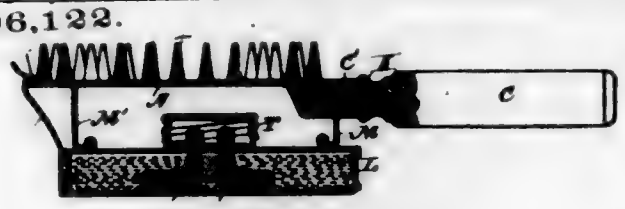
3. In a steam-actuated vehicle the combination with the hollow framework, a passage or pipe connecting the exhaust-passage of the engine with the framework of an air-pump connected with the framework to create a vacuum therein, a relief-valve connected to said frame between the exhaust-passage of the engine and inlet-passage of the air-pump, a feed-water tank and a delivery-pipe connection between said pump and the feed-water tank.

4. In a steam-actuated vehicle the combination with the hollow framework and engine and feed-water tank, of an exhaust-pipe leading from the engine into the hollow framework, an air-pump connected with the engine, an automatic relief-valve in said frame between the exhaust of the engine and said pump, a pipe connecting the frame with said pump, and a discharge-pipe leading from the pump into the feed-water tank.

696,122. HAIR-DRIER. JOHN F. WARNER, Boston, Mass. Filed May 16, 1901. Serial No. 60,607. (No model.)

Claim.—A hair drier consisting of a toothed plate having a handle attached, a heater having brackets adapted to support said tooth-plate, a hinged pin adapted to engage with the said handle, and a spring-hook adapted to act with the said hinged pin for detachably holding the said toothed plate substantially as and for the purpose set forth.

696,122.

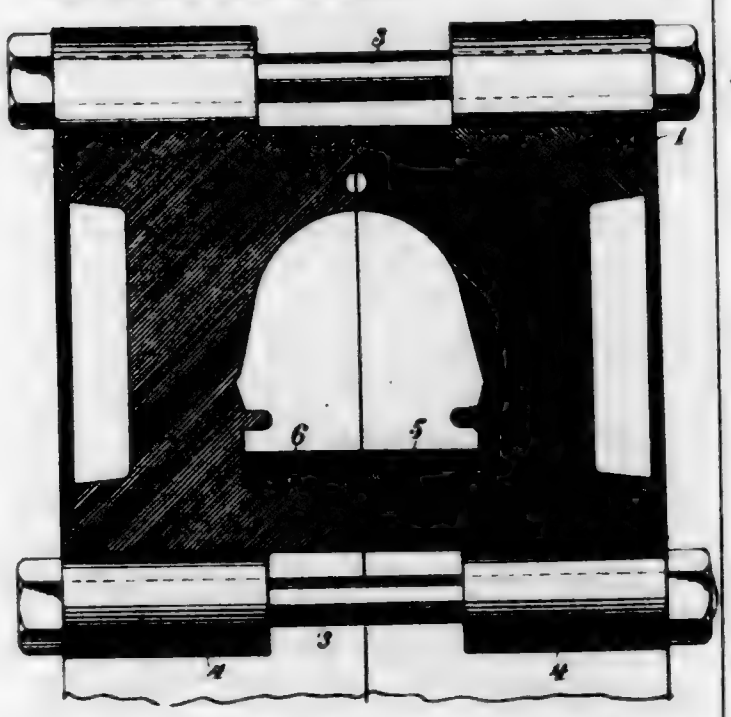


696,123. SURGICAL DRESSING. HENRY P. WEIDIG, Newark, N. J. Filed Apr. 11, 1901. Serial No. 55,411. (No specimens.)

Claim.—1. A fabric for dressing wounds consisting of an admixture of non-colloidized pyroxylin and common cellulose.

2. As a dressing for wounds a fabric, the threads of which consist of an exterior portion of non-colloidized pyroxylin and a core of common cellulose.

696,124. MOLD FOR CURING TIRES. CHARLES H. WHEELER and FRANKLIN W. KREMER, Akron, Ohio; said Wheeler assignor to the India Rubber Company, Akron, Ohio, a Corporation of Ohio. Filed July 30, 1901. Serial No. 70,266. (No model.)



Claim.—1. A tire-mold provided with a separable base portion in the form of an annulus.

2. A tire-mold provided with a separable base portion in the form of an annulus having its inner periphery tapered from the center to the edge.

696,125. CLOTH OR SPONGE HOLDER. LEWIS R. WHITAKER, Bussex, N. J. Filed July 25, 1901. Serial No. 69,684. (No model.)



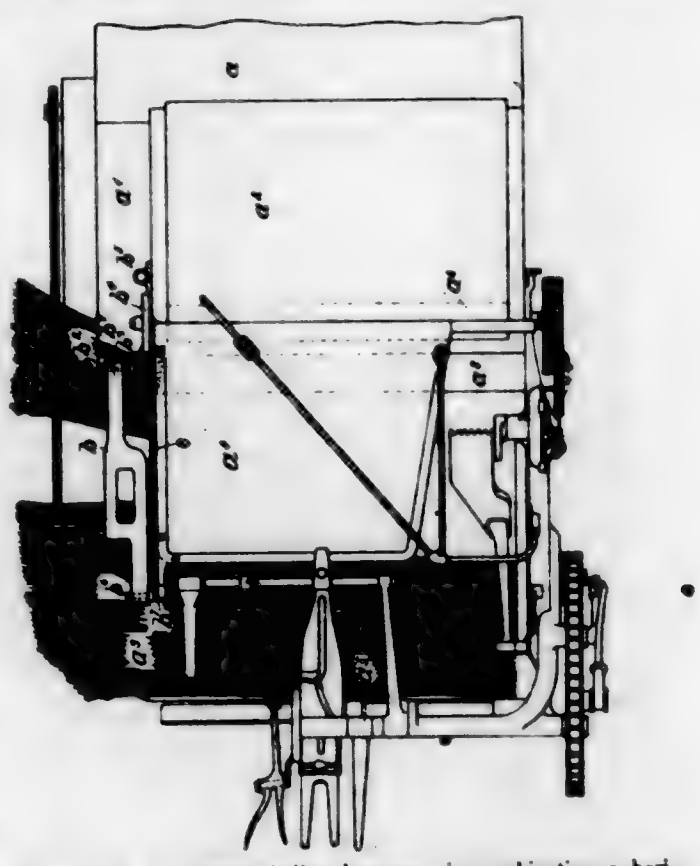
Claim.—1. The combination with a stick or handle, of spring claws or jaws carried thereby, a slide for compressing said jaws, a sleeve connected to the slide, and means for locking the sleeve to the handle, substantially as set forth.

2. The combination with a stick or handle, of spring claws or jaws carried thereby, a slide for compressing said jaws, a sleeve connected to the slide, and means for locking the sleeve to the handle, said means consisting of a hook carried by an extension to said sleeve and studs carried by the handle, substantially as set forth.

3. The combination with a stick or handle, of spring claws or jaws carried thereby, a slide for compressing said claws, a sleeve mounted to slide upon the handle and consisting of a coiled spring connected to said slide, a hook carried by said sleeve, and studs carried by said handle to be engaged by said hook and held in place by the spring action of the coils, substantially as set forth.

4. The combination with a stick or handle, of spring claws or jaws carried thereby, a slide for compressing said claws, a sleeve mounted to slide upon the handle and consisting of a coiled spring connected to said slide, a hook carried by said sleeve, and studs carried by said handle to be engaged by said hook and held in place by the spring action of the coils, and studs for limiting the rotation of the sleeve, substantially as set forth.

696,126. GRAIN-BINDING HARVESTING-MACHINE. WILLIAM H. WHITELY, Springfield, Ohio. Filed Dec. 27, 1900. Serial No. 41,294. (No model.)



Claim.—1. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the binder-deck, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover over the path of the heads of the grain, one member of said grain-forwarding mechanism consisting of a toothed grain-moving device operated from the rearward end of the upper roller-shaft of the upper-elevator belt to move the grain from the upper rearward end of the elevator-belts and binder-deck toward the binder mechanism.

2. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck and connected to the upper ends of the front and rear portions of the upper-elevator framing, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover over the path of the heads of the grain from the elevator to the binder mechanism, said grain-forwarding mechanism wholly supported by the rearward upper overhanging portion of the grain-elevator frame and binder-deck cover.

3. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism,

a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the upper and lower elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck and connected to the upper ends of the front and rear portions of the elevator-framing, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of an orbitally reciprocating arm having teeth, operated from the rearward end of the upper roller-shaft for the upper-elevator belt to move over the path of the grain in one portion of its orbit and into and with the grain in its return movement to move the grain from the rearward upper end of the elevator-belts and binder-deck toward the binder mechanism.

4. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator-belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck and connected to the upper ends of the front and rear portions of the upper-elevator framing, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of an intermediate speed-reduced gear-wheel connected with and driven from the rearward end of the upper roller-shaft for the upper-elevator belt, and another member consisting of a grain-moving device located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain to move the grain gently from the rearward upper end of the elevator and binder-deck toward the binder mechanism.

5. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck and connected to the upper ends of the front and rear portions of the upper-elevator framing, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of a gear-wheel located on the rearward end of the upper roller-shaft of the upper-elevator belt and fixedly connected thereto, and an internal-toothed-gear cranked wheel larger in diameter than said gear-wheel and intermeshing therewith to reduce the speed of said internal-toothed-gear cranked wheel slower than said roller-shaft, and another member consisting of a toothed grain-moving member pivotally connected to said internal-toothed-gear cranked wheel and caused to descend into the grain near the elevator and move the grain gently from the rearward end of said elevator over the binder-deck toward the binding mechanism.

6. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck and connected to the upper ends of the front and rear portions of the upper-elevator framing, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of a vertically orbitally reciprocating arm, having teeth on its under side, and another member consisting of a cranked internal-toothed gear-wheel journaled upon the upper-elevator framing in rear of the upper-elevator belt, and a toothed gear-wheel smaller in diameter than said cranked internal-toothed gear-wheel located on the rearward end of the upper roller-shaft for the upper-elevator belt and intermeshing with said cranked internal-toothed gear-wheel causing said cranked internal-toothed gear-wheel to rotate slower than said roller-shaft, said reciprocating toothed arm member pivotally connected at its grainward end to said cranked internal-toothed gear-wheel and linked at its stubbleward end to the binder-deck cover and acting in its reciprocations to move the grain gently from the upper rearward end of the elevator over the binder-deck toward the binder mechanism.

7. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck and connected to the upper ends of the front and rear portions of the upper-elevator framing, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of a rotary speed-reducing device connected with and driven by the upper roller-shaft of the upper-elevator member, the roller-shaft and speed-reducing device both turning in the same direction, but the speed-reducing device slower than said roller-shaft, and another member consisting of a toothed arm member connected to said speed-reducing device and operated by its rotary motion to move said toothed arm member over the path of the heads of the grain in one portion of its orbit and into and with the grain in its return movement to compress said grain upon the lower-elevator belt and binder-deck, said grain-forwarding mechanism coöperating with said elevator-belts to move the grain toward the binder mechanism

8. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of a rotary crank located in rear of the upper-elevator belt and journaled upon the upper-elevator framing and geared to the rearward end of the upper roller-shaft of the upper elevator, another member thereof consisting of an orbitally vertically reciprocating toothed arm, its grainward end operated by said rotary crank, said crank driving mechanism imparting a vertically, reciprocating motion to move said arm, causing the teeth of said arm to descend into the grain near the upper rearward end of said elevator, compressing the grain downward upon the binder-deck in its passage to the binder mechanism.

9. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of a vertically-reciprocating arm, having downwardly-projecting teeth, and another member consisting of a driving-crank member located in rear of the upper-elevator belt and geared to the rearward end of the upper roller-shaft of the upper elevator and pivotally connected to the grainward end of said toothed arm member to vertically reciprocate said toothed arm member in one portion of its orbit over and above the path of the heads of the grain causing it to descend into the grain in its return movement forcibly moving the grain over the binder-deck to the binder mechanism.

10. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a grain passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of a rotary-moving driving-crank located in rear of the upper-elevator belt and journaled upon the upper-elevator framing and geared to a pinion secured to the rearward end of the upper roller-shaft of the upper elevator, another member thereof consisting of a vertically-reciprocating arm, having downwardly-projecting teeth, its stubbleward end pivotally connected with the grain-binder-deck cover, its grainward end pivotally connected to said driving crank member, an internal-toothed-gear cranked wheel located on a single-piece metallic plate secured to the rearward upper portion of the elevator-framing, said gear intermeshing with said driving-pinion located on the rearward end of the upper roller-shaft of the upper elevator, said internal-toothed-gear cranked wheel larger in diameter than said pinion imparting a slower speed to said driving-crank wheel than that of said roller-shaft, said toothed-arm member acting with said upper-elevator belt and lower-elevator belt portions to compress the grain at the meeting ends of said belts and toothed arm member in the vertical reciprocations of said toothed arm member to clear the grain from the upper ends of the elevator-belts and move the grain toward the binder mechanism.

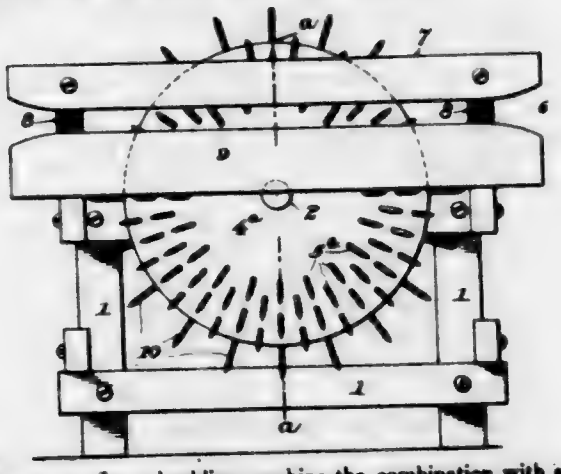
11. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism,

a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the binder-deck, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of a vertically-reciprocating orbitally-moving arm, having downwardly-projecting teeth, located over the path of the heads of the grain, said arm pivotally connected at its stubbleward end with said grain-binder-deck cover, another member thereof consisting of a rotary crank located in rear of the upper-elevator belt and journaled upon the upper-elevator frame and geared to the rearward end of the upper roller-shaft of the upper elevator and pivotally connected to the grainward end of said toothed arm member imparting a vertically-reciprocating motion to said arm member to cause it to descend into said grain-path in its movements to move the grain binderward and hold the grain from accidental rearward movement out of its proper course.

12. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a grain-passage between the lower and upper elevator belts open rearward that grain longer than the width of said belts may extend rearward from the opening between said belts and pass freely to the binder-deck, a binder-deck cover located over the grain-binder deck, a grain-forwarding mechanism located rearward of the upper-elevator belt and binder-deck cover and over the path of the heads of the grain, one member thereof consisting of a vertically-reciprocating arm, having teeth on its under side to penetrate the grain at different points in the downward movement of said reciprocating arm and compress and hold the grain from scattering while being moved by said arm from the rearward upper ends of said elevator-belts to the binder mechanism.

13. In a grain-binding harvester, in combination, a horizontal grain-conveying belt, a pair of grain-elevator belts, a grain-binder mechanism, a binder-deck intermediate between the elevator and binder mechanism, a binder-deck cover located over the grain-binder deck, a grain-forwarding mechanism, one member thereof consisting of a vertically-reciprocating orbitally-moving toothed arm located at the rearward upper end of the elevator and binder-deck cover and over the path of the heads of the grain, another member thereof consisting of a single-piece metallic plate secured to the rearward upper portion of the elevator-framing, forming a support for the rearward end of the upper roller-shaft of the upper elevator and internal-toothed cranked-gear-wheel driving mechanism substantially in the manner shown and for the purposes described.

696,127. HACKLING-MACHINE. McCLINTOCK YOUNG, Frederick, Md., assignor to The Firm of Young and Robinson, Frederick, Md. Filed Sept. 16, 1901. Serial No. 75,549. (No model.)



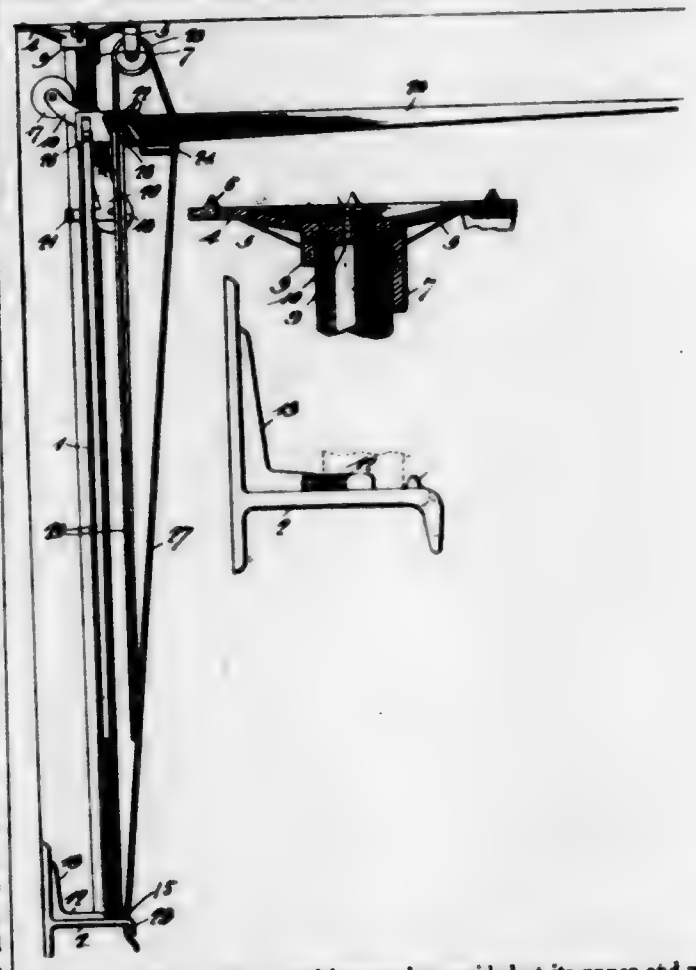
Claim.—1. In a hackling-machine the combination with a rotary flat disk provided on its face with outwardly-inclined hackling-teeth, of a fiber-support extending across the face of the disk.

2. In a hackling-machine a rotary disk provided on its face with hackling-teeth and on its edge with radial teeth extending in the plane of the disk.

3. In a hackling-machine the combination with a frame, of a driving-shaft mounted thereon, a disk on each end of the shaft, each provided on its face with hackling-teeth, and fiber-supports extending, respectively, across the face of each disk adjacent to the teeth thereon.

696,128. CLOTHES-DRIER. THEODORE M. ANDERSON, New Whatcom, Wash. Filed Oct. 7, 1901. Serial No. 77,870. (No model.)

Claim.—1. A clothes-drier comprising a bracket, a pole supported by the bracket, a cap secured to the upper end of the pole and capable of a limited inward and outward movement, said cap and pole being provided with means whereby when the pole is partially rotated the cap will be carried into and out of engagement with the ceiling, means arranged at the bracket for locking and releasing the lower end of the pole when the latter is partially rotated, and a head mounted on the pole and provided with arms, substantially as described.



2. A clothes-drier comprising a pole provided at its upper end with an inclined face, a cap arranged at the top of the pole and adapted to engage the ceiling, said cap being provided with an inclined face arranged to be engaged by the inclined face of the pole, whereby when the pole is partially rotated the cap will be carried into engagement with the ceiling, means for supporting the pole, and drier-arms connected with the pole, substantially as described.

3. A clothes-drier comprising a pole having an inclined face at its upper end, a cap, provided with arms for engaging a ceiling and having a depending socket to receive the pole, the top wall of the socket being inclined, whereby when the pole is partially rotated the cap will be forced upward or outward, a centrally-arranged fastening device passing through the cap and connecting the same with the pole, means for supporting the pole, and drier-arms connected with the pole, substantially as described.

4. A clothes-drier comprising a pole having a groove at its lower end, a bracket receiving the pole and provided with a seat for the same and having a lug of a size to pass through the groove of the pole, whereby the pole is adapted to be moved past the lug into the seat of the bracket and is locked therein when the groove is turned away from the lug, drier-arms connected with the pole, and means for holding the upper portion of the pole, substantially as described.

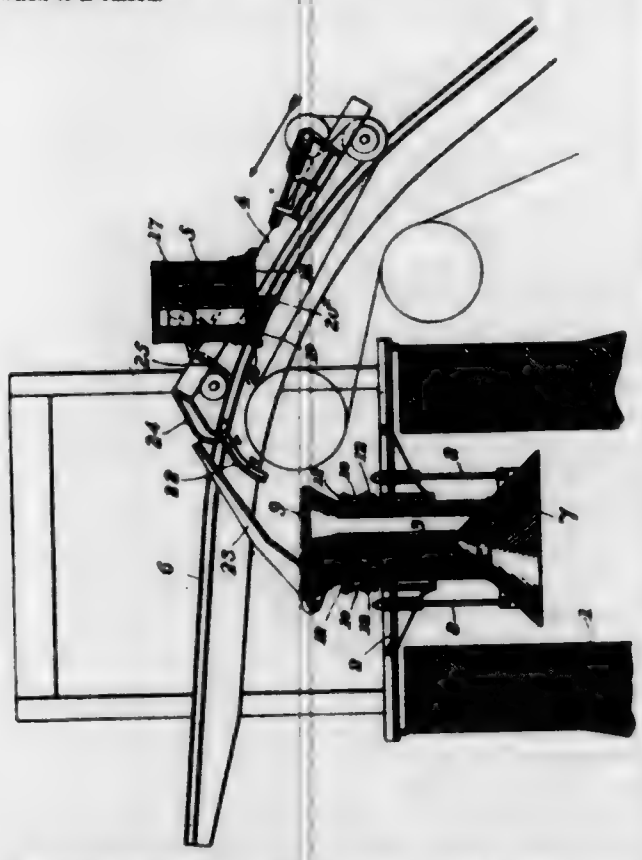
5. A clothes-drier comprising a bracket having a seat and provided with a lug, a pole provided at its lower end with a groove and having an inclined face at its upper end, a cap receiving the upper end of the pole and having an inclined face to coöperate with that of the pole, said pole being adapted to be partially rotated to carry the groove away from the lug and to force the cap outward, and drier-arms connected with the pole, substantially as described.

696,129. CHARGING MECHANISM FOR BLAST-FURNACES. DAVID BAKER, Chicago, Ill. Filed Aug. 28, 1901. Serial No. 73,222. (No model.)

Claim.—1. In combination with a furnace, a movable charging-receptacle extending into the same and adapted to receive the charge, a relatively fixed distributing-surface within the furnace against which the end of the receptacle is adapted to close, means for moving the receptacle with relation to the fixed device in order to discharge the contents, and a gas-seal for the receptacle at its opposite end.

2. In combination with a furnace, a vertically-movable receptacle

extending into the top of the same and adapted to receive and hold the charge, a fixed distributing-ball within the furnace against which the lower end of the receptacle is adapted to close, means for raising the receptacle to discharge the charge into the furnace, and means for sealing its upper end when it is raised.



3. In combination with a furnace, a plate closing its upper end and provided with an opening, a vertical receptacle in the form of a shell fitting in said opening and adapted to receive and hold the charge and movable vertically, a fixed distributing-ball against which the lower end of the receptacle is adapted to close, said ball being sustained within the furnace from said plate, means for raising the receptacle to discharge its contents directly into the furnace, and a lid on the upper end of the receptacle serving as a gas-seal.

4. In combination with a furnace, a movable charging-receptacle extending into the same and adapted to receive the charge, a relatively fixed distributing-surface within the furnace against which the receptacle is adapted to close, means for moving the receptacle with relation to the fixed surface to discharge its contents, and means for sealing the receptacle against the escape of the gases when it is thus moved.

5. In combination with a furnace, a vertically-movable charging-receptacle in the top of the same adapted to receive the charge, a lid hinged to the upper end of the receptacle on a horizontal axis, and a car adapted to convey the charge to the receptacle and movable over the top of the same, and means controlled by the car for swinging the lid upward on its axis.

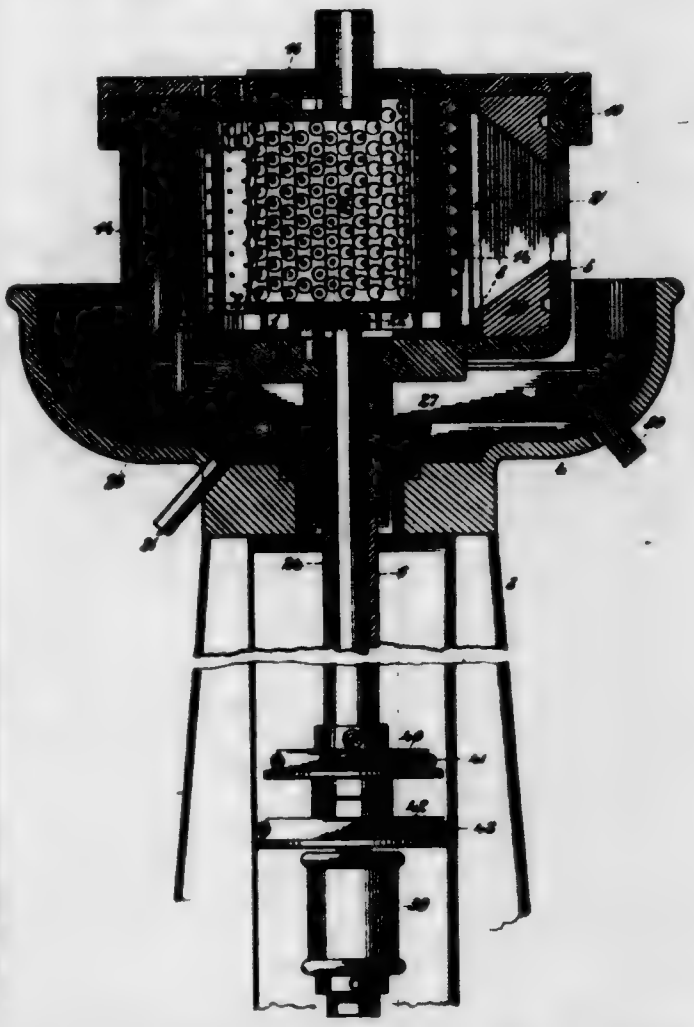
6. In combination with a furnace, a vertically-movable charging-receptacle in the top of the same adapted to receive the charge, a lid hinged to the top of the same on a horizontal axis and provided with an upwardly-projecting arm, a car movable over the top of the receptacle and adapted to engage the arm and swing the lid upward on its axis, and a projection on the car adapted to engage the lid on the return of the car and swing the lid downward.

7. In combination with a furnace, a vertically-movable cylindrical charging-receptacle in the top of the same, a lid closing the top of said receptacle, a skip-car, a cylindrical receptacle on the car movable over the charging-receptacle and adapted to register therewith, a door closing the bottom of the feeding-receptacle, means for opening the lid of the charging-receptacle on the approach of the car, means for opening the door of the feeding-receptacle when the two receptacles are in register; whereby the charge will pass to the charging-receptacle, and means for raising said receptacle to discharge its contents to the furnace.

696,180. CENTRIFUGAL MACHINE. JOHN J. BERGEAS, East Orange, N. J. Filed July 2, 1901. Serial No. 66,261. (No model.)

Claim.—1. In a centrifugal machine in combination with a receptacle for the combined constituents to be separated rotary on an eccentric axis, a multiperforated vessel arranged to receive said constituents and disposed within said receptacle.

2. In a centrifugal machine, in combination with a receptacle for the combined solid and liquid constituents to be separated rotary on an eccentric axis and having an outlet-opening for said solid constituent a multiperforated vessel arranged to receive said constituents and disposed within said receptacle, and means between said vessel and receptacle for conveying the solid constituent deposited on the wall of said receptacle to said outlet-opening.



3. In a centrifugal machine, in combination with a receptacle for the combined constituents to be separated rotary on an eccentric axis, a rotary multiperforated vessel arranged to receive said constituents and disposed within said receptacle.

4. In a centrifugal machine, the combination of a receptacle for the combined solid and liquid constituents to be separated having an outlet-opening for said solid constituent and constructed to rotate on an eccentric axis, a rotary receiving multiperforated vessel for said constituents disposed within said receptacle, and means for conveying the solid constituent deposited on a portion of the inner surface of said receptacle to said outlet-opening.

5. In a centrifugal machine, the combination of a receptacle for the combined solid and liquid constituents to be separated having an outlet-opening for said solid constituent and constructed to rotate on an eccentric axis, a rotary receiving multiperforated vessel for said constituents, and means on the exterior of said vessel for conveying the solid constituent deposited on a portion of the inner surface of said receptacle to said outlet-opening.

6. In a centrifugal machine, the combination of a cylindrical receptacle for the combined constituents to be separated constructed to rotate on an eccentric axis, and a multiperforated vessel disposed within said receptacle and rotary on an axis concentric therewith.

7. In a centrifugal machine, the combination of a cylindrical receptacle for the combined constituents to be separated constructed to rotate on an eccentric axis, a rotary cylindrical multiperforated vessel within said receptacle and means for feeding said constituents into said vessel.

8. In a centrifugal machine, the combination of a cylindrical receptacle for the combined constituents to be separated constructed to rotate on an eccentric axis, a cylindrical vessel of less diameter within said vessel and having a multiplicity of conical perforations in its wall, means for rotating said vessel on its own central axis, and means for feeding said constituents into said perforated vessel.

9. In a centrifugal machine the combination of a cylindrical vessel for the combined constituents to be separated rotary on an eccentric axis and provided with an outlet-opening, a rotary cylindrical multiperforated vessel of less diameter than said cylindrical vessel and disposed within the same and a scraper on the exterior of said multiperforated vessel adapted to convey the material deposited on the inner surface of said cylindrical vessel to the said outlet-opening thereof.

10. In a centrifugal machine, the combination of a cylindrical vessel for the combined constituents to be separated rotary on an eccentric axis and provided with an outlet-opening, a rotary cylindrical multiperforated vessel of less diameter than said cylindrical vessel and concentrically disposed within the same, and a scraper on the exterior of said multiperforated vessel adapted to convey the material deposited on the inner surface of said vessel to the said outlet-opening thereof.

11. The combination of the rotary drum 5, receptacle 8 eccentrically fixed therein, rotary multiperforated vessel 2 concentrically pivoted within said receptacle 8, and a plurality of scrapers 14 on the outer periphery of said perforated vessel.

12. The combination of the rotary drum 5, supporting hollow shaft 6, receptacle 8 eccentrically fixed in said drum, multiperforated vessel 2, pivot 1 supporting said perforated vessel concentrically within said receptacle, rotary shaft 24 within hollow shaft 6, and gears 17 and 22 between shaft 24 and pivot 1.

696,181. PAPER. CHARLES S. BIRD, Walpole, Mass. Filed Jan. 22, 1900. Serial No. 2,220. (No specimens.)

Claim.—1. A sheet of paper for use in forming tubes comprising a portion of one quality to be rolled upon itself to form the body of the tube; and a marginal portion along that edge only of the body portion toward which the blank is to be rolled to form the tube, said marginal portion being of a different quality from that of the body portion and united therewith and being of a width only sufficient to form the outside or cover of the tube, substantially as described.

2. A sheet of paper for forming tubes comprising a portion of given quality to be rolled upon itself to form the body of the tube; and a marginal portion along one edge only of the body portion united with said body portion but being of a different quality from that of the body portion and of a width sufficient only to surround the tube and form its external surface, substantially as described.

3. The herein-described sheet of paper for the manufacture of rolled tubes, which consists of a continuous sheet having a portion of given characteristics to be rolled upon itself to form the body of the tube, and a marginal portion which is capable of being burnished or polished and is to form only the cover or external surface of the tube, substantially as described.

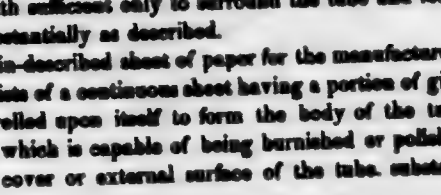
4. A sheet of paper for forming tubes, comprising a body portion of given quality to be rolled upon itself to form the body of the tube, one end of said body portion being beveled; and a marginal portion along said beveled edge of the body portion, said marginal portion being of a different quality from that of the body portion and of a width only sufficient to surround the tube and form its external surface.

5. A sheet of paper for forming tubes, comprising a portion of given quality to be rolled upon itself to form the body of the tube, the end of said portion being beveled; and a marginal portion along the beveled edge of said body portion, said marginal portion being of a different quality from that of the body portion and united therewith, and being of a width only sufficient to surround the tube and form its external surface, the inner end of said marginal portion being tapered or beveled, substantially as described.

6. The herein-described blank for the manufacture of rolled tubes, which consists of a continuous sheet of paper having a portion of given characteristics to be rolled upon itself to form the body of the tube; and an end portion which is capable of being burnished or polished and is to form only the cover or external surface of the tube, the inner end of said end portion being tapered or beveled, substantially as described.

7. A sheet of paper for forming tubes, comprising a body portion of given quality to be rolled upon itself to form the body of the tube, one end of said body portion being beveled; and a marginal portion along said beveled edge of the body portion, the inner edge of the marginal portion being likewise beveled, and said marginal portion being capable of being burnished, and of a width sufficient only to surround the tube and form its external surface.

696,182. BOX FOR INKING-RIBBON SPOOLS. MURRAY H. CRAPIN, Bridgeport, Conn., assignor to Union Typewriter Company, Jersey City, N. J., a Corporation of New Jersey. Filed Feb. 7, 1902. Serial No. 93,047. (No model.)



Claim.—1. In a device of the character specified, the combination of a box, a cover therefor, oppositely-arranged supports depending from said cover within the box, and a ribbon-spool revolubly sustained by said supports.

2. In a device of the character specified, the combination of a box, a cover therefor, oppositely-arranged spreadable supports depending from said cover within the box, and a ribbon-spool revolubly sustained by said supports, and adapted to be readily attached to and detached therefrom.

3. In a device of the character specified, the combination of a box, a cover therefor, oppositely-arranged supports depending from said cover within the box, and a ribbon-spool revolubly sustained by said supports, one of the parts having horizontal journals for the spool and the other bearings for said journals.

4. In a device of the character specified, the combination of a box, a removable cover therefor, oppositely-disposed bearing-studs carried by said cover, and a spool having bearing-openings for the reception of said studs, whereby the spool may be removed with the cover.

5. In a device of the character specified, the combination of a box, a removable cover therefor, a spring-support carried by the cover, and a spool revolubly upon said support and removable with said cover and adapted to be removed from said spring-support.

6. In a device of the character specified, the combination of a box, a removable cover therefor, depending resilient supporting-ears carried by the cover, and a spool carried by and revolubly between said supporting-ears and removable with said cover.

7. In a device of the character specified, the combination of a box, a removable cover therefor, supporting-ears carried by said cover and projecting into said box and having oppositely-disposed bearing-studs thereon, and a spool having openings within which the studs are adapted to be seated.

8. In a device of the character specified, the combination of a box, a removable cover therefor, supporting-ears carried by said cover and projecting into said box and having oppositely-disposed bearing-studs thereon, a ribbon-spool having openings within which the bearing-studs are adapted to be seated, and a spring for maintaining said ears against accidental separation so as to prevent the studs from being accidentally displaced from their bearing-openings in the spool.

9. In a device of the character specified, the combination of an imperforate box, an imperforate cover therefor, oppositely-disposed supporting-ears carried by said cover, a spool detachably carried by and revoluble between said ears and removable from the box with the cover.

10. In a device of the character specified, the combination of an imperforate box, a removable imperforate cover therefor, supporting-ears carried by said cover and projecting into said box and having bearing-studs thereon, a ribbon-spool having openings for the reception of said bearing-studs to revolubly support the spool, and means for preventing accidental displacement of the bearing-studs from their bearings in the spool, whereby the spool may be removed from the box with the cover.

11. In a device of the character specified, the combination of a box, a removable cover therefor, a supporting-piece carried by and removable from said cover, resilient ears carried by said supporting-piece and projecting into said box, oppositely-disposed bearing-studs on said ears, and a ribbon-spool having a cylindrical spindle in which said bearing-studs are adapted to be seated, so that the spool is free to revolve between said ears and so that the spool may be removed with the cover.

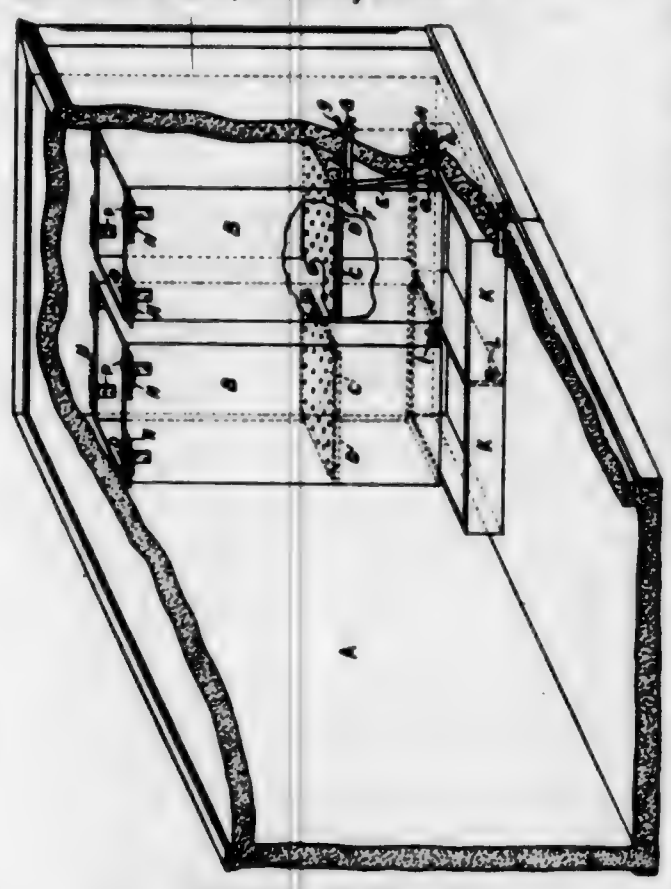
696,188. REFRIGERATING-CHAMBER. JAMES CRAPPER, Hartshead, England. Filed Sept. 20, 1901. Serial No. 75,889. (No model.)

Claim.—1. In a refrigerating-chamber, the combination with an ice-tank within said chamber, of a draw-off pipe extending from the bottom of the tank upward between the tank and chamber-wall to the desired minimum level for the liquid in the tank, a branch from the top of said upward pipe forming an outward bend passing through the chamber-wall, an exterior tap on said outward bend, a plug for cleaning purposes on the top of the upward pipe, and a branch of small diameter extending outward from the bottom of said pipe through the chamber-wall with an exterior tap having a straight nose adapted to admit a cleaning-rod, substantially as described.

2. In a refrigerating-chamber the combination with an ice-tank within said chamber of a draw-off pipe extending upward from the bottom of the tank to the desired minimum level for the liquid in the tank, branches from the upper and lower ends of said pipe extending outward through the wall of the chamber for the purpose of drawing off the liquid through either of them and a tap on the upper end of the upward pipe for drawing off the liquid at a point within the chamber, said upward pipe being inclined out of the vertical to enable the tap to be arranged straight with the outward branch, substantially as described.

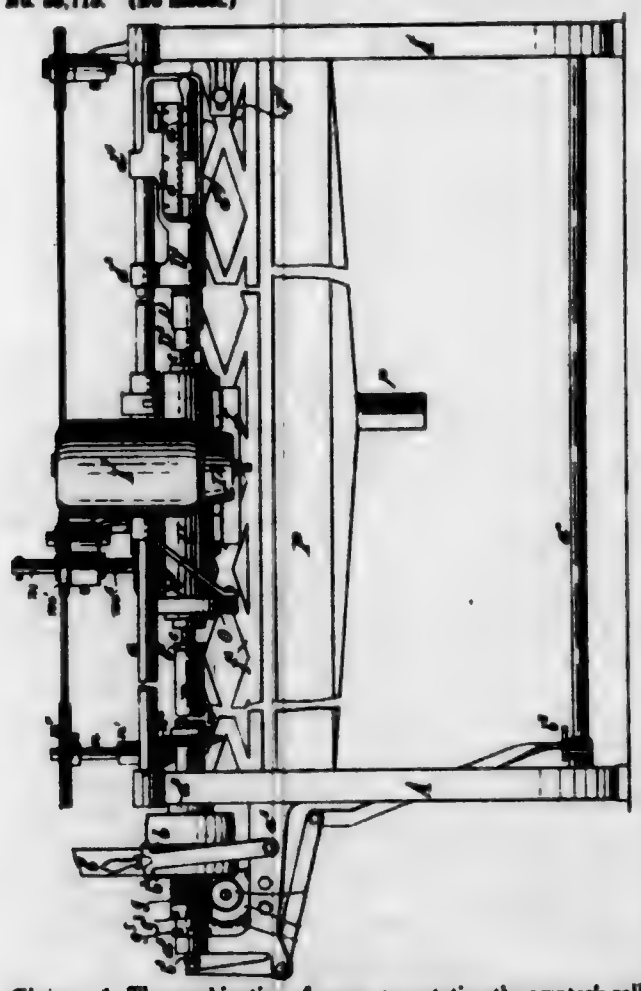
3. In a refrigerating-chamber, the combination of rectangular ice-tanks located therein at one end, a narrow space for air between the tanks and at the sides and back, connections adapted to be opened to afford

communication between the tanks, a large space in front of the tanks for air and storage of goods, one or more surplus-tanks for brine or pickle in a space below the ice-tanks, means for withdrawing brine from the ice-tanks into the surplus-tanks or directly to the exterior of the chamber as required, and means for withdrawing the brine from the surplus-tanks to the exterior of the chamber, substantially as described.



696,184. MACHINE FOR CLEANING PRINTERS' ROLLERS.

SAMUEL CRESP, Poughkeepsie, N. Y., assignor to Printers Roller Washing Machine Company, New York, N. Y. Filed Nov. 26, 1901. Serial No. 83,715. (No model.)



Claim.—1. The combination of means for rotating the printer's roller about its axis, a rotary rubbing device which works a cleaning liquid into the surface of the roller, a traveling support which is movable lengthwise of said roller and to which said rubbing device is attached, propelling mechanism for operating said support, and a wiping or scraping device by which the liquid and impurities are removed from the roller, substantially as set forth.

2. The combination of means for rotating the printer's roller about its axis, means for working a cleaning liquid into the surface of said roller, a wiping or scraping device by which the liquid and impurities are removed from said roller, a traveling carriage to which said wiping or scraping device is attached, and a propelling mechanism for operating said carriage, substantially as set forth.

3. The combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a carriage which is movable lengthwise of the roller, a rubbing device which is supported by said carriage and which works the cleaning liquid into the surface of the roller, and a wiping device which is also supported by said carriage and which removes the liquid and impurities from the roller, substantially as set forth.

4. The combination of spindles between which the printer's roller is clamped and whereby said roller is rotated about its axis, means for applying a cleaning liquid to said roller, a carriage which is movable lengthwise of the roller, a rubbing device which is supported by said carriage and which works the cleaning liquid into the surface of the roller, and a wiping device which is also supported by said carriage and which removes the liquid and impurities from the roller, substantially as set forth.

5. The combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a carriage which is movable lengthwise of the roller, a rubbing device supported by said carriage and capable of movement toward and from said printer's roller, and a wiping device mounted on said carriage and capable of movement toward and from the printer's roller, substantially as set forth.

6. The combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a carriage which is movable lengthwise of the printer's roller, rubbing-rollers which work the cleaning liquid into the surface of the printer's roller, a support in which the rubbing-rollers are mounted and which is movably connected with the carriage and permits said rubbing-rollers to move toward and from the printer's roller, and a wiping device also mounted on said carriage, substantially as set forth.

7. The combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a carriage which is movable lengthwise of the printer's roller, rubbing-rollers which work the cleaning liquid into the surface of the printer's roller, a support in which the rubbing-rollers are mounted and which is movably connected with the carriage and permits said rubbing-rollers to move toward and from the printer's roller, a wiping device which removes the liquid and impurities from the roller, and a support for said wiping device which is movably attached to said carriage and permits said wiping device to move toward and from the printer's roller, substantially as set forth.

8. The combination of a stationary main frame, means for rotating the printer's roller about its axis, a carriage which is movable in the main frame lengthwise of the printer's roller, rubbing-rollers, a pendent support in which the rubbing-rollers are mounted and which moves with the carriage, a wiping device, a movable support to which the wiping device is attached and which moves with the carriage, and means for applying a cleaning liquid to the printer's roller, substantially as set forth.

9. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, a carriage which is movable lengthwise of said roller, a rotary rubbing device, tapering guide devices arranged at the ends of said rubbing device, and a support for the rubbing and guide devices which is movable toward and from the printer's roller and moves with the carriage, substantially as set forth.

10. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, a carriage which is movable lengthwise of said roller, a series of rubbing-rollers arranged side by side, tapering guide-rollers arranged at the ends of the series of rubbing-rollers, and a support in which said rollers are mounted and which is movable on said carriage toward and from the printer's roller, substantially as set forth.

11. The combination of a stationary main frame, means for rotating the printer's roller about its axis, a carriage which is movable in the main frame lengthwise of the printer's roller, rubbing-rollers, a pendent frame in which the rubbing-rollers are mounted and which is movable on the carriage to move the rubbing-rollers toward and from the printer's roller, means for pressing the pendent frame and the rubbing-rollers toward the printer's roller, a wiping device, and a weighted supporting-lever for said wiping device which is connected with said carriage and presses the wiping device toward the printer's roller, substantially as set forth.

12. The combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a rubbing device for working the liquid into the surface of the roller, a support for the rubbing device which is movable toward and from the printer's roller, a wiping device for removing the liquid and impurities from the roller, a support for the wiping device which is movable toward and from the

printer's roller, and means for producing a relative movement in the longitudinal direction of the roller between the latter and said rubbing and wiping devices, substantially as set forth.

13. In a machine for cleaning printers' rollers, the combination of means for rotating the roller about its axis, a carriage which is movable lengthwise of the roller, a rubbing device for working a cleaning liquid into the surface of the roller, a support for said rubbing device attached to said carriage and capable of movement toward and from the printer's roller, and a receptacle for the cleaning liquid which is carried by said movable support, substantially as set forth.

14. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, rubbing-rollers, a support in which said rollers are mounted and which is movable toward and from said printer's roller, and a receptacle for the cleaning liquid which is attached to said movable support and in which said rubbing-rollers are arranged, substantially as set forth.

15. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, rubbing-rollers, a pendent support in which said rollers are mounted and which is movable toward and from the printer's roller, a receptacle for the cleaning liquid which is attached to said pendent support and in which said rubbing-rollers are arranged, a supply-pipe connected with said receptacle, a liquid-reservoir mounted on said pipe, and a pendent support for said reservoir and pipe arranged parallel with said pendent roller-support, substantially as set forth.

16. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, rubbing-rollers, a shaft on which said rollers are mounted, pendent arms in which said shaft is supported, a liquid-receptacle which is attached to said arms and in which said rollers are arranged, a horizontal supply-pipe connected with said receptacle, a pendent arm which supports said pipe, and a liquid-reservoir mounted on said pipe, substantially as set forth.

17. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, a carriage which is movable in the longitudinal direction of the roller, means for supplying a cleaning liquid to said roller mounted on said carriage, a rubbing device, and a support for said rubbing device which is movable toward and from the printer's roller and which travels with said carriage, substantially as set forth.

18. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, a carriage which is movable in the longitudinal direction of the roller, rubbing-rollers, a pendent support in which said rollers are mounted and which moves with said carriage, a receptacle for the cleaning liquid which is attached to said pendent support and in which said rubbing-rollers are arranged, and means for supplying liquid to said receptacle, substantially as set forth.

19. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, a carriage which is movable in the longitudinal direction of the roller, rubbing-rollers, a pendent support in which said rollers are mounted and which moves with said carriage, a receptacle for the cleaning liquid which is attached to said pendent support and in which said rubbing-rollers are arranged, means for supplying liquid to said receptacle, a wiping device, and a rock-arm to which said wiping device is attached and which moves with said carriage, substantially as set forth.

20. The combination of a stationary main frame provided with longitudinal guide-bars, a carriage movable on said bars, spindles arranged parallel with said bars and by which the printer's roller is rotated, rubbing-rollers, a rocking support in which said rubbing-rollers are arranged and which moves with said carriage, a wiping device, a rocking support to which said wiping device is attached and which moves with said carriage, and means mounted on said carriage for supplying a cleaning liquid to the printer's roller, substantially as set forth.

21. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, a wiper having its face provided with blades inclined in opposite directions, means for applying a cleaning liquid to the roller, and means for producing a relative movement in the longitudinal direction of the roller between the latter and the wiper, substantially as set forth.

22. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, a carriage which is movable lengthwise of said roller, means for applying a cleaning liquid to said roller, and a wiper which is connected with said carriage to move therewith and movable toward and from the printer's roller and which has its face provided with blades inclined in opposite directions, substantially as set forth.

23. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a rotary cleaner-disk which has a flat working face by which it operates upon the surface of the roller, and means for producing a relative movement in the longitudinal direction of the roller between the latter and said cleaner-disk, substantially as set forth.

24. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a carriage which is movable lengthwise of said roller, and a rotary cleaner-disk which has a flat working face by which it operates upon the surface of the roller and which is mounted on said carriage, substantially as set forth.

25. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a horizontal cleaner-disk which has a flat lower face by which it operates upon the surface of the roller, a rotary spindle to the lower end of which the disk is attached, and means for producing a relative movement in the longitudinal direction of the roller between the latter and said cleaner-disk, substantially as set forth.

26. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a rotary disk brush which has a flat working face by which it operates upon the surface of the roller, and means for producing a relative movement in the longitudinal direction of the roller between the latter and said disk brush, substantially as set forth.

27. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a rubbing device which works the cleaning liquid into the surface of the roller, a rotary cleaner-disk which has a flat working face by which it operates upon the surface of the roller, and means for producing a relative movement in the longitudinal direction of the roller between the latter and said cleaner-disk and rubbing device, substantially as set forth.

28. In a machine for cleaning printers' rollers, the combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to said roller, a rubbing device which works the cleaning liquid into the surface of the roller, a wiping device which removes the liquid and impurities from the surface of the roller, a rotary cleaner-disk which has a flat working face by which it operates upon the surface of the roller, and means for producing a relative movement in the longitudinal direction of the roller between the latter and said cleaner-disk, rubbing device and wiping device, substantially as set forth.

29. The combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to the same, a carriage which is movable lengthwise of said roller, a rubbing device connected with said carriage for working the cleaning liquid into the surface of the roller, a wiping device connected with said carriage for removing the cleaning liquid and impurities from the roller, and a rotary cleaner-disk which is mounted on said carriage and has a flat working face by which it operates upon the roller, substantially as set forth.

30. The combination of means for rotating the printer's roller about its axis, means for applying a cleaning liquid to the same, a carriage which is movable lengthwise of said roller, rubbing-rollers mounted on a movable support connected with said carriage, a wiping device attached to a movable support connected with said carriage, and a rotary cleaner-disk which is mounted on said carriage and has a flat working face by which it operates upon the printer's roller, substantially as set forth.

31. In a machine for cleaning printers' rollers, the combination of a non-rotative annular stripper which surrounds the roller, and means for producing a relative movement in the longitudinal direction of the roller between the latter and the stripper, substantially as set forth.

32. In a machine for cleaning printers' rollers, the combination of a carriage which is movable lengthwise of the roller to be cleaned, and a non-rotative annular stripper which is attached to said carriage, substantially as set forth.

33. In a machine for cleaning printers' rollers, the combination of a stripper having an annular series of stripper-blades, and means for producing a relative movement in the longitudinal direction of the roller between the latter and the stripper, substantially as set forth.

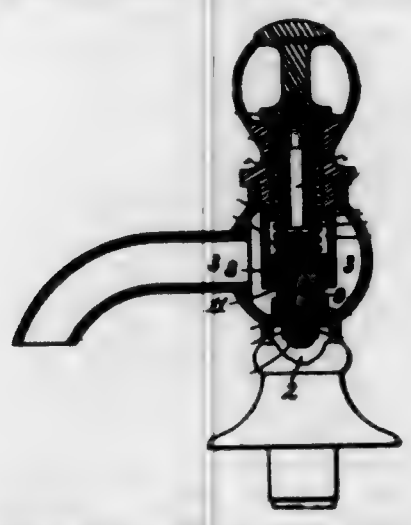
34. In a machine for cleaning printers' rollers, the combination of a stripper having an annular series of stripper-blades, means for closing the blades against the roller, and means for producing a relative movement in the longitudinal direction of the roller between the latter and the stripper, substantially as set forth.

35. In a machine for cleaning printers' rollers, the combination of a carriage which is movable lengthwise of the roller to be cleaned, a stripper attached to said carriage and having an annular series of stripper-blades, and means for closing the blades against the roller, substantially as set forth.

696,185. FAUCET. Nelson Cutts, Boston, Mass., assignor to the Sumner and Goodwin Company, Boston, Mass., a Corporation of Massachusetts. Filed Apr. 6, 1900. Serial No. 11,991. (No model.)

Claim.—1. A casing having inlet and outlet chambers and a valve-

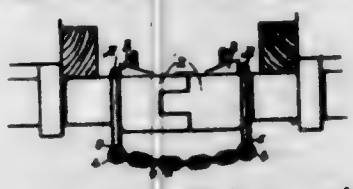
seat separating said chambers, a valve in connection with said valve-seat to control communication between said chambers, and a series of interchangeable collars to be attached to said valve, forming an extension thereto, and reciprocating within the perforation of said valve-seat, whereby the pressure in the outlet-chamber can be adjusted as desired in relation to the pressure in the inlet-chamber of the casing, for the purpose set forth.



2. A casing having inlet and outlet chambers and a valve-seat separating said chambers, a bonnet for said casing, a piston-valve engaging said seat and controlling communication between said inlet and outlet chambers, a cylinder for the piston of said valve, an inlet-passage to said cylinder, an exhaust from said cylinder, a secondary valve controlling said exhaust and means to operate said secondary valve, the cylinder, exhaust from said cylinder, secondary valve, and operating mechanism, all contained within said bonnet, whereby the improved device may be applied to casings now in use, for the purpose set forth.

3. In a faucet, a casing having an inlet, an outlet, and a valve-seat between said inlet and outlet, a bonnet for said casing, two chambers in said bonnet, a valve-seat between said chambers, a piston in one of said chambers, a valve controlled by said piston and seating on the valve-seat between said inlet and outlet controlling communication between the same, a passage forming communication between the inlet and the chamber containing said piston, above said piston, supplying motive fluid to said chamber to hold said valve upon its seat, a piston in the second chamber in said bonnet, a valve controlling communication between the two chambers in the bonnet, a spring normally holding this latter valve upon its seat, means to force this latter valve from its seat, and a passage forming communication between the second chamber and the outlet, for the purpose set forth.

696,186. EMERGENCY-SHACKLE. EDWARD F. DIAMOND, Oakland, Cal. Filed Dec. 26, 1901. Serial No. 87,740. (No model.)



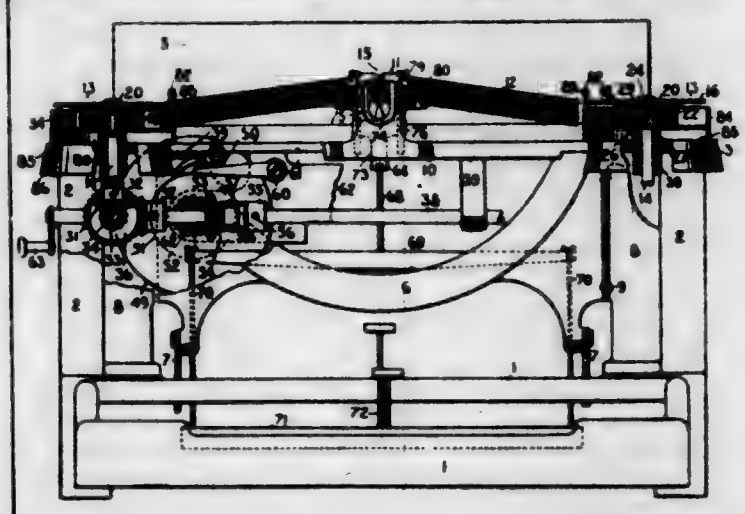
Claim.—1. An emergency-shackle for cars consisting of yokes open at one side adapted to fit over the draw-heads of the cars, pins or rods extending through holes to connect the open sides of the yokes and chains extending between the pins and connected with each.

2. An emergency-shackle for cars consisting of rectangular yokes having an open side, holes made through the ends of the side bars, pins or rods adapted to extend through and connect said ends when the yoke is in place upon the draw-head and a chain having alternate long and short links whereby it is adjustably fitted to connect the pins of the yokes and complete the coupling.

696,187. TYPE-WRITING MACHINE. JACOB FELSH, New York, N. Y., and CARL GABRIELSEN, Greenville, N. J.; said Gabrielsen assignor to said Felsh. Filed May 16, 1901. Serial No. 60,594. (No model.)

Claim.—1. In a type-writing machine, the combination of a spool-shaft having a slot, a spring-arm fixed thereto and having at its free end a latch which is provided on its upper side with a cam edge, a ribbon-spool comprising a core and a flange on each end thereof, each flange having a perforation and the core having a bore or perforation of greater diameter than the perforation in the flange, a recessed supporting-collar fixed on said shaft and having a pin to engage an eccentric hole in the lower flange, and a thimble mounted to slide on said shaft and projecting above and below the spool-flanges and slotted to provide a portion to engage said cam edge.

2. In a type-writing machine, the combination of a shaft, oppositely-projecting latches mounted thereon, a spool locked upon the shaft by said latches, means for releasing the spool from the control of said latches, and independent means for both supporting and keying the spool to the shaft.



3. In a type-writing machine, the combination of a shaft, spring-arms 22 mounted thereon, latches 23 carried upon the ends of said spring-arms, a spool mounted upon said shaft and having a flange provided with a central perforation over whose edge said latches catch, cam portions 23^a formed upon said latches, and thimble 24 sliding upon said shaft and having means for engaging said cam edges, whereby the latter and the spring-arms restore the thimble to normal position when the latter is relieved of pressure.

4. In a type-writing machine, the combination of a shaft, spring-arms 22 mounted thereon, latches 23 carried by the ends of said spring-arms, a spool mounted upon said shaft and having a flange provided with a central perforation over whose edge said latches catch, cam portions 23^a formed upon said latches, thimble 24 sliding upon said shaft and having means for engaging said cam edges, collar 27 fixed upon said shaft, and pin 26 carried by said collar and engaging an opening in the spool

5. In a type-writing machine, the combination of a shaft slotted longitudinally at its end, a catch mounted in said slot upon a transverse pin 20 and consisting of hub portion 21, spring-arms 22, and latches 23 having cam edges 23^a, collar 27 mounted upon said shaft, a ribbon-spool having centrally-perforated flanges and abutting against said collar 27, the edge of the perforation in one of said flanges being engaged by said latches, a thimble 24 mounted upon the shaft and extending through the spool into a recess 26 formed in said collar, slots 25 in said thimble, and pin 26 upon said collar engaging a perforation in the spool.

6. In a front-strike writing-machine, the combination with a platen, of a pair of vertical shafts arranged forwardly thereof at opposite sides of the machine, a ribbon-vibrator arranged between the spools and in proximity to the platen, a vertical slot formed in the upper end of each shaft, a cross-pin extending through each slot, integrally-formed spring-arms mounted upon said cross-pin and having portions which project from said slot, a collar fixed upon each shaft below said arms, a horizontal spool mounted upon each shaft and having upper and lower centrally-perforated flanges, the projections upon said arms engaging the edge of the perforation in the lower flange, a vertical thimble mounted upon each shaft and extending through the spool into a recess formed in said collar, vertical slots formed in the lower end of said thimble, the projections upon said arms passing through said vertical slots and having cam edges which are engaged by the upper ends of said slots, and means for keying the spool to the shaft.

7. In a type-writing machine, the combination with a platen, of a vertical spool-shaft arranged forwardly thereof, a spring-arm carried by said shaft, a latch carried upon the free end of said spring-arm, a cam edge on the upper side of said latch, a ribbon-spool mounted upon the shaft and having a flange engaged by said latch so as to prevent upward movement of the spool, a vertical slide acting on said cam edge to release the spool and reacted on by said cam edge and said spring-arm so as to be restored thereby to normal position when relieved of pressure.

8. In a type-writing machine, the combination of a shaft having a longitudinally-slotted end, a transverse pin 20 fixed in the shaft and having projecting ends, a thimble fitted loosely over the shaft and having slots engaged by the projecting ends of said pin, slots formed in the lower end of said thimble, latches formed upon yielding arms mounted in said shaft-slot and projecting through said thimble-slots, a ribbon-spool having centrally-perforated flanges fitting over said thimble, a collar upon the shaft for supporting the ribbon-spool, and means for keying the ribbon-spool to the collar.

9. In a ribbon-winding mechanism of a type-writing machine, the combination of a pair of shafts 34, a ribbon-spool connected to each shaft,

a gear 36 upon each said shaft, an endwise-movable main driving-shaft 38 having gears for meshing with the gears 36, a collar 55 fixed upon said driving-shaft and having integral clutch-fingers 57 extending longitudinally of the shaft, a gear 53 loosely placed upon the driving-shaft and having slots 59 engaged by said clutch-fingers, and also having a peripheral groove 54, a finger entering said groove and preventing the gear from moving longitudinally of the shaft, and means for rotating said gear.

10. In a type-writing machine, the combination of a platen, a ribbon-vibrator formed of sheet metal and consisting of a stem, a cross-head carried thereby, slides formed upon the opposite ends of the cross-head, the latter being folded at each end so that the slides are turned toward each other, fixed guides arranged between said slides and engaged thereby, and ribbon-guiding slots formed integrally upon said slides.

11. In a type-writing machine, the combination of a platen, a ribbon-vibrator consisting of a stem, a cross-head carried thereby, and slides formed upon the opposite ends of the cross-head, the latter being folded at each end so that the slides are turned toward each other, fixed guides arranged between said slides and engaged thereby, upwardly-projecting ribbon-guiding fingers 80 formed integral with said slides, and hooks 79 also formed upon said slides and overhanging said ribbon-guiding fingers.

12. In a front-strike type-writing machine, the combination with a platen, of a pair of ribbon-spools mounted at opposite sides of the machine and forwardly of the platen, and an upright vibrator for moving a portion of the ribbon to cover and uncover the printing-point, said vibrator having downwardly-diverging slots through which the ribbon is threaded, and the ribbon being arranged to pass edgewise from said spools to the vibrator and at an angle to the latter and to turn through said diverging slots without folding.

13. In a front-strike writing-machine, the combination with a platen, of a pair of ribbon-spools mounted forwardly thereof at opposite sides of the machine and below the printing-point, and a vibrator mounted in proximity to the printing-point and having at its sides opposite downwardly-diverging ribbon guides around which the ribbon turns without folding.

14. In a front-strike writing-machine, the combination with a platen, of a pair of ribbon-spools mounted at opposite sides of the machine forwardly of the platen, a vibrator standing normally below the printing-point, and a vertical guide upon which said vibrator slides, the latter having ribbon-guiding slots arranged laterally of said vertical guide and diverging from their upper to their lower ends.

15. In a front-strike type-writing machine, the combination with a platen, of an upright ribbon-vibrator having downwardly and outwardly sloping side edges over which the ribbon rides facewise without folding and also having upwardly-directed fingers for passing behind the ribbon, and fixed ribbon-guides arranged at opposite sides of the machine forwardly of the vibrator.

16. In a front-strike writing-machine, the combination with a platen, of a pair of spools arranged forwardly thereof and below the printing-point and at opposite sides of the machine, a ribbon-vibrator arranged in front of the platen and in proximity to the printing-point, the spools and the vibrator being so arranged that the ribbon approaches and leaves the vibrator while traveling edgewise, and means at the vibrator for taking up slack in the lower portion of the ribbon.

17. In a front-strike writing-machine, the combination with a platen, of a pair of ribbon-spools arranged at the sides of the machine and forwardly of the platen, and means for lifting the middle portion of the ribbon between the spools to cover the printing-point, said means including a pair of diverging edges over which the ribbon rides facewise and in an unfolded condition.

18. In a front-strike writing-machine, the combination with a platen and a pair of spools arranged forwardly thereof at opposite sides of the machine, of a ribbon extending from spool to spool, means for causing the ribbon to travel in a vertical plane past the printing-point, means for conducting the ribbon edgewise toward and away from the printing-point in a direction oblique to said vertical plane and without folding the ribbon, and means for taking up slack in the lower edge of the ribbon.

19. In a front-strike writing-machine, the combination with a platen and a pair of spools located forwardly thereof and at opposite sides of the machine, of a vibrator arranged forwardly of the printing-point and having a rear vertical face behind which the ribbon travels, and slots 78 arranged diagonally in the vibrator and diverging from top to bottom, the ribbon being threaded through said slots and, without folding, extending outwardly and forwardly to the ribbon-spools.

20. In a front-strike writing-machine, the combination with a platen, of a pair of ribbon-spools arranged forwardly thereof upon opposite sides of the machine, a vertically-moving vibrator having oppositely-diverging edges 81, and a pair of fixed guides for controlling the direction of travel of the ribbon so that the latter is caused to ride facewise over said edges 81 without folding.

21. In a type-writing machine, the combination of a platen, a ribbon-vibrator formed of sheet metal and consisting of a stem, a cross-head carried thereby, and slides formed upon the opposite ends of the cross-head, the latter being folded at each end so that the slides are turned toward each other, fixed guides arranged between said slides and engaged thereby, and diverging ribbon-guiding slots formed upon said slides.

22. In a front-strike writing-machine, the combination with a platen and a pair of horizontally-disposed ribbon-spools arranged forwardly thereof and at opposite sides of the machine, of a vertically-disposed vibrator arranged in proximity to the printing-point, and means between the vibrator and each spool for giving the ribbon a twist and preventing it from creeping or working over toward the end of the spool.

23. In a front-strike writing-machine, the combination with a platen and a pair of ribbon-spools arranged forwardly thereof and at opposite sides of the machine, of a vibrator arranged in proximity to the printing-point, and upright rearwardly-inclined ribbon-guiding slots arranged in proximity to the spools for preventing the ribbon from creeping or working upwardly upon the spools.

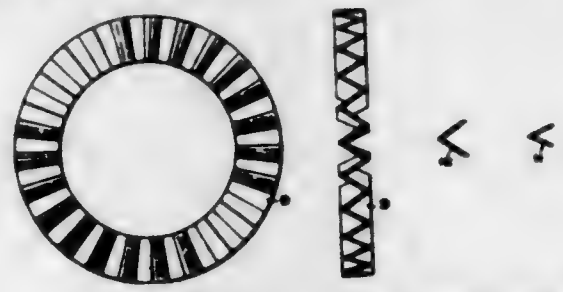
24. In a front-strike writing-machine, the combination with a platen, of a pair of spools arranged forwardly thereof and at opposite sides of the machine, a vibrator having diverging ribbon-guiding slots and arranged in proximity to the printing-point, and rearwardly-inclined ribbon-guiding slots arranged at the spools.

25. In a front-strike writing-machine, the combination with a platen, of a pair of horizontal ribbon-spools arranged forwardly thereof and at opposite sides of the machine, a spool-case 84 for each spool having rearwardly-inclined guiding-lips 83, and a vertically-movable vibrator having diverging ribbon-guiding slots and arranged in proximity to the printing-point.

26. In a front-strike writing-machine, the combination with a platen, of a pair of horizontal ribbon-spools arranged forwardly thereof at opposite sides of the machine, and spool-cases 84 each formed of a curved metal strip whose ends are secured together and provided with upwardly and rearwardly extending horns or supports 86 for inclined ribbon-guiding lips 83.

27. In a front-strike writing-machine, the combination of a platen, a ribbon-vibrator, a pair of flanged ribbon-spools, and spool-cases having each an inclined edge for directing the ribbon to the spool and for preventing the ribbon from working endwise of the spool and crowding between coils of the ribbon and the flange of the spool.

696,188. ROLL. GUSTAV A. GRÄDTKE, Milwaukee, Wis. Filed Dec. 22, 1900. Serial No. 40,717. (No model.)



Claim.—1. A roll consisting of a series of interchangeable substantially radially corrugated thin rings fitting to and bearing against each other, and means securing them together axially forming a hollow rigid roll.

2. A roll consisting of end pieces and a series of intermediate rings, each ring being corrugated and formed to fit and bear against any other ring, the rings being interchangeable, and means binding the end pieces and rings together into a rigid hollow roll.

3. A ring for a hollow roll constructed of suitable material and of uniform thickness in axial direction, and comprising a series of substantially radial corrugations, the corrugations having warped side surfaces, and the side surfaces of the ring thus formed being substantially identical as to form.

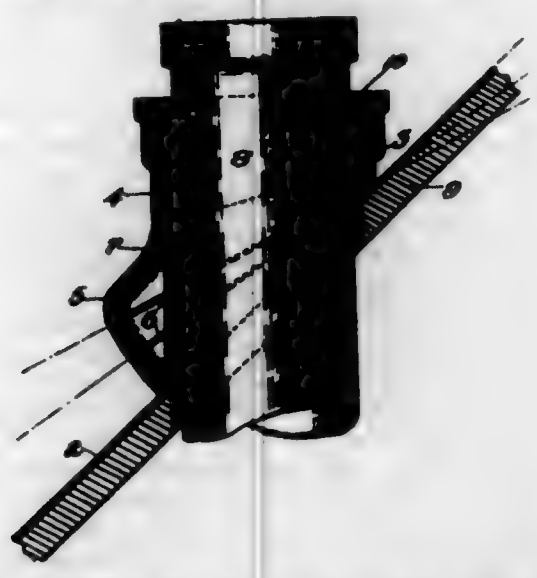
4. A ring for a hollow roll constructed of suitable material and comprising a series of substantially radial corrugations, the side surfaces of the ring thus formed being substantially identical as to form, and adapted to fit on either side interchangeably against a ring formed with the same side surfaces.

5. In combination in a roll, a series of interchangeable rings having similar substantially radial corrugations on their side surfaces and fitting to and bearing against each other, end pieces provided on one side with substantially radial corrugations fitting to and bearing against a surface of a ring, and means binding the rings and the end pieces together in a rigid hollow roll.

6. A roll consisting of a series of interchangeable substantially radially corrugated rings having side surfaces of such form as to fit against

each other and support each other without central support, and means binding the rings together into a rigid hollow roll.

696,189. ROOF-JOINT. CLIFTON A. CRAFTON, Haverhill, Mass. Filed Nov. 11, 1901. Serial No. 81,855. (No model.)



Claim.—1. In a roof-joint, a thimble having its bottom edge inclined with respect to its axis to correspond with the pitch of the steepest roof to which the joint is to be applied, and adapted to have portions of said bottom edge removed along various planes converging toward the upper side of the thimble, the lower side wall of said thimble being bulged outwardly in such manner as to have a substantially constant elliptical section on any of said planes, substantially as and for the purpose set forth.

2. In a roof-joint, a cast-iron thimble having its bottom edge inclined with respect to its axis and scored on lines corresponding with planes of varying inclination which converge toward the upper side of the thimble near its top, said thimble having its lower side wall bulged outwardly in such manner as to have a substantially constant elliptical section on any of said planes, substantially as and for the purpose set forth.

3. A roof-joint comprising, in combination, a flashing having its base provided with an elliptical perforation surrounded by an upwardly-extending flange, and a thimble having its bottom edge inclined with respect to its axis, to correspond with the pitch of the steepest roof to which the joint is to be applied, and adapted to have portions of said bottom edge removed along various planes converging toward the upper side of the thimble, the lower side wall of said thimble being bulged outwardly in such manner as to be capable of receiving said flange when trimmed along any of said planes, substantially as described.

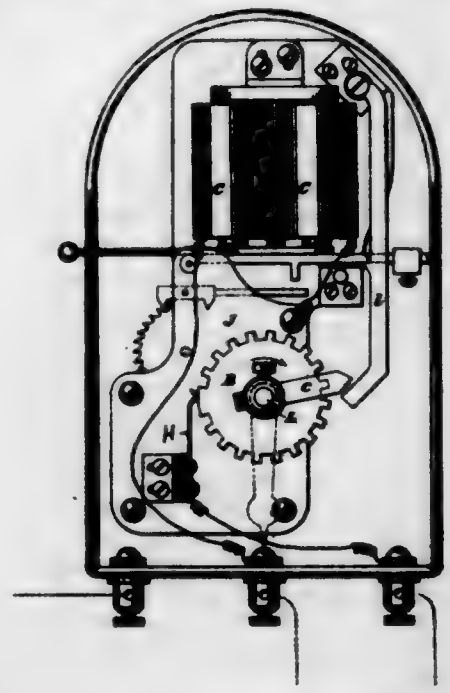
4. A roof-joint comprising, in combination, a perforated flashing provided with an upwardly-extending flange, and a thimble adapted to fit loosely over said flange and rest upon the base of said flashing with its upper end substantially horizontal, said thimble having its bottom edge adapted to be removed along various planes converging toward the upper side of said thimble and having its lower side wall bulged outwardly in such manner as to give it a substantially constant section on any of said planes, substantially as described.

5. A roof-joint comprising, in combination, a flashing having a base 2 provided with an elliptical perforation surrounded by a flange extending upwardly therefrom, and a cast-iron thimble 4 adapted to fit loosely over said flange and rest upon the base 2 with its upper end substantially horizontal, said thimble having its lower side wall bulged outwardly at 5, as described, and being scored along lines 6 converging toward the upper side of said thimble, near its top, substantially as described.

6. A roof-joint comprising, in combination, a flashing having a base 2 provided with an elliptical perforation surrounded by a flange 3 extending upwardly therefrom, and a cast-iron thimble 4 adapted to fit loosely over said flange and rest upon the base 2 with its upper end substantially horizontal, said thimble having its lower side wall bulged outwardly at 5, as described, and being scored along lines 6 converging toward the upper side of said thimble near its top, the flange 3 being increased in height at its lower side to cover the space left by said bulging portion in the interior of the thimble.

696,140. ELECTRIC SIGNALING APPARATUS. FELIX B. HERRON, New York, N. Y. Filed Sept. 20, 1894. Serial No. 144,194. (No model.)

Claim.—1. A series of transmitters, included in and coöperating with only a single main line leading to the stations on each side, each transmitter comprising a break-wheel and brush and motor device, and a setting device for the same; a magnet, an armature and adjuncts arranged and adapted to control the motor device, and thus to control the production of the signal by the break-wheel, together with a cut-off switch coöperating with the said line at a point between the break-wheel of the transmitter and the break-wheel of the next more distant transmitter, and arranged to cut the latter off from the receiving-station.



2. A series of transmitters, included in and coöperating with only a single main line leading to the stations on each side, each transmitter comprising a break-wheel and brush and motor device, and a setting device for the same; a magnet, an armature and adjuncts arranged and adapted to control the motor device, and thus to control the production of the signal by the break-wheel, together with a circuit-completing switch, including elements for controlling the said main line at the box.

3. A series of transmitters, included in and coöperating with only a single main line leading to the stations on each side, each transmitter comprising a break-wheel and brush and motor device, and a setting device for the same; a magnet, an armature and adjuncts arranged and adapted to control the motor device, and thus to control the production of the signal by the break-wheel; a cut-off switch coöperating with the said line at a point between the break-wheel of the transmitter and the break-wheel of the next more distant transmitter, and arranged to cut the latter off from the receiving-station, together with a circuit-completing switch, including elements for controlling the said main line at the box.

4. A series of transmitters included in and coöperating with only a single main line leading to the stations on each side, each transmitter comprising a break-wheel and brush, a motor device and a setting device for the same; a magnet, an armature and adjuncts arranged and adapted to control the motor device and thus to control the production of the signal by the break-wheel, together with a restoring device and means for operating the same through the said single circuit to the receiving-station for restoring the normal circuit at a box after its operation.

5. A series of transmitters included in and coöperating with only a single main line leading to the stations on each side, each transmitter comprising a break-wheel and brush, a motor device and a setting device for the same; a magnet, an armature and adjuncts arranged and adapted to control the motor device and thus to control the production of the signal by the break-wheel; together with a circuit-completing switch including elements for controlling the said main line at the box, and a restoring device and means for operating the same through the said single circuit to the receiving-station, for restoring the normal circuit at a box after its operation.

6. Several transmitters, included in a single main line, each comprising a setting device, controlling-magnet and signal-transmitting elements, arranged to transmit an invariable or characteristic signal, together with a variable signal; a branch line, including the magnet; and a cut-off operated by the act of setting the transmitter and operating to disable the line beyond; and a restoring device operating to restore the disabled line to its normal condition and controlled by the magnet.

7. Several transmitters included in the single main line, each comprising a setting device, a controlling-magnet and transmitting mechanism, including elements arranged to transmit an invariable or characteristic signal, and a variable signal; a branch line including the magnet; and a cut-off for the said main line beyond, and devices operating to simultaneously connect the branch line to the main line, and to operate the cut-off, together with a circuit-restoring device controlled by the magnet.

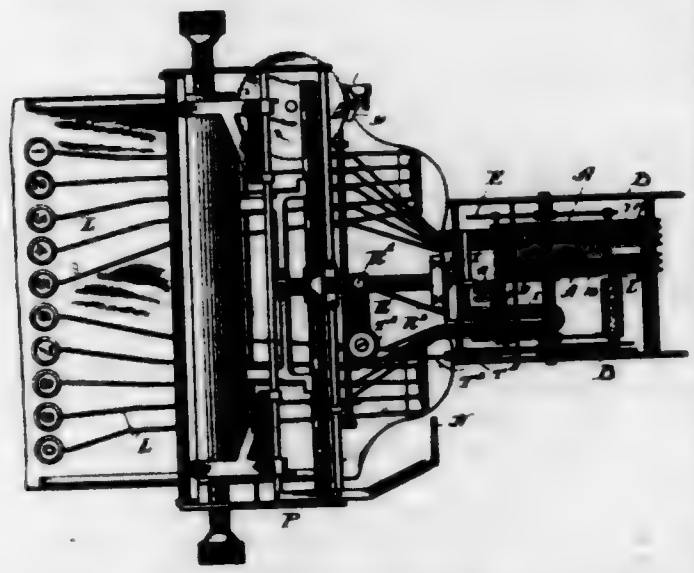
8. A system of four or more stations in series; receiving apparatus at one of these, and signal-boxes at the others, comprising first, signal-transmitting elements, including a setting device and break-wheel, a brush, a motor and a magnet; second, elements including contacts arranged and adapted to temporarily cut off or postpone the release of motors located in boxes which have been set farther along the line; third, internal connection-contacts arranged to control the operation of its own motor, in correspondence with the condition of its own setting device; fourth, non-interference elements, including contacts arranged—while a box which is set and so postponed is ready to be released—to operate to so cut off or postpone all operated boxes beyond; fifth, circuit connections including in addition to only one return, only one wire from any box in the direction of the receiving-station; all coöperating so that while one box is transmitting all boxes beyond will be postponed, and so that each of such postponed boxes must be separately released in succession—whereby the signals of all boxes will be duly received in succession.

9. A system comprising four or more stations coöperating with a single main line, one of these including receiving apparatus and three or more each including a signal-transmitting movement; a magnet in a branch line arranged to coöperate with the main line, and controlling means for holding or locking the movement; a cut-off for that portion of the main line extending to stations beyond; and mechanism for restoring the normal condition of the cut-off after the operation of the signal-transmitting movement; whereby the several movements are separately locked and successively released so as to transmit the respective signals in sequence and without interference.

10. A signal-transmitting box comprising a characteristic break-wheel, and a movement adapted when wound to actuate the same, and a detent for the movement; a single main line coöperating therewith and including on one side a cut-off switch; a manual setting device operating both to set the wheel and to operate the cut-off switch; a magnet in a temporary branch return, arranged to control the detent for the movement; and means whereby the operation of the movement breaks the connection of the main line to the said branch and recloses the main line at the said cut-off

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696,141. ADDING ATTACHMENT FOR TYPE-WRITING MACHINES. ADAM HOCH, Alameda, Cal., assignor, by direct and mesne assignments, to Wending-Hoch Adding Machine Company, San Francisco, Cal., a Corporation of California. Filed Oct. 15, 1900. Serial No. 33,054. (No model.)



Claim.—1. In an adding-machine, adding devices, a selector carrying pins, keys to adjust the pins to position to engage the adding devices, and means for moving the selector to actuate the devices, substantially as set forth.

2. In an adding-machine, adding devices, a selector carrying pins, keys supported by a stationary keyboard to adjust the pins to position to engage the adding devices, and means for moving the selector to actuate the devices, substantially as set forth.

3. In an adding-machine, adding devices, a selector carrying pins, keys to adjust the pins to position to engage the adding devices, and means for moving the selector laterally and longitudinally to actuate the devices, substantially as set forth.

4. In an adding-machine, adding-wheels, a selector carrying pins and movable about the axis of the adding-wheels, and keys to adjust the pins, substantially as set forth.

5. In an adding-machine, adding-wheels, a selector carrying pins and movable about the axis of the adding-wheels, and keys supported by a stationary keyboard, to adjust the pins, substantially as set forth.

6. In an adding-machine, adding-wheels, a selector carrying pins and movable transversely of the wheels and also about the axis thereof, keys to adjust the pins and move the selector transversely of the wheels, and means for moving the selector about the axis of the wheels, substantially as set forth.

7. In an adding-machine, adding-wheels, a selector carrying a series of pins to each wheel axially about the wheels, a series of keys and means whereby each key may be brought into operative connection with pins of all the series, and means for moving the selector about the axis of the wheels, substantially as set forth.

8. In an adding-machine, the combination of a series of rotative adding-wheels, a carrier movable axially about the wheels, series of pins supported by the carrier, keys for setting the pins in position to operate the adding-wheels, means for changing the position of the pins and adding-wheels laterally with respect to each other, and means for moving the pins about the axis of the adding-wheels, substantially as set forth.

9. In an adding-machine, the combination of a series of rotative adding-wheels, a carrier movable axially about the adding-wheels, series of movable pins supported by the carrier, keys for setting the pins in position to operate the adding-wheels and to feed the carrier step by step transversely of the adding wheels, and means for moving the pins about the axis of the adding-wheels, substantially as set forth.

10. In an adding-machine, the combination of a series of rotative adding-wheels, a selector for actuating said wheels, means for moving the selector step by step transversely of the wheels, and means for first moving the selector about the axis of the wheels to actuate the latter, then transversely thereof in a direction opposite to the step-by-step movement, and finally about the axis thereof in a direction opposite to the first axial movement, substantially as set forth.

11. In an adding-machine, a series of adding devices, a selector having series of parallel rows of pins, keys for adjusting the pins to position to engage the adding devices, means for moving the selector transversely of the adding devices, and means for moving the selector in a direction longitudinally of the rows of pins to actuate the adding devices, substantially as set forth.

12. The combination with a type-writing machine, of an adding device, and means for operatively connecting the carriage of the type-writer with the adding device to operate the latter from the return movement of the carriage.

13. The combination with a type-writer carriage, of adding-wheels a selecting device movable transversely of the adding-wheels and also about the axis thereof, means to connect the carriage and selecting device to move the latter transversely of the wheels when the carriage moves in one direction, and means operated by the reverse movement of the carriage to move the selecting device about the axis of the wheels, substantially as set forth.

14. The combination of type-writing mechanism, an adding device, means operatively connecting the numeral-keys of the type-writing mechanism with the adding device to set the same for adding the figures as the same are written by the selected keys, and means operatively connecting the carriage of the type-writing mechanism with the adding device to operate the same by the return movement of the carriage after the line of figures is written.

15. The combination with a type-writing machine, of an adding device and means operatively connecting the carriage of the type-writer with the adding device to operate the latter from the return movement of the carriage, and means for operatively disconnecting the carriage from the adding device at the end of said return movement.

16. The combination with a type-writing machine, of an adding device, means operatively connecting the carriage of the machine with the adding device at the end of the spacing movement of the carriage whereby the power to actuate the adding device is derived from the movement of the carriage after the line is written, means operatively disconnecting the carriage from the adding device at the end of said return movement, and controlling means whereby the carriage is required to complete its return movement before being disconnected.

17. The combination with a type-writing machine, of an adding device, means operatively connecting the carriage of the machine with the adding device after the carriage has arrived at the end of its travel and before it begins to return, and controlling means whereby retrograde movement of the carriage is prevented beyond a predetermined point until after the carriage has reached the end of its travel in that direction.

18. The combination with a type-writing machine, of an adding device, means automatically connecting the adding device with the type-writing mechanism from the adjustment of the machine to write figures in columns to be added, whereby said adding device is controlled by power derived from the movements of the type-writer keys and actuated by the traveling movement of the type-writer carriage, and means automatically disconnecting the adding device to render the same inoperative when the machine is adjusted to write letters.

19. The combination with a type-writing machine, of an adding device, means operatively connecting and disconnecting the machine and the adding device from the different adjustments of the machine to write figures in columns to be added, or to write without adding, whereby the power derived from the type-writer keys and the carriage to control and actuate the adding device is operative thereon only when the machine is adjusted to write and add figures; and controlling means adapted to limit the length of the written line from the starting-point to a given distance from the end of the line, whereby a reserved space of uniform width is maintained for the columns of figures.

20. The combination, with a type-writing machine, of an adding device, means operatively connecting the adding device with the numeral-keys for controlling the adding device, and controlling means adapted to prevent a numeral-key in its downstroke from rising until it has completed its stroke.

21. The combination with a type-writing machine, of an adding device, means operatively connecting the adding device with the numeral-keys of the machine to control the same from the movement of the keys, means controlling the downstroke of a depressed key to prevent the same from rising until after it has completed its stroke, and means actuated from the depressed key to lock all the remaining keys until the depressed key has completed its stroke.

22. In an adding attachment for type-writing machines wherein the adding operation is controlled by the numeral-keys of the machine, the combination with the operating-keys, of controlling means whereby the movement of one key when depressed holds all the remaining keys out of action until the depressed key has been given its full length of stroke, and releases the keys at the end of said stroke.

23. In an adding attachment for type-writing machines wherein the adding mechanism is controlled by the type-writer keys, the combination with the numeral-keys, of means individually controlling the movements of each key and itself controlled by the movements of any other key of the set to lock its own key when another key is depressed.

24. The combination of type-writing machines, adding mechanism, means operatively connecting the numeral-keys of the type-writing mechanism with the adding mechanism and adapted to set the adding mechanism by the movements of the selected keys to add the figures written by said keys, and means operatively connecting the carriage of the type-writing mechanism with the adding mechanism to actuate the same from the return movement of the carriage after the line of figures has been written.

25. The combination with a type-writer carriage, of adding-wheels, devices to turn said wheels, connections between the carriage and said devices to position the latter relative to the wheels when the carriage moves in one direction, and connections between the carriage and said devices to move the latter to turn the wheels when the carriage moves in the opposite direction.

26. The combination with the keys and carriage of a type-writing machine, of adding-wheels, a selecting device movable transversely of the wheels and about the axis thereof, mechanism controlled by the keys to effect a step-by-step movement of the selecting device transversely of the wheels in one direction, and means operated by the movement of the carriage to move the selecting device about the axis of the wheels and also transversely thereof in a direction opposite the step-by-step movement, substantially as set forth.

27. The combination with a type-writer carriage, of adding-wheels, and means for operatively connecting the carriage with the adding-wheels to turn the latter by the return movement of the carriage.

28. The combination with a type-writer carriage, of adding-wheels, a selecting device movable to actuate the adding-wheels, and means operated by the return movement of the carriage to move the selecting device to turn the wheels.

29. The combination with a type-writing machine, of adding-wheels, a selecting device, means operatively connecting the selecting device with the numeral-keys of the machine, whereby the operation of the said keys in printing lines of figures also sets the selecting device to position to actuate the adding-wheels to add the same figures, and means operatively connecting the type-writer carriage with the selecting device to actuate the same from the return movement of the carriage, and means adapted to disconnect and reset the selecting device automatically at the end of the operation after each line of figures is written and added.

30. The combination of type-writing mechanism, adding-wheels of different numerical orders, a selecting device, means operatively connecting the numeral-keys of the type-writing mechanism with the selecting device to set the same for adding the figures according to their numerical order as written, means connecting the selecting device with the carriage of the type-writing mechanism to move the selecting device step by step from the spacing movement of the carriage in writing figures in lines to be added, and means actuating the adding-wheels by the return movement of the carriage to transfer the addition from one adding-wheel to the next in ascending order.

31. The combination of type-writing mechanism, adding-wheels of different numerical orders a selecting device rotatable around the adding-wheels, and also movable transversely with relation to said wheels, means operatively connecting the numeral-keys of the type-writing mechanism with the selecting device to set the same to engage the adding-wheels according to the numerical relation of the figures in the written line, spacing mechanism operating to move the selecting device transversely step by step simultaneously with the spacing movement of the carriage, and means operatively connecting the carriage with the selecting device whereby the latter is rotated to engage and operate the adding-wheels from the movements of the carriage.

32. In an adding attachment for type-writing machines, adding-wheels of the different numerical orders, a selecting device adapted to be operatively engaged with and disengaged from the adding-wheels by the movements of the type-writer carriage, means operatively connecting the numeral-keys of the type-writer with the selecting device to set the same from the movement of the carriage and the selected keys as the same are depressed in succession to write a line of figures, means for rotating the adding device after its engagement with the adding-wheels, and spring-actuated means adapted to rotate one adding-wheel one number from the movement of the wheel of the next lowest order ten numbers after the setting mechanism has operated and the parts thereof are set at rest.

33. The combination with the writing mechanism of a type-writing machine, of a plurality of adding-wheels of the different numerical orders rotatively mounted on a common shaft, an oscillating frame movable in an arc on the same shaft, around the adding-wheels, a selecting device in said frame having a transverse shifting movement therein, and comprising a plurality of bars corresponding to the different numerical orders represented by the adding-wheels, a plurality of push-pins in each bar agreeing in numerical order with the numeral-keys of the type-writer, tappet-fingers corresponding in number with the numeral-keys, and means operatively connecting each tappet-finger with its individual key, means for feeding the selecting device step by step transversely of the tappet-fingers, and means operatively connecting the selecting device and the oscillating frame with the carriage of the type-writer to set and actuate the said connected parts from the return movement of the carriage.

34. In an adding attachment for type-writing machines, the combination with the numeral-keys and the carriage of the writing mechanism, of a plurality of adding-wheels, an oscillating frame movable on an arc around the adding-wheels, a selecting device in said frame and movable transversely therein with respect to the adding-wheels, means operated by the carriage to engage said selecting device with the adding-wheels and move the oscillating frame around the adding-wheels, and means controlled by the return movement of the carriage to bring back the oscillating frame to the starting-point and to reset the selecting device in the said frame after the line of figures is written and added.

35. In an adding attachment for type-writing machines, adding-wheels of different numerical orders, an oscillating frame, a selecting device movable transversely in the frame having a plurality of push-pins arranged in separate sets corresponding in number and in numerical order with the adding-wheels, a set of tappet-fingers and means operatively connecting each finger of the set with the corresponding numeral-key of the machine, and means for moving the selecting device transversely step by step after each movement of a selected key to bring the sets of pins in successive order into line with the tappet-fingers.

36. In an adding attachment for type-writing machines, the combination with an adding device and means operatively connecting the numeral-keys and the type-writer carriage with the adding device to set and add from the movements of the type-writing mechanism the numerals composing the written line, and spring-actuated means controlled by the movements of the type-writing mechanism and operating the adding device after each return movement of the type-writer carriage to add the last line of written figures to the line or lines previously written and added.

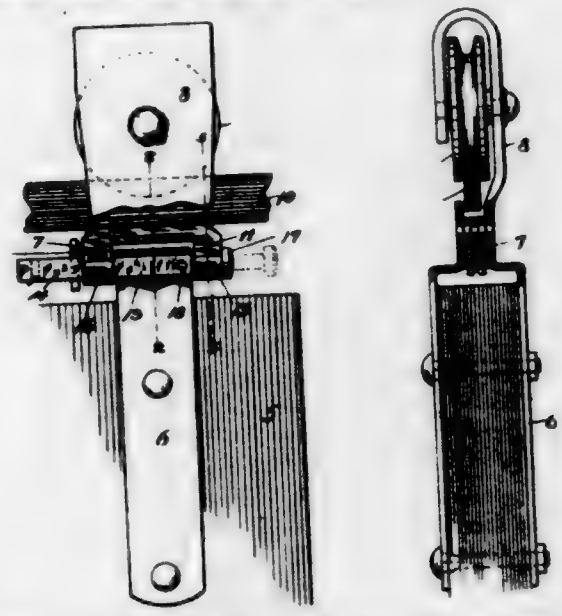
37. The combination of adding-wheels of the different numerical orders, a selecting device, numeral-keys, means individually connecting the numeral-keys and the selecting device to set the same from the movements of the keys to add the numerals represented by the selected keys to the respective adding-wheels of like numerical order, means for bringing the selecting device after the setting operation into engagement with the adding-wheels and for actuating the same, and spring-actuated means controlled by the selecting device and adapted to rotate one adding-wheel one number from the movement of ten numbers of the adjacent adding-wheel of the next lowest order.

38. In an adding attachment for type-writing machines the combination, with the adding device, of means operatively connecting and disconnecting the type-writer carriage and the adding device at required points in the travel of the carriage, comprising a reel on the adding at-

tachment, spring-drum detachably connected thereto, a reel on the type-writer frame, a cord connecting one reel with the other, means detachably connecting one reel with the adding mechanism, a clutch connecting the reel on the type-writer with the carriage-operating mechanism, and means for connecting one reel and disconnecting the other reel at the end of the return movement of the carriage.

39. In an adding attachment for type-writing machines, the combination with adding-wheels, a selecting device, and an oscillating frame in which the selecting device is mounted to slide transversely, of means detachably connecting the oscillating frame with the type-writer carriage consisting of a reel, a spring-drum, a clutch detachably connecting the disk and the reel, means connecting the oscillating frame with the disk, a cord attached to the reel and to the type-writer carriage, and adapted to wind up the spring-drum by the travel of the carriage in one direction and to be wound up by the power of the spring when the carriage is returned, and means adapted to engage the disk and the drum at the end of the unwinding movement whereby the disk and the spring-reel are coupled and uncoupled to allow the reel to alternately wind and rewind the cord by the reaction of its spring and the movements of the carriage.

696,142. DOOR-HANGER. ARTHUR S. HOOK, Ottawa, Ill. Filed Nov. 20, 1901. Serial No. 82,992. (No model.)

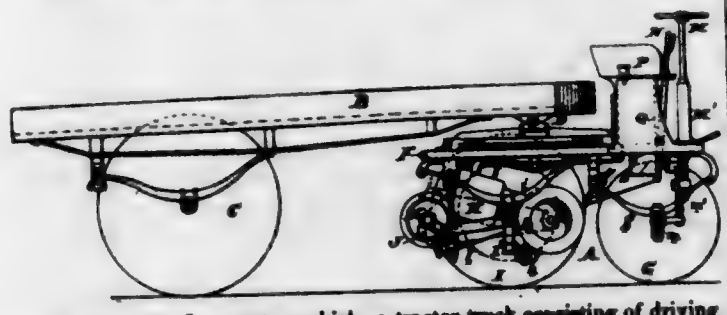


Claim.—1. The combination of the door and the hanger, with a pintle and a strap secured to the door, the openings for the pintle in both the hanger and the strap being angular interiorly and thus adapted to be used with either a round or angular pintle as desired, substantially as specified.

2. The combination with the hanger of a door attached to the hanger by a joint composed of angular loops on the hanger and strap on the door having an angular loop registering with the loops of the hanger, and a pintle having round and angular portions and provided with means for confining it in the loops in position to render the joint either flexible or rigid as desired, substantially as specified.

3. The combination of a sliding door, a traveling hanger supporting the door, and a track for the hanger, the door being united to the hanger by a separable joint composed of loops on the hanger and a strap on the door carrying a loop registering with the loops on the hanger, all said loops being angular interiorly, and a longitudinally-adjustable pintle adapted to render the joint flexible or rigid as desired, substantially as specified.

696,148. MOTOR-VEHICLE. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Tractor Truck and General Power Co., a Corporation of New Jersey. Filed Mar. 11, 1901. Serial No. 50,627. (No model.)



Claim.—1. In a motor-vehicle, a tractor-truck consisting of driving and steering wheels and axles therefor, a long truck-frame supported at a distance above the axles, spring supporting said truck-frame upon all of the wheels and axles, and motive-power devices for rotating the driving-wheels carried by the tractor-truck, in combination with a vehicle-body portion supported at the rear on wheels, and a mechanical connection between the forward part of the vehicle-body and spring-supported truck-frame consisting of a fifth-wheel and a transversely-jointed member hinged upon the fifth-wheel.

2. In a motor-vehicle, the combination of a self-supporting and driven tractor-truck having a spring-supported frame carrying an operator's seat at its forward part and a fifth-wheel at the rear of the seat, with a vehicle-body portion supported at the rear on wheels and having its forward body part provided with a transverse rocking hinge jointed to the fifth-wheel of the truck whereby the truck may rock fore and aft under the body portion and the operator's seat move as a unit with the truck and independently of the body portion.

3. In a motor-vehicle a self-supporting and driven tractor-truck comprising a truck-frame, propelling and steering wheels, axles for said wheels connected to the truck-frame by springs, a motor to rotate the propelling-wheels, an operator's seat on the truck-frame and means on the truck for controlling the steering-wheels and motor, the whole moving as a unit, in combination with a vehicle-body supported on wheels at its rear portion, and a fifth-wheel connection between the forward end of the body and truck at the rear of the operator's seat, one member of the fifth-wheel being fastened to the truck-frame and the other member attached to the vehicle-body.

4. In a motor-vehicle, a tractor-truck of small size relatively to the vehicle and comprising a truck-frame, propelling and steering wheels and their axles, springs supporting the truck-frame upon the axles, an operator's seat in advance of the propelling-wheels and means on the truck for controlling the steering-wheels and motor in advance of the seat, the whole moving as a unit, in combination with a vehicle-body supported on wheels at its rear portion, and a fifth-wheel connection between the forward end of the body and the truck-frame of the tractor-truck immediately at the rear of the operator's seat the said fifth-wheel connection being between the propelling and steering wheels and much closer to a vertical plane through the propelling-wheels than through the steering-wheels whereby the greater weight of the load may be placed upon the propelling-wheels to secure the traction required and light load upon the steering-wheels to permit them to be easily adjusted.

5. In a motor-vehicle, the combination of a vehicle-body with two forward pairs and one rear pair of wheels of same gage the latter being connected with the rear of the vehicle-body, means for connecting the two forward pairs of wheels into a small-wheel base-truck and providing a spring-supported truck-frame, universal pivot connections between the vehicle-body and spring-supported truck-frame much closer to the axle of the propelling-wheels than the axle of the steering-wheels, power devices for rotating one pair of the wheels of the truck to propel the vehicle suspended below and from the truck-frame so as to allow the vehicle-body to come close to the truck-frame, and steering devices for adjusting the other pair of truck-wheels carried by said truck at its front part.

6. In a self-supported and steerable tractor-truck for a motor-vehicle, the combination of spring-supported truck-frame provided with an operator's seat at the front, a fifth-wheel adapted for supporting a vehicle-body immediately at the rear of the seat, propelling-wheels arranged near the fifth-wheel, and a motor on the truck sustained by and below the spring-supported truck-frame for propelling it and mechanically connected to rotate the propelling-wheels.

7. In a motor-vehicle, a truck having axles and wheels to propel it and axles and wheels to steer it, side springs connecting the propelling-wheel axle directly with the truck-frame at the rear of the axle to act as ties whereby the axle directly pulls the truck-frame, springs connecting the steering-wheel axle with the truck-frame forward of the axle to act as drag-bars to pull the axle by the propelled truck-frame, power devices to rotate the propelling-wheels, and means for adjusting the steering-wheels independently of the axle, in combination with a vehicle-body supported on rear wheels and pivoted at its forward end to the truck.

8. In a motor-vehicle, a frame carrying the seat, axle and wheels for propelling the vehicle, axle and wheels for steering the vehicle, side springs *i* for the axle of the propelling-wheels and connected at front and rear ends with the vehicle-frame and said connection at the rear being positive, side springs *g* connecting at their forward ends positively with the vehicle-frame and secured at their middle portions with the axles for the steering-wheels, a cross-spring *g'* connecting the rear ends of the springs *g* and connected at its middle to the vehicle-frame, means to adjust the steering-wheels, and power devices for rotating the propelling-wheels.

9. In a motor-vehicle, a self-supporting driven and steerable truck having a spring-supported truck-frame, in combination with a vehicle-body supported on wheels at the rear, and a hinge connection between the forward part of the vehicle-body and the truck-frame consisting of a large circular fifth-wheel and a transversely-arranged rocker-frame hinged to one member of the fifth-wheel.

10. A self-supporting and steerable truck for a motor-vehicle having a spring-supported frame provided with an operator's seat at the front, a fifth-wheel, and a transverse hinged support carried by the fifth-wheel for supporting a vehicle-body immediately at the rear of the seat and between the axles of the truck.

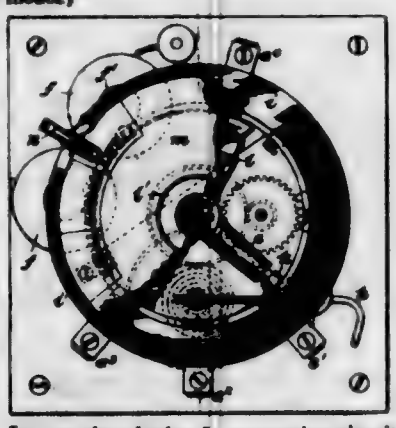
11. In a motor-vehicle an adjustable connection between the truck and body consisting of a fifth-wheel comprising two members pivoted together by a king-bolt, combined with a transverse hinge also comprising two members of much greater length than the diameter of the fifth-wheel one of which is secured firmly to one member of the fifth-wheel and the other acting as a transverse bolster for the vehicle-body, the remaining member of the fifth-wheel being adapted for connection with the truck structure.

12. In a motor-vehicle the combination of the vehicle-frame, a fixed axle connected to the vehicle-frame by springs, wheels loosely journaled on the axle, a frame J pivoted to the axle and suspended from the vehicle-frame at its free end, the transmission-shaft and controlling-gear K journaled in said frame J and connected with the wheels by chain-gearing, a motor supported by the vehicle, and chain-gearing between the motor and transmission-gear.

13. A self-supporting and steerable truck having a spring-supported truck-frame provided with an operator's seat at the front, combined with a vehicle-body supported on wheels at the rear, and a positive universal jointed connection between the front of the vehicle-body and the spring-supported truck-frame at the rear of the seat.

14. In a motor-vehicle, a spring-supported frame carried on driving axle and wheels, combined with a counter or transmission shaft supported by arms hinged to the axle to hold it at a given distance and permit vertical motion, suspension-rods for sustaining the counter or transmission shaft from the spring-supported frame so that it rises and falls with said frame, power-transmitting connections between the counter or transmission shaft and the driving-wheels, a motor located to one side of the counter or transmission shaft, and sprocket and chain gearing between the motor and counter or transmission shaft.

696,144. CIRCUIT-TESTER. ACHILLES DE KROTINSKY, Chicago, Ill., assignor to Copenhagen Automatic Fire Alarm Company, Sheboygan, Wis., a Corporation of Wisconsin. Filed Aug. 1, 1901. Serial No. 70,448. (No model.)



Claim.—1. In a testing device for protecting circuits, the combination with a movable contact-arm *e*, of a number of contact-pieces c' c^2 c^3 with which said arm is adapted successively to engage, said contact-pieces forming the terminals, respectively, of the protective circuits to be tested, a movable dial or register mounted to rotate with the contact-arm, a return-conductor connected to said contact-arm, a source of current connected between said return-conductor and the several protective circuits, a magnet included in the circuit with said contact-arm, adapted to respond to the flow of current as each protective circuit is closed by said arm, and recording mechanism for marking said dial or register, operated by said magnet; whereby as the arm is moved the circuits are automatically tested one after another and a record automatically made of each test, as described.

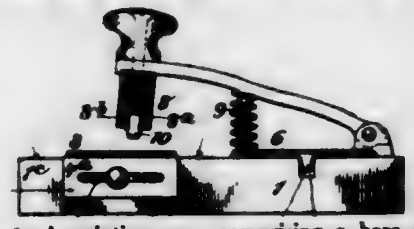
2. In a circuit-testing device, the combination with the rotatable contact-arm *e* and the terminal contact-pieces c' c^2, &c., with which said arm is adapted successively to engage, a gear-train for rotating said contact-arm and means for driving the same, a rotatable dial *m* and a mounting therefor moved by said gear-train, a source of current connected with the contact-arm and with each of the circuits to be tested, said circuits terminating respectively in the contact-pieces c' c^2, &c., an electromagnet in the path of current between the contact-arm and the several circuits to be tested, and a punch *x* operated by said magnet adapted to perforate said dial, whereby a permanent record of each test is automatically made as the arm and dial are rotated.

3. A recording device for a circuit-tester, comprising a magnet and means for successively connecting the same with the circuits to be tested, a movable dial-plate *l* and mechanism for moving the same as the magnet is connected with one circuit after another, a paper dial *m* and means for holding the same frictionally against said movable dial-plate, whereby the paper dial is moved with the plate but may be stopped independently thereof, and a recording-marker operated by said electromagnet, adapted to mark the paper to record the test while the dial-plate *l* is in motion as set forth.

4. The combination with an alarm-circuit, of a battery and an electrical alarm device in the circuit, a circuit-tester having a responsive device and means for connecting said responsive device in circuit with the battery and the alarm device, said alarm device being adjusted to respond to a current of less strength than that required to operate the responsive device of the circuit-tester, whereby weakening of the battery will be indicated by the failure of the responsive device to operate when the circuit is tested, while the battery is still sufficiently strong to operate the alarm device, as set forth.

5. A circuit-tester comprising the ring or frame *i*, contact-pieces disposed at intervals around the inner surface of said ring, a central shaft *g* mounted to rotate within the ring and means for rotating said shaft, a contact-arm carried by said shaft, the outer end of said arm being engaged successively with the said contact-pieces of the ring as the arm is revolved, a dial-plate *l* carried by the shaft, a detachable dial *m* backed by said dial-plate, the outer edge of said dial extending beyond the edge of the dial-plate and sliding over the front surface of the ring, and a marking device for engaging such projecting edge of the dial, as described.

696,145. PRINTING-PRESS. CHARLES G. MORTIMER, Brooklyn, N. Y. Filed Apr. 15, 1901. Serial No. 55,849. (No model.)



Claim.—1. A printing-press comprising a base provided with a platen, a frame having a bottom bearing-surface mounted upon the base and provided with an outwardly-extending arm having means for holding type, means for guiding said frame so that it may slide bodily upon said base, and means for supplying type with ink, substantially as described.

2. A printing-press comprising a base provided with a platen and with a groove substantially parallel to the platen, a frame mounted upon said base and provided with means to engage said groove, stops to limit the bodily movement of said frame along said groove, said frame having a spring-actuated outwardly-extending arm provided with type-holding means extending over said platen, and an ink-holder carried by the base at one side of the platen, substantially as described.

3. The combination of a base, an inking-pad having a web to engage a part of the base, means for adjustably holding said web upon the base, an arm supported upon said base, and means carried by said arm for holding type, substantially as described.

4. The combination of a base provided with a platen, an inking-pad comprising a plate having a web provided with a slot, a nail or the like passing through said slot into the base to permit adjustment of the plate, an arm movably supported on said base, and means carried by said arm for holding type, substantially as described.

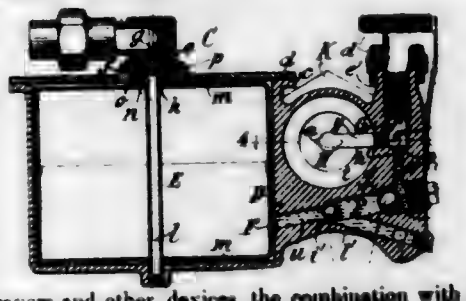
5. The combination of a base provided with a platen and with a groove parallel therewith, an ink-holder upon said platen, a frame having lugs adapted to enter said groove, stops to limit the bodily movement of the frame along said groove, an arm pivotally connected with said frame, a spring interposed between the frame and arm and a type-holder carried by said arm, substantially as described.

696,146. MIXING OR SPRAYING DEVICE. CARL C. RIOTTE and EUGENE A. RIOTTE, New York, N. Y., assignors, by mesne assignments, to U. S. Long Distance Automobile Company, Elizabeth, N. J., a Corporation of New Jersey. Filed Nov. 29, 1900. Serial No. 738,674. (No model.)

Claim.—1. For sprayers and other devices, the combination with a tank having an inlet and an outlet, and a float in said tank, of a guide for said float consisting of a tubular part fixed thereto and open at the bottom, and a guiding provision on said tank engaging and closing such tubular part, whereby the internal area of such tubular part affords sufficient capacity to prevent compression of its contents from materially interfering with relative movement between said float and tank.

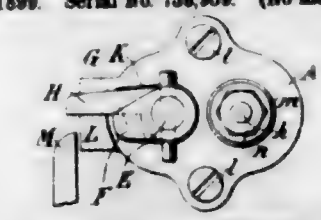
2. For sprayers and other devices, the combination with a tank having an inlet and an outlet, and a float in said tank, of a guide for said

float consisting of a tubular part fixed thereto open at the bottom and extending upward as high as said float, and a guiding provision on said tank engaging and closing such tubular part, whereby the internal area of such tubular part affords sufficient capacity to prevent compression of its contents from materially interfering with relative movement between said float and tank.



3. For sprayers and other devices, the combination with inlet and outlet passages, of a tank communicating therewith and having internal sockets *b* and *f* at its opposite sides, a float in said tank having an externally-projecting hollow tube *l* open at the bottom closely fitting said socket *b* and extending up through said float, and a projection *n* loosely fitting said socket *f*, said projections movably engaging said sockets for guiding the float in the tank, and a valve operated by said float.

696,147. IGNITER. CARL C. RIOTTE and EUGENE A. RIOTTE, New York, N. Y., assignors, by mesne assignments, to U. S. Long Distance Automobile Company, Elizabeth, N. J., a Corporation of New Jersey. Filed Dec. 2, 1899. Serial No. 738,959. (No model.)



Claim.—1. In igniters, the improved frame A adapted to be attached to the wall of a cylinder, and having a provision for carrying the shaft of a movable contact, and on opposite sides thereof a stop for receiving the shock incident to the operation of the mechanism, and a provision for carrying the fixed contact.

2. In igniters, in combination, the improved frame A adapted to be attached to the wall of a cylinder, a movable contact, a shaft for said movable contact carried by said frame, an anvil for receiving the shock incident to the operation of the mechanism, and a fixed contact, said anvil and fixed contact being carried by said frame on opposite sides of said shaft.

3. In igniters, in combination, the improved frame A adapted to be attached to the wall of a cylinder, a movable contact, a shaft for said movable contact carried by said frame, an arm on said shaft, a hammer journaled on said shaft, connected by a spring to said arm and extending beyond said arm, an anvil on said frame beyond said arm for receiving the blow of said hammer, and a fixed contact, said anvil and fixed contact being carried by said frame on opposite sides of said shaft.

4. In an igniter for gas-engines, the combination of the improved frame A adapted to be attached to the wall of a cylinder, a fixed contact, a movable contact, a shaft for said movable contact carried by said frame, a hammer for operating said movable contact, an anvil which receives the blow of said hammer, said fixed contact and anvil being carried by said frame on opposite sides of said shaft, a lifter M, means for operating the same to lift said hammer, and means for moving the same out of the path of said hammer whereby the blow of said hammer is received upon said anvil without shock to the movable parts of the engine.

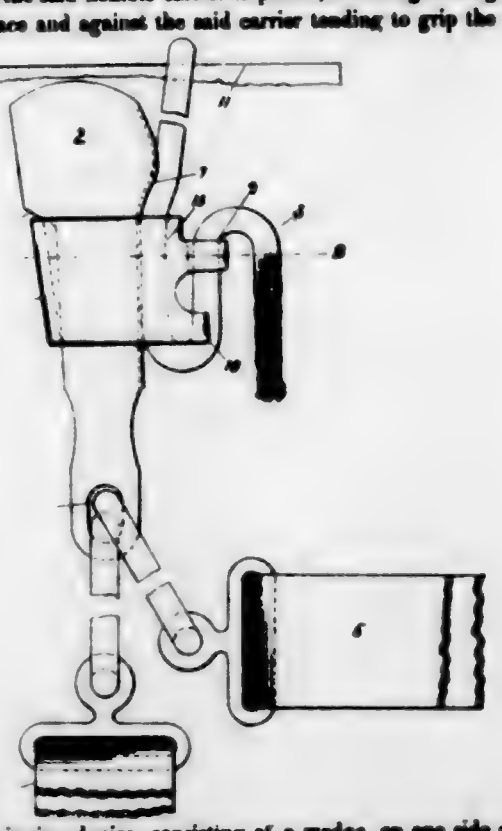
696,148. PUTTY. HENRY J. ROOSEVELT, Little Silver, N. J. Filed June 1, 1901. Serial No. 62,801. (No specimens.)

Claim.—As a new article of manufacture, the herein-described putty composition consisting of a mixture of mineral clay and raw linseed-oil in the proportion of about ninety per cent. of mineral clay to about ten per cent. of linseed-oil, substantially as and for the purposes set forth.

696,149. FIRE-ESCAPE. JOHN W. SCHUMACHER, Baltimore, Md. Filed July 1, 1901. Serial No. 68,713. (No model.)

Claim.—1. In a gripping device, grip-block 1 having grip-surface 13, reeving-eye 9 and reeving-groove 10, over and through which a life-line may be reeve, gripping-wedge 2 having means for attaching a load to the lower end thereof, also having gripping-incline 6, easing-incline 7 and groove 8, all in combination and substantially as described.

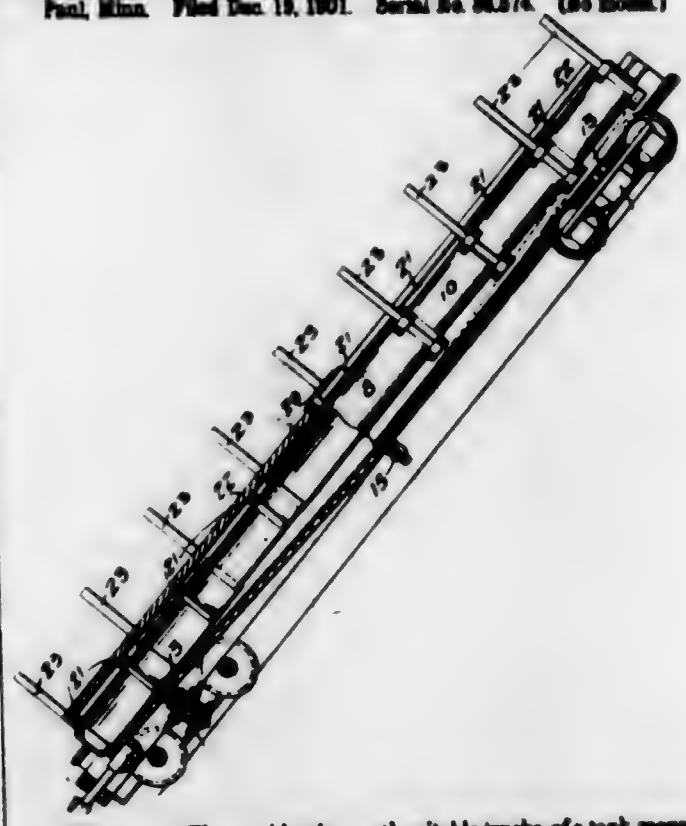
2. A gripping device, consisting of a wedge, on one side of which is a surface tending to force the said wedge against a flexible carrier, and on the other side of which is a surface upon which the flexible carrier acts tending to throw the said wedge away from the said carrier, means for securing a load in such a manner as tending to drive the said wedge home, and a block in which said wedge operates and, having two surfaces against one of which the said flexible carrier is placed, the wedge acting against the other surface and against the said carrier tending to grip the same.



3. A gripping device, consisting of a wedge, on one side of which is a surface tending to force the said wedge against a flexible carrier, means for securing a load in such a manner as tending to drive the said wedge home, and a block in which said wedge operates and, having two surfaces against one of which the said flexible carrier is placed, the wedge acting against the other surface and against the said carrier tending to grip the same.

4. In a gripping fire-escape, in combination, a life-line, a gripping-block, a gripping-wedge operated to grip the said life-line when weight is brought on said wedge, with a circuitous reeve of said life-line, whereby additional retarding force may be had by adding tension to the loose end of said life-line.

696,150. RAILROAD-CAR. MAX TOLTZ and LOUIS W. HILL, St. Paul, Minn. Filed Dec. 19, 1901. Serial No. 86,574. (No model.)



Claim.—1. The combination, with suitable trucks, of a tank mounted thereon and extending from side to side the full width of the car, said tank being provided with a substantially flat top and suitably braced within to enable it to support a load upon its flat top, and a trough provided in the bottom of said tank and extending longitudinally thereof between its center sills and being inclined from its ends toward its center, substantially as described and for the purpose specified.

2. The combination, with the trucks, of the shallow flat tank thereon, its top resembling that of a flat-car, the side and center sills of said tank, the depressed trough between the center sills, the cross-ties and the center posts, all substantially as shown and described.

3. The combination, with a car-platform, of a tank supported thereon and provided with a longitudinal gutter or trough along its central line, plates 16 bridging said trough, corner-plates 18 and tie-rods 17 connecting said plates 16 and 18, for the purpose specified.

4. The combination, with the car-trucks, of a car-body mounted thereon, a shallow tank 8 supported upon and of substantially the same width and length as said car-body and having a substantially flat top 9, angle-irons 11 rising vertically at the sides within said tank and extending across its top and having their ends turned inwardly and resting upon its bottom, and posts 12 provided within and bracing said tank near its center whereby it is adapted to support a load upon its flat top, substantially as described.

5. The combination, with the car-trucks, of a car-body mounted thereon, a shallow tank 8 supported upon and of substantially the same width and length as said car-body and having a substantially flat top 9, the angle-irons 11, the plates 19 and 16 provided at the top and bottom, respectively, of said tank near its middle, the posts 12 connecting said plates, the side plates 18, the tie-rods 17 connecting said plates 16 and 18 and all arranged within and bracing said tank, whereby it is adapted to support a load upon its flat top, substantially as described.

6. The combination, with the car-trucks, of a car-body having the center sills 4 4 and the side sills 5 5, an oil-tank supported upon said body said tank having a floor 13 inclined from the sides toward the center, sections 14 provided in the bottom of said tank between said sills 4 4 and inclined from the ends of said tank toward the center, whereby a gutter or trough is formed in the bottom of said tank, and an outlet-pipe provided in said gutter, substantially as described.

7. The combination, with the car-trucks, of the car-body mounted thereon and comprising the shallow tank 8 having a flat top, said tank resting upon the longitudinal sills described, the angle-irons 11 supporting the top of said tank, the ends of said angle-irons being braces for the sides of said tank, and being turned inwardly upon the bottom of the tank, and suitable vertical and cross braces provided within said tank, substantially as described.

8. The combination, with the car-trucks, of a car-body mounted thereon and having side sills 5 5 and center sills 4 4, and suitable cross beams or braces connecting the same, a tank supported upon and of substantially the same length and width as said car-body, a trough provided in the bottom or floor of said tank between said center sills, and plates 16 bridging said trough and securing the sides of said tank together, substantially as described.

9. The combination, with a car-platform having the side sills 5 5 and the center sills 4 4, of a tank supported thereon and provided with a longitudinal gutter or trough in its bottom, and the floor-section 14 provided between said center sills and forming the bottom of said trough, substantially as described.

10. The combination, with the car-platform, having side and center sills, of a tank supported thereon and having a flat top as described, the upright posts or standards 12 arranged at intervals within and near the middle line of said tank, and the bridging or strengthening plates 19 and 16 provided respectively at the top and bottom of said posts, substantially as described.

11. The combination, with the car-platform having side sills 5 5 and center sills 4 4, of the tank supported thereon and provided with a longitudinal gutter or trough in its bottom between said center sills and the plates 16 bridging said trough and tying the sides of the tank together substantially as described.

12. The combination, with a car-platform, of a tank substantially the width of said platform and resting thereon and having a flat top, the upright posts 12 arranged at intervals within said tank, the plates 16 and 19 connecting said posts and tying the sides of the tank together, and the rods 17 extending diagonally from said plates 16 to the upper corners of said tank, for the purpose specified.

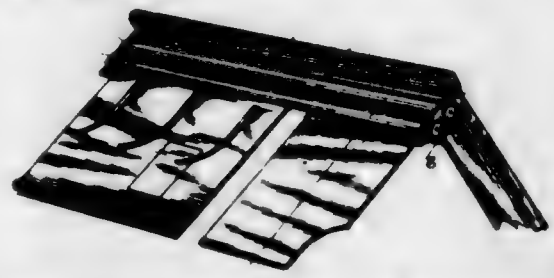
13. The combination, with a car-platform having side and center sills 5 5 and 4 4, of a tank mounted thereon and having a longitudinal trough or gutter in its bottom between said center sills, the bottom of said trough being raised at the ends above its middle portion, whereby space is provided between the center sills at the ends of the car-platform for the truck connections, substantially as described.

14. The combination, with the car-platform, of a tank supported thereon having a longitudinal trough or gutter along the central line of its floor or bottom, plates 16 bridging said trough, angle-irons 11 bracing and supporting the top of the tank, corner-plates 18 and tie-rods 17 connecting said plates 16 and 18, substantially as described.

15. The combination, with the car-platform, of a tank resting thereon, and having a substantially flat top, plates 16 bridging the center line of said tank and tying the sides of the same together, and diagonal tie-rods 17 connecting the upper corners of said tank with said plates 16.

16. The combination, with a car-platform, of a tank resting thereon, plates 16 arranged transversely in said tank and bridging its center line, plates 19 provided in the upper corners of said tank, and tie-rods 17 connecting said plates 16 and 18.

696,151. DECK FOR GRAIN-BINDERS. ISAAC TROLLEY, Grantham, England, assignor to the Plano Manufacturing Company, Chicago, Ill., a Corporation of Illinois. Filed June 8, 1901. Serial No. 63,602. (No model.)



Claim.—1. In a device of the class described, the combination with the deck, of the lower canvas, and the deck-roller 13 loosely journaled between the edge of the deck and the canvas, substantially as and for the purpose described.

2. In a device of the class described, the combination with the top roller, of the lower canvas, the canvas on said roller, of the deck-roller 5, gearing between the top roller and the deck-roller, the deck, and the auxiliary deck-roller 13 mounted between the deck and the roller 5; substantially as described.

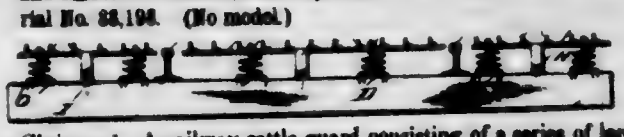
696,152. BICYCLE-SUPPORT. MELVIN H. TYLER, Muncie, Ind. Filed Aug. 16, 1901. Serial No. 72,261. (No model.)



Claim.—1. A bicycle-support comprising an attaching-bracket for engagement with a portion of the bicycle-frame, supporting-legs formed of a single wire bent to form spaced legs and a connecting-bight and having the wire of one leg kinked to form a handle, and a link pivotally connected with the bracket and having a perforation in which the bight is pivotally engaged.

2. A bicycle-support comprising an attaching-bracket for engagement with a portion of a bicycle-frame and having a link pivoted thereto, supporting-legs formed of a single wire and including a connecting-bight pivotally engaged with the link, said legs at points between their ends having laterally-bent portions, and spreading-links pivoted to said laterally-bent portions and adapted for pivotal connection with a portion of the bicycle-frame.

696,153. RAILROAD CATTLE-GUARD. MATTHEW M. WARREN and MASON M. ALTARR, Pence Spring, W. Va. Filed Jan. 2, 1902. Serial No. 88,198. (No model.)

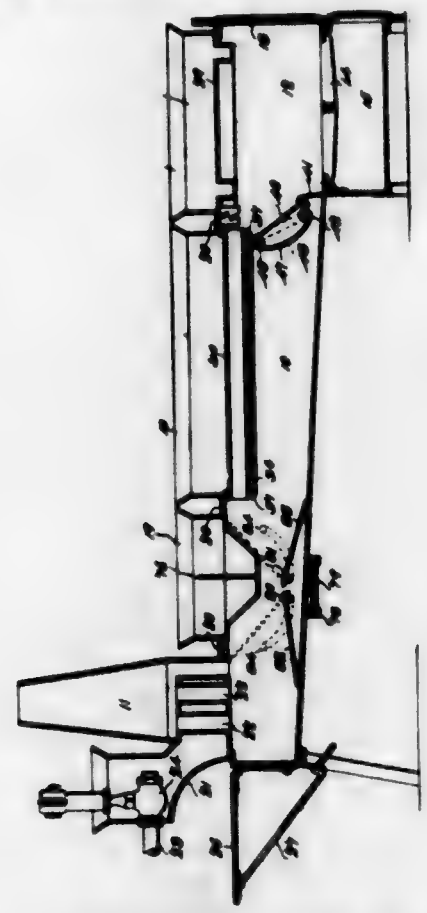


Claim.—1. A railway cattle-guard consisting of a series of longitudinal bars or strips secured to cross-bars to constitute a skeleton platform,

and springs interposed between the cross-bars, and the cross-ties of a railroad-track and securely connected to said cross-bars and cross-ties, substantially as and for the purpose set forth.

2. A railway cattle-guard consisting of a skeleton framework and springs interposed between and secured to said framework and the cross-ties of a railroad, and guides secured to the cross-ties and embracing the ends of the framework, whereby the framework is guided in its vertical movements substantially as hereinbefore set forth.

696,154. EVAPORATOR. CAMDEN L. WILCOX, West Williamsfield, Ohio. Filed Sept. 25, 1901. Serial No. 76,489. (No model.)



Claim.—1. In an evaporator, the combination with an arch, of a series of pans carried by said arch and having their bottom portion projecting within the arch, one of said pans having flues for the escape of the products of combustion therethrough, and an adjacent pan beyond the escape end of said flues having its bottom portion directly in alinement with the flues and inclined to deflect said products of combustion, and a damper arranged adjacent to the bottom of said pan to govern the course of the products of combustion.

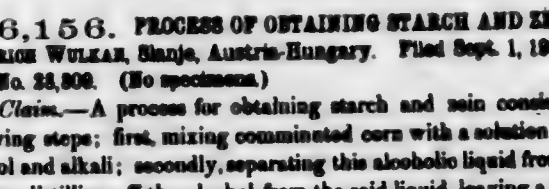
2. In an evaporator, the combination with the arch, of a series of pans carried by said arch and having their bottom portions projecting within the same, flues arranged in one of said pans for the passage of the products of combustion therethrough, and an adjacent pan beyond the escape end of said flues having an inclined bottom portion, and a pair of adjustable dampers located within the arch, at a point under said inclined bottom and adapted to govern the course of the products of combustion, substantially as specified.

3. In an evaporator, the combination of the arch having side openings, a series of evaporating-pans supported by said arch and having their bottom portions extending within the same, coupled pipe-sections forming communicating passages between the lower portions of said pans at a point below the top of the arch, said coupling-sections being so disposed as to partly extend through the side openings of the arch, and doors for closing said openings, substantially as specified.

4. In an evaporator, the combination of the arch, a series of evaporating-pans 17, 18 and 19 supported by said arch, a series of flues 35 carried by the pan 18, a damper 40 pivoted within the arch at a point to the rear of the combustion-chamber and adapted to deflect a portion or all of the products of combustion through said tubes, and adjustable dampers 82 and 83 arranged within the arch at a point under the pan 19, said dampers being adjustable to deflect a portion or all of the products of combustion into contact with the bottom of said pan 19.

696,155. GUARD ATTACHMENT FOR DENTAL ENGINES. ISAAC H. WILLIAMS, Sullivan, Ind. Filed June 25, 1901. Serial No. 65,906. (No model.)

Claim.—1. In a guard attachment for dental engines, the combination with a base, of means for securing the base to the handpiece of an engine, and a grinder-guard having a detachable connection with the base and arranged to be located over a portion of a grinding device.



2. In a guard attachment for dental engines, the combination with a base, of means for securing the base against movement on the handpiece of an engine, and a grinder-guard rotatably mounted upon the base and arranged to be located over a portion of a grinding device.

3. In an attachment for dental engines, the combination with a base-sleeve arranged to be secured upon the handpiece of a dental engine, of a collar rotatably mounted upon the sleeve, and a guard carried by the collar and adapted to be located over a grinding-disk secured to the shaft of the engine.

4. In a guard attachment for dental engines, the combination with a base-sleeve arranged to be detachably fitted upon the handpiece of a dental engine, of a collar having a detachable interlocking connection with the sleeve, and a guard carried by the collar and adapted to be located over a grinding-disk secured to the engine.

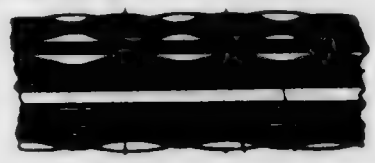
5. In a guard attachment for dental engines, the combination with a base-sleeve having a shoulder and a spring-retaining finger, of a collar detachably fitting upon the base-sleeve between the shoulder and the finger, and a guard carried by the collar and adapted to be located over a grinding-disk secured to the shaft of the engine.

6. In a guard attachment for dental engines, the combination with a base-sleeve having a shoulder contiguous to one end and a terminal spring-retaining finger, said sleeve being furthermore provided at its opposite end with a notch, of a set-screw for fastening the sleeve to the handpiece of a dental engine, said screw engaging in the notch, a collar detachably and rotatably fitted upon the base-sleeve between the shoulder and the finger thereof, and a guard-hood carried by the collar and adapted to be located over a grinding-disk secured to the shaft of the engine.

696,156. PROCESS OF OBTAINING STARCH AND ZEIN. HEINRICH WULKAN, Slanje, Austria-Hungary. Filed Sept. 1, 1900. Serial No. 28,809. (No specimens.)

Claim.—A process for obtaining starch and zein consisting in the following steps; first, mixing comminuted corn with a solution containing alcohol and alkali; secondly, separating this alcoholic liquid from the corn; thirdly, distilling off the alcohol from the said liquid, leaving a liquid from which zein may be precipitated, and finally neutralizing the alkali of said liquid with dilute acid to precipitate the zein, substantially as set forth.

696,157. ELECTRODE FOR SECONDARY BATTERIES. AUGUSTE H. BAINVILLE, Nanterre, France. Filed Dec. 30, 1901. Serial No. 87,339. (No model.)



Claim.—1. An electrode for accumulators, consisting of a massive central rod provided with radiating blades, the surfaces of adjacent blades approaching each other at intervals.

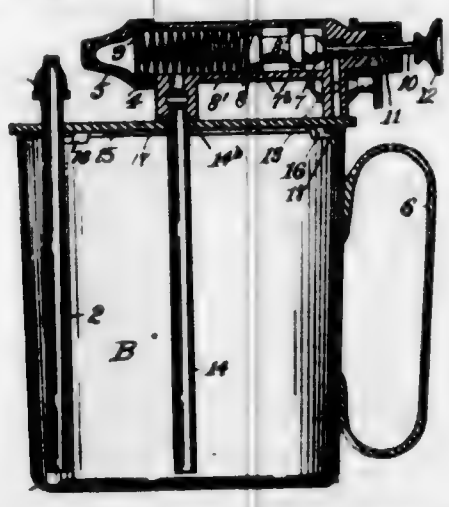
2. An electrode for accumulators, consisting of a central rod provided with integral radiating longitudinal blades approaching each other at intervals, and a tubular jacket of the same material as the rod inclosing said blades.

3. An electrode for accumulators, consisting of a massive central rod provided with integral radiating blades pressed together at several points to form cells for the active matter.

696,158. ATOMIZING APPARATUS. WILLIAM A. BARTON, Jersey City, N. J., assignor, by mesne assignments, to Walter J. Smart, Brooklyn, N. Y. Filed Dec. 29, 1900. Serial No. 41,464. (No model.)

Claim.—1. In a portable atomizing apparatus, the combination with a tank, of an air-tube mounted upon the apparatus, a liquid-outlet tube also mounted upon the apparatus and across the upper end of which said air-tube is adapted to deliver a stream of air and a tip in which the orifice of the liquid-outlet tube is formed, said orifice being elongated in one direction and the tip being adjustably secured to the liquid-outlet tube

whereby said orifice may be adjusted and its longer axis brought into alinement with the axis of the air-tube or positioned at an angle thereto and the form of the spray-stream thereby altered.



2. In a portable atomizing apparatus, the combination with a tank of an air-tube mounted upon the apparatus, a liquid-outlet tube also mounted upon the apparatus and across the upper end of which said air-tube is adapted to deliver a stream of air, a removable tip secured to the air-tube, and a tip in which the orifice of the liquid-outlet tube is formed, said orifice being elongated in one direction and the tip in which this orifice is formed being adjustably secured to the liquid-outlet tube whereby said orifice may be adjusted and its longer axis brought into alinement with the axis of the air-tube or positioned at an angle thereto and the form of the spray-stream altered.

3. In a portable atomizing apparatus, the combination with a tank, of a handle secured thereto; a liquid-outlet tube mounted upon the apparatus and terminating at its lower end adjacent to the bottom of the tank; an air-tube mounted upon the apparatus with its axis disposed at an angle to the axis of the liquid-outlet tube and its orifice in a position adapting it to project a stream of air across the upper end of the liquid-outlet tube; a tube extending from the air-tube into the tank for the agitation of the contents thereof; a normally closed valve in the air-tube; a valve-stem projecting from the air-tube and terminating within convenient reach of the hand when grasping said handle; and means for attaching a conduit for compressed air to the air-tube.

4. In a portable atomizing apparatus, the combination with a tank, of a handle secured thereto; a liquid-outlet tube mounted upon the apparatus and terminating at its lower end adjacent to the bottom of the tank; a tip in which the orifice of the liquid-outlet tube is formed, said orifice being elongated in one direction and the tip being adjustably secured to the liquid-outlet tube; an air-tube mounted upon the apparatus with its axis disposed at an angle to the axis of the liquid-outlet tube and its orifice in a position adapting it to project a stream of air across the said tip secured to the liquid-outlet tube; a normally closed valve-stem projecting from the air-tube and terminating within convenient reach of the hand when grasping said handle; and means for attaching a conduit for compressed air to the air-tube.

5. In a portable atomizing apparatus, the combination with a tank, of a handle secured thereto; a cover removably engaged therewith; a liquid-outlet tube mounted upon the apparatus and terminating at its lower end adjacent to the bottom of the tank; a tip in which the orifice of the liquid-outlet tube is formed; said orifice being elongated in one direction and the tip being adjustably secured to the liquid-outlet tube; an air-tube secured to said cover with its axis disposed at an angle to the axis of the liquid-outlet tube and its orifice in a position adapting it to project a stream of air across the said tip secured to the liquid-outlet tube; a normally closed valve in the air-tube; a valve-stem projecting from the air-tube and terminating within convenient reach of the hand when grasping said handle; and means for attaching a conduit for compressed air to the air-tube.

6. In a portable atomizing apparatus, the combination with a tank of a handle secured thereto; a cover removably engaged therewith; a liquid-outlet tube mounted upon the apparatus and terminating at its lower end adjacent to the bottom of the tank; an air-tube secured to said cover with its axis disposed at an angle to the axis of the liquid-outlet tube and its orifice in a position adapting it to project a stream of air across the said liquid-outlet tube; a valve-controlled tube extending from the air-tube into the tank for the agitation of the contents thereof; a normally closed valve in the air-tube; a valve-stem projecting from the air-tube and terminating within convenient reach of the hand when grasping said handle; and means for attaching a conduit for compressed air to the air-tube.

7. In a portable atomizing apparatus, the combination with a tank of a handle secured thereto; a cover removably engaged therewith; a liquid-outlet tube mounted upon the apparatus and terminating at its lower end adjacent to the bottom of the tank; a tip in which the orifice of the liquid-outlet tube is formed, said orifice being elongated in one direction and the tip being adjustably secured to the liquid-outlet tube; an air-tube secured to said cover with its axis disposed at an angle to the axis of the air-tube or positioned at an angle thereto and the form of the spray-stream thereby altered; a normally closed valve in the air-tube; a valve-stem projecting from the air-tube and terminating within convenient reach of the hand when grasping said handle and means for attaching a conduit for compressed air to the air-tube.

8. In a portable atomizing apparatus, the combination with a tank, of a handle secured thereto; a removable cover adapted to positively interlock with the edge of the tank and be prevented thereby from accidental disengagement from the tank; a liquid-outlet tube mounted upon the apparatus and terminating at its lower end adjacent to the bottom of the tank; a tip in which the orifice of the liquid-outlet tube is formed; said orifice being elongated in one direction and the tip being adjustably secured to the liquid-outlet tube; an air-tube secured to said cover with its axis disposed at an angle to the axis of the liquid-outlet tube and its orifice in a position adapting it to project a stream of air across the said tip secured to the liquid-outlet tube; a normally closed valve in the air-tube; a valve-stem projecting from the air-tube and terminating within convenient reach of the hand when grasping said handle and means for attaching a conduit for compressed air to the air-tube.

9. In a portable atomizing apparatus, the combination with a tank of a handle secured thereto; a removable cover adapted to positively interlock with the edge of the tank, and be prevented thereby from accidental disengagement from the tank; a liquid-outlet tube mounted upon the apparatus and terminating at its lower end adjacent to the bottom of the tank; an air-tube secured to said cover with its axis disposed at an angle to the axis of the liquid-outlet tube and its orifice in a position adapting it to project a stream of air across the said liquid-outlet tube; a valve-controlled tube extending from the air-tube into the tank for the agitation of the contents thereof; a normally closed valve in the air-tube; a valve-stem projecting from the air-tube and terminating within convenient reach of the hand when grasping said handle; and means for attaching a conduit for compressed air to the air-tube.

10. In a portable atomizing apparatus, the combination with a tank, of a handle secured thereto; a removable cover adapted to positively interlock with the edge of the tank and be prevented thereby from accidental disengagement from the tank; a liquid-outlet tube mounted upon the apparatus and terminating at its lower end adjacent to the bottom of the tank; a tip in which the orifice of the liquid-outlet tube is formed, said orifice being elongated in one direction and the tip being adjustably secured to the liquid-outlet tube; an air-tube secured to said cover with its axis disposed at an angle to the axis of the liquid-outlet tube and its orifice in a position adapting it to project a stream of air across the said tip secured to the liquid-outlet tube; a normally closed valve in the air-tube; a valve-stem projecting from the air-tube and terminating within convenient reach of the hand when grasping said handle and means for attaching a conduit for compressed air to the air-tube.

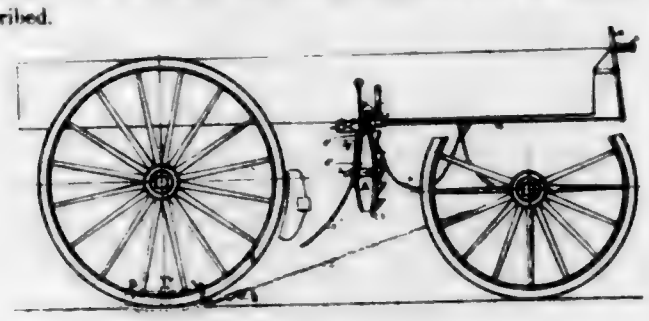
11. In a portable atomizing apparatus, the combination with a tank, of a handle secured thereto; a removable cover adapted to positively interlock with the edge of the tank, and be prevented thereby from accidental disengagement from the tank; a liquid-outlet tube mounted upon said cover and terminating at its lower end adjacent to the bottom of the tank; an air-tube secured to said cover with its axis disposed at an angle to the axis of the liquid-outlet tube and its orifice in a position adapting it to project a stream of air across the said liquid-outlet tube; a valve-controlled tube extending from the air-tube into the tank for the agitation of the contents thereof; a normally closed valve in the air-tube; a valve-stem projecting from the air tube and terminating within convenient reach of the hand in grasping said handle; and means for attaching a conduit for compressed air to the air-tube.

12. A portable atomizing apparatus having in combination with a tank and a cover removably secured thereto, of an air-tube and a liquid-outlet tube secured to the cover, a valve mounted in the air-tube and provided with cylindrical perforated extensions adapting the valve to slide to and fro in the air-tube and coöperate with its seat; a spring for urging the valve in one direction; a valve-stem projecting from the valve outward from the air-tube; and a finger-piece upon said valve-stem.

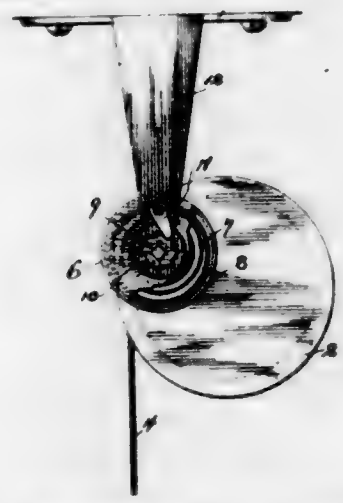
696,159. SAFETY VEHICLE-BRAKE. LOUIS H. BENZ, Pueblo, Colo. Filed June 5, 1901. Serial No. 63,336. (No model.)

Claim.—In a safety-brake for vehicles, a brake-shoe, curved guide-rods carried by the bed of the vehicle, teeth carried on the under side of said brake-shoe, eyelets secured to said brake-shoe and receiving said guide-rods, a pair of suitably-spaced ribs secured to the upper face of said brake-shoe, said ribs having their rear ends outwardly curved, a pair of

springs carried by the brake-shoe for engagament with the side of the wheel-rim, a link connected to the upper end of said brake-shoe, an evener secured to the body of the vehicle, a pin carried by the evener for engagement with said link carried by the brake-shoe, a spring-pressed rod secured to the evener, a chain connected to the upper end of said brake-shoe, a device for securing said chain at an intermediate point, said chain having its other end secured to the axle of the vehicle and being released from said device simultaneously with said brake-shoe, the device being connected at its one end to the said spring-pressed rod, substantially as described.



696,160. ADJUSTABLE SUPPORT FOR TELEPHONES, &c. WILLIAM E. BLODGETT, Faribault, Minn. Filed Oct. 7, 1901. Serial No. 77,756. (No model.)



Claim.—1. The combination of a shaft, a ratchet connected to said shaft, a pawl adapted to engage and hold said ratchet, a reel eccentrically mounted upon said shaft, a spring surrounding said shaft and connected thereto at one end and connected at the other end to said reel and a flexible connection between said reel and the weight to be suspended, substantially as described.

2. The combination of a shaft, a ratchet connected to said shaft, a pawl adapted to engage and hold said ratchet, a reel eccentrically mounted upon said shaft, a spring surrounding said shaft and connected thereto at one end and connected to said reel at the other, a casing inclosing said spring and connected to said reel and a flexible connection between said reel and the weight to be suspended, substantially as described.

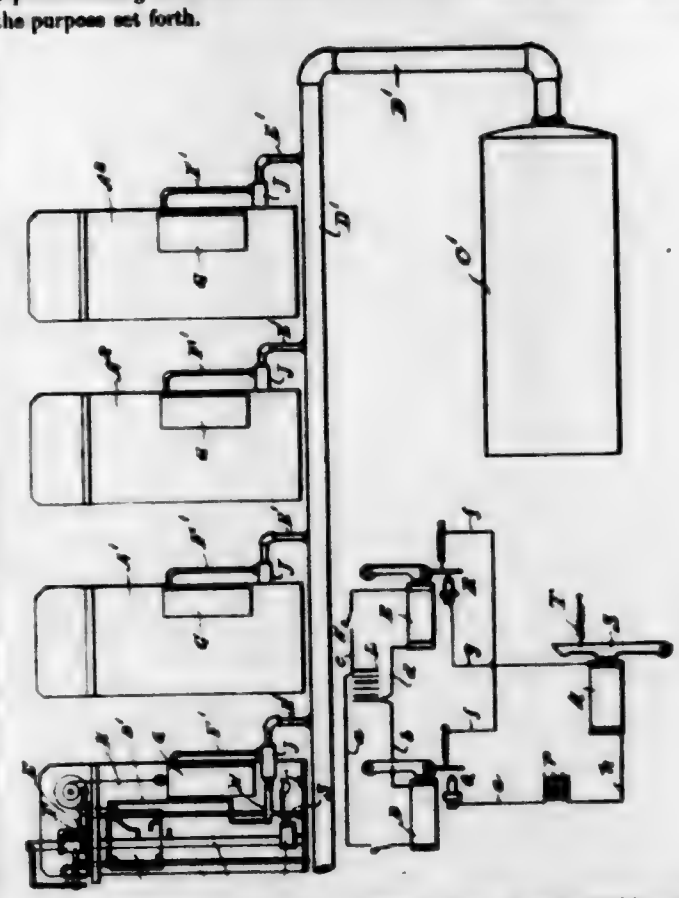
3. The combination of a shaft, brackets for supporting the same, a reel loosely journaled on said shaft, a casing secured to one side of said reel, a spring located in said casing and having one end connected to said shaft and the other end connected to said reel outside of said casing, a ratchet secured to one end of said shaft, a pawl pivoted upon one end of the shaft-supporting brackets and engaging said ratchet, and a flexible connection between said reel and the weight to be suspended, substantially as described.

696,161. AUTOMATIC TELEPHONE SYSTEM. JOHN J. BROWNRIGG and JOHN E. NORSTROM, Chicago, Ill., assignors to themselves, John E. Norling, and Frank A. Lundquist, Chicago, Ill., and Peter O. Norling, Galva, Ill. Filed Dec. 26, 1900. Serial No. 41,132. (No model.)

Claim.—1. In an automatic telephone system, a plurality of switchboards, a movable contact-carrier for each switchboard, and means for actuating said movable contacts, including a common source of operating medium, a supply-pipe delivering therefrom, and branches tapping said supply-pipe, each branch arranged to supply said medium to a single switchboard, as and for the purpose set forth.

2. In an automatic telephone system, a plurality of switchboards, each including a movable contact, means for independently operating said contacts, a common source of operating medium for each of said switchboards, a branch supply-pipe delivering therefrom to each switchboard, and means for independently controlling the supply of said operating medium in each branch supply-pipe, as and for the purpose set forth.

3. In an automatic telephone system, a plurality of switchboards, a movable contact for each switchboard, and means for actuating the same, said means including a common source of supply of an operating medium, pipes delivering from said common source to each switchboard, as and for the purpose set forth.



4. In an automatic telephone system, a plurality of switchboards, a movable contact for each board, operating mechanism for each contact including a source of pressure common to all of said switchboards, pipes for independently supplying each pressure from said common source to each of said switchboards and means for controlling each supply-pipe, as and for the purpose set forth.

5. In an automatic telephone system, a plurality of switchboards, a movable contact for each board, said contacts being gravity-actuated in one direction, and means for positively restoring said contacts, said means including a source of operating medium common to all of said switchboards, branch supply-pipes delivering therefrom to each switchboard and means for independently controlling the supply of such medium from said common source to each of said boards through the branch pipes delivering thereto, as and for the purpose set forth.

6. In an automatic telephone system, a plurality of switchboards, a movable contact for each board, said contacts being gravity-actuated for movement in one direction, means for independently controlling the gravity movements of each contact, and means for independently restoring said contacts to initial or normal position, said means including a source of operating medium common to all of the switchboards, and means for independently supplying said operating medium from said common source to each of said switchboards, as and for the purpose set forth.

7. In an automatic telephone system, a plurality of switchboards, a movable contact-carrier for each switchboard, a cylinder and piston associated with each switchboard, connections between said piston and said movable carrier, a source of supply for an operating medium, a supply-pipe delivering therefrom, and branch pipes tapping said supply-pipe and delivering to each cylinder, as and for the purpose set forth.

8. In an automatic telephone system, a plurality of switchboards, each including a movable contact-carrier, means for independently operating each carrier, said means including a cylinder, a source of supply for an operating medium common to all the cylinders, a valve for independently controlling the communication between each cylinder and said common source of supply, and means for controlling each valve, as and for the purpose set forth.

9. In an automatic telephone system, a plurality of switchboards, a movable contact-carrier for each board, a power cylinder, a piston operating therein for positively moving each carrier in one direction, a source of operating medium common to all of said cylinders, and electrical devices for independently controlling the communication between said common source and each cylinder, as and for the purpose set forth.

10. In an automatic telephone system, a plurality of switchboards, each provided with a movable contact, each contact being gravity-actuated for movement in one direction, power mechanism for mechanically restoring said contacts to initial position, a common source of power for

all the switchboards, a branch supply-pipe delivering from said common source to each of said switchboards and electrical devices for independently controlling said power mechanism for each switchboard, as and for the purpose set forth.

696,162. CRUSHED-ICE HOLDER. JOSEPH S. CALLEN, Shenandoah, Pa. Filed July 25, 1901. Serial No. 69,691. (No model.)



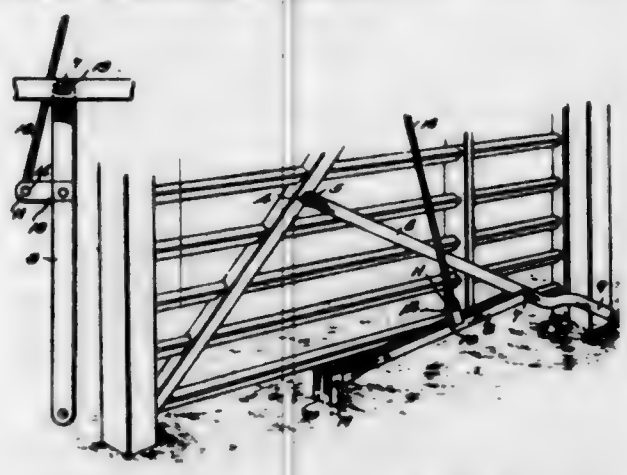
Claim.—1. A crushed-ice holder or vessel comprising inner and outer receptacles spaced apart, the inner receptacle having a perforate bottom, an annular cover closing the upper end of the space formed between the walls of the two receptacles and having a rim or flange pendent from the inner walls to enter the upper end of the inner receptacle, and a second cover closing the inner receptacle and the space circumscribed by the annular cover, substantially as set forth.

2. A crushed-ice holder or vessel comprising inner and outer receptacles, the inner receptacle having a perforate bottom, a shell suspending the inner receptacle within the outer receptacle and subdividing the space between the walls of the two receptacles into inner and outer compartments, an annular cover closing the space formed between the walls of the two receptacles, and a second cover fitted to the annular cover for closing the inner receptacle, substantially as set forth.

3. A crushed-ice holder or vessel comprising an outer receptacle, an upwardly-flaring shell having an outer flange to rest upon the top edge of the said receptacle and having an inner flange at its lower end, an inner receptacle supported by the said inner flange, and a cover for closing the said holder or vessel, substantially as set forth.

4. A crushed-ice holder or vessel comprising an outer receptacle, an upwardly-flaring shell having an outer flange at its upper end to rest upon the top edge of the said receptacle and having an inner flange at its lower end, an inner receptacle having a perforate bottom and resting upon the said inner flange of the shell, an annular cover closing the space formed between the walls of the two receptacles and having a pendent flange to enter the upper end of the inner receptacle, and a second cover fitted to the annular cover, substantially as set forth.

696,163. GATE. JAMES R. CLARK, Lexington, Ky. Filed Dec 19, 1901. Serial No. 86,550. (No model.)

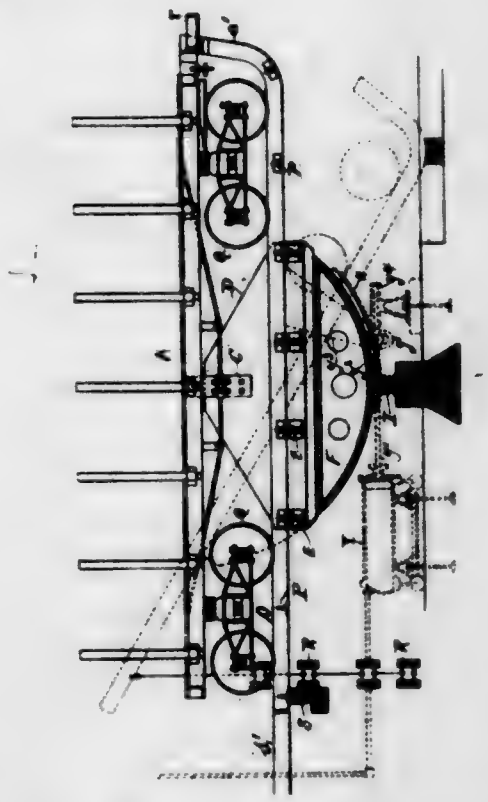


Claim.—1. The combination with a swinging gate, of a lower link composed of a pair of bars spaced apart and pivoted at their lower ends, an upper link pivoted between the upper ends of the said bars and connected to the gate and provided with an arm arranged to project beyond its pivot, an arm 11 secured between the bars of the lower link and overlapped by the arm of the upper link, and operating mechanism connected with the arm 11.

2. The combination with a swinging gate, of a lower link composed of a pair of bars spaced apart and pivoted at their lower ends, an arm secured at an intermediate point between the bars of the lower link, an upper link connected to the gate and provided near its lower end with an oppositely-flared opening, a pivot passing through the said opening and connecting the links, the lower portion of the upper link forming an arm for overlapping the lower link and engaging the arm 11, and operating mechanism connected with the latter.

3. The combination with a swinging gate, of a lower link pivoted at its lower end and composed of a pair of bars spaced apart, a laterally-extending arm 11 having a shank secured between the bars, the upper link connected at its upper end to the gate and pivoted near its lower end between the said bars, the lower portion of the upper link forming an arm for overlapping the lower link and engaging the said shank, a rod pivoted to the arm 11 and having a forked upper portion, and operating-levers connected with the forked portion of said rod.

696,164. TIPPING-TABLE. PEDRO DROUHOUT and JOHN M. CLARK, Havana, Cuba. Filed Oct. 9, 1901. Serial No. 78,091. (No model.)



Claim.—1. A tipping-table, tracks on the table bent up at one end, an adjustable buffer-bearing at the said raised end of the tracks, adjustable counterweights at the other end of the table, segmental projections under the tracks, trunnions supporting the table, all in combination with means applied to the segmental projections to tip the table.

2. A tipping-table, tracks on the table raised at one end, an adjustable buffer-bearing at the said raised end, adjustable counterweights at the other end of the table, sides extending from the table, brackets secured to the sides and supported in a pair of trunnions, segmental projections extending from the bottom of the table, racks secured to the said projections, pinions meshing with the racks, all in combination with means to turn the pinions and tilt the table.

3. A tipping-table, a cradle secured on the table, an adjustable buffer-bearing at the upper end of the cradle, variable counterweights at the other end of the cradle, a stop under the cradle adjacent to the counterweights, a stop located to hold the other end of cradle when tipped, trunnions supporting the table, all in combination with means to tip the table.

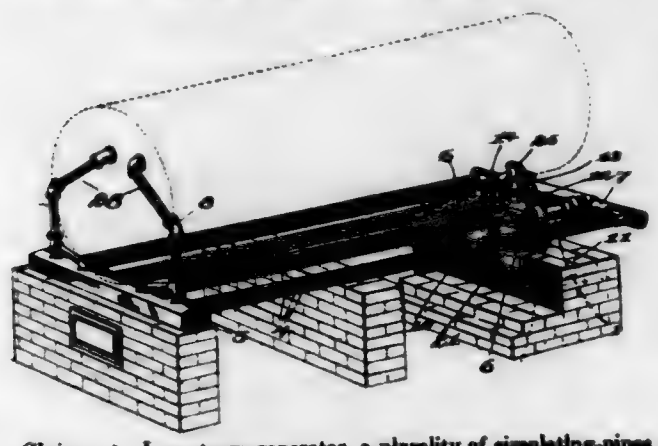
4. The combination of a counterbalanced tipping-table, trunnions supporting the table, means to tip the table, a buffer-bearing supported on the table and comprising, an end beam supported on the frame of the table, slotted holes in the frame, studs extending through the holes and secured into the end beam, nuts on the studs adjustably clamping the end beam and the frame of the table.

5. The combination of a counterbalanced tipping-table, means to swing and tip the table, a cradle on the table with raised ends to support a car, angle-irons fastened to the raised ends of the cradle, an end beam supported on the said angles, guides over the end beam and fastened to the cradle, slotted holes in the raised ends of the cradle, studs extending through the slotted holes and secured in the end beam, a filler in the end beam, and nuts adjustably clamping the end beam to the cradle.

6. The combination of a counterbalanced tipping-table, a cradle on the table supporting a vehicle, a buffer adjustably supported on the cradle, segmental projections extending below the table, racks fastened to the said projections, pinions meshing with the racks, a shaft connecting the

pinions, a spindle geared to the shaft, a brake-wheel on the spindle, and a hand-wheel on the said spindle.

696,165. STEAM-GENERATOR. HENRY P. J. EARNSHAW, Hyde park, Mass. Filed May 18, 1901. Serial No. 60,442. (No model.)



Claim.—1. In a steam-generator, a plurality of circulating-pipes, a header connected to one end thereof and connections between said header and the boiler, said connections including a slip or expansion joint.

2. A steam-generating device adapted to be connected to a horizontal boiler, said device including a mud-drum adapted to be connected to the under side of said boiler, a header connected to the mud-drum by an expansion-joint, and circulating-pipes rigidly connected to said header.

3. A steam-generating device adapted to be connected to a horizontal boiler, said device including a mud-drum adapted to be connected to the under side of the boiler, front and rear headers either side of said mud-drum, flexible connections between said headers and the top of the mud-drum, and circulating-pipes communicating with the headers.

4. A steam-generating device adapted to be connected to a horizontal boiler, said device including a mud-drum, a connection between the bottom of the boiler and the mud-drum, and a plurality of circulating-pipes connected to the mud-drum and extending beneath the boiler whereby the water, as it circulates, is taken from the boiler and through the mud-drum into the circulating-pipe.

5. A steam-generating device adapted to be connected to a horizontal boiler, said device including a mud-drum, a connection between the bottom of the boiler and the mud-drum, said connection including a pipe extending into the mud-drum, and a plurality of circulating-pipes connected to the top of the mud-drum whereby, as the water circulates it is drawn through the mud-drum and delivered to the circulating-pipes.

6. In a steam-generator, a boiler, a plurality of circulating-pipes below the boiler and connected thereto at the rear end thereof, said circulating-pipes being divided into three groups, a water-box having a central compartment and separate end compartments, one group of said pipes connecting with each compartment, and discharge-pipes connecting each end compartment of the water-box to the front end of the boiler, each of said pipes having a connection with the central compartment.

7. In a steam-generator, a boiler, a plurality of circulating-pipes below the boiler and connected thereto at the rear end thereof, a water-box at the front of the boiler and connected to the circulating-pipes, a discharge-pipe at either end of the water-box connecting the same with the boiler, each of said discharge-pipes having a branch connecting with the central portion of the water-box.

8. In a steam-generator, a boiler, circulating-pipes, and a back connection between said pipes and boiler, said back connection being connected to the under side of the boiler and including a hood-like circulation-head extending into the boiler, and situated below the normal water-line.

9. In a steam-generator, a boiler, circulating-pipes, and a back connection between said pipes and boiler, said back connection being connected to the under side of the boiler and including a hood-like circulation-head extending into the boiler, the mouth of said circulation-head having a portion thereof below the bottom of the boiler.

10. A steam-generating device adapted to be connected to a horizontal boiler comprising a plurality of circulating-pipes, a back connection adapted to connect the same to the boiler, said back connection including a collar to be secured to the under side of the boiler, a hood-like circulating-head secured to said collar and extending into the boiler with its mouth toward the front of the boiler, the lower portion of said mouth being below the bottom of the boiler whereby the circulation of the water through the back connection carries all the sediment from the boiler.

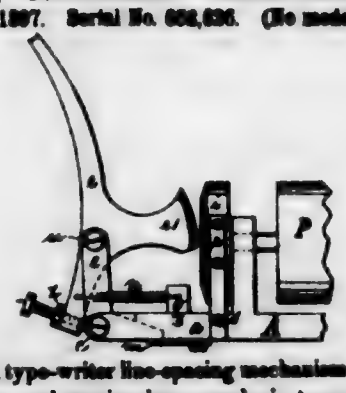
11. A steam-generating device for a horizontal boiler, said device comprising a plurality of circulating-pipes, a header to which said pipes are rigidly connected at one end, a water-box rigidly connected to the other end of said pipes, said water-box, circulating-pipes and header forming a rigid construction, and a slip or expansion joint connection between said header and the boiler.

12. In a steam-generating device, a back connection adapted to be connected to a boiler, a rear header back of said back connection, a series of circulating-pipes divided into two groups, one group being rigidly connected to said header near each end thereof, a front header in front of said back connection, a second series of circulating-pipes situated between the two groups of the first series and rigidly connected to the front header, and a slip or expansion joint connection between each header and the back connection.

13. In a steam-generating device, a mud-drum adapted to be connected directly to a boiler, a rear header back of said mud-drum, circulating-pipes connected to each end of said header, a front header in front of said mud-drum and between the circulating-pipes connected with the rear header, and a plurality of circulating-pipes connected to the front header, whereby the entire space above the combustion-chamber is utilized.

14. In a steam-generating device, a mud-drum adapted to be rigidly connected directly to a horizontal boiler, a rear header back of said mud-drum, circulating-pipes rigidly connected to each end thereof, a front header in front of said mud-drum, and a plurality of circulating-pipes rigidly connected to said front header and situated between the pipes connected to the back header, said circulating-pipes and headers forming a rigid structure, and a slip or expansion joint connection between said headers and the top of the mud-drum.

696,166. TYPE-WRITER. WILLIAM ERWIN, Kenosha, Wis. Filed Sept. 22, 1897. Serial No. 652,636. (No model.)



Claim.—1. A type-writer line-spacing mechanism comprising a combined carriage-return and spacing lever made in two sections, each section separately fulcrumed, one upon an extension of the carriage-frame and the other upon the first section; and friction gear-wheels, one of which is placed upon one end of the platen-shaft, and the other upon the second section of the spacing and carriage-return lever.

2. In a type-writer a carriage-return and line-spacing lever made in two sections, one fulcrumed upon an extension of the carriage-frame, and the other upon the first section, and both yieldingly held in normal position by a separate spring for each, the spring for the first-named section being the weaker of the two, for the purpose set forth, substantially as described.

3. In a type-writer a beveled friction-gear line-spacing mechanism, a carriage-return and line-spacing lever made in two sections one fulcrumed upon an extension of the carriage-frame and the other upon the first section, a pair of geared members one or both being serrated crosswise, one being placed upon one end of the platen-shaft and the other upon the second section of the said lever, for the purpose of giving the platen a full space motion whether or not it may have been previously turned by the hand, as set forth.

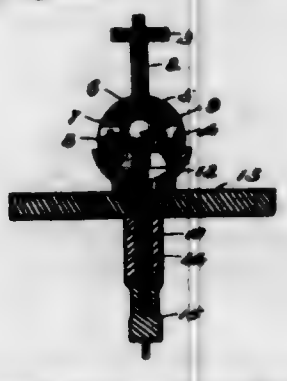
4. In a type-writer the combination of a two-section combined carriage-return and spacing lever, separately fulcrumed, one upon an extension of the carriage-frame and the other upon the first section of said lever, each held in normal position by a separate spring, the spring for the first section being the weaker of the two; and friction-gears one of which is placed upon one end of the platen-shaft and the other upon the second section of the carriage-return and spacing lever, substantially as described.

696,167. CAMERA-TRIPOD. BURTON FORESTER, St. Louis, Mo., assignor of one-half to Henry D. O'Brien, St. Louis, Mo. Filed Oct. 26, 1901. Serial No. 80,073. (No model.)

Claim.—1. A tripod attachment consisting of a ball or sphere provided with an interior socket and a series of radiating slots, a socket-piece in which said sphere fits, and means mounted in said sphere and passing through the socket for binding the sphere in the socket.

2. A tripod attachment, comprising a ball or sphere having an interior socket and radiating slots, means for carrying a camera carried by said ball, a socket-piece in which said ball fits adjustably, and means mounted in said ball's interior socket and passing through the socket-piece for binding the ball in the socket-piece.

3. A tripod attachment comprising a ball or sphere having an interior socket and a series of slots radiating from said socket, means for securing a camera thereto carried by the ball, a socket-piece in which adjustably fits said ball, a stem provided with a ball which fits in the socket of the first-mentioned ball and has its stem passing through the socket-piece, and means for engaging said stem to cause its ball to bind the main ball and socket-piece together.



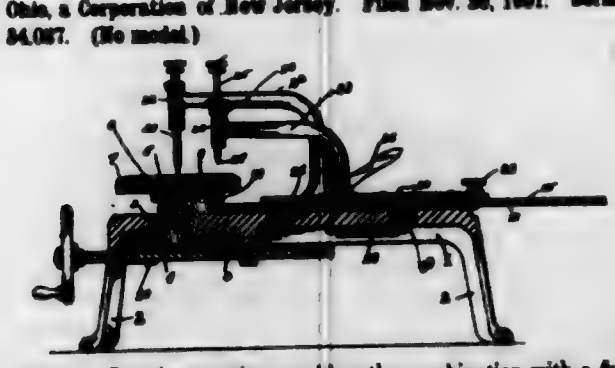
4. A tripod, attachment, comprising a ball or sphere having an interior socket and a series of slots radiating from said socket, means for securing a camera thereto carried by the sphere, a socket-piece in which adjustably fits said sphere, a stem provided with a ball which fits in the socket of the sphere and has its stem passing through the socket-piece, a tripod-platform surrounding said stem below the socket-piece, and means engaging said stem to bind the parts together.

5. A tripod attachment for cameras, comprising a ball or sphere, a spherical socket interiorly of said ball or sphere, a series of slots or guiding-spaces in said ball leading radially from said socket, a cup in which said ball rests, a stem passing through the cup and entering the ball so as to fit in its center and be guided by one of the slots, a ball or sphere carried upon the upper end of the stem and fitting in the socket of the main ball, and means carried upon the stem for clamping and holding the parts together.

6. A tripod attachment for cameras, comprising a ball or sphere, a spherical socket interiorly of said ball or sphere, a series of slots or guiding-spaces in said ball, and leading radially from said socket, a cup in which said ball rests, a stem carrying a small sphere upon its upper end passing through the cup and having its sphere rotatably mounted in the socket of the ball, a tripod-platform surrounding the stem and having the cup resting thereon, and means upon the stem for clamping and holding the parts together.

7. A tripod attachment for cameras, comprising a ball or sphere, a spherical socket interiorly of said ball or sphere, a series of slots or guiding-spaces in said ball, and leading radially from said socket, a cup in which said ball rests, a stem carrying a small sphere upon its upper end passing through the cup and having its sphere rotatably mounted in the socket of the ball, a tripod-platform surrounding the stem and having the cup resting thereon, a sleeve mounted upon the stem below the platform, and a thumb-screw upon the stem below the sleeve for clamping and holding the parts together.

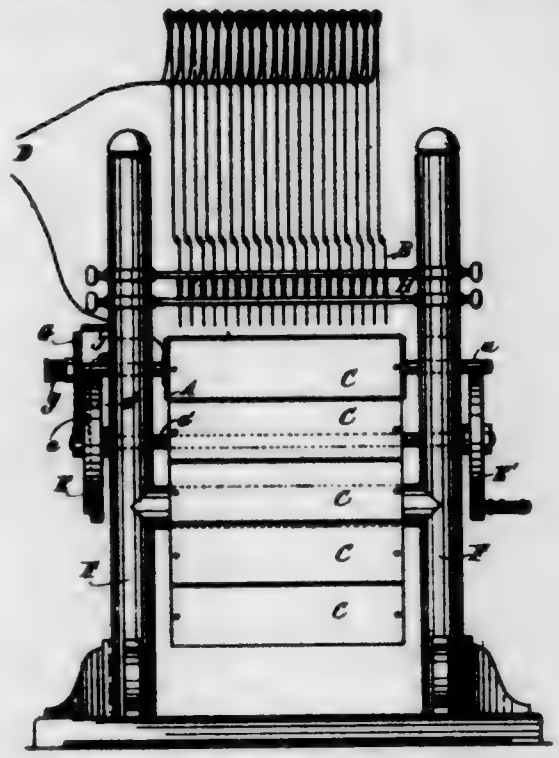
696,168. LENS-CUTTING MACHINE. GEORGE W. POWLE, Columbus, Ohio, assignor to the Columbus Pharmacal Company, Columbus, Ohio, a Corporation of New Jersey. Filed Nov. 20, 1901. Serial No. 84,087. (No model.)



Claim.—In a lens-cutting machine, the combination with a frame 1 having a horizontal guideway thereon, a rotary lens-table mounted therein and a pattern-cam carried by said table, of a spring-actuated reciprocating bar 15 mounted in said guideway, a friction-wheel mounted in the forward end thereof, a bar 21 adjustably connected with said bar 15 and an arm 23 rising from the bar 21 and a diamond-carrying spring-actuated plunger supported in said arm, substantially as specified.

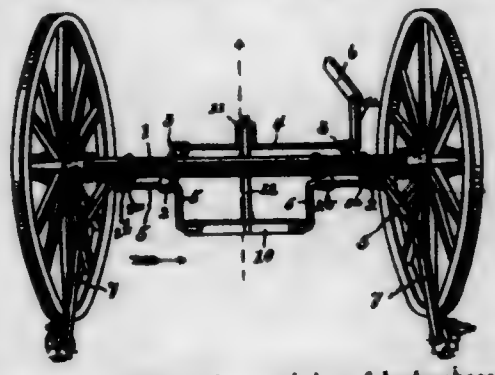
696,169. DEVICE FOR CLOSING AND INTERRUPTING ELECTRICAL CIRCUITS. SYLVAIN BLEIMER, Paris, France. Filed Aug. 1, 1900. Serial No. 25,574. (No model.)

Claim.—1. A device for closing and interrupting the electric circuits in a predetermined aggroupment and succession, consisting of a prism A connected to one pole of the electric source and vertically movable and rotatable, cams E E' arranged upon an axle e' being of a suitable shape so as to support the axle a of the prism A, a toothing e provided upon the cam E in the shortest distance from the center of said cam, a pinion G arranged upon the shaft a and gearing with the toothing e of the cam E, the length of the toothing corresponding to the angle around which the prism is to be turned until a new side of it is brought in contact with the circuit-closer, the whole for the purpose as set forth.



2. A device for closing and interrupting the electric circuits in a predetermined aggroupment and succession, consisting of a prism A connected to one pole of the electric source and vertically movable and rotatable, cams E E' arranged upon an axle e', said cams being of a suitable shape and supporting the axle a of the prism A, a toothing e provided upon the cam E in the shortest distance from the center of said cam, a pinion G arranged upon the axle a and gearing with the toothing of the cam E, said pinion being movable upon the axle of the prism and provided with holes into which engages a pin J attached to one of the standards F for keeping the prism in position, a sloped surface e^2 arranged upon the cam, for the purpose to remove the pinion G from said pin J, the whole for the purpose as set forth.

696,170. WAGON-BRAKE. CHARLES H. GUNN, Salt Lake City, Utah. Filed Dec. 30, 1901. Serial No. 86,703. (No model.)



Claim.—1. A vehicle-brake consisting of brake-shoes adapted for engagement with the ground, brake-levers supporting said shoes, swinging shafts connected to the brake-levers, a springing device connecting the swinging shafts and means connecting with the springing device for operating the brake, substantially as described.

2. A vehicle-brake consisting of brake-shoes adapted for engagement with the ground, brake-levers pivotally mounted upon the rear axle of the vehicle, rocking shafts connected to the brake-levers, and mounted on the rear axle of the vehicle, a rock-shaft, a connecting-rod between the rock-shaft and the swinging shafts and a springing device connecting the ends of the swinging shafts and secured to the connecting-rod to allow each swinging shaft to move independently of the other.

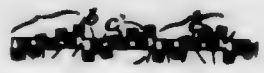
3. In a vehicle-brake, the combination with brake-shoes adapted for engagement with the ground, brake-levers pivotally supported on the rear axle of the vehicle, swinging shafts connected with the brake-levers, of a

springing bar connecting the ends of the swinging shafts and capable of torsional movement to adapt the brake-levers to act independently of each other, a rock-shaft, a rod connecting the rock-shaft with the springing device and means for operating the rock-shaft, substantially as specified.

4. A vehicle-brake consisting of brake-levers having reversible brake-shoes mounted on their ends, swinging shafts connected with the brake-levers, a springing device connecting the ends of the swinging shafts, a rock-shaft, a connection between the rock-shaft and the swinging device and operating means, substantially as specified.

5. In a vehicle-brake the combination with the brake-levers and their operating means, of reversible brake-shoes adapted for engagement with the ground and each having a portion of its periphery provided with teeth and a recess formed in the side thereof, and a locking-key to engage said recess to hold the shoe in its reversed position, substantially as described.

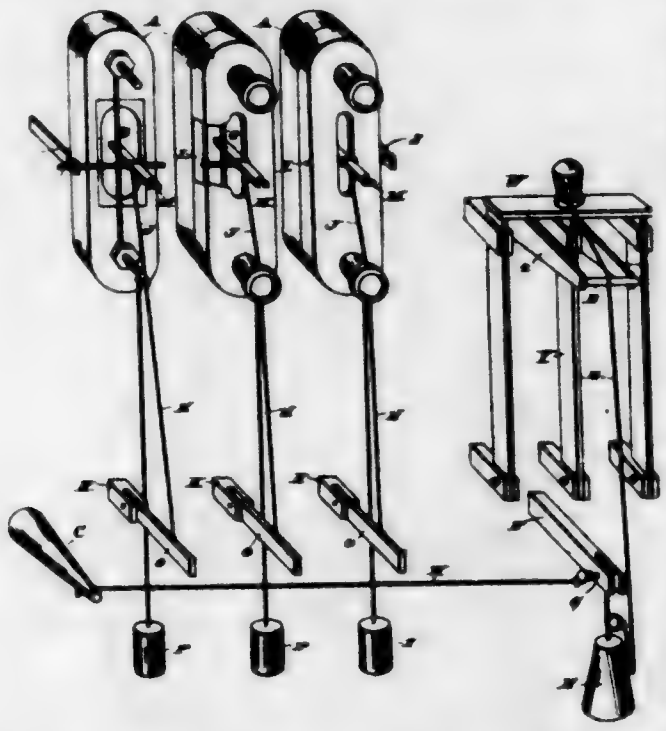
696,171. SECONDARY BATTERY. ROBERT H. HAMBLER, Indianapolis, Ind., assignor to National Battery Company, Jersey City, N. J., and Cleveland, Ohio, a Corporation of New Jersey. Filed Dec. 10, 1900. Serial No. 39,318. (No model.)



Claim.—1. A grid for secondary batteries having a series of groups of primary ribs and grooves or corrugations, the edges of each group being struck in opposite directions whereby each group is separated from the next along its edge, substantially as shown and described.

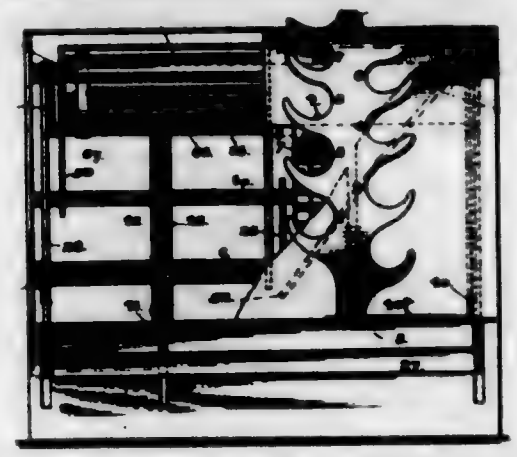
2. A plate for secondary batteries comprising a grid and active material, the grid having a series of groups of primary ribs and grooves or corrugations, the edges of each group being struck in opposite directions, whereby adjacent groups are separated along their edges forming openings, and the units of active material on opposite sides of the plate being united to each other through the openings between adjacent groups, substantially as shown and described.

696,172. CIRCUIT-BREAKING DEVICE. ALBERT J. HIGGS, Colton, Cal. Filed Dec. 22, 1900. Serial No. 40,817. (No model.)



Claim.—In a circuit-breaking device, a base, a switch, a weight, a cord connecting the handle of the switch with the weight, a pin to support the weight when the switch is closed, an apertured projection to receive said pin, a projection and block to hold said cord in such a position that it will pull the switch open when the weight is released, a stationary support, a second cord connecting one end of the pin with the support, a lever pivoted to the base, a second weight, a third cord connecting the free end of the lever with the second weight, a fuse-block and fuse, a cross-bar extending across the front of the fuse-block, a lever with a notched end adapted to rest on the cross-bar, the notched end being adapted to engage the fuse, a fourth cord connecting the notched lever with the third cord, all so arranged that the melting of the fuse will cause the pivoted lever to withdraw the pin from the apertured projection thus allowing the weight to open the switch, substantially as described.

696,173. ADDING-MACHINE. ADAM HOCH, Alameda, Cal., assignor, by direct and mesne assignments, to Wendling-Hoch Adding Machine Company, San Francisco, Cal., a Corporation of California. Filed June 21, 1900. Serial No. 21,107. (No model.)



Claim.—1. In machines of the character described, a separate registering device for each order, a single operating-key, a selecting device actuated by the key and movable transversely with respect to the registering devices and adapted to connect the key with the recording devices in successive order whereby all the registering devices are selected and actuated by the same key.

2. In machines of the character described, a registering-machine having a separate registering device for each order, a single operating-key, a selecting device operated by the key and adapted by the length of stroke of the key to connect it with any one of the recording devices at will, and mechanism actuated by the movements of the key to rotate the registering device so connected, and mechanism operating to shift the selecting device from one registering device to another to set the same in successive order from the movements of the key.

3. In machines of the character described, a separate registering device for each order, an operating-key, a selecting device transversely movable with reference to the registering devices, and mechanism controlled by the selecting device to connect the key separately with the registering devices in successive order said key when so connected determining by its length of stroke the movement of the particular registering device to which it is connected, and means actuated by a separate key to reset the registering devices to zero after each operation.

4. In a machine of the character described a separate recording device for each order, a selecting device, and an operating-key determining by its length of stroke the position of the selecting device with respect to any given recording device.

5. In machines of the character described, a recording mechanism composed of a separate recording device for each order of numbers, an adding mechanism comprising a wheel for each order, a selecting device transversely movable with respect to said recording and adding mechanisms, a single operating-key determining by its length of stroke the position of the selecting device with relation to the said recording and adding mechanism, means controlled by the selecting device to connect the operating-key with the recording mechanism and with the adding mechanism, whereby the same are actuated and set to the desired figures from the movements of the operating-key.

6. In machines of the character described, an adding mechanism composed of a separate adding-wheel for each order, a selecting device transversely movable with reference thereto, a single operating-key, and means controlled by the selecting device connecting the key separately with the adding-wheels in successive order and determining the movement of the adding-wheel so connected from the length of stroke of the key.

7. In machines of the character described, a recording mechanism composed of a separate recording device for each order, a selecting device movable transversely thereto, a single operating-key determining by its length of stroke the position of the selecting device with respect to the recording devices, mechanism controlled by the selecting device and adapted to connect the operating-key with the several recording devices in successive order to operate them from the movements of the same key, a printing-roller, a printing-key adapted to bring the roller and the recording devices in contact, and mechanism operated by the printing-key to reset the recording devices after every printing operation.

8. In machines of the character described, an adding mechanism having a separate adding device for each order, a single operating-key, a selecting device adapted to connect the operating-key with the adding devices in successive order, mechanism connecting the selecting device with the separate adding devices through varying lengths of stroke of the operating-key.

9. In machines of the character described, an adding mechanism

having a separate adding device for each order, a single operating-key, a selecting device adapted to connect the key with the adding devices in successive order, mechanism connecting the selecting device with the adding devices through varying lengths of stroke of the operating-key, and mechanism controlled by a separate key to reset the adding devices to zero.

10. In machines of the character described, a recording mechanism having a separate recording device for each order, a single operating-key, a selecting device adapted to connect the key with the recording devices in successive order, and mechanism connecting the selecting device with the recording devices through varying lengths of stroke of the operating-key.

11. In machines of the character described, a recording mechanism having a separate recording device for each order, a single operating-key, a selecting device adapted to connect the key with the recording devices in successive order, mechanism connecting the selecting device with the recording devices through varying lengths of stroke of the operating-key and mechanism controlled by a separate key to reset the recording devices to zero.

12. The combination of a recording and printing device consisting of a disk mounted for rotation on a shaft and having a segmental flange bearing printing-type on its periphery, an adding-wheel on the same shaft rotatable within the segmental flange of the disk, and setting mechanism and a controlling-key adapted to set the segment and the adding-wheel with an equal extent of movement with reference to a printing-roller.

13. The combination of the adding mechanism comprising a separate wheel for each order, means connecting the wheel of one order with that of the next highest order, whereby the rotation of the lower wheel ten numbers will rotate the next higher wheel one number, a recording mechanism comprising a separate wheel for each order bearing figures from "0" to "9" inclusive, a single operating-key, and connecting mechanism movable transversely with respect to the recording-wheels and adding-wheels and adapted by varying lengths of stroke of the operating-key to disconnect said key from one of the wheels of one order and connect it with the wheels of the next order in succession, a printing-roller, and a separate key and mechanism controlled thereby to bring the printing-roller in contact first with the recording-wheels and finally with the adding-wheels.

14. In machines of the character described, an adding mechanism composed of a separate adding device for each order, a selecting device movable transversely thereto, a single operating-key determining by its length of stroke the position of the selecting device with respect to the adding devices, mechanically controlled by the selecting device and adapted to connect the operating-key with the several adding devices in successive order to operate them from the movements of the same key, a printing-roller, and a printing-key adapted to bring the roller and the adding devices in contact.

15. In machines of the character described, a separate adding device for each order, a single operating-key, a selecting device transversely movable with reference to the adding devices, and mechanism controlled by the selecting device to connect the operating-key separately with the adding devices in successive order, said key when so connected determining by the length of its stroke the movement of the particular adding device to which it is connected.

696,174. HOSE-NOZZLE. FRANK HOLBROOK, Lynn, Mass., assignor to the New England Fire Supply Company, Lynn, Mass., a Co partnership. Filed Sept. 20, 1901. Serial No. 76,708. (No model.)



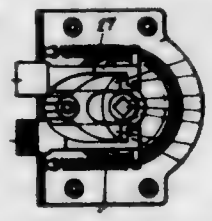
Claim.—A hose-nozzle provided with a suitable port and a valve-seat surrounding said port, a notched disk valve mounted in a valve-chamber and arranged to be moved toward and from said valve-seat, a link connected at one end to one side of said disk valve and provided at its opposite end with an eccentric band or strap, a transversely-arranged shaft provided with an eccentric engaged by said eccentric band or strap and a pair of levers provided with a connecting-bar for turning said eccentric-shaft to reciprocate said valve, substantially as described.

696,175. FIRE-HARNESS. FRANK HOLBROOK, Lynn, Mass., assignor to the New England Fire Supply Company, Lynn, Mass., a Co partnership. Filed Oct. 3, 1901. Serial No. 77,403. (No model.)

Claim.—An improved clip, comprising a yoke or frame, opposing curved jaws mounted upon bolts held in said frame, and a spring for acting upon the rear ends of said jaws to force their curved ends together, substantially as described.



696,176. LATCH. CHARLES P. HOWARD, Hartford, Conn. Filed Oct. 12, 1901. Serial No. 78,396. (No model.)



Claim.—1. The combination in a door-latch of two beveled, oppositely-facing, independently-retractable bolts, located in different planes of the swinging movement of the door, and a striker-plate for stopping and latching the door, provided with means for stopping the forwardly-facing bolt without depressing it, and with means for depressing the rearwardly-facing bolt, and preventing its return movement.

2. The combination in a door-latch of two beveled, oppositely-facing, independently-retractable bolts, located in different planes of the swinging movement of the door, and two striker-plates for stopping and latching the door at different positions, each plate being provided with means for stopping the forwardly-facing bolt, as the door is swung toward it, and for depressing and catching the rearwardly-facing bolt.

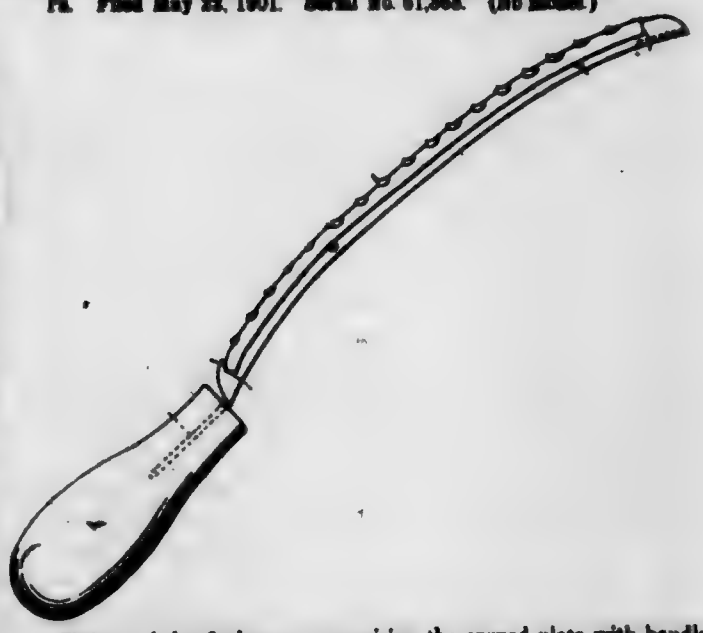
3. The combination in a door-latch of two beveled, oppositely-facing, independently-retractable bolts, located in different planes of the swinging movement of the door, and a striker-plate for receiving the door from either direction of its movement, provided with means for stopping the forwardly-facing bolt, and for depressing and catching the rearwardly-facing bolt.

4. The combination in a door-latch of two beveled, oppositely-facing, independently-retractable sliding bolts, located in different planes of the swinging movement of the door, and means operable from both sides of the door for simultaneously retracting both bolts.

5. The combination in a door-latch of two beveled, oppositely-facing, independently-retractable bolts, located in different planes of the swinging movement of the door, a cross-head for engaging with and retracting both bolts, and means operable from both sides of the door for moving the cross-head.

6. The combination in a door-latch of two beveled, oppositely-facing, independently-retractable bolts, located in different planes of the swinging movement of the door, a cross-head for engaging with and retracting both bolts simultaneously, a dog mounted for oscillatory movement, for operating the cross-head by its oscillation in either direction, and handles operable upon both sides of the door, for oscillating the dog in both directions.

696,177. HOOF-TRIMMER. HENRY HUFFTEICHLER, Coal Valley, Pa. Filed May 22, 1901. Serial No. 61,363. (No model.)



Claim.—A hoof-trimmer, comprising the curved plate with handle secured thereto, said plate recessed at 10 forming a retaining-shoulder 11, the longitudinal edges of said plate having flanges, a shoulder 12 near the

free end of the plate, lugs on the outer faces of said flanges, combined with the curved cutting-blade 7, recessed at 14 and having flanged edges which fit over the flanges of said plate, and held by said shoulders against said lugs, said blade having series of perforations, the marginal walls of which are inclined, and a portion of each wall projecting beyond the face of the blade forming cutting edges, as set forth.

696,178. MANTLE-SUPPORT. JOHN F. W. JOST, Philadelphia, Pa., assignor to Welsbach Light Company, Gloucester City, N. J., a Corporation of New Jersey. Filed Aug. 12, 1901. Serial No. 71,722. (No model.)

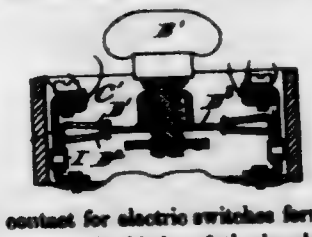


Claim.—1. The combination of a mantle-carrier consisting of a collar and a side support provided with a hook substantially as described and permanently secured to the collar, and a mantle provided with a bail engaging the hook substantially as described and a skirt encircling the collar below its top and exceeding in length the distance between the top of the collar and the bend of the hook, the height of the bail being less than that of the hook.

2. In combination a collar provided with a socket, a side support provided with a hook and adapted for insertion into the socket, a mantle provided with a bail for the hook and having its skirt arranged below the top of the collar, and exceeding in length the distance between the top of the collar and the bottom of the hook, the height of the bail being less than that of the hook, substantially as described.

3. In combination, a collar provided with a socket, a side support provided with a hook and adapted for insertion into the socket, a mantle provided with a bail for the hook and having its skirt arranged below the top of the collar, the height of said bail being less than that of the hook, and the arrangement of the side support in respect to its socket being such as to make the distance between the top of the collar and the bottom of the hook less than the length of the mantle, whereby an attempt to remove the mantle or to supply a new one will result in destroying the mantle or its support, substantially as described.

696,179. ELECTRIC SWITCH. NORMAN MARSHALL, Newton Mass., assignor to Marshall-Sanders Company, Boston, Mass., a Corporation of Maine. Filed Mar. 7, 1901. Serial No. 50,212. (No model.)



Claim.—1. A contact for electric switches formed of a single piece of sheet metal bent to form the blades of the brush portion, and having an attaching portion out of the plane of the brush portion and connected with the brush portion by a resilient connection which is a longitudinal extension of the attaching portion and is formed by shearing through the sheet metal at the sides and front of the attaching portion and bending the rear end of the attaching portion to bring said portion out of the plane of the brush portion.

2. A combined contact and binding-post for electric switches, comprising a contact having two adjacent blades and an attaching portion having an irregular recess therethrough, a binding-post and a stud expanded within said recess and having its end turned over to secure said post and contact together.

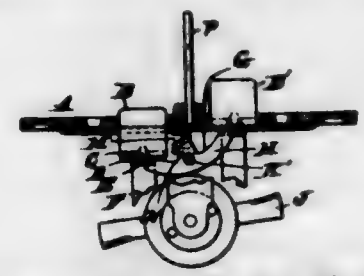
3. A combined contact and binding-post for electric switches, comprising a contact having two adjacent blades and an attaching portion arranged at approximately a right angle to said blades, and a binding-post secured to said attaching portion.

4. A combined contact and binding-post for electric switches comprising a plate bent at either end, a screw passing through one end of said plate, a clip threaded for engagement with said screw, and arranged to coöperate with the end of the plate in clamping the wire; and a contact-brush secured to said plate.

5. A combined contact and binding-post for electric switches, comprising a binding-post, a contact-brush secured thereto, a clip M and a screw passing through the binding-post and threaded into the clip.

696,180. ELECTRIC SWITCH. NORMAN MARSHALL, Newton, Mass., assignor to Marshall-Sanders Company, Boston, Mass., a Corporation of Maine. Filed Mar. 18, 1901. Serial No. 51,801. (No model.)

Claim.—1. In an electric switch the combination with devices for operating the switch, of a key-controlled locking mechanism for preventing the operation of the switch embodied in and forming part of the switch.



2. In an electric switch the combination with mechanism for operating the switch, of a key-controlled locking mechanism constructed to lock said switch in either of two positions.

3. In an electric switch the combination with reciprocating push-buttons for operating the switch, of a key-controlled locking device for preventing the movement of said push-buttons.

4. In an electric switch the combination with reciprocating push-buttons for operating the switch, of a key-controlled locking device constructed to prevent the movement of said push-buttons when the switch is in either of two positions.

5. In an electric switch the combination with reciprocating devices for operating the switch, of a rocker-arm connected with said devices, and a key-controlled stop for preventing the movement of said arm.

6. In an electric switch the combination with reciprocating devices for operating the switch, of a rocker-arm connected with said devices, a projection on said arm, a key-controlled stud provided with an engaging surface arranged to be moved into or out of the path of said projection by the rotation of said stud.

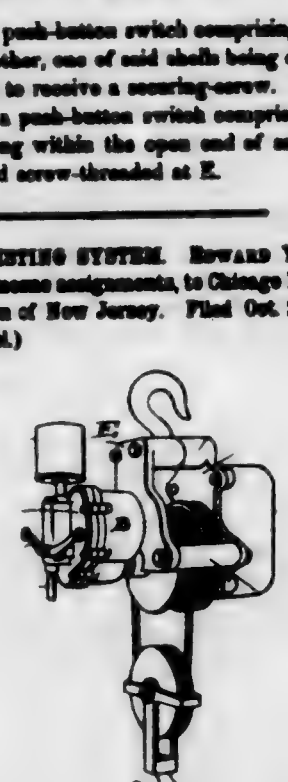
7. In an electric switch the combination with the switch-operating devices, of a rocker-arm connected to move therewith, a locking-stud for preventing the movement of said arm, and means whereby the stud may be operated by a key.

8. In an electric switch the combination with the push-buttons connected to operate the switch, of a rocker-arm connected with said push-buttons, a projection on said rocker-arm, a stud having a step-surface arranged to be turned into and out of the path of said projection, means whereby said stud may be turned by a key, and a tumbler for determining the form of the key.

9. A button for a push-button switch comprising two metallic shells fitting one within the other, one of said shells being drawn up at its center and screw-threaded to receive a securing-screw.

10. A button for a push-button switch comprising a metallic shell or cup B, a cup D fitting within the open end of said shell and having its center drawn up and screw-threaded at E.

696,181. HOISTING SYSTEM. EDWARD Y. MOORE, Cleveland, Ohio, assignor, by mesne assignments, to Chicago Pneumatic Tool Company, a Corporation of New Jersey. Filed Oct. 26, 1900. Serial No. 34,733. (No model.)



Claim.—1. The combination of hoisting mechanism, a pneumatic engine adapted to drive the same in either direction, and mechanism for admitting to the engine compressed air in relatively large quantities for raising the load and in relatively small quantities for lowering, and concurrently with each of said admission operations opening the exhaust to a relatively large amount.

2. The combination of hoisting mechanism, a pneumatic engine for driving the same in either direction including a reversing-valve mechanism for controlling said engine, and a raising-passage and a lowering-passage leading from said valve mechanism to the cylinder of the engine,

and means for constricting the lowering-passage without constricting the raising-passage.

3. The combination of hoisting mechanism, a pneumatic engine for driving the same in either direction, and mechanism for governing the passages of said engine adapted to present two different sizes of inlets according to the direction of rotation of the engine, and one size of outlet for both directions, the outlet corresponding in size with the larger inlet.

4. The combination of hoisting mechanism, a pneumatic engine for driving the same in either direction, a valve mechanism consisting of a body and coöperating seat, there being raising and lowering passages from the seat to the engine-cylinder, and an outlet-passage from the seat, the valve mechanism having two sizes of inlet-ports, the smaller port coöperating with the lowering-passage and the larger port with the raising-passage, the valve-body carrying an exhaust-port adapted to couple either the raising or lowering seat-port with the seat exhaust-port.

5. The combination of hoisting mechanism and a pneumatic engine adapted to drive the same in either direction, said engine including a reversing-valve for governing the direction of operation thereof, which reversing-valve with its seat have two admission-ports of unequal size and an exhaust-port common to both of said seat-ports, whereby said valve is adapted to allow the admission of compressed air in relatively large quantity for raising the load and in relatively small quantity for lowering and concurrently with each of said admission operations to open the exhaust to a relatively large quantity of air.

6. The combination of hoisting mechanism, a pneumatic engine for driving the same in either direction, including a reversing-valve for controlling said engine, which valve has an exhaust-recess and on opposite sides thereof admission-ports and the seat for said valve has a pair of ports leading to the engine-cylinder and a common exhaust-port between them, the admission-ports presented by the valve and seat being of unequal size and the exhaust-port corresponding in size with the larger admission-port, whereby said valve is adapted in one extreme operative position to fully open to the compressed air the admission-port for raising the load and concurrently couple the other port with the exhaust in full, and in the other extreme operative position to choke the admission-port for lowering the load while coupling the other port with the exhaust in full.

7. The combination of hoisting mechanism and a pneumatic engine for driving the same, said engine including a valve-seat and a reversing-valve occupying the same, there being a pair of full-sized admission-ports in the valve-seat one for raising and one for lowering, and a full-sized exhaust-port in said seat, and admission and exhaust passages leading therefrom, said valve having a recess adapted to connect either admission-port openly with the exhaust-port and being provided with a wall partly covering the lowering admission-port when the raising admission-port is fully coupled with the exhaust, substantially as described.

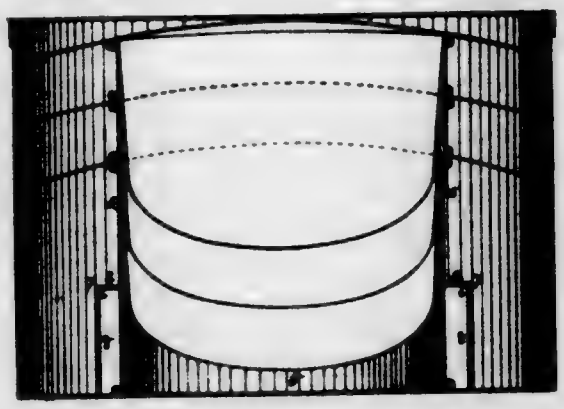
8. The combination of hoisting mechanism, a pneumatic engine adapted to drive the same including an automatic valve operated by the engine and in turn governing it to cause continuous consecutive operations thereof, a reversing-valve, there being a pair of admission-passages between said valves, and an exhaust-passage leading from the reversing-valve, said reversing-valve being adapted in one extreme operative position to fully uncover one admission-opening to the operating fluid and simultaneously fully connect the other with the exhaust, but having a wall which in the other extreme operative position materially covers one admission-opening though allowing a slight access thereto while coupling the other opening fully with the exhaust, and means for shifting said reversing-valve in each direction from an off position intermediate of the two positions mentioned.

9. The combination of hoisting mechanism, a casing carried thereby, an operating-shaft extending from within the casing and connected to drive said hoisting mechanism, pneumatic engines within the casing operating to drive said shaft and having automatic individual valves for allowing continuous operation, a valve-seat, there being valve-passages through said casing leading from said valve-seat to said automatic valves, said passages terminating at the seat in full-sized ports, an exhaust-passage also having a full-sized port at said seat, and a reversing-valve coöperating with said seat and having a recess adapted in either extreme operative position to couple an admission-passage openly with the exhaust, said valve having a wall partly covering the lowering admission-port when the raising-port is fully connected with the exhaust, the raising admission port being adapted to be fully open when the lowering-port is fully connected with the exhaust.

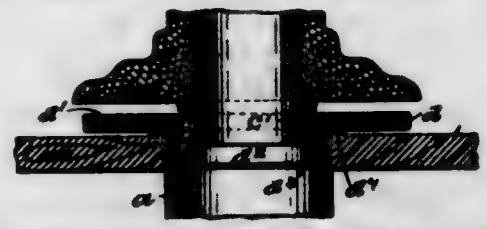
696,182. BANDBOX-STAY. SAMUEL MESSERER, Fall River, Mass. Filed Oct. 30, 1901. Serial No. 80,542. (No model.)

Claim.—In combination with a bandbox an inside stay consisting of a rectangular piece of pasteboard or the like, centrally apertured, and having its corners touching the curved sides of the box; and provided with a flap upon each edge of the piece bent down to form rests or supports substantially as described and shown.

696,182.

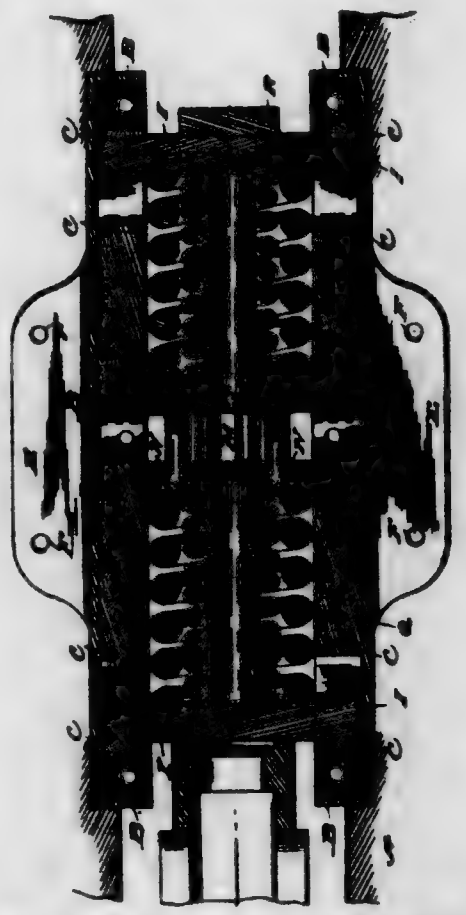


696,183. GASKET. JOHN W. MCAULIFFE, Providence, R. I. Filed Aug. 8, 1901. Serial No. 71,306. (No model.)



Claim.—In a gasket, the combination with the annular flange d', and the cylindrical collar d^2, of the annular depression d^4, and the enlargement d^3 on the collar, as described.

696,184. TANDEM DRAFT-RIGGING ATTACHMENT. THOMAS L. MCKEEN, Easton, Pa. Filed Jan. 15, 1902. Serial No. 89,849. (No model.)



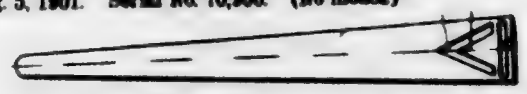
Claim.—1. In a tandem draft-rigging, in combination with housings secured to the draft-timbers and provided with two vertical stops at each end with a recess between them, end followers located in said recesses, push-bars having stems bearing against the end followers and formed with heads having projecting studs or fingers and intermediate gates or openings, intermediate followers strung upon the stems of the push-bars, springs surrounding the stems of the push-bars and confined between the end followers and intermediate followers, a yoke surrounding the followers, push-bars and springs, and carry-bars secured to the housings, and supporting the followers, substantially as and for the purpose set forth.

2. In a tandem draft-rigging such as described, push-bars adapted to support the springs and intermediate followers, and formed at their adjacent ends with heads provided with longitudinal studs or fingers and in-

termediate gates or openings, whereby the studs or fingers of each push-bar may enter and reciprocate within the corresponding gates or openings of the other, to simultaneously act upon tandem springs, substantially as and for the purpose set forth.

3. In a tandem draft-rigging, and in combination with the housings secured to the draft-timbers and provided with double end stops, and with end followers located between the double end stops; longitudinally-movable devices supporting intermediate followers and springs, and formed with means movable relatively to each other, for contacting with the intermediate followers, a yoke surrounding the followers, springs and longitudinally-movable devices, and carry-bars secured to the housings and supporting the end followers, substantially as and for the purpose set forth.

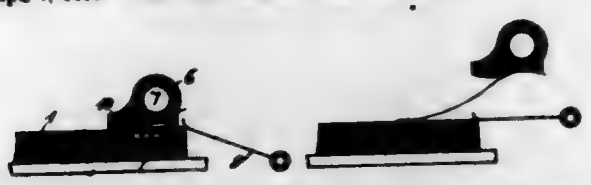
696,185. TAPE-NEEDLE. EMMA B. NOYES, Chicago, Ill. Filed Aug. 5, 1901. Serial No. 70,900. (No model.)



Claim.—1. A flat or flattened ribbon-needle adapted to be manipulated by hand, and having its head formed with a narrow transverse slot located at the end of the needle, and having also an eye located between said slot and the point or end of the needle which is inserted through the cloth or fabric, said eye being arranged adjacent to said transverse slot and having a spur or point extending in the direction of said point or end of the needle which is inserted through the cloth or fabric, said spur or point being adapted to engage or pierce the ribbon at the point where the latter is folded or doubled back, and the said narrow transverse slot being adapted to hold the ribbon flat and prevent the same from twisting, substantially as described.

2. A ribbon-needle consisting of a flat or flattened strip of metal of tapering form, the broadened head portion of the needle being provided at its extreme end with a narrow transverse slot adapted to serve as an eye for the needle, and such broadened head portion of the needle being also provided with an adjacent V-shaped eye having a pointed tongue adapted to engage and hold the ribbon, the narrow transverse slot or eye at the extreme end of the head portion of the needle extending substantially across the needle-head, whereby the ribbon can be substantially of the same width as the needle, and also whereby the ribbon is held flat and prevented from rolling or folding up, substantially as described.

696,186. APPARATUS FOR LIFTING OFF AND REMOVING SHEETS FROM A PILE. IWAN ORLOFF, St. Petersburg, Russia. Filed Sept. 7, 1899. Serial No. 729,760. (No model.)



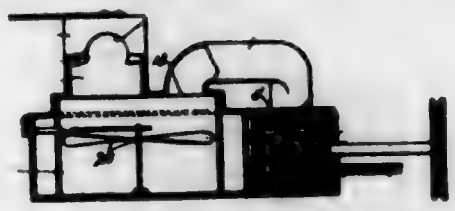
Claim.—1. In apparatus for the purpose described, a pneumatic lifter consisting of a tubular body having in its lower face a recess 11 which communicates through suitable passages with the interior of the tubular body, and having at one side of said recess a downwardly-projecting portion 10 adapted, when the lifter is adjusted against the sheet to be moved, to force a portion of said sheet into the recess 11 and to be free from said sheet while the latter is being moved by the lifter.

2. In apparatus for the purpose described, a pneumatic lifter consisting of a tubular body having adjacent portions of its lower surface convex and concave, said body having a series of passages extending from said concave portion into the central bore, and the convexly-curved surface extending below the concave portion and adapted when pressed against a pile of sheets to so depress the upper sheet as to force a portion thereof into the concaved portion of the lower surface of the lifter, and said convex surface being out of contact with the engaged sheet while it is being lifted from the pile.

3. In an apparatus for the purpose described, the combination with a support for a series of sheets, of a pneumatic lifter adapted to engage the upper of a series of sheets on said support, and a spring arm or plate, 9, pivoted at one side of said support and having its free end which rests on the upper sheet of the series bent or curved upwardly so as to offer no obstruction to the movement of said sheet when disengaged by the lifter and preventing other sheets in the series from following the one so engaged.

4. In an apparatus for lifting off and removing individual sheets from a pile, the combination of a plurality of suction-pipes placed at different sides of the pile and arranged to alternately remove the lifted sheets in different directions, substantially as and for the purposes described.

696,187. OIL ATOMIZER AND MIXER FOR VAPOR-ENGINES. ALISON D. PAGE, Harrison, and EUGENE WOOD, Newark, N. J., assignors to the Keromotor Development Company, Newark, N. J., a Corporation of New Jersey. Filed Mar. 27, 1901. Serial No. 53,080. (No model.)



Claim.—1. An oil atomizer and mixer for vapor-engines comprising an oil-containing receptacle having an air inlet and an outlet, a gate movable across the outlet and a screen within the gate and movable across the outlet for the purpose set forth.

2. An oil atomizer and mixer for vapor-engines comprising a rotary cylindrical screen, a conduit for feeding oil into the screen-cylinder, a cylindrical gate inclosing the screen and provided with an aperture, and an additional conduit communicating with said aperture, said second conduit being adapted to be connected to the piston-chamber of the engine.

3. The combination with an oil-vaporizing chamber, a rotary mixer or agitator in the chamber, an oil-receiving chamber having an outlet-opening communicating with the former chamber, a gate movable across the outlet-opening for the purpose set forth, and a movable screen within the gate.

4. The combination with an oil-containing chamber having an outlet, a movable gate having an aperture registered with the outlet, and a screen within the gate and registered with the outlet and aperture.

5. The combination with an oil-containing chamber having an outlet, a gate having an aperture movable into and out of registration with the outlet and a rotary screen within the gate and movable across said aperture for the purpose set forth.

6. The combination with an oil-containing chamber having an air-inlet and a vapor-outlet, a gate having apertures movable into and out of registration with said inlet and outlet, and a movable screen within the gate and registered with said apertures for the purpose described.

7. A cylindrical oil-containing chamber having an air-inlet and a vapor-outlet, a cylindrical gate within the chamber and provided with apertures movable into and out of registration with the inlet and outlet and a rotary cylindrical screen within the gate for the purpose described.

8. The combination with an oil-vaporizing chamber, an oil-reservoir having an air-inlet and an outlet the outlet being connected to the vaporizing-chamber, a movable cylindrical gate having apertures movable into and out of registration with the inlet and outlet and a rotary cylindrical screen movable in the chamber for the purpose set forth.

696,188. BUILT-UP COLUMN. WILLIAM M. PEARD, Mount Vernon, N. Y. Filed Nov. 26, 1901. Serial No. 83,798. (No model.)



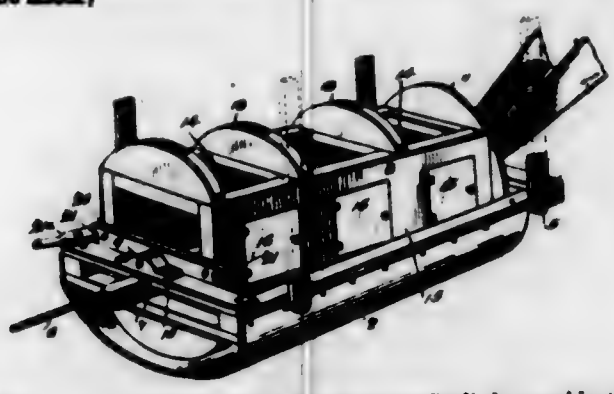
Claim.—1. The herein-described built-up column of wooden staves, the joints between adjacent staves lying in planes radiating from the axis of the column but each broken by an ogee *b* one half extending on one side and the other half on the other side of the main plane and said ogee being near the inner faces of the staves, substantially as described.

2. The herein-described built-up column, comprising wooden staves fitted together and retaining-rings on the end faces of the staves, as and for the purpose described.

3. The herein-described built-up column, comprising wooden staves with tongues and grooves fitted together and retaining-rings on the end faces of the staves, as and for the purpose described.

4. The herein-described built-up column of wooden staves, the joints between adjacent staves lying in planes radiating from the axis of the column but each broken by an ogee *b* extending on opposite sides of said radial plane, the ogees being near the inner faces of the staves and the several sections of the column being alike, substantially as described.

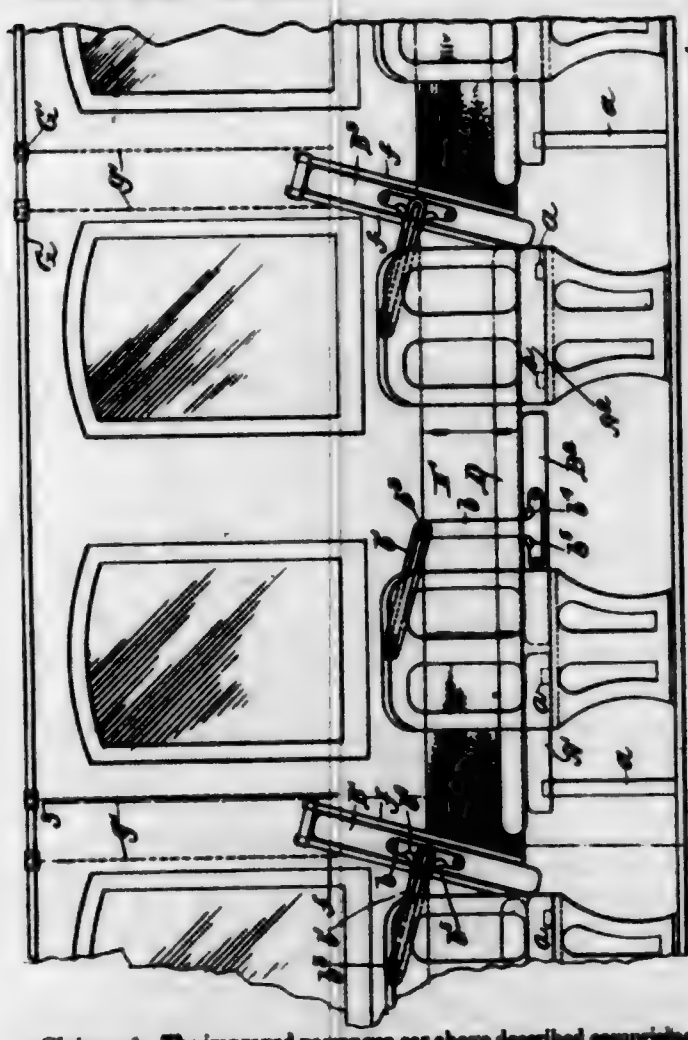
696,189. BEAN-SEPARATOR. WILLIAM F. PILLSBURY and DAVID ANDERSON, Westernville, N. Y. Filed Sept. 13, 1901. Serial No. 75,226. (No model.)



Claim.—1. In a separator of the class described, the combination with a reversible screen box or body mounted for rotation and having screens on opposite sides thereof, and outwardly-projecting partitions dividing the respective screens on the opposite sides of the box or body, said partitions having curved outer sides concentric with the axis of the box or body, of a hopper having a curved bottom, and disposed under the box or body and on which the projecting partitions bear, said partitions dividing the hopper into compartments, and said hopper having discharges for the respective compartments thereof, substantially as described.

2. In a separator of the class described, the combination of a supporting-frame, a concave hopper depending therefrom having a series of discharges, and a reversible screen box or body mounted axially on said frame, and provided with a series of screens and partitions between said screens projecting from said box or body and having their outer sides curved to correspond with the shape of said hopper, for the purpose set forth, substantially as described.

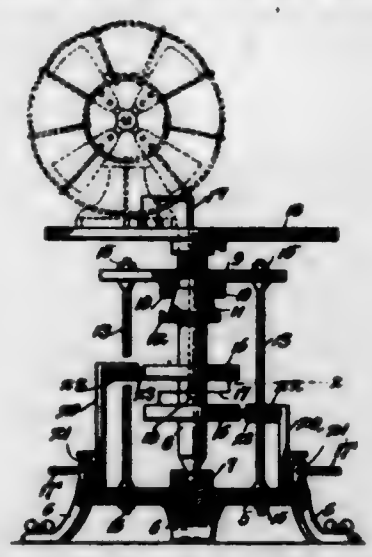
696,190. PASSENGER-CAR. THOMAS O. POTTER, Deadwood, S. D., assignor to James R. Maynadier, Boston, Mass. Filed July 20, 1900. Serial No. 24,212. (No model.)



Claim.—1. The improved passenger-car above described comprising a row of seats each movable on its supports and each with a single movable back; fixed supports for the seats to which the backs are respectively connected; and supports for the back to allow either of two contiguous backs to be moved and held to occupy the space between the opposed edges of two contiguous seats while the other of these two backs forms the headboard of the couch formed by these two seats and these two backs.

2. In a passenger-car seats each for two passengers; a movable back for each double seat; means to bridge the space between two contiguous double seats; and a partition extending lengthwise through the middle of the double couch thus formed.

696,191. TURN-TABLE FOR MOTOR-FANS. NOAH M. POWELL, Quincy, Ill., assignor of one-half to William Anderson Shumate, Quincy, Ill. Filed Aug. 27, 1901. Serial No. 73,464. (No model.)



Claim.—1. A device of the class specified, comprising a fan-receiving table, a hollow vertical shaft carrying the same, and having a radially-arranged opening communicating with the interior of said shaft, contact-rings on said shaft on each side of said opening, conducting-wires extending therefrom to the surface of the table through said hollow shaft, spring-pressed contacts in engagement with said ring, supporting means for said contacts, and upper and lower bearings for said shaft, substantially as specified.

2. A device of the class specified, comprising a fan-receiving table, a vertically-disposed shaft carrying the same, a base having a step-bearing for the lower end of said shaft, a yoke supported from the base, ball-bearing between said yoke and the shaft, and current-conductors leading from the table to the base.

3. A device of the class specified, comprising a base having a step-bearing, a yoke carried by the base, a shaft supported in the step-bearing and extending to said yoke, said shaft being hollow for a portion of its length and having a transversely-extending opening near the lower end of the hollow portion, a fan-receiving table carried by the upper end of the shaft, contact-rings carried by said shaft, contact-brushes for conveying a current to the rings, and current-conducting wires extending from said ring through the hollow shaft to the fan-receiving table.

4. In a device of the class specified, the combination of the base 5 having a step-bearing 7, a shaft 8 supported by said step-bearing, a fan-receiving table 18 secured to the upper end of the shaft, standards 13 carried by the base, a yoke 9 supported on said standards and embracing the shaft 8, antifriction-balls carried by said yoke, a bearing member 11 carried by and adjustable on the shaft 8, contact-rings 16 carried by and insulated from the shaft, contact-supports 20 carried by the base and connected to current-conducting wires, and contact-brushes carried by said supports and adapted to make contact with the rings 16, substantially as specified.

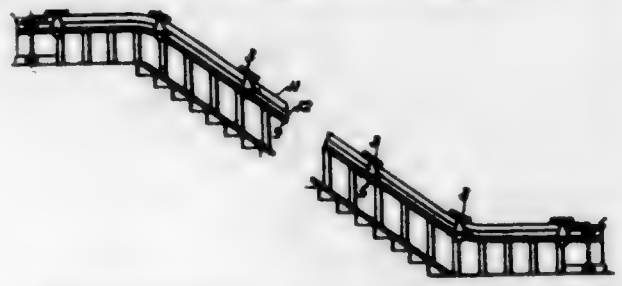
696,192. BURIAL-VAULT. CHARLES A. REED, Payne, Ohio. Filed Oct. 31, 1901. Serial No. 80,585. (No model.)



Claim.—A burial-vault composed of the body formed with the channel or seat, the lid fitting in said channel and formed with handles, and the wooden base upon which the body is supported and secured composed of a series of longitudinal and transverse pieces bolted together.

696,198. INCLINED ELEVATOR. JESSE W. REED, New York, N. Y. Filed Feb. 15, 1901. Serial No. 47,416. (No model.)

Claim.—1. In an inclined elevator, the combination with a banister of a guide secured to said banister, adapted to receive a chain, seats secured to said chain and a lower guide engaged by said seats.



2. In an inclined elevator, the combination with inclined guides of a carriage provided with rollers, adapted to move in said guides, a swinging member secured to said carriage and a seat pivotally secured to said swinging member.

3. In an inclined elevator, the combination with the chain 1, having the links 2, provided with rollers 7, the links 4, the handle 3 secured to said links, the swinging bracket 6 pivoted to the link 2 and the seat 5 secured to the bracket 6.

4. In an inclined elevator, the combination with a fixed stairway and its banister of guides on said banister, a chain operating in said guides and seats secured to said chain.

696,194. SAFETY DEVICE FOR COIN-RECEPTACLES. ARTHUR C. ROGERS, Collinwood, Ohio. Filed Feb. 21, 1901. Serial No. 48,243. (No model.)



Claim.—1. The combination of a coin-holding receptacle having a coin-receiving opening, a coin-conveying duct movable into and out of communication with said opening, means for automatically locking said duct against such movement, and means for preventing the discharge of a coin from said duct during the communication of said opening with said duct.

2. The combination of a coin-holding receptacle having a coin-receiving slot, a coin-conveying duct having a receiving and a discharge opening and movable into and out of communication with said slot, means for automatically locking said duct against such movement, and means for obstructing the discharge-opening of said duct during the communication of said receiving-opening with said slot.

3. The combination of a coin-receptacle having a receiving-slot, a movable coin-conveyer provided with a coin-duct passing therethrough and having a separate receiving and discharge opening respectively located at opposite ends of said conveyer, means for moving said conveyer into and out of communication with said slot, and a lock for securing such conveyer against such movement.

4. The combination of a coin-receptacle having a receiving-slot, a movable coin-conveyer having a coin-duct passing therethrough and provided with a separate receiving and discharge opening respectively located at opposite ends of said conveyer, means for moving said conveyer into and out of communication with said slot, and gravity-operated means for locking such conveyer against movement and arranged in a manner such as to cause it to be operative when said receptacle is in a non-normal and inoperative when said receptacle is in a normal position.

5. In a safety device for coin-receptacles, the combination with a movable coin-conveyer of two automatically-operating locking devices having different planes of movement and adapted to engage and secure said conveyer.

6. In a safety device for coin-receptacles, the combination with a movable conveyer, of two oscillatory devices having oscillatory paths in intersecting planes, each said path intersecting the conveyer-path.

7. In a safety device for coin-receptacles, the combination with a movable conveyer, of two oscillatory, freely-swinging pawls each having a path of oscillation intersecting that of said conveyer, and each adapted during such intersection to prevent movement of the latter.

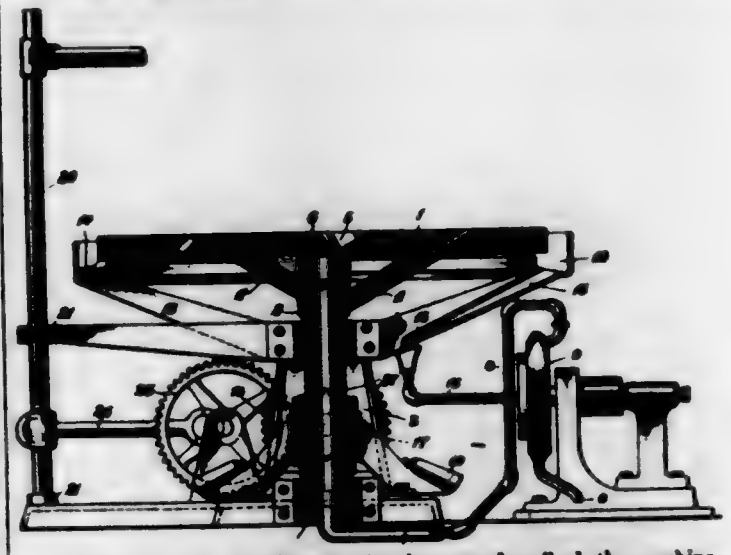
8. The combination of a coin-receptacle having receiving and discharge openings, a movable coin-conveyer provided with a coin-duct passing therethrough and having separate receiving and discharge openings respectively located at opposite ends of such conveyer, such openings adapted to register with the receptacle-openings respectively, the latter openings being in planes located in a manner such as to effect the closure of one conveyer-opening during registration of the other with a receiver-opening.

9. The combination with a coin-holding receptacle having a coin-receiving opening provided with a casing secured upon its interior, having a discharge-opening and surrounding said receiving-opening, of a positively-operated oscillating coin-conveyer mounted in said casing and provided with a coin-duct passing therethrough and having a separate receiving and discharge opening respectively located at opposite ends thereof, said conveyer adapted to be moved into communication with said receptacle and casing openings in a manner such as to effect the closure of one conveyer-opening during registration of the other with either the receiver or casing opening.

10. In a coin-holding device, the combination with a coin-holding receptacle having a coin-receiving opening and provided with a casing secured upon the interior provided with a discharge-opening and forming an inclosed chamber surrounding and inclosing said receiver-opening, of a coin-conveyer pivotally mounted therein and provided with means for positively oscillating same, such oscillation being such as to effect a registration of the conveyer receiving-opening with the receptacle-opening during non-registration of the conveyer discharge-opening with the casing-opening, and to effect the registration of the conveyer discharge-opening with the casing-opening during non-registration of the conveyer receiving-opening with the receptacle-opening.

11. In a coin-holding device, the combination of a coin-holding receptacle having upon its interior an inclosed chamber provided with a receiving and discharge opening communicating respectively with the exterior and interior of the receptacle, a coin-conveyer pivotally mounted within such chamber and having a coin-duct provided with a separate receiving and discharge opening and provided with means for its positive oscillation, and gravity-operated means having a path of oscillation intersecting that of said conveyer so as to be capable of locking same against oscillation when the receptacle is tilted.

696,195. STONE GRINDING AND POLISHING MACHINE. ISAAC H. ROGERS, New York, N. Y. Filed Feb. 27, 1901. Serial No. 49,079. (No model.)



Claim.—1. In a machine of the character described, the combination, of a horizontally-disposed rotary grinder-disk provided with a series of radial grooves on its upper surface having closed outer ends, means for feeding a grinding medium to said disk, and means for actuating the disk.

2. In a machine of the character described, the combination, of a horizontally-disposed rotary grinder-disk provided with an opening extending therethrough and with a series of connecting radial grooves on its upper surface having closed outer ends, means for feeding a grinding medium to said disk, and means for actuating the disk.

3. In a machine of the character described, the combination, of a rotary grinder-disk provided with a series of radial grooves having closed outer ends, said grooves being angular in cross-section, means for feeding a grinding medium to said disk, and means for actuating the disk.

4. In a machine of the character described, the combination of a rotary grinder-disk provided with a central opening and a series of connecting radial grooves, a feed-conduit connecting with said central opening in the grinder-disk, a conduit connecting said feed-conduit with the grinder-disk at a point between its center and periphery, means for feeding a

grinding medium through said feed-conduit, and means for actuating the grinder-disk.

5. In a machine of the character described, the combination of a rotary grinder-disk, a feed-conduit communicating with the surface of said grinder-disk, means for automatically feeding the grinding medium through said feed-conduit, means for receiving the grinding medium as it passes off the grinder-disk and conducting the same to a position to be acted upon by the feeding means and again fed thereby to the grinder-disk, and means for actuating said grinder-disk.

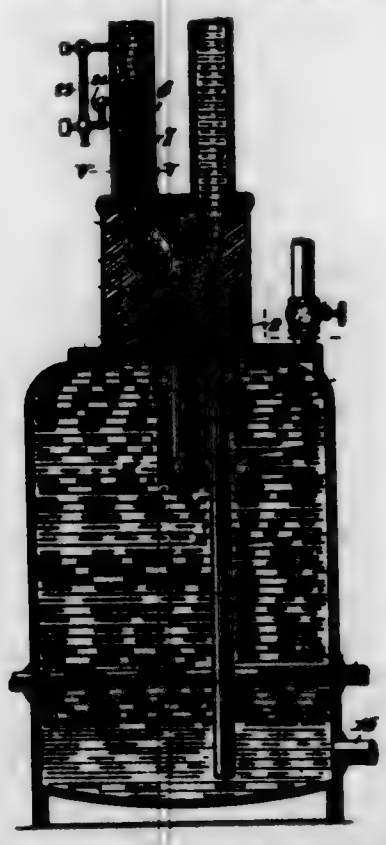
6. In a machine of the character described, the combination, of a rotary grinder-disk, a feed-conduit communicating with the surface of the grinder-disk, means for automatically feeding a grinding medium through said feed-conduit, a trough for receiving the grinding medium as it passes off the grinder-disk, an outlet-conduit for conducting the grinding medium from said trough to a position to be acted upon by the feeding means and again fed thereby to the grinder-disk, means carried by the grinder-disk for forcing or carrying the grinding medium in the trough to the outlet-passage therein, and means for actuating the grinder-disk.

696,196. SUSPENSION-CLASP. MAX ROSIN, New York, N. Y. Filed Dec. 18, 1901. Serial No. 86,522. (No model.)



Claim.—In a clasp, the combination with a body-plate having an opening and a notch extending from said opening, of a latch having a neck extending through the opening in the body-plate, the free end of said neck being bent outward to form a flange at the back of the body-plate, whereby the latch is mounted on the body-plate to turn in a plane parallel with that of the body-plate, said latch having an opening extending from the neck to the outer edge of the latch, substantially as described.

696,197. LUBRICATING APPARATUS. WILLIAM J. RUFF, Quincy, Ill. Filed Apr. 1, 1901. Serial No. 53,903. (No model.)



Claim.—1. In a lubricating apparatus, the combination with a valve-housing provided with passage-ways, of a water-pipe and an oil-header connected to said housing and having communication with said passage-ways, and a vertical tube positioned in said oil-header and open to communication therewith, said vertical tube being provided with communication into one of said passage-ways, and a valve in said housing having ports providing communication with the passage-ways therein, substantially as described.

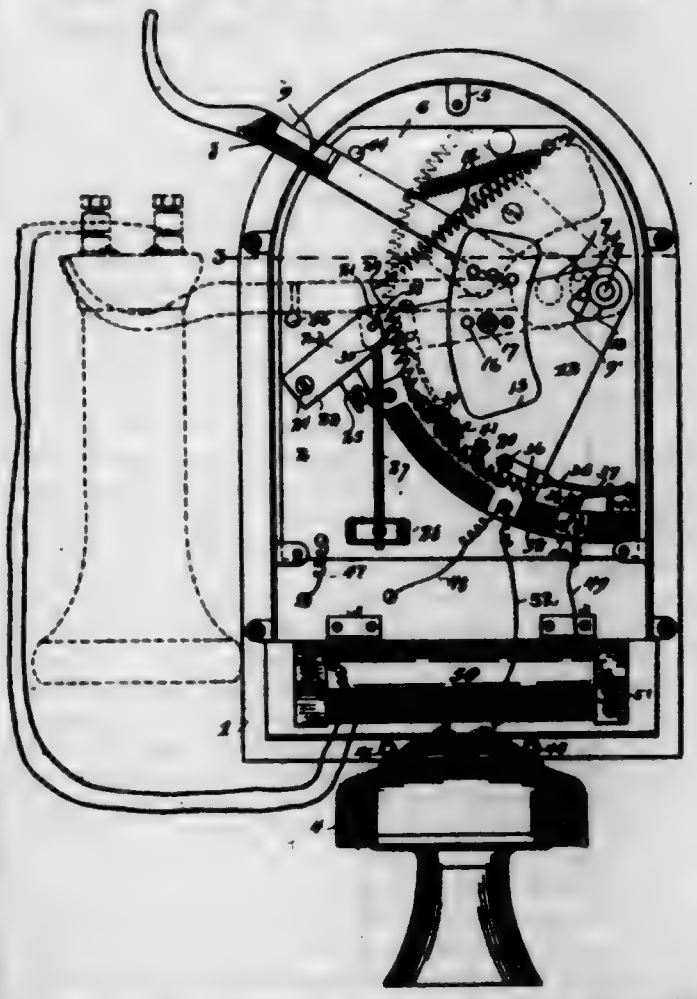
2. In a lubricating apparatus, the combination of a valve-housing provided with passage-ways, a water-pipe and an oil-header connected to said housing and having communication with the passage-ways therein, a vertical tube connected to said valve-housing and extending upwardly into said oil-header and having communication with one of the passage-ways in said housing, a valve provided with ports in said housing said ports providing communication between the passage-ways therein, said housing being provided with a passage leading from said oil-header to a port in said valve, substantially as described.

3. In a lubricating apparatus, the combination of a valve-housing having passage-ways therein, a valve in said housing, an oil-tank located beneath said housing and into which said passage-ways communicate, a water-pipe and an oil-header connected to said housing and having communication with said passage-ways, a vertical pipe connected to said housing, and extending upwardly in said oil-header and having communication with one of the passage-ways in said housing; said housing being provided with a passage extending therethrough and communicating with said valve, and a water-seal trap located in said tank into which said passage communicates, substantially as described.

4. In a lubricating apparatus, the combination of an oil-tank, a valve-housing, a water-pipe on one side of the housing and which communicates with said tank through a passage-way in the housing, a pipe on the other side of the housing adapted to contain a column of oil and which also communicates with said tank through a passage-way in the housing, and a valve located in said housing and controlling said passage-ways; whereby communication is established either from said water-pipe to said oil-pipe through said oil-tank to cause the oil to pass from the tank into the oil-pipe or direct from said water-pipe to said oil-pipe to move the column of oil in the latter pipe, substantially as set forth.

5. In a lubricating apparatus, the combination of an oil-tank, a valve-housing, passage-ways extending through the housing, the pipe 7, a water and an oil pipe communicating with said tank by means of said passage-ways, and a valve located in said housing and controlling said passage-ways; said housing and said valve having auxiliary passages establishing a communication between said oil-pipe and said tank; whereby a communication is established from said water-pipe to said oil-pipe either through said oil-tank, or direct from said water-pipe to said oil-pipe at which time the auxiliary passage between said oil-pipe and said tank is closed, substantially as set forth.

696,198. AUTOMATIC GRAVITY-SIGNALPHONE. EDGAR R. SALISBURY, Chicago, Ill., assignor of one-half to Frank B. Taylor, Chicago, Ill. Filed Sept. 20, 1901. Serial No. 75,973. (No model.)



Claim.—1. In an automatic electric signaling device, the combination of a pivotally-supported escapement-segment provided with a series of escapement-teeth concentric with its pivotal axis, an oscillatory weighted

pallet arranged to coöperate with said escapement-segment, a contact device carried by the segment, a series of relatively fixed contact devices over which said contact device carried by the segment wipes during the movement of the segment in one direction, electrical circuit connections and a switch mechanism coöperating with the contact device carried by the segment to prevent electrical contact of the same during the return movement thereof, substantially as described.

2. In an automatic electric signaling device, the combination of a pivoted escapement-segment provided with a series of escapement-teeth concentric with its pivotal axis, a pallet arranged to control the movement of said segment in one direction, a contact device carried by the segment, a series of relatively fixed contact devices over which said contact device carried by the escapement-segment wipes during the movement of the segment in one direction and means coöperating with said segment to shift the contact device carried thereby out of alinement with the relatively fixed contact devices at the end of the movement of the segment in one direction whereby the latter may return without carrying the contact-strip into engagement with the relatively fixed contact devices.

3. In an automatic electric signaling device, the combination of a pivotally-mounted escapement-segment provided with a series of escapement-teeth concentric with its pivotal axis, a pallet mechanism arranged to coöperate with said segment, a contact device pivotally mounted upon the segment, a series of relatively fixed contact devices with which said pivotally-mounted contact device coöperates during the movement of the segment in one direction, and stops arranged to engage said pivoted contact device as the segment approaches its limit of movement in each direction to oscillate the contact upon its pivotal axis, whereby said contact device is alternately moved into and out of alinement with the relatively fixed contact devices.

4. In an automatic electric signaling device, the combination of a pivotally-mounted escapement-segment provided with a series of escapement-teeth concentric with its pivotal axis, a pallet mechanism arranged to control the movement of said escapement-segment, a contact device carried by the segment, a series of relatively fixed contact devices arranged to coöperate with the movable contact device and a weight adjustably mounted upon said segment and capable of adjustment toward and from the pivotal axis of the latter, as and for the purpose set forth.

5. In an automatic electric signaling device, the combination with an escapement-segment provided with a series of escapement-teeth, a contact device carried thereby, a series of relatively fixed contact devices adapted to coöperate with the movable contact devices, and a pallet mechanism arranged to control said segment and comprising an oscillatory pallet and pendulum connected to move with said pallet, one of the escapement-teeth of the pallet having its segment-engaging surface formed substantially concentric with the pivotal axis of the pallet, whereby the segment is held substantially immovable during that part of the oscillation of the pallet in which the segment engages said pallet-tooth, as and for the purpose set forth.

6. In an automatic electric signaling device, the combination with an escapement-segment provided with a series of escapement-teeth, a contact device carried thereby, a series of relatively fixed contact devices adapted to coöperate with the movable contact devices, and a pallet mechanism arranged to control said segment and comprising an oscillatory pallet and pendulum connected to move with said pallet, one of the escapement-teeth of the pallet having its segment-engaging surface formed substantially concentric with the pivotal axis of the pallet, whereby the segment is held substantially immovable during that part of the oscillation of the pallet in which the segment engages said pallet-tooth, and the other tooth of said pallet being provided with a segment-engaging surface formed to extend approximately radially to the pivotal axis of the pallet whereby the advance of the segment acts thereon effectively to oscillate the pallet, as and for the purpose set forth.

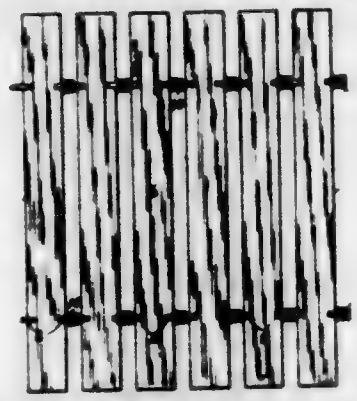
7. In an automatic electric signaling device, the combination with a pivotally-mounted oscillatory segment provided with a series of escapement-teeth concentric with the pivotal axis of the segment, of a pallet mechanism arranged to control the movement of said segment and comprising a pivotally-mounted bracket arranged adjacent to the segment, a pallet pivotally mounted in the swinging end of said bracket in position to coöperate with said segment, a pendulum connected and moving with said pallet and means for positively limiting the movement of said bracket toward the segment while permitting it to swing freely away from the latter, as and for the purpose set forth.

8. In an automatic electric signaling device, the combination with a pivotally-mounted oscillatory segment provided with a series of escapement-teeth concentric with the pivotal axis of the segment, of a pallet mechanism arranged to control the movement of said segment and comprising a pivotally-mounted bracket having its swinging end arranged to extend obliquely upwardly and toward the segment, a pallet pivotally supported in the swinging end of said bracket in position to coöperate with said segment, a pendulum rigidly connected with and depending from said pallet and an adjustable stop arranged to limit the downward movement of said bracket under the weight of the pendulum and pallet mechanism thereon, as and for the purpose set forth.

9. In an automatic electric signaling device, the combination of a metal base-plate, an escapement-segment pivotally mounted thereon and carrying a contact device in electrical connection with said base-plate, an escapement mechanism arranged to control the movement of said segment, a series of relatively fixed contact-studs mounted upon, but insulated from said base-plate concentric with the path of movement of said contact device carried by the segment, a telephone-receiver arm pivotally mounted upon the base-plate adjacent to the segment and provided with a stud arranged to act upon the segment to lift the latter when the receiver-arm is depressed, and electrical connections connecting said metal base-plate and the series of contact-studs respectively with opposite sides of a telephone-circuit.

10. In combination with a subscriber's telephone set, comprising the ear-phone or receiver, the transmitter and the case therefor, an automatic electric signaling device comprising a pivotally-mounted oscillatory segment provided with a series of escapement-teeth concentric with the pivotal axis of the segment, a pallet and pendulum mechanism arranged to control the movement of said segment, a contact device carried by the segment, a series of relatively fixed contact devices arranged to coöperate with the contact device carried by the segment, an actuating-arm provided with supports for the telephone-receiver pivotally mounted adjacent to the segment and operatively connected with the latter in such manner as to lift the segment positively when said arm is moved downwardly under the weight of the receiver, and electrical circuit connections connecting the contact carried by the segment and the series of relatively fixed contact devices respectively with opposite sides of the telephone-circuit, substantially as described.

696,199. SIDEWALK COVERING OR PROTECTOR. WILLIAM A. SCHMIDT, Milwaukee, Wis., assignor of one-fourth to August Volkmann, Milwaukee, Wis. Filed Nov. 4, 1901. Serial No. 81,096. (No model.)



Claim.—1. In a sidewalk covering or protector, the combination with a series of slats square or rectangular in cross-section, and so arranged as to leave spaces between opposed longitudinal edges thereof, of couplings secured to the slats, each coupling being of U-shaped form, the horizontal or bottom member thereof extending beneath the slat, and the upright members thereof extending upwardly against opposite side edges of the slat, and the said bottom member having its ends extended beyond the upright members of the coupling, the said extended ends being pivotally connected to the extended ends of the couplings of the next adjacent slats.

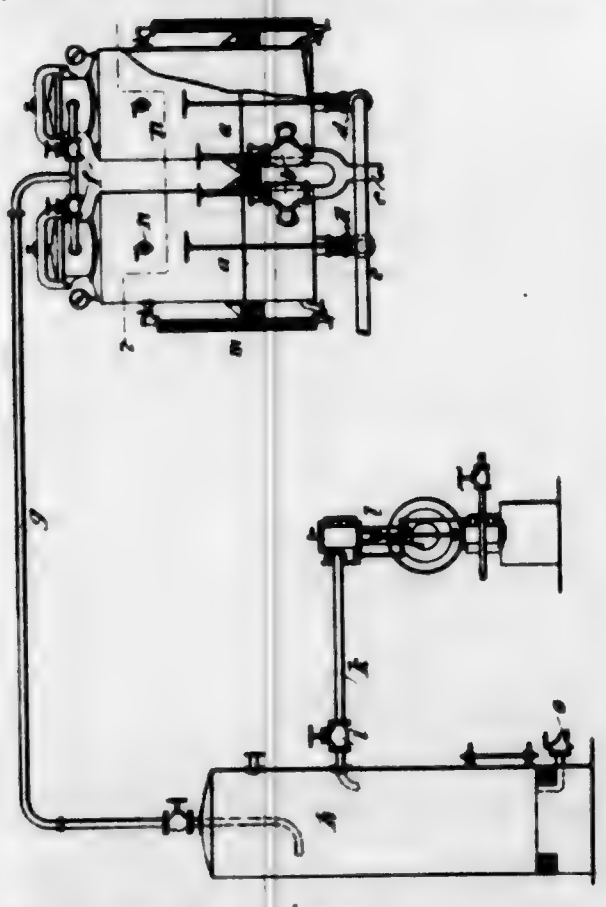
2. In a sidewalk covering or protector, the combination with a series of slats, square or rectangular in cross-section, and so arranged as to leave spaces between opposed longitudinal edges thereof, of couplings secured to the slats, each coupling being of U-shaped form, the horizontal or bottom member thereof extending beneath the slat, and the upright members thereof extending upwardly against opposite side edges of the slat, and the said bottom member having its ends extending beyond the upright members of the coupling, one of said extended ends provided with a hook, and the other extended end provided with a loop, the hook of the coupling of one slat engaging the loop of the coupling of the next adjacent slat on one side, and the loop of the coupling of the first-mentioned slat engaged by the hook of the coupling of the next adjacent slat on the opposite side.

3. In a sidewalk covering or protector, the combination with a series of slats so arranged as to leave spaces between opposed longitudinal edges thereof, of couplings secured to the slats, each coupling consisting of a bottom bar arranged beneath a slat, and having upwardly-extending fingers engaging the slat, the said bottom bar having its ends extending beyond the upwardly-extending fingers, one of said extended ends provided with a hook, and the other extended end provided with a loop, one

of the side bars of the loop on its upper edge being recessed transversely, and the hook of the coupling of one slat engaging the loop of the coupling of the next adjacent slat on one side, and the loop of the coupling of the first-mentioned slat engaged by the hook of the coupling of the next adjacent slat on the opposite side.

4. In a sidewalk covering or protector, the combination with a series of slats so arranged as to leave spaces between opposed longitudinal edges thereof, of couplings secured to the slats, each coupling consisting of a bottom bar arranged beneath a slat and having outer upwardly-extending fingers adapted to engage the slat, and an intermediate finger adapted to pass into the slat, the said bottom bar having its ends extended beyond the outer upwardly-extending fingers, said extended ends being pivotally connected to the extended ends of the couplings of the next adjacent slats.

696,200. PROCESS OF DRAWING OFF AND MEASURING LIQUOR FROM DIFFUSION VESSELS. KONSTANTIN SEDLACZEK, Kleinbowitz, Sosnow, Russia. Filed Aug. 23, 1901. Serial No. 72,992. (No specimens.)



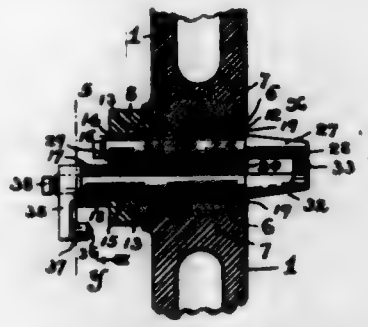
Claim.—The process herein described of drawing off and measuring beet-juice from the diffusion vessels of beet-sugar manufacture, which consists in exhausting the air from a suitable receiver during the filling of the diffusion-cells, then continuously and uniformly exhausting the air from said receiver, connecting said receiver with a measuring vessel under atmospheric pressure, admitting the juice to said measuring vessel at a rate approximately equal to the rate of exhaustion of the air from the receiver, disconnecting said receiver from the measuring vessel, admitting air under atmospheric pressure thereto, simultaneously connecting the receiver with another measuring vessel and admitting the juice thereto at the rate of exhaustion, disconnecting the receiver from said second measuring vessel, admitting air under atmospheric pressure to the same, and simultaneously connecting the receiver with the first measuring vessel for repeating the process, substantially as set forth.

696,201. SPARKING IGNITER FOR EXPLOSIVE-GAS ENGINES. FREDERICK A. SEITZ, Newark, N. J. Filed July 18, 1901. Serial No. 68,730. (No model.)

Claim.—1. A sparking igniter for explosive-gas engines, consisting, essentially, of a bushing provided with a bore, an insulating-ring in said bore, and a dividing-wall of insulating material, forming a pair of chambers, and an electrical contact making and breaking rod in each chamber, substantially as and for the purposes set forth.

2. A sparking igniter for explosive-gas engines, consisting, essentially, of a bushing provided with a bore, an insulating-ring in said bore, and a dividing-wall of insulating material, forming a pair of chambers, a block in each chamber, each block being provided with a duct, and an electric contact making and breaking rod in each duct, substantially as and for the purposes set forth.

3. A sparking igniter for explosive-gas engines, consisting, essentially, of a bushing provided with a bore, an insulating-ring in said bore, and a dividing-wall of insulating material, forming a pair of chambers, a block in each chamber, each block being provided with a duct, a contact-making rod in one of said ducts, and means for securing said rod in its fixed position in said duct, a rock-shaft in the other of said ducts, and means for rocking said shaft and causing it to make and break electric contact with said contact-making rod, substantially as and for the purposes set forth.



4. A sparking igniter for explosive-gas engines, consisting, essentially, of a bushing provided with a cylindrical bore, an insulating-ring in said bore, and a dividing-wall of insulating material, forming a pair of semicylindrical chambers, a semicylindrical block in each semicylindrical chamber, each block being provided with a duct, a contact-making rod in one of said ducts, and means for securing said rod in its fixed position in said duct, a rock-shaft in the other of said ducts, and means for rocking said shaft and causing it to make and break electric contact with said contact-making rod, consisting, of a rocker-arm on said rock-shaft, an insulated roller on said arm, and a spring-actuated dog, adapted to be brought in forcible engagement with said roller, substantially as and for the purposes set forth.

5. A sparking igniter for explosive-gas engines, consisting, essentially, of a bushing provided with a cylindrical bore, and a pair of insulated openings 14 and 15, a shoulder 13 in said bushing, an insulating-ring in said bore, and a dividing-wall of insulating material, said ring and wall abutting against said shoulder 13 and forming a pair of semicylindrical chambers, and an electric contact making and breaking rod in each insulated opening 14 and 15, extending into said chambers, substantially as and for the purposes set forth.

6. A sparking igniter for explosive-gas engines, consisting, essentially, of a bushing provided with a cylindrical bore, and a pair of insulated openings 14 and 15, a shoulder 13 in said bushing, an insulating-ring in said bore, and a dividing-wall of insulating material, said ring and wall abutting against said shoulder 13 and forming a pair of semicylindrical chambers, a semicylindrical block in each semicylindrical chamber, each block being provided with a duct, and an electric contact making and breaking rod in each insulated opening 14 and 15, extending into the said ducts, substantially as and for the purposes set forth.

7. A sparking igniter for explosive-gas engines, consisting, essentially, of a bushing provided with a cylindrical bore, and a pair of insulated openings 14 and 15, a shoulder 13 in said bushing, an insulating-ring in said bore, and a dividing-wall of insulating material, said ring and wall abutting against said shoulder 13 and forming a pair of semicylindrical chambers, a semicylindrical block in each semicylindrical chamber, each block being provided with a duct, a contact-making rod in said insulated opening 14, extending into the duct in one of said semicylindrical blocks, and means for securing said rod in its fixed position in said duct, a rock-shaft in said insulated opening 15, extending into the duct in the other of said semicylindrical blocks, and means for rocking said shaft and causing it to make and break electric contact with said contact-making rod, substantially as and for the purposes set forth.

8. A sparking igniter for explosive-gas engines, consisting, essentially, of a bushing provided with a cylindrical bore, and a pair of insulated openings 14 and 15, a shoulder 13 in said bushing, an insulating-ring in said bore, and a dividing-wall of insulating material, said ring and wall abutting against said shoulder 13 and forming a pair of semicylindrical chambers, a semicylindrical block in each semicylindrical chamber, each block being provided with a duct, a contact-making rod in said insulated opening 14, extending into the duct in one of said semicylindrical blocks, and means for securing said rod in its fixed position in said duct, a rock-shaft in said insulated opening 15, extending into the duct in the other of said semicylindrical blocks, and means for rocking said shaft and causing it to make and break electric contact with said contact-making rod, consisting, of a rocker-arm on said rocker-shaft, an insulated roller on said arm, and a spring-actuated dog, adapted to be brought in forcible engagement with said roller, substantially as and for the purposes set forth.

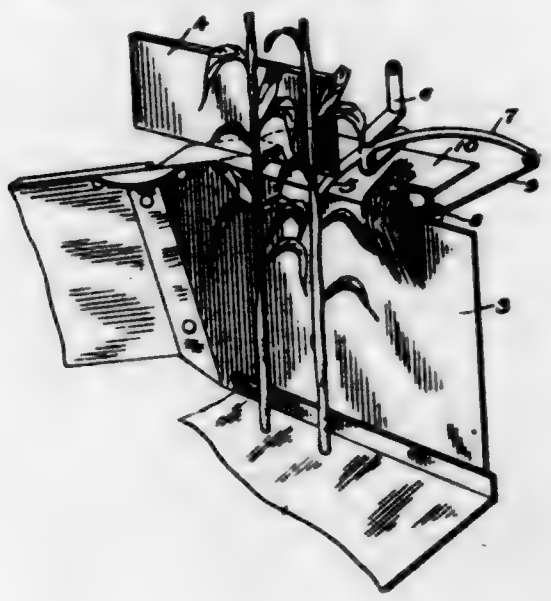
696,202. VALVE DEVICE FOR STEAM-HEATING SYSTEMS. JOHN A. SERRELL, Bayonne, N. J., and JAMES A. DONNELLY, Brooklyn, N. Y., assignors to the American Steam Heating Specialty Company, a Corporation of New Jersey. Filed Oct. 25, 1900. Serial No. 34,253. (No model.)



Claim.—1. In an automatic valve device for steam-heating systems, the combination of a valve-body having a thoroughfare, a valve-piece to control said thoroughfare, a pressure-motor having one side in communication with the inlet side of said valve device and the other side in communication with the outlet side beyond the thoroughfare, and provided with a vent, and a tube communicating at one end with the inlet side of the valve-body and at the other end with the vent in said pressure-motor and adapted to be sealed by an accumulation of water in the inlet side of the valve device.

2. An automatic valve device for steam-heating systems, consisting of a valve-body provided with a thoroughfare, a valve-piece to control said thoroughfare, a pressure-motor dividing said valve device internally into two compartments, one of which communicates with the inlet side of the valve-body, and provided with a vent forming a communication between said compartments, a hollow stem connecting the pressure-motor with the valve-piece and forming communication between the other compartment and the outlet side of the valve-body beyond the thoroughfare, and a tube within the compartment on the inlet side communicating with the compartment on the outlet side through said vent in the pressure-motor and adapted to be sealed by an accumulation of water in the inlet side of the valve-body.

696,203. MEANS FOR PREVENTING CLOGGING OF CORN-BINDER PACKER-ARMS. JOHN B. SHAW, Litchfield, Minn. Filed May 6, 1901. Serial No. 58,905. (No model.)



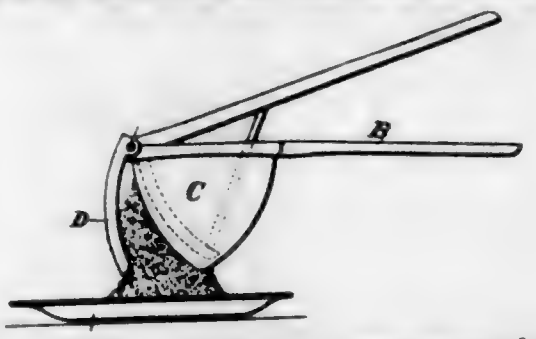
Claim.—1. In a corn harvester and binder, the combination, with an upright plate 3, of a board 4 above the same and spaced therefrom, a crank-shaft, a packer-arm thereon operating through the space between said plate and said board, and a horizontal wing provided on the upper edge of said plate between it and said shaft, for the purpose specified.

2. In a corn harvester and binder, the combination, with a floor 2 whereon the cornstalks move in an upright position, of a plate 3 forming a wall at one side of said floor, an upright crank-shaft, a packer-arm thereon adapted to overhang said floor and engage the stalks thereon, and a laterally-extending wing or plate provided on said plate 3 between it and said shaft, said plate being of sufficient width to prevent the grass brought in by the corn from lodging on the upper side thereof, whereby clogging of the packer-arm is prevented.

3. In a corn harvester and binder, the combination, with a vertical wall past which the corn moves in an upright position, of a crank-shaft, a gyrating packer-arm mounted on said shaft, and adapted to overhang said wall and engage the stalks of corn, and a horizontal wing provided at the upper edge of said wall near said arm and between said wall and shaft, said wing being of sufficient width to prevent the grass brought in by the corn from lodging thereon and on the edge of said wall and clogging said packer-arm.

4. In a corn harvester and binder, the combination, with a floor provided with an upright wall past which the cornstalks are moved, of a crank-shaft near said wall, a packer provided on said shaft and having an arm 7, an upright standard 8 near said wall, a link connecting said standard and said arm, and a horizontal wing or plate provided on the upper edge of said wall near said packer and extending laterally beneath the same to prevent the grasses brought in by the corn from lodging on said wall, substantially as described.

696,204. EXPRESSING-PRESS. WILLIAM H. SILVER, New York, N. Y., assignor to Silver & Company, Brooklyn, N. Y., a Corporation of New York. Filed Jan. 27, 1902. Serial No. 91,347. (No model.)



Claim.—1. The combination, in an expressing-press, of a follower-carrying lever, a substantially segmental receptacle having a perforated side opposed to such follower, and a shield for said perforated side movable away therefrom.

2. The combination, in an expressing-press, of a follower-carrying lever, a substantially segmental receptacle having a perforated side opposed to such follower, and a shield having inwardly-projecting flanges at its lateral edges and movable away from said perforated side.

3. The combination, in an expressing-press, of a follower-carrying lever, a substantially segmental receptacle having a perforated side opposed to such follower, and a hinged shield for said perforated side, movable away therefrom.

4. The combination with a portable expressing-press, comprising a follower-carrying lever and a substantially segmental receptacle having a perforated side opposed to such follower, of a shield hinged coincidently with the pivots of said lever and movable away from said perforated side, substantially as hereinbefore specified.

696,205. CLASP FOR GARMENT-SUPPORTERS. SAMUEL S. SINGER, Greatfalls, Mont. Filed Sept. 9, 1901. Serial No. 74,546. (No model.)



Claim.—1. A clasp for garment-supporters and the like, comprising a pair of wire members, said members having forwardly and rearwardly extending loops, means for pivoting the wire members together, means for exerting tension on the members, the said forwardly-extending loops of said members having interlocking bends, substantially as described.

2. A clasp for garment-supporters and the like, comprising a pair of wire members having forwardly and rearwardly extending loops, a transverse pivot-bar around which each of said members is coiled, means for exerting tension on said members, the forward loop of one of said members

having a bend therein extending downwardly and the forward loop of the other member having a bend extending upwardly and adapted to interlock with the bend of the member first named, substantially as described.

696,206. FRACTIONAL CONDENSER. VICTOR SLAVIEK, Vienna, Austria-Hungary. Filed Sept. 1, 1900. Serial No. 28,841. (No model.)



Claim.—1. An apparatus for fractional condensation of the constituents of a vapor mixture, consisting of communicating condensers comprising end chambers, a vapor-inlet at one end of the apparatus, a cooling-liquid inlet at the opposite end, sets of vapor-conduit pipes passing through each condenser, pipes for conducting the cooling liquid from one condenser to the other, perforated bottoms or partitions E for receiving the liquid entering from said pipes, an outlet for said cooling liquid, chambers between each two consecutive condensers formed by concave and convex walls, parts having perforated sides located on the upper walls, and outlets for conducting the products of condensation from said upper walls, all substantially as described.

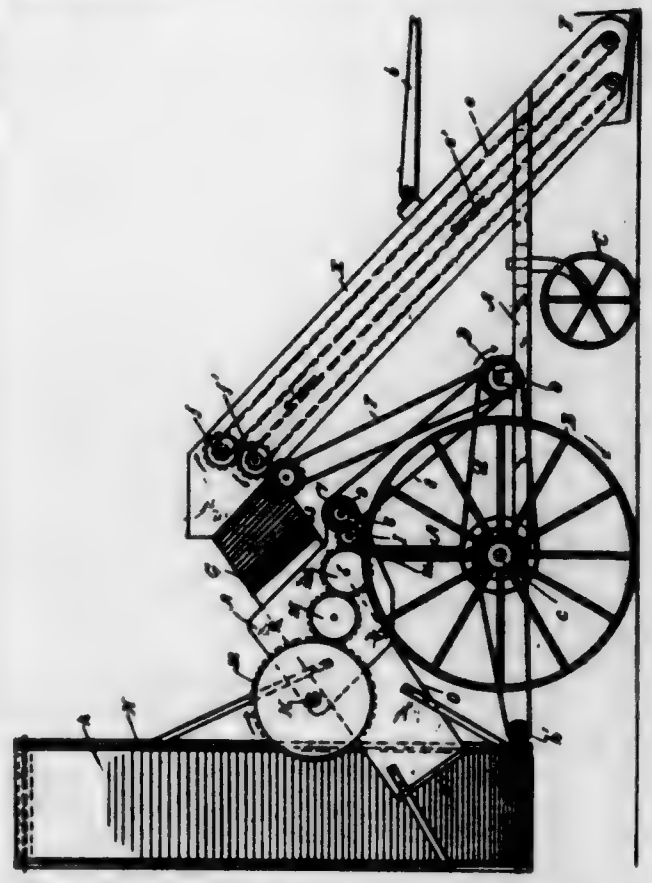
2. An apparatus for fractional condensation of the constituents of a vapor mixture, consisting of communicating condensers comprising end chambers, a vapor-inlet at the bottom of the apparatus, a cooling-liquid inlet at the top, flat bottoms E having passages through them, located near the bottom of the lowermost condenser sets of vapor-conduit pipes passing through each condenser, pipes for conducting the cooling liquid from one condenser to the other, perforated bottoms or partitions E for receiving the liquid entering from said pipes, an outlet for said cooling liquid, chambers between each two consecutive condensers formed by concave and convex walls and intermediate plates having a central, capped aperture, conduits from said plates, parts having perforated sides located at the center of said upper walls and outlets for conducting the products of condensation from said upper walls, all substantially as described.

696,207. HAY-MACHINE. ELMER J. SLOVER, Peoria, Ill. Filed Dec. 10, 1901. Serial No. 85,415. (No model.)

Claim.—1. The combination, with a hay-loader, of a hay-baling chamber arranged in an inclined position and having slots in its lower side or table, the upper part of the said chamber being connected with the top of the hay-loader, and packers which work in the said slots and pack the hay which slides down the inclined table, substantially as set forth.

2. The combination, with a hay-loader, of a hay-baling chamber arranged in an inclined position and having slots in its lower side or table, an inclined hopper having converging sides and connecting the said chamber and hay-loader, and packers which work in the said slots and pack the hay which slides through the said hopper and down the inclined table, substantially as set forth.

3. The combination, with a hay-loader provided with a pair of inclined elevators between which the hay is pressed and elevated, of an inclined hay-baling chamber provided with slots in its lower side or table and receiving the hay from the said hay-loader, and packers which work in the said slots and pack the hay which slides over the said table, substantially as set forth.



4. The combination, with a hay-loader, of a hay-baling chamber provided with an end-gate and having slots in its lower side or table, said chamber receiving the hay from the said loader, a revolubie packer-shaft provided with packers which work in some of the said slots and operate continuously to pack the hay against the said end-gate, and reciprocatory binding-needles which work in other of the said slots and which operate intermittently and press the packed hay against the end-gate after it has been packed by the packers, substantially as set forth.

5. The combination, with a hay-baling chamber having slots in its lower side or table, of inclined spring stop-bars having their front ends secured to the top of the chamber and having lower end portions set at an angle to their main portions and sliding in holes in the middle portion of the top of the chamber, and packers which work in the said slots of the table and pack the hay in the said chamber, substantially as set forth.

6. The combination, with a hay-baling chamber, and arms pivoted to the rear part of the said chamber; of an end-gate pivoted to the said arms and normally closing the said chamber, a bottom portion also pivoted to the said arms, a needle-shaft under the said chamber, and binding-needles operated by the said needle-shaft and provided with arms which are pivotally connected with the said bottom portion, substantially as set forth.

7. The combination, with a hay-baling chamber, of an end-gate for the chamber, a movable bottom portion for the rear part of the said chamber connected to the said end-gate, a needle-shaft under the said chamber, binding-needles operated by the said needle-shaft and provided with arms which are pivotally connected with the said bottom portion, and means for supporting the rear part of the said bottom portion and the said end-gate, substantially as set forth.

8. The combination, with a hay-baling chamber, and a movable end-gate therefor; of lever mechanism provided with a spring connection which normally holds the end-gate closed and permits it to move back to a limited extent, a continuously-operated driving-shaft, packing mechanism operated by the said shaft and packing the hay against the end-gate, intermittently-operating self-binding mechanism, driving devices for the said self-binding mechanism provided with a clutch which connects them with the said driving-shaft, and having also a cam which controls and operates the said lever mechanism, and clutch-operating mechanism connected with the said end-gate whereby the self-binding mechanism is actuated when the hay presses back the end-gate to a prearranged extent, substantially as set forth.

9. The combination, with a hay-baling chamber, and a movable end-gate therefor; of lever mechanism provided with a spring connection which normally holds the end-gate closed and permits it to move back to a limited extent, a cam which controls and operates the said lever mechanism, and driving devices for revolving the said cam intermittently controlled by the said end-gate, substantially as set forth.

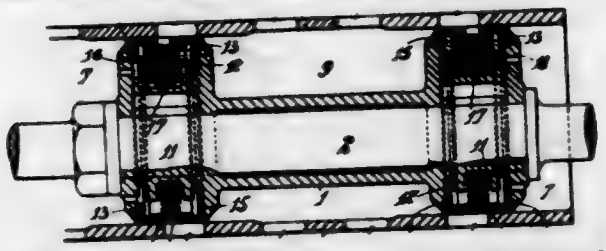
10. The combination, with a hay-baling chamber, and a movable end-gate therefor; of lever mechanism provided with a spring connection which normally holds the end-gate closed and permits it to move back to a limited extent, a cam which controls and operates the said lever mechanism, a driving-shaft, intermediate driving mechanism provided with a clutch and connecting the said cam with the driving-shaft, and trip mechanism actuated by the said end-gate and operating to place the said clutch in engagement with the said driving-shaft, substantially as set forth.

11. The combination, with a hay-baling chamber, and a movable end-gate therefor; of a kicker-shaft provided with means for discharging the bale from the said chamber, a cam secured on the kicker-shaft, lever connections between the said cam and end-gate, and means for revolving the kicker-shaft intermittently to open the end-gate and discharge the bale, substantially as set forth.

12. The combination, with a hay-baling chamber, and a spring-supported end-gate therefor; of an arm secured to the end-gate, mechanism for opening the end-gate provided with a clutch for operating it intermittently, a driving-shaft, a detent for holding the said clutch out of engagement with the said driving-shaft, a trip for operating the said detent, and a flexible connection between the said trip and arm, substantially as set forth.

13. The combination, with a hay-baling chamber, of a revoluble kicker-shaft provided with discharging devices for the bales, a toothed driving-wheel secured on the said kicker-shaft and provided with a crank-pin, a driving-shaft, a clutch on the said driving-shaft, toothed driving-wheels connecting the said clutch with the aforesaid toothed wheel, a needle-shaft, binding-needles operated by the said needle-shaft, an arm on the needle-shaft, and a connecting-rod between the said arm and crank-pin, said kicker-shaft and needle-shaft being operated simultaneously when the clutch is placed in engagement with the said driving-shaft, substantially as set forth.

696,208. **PISTON-VALVE.** ALEXANDER SPENCER, London, England. Filed Dec. 13, 1900. Serial No. 39,680. (No model.)



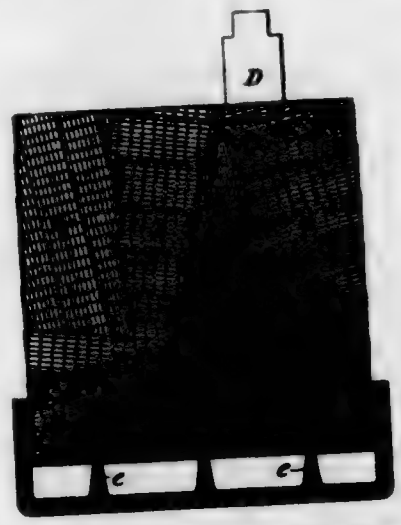
Claims.—1. A piston-valve comprising a body portion formed with an annular groove, the opposite side walls of which are flat and smooth, a series of arc-shaped segmental packing-rings having the same radius as the valve seat, liner or cylinder in which the piston is to work and made with slightly inclined or beveled ends and with flanged sides, the outer surfaces of which are also flat and smooth, and springs for pressing the packing-rings outward, the said packing-rings being fitted in the annular groove in the piston-body so as to bear closely against one or both of the opposite annular sides of the said groove, and being made of such peripheral length that the adjacent ends of each adjacent pair fit practically close against one another so that a practically fluid-tight joint is produced between the packing-rings and the piston-body and between the adjacent packing-rings, substantially as described.

2. In a piston, the combination with the piston-body having a peripheral annular groove, the sides of which are flat and smooth, of a series of segmental packing-rings having flat and smooth sides and formed by turning undivided rings to a diameter to fit the cylinder or liner in which the piston is to work, and then dividing the said rings by radial inclined cuts into segments and arranging within the said groove a number of these segments of such peripheral length as will cause their adjacent ends to come into close contact with one another and produce practically fluid-tight joints between them and form a segmental ring of the same diameter as that of each of the undivided rings from which the segments are cut, as set forth.

3. In a piston-valve, the combination with the piston-body having a peripheral annular groove, the sides of which are flat and smooth, of a series of segmental packing-rings having flat and smooth sides, a water-relief port in one of said segmental packing-rings normally closed by a spring-actuated relief-valve, a drain-passage in the piston-body through which water that enters the piston-body through said relief-valve can drain away, so that when the piston is used as a steam-distributing valve in a cylinder it will allow of the escape through itself of condensed water as set forth.

696,209. **ENVELOP FOR BATTERY-ELECTRODES.** ELMER A. SPERRY, Cleveland, Ohio, assignor to National Battery Company, Cleveland, Ohio, and Jersey City, N. J., a Corporation of New Jersey. Filed May 25, 1901. Serial No. 61,848. (No model.)

Claim.—1. The combination of a battery-electrode and an envelop therefor consisting of threads or fibers of pyroxylin under tension wrapped around and around the electrode, substantially as and for the purpose set forth.



2. The combination of a battery-electrode and an envelop therefor consisting of a band of threads or fibers of pyroxylin under tension wrapped around and around the electrode, the said band being of a width materially less than the dimension of the electrode measured on a line normal to the direction of winding, substantially as and for the purpose set forth.

3. The combination of a battery-electrode and an envelop therefor consisting of a band of threads or fibers of pyroxylin under tension wrapped around and around the electrode, the said band being of a width materially less than the dimension of the electrode measured on a line normal to the direction of winding and the windings of said band overlapping at their edges, substantially as and for the purpose set forth.

4. The combination of a battery-electrode and an envelop therefor consisting of a cross-connected band of threads or fibers of pyroxylin under tension wrapped around and around the electrode substantially as and for the purpose set forth.

5. The combination of a battery-electrode and an envelop therefor consisting of a fabric of pyroxylin threads under tension wrapped around and around the electrode, substantially as and for the purpose set forth.

6. The combination of a battery-electrode and an envelop therefor consisting of a band of threads or fibers of pyroxylin wrapped around and around the electrode in a plurality of superimposed layers, each of which wound layers practically covers the surface of the electrode, substantially as and for the purpose set forth.

7. The combination of a battery-electrode and an envelop therefor consisting of a band of threads or fibers of pyroxylin under tension wrapped around and around the electrode in a plurality of superimposed layers wound at intersecting angles, the said band being of a width materially less than the dimension of the electrode measured on a line normal to the direction of winding, substantially as and for the purpose set forth.

8. The combination of a battery-electrode and an envelop therefor consisting of threads or fibers of pyroxylin under tension wrapped around the electrode and an independent reinforce layer of threads or fibers of pyroxylin placed upon the electrode, substantially as and for the purpose set forth.

9. The combination of a battery-electrode and an envelop therefor consisting of threads or fibers of pyroxylin under tension wrapped around the electrode and an independent reinforce layer of pyroxylin threads located upon the electrode beneath the said wrapping, substantially as and for the purpose set forth.

10. The combination of a battery-electrode and an envelop therefor consisting of semi-felted woven fabric of pyroxylin fibers, substantially as and for the purpose set forth.

11. The combination of a battery-electrode and an envelop therefor consisting of a plurality of layers of pyroxylin fabric under tension wound about the electrode, the said layers of fabric being of texture differing from each other, substantially as and for the purpose set forth.

12. The combination of a battery-electrode, an envelop therefor comprising threads or fibers of pyroxylin under tension wrapped around and around the electrode, and means to support the envelop against the electrode at intervals between the edges of the electrode, substantially as and for the purpose set forth.

13. The combination of a battery-electrode having flat sides, an envelop therefor consisting of threads or fibers of pyroxylin under tension wrapped around and around the electrode, and means to support the envelop against the electrode at intervals between the edges of the electrode, substantially as and for the purpose set forth.

14. The combination of a battery-electrode, an envelop therefor consisting of threads or fibers of pyroxylin under tension wrapped around and

around the electrode and a resilient support for contact with the envelop at intervals between the edges of the electrode, substantially as and for the purpose set forth.

15. The combination of a battery-electrode, an envelop therefor consisting of a band of threads or fibers of pyroxylin under tension wrapped around and around the electrode, the said band being of a width materially less than the dimension of the electrode, measured on a line normal to the direction of winding, and means to support the envelop at intervals between the edges of the electrode in lines substantially transverse to the direction of winding of said band, substantially as and for the purpose set forth.

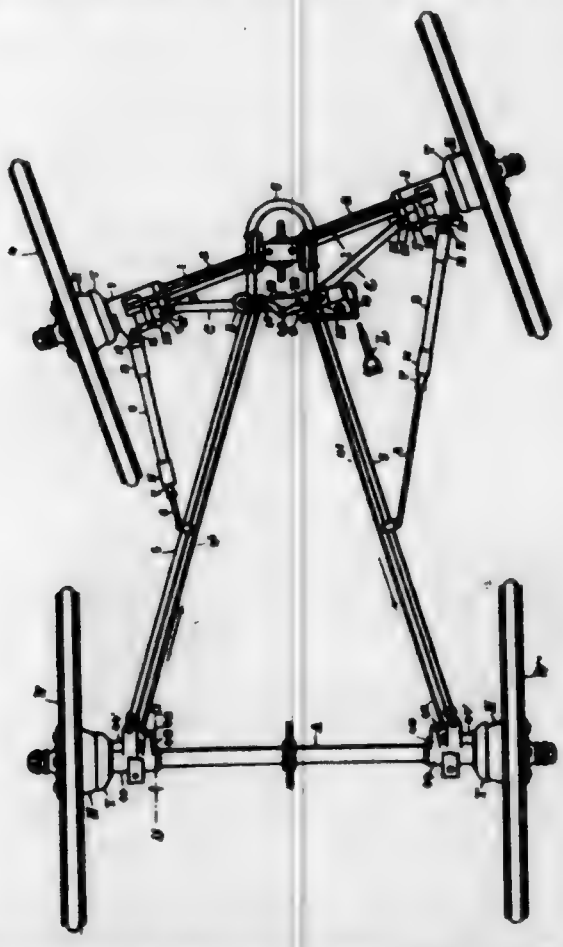
16. The combination of a battery-electrode, an envelop therefor consisting of threads or fibers of pyroxylin under tension wrapped around and around the electrode, a resilient separator-plate to support the envelop at intervals between the edges of the electrode, and means to support said separator-plate, substantially as and for the purpose set forth

17. The combination of a plurality of battery-electrodes, an envelop for each of said electrodes consisting of threads or fibers of pyroxylin under tension wrapped around and around the electrode, and a resilient separator-plate interposed between adjacent electrodes and supporting the envelop of each at intervals between the edges of the electrode, substantially as and for the purposes set forth

18. The combination of a battery-electrode, a pyroxylin fabric forming a bag or pocket about the said electrode, and an envelop consisting of threads or fibers of pyroxylin under tension wrapped around and around the electrode, substantially as and for the purpose set forth.

19. The combination of a battery-electrode, a box or jar having formed upon its bottom supports for the electrode, a pyroxylin fabric forming a bag or pocket and cushion about the bottom of the electrode, and an envelop consisting of threads or fibers of pyroxylin under tension wrapped around and around the electrode, substantially as and for the purpose set forth.

696,210. **AUTOMOBILE DRIVING-GEAR.** PETER SCHNEBAUER, St. Louis, Mo. Filed Jan. 13, 1902. Serial No. 89,574. (No model.)



Claim.—1. In an automobile driving-gear, a front and rear axle, means for imparting rotation to the same, a coupling-pole connecting the front and rear trucks, and extension members connecting the front axle with the coupling-pole on either side of the latter, thereby permitting deflection of the axle and subsequent locking of the same in its deflected position, substantially as set forth.

2. In an automobile driving-gear, a front and rear axle, means for imparting rotation thereto, wheels loosely mounted on the axles, clutches for connecting the wheels to the axles, a coupling-pole connecting the front and rear trucks, extension members adapted to be locked against movement for a given position of the front axle, and means for unlocking the component parts of the extension members and permitting movement of the same, in advance of the unclutching or disengagement of either wheel from its axle, substantially as set forth.

3. In an automobile driving-gear, a front and rear truck, a coupling-pole for the same, a front horizontally-deflectable axle, extension members connecting the axle to the coupling-pole, said extension members comprising each a toothed extension-bar secured to the coupling-pole, a tube connected to the axle surrounding said bar and having a pocket at a convenient point along the length thereof, a toothed coupling-block in said pocket adapted to engage the toothed bar, an outer movable sleeve surrounding the tube a chamber carried by the sleeve, a wedge in said chamber adapted, upon movement of the sleeve in one direction, to release the block and permit expansion or contraction of the extension member, and to force the block to its locked position upon movement of the sleeve in the opposite direction, substantially as set forth.

4. In an automobile, an extension member comprising an inner toothed extension-bar having one fixed end, a tube fixed at one end surrounding said bar, a collar in said tube, a pocket formed in said collar, an outer movable sleeve inclosing the tube, a chamber formed on the sleeve surrounding the pocket, a toothed coupling-block mounted in said pocket, a wedge in the aforesaid chamber coöperating with the block, a second chamber formed at one end of the sleeve and a spring confined within said second chamber and bearing against a stud formed in the adjacent end of the tube, the parts operating substantially as, and for the purpose set forth.

5. In an automobile driving-gear, an axle, means for rotating the same, a wheel freely rotatable on said axle, a clutch-disk keyed to the axle and confined within the walls of the hub of the wheel, a clutch-fork mounted in the clutch-disk, a toggle-link in hinged connection with said fork, and a cam movable along the axle and adapted to be brought within the plane of rotation of either member of the fork and effect either an engagement of the clutch-disk with, or disengagement from, the hub of the wheel, substantially as set forth.

6. In an automobile driving-gear, a rotatable axle, a wheel loosely mounted in the same, a split clutch-disk coupled to the axle and located within the hub of the wheel, a radial ridge projecting from the hub of the clutch in line with the split end thereof, shoulders formed on each side of the ridge, a clutch-fork having a hinge-arm pivoted on one of the shoulders, a toggle-link pivoted to the opposite shoulder and in hinge connection with the hinge-arm of the fork, the latter having two members encompassing the axle and disposed in different planes, and a cam movable along the axle and adapted to be brought within the plane of rotation of either member of the fork, the parts operating substantially as and for the purpose set forth.

7. In an automobile driving-gear, a front and rear axle, wheels loosely mounted on the same, clutches for coupling the wheels to the axles, a coupling-pole connecting the front and rear axles, extension members connecting the front axle to the coupling-pole, and means under the control of the operator for releasing the component parts of the extension members and subsequently and simultaneously disengaging one pair of wheels on one side of the vehicle from their respective axles, substantially as set forth.

8. In an automobile driving-gear a front and rear axle, a coupling-pole, a clutch-controlling bar movable along the front axle, an extension member on each side of the coupling-pole connecting the latter with the front axle, and intermediate connections between the controlling-bar and extension member for actuating the latter upon movement of the bar in either direction, substantially as set forth.

9. In an automobile driving-gear, a front and rear axle, a wheel at each end of each axle, a clutch for each wheel, a clutch-controlling bar connected to the clutches of the front wheels, and intermediate connections between the bar and rear clutches for actuating the same simultaneously with the actuation of the clutches on the front axle, substantially as set forth.

10. In an automobile driving-gear, a front axle, bearings for the same, a clutch-controlling bar having its ends operating in said bearings, a rear axle, a coupling-pole, extension members between the coupling-pole and front axle, a tripping-lever engaging one of the component parts of each extension member, a notch formed in the clutch-controlling bar and a pin carried by the tripping-lever and adapted to engage the notch, the parts operating substantially as and for the purpose set forth.

11. In an automobile driving-gear, a clutch-controlling bar, sockets at the opposite end thereof, a spring at the base of each socket, a block at the outer end of the spring, a slot formed in the wall of the socket, a pin carried by the block and operating in said slot, a piston in said socket adapted to engage the block a piston-rod on said piston projecting through the end wall of the socket, a cam at the outer projecting end of the piston-rod, and intermediate connections between the cam and hub of the wheel for coupling the wheel to or uncoupling the same from the axle, according to the direction in which the clutch-controlling bar is actuated, substantially as set forth.

12. In an automobile driving-gear, a clutch-controlling bar, a rock-

ing or oscillating yoke adapted to be actuated by the movement of said bar, a rear axle, cams movable along the same and intermediate link connections between the yoke and said cams for actuating the latter upon an oscillation of the yoke in the proper direction, substantially as set forth.

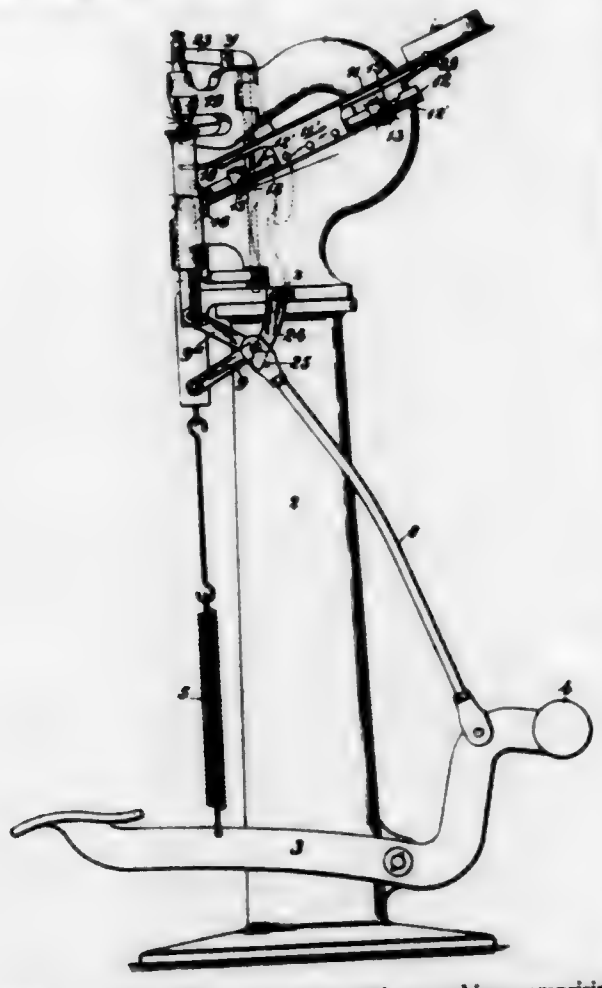
13. In an automobile driving-gear, a clutch-controlling bar, a rocking yoke having a basal straight edge and terminal inclined arms, a pin carried by the clutch-controlling bar and adapted to rise over the straight edge and arms of said yoke, a front and rear axle, cams movable along said axles, the cams of the front axle being actuated directly by the clutch-controlling bar, stems carried by the cams of the rear axle, bell-crank engaging said stems, and link-bars having elongated slots at one end thereof coupled to the free ends of the arms of the yoke, the parts operating substantially as, and for the purpose set forth.

14. In an automobile driving-gear, a clutch mechanism comprising a reciprocating cam, an axle, a wheel having a hub loosely mounted thereon, a split clutch-disk secured to the axle and rotatable therewith and housed within the hub, a clutch-fork and toggle-link suspended from the clutch-disk, a bearing for the axle, an extension for said bearing, a stem in said extension, a spring coiled about said stem, an ear or lug carried by the cam and confined within the extension of the bearing, and means for actuating the stem from the front of the vehicle, substantially as set forth.

15. In an automobile, an axle, a split clutch-disk rotatable about the same, a wheel-hub inclosing said clutch-disk, and toggle-levers controlled from the axle and actuating the clutch-disk, substantially as set forth.

16. In an automobile, an axle, a split clutch-disk rotatable about the same, a wheel-hub inclosing said disk, toggle-levers carried by said disk, and a cam movable along the axle and actuating said toggles, substantially as set forth.

696,211. PUNCHING AND EYELETING MACHINE. EDWIN B. STIMPSON, Brooklyn, N. Y. Filed Oct. 1, 1900. Renewed Aug. 10, 1901. Serial No. 71,696. (No model.)



Claim.—1. A punching and eyelet-setting machine, comprising a laterally-displaceable punch and clenching-anvil, a displaceable eyelet-track, an eyelet-set, mechanism for operating said punch and eyelet-set conjointly, and mechanism actuated by the moving eyelet-set for displacing the punch and eyelet-track and for putting the anvil into alinement with the set, all of said operations being effected during one operation of the machine.

2. A punching and eyelet-setting machine, comprising a laterally-displaceable die-punch and die, and a clenching-anvil abreast of and displaceable with said punch, a displaceable eyelet-track, a reciprocating but not laterally-displaceable eyelet-set, mechanism for operating said eyelet-set and punch conjointly, and mechanism, actuated by the moving eyelet-set for laterally displacing the punch and clenching-anvil, and displacing the eyelet-track, at one operation of said eyelet-set.

3. In a punching and eyelet-setting machine, the combination with the supporting-plate for the material, a die-punch, a clenching-anvil situated above the material, a laterally-swinging arm carrying said punch and anvil, and means for supplying eyelets, of a reciprocating eyelet-set below the material and normally alined with the punch, means for operating said eyelet-set, and punch conjointly, and means actuated by the upwardly-moving eyelet-set for putting said clenching-anvil into alinement with the eyelet-set, at one operation of the latter.

4. In a punching and eyelet-setting machine, the combination with the eyelet-set, the anvil, the toggle-links 9 and 9^a, connected together at the knuckle, and to the said eyelet-set and a stationary part, at their respective ends, the treadle, and the rod 8, connecting said treadle with the knuckle of the toggle, of the punch, and mechanism between said rod 8 and the punch whereby the former operates the latter conjointly with the eyelet-set.

5. In a punching and eyelet-setting machine, the combination with the punch-carrier and punch, the bent lever 23, for operating same, the intermediate lever 24, having a shoulder 24^a, the eyelet-set, the toggle connected therewith, and the treadle, of the rod 8, provided with a movable pin 25, in the form of a latch-bolt, adapted to engage the lever 24 to actuate the punch conjointly with the eyelet-set.

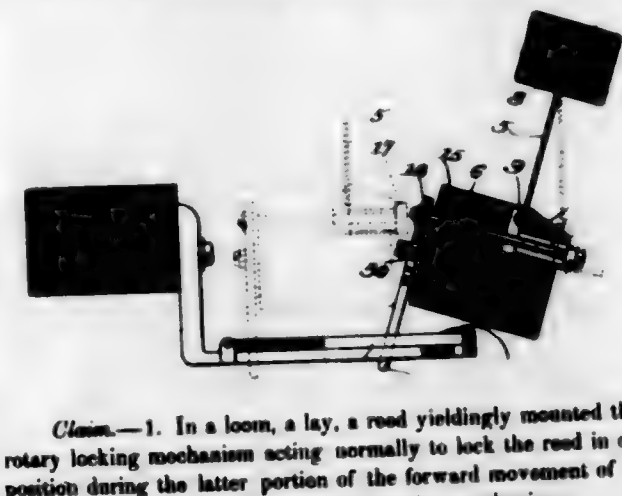
6. In a machine for the purpose set forth, the combination with the laterally-movable arm 19, means for returning it to its normal position after it has been displaced, the clenching-anvil carried by said arm, the punch and lower die carried by said arm, the eyelet-set, and means for operating said punch and eyelet-set, of means whereby the moving eyelet-set displaces the arm 19, said means comprising a stud on the eyelet-set and a cam, which is in the path of said stud and movable with said arm.

7. In an eyelet-setting machine, the combination with the inclined slidable eyelet-track, and the eyelet-box or magazine mounted on the same, of the rocker 16, having in it a slot 15 engaged by a stud 14 on the slide of the track, and the eyelet-set 7, having a stud 17, which engages said rocker and rocks it when the set ascends, substantially as and for the purpose set forth.

8. A machine for the purpose set forth, having the movable arm 19, comprising two non-integral branches, the lower branch, 19', being capable of lateral displacement for facilitating the removal of the punch and die.

9. In a machine for the purpose set forth, the combination with the head, having bearing-lugs with cylindrical bearings and a block 13', of the cylindrical slide 12, having a flattened face 12', engaged by the block 13', the carrier secured to said slide, and the eyelet-track secured to said carrier.

696,212. LOOSE-REED MOTION FOR LOOMS. ALDEN B. TAPLIN, Keene, N. H. Filed Sept. 16, 1901. Serial No. 75,484. (No model.)



Claim.—1. In a loom, a lay, a reed yieldingly mounted thereon, a rotary locking mechanism acting normally to lock the reed in operative position during the latter portion of the forward movement of said lay, and a yielding cam for operating said locking mechanism.

2. In a loom, a lay, a reed yieldingly mounted thereon, a rotary locking device for the reed, and means operated by the movements of the lay to operate said locking device, the construction being such that when the lay beats up, the reed is locked against movement relative to said lay.

3. In a loom, a lay, a reed yieldingly mounted thereon, a rotary locking device carried by the lay, means operated by the movement of the lay to render said locking device operative when the lay is in its forward position, the construction being such that when the lay is in its backward position the locking device is inoperative.

4. In a loom, a lay, a reed yieldingly mounted thereon, locking mechanism for the reed, an operating-lever for actuating said locking mechanism, and a yielding cam mounted on a fixed part of the loom and adapted to engage said operating-lever when the lay approaches its forward position.

whereby the locking device is rendered operative and the reed locked in place during the last part of the forward movement of the lay.

5. In a loom, a lay, a reed yieldingly mounted thereon, a rotary locking device for the reed, an operating-lever carried by the lay, and a cam mounted on a fixed part of the loom and adapted to engage said operating-lever when the lay approaches its forward position, whereby the locking device is rendered inoperative during the last part of the forward movement of the lay.

6. In a loom, a lay, a reed yieldingly mounted thereon, a rotary locking-bolt mounted on the lay and adapted when turned to lock the reed in its operative position, a cam carried by a fixed part of the loom, and means adapted to engage said cam during the latter part of the forward stroke of the lay to turn said locking means.

7. In a loom, a lay, a reed yieldingly mounted thereon, locking devices for said reed, and means operated by the vibrating movement of the lay in each direction to positively operate said locking device, the construction being such that during the latter part of the forward stroke of the lay the locking device is positively operated to lock the reed to the lay, and during the first part of the return stroke, the said locking device is positively operated to unlock the reed.

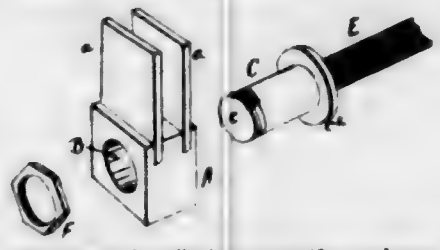
8. In a loom, the lay, a reed loosely mounted thereon, a backstay extending back of the reed and movable relative to the lay, locking mechanism adapted to engage the backstay to lock the same to the lay, and means operated by the vibrating movements of the lay to operate said locking mechanism, the construction being such that during the latter part of the forward stroke of the lay the locking device is rendered operative, and during the first part of the backward movement of the lay, said locking device is rendered inoperative.

9. In a loom, a lay, a reed loosely mounted thereon, a backstay extending back of the reed and movable relative to the lay, rotary locking-bolts carried by the lay and extending through apertures in the backstay, said bolts having heads thereon which may either be brought into line with or across said apertures, and means to turn said bolts in unison during the last portion of the forward movement of the lay to bring said heads across the apertures, whereby the reed is locked in position.

10. In a loom, a lay, a reed yieldingly mounted thereon, a backstay extending back of the reed and movable relative to the lay, rotary locking-bolts carried by said lay, and having heads thereon adapted to engage the back side of the backstay, as said bolts are turned, and means operated by the movement of the lay to turn said bolts in unison, the construction being such that during the last portion of the forward movement of the lay, said bolts are turned to cause the heads to engage the backstay, and during the first part of the return stroke, said bolts are restored to their initial position.

11. In a loom, a lay, a reed yieldingly mounted thereon, a backstay movable relative to the lay and engaging the back of the reed, a series of rotary locking-bolts carried by the lay and extending through apertures in the backstay, said bolts having heads thereon which may either be brought into line with the apertures, or extended across said apertures, an operating-lever having connections to turn all the said bolts in unison, and a yielding cam carried by the fixed part of the lay and adapted to operate said lever during the last portion of the forward movement of the lay, and during the first portion of the return stroke of the lay.

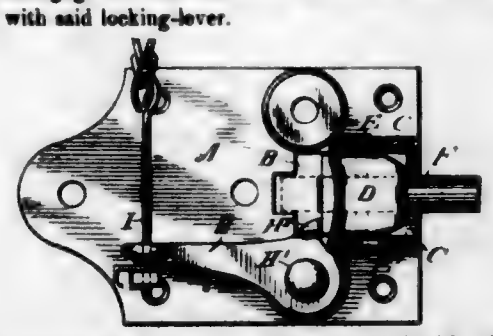
696,218. ELECTRICAL CONNECTOR. GEORGE B. THOMAS, Hartford, Conn., assignor to The Perkins Electric Switch Manufacturing Company, Hartford, Conn., a Corporation of Connecticut. Filed Jan 9, 1902. Serial No. 89,012. (No model.)



Claim.—The herein-described connector for conductor-terminals consisting of a metallic block having an opening with a cup-formed bushing, closed at one end and open at the other to have the conductor end permanently fastened in it, the open end having an external shoulder, and the closed end being threaded to receive a securing-nut, the cup-formed bushing extending into the block, with which metallic contact is to be made, all substantially as described.

696,214. CATCH FOR FIRE-DOORS. JACOB W. TRIPP, New York, N. Y., assignor to Henry B. Newhall, Plainfield, N. J. Filed Apr. 11, 1900. Serial No. 12,426. (No model.)

Claim.—1. In door-closing apparatus, a slotted plate, a bolt block pivotally mounted on said plate, a sliding bolt in said bolt-block provided with a pin which moves in a slot in said bolt-block, a locking-lever engaging the bolt-block, said locking-lever being weighted at its free end to readily disengage the same from said bolt-block, and a thermal fuse connected with said locking-lever.



2. In door-closing apparatus, a plate provided with a bolt-slot substantially in the center of its front edge, bearing-lugs on said plate on either side of said bolt-slot, a bolt-block provided with trunnions engaging said bearing-lugs so as to rotate about an axis parallel to said plate, a sliding bolt mounted in said bolt-block, a locking-lever having a wide toe to engage the heel of said bolt-block to prevent the rotation of the same, lever-bearings on said plate symmetrical about said bolt-slot and on either side of the same, and a lever-stud to mount said locking-lever on either of said lever-bearings.

3. In door-closing apparatus, a plate provided with a bolt-slot, a bolt-block mounted on said plate to swing in said bolt-slot, said bolt-block being provided with a manually-movable bolt, lever-bearings on said plate symmetrically arranged with reference to said bolt-block on either side of the same, a symmetrical locking-lever and a lever-stud to readily secure said locking-lever upon either of said lever-bearings to engage said bolt-block and hold the same against rotation.

4. In door-closing apparatus, a plate, a bolt-block pivotally mounted on said plate, a bolt slidingly mounted in said bolt-block, a symmetrically-arranged locking-lever having a toe to engage the heel of said bolt-block on either side of the same and duplicate lever-bearings on said plate for said locking-lever.

5. In door-closing apparatus, a plate to be secured adjacent a self-closing door, a bolt-block pivoted upon said plate, a sliding bolt mounted in said bolt-block to project into the path of said door, duplicate lever-bearings on said plate on either side of said bolt-block and a symmetrically-formed locking-lever having a toe to engage the heel of said bolt-block and means to mount said locking-lever on either of said lever-bearings to hold said bolt-block against rotation whereby when said locking-lever is released the pressure of said door against said bolt forces said locking-lever out of engagement with said bolt-block.

6. In a door-closing apparatus, a plate, a bolt-block pivoted upon said plate to swing about an axis parallel to said plate, a manually-movable sliding bolt mounted in said bolt-block to project into the path of a self-closing door, a locking-lever having a toe to engage the heel of said bolt-block pivoted to said plate to move about an axis perpendicular to the same whereby the pressure of said door tends to force said lever out of engagement with said bolt-block.

7. In door-closing apparatus, a plate, a bolt-block mounted on said plate in a bolt-slot formed in the same, a manually-operated bolt mounted in said bolt-block, said bolt-block being formed with a cam-shaped heel on the rear of the same on either side of said bolt, lever-bearings on said plate on either side of said bolt-slot, a symmetrical locking-lever having a toe to engage the heel of said bolt-block on either side of said bolt and means to mount said lever on either of said lever-bearings.

8. In door-closing apparatus, a plate provided with a bolt-slot, a bolt-block mounted on said plate to swing in said bolt-slot, said bolt-block being provided with a sliding bolt, lever-bearings on said plate symmetrically arranged on either side of said bolt-block, a symmetrical locking-lever, and a lever-stud to readily secure said locking-lever upon either of said lever-bearings, said locking-lever being formed with a toe to impinge against the heel of said bolt-block to hold said block rigid.

696,215. LAST. ELMER C. VERRILL, Cape Elizabeth, Me. Filed Jan. 23, 1901. Serial No. 44,353. (No model.)



Claim.—1. A last divided transversely by lines of cut which form a gap extending into it from the top, a recess extending into the toe part

below said gap, abutting surfaces extending thence to the bottom of the last and a projection on the heel part adapted to have endwise entrance into said recess and to pivot against the fore part above said recess, the pivot-point on said projection being located rearwardly of the end thereof.

2. A last divided transversely by lines of cut which form a gap extending into it from the top, a recess extending into the toe part below said gap, abutting surfaces extending thence to the bottom of the last and a projection on the heel part adapted to have endwise entrance into said recess, and a hinge uniting the two parts, one leaf secured to the fore part and the other to the heel part.

3. A last divided transversely by lines of cut which form a gap extending into it from the top, a recess extending into the toe part below said gap, abutting surfaces extending thence to the bottom of the last and a projection on the heel part adapted to have endwise entrance into said recess, and a hinge uniting the two parts, one leaf of said hinge being secured to that part of the top of the projection which enters said recess and the other leaf being secured to the wall of the fore part above said recess.

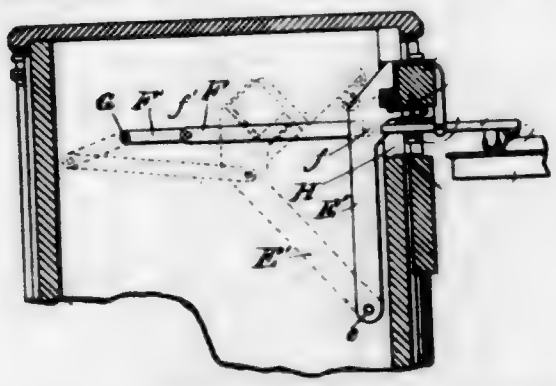
4. A last divided transversely by lines of cut which form a gap extending into it from the top, a recess extending into the toe part below said gap, abutting surfaces extending thence to the bottom of the last and a projection on the heel part adapted to have endwise entrance into said recess, and a reinforcing-rod extending from top to bottom of the last and having its ends anchored in the wood of the last, one above and the other below said recess.

5. A last divided transversely by lines of cut which form a gap extending into it from the top, a recess extending into the toe part below said gap, abutting surfaces extending thence to the bottom of the last and a projection on the heel part adapted to have endwise entrance into said recess, said projection having a longitudinal vertical recess in the end thereof, and a reinforcing-rod extending from top to bottom of the last passing through the recess in the fore part and the recess in the projection on the heel part and having its ends achored in the wood of the last, one above and the other below said recess.

6. A last divided transversely by lines of cut which form a gap extending into it from the top, a recess extending into the toe part below said gap, abutting surfaces extending thence to the bottom of the last, the inner end and bottom of said recess being curved, and a projection on the heel part adapted to have endwise entrance into said recess, the outer end and under side of said projection being curved to fit corresponding parts in said recess.

7. A last divided transversely by lines of cut which form a gap extending into it from the top, a recess extending into the top part below said gap, a projection extending rearwardly beyond the outer end of said recess, a projection on the heel part adapted to have endwise entrance into said recess and rest upon said projection on the toe part and abutting surfaces extending thence to the bottom of the last.

696,216. KEYBOARD PLAYING ATTACHMENT FOR MUSICAL INSTRUMENTS. EDWIN S. VOTEY, Summit, N. J., assignor to the Aeolian Company, New York, N. Y., a Corporation of Connecticut. Original application filed Nov. 16, 1899, Serial No. 737,223. Divided and this application filed Jan. 29, 1902. Serial No. 91,712. (No model.)



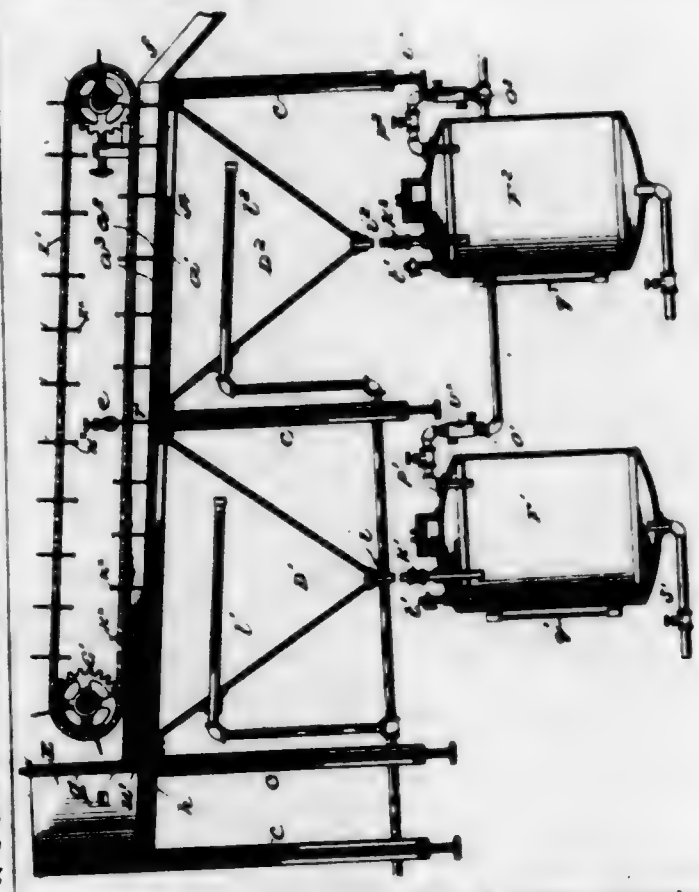
Claim.—1. In a mechanical playing attachment for keyboard musical instruments, the combination with a case inclosing the operating mechanism, of a series of key-striking levers projecting without said casing in their playing position, and a common actuating means for retracting said levers within the case.

2. In a mechanical playing attachment for keyboard musical instruments, the combination with a case inclosing the operating mechanism, of a series of key-striking levers and a removable member forming a common fulcrum for said levers adapted to carry the same from a position within to a position where they project without the case.

3. In a pianola or keyboard playing attachment, in combination, a frame or bar movable forward and backward on a suitable support, a series of key-striking levers pivoted to said frame or bar and projecting laterally therefrom, the frame being capable of moving forward for its said levers to project beyond a certain point or line and of moving backward for its said levers to be within a certain point or line.

4. In a pianola or keyboard playing attachment, in combination, a frame or bar pivoted to a support in a suitable case, a series of key-striking levers pivoted to said frame or bar and projecting laterally from said frame, the frame being capable of moving forward to project the said levers outward from the case and of moving backward for it and the said levers to be within the case.

696,217. APPARATUS FOR PURIFYING MASSE-CUITE. MORIS WEBBER, Yonkers, N. Y. Filed Feb. 20, 1901. Serial No. 48,915. (No model.)



Claim.—1. An apparatus for cleaning and washing masse-cuite or raw-sugar mass, having in combination an inclined plate perforated in its greater part, provided with a feeding-trough and with a rim, one or more casings forming vacuum-chambers, a set of scrapers for assisting and regulating the gravity feeding action of the mass, means for distributing washing agents upon the mass to be cleaned, and a chute for automatically discharging the cleaned crystals, substantially as set forth.

2. An apparatus for cleaning and washing masse-cuite or raw-sugar mass, having in combination, an inclined plate perforated in its greater part, provided with a feeding-trough and with a rim, one or more casings forming vacuum-chambers, a set of scrapers for assisting and regulating the gravity forward motion of the mass, means for distributing washing agents upon the mass to be cleaned, a chute for discharging the cleaned crystals, means for creating a partial vacuum and means for introducing steam in said chambers, substantially as set forth.

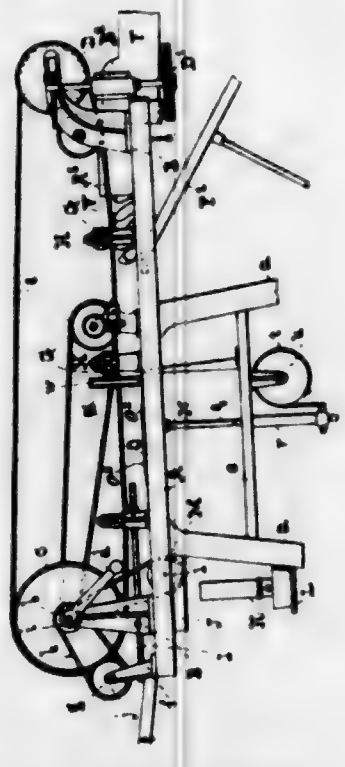
696,218. LABELING-MACHINE. JOHN T. WHITEHURST and FREDERICK W. WILD, Jr., Baltimore, Md. Filed May 11, 1900. Serial No. 16,276. (No model.)

Claim.—1. In a labeling-machine in which the ends of a label which extend beyond the heads of the can are folded inward and pressed to the heads by means of folders situated in the path of the moving cans, the said folders placed in an inclined position with reference to a vertical line in order that their operative parts will merely cross the periphery of the heads and bear more particularly upon the central portion of the folded label, substantially as, and for the purpose specified.

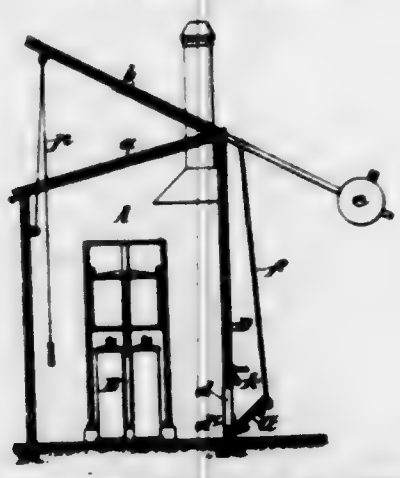
2. In a labeling-machine in which the ends of a label extending beyond the heads of a can are folded inward and to the said heads by means of folders placed in the path of the moving cans, the combination of the said folders with vertically-placed rotating rolls between which the labeled cans are carried, in order that the folds of the label may be flattened subsequent to the folding operation, substantially as specified.

3. In a machine adapted to apply paste to a label and apply the

pasted label to the body of a can, and also comprising folding devices situated in the path of the cans as they are rolled along the bed of the machine to fold in to the heads of the cans the ends of the label which extend beyond the heads, the portion of the bed of the machine in the rear of the pasting devices arranged to be removable so that in its removal there is provided an outlet-passage for cans, and a runway leading from the entrance end of the said opening, substantially as, and for the purpose specified.



696,219. BUILDING CONTAINING ACETYLENE-GAS-GENERATING APPARATUS. PAUL WILLEMAIN, Mulhouse, Germany. Filed Aug. 23, 1901. Serial No. 73,015. (No model.)



Claim.—1. Means for avoiding explosion in a building or room containing one or more acetylene-gas-generating apparatus, comprising a large shuttered opening in the upper part of the building or room containing the acetylene apparatus, a device for locking the entrance-door into the room in its closed position and a device connecting the said bolting device to the shutter of the aforementioned opening in such a manner that the unbolting of the door to give access to the room simultaneously opens the shutter to allow the escape of any gas which may have collected in the room before a person can enter therein.

2. Means for avoiding explosion in a building or room containing one or more acetylene-generating apparatus comprising a large shuttered opening in the upper part of the room containing the acetylene apparatus and a device for bolting the door in its closed position comprising a pivot-plate connected to the hinged shutter of the escape-opening and placed in front of an opening *d* in the lower part of the door in such a manner that to open the latter it is necessary to unclose the opening *d* in the door and thus to cause a current of air to pass through the room to assist the escape of the gas from the said room.

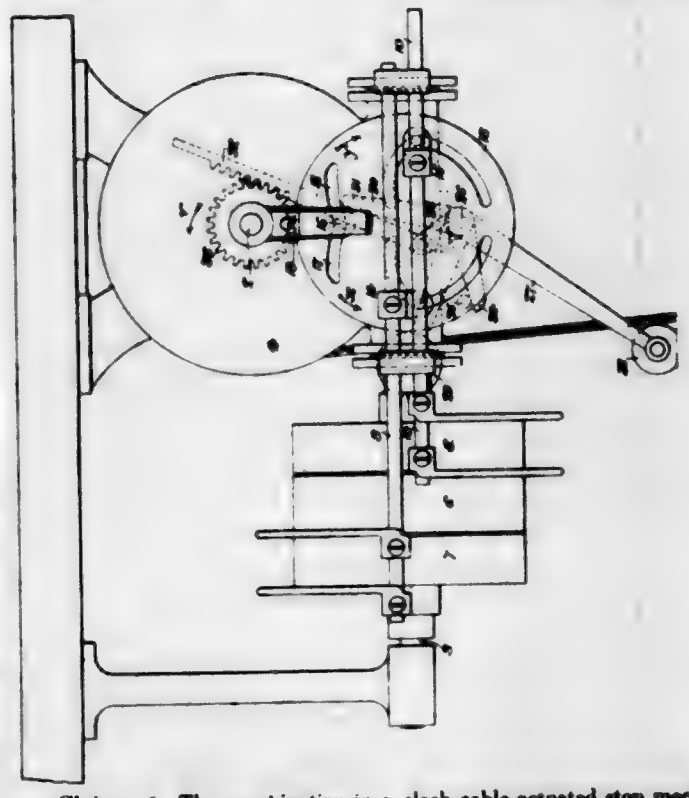
696,220. COMBINED BASEMENT AND POINT-PROTECTOR. CLAUDE O. ANDERSON, Los Angeles, Cal. Filed Sept. 7, 1901. Serial No. 74,681. (No model.)

Claim.—1. A device of the kind described, comprising a plate provided with parallel ears or lugs, the ends of said plates being shaped to receive the trolley-wires, said ears or lugs adapted to be clamped together for the purpose of securely fastening the ends of the wire to the plate, substantially as shown and described.



2. In a device of the kind described, a plate A having ears or lugs B adjacent to one end and ears or lugs C adjacent to the opposite end, and the bolts adapted to pass through said ears or lugs for the purpose of securely clamping said ears or lugs together, the opposite ends of the plate being curved or bent to receive the ends of the trolley splice and wire, substantially as described.

696,221. AUTOMATIC SLACK-CABLE STOP MECHANISM FOR POWER-ELEVATORS. GUSTAVE R. ANDERSON, Philadelphia, Pa., assignor to Fairmount Machine Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Jan. 14, 1901. Serial No. 43,209. (No model.)



Claim.—1. The combination in a slack-cable-actuated stop mechanism for the power-controlling device of a hoist, of belt-shippers, a cam-disk for controlling the same, a drum-shaft having a spur-wheel thereon, a rock-shaft having two arms, one for engaging with a projection on the cam-disk in order to move the same to a mid or neutral position, and the other arm having a rack-bar pivoted thereto, a lever having two arms, one provided with a roller for bearing upon the cable and the other serving as a support for the rack-bar, and means for constantly maintaining the roller in contact with the cable, substantially as specified.

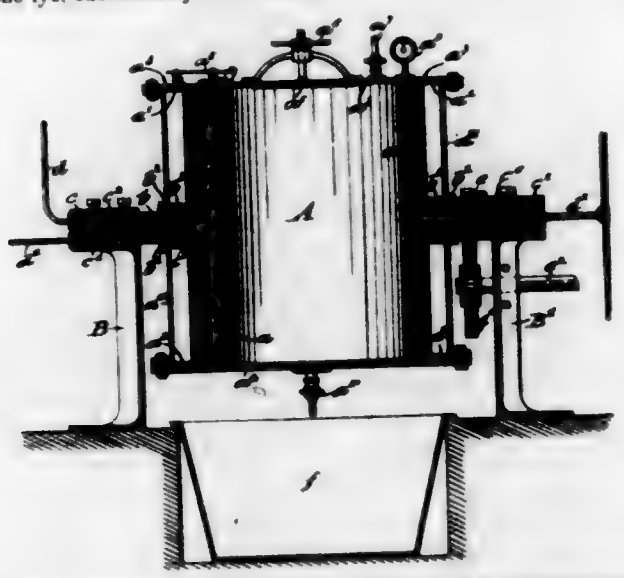
2. The combination of the power-controlling device of a hoist, with a slack-cable-actuated stop mechanism therefor comprising a toothed wheel on the drum-shaft, a rock-shaft having an arm for acting on said power-controlling device, and another arm to which is pivoted a rack-bar, a carrier having a roller for bearing upon the cable, means for maintaining said roller in contact with the cable, and a connection between said roller-carrier and the rack-bar whereby, when the cable is slack, the rack-bar is pushed positively into engagement with the toothed wheel on the drum-shaft, substantially as specified.

696,222. PROCESS OF REFINING RESINS, OILS, OR FATS. FRITZ ARLEDTER, New York, N. Y. Filed July 16, 1901. Serial No. 68,517. (No specimens.)

Claim.—1. The process herein described of purifying and decolorizing resins, oils and fats, which consists in mixing the same with a solution of a suitable alkali, subjecting the mixture to contact with carbonic-acid gas, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

2. The process herein described of purifying and decolorizing resins, oils or fats, which consists in mixing the same with a solution of a suitable alkali, subjecting the mixture to agitation in an atmosphere of carbonic-acid gas, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

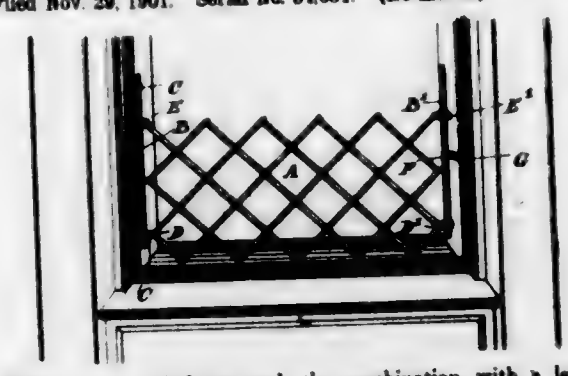
3. The process herein described of purifying and decolorizing resins, oils or fats, which consists in mixing the same with a solution of a suitable alkali, the latter in quantity insufficient to cause saponification, heating the mixture, simultaneously agitating the same in contact with carbonic-acid gas under pressure, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.



4. The process herein described of purifying and decolorizing resins, oils or fats, which consists in mixing the same with a solution of a suitable alkali, the latter in quantity insufficient to cause saponification, heating the mixture, simultaneously agitating the same in contact with steam and with carbonic-acid gas, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

5. The process herein described of purifying and decolorizing resins, oils or fats, which consists in mixing the same with an aqueous solution of a suitable alkali, the latter in quantity insufficient to cause saponification, heating the mixture, simultaneously agitating the same in contact with steam and carbonic-acid gas under pressure, and separating the resulting purified resin, oil or fat from the lye, substantially as set forth.

696,223. WINDOW-GUARD. RUDOLPH BRUHNE, New York, N. Y. Filed Nov. 29, 1901. Serial No. 84,031. (No model.)



Claim.—In a window-guard, the combination, with a lazy-tongs frame having upright end rods, of rectangular links pivotally connecting said lazy-tongs frame with said rods, and pivoted sleeves mounted in said rectangular links, said sleeves adapted to slide on the upright end rods of the window-guard, substantially as set forth.

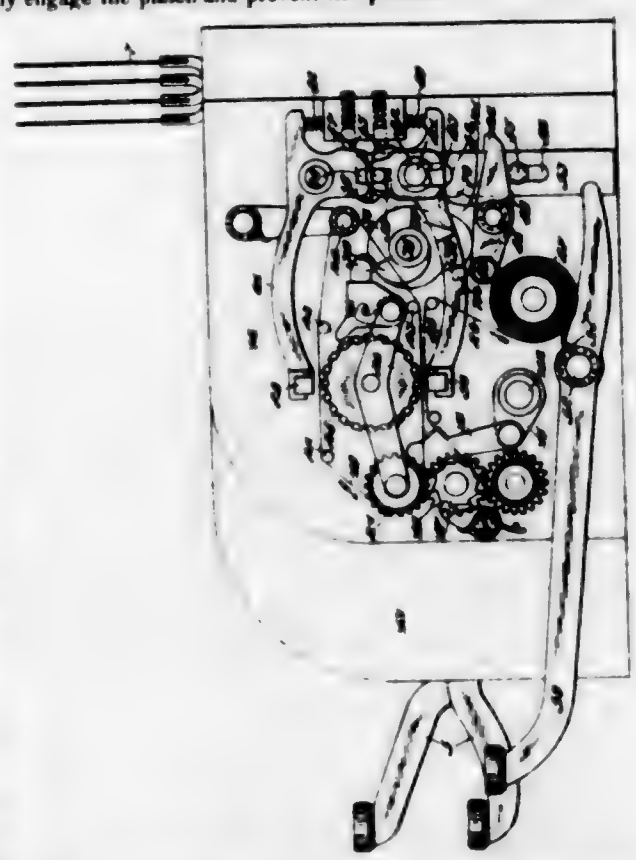
696,224. CASH-REGISTER. THOMAS CARNEY, Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J., a Corporation of New Jersey. Filed June 26, 1901. Serial No. 66,161. (No model.)

Claim.—1. In a cash-register, the combination with the type-carriers and a platen, of a storage-roller for a detail strip and of means which is controlled by the diameter of the paper on the storage-roller for automatically engaging the operative parts of the platen when the paper-roll has become a certain size.

2. In a cash-register, the combination with the type-carriers and a platen, of operating mechanism for bringing the platen against the type-carriers, a storage-roller, and a locking lever or pawl which is controlled by the size of the paper-roll on the storage-roller so as to automatically engage the said operating mechanism and to lock the platen in inoperative position before the detail strip becomes exhausted.

3. In a cash-register, the combination with the type-carriers and a platen, of the storage-roller, and a locking lever or pawl which is arranged to automatically engage said platen and prevent its operation before the paper strip upon which the record is printed has become exhausted.

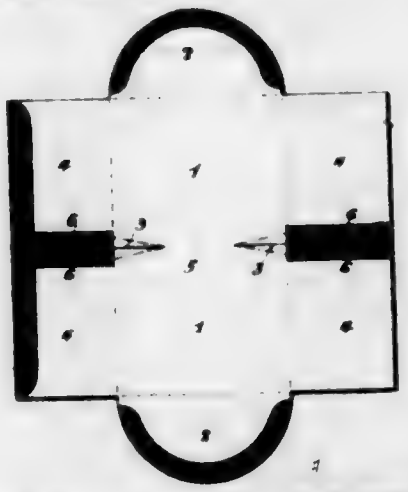
4. In a device of the class described, the combination with the type-carriers and the platen, of a storage-roller, means for automatically locking the printer before the complete exhaustion of the detail strip, which consists of a stop device normally in contact with the periphery of the paper-roll on the storage-roller and arranged so that when the diameter of the paper-roll has become reduced to a certain degree it will automatically engage the platen and prevent its operation.



5. In a cash-register, the combination with the type-carriers, of a storage-roller, a platen so arranged that the detail strip is led from the storage-roller between said type-carriers and platen, and a spring-pressed locking-lever which is pivoted between its ends and has one end resting upon the periphery of the paper-roll and the other end arranged to engage and prevent the operation of the platen before the detail strip becomes exhausted from the storage-roller.

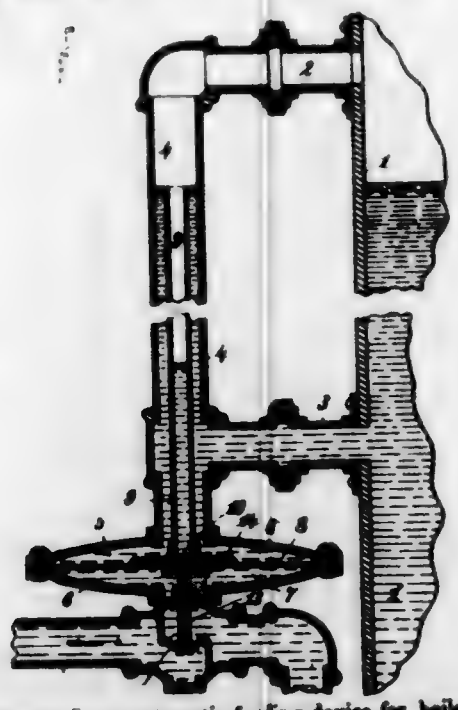
6. In a cash-register, the combination with a type-carrier and a platen, operating mechanism for the platen including the shoulder or projection 43, a storage-roller upon which the detail strip is wound and from which it is led between the type-carrier and the platen, and a locking-lever having a spring which causes one end of said locking-lever to rest normally upon the periphery of the paper-roll whereby when the diameter of the storage-roll has become sufficiently reduced, the other end of said locking-lever will engage the projection 43.

696,225. DUPLEX ENVELOP. ARTHUR B. COWLES, Richmond, Va., assignor to Benjamin F. Johnson, Richmond, Va. Filed Jan. 13, 1902. Serial No. 89,442. (No model.)



Claim.—A duplex envelop comprising a pair of compartments joined end for end the back folds being gummed and cut at 3 said cuts extending into but not across the front forming thereby the separate back folds 4 4, and confining the tear for separating the compartments to the uncut front part 5 between the ends of said cuts, the abutting edges of said back folds forming an open tear guide or groove over the uncut front part.

696,226. AUTOMATIC BOILER-FEEDING DEVICE. NELSON CURTIS, Boston, Mass. Filed July 2, 1900. Serial No. 22,376. (No model.)



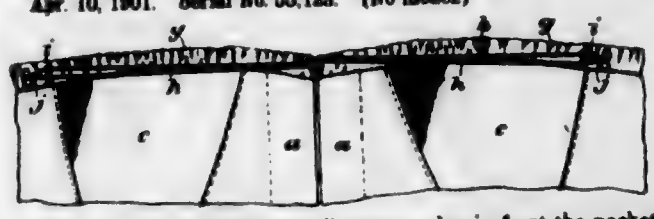
Claim.—1. In an automatic feeding device for boilers or other receptacles in which it is desired to maintain a given level of the water contained therein, a movable septum, two columns of water acting in opposition to each other to move said septum by variations in the relative weights of said columns, the water in one of said columns being substantially constant at a level with and controlled by the water in the boiler or other receptacle, and the water in the other column being variable according to the amount of water being used by the boiler or other receptacle, a contracted waste-passage for the latter column of water, a water-supply, and a valve controlling said supply and controlled by the movements of said septum, for the purpose set forth.

2. In an automatic feeding device for boilers or other receptacles in which it is desired to maintain a given level of the water contained therein, a casing having its interior in open communication with the interior of the boiler or other receptacle above and below the desired level of the water to be maintained therein, a movable septum dividing said casing into two chambers, means to establish free admission of the water in the boiler to one of said chambers to create a column of water in said chamber at a level with the water in the boiler or other receptacle and to act on one side of said septum, means to prevent the admission of water from the boiler or other receptacle to the other of said chambers, to act on said septum in opposition to the column of water in the first-named chamber, except when the water in the boiler or other receptacle exceeds the desired level of water to be maintained therein, a contracted waste-passage for the latter chamber, a water-supply, and a valve controlling said supply controlled by the movements of said septum, for the purpose set forth.

3. In an automatic feeding device for boilers or other receptacles in which it is desired to maintain a given level of the water contained therein, a casing, a movable septum dividing said casing into an upper and lower chamber, a pipe in open communication with said upper chamber, means to connect said pipe with the boiler or other receptacle above and below the desired level of the water to be maintained therein and form free communication between said parts, a tube carried by said septum in open communication with the lower chamber in said casing extending upward from said septum to the desired level of the water to be maintained within the boiler or other receptacle, a contracted waste-passage for the lower chamber, a water-supply, and a valve connected to said septum controlling said supply, for the purpose set forth.

4. In an automatic feeding device for boilers or other receptacles where it is desired to maintain a given level of the water contained therein, a casing having its interior in open communication with the interior of the boiler or other receptacle above and below the desired level of the water to be maintained therein, a movable septum dividing said casing into two chambers, means to establish free admission of the water in the boiler to one of said chambers to create a column of water in said chamber at a level with the water in the boiler or other receptacle and to act on one side of said septum, means to prevent the admission of water from the boiler or other receptacle to the other of said chambers, to act on said septum in opposition to the column of water in the first-named chamber, except when the water in the boiler or other receptacle exceeds the desired level of water to be maintained therein, a contracted waste-passage from the second-named chamber to gradually discharge the water therefrom, a water-supply, and a valve controlling said supply controlled by the movements of said septum, for the purpose set forth.

696,227. CORSET. ANNIE R. DECKER, Brooklyn, N. Y. Filed Apr. 10, 1901. Serial No. 55,123. (No model.)



Claim.—A corset having at its upper edge in front the pockets *g*, the draw-strings *h*, fixed at one end in the respective pockets, and the engaging hooks on the corset, substantially as and for the purpose set forth.

696,228. GARMENT-FASTENER. MORTON E. DUNN and OSCAR R. HENDERSON, Indianapolis, Ind. Filed June 28, 1901. Serial No. 66,230. (No model.)



Claim.—1. A garment-fastener comprising a plate having an opening extending through an edge thereof and into the plate having narrow projecting corners, clips upon said corners at the front face of the plate, spring-arms extending into said clips, a member securing said spring-arms to said plate, an opposing plate, and a stud attached to the opposing plate and engaging said first-described plate near said member.

2. A garment-fastener comprising a plate having ribs at three sides thereof, an opening extending between two of said ribs, clips at two corners of said plate, a clip at the third rib, spring-arms secured by said clips, an opposing plate, and a stud attached to the opposing plate and engaging said first-described plate.

3. In a garment-fastener, the combination of the base-plate having clips turned up at two corners thereof and also having the opening extending between said clips through the edge and into the plate, a rib forming also a clip turned up at one edge of said plate, the spring-arms engaged by said clips, the opposing plate, the stud attached to the opposing plate, and the perforations at the ends of said ribs.

4. In a garment-fastener, the combination with the plate having the projecting stud, of the plate having the opening extending from one edge thereof, the clips at the sides of said opening at the extremities of said edge from which said opening extends, the spring-arms secured in said clips, the clip engaging the opposite ends of said spring-arms, and the ribs on said plate at the edges thereof.

5. In a garment-fastener, the combination of the plate having the opening extending through an edge thereof and into the plate, the clips at the sides of said opening at the front face of said plate, the spring-arms having each an end extending into one of said clips in a line parallel to the line of the edge of said plate that has the opening therein, a third clip securing said arms, ribs upon the face of said plate at edges thereof, the opposing plate, and the stud on the opposing plate in contact with said first-described plate.

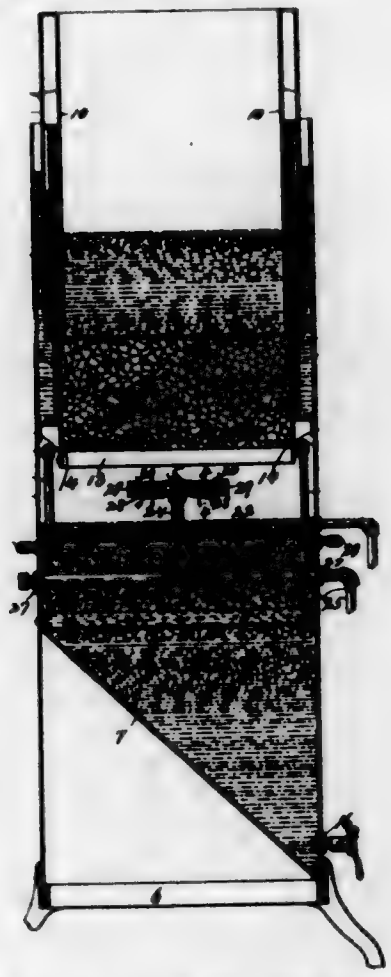
6. In a garment-fastener, the combination of the plate *c* having the mouth *d*, throat *j j'* and receptacle *k*, the clips *h h'* at the sides of said mouth, the perforations near said clips, the rib *g* at the opposite edge of said plate from said mouth, the clip *g'* adjacent to said rib *g* the spring-arms engaged by said clips, the perforations adjacent to said rib *g*, the ribs *i i'* at opposite edges of said plate near said spring-arms and said perforations, the plate *l*, and the stud *e*, substantially as set forth.

696,229. ACETYLENE-GAS GENERATOR. MARTIN J. ERK, Binghamton, N. Y. Filed June 18, 1901. Serial No. 65,142. (No model.)

Claim.—1. In an acetylene-gas generator, the combination of an inclosing shell and a carbid-receptacle therein and provided with a grate-bottom, said shell having water and gas chambers beneath the grate and a water-jacket surrounding the carbid-receptacle, a follower having portions thereof movable in the receptacle and jacket, and means independent of the receptacle and grate and alined with the apertures for discharging water laterally over the upper surface of the grate and against the carbid thereon.

2. In an acetylene-gas generator, the combination with an inclosing shell having water and gas chambers in its base and a water-jacket at its upper end, a carbid-receptacle removably suspended from the upper end of the shell and having a grate-bottom and apertures alined with the upper face of the grate, said grate being removable with the receptacle, a follower removable in the receptacle and jacket, and means independent

of the receptacle and grate and alined with the apertures for discharging water through the apertures and against the carbid.



3. In an acetylene-gas generator, the combination with an inclosing shell having water and gas chambers in its base and a water-jacket at its upper end, a carbid-receptacle suspended from the upper end of the shell and having a grate-bottom and apertures alined with the upper face of the grate, a follower movable in the receptacle and jacket, and means for discharging water through the apertures and against the carbid, a gas-conduit extending through the shell beneath the water-line and having a receiving-head in the gas-chamber above the water-line and beneath the grate, said head being formed with apertures in its lower wall for receiving the gas and with wings depending from its opposite sides beneath the lower wall for preventing the entrance of any sediment into the receiving-head.

4. An acetylene-gas generator comprising a water-containing shell, a removable carbid-receptacle above the water-line and provided with separated grate-bars secured to the receptacle and removable therewith, and a water-conduit separate from the receptacle or grate and having lateral discharge-nipples alined with the upper face of the grate for discharging water against the lower face of the carbid, the receptacle having apertures to receive the jets of water from the nipples for the purpose described.

5. In an acetylene-gas generator the combination with a shell having a gas-chamber, a carbid-receptacle above the gas-chamber and provided with separated grate-bars, said receptacles having apertures at the ends of the grate-bars and alined with the spaces between said bars, and a water-conduit having discharge-openings alined with the apertures and discharging jets of water into and lengthwise of said spaces between the grate-bars for the purpose described.

6. The combination with a removable carbid-receptacle having a horizontal grate-bottom removable with the receptacle, said receptacle having apertures in its side walls, a shell inclosing the bottom of the carbid-receptacle, and a water-supply conduit having nipples alined with the apertures and arranged to discharge jets of water through the apertures and against the lower face of the carbid and substantially parallel with the upper face of the grate.

7. A carbid-receptacle having a grate-bottom and apertures in its side walls alined with the upper face of the grate, in combination with an inclosing shell having a water-jacket above the apertures and a water-conduit beneath the water-jacket having openings discharging through said apertures against the carbid.

8. The combination with a carbid-receptacle having separated bottom grate-bars and apertures alined with the spaces between the grate-bars, of an inclosing shell having a water-jacket, and a water-conduit beneath the jacket having discharge-openings alined with said apertures for the purpose described.

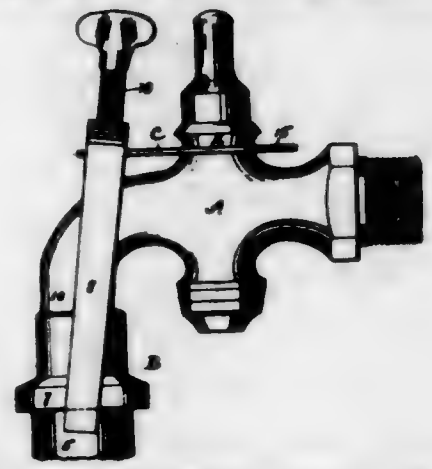
9. An acetylene-gas generator comprising an inclosing shell having water and gas chambers and an open upper end, a carbid-receptacle supported within the shell and removable through said opening, said receptacle having a grate-bottom and apertures in its side walls above the grate, the grate being movable with the receptacle and means for discharging water through the apertures in said side walls and against the lower surface of the carbid.

10. An acetylene-gas generator comprising an inclosing shell open at its upper end and having a water-chamber and a discharge-opening in its base and an inclined bottom wall troughed to concentrate the water and sludge at said discharge-opening, the upper end of the shell having a water-jacket independent of the former water-chamber, a carbid-receptacle supported within the shell and removable through its upper end, said receptacle having a grate-bottom and apertures through its side walls, and means for discharging water between the water-chamber and jacket through the apertures against the lower face of the carbid.

11. An acetylene-gas generator comprising a water-containing shell open at its upper end and having an inclined bottom wall and a discharge-opening above and in proximity to the lower edge of said wall, the shell having a water-jacket at its upper end, a carbid-receptacle suspended from its upper end into the shell above the water-line and having a grate-bottom secured thereto and normally in a plane beneath the water-jacket, said receptacle being removable through the upper end of the shell and having apertures alined with the upper face of the grate, and means for discharging water through said apertures against the carbid.

12. In an acetylene-gas generator, the combination of an inclosing shell and a carbid-receptacle removably suspended therein, said receptacle having a grate-bottom and apertures alined with the upper surface of the grate, the grate being removable with the receptacle and means between the shell and receptacle for discharging water laterally through the apertures and against the carbid.

696,230. FAUCET CONNECTION. WILLIAM I. PHELPS, New Britain, Conn., assignor of one-half to Louis Behrush, Atlantic City, N. J. Filed Nov. 6, 1901. Serial No. 81,270. (No model.)



Claim.—1. The herein-described faucet connection, consisting of the yoke for engaging the coupling, the set-screw for drawing the said yoke and coupling toward the faucet, and the holding-link at the upper end of the yoke, substantially as described.

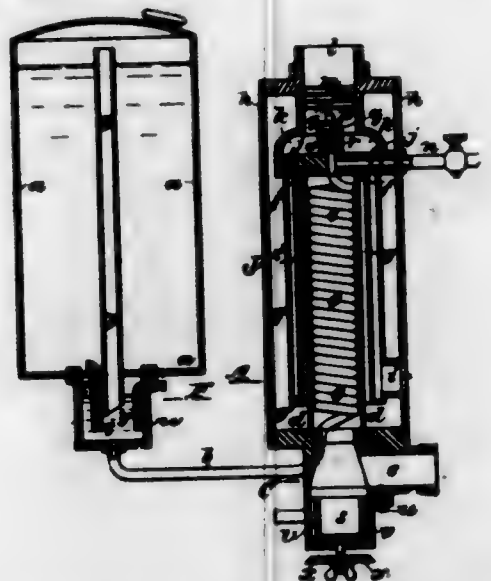
2. The combination of the special coupling having the flange and upper tubular projection, with the yoke engaging the said coupling, the set-screw for drawing up the yoke and coupling against the lower end of the faucet, and the holding-link for holding the upper end of the yoke in place, substantially as described.

696,281. CARBURETING DEVICE FOR EXPLOSIVE-ENGINES. JOSEPH FILLET, Neuilly-sur-Seine, France. Filed Jan. 12, 1901. Serial No. 42,970. (No model.)

Claim.—1. In a device for the purpose specified, the combination with an upright vaporizing-coil, means for supplying a liquid hydrocarbon to the lower whirls only of said coil and maintaining the level of said liquid therein, an upright air-conduit adjacent to said coil, and a mixing-chamber into which the air and vapor are discharged, of means for heating the air-conduit and vaporizer simultaneously with the hot exhaust-gases from the engine, substantially as set forth.

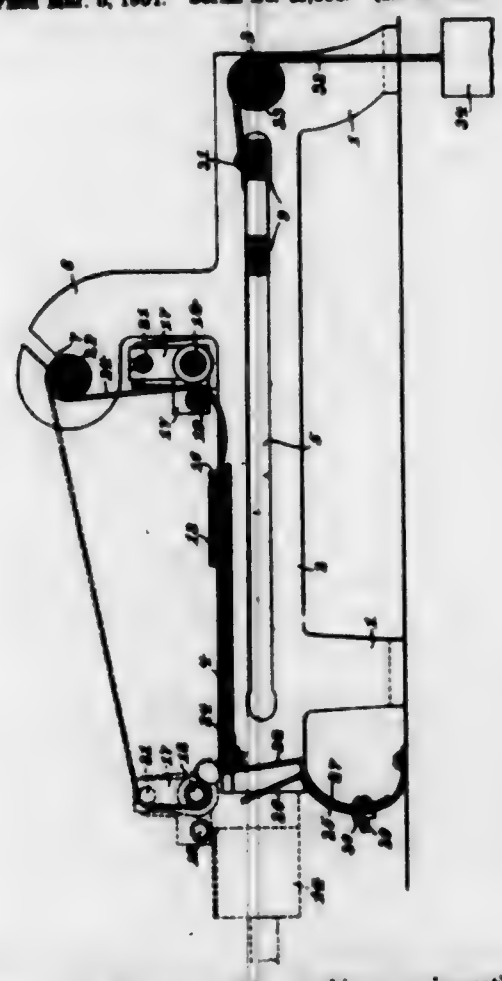
2. In a device for the purpose specified, the combination with the upright, outer casing J, having outlets A at its upper part for the exhaust-gases, the inner upright tube *d*, open at the bottom to receive the exhaust-gases and having outlets *f* at its top for the same, the upright annular air-jacket *g*, said jacket forming the jacket-space *d'* for the exhaust-gases and having an inlet below for air and outlets above for the air to the mixing-chamber, the upright coil *c* in the tube *d*, said coil having its

inlet for hydrocarbon at its lower end and its discharge-outlet above in the mixing-chamber, the said mixing-chamber, and means for supplying a liquid hydrocarbon to said coil *c* and maintaining the level of same therein, substantially as set forth.



3. A vaporizer and carburetor substantially as described, in combination with the reservoir *a*, the delivery-chamber *w* under the same, the pipe *z*, extending from the air-space in the reservoir down into the chamber *w*, the pipe *t* connecting the reservoir *a* with the chamber *w*, the air-pipe *y*, connecting the said chamber with the atmosphere, and the pipe *δ*, connecting said chamber with the lower end of the vaporizer, the relative levels of the vaporizer and the delivery-chamber being substantially as set forth and for the purpose specified.

696,282. CIGAR-BUNCHING MACHINE. PHILIP H. FRATT, Philadelphia, Pa., assignor of one-half to Elbridge G. Kemble, Philadelphia, Pa. Filed Mar. 5, 1901. Serial No. 49,998. (No model.)



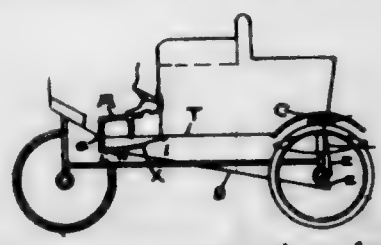
Claim.—1. In a cigar-bunching machine, a reciprocating carriage, a forming-roller carried by said carriage, guides on said carriage and a stretching-plate supported by said guides, said stretching-plate being adapted to reciprocate on said guides, substantially as specified.

2. In a cigar-bunching machine, a reciprocating carriage, guides on said carriage, a forming-roller carried by said carriage, a stretching-plate supported by said guides, said stretching-plate being adapted to reciprocate on said guides, and a spring connecting said stretching-plate to said carriage, substantially as specified.

3. In a cigar-bunching machine, a reciprocating carriage, guides on said carriage, a forming-roller journaled thereon, a smoothing device carried thereby, a stretching-plate supported by said guides, said stretching-plate being adapted to reciprocate on said guides, a stop for limiting the movement of said stretching-plate, and a spring connecting said stretching-plate to said carriage, substantially as specified.

4. In a cigar-bunching machine, the combination of a straight table, with straight ways, a reciprocating carriage guided by said ways, guides on said carriage, a reciprocating stretching-plate supported by said guides, means for limiting the movement of said stretching-plate relative to the movement of said carriage, a smoothing device, and a forming-roller carried by said carriage, substantially as specified.

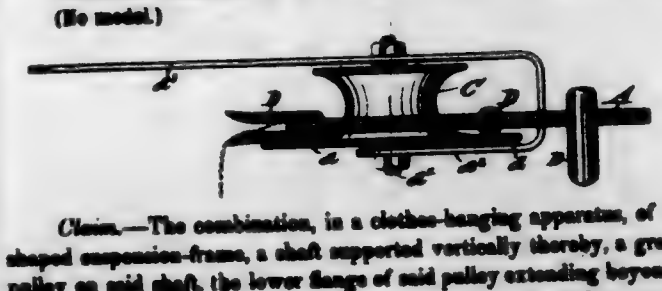
696,283. EMERGENCY-BRAKE FOR HORSELESS CARRIAGES. WILLIAM D. GOULD, Albany, N. Y. Filed Oct. 22, 1901. Serial No. 79,509. (No model.)



Claim.—1. In a brake for a horseless carriage, a foot-lever adapted to be operated by the driver of said carriage, an arm attached to the upper end of said lever and provided with ratchet-teeth, adapted to catch upon a stationary plate or bar under the floor of said carriage; said stationary plate or bar adapted to be acted upon by said ratchet-teeth; an adjustable arm connected with the lower end of said lever; an equalizing-bar pivoted at the center to the end of said adjustable arm; connecting-rods connecting the ends of said equalizing-bar to bell-crank levers at the rear of said carriage; said bell-crank levers adapted to operate other connecting-arms; said last-named connecting-arms connecting said bell-crank levers with brake-levers over the rear wheels of said carriage; said brake-levers supported over the rear wheels of said carriage by arms from the body portion of said carriage, and adapted to press brake-shoes upon the tires of the wheels of said carriage; said brake-shoes attached to said brake-levers and adapted to act upon the tires of said wheels, all substantially as described and for the purpose set forth.

2. In a brake for an automobile; a brake-shoe adapted to act upon the tire of a wheel of the automobile; a brake-lever supported over said wheel by an arm from the body portion of said vehicle; a mud-guard or fender also supported by said arm and covering said brake-shoe, and brake-lever, and substantially concealing them from view; a spring attached to said brake-lever and to said fender and adapted to hold said brake-shoe up under said fender away from contact with said wheel when not in action; said brake-lever attached to said brake-shoe and adapted to press it down upon the tire of the wheel; together with means for operating said brake-lever by the driver of said automobile, substantially as described and for the purpose set forth.

696,284. CLOTHES-HANGING APPARATUS. MICHAEL H. GOLDSTEIN, Brooklyn, N. Y. Filed May 3, 1901. Serial No. 59,294. (No model.)

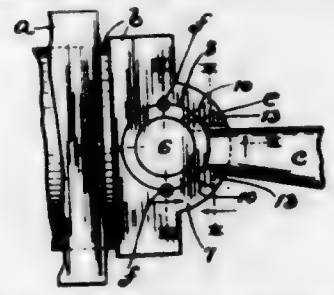


Claim.—The combination, in a clothes-hanging apparatus, of a U-shaped suspension-frame, a shaft supported vertically thereby, a grooved pulley on said shaft, the lower flange of said pulley extending beyond the adjacent leg of the suspension-frame, a clothes-line adapted to run over said pulley, and clothes-pins on said line, each pin being composed of a rounded head, and two arms projecting from said head and forming a slot between the same of less diameter than said rope and terminating at its inner end in a circular enlargement of approximately the same diameter as said rope, whereby shoulders are formed at the junction of the slot and enlargement, substantially as set forth.

696,285. KNEE-JOINT OR HINGE CONNECTION. GEORGE W. GREENWOOD, Cleveland, Ohio. Filed July 12, 1901. Serial No. 67,069. (No model.)

Claim.—1. A knee-joint or hinge connection between two parts or members of a machine comprising a journal 6 formed on one part and a box formed on the other part and having its chamber engaged by the

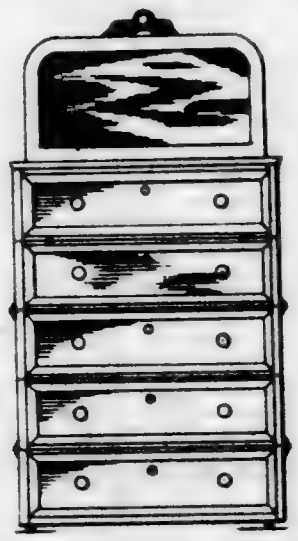
journal and having the surrounding wall of its chamber provided with a lateral slot 10 to accommodate the location and operation of the journal-forming part; which slot is open at one end of the said chamber; a bearing-affording member *e* embracing the journal adjacent to the open end of the slot, and means for securing the said bearing-affording member in place, and the aforesaid slot being reduced in width adjacent to the bearing-affording member, substantially as and for the purpose set forth.



2. A knee-joint or hinge connection between two parts or members of a machine, comprising a journal 6 formed on one part, and a box formed on the other part and having its chamber engaged by the journal and having the surrounding wall of the said chamber provided with a lateral slot 10 to accommodate the location and operation of the journal-forming part, which chamber is enlarged, at one end; a bushing *e* within the said enlarged end of the chamber, and screws removably securing the bushing in place and engaging correspondingly-threaded holes formed partially in the bushing and partially in the bushing-surrounding portion of the aforesaid wall, and the journal extending into and having bearing in the said bushing.

3. A knee-joint or hinge connection between two parts or members of a machine, comprising a journal 6 formed on one part, and a box formed on the other part and having its chamber engaged by the journal and having the surrounding wall of the said chamber provided with a lateral slot 10 to accommodate the location and operation of the journal-forming part, which chamber is enlarged, at one end; a bushing *e* within the said enlarged end of the chamber, and means securing the bushing in place, and the journal extending into and having bearing in the said bushing, and the aforesaid slot being reduced in width adjacent to the bushing so as to enlarge the bushing-embracing portion of the box circumferentially of the bushing, as at 13, substantially as and for the purpose set forth.

696,286. COMBINATION FURNITURE. MAYER HAUT and JACOB HAUT, New York, N. Y. Filed Jan. 10, 1901. Serial No. 42,817. (No model.)



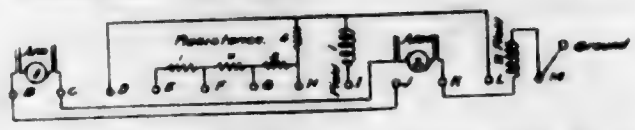
Claim.—1. As a new article of manufacture, a piece of furniture consisting of a series of box-like sections having hinge connections alternating at opposite sides, whereby the sections may be folded together vertically to form a bureau or extended to form a table, and legs having swinging connections with the piece of furniture.

2. As a new article of manufacture a piece of furniture comprising a series of sections hinged together alternately at opposite sides so as to be adapted to form a table or bureau, certain of the sections having recesses, spring-hinged covers for the said recesses, and legs held in open position by the said covers when the device is used as a table and adapted to be folded into the said recesses when the device is used as a bureau, substantially as specified.

3. As a new article of manufacture, a piece of combination furniture comprising a series of approximately rectangular sections having the alternate long edges hinged together in such a manner that the sections may be placed one on the other to form a bureau, and may also be placed side to side to form a table, legs for the middle and end sections, and hinges connecting the legs with said sections whereby the said legs may be folded into the said sections when the furniture is in the form of a bureau, substantially as specified.

4. As a new article of manufacture, a piece of combination furniture comprising a series of approximately rectangular sections having the alternate long edges hinged together in such a manner that the sections may be placed one on the other to form a bureau and may also be placed side to side to form a table, one section being arranged as a desk, another section as a receptacle for articles, legs for the middle and end sections, and hinges connecting the legs with the said sections whereby the said legs may be folded into said sections when the furniture is in the form of a bureau, substantially as specified.

696,287. CONTROLLER FOR ELECTRIC RAILWAYS OR VEHICLES. JOHN C. HENRY, Denver, Colo.; Susie A. Henry, executrix of said John C. Henry, deceased, assignor to Stanley Electric Manufacturing Company, a Corporation of New Jersey. Filed Dec. 14, 1899. Serial No. 740,282. (No model.)



Claim.—1. In a series-parallel controller where the fields and armatures are ordinarily connected in series, contacts arranged for disconnecting one of the motors from the circuit and connecting its field in parallel with the field of the other motor and subsequently connecting its armature to the circuit in parallel with the other armature.

2. In a series-parallel controller contacts arranged for disconnecting one of the motors from the circuit and connecting it in parallel with its mate establishing a cross connection between the armature and fields of the separate motors and a resistance connection between the said cross connection and the field-terminals.

3. In a series-parallel controller, contacts arranged for disconnecting one of the motors from the circuit and connecting it in parallel with its mate, establishing a cross connection between the armature and fields of the separate motors and a variable-resistance connection between the said cross connection and the field-terminals.

4. A controller for regulating a pair of series electric motors, comprising contacts adapted to first connect the motors in series relation, then to shunt through a resistance and finally through a short circuit, the field-magnet of one of the motors, thereby increasing the voltage of one of the motors by decreasing the voltage of its mate; and contacts adapted to subsequently remove the latter motor, and then connect its field, and afterward its armature in parallel relation with the field and armature of the opposite motor.

5. A controller for regulating a pair of series electric motors, which comprises contacts adapted and arranged to first connect the motors in series relation, then shunt the field-magnet of one of the motors through a resistance and finally through a short circuit, thereby gradually increasing the voltage of one of the motors by decreasing the voltage of its mate, and contacts adapted and arranged to subsequently remove the latter motor in sections, and then connect its field and afterward its armature in parallel relation with the field and armature of the opposite motor.

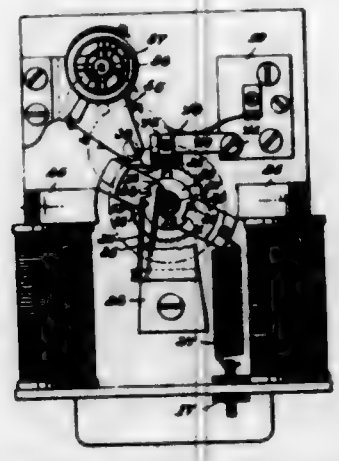
6. A controller for changing a pair of motors from series to parallel, which comprises contacts adapted and arranged to disconnect one of the motors from the circuit, contacts adapted to place the field of the disconnected motor in shunt with the field of the connected motor, thereby speeding up the single motor by weakening its field, and magnetizing the field of the other motor, and contacts for connecting the second armature to the circuit in parallel.

7. A controller for regulating a pair of series electric motors, which comprises contacts adapted and arranged to first connect the motors in series relation, then shunt the field of one motor so as to gradually increase the voltage of one of the motors by decreasing the voltage of its mate, contacts adapted and arranged for subsequently removing the latter motor, and then connecting its field and afterward its armature in parallel relation with the field and armature of the opposite motor.

696,238. ELECTRIC CLOCK. MAX HERZ, Berlin, Germany. Filed July 18, 1898. Serial No. 734,948. (No model.)

Claim.—1. In an electrical timepiece, the combination of an oscillating lever-armature, with a spiral spring, finely adjustable by a check-nut, and a contact device for making and breaking the electric circuit comprising, in combination, with said lever-armature, a disk freely rotatable on the shaft of the lever-armature; a pin on the lever-armature engaging a slot of the said disk, limiting the movement of the same; two indentations in the said disk entered by a spring-actuated pawl; and an angle-shaped contact-piece integral with the above-mentioned disk

and coacting with the pawl of the contact-lever; substantially as set forth.



2. The combination with a timepiece of an electrical contact device, comprising in combination, a ratchet-wheel for actuating the clockwork mechanism; a lever-armature oscillating between the pole ends of an electromagnet; a spring-pawl secured on said oscillating armature and adapted to turn said ratchet-wheel in one direction; a lever pivoted proximate to said ratchet-wheel, and electrically connected to one electric terminal; a spring pressing said lever toward said ratchet-wheel, an electric contact-surface secured on said lever; a projecting tooth secured to, and insulated from, said lever, and adapted to engage in the teeth of said ratchet-wheel under the pressure of said spring; a disk having a slot in its face and two notches on its periphery; a pin secured to said lever-armature and adapted to engage in the slot in said disk, thus to oscillate, the same with intervals of rest; a pawl adapted to engage in the peripheral notches in said disk and thus hold the same; an electric contact-piece secured to said disk and adapted by the oscillation of said disk to alternately make and break contact with the contact-surface secured to the said lever pivoted proximate to said ratchet-wheel; a grooved collar in electrical connection with said disk; and a contact-spring bearing against said collar and electrically connected to the second electric terminal; substantially as set forth.

3. The combination in an electrical timepiece of a contact device, comprising, in combination, a ratchet-wheel for actuating the clockwork; a lever-armature oscillating between the pole ends of an electromagnet; a spring secured to said armature and adapted to turn said lever-armature contrary to the movement effected by the electromagnets; a spring-pawl secured to said oscillating armature and adapted to turn said ratchet-wheel in one direction; a lever pivoted proximate to said ratchet-wheel and electrically connected to one electric terminal; a spring pressing said lever toward said ratchet-wheel; an electric contact-surface secured on said lever; a projecting tooth secured to, and insulated from, said lever, and adapted to engage in the teeth of said ratchet-wheel under the pressure of said spring; a disk having a slot in its face, and two notches on its periphery; a pin secured to said lever-armature and adapted to engage in the slot in said disk, and thus to oscillate the same with intervals of rest; a pawl adapted to engage in the peripheral notches in said disk, and thus hold the same; an electric contact piece secured to said disk, and adapted by the oscillation of said disk to alternately make and break contact with the contact-surface secured to the said lever pivoted proximate to said ratchet-wheel; a grooved collar in electrical connection with said disk; and a contact-spring bearing against said collar and electrically connected to the second electric terminal; substantially as set forth.

4. An electrical contact device for electrical timepieces, comprising, in combination, a disk adapted to be oscillated in its periphery; a contact-piece secured to, and reciprocating with said disk; a lever pivoted to the framework and electrically connected with one terminal; a second contact-piece, secured to said lever, and arranged in the path of the said first and oscillating contact-piece; a grooved collar in electrical connection with said disk; and a contact-pin bearing against said collar and electrically connected to the second terminal; substantially as set forth.

5. An electrical contact device for electrical timepieces, comprising, in combination, a disk adapted to be oscillated and having notches in its periphery; a spring-pawl adapted to engage in the notches in said disk; a contact-piece secured to, and reciprocating with said disk; a lever pivoted to the framework and electrically connected with one terminal; a second contact-piece, secured to said lever, and arranged in the path of the said first and oscillating contact-piece; a grooved collar in electrical connection with said disk; and a contact bearing against said collar and electrically connected to the said second terminal, substantially as set forth.

6. An electrical contact device for timepieces and the like, comprising, in combination, an oscillating contact-piece; a ratchet-wheel adapted to turn in one direction with said contact-piece but not to return therewith; an insulated arm hinged with its free end proximate to said contact-piece; a second contact-piece attached to said arm and arranged to intercept the path of said first contact-piece; a pawl secured to said arm, and adapted by engagement with the teeth of said rotating ratchet-wheel to raise and lower said arm; all substantially as and for the purposes set forth.

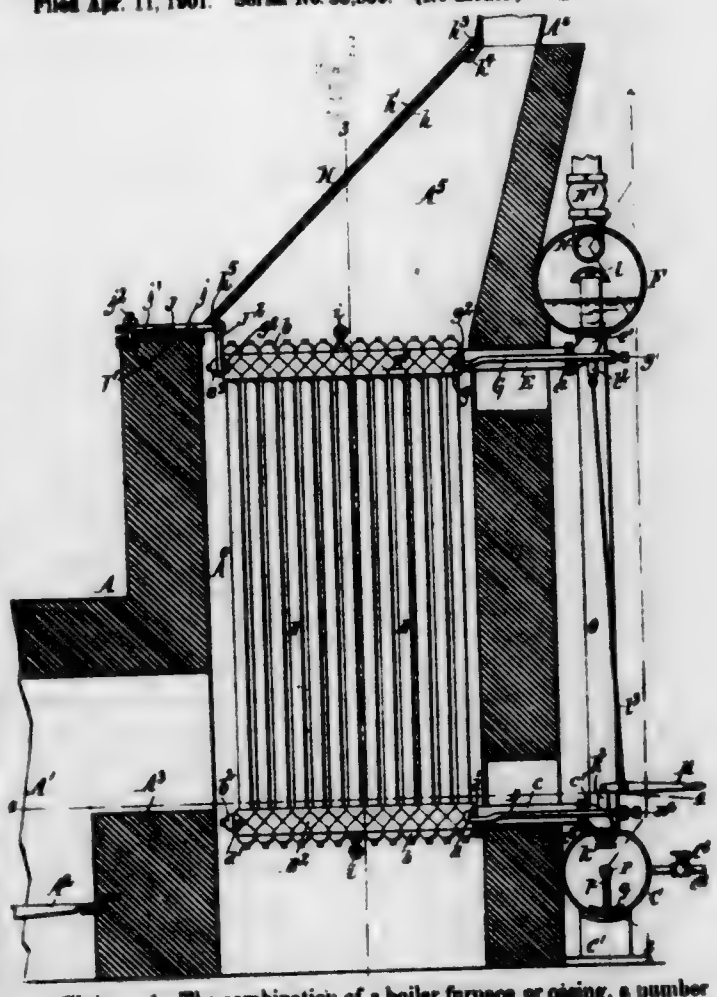
696,239. BED-BOTTOM ATTACHMENT. JOHN HOEY, San Francisco, Cal. Filed July 24, 1901. Serial No. 69,470. (No model.)

Claim.—1. A bed-bottom frame including side and end bars, said side bars adapted to rest directly upon the upper edges of the bedstead-rails, in combination with a flat plate adjustably secured to the bottom surface of said side bars and extending crosswise thereof said plate having a lug at one end to hook over the upper angle of an underlying bed-frame rail whereby the bed-bottom frame is held against side movement on the bed-frame.

2. A bed-bottom frame including side and end bars said side bars adapted to rest directly upon the upper edges of the bedstead-rails, in combination with a flat plate fitted directly to the under side of each of the side bars and adapted to lie between said under side and the upper edge of the bedstead-rails, and extending transverse thereof and having a downturned lug at its outer end, said plate removably secured and capable of reversal whereby it may extend lengthwise of said end bar and its lug portion may project in an opposite direction and engage and protect the edge of the side rail.

3. A bed-bottom frame including side and end bars said side bars adapted to rest directly upon the top edges of the bedstead rails and having secured directly to their under surface a transversely-extending hook-shaped member the hook whereof projects beyond the vertical plane of the outer sides of the side bars and also the bedstead-rails whereby it may engage the upper angle of the bedstead-rail of a bed-frame and hold the bed-bottom from against lateral movement on the bed-frame.

696,240. STEAM-BOILER. CARLOS HOLLY, Lockport, N. Y. Filed Apr. 11, 1901. Serial No. 55,359. (No model.)



Claim.—1. The combination of a boiler furnace or casing, a number of individually-removable boiler-sections arranged in the furnace, each of said sections forming a separate closed water-chamber disconnected at its sides from the adjoining sections and having an inlet and an outlet passage, inlet and outlet pipes or conduits arranged to connect with the inlet and outlet passages of the boiler-sections, and means for removably

attaching each boiler-section to said inlet and outlet pipes, substantially as set forth.

2. The combination of a boiler furnace or casing, a number of individually-removable boiler-sections arranged in the furnace, each of said sections forming a separate closed water-chamber disconnected at its sides from the adjoining sections and having an inlet and an outlet passage independent of the corresponding passages of the remaining sections, a pair of inlet and outlet pipes for each boiler-section arranged externally of the section and in register with its inlet and outlet passages, and means for detachably securing each boiler-section to its inlet and outlet pipes, substantially as set forth.

3. The combination of a boiler furnace or casing, a number of individually-removable boiler-sections arranged in the furnace and each having an inlet and an outlet passage independent of those of the remaining sections and both located at the same side of the section, and a separate pair of inlet and outlet pipes for each boiler-section extending through the wall of the furnace, said pipes being arranged side by side and in register with the companion passages of the sections and detachably connected with the sections, substantially as set forth.

4. The combination of a boiler furnace or casing, a number of independent reversible boiler-sections arranged in the furnace, each of said sections forming a separate closed water-chamber disconnected from the adjoining sections and having inlet and outlet passages which are duplicated at directly opposite sides of the section, removable caps or closures applied to the set of inlet and outlet passages at one side of the section, and a pair of inlet and outlet pipes for each boiler-section arranged to register with the uncapped inlet and outlet passages at the opposite side of the section and detachably connected with the section, substantially as set forth.

5. The combination with a boiler furnace or casing, of a number of independent, removable boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages and attaching pins or projections, a pair of inlet and outlet pipes for each boiler-section arranged to register with the inlet and outlet passages thereof, and clamping-yokes straddling said inlet and outlet pipes and each provided at its inner end with hooks which engage with the pins of the corresponding boiler-section and at its outer end with a clamping-bolt, substantially as set forth.

6. The combination with a boiler furnace or casing, of a number of independent, reversible boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages and attaching-pins, which passages and pins are duplicated at opposite sides of the section, removable caps or closures applied to the pair of inlet and outlet passages at one side of each section, a pair of inlet and outlet pipes for each boiler-section arranged to register with the inlet and outlet passages thereof, and clamping-yokes straddling said inlet and outlet pipes and each provided at its inner end with hooks which engage with the adjacent pins of the corresponding boiler-section and at its outer end with a clamping-bolt, substantially as set forth.

7. The combination with a boiler-furnace, of a removable boiler-section arranged therein and provided at one side with inlet and outlet passages, inlet and outlet pipes arranged to register with said passages, means for removably attaching the boiler-section to said pipes, and a retractable hanger connected with the top of the boiler-section at the side opposite its inlet and outlet passages, substantially as set forth.

8. The combination with a boiler-furnace, of a removable boiler-section arranged therein and provided at one side with inlet and outlet passages, inlet and outlet pipes arranged to register with said passages, means for removably attaching the boiler-section to said pipes, a hanger detachably connected with the top of the boiler-section at the side opposite its inlet and outlet passages, a lever carrying said hanger at its inner end and capable of sliding on its fulcrum toward and from the boiler-section, and a clamping-bolt applied to the outer arm of the lever, substantially as set forth.

9. The combination with a boiler furnace or casing, of a number of independent boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages independent of those of the remaining sections, a pair of inlet and outlet pipes for each boiler-section arranged to register with the inlet and outlet passages thereof, means for attaching each boiler-section to its inlet and outlet pipes, and cut-off valves applied to the inlet and outlet pipes of each boiler-section, substantially as set forth.

10. The combination with a boiler furnace or casing, of a number of independent, removable boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages independent of those of the remaining sections, a pair of inlet and outlet pipes for each boiler-section arranged to register with the inlet and outlet passages thereof, means for removably attaching each boiler-section to its inlet and outlet pipes, and cut-off valves applied to the inlet and outlet pipes of each boiler-section, substantially as set forth.

11. The combination with a boiler furnace or casing, of a number of independent, removable boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages independent of those of the remaining sections, a pair of inlet and outlet pipes for each boiler-section arranged to register with the inlet and outlet passages thereof, means for removably attaching each boiler-section to its inlet and outlet pipes, cut-off valves applied to the inlet and outlet pipes of each boiler-section and connections between the cut-off valves of each pair of inlet and outlet pipes for simultaneously operating the valves, substantially as set forth.

12. The combination with a boiler furnace or casing, of a number of independent, removable boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages independent of those of the remaining sections, a pair of inlet and outlet pipes for each boiler-section arranged to register with the inlet and outlet passages thereof, means for removably attaching each boiler-section to its inlet and outlet pipes, cut-off valves applied to the inlet and outlet pipes of each boiler-section, an operating-lever for each pair of said inlet and outlet valves, and connections extending from said valves to said levers whereby the same are operated simultaneously, substantially as set forth.

13. The combination with a boiler furnace or casing, of a number of independent, removable boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages independent of those of the remaining sections, a pair of inlet and outlet pipes for each boiler-section arranged to register with the inlet and outlet passages thereof, means for removably attaching each boiler-section to its inlet and outlet pipes, a main supply-chamber or mud-drum connected with all of said inlet-pipes and a steam-drum connected with all said outlet-pipes, substantially as set forth.

14. The combination with a boiler furnace or casing, of a number of independent, removable boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages independent of those of the remaining sections, a pair of inlet and outlet pipes for each boiler-section arranged to register with the inlet and outlet passages thereof, means for removably attaching each boiler-section to its inlet and outlet pipes, a main supply-chamber or mud-drum connected with all of said inlet-pipes, a steam-drum connected with all of said outlet-pipes and cut-off valves applied to the inlet and outlet pipes of each boiler-section within said mud and steam drums, substantially as set forth.

15. The combination with a boiler furnace or casing, of a number of independent boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet pipes independent of those of the remaining sections, and cut-off valves applied to the inlet and outlet pipes of each boiler-section, substantially as set forth.

16. The combination with a boiler furnace or casing, of a number of independent boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet pipes independent of those of the remaining sections, a main water-supply chamber or mud-drum connected with all of said inlet-pipes, a steam-drum connected with all of said outlet-pipes, and cut-off valves applied to the inlet and outlet pipes of each boiler-section within said mud and steam drums, substantially as set forth.

17. The combination with a boiler furnace or casing, of a number of independent, removable boiler-sections arranged in the heating-chamber of the furnace and each having inlet and outlet passages, a pair of inlet and outlet pipes for each boiler-section, means for independently attaching each boiler-section to its inlet and outlet pipes, a mud-drum or main supply-chamber connected with the inlet-pipes of the several sections, cut-off valves applied to said inlet-pipes, and valved by-passes or pipes extending from the mud-drum to the portions of said inlet-pipes between their cut-off valves and the boiler-sections, substantially as set forth.

18. A removable boiler-section having inlet and outlet passages, and a plug or diaphragm of readily-destructible material applied to its inlet-passage, substantially as set forth.

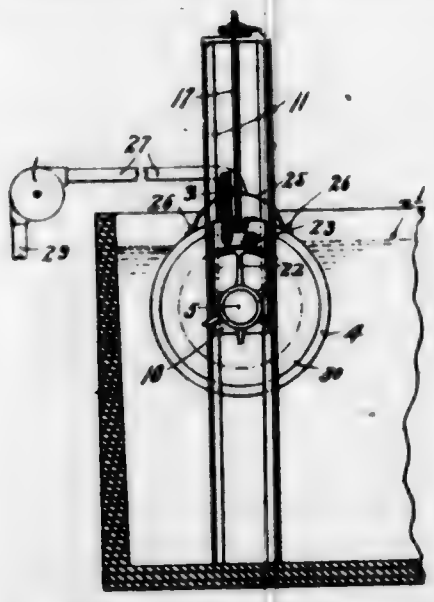
696,241. FILTER. ALFRED JOHNSON, Minneapolis, Minn., assignor of three-fifths to Alexander Swanson and John Nelson, Minneapolis, Minn. Filed June 24, 1901. Serial No. 66,743. (No model.)

Claim.—1. The combination with a filter, of a draft device for cleaning the same, having a receiving-head engageable in succession with different sections of the filter, substantially as described.

2. The combination with a rotary filtering-drum, of a draft device for cleaning the same, having a receiving-head which is engageable in succession with different sections of said filtering-drum, substantially as described.

3. The combination with a rotary filtering-drum, having longitudinally-extended peripheral compartments, of a relatively fixed collecting-pocket engaging the outer filtering-surface of said drum, and means for producing a draft through said collecting-pocket and the engaged filter-

ing-surface of said drum, to clean the said filtering-surface, substantially as described.

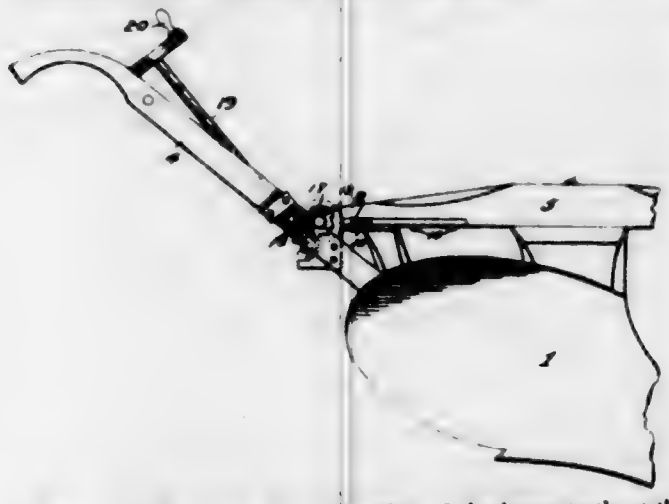


4. The combination with a reservoir, of a rotary filter mounted therein with a portion thereof always above the water-level thereof, and a draft device arranged to operate upon the exposed and inoperative surface of said filter, substantially as described.

5. The combination with a reservoir, of a rotary filtering-drum having longitudinally-extended compartments, which drum is mounted in said reservoir with one section thereof always movable into a position to expose its outer filtering-surface above the water-level, and a draft device operative on the exposed and inoperative section of said drum, to clean the same, substantially as described.

6. A filtering-drum made up of the concentric filtering screens 6 divided into compartments by the stripe 8 and 9, and filtering material placed between the two outer screens and between the two inner screens, a divided annular air-space 7 being left between the intermediate screens, substantially as described.

696,242. PLOW. CHARLES E. JOHNSON, near Warrenton, Va. Filed June 1, 1901. Serial No. 62,727. (No model.)



Claim.—1. In a plow the combination of the beam, teeth at the rear end thereof, a worm-screw adapted to mesh with said teeth, a spiral gear on said worm-screw, and an upright worm-screw substantially as described.

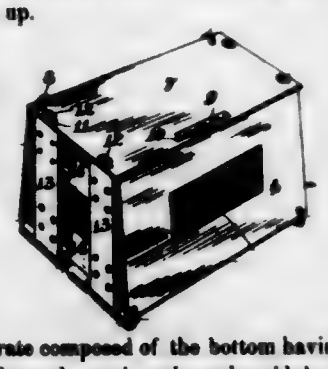
2. In a plow the combination of the beam, teeth at the end thereof, a worm-screw adapted to mesh therewith, the circumference of which increases from the center to the ends thereof, and means for turning said screw, substantially as described.

3. In a plow the combination of the beam a worm-screw secured behind said beam, a spiral gear on said screw, an upright worm-screw adapted to mesh with said spiral gear and means for guiding said beam substantially as described.

696,248. CRATE OR BOX. EDWARD E. JOHNSTON, Cripplecreek, Colo. Filed Dec. 12, 1901. Serial No. 85,570. (No model.)

Claim.—1. A box or crate consisting of the bottom, sides and top all hinged together, said top having a series of slots, the ends hinged to the bottom, said ends and front side having locking-tongues to engage the slots in the top and lock the sections of the box.

2. A box or crate consisting of the bottom having the sleeves or bearings at each end, the rods passing through said sleeves and having a loop or eye at each end, the front and rear sides hinged to the bottom by said loops, the ends also hinged to the rods, the top connected to the rear side and having a series of slots, and locking-tongues on the ends and front side to engage said slots in the top for securing the sides and ends when the box is set up.



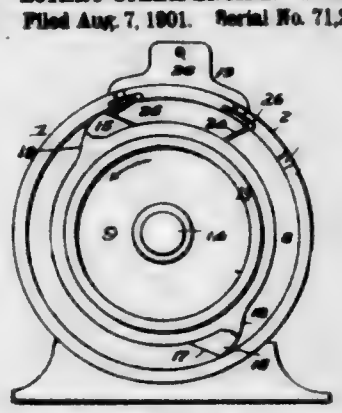
3. A box or crate composed of the bottom having the bent portions forming bearings, the rods passing through said bearings the front and rear sides hinged to said rods, the locking-tongue on the front side, the top hinged to the rear side and having a kerf to receive the locking-tongue on the front side, and having kerfs at each end, and the ends hinged to the rods and having locking-tongues to engage said kerfs on the ends of the top to lock the sections when the box is set up.

696,244. METHOD OF MAKING ALLOYS. EDWARD KELLER, Baltimore, Md. Filed Nov. 15, 1899. Serial No. 737,055. (No specimens.)

Claim.—1. The method of reducing segregation in cast metal, which consists, first, in determining by analysis of a casting, whether segregation occurs toward or away from those portions of the casting first to solidify, and secondly in combining with the remelted metal or other portion of the same batch of metal when in a fluid condition, a substance foreign thereto, but soluble therein in such quantity as to maintain a homogeneity of the mass at the solidifying or freezing temperature and finally casting the treated molten metal; substantially as described

2. The method of reducing segregation in cast metal containing a basic metal and a material foreign thereto but soluble therein, which consists first in ascertaining whether segregation occurs toward or away from those portions of the casting first to solidify, secondly in varying the proportion of foreign soluble material in the mass in accordance with the previously-ascertained direction and degree of segregation to maintain a homogeneity of the mass at the solidifying or freezing temperature and finally casting the treated molten metal; substantially as described.

696,245. ROTARY STEAM-ENGINE. FORREST G. KENNEDY, Philadelphia, Pa. Filed Aug. 7, 1901. Serial No. 71,213. (No model.)



Claim.—1. In a rotary engine, a casing having an annular chamber, a valve-casing communicating with the chamber by passages, a slide-valve in the valve-casing, a swinging abutment in the casing at each passage, a rotary piston and piston-heads on the piston each having an inclined steam-face to ease the opening of the swinging abutments and with a cam-surface to close the said swinging abutments.

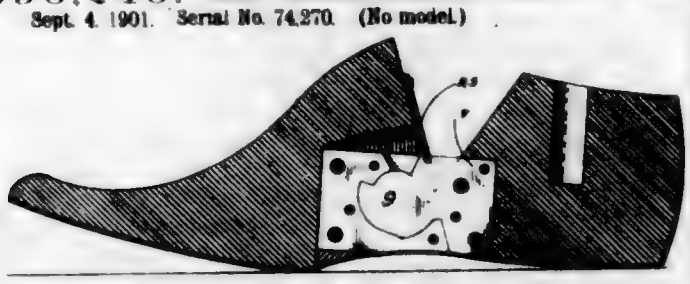
2. In a rotary engine, the annular steam-chamber having a bottom wall 6 7 divided by a continuous opening, in combination with a rotary disk piston its circumferential wall part closing and forming a steam-tight joint between said bottom wall parts and its periphery being within the bottom surface of said steam-chamber, and swinging abutments in said chamber, resting upon the bottom wall parts, free of frictional contact with the circumference of the rotary piston.

3. In a rotary engine, the combination of a casing, a rotary piston therein, a valve controlling the steam-ports, an arm on the valve-stem, arms on the piston-shaft engaging the stem-arm in one direction, a rock-lever and other arms on the shaft arranged to move the rock-lever to engage the stem-arm in the opposite direction.

4. In a rotary engine, a casing having annular circumferential flanges 4 and 5 and inner flanges 6 and 7 of less projection than the outer flanges

forming an annular chamber, in combination with a piston-disk having annular flanges 12 and 13 on its opposite sides and a peripheral rim between the ends of the inner flanges joining and closing the opening between the latter and terminating slightly below their inner surfaces, the separated ends of the inner flanges terminating in depending flanges 10 and 11 in joint forming contact with the piston side flanges, piston-heads fixed on the rim of the disk and swinging abutments in the casing coacting with said piston-heads.

696,246. LAST. CLEMENTS B. KOSTERS, Buffalo, N. Y. Filed Sept. 4, 1901. Serial No. 74,270. (No model.)



Claim.—1. In a separable multipart last, a plate secured to one part thereof having a recess provided with an irregular curved edge, and a plate secured to another part provided with an irregular projection adapted to fit and turn in the recess of the first-mentioned part.

2. In a separable multipart last, a plate secured to one part having a recess and a shoulder at one side of said recess, and a plate secured to another part and having a projection adapted to fit and turn in the recess of the first-mentioned plate and provided with a shoulder adapted to engage the shoulder of the said first-mentioned plate to lock the parts together.

3. A separable hinged last having a plate attached to one of its parts provided with a socket, and a plate attached to another of its parts provided with a projection adapted to fit within the socket and said projection being adapted to turn on its periphery in said socket.

4. A separable multipart last having slots in its parts and a metal hinge device for connecting said last parts comprising a plate fitting in the slot in one part and having a recess provided with an irregular curved edge, and a plate fitting in the slot in another part and having a projection adapted to fit and turn in said recess and to be withdrawn therefrom by a straight backward movement when in one position.

5. A hinged last having one of its parts provided with a socket and another of its parts provided with a projection adapted to fit and turn in said socket and a lock-plate pivoted to one of said parts and having two locking-notches, substantially as set forth.

6. A hinged last having one of its parts provided with a socket and another of its parts provided with a projection adapted to fit and turn in said socket and a lock-plate pivoted to one of said parts and having two locking-notches and a laterally-projecting finger-grip, substantially as set forth.

7. A separable hinged last having a plate attached to one of its parts, said plate having an irregular edge forming a socket extending from face to face of the plate, and a plate attached to another of the last parts provided with a projection corresponding in contour to the contour of the socket and adapted to fit and turn within the socket.

8. A separable hinged last having a plate attached to one of its parts, said plate having an irregular edge forming a shouldered socket extending through the entire thickness of the plate, and a plate attached to another of the last parts provided with a shouldered projection corresponding in contour to the contour of the shouldered socket and adapted to turn and lock therein.

696,247. MULTIPLE CONTROL SYSTEM. HARRY W. LEONARD, New York, N. Y. Filed Jan. 24, 1901. Serial No. 44,566. (No model.)

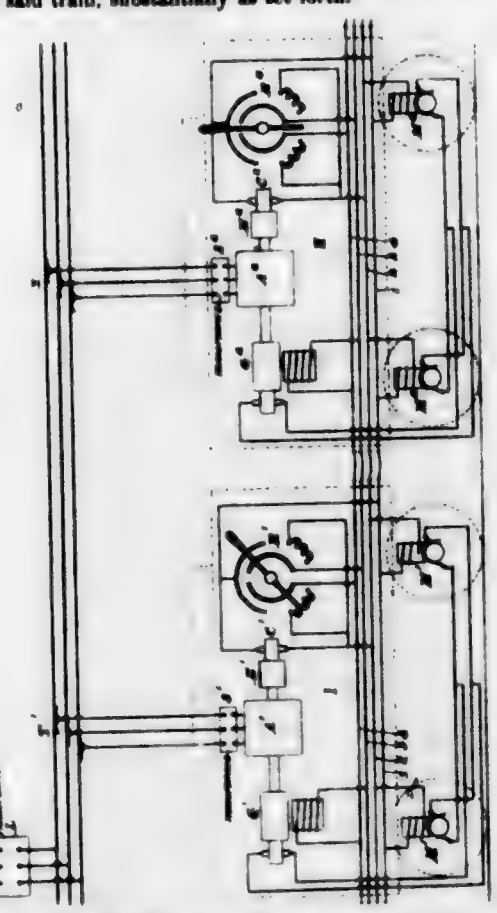
Claim.—1. The combination of two dynamo-electric machines each having a separately-excited field and means by which both fields can be similarly varied from two different places, substantially as set forth.

2. The combination of two dynamo-electric machines each having a separately-excited field and means by which both fields can be similarly varied and reversed from two different places, substantially as set forth.

3. The combination of two dynamo-electric generators each having a separately-excited field, an electric motor connected to each of the said generators, and means at two different places for similarly controlling the electromotive force of the two generators, for the purpose of similarly varying the speed of the two motors, substantially as set forth.

4. Two electric vehicles, each equipped with an electric motor, a dynamo on each of the said vehicles for supplying its respective motor and means on each vehicle by which the voltage produced by the dynamos can be similarly varied from a controlling point on each car, substantially as set forth

5. A source of alternating current, an electric railway supplied thereby, a train of cars on said railway, moving contacts for leading the alternating current upon the train of cars, an alternating-current motor on the said train, a continuous-current generator driven by the said alternating-current motor and having a separately-excited field and means on two or more different cars of the train for controlling the field strength of the continuous-current generator for the purpose of thereby controlling its electromotive force, and motors on different cars which are supplied by the said generator and whose speed can thus be similarly varied from several points on the said train, substantially as set forth.



6. A source of alternating electromotive force, two or more vehicles on an electric railway supplied from said source, each vehicle having a motor-generator consisting of an alternating-current motor and a continuous-current generator, an electric motor on each vehicle supplied from the generator on that vehicle, and means on each vehicle for controlling from that vehicle the speed of the motors on both vehicles, so that the two vehicles can be operated as a train and controlled from each vehicle at will, substantially as set forth.

7. Two cars operated as a train, each car having its own motor, a continuous-current generator on each car for supplying current to the armature of its specific motor, a source of constant electromotive force and continuous current on each car for separately exciting the field of the generator of that car, a system of wiring connected between the cars so that the separate exciter of either car can be used to excite the fields of both generators and controlling means on each car by which the field strength of the generators on both cars can be similarly and simultaneously varied from either car at the will of the operator, so that the two cars can be made to operate similarly in the train and the motors will divide the load proportionately, substantially as set forth.

8. A system of four wires extending along a train of cars and connected between the cars, a source of constant electromotive force and continuous current connected between one pair of wires, translating devices connected between the second pair of wires, and a reversing-rheostat connected between the first pair and second pair of wires, so that by manipulating the said reversing-rheostat the current supplied to the translating devices can be varied in amount and reversed in direction, substantially as and for the purpose set forth.

9. In an electric railway, a train of cars, a pair of conductors connected to a source of constant electromotive force and continuous current, and extending along the train, a second pair of conductors extending along the train and having the field-magnet of a dynamo-electric machine connected therewith, and on several different cars, a rheostat and reversing-switch for connecting the second pair of conductors with the first pair so that by manipulating any one of the said reversing switches and rheostats, the field-magnetism of the dynamo-electric machine can be varied in amount and reversed in sense, substantially as set forth.

10. A pair of conductors connected to a source of constant electromotive force and continuous current, a second pair of wires which at several different points can be connected to the first pair through a revers-

ing-rheostat, the field-magnets of several dynamos connected across the second pair of wires and a motor connected with each of the said dynamos, so that by manipulating any one of the said rheostats the field-magnetism of the dynamos can be varied and reversed and the motors thereby similarly and simultaneously varied in speed and reversed in direction of rotation, substantially as set forth.

11. A source of alternating current, an electric railway supplied thereby, several vehicles coupled together mechanically to form a train, an electric motor of continuous current on each of the said vehicles, means on each of the said vehicles for transforming the energy of the alternating current into a continuous current of variable voltage and supplying such continuous current of variable voltage to its respective motor, and means on each of the said vehicles for simultaneously and similarly controlling the voltage of the continuous-current energy, so that the speed of the motors of the several vehicles can be similarly and simultaneously controlled from either of the vehicles at the will of the operator, substantially as set forth.

12. A source of alternating current, an electric railway supplied thereby, several vehicles on said railway coupled together to form a train, means on each vehicle for transforming the alternating-current energy into continuous-current energy, an electric motor on each of the said vehicles supplied by said continuous current and means on each of the said vehicles by which from any one of the vehicles the motors of the several vehicles can be varied in speed and reversed in direction similarly and simultaneously, substantially as set forth.

13. Two electric vehicles in a train, each having upon it the following apparatus: a continuous-current propelling-motor, a continuous-current dynamo connected to the said motor, and a source of constant electromotive force for exciting the field-magnet of the said dynamo and connections between the armatures of the said dynamo and the said motor; a rheostat on each vehicle for controlling the electromotive force of its dynamo; a system of wiring between the cars by which the said dynamo field-magnets can be similarly and simultaneously varied by manipulating either one of the said rheostats, so that the operator can, from either vehicle, similarly and simultaneously control the movement of both vehicles in a train, substantially as set forth.

14. A source of alternating current, an electric railway supplied thereby, two vehicles coupled together to form a train, an electric motor on each vehicle, regulating means on each vehicle for varying the voltage of the energy supplied to its motor, a system of wiring between the vehicles connecting together the said regulating means, and means on each vehicle by which the operator can similarly and simultaneously control the speed of the motors on the two vehicles, substantially as set forth.

15. An electrically-operated vehicle having upon it a generator of continuous current, a source of continuous current for separately exciting the field-magnet of the said generator, a propelling-motor electrically connected with the said generator and a rheostat for controlling the field of the generator; another electrically-operated vehicle coupled with the first to form a train, and wires between the two vehicles, connecting the said rheostat with another rheostat on the other vehicle so that an operator on either vehicle can, by manipulating the rheostat on that vehicle, similarly and simultaneously control the movement of the two vehicles as a train, substantially as set forth.

16. A source of electric energy, a multiple-arc distribution leading therefrom, an electric railway supplied thereby, several vehicles on said railway coupled together to form a train, an electric motor on each of the said vehicles, means on the train for controlling the electromotive force of a source of electric energy supplying energy to one element of the motors, and means on each of the said vehicles by which the operator can, from that particular vehicle, vary the electromotive force of the energy supplied to the motors, for the purpose of varying the speed of the motors, substantially as set forth.

17. A source of electric energy, an electric railway supplied thereby, several vehicles on said railway coupled together to form a train, an electric motor on each vehicle, a transformer of electric energy one of whose windings is connected with the armature-terminals of the said motors and means on several vehicles by which from each such vehicle the operator can control the energy supplied to the several motors, for the purpose of controlling them similarly and simultaneously, substantially as set forth.

18. A source of electric energy, an electric railway supplied therefrom, a revolving transformer on the train receiving electric energy from the source and delivering electric energy to the propelling-motors of the train, and means on several different cars of the train whereby an operator on any such car can control the speed of the several propelling-motors simultaneously and similarly, substantially as set forth.

19. A source of electric energy, an electric railway supplied thereby, a circuit parallel to the railway, moving contacts for leading the current upon a train having several cars, one or more of the cars having a propelling-motor, a revolving transformer of electric energy on the train receiving energy from the source and delivering energy to the armatures of the said motors, and means on several different cars, by which from any such car the voltage of the energy supplied to the said motors can be controlled and varied at the will of the operator, substantially as set forth.

20. A train of cars, several of the cars having electric propelling-motors, a source of electric energy on the said train for supplying the said motors, and means on several of the cars by which from any such car the energy supplied to the several motors can be simultaneously and similarly varied, substantially as set forth.

21. A train of cars, several of the cars having propelling-motors, a local circuit on the train, containing the armatures of the several motors, and means on several different cars by which from any such car the operator can vary the electromotive force generated in the said local circuit for the purpose of varying the speed of the motors, substantially as set forth.

22. A source of electric energy, a revolving transformer of electric energy whose primary is connected with said source and whose secondary contains the armature of an electric motor and means at several different points for controlling from such a point the speed of said electric motor, substantially as set forth.

23. A motor supplied with energy from the secondary of an electric-energy transformer and means at two or more different points for controlling the electromotive force of the energy developed by the secondary of the said transformer, substantially as set forth.

24. A source of alternating current, means for transforming the alternating current into a unidirectional current, a translating device supplied by said unidirectional current, and means at two or more different points by which from each of said points the electromotive force of the said unidirectional energy can be varied at the will of the operator, so as to vary the electromotive force upon the said translating device, substantially as set forth.

25. Several electric motors working in unison and dividing a certain load, a source of electromotive force connected to the said motors, and means at two or more different points for controlling the electromotive force of the said source for the purpose of similarly and simultaneously controlling the speed of the said motors, substantially as set forth.

26. A source of electric energy, several secondary sources of electromotive force derived therefrom and means at two or more different points for similarly and simultaneously varying the electromotive force of the said secondary sources independently of the electromotive force of the original source, substantially as set forth.

27. A source of alternating primary current, a unidirectional secondary current produced thereby, an electric motor operated by the secondary and means at two or more different points by which the electromotive force generated in the secondary circuit can be varied at the will of the operator for the purpose of varying the speed of the motor, substantially as set forth.

28. The combination of two independent sources of electromotive force, and means at two different places by which the electromotive forces of the two sources can be similarly controlled from zero to the maximum electromotive force, substantially as set forth.

29. The combination of two independent sources of electromotive force, and means at two different places by which the electromotive forces of the two sources can be similarly controlled from zero to the maximum electromotive force and can also be similarly reversed in sense, substantially as set forth.

30. The combination of two electric vehicles, each equipped with an electric motor, a source of electromotive force on each of the said vehicles affecting the operation of its respective motor, and means on each vehicle by which the electromotive forces produced by the said two sources of electromotive force can be similarly and simultaneously controlled, substantially as set forth.

31. A source of electric energy, an electric railway supplied thereby, several vehicles on said railway coupled together to form a train, an electric motor on each vehicle, a transformer of electric energy one of whose windings is connected with one element of each of the said motors, and means on several vehicles by which from each such vehicle the operator can control the energy supplied to the several motors for the purpose of controlling them similarly and simultaneously, substantially as set forth.

32. A source of electric energy, an electric railway supplied therefrom, a revolving transformer on the train receiving electric energy from the source and delivering electric energy to one element of a propelling-motor upon the train, and means on several different cars of the train whereby an operator on any such car can control the speed of the propelling-motor, substantially as set forth

33. A source of electric energy, an electric railway supplied thereby, a circuit parallel to the railway, moving contacts for leading the current upon a train having several cars, one or more of the cars having a propelling-motor, a revolving transformer of electric energy on the train

receiving energy from the source and delivering energy to one element of each of the said motors, and means on several different cars by which from any such car the voltage of the energy supplied to the said motors can be controlled and varied at the will of the operator, substantially as set forth.

34. A train of cars, several of the cars having electric propelling-motors, an electromotive-force-producing winding connected to one element of each of the motors, and means on several of the cars by which from any such car the electromotive force produced by the said electromotive-force-producing winding can be simultaneously and similarly varied, whereby the several motors are similarly and simultaneously controlled, substantially as set forth.

35. A source of electric energy, a revolving transformer of electric energy whose primary is connected with said source and whose secondary contains one element of an electric motor, and means at several different points for controlling from such a point the speed of said electric motor, substantially as set forth.

36. A dynamo-electric generator having a separately-excited field, two independent dynamo-electric machines either of which can be employed at the will of the operator for exciting the field of the said generator, and means for reversing the field of the generator, substantially as set forth.

37. The combination of two motors each independently supplied with energy by an electric generator, and means by which the electromotive forces of the two generators can be similarly varied for the purpose of similarly controlling the speed of the motors, substantially as set forth.

38. The combination of two motors, each independently supplied with energy by an electric generator, and means by which the electromotive forces of the two generators can be similarly varied and reversed for the purpose of similarly controlling the speed and direction of rotation of the rotating element of the motors, substantially as set forth.

39. Two translating devices, each having in series with it an independent electromotive-force-producing device, and means by which the electromotive forces developed in series with the two translating devices can be similarly and simultaneously varied, substantially as set forth.

40. Two translating devices, each having in series with it an independent electromotive-force-producing device, and means by which the electromotive forces developed in series with the two translating devices can be similarly and simultaneously varied and reversed, substantially as set forth.

41. An electric motor one of whose elements has in series with it an electromotive-force-producing device, and means at several different points for controlling the electromotive force produced by the electromotive-force-producing device, whereby the speed of the motor is controlled, substantially as set forth.

42. An electric motor one of whose elements has in series with it an electromotive-force-producing winding, and means at several different points for controlling at that point the magnetic field affecting the said electromotive-force-producing winding, substantially as set forth.

43. Two electric motors working upon a common load and whose armatures are in multiple-arc relation with each other, a source of electromotive force in series with the armatures of the motors, and means for controlling from zero to a maximum the electromotive force produced by the said source, whereby the speed of the said motors is similarly controlled, substantially as set forth.

44. Two electric motors working upon a common load and whose armatures are in multiple-arc relation with each other, a source of electromotive force in series with the armatures of the motors, and means for controlling at several different points from zero to a maximum the electromotive force produced by the said source, whereby the speed of the said motors is similarly controlled, substantially as set forth.

45. A source of alternating current, two revolving transformers of electric energy connected therewith, and an electric motor one of whose elements is supplied from one of the said transformers and whose other element is supplied from the other transformer, substantially as set forth.

46. A source of alternating current, two independent transformers each of which transforms the alternating current into a unidirectional current, and an electric motor whose two elements are supplied by unidirectional currents from the said transformers, substantially as set forth.

47. A source of alternating current, an electrically-propelled vehicle operated thereby, means upon the vehicle for transforming the alternating current into a unidirectional current, and a propelling-motor for the vehicle, one of whose elements is supplied by the said unidirectional current, substantially as set forth.

48. A source of polyphase currents, two independent revolving transformers of electric energy connected therewith, each of which transforms the polyphase current into unidirectional current, and an electric motor whose two elements are supplied with unidirectional current from the two revolving transformers, substantially as set forth.

49. The combination of several dynamo-electric machines whose fields are in multiple with each other, and means for simultaneously and similarly varying and reversing the said fields, substantially as set forth.

50. A moving load which is retarded by the production of electric energy, a translating device, and a revolving transformer which receives such electric energy, transforms it and delivers it to said translating device in the form of alternating-current energy, substantially as set forth.

51. A moving load which is retarded by the production of unidirectional electric energy, a translating device, and a revolving transformer which receives such electric energy, transforms it and delivers it to said translating device in the form of alternating-current energy, substantially as set forth.

52. A moving load which is retarded by the production of electric energy, a translating device, and a revolving transformer which receives such electric energy, transforms it and delivers it to said translating device in the form of polyphase alternating-current energy, substantially as set forth.

53. A source of alternating-current energy, an electrically-propelled vehicle supplied thereby, a revolving transformer of electric energy upon the vehicle, a propelling-motor which utilizes said transformed energy, a second electrically-propelled vehicle mechanically connected to the first vehicle, and means on each vehicle by which from that vehicle both vehicles can be simultaneously controlled, substantially as set forth.

54. Several electrically-propelled vehicles, each having several driven axles and each driven axle having its own driving-motor, mechanical couplings between the several vehicles, a source of electric energy on one or more of said vehicles, circuits extending throughout the several vehicles and to which said source or sources and said motors are connected, the connections of the motors being such that each motor will assume its proportionate share of the total load in starting and operating at various speeds, and a controlling device on each vehicle by means of any one of which the energy developed by said source or sources and hence the energy delivered to said motors may be controlled or varied.

55. Several electrically-propelled vehicles, each having several driven axles and each driven axle having its own driving-motor, mechanical couplings between the several vehicles, a source of electric energy on one or more of said vehicles, circuits extending throughout the several vehicles and to which said source or sources and said motors are connected, the connections of the motors being such that each motor will assume its proportionate share of the total load in starting and operating at various speeds, and a controlling device on each vehicle by means of any one of which the energy developed by said source or sources and hence the energy delivered to said motors may be controlled or varied without the use of resistances in the motor-circuits.

56. A generator located upon an electrically-propelled vehicle and whose field is separately excited, wires leading the said field-circuit upon another electrically-propelled vehicle, and means upon said latter vehicle by which the field of the generator can be controlled, substantially as set forth.

57. Several electric motors, each having a separately-excited field-winding, and means for simultaneously reversing the several motors, substantially as set forth.

58. Several electric generators, each having a separately-excited field-winding, and means for simultaneously reversing the said fields, substantially as set forth.

59. Several dynamo-electric machines, each having a separately-excited field-winding, means for simultaneously and similarly varying all of the said fields, and means for simultaneously and similarly reversing all of the said fields, substantially as set forth.

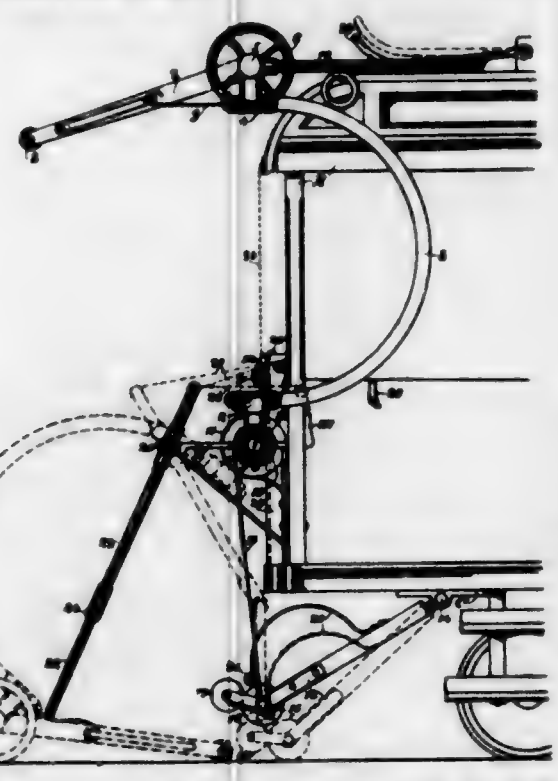
60. Several electric motors working on a common load, whose armatures are supplied with current from a generator having a separately-excited field, and means by which the field of the generator can be varied and reversed for the purpose of varying the electromotive force and direction of the current through the motor-armatures, substantially as set forth.

696,248. LIFE-SAVING DEVICE FOR STREET-CARS. WILLIAM H. MARTIN, San Francisco, Cal. Filed May 23, 1901. Serial No. 61,534. (No model.)

Claim.—1. The combination in a life-saving device for street-cars, of a combined awning and carriage having a roller, a carriage-axle with wheels connected therewith, a rock-shaft with double T's having curved arms with double T's supporting the combined awning and carriage having a roller, the carriage-springs connected therewith, the carriage-dash spanning the curved arms and T's, the spring-bands having coil-springs attached to the rock-shaft, all substantially as set forth.

2. In a life-saving device for street-cars, the combination with the combined awning and carriage having a roller, of the carriage-axle with wheels connected therewith, the rock-shaft with double T's having curved arms with double T's supporting the combined awning and carriage having a roller, the carriage-springs connected therewith, the carriage-dash

spanning the curved arms and double T's, the spring-barrels having coil-springs attached to the rock-shaft, as shown and described; a set of pivoting-arms with wheels having a friction-roller, the spring-bar with springs attached to the pivoting-arms, the chains secured to the axle thereof, the grooved wheels attached to the rock-shaft carrying the said chains, all substantially as shown and described.



3. In a life-saving device for street-cars, the combination of the wormed rod provided with spur-gear, and the ring and cord, as shown for the purpose specified.

4. In a life-saving device for street-cars, the combination of a sectional pivoting-trigger, the combined trigger-counterweight and straight-gear lever connected therewith adapted to the spur-gear, the cords connecting the said sectional pivoting-trigger and combined trigger-counterweight and straight-gear lever, all substantially as shown and described.

5. In a life-saving device for street-cars, the combination of a pivoting-arm on top of the car, the cord connected therewith, the ring at the end of the said cord and the wormed rod, all substantially as shown and described for the purpose specified.

696,249. VEHICLE-WHEEL. WILLIAM F. MASTERS, Brooklyn, N. Y. Filed Nov. 16, 1901. Serial No. 82,513. (No model.)



Claim.—1. A wheel, the rim of which is composed of an inner metal band of steel, metal blocks secured to the perimeter thereof at regular intervals, elastic members placed between said blocks, and an outer band or tire proper, secured to and inclosing said blocks and said elastic members, substantially as shown and described.

2. A wheel, the rim of which comprises an inner metal band with which the spokes are connected, metal blocks secured to the perimeter thereof at regular intervals, elastic members placed between said metal blocks, and an outer band or tire proper of metal secured to and inclosing the blocks and elastic members, substantially as shown and described.

3. A wheel, the rim of which is composed of an inner metal band with which the spokes are connected, metal blocks secured to the perimeter of said band between the spokes, elastic members placed between said blocks and inclosing said band, and an outer tire or steel band inclosing said blocks and elastic members and connected therewith by bolts passing through said blocks and said inner band, substantially as shown and described.

4. A wheel, the rim of which consists of a metal band with which the spokes are connected by means of thimble-plates which are secured to the inner surface of said band, blocks secured to the perimeter of said band between the spokes elastic members placed between said blocks and secured to said band and an outer metal band or tire secured to and inclosing said blocks and elastic members by means of bolts passing therethrough and through said blocks, and the inner band, substantially as shown and described.

696,250. SCREEN. EUGENE J. MCCARTY, Clinton, Mass. Filed Aug. 23, 1901. Serial No. 72,995. (No model.)



Claim.—1. As an article of manufacture, a screen-frame having wooden bars, the ends of which are mitered and fastened together by wire stitches extending across the joint, each of said stitches consisting of an unclenched U-shaped piece of fine wire, which is inserted between the fibers of the wood without cutting or splitting the material, the ends of said stitches not extending through the bars, whereby said stitches may be set close together by machinery, substantially as described.

2. As an article of manufacture, a screen-frame having wooden bars, the ends of which are mitered and fastened together by fine-wire stitches extending across the joints, and inserted from both the front and rear faces of the frame, so that the tensile strength of one line of stitches will resist strains tending to bend the joints in one direction, and the tensile strength of the other line of stitches will resist strains tending to bend the joints in the opposite direction, each of said stitches consisting of an unclenched U-shaped piece of fine-gage wire of uniform diameter from end to end, which is forced into place between the fibers of the wood without splitting or cutting said fibers, the ends of said stitches not extending through the frame, whereby said stitches may be set closely together by machinery, substantially as described.

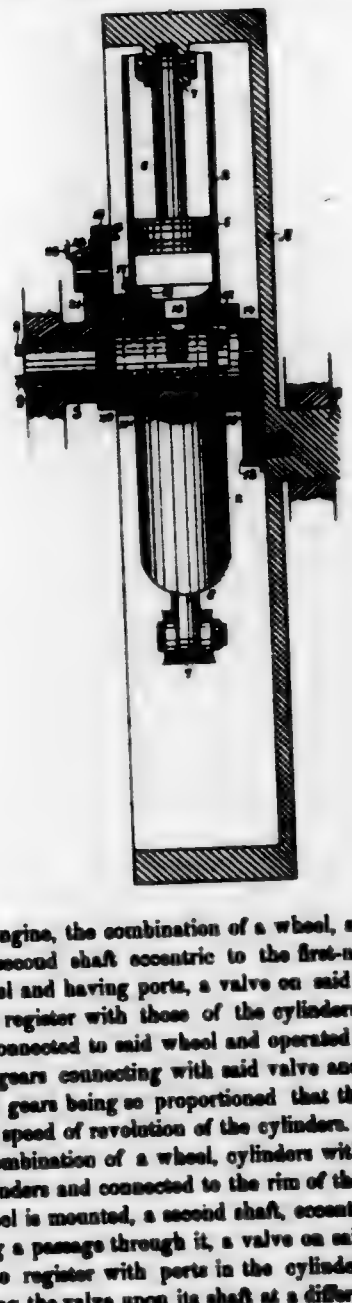
3. As an article of manufacture, a screen-frame having wooden bars, the ends of which are mitered and fastened together by fine-wire stitches extending across the joints and inserted both from the front and rear faces of the frame, the stitches inserted from one face of the frame being offset with respect to the stitches inserted from the opposite face of the frame, so that the tensile strength of one row of stitches will resist strains tending to bend the joints in one direction, and the tensile strength of the other row of stitches will resist strains tending to bend the joints in the opposite direction, each of said stitches consisting of an unclenched U-shaped piece of fine-gage wire of uniform diameter from end to end, which is inserted in place between the wooden fibers without cutting or splitting the material, the ends of said stitches not extending through the frame, substantially as described.

4. As an article of manufacture, a screen comprising a frame, having rabbeted wooden bars, the ends of which are mitered and fastened together by fine-wire stitches extending across the joints, and inserted both from the front and rear faces of the frame, so that strains tending to bend the joints in one direction will be resisted by the tensile strength of one line of stitches, and strains tending to bend the joints in the other direction will be resisted by the tensile strength of the other line of stitches each of said stitches consisting of an unclenched U-shaped piece of fine-gage wire of uniform diameter from end to end, which is inserted in place between the wooden fibers without cutting or splitting said fibers, the ends of said stitches not extending through the frame, and screen-cloth secured to said frame by wire stitches inserted directly through said screen-cloth, substantially as described.

696,251. REVOLVING-CYLINDER EXPLOSIVE-ENGINE. JAS. D. MCFARLAND, Jr., San Francisco, Cal., assignor of one-half to John Bruckman, San Francisco, Cal. Filed Apr. 13, 1901. Serial No. 55,643. (No model.)

Claim.—1. The combination of a wheel, a shaft upon which it is revoluble, a second shaft eccentric thereto, cylinders supported approximately radial within the wheel and each having a port for the inlet and exhaust of the propelling medium, pistons movable within the cylinders and connected to the wheel whereby the pistons are reciprocated within the cylinders by the revolution of the wheel, inlet-passages through one of said shafts, a valve turnable upon this shaft and having ports to register with those of the cylinders, said ports being so disposed as to admit and exhaust the propelling medium, and mechanism by which the valves and cylinders are independently turnable.

2. The combination in a revolving-cylinder engine of a wheel and shaft upon which it is revoluble, cylinders supported within the wheel, a second shaft eccentric to the first, pistons within the cylinders and connected with said wheel whereby they are reciprocated within the cylinders as the wheel revolves, a valve turnable upon the shaft having ports connecting with those of the cylinders, inlet and exhaust passages connecting with said ports, gears interposed between the wheel-shaft and the valve whereby the latter is turned in unison with the revolutions of the cylinders and at a different rate of speed.



3. In an engine, the combination of a wheel, a shaft upon which it is revoluble, a second shaft eccentric to the first-named one, cylinders within the wheel and having ports, a valve on said eccentric shaft and having ports to register with those of the cylinders, pistons within the cylinders and connected to said wheel and operated by the revolution of the latter, and gears connecting with said valve and with the center of revolution, said gears being so proportioned that the valve will revolve at one-half the speed of revolution of the cylinders.

4. The combination of a wheel, cylinders within the same, pistons within the cylinders and connected to the rim of the wheel, a shaft upon which the wheel is mounted, a second shaft, eccentric to the first-named one and having a passage through it, a valve on said eccentric shaft and having ports to register with ports in the cylinders, and intermeshing gears for turning the valve upon its shaft at a different rate of speed from that of the cylinders, said valve having closed portions so disposed that the ports are opened for the inlet of the propelling medium and closed by a further revolution, whereby the pistons on their return compress the medium in readiness for ignition.

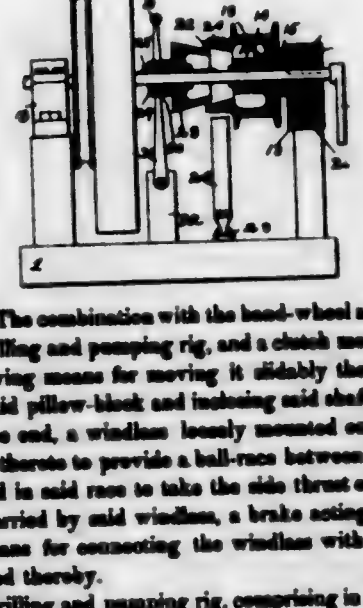
5. The combination with a revolving-cylinder engine and the wheel within which the cylinders are suspended, of inlet-passages through a stationary shaft, a valve turnable upon said shaft and gears by which it is moved at a different rate of speed from that of the cylinders, ports in the valve connecting with those of the cylinders and so disposed as to admit an explosive propelling medium upon the outward movement of the pistons, said ports being closed to allow the medium to be compressed by the return movement, and remaining closed until it is ignited, and again opened to allow the exhaust of the waste gases.

6. The combination in an explosive revolving-cylinder engine, the wheel within which the cylinders are suspended, and the eccentric shaft through which connection is made with the pistons to reciprocate the latter within the cylinders, of a valve having admission and exhaust ports and closed sections whereby the explosive medium is compressed, igniters carried within each cylinder and contact-points revoluble with relation to the revolutions of the cylinders so as to complete an electrical circuit and explode the gas after its compression.

7. The combination with a revoluble-cylinder engine, of a wheel, cylinders within the same, a shaft upon which the wheel is mounted, a second shaft eccentric to the first-named one and having a passage, pistons within the cylinders and connected to the rim of the wheel, a valve turnable upon the shaft about which the wheel and cylinders are revoluble and having ports for the admission of an explosive medium into the cylinders, gears interposed between the wheel-shaft and the valve and by which the valve is revolved at a different speed from that of the cylinders whereby the ports are opened during the outward movement of the piston and closed on its return so as to compress the gas, igniters carried by the cylinders, and independent circuit-closers with gears whereby they are revolved in unison with the revolutions of the cylinders and valve, so as to explode the gas after compression.

8. The combination with radially-disposed cylinders revoluble about a common center, a shaft eccentric to said center, a wheel containing said cylinders and pistons within the cylinders and connected to said wheel whereby they are reciprocated at each revolution, of a valve with ports adapted to alternately open and close communication between the cylinders and fixed inlet and exhaust ports, and mechanism whereby the valve is rotated at such a rate of speed relative to that of the cylinders as to admit, compress and explode charges of a propelling medium.

696,252. LIFT FOR WELL-DRILLING AND PUMPING RIGS. MICHAEL B. MCMAHON, Titusville, Pa. Filed Apr. 13, 1901. Serial No. 55,600. (No model.)



Claim.—1. The combination with the band-wheel shaft and a pillow-block of a well-drilling and pumping rig, and a clutch member keyed upon said shaft and having means for moving it slidably thereon, of a sleeve projecting from said pillow-block and inclosing said shaft, said sleeve having a head at one end, a windlass loosely mounted on said sleeve and formed relatively thereto to provide a ball-race between it and said shoulder, balls confined in said race to take the side thrust of said windlass, a clutch member carried by said windlass, a brake acting upon said clutch member, and means for connecting the windlass with the device to be raised and lowered thereby.

2. A well-drilling and pumping rig, comprising in combination with the band-wheel shaft thereof, a slidable clutch member keyed upon said shaft, a lever pivoted at one end at one side of said shaft and engaged between its ends with said clutch member, a lever pivoted between its ends and having one extremity pivoted to the first lever, a sleeve encircling said shaft and having a head at one end, a windlass loosely mounted on said sleeve and formed relatively thereto to provide a ball-race between it and said head, balls confined in said race to take the side thrust of said windlass, a clutch member projecting directly from said windlass, to be engaged by the first-mentioned clutch member, a brake mechanism for the second-mentioned clutch member, said brake mechanism having a lever for controlling the same, and means for connecting the windlass with the device to be raised and lowered thereby, substantially as described and for the purposes set forth.

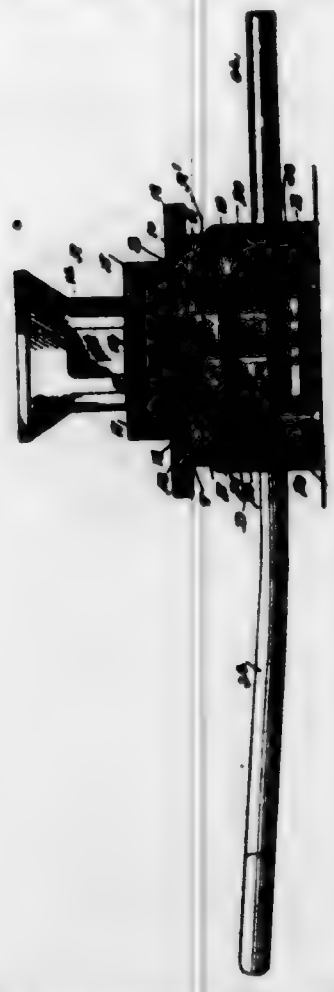
696,258. PLOW. WILLIAM F. HARGUES, Salgohachie, Ark. Filed Sept. 10, 1901. Serial No. 74,928. (No model.)



Claim.—1. The combination with a plow-standard and a landside provided with a sheth-plate attached thereto, of a shovel or similar member adapted to coöperate with the landside, means for securing the shovel to the landside, and a hooked retaining member upon one side of the sheth-plate, located between the shovel and the standard.

2. As a new article of manufacture, a detachable landside comprising an integral footpiece, sheth-plate and hooked retaining member upon the side of the sheth-plate.

696,254. MEANS FOR PRESSING, PERFORATING, AND CUTTING GLASS IN SHAPES. ARTHUR J. HASE, New York, N. Y. Filed Mar. 16, 1900. Renewed Sept. 11, 1901. Serial No. 75,058. (No model.)



Claim.—1. In an apparatus of the kind described, the combination with a subjacent die, of a body-plate 10 having a downwardly-projecting flange with an annular shoulder and one or more central downwardly-projecting plungers said plate having holes through it at points intermediate to the plungers and outer flange, a matrix arranged in the plane of said flange and plungers and having on the lower side marginal cutter-rib surrounding and fitting close about the plungers, a block arranged above the body-plate and screws passing through the holes in the body-plate and connecting the matrix to said block substantially as described.

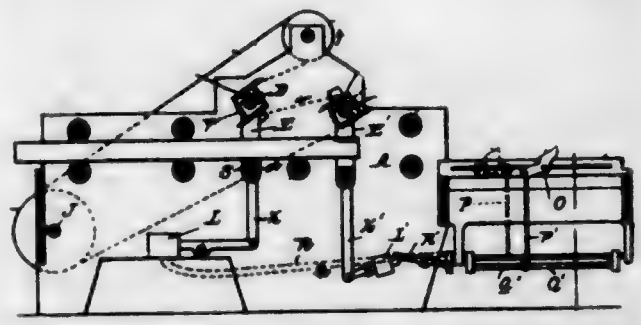
2. In an apparatus of the kind described, the combination with a subjacent die, of a body-plate 10 having a downwardly-projecting flange with an annular shoulder, and one or more central downwardly-projecting plungers said plate having holes through it at points intermediate to the plungers and the outer flange, a matrix arranged in the plane of said flange and plungers and having on the lower side marginal cutter-rib surrounding and fitting close about the plungers, and sleeves on the upper side extending through the holes in the body-plate, a block arranged above the body-plate and screws connected to said block and fastening into the sleeves of the matrix substantially as and for the purpose described.

3. In an apparatus of the kind described, the combination with a superposed die, of the body portion 24 having a partition C and external handles, and having on its upper surface a marginal shoulder and one or more centrally-arranged and upwardly-projecting plungers said body portion having also openings between the plungers and marginal shoulder, and disks 27 and 29, the disk 27 being arranged below the partition C, and 29 above it, and screws connecting the two together through said partition substantially as and for the purpose described.

4. In an apparatus of the kind described, the upper die composed of a body-plate with an outer flange, central downwardly-projecting plungers and intermediate holes through the plate, a matrix arranged in the plane of said flange and plungers and cutters having cutting edges on the lower side, a block above the body-plate and screws connecting it to the matrix through the body-plate; in combination with a lower die composed of a body having a marginal shoulder, a partition with central upwardly projecting plungers and handles for said body, and an upper and lower disk 29 and 27 connected together by screws through the partition of the body substantially as and for the purpose described.

5. A mold having a male and a female section, each of which sections is provided with fixed plungers and with movable matrices having openings to receive the plungers, the openings in the matrix of one section having cutting edges directed toward corresponding openings in the matrix of the other section, and means for forcing one matrix in direction of the other and for withdrawing the matrix thus forced, as described.

696,255. MACHINE FOR SHAPING CROSS-ARMS OF TELEGRAPH-POLES. WILKINSON D. NEVILLE, Bay City, Mich., assignor to Walworth & Neville Manufacturing Company, Bay City, Mich., a Corporation of Michigan. Filed Apr. 8, 1901. Serial No. 54,866. (No model.)



Claim.—1. In a machine for shaping wood, the combination with longitudinal feed mechanism for the work, of a pair of rotary shaping-cutters movable into or out of the path of the work, one being held normally in and the other normally out, and dogs in rear of said cutters projecting into the path of the work and respectively adapted to change the position of their cutters, said dogs being located to be operated by the forward end of the work so as to cause the shaping of the two opposite end portions of said work leaving a central portion unshaped.

2. In a machine for shaping wood, the combination of a frame, longitudinal feed mechanism for the work and a shaping-cutter movable into or out of the path of said work, a pivotal dog located in rear of said cutter and longitudinally adjustably secured to said frame, a rock-frame secured to the stationary frame and having a longitudinally-extending bar, a rod connecting said pivotal dog with said rock-frame and longitudinally adjustable upon the latter to remain vertical in the different positions of adjustment of said trip, and an operating connection between said rock-frame and cutter whereby the movement of said dog will throw said cutter in or out of the work.

3. In a machine for shaping wood, the combination of a frame, longitudinal feed mechanism thereon for the work, a pair of rotary cutters arranged to operate upon the work one in advance of the other, dogs pivotally and longitudinally adjustably secured to said frame in rear of said cutters and projecting into the path of the work, rock-frames pivoted to the frame below said dogs and having longitudinal bars, rods connecting said dogs and rock-frames adjustable upon the latter correspondingly to the adjustment of said dogs upon the frame, and connections between said rock-frames and cutters whereby one of the latter is normally held out and the other normally held into the work, and whereby their positions are changed by the engagement of the work with their respective dogs.

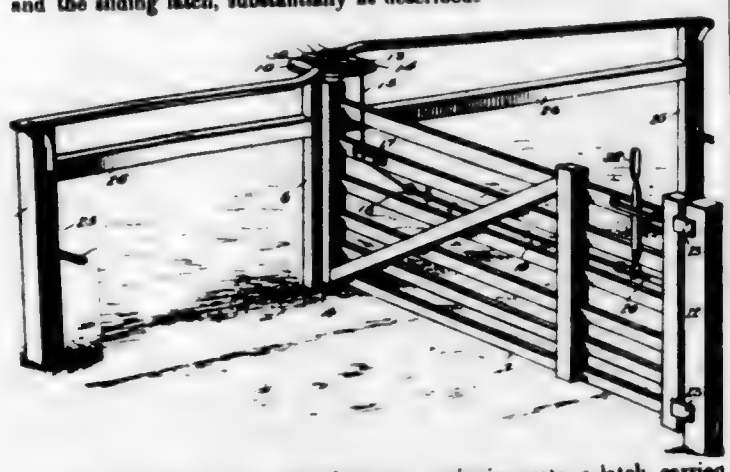
4. In a machine for shaping wood, the combination with longitudinal feed mechanism for the work, of a pair of shaping-cutters arranged to operate upon the work, one in advance of the other, the rear cutter being held normally in the path of the work, and the forward cutter being held normally out of the work, a pair of dogs in rear of said cutters and projecting into the path of the work, and connections between said dogs and cutters whereby the forward dog will throw the forward cutter into the work after said rear cutter has been in operation and subsequently said rear dog will throw said rear cutter out of the work leaving a central unshaped portion of the work which is less in length than the distance between said cutters.

696,256. GATE. JAMES T. NEWBRATE, Flemingsburg, Ky. Filed July 20, 1901. Serial No. 70,283. (No model.)

Claim.—1. In a gate-opener, the combination with a swinging gate, a latch-post and a sliding latch to engage said post, of operating-levers arranged upon opposite sides of the gate, a disk fixed to the hinging-stile of the gate, operating-rods connected at their ends to the levers and at their inner ends to the disk and adapted to have a limited independent movement without actuating the disk, and means operated by said arms upon their initial independent movement to retract the latch, whereby the movement of either arm first retracts or releases the latch and then swings the gate open or closed, substantially as described.

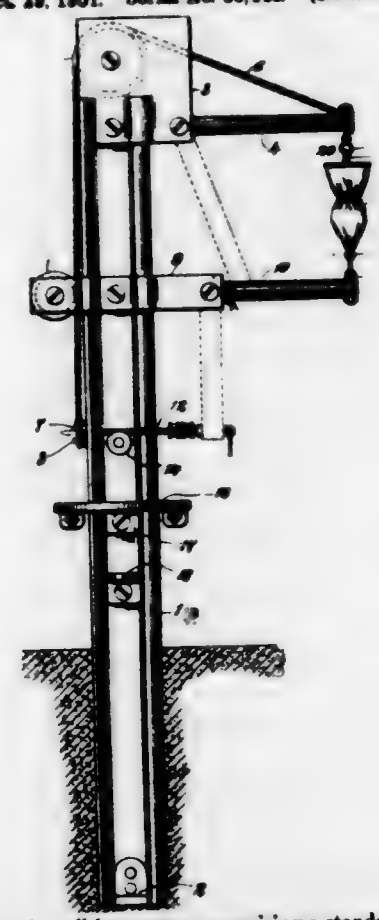
2. In a gate-opener, the combination with a latch-post, of a swinging gate provided with a sliding latch to engage said post, operating-levers upon opposite sides of the gate, operating-arms pivoted to the levers, a

disk fixed to the gate and having a slot-and-pin connection with each arm, such slot-and-pin connections being upon opposite sides of the center of the disk, an oscillatory operating-bar operated by the arms, an angle-arm operated by said bar, and a connection between said angle-arm and the sliding latch, substantially as described.



3. In a gate-opener, a latch-post, a swinging gate, a latch carried by the gate to engage the post, a crank-disk rigidly connected with the gate, an angle-arm connected with the latch, an oscillatory bar upon the disk, and operating members having a slot-and-pin connection with the disk for turning the same to operate said angle-arm, substantially as described.

696,257. MAIL-BAG CRANE. CHARLES J. HORDVALL, Evanston, Ill. Filed Oct. 29, 1901. Serial No. 80,440. (No model.)

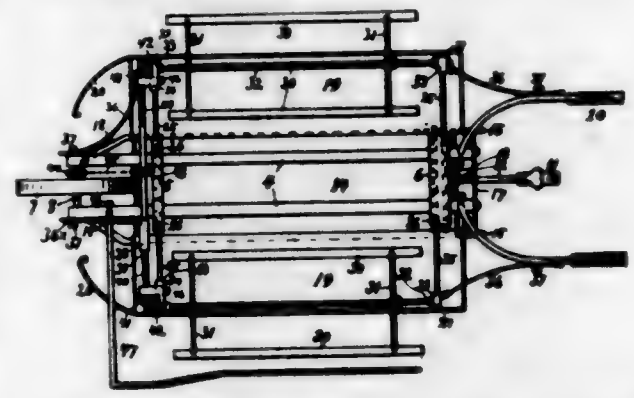


Claim.—1. A mail-bag crane, comprising a standard consisting of a railway-rail, anchor-plates on the lower portion thereof, a boxing secured to the upper end of the standard, a bag-holding bar mounted to swing in said boxing, a pulley in the boxing, a chain extended from the free end of the bar over said pulley and down the rear side of the standard, a pin or lug on the standard with which the end of said chain is designed to engage, a tripping device movable on the standard, and a lower bag-holding bar mounted to swing on the standard and to engage with said tripping device to operate the same, substantially as specified.

2. A mail-bag crane, comprising a standard, bag-holding bars mounted to swing on said standard, means for holding the upper bag-holding bar in its horizontal position, means for releasing said holding means, and a platform attached to the standard, the said platform consisting of two sections bolted together around the standard, substantially as specified.

3. A bag-holding crane, comprising a standard, a boxing secured to the upper end thereof, a bag-holding bar mounted to swing on said boxing, plates secured to the standard below said boxing, the said plates having forwardly-extended portions and rearwardly-extended portions, a bag-holding bar pivoted to said forwardly-extended portions, a pulley arranged between the rear extended portions, a pulley in the boxing, a chain passing from the upper holding-bar over said pulley in the boxing and against the first-named pulley, a pin on the rear side of the standard with which the lower end of the chain is designed to engage, a tripping-rod having members engaging at opposite sides of the standard and passing through openings in the rear portion of the standard, a plate connecting the forward ends of said members and adapted to be engaged by the lower bag-holding bar, a platform below said tripping device, and a stop below the platform, substantially as specified.

696,258. POTATO-BUG GATHERER. MAGNUS OSTERLAD, Groningen, Minn., assignor of one-half to John Dellwo, Groningen, Minn. Filed June 4, 1901. Serial No. 62,072. (No model.)



Claim.—1. A potato-bug gatherer comprising a wheel-supported frame, revoluble beaters mounted in the frame and operatively connected with one of the ground-wheels, vibrating pans adjacent the beaters, a receptacle receiving the bugs from the pans, said pans having an open side overhanging the receptacle.

2. A potato-bug gatherer having an elongated frame with a supporting-wheel in its front end, and a caster supporting its rear end, handles or handholds at the rear end for pushing, guiding and supporting the machine by; the removable receptacle 14 carried centrally in the lower part of the frame, the vibrating pans 19, one at each side of the machine and having their adjacent sides open and overhanging the receptacle, a revoluble beater mounted above the outer edge of each pan and geared to the front supporting-wheel; said beaters, handles and wheels being adjustable vertically, and the beaters and the pans being adjustable also horizontally, toward and away from the center of the machine.

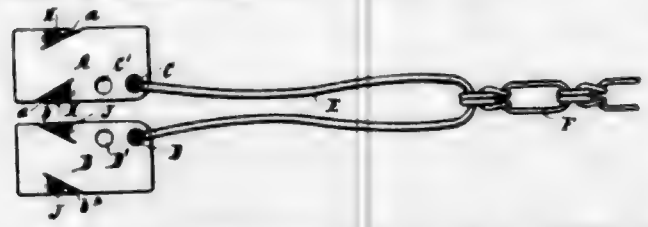
3. The combination in a potato-bug gatherer with beaters and bug-catching pans, of a vine-raising arm or device projecting from the machine above and beyond the vines, and down at the opposite sides thereof, and formed so as to raise the fallen vines into position for the operation of the machine on them.

696,259. GIRTH. ROBERT L. OWENS, Ozona, Tex. Filed Nov. 14, 1900. Serial No. 36,510. (No model.)



Claim.—In a device of the class described, a buckle comprising a plate having a narrowed end bent to form a hook, the material of the plate adjacent to the bill of the hook being struck up to form parallel ears, slots in the body of the plate in the rear of the ears, and a tongue pivoted between the ears at a point intermediate of the ends of the tongue and disposed for the ends of the tongue to lie against the inner face of the bill and the upper face of that portion of the plate separating the slots, respectively.

696,260. WIRE-GRIP. FRANCIS T. PAGE, Penshurst, New Zealand. Filed June 7, 1901. Serial No. 63,633. (No model.)

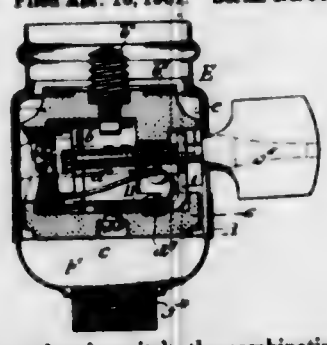


Claim.—1. In gripping appliances for use with wire-straining apparatus, a pair of gripping-pieces that are each loosely articulated upon one of the arms of a pair of spring lever-arms, one of such gripping-pieces being formed with turned-down triangular portions upon its edges, while the other gripping-piece is formed with correspondingly turned-up portions, as and for the purposes herein set forth.

2. In a wire-straining device the combination of a pair of gripping-pieces adapted for conjoint use as described, one formed with downturned angular projections on two opposite edges and the other with upturned angular projections on its corresponding opposite edges, and a pair of pulling-arms E on which the said gripping-pieces are respectively articulated, substantially as set forth.

3. The combination of the gripping member A formed with downturned angular projections *a*, *a* on two opposite edges and a plurality of pulling-holes C, C′ at different distances from one end; the corresponding gripping member B formed with upturned angular projections *b*, *b*, on its opposite edges and a plurality of pulling-holes D, D′; and the pulling device E having a pair of arms adapted to be hooked in either pair of pulling-holes C, D, or C′, D′, so as to cause the members A, B, to grip the wire with variable force, substantially as described.

696,261. INCANDESCENT-LAMP SOCKET. HENRY T. PAINE, Philadelphia, Pa. Filed Apr. 16, 1901. Serial No. 56,144. (No model.)



Claim.—1. In an electric switch, the combination of a body of insulating material, a rotatable spindle carrying a contact-piece, contact-plates between which the contact-piece is constructed to form electrical connection when the spindle is rotated, with yielding means supporting one end of the spindle independently of the said contact-piece, substantially as described.

2. In a socket for an incandescent lamp, the combination of a body of insulating material, bearings thereon, a rotatable spindle supported in said bearings, a contact-piece on the spindle, a contact plate on the body and a spring normally pressing the contact-piece toward the said contact-plate, one of the bearings of said spindle being constructed to yield when the spindle is rotated to place the contact-piece between the spring and the contact-plate, thereby allowing said piece to adjust itself between said spring and said plate, substantially as described.

3. In a socket for an incandescent lamp, the combination of a body of insulating material, a rigid bearing and an overhung bearing of spring material thereon, a spindle rotatable in said bearing, a contact-piece on the spindle, a fixed and a yielding contact-plate also on the body placed so as to be electrically connected by the contact-piece when the spindle is rotated, the overhung bearing allowing the spindle with said contact-piece freedom to adjust itself between said contact-plates, substantially as described.

4. The combination of a body of insulating material, a rigid bearing thereon, a second bearing connected to the same and overhung beyond its point of attachment thereto, a spindle constructed to fit said bearings and carrying a contact-piece, a rigid contact-plate, and a spring-yielding contact-plate, the overhung bearing being constructed to yield and allow the said contact-piece to adjust itself between the fixed and the yielding contact-plates, substantially as described.

5. The combination in an electric switch, of a body of insulating material, a fixed and a yielding contact-plate supported thereon, a rotatable spindle carrying a contact-piece, with means independent of said contact-plates for pressing the contact-piece on the spindle against the fixed contact, substantially as described.

6. The combination of a shell having in it bayonet-joint openings, a cap fitting outside said shell carrying inwardly-projecting pins constructed to enter said openings, a screw movable through a threaded opening in the cap, said shell having in it a hole placed to register with said threaded opening in the cap when the pins are entered in the bayonet-joints, thereby permitting said screw to pass through and lock the shell and cap together, substantially as described.

696,262. BEET-HARVESTER. MERRITT W. PALMER, Hamilton, Mich., assignor of one-fourth to Richard H. De Merell, Holland, Mich. Filed Mar. 6, 1901. Serial No. 50,061. (No model.)



Claim.—1. In a beet-harvester, the combination as herein described of the main frame having upright guides, the carrier-frame movable vertically in said guides, the cutter-frame movable laterally in the carrier-frame, the cutters carried by the cutter-frame, and means for operating the cutters, substantially as described.

2. The combination in a beet-harvester of the main frame, the vertically-movable carrier-frame, the cutters, the scrapers, the pivoted arms carrying the scrapers, the main lever, and means whereby the main lever may operate to adjust the carrier-frame and the scrapers, substantially as set forth.

3. The combination in a beet-harvester of the scrapers, the cutters, a carrier-frame for said cutters which is adjustable vertically, the plow in rear of the cutters, and a main shaft provided with crank-arms connected with the plow, and with crank-arms connected with the vertically-movable carrier-frame, a main lever on said shaft and intermediate devices between said main lever and the scrapers, substantially as set forth.

4. The combination in a beet-harvester, substantially as herein described, of the main frame, the scrapers, the pivoted arms carrying the scrapers, connections between said arms, the lever for adjusting the scrapers, the main shaft, the main lever on said shaft, connections between said main lever and the scraper-adjusting lever, crank-arms on the shaft, a vertically-movable carrier-frame connected with the crank-arms of the main shaft, the plow, a crank-arm on the main shaft connected with said plow, a counter-shaft, crank-arms on said counter-shaft and main shaft, connections between said crank-arms, and crank-arms on the counter-shaft connected with the plow, substantially as set forth.

5. A beet-harvester, substantially as described, comprising the framing, the supporting-wheels, the scrapers, the cutters in rear of the scrapers, the plow in rear of the cutters, and means whereby the said scrapers, cutters and plow may be jointly raised and lowered, substantially as set forth.

6. In a beet-harvester, substantially as herein described, the combination of the main frame, the scrapers, the arms supporting the scrapers and pivoted at their upper ends, the lever arranged at one end to operate the scrapers, the cutters, the carrier-frame adjustable vertically in the main frame, the cutter-frame adjustable laterally in the carrier-frame, the main shaft having a main lever connected with the scraper-adjusting lever, crank-arms on the main shaft, devices connecting certain of said crank-arms with the carrier-frame, the plow-frame, and connections be-

tween said plow-frame and certain of the crank-arms on the main shaft, all substantially as and for the purposes set forth.

7. In a beet-harvester the combination of the vertically-movable carrier-frame, the main frame comprising guide-plates having vertical slots for projections on the carrier-frame, and horizontal flanges on opposite sides of said slots, and frame-bars fitting between said flanges, and the cutting devices supported by the carrier-frame, substantially as set forth.

8. The combination of the main frame having guide-slots, the carrier-frame having end plates provided with projections operating in said slots and the cutter-frame in said carrier-frame, substantially as set forth.

9. The combination of the carrier-frame having its cross-bars provided with longitudinal slots, the cutter-frame fitting in said carrier-frame and comprising a main portion, and end brackets provided with pivoted studs entering bearings in the main portion and projecting into the guide-slots of the carrier-frame, and the cutter-shafts journaled in said brackets, substantially as set forth.

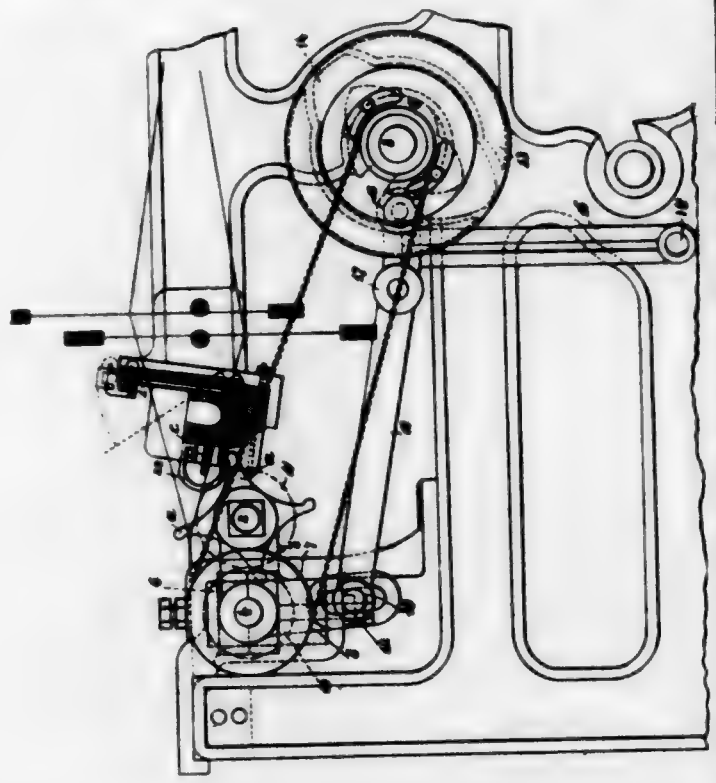
10. The combination in a beet-harvester of the carrier-frame having its cross-bars provided with longitudinal slots, the cutter-frame having bars fitting within the carrier-frame and provided with flanges overlying the cross-bars thereof, and projections from the cutter-frame entering the slots of the carrier-frame, and the cutters and their shafts, substantially as set forth.

11. The combination substantially as herein described, of the carrier-frame, the cutter-frame adjustable laterally therein and provided with pivoted brackets, the cutter-shafts journaled in said brackets, and the opposing cutters on said shafts composed each of blades having projecting teeth and notches, the teeth of one cutter being arranged to enter the notches of the opposing cutter, substantially as set forth.

12. In a beet-harvester, the combination substantially as described, of the main frame, the cutter-frame, movable laterally in the main frame, the cutters having their shafts provided with bevel-pinions, the shaft journaled to the cutter-frame and having gears meshing with the pinions of the cutters, a sprocket-gear on said shaft, a forked guide on the carrier-frame embracing said sprocket-gear, and the sprocket-chain and drive devices, substantially as set forth.

696,263. APPLIANCE FOR BEATING UP THE WEFT IN LOOMS.

HEINRICH PANITSCHEK and CARL HEROLD, Brünn, Austria-Hungary. Filed July 14, 1900. Serial No. 23,671. (No model.)



Claim.—1. In a loom, the combination with a stationary lathe, of a shaft mounted in front of the same, a series of combs on said shaft, and means for rotating the said combs to beat home the weft and for swinging the said comb-shaft up and down to withdraw the said combs at intervals from the fabric, substantially as described.

2. In a loom, the combination with a stationary lathe, of a shaft provided with combs and arranged in front of said lathe, crank-arms in which said shaft is journaled, means for simultaneously actuating said arms to raise and lower the shaft, and means for rotating the combs to beat the weft.

3. In a loom, the combination with a stationary lathe, of a shaft provided with combs and arranged in front of said lathe, a shaft carrying crank-arms in which said comb-shaft is journaled, a main driving-shaft, a cam on said driving-shaft, and connections between said cam and another crank-arm on the shaft.

4. A device for beating up the weft in looms, consisting of the combination of an intermittently-rotated shaft 2 having thereon a series of axially and radially displaced combs, and means for swinging the said shaft up and down in order to beat up the weft and to be withdrawn from the work while the next weft is being passed through the shed.

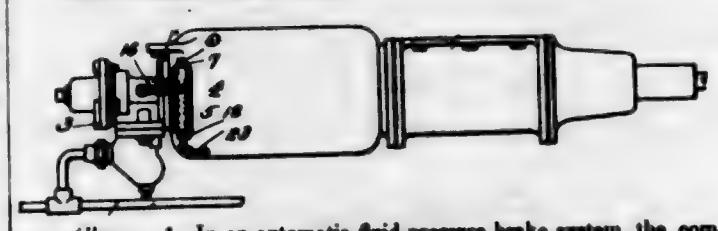
5. In a loom, the combination with a stationary lathe, of a rotatable shaft carrying combs, crank-arm in which said shaft is journaled, gear-wheels for rotating the shaft, means for actuating said wheels, and means for rocking the crank-arm.

6. In a loom, the combination with a stationary lathe, of a shaft 4, crank-arm on said shaft, a reed-shaft 2 journaled in said arms, intermeshing gear-wheels on said shafts, means for driving the gears, and means for rocking the shaft 4.

7. In a loom, the combination with a stationary lathe, of a shaft 4, crank-arm on said shaft, a reed-shaft 2 journaled in said arm, a loose gear-wheel on the shaft 4, an intermeshing gear-wheel of the same size secured on the shaft 2, means for rotating the loose gear-wheel, and means for rocking the shaft 4.

696,264. AUTOMATIC RETAINING-VALVE FOR USE IN AUTOMATIC FLUID-PRESSURE BRAKE SYSTEMS.

HARRY R. PARSONS and HERBERT G. DERR, Nescopeck, Pa.; said Derr assignor of one-half of his right to Jerome W. Piler, Nescopeck, Pa. Filed Oct. 16, 1901. Serial No. 78,854. (No model.)



Claim.—1. In an automatic fluid-pressure brake system, the combination of an auxiliary reservoir, a triple valve, a fluid-pressure-retaining means consisting of a valve-chamber formed with an inlet-port and an outlet-port, a valve in said chamber and normally closing said ports, means for connecting the release-port of the triple valve with the inlet to said chamber, means for causing said valve to resist a predetermined pressure from the release-port of the triple valve, and a valve-opening mechanism consisting of a tubular casing formed with a port at one end, a plunger-valve therein and closing said port, means for placing said port in communication with the auxiliary-reservoir pressure, a stem carried by said plunger-valve and adapted to move the brake-cylinder-pressure-regulating valve, and means for causing the plunger-valve to resist the auxiliary-reservoir pressure until a predetermined pressure is reached, substantially as described.

2. In an automatic fluid-pressure brake system, the combination of an auxiliary reservoir, a triple valve, a fluid-pressure-retaining means consisting of a valve-chamber formed with an inlet-port and an outlet-port, a valve in said chamber and normally closing said ports, means for connecting the release-port of the triple valve with the inlet to said chamber, means for causing said valve to resist a pressure from the release-port of the triple valve, means for varying the resistance of the valve, and a valve-opening mechanism consisting of a tubular casing formed with a port at one end, a plunger-valve therein and closing said port, means for placing said port in communication with the auxiliary reservoir, a stem carried by said valve and adapted to move the pressure-regulating valve, and means for causing the plunger-valve to resist the auxiliary-reservoir pressure until a predetermined pressure is reached, substantially as described.

3. A pressure-controlling mechanism consisting of a valve-chamber formed with an inlet-port and an outlet-port, a valve therein closing said ports, means for placing its inlet-port in communication with the release-port of a triple valve, means for causing said valve to resist a predetermined pressure from the triple valve, and a valve-opening mechanism consisting of a casing formed with a port, a plunger-valve therein closing said port, means for causing said valve to resist a predetermined pressure, a device carried by the plunger-valve and normally out of engagement with the pressure-retaining valve and adapted to be moved to engage the pressure-regulating valve, to move it when the plunger-valve is moved.

4. A pressure-controlling mechanism consisting of a tubular casing formed with a valve-chamber at one end having an inlet and an outlet port, a valve therein closing said ports, means for connecting the inlet-port to the release-port of a triple valve, means for causing said valve to resist a predetermined pressure from said release-port, a valve-chamber at the other end of said casing and provided with a port, an air-tight plunger-valve in said casing and closing the port, means for connecting

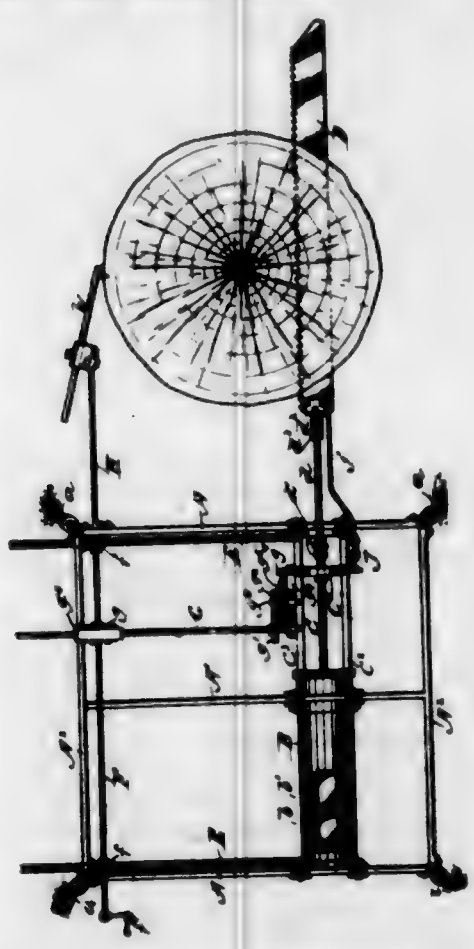
said port to the auxiliary reservoir, means for causing said plunger to resist a predetermined pressure from the auxiliary reservoir, and a device connected to the plunger-valve and adapted to move the pressure-regulating valve when an excessive pressure is reached in the auxiliary reservoir.

5. A pressure-controlling mechanism consisting of a valve-chamber formed with an inlet-port and an outlet-port, a pressure-retaining valve therein closing said ports, a valve-opening mechanism consisting of a casing formed with an inlet-port, a piston therein closing said port, the pressure-retaining valve being free to move independent of the piston, means for holding the piston and the pressure-retaining valve to their seats by differential pressure devices, and a device normally out of engagement with the pressure-retaining valve and adapted to be moved by the piston to raise the pressure-retaining valve from its seat to open the outlet-port of the pressure-retaining-valve chamber.

6. In an automatic fluid-pressure brake system, the combination of an auxiliary reservoir, a triple valve, a fluid-pressure-retaining means consisting of a valve-chamber formed with an inlet-port and an outlet-port, a pressure-retaining valve in said chamber and normally closing said ports, means for connecting the release-port of the triple valve with the inlet to said chamber, and a valve-opening mechanism consisting of a tubular casing formed with a port at one end, a plunger therein closing said port, means for placing said port in communication with the main pressure, differential pressure devices for holding the pressure-retaining valve and the piston-valve to their seats, the pressure-retaining valve being movable independently of the piston-valve, and a device normally out of engagement with the pressure-retaining valve and moved by the piston-valve to engage and raise the pressure-retaining valve from its seat.

7. A pressure-controlling mechanism consisting of a tubular casing formed with a valve-chamber at one end having an inlet and an outlet port, a pressure-retaining valve therein closing said ports, a valve-chamber at the other end of said casing and provided with an inlet-port, a plunger-valve in said casing and closing the port, differential pressure devices for holding the pressure-retaining valve and the plunger-valve to their seats, the pressure-retaining valve being movable independently of the plunger-valve and a device connected to the plunger-valve and normally out of engagement with the pressure-retaining valve and adapted to lift the pressure-retaining valve from its seat when the plunger-valve is moved.

696,265. SAW ADAPTED ESPECIALLY FOR FELLING TREES AND CUTTING THEM UP. ALEXANDER PERRY, Boston, Mass. Filed May 6, 1901. Serial No. 58,876. (No model.)



Claim.—1. In a tree-felling mechanism a horizontal frame consisting of two or more parallel bars suitably supported above the ground, a saw-reciprocating mechanism located to reciprocate a saw in a direction at right angles to said parallel bars, said saw reciprocating mechanism consisting of a steam-engine adapted to travel sidewise upon said parallel bars, two or more racks connected to said steam-engine and running parallel with said parallel bars, two or more pinions, one engaging with each of said racks and mounted upon a common shaft, and means connecting said shaft with the cross-head of said steam-engine whereby each reciprocation of said cross-head will impart a rotary movement to said shaft, as and for the purposes described.

2. In a tree-felling mechanism, a steam-engine, a saw mounted upon the cross-head of said steam-engine, a horizontal frame consisting of a series of parallel bars suitably supported, means for mounting said steam-engine on said parallel bars whereby it may be moved laterally thereon, two or more racks connected to said steam-engine and supported parallel with said parallel bars, a pinion-shaft supported by said frame at right angles to said racks and carrying pinions, each adapted to engage with one of said racks and also carrying a worm-gear, in combination with a worm slidably mounted upon a second shaft at right angles to said pinion-shaft and means for rotating said second shaft connected to and operated by the cross-head of said engine, as and for the purposes described.

3. In a tree-felling mechanism, an engine provided with a cross-head, a saw attached to said cross-head and adapted to be reciprocated thereby, a horizontal frame suitably supported above the surface of the ground and comprising two or more parallel bars, said engine being mounted upon said bars and adapted to travel thereon, two or more racks connected with said engine and suitably supported in said frame, a shaft at right angles to said bars carrying pinions each of which is adapted to engage with and operate one of said racks, said shaft also carrying a worm-gear, a second shaft mounted at right angles thereto and provided with a worm slidably mounted thereon, but adapted to rotate therewith, said second shaft carrying also a gear, in combination with a driving-pawl connected with the cross-head of said engine, a ratchet adapted to be engaged by said driving-pawl during its movement in one direction, said ratchet being suitably connected with said second shaft, whereby the movement of said ratchet will cause a corresponding movement of said second shaft, as and for the purposes described.

4. In a tree-felling apparatus an engine provided with a piston-rod, means for supporting said engine and piston-rod, a saw and a connecting-rod connecting said saw with said piston-rod, said connection comprising a forked portion and two bolts whereby said connecting-rod may be held in line with said piston-rod, one of said bolts being removable, whereby the said connection-rod may lie at an angle to said piston-rod and said saw being connected to said piston-rod by means substantially as described, whereby its blade may lie in either a horizontal or vertical position, as and for the purposes described.

5. In a tree-felling mechanism an engine suitably supported, a saw-blade connected to the cross-head of said engine, a pump mounted to be operated by said cross-head, and means for connecting said pump with a source of water-supply and with the saw-blade, as and for the purposes described.

696,266. STORAGE APPARATUS. CHARLES PIKE and ROBERT H. BEAUMONT, Philadelphia, Pa., assignors to the Dodge Coal Storage Company, Hazelton, Conn., a Corporation of Connecticut. Filed Dec. 31, 1900. Serial No. 41,640. (No model.)

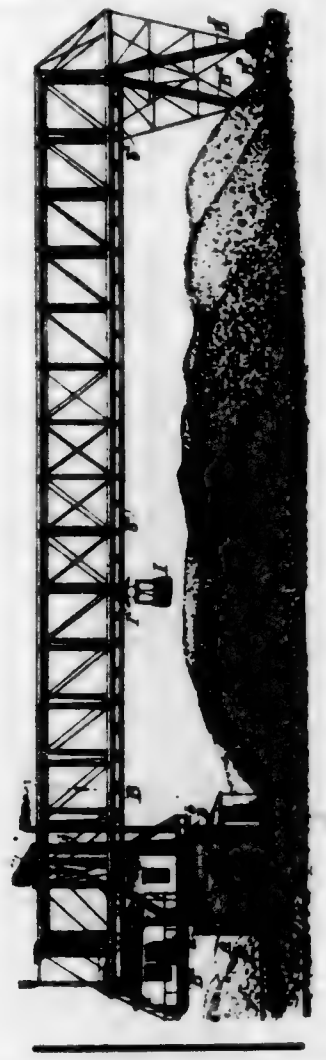
Claim.—1. The combination with a fixed structure, of a swinging structure pivoted to the fixed structure, both the fixed structure and the swinging structure at the pivot-point being open at the center, elevating and conveying mechanism mounted on the swinging structure and arranged to pass through the open center of the pivoted structure and the open center of the fixed structure, and a platform at one side of the swinging structure directly above the plane of the pivot, said platform carrying the hoisting-engine by which the elevating and conveying mechanism is driven, substantially as described.

2. The combination of a fixed structure, an annular rail, a swinging structure having an annular rail at the pivot-point, both structures being open at the center of the pivot, an annular carriage consisting of two rings, with a sectional casting mounted between them, and wheels carried by the casting and mounted between the fixed and the swinging structure, substantially as described.

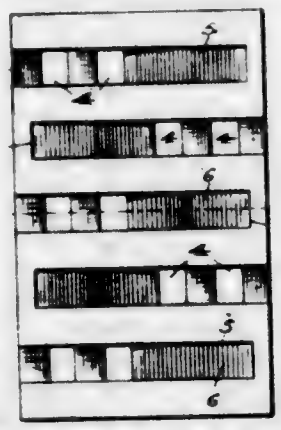
3. The combination of a fixed structure, an annular rail, a swinging structure having an annular rail at the pivot-point, both structures being open at the center of the pivot, an annular carriage consisting of two rings, with a sectional casting mounted between them, wheels carried by the casting and mounted between the fixed and the swinging structures, with side-bearing guide-rolls for keeping the ring central, substantially as described.

4. The combination of a fixed structure, a swinging structure pivoted thereto, both having an open center, elevating and conveying mechanism mounted on the moving structure and arranged to pass through the center of the fixed structure, a tower at one side of the fixed structure, a bridge carried by the tower, a pipe supported by the tower and by the bridge,

and a pipe on the movable structure leading to the hoisting-engine, on the movable structure, said pipe being coupled to the pipe on the bridge at the center of rotation of the movable structure, substantially as described.



696,267. **FIRE-LIGHTER BLOCK.** COLLINGWOOD POLLARD, Bradford, England, assignor to Pollard and Metcalfe, Ltd., Silsden, England. Filed Jan. 2, 1902. Serial No. 88,207. (No model.)



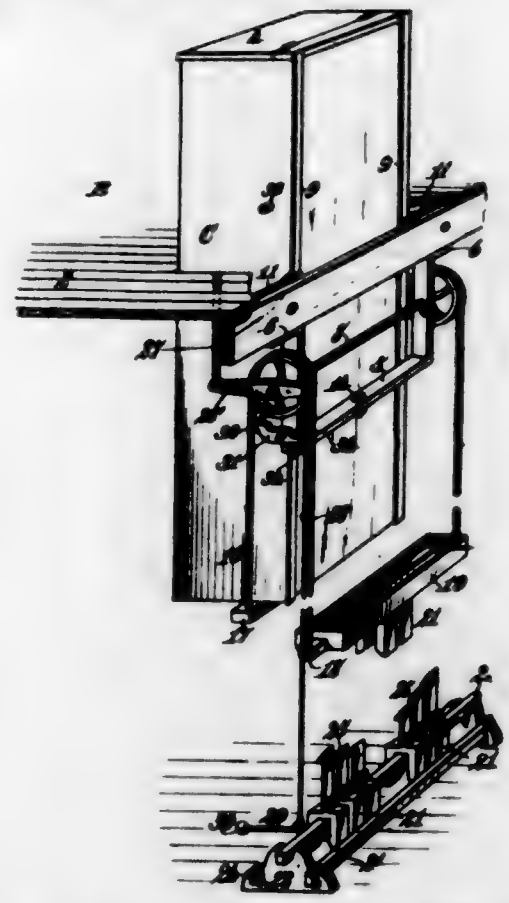
Claim.—1. A fire-lighter block having a series of grooves on one face, a series of grooves on the other face leaving draft-openings at the points of crossing the first grooves and providing channel extensions having imperforate incline bottom walls, said inclined bottom beginning at a point intermediate the thickness of the block, substantially as described.

2. A fire-lighter block having a series of grooves on one face, a series of grooves on the other face crossing the grooves first mentioned, said crossing-grooves beginning at opposite edges of the block and each having a draft-opening near its beginning and having a channel extending beyond the draft-opening toward the other edge, provided with an inclined imperforate bottom, substantially as described.

3. A fire-lighter block having draft-openings extending therethrough, first near one edge of the block and then near the other to distribute the said draft openings in staggered relation, said block having grooves on its opposite faces those on one face crossing those on the other face, substantially as described.

4. A block grooved from end to end on one face and having grooves on the other face crossing those on the first face to provide a ventilating-opening and to provide a channel with an imperforate bottom extending transversely over the grooves on the side first mentioned, substantially as described.

696,268. **DUMB-WAITER.** HARLEY A. POOL, Lima, Ohio. Filed Nov. 2, 1901. Serial No. 80,947. (No model.)



Claim.—1. A dumb-waiter combined with a rising and falling main weight, a plurality of auxiliary weights arranged to be successively applied to the main weight, and a shiftable support for said auxiliary weights.

2. A dumb-waiter combined with a weight-carrying device connected with the dumb-waiter for ascending and descending movements, and a plurality of weights having means to be successively engaged by said weight-carrying device on the ascending movement of the latter.

3. A dumb-waiter combined with a weight-carrying device connected with the dumb-waiter for ascending and descending movements, a plurality of weights having projections disposed in superposed planes and adapted to engage said weight-carrying device, and a shiftable support for said weights.

4. A dumb-waiter combined with a rising and falling main weight, an auxiliary weight arranged to be taken up by the main weight, and a shiftable support for the auxiliary weight.

5. A dumb-waiter combined with a weight-carrying device connected with the dumb-waiter for ascending and descending movements, and a plurality of weights having hooks disposed in superposed planes and adapted to engage said weight-carrying device.

6. A dumb-waiter combined with a weight-carrying device adapted to ascend and descend in opposition to said dumb-waiter, a rock-shaft, a slotted weight supported by said rock-shaft and having a hook arranged to normally engage the weight-carrying device, and means for operating said rock-shaft.

7. A dumb-waiter combined with a weight-carrying device adapted to ascend and descend in opposition to said dumb-waiter, a latch for holding the dumb-waiter in one of its positions, a weight adapted to be lifted by said weight-carrying device, a shiftable support for said weight, and means controlled by an operator for shifting said support and for also tripping said latch.

8. A dumb-waiter combined with a main counterbalancing-weight therefor, a latch for holding said dumb-waiter down, means for tripping said latch, and a plurality of auxiliary weights arranged to be successively engaged by the main weight during the ascending movement thereof.

9. A dumb-waiter combined with a weight-carrying device adapted to ascend and descend in unison with the dumb-waiter and having a pair of walls which converge toward the top of said weight-carrying device, a plurality of weights having hooks disposed in superposed planes, and a shiftable support for said weights.

10. A dumb-waiter combined with a weight-carrying device adapted to move in opposition to the dumb-waiter, a plurality of weights arranged to be successively taken up by said weight-carrying device, a shiftable support for said weights, a device adapted for actuation by an attendant, and a connection between said last-mentioned device and said shiftable support.

11. A dumb-waiter combined with a main weight therefor, a plu-

rality of auxiliary weights arranged to be successively taken up by the main weight, and a shiftable support for the auxiliary weights.

12. A dumb-waiter, a shaft carrying sheave-wheels, ropes on the wheels connected with the dumb-waiter, a main weight supported by the ropes, a plurality of auxiliary weights arranged to be taken up automatically and successively by the main weight, and a support for the main weight having means to carry the auxiliary weights.

13. A dumb-waiter, a shaft carrying sheave-wheels, ropes on the wheels connected with the dumb-waiter, a main weight supported by the ropes, a plurality of auxiliary weights arranged to be taken up automatically and successively by the main weights, a support for the main weight having means to carry the auxiliary weights, a treadle, and a connection between said treadle and auxiliary-weight-carrying means.

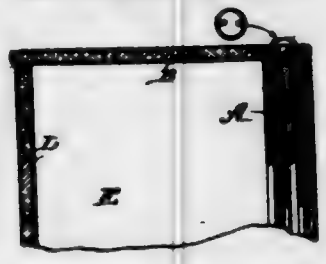
14. A dumb-waiter combined with a main weight arranged to move in opposition to said dumb-waiter, a support for the main weight, an auxiliary weight arranged to be taken up by the main weight, and shiftable means on said support for carrying said auxiliary weight.

15. A dumb-waiter combined with a main weight arranged to move in opposition to said dumb-waiter, a support for the main weight said support having a rock-shaft, and an auxiliary weight removably carried by said rock-shaft and arranged to be taken up by the main weight.

16. A dumb-waiter combined with a main weight arranged to move in opposition to said dumb-waiter, a support for the said main weight and having a squared rock-shaft, a plurality of slotted auxiliary weights removably sustained by said rock-shaft and having hooks disposed in superposed planes, and means for operating said rock-shaft.

17. A dumb-waiter combined with a weight-carrying device connected with the dumb-waiter for ascending and descending movements, and a plurality of weights arranged to be automatically and successively lifted by said weight-carrying device on the ascending movement thereof.

696,269. SHOW-CASE. ADOLPH REHLE, Baltimore, Md. Filed Nov. 26, 1901. Serial No. 83,751. (No model.)



Claim.—1. A show-case comprising plates of glass adjoining each other, a deposited metallic layer on one of the plates at the point of union, and cement between said plates and underlying the metallic layer substantially as set forth.

2. A show-case comprising the adjoining glass plates, the deposited metallic layer on the surfaces of both said plates at the point of union, and cement between the glass plates and between the metallic layers thereof, whereby the plates will be united and the cement will be hidden from view by the metallic layers substantially as set forth.

3. In a show-case the combination of the adjoining glass plates, cement for uniting the plates together, and a deposited metallic layer on the inner surface of one of the plates and overlying the uniting cement substantially as set forth.

696,270. FLASH-LIGHT CARTRIDGE. KARL REHBOHMDT, Berlin, Germany. Filed Jan. 16, 1902. Serial No. 90,012. (No model.)



Claim.—1. A flash-light cartridge of compressed flash-light powder, part of which may be easily separated from the rest, said part serving after disintegration as a primer for igniting the cartridge proper.

2. A flash-light cartridge consisting of the cartridge proper and the primer, said primer being easily detached from the cartridge, said cartridge and primer forming a homogeneous mass.

3. A flash-light cartridge, comprising the cartridge proper and an easily-detachable primer, the cartridge containing the powder in highly-compressed state, whereas the powder forming the primer is less compressed.

4. Process for manufacturing flash-light cartridges consisting of a cartridge proper and an easily-detachable primer, consisting in filling the part of the form corresponding to the cartridge proper with a thicker layer of powder than the part corresponding to the primer.

696,271. PROCESS OF HARDENING COPPER. CARRIE RENSTROM, Seattle, Wash., assignor to Aztec Tempered Copper Company, Seattle, Wash. Filed Aug. 12, 1901. Serial No. 71,800. (Specimens.)

Claim.—1. The process of hardening copper or the alloys of copper which consists in subjecting the same to heat at the proper temperature and for the proper length of time, and while in a heated condition sprinkling sulfur on the same, and then subjecting the thus-treated copper or alloys of copper, while in a heated condition, to a blue-vitriol bath, substantially as described.

2. The process of hardening copper or alloys of copper which consists in subjecting the same to heat at the proper temperature and for the proper length of time, and while in a heated condition sprinkling upon the same pulverized sulfur, then subjecting the copper or alloys of copper while in a heated condition to a blue-vitriol bath, and then reheating it and then permitting it to cool, substantially as described.

696,272. DEVICE FOR GROUPING PHOTOGRAPHS. GEORGE G. RODMAN, Washington, Iowa. Filed Oct. 3, 1901. Serial No. 77,447. (No model.)



Claim.—1. As an article of manufacture, a device for grouping photographs and other objects consisting of a block and a corrugated and flanged disk rotatably and yieldingly connected with said block whereby to grip an object held between it and the block.

2. The combination with a block having an aperture at its center, a thimble held in the aperture with its outer ends flush with the surfaces of the block, one end being perforated at its center and the other outwardly flanged, of a disk having an inclining flange at its periphery and a perforation at its center, a bolt passing through the perforation in the disk and thimble, a conical spiral spring mounted on the bolt and located within the aperture of the block with its larger end against the head of the thimble and a nut adapted to screw on the thread of the bolt whereby to regulate the tension of the spring.

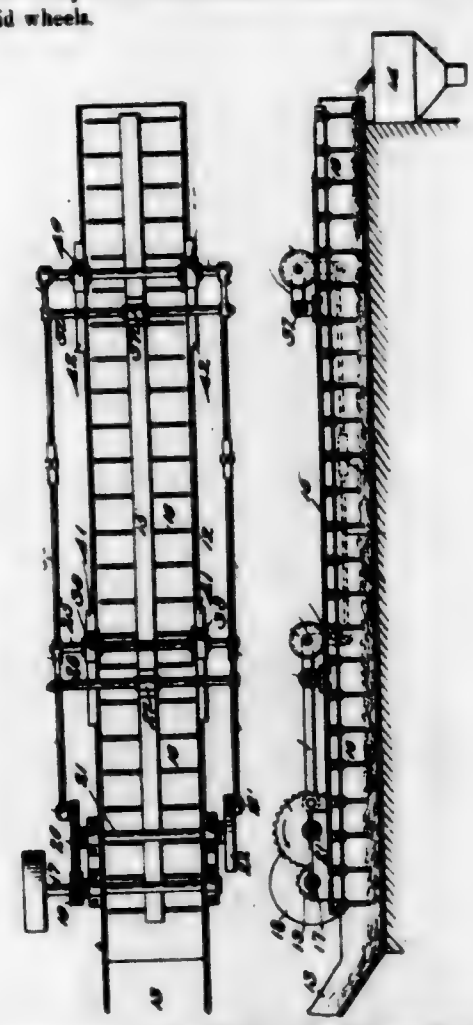
696,273. CONVEYER. JOHN ROGER, Denver, Colo. Filed May 23, 1901. Serial No. 61,908. (No model.)

Claim.—1. In a conveyer, a body having hoes, shafts carried by said body, a rod connected to one of the shafts, said rod having an angular projection, an angle-lever an arm of which is connected to the other shaft, a connection between the other arm of the angle-lever and said angular projection, and means for reciprocating said rod.

2. In a conveyer, a feeding member, shafts carried by said member, a rod connected to one of the shafts, said rod having an angular projection, an angle-lever an arm of which is connected to the other shaft, a connection between the other arm of the angle-lever and said angular projection, and a wheel having a crank connected with said rod.

3. In a conveyer, a body having hoes, supports connected with said body at different points in its length, means for causing said supports to traverse corresponding orbital paths, said means including a plurality of

wheels movable solely in a corresponding horizontal plane and means for supporting said wheels.



4. In a conveyer, a body having hose, supports connected with said body at different points in its length, means for causing said supports to traverse corresponding orbital paths, said means including a plurality of wheels movable in a corresponding horizontal plane, a trough to receive said hose and horizontal tracks upon the trough constituting the sole supporting means for said wheels.

5. A conveyer, including a body having hose, an operating device, a rod connected with said operating device, a shaft connected with said rod and with said body, a lever operatively connected with said connecting-rod, a plurality of shafts connected respectively with said connecting-rod and lever, a shaft supported by the lever and connected with said body, and guiding means for said plurality of shafts.

6. A conveyer, including a body having hose, an operating device, a rod connected with said operating device, a shaft connected with said rod, a lever, a connecting-rod jointed respectively to said first-mentioned rod and to said lever and consisting of two parts, a turnbuckle uniting said parts of said connecting-rod, a plurality of shafts connected respectively with said first-mentioned connecting-rod and lever, guiding means for said plurality of shafts, and a shaft supported by said lever and connected with said body.

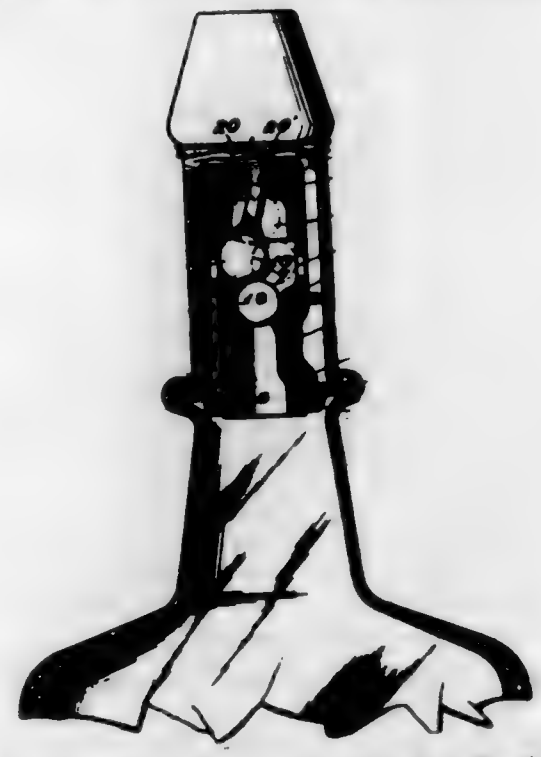
7. In a conveyer, a pair of disks, a body having hose, connecting-rods jointed to said disks and having right-angular arms, a shaft connected with said connecting-rod, guiding means connected with said shaft, a shaft supported by said connecting-rods and supporting said body, angle-levers, a shaft supported by said angle-levers and having guiding means, a shaft connected with said angle-levers and supporting said body, and connecting-rods uniting the other connecting-rods and said angle-levers.

696,274. CYANID PROCESS OF EXTRACTING PRECIOUS METALS FROM THEIR ORES. HUGO SCHILD, Johannesburg, South African Republic. Filed June 27, 1900. Serial No. 722,092. (No specimens.)

Claim.—An improved process in the art of extracting precious metals from their ores, said process consisting in thoroughly and intimately mixing peroxid of barium (BaO_2) with precious-metal-bearing material, substantially as and for the purposes set forth, and then subjecting the same to treatment with an alkaline cyanid solution.

696,275. NON-REFILLABLE BOTTLE. JAMES M. SHEPPARD, Jr., Columbia, Tenn. Filed July 8, 1901. Serial No. 67,480. (No model.)

Claim.—1. A non-refillable receptacle, comprising in its construction a throat formed upon a suitable body portion, a fold in the material of said throat forming an annular flare extending outwardly about said throat, a stopper provided with an elastic supporting and an elastic spacing or sealing flange for properly holding the stopper in place, the said stopper being adapted to be inserted into said throat after said receptacle has been filled, in such manner as to permit the said flange to enter the said flared portion, whereby the said stopper is incapable of removal, and means within said stopper for permitting the removal of the contents of said receptacle and for preventing the refilling thereof, substantially as described.



2. In a non-refillable receptacle, the combination with a throat thereof provided with an annular flared portion, of a stopper adapted to be inserted within said throat, an annular shoulder near the lower end of said stopper, a nut of greater external diameter than said shoulder adapted to be threaded upon the said end, an elastic washer adapted to be clamped between said nut and said shoulder, the construction being such that when the said stopper is inserted into the throat the said washer is adapted to yield to downward pressure on account of shoulder above being smaller in diameter than the nut below washer, said washer and nut forming a lock for stopper in neck or throat of bottle, the said stopper being formed with a longitudinal central bore, a valve-seat within the stopper, a valve adapted to rest thereupon, means for locking said valve in such position, and means for permitting the said valve to leave its seat, substantially as described.

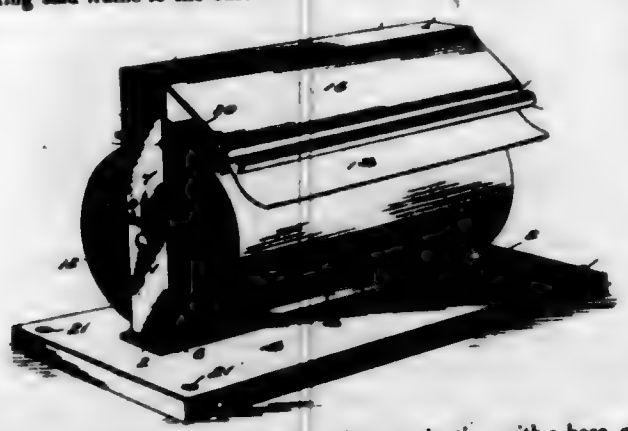
3. In a non-refillable receptacle, the combination with the throat thereof provided with a shouldered portion, a stopper adapted to be inserted into said throat, an inner washer for engaging said shoulder for preventing the removal of said stopper, an outer flexible washer embedded in the material of said stopper and adapted to have its outer edge fit snugly the walls of said throat, the said stopper being provided with a longitudinal bore and side apertures communicating therewith, means for partially closing the upper end of said bore, a valve within the said stopper and beneath said closure, and a movable key above said valve for retaining the same in its seat when the bottle is not inverted, substantially as described.

4. In a non-refillable receptacle, the combination with the throat thereof, of a non-removable stopper within the same provided with a longitudinal bore and side apertures communicating therewith, a plug closing the upper end thereof, the lower end of the plug being formed with a conical aperture, and a perforation extending from the said aperture to the upper face of the plug, a valve-seat within said stopper, a ball-valve resting upon the same, a ball mounted upon said valve, a key provided with a concaved end adapted to rest upon said last-mentioned ball, and a reduced extension at the upper end of said key adapted to lie normally within said perforation, said reduced portion forming an annular shoulder near the upper end of said key, which shoulder is adapted to engage the walls of said first-mentioned aperture and thereby lock said valve in its seat, substantially as described.

696,276. PAPER-ROLL. JOHN SINCLAIR, San Francisco, Cal. Filed May 2, 1901. Serial No. 58,542. (No model.)

Claim.—1. In a roll-paper holder and cutter, a base, a roll-supporting frame revolubly mounted upon the base, a cutting-blade mounted on said frame, and means for locking the frame to the base.

2. In a roll-paper holder and cutter, a base, a plate secured to the base, a roll-supporting frame pivotally mounted on said plate, and means for locking said frame to the base.



3. In a roll-paper holder and cutter, the combination with a base, of a plate secured thereto, a roll-supporting frame pivotally secured to said plate, and a locking device on said plate adapted to engage said frame.

4. In a roll-paper holder and cutter, a base, a plate secured to the base a roll-supporting frame revolubly mounted upon said plate, a lock for said frame, a weight having retaining members mounted in the frame between its sides, a knife secured to the under side of the top of the frame, having a downwardly-inclined portion extending beyond the frame, said portion terminating in a sharp cutting edge at substantially right angles thereto, and a paper-holder on the under side of said inclined body portion of the blade.

5. In a roll-paper holder and cutter, adapted to be secured to the top or under side of the counter, comprising a base, a reversible frame upon the base, an elongated slot in the sides of said frame, an opening communicating with said slot midway of the ends thereof, a knife secured in the frame, and means for holding the paper while it is being cut.

6. In a roll-paper holder and cutter adapted to be secured to the top or under side of a table or counter, comprising a base, a reversible frame upon the base, an elongated slot in the sides of said frame, sockets in the ends of said slot, an opening communicating with the center of said slot, a weight slidably mounted within the frame bearing directly upon the paper-roll, a knife secured to the under side of the top of the frame, a downwardly-inclined portion to the blade, said inclined portion terminating in a groove, a sharpened edge to the end of said blade, and means for holding the paper away from the roll secured to the under side of the blade.

7. In a roll-paper holder and cutter adapted to be secured to the top or under side of a table or counter, comprising a base, a frame revolubly mounted upon the base, a weight within the frame, a knife mounted in said frame, a cutting edge at the end of said blade, a groove in the blade, a cutting edge, a downwardly-curved portion adjacent to said cutting edge, and means for holding the paper away from the roll secured to the under side of the blade.

696,277. AIR-CHAMBER FOR PUMPS. JOHN E. SPONSELLER and GEORGE PERRO, Hoisington, Kans. Filed June 19, 1901. Serial No. 65,150. (No model.)



Claim.—1. In an apparatus substantially as described, an air-chamber composed of the casing, the reducer threaded on the upper end of the casing and having its reduced portion provided with threads to receive the upper pump-pipe section and also to receive the upper end of the central pipe-section of the air-chamber, the central pipe-section threaded at its upper end in the upper reducer, provided near its lower end with openings for the passage of the water and air and having such lower end tapered externally, and the lower reducer threaded on the lower end of the casing and having its reduced portion provided with threads for the connection of the lower pump-pipe section and having said reduced portion formed interiorly at its inner end to provide a seat for the tapered outer side of the lower end of the central pipe-section, all substantially as and for the purpose set forth

2. An air-chamber for pumps or pipe-lines, comprising the casing, the upper reducer threaded on the casing, the central pipe-section secured at its upper end to the upper reducer, and arranged at its lower end to seat against the lower reducer and having near such end openings for the passage of the water to the space between such pipe-section and the casing, and the lower reducer threaded on the lower end of the casing and provided on its inner side at its inner end with a seat for the lower end of the central pipe-section whereby to closely but slidably fit over such end of the central pipe-section, substantially as set forth.

3. An air-chamber for pumps, comprising the casing, the coupling at the upper end of the casing, the coupling at the lower end of the casing, and the central pipe-section within said casing, secured at its upper end to the upper coupling, seating at its lower end closely but slidably against the lower coupling and perforated near its lower end for the passage of water, substantially as set forth.

4. The combination in an air-chamber for pumps of the casing, means at the upper end thereof for connection with the pump-pipe, the central pipe-section rigidly supported at its upper end and extending longitudinally within the casing, and having its lower end tapered exteriorly and perforated near such end for the passage of water, and the lower reducer threaded on the lower end of the casing and formed at its inner end to closely but slidably fit upon the tapered lower end of the central pipe-section, substantially as set forth.

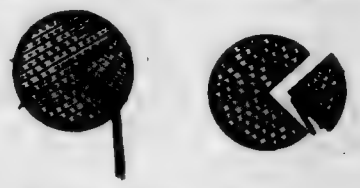
696,278. CULINARY ARTICLE. ALFRED H. STONEDAHL, Portwing, Wis. Filed June 1, 1901. Serial No. 62,794. (No model.)



Claim.—1. The combination with a strainer or basket having a carrying-bail; of a removable lid therefor provided at one side with a horizontally-slidable and pivoted lid-segment, said lid-segment having a shouldered engagement with the body of the lid and the lid being provided at diametrically opposite points with bail-receiving notches, one of which is formed in the lid-segment.

2. The combination with a strainer or basket having a carrying-bail; of a removable lid therefor provided at one side with a horizontally-slidable and pivoted lid-segment; said lid-segment being pivoted to the body of the lid at or near one end and provided at its opposite end with an operating-knob, the lid-segment having a rabbeted and shouldered engagement with the body of the lid, and together with the body of the lid provided with diametrically opposite bail-receiving notches; and means for locking the body of the lid to the strainer or basket.

696,279. CURTAIN-POLE. EMELY S. SYMONDSEN, Everett, Mass. Filed Apr. 19, 1901. Serial No. 56,506. (No model.)



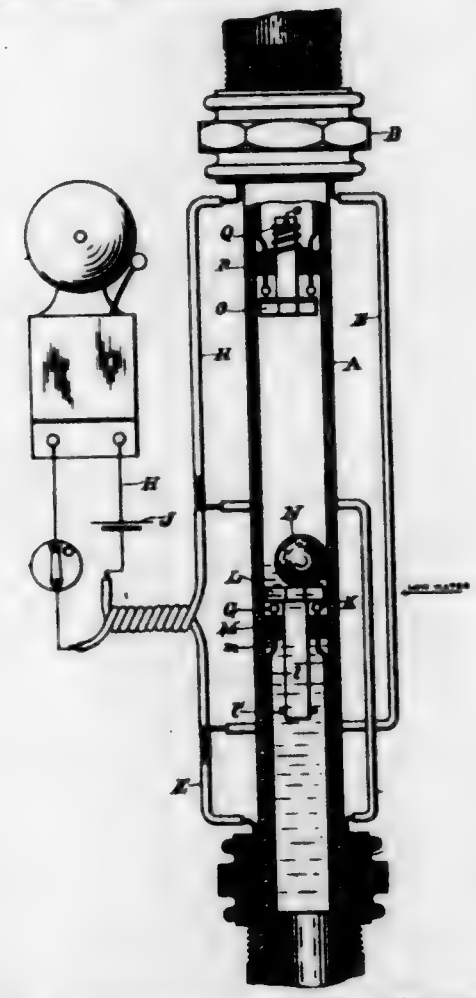
Claim.—1. In a curtain-pole, a bar provided with a longitudinally-extending groove in which is adapted to be mounted the end of a curtain.

a clamping-bar mounted in said groove for retaining the curtain in position, a series of V-shaped springs connected to said clamping-bar to enable the members forming the pole to be clamped together with a yielding pressure so as to compensate for variations in the thickness of the curtain, and rings suitably mounted on the bar for retaining the clamping-bar within the same.

2. In a curtain-pole, a bar provided with a longitudinally-extending, substantially segment-shaped groove for receiving one end of the curtain, a separate detachable segmental-shaped clamping-bar adapted to be mounted in said groove for retaining the curtain therein, a series of V-shaped springs having one end connected to said clamping-bar and adapted for clamping the members of the pole together with a yielding pressure so as to compensate for variations in the thickness of the curtain, and rings mounted upon said bar for retaining the clamping-bar in said groove.

3. In a curtain-pole, a bar provided with a longitudinally-extending groove to receive one end of the curtain, a clamping-bar mounted in said groove for retaining the curtain therein, a V-shaped spring having one section thereof secured to the center of said clamping bar and the other section free V-shaped springs having one section thereof secured near each end of said clamping-bar in alinement with the spring secured to the center thereof and having the other section free, said springs adapted to clamp the members of the bar together with a yielding pressure so as to compensate for variations in the thickness of the curtain, and rings surrounding the said bar for securing one within the other.

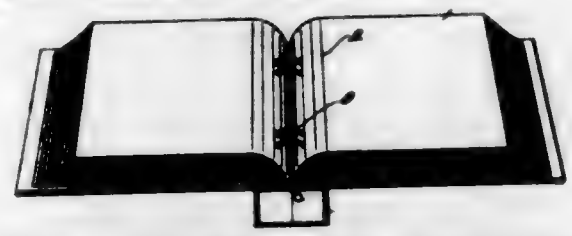
696,280. FLOAT-GAGE. HANS P. TAUBER, Brooklyn, N. Y. Filed Oct. 3, 1901. Serial No. 77,437. (No model.)



Claim.—1. In a float-gage, the combination of the gage-tube, a battery, an electrically-operated sounding device, a metallic circuit or series of conductors including the said sounding device and battery, the ends of the circuit being introduced into the tube and terminating in suitable electrodes, a sight-float within the tube, and an auxiliary float adapted to be depressed by the said sight float into contact with the said electrodes as the water-level descends, the said auxiliary float being constructed to connect the said electrodes metallically, substantially as described.

2. In a float-gage, the combination of the gage-tube, a battery, an electrically-operated sounding device, a switch, a metallic circuit or series of conductors including the said sounding device and battery, the ends of the circuit being introduced into the tube and terminating in suitable electrodes, a sight-float within the tube, an auxiliary float adapted to be depressed by the said sight-float into contact with the said electrodes as the water-level descends, the said auxiliary float being constructed to connect the said electrodes metallically, and means actuated by an excess of water in the tube for closing the circuit, substantially as described.

696,281. PAPER SHEET. AUGUSTUS H. TOOLE, Chicago, Ill., assignor of one-half to Charles Arthur Burton, Chicago, Ill. Filed Dec. 30, 1901. Serial No. 87,790. (No specimens.)



Claim.—1. As an article of manufacture, a sheet of book-paper having a line extending along the binding edge of said sheet and ruled with a corrosive liquid, for the purpose specified.

2. As an article of manufacture, a sheet of book-paper having a plurality of substantially parallel lines extending along the binding edge of said sheet and ruled with a corrosive liquid, for the purpose specified.

3. As an article of manufacture, a sheet of book-paper having a plurality of substantially parallel lines extending along the binding edge of the sheet on each face thereof and ruled with a corrosive liquid, said lines being alternately arranged on the opposite faces of the sheet, for the purpose specified.

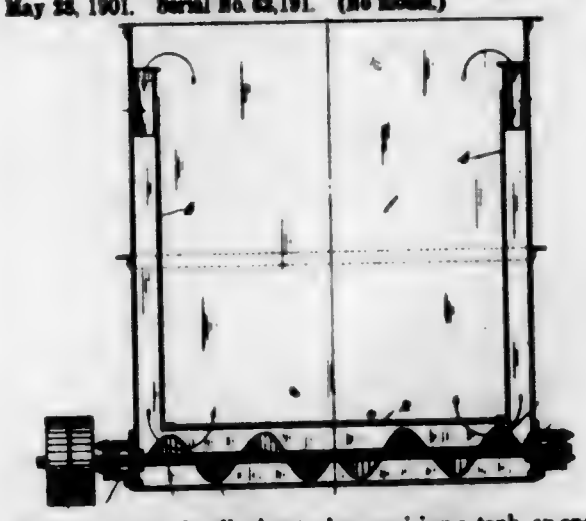
4. As an article of manufacture, a sheet of book-paper having a line extending along the binding edge of said sheet and ruled with a corrosive liquid, said line having one end terminating a short distance inward of the upper edge of said sheet, and the other end terminating a short distance inward of the lower edge of said sheet, for the purpose specified.

5. As an article of manufacture, a sheet of book-paper having a plurality of substantially parallel lines extending along the binding edge of said sheet and ruled with a corrosive liquid, each of said lines having one end terminating a short distance inward of the upper edge of said sheet, and the other end terminating a short distance inward of the lower edge of said sheet, for the purpose specified.

6. As an article of manufacture, a sheet of book-paper having a plurality of substantially parallel lines extending along the binding edge of the sheet on each face thereof and ruled with a corrosive liquid, said lines being alternately arranged on the opposite faces of the sheet, each of said lines having one end terminating a short distance inward of the upper edge of said sheet, and the other end terminating a short distance inward of the lower edge of said sheet, for the purpose specified.

7. A book comprising a plurality of sheets of paper each having a line extending along its binding edge, and ruled with a corrosive liquid, said lines being substantially equidistant from said binding edges, for the purpose specified.

696,282. PAINT-DIPPING TANK. FRANK B. UPTON, St. Louis, Mo., assignor of one-half to Edward C. Harpster, St. Louis, Mo. Filed May 28, 1901. Serial No. 62,191. (No model.)



Claim.—1. A paint-dipping tank comprising a tank, an open-work false bottom for said tank, a shaft located beneath said open-work bottom and provided with oppositely-turned helical vanes arranged to circulate the contents of said tank upwardly at the middle thereof, and a strainer above the false bottom and arranged to strain the paint in its downward current at the end of the tank, substantially as described.

2. A paint-dipping tank comprising a tank, an open-work false bottom for said tank, a shaft located beneath said open-work bottom and provided with oppositely-turned helical vanes arranged to circulate the contents of said tank upwardly at the middle thereof, and a strainer removably mounted above the false bottom and arranged to strain the paint in its downward current at the end of the tank, substantially as described.

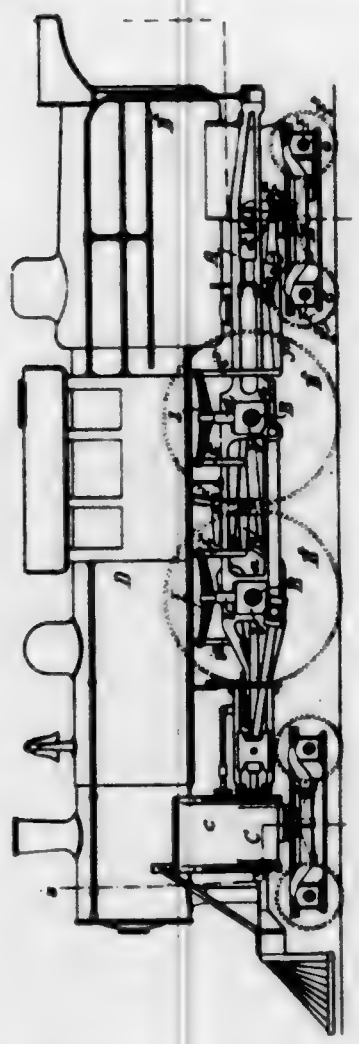
3. A paint-dipping tank comprising a tank having partitions near its ends forming passage-ways opening into the bottom of said tank, strainers in said passage-ways and means at the bottom of said tank for circu-

lating the contents of said tank upwardly through the middle of said tank and downwardly through said passage-ways, the middle portion of said tank being free from obstructions, substantially as described.

4. A tank having an open-work false bottom therein, a shaft mounted beneath said false bottom and provided with oppositely-turned helical vanes, a vertical partition near each end of said tank, and a strainer at each end of said tank, substantially as described.

5. A tank having an open-work false bottom, a shaft carrying oppositely-turned helical vanes at its respective ends, mounted between the true bottom of said tank and said false bottom, a vertical partition near each end of said tank, and a removable strainer at each end of said tank, substantially as described.

696,288. LOCOMOTIVE. SAMUEL M. VAUCLAIN, Philadelphia, Pa., assignor to George Burnham, William P. Henssey, John H. Converse, William L. Austin, Samuel M. Vauclain, Alba B. Johnson, and George Burnham, Jr., Philadelphia, Pa., (doing business under firm-name of Burnham, Williams and Company.) Filed Dec. 8, 1900. Serial No. 39,180. (No model.)

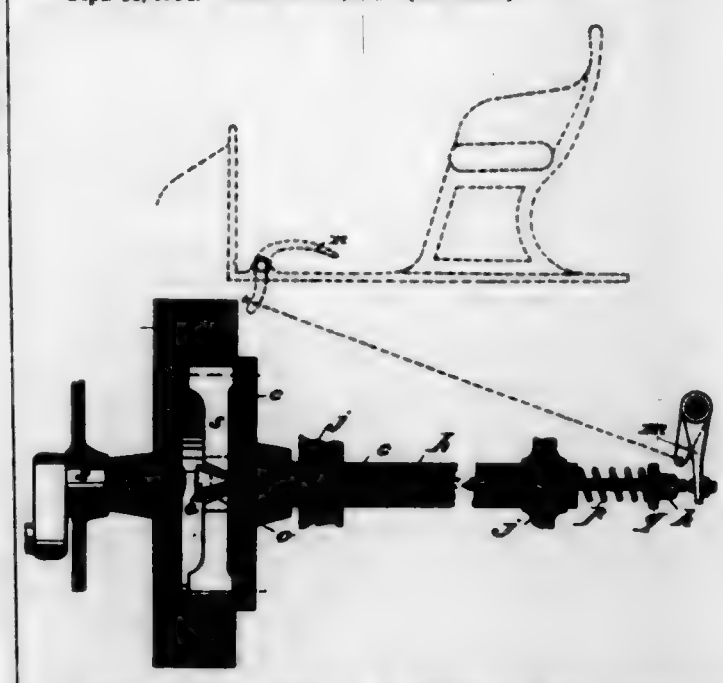


Claim.—1. The combination in a locomotive having side frames, of a boiler, a forward truck, a rear truck having bearing-surfaces, said rear truck being under a portion of the boiler extending rearwardly beyond the driving-wheels, springs supported on the boxes of the driving-wheels, a lever on each side of the locomotive pivoted to the side frame, the springs on one side of the locomotive each having one end connected to said lever, the second end of one of the springs being connected to the side frame, a second lever on each side of the locomotive also pivoted to the side frame, one end of said lever having a link connecting it with the second of the springs and having its other end supported upon the bearing-surfaces of the rear truck, substantially as described.

2. The combination in a locomotive having side frames, of a boiler, a forward truck, a rear truck provided with bearing-plates, said truck extending under a portion of the boiler which projects rearwardly beyond the driving-wheels, springs supported on the boxes of the driving-wheels, a lever on each side of the locomotive pivoted to the side frame, the springs on one side of the locomotive each having one end connected to said lever, the second end of one of the springs being connected to the side frame, a second lever on each side of the locomotive also pivoted to the side frame, one end of said lever having a link connecting it with the second of the springs, the second end of the lever being provided with a roller whereby it is supported upon the bearing-plates of the rear truck, substantially as described.

3. The combination in a locomotive having side frames, of a boiler, a forward truck, and a rear truck under a portion of the boiler extending rearwardly beyond the driving-wheels, springs supported on the boxes of the driving-wheels, a lever on each side of the locomotive pivoted to the side frame, each of said springs having one end connected to said lever, the second end of one of the springs being connected to the side frame, a second lever on each side of the locomotive also pivoted to the side frame, one end of said levers bearing upon the rear truck and the other end being connected to one end of the second of the springs, substantially as described.

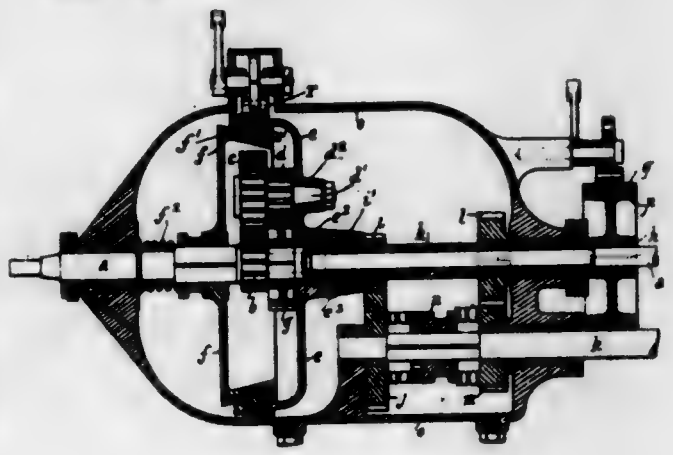
696,284. CLUTCH. ALEXIS E. VIVIEN, Brussels, Belgium. Filed Sept. 16, 1901. Serial No. 75,574. (No model.)



Claim.—1. In a device of the character described, a hollow fly-wheel keyed to the crank-shaft, a hollow shaft, a disk keyed to said shaft, a spindle operating in the said hollow shaft having a conical end, clutch-blocks having weighted ends pivoted to the said disk, arms connected to said clutch-blocks, spiral springs, bolts having said springs mounted thereon connected to the arms, the said arms having cone-shaped openings formed therein, and means whereby said spindle is moved laterally to cause the cone carried thereby to disengage from the cone-shaped openings in said arms and cause the clutch-blocks to disengage from the inner circumference of said hollow fly-wheel, substantially as described.

2. In a device of the character described, a hollow fly-wheel keyed to the crank-shaft, a hollow shaft having a spindle operating therein, a disk on the hollow shaft, a conical end on said spindle, a pair of clutch-blocks each carrying an arm pivoted to said disk, bolts passing through each of said arms and having springs mounted thereon, said arms having cone-shaped openings formed therein for engagement with said cone carried by the end of the spindle, and a spring mounted on the spindle and engaging the hollow shaft for normally holding the conical end of the spindle in engagement with the arms, and means for operating the spindle, substantially as described.

696,285. SPEED-CHANGING GEAR. EDOUARD M. VRARD and MAURICE VRARD, Neuilly-sur-Seine, HENRI VENDREDY, Puteaux, PIERRE DUITTE, Paris, and HENRI GAUTHIER, Neuilly-sur-Seine, France, assignors to Charles Livingstone Hyde, New York, N. Y., and Edouard M. Vrard, Neuilly sur-Seine, France. Filed Sept. 20, 1901. Serial No. 75,900. (No model.)



Claim.— 1. A speed-changing gear, comprising a driving-shaft, a clutch, a train of tooth-wheels interposed between the two members of the clutch, a sleeve loose on the driving-shaft adapted to receive motion from said gears, a driven shaft, and means for transmitting motion from the sleeve to the driven shaft, substantially as herein described and shown.

2. A speed-changing gear, comprising a driving-shaft, a clutch, means for arresting one member of the clutch, a train of tooth-wheels interposed between the two members of the clutch, a sleeve loose on the driving-shaft adapted to receive motion from said gears, a pinion loose thereon and rigidly connected to one member of the clutch, a driven shaft, a pinion thereon engaging the last-named pinion and means for connecting the pinion on the driven shaft to the latter shaft, substantially as herein described and shown.

3. A speed-changing gear, comprising a driving-shaft, a clutch, means for arresting one member of the clutch, a train of tooth-wheels interposed between the two members of the clutch, a sleeve loose on the driving-shaft adapted to receive motion from the said gears, a pinion loose on the sleeve and fast with one member of the clutch, a pinion fast on the sleeve, a driven shaft, pinions thereon, and means for connecting one or the other of the said pinions to the said loose or fast pinions, substantially as herein described and shown.

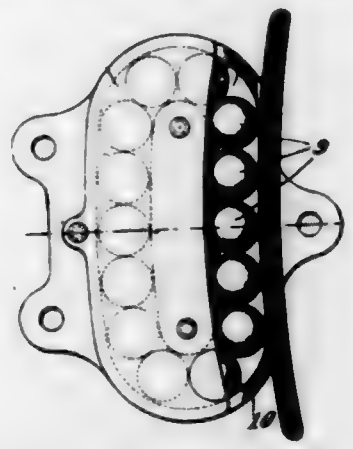
4. A speed-changing gear, comprising a driving-shaft, a clutch, a train of tooth-wheels interposed between the two members of the clutch, a sleeve loose on the driving-shaft adapted to receive motion from said gears, a pinion loose on the sleeve and fast with one member of the clutch, a brake-pulley fast on the sleeve, means for arresting the movement of the brake-pulley, a driven shaft, a pinion loose thereon and means for connecting the said loose pinion and driven shaft, substantially as herein described and shown.

5. A speed-changing gear comprising a driving-shaft, a clutch, a train of tooth-wheels interposed between the two members of the clutch, a sleeve loose on the driving-shaft adapted to receive motion from said gears, a pinion loose on the sleeve and fast with one member of the clutch, a pinion fast on the sleeve, a brake-pulley fast on the sleeve, means for arresting the movement of the brake-pulley, a driven shaft, pinions loose thereon and means for connecting one pinion with the corresponding pinion loose on the sleeve and the other pinion with the corresponding pinion fast on the sleeve, substantially as described and shown.

6. A speed-changing gear, comprising a driving-shaft, a driven shaft and intermediate means for connecting or disconnecting the two shafts whereby the driven shaft will be made to revolve at different speeds, in combination with a vehicle-driving axle, a differential gear therein, means for operating the axle from the driven shaft and a clutch arranged between the two members of the driving-axle, substantially as described and shown.

7. A speed-changing gear, comprising a driving-shaft, a driven shaft and intermediate means for connecting or disconnecting the two shafts whereby the driven shaft will be made to revolve at different speeds, in combination with a vehicle-driving axle, a differential gear therein, means for operating the axle from the driven shaft, a clutch arranged between the two members of the driving-axle and a brake mechanism acting upon the axle, substantially as described and shown.

696,286. SIDE BEARING FOR RAILWAY-CARS. JOHN C. WARDE and FREDERICK R. CORNWALL, St. Louis, Mo.; said Cornwall assignor of his right to Chicago Railway Equipment Company, Chicago, Ill., a Corporation of Illinois. Filed Nov. 19, 1901. Serial No. 82,904. (No model.)



Claim.—1. In a side bearing for cars, the combination with an endless row of balls traveling in a horizontal plane, and a body-bearing directly coöperating with said balls and holding them in place; substantially as described.

2. In a side bearing for cars, the combination with a horizontal ball-race, of an endless row of balls located therein, and a body-bearing directly coöperating with the balls at one side of said way and holding them in place; substantially as described.

3. In a side bearing for cars, the combination with an endless row of balls all of which travel in the same plane, and a body-bearing having vertical and lateral contact therewith; substantially as described.

4. In a side bearing for cars, the combination with an endless row of balls, and a body-bearing having lateral contact therewith; substantially as described.

5. In a side bearing for cars, the combination with an endless row of balls, and a body-bearing having lateral and vertical contact with balls at one side of said endless row; substantially as described.

6. In a side bearing for cars, the combination with an antifriction device of spherical form, and a body-bearing having a depending flange and flat tread portion for coöperating with said spherical antifriction device; substantially as described.

7. In a side bearing for cars, the combination with an endless row of balls, and a body-bearing having a throat coöperating with the balls at one side of said endless row; substantially as described.

8. In a side bearing for cars, the combination with an antifriction device, and a body bearing having a flange, a throat portion, a flat tread and a coned tread for coöperating with the antifriction device; substantially as described.

9. In a side bearing for cars, the combination with an endless row of balls, and a body-bearing having a depending flange, a throat and tread for coöperating with said balls; substantially as described.

10. In a side bearing for cars, the combination with a casing formed with an endless groove, the side wall of said casing being removed opposite a portion of said groove, of an endless row of balls in said groove, which are exposed at that portion of the groove where the side wall of the casing is removed, the end walls of said casing serving as skimming devices for displacing the balls and forcing them to follow the groove; substantially as described.

11. In a side bearing for cars, the combination with a casing formed with a continuous groove, the side wall of said casing being removed opposite a portion of said groove, of an endless row of balls located in said groove, and a body-bearing coöperating with the balls in the exposed portion of the groove; substantially as described.

12. In a side bearing for cars, the combination with an endless row of balls, of a body-bearing having vertical and lateral engagement with a series of exposed balls at one side of said row, and skimmers at each end of said series of exposed balls; substantially as described.

13. In a side bearing for cars, the combination with an endless row of balls, a housing therefor, and a body-bearing having lateral contact with the balls at one side of said housing; substantially as described.

14. In a side bearing for cars, the combination with an endless row of balls, a housing therefor having one of its side walls cut away so as to expose the balls, the end walls of said housing serving as skimmers to displace the balls, and a body-bearing coöperating with the exposed balls; substantially as described.

15. In a side bearing for cars, the combination with a casting provided with a groove forming an endless ball-race, one side wall of said casting being cut away, and a body-bearing provided with a depending flange and a throat portion for coöperating with the exposed balls; substantially as described.

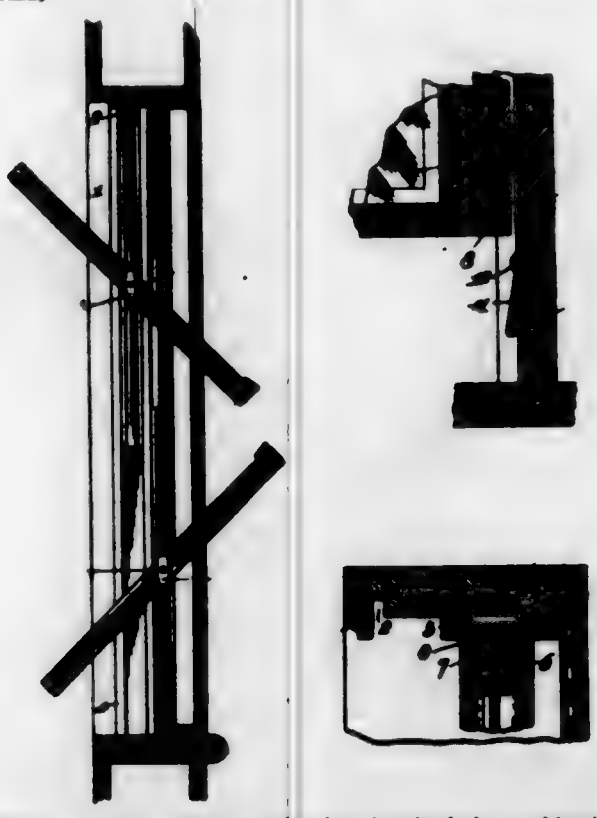
16. In a side bearing for cars, the combination with a body-bolster, of flanged bearing-blocks arranged thereon, a truck-bolster, and bearings on said truck-bolster coöperating with the flanged bearing-blocks on the body-bolster, said bearings on the truck-bolster consisting of casings in which are located antifriction devices coöperating with the vertical walls of said casings and the vertical faces of the flanges of the bearing-blocks on the body-bolster, whereby, through the medium of said vertical faces coacting with the antifriction devices, the lateral thrust is taken care of; substantially as described.

17. In a side bearing for cars, the combination with a body-bolster having flanged bearing-blocks, of a truck-bolster, supporting-ways on said truck-bolster, and an endless row of antifriction devices coöperating with the flanged bearing-blocks on the body-bolster; substantially as described.

18. In a side bearing for cars, the combination with a body-bolster provided with bearing-blocks having coned treads and flanges on their inner edges, of a truck-bolster having housings forming continuous ball-races, and an endless row of balls in said races which coöperate with the flanges and treads of the bearing-blocks on the body-bolster; substantially as described.

19. In a side bearing for cars, the combination with a casting formed with a continuous way, of balls in said way, one wall of said way being cut away to expose the balls, a flanged bearing-block coöperating with the exposed balls, and a covering-plate for housing the balls not in service; substantially as described.

696,287. REVOLVING WINDOW-SASH. ALBERT WEINGARTNER, St. Louis, Mo. Filed June 12, 1901. Serial No. 64,308. (No model.)



Claim.—1. In a window of the class described, the combination of the jambs, pressure-plates attached to said jambs, and provided with slotted return-bends, screws inserted through said return-bends into said jambs slide-strips adapted to move into contact with said pressure-plates, and the sash pivotally connected to said slide-strips, substantially as described.

2. In a window of the class described, the combination of the jambs, apertured pressure-plates attached to said jambs, and provided with slotted return-bends, screws inserted through said return-bends into said jambs, the slide-strips, staples carried by said slide-strips adapted to contact with said pressure-plates, and the sash pivotally connected to said slide-strips, substantially as described.

3. In a window of the class described, the combination of slide-strips, a sash, and means whereby said sash is pivotally connected to said slide-strips, said means comprising pivot-plates provided with studs, socket-frames, and spring-plates positioned between said pivot-plates and frames, substantially as described.

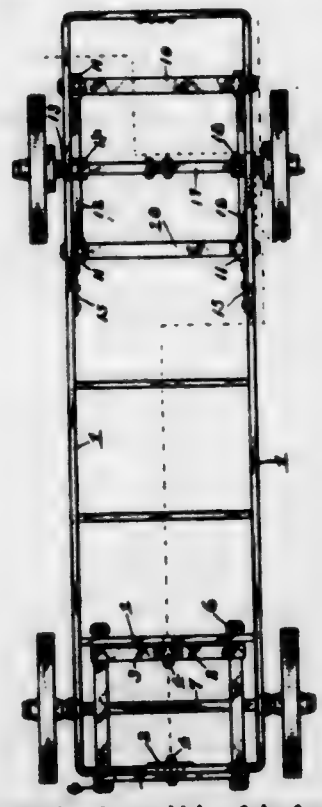
4. In a window of the class described, the combination of slide-strips, a sash, and means whereby said sash is pivotally connected to said slide-strips, said means comprising pivot-plates provided with studs, socket-frames and spring-plates positioned between said pivot-plates and said socket-frames and arms carried by said spring-plates adapted to bear against said frames, substantially as described.

5. In a window of the class described, the combination of slide-strips, a sash, and means whereby said sash is pivotally connected to said slide-strips, said means comprising pivot-plates provided with pivot-studs, socket-frames, washers fitted in said socket-frames and into which said pivot-studs are fitted, and spring-plates positioned between said pivot-plates and socket-frames and arranged to bear against said frames at the ends thereof, substantially as described.

696,288. FRAME FOR VEHICLES. PAUL H. WHITE, Indianapolis, Ind., assignor to the White Steam Wagon Company, Indianapolis, Ind., a Corporation of Indiana. Filed May 2, 1901. Serial No. 58,921. (No model.)

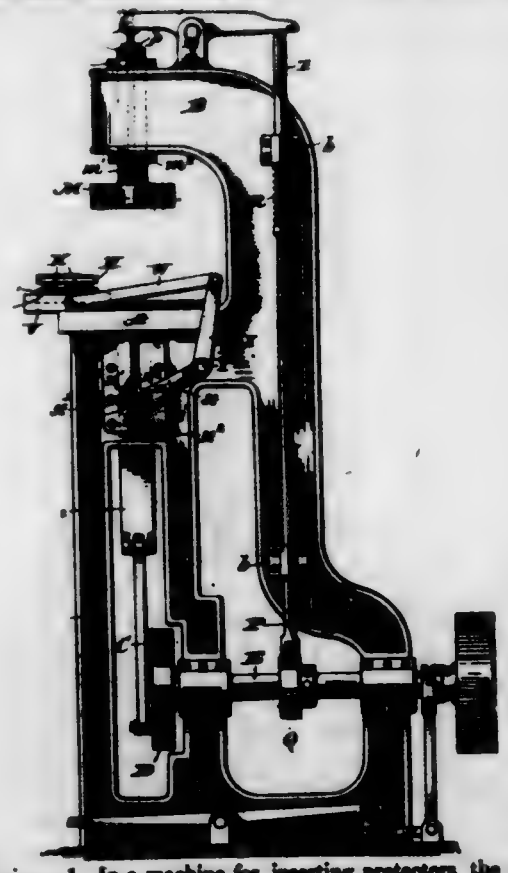
Claim.—1. The combination, in a vehicle, of the frame 1 having the rigid downwardly-extending bearing members 2 at its front end arranged centrally in the direction of its width, a bolster-frame 3 connected to said rigid bearing members, two pivots 4 one at the back and the other at the front of the bolster-frame forming the connection, side springs 5 supporting said bolster-frame at the ends, and the axle 7 to which said springs are secured at the middle, said several parts being arranged and operating substantially as shown and described.

2. The combination, in a vehicle, of the frame 1, the axles 13, springs 12 supporting said frame from said axles, bearing-blocks 18 also carried from said axle, and a spring 16 secured to said frame at its middle and extending out against said bearing-blocks, said bearing-blocks having portions of their inner surfaces vertical and portions thereof adapted to receive the spring when the vehicle is heavily loaded, said spring being thus adapted to serve as thrust-bars when the vehicle is lightly loaded and to aid in carrying the load when the vehicle is heavily loaded, substantially as set forth.



3. The combination, in a vehicle, of the frame, the axles, the ordinary spring 12, the supplemental spring 16 adapted also to serve as a thrust-bar preventing sidewise swaying of the vehicle-frame, and bearing-blocks having their upper portions of their inner surfaces vertical and the lower portions inclined, substantially as and for the purposes set forth.

696,289. MACHINE FOR INSERTING PROTECTORS IN HEELS AND SOLES OF SHOES. ALLEN G. WILLIAMS, Baltimore, Md., assignor to the Maryland Shoe Machinery Company, Baltimore Md., a Corporation of Maryland. Filed July 26, 1901. Serial No. 69,629. (No model.)



Claim.—1. In a machine for inserting protectors, the combination of a base having a substantially plane surface, a driver for a protector resting freely upon said surface, and a support for a lift yieldingly mounted above said driver, and having a slot for the passage of the latter, said support being easily removable from the base, substantially as described.

2. In a machine for inserting protectors, the combination of a base, a driver for a protector, a spring-sustained support for a lift, and vertical guides for maintaining said support over said base, said guides having a loose engagement with the support so that said support can tilt in operating upon lifts of uneven thickness, substantially as described.

3. In a machine for inserting protectors, the combination of a base, tapered dowel-pins secured to said base, a driver on said base, and a spring-sustained support for a lift, said support consisting of a plate being readily removable from said base, having a slot to receive the driver, having means for retaining a lift in position over said slot, and having holes to receive the dowel-pins, whereby the support can tilt in operating upon lifts of uneven thickness, substantially as described.

4. In a machine for inserting protectors, the combination of a base, dowel-pins secured to said base, a driver on said base, and a spring-sustained support for a lift, said support consisting of a plate having holes to receive the dowel-pins, having a slot to receive the driver, having means for retaining a lift in position over said slot, and being readily removable from said base, said holes for the dowel-pins being larger than the dowel-pins so that the support can tilt in operating upon lifts of uneven thickness, substantially as described.

5. In a machine for inserting protectors, the combination of a frame having a head, the lower surface of the head being constructed of soft material, a ram movable toward and from said head, and a driver rigidly supported by said ram, whereby, when a protector is inserted into a lift between said ram and head, the protector can be driven flush with the lower surface of the lift, and the tangs of the protector can be received in the soft material on the head, substantially as described.

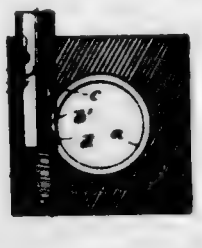
6. In a machine for inserting protectors, the combination with a ram, a die-plate, reciprocable across the upper face of said ram, a pin on said ram, a slotted arm which is adapted to receive motion from said pin and impart it to said die-plate, a spring-plate mounted in guides in the slot of said arm, said plate being adapted to engage said pin, a headed stem projecting from said spring-plate, and a spring coiled upon said stem, substantially as and for the purpose described.

7. In a machine for inserting protectors, the combination with a rigid head having a soft face, means for inserting the protectors into lifts while the latter are resting against said soft face, a rod reciprocably mounted in said head, a spring for raising said rod above the soft face of the head, and means for forcing said rod below the face of said head after the protector has been inserted, substantially as and for the purpose described.

8. In a machine for inserting protectors, the combination with a rigid head having a soft face and having a bore opening through said face, means for inserting protectors in lifts while the latter are resting against said soft face, a rod mounted in a bore in said head, a spring for withdrawing the rod within the head, a lever adapted to bear upon the opposite end of the rod, and a cam for swinging said lever after the protectors have been inserted, to cause said rod to detach the protectors from the soft face, substantially as and for the purpose described.

9. In a machine for inserting protectors, the combination with a plate for supporting a lift, a gage on said plate, a rod seated in a bore in said plate parallel to the lift-supporting surface, a spring on said rod tending to force the latter toward said gage, and a disk on the outer end of said rod, said disk being adapted to engage the edge of the lift and press it toward the gage, substantially as and for the purpose described.

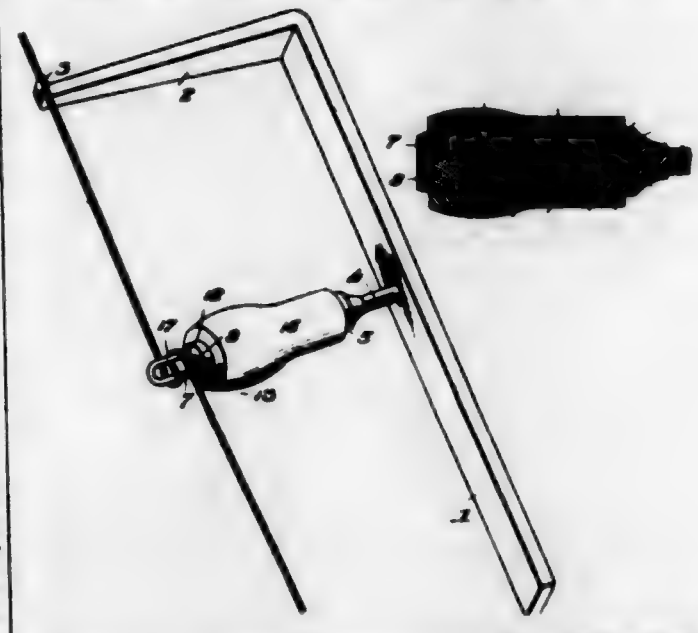
696,290. NUT-LOCK. ALEXANDER T. WILSON, Chicago, Ill. Filed Aug. 15, 1901. Serial No. 72,145. (No model.)



Claim.—1. A nut-lock, comprising a nut having a bore at one side of the threaded aperture therein, a spring in the bottom of said bore, a locking-dog seated upon the spring and having teeth at one side adapted to engage with the thread of the bolt whereon the nut is screwed, a crank-arm, and a detent-shaft operative by rocking said arm and engaging a transverse groove in said dog, to hold said dog depressed for release of the teeth thereon from engagement with the thread of the bolt.

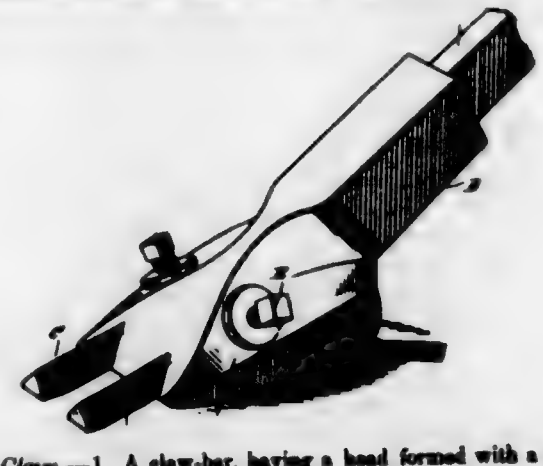
2. A nut-lock, comprising a nut having a bore parallel with and near one side thereof, the bore intersecting the threaded aperture in the nut, a coiled spring in the bottom of the bore, a cylindrical locking-dog having an open recess on one side formed by flattening the dog-body, a series of downwardly-hooking teeth on a slope at the lower end of the flattened side of the dog, a flattened side on the opposite surface of the dog-body, having a transverse groove at its upper end and forming an elongated cavity, a detent-shaft rockable in the nut across the cavity, and flattened to reciprocate therein, and a crank-arm on one end of the detent-shaft, which by manipulation will hold the dog depressed by location of the rounded part of the shaft-body opposite the flat side thereon in the transverse groove, and thus prevent the teeth of the dog from engaging the thread of a bolt whereon the nut is screwed.

696,291. FENCE-WIRE TIGHTENER. RANDOLPH A. WILTERS, Atwood, Kans. Filed Sept. 20, 1901. Serial No. 75,808. (No model.)



Claim.—In a device of the class described, the combination with a chuck member having a slot and a countersink, of chuck-jaws having shanks located in the slot and ends located in the countersink, said jaws having heads each provided with a pair of grooves, a spring for spreading the jaws, a sleeve fitted over the chuck member first named for pressing the jaws together and a handle for the chuck.

696,292. CLAW-BAR. THOMAS WOODHOUSE, Leadville, Colo. Filed Oct. 5, 1901. Serial No. 77,680. (No model.)



Claim.—1. A claw-bar, having a head formed with a pair of triangular parallel apertures, and claws of triangular cross-section and adjustably fitted in the said apertures, as set forth.

2. A claw-bar having a socketed head and a pair of spaced parallel claws triangular in cross-section and secured adjustably in said head, as set forth.

3. A claw-bar having a socketed head and a pair of spaced claws each formed of a straight bar triangular in cross-section and secured reversibly in said head.

4. A claw-bar having a socketed head and a pair of spaced parallel claws triangular in cross-section and each having the ends of the base edges beveled, said claws being interchangeably secured in the head.

5. A claw-bar, having a head formed with a pair of triangular parallel apertures, claws of triangular cross-section fitted in the said apertures, and means for securing the claws in place in the head, as set forth.

6. A claw-bar, comprising a handle, a head having a socket for removably receiving one end of the handle, the said head having a pair of parallel apertures standing at angles to the socket, and claws removably and adjustably secured in the said apertures and triangular in cross-section, as set forth.

7. A claw-bar comprising a head, a pair of claws fitted therein and having their opposing active surfaces in divergent relation, and means for clamping said jaws to said head.

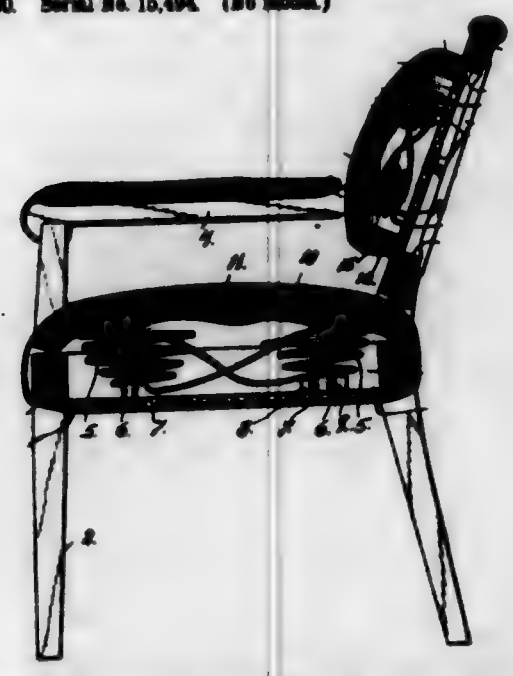
8. A claw-bar comprising a head, a pair of claws having divergent active faces in opposing relation and interchangeable one with the other in said head, and means for holding said jaws in said head.

9. A claw-bar comprising a head, a pair of separate claws having divergent active faces in opposing relation and reversible end for end, and means for clamping said claws in operative position in said head.

10. A claw-bar comprising a socketed head having a bearing-surface, separate claws having divergent active faces in opposing relation, mutually interchangeable therein, and reversible end for end, and means for clamping said claws in active positions.

11. A claw-bar comprising a socketed head, a pair of straight bar-claws fitted in said head and having divergent active faces in opposing relation, and set-screws mounted in the head and impinging the bar-claws.

696,298. UPHOLSTERED FURNITURE. GEORGE F. WULLEN, Buffalo, N. Y., assignor to Charles Wullen, Buffalo, N. Y. Filed May 4, 1900. Serial No. 15,494. (No model.)



Claim.—1. In a chair or other piece of furniture, an upholstered cushion consisting of an open frame, a series of coiled springs mounted in said frame, a flexible cushion resting over said springs, and a covering adapted to be fitted over said cushion and springs, a wire frame located under the cushion-frame and being of a smaller area than said cushion-frame and to which the edges of the covering are sewed, substantially as shown and for the purpose stated.

2. In a chair or other piece of upholstered furniture, an upholstered cushion, consisting of a frame; a series of springs removably mounted within the frame, a flexible cushion disposed above the springs, a wire frame disposed beneath the springs and a covering secured to the wire frame and adapted to fit over the cushion and the springs.

3. In a chair or other piece of upholstered furniture, an upholstered cushion, consisting of an open frame, a supplemental frame, springs mounted in the supplemental frame, a wire frame disposed between the aforesaid frames, means for connecting the three frames together and means for covering the springs.

4. In a chair or other piece of upholstered furniture, an upholstered cushion, consisting of an open frame, a supplemental frame, a wire frame disposed between the aforesaid frames, conical, convolute springs mounted within the supplemental frame, a cushion disposed over the springs, and a covering secured to the wire frame and adapted to fit over the supplemental frame and the cushion and the springs.

5. In a chair or other piece of upholstered furniture, an upholstered cushion, consisting of a frame, a supplemental frame adapted to carry springs and a cushion, a wire frame disposed between the aforesaid frames, a covering secured to the wire frame and adapted to be fitted over the cushion and the springs; and said frames being removably secured together.

6. In a chair or other piece of upholstered furniture, an upholstered cushion, consisting of a frame divided into sections, pairs of plates in each section disposed diagonally opposite each other, and pairs of springs mounted within each section of the frame, the upper end of each spring being fitted within the plate in which the lower end of its companion spring is fitted.

7. In a chair or other piece of upholstered furniture, an upholstered cushion, consisting of a frame divided into sections, pairs of conical, convolute springs mounted within each section of the frame, pairs of plates in each section and disposed diagonally opposite each other, the upper end of each spring being fitted within the plate in which the lower end of its companion spring is fitted.

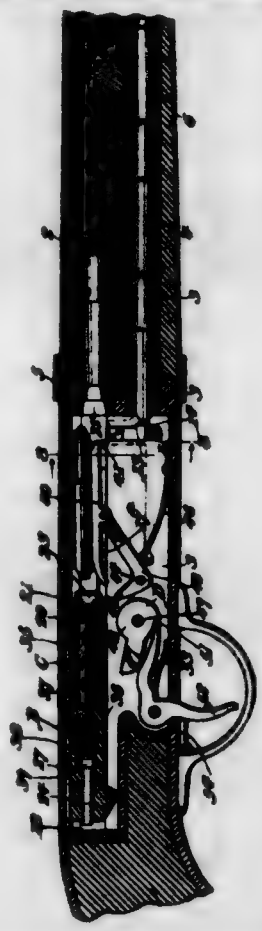
8. In a chair or other piece of upholstered furniture, an upholstered cushion, consisting of a frame divided into sections, a pair of plates in each section of the frame and disposed diagonally opposite each other, pairs of springs mounted within each section, the upper end of each spring being fitted within the plate in which the lower end of its companion spring is fitted, a wire frame disposed beneath the aforesaid frame, and a covering secured to the wire frame and adapted to extend over the first-mentioned frame.

9. In a chair or other piece of upholstered furniture, an upholstered cushion, a frame, means for dividing the frame into sections, springs mounted within each section of the frame, another spring mounted upon the said dividing means, the ends of the last-mentioned spring projecting diametrically opposite each other and secured to the sides of the dividing means, a wire frame disposed beneath the aforesaid frame, and means connected with the latter for covering the cushion and the springs.

10. In a chair or other piece of upholstered furniture comprising a frame, a supplemental frame adapted to carry springs and a cushion, another frame disposed between the aforesaid frames, the last-mentioned frame being spaced from the other frames, means for removably securing the three frames together, and means for covering the springs and the cushion.

11. In a chair or other piece of upholstered furniture comprising a frame, means for dividing the frame into sections, springs mounted within each section of the frame, another spring mounted upon said dividing means and secured thereto, a cushion mounted upon the springs, a second frame spaced from the first-mentioned frame, and means connected with the second frame for covering the springs and the cushion.

696,294. FIREARM. HARE ARGELL and THOMAS BERRYMAN, Washington, D. C., assignors of one-third to Victor J. Evans, Washington, D. C. Filed Oct. 26, 1901. Serial No. 80,092. (No model.)



Claim.—1. In a magazine-firearm, the combination of a chambered frame formed with a longitudinal groove in its side wall and a locking-lug slot, a reciprocating breech-block in the chamber of the frame formed with a lateral flange to engage in the groove in the frame, and formed with a locking-recess to register with the locking-lug slot in the frame when the breech-block is in firing position, and a locking-lug slidingly engaging in the said slot and recess and actuated by means exterior to the frame.

2. In a magazine-firearm, the combination of a chambered frame formed with a longitudinal groove in its side wall, and a central guide-groove in its upper wall, a reciprocating breech-block having a lateral flange along its side face and a vertical flange to engage in the groove in the upper wall of the frame, the said lateral flange being formed with a locking-recess, a locking-lug to engage in the locking-recess, a spring to withdraw the locking-lug from the locking-recess, and a slide provided with a lug to ride upon the spring and move the locking-lug into engagement with the locking-recess of the breech-block.

3. In a magazine-firearm, the combination of a chambered frame formed with a longitudinal groove 16^a and a slot 17^a wherein the acte-

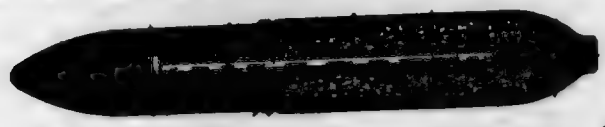
ating-lug of the breech-block projects and slides, a reciprocating breech-block formed with a lateral flange to engage in the groove 18ª, and formed with a locking-recess in said flange and an actuating-lug to slidingly engage in the slot 17ª, an actuating-slide movable longitudinally and formed with a recess to engage the lug on the breech-block to actuate the same, a spring-held locking-lug to engage in the locking-recess of the breech-block, and depressed and released by the actuating-slide.

4. In a magazine-firearm, the combination of a chambered frame, a reciprocating breech-block in the frame, and having its firing end countersunk to fit over the end of a cartridge, and a lug on the under face at the rear end, a spring-retracted firing-pin in the breech-block, a hammer in the path of the lug on the breech-block to be cocked thereby and to drive the firing-pin against the cartridge, a cartridge-carrier comprising a carrying-plate and a bell-crank lever having one arm in the path of the lug on the end of the breech-block, whereby the carrier is moved downward, and a lifting-spring to carry the carrier upward when the breech-block is moved to its initial position.

5. In a magazine-firearm, the combination of a chambered frame, a reciprocating breech-block in the chamber having a countersunk firing end, and a lug on its under side at its rear end, means substantially as described to reciprocate the breech-block, a firing-pin in the breech-block, a cartridge-carrier having an arm in the path of the lug on the breech-block, whereby the carrier is depressed, a spring to lift the carrier when the breech-block has been moved back, and a spring-actuated hammer in the path of the lug on the breech-block and cocked by contact therewith in the rearward movement of the block.

6. The combination with the cartridge-carrier and the magazine, of a laterally-movable spring secured within the carrier-chamber and formed with a cup on its free end standing normally across the mouth of the magazine and movable therefrom by the downward movement of the carrier.

696,295. CARTRIDGE. HARE ARNELL and THOMAS BERRYMAN, Washington, D. C., assignors of one-third to Victor J. Evans, Washington, D. C. Filed Oct. 26, 1901. Serial No. 80,088. (No model.)



Claim.—1. A cartridge comprising a projectile, a stem extending backward therefrom and slotted at its free end, and a phlogistic flexible case or jacket supported by the stem and inclosing the explosive compound.

2. A cartridge comprising a projectile, a rigid slotted stem connected therewith, a phlogistic flexible case or jacket connected at one end with the projectile and at the opposite end with the stem, and an explosive compound inclosed by said flexible case or jacket.

3. A cartridge comprising a projectile, a stem rigidly connected therewith, an outer flexible case or jacket supported at one end by the stem and connected at the opposite end with the projectile, an air-proof lining within said case or jacket, and an explosive compound packed within said lining.

4. A cartridge comprising a projectile, a rigid stem extending backward therefrom and provided adjacent to its extremity with a slot, a flexible outer case or jacket surrounding the stem and supported thereby, and an explosive compound inclosed by said jacket, and filling the slot in the stem.

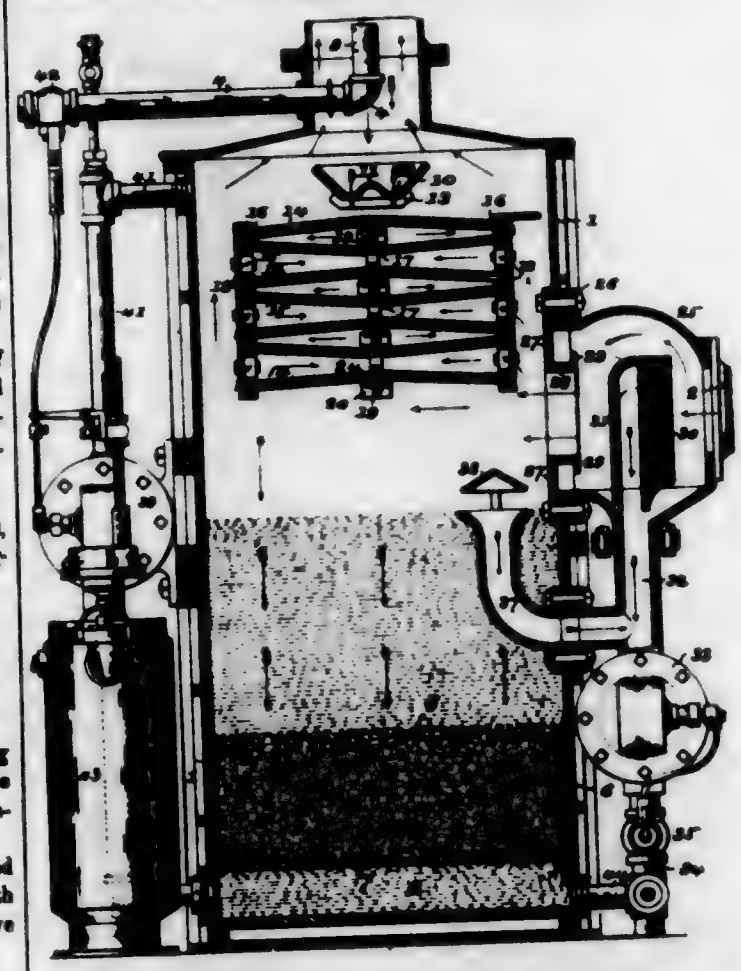
5. A cartridge comprising a projectile, a headed stem having the head thereof anchored within the projectile, the opposite end of the stem being slotted and provided with a cap-socket, an outer flexible case or jacket secured at one end to the projecting extremity of the stem and connected at its opposite end to the projectile, and an explosive compound inclosed by said jacket.

6. A cartridge comprising a projectile, a rigid stem extending backwardly therefrom and provided adjacent to its outer extremity with a slot, a hollow sleeve at the extremity of the stem communicating with said slot and constituting a cap-socket, an outer flexible case or jacket connected at one end to said stem and at the opposite end to the projectile, and an explosive compound inclosed by said jacket.

7. A cartridge comprising a projectile, a stem rigidly connected therewith and projecting backwardly therefrom and slotted at its free end, and a phlogistic flexible case or jacket secured to the projectile, an explosive compound in the flexible case, said flexible case or jacket being supported at one end solely by the stem.

696,296. HEATER AND SEPARATOR FOR STEAM-GENERATING PLANTS. JOHN ARNELL, St. Louis, Mo. Original application filed Apr. 27, 1901, Serial No. 57,626. Divided and this application filed July 27, 1901. Serial No. 68,822. (No model.)

Claim.—1. The combination in a feed-water heater, of a main heater-casing, a separator for the entrainment-water or the like, comprising a housing provided with a flange at one side for attachment to the heater-casing, a reticulated grid arranged vertically within said housing transverse to the steam-inlet, a vertical impact-plate arranged back of said grid, a receiving-chamber attached to the side of the heater-casing, a tubular connection between the lower end of the separator-housing and the upper end of said receiving-chamber, a horizontal branch connection extending from such tubular connection to the heater-casing and having a receiving-mouth within the interior of such casing arranged on a level with the normal water-level in such casing, a blow-off pipe connected to the lower end of the receiving chamber, a valve in said blow-off pipe, a float in said receiving-chamber, and operative connections between said float and said valve, substantially as described.



2. The combination in a feed-water heater, of a main heater-casing, a separator for the entrainment-water or the like, comprising a housing provided with a flange at one side for attachment to the heater-casing, a reticulated grid arranged vertically within said housing transverse to the steam-inlet, a vertical impact-plate arranged back of said grid, a receiving-chamber attached to the side of the heater-casing, a tubular connection between the lower end of the separator-housing and the upper end of said receiving-chamber, a horizontal branch connection extending from such tubular connection to the heater-casing, and angular tubular connection arranged within the heater-casing with its lower end connecting with said horizontal connection and its upper end formed with a flaring mouth arranged on a level with the normal water-level of the heater-casing, a blow-off pipe connected to the lower end of the receiving-chamber, a valve in said blow-off pipe, a float in said receiving-chamber, and operative connections between said float and said valve, substantially as described.

3. The combination in a feed-water heater, of a main heater-casing, a separator for the entrainment-water or the like, comprising a housing provided with a flange at one side for attachment to the heater-casing, a reticulated grid arranged vertically within said housing transverse to the steam-inlet, a vertical impact-plate arranged back of said grid, a receiving-chamber attached to the side of the heater-casing, a tubular connection between the lower end of the separator-housing and the upper end of said receiving-chamber, a horizontal branch connection extending from such tubular connection to the heater-casing, an angular tubular connection arranged within the heater-casing with its lower end connecting with said horizontal connection and its upper end formed with a flaring mouth arranged on a level with the normal water-level of the heater-casing a cone-shaped cap arranged in separated relation above said mouth, a blow-off pipe connected to the lower end of the receiving-chamber, a valve in said blow-off pipe, a float in said receiving-chamber, and operative connections between said float and said valve, substantially as described.

4. The combination in a feed-water heater, of a main heater-casing, a separator for the entrainment-water or the like, comprising a housing provided with a flange at one side for attachment to the heater-casing, a cylindrical neck arranged axially in the outlet-orifice of the separator-housing and secured in place by an annular disk bolted to the inside of the heater-casing in opposed relation to the attaching-flange of said separator-housing, a reticulated grid arranged vertically within said housing transverse to the steam-inlet, a vertical impact-plate arranged back of said grid, a receiving-chamber attached to the side of the heater-casing, a tubular connection between the lower end of the separator-housing and the upper end of said receiving-chamber, a blow-off pipe connected to the lower end of the receiving-chamber, a valve in said blow-off pipe, a float in said receiving-chamber, and operative connections between said float and said valve, substantially as described.

5. The combination in a feed-water heater, of a main heater-casing, a separator for the entrainment-water or the like, comprising a housing provided with a flange at one side for attachment to the heater-casing, a cylindrical neck arranged axially in the outlet-orifice of the separator-housing and provided at one end with an annular outturned rim and at the other end with an annular disk by which it is attached to the inside of the heater-casing in opposed relation to the attaching-flange of said separator-housing, a reticulated grid arranged vertically within said housing transverse to the steam-inlet, a vertical impact-plate arranged back of said grid, a receiving-chamber attached to the side of the heater-casing, a tubular connection between the lower end of the separator-housing and the upper end of said receiving-chamber, a blow-off pipe connected to the lower end of the receiving-chamber, a valve in said blow-off pipe, a float in said receiving-chamber, and operative connections between said float and said valve, substantially as described.

696,297. ELECTRIC IGNITING DEVICE FOR EXPLOSION-ENGINES. VINCENT G. APPLE, Dayton, Ohio, assignor to Dayton Electrical Manufacturing Company, a Corporation of Ohio. Filed July 25, 1900. Serial No. 24,760. (No model.)



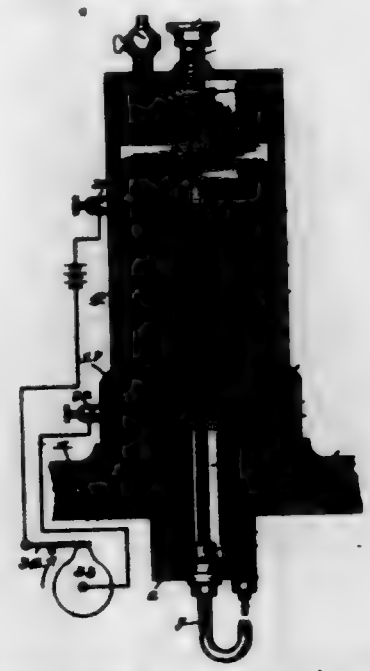
Claim.—1. A means for making and maintaining an electric spark for igniting devices, within the cylinder of a gas-engine, which consists of a dynamo, a circuit-opening device within said cylinder, a circuit connecting said device to said dynamo, a means for driving said dynamo by said engine, and a centrifugal device associated with said dynamo, adapted to increase the electromotive force simultaneously with the separation of the terminals of said sparking device, substantially as and for the purpose set forth.

2. A means for making and maintaining an electric spark for igniting devices, within the cylinder of a gas-engine, which consists of a dynamo, a circuit-opening device within said cylinder, a circuit connecting said device to said dynamo, a means for driving said dynamo by said engine, and a centrifugal speed-controlling device adapted to increase the speed of said dynamo to increase the electromotive force thereof simultaneously with the separation of the terminals of said sparking device, substantially as and for the purpose set forth.

696,298. ELECTRIC IGNITER FOR GAS-ENGINES. VINCENT G. APPLE, Dayton, Ohio, assignor to Dayton Electrical Manufacturing Company, a Corporation of Ohio. Filed Aug. 31, 1901. Serial No. 74,020. (No model.)

Claim.—1. In an electric igniter, for gas-engines, the combination with an engine-cylinder of two electrodes, a means operated by the difference in pressure existing between the interior and exterior of said cylinder, adapted to control said electrodes, an electromagnet adapted to control said means, and a source of current for energizing said electromagnet, substantially as set forth.

2. In an electric igniter, for gas-engines, the combination with an engine-cylinder of a stationary electrode, a coacting, movable electrode a valve for moving said electrode, adapted to be unseated by the difference of pressure existing between the interior and exterior of said cylinder, and to close contact between said electrodes, an electromagnet adapted to open the circuit at said contacts, and a source of electric current for energizing said magnet, substantially as set forth.



3. In an electric igniter, for gas-engines, the combination with an engine-cylinder of two electrodes, a valve adapted to be unseated by the difference of pressure existing between the interior and exterior of said cylinder, and to close the circuit between said electrodes, an electromagnet adapted to open the circuit between said electrodes, a source of current for energizing said magnet, and a means for normally holding said valve on its seat, substantially as set forth.

4. In an electric igniter, for gas-engines, the combination with an engine-cylinder of two electrodes, a valve adapted to be unseated by the difference in pressure existing between the interior and exterior of said cylinder, and to close the circuit between said electrodes, an electromagnet adapted to open the circuit between said electrodes, a source of current for energizing said magnet, a spring for normally holding said valve on its seat, and a means for adjusting the tension of said spring, substantially as set forth.

5. In an electric igniter, for gas-engines, the combination with an engine-cylinder of two electrodes, a valve adapted to close the circuit between said electrodes, an electromagnet adapted to open the circuit between said electrodes, a source of current for energizing said magnet, and a means for timing the movement of said valve and said magnet, or both, substantially as set forth.

6. In an electric igniter, for gas-engines, the combination with an engine-cylinder of a stationary electrode, a coacting, movable electrode, a valve for moving said electrode adapted to be unseated by the compression of the charge within the cylinder of said engine, an electromagnet adapted to seat said valve, and a source of electric current for energizing said magnet, substantially as set forth.

7. In an electric igniter, for gas-engines, the combination with an engine-cylinder of two electrodes, a means operated by the difference in pressure existing between the interior and exterior of said cylinder adapted to close a circuit between said electrodes, an electromagnet adapted to open said circuit, and a source of current for energizing said magnet and for producing the sparks between said electrodes, substantially as set forth.

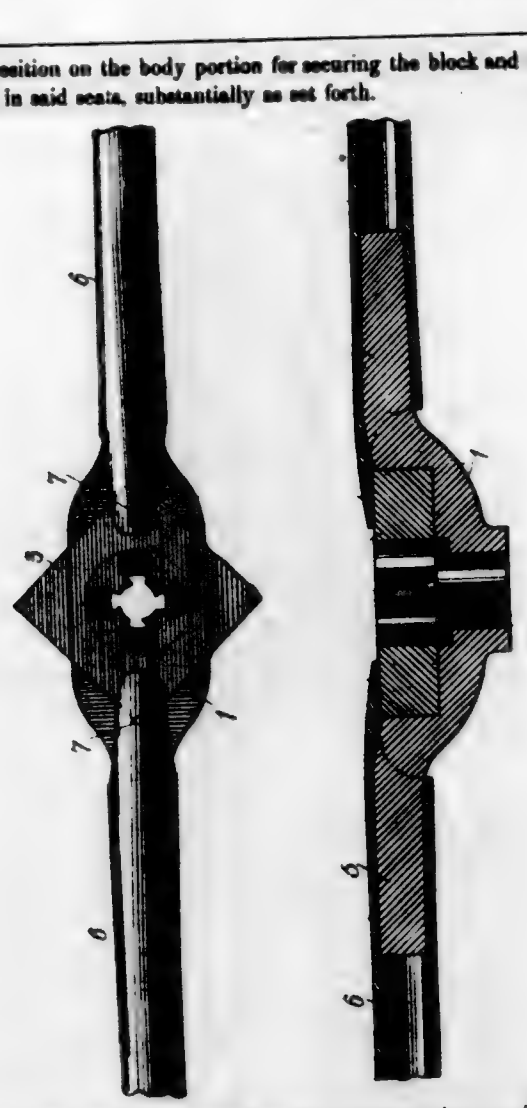
8. In an electric igniter, for gas-engines, the combination with an engine-cylinder, of two electrodes, a means operated by the difference in pressure existing between the interior and exterior of said cylinder, adapted to control said electrodes, an electromagnet adapted to control said means, a circuit including said magnet and said electrodes, and a source of current for energizing said circuit, substantially as set forth.

9. In an electric igniter, for gas-engines, the combination with an engine-cylinder of two electrodes, a means operated by the difference in pressure existing between the interior and exterior of said cylinder, adapted to control said electrodes, an electromagnet adapted to control said means, a circuit including said magnet and said electrodes, a source of current for energizing said circuit and electrodes outside of said cylinder, adapted to be closed periodically by a moving part of said engine, substantially as set forth.

696,299. THREADING-TOOL. JOSEPH E. BAINES, Pittsburg, Pa., assignor of one-half to Joseph W. Latshaw, Pittsburg, Pa. Filed Nov. 27, 1901. Serial No. 83,209. (No model.)

Claim.—1. In a cutting-tool the combination of a body portion provided with seats for the reception of a threading block or die and a guide-thimble, removable handles and a lock operative by a handle when ad-

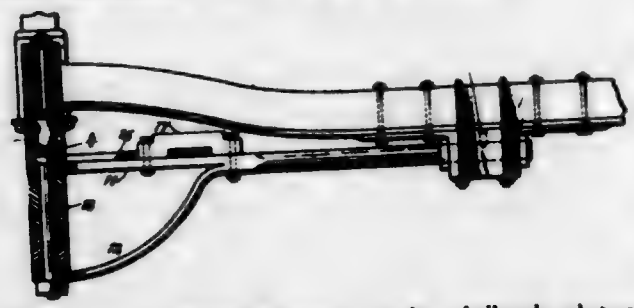
justed to position on the body portion for securing the block and thimble in position in said seats, substantially as set forth.



2. A cutting-tool in combination with a body portion provided with a recess for the reception of a cutting or threading block and having laterally-extending arms or projections, and auxiliary handles adapted to fit over the arms or fingers and provided with means for locking the block in position, substantially as set forth.

3. A cutting-tool having in combination, a body portion provided with a recess or seat for the reception of a cutting-block and having diametrically-arranged arms and tubular handles adapted to fit over the arms and provided at their inner ends with fingers or extensions adapted to bear upon the block when arranged in its seat, substantially as set forth.

696,300. FIFTH-WHEEL. STEPHEN R. BABER, Booneville, Ark. Filed Aug. 15, 1901. Serial No. 72,136. (No model.)

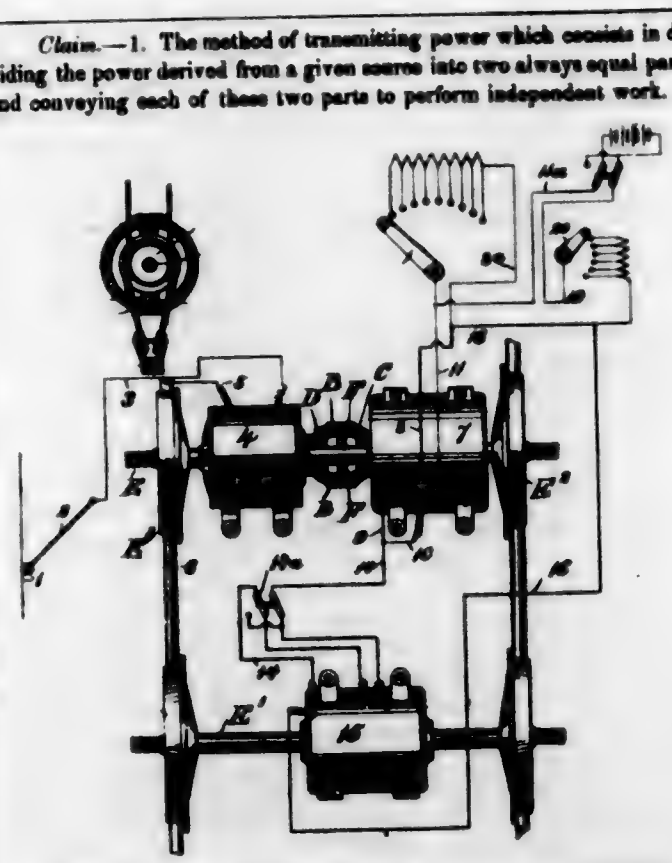


Claim.—1. In a vehicle, a bolster, an axle, a ball-and-socket connection between the bolster and axle, a reach extended from the bolster, a connecting-bar having swinging connection with the axle, and a rotary connection with the reach, and a segment-plate carried by the axle and slidable on the connecting-bar, substantially as specified.

2. In a vehicle, a bolster, a front axle, a ball-and-socket connection between the bolster and axle, a reach extended from the bolster, a connecting-bar having members engaging respectively the upper and lower sides of the axle, a king-bolt passing through said members and through the axle, a segment-plate carried by the axle and movable on the connecting-bar, and a block secured to the reach and in which the connecting-bar is mounted to turn, substantially as specified.

696,301. METHOD OF TRANSMITTING POWER FOR PERFORMING USEFUL WORK. JOHN H. BARNARD, Newark, N. J., assignor of one-half to Benjamin Atha, H. G. Atha, H. R. Atha, and C. G. Atha, Newark, N. J. Filed Oct. 23, 1901. Serial No. 79,624. (No model.)

Claim.—1. The method of transmitting power which consists in dividing the power derived from a given source into two always equal parts and conveying each of these two parts to perform independent work.



2. The method of transmitting power which consists in dividing the power imparted to a mechanism into two equal parts and conveying both parts toward the performance of the same work, the first equal part directly and the second indirectly, through a means of control.

3. The method of transmitting power derived from a given source which consists in dividing this power into two always equal parts, conveying one of these parts to perform any desired work and converting the other equal part into potential energy.

4. The method of transmitting power derived from any given source, which consists in dividing this power into two always equal parts and conveying one of these parts for use for any desired work and the other part to operate a controllable load.

5. The method of transmitting power derived from any given source, which consists in dividing this power into two always equal parts and conveying one of these parts for the performance of any desired work and the other to operate a variable controllable load.

6. The method of transmitting power derived from a given source, which consists in dividing this power into two always equal parts, conveying one of these parts for the performance of any desired work, conveying the other for the performance of independent work, and controlling the work done by the first part by governing a load substantially frictionless carried by the second equal part.

7. The method of transmitting power derived from any given source, which consists in dividing this power into two always equal parts, conveying one of these parts to be used for the performance of any desired work, conveying the other part independently of the first, governing the work performed by the second part, and controlling the work performed by the first part by the governed work of the second part.

696,302. WATCHMAKER'S TWEEZERS. CHARLES A. BASSETT, Anderson, Ind. Filed Oct. 23, 1900. Renewed Sept. 14, 1901. Serial No. 75,422. (No model.)

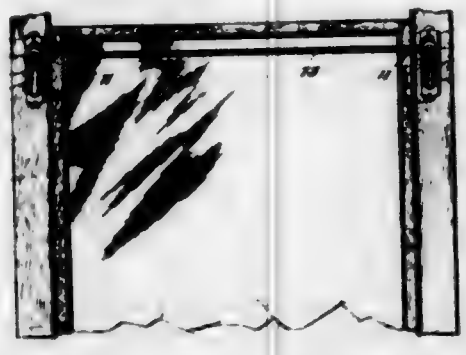


Claim.—Watchmaker's tweezers comprising spring-arms A having tapering jaws *b* terminating in obliquely-extending points *c* beveled inwardly on their upper faces, as at *d*, and having their lower faces extending at an oblique angle to said jaws, the jaws being formed in their lower edges *b'* with notches *e*, on their inner sides with sockets *f* intersecting the notches, and having their said lower edges beveled or inclined upwardly and outwardly between the points b^2 b^2, substantially as set forth.

696,303. CURTAIN-FIXTURE. CHARLES H. BAUR, Cripplecreek, Colo. Filed Aug. 20, 1901. Serial No. 72,670. (No model.)

Claim.—1. A curtain-fixture, comprising a slotted and recessed bracket-plate, a headed bolt slidable in the recess and slot, a tubular sleeve

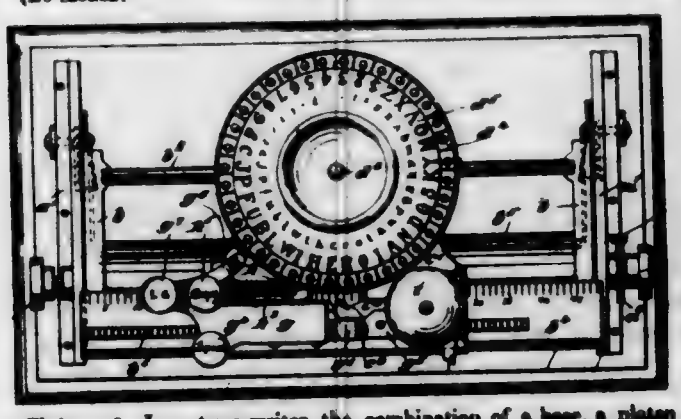
fitting on a cylindric portion of the bolt, a nut on the end of the bolt engaging an end of the sleeve, and a tubular socket-piece extended laterally from the tubular sleeve, and adapted to receive and support an end of a cylindrical curtain-rod.



2. A curtain-fixture, comprising a recessed and slotted bracket-plate having roughened surfaces, a headed bolt slidable in the slot and recess, a washer on the bolt bearing upon the roughened surfaces of the bracket-plate, a sleeve on the bolt seated on the washer, a nut screwing upon the bolt and pressing upon the sleeve, and a lateral socket-piece on the sleeve adapted to receive and retain one end of a curtain-supporting rod.

3. A curtain-fixture, comprising a recessed and slotted bracket-plate, a headed bolt slidable in the recess and slot, the bracket-plate having serrations along the front surface at the slot, a washer seated on the serrations and encircling the bolt, a sleeve on the bolt and seated upon the washer, a nut on the end of the bolt bearing upon the sleeve, a laterally-extended socket-piece on the sleeve, and an elongated nut screwing upon the socket-piece, the nut and socket-piece together receiving an end of a curtain-rod.

696,804. TYPE-WRITER. WILLIAM J. THOMPSON and PHILIP BECKER, New York, N. Y. Filed Mar. 25, 1901. Serial No. 52,674 (No model.)



Claim.—1. In a type-writer, the combination of a base, a platen thereon, a carriage-frame mounted on the base to move toward and from the platen, a carriage movable on the frame, a type-form on the carriage, the type-form being adjustable to position the type for impression, an index-wheel for the type-form, said wheel having flexible fingers arranged in relation to the characters on the wheel, means for impressing the type, and means for moving the carriage to space the type.

2. In a type-writer, the combination of a platen, printing devices, and a paper-guard in connection with the printing devices, said guard sliding over the paper to smooth it as the printing devices are moved into operative position.

3. In a type-writer, the combination of a base, a platen thereon, a frame mounted on the base to move toward and from the platen, printing devices on the frame, and a paper-guard connected with the frame to slide over and smooth the paper on the platen as the frame is moved to operative position.

4. In a type-writer, the combination of a base, a platen thereon, a frame mounted pivotally on the base to swing toward and from the platen, and a paper-guard mounted on the frame off the center of movement of the frame and pressed to the platen, for the purpose specified.

5. A type-writer, comprising a track, and a carriage mounted to move thereon, said carriage having two members clamping a part of the track between them to render the carriage friction-tight on the track.

6. A type-writer, comprising a track, a carriage mounted thereon and having a circular basket and a body-plate projecting forwardly therefrom, a type-form mounted in the basket of the carriage, an index-wheel above the type-form, the index-wheel having raised fingers aiding in locating a type, and impression and spacing mechanism mounted on the body plate of the carriage.

7. A type-writer, having a base, a platen, a carriage-frame mounted on the base, and comprising a track, a carriage mounted on the track and having a part turned over one edge of the track to prevent lateral movement of the carriage on the track, and printing mechanism arranged on the carriage.

8. In a type-writer, a type-form mounted to turn and having upper and lower case letters, in combination with an index-wheel having upper and lower case letters and provided with fingers, of which single fingers serve to indicate both an upper-case and a lower-case letter.

9. In a type-writer, a type-form mounted to turn and having upper and lower case letters in a single circular line, in combination with an index-wheel having upper and lower case letters in separate circular lines and formed with fingers, of which single fingers serve to indicate both an upper and a lower case letter.

10. In a type-writer, the combination with a type-form, of printing devices including a key capable of shifting the type-form and impressing a type by a single movement.

11. In a type-writer, the combination of a track, a carriage mounted thereon, a type-form on the carriage, spacing devices for the carriage, a shifting device for the type-form, means for operating said devices in succession, and means for operating the spacing devices independently.

12. In a type-writer, the combination of a track, a carriage mounted thereon, a type-form on the carriage, an impression device for the type-form, a shifting device for the type-form, means for operating said devices in succession, and means for operating the spacing devices independently.

13. In a type-writer, a type-form, an impression device therefor, a shifting device therefor, and means for operating said devices either in succession or independently.

14. In a type-writer, a type-form, an impression device, a shifting device, and a key member for each of said devices, the key member of one lying in the path of movement of the other, for the purpose specified.

15. In a type-writer, a type-form, an impression device, a shifting device, and a key member for each of said devices, the key member of the impression device lying in the path of movement of the key member of the shifting device.

16. In a type-writer, a type-form, a rock-bar having an impression-finger arranged to strike the type-form, a finger-wheel connected to the type-form, a shifting-bar adapted to be engaged by the finger-wheel, means for operating the shifting-bar and rock-bar in succession, and means for operating the rock-bar independently.

17. A type-writer having a type-form, an impression device therefor, a spacing device, and a key member for actuating said devices, the key member moving partially to actuate one of said devices and farther to actuate both.

18. A type-writer, having a type-form, an impression device therefor, a spacing device, a key member working with said devices, and a key carried on said member to have limited independent movement with respect thereto.

19. In a type-writer, the combination of a track, a carriage thereon, a type-form on the carriage, an impression device, a spacing device for moving the carriage on the track, and a key member for actuating said devices, the key member moving partially to actuate one of said devices and farther to actuate both.

20. In a type-writer, the combination of a track having a rack thereon, a carriage mounted on the rack, a type-form mounted on the carriage, an impression device, a spacing-pawl working with the rack to space the carriage, and a key member for actuating the impression device and the pawl, said member moving partially to actuate the pawl independently and moving farther to actuate the pawl and impression device simultaneously.

21. A type-writer having a type-form, a finger-wheel connected thereto, means for impressing the type-form, a shifting-bar adapted to be engaged by the finger-wheel, and means for actuating the shifting-bar.

22. A type-writer having a type-form, and an impression device comprising a rock-bar provided with a laterally-projected finger to engage the type-form.

23. A type-writer having a type-form, an impression device comprising a rock-bar provided with a laterally-projected finger to engage the type-form and also having a laterally-projected arm, and a key member in the path of movement of which said arm of the rock-bar lies, for the purpose specified.

24. A type-writer, having a flexible type-form, a rock-bar mounted over the type-form and having a laterally-projected impression-finger bearing on and normally sustained by the type-form, said rock-bar also having a lateral arm, and a key in the path of movement of which said arm of the rock-bar lies, for the purpose specified.

25. A type-writer having a base, a platen thereon, a carriage-frame mounted on the base to move toward and from the platen, and having a part with a scale thereon, a carriage and printing mechanism mounted on the frame, the scale being readable with reference to the carriage and printing mechanism.

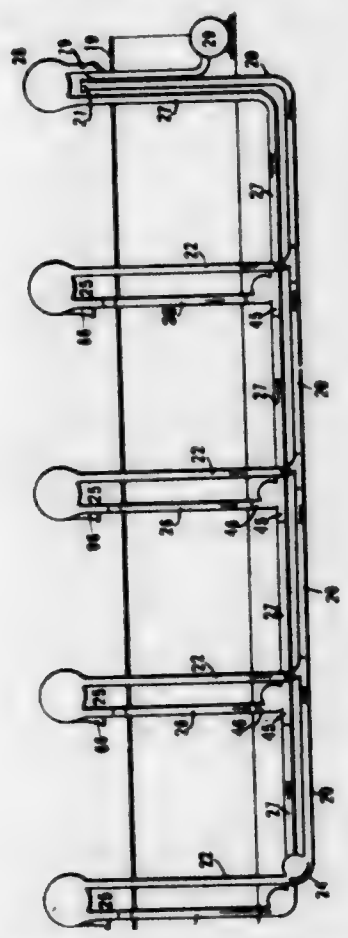
26. In a type-writer, a type-form and shifting mechanism therefor

comprising a shift-bar, a key member pivoted thereto, a link pivoted to the key member and to a relatively stationary part of the type-writer, and a spring pressing the parts to normal position.

27. A type-writer finger-wheel, having independent radial spring-fingers, and independent finger members of rubber or its equivalent secured on the fingers and having knobs or raised portions formed integral therewith.

28. In a type-writer, a type-form mounted to turn and provided with upper and lower case letters, and a shifting device acting to give a partial turn to the type to shift from one case to another.

696,305. **PNEUMATIC-DESPATCH-TUBE SYSTEM.** Thomas Dehis, Indianapolis, Ind. Filed Sept. 25, 1901. Serial No. 76,453. (No model.)



Claim.—1. In a pneumatic-despatch-tube system, a curved tubular section therefor, and a movable wall portion adapted to be moved in the direction of travel of a carrier passing around said curve.

2. In a pneumatic-despatch-tube system, a curved tubular section therefor, and a movable part mounted therein in position to be engaged by a carrier and movable in the direction of travel of the carrier.

3. In a pneumatic-despatch-tube system, a curved tubular section, and a revolvable wheel mounted therein in position to form a portion of the inner wall of the curve.

4. In a pneumatic-despatch-tube system, a discharge-terminal therefor consisting of a curved tubular head, and a revolvable wheel mounted therein in position to form a portion of the inner wall of the curve.

5. In a pneumatic-despatch-tube system, a station-terminal consisting of a hollow head, a wheel rotatably mounted therein so as to form a portion of the inner wall of a tubular channel for the passage of a carrier, a valved discharge branch leading from said head, an air branch leading from said head on the receiving side of the valve, a receiver mounted in said air branch, a door normally closing an opening into said receiver, and a movable valve-plate adapted to close the air branch in front of the receiver or to open said branch and allow a carrier to pass therein from the receiver.

6. In a pneumatic-despatch-tube system, the combination with an air-tube, of a receiver therefor consisting of a tubular body forming part of the air-tube and having an opening therein, means for closing said opening, a pocket formed in said body, and a valve housed in said pocket so as to be slidable in a straight line therein and adapted to be moved so as to close communication between the body and a portion of the air-tube and to support a carrier.

7. In a pneumatic-despatch-tube system, the combination with an air-tube, of a receiver consisting of a tubular body forming part of said air-tube and having an opening in its side, a door adapted to normally close said opening, a valve-plate mounted between said body and a portion of the air-tube and having an opening therethrough through which the carrier may pass, and means carried by the valve for engaging the door to prevent the same from being opened so long as the valve is open, substantially as and for the purpose set forth.

8. In a pneumatic-despatch-tube system, a station-terminal having a discharge branch and an air branch which are substantially parallel, guides for preventing the passage of a carrier into the air branch, and a valve arranged to close the discharge branch opposite the mouth of the air branch with its lower end immediately below the same.

9. In a pneumatic-despatch-tube system, a station-terminal provided with a discharge-tube, an air-tube leading therefrom and substantially parallel thereto, guides at the mouth of the air-tube, a valve mounted in the discharge-tube opposite the mouth of the air-tube with its lower end immediately below and adjacent the same, and a second valve arranged to close the discharge-tube beyond the first valve.

10. In a pneumatic-despatch-tube system, a station-terminal consisting of a curved channel having a depending discharge end, an air-tube having a portion immediately adjacent and substantially parallel to the discharge branch, an air-passage leading through the side of the discharge branch into the air-tube a considerable distance from the curved portion of the terminal, and a valve arranged to close the discharge branch beyond the said air-passage.

11. In a pneumatic-despatch-tube system, a station-terminal consisting of a curved channel having a depending discharge end, an air-tube having a portion immediately adjacent and substantially parallel to the discharge branch, an air-passage leading through the side of the discharge branch into the air-tube a considerable distance from the curved portion of the terminal, and a valve arranged to close the discharge branch immediately beyond said air-passage.

12. In a pneumatic-despatch-tube system, a station-terminal consisting of a curved channel having a depending discharge end, an air-tube having a portion immediately adjacent and substantially parallel to the discharge branch, an air-passage leading through the side of the discharge branch into the air-tube a considerable distance from the curved portion of the terminal, a valve mounted in the discharge branch immediately beyond the air-passage, and a second valve arranged to close the discharge branch at least a carrier length beyond the first valve.

13. In a pneumatic-despatch-tube system, a station-terminal having a depending discharge-channel, an air-passage leading therefrom at a point below a substantially straight portion of the tube of sufficient length to allow its gravitation to carry a carrier beyond said air-passage, and a valve arranged to close the discharge-tube beyond said air-passage.

14. In a pneumatic-despatch-tube system, a junction consisting of a pair of converging tubular portions, a stop normally projected into the line of one of said tubular portions, a second stop adapted to be projected into the line of the other tubular portion but normally held out of projected position, and intermediate connections between said stops whereby the passage of a carrier through either of said tubular portions will serve to project or retain projected the stop in the other tubular portion.

15. In a pneumatic-despatch-tube system, a junction consisting of a pair of converging tubular portions, a stop adapted to be projected into one of said tubular portions, a second stop adapted to be projected into the other tubular portion, a pair of plates one carried by each stop and extending along a portion of the length of the adjacent tubular portion, and intermediate connections between said stops whereby the passage of a carrier through said tubular portion will serve to project or retain projected the stop in the other tubular portion.

16. In a pneumatic-despatch-tube system, a junction therefor consisting of a pair of converging tubular portions, a lever arranged to be normally but yieldingly projected into one of said tubular portions, a plunger adapted to be projected into the other tubular portion, and a cam carried by said lever and adapted to engage and project said plunger into its tubular portion when the lever is thrown out of its tubular portion, substantially as and for the purpose set forth.

17. In a pneumatic-despatch-tube system, a junction therefor consisting of a pair of converging tubular portions, a lever, means for normally projecting one end of said lever into one of said tubular portions, a plate carried by the free end of said lever and projecting toward the junction, a cam carried by said lever, a plunger arranged to be engaged by said cam, a plate pivoted in the other tubular portion so as to project toward the junction and be engaged by the plunger, and means for normally but yieldingly retaining said plate against the wall of its tubular portion and the plunger out of alinement of said tubular portion, substantially as and for the purpose set forth.

18. In a pneumatic-despatch-tube system, a junction therefor consisting of a main tubular portion, a branch tubular portion leading into the main tubular portion on a curve, and a portion forming a part of the wall of said curved branch and movable in the direction of travel of a carrier.

19. In a pneumatic-despatch-tube system, a junction therefor consisting of a main tubular portion, a branch tubular portion leading therein,

and a portion forming part of one junction-wall and movable in the direction of travel of a carrier passing through said tubes.

20. In a pneumatic-despatch-tube system, a junction therefor consisting of a straight main tubular portion, a branch tubular portion leading therein upon a curve, and a wheel revolubly mounted at said junction so as to form a part of the inner wall of the curved branch.

21. In a pneumatic-despatch-tube system, a junction therefor consisting of a straight main tubular portion, a branch tubular portion leading therein upon a curve, a wheel revolubly mounted at said junction so as to form a part of the inner wall of the curved branch, a stop adapted to be projected into the line of one of said tubular portions, a second stop adapted to be projected into the line of the other tubular portion, and intermediate connections between said stops whereby the passage of a carrier through said tubular portion will serve to project or retain projected the stop in the other tubular portion.

22. In a pneumatic-despatch-tube system, a junction consisting of a straight main tubular portion, a branch tubular portion leading therein upon a curve, a wheel mounted at said junction so as to form a part of the inner wall of the curved branch, a stop adapted to be projected into one of said tubular portions, a second stop adapted to be projected into the other tubular portion, a pair of plates one carried by each stop and extending along a portion of the length of the adjacent tubular portion, and intermediate connections between said stops whereby the passage of a carrier through said tubular portion will serve to project or retain projected the stop in the other tubular portion.

23. In a pneumatic-despatch-tube system, a junction therefor consisting of a straight main tubular portion, a branch tubular portion leading therein upon a curve, a wheel revolubly mounted at said junction so as to form a part of the inner wall of the curved branch, a lever, means for normally projecting one end of said lever into one of said tubular portions, a plate carried by the free end of said lever and projected toward the junction, a cam carried by said lever, a plunger arranged to be engaged by said cam, a plate pivoted in the other tubular portion so as to project toward the junction and be engaged by the plunger, and means for normally but yieldingly retaining said plate against the wall of its tubular portion and the plunger in alinement with its tubular portion.

24. In a pneumatic-despatch-tube system, the combination with a main tubular portion having an outlet-opening in its side, of a valve arranged to normally close said opening, a branch tubular portion leading from said opening beyond the valve, and switching mechanism arranged in the main tube in such manner as to engage and bring predetermined carriers into engagement with said valve whereby said carriers will operate to open said valve and allow the passage of said carriers into the branch tube.

25. In a pneumatic-despatch-tube system, the combination with a main tubular portion having an outlet-opening in its side, of a valve arranged to normally close said opening, and switching mechanism to deflect predetermined carriers from the main tube and through the valved opening without obstructing the main tube for immediate passage of another carrier.

26. In a pneumatic-despatch-tube system, the combination of the main tube having an opening in its side, a branch tube leading from said opening, a switch arranged in said main tube adjacent the opening so as to deflect predetermined carriers into said opening, and means for yieldingly supporting said switch to allow a limited movement thereof in the direction of travel of such carriers.

27. In a pneumatic-despatch-tube system, the combination of the main tube having an opening in its side, a switch arranged in said main tube adjacent the opening so as to deflect predetermined carriers through said opening, and means for yieldingly supporting said switch to allow a limited movement thereof in the direction of travel of such carriers.

28. In a pneumatic-despatch-tube system, the combination with the main tubular portion having an outlet-opening in its side, of a valve arranged to normally close said opening, a branch tubular portion leading from said opening beyond the valve, a switch arranged in the main tube adjacent the opening so as to deflect predetermined carriers into said opening, and means for yieldingly supporting said switch to allow a limited movement thereof in the direction of travel of such carriers.

29. In a pneumatic-despatch-tube system, the combination with the main tubular portion having an outlet-opening in its side, of a valve arranged to normally close said opening, a switch arranged in the main tube adjacent the opening so as to deflect predetermined carriers into said opening, and means for yieldingly supporting said switch to allow a limited movement thereof in the direction of travel of such carriers.

30. In a pneumatic-despatch-tube system, the combination with the main tube having an opening in its side, of a valve arranged to normally close said opening, a branch tube leading from said opening, a switch arranged in the main tube in position to engage predetermined carriers and deflect the same toward the valve, an opening leading into the branch beyond the valve, and means for maintaining independent air-currents through the main tube and through the branch tube through its opening.

31. In a pneumatic-despatch-tube system, the combination with the main tube having an opening in its side, of a valve arranged to normally close said opening, means for deflecting predetermined carriers through said opening, a branch tube leading from said opening and having an opening leading therein beyond the valve and means for maintaining independent air-currents through the main tube and through the branch tube through the opening.

32. A tube for pneumatic-despatch-tube systems, having two independent sets of axial grooves formed in the wall thereof one set of said grooves being adapted to receive coacting guiding parts of a carrier and the other set being adapted to allow the passage of switching mechanism carried by the carriers.

33. In a pneumatic-despatch-tube system, a station-terminal having a discharge branch and an air branch connected thereto, guides for preventing the passage of a carrier into the air branch, and a valve arranged to close the discharge branch opposite the mouth of the air branch and pivotally supported at its rear end upon an axis located upon the side of the discharge branch opposite from the air branch.

34. In a pneumatic-despatch-tube system, a station-terminal having a depending discharge-channel, an air-passage leading therefrom at a point below a substantially straight portion of the tube of sufficient length to allow its gravitation to carry a carrier beyond said air-passage, a valve arranged in the discharge-tube opposite the air-passage and pivoted at its rear end to that wall of the discharge-passage opposite the air-passage, and a second valve arranged to close the discharge-tube at least one carrier length below the first valve.

35. In a pneumatic-despatch-tube system, the combination with an air-tube, of a receiver therefor consisting of a tubular body forming a part of the air-tube and having an opening therein through which a carrier may be passed from the exterior, means for closing said opening, a pocket formed in said body, a valve adapted to close the air-tube arranged in line with said pocket and adapted to be projected therein, and means controlled by the valve for controlling the operability of the means for closing the external opening, without preventing the operability of the valve.

36. In a pneumatic-despatch-tube system, the combination with the tubes thereof, of a carrier provided with a soft head, a separate switch-pin plate secured to the carrier, a switch-pin fixed upon the plate and projecting radially therefrom, and means carried in the tubes for engaging said pin.

37. In a pneumatic-despatch-tube system, the combination with the tubes thereof, of a carrier consisting of a tubular body having a soft head, a separate switch-pin plate secured to said body and angularly adjustable thereon, a switch-pin carried by said plate and projecting radially therefrom, and means arranged in the tubes for engaging said switch-pin.

38. In a pneumatic-despatch-tube system, the combination with the tubes thereof, of a carrier consisting of a tubular body provided with a soft head, a separate switch-pin plate secured to said body, a switch-pin of greater thickness than the plate carried by said plate and projected into a recess formed in the soft head, and means arranged in the tubes for engaging said switch-pin.

39. In a pneumatic-despatch-tube system, the combination with an air-tube, of a receiver therefor consisting of a tubular body communicating with the air-tube and having an opening therein through which a carrier may be passed from the exterior, means for closing said opening, a pocket formed in said body, a valve adapted to support a carrier, said valve being arranged to slide in a straight line into said pocket and adapted to close carrier communication between the body and a portion of the air-tube, and means controlled by the valve for controlling the operability of the means for closing the external opening without preventing the operability of the valve.

40. In a pneumatic-despatch-tube system, a station-terminal having a discharge branch, an air branch leading from the side of said branch, and a valve arranged to close the discharge branch, a portion of said valve lying in line with the mouth of the air branch.

41. In a pneumatic-despatch-tube system, a station-terminal provided with a discharge-tube, an air-tube leading from the side thereof, a valve arranged to close the discharge-tube and having a portion thereof in line with the mouth of the air-tube, and a second valve arranged to close the discharge-tube beyond the first valve.

42. In a pneumatic-despatch-tube system, a station-terminal having a discharge-tube, an air-tube leading from the side thereof, and a valve pivotally supported in the discharge-tube and adapted to close the same, the said valve having a portion in line with the mouth of the air-tube.

43. In a despatch-tube system, a junction consisting of a pair of converging tubular portions, a stop normally projected to the line of one of said tubular portions, a second stop adapted to be projected into the line of the other tubular portion but normally held out of projected posi-

tion, and intermediate connections between said stops whereby the passage of a carrier through either of said tubular portions will serve to project or retain projected the stop in the other tubular portions.

44. In a despatch-tube system, a junction consisting of a pair of converging tubular portions, a stop adapted to be projected into one of said tubular portions, a second stop adapted to be projected into the other tubular portion, a pair of plates one carried by each stop and extending along a portion of the length of the adjacent tubular portion, and intermediate connections between said stops whereby the passage of a carrier through said tubular portion will serve to project or retain projected the stop in the other tubular portion.

45. In a despatch-tube system, a junction therefor consisting of a pair of converging tubular portions, a lever, means for normally projecting one end of said lever into one of said tubular portions, a plate carried by the free end of said lever and projecting toward the junction, a cam carried by said lever, a plunger, arranged to be engaged by said cam, a plate pivoted in the other tubular portion so as to project toward the junction and to be engaged by the plunger, and means for normally but yieldingly retaining said plate against the wall of its tubular portion and the plunger out of alinement of said tubular portion, substantially as and for the purpose set forth.

46. In a despatch-tube system, the combination of the main tube having an opening in its side, a branch tube leading from said opening, a switch arranged in said main tube adjacent the opening so as to deflect predetermined carriers into said opening and means for yieldingly supporting said switch to allow a limited movement thereof in the direction of travel of such carriers.

47. In a despatch-tube system, the combination of the main tube having an opening in its side, a switch arranged in said main tube adjacent the opening so as to deflect predetermined carriers through said opening, and means for yieldingly supporting said switch to allow a limited movement thereof in the direction of travel of such carriers.

48. A tube for despatch-tube systems, having two independent sets of axial grooves formed in the wall thereof, one set of said grooves being adapted to receive coacting guiding parts of a carrier and the other set being adapted to allow the passage of switching mechanism carried by the carrier.

49. In a despatch-tube system, the combination with the tubes thereof, of a carrier provided with a soft head, a separate switch-pin plate secured to the carrier, a switch-pin fixed upon the plate and projecting radially therefrom, and means carried in the tubes for engaging said pins.

50. In a despatch-tube system, the combination with the tubes thereof, of a carrier, consisting of a tubular body having a soft head, a separate switch-pin plate secured to said body and angularly adjustable thereon, a switch-pin carried by said plate and projecting radially therefrom, and the means arranged in said tubes for engaging said switch-pin.

51. In a despatch-tube system, the combination with the tubes thereof, of a carrier consisting of a tubular body provided with a soft head, a separate switch-pin plate secured to said body, a switch-pin of greater thickness than the plate carried by the plate and projected in a recess formed in the soft head, and means arranged in the tubes for engaging said switch-pin.

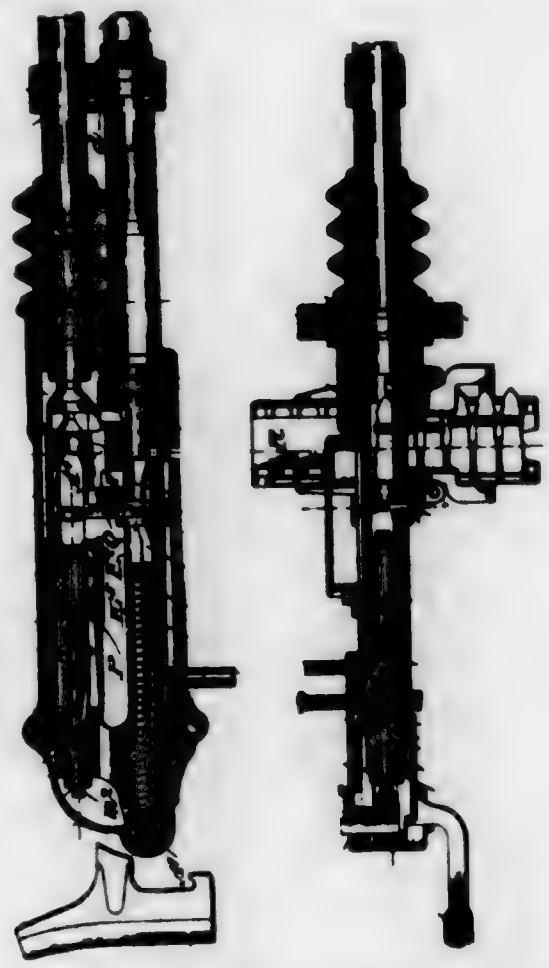
52. In a pneumatic-despatch-tube system, the combination with an air-tube, of a receiver consisting of a tubular body communicating with said air-tube, a valve controlling communication between the receiver and tube, a valve forming an access to the receiver-body, and means operated by the first valve for controlling the operability of the second valve, without preventing the operability of the first valve.

696,806. AUTOMATIC GUN. LAWRENCE V. BENET and HENRI A. MERGET, Paris, France. Filed May 2, 1899. Serial No. 715,342. (No model.)

Claim.—1. In a breech-loading-gun, the combination with a barrel, and a breech-block chamber, of a hollow breech-block with cam-grooves therein, a reciprocating motor-piston provided with a sleeve inclosing said breech-block and a pin mounted in said sleeve and projecting through the cam-grooves in the breech-block for first rotating to unlock and then withdrawing said breech-block, from said chamber, and for returning and locking the same, substantially as described.

2. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder and actuated rearward by the gases of discharge, a sleeve on the head of said motor-piston, a mainspring for moving said piston in the reverse direction, a hollow breech-block with cam-grooves therein and a pin mounted in said sleeve and projecting through the cam-grooves in the breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, substantially as described.

3. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, of a reciprocating motor-piston provided with a hollow sleeve parallel to the axis of said piston and inclosing said breech-block, a pin passing through said hollow sleeve and through the cam-grooves in said breech-block, and a firing-pin mounted in the hollow breech-block and positively connected to said piston, substantially as described.



4. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, means operated by said piston for first rotating to unlock and then withdrawing said breech-block, from said chamber, and for returning and locking the same, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

5. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, means operated by said piston for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

6. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber and for returning and locking the same, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

7. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

8. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block provided with a cam-groove therein, a reciprocating motor-piston with a stud or pin to engage in said cam-groove for first rotating to unlock and then withdrawing said breech-block, or vice versa, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

9. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-

grooves on said breech-block, a reciprocating motor-piston provided with a pin passing through said breech-block and engaging said cam-grooves, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

10. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, of a reciprocating motor-piston provided with a hollow head parallel to the axis of said piston and engaging said breech-block, a pin passing through said hollow head and through the cam-grooves in said breech-block, and extractors pivoted on said breech-block and operated by said hollow head, substantially as described.

11. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block having interrupted engagement in said chamber, a reciprocating motor-piston, means operated by said piston for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, and extractors traveling in longitudinal guideways and revolubly connected to said breech-block, and operated by said piston, substantially as described.

12. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder a mainspring for moving said piston in the opposite direction a breech-block having interrupted engagement with said chamber, means operated by said piston for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, and extractors traveling in longitudinal guideways and revolubly connected to said breech-block, and operated by said piston, substantially as described.

13. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block having interrupted engagement with said chamber, a reciprocating motor-piston, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber and for returning and locking the same, and extractors traveling in longitudinal guideways and revolubly connected to said breech-block, and operated by said piston, substantially as described.

14. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, having interrupted engagement with said chamber, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, and extractors traveling in longitudinal guideways and revolubly connected to said breech-block, and operated by said piston, substantially as described.

15. In a breech-loading gun the combination with a barrel, and a breech-block chamber, of a breech-block provided with a cam-groove therein and having interrupted engagement with said chamber, a reciprocating motor-piston provided with a stud or pin to engage in said cam-groove for first rotating to unlock and then withdrawing said breech-block, or vice versa, and extractors traveling in longitudinal guideways and revolubly connected to said breech-block, and operated by said piston, substantially as described.

16. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, a reciprocating motor-piston provided with a pin passing through said breech-block and engaging said cam-grooves, and extractors traveling in longitudinal guideways and revolubly connected to said breech-block, and operated by said piston, substantially as described.

17. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, of a reciprocating motor-piston provided with a hollow head parallel to the axis of said piston and engaging said breech-block, a pin passing through said hollow head and through the cam-grooves in said breech-block, and extractors traveling in longitudinal guideways and revolubly connected to said breech-block, and operated by said piston, substantially as described.

18. In a breech-loading gun the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, and means operated by said piston for first rotating to unlock and then withdrawing said breech-block, from said chamber, and for returning and locking the same, with a firing-pin secured to said piston and passing through said breech-block, substantially as described.

19. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, and means operated by said piston for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, with a firing-pin secured to said piston and passing through said breech-block, substantially as described.

20. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, and a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber and for returning and locking the same, with a firing-pin secured to said piston and passing through said breech-block, substantially as described.

21. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, and a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, with a firing-pin secured to said piston and passing through said breech-block, substantially as described.

22. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block provided with a cam-groove therein, and a reciprocating motor-piston provided with a stud or pin to engage in said groove for first rotating to unlock and then withdrawing said breech-block or vice versa, and a firing-pin secured to said pin and mounted in said breech-block, substantially as described.

23. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, a reciprocating motor-piston provided with a pin passing through said breech-block and engaging said cam-grooves, and a firing-pin secured to said pin and mounted in said breech-block, substantially as described.

24. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, of a reciprocating motor-piston provided with a hollow head parallel to the axis of said piston and engaging said breech-block, and a pin passing through said hollow head and through the cam-grooves in said breech-block, and a firing-pin secured to said pin and mounted in said breech-block, substantially as described.

25. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, means operated by said piston for first rotating to unlock and then withdrawing said breech-block, from said chamber, and for returning and locking the same, a firing-pin mounted in said breech-block and secured to and moving with said piston, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

26. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder a mainspring for moving said piston in the opposite direction a breech-block, means operated by said piston for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, a firing-pin mounted in said breech-block and secured to and moving with said piston, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

27. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, a cam engagement between said piston, and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber and for returning and locking the same, a firing-pin mounted in said breech-block and secured to and moving with said piston, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

28. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, a firing-pin mounted in said breech-block and secured to and moving with said piston, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

29. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block provided with a cam-groove therein, a reciprocating motor-piston provided with a stud or pin to engage in said cam-groove for first rotating to unlock and then withdrawing said breech-block, or vice versa, a firing-pin mounted in said breech-block and secured to and moving with said piston, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

30. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, a reciprocating motor-piston provided with a pin passing through said breech-block and engaging said cam-grooves, a firing-pin mounted in said breech-block and secured to and moving with said piston, and extractors pivoted on said breech-block and operated by said piston, substantially as described.

31. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, of a reciprocating motor-piston provided with a hollow head parallel to the axis of said piston and engaging said breech-block, a pin passing through said hollow head and through the cam-grooves in said breech-block, a firing-pin mounted in said breech-block and secured to and moving with said piston, and extractors pivoted on said breech-block and operated by said hollow head, substantially as described.

32. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, means operated by said piston for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, and an ejector operated by said piston in its rearward motion for ejecting the empty cartridge-cases, substantially as described.

33. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, means operated by said piston for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, and an ejector operated by said piston in its rearward motion for ejecting the empty cartridge-cases, substantially as described.

34. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber and for returning and locking the same, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, and an ejector operated by said piston in its rearward motion for ejecting the empty cartridge-cases, substantially as described.

35. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, extractors pivoted in said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, and an ejector operated by said piston in its rearward motion for ejecting the empty cartridge-cases, substantially as described.

36. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block provided with a cam-groove therein, a reciprocating motor-piston provided with a stud or pin to engage in said cam-groove for first rotating to unlock and then withdrawing said breech-block, or vice versa, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, and an ejector operated by said piston in its rearward motion for ejecting the empty cartridge-cases, substantially as described.

37. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block a reciprocating motor-piston provided with a pin passing through said breech-block and engaging said cam-grooves, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, and an ejector operated by said piston in its rearward motion for ejecting the empty cartridge-cases, substantially as described.

38. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, of a reciprocating motor-piston provided with a hollow head parallel to the axis of said piston and engaging said breech-block, a pin passing through said hollow head and through the cam-grooves in said breech-block, extractors pivoted on said breech-block and operated by said hollow head, means for feeding the cartridges to the gun in front of said breech-block, and an ejector operated by said piston in its rearward motion for ejecting the empty cartridge-cases, substantially as described.

39. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, means operated by said piston for first rotating to unlock and then withdrawing said breech-block, from said chamber, and for returning and locking the same, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, an ejector for the empty cartridge-cases pivoted transversely to said piston, and a cam engagement between said piston and said ejector, substantially as described.

40. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, means operated by said piston for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, an ejector for the empty cartridge-cases pivoted transversely to said piston, and a cam engagement between said piston and said ejector, substantially as described.

41. In a breech-loading gun, the combination with a barrel, and a breech-block chamber, of a breech-block, a reciprocating motor-piston, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber and for returning and locking the same, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, an ejector for the empty cartridge-cases pivoted transversely to said piston, and a cam engagement between said piston and said ejector, substantially as described.

42. In a gas-operated breech-loading gun, the combination with a breech-block chamber, of a barrel, a cylinder connected to said barrel, a motor-piston mounted in said cylinder, a mainspring for moving said piston in the opposite direction, a breech-block, a cam engagement between said piston and said breech-block for first rotating to unlock and then withdrawing said breech-block from said chamber, and for returning and locking the same, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, an ejector for the empty cartridge-cases pivoted transversely to said piston, and a cam engagement between said piston and said ejector, substantially as described.

43. In a breech-loading gun the combination with a barrel, and a breech-block chamber, of a breech-block provided with a cam-groove therein, a reciprocating motor-piston provided with a stud or pin to engage in said cam-groove for first rotating to unlock and then withdrawing said breech-block, or vice versa, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, an ejector for the empty cartridge-cases pivoted transversely to said piston, and a cam engagement between said piston and said ejector, substantially as described.

44. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, a reciprocating motor-piston provided with a pin passing through said breech-block and engaging said cam-grooves, extractors pivoted on said breech-block and operated by said piston, means for feeding the cartridges to the gun in front of said breech-block, an ejector for the empty cartridge-cases pivoted transversely to said piston, and a cam engagement between said piston and said ejector, substantially as described

45. In a breech-loading gun, the combination with a barrel and a breech-block chamber, of a breech-block adapted to rotate and lock or unlock in and to move longitudinally into and out of said chamber, with cam-grooves on said breech-block, of a reciprocating motor-piston provided with a hollow head parallel to the axis of said piston and engaging said breech-block, a pin passing through said hollow head and through the cam-grooves in said breech-block, extractors on said breech-block and operated by said hollow head, means for feeding the cartridges to the gun in front of said breech-block, an ejector for the empty cartridge-cases pivoted transversely to said piston, and a cam engagement between said piston and said ejector, substantially as described.

46. In a breech-loading gun having a reciprocating motor-piston and a breech-block in constant engagement therewith, of an extractor or extractors which are thrown into positive engagement with the flange of the cartridge or freed therefrom by the relative motions of piston and breech-block, substantially as described.

47. In a breech-loading gun having a reciprocating motor-piston, the combination of a groove in the piston, an ejector having a stud in engagement with said groove whereby the ejector is given an intermittent motion in a plane at right angles to the motion of the piston, substantially as described.

48. An extractor for use in guns of the character described, having a claw or nib, to engage the flange of the cartridge-case, a hook to engage the breech-block in rear of said claw, and a tail projecting to the rear to form a lever-arm when engaged by the piston, substantially as described.

49. A pair of extractors for use in guns of the character described each provided with a claw or nib to engage the flange of the cartridge-case, a hook to engage the breech-block in rear of said claw, U-shaped tangs to project on either side of the breech-block and fulcrum thereon, and a tail projecting to the rear to form a lever-arm when engaged by the piston, substantially as described.

50. An extractor for use in guns of the character described comprising a nib p, to engage the flange of the cartridge-case, a projection p^2 beyond said nib to shove the cartridge home, a body provided with the hook p^3, and a tail P^4 having the bent end p^4 to engage with the piston, substantially as described.

51. A pair of extractors for use in guns of the character described, each comprising a main body P', a nib p for engaging the flange of the cartridge-case, a hook p^3 to engage with the breech-block, U-shaped tangs adapted to pass around the breech-block and pivot thereon, and a tail P^4 having the bent end p^4 to engage with the piston, substantially as described.

52. In a breech-loading gun, the combination with a reciprocating motor-piston provided with an abutment, of a pivoted stop, a spring normally pressing said stop in the path of said abutment, and a feed-strip both for supplying ammunition to the gun and for holding said stop clear of said abutment while the gun is loaded, with a cam engagement between said piston and said feed-strip for moving the latter across the gun, substantially as described.

53. In a breech-loading gun, the combination with a reciprocating motor-piston provided with an abutment, of a pivoted stop, a spring normally pressing said stop in the path of said abutment, and a feed-strip both for supplying ammunition to the gun and for holding said stop clear of said abutment while the gun is loaded, with cams on said piston and lugs on said feed-strip engaging said cams as the piston vibrates, substantially as described.

54. In a breech-loading gun, the combination with a reciprocating motor-piston provided with an abutment and cams, of a pivoted stop, a spring normally pressing said stop in the path of said abutment, and a feed-strip having lugs engaging said cams and supplying ammunition to the gun and holding said stop clear of said abutment while the gun is loaded, with means for holding the ammunition on said feed-strip when clear of the gun, and for automatically releasing the same from the feed-strip as the latter is fed to the gun, substantially as described.

55. In a breech-loading gun, the combination with a reciprocating motor-piston provided with an abutment, of a pivoted stop, a spring normally pressing said stop in the path of said abutment, and a feed-strip both for supplying ammunition to the gun and for holding said stop clear of said abutment while the gun is loaded, with clips on said feed-strip and resilient loops for holding the ammunition in said clips when clear of the gun, and for automatically releasing the ammunition from said clips as the feed-strip is fed to the gun, substantially as described.

56. In a breech-loading gun, the combination with a reciprocating motor-piston provided with cam-surfaces thereon, of a receiver having guides for said piston and for the feed-strip, and a feed-strip for the fixed ammunition having lugs engaging the cam-surfaces on the piston, whereby the reciprocating motion of the piston imparts a positive motion to said feed-strip, substantially as described.

57. In a breech-loading gun, the combination with a reciprocating motor-piston provided with cam-surfaces thereon, of a receiver having guides for said piston and for the feed-strip, and a feed-strip for the fixed ammunition having lugs engaging the cam-surfaces on the piston, whereby the reciprocating motion of the piston imparts a positive motion to said feed-strip, with clips on said feed-strip, and resilient loops for holding the ammunition in said clips when clear of the gun, and means for automatically releasing the ammunition from said clips as the feed-strip moves across the gun, substantially as described.

58. In a breech-loading gun the combination with a reciprocating motor-piston provided with cam-surfaces and an abutment, of a receiver having guides for said piston and for the feed-strip, a feed-strip for the fixed ammunition provided with lugs engaging said cam-surfaces, a stop pivoted in said receiver below said feed-strip and pressed downward thereby, and provided with teeth for holding said feed-strip against backward motion, and a spring normally pressing said stop upward and causing it to engage said abutment when the feed-strip is not in the way, substantially as described.

59. In a breech-loading gun the combination with a reciprocating motor-piston provided with cam-surfaces and an abutment, of a receiver having guides for said piston and for the feed-strip, a feed-strip for the fixed ammunition provided with lugs engaging said cam-surfaces, and cut away along its rear portion to permit the projection therethrough of the stop, a stop pivoted in said receiver below said feed-strip and pressed downward thereby, and provided with teeth for holding said feed-strip against backward motion, and a spring normally pressing said stop upward and causing it to engage said abutment when the feed-strip is not in the way, substantially as described.

60. In a breech-loading gun, the combination with a reciprocating motor-piston provided with cam-surfaces and an abutment, of a receiver having guides for said piston and for the feed-strip, a feed-strip for the fixed ammunition provided with lugs engaging said cam-surfaces, a stop pivoted in said receiver below said feed-strip and pressed downward thereby, and provided with teeth adapted to engage said lugs after the same have passed said cams for holding said feed-strip against backward motion, and a spring normally pressing said stop upward and causing it to engage said abutment when the feed-strip is not in the way, substantially as described.

61. In a breech-loading gun, the combination with a reciprocating motor-piston provided with cam-surfaces and an abutment, of a receiver having guides for said piston and for the feed-strip, a feed-strip for the fixed ammunition provided with lugs engaging said cam-surfaces, and cut away along its rear portion to permit the projection therethrough of the stop, a stop pivoted in said receiver below said feed-strip and pressed downward thereby, and provided with teeth adapted to engage said lugs after the same have passed said cams for holding said feed-strip against backward motion, and a spring normally pressing said stop upward and causing it to engage said abutment when the feed-strip is not in the way, substantially as described.

62. In a breech-loading gun, the combination with a reciprocating piston provided with cams on its surface of a feed-strip provided with lugs or tenons engaging said cams, whereby an intermittent advance of the feed-strip is obtained substantially as described and for the purpose set forth.

63. In an automatic gun, the combination with feed mechanism and guides for the feed-strip, of a feed-strip engaging in said guides, cartridge-holding clips on said feed-strip, and a resilient abutment normally holding the cartridges in place on said feed-strip, but releasing said cartridges as the feed-strip is fed across the gun, substantially as described.

64. In a breech-loading gun, the combination with a cartridge-holding feed-strip provided with the cartridge-holding clips and the resilient abutment in rear of the rear clips, of a feed-box mounted in the gun and provided with a projection for forcing the resilient abutment out of the path of the cartridge-rims, and with an inclined groove engaging said rims for withdrawing the cartridges from said clips, with means for moving said feed-strip and for delivering the released cartridges to the chamber of the gun, substantially as described.

65. In a breech-loading gun, the combination with a cartridge-holding feed-strip provided with the cartridge-holding clips and the resilient abutment in rear of the rear clips, of a feed-box mounted in the gun and provided with a projection for forcing the resilient abutment out of the path of the cartridge-rims, and with an inclined groove engaging said rims for withdrawing the cartridges from said clips, with automatically-operated means for moving said feed-strip and for delivering the released cartridges to the chamber of the gun, substantially as described.

66. In a breech-loading gun, the combination with a motor-piston and mechanism for opening and closing the breech, of means for drawing the empty cartridge-case to the rear, and an ejector transversely disposed to and operated by said piston, substantially as described.

67. In a breech-loading gun, the combination with a motor-piston and mechanism for opening and closing the breech, of means for drawing the empty cartridge-case to the rear, and an ejector transversely disposed to and in cam engagement with said piston, substantially as described.

68. In a breech-loading gun, the combination with a motor-piston and mechanism for opening and closing the breech, of means for drawing the empty cartridge case to the rear, and an ejector pivoted at right angles to and in cam engagement with said piston, substantially as described.

69. In a breech-loading gun, the combination with a receiver with guideways therein and a chamber transverse to said guideways, and a reciprocating piston provided with a cam-groove in the side thereof, means operated by said piston for withdrawing the empty cartridge-case rearward, and an ejector mounted in said transverse chamber and having a lug engaging in said cam-groove for ejecting laterally said cartridge-case, substantially as described.

70. In a breech-loading gun, the combination with a receiver with guideways therein and a chamber transverse to said guideways, of a reciprocating motor-piston traveling in said guideways, and provided with a cam-groove in the side thereof, means operated by said piston for with-

drawing the empty cartridge-case rearward, and an ejector mounted in said transverse chamber and partly inclosing said piston and rocking thereon, and having a lug engaging in said cam-groove for ejecting laterally said cartridge-case, substantially as described.

71. In a breech-loading gun, the combination with a receiver with guideways therein and a chamber transverse to said guideways, of a reciprocating motor-piston traveling in said guideways, and provided with a cam-groove in the side thereof, means operated by said piston for withdrawing the empty cartridge-case rearward, and an ejector mounted in said transverse chamber and provided with a head engaging the cartridge-case substantially at right angles to the axis of the gun, and a rounded heel partly inclosing said piston and rocking thereon, with a lug from said heel engaging said cam-groove, substantially as described.

72. In a breech-loading gun, the combination with a reciprocating motor-piston, provided with a retaining-lug, of a firing-gear for controlling the frequency of vibrations of said piston, comprising a trigger, for engaging said lug, a firing-lever for releasing said trigger, a spring coacting between said firing-lever and said trigger, and a controlling-lever for regulating the travel of said firing-lever, substantially as described.

73. In a breech-loading gun, the combination with a reciprocating motor-piston, provided with a retaining-lug, of a firing-gear for controlling the frequency of vibrations of said piston, comprising a trigger, for engaging said lug, a firing-lever for releasing said trigger, a spring coacting between said firing-lever and said trigger, and a stop of varying radius pivoted in the line of travel of said firing-lever, substantially as described.

74. In a breech-loading gun, the combination with a reciprocating motor-piston, provided with a retaining-lug, of a firing-gear for controlling the frequency of vibrations of said piston, comprising a trigger, for engaging said lug, a firing-lever for releasing said trigger, a spring coacting between said firing-lever and said trigger, and a stop of varying radius pivoted in the line of travel of said firing-lever with a spring-handle for adjusting said stop in the desired position, substantially as described.

75. In a breech-loading gun the combination with a reciprocating motor-piston, provided with a retaining-lug, of a firing-gear for controlling the frequency of vibrations of said piston, comprising a trigger-piece pivoted to the gun and having a trigger engaging said lug, a cocking-toe and a spring-arm, a pivoted firing-lever having a firing-toe, an elongated slot for its pivot, a spring-arm and a firing-handle, a spring connecting the spring-arms of said firing-lever and said trigger-piece, and means for regulating the travel of said firing-handle, substantially as described.

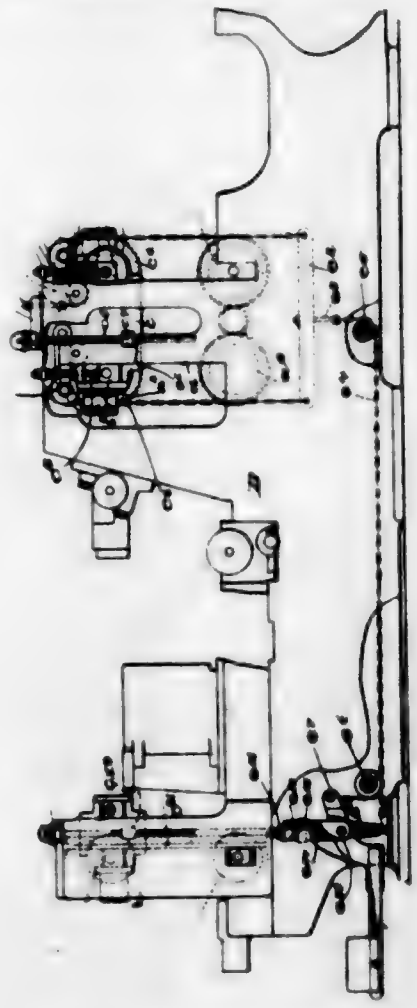
76. In a breech-loading gun, the combination with a reciprocating motor-piston, provided with a retaining-lug, of a firing-gear for controlling the frequency of vibrations of said piston comprising a trigger-piece pivoted to the gun and having a trigger engaging said lug, a cocking-toe and a spring-arm, a pivoted firing-lever having a firing-toe, an elongated slot for its pivot, a spring-arm and a firing-handle, a spring connecting said spring-arm of said firing-lever and said trigger-piece, and means for regulating the travel of said firing-handle, and a pivoted stop of varying radius registering with the said firing-handle and limiting the travel thereof, substantially as described.

77. In a breech-loading gun, the combination with a reciprocating motor-piston, provided with a retaining-lug, of a firing-gear for controlling the frequency of vibrations of said piston comprising a trigger-piece pivoted to the gun and having a trigger engaging said lug, a cocking-toe and a spring-arm, a pivoted firing-lever having a firing-toe, and an elongated slot for its pivot, a spring-arm and a firing-handle, a spring connecting the spring-arm of said firing-lever and said trigger-piece, means for regulating the travel of said firing-handle, and a pivoted stop of varying radius registering with the said firing-handle and limiting the travel thereof, with a spring-handle for adjusting said stop in the desired position, substantially as described.

696,307. FEED-ROLLS. CHARLES W. H. BLOOD, Boston, Mass., assignor to S. A. Woods Machine Company, Boston, Mass., a Corporation of Massachusetts. Filed May 31, 1901. Serial No. 62,536. (No model.)

Claim.—1. In a planing-machine, a plurality of upper feed-rolls, an adjustable carrier for supporting said feed-rolls on the frame of the machine, said feed-rolls being independently movable in said adjustable carrier, a single power-hoist fixedly mounted on the frame of the machine and in engagement with said supporting means for adjusting the latter up and down while itself remaining vertically stationary, a weight and pressure-transmitting mechanism permitting said rolls to yield independently, including a connection from said weight to each of the upper feed-rolls, and means coöperating therewith enabling the weight to give uniform tension or pressure to all of said rolls in all positions.

2. In a planing-machine, a feed-roll, a saddle in which said feed-roll is journaled, vertical guide-frames in which said saddle moves up and down, a pressure-transmitting device pivoted in said saddle and provided with means for transmitting equal pressure to the opposite ends of said roll, the said roll being free to move up and down in said saddle, a weight and a chain connection between said weight and said pivot device for transmitting the effect of said weight to said roll.



3. In a planing-machine, two feed-rolls placed end to end and mounted to move up and down, pivoted covers extending over said feed-rolls, a bar above said covers, a connection from said bar at the opposite ends of said rolls for the transmission of pressure from the bar to the rolls, connections between said covers and said bar, pulleys carried by said covers a weight, and connections therefrom to said pulleys.

4. In a planing-machine, two feed-rolls placed end to end and mounted to move up and down, pivoted covers extending over said feed-rolls, contiguous journal-boxes for supporting the adjacent journal ends of said two rolls, said boxes extending above the rolls and said covers resting on said boxes, a bar above said covers, a connection from said bar at the opposite ends of said rolls for the transmission of pressure from the bar to the opposite ends of the rolls, connections between said covers and said bar, pulleys carried by said covers, a weight, and connections therefrom to said pulleys.

5. In a planing-machine, a feed-roll, a rod rigidly connected therewith and depending therefrom, a rigid bracket normally containing said rod and roll, a leg carried by said rod, a lever and weight pivoted intermediate its length to said leg and having its fulcrum at its end opposite the weight, and an adjustable stop for regulating the downward movement of said leg.

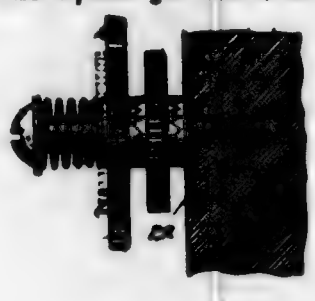
6. In a planing-machine, a feed-roll vertically movable by the passage of timber, a weight connected thereto by a flexible connection, means for vertically adjusting said feed-roll, mechanism coöperating with said vertical adjusting means and said movable roll for changing the relative position of said roll and connection as the roll moves up and down independently of said adjustment, and including means maintaining uniform tension of said weight on said roll at all positions assumed by the latter.

7. In a planing-machine, a feed-roll vertically movable, a weight connected thereto by a flexible connection, pressure-transmitting pulleys relatively movable, said flexible connection passing over one of said pulleys and under the other, and means coöperating therewith enabling said weight to give uniform tension or pressure to said roll at all positions of its movement.

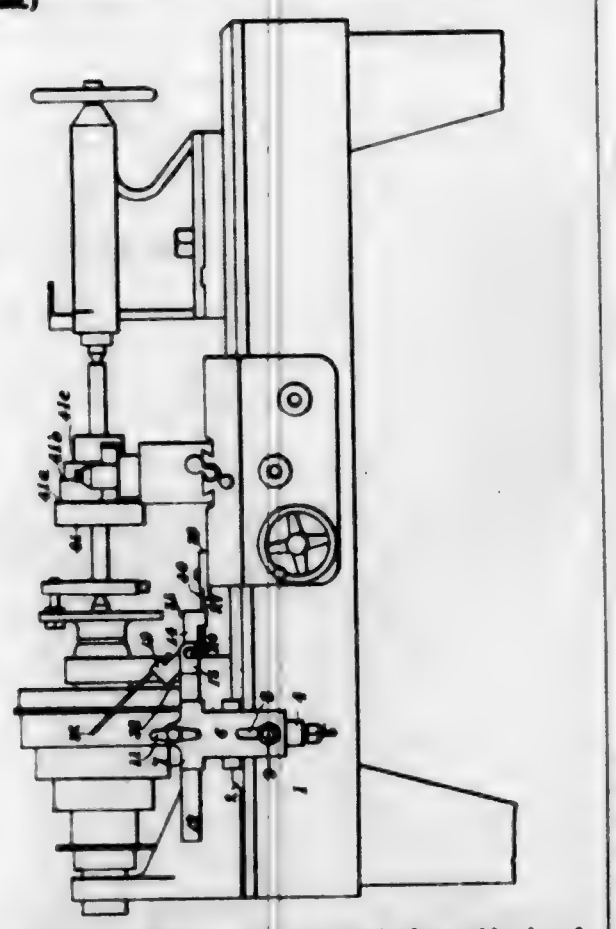
696,308. WINDOW-BALANCE. FREDERICK W. S. BOETTCHER, Detroit, Mich. Filed Jan. 3, 1901. Serial No. 41,979. (No model.)

Claim.—The combination with a window-frame and upper and lower sashes slidable therein of a shaft secured centrally in the side of the frame, two gear-wheels slidably mounted on said shaft having their adjacent sides

provided with clutch-teeth, a spring for normally holding the clutch-teeth in engagement, and rack-bars on the sashes having their teeth normally in engagement with the respective gear-wheels, substantially as described.



696,309. MULTIPLE GAGE FOR LATHE WORK. EDMUND J. BOWERS, Philadelphia, Pa. Filed June 24, 1901. Serial No. 65,840 (No model.)



Claim.—1. In a multiple gage for lathe work, the combination of a main clamp, a bar-clamp and means for adjusting it vertically upon the main clamp, a bar adjustable in the said bar-clamp, rod-gages, and devices supporting the gages pivotally at one end of the bar, substantially as described.

2. In a multiple gage for lathe work, the combination of a main clamp, a bar-clamp and means for adjusting it vertically upon the main clamp, a bar adjustable in the said bar-clamp, gage-holders pivotally supported at one end of the said bar, and gages secured in the said holders, substantially as described.

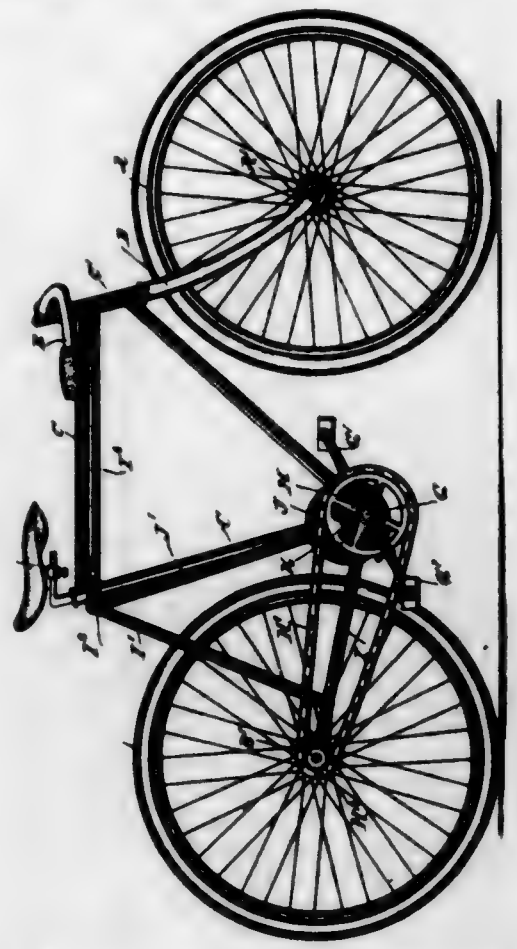
3. In a multiple gage for lathe work, the combination of a main clamp, a bar-clamp and means for adjusting it vertically upon the main clamp, a bar adjustable in the said bar-clamp, gage-holders pivotally supported at one end of the said bar, adjustable devices whereby the said holders are permitted to turn upwardly and prevented from turning downwardly, and gages adjustably connected with the said holders, substantially as described.

4. In a multiple gage for lathe work, a gage-holder 14 having the projecting lip, the vertical threaded passage and the horizontal gage seat and guide, substantially as described.

696,310. BICYCLE. NATHANIEL E. BROWN, Aitkin, Minn. Filed Sept. 20, 1901. Serial No. 75,666. (No model.)

Claim.—1. A bicycle, having a main rigid frame carrying a saddle and the crank mechanism, said frame being mounted to swing from the axle of the steering-wheel as the fulcrum, an auxiliary link-frame fulcrumed on the axle of the drive-wheel and on the said main frame, and a connection between the auxiliary frame and the crank mechanism for imparting an up-and-down motion to the said auxiliary frame and by the latter to the main rigid frame, as set forth.

2. A bicycle, comprising a steering-wheel, a front fork for the steering-wheel, a drive-wheel, a main rigid frame having a head in which the front fork is journaled, a crank mechanism on the crank-hanger of the said main frame, a driving-gear connecting the crank mechanism to the drive-wheel, an auxiliary link-frame pivotally connected with the head of the said main frame, the axle of the drive-wheel and the crank-hanger, and a connection between the said crank mechanism and the said link-frame whereby an up-and-down motion will be imparted to the main frame, as set forth.



3. A bicycle, comprising a steering-wheel, a front fork for the steering-wheel, a drive-wheel, a main rigid frame having a head in which the front fork is journaled, a crank mechanism on the crank-hanger of the said main frame, a driving-gear connecting the crank mechanism to the drive-wheel, an auxiliary link-frame pivotally connected with the head of the said main frame, the axle of the drive-wheel and the crank-hanger, and a connection between the said crank mechanism and the said link-frame, the said connection comprising an eccentric on the crank-shaft, and having its eccentric-rod pivotally connected with the said link-frame, as set forth.

4. A bicycle, comprising a drive-wheel, a steering-wheel, a front fork for the steering-wheel, a main rigid frame having a head in which the front fork is journaled, a crank mechanism on the crank-hanger of the said main frame, a driving-gear connecting the crank mechanism to the drive-wheel, an auxiliary frame comprising a top link pivotally connected with the forward end of the main frame, a rear lower link pivotally connecting the crank-hanger with the axle of the drive-wheel and a rear upper link pivotally connecting the rear lower link with the top link, and an eccentric connection between the crank mechanism and the joint between the top link and the rear upper link, as set forth.

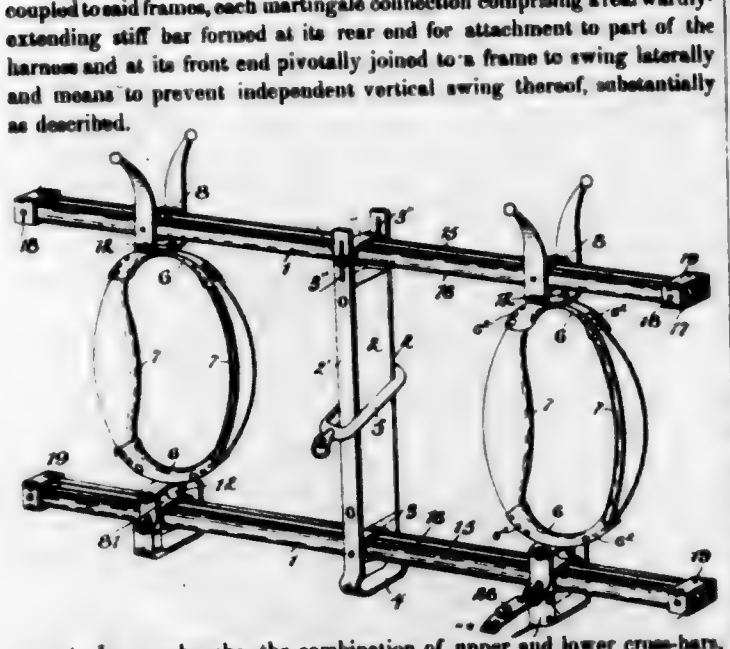
696,811. NECK-YOKE. JEREMIAH J. M. DUBERTTE, Spearfish, S. D. Filed May 17, 1901. Serial No. 60,732. (No model.)

Claim.—1. A neck yoke comprising upper and lower cross-bars, a draft connection, collars between the cross-bars, and martingale connections, each comprising a stiff bar held against vertical movement and free to swing laterally with the draft-animal, substantially as described.

2. In a neck-yoke, the combination of cross-bars, a draft connection therein, two draft-collars between and loosely confined to said bars, connecting-frames pivotally joined to the lower ends of the collars and extending around the lower cross-bar and formed with depending loops below said cross-bar for attachment of parts of the harness, substantially as described.

3. In a neck-yoke, the combination of cross-bars, a centrally-disposed draft connection therein, draft-collars between and loosely confined to said bars, connecting-frames loosely joined to the lower ends of the collars and encircling the lower cross-bar, and martingale connections

coupled to said frames, each martingale connection comprising a rearwardly-extending stiff bar formed at its rear end for attachment to part of the harness and at its front end pivotally joined to a frame to swing laterally and means to prevent independent vertical swing thereof, substantially as described.



4. In a neck-yoke, the combination of upper and lower cross-bars, draft collars between and movable longitudinally of the cross-bars and loosely coupled thereto to oscillate on vertical and horizontal axes, connected coupling devices between said collars and cross-bars, a draft-bar between said cross-bars and at its ends loosely coupled thereto, the upper cross-bar having limited vertical movement independently of said draft-bar, substantially as described.

5. In a draft-harness, in combination, upper and lower cross-bars, a draft connection between the same, a pair of collars between and at their ends provided with and loosely coupled to slides encircling and movable longitudinally of said cross-bars, and flexible cables extending longitudinally around the cross-bars, each cable passing around both ends of a bar and along opposite longitudinal faces thereof, one ply of each cable secured to one side of a slide and the other ply secured to the corresponding opposite side of the other slide, said cables and the slides secured thereto forming endless connections, substantially as described.

6. In a neck-yoke, in combination, cross-bars, a draft connection between the same, and draft-collars between and at their ends loosely confined to said bars, each collar comprising curved end heads having exterior longitudinal sockets or grooves, and the two curved bows at their ends fitted and longitudinally conforming to and slidable in said sockets, and removable keys passing through the bow ends and the heads, as and for the purposes set forth.

7. A neck-yoke comprising cross-bars, means for connecting the same with the load, slides on said bars, the slides on each bar connected together to move equal distances in opposite directions, draft-collars between said bars, connecting-frames pivotally joined to said slides, said collars at their ends pivotally joined to connecting-frames of corresponding slides on the two bars, substantially as described.

8. A neck-yoke comprising cross-bars, draft-collars loosely coupled to said bars, and a draft-bar having a clevis for attachment to the pull connections to the load and comprising a doubled strap forming a loop at its lower end and between the two plies of which strap the said cross bars pass and are pivotally confined and a block secured between said two plies, substantially as described.

9. In combination, in a draft-harness, upper and lower cross-bars, an upright draft-bar at its lower end encircling and pivotally joined to the lower cross-bar and at its upper end straddling the upper cross-bar, a loose connection between said upper cross-bar and draft-bar, the lower end of said draft-bar provided with a depending loop, slides on and movable longitudinally of said cross-bars, equalizing connections operatively connecting the slides of each bar, two collars between corresponding slides of said cross-bars, and pivotal connections between the collars and slides, substantially as described.

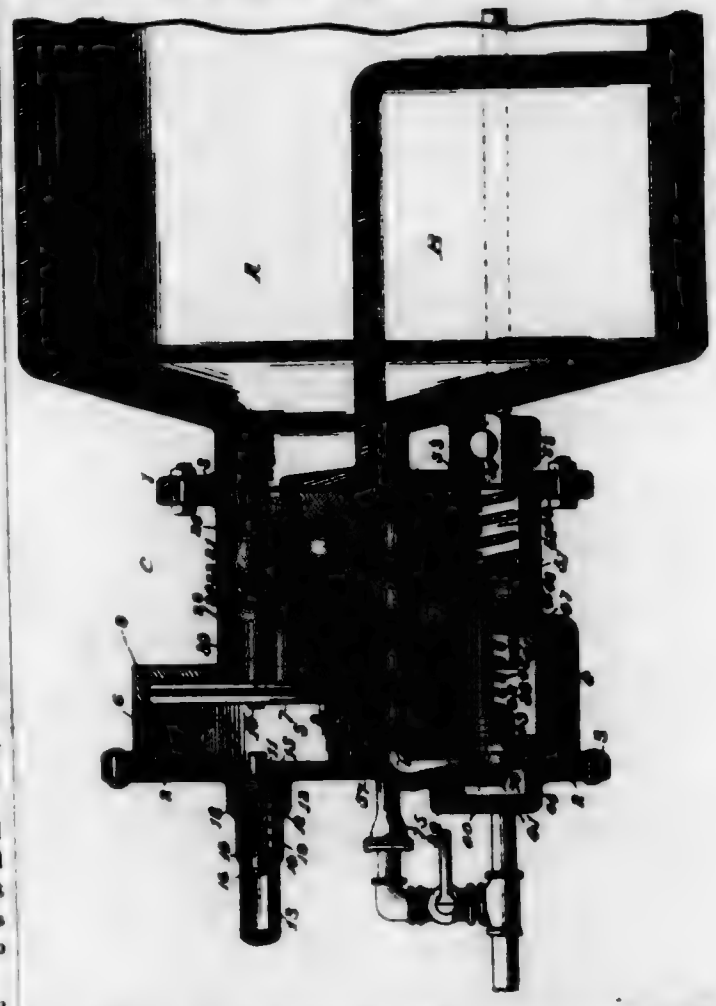
10. In a draft-harness, in combination, upper and lower cross-bars, a draft-bar connecting the same, slides encircling the cross-bars and movable longitudinally thereon, equalizing connections operatively connecting the slides on a bar, each slide provided with and straddled by a connecting-frame pivotally joined thereto by transverse pivots, and collars between said cross-bars, each collar at its ends united by vertical pivots to certain of said connecting-frames, substantially as described.

11. In a draft-harness, in combination, upper and lower cross-bars, a pair of collars between said bars, each collar at its ends provided with and loosely coupled to slides encircling and movable longitudinally of said cross-bars, each cross-bar having a pair of separate flexible cables extending longitudinally around the same, each cable extending around both ends of the bar and along opposite longitudinal faces of the bar, one ply of each cable secured to one side of a slide and the other ply secured to the corresponding opposite side of the other slide, said cables and the slides secured thereto forming endless connections, substantially as described.

12. In a draft-harness, in combination, two cross-bars having end pulleys, two collars having end slides embracing and longitudinally movable on said bars, each bar having a pair of cables arranged longitudinally thereround and passing over said end pulleys, adjustable means removably clamping certain portions of each cable to certain portions of the slides, a tension device for each cable and carried by one of the slides on each bar, each cable having one longitudinal ply secured to one side of a slide and passing loosely through the other slide and having its opposite ply secured in the opposite portion of said other slide and passing loosely through the first-mentioned slide, substantially as described.

13. In combination, in a draft-harness, upper and lower cross-bars, a draft-bar connecting the same, a pair of collars having end slides confined to and movable longitudinally on said cross-bars, each collar having a rearwardly-extending stiff bar coupled with its lower portion and adapted to extend into engagement with the chest of the draft-animal and limit or stop the upward movement of the collar, as and for the purposes substantially described.

696,312. AUTOMATIC BRAKE MECHANISM. WRIGHT H. CAMPBELL, Carbondale, Pa. Filed Dec. 5, 1900. Serial No. 38,814. (No model.)



Claim.—1. In a fluid-pressure braking mechanism, the combination with triple and auxiliary valve devices provided with main and supplemental pistons and piston-chambers, of primary and secondary reservoirs connected to and having communication with the triple and auxiliary valve devices and with each other respectively, means whereby the auxiliary-valve device is held inoperative during service applications of the brake, pressure from the secondary reservoir aiding the primary reservoir in said service applications, and means connected with the main piston and operated by pressure from the primary auxiliary reservoir whereby to close the communication between the two reservoirs during emergency applications of the brakes.

2. In an automatic braking mechanism, the combination with a main air-pipe, of primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve provided with a slide-valve, the preliminary travel of which admits air to the brake-cylinder from both reservoirs and whose further travel locks the contained air in the reservoirs and subsequently effects a second admission of air to the brake-cylinder from the primary auxiliary reservoir only.

3. In an automatic fluid-pressure brake mechanism, the combination with main and supplemental piston-chambers and primary and secondary reservoirs connected therewith, of pistons in the piston-chambers, a main air-pipe having direct open communication with the piston-chambers, its

pressure being exerted against the pistons therein, passages connecting the brake-cylinder and the secondary auxiliary reservoir, respectively, with the supplemental piston-chamber on either side of the piston therein, whereby the secondary reservoir normally opposes an equal pressure to the train-pipe pressure in the supplemental piston-chamber, a valve normally closing the passage from the supplemental chamber to the brake-cylinder, and means whereby to cause the pressure of the air in the secondary reservoir to actuate the piston in the supplemental chamber whereby to open the valve and permit the train-pipe pressure to exhaust into the brake-cylinder.

4. In an automatic brake mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs and a brake-cylinder, of a triple valve provided with a supplemental chamber, said chamber having direct open connections with the main air-pipe, and the secondary reservoir and in communication with the brake-cylinder, respectively, an emergency-valve controlling the communication between the main air-pipe and the brake-cylinder passages, a piston reciprocating in said supplemental chamber, said emergency-valve and piston being so constructed that, operating together, they admit air from the main air-pipe to the brake-cylinder and retain it therein.

5. In an automatic brake mechanism, the combination with primary and secondary reservoirs, of a triple valve provided with main and supplemental piston-chambers, and pistons therein, passages connecting the primary and secondary reservoirs with the main and supplemental piston-chambers, respectively, a slide-valve in the passage connecting the main piston-chamber with the primary reservoir, the valve provided with ports, a brake-cylinder, a brake-cylinder passage leading between the brake-cylinder and the slide-valve chamber, passage in the triple valve leading between the secondary reservoir and the slide-valve chamber to permit the air in both reservoirs to enter the brake-cylinder passage, during service applications of the brake, an exhaust-passage, the slide-valve governing communication between the reservoirs and the brake-cylinder and the exhaust.

6. In an automatic brake mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve, of a slide-valve operating in said triple valve, passages in said triple valve for the admission and exhaust of air to and from the auxiliary reservoirs and to and from the brake-cylinder, said slide-valve governing communication between said passages, a supplemental chamber, a piston operating therein, an emergency-valve in the rear of said piston, the operation of which is dependent upon said piston, passages from said chamber to the brake-cylinder, the main air-pipe and the secondary reservoir, respectively, a port in the rear of said supplemental chamber governed by said emergency-valve, a main piston-chamber provided with a piston and rod, a slide-valve chamber in which said piston-rod reciprocates, a slide-valve in said slide-valve chamber, said rod adapted to operate said slide-valve, means for retaining said slide-valve in its seat, a port in said valve-seat communicating with said secondary reservoir, said slide-valve adapted to open and close said port whereby to admit the pressure of air in the secondary reservoir to the brake-cylinder or to retain it in the reservoir.

7. In an automatic brake mechanism, the combination with a main air-pipe, of primary and secondary reservoirs, a brake-cylinder and a triple valve device, having main and supplemental chambers, pistons in said chambers, said reservoirs of unequal capacity and adapted jointly to raise the brake-cylinder pressure to the maximum in service applications of the brake and to act separately in emergency braking, the primary or larger reservoir to act in conjunction with air vented from the main air-pipe to raise the brake-cylinder pressure to maximum and the secondary or smaller reservoir to act on said supplemental piston, and an emergency-valve controlled by said supplemental piston, and governing the admission of air from the main air-pipe to the brake-cylinder.

8. In an automatic brake mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve device, provided with a main piston-chamber, a piston operating therein, a piston-rod, a main slide-valve chamber affording communication between the primary reservoir and the main piston-chamber, of a supplemental piston-chamber, independent of the main piston and slide-valve chambers, a piston operating therein, a valve-chamber leading from said supplemental piston-chamber to said brake cylinder likewise independent of the slide-valve chamber, an emergency-valve for said valve-chamber, controlled by said supplemental piston and governing the admission of air from the main air-pipe to the brake-cylinder, a check-valve for preventing the return of air from the brake-cylinder, and passages from the secondary reservoir and the main air-pipe to the supplemental piston-chamber.

9. In an automatic brake mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve, of main and supplemental piston-chambers, pistons and piston-rods therein, a slide-valve chamber in which said main piston-rod reciprocates, passages leading to and from said slide-valve chamber to the secondary reservoir, the brake-cylinder the exhaust and the supplemental piston-chamber, respectively, a slide-valve in said slide-valve chamber provided with ports governing the admission and exhaust of air to and from said passages, said supplemental chamber having a valve-chamber connecting with the brake cylinder, an emergency-valve operated by said supplemental piston and governing the admission of air to the brake-cylinder from the main air-pipe, passages communicating with the supplemental piston-chamber and the main air-pipe and secondary reservoir, respectively, said supplemental piston only reciprocated in emergency braking by the pressure of the air on the piston from the secondary reservoir, said pressure being locked out of the main slide-valve chamber by the movement of the slide-valve.

10. In an automatic braking mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve device provided with main and supplemental piston-chambers, pistons and piston-rods for said chambers, valve-chambers connecting said main and supplemental piston-chambers with the primary reservoir and the brake-cylinder, respectively, a passage connecting said primary and secondary reservoirs through the medium of the main slide-valve chamber, a passage leading from said main valve-chamber to the brake-cylinder, a slide-valve in said main valve-chamber controlling the communication between the two reservoirs and the brake-cylinder, whereby in emergency braking, the flow of air from both reservoirs is cut off from the brake-cylinder and reëstablished from the primary reservoir alone, connections between the main air-pipe and the main and supplemental chambers, and a passage from the secondary reservoir to the supplemental piston-chamber.

11. In an automatic brake mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve, provided with main and supplemental piston-chambers, of pistons and rods reciprocating therein, main slide-valve and valve chambers communicating with the main and supplemental piston-chambers and the primary and secondary reservoirs, respectively, an emergency-valve in said supplemental valve-chamber, said valve controlled by the supplemental piston and governing communication between said supplemental piston-chamber and the brake-cylinder, a slide-valve in said main slide-valve chamber, passages connecting the slide-valve chamber with the secondary reservoir and the brake-cylinder, respectively, and governed by the slide-valve, whereby the two reservoirs may be used in service braking.

12. In an automatic braking mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve device, of main and supplemental piston-chambers in said triple valve, pistons in said chambers, a slide-valve chamber connecting the primary reservoir with the main piston-chamber, a piston-rod in said slide-valve chamber, capable of a limited independent movement, a slide-valve operated by said rod, ports in said valve, a valve-chamber connecting the supplemental piston-chamber and the brake-cylinder, a passage from said supplemental valve-chamber to said main slide-valve chamber, a passage from the secondary reservoir communicating with the main slide-valve chamber and the supplemental piston-chamber, respectively, the main slide-valve governing the passages to and from the main valve-chamber and an emergency-valve in said supplemental valve-chamber controlling communication between the supplemental piston-chamber and the brake-cylinder, said emergency-valve having a stem receivable in the supplemental piston-rod.

13. In an automatic braking mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve device, of main and supplemental piston-chambers, pistons and piston-rods in said chambers, a slide-valve chamber connecting the primary reservoir and the main piston-chamber, a slide-valve operated by said main piston-rod, ports in said valve, a valve-chamber connecting the supplemental piston-chamber and the brake-cylinder, a passage from said supplemental valve-chamber to said main slide-valve chamber, a passage from the secondary reservoir communicating with the main slide-valve chamber, said passages governed and controlled by said main slide-valve, communication between the secondary reservoir and the supplemental piston-chamber, an emergency-valve in said supplemental valve-chamber controlling communication between the supplemental piston-chamber and the brake-cylinder, said emergency-valve having a stem receivable in the supplemental piston rod and a spring coiled around said valve-stem for maintaining the valve in its seat.

14. In an automatic brake mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve, of main and supplemental piston-chambers with pistons and rods operating therein, a slide-valve chamber affording communication between the main piston-chamber and the primary auxiliary reservoir, a slide-valve in said slide-valve chamber, ports in said valve, a graduating-valve secured on the piston-rod and adapted to open and close said ports, means for retaining said slide-valve in its seat, passages opening

into the slide-valve chamber and controlled by said slide-valve, whereby communication between the two reservoirs, and between the exhaust and the brake-cylinder is governed, a supplemental valve-chamber affording communication between the supplemental piston-chamber and the brake-cylinder, an emergency-valve controlling the admission of air to said valve-chamber, said emergency-valve caused to operate by the movement of the supplemental piston, a passage connecting the supplemental piston-chamber and the secondary reservoir, and passages connecting the main air-pipe with the main and supplemental piston-chambers.

15. In an automatic fluid-pressure brake mechanism, the combination with a train-pipe, a brake-cylinder, primary and secondary reservoirs and a triple valve provided with main and supplemental piston-chambers, independent of each other, of pistons and piston-rods therein, a slide-valve chamber affording communication between the primary reservoir and the main piston-chamber, a passage connecting the supplemental piston-chamber with the secondary reservoir, a brake-cylinder passage leading from the brake-cylinder to the slide-valve chamber, a second passage connecting the brake-cylinder with the supplemental piston-chamber, a slide-valve in the valve-chamber governing the admission and exhaust of power to and from the brake-cylinder, ports admitting power from the train-pipe to the main and supplemental piston-chambers, and a valve in the passage connecting the supplemental piston-chamber with the brake-cylinder whereby in emergency braking the power in the secondary reservoirs is utilised to open the valve and permit power from the train-pipe to escape from the supplemental piston-chamber to the brake-cylinder.

16. In an automatic fluid-pressure brake mechanism, the combination with a triple valve provided with main and supplemental piston-chambers and pistons therein, primary and secondary auxiliary reservoirs connected, respectively, with the main and supplemental piston-chambers by passages, a brake-cylinder, and passages connecting the brake-cylinder with the passage leading between the main piston-chamber and the primary reservoir, and the supplemental piston-chamber respectively, of a valve in the last-named passage, the valve directly operated by the supplemental piston, ports leading from the train-pipe to the main and supplemental piston-chambers, a passage permitting the flow of air to the brake-cylinder from the secondary reservoir in service braking, and a valve which closes this passage during emergency actions of the brake whereupon the air in the secondary reservoir exerts its pressure against the piston in the supplemental piston-chamber to open the valve controlled by the piston and permit the entrance of air from the train-pipe to the brake-cylinder.

17. In an automatic brake mechanism, the combination with a main air-pipe, brake-cylinder, primary and secondary auxiliary reservoirs, and a triple valve provided with main and supplemental piston-chambers, of pistons and piston-rods therein, valve-chambers connecting the primary auxiliary reservoir and the brake-cylinder, respectively, with said piston-chambers, valves controlling the flow of fluid through the valve-chamber, said supplemental piston-head having a hollow piston-rod, a rubber-seated emergency-valve controlling the admission of air to the supplemental valve-chamber, the stem of said valve being loosely received within the hollow piston-rod and therein secured from disengagement, the opposite end of the piston-rod being closed by a removable plug.

18. In an automatic braking mechanism, the combination with a main air-pipe, primary and secondary auxiliary reservoirs, a brake-cylinder and a triple valve, provided with main and supplemental piston-chambers, pistons and piston-rods, of valve-chambers, connecting the primary auxiliary reservoir and the brake-cylinder, respectively, with the piston-chambers, slide and emergency valves in said valve-chambers, passages connecting the main air-pipe with the piston-chambers, the primary and secondary reservoirs with the brake cylinder and with each other, an auxiliary reservoir in the head of the triple valve, passages connecting the secondary reservoir with the auxiliary reservoir, said auxiliary reservoir in the head of the triple valve constructed for the storage of pressure from the secondary reservoir against the head of the supplemental piston.

19. In a fluid-pressure braking mechanism, the combination with a triple valve provided with main and supplemental piston-chambers, of reservoirs, passages connecting the reservoirs with their respective piston-chambers, a slide-valve in the passage connecting the primary reservoir with the main piston-chamber, a brake-cylinder, ports connecting this slide-valve passage with the exhaust, the brake-cylinder and the secondary reservoir, the port connecting the secondary reservoir and the slide-valve passage being open both normally and in service braking whereby the air in both reservoirs is permitted to equalise and is utilised in service braking, but which air in the secondary reservoir is shut out of the brake-cylinder in emergency actions of the brake.

20. In a fluid pressure braking mechanism, the combination with a triple valve provided with main and supplemental piston-chambers, ports connecting the chambers with the main air-pipe, primary and secondary reservoirs communicating with their respective piston-chambers, a slide-valve in the passage connecting the main piston-chamber and the primary reservoir, a brake-cylinder, an exhaust, ports affording communication between the slide-valve passage and the brake-cylinder, the exhaust and the secondary reservoir, respectively, the slide-valve governing the ports, a port in the extreme end of the slide-valve, a passage connecting the brake-cylinder with the supplemental piston-chamber and means for normally closing this passage, whereby in emergency braking, the port in the slide-valve registers with the passage leading to the brake-cylinder, the slide-valve closing the exhaust-passage and that leading to the secondary reservoir thus causing the pressure in the secondary reservoir to open the passage from the supplemental chamber to the brake-cylinder.

21. In a fluid-pressure brake mechanism, the combination with reservoirs and a brake-cylinder, of means whereby the air from the reservoirs only is used to retard the speed in service braking, and supplemental means, the air in one of said reservoirs being utilized to operate the supplemental means whereby to cause the train-pipe air to combine with the air from the other of said reservoirs in emergency braking, the first-named means operating to prevent the air from one of the reservoirs from escaping to the brake-cylinder.

22. In a fluid-pressure brake mechanism, the combination with air-reservoirs and a triple valve provided with two chambers pistons in said chambers, adapted to reciprocate therein, the pistons normally held at the opposite extremities of their travel, means for operating one of the pistons whereby air from both reservoirs may act upon the brake gradually to the maximum pressure obtainable and means whereby air from the train-pipe acts in conjunction with air from one only of the reservoirs to operate the brakes at their maximum pressure.

23. In a fluid-pressure brake mechanism, the combination with reservoirs of a triple valve provided with piston-chambers, and pistons therein, train pipe connections with each of said chambers, means of communication between the brake-cylinder and the primary reservoir, means of communication between the supplemental piston-chamber and the brake-cylinder, whereby the air from the primary reservoir may act upon the brakes in conjunction with air from the train-pipe in emergency braking, the air in the second auxiliary reservoir utilized to aid in replenishing the primary reservoir after the release of the brakes.

24. In an automatic fluid-brake mechanism, the combination with a triple valve, primary and secondary reservoirs, main and supplemental piston-chambers in the triple valve, pistons in the piston-chambers, of passages connecting the primary reservoir with the main piston-chamber and the secondary reservoir with the supplemental piston-chamber, passages connecting the brake-cylinder with the supplemental piston-chamber and with the passage leading between the primary reservoir and the main piston-chamber, a slide-valve in the passage leading from the primary reservoir to the main piston-chamber, the slide-valve governing the entrance of air from the secondary reservoir to the brake-cylinder, an emergency-valve governing the passage leading from the supplemental piston-chamber to the brake-cylinder and a check-valve for closing this passage to retain the air in the brake-cylinder.

25. In an automatic fluid-pressure brake mechanism, the combination with a triple valve provided with main and supplemental piston-chambers, and primary and secondary reservoirs, of passages affording communication between each of the reservoirs and each of the piston-chambers, respectively, passages permitting communication between the reservoirs, an emergency-valve being operated by pressure from the secondary reservoir, a brake-cylinder to which pressure from the train-pipe is permitted to flow when the emergency-valve is operated and a check-valve for preventing the return of air from the brake-cylinder.

26. An automatic brake mechanism comprising a triple valve, primary and secondary auxiliary reservoirs, main and supplemental piston-chambers connected with the primary and secondary auxiliary reservoirs, respectively, the two reservoirs coöperating to set the brakes in a service application, a main air-pipe having direct communication with the chambers, a passage leading from the supplemental piston-chamber to the brake-cylinder, an emergency-valve controlling this passage, a check-valve which normally closes the passage, the air from both reservoirs entering the brake-cylinder during a service application of the brakes, and the air from the primary reservoir only together with train-pipe air entering the brake-cylinder during an emergency application of the brakes.

27. In a fluid-pressure braking mechanism, the combination with a triple valve provided with main and supplemental piston-chambers, pistons and piston-rods therein, primary and secondary reservoirs connected to the main piston-chamber by means of a slide-valve chamber and a passage connecting the secondary reservoir with the supplemental piston-chamber of a brake-cylinder, passages connecting the brake-cylinder with the supplemental piston-chamber, and the slide-valve chamber, a passage affording communication between the two reservoirs, a slide-valve mounted on the main piston-rod and located in the slide-valve chamber, the slide-valve governing the entrance of air from the secondary reservoir to the brake-cylinder, and adapted to permit the maximum braking-pressure to be obtained in service braking by the combined pressures in the pri-

mary and secondary reservoirs by consecutive reductions of the train-pipe pressure.

28. The combination, in an automatic fluid-pressure braking mechanism, with a triple valve, main and supplemental piston-chambers provided with pistons therein, primary and secondary reservoirs communicating with the main and supplemental piston-chambers, respectively, ports in the chambers leading to main air-pipe and a brake-cylinder, of means for permitting the exhaust of air into the brake-cylinder from both reservoirs during service braking, and means whereby to prevent the exhaust of air from the secondary reservoir to the brake-cylinder in emergency braking.

29. In a brake mechanism, the combination with a train-pipe and brake-cylinder, of a triple valve having main and supplemental pistons and piston-chambers, a graduating-stem and spring, primary and secondary auxiliary reservoirs connecting with the triple valve and a graduating-valve operating to admit air from both primary and secondary auxiliary reservoirs to brake-cylinder, the graduating-valve, aided by the tension of said spring acting on said graduating-stem to retard or prevent the extreme travel of the main piston in service braking, said graduating-valve becoming inoperative in emergency braking.

30. In a fluid-pressure braking mechanism, the combination with triple and auxiliary valve devices provided with main and supplemental pistons and piston-chambers, of primary and secondary reservoirs connected to and having communication with the triple and auxiliary valve devices and with each other, respectively, means whereby the auxiliary-valve device is held inoperative during service applications of the brake, pressure from the secondary reservoir aiding the primary reservoir in said service applications, means operated by the main piston and actuated by the pressure in the primary auxiliary reservoir whereby the open communication between the two reservoirs is closed during emergency applications of the brakes, and means whereby to recharge the secondary reservoir simultaneously with the primary reservoir through the triple-valve device.

31. In a fluid-pressure braking mechanism, the combination with triple and auxiliary-valve devices, provided with main and supplemental pistons and piston-chambers, primary and secondary reservoirs connected to and having communication with the triple and auxiliary valve devices and with each other, respectively, a brake-cylinder and means of communication between the primary reservoir and the brake-cylinder, of a slide-valve located on the main piston, ports in the slide-valve, graduating-valve adapted to open or close the ports in the slide-valve, means whereby the auxiliary-valve device is held inoperative during service applications of the brakes, and means to recharge the reservoirs simultaneously through the triple-valve device.

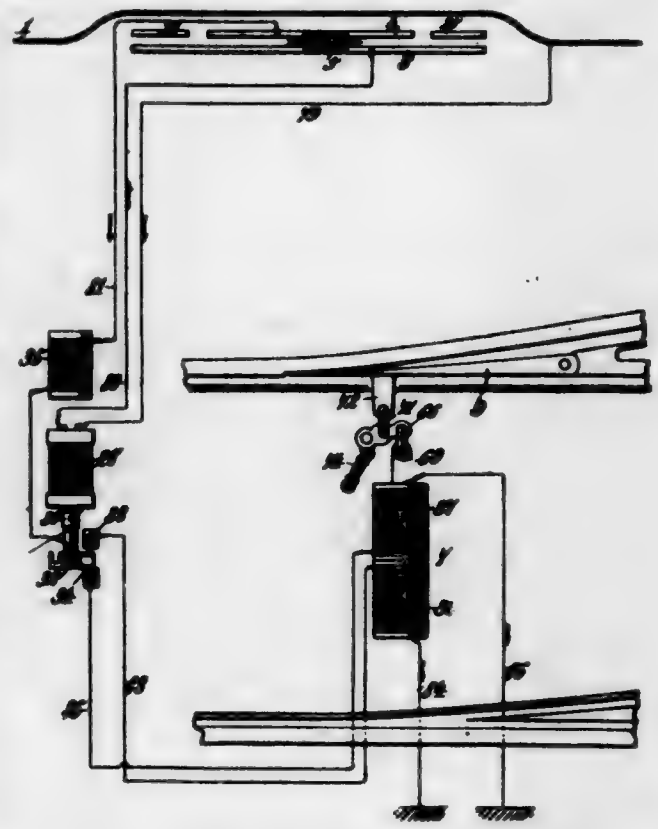
32. In an automatic fluid-pressure braking mechanism, the combination with a triple valve provided with main and supplemental piston-chambers, and primary and secondary auxiliary reservoirs, of passages affording communication between the primary auxiliary reservoir and the main piston-chamber and between the second auxiliary reservoir and the supplemental piston-chamber, respectively, an emergency-valve operated by pressure from the secondary reservoir, a brake-cylinder to which pressure from the train-pipe is permitted to flow when the emergency-valve is operated, and a check-valve for preventing the return of air from the brake-cylinder.

33. An automatic brake mechanism comprising a triple valve, primary and secondary auxiliary reservoirs, main and supplemental piston-chambers connected therewith, pistons therein, a main air-pipe having direct communication with the piston-chambers, means for feeding air to the reservoirs from the main air-pipe, a passage from the supplemental piston-chamber to the brake-cylinder, an emergency-valve controlling this passage, the emergency-valve controlled by the piston in the supplemental piston-chamber, the train-pipe air entering the supplemental piston-chamber behind the piston whereby to retain the emergency-valve in a closed position, a check-valve, means whereby a service reduction of pressure in the main air-pipe will permit the entrance of air from both reservoirs to the brake-cylinder, and means whereby an emergency reduction of pressure in the train-pipe will permit the entrance of air from the primary auxiliary reservoir only in combination with air from the train-pipe to the brake-cylinder, the exhaust of air from the train-pipe tending to insure the effectiveness of the emergency application of the brakes since the exhaust of train-pipe air behind the piston prevents the emergency-valve from returning to closed position.

696,318. ELECTRICALLY-CONTROLLED RAILWAY-SWITCH.

ROBERT V. CHEATHAM, Louisville, Ky., assignor to Cheatham Electric Switching Device Co., Louisville, Ky., a Corporation of Kentucky. Filed Dec. 5, 1901. Serial No. 84,799. (No model.)

Claim.—1. In an electrically-controlled switch-operating mechanism, a trolley-wire having an upwardly-deflected portion, parallel contact-strips arranged adjacent thereto, a trolley-wheel adapted to pass in a straight line from said trolley-wire to said contact-strips and make electrical connections between the same, a circuit-changer comprising a vertically-disposed magnet, a contact-plate connected with the armature of said magnet, two contact-points between which said contact-plate is movable, one of which serves normally as a support for said contact-plate and the armature by which it is carried, a double solenoid, a core therefor, a switch-point connected with and adapted to be operated by said core, circuit connections between said trolley-wire and one of said contact-strips which include said magnet, circuit connections between the other of said contact-strips and said contact-plate, and ground connections from said contact-points and including, respectively, the coils of said solenoid.



2. In an electrically-controlled switch-operating mechanism, the combination with a trolley-wire, a circuit-changer, a double solenoid, a switch-point and connections between said switch-point and the core of said solenoid, of a contact-block comprising a frame, clamps for the trolley-wire at opposite ends thereof, means for deflecting said trolley-wire upwardly between said clamps, contact-strips between said clamps adapted to be engaged by the flanges of a trolley-wheel and to be electrically connected with each other through said wheel, and circuit connections between said trolley-wire, said contact-strips, said circuit-changer and said solenoid, as and for the purpose set forth.

3. In an electrically-controlled switch-operating mechanism, the combination with a trolley-wire, a circuit-changer, a double solenoid, a switch-point and connections between said switch-point and the core of said solenoid, of a contact-block comprising a frame made up of parallel side strips, clamps at the ends of said frame, deflecting-blocks secured to said side strips between said clamps having grooves therein and contact-strips secured to the inner surfaces of said side strips, and circuit connections between said trolley-wire, said contact-strips, said circuit-changer and said solenoid.

4. In an electrically-controlled switch-operating mechanism, the combination with a trolley-wire, a circuit-changer, a double solenoid, a switch-point and connections between said switch-point and the core of said solenoid, of a contact-block comprising a frame made up of parallel side strips, trolley-wire clamps at the ends of said frame, deflecting-blocks for the trolley-wire secured to said side strips adjacent to said clamps having convex upper surfaces provided with grooves and angularly-arranged contact-strips secured to the inner surfaces of said side strips, and circuit connections between said trolley-wire, said contact-strips, said circuit-changer and said solenoid.

5. In an electrically-controlled switch-operating mechanism, the combination with a trolley-wire, a circuit-changer, a double solenoid, a switch-point and connections between said switch-point and the core of said solenoid, of a contact-block comprising a frame made up of parallel side strips, deflectors for the trolley-wire intermediate the ends of said frame, contact-strips secured to the inner surface of said side strips beneath said deflectors and trolley-wire, clamps at the ends of said frame, each of said clamps comprising two members, one of which is secured to said side strips and has a central groove or channel therein with an in-

clined bottom wall and bosses adjacent to said channel and the other member of which is provided with a tongue which fits within said channel and has a groove in its lower edge, ears projecting laterally from said tongue providing means for securing said tongue in place and an extension projecting outwardly from said tongue and provided with a grooved lower edge which receives the trolley-wire, and circuit connections between said trolley-wire, said contact-strips, said circuit-changer and said solenoid.

6. In an electrically-controlled switch-operating mechanism, the combination with a trolley-wire, parallel contact-strips adjacent thereto, a trolley-wheel adapted to pass from said trolley-wire to said strips and form electrical connections between the two, a double solenoid and a switch-point connected with and adapted to be operated by the core of said solenoid, a vertically-disposed solenoid-magnet, a contact-plate secured to and insulated from the core of said magnet, contact-points between which said contact-plate is movable and on one of which said plate and the core by which it is carried is normally supported, a resistance-coil, circuit connections between said trolley-wheel and one of said contact-strips including said magnet, circuit connections between the other of said contact-strips and said contact-plate including said resistance-coil, and ground connections from said contact-points which include, respectively, the coils of said double solenoid.

7. The combination with a pivotally-mounted switch-point, of a double solenoid, a lever connected with the core of said solenoid, a link connection between said lever and said switch-point, a crank-arm on said lever, a fixed bracket, a two-part extensible rod, the members of which are pivoted respectively to said bracket and to said crank-arm and are provided with shoulders, and a spring surrounding said rod and acting upon said shoulders for extending said rod, and thereby retaining said lever and said switch-point at the limits of their movements in opposite directions.

8. The combination with a pivotally-mounted switch-point and a lever connected therewith for operating it, of a pivot-stud for said lever having a tapering lower end, and a transverse slot extending therethrough, a post or standard having a transverse slot therein and a tapering opening in which said stud fits and a wedge-shaped key adapted to be introduced through the slot in said post and through the slot in said stud for forcing and maintaining said stud in place, and also adapted to be introduced into the slot in said post and beneath the lower end of said stud for removing the latter from its seat.

9. In an electrically-controlled switch-operating mechanism, the combination with a pivotally-mounted switch-point, a double solenoid and intermediate connections between the core of said solenoid and said switch-point, whereby the latter is operated, of an underground box or casing having a removable lid or cover, an inner box or casing in which said solenoid is located, the said inner box or casing comprising a cylindrical or tubular body, annular heads connected to the opposite ends thereof by taper threads, and a tube extending centrally through the inner box and secured to one of said heads by taper threads, and a rubber packing-ring lying in close contact with the projecting end of said tube and embracing a flange or extension on the other of said heads.

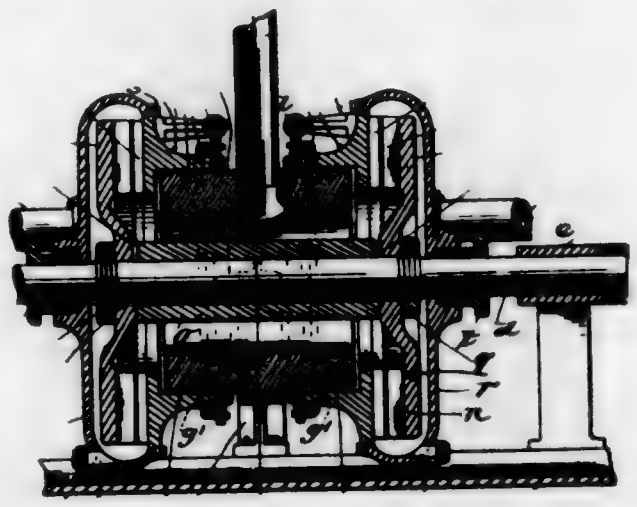
10. In an electrically-controlled switch-operating mechanism, the combination with a pivotally-mounted switch-point, a double solenoid and intermediate connections between the core of said solenoid and said switch-point, whereby the latter is operated, of an underground box or casing having a removable lid or cover, an inner box or casing in which said solenoid is located, the said inner box or casing comprising a cylindrical or tubular body, annular heads connected to the opposite ends thereof by taper threads, and a tube extending centrally through the inner box and secured to one of said heads by taper threads, a rubber packing-ring lying in close contact with the projecting end of said tube and embracing a flange or extension on the other of said heads, and a cap for protecting said packing-ring.

11. In an electrically-controlled switch-operating mechanism, the combination with a pivotally-mounted switch-point, a double solenoid and intermediate connections between the core of said solenoid and said switch-point, whereby the latter is operated, of an underground box or casing having a removable lid or cover, an inner box or casing in which said solenoid is located, the said inner box or casing comprising a cylindrical or tubular body, annular heads connected to the opposite ends thereof by taper threads, and a tube extending centrally through the inner box and secured to one of said heads by taper threads, a rubber packing-ring lying in close contact with the projecting end of said tube and embracing a flange or extension on the other of said heads, a cap for protecting said packing-ring secured to the head 48 of said box and having an inwardly-extending flange at its outer end, and a washer held in contact with the end of said tube by said flange.

12. In an electrically-controlled switch-operating mechanism, the combination with a pivotally-mounted switch-point, a double solenoid and intermediate connections between the core of said solenoid and said switch-point, whereby the latter is operated, of an underground box or casing having a removable lid or cover and provided with ledges or projections on the bottom thereof, an inner box or casing in which said solenoid is mounted, located between said ledges or projections and held from longitudinal movement thereby, said inner box or casing comprising a tubular or cylindrical body and annular heads at the opposite ends thereof, a collar located between said solenoid and one of said heads, and a spring located between said solenoid and the other of said heads, the said collar and spring serving to maintain said solenoid in central position.

13. In an electrically-controlled switch-operating mechanism, the combination with a pivotally-mounted switch-point, a double solenoid and intermediate connections between the core of said solenoid and said switch-point, whereby the latter is operated, of an underground box or casing having a removable lid or cover, an inner box or casing in which said solenoid is mounted, said inner box being closed at all points, a junction-box secured to the end of said inner box or casing and located within said outer box or casing, wires connected respectively with the two coils of said double solenoid and extending outwardly into said junction-box, circuit-wires leading from a source of energy into said junction-box, a pipe in which the latter circuit-wires are inclosed extending through said outer box or casing and secured to said junction-box, a cap for closing the open end of said junction-box, and a hood of insulating material having a diaphragm or partition therein dividing the same into two compartments, and clips or connectors in each of said compartments for connecting the terminals of the two sets of wires one with the other.

696,314. PULP-REFINING ENGINE. GEORGE A. CLARK, Holyoke, Mass. Filed Jan. 20, 1902. Serial No. 90,575. (No model.)



Claim.—1. A pulp-refining engine comprising a hollow cylindrical body, a supply-pipe for pulp communicating with the interior of the body, a circular bed-plate mounted upon the opposite ends of said body; a shaft passing axially through the latter; two circular beater-heads mounted upon said shaft and constituting substantially a closure for the said hollow cylindrical body, a casing for inclosing each of said heads and bed-plates, means of adjustment between the said heads and said bed-plates, and means for rotating said shaft.

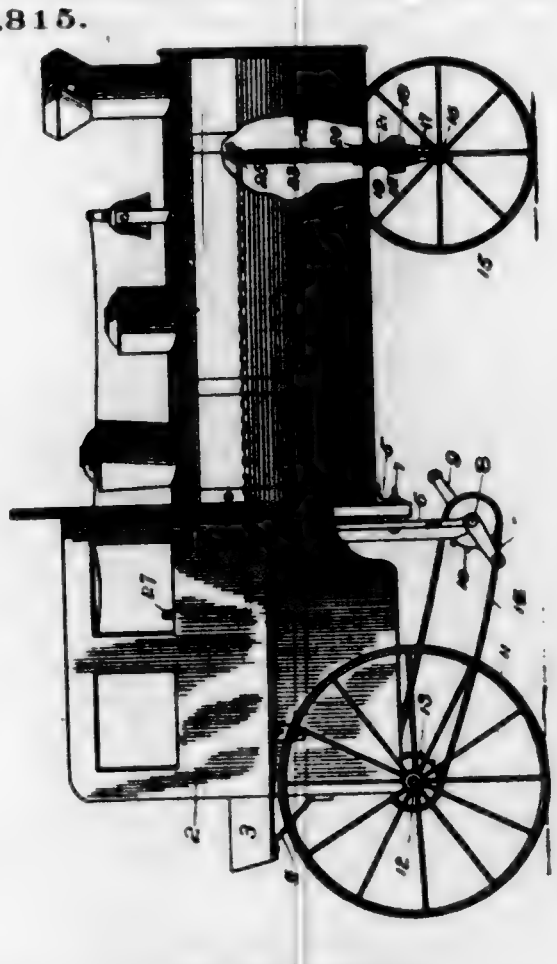
2. In a pulp-refining engine, a hollow cylindrical body, a supply-pipe for pulp located midway between its ends, suitable pulp-refining devices located at each end of said body, and operating in planes at right angles to the axis of said body, whereby the endwise pressure against the said refining devices at one end of said body may be counterbalanced by the oppositely-acting pressure on the other.

696,315. TOY ENGINE. JAMES F. COOPER, Denver, Colo., assignor of one-half to John B. Williams, Denver, Colo. Filed Oct. 27, 1899. Serial No. 734,933. (No model.)

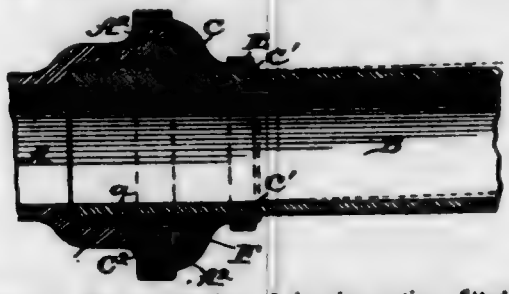
Claim.—1. A toy, comprising a body consisting of a forwardly-extending hollow part and a seating-cab located at the rear of the hollow part, pilot-wheels pivoted to the hollow part, and steering mechanism connecting with the pilot-wheels and extending through the hollow part to a point adjacent the seating-cab.

2. A toy comprising a body consisting of a forwardly-extending hollow part, a seating-cab having an opening in the floor, located at the rear of the hollow part, pilot-wheels pivoted to the hollow part, steering mechanism connected with the pilot-wheels and extending through the hollow part to a point adjacent to the seating-cab, driving-wheels, and mechanism connecting with the driving-wheels, disposed beneath the opening in the floor of the seating-cab and adapted to be operated to propel the toy.

696,815.



696,316. PIPE OR MAIN. WILLIAM S. CORBIN, Johnstown, N.Y. Filed Aug. 9, 1901. Serial No. 71,485. (No model.)



Claim.—1. The combination of the pipe-sections fitted together, and one of the sections having a bell or socket at one end fitting over the end of the other section, the ductile metallic sealing-jacket, made in the form of a bell with its sides curved on compound curves and with its larger end fitting upon the outer side of the mouth of the bell of the pipe-section, and its smaller end fitting upon the pipe-section fitting in said bell, and the clamping-bands fitting around the sealing-jacket at the ends thereof and clamping said ends into sealing contact with the parts which they embrace, substantially as set forth.

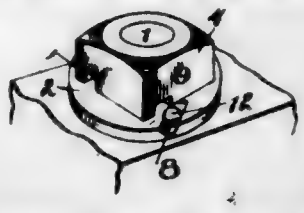
2. The combination of the pipe-sections, one of which is formed with a bell, and the end of the other section being fitted in said bell, and the ductile metallic sealing-jacket made larger at one end than at the other and fitting at its large end upon the mouth of the bell and at its small end upon the pipe-section fitting in said bell, and clamping devices by which the ends of the jacket are secured in sealing contact upon the parts which they embrace, substantially as set forth.

3. The pipe-section provided at its end with a bell and having an outwardly-projecting bead or portion at the mouth of said bell, the pipe-section fitting at its end in the bell, and the ductile metallic sealing-jacket secured at one end upon the outwardly-projecting bead of the bell, reduced in diameter toward its opposite end and secured at such end upon the pipe-section which fits within the bell, substantially as set forth.

4. The pipe-sections, one of which has a bell fitting around the end of the other section, combined with a ductile metallic sealing-jacket made larger at one end than at the other, means securing the large end of the jacket in sealing contact with the bell of one of the pipe-sections, and means for securing the smaller end of the sealing-jacket in sealing contact with the pipe-section which fits within the bell, substantially as set forth.

5. As an improvement in pipes and mains the section A having at one end a socket to receive the section B, the section B fitting in one end in said socket, the packing *a* for the joint between the said sections A and B, the bell-shape sealing-jacket of ductile material having its larger end fitting upon the socketed end of the section A and its smaller end fitting upon the clamping-bands fitting around the sealing-jacket at its opposite ends, all substantially as described whereby in case of any displacement or injury to the seal *a* the ductile jacket will prevent leakage at the joint so injured substantially as set forth

696,317. NUT-LOCK. JAMES C. CULBERTSON, Gobeonville, Pa. Filed Dec. 7, 1901. Serial No. 85,092. (No model.)



Claim.—1. An improved nut-lock, comprising a washer provided with a groove, and a nut having a recess extending in a direction substantially transverse the groove, the recess having an inner end wall, and an outer open end, substantially as described.

2. An improved nut-lock, comprising a washer provided with a groove, and an angular nut having at each corner a recess extending in a direction substantially transverse said washer-groove, said recesses having an inner end wall and an open outer end, and a locking member in the groove and adapted to be inclosed with one of said recesses by the turning of said nut, substantially as described.

3. An improved nut-lock comprising a washer provided with a plurality of recesses, a nut having a plurality of recesses, the recesses in the nut extending thereinto in the direction of rotation when the nut is being screwed up and substantially transverse the washer-recesses, each recess having an open outer end and an inner end wall, and a locking member adapted to be placed within the washer-recess and inclosed by one of the nut-recesses when the latter is turned in a direction to unscrew it, substantially as described.

696,318. FIREARM. ORLAN C. CULLEN, Waterlick, Va., assignor to Elizabeth Douglas Cullen, Waterlick, Va., and Edward Willoughby Anderson, Washington, D. C. Filed Dec. 14, 1899. Serial No. 740,318. (No model.)



Claim.—1. A gun having, in the wall of its bore spiral inclosing grooves carrying ball-bearings, substantially as specified.

2. A gun having, in the wall of its bore, spiral grooves, carrying ball-bearings, and provided with recoil-cushions at their forward ends, substantially as specified.

3. A gun having, in the wall of its bore spiral grooves of circular cross-section communicating with the bore by comparatively narrow spiral slots, substantially as specified.

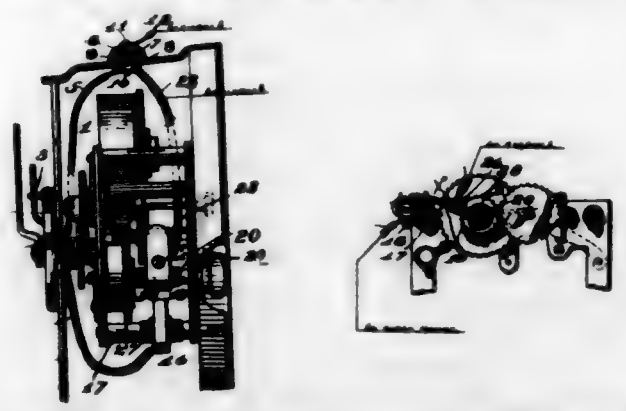
4. A gun having, in the wall of its bore, spiral grooves of circular cross-section, terminating in cushion-seats at their forward ends, and communicating with the bore by comparatively narrow spiral slots, substantially as specified.

5. A gun having its cylinder-wall provided with spiral inclosing grooves, and their slots of communication, the recoil-cushions at the ends of said grooves, the ball-bearings, and the screw-cap or stop at the ends of the grooves, substantially as specified.

6. In a gun, the combination with inclosing grooves or seats in the cylinder, of ball-bearings projecting slightly from said grooves or seats, substantially as specified.

7. A gun having the bore provided with grooves or seats, and in such grooves or seats, rotary bearings adapted to engage a smooth cylinder projectile in its passage through said bore, substantially as specified.

696,819. TIME CIRCUIT-CLOSER. DAVID L. DEMOREST, Tacoma, Wash. Filed Feb. 16, 1901. Serial No. 47,698. (No model.)



Claim.—1. A mechanism for making or breaking a circuit at a given time, comprising a suitable clock mechanism, a contact-path on the face of the clock beneath the hands thereof, a movable contact device adapted to be engaged and made to travel on said path by one of the hands of the clock, and means for connecting the said contact device with a source of electricity and means for connecting the arbor of the clock-hand with said source of electricity, whereby the circuit will be closed when the said hand comes against the said contact device.

2. A mechanism for making and breaking an electric circuit comprising a clock mechanism, a movable contact arranged in the path of one of the clock-hands, contact plates or springs adapted to be controlled by the alarm mechanism of the clock, and suitable conductors for connecting the parts, the structure being such that the making or breaking of the circuit may be controlled both by the clock-hand and by the alarm mechanism so that when the hand of the clock engages the contact on the clock-face, the circuit may be closed, and when the alarm mechanism of the clock is released the circuit may be automatically opened.

3. In a circuit making and breaking device, the combination with an ordinary alarm-clock mechanism, of a circular contact mounted on the face of the clock, an adjustable contact-block arranged to move thereon, and adapted to be struck by the hand of the clock, and to move around therewith, contact-springs arranged upon the clock-frame and connected to the arbor of the alarm mechanism whereby they will be separated automatically when the alarm mechanism is released, substantially as set forth.

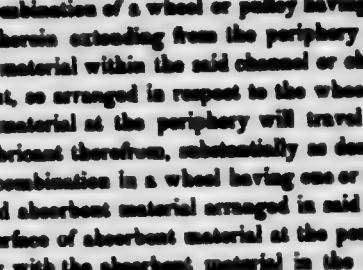
4. In a circuit making and breaking device, the combination with an alarm-clock mechanism, of an insulated conductor mounted on the face of the clock, a contact-block movable thereon and adapted to be struck by the hour-hand of the clock, a wire connecting the said conductor with the piece insulated with respect to the clock-casing, an insulated block for holding the same, a wire connected with a loose ring on the stem of the hour-hand, a spring mounted on the frame of the clock and connected with the said wire, a movable plate secured to the arbor of the alarm mechanism, a wire connecting the same with a piece passing through the casing of the clock, an insulating-block for holding the said piece in position, the structure being such that the hour-hand will be adapted to complete and maintain the circuit until the alarm mechanism is operated, when the circuit will be automatically opened, substantially as set forth.

5. A circuit-breaking device comprising a clock mechanism having an alarm-operating device, a spring-contact carried by the arbor of the said alarm mechanism, a contact-spring mounted on the frame of the clock adapted to be engaged by the arbor-contact when the alarm mechanism is wound and set, and wires connecting the contact-piece with the circuit to be closed, the said spring-plates being separated and the circuit automatically opened when the clock mechanism releases said alarm mechanism, substantially as described.

696,820. WHEEL OR PULLEY. JAMES M. DODGE, Philadelphia, Pa., assignor to the Link Belt Engineering Company, Philadelphia, Pa., a Corporation of Pennsylvania. Filed Dec. 5, 1900. Serial No. 38,826. (No model.)

Claim.—1. The combination of an axle, a traction-wheel having one or more radiating channels therein and absorbent material arranged in said channel or channels and extending from the periphery of the wheel to the axle and packed so as to convey lubricating material from a point at the periphery of the wheel or pulley to the journal or axle, substantially as described.

2. The combination of a wheel or pulley having a series of radiating channels extending from the periphery of the wheel or pulley to the journal or axle, said channels being larger at the periphery than at the hub, substantially as described.



3. The combination of a wheel or pulley having a series of radiating partitions therein forming channels wider at the periphery than at the hub, absorbent material in said channels to form a medium for the conveyance of lubricating material from a point at the exterior of the wheel to the journal or axle, and means for preventing the withdrawal of the absorbent material, substantially as described.

4. The combination of a wheel or pulley having one or more radiating channels extending from the hub to the periphery of the wheel, and three sections of absorbent material in each channel, substantially as described.

5. The combination of a wheel or pulley having an annular groove at its periphery, and having one or more radiating channels extending from the said annular groove to the bearing for the axle or journal, with absorbent material in the annular groove and in the channel or channels, substantially as described.

6. The combination of a wheel or pulley having an annular groove in the hub, an annular groove in the periphery, and one or more channels forming communication between the groove at the hub and the groove at the periphery, and absorbent material within the channels and grooves, substantially as described.

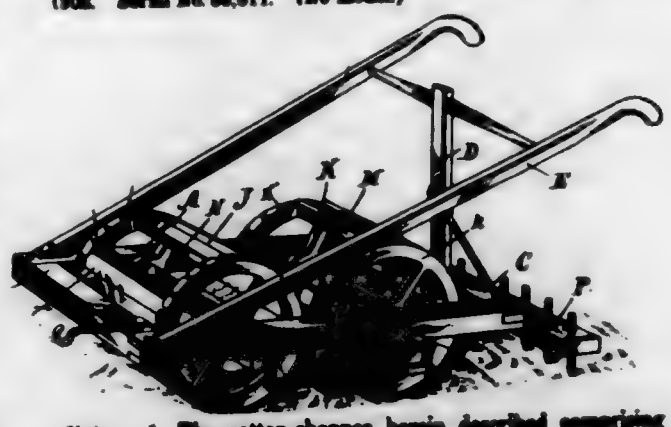
7. As a new article of manufacture, a wheel made of a single casting having a working face and having one or more radiating channels therein extending from the hub to the periphery at one side of the working face, substantially as and for the purpose described.

8. As a new article of manufacture, a wheel made of a single casting having a hub, a tread, a flange and an extension back of the flange, and having one or more radiating channels open at the extension and at the hub, substantially as and for the purpose specified.

9. The combination of a wheel or pulley having one or more radiating channels therein extending from the periphery of the wheel to the hub, absorbent material within the said channel or channels, and a trough for the lubricant, so arranged in respect to the wheel that the surface of the absorbent material at the periphery will travel through the trough and take up lubricant therefrom, substantially as described.

10. The combination in a wheel having one or more radiating channels therein and absorbent material arranged in said channel or channels, an extended surface of absorbent material at the periphery of the wheel communicating with the absorbent material in the channel or channels, whereby lubricant applied to the periphery of the wheel will be conveyed by the absorbent material to the journal or axle, substantially as described.

696,821. COTTON-CHOPPER. ABRAHAM D. BRELL, Clinton, N. C., assignor of one-half to Brutus Cooper, Clinton, N. C. Filed Jan. 13, 1902. Serial No. 89,611. (No model.)



Claim.—1. The cotton-chopper herein described comprising the framing provided with bearings for the wheel-shafts, the wheel-shafts provided with crank-arms, the pitman connecting said crank-arms, and the front and rear wheels on the shafts, the front wheel being constructed with rims provided in their inner faces with undercut notches and with chopping-bars held at their ends in said notches and adapted for application to the rims whereby to provide spaces between the sets of chopping-bars, and the rear wheel provided with rims and with cutting-blades held therein and arranged in sets with the adjacent sets spaced apart and each

spaces arranged relatively to the spaces of the front wheel whereby they will strike the row at the same points with the spaces of the front wheel, all substantially as and for the purpose set forth.

2. A cotton-chopper comprising the front wheel provided with spaces to leave untouched portions of the row, and with mashing devices to mash certain portions of the row, the cutting-wheel in rear of the mashing-wheel and provided with openings or spaces corresponding to those of the mashing-wheel and with cutters corresponding to the mashing devices of the mashing-wheel and connections between the front and rear wheels whereby the cutters of the cutting-wheel will operate upon the portions of the row mashed by the mashing-wheel, substantially as set forth.

3. The combination of the mashing-wheel having mashing-bars and openings or spaces, the cutting-wheel having cutters and openings or spaces corresponding to those of the mashing-wheel and connections between the mashing and cutting wheels whereby they will be caused to operate in unison, substantially as set forth.

4. A cotton-chopper comprising the framing, the mashing-wheel journaled therein and having mashing devices and openings or spaces, the cutting-wheel journaled in the frame in rear of the mashing-wheel and having openings or spaces corresponding to those of the mashing-wheel and cutters corresponding to the mashing devices of the mashing-wheel, connections between the mashing-wheel and the cutting-wheel whereby the spaces and mashing devices and cutters thereof will be caused to cooperate, and the harrow in rear of the cutting-wheel, substantially as set forth.

696,822. ANTISLIPPING DEVICE. THEODORE P. FARRER, South-west Harbor, Me., assignor to Protective Tread Company, Boston, Mass., a Corporation of Maine. Filed Jan. 8, 1901. Serial No. 42,190. (No model.)



Claim.—1. An antislipping device having a wearing-surface of slip-resistant material with provisions whereby the area or surface of the said material increases as it is worn away, and a hard-metal fastener having its upper end depressed below the surface of the slip-resistant material but exposed to contact with a suitable tool, said device having a hard-metal backing affording a bearing for a portion of said fastener.

2. An antislipping device having a groove for the reception of slip-resistant material, the walls of said groove diverging downwardly whereby the surface of the said material increases as it is worn away, and having exposed sharp edges of hard metal bounding the edges of the groove.

3. As a new article of manufacture, a metallic stud having a wearing-surface of slip-resistant material, and having exposed sharp edges of hard metal adjoining the said slip-resistant material.

4. As a new article of manufacture, a metallic stud having a groove the walls of which diverge downwardly, slip-resistant material in said groove, and a hard-metal fastener having its upper end depressed below the surface of the slip-resistant material but exposed to contact with a suitable tool, said stud having a hard-metal backing affording a bearing for a portion of said fastener.

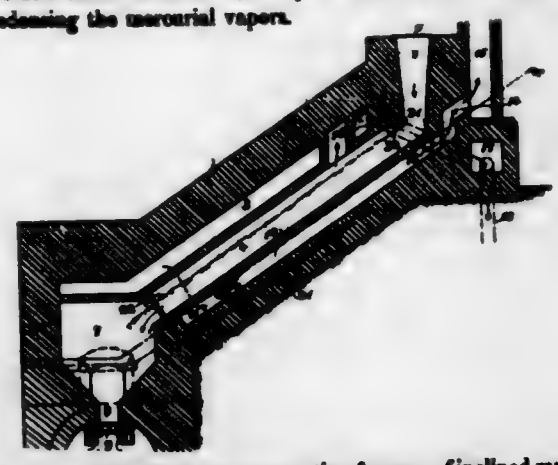
5. As a new article of manufacture, a beveled metallic stud having a central tapering aperture and having a groove between said aperture and its beveled sides, filled with slip-resistant material, whereby a hard-metal fastener may be passed and driven through said aperture without marring said material.

6. A tread consisting of a plurality of single independent elements adapted to be arranged in any predetermined relation, each element having an exposed surface of slip-resistant material, a casing to inclose said material, and a hard-metal fastener having its upper end depressed below the surface of the slip-resistant material but exposed to contact with a suitable tool, said element having a hard-metal backing affording a bearing for a portion of said fastener.

7. A metallic stud having provisions for securing it in place, said stud having an external rim formed with a sharp edge, and having slip-resistant material inclosed by said rim.

696,823. QUICKSILVER-SEPARATING AND CONTINUOUS ORE-FURNACE. CHRISTOPHER FITZGERALD, San Francisco, Cal., assignor of one-half to William R. Goster, Newcastle, Cal. Filed Oct. 17, 1901. Serial No. 78,968. (No model.)

Claim.—1. An apparatus for treating quicksilver ore comprising an inclined muffle and a furnace the fire-box whereof is directly removed from the ore-chamber said muffle having a parallel floor and roof whereby the surrounding heat is equidistant from all parts of the surface of the ore, said roof having a short horizontal projection at its highest end for regulating the depth of ore in the muffle, an ore-inlet at the upper end of the muffle, a chamber in open communication with the lower end of the muffle, and removed from the direct roasting heat, means by which heated air may be delivered to the muffle, a vapor-outlet for the muffle, and means for condensing the mercurial vapors.

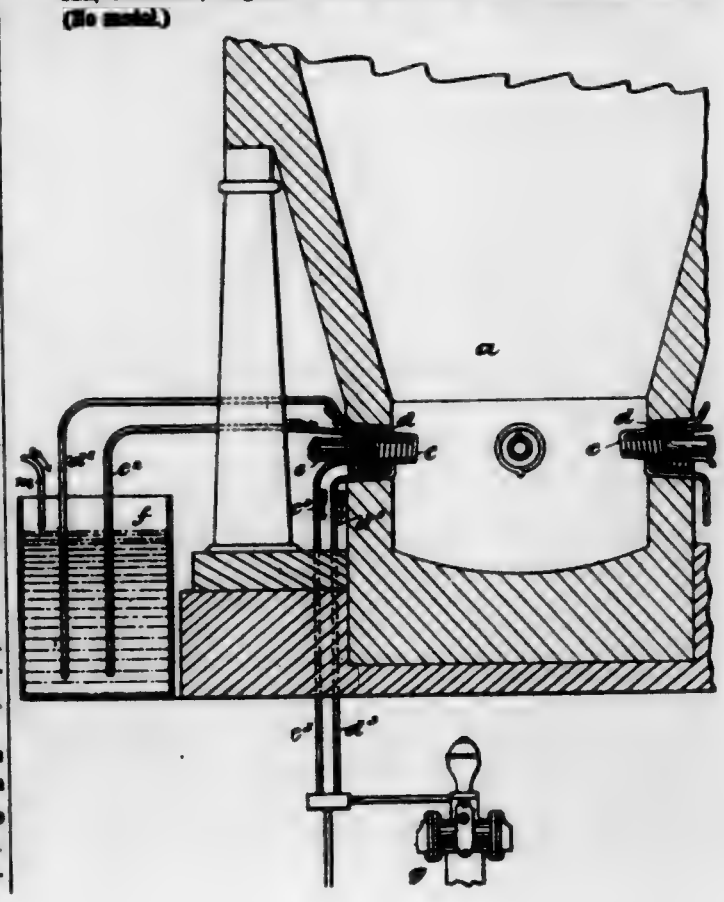


2. The combination in an ore-roasting furnace, of inclined muffles, said furnace having a heat-space above and below the muffles, a partition within said lower space whereby the heat is directed to the front of the muffles and thence passes around the partition and beneath another portion of the bottom of the muffles to the rear of the latter, ore inlets and outlets, and pipes embedded in the walls of the furnace having one end opening to the outer air and the other end entering the muffles.

3. The combination in an ore-roasting furnace of inclined muffles, passages along the top of the muffles, and longitudinally-extending partitions below the muffles and terminating short of the lower end thereof, and forming passages along the bottom of said muffles, said upper and lower passages connecting, whereby the heat after passing along the top and around the sides of the muffles is returned to the front along one side of the bottom of said muffles, and is then returned to the rear along the other side of said bottom, an ore-inlet at the upper end of each of said muffles, a chamber at the lower end of each muffle, an opening in said chamber, a closure for said opening, a vapor-outlet for said muffles and means for inducing a draft through the muffles and said vapor-outlet.

4. The combination in an ore-furnace, of inclined muffles, longitudinally-extending partitions below the muffles and forming circuitous heat-passages along the bottom of said muffles, an ore-inlet for the latter, an ore-discharge outlet, a gate by which said ore-outlet may be closed, said gate consisting of a plate having rollers thereon, a track upon which said rollers are supported, means connecting with opposite sides of the plate for operating said gate and a vapor-outlet for said muffles.

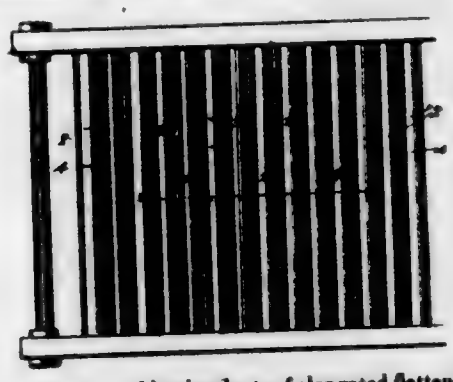
696,824. METHOD OF CIRCULATING WATER THROUGH THE TWYERS AND COOLERS OF BLAST-FURNACES. WILLIAM J. FOSTER, Darlaston, England. Filed Dec. 27, 1900. Serial No. 741,760. (No model.)



Claim.—1. The combination with a furnace, of a hollow twyer suitably connected thereto and adapted to have a cooling medium circulate therethrough, a hollow cooler surrounding said twyer, and means connected with the hollow space of said cooler and twyer for pulling the cooling medium therethrough, preventing the cooling medium from escaping through an opening which may be burned in the twyer from the heat of the furnace, and for closing up said opening by the pulling or drawing on of the slag-making material within the melting zone of the furnace.

2. The combination with a furnace, of a hollow twyer exposed to the melting zone of said furnace and adapted to conduct a cooling medium, and means connected with the hollow space of said twyer for pulling the cooling medium therethrough and which is adapted to seal an accidental opening formed in the twyer, by drawing the material within the melting zone thereto.

696,325. REED FOR LOOMS FOR WEAVING WIRE-CLOTH. FRED S. GABLE, Glenrock, Pa., assignor of three-fourths to William T. Gable, Baltimore, Md. Filed Apr. 18, 1901. Serial No. 56,465. (No model.)



Claim.—1. A loom-reed having dents of elongated flattened elliptical form to provide opposing pairs of convex faces and arranged so that their major axes are diagonally disposed and parallel to each other to engage warp-strands longitudinally passing between the same, the said dents having interspaces with the front and rear divergent maximum portions thereof between the terminals of the dents equal in width to the transverse distance between the warp-strands, the said spaces converging toward the minor axes of the dents, so that the strands will contact with the alternate ends of adjacent sides of the dents approximately at the terminals of the major axes of the latter, whereby splices in the strands will be prevented from catching on the ends of the dents when passing between the latter.

2. A loom-reed having dents with upper and lower straight portions and intermediate obliquely-arranged portions.

3. A loom-reed having dents with upper and lower straight portions and intermediate obliquely-arranged portions with opposite convex faces.

696,326. SOLAR HEATING APPARATUS. MARCOS DE LA GARZA, Chihuahua, Mexico. Filed Apr. 1, 1901. Serial No. 53,827. (No model.)



Claim.—1. A solar heating apparatus, comprising a main frame capable of being turned about a vertical axis, a swinging frame supported on said main frame to turn about a horizontal axis, a light-concentrating device carried by said swinging frame, and a heating vessel carried by said frame at the focus of said light-concentrating device, and mounted to swing about a horizontal axis relatively to the swinging frame.

2. A solar heating apparatus, comprising a main frame capable of being turned about a vertical axis, a swinging frame supported on said main frame to turn about a horizontal axis, a light-concentrating device carried by said swinging frame, a heating vessel carried by said swinging frame at the focus of said light-concentrating device, and mounted to swing about a horizontal axis relatively to the swinging frame, and adjusting devices connecting said swinging frame and the heating vessel.

3. A solar heating apparatus, comprising a main frame, a pivoted frame carried thereby, a lens at the pivoted end of the said frame, a pivoted heating vessel also carried by the swinging frame at the focus of the lens, and a lens-tube extending from the lens to the said heating vessel.

4. A solar heating apparatus, comprising a main frame, a swinging frame carried thereby, a light-concentrating device on the swinging frame, a casing carried by the swinging frame and provided with an opening facing toward said light-concentrating device, and a heating vessel mounted in said casing to swing about a horizontal axis.

5. A solar heating apparatus, comprising a main frame, a swinging frame carried thereby, a lens at the fulcrum end of the said frame, a casing also carried by said frame, an adjustable heating vessel in the casing, and a lens-tube extending from the lens to the casing.

6. A solar heating apparatus comprising a main frame, a swinging frame carried thereby, a lens on the swinging frame, a casing also carried by said frame, and provided with a partition having an opening and a funnel-shaped tube projecting therefrom toward the lens, and a heating vessel located in said casing on the other side of the partition.

7. A solar heating apparatus, comprising a main frame, a swinging frame carried thereby, a lens on the swinging frame, a casing also carried by said frame, and provided with a partition having an opening and a funnel-shaped tube projecting therefrom toward the lens, a heating vessel located in said casing on the other side of the partition, and a lens-tube extending from the lens to the casing.

8. In a solar heating apparatus, the combination with a casing, and a sectional shaft mounted therein, one section being provided with a crank, of a heating vessel within the casing and provided with alining sockets to receive the shaft-sections, and means for locking the vessel in position.

9. In a solar heating apparatus, the combination of a casing provided with an opening and with a partition dividing it into two compartments said partition having an opening from which a funnel projects, and a heating vessel adjustably supported in one compartment of the casing and provided with an opening in its lower portion.

10. A solar heating apparatus, comprising a main frame, a swinging frame mounted in the main frame, a lens carried by the swinging frame, a tube extending from the lens, a casing also carried by the swinging frame and provided with an opening receiving the lens-tube, and with a partition dividing the casing into two compartments, said partition having an opening in alinement with the opening of the casing and a funnel around said opening, and a heating vessel adjustably mounted in one compartment of the casing and provided with an opening in its lower portion opposite the opening in the partition.

11. In a solar heating apparatus, the combination with a support, and a plurality of casings carried by the support and arranged side by side, of a heating vessel in each casing and provided with alining sockets, and a sectional shaft carried by each casing and entering the sockets of the heating vessel, the adjacent shaft-sections of the several casings being connected, and one section of an end casing being provided with a crank-handle, as set forth.

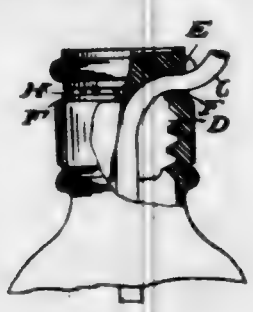
696,327. MEASURING-FAUCET. WILLIAM GOEBEL, St. Louis, Mo. Filed Dec. 30, 1901. Serial No. 87,774. (No model.)

Claim.—1. A measuring-faucet comprising a faucet proper, a rotatable valve mounted therein and having a series of two angularly-disposed communicating passages disposed in a plane parallel to the plane of rotation of the valve, a second series of angularly-disposed independent communicating passages disposed in a plane parallel to the first but set at substantially ninety degrees to the first series, receptacles of predetermined but different capacities disposed on either side of the faucet, one passage of each series communicating with the faucet, and the other with a receptacle for the normal position of the valve, a delivery spout or faucet having passages adapted to be brought into communication with one passage of each of the series formed in the valve for the delivery position of the latter, and an auxiliary valve adapted to be brought into communication with the second series of angularly-disposed passages, the parts operating substantially as, and for the purpose set forth.

2. A measuring-faucet comprising a faucet proper having a passage 3, and passages 4, 5, a valve C having the angularly-disposed passages *a*, *b*, *c*, *d* and longitudinal passage 6, an auxiliary valve having passage 7 and port 8, a discharge-faucet D having passages 4′ 5′, and receptacles G, G′ and Q having communicating passages *g*, *g*′ and *q*, substantially as set forth.

3. A measuring-faucet comprising a faucet proper having a longitudinal passage formed therein, a rotatable valve at one end thereof having a series of angularly-disposed communicating passages, a second series of communicating passages located in a different plane and turned ninety degrees from the disposition of the first series, a central longitudinal passage formed in the valve communicating at one end with the second series of angular passages, an auxiliary valve rotatable in the main valve and having a passage adapted to be brought into communication with the longitudinal passage of the main valve, a delivery faucet or spout having two sets of passages adapted to be brought into communication with the respective series of the angularly-disposed passages of the main valve, and suitable receptacles on either side of the faucet having passages leading therefrom and adapted to be brought into communication with the respective series of the angularly-disposed passages in the main valve, the parts operating substantially as, and for the purpose set forth.

696,828. INFANT'S FEEDING-BOTTLE. FREDERICK R. GRAHAM-YOOLL, Edinburgh, Scotland. Filed Feb. 14, 1901. Serial No. 47,872. (No model.)

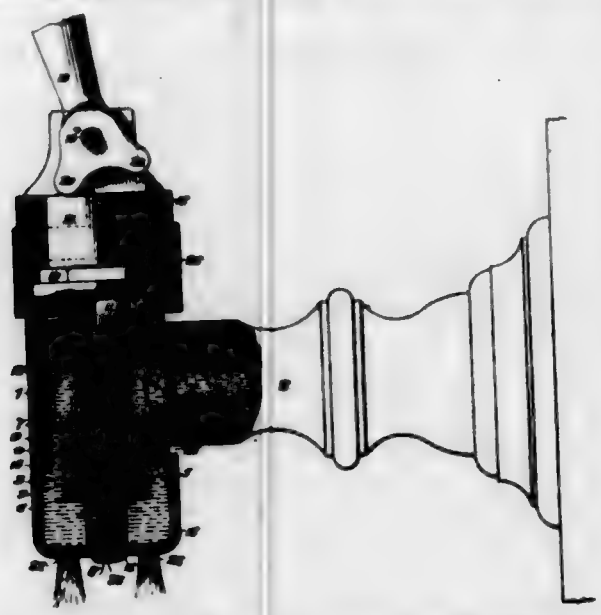


Claim.—1. The combination of a suitable bottle; a feeding-tube G of elastic material; and a screw-threaded stopper having a recess D extending to the outside for the reception of the feeding-tube and a peripheral flange E between which and the top of the bottle the said tube is compressed to a greater or less extent, substantially as described.

2. The combination of a bottle having an internally-threaded neck; a feeding-tube of elastic material; and a stopper having a screw-threaded shank and a flanged top with recesses on one side of different depths for the reception of the feeding-tube whereby said tube may be left unobstructed or the flow therethrough obstructed to a greater or less extent by compression of the tube between the stopper-flange and the top of the bottle when the stopper is screwed down, substantially as described.

3. The combination of a screw-neck bottle, a flanged and screw-threaded stopper therefor, a feeding-tube of elastic material and an elastic washer between which and the stopper-flange the tube is interposed so as to hold the tube to the stopper when the latter is removed and to be interposed between the stopper-flange and top of the bottle when the stopper is screwed down, substantially as described.

696,329. DOUBLE-STREAM DRAFT-TUBE. FRANK D. GREEN, Philadelphia, Pa. Filed July 29, 1901. Serial No. 70,104. (No model.)



Claim.—1. The combination in a draft-tube, of the valve-chest having an outlet, a supply-pipe communicating with the valve-chest, a valve controlling the said valve-chest outlet upon one side of the same, means for holding said valve to its seat, a second valve adapted to close the valve-chest outlet from the other side of the same, said valves being fixed with relation to each other and having a connection whereby the movement of either valve is imparted directly to the other, said connection having a discharge-outlet which is brought into operative position when the second valve is seated, and means for operating said valve.

2. The combination in a draft-tube, of the valve-chest having an outlet, a supply-pipe leading to the valve-chest, a valve closing the outlet from said valve-chest upon one side of the same, means for moving said valve vertically, a second valve adapted to close the outlet from the valve-chest upon the other side of the same, a stem connecting said valves whereby they may be moved in unison, a sleeve surrounding the valve-chest and in operative engagement with the said valve-stem, and means for raising said sleeve whereby the valve controlling the opening of the valve-chest may be raised from its seat, a further movement of said sleeve closing the lower valve.

3. The combination in a structure of the character described, of the valve chest having a supply-pipe connected thereto and having a suitable outlet therefrom, valves controlling the discharge from said valve chest and adapted to seat on the inside and outside of the opening leading from the same, a valve-stem connecting said valves whereby they may be moved in unison, said stem projecting below the lower valve, a movable sleeve surrounding said valve-chest and providing a seat for the end of the projecting valve-stem, and means for moving said sleeve whereby the valve may be operated.

4. The combination in a draft-tube, of the valve-chest having an outlet, a supply-pipe communicating with the valve-chest, a valve closing the outlet from said valve-chest and adapted to seat on the inside of the same, means for holding said valve to its seat, a stem carried by said valve whereby it may be guided, a second valve adapted to close the outlet in the valve-chest and adapted to a seat on the outside of the same, a stem connecting said valves whereby they may be moved in unison, said stem having a contracted opening and projecting below said lower valve, a movable sleeve surrounding the valve-chest, the lower portion of said valve-stem being in operative engagement with said sleeve, and means for raising the latter, the partial movement of the same bringing the valves to a mid-position permitting the discharge of a full stream of liquid, while the complete movement of said sleeve seats the outside valve against the opening of the valve-chest and permits the discharge of said liquid through the contracted opening of the valve-stem.

5. The combination in a valve structure of the character described having a valve-chest with an outlet for the discharge of liquid under pressure, a supply-pipe communicating with said valve-chest, a series of valves controlling the outlet of said valve-chest, said valves being operated simultaneously, a valve-stem having a discharge-opening connecting said valve, said stem also having a communicating through-opening midway of the valves, a movable sleeve forming a discharge-spout operatively connected to the valve-stem, said valve-stem having its discharge-opening beyond said sleeve, and means for moving said sleeve whereby the valves may be operated to discharge the liquid from the valve-chest, the partial movement of said sleeve opening one valve and permitting the passage of the liquid from the valve-chest to the sleeve and thence from the openings therein, while the further movement of the sleeve closes the outlet from the valve-chest and causes a discharge of the liquid through the contracted opening in the valve-stem.

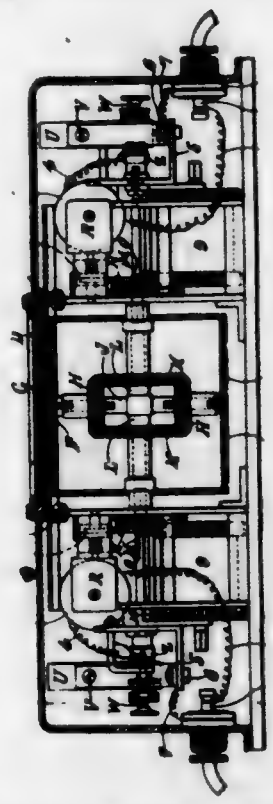
6. The combination in a valve structure of the character described having a valve-chest with an outlet, a series of valves controlling said outlet, a valve-stem connecting said valves and having a contracted opening therein, projections extending from said valves in line with the valve stem, the upper projection serving to guide the valves, while the lower projection is provided with the contracted opening communicating with the portion between the valves, a spring for holding one of said valves to its seat, a movable sleeve surrounding the valve-chest and engaging the depending portion of the valve-stem, and means for imparting vertical movement to said sleeve whereby the valves may be operated, said valves moving in unison by the movement of said sleeve

7. In a valve structure of the character described having a valve-chest, a series of valves carried thereby and movable in unison with each other, a movable casing or sleeve surrounding said valve-chest and controlling the position of the valves, a handle carried by said casing, and cams of different length carried by said handle and serving to impart movement to the sleeve when brought into contact with the valve-chest by the movement of the handle carrying the same, one of said cams serving to give partial movement to the sleeve whereby the valves may be brought to the mid-position, while the other cam will impart complete movement to the sleeve closing the valves against the outlet from the valve-chest and diverting the stream through the contracted opening of the valve-stem.

696,880. SIGNALING APPARATUS. HUBERT H. GRENFELL, Alverstoke, England. Filed Aug. 5, 1901. Serial No. 70,993. (No model.)

Claim.—1. In a signaling apparatus, the combination of a drum adapted to carry signals, two sets of clockwork mechanism, oppositely-

arranged gear-wheels connected respectively with said sets of clockwork mechanism, a gear-wheel on said drum engaging said oppositely-arranged gear-wheels, means controlled by electric currents for stopping and releasing said clockwork mechanisms as required, electric circuits, and keys for making and breaking said circuits, substantially as and for the purposes hereinbefore described.



2. In a signaling apparatus, the combination of a drum adapted to carry signals, a spiral groove in the periphery of said drum, a sliding perforated shutter or screen arranged in front of said drum, a projection on said shutter engaging said spiral groove, two sets of clockwork mechanism, differential gear connecting said sets of clockwork mechanism to said drum, means controlled by electric currents for stopping and releasing said sets of clockwork mechanism as required, electric circuits, and keys for making and breaking said electric circuits, substantially as, and for the purpose, hereinbefore described.

3. In a signaling apparatus, the combination of a drum adapted to carry signals, a spiral groove in the periphery of said drum, a sliding perforated shutter or screen arranged in front of said drum, a projection on said shutter engaging said spiral groove, two sets of clockwork mechanism, differential gear connecting said sets of clockwork mechanism to said drum, means controlled by electric currents for stopping and releasing said sets of clockwork mechanism as required, electric circuits, keys for making and breaking said circuits, spring contact-arms and fixed contact-stops in said circuits, and insulated pivoted levers arranged in the path of said sliding shutter and engaging said spring contact-arms, substantially as, and for the purpose, hereinbefore described.

4. In a signaling apparatus, the combination of a drum adapted to carry signals, a spiral groove in the periphery of said drum, a sliding screen arranged in front of said drum, a projection on said screen engaging said spiral groove, clockwork mechanism for driving said drum, means comprising an electromagnet for stopping and releasing said clockwork mechanism as required, an electric circuit including said electromagnet, an electric generator in said circuit, a key for making and breaking said circuit, a spring contact-arm and a fixed contact-stop in said circuit, an insulated pivoted lever arranged in the path of said sliding screen and engaging said spring contact-arm, substantially as described.

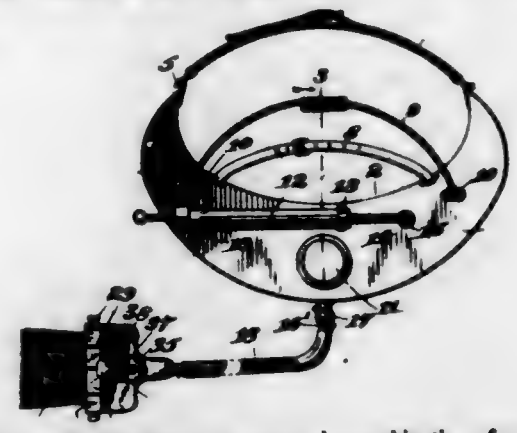
5. In a signaling apparatus the combination of a drum adapted to carry signals, a spiral groove in the periphery of said drum, a sliding shutter or screen arranged in front of said drum, a projection on said shutter engaging said spiral groove, two sets of clockwork mechanism, differential gears connecting said sets of clockwork mechanism to said drum, escapement-wheels on said sets of clockwork mechanism, pallets engaging said escapement-wheels, armatures, pivoted arbors each bearing an armature and a pallet, stops, springs controlling said arbors, electromagnets controlling said armatures, electric generator in said circuits, keys for making and breaking said circuits, spring contact-arms and fixed contact-stops in said circuits, insulated pivoted levers arranged in the path of said sliding shutter and engaging said spring contact-arms, substantially as described.

6. In a signaling apparatus, the combination of a drum adapted to carry signals, a spiral groove in the periphery of said drum, a sliding shutter or screen arranged in front of said drum, a projection on said shutter engaging said spiral groove, two sets of clockwork mechanism, differential gear connecting said sets of clockwork mechanism to said drum, escapement-wheels on said sets of clockwork mechanism, pallets engaging said escapement-wheels, armatures, pivoted arbors each bearing an armature and a pallet, stops, springs controlling said arbors, electromagnets controlling said armatures, electric circuits including said electromagnets, an electric generator in said circuits, and keys for making and breaking said circuits, substantially as described.

7. In a signaling apparatus, the combination of a multiple number of drums on the periphery of each of which the signals are arranged, clockwork mechanism for rotating each of said drums in one direction, and other clockwork mechanism for rotating each of said drums in the opposite direction, differential gear connecting said clockwork mechanisms to said drum, means controlled by an electric current for stopping and releasing said clockwork mechanisms as required, an electric circuit including one set of clockwork mechanisms, a parallel electric circuit including the other set of clockwork mechanism, and a key in each circuit for making and breaking the circuit, substantially as described

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696,881. PAINTING APPARATUS. ENOCH GRILL, Tustin, Mich., assignor to Walter J. Kennedy, Grand Rapids, Mich. Filed Apr. 18, 1901. Serial No. 56,397. (No model.)



Claim.—In a painting apparatus, the combination of a fountain or reservoir provided with means for supplying air under compression thereto, a flexible discharge-tube leading therefrom, a brush comprising a head and bristles portion, the former being connected with said tube and provided with a channel and socket, said bristles portion having a cap, one or more distributing-tubes leading into the body of the bristles, a clamping band or tube securing the head and the bristles portions together, a valve controlling the channel in the head, a lever connected with said valve, a plate having a resilient portion covering the socket in the head in which said lever is located, a handle pivoted to the lever at its upper end and also connected to said lever through the resilient portion thereby when the handle is pressed toward the brush-head the valve is opened, and the outward movement of said resilient portion closes the valve, substantially as specified.

696,882. TRACE-CARRIER. CONRAD HARRELL, Whigham, Ga. Filed Dec. 5, 1901. Serial No. 84,722. (No model.)

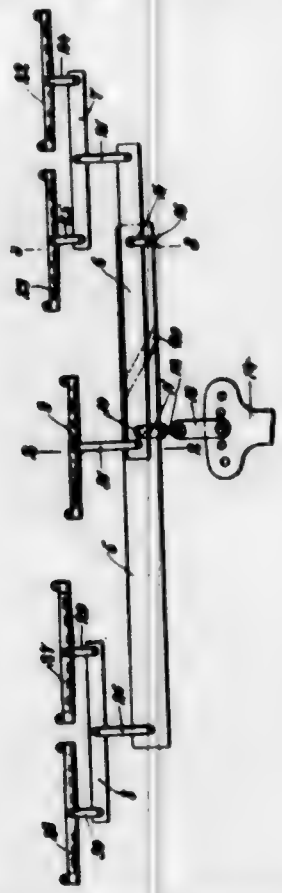


Claim.—A trace-carrier of the character described, consisting of a plate from which are struck up hooks arranged in vertical parallel order, the bills of which project upwardly and are equidistant from the plate, a housing secured to said plate at its upper end and formed with a hole to serve as a bolt-keeper, a sheave journaled in said housing, a latch hinged to said plate and adapted to bridge said hooks, and a spring-actuated bolt carried by said latch and adapted to engage the hole in the housing and retain the latch in engagement with the hooks, substantially as set forth.

696,888. DRAFT-EQUALIZER. HENRY HENDERSON, Kinbrae, Minn. Filed Jan. 11, 1902. Serial No. 89,364. (No model.)

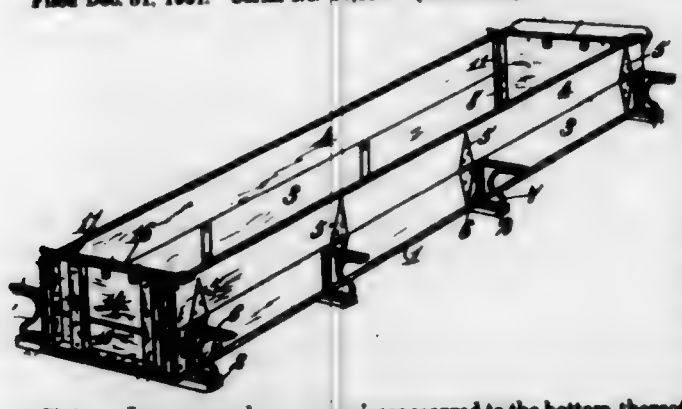
Claim.—1. A draft-equalizer comprising a primary lever member having long and short arms, a doubletree connected to the long arm of the primary lever member and having the spaced singletrees, a secondary lever member fulcrumed directly to and supported by the short arm of the primary lever member and having a short arm extending beyond the latter and a long arm extending to the fulcrum of said primary lever member, another doubletree connected to the short arm of the secondary lever member and also provided with spaced singletrees, and a singletree attached to the long arm of the secondary lever member and disposed between the two doubletrees.

2. A draft-equalizer, comprising a primary lever member, a coupling having a fulcrum-bolt fitted to said lever member to form long and short arms, a secondary lever member fulcrumed by a bolt on the short arm of the primary lever member, doubletrees attached respectively to the short arm of the secondary lever member and the long arm of the primary lever member, and a singletree connected to the short arm of the secondary lever member, said singletree being disposed between the two doubletrees.



3. A draft-equalizer, comprising a primary lever member, a secondary lever member, a coupler having a spacing element disposed between the two lever members, a coupling attached to the primary lever member and disposed below one end of the secondary lever member, a spacing-plate interposed between the two lever members, doubletrees attached to the arms of the lever members, and a singletree connected to one arm of the secondary lever member.

696,884. WAGON-BOX. ROBERT W. HEMMER, Geneva, N. Y. Filed Dec. 31, 1901. Serial No. 87,857. (No model.)



Claim.—In a wagon-box, cross-pieces secured to the bottom thereof and projecting outwardly beyond the sides, sides made in sections, the lower section of each side being secured to the bottom of the box and the upper being hinged to the lower, fixed brackets for sustaining the upper sections of said sides when they are in open position, the said brackets having vertical portions secured to the lower sections of said sides, and horizontal portions projecting outwardly therefrom, and braces connecting the outer ends of the horizontal portions of said brackets with the projecting ends of said cross-pieces.

696,885. WEATHER-STRIP. BENJAMIN F. HIGGINS, Centralia, Ill., assignor of one-half to Charles W. Brumfield, Centralia, Ill. Filed Nov. 18, 1901. Serial No. 82,710. (No model.)

Claim.—1. In a device of the class described, the combination of a casing designed to be mounted on a door, a weather-strip pivotally mounted within the casing, an upright lever fulcrumed between its ends on the exterior of the door and having its lower arm extended downward at one end of the casing and provided with an inwardly-extending portion connected with the weather-strip, and a stop designed to be mounted on the door-frame and arranged in the path of the upper portion of the lever and adapted to be engaged by the same when the door is closed, substantially as described.

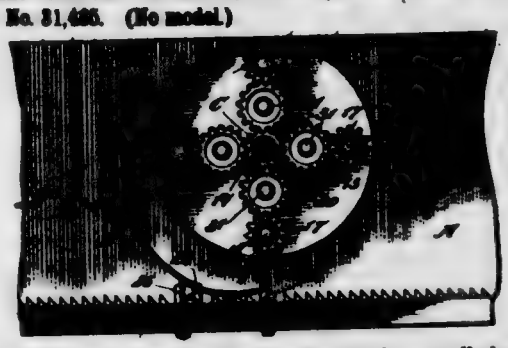


2. In a device of the class described, the combination of a casing designed to be mounted on a door, a weather-strip pivotally mounted within the casing, an upright lever fulcrumed between its ends on the exterior of the door and having its lower arm arranged at one end of the casing and extended into the same and connected with the weather-strip, the outwardly-bowed stop pivoted at one end to the door-frame and arranged in the path of the upper portion of the lever and adapted to be swung out of such position, and a projection mounted on the casing and supporting the free end of the stop when the latter is in position for engaging the lever, substantially as described.

3. In a device of the class described, the combination of an approximately quadrant-shaped casing, a quadrant-shaped weather-strip pivotally mounted within the casing and arranged to swing beyond the same, a lever arranged at one end of the casing and extending through the same and connected with the weather-strip, and means for engaging the lever, substantially as described.

4. In a device of the class described, the combination of a casing having an opening at one end, a weather-strip pivotally mounted within the casing and provided at one end adjacent to the said opening with a slot, a lever fulcrumed between its ends and extending through the opening into the slot, and a spring engaging the lever, substantially as described.

696,886. GRAIN OR SEED SEPARATING DEVICE. JAMES R. HILL and WILLIAM W. BROWER, Meservey, Iowa. Filed Sept. 29, 1900. Serial No. 31,685. (No model.)



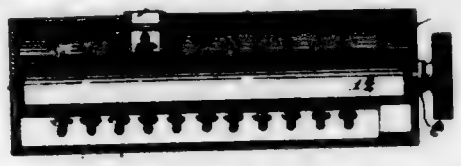
Claim.—In a grain and seed separating device, a cylinder mounted to rotate, shafts mounted to turn in the said cylinder, independent driving mechanism for the cylinder and the shafts carried thereby, a vibratory grain-table, and a series of risers carried by said table, the said risers consisting of spring-rod material having their body portions curved downward and forward, the upper surface of the body being concaved and the free end portion of each riser being provided with a series of teeth, supports secured to said table, and fastening devices attached to one of the supports and engaging with the said risers, the forward end portions of the risers being carried through the forward support and through the table, as set forth.

696,887. UNITARY MATCH-SAFE AND CIGAR-LIGHTER. ORVILLE B. HUGHES, Akron, Ohio. Filed May 29, 1901. Serial No. 62,621. (No model.)

Claim.—1. The combination with a cylindrical casing having a longitudinal slot, of a revoluble match-holding shaft arranged in the casing having match-holding sockets arranged in radial and axial lines, and a flame-fine carrying an igniter and flame-guard slidably mounted in the slot in the casing.

2. The combination with a cylindrical casing having a longitudinal slot, of a revoluble match-holding drum arranged in the casing having match-holding sockets arranged in radial and axial lines, a flame-fine carrying an igniter slidably along the slot in the casing, that it may be brought

over any radial line of matches and a flame-guard hinged to such flame-flue.

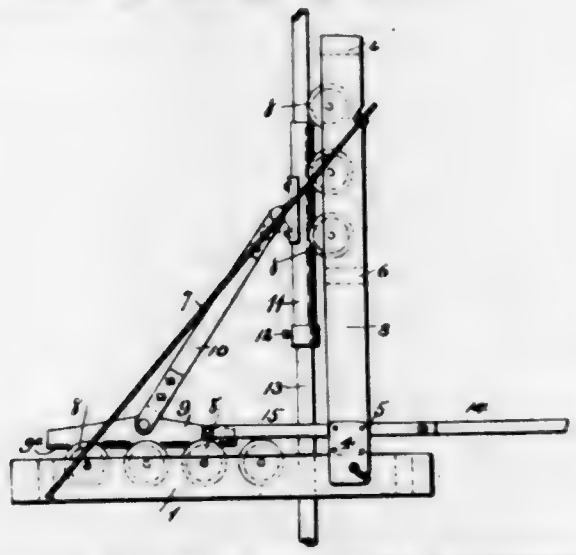


3. The combination with a cylindrical casing having a longitudinal slot, of a revoluble match-holding drum arranged in the casing having match-holding sockets arranged in radial and axial lines, a flame-flue slidable along the slot in the casing that it may be brought over any radial line of matches an igniter secured to the said flue and arranged to lie in the path of the matches as they are rotated, and a flame-guard hinged to said flame-flue.

4. The combination with a cylindrical casing having a longitudinal slot, of a revoluble match-holding drum arranged in the casing having match-holding sockets arranged in radial and axial lines, and an adjustable igniter mounted in said slot whereby the plurality of the radial rows of matches on said drum may be lighted consecutively.

5. The combination of a casing having a longitudinal slot, a rotary match-holder in said casing having a plurality of radial rows of match-holding sockets on said drum, and a flue carrying at its lower end, an igniter and flame-guard slidably mounted in the said slot.

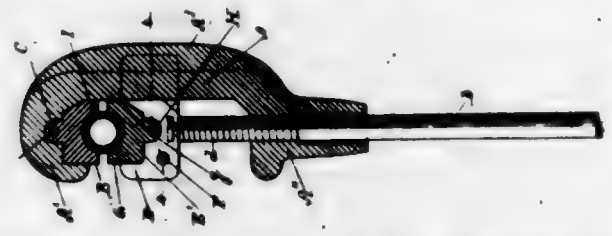
696,338. PUMPING-JACK. THOMAS W. HULLINGER, Lima, Ohio. Filed June 27, 1901. Serial No. 66,248. (No model.)



Claim.—1. In a device of the class described, the combination with a framework having horizontal and vertical members, sheaves journaled in said frame, a horizontal bar mounted to run on said sheaves, a vertical head mounted to run on said sheaves, and a connecting-rod pivoted to said head and said horizontal bar, substantially as described.

2. In a device of the class described, the combination of a horizontal bar, a vertical head, a connecting-rod pivoted to said bar and said head, and roller-bearings for said bar and said head, substantially as described.

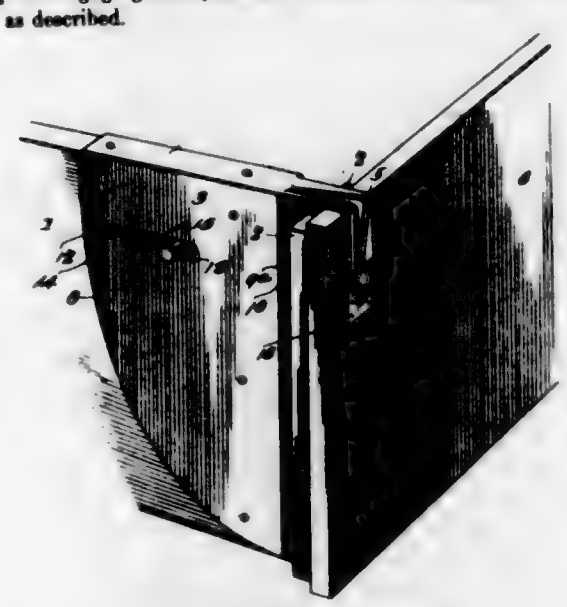
696,339. PIPE-WRENCH. WILLIAM D. HUNTOON, Norwood, Mass. Filed June 12, 1901. Serial No. 64,294. (No model.)



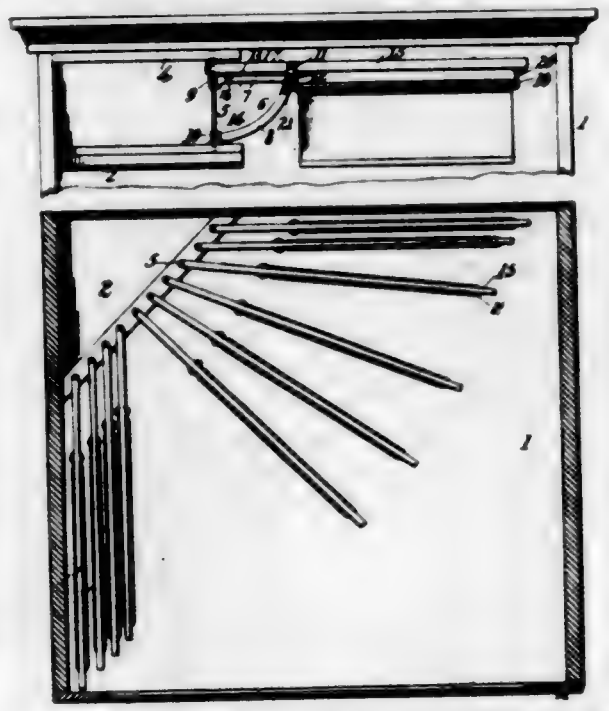
Claim.—In a pipe-wrench, the combination with a frame A provided at one end with a hook A′ and at the other end with an internally-screw-threaded socket A″, of a threaded shank carried by said socket, a carrier-block loosely mounted on the inner end of said shank and consisting of two duplicate sections detachably secured together and provided with hooked extensions *e*, *e*, embracing the sides and outer face of the said frame, and jaws B, G, fitted in recesses in the hook A′ and carrier-block, and detachably secured therein, substantially as described.

696,340. END-GATE. CHARLES F. HUPPER, Monona, Iowa. Filed Nov. 16, 1901. Serial No. 82,585. (No model.)

Claim.—In a device of the class described, the combination with the side of a wagon-body provided with an opening, and an end-gate having a slot, of a casing embracing inner and outer plates arranged on the inner and outer faces of the end-gate, and a connecting top portion having an extension forming substantially an L-shaped arm engaging the upper portion of the side of the wagon-body, and a bolt mounted in the casing and engaging the opening of the side of the wagon-body, substantially as described.



696,341. DISPLAY-CABINET. ASHBA L. JOHNSON, San Luis Obispo, Cal. Filed Oct. 17, 1901. Serial No. 79,013. (No model.)



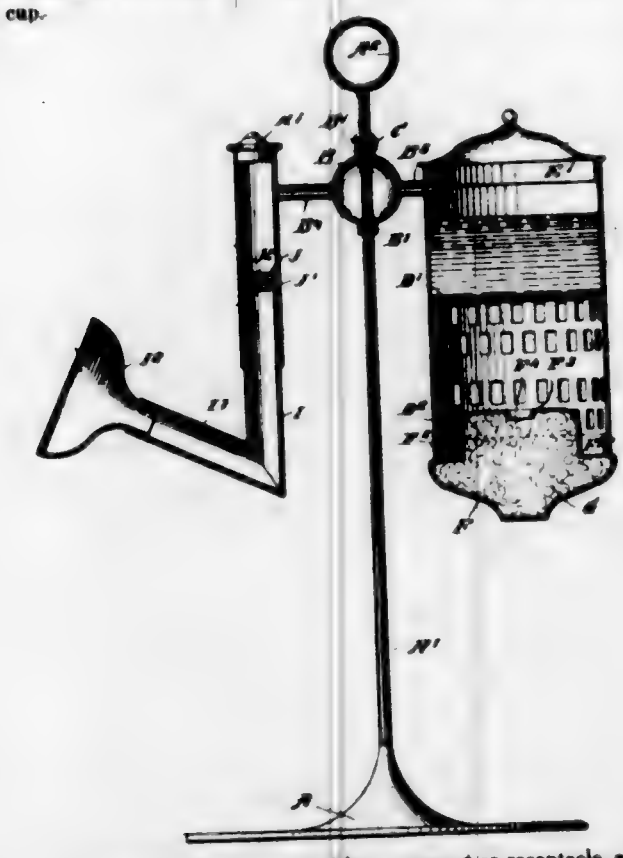
Claim.—The combination with pivot-posts, of horizontal arms secured thereto, brace-arms secured to said pivot-posts and having their upper ends provided with parallel spaced-apart lips to embrace the horizontal arms and which are secured thereto, and hanger-arms pivoted to said posts and supported by said horizontal bracket-arms and bolted or riveted to said horizontal bracket-arms, substantially as set forth.

696,342. COMBINED FACE-STEAMER AND INHALER. HENRY C. KARPENSTEIN, Brooklyn, N. Y. Filed Mar. 28, 1901. Serial No. 53,199. (No model.)

Claim.—1. A vaporizing device, comprising means for generating a vapor, a spraying-head for distributing said vapor, a cup and a nipple both located in the path of the vapor, the said nipple extending into said cup, means for supporting said nipple, and a plurality of pins for securing said cup to said nipple so that said cup depends from said nipple and said vapor can pass between said nipple and said cup.

2. A vaporizing device, comprising a vapor-generator, a spraying-head, a series of tubes connecting said vapor-generator and said spraying-head, two of said tubes forming an adjustable telescopic connection with each other, a plate located in one of said tubes and provided with a flange engaging the end of the other tube at the said telescopic connection and also provided with a nipple depending from said plate, a cup concentric

with said nipple, and pins for securing said cup to said nipple so as to depend therefrom and allow the vapor to pass between said nipple and said cup.



3. A vaporizing device, comprising a support or receptacle, a lamp for heating said receptacle, vents between said lamp and said receptacle for the escape of gases, a spraying-head, a series of tubes connecting said receptacle and said spraying-head, a nipple located in the path of the vapor in one of said tubes, a cup also located in said tube adjacent to said nipple, and fasteners for securing said cup and for spacing the same concentric to said nipple so that vapor can pass centrally into the cup and thence pass outside of the nipple to the spraying-head.

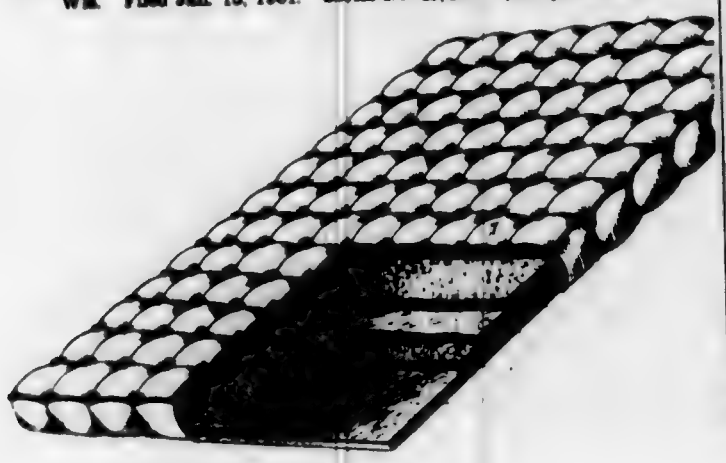
4. A vaporizing device, comprising a support, an upright tube carried thereby, a vertically-adjustable tube sliding within said upright tube and provided with a spray-head, an apertured support resting on the upper edge of said adjustable tube, a cup carried by said support, a receptacle communicating with said tubes, and means for heating the receptacle.

5. A vaporizing device, comprising a support, a receptacle carried thereby, a heater for said receptacle, a steam or vapor tube communicating with the receptacle and provided with a discharge-head, an apertured plate located within said tube and having a central nipple, and a cup which is carried by said plate and into which dips the lower end of said nipple.

6. A vaporizing device, comprising a tube provided with a discharge-head, an apertured plate located within the said tube, and provided with a central nipple, and a cup which is carried by said plate and into which dips the lower end of said nipple.

7. A vaporizing device, comprising an upright guide-tube, a vertically-adjustable tube, the upper portion of which slides within said upright tube and the lower portion of which is provided with a spray-head, an apertured support resting on the upper edge of said adjustable tube, and a cup carried by said support.

696,843. COMPOSITE MATERIAL. GEORGE KELLY, Mineralpoint, Wis. Filed Jan. 15, 1901. Serial No. 43,430. (No specimens.)

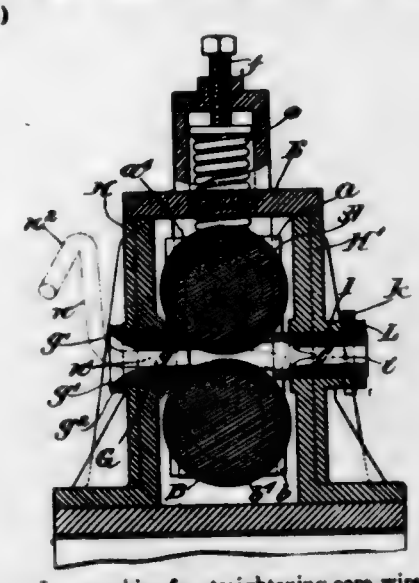


Claim.—1. A composite material made up of a body of matted bars, and a body of loose but closely-packed fiber in adhesive union therewith.

2. The combination with a composite material made up of a body of matted bars and a body of loose but closely-packed fiber in adhesive union therewith, of a flexible cover inclosing the composite material thus formed.

3. A composite material made up of facings of loose but closely-packed fiber, and an intermediate filler or core of matted bars in adhesive union with the fibrous facings.

696,844. WIRE-ROD-STRAIGHTENING MACHINE. GEORGE DE LAVAL, Cambridge, and CHARLES W. CHESHOLM, Somerville, Mass., assignors to International Steam Pump Company, New York, N. Y., a Corporation of New Jersey. Filed May 2, 1901. Serial No. 58,451. (No model.)



Claim.—1. In a machine for straightening core-wires and similarly-bent wire rods, the combination of a bending device constructed and arranged to act upon rods having parts bent in various planes and at various angles to each other and to direct said parts into a straight line as the rods are drawn through said bending device, rolls for gripping said rods and drawing them through said bending device, and a device in the rear of the rolls constructed and arranged to receive the ends of the rods as they come from the rolls and rectify or prevent bending of said rods by the action of the rolls, substantially as described.

2. In a machine for straightening core-wires and similarly-bent wire rods, the combination of a bending device having a central guiding-passage and a surrounding bending-surface arranged to engage parts of the rods extending at various angles to the central passage and in various planes and to direct said parts into the central passage as the rods are drawn therethrough rolls for gripping and drawing the rods through the bending device, and means for supporting the bending device to resist the strain put thereon by drawing the rods therethrough, substantially as described.

3. In a machine for straightening core-wires and similarly-bent wire rods, the combination of a bushing G having a shoulder thereon, a rigid abutment engaging said shoulder, a central passage g through said bushing, a bending-surface g' at the mouth of said passage arranged to engage parts of the rods extending at various angles from the passage g and in various planes and direct said parts into the passage g, rolls A and B having grooves registering with the passage g, means for operating said rolls to draw the rods through the bushing G, and a guide I in the rear of said rolls, substantially as described.

4. In a machine for straightening core-wires and similarly-bent wire rods, the combination of a series of bending devices having central passages of varying diameters, a bending-surface surrounding each passage arranged to engage parts of the rods extending at varies angles to the central passage and in various planes and direct said parts into said passage, rolls provided with a series of grooves corresponding in diameters to the sizes of the central passages and registering therewith, means for supporting the bending devices to resist the strain put thereon by drawing the rods therethrough, and a series of devices for directing the rods away from the rolls in straight lines, substantially as described.

696,845. MASSAGING INSTRUMENT. HERBERT E. LAW, San Francisco, Cal. Filed Dec. 24, 1901. Serial No. 87,063. (No model.)

Claim.—1. In a massaging instrument, a vacuum-chamber having an opening at one end, a movable diaphragm disposed opposite said opening at the end of said chamber and adapted to contact with the walls thereof, and means for moving said diaphragm to create a vacuum; substantially as specified.

2. In a massaging instrument, a vacuum-chamber having an opening at one end, a movable diaphragm disposed opposite said opening at the end of said chamber and adapted to contact with the walls thereof, and a lever pivotally mounted upon a handle extension from said chamber and pivotally connected to said diaphragm; substantially as specified.



3. In a massaging instrument, a vacuum-chamber, an elastic diaphragm contacting with the interior walls of said chamber to produce an immediate suction when withdrawn therefrom and acting mechanically as a spring to restore itself, and means for withdrawing said diaphragm from a central point thereof; substantially as specified.

4. In a massaging instrument, a concaved cup, a concaved rubber diaphragm adapted to contact with the interior walls of said cup, and means connected at a central point for withdrawing said diaphragm therefrom; substantially as specified.

5. In a massaging instrument, a concaved cup, a concaved rubber diaphragm adapted to fit the interior of said cup, a central projection from said diaphragm, and an operating-lever pivotally-mounted upon a fixed part and pivotally connected with said projection; substantially as specified.

6. In a massaging instrument, a concaved cup, a concaved rubber diaphragm adapted to fit the interior of said cup, a central projection from said diaphragm, an operating-lever pivotally mounted upon a fixed part and pivotally connected with said projection, an overturned flange from said diaphragm adapted to embrace the edge of said cup, and a ring fitted over said flange; substantially as specified.

7. In a massaging instrument, a concaved cup, a concaved rubber diaphragm adapted to fit the interior of said cup, a central projection from said diaphragm, an operating-lever pivotally mounted upon a fixed part and pivotally connected with said projection, an overturned flange from said diaphragm adapted to embrace the edge of said cup, a ring fitted over said flange, and an elastic ring at the opposite open end of said cup; substantially as specified.

8. In a massaging instrument, a cup having a concaved inner surface and an annular seat at the inner portion thereof, a supporting-shank from said cup, a rubber diaphragm form to fit said cup and provided at its inner end with a disk portion to fit said seat and at its outer end with an overturned flange a ring over said flange in contact with the outer end of said cup, and means for withdrawing said diaphragm from said cup; substantially as specified

9. In a massaging instrument, a cup having a concaved inner surface and an annular seat at the inner portion thereof, a supporting-shank from said cup, a rubber diaphragm formed to fit said cup and provided at its inner end with a disk portion to fit said seat and at its outer end with an overturned flange, a ring over said flange in contact with the outer end of said cup, means for withdrawing said diaphragm from said cup, a projection centrally secured to said diaphragm, a lever pivoted to said shank and pivotally connected to said projection, and an operating-handle for said lever opposite the handle from said shank; substantially as specified.

10. In a massaging device, a diaphragm adapted for use with a vacuum-chamber and comprising a concaved portion having at its base a circular thickened disk and at its free edge an overturned flange; substantially as specified.

696,846. TOBACCO-SMOKING DEVICE. ALFREDO LEBLANC, Havana, Cuba. Filed June 7, 1901. Serial No. 63,666. (No model.)



Claim.—1. In a tobacco-smoking device, a cigarette-cartridge consisting of a filler and a casing for the same formed of non-combustible stiff material, said casing tapering inwardly from a point at or near the ignition end of the cigarette, and means for feeding the tobacco forward in the casing; substantially as described.

2. A cigarette-cartridge consisting of a filler and a casing of non-combustible stiff material, having a contracted ignition end, an unobstructed inner end, and an inwardly-tapered body portion; substantially as described.

3. In a tobacco-smoking device, a cigarette-cartridge consisting of a filler, a non-combustible casing of stiff material having a contracted ignition end and an inwardly-tapered body portion, and means for feeding the tobacco forward in the casing; substantially as described.

696,847. CORN-HARVESTER. JOSEPH L. LOCKE, Beatrice, Nebr. Filed Jan. 17, 1901. Serial No. 43,601. (No model.)



Claim.—1. In a corn-harvester, a support having forwardly-projecting yielding members, revoluble shafts having their front ends mounted in the front ends of the members of the support, and spiral lifting and conducting coils, mounted in the front ends of the shafts, said coils engaging each other and serving to spread apart the members of the support, as set forth.

2. In a corn-harvester, a support having forwardly-projecting members of spring material, revoluble shafts having their front ends mounted in the front ends of the members of the support, and spiral lifting and conducting coils detachably secured to the forward ends of the shafts, said coils engaging each other and serving to spread apart the members of the support, as set forth.

3. In a corn-harvester, a support having forwardly-projecting members, each member being provided with an inwardly-projecting bracket, shafts having their forward ends mounted in the front ends of the members of the support, spiral lifting and conducting coils secured to the front ends of the shafts, and an inclined spiral stripper and conveyer having its front end resting upon the brackets of the members of the support, as set forth.

4. In a corn-harvester, a bifurcated tongue, spiral lifting and conducting coils mounted to revolve in the front ends of the members of the tongue, a spiral conveyer and stripper arranged to receive the material from the said coils, curved guards secured to the forward ends of the members of the tongue, said guards extending rearwardly and upwardly, and means for operating the said coils and the conveyer and stripper, as set forth.

5. In a corn-harvester, spiral lifting and conducting coils mounted to rotate opposite each other at the forward end of the machine, a driving mechanism which revolves the coils in direction of each other, a spiral conveyer, and stripper, the receiving end of which closely approaches the coils, an adjustable support for the coils and conveyer and stripper, means for imparting rotary motion to the conveyer, and curved guards extending rearwardly and upwardly from the front end of the conveyer and stripper.

6. In corn-harvesters, a bifurcated tongue or pole, removable revoluble spiral coils mounted to revolve at the forward ends of the members of the tongue or pole, and a spiral conveyer and stripper mounted to turn in the space between the members of the tongue or pole, for the purpose set forth.

7. In corn-harvesters, the combination, with a split tongue or pole, shafts extending over the members of the split tongue or pole, having bearing at the outer ends of said members, spiral lifting and conducting coils secured to said shafts, the coils being opposite each other and in near relation to each other, guards extending from the outer end portions of the members of the tongue or pole, which guards are carried outward in opposite directions and are longitudinally tapered and transversely curved, a spiral conveyer and stripper held to turn between the members of the tongue or pole, the forward end of which spiral conveyer and stripper closely approaches the coils, side guards for the said conveyer and stripper, a support for the upper ends of the shafts of the coils and for the upper end of the spiral conveyer and stripper, a driving connection between one of the coil-shafts and the conveyer and stripper, and means, substantially as described, for driving the coil-bearing shafts, as specified.

8. In a corn-harvester, the combination, with a pole or tongue having its forward portion bifurcated, and a box-casing independent of the pole or tongue, the pole or tongue being adapted for attachment to the running-gear of a wagon and the box-casing being adapted for attachment to the body of the wagon, of lifting and conducting coils located at the forward ends of the members of the said tongue or pole, shafts attached to the said coils, which shafts extend in an upward and rearward direction into the box-casing, a spiral conveyer and stripper located between the shafts attached to the coils, the forward end of which conveyer and stripper is adjacent to the rear portions of the coils, a driving connection between the shafts carrying the coils and the conveyer and stripper, means for driving the shafts carrying the coils from a supporting-wheel of the vehicle to which attachment is made, a lever, a support for the lever connected with the box-body, a pulley connected with said lever, an endless chain passed over said pulley, pulleys in the upper side portions of the box-casing, over which the endless chain likewise passes, and pulleys located at the side portions of the tongue or pole intermediate of its ends and at its rear, over which latter pulleys the said endless chain likewise passes, for the purpose set forth.

9. A corn-harvesting attachment to wagons, consisting of a bifurcated tongue or pole, conducting-coils mounted to revolve at the forward ends of the members of the tongue or pole, a spiral conveyer and stripper mounted to turn above the space and partially within the space between the members of the tongue or pole, the forward end of the spiral conveyer and stripper approaching the coils, shafts connected with said coils, a box-casing into which the shafts of the coils and the rear end of the conveyer and stripper extend, a drive-shaft adapted to be driven from a wheel of the wagon, a driving connection between the drive-shaft and the coil-shafts, a driving connection between a coil-shaft and the conveyer and stripper, and a frame supporting the drive-shaft and bearings for the coil-shafts, which frame is adapted to be secured to the side-boards of the vehicle, as described.

10. A corn-husking attachment to vehicles, comprising a tongue or pole, shafts supported at their forward ends on the tongue or pole, spiral conductors secured to the forward ends of said shafts, a spiral conveyer and stripper located between the conductor-shafts, a box-casing into which the upper ends of the conductor-shafts and the conveyer and stripper extend, a frame connected with the box-casing and adapted for attachment to the wagon-body, a drive-shaft carried by said frame, a husking device located within the box-casing, an elevator having one end beneath the husking device and the other end at the rear portion of said frame, a receptacle adapted to receive the husks, a suction-fan located within said receptacle, and a delivery-pipe for the husks, connected with the receptacle and extending outside of the box-body, for the purpose set forth.

11. In a corn-harvester, a bifurcated tongue, means for raising and lowering said tongue, spiral conductors located at the forward ends of the members of said tongue, a spiral conveyer and stripper located above and partially within the space between the members of the tongue, the forward end of the conveyer and stripper approaching the conductors, a box-casing adapted for attachment to a wagon-body, a frame connected with the box-casing which secures the box-casing to the wagon-body, a drive-shaft carried by the frame, and a driving and universal connection between the drive-shaft and the conductor-shafts, the rear ends of the conductor-shafts and the rear end of the conveyer and stripper being mounted in a block loosely placed in said box-casing, and a driving connection between the conductor-shafts and the conveyer and stripper, as specified.

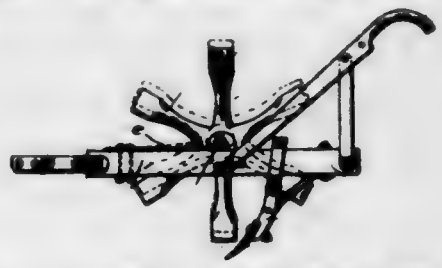
12. In a corn-harvester, a bifurcated tongue, and a revoluble spiral lifting and conducting coil projecting from the end of each member of the tongue, as set forth.

13. In a corn-harvester, a bifurcated tongue, a revoluble spiral lifting and conducting coil projecting from the front end of each member of the tongue, and a stripper and conveyer having its front end extending in close proximity to the said coils, as set forth.

14. In a corn-harvester, a bifurcated tongue the members of which are of spring material, shafts mounted in bearings at the front ends of the members of the tongue, and a spiral lifting and conducting coil secured to the front end of each shaft, substantially as described.

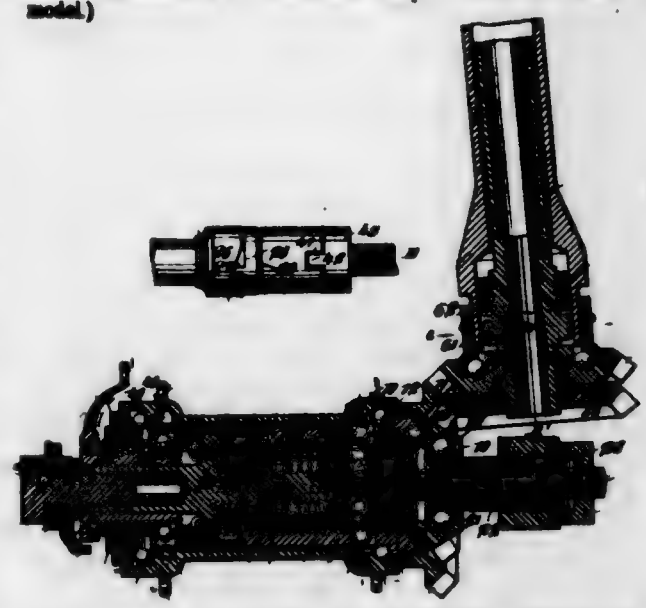
15. In a corn-harvester, a bifurcated tongue, the members of which are of spring material, shafts mounted in bearings at the front ends of the members of the tongue, a spiral lifting and conducting coil secured to front end of each shaft, and a conveyer and stripper having its front end extending into close proximity to the said coils, substantially as described.

696,848. COTTON-CHOPPER. ROBERT F. LOWREY, Perdueh ill, Ala. Filed Sept. 10, 1901. Serial No. 74,894. (No model.)



Claim.—A cotton-chopper consisting of the combination with the laterally-adjustable beams carrying the cultivator-shares, of the plate-springs having a plurality of transverse slots at one end portion thereof, allowing for both lateral and longitudinal adjustment of the springs, and journal-eyes at the opposite end portions thereof, the bolts engaging a portion of said slots and connecting beams and springs, and the chopper-wheel having outwardly-presenting cups, and provided with bearings in said eyes, substantially as specified.

696,849. CHANGEABLE GEAR FOR BICYCLES. HYLA F. MAYNES, Corning, N. Y. Filed July 2, 1901. Serial No. 66,812. (No model.)



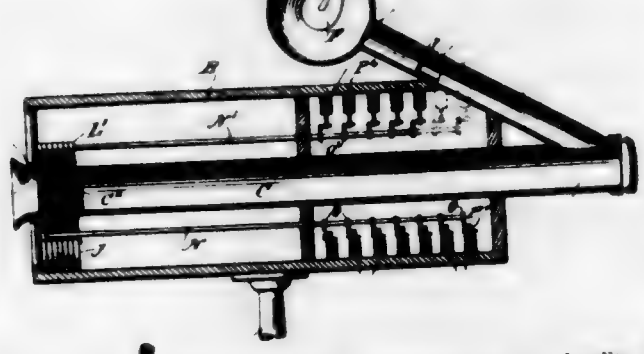
Claim.—1. In a changeable gear for bicycles, a hub for the rear wheel, provided with independently-acting gears, one gear being for high speed and the other for low speed, a drive-shaft adapted to drive the hub of the said rear wheel, which drive-shaft carries two gears one meshing with the high-speed gear of the hub and the other with the low-speed gear of the hub, and means for bringing either the high-speed or the low-speed gear in action through back-pedaling, for the purpose set forth.

2. In a changeable gear for bicycles, a hub for the rear wheel, provided with independently-acting gears, one gear being for high speed and the other for low speed, a drive-shaft adapted to drive the hub of the said rear wheel, which drive-shaft carries two gears, one meshing with the high-speed gear of the hub and the other with the low-speed gear of the hub, and means for bringing either the high-speed or the low-speed gear in action through back-pedaling, and a brake-operating arm likewise carried by the hub of the rear wheel, which arm is also brought into action by back-pedaling, as described.

3. A changeable-speed gear for bicycles, comprising a hub for the rear wheel provided with separate gears for high and low speeds, a rotating side shaft provided with gears rigidly connected therewith for engaging said separate gears independently, and a back-pedaling device for connecting either said high gear or said low gear with one of said gears upon said shaft.

4. A changeable-speed gear for velocipedes, comprising a hub, a rear wheel provided with separate high and low speed gears, corresponding rigidly-connected gears having the same axis for both, for engaging said separate speed-gears independently, and a back-pedaling device for connecting either of said high or low speed gears with its corresponding one of said rigidly-connected gears.

696,350. SKIASCOPE. KIRK A. MOTT, Avalon, Mo. Filed Nov 1, 1901. Serial No. 80,825. (No model.)



Claim.—1. A skiascope, having a sight-tube, and a plurality of manually-controlled lenses, an independent carrier for each lens, and means for independently adjusting each into axial alinement with the said sight-tube, as set forth.

2. A skiascope, having a sight-tube, a light-supply tube connected thereto at one end and at angles to the sight-tube, and a plurality of manually-controlled lenses, an independent carrier for each lens, and means for independently adjusting each into axial alinement with the sight-tube at the end opposite the one carrying the light-supply tube, as set forth.

3. A skiascope, having a sight-tube, a light-supply tube connected thereto at one end and at angles to the sight-tube, a plurality of manually-controlled lenses adapted to be moved independently into axial alinement with the sight-tube at the end opposite the one carrying the light-supply tube, and an apertured slide under the control of the operator and movable in the said light-supply tube, as set forth.

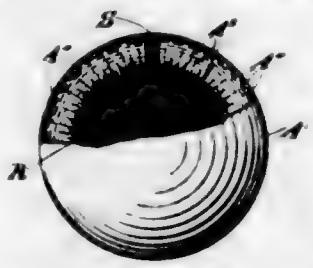
4. A skiascope, having pivoted frames each carrying a separate lens and normally standing in an inactive position, and means under the control of the operator for imparting an independent swinging motion to each of the said frames, to bring either one of the frames in axial active position, as set forth.

5. A skiascope, having a sight-tube, an eyepiece in alinement with the said sight-tube, pivoted lens-frames each carrying a separate lens and normally standing in an inactive position relative to the said sight-tube, and means under the control of the operator for imparting independent swinging motion to each of the said lens-frames, to bring either one of the lenses into an axial position relative to the sight-tube and eyepiece, as set forth.

6. A skiascope, having a sight tube, an eyepiece in alinement with the said sight-tube, pivoted lens-frames carrying lenses and normally standing in an inactive position relative to the said sight-tube, and means under the control of the operator for imparting independent swinging motion to the said lens-frames, to bring either one of the lenses into an axial position relative to the sight-tube and eyepiece, the said means comprising spring-pressed slides, one for each lens-frame, and a rock-shaft having arms at each end, one of the arms being connected with the said slide and the other with the said lens-frame, as set forth.

7. A skiascope, having a sight-tube adapted to view one eye of the patient, and a mirror outside the sight-tube and located on the skiascope, for reflecting distant objects to the other eye of the patient, as set forth.

696,351. PLAYING-BALL. FRANCIS H. RICHARDS, Hartford, Conn., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Dec. 3, 1901. Serial No. 84,529. (No model.)



Claim.—1. A whole hollow rubber sphere in a state of expansion upon a solid core of gutta-percha.

2. An integral hollow rubber sphere in a state of expansion upon a solid core.

3. An integral sphere of rubber expanded over a solid and relatively hard filling formed from plastic material.

4. A ball consisting of a whole thick spherical india-rubber sphere closely fitted over a solid sphere of gutta-percha.

5. A ball comprising a whole sphere of firm india-rubber in a state of expansion over a solid sphere of gutta-percha, the diameter of the core being more than one-half that of the ball.

6. An integral sphere of soft, elastic material closely fitted upon a solid core of gutta-percha.

7. A ball comprising a solid spherical gutta-percha core and a highly-vulcanized solid soft-rubber envelop expanded thereon.

8. A ball consisting of a core formed of plastic material within a softer elastic sphere and holding the latter under tension.

9. A ball consisting of a thick, spherical india-rubber envelop A^3 stretched over a core of gutta-percha R and having an opening closed by a plug S.

10. In a playing-ball, a spherical soft-rubber shell inflated or distended by a mobile mass injected thereinto.

11. In a playing-ball, a spherical shell formed of springy material and inflated or distended by gutta-percha injected thereinto.

12. In a playing-ball, a shell formed from springy material and inflated or distended by springy mobile material injected thereinto.

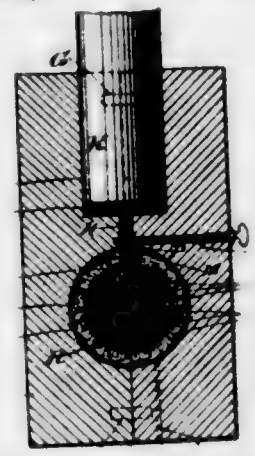
13. In a playing-ball, a springy shell inflated or distended by springy material injected thereinto, one of said shell and injected material elements being harder than the other.

14. In a playing-ball, a seamless springy shell inflated or distended by springy material injected thereinto, one of said shell and injected material elements being harder than the other.

15. In a playing-ball, a springy shell inflated or distended by springy material injected thereinto, said shell being softer than said injected material

16. In a playing-ball, a seamless rubber shell expanded by gutta-percha injected thereinto.

696,352. MANUFACTURE OF PLAYING-BALLS. FRANCIS H. RICHARDS, Hartford, Conn., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Dec. 9, 1901. Serial No. 85,140. (No model.)



Claim.—1. A process in producing playing-balls, consisting in forcing sufficient fluent mass into a hollow elastic sphere to swell or expand said sphere, and causing said mass to harden and form a permanent core therein.

2. A process in producing playing-balls, consisting in forcing a fluent mass into the interior of a collapsible sphere and hardening said mass to form a permanent core.

3. A process in producing playing-balls, consisting in reducing material to a fluent condition, forcing it into a hollow elastic sphere so as to

fill and swell the latter, and allowing said material to dry or harden so as to form a core.

4. A process in producing playing-balls, consisting in molding a core within a previously-formed collapsible hollow sphere.

5. A process in producing playing-balls, consisting in stretching a soft sheet-rubber envelop upon a core.

6. A process in producing playing-balls, consisting in distending a sheet-rubber envelop upon a core of gutta-percha.

7. A process in producing playing-balls, consisting in distending a soft sheet-rubber envelop upon a core of harder springy material.

8. A process in producing playing-balls, consisting in forcing a moldable mass through a hole formed in a hollow sphere causing said mass to harden and form a core, and then plugging said hole.

9. A process in producing playing-balls, consisting in forcing sufficient mass through a hole formed in a yielding hollow sphere to form a core whose bulk exceeds the original capacity of the sphere, so as to expand said sphere, and then plugging said hole.

10. A process in producing playing-balls, consisting in reducing a mass of solid matter to a fluent condition, introducing said mass through a hole formed in a hollow rubber sphere until said sphere is distended and then plugging up said hole.

11. A process in producing playing-balls, consisting in reducing a mass of yielding solid matter to a fluent condition, forcing said mass into a hollow rubber sphere, until said sphere is distended, and causing said mass to harden while under pressure.

12. A process in producing playing-balls, consisting in reducing solid matter to a fluent state by means of heat, and forcing said matter into a hollow sphere.

13. A process in producing playing-balls, consisting in heating gutta-percha, and introducing it into a hollow rubber sphere.

14. A process in producing playing-balls, consisting in heating gutta-percha, and forcing it into a hollow rubber sphere so as to distend the latter and form a core therewithin.

15. A process in producing playing-balls, consisting in heating gutta-percha, then forcing it through a hole formed in a hollow rubber sphere so as to distend the interior of the latter, and then plugging said hole with rubber.

16. A process in producing playing-balls, consisting in heating gutta-percha, forcing it into a hollow rubber sphere so as to distend the latter, and allowing said gutta-percha to solidify under pressure.

17. A process in producing playing-balls, consisting in forming a soft-rubber hollow sphere with a vent, inserting a funnel into said sphere, heating gutta-percha, causing said gutta-percha to flow through said funnel and force out the air through said vent, subjecting the gutta-percha to pressure so as to distend said rubber sphere, preventing the escape of the gutta-percha through said vent during the application of pressure, allowing the gutta-percha to harden under pressure, withdrawing the funnel, and plugging the vent.

18. A process in producing playing-balls, consisting in placing a hollow sphere of rubber within a larger spherical chamber, forcing heated gutta percha into said sphere until it distends sufficiently to fill said chamber, and solidifying said gutta-percha while said sphere remains in said chamber.

19. A process in producing playing-balls, consisting in placing a hollow sphere of rubber within a larger spherical chamber, forcing heated gutta-percha into said sphere, thereby causing the same to distend and to be compressed against the walls of said chamber, and drying or solidifying said gutta-percha before removing said sphere from said chamber.

20. A process in producing playing-balls, consisting in placing a hollow sphere of rubber within a larger spherical chamber, forcing heated gutta-percha into said sphere until it distends sufficiently to fill said chamber, allowing said gutta-percha to solidify while said sphere remains in said chamber, and plugging the opening in the sphere through which the gutta-percha is injected.

21. A process in producing playing-balls, consisting in forming a hollow sphere of firm, highly-vulcanized rubber, inserting a funnel into said sphere, placing said sphere within a spherical chamber of larger diameter, heating gutta-percha, causing said gutta-percha to flow through said funnel into the interior of said sphere and drive out the air, preventing continued escape of gutta-percha, subjecting the gutta-percha to pressure so as to distend said sphere until it fills said chamber, and causing said gutta-percha to solidify while under pressure.

22. A process in producing playing-balls, consisting in introducing a fluent mass into a hollow sphere of india-rubber, permitting the air to escape from said hollow sphere, closing the air-vent, and forcing extra fluent mass into the sphere so as to distend the latter.

23. A process in producing playing-balls, consisting in introducing a fluid mass into a hollow sphere of india-rubber, permitting the air to escape from said hollow sphere at a point near the point of introduction of said fluid mass, closing the air-vent, and forcing extra fluent mass into the sphere so as to distend the latter.

24. A process of producing playing-balls, consisting in stretching a soft envelop by forcing a fluent mass thereinto and causing said mass to form a permanent hard core or filling too large for the normal capacity of said envelop.

25. A process in producing playing-balls, consisting in stretching a soft envelop by forcing a fluent mass thereinto and causing said mass to form a permanent hard core or filling too large for the normal capacity of said envelop, and also causing the exterior of said envelop to acquire a predetermined form.

26. A process in producing playing-balls, consisting in introducing a fluent mass into the interior of a collapsible envelop, causing the exterior of said envelop to acquire a predetermined form, and hardening said mass within said envelop while such form is maintained.

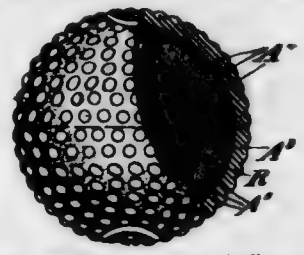
27. A process in producing playing-balls, consisting in reducing hard material to a fluent condition, filling an envelop therewith, and causing said material to harden within said envelop.

28. A process in producing playing-balls consisting in reducing hard material to a fluent condition, forcing it into an envelop so as to swell or expand the latter, and causing said material to harden so as to form a permanent core too large for the normal capacity of the envelop.

29. A process in producing playing-balls consisting in molding a hard springy core within a previously-formed soft-rubber envelop.

30. A process in making playing-balls, consisting in making an elastic envelop of approximate form but undersized, expanding said envelop to full size by running material within the same under pressure, closely confining said envelop while said material is under pressure therewithin, and causing said material to form a permanent core.

696,853. GOLF-BALL. FRANCIS H. RICHARDS, Hartford, Conn., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Dec. 14, 1901. Serial No. 85,892. (No model.)



Claim.—1. A ball comprising a whole hollow rubber sphere in a state of expansion upon a solid core of gutta-percha, and a wear-resisting cover upon said sphere.

2. A ball comprising an integral hollow rubber sphere in a state of expansion upon a solid core, and a shell of plastic material compressed upon said sphere.

3. A ball comprising an integral sphere of rubber expanded over a solid and relatively hard filling formed from plastic material, and a shell holding said sphere under compression.

4. A ball consisting of a whole thick spherical india-rubber sphere in a state of expansion over a solid sphere of gutta-percha, and a celluloid shell upon said rubber sphere.

5. A ball comprising a whole sphere of firm india-rubber in a state of expansion over a solid sphere of gutta-percha, the diameter of the core being more than one-half that of said sphere, and a celluloid shell compressed upon said sphere.

6. A ball comprising an integral sphere of soft, elastic material expanded upon a solid core of gutta-percha, and a shell formed largely or wholly of plastic material and holding said sphere under compression.

7. A ball comprising a solid spherical gutta-percha core, a highly-vulcanized solid soft-rubber envelop expanded thereon, and a shell consisting at least partially of celluloid and gripping said envelop.

8. A ball consisting of a core formed of plastic material within a softer solid elastic sphere and holding the latter under tension, and a shell formed at least partially of plastic material and holding said sphere under compression.

9. A ball consisting of a thick, spherical india-rubber envelop A^3 stretched over a core of gutta-percha E and having an opening closed by a plug S, and a celluloid shell upon said envelop.

10. In a playing-ball, the combination of a spherical soft-rubber shell inflated or distended by a mobile mass injected thereinto, and a wear-resisting cover or casing upon said soft-rubber shell.

11. In a playing-ball, the combination of a spherical shell formed of springy material and inflated or distended by gutta-percha injected thereinto, and a hard casing formed of plastic material upon said springy shell.

12. In a playing-ball, the combination of a shell formed from springy material and inflated or distended by springy mobile material injected thereinto, and a hard casing upon said shell.

13. In a playing-ball, the combination of a springy shell inflated or distended by springy material injected thereinto, one of said shell and injected-material elements being harder than the other, and a hard casing upon said shell.

14. In a playing-ball, the combination of a seamless springy shell inflated or distended by springy material injected thereinto, one of said shell and injected-material elements being harder than the other, and a hard casing formed of segments and welded and compressed upon said shell.

15. In a playing-ball, the combination of a springy shell inflated or distended by springy material injected thereinto, said shell being softer than said injected material, and a casing formed of harder material than said shell and holding the latter under compression.

16. In a playing-ball, the combination of a seamless rubber shell expanded by gutta-percha injected thereinto, and a hard shell formed of plastic material and gripping said rubber shell.

17. In a playing-ball, the combination of a spherical soft-rubber shell inflated or distended by gutta-percha injected thereinto, and a casing formed of plastic material and compressed upon said shell.

18. In a playing-ball, the combination of a spherical shell formed of springy material and inflated or distended by gutta-percha injected thereinto, and a casing formed of segments of plastic material welded and compressed upon said spherical shell.

19. In a playing-ball, the combination of a shell formed of springy material and inflated or distended by springy mobile material injected thereinto, and a casing consisting at least partially of celluloid and holding said springy shell under compression.

20. In a playing-ball, the combination of a springy shell inflated or distended by springy material injected thereinto, and a welded casing of springy material powerfully gripping said shell.

21. In a playing-ball, the combination of a seamless springy shell inflated or distended by springy material injected thereinto, one of said shell and injected-material elements being harder than the other, and a casing of celluloid holding said seamless shell under compression.

22. In a playing-ball, the combination of a springy shell inflated or distended by springy material injected thereinto, said shell being softer than said injected material, and a casing consisting of welded segments holding said shell under compression; said casing consisting largely or wholly of celluloid.

23. In a playing-ball, the combination of a seamless rubber shell expanded by gutta-percha injected thereinto, and a celluloid casing compacted upon said shell and holding the latter under compression.

24. A playing-ball comprising a solid soft spherical envelop expanded upon a core and a hard shell compressed upon said envelop.

25. A playing-ball comprising a solid spherical envelop expanded upon a core and a shell of compressed celluloid upon said envelop.

26. In a playing-ball, the combination of a filling consisting of a spherical envelop of soft material expanded upon a solid sphere and a shell consisting of compressed segments of celluloid and holding said filling under compression.

27. In a playing-ball, the combination of a filling consisting of a solid spherical envelop of highly-vulcanized soft rubber of firm texture, expanded upon a spherical core of hard material, and a shell of hard, springy, wear-resisting material compressed upon said envelop.

28. A playing-ball comprising a solid soft spherical envelop expanded upon a solid sphere of gutta-percha, and a shell formed of plastic material and compressed upon said envelop.

29. In a playing-ball, the combination with a filling of a soft spherical envelop expanded upon a solid gutta-percha sphere, the diameter of said sphere being more than one-half the outer diameter of said envelop, and a shell of compressed plastic material incasing said filling and holding the same under compression.

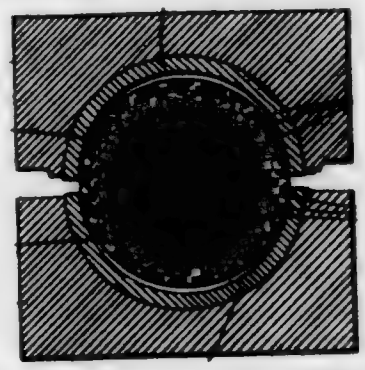
30. In a playing-ball, the combination with a filling consisting of a spherical envelop of soft rubber of firm texture expanded upon a gutta-percha sphere, the diameter of said gutta-percha sphere being about two-thirds the outer diameter of said spherical envelop, and a celluloid shell compressed upon said envelop and powerfully gripping the latter.

696,854. MANUFACTURE OF GOLF-BALLS. FRANCIS H. RICHARDS, Hartford, Conn., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 8, 1902. Serial No. 88,842. (No model.)

Claim.—1. A process in producing playing-balls, consisting in filling and distending a hollow sphere by forcing a fluent mass thereinto, and providing said distended sphere with a hard, wear-resisting shell.

2. A process in producing playing-balls, consisting in forcing a fluent mass into the interior of a yielding sphere, hardening said mass to form a core, and compressing a shell upon said sphere.

3. A process in producing playing-balls, consisting in reducing material to a fluent condition, forcing it into a hollow sphere so as to fill and distend the latter, allowing said material to dry or harden so as to form a core, and incasing said sphere in celluloid.



4. A process in producing playing-balls, consisting in molding a core within a previously-formed hollow sphere, and securing a wear-resisting cover upon said sphere.

5. A process in producing playing-balls, consisting in distending a solid soft-rubber sphere upon a core, and forming a cover upon said envelop.

6. A process in producing playing-balls, consisting in distending a rubber envelop upon a core of gutta-percha, inclosing said envelop in a celluloid shell, heating said shell sufficiently to soften the celluloid, subjecting the shell while heated to compression upon said envelop, and maintaining the compression until the shell cools and hardens.

7. A process in producing playing-balls, consisting in forcing a mass through a hole into a hollow sphere so as to fill the hollow and form a core, then plugging said hole, and then compressing a shell upon said sphere.

8. A process in producing playing-balls, consisting in reducing a mass of solid matter to a fluent condition, introducing said mass through a hole in a hollow rubber sphere until said sphere is distended, then plugging up said hole, and then compressing a shell upon said sphere under heat and pressure.

9. A process in producing playing-balls, consisting in reducing a mass of yielding solid matter to a fluent condition, forcing said mass into a hollow rubber sphere, until said sphere is distended, causing said mass to harden while under pressure, and compressing a shell upon said sphere.

10. A process in producing playing-balls, consisting in reducing solid matter to a fluent state by means of heat, forcing said matter into a hollow sphere, and compressing a moldable shell upon said sphere by means of heat and pressure.

11. A process in producing playing-balls, consisting in heating gutta-percha, introducing it into a hollow rubber sphere, and molding a shell of celluloid upon said sphere.

12. A process in producing playing-balls, consisting in heating gutta-percha, forcing it into a hollow rubber sphere so as to distend the latter and form a core therewithin, and compressing upon said sphere a shell of moldable material.

13. A process in producing playing-balls, consisting in heating gutta-percha, then forcing it through a hole into the interior of a hollow rubber sphere so as to distend the latter, then plugging said hole with rubber, and then compressing a celluloid shell upon said sphere.

14. A process in producing playing-balls, consisting in heating gutta-percha, forcing it into a hollow rubber sphere so as to distend the latter, allowing said gutta-percha to solidify under pressure, and molding a celluloid shell upon said sphere under heat and pressure.

15. A process in producing playing-balls, consisting in forming a soft-rubber hollow sphere with a vent, inserting a funnel into said sphere, heating gutta-percha, causing said gutta-percha to flow through said funnel and force out the air through said vent, subjecting the gutta-percha to pressure so as to distend said rubber sphere, preventing the escape of the gutta-percha through said vent during the application of pressure, allowing the gutta-percha to harden under pressure, withdrawing the funnel, plugging the vent, inclosing said sphere in spherical segments of celluloid, and welding said segments and compressing said shell under heat and pressure.

16. A process in producing playing-balls, consisting in placing a hollow sphere of rubber within a larger spherical chamber, forcing heated gutta-percha into said sphere until it distends sufficiently to fill said chamber, solidifying said gutta-percha while said sphere remains in said chamber, withdrawing said sphere from said chamber, and compressing shell-segments upon said sphere under heat and pressure.

17. A process in producing playing-balls, consisting in placing a hollow sphere of rubber within a larger spherical chamber, forcing heated gutta-percha into said sphere, thereby causing the same to distend and to be compressed against the walls of said chamber, and drying or solidifying said gutta-percha before removing said sphere from said chamber, and compressing celluloid shell-segments upon said sphere by means of heat and pressure.

18. A process in producing playing-balls, consisting in placing a hollow sphere of rubber within a larger spherical chamber, forcing heated gutta-percha into said sphere until it distends sufficiently to fill said chamber, allowing said gutta-percha to solidify while said sphere remains in said chamber, plugging the opening in the sphere through which the gutta-percha is injected, and compressing a shell upon said sphere so as to hold the same under external compression.

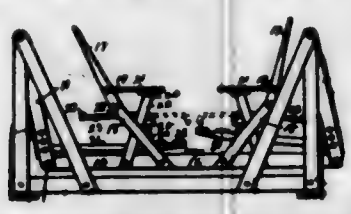
19. A process in producing playing-balls, consisting in forming a hollow sphere of firm, highly-vulcanized rubber, inserting a funnel into said sphere, placing said sphere within a spherical chamber of larger diameter, heating gutta-percha, causing said gutta-percha to flow through said funnel into the interior of said sphere and drive out the air, preventing continued escape of gutta-percha, subjecting the gutta-percha to pressure so as to distend said sphere until it fills said chamber, causing said gutta-percha to solidify while under pressure, and forming a celluloid shell upon said sphere under heat and pressure.

20. A process in producing playing-balls, consisting in introducing a fluent mass into a hollow sphere of india-rubber, permitting the air to escape from said hollow sphere, closing the air-vent, forcing extra fluent mass into the sphere so as to distend the latter, allowing said fluent material to solidify, and compressing heated celluloid segments upon said sphere.

21. A process in producing playing-balls, consisting in introducing a fluid mass into a hollow sphere of india-rubber, permitting the air to escape from said hollow sphere at a point near the point of introduction of said fluid mass, closing the air-vent, forcing extra fluent mass into the sphere so as to distend the latter, and molding a shell upon said sphere.

22. A process in producing playing-balls, consisting in forming a ball from a soft-rubber sphere by molding a hard core in said sphere and also inclosing said sphere in a wear-resisting shell; said process including an operation whereby said sphere is compressed between said core and said shell.

696,855. SWING. CHRISTIAN A. SALEMAN, Hamilton, Ohio, assignor to The Saleman Manufacturing Company, Hamilton, Ohio. Filed Nov. 1, 1900. Serial No. 35,146. (No model.)



Claim.—1. In a swing, the combination with swing-bars, beams supported near their extremities thereon, means to support said bars, and a seat mounted on the beams, of a foot-rest having one end pivotally secured to the bars and above one end of the beams and terminating at the other end in front of the seat, and means to adjustably support the foot-rest in relation to the seat.

2. In a swing, the combination with swing-bars, horizontal beams supported thereon, means to support said bars, of seats formed with sliding bottoms being mounted on the beams and facing each other, and horizontal guides arranged to support the bottoms and whereon they may be moved toward each other to cover the space between the backs of the seats, and means to maintain said bottoms in a horizontal position when so adjusted.

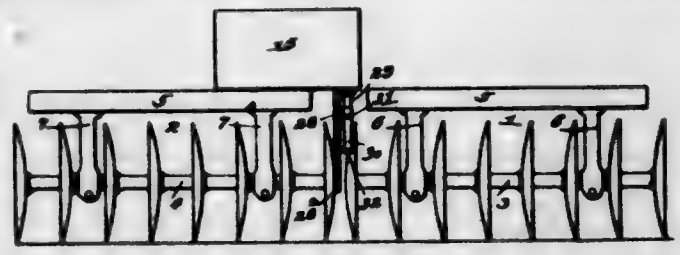
3. In a swing, the combination with a seat formed with a sliding bottom which terminates at its front edge in a depending lip, of horizontal guides arranged to support the bottom and formed with notches near their front ends adapted to engage with the lip, whereby the bottom is supported in a rearwardly-slanting position, and means to maintain the bottom in a horizontal position when it is moved farthest in a forward direction.

4. In a swing, the combination with swing-bars, beams suspended in a horizontal position thereon, means to support the bars, and a seat mounted on the beams, of a foot-rest pivoted at one end to the swing-bars and adjustable thereon more or less distant above the beam, and means to adjustably support the other end thereof in relation to the seat.

5. The combination with a lawn-swing, having a main supporting-frame provided with ground-rails, and low centrally-open side pieces having their upper ends nearly on a level with the chair-seats, of the hangers pivotally supported from the upper portion of said main frame, the swinging side rails, bracing pivot-rods connecting said hangers and side rails, the chairs carried by said swinging side rails, a foot-rest, and means in connection with said foot-rest for operating said swing, substantially as specified.

696,856. SEEDER. WILLIAM H. SMITH, Eureka, Ill. Filed Apr. 13, 1901. Serial No. 55,788. (No model.)

Claim.—1. An attachment for disk harrows, comprising a seeding-hopper supported above one series of disks and arranged with devices for distributing seed or grain at the rear of and in a path left vacant by the action of the inner matching right and left hand disks of the series, and mechanism for actuating the seeding devices in the hopper, substantially as described.

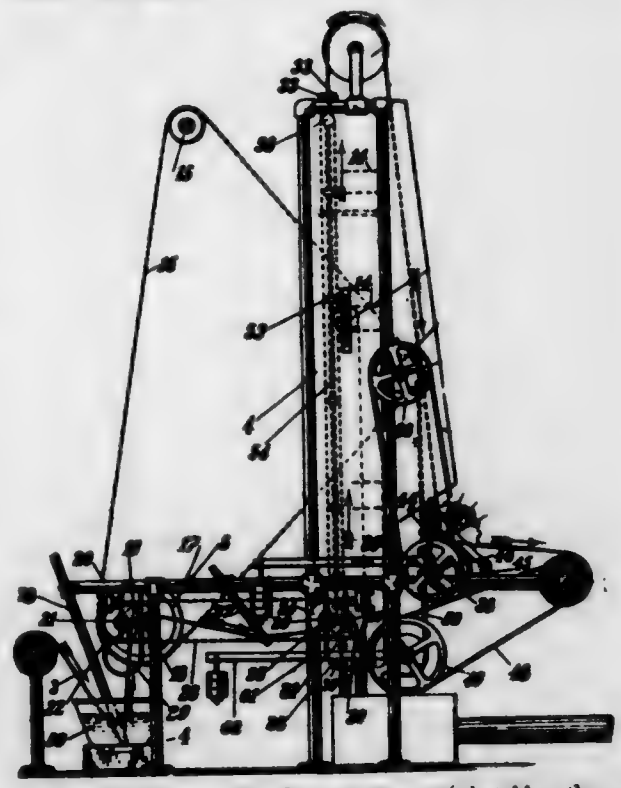


2. In combination with a disk harrow having right and left hand disks, a seeding attachment supported above one series of disks and extending over the vacant space between the inner matching right and left hand disks, a valve in the seeding attachment and a spout having connection with said valve and extending down and at the rear of the disks and arranged to distribute grain or seed over a vacant ridge left by the opposite action of the matching disks, and mechanism for actuating the seeder, substantially as described.

3. A seeding attachment for machines of the character described, comprising a hopper supported at the inner end and above one series of disks, a false bottom arranged in the hopper, a valve-port and a sliding valve above the port and agitating mechanism arranged above the valve and port, and means for actuating the agitator and adjusting mechanism for the valve, and a grain-spout shiftable to suitable angles arranged to drop grain or seed in a path left vacant by the action of the inner right and left hand disks of the series, substantially as described.

4. An attachment for disk harrows arranged to distribute grain or seed at the rear of and in the path of travel between the inner matching right and left disks, comprising the seedbox 16, having valve-opening and a sliding valve-plate with a corresponding opening, means of regulating the valve-plate, a false bottom 23, an agitator journaled on a suitable spindle and rotatable above the valve, and a telescoping grain-spout composed of the sections 29 and 30 having connection with the valve and arranged in a path at the rear of and between the inner matching right and left disks, substantially as described.

696,857. MACHINE FOR SATURATING MANTLE MATERIALS. OSCAR WIEDENBOLD, Bloomfield, N. J. Filed Sept. 12, 1901. Serial No. 75,144. (No model.)



Claim.—1. In a machine for saturating mantle-tubing the combination of a saturating device and a drying device provided with means for maintaining the tubing in an open or distended condition in the drying device.

2. In a machine for saturating mantle-tubing the combination of a saturating device, a drying device and a freely-movable tubing opening or distending device adapted to be surrounded by the mantle in its passage through the drying device.

3. In a machine for saturating mantle-tubing the combination of a

saturating device, propelling devices, a drying device and a rod located in the drying device and freely movable with respect thereto, over which rod the mantle-tubing is adapted to be drawn, whereby the mantle-tubing will be efficiently dried in its passage over the rod.

4. In a machine for saturating mantle-tubing the combination of a saturating device, propelling devices and a spreader-rod adapted to be inclosed by the mantle-tubing and having enlargements thereon for spreading the mantle.

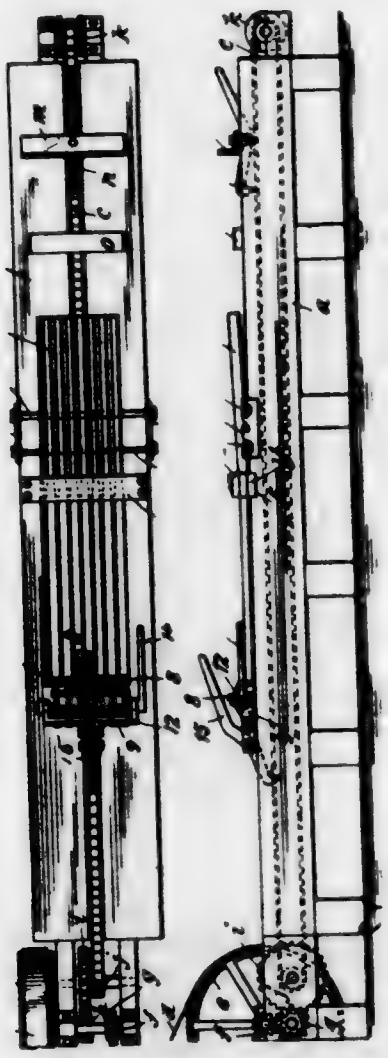
5. In a machine for saturating tubing the combination of a saturating device, means for propelling the tubing in the machine, a drying-chamber with means for supplying air thereto, and means for maintaining the tubing in an open or distended condition in the drying device.

6. In a machine for saturating tubing, the combination of a saturating device, means for maintaining the tubing in an open or distended condition after it leaves the saturating device, and a drying-chamber provided with two compartments side by side, and air-conveying ducts intervening between the compartments.

7. In a machine for saturating tubing the combination of a saturating device and propelling device for the tubing, a drying device, means for maintaining the tubing in an open or distended condition and a tension device for maintaining an even tension on the tubing substantially as described.

8. In a machine for saturating mantle material in the form of tubing, the combination of a saturating device and a drying device including means for maintaining the walls of the tubing out of contact with each other, and a tension device for maintaining an even tension on the goods.

696,858. MACHINE FOR DOVETAIL-CORRUGATING SHEET METAL. THOMAS BAILEY, New York, N. Y. Filed June 22, 1901. Serial No. 65,542. (No model.)



Claim.—1. The combination with the draw-bench, endless chain and means for operating the chain, said bench having the longitudinal slot above the chain, of the die-box and dies therein attached to the bench, movable pusher located on the bench in front of the dies, hook-lever on the pusher for connecting with the chain, movable gripping-jaws located on the bench behind the jaws, and the hook-lever for connecting the grippers with the chain.

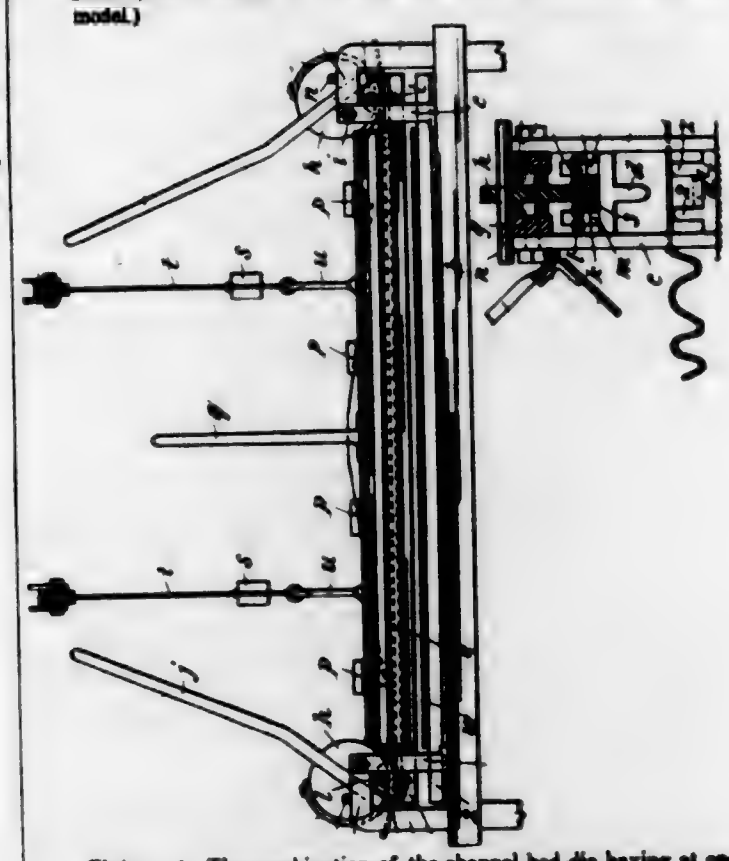
2. The combination with the slotted draw-bench, pusher, grippers, endless chain, means for operating said chain, and hook-levers for connecting said pusher and grippers respectively with the chain, of a gang of corrugating-dies comprising two series, one of which acts on one side of the sheet and the other series acts on the other side of said sheet, said dies of the two series arranged in alternate order in the gang.

3. The combination with the draw-bench, pusher, grippers, endless chain, means for operating said chain, said bench having the longitudinal slot, and means for connecting said pusher and grippers with the chain respectively, of a gang of corrugating-dies, comprising two series, one of which acts on one side of the sheet, and the other series acts on the other side of said sheet, said dies detachably connected to their respective supports by dovetail ribs and grooves adapted to maintain tight connection with their supports by the stress of the work on the dies.

4. The combination with the draw-bench and the plurality of dies arranged in a gang, of the series of pairs of grippers arranged to engage the upper bends of the crimped sheet projecting from the dies, cross-head carrying the gripping-fingers, cam-shaft carried on said cross-head and adapted to effect the grip of the fingers on the sheets, and means for operating the cross-head.

5. The combination with the draw-bench, pusher, corrugating-dies, grippers, and means for operating the pusher and grippers, of one or more sheet-bending rods located in advance of the dies.

696,859. SHEET-METAL-CORRUGATING MACHINE. THOMAS BAILEY, New York, N. Y. Filed June 22, 1901. Serial No. 65,542. (No model.)



Claim.—1. The combination of the channel bed-die having at one side of the channel a rib 2 over which crimps may be formed, a vertically-movable T-die, guide-posts controlling the movable die, and lever-actuated and flanged eccentrics, one at each end of the die for operating the movable die.

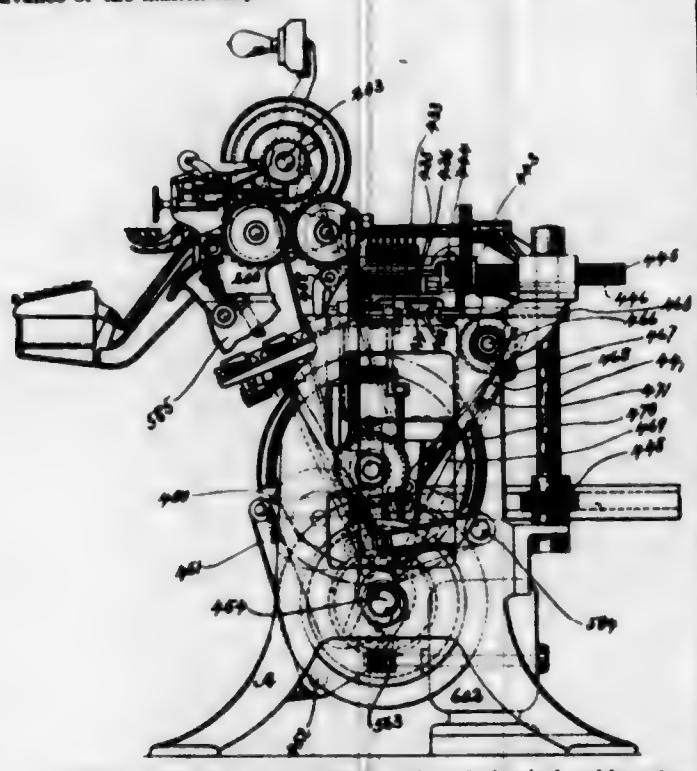
2. The combination of the channel bed-die having at one side of the channel a rib 2 over which crimps may be formed, a vertically-movable die, and lever-actuated and flanged eccentrics, one at each end for operating the movable die, and guide-posts controlling the movable die, said eccentrics pivoted in the guide-posts, posts guiding the movable die endwise and connected by arms of the upper ends with the side guide-posts, and locking-pins for the eccentrics supported on said arms.

3. The combination with the channel bed-die having at one side of the channel a rib 2 over which crimps may be formed, the vertically-movable T-die, and means for operating said die, of the crimp-bender hinged to the movable die in the described relation to the said rib of the bed-die for successively bending the sheets laterally in the crimps.

696,860. MACHINE FOR PRODUCING PRINTING-BARS. EBEN V. BEALS, Boston, Mass. Filed Sept. 13, 1899. Serial No. 730,570. (No model.)

Claim.—1. The combination with carriers moving in opposite directions, of arms having a plurality of matrix-strips connected therewith, the hooks on the ends of said arms for temporarily connecting the same with said carriers, a plurality of magnets for holding the hooks in engagement with the carriers, and springs for disconnecting said hooks from said carriers, when said magnets are demagnetized.

2. The combination of a multiple series of circuit-breaking rings temporarily set by a plurality of finger-boards, a plurality of magnets electrically controlled thereby, carriers having said magnets mounted thereon, arms having a plurality of matrix-strips connected therewith, means whereby said arms are temporarily connected with said carriers, and springs for disconnecting said arms from said carriers to arrest the advance of the matrix-strips.



3. The combination of a multiple series of circuit-breaking rings temporarily set by a plurality of finger-boards, a multiple series of circuit-breaking levers, a plurality of magnets electrically connected therewith, carriers having said magnets mounted thereon, arms having a plurality of matrix-strips connected therewith, means whereby said arms are temporarily connected with said carriers, and springs for disconnecting said arms from said carriers to arrest the advance of the matrix-strips.

4. The combination with carriers moving in opposite directions, of arms having a plurality of matrix-strips connected therewith, the hooks on the ends of said arms for temporarily connecting the same with said carriers, a plurality of magnets for holding the hooks in engagement with the carriers, springs for disconnecting said hooks from said carriers, when said magnets are demagnetized, projections on the edges of said arms, and hinged plates provided with indentations for the reception of said projections, whereby the matrix-strips are instantly locked with the selected characters in a common transverse line when freed from the carriers.

5. In a machine for producing printing-bars, the combination of a multiple series of circuit-breaking devices, a plurality of electromagnets controlled thereby, arms having a plurality of independently-movable matrix-strips connected therewith and adapted to be actuated by said magnets to arrest the individual matrix-strips with the selected characters in a common transverse line, and a casting mechanism for supplying molten metal to the alined recesses in the matrix-strips.

6. In a machine for producing printing-bars, the combination of a multiple series of lug-bearing rings, a multiple series of circuit-breaking levers operated thereby, a plurality of magnets electrically connected therewith, arms having a plurality of independently-movable matrix-strips connected therewith and adapted to be actuated by said magnets to arrest the individual matrix-strips, with the selected characters in a common transverse line, and a casting mechanism for supplying molten metal to the alined recesses in the matrix-strips.

7. The matrix-strips arranged in two distinct series and adapted to slide beside each other in opposite directions, in combination with carriers moving in opposite directions, means whereby the matrix-strips are individually connected with said carriers and released therefrom, and a multiple series of circuit-breakers controlling magnets for effecting the engagement of said matrix-strips with the carriers and their release therefrom.

8. The combination with the plurality of tapering matrix-strips, each provided with intaglio characters, of a matrix-assembling mechanism comprising a pair of carriers provided with means for temporarily engaging said strips and moving the same in opposite directions, and a series of magnets controlled by composing mechanisms operated by keyboards, for disengaging said matrix-strips from said carriers, when the selected characters on said strips have reached a common transverse casting-line.

9. A multiple series of circuit-breaking devices adapted to be arranged by a plurality of finger-boards, in combination with the plurality of magnets mounted on carriers, a plurality of armature-arms having matrix-strips connected therewith and temporarily held in engagement with the carriers by said magnets, hinged plates provided with indentations for receiving projections on said armature-arms when the latter are released by the magnets, and springs for throwing said arms into engagement with said hinged plates when released by the magnets.

10. In a machine for producing printing-bars, a plurality of finger-boards and a series of circuit-breaking devices, in combination with mechanism for assembling matrices and mechanism for casting printing-bars therefrom.

11. The combination of a multiple series of set-rings, a multiple series of circuit-breakers, operated by said rings, a plurality of magnets electrically connected with said circuit-breakers, the movable matrix-strips, carriers adapted to be temporarily connected therewith, means for reciprocating the carriers and intermediate connections, whereby any one of said multiple series of set-rings is caused to revolve synchronously with the movement of the carriers.

12. The combination with carriers moving in opposite directions and having a plurality of magnets mounted thereon, of independently-movable matrix-strips, armature-arms pivoted thereto and provided with actuating-springs, stops for limiting the movement of said arms when released by said magnets, hinged plates provided with indentations for receiving locking projections on said arms when actuated by said springs, and means for moving said hinged plates out of engagement with the locking projections of said arms to permit the return of the matrix-strips to their normal position, and subsequently moving said hinged plates in the opposite direction to force said arms against the resistance of their springs into engagement with the carriers and bring them into a position to be held by said magnets.

13. The independently-movable matrix-strips each provided at one end with a projection, in combination with movable carriers adapted to contact with said projections and thereby force back the said matrix-strips to their normal position after having been drawn out to present the desired characters at a common transverse casting-line.

14. The matrix-strips each having recesses in one edge provided at their bottoms with intaglio characters, said recesses when brought to a common transverse line constituting a molding-chamber in combination with a printing-bar blank less than type high and of a thickness corresponding to the printing-faces to be formed upon its edge, said blank having apertures extending therethrough for the passage of molten or plastic material into the recesses of said matrix-strips for the formation of a printing-bar.

15. In a machine for producing printing-bars, the combination with a plurality of independently-movable matrix-strips provided with recesses having intaglio characters at their bottoms, of a printing-bar blank having apertures extending therethrough, a melting-pot provided with a mouthpiece for the reception of said blank, and means for moving the melting-pot to bring the mouthpiece thereof with the blank up to the alined recesses of the matrix-strips.

16. The combination with a plurality of independently-movable matrix-strips provided with recesses having intaglio characters at their bottoms, of the movable melting-pot provided with a mouthpiece composed of stationary and movable portions and having its outer end tapered to fit a correspondingly-tapered opening in the table on which said matrix-strips move, whereby the printing-bar blank held between the two portions of the mouthpiece is gripped tightly as the mouthpiece enters said tapered opening in the table.

17. In a machine for producing printing-bars, a melting-pot provided with a mouthpiece for receiving a printing-bar blank, and having a valve for controlling the admission of molten metal to the molding-chamber, and means for operating the valve.

18. In a machine for producing printing-bars, the combination with the melting-pot, of a device for holding a printing-bar blank, provided with passage-ways and indentations on one edge, a valve-casing having a series of projections adapted to enter said indentations and provided with ports, and a valve having a series of openings adapted to register with said ports, and means for operating said valve.

19. In a machine for producing printing-bars, a melting-pot provided with a valve having openings of different lengths arranged to permit the molten metal to pass successively through a series of ports to the molding-chamber, whereby the air is gradually driven out of the same as the metal is forced in.

20. In a machine for producing printing-bars, the combination with a plurality of independently-movable matrix-strips provided with recesses having intaglio characters at their bottoms, said recesses when brought to a common transverse line forming the molding-chamber, of a device for holding a printing-bar blank provided with passage-ways, and indentations in one edge; said device with the blank therein being adapted, when advanced, to close the open side of the molding-chamber, a melting-pot having a valve-casing provided with a series of projections adapted to enter the indentations of the blank, and provided with ports registering with

the apertures in said blank, a valve having a series of openings of different lengths arranged to permit the molten metal to pass into the molding-chamber successively through the apertures of the printing-bar blank, and means for operating the valve.

21. In a machine for producing printing-bars, a melting-pot provided with a central reservoir for containing the molten metal, said reservoir having a discharge-opening, and an annular receiving-chamber encircling said central reservoir and communicating therewith through a suitable passage, in combination with a plunger for compressing the metal in the central reservoir, whereby the molten metal is ejected through the discharge-opening, and means for operating said plunger.

22. In a machine for producing printing-bars, the combination with an alined series of matrices and the melting-pot and its plunger, of a device acting on said plunger to cause it to maintain a constant pressure on the molten metal in said pot.

23. In a machine for producing printing-bars, the combination with the melting-pot, of a plunger, a spring for exerting pressure on the same, and means for automatically maintaining the tension of said spring as the plunger advances upon the discharge of the metal from the melting-pot.

24. In a machine for producing printing-bars, the combination with the melting-pot and its plunger, of an automatic device acting on said plunger to cause it to maintain a constant pressure on the molten metal in said pot, said device comprising a slotted block adapted to be turned to vary the inclination of its slot, a compensating lever and intermediate connections for turning said slotted block as the metal is discharged from the melting-pot, a bar carrying a roll engaging said slotted block, a ratchet-nut operated by a pawl on said bar, a screw-shaft loosely connected with the plunger and operated by said ratchet-nut, and a spring encircling said shaft between a collar thereon and said plunger.

25. In a machine for producing printing-bars, the combination with a melting-pot having a series of chambers for containing the molten metal, of an electric heating device interposed between said chambers.

26. In a machine for producing printing-bars, the combination with the melting-pot having a central chamber and an annular chamber encircling the same, of an electric heating device interposed between said chambers.

27. In a machine for producing printing-bars, the combination with the melting-pot and its plunger, of a screw-shaft connected with said plunger, and means for withdrawing said shaft and plunger when the melting-pot is to be replenished with metal.

28. In a machine for producing printing-bars, the combination with guides for the printing-bar blanks and a spring-actuated follower for pressing forward said blanks, of a carrier for transferring said blanks, one at a time, from said guides to the casting position and subsequently carrying the blanks with the printing-faces cast thereon beyond the casting position, and a tapered bar for engaging the foremost end of the printing-bar and delivering it from the carrier to a chute or receiver.

29. In a machine for producing printing-bars, the combination with a multiple finger-board mechanism, of a multiplex receiving-galley, and means for delivering the printing-bars from the casting mechanism to their proper compartments in said galley.

30. In a machine for producing printing-bars, a multiplex printing-bar-receiving galley having a series of distinct compartments corresponding in number to the finger-boards, and means for automatically placing any particular printing-bar in its proper compartment in said galley.

31. In a machine for producing printing-bars, a multiplex printing-bar-receiving galley having a series of distinct compartments corresponding in number to the finger-boards, and a series of movable stops adapted to arrest the delivered printing-bars, each in line with its proper compartment in said galley, said movable stops being operated each by one of the series of composing devices with which it is connected, and means for placing the printing-bars within the compartments after being arrested by said stops.

32. In a machine for producing printing-bars, the combination with a plurality of finger-boards and mechanisms for assembling matrices and casting printing-bars therefrom, of intermediate devices cooperating with said finger-boards and assembling and casting mechanisms for determining the selection and assembling of said matrices.

33. In a machine for producing printing-bars, a casting device and a plurality of finger-boards, in combination with a matrix-assembling mechanism in which the selection of intaglio characters is effected purely mechanically by a series of devices which have been acted upon by said finger-boards.

34. A plurality of finger-boards operable simultaneously, a series of devices acting upon a matrix-assembling mechanism, a melting-pot, and intermediate devices for effecting the discharge of the molten metal against the matrices.

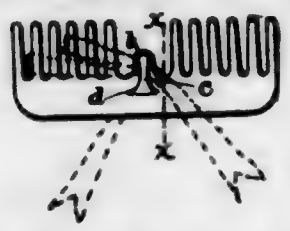
35. In a machine for producing printing-bars, the combination with an alined series of intaglio characters, of a melting-pot and its actuating mechanism, and a blank or foundation-piece having apertures extending therethrough, said blank being interposed between said intaglio characters and said melting-pot, and the apertures in said blank serving to convey the molten metal from the melting-pot to the molding-chamber.

36. In a machine for producing printing-bars, a melting-pot and its actuating mechanism, and an alined series of intaglio characters, in combination with a blank or foundation-piece having apertures extending therethrough for the flow of metal to produce a cast edge bearing printing-face.

37. In a machine for producing printing-bars, the combination with an alined series of intaglio characters, of a melting-pot and its actuating mechanism, and a blank or foundation-piece having apertures therethrough for molten metal, and an aperture for the escape of air from the molding-chamber, said blank being interposed between said intaglio characters and said melting-pot for the purpose of receiving a cast edge bearing printing-face.

38. In a machine for producing printing-bars, the combination with an alined series of intaglio characters, of a melting-pot and its actuating mechanism, and a blank or foundation-piece less than type high, of a thickness corresponding to the size of the alined characters and having apertures extending therethrough for conveying molten metal, and a passage-way for the escape of air, said blank being interposed between said intaglio characters and said melting-pot for the purpose of receiving a cast edge bearing printing-face.

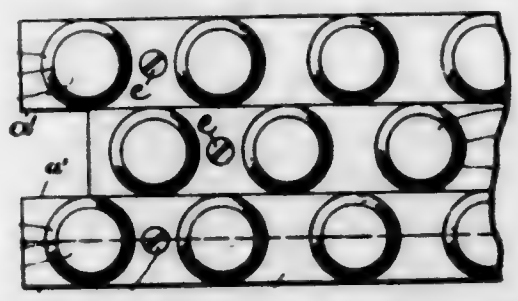
696,361. DEVICE FOR TYING BOWS. ELLA S. CRANE, Old Orchard, Me. Filed Dec. 20, 1901. Serial No. 87,025. (No model.)



Claim.—1. The herein-described device for tying bows consisting of a comb having a comparatively wide central tooth.

2. The herein-described device for tying bows consisting of comb having a comparatively wide central tooth and a tab hinged to said comb and adapted to fold against said central tooth.

696,362. SURFACE FOR PREVENTING SLIPPING AND RESISTING WEAR. THEODORE P. FARMER, Southwest Harbor, Me. Filed Jan. 13, 1902. Serial No. 89,414. (No model.)

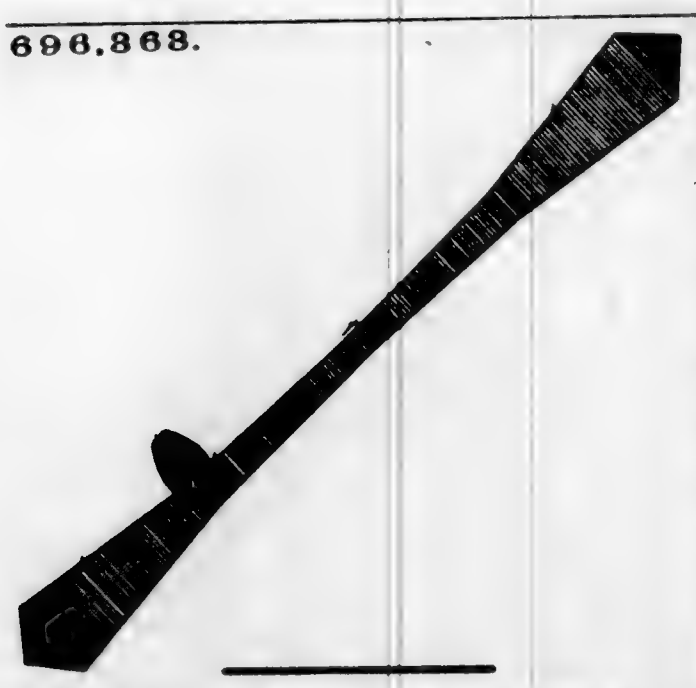


Claim.—A wear-resisting and slip-preventing blank or movement-able bar of indeterminate length, comprising a row of blocks of slip-resistant material, each block presenting a surface uninterrupted throughout its horizontal cross-section or diameter, and a holder for said blocks composed of an elongated, relatively thin, and narrow hard-metal strip, and block-securing flanges integral therewith, said strip constituting in one piece not only bottoms and walls of block-receiving cavities, but also connections between said blocks, said connections being divisible so that the blank may be converted into a plurality of wear-resisting and slip-preventing members of operative length.

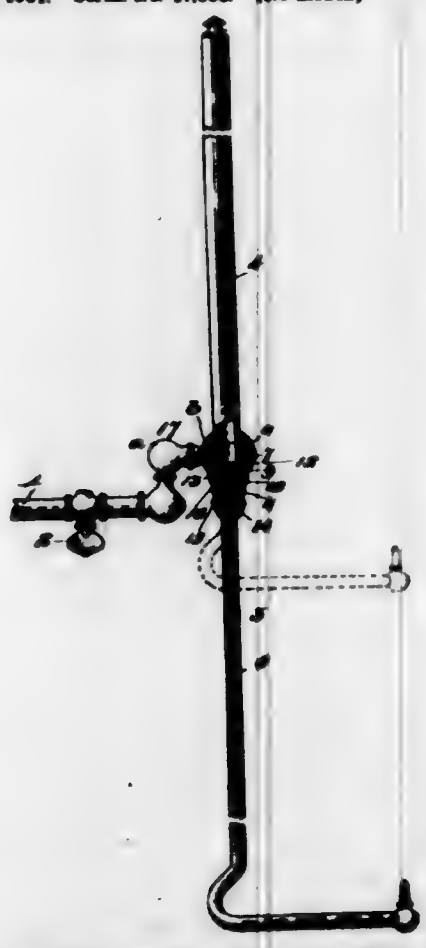
696,368. NECKWEAR. SAMUEL FLEISCH, New York, N. Y. Filed Jan. 21, 1902. Serial No. 90,712. (No model.)

Claim.—A cravat comprising apron or end portions, an intermediate neckband connecting them in one continuous article, and a knot-forming open band secured to the cravat at the end of the neckband being a point corresponding to the location of the knot and having means for securing it around the other apron or end when it is laid upon the part to which the knot-forming band is secured, holding the ends or aprons together, and securing the cravat in place upon the wearer.

696,868.



696,864. DROP-LIGHT. JAMES GARDNER, Chicago, Ill. Filed Feb. 18, 1901. Serial No. 47,808. (No model.)



Claim.—1. The combination with a chandelier, of a drop-light attachment comprising a tubular case provided with a lateral branch secured to the chandelier, and said chandelier supporting the entire attachment, and said case extending upwardly from said lateral branch and on the outside of the chandelier; and an extension-pipe adapted to carry a burner and telescoping said tubular case, as set forth.

2. The combination with a chandelier, of a drop-light attachment, comprising a vertical tubular case having at its lower end a gland and packing and a lateral branch rigidly secured to the chandelier, and said chandelier supporting the entire attachment, and said case also provided with a closed upper end; and an extension-pipe adapted to carry a burner and extending through said gland and packing up into said case, as set forth.

3. A drop-light attachment for chandeliers or similar gas-fixtures, comprising a T-piece having a lateral branch adapted for attachment to said fixture, and also provided with an interior annular shoulder, *f*, below said branch; a tubular case secured in the upper end of said T-piece; a gland secured in the lower end of said T-piece with packing interposed between said shoulder and gland; an extension-pipe for the burner and telescoping in said case and held at various elevations therein by said gland and packing; and a collar secured to the upper open end of said extension-pipe and adapted to abut against said annular shoulder to limit the downward movement of said pipe, said collar being provided with one or more grooves or passages for the gas, as set forth.

4. The combination with a chandelier of a tubular case rigidly supported thereon and extending upwardly on the outside of the main gas-pipe of the chandelier, said case being provided with a branch through which gas may flow from said gas-pipe to said case; an extension-pipe carrying a burner and telescoping said tubular case, and a collar secured to the upper open end of said extension-pipe and provided with one or more passages through which gas may flow from said case to said extension-pipe, as and for the purpose set forth.

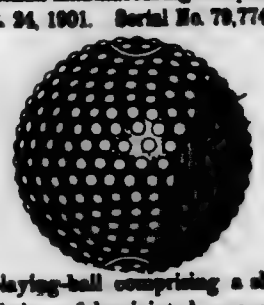
5. The combination with a chandelier, of a tubular case rigidly supported thereon and extending upwardly on the outside of the main gas-pipe of the chandelier; means whereby gas may flow from said main gas-pipe to said case, and an extension-pipe carrying a burner and telescoping said tubular case, as and for the purpose set forth.

6. In a drop-light, the combination with a union having a gas-inlet, of two pipes connected to the union, one having a sliding engagement with the union and a telescopic movement within the other pipe, said sliding pipe being of less diameter than the internal diameter of the other pipe and provided at its upper end with an outwardly-projecting flange which engages the interior wall of the other pipe and provided below said flange with an opening, substantially as set forth.

7. In a drop-light, the combination with a union having a gas-inlet, and a bore formed with a stop-shoulder, of a pipe fixed to the union, a second pipe having a sliding movement within the bore and being of less diameter than the first-named pipe and provided at its upper end with a laterally-projecting flange which is adapted to engage the interior wall of the first-named pipe, said sliding pipe being provided below the flange with openings, substantially as set forth.

8. In a drop-light, the combination with a union having a gas-inlet, and a bore formed with a stop-shoulder, of a pipe fixed to the union, a second pipe having a sliding movement within the bore and being of less diameter than the first-named pipe and provided at its upper end with a laterally-projecting flange which is adapted to engage the interior wall of the first-named pipe, said sliding pipe being provided below the flange with openings, a stuffing-box through which the sliding pipe projects, a packing within the stuffing-box, and a nut for clamping the packing to the pipe to prevent the escape of gas and also to exert friction upon said sliding pipe to hold it in adjusted position, substantially as set forth.

696,865. GOLF-BALL. ELEAZER KEMPSHALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Oct. 24, 1901. Serial No. 79,774. (No model.)



Claim.—1. A playing-ball comprising a shell and a relatively soft filling, the shell consisting of lap-jointed segments and the core being gripped or compressed by said shell.

2. A playing-ball comprising a shell formed of plastic material and a filling of elastic material; the shell consisting of hemispherical lap-welded segments, and the core being held under compression by said shell.

3. A playing-ball comprising a shell formed from plastic material and a filling consisting largely or wholly of gutta-percha; the shell consisting of lap-welded hemispherical segments, and the filling being held under compression by said shell.

4. A playing-ball comprising a celluloid shell and a softer filling of springy material; the shell consisting of lap-jointed segments and being compressed upon said filling.

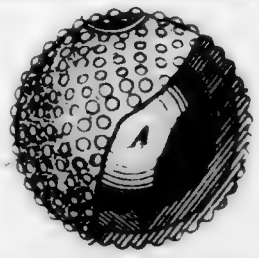
5. A playing-ball comprising a shell which consists largely or wholly of celluloid, and a filling which consists largely or wholly of gutta-percha; said shell consisting of overlapping united segments, and being compressed upon said filling.

696,866. GOLF-BALL. ELEAZER KEMPSHALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Dec. 18, 1901. Serial No. 86,346. (No model.)

Claim.—1. A playing-ball comprising a spherical gutta-percha core, a thick solid-rubber envelop, and a hard, wear-resisting shell, the diameter of said core being more than one-half that of the finished ball.

2. A playing-ball comprising a spherical gutta-percha core, a thick solid-rubber envelop, and a hard, wear-resisting shell, the diameter of said core being more than one-half that of the finished ball, and said envelop being thicker than said shell.

3. A playing-ball comprising a spherical gutta-percha core, a hard shell, and a rubber compressed between said shell and said core.



4. A playing-ball comprising a gutta-percha core forming a body or main portion of the ball, a highly-vulcanized thick soft-rubber envelop upon said core, and a shell compressed upon said envelop and holding the latter under compression.

5. A playing-ball comprising a hard core forming the body or main portion of the ball, a thick rubber envelop upon said core, and a shell of celluloid upon said envelop.

6. A playing-ball comprising a hard core, a thick rubber envelop thereon, and a shell of compressed celluloid which holds said envelop under compression.

7. A playing-ball comprising a sphere of solid gutta-percha, a rubber envelop thereon, and a shell of compressed celluloid which compresses such envelop upon said core, the diameter of the latter being at least one-half that of the shell.

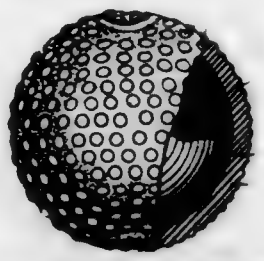
8. A playing-ball comprising a large spherical core of gutta-percha, a thick solid envelop of highly-vulcanized soft rubber thereon, and a shell consisting of celluloid segments compressed and welded together upon said envelop and holding the latter under compression.

9. A playing-ball comprising a gutta-percha core, a soft-rubber envelop, and a celluloid shell incasing and adhering to said envelop.

10. A playing-ball comprising a hard core, an envelop of soft rubber thereon, and a shell consisting of welded sections of hard, wear-resisting material incasing said envelop.

11. A playing-ball comprising a hard core, a hard shell, and a solid rubber cushion compressed between said shell and said core.

696,867. GOLF-BALL. BLEAKIE KEMPSHALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Original application filed Sept. 27, 1901, Serial No. 76,814. Divided and this application filed Jan. 2, 1902. Serial No. 88,065. (No model.)



Claim.—1. A playing-ball comprising a stiff, springy, highly-compacted shell formed from plastic material, and a soft-rubber sphere or core powerfully gripped by and tending constantly to expand said shell.

2. A playing-ball comprising a highly-compacted celluloid shell and a core or filling consisting largely or wholly of highly-vulcanized soft india-rubber held under permanent compression by said shell.

3. A playing-ball comprising a relatively thin celluloid shell compressed upon a sphere of solid india-rubber, so that the latter may form a yielding backing for the shell and hence prevent fracture of the latter from a blow.

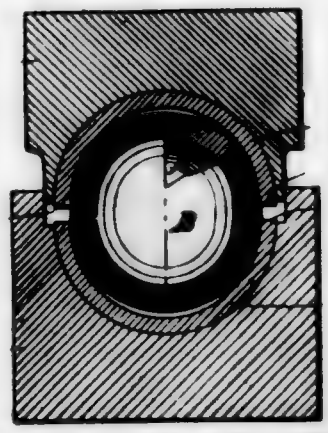
4. A ball comprising hemispherical shell-segments formed from plastic material and highly compressed and welded together upon a sphere or ball of soft rubber.

5. A ball comprising highly-compacted spherical shell-segments welded together at their edges upon a sphere of highly-vulcanized soft rubber.

6. A playing-ball comprising hemispherical segments of highly-compacted celluloid welded together upon a sphere of highly-vulcanized soft rubber, and powerfully gripping the latter.

696,868. MANUFACTURE OF GOLF-BALLS. BLEAKIE KEMPSHALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Jan. 30, 1902. Serial No. 91,814. (No model.)

Claim.—1. A process in producing playing-balls consisting in providing a hard core with a thick, solid, soft-rubber envelop, inclosing said envelop in a shell formed from hard, wear-resisting plastic material, heating said shell to such an extent as to soften it, compressing the same to such an extent as to compress said soft rubber, and maintaining the compression until the shell cools and hardens.



2. A process in producing a playing-ball, consisting in providing a core of gutta-percha with a solid rubber envelop and heating and compressing thereon a shell consisting partially or wholly of celluloid.

3. A process in producing a playing-ball, consisting in compressing a body of soft rubber between a hard core and a hard, wear-resisting shell while the latter is in a plastic condition, and causing said shell to harden while compressed, thereby to hold said rubber under permanent compression.

4. A process in forming a playing-ball, consisting in providing a spherical gutta-percha core with a highly-vulcanized firm rubber envelop, compressing upon said envelop a heated shell of plastic material, and causing said shell to harden while under compression.

5. A process in forming a playing-ball, consisting in providing a spherical gutta-percha core with a highly-vulcanized firm rubber envelop, compressing upon said envelop a heated shell of plastic celluloid, and causing said shell to harden while under compression.

6. A process in forming a playing ball, consisting in combining a spherical core of hard material with a thick rubber envelop, compressing upon said envelop heated segments of wear-resisting material, so as to compact and weld said segments and also place said rubber under compression, and causing said shell to harden while under compression.

7. A process in forming a playing-ball, consisting in combining a spherical core of hard material with a highly-vulcanized thick rubber envelop, compressing upon said envelop heated hemispherical segments of celluloid, so as to compact and weld said segments and also place said rubber under compression, and causing said shell to harden while under compression.

8. A process in producing playing-balls, consisting in compressing a plastic shell upon a soft-rubber and gutta-percha filling so as to put said rubber in a state of compression, and hardening said shell while under compression.

9. A process in producing playing-balls, consisting in heating a previously-formed celluloid shell and compressing it upon a sphere of soft rubber inclosing a core of gutta-percha.

10. A process in making playing-balls, consisting in heating and pressing shell-segments together over a soft-rubber sphere containing a core of gutta-percha so as to compress the soft rubber and also to cause the edges of the shell-segments to weld, and hardening said shell while under compression.

11. A process in making playing-balls, consisting in placing a gutta-percha sphere between hemispheres of soft rubber, pressing hot shell-segments together over said filling so as to cause the edges of the segments to unite, to compress the soft rubber and also to compress the shell to final size, and causing the shell to harden while under compression.

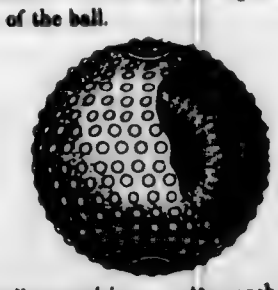
12. A process in making playing-balls, consisting in making a filling at least partially of gutta-percha and highly-vulcanized soft rubber, making hemispherical celluloid segments, heating and compressing the segments over the filling, so as both to compress the latter and also to cause the edges of the celluloid to weld or unite, and hardening the celluloid while under compression.

696,869. GOLF-BALL. BLEAKIE KEMPSHALL, Boston, Mass., assignor to the Kempshall Manufacturing Company, a Corporation of New Jersey. Filed Feb. 1, 1902. Serial No. 92,226. (No model.)

Claim.—1. A playing-ball comprising a hard core, a spherical soft-rubber envelop thereon whose thickness is substantially between ten and fifteen per cent. of the diameter of the entire ball, and a gutta-percha shell incasing said envelop, the thickness of said shell being substantially between twelve and twenty per cent. of the diameter of the ball.

2. A playing-ball comprising a hard core, a spherical soft-rubber envelop thereon whose thickness is substantially twelve and one-half per

cent. of the diameter of the entire ball, and a gutta-percha shell incasing said envelop, the thickness of said shell being substantially sixteen per cent. of the diameter of the ball.



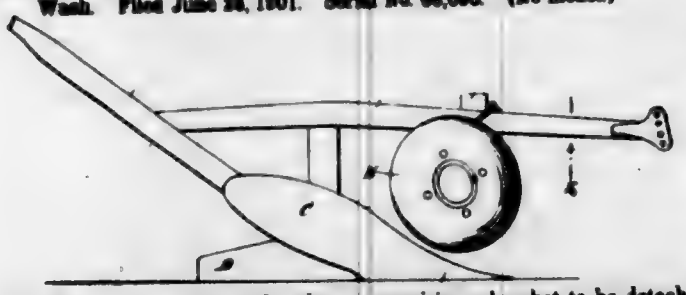
3. A playing-ball comprising a gutta-percha core, a spherical soft-rubber envelop thereon whose thickness is substantially between ten and fifteen per cent. of the diameter of the entire ball, and a gutta-percha shell incasing said envelop, the thickness of said shell being substantially between twelve and twenty per cent. of the diameter of the ball.

4. A playing-ball comprising a gutta-percha core, a spherical soft-rubber envelop distended thereon whose thickness is substantially between ten and fifteen per cent. of the diameter of the entire ball, and a gutta-percha shell incasing said envelop, the thickness of said shell being substantially between twelve and twenty per cent. of the diameter of the ball.

5. A playing-ball comprising a hard core, a spherical soft-rubber envelop distended thereon whose thickness is substantially between ten and fifteen per cent. of the diameter of the entire ball and a gutta-percha shell compressed upon said envelop, the thickness of said shell being substantially between twelve and twenty per cent. of the diameter of the ball.

6. A playing-ball comprising a hard core, a spherical soft-rubber envelop thereon whose thickness is substantially between ten and fifteen per cent. of the diameter of the entire ball, and a gutta-percha shell compressed and welded upon said envelop, the thickness of said shell being substantially between twelve and twenty per cent. of the diameter of the ball.

696,370. JOINTER FOR PLOWS. HENRY TRABSER, Auburn, Wash. Filed June 24, 1901. Serial No. 66,090. (No model.)



Claim.—1. A jointer for plows, comprising a bracket to be detachably secured to a plow-beam, a double wedge mounted on said bracket, a bearing mounted on said double wedge and inclined rearwardly and downwardly therefrom, and a dished cutter revolubly mounted upon said bearing and so disposed that the concave face of said cutter is directed toward the land side, the arrangement being such that said cutter removes a small portion of the soil and turns it over toward the land side in front of the plow.

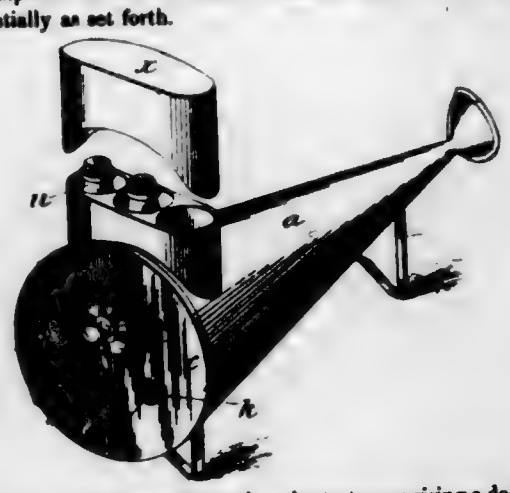
2. A jointer for plows, comprising a bracket to be detachably secured upon a plow-beam so as to depend rigidly therefrom, a double wedge mounted upon said bracket, a bearing mounted upon said double wedge and projecting slightly rearward therefrom, a cutter provided with concaved and convexed faces and mounted upon said bearing, the concaved face of said cutter being disposed toward said wedge and inclined at a slight angle toward the front of the plow, the arrangement being such that the cutter removes a small portion of the soil in front of the plow and throws the same toward the land side.

3. A plow comprising a beam, the plow thereon, and the jointer connected with the beam by a connection extending from the concaved side of the jointer, the said jointer having its lowest edge higher than the plow-point and in advance thereof, and converging rearwardly and downwardly to the plane of the land side.

4. A plow, comprising a plow-beam, a bearing connected therewith and inclined rearwardly and downwardly therefrom, a dished cutter revolubly mounted upon said bearing and so disposed that the concaved face of the said cutter is directed to the land side, the arrangement being such that said cutter removes a small portion of the soil and turns it over toward the land side in front of the plow.

696,371. INSTRUMENT FOR TESTING TRANSLUCENT SUBSTANCES BY COLOR. JOHN F. GRAAB, Brooklyn, N. Y. Filed Mar. 6, 1901. Serial No. 50,078. (No model.)

Claim.—1. An instrument for applying the color test to substances, comprising a dark chamber provided with an opening for the eye and with peep-holes for the admission of light, a rotary disk intermediate of said eye and peep-hole openings, the said disk being provided with unobstructed openings and openings obstructed by one or more substances of standard color, the openings being so arranged that when a standard color is in front of one of the peep-holes, an unobstructed opening will coincide with another of said peep-holes, means for rotating the disks and means for holding a sample in the line of vision leading to the unobstructed peep-hole, substantially as set forth.



2. An instrument for applying the color test comprising a dark chamber provided with an opening for the eye and openings for the admission of light, a disk provided with openings adapted to register with the said openings in the dark chamber, one or more of said openings being provided with a substance indicating a standard color and another left unobstructed, a dial arranged to rotate together with the said disk to bring certain of said peep-holes in the disk in alinement with the openings in the dark chamber and receptacles for receiving samples in the dark chamber, the walls of said receptacles being provided with openings in alinement with the openings for the admission of light to the dark chamber, substantially as set forth.

3. An instrument for applying the color test to substances comprising a dark chamber provided with an opening for the eye and openings for admission of light, a rotary disk, provided with openings to be brought opposite the openings in the dark chamber as the disk is rotated, a gravity-shutter for opening and closing an opening in the said rotary disk, means for rotating the disk and receptacles within the dark chamber for receiving samples to be tested, the walls of said receptacles being provided with openings in alinement with the openings for the admission of light, substantially as set forth.

696,372. ELECTRIC SIGNALING APPARATUS. FELIX R. HERZOG, New York, N. Y. Filed Nov. 11, 1886. Renewed Mar. 1, 1902. Serial No. 96,288. (No model.)

Claim.—1. The combination, substantially as described, in variable electric signaling apparatus of the signal-transmitting mechanism; signal-detector mechanism for marking at the transmitter the last signal transmitted; a locking device controlled thereby; and signal-varying mechanism controlled by the signal-detector mechanism.

2. A signal-transmitter comprising normally open circuit-terminals and a circuit-closer for the same, a signal-setting device controlling such circuit-closer, and a supplementary circuit-closer in the aforesaid circuit, substantially as described.

3. A signal-transmitter comprising normally open circuit-terminals and a circuit-closer for the same, a signal-setting device controlling such circuit-closer and a supplementary circuit-closer; the said closer closing a supplementary break in the aforesaid circuit until again manually operated, substantially as described.

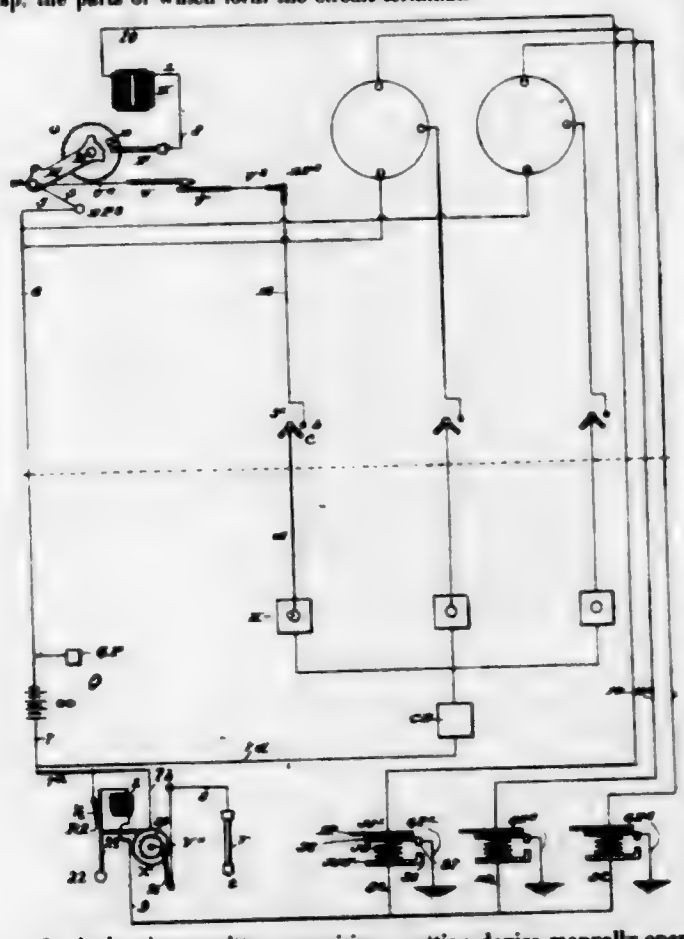
4. A signal-transmitter, comprising normally open circuit-terminals, and a circuit-closer for the same, a signal-setting device controlling such circuit-closer, and mechanism for reopening the circuit, substantially as described.

5. A signal-transmitter, comprising normally open circuit-terminals and a circuit-closer for the same, a signal-setting device controlling such circuit-closer and a supplementary circuit-closer connected to a device arranged to prevent access to the signal-setting mechanism, substantially as described.

6. A signal-transmitter comprising normally open circuit-terminals, and a circuit-closer for the same, controlled by a signal-setting device; and a supplementary circuit-closer comprising a hinged device adapted to be swung in front of the transmitter-setter device.

7. A signal-transmitter, comprising normally open circuit-terminals, and a closer for the same, controlled by a signal-setting device; and a supplementary circuit-closer, comprising a hinged device adapted to be

swung in front of the transmitter-setter device, and comprising a locking-hasp, the parts of which form the circuit-terminals.



8. A signal-transmitter comprising a setting device manually operated by means of a spindle and a supplementary circuit-controller comprising a lever, mounted so that it may be brought into position to prevent further access to the said spindle, and controlling the circuit when so moved.

9. A variable-signal transmitter comprising normally open terminals; a setting device for closing these manually; means for varying the signals; a dial and pointer for indicating what signal is set; a magnet for reopening the terminals; together with an element arranged to be moved so that in one position it prevents the operation of the setting device and at the same time permits observation of the dial and pointer, substantially as described.

10. The mechanically-detached but electrically-connected manual electrolytic receiver, comprising a vehicle for holding electrolytic solution, and, in close relation thereto, one or more electrodes; whereby in the passage over the paper or recording surface, the said solution will be spread in the path of the terminal.

11. A receiving device comprising a record-surface and a manually-movable element, the latter carrying an electrolytic stylus connected by a flexible connection to a suitable circuit, and carrying also a device for holding and delivering into operative position with respect to the stylus and the surface a supply of electrolyte; whereby an electrolytic record may be produced during the manipulation of the stylus upon an unprepared surface, substantially as described.

12. A receiving device, comprising a record-surface and a movable element, the latter carrying an electrolytic stylus connected by a flexible connection to a suitable circuit, and carrying also a device for holding and delivering into operative position with respect to the stylus and the surface a supply of electrolyte, said device consisting of an absorbent body or reservoir; whereby an electrolytic record may be produced during the manipulation of the stylus over an unprepared surface.

13. A circuit-controlling apparatus comprising normally open terminals coöperating, by way of suitable circuit connections, with apparatus at a distant point; means whereby a signaling operator is enabled to join these terminals manually; a magnet arranged to control the opening of a coöperating circuit magnetically as the result of operation at a distant point; and means for hindering the manual reopening of the circuit by the signaling operator prior to the magnetic operation, substantially as described.

14. A circuit-controlling apparatus comprising normally open terminals coöperating, by way of a circuit, with apparatus at a distant point; means whereby a signaling operator is enabled to join these terminals manually; a magnet arranged to control the subsequent separation of these terminals magnetically as the result of operation at a distant point; and means for hindering the manual reopening of the circuit by the signaling operator prior to the magnetic opening, substantially as described.

15. A circuit-controlling apparatus comprising normally open terminals, coöperating, by way of suitable circuit connections, with apparatus at a distant point; means whereby a signaling operator is enabled to join these terminals manually; a magnet arranged to control the opening of a coöperating circuit magnetically as the result of operation at a distant point; independently-operating devices for controlling this distant operation; and means for hindering the manual restoration of the normal conditions by the signaling operator prior to the independent magnetic opening, substantially as described.

16. At each of several substations, a circuit-controlling apparatus, comprising normally open terminals coöperating, by way of suitable circuit connections, with apparatus at a distant point; means whereby a signaling operator is enabled to join these terminals manually; a magnet arranged to control the opening of a coöperating circuit magnetically as the result of operation at a distant point; and, at such distant point, a switch-terminal for each outlying station and circuit connections for bringing a common element into separate coöperation with the respective switch-terminals and thereby controlling the operation of the magnet; and for hindering the manual opening of the circuit by the signaling operator during the period between the manual closure and the magnetic opening, substantially as described.

17. At each of several substations a circuit-controlling apparatus comprising a normally open break to a circuit leading separately for each substation to a common station; means whereby a signaling operator is enabled to close this break manually, and means whereby it is kept closed; a magnet in series arranged to control the subsequent reopening of the circuit at each substation; a second line from each substation apparatus, including, at each substation, a normally open break in that circuit, together with means for closing this manually, said line also including at its other end, an annunciator operated upon the closure to locate the corresponding station; at the first-named common station, a contact-plate for each of the first series of lines, and a common element arranged and adapted to coöperate separately so as to close the circuit from a common source of current, and through a common connection to each of these lines through its contact-plate, and thereby control the operation of the magnets and the reopening of the circuits at the respective substations, substantially as described.

18. A motor-controlled signaling apparatus at one station, and at a second station a controlling apparatus for the same comprising a surface adapted to receive paper for a record, a manipulative instrument, or pen, adapted to record on the paper and to control the motor, together with a switch, including a yielding support, and operated by pressure of the hand which directs the pen.

19. A circuit-controlling switch, including a plate adapted to move to and fro, contacts relatively placed so as to be relatively movable in accordance with the movement of the plate, a record-surface on the plate, and a recording-pen adapted to record on the surface; the parts being relatively placed and arranged that an operator may with one hand make the record and control the switch.

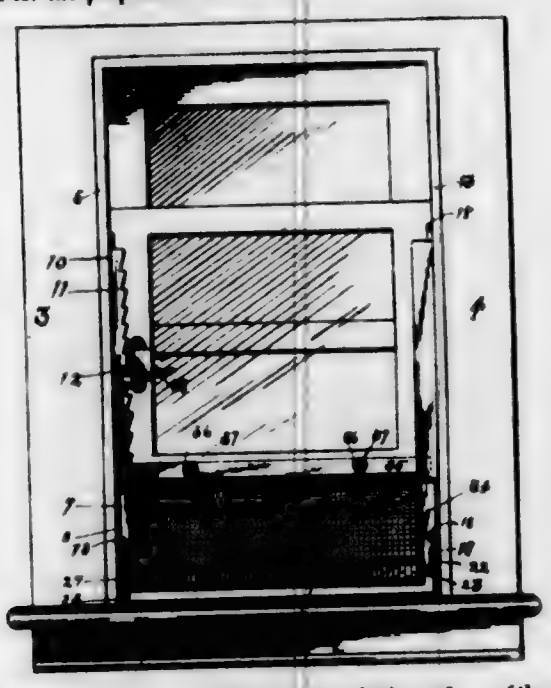
20. A circuit-controlling switch, including the horizontal plate, a yielding support for the same, a circuit-controlling device controlled by the motion of the plate with reference to its support; a reel, adapted and placed to feed a strip of paper over the plate, a circuit-controlling manipulative instrument, adapted simultaneously to mark the paper and control a circuit; all arranged and coöperating so that an operator may, with one hand control a circuit by the movements of the pen, make a record on the paper, and control the switching by variation of the vertical motion of his hand.

696,878. ROLLER-SCREEN. MARSHALL F. HUTCHISON, Floris, Va., assignor of one-half to Rudolph Charles Richberg, Alexandria, Va. Filed June 1, 1901. Serial No. 62,769. (No model.)

Claim.—1. In a window, the combination of a spring-actuated roller; a screen having one end attached to the roller, and the other end to one of the sashes; screen-guides secured to the inner faces of the guide-strips, each of said guides having a trough and a part acting as facings to said guide-strips; a housing pivoted to the inner faces of the guide-strips, and near the lower ends of said guide-strips; swinging arms pivoted to the inner faces of the end pieces of said housing; bearings secured to said swinging arms; said roller, one end journaled in one of the bearings, and the other end secured in the other bearing; a rack-bar provided at its lower end with a shoulder, and at its middle with a stop-notch; a lock secured to the lower sash, its locking-bolt adapted to catch in the notches and the stop-notch of the rack-bar, and under the shoulder of the same; said housing and swinging arms adapted to swing in and out and carry with them the roller and lower end of the screen, substantially as shown and described and for the purposes set forth.

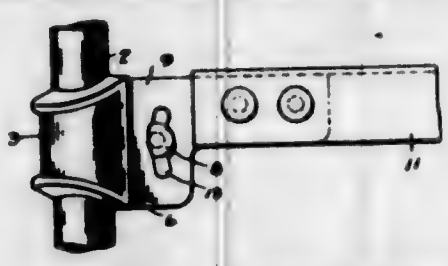
2. In a window, screen-guides secured to the inner faces of the guide-strips, each of said guides having a trough and a part acting as facings to said guide-strips; a housing pivoted to the inner faces, and near the lower

ends of said guide-strips; swinging arms pivoted to the inner faces of the end pieces of said housing; a bearing secured to one of said swinging arms, and provided with a rectangular oblong opening; a bearing secured to the other swinging arm, and provided with a circular opening; a roller, its cylindrical end journaled in the bearing having the circular opening, and the oblong rectangular end secured in the bearing having the rectangular oblong opening; a screen, one end secured to said roller, and the other to the lower rail of the lower sash, substantially as shown and described and for the purposes set forth.



3. In a window, screen-guides secured to the inner faces of the guide-strips, each of said guides having a trough and a part acting as facings to said guide-strips; a housing pivoted to the inner faces and near the lower ends of said guide-strips; an arm pivoted to the inner face of one of the end pieces of said housing, and swinging downwardly; a bearing secured to said arm and provided with an irregular opening; a swinging arm secured to the other end piece of said housing, swinging up, and provided with a bearing having a circular opening; a hollow roller having its pivotal points, one irregular and the other cylindrical; said points fitting in the bearings respectively; a spiral spring secured in said hollow roller, and adapted to actuate said roller; a screen, one end secured to said roller and the other to the lower rail of the lower sash; a lock-bar integral with one of the guides, and having a central notch and a lower shoulder; a lock secured to the lower sash, its lock-bolt adapted to catch under the shoulder over the notches and in the central notch of the lock-bar, substantially as shown and described and for the purposes set forth.

696,874. BED-RAIL FASTENER. AXEL E. JACOBSON, Minneapolis, Minn. Filed Mar. 11, 1901. Serial No. 50,566. (No model.)



Claim.—1. A bed-rail fastener, comprising a casting or collar having a lip or wing provided with a bearing shoulder or step, a pin provided on said wing, and a plate having an edge adapted to engage said bearing-surface and a slot to receive said pin, the ends of said slot being a greater distance than said middle portion from the bearing edge of said plate.

2. A bed-rail fastener, comprising a collar having a bearing surface or shoulder and a laterally-projecting pin, in combination, with a plate having an edge to engage said bearing-surface and a curved slot to receive said pin, the ends of said slot being a greater distance than its middle portion from the bearing edge of said plate, whereby when said pin is forced into either end of the slot said plate and collar will be firmly locked together.

3. As a new article of manufacture, a bed-rail fastener, comprising a collar adapted to be secured on a bed-post, said collar having a flat face provided with a bearing surface or shoulder, a headed pin or lug secured in said face, and a plate adapted to engage said bearing-surface and having an irregular slot wherein said pin is movable toward either end whereby said plate is rendered reversible.

4. A bed-rail fastener, comprising a member having a bearing surface or part and a lug or pin, in combination, with a member adapted to engage said bearing-surface and having a slot to receive said pin, the ends of said slot being a greater distance than its middle portion from the bearing-surface of said member, for the purpose specified.

5. A bed-rail fastener, comprising a slotted plate to be secured to the rail, in combination, with a post wherewith said plate engages, a pin on said post to enter said slot and wherein it is movable toward either end thereof, the ends of said slot diverging from the post whereby said pin will be wedged therein when said plate is in its normal position or reversed.

6. The combination, with a bed-post provided with a bearing-surface and a headed pin, of a plate secured to the bed-rail and adapted to engage said bearing-surface and having a curved slot diverging toward its ends from said bearing-surface, the edge of said slot being cut away to allow the pin to enter therein, the ends of said slot being smaller than the headed portion of said pin and adapted to receive the shank thereof, whereby the parts will be locked together when said pin enters either end of said slot and said plate is in its normal position or reversed.

7. The combination, with a collar 3 provided with a wing 4 having a flat face 5 and a bearing-shoulder 6, of a headed pin provided in said face 5, and a plate 9 having an edge 12 to engage said shoulder 6, and a curved slot diverging toward its end from said shoulders to receive said pin and allow it to move toward either end, whereby said plate is rendered reversible, substantially as described.

696,875. BROOM-BRIDLE. ALEXANDER P. LONDON, Demorest, Ga. Filed Sept. 20, 1901. Serial No. 75,742. (No model.)



Claim.—1. In a broom, the combination with a broom-head, of two face-shields, one on each face of the broom-head, each shield having overlapping lugs or ears, and a binding-wire passed transversely through the broom-head, through each shield twice, and has its ends driven into the broom-handle above the broom-head, substantially as described.

2. In a broom, the combination with the broom-head, of two face-shields each having overlapping ears, a binding-wire passed transversely through the broom and threaded twice through each face-shield with its ends driven into the broom-handle above the broom-head, a pair of edge-shields, one on each edge of the broom-head, and a binding-wire passed twice through each edge-shield and entirely through the broom-head horizontally thereof, with its ends driven into the broom-handle above the broom-head, substantially as described.

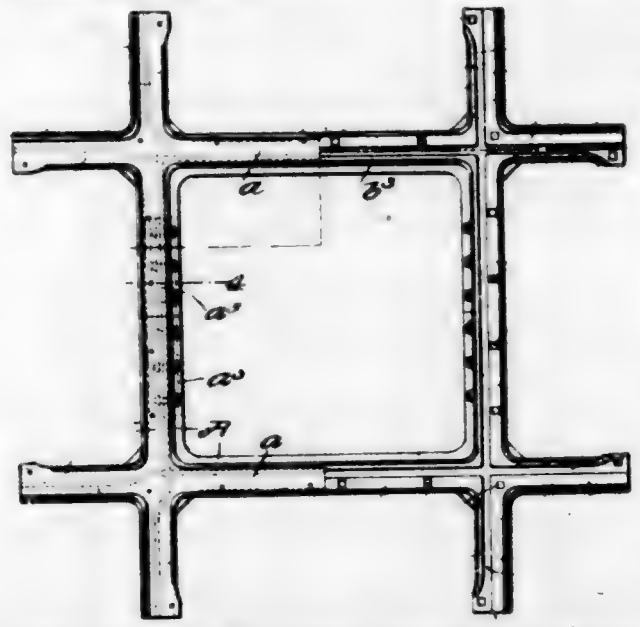
3. In a broom, the combination with the broom-head, of two edge-shields one on each edge of the broom, and a binding-wire threaded twice through each face-shield and extending entirely through the broom horizontally thereof with its ends driven into the broom-handle above the broom-head, substantially as described.

4. In a broom, the combination with the broom-head, of a face-shield on each face thereof, an edge-shield on each edge thereof, separate binding-wires passing entirely through the broom-head for said shields with their ends driven into the broom-handle above the broom-head, and a ferrule affixed to the broom-handle and inclosing the ends of the binding-wires, substantially as described.

696,876. RAILROAD-CROSSING. WILLIAM R. MACKLIND, St. Louis, Mo. Filed Aug. 10, 1901. Serial No. 71,566. (No model.)

Claim.—1. In a railroad-crossing or the like, base-sections, each having a main rail-section and an angular section extending toward the central line of the crossing, and a wearing-surface section having a main section extending across the said angular sections of said base-sections and angular sections in line with the said main rail-sections of said base-sections, there being locking engagement between said main rail-sections of the base and said angular sections of said wearing-surface, whereby said

wearing-surface section serves to lock said base-sections against displacement; substantially as described.



2. In a railroad-crossing or the like, wearing-surface sections each having a main section and an angular section extending toward the central line of the crossing, and a base-section having a main rail-section extending across the said angular sections of said wearing-surface sections and angular sections in line with the said main sections of said wearing-surface sections, there being locking engagement between said main sections of said wearing-surface and said angular sections of said base, whereby said base-section serves to lock said wearing-surface sections against displacement; substantially as described.

3. In a railroad-crossing or the like, complementary base-sections each having a main rail-section and angular sections extending toward the central line of the crossing, the joints between said base-sections being upon opposite sides of the crossing, and complementary wearing-surface sections fitting upon said base, each wearing-surface section having a main section and angular sections extending toward the central line of the crossing, the joints between said wearing-surface sections being upon sides of the crossing other than those upon which occur the joints between said base-sections, there being locking engagement between the said wearing-surface sections and base-sections upon all four sides of the crossing, whereby said several sections serve to lock each other against displacement; substantially as described.

4. In a railroad-crossing or the like, base-sections each having a main rail-section and an angular section extending toward the central line of the crossing, and a wearing-surface section having a main section extending across the said angular sections of said base-sections and angular sections in line with the said main rail-sections of said base-sections, there being groove connection between said main rail-sections of the base and said angular sections of said wearing-surface, and means for securing said main section of the wearing-surface against lateral displacement upon said angular sections of said base; substantially as described.

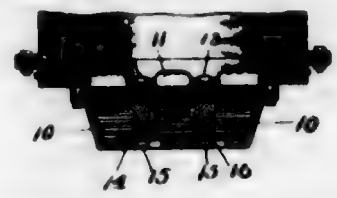
5. In a railroad-crossing or the like, complementary base-sections each having a main rail-section and angular sections extending toward the central line of the crossing, the joints between said base-sections being upon opposite sides of the crossing, and complementary wearing-surface sections fitting upon and having groove connection with said base, each wearing-surface section having a main section and angular sections extending toward the central line of the crossing, the joints between said wearing-surface sections being upon sides of the crossing other than those upon which occur the joints between said base-sections; substantially as described.

6. The combination with a rail-base, of a separate wearing-surface upon said base, and a bolt extending from top to bottom through suitable portions of said base and wearing-surface and securing said parts together, the head of said bolt lying in the tread of said wearing-surface and in a portion thereof not engaged by the wheels; substantially as described.

7. In a railroad-crossing or the like, a wearing-surface having a tread portion and a wheel-guard, a groove for the wheel-flange being formed between said tread and wheel-guard, said tread extending entirely across the crossing but between points outside of the rail intersections being reduced to a height less than that of the wheel-flange and said lower tread portion being connected to the normal tread portions by gradual inclines; substantially as described.

8. In a railroad-crossing or the like, a base, a separate wearing-surface upon said base, said wearing-surface having grooves extending across the rail intersections, the wearing-surface tread between points outside of said intersections being of less height than the flange of the wheel designed to run upon said treads and said lower tread portions being connected to the normal tread portions by gradual inclines, and bolts connecting said base and wearing-surface and extending from top to bottom through the same, the bolt-heads lying in the before-mentioned lower tread portion, whereby they are not engaged by passing wheels; substantially as described.

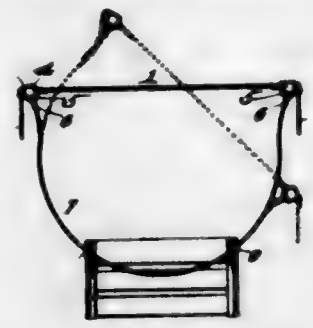
696,877. DIE FOR MAKING MULTIPLE-ORIFICED CLAY CONDUITS. WILLIAM L. MCCABEL, Brazil, Ind. Filed Nov. 22, 1901. Serial No. 83,283. (No model.)



Claim.—1. The combination, in a die for making multiple-orificed clay conduits, of a suitable outer die, suitable supporting-bars extending across said outer die for carrying the inner or core dies, a plurality of shanks or standards of suitable length thereon, and a plurality of inner or core dies mounted adjustably upon the outer ends of said shanks or standards, said inner dies being thus adjustable in respect to the outer die, revolubly, and toward and from each other, substantially as and for the purposes set forth.

2. The combination, in a machine for making multiple-orificed clay conduits, of the fixed outer die 10, transversely-arranged bars 11 extending across behind said die for carrying the inner or core dies, said bars being provided with suitable standards or shanks, the inner or core dies 14, connecting-screws 15, and washers 16, the hole in said die 14 through which the screws pass being larger in diameter than said screws, substantially as shown and described.

696,878. AWNING. OLOF R. OLSON, Kansas City, Mo., assignor to Horizontal Swing Co., Kansas City, Mo., a Corporation of Missouri. Filed Nov. 7, 1901. Serial No. 81,456. (No model.)



Claim.—1. An awning, consisting of inverted semicircular arch standards, and a cover or shade of suitable construction and material detachably connecting the upper ends of the arms of the standards, and made rigid longitudinally to hold the standards in a fixed relation to compel one to move with the other.

2. The combination with a suitable support or framework, of an awning, consisting of inverted semicircular arch standards, fitting slidingly in said support, and a cover or shade of suitable construction and material connecting the upper ends of the standards.

3. The combination with a suitable support or framework, of an awning, consisting of inverted semicircular arch standards, fitting slidingly in said support or framework, and a cover or shade, made rigid longitudinally, connecting the arms of and therefore bridging the space between said standards.

4. The combination with a suitable support or framework, of an awning, consisting of inverted semicircular arch standards of resilient material, fitting slidingly in said support or framework, and a cover or shade made rigidly longitudinally, connecting the arms of and therefore bridging the space between said standards.

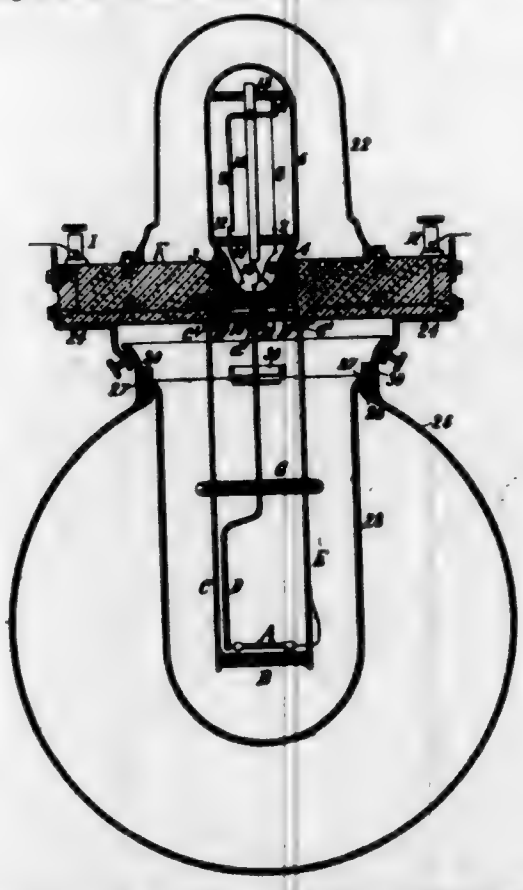
5. The combination with a suitable support or framework, of an awning consisting of inverted semicircular arch standards of resilient material, fitting slidingly in said support or framework, and a cover or shade having longitudinal stiffening-rods and socket-plates at its side margins, the latter being adapted to receive the upper ends of the resilient standards, substantially as described.

696,879. PROCESS OF INDURATING FIBER-WARE, &c. JESSE PETTIBONE, Lockport, N. Y., assignor to the United Indurated Fibre Company, Lockport, N. Y., a Corporation of New Jersey. Filed Feb. 17, 1897. Serial No. 623,784. (No specimens.)

Claim.—1. The process of indurating or toughening fiber articles, consisting in dipping such articles in a filler composed of corn-oil and a toughening medium, and then baking them, substantially as described.

2. The process of indurating or toughening fiber articles, consisting in dipping such articles in a filler composed of corn oil and a toughening medium, and then baking them, and finally sanding, varnishing and again baking them, substantially as described.

696,880. **ELECTRIC GLOWER-LAMP.** HENRY H. POTTER, Göttingen, Germany, assignor to George Westinghouse, Pittsburg, Pa. Filed Aug. 9, 1899. Serial No. 726,626. (No model.)



Claim.—1. In an electric lamp, a glower of the type described, a stationary heater located in proximity thereto, and a plurality of translucent globes surrounding the said glower and heater, whereby the casting of shadows by the heater is substantially avoided.

2. In an electric lamp, a glower of the type described, a stationary heater located underneath the said glower, and a plurality of translucent globes surrounding the said glower and heater, whereby the casting of shadows by the heater is substantially avoided.

3. In an electric lamp, a glower of the type described, a stationary heater thereunder, a base supporting the said glower and heater, and a plurality of translucent globes surrounding the said glower and heater and supported by the said base, whereby the casting of shadows by the heater is substantially avoided.

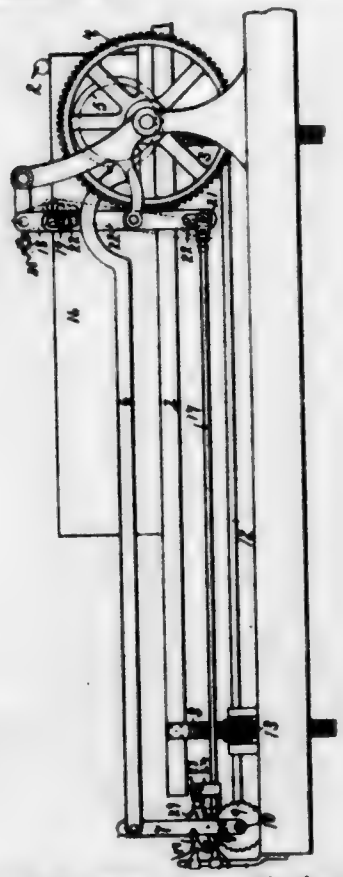
696,881. **PAPER-FEEDING MACHINE.** FRANK SCHILS, Milwaukee, Wis., assignor to Hugo Loewenbach, Milwaukee, Wis. Filed Mar. 1, 1900. Serial No. 7,089. (No model.)

Claim.—1. In a paper-feeding device, the combination with the actuating mechanism of a paper-supporting platform; of a device suspended above the paper on said platform, and adapted to be oscillated by frictional contact with a moving sheet of paper; and connections adapted to communicate motion from said device to connect and disconnect the platform-actuating mechanism and its driving connections.

2. In a paper-feeding device, the combination with the actuating mechanism of a paper-supporting platform; of a device arranged in the vertical path of the paper, and adapted to be actuated by frictional contact with a moving sheet of paper; connections adapted to communicate motion from said device to connect and disconnect the platform-actuating mechanism and its driving connections.

3. In a paper-feeding device, the combination with the actuating mechanism of a paper-supporting platform; of a device located for contact with the paper on the platform at a fixed point, and adapted to be actuated by frictional contact with the surface of a discharging sheet; and means for communicating motion of said device to temporarily disconnect the platform-actuating mechanism.

4. In a paper-feeding device, the combination with the actuating mechanism of a paper-supporting platform; of a device located for contact with the paper on the platform at a fixed point, and adapted to be actuated by frictional contact with the surface of a discharging sheet; and means for communicating the motion of said device to disconnect the platform-actuating mechanism, until such sheet is discharged.



5. In a paper-feeding device, the combination with the actuating mechanism of the paper-supporting platform; pawl-and-ratchet driving connections therefor; an oscillatory finger arranged for contact at a predetermined level with the paper supported on said platform; a sliding rod connected with said finger, and provided with a guide adapted to engage and lift said pawl out of contact with the ratchet during the movement of the pawl in one direction; a latch adapted to temporarily hold said pawl in its raised position during its movement in the opposite direction; and a releasing-guide carried by the sliding rod and adapted to disengage the latch from said pawl, as the latter completes such movement.

6. In a paper-feeding device, the combination with the actuating mechanism of a paper-supporting platform; of an oscillatory finger supported for contact at a predetermined level with the upper surface of the paper supported on said platform; and adjustable contact-tip connected with said finger; and connections adapted to communicate motion from said finger to connect and disconnect the platform-actuating mechanism and its driving connections.

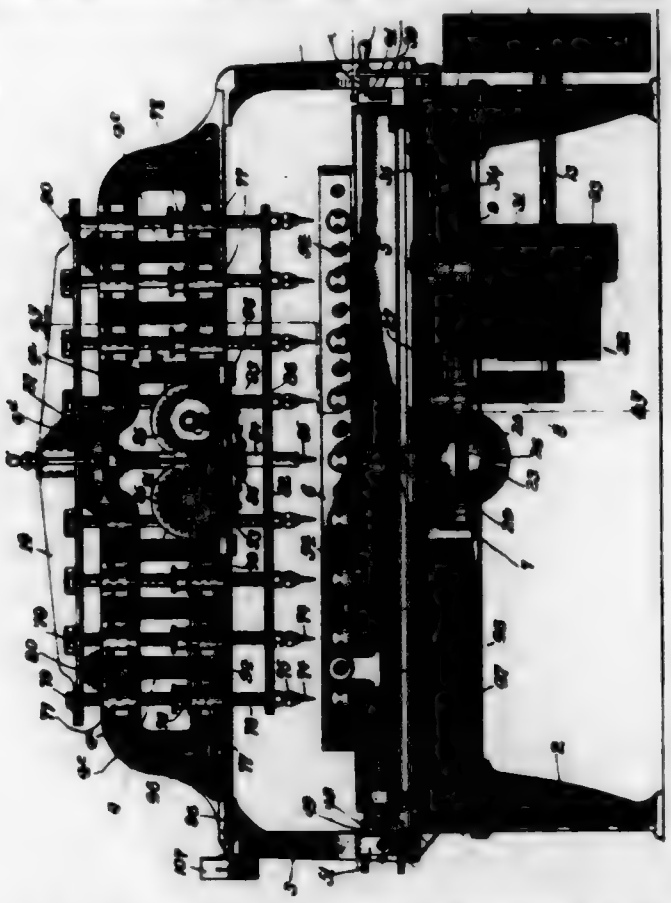
696,882. **AUTOMATIC CARVING-MACHINE.** FRANK STRESEN and CHARLES L. RUHM, Chicago, Ill., assignors to The Firm of S. Karpen and Bros., Chicago, Ill. Filed Nov. 20, 1901. Serial No. 82,971. (No model.)

Claim.—1. In a carving-machine, a cutter in combination with a tracer wherewith said cutter is movable, a pattern and work holding and feeding mechanism, the relief-pattern held thereby and engaging said tracer and limiting the movement thereof in one direction, and a driven device exerting retractile force upon said tracer at all times, said force increasing in proportion to the lateral pressure of the pattern on the tracer, substantially as described.

2. In a carving-machine, a cutter in combination with a tracer wherewith said cutter is movable longitudinally, a pattern and work holding and feeding mechanism, the relief-pattern held by said mechanism, engaging said tracer, limiting the movement thereof in one direction, and exerting pressure upon said tracer laterally to its direction of movement, and a driven device at all times exerting retractile force upon said tracer, the force of said driven device upon said tracer increasing in proportion to the lateral pressure of the pattern upon the tracer whereby said tracer is retracted upon lateral engagement with said pattern, substantially as described.

3. In a carving-machine, the connected cutter and tracer; and, the pattern and work holding mechanism, movable relatively to one another in intersecting planes, in combination with the relief-pattern engaged by said tracer, limiting the movement thereof in one direction, and exerting varying pressure upon the tracer during the relative movement of the pattern and tracer; and a retracting device operating upon said tracer at all times with a force that increases in proportion to the pressure of the

pattern upon the tracer and said device coacting with the pattern to retract the tracer and cutter, substantially as described.



4. In a carving-machine, a tracer longitudinally movable, and positively held against other movement, a cutter moved and controlled by said tracer, a pattern and work holding mechanism movable laterally with relation to said tracer, the relief-pattern held by said mechanism, slidably engaged by said tracer continuously and exerting lateral pressure upon said tracer during the movement of said mechanism, and a driven device continuously coöperating with said pattern to retract said tracer and cutter, substantially as described.

5. In a carving-machine, a tracer movable longitudinally and held against lateral movement, in combination with a cutter movable with said tracer, a laterally-movable pattern and work holding and feeding mechanism, the relief-pattern held thereby, engaging and exerting lateral pressure on said tracer, and a device exerting retractile force upon said tracer at all times, the force exerted by said device upon the tracer being increased by the lateral pressure of the pattern on said tracer, substantially as described.

6. In a carving-machine, the relatively movable cutter and the work-holding mechanism, in combination with the relatively movable tracer and relief-pattern, said tracer being connected with and controlling said cutter, said pattern being engaged by said tracer, limiting the movement thereof in one direction, and exerting pressure thereon during the relative movement of the tracer and pattern, and a retracting device operating upon said tracer at all times and with force increasing in proportion to the pressure of the pattern thereon, substantially as described.

7. In a carving-machine, the cutter and the work-holding mechanism relatively moved while in engagement, in combination with a tracer and a relief-pattern relatively moved while in engagement, said tracer and said cutter being connected together for movement corresponding to the sinuosity of the pattern, said pattern exerting varying lateral pressure upon the tracer during said relative movement, and a driven retracting device associated with said tracer exerting retractile force thereon at all times and retracting said tracer simultaneously with the exertion of lateral pressure upon the tracer by said pattern, substantially as described.

8. In a carving-machine, the pattern and work holding and feeding mechanism, in combination with a longitudinally-movable tracer and connected cutter, with relation to which said mechanism is laterally movable, a pattern carried by said mechanism in slidable engagement with said tracer and exerting a varying lateral pressure thereon, and a retracting device engaged with said tracer, said device and associated parts constantly holding said tracer against lateral movement by said pattern and said retracting device operating automatically to retract said tracer with a force and speed increasing in proportion to the increase of lateral pressure of said pattern upon said tracer, substantially as described.

9. In an automatic carving-machine, the pattern and work holding and feeding mechanism, in combination with a longitudinally-movable tracer and a cutter connected therewith, with relation to which tracer and cutter said mechanism is laterally movable, a continuously-rotated retracting device constantly engaged with said tracer, and parts associated with said device holding said tracer against lateral movement, substantially as described.

10. In a carving-machine a longitudinally-movable tracer, in combination with a mechanism carrying a relief-pattern and the work and moved laterally with relation to the direction of movement of said tracer, said pattern as it is moved exerting varying lateral pressure upon said tracer, a cutter connected with said tracer and movable therewith, and a driven tracer-retracting device in constant frictional engagement with said tracer and functionally responsive to the pressure of the pattern upon the tracer, substantially as described.

11. In an automatic carving-machine the pattern and work holding and feeding mechanism and the relief-pattern thereon, in combination with a rigid tracer rigidly held for movement only toward and from said pattern, a cutter moved with said tracer, and a driven retracting device in constant frictional engagement with said tracer and functionally responsive to lateral pressure, and said tracer communicating the lateral pressure of the pattern upon the tracer to said device, substantially as described.

12. In an automatic carving-machine the pattern and work holding and feeding mechanism and the relief-pattern held thereby, in combination with the cutter, a continuously-operating retracting device, and a tracer connected with said cutter and constantly pressing upon said retracting device, said pattern as it is moved augmenting the pressure of said tracer upon said device and thereby causing the retraction of the tracer and cutter by said device, substantially as described.

13. In an automatic carving-machine a plurality of cutters, in combination with a single tracer connected with all thereof, the pattern and work holding and feeding mechanism, the relief-pattern held thereby and engaged with said tracer and exerting varying pressures thereon, and a driven retracting device at all times exerting retractile force upon said tracer and opposed thereby and functionally responsive to the pressure of the pattern upon said tracer, substantially as and for the purpose specified.

14. In an automatic carving-machine the pattern and work holding and feeding mechanism, and the relief-pattern held thereby, in combination with a reciprocable tracer, one or more cutters connected therewith, and a rotating friction device constantly engaged with said tracer and communicating thereto movements that vary in length and correspond to the varying relief of the pattern, substantially as described.

15. In a carving-machine the connected cutter and tracer and the relatively movable work and pattern holding mechanism, in combination with a driven retracting device exerting retractile force upon said tracer at all times and causing the same to retire when subjected to pressure, substantially as described.

16. In a carving-machine the connected cutter and tracer and the relatively movable work and pattern holding mechanism, in combination with a driven retracting device at all times in frictional engagement with said tracer and exerting retractile force thereon causing its retraction when subjected to pressure, substantially as described.

17. In an automatic carving-machine the pattern and work holding and feeding means in combination with the cutter and a retracting mechanism comprising a relief-pattern tracer-bar and means at all times exerting a retracting force upon the tracer-bar and increasingly effective to retract the tracer in proportion to the lateral force wherewith the tracer-bar is applied to said means, and means partially counterbalancing said tracer and cutter, substantially as described.

18. In an automatic carving-machine the pattern and work holding and feeding mechanism, in combination with a cutter movable toward and from said mechanism, a relief-pattern tracer connected to said cutter, and a continuously-moving means in engagement with the tracer constantly tending to retract the same, and made functionally operative, to move the tracer, by side pressure upon the tracer, substantially as described.

19. In an automatic carving-machine, the pattern and work holding and feeding mechanism, in combination with a cutter and a relief-pattern tracer suitably connected and normally in engagement with the work and pattern respectively, and a driven retracting device functionally dependent upon pressure, constantly tending to retract said tracer and cutter but insufficient to retract the same until pressure is applied to increase the retractile tendency of said device, substantially as described.

20. In an automatic carving-machine, the pattern and work holding and feeding mechanism, in combination with the cutter movable toward and from said mechanism, the tracer movable with said cutter, driven means constantly tending to retract said tracer and cutter and operating to retract the same simultaneously with the lateral engagement of the pattern with the tracer, substantially as described.

21. The pattern-tracing and cutter-retracting mechanism for carving-machines comprising a longitudinally-movable cutter-operating tracer-bar, in combination with driven means constantly exerting a retractile force upon said tracer-bar and retracting the tracer-bar when subjected to lateral pressure or thrust, substantially as described.

22. In a carving-machine the mechanism for holding and feeding the pattern and work, in combination with a relief-pattern tracer and a cutter movable toward and from said mechanism, said mechanism being laterally movable with relation to said tracer and cutter, a continuously-driven retracting device constantly engaged with said tracer, and said device with associated parts holding said tracer against movement laterally with said mechanism and exerting a retractile force upon said tracer at all times, said force increasing when the tracer is pressed upon said device by laterally-directed force, substantially as described.

23. In an automatic carving-machine the pattern and work holding table and means for moving the same in a horizontal plane, in combination with a vertical tracer-bar and a vertically-movable cutter, said bar and cutter being connected and normally depressed by gravity, means partly counterbalancing the weight of the connected tracer-bar and cutter, and a retracting device driven in constant engagement with said tracer-bar and tending to retract the same, said made functionally operative to lift the tracer-bar and cutter by the pressing of the tracer-bar thereon, substantially as described.

24. The retracting mechanism for carving-machines comprising a longitudinally-movable tracer-bar, fixed guides for said bar, and a continuously-driven retracting device associated with said guides for preventing lateral movement of said bar, said device operating to move said bar longitudinally and said bar being sensitive to movement by said device from the moment of the application of lateral pressure thereto, substantially as described.

25. In an automatic carving-machine, the pattern and work carrying table in combination with a single tracer and a plurality of cutters, connected for simultaneous perpendicular movement with respect to the pattern and work, and a driven retracting mechanism in continuous retractile engagement with said tracer and made increasingly effective to retract the tracer by the lateral pressure of the pattern upon the tracer, substantially as described.

26. In an automatic carving-machine, the pattern and work carrying mechanism in combination with a tracer-bar and a cutter suitably connected and movable toward and from said mechanism, and a rotary retracting device exerting retractile force upon said tracer-bar at all times and functionally responsive to varying lateral pressure upon said bar, substantially as described.

27. In an automatic carving-machine, the pattern and work carrying mechanism in combination with a tracer-bar and a cutter-spindle suitably connected together and movable toward and from said mechanism as required to trace a relief-pattern, a rotary retracting device, said bar having parts in constant engagement with opposite sides of said device and said device causing the retraction of the bar and spindle when either of said parts is forcibly pressed upon said rotary device, substantially as described.

28. In an automatic carving-machine, the pattern and work feeding mechanism in combination with a tracer-bar and a cutter-spindle connected for simultaneous movement, a rotating friction-disk, said bar having friction-buttons coöperating with opposite sides of said disk, and suitable guides for said bar and spindle, substantially as and for the purpose specified.

29. In an automatic carving-machine, the pattern and work feeding mechanism in combination with a tracer-bar and one or more cutter-spindles connected therewith a rotary friction-disk, said bar having projections in constant frictional engagement with opposite sides of said disk and guides which with said disk prevent lateral movement of said bar, substantially as and for the purpose specified.

30. In an automatic carving-machine, the combination of a traversing feed mechanism for the pattern and work with a tracer and cutters suitably connected and normally engaged with the pattern and work, and a friction-disk suitably rotated, said tracer having friction parts on opposite sides of said disk to coöperate therewith in retracting the tracer, as and for the purpose specified.

31. In an automatic carving-machine, the combination of a traversing feed mechanism for the pattern and work, with a tracer and cutters suitably connected and normally engaged with the pattern and work, and a driven friction-disk, said tracer having friction parts normally in contact with opposite sides of said disk, whereby when the tracer is subjected to lateral pressure the same will be retracted by said disk, substantially as described.

32. The combination, of a frame, with the friction-disk mounted to rotate therein and held against movement in the direction of its axis, the tracer-bar to receive lateral pattern-pressure and having a bearing at its outer end in said frame, the other end of said bar being engaged with said disk and thereby held against movement in the direction of said axis and said disk being adapted to move said bar in its bearing in said frame, substantially as described.

33. In an automatic carving-machine, the work and pattern feeding mechanism in combination with a cutter, a suitably-guided tracer connected therewith, contact-buttons provided on said tracer, and the driven disk moving between said buttons for engagement therewith, substantially as described.

34. In an automatic carving-machine, the work and pattern feeding mechanism in combination with a cutter, a tracer connected therewith, contact-buttons provided on said tracer, the driven disk moving between said buttons, and the antifriction-bearings for said tracer above and below said disk, substantially as described.

35. In an automatic carving-machine, the work and pattern feeding mechanism in combination with a cutter, a tracer-bar connected therewith, the contact-buttons provided on said tracer-bar, the oppositely-rotated disks moving between said buttons, the antifriction-rolls 86, below said disk and therewith guiding said tracer-bar, substantially as described.

36. The tracer-retracting mechanism for carving-machines comprising the frame, the tracer-bar slidable in bearings therein, the oppositely-rotated disks 88 and 89 and the friction-buttons provided on said bar upon opposite sides of said disks to coöperate therewith, substantially as and for the purpose specified.

37. In an automatic carving-machine, the combination with work and pattern feeding means, of a plurality of cutter-spindles, a tracer-bar, said spindles and bar being connected and movable together, the oppositely-rotated disks 88 and 89 embraced and constantly engaged by said tracer-bar, and suitable guides wherein said bar and spindles are movable by said disks, substantially as described.

38. The combination of the frame 4 with the friction-disks 88 and 89 having bearings therein and held against movement in the direction of their axes, the tracer-bar guided at its outer end by a suitable bearing and having its inner portion in continuous contact with and guided by said friction-disks, substantially as described.

39. In an automatic carving-machine, the pattern and work carrying means in combination with a plurality of cutter-spindles, a tracer-bar parallel therewith and connected with the spindles to communicate its movement thereto, a rotary friction device, and contact-buttons provided in said bar and having friction portions or fillers, substantially as described.

40. The tracer-retracting mechanism comprising the rotary friction member and the tracer-bar having the opposed friction-buttons for coöperation with said member, each of said buttons comprising a metallic tube adjustable in said bar and a filler, substantially as described.

41. In an automatic carving-machine, the combination with the horizontal frame, of the horizontally-movable bed, the table thereon, the transverse tool head or bridge, the cutter-spindles therein, perpendicular to said bed, the tracer-bar parallel to said spindles and coupled to said spindles, means for rotating said cutters, the opposite disks 88 and 89 held against axial movement in said bridge, the contact-buttons in said tracer-bar engaging the upwardly-turning sides of said disks, the worm-gears for said disks and the worm-driving shaft upon said bridge, substantially as described.

42. In an automatic carving-machine, the pattern and work feeding table and means for moving the same in combination with the frame bridging said table, a plurality of rotating cutter-spindles arranged in said frame and movable in a plane substantially perpendicular to said table, a tracer-bar parallel with said cutter-spindles, means rigidly connecting said tracer-bar and said spindles, the oppositely-rotating friction-disks substantially in the plane of said tracer-bar and spindles, said tracer-bar partly embracing said disks and having friction-buttons coöperating with said disks, and suitable driving means for said disks and spindles, substantially as described.

43. In an automatic carving-machine, the tracer-bar, guides for the bar in which the bar is slidable, the cutter or cutters movable with said bar, the rotating friction-disk in constant frictional engagement with said bar, means for taking up the wear between said bar and disk, and suitable pattern and work holding and feeding means, substantially as described.

44. The retracting mechanism for carving-machines comprising the cutter-operating tracer-bar 84, the bearings for said bar, the oppositely-rotating friction-disks 88 and 89, the friction buttons or parts 90 upon said bar engaging the opposite surfaces of said disks, and means for taking up the wear between said buttons and said disks, substantially as described.

45. In a carving-machine, the work and pattern feeding table and suitable driving means therefor in combination with a tracer, a plurality of cutters all connected with said tracer and movable therewith toward and from said table, and a driven retracting device in constant frictional engagement with said tracer to coact with the pattern and retract the tracer and cutters, substantially as described.

46. In a carving-machine, the work and pattern feeding table and suitable driving means therefor in combination with a tracer, a plurality of cutters all connected with said tracer and movable therewith toward and from said table, and a single driven retracting mechanism associated with said tracer and at all times exerting retractile force upon said tracer.

the force expended upon the tracer by said device varying with the sinuosity of the pattern followed by the tracer, substantially as described.

47. In a carving-machine, a tracer, a plurality of cutters rigidly connected for movement therewith, a work and pattern holding and feeding mechanism, a relief-pattern held thereby, and a constantly-actuated retracting device arranged in connection with said tracer, exerting retractile force thereon at all times and instantly coactive with the pattern to retract the tracer and cutters, substantially as described.

48. In an automatic carving-machine, a suitable fixed frame in combination with a bar 14 movable toward and from said frame, the tracer movable in said frame for moving said bar, the plurality of cutter-spindles journaled in said frame and suspended from and movable with said bar, suitable pattern and work feeding means and a driven retracting device operable automatically to retract said tracer-bar and spindles, substantially as described.

49. In an automatic carving-machine, the combination with pattern and work holding and feeding means of the fixed frame, a plurality of cutter-spindles movable toward and from the feeding means in said frame, a tracer likewise movable, a driven automatic retracting mechanism associated with said tracer for moving the same, the cross-bar or beam arranged in the plane of said spindles and supported by said tracer and movable therewith, said spindles being journaled in said beam, substantially as described.

50. In an automatic carving-machine, the combination with a pattern and work holding table and feeding mechanism in combination with a plurality of cutter-spindles perpendicular to said table, a tracer, the driven retracting device associated with and constantly operating upon said tracer, and the bar or beam connecting said tracer with said cutters and movable parallel with itself, substantially as described.

51. In a carving-machine, the feed-table in combination with a plurality of parallel rotary cutter-spindles, the fixed frame bridging said table and having parallel journal-bearings for said spindles wherein the spindles are slidable, the tracer-bar guided in said frame, and the T bar or beam 14 carried by said tracer-bar, the ends of said spindles being journaled in said bar substantially as described.

52. In an automatic carving-machine, the feed-table in combination with the fixed frame bridging said table and having a plurality of parallel journal-bearings, the cutter-spindles revoluble and slidable in said bearings, the pulleys fixed to said spindles, the belts for driving said pulleys and movable therewith, the bar or beam movable in the plane of said spindles and wherein said spindles are journaled and held, for simultaneous movement in said frame, and suitable tracing and retracting means operative upon said bar, substantially as described.

53. In an automatic carving-machine, the pattern and work holding and feeding table and means for reciprocating the same, in combination with a frame overhanging said table, a plurality of cutter-spindles having bearings in said frame, the tracer-bar also having bearings in said frame, the bar or beam 14 connecting said tracer-bar and said cutter-spindles and movable toward and from said table, the rotary friction-disk held in said frame, said tracer-bar having friction parts to coöperate with said disk and retract said tracer-bar, beam, and spindles, substantially as described.

54. In an automatic carving-machine, the horizontal pattern and work feeding means in combination with a tool-head, a tracer and a cutter-spindle vertically movable in said head, means for driving the cutter-spindle, a rigid bar suitably cushioned and connecting said tracer and cutter-spindle, and therewith operable by gravity toward the pattern and work and constantly-rotating means tending to retract said tracer and cutter and made effective by the pattern, as and for the purpose specified.

55. In an automatic carving-machine, the combination of a pattern and work feeding mechanism with a tracer and a series of cutter-spindles, the fixed frame having a pair of journal-bearings for said tracer and a pair for each spindle and rigid means movable in the plane of said spindles and wherein said spindles are journaled and connected with the tracer for movement simultaneously therewith, substantially as described.

56. In an automatic carving-machine, a relief-pattern and work feeding mechanism in combination with automatic means for reciprocating the same, a suitable fixed frame, a tracer and cutters individually mounted and all vertically movable in said frame, the single bar or beam rigidly connecting said tracer and cutters and movable in the plane thereof, automatic tracer-retracting means controlled by the pattern, and means for driving said cutters and said retracting means.

57. In an automatic carving-machine the pattern and work feeding mechanism and a pattern thereon, in combination with the tool-frame, a plurality of cutter-spindles having slide-bearings in said frame, the tracer-bar also slidable in said frame, the bar 14 connecting said tracer-bar and said spindles and movable toward and from said frame, means partly counterbalancing the weight of said bar, spindles and tracer, and the automatic tracer-retracting mechanism, substantially as described.

58. In an automatic carving-machine the pattern and work holding and feeding mechanism, in combination with the fixed tool-head, two groups of cutter-spindles, slide-bearings for each in said head, a tracer-bar located between the groups of spindles and longitudinally slidable in said head, a connection common to said spindles and the tracer-bar, positively joining the same for rigid movement together and a moving retracting device in said head operable to retract said tracer-bar and spindles, substantially as described.

59. In an automatic carving-machine, the rectangular frame occupying a horizontal plane, in combination with the reciprocating bed thereon, the pattern and work holding table transversely movable on said bed, the tool-head bridging said bed and fixed upon said frame, a plurality of vertical bearings in said head, cutter-spindles revoluble and slidable in said bearings, the tracer-bar vertically movable in bearings in said head midway of the group of spindles, means above said head connecting said tracer-bar with all said spindles, rotary tracer-bar-retracting means having fixed bearings in said head, and mechanisms for driving said retracting means and said spindles at different speeds.

60. In an automatic carving-machine, a suitable frame in combination with pattern and work supporting and feeding table moved therein, the tool bridge or head fixed upon said frame, the tracer vertically movable in said head, the continuously-revolving device provided in said head for retracting said tracer, the plurality of tool-spindles mounted in said head, means connecting said spindles with said tracer for rigid movement therewith, and whereon the spindles are suspended, and mechanisms for driving said retracting means, spindles and work-feeding means, substantially as described.

61. In an automatic carving-machine, the horizontal bed in combination with the reciprocating bed 5 and tool-head arranged above said bed transversely thereof and containing a plurality of tools, the rack upon the lower side of said bed, the worm meshing therewith, the driving-gear for said worm and pinions engaging opposite sides of said gear, the pulleys connected with said pinions and an automatic belt-shifting device operable by said bed, substantially as described.

62. The feed-table for automatic carving-machines, comprising the rectangular frame having transverse guides and a plurality of longitudinal rods 54, the center chucks provided in one end of said frame and the bar 62 adjustable upon said rods 54 and carrying the tailpieces or centers 61, substantially as described.

63. The table for automatic carving-machines, comprising the ends and a plurality of longitudinal rods 54, in combination with the bar 62 adjustable upon said rods 54, the centers 61 adjustable in said bar 62 and parallel with said rods 54, the center chucks provided in one of the ends of the table and the chuck-driving means carried by said end of the table, substantially as described.

64. The pattern and work feeding mechanism for automatic carving-machines, comprising the longitudinally-movable bed in combination with the table transversely movable upon said bed, bed-driving means, transverse table-feeding device provided upon said bed and including the intermittently-movable wheel 48 operated by the reciprocation of the bed, the chuck-centers provided upon said table and a common driving-shaft therefor provided upon said bed, and means for connecting said wheel 48 with said shaft or said transverse feeding device, or both, substantially as described.

65. The pattern and work feeding mechanism for automatic carving-machines, comprising the longitudinally-movable bed and operating means therefor, in combination with the feed-table transversely movable upon said bed, the table-feeding screw provided upon the bed and connected with the table, a plurality of center chucks provided in the end of said table, the worm gear-wheels therefor, the shaft 66 provided upon the end of said bed, the worms provided upon said shaft and slidable thereon with said table, the star-wheel provided upon the screw-shaft, the bolt or equivalent means connecting said wheel and the shaft 66 and means detachably securing said star-wheel to the screw-shaft, substantially as described.

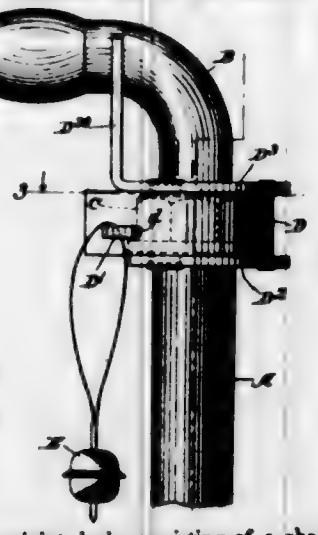
66. The pattern and work feeding mechanism for automatic carving-machines, comprising the longitudinally-movable bed and operating means therefor, in combination with the feed-table transversely movable upon said bed, the table-feeding screw-shaft provided upon the bed and connected with the table, a plurality of center chucks provided in the end of said table, the worm gear-wheels therefor, the shaft 66 provided upon the end of said bed, the worms provided upon said shaft and slidable thereon with said table, the star-wheel provided upon the screw-shaft, the bolt or equivalent means connecting said wheel and the shaft 66 and means detachably securing said star-wheel to the screw-shaft, substantially as described.

67. The pattern and work feeding mechanism for automatic carving-machines, comprising the longitudinally-reciprocating bed, in combination with the table transversely movable upon said bed, the table-feeding-device carried by said bed and including a star-wheel, the stationary rod 53, the oppositely-extending blocks 51 and 52 on said rod and provided with pins 49 and 50 reversible as to said wheel by the partial rotation of said rod 53 whereby the movement of the table may be reversed, substantially as described.

68. In an automatic carving-machine, the combination with pattern and work carrying means, of a tool-head and a series of parallel rotary cutter-spindles longitudinally movable in said head, means for driving said spindles, tracer mechanism controlling all of said spindles and the anti-chattering-bar carried by and movable with said spindles and connecting the same, substantially as and for the purpose specified.

69. In an automatic carving-machine, the pattern and work feeding means in combination with a tracer, a continuously-driven tracer-retracting device the plurality of cutter-spindles, the frame wherein said tracer and said spindles are movable vertically, the beam connecting said tracer and spindles and the springs partially supporting the weight of said bar and spindles, substantially as described.

696,383. **PIPE-JOINT LOCK.** EMIL TYDER, Hastings, Mich. Filed June 22, 1901. Serial No. 65,540. (No model.)



Claim.—1. A pipe-joint lock, consisting of a shackle adapted to stride the nut of the pipe-joint, and having flanges to engage at opposite sides of such nut the cross-bar closing the shackle, and means for securing the cross-bar in shackle-closing position; the shackle when thus closed being non-rotatable on such nut, and comprising a sideward-jutting arm to collide with the pipe at the nearest bend, to stop the rotation of the shackle and nut.

2. A lock for a pipe-union, comprising a shackle adapted to stride the nut and provided with a closing-bar for securing it in shackle-closing position; such shackle having lateral flanges to engage at opposite sides of the nut; one flange engaging behind the thread-base of the threaded pipe member of the union; the shackle when closed by the bar being non-rotatable on the nut, and comprising a sideward-jutting arm, adapted to collide with the pipe at the nearest bend to stop the rotation of the shackle and nut.

696,384. **OIL-CAN.** PATRICK WALL and BRADY W. MOORE, Allegheny, Pa.; said Moore assignor to said Wall. Filed June 8, 1901. Serial No. 63,793. (No model.)



Claim.—1. An oil-can having a rotatable spout, and a non-revolvable reciprocating cleaning device lying within the spout and in contact therewith, substantially as described.

2. An oil-can having a screw-threaded opening, a spout having a screw-threaded portion removably fitted to the opening, and further provided with a cam, and a reciprocating cleaning device connected to the body of the can, disposed in said spout and adapted to be moved endwise by said cam, when said spout is unscrewed, substantially as described.

3. An oil-can, having a rotatable spout, provided with an inner cam-terminal, and a cleaning device located within the spout and having a spring connection with the body of the can, and the cam portion of the spout lying in frictional engagement with the spring connection to hold the cleaning device at its inner limit.

4. An oil-can, having a rotatable spout, provided with an inner cam end, and an endwise-movable cleaning device mounted within the spout and in operative frictional relation to the cam end of the spout, whereby a rotation of the spout will move the cleaning device endwise.

5. An oil-can, having a rotatable spout, provided with an inner cam end, and an endwise-movable cleaning device mounted within the spout with its inner end projected through the inner end of the spout, and provided with a cross-head having a spring connection with the body of the can, said cross-head lying in frictional engagement with the cam end of the rotatable spout.

6. In an oil-can, the combination with a rotatable spout, and an endwise-movable cleaning device mounted within the spout, of means for moving the cleaning device in an endwise direction to project the same through the discharge end of the spout by a rotary movement of the latter.

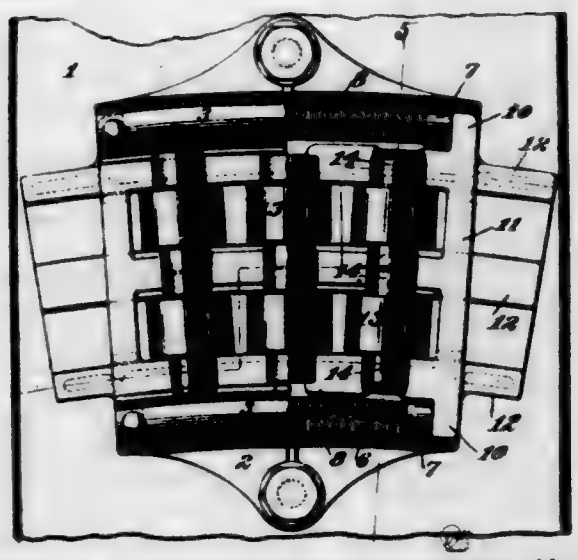
7. An oil-can, having a rotatable spout, provided with a cam inner end lying within the can, and an endwise-movable cleaning-rod mounted within the spout with its inner end projected into the body of the can, and bent transversely across the cam end of the spout to form a cross-head in frictional engagement with said cam end of the spout, the free end portion of the cross-head portion being bent into a spring-coil, and then formed into a shank which is secured to the body of the can.

8. An oil-can having an axially-revoluble spout, a reciprocating cleaning device in said spout, and connected to said can, and means, operated by said revoluble spout to impart reciprocating movement to said cleaning device, substantially as described.

9. An oil-can having a revoluble spout, and a cleaning-rod, secured against revoluble movement, said cleaning-rod extending through said spout and bearing against one side of the same, to scrape the interior of the spout when the latter is rotated, substantially as described.

10. An oil-can having an opening in the top thereof, an interiorly-screw-threaded nipple fitted in the opening and provided with an outwardly-flared outer end forming a beveled seat, a rotatable spout having a screw-threaded portion to fit the screw-threaded nipple, and also provided with an outwardly and upwardly flared marginal flange to fit the seat, an endwise-movable cleaning device mounted within the spout, and means for moving the cleaning device by a rotary movement of the spout.

696,385. **SIDE BEARING FOR RAILWAY-CARS.** JOHN C. WARDS, St. Louis, Mo. Filed Nov. 19, 1901. Serial No. 82,917. (No model.)



Claim.—1. In a side bearing for cars, the combination with a cylindrical antifriction-roller, and means for causing an unequal circumferential travel of the ends of said roller; substantially as described.

2. In a side bearing for cars, the combination with a cylindrical antifriction-roller, and means for causing the outer end of said roller to travel at a greater circumferential speed than the inner end; substantially as described.

3. In a side bearing for cars, a cylindrical antifriction-roller having reduced ends of different diameters; substantially as described.

4. In a side bearing for cars, a cylindrical antifriction-roller having cylindrical axles, the axle at the outer end of said roller being of greater diameter than the axle at the inner end; substantially as described.

5. In a side bearing for cars, the combination with curved tracks having horizontally-disposed treads, and a cylindrical antifriction-roller mounted to travel on said curved tracks, the bearing ends of said roller traveling at unequal circumferential speeds; substantially as described.

6. In a side bearing for cars, the combination with a curved track, and an antifriction-roller having cylindrical bearing-axles of different diameters coöperating with said track, whereby the roller is caused to travel in a curved path; substantially as described.

7. In a side bearing for cars, the combination with a track, and a cylindrical antifriction-roller provided with bearing-axles of different diameters coöperating with said track; substantially as described.

8. In a side bearing for cars, the combination with curved tracks, and a cylindrical antifriction-roller mounted between said tracks and having cylindrical bearing-axles of different diameters coöperating with said tracks; substantially as described.

9. In a side bearing for cars, the combination with flat-surfaced tracks of different heights, of a cylindrical antifriction-roller arranged between said tracks and cylindrical bearing-axles of different diameters cooperating with said tracks; substantially as described.

10. In a side bearing for cars, the combination with tracks, of rollers on said tracks, a frame coöperating with said rollers, a spring-housing for guiding said frame in its movement, and a centering-spring in said housing, said spring-housing having slots in its bottom wall for the escape of dirt, dust, &c.; substantially as described.

11. In a side bearing for cars, the combination with tracks, of spring-housings arranged parallel thereto, rollers on said tracks, springs in said housings for centering said rollers, openings in the bottom walls of the spring-housings for the escape of dust, dirt, &c., and open-ended channels for receiving the dirt, dust, &c., falling, through said openings; substantially as described.

12. In a side bearing for cars, the combination with tracks, of rollers arranged thereon, centering-springs for said rollers, slotted housings for said centering-springs, and means for keeping the spring-housings free from dirt; substantially as described.

13. In a side bearing for cars, the combination with curved tracks of different heights, of a cylindrical antifriction-roller, and cylindrical bearing-axles of different diameters at the ends of said roller for supporting the same between the curved tracks, whereby the peripheral speed of the roller is greater than the peripheral speed of the bearing-axles; substantially as described.

14. In a side bearing for cars, the combination with tracks, of spring-housings arranged outside thereof, and formed with slots in their bottom walls, rollers on said tracks, a frame for spacing said rollers, centering-springs in the housings coöperating with said frame, and channels & under the spring-housings; substantially as described.

15. In a side bearing for cars, the combination with an antifriction-roller, means for causing the ends of said roller to travel at different circumferential speeds, and means for returning said roller to a normal position after displacement; substantially as described.

16. In a side bearing for cars, the combination with an antifriction-roller, whose outer end has a greater circumferential speed than its inner end, and means for returning said roller to a normal position after displacement; substantially as described.

17. In a side bearing for cars, the combination with an antifriction-roller having reduced ends of different diameters, and resilient means for returning said roller to a normal position after displacement; substantially as described.

18. In a side bearing for cars, the combination with an antifriction-roller having protruding axles, the axle at the outer end of said roller being of greater diameter than the axle at the inner end, and resilient means for returning said roller to a normal position after displacement; substantially as described.

19. In a side bearing for cars, the combination with a curved track, of an antifriction-roller having reduced cylindrical spindles of different diameters mounted to travel on said track, and means for returning said roller to a normal position after displacement; substantially as described.

20. In a side bearing for cars, the combination with a curved track, of an antifriction-roller having cylindrical bearing-axles of different diameters coöperating with said track, whereby the roller is caused to travel in a curved path, and means for returning said roller to a normal position after displacement; substantially as described.

21. In a side bearing for cars, the combination with tracks of different heights, of a roller mounted upon said tracks and having cylindrical spindles of different diameters coöperating with said tracks, and means for returning said roller to a normal position after displacement; substantially as described.

22. In a side bearing for cars, the combination with tracks of different heights, of a roller arranged between said tracks and having bearing-axles of different diameters coöperating with said tracks, and means for returning said roller to a normal position after displacement; substantially as described.

23. In a side bearing for cars, the combination with a plurality of tracks, independently-rotatable antifriction-rollers having bearing-axles supported by said tracks, and a frame coöperating with said rollers for maintaining proper relation thereof to each other; substantially as described.

24. In a side bearing for cars, the combination with a plurality of tracks, of independently-rotatable rollers whose bearing-axles are supported by said tracks, and a frame for receiving the bearing-axles of said rollers, said frame moving with said rollers and maintaining them in proper relation to each other; substantially as described.

25. In a side bearing for cars, the combination with a plurality of tracks, of rollers arranged in sets between said tracks, said rollers being independently rotatable, and a frame for maintaining the axes of rotation of all of said rollers in radial alinement with the king-pin of the truck; substantially as described.

26. In a side bearing for cars, the combination with a plurality of curved tracks, of rollers arranged between said tracks, bearing-axles carrying said rollers and supported by said tracks, said bearing-axles at the opposite ends of the rollers being of unequal diameters, and a frame for spacing said rollers apart; substantially as described.

27. In a side bearing for cars, the combination with a plurality of curved tracks, of antifriction-rollers arranged in sets between said tracks, all of said rollers being independently rotatable, bearing-axles for carrying said rollers, the bearing ends of said axles being of unequal diameter, and a frame for housing in the bearing ends of said axles and spacing said rollers apart; substantially as described.

28. In a side bearing for cars, the combination with a plurality of tracks, of sets of rollers arranged between said tracks and supported thereon by axles of smaller diameter than said rollers, a frame for spacing said rollers apart, and resilient means coöperating with the frame for restoring the same and said rollers to a central position after operation; substantially as described.

29. In a side bearing for cars, the combination with curved tracks, of rollers arranged between said tracks and having bearing-axles supported by said tracks, means for causing said rollers to travel in an arc of a circle, a frame for spacing said rollers apart, and springs at each side of said frame for restoring the same and the said rollers to a central position; substantially as described.

30. In a side bearing for cars, the combination with curved tracks of different heights, of rollers having bearing-axles of different diameters supported by said tracks, a frame coöperating with said rollers to space the same, springs at opposite sides of said frame, and fixed abutments with which said springs coöperate; substantially as described.

31. In a side bearing for cars, the combination with a casting formed with spring-housings at each side and a plurality of curved tracks, of antifriction-rollers mounted between said tracks, a frame for spacing said rollers apart, springs in said housings, fixed abutments, and spring-followers with which said frame coöperates; substantially as described.

32. In a side bearing for cars, the combination with spring-housings, of curved tracks between said housings, antifriction-rollers mounted between said tracks, a frame coöperating with said antifriction-rollers, springs in said housings for coöperating with said frame, and fixed abutments against which the ends of the springs are seated, one of said fixed abutments being removable; substantially as described.

33. In a side bearing for cars, the combination with a plurality of tracks, of rollers mounted between said tracks and having axles supported by the tracks, of a frame for spacing said rollers apart, means for guiding said frame in its movement, and centering devices for restoring the frame and said rollers to normal position; substantially as described.

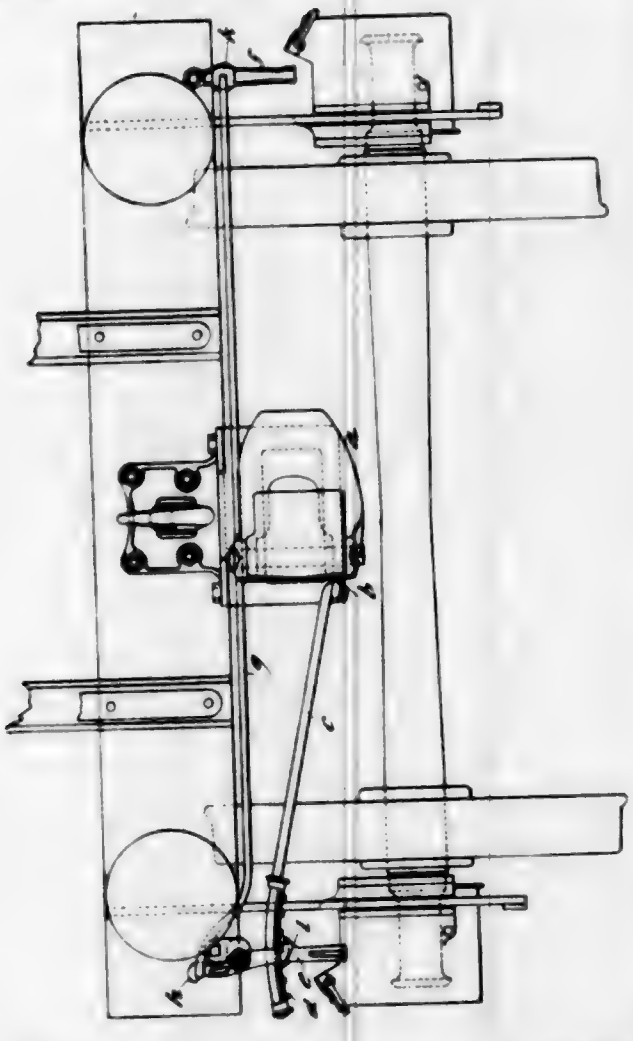
34. In a side bearing for cars, an antifriction-roller having a cylindrical axle formed with different diameters; substantially as described.

35. In a side bearing for cars, an antifriction-roller having a cylindrical axle formed with a reduced portion at one end; substantially as described.

36. In a side bearing for cars, an antifriction-roller having a cylindrical axle formed with an enlarged portion at one end; substantially as described.

37. In a side bearing for cars, antifriction-rollers provided with axles whose body portions are of uniform diameter throughout a greater portion of their length, the projecting end of one of said axles being reduced and the projecting end of the other of said axles being increased in diameter, in combination with tracks for supporting the projecting ends of said axles; substantially as described.

696,886. APPLIANCE FOR UNCOUPLING RAILWAY-CARS. JOHN WILLIAMSON, Derby, England, assignor to the National Malleable Castings Company, Cleveland, Ohio, a Corporation of Ohio. Filed July 13, 1901. Serial No. 68,261. (No model.)



Claim.—1. In combination with the sliding piece by which the lock of an automatic coupler is released, a rod hooked to the said piece and having a rack on its end passed through a slot of a lever which is pivoted on the outer part of the end frame of the car, the said slot having at the edge of its bottom, teeth adapted to engage the rack when the lever is moved from the vertical position, substantially as described.

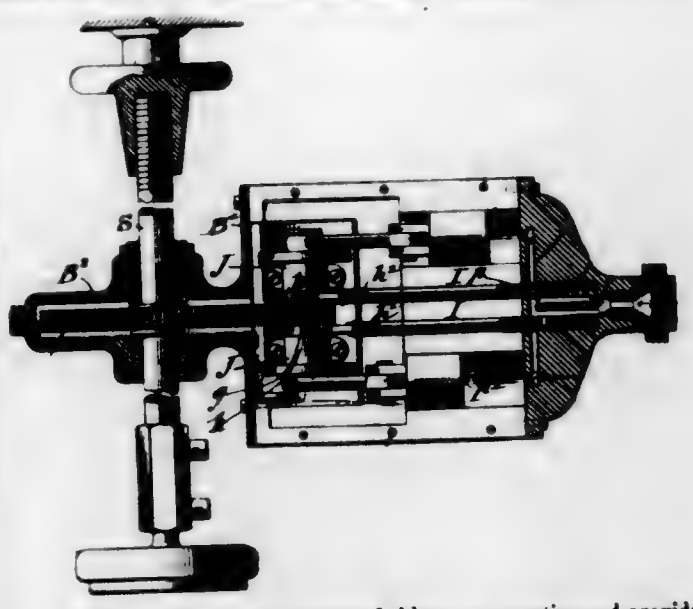
2. In combination with the sliding piece by which the lock of an automatic coupler is released, a rod hooked to the said piece and having a rack on its end passed through a slot of a lever which is pivoted on the outer part of the end frame of the car, the said slot having at the edge of its bottom, teeth adapted to engage the rack when the lever is moved from the vertical position, and a second lever pivoted on the outer part of the end frame of the car at its opposite side and connected to the slotted lever by a rod linking an eye below the pivot of the second lever to a hook above the pivot of the slotted lever, substantially as and for the purpose set forth.

3. In uncoupling apparatus, a longitudinally-movable link connected to the knuckle-lock, and a lever pivoted to the car and arranged to engage and move the link in certain positions, the link moving relatively to the lever when the latter is in its normal position; substantially as described.

4. In uncoupling apparatus, an uncoupling-link, a pair of uncoupling-levers pivoted to opposite sides of the car and connected together, and a detachable connection between the link and one of said levers, said connection being arranged to be made or broken by swinging the levers; substantially as described.

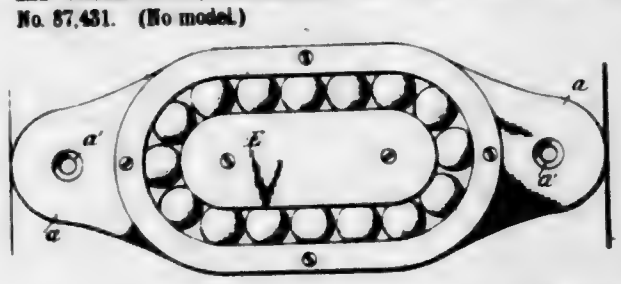
696,887. PNEUMATIC MOTOR. JOHN W. BIRKENBUSH, New York, N. Y., assignor, by direct and mesne assignments, to the Empire Pneumatic Tool Company, New York, N. Y. Filed May 7, 1901. Serial No. 59,141. (No model.)

Claim.—1. The combination of a casing provided with an enlargement at one end, a head at the other end of the same provided with channels for supplying compressed air, a head at the enlarged end of the casing, cylinders in said casing, and provided with inlet and outlet ports, pistons in said cylinders, a crank-shaft supported in the enlarged end of the casing, piston-rods connecting the pistons with the cranks of said crank-shaft, cams on said crank-shaft, slide-valves actuated by said cams and guided in the channeled head of the casing, said slide-valves being provided with ports communicating with the supply-channels for compressed air, and means for transmitting the rotary motion of the crank-shaft to the tool to be operated, substantially as set forth.



2. The combination of a casing of oblong cross-section and provided with an enlargement at one end, a head at the other end of the same provided with channels for supplying compressed air, a head at the opposite enlarged end of the casing provided with a suitable box, cylinders in said casing, pistons in said cylinders, inlet and outlet ports in said cylinders, for the compressed air, a crank-shaft supported in the enlarged end of the casing, piston-rods connecting the pistons with the cranks of said crank-shaft, cams on said crank-shaft, slide-valves guided in the channeled head of the casing, said slide-valves being provided with ports communicating with the supply-channels for compressed air, a motion-transmitting pinion on the crank-shaft, and a gear-wheel in said box, placed on the shaft of the polishing-tool, substantially as set forth.

696,888. SIDE BEARING FOR RAILWAY-CARS. DANIEL P. BOSWORTH, Marietta, Ohio, assignor of one-half to Frederick J. Stuck and William Freise, Jr., Marietta, Ohio. Filed Dec. 27, 1901. Serial No. 87,431. (No model.)



Claim.—1. In a side bearing for railway-cars, the combination of the top plate having the ball-retaining raceway upon its under side opening downwardly, the balls occupying the said raceway, and a lower plate arranged to cover one-half of said raceway from below, substantially as described.

2. In a side bearing for railway-cars, the combination of the top plate having the ball-retaining raceway upon its under side opening downwardly, the balls occupying the said raceway, and a lower plate arranged to cover one-half of said raceway from below, the bearing-surface of the said lower plate having inclined or beveled ends, substantially as described.

696,889. GANG-PLOW. HENRY BRYAN, Modesto, Cal. Filed Sept. 6, 1901. Serial No. 74,450. (No model.)

Claim.—1. In a plow of the class described, the combination with a frame, of a laterally-shiftable draft-bar, a rack-bar arranged horizontally, a sleeve adapted to slide on said rack-bar, means for connecting the said sleeve with the draft-bar, and means for locking the sleeve in any required adjustment.

2. In a plow of the class described, the combination with a frame, of a pivoted draft-bar, a rack-bar arranged laterally therefrom and supported rigidly beneath the frame, a sleeve adapted to slide on said rack-bar and connected with the draft-bar, and means for shifting the sleeve and locking it, substantially as shown and described.

3. In a plow of the class described, the combination with a frame, supporting-wheels, and the draft-bar adapted to shift laterally, of a rack-bar and the sleeve, adapted to slide thereon, and connected with the said draft-bar, a spring-pressed pin forming an attachment of said sleeve and adapted to lock the latter with the rack-bar, a lever, pivotally connected

with the sleeve and fulcrumed on the frame and having means for retracting the pin for releasing the lock, substantially as shown and described.

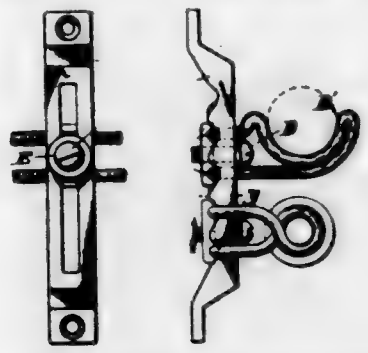


4. In a plow of the class described, the combination with a wheel-frame, and a draft-bar pivoted and adapted to be shifted laterally, a rack-bar arranged laterally therefrom and in a horizontal plane, a device which is slidable thereon, means for connecting with the draft-bar whereby the two move together when shifted laterally, and means for shifting and locking the said device, as and for the purpose specified.

5. In a plow of the class described, the combination with the wheel-frame, and the draft-bar which is pivoted at its rear end and supported at its front end, of a fixed rack-bar arranged practically in the same horizontal plane, a sleeve or casting adapted to slide on the said rack-bar, and the bar connecting said sleeve with the draft-bar, whereby the same are shifted together laterally, a slidable pin and a spring arranged in an attachment of the sleeve and adapted to press the pin forward, to hold it normally engaged with the rack-bar, a lever pivoted to said sleeve and extending rearward and upward, a keeper constituting a support and fulcrum for the lever wherein it is adapted for sliding and lateral movement corresponding to the adjustment of the sleeve, and means connected with said lever, for retracting the locking-pin, substantially as shown and described.

6. In a plow of the class described, the combination with a wheeled frame, a shiftable draft-bar, and a fixed rack-bar, of a casting or sleeve which is slidable on the latter and provided with studs as described, a pitman rod or bar connected with the draft-bar and pivoted on one of said studs, a lever pivoted on the adjacent stud and fulcrumed in the frame, and means for locking the sleeve in any adjustment, substantially as shown and described.

696,390. ADJUSTABLE SHADE-BRACKET. EDWARD CHAMBERLIN, Cincinnati, Ohio, assignor of one-half to Horace S. Pease, Cincinnati, Ohio. Filed July 3, 1897. Serial No. 643,435. (No model.)



Claim.—1. In an adjustable bracket, the combination of a fixed vertical base having a central vertical slot, a double row of notches upon its under face, an adjustable support having arms extending at right angles across said row of notches, a bolt taking through said slot and a nut having grooves to receive the arms of the support, engaging with said bolt to secure the parts together, substantially as set forth.

2. In an adjustable bracket the combination of a fixed vertical base having a longitudinal slot, a double row of notches upon one face of said base, an adjustable support having arms extending at right angles across said row of notches, a bolt taking through said slot, and a nut engaging with the bolt to secure the parts together, substantially as set forth.

3. In an adjustable bracket, the combination of a fixed vertical base having a central longitudinal slot and a double row of notches upon one face thereof, two supports each having arms with free ends to take transversely across and engage with said notches, one of said supports being formed to retain a curtain-pole and the other a window-shade roller and be adjusted vertically and laterally independent of the other to any desired position and a nut and bolt adapted to secure the parts together, substantially as set forth and for the purposes specified.

696,391. TIRE CONSTRUCTION. JOHN C. COLE, Chicopee Falls, Mass., assignor of one-half to Fisk Rubber Company, Chicopee Falls, Mass. Filed Sept. 23, 1901. Serial No. 76,290. (No model.)



Claim.—1. In combination with the felly of a wheel, a tire, a flat base thereon adapted to fit the periphery of the felly, a downwardly-beveled flange on each side of the base, a loose ring located on each flange, and devices for moving said rings one toward the other against said beveled surface, and means of engagement between said devices and the felly, substantially as described.

2. In combination with the felly of a wheel, a tire, a flat base thereon adapted to fit the periphery of the felly, a flange on each side of the base, the upper surface of which is downwardly inclined toward the edge of the base, a loose ring located on each flange and having a beveled under surface, and devices for moving said rings one toward the other, and means of engagement between said devices and the felly, substantially as described.

3. The combination with the felly of a wheel, of a flat metal rim secured to the felly, a tire, a base on the latter whereby it is clamped to said rim, and means for clamping said base to the rim consisting of a separate clamping-ring for each side of the base, suitable devices for drawing one of said rings toward the other, and constituting interlocking means between said tire and the wheel, substantially as described.

4. The combination with the felly of a wheel, of a flat metal rim secured thereon, a tire, a base on the latter, and means for securing said base to said tire against lateral and circumferential movements consisting of a ring located over each edge of said base, and bolts adapted to engage said rings whereby they may be drawn one toward the other, and means for interlocking said bolts and said rim, substantially as described.

5. The combination with a wheel, of a flat metal rim thereon, a tire having an outwardly-flaring flanged base fitting over said rim, rings having a greater diameter than said rim on either side of said base fitting over the outwardly-flaring portions thereof, and means for drawing said rings together whereby said base portions may be radially compressed against the rim.

6. In combination with the felly of a wheel, a tire, a flat base thereon adapted to fit the periphery of the felly, a flange on each side of the base, the upper surface of which is downwardly inclined toward the edge of the base, a loose ring located on each flange and devices for moving said rings one toward the other, and means of engagement between said devices and the felly, substantially as described.

7. The combination with a wheel, of a flat metal rim, a tire having an outwardly-flaring flanged base fitting over said rim, rings on either side of said base having a greater diameter than said rim and adapted to fit over said base portion of the tire, and means for drawing said rings together whereby said base portions of the tire may be compressed laterally, and radially against the rim.

8. The combination with a wheel, of a metal rim thereon, a tire, a base on the latter whereby it is clamped to the rim, and means for clamping the base to the rim consisting of a suitable abutment for the base on one side, and a loose ring having a greater diameter than said rim on the

other side of said base, and means for forcing said ring over the edge of said base whereby the latter may be clamped between said ring and said rim.

696,892. ART GLASS AND PROCESS OF MAKING SAME. GEORGE E. CORNER, Chicago, Ill., assignor of one-half to John P. Dixey, Springfield, Ohio. Filed June 22, 1901. Serial No. 65,599. (No specimens.)

Claim.—1. The process of making art glass which consists in coating a transparent base with an adhesive coating, then applying on the latter the raised lines of the design in plastic condition and allowing the same to harden, and then painting in the appropriate pigments between the lines of the design to secure the desired color effects, substantially as set forth.

2. The process of making art glass which consists in coating a transparent base with an adhesive coating, subjecting the base and coating to artificial heat to harden and bake the latter, then applying on such coating the raised lines of the design in plastic condition, then hardening such lines and causing them to adhere to the coating by subjecting the whole again to an artificial heat, and then painting in the appropriate pigments between the lines of the design to secure the desired color effects, substantially as set forth.

3. The process of making art glass which consists in coating a transparent base with a transparent colorless adhesive coating, subjecting such base and coating to artificial heat to harden and bake the latter, then applying on such coating the raised lines of the design in plastic condition, then hardening such lines and causing them to adhere to the coating by subjecting the whole again to an artificial heat, then painting in the appropriate pigments between the lines of the design to secure the desired color effects, and finally coating the whole with a moisture-proof varnish substantially as set forth.

4. As a new article of manufacture, an art glass consisting of a transparent base, a transparent colorless adhesive coating superposed thereon, composition-metal lines overlying and adhering to said coating and forming the outlines of the design, and suitable pigments disposed over the coating between the metal lines of the design, substantially as described.

5. As a new article of manufacture, an art glass consisting of a glass base, a transparent colorless adhesive coating in the nature of a baking-enamel superposed thereon, composition-metal lines overlying and adhering to said coating and forming the outlines of the design, suitable pigments applied over the coating between the metal lines of the design, and a moisture-proof varnish covering the whole, substantially as described.

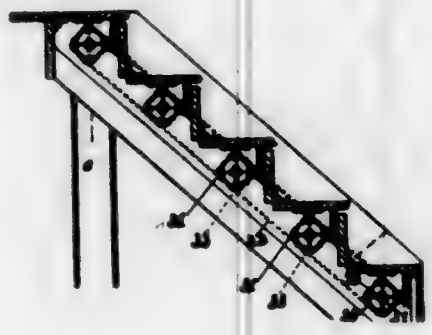
REISSUES.

11,976. PROCESS OF MANUFACTURING CELLULOID COMBS. CARL BEHRENDER, Mannheim, Germany. Filed Feb. 24, 1902. Serial No. 96,494. Original No. 688,222, dated Dec. 3, 1901.



Claim.—The process of making celluloid combs, which consists in first stuffing the celluloid through a die whose cross-section corresponds to the cross-section of the completed comb, to form a comb-blank, then subjecting the blank to heat and compression to form the teeth and to substantially complete the shape of the comb.

11,977. AMUSEMENT DEVICE. GEORGE C. TILYOU, Coney Island, N. Y. Filed Nov. 2, 1901. Serial No. 80,963. Original No. 648,813 dated May 1, 1900.



Claim.—1. In an amusement device, a depressible platform and means normally out of contact therewith whereby the extent of depression thereof is limited and a vibratory motion is simultaneously imparted thereto.

2. In an amusement device, a depressible platform and continuously-revolving cams mounted thereunder and normally out of contact therewith whereby the extent of depression thereof is limited and a vibratory motion is simultaneously imparted thereto.

3. In an amusement device, a depressible platform, continuously-revolving cams mounted thereunder and a spring-support whereby said platform is normally held out of contact with said cams.

4. In an amusement device, a depressible platform hinged at one end to a relatively stationary member, a spring-support for the free end thereof and continuously-revolving cams mounted under said free end whereby the extent of depression thereof will be limited and a vibratory motion simultaneously imparted thereto.

5. In an amusement device, a depressible platform hinged at one end to a relatively stationary member, a spring-support for the free end thereof, cams mounted under said free end and means whereby said cams may be revolved to impart a vibratory motion to said platform simultaneously with the limitation of the depression thereof by contact with said cams.

6. In an amusement device, a depressible platform hinged at one end to a relatively stationary member, a spring-support for the free end thereof, a shaft extending laterally under said free end, cams mounted thereon, face-plates on said platform adapted to engage said cams and take up the wear thereof and means whereby said shaft may be revolved, substantially as described.

DESIGNS.

35,825. BADGE. OVID COHEN, New Haven, Conn. Filed Feb. 27, 1902. Serial No. 96,023. Term of patent 3½ years.



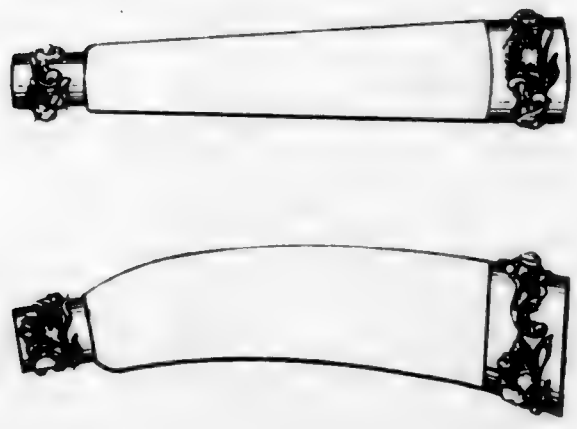
Claim.—The design for a badge, substantially as herein shown and described.

35,826. KNIFE-HANDLE. CHARLES F. SMITH, New Britain, Conn., assignor to Landers, Frary & Clark, New Britain, Conn. Filed Dec. 20, 1901. Serial No. 86,715. Term of patent 7 years.



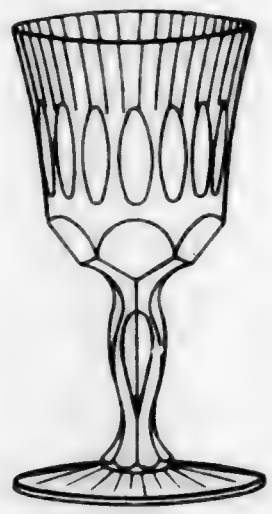
Claim.—The design for a knife-handle herein shown and described.

35,827. KNIFE-HANDLE. CHARLES F. SMITH, New Britain, Conn., assignor to Landers, Frary & Clark, New Britain, Conn. Filed Dec. 21, 1901. Serial No. 86,859. Term of patent 7 years.



Claim.—The design for a knife-handle herein shown and described.

35,828. STEM-GLASS. ALBERT PICK, Chicago, Ill. Filed Feb. 17, 1902. Serial No. 94,567. Term of patent 7 years.



Claim.—The design for a stem-glass, substantially as shown and described.

TRADE-MARKS

REGISTERED MARCH 25, 1902.

87,974. IRISH AND SWEET POTATOES. EASTERN SHORE OF VIRGINIA PRODUCE EXCHANGE, Onley, Va. Filed Jan. 31, 1902.

DAISY



Essential feature.—The word "DAISY" and the pictorial representation of a daisy. Used since September 1, 1901.

87,975. DRIED BREWERS' GRAINS. FARMERS FEED COMPANY OF NEW JERSEY, New York, N. Y. Filed Feb. 3, 1902.



Essential feature.—The representation of a bull's head and crescent. Used since January 20, 1902.

87,976. RED BONE MARROW AND MALT EXTRACT. VIROL, LIMITED, London, England. Filed Feb. 10, 1902.

VIROL

Essential feature.—The word "VIROL." Used since April, 1899.

87,977. MALT EXTRACT, BEER, ALE, AND PORTER. DULUTH BREWING & MALTING CO., Duluth, Minn. Filed Feb. 8, 1902.

Vitosia

Essential feature.—The word "VITOSIA." Used since November 20, 1899.

87,978. LAGER-BEER, ALE, PORTER, AND MALT EXTRACT. DULUTH BREWING & MALTING CO., Duluth, Minn. Filed Feb. 8, 1902.

Moose

Essential feature.—The word "MOOSE." Used since June 1, 1896.

87,979. DRINKING-WATERS. CHEMUNG SPRING WATER COMPANY, Chemung, N. Y. Filed Dec. 24, 1901.



Essential feature.—The representation or picture of an Indian brave in a standing posture at the side of a spring at the base of a tree, with one leg bent and the knee resting on the bank of the spring and with one hand grasping an upright spear and the other raised and holding a cup or vessel as if in the act of drinking. Used since April 10, 1900.

87,980. SPRING-WATER. ROBERT B. HEMINGWAY, Montowese, Conn. Filed Feb. 4, 1902.

ROCK LEDGE

Essential feature.—The words "ROCK LEDGE." Used since March 1, 1890.

87,981. TABLETS FOR CERTAIN NAMED DISEASES. ALBERT H. ROSINS, Richmond, Va. Filed Feb. 1, 1902.

C

Essential feature.—The letter "C." Used since January 4, 1902.

87,982. LINIMENT. EMPIRE LINIMENT M'F'G CO., Bridgetown, Nova Scotia, Canada. Filed May 9, 1901.



Essential feature.—The word "EMPIRE" and the representation of the English flags having the staves thereof set crisscross, with branches of maple arranged below and between said flags, with the representation of a lion and unicorn placed between the upper portion of said flags, the whole being encircled with a wreath of laurels. Used since January 1, 1898.

87,983. PERIODICALS. THE CRITERION PUBLICATION CO., New York, N. Y. Filed Feb. 13, 1902.

The Criterion.

Essential feature.—The words "THE CRITERION." Used since September 5, 1896.

87,984. SUBSTITUTE FOR PAPER. ALVAH BUSHNELL, Philadelphia, Pa. Filed Jan. 30, 1902.

PAPEROID.

Essential feature.—The word "PAPEROID." Used since January 1, 1894.

87,985. PHONOGRAPHIC LANGUAGE-LESSON RECORDS. INTERNATIONAL TEXTBOOK COMPANY, Scranton, Pa. Filed Jan. 30, 1902.



Essential feature.—The pictorial representation of a phonographic record supported on the fingers of a cuff-dressed human hand. Used since December 28, 1901.

87,986. COATS. KAYE & EINSTEIN, New York, N. Y. Filed Feb. 20, 1902.

STORM KING

Essential feature.—The words "STORM KING." Used since December 1, 1899.

87,987. SUSPENDERS. ADOLPH C. KROTER, New York, N. Y. Filed Feb. 25, 1902.

Notheweve

Essential feature.—The word "NOTHEWEVE." Used since January 15, 1902.

87,988. SHOES. RICHARDSON SHOE COMPANY, Menominee, Mich. Filed Feb. 7, 1902.



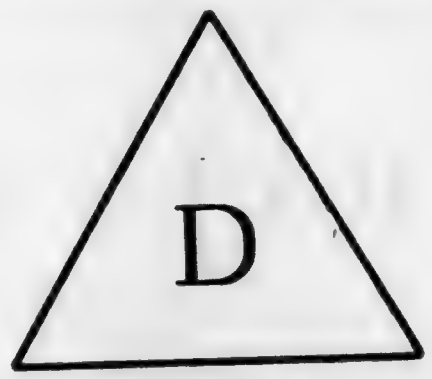
Essential feature.—The words "ONE AMONG A THOUSAND" and the pictorial representation of a collection of shoes. Used since November 15, 1897.

87,989. BRUSHES. FLORENCE MANUFACTURING CO., Northampton, Mass.; New York, N. Y., and Chicago, Ill. Filed Mar. 5, 1901.

GOODSENSE

Essential feature.—The word "GOODSENSE." Used since February 20, 1901.

87,990. ARTICLES MADE OF ENAMELED WOOD AND COMPOSITION. J. C. DOWD & CO., New York, N. Y. Filed Jan. 13, 1902.



Essential feature.—The capital letter "D" in a triangle. Used since March, 1899.

87,991. TOOTH BRUSH AND POWDER CABINETS. THE NEDO COMPANY, Washington, D. C. Filed Feb. 17, 1902.



Essential feature.—The word "NEDO." Used since February 14, 1902.

87,992. WASHING-MACHINES. ERNST H. HUSEFELD, Cincinnati, Ohio. Filed Dec. 4, 1901.

SELMA

Essential feature.—The word "SELMA." Used since November 1, 1901.

87,993. PAINT-POWDER. WILLIAM A. HALL, Bellows Falls, Vt., and New York, N. Y. Filed Aug. 13, 1901.



Essential feature.—A lozenge-shaped figure with the word "INDURINE" thereon. Used since June, 1892.

87,994. CERTAIN NAMED METAL. THE RIVERSIDE METAL COMPANY, Riverside, N. J. Filed Feb. 26, 1902.

OMEGA

Essential feature.—The word "OMEGA." Used since February 17, 1902.

87,995. COMPRESSION COCKS, VALVES, AND SPIGOTS. WM. S. COOPER BRASS WORKS, Philadelphia, Pa. Filed Feb. 26, 1902.

CLIPPER

Essential feature.—The word "CLIPPER." Used since January, 1890.

LABELS

REGISTERED MARCH 25, 1902.

9,030.—*Title:* "MALTED TOAST." (For a Food Product.) LAMBERT GOOD FOOD CO., LTD., Marshall, Mich. Filed February 26, 1902.

9,031.—*Title:* "SNOW QUEEN." (For Flour.) MICHIGAN MILLING CO., Ann Arbor, Mich. Filed December 26, 1901.

9,032.—*Title:* "ANN ARBOR PATENT." (For Flour.) MICHIGAN MILLING CO., Ann Arbor, Mich. Filed December 26, 1901.

9,033.—*Title:* "SHANAFELT'S FLAVORS." (For Flavors.) FRED P. SHANAFELT, Canton, Ohio. Filed March 4, 1902.

9,034.—*Title:* "400 COFFEE." (For Coffee.) ISAAC NEWLIN, New York, N. Y. Filed February 14, 1902.

9,035.—*Title:* "CELERY CHAMPAGNE." (For a Beverage.) ARTESIAN MFG. & BOTTLING CO., Waco, Tex. Filed February 15, 1902.

9,036.—*Title:* "CELERY CHAMPAGNE." (For a Beverage.) ARTESIAN MFG. & BOTTLING CO., Waco, Tex. Filed February 15, 1902.

9,037.—*Title:* "RED TRUNK." (For Cigars.) C. F. SPRINGER, Mineralpoint, Wis. Filed February 7, 1902.

9,038.—*Title:* "NIX-E WONT TELL." (For a Breath-Perfume.) ROBERT A. BRACHVOGEL, Chicago, Ill. Filed February 21, 1902.

9,039.—*Title:* "SAPPHINE TOILET CREAM." (For Toilet Cream.) FRANK W. PETERSON, Minneapolis, Minn. Filed March 1, 1902.

9,040.—*Title:* "SATIN-SKIN CREAM." (For a Cosmetic Cream.) ALBERT F. WOOD, Detroit, Mich. Filed February 26, 1902.

9,041.—*Title:* "MINERAL DANDRUFF CURE." (For Dandruff Cure.) B. & W. Co., Fort Wayne, Ind. Filed February 27, 1902.

9,042.—*Title:* "THE JAY WILLIAMS RHEUMATIC PLASTER." (For Plasters.) JAMES WILLIAMS, Lynn, Mass. Filed Febuary 19, 1902.

9,043.—*Title:* "W. C. HUGHENS ELECTRIC FLUID." (For a Medicine.) W. C. HUGHENS, Atlanta, Ga. Filed March 3, 1902.

9,044.—*Title:* "OFFICIAL FIRE INSURANCE RECORD WATCHMAN'S IMPROVED TIME DETECTOR." (For Dials and Time-Detectors.) ROBERT KOPP, New York, N. Y. Filed January 29, 1902.

9,045.—*Title:* "BOSS." (For Washing-Machines.) CONRAD DIETZ, Cincinnati, Ohio. Filed March 3, 1902.

PRINTS

REGISTERED MARCH 25, 1902.

478.—*Title:* "THE BOY AND THE FLYING BIRD." (For a Toy Flying-Bird.) LEXINGTON TOY BIRD CO., Lexington, Ky. Filed January 31, 1902.

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DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

SUMMERS *v.* HART.

Decided February 13, 1902.

1. INTERFERENCE—MOTION TO DISSOLVE—MATTER OUTSIDE OF THE RECORD.

It is the settled practice of this Office that nothing can be considered by the Primary Examiner on a motion to dissolve an interference which is not contained in the record of the case unless timely notice of such matter as may be urged in support of the motion which is not of record is served upon the opposing party before the time set for hearing.

2. SAME—SAME—SAME—TIME FOR NOTICE—POSTPONEMENT OF HEARING.

To permit a party who relies upon such matter to delay presentation thereof until the time of hearing would necessitate a postponement of the hearing. Such a delay of the proceedings might be obtained at any time by the observance of this course by the moving party. Such a delay should not be permitted except upon a showing of facts that the new matter could not have been earlier presented.

3. SAME—SAME—AFFIDAVITS.

Affidavits which consist merely of opinions of various parties as to the question of interference in fact between the claims involved in the interference are incompetent and should not be received.

APPEAL on motion.

METALLIC CARS.

Patent granted Edgar W. Summers March 27, 1900, No. 646,196. Application of Harry S. Hart filed July 3, 1899, No. 722,624.

Messrs. Bakewell & Byrnes for Summers.

Mr. L. S. Bacon for Hart.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Primary Examiner permitting the introduction and use of certain affidavits in support of a motion by Summers to dissolve the above-entitled interference and also from his decision postponing the hearing.

It appears that a motion to dissolve the interference was brought by Summers on the following grounds:

1. Because no interference in fact exists.
2. Because the said Hart, one of the parties to said interference, is not entitled to make the claim in form and substance as set forth in the issue of said interference.

At the hearing of said motion before the Primary Examiner Summers attempted to introduce certain affidavits of experts in support of his motion. No notice of the proposed filing of the affidavits or copies thereof had been served on Hart, and their introduction was objected to for that reason. The affidavits were admitted by the Examiner, and the hearing was postponed in order that the opposing party might have time in which to meet them. From this action the present appeal is taken.

The reasons for appeal are:

First. The Examiner erred in permitting the introduction of affidavits in support of the motion, the same not having been noticed in the motion papers, and the party Hart not having been served with copies of them before the day of hearing, and further for the reason that there is no warrant for permitting the introduction of affidavits of experts.

Second. The hearing should not have been postponed, and matters should have been decided on the records contained in the case at the date of filing of the motion.

The second reason for appeal will be first considered.

It is the settled practice of this Office that nothing can be considered by the Primary Examiner on a motion to dissolve an interference which is not contained in the record of the case unless timely notice of such matter as may be urged in support of the motion which is not of record is served upon the opposing party before the time set for hearing. (*Wells* v. *Packer*, 90 O. G., 1947.) In this case the rule was laid down—

* * * that on a hearing of a motion to dissolve an interference nothing should be considered by the Primary Examiner outside of the facts disclosed by the record unless a showing of such addit onal facts accompanies the motion to transmit to the Primary Examiner. * * *

In case of the discovery of new facts after granting the motion to transmit the Primary Examiner may consider such facts, provided due and timely notice thereof be given to the party opposing the motion to dissolve.

It is essential to the ends of justice that this notice be given before the day set for hearing, for to permit a party moving to dissolve an interference who relies upon matter not of record to support such motion to delay the presentation of this matter until the time of hearing would necessitate a postponement of the hearing in order that the opposing party might have opportunity to prepare his reply. If this practice were permitted, a delay of the proceedings might be obtained at any time by the observance of this course by the moving party. Such a delay should not be permitted except upon a showing of facts that the new matter could not have been earlier presented.

In the case now under consideration it is evident that if the affidavits which have been presented do contain matter which is not found in the record they should not now be received or considered. There is no showing in the motion papers that matter outside of the record would be relied upon in support of the motion. No notice of an intention to introduce such matter was served upon the opposing party at any time before the hearing, and he had a right to presume, therefore, that the

hearing would be confined to matter of record and that he would not be subjected to delay.

If, on the other hand, these affidavits are confined to matter of record, there was no reason for a postponement of the hearing, so that in either case the action of the Examiner in this respect was unwarranted.

This appeal is also taken for the reason that the Examiner erred in permitting the introduction of affidavits by experts in considering a motion to dissolve.

In general, it may be said, affidavits should not be received when they state conclusions of law. It is the office of an affidavit to bring to the court the knowledge of facts. (*Greenleaf on Evidence*, Vol. 3, p. 342.) It is the province of this Office to decide from the facts before it whether or not an interference exists in a given case. The opinions of the parties to the case or of persons not interested therein are of no value as an aid in the determination of this question. An inspection of the affidavits submitted in the case now under consideration shows that they consist of opinions of various parties as to the scope and meaning of the issue and as to the question of interference in fact between the claims involved in this interference. Such affidavits are improper. No facts which are essential to the determination of the question in issue are presented in them. They are incompetent and should not be received.

The decision of the Examiner admitting the affidavits and postponing the time of hearing was incorrect and is reversed. In view of the fact, however, that no hearing on the motion to dissolve has yet been had this case is remanded to him with the direction that he fix a new day of hearing, at which time such matters only shall be considered as appear in the record.

KURZ *v.* JACKSON AND PIERCE.

Decided March 3, 1902.

MOTION TO DISSOLVE—NEW REFERENCE DISCOVERED—NOTICE TO OPPONENT.

Where after a motion to dissolve has been transmitted to the Primary Examiner the moving party discovers a new reference which he wishes to urge in support of his motion, *Held* that it is not necessary to amend the motion to include that reference, but merely to give reasonable notice thereof to the opposing party before the hearing.

ON petition.

INLET FOR CATCH-BASINS.

Application of August W. Kurz filed July 10, 1901, No. 67,739. Application of Frederick H. Jackson and George M. Pierce filed June 21, 1901, No. 65,444.

Mr. Horace G. Seitz for Kurz.

Mr. H. T. Fisher for Jackson and Pierce.

ALLEN, *Commissioner:*

This is a petition by Kurz that he be allowed to amend a motion for dissolution of the above-entitled interference brought by him.

It appears that the motion to dissolve was brought by Kurz on the ground that the issue is not patentable in view of certain references which were noted in the motion papers. Thereafter and seven days before the day set by the Primary Examiner for hearing of said motion Kurz filed an amendment to said motion for the purpose of adding a new reference in support thereof. Notice of said new reference was duly served on the attorney for Jackson and Pierce prior to the date on which the motion to amend was filed. The present petition has been taken because in the opinion of the attorney for Kurz—

> your petitioner is unable under the practice now to amend his motion papers by the addition of the said reference, especially as the permission to do so has not been given by the attorney for Jackson and Pierce.
>
> That said motion having been granted by the Examiner of Interferences, the Primary Examiner has no authority to permit of such amendment, except upon authority given by said Examiner of Interferences and the latter has not jurisdiction in the proceeding at this time.

The attorney for Kurz is mistaken in his view of the practice of the Office. It is well settled that—

> in case of discovery of new facts after granting the motion to transmit to the Primary Examiner, he may consider such facts provided due and timely notice thereof be given to the party opposing the motion to dissolve. (*Wells* v. *Pucker*, 90 O. G., 1947.)

It is not necessary in such a case that the motion papers be amended. All that is necessary is that due notice of the newly-discovered matter be given to the opposing party in order that there may be no surprise at the hearing or necessity for delay. No further action is called for on the part of the Office or of the parties to the interference. Since such notice was given in the case now under consideration, the Examiner has authority to consider the new reference at the time of hearing. The present petition is unnecessary and is dismissed for this reason.

The case is remanded to the Primary Examiner, who will set a new day for hearing the motion to dissolve.

DAHLGRRN *v.* CROCKER.

Decided March 4, 1902.

1. AMENDMENT TO PRELIMINARY STATEMENT AFTER DECISION—NO NEW FACTS—JURISDICTION OF EXAMINER OF INTERFERENCES NOT RESTORED.

Where two months after a decision on priority against him a party makes a motion to amend his preliminary statement to strengthen his case where it was weak and it appears from his statement that he knew of the facts desired to be alleged all of the time and did not use diligence in presenting his motion, *Held* that a case is not made out which would warrant restoring the jurisdiction of the Examiner of Interferences to consider the motion.

2. AMENDMENT TO PRELIMINARY STATEMENT—ERROR OF LAW, NOT OF FACT.

Where in preparing his original statement a party knew all of the facts which he desires to set forth by amendment, but did not state them or disclose them to his attorney because he did not consider them material to his case, *Held* that his error was one of law and not of fact and that therefore the amendment should not be permitted.

3. SAME—STRENGTHENING CASE AFTER ADVERSE DECISION.

Where the Examiner of Interferences decided priority against a party for the reason that he was not exercising diligence in regard to the invention during a certain period of time and the party thereafter wishes to amend his statement to set up certain work done at that time which he did not include in his original statement because he did not regard it as material, *Held* that the amendment should not be permitted.

ON petition.

PENHOLDER.

Application of Charles J. Dahlgren filed Octo-

ber 15, 1900, No. 33,059. Application of Samuel H. Crocker filed July 6, 1900, No. 22,710.

Mr. Ernest Hopkinson and *Mr. Wm. B. Corwin* for Dahlgren.

Mr. Emerson R. Newell for Crocker.

ALLEN, *Commissioner:*

This is a petition that jurisdiction of the above-entitled interference be restored to the Examiner of Interferences for the purpose of considering a motion by Dahlgren for—

* * * leave to amend his preliminary statement with respect alone to the allegations as to reduction to practice by him of the invention embodied in the issue in said interference, and to take further or additional testimony in support of said amended statement.

It appears from the record that the interference was declared March 6, 1901, between Crocker's application, filed July 6, 1900, and Dahlgren's application, filed October 15, 1900. Dahlgren filed his preliminary statement March 16, 1901. Crocker filed no statement and took no testimony. Dahlgren filed his testimony August 20, 1901. On December 9, 1901, judgment of priority was rendered in favor of Crocker.

The Examiner of Interferences based his decision awarding priority to Crocker on the facts that Dahlgren's testimony showed that he did nothing with the invention after his conception and disclosure in January, 1900, until about the 1st of September, 1900; that no reasonable excuse was given for his inactivity during this period; that in consequence it does not appear that he was exercising any diligence either when his competitor filed his application or immediately before or immediately after said date. He has therefore failed to overcome the date of invention to which the senior party is entitled by virtue of his application involved in the interference—namely, July 6, 1900.

Two months after this decision Dahlgren filed the present motion. In support thereof he makes affidavit that after the declaration of the interference the nature of an interference proceeding was explained to him by his attorney, who also notified him as to what data would be required for the preparation of his preliminary statement. In response to this notification he made an investigation and furnished certain dates to his attorney, from which his preliminary statement was subsequently prepared. In this statement he gave the date of making a model and reduction to practice as on or about September 1, 1900, believing that the making of a model and reduction to practice were substantially synonymous. He states, further, that he—

* * * held these views and opinions until the decision of the Examiner of Interferences was read and explained to him by his attorney, when he incidentally remarked to his attorney (still having the same understanding as to what constituted reduction to practice) that the penholder made by him on or about September 1, 1900, and offered in evidence in his behalf and marked "Exhibit A," was not his first attempt to make a penholder illustrating the invention in controversy, but that he had some months previously thereto made several specimens, illustrating more or less fully and crudely the said invention, but that * * * he had not regarded them of any value or as fulfilling the requirements, as he understood them, of a reduction to practical form.

It appears from this affidavit that Dahlgren was aware of the facts as to the making of the penholders at the time he made his preliminary statement; that he was requested by his attorney to furnish the necessary data for the preparation of the preliminary statement, but did not say anything about his early attempts, because in his opinion they did not fulfil the requirements of a reduction to practice.

The error on Dahlgren's part as disclosed by the above statement was one of law. He has discovered no evidence which he did not have at the time he made his preliminary statement. His mistake was in failing to understand the legal effect of his earlier acts and his omission to claim these earlier dates as reduction to practice.

In *Franklin* v. *Morton* v. *Cooley* (95 O. G., 2063) it was said:

These are the matters for whose introduction in evidence opportunity would be afforded by the amendment now sought to be made. Without going into the question whether these experiments cover the requirements of reduction to practice for which their introduction is sought, it is clear that new light has reached the applicant in respect to the law of his case. These facts were within his knowledge since their respective dates. His preliminary statement was made when he alone of the parties to the interference knew of them, and all he knows now was available for the preparation of his preliminary statement. Any mistake on his part was not of fact but of law, from which courts do not relieve.

To the case now under consideration the same principles are applicable, and the reasons for refusing to permit amendment in that case would compel a like refusal in this.

Under these circumstances it must be held that the showing made in support of the motion is not sufficient to warrant its consideration by the Examiner of Interferences.

An additional reason for refusing to transmit the case is found in the fact that Dahlgren did not bring his motion with the diligence required in such a case, but waited nearly two months before filing the same. (*Henderson* v. *Noakes*, 59 O. G., 1431.)

The petition is denied.

EX PARTE BRILL AND ADAMS.

Decided March 8, 1902.

RETURN OF FEE—APPEAL—RULE 124—MISTAKE IN PAYMENT OF FEE.

When an appeal to the Examiners-in-Chief is filed in spite of the provision of Rule 124 that from a decision of the Primary Examiner affirming an applicant's right to make the claim no appeal can be taken and said appeal is dismissed by the Examiners-in-Chief, *Held* that the fee paid on filing the appeal is not paid by mistake and cannot be returned.

BY request.

CAR-TRUCK.

Application of John A. Brill and Walter S. Adams filed March 22, 1900, No. 9,651.

Mr. Jos. L. Levy and *Messrs. Wilkinson & Fisher* for the applicants.

ALLEN, *Commissioner:*

This is a request that the appeal fee of $10 paid in the matter of appeal by Brill and Adams filed January 20, 1902, in the interference No. 21,270, entitled *Brill and Adams* v. *Uebelacker*, be returned.

It appears that a motion to dissolve the interference above referred to was brought by Brill and Adams on the ground that Uebelacker had no right to make certain claims embraced in the issue.

This motion was denied by the Primary Examiner, who affirmed Uebelacker's right to make the claims. Thereupon Brill and Adams filed an appeal from this decision to the Board of Examiners-in-Chief. A motion to dismiss the appeal was filed by Uebelacker.

Brill and Adams now request that the fee paid by them on filing the appeal be returned, for the reason that the decision of the Examiners-in-Chief—

was based on the motion of Uebelacker to dismiss the appeal and Brill and Adams were not heard on the appeal proper.

Whether or not the appeal was dismissed on Uebelacker's motion is immaterial, since the facts appearing in the record do not show that the appeal fee was paid by such a mistake as would warrant its return. On the contrary, the appeal was filed in spite of the provision of Rule 124 that from a decision of the Primary Examiner affirming an applicant's right to make the claim no appeal can be taken. The appeal was considered by the Examiners-in-Chief, and a decision was rendered dismissing it.

Such a disposition of the case does not warrant the holding that the fee paid on filing the appeal was paid by mistake. On the contrary, it was paid with full knowledge of Rule 124 and with the consequent risk that it would be dismissed.

The request that the fee be returned must be denied.

EX PARTE BUSKY.

Decided March 8, 1902.

1. DESIGNS—CHANGE OF PRACTICE—RETURN OF FEE.

The allegation that the practice of the Office in granting design patents is necessarily changed in view of a decision by the court as to what is proper subject-matter for such a patent does not warrant the return of a fee paid in an application for such a patent.

2. SAME—FEE PART OF APPLICATION.

The law requires that the fee for a design patent shall be paid upon filing of the application as a part of the same.

3. SAME—FEE—MISTAKE IN PAYMENT—EX PARTE SMITH (71 O. G., 297) EXPLAINED.

It cannot be determined before examination whether or not an application for a design patent covers patentable subject-matter. The fee paid on filing such an application is paid as a prerequisite for such examination, and it is not paid by mistake within the meaning of the statute relating to the return of money (sec. 4936, R. S.) if such application proves upon examination to be unpatentable. *Ex parte Smith* (71 O. G., 297) commented on and explained.

ON petition.

DESIGN FOR A LAST.

Application of John C. Busky filed January 7, 1902, No. 88,801.

Messrs. Munn & Co. for the applicant.

ALLEN, *Commissioner:*

This is a petition that the fee paid in the above-entitled application be refunded under the provisions of section 4936 of the Revised Statutes.

This application was filed January 7, 1902, and the claim thereof was rejected January 30, 1902, on the ground that the application does not present proper subject-matter for a design patent. In support of this holding the decision of the circuit court of appeals in *Rowe* v. *Blodgett and Clapp Company* (112 Fed. Rep., 61) was cited. This decision was rendered November 14, 1901, and was published in the *Federal Reporter* of January 21, 1902. In this decision the court held that—

design patents refer to appearance, not utility. Their object is to encourage works of art and decoration which appeal to the eye, to the esthetic emotions, to the beautiful. * * * The term "useful" in relation to designs, means adaptation to producing pleasant emotions. There must be "originality and beauty. Mere mechanical skill is not sufficient."

The grounds upon which applicant bases his request for return of the fee are:

That it has been the practice of the Patent Office, for a long period of time, to allow design applications for novel mechanical forms having reference to function alone, and irrespective of the question of mere ornament or esthetic effect, and that my design for a last is of this nature.

That at the time of filing my above application, no notice of any kind had been given by the Patent Office of a change in the settled practice such as indicated in the cited rejection of my said application. * * *

That in view of the above facts, it is clear the fee paid on said application was paid by mistake.

Applicant also cites the decision of the Secretary of the Interior in *ex parte Smith*, (71 O. G., 297.)

The statutes relating to the grant of patents for designs provide that such patents shall be granted for articles involving certain specified characteristics "upon payment of the fee prescribed and other due proceedings had," and they further require that the fee shall be paid upon the filing of the application as a part of the same. There is no provision for the return of the fee in case a patent is not granted. Such a construction of the law would lead to the conclusion that in all applications for patents the fee should be returned when a patent is refused, a conclusion which is manifestly untenable. It cannot be determined before examination whether or not an application for a design patent covers patentable subject-matter. The Office has no authority for refusing to accept and to file any application purporting to be for a design, provided said application is in proper form. Whether the subject-matter of said application is patentable or not is a question which can only be determined by examination. The fee paid on the filing of an application is paid as a prerequisite for such examination, and it is not paid by mistake within the meaning of the statute relating to the return of money (section 4936 of the Revised Statutes) if such application proves upon examination to be unpatentable.

The decision in *ex parte Smith*, referred to above, is not applicable to the present case. The application under consideration in that decision was a second renewal application, for which there is no provision in the law and which, therefore, the Office could not lawfully receive. The application now under consideration is for a design which must be received by the Office upon compliance by applicant with the provisions of the statute relating thereto.

The petition is denied.

EX PARTE CAVANAGH *et al.*

Decided March 8, 1902.

DIVISION—RECORD-CABINET AND RECORD-BLOCK.

Held that division was properly required between claims for a record-cabinet and claims for a record-block where it appears that the cabinet could be used with other blocks and the blocks could be used in other cabinets.

ON petition.

CAR-RECORD DEVICE.

Application of Joseph R. Cavanagh, John B. Hannan, and Joseph D. Clarke filed June 5, 1901, No. 63,310.

Messrs. L. Deane & Son for the applicant.

ALLEN, *Commissioner:*

This is a petition from the action of the Examiner requiring division between the claims of the above-entitled application.

The invention comprised in the application relates to a system of keeping records, as of the movement and location of railway-cars, subscriptions to periodicals, and of stock or inventory of stores in commercial houses. In this system applicant uses a record-case and individual record-blocks associated thereon.

The claims cover these two devices. Claims 1, 2, 3, 4, and 8 cover the case more or less specifically, while claims 5, 6, and 7 cover the record-block. There appears to be no particular adaptation of the specific form of record-block covered by this latter set of claims to use in connection with the form of cabinet covered by the other claims. The same blocks could be used in other cabinets or other blocks could be used in the cabinet claimed in the present application. It follows that the two inventions are distinct and separate.

It appears, further, from the references cited to show the state of the art that these devices have been recognized by inventors and by the Office as forming separate subjects of invention and classification.

Under these circumstances division was properly required.

Applicants direct attention to their Patent No. 692,116, dated January 28, 1902, which was issued with claims for the record-case and for the record-block contained therein, and they contend that since division was not required in the application on which that patent was granted it should not be required in the present application. The fact that claims for both inventions were allowed in this patent, however, is no reason for allowing both sets of claims in the application now under consideration. Whatever the reasons were which led to the grant of the patent with the claims for the two devices no reasons appear for retaining both sets of claims in the present case. If it was through error on the part of the Office that the patent was so granted, the error should not be repeated.

The action of the Examiner was correct, and it is accordingly affirmed.

PATTEN *v.* WIESENFELD.

Decided March 10, 1902.

1. INTERFERENCE—JUDGMENT ON THE RECORD—MOTION TO VACATE JUDGMENT DOES NOT LIE—MOTION FOR A DISSOLUTION SHOULD BE BROUGHT—PRACTICE.

Where W. is made the senior party to an interference by virtue of a prior application, which application is held by the Examiner to disclose the invention of the issue, and the Examiner of Interferences renders a judgment on the record of priority of invention in favor of W. on the ground that the preliminary statement filed by the junior party failed to overcome the *prima facie* case made against him by W.'s aforesaid application, *Held* that a motion by the junior party to vacate the judgment on the ground that it was an error to give W. the benefit of the date of his first application on a constructive reduction to practice does not lie; that if in the opinion of the junior party there was such irregularity in declaring the interference as to preclude a proper determination of the question of priority he should have brought a motion to dissolve the interference on that ground. (Rules 114 and 122.) (*Ritter* v. *Krakau*, 98 O. G., 1708.)

ON petition.

SOUNDING TOY.

Application of James S. Patten filed February 5, 1901, No. 46,112. Application of Robert S. Wiesenfeld filed March 6, 1901, No. 50,024.

Messrs. Munn & Co. for Patten.

Messrs. Watson & Watson for Wiesenfeld.

ALLEN, *Commissioner:*

This is a petition by Patten from the decision of the Examiner of Interferences refusing to vacate a judgment on the record of priority of invention in favor of Wiesenfeld and in treating the motion to vacate the judgment as a motion for dissolution of the interference.

The party Wiesenfeld was made the senior party to this interference by virtue of an application for a patent, No. 39,131, filed by him on December 8, 1900, which application is held by the Examiner to disclose the invention of the issue.

The preliminary statement filed by the junior party, Patten, failed to overcome the *prima facie* case made against him by Wiesenfeld's aforesaid application. The Examiner of Interferences thereupon rendered a judgment on the record of priority of invention in favor of Wiesenfeld, the senior party, in accordance with the provisions of Rule 114. In view of the record the Examiner of Interferences could not with propriety have taken any other action.

Patten then filed a motion before the Examiner of Interferences to vacate the judgment rendered on the ground that it was an error to give Wiesenfeld the benefit of the date of filing of his first application as a constructive reduction to practice. The Examiner of Interferences refused to vacate the judgment on the ground that he had no jurisdiction of the question involved in said motion, as said question should be considered and determined by the Primary Examiner on a motion to dissolve.

The Examiner of Interferences concluded his decision as follows:

> In view of the delay that has been had in determining this motion, and the further fact that under such circumstances if the motion were dismissed, it would be dismissed with the right to renew, the Examiner, construing the motion as aforesaid, hereby transmits the same to the Primary Examiner for his consideration and determination as a motion to dissolve upon the ground of irregularity.
>
> This action on the part of the Examiner is, in his opinion, a proper one and within the scope of his authority, and taken for the interest of all parties.

In view of all the circumstances of this case the action of the Examiner of Interferences was proper.

It is clear that Patten mistook his remedy in bringing a motion to vacate the judgment which was rendered on the record. If he was of the opinion that there was such irregularity in declaring the interference as to preclude a proper determina-

tion of the question of priority, he should have brought a motion to dissolve the interference on that ground. (Rules 114 and 122.) (*Ritter* v. *Krakau*, 98 O. G., 1708.)

The decision of the Examiner of Interferences is affirmed, and the petition is denied.

EX PARTE CROWN DISTILLERIES COMPANY.

Decided March 10, 1902.

1. TRADE-MARKS—REGISTRATION—SAME CLASS OF GOODS

After a trade-mark has been registered for goods of a certain particular description no other person can register or use the same or substantially the same mark on goods of the same class as those described in the registration when such use would result in the deception of the public in the purchase of the goods.

2. SAME—MEANING OF THE WORD "CLASS."

In the statute relating to the registration of trade-marks the word "class" means that genus which includes as species such goods as if exposed to the purchasing public side by side with the "particular" goods to which the trade-mark has been applied will result in the deception mentioned in section 8 of the statute, and the public, misled by the application of a single title to the various "particular" goods, will conclude that they have originated from the same source.

3. SAME—WHISKY AND FRUIT-BRANDY—GOODS OF SAME CLASS.

Held that although between fruit-brandy and whisky there are certain well-recognized distinctions, yet they are both comprised in the class of distilled spirituous liquors, and that the purchasing public seeing both with the same trade-mark would conclude that they were produced by the same maker.

4. SAME—THE WORDS "OLD GOVERNMENT" FOR FRUIT-BRANDY—REGISTRATION REFUSED.

The words "Old Government" refused registration as a trade-mark for fruit-brandy in view of the prior registration of the same words as a trade-mark for whisky.

ON appeal.

TRADE-MARK FOR SPIRITUOUS LIQUORS.

Application filed September 5, 1900, No. 61,724.

Mr. Edward M. Cleary and *Mr. E. W. Johnson* for the applicant.

ALLEN, *Commissioner:*

This is an appeal from the decision of the Examiner of Trade-Marks refusing to register the words "Old Government" as a trade-mark for fruit-brandy.

The Examiner has refused registration in view of the registered trade-mark to John Sroufe and Company, No. 37,507, December 24, 1901, which consists of the words "Old Government" as applied to distilled and spirituous liquors.

It appears from the record that this application was involved in an interference with the application on which the above-named registration to John Sroufe and Company was granted and that priority was awarded to the latter, although the evidence showed that they had used the mark on whisky, but not on fruit-brandy.

In view of these facts it is contended on behalf of the Crown Distilleries Company that registration should be granted to them for these words when used on fruit-brandy for the reason, as they allege, that fruit-brandy and whisky are not goods of the same descriptive properties; that since Sroufe and Company have not used the mark on fruit-brandy they are not entitled so to use it, and that the registration by them of the words "Old Government" for distilled and spirituous liquors should not prevent the registration by others of the same words for such distilled and spirituous liquors as have not been made by Sroufe and Company.

The act of 1881, under which trade-marks are registered, provides that registration may be obtained—

First. By causing to be recorded in the Patent Office a statement specifying name, domicile, location, and citizenship of the party applying; the class of merchandise, and the particular description of goods comprised in such class to which the particular trade-mark has been appropriated.

Section 3 of this act provides that—

no alleged trade-mark shall be registered * * * which is identical with a registered or known trade-mark owned by another, and appropriate to the same class of merchandise.

And section 7 of the same act provides that—

any person who shall reproduce, counterfeit, copy or colorably imitate any trade-mark registered under this act and affix the same to merchandise of substantially the same descriptive properties as those described in the registration shall be liable to an action on the case for damages. * * *

And, finally, section 8 of this act provides—

that no action or suit shall be maintained under the provisions of this act in any case when the trade-mark is used * * * with the design of deceiving the public in the purchase of merchandise. * * *

It is clear from the quotations from the statute above that after a trade-mark has been registered for goods of a certain particular description no other person can register or use the same or substantially the same mark on goods of the same class as those described in the registration when such use would result in the deception of the public in the purchase of the goods. The essential thing to be determined now is the proper scope of the word "class" as it is used in the statute, and it must be held that in contradistinction to the "particular description of goods" mentioned in the statute the "class" of goods means that genus which includes as species such goods as if exposed to the purchasing public side by side with the "particular" goods to which the trade-mark has been applied will result in the "deception" mentioned in section 8 of the statute, whereby the purchasing public, misled by the application of a single title to the various "particular" goods comprised within the class, will conclude that they have originated from the same source and will purchase one under the impression that it was made by the maker of the other.

Applying these principles to the present case, it is clear that although between fruit-brandy and whisky there are certain well-recognized distinctions, yet they are both comprised in the class of distilled spirituous liquors, and that the purchasing public, seeing both with the same trade-mark, would conclude that they were produced by the same maker. As above stated, it is the intent of the statute to avoid such a result, and registration was properly refused.

The decision of the Examiner of Trade-Marks is affirmed.

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ALPHABETICAL LIST OF PATENTEES

FOR

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A. A. Griffing Iron Company. (See Waggoner, Edward P., assignor.)						
A. C. Evans Manufacturing Company. (See Gedge, George E., assignor.)						
A. C. Evans Manufacturing Company. (See Harwood, Gedge, and Monson, assignors.)						
A. G. Spalding & Bros. (See Pierce, George L., assignor.)						
A. Leschen & Sons Rope Company. (See Sackett, Homer M., assignor.)						
Abbee, Leslie H., and S. A. Sewall, Denver, Colo. Stopper or closure	694,932	Mar. 4	1144	250	98	1954
Abbott, Nathan M., assignor of nineteen-twentieths to W. C. Treece, Findlay, Ohio. Safe and vault	695,380	Mar. 11	1900	430, 431	98	2134
Abel, Julius, Mannheim, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Blue sulfur dye and making same. (Reissue)	11,973	Mar. 4	1148	------	98	1955
Abel, Julius, Mannheim, and F. Kalkow, assignors to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Black sulfur dye and making same	692,174	Jan. 28	3391	------	98	753
Abell, Robert T., Cleveland, Ohio. Steam-engine	691,228	Jan. 14	1597	364, 365	98	348
Abendroth, Arthur, Berlin, Germany. Steam-pump	691,348	Jan. 21	1857	421	98	423
Åberg, Albert, Hermagor, Austria-Hungary. Apparatus for purifying paper-pulp	691,091	Jan. 14	1856	307, 308	98	297
Aberg, Albert, Podgora, Austria-Hungary. Machine for catching splinters, &c	691,344	Jan. 21	1869	421	98	423
Abney, Diton H., Kansas City, Mo. Adjustable coupling for sewing-machine or other round belts	691,884	Jan. 28	2874	647	98	651
Abney, Diton H., Kansas City, Mo. Adjustable coupling for sewing-machine or other round belts	691,885	Jan. 28	2876	647	98	651
Aborn, George P. (See De Laval and Aborn.)						
Abrams, William R., Portland, Oreg. Sash-fastener	695,263	Mar. 11	1766	391	98	2102
Account, Audit and Assurance Company. (See Kittredge, Anson O., assignor.)						
Acheson, Edward G., Buffalo, N. Y. Metallurgical process	692,482	Feb. 18	2400	------	98	1340
Acklin, Alfred M., Pittsburg, Pa. Car-checking device	690,814	Jan. 7	894	190	98	182
Acklin, Alfred M., Pittsburg, Pa. Car-haul	692,496	Feb. 4	483	113	98	897
Acklin, Alfred M., Pittsburg, Pa. Car-haul	692,482	Feb. 18	2402	525	98	1340
Acklin, Alfred M., Pittsburg, Pa. Car-haul	694,047	Feb. 25	3514	775	98	1582
Acme Adder Manufacturing Co. (See Lanckton, William A., assignor.)						
Acme Cash Register Company. (See Hahn, Herman, assignor.)						
Acme Switch Company. (See Cogswell, Henry J., assignor.)						
Acme White Lead and Color Works. (See Wilson, Joseph H., assignor.)						
Actiengesellschaft "Magneta," (Electrische Uhren Ohne Batterie & Ohne Contacte.) (See Fischer, Martin, assignor.)						
Acton Concrete Partition Company. (See Waller, William A. C., assignor.)						
Adam, Ferdinand A. R., Southport, Conn. Street-lamp	691,886	Jan. 28	2877	648	98	651
Adams, George W., Stoughton, Mass. Clock	691,887	Jan. 28	2879	648	98	652
Adams, Henry T., and O. Kellner, Chicago, Ill. Metal ring for temporary binding	692,584	Feb. 4	652	153	98	982
Adams, Hugh A., Wabash, Ind. Voting-machine	694,342	Mar. 4	1	1, 2	98	1713
Adams, J. Frank. (See Small, Benjamin W., assignor.)						
Adams, Joel U., Cincinnati, Ohio. Suspensory	692,043	Jan. 28	3168	715	98	707
Adams, John L. (See Greth, Joseph, assignor.)						
Adams, Moses J., *et al.* (See Rowley, Wilfrid B., assignor.)						
Adams, Peter H. (See Paca, William S., assignor.)						
Adams, Peter H., *et al.* (See Paca, William S., assignor.)						
Adams, Thomas, Sr. (See Bayler, Adolph, assignor.)						
Adams Top Cutting Machine Company. (See Heany, John A., assignor.)						
Adams Top Cutting Machine Company. (See Stone, Clarence, assignor.)						
Adams, Walter S., assignor to J. A. Brill, Philadelphia, Pa. Brake mechanism	695,130	Mar. 11	1530	339	98	2051
Adams, Walter S., assignor to J. A. Brill, Philadelphia, Pa. Brake mechanism	695,131	Mar. 11	1534	339, 340	98	2052
Adams, Walter S., assignor to J. A. Brill, Philadelphia, Pa. Brake mechanism	695,361	Mar. 11	1932	431	98	2134
Adams, William H., assignor of one-half to F. F. Lombard, Lafayette, La. Cane-stubble cleaner	692,585	Feb. 4	653	153, 154	98	982
Addressograph Company. (See Duncan, Joseph S., assignor.)						
Aderer, Adolph, J., and H., New York, N. Y. Dental pliers	691,694	Jan. 21	2506	561	98	557
Aderer, Adolph, J., and H., New York, N. Y. Case for dental instruments	691,695	Jan. 21	2507	561	98	557
Aderer, Hugo. (See Aderer, Adolph, J., and H.)						
Aderer, Julius. (See Aderer, Adolph, J., and H.)						
Adrian Gas Machine Manufacturing Company. (See Lane and Davenport, assignors.)						
Adt, Leo F., Troy, N. Y. Eyeglasses	691,345	Jan. 21	1870	421	98	423

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Advance Machine Company. (See Davis, Bethuel M., assignor.)						
Aeolian Co. (See Pain, Willard S., assignor.)						
Aeolian Company. (See Spiegel, William G., assignor.)						
Aeolian Company. (See Votey, Edwin S., assignor.)						
Aeolian Company. (See Young, Francis L., assignor.)						
Agatine Shoe-Hook and Eyelet Company. (See Pupke, Everhard L., assignor.)						
Ahrle, Carl P. H., assignor to Metalline-Platten-Gesellschaft M. B. H., Frankfort-on-the-Main, Germany. Bronzing photographic plates	694,227	Feb. 25	3833	.....	98	1646
Akers, Maurice L., and W. L. Richards, assignors of one-fourth to J. E. Williams, Ione, Oreg. Panoramic camera	694,516	Mar. 4	338	75, 76	98	1784
Akin, Paul F. (See Callahan, Charles H., assignor.)						
Akouphone Manufacturing Company. (See Hutchison, Miller R., assignor.)						
Akron Glass & Machinery Company. (See Haley and Bridgwater, assignors.)						
Aktiebolaget Automatqevar. (See Kjellman and Andersson, assignors.)						
Aktiebolaget Verktygsmaskiner. (See Hirsch, Frank, assignor.)						
Aladdin Manufacturing Company. (See Wilcox, Theodore B., assignor.)						
Alberger, Louis R. (See Worthington and Alberger.)						
Alberini, Filoteo, C. Anchise, and L. Ganucci-Cancellieri, Florence, Italy. Cinematographic apparatus	690,815	Jan. 7	806	190, 191	98	183
	695,182	Mar. 11	1321	292	98	2009
Albertson, Linden, Newark, N. J. Fitting for pipes or rods	690,913	Jan. 14	1081	282	98	283
Albertson, Silas W., Mineola, N. Y. Sand-wagon	690,816	Jan. 7	868	191	98	183
Albrecht, Frederick J., New York, N. Y. Embossing-machine	695,362	Mar. 11	1937	431	98	2135
Albrecht, Oscar A., assignor to O. A. Albrecht Company, Omaha, Nebr. Lacing-strip	695,664	Mar. 18	2490	505, 506	98	2290
Albree, Chester B., Allegheny, Pa. Motor for tools						
Albright, John E., *et al.* (See Smith, Solomon, assignor.)						
Alden Type Machine Company. (See Johnson and Low, assignors.)						
Alden Type Machine Company. (See Low and Breakey, assignors.)						
Alderson, Ernest G. (See Donovan and Alderson.)						
Aldine Manufacturing Company. (See Rose and Brockschmidt, assignors.)						
Aldrich, Alonzo, Beloit, Wis. Paper-making machine	691,572	Jan. 21	2208	510	98	507
Aldridge, Reuben M., Walthall, Miss. Corn and cotton planter and fertilizer-distributer	692,586	Feb. 4	655	154	98	983
	695,598	Mar. 25	2909	660	98	2369
Alexander, Alexander G., Detroit, Mich. Water-closet valve	692,587	Feb. 4	656	154, 155	98	983
Alexander, Elmer P., Youngertown, Pa. Press for forging axes, &c	693,042	Feb. 25	3287	723	98	1337
Alexander, Henry D., and H. C. White, Canton, Ohio. Soft-tread horseshoe						
Alexander, John E., West Orange, N. J., assignor to General Phonosphere Corporation. Talking or sound recording and reproducing machine	692,409	Feb. 4	328	79, 80	98	808
Alexander, Leslie. (See English and Alexander.)						
Alford, Abra K., *et al.* (See Spring, Napoleon C., assignor.)						
Allegretti, Giacomo, Chicago, Ill. Cooling or refrigerating apparatus	693,044	Jan. 28	3170	715, 716	98	707
Allen, Aaron B., Pueblo, Colo. Securing device for railway-ties	694,343	Mar. 4	5	2	98	1713
Allen, Frederick E., assignor to Improvements Manufacturing Company, Boston, Mass. Self-contained extension-table	695,992	Mar. 25	3078	698, 699	98	2402
Allen, Frederick E., assignor to Improvements Manufacturing Company, Boston, Mass. Weather-strip	695,993	Mar. 25	3082	699	98	2402
Allen, James W. (See Allen, William W. and J. W.)						
Allen, Samuel L., Moorestown, N. J. Cultivator	692,410	Feb. 4	330	80	98	808
Allen, Wesley P., and J. E. H. Browne, assignors of one-third to M. E. Becker, Albuquerque, N. Mex. Ter. Spark-arrester	694,228	Feb. 25	3834	849	98	1646
Allen, William W. and J. W., Cornell, Ill. Railway-gate	694,815	Mar. 4	913	204	98	1905
Allis-Chalmers Company. (See Gates and Capen, assignors.)						
Allis-Chalmers Company. (See Hanna, Elmer E., assignor.)						
Allis, Thomas V., Bridgeport, Conn., assignor, by mesne assignments, to International Tin Plate Corporation. Furnace	693,771	Feb. 18	2943	647	98	1450
Allis, Thomas V., Bridgeport, Conn., assignor, by mesne assignments, to International Tin Plate Corporation. Feeding packs of thin metal strips from heating-furnaces	693,819	Feb. 18	3081	669	98	1466
Allison, Asa H., New Vienna, Ohio, assignor to J. C. Bowe, Indianapolis, Ind. Mop-wringer	694,517	Mar. 4	345	76	98	1785
Allison, Samuel B., deceased, Galveston, Tex.; C. A. Dorrestein, administrator. Machine for separating fiber from stalks	690,817	Jan. 7	869	192	98	184
Allmänna Svenska Elektriska Aktiebolaget. (See Lindström, Karl A., assignor.)	692,588	Feb. 4	661	.....	98	984
Alpers, William C., Bayonne, N. J. Sodium sulfogusiacolate and making same	692,754	Feb. 4	940	214	98	991
Alsop, Charles R., Middletown, Conn. Reversing-clutch	694,451	Mar. 4	218	48, 49	98	1779
Alsup, Ben, Bluffcreek, Iowa. Riding-harrow						
Altare, Mason M. (See Warren and Altare.)	694,048	Feb. 25	3518	774	98	1584
Althause, Frederick D., New York, N. Y. Multitubular steam-boiler						
Althausse, Maximilian C. L., Billwärder-an-der-Bille, near Hamburg, assignor to Fabrik Chemischer Präparate von Dr. Richard Sthamer, Hamburg, Germany. Making acetyl-cellulose	692,497	Feb. 4	485	.....	98	898
Althausse, Maximilian C. L., Billwärder-an-der-Bille, near Hamburg, assignor to Fabrik Chemischer Präparate von Dr. Richard Sthamer, Hamburg, Germany. Cellulose lakes and making same	692,775	Feb. 4	981	.....	98	998
Althouse, Joseph M., Reading, Pa. Electric cigar-lighter	694,311	Feb. 25	4052	900	98	1994
Altman, Charles, Wilber, Nebr. Car-coupling	695,704	Mar. 18	2557	578	98	2351
Altman, Dellmer L., Pittsburg, Pa. Curtain-pole	694,710	Mar. 4	715	157	98	1602
Aluminum Plate and Press Company. (See North, Thomas M., assignor.)						
Aluminum Press Company. (See North, Thomas M., assignor.)						
Ambrose, Fred M., *et al.* (See Corey, Charles W., assignor.)						
Ambrose, Robert L., Tarrytown, assignor to Rand Drill Company, New York, N. Y. Valve-balancing device	693,484	Feb. 18	3405	896	98	1341
	690,818	Jan. 7	871	192	98	184
Ambuhl, Andrew, Decatur, Ill. Ice-cutter for trolley-wires						
American Automusic Company. (See Davis, George H., assignor.)						
American Bank Note Company. (See Reid, Alexander, assignor.)						
American Bicycle Company. (See Harris, Nelson G., assignor.)						
American Bicycle Company. (See Morgan, Ralph L., assignor.)						
American Can Company. (See Larkin, Bernard H., assignor.)						
American Can Company. (See Norton, Edwin, assignor.)						
American Can Company. (See Norton and Kennedy, assignors.)						
American Can Company. (See Wilcox, George, assignor.)						
American Can Company. (See Williams, Charles E., assignor.)						
American Car and Foundry Company. (See King, George I., assignor.)						
American Construction Company. (See Beecher, Lina, assignor.)						

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American Electric Telephone Company. (See Carliss, Albert, assignor.)						
American Electric Telephone Company. (See Clausen, Henry P., assignor.)						
American Elevated Railroad Company. (See Congelton, Osborn, assignor.)						
American Equipment Company. (See Freymann and Tolman, assignors.)						
American Expansion Pulley Company. (See Temple, Robert, assignor.)						
American Interlaced Horse Collar Company. (See Maussner, Friedrich, assignor.)						
American Knitting Machine Company. (See Young, William P., assignor.)						
American Loom Company. (See Harriman, Henry L., assignor.)						
American Mechanical Warp Stop Company. (See Cunniff, John V. and E., assignors.)						
American Metal Hose Company. (See Frankenberg, Frederick G., assignor.)						
American Mutoscope Company. (See Dickson, William K.-L., assignor.)						
American Paper Feeder Company. (See Cross, Frank L., assignor.)						
American Pedometer Company. (See Kuhn, Edmond, assignor.)						
American Steam Heating Specialty Company. (See Serrell, John A., assignor.)						
American Steam Heating Specialty Company. (See Serrell and Donnelly, assignors.)						
American Sugar Refining Company. (See Mahoudeau, Frederic, assignor.)						
American Suspender Company. (See Sherer, Joseph S., assignor.)						
American Tin Plate Corporation. (See Bray, Charles W., assignor.)						
American Tobacco Company. (See Williams, George M., assignor.)						
American Type Founders' Company. (See Ziegler, George H., assignor.)						
American Washboard Company. (See Joecken, Peter J., assignor.)						
Ames, Alden T. (See Fulton and Ames.)						
Ames, Alden T., and S. M. Fulton, Galt, Cal.; said Fulton assignor to said Ames. Centrifugal pump	695,871	Mar. 18	2860	648, 649	98	2345
Ames, Franklin, Chicago, Ill. Apparatus for displaying samples of carpet, &c	691,431	Jan. 21	2024	452, 453, 454	98	457
Ames, Irving H., Hudson, Mich. Fly-killer	695,189	Mar. 11	1627	361	98	2073
Ames, William H., *et al.* (See Hubbell, Thomas J., assignor.)						
Ampere Electro-Chemical Company. (See Haff, Max M., assignor.)						
Amspacher, Charles E. (See Kelly and Amspacher.)						
Anchise, Cappelletti. (See Alberini, Anchise, and Ganucci-Cancellieri.)						
Anderegg, David. (See Pillmore and Anderegg.)						
Anderson, Anders G., assignor to E. Converse, Worcester, Mass. Bicycle	692,811	Feb. 11	1061	238	98	1041
Anderson, Anders G., assignor to E. Converse, Worcester, Mass. Cap-nut	692,812	Feb. 11	1062	238	98	1041
Anderson, Andrew, Burnett, Cal. Wood-pipe machine	694,452	Mar. 4	221	49	98	1759
Anderson, Charles J. (See Patenaude and Anderson.)						
Anderson, Charles M., Minneapolis, Minn. Combined billiard and dining table	696,679	Feb. 18	2782	612	98	1417
Anderson, Charles W., assignor of one-half to W. W. Wood, Los Angeles, Cal. Ironing-machine	694,906	Mar. 4	1092	241	98	1943
Anderson, Claude O., Los Angeles, Cal. Combined easement and point-protector	696,230	Mar. 25	3358	796	98	2501
Anderson, Edward. (See Christopher, James B., assignor.)						
Anderson, Edward W., *et al.* (See Cullen, Orlan C., assignor.)						
Anderson, George. (See De Cew, Cortland, assignor.)						
Anderson, Gus W., Bloomington, Ill. Sash-lock	694,816	Mar. 4	917	205	98	1906
Anderson, Gustave E., assignor to Fairmount Machine Company, Philadelphia, Pa. Automatic slack-cable stop mechanism for power-elevators	696,221	Mar. 25	3359	797	98	2501
Anderson, Hannah, Elgin, Ill. Garment-stretcher	692,101	Jan. 28	3277	741	98	729
Anderson, Isaac N., Bettie, Tex. Mop-holder	693,772	Feb. 18	2944	645	98	1451
Anderson, James A., Brooklyn, assignor of one-half to W. A. Price, New York, N. Y. Water-tube boiler	692,223	Feb. 4	1	1	98	799
Anderson, James A., and C. M. Hollingsworth, Ottawa, Ill., assignors of one-third to J. R. Johnston, Hartford City, Ind. Glass flattening and annealing apparatus	694,711	Mar. 4	715	157, 158	98	1863
Anderson, John A. (See Patenaude and Anderson.)						
Anderson, John W., Lancaster, Pa. Damper	691,736	Jan. 28	2587	580	98	589
Anderson, Louis C. (See Weis and Anderson.)						
Anderson, Neal L., Montgomery, Ala. Type-writer	695,779	Mar. 18	2686	610, 611	98	2308
Anderson, Robert S., Toronto, Canada. Machine for cutting cork disks	691,432	Jan. 21	2029	454	98	457
Anderson, Samuel C., Xenia, Ohio. Corn-harvester	695,023	Mar. 11	1523	292	98	2009
Anderson, Stewart D., *et al.* (See Ross, Delmar C., assignor.)						
Anderson, Theodore, Junction, N. J. Automatic oscillating skid or support for razor-hones	694,229	Feb. 25	3835	849, 850	98	1646
Anderson, Theodore, Junction, N. J. Envelop-opener	694,817	Mar. 4	919	205	98	1906
Anderson, Theodore M., New Whatcom, Wash. Clothes-drier	696,128	Mar. 25	3365	750	98	2464
Anderson, William C., assignor to Buckley-Hart Manufacturing Company, Detroit, Mich. Hose-mender	690,819	Jan. 7	872	192	98	184
Andersson, Gustaf L. (See Kjellman and Andersson.)						
Andersson, Sven P. A., Backasands gård, Ödeshög, Sweden. Churn	694,126	Feb. 25	3540	805	98	1609
Andress, Bert E., Port Allegany, Pa. Device for delivering train-orders	694,453	Mar. 4	225	49	98	1760
Andrew, Thomas, Richmond, and T. K. Bellis, London, England. Manufacturing steel	695,264	Mar. 11	1770	.....	98	2102
Andrews, Arthur H., Elmira, N. Y. Fire-escape	693,095	Feb. 11	1619	358	98	1156
Andrews, Harvey T. (See Snyder, Ward B., assignor.)						
Andrews, Jacob R., assignor to Hyde Windlass Company, Bath, Me. Windlass and capstan and means for driving same	695,994	Mar. 25	3083	699	98	2403
Andrews, John and S., Belfast, Ireland. Aging and bleaching flour	693,207	Feb. 11	1890	408	98	1211
Andrews, Peter. (See Nisbett and Andrews.)						
Andrews, Sydney. (See Andrews, John and S.)						
Andriano, Albert K., assignor to Automatic Interconnecting Telephone Company, San Francisco, Cal. Switching mechanism for interconnecting telephone-lines	692,189	Jan. 28	3423	775	98	760
Andriano, Albert K., and H. Herbstritt, assignors to Automatic Interconnecting Telephone Company, San Francisco, Cal. Individual telephone switch and lock-out mechanism for interconnecting lines	691,229	Jan. 14	1598	365, 366	98	346
Angell, Hans, and T. Berntson, assignors of one-third to V. J. Evans, Washington, D. C. Firearm	696,294	Mar. 25	3089	825, 826	98	2529
Angell, Hans, and T. Berntson, assignors of one-third to V. J. Evans, Washington, D. C. Cartridge	696,295	Mar. 25	3092	826	98	2530
Angell, John, St. Louis, Mo. Drainage system for steam plants	690,546	Jan. 7	343	69, 70	98	74
Angell, John, St. Louis, Mo. Heater and separator for steam-generating plants	696,296	Mar. 25	3094	826, 827	98	2530
Anger, Walter A. (See Brenckle and Anger.)						
Angerer, Victor, and E. Samuel, deceased; W. Selfridge, executor, Philadelphia, Pa. Railway-track structure	693,210	Feb. 11	1898	410	98	1213
Angle, William, Milford, Pa. Axle-gage	691,999	Jan. 28	3085	693	98	691

Alphabetical list of patentees, January to March, inclusive—Continued.

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Annable, George A. (See Storm, Edwin R., assignor.)						
Annett, Archie D. (See McIntyre, Samuel, assignor.)						
Anrep, Aleph, Moscow, Russia. Life-boat	690,685	Jan. 7	607	122	98	122
Anthony, Edgar W., Brookline, Mass. Cooking stove or range	693,343	Feb. 11	2124	467	98	1263
Anthony, Edgar W., Brookline, assignor to Smith and Anthony Company, Boston, Mass. Cooking stove or range	693,096	Feb. 11	1622	854	98	1150
Anthracite Separator Company. (See Rice, James N., assignor.)						
Apollo Acetylene Gas Company. (See Caldwell, Charles W., assignor.)						
Apple, Vincent G., Dayton, Ohio, assignor to Dayton Electrical Manufacturing Company. Electric igniting device for explosion-engines	696,297	Mar. 25	3597	827	98	2531
Apple, Vincent G., Dayton, Ohio, assignor to Dayton Electrical Manufacturing Company. Electric igniter for gas-engines	696,298	Mar. 25	3600	827	98	2531
Appleby, David, Jr., Wilmington, Del. Clay-mixer	692,774	Feb. 4	980	222	98	997
Appleby, Ernest L., Bradford, Pa. Revolving phonograph-record case	692,411	Feb. 4	332	80, 81	98	809
Applegate, John M., Indianapolis, Ind. Elevator and carrier	694,818	Mar. 4	920	205	98	1906
Appleton, Charles J., Long Island City, assignor, by mesne assignments, to J. J. Shaw, trustee, Mamaroneck, N. Y. Knitting-machine	691,868	Jan. 28	2981	648 649 650 651	98	652
Arana, Victor M., Notre Dame, Ind. Table-desk	693,139	Mar. 11	1539	340	98	2054
Arbetter, Wolf, Chelsea, Mass. Sewing-machine for felling	690,385	Jan. 7	1	1	98	3
Aregood, John W., assignor of one-half to P. J. Sexton, Chicago, Ill. Brick-drier	693,350	Feb. 18	2159	474 475	98	1289
Ariens, Henry, and J. Thompson, Brillion, Wis. Pulverizer	695,024	Mar. 11	1326	998	98	2010
Ariedter, Frits, New York, N. Y. Refining resins, oils, or fats	696,222	Mar. 25	3560	797	98	2501
Armitage, Albert, Fairport, assignor to Ontario Drill Company, Despatch, N. Y. Grain-drill	694,598	Mar. 4	503	109 110	98	1819
Armstrong, Frank H., Auburn, N. Y. Type-writer	693,208	Feb. 11	1891	408 409 410	98	1211
Armstrong, Frederick M., Pawtucket, R. I., and J. A. Clark, assignors to Crompton & Knowles Loom Works, Worcester, Mass. Electric filling-changing mechanism for looms	695,363	Mar. 11	1988	488	98	2136
Armstrong, Harry Y., Elgin, Ill. Caramel cutting and wrapping machine	691,787	Jan. 28	2590	580 581 582 583 584	98	589
Arndt, Louis, Jersey City, N. J. Former for air-chambers for dental plates	691,092	Jan. 14	1358	308	98	208
Arndt, Max, Aix-la-Chapelle, Germany. Apparatus for measuring and recording oscillating movements of bodies	693,990	Feb. 25	3401	747 748	98	1560
Arnhold, Robert, Cleve'and, Ohio. Hernial truss	694,509	Mar. 4	508	110	98	1821
Arnn, McKenzie, assignor to M. B. McKinney, Glade Spring, Va. Artificial granite	691,711	Jan. 21	2529	.....	98	562
Arnold, William B. (See Dunn, George F., assignor.)						
Arnold, William E., Dallas, Tex. Scaffold-bracket	694,230	Feb. 25	3836	850	98	1647
Arth and Fricke, Firm of. (See Tresenreuter, Gustav, assignor.)						
Arthur, Albert, assignor of nine-twentieths to W. Lautenslager, East Pittsburg, Pa. Automatic weighing-machine	690,890	Jan. 7	873	198	98	185
Ashcroft, Edgar A. (See Swinburne and Ashcroft.)						
Ashland Sieve Company. (See Hixson, Frank, assignor.)						
Ashley, Edward G., Rochester, N. Y., assignor, by mesne assignments, to Sager Gear Company. Gear-cutter	691,738	Jan. 28	2598	584 585	98	592
Ashley, Frank M., Brooklyn, N. Y., assignor to General Electric Company. Electric railway	690,386	Jan. 7	4	1	98	4
Ashley, Frank M., Brooklyn, N. Y., assignor to General Electric Company. Electric railway	690,387	Jan. 7	6	2	98	4
Ashley, James K., Rushville, Ill. Case and box machine	695,364	Mar. 11	1941	432 433	98	2137
Ashley, John T., Brooklyn, N. Y. Wheel	694,231	Feb. 25	3837	850	98	1647
Ashurst, John L., Havana, assignor to L. B. Ashurst, Kilbourne, Ill. Furrow-opener for planters	692,000	Jan. 28	3097	094	98	692
Ashurst, Lewis B. (See Ashurst, John L., assignor.)						
Ashworth, William D., assignor to Philadelphia Textile Machinery Company, Philadelphia, Pa. Garment-stretcher	691,578	Jan. 21	2270	510	98	508
Asimos, William C., Philadelphia, Pa., assignor to Bridesburg Machine Company. Shedding-motion for looms	690,388	Jan. 7	7	2	98	4
Asling, Charles H., Springfield, Mo. Automatic cistern device	691,230	Jan. 14	1602	366	98	349
Aspinwall, Henry C. (See Wilkins and Aspinwall.)						
Astor, John J., New York, N. Y. Marine propulsion	690,681	Jan. 7	875	198	98	185
Atha, Benjamin, *et al.* (See Barnard, John H., assignor.)						
Atha, C. G., *et al.* (See Barnard, John H., assignor.)						
Atha, H. B., *et al.* (See Barnard, John H., assignor.)						
Atha, H. G., *et al.* (See Barnard, John H., assignor.)						
Atherton, Robert, Paterson, N. J. Swivel-loom	691,927	Jan. 28	2948	663 664	98	655
Atkins, Charles H., Springfield, Mass. Paper-making machine	690,686	Jan. 7	610	183	98	129
Atkins, Charles H., Chicago, Ill., assignor, by mesne assignments, to J. McWilliams, Louisville, Ky. Pump	695,132	Mar. 11	1540	340 341	98	2054
Atkinson, William H. (See Preston and Atkinson.)						
Atlas Portland Cement Company. (See Carpenter, Rolla C., assignor.)						
Atteberry, Henry E., Springfield, Ill. Stove	694,712	Mar. 4	717	158	98	1863
Atwood, Leonard, Philadelphia, Pa. Locomotive	696,209	Feb. 11	1895	410	98	1213
Atwood, William H., Lincoln, Nebr. Game apparatus	695,431	Mar. 18	2049	461	98	2179
Audiger, Emile. (See Greil and Audiger.) (Reissue.)	694,049	Feb. 25	3520	774 775	98	1584
Auer, Frederick, Newark, N. J. Shade-roller bracket	692,776	Feb. 4	983	223	98	998
Auman, Harvey E., assignor to Harvey Burner and Furnace Company, Reading, Pa. Smelting-furnace	690,389	Jan. 7	11	3	98	6
Austin, David E., assignor of two-thirds to J. E. Foley and J. C. McGregor, Detroit, Mich. Steam-separator						
Austin, Frederick C. (See Bunnell, Morton G., assignor.)						
Austin, Frederick C. (See Morenus, William H., assignor.)	692,412	Feb. 4	333	81	98	809
Austin, George S. and W. D., Cerulean, Ky. Wire stretcher and reeling machine	695,780	Mar. 18	2092	611	98	2370
Austin, John, Pitkin, Colo. Wagon-gear	691,696	Jan. 21	2508	561	98	558
Austin, Robert H., San Francisco, Cal. Jar-closure						

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Austin, William D. (See Austin, George S. and W. D.)						
Auto Construction Co. (See Newman and Borsodi, assignors.)						
Auto-Postergraph Syndicate. (See Vining, Robert W., assignor.)						
Automatic Interconnecting Telephone Company. (See Andriano, Albert K., assignor.)						
Automatic Interconnecting Telephone Company. (See Andriano and Herbstritt, assignors.)						
Automatic Portable Bowling Alley Company. (See Downey, Richard F., assignor.)						
Automatic Racking Machine Company. (See Colby, Harry W., assignor.)						
Automatic Railway Mail Pouch Company. (See Slagle and Pywell, assignors.)						
Automatic Twisting-In Machine Company. (See Krey and Duppler, assignors.)						
Automatic Vacuum Canning Company. (See Hodgson, John G., assignor.)						
Automatic Vacuum Canning Company. (See Larkin, Bernard H., assignor.)						
Automatic Vacuum Canning Company. (See Norton and Hodgson, assignors.)						
Auxer, Perry H. (See Seyler and Auxer.)						
Avery, Frederick R., administrator. (See Avery, Robert H.)						
Avery Manufacturing Company. (See Avery, Robert H., assignor.)						
Avery, Robert H., deceased; F. R. Avery, administrator, assignor to Avery Manufacturing Company, Peoria, Ill. Cultivator	694,819	Mar. 4	921	205, 206	98	1907
Avril, Paul V., Paris, France. Embossing and printing machine	690,822	Jan. 7	877	193	98	485
Axlund, Nels, Komstad, S. D. Rim-opener	694,518	Mar. 4	346	76	98	1786
Ayars, Charles H., Salem, N. J., assignor to Ayars Machine Company. Can-filling machine	695,365	Mar. 11	1944	488	98	2137
Ayars Machine Company. (See Ayars, Charles H., assignor.)						
Ayer, James I., Malden, assignor to Simplex Electrical Company, Boston, Mass. Combination plug-switch	695,366	Mar. 11	1946	434	98	2138
Aylmer Drill Manufacturing Company. (See Aylmer, Henry, assignor.)						
Aylmer, Henry, Sherbrooke, assignor to Aylmer Drill Manufacturing Company, Montreal, Canada. Interchangeable-bit rock-drill	692,755	Feb. 4	945	214	98	991
Aylward, Henry W. (See Schoeffel and Aylward.)						
Ayres, Edward W., deceased, Washington, D. C.; S. P. Ayres, executrix. Alimentary product and making same	693,485	Feb. 18	9406	.....	98	1341
Ayres, Sallie P., executrix. (See Ayres, Edward W.)						
Aztec Tempered Copper Company. (See Renstrom, Carrie, assignor.)						
Babbitt, George A., Brownsboro, Ky. Canopy	694,222	Feb 25	8898	850	98	1547
Bachand, Levi N., assignor of one-half to W. J. Garvy, Chicago, Ill. Folding bed	693,211	Feb. 11	1899	411	98	1214
Bachmann, Josef F., and A. Vogt, Vienna, Austria-Hungary, assignors to Electric Resistance and Heating Company, Limited, London, England. Electric heater	692,413	Feb. 4	335	81	98	869
Bachmann, Josef F., and A. Vogt, Vienna, Austria-Hungary, assignors to Electric Resistance and Heating Co., Ltd., London, England. Electrical heating appliance	695,905	Mar. 25	3064	700	98	2403
Bachner, Adolf, Berlin, Germany. Gas-lighting device	692,589	Feb. 4	602	155	98	934
Bachrach, David, Baltimore, Md. Nitrocellulose	692,102	Jan. 28	3278	.....	98	730
Bacon, Byron R., South Orange, N. J. Can or bottle opener	692,045	Jan. 28	3175	716	98	709
Bacon, Charles N., *et al.* (See Prescott, Joseph D., assignor.)						
Bacon, Herbet J. (See Parker, Frank W., assignor.)						
Badeau, Charles C., Schenectady, N. Y., assignor to General Electric Company. Circuit-breaker	695,134	Mar. 11	1544	342	98	2055
Badger, Arthur C., Boston, Mass. Range-boiler	690,628	Jan. 7	501	108	98	107
Badische Anilin & Soda Fabrik. (See Abel, Julius, assignor.) (Reissue.)						
Badische Anilin & Soda Fabrik. (See Abel and Kalkow, assignors.)						
Badische Anilin & Soda Fabrik. (See Bazlen, Max, assignor.)						
Badische Anilin & Soda Fabrik. (See Bohn, René, assignor.)						
Badische Anilin & Soda Fabrik. (See Knietsch, Rudolf, assignor.)						
Badische Anilin and Soda Fabrik. (See Julius and Günther, assignors.)						
Badische Anilin and Soda Fabrik. (See Julius and Jahrmarkt, assignors.)						
Badische Anilin and Soda Fabrik. (See Julius and Tkatsch, assignors.)						
Badische Anilin and Soda Fabrik. (See Reubold, Friedrich, assignor.)						
Badische Anilin and Soda Fabrik. (See Seidel, Paul, assignor.)						
Baggaley, Ralph, Pittsburg, Pa. Railway-track adjuster	692,498	Feb. 4	486	113	98	893
Baggs, Clarence A., and A. B. Cummin, San Jose, Cal. Saw-set	695,135	Mar. 11	1545	342	98	2056
Bagley, Charles H., assignor of one-half to L. Bender, Hoboken, N. J. Milk-can	691,098	Jan. 14	1359	308	98	298
Bagley, John, Tacoma, Wash. Grader	695,781	Mar. 18	2693	612	98	2309
Bahl, William G., Pittsburg, Pa. Ice-cream disher	693,360	Feb. 18	2162	475	98	1200
Baier, Joseph, and E. Clark, London, England. Elastic tire	691,574	Jan. 21	2971	510	98	508
Bailey, Alexander S., Crawford, Ga. Shaft-tug attachment	691,231	Jan. 14	1608	366	98	249
Bailey, Alva S., assignor of one-half to J. H. Thies, Lovelock, Nev. Disk plow	692,190	Jan. 28	3496	775	98	760
Bailey, Charles A., Cromwell, Conn. Cartridge	694,713	Mar. 4	718	158	98	1862
Bailey, Charles A., Cromwell, Conn. Cartridge	695,996	Mar. 25	3086	700	98	2404
Bailey, Edward L., Streator, Ill. Paste-bucket and stand therefor	692,108	Jan. 28	3279	741	98	730
Bailey, James A. (See Woodward, James W., assignor.)						
Bailey, Thomas, New York, N. Y. Machine for dovetail-corrugating sheet metal	696,358	Mar. 25	3851	856	98	2562
Bailey, Thomas, New York, N. Y. Sheet-metal-corrugating machine	696,359	Mar. 25	3853	857	98	2562
Bain, Forée, assignor to J. G. McMichael, Chicago, Ill. Railway-rail joint	690,823	Jan. 7	878	194	98	186
Bainbridge, William M., Elkton, Colo. Elevator-gear	693,212	Feb. 11	1901	412	98	1214
Baines, Joseph E., assignor of one-half to J. W. Latshaw, Pittsburg, Pa. Threading tool	696,299	Mar. 25	3702	827	98	2531
Bainville, Auguste H., Nanterre, France. Electrode for secondary batteries	696,157	Mar. 25	3440	772	98	2478
Baird, Charles W., Millersburg, Iowa. Side-delivery hay-rake	694,344	Mar. 4	7	3	98	1714
Baird, Orley R., Mendon, Mich. Glove	692,294	Feb. 4	2	1	98	709
Bajohr, Carl, St. Louis, Mo. Anchor-fastener for lightning-conductors	693,213	Feb. 11	1902	412	98	1214
Bakeman, Charles H., Snohomish, Wash. Drawer-opening device	695,432	Mar. 18	2950	461	98	2179
Baker and Shevlin Company. (See Baker, Shevlin, and Baker, assignors.)						
Baker, David, Chicago, Ill. Charging mechanism for blast-furnaces	696,129	Mar. 25	3307	780	98	2464
Baker, Edward F., Passaic, N. J. Sticky fly-paper	693,536	Feb. 18	2503	551	98	1360
Baker, Frederick H. (See Baker, Shevlin, and Baker.)						
Baker, George S., London, England. Grinding apparatus	692,414	Feb. 4	337	81, 82	98	860
Baker, George S., London, England. Conveyer apparatus	694,519	Mar. 4	347	76, 77	98	1786
Baker, Harry W., Oakmont, Pa. Hot-air furnace	691,094	Jan. 14	1361	308, 309	98	298
Baker, James, Melbourne, Victoria. Bicycle driving mechanism	696,214	Feb. 11	1903	412	98	1215
Baker, James H., Chicago, Ill. Mechanism for converting motion	691,697	Jan. 21	2959	508	98	558
Baker, James H., Allegheny, assignor to Jas. H. Baker Manufacturing Co., Pittsburg, Pa. Brake-beam	690,547	Jan. 7	348	70	98	75
Baker, James H., Allegheny, assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa. Brake-beam	690,548	Jan. 7	349	70, 71	98	76
Baker, James H., Allegheny, assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa. Brake-beam	690,824	Jan. 7	880	194	98	

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Baker, James H., Allegheny, assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa. Brake-beam	690,825	Jan. 7	882	195	98	186
Baker, James H., Allegheny, assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa. Brake-beam	690,826	Jan. 7	884	195 196	98	187
Baker, James H., Allegheny, assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa. Brake-beam	691,095	Jan. 14	1302	309	98	299
Baker, James H., Allegheny, assignor to Jas. H. Baker Manufacturing Company, Pittsburg, Pa. Brake-beam	691,096	Jan. 14	1304	309	98	299
Baker, James H., G. F. Shevlin, and F. H. Baker, assignors to Baker and Shevlin Company, Saratoga Springs, N. Y. Centrifugal pulp-screen	696,215	Feb. 11	1904	413	98	1213
Baker, Joseph G., Philadelphia, Pa. Saw-set	692,225	Feb. 4	3	1	98	799
Baker, Joseph G., Philadelphia, Pa. Saw-set	692,226	Feb. 4	5	1	98	800
Baker, Milton M., Stockton, assignor to Sunshine Water Heater Co., San Francisco, Cal. Solar water-heater	695,136	Mar. 11	1546	342	98	2256
Baker, Robert, Bury St. Edmunds, England. Box for containing eggs or the like	694,580	Mar. 4	356	78	98	1789
Baker, Thomas C., Washington, Kans. Automatic weighing-machine	694,935	Mar. 11	1153	252	98	1975
Baker, Thomas C., Washington, Kans. Automatic weighing-machine	694,936	Mar. 11	1156	252 253	98	1975
Baker, William H., Detroit, assignor of one-half to C. F. Tunstead, Oxford, Mich. Detachable link	691,433	Jan. 21	2030	455	98	456
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Weft-replenishing mechanism for looms	692,590	Feb. 4	663	155	98	934
Baker, William H., Central Falls, R. I., and F. E. Kip, Montclair, N. J. Detector mechanism for weft-replenishing looms	692,501	Feb. 4	666	156	98	933
Baker, William J., Scarborough, England. Apparatus for separating grease from steam	692,415	Feb. 4	359	83	98	870
Baker, William S. G., Baltimore, Md. Car-truck	692,490	Feb. 4	488	114 115	98	898
Baldner, Jacob, Xenia, Ohio. Starting mechanism	694,454	Mar. 4	226	50	98	1760
Baldridge, James A. (See Thompson, Oscar, assignor.)						
Baldridge, James A. (See Thompson and Baldridge.)						
Baldridge, Robert, Covina, Cal. Ridge-breaker	693,486	Feb. 18	2406	526	98	1341
Baldt, Frederick, Chester, Pa. Ladle	694,987	Mar. 11	1157	253	98	1976
Baldwin, Alonzo, assignor to Royal Brush and Broom Company, Chicago, Ill. Brush-broom	692,592	Feb. 4	669	156	98	935
Baldwin, Alonso, assignor to Royal Brush and Broom Company, Chicago, Ill. Brush or broom	692,593	Feb. 4	671	156	98	936
Baldwin, Chester M., assignor of one-half to J. H. Shaw, Bronson, Mich. Barrel-tongs	693,097	Feb. 11	1623	354	98	1159
Baldwin, Frank S., Newark, N. J. Measuring device	692,756	Feb. 4	946	214 215	98	991
Balinger, Lewis C., Shirleysburg, Pa. Trace-fastener	691,575	Jan. 21	2273	511	98	508
Ball Brothers Glass Manufacturing Company. (See Ball, Edmund B., assignor.)						
Ball, Edmund B., assignor to Ball Brothers Glass Manufacturing Company, Muncie, Ind. Glass-blowing machine	692,813	Feb. 11	1068	238	98	1041
Ball, Henry P., and L. Wintner, New York, N. Y., assignors to General Incandescent Arc Light Company. Electric switch	693,636	Feb. 18	2705	597	98	1402
Ball, John M., Auburn, Ill. Mail-box	692,814	Feb. 11	1065	239	98	1041
Ball, Marshall L., Elizabeth City, N. C. Straddle-row cultivator	696,680	Feb. 18	2783	612	98	1418
Ball, Robert M., *et al.* (See Miller, Jacob B., assignor.)						
Ball, Royal E., New York, N. Y. Rotary transformer	693,098	Feb. 11	1624	355	98	1159
Ball & Socket Fastener Company. (See Richardson, William S., assignor.)						
Ballard, George E., Philadelphia, Pa. Latch	691,580	Jan. 21	2185	490	98	490
Ballard, Harrie A. (See Copeland, Jones, and Ballard.)						
Ballard, Harrie A., Ashland, assignor to Turner Tanning Machinery Company, Boston, Mass. Leather-working machine	691,302	Jan. 14	1746	397	98	379
Ballard, Harrie A., Ashland, Mass., assignor to Copeland Boot and Shoe Treeing Company, Portland, Me. Tree for boots or shoes	691,304	Jan. 14	1758	399 400	98	380
Ballard, Harrie A., Ashland, Mass., assignor to Copeland Boot and Shoe Treeing Company, Portland, Me. Machine for treeing boots or shoes	691,576	Jan. 21	2274	511 512	98	509
Ballard, Harrie A., Ashland, and W. A. Copeland, Melrose, assignors to Turner Tanning Machinery Company, Boston, Mass. Leather-treating machine	691,303	Jan. 14	1750	398 399	98	379
Ballard, Harrie A., Ashland, and W. A. Copeland, Melrose, Mass., assignors to Copeland Boot and Shoe Treeing Company, Portland, Me. Tree for boots or shoes	691,305	Jan. 14	1757	400 401	98	381
Ballard, Milton H., assignor to G. W. Emerson and Company, Lynn, Mass. Buffing-machine	690,549	Jan. 7	351	71	98	76
Ballbach, Louis, Detroit, Mich. Meat-cutting machine	692,594	Feb. 4	673	157	98	936
Balliett, Byron J., Mansfield, Ohio. Suspender-link	692,595	Feb. 4	675	157	98	936
Ballou, Alvin M., Denver, Colo. Rock-drill	690,687	Jan. 7	614	134	98	120
Bamberger, Alfred P., New Cumberland, Pa. Metallic railway-tie	694,600	Mar. 4	500	110 111	98	1821
Bamford, Thomas, St. Joseph, Mo. Dress and skirt adjuster	693,361	Feb. 18	2163	475	98	1290
Bancroft, Edgar A., trustee. (See Friedman, Charles S., assignor.)						
Bancroft, Frank H., assignor of one-half to H. M. Rich, Gardner, Mass. Embossing-machine	693,362	Feb. 18	2164	476	98	1290
Bandemer, Louis J., Plato, Minn. Wire-stretcher	691,521	Jan. 21	2186	490	98	491
Bangley, Joseph L., assignor of one-half to T. J. Eley and H. W. Campbell, Suffolk, Va. Heating-stove	695,872	Mar. 18	2868	649	98	2345
Bangs, Stephen E., Booneville, Ark. Fifth-wheel	696,300	Mar. 25	3708	838	98	2532
Banovits, Cajetán, Budapest, Austria-Hungary. Engaging or disengaging device for automatic railway-carriage couplings	695,595	Mar. 18	2990	537	98	2245
Barber Asphalt Paving Company. (See Greene and Dollar, assignors.)						
Barber, Daniel F., Newton, assignor to Chandler & Barber, Boston, Mass. Portable workbench	694,312	Feb. 25	4063	901	98	1684
Barber, Everett A., Quincy, assignor to Standard Rivet Company, Boston, Mass. Stapling-machine	692,757	Feb. 4	948	215 216	98	992
Barber, William M., Somerville, assignor of one-half to Smith and Anthony Company, Boston, Mass. Paper-drying machine	690,089	Jan. 7	502	109	98	107
Barbieri, Romeo A. (See Tillberg and Barbieri.)						
Barbour, Martha E., Scranton, Pa. Ash-sifter	691,582	Jan. 21	2197	490	98	491
Barclay, Robert, assignor of one-fourth to J. Cornwell, Newark, N. J. Fire-escape	692,191	Jan. 28	3427	776	98	761
Bardsley, Henry. (See Davenport and Bardsley.)						
Bardsley, Henry, assignor to Crompton & Knowles Loom Works, Providence, R. I. Loom-shuttle	691,577	Jan. 21	2279	512	98	509
Bardsley, Henry, assignor to Crompton & Knowles Loom Works, Providence, R. I. Loom	691,578	Jan. 21	2281	512	98	510
Bardsley, Henry, assignor to Crompton & Knowles Loom Works, Providence, R. I. Clutch	693,318	Feb. 11	2073	453	98	1220

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bardsley, Henry, assignor to Crompton & Knowles Loom Works, Providence, R. I. Shuttle-box-operating mechanism for looms	693,581	Feb. 18	2754	613	98	1418
Bardsley, Joseph. (See Rosentreter, Albert J., assignor.)						
Bardsley, Joseph, Montclair, N. J. Spring-hinge	695,586	Mar. 18	2218	508	98	2213
Bardwell, Arthur F., Mount Vernon, assignor to Daimler Manufacturing Company, Long Island City, N. Y. Carbureter for explosive-engines	696,773	Feb. 18	2945	648	98	1451
Barger, William M., and F. J. Birss, Hebron, Nebr. Combined letter-file and copy-holder	692,971	Feb. 11	1397	303	98	1112
Bark, Henry, Yonkers, N. Y. Horse-muzzle	691,097	Jan. 14	1365	310	98	299
Barker, Fred, Paterson, N. J. Manhole-cover	694,455	Mar. 4	288	50	98	1761
Barker, James, Philadelphia, Pa. Grate-bar	694,601	Mar. 4	511	111	98	1821
Barker, John, Seattle, Wash. Apparatus for raising sunken vessels	693,001	Jan. 28	3088	604	98	992
Barker, Ruben F., assignor of one-half to M. Corry, Marinette, Wis. Pawl-and-ratchet mechanism	693,344	Feb. 11	2127	467	98	1264
Barkhausen, Karl G., Hanover, Germany. Distributing-tank	690,590	Jan. 7	12	3	98	6
Barkley, Charles W., Seward, Nebr. Peaholder	691,098	Jan. 14	1366	310	98	300
Barnard, John H., assignor of one-half to B., H. G., H. B., and C. G. Atha, Newark, N. J. Transmitting power for performing useful work	696,801	Mar. 25	3703	828, 829	98	2532
Barnd, Nicholas J., and W. H. Busse, Morris, Minn. Rein-holder	692,416	Feb. 4	340	84	98	970
Barnes, Clarence J., Liverpool, N. Y. Combination-wrench	690,688	Jan. 7	615	134, 135	98	120
Barnes & Erb Company. (See Benjamin, Dana H., assignor.)						
Barnes, John A. (See Tilton, Ralph, assignor.)						
Barnes, John H. (See Gates, William, assignor.)						
Barnes, Vincent E., Westfield, Mass. Metallic railway-tie	695,433	Mar. 18	2051	461	98	2179
Barnes, William T. S. (See Hughes and Barnes.)						
Barnett, Bertram, St. Louis, Mo. Rail-joint	694,988	Mar. 11	1158	253	98	1976
Barnett, George W., Keokuk, Iowa. Display-rack	692,500	Feb. 4	491	115	98	899
Barnett, Morris, Washington, D. C. Floor covering	691,434	Jan. 21	2032	455	98	458
Barnett, Morris, Washington, D. C. Suspenders	695,899	Mar. 25	2914	690	98	2370
Barnhart, Aaron E., assignor to O. Z. Barnhart, Millerstown, Pa. Oil-sand flooder	693,756	Feb. 4	953	216	98	992
Barnhart, Oscar Z. (See Barnhart, Aaron E., assignor.)						
Barnick, Frank L., assignor to C. W. Ostertag, New York, N. Y. Hinge	692,175	Jan. 28	3392	708	98	753
Barr, Addison, assignor of three-fourths to E. J. A. Drennen and E. E. Moore, Martins Ferry, Ohio. Rail-joint	696,812	Feb. 18	3012	666	98	1465
Barr, Alexander, Partickhill, Scotland. Pipe-coupling	691,346	Jan. 21	1872	422	98	424
Barr, Jason R. (See Saxton, Thomas G., assignor.)						
Barr, John H., and C. V. Fyke, Kansas City, Mo. Mail-marking machine	692,176	Jan. 28	3394	709	98	754
Barrand, John B., *et al.* (See Miller, John S., assignor.)						
Barrett, Charles E., and J. E. Horne, assignors to J. H. Horne & Sons Company, Lawrence, Mass. Paper-making machine	691,333	Jan. 14	1346	418	98	403
Barrett, Charles R., and E. C. Phillips, Chicago, Ill. Valve for pneumatic tires	698,991	Feb. 25	3403	748	98	1561
Barrett, James, Boston, Mass. Washstand-fixture	690,550	Jan. 7	352	72	98	76
Barrett, Roy, Palmyra, N. Y. Burglar and fire alarm	694,456	Mar. 4	229	50	98	1761
Barron, Walter J., Brooklyn, assignor to Densmore Typewriter Company, Syracuse, N. Y. Type-writing machine	694,602	Mar. 4	512	111, 112	98	1822
Barrow, Thomas, Cleveland, Ohio, assignor, by mesne assignments, to Chicago Pneumatic Tool Company Pneumatic drill	694,714	Mar. 4	730	158, 159	98	1863
Barsaleoux, Joseph, and R. C. Hall, Sandyhill, N. Y. Steering-gear for automobiles	691,519	Jan. 21	2164	489	98	490
Bartel, William P., assignor to Judson L. Thomson Manufacturing Company, Waltham, Mass. Tubular-rivet cap	695,265	Mar. 11	1771	392	98	2162
Barthel, Paul. (See Kaschewitz and Barthel.)						
Bartlett, Edwin D., South Tottenham, England. Photographic camera	695,527	Mar. 18	2225	503, 504	98	2215
Bartlett, Frank L., Canon City, Colo. Furnace for refining lead and zinc fume	692,972	Feb. 11	1400	308	98	1113
Bartlett, Sylvester J. (See Hale and Bartlett.)						
Bartlett, William W., assignor of one-half to F. Lamphier, Wheeler, Mich. Beet-blocker	691,579	Jan. 21	2033	512, 513	98	510
Bartley, Milton, Polk, assignor of three-tenths to J. M. Murdoch, H. F. McDowell, Pittsburg, and G. L. Weaver, Philadelphia, Pa. Nut-lock. (Reissue)	11,963	Jan. 28	3500	791, 792	98	776
Barton, Arthur D., assignor of one-half to B. J. Sanford, Ravenna, Ohio. Trolley-wheel retainer	695,907	Mar. 25	3087	700	98	2404
Barton, Robert W., assignor to Holmes-Barton Company, Chicago, Ill. Rotary engine	694,608	Mar. 4	519	118	98	1823
Barton, William A., Jersey City, N. J., assignor, by mesne assignments, to W. J. Smart, Brooklyn, N. Y. Atomizing apparatus	696,158	Mar. 25	3441	772	98	2478
Basle Chemical Works. (See Brack, Johann J., assignor.)						
Bass, James M., Sr., Houston, Tex. Combined cotton chopper and cultivator	692,227	Feb. 4	7	2	98	800
Bass, William E., and A. C. Chase, Lawrence, Mass. Bobbin-holder for spindles	694,604	Mar. 4	523	113	98	1824
Bassett, Charles A., Anderson, Ind. Watchmaker's tweezers	696,302	Mar. 25	3708	829	98	2533
Bastian, Charles O., London, England. Electrolytic electricity-meter	693,216	Feb. 11	1906	413	98	1215
Bastianello, Pietro, Perth Amboy, N. J. Fire ladder and escape	692,104	Jan. 28	3380	742	98	780
Bastow, Harry, Steubenville, Ohio. Manufacture of handled glassware	695,788	Mar. 18	2094	612	98	2310
Batault, Emile, Geneva, Switzerland. Electrical commutator	691,789	Jan. 28	3612	585	98	597
Batault, Emile, Geneva, Switzerland. Alternating-current electric meter	696,587	Feb. 18	3504	551	98	1361
Batcholder, Charles A., assignor to O. A. Miller, Brockton, Mass. Hinged split follower	690,660	Jan. 7	618	135	98	151
Batchelor, Edward W., Hammonton, N. J. Insulated joint for electrical conductors	695,705	Mar. 18	2558	579	98	2281
Batchelor, George T., *et al.* (See Hancock, Henry J., assignor.)						
Batdorf, Charles S., Brooklyn, N. Y. Coin counting, registering, and wrapping machine	691,435	Jan. 21	2032	455, 456	98	458
Bate, James R., Baltimore, Md. Machine for making excelsior	691,568	Jan. 21	2186	490, 491	98	491
Bates, Adelmer M., Chicago, Ill. Making and filling bags	698,890	Feb. 18	3083	670	98	1468
Bates, Arthur C., San Francisco, Cal. Rock-drill	690,630	Jan. 7	505	110	98	108
Bates, Francis G. and F. H., Philadelphia, Pa. Steam-boiler	691,580	Jan. 21	2035	513	98	510
Bates, Frank H. (See Bates, Francis G. and F. H.)						
Bates, Franklin P., Indianapolis, Ind. Wrench	690,891	Jan. 7	18	3	98	6
Bates, Lindon W., Chicago, Ill. Mouthpiece for suction-dredges	692,815	Feb. 11	1086	289	98	1049
Bates, Lindon W., Chicago, Ill. Hydraulic dredge	692,973	Feb. 11	1401	303, 304	98	1113
Batten, Edward, Kirkcaldy, Scotland. Machinery for use in the manufacture of mosaic or inlaid floor-cloth	694,262	Feb. 25	2639	851	98	1647
Battles, William W., San Jose, Cal. Dash-fastener	694,284	Feb. 25	2642	851	98	1648
Batzel, Seth L., Reading, Pa. Crane	692,596	Feb. 4	676	157	98	987
Baucus, Joseph D. (See Ruckmich, Alban V., assignor.)						
Baum, Clarence M., deceased; H. C. Baum, Reading, Pa., administrator. Steam-separator.	692,597	Feb. 4	678	158	98	987
Baum, Howard C., administrator. (See Baum, Clarence M.)						
Baumeister, Auguste, Hagenau, Germany. Dental floss-holder	691,561	Jan. 21	2067	514	98	511

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Baumgarten, Albert. (See Coomber, James, assignor.)						
Baumgarten, Albert, Freeport, Ill., assignor to McNeely Bros., Marshalltown, Iowa. Mat	690,561	Jan. 7	368	72	98	77
Baumgarten, Carl G., Sweet Home, Tex. Mat for presses	695,205	Mar. 11	1773	398	98	2108
Baur, Albert, Mulhouse, assignor to Fabriques de Produits Chimiques de Thann & de Mulhouse, Thann, Germany. Separating orthotoluenesulfochlorid	692,586	Feb. 4	679	.....	98	987
Baur, Charles E., Cripplecreek, Colo. Curtain-fixture	696,308	Mar. 25	2709	689	98	2536
Bausch & Lomb Optical Company. (See Klein, Rudolph, assignor.)						
Bausen, Andreas, Würzburg, Germany. Apparatus for drying hair	692,105	Jan. 28	3281	749	98	780
Baxter, Daniel N., assignor of one-half to J. A. Ray, Wichita, Kans. Boiler-cleaner	692,599	Feb. 4	680	188	98	988
Bayard, Hyram J., Chicago, Ill. Toy bow	695,596	Mar. 18	2072	537	98	2245
Bayard, Jean, Lyons, France. Water-supplying device or the like	695,367	Mar. 11	1949	434	98	2139
Bayler, Adolph, assignor to T. Adams, Sr., Brooklyn, N. Y. Wrapping-machine	692,099	Feb. 11	1696	355, 356	98	1160
Bayne, Lester H., Washington, assignor of one-fourth to T. B. Crouch, Bower Hill, Pa. Tramway-switch	692,759	Feb. 4	955	216	98	998
Baynes, James B. (See Bodman, Walter L., assignor.)						
Bazlen, Max, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Making hydrosulfites	692,760	Feb. 4	957	.....	98	994
Beach, Isaac D., assignor of two-thirds to R. W. Fisher and F. M. Wells, Marblehill, Mo. Door-latch	695,267	Mar. 11	1772	392	98	2102
Beal, Warren V., and S. Smith, Redcloud, Nebr. Metal railway-tie	692,600	Feb. 4	981	158	98	988
Beals, Erl V., Boston, Mass. Machine for producing printing-bars	696,360	Mar. 25	3654	857, 858, 859, 860	98	2502
Beam, Aron M., Denver, Colo. Ore crushing and pulverizing machinery	691,589	Jan. 21	2288	514	98	511
Beam, Eli, Vancouver, Canada. Coping tool or chisel	695,788	Mar. 18	2695	612	98	2310
Beam, Jacob B. (See Campbell and Beam.)						
Beam, John A., Baden, Canada. Threshing-machine	690,090	Jan. 7	619	135	98	131
Bean, Alfred, Guildford, England, assignor to Mergenthaler Linotype Company. Composing mechanism of type-setting or linotype machines	691,588	Jan. 21	2289	514, 515	98	511
Beardsley, Otis L., Austin, Ill. Chair	694,457	Mar. 4	231	50, 51	98	1761
Bearer, Albert J., New Kensington, assignor to C. A. Schilling, Pittsburg, Pa. Vaginal speculum	693,345	Feb. 11	2128	466	98	1284
Beatty, Claudius F., New York, N. Y. Hat tip or lining	695,853	Mar. 18	2827	642	98	2337
Beatty, Frank E. (See Chambers, Fred D., assignor.)						
Beatty, Ross J., trustee. (See Long, Frederic H., assignor.)						
Beaumont, Robert H. (See Plez and Beaumont.)						
Beauregard, Armand T., Stamford, Conn. Calculator	693,774	Feb. 18	2946	648, 649	98	1451
Bebout, James M., assignor of one-half to H. G. Pollock, Madison, Ind. Boltless rail joint and fish-plate	694,086	Feb. 25	3573	790	98	1596
Bechman, Henry F., Battlecreek, Mich. Running or shifting tympan	694,907	Mar. 4	1094	242	98	1943
Beck, Ferdinand J., Chicago, Ill. Printer's quoin	694,313	Feb. 25	4055	901	98	1694
Beck, Israel, Philipsburg, Pa. Fruit or vegetable cutter	693,775	Feb. 18	2946	649	98	1451
Beck, Matthias A., assignor to Pawling and Harnischfeger, Milwaukee, Wis. Automatic brake	690,552	Jan. 7	355	72	98	77
Beck, Matthias A., assignor to Pawling and Harnischfeger, Milwaukee, Wis. Trolley for electric cranes	690,553	Jan. 7	357	73	98	77
Becker, Johann H., Ohligs, Germany. Safety-razor	693,992	Feb. 25	3404	748	98	1561
Becker, Julius, assignor to F. Krupp, Essen, Germany. Ammunition conveyer or rammer for guns	691,584	Jan. 21	2292	515, 516, 517	98	512
Becker, Max E. (See Allen and Browne, assignors.)						
Becker, Philip. (See Thompson and Becker.)						
Beckers, Alexander, Hoboken, N. J. Dredge or grapple	692,417	Feb. 4	340	84	98	670
Becking, George, Chattanooga, Tenn. Tank	691,585	Jan. 21	2297	517	98	512
Beckley, John H., Lebanon, Pa. Engineer's leveling-rod	695,528	Mar. 18	2238	504	98	2215
Beckwith, Summers F., Charleston, W. Va. Paper-file	694,295	Feb. 25	3843	858	98	1648
Bédarrides, Paul, Paris, France. Elevator for granular substances	692,106	Jan. 28	3282	742, 743	98	780
Bedell, Frederick, Ithaca, N. Y. System of electrical transmission	695,589	Mar. 18	2238	504	98	2215
Bedell, Thomas H., Marion, Ind. Carpet-sweeper	695,434	Mar. 18	2052	461	98	2179
Bedell, Thomas H., Marion, Ind. Wringer-clamp	695,435	Mar. 18	2053	462	98	2179
Bedell, Thomas H., Marion, Ind. Device for packing sweepers or the like	695,436	Mar. 18	2054	462	98	2180
Bédet, Henri, La Plaine St. Denis, France. Steam-generator	694,296	Feb. 25	3844	859	98	1648
Bedford, Milton T. (See Hall and Bedford.)						
Bedford, Robert, Jr. (See Smith and Bedford.)						
Bedworth, Arthur H. and J. A., Boston, Mass., assignors of one-third to F. S. Webster Company, Boston, Mass.; New York, N. Y.; Chicago, Ill., and London, England Tool-holder	693,346	Feb. 11	2130	466	98	1284
Bedworth, John A. (See Bedworth, Arthur H. and J. A.)						
Beebe, Auren M., Banner, Ill. Wheel-fastener	691,099	Jan. 14	1357	310	98	300
Beebe, Eugene W., Milwaukee, Wis. Optometer	695,998	Mar. 25	3088	700	98	2404
Beebe, Murray C., assignor to G. Westinghouse, Pittsburg, Pa. System of distribution for electric lamps connected in series	695,900	Mar. 25	3915	880	98	2370
Beech, John M. and L. P., Norwood, Ohio. Hydrocarbon-burner	693,692	Feb. 18	2786	613	98	1418
Beech, Luke P. (See Beech, John M. and L. P.)						
Beecher, Lina, Batavia, assignor, by mesne assignments, to American Construction Company, New York, N. Y. Monorailway	695,137	Mar. 11	1547	348	98	2056
Beecher, Lina, Batavia, assignor, by mesne assignments, to American Construction Company, New York, N. Y. Rail	695,138	Mar. 11	1548	348	98	2056
Beerbower, George M., New York, N. Y. Telephone-receiver support	695,268	Mar. 11	1774	392	98	2102
Begeer, Bastiaan W., assignor of one-half to J. M. Hower, Jr., Florence, Colo. Cyanid process of extracting precious metals from ores	694,521	Mar. 4	356	78	98	1799
Beger, Richard, Deuben, Germany. Type-writing machine	695,999	Mar. 25	3092	701	98	2405
Beggs, Charles S., Ashland, Ill. Gear for windmills	696,000	Mar. 25	3092	701	98	2405
Begole, Gordon W., Ypsilanti, Mich. Checkrein-hook	691,586	Jan. 28	2789	689	98	534
Behnke, Otto, assignor to F. Krupp, Essen, Germany. Fluid-brake for guns	695,854	Mar. 18	2828	642	98	2337
Behrens, Heinrich, Oberhausen, Germany. Fire-escape	691,988	Jan. 28	2950	694	98	665
Behrens, Hermann L., assignor of one-half to C. M. Lamping, St. Louis, Mo. Sewer-trap	692,418	Feb. 4	343	85	98	671
Beland, George A., Centralia, Ill. Boiler-tube cutter	695,597	Mar. 18	2273	538	98	2245
Belber, Henry S. (See Stout, William H. A., assignor.)						
Beldsmeier, Henry W., St. Louis, Mo. Butter-tub, &c.	696,317	Feb. 11	1908	413	98	1215

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Belfield, A. Miller, *et al.* (See Davis, Charles L., assignor.)						
Bell, Carroll M. (See Blake and Bell.)						
Bell, George F., Sistersville, W. Va. Knife for cutting ropes used in boring Artesian or oil wells	692,816	Feb. 11	1057	240	98	1042
	692,100	Feb. 11	1030	256	98	1160
Bell, Gertrude M., Germantown, Pa. Duster for cleaning walls, &c.	695,855	Mar. 18	2930	643	98	2337
Bell, John. (See Bell, John C. and J.)						
Bell, John C. and J., Eskridge, Kans. Draft-equalizer						
Bell, Robert. (See Powell, James H., assignor.)						
Bell, Thomas. (See Metcalfe and Bell.)	691,887	Jan. 28	2799	629	98	634
Bell, Virgil S., Hayesville, Iowa. Incubator	693,943	Feb. 25	3288	723	98	1537
Bell, Walter J., assignor of one-half to L. F. Moss, Los Angeles, Cal. Wing for flying-machines	693,944	Feb. 25	3289	724	98	1538
Bell, Walter J., assignor of one-half to L. F. Moss, Los Angeles, Cal. Street-railway switch.	693,218	Feb. 11	1908	414	98	1216
Bellis, Thomas K. (See Andrew and Bellis.)	693,219	Feb. 11	1911	415	98	1216
Bellows, Arthur B., Pittsburg, Pa. Steel car	693,220	Feb. 11	1912	415	98	1216
Bellows, Arthur B., Pittsburg, Pa. Truck-frame	694,715	Mar. 4	794	159 160	98	1864
Bellows, Arthur B., Pittsburg, Pa. Truck-bolster	695,690	Mar. 18	2487	550	98	2257
Bellows, Arthur B., Pittsburg, Pa. Metal car	696,305	Mar. 25	3716	830 831	98	2534
Belmer, Charles G., Chelsea, assignor of one-half to A. A. Briggs, Haverhill, Mass. Rotary-cutter holder						
Bemis, Thomas, Indianapolis, Ind. Pneumatic-despatch-tube system						
Bender, Edward J. (See Tilden and Bender.)	692,226	Feb. 4	10	2, 3	98	800
Bender, Henry, Reserve, Ind. Cider and fruit press	691,586	Jan. 21	2298	517	98	513
Bender, Jacob H., Campbelltown, Pa. Railway-tie						
Bender, Louis. (See Bagley, Charles H., assignor.)	695,001	Mar. 25	3094	701	98	2405
Bendix, Vincent H., New York, N. Y. Motor-cycle frame						
Benedict, Lewis. (See Leiger, George F., assignor.)						
Benét, Lawrence V., and H. A. Mercié, Paris, France. Automatic gun	696,306	Mar. 25	3725	831 832 833 834 835	98	2536
Benham, Walter, assignor to J. and J. Dobson, Philadelphia, Pa. Woven pile carpet	691,889	Jan. 28	2801	651	98	653
Benjamin, Dana H., Ionia, Mich., assignor to Barnes & Erb Company, Philadelphia, Pa. Ironing-machine	695,901	Mar. 25	3916	660	98	2371
Benjamin, Walter R., St. Louis, Mo. Air-gun	693,823	Feb. 25	3047	673	98	1491
Benjamin, Walter R., St. Louis, Mo. Air-gun	695,025	Mar. 11	1338	398	98	2010
Benn, Alonzo N. (See Preston and Atkinson, assignors.)						
Bennett, Charles R., Tullytown, assignor of three-fourths to F. G. Edwards, Bristol, T. L. Eyre, Westchester, Pa., and R. Wright, Washington, D. C. Mail-bag catching and delivering device	694,908	Mar. 4	1096	243	98	1944
Bennett, Dwight W., assignor to W. E. Devlin, Philadelphia, Pa. Expansion-bolt	694,345	Mar. 4	9	3	98	1714
Bennett, Frederick D. (See Sanford, William W., assignor.)						
Bennett, Thomas G., and W. Mason, assignors to Winchester Repeating Arms Co., New Haven, Conn. Automatic firearm	695,784	Mar. 18	2606	612 613 614	98	2310
Bennis, Edward, Bolton, England. Furnace	691,100	Jan. 14	1388	310 311	98	300
Bennis, Edward, Bolton, England. Apparatus for supplying fuel to furnaces	691,282	Jan. 14	1604	367	98	350
Benoit, Michel. (See Désy, Louis A., assignor.)	11,976	Mar. 25	3089	872	98	2579
Bensinger, Carl, Mannheim, Germany. Manufacturing celluloid combs. (Reissue)	695,159	Mar. 11	1549	543	98	2057
Benson, Olaf, Red Wing, Minn. Rake attachment	693,995	Feb. 25	3405	748 749	98	1561
Benson, Simon W., Denver, Colo. Window-screen	691,347	Jan. 21	1872	422	98	424
Bentley, Calvin E., Jamestown, N. Y. Railway-rail joint	690,914	Jan. 14	1083	233	98	233
Bentley, Charles E., New York, N. Y. Sofa pillow or cushion	692,501	Feb. 4	493	115	98	899
Bentley, Frank D., Sanborn, N. D. Fly-screen	690,915	Jan. 14	1085	232	98	233
Bentley, Harriet A., Glens Falls, N. Y. Coating preparation						
Benton, George P., Mattawan, assignor of one-half to I. E. Hamilton, Lawton, Mich. Music rack and tuner	692,299	Feb. 4	16	4	98	801
Berauer, Joseph M., *et al.* (See Huff, George S. and J. J., assignors.)						
Berck, Henry P., Chicago, Ill. Tipping shelf for the preservation of garbage or ash cans.	695,425	Mar. 11	2038	457	98	2157
Berford, Victor, Tara, Canada. Weed-cutting and ballast-dressing apparatus	693,363	Feb. 18	2165	477	98	1291
Berford, Victor, Tara, Canada. Ballast-dressing mechanism	695,530	Mar. 18	2232	505	98	2216
Berg, Frederick O., Spokane, Wash. Feeding mechanism for sewing-machines	695,269	Mar. 11	1775	393	98	2108
Berg, Henry. (See Gibbs, William E., assignor.)						
Berger, Albert W., Canton, Ohio. Head for fodder-shredders	692,601	Feb. 4	682	159	98	988
Bergin, Daniel S., Chicago, Ill. Electric system for railways	692,817	Feb. 11	1068	240	98	1042
Bergin, Daniel S., Chicago, Ill. Combined underground and overhead electric railway	692,974	Feb. 11	1403	304	98	1113
Bergsöe, Paul, Copenhagen, Denmark. Regaining tin	691,101	Jan. 14	1370	------	98	300
Beringer, George M., Camden, N. J. Vaccine-shield	695,270	Mar. 11	1776	393	98	2108
Berkin, John. (See Sanders, Wilbur E., assignor.)						
Berkstresser, Robert H., York, Pa. Gate	695,531	Mar. 18	2235	505	98	2216
Berliner, Emile, Washington, D. C. Gramophone	692,502	Feb. 4	494	116	98	899
Berly, Gaston H. de, and E. G. Rassinier, Paris, France. Brake for vehicles	693,776	Feb. 18	2949	649 650	98	1451
Bernhard, George, assignor, by mesne assignments, to Canby, Ach & Canby Company, Dayton, Ohio. Base-delivery caddy	694,257	Feb. 25	3245	852	98	1648
Bernstein, Adolph, New York, N. Y. Waistband	694,890	Mar. 4	980	206	98	1939
Berntson, Thomas. (See Angell and Berntson.)						
Berns, Otto, Newark, N. J. Handle or pull for flushing-tanks	693,107	Jan. 28	2283	748	98	731
Berquist, Thomas, St. Croix Falls, Wis. Sash lock and lift	691,348	Jan. 21	1873	422	98	424
Berrigan, John J., East Orange, N. J. Centrifugal machine	696,130	Mar. 25	3370	761	98	2405
Berringer, George, Blanco, Tex. Cotton-chopper	691,102	Jan. 14	1371	311	98	300
Berringer, Mathias, Carrick, Pa. Metallic tie and rail-fastener	694,716	Mar. 4	795	161	98	1865
Berry, Edwin, Oxton, Birkenhead, assignor to J. Storey, Liverpool, England. Steam or other piston	693,777	Feb. 18	2950	650	98	1450
Berry, James O., Bellevue, Tex. Wire-fence tool	692,616	Feb. 11	1071	241	98	1043
Berry, Washington, Chicago, Ill. Apparatus for inserting floats in cakes of soap	695,026	Mar. 11	1331	293	98	2011
Berry, Washington, Chicago, Ill. Soap-mold	695,027	Mar. 11	1333	294	98	2011
Berry, Washington, Chicago, Ill. Soap-mold	695,028	Mar. 11	1334	294	98	2011
Berst, Charles, New Albany, Ind. Punching-register	691,587	Jan. 21	2290	518	98	513
Bersted, Martin C., Chicago, Ill. Spring-hinge	691,836	Jan. 28	2801	649 650	98	635
Berube, Mary, Wilson, Mich. Safety-pin	694,236	Feb. 25	3245	853	98	1649

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Beskow, Bernhard, Stockholm, Sweden. Traction-wheel	694,208	Feb. 25	3972	884 885	98	1676
Besly, Irving, Denver, Colo. Wheel-bearing	690,916	Jan. 14	1088	222	98	222
Besse, Emile, and L. Lubin, Paris, France. Filling preserve-boxes	695,271	Mar. 11	1777	303	98	2101
Best, Louis H., Pueblo, Colo. Safety vehicle-brake	696,159	Mar. 25	3445	772	98	2479
Best, William N., Los Angeles, Cal., assignor of one-half to C. H. Silliman, Fort Worth, Tex. Coach-equalizing suspender	694,246	Mar. 4	11	3	98	1715
Bethlehem Steel Company. (See Meigs and Hammar, assignors.)						
Bethlehem Steel Company. (See Meigs and Stout, assignors.)						
Bettendorf Metal Wheel Company. (See Einfeldt, Emil, assignor.)						
Beust, Anton von, Orange, and F. M. Potter, Newark, N. J. Tire	694,881	Mar. 4	961	207	98	1909
Beuzard, Ellis C., Jr., *et al.* (See McKenzie, Andrew, assignor.)						
Bicalky, Charles H., Oneida, N. Y. Sheet-metal pulley	691,999	Jan. 28	2951	664	98	666
Bicalky, Charles H., Oneida, N. Y. Wheel	692,602	Feb. 4	668	159	98	906
Bicalky, Charles H., Oneida, N. Y. Wheel	695,582	Mar. 18	2295	505 506	98	2217
Bickel, John E., Harrisburg, Pa. Coffee-pot	692,761	Feb. 4	990	217	98	904
Bickerstaff, James P., assignor of one-half to J. A. Miller, Rochester, Pa. Railway-tie	690,691	Jan. 7	821	135	98	131
Bickford, Frank H., Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	690,554	Jan. 7	359	73	98	79
Bickford, James A., *et al.* (See Wynn, John P., assignor.)						
Biddle, John P., McKeesport, Pa. Amusing apparatus	692,561	Feb. 18	2597	574	98	1379
Bidwell, Charles B., Metropolitan, assignor, by mesne assignments, to Nordlinger-Charlton Fireworks Company, New York, N. Y. Machine for loading fire-crackers	691,108	Jan. 14	1873	311 312 313	98	301
Biedermann, George O., *et al.* (See Meyer, Henry L., assignor.)						
Bielefelder Maschinenfabrik, vormals Dürhopp & Co. (See Knehans and Püschel, assignors.)						
Bielhen, Fredrick, St. Joseph, Mo. Fire-escape	695,140	Mar. 11	1550	343	98	2057
Biersach, Louis D., Milwaukee, Wis. Fireproof window	690,322	Jan. 7	15	3	98	6
Bigelow, Frank E. (See Bigelow, Russel and F. E.)						
Bigelow, Russel and F. E., Vanwert, Ohio. Chair-truck	695,368	Mar. 11	1950	434	98	2130
Bildt, Carl W., Worcester, Mass. Apparatus for continuous rolling direct from fluid metal	690,917	Jan. 14	1037	253 254	98	234
Billing, John J., Philadelphia, Pa. Repeating mechanism for phonographs	695,272	Mar. 11	1779	303	98	2103
Bills, Charles A., St. Joe Station, Ind. Derrick	691,349	Jan. 21	1875	422 423	98	424
Bills, Frank H., Springfield, Mass. Dandy-roll	694,717	Mar. 4	727	161	98	1955
Binder, Gottlieb, assignor of one-half to C. H. Yost, Jr., Louisville, Ky. Machine for making brushes for street-sweeping machines	692,230	Feb. 4	18	4	98	891
Bingaman, Mary E., New York, N. Y. Washboard	692,264	Feb. 18	2173	477	98	1292
Bingham, Charles F., Buffalo, N. Y. Manhole-casing	692,281	Feb. 4	19	5	98	891
Binkerd, Aaron T., Petrolia, Pa. Saw-clamp	694,718	Mar. 4	729	161	98	1956
Binnie, Robert, Bolivar, Pa. Drill	694,822	Mar. 4	932	207	98	1909
Binnie, Robert, Bolivar, Pa. Drill	694,823	Mar. 4	933	207 208	98	1910
Binsse, Henry B., New York, N. Y. Feed mechanism for machine-tools	695,665	Mar. 18	2492	566	98	2360
Birchmore, Woodbridge H. (See Hooker and Birchmore.)						
Bird, Charles S., Walpole, Mass. Lining material	694,522	Mar. 4	856	78	98	1789
Bird, Charles S., Walpole, Mass. Paper	696,131	Mar. 25	3372	761	98	2405
Bird, Charles S., and J. B. Hanscom, assignors to F. W. Bird and Son, East Walpole, Mass. Package	694,804	Feb. 25	3073	695	98	1676
Bird and Son, F. W. (See Bird and Hanscom, assignors.)						
Bird, Willie G., Oxford, Tex. Windmill	691,534	Jan. 21	2190	491	98	491
Birkenstock, John W., assignor to Empire Pneumatic Tool Company of the State of New York, New York, N. Y. Pneumatic cutting-tool	691,334	Jan. 14	1848	418	98	404
Birkenstock, John W., assignor to Empire Pneumatic Tool Company, New York, N. Y. Pneumatic polishing-tool	691,740	Jan. 28	2614	595	98	597
Birkenstock, John W., assignor to Empire Pneumatic Tool Company, New York, N. Y. Pneumatic motor	696,987	Mar. 25	3280	870 871	98	2577
Birkholz, August J. (See Hamburger and Birkholz.)						
Birnie, Alfred, Springfield, and C. W. Gay, West Springfield, Mass. Paper box or carton	695,278	Mar. 11	1780	394	98	2104
Birnie, Alfred, Springfield, and C. W. Gay, West Springfield, Mass. Paper-box machine	695,369	Mar. 11	1951	435	98	2139
Birss, Frank J. (See Barger and Birss.)						
Bischoff, Richard, New York, N. Y. Brake for street-cars	692,046	Jan. 28	3176	716	98	709
Bishop, Abner W., Racine, Wis. Gun-cleaner	690,398	Jan. 7	16	4	98	7
Bissell, Joseph E., Pittsburg, assignor to D. G. Knittel, Allegheny, Pa. Means for effecting noiseless discharge of guns	692,819	Feb. 11	1072	241	98	1043
Bjorckner, Charles H., Lorain, Ohio. Air mixer and heater for gas-burners for blast-furnace stoves	695,437	Mar. 18	2055	462	98	2180
Björnrud, Edvard, Christiania, Norway. Acetylene-gas generator	691,890	Jan. 28	2892	651	98	654
Black, Amos R., Lamar, Colo. Sulky hay-rake	694,719	Mar. 4	730	161 162	98	1956
Black, Henry, New York, N. Y. Thermo-electric alarm	694,239	Feb. 25	2947	653	98	1649
Black, John O., *et al.* (See Decker, John M., assignor.)						
Black, Thomas N., De Queen, Ark. Automatic wagon-brake	690,509	Jan. 7	276	55, 56	98	60
Blackburn, Robert B., Mayfield, Ky. Wrench	692,008	Jan. 28	2089	694	98	698
Blackwell, Austin L., Leakesville, Miss. Combined harrow, cultivator, and plow	691,741	Jan. 28	2316	595	98	597
Blagburn, Charles, San Francisco, Cal. Caisson for subaqueous work	694,989	Mar. 11	1159	253	98	1976
Blaine, Otis E., assignor of one-half to L. M. Hammond, Victor, Colo. Non-refillable bottle	690,681	Jan. 7	505	111	98	109
Blaine, William T. (See Hunter, Jacob M., assignor.)						
Blair, Duncan R., Birmingham, England. Gas-heated sad-iron	695,598	Mar. 18	2374	538	98	2345
Blair, Gardner L., assignor of one-half to D. B. Hall, Redwine, Ky. Vehicle-brake	692,777	Feb. 4	984	223	98	998
Blair, Sherman, McKeesport, Pa. Rail-joint	691,535	Jan. 21	2191	491	98	493
Blaisdell, Hiram W., Yuma, Ariz. Ter. Apparatus for handling tailings	692,106	Jan. 28	2895	745	98	731
Blake, Fred J., *et al.* (See Harvey, Isaac, assignor.)						
Blake, George E., and C. M. Bell, assignors to Greencastle Automobile Company, Greencastle, Ind. Boiler	691,712	Jan. 21	2180	566	98	562
Blake, John F. (See Loes and Blake.)						
Blake, John T., Pittsburg, Pa., assignor of two-thirds to I. F. Brainard and F. A. Schmitz. Rail-joint connection	690,918	Jan. 14	1041	234	98	234
Blake, Walter D. (See Fox and Graham, assignors.)						
Blake, Walter D. (See Graham, David F., assignor.)						
Blakely, Horace, *et al.* (See Wright, James M., assignor.)						
Blakeslee, John R., Glenville, Ohio. Safety device for bolt-heading machines	690,919	Jan. 14	1042	234 235	98	234

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Blakeslee, Russell C. (See Lepper, John G., assignor.)						
Blalock, James D., Cross, Ala. Excavating-machine	694,240	Feb. 25	3850	853, 854	98	1650
Blanchard, Charles H., St. Louis, Mo. Trace catch and holder	696,785	Mar. 18	2701	614	98	2311
Blandy, Richard R., Kensington, England. Device for transporting bananas, &c	691,526	Jan. 21	2192	492	98	492
Blass, Gustave. (See Cox and Blass.)						
Blast Furnace Power Syndicate. (See Thwaite, Benjamin H., assignor.)						
Blatch, Thomas G., Hazleton, Pa. Brake	690,692	Jan. 7	622	136	98	132
Blaxter, George H. (See Dicks, William, assignor.)						
Bléha, William V., St. Louis, Mo. Door-stop	690,555	Jan. 7	362	73	98	79
Blessing, Arthur L. (See Peer, John A., assignor.)						
Blevins, David T., and D. H. Taylor, New Windsor, Colo. Clothes-line tightener and adjuster	690,890	Jan. 7	985	223	98	207
Blevney, John C., Newark, N. J. Lubricator for steam-engine pistons	690,510	Jan. 7	277	56	98	60
Blevney, John C., Newark, N. J. Engine	690,511	Jan. 7	278	56	98	60
Blevney, John C., Newark, N. J. Power-transmitting and braking device	693,365	Feb. 18	2174	477, 478	98	1292
Blevney, John C., Newark, assignor to J. S. W. Thompson, Morristown, N. J. Machine for making blanks for paper boxes	695,020	Mar. 11	1337	294, 295	98	2012
Bleyer, Samuel T., Chicago, Ill. Furnace	694,241	Feb. 25	3852	854	98	1650
Block, Francis L., Sidney, Ill. Row-marker for agricultural machines	691,436	Jan. 21	2089	456, 457	98	460
Blodgett, James Q. (See Stuart, Edwin T., assignor.)						
Blodgett, William A., assignor of one-half to T. E. Woodley, Chicago, Ill. Machine for finishing heels and bottoms	691,104	Jan. 14	1377	313	98	302
Blodgett, William E., Faribault, Minn. Adjustable support for telephones, &c	696,160	Mar. 25	3446	772	98	2480
Blood, Bryant H., Brooklyn, N. Y. Tubular transit apparatus	690,990	Jan. 14	1043	235	98	234
Blood, Bryant H., New York, N. Y. General class of tubular despatch systems and especially to receiving apparatus for intermediate stations	693,366	Feb. 18	2176	478	98	1292
Blood, Charles W. H., assignor to S. A. Woods Machine Company, Boston, Mass. Planing-machine	694,314	Feb. 25	4056	901, 902	98	1685
Blood, Charles W. H., assignor to S. A. Woods Machine Company, Boston, Mass. Feed-rolls	696,307	Mar. 25	3739	535, 536	98	2540
Bloom, Philip J., assignor of one-half to G. E. Ellingwood, Tidioute, Pa. Suspender attachment	692,003	Feb. 4	687	159	98	989
Bloomer, Edward. (See Pardee and Bloomer.)						
Bloomer, Howard J., Norwalk, Conn. Interchangeable suspenders and belt	693,101	Feb. 11	1631	356, 357	98	1160
Bloomingdale, Lyman G. (See Ward, Richard, assignor.)						
Blount, David P., Norfolk, Va. Automatic steam-pressure regulator	693,231	Feb. 11	1918	416	98	1217
Blue, Chilton W., Montgomery, Ala. Handle-clasp	696,599	Mar. 18	2376	538	98	2246
Bluhm, Charles A., Michigan City, Ind. Incandescent gas-burner	694,624	Mar. 4	935	208	98	1910
Blumenstiel, W. L. M., *et al.* (See Fulghum, Fredrick A., assignor.)						
Blumenthal, Max, *et al.* (See Chipman, William R., assignor.)						
Bobbitt, William. (See Shannon and Bobbitt.)						
Bobinsky, Vladimir de. (See Elieson and Bobinsky.)						
Bocorselski, Frank E., Springfield, Mass. Oil-cup for shaft-bearings	694,605	Mar. 4	924	114	98	1824
Bodman, Walter L., assignor to J. B. Baynes, Buffalo, N. Y. Thill-coupling	691,891	Jan. 28	2593	651	98	654
Boehm, Charles S., Hopkins, Minn. Pneumatic horse-collar	694,339	Feb. 25	4111	914	98	1606
Boehm, George J., Elizabeth, N. J. Rapid-fire gun	694,606	Mar. 4	925	114	98	1824
Boehm, Herman, Youngstown, Ohio. Incandescent lamp	693,322	Feb. 11	1914	416	98	1217
Boehm, Wilhelm, Berlin, Germany. Manufacturing contact-pieces between first and second class conductors	695,600	Mar. 18	2377	.....	98	2246
Boettcher, Frederick W. G., Detroit, Mich. Window-balance	696,308	Mar. 25	3741	836	98	2540
Bogue, Robert J., Honeygrove, Tex. Specific-gravity scale	691,437	Jan. 21	2040	457	98	460
Bohn, René, Mannheim, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Blue sulfonated dye	693,762	Feb. 4	960	.....	98	994
Bohnert, Mathias, San Francisco, Cal. Horse-clipper	693,223	Feb. 11	1915	416	98	1217
Bohon, Albert B. (See Stair, Burton A., assignor.)						
Boice, Augustin. (See Wheeler, James F., assignor.)						
Boisselot, Jean B., assignor to E. Van Dam, New York, N. Y. Ignition-plug for explosive-motors	692,975	Feb. 11	1404	304	98	1114
Bolens, Harry W., Port Washington, Wis. Seat-spider	693,824	Feb. 25	3052	673	98	1492
Bolens, Harry W., Port Washington, Wis. Seat-spider	693,825	Feb. 25	3053	673	98	1492
Boller, Alexander, New York, N. Y. Window attachment for protecting food	693,224	Feb. 11	1916	417	98	1217
Bolles, Robert O., Bloomington, Ill. Convertible window shade and awning	695,856	Mar. 18	2691	643	98	2386
Bolster, John W. (See Watkins, William D., assignor.)						
Bolus, William G., assignor to Selby, Starr & Company, Peoria, Ill. Grain-drill	695,786	Mar. 18	2702	614	98	2311
Bommer, Emil, Brooklyn, N. Y. Spring-hinge	695,666	Mar. 18	2498	566	98	2269
Bommer, Emil, Brooklyn, N. Y. Spring-hinge	695,706	Mar. 18	2559	579	98	2281
Bonati, Anton, assignor to Kalle and Company, Biebrich, Germany. Sulfur dye and making same	695,533	Mar. 18	2240	.....	98	2218
Bonati, Anton, assignor to Kalle and Company, Biebrich, Germany. Sulfur dye and making same	695,534	Mar. 18	2241	.....	98	2218
Bond, William A., trustee. (See Wadsworth, Frank L. O., assignor.)						
Bonelli, George A., Kingman, Ariz. Ter. Hydrocarbon-burner	693,225	Feb. 11	1918	417	98	1217
Bonham, Austin G. (See Waldo and Bonham.)						
Bonhorst, Harry L. von, assignor of two-thirds to J. E. Kelly and N. A. Den, Los Angeles, Cal. Decorating glass, &c	690,869	Jan. 7	984	.....	98	307
Boniface, Nonna F., New York, N. Y. Combined heater, cooler, and storage-basket	692,109	Jan. 28	2287	744	98	731
Bonner, Otto H., Cleveland, Ohio. Ellipsograph	695,857	Mar. 18	2633	643	98	2386
Bonner, Richard S., Little Rock, Ark. Cultivator attachment for plows	690,921	Jan. 14	1045	235	98	235
Bonnet, Joseph, Paris, France. Producing explosives	695,697	Mar. 18	2495	.....	98	2359
Booe, Lex P., Chanute, Kans. Corn-planter	692,283	Feb. 4	20	5	98	602
Boos, Horace, Cincinnati, Ohio. Vegetable-cutter	690,512	Jan. 7	282	57	98	61
Boos, Joseph B., Muscatine, Iowa, assignor to himself, C. R. Musser, G. M. Titus, and D. V. Jackson. Screw-door safe	695,191	Mar. 11	1699	362	98	2074
Booth, Charles W., Milwaukee, Wis. Car-door lock	696,089	Mar. 25	3271	740	98	2441
Booth, Irving E. (See Booth, Quentin W. and I. E.)						
Booth, Quentin W. and I. E., Rochester, N. Y. Upper-folding machine	695,488	Mar. 18	2656	462, 463, 464, 465	98	2180
Borchers, Perry, Amanda, Ohio. Iron fence-post	695,489	Mar. 18	2665	465	98	2180
Borchert, William, assignor of one-half to R. J. Kelly and R. Kirman, Carson City, Nev. Wave or tide motor	694,242	Feb. 25	3856	854, 855	98	1651

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Border, Rupert L., assignor of one-half to W. H. Tudor, Pittsburg, Pa. Electrical switch.	695,440	Mar. 18	2065	465 466	98	2188
Borderwisch, Edward. (See Wovries, Otto C., assignor.)						
Boren, Nicholas, Princeton, Ind. Churn	695,190	Mar. 11	1628	361	98	2073
Borie, Louis J., San Francisco, Cal. Electromagnetic capping-machine	694,458	Mar. 4	259	51	98	1761
Boring, Frank M., and L. P. Chitwood, assignors to L. Rauh, Dayton, Ohio. Voting-machine	692,976	Feb. 11	1404	304 305 306	98	1114
Borrow, Alfred. (See Hickman and Borrow.)						
Borrowe, Mary E. (See Borrowe and Lumley, assignors.)						
Borrowe, William, and J. Lumley, San Francisco; said Borrowe assignor to M. E. Borrowe, Sausalito, Cal. Machine for molding plastic materials	692,778	Feb. 4	985	283	98	998
Borsodi, Morris. (See Newman and Borsodi.)						
Bosch, Robert. (See Simms and Bosch.)						
Bossert, William F., assignor of one-third to H. P. Crouse, Utica, N. Y. Three-way railway-switch	690,922	Jan. 14	1047	236	98	235
Bosworth, Charles B., Somerville, assignor to Star Brass Manufacturing Company, Boston, Mass. Card for steam-engine indicators	691,588	Jan. 21	2302	518	98	514
Bosworth, Daniel P., assignor of one-half to F. J. Stuck and W. Freise, Jr., Marietta, Ohio. Side bearing for railway-cars	696,388	Mar. 25	3492	871	98	2577
Bosworth, Harvey. (See Clark and Bosworth.)						
Bosworth, William G. (See Clark and Bosworth.)						
Böttger, Eduard, Bergisch-Gladbach, Germany. Brick for building arches	693,886	Feb. 25	3055	673	98	1402
Bottomley, Samuel, Providence, R. I. Reversible bandage-case	692,503	Feb. 4	496	116	98	900
Botz, Lew, Berlin, Wis. Scale	692,980	Feb. 11	1072	941	98	1043
Bourgoin, Gustave E. (See Lavollay and Bourgoin.)						
Bourhanovsky, Matieu, Libau, and A. de Kowanko, St. Petersburg, assignors of one-third to A. Potocki, Warsaw, Russia. Apparatus for raising sunken ships	691,718	Jan. 21	2522	567	98	502
Bourke, Edward J., assignor of one-half to T. Cotter and J. McDonnell, Kansas City, Mo. Moving model for advertising purposes	692,604	Feb. 4	998	160	98	939
Boutell, William H., Rochester, N. Y. Paring and coring machine	696,778	Feb. 18	2951	650 651	98	1458
Bouton, Georges. (See Dion and Bouton.)						
Bovee, David W., Waterloo, Iowa. Washing-machine	691,238	Jan. 14	1606	367	98	350
Bowe, James C. (See Allison, Asa H., assignor.)						
Bowen, David R., and C. T. Ericsson, assignors to Farrel Foundry and Machine Company, Ansonia, Conn. Apparatus for stretching and vulcanizing a plurality of rubber belts	694,097	Feb. 25	3576	790 791	98	1596
Bowen, Faxon, Peterboro, N. H. Machine for cutting, punching, and shaping metal	691,234	Jan. 14	1607	367 368	98	350
Bower, Sigmund, assignor to G. Gray, Brooklyn, N. Y. Time-recorder	690,394	Jan. 7	17	4	98	7
Bowers, Edmund J., Philadelphia, Pa. Multiple gage for lathe work	696,209	Mar. 25	3743	886 887	98	2541
Bowes, James H., Elland, England. Toy	691,105	Jan. 14	1379	314	98	302
Bowker, William, Sr., Waltham, Mass. Motor-vehicle	693,108	Feb. 11	1633	367	98	1161
Bowker, William, Sr., Waltham, Mass. Running and steering gear for motor-vehicles	693,994	Feb. 25	3407	749	98	1561
Bowker, William, E. M. Long, and C. W. Howland, assignors to Standard Optical Company, Geneva, N. Y. Machine for drilling lenses	695,902	Mar. 25	3919	661 662	98	2371
Bowles, Robert C. M., Boston, Mass. Stethoscope	693,487	Feb. 18	2409	586	98	1341
Bowling, Jasper H., Ozone, Tenn. Vehicle-axle	694,940	Mar. 11	1160	254	98	1976
Bowling, Joseph R. (See Ingoldsby and Bowling.)						
Bowman, Daniel W., Toledo, Ohio, and J. N. Clouse, St. Louis, Mo.; said Clouse assignor to said Bowman. Hydrocarbon gas or vapor burner and stove	692,110 694,098	Jan. 28 Feb. 25	3286 3579	744 791	98 98	732 1596
Bowman, Eric G., Monmouth, Ill. Agricultural implement						
Bowman, Jonathan, Petersburg, South Australia, Australia. Means for providing brakes to railway-vehicles	695,274	Mar. 11	1782	395	98	2104
Bowman, Newton K., North Lawrence, Ohio. Mine-gate	695,858	Mar. 18	2633	643 644	98	2326
Boxley, Elmer E., and J. Holmes, Princeton, Mo. Buggy-top support	694,243	Feb. 25	3357	655	98	1638
Boyce, Floyd N., Battlecreek, Mich. Window-frame	692,033	Jan. 28	3090	694 695	98	602
Boyce, Hiram H., Chicago, Ill. Pulley	693,945	Feb. 25	3391	734	98	1536
Boyce, Hiram H., Chicago, Ill. Turbine engine	693,946	Feb. 25	3392	734 735	98	1536
Boyd, Henry E., McKeesport, Pa., assignor to National Tube Company, New York, N. Y. Rotary pipe-cutting machine	694,523	Mar. 4	359	79	98	1789
Boyd, Henry E., McKeesport, Pa., assignor to National Tube Company, New York, N. Y. Rotary pipe-cutting machine	694,524	Mar. 4	364	80	98	1790
Boyd, Joseph L., and J. Gillis, assignors of one-third to W. M. Land, Williamson County, Tex. Corn or cotton planter	696,668	Feb. 18	2788	614	98	1419
Boyd, Sanford S., Laurens, S. C. Speaking-tube for trains	694,825	Mar. 4	988	208	98	1911
Boyd, Thomas, Pittsburg, Pa. Means for reflecting and distributing sound and ventilating auditoriums	693,488	Feb. 18	2410	586 587	98	1342
Boydston, Benjamine F., Edgerton, Mo. Starting mechanism for harvester cutting apparatus	695,370	Mar. 11	1905	436	98	2140
Boyen, Edgar von, Hamburg, Germany. Manufacturing mineral wax from bituminous brown coal	690,698	Jan. 7	623	136	98	138
Boyens, William H. (See Renner and Boyens.)						
Boyer, Samuel, Colfax, Wash. Trace-buckle	696,887	Feb. 25	3055	674	98	1402
Boyes, Ebenezer, Peckham, England. Means for maintaining in heated condition decoctions of coffee, tea, or other liquids	695,141	Mar. 11	1551	344	98	2057
Boyle, John J., Columbus, Ind. Fence-post	693,582	Feb. 18	2596	575	98	1979
Boynton, Albert. (See Steinmetz, Conrad P., assignor.)						
Braatz, Alexander, Oranienburg, near Berlin, Germany. Property quadruped for stage purposes	695,908	Mar. 25	3984	882	98	2372
Bracey, Smith H., Chicago, Ill. Spike	692,763	Feb. 4	966	217	98	994
Brack, Johann J., assignor to Basle Chemical Works, Basle, Switzerland. Making phthalein dyes	695,441	Mar. 18	2037	.....	98	2138
Bracy, Edward L., Brooklyn, N. Y. Mechanism for packing granular material	691,260	Jan. 28	3064	665	98	606
Bradley, Abia K. and J., Clematis, Okla. Ter. Clothes pin	692,333	Feb. 4	21	5	98	938
Bradley, Christopher C., Syracuse, N. Y. Thill-coupling	694,050	Feb. 25	3322	775	98	1594
Bradley & Hubbard Mfg. Co. (See Penfield, William A., assignor.)						
Bradley, John. (See Bradley, Abia K. and J.)						
Bradley, Timothy C. (See Tuttle and Cookson, assignors.)						
Bradshaw, Charles W., Argentine, Kans. Excavating mechanism	694,344	Feb. 25	3358	856 856	98	1638
Bradshaw, Joseph L., Elbridge, Tenn. Corn-planter	695,442	Mar. 18	2038	466 467	98	2138

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brady, Thomas H., New Britain, Conn. Electric switch	698,995	Feb. 25	3408	750	98	1592
Brady, Thomas H., New Britain, Conn. Roller chafe-iron	695,631	Mar. 18	2439	550	98	1267
Bragg, Mary A. (See Wells, Charles M., assignor.)						
Brainard, Ira F., *et al.* (See Blake, John T., assignor.)						
Brakeley, Joseph, Freehold, N. J. Machine for removing insect parasites from vines or plants	695,275 695,149	Mar. 11 Mar. 11	1784 1553	395 396 344	98 98	2105 2068
Brampton, Walter, Dorridge, near Birmingham, England. Cycle-saddle						
Branch, Joseph G., St. Louis, Mo. Means for producing pressure on the hydrocarbon in portable reservoirs	694,305 698,996	Feb. 25 Feb. 25	3374 3409	885 750	98 98	1677 1568
Brand, Herrman M., Porto Alegre, Brazil. Life-saving suit						
Brand Stove Company. (See Garrison, Albert H., assignor.)						
Brandstedt, Paul, Washington, D. C. Metal studding or partition	694,721	Mar. 4	734	162	98	1867
Brandstedt, Paul F., Washington, D. C. Fireproof construction	694,720	Mar. 4	732	162	98	1866
Brangier, Pierre A. (See Magnier and Brangier.)						
Brankston, Ralph T., assignor to W. G. Armstrong, Whitworth & Company, Limited, Newcastle-upon-Tyne, England. Gun-mounting	695,087	Mar. 11	1438	317	98	2063
Brannan, Emora T., Baltimore, Md. Carving-machine	692,977	Feb. 11	1410	305	98	1115
Brannon, Walter Z., Brazos, Tex. Wire-stretcher	693,227	Feb. 11	1921	417	98	1818
Brantingham, Guy S., New York, N. Y. End piece for wheel-spokes	693,821	Feb. 11	1073	241	98	1048
Brashears, William J., Wilmington, Del. Leaf-turner	690,395	Jan. 7	18	4	98	7
Brassington, Abraham, Mount Carmel, Pa. Claw-bar	693,779	Feb. 18	2955	651	98	1453
Bratton, Marcus L., Luray, Kans. Artificial-fuel compressor	693,605	Feb. 4	688	160	98	940
Braucht, Katie D., guardian. (See Braucht, Roy L.)						
Braucht, Roy L., minor, Minneapolis, Minn.; K. D. Braucht, guardian, assignor to W. S. Nott Company. Clamp for leather-stretching machines	691,106	Jan. 14	1879	314	98	302
Braun, Albert, Allegheny, Pa. Pocket-protector	693,780	Feb. 18	2956	651	98	1453
Bray, Charles W., Pittsburg, Pa., assignor to American Tin Plate Corporation, Orange, N. J. Doubling and shearing apparatus	695,873	Mar. 18	2904	649 650	98	2345
Bray, Joseph. (See Harris and Bray.)						
Bray, Thomas J., Jr., assignor of one-half to United Engineering and Foundry Company, Pittsburg, Pa. Tube-welding apparatus	691,350	Jan. 21	1877	423	98	485
Breakey, James. (See Low and Breakey.)						
Brebner, Alan, London, England. Revolving group-flashing apparatus	695,371	Mar. 11	1957	426	98	2140
Brechbiel, Samuel S., Altoona, Pa. Folding stool	692,822	Feb. 11	1075	242	98	1044
Bredow, John F., Davenport, Iowa, assignor to Iowa Mantle Manufacturing Company. Means for transporting incandescent mantles	691,859	Jan. 28	2804	630	98	635
Bredow, John F., Davenport, Iowa, assignor to Iowa Mantle Manufacturing Company. Incandescent-mantle support	694,347 690,682	Mar. 4 Jan. 7	12 509	3 111	98 98	1715 109
Breese, Herbert J., Port Huron, Mich. Horse-collar						
Breidenbach, William F. (See Ohmer, Tyler, and Breidenbach.)						
Breitfeld, Arthur, Erfurt, Germany. Pen	692,606	Feb. 4	690	160	98	940
Bremer, Hermann, Munich, Germany. Means for extracting juice from raw meat, &c	692,823	Feb. 11	1076	242	98	1044
Bremner, Joseph, Milton, New Zealand. Door-jamb, gate-post, or the like	692,607	Feb. 4	691	161	98	940
Brenckle, Arthur C., and W. A. Anger, Milwaukee, Wis. Box-fastener	693,489	Feb. 18	2412	527	98	1342
Brenckle, Arthur C., and W. A. Anger, Milwaukee, Wis. Box-fastener	693,490	Feb. 18	2413	527	98	1343
Brennan, Michael. (See McDonald and Brennan.)						
Bresnahan, Maurice V. (See Heys, John J., assignor.)						
Brethour, Arthur E., Ottawa, Canada. Filler for capsules, wafers, &c	693,637	Feb. 18	2706	597	98	1402
Breuer, Carl, Friedenau, Germany. Device for removing noxious impurities from the air of rooms	693,688	Feb. 18	2707	597	98	1403
Breul, Richard A., Bridgeport, Conn. Wire-cutting die	691,892	Jan. 28	2695	652	98	654
Brewer, Albert G., Hopkinton, Mass. Die-carrier for stamping or embossing machines	694,127	Feb. 25	3541	805	98	1609
Brewer, Horatio J., New York, N. Y. Zinc element for primary batteries	694,089	Feb. 25	3581	791	98	1597
Brewer, William J., assignor to National Roller and Ball Bearing Company, Washington, D. C. Antifriction journal-bearing	694,607	Mar. 4	887	114 115	98	1825
Brewer, William J., assignor to National Roller and Ball Bearing Company, Washington, D. C. Antifriction-bearing	694,608	Mar. 4	888	115	98	1825
Brewington, Henry S., Baltimore, Md. Bottle-stopper	691,107	Jan. 14	1381	314	98	302
Brewington, Henry S., Baltimore, Md. Mop-head	694,886	Mar. 4	940	209	98	1911
Brice, Edward C., Colwyn, Pa. Kiln for burning bricks, &c	695,904	Mar. 25	2995	662 663	98	2372
Bridesburg Machine Company. (See Asimos, William C., assignor.)						
Bridgwater, Harry H. (See Haley and Bridgwater.)						
Brigel, Leo A., Jr., Cincinnati, Ohio. Conveyer-bucket	694,245	Feb. 25	3561	856	98	1653
Briggs, Arthur A. (See Belmer, Charles G., assignor.)						
Briggs, Edwin F., Des Moines, Iowa. Nut-lock	694,246	Feb. 25	3562	856	98	1653
Brigham, Charles F., Chicago, Ill. Fire-extinguisher	690,653	Jan. 7	510	111	98	110
Bright, Frank E., Lapel, Ind. Hay-rack	691,527	Jan. 21	2193	492 493	98	492
Brill, John A. (See Adams, Walter S., assignor.)						
Brill, John A., Philadelphia, Pa. Convertible car	691,351	Jan. 21	1878	423 424	98	485
Brinton, Burtwin L. and W. P., Bradford, Pa. Piston-valve for air-compressors	691,042	Jan. 14	1282	291	98	288
Brinton, William P. (See Brinton, Burtwin L. and W. P.)						
Brisselet, Henri. (See Lacroix and Brisselet.)						
Bristow, Samuel, Wetmore, Kans. Toy boomerang	692,608	Feb. 4	691	161	98	940
Brittain, Samuel T., Boston, Mass. Boat adapted to be propelled on land or in water	693,238	Feb. 11	1922	418	98	1219
Britton, John H., Los Angeles, Cal. Fire-extinguisher	690,556	Jan. 7	363	74	98	79
Broadbent, Denis R. (See Goode, John, assignor.)						
Brockelt, Hermann, assignor to M. Levin, Berlin, Germany. Alternating-current-motor meter	693,491	Feb. 18	2414	528	98	1343
Brockett, Atwater E., Boston, Mass. Collapsible seat	695,426	Mar. 11	2069	457	98	2157
Brockschmidt, William P. (See Rose and Brockschmidt.)						
Bromhead, John S., Brooklyn, N. Y. Non-refillable bottle	691,106	Jan. 14	1382	314	98	302
Bronson, Enos A., Newburgh, N. Y. Sash-fastener	693,047	Jan. 28	2178	717	98	709
Bronson, Enos A., Newburgh, N. Y. Sash-supporter	693,048	Jan. 28	2178	717	98	709
Brooke, Henry, Pataskala, Ohio. Crane for handling lumber, &c	690,513	Jan. 7	263	57	98	63
Brooke, Homer, Jersey City, N. J. Pipe-joint	693,367	Feb. 18	2181	479	98	1254
Brooke, Mary E., Denver, Colo. Tire	691,569	Jan. 21	2203	519	98	514
Brooker, Charles F., Ansonia, Conn., assignor to Coe Brass Manufacturing Company. Machine for rolling metal forms	694,728	Mar. 4	786	183	98	1887
Brookes, John, East Liverpool, Ohio. Metallic tie and rail fastener	695,198	Mar. 11	1031	302	98	2074
Brooks, Charles F., Lynn, Mass. Harness-saddle	694,725	Mar. 4	739	164	98	1868
Brooks, Edward J., East Orange, N. J. Snap-seal	696,008	Mar. 25	3095	701 702	98	2406
Brooks, Edward J., East Orange, N. J. Snap-seal	696,008	Mar. 25	3098	702	98	2406

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Brooks, Everett W., *et al.* (See Nistle, George W., assignor.)						
Brooks, Henry, South Brooklyn, Ohio. Trace-support	691,590	Jan. 21	2305	519	98	514
Brophy, Danel J., Montreal, Canada. Piling-machine	693,108	Feb. 11	1634	857 858 859	98	1161
Brophy, Michael M., London, England. Steam water-heater	691,528	Jan. 21	2194	498	98	492
Brophy, Michael M., London, England. Filtering and regulating device	691,529	Jan. 21	2196	498	98	493
Brothers, William F., Brooklyn, N. Y., assignor to W. F. Brothers Company, Jersey City, N. J. Cableway	691,235	Jan. 14	1615	369	98	352
Brothers, William F., Brooklyn, N. Y., assignor to W. F. Brothers Company. Weighing-machine	691,498	Jan. 21	2041	457	98	490
Brott, Lucien A., Brooklyn, N. Y., assignor, by mesne assignments, to Composite Type Bar Company, Jersey City, N. J. Machine for the production of types and type-bars.	694,306	Feb. 25	3976	885 886 887 888 889 890 891 892 893 894	98	1677
Brott, Lucien A., Brooklyn, N. Y., assignor to Composite Type Bar Company, Jersey City, N. J. Machine for the production of types and type-bars	694,307	Feb. 25	4007	895 896 897 898 899	98	1681
Brott, Lucien A., Brooklyn, N. Y., assignor to Composite Type Bar Company, Jersey City, N. J. Composite type-bar	694,308	Feb. 25	4047	899	98	1683
Brott, Lucien A., Brooklyn, N. Y., assignor to Composite Type Bar Company, Jersey City, N. J. Production of type-bars	694,309	Feb. 25	4048	900	98	1683
Brott, Lucien A., Brooklyn, N. Y., assignor to Composite Type Bar Company, Jersey City, N. J. Type-magazine	694,310	Feb. 25	4049	900	98	1683
Brough, William, Baltimore, Md. Automatic weighing-machine	692,609	Feb. 4	694	161	98	941
Broun, Virginia M., Washington, D. C. Bed-canopy	692,419	Feb. 4	543	85	98	871
Browder, Henry L., McComb City, Miss. Locomotive ash-pan	690,827	Jan. 7	886	196	98	187
Brower, Alfred S., Yonkers, N. Y. Core-box plane	695,668	Mar. 18	3496	566	98	2369
Brower, Charles D., trustee. (See Reid, Marcellus, assignor.)						
Brower, William W. (See Hill and Brower.)						
Brown, Alexander T., Syracuse, N. Y. Gearing	691,591	Jan. 21	2306	519	98	514
Brown, Alexander T., Syracuse, N. Y. Gearing	694,734	Mar. 4	740	164	98	1668
Brown, Alvah W. (See Clark, Develle P., assignor.)						
Brown, Arthur F., assignor to Stoddard Manufacturing Company, Dayton, Ohio. Horse hay-rake	694,051	Feb. 25	3523	775	98	1585
Brown, Charles A., *et al.* (See Davis, Charles L., assignor.)						
Brown, Charles D., Valley Center, Mich. Cover-retaining device for pots or kettles	690,888	Jan. 7	868	196	98	188
Brown, Charles N., Boston, assignor of one-half to J. S. Wilson, Chelsea, Mass. Bobbin-holder for circular looms	694,128	Feb. 25	3643	905	98	1610
Brown, Charles T., Denver, Colo., assignor to National Wire Fence Company. Wire fence	690,514	Jan. 7	264	57	98	62
Brown, Cornell E., Point Pleasant, N. J. Eaves-trough hanger	693,492	Feb. 18	2416	526	98	1342
Brown, Curtis P., Comstocks Bridge, Conn. Machine for making compound paper	695,787	Mar. 18	2704	614 615	98	2312
Brown, Daniel T., Pawtucket, R. I. Clothes-drier	695,525	Mar. 18	2242	506	98	2218
Brown, Edwin H. (See Foote, Theodore M., assignor.)						
Brown, Egbert B., Maywood, Ill. Safety-pocket	693,368	Feb. 18	2188	479	98	1294
Brown, Frank E., Concord, N. H. Key-holder	690,396	Jan. 7	21	5	98	7
Brown, George, Santiam, Oreg. Animal-trap	695,905	Mar. 25	2980	663	98	2573
Brown, George W., Boston, Mass. Holder for non-fluid lubricants	694,609	Mar. 4	580	115	98	1625
Brown, Harold P. (See Hobbs, Charles M., assignor.)						
Brown, Harry N. (See Brown, Johnsand H. N.)						
Brown, James O., Boston, Mass. Terminal for speaking-tubes	690,557	Jan. 7	364	74	98	79
Brown, Joel H., Junction, Ariz. Ter. Dust-guard for hose-couplings	693,781	Feb. 18	2967	652	98	1453
Brown, John, Belfast, Ireland. Railway, tramway, or the like	694,129	Feb. 25	3644	806	98	1610
Brown, John and H. N., Peterborough, England. Tape-needle	695,788	Mar. 18	2706	615	98	2312
Brown, John W., and G. Elick, assignors to Collins Plow Company, Quincy, Ill. Four-horse evener for gang-plows	694,610	Mar. 4	582	116	98	1666
Brown, Mark A., assignor of one-half to W. O. Paxson, Douglas, Ga. Coupling device	691,109	Jan. 14	1393	315	98	806
Brown, Nathaniel E., Aitkin, Minn. Bicycle	695,810	Mar. 25	3744	837	98	2641
Brown, Perry, Wilmington, Del. Journal-box	693,997	Feb. 25	3410	750 751	98	1502
Brown, Perry, Wilmington, Del. Car-coupling	693,998	Feb. 25	3413	751 752	98	1503
Brown, Robert S., New Britain, Conn. Recessing-machine	692,354	Feb. 4	23	5, 6, 7	98	802
Brown and Sharpe Manufacturing Company. (See Gabriel, Charles R., assignor.)						
Brown, Theodore P. (See Welin, Peter, assignor.)						
Brown, Theodore P., Worcester, Mass. Governing device for pneumatic piano-players	692,978	Feb. 11	1411	306	98	1115
Brown, Theodore P., Worcester, Mass. Winding mechanism	695,090	Mar. 25	3373	740	98	2442
Brown, Thomas B. (See Jolliffe, Morgan, assignor.)						
Brown, Thomas P., Riverside, Cal. Tree-support	694,247	Feb. 25	3663	656	98	1653
Browne, John E. H. (See Allen and Browne.)						
Browne, William G., Kingston, N. Y. Ice-pick	690,899	Jan. 7	869	197	98	188
Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Photographic camera	691,592	Jan. 21	2309	519 520	98	515
Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Focusing device for photographic cameras	692,610	Feb. 4	697	102	98	941
Brownell, Frank A., assignor to Eastman Kodak Company, Rochester, N. Y. Shutter for photographic cameras	693,583	Feb. 18	2709	575	98	1370
Browning, William B., assignor of one-half to F. Heywood, Minneapolis, Minn. Machine for cutting blanks for paper or strawboard boxes	694,736	Mar. 4	744	164 165	98	1669
Brownrigg, John J., and J. K. Norstrom, assignors to themselves, J. E. Norling, F. A. Lundquist, Chicago, and P. O. Norling, Galva, Ill. Automatic telephone system	696,161	Mar. 25	3447	773	98	2490
Brucker, Francis. (See Stump and Brucker.)						
Bruckman, John. (See McFarland, James D., Jr., assignor.)						
Brueckner, Clemens O., Fort Wayne, Ind. Purifying water	692,979	Feb. 11	1413	.....	98	1115
Bruger, Theodor, assignor to Hartmann & Braun, Actiengesellschaft, Frankfort-on-the-Main, Germany. Electric meter	695,148	Mar. 11	1553	344	98	2058

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Brüggemann, August, Breslau, assignor to Deutsche Waffen-und Munitionsfabriken, Karlsruhe in Baden, Germany. Air-brake system	694,525	Mar. 4	368	81	98	1791
Brumfield, Charles W. (See Higgins, Benjamin F., assignor.)						
Brun, Camille and G., St. Etienne, France. Weft-replenishing mechanism for looms	691,043	Jan. 14	1283	291	98	283
Brun, Gustave. (See Brun, Camille and G.)						
Bruner, Martin, Buckland, Ohio. Running-gear for vehicles	690,923	Jan. 14	1050	226	98	236
Bruner, Martin, Buckland, Ohio. Shocking attachment for wagons	694,726	Mar. 4	747	166	98	1870
Bruner, Preston M., Lebanon, Ill. Illuminated area-spanning pavement	698,586	Feb. 18	2604	576	98	1380
Bruner, William H. (See Lloyd, Edwin L., assignor.)						
Bruning, Rudolph, New York, N. Y. Window-guard	696,228	Mar. 25	3502	798	98	2502
Brunnemer, William T. M., Bradley, assignor to David Bradley Manufacturing Company, Chicago, Ill. Seeding-machine	698,584	Feb. 18	2602	575 576	98	1380
Brunton, David W., Denver, Colo. Mine-timber	692,111	Jan. 28	3289	744 745	98	732
Brush, Frederick F., New York, N. Y., assignor to N. A. Christensen, Milwaukee, Wis. Controlling apparatus for electric motors	692,779	Feb. 4	987	224	98	999
Brush, John T. (See Cox, Henry G., assignor.)						
Bruun, Julius, and P. Stricker, Copenhagen, Denmark. System of obtaining power from volatile liquids	695,859	Mar. 18	2836	644	98	2339
Bryan, Clarence H., assignor of one-half to J. Webster, Chicago, Ill. Rubber tire	692,980	Feb. 11	1414	307	98	1116
Bryan, Dempsey T., Rockymount, N. C. Back-band buckle	694,727	Mar. 4	749	167	98	1870
Bryan, Henry, Modesto, Cal. Gang-plow	695,389	Mar. 25	3363	871	98	2577
Bryan, Lindsay M., Cincinnati, Ohio. Fountain-pen	692,049	Jan. 28	3179	717	98	709
Bryan, Lindsay M., Cincinnati, Ohio. Bosom-pad for shirts	696,226	Feb. 11	1919	417	98	1218
Bryan, Simpson S., Brooklyn, N. Y. Bookkeeper's stool	691,981	Jan. 28	2956	665	98	667
Bryant, Anzlo B., Kingston, Canada. Carriage-gear	693,586	Feb. 18	2607	576	98	1381
Bryant, Fred L. (See Morrison and Bryant.)						
Bryant, William S., Cohasset, Mass. Wave-motor	692,430	Feb. 4	345	85	98	871
Bryant, William S., Cohasset, Mass. Wave-motor	693,209	Feb. 18	2184	490	98	1294
Bryce, Ira M., *et al.* (See Culpepper, Robert S., assignor.)						
Bube, Hans, Bothfield, Germany. Calipers	693,536	Feb. 18	2597	551	98	1361
Buchanan, Frank S., Kansas City, Kans. Automatic hay-press	694,827	Mar. 4	941	209	98	1912
Buchanan, Greenlee D., Jacksonville, Fla. Compressed-air water-elevator	695,682	Mar. 18	2439	551	98	2258
Buchanan, Judson, Chattanooga, Tenn., assignor to Chattanooga Plow Co. Wheel-plow	695,906	Mar. 25	2951	663	98	2373
Buck, William T., Freehold, N. J. Stove-truck	694,948	Feb. 25	3865	857	98	1654
Buckham, George T. (See Dawson and Buckham.)						
Buckingham, George F., London, England. Apparatus for manufacturing blocks of ice	695,907	Mar. 25	2953	664	98	2374
Buckland, Seth J., Springfield, Mass. Take-up device for trolley-cords	692,421	Feb. 4	346	85, 86	98	871
Buckland, Seth J., Springfield, Mass. Water shed or deflector for trolley poles and ropes	692,422	Feb. 4	351	86	98	872
Buckley-Hart Manufacturing Company. (See Anderson, William C., assignor.)						
Buckley, John D., and E. H. Phinney, assignors of part to J. D. Buckley, J. W. and G. L. Chase, Brunswick, Me. Trolley-pole base	691,236	Jan. 14	1617	369	98	352
Budach, Gustav F., Flensburg, Germany. Smith's pliers or tongs	694,898	Mar. 4	943	209	98	1912
Budd, Melvin L. (See Budd, Otis W. and M. L.)						
Budd, Otis W. and M. L., Westerville, Ohio. Plow	694,949	Feb. 25	3866	857	98	1654
Budke, Conrad, Jr., St. Louis, Mo. Electric signal	692,423	Feb. 4	352	86	98	872
Budke, John F., Canonsburg, Pa. Crate for rolls	698,104	Feb. 11	1647	359	98	1163
Buek, Charles E. (See Geer, George, assignor.)						
Buell, Charles E., North Plainfield, N. J. Explosive fire-alarm	698,289	Feb. 11	1624	418	98	1219
Buell, Warren C., assignor to E. C. Atkins & Company, Indianapolis, Ind. Handsaw	691,287	Jan. 14	1618	369	98	353
Bufe, Alfred. (See Rohleder, Robert, assignor.)						
Buffum, Herbert H., Abington, Mass. Engine	698,782	Feb. 18	2958	652	98	1454
Bugg, Owen T., Jr., assignor to United States Battery Company, New York, N. Y. Electrical storage battery	695,707	Mar. 18	2580	579	98	2281
Bunce, Earl M., Bronson, Mich. Fence-post	698,947	Feb. 25	3894	725	98	1589
Bundy, Willard H., Binghamton, N. Y. Workman's time-recorder	695,198	Mar. 11	1682	362 363	98	2074
Bunnell, Morton G., assignor to F. C. Austin, Chicago, Ill. Crushing-machine	691,598	Jan. 21	2312	520	98	516
Bunte, John. (See Scrimgeour and Bunte.)						
Burcharts & Co., M. C. (See Rösgen, Heinrich, assignor.)						
Burden, William H., Wilkinsburg, Pa. Device for delivering and igniting matches	695,780	Mar. 18	2706	615	98	2312
Burdett-Rowntree Manufacturing Company. (See Rowntree, Harold, assignor.)						
Burdick, Justin H., Milton, Wis. Air-compressing apparatus	692,494	Feb. 4	353	87	98	873
Burdick, Leo J., Sturgis, Mich. Cyclometer and register mechanism	695,596	Mar. 18	2243	506 507	98	2218
Burdon, David P., assignor of one-half to W. and W. F. Clarke, Jacksonville, Fla. Liquid-elevating system	698,813	Feb. 18	3014	666 667	98	1465
Burger, Franz, assignor of three-fourths to H. M. Williams, Fort Wayne, Ind. Compensating gear-wheel for motor-cars	692,177	Jan. 28	3297	709	98	754
Burger, Franz, assignor of three-fourths to H. M. Williams, Fort Wayne, Ind. Electric igniter for gas-engines	694,250	Feb. 25	3857	857	98	1654
Burger, Franz, assignor to himself and H. M. Williams, Fort Wayne, Ind. Grate	698,898	Feb. 25	3057	674	98	1498
Burger, Franz, and H. M. Williams, Fort Wayne, Ind.; said Burger assignor of one-half to said Williams. Steam-boiler	691,044	Jan. 14	1285	291 292	98	283
Burger, Franz, and H. M. Williams, Fort Wayne, Ind.; said Burger assignor of one-half to said Williams. Fuel-feeding mechanism for furnaces	698,889	Feb. 25	3059	675	98	1498
Burger, Jacob, and C. C. Kemp, Randall, Kans. Rain-water strainer and filter	698,493	Feb. 18	2417	528	98	1343
Burgess, Andrew, Owego, N. Y. Automatic gun	698,105	Feb. 11	1649	360	98	1164
Burgess, Andrew, Owego, N. Y. Automatic gun	698,106	Feb. 11	1658	360	98	1164
Burgess, James C., assignor of one-half to H. H. Newby, Sheridan, Ind. Cold-iron punch	691,262	Jan. 28	2957	666	98	667
Burgess Sulphite Fibre Company. (See Burgess, Theodore P., assignor.)						
Burgess, Theodore P., Berlin, N. H., assignor to Burgess Sulphite Fibre Company, Boston, Mass. Apparatus for separating clean from refuse chips in the manufacture of wood-pulp	693,684	Feb. 18	2790	614	98	1419
Burgin, Welby W., Richmond, Ky. Chip-blowing attachment for dental engines	694,595	Mar. 4	909	81	98	1791
Burgum, John, Rio Janeiro, Brazil. Flushing apparatus	692,611	Feb. 4	708	162 163	98	943
Burk, Michael F. (See Kenison, Burk, and Perkins.)						
Burke, James, Minneapolis, Minn. Pipe-coupling	698,880	Feb. 25	3061	675	98	1498
Burke, Stephen E., Edon, Ohio. Windmill	695,443	Mar. 18	2070	467	98	2183
Burkey, David H., Allegheny, Pa. Weather-strip	698,230	Feb. 11	1926	419	98	1220
Burleson, Andrew M., Kansas City, Kans. Pork-loining machine	698,894	Feb. 11	1078	242 243	98	1045
Burmeister, Eduard. (See Trails, Leberecht, assignor.)						
Burnet, Hugh, Victoria, Canada. Bicycle-support	698,370	Feb. 18	2185	480	98	1295

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Burnette, Jeremiah J. M., Spearfish, S. D. Neck-yoke	696,311	Mar. 25	3745	837 838	98	2541
Burnham, Arthur M., assignor of one-half to L. B. Libby, Gardiner, Me. Mail-bag	698,178	Jan. 28	2999	769 770	98	755
Burnham, Williams and Company. (See Vauclain, Samuel M., assignor.)						
Burnison, Fred, *et al.* (See Darwin, Frank L., assignor.)						
Burnison, John, *et al.* (See Darwin, Frank L., assignor.)						
Burns, Henry H., *et al.* (See Dempster, Robert, assignor.)						
Burns, John A., New York, N. Y. Rolling-stock	695,709	Mar. 18	2568	579 580	98	2261
Burr, John M., Norwalk, Conn. Glass float	691,380	Jan. 21	2197	494	98	498
Burrell & Company, D. H. (See Just, John A., assignor.)						
Burrell, Horace H., *et al.* (See Gombar, Amos B., assignor.)						
Burress, Charles E., Wichita, Kans. Adjustable chimney-top	696,539	Feb. 18	2508	551	98	1361
Burridge, Lee S., New York, N. Y., assignor to Union Typewriter Company, Jersey City, N. J. Ribbon mechanism for type-writing machines	692,235	Feb. 4	33	7, 8	98	805
Burrows, George H., Somerville, Mass. Air and gas mixing and supplying apparatus	694,611	Mar. 4	533	116	98	1525
Burrows, Joseph A., Akron, Ohio. Device for bringing together the ends of solid-rubber tires in tire-setting machines	698,881	Feb. 25	3092	676	98	1494
Burrows, Leonard S., Chicago, Ill. Curtain	698,107	Feb. 11	1655	360	98	1165
Burson, Amos, Canonsburg, Pa. Holder for papers, envelops, &c	695,980	Mar. 18	2536	644	98	2339
Burt Company. (See Hoyt, William H., assignor.)						
Burt, George, Terre Haute, Ind. Music-holder	692,612	Feb. 4	704	163	98	943
Burt, Townsend W. (See Titus, Burt, and Smith.)						
Burt, William J., assignor of one-fourth to W. H. Smiley, Niles, Ohio. Motor-vehicle	690,820	Jan. 7	890	197	98	188
Burton, Charles A. (See Toole, Augustus H., assignor.)						
Burton, George D., Boston, Mass. Electric metal-working apparatus	696,004	Mar. 25	3100	702	98	2407
Busch, William H., Stewardson, Ill. Drinking-fountain for fowls	690,851	Jan. 7	892	197	98	189
Busch, Willy, Ober-Ursel, Germany. Machine for forming knotted loops on bags, papers, &c	692,764	Feb. 4	963	217 218 219	98	994
Buschmann, William, Haledon, N. J. Liquid-scale	691,110	Jan. 14	1365	315	98	368
Bush, Andrew J., Kaufman, assignor of one-half to A. C. Green, Palestine, Tex. Tobacco-stemming machine	694,130	Feb. 25	3646	06	98	1610
Bush, Luther S. (See Crook, Charles, Jr., assignor.)						
Bush, Zachariah T., Grandledge, Mich. Vehicle-spring	692,613	Feb. 4	705	163	98	944
Bushnell, Martin H., and B. F. Starsky, Hazelhurst, Pa. Garment-hanger	692,112	Jan. 28	3291	745	98	782
Busse, William H. (See Barnd and Busse.)						
Bussey, Herbert L. (See Donald and Bussey.)						
Butkus, John A. (See Butkus, Joseph and J. A.)						
Butkus, Joseph and J. A., Baltimore, Md. Bottle-stopper	694,131	Feb. 25	3648	906	98	1611
Butkus, Joseph and J. A., Baltimore, Md. Bottle-stoppering machine	694,132	Feb. 25	3649	907	98	1611
Butler, Arthur C., Wollaston, Mass. Tension-regulator for spinning or twisting machines	691,594	Jan. 21	2214	501	98	516
Butler, David, Border City, N. Y. Window-balcony	693,271	Feb. 18	2186	480	98	1295
Butler, Edward, Jr. (See Surtin, John H., assignor.)						
Butler, H. S. (See Kirkpatrick, Robert S., assignor.)						
Butler, Harry H., and W. A. Dalley, Brockwayville, Pa. Waste-cock	696,091	Mar. 25	3276	741	98	2443
Butler, Thomas H., and O. Hammond, Baltimore, Md. Ice-machine	691,238	Jan. 14	1619	370	98	355
Butler, Thomas H., and O. Hammond, Baltimore, Md. Rod-packing	691,898	Jan. 28	2896	652	98	854
Butt, Albert L., Russellville, Ky. Calculating device	690,994	Jan. 14	1051	236 237	98	236
Butte, Charles F., assignor to P. C. F. Butte, San Francisco, Cal. Self-ejecting plug for telephone-switchboards	692,004	Jan. 28	3092	695	98	892
Butte, Charles F., assignor to P. C. F. Butte, San Francisco, Cal. Automatic electric switch	692,005	Jan. 28	3096	696	98	893
Butte, Paul C. F. (See Butte, Charles F., assignor.)						
Butterfield, Isaac C. (See Underwood and Butterfield.)						
Butterfield, John W., and B. C. Schmitt, Columbus, Ohio. Machine for applying paste to labels	698,882	Feb. 25	3068	676	98	1494
Butterfly Manufacturing Company. (See Matteson and McArthur, assignors.)						
Butts, Charles W., Sag Harbor, assignor to Fahys Watch-Case Company, New York, N. Y. Watchcase-pendant	690,558	Jan. 7	866	74	98	80
Butts, Frederick P., New York, N. Y. Freight-car	694,062	Feb. 25	3524	775 776	98	1585
Butz, Samuel, Easton, Pa. Shirt	694,133	Feb. 25	3052	897	98	1612
Buzzell, John G., Lynn, Mass. Machine for concaving the breasts of heels	698,883	Feb. 25	3065	677	98	1494
Bybee, S. C., *et al.* (See Darwin, Frank L., assignor.)						
Bye, John J. (See Robbins, Bye, and Jones.)						
Byrne, Timothy. (See O'Neill and Byrne.)						
C. B. Cottrell & Sons Company. (See Cottrell, Charles P., assignor.)						
Cain, Charles E., Waupaca, Wis., assignor of one-half to I. C. Edwards, Minneapolis, Minn. Thill or pole coupling	695,080	Mar. 11	1339	296	98	3012
Caldwell, Charles W., assignor to Apollo Acetylene Gas Company, Chicago, Ill. Acetylene-gas generator	692,614	Feb. 4	706	163 164	98	944
Caldwell, John, assignor to W. S. Nott Company, Minneapolis, Minn. Leather-stretching device	690,897	Jan. 7	21	5	98	8
Caldwell, John, assignor to W. S. Nott Company, Minneapolis, Minn. Leather-stretching device	692,615	Feb. 4	709	164	98	944
Caldwell, William M. (See Schussler, John H., assignor.)						
Calef, Joseph W., New Easton, Mass. Non-refillable-bottle stopper	698,884	Feb. 25	3067	677	98	1495
Callahan, Charles H., Cedartown, assignor of one-half to P. F. Akin, Cartersville, Ga. Stamp for printing on inner or outer surfaces of cones, cylinders, and curved surfaces	692,616	Feb. 4	710	164	98	945
Callahan, Matthew H., Aspen, Colo. Grapple	692,113	Jan. 28	2893	745	98	782
Callahan, Matthew H., Aspen, Colo. Building-support	692,179	Jan. 28	3401	770	98	755
Callan, John G. (See Thomson and Callan.)						
Callen, Joseph S., Shenandoah, Pa. Crushed-ice holder	696,102	Mar. 25	3450	773	98	2481
Callister, Thomas, New York, N. Y. Wagon-brake	692,114	Jan. 28	2894	745 746	98	782
Calloch, Charles E., La Flèche, France. Self-propelled vehicle	692,961	Feb. 11	1416	307 308	98	1116
Calumet Tire Rubber Company. (See Kinney and Price, assignors.)						
Camden Iron Works. (See Jensenius, Herman A., assignor.)						
Camp, Napoleon L. (See Ward, Richard B., assignor.)						
Campbell, Alonzo C., Asheville, N. C. Coal-washer and ore-concentrator	695,790	Mar. 18	2708	615 616	98	2312

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Campbell, Colin, assignor to J. S. Mundy, Newark, N. J. Hoisting-engine	692,780	Feb. 4	990	224, 225	98	999
Campbell, Eugenia C., San Francisco, Cal. Insufflator	693,587	Feb. 18	2608	576	98	1381
Campbell, Frank, Haynesville, assignor of one-third to F. A. Peabody, Houlton, Me. Shingle-packer	693,783	Feb. 18	2959	652, 653	98	1454
Campbell, Henry, Baltimore, Md. Heating material	693,835	Feb. 25	3070	677	98	1495
Campbell, Henry W., *et al.* (See Bangley, Joseph L., assignor.)						
Campbell, Howard S., Baltimore, Md., assignor of one-third to C. D. Nicolai, Washington, D. C. Gas-burner	693,836	Feb. 25	3072	678	98	1495
Campbell, Ike W., Mexia, Tex. Bedstead-brace	691,352	Jan. 21	1882	424	98	427
Campbell, John, New York, N. Y. Hoof-pad	691,111	Jan. 14	1385	315	98	303
Campbell, Joseph L., Butler, Pa. Rail-joint	694,184	Feb. 25	3653	807	98	1612
Campbell, Leon W., Woonsocket, R. I. Spinning or twisting machine	690,684	Jan. 7	511	111	98	110
Campbell, Leon W., Woonsocket, R. I. Spinning or twisting frame	690,694	Jan. 7	625	136	98	192
Campbell, Loudoun, Washington, D. C., assignor of one-half to R. J. Thomas, Alexandria, Va. Fire-alarm apparatus	692,765	Feb. 4	965	219	98	994
Campbell, Olin J., and J. B. Beam, Bigrun, Pa.; said Beam assignor to said Campbell. Composition for repairing bicycle-tires	690,908	Jan. 7	1010	.....	98	212
Campbell Printing Press & Manufacturing Company. (See Stonemetz, John H., assignor.)						
Campbell Printing Press & Manufacturing Company. (See Wood, Henry A. W., assignor.)						
Campbell, William B., Campbell-Croft, Canada. Feed-distributer	691,439	Jan. 21	2042	457	98	461
Campbell, Wright H., Carbondale, Pa. Automatic brake mechanism	696,812	Mar. 25	3751	888, 889	98	2542
Campbell, Zenas Z., South Bend, Ind. Wagon-box	694,941	Mar. 11	1162	254	98	1077
Camper, H. W., *et al.* (See Martenette, Frank L., assignor.)						
Camper, Harry H., *et al.* (See Martenette, Frank L., assignor.)						
Canale, John D., Memphis, Tenn. Game	692,617	Feb. 4	711	165	98	945
Canaple, Eugène, and F. Thiébaux, Germigny-l'Evêque, France. Pawl-and-ratchet wrench	694,251	Feb. 25	3369	858	98	1655
Canby, Ach & Canby Company. (See Bernhard, George, assignor.)						
Canda, Ferdinand E., New York, N. Y. Circuit-breaker for electric igniters for explosive-engines	693,372	Feb. 18	2188	480	98	1295
Candlish, James, Rawlings, Wyo. Combined bridle and halter snap-hook	690,382	Jan. 7	893	198	98	189
Candlish, James, Rawlings, Wyo. Bolt cutter and trimmer	694,829	Mar. 4	943	210	98	1912
Canedy Otto Manufacturing Company. (See Canedy, William E., assignor.)						
Canedy, William E., Chicago Heights, Ill., assignor to Canedy Otto Manufacturing Company. Motor-gearing	693,887	Feb. 25	3074	678	98	1496
Canedy, William E., Chicago Heights, Ill., assignor to Canedy Otto Manufacturing Company. Chimney for blacksmiths' forges	693,888	Feb. 25	3076	678	98	1496
Canfield, Frank, *et al.* (See Colman, Charles, assignor.)						
Canfield, Lewis T., Scranton, assignor to Sterlingworth Railway Supply Company, Easton, Pa. Metal freight-car	690,559	Jan. 7	868	74	98	80
Cannon, Burrell, Pittsburg, Tex. Marine propeller	695,276	Mar. 11	1785	396	98	2105
Cannon, Francis M., McKeesport, Pa. Weather-strip	694,135	Feb. 25	3654	807	98	1612
Cantono, Eugenio, Rome, Italy. Electromechanical device for electric traction	693,226	Feb. 4	36	8	98	806
Cap, John W., Newark, N. J. Revolving indicator	695,906	Mar. 25	2984	664, 665	98	2374
Capen, Thomas W. (See Gates and Capen.)						
Capewell, George J., Hartford, Conn. Nippers	690,925	Jan. 14	1058	237	98	237
Capewell, George J., Hartford, Conn. Metallic garment-button	691,743	Jan. 28	2619	587	98	598
Capewell, George J., Hartford, Conn. Bearing for journals, shafts, or rotating columns	693,922	Feb. 11	1418	309	98	1116
Cappeau, Joseph P., Joplin, Mo. Ore-roasting furnace	691,112	Jan. 14	1386	315, 316	98	303
Cardwell Machine Company. (See Goodwin, James D., assignor.)						
Carey, Augustus C., Lake Pleasant, Mass. Coin-controlled vending-machine	690,926	Jan. 14	1054	237, 238	98	237
Carey, Benjamin F., Washington, D. C. Garment-hanger	696,005	Mar. 25	3104	708	98	2407
Carey, Patrick W. (See Dempsey, James T., assignor.)						
Carlgren, Knut W., East Millcreek, Utah. Animal-trap	691,335	Jan. 14	1350	419	98	404
Carliss, Albert, assignor to American Electric Telephone Company, Chicago, Ill. Operator's key	693,395	Feb. 11	1081	243	98	1045
Carlson, Charles G., and W. A. Mayr, Chicago, Ill. Easel-leg for curtain-stretchers	692,896	Feb. 11	1084	243	98	1046
Carlson, John E., Bristol, Conn. Knife	690,987	Jan. 14	1058	238	98	236
Carnahan, Cyrus M., Allegheny, Pa. Building construction	693,494	Feb. 18	2418	528, 529	98	1343
Carnahan, Cyrus M., Allegheny, Pa. Car-truck	694,942	Mar. 11	1164	254, 255	98	1077
Carnes, John W., assignor of one-half to G. Walker, Pierce, Ohio. Roofing-tile	691,259	Jan. 14	1619	370	98	353
Carney, Estes, Prairiegrove, Ark. Portable sawmill	695,194	Mar. 11	1689	364	98	2076
Carney, Thomas, Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	696,294	Mar. 25	3563	798	98	2503
Carolin, James B., Newark, N. J. Hose-supporter	691,440	Jan. 21	2043	458	98	461
Carpenter, John C., Canton, Ohio. Mucilage-bottle	692,237	Feb. 4	38	8	98	806
Carpenter, Lewis A., and S. Mahony, Revere, Mass. Submarine boat	691,358	Jan. 21	1983	434	98	427
Carpenter, Rolla C., Ithaca, N. Y., assignor to Atlas Portland Cement Company. Feeding fine fuel	691,336	Jan. 14	1382	419	98	404
Carpenter, Rolla C., Ithaca, N. Y., assignor to Atlas Portland Cement Company. Apparatus for feeding fine fuel	691,337	Jan. 14	1385	419	98	405
Carpenter, Stephen D., E. R. Stevens, and C. K. Tenney, Madison, Wis. Voting-machine	694,830	Mar. 4	945	210	98	1912
Carr, Caroline, Sunderland, England. Non-refillable bottle	693,766	Feb. 4	969	219	98	995
Carr, Edward F., Los Angeles, Cal. Display-box	692,618	Feb. 4	713	165	98	945
Carr, Hugh S., Lawrence, Kans. Apparatus for determining the frequency of alternating currents	691,441	Jan. 21	2044	458	98	461
Carr, John C., Burlington, Ind. Eaves-trough	691,744	Jan. 28	2630	597	98	598
Carr, Julian S. (See Egan, Charles E., assignor.)						
Carrick, William, Boston, Mass. Sash-fastener	694,612	Mar. 4	534	116	98	1897
Carroll, John J., assignor to National Malleable Castings Company, Cleveland, Ohio. Apparatus for marking castings	691,442	Jan. 21	2046	458	98	461
Carroll, John J., assignor to National Malleable Castings Company, Cleveland, Ohio. Mold for casting	694,315	Feb. 25	4058	902	98	1685
Carroll, Wilson J., Denver, Colo. Cash-register	694,597	Mar. 4	871	92	98	1791
Carson, Frank W., Shelby, Ohio. Steam-cooker	694,942	Mar. 11	1166	255	98	1978
Carson, George C., Redding, Cal. Apparatus for treating metals	694,348	Mar. 4	15	4	98	1716

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Carson, Robert J., Buffalo, N. Y., and E. D. Cundell, Paterson, N. J.; said Carson assignor to C. G. Holzapfel, New York, N. Y. Cascade-tumble	695,444	Mar. 18	2074	469	98	2184
Carstanjen, Max, assignor to Firm of Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg, A.-G., Nuremberg, Germany. Flood-gate dam or weir	692,619	Feb. 4	714	165	98	945
Carter, Byron B. (See Tullock, Modjeski, and Carter.)	690,695	Jan. 7	515	112	98	110
Carter, Ezra W., Cohoes, N. Y. Garment-supporter	698,881	Feb. 11	1227	419	98	1280
Carter, Francis A., Chicago, Ill. Device for severing bolts, rivets, &c	695,081	Mar. 11	1340		98	2012
Carter, Henry L., New York, N. Y. Elastic plaster	696,006	Mar. 25	5105	708	98	2407
Carter, Hiram C., Groesbeck, Tex. Bolt-holder	691,595	Jan. 21	2316	521	98	517
Carter, James D., Baker City, Oreg. Fruit-gatherer						
Carter, John R. (See Hausfeld and Carter.)						
Carter, John R., Augusta, Ky., assignor to E. H. Huenefeld, Cincinnati, Ohio. Connecting device	694,459	Mar. 4	238	51	98	1763
Carter, Nancy, Yazoo City, Miss. Flow-preventer	692,690	Feb. 4	716	165	98	946
Carter, Robert A. (See Scrimgeour and Bunte, assignors.)						
Carter, Robert H., Kimbolton, New Zealand. Ax-head and handle therefor	695,669	Mar. 18	2497	567	98	2370
Carter, William J., Brockton, Mass. Electric time-switch	690,838	Jan. 7	594	136	98	189
Cary, Henry B., Los Angeles, Cal. Voting-machine	694,568	Mar. 4	377	88, 88	98	1798
Case, Frank E., Schenectady, N. Y., assignor to General Electric Company. Electric brake	695,144	Mar. 11	1554	345	98	2066
Case, George A., Joplin, Mo. Railway-rail	692,115	Jan. 28	3296	746	98	788
Case, George L., Minneapolis, Minn. Back for stools	695,095	Feb. 18	2792	615	98	1419
Casein Company of America. (See Dunham, Henry V., assignor.)						
Casgrain, Louis A., Winchester, Mass., assignor, by mesne assignments, to United Shoe Machinery Company. Machine for inserting metallic fastenings	691,354	Jan. 21	1885	425	98	425
Casgrain, Louis A., Winchester, Mass., assignor to United Shoe Machinery Company, Boston, Mass., and Paterson, N. J. Machine for inserting fastenings	695,686	Feb. 18	2793	615 616	98	1420
Casler, Alonzo A., Mansfield, Ohio, assignor to T. B. Crary, Binghamton, N. Y. Washing-machine	695,909	Mar. 25	2957	665	98	2575
Casler, Alonzo A., Mansfield, Ohio, assignor to T. B. Crary, Binghamton, N. Y. Washing-machine	695,910	Mar. 25	2958	665	98	2575
Casler, Alonzo A., Mansfield, Ohio, assignor to T. B. Crary, Binghamton, N. Y. Bearing for washing-machines	695,911	Mar. 25	2959	665	98	2575
	693,282	Feb. 11	1981	419 420	98	1221
Casper, Charles H., Newark, N. J. Drier	694,849	Mar. 4	16	4	98	1716
Cassel, Henry R., New York, N. Y. Recovering gold from refractory ores						
Cassel, Henry R., New York, N. Y. Apparatus for recovering precious metals from refractory ores	694,350	Mar. 4	17	4	98	1716
Cassella & Co., Leopold. (See Kertesz, Adolf, assignor.)						
Cassella & Co., Leopold. (See Weinberg and Herz, assignors.)	694,460	Mar. 4	234	52	98	1762
Casterline, Barnabas J., Olalla, Oreg. Stove-damper regulator	691,443	Jan. 21	2047	455	98	461
Castle, Oliver H., Indianapolis, Ind. Suction-valve						
Cataract Tool and Optical Company. (See De Zeng, Henry L., Jr., assignor.)	690,824	Jan. 7	396	198 199	98	199
Cates, William A., Fisher, Wash. Fruit-drier	691,113	Jan. 14	1333	316	98	304
Catlin, Alice M., Montrose, Colo. Educational appliance						
Caudry, Bailey C., and C. F. Deplanty, Coffeyville, Kans.; said Deplanty assignor to said Caudry. Needle for self-binding harvesting-machines	691,240	Jan. 14	1320	270	98	853
Cavanagh, John E., Cloquet, Minn. Water-circulating system for steam-boilers	695,085	Mar. 11	1439	317 318	98	2063
Cavanagh, John E., Cloquet, Minn. Smoke-burning furnace	695,089	Mar. 11	1441	319	98	2064
Cavanagh, Joseph R., J. B. Hannan, and J. D. Clarke, Indianapolis, Ind. Car-record device	692,116	Jan. 28	3297	746	98	783
	698,948	Feb. 25	3996	735 736	98	1539
Cavenaugh, Ralph W., St. Paul, Minn. Automatic smoke-preventer				210 211	98	1913
Cavett, William A., Laplata, Mo. Horse hay-rake	694,881	Mar. 4	946			
Cavicchi, Hercules, Barre, Vt. Grinding or polishing apparatus	692,425	Feb. 4	356	87	98	873
Cawthorn, James T., assignor of one-half I. A. Eacutt, Chicago, Ill. Type-cleaning device	694,136	Feb. 25	3525	808	98	1612
	691,444	Jan. 21	2049	459	98	462
Cecil, Charlie C., Orafino, Nebr. Float-valve						
Cellulose Products Company. (See Little, Arthur D., assignor.)						
Century Milk Company. (See Price, Theodore H., assignor.)						
Century Stopper Company. (See Strebel and Williams, assignors.)				87 88		
Cerebotani, Luigi, Munich, Germany. Transmitter for Morse alphabet and printing telegraphy	692,426	Feb. 4	357		98	874
				507 508 509		
Cerebotani, Luigi, assignor of one-half to C. Moradelli, Munich, Germany. Printing-telegraph	695,537	Mar. 18	2347		98	2219
	692,504	Feb. 4	496	116	98	900
Chace, Malcolm G., Central Falls, R. I. Means for cutting corduroy cloth						
Chadbourne, Joseph H., *et al.* (See Pierce, John, assignor.)	695,082	Mar. 11	1341	305	98	2013
Chadbourne, Zebulon L., New Brighton, N. Y. Hammock	695,572	Mar. 11	1958	437	98	2141
Chadbourne, Zebulon L., New Brighton, N. Y. Hanger-eye for hammocks	695,573	Mar. 11	1959	437 438	98	2141
Chadbourne, Zebulon L., New Brighton, N. Y. Take-up mechanism for looms	695,574	Mar. 11	1960	438	98	2141
Chadbourne, Zebulon L., New Brighton, N. Y. Hammock	695,791	Mar. 18	2711	616 617	98	2313
Chadbourne, Zebulon L., New Brighton, N. Y. Weaving-machine	695,792	Mar. 18	2714	617 618 619 620	98	2314
Chadbourne, Zebulon L., New Brighton, N. Y. Hammock-loom	693,282	Feb. 11	1983	420	98	1221
Chadwick, Richard U., Philadelphia, Pa. Drying-cylinder	691,306	Jan. 14	1764	401 402	98	383
Chain, Elmer E., Boston, and W. B. Turner, Melrose, assignors to Turner Tanning Machinery Company, Boston, Mass. Leather-working machine	691,307	Jan. 14	1768	402 403	98	383
Chain, Elmer E., Boston, and W. A. Copeland, Melrose, assignors to Turner Tanning Machinery Company, Boston, Mass. Leather-working machine	694,944	Mar. 11	1168	235	98	1975
Challinger, Joseph, Walsall, assignor to Yost Typewriter Company, Limited, London, England. Automatic keyboard for teaching type-writing	695,798	Mar. 18	2720	630	98	2315
Chamberlain Metal Weather Strip Company. (See Kenny, Hugh E., assignor.)	695,575	Mar. 11	1961	438	98	2141
Chamberlain, Morris, Bartley, N. J. Setting instrument						
Chamberland, Charles E., Paris, France. Filter	696,260	Mar. 25	3005	772	98	2578
Chamberlin, Edward, assignor of one-half to H. S. Pease, Cincinnati, Ohio. Adjustable shade-bracket	692,621	Feb. 4	717	169	98	946
Chamberlin, John, Flatrock, Mich. Stubble-cutter attachment for corn-harvesters						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Chamberlin, Richard H., Abington, assignor to Tackless Shoe Machinery Company, Boston, Mass. Lasting-machine	693,687	Feb. 18	2302	616, 617	98	1422
Chambers, Alden W., Nevada, Mo. Plaiting apparatus	691,241	Jan. 14	1622	370	98	354
Chambers, Fred D., assignor of one-fourth to F. E. Beatty, Washington, D. C. Rotary tool	691,596	Jan. 21	2317	521	98	517
Champ, Joseph H., Cleveland, Ohio. Tire-inflater	691,745	Jan. 28	2621	587, 588	98	598
Champ, Joseph H., Cleveland, Ohio. Coin-controlled apparatus	691,746	Jan. 28	2624	588, 589	98	599
Champ, Joseph H., Cleveland, Ohio. Tire-inflater	691,747	Jan. 28	2628	589, 590	98	600
Champion, Charles S., assignor to F. H. Richards, Hartford, Conn. Key-operated machine	693,378	Feb. 18	2189	481	98	1296
Champoux, John. (See Davis, George R. C., assignor.)						
Chance, Albert B., Centralia, Mo. Transfer-board for telephone or telegraph circuits	693,784	Feb. 18	2961	653	98	1454
Chandler & Barber. (See Barber, Daniel F., assignor.)						
Chandler, Clarence A., Worcester, Mass. Machine for grinding drills	690,398	Jan. 7	23	5	98	8
Chapin, Charles E., Greenwich, and W. E. Patchin, Bridgeport, Conn.; said Patchin assignor to said Chapin. Carbon-feeding device	693,495	Feb. 18	2420	529	98	1344
Chapin, Murray H., Bridgeport, Conn., assignor to Union Typewriter Company, Jersey City, N. J. Box for inking-ribbon spools	696,132	Mar. 25	3373	761	98	2406
Chaplin, Edwin D., Winchester, and H. O. Halloran, assignors to H. Dakin, Boston, Mass. Production of chlorin and alkaline hydrates electrolytically	695,033	Mar. 11	1342	295	98	2013
Chapman, Albert B. (See Thomas, Almer, assignor.)						
Chappel, Christopher C., Bono, Ark. Plow-colter-fastening device	694,351	Mar. 4	18	4	98	1716
Chappell, Howard F., Chicago, Ill. Rosin-soap for paper-size	694,728	Mar. 4	750	.....	98	1870
Chapson, John E. (See Hills and Chapson.)						
Charlton, Richard B., Milwaukee, Wis., assignor to Continuous Rail Joint Company of America. Apparatus for cooling fish-plates in the process of manufacture	691,355	Jan. 21	1595	495	98	429
Chase, Augustus C. (See Bass and Chase.)						
Chase, Edward, *et al.* (See Haas, Cyrus A., assignor.)						
Chase, Ella S., Old Orchard, Me. Device for tying bows	696,961	Mar. 25	3371	660	98	2564
Chase, George L., *et al.* (See Buckley and Phinney, assignors.)						
Chase, Isaac M., Washington, D. C. Marine propulsion	692,117	Jan. 28	3296	747	98	734
Chase, John W., *et al.* (See Buckley and Phinney, assignors.)						
Chattanooga Plow Co. (See Buchanan, Judson, assignor.)						
Cheatham Electric Switching Device Co. (See Cheatham, Robert V., assignor.)						
Cheatham, Robert V., assignor to Cheatham Electric Switching Device Co., Louisville, Ky. Electrically-controlled railway-switch	696,313	Mar. 25	3763	839, 840	98	2545
Chemische Fabrik auf Actien, vorm. E. Schering. (See Harries, Carl, assignor.)						
Chemische Fabrik auf Actien, (vorm E. Schering.) (See Wichmann and Gabler, assignors.)						
Chemische Fabrik Rhenania. (See Weber, Wilhelm, assignor.)						
Cheny, Albert V., *et al.* (See Logan, Crawford D., assignor.)						
Chesher, Harry, Philadelphia, Pa. Thumb-latch for doors	692,827	Feb. 11	1086	343	98	1046
Cheshire, Edward, assignor to White Sewing Machine Company, Cleveland, Ohio. Mail-marking machine	690,695	Jan. 7	626	137	98	132
Cheshire, Edward, assignor to White Sewing Machine Company, Cleveland, Ohio. Mail-marking machine	690,696	Jan. 7	630	137, 138, 139	98	133
Cheshire, Edward, Milwaukee, Wis., assignor to White Sewing Machine Company, Cleveland, Ohio. Mail-marking machine	690,697	Jan. 7	636	139, 140	98	134
Cheverette, Eugene, Fitchburg, Mass. Connection for loom picker-sticks	694,358	Mar. 4	20	5	98	1716
Chial, John, Lakepark, Minn. Combined horse-detacher and brake for vehicles	692,767	Feb. 4	970	220	98	995
Chicago Corset Company. (See Schopbach, Charles H., assignor.)						
Chicago Pneumatic Tool Company. (See Barrow, Thomas, assignor.)						
Chicago Pneumatic Tool Company. (See Moore, Edward Y., assignor.)						
Chicago Railway Equipment Company. (See Cornwall, Frederick R., assignor.)						
Chicago Railway Equipment Company. (See Farley, James, assignor.)						
Chicago Railway Equipment Company. (See Fassett, Francis K., assignor.)						
Chicago Railway Equipment Company. (See Huntoon, Charles F., assignor.)						
Chicago Railway Equipment Company. (See Wands and Cornwall, assignors.)						
Childers, Charles T., Galesburg, Ill. Spraying device	693,496	Feb. 18	2422	529	98	1344
Childers, Charles T., Galesburg, Ill. Revolving display-stand	693,497	Feb. 18	2423	529, 530	98	1344
Childs, Ira, *et al.* (See Shannon, Lemuel A., assignor.)						
Chinnery, Howard W., London, England. Apparatus for displaying advertisements	691,840	Jan. 28	2806	630	98	695
Chipman, William R., assignor of one-half to M. Blumenthal, New York, and F. G. Kune, Brooklyn, N. Y. Electrode for purifying liquids by electrolysis	694,933	Mar. 4	1145	.....	98	1954
Chisholm, Charles W. (See De Laval and Chisholm.)						
Chisholm, Stein. (See Greene and Chisholm.)						
Chitwood, Leonard P. (See Boring and Chitwood.)						
Choate, William B., Aurora, Ill. Pipe thimble or insulator	693,234	Feb. 11	1985	420	98	1292
Cholea, Frederick J., Pietermaritzburg, Natal. Sight for firearms	691,242	Jan. 14	1623	371	98	354
Christ, George H., *et al.* (See Webber, Frank I., assignor.)						
Christensen, Niels A. (See Brush, Frederick F., assignor.)						
Christensen, Niels A. (See Richards, Walter J., assignor.)						
Christian, Emil, Cassel, Germany. Zither	694,539	Mar. 4	982	84	98	1794
Christiansen, Andrew P., Gardnerville, Nev. Bicycle attachment	691,597	Jan. 21	2319	521	98	517
Christine, Samuel W., Washington, N. J. Watchmaker's tool	692,622	Feb. 4	718	166	98	946
Christopher, James B., assignor of one-half to E. Anderson, Marquette, Ill. Roller-bearing for cars	694,909	Mar. 4	1098	242	98	1944
Christopherson, Louis B., Stockton, assignor of one-half to M. M. Gillespie, San Francisco, Cal. Device for forming ornamental structures	691,598	Jan. 21	2320	522	98	518
Church, Frank S., assignor of one-half to L. Dolley, Sierra Valley, Cal. Hay-loading apparatus	691,714	Jan. 21	2533	567	98	563
Chwalla, Rudolf, Vienna, Austria-Hungary. Jacquard mechanism for looms	693,540	Feb. 18	2500	552, 553	98	1362
Cicotte, Joseph, assignor of one-half to A. Dumesnil, Louisville, Ky. Brick-kiln	694,316	Feb. 25	4060	902	98	1686
Claeys, Constant. (See Janin, John V., assignor.)						
Clairmont, Adolph de, Topeka, Kans. Exercising-machine	695,586	Mar. 18	2988	509	98	2319
Clamer, Guilliam H., Philadelphia, Pa. Producing metals	696,092	Mar. 25	3377	.....	98	2445
Clark, Alfred, Paris, France. Seal for phonographic records	692,623	Feb. 4	719	166	98	946
Clark, Alfred, Paris, France. Seal for phonographic records	692,624	Feb. 4	720	166	98	947
Clark, Amasa B., New York, N. Y. Piling	693,235	Feb. 11	1986	421	98	1292
Clark, David P., Dayton, Ohio. Locomotive toy	693,374	Feb. 18	2193	481	98	1297

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Clark, David P., Dayton, Ohio. Locomotive toy	693,375	Feb. 18	2195	481 482	98	1297
Clark, Devello P., assignor of one-half to A. W. Brown, Grand Rapids, Mich. Sparking igniter for combustible-vapor engines	692,625	Feb. 4	720	167	98	947
Clark, Dwight G., Plainville, Conn. Register top plate	690,698	Jan. 7	642	140	98	135
Clark, Emily. (See Baier and Clark.)						
Clark, George A., Holyoke, Mass. Pulp-refining engine	690,314	Mar. 25	3769	840	98	2546
Clark, George P., assignor of one-half to G. H. Davis, New York, N. Y. Foot-propelling device	692,626	Feb. 4	722	167	98	947
Clark, Harry C., Bellevue, Pa. Steel construction	691,531	Jan. 21	2198	494	98	493
Clark, Harry C., Bellevue, Pa. Steel construction	691,509	Jan. 21	2322	522	98	518
Clark, Hobart, West New Brighton, N. Y. Luggage-rack	690,699	Jan. 7	643	140	98	136
Clark, Hudson S., Sigourney, Iowa. Pump	693,286	Feb. 11	1089	421	98	1222
Clark, Isaac M., Lompoc, Cal. Wheel attachment for children's high chairs	691,532	Jan. 21	2200	494	98	493
Clark, James H., Portage, Wis. Railway-signal	695,794	Mar. 18	2721	620 621 770	98	2315
Clark, James H., and A. Mayer, Philadelphia, Pa. Automatic box-making machine	692,180	Jan. 28	3402	771 772	98	755
Clark, James R., Lexington, Ky. Gate	696,165	Mar. 25	3452	773	98	2481
Clark, John, Carman, Canada. Agricultural machinery	693,909	Feb. 25	3415	752	98	1563
Clark, John A. (See Armstrong and Clark.)						
Clark, John M. (See Droeshout and Clark.)						
Clark, John M., Vincennes, Ind. Car-coupling	690,560	Jan. 7	369	75	98	80
Clark, John M., and J. C. Crume, Dayton, Ohio. Wrench	692,828	Feb. 11	1087	244	98	1046
Clark & Roberts. (See Kersey, William H., assignor.)						
Clark, Walter L., Everett, Mass. Overhead switch	695,277	Mar. 11	1788	397 398	98	2105
Clark, William E., Springfield, Mass. Valve for water-tank supply	692,983	Feb. 11	1420	309	98	1116
Clark, William R., H. Bosworth, Plattsburg, and W. G. Bosworth, New York, N. Y. Metal-mold for forming castings	695,090	Mar. 11	1442	320	98	2084
Clark, William R., H. Bosworth, Plattsburg, and W. G. Bosworth, New York, N. Y. Metal-mold for forming castings	695,091	Mar. 11	1444	320	98	2084
Clarke, Chapman and Company. (See Woodeson, William A., assignor.)						
Clarke, Joseph D. (See Cavanagh, Hannan, and Clarke.)						
Clarke, William, *et al.* (See Burdon, David P., assignor.)						
Clarke, William F., *et al.* (See Burdon, David P., assignor.)						
Clarke, William H., Brooklyn, N. Y. Automatic fluid-pressure brake	693,049	Feb. 25	3300	726	98	1539
Clarkson, Alfred, Fall River, Mass. Faucet or cock	693,839	Feb. 25	3077	678	98	1496
Classen, Alexander, Aachen, Germany. Converting cellulose into sugar	695,795	Mar. 18	2724	.....	98	2315
Clausen, Henry P., Chicago, Ill., assignor to American Electric Telephone Company. Lamp-socket	690,928	Jan. 14	1000	238	98	238
Clausen, William F. (See Russell and Clausen.)						
Clawson, Bee B., Oakland, Cal. Hydrocarbon composition	692,687	Feb. 4	723	.....	98	947
Clawson, Jehu S. and J. C., New Prospect, Tenn. Wheel-attaching device	693,237	Feb. 11	1940	421	98	1222
Clawson, John C. (See Clawson, Jehu S. and J. C.)						
Clay, Absalom, Appalachia, Va. Gate	693,785	Feb. 18	2902	653	98	1454
Clay Center Manufacturing Company. (See Schlachter, Robert H., assignor.)						
Clay, John D., and F. A. La Roche, New York, N. Y. Electric switch	692,427	Feb. 4	380	88	98	874
Clayden, Arthur W., Exeter, England. Gas, gasolene, or inflammable-vapor engine	694,090	Feb. 25	3568	792 793	98	1307
Clayland, James L., Fort Smith, Ark. Engine-shaft	690,835	Jan. 7	807	199	98	190
Claypoole, Charles T., Sioux City, Iowa. Electric meter	693,688	Feb. 18	2905	617	98	1422
Claypoole, Charles T., Sioux City, Iowa. Electric meter	694,892	Mar. 4	947	211	98	1913
Clayton, Henry C., Marion, Ind. Hanger	691,114	Jan. 14	1391	316	98	304
Cleal, Joseph P., Dayton, Ohio, assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J. Cash-register	690,561	Jan. 7	371	75, 76	98	80
Cleal, Joseph P., Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	690,562	Jan. 7	374	77	98	81
Cleal, Joseph P., Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	693,498	Feb. 18	2425	530	98	1345
Cleal, Joseph P., Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	693,499	Feb. 18	2430	531 532 167	98	1346
Cleal, Joseph P., Dayton, Ohio, assignor to National Cash Register Company, Jersey City, N. J. Cash-register	694,729	Mar. 4	751	168 169	98	1870
Clément, Charles P., Liège, Belgium. Concealed-hammer breakdown gun	693,639	Feb. 18	2708	598	98	1403
Clement, Frank H., Rochester, N. Y. Band resawing-machine	692,428	Feb. 4	382	89	98	874
Clement, William D., Waltham, Mass. Tail-stock for watchmakers' lathes	690,989	Jan. 14	1062	238 239	98	238
Clements, William G., assignor of one-half to M. J. Sheedy, Vancouver, Canada. Saw-oiler	691,338	Jan. 14	1858	419	98	405
Clenny, J. E. (See Ferres, Jeffrey T., assignor.)						
Cleveland Pneumatic Tool Company *et al.* (See Richards, Charles B., assignor.)						
Click, John J., assignor of one-half to W. L. Welch, Bellevue, Tex. Ironing-table	692,984	Feb. 11	1422	309	98	1117
Cliff, Edward, Newark, N. J. Combined door check and closer	693,586	Feb. 18	2899	577	98	1331
Clift, Arthur S., East Orange, N. J. Reversing device for overhead electric carriers	692,118	Jan. 28	3300	747	98	734
Clifton, Emory B., Withee, Wis. Convertible cot and stretcher	694,353	Mar. 4	21	5	98	1717
Climenson, William W., and W. D. Winger, Honeybrook, Pa. Machine for separating cockle from wheat	691,045	Jan. 14	1297	292	98	384
Closterman, Clarence H., Cincinnati, Ohio. Spring-wire mattress	694,614	Mar. 4	536	117	98	1827
Clough, Edgar F. (See Towne and Clough.)						
Clouse, Joseph N. (See Bowman and Clouse.)						
Clouser, Samuel F., Brooklyn, N. Y. Railway signal apparatus	693,376	Feb. 18	2196	482	98	1208
Clouth, Franz, Cologne-Nippes, Germany. Resilient tire for vehicles	692,628	Feb. 4	724	167	98	947
Clover, Howard K., Omaha, Nebr. Fuel-controller for steam-boilers	692,192	Jan. 28	3429	776	98	761
Cluett, Peabody & Co. (See Underhill, Arthur J., assignor.)						
Coakley, Charles H., *et al.* (See Johnson, Charles M., assignor.)						
Coakley, William F., *et al.* (See Johnson, Charles M., assignor.)						
Coates, Jesse, Lynn, Mass., assignor to General Electric Company. Manufacture of electrical condensers	691,600	Jan. 21	2321	522	98	518
Coats, Ernest S. (See Watson, Thomas, assignor.)						
Coats, Frank W. (See Loney, William C., assignor.)						
Cobb, William B., assignor to C. H. Loew, Cleveland, Ohio. Bottle-washing machine	690,563	Jan. 7	376	77	98	81
Coburn, Azro A., Holyoke, Mass. Sound-deadening device for metallic trolley-tracks	692,689	Feb. 4	725	168	98	948
Coburn, Charles F. (See Ward, George R., assignor.)						
Cochran, James M., Gober, Tex. Appliance for protecting oil-wells from fires	695,278	Mar. 11	1793	398	98	2107

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Cochrane, Thomas, Buffalo, N. Y. Mud-guard for vehicles	691,445	Jan. 21	2050	459	98	408
Cochrane, William B., assignor of one-half to L. C. Kettler, Pocatello, Idaho. Screen-door fastener	692,119	Jan. 28	8301	747	98	734
Cocke, George M., assignor to Fuller-Warren Company, Milwaukee, Wis. Stove	690,564	Jan. 7	378	78	98	82
Cocker, Thomas W., assignor to Shaw & Cocker Company, Paterson, N. J. Spindle for bobbins	695,912	Mar. 25	2940	666	98	2375
Coe Brass Manufacturing Company. (See Brooker, Charles F., assignor.)						
Coes, Frank L., assignor to Loring Coes & Company, Incorporated, Worcester, Mass. Wrench-handle	691,046	Jan. 14	1290	292	98	284
Coes, Frank L., assignor to Loring Coes & Company, Incorporated, Worcester, Mass. Wrench-handle	691,943	Jan. 14	1624	371	98	354
Coes, Frank L., assignor to Loring Coes & Company, Incorporated, Worcester, Mass. Construction of wrench-handles	693,108	Feb. 11	1656	361	98	1165
Coffill, Volney K., Brooklyn, N. Y. Combination illuminating and heating burner	690,700	Jan. 7	645	141	98	136
Coffin, Charles A., Allen, Nebr. Washing-machine	691,894	Jan. 28	2897	652	98	655
Coffin, Thaddeus S., Revere, Mass. Show-tray	690,399	Jan. 7	26	6	98	8
Coffin, Walter E., assignor to National Malleable Castings Company, Cleveland, Ohio. Car-coupling	693,238	Feb. 11	1941	422	98	1226
Cogswell, Albert, Montpelier, Ohio. Draft-equalizer	694,000	Feb. 25	3417	753	98	1568
Cogswell, Asa F., Crete, Nebr. Artificial denture	695,796	Mar. 18	2725	621	98	2315
Cogswell, Henry J., assignor to Acme Switch Company, Incorporated, Hartford, Conn. Electric switch	692,429	Feb. 4	364	89, 90	98	875
Cohen, Morris L., Chicago, Ill. Valve-locking mechanism for gas-burners	695,797	Mar. 18	2726	621	98	2316
Cohn, Bernard L., New York, N. Y. Window-washer	694,615	Mar. 4	537	117	98	1827
Cohn, Max, Berlin, Germany. Manufacturing iodin preparations	694,945	Mar. 11	1169		98	1978
Cohnhoff, Louis, Mattapan, assignor to himself, and S. L. Siegel, Roxbury, and I. H. Feinberg, Boston, Mass. Mixer and kneader	691,115	Jan. 14	1303	316, 317	98	304
Colahan, Charles, Chicago, Ill. Corn-harvester	691,748	Jan. 28	2632	590	98	601
Colburn, Irving W., Toledo, Ohio. Glass-working machine	696,007	Mar. 25	3105	703, 704	98	2407
Colburn, Irving W., Toledo, Ohio. Glass-working machine	696,008	Mar. 25	3115	704, 705	98	2410
Colby, Harry W., assignor to Automatic Racking Machine Company, Chicago, Ill. Hose-thimble expander	691,446	Jan. 21	2051	459	98	408
Coldwell, Joseph, and C. G. Gildard, Fall River, Mass. Warp stop-motion for looms	690,636	Jan. 7	514	112	98	110
Cole, Bertie, Dalesburg, S. D. Corn-planter	695,979	Mar. 11	1795	398	98	2107
Cole, Charles A., Poland, Me. Bottle-washing machine	693,589	Feb. 18	2614	577, 578	98	1382
Cole, John C., assignor of one-half to Fisk Rubber Company, Chicopee Falls, Mass. Tire construction	695,391	Mar. 25	3037	572	98	2276
Cole, John T., Malmaison, Va. Foot-warmer	690,886	Jan. 7	898	199	98	190
Cole, William F., Waco, Tex. Gun-barrel	694,833	Mar. 4	948	211	98	1918
Cole, William L., Brooklyn, assignor of one-half to W. A. Downs, New York, N. Y. Lathe for turning irregular forms	696,098	Mar. 25	3278	741, 742	98	2443
Coleman, Albert, Portland, assignor to C. S. Edwards, M. L. and G. L. Elken, Mayville, N. D. Smut-machine	690,565	Jan. 7	380	78	98	82
Coleman, Clarence W., Chicago, Ill., assignor to Hall Signal Company. Signal-operating apparatus	693,109	Feb. 11	1657	361, 362	98	1165
Coleman, Clyde J., New York, N. Y., assignor to Hall Signal Company. Electric-circuit controller	693,110	Feb. 11	1664	362	98	1167
Coleman, George P., assignor of one-half to J. A. Powers, New York, N. Y. Portable pillow-sham holder	692,288	Feb. 4	89	9	98	806
Coleman, James V., San Francisco, Cal. Apparatus for pouring metal into molds	691,944	Jan. 14	1625	371, 372	98	334
Colhoun, Ada B. (See Dyer and Colhoun.)						
Collamer, Newton L., and W. F. Mahony, Washington, D. C., assignors to said Collamer. Designator or enumerator	694,730	Mar. 4	759	169	98	1872
Collin, George W., Bridgeport, Conn. Acetylene-gas generator	692,239	Feb. 4	40	9	98	807
Collin, Simon C., Philadelphia, assignor of one-half to W. White, Jr., Pittsburg, Pa. Flue connection for furnaces	692,240	Feb. 4	42	9, 10	98	807
Collins, Clarkson A. (See Hooker and Birchmore, assignors.)						
Collins, Harry R., South Bethlehem, assignor of one-third to R. P. Stout, Bethlehem, Pa. Continuous-rail frog	692,829	Feb. 11	1668	244	98	1047
Collins, Marcellers, Sturgis, Miss. Cultivator or harrow	692,880	Feb. 11	1692	244	98	1048
Collins, Norman, assignor to Empire Cash Register, Limited, London, England. Cash-register	694,252	Feb. 25	3671	858, 859, 860	98	1653
Collins Plow Company. (See Brown and Elick, assignors.)						
Collmann, Phebe J., George, Iowa. Washboard	690,980	Jan. 14	1064	289	98	289
Colman, Charles, assignor to M. H. and G. A. Smith and F. Canfield, Denver, Colo. Means for fastening wires and stays together	692,781	Feb. 4	995	225	98	1000
Colt, Samuel S., Orange, N. J. Time damper mechanism	690,637	Jan. 7	517	113	98	111
Colt, Samuel S., Orange, N. J. Time releasing mechanism	691,047	Jan. 14	1291	298	98	285
Colt, William D. (See Spencer, Charles R., assignor.)						
Columbia Specialty Manufacturing Company. (See Grabler, Peter, assignor.)						
Columbian Automatic Computing Scales Company. (See Hummer, William F., assignor.)						
Columbus Pharmacal Company. (See Fowle, George W., assignor.)						
Colvin, Silas S. (See MacClain and Colvin.)						
Colwell, Charles E., *et al.* (See Harvey, Isaac, assignor.)						
Colwell, J. H., *et al.* (See Smith, Gary B., assignor.)						
Colwell, Nicholas H., assignor to R. Bliss Manufacturing Company, Pawtucket, R. I. Folding car-gate	692,965	Feb. 11	1422	309	98	1117
Colwell, Nicholas H., assignor to R. Bliss Manufacturing Company, Pawtucket, R. I. Folding gate for railway-cars	693,786	Feb. 18	2963	654	98	1455
Combs, George W., Leavenworth, Kans. Bolting-cloth cleaner	692,831	Feb. 11	1094	245	98	1046
Comer, Harris, Philadelphia, Pa. Pipette	694,530	Mar. 4	388	84	98	1794
Composite Type Bar Company. (See Brott, Lucien A., assignor.)						
Comstock, Alphonso S., Evanston, Ill. Automatic pressure-regulator	690,515	Jan. 7	287	57, 58	98	82
Comstock, Charles, Norwalk, Conn. Shaft-coupling	692,768	Feb. 4	971	220	98	996
Conant, Samuel S., Edgerton, Ohio. Garment-supporter	694,258	Feb. 25	3667	860	98	1657
Condensed Egg Syndicate. (See Fordred, John, assignor.)						
Condon, John F. (See Laherty, Edward L., assignor.)						
Conery, William P., New Orleans, La. Hook and eye	692,620	Feb. 4	796	166	98	948
Congelton, Osborn, Port Chester, assignor to American Elevated Railroad Company, New York, N. Y. Wheel	692,198	Jan. 28	3481	776	98	761

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Conklin, Melvin M., assignor of one-half to C. B. Mather, Elmira, N. Y. Mail-box	694,058	Feb. 25	3595	776	98	1585
Conner, George F., Port Huron, Mich. Threshing-machine	691,116	Jan. 14	1994	317	98	305
Conner, George F., Port Huron, Mich. Tooth for threshing-machines	691,841	Jan. 28	2408	680	98	636
Conner, George F., Port Huron, Mich. Reversible variable-speed gearing	692,120	Jan. 28	3302	748 749	98	734
Conner, William S., assignor of one-fourth to C. T. Glasser, Minneapolis, Minn. Coin-actuated mechanism for newspaper-delivery boxes	693,640	Feb. 18	2709	598	98	1408
Connet, Frederick N., Providence, R. I. Mechanism for operating ship windlasses and capstans	694,616	Mar. 4	588	117 118	98	1827
Connolly, James H., Clifton, Ariz. Ter. Boiler-cleaner	695,084	Mar. 11	1344	295	98	2013
Connor, James B., Boyce, Miss. Vehicle-seat	691,842	Jan. 28	2399	681	98	636
Conover, William H., and J. W. Miles, Birds, Ill. Threshing-machine	693,787	Feb. 18	2964	654 655	98	1455
Conrad, Frank, Wilkinsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. Instrument for indicating the phase and frequency relations of alternating currents	695,913	Mar. 25	3941	666 667	98	2875
Conrad, Martin, Chicago, Ill. Locking device for axle-nuts	693,111	Feb. 11	1667	363	98	1168
Conrey, Jacob A. (See Forster, Frank L., assignor.)						
Conrey, Mary, *et al.* (See Forster, Frank L., assignor.)						
Consentino, Thomas, and F. Palumbo, Philadelphia, Pa. Type-writer	691,601	Jan. 21	2326	522 523	98	519
Consolidated Dental Manufacturing Company. (See Hardy, James F., assignor.)						
Consolidated Fastener Company. (See Devine, William P., assignor.)						
Consolidated Fruit Jar Company. (See Kent, Henry B., assignor.)						
Consolidated Rubber Tire Company. (See Krotz, Alvaro S., assignor.)						
Continuous Rail Joint Company of America. (See Charlton, Richard B., assignor.)						
Convers, George G., and A. B. de Saulles, South Bethlehem, Pa. Zinc-furnace	694,137	Feb. 25	3656	808	98	1613
Convers, George G., and A. B. de Saulles, South Bethlehem, Pa. Production of zinc-dust	695,376	Mar. 11	1962	438 439	98	2141
Converse, Edmund. (See Anderson, Anders G., assignor.)	693,112	Feb. 11	1670	368	98	1168
Conway, George M., Milwaukee, Wis. Smoke-preventing device	693,379	Feb. 11	1941	422	98	1223
Conway, George O. S., Stonefield, assignor of one-half to R. H. Welden, Montreal, Canada. Automatic motor-car life-saver	690,837	Jan. 7	900	199	98	190
Conzett, John, Fortuna, Cal. Newspaper-holder	694,834	Mar. 4	950	211	98	1914
Cook, Andrew, Glasgow, Scotland. Guard for woodworking-machines	694,835	Mar. 4	951	212	98	1914
Cook, Andrew, Glasgow, Scotland. Guard for woodworking-machines	695,539	Mar. 18	2253	509	98	2220
Cook, Frank B., Chicago, Ill. Electromagnetic apparatus	691,447	Jan. 21	2363	460	98	468
Cook, George W., Monroe City, assignor of one-half to J. H. Myer, Vincennes, Ind. Pump-motor	693,113	Feb. 11	1673	364	98	1169
Cook, James M., Cincinnati, Ohio. Wringer	692,181	Jan. 28	2410	772	98	757
Cook, Jay, Coldwater, Mich. Weather-strip	692,241	Feb. 4	44	10	98	807
Cook, John H., Brooklyn, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Door-hanger						
Cook, John H., Brooklyn, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Trolley-hoisting block	694,836	Mar. 4	962	212	98	1914
Cook, Walter K., assignor of one-fourth to H. E. Soesbe, Mason City, Iowa. Telephone-circuit	691,245	Jan. 14	1627	372	98	355
Cook, William F., Des Moines, Iowa. Apparatus for leveling and measuring the grade of surfaces	695,142	Mar. 11	1557	345	98	2009
Cook, William H., Newark, Del. Checking device for sliding doors	695,035	Mar. 11	1346	296	98	2014
Cook, William H., Newark, Del. Door opener or closer	695,036	Mar. 11	1347	296 297	98	2014
Cooke, Charles D. (See La Roche, Fredrick A., assignor.)						
Cookson, Charles L. (See Tuttle and Cookson.)						
Cooley Development Company. (See Cooley, John F., assignor.)						
Cooley, George P., Kansas City, Kans. Halter	694,581	Mar. 4	884	84	98	1794
Cooley, John F., Boston, Mass., assignor to Cooley Development Company, Saco, Me. Rotary fluid-engine	693,950	Feb. 25	3802	726	98	1540
Cooley, John F., assignor to C. S. Farquhar and A. Eastman, Boston, Mass. Apparatus for electrically dispersing fluids	692,681	Feb. 4	727	168	98	948
Coolidge, Winthrop. (See Foster and Coolidge.)						
Coomber, James, New York, N. Y., assignor of one-half to A. Baumgarten, Freeport, Ill. Elastic floor-covering	692,242	Feb. 4	46	10	98	809
Coomber, James, assignor of one-half to C. C. Naret, New York, N. Y. Squeezer	694,617	Mar. 4	540	118	98	1828
Coombs, Arthur H., St. Louis, Mo. Burner attachment for gas-stoves	691,356	Jan. 21	1909	426	98	450
Cooper, Erastus. (See Ezzell, Azzeriah D., assignor.)						
Cooper, James F., assignor of one-half to J. B. Williams, Denver, Colo. Toy engine	696,315	Mar. 25	3770	840	98	2546
Cooper, John, *et al.* (See Horton, Peter D., assignor.)						
Coon, Arthur D., Ballston Spa, N. Y. Folding car-step	691,895	Jan. 28	2908	652	98	655
Cope, Arthur, Chicago, Ill. Station-indicator	693,377	Feb. 18	2196	482 483	98	1208
Copeland Boot and Shoe Treeing Company. (See Ballard, Harrie A., assignor.)						
Copeland Boot and Shoe Treeing Company. (See Ballard and Copeland, assignors.)						
Copeland Boot and Shoe Treeing Company. (See Copeland, Jones, and Ballard, assignors.)						
Copeland, William A. (See Ballard and Copeland.)						
Copeland, William A. (See Chain and Copeland.)						
Copeland, William A., Malden, G. Jones and H. A. Ballard, South Framingham, Mass., assignors to Copeland Boot and Shoe Treeing Company, Portland, Me. Machine for treeing boots or shoes	691,602	Jan. 21	2329	523	98	519
Copenhagen Automatic Fire Alarm Company. (See Khotinsky, Achilles de, assignor.)						
Copenhaver, William E. (See Foos and Copenhaver.)						
Copenhaver, William E., assignor to Foos Manufacturing Company, Springfield, Ohio. Mill	692,243	Feb. 4	47	10	98	808
Corbett, Frederick J., Prahran, Victoria, Australia. Manufacturing white lead	694,138	Feb. 25	3657	809	98	1613
Corbett, Frederick J., South Yarra, Victoria, Australia. Apparatus for manufacturing white lead	694,139	Feb. 25	3660	809	98	1613
Corbett, Joseph A., Medford, Okla. Ter. Hernial truss	695,377	Mar. 11	1964	439	98	2142
Corbin, Albert F., assignor to Corbin Cabinet Lock Company, New Britain, Conn. Key-less lock	693,114	Feb. 11	1675	364	98	1169
Corbin Cabinet Lock Company. (See Corbin, Albert F., assignor.)						
Corbin Cabinet Lock Company. (See Judd, Edward A., assignor.)						
Corbin, William S., Johnstown, N. Y. Pipe or main	696,316	Mar. 25	3771	840	98	2547
Corby, Charles I. (See Corby, William S. and C. I.)						
Corby, William S. and C. I., Washington, D. C. Making dough for bread	691,749	Jan. 28	2354	.....	98	801
Cordes, Henry. (See Fischer and Cordes.)						
Cordes, John F., Chicago, Ill. Thread-cutting attachment for spools	690,400	Jan. 7	97	6	98	9

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cordill, William H., Grand View, S. D. Car-coupling	695,280	Mar. 11	1796	399, 400, 401	98	2107
Corey, Charles W., Boston, assignor of three-fourths to R. I. Davis, Chelsea, Mass., and F. M. Ambrose, New York, N. Y. Ball-caster	692,632	Feb. 4	731	109	98	950
Cornelison, Robert W. (See Osborne and Cornelison.)						
Cornell, Charles H. (See Ogden, James A., assignor.)	690,401	Jan. 7	28	6	98	9
Cornell, Joseph, Earlville, N. Y. Extension-table	694,354	Mar. 4	22	5, 6	98	1717
Cornell, Mable C., Alma, Kans. Type-writing or other like machine	696,392	Mar. 25	3088	872	98	2579
Corner, George E., Chicago, Ill., assignor of one-half to J. P. Dixey, Springfield, Ohio. Art glass and making same						
Cornwall, Frederick R. (See Wands and Cornwall.)	694,461	Mar. 4	235	52	98	1763
Cornwall, Frederick R., St. Louis, Mo., assignor to Chicago Railway Equipment Company, Chicago, Ill. Side bearing for railway-cars	695,540	Mar. 18	2255	509	98	2220
Cornwell, James. (See Barclay, Robert, assignor.)						
Corrington, Aldon R., Meriden, Iowa. Hoof-trimmer						
Corry, Michael. (See Barker, Ruben F., assignor.)						
Corscaden, Adeline J., administratrix. (See Corscaden, Thomas.)						
Corscaden, Thomas, deceased; A. J. Corscaden, Philadelphia, Pa., administratrix. Roll for curving sheet-metal pulley-rims	694,910	Mar. 4	1100	243	98	1944
Cortelyou, Joseph S., New York, N. Y. Scale	691,750	Jan. 28	2636	590, 591	98	601
Cosgrave, Maria B., *et al.* (See Cosgrave, Sylvester A., assignor.)						
Cosgrave, Sylvester A., Pittsburg, assignor, by mesne assignments, to D. S. Wolcott, trustee, Sewickley, Pa. Compound ingot	694,618	Mar. 4	541	118	98	1828
Cosgrave, Sylvester A., assignor to A. French, M. L. Patterson, and M. B. Cosgrave, Pittsburg, Pa. Manufacture of compound ingots and mold therefor	694,731	Mar. 4	763	169	98	1872
Cotabish, Nelson C., Lakewood, Ohio. Electric contact device	695,861	Mar. 18	2838	644	98	2340
Cotter, Joseph J., Bowerston, Ohio. Padlock	694,837	Mar. 4	954	212	98	1915
Cotter, Timothy, *et al.* (See Bourke, Edward J., assignor.)						
Cottrell, Charles P., Westerly, R. I., assignor to C. B. Cottrell & Sons Company, Stonington, Conn., and New York, N. Y. Sheet-delivery mechanism for printing-machines	690,638	Jan. 7	520	113, 114	98	112
Couch, Erwin J., Medford, Wis. Reversible plow	692,986	Feb. 11	1425	309	98	1117
Coudon, Joseph, Aiken, Md. Decoy	694,782	Mar. 4	764	170	98	1873
Coughlin, Michael, *et al.* (See Martin, William, assignor.)						
Coulson, David E., assignor of one-half to K. T. Richards, Galesburg, Ill. Alternating-current motor	692,121	Jan. 28	3307	749	98	735
Coulter, Edward P. (See Groff and Coulter.)						
Courant, Emil, Berlin, Germany. Triple salt and making same	693,378	Feb. 18	2501	.....	98	1298
Courville, Joseph, assignor to Farrand & Votey Organ Company, Detroit, Mich. Piano-player	695,862	Mar. 18	2840	645	98	2340
Coveney, Robert G., County of Surrey, England. Venetian or like blind	691,608	Jan. 21	2332	526	98	520
Cowan, James W., Geneseo, assignor to Handy Company, Rochester, N. Y. Dental floss-holder	695,092	Mar. 11	1447	321	98	2034
Cowart, E. J. (See Shipley, Jack J., assignor.)						
Cowell, Julius J., Weedsport, N. Y. Shaft-coupling	691,448	Jan. 21	2054	460	98	463
Cowles, Arthur B., assignor to B. F. Johnson, Richmond, Va. Duplex envelop	696,225	Mar. 25	3566	798	98	2502
Cowles, William B., assignor to Long Arm System Company, Cleveland, Ohio. Check-valve	695,378	Mar. 11	1966	440	98	2142
Cox, Alexander T., Scranton, Iowa. Chimney-cap	693,951	Feb. 25	3306	736	98	1541
Cox, Charles S., Brooklyn, N. Y. Automatic pencil-sharpener	691,117	Jan. 14	1395	317	98	305
Cox, Charley E., Chicago, Ill. Garbage-holding attachment for sinks	690,638	Jan. 7	901	200	98	190
Cox, Daniel M., Moulton, Iowa. Farm or yard gate	695,688	Mar. 18	2441	551, 552	98	2258
Cox, Edmond F., and G. Blass, New York, N. Y. Water-heater	692,944	Feb. 4	48	11	98	808
Cox, Henry G., assignor to J. T. Brush, Indianapolis, Ind. Smoke-consuming furnace	692,782	Feb. 4	996	225	98	1090
Cox, Joshua J., Wrightsville, Ill. Draft-equalizer	693,840	Feb. 25	3078	679	98	1497
Cox, Lin J., *et al.* (See Sartain, Louis M., assignor.)						
Cox, Marion W., Duquoin, Ill. Hoisting apparatus	694,091	Feb. 25	3585	793	98	1597
Cox, Walter C., Denver, Colo. Shirt and collar	694,532	Mar. 4	385	85	98	1794
Coyan, William E., Homestead, Pa. Trowel	690,889	Jan. 7	902	200	98	191
Coyan, William E., Homestead, assignor of two-fifths to J. K. Skelley, McKeesport, Pa. Hardened railway-rail	694,838	Mar. 4	955	212	98	1915
Cozins, William W., Linden, Cal. Acetylene-gas generator	691,357	Jan. 21	1899	427	98	430
Cozzens, Issachar, Glencove, N. Y. Knee-protector for stockings	693,115	Feb. 11	1676	364	98	1169
Crabtree, James, Birkenhead, England. Refrigerating-chamber	695,183	Mar. 25	3375	762	98	2466
Cragg, George L., *et al.* (See Davis, Charles L., assignor.)						
Craig, F. O. (See Craig, John T., assignor.)						
Craig, George, Glasgow, assignor to R. M. Paterson, Spiersfield, Paisley, Scotland. Apparatus for obtaining alkaline cyanids	695,087	Mar. 11	1348	297	98	2014
Craig, James A., Springfield, Ill., assignor to J. Lumsden, Montreal, Canada. Drill-chuck	691,449	Jan. 21	2056	460	98	463
Craig, John S., Hartford, Conn. Washbowl	695,088	Mar. 11	1351	298	98	2015
Craig, John T., Raymond, S. D., assignor to F. O. Craig, Payne, Ohio. Potato-lifter	691,843	Jan. 28	2810	631	98	636
Craighead, Horace. (See Jayne, Benaiah G., assignor.)						
Cram, Alonzo W., assignor to W. D. Cram, Haverhill, Mass. Pipe connection	691,246	Jan. 14	1629	372	98	355
Cram, William D. (See Cram, Alonzo W., assignor.)						
Cramer, Harry B., Minneapolis, Minn. Staging bracket or support	693,641	Feb. 18	2713	598	98	1404
Cramer, Stephen S., *et al.* (See Johnson, Charles M., assignor.)						
Crampton, Ulysses G., Tyrone, Pa. Soap-holder for shaving-cups	695,093	Mar. 11	1449	321	98	2035
Crandall, James L., assignor to H. I. Crandall & Son Company, Boston, Mass. Cradle for marine railways	690,402	Jan. 7	30	7	98	9
Crandall, James L., assignor to H. I. Crandall & Son Company, Boston, Mass. Marine railway	694,911	Mar. 4	1103	243	98	1945
Crane Buckle Company. (See Crane, Newton, assignor.)						
Crane, Joshua, Jr., Westwood, Mass. Gas-burner	693,590	Feb. 18	2615	578	98	1353
Crane, Mary A., New York, N. Y. Ambulance-coach	693,822	Feb. 18	2695	670, 671	98	1469
Crane, Newton, Newton, Mass., assignor to Crane Buckle Company, Portland, Me. Clasp	690,904	Jan. 7	1010	223	98	212
Crane, William E., and E. T. Holton, Binghamton, N. Y. Soldering device	693,500	Feb. 18	2459	532	98	1347
Cranston, Edmund W., assignor of one-half to D. P. Thomas, Worcester, Mass. Collar-button	693,689	Feb. 18	2807	617	98	1422
Crary, Thomas B. (See Casler, Alonzo A., assignor.)						
Crawford, George G., Braddock, Pa. Furnace-valve and dust-catcher	695,340	Feb. 11	1645	423	98	1224
Crawford, James, Boston, Mass. Clean-out for drain or soil pipes	694,140	Feb. 25	3663	810	98	1614
Creager, Jonathan, Cincinnati, Ohio. Brick-mold	692,005	Jan. 28	3094	696	98	693
Creamery Package Manufacturing Company. (See Valerius, Theodore L., assignor.)						
Creamery Package Manufacturing Company. (See Walker, George A., assignor.)						
Crean, Francis C., Montreal, Canada. Manufacturing iron and iron alloys	695,670	Mar. 18	2498	587	98	2270

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Name, residence, and invention	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol	Official Gazette. Page.
Créanche, Louis, Paris, France. Driving mechanism for motor-vehicles	695,541	Mar. 18	2356	510	98	2220
Creasey, Samuel E., Sanford, Me. Aquarium-jardinière	692,882	Feb. 11	1096	245	98	1048
Cregar, Joshua W., Philadelphia, Pa. Air-cushion for valves	696,009	Mar. 25	3122	705	98	2411
Cressler, George H., Fort Wayne, Ind. Pocket-case for cigarettes or cigars	695,914	Mar. 25	2944	667	98	2376
Cressler, Will T., Cincinnati, Ohio. Stamp with changeable face	692,945	Feb. 4	49	11	98	909
Creuzbaur, R. Walter. (See Wilkens, John D., assignor.)						
Creveling, John L., New York, N. Y. Reflector	691,048	Jan. 14	1295	293 294	98	295
Creveling, John L., New York, N. Y. Means for driving dynamos from car-axles	691,358	Jan. 21	1901	427	98	431
Creveling, John L., New York, N. Y. Means for driving generators placed upon cars by power taken from the cars	691,359	Jan. 21	1903	428	98	431
Creveling, John L., New York, N. Y., assignor to Safety Car Heating and Lighting Company. Means for driving dynamos from car-axles. (Reissue)	11,961	Jan. 21	2577	577 578	98	572
Crichton, William E. (See Van Valkenburg, Randall T. and C. J., assignors.)						
Critchfield, Albert G., Alto, Wash. Fan or blast regulator	692,430	Feb. 4	365	90	98	875
Crocker, Ross E., *et al.* (See Underwood and Butterfield, assignors.)						
Crockett, Fred P., and O. P. Johnson, Kalamazoo, Mich. Trolley-harp	690,630	Jan. 7	324	114	98	112
Crockett, William L., *et al.* (See Forney, Elwood W., assignor.)						
Crompton & Knowles Loom Works. (See Armstrong and Clark, assignors.)						
Crompton & Knowles Loom Works. (See Bardsley, Henry, assignor.)						
Crompton & Knowles Loom Works. (See Davenport and Bardsley, assignors.)						
Crompton & Knowles Loom Works. (See Wattle, William, assignor.)						
Crompton & Knowles Loom Works. (See Wyman, Horace, assignor.)						
Crompton, Samuel H., *et al.* (See Morris, George O., assignor.)						
Crone, Seth A., New York, N. Y. Car-truck	690,403	Jan. 7	81	7	98	9
Crone, Seth A., New York, N. Y. Door for grain-cars and locking device therefor	694,462	Mar. 4	237	52	98	1763
Cronin, Cornelius J., Youngstown, Ohio. Boiler	690,701	Jan. 7	646	141	98	136
Cronwall, Nils O., Hamburg, Germany. Piston-rod or other similar packing	695,195	Mar. 11	1640	364	98	2076
Crook, Charles, Jr., Brooklyn, assignor to L. S. Bush, New York, N. Y. Rotary engine	691,604	Jan. 21	2333	524	98	580
Cropley, Charles B. (See Morgal, Lewis E., assignor.)						
Cross, Frank L., Mystic, Conn., assignor to American Paper Feeder Company, Boston, Mass. Feeding-machine	690,702	Jan. 7	647	141 142	98	137
Cross, George W., Carbondale, Pa. Chain for conveyers	694,589	Mar. 4	1185	265	98	1794
Cross, William A., Chicago, Ill. Warehouse-door	693,952	Feb. 25	3306	727	98	1541
Crosser, Albert, Hartley, Iowa. Four-horse evener	692,987	Feb. 11	1496	310	98	1118
Crosthwaite, Walter G. (See Westerby and Crosthwaite.)						
Crouch, Thomas B. (See Bayne, Lester H., assignor.)						
Crouse, Henry P. (See Bossert, William F., assignor.)						
Crowe, Frederick C., Chicago, Ill. Machine for making metal tags	693,241	Feb. 11	1947	424	98	1224
Crowner, Truman A., Wilna, N. Y. Device for throwing heavy belts upon pulleys	693,533	Feb. 11	1997	245	98	1049
Crowninshield, Walter H., *et al.* (See Rowse, George W., assignor.)						
Crowninshield, Walter H., *et al.* (See Waldron, Harry L., assignor.)						
Cruise, Daniel, New York, assignor to himself, E. and J. A. Jones, Yonkers, N. Y. Spring-heeled horseshoe	693,541	Feb. 18	2511	553	98	1362
Crume, John C. (See Clark and Crume.)						
Crump, Samuel, Poughkeepsie, assignor to Printers Roller Washing Machine Company, New York, N. Y. Machine for cleaning printers' rollers	696,134	Mar. 25	3377	762 763	98	2467
Crumplar, John R. (See Woods and Crumplar.)						
Crutchfield, John H., Atlanta, Ga. Baby-jumper	692,505	Feb. 4	499	117	98	900
Cruvellier, Baptistin, Marseilles, France. Electric traction	691,360	Jan. 21	1906	428 429	98	431
Culbertson, James C., Gohoenville, Pa. Nut-lock	696,317	Mar. 25	3773	841	98	2547
Cullen, Elizabeth D., *et al.* (See Cullen, Orlan C., assignor.)						
Cullen, Orlan C., assignor to E. D. Cullen, Waterlick, Va., and E. W. Anderson, Washington, D. C. Firearm	696,318	Mar. 25	3774	841	98	2547
Cullers, William H., Sr., Allegheny, Pa. Metallic wheel-hub	693,347	Feb. 11	2128	468	98	1365
Culp, Anna M. H., Dravosburg, Pa. Curtain-pole	691,605	Jan. 21	2335	595	98	580
Culpepper, Robert S., assignor of two-thirds to A. B. Kerr and I. M. Bryce, Houston, Tex. Apparatus for cleaning bottoms of ships	693,949	Feb. 11	1951	434	98	1225
Cummin, Alexander B. (See Baggs and Cummin.)						
Cummings, George K., New York, N. Y. Machine for making prismatic glass	695,261	Mar. 11	1806	401	98	2109
Cummings, George K., New York, N. Y. Machine for making prismatic glass	695,262	Mar. 11	1809	401 402	98	2109
Cummings, George K., Center Rutland, Vt. Making sheets or panes of prismatic glass for use in making prismatic windows	695,263	Mar. 11	1813	402	98	2110
Cummings, George K., Center Rutland, Vt. Making prismatic windows	695,264	Mar. 11	1815	403	98	2110
Cummings, Henry H., Malden, Mass., assignor to National Fibre Board Company. Paper-folding machine	691,751	Jan. 28	2240	591	98	602
Cumms, Frank F., Rutland, Vt. Punching-machine	692,122	Jan. 28	2308	749 750	98	786
Cundell, Edward D. (See Carson and Cundell.)						
Cunniff, Edward. (See Cunniff, John V. and E.)						
Cunniff, John V. and E., New Bedford, Mass., assignors to American Mechanical Warp Stop Company, Pawtucket, R. I. Warp stop-motion for looms	691,538	Jan. 21	2301	495	98	494
Cunniff, John V. and E., assignors of one-half to A. E. Hathaway, New Bedford, Mass. Warp stop-motion for looms	692,431	Feb. 4	357	90	98	875
Curlin, Charles W., Hickman, Ky. Inflatable article	691,118	Jan. 14	1296	317 318	98	305
Curran, John J., Chicago, Ill. Dry-kiln	691,606	Jan. 21	2336	595	98	581
Curran, Michael P., *et al.*, trustees. (See Weitz, George G., assignor.)						
Currier, John W., North Troy, Vt. Registering cloth-board	694,001	Feb. 25	3419	755	98	1564
Curry, Jasper, Buffalo, Tex. Whiffletree-clip	694,254	Feb. 25	3437	760	98	1657
Curtain Supply Company. (See Milans, Joseph H., assignor.)						
Curtis, Charles G., New York, N. Y. Commutator-brush	690,516	Jan. 7	289	56	98	68
Curtis, Nelson, Boston, Mass. Automatic boiler-feeding device	696,226	Mar. 25	3567	799	98	2508
Curtis, Nelson, assignor to Sumner and Goodwin Company, Boston, Mass. Faucet	696,135	Mar. 25	3386	763	98	2409
Curtis, Samuel, Kirkwood, Mo. Embossing-press	696,542	Mar. 18	2257	510 511	98	2220
Cushing, John W., San Francisco, Cal., assignor of one-half to G. B. Elliott, Baker City, Oreg. Speeding attachment for mills	693,642	Feb. 18	2714	599	98	1404
Cushman, Edward S., Centerville, Iowa. Cooling-can. (Reissue)	11,966	Feb. 4	1058	237	98	1012
Cutcheon, Frederick R. M., St. Paul, Minn. Current-regulator for electric transformers	693,841	Feb. 25	3079	679	98	1497
Cuykendall, Jacob R., Hoopeston, Ill. Apparatus for preparing corn for canning	695,196	Mar. 11	1641	364 365	98	2076
D. Clint Prescott Co. (See Prescott, Clay S., assignor.)						
D. M. Osborne & Company. (See Sharp, Charles S., assignor.)						
D. M. Sechler Carriage Company. (See Tunnicliff, John C., assignor.)						
D'Espine, Charles, assignor to Société D'Espine Achard et Cie., Paris, France. System of jointing for joining up boxes, &c	691,049	Jan. 14	1297	294	98	286

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
D'Humy, Fernand E., Boston, Mass. Telegraph	696,605	Feb. 18	2547	594	98	1389
Dade, Harry E., Mount Vernon, N. Y. Binder	691,844	Jan. 28	2312	631	98	687
Daggett, John P., Fort Worth, and H. Hestand, Dundee, Tex. Horseshoeing-rasp	695,285	Mar. 11	1818	403	98	2111
Dahl, Franz, Bruckhausen, Germany. Hydraulic press	696,010	Mar. 25	2123	705	98	2411
Dahlberg, Charles L., Des Moines, Iowa. Tabulating-scale for type-writers	691,896	Jan. 28	2309	658	98	695
Dailey, Charles W. (See Devoe and Dailey.)						
Dailey, James H., Milwaukee, Wis. Blanket	691,584	Jan. 21	2303	495	98	494
Dailey, William A. (See Butler and Dailey.)						
Daime, Joseph, Marseilles, France. Strengthened cast cement	690,840	Jan. 7	902	200, 201	98	191
Daimler Manufacturing Company. (See Bardwell, Arthur F., assignor.)						
Daimler Manufacturing Company. (See Maybach, Wilhelm A., assignor.)						
Dakin, Henry. (See Chaplin and Halloran, assignors.)						
Dale, George L., New York, N. Y. Feed-bag	695,285	Mar. 11	1819	404	98	2111
Daley, Daniel F., Brooklyn, N. Y., assignor to Mergenthaler Linotype Co. Linotype	694,141	Feb. 25	2264	810	98	1614
Dallett & Company, Thomas H. (See Soley, William H., assignor.)						
Daly, John A., Washington, D. C. Covering textile and porous materials with metal	694,946	Mar. 11	1170	.....	98	1978
Damerell, Henry, Racine, Wis., assignor of one-half to F. Way, Chillicothe, Mo. Valve-gear	695,445	Mar. 18	2075	466	98	2184
Dana, Arthur L., Colorado Springs, Colo. Gold-separator	694,255	Feb. 25	2268	861	98	1657
Dancyger, Simon, Dayton, Ohio. Price-tag	690,404	Jan. 7	33	7	98	10
Danforth, Henry C., Philadelphia, Pa. Adjustable gas or fluid check	693,116	Feb. 11	1677	364	98	1169
Daniels, Winfield S., St. Louis, Mo. Hinge-pin	692,633	Feb. 4	732	169	98	950
Danielson, Ernst, Westerås, Sweden. Alternating-electric-current induction-machine	694,092	Feb. 25	2586	798	98	1594
Dankhof, Ellen. (See Smith and Leonhard, assignors.)						
Danner, Frederick, Tarentum, Pa. Annealing-furnace	694,064	Feb. 25	2527	776	98	1566
Dant, John P., Louisville, Ky. Seal for jugs or bottles	695,709	Mar. 18	2563	580	98	2282
Darby, Averno A. and W. L., Vidalia, Ga. Engine	695,798	Mar. 18	2728	622	98	2316
Darby, William L. (See Darby, Averno A. and W. L.)						
Darling, Albert M., *et al.* (See Hills, Howard L., assignor.)						
Darlington, Frederic W., Philadelphia, Pa. Fountain	690,405	Jan. 7	33	8	98	10
Darrin, David H., Cranford, N. J., and E. McLean, Brooklyn, N. Y.; said Darrin assignor to said McLean. Automatic heat-controller for steam-boiler furnaces	690,931	Jan. 14	1055	239, 240	98	289
Darst, Edward A., Eureka, Ill. Wind-stacker	692,946	Feb. 4	53	11	98	809
Dart, Albert E., Boston, Mass. Pipe-coupling	690,517	Jan. 7	291	58	98	63
Darwin, Frank L., assignor of seven-eighths to H. Hanson, J. J. Mothander, R. Sohlberg, F. Weihermiller, A. Haertlein, F. and J. Burnison, O. Ross, C. Lindstrom, S. C. Bybee, G. W. Hanson, Marquette, Kans., and C. A. Ingemanson. Railway-switch	693,247	Feb. 4	54	12	98	810
Dascomb, Charles H., El Paso, Tex. Music-leaf turner	694,889	Mar. 4	956	213	98	1915
Dauphin, Joseph O., Rat Portage, Canada. Rod-swab	694,840	Mar. 4	967	213	98	1916
Davenport, Edward W., and H. Bardsley, assignors to Crompton & Knowles Loom Works, Providence, R. I. Loom-shuttle	691,607	Jan. 21	2338	596	98	521
Davenport, Edward W., and H. Bardsley, assignors to Crompton & Knowles Loom Works, Providence, R. I. Pattern mechanism for looms	691,608	Jan. 21	2340	596	98	521
Davenport, Hudson A. (See Lane and Davenport.)						
Davenport, William B., executor. (See Miller, Frederic S.)						
David Bradley Manufacturing Company. (See Brunnemer, William T. M., assignor.)						
David, Joseph, St. Louis, Mo. Spreader for sham roll-bolsters	691,119	Jan. 14	1398	318	98	305
Davidson, Samuel C., Belfast, Ireland. Rotary fan or pump	691,609	Jan. 21	2344	597	98	522
Davies, Samuel, Iola, Kans. Smelting zinc	694,947	Mar. 11	1171	256	98	1978
Davis, Adelbert S., assignor to Seneca Falls Manufacturing Company, Seneca Falls, N. Y. Drill-chuck	692,988	Feb. 11	1427	310	98	1118
Davis, Bethuel M., assignor to Advance Machine Company, Chicago, Ill. Automatic vending-machine	696,011	Mar. 25	2123	705, 706	98	2411
Davis, Calvin R., assignor to Oliver Chilled Plow Works, South Bend, Ind. Sprue-pin for molding-machines	695,146	Mar. 11	1559	345	98	2039
Davis, Calvin R., assignor to South Bend Iron Works, South Bend, Ind. Sprue for molding apparatus	695,543	Mar. 18	2260	511	98	2221
Davis Calyx Drill Company. (See Davis, Francis H., assignor.)						
Davis, Charles E., assignor of one-third to H. D. Harrower, New York, N. Y. Geographical clock	696,814	Feb. 18	2019	667	98	1466
Davis, Charles E., assignor of one-third to H. D. Harrower, New York, N. Y. Geographical clock	696,958	Feb. 25	2308	727	98	1541
Davis, Charles L., assignor of one-half to A. Heuer, Jr., C. A. Brown, G. L. Cragg, and A. M. Belfield, Chicago, Ill. Pneumatic motor	692,194	Jan. 28	2432	777	98	761
Davis, Charles W. (See King, Galusha A., assignor.)						
Davis, Cleland, U. S. Navy. Range-finder	691,847	Jan. 14	1681	372, 373	98	355
Davis, Francis H., Newburgh, and C. A. Terry, New York, N. Y. Bit	693,117	Feb. 11	1678	365	98	1170
Davis, Francis H., assignor to Davis Calyx Drill Company, New York, N. Y. Boring holes in rock, &c	694,584	Mar. 4	868	85	98	1795
Davis, Francis H., assignor to Davis Calyx Drill Company, New York, N. Y. Apparatus for boring holes in rock or similar material in the earth's strata	694,585	Mar. 4	869	85	98	1796
Davis, Francis H., assignor to Davis Calyx Drill Company, New York, N. Y. Tower. (Reissue)	11,975	Mar. 11	2047	459, 460	98	2159
Davis, G. Howlett. (See Clark, George P., assignor.)						
Davis, George, West Kensington, England. Electric railway	690,406	Jan. 7	36	9	98	10
Davis, George H., Orange, N. J. Burning metallic particles from paper, &c	692,834	Feb. 11	1097	246	98	1049
Davis, George H., Brooklyn, N. Y. Apparatus for removing metallic particles from strips or webs	692,969	Feb. 11	1499	310	98	1118
Davis, George H., assignor to American Automusic Company, New York, N. Y. Musical stringed instrument	692,348	Feb. 4	57	13	98	810
Davis, George R. C., assignor of one-half to J. Champoux, Manchester, N. H. Bicycle-coupling	693,379	Feb. 18	2201	483	98	1298
Davis, Henry J., assignor of one-half to W. H. Davis, Waynesboro, Ga. Tether	695,427	Mar. 11	2040	458	98	2157
Davis, Herman, Dayton, Nev. Extracting precious metals from their ores	692,634	Feb. 4	733	.....	98	950
Davis, Howard W., Auburn, Cal. Mining-elevator	694,009	Feb. 25	2490	758	98	1564
Davis, Isaac H., Boston, assignor of one-half to E. D. Mellen, Cambridge, Mass. Power-transmitting device	690,641	Jan. 7	597	115	98	113
Davis, Isaac H., Boston, and E. D. Mellen, Cambridge, Mass. Igniting-plug	690,640	Jan. 7	595	115	98	112
Davis, John N., assignor to Weston Paper and Manufacturing Company, Dayton, Ohio. Paper pail	692,990	Feb. 11	1433	310, 311	98	1119
Davis, John S., Creek, N. C. Spoke and felly fastener	692,198	Jan. 28	2310	750	98	736
Davis, Linford J., Battlecreek, Mich. Marking-pin	691,361	Jan. 21	1908	499	98	481
Davis, Mark, assignor of one-half to I. Lauterstein, New York, N. Y. Apparel-cap	692,949	Feb. 4	61	13	98	811

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Davis, Moses, *et al.* (See Gaschlin, Frederick G., assignor.)						
Davis, Robert and W. H., Washington, D. C., and D. C. Woodbury, Hoboken, N. J. Recording system	691,450	Jan. 21	9057	460 461	98	464
Davis, Robert I., *et al.* (See Corey, Charles W., assignor.)						
Davis & Roesch Temperature Controlling Co. (See Roesch, Alfred, assignor.)						
Davis, Simon, *et al.* (See Gaschlin, Frederick G., assignor.)						
Davis, Sylvester, Hawarden, Iowa. Axle-spindle cutter	691,845	Jan. 28	9515	681 682	98	687
Davis, William F., Milwaukee, Wis. Explosive-engine	694,948	Mar. 11	1172	956 957	98	1978
Davis, William H. (See Davis, Henry J., assignor.)						
Davis, William H. (See Davis and Woodbury.)						
Davy, David, Sheffield, England. Raising or lowering apparatus for mines or the like	695,287	Mar. 11	1821	404 405	98	2111
Dawe, Godfrey, Eau Claire, Wis. Ironing-board	690,992	Jan. 14	1067	940	98	280
Dawes, John L., and W. F. Hull, Pittsburg, Pa.; said Hull assignor to said Dawes. Chipping glass	698,243	Feb. 11	1952	.....	98	1226
Dawley, Winfield W., Geneva, Ohio. Hatch-cover	691,752	Jan. 28	9542	592	98	692
Dawson, Arthur T., and G. T. Buckham, assignors to Vickers, Sons & Maxim, Limited, Westminster, England. Obturator for breech-loading ordnance	695,799	Mar. 18	2729	632	98	2316
Day, Andrew J., Exeter, South Australia, Australia. Geographical clock	694,856	Feb. 25	3999	861 862 863	98	1658
Day, Charles M., assignor to Draper Company, Hopedale, Mass. Clutch mechanism	698,954	Feb. 25	3309	727	98	1541
Day, Charles M., assignor to Draper Company, Hopedale, Mass. Clutch mechanism	698,955	Feb. 25	3311	728	98	1542
Day, George J., Boston, Mass. Oven-thermometer	698,118	Feb. 11	1679	365	98	1170
Day, William H., Hounslow, England. Machine for making candles	694,096	Feb. 25	3586	793 794	98	1598
Dayton Electrical Manufacturing Company. (See Apple, Vincent G., assignor.)						
Dayton Manufacturing Company. (See Linkert, John G., assignor.)						
De Cew, Cortland, assignor of one-fourth to G. Anderson, Brooklyn, N. Y. Railway-tie	694,257	Feb. 25	3992	868	98	1658
De Ford, Paul F., Pasadena, Cal. Device for playing games of chance	698,821	Feb. 18	3085	670	98	1469
De Lacy, Peter, assignor to E. C. Seaman, New York, N. Y. Soda-water fountain	696,874	Mar. 18	2856	650	98	2346
De la Garza, Marcos, Chihuahua, Mexico. Solar heating apparatus	696,396	Mar. 25	3787	844	98	2550
De Lamar, James E., Delark, Ark. Automatic road-gate	691,363	Jan. 21	1910	429	98	432
De Lamarter, William D., Elizabeth, and F. W. Wallace, Plainfield, N. J., assignors to Waclark Wire Company. Rod-coiling apparatus	694,008	Feb. 25	3421	753	98	1564
De Laval, George, Cambridge, and G. P. Aborn, Boston, Mass. Compensating high-duty pumping-engine	690,992	Jan. 14	1136	257 258	98	258
De Laval, George, Cambridge, and C. W. Chisholm, Somerville, Mass., assignors to International Steam Pump Company, New York, N. Y. Wire-rod-straightening machine	696,344	Mar. 25	3814	850 851	98	2555
De Lery, Joseph B. (See Moran, Katherine V., assignor.)						
De Merell, Richard N. (See Palmer, Merritt W., assignor.)						
De Meritte, Lewis I. (See Hanson, Albert G., assignor.)						
De Moulin, Edmund and U. S., Greenville, Ill. Dummy lung-tester	692,251	Feb. 4	64	14	98	812
De Moulin, Ulysses S. (See De Moulin, Edmund and U. S.)						
De Rochemont, Perkins H., assignor of one-half to C. Herron, Chattanooga, Tenn. Singletree end iron	695,990	Mar. 11	1828	406	98	2113
De Witt, Theodore F., Ovid, Mich. Fence	692,991	Feb. 11	1438	811	98	1119
De Zeng, Henry L., Jr., assignor to Cataract Tool and Optical Company, Buffalo, N. Y. Telescope-mounting for guns	691,348	Jan. 14	1033	573	98	356
Dean, Frederick W., Des Moines, Iowa. Handpiece for dental engines	691,758	Jan. 28	9543	592	98	692
Dean, John, assignor of one-half to J. F. Kerr, Paterson, N. J. Driving mechanism for jacquard-machines	691,302	Jan. 21	1909	429	98	431
Dean, William W., assignor to Western Electric Company, Chicago, Ill. Calling apparatus for telephone-lines	692,250	Feb. 4	62	14	98	811
Dearing, David M., assignor to G. S. Wood, Denver, Colo., and H. P. Dearing, Sandstone, Mich. Rotary engine	698,348	Feb. 11	2134	469	98	1265
Dearing, Henry P., *et al.* (See Dearing, David M., assignor.)						
Decker, Annie E., Brooklyn, N. Y. Corset	696,227	Mar. 25	3570	799	98	2508
Decker, John M., assignor of one-half to J. O. Black, N. L. Gartner, and S. R. Sibrell, Kingston, Ohio. Tire-setting machine	692,695	Feb. 4	734	169 170	98	950
Decker, Spencer M., Malden, Mass. Bending and cutting pliers	690,988	Jan. 14	1069	240	98	229
Deere & Company. (See Poole, Staley D., assignor.)						
Dees, Mark A., Mosspoint, Miss. Price-scale	698,842	Feb. 25	3980	679 680 681 682	98	1497
Dees, Mark A., Mosspoint, Miss. Computing-scale	698,843	Feb. 25	3986	683 684	98	1498
Defiance Machine Works. (See Ensign, George A., assignor.)						
Defiance Machine Works. (See Seymour, Charles, assignor.)						
Degenhard, Valentine, Lincoln, Ill. Corn-harvester	690,841	Jan. 7	904	201 202	98	191
Dégrange, Claude, Lyons, France. Vehicle-wheel	698,360	Feb. 18	2308	483 484	98	1290
Dela Mar, Joseph, assignor of nine-tenths to S. Kaufman, New York, N. Y., G. A. Kohler, G. S., W. H., J. A. and F. W. Mayer, G. C. McDade, I. Kohler, and J. C. Heckert, York, Pa. Match-making machine	690,905	Jan. 7	1012	238 239	98	212
Delaney, James G., New York, N. Y., and T. S. Miller, South Orange, N. J. Conveying apparatus	694,255	Mar. 4	26	6	98	1718
Delaney, James J., Shamokin, Pa. Pumping-engine	695,988	Mar. 11	1886	405 406	98	2112
Delaney, Thomas A. (See McCanna and Delaney.)						
Delanoy, Charles E., New York, N. Y., assignor to Delanoy Safety Log Company. Apparatus for indicating, recording, and integrating the speed of vessels	691,451	Jan. 21	9068	461 462	98	465
Delanoy Safety Log Company. (See Delanoy, Charles E., assignor.)						
Delgrande, Antonio, assignor of two-thirds to R. H. Seabury and N. Delgrande, Petersburg, Va. Fire-cracker	692,769	Feb. 4	972	220	98	996
Delgrande, Antonio, assignor of two-thirds to R. H. Seabury and N. Delgrande, Petersburg, Va. Pyrotechnic compound	692,770	Feb. 4	974	.....	98	996
Delgrande, Nicholas, *et al.* (See Delgrande, Antonio, assignor.)						
Dellinger, John, Buffalo, N. Y. Collapsible match-box	695,800	Mar. 18	2731	632	98	2317

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Dellwo, John. (See Ortenblad, Magnus, assignor.)						
Demeler, Karl. (See Eichengrün and Demeler.)	696,319	Mar. 25	3775	841	98	2548
Demorest, David L., Tacoma, Wash. Time circuit-closer	693,844	Feb. 25	3093	684	98	1500
Dempsey, James T., assignor of one-half to P. W. Carey, Kansas City, Kans. Machine for preparing and laying concrete	693,845	Feb. 25	3097	685	98	1500
Dempsey, James T., assignor of one-half to P. W. Carey, Kansas City, Kans. Loading or unloading apparatus						
Dempster, Mary, *et al.* (See Dempster, Robert, assignor.)						
Dempster, Robert, assignor to M. Dempster, H. H. Burns, and N. Morrow, Marietta, Ohio. Apparatus for the manufacture of illuminating-gas	692,771	Feb. 4	975	220 221	98	996
Den, Nicholas A., *et al.* (See Bonhorst, Harry L. von, assignor.)	691,264	Jan. 21	1912	420	98	482
Denckla, Nelsine P., Denver, Colo. Work-holder	694,258	Feb. 25	3894	868	98	1658
Dennert, Jean H. C., assignor to Dennert & Pape, Altona, Germany. Slide-rule						
Dennert & Pape. (See Dennert, Jean H. C., assignor.)	693,686	Feb. 4	797	170 171	98	950
Denney, Harmer, deceased; T. Denney, Brooklyn, N. Y., administratrix. Machinery for making tubes of paper	695,147	Mar. 11	1550	846	98	2059
Denney, Harmer, deceased; T. Denney, Brooklyn, N. Y., administratrix. Hydrant	693,846	Feb. 25	3099	685	98	1501
Denney, Teresa, administratrix. (See Denney, Harmer.)						
Dennis, Henry P., A. D. Potter, and J. H. Ellis, Peoria, Ill. Washing-machine	693,501	Feb. 18	2485	532	98	1347
Denny, David W., Warrenville, S. C., assignor to Draper Company, Hopedale, Mass. Weft-fork clearer for looms	693,788	Feb. 18	2966	655	98	1455
Densmore, Harry T., Knoxville, Pa. Rail-joint						
Densmore Typewriter Company. (See Barron, Walter J., assignor.)						
Dent, Frank W., assignor of two-thirds to G. W. Swaggart and B. Griffin, Waukesha, Wis. Wrench	690,407	Jan. 7	97	9	98	11
Denzel, Eugene, *et al.* (See Laswell, Martin, assignor.)						
Deplanty, Charles F. (See Caudry and Deplanty.)	691,610	Jan. 21	2346	527 528	98	522
Dern, Jasper L., Philadelphia, Pa. Chocolate-coating machine	693,244	Feb. 11	1953	424	98	1295
Derr, Frank P., Baltimore, Md. Electric-railway construction						
Derr, Heister C. (See Parsons and Derr.)						
Derr, William R., Baltimore, Md., assignor to M. W. Gatch, Cincinnati, Ohio. Shoe-polisher	693,245	Feb. 11	1954	424	98	1295
	694,841	Mar. 4	958	213	98	1916
Derrick, Franklin R., Brodhead, Wis. Supplemental book-cover fastener	692,195	Jan. 28	3424	777 778	98	762
Désy, Louis A., assignor of one-half to M. Benoit, Montreal, Canada. Machine for unraveling knit goods	691,452	Jan. 21	2066	462	98	485
Dethloff, William L., Milwaukee, Wis. Pool-billiard table						
Detroit Composite Company. (See Schanz, William, assignor.)						
Detroit Trolley and Manufacturing Company. (See Lidke, Otto F., assignor.)						
Deutsche Waffen-und Munitionsfabriken. (See Brüggemann, August, assignor.)						
Devaux, Narcisse, and H. Richard, Vonnas, France. Railway-sleeper made of metal and wood	695,671	Mar. 18	2500	567 568	98	2270
Devine, William P., South Boston, Mass., assignor to Consolidated Fastener Company, Portland, Me. Fastener for gloves, &c.	691,308	Jan. 14	1772	405	98	384
Devlin & Co., Thomas. (See Evans, Henry O., assignor.)						
Devlin, Walter E. (See Bennett, Dwight W., assignor.)						
Devoe, Albert H., Chicago, Ill., assignor of one-half to A. H. Simon, Jefferson County, Ky. Sewing-machine hemmer	691,754	Jan. 28	2545	592	98	603
	693,502	Feb. 18	2436	532 533	98	1347
Devoe, Benjamin G., and C. W. Dailey, Lima, Ohio. Oil-burner	695,544	Mar. 18	2962	511	98	2221
Dewes, John, New York, N. Y. Die	690,708	Jan. 7	653	143	98	133
Dexter, Talbot C., Pearl River, N. Y. Sheet-calipering device	691,988	Jan. 28	2958	666 667	98	667
Dexter, Talbot C., Pearl River, N. Y. Collating-machine	690,704	Jan. 7	655	143	98	133
Dezell, James A., Kingston, Ala. Heating apparatus						
Dial, Wilbur F. (See Dimond and Dial.)						
Dial, Wilbur F., and G. H. Dimond, assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Take-up for sewing-machines	695,915	Mar. 25	3945	667 668	98	2376
	696,186	Mar. 25	3988	764	98	2469
Diamond, Edward F., Oakland, Cal. Emergency-shackle	695,672	Mar. 18	2501	568	98	2270
Diaz, Francisco R., Tampa, Fla. Implement for opening cigar-boxes	690,984	Jan. 14	1069	240	98	340
Dick, Joseph, Canton, Ohio. Endless conveyer-chain	695,634	Mar. 18	2442	552	98	2258
Dickenson, Charles, Washington, D. C. Life-boat	692,688	Feb. 4	741	171	98	951
Dickerson, Edward N., New York, N. Y. Acetylene-gas generator	690,842	Jan. 7	905	202	98	192
Dickey, Robert B., Waco, Tex. Memorandum clip-board						
Dicks, William, Beaverfalls, assignor of one-half to G. H. Blaxter, Pittsburg, Pa. Guiding device for tube-mills	693,381	Feb. 18	2304	484	98	1599
	692,992	Feb. 11	1434	311	98	1119
Dickson, Archibald A., Toronto, Canada. Die-block	695,879	Mar. 11	1907	440	98	2142
Dickson, Henry, Middleboro, Mass. Collapsible wall clothes-drier						
Dickson, William K.-L., London, England, assignor to American Mutoscope Company, New York, N. Y. Consecutive-view apparatus	695,916	Mar. 25	3961	668	98	2377
	695,673	Mar. 18	2503	568 569	98	2271
Diebel, William, Philadelphia, Pa. Differential-speed and reversing mechanism	695,674	Mar. 18	2507	569	98	2271
Diebel, William, Philadelphia, Pa. Heat-radiating device						
Diehl, Jacob, assignor of one-half to W. H. and E. H. Schmidt, West New York, N. J. Rail-joint	694,949	Mar. 11	1177	258	98	1979
	691,458	Jan. 21	2068	462	98	485
Dierkes, Alex, Chicago, Ill. Dish-washer	691,454	Jan. 21	2069	462	98	486
Dies, Charles A., Chicago, Ill. Manufacture of pipe-fittings	693,120	Feb. 11	1683	366 367	98	1170
Diescher, Samuel, assignor to S. Diescher & Sons, Pittsburg, Pa. Heating-furnace	693,119	Feb. 11	1681	365 366	98	1170
Diescher, Samuel E., Pittsburg, Pa. Drawing tubes						
Diescher & Sons, Samuel. (See Diescher, Samuel, assignor.)						
Dieter, Alvin A., Newton, assignor to Great Eastern Manufacturing Company, Boston, Mass. Dress-stay	694,619	Mar. 4	543	118	98	1828
	691,249	Jan. 14	1636	.....	98	956
Dieterich, Karl, Helfenberg, Germany. Testing-paper and making same						
Dietrich, Robert. (See Schaaf, Heinrich, assignor.)						
Dietz, Conrad, Cincinnati, Ohio. Mechanical movement	692,993	Feb. 11	1435	311 312	98	1120
Dietz, John F., Cincinnati, Ohio. Desk-leaf support	695,545	Mar. 18	2963	512	98	2222
Dillingham, Edward, Chelsea, Mass. Attachment for handles of brooms, hoes, or like articles	695,197	Mar. 11	1643	365	98	2077
	695,801	Mar. 18	2731	632	98	2317
Dillon, William S., San Francisco, Cal. Confectionery-machine						
Dimant, Elias, *et al.* (See Dugins, William F., assignor.)						
Dimond, George H. (See Dial and Dimond.)						
Dimond, George H., and W. F. Dial, assignors to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Sewing-machine cloth-presser	696,012	Mar. 25	3127	706	98	2412

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Dinger, Isaac, McKees Rocks, Pa. Steel tie for railways	690,705	Jan. 7	655	143	98	126
Dingle, William G., Los Angeles, Cal. Street-sweeping machine	694,680	Mar. 4	544	119	98	1599
Dinsmore, Clarence G., Staatsburg, N. Y. Pneumatic-tire protector	690,706	Jan. 7	656	144	98	129
Dion, Albert de, and G. Bouton, Puteaux, France. Electric battery	691,611	Jan. 21	2350	585	98	588
Dion, Albert de, and G. Bouton, Puteaux, France. Variable-speed and gear-reversing mechanism for motor road-vehicles	694,842	Mar. 4	959	213 214	98	1916
Dion, Léon, Boston, Mass. Electric traction road	694,817	Feb. 25	4060	908 908	98	1666
Dion, Léon, Boston, Mass. Electric traction-road	694,843	Mar. 4	960	214	98	1916
Dirand, Louis J., Torrington, Conn. Motor-vehicle	695,802	Mar. 18	2783	622	98	2317
Diss, Albert B., Brooklyn, N. Y., assignor to United States Braid Machine Manufacturing Company, Newark, N. J. Braiding-carrier	694,536	Mar. 4	790	66	98	1795
Diss, Albert B., Brooklyn, N. Y., assignor to United States Braid Machine Manufacturing Company, Newark, N. J. Braiding-machine	695,601	Mar. 18	2878	588 589	98	2346
Diss, Albert B., Brooklyn, N. Y., assignor to United States Braid Machine Manufacturing Company, Newark, N. J. Braiding-machine	695,094	Mar. 25	3008	742 743	98	2446
Dittler, Friedrich W., Berlin, Germany. Apparatus for clarifying fecal matter	691,305	Jan. 21	1913	450	98	423
Dixey, John P. (See Corner, George E., assignor.)						
Dixon, Henry L., Pittsburg, Pa. Glass-pot furnace	691,250	Jan. 14	1687	373	98	356
Dixon, James N., Richmondale, Ohio. Dumping-wagon	693,246	Feb. 11	1955	425	98	1296
Dixon, Robert M., East Orange, N. J. Valve	692,358	Feb. 4	66	14	98	813
Dixon, Walter L. (See Dixon, William W. and W. L.)						
Dixon, William W., Boston, Mass., assignor to Reece Button Hole Machine Company, Portland, Me. Buttonhole-stitching machine	695,069	Mar. 11	1852	298	98	2015
Dixon, William W. and W. L., Boston, Mass., assignor to Reece Folding Machine Company, Portland, Me., and Boston, Mass. Machine for folding collar-blanks, &c	694,844	Mar. 4	960	215 216	98	1916
Doan, Gerard, Union Springs, N. Y. Twyer	694,004	Feb. 25	3422	754	98	1565
Dobbins, Calvin S., North Bend, Nebr. Wagon-lock	690,408	Jan. 7	38	10	98	11
Dobson, John and James. (See Benham, Walter, assignor.)						
Dodd, George R., Anderson, S. C. Pole-hoister	695,290	Mar. 11	1929	407	98	2112
Dodd, Joseph L., assignor of one-half to U. C. McKee, Camden, N. J. Scale and gage for printers' use	691,715	Jan. 21	2385	568	98	563
Dodd, Willis G., San Francisco, Cal. Ore or pulp sampler	693,690	Feb. 18	2808	617 618	98	1423
Dodd, Willis G., San Francisco, Cal. Ore-concentrator	694,005	Feb. 25	3425	754	98	1565
Dodge, Charles H., *et al.* (See Hass, Cyrus A., assignor.)						
Dodge Coal Storage Company. (See Plex and Beaumont, assignors.)						
Dodge, Edward E. (See Heath, Clarence F., assignor.)						
Dodge, James M., Philadelphia, Pa., assignor to Stair Lift Company, Camden, N. J. Stair-lift	693,780	Feb. 18	2968	655	98	1456
Dodge, James M., assignor to Link Belt Engineering Company, Philadelphia, Pa. Wheel or pulley	696,290	Mar. 25	3777	842	98	2546
Dodge, Nathaniel B., Fitchburg, Mass. Track-sander	693,258	Feb. 4	68	15	98	818
Dodge, Philip T., Washington, D. C. Type-writing machine	694,587	Mar. 4	902	86	98	1796
Dodge, Philip T., New York, N. Y., assignor to Mergenthaler Linotype Company. Linotype-machine	690,707	Jan. 7	657	144	98	129
Dods, Henry, Virginia City, Nev. Machine for cutting material into strips for the manufacture of piston-packing	691,612	Jan. 21	2351	588	98	588
Dodson, Roy, Dallas, assignor of one-half to H. O. Wolf, Dallas County, Tex. Horse-collar-blocking machine	694,788	Mar. 4	765	170	98	1873
Doe, Charles R., Mount Pleasant, Iowa. Car-door fastener	693,691	Feb. 18	2810	618	98	1423
Doeppe, Charles L. A. (See Millhiser and Doeppe.)						
Doering, August, Burt, assignor of three-fourths to W. K. Ferguson, E. J. Murtagh, and W. P. Jones, Algona, Iowa. Platform-scale	696,847	Feb. 25	3101	686	98	1501
Doering, George H., Brooklyn, N. Y. Trap fish-hook	696,013	Mar. 25	3129	706	98	2413
Doherty, George, Boston, Mass. Ink-well	690,843	Jan. 7	907	202	98	198
Doherty, George, Boston, Mass. Bottle-rinsing machine	695,446	Mar. 18	2077	468 469	98	2184
Doig, Emma, executrix. (See Milliken, John A., assignor.)						
Dolan, Edward J., Philadelphia, Pa. Gas-burner	692,254	Feb. 4	69	15	98	813
Dollar, William M. (See Greene and Dollar.)						
Dolley, Linus. (See Church, Frank S., assignor.)						
Dominick, Ambiehl, and L. Kreba, New York, N. Y. Boat	695,917	Mar. 25	2953	668	98	2377
Dominy, Ezra, Frederick, S. D. Harvester	691,846	Jan. 28	2817	639	98	639
Donald, John A., and H. L. Bussey, South Ryegate, Vt. Fruit-jar and cover	691,366	Jan. 21	1916	430	98	423
Donaldson, James H., and H. H. Schroyer, assignors to themselves and E. J. Ward Company, Chicago, Ill. Diaphragm for car-vestibules	695,918	Mar. 25	2953	669	98	2377
Donaldson, William R. (See Worth and Donaldson.)						
Donaldson, William R., *et al.* (See Worth, William O., assignor.)						
Donally, Melvin E., Brooklyn, N. Y. Oil-quenching apparatus	696,014	Mar. 25	3128	707	98	2413
Donat, Johannes von. (See Leps, Karl, assignor.)						
Donavin, George B., Columbus, Ohio. Locking device for combined mess-chests and ranges	692,689	Feb. 4	744	172	98	968
Donnell, Jesse F., *et al.* (See Meyer, Henry L., assignor.)						
Donnelly, James A. (See Serrell and Donnelly.)						
Donohue, James S., assignor of one-half to J. W. Whelan, Georgetown, D. C. Gas-purifier	695,875	Mar. 18	2807	650	98	2345
Donovan, Thomas J., and E. G. Alderson, Nashville, Tenn. Junction-sleeve for electrical conductors	695,863	Mar. 18	2841	645	98	2340
Doolan, Henry J., Washington, D. C. Carbureter	692,855	Feb. 4	71	15	98	813
Doremus, Willard D., Washington, D. C. Car-seal	691,716	Jan. 21	2387	566	98	563
Dorland, William A. N., Philadelphia, Pa. Automatic switch-controller	692,060	Jan. 28	3188	717 718	98	710
Dornan, Thomas B., Philadelphia, Pa. Woven pile fabric	696,015	Mar. 25	3128	707	98	2413
Dornfeld, John F., Milwaukee, Wis. Malt-kiln	693,121	Feb. 11	1684	367	98	1171
Dörr, Clemens, Germersheim, Germany. Production of solid materials from tar, &c	691,984	Jan. 28	2961	.....	98	666
Dorrestein, C. A., administrator. (See Allison, Samuel B.)						
Dorsey, Charles J., assignor of one-half to J. Felsenstein, Baltimore, Md. Plural-fuse cut-out	694,919	Mar. 4	1104	948	98	1945
Dorsey, John S., Langdon, D. C. Garment-supporter	693,122	Feb. 11	1687	367	98	1171
Dotts, Hiram S., Thoburn, assignor of one-half to J. C. Nay, Monongah, W. Va. Egg-opener	696,016	Mar. 25	3125	707	98	2414
Doud, Charles A., La Crosse, Wis. Banana-crate	694,845	Mar. 4	972	216	98	1919
Dougherty, Charles B., *et al.* (See MacCallum, John, Jr., assignor.)						
Dougherty, Harry L. (See Lipphard, William A., assignor.)						
Douglas, Henry W. (See Henning, Abel, assignor.)						
Dow, Herbert H., Midland, Mich. Apparatus for the prevention of sparking and arcing in electric circuits	692,422	Feb. 4	388	91	98	976

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Dowell, Arthur E., Washington, D. C., assignor to Duplex Printing Press Company, Battlecreek, Mich. Printing-press	694,846	Mar. 4	973	217	98	1919
Downer, Benjamin J. (See Fisher, Harvey L., assignor.)						
Downes, Henry P. (See Murphy, Barney, assignor.)						
Downey, Richard F., assignor to Automatic Portable Bowling Alley Company, Menominee, Mich. Game-table	696,882	Feb. 18	2205	484	98	1299
Downey, Richard F., assignor to Automatic Portable Bowling Alley Company, Menominee, Mich. Cushion for game-tables	694,463	Mar. 4	940	52	98	1763
Downs, Edgar S., New Haven, Conn., assignor of one-half to C. S. McLean, Rochester, N. Y. Carbonometer	690,409	Jan. 7	89	10	98	11
Downs, Wallace A. (See Cole, William L., assignor.)	690,410	Jan. 7	93	10	98	12
Dowswell, George B., Hamilton, Canada. Washing-machine	691,613	Jan. 21	2363	549	98	528
Doyle, Peter J., Stamford, Conn. Cooler for liquids	690,506	Jan. 7	382	79	98	83
Drake, Zachariah E., and J. C. Semple, Modesto, Cal. Fly-trap						
Draper, Clare H., assignor to Draper Company, Hopedale, Mass. Shuttle-checking means for looms	696,885	Feb. 11	1099	246	98	1049
Draper, Clare H., and E. S. Stimpson, assignors to Draper Company, Hopedale, Mass. Filling-replenishing mechanism for looms	695,040	Mar. 11	1358	298 299	98	2016
Draper Company. (See Day, Charles M., assignor.)						
Draper Company. (See Denny, David W., assignor.)						
Draper Company. (See Draper, Clare H., assignor.)						
Draper Company. (See Draper and Stimpson, assignors.)						
Draper Company. (See Edwards, John C., assignor.)						
Draper Company. (See Goulet, Joseph A. G., assignor.)						
Draper Company. (See Lamb, John A., assignor.)						
Draper Company. (See Marcoux, Alida M., assignor.)						
Draper Company. (See Northrop, Jonas, assignor.)						
Draper Company. (See Roper, Charles F., assignor.)						
Draper Company. (See Stimpson, Edward S., assignor.)						
Draper Company. (See Ward, Neil, assignor.)						
Draper, George O., Hopedale, Mass. Automobile	698,591	Feb. 18	2619	578	98	1383
Drennen, Eugene J. A., *et al.* (See Barr, Addison, assignor.)						
Drittler, William H. (See Schwarz and Drittler.)						
Droeshout, Pedro, and J. M. Clark, Havana, Cuba. Tipping-table	696,164	Mar. 25	3453	774	98	2481
Droitcour, Michael A., Pittsburg, Pa., and G. F. Kalkhoff, Brooklyn, N. Y. Sheeting attachment for printing-presses	692,124	Jan. 28	3310	750 751	98	736
Dronne, Francois, Annadale, N. Y. Detachable handle for cooking vessels	691,050	Jan. 14	1298	294	98	286
Drover, James, St. Johns, Newfoundland. Thread measuring and cutting device for spool-cabinets	694,950	Mar. 11	1179	258	98	1980
Drury, Sumner, Wolcott, N. Y. Slicing-machine	692,640	Feb. 4	745	172	98	962
Dryer, George W., New York, N. Y. Car-seat	696,095	Mar. 25	3300	745	98	2450
Drynan, Thomas, Sewickley, Pa. Fruit or flower picker	690,567	Jan. 7	383	79	98	88
Du Bois, Josiah S., Camden, N. J. Type-writer	694,464	Mar. 4	242	53, 54	98	1764
Du Bois, Matthew N., Philadelphia, Pa. Saw-set	694,142	Feb. 25	3665	810	98	1614
Du Brul, Cyriac and L. J., Brooklyn, N. Y., assignors to Miller, Du Brul and Peters Manufacturing Co., Cincinnati, Ohio. Cigar-wrapper cutter	694,259	Feb. 25	3894	864	98	1858
Du Brul, Lester J. (See Du Brul, Cyriac and L. J.)						
Dubbs, Jesse A., Pittsburg, Pa. Distilling oil	694,621	Mar. 4	545	119	98	1829
Dubbs, Jesse A., Pittsburg, Pa. Distilling oil	694,622	Mar. 4	546	119	98	1829
Dubois, Louis J. M. (See Prieur and Dubois.)						
Ducasble, Alfred, Paris, France. Pneumatic tire	690,985	Jan. 14	1070	241	98	240
Duck, Joseph G. (See Labadie, William D., assignor.)						
Ducousso, Théophile, and F. Rodary, Paris, France. Electrical operation and control of railway-switches	694,847	Mar. 4	977	217	98	1920
Ducros, Edward O. (See Fernandez, Felix T., assignor.)						
Dudásch, Ladislaus, Newark, N. J. Paper-cutting machine	698,508	Feb. 18	2487	533	98	1347
Duer, Lenna G., assignor to M. J. Jordan, Colorado Springs, Colo. Combined pipe-holder and cigar-tray	695,380	Mar. 11	1966	440	98	2143
Duerst, Joseph A., Philadelphia, Pa. Zither support and sounding device	694,094	Feb. 25	3589	794	98	1508
Dufwa, Frederick W., Mexico, Mexico. Blade for propellers for air-ships	694,356	Mar. 4	28	6	98	1718
Duggan, Timothy, Denver, Colo. Tobacco-pipe	698,730	Feb. 18	2970	656	98	1456
Dugins, William F., assignor of three-fourths to J. J. P. Garrett, Kew, H. M. Todd and E. Dimant, Melbourne, Victoria, Australia. Blind-roller	695,094	Mar. 11	1450	321	98	2035
Duitte, Pierre. (See Vrard, Vendredy, Duitte, and Gauthier.)						
Dumas, Frank E. (See McCormick, Marion F., assignor.)						
Dumesnil, Antoine. (See Cicotte, Joseph, assignor.)						
Dunbar, William. (See Mittinger, George E., Jr., assignor.)						
Duncan, Joseph S., assignor to Addressograph Company, Chicago, Ill. Holder for card-indexes and printing-plates	692,994	Feb. 11	1437	312	98	1120
Duncan, Joseph S., assignor to Addressograph Company, Chicago, Ill. Combined card-index and stencil-frame	692,995	Feb. 11	1439	312	98	1121
Duncan, Joseph S., assignor to Icecubator Company, Chicago, Ill. Machine for sawing ice into cubes or blocks	694,260	Feb. 25	3998	805	98	1660
Dunham, Frederick C., Flemington, N. J. Dumping-car	695,808	Mar. 18	2736	628	98	2318
Dunham, Henry V., New York, N. Y., assignor to Casein Company of America. Insoluble casein and producing same	695,198	Mar. 11	1644	.....	98	2077
Dunlap, Sam H., Kurten, Tex. Wire-stretcher	691,847	Jan. 28	2818	632	98	686
Dunlap, Simon L., Indianapolis, Ind. Form or pattern for cement cisterns	695,804	Mar. 18	2737	624	98	2316
Dunlavey, William P., *et al.* (See Stephenson, Levi T., assignor.)						
Dunlavy, James P., *et al.* (See Stephenson, Levi T., assignor.)						
Dunn, George F., assignor to W. B. Arnold, Brockton, Mass. Shoe-tree	698,848	Feb. 25	3706	686	98	1501
Dunn, James F., Salt Lake City, Utah. Locomotive front-end-coupling gear	695,291	Mar. 11	1430	407	98	2113
Dunn, Mary A., New York, N. Y. Safety attachment for harness	690,643	Jan. 7	389	115	98	118
Dunn, Morton E., and O. B. Henderson, Indianapolis, Ind. Garment-fastener	696,226	Mar. 25	3571	799	98	2503
Dunn, William H., and D. McCurdy, Waco, Tex. Ironing-machine	691,755	Jan. 28	2647	592	98	606
Dunne, Thomas J. (See Koehler, Fred L., assignor.)						
Duplex Printing Press Company. (See Dowell, Arthur E., assignor.)						
Dupont, Charles E., and A. Sills, Manchester, N. H. Whiffletree construction	691,897	Jan. 28	2900	658	98	625
Duppler, Anton. (See Krey and Duppler.)						
Duquemin, Frederic, Fall River, Mass. Vehicle propulsion mechanism	698,956	Feb. 25	3813	799	98	1562
Durham, Shiloh W., San Jose, Cal. Penholder	691,614	Jan. 21	2354	539	98	534
Durham, Thomas F., Philadelphia, Pa. Safety blasting-cartridge	691,367	Jan. 21	1917	481	98	433
Durkin, Daniel, Manville, R. I. Picker-motion for looms	698,592	Feb. 18	2921	579	98	1364
Durrett, Thomas J., Sr., Arcadia, La. Canopy-support	692,641	Feb. 4	746	172	98	952
Dutchess Tool Company. (See Van Houten, Frank H., assignor.)						
Dutton, Edgar F., Schenectady, N. Y., assignor to General Electric Company. Controller for electric motors	696,017	Mar. 25	3137	707	98	2414

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Dutton, Samuel T., Worcester, assignor to J. F. Pease and Company, Limited, Darlington and Worcester, England. Pulley for signal-wires or other purposes	695,381	Mar. 11	1909	441	98	2143
Dyblie, Julius A., Joliet, Ill. Reversing-valve for heating-furnaces	691,851	Jan. 14	1689	374, 375	98	357
Dyer, Charles, Osage City, Kans. Liquid-measuring device	690,986	Jan. 14	1071	241	98	940
Dyer, Henry. (See Koeller and Dyer.)						
Dyer, Louise M., and A. B. Colhoun, Yazoo City, Miss. Ink-well	690,643	Jan. 7	530	116	98	118
Dyre, William E., Takoma Park, D. C., assignor of one-half to H. Parker, New York, N. Y. Winding attachment for graphophones	698,782	Feb. 4	997	286	98	1001
Dyson, Harry, Lockwood, Huddersfield, assignor of three-fourths to J. S. Gaunt, Manchester, England. Workman's time-recorder	691,259	Jan. 14	1643	375, 376	98	358
E. C. Atkins & Company. (See Buell, Warren C., assignor.)						
E. & H. T. Anthony & Company. (See Farquhar, Harry D., assignor.)						
E. J. Ward Company. (See Donaldson and Schroyer, assignors.)						
E. W. Bliss Company. (See Leavitt, Frank M., assignor.)						
Escutt, Isaac A. (See Cawthorn, James T., assignor.)						
Eagan, Daniel. (See Schaffer, Morse B., assignor.)						
Eagle Pencil Company. (See Krauss, Emil, assignor.)						
Eagle Pencil Company. (See McIntyre, Frank, assignor.)						
Earnshaw, Henry P. J., Hydepark, Mass. Steam-generator	696,165	Mar. 25	3454	774	98	2482
East, Samuel, Harbor Beach, Mich. Clothes-rack	691,308	Jan. 21	1919	431	98	434
Eastman, Ambrose, *et al.* (See Cooley, John F., assignor.)						
Eastman, Henry F., assignor to Eastman Metallic Body Company, Cleveland, Ohio. Metallic body for vehicles	691,455	Jan. 21	2070	463, 464	98	466
Eastman Kodak Company. (See Brownell, Frank A., assignor.)						
Eastman Metallic Body Company. (See Eastman, Henry F., assignor.)						
Eastwood, Arthur C., assignor to Electric Controller and Supply Company, Cleveland, Ohio. Resistance-coil	698,692	Feb. 18	2812	618	98	1425
Eastwood, Arthur C., assignor to Electric Controller & Supply Company, Cleveland, Ohio. Electric controller	698,791	Feb. 18	2971	656	98	1456
Eaton, Andrew L., New York, N. Y. Bar-dressing	691,985	Jan. 28	2964	667	98	606
Eaton, Russell W., Brunswick, Me. Speed-recording apparatus	694,913	Mar. 4	1106	344	98	1946
Ebel, George H., St. Paul, Minn. Reversing-gear for engines	696,675	Mar. 18	2509	569, 570	98	2271
Ebersole, Edward O. (See Vogt, George, assignor.)						
Ecker, Heinrich, Sinzig, Germany. Military stool	692,506	Feb. 4	500	117	98	901
Eclipse Office Furniture Company of Ottawa. (See Seybold and Mountford assignors.)						
Edblad, Johan W., Asele, Sweden. Driving mechanism for cycles	690,411	Jan. 7	43	11	98	13
Eddy, George W., assignor to Scovill Manufacturing Company, Waterbury, Conn. Air-pump	695,199	Mar. 11	1645	366	98	2077
Eddy, Richard H., and J. B. Johnston, Providence, R. I. Vaginal syringe	691,698	Jan. 21	2511	562	98	558
Eddy, Walton A., Randolph, N. Y. Foot-rest attachment for chairs	694,586	Mar. 4	994	86	98	1796
Edelmann, Arthur. (See Frölich, Huth, and Edelmann.)						
Edenborough, Harold, Snaresbrook, assignor of one-half to G. H. Price and Co., London, England. Wheel for vehicles	695,805	Mar. 18	2789	624	98	2219
Edgar, Butler, Danville, Pa. Fish-hook	696,018	Mar. 25	3138	708	98	2414
Edgarton, A. Lewis, Chicago, Ill. Hand-stamp	694,318	Feb. 25	4061	903	98	1665
Edison Storage Battery Company. (See Edison, Thomas A., assignor.)						
Edison, Thomas A., Llewellyn Park, N. J., assignor to Edison Storage Battery Company. Reversible galvanic battery	692,507	Feb. 4	502	117, 118	98	901
Edmonds, Austin B., Ridgefield, Wash. Combined saw set, gage, swage, and jointer	698,504	Feb. 18	2440	554	98	1348
Edward Miller & Company. (See Williams, Frank T., assignor.)						
Edwards, Able, Range, Okla. Ter. Wire-gate fastener	692,906	Feb. 11	1440	313	98	1121
Edwards, Chandler S., *et al.* (See Coleman, Albert, assignor.)						
Edwards, Charles W., St. Thomas, England. Musical skipping-rope	693,698	Feb. 18	2814	618	98	1434
Edwards, Edward R., Norwood, Ohio. System of keeping accounts	690,708	Jan. 7	669	144, 145	98	139
Edwards, F. G., *et al.* (See Bennett, Charles R., assignor.)						
Edwards, Ira C. (See Cain, Charles E., assignor.)						
Edwards, James, Peru, Ill. Wheel	692,856	Feb. 4	78	16	98	814
Edwards, James D., St. Louis, Mo. Brake	691,846	Jan. 28	2980	638	98	686
Edwards, James H. T., Sanford, S. C. Combined spring-bed and invalid-chair	690,844	Jan. 7	508	203	98	198
Edwards, John C., Brookline, Mass. Electromechanical controlling mechanism for looms	690,644	Jan. 7	529	116	98	114
Edwards, John C., Brookline, assignor to Draper Company, Hopedale, Mass. Filling-replenishing loom	691,456	Jan. 21	2072	464	98	466
Edwards, Joseph, Brooklyn, N. Y. Bushing for centrifugal pumps	693,947	Feb. 11	1956	495	98	1296
Edwards, Lewis J. (See Wright and Edwards.)						
Edwards, Victor E. (See George and Edwards.)						
Edwards, Victor E., and P. B. Morgan, assignors to Morgan Construction Company, Worcester, Mass. Furnace for heating ingots	691,849	Jan. 28	2821	633	98	630
Effron, Jacob, *et al.* (See Simpson, Daniel B., assignor.)						
Egan, Charles E., assignor to J. S. Carr, Durham, N. C. Apparatus for teaching telegraphy	696,447	Mar. 18	2078	460	98	2185
Egan, George V., San Francisco, Cal. Lady's skirt-elevator	696,546	Mar. 18	2965	512	98	2282
Egger, Christian A., New Kensington, Pa. Railway-switch	692,125	Jan. 28	3312	751	98	737
Egnér, Carl. (See Stafsing and Egnér.)						
Egry Autographic Register Company. (See Schirmer, Theodor F., assignor.)						
Ehlermann, Erich, Dresden-Altstadt, Germany. Manufacturing autotype-plates	691,585	Jan. 21	2204	495	98	494
Eichberg, Rudolph C. (See Hutchison, Maurice F., assignor.)						
Eichengrün, Arthur, and K. Demeler, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Developing photographic pictures	696,019	Mar. 25	3139	.....	98	2415
Eichengrün, Arthur, and K. Demeler, Elberfeld, Germany, assignors to Farbenfabriken of Elberfeld Co., New York, N. Y. Amidoöxybenzyl compound and making same	696,080	Mar. 25	3140	.....	98	2415
Eidel, Johann B., Jr., Kehl, and G. Hartmann, Strasburg, Germany. Rotary engine	695,095	Mar. 11	1451	331, 332	98	2095
Einfeldt, Emil, Davenport, Iowa, assignor to Bettendorf Metal Wheel Company. Machine for forming spoke-holes in hubs	690,906	Jan. 7	1017	220	98	212
Einstein, Alfred C., St. Louis, Mo. Acetylene-gas generator	698,948	Feb. 11	1957	435	98	1227
Eisaman, Amos B., Greensburg, Pa. Wagon-bolster stake	690,845	Jan. 7	909	203	98	148
Eisele, Jacob, Pittsburg, Pa. Switch-operating mechanism	694,006	Feb. 25	3427	754	98	1565
Eisele, Josef. (See Lombardo, Wilhelm, assignor.)						
Eisenhart, Edward H., New York, N. Y. Match-making machine	692,196	Jan. 28	3314	731, 732	98	737
Eisenhuth, Oscar, assignor to C. F. Heyerman, Detroit, Mich. Pipe-coupling	692,642	Feb. 4	747	173	98	988
Eklund, Peter S., Newcastle, Pa. Nut-lock	690,846	Jan. 7	910	203	98	198
Elder, Edward H., assignor to Hopkins & Allen Arms Co., Norwich, Conn. Ejector for breakdown guns	690,568	Jan. 7	354	79	98	85

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Elder, Fred L. (See Elder, James E. and F. L.)						
Elder, James E. and F. L., Dayton, Wash. Threshing-machine	693,505	Feb. 18	2442	534, 535	98	1348
Eldred, Byron E., Brookline, Mass. Calcining lime, &c	692,257	Feb. 4	74	16	98	814
Electric Controller and Supply Company. (See Eastwood, Arthur C., assignor.)						
Electric Gas Lighting Company. (See Howes, Charles F., assignor.)						
Electric Ozone Syndicate. (See Smith, Robert F. W., assignor.)						
Electric Power Development Company. (See Pocock and Kennedy, assignors.)						
Electric Purifying Company. (See Holland, Charles E., assignor.)						
Electric Resistance and Heating Company. (See Bachmann and Vogt, assignors.)						
Electric Sparking and Illuminating Company. (See Wilson, James M., assignor.)						
Electric Storage Battery Company. (See Smith, Edward W., assignor.)						
Electric Storage Battery Company. (See Taylor, William, assignor.)						
Electrite Company. (See Gill, Edwin R., assignor.)						
Electrite Company. (See Sundh, August, assignor.)						
Electro-Chemical Company. (See Le Sueur, Ernest A., assignor.)						
Electro Dental Manufacturing Company. (See Schramm, Adolph W., assignor.)						
Electro Dental Manufacturing Company. (See Schramm and Wilford, assignors.)						
Elevator Safety Company. (See Kirsch, Charles W., assignor.)						
Eley, Thomas J., *et al.* (See Bangley, Joseph L., assignor.)						
Elias, Leopold. (See Raphael and Elias.)						
Elick, George. (See Brown and Elick.)						
Elieson, Chaimsonovitz P., and V. de Bobinsky, Paris, France. Electric accumulator	692,438	Feb. 4	371	91	98	876
Elken, Gudbrand L., *et al.* (See Coleman, Albert, assignor.)						
Elken, Mikkel L., *et al.* (See Coleman, Albert, assignor.)						
Ellery, Robert L., Portsmouth, N. H., assignor to Morley Button Manufacturing Company, Boston, Mass. Eyelet	691,850	Jan. 28	2894	683	98	699
Ellingwood, George E. (See Bloom, Philip J., assignor.)						
Elliott, George R. (See Cushing, John W., assignor.)						
Elliott & Hatch Book-Typewriter Company. (See Hillard, Frederic W., assignor.)						
Elliott, James, Coventry, England. Tilting holder for barrels	692,434	Feb. 4	372	91	98	876
Elliott, Richard C., and C. Holliwell, Broadheath, England, assignors to Mergenthaler Linotype Company, New York, N. Y. Means for producing fudge or late-news linotypes	691,615	Jan. 21	2855	529, 530	98	694
Elliott, Sterling, Boston, Mass. Machine for folding and wrapping	696,021	Mar. 25	3141	708, 709	98	2415
Elliott, W. H., *et al.* (See Smith, Gary B., assignor.)						
Elliott, William Y., Anaconda, Mont. Bag-holder	691,120	Jan. 14	1399	318	98	306
Ellis, Charles S., Chicago, Ill. Car-seal	692,886	Feb. 11	1100	246	98	1049
Ellis, Charles S., Chicago, Ill. Spring-upholstery work	692,887	Feb. 11	1102	246	98	1050
Ellis, John H. (See Dennis, Potter, and Ellis.)						
Ellis, John H., Peoria, Ill. Washing-machine	694,143	Feb. 25	3667	.811	98	1614
Ellis, Marshall D., Congress Heights, D. C., assignor of one-half to G. M. Field, High-point, N. C. Apparatus for preserving foods	694,261	Feb. 25	3901	955	98	1650
Ellsworth, Hezekiah, Albuquerque, N. Mex. Ter. Fruit-picker	692,888	Feb. 11	1104	247	98	1050
Elmore, Alexander S., London, England. Apparatus for separating minerals by selective action of oils	692,643	Feb. 4	748	173	98	953
Elmore, Francis E. (See McDermott and Elmore.)						
Elsey, William C., Aurora, Mo. Cotton chopper and cultivator	694,055	Feb. 25	3688	777	98	1596
Elsten, L. E. (See Rains, Charles E., assignor.)						
Elwell, David, Coal Creek, Ind. Means for raising or lowering vehicle-tops	696,089	Mar. 25	3147	710	98	2416
Emanuel, Samuel H., assignor to Standard Oiled Clothing Co., New York, N. Y. Waterproof garment	694,262	Feb. 25	3902	865, 866	98	1660
Emerick, William H., Chicago, Ill. Draft-rigging for cars	693,043	Feb. 18	2715	599	98	1404
Emerson and Company, George W. (See Ballard, Milton H., assignor.)						
Emerson, Elisha, Providence, R. I. Making metal tubes	695,635	Mar. 18	2444	553	98	2059
Emerson, Frederic M., Brookline, assignor to Murdock Parlor Grate Co., Boston, Mass. Artificial stone and manufacturing same	693,644	Feb. 4	749	.....	98	953
Emerson Manufacturing Company. (See Waterman, Lewis E., assignor.)						
Emery, Leonard A., Louisville, Ky. Waist, skirt, and belt holder	693,363	Feb. 18	2207	484, 485	98	1300
Emig, Jacob, assignor of one-half to J. B. Porter, Buffalo, N. Y. Meat-chopper	694,961	Mar. 11	1194	259	98	1090
Empire Cash Register. (See Collins, Norman, assignor.)						
Empire Machine Corporation. (See McClintock, Frank, assignor.)						
Empire Machine Corporation. (See Watson, John, assignor.)						
Empire Pneumatic Tool Company. (See Birkenstock, John W., assignor.)						
Empire Pneumatic Tool Company of the State of New York. (See Birkenstock, John W., assignor.)						
Enameled Steel Roofing Company. (See Monshausen, Nicholas, assignor.)						
Engel, Godfrey, Baltimore, Md. Device for securing rods or shafts in place and for permitting ready removal of same	692,997	Feb. 11	1441	318	98	1121
Engelhardt, Frederick, St. Johnsville, assignor of one-half to A. P. Roth, New York, N. Y. Music-roller-actuating mechanism	691,898	Jan. 28	2902	658	98	656
England, John, London Township, and M. Hutchinson, London, Canada. Seat-post for bicycles	694,539	Mar. 4	396	87	98	1796
Englert, Louis K. (See Wolfe and Englert.)						
English, Analdo M., Boston, assignor, by mesne assignments, to G. W. Wells, trustee, Southbridge, Mass. Spring-lid box	694,357	Mar. 4	99	7	98	1718
English, William J., and L. Alexander, New York, N. Y. Tool for bale-ties	694,962	Mar. 11	1185	259	98	1980
Engsberg, Conrad, *et al.* (See Luethi, Alexander, assignor.)						
Engsberg, William A., *et al.* (See Luethi, Alexander, assignor.)						
Ensign, George A., assignor to Defiance Machine Works, Defiance, Ohio. Axle-shaping machine	690,709	Jan. 7	662	145, 146, 147	98	130
Ensign, George A., assignor to Defiance Machine Works, Defiance, Ohio. Horizontal boring-machine	691,121	Jan. 14	1400	318, 319	98	306
Enterprise Vending Machine Company. (See Roebuck and McMillan, assignors.)						
Entwisle, Edward B., Johnstown, Pa., assignor to Lorain Steel Company. Railway-track structure	691,616	Jan. 21	2857	530	98	694
Ents, Justus B., Philadelphia, Pa. Storage battery	695,710	Mar. 18	2564	580	98	2282
Enyart, Ralph C., assignor to P. H. & F. M. Roots Company, Connersville, Ind. Journal-box	694,358	Mar. 4	80	7	98	1718
Epright, Alonzo W., Altoona, Pa. Bolt-cutting machine	692,258	Feb. 4	77	16, 17, 18, 19	98	815
Erdsiek, Friederich, assignor to Hoppe & Homann, Minden, Germany. Ball-bearing	693,815	Feb. 18	3020	667	98	1466

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Erhardt, Jacob. (See Hersh, Harvey E., assignor.)						
Erickson, Peter W., Moeville, Wis. Sack-holder	690,412	Jan. 7	44	11	98	12
Ericson, Charles O., Helmetta, N. J. Weighing-machine	691,536	Jan. 21	2206	496	98	495
Ericson, Charles O., Helmetta, N. J. Packing-machine	691,537	Jan. 21	2200	496 497	98	495
Ericson, John V. (See Newberry and Ericson.)						
Ericsson, Charles T. (See Bowen and Ericsson.)						
Erikson, Edward E. (See Schlieper, Charles R., assignor.)						
Erk, Martin J., Binghamton, N. Y. Acetylene-gas generator	696,229	Mar. 25	1873	800	98	1588
Ermold, Edward, New York, N. Y. Envelop-machine	692,051	Jan. 28	2186	718 719	98	711
Ermold, George, Elizabeth, N. J. Needle-holder	695,292	Mar. 11	1661	407	98	1113
Ernst, George E., Mount Pleasant, Iowa. Twine-holder	693,849	Feb. 25	3104	686	98	1502
Erny, Wilhelm, Halle-on-the-Saale, Germany. Galvanic battery	690,710	Jan. 7	667	147	98	140
Erwin, James B., Milwaukee, Wis. Can-holder	693,353	Feb. 11	2144	470	98	1367
Erwin, Melville E. (See Parker, Caroline S., assignor.)						
Erwin, William, Kenosha, Wis. Type-writer	696,166	Mar. 25	3458	775	98	2492
Esparanza, Frank, *et al.* (See Espinosa, Albert, assignor.)						
Espen, Stewart and Loeb. (See Stewart, William G., assignor.)						
Espenscheid, John M., *et al.* (See Horton, Peter D., assignor.)						
Espinosa, Albert, assignor of two-thirds to T. Ruiz and F. Esparanza, Ventura, Cal. Plant-thinner	692,196	Jan. 28	3426	778	98	765
Esser, Fred F., Ackley, Iowa. Game	695,919	Mar. 25	2654	669	98	2378
Essner, Jules, and E. Laurans, Paris, France. Melting-furnace	693,495	Feb. 4	373	99	98	876
Etheridge, Harry, McKeesport, Pa. Electric-arc lamp	691,851	Jan. 28	2225	633 634	98	689
Etherington, Lewis A. (See Willis, John, assignor.)						
Ettinghausen, Hermann L., *et al.* (See West, James, assignor.)						
Etzold, Curt, Apolda, Germany. Apparatus for the production of spirally-wound shavings	691,122	Jan. 14	1406	319 320	98	307
Euge, Edward W. (See Rieck and Euge.)						
Eugene Dietzgen Company. (See Klitsche, Amandus, assignor.)						
Euphrat Manufacturing Company *et al.* (See Euphrat, Theophile, assignor.)						
Euphrat, Theophile, Rowayton, Conn., assignor to J. A. Logan, Brooklyn, and Euphrat Manufacturing Company, New York, N. Y. Guard and shade attachment for windows	693,957	Feb. 25	3314	738	98	1548
Evans, Charles, Ashton-under-Lyne, England. Closet-seat hinge	695,602	Mar. 18	2588	530	98	2247
Evans, Charles E., Taunton, Mass. Oven-thermometer	695,298	Mar. 11	1882	408	98	2114
Evans, Edward T., Upper Clapton, England. Non-refillable bottle	693,772	Feb. 4	978	221 222	98	997
Evans, George E., assignor to Kingman Plow Company, Peoria, Ill. Wheel	695,448	Mar. 18	2079	469	98	2185
Evans, Henry O., assignor to T. Devlin & Co., Philadelphia, Pa. Clamping device	694,958	Mar. 11	1186	259	98	1990
Evans, John W., Greenville, Mo. Hitching device	694,465	Mar. 4	945	85	98	1764
Evans, Powell, Philadelphia, Pa. Dry-pipe valve	695,294	Mar. 11	1883	408	98	2114
Evans, Samuel J., Roanoke, Va. Umbrella-runner	694,693	Mar. 4	547	119	98	1629
Evans, Samuel J., Roanoke, Va. Umbrella-runner	694,694	Mar. 4	548	120	98	1629
Evans, Seymour D. (See Leech and Evans.)						
Evans, Thomas W. (See Weil and Evans.)						
Evans, Victor J. (See Angell and Berntson, assignors.)						
Evans, Walter S., North Adams, Mass. Waistband-adjuster	696,249	Feb. 11	1958	425	98	1227
Everett, Otis W., assignor to Samuel Winslow Skate Mfg. Co., Worcester, Mass. Skate	690,711	Jan. 7	668	148	98	141
Evershed, Sydney, assignor to himself and Evershed and Vignoles, Limited, London, England. Electric apparatus for exploding mines	694,914	Mar. 4	1107	244	98	1946
Evershed and Vignoles. (See Evershed, Sydney, assignor.)						
Evertz, John P., San Diego, Cal. Hot-air silk-reeling machine	691,457	Jan. 21	2078	464 465	98	497
Ewald, Arno A. and H. A., Elgin, Wis. Cow-milker	693,850	Feb. 25	3105	667	98	1502
Ewald, Hermann A. (See Ewald, Arno A. and H. A.)						
Ewart, John W., London, England. Hot-water radiator or heating-stove	696,096	Mar. 25	3302	743	98	2451
Ewers, Frank H., *et al.* (See Huff, George S. and J. J., assignors.)						
Exley, William H., Palmyra, Nebr. Spoke cutter and beveler	695,449	Mar. 18	2091	470	98	2185
Expanding Tread Company. (See Sinnott, Martin J., assignor.)						
Eynon, John, assignor of two-thirds to W. S. Richardson, Gateshead, county of Durham, and E. J. W. Powell, Newcastle-upon-Tyne, England. Anchor	695,711	Mar. 18	2565	580	98	2292
Eyre, T. L., *et al.* (See Bennett, Charles R., assignor.)						
Eyster, Elmer E., assignor of one-half to W. Eyster, Ashland, Ohio. Spring bed or seat bottom	695,696	Mar. 18	2445	553	98	2250
Eyster, William. (See Eyster, Elmer E., assignor.)						
Ezell, Francis L., Flatrock, Tenn. Plow	692,127	Jan. 28	3321	752	98	750
Ezzell, Azzeriah D., assignor of one-half to E. Cooper, Clinton, N. C. Cotton-chopper	696,331	Mar. 25	3779	842	98	2548
F. S. Webster Company. (See Bedworth, Arthur H. and J. A., assignors.)						
Fabrik Chemischer Präparate von Dr. Richard Sthamer. (See Althausse, Maximilian C. L., assignor.)						
Fabriques de Produits Chimiques de Thann & de Mulhouse. (See Baur, Albert, assignor.)						
Fabrycki, Vincent A., Lasalle, Ill. Detachable shoe-heel	692,128	Jan. 28	3322	753	98	750
Fahys Watch-Case Company. (See Butts, Charles W., assignor.)						
Fairchild, Oren J., Corry, Pa., assignor of one-half to H. W. Tibbals, Jamestown, N. Y. Automatic flushing-valve	695,676	Mar. 18	2513	570	98	2272
Fairchild, William W., Tracy, Conn. Screw-driver, &c	693,123	Feb. 11	1688	368	98	1171
Fairmount Machine Company. (See Anderson, Gustave E., assignor.)						
Faivre, Jacques P., San Francisco, Cal. Broiler	695,096	Mar. 11	1458	322	98	2086
Falbe, Edward, *et al.* (See Siebenhaar, Otto W., assignor.)						
Falk, Carl A., Brooklyn, assignor to J. L. Mott Iron Works, New York, N. Y. Water-cooling apparatus	696,506	Feb. 18	2444	535	98	1349
Fancher, Nicholas, Johnstown, N. Y. Glove-case	690,987	Jan. 14	1073	241	98	240
Farbenfabriken of Elberfeld Co. (See Eichengrün and Demeler, assignors.)						
Farbenfabriken of Elberfeld Co. (See Hofmann, Fritz, assignor.) (Reissue.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Hoffmann, Carl, assignor.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Merling, Georg, assignor.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Schirmacher, Karl, assignor.)						
Farbwerke, vorm. Meister, Lucius & Brüning. (See Scholl, Franz, assignor.)						
Farez, Christ, Tyrone, Pa. Belt-fastener	690,988	Jan. 14	1074	241	98	240
Faries Manufacturing Company. (See Faries, Robert, assignor.)						
Faries, Robert, assignor to Faries Manufacturing Company, Decatur, Ill. Shutter-tripper for cameras	690,989	Jan. 14	1074	242	98	241
Faris, James E., assignor of one-half to J. H. Oglebay, Kansas City, Mo. Box	696,677	Mar. 18	2515	570	98	2273

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Farley, James, Waukesha, Wis., assignor to Chicago Railway Equipment Company, Chicago, Ill. Brake-head	695,547	Mar. 18	2287	512	98	2232
Farman, Guy H., Denver, Colo. Friction-clutch	693,507	Feb. 18	2446	586	98	1349
Farmer, Arcidas R., St. Louis, Mo. Flash-lamp	693,694	Feb. 18	2815	619	98	1424
Farmer, Matthew S., Washington, D. C. Railway-switch	693,384	Feb. 18	2208	485	98	1300
Farmer, Theodore P., Southwest Harbor, Me. Surface for preventing slipping and resisting wear	696,362	Mar. 25	3871	860	98	2564
Farmer, Theodore P., Southwest Harbor, Me., assignor to Protective Tread Company, Boston, Mass. Antislipping device	696,322	Mar. 25	3780	842, 843	98	2549
Farnham, Bion B., Castleton, N. Y. Couch-roll	694,954	Mar. 11	1187	260	98	1981
Farnham, Ed W., Chicago, Ill. Electric railway	696,023	Mar. 25	3148	710, 711	98	2416
Farnham, Ed W., Chicago, Ill. Electric railway	696,024	Mar. 25	3151	711, 712	98	2417
Farquhar, Charles S., *et al.* (See Cooley, John F., assignor.)						
Farquhar, Harry D., Brooklyn, assignor to E. & H. T. Anthony & Company, New York, N. Y. Photographic stand	693,792	Feb. 18	2973	656, 657	98	1457
Farquharson, David, *et al.* (See Wilcox, Joseph R., assignor.)						
Farr, Hiram G., Winchester, Mass. Device for reducing the noise in elevated-railway structures	694,359	Mar. 4	32	7	98	1719
Farraday, Simeon E., Gloucester City, N. J., and J. H. Goss, Waterbury, Conn., assignors to Welsbach Light Company, Gloucester City, N. J. Hydrocarbon-burner	692,889	Feb. 11	1105	247	98	1050
Farrand & Votey Organ Company. (See Courville, Joseph, assignor.)						
Farrar, W. J., *et al.* (See Jones, Frank H., assignor.)						
Farrel Foundry and Machine Company. (See Bowen and Ericsson, assignors.)						
Farrel Foundry and Machine Company. (See Hale, Bernard O., assignor.)						
Farrell, Thomas A., Chicago, Ill. Screw-driver	694,848	Mar. 4	980	218	98	1921
Farrington, Charles W. (See Winchell, Edwin H., assignor.)						
Farwell, George A., Manchester, N. H. Pumping and dredging apparatus	691,123	Jan. 14	1404	320	98	807
Fassett, Francis K., St. Louis, Mo., assignor, by mesne assignments, to Chicago Railway Equipment Company, Chicago, Ill. Side bearing for railway-cars	691,699	Jan. 21	2512	562	98	559
Fassett, George W., Middlebury, and R. A. Whittier, Hancock, Vt. Gluing-machine	690,847	Jan. 7	911	203, 204	98	198
Fauck, Albert, Jr., Mareinkowice, Austria-Hungary. Apparatus for boring wells by percussion	692,645	Feb. 4	751	173	98	953
Faulds, John, Chicago, Ill. Baker's-oven illuminator	693,385	Feb. 18	2210	485	98	1300
Faulk, John R., Mayock, N. C. Manure-distributing cart	693,695	Feb. 18	2816	619	98	1424
Faust, Karl I. (See Smyth and Faust.)						
Faust Menugraph Company. (See Smyth and Faust, assignors.)						
Fay, Edgar E., New York, N. Y. Machine for forming, shaping, hardening, and tempering metal blanks	691,253	Jan. 14	1646	376	98	859
Fay, Marcus L., *et al.* (See Neubauer, Carl E., assignor.)						
Feather, John B., Roaring Spring, Pa. Sliding window-screen	694,095	Feb. 25	2590	594	98	1598
Febiger, Henry B., Philadelphia, Pa. Golf-club	690,940	Jan. 14	1076	242	98	241
Fecker, Gottlieb, assignor to Warner & Swasey Company, Cleveland, Ohio. Telescope	695,712	Mar. 18	2566	581	98	2283
Feinberg, Isaac H., *et al.* (See Cohnhoff, Louis, assignor.)						
Felbel, Jacob, New York, N. Y., and C. Gabrielson, Greenville, N. J.; said Gabrielson assignor to said Felbel. Type-writing machine	696,187	Mar. 25	3389	764	98	2469
Felsenstein, Jacob. (See Dorsey, Charles J., assignor.)						
Felt, Dorr E., Chicago, Ill. Duplicate printing mechanism for adding-machines	693,958	Feb. 25	3315	728, 729	98	1548
Felt, Dorr E., Chicago, Ill. Tabulating-machine	694,955	Mar. 11	1188	260, 261	98	1981
Felton, John, Fertile, Minn. Hand dump-shovel	694,263	Feb. 25	3903	866	98	1560
Felty, Samuel B., Penbrook, Pa. Currycomb	690,712	Jan. 7	669	148	98	141
Fenn, George M., Charlotte, Mich. Machine for bending scythe-snaths	695,295	Mar. 11	1885	409	98	2115
Fenner, George P., New London, Conn. Sheet-delivery apparatus	692,840	Feb. 11	1106	247	98	1051
Fenno, George. (See Sponseller and Fenno.)						
Fenton, Clarence M., Buffalo, and A. Wode, Jr., North Collins, N. Y.; said Wode assignor to said Fenton. Machine for cutting green corn from the cob	695,806	Mar. 18	2740	624, 625	98	2319
Fenton, Eugene, Evanston, Ill. Structural support	692,841	Feb. 11	1108	247	98	1051
Ferguson, Charles H., Chicago, Ill. Portable grindstone	693,503	Feb. 18	2622	579	98	1384
Ferguson, Dougald R., Wilkinsburg, and G. W. Nimon, Port Perry, Pa. Roll-polishing apparatus	692,129	Jan. 28	3324	753	98	730
Ferguson, George C., Fredericton, Canada. Cork-extractor	694,466	Mar. 4	246	55	98	1764
Ferguson, James S., Minneapolis, Minn. Autographic registering apparatus	691,852	Jan. 28	2827	634, 635	98	640
Ferguson, Lyman, Ithaca, N. Y. Automatic extension-ladder lock	691,051	Jan. 14	1299	294	98	286
Ferguson, Wm. K., *et al.* (See Doering, August, assignor.)						
Fergusson, Alan R., New York, N. Y. Lock	691,124	Jan. 14	1406	321	98	807
Fergusson, Alan R., New York, N. Y. Lock	691,125	Jan. 14	1411	321	98	809
Fernald, Charles A., and G. Galley, Columbus, Ohio. Draft-rigging	693,250	Feb. 11	1959	426	98	1227
Fernald, George H., Northeast, Pa. Thill-coupling	695,097	Mar. 11	1454	323	98	2036
Fernald, George H., Northeast, Pa. Thill-coupling	695,920	Mar. 25	2956	669	98	2378
Fernandez, Felix T., assignor of one-half to E. O. Ducros, New Orleans, La. Fastening device for envelops	693,696	Feb. 18	2818	619	98	1424
Ferrell, Joseph L., Philadelphia, Pa. Impregnating wood	694,956	Mar. 11	1195	262	98	1982
Ferrell, Joseph L., Philadelphia, Pa. Impregnating wood with fireproofing preservatives, &c	695,450	Mar. 18	2082	470	98	2186
Ferrell, Joseph L., Philadelphia, Pa. Fireproofed wood and making same	695,678	Mar. 18	2516	------	98	2273
Ferrell, Joseph L., Philadelphia, Pa. Fireproofing compound and making same	695,679	Mar. 18	2517	------	98	2273
Ferres, Jeffrey T., Anderson, Ind., assignor of one-half to J. E. Clenny, Chicago, Ill. Apparatus for corrugating paper	690,713	Jan. 7	670	148	98	141
Ferres, Jeffrey T., Anderson, Ind., assignor to J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill. Folding box	691,466	Jan. 21	2080	465	98	468
Ferres, Jeffrey T., Anderson, Ind., assignor to J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill. Box	695,800	Mar. 11	1647	366	98	2078
Ferres, Jeffrey T., Anderson, Ind., assignor to J. W. Sefton Manufacturing Company, Anderson, Ind., and Chicago, Ill. Shipping-package	695,801	Mar. 11	1648	366	98	2078
Ferriott, Charles L., Bartlett, Tex. Corn and cotton planter	692,646	Feb. 4	753	173	98	954
Fette, Heinrich W. A., Altona-Ottensen, Germany. Groove-cutter	693,508	Feb. 18	2447	537	98	1349
Fetzer, William, Middletown, Ohio. Drag-bar for drills	695,718	Mar. 18	2567	581	98	2283
Fidjeland, Terje A., Fostvedt, Iveland pr Christiansand S., Norway. Magazine-rifle	691,369	Jan. 21	1990	431, 432	98	434
Fiedler, Carl E., Klingenthal, Germany. Zither	692,773	Feb. 4	980	222	98	997

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Field, Guy M. (See Ellis, Marshall D., assignor.)						
Field, Sjonne, Chicago, Ill. Wall-paper paster and trimmer	692,647	Feb. 4	734	174	98	954
Fielding, William I., New Britain, Conn., assignor of one-half to L. Schwab, Atlantic City, N. J. Faucet connection	696,220	Mar. 25	3576	800	98	2504
Fildes, Rollin D. (See Keeler and Fildes.)						
Fillet, Joseph, Neuilly-sur-Seine, France. Carbureting device for explosion-engines	696,231	Mar. 25	3576	800	98	2504
Fillingham, Myles P., Ansonia, Conn. Safety stop-motion for grinding-machines	694,096	Feb. 25	3591	794 795	98	1599
Fink, Karl. (See Wieser, Joseph, assignor.)						
Finley, Charles, Indianapolis, Ind. Combined traveler's drinking-cup and shaving-mug	695,959	Feb. 25	3618	729	98	1544
Finn, William A., Brooklyn, N. Y. Bag-fastener	695,148	Mar. 11	1563	846	98	2060
Finn, William A., Brooklyn, assignor of one-fourth to R. Thompson, New York, N. Y. Bag-lock	695,251	Feb. 11	1960	496	98	1227
Finney, Henry E., Chicago, Ill. Device for voicing piano-hammers	696,085	Mar. 25	3158	712	98	2419
Finney, Thomas, Glasgow, Scotland. Car-seat	695,098	Mar. 11	1456	383	98	2056
Fischer, Albert, assignor of one-half to W. Ross, Detroit, Mich. Street-car fender	698,960	Feb. 25	3319	730	98	1544
Fischer, Alexander T., Detroit, Mich. Weeder and thinner	692,649	Feb. 4	758	174	98	954
Fischer, Alexander T., and H. Cordes, Detroit, Mich. Weeder and thinner	692,648	Feb. 4	758	174	98	954
Fischer, Ernst, Barmen, Germany. Printing-press	692,508	Feb. 4	504	118	98	901
Fischer, George, Jr. (See Proben and Fischer.)						
Fischer, Martin, assignor to Actiengesellschaft "Magneta," (Electrische Uhren Ohne Batterie & Ohne Contacte,) Zurich, Switzerland. Electric clock	692,509	Feb. 4	505	118	98	902
Fischer, William, Jr., Paterson, N. J. Loom	691,370	Jan. 21	1922	452	98	434
Fish, Albert E., Hartford, Conn. Rotary engine	695,396	Mar. 11	1558	409	98	2115
Fishel, Nessler & Co. (See Fishel, Theodore H., assignor.)						
Fishel, Theodore H., assignor to Fishel, Nessler & Co., New York, N. Y. Chatelaine-holder	690,569	Jan. 7	366	79	98	84
Fishell, Daniel W. (See Terrell, Ozias I., assignor.)						
Fisher, Alexander D., Toronto, Canada. Combination puzzle-locket	698,650	Feb. 4	758	174	98	955
Fisher, Greevz, Leeds, England. Lubricator	695,008	Mar. 18	2288	589	98	2247
Fisher, Harvey L., Chicago, Ill., assignor to B. J. Downer. Panoramic attachment for cameras	690,370	Jan. 7	366	80	98	84
Fisher, Joseph T. (See Hoover, Jacob D., assignor.)						
Fisher, Robert J., Athens, Tenn. Type-writing machine	690,714	Jan. 7	674	148 149 150	98	143
Fisher, Robert J., Athens, Tenn. Type-writing machine	690,715	Jan. 7	689	150 151	98	146
Fisher, Robert W., *et al.* (See Beach, Isaac D., assignor.)						
Fisk, Eugene, North Yakima, Wash. Ironing-table	694,360	Mar. 4	33	7	98	1719
Fisk Rubber Company. (See Cole, John C., assignor.)						
Fiske, Jonathan P. B., Newton, Mass. Brick-kiln	698,252	Feb. 11	1961	496	98	1227
Fiske, Jonathan P. B., Newton, Mass. Brick-drier	696,086	Mar. 25	3161	712	98	2420
Fitts, Mary C. (See Zingg, Herman, assignor.)						
Fittz, William B., Oakdale, assignor to West Boylston Manufacturing Company, Easthampton, Mass. Woven fabric for broom-covers	691,459	Jan. 21	2081	465	98	408
Fitzgerald, Christopher, San Francisco, assignor of one-half to W. B. Gester, Newcastle, Cal. Quicksilver-separating and continuous ore-furnace	696,383	Mar. 25	3782	843	98	2549
Fitzhugh, James S., Waco, Tex. Churn	692,182	Jan. 28	2412	773	98	758
Fitzpatrick, Kirby, Hartsville, Tenn. Steam-engine	695,451	Mar. 18	2085	470 471	98	2186
Flagg, Eli W., assignor to Nichols and Shepard Company, Battlecreek, Mich. Threshing-machine. (Reissue)	11,966	Feb. 4	1056	227	98	1012
Flanigan, Robert, Baltimore, Md. Bottle-capping machine	694,144	Feb. 25	3609	811 812	98	1615
Flannery, John L. (See Schmidt, Joseph, Jr., assignor.)						
Flaskamp, August, Crefeld, Germany. Box	692,259	Feb. 4	86	19, 20	98	816
Flattery, Maurice D., *et al.* (See Jackson, Benjamin F., assignor.)						
Fleck, Rudolph, Milwaukee, Wis. Bedstead	694,361	Mar. 4	34	8	98	1719
Fleisch, Samuel, New York, N. Y. Neckwear	696,363	Mar. 25	3873	861	98	2564
Fleishman, Frank L., Allegheny, Pa. Calculating-machine	695,099	Mar. 11	1456	383	98	2056
Fleming, John C., Summit, N. J. Toilet cream	690,848	Jan. 7	914	------	98	198
Flesher, John, Parry Sound, Canada. Door for grain-cars	691,756	Jan. 28	2049	593	98	603
Fletcher, Benjamin, Toronto, Canada. Continuous molding-machine	690,716	Jan. 7	692	151	98	146
Fletcher, Mordecai H., assignor to Vegetol Company, Cincinnati, Ohio. Dentifrice	698,349	Feb. 11	2139	------	98	1206
Fletcher, Mordecai H., assignor to Vegetol Company Cincinnati, Ohio. Package for tooth-powder or like preparations	698,350	Feb. 11	2140	470	98	1206
Fletcher, Sidney W., Viborg, S. D. Kite attachment	698,998	Feb. 11	1442	313	98	1121
Fleuss, Henry A., Staines, England. Apparatus for supplying water to steam-boilers	690,941	Jan. 14	1077	242	98	941
Flick, Melchior, Cleveland, Ohio. Wheeled toy	692,999	Feb. 11	1444	313	98	1122
Flinn, Richard J., Boston, Mass. Steam-trap	698,961	Feb. 25	3321	730	98	1544
Florsheim, Norman, *et al.* (See Schopbach, Charles H., assignor.)						
Florsheim, Simon F., *et al.* (See Schopbach, Charles H., assignor.)						
Foley, James E., *et al.* (See Austin, David E., assignor.)						
Folger, William B., Cincinnati, Ohio. Combined gas and water cock for water-heaters	690,413	Jan. 7	44	11	98	12
Follett, Edward P., Chicago, Ill. Garment-fitter	692,510	Feb. 4	506	118 119	98	902
Follows, George H., assignor to Miller, Du Brul & Peters Manufacturing Company, Cincinnati, Ohio. Cigar-wrapper-cutting machine	698,253	Feb. 11	1963	426 427	98	1228
Folsom, Estes A., Springfield, Mass. Billiard-cue tip	698,254	Feb. 11	1965	427	98	1228
Foos Gas Engine Company. (See Sonander, Andrew, assignor.)						
Foos Manufacturing Company. (See Copenhaver, William E., assignor.)						
Foos Manufacturing Company. (See Foos and Copenhaver, assignors.)						
Foos, Robert H., and W. E. Copenhaver, assignors to Foos Manufacturing Company, Springfield, Ohio. Sharpening device for grinding-plates	694,066	Feb. 25	3580	777 778	98	1586
Foote, Theodore M., Brooklyn, assignor to E. H. Brown, New York, N. Y. Means for positioning and firing heavy ordnance	691,254	Jan. 14	1648	376 377	98	359
Forbes, Harry A., Finchley, London, England. Railway chair and rail	695,207	Mar. 11	1840	410	98	2115
Ford, Clayton W., Findlay, Ohio. Animal-poke	692,188	Jan. 28	2421	774	98	759
Ford, Lester S., Reidsville, N. C. Trunk or bale rope attachment	690,645	Jan. 7	587	116	98	115
Fordred, John, deceased, N. M. Goodlett, Jr., South Orange, N. J., ancillary executor, assignor to Condensed Egg Syndicate, Limited, London, England. Preserving egg contents	692,268	Feb. 4	99	------	98	819
Fordyce, Edmond A., Chicago, Ill., assignor to A. S. Temple, trustee, Boston, Mass. Pneumatic-despatch-tube system	691,936	Jan. 28	2955	667 668	98	668
Foreman, David H., Denver, Colo. Locomotive-headlight cleaner	698,319	Feb. 11	2074	453 454	98	1251

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Forester, Berton, assignor of one-half to H. D. O'Brien, St. Louis, Mo. Camera-tripod	696,167	Mar. 25	3460	775	98	2482
Forney, Elwood W., assignor of one-half to L. K. Moeller and W. L. Crockett, Galena, Kans. Copy-holding device for type-writers	696,194	Feb. 11	1699	368	98	1172
Forquignon, Emil, New York, N. Y. Nail cutter and file	691,126	Jan. 14	1416	321	98	310
Forrer, Joseph D. (See Merrick and Forrer.)						
Forrest, C. W., *et al.* (See Moon, Herman, assignor.)						
Forrester, Peter C., Streator, Ill. Gate	696,714	Mar. 18	2568	581	98	2283
Forster, Ferdinand E., New York, N. Y. Chum-feeding machine	695,921	Mar. 25	2957	670	98	2278
Forster, Frank L., assignor of one-half to J. A. Conrey, Shelbyville, Ind. Lock or clutch for sectional cases	692,052	Jan. 28	3188	720	98	711
Forster, Frank L., assignor of one-half to J. A. and M. Conrey and A. H. Hildreth, Shelbyville, Ind. Joint for knockdown or separable furniture	692,053	Jan. 28	3189	720	98	711
Forsyth, Joseph E., Chicago, Ill. Train-pipe coupling	692,511	Feb. 4	508	119	98	902
Forsyth, Joseph E., Chicago, Ill. Pipe-coupling	692,651	Feb. 4	761	175	98	955
Forsyth, Joseph E., assignor of one-fourth to T. L. Parker, Chicago, Ill. Train-pipe coupling	698,125	Feb. 11	1699	368, 369	98	1172
Forth, John F., New York, N. Y. Tobacco-pipe cleaner	690,717	Jan. 7	694	152	98	147
Fortier, George. (See Fortier, Napoleon and G.)						
Fortier, Napoleon and G., Warren, R. I. Stop-motion for looms	694,362	Mar. 4	35	8	98	1719
Foss, Leland L., Manassas, Ga. Punch	695,680	Mar. 18	2519	570	98	2273
Foster, Albion W., assignor of one-half to J. Wyman, Millbridge, Me. Pasting-machine	691,700	Jan. 21	2515	568	98	559
Foster, Charles H., Omaha, Nebr. Hinge	696,027	Mar. 25	3163	713	98	2420
Foster, Charles H., Omaha, Nebr. Hinge	696,028	Mar. 25	3164	713	98	2421
Foster, Charles H., Omaha, Nebr. Hinge for doors	696,029	Mar. 25	3166	714	98	2421
Foster, Charles R., Blue Island, and W. Coolidge, Chicago, Ill. Ore-sampler	694,734	Mar. 4	767	171	98	1873
Foster, Charles W., New York, N. Y. Apparatus for delivering melted glass	691,371	Jan. 21	1924	432	98	434
Foster, George V. (See Mackusick, Elmer F., assignor.)						
Foster, Henry S. (See Tichon and Foster.)						
Foster, John H., *et al.* (See Gregory, George, assignor.)						
Foster, Rolon E., Revere, assignor to H. Van Everen, trustee, Cambridge, Mass. Rubber tread	695,298	Mar. 11	1840	410	98	2115
Foster, William J., Darlaston, England. Circulating water through twyers and coolers of blast-furnaces	696,394	Mar. 25	3784	843	98	2549
Fouqué, Henry P., Brooklyn, N. Y. Shoe	696,080	Mar. 25	3167	714	98	2421
Fowle, George W., assignor to Columbus Pharmacal Company, Columbus, Ohio. Lens-cutting machine	696,168	Mar. 25	3461	775	98	2482
Fowler, Alfred B., Central Falls, R. I. Motor-vehicle	690,849	Jan. 7	915	204	98	198
Fowler, Benjamin F., Minneapolis, Minn. Coin-controlled apparatus	695,922	Mar. 25	2959	670	98	2278
Fox, Amos T., Tacoma, Wash. Pencil-sharpener	691,127	Jan. 14	1417	322	98	310
Fox, Charles H., Cincinnati, Ohio. Steam-generator	692,436	Feb. 4	375	92	98	877
Fox, David H., Severy, Kans. Quilting-frame	695,452	Mar. 18	2087	471	98	2186
Fox, Frank A., and D. F. Graham, Stamford, Conn., assignors to W. D. Blake, Richmond Hill, New York, N. Y. Steering-gear for motor-carriages	698,962	Feb. 25	3324	730	98	1545
Fox, Herbert. (See Wooley and Fox.)						
Fox, Ivan, Lansdowne, Pa. Nosepiece for spectacles or eyeglasses	695,681	Mar. 18	2520	571	98	2273
Fox, John H., and C. M. Lowther, New York, N. Y. Automatic shut-off for electric pumps	698,542	Feb. 18	2512	553	98	1362
Fox, John W. (See Fox, Lloyd L. and J. W.)						
Fox, Lloyd L. and J. W., Lowell, Me. Device for clearing horses from vehicles	694,363	Mar. 4	36	8	98	1719
Fox, Richard H., Manchester, Okla. Ter. Veterinary remedy	691,255	Jan. 14	1654	.....	98	360
Frachebourg, Jean M., Paris, France. Shutter for color photography	694,364	Mar. 4	37	9	98	1719
Frame, Jacob, Toledo, Ohio. Badge or button	694,849	Mar. 4	982	218	98	1921
Franc, Alberic, Sanary, and F. Voland, Lyons, France. Apparatus for automatically insuring, registering, and franking letters	692,512	Feb. 4	512	120, 121, 122	98	903
Franc, Jacques. (See Frank, Rose, assignor.)						
Francis, William, Philadelphia, Pa. Safety device for shafting	695,923	Mar. 25	2960	670	98	2279
Francke, Carl, and H. Schwabacher, Berlin, Germany. Speed recorder and register for vehicles	698,798	Feb. 18	2975	657, 658	98	1457
Francoeur, Adolphis D. and G. L., Concordia, Kans. Grain-cleaner	694,540	Mar. 4	897	87, 88a	98	1796
Francoeur, George L. (See Francoeur, Adolphis D. and G. L.)						
Francoeur, Joseph, Concordia, Kans. Riding-harrow	698,851	Feb. 25	3107	667, 668	98	1502
Frank M. Whiting and Company. (See Theobald, Jean G., assignor.)						
Frank, Rose, assignor to J. Franc, Pasadena, Cal. Hinge	695,458	Mar. 18	2090	471	98	2187
Frankenberg, Frederick G., assignor, by mesne assignments, to American Metal Hose Company, Chicago, Ill. Flexible metallic tubing	698,000	Feb. 11	1445	314	98	1122
Franklin, Benjamin A., Philadelphia, Pa. Furnace-charging apparatus	695,604	Mar. 18	2384	540	98	2247
Franks, Orrin G., Buffalo, N. Y. Bed-bottom	698,594	Feb. 18	2695	579, 580	98	1354
Frantz, Willis W., Waynesboro, Pa. Electric clock	691,256	Jan. 14	1654	377	98	360
Fraser Automatic Rove-Stop Company. (See Fraser, James, assignor.)						
Fraser, James, assignor to Fraser Automatic Rove-Stop Company, Limited, Dundee, Scotland. Rove-stop mechanism	695,100	Mar. 11	1459	324	98	2037
Fratz, Philip H., assignor of one-half to E. G. Kemble, Philadelphia, Pa. Cigar-bunching machine	696,232	Mar. 25	3578	800, 801	98	2505
Frawley, James J. (See Lowry, Er R., assignor.)						
Frazier, James L., Peoria, Ill. Coupling	698,595	Feb. 18	2629	580	98	1386
Freck, William, Chicago, Ill. Shoe-lacer	691,853	Jan. 28	2829	635	98	640
Freckmann, Joseph, Hildesheim, Germany. Ceiling	690,646	Jan. 7	589	116, 117	98	115
Frederick, Edward P., St. Louis, Mo. Wire-rope machine	698,509	Feb. 18	2446	536, 537	98	1350
Fredericks, William H., Portland, Oreg. Canning device	696,081	Mar. 25	3169	714, 715	98	2421
Fredericksen, David E., Racine, Wis. Tool-box	690,414	Jan. 7	46	12	98	12
Fredrick, William, Clyde, Ohio. Automatic lantern-slide-moving device	695,548	Mar. 18	2268	513	98	2222
Free, William C., Chicago, Ill. Shuttle-driving mechanism for sewing-machines	692,842	Feb. 11	1109	248	98	1051
Free, William C., Chicago, Ill. Shuttle-driving mechanism	692,843	Feb. 11	1110	248	98	1051
Free, William C., Chicago, Ill. Feeding mechanism for sewing-machines	698,852	Feb. 25	3109	688, 689	98	1503
Freebey, Mordecai P., Los Angeles, Cal. Adjustable mold for linotype or other metal-casting machines	692,182	Jan. 28	2418	773	98	758
Freeland, William, Brooklyn, N. Y. Trace-fastener	695,299	Mar. 11	1842	410	98	2115

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Freeman, Charles W., Mount Carmel, Ill. Valve-gear for steam-engines	695,454	Mar. 18	2090	472	98	2187
Freeman, Edwin T., Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Nailing-machine. (Reissue)	11,962	Jan. 21	2579	578 579	98	572
Freeman, Samuel A., and C. E. Throop, Buffalo, N. Y. Gas-engine	694,735	Mar. 4	770	171	98	1674
Freeman, Simon J., Bradford, Pa. Coffee or tea pot	691,059	Jan. 14	1300	295	98	286
Frees, John W., Reading, Pa. Primary battery	698,001	Feb. 11	1446	314	98	1122
Freise, William, Jr., *et al.* (See Bosworth, Daniel P., assignor.)						
Fremd, Charles, Jr. (See Mills and Fremd.)						
Fremery, Max, and J. Urban, Oberbruch, Germany. Manufacture of threads, &c., from cellulose	691,257	Jan. 14	1656	.....	98	361
French, Aaron, *et al.* (See Cosgrave, Sylvester A., assignor.)	695,202	Mar. 11	1649	867	98	2078
French, Charles B., St. Louis, Mo. Traveler's dress-case	694,850	Mar. 4	968	218 219	98	1921
French, Joseph, Woonsocket, R. I. Mail-marking machine	694,145	Feb. 25	3672	812	98	1616
French, S. A., *et al.* (See Weimar, Fred, assignor.)						
Frenzel, Joseph, New York, N. Y. Fire-escape	691,957	Jan. 28	2971	668	98	669
Freschl, Alfred. (See Karpen, Solomon, assignor.)	698,644	Feb. 18	2717	599	98	1405
Freschl, Alfred, Chicago, Ill. Upholstery apparatus	691,058	Jan. 14	1301	295	98	286
Freschl, Alfred, Chicago, Ill. Upholstery	694,957	Mar. 11	1198	269	98	1082
Fretz, Samuel S., Philadelphia, Pa. Gear for umbrellas	694,097	Feb. 25	3594	795	98	1359
Fretz, Samuel S., Philadelphia, Pa. Gear for umbrellas						
Freuler, Kasper, Zurich, Switzerland. Collapsible stretcher	698,126	Feb. 11	1608	369	98	1172
Freund, Hans H. (See Wallerstein and Freund.)						
Frey, Frank C. (See Weber and Frey.)	692,007	Jan. 28	3096	696	98	698
Freyhold, Felix, Washington, D. C. Steam-pump	692,054	Jan. 28	3190	720	98	711
Freymann, Oscar, and C. Tolman, Brooklyn, assignors to American Equipment Company, New York, N. Y. Gas-detector	698,697	Feb. 18	2819	.....	98	1425
Frick, Fred, Waynesboro, Pa. Electric clock	692,130	Jan. 28	3325	754	98	720
Friedman, Charles S., Philadelphia, Pa., assignor to E. A. Bancroft, trustee, Chicago, Ill. Creosoting wood, &c	696,022	Mar. 25	3170	715	98	2422
Friedman, Oscar J. (See Larson, Albert L., assignor.)						
Fries, John W., Winston-Salem, N. C. Clutch for driving machinery	691,538	Jan. 21	2211	497	98	495
Fries, John W., Winston-Salem, N. C. Machine for oxidizing yarn, &c	690,518	Jan. 7	291	58 59 60	98	63
Frigerio, Frank, Whitehaven, assignor of one-half to P. Magagua, Freeland, Pa. Driving-gear for belted machines	691,617	Jan. 21	2359	531	98	524
Frith, Arthur J., New York, N. Y. Conveyer	695,715	Mar. 18	2560	581 582	98	2288
Fritsch, Oscar M., Philadelphia, Pa. Braking mechanism for elevator-cars	695,716	Mar. 18	2571	582	98	2294
Fritz, Charles P., Philadelphia, Pa. Vulcanizer	692,658	Feb. 4	702	173	98	955
Fritz, John, Bethlehem, Pa. Apparatus for perforating blooms	692,008	Jan. 28	3099	.....	98	694
Frizzell, John W., Eau Claire, Wis. Type-writer support for desks, &c	698,863	Feb. 25	3110	689	98	1503
Frölich, Oscar, Charlottenburg, M. Huth, Halensee, and A. Edelmann, Charlottenburg, assignors to Siemens & Halske Aktiengesellschaft, Berlin, Germany. Separating process for ores	690,415	Jan. 7	47	12	98	13
Frossard, John, East Pepperell, Mass. Calender-roll cleanser	695,282	Mar. 11	1970	441	98	2143
Frost, John B., Naperville, Ill. Commode	691,126	Jan. 14	1419	322	98	310
Froude, Charles, Riverside, Cal. Device for heating orchards	698,255	Feb. 11	1966	427	98	1229
Frue Vanning Machine Company. (See McDermott and Elmore.)	691,129	Jan. 14	1420	322	98	310
Frutchey, Edward E., Towanda, Pa. Shoe-lace fastener	692,437	Feb. 4	378	.....	98	877
Fry, Stiles, Flint, Ohio. Washing-machine	691,899	Jan. 28	2905	654	98	656
Frye, John W., Oil City, Pa. Casing-head for oil-wells	695,041	Mar. 11	1361	299	98	2017
Fuchs, Gotthold, assignor to Kalle & Company, Biebrich, Germany. Hydrochlorid of cinnamyl-quinin and making same	698,009	Feb. 11	1447	314	98	1123
Fuchs, Ludwig, Lundenberg, Austria-Hungary. Machine for washing sugar	698,510	Feb. 18	2449	537	98	1350
Fues, Ernst, Hanau, Germany. Drying-cylinder	695,864	Mar. 18	2843	645	98	2341
Fulghum, Fredrick A., Waterloo, assignor to himself, W. L. M. Blumenstiel and W. T. Smith, Charles City, Iowa. Stone-lifting machine	695,865	Mar. 18	2844	646	98	2341
Fullard, William, Colwyn, assignor of one-half to W. E. Weber, Wyncote, Pa. Wiping device for printing-machines	690,416	Jan. 7	49	12	98	13
Fullard, William, Colwyn, assignor of one-half to W. E. Weber, Wyncote, Pa. Plate-printing and embossing press	694,467	Mar. 4	247	55	98	1754
Fullard, William, Colwyn, assignor of one-half to W. E. Weber, Wyncote, Pa. Plate-printing and embossing press	694,146	Feb. 25	3674	812 813	98	1616
Fuller, N. Andrew. (See Longden, Mary, assignor.)						
Fuller, Russell B., Holland, Mich. Work conveying and presenting mechanism						
Fuller, Russell B., Holland, Mich. Work conveying and presenting mechanism						
Fuller-Warren Company. (See Cocke, George M., assignor.)						
Füllner, Alwin E., Warmbrunn, Germany. Sizing apparatus for paper-machines						
Fulton, Samuel M. (See Ames and Fulton.)						
Fulton, Samuel M., and A. T. Ames, Galt, Cal.; said Fulton assignor to said Ames. Thrust-bearing for shafts	695,807	Mar. 18	2743	625	98	2319
Fulton, Walter W., Chicago, Ill. Device for creasing trousers	691,460	Jan. 21	2082	466	98	468
Funken, Johann, Aachen, Germany. Apparatus for tempering needles	696,033	Mar. 25	3174	716	98	2423
Furbish, Zachry T., assignor to North Brothers Manufacturing Company, Philadelphia, Pa. Chuck	698,256	Feb. 11	1968	428	98	1229
Furmidge, Samuel, St. Louis, Mo., assignor to Furmidge Spring Wheel Company, Pierre, S. D. Wheel	691,717	Jan. 21	2538	568	98	563
Furmidge Spring Wheel Company. (See Furmidge, Samuel, assignor.)						
Furmidge Spring Wheel Company. (See Working, John C., assignor.)						
Furrer, Frank. (See Furrer, Joseph and F.)						
Furrer, Joseph and F., Allegheny, Pa. Harrow	698,698	Feb. 18	2880	690	98	1425
Fusselman, Jerry, Huntington, Ind. Gate	695,101	Mar. 11	1460	334	98	2087
Fyke, Charles V. (See Barr and Fyke.)						
Fyke, Charles V., Kansas City, Mo. Mail-marking machine	690,942	Jan. 14	1079	242	98	942
Gabel, Henry M. (See Kearns, Thomas E., assignor.)						
Gable, Fred S., Glenrock, Pa., assignor of three-fourths to W. T. Gable, Baltimore, Md. Reed for looms for weaving wire-cloth	696,325	Mar. 25	3796	544	98	2650
Gable, William T. (See Gable, Fred S., assignor.)						
Gabler, Max. (See Wichmann and Gabler.)						
Gabriel, Charles R., assignor to Brown and Sharpe Manufacturing Company, Providence, R. I. Grinding-machine	696,084	Mar. 25	3175	716	98	2422
Gabrielle, Victor M., National Soldiers Home, Va. Bicycle-support	690,718	Jan. 7	695	152	98	147

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Gabrielson, Carl. (See Felbel and Gabrielson.)						
Gailiac, Eugene G., Jonesport, Me. Rudder attachment	694,468	Mar. 4	248	55	98	1705
Gale, James R. C., Sutton, England. Apparatus for controlling the wind supply and pressure in organs	691,900	Jan. 28	2905	654	98	656
Gales, Nicholas W., Waterloo, Iowa. Liner for centrifugal liquid-separators	694,736	Mar. 4	772	172	98	1675
Gallagher, Bernard, Lynn, Mass. Last-trimming machine	692,844	Feb. 11	1111	249	98	1052
Gallagher, Frank J. (See Keller and Gallagher.)						
Gallagher, Richard D., Jr., assignor to Standard Coupler Company, New York, N. Y. Draft and buffing rigging	692,653	Feb. 4	764	175	98	955
Gallagher, Richard D., Jr., assignor to Standard Coupler Company, New York, N. Y. Draft and buffing rigging	693,596	Feb. 18	2611	580	98	1386
Gallagher, William E., South Framingham, Mass. Liquid-dispensing apparatus	692,498	Feb. 4	378	92	98	877
Galley, George. (See Fernald and Galley.)						
Galschiöt, Christian L., Copenhagen, Denmark. Apparatus for cooling cement clinker or other granular materials	694,958	Mar. 11	1199	262	98	1983
Gamble, Daniel, Ramelton, Ireland. Thread-holder for spools	693,854	Feb. 25	3112	669	98	1503
Gamble, William M., Chicago, Ill. Leaf-hinge	691,757	Jan. 28	2950	503	98	804
Gano, John K. (See Logue and Gano.)						
Ganucci-Cancellieri, Lionello. (See Alberini, Anchise, and Ganucci-Cancellieri.)						
Gapp, John, Scranton, Pa. Track-sanding appliance	695,300	Mar. 11	1843	410	98	2115
Garcia, Medardo. (See Lombardero, José, assignor.)						
Garcia-Rabell Trading Company. (See Grabau, Hans E., assignor.)						
Gardiner, George W., Philadelphia, Pa. Propeller-gear	695,717	Mar. 18	2573	582	98	2284
Gardner, James, Chicago, Ill. Drop-light	696,364	Mar. 25	3874	851	98	2565
Gardner, John, Fleetwood, England. Apparatus for controlling actions at a distance	693,597	Feb. 18	2632	580 581	98	1387
Gardner, John H., New Orleans, La. Portable tramway	694,851	Mar. 4	968	219	98	1982
Gardner, Michael M., Edgewood, R. I. Cigar-bunching machine	694,625	Mar. 4	549	120 121	98	1829
Gardner, Paul H., and F. E. Van Doorn, Quincy, Ill. Adjustable bracket	693,127	Feb. 11	1694	370	98	1173
Gariss, S. H. (See Sprague, George F., assignor.)						
Garland, Frank M., New Haven, Conn. Cartridge-carrier mechanism for automatic guns	693,386	Feb. 18	2212	485 486	98	1301
Garland, James A., Jr., Hamilton, Mass. Tabulating attachment for type-writers	691,130	Jan. 14	1421	322 323	98	311
Garland, Michael, assignor to M. Garland Company, Bay City, Mich. Conveyer system	690,948	Jan. 14	1081	243	98	242
Garland, Myrta C., New Haven, Conn. Belt	695,549	Mar. 18	2272	513	98	2223
Garlock, Olin J., assignor to Garlock Packing Company, Palmyra, N. Y. Machine for forming ring-packing	695,605	Mar. 18	2387	540 541	98	2248
Garlock Packing Company. (See Garlock, Olin J., assignor.)						
Garrett Cromwell Engineering Company. (See Sundt, Oscar, assignor.)						
Garrett, Frank W., and E. W. Stull, Johnstown, Pa., assignors to Lorain Steel Company. Locking device for motor-reversing switches	691,618	Jan. 21	2961	531	98	525
Garrett, John J. P., *et al.* (See Dugina, William F., assignor.)						
Garrett, Thomas H., Jr., Auburn, N. Y. Ball-bearing rowlock	692,845	Feb. 11	1117	250	98	1053
Garrett, William H., and H. C. Pauly, assignors to Hennessy Foundry Company, Springfield, Ohio. Sewer-inlet	693,511	Feb. 18	2452	538	98	1351
Garrett, William T., assignor of one-half to J. A. Street, Cedarville, Cal. Ratchet-wrench	690,647	Jan. 7	539	117	98	115
Garrison, Albert H., assignor to Brand Stove Company, Milwaukee, Wis. Cooking-range	692,654	Feb. 4	766	176	98	956
Garrison, Joseph E., Philadelphia, Pa. Hose-nozzle	694,865	Mar. 4	38	9	98	1720
Gartner, Nolan L., *et al.* (See Decker, John M., assignor.)						
Gartrell, Sterne H., Kansas City, Mo. Burner attachment for dinner-pails	690,519	Jan. 7	501	60	98	66
Garvey, Matthias, Crownpoint, N. Y. Water-joint	691,582	Jan. 21	2212	497	98	496
Garvy, William J. (See Bachand, Levi N., assignor.)						
Garwood, Homer, Ottawa, Ohio. Incandescent lamp	692,260	Feb. 4	88	20	98	817
Gaschlin, Frederick G., assignor of nine-sixteenths to S. and M. Davis, San Francisco, Cal. Fire detector and alarm	693,008	Feb. 11	1449	315	98	1123
Gaston, Josiah B., South Pass, Wyo. Antifriction chafe-iron	693,699	Feb. 18	2981	690	98	1495
Gastonguay, Godemir J., Hartford, Conn. Coasting and brake mechanism	692,181	Jan. 28	3397	754	98	740
Gatch, M. W. (See Derr, William R., assignor.)						
Gates, Albert J., and T. W. Capen, assignors, by mesne assignments, to Allis-Chalmers Company, Chicago, Ill. Rock or ore breaker	691,389	Jan. 14	1859	420	98	406
Gates Iron Works. (See Sherman, Frederic W., assignor.)						
Gates, William, Woodbridge, assignor of one-half to J. H. Barnes, Norwich, Conn. Check-rein-holder	692,132	Jan. 28	3329	754	98	741
Gault, Martha B., Cincinnati, Ohio. Dress-shield	690,719	Jan. 7	696	152	98	147
Gaunt, Joseph S. (See Dyson, Harry, assignor.)						
Gauthier, Henri. (See Vrard, Vendredy, Duitte, and Gauthier.)						
Gautschi, Charlotte W., Milwaukee, Wis. Weather-strip	690,648	Jan. 7	541	117	98	115
Gavigan, William J., New York, N. Y. Electrical device for the treatment of diseases	693,257	Feb. 11	1909	428	98	1229
Gay, Chauncey W. (See Birnie and Gay.)						
Gay, Chauncey W., West Springfield, Mass. Box-machine	695,301	Mar. 11	1845	411 412	98	2116
Gay, George L., Spokane, Wash. Sprinkling attachment for hose-nozzles	691,758	Jan. 28	2951	594	98	604
Gay, Herman T., Baltimore, Md. Toy	691,131	Jan. 14	1424	323	98	312
Gay, Herman T., Baltimore, Md. Screw-propelled boat	691,258	Jan. 14	1527	377	98	361
Gaylor, Leonard B., Mount Vernon, N. Y. Blind-fastener	692,261	Feb. 4	89	20	98	817
Geary, H. Seymour, *et al.* (See Madas, Louis, assignor.)						
Geary, James, Bradford, Pa. Mail-marking machine	694,007	Feb. 25	3428	754 755	98	1506
Geddes, William, Quincy, Mass. Mop-wringer	694,469	Mar. 4	249	56	98	1705
Gedge, George E. (See Harwood, Gedge, and Monson.)						
Gedge, George E., assignor to A. C. Evans Manufacturing Company, Springfield, Ohio. Corn-planter	695,042	Mar. 11	1803	299	98	2017
Gee, James E., West Croydon, England. Apparatus for washing, scrubbing, and cleaning floors	695,043	Mar. 11	1864	300	98	2018
Geer, George, assignor of one-half to C. E. Buck, Richmond, Va. Fan attachment for sewing-machines	691,340	Jan. 14	1861	420	98	406
Geering, Alfred, New York, N. Y. Pincers or squeezing device	692,262	Feb. 4	90	21	98	1117
Gehre, Fritz, Zurich, Switzerland. Manufacturing plates or tiles	692,197	Jan. 28	3429	.....	98	764
Gehring, Gustave P. (See Shoemaker, Harry, assignor.)						
Geiger, Charles E., and J. E. Turney, assignors to Turney Drier Company, Louisville, Ky. Comminuting-machine	695,878	Mar. 18	2870	651	98	2347
Geiges, Joseph G., Cincinnati, Ohio. Furnace	692,489	Feb. 4	379	98	98	878
Gendron Manufacturing Company. (See Werthner, Christian, assignor.)						

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General Electric Company. (See Ashley, Frank M., assignor.)						
General Electric Company. (See Badeau, Charles C., assignor.)						
General Electric Company. (See Case, Frank E., assignor.)						
General Electric Company. (See Coates, Jesse, assignor.)						
General Electric Company. (See Dutton, Edgar F., assignor.)						
General Electric Company. (See Green, Charles M., assignor.)						
General Electric Company. (See Haskins, Caryl D., assignor.)						
General Electric Company. (See Hewlett, Edward M., assignor.)						
General Electric Company. (See Knox, Samuel L. G., assignor.)						
General Electric Company. (See Lemp, Hermann, assignor.)						
General Electric Company. (See Mackintosh, Frederick, assignor.)						
General Electric Company. (See Moody, Walter S., assignor.)						
General Electric Company. (See Potter, William B., assignor.)						
General Electric Company. (See Read, Robert H., assignor.)						
General Electric Company. (See Reist, Henry G., assignor.)						
General Electric Company. (See Spinney, Henry C., assignor.)						
General Electric Company. (See Stewart, Samuel B., Jr., assignor.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
General Electric Company. (See Thomson and Callan, assignors.)						
General Electric Company. (See Tournier, Julius C., assignor.)						
General Electric Company. (See Wellman, Harlan P., assignor.)						
General Electric Company. (See Woodbridge, Jonathan E., assignor.)						
General Electric Company. (See Woods, Granville T., assignor.)						
General Fire Extinguishing Company. (See Grinnell, Frederick, assignor.)						
General Incandescent Arc Light Company. (See Ball and Wintner, assignors.)						
General Phonosphere Corporation. (See Alexander, John E., assignor.)						
General Pneumatic Company. (See Thede, Peter F., assignor.)						
George A. Kelly Plow Company. (See Kelly, George A., assignor.)						
George, Bentley T. (See Joost and George.)						
George, Cornelius B. (See George, William W., assignor.)						
George, Jerome R., and V. E. Edwards, assignors to Morgan Construction Company, Worcester, Mass. Coupling for rolling-mill shafts	691,739	Jan. 28	2033	594	98	604
George, William W., assignor of one-half to C. B. George, Winchester, Ky. Liquid-weighing machine	693,794	Feb. 18	2078	656	98	1458
	11,971	Feb. 18	2043	672	98	1470
Gerber, James J., Minneapolis, Minn. Distributing-spout for grain-elevators. (Reissue)	696,188	Mar. 25	2394	764, 765	98	2470
Gerdtzen, Gerdt A., Milwaukee, Wis. Roll	690,580	Jan. 7	906	------	98	66
Germot, Antonin, Asnières, France. Obtaining metallic lead from lead ores	691,122	Jan. 14	1425	------	98	312
Gerresheim, Hugo, Cologne-Ehrenfeld, Germany. Reducing nitro compounds	692,198	Jan. 28	2440	------	98	764
Gesner, George W., Brooklyn, N. Y. Alloy						
Gester, William B. (See Fitzgerald, Christopher, assignor.)						
Gherassimoff, Nicolas, St. Petersburg, Russia. Apparatus for preventing collisions at sea	693,855	Feb. 25	3112	689, 690	98	1504
Gibberd, Fred, Upper Norwood, England. Device for blacking or coloring boots or shoes.	690,850	Jan. 7	917	204, 205	98	193
Gibbs, Antony, Bristol, England. Utilizing power in velocipedes	694,264	Feb. 25	3005	866, 867	98	1661
Gibbs, Sabin A., Tacoma, Wash. Magnetic traction	695,383	Mar. 11	1971	441	98	2143
Gibbs, William E., Fanwood, assignor of one-half to H. Berg, Orange Valley, N. J. Feed-regulator for motors	691,259	Jan. 14	1658	377	98	361
	695,044	Mar. 11	1955	300	98	2018
Gibson, Albert E., Reading, Pa. Non-refillable bottle	693,004	Feb. 11	1450	315	98	1123
Gibson, Edward T., Fort Harrison, Mont. Cartridge-carrier						
Gibson, John, Hartwell, assignor to John Van Range Company, Cincinnati, Ohio. Vessel-cover reciprocating and oscillating mechanism	693,258	Feb. 11	1971	428	98	1220
Gierding, Charles E., assignor to New Haven Car Register Company, Westhaven, Conn. Fare-register	692,513	Feb. 4	522	123, 124	98	804
Giere, Ole A. (See Lillo and Giere.)						
Giersberg, Erich, assignor to Sauerstoff-Fabrik Berlin, G. M. B. H., Berlin, Germany. Respiratory apparatus	693,795	Feb. 18	2080	658	98	1458
	691,540	Jan. 21	2213	497, 498	98	496
Gieshoidt, Josef, Dusseldorf, Germany. Apparatus for rolling solid or hollow bodies	694,366	Mar. 4	40	9, 10	98	1720
Giesler, Franklin B., Milwaukee, Wis. Rotary steam-drier						
Giesler, Ralph E. (See Johnston, Moses F., assignor.)	691,260	Jan. 14	1650	378	98	361
Giesser, Ernest A., Boston, Mass. Ventilating-window	694,367	Mar. 4	43	11	98	1721
Gifford, George H., Lynn, Mass. Pressing-form for sole-laying machines	695,149	Mar. 11	1564	346	98	2090
Gifford, Robert L., *et al.* (See Nistle, George W., assignor.)						
Gilbert, Charles L., Cleveland, Ohio. Traveling-bag						
Gilbert, Estella F. (See Gilbert, Joseph E., assignor.)						
Gilbert, Frederick, Seymour, Conn., assignor to L. E. Waterman, deceased, Brooklyn, N. Y.; F. D. Waterman, executor. Safety fountain-pen	692,009	Jan. 28	3101	696	98	694
	693,259	Feb. 11	1972	429	98	1220
Gilbert, Joseph E., assignor of one-half to E. F. Gilbert, Dansville, Mich. Currycomb	695,687	Mar. 18	2446	553	98	2259
Gilbert, Meritt C., Battlecreek, Mich. Valve for gas-burners						
Gilbert-Stringer, Henry J. S., Westbourne Park, London, England. Apparatus for casting and composing types	690,720	Jan. 7	897	152, 153, 154, 155	98	147
Gilbert-Stringer, Henry J. S., London, England. Type-mold	691,619	Jan. 21	2362	581, 582	98	525
Gilbert, Theodore M. (See Gilbert and Nash.)						
Gilbert, William H., Toledo, Ohio. Lawn-mower sharpener	692,846	Feb. 11	1118	250	98	1053
Gilbert, William M. and T. M., and W. C. Nash, Neenah, Wis. Wire or felt guide for paper-making machines	694,368	Mar. 4	45	11, 12	98	1721
Gildard, Christopher G. (See Coldwell and Gildard.)						
Giles, Harvey. (See Smith and Giles.)						
Gilfillan, Essington N., and E. T. McKaig, Chicago, Ill., assignors to New York Labelling Machine Company. Labeling-machine	693,055	Jan. 28	3102	720, 721	98	712
Gilfillan, Essington N., and E. T. McKaig, Chicago, Ill., assignors to New York Labelling Machine Company. Labeling-machine	694,915	Mar. 4	1109	245	98	1946
Gill, Edwin R., Englewood, N. J., assignor, by mesne assignments, to Electrite Company. Means for controlling electric or other motors	694,369	Mar. 4	47	12	98	1721
	690,944	Jan. 14	1083	244	98	242
Gill, Edwin R., Englewood, N. J., assignor to Invention Developing Company. Elevator.						
Gill, Edwin R., New York, N. Y., assignor to Invention Developing Company. Automatic actuator for power-regulators	694,370	Mar. 4	50	12, 13, 14	98	1722
Gillespie, George W., London, Canada. Self-adjusting electromagnetic circuit-closing mechanism	693,362	Feb. 11	1977	430	98	1231

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Gillespie, M. M. (See Christopherson, Louis B., assignor.)						
Gillespie, Robert T., Rochester, Pa. Currycomb	693,260	Feb. 11	1974	429	98	1230
Gillespie, Robert T., Rochester, Pa. Thill-support	693,261	Feb. 11	1975	429	98	1230
Gillett, Asa D., Lake City, Minn., and J. H. Gillett, Everett, Wash. Variable cut-off	694,057	Feb. 25	3582	778	98	1587
Gillett, James H. (See Gillett, Asa D. and J. H.)						
Gillis, Harry A., assignor to Richmond Locomotive Works, Richmond, Va. Spring-hanger for underhung locomotive-springs	690,851	Jan. 7	918	205	98	194
Gillis, John. (See Boyd and Gillis.)						
Gillispie, James C., Waltham, Mass. Hinge	691,020	Jan. 21	2364	532	98	525
Gilmore, Alfred C., Chicago, Ill. Automatic telegraph	695,203	Mar. 11	1650	367, 368, 369, 370	98	2078
Gilmore, Elbert J., Lowell, Mass. Salt cellar or dredge	693,005	Feb. 11	1451	315	98	1124
Gilmour Alkali Manufacturing Syndicate. (See Gilmour, James D., assignor.)						
Gilmour, James D., assignor to Gilmour Alkali Manufacturing Syndicate, Limited, Glasgow, Scotland. Apparatus for the electrolytic decomposition of alkaline salts	695,302	Mar. 11	1851	412	98	2117
Gilpin, William M., Thomas, W. Va. Combined metallic tie and rail-clamp	694,737	Mar. 4	774	172	98	1875
Gilson, Bert D., Alexandria, Ind. Overhead-trolley electric railway	693,351	Feb. 11	2141	470	98	1266
Gilson, John, Port Washington, Wis. Metal-founding	696,085	Mar. 25	3177	716, 717	98	2423
Gipson, Thomas J., *et al.* (See Logan, Crawford D., assignor.)						
Girtanner, Frederick, assignor of one-half to S. L. Simpson, New York, N. Y. Furnace grate and stoker	692,263	Feb. 4	90	21, 22	98	817
Girty, Frank, administrator. (See Morgan, Alfred W., assignor.)						
Gittings, Kinzie K., Chilhowee, Mo. Hay-press	694,626	Mar. 4	553	121	98	1830
Glacken, Hugh, Conroe, Tex. Egg-preserving apparatus	693,598	Feb. 18	2636	581	98	1387
Glackin, Peter F., assignor to Standard Sanitary Mfg. Co., Pittsburg, Pa. Automatic flushing-tank	694,627	Mar. 4	556	122	98	1830
Glackin, Peter F., assignor to Standard Sanitary Manufacturing Company, Pittsburg, Pa. Hinge for water-closet seats	694,628	Mar. 4	557	122	98	1831
Glackin, Peter F., Allegheny, assignor to Standard Sanitary Mfg. Co., Pittsburg, Pa. Flushing apparatus	694,629	Mar. 4	559	122	98	1831
Glascock, Harold W., Rensselaer, Mo. Folding binder-reel	691,901	Jan. 28	2006	654	98	656
Glass, Perley R., Quincy, Mass., assignor to Peerless Machinery Company, Charleston, W. Va., and New York, N. Y. Tack-driving mechanism	695,384	Mar. 11	1972	441, 442	98	2144
Glass, Perley R., Quincy, Mass., assignor to Peerless Machinery Company, Charleston, W. Va., and New York, N. Y. Nailing apparatus	695,385	Mar. 11	1974	442	98	2144
Glass, Perley R., Quincy, Mass., assignor to Peerless Machinery Company, Charleston, W. Va., and New York, N. Y. Nailing-machine	695,428	Mar. 11	2041	458	98	2158
Glasser, Charles T. (See Conner, William S., assignor.)						
Gleason, John H., Troy, N. Y. Railway-tie	692,264	Feb. 4	94	22	98	818
Gleason, William, South Glens Falls, N. Y. Limekiln	693,599	Feb. 18	2637	581, 582	98	1388
Gleckler, Henry. (See Schanbacher, Orville L., assignor.)						
Gleeson, Joseph P. (See Shipe and Gleeson.)						
Gleizes, Sylvain, Paris, France. Device for closing and interrupting electrical circuits	696,109	Mar. 25	3463	776	98	2483
Glessner, Frank. (See Lee and Glessner.)						
Globe Trading Company. (See Harris, John N., assignor.)						
Globe-Wernicke Company. (See Tobey, Fred W., assignor.)						
Glou, Isidor. (See Glou, Wolf and I.)						
Glou, Wolf and I., Scranton, Pa. Self-closing gas-burner	693,352	Feb. 11	2143	470	98	1266
Glover, Charles, New Britain, Conn. Knob attachment	692,265	Feb. 4	96	22	98	818
Glover, Charles, New Britain, Conn. Knob attachment	692,266	Feb. 4	97	23	98	818
Glover, Charles, New Britain, Conn. Velocipede-bearing	695,682	Mar. 18	2521	571	98	2273
Glover, Charles, assignor to P. & F. Corbin, New Britain, Conn. Coaster-brake or the like	696,036	Mar. 25	3178	717	98	2424
Glover, Charles, New Britain, Conn., assignor to P. & F. Corbin. Coaster-brake	691,541	Jan. 21	2214	498	98	496
Glover, Charles, New Britain, Conn., and N. W. Haskins, Brooklyn, N. Y., assignors to P. & F. Corbin, New Britain, Conn. Wheel-hub brake	692,267	Feb. 4	98	23	98	818
Godard, Council T., Petitcodiac, Canada. Baggage-truck	691,542	Jan. 21	2217	498	98	497
Goddard, Roland and W. F., Orwell, Ohio. Machine for weaving basket-blanks	691,621	Jan. 21	2366	532, 533	98	526
Goddard, William F. (See Goddard, Roland and W. F.)						
Goebel, William, St. Louis, Mo. Measuring-faucet	696,327	Mar. 25	3789	845	98	2550
Goehrend, William M., Reed City, Mich. Cutting apparatus for mowers or reapers	691,461	Jan. 21	2088	466	98	468
Goehst, John H., Chicago, Ill. Electrically-illuminated sign	690,649	Jan. 7	542	117, 118	98	116
Goerz, Carl P., Friedenau, Germany. Magazine plate-holder	695,638	Mar. 18	2448	554	98	2250
Goerz, Carl P., Friedenau, Germany. Photographic-roll holder	695,639	Mar. 18	2449	554, 555	98	2250
Goetz, Adolph, Grand Rapids, Mich. Bottle-cleaning machine	694,371	Mar. 4	61	15	98	1724
Goetz, Adolph, Grand Rapids, Mich. Bottle-cleaning machine	694,372	Mar. 4	65	15	98	1725
Goforth, Charles F. and M. T., Wichita, Kan. Tucker	694,373	Mar. 4	67	16	98	1725
Goforth, Marshall T. (See Goforth, Charles F. and M. T.)						
Goldberg, Max, Santa Clara, Cuba. Nailless horseshoe	693,263	Feb. 11	1981	430	98	1231
Goldberg, Max, Santa Clara, Cuba. Ant-trap for furniture	694,788	Mar. 4	776	172	98	1875
Golden, George W., Detroit, Mich. Weather-strip	690,417	Jan. 7	52	12	98	14
Goldfaden, Sam, New York, assignor to V. Nivois, Brooklyn, N. Y. Stop-watch	690,721	Jan. 7	708	155	98	148
Goldman, Matthew S., Pittsburg, Pa. Cuff-holder	694,739	Mar. 4	777	172	98	1876
Goldsmith, Byron B., New York, N. Y. Magazine lead-pencil	692,440	Feb. 4	880	98	98	878
Goldsmith, David, New York, N. Y. Trunk-tray fixture	693,543	Feb. 18	2514	554	98	1363
Goldsmith, Felix S., Denver, Colo. Prospector's pick or similar tool	691,309	Jan. 14	1773	403	98	384
Goldsmith, Marcus T., New York, N. Y. Chatelaine-bag hook	693,264	Feb. 11	1982	431	98	1231
Goltermann, Hermann, New York, N. Y. Nebulizer	694,680	Mar. 4	561	122	98	1881
Gombar, Amos B., Cornwells, assignor of three-fourths to W. B. Henry, trustee, and H. H. Burrell, Philadelphia, Pa. Cushion for railway-rails, frog and switch rails, &c	695,429	Mar. 11	2043	458	98	2158
Gomber, George W., Conyngham, Pa. Can-opener	690,418	Jan. 7	53	13	98	14
Good, Edgar, assignor to Kalamazoo Spring & Axle Company, Kalamazoo, Mich. Axle-skein	694,681	Mar. 4	562	123	98	1881
Goode, John, Colwall, near Malvern, assignor of one-half to D. R. Broadbent, London, England. Automatic audible signaling on railways	694,008	Feb. 25	3402	755, 756	98	1566
Goodfellow, Charles S., Lowell, Mass. Flue-cleaner	691,718	Jan. 21	2540	568	98	564
Goodfellow, Thomas G., Chicago, Ill. Fire-escape	692,847	Feb. 11	1119	250	98	1053
Gooding, Charles S. (See Lincoln, Luther, assignor.)						
Goodlett, Nicholas M., Jr., executor. (See Fordred, John.)						
Goodman, Abraham, San Francisco, Cal. Building construction	695,718	Mar. 18	2574	582	98	2284

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Goodman, Joseph B., Philadelphia, Pa. Non-refillable-bottle cork	692,846	Feb. 11	1121	250	98	1054
Goodnow, Charles H., Chicago, Ill., assignor to J. W. Sefton Manufacturing Company, Chicago, Ill., and Anderson, Ind. Paper box	695,304	Mar. 11	1667	370	98	2081
Goodnow, Charles H., Chicago, Ill., assignor to J. W. Sefton Manufacturing Company, Chicago, Ill., and Anderson, Ind. Paper box	695,305	Mar. 11	1668	370	98	2081
Goodwin, James D., assignor to Cardwell Machine Company, Richmond, Va. Tobacco drying, cooling, and ordering machine	693,387	Feb. 18	2215	486 487	98	1301
Goodyear Shoe Machinery Company. (See Winkley, Erastus E., assignor.)						
Gooing, Martin B., Minden, La. Planter	694,832	Mar. 4	990	219	98	1922
Goold, William D., Albany, N. Y. Emergency-brake for horseless carriages	696,253	Mar. 25	3579	801	98	2505
Gordon, Alexander, Detroit, Mich. Cigar-bunching machine	693,265	Feb. 11	1988	431	98	1232
Gordon, Arthur R., Toledo, Ohio. Vaginal syringe	694,541	Mar. 4	399	88	98	1797
Gordon, Charles, assignor of three-fifths to J. G. Marchand, Buffalo, N. Y. Toy	690,858	Jan. 7	919	205	98	194
Gordon, George, Chicago, Ill. Spectacle-bow	692,269	Feb. 4	100	23	98	819
Gore, Charles, San Francisco, Cal. Life-preserver	691,341	Jan. 14	1893	420	98	407
Gorneman, Charles, Cedar Valley, Utah. Railway-velocipede	693,128	Feb. 11	1696	370	98	1173
Gornston, Michael H., Brooklyn, N. Y. Clothes-hanging apparatus	696,394	Mar. 25	3581	802	98	2505
Gorrell, Frances H., Newton, Iowa. Hook and eye	691,701	Jan. 21	2516	563	98	559
Gorton, John P., Weston-super-Mare, England. Telegraphy	694,542	Mar. 4	401	88	98	1797
Görtz, Constantin von, Vienna, assignor to Skodawerke Actiengesellschaft in Pilsen, Pilsen, Austria-Hungary. Primer for ordnance	694,265	Feb. 25	3911	868	98	1602
Gosline, Edwin B., Carnegie, Pa. Slack-coal heater	695,700	Feb. 18	2822	620 621	98	1425
Goss, John H. (See Farraday and Goss.)						
Gossmann, Heinrich, Wilhelmshöhe, near Cassel, Germany. Bath-tub	693,701	Feb. 18	2824	621	98	1425
Gotter, Benjamin, Scranton, Iowa. Clevis	691,902	Jan. 28	2907	655	98	657
Gottschalk, Herman, Chicago, Ill. Kid-glove cleaner and making same	692,010	Jan. 28	3102	697	98	695
Gouchon, Charles, Lisieux, France. Motor-carriage	694,470	Mar. 4	250	56	98	1765
Gould, William J., Argentine, Kans., assignor of one-half to W. S. Weyer, Kansas City, Mo. Cream-separator	693,512	Feb. 18	2458	536	98	1351
Goulet, Joseph A. G., Montreal, Canada, assignor to Draper Company, Hopedale, Mass. Filling-replenishing mechanism for looms	695,045	Mar. 11	1366	300	98	2018
Goulson, George, Los Angeles, Cal. Sewing-machine gage	694,632	Mar. 4	563	123	98	1582
Goures, Isaac, New York, N. Y. Slide-loop clip	691,133	Jan. 14	1496	323	98	312
Govan, Alexander, Bridgeton, Glasgow, Scotland. Driving-gear for motor-vehicles	695,808	Mar. 18	2744	626	98	2320
Gowing, Earle H. (See Nagle, Augustus F., assignor.)						
Goyne, William J., Barton Heights, Va. Relief-valve	694,374	Mar. 4	69	16	98	1726
Graae, John F., Brooklyn, N. Y. Instrument for testing translucent substances by color	696,371	Mar. 25	3887	863	98	2567
Grabau, Hans E., Hoboken, N. J., assignor to Garcia-Rabell Trading Company, New York, N. Y. Machine for making cigarettes	692,270	Feb. 4	101	23 24 25	98	819
Graber, James D., Royersford, assignor of one-fourth to E. L. Hallman, Norristown, Pa. Composition for stiffening fabrics	691,462	Jan. 21	2084	.....	98	469
Grabler, Peter, Cleveland, Ohio., assignor, by mesne assignments, to Columbia Specialty Manufacturing Company, Washington, D. C. Paper-marker	690,853	Jan. 7	920	205	98	194
Graff, Otto, *et al.* (See Leak, William C., assignor.)						
Grafstrom, Edward, Topeka, Kans. Locomotive-pilot and car-coupling therefor	695,684	Mar. 18	2524	571 572	98	2274
Grafstrom, Edward, assignor to H. S. Hallwood, Columbus, Ohio. Car-coupling	695,683	Mar. 18	2523	571	98	2274
Graham, David F. (See Fox and Graham.)						
Graham, David F., Springfield, Mass., assignor to W. D. Blake, Richmond Hill, New York, N. Y. Clutch adjustment for motor-carriages	693,963	Feb. 25	3336	731	98	1545
Graham, James, New York, N. Y. Automatically-propelled multiple-hull vessel	696,097	Mar. 25	3808	744	98	2451
Graham, Robert J., Philadelphia, Pa. Game apparatus	695,308	Mar. 11	1853	412	98	2117
Graham, William F., Gosforth, England. Machinery for the manufacture of coverings for floors or like surfaces	691,261	Jan. 14	1660	378	98	368
Graham-Yooll, Frederick R., Edinburgh, Scotland. Infant's feeding-bottle	696,398	Mar. 25	3791	845	98	2551
Granbery, Dee T., Memphis, Tenn. Railway-switch and mechanism for operating it	692,271	Feb. 4	104	25	98	820
Granbery, Dee T., Memphis, Tenn. Horse-hitching device	694,375	Mar. 4	72	17	98	1726
Granichstaedten, Ladislaus E., London, England. Kinematograph	696,856	Feb. 25	3118	691	98	1505
Grant, Annie I. (See Smith, Frances C., assignor.)						
Grant, George H., assignor to H. Kohnstamm & Co., Chicago, Ill. Laundry-bag	690,854	Jan. 7	921	206	98	194
Grant, Max, assignor to H. W. Stannard, J. F. Melody, and W. H. Wade, Chicago, Ill. Can	695,879	Mar. 18	2872	651	98	2347
Granton, Clifton A., Haverhill, Mass. Valve for hot-water radiators	695,046	Mar. 11	1369	301	98	2019
Granton, Clifton A., Haverhill, Mass. Roof-joint	696,139	Mar. 25	3397	765	98	2471
Grapengeter, Johannes, Hamburg, Germany. Steam pile-driver	693,600	Feb. 18	2689	582	98	1389
Graves, Eugene E., Black River, N. Y. Game	695,396	Mar. 11	1976	442 443	98	2145
Gray, Alexander, Sutton, England. Variable-speed gear	694,959	Mar. 11	1801	393	98	1963
Gray, Almon J., Pepin, Wis., assignor of one-half to N. A. Gray, St. Paul, Minn. Game-cue	690,945	Jan. 14	1095	244	98	243
Gray, Frank, Chicago, Ill. Valve and alarm	693,320	Feb. 11	2078	454	98	1251
Gray, Frank, Chicago, Ill. Valve	693,321	Feb. 11	2079	454	98	1252
Gray, Frank, Chicago, Ill. Alarm for fire-extinguishing systems	693,322	Feb. 11	2081	455	98	1252
Gray, George. (See Bower, Sigmund, assignor.)						
Gray, George, Brooklyn, N. Y. Globe-holder	690,419	Jan. 7	55	13	98	15
Gray, Irwin M., *et al.* (See Holland, Joseph R., assignor.)						
Gray, Lawrence B., Studley, Va. Lock-nut	695,304	Mar. 11	1855	412	98	2118
Gray, Norman A. (See Gray, Almon J., assignor.)						
Grazier, Gideon, Tyrone, Pa. Combined spike-puller and car-mover	692,272	Feb. 4	106	25	98	820
Great Eastern Manufacturing Company. (See Dieter, Alvin A., assignor.)						
Green, A. C. (See Bush, Andrew J., assignor.)						
Green, Charles D., Houston, Tex., assignor to S. T. Westdal, Minneota, Minn. Ballot-box	694,543	Mar. 4	408	88	98	1798
Green, Charles M., Lynn, Mass., assignor to General Electric Company. Regulator for dynamo-electric machines	690,420	Jan. 7	56	13	98	15
Green, E. H. R. (See Ruebel, C. A. Ernst, assignor.)						
Green, Edwin B., Whiting, Ind. Railway-switch	690,421	Jan. 7	62	14	98	16
Green, Frank D., Philadelphia, Pa. Double-stream draft-tube	696,339	Mar. 25	3792	845	98	2551
Green, Joshua J., Shreveport, La. Removing fiber from cotton-seed	695,305	Mar. 11	1856	412	98	2118
Greencastle Automobile Company. (See Blake and Bell, assignors.)						
Greene, Carl H. (See Tansley, Clinton A., assignor.)						
Greene, Carleton, and W. M. Dollar, Buffalo, assignors to Barber Asphalt Paving Company, New York, N. Y. Apparatus for heating granular substances	693,199	Jan. 28	3440	778	98	764
Greene, Frank G., Albany, N. Y. Mowing-machine-knife grinder	694,876	Mar. 4	74	17	98	1727
Greene, John, Warrington, England. File and rasp cutting machine	691,629	Jan. 21	2271	503 504	98	327

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Greene, William, and S. Chisholm, San Francisco, Cal. Weighing and recording apparatus	690,855	Jan. 7	922	206	98	194
Greenfield, George H., Moravia, N. Y. Silo	694,377	Mar. 4	75	17	98	1727
Greenwood, George W., Cleveland, Ohio. Knee-joint or hinge connection	696,235	Mar. 25	3582	802	98	2505
Greer, William N., and H. Harris, Greeley, Nebr. Head-rest	691,854	Jan. 28	2530	636	98	641
Gregory, George, London, assignor of two-thirds to R. Gregory, Islington, London, and J. H. Foster, Greenwich, England. Smoke-preventing and fuel-saving device for boiler or other furnaces	694,147	Feb. 25	0675	813	98	1616
Gregory, Joseph, New York, N. Y. Lamp-burner	693,006	Feb. 11	1452	315	98	1124
Gregory, Robert, *et al.* (See Gregory, George, assignor.)						
Greil, Ernest, and E. Audiger, Paris, France, assignors, by mesne assignments, to National Electric Improvement Company, New York, N. Y. Electric contact or current-taking device. (Reissue)	11,968	Feb. 18	3038	671	98	1469
Greil, Ernest, and E. Audiger, Paris, France, assignors, by mesne assignments, to National Electric Improvement Company, New York, N. Y. Electric contact or current-taking device. (Reissue)	11,969	Feb. 18	3040	671	98	1470
Greil, Ernest, and E. Audiger, Paris, France, assignors, by mesne assignments, to National Electric Improvement Company, New York, N. Y. Electric contact or current-taking device. (Reissue)	11,970	Feb. 18	3042	672	98	1470
Greinert, Herman, Buffalo, N. Y. Detonating toy	694,688	Mar. 4	563	123	98	1832
Grenfell, Hubert H., Hants, England. Elevating and sight-adjusting gear for ordnance	696,702	Feb. 18	2825	621, 622	98	1426
Grenfell, Hubert H., Alverstoke, England. Signaling apparatus	696,880	Mar. 25	3794	845, 846	98	2551
Greth, Joseph, assignor of one-half to J. L. Adams, New York, N. Y. Balloon-observatory	691,719	Jan. 21	2541	569	98	504
Gretter, Victor, Chicago, Ill. Needle-valve injector	696,645	Feb. 18	2719	600	98	1405
Grey, Sylvester P., assignor of one-half to F. Howenstein, Fort Wayne, Ind. Coin-controlled telephone	694,960	Mar. 11	1992	263	98	1983
Greystone Manufacturing Company. (See Wells, Stephen M., Jr., assignor.)						
Griesche, Gustav, Berkeley, Cal. Electric reheater for steam	695,206	Mar. 11	1670	371	98	2081
Griesser, Wilhelm, New York, N. Y. Cask-support	694,266	Feb. 25	3912	868	98	1662
Griesser, Wilhelm, New York, N. Y. Brewer's vat	694,267	Feb. 25	3913	868, 869	98	1662
Griffen, John D., assignor to Standard Power Company, New York, N. Y. Running-gear for motor-vehicles	695,207	Mar. 11	1671	371	98	2081
Griffin, Albert P., assignor of one-half to W. E. Hagan, Troy, N. Y. Mantle-holder for gas-burners	692,441	Feb. 4	385	93	98	878
Griffin, Byron, *et al.* (See Dent, Frank W., assignor.)						
Griffin, Thomas, Berlin, N. H. Combined pencil-clip and calendar	692,514	Feb. 4	529	124	98	905
Griffin, Thomas, Berlin, N. H. Combined pencil-clip and calendar	694,098	Feb. 25	3595	795	98	1600
Griffith, Albert W., *et al.* (See Prescott, Joseph D., assignor.)						
Griffiths, David J., H. W. Hitzrot, and C. W. Mower, McKeesport, Pa. Railway-switch	694,068	Feb. 25	3583	778, 779	98	1587
Grill, Enoch, Tustin, assignor to W. J. Kennedy, Grand Rapids, Mich. Painting apparatus	696,331	Mar. 25	3797	846, 847	98	2552
Grimes, Frank M. (See Kelley, Richard J., assignor.)						
Grimoin-Sanson, Raoul. (See Philipps, Lebel, and Grimoin-Sanson.)						
Grinder, Joseph E., Washington, D. C. Press for making brick	694,009	Feb. 25	3434	756	98	1567
Grinnell, Alonzo P. (See Proctor, William A., assignor.)						
Grinnell, Frederick, New Bedford, Mass., assignor to General Fire Extinguishing Company, New York, N. Y. Automatic fire-extinguisher	691,760	Jan. 28	2655	594	98	605
Grisel, Alphonse E. (See Juge and Grisel.)						
Griswell, John C., *et al.* (See Yonge, Chandler I., assignor.)						
Griswold, George M., New Haven, Conn. Paper-box stacker and drier	694,634	Mar. 4	566	123, 124	98	1832
Griswold, George M., New Haven, Conn. Paper-box-blank feeding and folding mechanism	694,635	Mar. 4	570	124, 125, 126	98	1833
Griswold, Matthew, Jr., Erie, Pa. Tumbling-machine	695,102	Mar. 11	1462	334, 335	98	2057
Gritton, George A., administrator. (See Rodgers, Robert.)						
Groen, Herman A., *et al.* (See Stuurman, John H. G., assignor.)						
Groen, Joseph, *et al.* (See Stuurman, John H. G., assignor.)						
Groff, John M., and E. P. Coulter, North Lawrence, Ohio. Whip-socket	695,719	Mar. 18	2575	583	98	2285
Groff, John W., Albion, Mich. Fire-escape	696,646	Feb. 18	2721	600	98	1405
Grohmann, Carl F., Güstrow, Germany. Device for steering agricultural machines	694,010	Feb. 25	3435	757	98	1567
Groll, Charles, Roubaix, France. Rotary furnace	694,208	Feb. 25	3915	869	98	1663
Gröndal, Gustaf, Pitkäranta, Russia. Magnetic separator	691,269	Jan. 14	1662	378	98	362
Gross, Albert S. (See Scharnweber, William, assignor.)						
Gross, Elwood. (See Gross, Frederick H. and E.)						
Gross, Frederick H. and E., Plymouth, Pa. Miner's squib	696,964	Feb. 25	3329	731	98	1546
Gross, Harry P., Jr., Baltimore, Md. Fastening for washstands	695,387	Mar. 11	1978	443	98	2151
Gross, Henry P., Baltimore, Md. Window-shade guide for shade-rollers	696,087	Mar. 25	3180	717	98	2424
Gross, William M., Ogden, Utah. Excavator	696,266	Feb. 11	1965	431, 432	98	1252
Grote Bottle Machine Company. (See Grote, Ludwig, assignor.)						
Grote, Ludwig, London, England, assignor to Grote Bottle Machine Company, Jersey City, N. J. Finishing-mold for making glass bottles	691,468	Jan. 21	2065	467	98	469
Grotenhuis, William J., Chicago, Ill. Garment-stretcher	695,924	Mar. 25	2961	670	98	2379
Grothe, Frederick H., Burlington, Iowa. Combined match-box and cigar-cutter	691,372	Jan. 21	1925	433	98	435
Grothe, William, assignor to White Sewing Machine Company, Cleveland, Ohio. Loop-taker mechanism for sewing-machines	690,722	Jan. 7	706	156	98	149
Grothe, William, assignor to White Sewing Machine Company, Cleveland, Ohio. Feed mechanism for sewing-machines	696,089	Mar. 25	3182	718	98	2426
Grout, John C., Brooklyn, N. Y. Attachment for bicycles	692,849	Feb. 11	1123	251	98	1054
Grove, Elmer E., assignor to Lagonda Manufacturing Company, Springfield, Ohio. Hose connection	696,088	Mar. 25	3181	717	98	2424
Grove, Leander J., Astoria, Ill. Detachable spout for powder-cans	690,571	Jan. 7	591	80	98	85
Groves, Charles J., *et al.* (See Stirckler, John D., assignor.)						
Grün, Edward F., Southwick, England. Lens system	695,606	Mar. 18	2993	541, 542	98	2249
Grunbaum, Leo P. (See Zwiekel and Grunbaum.)						
Guay, Alfred, Maxville, Canada. Bed-spring	695,607	Mar. 18	2994	542	98	2249
Gubsch & Co., E. M. (See Müller, John P., assignor.)						
Gudeman, Edward, Chicago, Ill. Utilizing gluten tailings	695,720	Mar. 18	2577	.....	98	2285

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Guenther, George G., Los Angeles, Cal. Tree-transplanter	694,740	Mar. 4	778	173	98	1875
Guenther, George G., Los Angeles, Cal. Automatic switch-operating device	694,741	Mar. 4	779	173	98	1876
Guenther, George G., Los Angeles, Cal. Railway-switch	694,742	Mar. 4	780	173	98	1877
Guest, George H., New York, N. Y., assignor, by mesne assignments, to National Cash Register Company, Jersey City, N. J. Cash-register	694,853	Mar. 4	991	220	98	1923
Guett, Monroe, assignor to Hart and Hegeman Manufacturing Company, Hartford, Conn. Push-button switch	690,946	Jan. 14	1088	245	98	243
Guffin, Henry H., Indianapolis, Ind. Hoisting and conveying apparatus	694,378	Mar. 4	76	17, 18	98	1727
Guidinger, Joseph, Los Angeles, Cal. Stamp-canceler	695,606	Mar. 18	2308	542, 543	98	2250
Guild, John E., Worcester, Mass. Fireproof shutter	691,761	Jan. 28	2656	594, 595	98	605
Guimond, Adolphe, Fall River, Mass. Apparatus for winding wire from one reel to another while same is being polished	694,011	Feb. 25	3436	757, 758	98	1567
Gulden, Charles J., Belt, Mont. Brake-shoe	691,988	Jan. 28	2974	668	98	669
Gulick, Edward J., Jamestown, N. Y. Desk-support	692,273	Feb. 4	107	25	98	859
Gulland, Charles, Pittsburg, Pa. Safety-valve for steam-boilers	693,513	Feb. 18	2455	538	98	1351
Gulland, Charles, Pittsburg, Pa. Stand-pipe	695,925	Mar. 25	3963	671	98	2379
Gully, Leontina, Uvalde, Tex. Sham-bolster frame	691,134	Jan. 14	1427	893	98	312
Gumaer, Marie L., Guymard, N. Y. Dress-holder	692,274	Feb. 4	108	26	98	859
Gump, Jacob, Baltimore, Md. Button	694,696	Mar. 4	574	126	98	1834
Gundlach, John P. (See Gundlach, Philip M. and J. P.)						
Gundlach, Philip M. and J. P., Belleville, Ill. Wheel-hub	693,267	Feb. 11	1988	432	98	1233
Gunn, Charles H., Salt Lake City, Utah. Wagon-brake	696,170	Mar. 25	3464	776	98	2483
Gunning, Thomas, Pittsburg, Pa. Feed-water heater and purifier	693,268	Feb. 11	1989	432	98	1233
Günther, Fritz. (See Julius and Günther.)						
Guntrum, Carl. (See Selg and Guntrum.)						
Gurley, Schuyler C., Indianapolis, Ind. Machine for making tablets	694,743	Mar. 4	782	173, 174, 758	98	1877
Gurr, William P., Minneapolis, Minn. Time-recorder	694,012	Feb. 25	3438	759, 760	98	1568
Gussenhoven, Walter, New York, N. Y. Tire-clamping device	692,275	Feb. 4	109	25	98	859
Gussenhoven, Walter, New York, N. Y. Tire-adjusting device	692,276	Feb. 4	111	26	98	821
Gustafson, Adolph, Pueblo, Colo. Safe-door	693,857	Feb. 25	3119	691	98	1505
Gustafsson, Karl G., Stockholm, Sweden. Acetylene-gas generator	691,855	Jan. 28	2951	636	98	641
Guttenberg, William, Lancaster, England. Stand or frame for photographs, pictures, &c.	690,572	Jan. 7	392	80	98	85
Guzik, Zalal, New York, N. Y. Necktie-holder	691,543	Jan. 21	2217	499	98	497
H. B. Smith Machine Company. (See Vivarttas, William O., assignor.)						
H. B. Smith Machine Company. (See Wise, Solomon F., assignor.)						
H. I. Crandall & Son Company. (See Crandall, James L., assignor.)						
H. Kohnstamm & Co. (See Grant, George H., assignor.)						
H. W. Johns Manufacturing Company. (See Miller, Frederic S., assignor.)						
Haagen, Albert, Cologne, Germany. Ferro-chrome color and making same	693,708	Feb. 18	2427	.....	98	1426
Haas, Cyrus A., St. Louis, Mo. Automatic gas-burner pressure-regulator	690,573	Jan. 7	393	81	98	85
Haas, Cyrus A., assignor to C. H. Dodge and E. Chase, St. Louis, Mo. Spring-motor vehicle	695,430	Mar. 11	2044	459	98	2158
Haas, Joseph, *et al.* (See Lotz, Augustus, assignor.)						
Haberstroh, Albert, Boston, Mass. Adhesive fastener	693,514	Feb. 18	2456	538	98	1351
Haberstroh, Albert, Boston, Mass. Mailing-envelop	693,704	Feb. 18	2429	622	98	1426
Habrich, Franz. (See Henkel, Heinrich, assignor.)						
Hadaway, John B., Brockton, Mass. Stitch-separating machine	690,422	Jan. 7	63	14, 15	98	17
Hadaway, John B., Brockton, Mass. Stitch-separating machine	691,903	Jan. 28	2908	655, 656	98	657
Haensch, Wilhelm. (See Schmidt and Haensch.)						
Haertl, Peter F.. (See Haertl, Peter P. and P. F.)						
Haertl, Peter P., Beaverdam, Wis., and P. F. Haertl, Shreveport, La. Cotton-harvester	691,762	Jan. 28	2658	595, 596	98	605
Haertlein, Albrecht, *et al.* (See Darwin, Frank L., assignor.)						
Hafer, James, Sr., Augusta, Ky. Singletree attachment	694,544	Mar. 4	406	89	98	1796
Hafer, James, Sr., Augusta, Ky. Singletree attachment	694,545	Mar. 4	407	89	98	1796
Haff, Max M., New York, N. Y., assignor to Ampere Electro-Chemical Company, Jersey City, N. J. Separation of the constituents of complex sulfid ores	695,306	Mar. 11	1857	.....	98	2116
Hagan, William E. (See Griffin, Albert P., assignor.)						
Hage, Francis J., Sr., Goldsboro, N. C. Awning	693,129	Feb. 11	1998	371	98	1174
Hageiberg, Gustaf A., and L. Lindelöf, Helsingfors, Russia. Machine for filling paper cigarette-tubes	695,640	Mar. 18	2451	555, 556	98	2250
Hagen, Christoph, New York, N. Y. Spittoon-guard	693,007	Feb. 11	1454	316	98	1124
Hagerty, Thomas F., San Francisco, Cal. Rotary-cutter or pinking machine	691,702	Jan. 21	2517	553	98	550
Hahn, Herman, assignor to Acme Cash Register Company, San Francisco, Cal. Cash-register	693,816	Feb. 18	2621	667, 668	98	1467
Hahn, William F., Pensacola, Fla. Slate	696,388	Feb. 18	2219	487	98	1302
Hail, George, Providence, R. I. Elevator safety appliance	691,310	Jan. 14	1774	403, 404	98	385
Haines, William L. (See Stearns and Haines.)						
Hakel, John. (See Reed and Hakel.)						
Halacinski, Zygmunt, Lemberg, Austria-Hungary. Device for composing and casting type-lines	694,360	Feb. 25	3916	870	98	1663
Halbekann, Franz J., assignor to Firm of Koeller & Co., Solingen, Germany. Safety-razor	690,947	Jan. 14	1090	245	98	243
Hale, Bernard O., assignor to Farrel Foundry and Machine Company, Ansonia, Conn. Belt-folding machine	694,099	Feb. 25	3596	796	98	1600
Hale, Henry, Astoria, and S. J. Bartlett, Beardstown, Ill. Railway-track jack	690,423	Jan. 7	69	15	98	17
Hale, Henry S., Philadelphia, Pa. Car-seat	691,373	Jan. 21	1996	455	98	495
Hale, Henry S., Philadelphia, Pa., assignor to Hale and Kilburn Manufacturing Company. Car-seat	692,133	Jan. 28	2330	754, 755	98	741
Hale and Kilburn Manufacturing Company. (See Hale, Henry S., assignor.)						
Hale, Will K., *et al.* (See Roake, John S., assignor.)						
Haley, Fred H., Westchester, Pa. Coin-receptacle	693,515	Feb. 18	2457	539	98	1351
Haley, Jonathan, and H. H. Bridgwater, assignors to Akron Glass & Machinery Company, Akron, Ohio. Machine for forming glassware	693,180	Feb. 11	1999	371, 372	98	1174
Halfacre, Kate, Tewkesbury, England. Match-box	694,471	Mar. 4	251	56	98	1765
Hall Bascule Bridge Company. (See Hall, Charles F., assignor.)						
Hall, Charles F., Chicago, Ill., assignor, by mesne assignments, to Hall Bascule Bridge Company. Bascule-bridge	694,744	Mar. 4	786	174, 175	98	1877
Hall, Daniel B. (See Blair, Gardner L., assignor.)						
Hall, Frances, Steubenville, Ohio. Baking-pan	694,745	Mar. 4	787	175	98	1878

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Hall, George, and M. T. Bedford, Lima, Ohio. Sheaf-fork	692,134	Jan. 28	2334	755	98	742
Hall, George P., Brookings, S. D. Axle-wrench	691,856	Jan. 28	2332	636	98	641
Hall, James B., Cleveland, Ohio. Fish-hook	693,269	Feb. 11	1990	433	98	1233
Hall & Munson Co. (See Van Horn, Charles R., assignor.)						
Hall, Ralph K. (See Metcalf and Hall.)						
Hall, Roswell C. (See Barsaleaux and Hall.)						
Hall Signal Company. (See Coleman, Clarence W., assignor.)						
Hall Signal Company. (See Coleman, Clyde J., assignor.)						
Hall Signal Company. (See Salmon, Wilmer W., assignor.)						
Hall Signal Company. (See Wilson, Joseph A., assignor.)						
Hall, Spencer F., Racine, Wis. Check-book	695,880	Mar. 18	2874	652	98	2348
Hall, Wilber P., Pembroke, N. Y. Incubator	692,277	Feb. 4	113	26, 27	98	822
Hall, William A., Bellows Falls, Vt. Producing dry condensed milk	694,100	Feb. 25	3599	.....	98	1600
Hall, William A., Bellows Falls, Vt. Adhesive	695,926	Mar. 25	2964	.....	98	2379
Hall, William A., Bellows Falls, Vt. Casein solution	695,927	Mar. 25	2964	.....	98	2380
Hallbergh, David V., Stockholm, Sweden. Water-meter	691,904	Jan. 28	2912	657	98	657
Hallman, Elwood L. (See Graber, James D., assignor.)						
Hallock, Valentine H., New York, N. Y. Weeder	695,721	Mar. 18	2578	583	98	2285
Halloran, Henry G. (See Chaplin and Halloran.)						
Hallwood, Henry S. (See Grafstrom, Edward, assignor.)						
Hallwood, Henry S., Columbus, Ohio. Car-coupling	692,442	Feb. 4	387	94	98	879
Halsey, William S., Pittsburg, Pa. Means for transmitting fluid under pressure	693,516	Feb. 18	2458	539	98	1352
Halsey, William S., Pittsburg, Pa. Pneumatic hoist	693,517	Feb. 18	2460	539	98	1352
Ham, Albert W., Lansingburg, N. Y. Trolley-tender	691,263	Jan. 14	1663	878, 879	98	363
Ham, Albert W., Lansingburg, N. Y. Trolley-tender	691,264	Jan. 14	1664	879	98	363
Hamberger, George, and G. A. Stelzer, Berne, Switzerland. Life-preserver	692,278	Feb. 4	115	27	98	822
Hamblin, Stephen M. (See Stafford and Hamblin.)						
Hamblin, Stephen M., Central Falls, R. I., assignor to H. W. Smith, Worcester, Mass. Electrical weft-indicator mechanism for looms	694,961	Mar. 11	1904	263	98	1984
Hamburger, Moritz, and A. J. Birkhois, Budapest, Austria-Hungary. Combined week-note and day block-calendar	696,098	Mar. 25	3306	745	98	2452
Hamelle, Henry, Paris, France. Lubricating apparatus	691,905	Jan. 28	2913	657	98	658
Hamill, Robert H., Salmo, Canada. Chuck for rock-drills	695,388	Mar. 11	1979	443	98	2145
Hamilton, Emery M., New York, N. Y. Piano-action	693,131	Feb. 11	1701	372	98	1174
Hamilton, George W., Chicago, Ill. Glazier's tool	693,518	Feb. 18	2462	540	98	1353
Hamilton, Isaiah E. (See Benton, George P., assignor.)						
Hamilton, John F., South Framingham, Mass. Guide for straw-braid-sewing machines	692,279	Feb. 4	116	27	98	822
Hamilton, William F., Ventura, Cal. Nut-wrench	695,047	Mar. 11	1370	301	98	2019
Hamlin, R. C. (See Woodmansee, Clay G., assignor.)						
Hammar, Sigard A. S. (See Meigs and Hammar.)						
Hammer, Alfred E., Branford, Conn. Rammer	692,280	Feb. 4	117	27	98	822
Hammond, Leander W., Plainfield, assignor of one-half to S. A. Wallace, North Plainfield, N. J. Propeller-wheel	695,389	Mar. 11	1980	443	98	2145
Hammond, Lewis M. (See Blaine, Otis E., assignor.)						
Hammond, Ormond. (See Butler and Hammond.)						
Hampson, Charles M., Denver, Colo. Turn-table	695,307	Mar. 11	1858	413	98	2118
Hampson, Frank G., London, England. Friction-clutch	694,270	Feb. 25	3917	870	98	1663
Hampson, Frank G., Clapham, England. Water-tube boiler	695,641	Mar. 18	2454	556, 557	98	2260
Hancock, Henry J., New York, N. Y., assignor to G. T. Batchelor, South Orange, N. J., and S. Stenson, Seacliff, N. Y. Needle-feed chain-stitch sewing-machine	691,311	Jan. 14	1776	404	98	383
Hancock, Milton T., Shreveport, La. Convertible disk plow	692,655	Feb. 4	769	176, 177	98	957
Handiges, Philip T., assignor to T. H. Simpson, trustee, and Michigan Malleable Iron Co., Detroit, Mich. Car-coupling	692,850	Feb. 11	1124	251	98	1054
Handlan-Buck Manufacturing Company. (See Moyle, Leigh, assignor.)						
Handy Company. (See Cowan, James W., assignor.)						
Hanks, Marshall W., assignor to G. Westinghouse, Pittsburg, Pa. Making glowers for electric lamps	690,856	Jan. 7	924	206	98	195
Hanks, Marshall W., assignor to G. Westinghouse, Pittsburg, Pa. Removable heater for electric lamps	695,928	Mar. 25	2965	671	98	2380
Hanna, Benjamin M., Pittsburg, Pa. Bunsen gas-burner	694,746	Mar. 4	798	175	98	1878
Hanna, Elmer E., Chicago, Ill., assignor to Allis-Chalmers Company, Jersey City, N. J. Ore-crusher	691,135	Jan. 14	1429	324	98	312
Hannah, James. (See Hannah, Richard H., assignor.)						
Hannah, Richard H., Ontario, assignor of one-half to J. Hannah, San Pedro, Cal. Wave-motor	693,270	Feb. 11	1992	433	98	1234
Hannan, John B. (See Cavanagh, Hannan, and Clarke.)						
Hanner, Edward, assignor of two-fifths to G. W. Hanner, Ridgway, Pa. Tack or nail puller	694,854	Mar. 4	995	221	98	1923
Hanner, George W. (See Hanner, Edward, assignor.)						
Hanni, Henry, Portland, Oreg. Brick-making machinery	690,857	Jan. 7	926	206, 207	98	195
Hannigan, Charles H. (See Seitz and Hannigan.)						
Hannum, Henry A., Cazenovia, N. Y. Rotary cutter	691,989	Jan. 28	2975	660	98	670
Hanpeter, Edward C. (See Upton, Frank B., assignor.)						
Hanrott, Conrad, and H. O. Seyd, London, England. Coaster-brake	695,685	Mar. 18	2526	572	98	2274
Hanrotty, Thomas D. (See Shaw, Bert J., assignor.)						
Hanscom, John B. (See Bird and Hanscom.)						
Hanse, Mary. (See Hotchkiss, Arthur E., assignor.)						
Hansen, Andrew P., Omaha, Nebr. Horse-checking device	695,390	Mar. 11	1981	444	98	2145
Hansen, Charles H., Racine, Wis. Awning	690,650	Jan. 7	548	118	98	116
Hansen, Friedrich, Husum, Germany. Ball-bearing	692,135	Jan. 28	3334	755	98	743
Hansen, Mads L., East Oakland, Cal. Detachable heel for boots or shoes	691,857	Jan. 28	2333	636	98	641
Hansen, Martin, Livermore, Cal. Barley-bearder and cereal-polisher	692,011	Jan. 28	3108	697	98	695
Hansen, Oswald H., Milwaukee, Wis. Bicycle-lock	691,374	Jan. 21	1987	433	98	485
Hanson, Albert G., Westhaven, Conn., assignor to L. I. De Meritte, Lee, N. H. Puzzle	695,455	Mar. 18	2093	472	98	2187
Hanson, Ernest F., Dorchester, assignor to Library Bureau, Boston, Mass. Numbering attachment for printing-presses	692,515	Feb. 4	580	124, 125	98	906
Hanson, Gustof W., *et al.* (See Darwin, Frank L., assignor.)						
Hanson, Hans, *et al.* (See Darwin, Frank L., assignor.)						
Harbour, Mack F. (See Sinclair, Millard F., assignor.)						
Harden, Hiram O., Ioka, Iowa. Mail and parcel carrier	692,443	Feb. 4	388	94, 95	98	879
Harding, Henry M., Englewood, N. J. Means for regulating speed of cars on overhead electric railways	692,136	Jan. 28	3335	755	98	743

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Harding, Henry M., Englewood, N. J. Support for trolley and track wires for suspended cable-roads	692,137	Jan. 28	3836	756	98	742
Harding, John, Jr., Chicago, Ill. Clutch mechanism	693,271	Feb. 11	1998	433	98	1234
Harding Walter R., Palmer, assignor to M. J. Whittall, Worcester, Mass. Harness-operating mechanism for looms	693,796	Feb. 18	2981	656 659	98	1458
Hardwick, Harry, Philadelphia, Pa. Device for correcting improper registry of party-colored warp-threads	691,186	Jan. 14	1439	224	98	313
Hardy, James F., assignor to Consolidated Dental Manufacturing Company, New York, N. Y. Elevating and controlling mechanism	694,637	Mar. 4	575	126 127	98	1894
Hardy, John F., Monticello, Ind. Safety device for use in filling fluid-reservoirs	695,929	Mar. 25	2366	671 672	98	2590
Hardy, Willis P., Ottumwa, Iowa. Electric protective device	694,855	Mar. 4	997	221	98	1982
Hare, William, Augusta, Ill. Dental mouth prop and mirror	692,281	Feb. 4	119	98	98	883
Hargrove, Benjamin O., Merkel, Tex. Wireworking-tool	692,282	Feb. 4	120	98	98	883
Hargrove, William, assignor of one-fourth to B. C. Maclean, Montreal, Canada. Door-spring	693,389	Feb. 18	2220	487	98	1302
Harley, Henry M. (See Lundgren, Jacob, assignor.)						
Harms, George H. (See Sherman and Harms.)						
Harper, William E., Chicago, Ill. Dental instrument	691,763	Jan. 28	2659	596	98	608
Harpham, G. E. (See Price, George W., assignor.)						
Harrell, Conrad, Whigham, Ga. Trace-carrier	696,332	Mar. 25	3799	847	98	2592
Harries, Carl, assignor to Chemische Fabrik auf Actien, vorm. E. Schering, Berlin, Germany. Acidyl derivative of unsymmetrical acetonalkamins and making same	692,656	Feb. 4	771	.....	98	957
Harriman, Henry I., New York, N. Y., assignor to American Loom Company, Readville, Mass. Weft-replenishing loom	692,136	Jan. 28	3337	756 757	98	743
Harrington, Benoni R., Oklahoma, Okla. Ter. Repeating gun	693,965	Feb. 25	3330	781 782	98	1546
Harrington, David, Worcester, Mass. Spinning-ring	693,797	Feb. 18	2982	659	98	1459
Harrington John, Coventry, England. Friction-clutch	694,472	Mar. 4	252	56	98	1765
Harris, Alfred, Calumet, Mich. Miner's hat	691,688	Jan. 21	2375	534	98	538
Harris Automatic Press Company. (See McNutt, John F., assignor.)						
Harris, Franklin P., assignor of one-half to B. Smoot, Greenville, Ky. Rocker attachment for sewing-machine treadles	695,881	Mar. 18	2975	662	98	2349
Harris, Harry. (See Greer and Harris.)						
Harris, John, assignor to Harris Manufacturing Company, Cleveland, Ohio. Acetylene-gas generator	694,916	Mar. 4	1114	945 946	98	1948
Harris, John N., South Norwood, assignor to Globe Trading Company, Limited, London, England. Refining oils	692,388	Feb. 4	121	98	98	883
Harris, Jonathan, assignor to Harris Wire Fence Company, Oxford, Mich. Hand-machine for casting balls upon wire crossings	690,723	Jan. 7	707	156	98	149
Harris, Louis G., East Orange, N. J. Manufacturing gas	693,008	Feb. 11	1455	316	98	1125
Harris Manufacturing Company. (See Harris, John, assignor.)						
Harris, Nelson G., Chicago, Ill., assignor to American Bicycle Company, New York, N. Y., and Jersey City, N. J. Carbureter for explosion-engines	692,444	Feb. 4	394	95	98	880
Harris, Nicholas, and J. Bray, Russell Gulch, Colo. Blasting-fuse	694,271	Feb. 25	3918	870	98	1684
Harris Wire Fence Company. (See Harris, Jonathan, assignor.)						
Harrison, Frank B., Toledo, Ohio. Dust-guard for journal-boxes	692,284	Feb. 4	122	98	98	883
Harrison, Henry J., Juneau, Alaska. Lamp-hanger	695,808	Mar. 11	1959	413	98	2118
Harrison, James M., *et al.* (See Thurmond, Thomas D., assignor.)						
Harrison, Marion C., Kansas City, Mo. Cut-off for down-spouts	693,009	Feb. 11	1456	316	98	1125
Harrison, Theodore N., Middletown, Ohio. Mechanical stoker	691,764	Jan. 28	2660	596 597	98	606
Harrison, William H., Braintree, Mass. Steam-engine indicator	692,657	Feb. 4	774	177	98	958
Harrison, William W., and J. Holt, assignors of one-third to C. E. Pervear, Pawtucket, R. I. Weft-motion for haircloth-looms	691,375	Jan. 21	1980	494	98	436
Harrower, Henry D. (See Davis, Charles E., assignor.)						
Harstick, William, Hanover, Ill. Replanting attachment for cultivators or plows	690,946	Jan. 14	1090	245	98	244
Hart, Esther, Dunedin, New Zealand. Hat-fastener	691,634	Jan. 21	2376	535	98	588
Hart, Harry S., assignor to Rodger Ballast Car Company, Chicago, Ill. Convertible dump-car	691,127	Jan. 14	1433	324 325 326	98	313
Hart, Harry S., assignor to Rodger Ballast Car Company, Chicago, Ill. Dumping-car	695,958	Feb. 25	3120	691	98	1505
Hart and Hegeman Manufacturing Company. (See Guett, Monroe, assignor.)						
Hart, Henry, Quincy, Ill. Fare-register	695,350	Mar. 18	2973	513 514 515	98	2224
Hart, John A., Blackburn, England. Ventilating apparatus	691,312	Jan. 14	1777	404 405	98	365
Hart, John H., Memphis, Tenn. Buckle	694,879	Mar. 4	80	18	98	1738
Hart, Milton H., Brooklyn, N. Y. Cellar-pipe for extinguishing fires	691,358	Jan. 28	2354	637	98	641
Hart, Milton H., Brooklyn, N. Y. Fire-extinguishing apparatus	691,359	Jan. 28	2356	637	98	642
Hart, Orlando W., assignor to Union Stop and Signal Company, Fall River, Mass. Electric-railway signaling	695,456	Mar. 18	2094	472	98	2186
Hart, William D., Bloomfield, assignor of one-half to E. M. Macdonald, Glenridge, N. J. Valve for pneumatic tires	694,628	Mar. 4	578	197	98	1833
Hart, William H., Jr., Philadelphia, Pa. Neckwear fastener and shield	694,272	Feb. 25	3919	870 871	98	1654
Harter, Elam, assignor of one-half to V. O. Harter, Arlington Station, Cal. Fruit-picking sack	691,376	Jan. 21	1981	494	98	436
Harter, Virgil O. (See Harter, Elam, assignor.)						
Hartford, Edward V. (See Truffault, Jules M. M., assignor.)						
Hartmann & Braun, Actiengesellschaft. (See Bruger, Theodor, assignor.)						
Hartmann, Georg. (See Eidel and Hartmann.)						
Hartshorn, Edmund F., Newark, N. J., assignor to Stewart Hartshorn Company. Awning	693,010	Feb. 11	1457	816 817	98	1125
Harvey Burner and Furnace Company. (See Auman, Harvey E., assignor.)						
Harvey, Isaac, assignor to C. E. Colwell, J. E. Mulroney, deceased, (A. M. and J. R. Mulroney, executors,) and F. J. Blake, Fort Dodge, Iowa. Dipping-tank for shingles	694,089	Feb. 25	3884	779	98	1597
Harvey, William L. (See Tweedale and Harvey.)						
Harwood, Frank C., G. E. Gedge, and P. T. J. Monson, assignors to A. C. Evans Manufacturing Company, Springfield, Ohio. Corn-planter	695,391	Mar. 11	1982	444 445	98	2145
Hasenzahl, John. (See King, Adam, assignor.)						
Haskins, Caryl D., Schenectady, N. Y., assignor to General Electric Company. Electric switch	695,150	Mar. 11	1586	347	98	2060
Haskins, Naaman. (See Glover and Haskins.)						
Haskins, Seth F., Peoria, Ill. Ticket-dater	692,285	Feb. 4	123	99	98	884

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Haslam, William H., Bolton, England. Domestic fireplace or hearth	696,040	Mar. 25	3184	718, 719	98	2425
Hassinger, William H. (See Rader, Charles I., assignor.)						
Hassler, Robert H., Indianapolis, Ind., assignor to National Battery Company, Jersey City, N. J., and Cleveland, Ohio. Secondary battery	696,171	Mar. 25	3466	776	98	2484
Hastings and Miller. (See Hastings, Theodore K., assignor.)						
Hastings, Theodore K., Brooklyn, assignor to Hastings and Miller, New York, N. Y. Passe-partout	691,544	Jan. 21	2219	499	98	497
	695,551	Mar. 18	2280	515	98	2225
Hatch, James N., Streator, Ill. Coupling for bicycle-pumps	694,689	Mar. 4	579	127	98	1835
Hatch, Tracy B., assignor to Submerged Electric Motor Company, Menomonie, Wis. Electric motor						
Hatcher, William A. (See Packard and Hatcher.)						
Hathaway, Andrew E. (See Cunniff, John V. and E., assignors.)						
Hatz, Florian J., *et al.* (See Yancey, Christopher C., assignor.)	690,950	Jan. 14	1003	247	98	244
Hau, August H., St. Cloud, Wis. Windmill	695,552	Mar. 18	2280	515	98	2225
Hausfeld, Joseph E., Cincinnati, Ohio, and J. R. Carter, Augusta, Ky., assignors to E. H. Huenefeld, Cincinnati, Ohio. Washing-machine						
Haut, Jacob. (See Haut, Mayer and J.)						
Haut, Mayer and J., New York, N. Y. Combination furniture	695,236	Mar. 25	3583	802	98	2506
Hauxhurst, Harry I., Oakland, Cal. Telephone attachment	690,651	Jan. 7	547	119	98	117
Havens, Joseph G., Trenton, N. J. Tobacco-stemming rolls	694,982	Mar. 11	1207	264	98	1984
Hawk, Francis M., Muncie, Ind. Wheel	693,011	Feb. 11	1459	317	98	1125
Hawk, George O., Greenfield, Ind. Cartridge	695,809	Mar. 18	2747	626	98	2280
Hawkins, George R., Vicksburg, Miss. Saw-handle	695,392	Mar. 11	1988	445	98	2147
Hawkins, John W., Munfordville, Ky. Animal-trap	693,012	Feb. 11	1460	317	98	1126
Hawkinson, Charles H., Chicago, Ill. Combined burglar-alarm and door-check	694,380	Mar. 4	81	19	98	1728
Hawley, Benjamin, Philadelphia, Pa. Making pictures	691,188	Jan. 14	1435	326	98	314
Hawley, Charles E., Berkeley, Cal. Extension for cutter-heads	694,060	Feb. 25	3585	779	98	1588
Hawliczek, Josef L., Liverpool, England. Making acetone	690,724	Jan. 7	708	156	98	149
Hayes, Andrew, Buskirk Bridge, N. Y. Bolt	691,765	Jan. 28	2663	597	98	607
Hayes, Archie O., and E. C. Hemphill, Los Angeles, Cal. Perforating attachment for printing-presses	691,860	Jan. 28	2887	638	98	642
	694,013	Feb. 25	3443	760	98	1569
Hayes, John A., Philadelphia, Pa. Stopper for bottles	693,544	Feb. 18	2515	554	98	1363
Hayes, Stanley W., Wellesley, Mass., and T. E. Lutz, Galion, Ohio. Derailing device	691,940	Jan. 28	2976	669	98	670
Hayman, Arthur F. P., Berlin, Germany. Stopper for inclined gas-retorts						
Hayne, William P. (See Zoder and Hayne.)						
Hayner, William B. (See Houston, Eli, assignor.)						
Haynes, George E., Chelsea, assignor of one-half to W. McCarthy, Boston, Mass. Railway-switch	691,720	Jan. 21	2542	569, 570	98	564
	694,963	Mar. 11	1209	264	98	1985
Hays, Samuell O., Triplett, Mo. Combined road grader and scraper						
Hayward, Eugene, assignor of two-thirds to J. T. Lueder and J. B. Morris, Chicago, Ill. Means for propelling cars, &c.	691,625	Jan. 21	2376	535	98	528
	690,725	Jan. 7	710	157	98	149
Haywood, William A., Denver, Colo. Shade	695,048	Mar. 11	1372	301	98	2019
Hayworth, David M., Chicago, Ill. Can-opener						
Head, Albert, *et al.* (See Leak, William C., assignor.)						
Head, Reuben M., Allegheny, Pa. Variable-speed driving mechanism	692,658	Feb. 4	777	177, 178	98	958
Headson, Frank A., Lafayette, Ind. Handcuff	691,941	Jan. 28	2976	669	98	670
Heal, Harry R., Camden, N. J. Counter	690,494	Jan. 7	71	16	98	18
Heany, John A., Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, East Orange, N. J. Fabric-cutting machine	695,108	Mar. 11	1463	325, 326	98	2088
Heany, John A., Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, East Orange, N. J. Fabric-cutting machine	695,558	Mar. 18	2382	516	98	2225
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Philadelphia, Pa., and Charleston, W. Va. Electric-arc lamp	693,705	Feb. 18	2330	623	98	1426
Heany, John A., Philadelphia, Pa., assignor to Teter-Heany Developing Company, Charleston, W. Va., and Philadelphia, Pa. Electric-arc lamp	693,706	Feb. 18	2332	624	98	1427
Heap, Charles. (See Shore, Charles, assignor.)						
Hearn, Robert H., Dyer, Tenn. Lock	695,642	Mar. 18	2458	558	98	2203
Heath, Clarence F., Providence, assignor of one-half to E. E. Dodge, Sayleaville, R. I. Non-refillable bottle	693,601	Feb. 18	2340	582	98	1388
Heath, H. W., *et al.* (See Martenette, Frank L., assignor.)						
Hebden, John C., Providence, R. I. Aging apparatus	694,640	Mar. 4	581	128	98	1835
Hebert, Arsene, Manchester, N. H., assignor to H. B. Newton, Haverhill, Mass. Hand tacking-tool	695,554	Mar. 18	2284	517	98	2226
	695,555	Mar. 18	2290	517	98	2227
Hebert, Ismael, Manchester, N. H. Pillow-sham holder						
Heckert, John C., *et al.* (See Dela Mar, Joseph, assignor.)						
Hedley, Frank, Chicago, Ill. Track-cleaning device	693,859	Feb. 25	3122	692	98	1505
Hegan, Edwin C., Louisville, Ky. Composite material	695,309	Mar. 11	1859	414	98	2119
Heiden, Axel, Allegheny, Pa. Car	693,132	Feb. 11	1706	372, 373	98	1175
Heilmann, Rudolph, Brooklyn, N. Y. Fireproof covering for frame structures	695,722	Mar. 18	2579	568	98	2285
Heim, Lewis R., assignor to F. C. Olmstead, Danbury, Conn. Hat-curling machine	695,398	Mar. 11	1980	445	98	2147
Heimann, Morris A., St. Louis, Mo. Show-case	696,041	Mar. 25	3185	719	98	2425
Heineke, Martin, assignor to Sattley Manufacturing Company, Springfield, Ill. Straw-stacker	691,265	Jan. 14	1666	370	98	363
Heinitz, Woldemar, Dresden, Germany. Cash-register	695,151	Mar. 11	1507	347, 348	98	2061
Heizer, Frederick, assignor, by mesne assignments, to J. H. Heizer, Sioux City, Iowa. Elevator	694,964	Mar. 11	1211	264, 265	98	1985
Heizer, Jessie H. (See Heizer, Frederick, assignor.)						
Helbing, Emil, Hamburg, Germany. Producing artificial wood	694,014	Feb. 25	3444	------	98	1569
Held, August S., assignor to Stover Manufacturing Company, Freeport, Ill. Spring-hinge	694,273	Feb. 25	3920	871	98	1604
Heller, Harold W., *et al.* (See Heller, William A., assignor.)						
Heller, Jennie G., *et al.* (See Heller, William A., assignor.)						
Heller, William A., assignor to J. G. and H. W. Heller, Muskegon, Mich. Trolley harp or wheel	692,851	Feb. 11	1126	231	98	1055
Helm, John W. (See Hoffman and Helm.)						
Hemphill, Edward C. (See Hayes and Hemphill.)						
Hemple, Menzo, assignor to W. R. Hemple, Bloomington, Wis. Wintering-case for bee-hives	692,784	Feb. 4	1000	226	98	1001
Hemple, Walter R. (See Hemple, Menzo, assignor.)						
Hemstrom, Edward, Greatfalls, Mont. Knife	691,861	Jan. 28	2338	638	98	648
Hendee, George M. (See Warwick, George T., assignor.)						
Henderson, Henry T., assignor of one-half to R. B. Lourie, Keokuk, Iowa. Tire-setting machine	695,206	Mar. 11	1672	372	98	2022

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Henderson, Joseph W., Philadelphia, Pa. Horn for phonographs or graphophones	690,858	Jan. 7	280	208	98	196
Henderson, Oscar B. (See Dunn and Henderson.)						
Hendler, John J., Kansas City, Mo. Acetylene-gas generator	690,425	Jan. 7	72	16	98	18
Hendricks, Adam C., Waynesboro, Pa. Sash-fastener	694,856	Mar. 4	999	221	98	1994
Hendricks, Alexander F., and C. A. Logwood, Warren, Okla. Ter. Cattle-muzzle	692,659	Feb. 4	779	178	98	956
Hendricks, Henry, Kinbrae, Minn. Draft-equalizer	696,388	Mar. 25	3900	847	98	2552
Henkel, Heinrich, Brussels, Belgium, assignor to F. Habrich, Hagen, Germany. System of construction with beton strengthened by metal	698,906	Feb. 25	3335	782 783	98	1547
Henn, Edwin C., Bloomfield, Conn., assignor, by mesne assignments, to National Acme Manufacturing Company, Cleveland, Ohio. Blank-slotting machine	694,965	Mar. 11	1214	865 866	98	1986
Henneböhle, Frank, South Chicago, Ill. Automatic duplex check and stop valve	698,139	Feb. 11	1708	373	98	1176
Hennessy Foundry Company. (See Garrett and Pauly, assignors.)						
Hennessy, John J., New Kensington, Pa. Spinning-top	696,980	Mar. 25	2970	672	98	2361
Hennessy, Mary J., New Kensington, Pa. Waist-shaping means	694,641	Mar. 4	582	126	98	1895
Henning, Abel, assignor of two-thirds to H. W. Douglas, Ann Arbor, Mich. Valve-grinding mechanism	698,967	Feb. 25	3236	733	98	1547
Henry, George W., Oil City, Pa. Cultivator	692,660	Feb. 4	781	178	98	959
Henry, John C., deceased, Denver, Colo.; S. A. Henry, executrix, assignor to Stanley Electric Manufacturing Company. Controller for electric railways or vehicles	696,257	Mar. 25	3585	803	98	2506
Henry, Michael. (See Kirkpatrick and Henry.)						
Henry, Susie A., executrix. (See Henry, John C.)						
Henry, William B., trustee, *et al.* (See Gombar, Amos B., assignor.)						
Henshaw, Augustus S., Brooklyn, N. Y. Suspender-fastener	694,857	Mar. 4	1002	221	98	1984
Henson, Robert W., Geneva, N. Y. Wagon-box	696,334	Mar. 25	3901	847	98	2553
Herb, Fredrick, assignor to R. Hoe, New York, N. Y. Cutting mechanism	690,521	Jan. 7	204	60	98	66
Herbert, Edward G., Manchester, England. Sawing-machine	691,139	Jan. 14	1436	326 327	98	314
Herbs, Joseph, Redlands, Cal. Roasting-pan	690,574	Jan. 7	305	81	98	86
Herbstritt, Hermann. (See Andriano and Herbstritt.)						
Hercules Woodenware Company. (See Reif, Joseph, Jr., assignor.)						
Herdman, Frank E., Winnetka, Ill. Elevator	692,396	Feb. 4	125	29, 30	98	934
Herman, Reinhold. (See Spangler and Herman.)						
Herman, Reinhold, Crafton, Pa. Signaling mechanism	695,733	Mar. 18	2590	583 584 585	98	2295
Herman, Reinhold, Crafton, Pa. Electric lock	695,734	Mar. 18	2587	585	98	2297
Herndon, George P., Washington, D. C. Pocket attachment for envelops	691,767	Jan. 28	2906	508	98	608
Herold, Bernedott T., Vallejo, Cal. Buoyant propeller	694,274	Feb. 25	3922	872	98	1065
Herold, Carl. (See Panitschek and Herold.)						
Herpolsheimer, Paul, Seward, Nebr. Pneumatic car-spring	691,868	Jan. 28	2880	686	98	643
Herr, Samuel, assignor of one-half to W. H. Neese, Akron, Ohio. Washing-machine	695,566	Mar. 18	2291	517	98	2287
Herre, Max, Chicago, Ill. Folding paper box	690,575	Jan. 7	305	81	98	86
Herrling, Rudolph, Greenbush, Wis. Plow	691,464	Jan. 21	2027	467	98	469
Herrman, Leopold, New York, N. Y. Handle-fastener	691,877	Jan. 21	1983	435	98	437
Herron, Charles. (See De Rochemont, Perkins H., assignor.)						
Hersh, George, Quarryville, Pa. Stove-grate	692,661	Feb. 4	782	178	98	959
Hersh, Harvey E., Allentown, assignor of one-half to J. Erhardt, Northampton, Pa. Knockdown trestle	695,310	Mar. 11	1860	414	98	2119
Hershey, Christian K., *et al.* (See Lippy, David, assignor.)						
Herz, Martin, Brooklyn, N. Y. Packing-box	694,275	Feb. 25	3923	872	98	1065
Herz, Richard. (See Weinberg and Herz.)						
Herzog, Felix B., New York, N. Y. Electric signaling apparatus	698,013	Feb. 11	1462	317	98	1126
Herzog, Felix B., New York, N. Y. Electric signaling apparatus	698,014	Feb. 11	1463	318	98	1126
Herzog, Felix B., New York, N. Y. Electric signaling apparatus	693,390	Feb. 18	2222	487 488	98	1305
Herzog, Felix B., New York, N. Y. Electric signaling apparatus	696,140	Mar. 25	3890	765 766	98	2471
Herzog, Felix B., New York, N. Y. Electric signaling apparatus	696,378	Mar. 25	3889	803 804	98	2567
Hess, Edward B., Brooklyn, assignor to Mechanical Improvements Company, New York, N. Y. Writing-machine	694,015	Feb. 25	3444	760 761	98	1569
Hess, Edward B., Brooklyn, and J. M. Stoughton, Yonkers, N. Y., assignors to Mechanical Improvements Company, New York, N. Y. Writing-machine	691,096	Jan. 21	2378	535 536	98	523
Hess, Henry, Ober-Schoeneweide, Germany. Device for adjusting the work on machine-tools	698,015	Feb. 11	1464	318	98	1127
Hess, Hugo, Galveston, Tex. Comb-cleaner	691,378	Jan. 21	1995	435	98	437
Hess, John, Milwaukee, Wis. Manufacturing lace-paper pail covers or circulars	690,951	Jan. 14	1096	247	98	245
Hesse, Gustaf E., Brooklyn, assignor of two-thirds to A. L. Washburne, New York, N. Y. Boiler for engines	690,496	Jan. 7	74	16	98	19
Hesse, Walter A., Alameda, Cal. Funnel attachment	690,576	Jan. 7	307	82	98	86
Hestand, Hardy. (See Daggett and Hestand.)						
Hettinger, Henry, Aurora, Ill. Letter-box	692,852	Feb. 11	1127	252	98	1055
Heuer, August, Jr., *et al.* (See Davis, Charles L., assignor.)						
Heuermann, William, Sedalia, Mo. Stove	698,707	Feb. 18	2836	625	98	1429
Hewitt, Peter C., trustee. (See Hewitt, Peter C., assignor.)						
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Incandescent electrode vapor electric lamp	690,962	Jan. 14	1098	248	98	245
Hewitt, Peter C., assignor to P. C. Hewitt, trustee, New York, N. Y. Electric lighting	690,963	Jan. 14	1100	248	98	246
Hewitt, T. D., *et al.* (See Weimar, Fred, assignor.)						
Hewlett, Edward M., Schenectady, N. Y., assignor to General Electric Company. Electric switch	691,766	Jan. 28	2564	507	98	607
Heydrich, Alfred, Brooklyn, N. Y. Envelop-sealing machine	694,966	Mar. 11	1220	266 267	98	1988
Heyenga, Martin W., near Emden, Ill. Scoop-board	698,134	Feb. 11	1710	374	98	1176
Heyerman, C. F. (See Eisenhuth, Oscar, assignor.)						
Heyl-Dia, George E., Manchester, England. Covering electric conductors with insulating material	692,012	Jan. 28	3104	697	98	695
Heyl-Dia, George E., Manchester, England. Insulating covering material for electric cables, conductors, &c	692,013	Jan. 28	3105	697	98	695
Heys, John J., assignor of one-half to M. V. Bresnahan, Lynn, Mass. Leveling-machine	698,016	Feb. 11	1466	319	98	1127
Heysinger, Isaac W., Philadelphia, Pa. Covered strip of soft metal and the manufacture thereof	690,427	Jan. 7	77	17	98	19
Heywood, Benjamin, East Orange, N. J. Knife-grinding attachment for planing-machines	696,961	Mar. 25	2971	672	98	2321

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Heywood, Frank. (See Browning, William B., assignor.)						
Hibbard, Charles. (See Hibbard, Warren, S., and C.)						
Hibbard, Henry D., Plainfield, N. J., assignor to Hibbard-Rodman Ely Safe Company, New York, N. Y. Duplex locking mechanism for safes or vaults	691,942	Jan. 28	2978	670	98	670
Hibbard-Rodman Ely Safe Company. (See Hibbard, Henry D., assignor.)						
Hibbard, Sumner. (See Hibbard, Warren, S., and C.)						
Hibbard, Warren, S., and C., Sandyhill, N. Y. Explosive-engine	694,016	Feb. 25	3448	761	98	1570
Hickey, John J., New York, N. Y. Waste-water receptacle and discharge-trap for ice-boxes or the like	695,811	Mar. 11	1861	414	98	2119
Hickey, John J., New York, N. Y. Waste-water receptacle and connection	695,812	Mar. 11	1862	414	98	2119
Hickman, John I., and A. Borrow, Milwaukee, Wis. Rail-joint	690,428	Jan. 7	80	17	98	99
Hickman, Logan D., Wichita, Kans. Organ	690,726	Jan. 7	711	157	98	150
Hickman, William H., *et al.* (See Miller, Jacob B., assignor.)						
Hickok, William M., Pharisburg, Ohio. Railway construction	694,276	Feb. 25	3924	872	98	1565
Hickson, Fredrich A., Atlanta, Ga. Lock	693,502	Feb. 18	2641	583	98	1388
Hiester, Franklin R., Centerport, Pa. Steering mechanism for motor-vehicles	691,054	Jan. 14	1302	295	98	287
Higgins, Benjamin F., assignor of one-half to C. W. Brumfield, Centralia, Ill. Weather-strip	695,385	Mar. 25	3808	848	98	2553
Higgins, Hubert, Cambridge, England. Apparatus for cooking, desiccating, or seasoning purposes	692,516	Feb. 4	532	125	98	900
Higgins, Hubert, Cambridge, England. Apparatus for impregnating and seasoning wood	695,152	Mar. 11	1570	348, 349	98	2062
Higgins, James H., Wanatah, Ind. Railway-crossing	695,457	Mar. 18	2008	476	98	2198
Higgins, John J., Duquoin, Ill. Device for cleaning watch-movements	692,668	Feb. 4	788	180	98	950
Higgins, Sylvester W., Detroit, Mich. Dip-net	691,465	Jan. 21	2088	467	98	469
Higgs, Albert J., Colton, Cal. Circuit-breaking device	696,172	Mar. 25	3467	777	98	2484
Highers, Charlie, assignor of one-half to G. Q. Jarrett, Vicksburg, Ky. Churn	696,042	Mar. 25	3196	719	98	2425
Hilbert, Baptiste, Worcester, Mass. Shedding mechanism for looms	695,609	Mar. 18	2400	543	98	2350
Hildenbrandt's Automatic Hinge Company. (See Smith, James G., assignor.)						
Hildreth, Albert H., *et al.* (See Forster, Frank L., assignor.)						
Hill, Dan L., Keene, N. H. Box-hinging machine	693,519	Feb. 18	2468	540, 541	98	1353
Hill, David S., Cincinnati, Ohio. Burglar-alarm fly-screen	695,049	Mar. 11	1373	301	98	2050
Hill, Edward, New Boston, N. H. Toy	691,366	Jan. 14	1667	380	98	363
Hill, F. C. (See Wilder, Julius P., assignor.)						
Hill, F. T., *et al.* (See Lasswell, Martin, assignor.)						
Hill, James E., and W. W. Brower, Meservey, Iowa. Grain or seed separating device	696,336	Mar. 25	3804	848	98	2553
Hill, John R., Washington, D. C. Book-rest	695,810	Mar. 18	2747	627	98	2320
Hill-Jones, Thomas. (See Kressel, Edward C. L., assignor.)						
Hill, Louis W. (See Toltz and Hill.)						
Hill, Richard S., Cambridge, Mass. Machine for jointing and sizing lumber	691,267	Jan. 14	1669	380, 381	98	364
Hillard, Frederic W., Brooklyn, N. Y., assignor to Elliott & Hatch Book-Typewriter Company. Type-writing machine	692,664	Feb. 4	790	180, 181	98	961
Hillard, Frederic W., Tottenville, assignor to Elliott & Hatch Book Typewriter Company, New York, N. Y. Book-type-writer table	695,725	Mar. 18	2580	585, 586	98	2297
Hillman, Ulysses G., Woodstown, N. J. Paper-holding structure	693,708	Feb. 18	2688	625	98	1428
Hills, Howard L., assignor of two-thirds to A. M. Darling and W. Joy, Lansing, Mich. Lamp-burner attachment	694,858	Mar. 4	1008	282	98	1985
Hills-McCanna Company. (See McCanna and Delaney, assignors.)						
Hills, Victor G., and J. E. Chapson, Cripplecreek, Colo. Reel for tape-measures	693,665	Feb. 4	797	181	98	962
Himmelman, Ernest, Leroy, N. Y. Fruit-jar holder	694,747	Mar. 4	789	175	98	1878
Himmelman, Ernest, Leroy, N. Y. Fruit-jar-top wrench	694,748	Mar. 4	790	176	98	1878
Himrod, Kirk, Chicago, J. R. Tucker and C. C. Hinckley, Aurora, Ill., assignors to International Typal Telegraph Company, Detroit, Mich. Selector	690,577	Jan. 7	899	92, 93	98	87
Hinchcliffe, Charles W., Lawrence, Mass. Roundabout	693,968	Feb. 25	3339	734	98	1548
Hinchman, James B., Denver, Colo. Fireproof flooring	694,361	Mar. 4	92	19	98	1798
Hinckley, Charles C. (See Himrod, Tucker, and Hinckley.)						
Hines, Warren H., Popiarbluff, Mo., assignor to L. M. Palmer, New York, N. Y. Stave-drying apparatus	691,140	Jan. 14	1489	337	98	315
Hinman, George W., Lake Charles, La. Rein-guard	695,982	Mar. 25	2973	673	98	2381
Hinsdale, Winfield E., New York, N. Y. Water-closet	691,768	Jan. 28	3667	598	98	606
Hippard, Emanuel, Youngstown, Ohio. Valley-gutter for greenhouses	696,043	Mar. 25	3188	719	98	2426
Hipple, Alpheus H., Omaha, Nebr. Treating materials to render them waterproof	694,859	Mar. 4	1004	.....	98	1925
Hird, Charles, Woonsocket, assignor of forty-nine one-hundredths to P. J. McCarthy, Providence, R. I. Cushion-tire	695,394	Mar. 11	1998	446	98	2148
Hirsch, Frank, Stockholm, Sweden. Belt-shifter	693,969	Feb. 25	3841	734	98	1548
Hirsch, Frank, assignor to Aktiebolaget Verktygsmaskiner, Stockholm, Sweden. Multiple-spindle lathe	694,877	Feb. 25	3925	873, 874, 875	98	1665
Hirsch, Louis, Gera, Germany. Imitating beige or vigoreux by printing	694,860	Mar. 4	1004	282	98	1925
Hirschfield, William A., Philadelphia, Pa. Automatic call-bell clock	693,647	Feb. 18	2725	601	98	1406
Hiser, Daniel B., assignor to Springfield Metallic Casket Company, Springfield, Ohio. Casket-truck	693,860	Feb. 25	3124	692	98	1506
Hitchings, David D., Norfolk, Va. Street-sweeper	690,727	Jan. 7	712	157	98	150
Hitzrot, Henry W. (See Griffiths, Hitzrot, and Mower.)						
Hixson, Frank, Ashland, Ohio, assignor to Ashland Sieve Company. Adjustable sieve	695,104	Mar. 11	1467	326	98	2068
Hixson, Frank, assignor of one-half to H. L. McCray, Ashland, Ohio. Adjustable chaffer or sieve	694,148	Feb. 25	3077	813, 814	98	1616
Hoag, Ira G., Los Angeles, Cal. Train-order box	692,666	Feb. 4	799	181	98	962
Hobbs, Charles M., Baltimore, Md., assignor of one-half to H. P. Brown, Montclair, N. J. Third-rail insulator for electric railways	693,603	Feb. 18	2642	583	98	1389
Hobbs, Clarence W., Worcester, Mass. Machine for applying adhesive material to paper	694,749	Mar. 4	791	176	98	1879
Hobbs, Jefferson D., Jersey City, N. J. Telephone substation-registering system	695,105	Mar. 11	1468	327	98	2039
Hobbs, Jennie F., Bridgeport, Conn. Car-truck	694,473	Mar. 4	262	57	98	1766
Hobson, John H., assignor of one-half to C. C. Redding, Mattoon, Ill. Wrench	693,861	Feb. 25	3126	692	98	1506
Hoch, Adam, Alameda, assignor to Wendling-Hoch Adding Machine Company, San Francisco, Cal. Adding attachment for type-writing machines	696,141	Mar. 25	3404	766, 767	98	2472
Hoch, Adam, Alameda, assignor to Wendling-Hoch Adding Machine Company, San Francisco, Cal. Adding-machine	696,173	Mar. 25	3468	777, 778	98	2484
Hocker, Jefferson C. (See McGuire, Squire D., assignor.)						
Hockett, Aaron L., Mastodon, Miss. Cotton-chopper	694,474	Mar. 4	254	57	98	1766
Hockett, Aaron L., Mastodon, Miss. Scraper attachment for cotton-choppers	694,475	Mar. 4	255	57, 58	98	1766
Hockey, Oliver A. (See Strutt and Hockey.)						
Hodell, Henry H., Cleveland, Ohio. Scoop	690,522	Jan. 7	905	60	98	67

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Hodge, Thomas L., trustee. (See Logan, Ferdinand, assignor.)						
Hodges, Harry F., U. S. Army. Hoist and conveyer	695,050	Mar. 11	1375	302	98	2020
Hodges, Horace F. (See Kuen and Hodges.)						
Hodgson, John G. (See Norton and Hodgson.)						
Hodgson, John G., Maywood, assignor to Automatic Vacuum Canning Company, Chicago, Ill. Can-body-flanging machine	698,017	Feb. 11	1467	319 320	98	1128
Hodgson, John G., Maywood, assignor to Automatic Vacuum Canning Company, Chicago, Ill. Double-seaming machine	698,185	Feb. 11	1712	374	98	1177
Hoe, Robert. (See Herb, Fredrick, assignor.)						
Hoefer, John C., Portland, Oreg. Ore-separating machine	696,709	Feb. 18	2839	625 626	98	1428
Hoeft, Max, Berlin, Germany. Electric clock	696,258	Mar. 25	3587	808	98	2506
Hoeft, Max, and E. Schultz, Berlin, assignors to M. Möller, Altona, Germany. Self-winding electric clock	694,546	Mar. 4	408	89	98	1799
Hoekstra, William, Harrison, S. D. Pump-rod ejector	694,278	Feb. 25	3034	875 876	98	1668
Hoepner, George, San Francisco, assignor to Union Scale and Manufacturing Company, Sacramento, Cal. Automatic feed-regulating apparatus	691,697	Jan. 21	2365	536	98	530
Hoerr, Louis A., St. Louis, Mo. Draft-rigging	692,900	Jan. 28	3441	779	98	784
Hoey, John, San Francisco, Cal. Wire-mattress stretcher	693,018	Feb. 11	1469	321	98	1128
Hoey, John, San Francisco, Cal. Bed-bottom attachment	696,289	Mar. 25	3589	803	98	2507
Hoff, Olaf, New York, N. Y. Fireproof floor	691,466	Jan. 21	2089	468	98	470
Hoffman, David J., and J. W. Helm, Parachute, Colo. Ditching-machine	691,141	Jan. 14	1440	327	98	315
Hoffman, Jacob A., and W. R. Magie, Paulding, Ohio; said Magie assignor to said Hoffman. File-case	691,628	Jan. 21	2387	537	98	531
Hoffmann, Adolf, Constance, Germany. Device for moistening and applying gummed paper	691,879	Jan. 21	1985	435	98	437
Hoffmann, Carl, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Acidyl dialkylrhodamin and making same	694,149	Feb. 25	3079	.....	98	1617
Hoffmann, Herman H., Chicago, Ill. Binder	690,859	Jan. 7	981	208 209	98	196
Hoffmann, Otto, Portland, Oreg. Grass-catcher attachment for lawn-mowers	693,445	Feb. 4	395	95	98	880
Hoffmann, William R., St. Joseph, Mo. Lap-board	696,044	Mar. 25	3189	720	98	2426
Hoffnungsthaler Papierfabrik A. & R. Geldmacher. (See Zilles, Hans, assignor.)						
Hofmann, Fritz, Elberfeld, Germany, assignor to Farbenfabriken of Elberfeld Co. Salicylic ether of quinin. (Reissue)	11,980	Jan. 7	1080	.....	98	215
Hofmann, Josef, Berlin, Germany. Motive-power apparatus	694,642	Mar. 4	592	128	98	1686
Hofstad, Paul M. (See Olsen, Peder, assignor.)						
Hogan, Enos W., Port Arthur, Canada. Rail-fastener	694,750	Mar. 4	798	176 177	98	1679
Hogan, James T., Jersey City, N. J., assignor to National Machine Company. Buttonhole-sewing machine	694,150	Feb. 25	3080	814 815	98	1617
Hogan, James T., Jersey City, N. J., assignor to National Machine Company, New York, N. Y. Buttonhole-sewing machine	694,151	Feb. 25	3080	815 816	98	1619
Holbrook, Frank, assignor to New England Fire Supply Company, Lynn, Mass. Boring apparatus	691,699	Jan. 21	2389	537	98	531
Holbrook, Frank, assignor to New England Fire Supply Company, Lynn, Mass. Hose-nozzle	696,174	Mar. 25	3476	778	98	2485
Holbrook, Frank, assignor to New England Fire Supply Company, Lynn, Mass. Fire-harness	696,175	Mar. 25	3477	778	98	2485
Holbrook, James H., Boston, Mass. Twine-reel	691,943	Jan. 28	2984	671	98	672
Holden, Henry H., Port Huron, Mich. Stove	693,862	Feb. 25	3127	692	98	1507
Holderrieth, Charles H., Brooklyn, assignor to United States Battery Company, New York, N. Y. Automatic regulator for storage-battery systems of distribution	693,863	Feb. 25	3128	693	98	1507
Holdridge, Clarence A., Chicago Heights, assignor to D. S. Wegg, Chicago, Ill. Bonding-pin and making same	691,313	Jan. 14	1778	405	98	386
Holdsworth, Fred D., Claremont, N. H., assignor to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Engine cross-head	692,287	Feb. 4	128	30	98	824
Holdsworth, Fred D., Claremont, N. H., assignor to Sullivan Machinery Company, Claremont, N. H., and Chicago, Ill. Engine cross-head	692,288	Feb. 4	129	30	98	825
Holdsworth, Fred D., Claremont, N. H., assignor to Sullivan Machinery Co., Claremont, N. H., and Chicago, Ill. Valve-gear for engines	692,289	Feb. 4	130	30	98	825
Holland, Benjamin, Providence, R. I. Clamp for filing shaft-keys	695,686	Mar. 18	2528	572	98	2275
Holland, Charles C., trustee. (See McGinn, John S., assignor.)						
Holland, Charles E., New York, N. Y., assignor to Electric Purifying Company. Portable water purifier and filter	691,545	Jan. 21	2290	499	98	497
Holland, Henry, Detroit, Mich. Trolley-stand	694,153	Feb. 25	3084	816	98	1620
Holland, John P., Newark, N. J. Automatic diving mechanism for submarine boats	693,372	Feb. 11	1994	434	98	1254
Holland, John P., Newark, N. J. Means for automatically ballasting submarine boats	694,153	Feb. 25	3086	817	98	1620
Holland, John P., Newark, N. J. Submarine boat or vessel	694,154	Feb. 25	3086	817	98	1621
Holland, John P., Newark, N. J. Submarine boat	694,643	Mar. 4	585	129	98	1580
Holland, Joseph R., assignor to I. M. Gray, G. D. Nash, Binghamton, N. Y., and D. S. Stone, Scranton, Pa. Horseshoe	694,917	Mar. 4	1116	946	98	1948
Holland, Newman H., assignor of one-half to C. W. Holtzer, Brookline, Mass. Telephone-exchange	694,918	Mar. 4	1117	946 947	98	1948
Holland, Thomas G. (See Sandstrom, Edward, assignor.)						
Holland, Thomas O., Philadelphia, Pa. Toilet outfit	693,353	Feb. 11	1123	269	98	1055
Holland, William J., Era, Tex. Trap	693,391	Feb. 18	2295	488	98	1303
Holland, William J., Era, Tex. Wagon-seat	696,393	Feb. 18	2296	488	98	1304
Hollerith, Herman, Washington, D. C., assignor to Tabulating Machine Company. Electrically-actuated counter	695,982	Mar. 25	2974	673	98	2281
Hollings, Alfred, Choriton-cum-Hardy, England. Press for guncotton	690,728	Jan. 7	714	158	98	150
Hollingsworth, Clarence M. (See Anderson and Hollingsworth.)						
Hollingsworth, Merrill W., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Artificial tooth	696,099	Mar. 25	3207	745	98	2458
Hollis, Henry B., New York, N. Y. Table or desk for holding dies	695,051	Mar. 11	1377	302	98	2020
Holliwell, Charles. (See Elliott and Holliwell.)						
Holly, Carlos, Lockport, N. Y. Steam-boiler	696,240	Mar. 25	3290	804	98	2507
Holmes-Barton Company. (See Barton, Robert W., assignor.)						
Holmes & Bros., Robert. (See Holmes, Grant, assignor.)						
Holmes, Charles E., assignor of one-half to F. H. Page, Melrose, Mass. Adjustable pulley and adjusting mechanism therefor	695,052	Mar. 11	1378	303 305	98	2021
Holmes, George S., Liverpool, England. Car-coupling	690,954	Jan. 14	1101	248	98	246
Holmes, Grant, assignor to R. Holmes & Bros., Danville, Ill. Combined screen and chute	695,019	Feb. 11	1470	321	98	1120
Holmes, James S., Carlton, Victoria. Manifold counter check or sales book for drapers, tailors, or others	692,290	Feb. 4	131	31	98	825

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Holmes, Joe. (See Boxley and Holmes.)						
Holmes, Watson M., *et al.* (See Mayberry, Frank E., assignor.)						
Holt, Benjamin, Stockton, Cal. Traction-engine	694,476	Mar. 4	256	58	98	1766
Holt, John. (See Harrison and Holt.)						
Holton, Edward T. (See Crane and Holton.)						
Holtzer, Charles W. (See Holland, Newman H., assignor.)						
Holzapfel, Charles G. (See Carson and Cundell, assignors.)						
Homer, Frederic C., Stoke-upon-Trent, England. Propulsion of ships	691,314	Jan. 14	1780	405	98	386
Honeycutt, John, Albany, Tex. Branding-chute	696,796	Feb. 18	2964	659	98	1459
Hood, Alexander J., Muscoda, Wis. Tinting and delivery attachment for printing-presses	691,803	Jan. 28	2840	638 639	98	643
Hood, Ralph O., assignor to Simplex Motor Vehicle Company, Danvers, Mass. Fluid-vaporizing system	691,944	Jan. 28	2986	671	98	672
Hood, Ralph O., assignor to Simplex Motor Vehicle Company, Danvers, Mass. Frame for motor-vehicles	691,945	Jan. 28	2986	671 672	98	673
Hood, Ralph O., assignor to Simplex Motor Vehicle Company, Danvers, Mass. Valve-gear for engines	694,547	Mar. 4	411	89	98	1799
Hook, Arthur S., Ottawa, Ill. Door-hanger	696,142	Mar. 25	3415	767	98	2474
Hooker, Mary D., and W. H. Birchmore, Brooklyn, assignors of one-third to C. A. Collins, New York, N. Y. Incandescent lighting device	690,578	Jan. 7	403	83	98	87
Hooker, William D., St. Louis, Mo. Cut-off gear for steam-engines	692,785	Feb. 4	1001	227	98	1008
Hookland, Sibert S., Philadelphia, Pa. Book	698,393	Feb. 18	2228	498	98	1304
Hooper, Louis M. (See Reid and Hooper.)						
Hoover, Franklin, Detroit, Mich. Repair-tool	691,055	Jan. 14	1308	295	98	297
Hoover, Jacob D., assignor of one-fourth to J. T. Fisher, Winchester, Va. Car-coupling	695,053	Mar. 11	1880	303	98	2021
Hope, John T., Kansas City, Mo. Steam-radiator	692,854	Feb. 11	1129	252	98	1055
Hopf, George R. (See McGarity and Hopf.)						
Hopkie, William, Muscatine County, Iowa. Tongs	690,860	Jan. 7	935	209	98	197
Hopkins, Adolphe H., Brooklyn, N. Y. Coffee-hulling machine	690,489	Jan. 7	81	17, 18	98	20
Hopkins & Allen Arms Co. (See Elder, Edward H., assignor.)						
Hopkinson, Naaman D., Spokane, Wash. Pneumatic-tube protector	692,446	Feb. 4	896	95	98	880
Hoppe & Homann. (See Erdsiek, Friederich, assignor.)						
Horn, Karl, Pardubitz, Austria-Hungary. Sectional-conductor electric railway	693,894	Feb. 18	2229	489	98	1404
Horack, Charles L., New York, N. Y. Wheel	695,984	Mar. 25	2979	674	98	2382
Horizontal Swing Co. (See Olson, Olof R., assignor.)						
Horne, George A., Syracuse, N. Y. Recoil-operated firearm	690,955	Jan. 14	1102	249	98	246
Horne, John E. (See Barrett and Horne.)						
Horner, Albert, Paauilo, Hawaii. Cane-loader	694,548	Mar. 4	412	90	98	1800
Hornung, Charles G., and H. Wolf, Buffalo, N. Y. Forming bail-ears on sheet-metal vessels	694,644	Mar. 4	566	129	98	1836
Horris, John T., New York, N. Y. Animal-tie	694,279	Feb. 25	3085	876	98	1668
Horsfield, E. Emma. (See Horsfield, John, assignor.)						
Horsfield, John, assignor to E. E. Horsfield, Chicago, Ill. Door-check	693,021	Feb. 11	1473	322	98	1129
Horsfield, John, assignor to E. E. Horsfield, Chicago, Ill. Ventilator	693,022	Feb. 11	1473	322	98	1129
Horton, Charles P., Birmingham, England. Tubular condenser and water-heater	690,729	Jan. 7	715	158	98	150
Horton, Peter D., assignor of two-thirds to J. M. Espenscheid, Newark, and J. Cooper, New York, N. Y. Device for blowing bubbles	698,305	Feb. 18	2230	489	98	1304
Hosea, Lewis M., Cincinnati, Ohio. Screw-press	694,861	Mar. 4	1006	222	98	1925
Hoskins, George J., Sydney, New South Wales, Australia. Machine for making cylindrical cores for casting	696,045	Mar. 25	3190	720	98	2426
Hotchkiss, Arthur E., assignor to M. Haase, New York, N. Y. Ellipsograph	696,046	Mar. 25	3191	720 721	98	2426
Hothan, August, Brooklyn, assignor to John Kroder & Henry Reubel Co., New York, N. Y. Curtain-pole ring	695,813	Mar. 11	1864	415	98	2130
Hottman, Charles W. (See Lippert and Hottman.)						
Houf, John, Schenectady, N. Y. Saw-setting machine	698,970	Feb. 25	3342	734 735	98	1548
Houghland, Frank H., St. Louis, Mo. Box	695,557	Mar. 18	2292	518	98	2228
Housberg, John W., Pittsburg, Pa. Door-strip	695,054	Mar. 11	1882	303	98	2021
House, Arthur G., Belton, Mo. Transmitting and receiving tube for auricular instruments	690,420	Jan. 7	83	18	98	90
House, Samuel N., Dallas, Tex. Cold-tire-shrinking machine	690,523	Jan. 7	306	61	98	67
Houseman, Harry A., Philadelphia, Pa., assignor to Standard Machine Company. Circular-knitting machine	694,328	Mar. 4	84	19, 20	98	1729
Houseman, James H., Conrad, Iowa. Rotary engine	696,047	Mar. 25	3194	721 722	98	2427
Houston, David H., Hunter, N. D. Folding support for cameras	694,868	Mar. 4	1008	222	98	1926
Houston, David H., Hunter, N. D. Roll-holding camera	694,919	Mar. 4	1122	247	98	1949
Houston, David H., Hunter, N. D. Camera	694,920	Mar. 4	1124	247	98	1949
Houston, David H., Hunter, N. D. Daylight-loading photographic-roll holder	694,921	Mar. 4	1126	247	98	1950
Houston, David H., Hunter, N. D. Roll-holding photographic camera	694,922	Mar. 4	1127	248	98	1950
Houston, David H., Hunter, N. D. Panoramic photographic camera	694,923	Mar. 4	1129	248	98	1951
Houston, David H., Hunter, N. D. Roll-holding camera	694,924	Mar. 4	1130	248	98	1951
Houston, David H., Hunter, N. D. Folding roll-holding camera	694,925	Mar. 4	1131	248	98	1951
Houston, David H., Hunter, N. D. Daylight-loading photographic-roll holder	694,926	Mar. 4	1133	249	98	1951
Houston, David H., Hunter, N. D. Daylight-loading photographic-roll holder	694,927	Mar. 4	1134	249	98	1952
Houston, David H., Hunter, N. D. Folding roll-holding photographic camera	694,928	Mar. 4	1136	249	98	1952
Houston, David H., Hunter, N. D. Folding panoramic camera	694,929	Mar. 4	1137	249	98	1952
Houston, David H., Hunter, N. D. Photographic-roll holder	694,930	Mar. 4	1139	250	98	1953
Houston, Edwin J. (See Thomson and Houston.)						
Houston, Eli, Morrow, assignor of one-half to W. B. Hayner, South Lebanon, Ohio. Apparatus for separating silk from green corn	694,017	Feb. 25	3449	761	98	1570
Howard, Charles P., Hartford, Conn. Latch	696,176	Mar. 25	3478	779	98	2486
Howard, Clarence H. (See Schaffer and Howard.)						
Howard, Frank W., assignor to X. Stoutenborough, Brooklyn, N. Y. Pump for fluid-tanks	694,645	Mar. 4	597	129	98	1837
Howard, Gibson, *et al.* (See Norfolk, Napoleon B., assignor.)						
Howard, Hasen S., Leominster, Mass. Window-platform	690,579	Jan. 7	405	84	98	88
Howard, John W. (See Van Leer, John S., assignor.)						
Howard, William J., Louisville, Ky. Food product and preparing same	692,667	Feb. 4	800	------	98	968
Howd, Charles B., assignor to Sahlin Corset Company, Chicago, Ill. Garment-closure	695,305	Mar. 11	1998	446	98	2148
Howe, Elbridge G., Millbury, Mass. Swinging crate for bottles or carboys	693,090	Feb. 11	1471	321	98	1129
Howe, Homer W., Chicago, Ill. Register	693,604	Feb. 18	2344	553	98	1389
Howe, Samuel P., and S. M. Vauclain, Jr., Ithaca, N. Y. Apparatus for compressing air	694,280	Feb. 25	3296	676	98	1668
Howells, Charles, New York, N. Y. Vehicle wheel and tire	691,467	Jan. 21	2090	466	98	470

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Howenstein, Franklin. (See Grey, Sylvester P., assignor.)						
Hower, Aten B., Logan, Utah. Steam-cooker	691,280	Jan. 21	1998	435	98	437
Hower, Jeremiah M., Jr. (See Begeer, Bastiaan W., assignor.)						
Howes, Charles F., Cambridge, assignor to Electric Gas Lighting Company, Boston, Mass. Attachment-plug	696,864	Feb. 25	3130	898	98	1597
Howie, James F. (See Patrick, Marcus C., assignor.)						
Howland, Chauncy W. (See Bowker, Long, and Howland.)						
Howland, Frank E., Peoria, Ill. Valve	694,477	Mar. 4	359	66	98	1767
Hoyt, Elva, *et al.* (See Winckfield, George W., assignor.)						
Hoyt, H. H., *et al.* (See Winckfield, George W., assignor.)						
Hoyt, William H., Wyoming, assignor to Burt Company, Milburn, N. J. Game-ball	690,861	Jan. 7	295	200	98	197
Hoyt, William H., Wyoming, assignor to Burt Company, Milburn, N. J. Game-ball and making same	695,158	Mar. 11	1878	849	98	8002
Hrebicek, Apollinaris, Bingerbrück, Germany. Subterranean current transmission for electric tramways or railways	691,381	Jan. 21	1998	436	98	438
Hubbell, Drusilla, *et al.* (See Hubbell, Thomas J., assignor.)						
Hubbell, Grier Electric Company. (See Hubbell, Harvey, assignor.)						
Hubbell, Harvey, assignor to Hubbell, Grier Electric Company, Bridgeport, Conn. Pull-socket	696,799	Feb. 18	2996	660	98	1470
Hubbell, Thomas J., assignor to D. Hubbell and W. H. Ames, Watsonville, Cal. Protecting trees	691,546	Jan. 21	2001	490	98	496
Huberdeau, Thomas, Larimore, N. D. Breast-strap slide	691,630	Jan. 21	2001	537	98	532
Huck, Albert, assignor to Milwaukee Valve Company, Milwaukee, Wis. Faucet	696,865	Feb. 25	3139	893	98	1507
Huckel, William F., Frankford, Pa. Shoe-blacking kit	696,048	Mar. 25	3197	782	98	2427
Hucks, William, Jr., London, England. Apparatus for dispensing aerated liquids	695,314	Mar. 11	1995	415	98	2120
Hucks, William and William, Jr., Camden-Town, London, England. Apparatus for use in dispensing liquids	694,646	Mar. 4	589	130	98	1667
	691,708	Jan. 21	2018	553 554	98	560
Huckstepp, Arthur C., Birmingham, England. Advertising device	692,855	Feb. 11	1181	258	98	1055
Hudson, James B., Charlotte, N. C. Roll for spinning-machines	696,043	Mar. 18	2460	558	98	2362
Hudson, William L., Lewisburg, Tenn. Clevis						
Huenefeld, Ernst H. (See Carter, John R., assignor.)						
Huenefeld, Ernst H. (See Hausfeld and Carter, assignors.)						
Huey, John S., Chicago, Ill. Counter	691,142	Jan. 14	1441	288	98	315
Huey, Valentine. (See Lynch and Huey.)						
Huff, George S. (See Huff, Jake J. and G. S.)						
Huff, George S. and J. J., assignors of two-fifths to F. H. Ewers and J. M. Berauer, Indianapolis, Ind. Smoke-consuming furnace	690,580	Jan. 7	406	84	98	88
Huff, George S. and J. J., assignors of two-fifths to F. H. Ewers and J. M. Berauer, Indianapolis, Ind. Mechanical stoker	690,582	Jan. 7	410	85	98	89
Huff, George S., and J. J., assignors of two-fifths to F. H. Ewers and J. M. Berauer, Indianapolis, Ind. Automatic clutch	690,568	Jan. 7	412	85, 86	98	90
Huff, Jake J. (See Huff, George S. and J. J.)						
Huff, Jake J. and G. S., assignors of two-fifths to F. H. Ewers and J. M. Berauer, Indianapolis, Ind. Smoke-consuming furnace	690,581	Jan. 7	409	84, 85	98	89
	696,896	Feb. 18	2021	489 490	98	1305
Huff, Slaughter W., Baltimore, Md. Automatic railway appliance						
Huffman, Datus E., assignor of one-half to A. G. Nelson, Minneapolis, Minn. Hernial truss	694,751	Mar. 4	795	177	98	1979
	696,177	Mar. 25	3460	779	98	2485
Huffstickler, Henry, Coal Valley, Pa. Hoof-trimmer	691,056	Jan. 14	1304	296	98	267
Hug, Daniel, Denver, Colo. Breech-loading firearm						
Hugentobler, Emil M., assignor to W. D. Walbridge, New York, N. Y. Furnace for burning bituminous coal	690,481	Jan. 7	84	18, 19	98	21
Hugentobler, Emil M., assignor to W. D. Walbridge, New York, N. Y. Furnace for burning bituminous coal	690,482	Jan. 7	89	20	98	22
	696,710	Feb. 18	2041	696	98	1429
Hughen, Mary B., Chicago, Ill. Broom attachment	694,261	Feb. 25	3037	876	98	1669
Hughes, Carrie L., Cleveland, Ohio. Tape-needle	691,468	Jan. 21	2009	468	98	470
Hughes, David W., Vandalia, and W. T. S. Barnes, Jackson, Mo. Washing-machine						
Hughes, Henry A., Jr., Philadelphia, Pa., assignor to Perfection Jar Closure Company, Philadelphia, Pa., and Camden, N. J. Jar or bottle closure	691,358	Jan. 21	1989	437	98	436
Hughes, Henry A., Jr., Philadelphia, Pa., assignor to Perfection Jar Closure Company, Philadelphia, Pa., and Camden, N. J. Composition of matter	691,359	Jan. 21	1941	.....	98	438
	691,770	Jan. 28	2071	800	98	609
Hughes, Joseph S., Chesley's Corners, Canada. Wood-pulp press	691,771	Jan. 28	2076	899	98	610
Hughes, Joseph S., Chesley's Corners, Canada. Forming wood-pulp into sheets	696,287	Mar. 25	3206	846	98	2453
Hughes, Orville B., Akron, Ohio. Unitary match-safe and cigar-lighter	692,517	Feb. 4	534	126	98	906
Hughes, Samuel F., Fort Madison, Iowa. Treadle-guide for cultivators	694,788	Mar. 4	796	.....	98	1990
Hughes, William B., Philadelphia, Pa. Manufacture of steel by the open-hearth process						
Hulett, George H., Cleveland, assignor of one-half to Webster, Camp & Lane Machine Company, Akron, Ohio. Unloading apparatus	694,262	Mar. 4	98	20, 21	98	1731
	692,139	Jan. 28	2048	.....	98	744
Hulin, Paul L., Clavaux, par Rioupéroux, France. Making hydrogen dioxid	691,057	Jan. 14	1207	226	98	268
Hull, Alfred A., Knoxville, Tenn. Flue-cleaner	696,711	Feb. 18	2042	696	98	1429
Hull, Fletcher C., Norwalk, Ohio. Umbrella-stick	696,712	Feb. 18	2043	696	98	1429
Hull, Fletcher C., Norwalk, Ohio. Detachable umbrella-handle						
Hull, William F. (See Dawes and Hull.)						
Hullinger, Thomas W., Lima, Ohio. Pumping-jack	696,336	Mar. 25	3207	848 849	98	2454
Hulse, Edwin M., and A. F. Schramm, Columbus, Ohio; said Schramm assignor to said Hulse. Clip for securing wires together	696,866	Feb. 25	3184	898	98	1508
Hülzer, Lambert, and R. Kemper, Essen, Germany. Padlock for securing coats, &c., to wardrobe-hooks	696,458	Mar. 18	2399	473	98	2189
	696,590	Feb. 18	2071	548	98	1354
Hume, Washington, London, England. Railway electric signaling apparatus	690,956	Jan. 14	1108	250	98	247
Humes, James, New York, N. Y. Apparatus for making gas	691,709	Jan. 28	2070	898	98	609
Hummel, Caspar, Johnstown, Pa. Hoop-tightening device	691,148	Jan. 14	1448	322	98	315
Hummel, Richard, New York, N. Y. Hernial truss						
Hummer, William F., assignor to Columbian Automatic Computing Scales Company, Washington, D. C. Automatic computing-scale	694,647	Mar. 4	591	130	98	1838
Humphreys, Frederick W., assignor to Wayne Chemical Company, Germantown, Pa. Photographic package	696,186	Feb. 11	1713	374	98	1177
Hungerford, Oliver T., Brooklyn, N. Y. Covering for pipes, rods, electric-line conductors, or the like	695,726	Mar. 18	2508	556	98	2288
	690,377	Jan. 14	1106	250	98	246
Hunt, Charles W., West New Brighton, N. Y. Boiler-feeder	694,264	Mar. 4	96	21	98	1782
Hunt, Charles W., West New Brighton, N. Y. Steering mechanism for motor-vehicles	694,051	Feb. 25	3057	779	98	1598
Hunt, Frank G., Buffalo, N. Y. Flexible ruler	696,606	Feb. 18	2050	584	98	1390
Hunter, Andrew, San Francisco, Cal. Hernial truss						
Hunter Arms Company. (See Lewis, George S., assignor.)						
Hunter Arms Company. (See Snyder, Frank, assignor.)						
Hunter, Charles W., Gardiner, Me. Can-opener	695,035	Mar. 11	1383	308	98	2022

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Hunter, David E., Cambridge, assignor to Library Bureau, Boston, Mass. File-cabinet	696,049	Mar. 25	3197	723	98	3427
Hunter, Jacob M., assignor to W. T. Blaine, Chicago, Ill. Coin-controlled X-ray machine	695,154	Mar. 11	1574	349, 350	98	2062
Hunter, Rudolph M., Philadelphia, Pa. Electric welding	690,936	Jan. 14	1109	250	98	948
Hunter, Rudolph M., Philadelphia, Pa., assignor to Tractor Truck and General Power Co. Motor-vehicle	696,142	Mar. 25	3416	708	98	2474
Huntington, Harlow M., Belvidere, Ill. Hand binder	695,558	Mar. 18	2293	518	98	2288
Huntington, Harry G., Ladoga, Ind. Cleaning implement	695,315	Mar. 11	1866	415	98	2120
Huntley, Stephen A., Elkpoint, S. D. Magazine-firearm	696,892	Mar. 18	2877	652, 653	98	2848
Hunton, Robert W. (See Mills and Hunton.)						
Huntoon, Charles F., assignor to Chicago Railway Equipment Company, Chicago, Ill. Roller side bearing	694,549	Mar. 4	414	90	98	1800
Huntoon, William D., Norwood, Mass. Pipe-wrench	696,339	Mar. 25	3808	849	98	2354
Hupfer, Charles F., Monona, Iowa. End-gate	696,340	Mar. 25	3809	849	98	2354
Hurd, Charles L., assignor of one-half to N. F. Smith, Chelsea, Mass. Coin-operated vending-machine	690,433	Jan. 7	91	20	98	22
Hurd, Charles L., assignor of one-half to N. F. Smith, Chelsea, Mass. Coin-operated vending-machine	698,786	Feb. 4	1008	227, 228	98	1008
Hurd, Charles L., assignor of one-half to N. F. Smith, Chelsea, Mass. Coin-operated machine	694,288	Feb. 25	3008	577	98	1659
Hurley, Arthur, Tondu, England. Bridge for violins or similar instruments	698,648	Feb. 18	2724	601	98	1406
Hurst, David, Mansfield, Ohio. Motor	698,668	Feb. 4	901	192	98	968
Hurtig, John F., St. Louis, Mo. Steering apparatus for self-propelled vehicles	694,478	Mar. 4	951	59	98	1766
Huse, Leon C. (See Huse, Warren D. and L. C.)						
Huse, Walter L. (See Huse, Warren D. and L. C., assignors.)						
Huse, Warren D. and L. C., assignors of one-third to W. L. Huse, Laconia, N. H. Tucking and welting attachment for knitting-machines	698,397	Feb. 18	2226	490, 491	98	1805
Husson, Louis, Philadelphia, Pa. Picture	698,891	Feb. 4	183	31	98	836
Hussong, Joseph, Camden, N. J. Dyeing apparatus	695,727	Mar. 18	2593	587	98	2288
Hutchings, George B., Galveston, Tex. Device for enlarging negatives	698,713	Feb. 18	2844	627	98	1429
Hutchings, George B., Galveston, Tex. Paper-holder for enlarging-cameras	698,714	Feb. 18	2846	627	98	1430
Hutchinson, Moses. (See England and Hutchinson.)						
Hutchison, James. (See Stroh and Hutchison.)						
Hutchison, John A., Cambridge, and E. R. Leighton, assignors to Merrimac Mattress Manufacturing Company, Boston, Mass. Couch-bed	692,140	Jan. 28	3344	757	98	744
Hutchison, Maurice F., Floris, assignor of one-half to R. C. Eichberg, Alexandria, Va. Roller-screen	696,873	Mar. 25	3894	854	98	2508
Hutchison, Miller R., New York, N. Y., assignor, by mesne assignments, to Akouphone Manufacturing Company. Apparatus for charging batteries	691,144	Jan. 14	1444	328	98	316
Huth, Max. (See Frölich, Huth, and Edelmann.)						
Hutton, David, Quartette, Nev. Noria	690,584	Jan. 7	415	86	98	90
Huxley, Charles L., Athens, Mich. Artificial-stone tank	695,687	Mar. 18	2529	578	98	2275
Hyde, Charles L., *et al.* (See Vrard, Vendredy, Duitte, and Gauthier, assignors.)						
Hyde, Elwin R., Bridgeport, Conn. Rotary engine	694,101	Feb. 25	3600	797	98	1602
Hyde Windlass Company. (See Andrews, Jacob R., assignor.)						
Icecubator Company. (See Duncan, Joseph S., assignor.)						
Icke, Henry A., Pietermaritzburg, Natal. Measuring-weir	695,459	Mar. 18	2100	473	98	2189
Ideal Cash Register Company. (See Smith and Giles, assignors.)						
Ideal Register Co. (See Smith, Luther D., assignor.)						
Ihlder, John D., Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J. Electromagnetic regulator for electric currents	698,023	Feb. 11	1474	322	98	1129
Ill, Henry, Newark, N. J. Conduit-bushing	698,398	Feb. 18	2240	491	98	1305
Illingworth, Harry I., Lynn, assignor to C. E. Riley, Newton, Mass. Clutch	694,550	Mar. 4	416	90, 91	98	1801
Illinois Malleable Iron Company. (See Robertson, Alexander Y., assignor.)						
Imperial Camera & Mfg. Co. (See Odquist, Victor, assignor.)						
Improvements Manufacturing Company. (See Allen, Frederick E., assignor.)						
India Rubber Company. (See Wheeler and Kremer, assignors.)						
Ingemanson, C. A., *et al.* (See Darwin, Frank L., assignor.)						
Ingham, Thomas, Liverpool, England. Manufacture of alkaline alginates	695,209	Mar. 11	1674	.....	98	2062
Ingham, Thomas, Liverpool, England. Briquet manufacture	695,210	Mar. 11	1675	.....	98	2062
Ingoldsby Automatic Car Company. (See Ingoldsby and Bowling, assignors.)						
Ingoldsby, Frank S., and J. R. Bowling, assignors to Ingoldsby Automatic Car Company, St. Louis, Mo. Bolster for railway-cars	694,886	Mar. 4	96	21	98	1732
Inman, Clarence W., *et al.* (See Wahman and Rehberg, assignors.)						
Inman, Orion D. W., *et al.* (See Wahman and Rehberg, assignors.)						
Inshaw, William R., Brooklyn, N. Y., assignor to I. M. Martin, Cincinnati, Ohio. Pleasure device	690,434	Jan. 7	94	20	98	23
International Air Brake Company. (See Shortt, Edward G., assignor.)						
International Oil Furnace Company. (See Ward, James, assignor.)						
International Steam Pump Company. (See De Laval and Chisholm, assignors.)						
International Tin Plate Corporation. (See Allis, Thomas V., assignor.)						
International Typal Telegraph Company. (See Himrod, Tucker, and Hinckley, assignors.)						
Invention Developing Company. (See Gill, Edwin R., assignor.)						
Iowa Mantle Manufacturing Company. (See Bredow, John F., assignor.)						
Iredale, John C., Toronto, Canada. Last	698,447	Feb. 4	897	91	98	850
Irish, Frank M. (See Smith, John G., assignor.)						
Irving, Robert J., Port Carlisle, England. Hinge device	698,971	Feb. 25	3345	785	98	1549
Isbell, Charles W., New York, N. Y. Apparatus for the manufacture of illuminating-gas	698,187	Feb. 11	1713	575	98	1177
Ishöy, Frederik, Copenhagen, Denmark. Separable and reversible cycle	698,591	Feb. 18	2478	542	98	1255
Isserlis, Issai, Kiew, Russia. Lime, cement, or like kiln	691,145	Jan. 14	1446	329	98	316
Iversen, Ole, East Berkeley, Cal. Hose-coupling clamp	698,094	Feb. 11	1475	322	98	1130
Iwan, William L., Streator, Ill. Knife for cutting hay, cane, &c.	696,050	Mar. 25	3198	729	98	2427
J. F. Pease and Company. (See Dutton, Samuel T., assignor.)						
J. H. Horne & Sons Company. (See Barrett and Horne, assignors.)						
J. K. Osborn Manufacturing Company. (See Weber, Adam, assignor.)						
J. L. Mott Iron Works. (See Falk, Carl A., assignor.)						
J. L. Mott Iron Works. (See Reid and Hooper, assignors.)						
J. L. White Furnace Company. (See White, James L., assignor.)						
J. W. Sefton Manufacturing Company. (See Ferres, Jeffrey T., assignor.)						
J. W. Sefton Manufacturing Company. (See Goodnow, Charles H., assignor.)						
J. W. Sefton Manufacturing Company. (See Keller, Charles F., assignor.)						
Jackman, Wilbert J., Lima, Ohio. Self-cleaning needle-valve	698,656	Feb. 11	1182	258	98	1056
Jackmond, William, Shuqualak, Miss. Reamer	695,559	Mar. 18	2294	518	98	2228
Jacks, Fred S. and W. D., San Francisco, Cal.; said W. D. Jacks assignor to said Fred S. Jacks. Carbureter	698,518	Feb. 4	986	196	98	907

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Jacks, William D. (See Jacks, Fred S. and W. D.)						
Jackson, Alfred G., Brisbane, Queensland. Bicycle luggage-carrier	691,864	Jan. 28	2843	640	98	644
Jackson, Benjamin F., North Cambridge, assignor of three-fourths to J. W. Lovett, Wollaston, W. R. Reeve, Dorchester, and M. D. Flattery, Boston, Mass. Steam-boiler	690,730	Jan. 7	716	188	98	151
Jackson, D. V., *et al.* (See Boos, Joseph B., assignor.)	695,155	Mar. 11	1576	350	98	1053
Jackson, John W., Amsterdam, N. Y. Smoke-consumer	691,681	Jan. 21	2898	527	98	522
Jackson, Joseph H., Allegheny, Pa. Spirit-level	691,884	Jan. 21	1943	437	98	439
Jackson, Oswald, Carrollton, Ill. Valve-gear for engines	692,898	Feb. 4	134	81	98	856
Jackson, Sydney A., Heaton Chapel, and L. Lang, Old Trafford, Manchester, England. Apparatus for supplying aerated liquids on draft	694,155	Feb. 25	3700	817	98	1621
Jackson, Thomas B., Belmont, Ohio. Fireplace-heater	690,950	Jan. 14	1113	251, 252, 253	98	248
Jacobs, Arthur I., assignor to Smyth Manufacturing Company, Hartford, Conn. Machine for casing-in books	690,960	Jan. 14	1119	254	98	250
Jacobs, Charles M., New York, N. Y. Tunnel	693,545	Feb. 18	2518	554, 555	98	1264
Jacobsen, Peter, Neenah, Wis. Expansion-pulley	696,874	Mar. 25	3896	664	98	2569
Jacobson, Axel E., Minneapolis, Minn. Bed-rail fastener	691,772	Jan. 28	2677	600	98	610
Jacobson, Fritz, Brooklyn, N. Y. Vaporizer	692,298	Feb. 4	135	88	98	826
Jacoby, Charles A., Waterloo, Iowa. Valve	693,715	Feb. 18	2847	627	98	1430
Jacoby, Julius, Mifflintown, Pa. Curtain-pole	692,294	Feb. 4	136	92	98	827
Jaeger, Herman J., New York, N. Y. Dental lamp	695,728	Mar. 18	2595	567	98	2289
Jähnig, Robert E., New York, N. Y. Gas-lighter						
Jahrmarkt, Friedrich M. (See Julius and Jahrmarkt.)						
James, Frederick H. L., Pawtucket, R. I., assignor to Saco and Pettee Machine Shops, Newton, Mass. Cleansing-trunk	690,602	Jan. 7	550	119	98	117
James, Frederick H. L., Pawtucket, R. I., assignor to Saco and Pettee Machine Shops, Newton, Mass. Cleansing-trunk for cotton or other pickers	690,603	Jan. 7	551	119	98	118
James, Frederick H. L., Pawtucket, R. I., assignor to Saco and Pettee Machine Shops, Newton, Mass. Cleansing-trunk for cotton or other pickers	690,604	Jan. 7	553	120	98	118
James, John T., Altus, Okla. Ter. Cotton-chopper	694,479	Mar. 4	2858	59	98	1769
James, Otto H., Mogollon, N. Mex. Ter. Toy	696,051	Mar. 25	3800	720	98	2428
James, Thomas S., Shenandoah, Pa. Lubricator	691,688	Jan. 21	2596	538	98	532
Jamieson, William, and F. J. Odling, Melbourne, Victoria. Apparatus for sifting pulverized ores or the like	690,731	Jan. 7	718	158, 159	98	151
Jamison, Benton K., Philadelphia, Pa., assignor, by mesne assignments, to National Steel Refining Company, Wilmington, Del. Manufacture or treatment of armor-plates	690,961	Jan. 14	1121	254, 255	98	250
Jamison, Benton K., Philadelphia, Pa., assignor, by mesne assignments, to National Steel Refining Company, Wilmington, Del. Treatment of armor-plates	690,962	Jan. 14	1124	.....	98	251
Jamison, Benton K., Philadelphia, Pa., assignor, by mesne assignments, to National Steel Refining Company, Wilmington, Del. Preparing solutions for the treatment of steel	690,963	Jan. 14	1125	.....	98	251
Janin, John V., assignor of one-half to C. Claeys, Seattle, Wash. Level and plumb	691,146	Jan. 14	1449	389, 390	98	316
Jankowsky, William, St. Louis, Mo. Enameling metal ware	691,268	Jan. 14	1674	691	98	665
Jannus, Stephen, San Carlos, Ariz. Ter. Device for altering the shape of horseshoes	691,395	Jan. 21	1945	437	98	440
Janson, Frederick H., Brooklyn, N. Y. Seat	692,141	Jan. 28	2945	755, 756	98	744
Janson, Louis, Brooklyn, N. Y. Seat	694,288	Feb. 25	3940	877	98	1660
Jaques, Warren W., Little Genesee, N. Y. Trace-hook	695,056	Mar. 11	1894	604	98	2022
Jarrett, George Q. (See Highers, Charlie, assignor.)						
Jarvis, Denzil J., J. W. Wadkin, Leicester, and T. S. King, Colchester, England. Glazing-bar	690,732	Jan. 7	720	159	98	151
Jarvis, Denzil J., J. W. Wadkin, Leicester, and T. S. King, Colchester, England. Apparatus for providing bars or the like with a covering of extruded material	692,296	Feb. 4	137	88, 89	98	827
Jarvis, Harold, assignor of one-half to R. H. Thompson, Buffalo, N. Y. Bicycle	690,733	Jan. 7	721	159	98	151
Jarvis, Harold, assignor of one-half to R. H. Thompson, Buffalo, N. Y. Bicycle-seat	690,734	Jan. 7	724	160	98	152
Jas. H. Baker Manufacturing Company. (See Baker, James H., assignor.)						
Jaubert, George F., Paris, France. Pastil for making oxygen gas and producing same	691,058	Jan. 14	1308	.....	98	268
Jayne, Benaiah G., New York, assignor to H. Craighead, Flushing, N. Y. Hoop for barrels, &c	695,460	Mar. 18	2108	474	98	2189
Jefferson, John W., Louisville, Ky. Machine for harvesting onion sets or similar crops	694,284	Feb. 25	3942	878	98	1669
Jenkins, Charles H., Lebanon, N. H., assignor of one-half to Kendrick and Davis. Toolholder	693,399	Feb. 18	2344	491	98	1307
Jenkins, Mary C., Kansas City, Mo. Colander	692,296	Feb. 4	138	93	98	827
Jenner, John H., Leavenworth, Ind. Wagon-brake	691,547	Jan. 21	2682	500	98	498
Jennings, Aaron E. (See Jennings, Gregory and A. E.)						
Jennings, Gregory, West Cairo, Ohio, and A. E. Jennings, Central City, Ky. Braking mechanism for vehicles	694,868	Mar. 4	1009	233	98	1925
Jensen, Jorgen, Black Diamond, Wash. Rail-brace	695,610	Mar. 18	2409	544	98	2260
Jensenius, Herman A., assignor to Camden Iron Works, Camden, N. J. Valve mechanism for duplex engines	693,669	Feb. 4	808	188, 189	98	965
Jeppesen, Christen J., Centerburg, Ohio. Liquid-separator	691,469	Jan. 21	2094	469	98	471
Jervis, Cecil L., Newark, England. Apparatus for planting potatoes or seeds	696,716	Feb. 18	2548	627	98	1430
Jervis, Frederick W., Baltimore, Md., assignor to W. H. Jervis, Clinton, Canada. Carbureter	693,273	Feb. 11	1997	435	98	1284
Jervis, William H. (See Jervis, Frederick W., assignor.)						
Jessup, Robert W., assignor to Spiral Belt Separator Co., San Francisco, Cal. Separator	693,095	Feb. 11	1476	328	98	1130
Jessup, Robert W., assignor to Spiral Belt Separator Co., San Francisco, Cal. Separator	693,096	Feb. 11	1478	328	98	1130
Jeter, Edmond W., Atlanta, Ga. Car-fender	691,315	Jan. 14	1781	405	98	886
Jewell, Ira H., Chicago, Ill. Distilling apparatus	692,788	Feb. 4	1007	228	98	1008
Jewell, Martin, Clinton, Me. Attachment for horse-rakes	695,965	Mar. 25	2981	674	98	2263
Jincks, Melvin, and C. W. Stanton, Cohocton, N. Y. Sawbuck	691,693	Jan. 21	2908	536	98	582
Jinkings, William, London, England. Optical toy	694,967	Mar. 11	1883	427	98	1098
Jochimsen, William, New York, N. Y. Extension-footwear	693,400	Feb. 18	2945	402	98	1307
Joecken, Peter J., assignor to American Washboard Company, Cleveland, Ohio. Washboard	694,884	Mar. 4	1014	228	98	1927
Johansson, Frans J. E., Stockholm, Sweden. Steam-engine or the like	693,388	Feb. 18	2474	542, 543	98	1265
John Brown & Company. (See Wallace, William C., assignor.)						
John F. McCanna Company. (See McCanna, John F., assignor.)						
John, James, Chicago, Ill. Lath for plastering foundations	690,425	Jan. 7	94	21	98	23
John Kroder & Henry Reubel Co. (See Hothan, August, assignor.)						
John Stephenson Company. (See Kling, Peter M., assignor.)						
John Van Range Company. (See Gibson, John, assignor.)						
Johns, Henry W., Brooklyn, N. Y. Easel-back	693,857	Feb. 11	1133	253	98	1056
Johnsen, Louis, Seattle, Wash. Ax-handle clamp	695,451	Mar. 18	2104	474	98	2159

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Johnson, Alfred, Quincy, Ill. Trolley-harp	692,519	Feb. 4	538	126	98	907
Johnson, Alfred, assignor of three-fifths to A. Swanson and J. Nelson, Minneapolis, Minn. Filter	696,241	Mar. 25	3506	804, 805	98	2508
	693,717	Feb. 18	2849	628	98	1430
Johnson, Andrew, Chicago, Ill. Weeder						
Johnson, Andrew W. (See Vanderburg, Robert B., assignor.)						
Johnson, Arthur W., assignor to L. A. Johnson, Chicago, Ill. Power-hammer	692,324	Feb. 11	3065	456	98	1263
Johnson, Ashba L., San Luis Obispo, Cal. Display-cabinet	696,241	Mar. 25	3510	849	98	2504
Johnson, Benjamin F. (See Cowles, Arthur B., assignor.)						
Johnson, Benjamin F. (See Sallade, Jacob, assignor.)						
Johnson, Benjamin F., Richmond, Va. Compartment-envelop	698,649	Feb. 18	2725	601	98	1406
Johnson, Charles A., assignor to Upson Nut Company, Unionville, Conn. Machine for pointing and threading bolts	691,316	Jan. 14	1783	406	98	387
	695,560	Mar. 18	2395	519	98	2395
Johnson, Charles B., Columbus, Ohio. Hook						
Johnson, Charles F. (See Johnson, Woolsey M., assignor.)						
Johnson, Charles H., Chicago Heights, Ill. Pneumatic hammer	695,396	Mar. 11	1996	446	98	2149
Johnson, Charles K., near Warrenton, Va. Plow	696,242	Mar. 25	3508	805	98	2509
Johnson, Charles M., Bennett, Pa. Flue for conducting fumes	691,778	Jan. 28	2678	600	98	611
Johnson, Charles M., assignor of one-half to C. H. and W. F. Coakley, and S. S. Cramer, Milwaukee, Wis. Hinge	698,546	Feb. 18	2521	555	98	1364
Johnson, Charles M., assignor of one-half to C. H. and W. F. Coakley and S. S. Cramer, Milwaukee, Wis. Box-fastener	698,607	Feb. 18	2551	585	98	1390
Johnson, Charles M., assignor of one-half to C. H. and W. F. Coakley and S. S. Cramer, Milwaukee, Wis. Box-fastener	694,480	Mar. 4	265	59	98	1766
Johnson, Christian, Elgin, Ill. Clutch	691,548	Jan. 21	2223	500	98	498
Johnson, Edward A., and G. M. Roberts, Columbus, Ohio. Non-refillable bottle	692,520	Feb. 4	550	127	98	908
Johnson, Edwin L., Memphis, Tenn. Extracting cotton-seed oil	691,342	Jan. 14	1864	.....	98	407
Johnson, George L. W., Malden, Mass. Vending-machine	694,968	Mar. 11	1222	267	98	1968
Johnson, Greenleaf, Jr., Baltimore, Md. Cutter-head	691,269	Jan. 14	1677	352	98	385
Johnson, Gustaf, Marquette, Mich. Sled-runner	694,753	Mar. 4	799	177	98	1881
Johnson, Hannah R., Braddock, N. D. Clothes-line and detachable support	698,401	Feb. 18	2248	492	98	1308
Johnson, James, Antwerp, N. Y. Clothes-line attachment	695,397	Mar. 11	1997	447	98	2149
Johnson, John C., Philadelphia, Pa. Soda-fountain apparatus and syrup-drawing can therefor	690,436	Jan. 7	96	21	98	23
Johnson, John C., Philadelphia, Pa. Bar-fixture with soda-water-dispensing apparatus provided with syrup-cans	691,386	Jan. 21	1950	438	98	440
Johnson, John E., Brooklyn, N. Y. Automatic signal apparatus for liquid-holding tanks	698,650	Feb. 18	2726	601, 602	98	1406
Johnson, Joseph B. (See Johnson, Otis L., assignor.)						
Johnson, Joseph E., Meriden, Conn. Take-up device for crank-pin connections	693,402	Feb. 18	2248	492	98	1308
Johnson, Joseph S., New York, N. Y. Automatic train-robber-intercepting apparatus	693,651	Feb. 18	2727	602	98	1406
Johnson, Lawrence J., Kansas City, Mo. Show-case	692,670	Feb. 4	810	183	98	965
Johnson, Leola A. (See Johnson, Arthur W., assignor.)						
Johnson, Louis K., and A. A. Low, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-containing channel	694,481	Mar. 4	266	60	98	1769
Johnson, Osro P. (See Crockett and Johnson.)						
Johnson, Otis L., assignor to J. B. Johnson, Mills, Pa. Washing-machine	690,907	Jan. 7	1019	229	98	213
Johnson, Phelps, Montreal, Canada. Railway turn-table	692,521	Feb. 4	540	127	98	908
Johnson, Ralph C., Edgewater, Colo. Corn-husking machine	695,561	Mar. 18	2296	519, 520, 521	98	2228
Johnson, Robert W., New Brunswick, N. J. Preparing and inclosing surgical ligatures	693,138	Feb. 11	1716	375	98	1177
Johnson, Russell C., Cincinnati, Ohio. Tucking-guide for sewing-machines	690,735	Jan. 7	726	160	98	158
Johnson, Samuel H., Stratford, England. Electric-arc lamp	691,549	Jan. 21	2224	500, 501	98	498
Johnson, Thomas C., assignor to Winchester Repeating Arms Co., New Haven, Conn. Take-down screw	694,156	Feb. 25	3702	817	98	1681
Johnson, Thomas C., assignor to Winchester Repeating Arms Co., New Haven, Conn. Automatic firearm	694,157	Feb. 25	3705	818	98	1682
Johnson, William T., Brooklyn, N. Y. Bicycle propulsion	691,906	Jan. 28	2914	657	98	658
Johnson, William W. (See Katzenberger, Oscar, assignor.)						
Johnson, Woolsey M., Cambridge, Mass., assignor of one-fourth to C. F. Johnson, Hartford, Conn. Voltaic cell	698,274	Feb. 11	1999	435	98	1225
Johnston, Allen, Ottumwa, Iowa. Machine for cutting irregular surfaces	694,386	Mar. 4	99	22	98	1734
Johnston, Allen, Ottumwa, Iowa. Cutlery-grinding machine	694,387	Mar. 4	101	22, 23	98	1734
Johnston, Allen, Ottumwa, Iowa. Sash-pulley	694,488	Mar. 4	207	60	98	1769
Johnston, Edward A., assignor to McCormick Harvesting Machine Company, Chicago, Ill. Self-binder	690,964	Jan. 14	1125	255	98	251
Johnston, Edward E., Cripplecreek, Colo. Crate or box	696,243	Mar. 25	3509	806	98	2509
Johnston, John. (See Potter and Johnston.)						
Johnston, John R. (See Anderson and Hollingsworth, assignors.)						
Johnston, Joseph B. (See Eddy and Johnston.)						
Johnston, Moses F., assignor of one-half to R. E. Giesler, Dunbar, Wis. Sawmill set-works	698,297	Feb. 4	139	33	98	887
Johnston, Oman E., Kansas City, Mo. Harrow-disk journal	698,867	Feb. 25	3135	694	98	1503
Johnstone, George D., Denver, Colo. Tramway for hoisting and dumping apparatus	694,551	Mar. 4	433	91	98	1803
Jolley, Edgar O., Almena, Kans. Tool	698,868	Feb. 25	3136	694	98	1503
Jolliffe, Morgan, assignor of one-half to T. B. Brown, New Salem, Pa. Curtain-fixture	690,437	Jan. 7	97	21	98	23
Jones, Albert E. (See Robbins, Bye, and Jones.)						
Jones, Albert F., Salem, assignor, by mesne assignments, to Vaughn Machine Company, Boston, Mass. Leather-working machine	695,799	Mar. 18	2296	588	98	2229
Jones, Amos S., Clifton, Kans. Drilling-machine	690,965	Jan. 14	1128	255, 256	98	251
Jones, Benjamin N., East Orange, N. J. Automatic control system for elevators	694,158	Feb. 25	3706	816	98	1682
Jones, Charles H., *et al.* (See Thurmond, William, assignor.)						
Jones, Charles H., Tempe, Ariz. Ter. Water-bandage	691,270	Jan. 14	1678	358	98	365
Jones, David J., Olathe, Kans. Attachment for vehicle-shafts	691,774	Jan. 28	2679	600	98	611
Jones, Erasmus, *et al.* (See Cruise, Daniel, assignor.)						
Jones, Frank, and C. L. Pennell, Massillon, Ohio. Composition of matter	695,780	Mar. 18	2309	.....	98	2229
Jones, Frank H., assignor of two-thirds to E. K. Proctor and W. J. Farrar, Minneapolis, Minn. Grain-door for freight-cars	698,592	Feb. 4	544	128	98	909
Jones, Frederick W., Barwick, near Ware, England. Treating gunpowder	698,142	Jan. 28	3346	.....	98	744
Jones, Frederick W., Barwick, near Ware, England. Gunpowder	698,143	Jan. 28	3346	758	98	745
Jones, Frederick W., Barwick, near Ware, England. Gunpowder	698,547	Feb. 18	2522	555	98	1364
Jones, Frederick W., Barwick, near Ware, England. Treating gunpowder	698,548	Feb. 18	2522	.....	98	1364
Jones, Goodhue. (See Copeland, Jones, and Ballard.)						
Jones, Isaac V., Kolls, Tex. Baling-press	691,257	Jan. 21	1958	426	98	441

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Jones, Isabella H., Salisbury, Md. Baking-pan	692,448	Feb. 4	899	96	98	881
Jones, James, *et al.* (See Sorensen, Peter, assignor.)						
Jones, James and James, Jr., Brooklyn, N. Y. Electric switch	693,275	Feb. 11	2000	435	98	1235
Jones, James T. (See Spike and Jones.)						
Jones, John A., *et al.* (See Cruise, Daniel, assignor.)						
Jones, Lewis, Jr., Philadelphia, Pa. Gearing	691,694	Jan. 21	2395	538	98	533
Jones, Parks D., Loveland, Iowa. Pitman	691,059	Jan. 14	1809	296	98	288
Jones, Parks D., Loveland, Iowa. Weather-strip	692,014	Jan. 28	3107	698	98	695
Jones, Thomas D., Syracuse, N. Y. Spike-tooth harrow	691,388	Jan. 21	1956	439	98	442
Jones, Walter J. H., assignor to M. Rolle, Philadelphia, Pa. Electric fan	696,058	Mar. 25	3201	723	98	2428
Jones, Walter S. (See Shuttleworth, Charles H., assignor.)						
Jones, Wilfrid P., *et al.* (See Doering, August, assignor.)						
Jones, William C., Blackrun, Ohio. Wire-grip	690,436	Jan. 7	99	21, 22	98	24
Jones, William T., New Westminster, Canada. Float-stringer	692,671	Feb. 4	811	188	98	965
Jones, Willis S., assignor to D. S. Wegg, Chicago, Ill. Clamp for rail-joints	690,966	Jan. 14	1131	256	98	252
Jones, Willis S., assignor to D. S. Wegg, Chicago, Ill. Railway-tie plate	691,317	Jan. 14	1790	407	98	868
Joost, Rudolph, and B. T. George, Gates, Oreg. Insect-destroying apparatus	692,672	Feb. 4	812	184	98	966
Jordan, Frank W., Norwood, Mass. Circuit-maker for electric fire-alarms	695,398	Mar. 11	1998	447	98	2149
Jordan, Harry W., Syracuse, N. Y., assignor to Pittsburgh Reduction Company, Pittsburg, Pa. Making aluminium hydrate	691,470	Jan. 21	2096	.....	98	471
Jordan, John F. (See Jordan, William H. and J. F.)						
Jordan, Mary J. (See Duer, Lenna G., assignor.)						
Jordan, William H. and J. F., Brooklyn, N. Y. Ventilating apparatus	694,648	Mar. 4	598	131	98	1838
Joseph, John P. M., New York, N. Y. Pruner	692,678	Feb. 4	813	184	98	966
Joseph, Sheldon, Wheeling, W. Va. Cluster incandescent gas-lamp	692,449	Feb. 4	400	96	98	881
Jost, John F. W., Philadelphia, Pa., assignor to Welsbach Light Company, Gloucester City, N. J. Mantle-support	696,178	Mar. 25	3481	779	98	2486
Joy, William, *et al.* (See Hills, Howard L., assignor.)						
Joyce, George F., Brookline, Mass. Safety attachment for elevators	693,027	Feb. 11	1481	324	98	1131
Joyce, James C., Florida, N. Y. Holdback	692,674	Feb. 4	815	184	98	966
Joyce, Thomas G., Scranton, Pa. Fire-escape	691,775	Jan. 28	2680	600, 601	98	611
Joyner, Milton, and J. D. Springer, Clarksburg, Tenn. Cotton-planting attachment for corn-planters	694,285	Feb. 25	3044	878, 879	98	1670
Judd, Edward A., assignor to Corbin Cabinet Lock Company, New Britain, Conn. Keyless lock	693,028	Feb. 11	1483	324	98	1131
Judevine, Henry W., Edgar Springs, Mo. Broom-head	690,796	Jan. 7	727	160	98	153
Judson L. Thomson Manufacturing Company. (See Bartel, William P., assignor.)						
Judson, Whitcomb L., Chicago, Ill. Power-transmission device	690,585	Jan. 7	416	86, 87, 88	98	91
Judson, Whitcomb L., Chicago, Ill. Variable-speed power-transmission mechanism	690,586	Jan. 7	418	88, 89	98	91
Judson, Whitcomb L., Chicago, Ill. Explosive-engine	695,731	Mar. 18	2600	588, 589, 590	98	2299
Juge, Paul M. J., and A. E. Grisel, Paris, France; said Juge assignor to J. P. Perach, New York, N. Y. Incandescent lamp	696,100	Mar. 25	3308	745	98	2452
Julig, Leopold, San Francisco, Cal. Projectile and fuse	693,718	Feb. 18	2849	628	98	1430
Julius, Paul, and A. Tkatsch, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Diazo dye and making same	692,675	Feb. 4	816	.....	98	907
Julius, Paul, and F. Günther, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Disazo wool-dye and making same	692,676	Feb. 4	817	.....	98	967
Julius, Paul, and F. Günther, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Red azo dye	695,811	Mar. 18	2749	.....	98	2221
Julius, Paul, Ludwigshafen, and F. M. Jahrmarkt, Mannheim, assignors to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Chloranisidin	695,812	Mar. 18	2750	.....	98	2221
Jungner, Ernst W., Stockholm, Sweden. Positive electrode for accumulators with constant electrolyte	692,296	Feb. 4	141	.....	98	827
Junkers, Hugo, Aix-la-Chapelle, Germany. Gas-engine	694,558	Mar. 4	426	92	98	1809
Junkins, Leander D., Somerville, Mass. Skid	692,299	Feb. 4	142	84	98	828
Just, John A., Syracuse, assignor of one-half to D. H. Burrell & Company, Littlefalls, N. Y. Adhesive casein and making same	692,450	Feb. 4	401	.....	98	881
Just, John A., Syracuse, assignor of one-half to D. H. Burrell & Company, Littlefalls, N. Y. Baking-powder	692,451	Feb. 4	402	.....	98	881
Just, John A., Syracuse, assignor of one-half to D. H. Burrell & Company, Littlefalls, N. Y. Baking-powder	692,453	Feb. 4	404	.....	98	881
Just, John A., Syracuse, assignor of one-half to D. H. Burrell & Company, Littlefalls, N. Y. Making casein phosphate	692,454	Feb. 4	405	.....	98	881
Justi, Henry M., assignor to H. D. Justi & Son, Philadelphia, Pa. Mount for diatoric teeth	691,550	Jan. 21	2298	501	98	499
Justi & Son, H. D. (See Justi, Henry M., assignor.)						
Kachold, Charles, Portland, Oreg. Tree stand or support	694,865	Mar. 4	1015	228	98	1927
Kade, Charles F., assignor to I. F. Kade, Sheboygan, Wis. Shelf-bracket	692,858	Feb. 11	1155	263	98	1056
Kade, Isabella F. (See Kade, Charles F., assignor.)						
Kaeser, Fritz, Highland, Ill. Can-polishing machine	693,029	Feb. 11	1484	324, 325	98	1131
Kahn, Julius, *et al.* (See Lotz, Augustus, assignor.)						
Kaiser, Peter. (See Nierhaus and Kaiser.)						
Kalamazoo Spring & Axle Company. (See Good, Edgar, assignor.)						
Kalinowski, Hermann von, Posen, Germany. Nailing device	694,649	Mar. 4	595	131	98	1838
Kalkhoff, Gustav F. (See Droitcour and Kalkhoff.)						
Kalkow, Fritz. (See Abel and Kalkow.)						
Kall, Nicolaus, Denver, Colo. Saw-sharpener	692,901	Jan. 28	3444	779, 780	98	765
Kalle and Company. (See Bonati, Anton, assignor.)						
Kalle & Company. (See Fuchs, Gotthold, assignor.)						
Kammerer, Frank G., Chicago, Ill. Water supply and cooling apparatus	692,583	Feb. 4	546	128	98	909
Kammerer, Otto, Charlottenburg, Germany. Electrical press	696,053	Mar. 25	3303	734	98	2429
Kampfe, Frederick, R., and O., Brooklyn, N. Y. Safety-razor	694,650	Mar. 4	597	131	98	1839
Kampfe, Otto. (See Kampfe, Frederick, R., and O.)						
Kampfe, Richard. (See Kampfe, Frederick, R., and O.)						
Kanaly, Morris E., Somerville, Mass., assignor to M. E. Kanaly Co., Portland, Me., and Cambridge, Mass. Door-hanger	695,057	Mar. 11	1395	304	98	2023
Kane, Maurice, Austin, Ill. Grain-binding machine	690,499	Jan. 7	100	22	98	34
Kane, Michael J., St. Paul, Minn. Folding paper box	692,301	Feb. 4	145	34	98	825

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Karnaghan, John D., Marshalltown, Iowa. Sheet-metal radiator	692,300	Feb. 4	144	84	98	888
Karpen and Bros., S. (See Streich and Ruehs, assignors.)						
Karpen, Solomon, assignor to A. Freschl, Chicago, Ill. Tufting apparatus	691,271	Jan. 14	1080	362	98	366
Karpenstein, Henry C., Brooklyn, N. Y. Combined face-steamer and inhaler	696,342	Mar. 25	3811	850	98	2554
Kaschewitz, Friedrich, and P. Barthel, Gotha, Germany. Fire-escape	694,956	Mar. 4	1016	294	98	1927
Kasmeier, John, Florence, Ala. Delinting-machine	691,272	Jan. 14	1082	382, 383	98	366
Kasnicka, Joseph F., Chicago, Ill. Fountain-crayon	692,524	Feb. 4	548	128	98	910
Kastler, Adam P., *et al.* (See Wilcox, Elmer A., assignor.)						
Kastner, Emil, Berlin, Germany. Electric heating device	694,018	Feb. 25	3451	762	98	1570
Katzenberger, Oscar, assignor of one-half to W. W. Johnson, San Antonio, Tex. Lock	693,719	Feb. 18	2850	628	98	1431
Kaucher, Robert, Rochester, N. Y. Bicycle attachment	694,388	Mar. 4	108	24	98	1734
Kauffman Typewriter Company. (See Kauffman, William J., assignor.)						
Kauffman, William J., Canton, Ohio, assignor to Kauffman Typewriter Company. Type-writing machine	691,776	Jan. 28	2683	601, 602	98	611
Kauffman, William J., Canton, Ohio, assignor to Kauffman Typewriter Company. Type-writing machine	691,777	Jan. 28	2687	602, 603	98	612
Kauffman, William J., Canton, Ohio, assignor to Kauffman Typewriter Company. Ribbon-feed mechanism for type-writers	691,778	Jan. 28	2689	603, 604	98	613
Kaufman, D. L. (See Lesh, Daniel, assignor.)						
Kaufman, Samuel, *et al.* (See Dela Mar, Joseph, assignor.)						
Kearns, Thomas E., New Kensington, Pa., assignor of one-half to H. M. Gabel, Cincinnati, Ohio. White-lead drier	693,869	Feb. 25	3137	694	98	1506
Keating, Robert M., Springfield, Mass., assignor to R. M. Keating Motor Company, Portland, Me. Back-pedaling brake	691,147	Jan. 14	1449	330	98	317
Keating, Robert M., Middletown, Conn., assignor to R. M. Keating Motor Company, Portland, Me. Bicycle-motor	695,502	Mar. 18	2306	521, 522	98	2231
Keck, Albert J., St. Paul, Minn. Mechanical toy	695,058	Mar. 11	1857	304, 305	98	2022
Keeler, Burrell A., and R. D. Fildes, Chicago, Ill. Steam-boiler	691,907	Jan. 28	2915	657	98	658
Keeney, John W., Coalburg, W. Va. Pneumatic switch and signal	692,015	Jan. 28	3108	698	98	696
Keeran, Manaleus G., Bloomington, Ill. Composite car-wheel	690,967	Jan. 14	1134	257	98	253
Keffer, Simon B., Des Moines, Iowa. Vapor-burning stove	693,403	Feb. 18	2250	499	98	1308
Keiser, Kathryn M., Walshville, Ill. Apparatus for preserving fruits or vegetables	695,782	Mar. 18	2604	591	98	2290
Keith, Alexander E. (See Snell, Oscar, assignor.)						
Keith, Daniel W., Keithville, La. Laundry-machine	693,080	Feb. 11	1487	335	98	1138
Kelch, Wallace M., assignor to W. I. Ohmer, Dayton, Ohio. Fare register and recorder	694,483	Mar. 4	268	60, 61	98	1769
Keller, Charles F., Chicago, Ill. Keyless lock	691,273	Jan. 14	1684	383	98	366
Keller, Charles F., Chicago, Ill., assignor to J. W. Sefton Manufacturing Company, Chicago, Ill., and Anderson, Ind. Folding box	695,211	Mar. 11	1676	372	98	2082
Keller, Edward, Baltimore, Md. Making alloys	696,244	Mar. 25	3600	.....	98	2509
Keller, Hugo, and F. J. Gallagher, Frankford, Pa. Umbrella	695,783	Mar. 18	2605	591	98	2290
Keller, John, and R. Titsworth, Fort Bliss, Tex. Aparejo	692,859	Feb. 11	1126	254	98	1056
Keller, John A., Hamilton, Ohio. Safety packing-box	693,652	Feb. 18	2730	602	98	1407
Keller, John A., Hamilton, Ohio. Equable safety packing-box	695,668	Mar. 18	2620	578	98	2275
Keller, Julius. (See Kline and Keller.)						
Kellers, Frederick, Jersey City, N. J. Bung	693,608	Feb. 18	2652	555	98	1390
Kelley, Michael F., Brockton, Mass. Lasting-machine	693,720	Feb. 18	2662	628, 629	98	1431
Kelley, Richard J., assignor of one-half to F. M. Grimes, Syracuse, N. Y. Tucker for sewing-machines	695,735	Mar. 18	2608	591	98	2291
Kellner, Otto. (See Adams and Kellner.)						
Kellogg, Henry W. (See Worth and Donaldson, assignors.)						
Kellogg, Henry W., *et al.* (See Worth, William O., assignor.)						
Kellogg, James L., New York, N. Y. Advertising novelty	695,059	Mar. 11	1889	305	98	2023
Kellogg, John J., Media, Pa. Portable washbasin	693,549	Feb. 18	2525	556	98	1365
Kelly, George, Mineralpoint, Wis. Composite material	696,343	Mar. 25	3812	850	98	2555
Kelly, George A., assignor to George A. Kelly Plow Company, Longview, Tex. Plow	694,553	Mar. 4	427	92	98	1808
Kelly, George A., assignor to George A. Kelly Plow Company, Longview, Tex. Plow	694,931	Mar. 4	1141	250	98	1954
Kelly, James M., Houghton, Mich. Miter-box	692,302	Feb. 4	147	34	98	886
Kelly, John D. (See Kelly, William D. and J. D.)						
Kelly, John E., *et al.* (See Bonhorst, Harry L. von, assignor.)						
Kelly, Lewis C., and C. E. Amspacher, Charlotte, Mich. Fence-jack	695,784	Mar. 18	2606	591	98	2291
Kelly, Reuben J., *et al.* (See Borchert, William, assignor.)						
Kelly, William D. and J. D., Chicago, Ill. Card-index file	692,595	Feb. 4	549	129	98	910
Kelsey, Wallace D., Minneapolis, Minn. Marsh-shoe	694,019	Feb. 25	3452	762	98	1570
Kemble, Elbridge G. (See Fratz, Philip H., assignor.)	694,969	Mar. 11	1226	268	98	1999
Kemp, Arthur A., Loretta, Okla. Ter. Finger-guard for revolvers						
Kemp, Christian C. (See Burger and Kemp.)						
Kemp, Clarence M., Baltimore, Md. Carbureter	692,860	Feb. 11	1137	254	98	1059
Kemp, John A., Farmington Hill, Pa. Sash-fastener	690,440	Jan. 7	104	22	98	24
Kemp, Joseph S., Newark Valley, N. Y. Fertilizer-distributer	695,212	Mar. 11	1673	372, 373	98	2083
Kemper, Richard. (See Hülzer and Kemper.)						
Kempshall, Eleazar, Boston, Mass. Manufacture of golf-balls	695,818	Mar. 18	2751	627	98	2321
Kempshall, Eleazar, Boston, Mass. Golf-ball	695,866	Mar. 18	2845	646	98	2341
Kempshall, Eleazar, Boston, Mass. Manufacture of playing-balls	695,867	Mar. 18	2847	646	98	2342
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	696,365	Mar. 25	3876	861	98	2565
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	696,366	Mar. 25	3878	861	98	2565
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	696,367	Mar. 25	3880	862	98	2566
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Manufacture of golf-balls	696,368	Mar. 25	3882	862	98	2566
Kempshall, Eleazer, Boston, Mass., assignor to Kempshall Manufacturing Company. Golf-ball	696,369	Mar. 25	3884	862	98	2566
Kempshall Manufacturing Company. (See Kempshall, Eleazer, assignor.)						
Kempshall Manufacturing Company. (See Richards, Francis H., assignor.)						
Kendall, George S., Indianapolis, Ind. Railway-track	694,484	Mar. 4	271	51	98	1770
Kendall, Julia E., Boston, Mass. Wrinkle-removing device	692,908	Feb. 4	148	35	98	889
Kendell, Thomas B., London, England. Machine for gumming and folding envelops	696,016	Jan. 28	3111	690	98	690
Kendrick and Davis. (See Jenkins, Charles H., assignor.)						
Kendrick, Hiland H., Fulton, N. Y. Slop-drain hopper	693,972	Feb. 25	3846	736	98	1549
Kendrick, Hiland H., Fulton, N. Y. Sash-lock	695,736	Mar. 18	2610	592	98	2291
Kendrick, William A., assignor of one-half to C. Madeira, Yalesville, Conn. Egg-opener	691,389	Jan. 21	1957	429	98	449

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Kenison, John B., M. F. Burk, and J. A. Perkins, Lynn, Mass. Chimney	696,304	Feb. 4	140	85	98	889
Kenna, Michael P., Dubuque, Iowa. Addressing-machine	696,084	Mar. 25	3305	784	98	2429
Kennedy, Arthur P. (See Norton and Kennedy.)						
Kennedy, Charles W. (See Pocock and Kennedy.)						
Kennedy, Edgar S., Washington, D. C. Compo cap for mantel-columns	691,625	Jan. 21	2298	589	98	534
Kennedy, Edgar S., Washington, D. C. Mold for compo caps for mantel-columns	691,626	Jan. 21	2300	589	98	534
Kennedy, Edgar S., Washington, D. C. Forming compo caps for columns	691,704	Jan. 21	2519	584	98	560
Kennedy, Forrest G., Philadelphia, Pa. Rotary steam-engine	696,945	Mar. 25	3001	806	98	2609
Kennedy, Joseph W., Duquesne, Pa. Rail-joint	694,754	Mar. 4	800	177	98	1981
Kennedy, Julian, Pittsburg, Pa. Shaft-coupling	691,974	Jan. 14	1697	394	98	867
Kennedy, Julian, Pittsburg, Pa. Rolling-mill	698,081	Feb. 11	1489	385	98	1128
Kennedy, Walter, Allegheny, Pa. Plant for coke-making	691,148	Jan. 14	1451	330 331	98	817
Kennedy, Walter J. (See Grill, Enoch, assignor.)						
Kenney, James, Holyoke, Mass. Tap for ale-casks	694,286	Feb. 25	3045	879	98	1670
Kenney, Thomas F., assignor of one-half to H. C. Scharpf and F. G. Roth, La Crosse, Wis. Horseshoe	691,390	Jan. 21	1958	489	98	442
Kenny, Hugh E., assignor to Chamberlain Metal Weather Strip Company, Detroit, Mich. Weather-strip and guide for windows	694,068	Feb. 25	3338	780	98	1598
Kent, Henry B., assignor to Consolidated Fruit Jar Company, New Brunswick, N. J. Top for tooth-powder bottles	690,787	Jan. 7	799	161	98	154
Kent, Walter G., London, England. Liquid-meter	698,082	Feb. 11	1490	396	98	1185
Kent, William, Covington, Ky. Reverberatory puddling or boiling furnace	694,970	Mar. 11	1229	268	98	1969
Kent, William J., Brooklyn, N. Y., assignor to Revere Rubber Company, Boston, Mass. Hoof-pad	698,305	Feb. 4	150	35 36	98	889
Kenvin, Thomas H., Homestead, Pa. Window shade and curtain bracket	698,144	Jan. 28	3549	758	98	745
Kepler, Francis M., Hanna City, Ill. Screen	698,455	Feb. 4	406	97	98	892
Keromoter Development Company. (See Page and Wood, assignors.)						
Kerr, Abnus B., *et al.* (See Culpepper, Robert S., assignor.)						
Kerr, John F. (See Dean, John, assignor.)						
Kerr, William J., Ozark, Mo. Grain-separator	698,145	Jan. 28	3551	758 759	98	745
Kersey William H., assignor to Clark & Roberts, Indianapolis, Ind. Tray-support for physicians' tables	698,861	Feb. 11	1144	355	98	1059
Kerstetter, James L., assignor of one-half to F. W. Winger and F. W. Wagner, Bradford, Pa. Inkstand	691,781	Jan. 21	2545	570	98	565
Kertesz, Adolf, assignor to L. Cassella & Co., Frankfort-on-the-Main, Germany. Dyeing sulfur colors	698,668	Feb. 18	2731	.....	98	1407
Kessel, Henry A., *et al.* (See La Burt, John, assignor.)						
Kessler, John H., Syracuse, N. Y. Thill-support	690,557	Jan. 7	421	90	98	92
Kestler, Fred. (See Roberts and Kestler.)						
Ketchum, Edgar V. R., New York, N. Y. Electrically-operated switch	696,568	Mar. 18	2908	592	98	2281
Kettler, Louis C. (See Cochrane, William B., assignor.)						
Keyes, Frank E., Holyoke, Mass. Hydraulic press	690,998	Jan. 14	1135	257	98	858
Keyes, Frank E., Holyoke, Mass. Machine for the manufacture of sheets, boards, or tubes from pulp	698,868	Feb. 11	1145	255 256	98	1059
Keyes, Washington D., Kittanning, Pa. Apparatus for delivering glass	696,156	Mar. 11	1577	350	98	2068
Keyser, George, Philadelphia, Pa. Machine for sewing looped fabrics	698,017	Jan. 28	3114	700	98	997
Keyser, Lester C. (See Pearce, James W., assignor.)						
Keystone Seal & Press Company. (See Krah, Alexis, assignor.)						
Keystone Seal & Press Company. (See Schofield, Albert B., assignor.)						
Khan, Syed A. M., London, England. Cane	690,655	Jan. 7	554	190	98	119
Khebl, Josef. (See Korejs and Khebl.)						
Khotinsky, Achilles de, Chicago, Ill., assignor to Copenhagen Automatic Fire Alarm Company, Sheboygan, Wis. Circuit-tester	696,144	Mar. 25	3490	766	98	2475
Kiene, Ernest, Spokane, Wash. Necktie-fastener	698,146	Jan. 28	3362	759	98	745
Kierolf, Salem E., Jackson, Tenn. Pea-harvester	692,456	Feb. 4	407	97 98	98	892
Kilbourn, Washington H., Greenfield, Mass. Trolley-pole-controlling device for cars or vehicles	691,275	Jan. 14	1698	384	98	357
Killion, John H., Chicago, Ill. Ornamental stock for framing or other purposes	694,755	Mar. 4	801	178	98	1981
Kilmer, William A., Bangor, Mich., assignor to W. A. Scott, Chicago, Ill. Bale-tie	695,213	Mar. 11	1698	373	98	2084
Kilmer, William A., Bangor, Mich., assignor to W. A. Scott, Chicago, Ill. Bale-tie	695,214	Mar. 11	1698	373	98	2084
Kimball, Charles F., Chicago, Ill. Folding vehicle-seat	696,654	Feb. 18	2732	606	98	1407
Kimball, Edward H., Glencoe, Ill. Cutting-machine	698,404	Feb. 18	2952	496	98	1909
Kimball, Edward J. (See White, Clarence O., assignor.)						
Kimball, Perley L., assignor to Vermont Farm Machine Company, Bellows Falls, Vt. Cover for separator-bowls	698,586	Feb. 4	551	129	98	910
Kimbrell, Geary, Pendleton, Oreg. Entasisograph	692,147	Jan. 28	3353	759	98	745
Kimmons, R. F. (See Moore and Tatum, assignors.)						
Kimsey, James C., Philadelphia, Pa. Dust-chute for buildings	691,149	Jan. 14	1453	331	98	318
Kincaid, John W., Covington, Ky. Mechanical stoker	691,391	Jan. 21	1959	439 440	98	443
Kincaid, Michael A. D., Dallas, Tex. Spring-hinge	691,551	Jan. 21	2299	501	98	499
King, Adam, assignor of one-third to J. Hasenzahl, Columbus, Ohio. Trunk	695,611	Mar. 18	2408	544	98	2251
King, Charles W. G. (See Longstreth and King.)						
King, Galusha A., assignor to C. W. Davis, Lincsville, Pa. Transfer and hinge for evaporating-pans	694,374	Mar. 4	1087	229 230	98	1981
King, George I., Detroit, Mich., assignor to American Car and Foundry Company, St. Louis, Mo. Low-side gondola car	691,637	Jan. 21	2400	539 540	98	534
King, George I., Detroit, Mich., assignor to American Car & Foundry Company, St. Louis, Mo. Dumping-car	692,457	Feb. 4	410	98	98	892
King, Harvey F. (See Mayes, King, and Mayes.)						
King, Lemuel E. (See Stoner, William H., assignor.)						
King, Robert B., Bristol, Pa. Closure for metallic vessels	690,441	Jan. 7	105	28	98	25
King, Thomas A., Sioux City, Iowa. Book-file	695,814	Mar. 18	2754	597	98	2021
King, Thomas S. (See Jarvis, Wadkin, and King.)						
Kingman, Edward B., Leominster, Mass. Comb	691,946	Jan. 28	3990	678	98	673
Kingman Plow Company. (See Evans, George E., assignor.)						
Kinney, Frank W., and R. B. Price, assignors to Calumet Tire Rubber Company, Chicago, Ill. Apparatus for bringing th ends of rubber tires together	698,587	Feb. 4	552	129	98	910
Kinsey, Isaac P., Chicago, Ill. Apparatus for purifying water	695,399	Mar. 11	1999	447	98	2149
Kintner, Charles J. (See Lundell, Robert, assignor.)						
Kintner, Charles J., New York, N. Y. Carrier or holder for phonograph or graphophone record-cylinders	691,779	Jan. 28	3990	604	98	613
Kintner, Charles J., New York, N. Y. Electrical switch	691,780	Jan. 28	3991	604	98	614

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Kintner, Charles J., New York, N. Y. Mechanism for automatically operating railway-switches	691,781	Jan. 28	2694	605, 606	98	614
Kip, Frederic E. (See Baker and Kip.)						
Kipp, Albert, Sidney, N. Y. Device for mounting draw-bars	691,947	Jan. 28	2991	672	98	674
Kirby, George, Kirkdale, Liverpool, England. Railway-vehicle life-guard	690,738	Jan. 7	781	161	98	154
Kirk, Frank. (See Welton, William H. H., assignor.)						
Kirkpatrick, Nathaniel W., and M. Henry, Dayton, Ohio. Machine for making cotter-pins	692,528	Feb. 4	554	130, 131	98	911
Kirkpatrick-Picard, Hugh F., London, England. Recovering zinc from sulfid ores	692,148	Jan. 28	3365	.....	98	746
Kirkpatrick, Robert S., assignor to H. S. Butler, Des Moines, Iowa. Check-row attachment for corn-planters	693,721	Feb. 18	2854	629	98	1432
Kirkwood, Joel, Maury, assignor of one-half to O. Stevens, New Salem, Ind. Rotary pump or force-blast blower	693,609	Feb. 18	2853	585	98	1390
Kirman, Richard, *et al.* (See Borchert, William, assignor.)						
Kirsch, Charles W., assignor to Elevator Safety Company, Milwaukee, Wis. Means for operating elevator-doors	692,306	Feb. 4	153	36	98	820
Kiser, Alvie V., West Liberty, Ohio. Corn-harvester	691,782	Jan. 28	2698	606, 607	98	615
Kistler, Elmer E., Philadelphia, Pa. Ear-protector	694,159	Feb. 25	3710	819	98	1623
Kistler, Samuel L., Los Angeles, Cal. Rectal instrument	694,971	Mar. 11	1229	268	98	1990
Kitchen, John G. A., Windermere, England. Steam-engine	692,307	Feb. 4	156	36, 37	98	828
Kitchen, Tracy S., Willard, Ky. Churn	695,986	Mar. 25	2962	674	98	2283
Kitsee, Isidor, Philadelphia, Pa. Telephony	691,060	Jan. 14	1310	277	98	288
Kittredge, Anson O., Tenafly, N. J., assignor to Account, Audit and Assurance Company, Limited, New York, N. Y. Post-binder and transfer-cover for contents	693,139	Feb. 11	1717	376	98	1178
Kjellman, Rudolf H., and G. L. Andersson, assignors to Aktiebolaget Automatqevar, Stockholm, Sweden. Automatic firearm	690,739	Jan. 7	782	161, 162	98	154
Kladivo, J. F. (See Kostlau, Frank, assignor.)						
Klaiber, George, Los Angeles, Cal. Bronzing-machine	695,157	Mar. 11	1578	350	98	2083
Klavinsky, Simon, Baltimore, Md. Overalls	693,276	Feb. 11	2008	495	98	1336
Klein, Adolf, New York, N. Y. Automatic reversing tapping attachment for lathes	693,655	Feb. 18	2733	603	98	1408
Klein, John S., Oil City, Pa. Converter	695,787	Mar. 18	2611	502	98	2292
Klein, Rudolph, assignor to Bausch & Lomb Optical Company, Rochester, N. Y. Photographic shutter	695,564	Mar. 18	2311	323	98	2228
Kleinschmidt, Anthony F., Indianapolis, Ind. Gong	692,149	Jan. 28	3356	760	98	746
Klemm, Adam. (See Liethegener and Klemm.)						
Klemm, Hermann A., New York, N. Y. Work-gage for sewing-machines	692,150	Jan. 28	3368	760	98	746
Klemm, Hermann A., New York, N. Y. Feed mechanism for sewing-machines	693,656	Feb. 18	2735	603	98	1408
Klemm, Hermann A., New York, N. Y. Adjustable trimming attachment for sewing-machines	693,657	Feb. 18	2736	604	98	1408
Klic, Karl, Vienna, Austria-Hungary, and O. Poppe, Rixdorf, near Berlin, Germany. Manufacture of inlaid linoleum	692,677	Feb. 4	818	.....	98	967
Klick, Victor S., Columbus, Ohio. Railway cattle-guard	694,972	Mar. 11	1230	268	98	1990
Kline, Charles R., Beechwood, and J. Keller, Philadelphia, Pa. Pneumatic motor	692,202	Jan. 28	3449	780	98	766
Kline, Charles R., Beechwood, and J. Keller, Philadelphia, Pa.; said Keller assignor, by mesne assignments, to said Kline. Pneumatic barker	692,184	Jan. 28	3415	773	98	758
Kline, Charles R., Beechwood, and J. Keller, Philadelphia, Pa.; said Keller assignor, by mesne assignments, to said Kline. Reversing-valve	692,185	Jan. 28	3418	774	98	758
Kling, Peter M., Elizabeth, N. J. Car-truck	693,610	Feb. 18	2654	585, 586	98	1390
Kling, Peter M., assignor to John Stephenson Company, Elizabeth, N. J. Car	693,611	Feb. 18	2655	586	98	1391
Klinger, Cyrus H., and J. J. Reynolds, assignors to S. Prince, Philadelphia, Pa. Machine for pressing hats	694,756	Mar. 4	803	178, 179	98	1881
Klitsche, Amandus, Chicago, Ill., assignor to Eugene Dietzgen Company. Attachment for drafting-boards and T-squares	694,289	Mar. 4	104	94	98	1735
Knapp, George, Defiance, Ohio. Calipers	695,565	Mar. 18	2317	594	98	2284
Knapp, Theron L., Woodstock, assignor to Oliver Typewriter Company, Chicago, Ill. Type-writing machine	693,068	Feb. 11	1492	326, 327	98	1133
Knehans, Wilhelm, and F. Püschel, assignors to Bielefelder Maschinenfabrik, vormals Dürbopp & Co., Bielefeld, Germany. Cash-box	692,151	Jan. 28	3359	760, 761	98	746
Knietsch, Rudolf, assignor to Badische Anilin & Soda Fabrik, Ludwigshafen, Germany. Apparatus for making sulfuric anhydrid	692,018	Jan. 28	3116	701, 702, 703	98	697
Knight, Byron W., assignor to Knight & Cobb, McFall, Mo. Pinless clothes-line	693,308	Feb. 4	156	37	98	831
Knight & Cobb. (See Knight, Byron W., assignor.)						
Knight, Edward M., Brooklyn, N. Y. Filter	690,534	Jan. 7	907	61	98	67
Knight, Frank E., Grinnell, Iowa. Transformable trunk	693,973	Feb. 25	2548	736	98	1550
Knight, William E., Ostrander, Ohio. Mouth-mirror	693,140	Feb. 11	1720	376	98	1178
Knittel, David G. (See Bissell, Joseph E., assignor.)						
Knittle, George J., Wheeling, W. Va. Hanger for aerial cables	692,309	Feb. 4	558	131	98	912
Knoche, Gottfried, New York, N. Y. Fireproof floor	692,309	Feb. 4	159	37, 38	98	831
Knott, Clarence B., New York, N. Y. Dish-washing machine	695,400	Mar. 11	2000	447, 448	98	2150
Knox, Matthias F., Nashville, Tenn. Computing-poise for scales	693,523	Feb. 18	2475	544	98	1355
Knox, Samuel L. G., Schenectady, N. Y., assignor to General Electric Company. Current-limiting device	695,055	Mar. 25	2303	725	98	2499
Knox, William J., Edgewood Park, assignor to G. Westinghouse, Pittsburg, Pa. Treating copper ores	692,310	Feb. 4	160	38	98	831
Knüttel, Friedrich, Charlottenburg, near Berlin, Germany. Malt-drum	691,471	Jan. 21	2096	469	98	471
Koch, Jens P., Hamburg, Germany. Wind instrument	691,783	Jan. 28	2699	607	98	615
Koehler, Fred L., Chicago, Ill., assignor of one-half to T. J. Dunne, Marion, S. D. Plaiting apparatus for sewing-machines	696,101	Mar. 25	2809	745, 746, 747	98	2458
Koehler, Fred L., Chicago, Ill., assignor of one-third to T. J. Dunne, Marion, S. D. Spring-bearing for bicycles or other vehicles	696,102	Mar. 25	2810	747, 748	98	2458
Koelkebeck, Carl W. A., Pittsburg, Pa. Hot-blast stove	692,675	Feb. 4	819	184, 185	98	967
Koeller & Co., Firm of. (See Halbekann, Franz J., assignor.)						
Koeller, William F., and H. Dyer, Detroit, Mich. Lathe-tool	693,974	Feb. 25	2549	736	98	1550
Koetschet, Joseph, St. Fons, assignor to Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier, Lyons, France. Substituted sulfinid and making same	692,863	Feb. 11	1148	.....	98	1039

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Kohart, Frank C. (See Meyer, Svend M., assignor.)						
Kohl, Max. (See Suchorzynski and Kohl.)						
Kohler, George A., *et al.* (See Dela Mar, Joseph, assignor.)						
Kohler, Isaac, *et al.* (See Dela Mar, Joseph, assignor.)	691,865	Jan. 28	2944	640	98	644
Kolb, Peter, Fort Deposit, Ala. Machine for handling lint-cotton	691,051	Jan. 14	1815	997	98	289
Kollock, George L. and S. W. M., Seattle, Wash. Jack-screw						
Kollock, Samuel W. M. (See Kollock, George L. and S. W. M.)						
Kollrepp, Alexander. (See Wohl and Kollrepp.)						
Kolshorn, Charles, Savannah, Ga. Educational appliance	692,019	Jan. 28	3121	708	98	698
Koltonski, Stanislaus A., Boston, Mass. Electric-lamp socket	692,456	Feb. 4	413	98	98	869
Koonce, Samuel C., *et al.* (See Lindsay, Robert F., assignor.)						
Koons, Frank, Mooreland, Ind. Steering apparatus for traction-engines	695,401	Mar. 11	2003	449	98	2130
Koons, Henry. (See Sorg, Oscar E., assignor.)						
Koons, John H., Waynesboro, Pa. Lifting-jack	695,316	Mar. 11	1867	415	98	2120
Kops Brothers. (See Kops, Samuel, assignor.)						
Kops, Daniel, New York, N. Y. Corset	694,160	Feb. 25	3711	819	98	1023
Kops, Daniel, New York, N. Y. Corset	694,161	Feb. 25	3713	820	98	1024
Kops, Samuel, assignor to Kops Brothers, New York, N. Y. Corset-shaping machine	690,740	Jan. 7	784	168	98	154
Korejs, Vaclav, and J. Khebl, Alt-Buntzlau, Austria-Hungary. Seeding-machine	692,722	Feb. 18	3956	689 690	98	1489
Korn, George W., Little Valley, N. Y. Razor	693,584	Feb. 18	3480	544	98	1356
Korte, Herman, Freeport, Minn. Bob-sleigh	695,317	Mar. 11	1869	416	98	2121
Korth, Martin, Cologne, Germany. Machine for making rolls, cakes, or the like	690,741	Jan. 7	786	168 168	98	155
Koshalko, Charles, Johnstown, Pa. Automatic gas-valve	691,784	Jan. 28	3703	697	98	615
Kosters, Clements B., Buffalo, N. Y. Last	696,946	Mar. 25	3008	806	98	2510
Kostlau, Frank, assignor of one-half to J. F. Kladivo, Traer, Iowa. Corn-planter	695,612	Mar. 18	2404	544 545	98	2351
Köttgen, Carl, Charlottenburg, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. Elevator apparatus	691,376	Jan. 14	1689	884	98	287
Kovacs, Georg, Trenton, N. J. Snow-melter for railway-switches	690,742	Jan. 7	788	168	98	155
Kowanko, Alexandre de. (See Bourhanovsky and Kowanko.)						
Kraemer, William, Chicago, Ill. Stamping-machine	692,580	Feb. 4	550	131 132	98	912
Krah, Alexis, New Haven, Conn., assignor to Keystone Seal & Press Company, New York, N. Y. Seal-press	693,612	Feb. 18	3656	586	98	1391
Krantz, Hubert, Brooklyn, N. Y. Electrical switch mechanism	693,550	Feb. 18	3636	556	98	1365
Krastin, August, Cleveland, Ohio. Vaporizer for hydrocarbon-engines	695,060	Mar. 11	1991	505	98	2023
Krause, Herman, *et al.* (See Neubauer, Carl E., assignor.)						
Krause, Rudolph. (See Milam, Young M., assignor.)						
Krauss, Charles H., Johnstown, Pa., assignor to Lorain Steel Company. Railway-track structure	694,162	Feb. 25	3715	820	98	1024
Krauss, Emil, Hackensack, N. J., assignor to Eagle Pencil Company, New York, N. Y. Pen or pencil attachment for spacing lines in ruling plain paper	695,788	Mar. 18	2612	598	98	2292
Krebs, Arthur C., assignor to Ste. Ame. des Anciens Etablissement Panhard et Levassor, Paris, France. Electromagnetic regulator for admission-valves of hydrocarbon-motors	691,606	Jan. 21	2402	540	98	594
Krebs, Arthur C., assignor to Sté. Ame. des Anciens Etablissements Panhard et Levassor, Paris, France. Cone-clutch	693,551	Feb. 18	3627	556	98	1365
Krebs, Louis. (See Dominick and Krebs.)						
Kreider, David A., New Haven, Conn. Siphon	695,789	Mar. 18	2613	593	98	2293
Kremer, Franklin W. (See Wheeler and Kremer.)						
Kreps, Abraham, Freedom, Pa. Detachable-key rail-joint	692,152	Jan. 28	3360	761	98	747
Kressel, Edward C. L., assignor of two-thirds to T. Hill-Jones, London, England. Preparing alimentary extracts	694,108	Feb. 25	3602	.....	98	1601
	690,588	Jan. 7	422	90	98	93
Krex, Paul, South Bethlehem, Pa. Clothes-line reel	695,566	Mar. 18	2619	594 595	98	2234
Krey, William E., New York, N. Y., and A. Duppler, Jersey City, N. J., assignors to Automatic Twisting-In Machine Company. Warp-twisting machine	694,897	Mar. 4	1018	224	98	1098
Krick, William C., Brooklyn, N. Y. Stand	694,287	Feb. 25	3947	879	98	1671
Kries, Peter, Baltimore, Md. Gas-burner	690,442	Jan. 7	106	23	98	25
Kronheimer and Oldenbusch Company. (See Oldenbusch, Ernest, assignor.)						
Kronold, Adolph S., New York, N. Y. Skirt-binding or edge-protector and making same	694,390	Mar. 4	106	24	98	1735
Kronthal, Benjamin, Chicago, Ill. Belt						
Krotz, Alvaro S., Springfield, Ohio, assignor to Consolidated Rubber Tire Company, Jersey City, N. J. Rubber tire	692,056	Jan. 28	3198	727	98	713
Krotz, Alvaro S., Springfield, Ohio, assignor to Consolidated Rubber Tire Company, Jersey City, N. J. Rubber tire	692,811	Feb. 4	164	38	98	882
Krueger, John W. (See Raasch and Krueger.)						
Krupp, Fried. (See Becker, Julius, assignor.)						
Krupp, Fried. (See Behnke, Otto, assignor.)						
Krupp, Fried. (See Schoeller, Gustav A., assignor.)						
Kuen, Joseph, and H. F. Hodges, Philadelphia, Pa. Steam or water heating boiler	693,670	Feb. 25	3138	604 605	98	1508
Kuersten, Hugo R., Chicago, Ill., assignor, by mesne assignments, to Staples & Hanford Company, Newburgh, N. Y. Spring-wirework	694,391	Mar. 4	107	24	98	1735
Kuettner, Berthold, Woking, England. Plate for secondary batteries	690,569	Jan. 7	422	91	98	98
Kugler, Henry, Chicago, Ill. Draft attachment for vehicles	694,651	Mar. 4	599	132	98	1859
Kuhl, Burchard, Orlando, Fla. Ice-cream freezer	694,973	Mar. 11	1991	969	98	1990
Kuhn, Charles, Fruitvale, Cal. Door-mat	694,554	Mar. 4	486	98	98	1808
Kuhn, Edmond, East Orange, N. J., assignor to American Pedometer Company, New Haven, Conn. Pedometer	694,658	Mar. 4	601	128	98	1839
	695,567	Mar. 18	2605	595 596	98	2255
Kuhn, Rudolf, Bruck, Germany. Machine for stamping coal	690,443	Jan. 7	107	23, 24	98	25
Kull, Albert L., Camden, N. J. Speed-regulator for explosive-engines	694,288	Feb. 25	3949	879	98	1671
Kummer, Rudolph A., St. Louis, Mo. Gas-generator	690,590	Jan. 7	424	91	98	98
Kun, Josef, Pforzheim, Germany. Elastic chain bracelet						
Kune, Frederick G., *et al.* (See Chipman, William R., assignor.)	691,068	Jan. 14	1816	997	98	289
Kunst, Emma, Chicago, Ill. Dress-fitting stand	691,639	Jan. 21	2402	540	98	595
Kuntzen, Otto, Berlin, Germany. Fare-indicator						
Kürsteiner, Curtiss W., *et al.* (See Roake, John S., assignor.)						
Kurz, Charles H., Detroit, Mich. Caster-support for trunks	693,084	Feb. 11	1498	337	98	1184
Kussmink, Anna, Posen, Germany. Splinter-bar for vehicles	693,405	Feb. 18	3654	608	98	1309
Kydd, James, McPherson, Kans. Setting-tool	693,406	Feb. 18	3654	408	98	1309
L and L Pneumatic Tool Company. (See Leineweber, Herman, assignor.)						
L. S. Starrett Company. (See Starrett, Laroy S., assignor.)						
La Burt, John, assignor to H. A. Kessel and A. Olsen, Brooklyn, N. Y. Cut-off valve	690,743	Jan. 7	789	164	98	155
La Coursiere, Frank D., and J. B. Steffen, Buffalo, N. Y. Folding chair	694,163	Feb. 25	3716	820	98	1024

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La Dow, Charles, Albany, N. Y. Elastic joint	691,571	Jan. 21	2261	508, 509	98	506
La France, Alfred, assignor of one-half to S. E. Simonds, Marlboro, Mass. Double-acting band-brake	696,659	Feb. 18	2730	605	98	1409
La Grange, John V., Cairo, Ill. Inkstand	695,408	Mar. 11	2004	449	98	2151
La Roche, Fredrick A. (See Clay and La Roche.)						
La Roche, Fredrick A., New York, N. Y., assignor of one-half to C. D. Cooke, Paterson, N. J. Electrical measuring instrument	691,396	Jan. 21	1988	441	98	448
Labadie, William D., South Bend, Ind. Compound-feeder for steam-boilers	696,552	Feb. 18	2598	557	98	1366
Labadie, William D., South Bend, Ind., assignor of one-half to J. G. Duck, Milwaukee, Wis. Injector	696,553	Feb. 18	2600	557	98	1366
Labofish, Charles S., Washington, D. C. Reversing mechanism	696,407	Feb. 18	2356	494	98	1309
Labudde, Gustave A. F., Jr., Eureka Junction, Wash. Draft-equalizer	691,785	Jan. 28	2703	607	98	515
Lacroix, Louis, and H. Brisselet, Geneva, Switzerland. Keyhole-guard	695,318	Mar. 11	1870	410	98	2121
Lacsay, Georg, Uj-Kigyós, Austria-Hungary. Automatic coupling for railway-carriages	696,658	Feb. 18	2738	604	98	1408
Lafferty, Walter P., Philadelphia, Pa. Centrifugal machine	695,168	Mar. 11	1579	351	98	2063
Laflin & Rand Powder Company. (See Wilkins and Aspinwall, assignors.)						
Lagonda Manufacturing Company. (See Grove, Elmer E., assignor.)						
Laherty, Edward L., assignor of nine-twentieths to J. F. Condon, Verdi, Nev. Detachable handle for saws	694,555	Mar. 4	430	96	98	1808
Laib, Christian F., New London, Wis. Table	692,312	Feb. 4	165	88	98	832
Laird, David, Forfar, Scotland. Liquid-heating furnace	691,866	Jan. 28	2845	640, 641	98	544
Lake, Simon, Bridgeport, Conn. Submarine boat	695,315	Mar. 11	1684	374	98	2084
Lakeman, Cornelius B., Grass Valley, Cal. Hydraulic pump	695,815	Mar. 18	2755	628	98	2282
Lamb, John A., Grosvenor Dale, Conn., assignor to Draper Company, Hopedale, Mass. Warp-stop-motion apparatus	690,501	Jan. 7	425	91	98	93
Lambert, Edouard, Paris, France. Machine for printing in a plurality of colors	695,816	Mar. 18	2759	626, 629, 630	98	2282
Lambert, Frank, Brooklyn, N. Y. Keyboard for type-writers	692,277	Feb. 11	2004	436	98	1256
Lambert, Frank, Brooklyn, N. Y. Type-writer	692,278	Feb. 11	2005	436	98	1256
Lambert, John E., Detroit, Mich. Air-pump	695,613	Mar. 18	2406	545	98	2251
Lambert, Mary A. K. C., Chicago, Ill. Cooking utensil	692,318	Feb. 4	166	89	98	833
Lambert, Maurice, Toury, France. Dissolving low-grade sugar	692,080	Jan. 28	3124	703, 704	98	690
Lambert, Thomas B., Chicago, Ill. Apparatus for reproducing sounds	695,159	Mar. 11	1582	351	98	2064
Lambkin, William L., assignor to D. L. McLean, Ottawa, Canada. Newspaper-file	692,158	Jan. 28	3351	761	98	747
Lamm, William T., Buffalo, N. Y. Ash-sifter	696,056	Mar. 25	3210	725	98	2480
Lammadin, George, and D. F. Stone, assignors to Union Metallic Cartridge Company, Bridgeport, Conn. Cartridge-shell	692,154	Jan. 28	3364	761	98	748
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. Regulation of rotary-converter electromotive force	692,021	Jan. 28	3125	704	98	699
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. Winding for electrical machines	692,022	Jan. 28	3127	704	98	699
Lamme, Benjamin G., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. Alternating-current motor	695,998	Mar. 25	2985	675	98	2284
Lamme, Benjamin G., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Alternating-electric-current generating and distributing system	695,997	Mar. 25	2984	674	98	2283
Lamont, William H., Prophetstown, Ill. Paper-cutter	693,660	Feb. 18	2741	605	98	1409
Lamoreux, Samuel L., Titonka, Iowa. Feeding-rack	696,279	Feb. 11	2007	436	98	1256
Lamphier, Frank. (See Bartlett, William W., assignor.)						
Lamping, Charles M. (See Behrens, Hermann L., assignor.)						
Lanckton, William A., assignor, by mesne assignments, to Acme Adder Manufacturing Co., Limited, Detroit, Mich. Adding-machine	695,217	Mar. 11	1689	375	98	2085
Land, John S. (See Wilkins, John F., assignor.)						
Land, W. M. (See Boyd and Gillis, assignors.)						
Landfear, William R., Brooklyn, assignor of one-half to R. H. Wright, New York, N. Y. Machine for packing cigarettes	692,789	Feb. 4	1011	229, 230	98	1004
Landgreen, Arthur, Wilsonville, Nebr. Wire-machine	692,314	Feb. 4	169	89	98	833
Landor, William H., Palmyra, Wis. Wrench	691,552	Jan. 21	2230	501	98	499
Lane, Edwin C., Brooklyn, N. Y. Tuning device for stringed instruments	694,898	Mar. 4	109	25	98	1736
Lane, Louis, Toledo, Ohio. Arch	693,280	Feb. 11	2009	437	98	1257
Lane, Oscar A., and H. A. Davenport, assignors to Adrian Gas Machine Manufacturing Company, Adrian, Mich. Carbureter	690,444	Jan. 7	109	24	98	25
Lang, Charles A., St. Louis, Mo. Paper-dampening machine	695,216	Mar. 11	1686	374	98	2085
Lang, Janet, *et al.* (See Lang, Lincoln A., assignor.)						
Lang, Lincoln A., assignor of one-half to J. and W. G. Lang, Yule, N. D. Valve-gear for controlling motors	695,061	Mar. 11	1598	306	98	2022
Lang, Louis. (See Jackson and Lang.)						
Lang, William G., *et al.* (See Lang, Lincoln A., assignor.)						
Langdon Mitre Box Company. (See Parsons, William J., assignor.)						
Langdon, Sylvester L., Magnolia, Miss. Cinder or spark arrester	693,281	Feb. 11	2010	437	98	1257
Langenbeck, Karl. (See Mueller and Langenbeck.)						
Langlois, Joseph C., Greenfield, Mass. Valve-reseating device	693,450	Feb. 4	417	99	98	894
Langridge, Charles W., Wyaconda, Mo. Pile-truss	691,392	Jan. 21	1962	440	98	443
Langstaff, Lewis G., Brooklyn, N. Y. Scarificator for surgical use	693,554	Feb. 18	2531	557	98	1366
Langston, Samuel M., Philadelphia, Pa. Cutter-head	693,155	Jan. 28	3365	702	98	748
Langston, Thomas J., Johnston, S. C. Basket	694,239	Feb. 25	3050	680	98	1671
Lanier, Howard S., Danville, Va. Pants or overalls	694,556	Mar. 4	431	93	98	1804
Lanstrum, Christian E., Galesburg, Ill. Spraying device	696,037	Mar. 25	3211	725	98	2480
Lantz, Charles J., Gowrie, Iowa. Apparatus for supporting and operating clothes-lines	693,864	Feb. 11	1149	256	98	1050
Lanyon Zinc Company. (See Lorenz, William A., assignor.)						
Lanz, William, Chicago, Ill. Gaiter	694,164	Feb. 25	3719	821	98	1685
Lape, Charles F., San Bernardino, Cal. Boiler	695,514	Mar. 18	2407	545	98	2251
Lapp, Valentin, Lindenau, near Leipsic, Germany. Drying grain	690,598	Jan. 7	426	91	98	93
Larkin, Bernard H., River Forest, assignor to Automatic Vacuum Canning Company, Chicago, Ill. Vacuum-sealed and seamed key-opening can	693,252	Feb. 11	2011	427, 428	98	1257
Larkin, Bernard H., River Forrest, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Combined double-seaming and edge-rolling machine	693,800	Feb. 18	2988	660	98	1480
Larson, Albert L., Chicago, Ill., assignor to O. J. Friedman. Brake mechanism for vehicles	694,898	Mar. 4	110	25	98	1736
Larsson, Henry W., Springfield, Mass., assignor to Larsson Whip Company. Machine for dividing ratan	694,757	Mar. 4	805	179, 180	98	1852
Larsson, Henry W., Springfield, Mass., assignor to Larsson Whip Company. Machine for dividing ratan	694,758	Mar. 4	810	180, 181	98	1853

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Larsson, Henry W., assignor to Larsson Whip Company, Springfield, Mass. Machine for trimming strips of ratan	694,868	Mar. 4	1019	234, 235, 236, 237	98	1998
Larsson, Henry W., assignor to Larsson Whip Company, Springfield, Mass. Machine for longitudinally dividing strips of ratan	694,869	Mar. 4	1024	237, 238	98	1999
Larsson Whip Company. (See Larsson, Henry W., assignor.)						
Lasker, Emanuel, Manchester, England. Game device	690,656	Jan. 7	855	181	98	119
Lass, Frederic J., Aurora, Ill. Machine for molding journal-bearings	695,740	Mar. 18	2614	593, 594	98	2292
Lasserot, John H., Berkeley, Cal. Postage-stamp carrier and applier	691,277	Jan. 14	1601	385	98	368
Lasswell, Martin, assignor of two-thirds to F. T. Hill and E. Denzel, Spokane, Wash. Fine-gold amalgamator	694,990	Feb. 25	3963	880	98	1672
Latham, James R., assignor of one-half to R. Milbank, New York, N. Y. Non-refillable bottle	695,817	Mar. 18	2762	630	98	2292
Lathrop, George C., Washington, D. C. Portable poultry-house	693,268	Feb. 11	2013	436	98	1295
Lathrop, George C., Washington, D. C. Nest for poultry	694,759	Mar. 4	816	181	98	1995
Lathrop, George C., Washington, D. C. Drip, grit, and feed device for poultry	694,760	Mar. 4	819	181	98	1995
Lathrop, George C., Washington, D. C. Portable fence for chicken-closures	694,761	Mar. 4	821	181	98	1995
Latshaw, Joseph W. (See Baines, Joseph E., assignor.)						
Latta, John L., and J. A. Martin, Hickory, N. C. Compressed-air water-elevator	691,278	Jan. 14	1606	385	98	369
Laughlin, Homer, Jr., and D. Schuyler, assignors to Perfect Sliding Door Company, Los Angeles, Cal. Push-button for locks, &c	694,341	Feb. 25	4113	915	98	1097
Laurans, Emile. (See Esmer and Laurans.)						
Lautenslager, Walter. (See Arthur, Albert, assignor.)						
Lauterman, John H., Colorado Springs, Colo. Stovepipe	693,805	Feb. 11	1150	256	98	1060
Lauterstein, Isidor. (See Davis, Mark, assignor.)						
Lavarack, William H. B., Troy, N. Y. Detector-bar clip and link	691,640	Jan. 21	2404	541	98	535
Lavens, Edward J. (See Lavens, Erwin and E. J.)						
Lavens, Erwin and E. J., Brooklyn, N. Y. Signal-telegraph	695,508	Mar. 18	2586	586, 587	98	2295
Lavery, Henry C., West Superior, Wis. Electrical operating apparatus for railway-gates	693,975	Feb. 25	3350	736, 737, 738	98	1550
Lavollay, Jules H., and G. E. Bourgoin, Paris, France. Manufacturing sugar	693,408	Feb. 18	2358	494	98	1310
Law, Charles, Pittston, Pa. Chute	691,279	Jan. 14	1606	385	98	368
Law, Grant, Centerpoint, W. Va. Match-box	693,788	Feb. 18	2358	630	98	1423
Law, Herbert E., San Francisco, Cal. Massaging instrument	696,845	Mar. 25	3616	851	98	2555
Law, Prentis E., assignor of one-half to A. P. Whitford, Wilmette, and J. de Tarnowsky, Chicago, Ill. Can-opener	691,857	Jan. 28	2646	641	98	645
Lawrence, Edward M., Lubec, Me. Fish-cutting table	693,866	Feb. 11	1151	257	98	1080
Lawrence, Orville H., Waverly, N. Y. Sheet-metal elbow	691,150	Jan. 14	1454	331	98	318
Lawton, Charles H., *et al.* (See Rowse, George W., assignor.)						
Lawton, Charles H., *et al.* (See Waldron, Harry L., assignor.)						
Lawton, Edward P., Charleston, S. C. Copying-ink	690,802	Jan. 7	987	.....	98	197
Laxton, John W. R., Lynn, Mass. Amalgamator	693,315	Feb. 4	170	39	98	583
Layton, John S., Springfield, Ohio. Hub for vehicle-wheels	695,569	Mar. 18	2330	587	98	2296
Le Blanc, Alexis, New York, N. Y. Range-indicator	691,742	Jan. 28	2617	586	98	598
Le Clair, George E., Elyria, Ohio. Machine for making wood fiber	692,906	Jan. 28	3451	780	98	796
Le Count, Louis C., Los Angeles, Cal. Wardrobe sofa-couch or other receptacle	695,818	Mar. 18	2764	630	98	2292
Le Duc, John J., Kerns, Minn. Steam-boiler furnace	691,641	Jan. 21	2405	541	98	535
Le Sueur, Ernest A., assignor to Electro-Chemical Company, Rumford Falls, Me. Electrolytic cell	693,531	Feb. 4	562	126	98	918
Leach, Frederick, Oradell, N. J. Watch-movement holder	694,165	Feb. 25	3720	821	98	1095
Leadbeater, Frederick, Detroit, Mich. Automatic boiler-feeder	690,445	Jan. 7	111	24	98	96
Leak, William C., assignor of one-half to O. Graff and A. Head, San Antonio, Tex. Non-refillable bottle	691,558	Jan. 21	2331	508	98	500
Lease, William H., Cincinnati, Ohio. Candy-box	695,741	Mar. 18	2616	594	98	2296
Leatherman, Martin, Garden City, Minn. Vehicle-drag	691,554	Jan. 21	2332	508	98	500
Leaverton, Richard L., Springfield, Ill. Post-hole digger	693,801	Feb. 18	2990	661	98	1460
Leavitt, Frank M., assignor to E. W. Bliss Company, Brooklyn, N. Y. Generation of power from compressed air	693,871	Feb. 25	3130	696	98	1509
Leavitt, Frank M., assignor to E. W. Bliss Company, Brooklyn, N. Y. Propulsion of torpedoes, &c., by compressed air	693,872	Feb. 25	3143	695	98	1509
Lebel, Hyacinthe. (See Philippe, Lebel, and Grimoin-Sanson.)						
Leblanc, Alfredo, Havana, Cuba. Tobacco-smoking device	696,346	Mar. 25	3618	851	98	2556
Ledbetter, William H., Dallas, Tex. Seed-planter	693,794	Feb. 18	2959	630, 631	98	1458
Lederlin, Pierre L. E., Chedde, France. Electrolytic manufacture of chlorates and perchlorates	693,095	Feb. 11	1499	.....	98	1188
Lee, Alfred S., Richmond, Va. Insecticide-distributer	691,948	Jan. 28	2991	673, 674	98	674
Lee, David A., and F. Giessner, Shelbyville, Ind. Brick-machine	694,894	Mar. 4	112	95, 96	98	1786
Lee, John, San Francisco, Cal. Can-body blank	695,468	Mar. 18	2104	474	98	2189
Lee, Orlan S., Parsons, Tex. Baling-machine	694,166	Feb. 25	3738	881, 882, 883, 884	98	1666
Lee, William P., Fairfax, Minn. Vehicle attachment	695,743	Mar. 18	2617	594	98	2296
Leech, Charles M., and S. D. Evans, Lima, Ohio. Driving-gear	691,151	Jan. 14	1455	368	98	318
Leedy, John K., Roanoke, Va. Ship	695,103	Mar. 25	3320	749	98	2454
Leen, John D., Braggville, Me. Self-handling nail-cabinet	693,595	Feb. 18	2461	544	98	1356
Lehman, Martin, Kansas City, Mo. Electric announcer	693,827	Feb. 11	1158	257	98	1060
Lehmann, Adolf, New York, N. Y. Machine for turning irregular forms	695,743	Mar. 18	2618	594	98	2296
Lehmann, Paul, Berlin, Germany. Automatic gas-ignition device	691,260	Jan. 14	1606	385	98	369
Lehr, Michael, Rochester, N. Y. Toy pistol	693,460	Feb. 4	418	99	98	954
Lehrritter, John A., Denver, Colo. Concentrator	696,058	Mar. 25	3319	726	98	2480
Leick, John, Verona, N. J. Hair-fastener	691,555	Jan. 21	2334	508	98	501
Leidy, James C., Galesburg, Ill. Car-coupling	695,615	Mar. 18	2406	546	98	2051
Leiger, George F., assignor to himself and L. Benedict, Chicago, Ill. Machine for making can-bodies	693,325	Feb. 11	2088	457, 458	98	1254
Leighton, Eugene R. (See Hutchison and Leighton.)						
Leighton, George A., assignor to Leighton Machine Company, Manchester, N. H. Rib-knitted pile fabric	693,409	Feb. 18	2959	494	98	1310

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Leighton Machine Company. (See Leighton, George A., assignor.)						
Leilich, Edwin F., San Francisco, Cal. Mechanical movement and bed-motion for cylinder printing-machines	692,679	Feb. 4	821	185, 186	98	967
Leilich, Francis T., San Francisco, Cal. Button-sewing machine	692,680	Feb. 4	825	186, 187	98	968
Leineweber, Herman, Chicago, Ill., assignor to L and L Pneumatic Tool Company. Rock-drill	691,556	Jan. 21	2235	503, 504	98	501
Leitschuh, Joseph. (See Ohmer and Leitschuh.)						
Leland, Edwin A., assignor to F. H. Wright, Great Barrington, Mass. Broiler	693,725	Feb. 18	2808	681	98	1435
Leloug, Achille, Villers Poteries, Belgium. Lightning-conductor	693,555	Feb. 18	2532	558	98	1366
Lembke, Charles F., Valparaiso, Ind. Rotary explosive-engine	694,557	Mar. 4	432	93	98	1804
Lemley, David, New Orleans, La. Gate-valve	693,036	Feb. 11	1502	827	98	1135
Lemmon, George N. (See Smith and Lemmon.)						
Lemon, Charles H., Milwaukee, Wis. Step	693,057	Feb. 11	1503	328	98	1135
Lemon, Charles R., Scio, Ohio. Corn-holder	693,284	Feb. 11	2014	428	98	1238
Lemos, Leon, San Francisco, Cal. Pin-fastener for show-cards	694,063	Feb. 25	3539	780	98	1588
Lemos, Leon, San Francisco, Cal. Suspender and garment clamp	694,064	Feb. 25	3539	780	98	1588
Lemp, Hermann, Lynn, Mass., assignor to General Electric Company. Controller for automobile vehicles	692,870	Feb. 11	1161	258, 259	98	1063
Lemp, Hermann, Lynn, Mass., assignor to General Electric Company. Electric automobile	692,874	Feb. 11	1174	260, 261	98	1066
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Steering mechanism for automobile vehicles	692,868	Feb. 11	1153	257, 258	98	1061
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Steering mechanism for vehicles	692,869	Feb. 11	1159	256	98	1062
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Motion-checking device	692,871	Feb. 11	1168	259	98	1064
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Vehicle-brake	692,872	Feb. 11	1171	259, 260	98	1065
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Steering mechanism for vehicles	692,873	Feb. 11	1172	260	98	1065
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Motion-checking device	692,875	Feb. 11	1178	261, 262	98	1066
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Motion-checking device	692,876	Feb. 11	1181	262	98	1067
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Steering-check for automobiles	692,877	Feb. 11	1184	262	98	1068
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Brake for vehicles	692,878	Feb. 11	1187	263	98	1068
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Steering mechanism for automobiles	692,879	Feb. 11	1188	263	98	1069
Lemp, Hermann, Lynn, assignor to E. Thomson, Swampscott, Mass. Support for motors of self-propelled vehicles	692,880	Feb. 11	1192	264, 265	98	1069
Lemyre, Joseph E., Manchester, N. H., assignor, by mesne assignments, to Textile Machinery Improvement Company. Warp stop-motion for looms	693,816	Feb. 4	172	40	98	834
Leonard, Chester S., assignor of one-half to F. J. Wise, Philadelphia, Pa. Reversing-valve mechanism	692,204	Jan. 28	8432	781	98	767
Leonard, Harry W. (See Woods, Granville T., assignor.)						
Leonard, Harry W., New York, N. Y. Support for electric conductors and resistances	691,949	Jan. 28	2993	673	98	674
Leonard, Harry W., New York, N. Y. Multiple control system	696,247	Mar. 25	3805	807, 808	98	2510
Leonard, Samuel, Hollidaysburg, assignor of one-half to W. A. Loudon, Altoona, Pa. Trolley-wire bracket	693,681	Feb. 4	828	187	98	969
Leonard, Sylvester S., Chicago, Ill. Suspension-clamp for electric conductors	693,410	Feb. 18	2260	495	98	1310
Leonhard, Henry W. (See Smith and Leonhard.)						
Lepper, John G., Waterbury, assignor of one-third to R. C. Blakeslee, Torrington, Conn. Oscillating-piston steam-engine	694,485	Mar. 4	272	61, 62	98	1770
Leppert, Henry E., New Britain, Conn. Electric cut-out	691,394	Jan. 21	1969	441	98	445
Leps, Karl, Hamburg, assignor to J. von Donat, Leipsic, Germany. Submarine permanent way	694,486	Mar. 4	273	62	98	1770
Lesh, Daniel, West Fairview, assignor of one-half to D. L. Kaufman, Highspire, Pa. Spirit-level	691,063	Jan. 14	1317	298	98	290
Lesher, John T., Berrysburg, Pa. Stove	695,744	Mar. 18	2090	595	98	2254
Lesley, Theodore, *et al.* (See Yonge, Chandler I., assignor.)						
Leslie, John A., Westerly, R. I. Shoe-lace holder	694,658	Mar. 4	602	132	98	1840
Leslie, John S., *et al.* (See Lindsay, Robert F., assignor.)						
Leslie, Loren L., Hillsdale, Mich. Fence post and brace	693,285	Feb. 11	2015	430	98	1238
Leslie, Thomas G., East Melbourne, Victoria, Australia. Door-latch-operating device	695,319	Mar. 11	1871	416	98	2121
Leutheusser, Fred W., assignor to Monash-Younker Company, Chicago, Ill. Air-valve for radiators	695,616	Mar. 18	2411	546	98	2252
Levalley, Christopher W., Milwaukee, Wis. Casting sprocket-wheels	694,395	Mar. 4	114	25	98	1737
Levalley, Christopher W., Milwaukee, Wis. Drive-chain	694,870	Mar. 4	1080	228	98	1950
Leve, Robert E., New York, N. Y. Handle for making and breaking circuits	691,557	Jan. 21	2238	504	98	501
Level, Samuel A., Hot Springs, Ark. Protector-pad for corns	694,762	Mar. 4	831	188	98	1895
Levey, John, Chicago, Ill. Cooling coil and tank	691,786	Jan. 28	2704	608	98	616
Levi, Philip, New York, N. Y. Composition for cleaning and polishing	693,556	Feb. 18	2532	.....	98	1366
Levin, Max. (See Brockelt, Hermann, assignor.)						
Levis, Thomas R. (See Pugh, William J., assignor.)						
Levison, Alexander, San Francisco, Cal. Manifold book	694,108	Feb. 25	3602	797	98	1601
Levy, Léopold C., Blénod-lés-Pont-à-Mousson, France. Educational appliance	690,446	Jan. 7	118	25	98	98
Lewis, Charles H., Syracuse, N. Y. Tucking-guide for sewing-machines	691,705	Jan. 21	2521	554	98	550
Lewis, Elmer, Saco, Mont. Steel trap	690,970	Jan. 14	1140	258	98	254
Lewis, George S., assignor to Hunter Arms Company, Fulton, N. Y. Breech-loading gun	694,654	Mar. 4	604	132	98	1840
Lewis, George W., Portsmouth, assignor of one-half to C. A. Nash, Norfolk, Va. Journal-box	693,411	Feb. 18	2261	495	98	1311
Lewis, John, Brownville, Me. Machine for making shoe-pegs	693,317	Feb. 4	178	40, 41	98	836
Lewis, Mortimer G., New York, N. Y. Pipe-wrench	695,495	Mar. 18	2106	474	98	2190
Lewis & Pointon's Panification. (See Pointon, John E. and C. E., assignors.)						
Lewis, Willard I., Walpole, Mass. Lapping-machine	695,160	Mar. 11	1563	352	98	2054
Lewis, William H. (See Seley, Charles A., assignor.)						
Lewis, William H., and C. A. Seley, Roanoke, Va. Combined pilot coupling and buffer	691,472	Jan. 21	2097	469, 470	98	471
Leyson, Sackville G., Solvay, N. Y. Toy	695,680	Mar. 18	2531	573	98	2275
Liardet, Arthur C. C., New York, N. Y., assignor to Liardet Non Refillable Bottle Company. Non-refillable bottle	692,905	Jan. 28	2455	781	98	767

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Liardet Non Refillable Bottle Company. (See Liardet, Arthur C. C., assignor.)						
Libby, Lute B. (See Burnham, Arthur M., assignor.)						
Library Bureau. (See Hanson, Ernest F., assignor.)						
Library Bureau. (See Hunter, David E., assignor.)						
Lichtenstein, David, New York, N. Y. Cap	693,613	Feb. 18	2658	586	98	1391
Lichtfeldt, Frederick, Milwaukee, Wis. Fence	693,461	Feb. 4	420	99	98	995
Liddle, John E., Georgel, Va. Draw-bar and coupling	692,156	Jan. 28	3366	762	98	748
Lidke, Otto F., Ypsilanti, assignor to Detroit Trolley and Manufacturing Company, Limited, Detroit, Mich. Trolley-stand	692,790	Feb. 4	1016	330	98	1004
Liethegener, Henry, and A. Klemm, St. Louis, Mo.; said Klemm assignor to said Liethegener. Rotary engine	694,766	Mar. 4	982	182	98	1896
Lightcap, John J., *et al.* (See Smith, Solomon, assignor.)						
Lillo, Herman M., and O. A. Giere, Rockdell, Minn. Sack-holder	695,644	Mar. 18	2461	558	98	2202
Limb, Claude M. J., (dit Claudius,) Lyons, France. Electric-traction system	691,473	Jan. 21	2099	470, 471	98	472
Linaberry, Edgar, Des Moines, Iowa. Coffee-roaster	692,872	Feb. 25	3146	696	98	1510
Lincoln, Luther, assignor of one-half to C. S. Gooding, Boston, Mass. Apparatus for controlling iron in blast-furnaces	691,474	Jan. 21	2101	471, 472	98	472
Lincoln, R. B. (See Rheutan, Garrett H., assignor.)						
Linde, Fritz, Dortmund, Germany. Refining oils	692,157	Jan. 28	3367	.....	98	748
Lindelöf, Leonard. (See Hagelberg and Lindelöf.)						
Lindemeyr, Philip, assignor to Maryland Stopper Company, Baltimore, Md. Vessel-cap	693,462	Feb. 4	422	99	98	995
Linderman, Julius A., Atlanta, Ga. Button or catch for coat-collars	694,104	Feb. 25	3608	797	98	1601
Lindhard, Povl T., Richmond Hill, N. Y. Ball grinding-mill	694,974	Mar. 11	1932	269, 270	98	1990
Lindley, Lee R., Anderson, Ind. Coin card or mailer	691,950	Jan. 28	3000	673	98	975
Lindroth, Carl O., assignor to Southwark Foundry & Machine Company, Philadelphia, Pa. Valve-actuating means for blowing-engines	693,614	Feb. 18	2659	597	98	1592
Lindsay, Leroy J., Seymour, Iowa. Marker for corn-planters	695,218	Mar. 11	1691	375	98	2096
Lindsay, Robert F., Greenville, S. C., assignor to S. C. Koonce, Clarksville, and J. S. Leslie, Sharon, Pa. Pipe-union	692,881	Feb. 11	1193	265	98	1070
Lindsay, William D., Milwaukee, Wis. Band-cutting and feeding device for threshing-machines	693,976	Feb. 25	3366	739	98	1553
Lindstrom, Charles, assignor of one-half to C. M. Mendenhall, Bloomington, Ill. Sand-drier	692,791	Feb. 4	1017	250	98	1005
Lindstrom, Charley, *et al.* (See Darwin, Frank L., assignor.)						
Lindström, Karl A., Sommarro, assignor to Allmänna Svenska Elektriska Aktiebolaget, Westerås, Sweden. Device for starting alternating-electric-current induction-motors.	694,105	Feb. 25	3604	797, 798	98	1601
Lindstrom, Nils O., New York, assignor to A. B. See and W. L. Tyler, Brooklyn, N. Y. Electric elevator	693,085	Feb. 11	1505	228	98	1186
Lindt, Phillip F., St. Joseph, Mich. Box-stapling machine	692,888	Feb. 11	1196	255, 256, 267	98	1070
Line, Francis, Cleveland, Ohio. Air-conducting tube	690,744	Jan. 7	741	164	98	156
Line, Francis, Cleveland, Ohio. Air-conducting pipe	696,060	Mar. 25	3215	726	98	2431
Link Belt Engineering Company. (See Dodge, James M., assignor.)						
Linkert, John G., assignor to Dayton Manufacturing Company, Dayton, Ohio. Combined sash ratchet and pivot	695,161	Mar. 11	1555	238	98	2005
Lipkowski, Joseph, assignor to Société Generale de Frenis Lipkowski, Paris, France. Operating mechanism for compressed-air brakes	692,874	Feb. 25	3147	696	98	1510
Lippert, Stephan, and C. W. Hottman, Philadelphia, Pa. Bottle-washing machine	691,642	Jan. 21	2407	541, 542	98	536
Lipphard, William A., Harrisburg, assignor of one-half to H. L. Dougherty, Philadelphia, Pa. Fastener for metallic bedsteads	692,236	Feb. 11	2094	458	98	1355
Lippincott, Fisher H., Philadelphia, Pa. Trolley-pole support	694,090	Feb. 25	3453	768	98	1571
Lippincott, Jesse O., Philadelphia, Pa. Alarm or call bell	691,064	Jan. 14	1318	298	98	850
Lippold, Charles J., Washington, D. C. Twine-holder	692,141	Feb. 11	1790	377	98	1178
Lippy, David, assignor of three-fourths to L. D. Patten, C. K. Hershey, and J. T. Sawhill, Mansfield, Ohio. Separator-sieve	692,682	Feb. 4	829	187	98	969
Lipschutz, Arthur. (See Toltz and Lipschutz.)						
Lisle, Myron C., assignor of one-half to F. A. Simonds, Grand Rapids, Mich. Breech-loading firearm	695,819	Mar. 18	2705	681	98	2224
Liston, Noah, Turtlecreek, Pa. Adjustable brake-block for vehicles	690,745	Jan. 7	742	165	98	156
Litle, Thomas J., Jr., assignor to New Process Lighting Company, Cleveland, Ohio. Apparatus for supplying air or other combustion-supporting substance to gas or other burners	692,682	Feb. 4	830	186	98	969
Litot, Francis E. J., and A. Mayer, Pittsburg, Pa. Coin or metal detector	692,518	Feb. 4	179	41	98	896
Littauer, Lucius N. (See Murphy, William B., assignor.)						
Little, Arthur D., Brookline, Mass., assignor to Cellulose Products Company, Wilmington, Del. Water and grease proof paper	691,951	Jan. 28	3001	.....	98	676
Little, Arthur D., Brookline, Mass., assignor to Cellulose Products Company, Wilmington, Del. Waxed paper	691,952	Jan. 28	3002	.....	98	676
Little, David M., Salem, Mass. Axle for automobiles or other power-vehicles	691,906	Jan. 28	2916	658	98	658
Litty, Lucas, Donaldsonville, La. Clarifier	694,871	Mar. 4	1033	328, 329	98	1931
Livengood, Winfield S., assignor to Smith & Sons Manufacturing Company, Kansas City, Mo. Hay-rake	694,558	Mar. 4	435	94	98	1805
Livengood, Winfield S., assignor to Smith & Sons Manufacturing Company, Kansas City, Mo. Hay-rake	694,559	Mar. 4	436	94	98	1805
Livengood, Winfield S., assignor to Smith & Sons Manufacturing Company, Kansas City, Mo. Wheeled scraper	694,560	Mar. 4	437	94	98	1805
Livengood, Winfield S., assignor to Smith & Sons Manufacturing Company, Kansas City, Mo. Wheeled scraper	694,561	Mar. 4	438	95	98	1806
Livermore, Ephraim W., New Whatcom, Wash. Fish-trap	693,057	Jan. 28	3199	722	98	714
Livermore, John W., Berkeley, Cal. Drill for deep wells	695,745	Mar. 18	2622	595	98	2294
Livingston, Andrew W., Alameda, Cal. Automatic can-heading machine	690,508	Jan. 7	497	98	98	98
Livingston, Andrew W., San Francisco, Cal. Soldering-machine	693,319	Feb. 4	188	41, 42	98	887
Livingston, Charles B., Cincinnati, Ohio. Door-latch	692,468	Feb. 4	422	100	98	895
Livingstone, William, Flushing, assignor to himself, and S. P. Porter, Brooklyn, N. Y. Caster-socket	693,875	Feb. 25	3150	696	98	1510
Lloyd, Edwin L., assignor of one-half to W. H. Bruner, Philadelphia, Pa. Window-screen	694,319	Feb. 25	4062	908	98	1696
Lloyd, William D., Fiskville, Tex. Weeder	693,266	Feb. 11	2015	439, 440	98	1238
Lober, John F., Pittsburg, Pa. Vehicle-tire	696,661	Feb. 18	2742	605	98	1409
Locher, William W., Newcastle, Pa. Knockdown bed	695,820	Mar. 18	2767	631	98	2224

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Locke, Joseph L., Beatrice, Nebr. Corn-harvester	696,347	Mar. 25	3819	851, 852	98	2556
Lockett, Benjamin E., Jefferson City, Mo. Shoe or boot	694,872	Mar. 4	1086	229	98	1981
Lockwood, Edward M., Jr., Philadelphia, Pa. Splint-frame for match-making machinery	695,219	Mar. 11	1698	375	98	2086
Lockwood, John E. (See Thomas and Lockwood.)						
"Locomobile" Company of America. (See Reynolds, George H., assignor.)						
Locraft, Bernard F., Washington, D. C. Horseshoe	696,060	Mar. 25	3216	727	98	2431
Loeffelholz, Jacob, New York, N. Y. Belt	690,863	Jan. 7	937	210	98	197
Loeper, Anna von, (geboren Mühlenbeck,) Rostock, Germany. Mowing-machine	698,287	Feb. 11	2018	440	98	1239
Loew, Charles H. (See Cobb, William B., assignor.)						
Loewenbach, Hugo. (See Schilz, Frank, assignor.)						
Loewenstein, Gottlieb, Brunswick, Ga. Fire-escape	692,684	Feb. 4	832	188, 189	98	970
Logan, Crawford D., assignor of two-thirds to A. V. Cheny and T. J. Gipson, Coalhill, Ark. Lock	692,792	Feb. 4	1019	230	98	1005
Logan, Ferdinand, Phœnixville, assignor to T. L. Hodge, trustee, Philadelphia, Pa. Air-pump for gas apparatus	692,685	Feb. 4	885	189	98	970
Logan, James, Worcester, Mass. Paper sheet for envelop-blanks	698,412	Feb. 18	2223	495	98	1311
Logan, James A., *et al.* (See Euphrat, Theophile, assignor.)						
Logue, John F., and J. K. Gano, Griffith, Ohio. Water-outlet for steam-lines	691,805	Jan. 21	1971	441	98	445
Logwood, Charles A. (See Hendricks and Logwood.)						
Lomax, Clarence S., Everett, Mass. Making oxids of tin and lead	695,989	Mar. 25	2997	675	98	2384
Lombard, F. Fidel. (See Adams, William H., assignor.)						
Lombard Governor Company. (See Lombard, Nathaniel, assignor.)						
Lombard, Nathaniel, assignor to Lombard Governor Company, Boston, Mass. Speed-regulator	695,464	Mar 18	2108	475	98	2190
Lombardero, José, assignor of one-half to M. Garcia, San Francisco, Cal. Music-leaf turner	692,280	Feb. 4	184	42	98	887
Lombardo, Wilhelm, assignor to J. Eisele, Budapest, Austria-Hungary. Implement for cleaning boiler-tubes, &c.	691,475	Jan. 21	2106	472	98	472
Lonergan, Alphonsus, New York, N. Y. Traveler	690,594	Jan. 7	431	98	98	94
Loney, William C., Danville, Ill., assignor of one-half to F. W. Coats, Indianapolis, Ind. Hotel-register	694,291	Feb. 25	3955	880	98	1672
Long, Andrew. (See Spring and Long.)						
Long Arm System Company. (See Cowles, William B., assignor.)						
Long, Eli M. (See Bowker, Long, and Howland.)						
Long, Frederic H., Chicago, Ill., assignor to R. J. Beatty, trustee, Muncie, Ind. Metallurgical filter	691,706	Jan. 21	2322	565	98	550
Long, George S., Dekalb, Ill. Windmill-regulator	692,158	Jan. 28	3368	762	98	748
Longden, Mary, Yates Center, Kans., assignor of one-half to N. A. Fuller, Hastings, Mich. Face-protector	695,406	Mar. 11	2000	450	98	2151
Longdon, Alexander P., Demorest, Ga. Broom-bridle	696,875	Mar. 25	3598	865	98	2569
Longstreth, Charles, Yeadon, and C. W. G. King, assignors to United States Metallic Packing Company, Philadelphia, Pa. Metallic packing for piston-rods	694,764	Mar. 4	826	183	98	1986
Lonke, John, New York, N. Y. Board for holding and shipping cloth	695,068	Mar. 11	1995	306	98	2024
Look, George W., Quincy, Minn. Aerator for milk	695,570	Mar. 18	2231	527	98	2236
Look, John C., Tudor, Cal. Mop-head	695,033	Mar. 11	1997	306	98	2024
Look, Luther, assignor to New Standard Concentrator Co., Los Angeles, Cal. Ore-concentrator	695,004	Mar. 11	1997	306, 307, 308	98	2025
Lorain Steel Company. (See Entwisle, Edward B., assignor.)						
Lorain Steel Company. (See Garrett and Steele, assignors.)						
Lorain Steel Company. (See Krauss, Charles H., assignor.)						
Lorain Steel Company. (See Merrick and Forrer, assignors.)						
Lordon, Frederick L., Wellington, New Zealand. Machine for cutting tobacco	695,571	Mar. 18	2232	527	98	2237
Lorenz, William A., Hartford, Conn., assignor to Lanyon Zinc Company, St. Louis, Mo. Roasting-furnace	691,767	Jan. 28	2705	608	98	616
Loring Coes & Company. (See Coes, Frank L., assignor.)						
Loss, William F., Summit, N. J., and J. F. Blake, New York, N. Y. Shooting-gallery	691,648	Jan. 21	2409	542	98	536
Lotterhand, Jason C., New York, N. Y., assignor of one-half to W. B. Manny, St. Louis, Mo. Type-writer	692,708	Feb. 4	1021	231, 232	98	1005
Lottridge, George W., Bradley, assignor to F. P. Sleeper and E. H. Macoy, Chicago, Ill. Automatic weighing-machine	694,487	Mar. 4	274	68	98	1770
Lotz, Augustus, assignor of one-half to J. Haas and J. Kahn, San Francisco, Cal. Apparatus for cleaning carpets	695,102	Mar. 11	1587	359	98	2065
Lotz, Oriando J., *et al.* (See Miller, Jacob B., assignor.)						
Louder, Joel H., Elgin, Ill. Display-box and support for neckties	690,854	Jan. 7	989	210	98	197
Loudon, William A. (See Leonard, Samuel, assignor.)						
Lourie, Ralph B. (See Henderson, Henry T., assignor.)						
Love, Charles W., New Athens, Ohio. Grain-drill, disk, and hoe	698,596	Feb. 18	2468	545	98	1856
Love, Charles W., New Athens, Ohio. Drill and fertilizer-distributer	698,597	Feb. 18	2454	545	98	1857
Love, Samuel, New York, N. Y., assignor of one-half to H. L. Maynard and T. J. Wool, Portsmouth, Va. Bottle of the non-refillable class	691,152	Jan. 14	1457	332	98	318
Lovell, Albert K., New York, N. Y. Snap-hook	691,396	Jan. 21	1972	442	98	446
Lovett, Joseph W., *et al.* (See Jackson, Benjamin F., assignor.)						
Low, Abbot A. (See Johnson and Low.)						
Low, Abbot A., and J. Breakey, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-distributing apparatus	698,883	Feb. 11	1911	398	98	1075
Low, Abbot A., and J. Breakey, Brooklyn, assignors to Alden Type Machine Company, New York, N. Y. Type-channel holder	694,488	Mar. 4	279	68	98	1771
Low, James A., Honolulu, Hawaii. Cane-car stake-pocket	695,065	Mar. 11	1404	308	98	2026
Lowe, Marvel A., Marfa, Tex., assignor of one-third to M. G. McCulloch, Denver, Colo. Self-heating branding-iron	690,971	Jan. 14	1141	259	98	254
Lowenthal, Jacob. (See Seymours, Harry A., assignor.)						
Lowrey, Robert F., Perduehill, Ala. Cotton-chopper	696,348	Mar. 25	3223	852	98	2557
Lowrie, Harvey C., Denver, Colo. Safe	698,142	Feb. 11	1721	377	98	1178
Lowry, Er R., assignor of one-half to J. J. Frawley, New York, N. Y. Dip-waist-belt buckle	695,940	Mar. 25	2989	675	98	2384
Lowry, George, Tiffin, Ohio. Rock-breaker	698,988	Feb. 11	2039	440, 441	98	1239
Lowry, George, Tiffin, Ohio. Stone-crusher	698,989	Feb. 11	2035	441, 442	98	1240
Lowry, George A., *et al.* (See Mayberry, Frank E., assignor.)						
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Forming bales of fibrous or other materials	691,953	Jan. 28	2003	374	98	676
Lowry, George A., Chicago, Ill., assignor to Planters Compress Company, Boston, Mass. Bale of hay or other material	691,954	Jan. 28	2005	374	98	676

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Lowther, Christopher M. (See Fox and Lowther.)						
Lowther, Thomas J., Shreveport, La. Shipping-crate for bananas	690,557	Jan. 7	557	121	98	119
Loyer, Eustache, Cleveland, Ohio. Game and library table	695,572	Mar. 18	2338	598	98	2227
Lubin, Louis. (See Besse and Lubin.)						
Lucas and Gliem Machine Works. (See Lucas, William H., assignor.)						
Lucas, William H., Philadelphia, Pa., assignor to Lucas and Gliem Machine Works. Power-transmitting mechanism	693,290	Feb. 11	2039	642	98	1240
Ludwig, Johann, assignor of one-half to F. Sichel, Mayence, Germany. Vehicle-wheel tire	690,908	Jan. 7	1030	280	98	213
Lueder, John T., *et al.* (See Hayward, Eugene, assignor.)						
Luellen, Lawrence W., Olathe, Kans. Voting-machine	693,089	Feb. 11	1508	288	98	1136
Luellen, Lawrence W., Olathe, Kans. Voting-machine	694,705	Mar. 4	898	183 184	98	1897
Luethi, Alexander, Lakemills, Wis. Sad-iron	690,972	Jan. 14	1144	260	98	954
Luethi, Alexander, assignor of two-thirds to W. A. and C. Engsberg, Lakemills, Wis. Sad-iron	693,876	Feb. 25	3152	697	98	1511
Lufkin, Chauncey F., Lima, Ohio. Adjustable grip	693,413	Feb. 18	2264	495 496	98	1511
Lumbert, Frank L., Everett, Mass. Cask-handling device	692,906	Jan. 28	3457	761	98	768
Lumley, John. (See Borrowe and Lumley.)						
Lumsden, John. (See Craig, James A., assignor.)						
Lundeberg, August F., Stockholm, Sweden. Apparatus for printing carpets, mats, &c	690,746	Jan. 7	743	165	98	156
Lundell, Robert, New York, N. Y. Field-magnet for dynamo-electric machines or electric motors	695,163	Mar. 11	1589	358	98	2065
Lundell, Robert, assignor of one-half to C. J. Kintner, New York, N. Y. Combined air and explosive engine	691,798	Jan. 28	2707	608 609	98	616
Lundgren, Jacob, Philadelphia, Pa., assignor to H. M. Harley, Gloucester City, N. J. Braiding-machine	695,746	Mar. 18	2083	506	98	2294
Lundman, Carl J., *et al.* (See Stenersen, Rudolph, assignor.)						
Lundquist, Frank A., *et al.* (See Brownrigg and Norstrom, assignors.)						
Lunkenheimer Company. (See Ritter, Henry, assignor.)						
Lunkenheimer Company. (See Sumner, Harry W., assignor.)						
Luschka, August R., assignor, by mesne assignments, to W. Scheidel, Chicago, Ill. Rotary circuit-breaker	690,978	Jan. 14	1145	259	98	255
Luscomb, John F., Boston, Mass. Means for regulating the tension of diaphragms of sound-producing instruments	695,893	Mar. 18	2082	653	98	2349
Luttrell, Theophilus W. (See Peyton and Luttrell.)						
Lutz, Daniel, assignor to Thomas Manufacturing Company, Springfield, Ohio. Ball-bearing	693,291	Feb. 11	2060	442	98	1241
Lutz, Theodore E. (See Hayes and Lutz.)						
Lützenburger, Georg, Schlauersbach, Germany. Wheat-scouring machine	695,106	Mar. 11	1470	327	98	2039
Luyckx, Albert C., Detroit, Mich. Barrel-machine	694,167	Feb. 25	3734	835	98	1627
Lydick, Ernest B., Pittsburg, Pa. Vibrating sign	693,696	Feb. 4	886	190	98	971
Lydick, Henry S., Pittsburg, Pa. Drafting apparatus	695,747	Mar. 18	2085	597	98	2295
Lyes, John, Buffalo, N. Y. Window	693,159	Jan. 28	3570	703	98	749
Lyle, William G., and J. E. Stewart, New York, N. Y. Apparatus for vaporizing liquids	694,366	Mar. 4	116	25, 27	98	1737
Lyman, Chauncey O., Brockwayville, Pa. Swing	695,465	Mar. 18	2111	475 476	98	2190
Lynch, Matthew W., Madison, Wis. Lock-buckle	695,404	Mar. 11	2007	450	98	2151
Lynch, Matthew W., Madison, Wis. Lock-buckle frame	695,405	Mar. 11	2008	450	98	2151
Lynch, Thomas M., and V. Huey, Tobyhanna, Pa. Sectional ice-conveyer gallery	695,466	Mar. 18	2113	476	98	2191
Lynchard, William H., Council Bluffs, Iowa. Printer's quoin	693,085	Jan. 28	3129	705	98	699
Lyndon, Lamar, New York, N. Y. Electromechanical water-wheel governor	695,220	Mar. 11	1694	376	98	2093
Lyne, Wickliffe C., Wilkinsburg, Pa. Postal advertising-blotter	695,617	Mar. 18	2414	546	98	2353
Lynn, David, Athens, Pa. Machine for cutting tenons	690,447	Jan. 7	117	25	98	27
Lynn, Robert, Holyoke, Mass. Trolley-support	695,406	Mar. 11	2009	450	98	2151
Lyon, Baxter, Providence, R. I. Fishing-rod	692,894	Feb. 11	1212	269	98	1074
Lyon, John W., Providence, R. I. Self-closing faucet	692,094	Jan. 28	3130	706	98	709
Lyon, Louis, Sumpter, S. C. Envelop for holding samples of dress goods	695,521	Mar. 18	2270	501	98	2324
Lytle, Herbert H., London, England. Gas or vapor burner	695,061	Mar. 25	2319	727	98	2431
M. E. Kanaly Co. (See Kanaly, Morris E., assignor.)						
M. Garland Company. (See Garland, Michael, assignor.)						
Ma Girl, Patrick. (See Wolcott and Ma Girl.)						
Maaké, Arthur, New York, N. Y. Bottle	692,321	Feb. 4	186	43	98	888
Maas, George J., Negaunee, Mich. Shaft construction	694,397	Mar. 4	120	27	98	1736
Maas, George J., Negaunee, Mich. Construction of shafts	694,398	Mar. 4	121	27	98	1736
Maas, George J., Negaunee, Mich. Pipe-jack	694,399	Mar. 4	194	38	98	1739
MacCallum, John, Jr., assignor of two-thirds to C. B. Dougherty and W. Sharpe, Wilkesbarre, Pa. Clutch	695,407	Mar. 11	2011	451	98	2152
MacClain, Cornelious J., and S. S. Colvin, Hatton, Ohio. Pipe-coupling	695,066	Mar. 11	1405	308	98	2026
MacDonell, James D., Littleriver, Fla. Composition of matter for cement	691,897	Jan. 21	1973	.....	98	445
MacGregor, Hugh K., Clydebank, Scotland. Dressing for fish, &c	691,154	Jan. 14	1461	.....	98	320
MacKenzie, Daniel, Owen Sound, Canada. Combined baby carriage and sleigh	692,464	Feb. 4	494	100	98	896
MacMillan, Simpson G., Brookfield, Canada. Clothes-horse	694,706	Mar. 4	888	184 185	98	1889
MacPherson Automobile Company. (See MacPherson, John G., assignor.)						
MacPherson, John G., assignor to MacPherson Automobile Company, Philadelphia, Pa. Controller mechanism for automobiles	694,065	Feb. 25	3540	780 781	98	1586
MacRae, Peter, Escanaba, Mich. Portable fire-escape tower	696,877	Feb. 25	3153	697 698	98	1511
Maccolini, Icilius W., Inwood, N. Y. Life-saving apparatus	691,158	Jan. 14	1460	259	98	319
Macdonald, Albert E., San Francisco, Cal. Darning-last	694,562	Mar. 4	440	95	98	1806
Macdonald, Eugene M. (See Hart, William D., assignor.)						
Macdonald, Peter J., Noank, Conn. Block	691,558	Jan. 21	2041	505	98	502
Macdonald, William D., New York, N. Y. Photographic camera	695,690	Mar. 18	2083	573 574	98	2276
Macfie, Edmund S., Southport, England. Lamp-wick	690,747	Jan. 7	745	165	98	157
Machado, John, Boston, Mass. Hair-clasp	694,994	Mar. 4	1146	251	98	1955
Mack, Augustus F., Brooklyn, N. Y. Box	695,618	Mar. 18	2415	546 547	98	2353
Mack, Patrick H., Bradford, assignor to Oil Well Supply Company, Pittsburg, Pa. Underreamer	694,400	Mar. 4	125	28	98	1739
Mackie, Matthew D., Scranton, Pa. Gas-detecting attachment for miners' safety-lamps	693,895	Feb. 11	1213	269	98	1074
Mackintosh, Frederick, Schenectady, N. Y., assignor to General Electric Company. Starting-rheostat for electric motors	690,448	Jan. 7	116	25	98	27
Macklind, William R., St. Louis, Mo. Railway-crossing	695,276	Mar. 25	2269	505	98	2269
Mackusick, Elmer F., assignor of one-half to G. V. Foster, New York, N. Y. Carbid-cartridge for acetylene-gas generators	692,322	Feb. 4	187	43	98	888

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Mackusick, Elmer F., assignor of one-half to G. V. Foster, New York, N. Y. Gas-holder.	693,292	Feb. 11	2081	442, 443	98	1241
Mackusick, Elmer F., assignor of one-half to G. V. Foster, New York, N. Y. Acetylene-gas generator	693,293	Feb. 11	2084	443, 444	98	1242
Maclean, Breadalbane C. (See Hargrove, William, assignor.)						
Macoy, Eugene H., *et al.* (See Lottridge, George W., assignor.)						
Macy, Thomas G., New York, N. Y. Steam-boiler furnace	691,398	Jan. 21	1972	442	98	446
Madas, Louis, assignor of two-thirds to S. Neederman and H. S. Geary New York, N. Y. Automatic envelop-sealer and stamp-affixer	695,408	Mar. 11	2013	451, 452	98	2132
Madeira, Charles. (See Kendrick, William A., assignor.)						
Maeder, Albert C., St. Joseph, Mo. Weather-board marker	690,505	Jan. 7	433	93	98	94
Magagua, Peter. (See Frigerio, Frank, assignor.)						
Magee, James, 2d. (See McCollum, Alfred F., assignor.)						
Magee, John H., Carthage, Mo. Corn-silking machine	691,707	Jan. 21	2023	565	98	561
Magie, Wilber R. (See Hoffman and Magie.)						
Magneto Electric Company. (See Woolley, Leonidas G., assignor.)						
Magnier, Paul, Billancourt, and P. A. Brangier, Estrées, France. Converting wood, wood shavings, &c., into dextrine, glucose, and alcohol	695,578	Mar. 18	2334	528	98	2237
Mahana, John B., Kelso, assignor of one-half to A. A. Pompe, Toledo, Wash. Magazine-firearm	695,574	Mar. 18	2335	529, 530	98	2237
Mahana, John B., and A. I. Robbins, Kelso, Wash. Clasp for garment-supporters	692,160	Jan. 28	2371	763	98	749
Mahoney, Daniel, Brooklyn, N. Y. Automatic regulator for marine engines	692,161	Jan. 28	2373	763, 764	98	749
Mahony, Frederick M., assignor to Mahony Manufacturing Company, Troy, N. Y. Metallic stair-tread	693,143	Feb. 11	1794	378	98	1179
Mahony Manufacturing Company. (See Mahony, Frederick M., assignor.)						
Mahony, Samuel. (See Carpenter and Mahony.)						
Mahony, William F. (See Collamer and Mahony.)						
Mahoudeau, Frederic, assignor to American Sugar Refining Company, New York, N. Y. Apparatus for drying sugar	694,767	Mar. 4	840	185, 186	98	1660
Maines, Potter F., assignor of two-thirds to M. Schamberg, Philadelphia, Pa. Screw-cutting die-head	693,557	Feb. 18	2533	558, 559	98	1367
Mainguet, Edward A., Evangeline, La. Mechanical movement	691,644	Jan. 21	2410	542	98	536
Maitland, James L., Garfield, N. J. Hat for firemen, &c	694,168	Feb. 25	3736	625	98	1637
Malette, Frederick A., assignor of one-half to E. Seybolt, Geneva, N. Y. Roadway	691,708	Jan. 21	2585	565	98	561
Mallen, Edward J., New York, N. Y. Pipe-collar	694,873	Mar. 4	1086	229	98	1981
Mallinson, William H., Harlem, N. D. Strap-coupling	693,294	Feb. 11	2087	444	98	1242
Mallon, Hugh A., assignor to L. P. Mallon, Buffalo, N. Y. Hoisting or lowering apparatus for boats	695,007	Mar. 11	1406	309	98	2026
Mallon, Louise P. (See Mallon, Hugh A., assignor.)						
Malloy, John F. (See McEvilly, Thomas F., assignor.)						
Maloon, Richard B., New York, N. Y. Sash-holder	693,538	Feb. 4	564	122	98	913
Mandt, Targe G., Stoughton, Wis. Truss-rod spring for vehicles	692,162	Jan. 28	2374	764	98	750
Mandt, Targe G., Stoughton, Wis. Reach-coupling	692,163	Jan. 28	2375	764	98	750
Mandt, Targe G., Stoughton, Wis. Hub	694,292	Feb. 25	3656	880	98	1673
Mandt, Targe G., Stoughton, Wis. Box-fastener	695,409	Mar. 11	2014	452	98	2153
Manering, John W., Bowling Green, Ind. Saw-guide	691,399	Jan. 21	1975	442	98	446
Maney, William H., assignor of one-half to N. E. Morris, Jr., Franklin, Tenn. Washboard	695,410	Mar. 11	2015	453	98	2153
Mangels, William F., Brooklyn, N. Y. Merry-go-round	693,295	Feb. 11	2088	444	98	1243
Manger, Henry K. J., Des Moines, Iowa. Railway-switch	694,563	Mar. 4	441	95, 96	98	1806
Mangold, Jacob, and G. A. Schlinsock, Milwaukee, Wis. Apparatus for raising submarine deposits	695,068	Mar. 11	1409	309	98	2027
Mann, Hugh, Winnipeg, Canada. Railway-track-laying machine	694,564	Mar. 4	444	96	98	1807
Mann, Joseph M., *et al.* (See McKenzie, Andrew, assignor.)						
Mann, Robert B., Milwaukee, Wis. Power-transmitting device	691,789	Jan. 28	2710	609	98	617
Mannfeld, Bernhard, Frankfort-on-the-Main, Germany. Reproducing colored original etchings	690,974	Jan. 14	1146	.....	98	355
Manning, David J., Chippewa Falls, Wis. Insect-destroyer	691,909	Jan. 28	2918	668	98	659
Manny, Walter B. (See Lotterhand, Jason C., assignor.)						
Mansfield, George L., Chicago, Ill. Switching mechanism	695,467	Mar. 18	2114	476	98	2191
Manuel, David A., Calistoga, Cal. Grafting implement	690,865	Jan. 7	940	210	98	197
Marchand, John G. (See Gordon, Charles, assignor.)						
Marcoux, Alida M., Milford, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Filling-supplying loom	693,558	Feb. 18	2537	559	98	1367
Marggraff, Frederick, assignor to F. A. Neider, Augusta, Ky. Tufting-button	695,468	Mar. 18	2119	477	98	2193
Marine, Peter, Chicago, Ill. Making frozen confections	692,323	Feb. 4	189	48	98	889
Marriott, Samuel, *et al.* (See Picking, Josiah B., assignor.)						
Marscher, Arthur H., Memphis, assignor to Syracuse Faucet and Valve Company, Syracuse, N. Y. Valve	691,400	Jan. 21	1976	443	98	446
Marsden, Mark W., Philadelphia, Pa. Building material	696,062	Mar. 25	3220	727	98	2431
Marsh, Albert, London, England. Means for delivering and registering tickets or checks.	693,414	Feb. 18	2366	496, 497	98	1312
Marsh, Robert, *et al.* (See Norfolk, Napoleon B., assignor.)						
Marshal, Hendrie. (See Ring, Byron, assignor.)						
Marshall, Charles P. (See Miller, August J. F., assignor.)						
Marshall, Elizabeth C. S., Philadelphia, Pa. Shutter-holder	694,975	Mar. 11	1234	270	98	1991
Marshall, George M., Edinburgh, Scotland. Liquid measuring and registering device	695,691	Mar. 18	2538	574	98	2277
Marshall, George S., St. Louis, Mo. Journal-box	690,975	Jan. 14	1147	260	98	355
Marshall, Norman, Newton, assignor to Marshall-Sanders Company, Boston, Mass. Socket for incandescent lamps	690,976	Jan. 14	1149	260	98	355
Marshall, Norman, Newton, assignor to Marshall-Sanders Company, Boston, Mass. Electric switch	696,179	Mar. 25	3482	780	98	2486
Marshall, Norman, Newton, assignor to Marshall-Sanders Company, Boston, Mass. Electric switch	696,180	Mar. 25	3484	780	98	2486
Marshall-Sanders Company. (See Marshall, Norman, assignor.)						
Marshall, Wilfred R. V., Paisley, Scotland. Dynamo-electric machine or motor	694,293	Feb. 25	3657	881	98	1673
Marshall, William C., Chicago, Ill. Rendering-tank	690,595	Jan. 7	309	61, 62	98	67
Marshall, William L., Port Perry, Canada. Vehicle-gear	693,977	Feb. 25	3369	789	98	1554
Marsky, Emil, San Jose, Cal. Curtain-holder and pole-ring	691,155	Jan. 14	1461	363	98	330
Marsolais, George L., Leominster, Mass. Adjustable stand or support	694,401	Mar. 4	127	28	98	1789
Marsteller, Oliver, South Bethlehem, Pa. Mailing-package	690,977	Jan. 14	1153	260	98	356
Martenette, Frank L., Chico, assignor of one-half to H. W. Camper, H. W. Heath, and H. H. Camper, Butte County, Cal. Carbureter	691,955	Jan. 28	2007	674	98	676
Martin, Abram J., New York, N. Y. Protector for pocket-books	691,956	Jan. 28	2008	675	98	677

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Martin, Arrie S., Roadhouse, Ill. Door-stop	692,687	Feb. 4	838	190	98	971
Martin, Edward. (See Pitt and Martin.)						
Martin, Herman, Vermillion, Ohio, assignor to D. L. Nielsen. Wire-fence machine	694,768	Mar. 4	842	186	98	1890
Martin, Isaac M. (See Inshaw, William R., assignor.)						
Martin, James A. (See Latta and Martin.)	690,449	Jan. 7	119	26	98	87
Martin, John A., Toronto, Canada. Truck	695,069	Mar. 11	1410	309, 310	98	2027
Martin, Joseph A., assignor of one-half to J. S. Persinger, Roanoke, Va. Engraving-machine	695,748	Mar. 18	2033	597, 598	98	2296
Martin, Joseph H., and D. Ormand, Riverside, Cal. Machine for making pipe	695,749	Mar. 18	2034	598	98	2297
Martin, Joseph H., and D. Ormand, Riverside, Cal. Machine for making pipe	692,324	Feb. 4	190	43, 44	98	889
Martin, Louis, Lausanne, Switzerland. Autographic copying apparatus	690,748	Jan. 7	746	166	98	157
Martin, Richard D., Alderson, Ind. Ter. Coke-oven	691,318	Jan. 14	1791	407	98	398
Martin, Van Buren, assignor of one-half to T. L. Metcalfe, Hopkinsville, Ky. Cover for grain-shocks, &c	691,722	Jan. 21	2546	570, 571	98	565
Martin, Whitley E., Winston, assignor of one-half to Salem Iron Works, Salem, N. C. Tobacco-drying system	691,723	Jan. 21	2551	571, 572	98	566
Martin, Whitley E., assignor of one-half to Salem Iron Works, Salem, N. C. Tobacco drying and cooling system	690,866	Jan. 7	941	210	98	196
Martin, William, Chicago, Ill. Apparatus for disinfecting sewer-vaults	690,867	Jan. 7	942	.....	98	196
Martin, William, Chicago, Ill. Compound for disinfecting purposes	695,796	Feb. 18	2360	632	98	1435
Martin, William, assignor of one-half to E. J. Sweeney and M. Coughlin, Salem, Mass. Window-blind fastener	696,946	Mar. 25	3615	808	98	2512
Martin, William H., San Francisco, Cal. Life-saving device for street-cars						
Maryland Shoe Machinery Company. (See Williams, Allen G., assignor.)						
Maryland Stopper Company. (See Lindemeyr, Philip, assignor.)						
Mashburn, Mathew W., Wedowee, Ala. Stump-puller	691,645	Jan. 21	2412	542	98	587
Masland, Joseph H., Philadelphia, Pa. Spring for pillows, cushions, &c	691,065	Jan. 14	1319	298	98	290
Mason, Benjamin W., assignor of one-tenth to J. M. Sutherland, St. Louis, Mo. Liquid-cooling device	691,790	Jan. 28	2714	609	98	617
Mason, Harry R., Chicago, Ill., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Fluid-pressure signal-valve	693,415	Feb. 18	2260	497	98	1312
Mason, John. (See Rouse, George, assignor.)						
Mason Regulator Company. (See Mason, William B., assignor.)						
Mason, Stephen C., assignor to McConway & Torley Company, Pittsburg, Pa. Car-coupling	695,619	Mar. 18	2418	547	98	2253
Mason, Volney W., Jr., New York, N. Y. Grinding or crushing head	692,866	Feb. 11	1315	289	98	1074
Mason, Volney W., Jr., New York, N. Y., assignor to Taylor Iron and Steel Co., Highbridge, N. J. Revolving screen	694,565	Mar. 4	449	96, 97	98	1808
Mason, William. (See Bennett and Mason.)						
Mason, William B., Boston, Mass., assignor to Mason Regulator Company, Saco, Me. Brake mechanism for motor-vehicles	691,794	Jan. 21	2555	572	98	567
Masters, Thomas J., Cardiff, England. Rotary engine	694,294	Feb. 25	2958	681	98	1673
Masters, William F., Brooklyn, N. Y. Vehicle-wheel	696,249	Mar. 25	3617	808	98	2513
Matheny, Thirston. (See McKee and Matheny.)						
Matheny, Thirston, Chauncy, Ohio. Shipping-tag	694,402	Mar. 4	128	28	98	1739
Mather, Cornelius B. (See Conklin, Melvin M., assignor.)						
Mathews, George. (See Orr and Mathews.)						
Mathews, John, Chicago, Ill. Elevator-door	690,749	Jan. 7	748	166	98	157
Mathewson, Arthur W., Lewiston, Me. Railway-head or other similar fiber-drawing machine	690,586	Jan. 7	435	93, 94, 95	98	95
Mathias, Lewis, and E. L. Ray, Haynes, Iowa. Pick, &c	691,559	Jan. 21	2241	505	98	502
Mathison, Joseph, Boston, Mass., assignor to New Button Sewing Machine Company, Newark, N. J. Machine for sewing shank-eyed buttons	690,978	Jan. 14	1154	261, 262, 263	98	257
Matteson, Lynn B., and M. P. McArthur, assignors to Butterfly Manufacturing Company, Cripplecreek, Colo. Flying toy	696,227	Feb. 11	2096	459	98	1255
Matthew, Patrick M., Edinburgh, Scotland. Calendering-machine	695,107	Mar. 11	1472	333	98	1089
Matthews, Ambrose T., assignor to Matthews Manufacturing Co., Worcester, Mass. Stove-urn	691,319	Jan. 14	1798	407	98	389
Matthews, Francis B., Philadelphia, Pa. Feed-water heater	695,220	Mar. 11	1671	416, 417	98	2121
Matthews, John T., Newark, N. J. Match-box	694,169	Feb. 25	3738	695	98	1628
Matthews Manufacturing Co. (See Matthews, Ambrose T., assignor.)						
Matthews, William E., Ferndale, Cal. Curtain-fixture	696,296	Feb. 11	2089	445	98	1245
Mattoch, Robert L., Chicago, Ill. Carrier for sheet-music	696,879	Feb. 25	3159	698	98	1512
Mauldin, Caleb, Minneapolis, Minn. Storm-sash fastener	692,085	Jan. 28	3131	705	98	700
Mausner, Friedrich, Philadelphia, Pa., assignor to American Interlaced Horse Collar Company. Horse-collar	691,560	Jan. 21	2242	505	98	502
Mawhinney Last Company. (See Tyler, Abel D., Jr., assignor.)						
Maxim, Hiram S., London, England. Obtaining coffee substitutes	693,662	Feb. 18	2743	606	98	1410
Maxim, Hudson. New York, N. Y. Cartridge	694,295	Feb. 25	2960	662	98	1673
Maxim, Hudson, London, England. War vessel	695,108	Mar. 11	1473	328, 329	98	2040
Maybach, Wilhelm A., Cannstadt, Germany, assignor to Daimler Manufacturing Company, New York, N. Y. Means for attaching axle-springs to vehicle-frames	691,156	Jan. 14	1462	333	98	850
Maybach, Wilhelm A., Cannstadt, Germany, assignor to Daimler Manufacturing Company, New York, N. Y. Oil-pump	693,727	Feb. 18	2870	632	98	1435
Maybach, Wilhelm A., Cannstadt, Germany, assignor to Daimler Manufacturing Company, New York, N. Y. Electric igniter for motors	695,231	Mar. 11	1573	417	98	2122
Mayberry, Frank E., Medford, Mass., assignor of five-eighths to W. M. Holmes, Hoosick Falls, N. Y., and G. A. Lowry, Chicago, Ill. Telephone system	691,291	Jan. 14	1698	386, 387	98	389
Mayer, Adolphus. (See Litot and Mayer.)						
Mayer, Alfred. (See Clark and Mayer.)						
Mayer, Frank W., *et al.* (See Dela Mar, Joseph, assignor.)						
Mayer, Fritz, *et al.* (See Nossian, Wilhelm, assignor.)						
Mayer, George S., *et al.* (See Dela Mar, Joseph, assignor.)	693,728	Feb. 18	2872	632	98	1436
Mayer, Isidor E., Louisville, Ky. Trousers	695,221	Mar. 11	1569	377	98	2037
Mayer, Jacob A., *et al.* (See Dela Mar, Joseph, assignor.)						
Mayer, Michael W., Allegheny, Pa. Rail-joint						
Mayer, William H., *et al.* (See Dela Mar, Joseph, assignor.)						
Mayes, Fred S. (See Mayes, King, and Mayes.)	693,528	Feb. 18	2426	545	98	1257
Mayes, John G., H. F. King, and F. S. Mayes, Hazen, Pa. Toy bank	694,655	Mar. 4	605	133	98	1840
Mayes, John L., St. Louis, Mo. Railway-joint						

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Maynadier, James E. (See Potter, Thomas O., assignor.)						
Maynard, Charles A., Springfield, Mass. Rubber tire	692,225	Feb. 4	192	44	98	839
Maynard, Harry L., *et al.* (See Love, Samuel, assignor.)						
Maynes, Hyla F., Corning, N. Y. Changeable gear for bicycles	696,349	Mar. 25	3824	853	98	2557
Mayo, Benjamin F., Salem, Mass., assignor, by mesne assignments, to United Shoe Machinery Company. Heel-nailing machine	694,656	Mar. 4	606	138	98	1840
Mayo, Robert D., Frankfort, Mich. Life-boat	690,909	Jan. 7	1021	230	98	213
Mayo, Thomas H., Melrose Highlands, Mass. Heel for boots or shoes	691,910	Jan. 28	2919	658	98	659
Mayr, Walter A. (See Carlson and Mayr.)						
McAlister, John, Birwinsdale, Pa. Mining-car	696,070	Mar. 25	3239	732	98	2435
McAll, Henry W., Red Hill, England. Calendar	694,861	Mar. 4	1050	233	98	1984
McArthur, Marshall P. (See Matteson and McArthur.)						
McAuley, Robert G., Pittsburg, Pa. Trap	690,658	Jan. 7	558	121	98	120
McAuliffe, John W., Providence, R. I. Gasket	696,188	Mar. 25	3490	781	98	2487
McAwley, John S., Edmon, Pa. Steel rail tie and fastener	690,751	Jan. 7	751	167	98	156
McBerty, Frank R., Evanston, assignor to Western Electric Company, Chicago, Ill. Service-meter for telephone-lines	690,453	Jan. 7	189	37	98	29
McBroom, Charles H., Corticelli, Mo. Animal-poke	695,398	Mar. 11	1885	419	98	2124
McCabe, William L., Tacoma, Wash. Chute	695,399	Mar. 11	1886	419 420	98	2124
McCaffrey, John, Lawrence, Mass. Shipper mechanism	691,960	Jan. 28	3014	677	98	675
McCaffrey, John, Lawrence, Mass. Shipper mechanism	692,468	Feb. 4	432	101	98	887
McCallip, William W., Columbus, Ohio. Wire-weaving machine	695,942	Mar. 25	2990	676	98	2334
McCann, Frank. (See Potter, Charles H., assignor.)						
McCanna, Benjamin T., and T. A. Delaney, assignors to Hills-McCanna Company, Chicago, Ill. Lubricator	694,406	Mar. 4	185	30	98	1741
McCanna, John F., assignor to John F. McCanna Company, Chicago, Ill. Lubricating-pump	691,478	Jan. 21	2106	473	98	473
McCarel, William L., Brazil, Ind. Die for making multiple-orificed clay conduits	696,377	Mar. 25	3002	865	98	2570
McCarthy, James W., deceased, New Bedford, Mass.; S. F. Winsper, administrator. Yarn or thread guide for spinning-machines	694,568	Mar. 4	454	97	98	1809
McCarthy, Laurence A., Brooklyn, N. Y. Multiplex-telegraph circuit	693,580	Feb. 18	2469	546	98	1357
McCarthy, Patrick J. (See Hird, Charles, assignor.)						
McCarthy, William. (See Haynes, George E., assignor.)						
McCarty, Charles H., *et al.* (See Spring, Napoleon C., assignor.)						
McCarty, Eugene J., Clinton, Mass. Screen	696,250	Mar. 25	3618	809	98	2513
McCaslin, William J., Newcastle, Pa. Hominy huller and washer	695,330	Mar. 11	1887	420	98	2124
McClean, Samuel N., Cleveland, Ohio. Gun-mount	691,912	Jan. 28	2924	659	98	659
McClean, Samuel N., Cleveland, Ohio. Recoil-check for guns	691,913	Jan. 28	2925	659	98	661
McClellan, William F., Seattle, Wash. Apparatus for pulverizing	691,168	Jan. 14	1480	335	98	323
McClintock, Charles E., Albuquerque, N. Mex. Ter. Case for plats, maps, &c	691,228	Jan. 14	1722	392	98	374
McClintock, Frank, Mount Vernon, N. Y., assignor to Empire Machine Corporation. Machine for justifying type	693,145	Feb. 11	1726	378 379 380 381	98	1179
McClure, Marion, Felicity, Ohio. Valve-gear link	693,051	Feb. 11	1537	334	98	1142
McCollum, Alfred F., Espy, assignor of three-fifths to J. Magee, 2d, Bloomsburg, Pa. Woven pile fabric	690,912	Jan. 7	1029	231	98	215
McConnell, William, Brooklyn, N. Y. Electric lamp	695,756	Mar. 18	2641	600	98	2299
McConway & Torley Company. (See Mason, Stephen C., assignor.)						
McCord, William B., Battlecreek, Mich. Tubular boiler	690,752	Jan. 7	752	167	98	158
McCormick, Charles M., U. S. Navy. Navigating-protractor	692,060	Jan. 28	3003	723	98	715
McCormick Harvesting Machine Company. (See Johnston, Edward A., assignor.)						
McCormick, James F., Wamego, Kans. Harness attachment	696,071	Mar. 25	3240	733	98	2435
McCormick, John J., Bellevue, Pa. Folding box	690,454	Jan. 7	131	28	98	30
McCormick, Marion F., assignor of one-half to F. E. Dumas, Knox, Ind. Railway-velocipede	695,896	Mar. 18	2775	633	98	2386
McCormick, William W., Santa Rosa, Cal. Bag or satchel lighting device	690,753	Jan. 7	753	167	98	159
McCornack, Herbert, Westchester, Pa. Mechanical movement	692,696	Feb. 4	851	195	98	973
McCornack, Herbert, Littlefalls, N. Y. Elastic-fluid turbine	694,980	Mar. 11	1945	272	98	1998
McCoy, Henry L., Manito, assignor of one-half to C. M. Smith, Peoria, Ill. Automatic feeder or elevator	690,891	Jan. 7	986	224	98	207
McCoy, Josiah R., Marshalltown, Iowa. Heat radiating and tempering screen-drum for stoves	693,423	Feb. 18	2284	501	98	1315
McCray, H. L. (See Hixson, Frank, assignor.)						
McCrone, Robert A., Denver, Colo. Insect-destroyer	694,862	Mar. 4	1052	233	98	1984
McCulloch, Maggie G. (See Lowe, Marvel A., assignor.)						
McCullough, Thomas F., Memphis, Tenn. Douche-bench	692,061	Jan. 28	3005	723	98	715
McCurdy, Delo. (See Dunn and McCurdy.)						
McCutchen, Charles W., Peekskill, N. Y. Hot-water-appliance heating apparatus	692,469	Feb. 4	434	102	98	887
McDade, Gertrude C., *et al.* (See Dela Mar, Joseph, assignor.)						
McDermid, Hugh, Chicago, Ill. Lifting-jack	692,536	Feb. 4	569	134	98	914
McDermott, Philip H., New York, N. Y. Controller for gas-burners	695,111	Mar. 11	1478	329	98	2041
McDermott, Walter, and F. E. Elmore, London, England, assignors to Frue Vanning Machine Company, Detroit, Mich. Ore-concentrating machine	695,695	Mar. 18	2544	575 576	98	2278
McDonald, Alexander, Ashley, Ohio. Folding case or crate	693,981	Feb. 25	3380	743	98	1586
McDonald, James C., and M. Brennan, Sidney, N. Y. Raking device for furnace-grates	695,757	Mar. 18	2642	600	98	2299
McDonald, Joseph H., New York, and G. G. Worthington, Brooklyn, N. Y. Steam-boiler	692,062	Jan. 28	3006	723 724	98	715
McDonald, Mott W., Galion, Ohio. Picture-mount and portfolio therefor	693,052	Feb. 11	1538	335	98	1142
McDonald, Silas P., *et al.* (See Shannon, Lemuel A., assignor.)						
McDonnell, John, *et al.* (See Bourke, Edward J., assignor.)						
McDonnell, Milton E. (See Pease and McDonnell.)						
McDowell, Brice W., New York, N. Y. Railway-signal	693,693	Feb. 25	3166	700	98	1514
McDowell, Harry F., *et al.* (See Bartley, Milton, assignor.) (Reissue.)						
McDuffie, William. (See Trammell and McDuffie.)						
McElheny, William C., Pittsburg, Pa. Boat	695,758	Mar. 18	2644	601	98	2299
McElroy, George E., New York, N. Y. Speed-changing gear	694,407	Mar. 4	136	30	98	1741
McEvilly, Thomas F., assignor of one-half to J. F. Malloy, Wilmington, Del. Water-cooler	691,655	Jan. 21	2428	546	98	540
McEvilly, Thomas F., assignor of one-half to J. F. Malloy, Wilmington, Del. Belt-holder and skirt-support	691,656	Jan. 21	2429	546	98	541
McEvoy, Charles H., Lowell, Mass. Electrical connecting-cord	693,890	Feb. 11	1223	270	98	1076
McFarland, James D., Jr., assignor of one-half to J. Bruckman, San Francisco, Cal. Revolving-cylinder explosive-engine	696,251	Mar. 25	3230	809	98	2513
McFarlane, John, assignor of one-half to D. C. Reinohl, Washington, D. C. Hulling cotton-seed	695,476	Mar. 18	2127	479	98	2194

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McFarlane, John, and D. C. Reinohl, Washington, D. C. Extracting oil from cotton-seed	695,474	Mar. 18	2134	479	98	2193
McFarlane, John, and D. C. Reinohl, Washington, D. C. Hulling cotton-seed	695,475	Mar. 18	2136	479	98	2194
McFarlane, John, and D. C. Reinohl, Washington, D. C. Means for separating cotton-seed kernels from their hulls and lint	695,477	Mar. 18	2138	479	98	2194
McGall, William J., West Orange, N. J. Hat-curling machine	692,537	Feb. 4	571	134	98	914
McGarity, James J., and G. R. Hopf, Pittsburg, Pa. Car-fender	694,868	Mar. 4	1054	223	98	1085
McGeorge, Percy A., New York, N. Y. Conduit	695,478	Mar. 18	2139	480	98	2195
McGeorge, Percy A., New York, N. Y. Conduit and conductor	696,072	Mar. 25	2341	782	98	2435
McGill, George W., Riverdale-on-the-Hudson, N. Y. Fastening device	691,164	Jan. 14	1482	335, 336	98	324
McGill, George W., Riverdale-on-the-Hudson, N. Y. Fastening device	691,165	Jan. 14	1487	336	98	325
McGinn, John S., Winnipeg, assignor to C. C. Holland, trustee, Montreal, Canada. Acetylene-gas apparatus	692,591	Feb. 11	1224	270, 271	98	1076
McGowan, James F., Camden, Pa. Folding box	695,078	Mar. 11	1417	311	98	2029
McGrath, John T., Stratford, Canada. Pneumatic drill	694,991	Mar. 11	1247	272	98	1998
McGregor, James C., *et al.* (See Austin, David E., assignor.)						
McGriff, John C. F., San Jose, Cal. Combination liquid measure and sterilizer	695,167	Mar. 11	1594	354	98	2096
McGuire, Squire D., assignor of one-half to J. C. Hocker, Guilford, Mo. Ditch-roller	690,893	Jan. 7	993	225	98	226
McHugh, Michael J., Providence, R. I. Printer's galley	691,657	Jan. 21	2439	546	98	541
McIntosh, Anderson, Wallace, Canada. Cheese-cutter	693,494	Feb. 18	2296	501	98	1316
McIntosh, Frederick J., and W. Thornburgh, assignors to Seamless Steel Tubes Company, Detroit, Mich. Machinery for producing seamless metallic tubes	693,053	Feb. 11	1539	335, 336	98	1143
McIntyre, Frank, assignor to Eagle Pencil Company, New York, N. Y. Letter-file	693,301	Feb. 11	2046	446	98	1944
McIntyre, Joseph J., Brooklyn, N. Y. Projectile	695,578	Mar. 18	2343	531	98	2239
McIntyre, Samuel, Canterbury Station, Canada, assignor of one-fourth to A. D. Annett, Saco, Me. Device for hitching or unhitching horses	690,802	Jan. 7	991	224, 225	98	208
McKaig, Eddy T. (See Gilfillan and McKaig.)						
McKechney, Harry E., Rochester, N. Y. Hose-terminal	690,754	Jan. 7	754	168	98	159
McKee, Emrick C., and T. Matheny, Luhrig, Ohio. Shoe cleaning and polishing machine	693,531	Feb. 18	2491	547	98	1959
McKee, Thomas M., and S. B. Saffell, Indianapolis, assignors to National Adjustable Chair Company, Greenfield, Ind. Swinging chair	695,235	Mar. 11	1704	378	98	2088
McKee, Ulysse C. (See Dodd, Joseph L., assignor.)						
McKeen, Thomas L., Easton, Pa. Tandem draft-rigging attachment	696,184	Mar. 25	2490	782	98	2487
McKenna, Edward W., Chicago, Ill. Conveyer system	694,067	Feb. 25	2343	781	98	1589
McKenzie, Andrew, assignor of two-thirds to J. M. Mann and E. C. Bouzard, Jr., Providence, R. I. Lamp-socket for incandescent electric lamps	691,563	Jan. 21	2246	506	98	508
McKenzie, Burt, Eaton Rapids, Mich. Horseshoe-calk	694,776	Mar. 4	855	188	98	1892
McKerahan, Charles A., Wilmerding, Pa. Car-coupling	692,068	Jan. 28	2208	724	98	716
McKim, Catherine P., Newton, N. J. Thread-cutter	691,289	Jan. 14	1724	392	98	375
McKinley, George H., *et al.* (See Morris, George O., assignor.)						
McKinney and Company, Walter S. (See McKinney, Walter S., assignor.)						
McKinney, Henry B., *et al.* (See Moon, Herman, assignor.)						
McKinney, M. B. (See Arnn, McKenzie, assignor.)						
McKinney, Walter S., Chicago, Ill. Excavator	692,892	Feb. 11	1229	271	98	1078
McKinney, Walter S., Chicago, Ill., assignor to W. S. McKinney and Company. Riveting-machine	690,755	Jan. 7	755	168	98	159
McKinnon, Manning, Sheboygan Falls, Wis. Cheese-press	690,985	Jan. 14	1170	265	98	260
McKnight, Robert, Philadelphia, Pa., assignor to Metallic Condense Company. Reducing carbonaceous ores	693,992	Feb. 25	2381	748	98	1556
McKnight, Thomas R., assignor to Western Wheeled Scraper Company, Aurora, Ill. Grading-machine	694,561	Mar. 4	921	134, 135	98	1844
McLaren, Henry. (See McLaren, John and H.)						
McLaren, John and H., Leeds, England. Governing device for engines, &c	692,893	Feb. 11	1231	271, 272	98	1079
McLean, Clarence S. (See Downs, Edgar S., assignor.)						
McLean, Daniel L. (See Lambkin, William L., assignor.)						
McLean, Embury. (See Darrin and McLean.)						
McLemore, Walter S., assignor of one-half to R. Wedgeworth, Estabutchie, Miss. Baling-press	693,993	Feb. 25	2383	743, 744	98	1556
McLinden, John D., New York, N. Y. Hot-water heater	692,320	Feb. 4	197	47	98	840
McMahon, Edward, Elmira, N. Y. Railway-signal	695,227	Mar. 18	2278	484	98	2236
McMahon, Robert, New York, N. Y. Paper-fastener	692,302	Feb. 11	2046	446	98	1944
McManus, Michael B., Titusville, Pa. Lift for well drilling and pumping rigs	696,272	Mar. 25	2628	809	98	2514
McMeans, Orange E., assignor to Richmond City Mill Works, Richmond, Ind. Support for dust-collector tubes	690,455	Jan. 7	132	28	98	80
McMichael, James G. (See Bain, Forée, assignor.)						
McMillan, Frank. (See Roebuck and McMillan.)						
McMillen, Samuel, Minneapolis, Minn. Ledger-index	695,236	Mar. 11	1706	378	98	2089
McMunn, Samuel W., Chicago, Ill. Car-truck	693,984	Feb. 25	2394	744	98	1557
McMyler Manufacturing Company. (See Titcomb, George E., assignor.)						
McNaghten, Samuel D., Wichita, Kans. Corn-planter	691,321	Jan. 14	1296	268	98	289
McNeal, Joseph N., Brockway, Minn. Governor	692,330	Feb. 4	199	47	98	840
McNeal, Luther C., Rochester, N. Y. File	690,869	Jan. 7	943	211	98	198
McNeely Bros. (See Baumgarten, Albert, assignor.)						
McNicol, Archibald, Ypsilanti, Mich. Hook and eye	694,777	Mar. 4	856	189	98	1892
McNish, Thomas T., Allegheny, Pa. Closing containing vessels	695,759	Mar. 18	2344	601	98	2299
McNutt, John F., Cincinnati, Ohio. Controlling mechanism for motor-vehicles	690,756	Jan. 7	757	168, 169	98	160
McNutt, John F., Cincinnati, Ohio. Motor-vehicle	692,064	Jan. 28	2210	725	98	716
McNutt, John F. Warren, assignor to Harris Automatic Press Company, Niles, Ohio. Numbering-machine	694,408	Mar. 4	137	30, 31, 32	98	1741
McOaker, John J., Woonsocket, R. I. Flier	694,864	Mar. 4	1055	233	98	1885
McOuat, Eugene, Malden, Mass. Incandescent lamp	694,068	Feb. 25	2345	782	98	1590
McQueen, Finlay R., Superior, Wis. Fireproof grain-bin	692,894	Feb. 11	1233	272, 273	98	1078
McTammany, John, Worcester, Mass. Automatic musical instrument	693,207	Jan. 28	2458	781, 782	98	765
McTammany, John, Spencer, Mass. Mechanical musical instrument	693,208	Jan. 28	2462	785	98	769
McTear, Balfour F., Rainhill, England. Manufacture of seamless and weldless tubes or hollow bodies	691,737	Jan. 21	2360	573, 574	98	559
McWilliams, Joseph. (See Atkins, Charles H., assignor.)						
McWillie, William, Canton, Miss. Rail-fastener	695,112	Mar. 11	1490	330	98	2041
Mead, James A., Corry, Pa. Holder for dental devices	694,021	Feb. 25	2454	782	98	1571
Meade, Arthur H., New Richmond, Mich. Chopper and thinner for plants	691,268	Jan. 14	1709	387	98	873
Meader, George, Fowler, Ind. Railway-track and car-truck	690,597	Jan. 7	448	95	98	98

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Meakim, George C. (See Summers, John T., assignor.)						
Mealey, Elizabeth A. and G. M., Chatham, N. Y. Window-cleaner	695,070	Mar. 11	1413	310	98	2085
Mealey, George M. (See Mealey, Elizabeth A. and G. M.)						
Mechanical Improvements Company. (See Hess, Edward B., assignor.)						
Mechanical Improvements Company. (See Hess and Stoughton, assignors.)						
Mecredy, James, London, England. Evaporating apparatus	692,465	Feb. 4	426	100, 101	98	696
Medbery, Nelson H., Providence, R. I. Bushing for bung-holes	694,709	Mar. 4	843	186	98	1890
Medearis, Lorain C. (See Pollard, Amos E., assignor.)						
Meeker, George H., Media, Pa. Electric meter	690,450	Jan. 7	121	26	98	26
Meeker, William P., Newark, N. J. Tile-faced surface and constructing same	691,791	Jan. 28	2715	610	98	618
Meeks, Jacob A., *et al.* (See Miller, Jacob B., assignor.)						
Meier, Johann, Bremen, Germany. Espagnolette-lock	695,680	Mar. 18	2418	547	98	2254
Meighan, George A., Providence, R. I. Bicycle-saddle	694,875	Mar. 4	1039	230	98	1932
Meigs, John F., and S. A. S. Hammar, assignors to Bethlehem Steel Company, South Bethlehem, Pa. Breech-loading gun	696,063	Mar. 25	3321	729	98	2428
Meigs, John F., and R. P. Stout, assignors to Bethlehem Steel Company, South Bethlehem, Pa. Gun carriage or mount	696,064	Mar. 25	3326	729, 730	98	2428
Meinl, William, New York, N. Y. Clarinet	691,646	Jan. 21	2413	543	98	537
Meiser, William H., Linglestown, Pa. Metallic railway-tie	691,647	Jan. 21	2414	543	98	537
Melish, Thomas G., Cincinnati, Ohio. Corn-popper	694,657	Mar. 4	615	134	98	1543
Melish, Thomas G., Cincinnati, Ohio. Flour-sifter	695,575	Mar. 18	2838	580	98	2288
Mellen, Edwin D. (See Davis, Isaac H., assignor.)						
Mellen, Edwin D. (See Davis and Mellen.)						
Meller, Frederick A., assignor of one-half to F. J. O'Reilly, Woonsocket, R. I. Flier	694,876	Mar. 4	1041	220	98	1088
Melody, James F., *et al.* (See Grant, Max, assignor.)						
Melville, George W., Washington, D. C. Aerial toy	692,297	Feb. 11	2040	445	98	1948
Mendel, Moritz, St. Johann, Germany. Rosette for forming crossed joints for metal bars	690,598	Jan. 7	449	95, 96	98	96
Mendenhall, Clarence M. (See Lindstrom, Charles, assignor.)						
Menz, Rudolph, Adelaide, South Australia. Cooling safe or chamber	691,401	Jan. 21	1978	443, 444	98	447
Menzies, James, London, England. Waterproofing fabrics	690,868	Jan. 7	942	.....	98	199
Mercié, Henri A. (See Benét and Mercié.)						
Mergenthaler Linotype Co. (See Daley, Daniel F., assignor.)						
Mergenthaler Linotype Company. (See Bean, Alfred, assignor.)						
Mergenthaler Linotype Company. (See Dodge, Philip T., assignor.)						
Mergenthaler Linotype Company. (See Elliott and Holliwell, assignors.)						
Mergenthaler Linotype Company. (See Rogers, John R., assignor.)						
Mergenthaler Linotype Company. (See Whittaker, Matthew H., assignor.)						
Merker, William, New York, N. Y. Swing	693,040	Feb. 11	1510	328, 329	98	1157
Merley, Adam J. (See Warstler, Levi, assignor.)						
Merling, Georg, Frankfort-on-the-Main, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Trimethyl hexahydroöxybenzylanilin and making same	691,157	Jan. 14	1468	.....	98	220
Mern, John P., Brooklyn, N. Y. Hydrant-cap	694,170	Feb. 25	3740	826	98	1689
Merrick, Frank A., and J. D. Forrer, Johnstown, Pa., assignors to Lorain Steel Company. Circuit-breaker	693,416	Feb. 18	2278	497, 498	98	1313
Merrill, Bela G. (See Turk and Merrill.)						
Merrimac Mattress Manufacturing Company. (See Hutchison and Leighton, assignors.)						
Mershon, Edward C., East Saginaw, Mich. Planer-bed	693,559	Feb. 18	2539	559	98	1393
Mertens, Frederick, *et al.* (See Nelson, William H., assignor.)						
Mertz, Henry J., Beardstown, Ill. Nut-lock	695,941	Mar. 25	2990	675	98	2254
Mesland, Maurice, Paris, France. Apparatus for producing fluorin	693,693	Feb. 4	839	190	98	971
Messer, Miller, Mount Pleasant, Iowa. Adjustable metallic screen-frame	690,599	Jan. 7	450	96	98	96
Mészáros, Alexander, Székesfejérvár, Austria-Hungary. Preserving organic substances.	691,402	Jan. 21	1980	444	98	447
Metallic Condense Company. (See McKnight, Robert, assignor.)						
Metalline-Platten-Gesellschaft M. B. H. (See Ahrle, Carl P. H., assignor.)						
Metcalf, George A., and R. K. Hall, Woonsocket, R. I. Spraying-machine	694,106	Feb. 25	3606	798	98	1601
Metcalfe, John, and T. Bell, Roscoe, Pa. Thread-holder	695,382	Mar. 11	1875	417	98	2128
Metcalfe, John T., Quincy, Pa. Igniter for explosive-engines	691,561	Jan. 21	2343	505, 506	98	502
Metcalfe, Thomas L. (See Martin, Van Buren, assignor.)						
Metz, Andrew, assignor to A. Metz & Company, Chicago, Ill. Balanced puppet-valve	690,979	Jan. 14	1163	263	98	288
Metz & Company, A. (See Metz, Andrew, assignor.)						
Metz, Frank C., Allegheny, Pa. Screw-propeller	691,798	Jan. 28	2716	610	98	618
Meurant, Jules, Liege, Belgium. Electrolytic process	694,658	Mar. 4	617	.....	98	1543
Meyer, Arthur, Geneva, Switzerland. Cartridge-belt	691,406	Jan. 21	1981	444	98	446
Meyer, Dominick J., Allegheny, Pa. Metallic railway-tie and rail-fastening	693,689	Feb. 4	841	191	98	972
Meyer, Frank, Paterson, N. J. Braiding-machine	695,469	Mar. 18	2119	477	98	2188
Meyer, Frederick W., Louisville, Ky. Flushing-valve	694,107	Feb. 25	3608	798	98	1603
Meyer, George, New York, N. Y. Apparatus for securing rubber tires to wheels	693,879	Feb. 25	3160	699	98	1513
Meyer, Henry L., assignor of two-thirds to J. F. Donnell and G. O. Biedermann, Festus, Mo. Combined rolling-pin, potato-masher, and biscuit-cutter	694,006	Feb. 25	3542	781	98	1589
Meyer, John B. (See Miller, George J., assignor.)						
Meyer, Otto, Richmond, Va. Electrolytic solution	691,158	Jan. 14	1466	.....	98	220
Meyer, Svend M., assignor of one-half to F. C. Kohart, Brooklyn, N. Y. Electric-arc lamp	693,041	Feb. 11	1511	329	98	1137
Meyer, Svend M., assignor of one-half to F. C. Kohart, Brooklyn, N. Y. Electric-arc lamp	693,663	Feb. 18	2746	606	98	1410
Meyers, Henry E., Butte, Mont. Portable electric welding-machine	691,404	Jan. 21	1969	444	98	446
Michael, William B., Chattanooga, Tenn. Scraper for reversible-disk plows	693,049	Feb. 11	1514	329, 330	98	1137
Michailoff, Seemon, Odessa, Russia. Casting-mold	694,566	Mar. 4	659	97	98	1809
Michigan Malleable Iron Co. *et al.* (See Handiges, Philip T., assignor.)						
Middlebrook, William D., assignor to Oakville Company, Waterbury, Conn. Machine for sticking safety-pins	693,978	Feb. 25	3370	739, 740, 741	98	1554
Middleton, George W., assignor of one-half to J. J. Serr, Corunna, Mich. Removable boiler-flue	693,998	Feb. 11	2042	445	98	1943
Miehle, Robert, Chicago, Ill. Fly-finger for printing-presses	693,043	Feb. 11	1515	330	98	1138
Miehle, Robert, Chicago, Ill. Offset mechanism for printing-presses	693,044	Feb. 11	1516	330, 331	98	1138
Migliarli, Giovanni, Cleveland, Ohio. Cartridge-box	695,576	Mar. 18	2840	580, 581	98	2288

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Milam, Young M., assignor of one-fourth to R. Krause, Lake Charles, La. Syringe	695,470	Mar. 18	2120	477	98	2108
Milans, Joseph H., Washington, D. C., assignor to Curtain Supply Company, Jersey City, N. J., and Chicago, Ill. Spring-actuated curtain-holding device	690,980	Jan. 14	1164	263	98	256
Milans, Joseph H., Washington, D. C., assignor to Curtain Supply Company, Jersey City, N. J., and Chicago, Ill. Holding-fixture for spring-actuated shades	698,664	Feb. 18	2747	605	98	1410
Milans, Joseph H., Washington, D. C., assignor to Curtain Supply Company, Jersey City, N. J., and Chicago, Ill. Holding-fixture for curtains or shades	696,602	Mar. 18	2589	574	98	2277
Milbank, Robert. (See Latham, James R., assignor.)						
Miles, Henry D., Detroit, Mich., assignor to Union Switch and Signal Company, Swissvale, Pa. Motor for railway devices	692,690	Feb. 4	842	191	98	972
Miles, John W. (See Conover and Miles.)						
Millard, Alfred. (See Patten, Simon R., assignor.)						
Milles, Thomas D., Springfield, Mass., assignor to Springfield Engine Stop Company, New York, N. Y. Stop mechanism for engines	694,877	Mar. 4	1042	290 231	98	1082
Miller, Adolph N., North Milwaukee, Wis. Bicycle	695,164	Mar. 11	1591	353	98	2065
Miller, August, St. Louis, Mo. Grain-car door	695,165	Mar. 11	1592	353	98	2066
Miller, August J. F., assignor of one-half to C. P. Marshall, Centralia, Ill. Furnace	695,730	Mar. 18	2086	498	98	2997
Miller, Du Brul and Peters Manufacturing Co. (See Du Brul, Cyriac and L. J., assignors.)						
Miller, Du Brul & Peters Manufacturing Company. (See Follows, George H., assignor.)						
Miller, Francis J., Washington, D. C. Door-check	690,600	Jan. 7	450	96	98	97
Miller, Frederic S., deceased, Brooklyn; W. B. Davenport, executor, assignor to H. W. Johns Manufacturing Company, New York, N. Y. Roofing material	690,526	Jan. 7	311	62	98	68
Miller, George J., assignor of one-half to J. B. Meyer, Baltimore, Md. Rolling-pin	695,411	Mar. 11	2016	453	98	2153
Miller, Harold L., Pasadena, Cal. Automatically-controlled rheostat for use in electric-motor circuits	696,065	Mar. 25	3229	730	98	3423
Miller, Henry C., Jr., assignor of one-half to P. J. Miller, Hazleton, Pa. Grinding or polishing cone	691,068	Jan. 14	1320	298	98	280
	695,471	Mar. 18	2123	478	98	2105
Miller, Henry T., Norman, Okla. Ter. Fruit-crate	691,957	Jan. 28	3000	675 676	98	677
Miller, Jacob B., assignor of three-fifths to J. A. Meeks, R. M. Ball, W. H. Moreland, O. J. Lotz, and W. H. Hickman, Muncie, Ind. Pump-operating mechanism	698,046	Feb. 11	1584	362	98	1140
Miller, Jacob C., Milwaukee, Wis. Metallic packing	695,472	Mar. 18	2123	479	98	2106
Miller, James B., Kent, Ohio. Escutcheon-plate						
Miller, John A. (See Bickerstaff, James P., assignor.)						
Miller, John M., Baldwin, Kans. Heating and ventilating apparatus	692,164	Jan. 28	3376	764 765	98	750
Miller, John S., assignor of one-half to J. B. Barrand and H. A. Pequignat, Fort Wayne, Ind. Stave-column	694,890	Feb. 25	4064	904	98	1687
Miller, John Z., *et al.* (See Paca, William S., assignor.)						
Miller Lock Company. (See Soley, Frank, assignor.)						
Miller, Nicholas C., Dodgeville, Wis. Hay-distributer	691,405	Jan. 21	1983	445	98	448
Miller, Oliver A. (See Batchelder, Charles A., assignor.)						
Miller, Oliver A. (See Reynolds, Jonathan E., assignor.)						
Miller, Peter J. (See Miller, Henry C., Jr., assignor.)						
Miller, Philip S., Seattle, Wash. Plastering-trowel	696,066	Mar. 25	3231	731	98	2433
Miller, Thomas O., St. Louis, Mo., assignor of forty-nine one-hundredths to S. J. Wimberly, Houston, Tex. Coin-holder	698,047	Feb. 11	1586	362	98	1140
Miller, Thomas S. (See Delaney and Miller.)						
Miller, Thomas S., South Orange, N. J. Conveying apparatus	691,911	Jan. 28	2921	658 659	98	600
Miller, Warren, Murphysboro, Ill. Baling-press	698,729	Feb. 18	2873	668 669	98	1436
Millhiser, Clarence, and C. L. A. Doeppe, assignors to Millhiser Manufacturing Company, Richmond, Va. Pouch-making machine	692,987	Feb. 11	1215	269 270	98	1074
Millhiser, Clarence, and C. L. A. Doeppe, assignors to Millhiser Manufacturing Company, Richmond, Va. Pouch-making machine	698,045	Feb. 11	1519	331 332	98	1139
Millhiser Manufacturing Company. (See Millhiser and Doeppe, assignors.)						
Milliken, John A., Flushing, N. Y., assignor to E. Doig, executrix of W. S. Doig, deceased. Nail-chuck	691,725	Jan. 21	2537	572	98	568
	692,596	Feb. 4	193	44	98	839
Millis, Melvin M., Cooperstown, N. Y. Anticribbing device	698,817	Feb. 18	3024	669	98	1467
Mills, Charles, and R. W. Hunton, assignors to Saco & Pettie Machine Shops, Newton, Mass. Card-clothing	691,958	Jan. 28	3011	676	98	677
Mills, Charles W., Rumford Falls, Me. Gas-separator for digesters	694,878	Mar. 4	1045	232	98	1333
Mills, John F., Jr., and C. Fremd, Jr., Port Chester, N. Y. Mail catcher and deliverer	691,283	Jan. 14	1710	387	98	872
Milner, Henry K., Birmingham, Ala. Automatic fire-extinguisher						
Milner, J. K. (See Watkins, Orla H., assignor.)						
Milwaukee Valve Company. (See Huck, Albert, assignor.)						
Miniszewski, Josef von, Petrikau, assignor of one-half to T. von Mohl, Wyszki, Russia. Pneumatic picker for looms	691,726	Jan. 21	2558	572 573	98	568
Mink, Benjamin A. (See Walters, Edward E., assignor.)						
Mink, Peter, Niederzeuzheim, Germany. Barrel-closure	694,171	Feb. 25	3742	836	98	1826
Minkus, Ferdinand, New York, N. Y. Swimming appliance	698,615	Feb. 18	2961	587	98	1302
Mitchell, Alexander I., Rumford Falls, Me. Self-playing mandolin	696,417	Feb. 18	2276	498	98	1313
Mitchell Gas Generator and Burner Company. (See Mitchell, Willis, assignor.)						
Mitchell, George, Los Angeles, Cal. Copper-smelting furnace	691,648	Jan. 21	2417	543	98	536
Mitchell, George, Naco, Ariz. Ter. Pipe-cutter	691,649	Jan. 21	2418	544	98	536
Mitchell, George, Westminster, London, England. Extracting gutta-percha or the like from leaves or twigs containing it	695,751	Mar. 18	2537	.....	98	2997
	694,976	Mar. 11	1235	270	98	1991
Mitchell, J. Vessey, Ottawa, Kans. Poultry-coop	698,780	Feb. 18	2977	688	98	1438
Mitchell, John, Ponsonby, New Zealand. Leg-guard	698,880	Feb. 25	3164	699	98	1513
Mitchell, Robert, Cincinnati, Ohio. Grate for boiler-furnaces	694,770	Mar. 4	844	186 187	98	1690
Mitchell, Willis, Malden, assignor to Mitchell Gas Generator and Burner Company, Boston, Mass. Vapor-heated smoothing-iron	695,328	Mar. 11	1875	418	98	2128
Mittinger, George E., Jr., assignor to W. Dunbar, Cleveland, Ohio. Cleansing pipes	696,067	Mar. 25	3231	731	98	2434
Mix, Edward H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Cylinder for locks	695,577	Mar. 18	2342	531	98	2289
Möckel, Emil O., Crottendorf, Germany. Machine for cleaning playing-cards						
Modern Telescope Company. (See Phillips, Edwin U., assignor.)						
Modjeski, Ralph. (See Tullock, Modjeski, and Carter.)						
Moehle, Frederich, Sheffield, Iowa. Bed-spring	695,752	Mar. 18	2337	599	98	2297
Moeller, Louis K., *et al.* (See Forney, Elwood W., assignor.)						
Moffett Bearing Company. (See Perkins, Julius A., assignor.)						
Moffett, Marcus H., assignor to National Carbon Company, Cleveland, Ohio. Sparking-coil	690,750	Jan. 7	750	167	98	156
Mohl, Theofil von. (See Miniszewski, Josef von, assignor.)						
Mohrhoff, Charles F., Oak Station, Pa. Title-plate for binders	698,616	Feb. 18	2962	588	98	1302

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Moineaux, Alfred V. Des, Silverplume, Colo. Miners' safety loading-tool	692,687	Feb. 4	740	171	98	951
Moller, Jacob A., Jr., Brooklyn, N. Y. Stopper for bottles	692,058	Jan. 28	3200	722	98	714
Möller, Max. (See Hoeft and Schultz, assignors.)						
Molloy, Edmond, Philadelphia, Pa. Sheet-metal I-beam	693,560	Feb. 18	2540	559, 560	98	1366
Moloney, James A. (See Moloney, Michael J., assignor.)						
Moloney, Michael J., assignor of one-half to J. A. Moloney, Rochester, N. Y. Shoe	691,284	Jan. 14	1712	398	98	873
Monaco, Giuseppe del, Trieste, Austria-Hungary. Electric signaling device for preventing railway collisions	692,533	Feb. 4	565	153	98	913
Monash-Younker Company. (See Leuthesser, Fred W., assignor.)						
Monath, Victor, Vienna, Austria-Hungary. Electrically-heated apparatus	693,144	Feb. 11	1725	878	98	1179
Monroe, William E., assignor of one-third to C. Whitehead, Newport, Ky. Telescopic fire-escape and convertible scaffolding	694,771	Mar. 4	846	187	98	1800
Monshausen, Nicholas, Milwaukee, Wis., assignor to Enameled Steel Roofing Company. Roofing-tile	691,650	Jan. 21	2419	544	98	588
Monson, Philip T. J. (See Harwood, Gedge, and Monson.)						
Montague, Thomas D., Mawrglen, Pa. Ironing-board	695,394	Mar. 11	1878	418	98	2122
Montgomery, John, Sincoe, Canada. Grain-car door	693,979	Feb. 25	3375	741	98	1555
Montgomery, Walter R., Shreveport, La. Coffee or tea pot attachment	693,418	Feb. 18	2277	499	98	1314
Montgomery, Walter S., Arlington, N. J. Automatic relief and condenser valve	691,067	Jan. 14	1321	299	98	290
Montgomery, William G., assignor of one-half to F. Shields, Erie, Pa. Crank-pin oil-cup	692,195	Jan. 28	3419	774	98	759
Moody, Walter S., Schenectady, N. Y., assignor to General Electric Company. Insulation	691,798	Jan. 28	2717	610	98	618
Moody, William W. (See Watkins, James T., assignor.)						
Mooers, Louis P., assignor to Peerless Manufacturing Company, Cleveland, Ohio. Steering mechanism for motor-vehicles	695,222	Mar. 11	1700	377	98	2087
Moon, Herman, assignor to H. B. McKinney, F. K. Squier, W. W. Van Eman, and C. W. Forrest, Grove City, Pa. Clutch	691,330	Jan. 14	1704	407	98	889
Mooney, Herman O., Farmington, N. H. Pipe-coupling	695,071	Mar. 11	1414	310	98	2028
Moore, Brady W. (See Wall and Moore.)						
Moore, Charlie F., Ormondsville, N. C. Tobacco-truck	695,412	Mar. 11	2017	458	98	2153
Moore, Clifton M., Monroe, Me. Car-fender	692,691	Feb. 4	844	191	98	972
Moore, Edward Y., Cleveland, Ohio, assignor, by mesne assignments, to Chicago Pneumatic Tool Company. Engine-brake	694,406	Mar. 4	190	29	98	1740
Moore, Edward Y., Cleveland, Ohio, assignor, by mesne assignments, to Chicago Pneumatic Tool Company. Hoisting system	696,181	Mar. 25	3486	780, 781	98	2486
Moore, Elmer E., *et al.* (See Barr, Addison, assignor.)						
Moore, Enos L., Portsmouth, Ohio. Building-block for flues	695,822	Mar. 18	2770	632	98	2325
Moore, George F., West Wilkinsburg, Pa. Brake mechanism for vehicles	693,781	Feb. 18	2879	633	98	1488
Moore, George F., Jr., Jacksonville, Fla. Spark-arrester	692,165	Jan. 28	3377	765	98	750
Moore, George R., Erie, Pa. Mail-bag catching and delivering mechanism	691,285	Jan. 14	1714	388, 389	98	873
Moore, Hiram C., Springfield, Mass. Photographic screen or canopy	694,172	Feb. 25	3743	826, 827	98	1629
Moore, James, Hanover, Ill. Machine for handling barbed wire	694,404	Mar. 4	132	29	98	1740
Moore, James R., Newcastle-upon-Tyne, England. Frame for velocipedes	694,567	Mar. 4	455	97	98	1800
Moore, John W., and J. A. White, Philadelphia, Pa. Paper-making machine	694,772	Mar. 4	848	187	98	1801
Moore, John W., and J. A. White, Philadelphia, Pa. Fourdrinier paper-making machine	695,753	Mar. 18	2638	599	98	2297
Moore Leather Machine Company. (See Moore, William H., assignor.)						
Moore, Orville H., assignor of one-half to E. G. Murphy, Sandyhill, N. Y. Pulp-screen	695,754	Mar. 18	2639	599, 600	98	2298
Moore, Robert C., Kansas City, Mo. Electric switch	694,977	Mar. 11	1236	271	98	1991
Moore, Samuel B., and W. Tatum, assignors of one-third to R. F. Kimmons, Watervalley, Miss. Hay-press	696,109	Mar. 11	1475	329	98	2040
Moore, Walter B., *et al.* (See Pierce, John, assignor.)						
Moore, William A. (See Talbert, Lindley A., assignor.)						
Moore, William H., Salem, Mass., assignor to Moore Leather Machine Company, Kittery, Me. Leather-coloring machine	693,561	Feb. 18	2541	560, 561	98	1369
Moore, Wm. R. (See Washburn, Henry L., assignor.)						
Moores, William, New York, N. Y. Nasal distender	690,527	Jan. 7	312	62	98	68
Moradelli, Carl. (See Cerebotani, Luigi, assignor.)						
Moran, Daniel E., Mendham, N. J. Air-lock	694,978	Mar. 11	1243	271	98	1998
Moran, Katherine V., assignor to J. B. De Lery, New York, N. Y. Incandescent gas-mantle	692,692	Feb. 4	845	192	98	978
Moran, Patrick J., Memphis, Tenn. Railway bed or tie	695,823	Mar. 18	2771	632	98	2325
Moran, Thomas W., Louisville, Ky. Pivot-joint for pipes	694,331	Feb. 25	4055	904	98	1697
Moran, Thomas W., Louisville, Ky. Feed-water regulator and high or low water alarm for steam-boilers	696,325	Mar. 11	1878	418	98	2123
Moreland, William H., *et al.* (See Miller, Jacob B., assignor.)						
Morenus, William H., Lakeview, Iowa, assignor to F. C. Austin, Chicago, Ill. Grading and ditching machine	690,451	Jan. 7	125	26, 27	98	28
Morgal, Lewis E., assignor of one-half to C. B. Cropley, Washington, D. C. Milk-aerator	694,296	Feb. 25	3962	882	98	1674
Morgan, Alfred W., Urbana, Ill., assignor of one-half to F. Girty, administrator of G. I. Girty, deceased. Flying top	692,388	Feb. 11	2096	459	98	1256
Morgan, Charles H., assignor to Morgan Construction Company, Worcester, Mass. Furnace for heating billets	694,092	Feb. 25	3455	768	98	1571
Morgan Construction Company. (See Edwards and Morgan, assignors.)						
Morgan Construction Company. (See George and Edwards, assignor.)						
Morgan Construction Company. (See Morgan, Charles H., assignor.)						
Morgan, David H., Cleveland, Ohio. Hoist	693,881	Feb. 25	3165	699	98	1513
Morgan, David J., Pittsburg, Pa. Ram	696,068	Mar. 25	3383	781, 782	98	2434
Morgan, Henry, assignor of one-half to J. O'Riley, Cripplecreek, Colo. Bar mixing-glass	693,732	Feb. 18	2880	634	98	1488
Morgan, John W., Detroit, Mich. Cabinet for displaying merchandise	695,478	Mar. 18	2123	478	98	2193
Morgan, Joseph, Johnstown, Pa. Apparatus for metal-rolling	691,159	Jan. 14	1468	333	98	321
Morgan, Lewis H., Plainfield, N. J. Stud setting and extracting tool	691,406	Jan. 21	1986	445	98	449
Morgan, Paul B. (See Edwards and Morgan.)						
Morgan, Ralph L., Toledo, Ohio, assignor to American Bicycle Company, Jersey City, N. J., and New York, N. Y. Boiler	690,981	Jan. 14	1166	264	98	250
Morgan, William L., Burlington, Iowa. Toy paddle	693,693	Feb. 4	846	192	98	978
Morgan, William L., Burlington, Iowa. Detonating toy	693,694	Feb. 4	847	192	98	978
Morgans, William, Chelsea, England. Steam-generator	691,286	Jan. 14	1716	389, 390, 391	98	873
Moriarty, Thomas J., assignor of one-half to J. T. Reagan, Newport, R. I. Torpedo-boat	691,160	Jan. 14	1470	333, 334	98	321

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Morley, Albert, assignor to S. M. Sutherland, trustee, Chicago, Ill. Folding sewing-machine table	693,419	Feb. 18	2279	499	98	1314
Morley Button Manufacturing Company. (See Ellery, Robert L., assignor.)						
Morley, Frederic A., Brooklyn, N. Y. Parallel extensible ruler	692,794	Feb. 4	1083	223	98	1007
Morrill, Marcellus T. (See Reed and Morrill.)						
Morrill, Roland, Benton Harbor, Mich. Sprayer	691,651	Jan. 21	2430	544	98	539
Morrill, Roland, Benton Harbor, Mich. Pump	691,652	Jan. 21	2432	544	98	539
Morris, Calvin S., St. Louis, Mo. Sample-display case	695,226	Mar. 11	1892	419	98	1131
Morris, Charles W., Philadelphia, Pa. Salt-cellar	693,466	Feb. 4	429	101	98	857
Morris, George O., assignor of two-thirds to S. S. Crompton and G. H. McKinley, Moline, Ill. Device for automatically inflating pneumatic tires	690,601	Jan. 7	451	97	98	97
Morris, Henry S. (See Straus, Elise, assignor.)						
Morris, John B., *et al.* (See Hayward, Eugene, assignor.)						
Morris, Nathan E., Jr. (See Maney, William H., assignor.)						
Morris, William L., Cleveland, Ohio. Blow-off valve	694,778	Mar. 4	850	188	98	1891
Morris, William R., Cripplecreek, Colo. Ore or grain sack	695,698	Mar. 18	2541	575	98	2377
Morrison, Joseph B., assignor to Morrison Manufacturing Company, Fort Madison, Iowa. Harrow	693,892	Feb. 25	3166	700	98	1513
Morrison Manufacturing Company. (See Morrison, Joseph B., assignor.)						
Morrison, Thomas, Braddock, Pa. Chimney-valve for hot-blast stoves	691,476	Jan. 21	2108	472	98	472
Morrison, Willard A., and F. L. Bryant, Chicago, Ill. Clamp for metal bedsteads	693,562	Feb. 18	2547	561	98	1870
Morrow, Alexander P., Elmira, N. Y. Bicycle	693,299	Feb. 11	2043	445	98	1944
Morrow, Norman, *et al.* (See Dempster, Robert, assignor.)						
Morse, Alfred B., assignor, by mesne assignments, to Universal Winding Company, Boston, Mass. Winding-machine	695,645	Mar. 18	2468	558 559	98	2303
	690,988	Jan. 14	1167	264	98	259
Morse, Annie E., Montreal, Canada. Cap						
Morse, Charles N., *et al.* (See Priest, Louis, assignor.)						
Morse, Edward R., Birmingham, Ala. Ice-cream freezer	693,059	Jan. 28	2572	722	98	714
Morse, Frank W., Boston, Mass. Incandescent-lamp support	695,646	Mar. 18	2466	559	98	2264
Morse, Stephen B., Rahway, N. J. Hydrocarbon-lamp	691,003	Jan. 14	1328	299	98	291
Morse, Stephen B., Rahway, N. J. Combined curb and gutter	691,704	Jan. 28	2718	611	98	618
Mortimer, Charles G., Brooklyn, N. Y. Printing-press	696,145	Mar. 25	3488	788	98	2475
Morton, Ephraim S., Brockton, Mass. Last	694,559	Mar. 4	619	134	98	1843
Morton, James R. U. (See Morton, William U. and J. R. U.)						
Morton, Philancy D., Lemoyne, Ohio. Spool-holding frame	691,287	Jan. 14	1780	391	98	374
Morton, William U. and J. R. U., Glasgow, Scotland. Eyelet-sewing machine	696,069	Mar. 25	3337	753	98	2435
Moseley, Charles S., assignor of one-half to C. S. Perry, Chicago, Ill. Time-stamp	690,910	Jan. 7	1095	241	98	214
Moses, John, Youngstown, Iowa. Car-dump for elevators in mines	693,888	Feb. 11	1991	270	98	1076
Mosher, Charles P., Philadelphia, Pa. Cherry-stoner	690,968	Jan. 14	1168	264	98	259
Mosher, George A., Troy, N. Y. Button-setting machine	693,048	Feb. 11	1527	333 334	98	1141
	694,405	Mar. 4	155	29	98	1740
Moss, Beverly G., Washington, N. C. Lumber-measurer						
Moss, Leon F. (See Bell, Walter J., assignor.)						
Moss, William H., Port Huron, Mich. Lawn-trimmer	695,166	Mar. 11	1588	354	98	2066
Mossberg, Frank, Attleboro, Mass. Wrench	695,072	Mar. 11	1416	310	98	2029
Mothander, John J., *et al.* (See Darwin, Frank L., assignor.)						
Motsinger, Homer N., Pendleton, Ind. Engine	695,824	Mar. 18	2772	622 623	98	2825
	696,250	Mar. 25	3296	852	98	2558
Mott, Kirk A., Avalon, Mo. Skiascope						
Mott, Samuel D., Passaic, N. J., assignor, by mesne assignments, to Standard Power Company, New York, N. Y. Hydrocarbon-burner	695,223	Mar. 11	1702	377	98	2069
	693,723	Feb. 18	2951	654	98	1456
Moulton, Susan P., Salem, Mass. Car-coupling						
Mountford, Clarence E. (See Seybold and Mountford.)						
Mower, Charles W. (See Griffiths, Hitzrot, and Mower.)						
Moxie Nerve Food Company of New England. (See Thompson and Young, assignors.)	692,227	Feb. 4	194	45	98	899
Moyer, Horace D., Hazleton, Pa. Salting peanuts						
Moyle, Leigh, assignor, by mesne assignments, to Handlan-Buck Manufacturing Company, St. Louis, Mo. Hose or pipe coupling	692,795	Feb. 4	1094	253	98	1007
	695,021	Mar. 18	2419	547	98	2254
Moyle, Richard L., assignor of one-third to J. H. Warner, New York, N. Y. Tile floor						
Moyle, Richard L., assignor of one-third to J. H. Warner, New York, N. Y. Combination-tile for floors	695,647	Mar. 18	2468	559	98	2254
	694,774	Mar. 4	851	188	98	1892
Muehlberg, Karl O., Braddock, Pa. Center-square	694,979	Mar. 11	1244	273	98	1968
Mueller, Carl P., Dallas, Tex. Easel	695,110	Mar. 11	1477	329	98	2041
Mueller, Charles F., Elizabeth, N. J. Bevel	693,420	Feb. 18	2260	490	98	1314
Mueller, Herman C., and K. Langenbeck, Zanesville, Ohio. Glazing tile	691,562	Jan. 21	2245	506	98	502
Mueller, John, Lisbon, N. D. Tool-handle						
Muenger, Fredrick, assignor of one-half to C. von Woehrmann, Hill City, S. D. Drift-pin for drilling-machines	693,049	Feb. 11	1584	354	98	1145
	693,467	Feb. 4	431	101	98	897
Mugnier, Joseph, Lyons, France. Fabric						
Mullen, Daniel J., Middletown, Ohio. Bag-making machine	693,695	Feb. 4	848	192 193 194	98	973
Müller, Caroline, New Orleans, La. Lifter and carrier for bath-tubs, &c	693,200	Feb. 11	2044	445	98	1244
Muller, Edward A., Springfield, Ohio. Hand and power screw-press	693,960	Feb. 25	2877	742	98	1555
Muller, Edward J., Brooklyn, N. Y. Water-heater	694,660	Mar. 4	680	154	98	1844
Müller, Henry. (See Reinhold, Charles, assignor.)						
Müller, John P., assignor to E. M. Gubach & Co., New York, N. Y. Charring-tool for ornamenting wood	695,894	Mar. 18	2668	658	98	2260
	693,035	Jan. 28	2132	705	98	700
Muller, Louis, Chicago, Ill. Cigar-holder	694,879	Mar. 4	1049	238	98	1968
Mulligan, Bartley T., Brooklyn, N. Y. Pencil						
Mulroney, Anna M., *et al.*, executors. (See Harvey, Isaac, assignor.)						
Mulroney, J. R., *et al.*, executors. (See Harvey, Isaac, assignor.)						
Mumford, Edgar H., Plainfield, N. J. Stripping-plate	694,489	Mar. 4	880	64	98	1771
Mumford, Joseph F., Philadelphia, Pa. Making brushes	696,104	Mar. 25	3288	750	98	2454
Munch, Arthur, St. Paul, Minn. Traveling lawn-sprinkler	693,431	Feb. 18	2931	800	98	1514
Munckton, Sidney, Bournemouth, England. Apparatus for cleaning or polishing siphons	695,755	Mar. 18	2641	600	98	2268
Mundheim, Samuel, Fall River, Mass. Bandbox-stay	696,192	Mar. 25	3459	781	98	2457
Mundy, Joseph S. (See Campbell, Colin, assignor.)						
Munger, Ennis, Dallas, Tex. Stop and waste cock	694,850	Mar. 4	1060	238	98	1064
Munson, Sweney, Alliance, Nebr. Compound-engine valve	691,161	Jan. 14	1479	334	98	333
Murdoch, James M., *et al.* (See Bartley, Milton, assignor.) (Reissue.)						
Murdock and Geb Company. (See Murdock, Thomas J., assignor.)						
Murdock, James, Jr., Cincinnati, Ohio. Hand-press	693,050	Feb. 11	1585	354	98	1142
Murdock Parlor Grate Co. (See Emerson, Frederic M., assignor.)						
Murdock, Thomas J., assignor to Murdock and Geb Company, Franklin, Mass. Bobbin-holder	691,162	Jan. 14	1479	335	98	323

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Murphy, Andrew J., New York, N. Y. Valve device	691,477	Jan. 21	2104	473	98	473
Murphy, Barney, assignor of one-half to H. P. Downes, New Haven, Conn. Sash-fastener	695,327	Mar. 11	1883	419	98	2123
Murphy, Charles R., Decatur, Ill. Box for packing garments	692,584	Feb. 4	567	133	98	913
Murphy, E. G. (See Moore, Orville H., assignor.)						
Murphy, Earle W., Cambridge, Mass. Book-holder	694,490	Mar. 4	283	64	98	1772
Murphy, Everett J., Alvarado, Va. Hand-truck	692,422	Feb. 18	2283	500	98	1315
Murphy, John D., Chicago, Ill. Flooring-set	695,224	Mar. 11	1703	377 378	98	2093
Murphy, William B., New York, N. Y. Glove-fastener	691,653	Jan. 21	2425	545	98	540
Murphy, William B., assignor to L. N. Littauer, New York, N. Y. Glove-fastener	691,709	Jan. 21	2527	566	98	561
Murray, Benjamin F., Cleveland, N. C. Quilting-frame	695,413	Mar. 11	2019	458	98	2153
Murray, James, Boston, Mass. Water-heating apparatus	694,775	Mar. 4	853	188	98	1899
Murray, Stephen D., Dallas, Tex. Cotton-gin feeder	695,895	Mar. 18	2778	633	98	2285
Murray, William A., Cincinnati, Ohio. Spring-seat	692,585	Feb. 4	569	133	98	914
Murtagh, E. J., *et al.* (See Doering, August, assignor.)						
Musciacco, Augusto, Berlin, Germany. Apparatus for delivering equal quantities of liquid	692,338	Feb. 4	195	45, 46	98	840
Musorofiti, Rocco, New York, N. Y. Bread, &c., and making same	692,899	Feb. 11	1223	.....	98	1076
Musser, C. R., *et al.* (See Boos, Joseph B., assignor.)						
Myer, John H. (See Cook, George W., assignor.)						
Myers, Alfred, Dryden, N. Y. Acetylene-gas generator	691,959	Jan. 28	3012	676	98	678
Myers & Bro., F. E. (See Myers, Philip A., assignor.)						
Myers, Charles S., Columbus, Ohio. Adjustable shade and curtain fixture	695,694	Mar. 18	2542	575	98	2278
Myers, Frank R. (See Schies, John, assignor.)						
Myers, John M., Louisville, Ky. Horseshoe	690,984	Jan. 14	1169	264	98	260
Myers, Philip A., assignor to F. E. Myers & Bro., Ashland, Ohio. Force-pump	691,654	Jan. 21	2426	545 546	98	540
Myers, Thomas, New York, N. Y. Cooling explosive-motors	693,589	Feb. 18	2497	546	98	1357
Myers, William D., Humboldt, Iowa, assignor to Warder, Bushnell & Glessner Company, Springfield, Ohio. Means for adjusting finger-bars of mowing-machines	690,452	Jan. 7	127	27	98	29
Nabours, William F., Solgohachia, Ark. Plow	696,253	Mar. 25	3024	610	98	2514
Nacke, Francis, San Francisco, Cal. Hair-picker	693,802	Feb. 18	2092	661	98	1460
Nagle, Augustus F., Montclair, N. J., assignor to E. H. Gowing, Reading, Mass. Steam-engine indicator	695,227	Mar. 11	1707	378	98	2089
Nagy, Emil, Budapest, Austria-Hungary. Artificial tooth-crown and making same	693,884	Feb. 25	3170	700	98	1514
Nahrwolt, William, Fort Wayne, Ind. Reversing mechanism	692,895	Feb. 11	1234	273	98	1079
Nance, Turner H., Talladega, Ala. Ladle	692,697	Feb. 4	853	195	98	974
Naret, Charles C. (See Coomber, James, assignor.)						
Nash, Arthur J., New York, N. Y. Means for pressing, perforating, and cutting glass in shapes	696,954	Mar. 25	3024	610	98	2515
Nash, Camillus A. (See Lewis, George W., assignor.)						
Nash, George D., *et al.* (See Holland, Joseph R., assignor.)						
Nash, Morris M., Lowell, Mass. Sleet-cleaning device for trolley-arms	690,757	Jan. 7	750	109	98	160
Nash, William C. (See Gilbert and Nash.)						
National Acme Manufacturing Company. (See Henn, Edwin C., assignor.)						
National Adjustable Chair Company. (See McKee and Saffell, assignors.)						
National Battery Company. (See Hassler, Robert H., assignor.)						
National Battery Company. (See Sperry, Elmer A., assignor.)						
National Carbon Company. (See Moffett, Marcus H., assignor.)						
National Cash Register Company. (See Bickford, Frank H., assignor.)						
National Cash Register Company. (See Carney, Thomas, assignor.)						
National Cash Register Company. (See Cleal, Joseph P., assignor.)						
National Cash Register Company. (See Guest, George H., assignor.)						
National Electric Improvement Company. (See Grell and Audiger, assignors.) (Reissue.)						
National Fibre Board Company. (See Cummings, Henry H., assignor.)						
National Machine Company. (See Hogan, James T., assignor.)						
National Malleable Castings Company. (See Carroll, John J., assignor.)						
National Malleable Castings Company. (See Coffin, Walter E., assignor.)						
National Malleable Castings Company. (See Stephenson, John W., assignor.)						
National Malleable Castings Company. (See Willison, John, assignor.)						
National Roller and Ball Bearing Company. (See Brewer, William J., assignor.)						
National Steel Refining Company. (See Jamison, Benton K., assignor.)						
National Tube Company. (See Boyd, Henry E., assignor.)						
National Wire Fence Company. (See Brown, Charles T., assignor.)						
Nau, John B., New York, N. Y. Furnace for heating ingots or billets	694,569	Mar. 4	455	98	98	1510
Nauen, Charles J., Paterson, N. J. Loom	695,622	Mar. 18	2430	548	98	2254
Nauffts, George A., Halifax, Canada. Automatic oil-feed cup	693,734	Feb. 18	2682	624	98	1423
Naumann, Robert, New York, N. Y. Printing-press attachment	692,005	Jan. 28	3212	725	98	716
Nay, J. C. (See Dotts, Hiram S., assignor.)						
Neederman, Stephen, *et al.* (See Madas, Louis, assignor.)						
Needham, Henry C., Los Angeles, Cal. Combination kitchen implement	694,491	Mar. 4	283	65	98	1772
Neely, Ira L., Fairmount, Ind. Gas and water separator	690,986	Jan. 14	1171	265	98	260
Neese, William H. (See Herr, Samuel, assignor.)						
Neider, Fred A. (See Marggraff, Frederick, assignor.)						
Neill, Samuel F., Bradford, Pa. Electric igniting apparatus for explosive-engines	694,409	Mar. 4	144	32, 33	98	1743
Nelson, Abiel W., New London, Conn. Disinfectant	696,105	Mar. 25	3325	.....	98	2454
Nelson, Andrew G. (See Huffman, Datus E., assignor.)						
Nelson, August G., Bradford, Pa. Alarm-bell	691,961	Jan. 28	3016	677	98	678
Nelson, Frederick L., Alta, Iowa. Shingle-gage	693,054	Feb. 11	1542	336	98	1143
Nelson, George C., Cincinnati, Ohio. Paper-bag machine	691,795	Jan. 28	2719	611 612	98	616
Nelson, John, *et al.* (See Johnson, Alfred, assignor.)						
Nelson, John A., Salina, Kans. Scrubbing-machine	695,479	Mar. 18	2131	480	98	2195
Nelson, Lars P. A., Poysippi, Wis. Siding-gage	694,023	Feb. 25	3457	768	98	1572
Nelson, Peter J., Mountville, Ga. Cultivator	690,758	Jan. 7	760	169	98	161
Nelson, Richard, Monkton, Md. Apparatus for scrubbing milk-cans	695,698	Mar. 18	2780	634 635	98	2287
Nelson, William E., *et al.* (See Thurmond, William, assignor.)						
Nelson, William H., assignor of two-thirds to C. W. Ridley and F. Mertens, Washington, D. C. Mold for paving-bricks	690,987	Jan. 14	1173	265	98	261
Nelson, William H., assignor of two-thirds to C. W. Ridley and F. Mertens, Washington, D. C. Paving-brick for track paving and fastening purposes	690,988	Jan. 14	1175	266	98	261
Neracher, Adolph, Cleveland, Ohio. Making eaves-troughs	692,331	Feb. 4	200	47	98	840

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Neubauer, Carl E., Buhl, assignor of one-half to H. Krause and M. L. Fay, Virginia, Minn. Projectile	693,329	Feb. 11	3099	459	98	1257
Neumann, Albrecht B., Joliet, Ill. Mechanism for feeding blast-furnaces	692,696	Feb. 4	855	195 / 196	98	974
Neuville, Frank V., New York, N. Y. Piano	693,885	Feb. 25	3173	701	98	1514
Nevegold, Frederick, Portland, Oreg. Reverberatory smelting-furnace	695,566	Mar. 18	2851	647	98	2343
Neville, Wilkinson D., assignor to Walworth & Neville Manufacturing Company, Bay City, Mich. Machine for shaping cross-arms of telegraph-poles	696,255	Mar. 25	3026	810	98	2515
New Button Sewing Machine Company. (See Mathison, Joseph, assignor.)						
New Domestic Sewing Machine Company. (See Todd, George M., assignor.)						
New England Fire Supply Company. (See Holbrook, Frank, assignor.)						
New Era Machinery Company. (See Wallace, Charles, assignor.)						
New Haven Car Register Company. (See Gierding, Charles E., assignor.)						
New Jersey Wire Cloth Company. (See Orr, William, assignor.)						
New Jersey Zinc Company. (See Stone, George C., assignor.)						
New Process Lighting Company. (See Little, Thomas J., Jr., assignor.)						
New Standard Concentrator Co. (See Look, Luther, assignor.)						
New York Labelling Machine Company. (See Gilfillan and McKaig, assignors.)						
Newberry, Thomas J., and J. V. Ericson, Chicago, Ill. Gondola freight-car	695,623	Mar. 18	2422	548	98	2254
Newbold, John P., Philadelphia, Pa. Vapor-stove	694,173	Feb. 25	3745	827	98	1629
Newby, Howard H. (See Burgess, James C., assignor.)						
Newby, William H., Indianapolis, Ind. Three-handed dial	695,074	Mar. 11	1418	311	98	2039
Newcorn, Morris S. (See Zangenberg, Anton E., assignor.)						
Newdigate, James T., Flemingsburg, Ky. Gate	696,256	Mar. 25	3008	811	98	2515
Newell, Augustus W., Bradford, Pa. Portable heating and cooking shelf	694,174	Feb. 25	3746	827	98	1629
Newell, Edgar G., Glenridge, N. J. Automatic machine for making packing-rings	693,886	Feb. 25	3174	701 / 702	98	1515
Newfield, Ira I., Austin, Tex. Follower for packing sauer-kraut, &c	691,479	Jan. 21	2108	473	98	473
Newhall, Henry B. (See Cook, John H., assignor.)						
Newhall, Henry B. (See Tripp, Jacob W., assignor.)						
Newhouse, Oscar, San Francisco, Cal. Means for preserving and rendering sharp cutting edges, &c	693,146	Feb. 11	1743	382	98	1182
Newman, Samuel, and M. Borsodi, assignors to Auto Construction Co., Cincinnati, Ohio. Coin-controlled vending apparatus	691,564	Jan. 21	2247	506	98	505
Newman, William, Alexandria, S. D. Post-securing device	691,658	Jan. 21	2431	547	98	541
Newman, William, Alexandria, S. D. Belt-gearing	694,173	Feb. 25	3747	827 / 828	98	1629
Newton, Charles L., Pueblo, Colo. Bell	695,829	Mar. 18	2786	635	98	2338
Newton, Charles W., Baltimore, Md. Locomotive-boiler	692,896	Feb. 11	1236	273 / 274	98	1079
Newton, Herbert B. (See Hebert, Arsene, assignor.)						
Ney, Jacob, assignor to V. L. Ney Company, Canton, Ohio. Sling-lock trip	690,659	Jan. 7	561	122	98	120
Ney, Jacob, assignor to V. L. Ney Company, Canton, Ohio. Hay-elevator	690,660	Jan. 7	562	122	98	121
Nichol, Thomas and W. H., Chatham, Canada. Cartridge-loading machine	695,075	Mar. 11	1418	311 / 312	98	2039
Nichol, William H. (See Nichol, Thomas and W. H.)						
Nichols, Edward A. (See Nichols and Schad.)						
Nichols, Frank L., Washington, D. C., assignor to C. A. Withers, Augusta, Ga. Deflector and ventilator for passenger-cars	695,168	Mar. 11	1506	354 / 355	98	2066
Nichols, Harvey E., *et al.* (See Wahman and Rehberg, assignors.)						
Nichols, Henry B., Philadelphia, Pa. Railway-track structure	694,176	Feb. 25	3749	828 / 829	98	1630
Nichols, Henry B., Philadelphia, Pa. Interlocking rail connection and crossing	694,982	Mar. 11	1349	273	98	1994
Nichols and Shepard Company. (See Flagg, Eli W., assignor.) (Reissue.)						
Nichols, Walter B. and E. A., and F. X. Schad, Gainesville, Tex. End-gate fastener	691,480	Jan. 21	2109	473	98	473
Nicholson, Ellis H., Santa Maria, Cal. Hay-loading apparatus	691,659	Jan. 21	2432	547	98	541
Nickey, Charles F., Clay City, Ind. Lifting and conveying apparatus	691,969	Jan. 28	3017	677 / 678 / 679	98	678
Nicklaus, Charles W., Elgin, Iowa. Can-straightener	694,177	Feb. 25	3751	829	98	1630
Nicolai, Charles D. (See Campbell, Howard S., assignor.)						
Nicolet, Albert, Newark, N. J. Overflow-alarm	693,425	Feb. 18	2988	501 / 502	98	1316
Nielsen, D. L. (See Martin, Herman, assignor.)						
Nielsen, Frederik V., San Francisco, Cal. Hoisting-gear	695,830	Mar. 18	2788	635	98	2329
Nielsen, Friedrich G., Sonderburg, Germany. Apparatus for raising sunken vessels	695,331	Mar. 11	1869	420	98	2135
Nielsen, George P., Whitestone, N. Y. Rotary engine	693,055	Feb. 11	1543	336 / 337	98	1143
Nielsen, Lars C., Frederiksberg, Denmark. Burner for oil-lamps having incandescent mantles	692,470	Feb. 4	436	102	98	699
Nieman, John H., Petersburg, Nebr. Cloth or paper measuring machine	694,988	Mar. 11	1250	273	98	1994
Niemeyer, William H., Los Angeles, Cal. Bicycle-lock	692,598	Feb. 4	573	134	98	915
Nierhaus, Ernst, and P. Kaiser, Barmen, Germany. Loom	694,108	Feb. 25	3610	798 / 799	98	1602
Niewerth, Hermann, Berlin, Germany. Reducing ores	692,599	Feb. 4	574	134 / 135	98	915
Nimon, George W. (See Ferguson and Nimon.)						
Nisbett, William P., and P. Andrews, Big Rapids, Mich. Machine for cutting stereotype-plates	694,997	Feb. 25	2993	663	98	1674
Nistle, George W., assignor of two-thirds to R. L. Gifford and E. W. Brooks, Chicago, Ill. Radiator attachment	691,795	Jan. 28	2721	612	98	619
Nivois, Victor. (See Goldfaden, Sam, assignor.)						
Noechel, Frank J., Rochester, N. Y. Feed mechanism for grain-drills	694,069	Feb. 25	3546	788	98	1560
Nolan, Michael R., Mount Oliver, Pa. Nut-tapping machine	695,760	Mar. 18	2946	601 / 602	98	2300
Nolen, James G., Chicago, Ill. Telephone-receiver	692,597	Feb. 11	1237	274	98	1079
Nolen, William J. (See Yundt and Nolen.)						
Nordin, Charles J., Rice Lake, Wis. Milk-can	692,066	Jan. 28	3013	725 / 726	98	717
Nordlinger-Charlton Fireworks Company. (See Bidwell, Charles B., assignor.)						
Nordman, Ed. F., *et al.* (See Walker, John B., assignor.)						
Nordstrom, Gerhart, Kearsarge, Mich. Pipe-machine	695,480	Mar. 18	2133	481	98	2195
Nordvall, Charles J., Evanston, Ill. Mail-bag crane	696,257	Mar. 25	3030	811	98	2515
Norfolk, Napoleon B., San Francisco, assignor of two-thirds to R. Marsh and G. Howard, Los Angeles, Cal. Bevel	691,726	Jan. 21	2563	574	98	569

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Norlin, Charles F., *et al.* (See Stenersen, Rudolph, assignor.)						
Norling, John E., *et al.* (See Brownrigg and Norstrom, assignors.)						
Norling, Peter O., *et al.* (See Brownrigg and Norstrom, assignors.)						
Norman, John W., Dyersburg, Tenn. Nut-lock	694,178	Feb. 25	3752	829	98	1630
Norman, Thomas W., Boston, Mass. Machine for making ropes	691,797	Jan. 28	2728	612, 613, 614	98	619
Norman, Thomas W., Boston, Mass. Machine for making cords or ropes	691,798	Jan. 28	2728	614, 615, 616, 617	98	620
Norman, Thomas W., Boston, Mass. Cord or rope machine	695,887	Feb. 25	3176	702	98	1515
Norment, William M., Whiteville, Tenn. Storm-curtain for vehicles	695,332	Mar. 11	1890	620	98	2125
Norris, Arthur J., London, England. Rotary cutter	695,118	Mar. 11	1482	330	98	2042
Norrman, Godfrey L., Atlanta, N. J. Boiler-setting	690,870	Jan. 7	947	212	98	199
Norstrom, John K. (See Brownrigg and Norstrom.)						
North Brothers Manufacturing Company. (See Furbish, Zachry T., assignor.)						
North, Edward, Los Angeles, Cal. Combined swage and casing-spear	695,109	Mar. 11	1600	355	98	2067
North, Thomas M., Plainfield, N. J., assignor, by mesne assignments, to Aluminum Press Company, Plainfield, N. J., and New York, N. Y. Variable cam mechanism	694,570	Mar. 4	457	98, 99	98	1810
North, Thomas M., Plainfield, N. J., assignor to Aluminum Plate and Press Company, Plainfield, N. J., and New York, N. Y. Plate-clamping device for printing-presses	695,414	Mar. 11	2019	454	98	2154
Northcraft, Ambro J., St. Louis, Mo. Registering-magazine for firearms	698,665	Feb. 18	2749	606	98	1411
Northrop, James H. (See Quinn, Thomas, assignor.)						
Northrop, Jonas, assignor to Draper Company, Hopedale, Mass. Filling-replenishing loom	691,481	Jan. 21	2111	474	98	474
Norton, Charles E., Lewiston, Me. Sterilizer for surgeons' use	690,759	Jan. 7	761	169, 170	98	161
Norton, Edwin, assignor to American Can Company, New York, N. Y. Metallic keg for white lead or other heavy materials	691,166	Jan. 14	1491	336	98	326
Norton, Edwin, New York, N. Y., assignor to American Can Company, Jersey City, N. J. Rolling metal ingots into thin plates or sheets	691,565	Jan. 21	2250	507	98	503
Norton, Edwin, Maywood, Ill., assignor, by mesne assignments, to American Can Company, Jersey City, N. J. Machine for soldering or uniting seams of sheet-metal cans	693,803	Feb. 18	2996	661, 662	98	1461
Norton, Edwin, New York, N. Y., and J. G. Hodgson, Maywood, assignors to Automatic Vacuum Canning Company, Chicago, Ill. Automatic double-seaming machine	693,303	Feb. 11	2948	446, 447, 448	98	1245
Norton, Edwin, and A. P. Kennedy, Maywood, Ill., assignors, by mesne assignments, to American Can Company, Jersey City, N. J. Machine for automatically sweating or uniting without solder the side seams of sheet-metal can-bodies	693,804	Feb. 18	3000	663, 664	98	1462
Norton, Wendell P., Torrington, Conn. Speed changing and reversing mechanism	691,963	Jan. 28	3023	679, 680	98	680
Norwich Nickel & Brass Company. (See Sweet, George C., assignor.)						
Noesian, Wilhelm, assignor of part to F. Mayer, Vienna, and S. Winter, Ungarisch Ostra, Austria-Hungary. Cart or car discharging device	691,167	Jan. 14	1493	337	98	326
Nourse, Walter A. (See Thenan and Nourse.)						
Noxon, Jonathan W., Valley City, N. D. Magazine heating-stove	693,735	Feb. 18	2883	634	98	1439
Noyes, Emma B., Chicago, Ill. Tape-needle	696,185	Mar. 25	3498	782	98	2488
Noyes, Henry F., Indianapolis, Ind. Saw-filing machine	693,985	Feb. 25	3385	744, 745	98	1557
Nugent, Daniel D., Harrison, N. J. Cord and pulley brake	692,540	Feb. 4	577	135	98	915
O. A. Albrecht Company. (See Albrecht, Oscar A., assignor.)						
O'Brien, Andrew P., Richmond, Va. Niter-oven	694,024	Feb. 25	3459	703	98	1572
O'Brien, Denis F., Newark, N. J. Hydrocarbon apparatus	694,179	Feb. 25	3753	829, 830	98	1630
O'Brien, Denis F., Newark, N. J. Hydrant	694,180	Feb. 25	3757	830	98	1631
O'Brien, Denis F., Newark, N. J. Hydrant	694,398	Feb. 25	3965	883	98	1674
O'Brien, Henry D. (See Forester, Berton, assignor.)						
O'Byrne, William J., Catoosa, Ind. Ter. Elevator	695,334	Mar. 11	1893	421	98	2125
O'Connell, David, Brooklyn, N. Y. Air-compressor	694,885	Mar. 4	1056	234	98	1935
O'Connor, Michael J., Hartford, Conn. Stone-ripping machine	698,617	Feb. 18	2663	588	98	1393
O'Donnell, Felix, Pawtucket, R. I. Weft-replenishing mechanism for looms	695,696	Mar. 18	2546	576	98	2278
O'Donnell, James, Rhinelander, Wis. Sash stop and fastener	696,073	Mar. 25	3243	734	98	2436
O'Keefe, William H., Lockport, N. Y. Broom	690,871	Jan. 7	948	212	98	199
O'Lally, James E., assignor to P. K. O'Lally, Boston, Mass. Faucet	695,607	Mar. 18	2548	587	98	2279
O'Lally, Patrick K. (See O'Lally, James E., assignor.)						
O'Neill, Richard J., Lafayette, Ind., and T. Byrne, Bloomington, Ill. Pipe-cutter	695,482	Mar. 18	2136	492	98	2196
O'Neill, William F. (See Wright and O'Neill.)						
O'Reilly, Francis J. (See Meller, Frederick A., assignor.)						
O'Riley, John. (See Morgan, Henry, assignor.)						
O'Rourke, John F., New York, N. Y. Air-lock for caissons	691,069	Jan. 14	1325	299	98	291
Oakley, Jesse R., Homestead, Pa. Woodworking-machine	695,298	Mar. 11	1711	379	98	2089
Oakman, Angeline C. (See Oakman, Samuel, assignor.)						
Oakman, Samuel, assignor to A. C. Oakman, Cheshire, Mass. Preserve-jar	698,056	Feb. 11	1546	337	98	1144
Oakville Company. (See Middlebrook, William D., assignor.)						
Oates, George P. (See Packham and Oates.)						
Obenchain, Charles A., Washington, D. C. Curtain-fixture	691,799	Jan. 28	2734	617	98	621
Oberlander, Carl, Arastra, Colo. Windmill-power	691,168	Jan. 14	1494	337	98	327
Obolenskii, Nicholas, Hermitage, N. Y. Valve	695,333	Mar. 11	1892	421	98	2125
Ochsner, Anton, assignor of one-half to R. Ochsner, New Haven, Conn. Carriage-door lock	695,335	Mar. 11	1894	421	98	2126
Ochsner, Robert. (See Ochsner, Anton, assignor.)						
Odling, Francis J. (See Jamieson and Odling.)						
Odquist, Victor, Chicago, Ill., assignor to Imperial Camera & Mfg. Co., La Crosse, Wis. Swing-back photographic camera	694,181	Feb. 25	3701	830, 831	98	1632
Ogbin, Elmer, Camden, N. J. Nailless horseshoe	691,482	Jan. 21	2115	474	98	475
Ogden, James A., Philadelphia, Pa., assignor of one-third to C. H. Cornell, Valentine, Nebr. Gravimetric ore-roaster	691,868	Jan. 28	2948	641	98	645
Oglebay, James H. (See Faris, James E., assignor.)						
Ohlman, Albert R., Harvey, Ill. Calipers	695,174	Mar. 11	1484	331	98	2042
Ohm, Charles H., Shellville, Cal. Cement-gravel crusher and separator	695,076	Mar. 11	1482	312	98	2030
Ohmer Car Register Company. (See Ohmer, Tyler, and Breidenbach, assignors.)						
Ohmer, John F., H. Tyler, and W. F. Breidenbach, Dayton, Ohio, assignors to Ohmer Car Register Company, Rochester, N. Y. Fare-register	694,322	Feb. 25	4067	905, 906	98	1667
Ohmer, Wilfred I. (See Kelch, Wallace M., assignor.)						
Ohmer, Wilfred I., and J. Leitschuh; said Leitschuh assignor to W. I. Ohmer, Dayton, Ohio. Ticket issuing, printing, and recording machine	695,115	Mar. 11	1467	331, 332	98	2043

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Ohmer, Wilfred I., and J. Leitschuh; said Leitschuh assignor to W. I. Ohmer, Dayton, Ohio. Ticket issuing, printing, and recording machine	695,116	Mar. 11	1493	325 333 334	98	2044
Oil Saving Manufacturing Company. (See Wyman, Horace B., assignor.)						
Oil Well Supply Company. (See Mack, Patrick H., assignor.)						
Okey Burial Vault Company. (See Okey, George B., assignor.)						
Okey, George B., Indianapolis, Ind. Portable burial-vault	692,067	Jan. 28	2315	726	98	717
Okey, George B., assignor to Okey Burial Vault Company, Indianapolis, Ind. Burial-vault	693,304	Feb. 11	2050	448 449	98	1345
Okun, Moses S., New York, N. Y. Electric-arc lamp	694,410	Mar. 4	147	33	98	1744
Old Bridge Enameled Brick and Tile Co. (See Rivers, William E., assignor.)						
Oldenbusch, Ernest, Hoboken, N. J., assignor to Kronheimer and Oldenbusch Company. Desk furniture	693,426	Feb. 18	2291	502	98	1317
Oldenbusch, Ernest, Hoboken, N. J., assignor to Kronheimer and Oldenbusch Company. Easel	693,427	Feb. 18	2292	502	98	1317
Oldenbusch, Ernest, Hoboken, N. J., assignor to Kronheimer and Oldenbusch Company. Frame	695,289	Mar. 11	1712	579	98	2030
Olding, Barney J., St. Henry, Ohio. Canopy for tricycles, &c	691,964	Jan. 28	3086	680	98	690
Olds, Alfred W., Hartford, Conn. Liquid-fuel feed for explosive-engines	690,989	Jan. 14	1178	866 867	98	981
Oliver Chilled Plow Works. (See Davis, Calvin R., assignor.)						
Oliver, Eli S., Dixfield, Me. Cooking utensil	690,760	Jan. 7	763	170	98	161
Oliver, Thomas, Woodstock, assignor to Oliver Typewriter Company, Chicago, Ill. Paper-guide for type-writing machines	693,067	Feb. 11	1547	337	98	1144
Oliver Typewriter Company. (See Knapp, Theron L., assignor.)						
Oliver Typewriter Company. (See Oliver, Thomas, assignor.)						
Olmstead, Fernando C. (See Heim, Lewis R., assignor.)						
Olney, Allan E., Pittsfield, Mass. Motor or engine	694,188	Feb. 25	3763	831	98	1632
Olney, William D., Stillwater, Minn. Bed	694,185	Feb. 25	3764	831 832	98	1632
Olora, Morris, assignor of three-fourths to C. W. Young, Harvard, Ill. Thill-coupling	694,411	Mar. 4	148	33	98	1744
Olsen, Andrew, *et al.* (See La Burt, John, assignor.)						
Olsen, Christen, Ishpeming, Mich. Sample-displaying apparatus	695,851	Mar. 18	2790	635 636	98	2329
Olsen, Peder, assignor of one-half to P. M. Hofstad, Minneapolis, Minn. Fastener for glass show-cases	693,736	Feb. 18	2285	695	98	1459
Olsen, Peter, Decatur, Ill. Buttonhole-cutter	692,027	Jan. 28	3134	705	98	700
Olson, Alfred, San Diego, Cal. Needle-threading device	694,984	Mar. 11	1951	373	98	1994
Olson, John A., Downer's Grove, Ill. Woodworker's scraper	695,117	Mar. 11	1501	334	98	2045
Olson, Olof R., assignor to Horizontal Swing Co., Kansas City, Mo. Awning	696,378	Mar. 25	3902	855	98	2570
Olson, Pehr M., Elsalem, Wis. Tobacco-pipe	693,866	Feb. 25	3183	708	98	1517
Olsson, Peter, Lexington, Nebr. Sample-register	695,822	Mar. 18	2791	636	98	2329
Onderdonk, Lansing, New York, N. Y., assignor to Union Special Sewing Machine Company, Chicago, Ill. Cylinder sewing-machine	695,481	Mar. 18	2125	481 482	98	2196
Ondrak, Jacob A., New York, N. Y. Riding-habit	693,428	Feb. 18	2296	502	98	1317
Onions, Zachariah W., Wainfelin, Pontypool, England. Rolling-mill	694,025	Feb. 25	3461	763	98	1573
Ontario Drill Company. (See Armitage, Albert, assignor.)						
Ording, Edward, St. Joseph, Mo. Feed-roll	690,456	Jan. 7	133	28, 29	98	30
Orewiler, Benjamin F., Cleveland, Ohio. Garment-clasp	690,990	Jan. 14	1180	267	98	982
Orloff, Iwan, St. Petersburg, Russia. Apparatus for lifting off and removing sheets from a pile	696,186	Mar. 25	3498	782 783	98	2498
Ormand, David. (See Martin and Ormand.)						
Ormsby, John H., Bolton Landing, N. Y. Combined dust-pan and broom-holder	691,965	Jan. 28	3087	680	98	681
Orr, Harry C., and G. Mathews, Kansas City, Mo. Convertible chair for railway-coaches	692,332	Feb. 4	201	48	98	841
Orr, Harry C., and G. Mathews, Kansas City, Mo. Reversible chair for railway-coaches	692,333	Feb. 4	202	48, 49	98	841
Orr, William, assignor to New Jersey Wire Cloth Company, Trenton, N. J. Fireproof construction	693,429	Feb. 18	2294	503	98	1317
Ortenblad, Magnus, assignor of one-half to J. Dellwo, Groningen, Minn. Potato-bug gatherer	696,258	Mar. 25	3831	811	98	2516
Ortner, John E., Newark, N. J. Chatelaine-catch	691,566	Jan. 21	2253	507	98	504
Osborn, Byron E., Auburn, N. Y. Electric-railway system	692,896	Feb. 11	1239	274	98	1079
Osborn, Frederick W., Milwaukee, Wis. Automatic moving shadow-picture	693,430	Feb. 18	2297	505	98	1318
Osborn, Henry C., Cleveland, Ohio. Sealed receptacle	696,698	Mar. 18	2549	577	98	2279
Osborne, Eugene F., assignor to Osborne Steam Engineering Company, Chicago, Ill. Pipe-joint	696,106	Mar. 25	3325	750	98	2455
Osborne Steam Engineering Company. (See Osborne, Eugene F., assignor.)						
Osborne, Thomas B., New Haven, Conn., and R. W. Cornelison, Bloomfield, N. J. Extracting zein	691,966	Jan. 28	3089	.....	98	681
Osbourn, Millard P., Camden, N. J., assignor to Warren Webster and Company. Air-relief valve	693,431	Feb. 18	2298	506	98	1318
Osmer, John E., Clinton, Iowa. Safety-valve	696,074	Mar. 25	3844	784	98	2426
Osmer, William H., St. Louis, Mo. Sweat-pad for horse-collars	691,729	Jan. 21	2254	575	98	569
Oster, Herman W., assignor to Oster Manufacturing Company, Cleveland, Ohio. Thread-cutting machine	694,412	Mar. 4	149	33, 34	98	1744
Oster Manufacturing Company. (See Oster, Herman W., assignor.)						
Ostergren, Oscar P., New York, N. Y. Air compressor and cooler	694,299	Feb. 25	3957	858	98	1675
Ostertag, Charles W. (See Barnick, Frank L., assignor.)						
Ostrom, Freeland W., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Buttonhole sewing and cutting machine	692,309	Jan. 28	3465	783 784 785	98	769
Ostrom, Freeland W., assignor to Wheeler & Wilson Manufacturing Company, Bridgeport, Conn. Buttonhole-sewing machine	692,310	Jan. 28	3471	785	98	770
Otis Elevator Company. (See Ihlder, John D., assignor.)						
Otis Elevator Company. (See Sundh, August, assignor.)						
Otis, Spencer, Chicago, Ill. Tie-bar for car-trucks	694,492	Mar. 4	395	65	98	1772
Overshiner, Elsworth B., assignor to Swedish-American Telephone Company, Chicago, Ill. Electric annunciator	692,471	Feb. 4	426	108	98	898
Owen, Edward T., Vanwert, Iowa. Sectional coping for graves	691,169	Jan. 14	1496	825	98	827
Owen, Richard W., Chicago, Ill. Golf-bag	693,432	Feb. 18	2301	508	98	1319
Owen, Silas R., St. Joseph, Mo. Miter-sawing machine	693,659	Feb. 4	659	196	98	975
Owens, Albert M., Soldier, Kans. Display-cabinet	691,800	Jan. 28	2735	617	98	681
Owens, John O., *et al.* (See Williams, William H., assignor.)						
Owens, Marion, Basil, Kans. Dust-proof journal-box	692,224	Feb. 4	200	50	98	841
Owens, Robert L., Ozona, Tex. Girth	696,259	Mar. 25	3838	812	98	2516
Owens, Will E., Billings, Mont. Pole-climber	693,428	Feb. 18	2292	504	98	1880
Oyler Plow Company. (See Oyler, William R., assignor.)						
Oyler, William R., assignor to Oyler Plow Company, Akron, Ohio. Plow	690,761	Jan. 7	764	170	98	161

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Oyster Bay Engine Company. (See Titus, Burt, and Smith, assignors.)						
P. & F. Corbin. (See Glover, Charles, assignor.)						
P. & F. Corbin. (See Glover and Haskins, assignors.)						
P. H. & F. M. Roots Company. (See Enyart, Ralph C., assignor.)						
Paca, William S., assignor of three-fourths to P. H. Adams and J. Z. Miller, Erie, Pa. Telephone-exchange switchboard system	693,889	Feb. 25	3183	703	98	1517
Paca, William S., assignor of three-fourths to P. H. Adams and J. Z. Miller, Erie, Pa. Telephone-exchange system	693,890	Feb. 25	3186	703	98	1517
Paca, William S., assignor of one-half to P. H. Adams, Erie, Pa. Telephone-exchange signal system	694,668	Mar. 4	623	185	98	1844
Pacetty, Adolphus N., St. Augustine, Fla. Fishing-float	691,407	Jan. 21	1987	445	98	449
Packard, James W., and W. A. Hatcher, Warren, Ohio. Vehicle-brake	694,184	Feb. 25	3766	832	98	1033
Packham, Frank R., and G. P. Oates, assignors to Superior Drill Company, Springfield, Ohio. Grain-drill	691,222	Jan. 14	1797	408	98	389
Packham, Frank R., and G. P. Oates, assignors to Superior Drill Company, Springfield, Ohio. Disk harrow	693,891	Feb. 25	3188	704	98	1518
Paddock, Bruce, Lansing, Mich. Hay-bagging machine	693,147	Feb. 11	1744	392	98	1182
Padgett, William H., Jr., New Albany, Ind. Separable or sectional printer's chase	691,967	Jan. 28	3030	680	98	681
Padon, John S., assignor of one-half to J. L. Van Wormer, Westplains, Mo. Sewing-awl	695,895	Mar. 18	2384	554	98	2350
Page, Almon D., Harrison, and G. Wood, assignors to Keromoter Development Company, Newark, N. J. Oil atomizer and mixer for vapor-engines	696,187	Mar. 25	3496	783	98	2486
Page, Charles E., Linwood, New Zealand. Step-ladder and shelf combined	693,892	Feb. 25	3189	704	98	1518
Page, Francis T., Penshurst, New Zealand. Wire-grip	696,260	Mar. 25	3684	812	98	2517
Page, Frederick H. (See Holmes, Charles E., assignor.)						
Page, James, Washington, D. C. Parallel-ruler	694,185	Feb. 25	3787	832	98	1633
Page, Thomas C., Chicopee Falls, Mass. Surface-checking device	692,028	Jan. 28	3135	700	98	700
Pain, Willard S., Meriden, Conn., assignor to Aeolian Co., New York, N. Y. Machine for cutting and printing stencil-sheets	690,991	Jan. 14	1182	267 368	98	262
Paine, William H., Providence, R. I. Controlling device	691,968	Jan. 28	3037	681	98	681
Paiste, Henry T., Philadelphia, Pa. Insulating-lining for incandescent-lamp sockets	692,700	Feb. 4	861	197	98	976
Paiste, Henry T., Philadelphia, Pa. Incandescent-lamp socket	696,261	Mar. 25	3685	812	98	2517
Palmblad, Gustave, McKeesport, Pa. Curtain and shade holder	692,478	Feb. 4	441	103	98	888
Palmer, Henry U., New York, N. Y. Machine for jointing staves	693,893	Feb. 25	3190	704 705	98	1518
Palmer, Isaac E., Middletown, Conn. Hammock-support	691,070	Jan. 14	1327	300	98	282
Palmer, Isaac E., Middletown, Conn. Spreader-clip for hammocks	693,563	Feb. 18	2548	561	98	1870
Palmer, Isaac E., Middletown, Conn. Hammock	693,564	Feb. 18	2549	561	98	1870
Palmer, Isaac E., Middletown, Conn. Pillow attachment for hammocks	694,070	Feb. 25	3549	782	98	1591
Palmer, Isaac E., Middletown, Conn. Hammock-spreader	694,071	Feb. 25	3550	783	98	1591
Palmer, Lowell M. (See Hines, Warren H., assignor.)						
Palmer, Merritt W., Hamilton, assignor of one-fourth to R. N. De Merell, Holland, Mich. Beet-harvester	696,202	Mar. 25	3686	812 813	98	2517
Palmer, Noyes F., Brooklyn, N. Y. Machine for molding artificial stone	694,985	Mar. 11	1252	273 274	98	1995
Palmer, Noyes F., Brooklyn, N. Y. Machine for molding artificial stone	695,483	Mar. 18	2139	453	98	2196
Palmer, Theron R., Erie, Pa. Billiard-table cushion	692,899	Feb. 11	1941	275	98	1080
Palmer, Wesley S., Canton, Ohio. Kettle or dish scraper or cleaner	691,801	Jan. 28	2736	617	98	621
Palumbo, Frank. (See Consentino and Palumbo.)						
Pangrac, Wesley, Niles, Kans. Wedge-cutter	695,336	Mar. 11	1803	422	98	2126
Panitschek, Heinrich, and C. Herold, Brünn, Austria-Hungary. Appliance for beating up the weft in looms	696,263	Mar. 25	3689	814	98	2518
Papenfus, Herman, Toledo, Ohio. Lawn-sprinkler	690,762	Jan. 7	766	170	98	162
Pardee, William F., and E. Bloomer, Syracuse, N. Y. Garment-support	693,618	Feb. 18	2664	588	98	1398
Pardridge, Willard E., Detroit, Mich. Steam-condenser	691,170	Jan. 14	1497	338	98	1998
Parfitt, Frank W., Louisville, Ky. Automatic oil and air regulator	694,886	Mar. 4	1058	234	98	1998
Parker, Caroline S., Chicago, Ill., assignor of one-fourth to M. E. Erwin, Dubuque, Iowa. Filter	690,457	Jan. 7	134	29	98	31
Parker, Frank W., assignor of one-half to H. J. Bacon, Providence, R. I. Lathe attachment for relieving the teeth of cutters	690,763	Jan. 7	767	171	98	162
Parker, Henry. (See Dyre, William E., assignor.)						
Parker, Herschel C., trustee. (See Reynolds, Frank A., assignor.)						
Parker, Howard, Bellows Falls, Vt. Indented and perforated material	691,804	Jan. 28	2739	618	98	621
Parker, Howard, Bellows Falls, Vt. Paper-making machine	693,354	Feb. 11	2146	471	98	1267
Parker, Howard, Bellows Falls, Vt. Couch-roll	693,894	Feb. 25	3196	705	98	1520
Parker, Howard, Bellows Falls, Vt. Machine for making paper	693,895	Feb. 25	3200	706	98	1521
Parker, Howard, Bellows Falls, Vt. Pulp and paper making machine	693,896	Feb. 25	3203	706	98	1521
Parker, Howard, Bellows Falls, Vt. Paper-making machine	693,897	Feb. 25	3204	706	98	1522
Parker, Mulford, Ellisville, Miss. Unloading apparatus	691,969	Jan. 28	3033	681	98	682
Parker, Robert R., Rawlings, Md. Means for growing and transplanting plants	695,484	Mar. 18	2139	483	98	2197
Parker, Thomas L. (See Forsyth, Joseph E., assignor.)						
Parker, Walter E., St. Louis, Mo. Grinding or polishing attachment	693,335	Feb. 4	207	50	98	842
Parkes, Howard, Irvington, N. Y. Belt holding or attaching device	693,058	Feb. 11	1549	338	98	1144
Parkes, William N., Brooklyn, N. Y. Automatic embroidery or ornamental-stitch machine	693,666	Feb. 18	2750	606 607	98	1411
Parmele, Charles R., New York, N. Y. Golf-club	695,579	Mar. 18	2344	531	98	2236
Parnell, Elizabeth B., Carshalton, England. Treating ores	693,148	Feb. 11	1745		98	1182
Parpart, Otto A., assignor to Standard Tool Company, Cleveland, Ohio. Drill-socket	690,764	Jan. 7	769	171	98	162
Parsons, Frederick W., Elmira, assignor to Rand Drill Company, New York, N. Y. Compressor	693,434	Feb. 18	2303	504	98	1230
Parsons, Harry E., and H. C. Derr; said Derr assignor of one-half to J. W. Pifer, Nescopeck, Pa. Automatic retaining-valve for use in automati. fluid-pressure brake systems	696,264	Mar. 25	3641	814	98	2518
Parsons, William J., Montague, assignor to Langdon Mitre Box Company, Erving, Mass. Miter-machine	694,323	Feb. 25	4072	906	98	1669
Parsy, Paul V., Pernes-en-Artois, France. Concrete floor	693,541	Feb. 4	579	135	98	916
Partsch, Frank, Dorchester, Mass. Coin-operated mechanical toy	690,661	Jan. 7	585	128	98	181
Partzsch, Richard, Dresden, Germany. Box-staying machine	694,663	Mar. 4	696	180	98	1945
Parvin, Quinton G., Camden, N. J. Dauber for holding and applying paste or liquid substances	693,505	Feb. 11	2088	449	98	1846
Pascale, Gerardo, Somerville, N. J. Pier for the support of bridges	693,059	Feb. 11	1500	326	98	1145
Passage, Hiram H., Plymouth, assignor to F. C. Trowbridge, Detroit, Mich. Firearm	695,485	Mar. 18	2141	483	98	2197
Pastre, Eugene R., Brooklyn, N. Y. Type-writer	693,435	Feb. 18	2304	504	98	1230
Patchin, Walter E. (See Chapin and Patchin.)						
Patee, Annie W. (See Peirce, Hiram H., assignor.)						
Patenaude, Amos O., Korbel, C. J. Anderson, Eureka, and J. A. Anderson, Falk, Cal. Saw straightening and tensioning hammer	693,060	Feb. 11	1551	336	98	1145

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Patent Button Company. (See Richmond, Arthur A., assignor.)						
Patent Button Company. (See White, Franklin R., assignor.)						
Patent Development Company. (See Vanstone, Samuel, assignor.)						
Paterson, Robert M. (See Craig, George, assignor.)						
Patric, Charles E., assignor to Superior Drill Company, Springfield, Ohio. Distributer for grain-drills	691,483	Jan. 21	2116	474, 475	98	475
Patric, Lewis, Springfield, Ohio. Hot-air furnace	692,336	Feb. 4	208	50	98	842
Patrick, Marcus C., assignor to J. F. Howie, Seattle, Wash. Combined lock and latch	692,028	Jan. 28	2216	726, 727	98	717
Patrick, Theodore L., and L. Sprague, Shabbona, Ill. Gate	693,898	Feb. 25	3205	707	98	1522
Patten, Lorenzo D., *et al.* (See Lippy, David, assignor.)						
Patten, Simon R., assignor of one-half to A. Millard, Omaha, Nebr. Device for gripping and delivering mail-bags	693,899	Feb. 25	3207	707, 708	98	1522
Patterson, James L., assignor to Union Special Sewing Machine Company, Chicago, Ill. Folding-guide for sewing-machines	691,567	Jan. 21	2256	507	98	504
Patterson, James L., assignor to Union Special Sewing Machine Company, Chicago, Ill. Seam for sewed articles	691,568	Jan. 21	2257	508	98	505
Patterson, Margaret L., *et al.* (See Cosgrave, Sylvester A., assignor.)						
Patterson, Samuel W., Chicago, Ill. Combined brace and suspenders	696,075	Mar. 25	3246	734	98	2436
Patterson, Samuel W., Chicago, Ill. Suspenders	696,076	Mar. 25	3247	735	98	2437
Patton, Lorenzo D., *et al.* (See Picking, Josiah B., assignor.)						
Patton, William F., Toledo, Ohio. Tumbling-box	691,808	Jan. 28	2237	618	98	621
Patton, William F., Toledo, Ohio. Forming floats for steam or water traps	691,808	Jan. 28	2238	618	98	621
Pätz, Friedrich W., Hamburg, Germany. Boiler-tube cleaner	695,077	Mar. 11	1424	312	98	2080
Paulson, Eleck, Osage, Iowa. Tank-heater and feed-cooker	695,948	Mar. 25	2998	677	98	2383
Paulson, Thomas G., Estelline, S. D. Traction-engine	695,237	Mar. 11	1896	422	98	2126
Pauly, Henry C. (See Garrett and Pauly.)						
Pawling and Harnischfeger. (See Beck, Matthias A., assignor.)						
Paxson, William O. (See Brown, Mark A., assignor.)						
Payne, Charles A., St. Paul, Minn. Sharpener for knives or scissors	691,171	Jan. 14	1498	388	98	327
Paynter, George J., and F. C. Watson, assignors to Smith-Watson Manufacturing Company, Philadelphia, Pa. Combined light and mirror	695,338	Mar. 11	1897	423	98	2127
Peabody, Frank A. (See Campbell, Frank, assignor.)						
Peacock, Josiah C., Philadelphia, Pa. Vaccination-shield	695,761	Mar. 18	2650	602	98	2280
Peacock, Julian L., Lexington, N. C. Bed-brace	690,992	Jan. 14	1185	268	98	208
Pearce, James W., assignor of one-half to L. C. Keyser, Philadelphia, Pa. Feed-water purifier	694,571	Mar. 4	450	90	98	1611
Pearce, William M., Norwood, W. Va. Pipe-coupling	694,072	Feb. 25	3551	788	98	1591
Peard, William M., Mount Vernon, N. Y. Built-up column	696,188	Mar. 25	3498	783	98	2488
Pearsall, Albert W., Mount Vernon, N. Y. Pneumatic-despatch-tube carrier	690,894	Jan. 7	995	225	98	209
Pearsall, Albert W., New York, N. Y. Receiver for pneumatic-despatch tubes	694,394	Feb. 25	4073	907	98	1689
Pearson, John W., Tehuacana, Tex. Pencil-holder	691,172	Jan. 14	1500	338	98	328
Pease, Frederic N., and M. E. McDonnell, Altoona, Pa. Detergent and making same	690,458	Jan. 7	187	.....	98	31
Pease, Horace S. (See Chamberlin, Edward, assignor.)						
Peck, George F., Brooklyn, N. Y. Quoin-lock	690,911	Jan. 7	1028	231	98	215
Peck, John S., Pittsburg, Pa., assignor to Westinghouse Electric & Manufacturing Company. System of electrical distribution	695,944	Mar. 25	2994	677	98	2385
Peck, Wells M., Syracuse, N. Y. Vehicle-tire	690,873	Jan. 7	948	212, 213	98	190
Peckover, James, Philadelphia, Pa. Stone-saw	693,306	Feb. 11	2004	449	98	1246
Pedersen, Johannes T., Woodside, N. Y. Package-wrapping machine	694,086	Feb. 25	3468	764, 765	98	1573
Pedersen, Thomas, Kragero, Norway. Safety hook and eye	690,765	Jan. 7	770	171	98	163
Peer, John A., Philadelphia, Pa., assignor to A. L. Blessing, Baltimore, Md. Artificial leg	694,295	Feb. 25	4074	907	98	1689
Peerless Machinery Company. (See Glass, Perley R., assignor.)						
Peerless Manufacturing Company. (See Mooers, Louis P., assignor.)						
Peetz, John J., Galveston, Tex. Cash-box	694,867	Mar. 4	1061	234	98	1286
Pegg, John, Bloomingport, Ind. Fence-post	693,061	Feb. 11	1551	338	98	1145
Peirce, Hiram H., assignor to A. W. Patee, Indianapolis, Ind. Motor-cycle	690,602	Jan. 7	452	97	98	97
Pelton, Charles H., Springfield, Ohio. Pressure-regulator for drag-bars	693,307	Feb. 11	2065	450	98	1946
Pence, Edward L., Memphis, Tenn. Switch-operating device	690,459	Jan. 7	188	99	98	31
Pendry, William A., Detroit, Mich. Button-making machine	693,565	Feb. 18	2550	562, 563, 564, 565, 566	98	1370
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Wick-stop for lamp or oil-heater burners	691,710	Jan. 21	2328	506	98	561
Penfield, William A., assignor to Bradley & Hubbard Mfg. Co., Meriden, Conn. Lamp-burner	692,701	Feb. 4	802	197	98	976
Péniakoff, Dmitry A., Brussels, Belgium. Purifying aluminous ores	695,702	Mar. 18	2651	.....	98	2301
Pennell, Charles L. (See Jones and Pennell.)						
Pennie, Henry, Brooklyn, N. Y. Bottle-stopper fastener	692,702	Feb. 4	803	197	98	976
Pennington, Edward J., London, England. Assembling-frame for steam-boilers	694,413	Mar. 4	151	34	98	1745
Pennington, Edward J., London, England. Steam-boiler	694,498	Mar. 4	385	65	98	1773
Pennsylvania Tube Company. (See Seymour, William S., assignor.)						
Pequignat, Hubert A., *et al.* (See Miller, John S., assignor.)						
Perdreaux, Henry, New York, N. Y. Clothes-line apparatus	694,414	Mar. 4	152	34	98	1745
Perdriel, Alexandre, Nantes, France. Knife for cutting asparagus or the like	692,543	Feb. 4	579	125	98	916
Perez, Alexander, Boston, Mass. Saw adapted especially for felling trees and cutting them up	696,965	Mar. 25	3544	814, 815	98	2519
Perfect Jar Cap Company. (See Smith, Eldridge J., assignor.)						
Perfect Sliding Door Company. (See Laughlin and Schuyler, assignors.)						
Perfection Jar Closure Company. (See Hughes, Henry A., Jr., assignor.)						
Perkins, Charles W., St. Louis, Mo. Tank for medicating water	691,290	Jan. 14	1295	393	98	375
Perkins Electric Switch Manufacturing Company. (See Thomas, George B., assignor.)						
Perkins, Enoch S., Simpson County, Ky. Truck	695,823	Mar. 18	2798	626	98	2150
Perkins, Ivan S., David City, Nebr. Standard or shank for cultivators	695,078	Mar. 11	1425	312	98	2080
Perkins, John A. (See Kenison, Burk, and Perkins.)						
Perkins, Julius A., Omaha, Nebr., assignor to Moffett Bearing Company, Council Bluffs, Iowa. Roller-bearing	691,173	Jan. 14	1501	330	98	328
Perkins, Walter H., assignor to Waterbury Mfg. Co., Waterbury, Conn. Water-bottle stopper	693,426	Feb. 18	2306	505	98	1290
Perret, David, Neufchâtel, Switzerland. Electromagnet apparatus	694,778	Mar. 4	857	199	98	1806
Perrigo, Morgan A., Wilkesbarre, Pa. Axle-box	691,174	Jan. 14	1504	330	98	329
Perrin, Clarence E., Des Moines, Iowa. Adjustable display-rack	691,464	Jan. 21	2119	475	98	475

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Perrin, Thomas J., Dayton, Ohio. Adjustable metallic window-screen	690,662	Jan. 7	566	123, 124	98	128
Perry, Charles S. (See Moseley, Charles S., assignor.)						
Perry, Frank J. A., assignor of one-third to C. H. Walden, Lynn, Mass. Lacing-hook	690,998	Jan. 14	1186	268	98	263
Perry, Herbert J., Cheshunt, England. Breech-closure	693,900	Feb. 25	2211	706	98	1583
Perry, Louis I., Slough, England. Inkstand	690,766	Jan. 7	771	171	98	163
Perry, Sylvester R., Worcester, Mass. Water-cycle	691,805	Jan. 28	2739	618	98	622
Persch, John P. (See Juge and Grisel, assignors.)						
Perschke, Ludovica A. (See Stryk, Jenny von and E. von, assignors.)						
Persinger, James S. (See Martin, Joseph H., assignor.)						
Personal Hygiene Company. (See Turck, Fenton B., assignor.)						
Persson, Otto F., Lynn, assignor to E. Thomson, Swampscott, Mass. Vehicle-seat	691,806	Jan. 28	2741	619	98	622
Persson, Otto F., Lynn, assignor to E. Thomson, Swampscott, Mass. Seat for automobiles	691,807	Jan. 28	2743	619	98	622
Persson, Otto F., Lynn, assignor to E. Thomson, Swampscott, Mass. Mechanism for operating motion-checking devices	692,900	Feb. 11	1242	275	98	1080
Persson, Otto F., Lynn, assignor to E. Thomson, Swampscott, Mass. Steering device for motor-vehicles	693,330	Feb. 11	2100	459, 460	98	1257
Pervear, Charles E. (See Harrison and Holt, assignors.)						
Petch, Albany F., London, England. Apparatus for forming commutators	691,869	Jan. 28	2850	642	98	645
Peters, Carl, Crefeld, Germany. Boot or shoe	691,291	Jan. 14	1726	393	98	375
Peterson, Charles E., Minneapolis, Minn. Type-writer	690,460	Jan. 7	140	30	98	32
Peterson, Charles E., Minneapolis, Minn. Type-writing machine	694,073	Feb. 25	3552	783, 784	98	1591
Peterson, Edward, St. Hilaire, Canada. Signal system	693,308	Feb. 11	2056	450	98	1247
Peterson, Frank W. (See Warlich, Oscar, assignor.)						
Peterson, George H., Nemaha County, Nebr. Cutting apparatus	690,767	Jan. 7	772	172	98	163
Peterson, Jesse, assignor to United Indurated Fibre Company, Lockport, N. Y. Indurating fiber-ware, &c	696,379	Mar. 25	3908	.....	98	2570
Peterson, John G., Milwaukee, Wis. Brush for flour screens or bolters	690,994	Jan. 14	1187	269	98	263
Peterson, William L., Vidalia, Ga. Plow-line snap	695,699	Mar. 18	2550	577	98	2279
Petit, Ademor N., assignor to himself and A. O. Petit, Newark, N. J. Apparatus for manufacturing duplicate sound-record cylinders for phonographs	692,337	Feb. 4	210	50	98	842
Petit, Albert O. (See Petit, Ademor N., assignor.)						
Petithomme, Joseph L., Oakland, Cal. Car-axle box	691,175	Jan. 14	1505	339	98	329
Petre, Douglas A., assignor of one-fourth to H. Smith, Duluth, Minn. Trolley-head	693,309	Feb. 11	2059	450	98	1248
Petter, Ernest W. (See Petter, Guy B. and E. W.)						
Petter, Guy B., Yeovil, and E. W. Petter, London, England. Igniting apparatus for internal-combustion engines	694,186	Feb. 25	3769	582, 583	98	1633
Pettibone, Hawley, New Rochelle, N. Y. Apparatus for proportioning and mixing gas	696,107	Mar. 25	3327	750	98	2455
Pettit, Ezra G., Marietta, Ohio. Roof-framing tool	695,389	Mar. 11	1899	423	98	2127
Pettygrove, Neal A., *et al.* (See Webber, Frank L., assignor.)						
Peukert, Max, assignor of one-half to Tim & Co., Troy, N. Y. Machine for folding shirts	694,074	Feb. 25	3556	784, 785	98	1592
Peyton, James M., and T. W. Luttrell, Maxonmill, Ky. Vehicle-step	694,572	Mar. 4	460	99	98	1811
Pfaudler Vacuum Fermentation Company. (See White, Henry A., assignor.)						
Pfeifer, John, Springfield, Ohio. Shade and curtain hanger	693,619	Feb. 18	2666	589	98	1393
Pfeifer, Max, assignor to L. Weiss, Vienna, Austria-Hungary. Fountain liquid-holder	695,945	Mar. 25	2996	677	98	2385
Pfeiffer, Charles C., Louisville, Ky. Heating-stove	693,486	Feb. 18	2908	505	98	1329
Pfeiffer, Charles T., Milwaukee, Wis. Automatic draft-controller	693,487	Feb. 18	2907	505	98	1330
Pfeiffer, Jacob, Jr., Akron, Ohio. Rubber glove	692,708	Feb. 4	865	197	98	976
Pfeiffer, Jacob, Akron, Ohio. Rubber glove	693,704	Feb. 4	866	198	98	976
Pfluger, Anton J., Brillion, Wis. Umbrella-support	694,888	Mar. 4	1062	234	98	1066
Phelan, William M., Osceola Mills, Pa. Bottling-table	694,415	Mar. 4	155	35	98	1745
Phelan, William M., Osceola Mills, Pa. Bottle washer and rinser	694,416	Mar. 4	157	35	98	1746
Phelps, George N., Brookline, Mass. Instep-arch supporter	692,338	Feb. 4	212	51	98	843
Phelps, Henry C., Lee, Mass. Grooved rail appliance for street-railway T-rails	690,603	Jan. 7	454	97	98	97
Phelps, Ruben P., Waco, Tex. Saw-sharpening machine	693,667	Feb. 18	2756	608	98	1412
Phenix, William P., Lubbock, Tex. Vise	693,149	Feb. 11	1746	362, 363	98	1182
Phifer, John N., Shumway, Ill. Electrical generating-machine	692,901	Feb. 11	1245	276	98	1081
Philadelphia Barring Machine Company. (See Thomson, Robert W., assignor.)						
Philadelphia Pneumatic Tool Company *et al.* (See Richards, Charles B., assignor.)						
Philadelphia Textile Machinery Company. (See Ashworth, William D., assignor.)						
Philbrook, Burton S., New York, N. Y. Lighting device	691,071	Jan. 14	1338	300	98	292
Philippi, Theodore F., St. Louis, Mo. Shear-punch	693,310	Feb. 11	2061	450	98	1248
Philipps, Joseph, H. Lebel, and R. Grimoin-Sanson, Paris, France. Fabric	692,029	Jan. 28	3135	.....	98	701
Philipson, Percy C. (See Philipson, William, T. W. H., and P. C.)						
Philipson, Thomas W. H. (See Philipson, William, T. W. H., and P. C.)						
Philipson, William, T. W. H., and P. C., Bolton, England. Life-saving mechanism for tramways	695,340	Mar. 11	1900	423, 424	98	2128
Phillips, Augustus K., St. Louis, Mo. Hook and eye	690,528	Jan. 7	313	62	98	66
Phillips, David N., Whittington, Canada. Grass-uprooter	690,461	Jan. 7	142	30, 31	98	32
Phillips, Edwin U., assignor to Modern Telescope Company, Portland, Oreg. Telescopic traveling-bag	693,737	Feb. 18	2866	695	98	1440
Phillips, Elwood C. (See Barrett and Phillips.)						
Phillips, Henry M., Spearville, Kans. Cultivator-shovel	694,417	Mar. 4	160	36	98	1746
Phillips, Henry S., Laredo, Tex. Chain-jack	693,668	Feb. 18	2759	608	98	1413
Phillips, Luther M., assignor of one-half to W. F. Sellers, Altoona, Pa. Eyeglasses	692,069	Jan. 28	3219	727	98	718
Phillips, Robert F., Pittsburg, Pa. Kiln for drying green sand cores	692,339	Feb. 4	212	51	98	843
Phinney, Edward H. (See Buckley and Phinney.)						
Picard, Pierre, Paris, France. Electric-telegraph apparatus	691,176	Jan. 14	1506	339	98	329
Pichereau, Asahel P., Chicago, Ill. Trinket-box	696,763	Mar. 18	2653	608	98	2301
Pickering, Ridgway S., Sharonhill, Pa. Cotter-pin	691,730	Jan. 21	2565	575	98	569
Picking, Josiah B., assignor of one-half to L. D. Patton and S. Marriott, Mansfield, Ohio. Vehicle-brake	696,077	Mar. 25	3948	735	98	2437
Pierce, George L., Brooklyn, N. Y., assignor to A. G. Spalding & Bros., Jersey City, N. J., and New York, N. Y. Head-harness for foot-ball players	694,986	Mar. 11	1953	274	98	1995
Pierce, Imogen S., Philadelphia, Pa. Garment-fastener	695,341	Mar. 11	1902	424	98	2128
Pierce, John, Milton, assignor of two-thirds to J. H. Chadbourne, Watertown, and W. B. Moore, Swampscott, Mass. Separator and stop for lacing-hook-setting machines	692,340	Feb. 4	214	51	98	843
Pierce, John D., Philadelphia, Pa. Electric-lamp socket	693,738	Feb. 18	2868	695	98	1440
Pierce, William A., Topeka, Kans. Hay elevator and distributer	695,079	Mar. 11	1426	313	98	2031
Pierpont, Robert, New Haven, Conn. Tension device for sewing-machines	695,486	Mar. 18	2142	484	98	2197
Piez, Charles, and R. H. Beaumont, Philadelphia, Pa., assignors to Dodge Coal Storage Company, Naugatuck, Conn. Storage apparatus	696,966	Mar. 25	3646	815, 816	98	2519

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pifer, Jerome W. (See Parsons and Derr, assignors.)						
Pilling, Frederick, Washington, D. C. Door-bolt	691,870	Jan. 28	2851	642	98	846
Pillmore, William F., and D. Anderegg, Westernville, N. Y. Bean-separator	696,189	Mar. 25	3409	788	98	2489
Piper, Asa E., Buffalo, N. Y. Shipping-box	698,311	Feb. 11	2062	451	98	1248
Piper, William M., Allegheny, Pa. Draft-rigging	698,331	Feb. 11	2104	460	98	1257
Piper, William M., Allegheny, Pa. Draft-rigging	698,332	Feb. 11	2104	460	98	1258
Piper, William M., Allegheny, Pa. Draft-rigging	698,333	Feb. 11	2105	461	98	1258
Piper, William M., Allegheny, Pa. Draft-rigging	698,334	Feb. 11	2106	461	98	1258
Piper, William M., Allegheny, Pa. Draft-rigging	698,335	Feb. 11	2108	461, 462	98	1259
Pirie, Frederick G., and F. Sharman, London, England. Apparatus for storing, measuring, and delivering aerated liquids	694,187	Feb. 25	3770	825	98	1654
Pirsch, Peter, Kenosha, Wis. Extension-ladder	690,462	Jan. 7	146	31	98	33
Pisko, Emanuel, New York, N. Y. Device for shaping cigar-bunches	698,439	Feb. 18	2209	506	98	1321
Pitt, George W., and E. Martin, London, England. Wheel and tire for vehicles	692,341	Feb. 4	216	52	98	844
Pitts, Joseph W., Augusta, Ga. Spike-extractor	695,487	Mar. 18	2144	494	98	2198
Pittsburgh Reduction Company. (See Jordan, Harry W., assignor.)						
Plagmann, Emil, Marengo, Iowa. Windmill	694,300	Feb. 25	3068	884	98	1676
Plano Manufacturing Company. (See Trolley, Isaac, assignor.)						
Planters Compress Company. (See Lowry, George A., assignor.)						
Platt, John W., Dover, N. H. Loom shedding mechanism	690,873	Jan. 7	950	213, 214	98	200
Platz, Frank A., Brooklyn, N. Y. Child's waist	690,768	Jan. 7	775	173	98	164
Plettenberg, Friedrich, Iserlohn, Germany. Mattress	692,705	Feb. 4	867	198	98	976
Pneumatic Tobacco Stemmer Company. (See Spencer and Whitaker, assignors.)						
Poate, William E., Neillsville, Wis. Bar-fixture	692,706	Feb. 4	869	199	98	977
Pocock, Francis A., Philadelphia, and to C. W. Kennedy, Rutledge, assignors, by mesne assignments, to Electric Power Development Company, Philadelphia, Pa. Electric motor	694,075	Feb. 25	3558	785, 786	98	1592
Pocock, Stephen H., Hamilton, Canada. Car-brake	690,769	Jan. 7	777	172, 173	98	164
Poehner, Andrew J., Cincinnati, Ohio. Ironing-board support	694,779	Mar. 4	858	189	98	1863
Pohlman, Edward A., New York, N. Y. Faucet and valve	691,569	Jan. 21	2258	500	98	505
Poindexter, Robert E., Indianapolis, Ind. Saw	698,312	Feb. 11	2053	451	98	1949
Pointon, Charles E. (See Pointon, John E. and C. E.)						
Pointon, John E. and C. E., assignors to Lewis & Pointon's Panification, Limited, Wellington, England. Machine for dividing dough	698,473	Feb. 4	443	108	98	889
Poland, Otto, Giebichenstein, near Halle-on-the-Saale, Germany. Machine for making casks	695,280	Mar. 11	1713	379, 380	98	2090
Pollard, Amos E., Montezuma, assignor of one-half to L. C. Medearis, Marshalltown, Iowa. Bridle crown-piece	692,707	Feb. 4	870	199	98	977
Pollard, Collingwood, Bradford, assignor to Pollard & Metcalfe, Limited, Silsden, England. Fire-kindler	694,027	Feb. 25	3471	765	98	1575
Pollard, Collingwood, Bradford, assignor to Pollard and Metcalfe, Ltd., Silsden, England. Fire-lighter block	696,267	Mar. 25	3648	816	98	2590
Pollard, Frederick, Cleveland, Ohio. Show-case	694,987	Mar. 11	1254	274	98	1905
Pollard & Metcalfe. (See Pollard, Collingwood, assignor.)						
Pollard, Robert S., Pittsburg, Pa. Device for operating blast-furnace snort-valves	694,988	Mar. 11	1255	274	98	1905
Pollard, Willard L., Rozetta, Ill. Mitten	694,188	Feb. 25	3771	853, 854	98	1654
Pollock, Henry G. (See Bebout, James M., assignor.)						
Pomeroy, Silas H. (See Voigtmann and Pomeroy.)						
Pompe, Adrain A. (See Mahana, John B., assignor.)						
Pool, Harley A., Lima, Ohio. Dumb-waiter	696,308	Mar. 25	3649	817	98	2590
Poole, Staley D., assignor to Deere & Company, Moline, Ill. Fastening for harrow-teeth	691,660	Jan. 21	2433	547	98	542
Pooley, Peter, Chicago, Ill. Revolving broiler	694,889	Mar. 4	1058	236	98	1987
Pope, Charles E., Kaukauna, Wis. Reeling mechanism	698,474	Feb. 4	444	104	98	889
Pope, Charles H., Brockton, Mass. Door	698,440	Feb. 18	2310	506	98	1321
Poplett, George E. (See Wheeler, Robert L., assignor.)						
Poppe, Oscar. (See Klic and Poppe.)						
Porbeck, Otto, St. Louis, Mo. Dust-collector	691,486	Jan. 21	2130	475	98	476
Porter, Forest A., Chicago, Ill. Stringed musical instrument	690,408	Jan. 7	148	31	98	33
Porter, John B. (See Emig, Jacob, assignor.)						
Porter, Joseph E., Ottawa, Ill. Express-car	694,404	Mar. 4	287	65, 66	98	1778
Porter, Samuel P. (See Livingstone, William, assignor.)						
Portman, Gustave N., Peoria, Ill. Releasing-trap	698,901	Feb. 25	3212	708, 709	98	1593
Post, Friedrich G. J., Hamburg, Germany. Copying-paper roll	695,498	Mar. 18	2145	484	98	2198
Postlethwaite, Robert H., assignor to Risdon Iron and Locomotive Works, San Francisco, Cal. Excavating mechanism for dredgers	692,080	Jan. 28	3136	706, 707	98	701
Postlethwaite, Robert H., assignor to Risdon Iron and Locomotive Works, San Francisco, Cal. Auxiliary cutter for gold-dredgers	696,078	Mar. 25	3249	785	98	3487
Potocki, August. (See Bourhanovsky and Kowanko, assignors.)						
Potter, Alburtus D. (See Dennis, Potter, and Ellis.)						
Potter, Carroll, Philadelphia, Pa. Buttonhole-bouquet holder	698,150	Feb. 11	1748	393	98	1192
Potter, Carroll, Philadelphia, Pa. Apparatus for casting lead	694,418	Mar. 4	160	36	98	1747
Potter, Charles H., assignor of one-half to F. McCann, New Bedford, Mass. Carding-machine	695,684	Mar. 18	2794	637	98	2330
Potter, Frank M. (See Beust and Potter.)						
Potter, Henry N., Göttingen, Germany, assignor to G. Westinghouse, Pittsburg, Pa. Insulating compound	694,989	Mar. 11	1257	.....	98	1906
Potter, Henry N., Göttingen, Germany, assignor to G. Westinghouse, Pittsburg, Pa. Electric glower-lamp	696,980	Mar. 25	3904	886	98	2571
Potter, Henry N., assignor to G. Westinghouse, Pittsburg, Pa. Heater-wire support for electric lamps and making same	695,946	Mar. 25	2996	678	98	2365
Potter, James C., and J. Johnston, assignors to Potter and Johnston Machine Company, Pawtucket, R. I. Chuck-operating device	694,169	Feb. 25	3773	824	98	1654
Potter, John A., Camden, N. J. Manufacture of pig-iron	696,068	Feb. 11	1552	339	98	1145
Potter, John A., Cleveland, Ohio. Treating ores or similar materials	698,312	Feb. 11	2054	451, 452	98	1949
Potter and Johnston Machine Company. (See Potter and Johnston, assignors.)						
Potter, Thomas O., Deadwood, S. D., assignor to J. E. Maynadier, Boston, Mass. Passenger-car	696,190	Mar. 25	3500	764	98	2489
Potter, William B., Schenectady, N. Y., assignor to General Electric Company. Collector for surface-contact railways	691,808	Jan. 28	2744	619, 620	98	698

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Potter, William B., Schenectady, N. Y., assignor to General Electric Company. Electric controller	691,809	Jan. 28	2746	620	98	623
Potter, William B., Schenectady, N. Y., assignor to General Electric Company. Electric-railway system	691,810	Jan. 28	2749	620, 621	98	624
Potter, William M., assignor to E. C. Stearns & Co., Syracuse, N. Y. Drill	691,486	Jan. 21	2121	476	98	476
Pounder, George H., Fort Atkinson, Wis. Harrow	692,342	Feb. 4	217	52	98	844
Powell, Edward J. W., *et al.* (See Eynon, John, assignor.)						
Powell, James H., assignor of one-half to R. Bell, Limestone, Fla. Adjustable plow-bar	691,323	Jan. 14	1799	409	98	390
Powell, Noah M., assignor of one-half to W. A. Shumate, Quincy, Ill. Turn-table for motor-fans	696,191	Mar. 25	3501	784	98	2489
Powers, Curtis. (See Somers and Powers.)						
Powers, James, assignor of one-half to N. I. Stone, New York, N. Y. Bread or cake box	690,874	Jan. 7	952	214	98	200
Powers, John A. (See Coleman, George P., assignor.)						
Prahar, Louis B., Brooklyn, N. Y. Chatelaine-hook	693,739	Feb. 18	2889	635	98	1440
Pratt, Harry, Kenilworth, Ill. Appliance for swimmers	690,663	Jan. 7	568	124	98	122
Preble, George L., Lynn, Mass. Machine for chamfering and feather-edging soles	693,908	Feb. 25	3213	709	98	1528
Prentice, James H., Brooklyn, N. Y. Folding commode stand and seat	694,890	Mar. 4	1064	235	98	1937
Prescott, Clay S., Menominee, Mich., assignor of one-half to D. Clint Prescott Co. Steam set-works	694,780	Mar. 4	860	189, 190	98	1893
Prescott, Joseph D., Boston, assignor of two-thirds to C. N. Bacon, Winchester, and A. W. Griffith, Beachmont, Mass. Clamping device for vehicle-wheel tires	694,326	Feb. 25	4079	908	98	1690
Preston, Albert F., East Boston, Mass. Pulling-over machine	693,620	Feb. 18	2668	589, 590	98	1394
Preston, Delmer E., and W. H. Atkinson, assignors of one-fourth to A. N. Benn, Omaha, Nebr. Scraper	695,231	Mar. 11	1714	380	98	2090
Preston, Williard B., Chicago, Ill. Electric massage-roller	693,063	Feb. 11	1554	339	98	1145
Prevatt, Simeon F. (See Van Houten and Prevatt.)						
Price and Co., G. H. (See Edenborough, Harold, assignor.)						
Price, Corwin T., Washington, D. C. Tooth brush and powder cabinet	692,708	Feb. 4	871	199	98	977
Price, George W., assignor of one-half to G. E. Harpham, Los Angeles, Cal. Wrench	692,709	Feb. 4	872	199	98	977
Price, Leonidas H., Indianapolis, Ind. Saw-set	691,072	Jan. 14	1330	300	98	292
Price, Raymond B. (See Kinney and Price.)						
Price, Raymond B., Chicago, Ill. Rubber vehicle-tire	690,604	Jan. 7	455	98	98	98
Price, Raymond B., Chicago, Ill. Reclaiming rubber from vulcanized-rubber waste	693,151	Feb. 11	1749	383	98	1188
Price, Theodore H., New York, N. Y., assignor to Century Milk Company, New York, N. Y., and Jersey City, N. J. Delivery-wagon	692,543	Feb. 4	581	136	98	916
Price, Thomas M., assignor of one-half to J. S. Richard, Itasca, Tex. Nut-lock	693,805	Feb. 18	3003	664	98	1463
Price, Walter H., assignor to Stall & Dean Manufacturing Company, Brockton, Mass. Striking-bag	690,605	Jan. 7	456	98	98	98
Price, William A. (See Anderson, James A., assignor.)						
Pridmore, Henry E., Chicago, Ill. Machine for making sand molds	693,441	Feb. 18	2311	507	98	1321
Pries, Herman. (See Williamson and Pries.)						
Priest, Louis, Flint, Mich., assignor to T. W. Whitney, St. Louis, Mo., and C. N. Morse, Flint, Mich. Vehicle-box	691,661	Jan. 21	2435	548	98	542
Prieur, Joseph A. P., and L. J. M. Dubois, Puteaux, France. Photographic camera	694,573	Mar. 4	462	99, 100	98	1811
Prince, Siegmund. (See Klinger and Reynolds, assignors.)						
Prinke, Carl H., Baltimore, Md. Lithographic process	694,574	Mar. 4	463	.....	98	1811
Printers Roller Washing Machine Company. (See Crump, Samuel, assignor.)						
Prinz, William H., Chicago, Ill. Test-scale for maltsters	694,781	Mar. 4	802	190	98	1894
Prinz, William H., Chicago, Ill. Testing barley and malt	694,782	Mar. 4	854	191	98	1894
Pritchard, Albert R., Rochester, N. Y. Vessel-handle	691,970	Jan. 28	3033	681	98	682
Privat, Abraham. (See Privat, Louis and A.)						
Privat, Louis and A., Oakpark, Ill. Arc-lighting system for alternating currents	694,190	Feb. 25	3774	884, 885	98	1635
Proben, Charles I., and G. Fischer, Jr., New York, N. Y. Massage device	693,064	Feb. 11	1555	340	98	1145
Proctor, Charles B., Indianola, Iowa. Foldable box	693,070	Jan. 28	3219	727	98	718
Proctor, E. K., *et al.* (See Jones, Frank H., assignor.)						
Proctor, William A., assignor of one-half to A. P. Grinnell, Lynn, Mass. Educational appliance	690,664	Jan. 7	569	124	98	122
Proffitt, Benjamin F., Loveland, Iowa. Animal-poke	690,875	Jan. 7	954	215	98	301
Proske, Theodore H., Victor, Colo. Sharpening-machine for drill-bits	692,796	Feb. 4	1035	232, 233	98	1008
Protective Tread Company. (See Farmer, Theodore P., assignor.)						
Protheroe, Charles C., Richmond Hill, New York, N. Y. Ball-bearing slide	694,088	Feb. 25	3471	765	98	1575
Protheroe, Charles C., Richmond Hill, New York, N. Y. Reciprocating engine	694,076	Feb. 25	3560	786	98	1593
Pruden, Charles S., Rome, Ga. Nut-lock	695,489	Mar. 18	2140	484, 485	98	2199
Puckett, John W., Manchester, Va. Brake-stand for cars	694,191	Feb. 25	3776	835	98	1635
Pugh, William J., Davenport, Iowa, assignor of one-half to T. R. Levis, Rochester, N. Y. Explosive-engine	693,071	Jan. 28	3221	727, 728	98	718
Pullman, Herbert S., Meriden, Conn. Machine for manufacturing shoe-laces, &c.	690,995	Jan. 14	1186	269	98	293
Pulver Chemical Company. (See Pulver, Henry H., assignor.)						
Pulver, Henry H., assignor to Pulver Chemical Company, Rochester, N. Y. Receptacle or casing for vending-machines, &c	693,532	Feb. 18	2493	547	98	1858
Punctnot Tire Company. (See Stearns and Haines, assignors.)						
Pupke, Eberhard L., East Orange, assignor to Agatine Shoe-Hook and Eyelet Company, Newark, N. J. Shoe-hook-setting machine	692,843	Feb. 4	220	53, 54	98	844
Püschel, Franz. (See Knehans and Püschel.)						
Putman, Calvin, Anderson, Mo. Wagon-spindle	693,903	Feb. 25	3215	700	98	1524
Putnam Nail Company. (See Williams, Henry A., assignor.)						
Pywell, Edwin F. (See Slagle and Pywell.)						
Quarelli, Peter, Danville, Ill. Lunch-pail	691,662	Jan. 21	2437	548	98	543
Quatram, Franz, Berlin, Germany. Mantle-holder for incandescent gas-burners	690,606	Jan. 7	457	98	98	98
Quinn, Charles J., Scranton, Iowa. Chimney-cap	695,170	Mar. 11	1602	355	98	2068
Quinn, Martin, Blackrock, Ark. Tongs	694,495	Mar. 4	888	66	98	1773
Quinn, Thomas, Milford, Mass., assignor of one-half to J. H. Northrop, Tustin, Cal. Wheel-controlling mechanism	691,663	Jan. 21	2438	549	98	543
Quint, Alanson D., Hartford, Conn. Turret drilling, milling, and tapping machine	694,783	Mar. 4	865	191, 192	98	1894
R. Bliss Manufacturing Company. (See Colwell, Nicholas H., assignor.)						
R. M. Keating Motor Company. (See Keating, Robert M., assignor.)						
Raasch, Ferdinand, and J. W. Krueger, Milwaukee, Wis. Floor-treating machine	694,077	Feb. 25	3564	786	98	1594
Rabbeth, Francis J., Boston, Mass. Fishing-reel	691,073	Jan. 14	1331	300	98	292

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Rabert, Chester, Coalburg, W. Va. Metallic railway-tie and means for securing the rails thereto	692,908	Feb. 11	1347	276	98	1081
Rader, Charles I., Youngstown, Ohio, assignor of one-half to W. H. Hassinger. Blast-furnace	695,886 692,740	Mar. 18 Feb. 18	2666 2220	654 626	98 98	2850 1440
Raether, Edwin P., San Diego, Cal. Door-securer	692,944	Feb. 4	224	54	98	845
Raifsnyder, William H. F., Sackett, Pa. Rail-joint	692,908	Feb. 11	1946	276 277	98	1082
Rainbow, Frederick J. G., Barnstaple, England. Measuring-machine for plastic material	692,904	Feb. 25	2816	710	98	1584
Rains, Charles E., assignor of one-half to L. E. Elsten, Chanute, Kans. Reversing mechanism	696,079	Mar. 25	2650	735 736	98	2437
Raissle, Gottlieb, South Bend, Ind. Steam-boiler	690,607	Jan. 7	407	98, 99	98	98
Ralston, James M., Allenhurst, N. J. Apparatus for transplanting and transporting trees	691,884	Jan. 14	1800	409	98	390
Ramage, Alexander S., assignor to E. A. Sperry, Cleveland, Ohio. Pigment and the production thereof from ferrous liquors	695,764	Mar. 18	2653	608	98	2201
Ramage, Elias B., and R. O. Slaughter, Fivepointa, Ala. Hay-press	694,784	Mar. 4	870	198 198	98	1896
Ramsay, Daniel, Philadelphia, Pa. Automatic drilling-machine	695,090	Mar. 11	1427	313	98	2081
Ramspeck, Karl J., Altona-Ottensen, Germany. Coin-assorter						
Rand Drill Company. (See Ambrose, Robert L., assignor.)						
Rand Drill Company. (See Parsons, Frederick W., assignor.)						
Rand, James H., North Tonawanda, N. Y. Filing device for bank-checks, &c	691,177	Jan. 14	1508	340	98	329
Rand, William C., Lewiston, Me. Gasolene-burner	690,606	Jan. 7	459	99	98	99
Randle, Oscar E., *et al.* (See Walker, John B., assignor.)						
Ranford, Fred J., Oswego Falls, N. Y. Wheel	692,710	Feb. 4	873	199	98	978
Ransom, William M., Warren, R. I. Golf-club	690,986	Jan. 14	1198	270	98	954
Ransome, Ernest L., New York, N. Y. Concrete-mixer	694,575	Mar. 4	465	100	98	1812
Ransome, Ernest L., New York, N. Y. Coupling metal bars in reinforced concrete	694,576	Mar. 4	467	100	98	1812
Ransome, Ernest L., New York, N. Y. Reinforced concrete construction	694,577	Mar. 4	467	100	98	1812
Ransome, Ernest L., New York, N. Y. Concrete joint	694,578	Mar. 4	469		98	1812
Ransome, Ernest L., New York, N. Y. Self-dumping hoist	694,579	Mar. 4	469	101	98	1812
Ransome, Ernest L., New York, N. Y. Concrete construction	694,580	Mar. 4	470	101	98	1813
Rapaport, Barnet, New York, N. Y. Pocket-case for cigars or cigarettes	692,681	Feb. 18	2673	590	98	1995
Raphael, Henry J. W., *et al.* (See West, James, assignor.)						
Raphael, Max, and L. Elias, Breslau, Germany. Insulating and packing material and manufacturing same	691,871	Jan. 28	2353	549	98	646
Rapp, John W., New York, N. Y. Floor construction	690,609	Jan. 7	462	99 100	98	99
Rassinier, Eugène G. (See Berly and Rassinier.)						
Rastetter, William C., Fort Wayne, Ind. Vehicle-wheel	694,192	Feb. 25	2779	685	98	1686
Rastetter, William C., Fort Wayne, Ind. Adjusting device for striking-bags	694,664	Mar. 4	629	126	98	1945
Rateau, Auguste C. E., and G. Sautter, Paris, France. Lubricating steam-turbines, &c.	691,914	Jan. 28	2227	659 660	98	661
Raub, Warren E. (See Weinel, Frederick E., assignor.)						
Raudnitz, Adolph, New York, N. Y. Safety-holder	692,065	Feb. 11	1556	340	98	1146
Rauh, Frederick, Elliott, Pa. Clothes-line fastener	694,891	Mar. 4	1065	256	98	1937
Rauh, Leopold. (See Boring and Chitwood, assignors.)						
Rauhoff, John M., Chicago, Ill. Washing-machine	692,345	Feb. 4	295	54	98	845
Ray, Edward L. (See Mathias and Ray.)						
Ray, James A. (See Baxter, Daniel N., assignor.)						
Raymond, Arthur H., Bridgeport, Conn. Brake	694,786	Mar. 4	875	198	98	1597
Raymond, Freeborn F., 2d., Newton, Mass., assignor, by mesne assignments, to United Shoe Machinery Company. Heel-nailing machine	694,665	Mar. 4	620	137 138	98	1046
Rea, Fred. (See Richardson, Harry C., assignor.)						
Read, Robert H., Schenectady, N. Y., assignor to General Electric Company. Controller for electric motors	695,118	Mar. 11	1502	234	98	2045
Reagan, John T. (See Moriarty, Thomas J., assignor.)						
Rearick, Charles B., New York, N. Y. Steam-boiler. (Reissue)	11,974	Mar. 4	1149	251	98	1955
Rearick, Charles B., New York, N. Y. Water-tube steam-boiler	695,389	Mar. 18	2656	647 648	98	2344
Record, James L., Minneapolis, Minn. Tile wall	692,544	Feb. 4	582	136 137	98	916
Redding, Charles C. (See Hobson, John H., assignor.)						
Redhead, George A., Washington, D. C. Attachment for collars	695,442	Feb. 18	2313	507	98	1382
Redpath, George O., Frankfort, Ky. Weaving and completing cane or ratan fabrics	692,346	Feb. 4	226	55	98	846
Redpath, George O., Frankfort, Ky. Comb for spacing the mesh of woven fabrics	692,347	Feb. 4	230	55	98	846
Reece Button Hole Machine Company. (See Dixon, William W., assignor.)						
Reece Folding Machine Company. (See Dixon, William W. and W. L., assignors.)						
Reece, John, deceased; M. Reece, Boston, and F. A. Shea, Brookline, Mass., administrators. Buttonhole-sewing machine	692,904	Feb. 11	1350	277	98	1058
Reece, Marietta, *et al.*, administrators. (See Reece, John.)	695,192	Mar. 25	2592	705	98	2489
Reed, Charles A., Payne, Ohio. Burial-vault	690,770	Jan. 7	779	173	98	165
Reed, Charles J., Philadelphia, Pa., and M. T. Morrill, Golden, Colo. Galvanic battery or pile	692,545	Feb. 4	583	137	98	917
Reed, Charles K. and C. A., Worcester, Mass. Temporary binder	691,811	Jan. 28	2253	681	98	695
Reed, Charles W., and J. Hakel, Hood River, Oreg. Pruning-shears						
Reed, Chester A. (See Reed, Charles K. and C. A.)						
Reed, Marshall, Whitman, assignor of one-half to O. H. Wade, Boston, Mass. Theater-chair	694,990	Mar. 11	1257	275	98	1906
Reed, Willard S., Smyrna, Del. Manicure-knife	695,542	Mar. 11	1908	424	98	2128
Reenstierna, Gustaf L., Winchester, Mass. Muffler for gasolene-engines	692,311	Jan. 28	2474	786	98	770
Rees, Fred H., Elmira, N. Y. Lacing-hook. (Reissue)	11,973	Feb. 18	3045	672	98	1471
Reese, Frederick, Eutaw, Ala. Axle	695,061	Mar. 11	1428	313	98	2081
Reeve, William R., *et al.* (See Jackson, Benjamin F., assignor.)						
Reeves, Charles W., Columbus, Ohio. Coin weighing and counting machine	690,876	Jan. 7	965	215	98	201
Rehberg, Henry A. (See Wahman and Rehberg.)						
Rehkopf, John G., Paducah, Ky. Buggy-step	691,872	Jan. 28	2354	543	98	646
Rehrig, Charles K., Trenton, N. J. Broom-holder	692,906	Feb. 11	1559	377	98	1059
Reichel, Arthur C., Union Hill, N. J. Savings-bank	692,741	Feb. 18	2231	626	98	1440
Reichel, Emil B. W., Steglitz, Germany, assignor to Siemens & Halske Electric Company of America, Chicago, Ill. System of electrical distribution	692,348	Feb. 4	228	56	98	846
Reichenbach, John B., Wilmot, Ohio. Saw-mandrel	692,349	Feb. 4	228	56	98	847
Reichlin, Xaver, Horgen, Switzerland. Target	694,861	Mar. 4	471	101	98	1813
Reid, Alexander, Jersey City, N. J., assignor to American Bank Note Company, New York, N. Y. Attachment for plate-printing presses	692,350	Feb. 4	235	56	98	847

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Reid, Alexander, Jersey City, N. J., assignor to American Bank Note Company, New York, N. Y. Plate-printing	692,351	Feb. 4	236	56	98	843
Reid, Charles C., Cleveland, Ohio. Electric igniter	694,991	Mar. 11	1959	275	98	1998
Reid, John, Yonkers, N. Y., and L. M. Hooper, Rutherford, N. J., assignors to J. L. Mott Iron Works, New York, N. Y. Wringer attachment	692,546	Feb. 4	585	137	98	917
Reid, Marcellus, Providence, R. I., assignor to C. D. Brower, trustee, New York, N. Y. Wire-drawing machine	695,490	Mar. 18	2148	485 486	98	2196
Reid, Myron L. (See Stainbrook, James H., assignor.)						
Reif, Joseph, Jr., Hebron, Ind., assignor to Hercules Woodenware Company, Chicago, Ill. Machine for making slat-and-wire fabric	692,158	Feb. 11	1751	384 385 386	98	1158
Reiff, William H., Philadelphia, Pa. Burglar-alarm	690,997	Jan. 14	1194	270	98	265
Reinhard, Wilhelm, Berlin, Germany. Toothpick-package	695,491	Mar. 18	2152	486	98	2199
Reinhardt, James H., East Orange, N. J. Numbering-machine	692,073	Jan. 28	3223	728	98	719
Reinhold, Charles, assignor of one-half to H. Müller, New York, N. Y. Thread-guiding attachment for sewing-machines	691,406	Jan. 21	1988	446	98	449
Reinle, August, Baltimore, Md. Show-case	696,269	Mar. 25	3652	817	98	2521
Reinohl, David C. (See McFarlane, John, assignor.)						
Reinohl, David C. (See McFarlane and Reinohl.)						
Reiser, Christian, Lake Charles, La. Boiler feeding and cleaning attachment	692,073	Jan. 28	3226	728 729	98	719
Reisky, Charles. (See Reisky, Emil, assignor.)						
Reisky, Emil, assignor to C. Reisky, Rochester, N. Y. Bowling-alley	695,694	Mar. 18	2494	548	98	2255
Reist, Henry G., Schenectady, N. Y., assignor to General Electric Company. Connector for spools of dynamos	696,080	Mar. 25	3252	736	98	2438
Renaker, Walter C., Cynthiana, Ky. Grain-tube cup	694,419	Mar. 4	102	36	98	1747
Rendschmidt, Karl, Berlin, Germany. Flash-light cartridge	696,270	Mar. 25	3653	817	98	2521
Renner, George, and W. H. Boyens, Christchurch, New Zealand. Apparatus for branding animals or packages	690,771	Jan. 7	752	173	98	165
Renner, John, Burlington, Iowa. Bracket-support for shade-rollers	690,589	Jan. 7	314	65	98	66
Rennie, William D., and S. G. Van Derbeek, assignors of one-half to F. B. and L. H. Sage, Hackensack, N. J. Golf-register	692,906	Feb. 11	1253	278	98	1068
Reno, Jesse W., New York, N. Y. Inclined elevator	696,198	Mar. 25	3508	785	98	2489
Renstrom, Carrie, assignor to Astec Tempered Copper Company, Seattle, Wash. Hardening copper	696,271	Mar. 25	3654	.....	98	2521
Reppell, Louis H. (See Reppell, William R., assignor.)						
Reppell, William R., St. Louis, assignor of one-half to L. H. Reppell, Kansas City, Mo. Dancing toy	692,907	Feb. 11	1254	278	98	1068
Reubold, Friedrich, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Black sulfur dye and making same	695,685	Mar. 18	2705	.....	98	2330
Revalk, Richmond E., San Francisco, Cal. Type-writer pad	690,772	Jan. 7	753	173	98	165
Réveillé, André, assignor to Société Française du "Musicographe Reveillé," (Société Anonyme,) Paris, France. Apparatus for impressing stereotype-matrices with musical notes or other characters	691,971	Jan. 28	3034	681 682 683	98	682
Revere Rubber Company. (See Kent, William J., assignor.)						
Reynolds, Carl, Columbus, Ohio. Automatic circuit-breaker	692,475	Feb. 4	446	104	98	890
Reynolds, Charles A. and S. A., Dallas, Tex. Plaiting apparatus	695,092	Mar. 11	1450	314	98	2081
Reynolds, Edwin. (See Sharps, Leone S., assignor.)						
Reynolds, Frank A., Lewiston, Me., assignor to H. C. Parker, trustee, New York, N. Y. Fuel-feed for burners	695,238	Mar. 11	1715	380	98	2090
Reynolds, Frank M., Knoxville, Iowa. Milk cooler and aerator	695,171	Mar. 11	1605	356	98	2068
Reynolds, George H., Mansfield Depot, Conn., assignor to "Locomobile" Company of America, New York, N. Y. Roller-bearing for crank-shafts or the like	691,467	Jan. 21	2123	476	98	477
Reynolds, James J. (See Klinger and Reynolds.)						
Reynolds, Jonathan E., Onset, assignor to O. A. Miller, Brockton, Mass. Acetylene-gas generator	695,268	Mar. 11	1717	380	98	2091
Reynolds, Justus N., Lemont, Ill. Die for drawing sheet metal	694,892	Mar. 4	1066	236	98	1987
Reynolds, Sallie A. (See Reynolds, Charles A. and S. A.)						
Reynoulds, James Y., Molino, Tenn. Cultivating-plow	692,908	Feb. 11	1255	278	98	1068
Rheutan, Garrett H., San Francisco, Cal., assignor of one-half to R. B. Lincoln, Waltham, Mass. Steam-generator	692,081	Jan. 28	3139	707 708	98	701
Rheutan, Garrett H., San Francisco, Cal., assignor of one-half to R. B. Lincoln, Waltham, Mass. Steam-generator	692,082	Jan. 28	3141	708 709	98	702
Rice, Ida H., assignor to F. W. Rueckheim & Brother, Chicago, Ill. Knockdown paper box	695,836	Mar. 18	2796	637	98	2330
Rice, James N., Scranton, assignor to Anthracite Separator Company, Hazleton, Pa. Separator for ore, coal, &c.	693,443	Feb. 18	2514	507	98	1322
Rice, John J., Camden, N. J. Watch chain or guard	694,490	Mar. 4	103	36, 37	98	1747
Rice, Thomas B., Jr., Philadelphia, Pa. Safety device for woodworking-machines	692,547	Feb. 4	587	138	98	918
Rich, Henry M. (See Bancroft, Frank H., assignor.)	691,074	Jan. 14	1333	301	98	206
Richard, Honoré. (See Devaux and Richard.)						
Richard, Jay S. (See Price, Thomas M., assignor.)						
Richards, Arthur W., Indianola, Iowa. Corn-harvester	693,066	Feb. 11	1567	340 341	98	1146
Richards, Charles B., assignor to Cleveland Pneumatic Tool Company, Cleveland, Ohio, and Philadelphia Pneumatic Tool Company, Philadelphia, Pa. Pneumatic riveter	695,415	Mar. 11	2021	454	98	2154
Richards, Francis H. (See Champion, Charles S., assignor.)						
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Playing-ball	696,351	Mar. 25	3833	853	98	2558
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Manufacture of playing-balls	696,352	Mar. 25	3831	854	98	2558
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Golf-ball	696,353	Mar. 25	3835	854	98	2559
Richards, Francis H., Hartford, Conn., assignor to Kempshall Manufacturing Company. Manufacture of golf-balls	696,354	Mar. 25	6841	854 855	98	2560
Richards, Henry, Pine Meadow, assignor to Stanley Rule & Level Company, New Britain, Conn. Plane	696,081	Mar. 25	3252	736	98	2438
Richards, Kimsey T. (See Coulson, David E., assignor.)						
Richards, Walter J., assignor to N. A. Christensen, Milwaukee, Wis. Controlling apparatus for electric motors	692,362	Feb. 4	237	57	98	848
Richards, William S., Albany, Oreg. Routing-machine	695,343	Mar. 11	1906	434 435	98	2139

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Richards, Willis L. (See Akers and Richards.)						
Richardson, Aaron D., Beloit, Wis. Hydrocarbon-engine	690,610	Jan. 7	403	100	98	99
Richardson, Ernest A., Charenton, France. Plug or bush for connecting wires or bars to pieces of metal	694,582 692,475	Mar. 4 Feb. 4	471 448	101 104	98 98	1818 890
Richardson, Frederick, Providence, R. I. Tool-heater	693,153	Feb. 11	1760	395	98	1184
Richardson, Harry C., assignor of one-half to F. Rea, Cincinnati, Ohio. Marine carousel	693,622	Feb. 18	2675	500 501	98	1695
Richardson, James V., deceased, Farmville, Va.; W. H. Richardson, administrator. Knotting mechanism for bag-stringing machines	695,837	Mar. 18	2797	697	98	2330
Richardson, Vinson E., McConnelsville, Ohio. Carpet-rag looper						
Richardson, W. H., administrator. (See Richardson, James V.)	693,742	Feb. 18	2695	697	98	1441
Richardson, William, Colfax, Wash. Shoe-cleaning machine						
Richardson, William S., *et al.* (See Eynon, John, assignor.)						
Richardson, William S., Boston, Mass., assignor to Ball & Socket Fastener Company, Nashua, N. H., and Boston, Mass. Rug or garment fastener	695,897	Mar. 18	2698	695	98	2351
Richemond, Pierre. Pantin, assignor to Société Anonyme des Etablissements Weyher et Richemond, Pantin, Seine, France. Valve	695,254	Mar. 11	1719	381	98	2091
Richmond. Arthur A., East Orange, N. J., assignor, by mesne assignments, to Patent Button Company, Waterbury, Conn. Button	691,178 695,580	Jan. 14 Mar. 18	1509 2645	340 582	98 98	330 2259
Richmond, Cassius M., New York, N. Y. Air-ship						
Richmond City Mill Works. (See McMeans, Orange E., assignor.)						
Richmond Locomotive Works. (See Gillis, Harry A., assignor.)						
Ridderhof, Corneil, assignor to Wilmarth & Morman Co., Grand Rapids, Mich. Friction-clutch	691,498 690,977	Jan. 21 Jan. 7	2126 959	476 215 216	98 98	476 202
Riddle, James M., New York, N. Y. Mechanism for emptying cars						
Ridgely and Johnson Tool Company. (See Vaughan, Henry H., assignor.)						
Ridgway, John J., Rosebank, N. Y. Railway-tie	690,998	Jan. 14	1196	270	98	265
Ridgway, Orville M. (See Schilling and Ridgway.)						
Ridings, John G., Amarillo, Tex. Riding-spur	694,421	Mar. 4	164	37	98	1747
Ridley, Cuthbert W., *et al.* (See Nelson, William H., assignor.)						
Rieck, Fred W., and E. W. Euge, St. Louis, Mo. Nut-lock	693,154	Feb. 11	1761	397	98	1184
Riedel, Karl, and H. Schiegner, Rockendorf, Germany. Die for brick-pressing machines	692,358 694,786	Feb. 4 Mar. 4	341 876	57 194	98 98	849 1897
Riegel, Samuel S., Dunkirk, N. Y. Locomotive-boiler	691,075	Jan. 14	1384	301	98	293
Rigaud, Albert, St. Junien, France. Apparatus for coloring hides						
Riley, Charles E. (See Illingworth, Harry I., assignor.)						
Rincklake, August, Münster, Germany. Construction of ceilings and walls	693,905	Feb. 25	3218	710	98	1524
Ring, Byron, assignor of one-half to H. Marshal, San Francisco, Cal. Printing attachment for roll-paper	695,416	Mar. 11	2027	455	98	2155
Ring Frame Thread Protector Company. (See Wall and Schedlbauer, assignors.)						
Riolet, Felix, Geneva, Switzerland. Cork-extractor	695,326	Mar. 11	1730	381	98	2091
Riotte, Carl C. and E. A., New York, N. Y., assignors, by mesne assignments, to U. S. Long Distance Automobile Company, Elizabeth, N. J. Mixing or spraying device	696,146	Mar. 25	3424	769	98	2475
Riotte, Carl C. and E. A., New York, N. Y., assignors, by mesne assignments, to U. S. Long Distance Automobile Company, Elizabeth, N. J. Igniter	696,147	Mar. 25	3427	769	98	2476
Riotte, Eugene A. (See Riotte, Carl C. and E. A.)						
Ripley, James R., Memphis, Tenn. Machine for impressing box material	694,998	Mar. 11	1260	275	98	1996
Risdon Iron and Locomotive Works. (See Postlethwaite, Robert H., assignor.)						
Riser, Knud S., Grand Rapids, Mich. Rib for concrete-arch construction	694,198	Feb. 25	3780	825	98	1625
Ritchey, Joseph K., Roaring Spring, Pa. Blackboard	692,354	Feb. 4	242	58	98	849
Ritchie, Arthur F., Duluth, Minn. Piston and piston-rod	694,078	Feb. 25	3565	787	98	1594
Ritchie, Gaines G., Sangamon, Ill. Railway signaling device	694,898	Mar. 4	1068	236	98	1988
Ritchie, William J., Hoboken, N. J. Mechanism for operating sluice-gates	695,838	Mar. 18	2798	637 638	98	2330
Rittenhouse, Joseph, Philadelphia, Pa. Lock for milk-cans	692,477	Feb. 4	449	105	98	850
Ritter, Charles W., Philadelphia, Pa. Toy	695,700	Mar. 18	2551	577 578	98	2279
Ritter, Georg, Stuttgart, Germany. Telephone system	691,664	Jan. 21	2441	549	98	543
Ritter, Georg, Stuttgart, Germany. Telephone system	691,665	Jan. 21	2446	549 550	98	544
Ritter, Henry, assignor to Lunkenheimer Company, Cincinnati, Ohio. Lubricator	691,570	Jan. 21	2260	508	98	505
Ritzler, John A. (See Swaney, Fletcher D., assignor.)						
Rivers, William E., Oldbridge, N. J., assignor to Old Bridge Enameled Brick and Tile Co., of New Jersey. Kiln for ceramic wares	696,155	Feb. 11	1768	397	98	1185
Rives, J. J., *et al.* (See Scantlebury, William, Sr., assignor.)						
Rives, R. Bathurst, *et al.* (See Scantlebury, William, Sr., assignor.)						
Rivett, Edward, Boston, Mass. Grinding-machine	690,999	Jan. 14	1197	271	98	265
Rivett, Edward, Boston, Mass. Lathe attachment for cutting spirals	692,083	Jan. 28	3145	709	98	703
Roach, Finis E., Chicago, Ill. Crown-soldering pliers	695,695	Mar. 18	2425	549	98	2255
Roake, John S., Brooklyn, assignor to W. K. Hale, Catskill, N. Y., and C. W. Kürsteiner, Englewood, N. J. Distilling apparatus	690,611	Jan. 7	464	100	98	100
Roan, James, Portsmouth, Va. Apparatus for boring out tubes	690,676	Jan. 7	960	216 217	98	202
Robbin, Fredrick, New York, N. Y. Hot-water heater	690,612	Jan. 7	466	101	98	100
Robbins, Andrew I. (See Mahana and Robbins.)						
Robbins, George B. (See Sharp, William E., assignor.)						
Robbins, William H., J. J. Bye, and A. E. Jones, Ellwood City, Pa. Mill for rolling seamless tubes	692,478 695,561	Feb. 4 Mar. 18	470 2347	105 532	98 98	850 2240
Roberts, Benjamin C., Windsor Station, Va. Cornstalk-cutter	692,479	Feb. 4	452	105	98	851
Roberts, Emmett R., Indianapolis, Ind. Egg-beater						
Roberts, Goodwin M. (See Johnson and Roberts.)						
Roberts, John C., London, England. Veneer for use in the manufacture of boxes, &c	699 909	Feb. 11	1957	378	98	1083
Roberts, John D., New Decatur, and F. Kestler, Birmingham, Ala. Hose-coupling for air-brakes, vacuum-brakes, or steam-brakes	695,880 694,998	Mar. 18 Mar. 11	2600 1261	688 276	98 98	2231 1997
Roberts, John H., Shelbyville, Ill. Rail-joint						
Robertshaw, Frederick W., Pittsburg, Pa. Water-heater controlling and reversing valve	692,480	Feb. 4	488	106	98	851
Robertson, Alexander W., London, England. Apparatus for loading or unloading bulk cargoes	692,355	Feb. 4	343	58, 59	98	849
Robertson, Alexander Y., assignor to Illinois Malleable Iron Company, Chicago, Ill. Pipe-coupling	694,488	Mar. 4	165	37	98	1748
Robertson, George R., Sydney, New South Wales. Fastening for hoop-irons with which bales containing wool or other soft produce are secured	691,915 694,005	Jan. 28 Mar. 4	2980 632	650 139	98 98	661 1846
Robertson, John, Cincinnati, Ohio. Pump for atomizers	695,498	Mar. 18	2153	486	98	2300
Robertson, John, Cincinnati, Ohio. Air-pump						

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Robertson, Lee A., *et al.* (See Sartain, Louis M., assignor.)						
Robin, Jean B. St Paul, Minn. Carving-machine	692,356	Feb. 4	246	59, 60	98	850
Robins, Daniel M., Toledo, Ohio. Cheese-box	693,566	Feb. 18	2564	566	98	1378
Robinson, Arthur B., Dickinson, N. D. Phonograph apparatus	691,000	Jan. 14	1900	271	98	266
Robinson, Charles M., Toledo, Ohio. Convertible horizontal and vertical bath-cabinet	695,083	Mar. 11	1431	314, 315	98	2083
Robinson, Cyrus, Edgewood Park, Pa., assignor to Westinghouse Machine Company. Gas-engine	691,489	Jan. 21	2128	476, 477	98	478
Robinson, Cyrus, Edgewood Park, Pa., assignor to Westinghouse Machine Company. Engine-bearing and adjusting means therefor	691,490	Jan. 21	2130	477	98	478
Robinson, Cyrus, Edgewood Park, Pa., assignor to Westinghouse Machine Company. Fly-wheel	691,491	Jan. 21	2131	477	98	479
Robinson, Cyrus, Edgewood Park, Pa., assignor to Westinghouse Machine Company. Fluid-pressure engine	695,947	Mar. 25	2998	678, 679	98	2886
Robinson, Eli T., Marion, Ala. Combined comb and brush	691,873	Jan. 28	2855	643	98	646
Robinson, Frederick L., New Bedford, Mass. Billiard-cue tip	690,613	Jan. 7	405	101	98	101
Robinson, Miner, Newton, Mass. Switch, outlet, or receptacle box	691,874	Jan. 28	2856	643	98	647
Robinson, Percy J. H. (See Sadler, Frederick, assignor.)						
Robinson, Robert P., Ottawa, Canada. Suspenders	694,194	Feb. 25	3781	886	98	1636
Robinson, Theodore D. (See Viele, Walker, and Robinson.)						
Robinson, Willard E., Malden, Mass. Soap cake	692,481	Feb. 4	456	106	98	802
Robinson, William, Brooklyn, N. Y. Radial car-truck	694,787	Mar. 4	878	194, 195	98	1397
Robinson, William A., Independence, Iowa. Elevator-closing device	693,444	Feb. 18	2314	508	98	1328
Roche, Edward, Providence, R. I. Boot or shoe. (Reissue)	11,967	Feb. 11	2156	478	98	1369
Rochester, Marz F., Ingleside, Md. Pharmaceutical implement	693,156	Feb. 11	1764	388	98	1185
Rock, Samuel C., Quincy, Pa. Coupling-frame	691,179	Jan. 14	1510	340	98	330
Rodary, Ferdinand. (See Ducousso and Rodary.)						
Rodger Ballast Car Company. (See Hart, Harry S., assignor.)						
Rodgers, Everett D., Chicago, Ill. Appliance for men's trousers	695,172	Mar. 11	1605	356	98	2068
Rodgers, George B. (See Rodgers, James T., W. R., and G. B.)						
Rodgers, James T., W. R., and G. B., Memphis, Tenn. Cotton-cleaner	690,614	Jan. 7	469	101, 102	98	101
Rodgers, John F., Chartiers Township, Pa. Flush tank and valve	692,797	Feb. 4	1086	233	98	1008
Rodgers, John H., Hastings, Nebr. Horse-detacher	692,357	Feb. 4	249	60	98	850
Rodgers, Robert, deceased; G. A. Gritton, Volcano, Cal., administrator. Chair	693,323	Feb. 11	2082	455, 456	98	1258
Rodgers, William R. (See Rodgers, James T., W. R., and G. B.)						
Rodman, George G., Washington, Iowa. Device for grouping photographs	696,272	Mar. 25	3655	818	98	2581
Roebuck, Alvah C., and F. McMillan, Chicago, Ill., assignors to Enterprise Vending Machine Company. Coin-controlled mechanism	693,157	Feb. 11	1765	388	98	1185
Roebuck, Alvah C., and F. McMillan, Chicago, Ill., assignors to Enterprise Vending Machine Company. Rotary feeding mechanism	693,158	Feb. 11	1769	388	98	1186
Roedde, Gustav A., Vancouver, Canada. Detachable book-cover	691,731	Jan. 21	2566	575	98	570
Roemer, Henry C., Toledo, Ohio. Carpet-fastener	693,567	Feb. 18	2565	566	98	1372
Roesch, Alfred, Bridgeport, Conn., assignor to Davis & Roesch Temperature Controlling Co. Air-vent	695,948	Mar. 25	3002	679	98	2388
Roger, John, Denver, Colo. Conveyer	696,273	Mar. 25	3656	818	98	2581
Rogers, Arthur, Barnesville, Ohio. Die	691,666	Jan. 21	2451	550	98	545
Rogers, Arthur C., Collingwood, Ohio. Safety device for coin-receptacles	696,194	Mar. 25	3504	785, 786	98	2490
Rogers, Edwin F., Philadelphia, Pa. Lock	691,180	Jan. 14	1512	340	98	330
Rogers, Isaac N., New York, N. Y. Stone grinding and polishing machine	696,195	Mar. 25	3507	786	98	2490
Rogers, John R., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Justifying device for linotypes	694,788	Mar. 4	881	195	98	1398
Rogers, John R., Brooklyn, N. Y., assignor to Mergenthaler Linotype Company. Matrix for linotype-machines	694,789	Mar. 4	882	196	98	1399
Rogler, Fredrick W., Budapest, Austria-Hungary. Arrangement of valves for pumps, &c.	690,879	Jan. 7	961	217	98	202
Rohleder, Robert, assignor of one-fourth to A. Bufe, Troy, N. Y. Attachment for knitting-machines	694,195	Feb. 25	3782	886	98	1637
Rohlf, Charles J. (See Soehren and Rohlf.)						
Rohrbacher, William, and R. Weddell, Duquesne, Pa. Combination coffee and tea pot	695,173	Mar. 11	1607	356	98	2069
Rohwedder, Detlef H., Chicago, Ill. Propeller for vessels	692,910	Feb. 11	1258	279	98	1063
Rolfe, Orrin M., Lowell, Mass. Bobbin-holder	696,082	Mar. 25	3358	786	98	2459
Rolle, Max. (See Jones, Walter J. H., assignor.)						
Roller, Frank W., New York, N. Y. Packing or gasket	695,174	Mar. 11	1608	356	98	2069
Romaine, George W., New York, N. Y. Placket-closer	693,628	Feb. 18	2678	591	98	1526
Römer, Albert, Oberdollendorf-on-the-Rhine, Germany. Apparatus for mercerizing	694,109	Feb. 25	3611	799	98	1602
Rommel, Mike, Westgate, Iowa. Screen-door attachment	692,711	Feb. 4	876	200	98	978
Roney, James B., Lynn, Mass. Pulley-block	691,493	Jan. 21	2133	476	98	479
Rood, Will C., Chicago, Ill. Billiard-cue	694,493	Mar. 4	166	37	98	1748
Roome, Henry C. and W. G., Jersey City, N. J. Electric burglar-alarm	693,067	Feb. 11	1560	341	98	1146
Roome, Henry C. and W. G., Jersey City, N. J. Electrical burglar-alarm	693,068	Feb. 11	1564	341	98	1147
Roome, William G. (See Roome, Henry C. and W. G.)						
Roose-Jones, David, Birmingham, England. Detergent	692,358	Feb. 4	250	.....	98	850
Root, Wayland L., Spokane, Wash. Multiplying attachment for cameras	695,696	Mar. 18	2430	549	98	2256
Roper, Charles F., assignor to Draper Company, Hopedale, Mass. Loom	692,911	Feb. 11	1259	279	98	1063
Roper, Charles F., Hopedale, Mass., assignor to Draper Company, Portland, Me., and Hopedale, Mass. Warp-stop-motion mechanism	696,083	Mar. 25	3359	787	98	2440
Roper, Charles F., Hopedale, Mass., assignor to Draper Company, Hopedale, Mass., and Portland, Me. Heddle for looms	696,084	Mar. 25	3361	787	98	2440
Rose, Frank, Dayton, Ky., assignor to H. Schmit & Co., Cincinnati, Ohio. Reclining-chair	695,498	Mar. 18	2154	486	98	2300
Rose, George, Brighton, England. Apparatus for repairing drains	694,196	Feb. 25	3785	837	98	1637
Rose, Harry, Utica, N. Y. Transforming-gear	694,197	Feb. 25	3786	837	98	1637
Rose, Harry R., Allegheny, Pa. Fire-door	695,175	Mar. 11	1610	357	98	2069
Rose, James A., Hastings, Nebr. Washer and gasket cutter	692,712	Feb. 4	878	200	98	979
Rose, John A., and W. P. Brockschmidt, assignors to Aldine Manufacturing Company, Grand Rapids, Mich. Heating-grate	695,840	Mar. 18	2603	638	98	2388
Rosenberg, Augustus, London, England. Cinematographic apparatus	691,498	Jan. 21	2134	478, 479	98	480
Rosenberg, Herman, assignor to Standard Varnish Works, New York, N. Y. Imitation leather and producing it	695,697	Mar. 18	2434	.....	98	2256
Rosenbluth, Edwin M., Philadelphia, Pa. Acetylene-gas-generating lamp	693,069	Feb. 11	1568	342	98	1147
Rosenbluth, Edwin M., Philadelphia, Pa. Carriage-lamp	693,070	Feb. 11	1570	342	98	1148
Rosentreter, Albert J., Boonton, assignor to J. Bardsley, Montclair, N. J. Door-holder	693,566	Feb. 18	2566	567	98	1372
Rosentreter, Albert J., Boonton, assignor to J. Bardsley, Montclair, N. J. Spring-hinge	695,494	Mar. 18	2155	487	98	2300

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Rosenzwieg, Samuel, *et al.* (See Simpson, Daniel B., assignor.)						
Rosevelt, Henry J., Little Silver, N. J. Putty	696,148	Mar. 25	3429	.....	98	2476
Rösgen, Heinrich, Erkrath, assignor to M. C. Burchartz & Co., Elberfeld, Germany. Weaving pile fabrics	695,582	Mar. 18	2348	532	98	2240
Ross, Charles C., Beaver Creek Township, Ohio. Hand-planter	692,482	Feb. 4	457	106	98	892
Ross, Delmar C., assignor of one-half to W. D. Thompson and S. D. Anderson, Detroit, Mich. Draft-rigging for railway-cars	692,074	Jan. 28	3898	729	98	720
Ross, James A., St. Clair, Mich. Plow	694,079	Feb. 25	3507	787	98	1594
Ross, John H., Aston, England. Acetylene-gas generator	690,773	Jan. 7	784	174	98	166
Ross, Oscar, *et al.* (See Darwin, Frank L., assignor.)						
Ross, Walter. (See Fischer, Albert, assignor.)						
Rosseau, Sol, *et al.* (See White, Nathan, assignor.)						
Roth, Albert J., Lafayette, Ind. Voting-machine	690,880	Jan. 7	963	218 219	98	206
Roth, Alfred P. (See Engelhardt, Frederick, assignor.)						
Roth, Frank G., *et al.* (See Kenney, Thomas F., assignor.)						
Rothe, Hermann. (See Swoboda and Rothe.)						
Rothenhausler, Gebhard, Philadelphia, Pa. Milk-can	692,548	Feb. 4	598	138	98	918
Rott, Eduard, Dassel, Germany. Manufacture of artificial stones, tiles, &c	693,906	Feb. 25	3219	.....	98	1584
Rouse, George, assignor of one-fourth to J. Mason, Joliet, Ill. Bottle-stopper	692,359	Feb. 4	351	61	98	850
Rowe, Willard C., Decatur, Ill. Feed-drag for corn-shellers	694,667	Mar. 4	633	138 139	98	1846
Rowell, Benton C., Chicago, Ill., assignor to Rowell Potter Safety Stop Company, Portland, Me. Block system for railways	695,648	Mar. 18	2469	560	98	2264
Rowell, Benton C., Chicago, Ill., assignor to Rowell Potter Safety Stop Company, Portland, Me. Train-indicating apparatus	695,649	Mar. 18	2470	560	98	2264
Rowell, Benton C., Chicago, Ill., assignor to Rowell Potter Safety Stop Company, Portland, Me. Truck-machine for automatically applying brakes	695,650	Mar. 18	2471	561	98	2265
Rowell Potter Safety Stop Company. (See Rowell, Benton C., assignor.)						
Rowland, David E., Canton, Ohio. Hoist	690,774	Jan. 7	785	174	98	166
Rowland, Henry A., assignor to Rowland Telegraphic Company, Baltimore, Md. Synchronous telegraph system	691,667	Jan. 21	2452	550	98	545
Rowland Telegraphic Company. (See Rowland, Henry A., assignor.)						
Rowland, Thomas F., New York, N. Y. Manufacture of welded plate-metal cylinders, &c.	694,994	Mar. 11	1262	276	98	1097
Rowley, James F., Chicago, Ill. Artificial limb	692,360	Feb. 4	253	61	98	851
Rowley, Raymond W., St. Louis, Mo. Boring-machine	693,748	Feb. 18	2556	637	98	1441
Rowley, Samuel H., *et al.* (See Rowley, Wilfrid B., assignor.)						
Rowley, Wilfrid B., Rockville, assignor of three-fourths to S. H. Rowley, M. J. Adams, and T. Till, Swadlincote, England. Apparatus for molding hollow articles in clay or other plastic materials	693,361	Feb. 4	255	61	98	851
Rowntree, Harold, assignor to Burdett-Rowntree Manufacturing Company, Chicago, Ill. Safety device for elevators	692,907	Feb. 25	3220	710	98	1594
Rowntree, Harold, assignor to Burdett-Rowntree Manufacturing Company, Chicago, Ill. Controlling mechanism for elevator-hoisting motors	693,908	Feb. 25	3223	710	98	1595
Rowse, George W., assignor of one-half to W. H. Crowninshield and C. H. Lawton, Pawtucket, R. I. Brake mechanism for coin-controlled apparatus	691,181	Jan. 14	1513	341 342	98	830
Roy, Joseph A., Dudley, Mass. Alarm device	695,236	Mar. 11	1721	391	98	2092
Royal Brush and Broom Company. (See Baldwin, Alonzo, assignor.)						
Royle, Vernon, Paterson, N. J. Machine for lacing jacquard-cards	690,615	Jan. 7	471	102	98	101
Royle, Vernon, Paterson, N. J. Shuttle for sewing-machines	690,616	Jan. 7	475	108	98	101
Royle, Vernon, Paterson, N. J. Machine for punching jacquard-cards	691,973	Jan. 28	3058	683	98	698
Royle, Vernon, Paterson, N. J. Cylinder-routing machine	695,119	Mar. 11	1505	335	98	2046
Rubin, Max, New York, N. Y. Suspension-clasp	695,196	Mar. 25	3509	786	98	2491
Rubin, William, South Omaha, and L. C. Sharp, Omaha, Nebr. Adjustable square-can-heading machine	692,912	Feb. 11	1262	279 280	98	1084
Rubinson, Bernard, Philadelphia, Pa. Dental mandrel	692,713	Feb. 4	879	200	98	979
Ruck, John W. (See Stoll and Ruck.)						
Rücker, Karl, Zernsdorf, Germany. Fireproofing wood	691,812	Jan. 28	2755	.....	98	695
Ruckmich, Alban V., Brooklyn, assignor to J. D. Baucus, New York, N. Y. Type-setting machine	693,445	Feb. 18	2316	506 509 510	98	1393
Rudd, David, Lacona, N. Y. Sap-spout	695,841	Mar. 18	2904	639	98	2332
Ruebel, C. A. Ernst, St. Louis, Mo., assignor of one-half to E. H. R. Green, Terrell, Tex. Electric gas-lighter	696,108	Mar. 25	3330	731	98	2455
Rueckheim & Brother, F. W. (See Rice, Ida H., assignor.)						
Rueff, Emil, New York, N. Y. Compound of magnesia	694,484	Mar. 4	160	.....	98	1749
Rueger, Charles C., Butte, Mont. Stamp battery cam	692,483	Feb. 4	458	106	98	892
Ruehs, Charles L. (See Streich and Ruehs.)						
Rueter, Bernhard H., Burlington, Wis. Stuffing for horse-collars	694,198	Feb. 25	3798	837	98	1689
Ruff, William J., Quincy, Ill. Lubricating apparatus	696,197	Mar. 25	3510	787	98	2491
Ruggles, Henry B., Redlands, assignor to F. Stebler, Riverside, Cal. Fruit-brusher	692,902	Feb. 4	256	62	98	852
Ruhland, Sidney, New York, N. Y. Billiard-cue bridge	690,617	Jan. 7	475	103	98	102
Ruiz, Thomas, *et al.* (See Espinosa, Albert, assignor.)						
Rumbarger, Victor E., Dayton, Ohio. Means for expanding the tubes of bicycle parts and securing same	693,159	Feb. 11	1771	380	98	1187
Rumely, William N., Laporte, Ind. Valve-gearing	692,913	Feb. 11	1954	280	98	1084
Rumely, William N., Laporte, Ind. Adjustable screen	694,496	Mar. 4	289	66	98	1773
Rumsey, Bronson, Buffalo, N. Y. Combined gun and cartridge carrier	695,176	Mar. 11	1611	357	98	2099
Runge, Walter C., London, England. Graphophone, phonograph, or the like	692,363	Feb. 4	258	62	98	852
Rupp, Charles, Philadelphia, Pa. Skylight	691,668	Jan. 21	2459	551	98	547
Russel, Jacob B., Delray, Mich. Carpet-stretcher	695,495	Mar. 18	2160	487	98	2201
Russell, Andrew J. and W. H., Auburn, Ind. Gate	691,409	Jan. 21	1969	446	98	449
Russell and Erwin Manufacturing Company. (See Voight, Henry G., assignor.)						
Russell, John A., Keywest, Fla. Washboard	694,790	Mar. 4	884	196	98	1899
Russell, John K., and W. F. Clausen, Sheboygan, Wis. Gas arc-lamp	691,001	Jan. 14	1309	272	98	266
Russell, John W., Baltimore, Md. Hammer and rake for culling oysters	695,651	Mar. 18	2472	561	98	2365
Russell, Peter H., Camptonville, Cal. Current water-wheel	692,304	Feb. 4	260	63	98	853
Russell, William H. (See Russell, Andrew J. and W. H.)						
Ruth, George W., Norristown, Pa. Tension device for knitting-machines	690,775	Jan. 7	787	175	98	166
Ruud, Rudolf R. F., Christiania, Norway. Apparatus for use in angling	693,071	Feb. 11	1573	343	98	1149
Ryan, John, assignor to J. D. Ryan, Watertown, N. Y. Electric-railway system	694,485	Mar. 4	170	38	98	1749
Ryan, John D. (See Ryan, John, assignor.)						
Ryan, John J., San Jose, Cal. Cigar-wrapping machine	693,669	Feb. 18	2760	608	98	1413
S. A. Woods Machine Company. (See Blood, Charles W. H., assignor.)						
S. S. White Dental Manufacturing Company. (See Hollingsworth, Merrill W., assignor.)						
Sabin, Herbert B., Cleveland, Ohio. Folding support for game or other boards	696,949	Mar. 25	3008	679	98	2837

Alphabetical list of patentees, January to March, inclusive—Continued.

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Sack, Richard E., Detroit, Mich. Steering-gear	694,791	Mar. 4	885	196	98	1809
Sackett, Homer M., Telluride, Colo., assignor to A. Leschen & Sons Rope Company, St. Louis, Mo. Rope-grip	694,089	Feb. 25	3475	705	98	1576
Sackville, James A., Pendleton, Manchester, England. Apparatus for dyeing, &c.	693,446	Feb. 18	2335	510	98	1326
Saco and Pettee Machine Shops. (See James, Frederick H. L., assignor.)						
Saco & Pettee Machine Shops. (See Mills and Hunton, assignors.)						
Sacora, John, Dekalb, Ill. Grain-screen	693,447	Feb. 18	2337	511	98	1326
Sadler, Frederick, assignor of one-half to P. J. H. Robinson, London, England. Handle-bar for cycles, &c.	690,464	Jan. 7	150	31	98	34
Safety Car Heating and Lighting Company. (See Creveling, John L., assignor.) (Reissue.)						
Saffell, Silas B. (See McKee and Saffell.)						
Safford, Clarence E., Buffalo, N. Y. Sheet-metal radiator	692,365	Feb. 4	261	63	98	853
Sage, Augusta M., administratrix. (See Sage, George F.)						
Sage, Frederick B., *et al.* (See Rennie and Van Derbeck, assignors.)						
Sage, George F., deceased, Cleveland, Ohio; A. M. Sage, administratrix. Rotary engine.	692,212	Jan. 28	3476	786	98	771
Sage, Leveritt H., *et al.* (See Rennie and Van Derbeck, assignors.)						
Sage, Ralph V., Westmont, Pa. Car-bolster	692,914	Feb. 11	1365	280	98	1085
Sage, Ralph V., Johnstown, Pa. Door for hopper-cars	693,910	Feb. 25	3226	711	98	1526
Sager Gear Company. (See Ashley, Edward G., assignor.)						
Sague, James E., Schenectady, N. Y. Compound steam-engine	692,034	Jan. 28	3146	709, 710, 711	98	703
Sague, James E., Schenectady, N. Y. Compound steam-engine	692,035	Jan. 28	3150	711, 712	98	704
Sahlin Corset Company. (See Howd, Charles B., assignor.)						
Sala, Joseph C., and G. Stabile, San Francisco, Cal. Windmill	692,714	Feb. 4	880	201	98	979
Sale, George G., Dunedin, New Zealand. Concentrator for gold-bearing material	694,190	Feb. 25	3789	838	98	1638
Salem Iron Works. (See Martin, Whitley E., assignor.)						
Salisbury, Edgar E., assignor of one-half to F. B. Taylor, Chicago, Ill. Automatic gravity-signalphone	696,198	Mar. 25	3512	787	98	2491
Salisbury, George F., Boston, Mass. Combined shaving-brush and soap-holder	693,484	Feb. 4	460	107	98	893
Salisbury, Herbert L., assignor of one-third to W. Waring, Springfield, Mass. Acetylene-gas generator	692,213	Jan. 28	3479	786, 787	98	772
Sallade, Jacob, Milton, Pa., assignor of one-half to B. F. Johnson, Richmond, Va. Twin envelop	693,694	Feb. 18	2679	591	98	1396
Salmon, Benjamine F., Freeland, Pa. Protecting attachment for legs of trousers	694,200	Feb. 25	3790	838	98	1638
Salmon, John, New York, N. Y. Electric call	694,702	Mar. 4	886	196, 197	98	1899
Salmon, Wilmer W. (See Wilson and Salmon.)						
Salmon, Wilmer W., Chicago, Ill. Electric railway signaling system	692,916	Feb. 11	1275	261	98	1088
Salmon, Wilmer W., Chicago, Ill. Electric signaling system	692,917	Feb. 11	1276	261	98	1089
Salmon, Wilmer W., Chicago, Ill., assignor to Hall Signal Company. Signaling system for single-track railways	692,915	Feb. 11	1268	261	98	1088
Salmons, Robert H., Rochester, N. Y. Apparatus for racking liquids	694,668	Mar. 4	636	139	98	1847
Salutrynski, Eugene, Genillé, France. Boot or like stretching and molding device	691,076	Jan. 14	1355	301	98	293
Salzman, Christian A., assignor to Salzman Manufacturing Company, Hamilton, Ohio. Swing	696,355	Mar. 25	3946	865	98	2561
Salzman Manufacturing Company. (See Salzman, Christian A., assignor.)						
Sammons, Hugh G., assignor of one-half to T. H. St. John, Canton, Ohio. Toy	691,385	Jan. 14	1368	309	98	301
Sampere, Jose, New York, N. Y. Automatic piano-player	690,618	Jan. 7	476	103, 104	98	103
Samuel, Edward. (See Angerer and Samuel.)						
Samuel Winslow Skate Mfg. Co. (See Everett, Otis W., assignor.)						
Sanborn, Gertrude V., Chicago, Ill. Spinning-top	693,448	Feb. 18	2338	511	98	1396
Sanders, Edward A., Saginaw, Mich. Window	691,182	Jan. 14	1518	343	98	331
Sanders, James E., Dalton, Ga. Hulling-machine	695,120	Mar. 11	1510	335	98	2047
Sanders, John M., Dalton, Ga. Pea-huller	693,772	Feb. 11	1574	343	98	1149
Sanders, Richard D., Blackheath, England. Apparatus for the manufacture of compound wire bars by electrodeposition	696,109	Mar. 25	3532	751	98	2456
Sanders, Wilbur E., Helena, assignor of one-half to J. Berkin, Boulder, Mont. Car-axle journal-box	694,995	Mar. 11	1265	276, 277	98	1998
Sanderson, Frederick H., Cambridge, England. Photographic camera	694,090	Feb. 25	3568	787, 788	98	1594
Sands, Charles, Palatka, Fla. Can-opener	692,918	Feb. 11	1283	281	98	1090
Sandstrom, Edward, assignor of one-third to T. G. Holland, Wilmington, Del. Root-digging machine	691,292	Jan. 14	1727	393, 394	98	575
Sanford, Byron J. (See Barton, Arthur D., assignor.)						
Sanford, William W., East Orange, assignor of one-half to F. D. Bennett, Freehold, N. J. Fountain-pen	691,974	Jan. 28	3089	683	98	688
Sanson, Louis H. M., Dieppe, France. Carbureter for explosive-engines	694,110	Feb. 25	3513	709	98	1605
Santers, George H. (See Wagner and Santers.)						
Sargeant, Thomas C., Northampton, England. Fertiliser, seed, and grain distributer	693,715	Feb. 4	882	201	98	979
Sargent & Co. (See Sargent, Edward R., assignor.)						
Sargent, Edward R., assignor to Sargent & Co., New Haven, Conn. Casket ornament	691,008	Jan. 14	1308	272	98	296
Sargent, Frederick G., Graniteville, Mass. Wool-cleaning machine	695,659	Mar. 18	2478	561, 562	98	2265
Sargent, James T., Cleveland, Ohio. Washboard	694,669	Mar. 4	638	140	98	1847
Sartain, Louis M., assignor of two-thirds to L. J. Cox and L. A. Robertson, Tracy City, Tenn. Attachment for chairs, cradles, &c.	694,496	Mar. 4	176	38	98	1750
Sattley Manufacturing Company. (See Heineke, Martin, assignor.)						
Sauer, Theodor B., Ober-Reifenberg, Germany. Holdfast	694,996	Mar. 11	1268	277	98	1998
Sauerstoff-Fabrik Berlin, G. M. B. H. (See Giersberg, Erich, assignor.)						
Saulles, Arthur B. de. (See Convers and Saulles.)						
Saunders, Henry R., New Rochelle, N. Y. Musical kite	691,875	Jan. 28	2357	643	98	647
Sauter, Josef A., Buffalo, N. Y. Adjustable holder for printing-films	690,619	Jan. 7	488	104	98	103
Sautter, Gaston. (See Rateau and Sautter.)						
Sauvage, William H., assignor of one-half to C. A. Tripp, Denver, Colo. Automatic means for regulating brake-shoes	693,806	Feb. 18	3004	664	98	1468
Savery, Thomas H., Wilmington, Del. Paper-making machine	694,427	Mar. 4	177	39	98	1750
Savlan, Max M., Petoskey, Mich. Lace-rack	694,428	Mar. 4	181	39	98	1751
Sawhill, James T., *et al.* (See Lippy, David, assignor.)						
Sawin, George H., Worcester, Mass. Combined door stop and lock	691,008	Jan. 14	1304	272	98	297
Sawyer, John B., Arroyoseco, N. Mex. Ter. Amalgamator	694,201	Feb. 25	3791	838	98	1638
Sawyer, Norton A., Lowestoft, England. Hand-propelled chair	692,086	Jan. 28	3158	712	98	704

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Sawyer, Sophia H. (See Wethereil, Mary E., assignor.)						
Saxe, Sigmond, New York, N. Y. Plumping and tanning process	695,765	Mar. 18	2655	.....	98	2301
Saxton, Thomas G., assignor to J. R. Barr, Lexington, Ky. Packing device for piston-rods	691,813	Jan. 28	2756	621	98	695
Saylor, George, Mattawana, Pa. Grate	691,004	Jan. 14	1205	273	98	207
Scantlebury, William, Sr., assignor of two-thirds to R. B. Rives, Washington, D. C., and J. J. Rives, Baltimore, Md. Engine	691,005	Jan. 14	1206	273	98	207
Schaaf, Heinrich, Neustadt-on-the-Hardt, assignor to R. Dietrich, Merseburg-on-the-Saale, Germany. Paper-pulp-discharge valve	691,975	Jan. 28	2040	294	98	688
Schad, Frank X. (See Nichols and Schad.)						
Schaefer, Charles G., Jr., *et al.* (See Troxler, Laurence E., assignor.)						
Schaefer, O. H., *et al.* (See Troxler, Laurence E., assignor.)	691,183	Jan. 14	1519	342	98	203
Schaer, Caesar, Superior, Nebr. Match-box	691,077	Jan. 14	1337	303	98	293
Schafer Frederick W. L., Los Banos, Cal. Butt-hinge	690,776	Jan. 7	789	175	98	166
Schaffer, Augustus H., Ontonagon, Mich. Harrow-tooth	692,166	Jan. 28	2879	705	98	751
Schaffer, Jakob, New York, N. Y. Medicine-carrier						
Schaffer, Morse B., St. Louis, Mo., assignor to D. Eagan, Philadelphia, Pa. Body-bolster for railway-cars	693,160	Feb. 11	1773	389	98	1187
Schaffer, Morse B., and C. H. Howard, St. Louis, Mo. Car-wheel bearing	695,085	Mar. 25	3263	737	98	2440
Schamberg, Meyer. (See Maines, Potter F., assignor.)						
Schanbacher, Orville L., assignor of one-half to H. Gieckler, Eastpoint, Pa. Curtain-fixture	690,881	Jan. 7	906	219	98	208
Schanck, Henry I., Holmdel, N. J. Asparagus-buncher	694,997	Mar. 11	1268	277	98	1998
Schanz, Conrad M., Chelsea, Mich. Neck-yoke fastener	694,208	Feb. 25	3798	.....	98	1639
Schanz, William, assignor to Detroit Composite Company, Detroit, Mich. Making ornamental and advertising articles	692,549	Feb. 4	589	.....	98	918
Scharnweber, William, assignor of one-half to A. S. Gross, Seattle, Wash. Knob attachment	692,550	Feb. 4	589	188	98	918
Scharpf, Herman C., *et al.* (See Kenney, Thomas F., assignor.)						
Schaumloeffel, Allan M. (See Schaumloeffel, Eleanor E. and A. M.)						
Schaumloeffel, Eleanor E. and A. M., Kansas City, Mo. Cake-pan	692,919	Feb. 11	1284	282	98	1091
Schedlbauer, Michael E., Jr. (See Wall and Schedlbauer.)						
Scheidel, William. (See Luschka, August R., assignor.)						
Scheler, Georg, Dumont, N. J. Toy animal	695,653	Mar. 18	2476	562	98	2303
Schelinsky, Solomon, New York, N. Y. Supplemental waistband for pants	691,006	Jan. 14	1210	274	98	208
Schenk, Frederick J., Monticello, Ill. Harness	692,716	Feb. 4	883	272	98	980
Schepke, Herman, Chicago, Ill. Apparatus for dispensing beverages	691,298	Jan. 14	1780	394	98	370
Scherer, Albert G., Chicago, Ill. Sheet-metal stovepiping	696,086	Mar. 25	3264	738	98	2441
Schermerhorn, Adeline, Troy, N. Y. Invalid's robe	695,496	Mar. 18	2160	488	98	2201
Scheuer, Max, New York, N. Y. Combination pocket-book	692,449	Feb. 18	2339	511	98	1386
Scheuffgen, Robert, Salzkotten, Germany. Apparatus for preventing explosions in vessels containing explosive fluids	695,287	Mar. 11	1722	381	98	2058
Schichtl, Martin, North Yakima, Wash. Reversible rotary harrow and cultivator	694,429	Mar. 4	682	39, 40	98	1751
Schick, Fred, Brooklyn, N. Y. Gas-regulator	691,186	Jan. 14	1522	343	98	333
Schickler, Heinrich, Wilmersdorf, near Berlin, Germany. Coloring-tool	691,184	Jan. 14	1520	343	98	332
Schiechel, Friedrich A. M., Frankfort-on-the-Main, Germany. Magnetic separator	691,007	Jan. 14	1211	274	98	208
Schiegner, Hermann. (See Riedel and Schiegner.)						
Schiek, George H., Joliet, Ill. Detachable spring-hinge	694,670	Mar. 4	630	140	98	1848
Schiele, Anna M., Philadelphia, Pa. Kitchen-rack	694,798	Mar. 4	889	197	98	1900
Schies, John, Anderson, Ind., assignor of one-half to F. R. Myers, St. Louis, Mo. Bottle-closure	693,161	Feb. 11	1774	389	98	1187
Schietkiewics, Nicolas, St. Petersburg, Russia. Preparing foundations	695,588	Mar. 18	2349	533	98	2340
Schiller, Heinrich, Weissenfels, Germany. Centrifugal sizing apparatus for sizing wood-pulp or similar materials for the manufacture of paper	690,777	Jan. 7	790	175	98	167
Schiller, Karl, Žižkow, Austria-Hungary. Automobile car	691,078	Jan. 14	1337	302	98	294
Schilling, Charles A. (See Bearer, Albert J., assignor.)						
Schilling, William E., Laporte, Ind., and O. M. Ridgway, Kansas City, Mo. Device for operating street-railway switches	691,008	Jan. 14	1214	274 275	98	208
Schilz, Eugen, Johannesburg, South African Republic. Cyanid process of extracting precious metals from their ores	696,274	Mar. 25	3558	.....	98	2522
Schilz, Frank, assignor to H. Loewenbach, Milwaukee, Wis. Toilet-paper package	691,294	Jan. 14	1732	394	98	376
Schilz, Frank, assignor to H. Loewenbach, Milwaukee, Wis. Paper-feeding machine	696,331	Mar. 25	3906	866	98	2371
Schindler, Charles A., Jr., West Hoboken, N. J. Horizontal swing	691,494	Jan. 21	2138	479	98	480
Schirm, Max, Dusseldorf, Germany. Ornamenting wood by fire	695,417	Mar. 11	2089	455	98	2150
Schirmacher, Karl, Soden, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Disazo wool-dye and making same	693,670	Feb. 18	2702	.....	98	1413
Schirmer, Gustav, Chicago, Ill. Fountain-syringe holder	692,920	Feb. 11	1285	282	98	1091
Schirmer, Theodor F., assignor to Egry Autographic Register Company, Dayton, Ohio. Autographic register	690,465	Jan. 7	151	32	98	34
Schlachter, Robert H., assignor to Clay Center Manufacturing Company, Clay Center, Nebr. Feed-regulating device for grain-drills	692,717	Feb. 4	884	202	98	980
Schlangen Co. (See Schlangen, Simon, assignor.)						
Schlangen, Simon, Chicago, Ill., assignor, by mesne assignments, to Schlangen Co. Bung	693,314	Feb. 11	2066	452	98	1949
Schleicher, Oscar, Heinsberg, Germany. Machine for making baskets	693,911	Feb. 25	3328	711	98	1596
Schleicher, William A., Cleveland, Ohio. Snap-hook	690,185	Jan. 14	1581	343	98	333
Schlick, Ernst R., Chicago, Ill. Ice-cream freezer	692,551	Feb. 4	590	128	98	918
Schlieper, Charles R., Elliott, assignor of one-half to E. E. Erikson, Pittsburg, Pa. Fastening device	695,698	Mar. 18	2435	550	98	2257
Schlinsock, Gustav A. (See Mangold and Schlinsock.)						
Schluembach, Adolph von, Martinsburg, Pa. Crate	694,794	Mar. 4	890	197	98	1900
Schmertz, Bessie K., Pittsburg, Pa. Toaster	691,410	Jan. 21	1991	446	98	449
Schmidt, Carl W. L., Holzminden, Germany. Cycle-stand	694,080	Feb. 25	3479	706	98	1576
Schmidt, E. H., *et al.* (See Diehl, Jacob, assignor.)						
Schmidt, Ernst H., London, England. Packing or displaying articles	696,450	Feb. 18	2340	511 513	98	1337
Schmidt, Herman B., Cincinnati, Ohio. Tower for cooling and condensing water	696,685	Feb. 18	2379	501 502	98	1396
Schmidt, Hubert, and W. Haensch, Berlin, Germany. Cinematograph	691,411	Jan. 21	1992	446 447	98	450
Schmidt, Joseph, Jr., assignor to J. L. Flannery, Chicago, Ill. Box-stapling machine	694,081	Feb. 25	3479	706 707	98	1577
Schmidt, Philipp, Chicago, Ill. Combined mop and brush holding means	693,671	Feb. 18	2703	609	98	1413
Schmidt, William A., assignor of one-fourth to A. Volkmann, Milwaukee, Wis. Sidewalk covering or protector	696,199	Mar. 25	3516	787	98	2498

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Schmidt, Wm. H., *et al.* (See Diehl, Jacob, assignor.)						
Schmit & Co., Henry. (See Rose, Frank, assignor.)						
Schmitt, Benjamin C. (See Butterfield and Schmitt.)						
Schmitz, Frank, Chicago, Ill. Banana-shipping case	694,908	Mar. 11	1270	278	98	1999
Schmitz, Frederick A., *et al.* (See Blake, John T., assignor.)						
Schmitz, Joseph, assignor to E. Zaum, Cologne, Germany. Turbine for water-meters	690,807	Feb. 18	9005	664	98	1468
	693,630	Feb. 18	2682	592, 593	98	1305
Schneekloth, Hans A., New York, N. Y. Cigar-machine	694,671	Mar. 4	640	140	98	1848
Schneible, Joseph, New York, N. Y. Manufacture of malt liquors	694,999	Mar. 11	1271	278, 279, 280	98	1999
Schneider, Charles P. E., Le Creusot, France. Dynamo-electric machine	691,295	Jan. 14	1733	395	98	377
Schneider, Franklin, Cleveland, Ohio, assignor to Whitely Exerciser Company, Chicago, Ill. Exercising apparatus	691,916	Jan. 28	2981	660	98	602
Schneider, Louis C., Mittweida, Germany. Card-clothing	690,690	Jan. 7	495	105	98	104
Schneider, William, Chicago, Ill., assignor to Whitfield Company, Memphis, Tenn. Telescopic compound engine	694,827	Feb. 25	4080	908, 909	98	1690
Schoeffel, George J., New York, and H. W. Aylward, Brooklyn, assignors to Signal and Control Company, New York, N. Y. Signal-recording mechanism	696,087	Mar. 25	3965	738, 739	98	2441
Schoeller, Gustav A., Mulheim-on-the-Ruhr, assignor to F. Krupp, Essen, Germany. Ammunition conveyer or rammer for guns	690,466	Jan. 7	152	32	98	34
Schofield, Albert B., Brooklyn, assignor to Keystone Seal & Press Company, New York, N. Y. Shackle-seal	691,079	Jan. 14	1339	302	98	294
Schofield, Albert B., Brooklyn, assignor to Keystone Seal & Press Company, New York, N. Y. Seal-press	695,950	Mar. 25	3004	680	98	2287
Schofield, James, Marshall, Tex. Plow	695,228	Mar. 11	1723	.....	98	2098
Scholl, Franz, assignor to Farbwerke, vorm. Meister, Lucius & Brüning, Höchst-on-the-Main, Germany. Orange-red dye and making same	691,326	Jan. 14	1804	409	98	391
Schooley, Edward A., Pittsburg, assignor to Schooley-McClure Company, Sutersville, Pa. Railway-torpedo	690,665	Jan. 7	571	124	98	122
Schooley-McClure Company. (See Schooley, Edward A., assignor.)						
Schopbach, Charles H., assignor to Chicago Corset Company, Aurora, Ill. Apparel-corset	690,666	Jan. 7	572	125	98	122
Schopbach, Charles H., Aurora, assignor to S. F. and N. Florsheim, Chicago, Ill. Attaching button or stud	691,296	Jan. 14	1735	395	98	377
Schrader, George H. F., New York, N. Y. Tire-valve cap						
Schrader-Wittstein Company. (See Wittstein, Charles T., assignor.)						
Schramm, Adolph F. (See Hulse and Schramm.)						
Schramm, Adolph W., Philadelphia, Pa., assignor to Electro Dental Manufacturing Company, Camden, N. J. Switch mechanism for electric motors	691,187	Jan. 14	1522	343, 344	98	332
Schramm, Adolph W., Philadelphia, Pa., assignor to Electro Dental Manufacturing Company, Camden, N. J. Means for regulating electric motors	691,188	Jan. 14	1527	345	98	333
Schramm, Adolph W., and E. B. Wilford, assignors to Electro Dental Manufacturing Company, Philadelphia, Pa. Hot-air syringe	693,162	Feb. 11	1775	389	98	1187
Schratwieser, Jacob, Brooklyn, N. Y. Floor and ceiling construction	690,631	Jan. 7	489	105	98	105
Schratwieser, Jacob, Brooklyn, N. Y. Plaster-board	694,111	Feb. 25	3614	799	98	1605
Schreiber, Philip J., Toledo, Ohio. Device for therapeutic application of smoke	691,782	Jan. 21	2567	575	98	570
Schroeder, Richard, Walcott, Iowa. Attachment for threshing-machines	694,480	Mar. 4	183	40	98	1752
Schroth, Charles F., Winona, Minn. Chimney-thimble	690,778	Jan. 7	791	176	98	167
Schrottky, Eugene C., Dresden, Germany. Malting rice	693,569	Feb. 18	2568	567	98	1378
Schroyer, Harry H. (See Donaldson and Schroyer.)						
Schubert, Willie H. C., Britt, Iowa. Plow	693,451	Feb. 18	2341	512	98	1327
Schuessler, Joseph, Cincinnati, Ohio. Locking means for dampers	691,009	Jan. 14	1216	275	98	269
Schultz, Emil. (See Hoeft and Schultz.)						
Schulz, Adolph, Chicago, Ill. Plow	694,672	Mar. 4	642	141	98	1848
Schumacher, Charles J., Allegheny, Pa. Key-holder	692,167	Jan. 28	3379	756	98	751
Schumacher, John W., Baltimore, Md. Fire-escape	696,149	Mar. 25	3480	769	98	2476
Schussler, John H., assignor of one-half to W. M. Caldwell, Denver, Colo. Means for inking printing-press rolls	690,805	Jan. 7	996	225, 226	98	209
Schuyler, Daniel. (See Laughlin and Schuyler.)						
Schwab, Louis. (See Fielding, William I., assignor.)						
Schwabacher, Heinrich. (See Francke and Schwabacher.)						
Schwarz, Carl, Quincy Township, and W. H. Drittler, Hancock, Mich. Automatic railway-switch	691,010	Jan. 14	1218	275	98	209
	690,779	Jan. 7	791	176	98	167
Schwarz, Louis, Jersey City, N. J. Cushion for shoe-heels	693,921	Feb. 11	1287	282	98	1091
Schwarzlose, Andreas W., Suhl, Germany. Breech mechanism for guns	694,678	Mar. 4	645	141, 142	98	1849
Schwedtmann, Ferdinand, and G. E. Wells, St. Louis, Mo. Transformer	691,876	Jan. 28	2858	644	98	647
Scott, Charles H., Minneapolis, Minn. Separator	691,877	Jan. 28	2863	644, 645	98	648
Scott, Charles H., Minneapolis, Minn. Separator	694,112	Feb. 25	3515	800	98	1608
Scott, Gerard C., Columbus, Ohio. Amalgamating-machine	694,203	Feb. 25	3794	839	98	1639
Scott, Gerard C., Columbus, Ohio. Amalgamating-machine	694,204	Feb. 25	3795	839	98	1639
Scott, Gerard C., Columbus, Ohio. Amalgamating-machine						
Scott, Jacob R., Boston, Mass., assignor to United Shoe Machinery Company, Paterson, N. J. Machine for buffing articles of leather	694,451	Mar. 4	184	40, 41	98	1752
	694,894	Mar. 4	1069	237	98	1938
Scott, Robert W., Philadelphia, Pa. Gun-cartridge	694,674	Mar. 4	647	142	98	1849
Scott, Robert W., Philadelphia, assignor of one-half to L. N. D. Williams, Ashbourne, Pa. Firing multishot guns	694,675	Mar. 4	650	142	98	1849
Scott, Robert W., Philadelphia, assignor of one-half to L. N. D. Williams, Ashbourne, Pa. Gun-cartridge	694,895	Mar. 4	1073	237	98	1988
Scott, Robert W., Philadelphia, assignor of one-half to L. N. D. Williams, Ashbourne, Pa. Gun-cartridge	694,896	Mar. 4	1073	237	98	1989
Scott, Thomas, Bendigo, Victoria, Australia. Cloth-cleaning attachment for gyratory sifters	695,842	Mar. 18	2806	639	98	2282
Scott, Walter A. (See Kilmer, William A., assignor.)						
Scovill Manufacturing Company. (See Eddy, George W., assignor.)						
Scrimgeour, William, Jr., and J. Bunte, Portsmouth, Va., assignors of one-half to R. A. Carter, Pittsburg, Pa. Machine for welding links	692,366	Feb. 4	265	64	98	854
Scully, John S. (See Wright, William J., assignor.)						
Seabury, Robert H., *et al.* (See Delgrande, Antonio, assignor.)						
Seager, George B. M., Adrian, Mich. Dress-shield	692,367	Feb. 4	266	64	98	854
Seagrave, Frederic S., Columbus, Ohio. Aerial ladder	691,878	Jan. 28	2866	645, 646	98	649

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Seagrave, Frederic S., Columbus, Ohio. Aerial ladder	691,879	Jan. 28	2967	646	98	649
Seaman, Elizabeth C. (See De Lacy, Peter, assignor.)						
Seamless Steel Tubes Company. (See McIntosh and Thornburgh, assignors.)						
Searle, John C., Hilea Kau, Hawaii. Device for smokelessly heating insect-powder	692,075	Jan. 28	3030	720	98	720
Sears, Charles, Cleveland, Ohio. Alinement mechanism for type-writers	691,180	Jan. 14	1528	345	98	338
Sears, Clarence M., Botsford, Conn. Gage	693,744	Feb. 18	2598	637	98	1441
Sears, Richard H., Cleveland, Ohio. Automatic winding mechanism for spring-motors	690,882	Jan. 7	969	220	98	204
Seat, Norman F., Madisonville, Ky. Knockdown stove	692,718	Feb. 4	895	203	98	980
Seaver, John W. (See Wellman and Seaver.)						
Seavey, James W., Eugene, Oreg. Hop-drying box	693,163	Feb. 11	1778	390	98	1188
Secker, Robert C., Southampton, N. Y. Door catch and lock	695,888	Mar. 18	2889	655	98	2251
Security Coin Box Company. (See Williams, John, assignor.)						
Seddon, Frederick J., Manchester, England. Pneumatic tire	692,368	Feb. 4	267	65	98	854
Sedlaczek, Konstantin, Klembowka, Saclaw, Russia. Drawing off and measuring liquor from diffusion vessels	696,200	Mar. 25	3518	788	98	2498
See, Alonzo B., *et al.* (See Lindstrom, Nils O., assignor.)						
Seefels, William, London, England. Fire-resisting partition, wall, or the like	694,583	Mar. 4	472	102	98	1813
Seeley, Aaron A., and C. Silet, Chicago, Ill. Automatic cut-out	695,497	Mar. 18	2162	488 489	98	2301
Seeley, James E., assignor to W. W. Sweeney Co., Los Angeles, Cal. Artificial limb	692,719	Feb. 4	887	202	98	981
Seguy, Paul C., Paris, France. Insulating-conduit for conductors of electric tramways	691,495	Jan. 21	2138	479	98	480
Seib Bros. (See Seib, Simon H. M., assignor.)						
Seib, Simon H. M., assignor to Seib Bros., Jersey City, N. J. Truck for masts or flag-staffs	691,976	Jan. 28	3041	684	98	683
Seidel, Paul, assignor to Badische Anilin and Soda Fabrik, Ludwigshafen, Germany. Indigo paste	692,790	Feb. 4	888	.....	98	981
Seitz, Frederick A., Newark, N. J. Sparking igniter for explosive-gas engines	696,201	Mar. 25	3519	788	98	2498
Seitz, Howard K., and C. H. Hannigan, Glenrock, Pa. Tension device for loom-shuttles	693,164	Feb. 11	1779	390	98	1189
Selby, Starr & Company. (See Bolus, William G., assignor.)						
Seldner, Jonas J., assignor to Universal Centrifugal Dryer Company, Baltimore, Md. Treating grease-containing material	693,992	Feb. 11	1297	285	98	1091
Seley, Charles A. (See Lewis and Seley.)						
Seley, Charles A., assignor of one-half to W. H. Lewis, Roanoke, Va. Air-brake	694,328	Feb. 25	4085	900	98	1691
Selfridge, William, executor. (See Angerer and Samuel.)						
Selg, Otto, and C. Guntrum, Brooklyn, N. Y. Converting wort into beer	694,584	Mar. 4	473	102	98	1814
Selg, Otto, and C. Guntrum, Brooklyn, N. Y. Apparatus for converting wort into beer	694,585	Mar. 4	475	103	98	1814
Selleck, Wallace L., Platteville, Wis. Hinge for supporting and operating doors	694,432	Mar. 4	186	41	98	1758
Sellers, W. F. (See Phillips, Luther M., assignor.)						
Sellmayer, John M., Rochester, N. Y. Buffing-machine	693,912	Feb. 25	3230	712	98	1526
Seltzer, Cyrus J., Philadelphia, Pa. Tip for atomizers and nebulizers	692,798	Feb. 4	1038	233	98	1008
Seltzer, Cyrus J., assignor to G. Woodward, Philadelphia, Pa. Atomizer and nebulizer	692,485	Feb. 4	461	107	98	893
Seltzer, Cyrus J., assignor to G. Woodward, Philadelphia, Pa. Combined atomizer and nebulizer	692,552	Feb. 4	591	139	98	918
Seltzer, Cyrus J., assignor to G. Woodward, Philadelphia, Pa. Atomizer	692,721	Feb. 4	888	203	98	981
Seltzer, Cyrus J., assignor to G. Woodward, Philadelphia, Pa. Atomizer	692,722	Feb. 4	890	203	98	981
Sémat, Laurent, Cairo, Egypt. Means for operating signals automatically at level crossings, &c	695,498	Mar. 18	2166	489	98	2302
Semonite, Annie, Brooklyn, N. Y. Toilet-case	694,497	Mar. 4	290	67	98	1774
Semple, James C. (See Drake and Semple.)						
Semple, John B., Sewickley, Pa. Projectile	694,062	Feb. 25	3484	798	98	1578
Seneca Falls Manufacturing Company. (See Davis, Adelbert S., assignor.)						
Seney, Joshua C., Waxahachie, Tex. Percolator	693,918	Feb. 25	3233	712	98	1527
Serr, Joseph J. (See Middleton, George W., assignor.)						
Serrell, John A., Bayonne, N. J., assignor to American Steam Heating Specialty Company. Valve device or fitting	694,033	Feb. 25	3486	798	98	1578
Serrell, John A., Bayonne, N. J., and J. A. Donnelly, Brooklyn, N. Y., assignors to American Steam Heating Specialty Company. Valve device for steam-heating systems	696,202	Mar. 25	3522	788	98	2494
Severs, Robert M., New York, N. Y. Machine for preparing paper for stereotype-matrices	695,289	Mar. 11	1723	392	98	2002
Sewall, Stephen A. (See Abbee and Sewall.)						
Sewell, George B., Detroit, Mich. Automatic release for brake-cylinders	693,452	Feb. 18	2343	512	98	1327
Sewell, Ward E., Baxter, Iowa. Spike holder and puller	692,369	Feb. 4	269	65	98	854
Sewell, William E., Detroit, Mich. Disinfecting-cabinet for barbers' use, &c	694,676	Mar. 4	658	145	98	1850
Sexton, Harry, New York, N. Y. Snap-hook	691,069	Jan. 21	2461	551	98	548
Sexton, Patrick J. (See Aregood, John W., assignor.)						
Seybold, Edward, and C. E. Mountford, assignors to Eclipse Office Furniture Company of Ottawa, Limited, Ottawa, Canada. Handle	690,622	Jan. 7	489	106	98	105
Seybold, Edward, and C. E. Mountford, assignors to Eclipse Office Furniture Company of Ottawa, Limited, Ottawa, Canada. Handle	692,486	Feb. 4	463	107	98	893
Seybolt, Edward. (See Malette, Frederick A., assignor.)						
Seyd, Harold O. (See Hanrott and Seyd.)						
Seyler, Carl P., and P. H. Auxer, Cleveland, Ohio. Cable-hanging hook	694,677	Mar. 4	655	143	98	1850
Seymour, Charles, assignor to Defiance Machine Works, Defiance, Ohio. Spoke-thronting machine	692,076	Jan. 28	3030	729 730 731	98	720
Seymour, William S., Philadelphia, Pa., assignor to Pennsylvania Tube Company, Philadelphia, Pa., and Camden, N. J. Umbrella-tip	693,745	Feb. 18	2599	606	98	1442
Seymoure, Harry A., assignor of one-half to J. Lowenthal, Chicago, Ill. Adjustable stand for mirrors, tables, or the like	695,951	Mar. 25	3007	690	98	2295
Shaeffer, Charles D., Canon City, Colo. Type-writing machine	692,370	Feb. 4	270	65	98	855
Shafer, Riley A., Bellefontaine, Ohio. Bit	692,914	Feb. 25	3234	713	98	1527
Shaffer, Francis F., Cumberland, Md. Railway-car truck	693,672	Feb. 18	2705	609	98	1414
Shambaugh, Elias B., Brown Township, Ind. Clod-fender	695,000	Mar. 11	1874	391	98	1000
Shanahan, John D., Buffalo, N. Y. Dumping-car	691,814	Jan. 28	2758	621 622	98	686
Shannon, Albert M., and W. Bobbitt, Laporte, Tex. Stock-weaner	693,165	Feb. 11	1781	390	98	1189
Shannon, Lemuel A., assignor of two-thirds to S. P. McDonald and I. Childs, Cullman, Ala. Automatic stop mechanism for screw-presses	692,723	Feb. 4	891	203	98	981
Sharman, Frederick. (See Pirie and Sharman.)						
Sharp, Archibald, London, England. Rolling packing-tube	691,190	Jan. 14	1531	345	98	334
Sharp, Archibald, London, England. Continuously-variable-speed gear	692,077	Jan. 28	3026	731 732	98	722
Sharp, Archibald, London, England. Cycle	692,078	Jan. 28	3040	732 733	98	722
Sharp, Charles S., assignor to D. M. Osborne & Company, Auburn, N. Y. Harrow	694,113	Feb. 25	3617	800	98	1604

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Sharp, Judson C., Saltspringville, N. Y. Fire-escape	695,001	Mar. 11	1275	291	98	1009
Sharp, Lee C. (See Rubin and Sharp.)						
Sharp, Morris T., Mount Vernon, Ohio. Meat-cutting block	698,627	Feb. 18	2665	598	98	1507
Sharp & Smith. (See Weder, Paul J., assignor.)						
Sharp, William E., Chicago, assignor of one-half to G. B. Robbins, Hinsdale, Ill. Journal-box	693,078	Feb. 11	1576	343, 344	98	1149
Sharpe, David, South Hadley Falls, Mass. Screen apparatus for paper-pulp	694,678	Mar. 4	656	143, 144	98	1851
Sharpe, William, *et al.* (See MacCallum, John, Jr., assignor.)						
Sharples, Philip M., Westchester, Pa. Centrifugal liquid-separator	690,883	Jan. 7	971	230	98	204
Sharps, Leone S., assignor of one-half to E. Reynolds, Brooklyn, N. Y. Combined awning and window-shade	695,240	Mar. 11	1724	382	98	2093
	695,241	Mar. 11	1726	382	98	2093
Shaver, William E., Weldon, Ill. Combined reel and barrel-carrier	698,371	Feb. 4	271	65	98	855
Shaw, Bert J., assignor to T. D. Hanrotty, Warren, Ind. Automatic tightener for stuffing-boxes	698,746	Feb. 18	2901	638	98	1442
Shaw & Cocker Company. (See Cocker, Thomas W., assignor.)						
Shaw, Edgar, Swampscott, Mass. Dish-washing machine	698,570	Feb. 18	2570	567	98	1373
Shaw, George E., Cincinnati, Ohio. Pulp-compression apparatus	698,571	Feb. 18	2573	568	98	1374
Shaw, George E., Cincinnati, Ohio. Collapsible mandrel for pulp-compressing apparatus.						
Shaw, James H. (See Baldwin, Chester M., assignor.)						
Shaw, John B., Litchfield, Minn. Means for preventing clogging of corn-binder packer-arms	696,203	Mar. 25	3523	788	98	2494
Shaw, John J., trustee. (See Appleton, Charles J., assignor.)						
Shaw, Nathaniel H., Boston, Mass. Automatic lighter or extinguisher for gas-lamps	691,917	Jan. 28	2931	660, 661	98	669
Shaw, Philip E., Nottingham, England. Measuring instrument	698,628	Feb. 18	2687	593	98	1397
Shea, Francis A., *et al.*, administrators. (See Reece, John.)						
Shear, Louis S., Chicago, Ill. Machine for making dishes or trays	698,572	Feb. 18	2575	569, 570, 571	98	1374
Shears, Sidney S., New York, N. Y. Sanitary water fountain and cooler	690,896	Jan. 7	999	226	98	210
Shedd, Orlando B., St. Johnsville, N. Y. Bow-facing oar	691,080	Jan. 14	1340	303	98	294
Sheedy, Matthew J. (See Clements, William G., assignor.)						
Sheehan, William E., Albany, N. Y. Roller for paper-making machinery	691,011	Jan. 14	1222	276	98	270
Sheffield, James A. D. and J. C., Houston Co., Tex. Cultivator-plow	695,499	Mar. 18	2168	489	98	2203
Sheffield, John C. (See Sheffield, James A. D. and J. C.)						
Sheffield, Lucius T., deceased, New York, N. Y.; M. J. Sheffield, executrix. Metallic railway-tie	692,372	Feb. 4	272	66	98	855
Sheffield, Mary J., executrix. (See Sheffield, Lucius T.)						
Shek, Frank P., New York, N. Y. Support for hand-drills	693,166	Feb. 11	1782	390	98	1189
Shelby Spring Hinge Company. (See Stump and Brucker, assignors.)						
Sheldon, John R., Watertown, Mass. Vaporizer	694,679	Mar. 4	659	144	98	1852
Shelton, James, assignor of one-half to J. Shelton, Jr., Towanda, Pa. Stocking	691,927	Jan. 14	1905	410	98	391
Shepard, Charles U., Summerville, S. C. Withering tea-leaves	694,795	Mar. 4	891	198	98	1900
Shepard, Joseph H., Toronto, Canada. Advertising street and station indicator	692,923	Feb. 11	1289	283	98	1092
Shepherd, Edwin W., Chicago, Ill. Trap	694,680	Mar. 4	661	144	98	1852
Sheppard, Howard R., Philadelphia, Pa. Vaporizing and igniting device for gas or explosion motors	694,681	Mar. 4	662	144, 145	98	1852
Sheppard, James M., Jr., Columbia, Tenn. Non-refillable bottle	696,275	Mar. 25	3060	818	98	2502
Sher, Louis, Atlantic City, N. J. Means for guiding and propelling steamships	694,438	Mar. 4	187	41	98	1753
Sherer, Joseph S., assignor to American Suspender Company, Aurora, Ill. Suspender-end	695,701	Mar. 18	2554	578	98	2280
Sherman, Frederic W., Park City, Utah, assignor to Gates Iron Works, Chicago, Ill. Ore-pulp distributer	695,554	Mar. 18	2477	562	98	2266
	695,555	Mar. 18	2479	562	98	2266
Sherman, George R., Providence, R. I. Thermostat	695,880	Mar. 18	2891	655, 656	98	2351
Sherman, John S., and G. H. Harms, Detroit, Mich. Vapor-burner						
Shevlin, George F. (See Baker, Shevlin, and Baker.)						
Shields, Frederick. (See Montgomery, William G., assignor.)						
Shimer, Elmer S., Milton, Pa. Expansible cutter-head	691,191	Jan. 14	1582	346	98	334
Shipe, William H., and J. P. Gleeson, Scottdale, Pa. Rail-joint	698,808	Feb. 18	3006	665	98	1464
Shipley, Jack J., assignor of one-half to E. J. Cowart, Pilotgrove, Tex. Wagon-brake ratchet	691,670	Jan. 21	2461	551	98	548
	695,629	Mar. 18	2486	550	98	2257
Shipley, James T., Detroit, Mich. Shirt	692,373	Feb. 4	274	66	98	855
Shipman, Madison D., Dekalb, Ill. Stud member	693,074	Feb. 11	1578	344	98	1150
Shirey, Ulysses A., Lincoln, Nebr. Tender for traction-engines	691,815	Jan. 28	2761	622	98	626
Shoemaker, Harry, assignor of one-half to G. P. Gehring, Philadelphia, Pa. Coherer	690,623	Jan. 7	490	105	98	105
Shore, Charles, Bolton, assignor of one-half to C. Heap, Caldershaw, Rochdale, England. Electric-call apparatus						
Shore, Edward. (See Smith, Cyrus E., assignor.)						
Short, Sidney H., Cleveland, Ohio, assignor, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Bearing for electric-motor shafts.	690,467	Jan. 7	153	32	98	84
	693,079	Jan. 28	3243	783	98	722
Shortley, Albert T., and D. O. Thompson, Sioux City, Iowa. Can-painting machine	690,468	Jan. 7	156	33, 34, 35	98	85
Shortt, Edward G., Carthage, N. Y., assignor to International Air Brake Company, Jersey City, N. J. Air-brake valve mechanism	694,682	Mar. 4	664	145, 146	98	1853
Shoup, Samuel R., Wilmington, Del. Numbering-machine	694,114	Feb. 25	3519	801	98	1604
Shove, Edward. (See Smith, Cyrus E., assignor.)						
Shryock, William T., Allegheny, Pa. Car-truck	691,496	Jan. 21	2140	479	98	481
Shuel, Alfred H., Edgar Mills, Canada. Whiffletree connection	692,487	Feb. 4	464	108, 109	98	893
Shumate, William A. (See Powell, Noah M., assignor.)						
Shurmer, Thomas, Bolton, England. Woodworking-machine	692,488	Feb. 4	465	109	98	893
Shuttleworth, Charles H., assignor of one-half to W. S. Jones, Corunna, Mich. Low-water alarm	691,012	Jan. 14	1223	276	98	270
Sibley, Edward L., Bennington, Vt. Eyeleting-machine	694,668	Mar. 4	669	146	98	1853
Sibley, Frank J., *et al.* (See Underwood and Butterfield, assignors.)						
Sibley, Gideon, Philadelphia, Pa. Back-rest for dental chairs	694,684	Mar. 4	670	146	98	1854
Sibley, Gideon, Philadelphia, Pa. Head-rest for dental chairs						
Sibrell, Shannon R., *et al.* (See Decker, John M., assignor.)						
Sichel, Ferdinand. (See Ludwig, Johann, assignor.)						
Sicklesteel, Frank A., Northbranch, Mich. Sectional culvert	694,796	Mar. 4	898	196	98	1901
Siebenhaar, Otto W., Rosendale, assignor of two-thirds to E. Falbe, Princeton, and R. W. Wyse, Milwaukee, Wis. Horseshoe-machine	694,205	Feb. 25	3797	839, 840	98	1689
Sieber & Trussell Manufacturing Company. (See Trussell, Emory A., assignor.)						
Siebert, Alfred, St. Louis, Mo. Condensing-coil	694,797	Mar. 4	894	198, 199	98	1901

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Siegel, Samuel L., *et al.* (See Cohnhoff, Louis, assignor.)						
Siegrist, Jean G., (called Guido Sigriste,) Neuilly-sur-Seine, France. Photographic shutter	691,497	Jan. 21	2141	480 481	98	481
Siemens & Halske Aktiengesellschaft. (See Frölich, Huth, and Edelmann, assignors.)						
Siemens & Halske Electric Company of America. (See Köttgen, Carl, assignor.)						
Siemens & Halske Electric Company of America. (See Reichel, Emil B. W., assignor.)						
Sievert, Paul T., Dresden, Germany. Manufacture of hollow glass articles	694,685	Mar. 4	672	147	98	1854
Sigafoos, Russel B., Racine, Wis. Stationary chemical fire-engine	692,794	Feb. 4	893	204	98	992
Signal and Control Company. (See Schoeffel and Aylward, assignors.)						
Silberstein, Albert L., New York, N. Y. Safety-razor	690,780	Jan. 7	797	176	98	167
Silet, Charles. (See Seeley and Silet.)						
Silliman, Charles H. (See Best, William N., assignor.)						
Sills, Alfred. (See Dupont and Sills.)						
Silsby, Eugene W., Lagrange, Ill. Plaiting-machine	690,781	Jan. 7	794	176 177	98	167
Silver & Company. (See Silver, William H., assignor.)						
Silver, William H., New York, assignor to Silver & Company, Brooklyn, N. Y. Expressing-press	696,804	Mar. 25	3595	789	98	2494
Silvestri, Giulio, Vienna, Austria-Hungary. Frictional gearing	690,884	Jan. 7	973	220 221	98	305
Silvey, William L., Dayton, Ohio. Secondary-battery plate	698,458	Feb. 18	2544	518	98	1397
Simister, James. (See Simister, William A., assignor.)						
Simister, William A., Ingersoll, Canada, assignor of one-half to J. Simister, Upper Montclair, N. J. Cheese-box	694,798	Mar. 4	895	199	98	1901
Simmons, Harry, Boone, Iowa. Bicycle attachment	692,725	Feb. 4	894	204	98	992
Simms, Frederick R., Bermondsey, England, and R. Bosch, Stuttgart, Germany. Magneto-electric machine	690,469	Jan. 7	168	35	98	37
Simon, A. H. (See Devoe, Albert H., assignor.)						
Simonds, Frank A. (See Lisle, Myron C., assignor.)						
Simonds, S. E. (See La France, Alfred, assignor.)						
Simplex Electrical Company. (See Ayer, James I., assignor.)						
Simplex Motor Vehicle Company. (See Hood, Ralph O., assignor.)						
Simpson, Daniel B., assignor of two-thirds to J. Effron and S. Rosenzwieg, Mount Sterling, Ky. Hand-rake	698,986	Feb. 25	3399	745	98	1557
Simpson, Solomon L. (See Girtanner, Frederick, assignor.)						
Simpson, Thomas H., trustee, *et al.* (See Handiges, Philip T., assignor.)						
Simpson, William B., Gilliam, La. Washing-machine	695,500	Mar. 18	2169	490	98	2208
Sims, Henry, Erie, Pa. Oil-filter	694,434	Mar. 4	189	42	98	1758
Sims, Milton Z., Aurora, Ill. Brake-wheel	694,686	Mar. 4	672	147	98	1854
Sims, Richard, assignor to Whitehead & Hoag Company, Newark, N. J. Tape-holder	690,897	Jan. 7	1001	226	98	210
Sinclair, John, San Francisco, Cal. Paper-roll	696,276	Mar. 25	3669	819	98	2588
Sinclair, Millard F., assignor of one-half to M. F. Harbour, Okolona, Miss. Load-indicator	695,890	Mar. 18	2393	656	98	2351
Singer, Samuel S., Great falls, Mont. Clasp for garment-supporters	696,205	Mar. 25	3595	789	98	2494
Singin, Louis N., Walls, Pa. Car-coupling	690,470	Jan. 7	169	35	98	37
Sinnott, John W. (See Sinnott, Michael M., assignor.)						
Sinnott, Martin J., Brooklyn, assignor to Expanding Tread Company, New York, N. Y. Elastic-tread horseshoe	698,873	Feb. 18	2588	571	98	1376
Sinnott, Michael M., assignor of one-half to J. W. Sinnott, Northampton, Mass. Tire-inflating device for vehicles	698,747	Feb. 18	2903	638	98	1448
Sipe, Elzy L., Ionia, Kans. Blind for bridles	692,726	Feb. 4	896	204	98	992
Sjoo, Sven A., and R. V. Tornell, Stockholm, Sweden. Cleaning beer vats and pipes	691,671	Jan. 21	2462	.....	98	548
Skaer, James A., Augusta, Kans. Pocket-clasp	694,496	Mar. 4	292	67	98	1774
Skelley, John K. (See Coyan, William E., assignor.)						
Skodawerke Actiengesellschaft in Pilsen. (See Görtz, Constantin von, assignor.)						
Slagle, Robert L., and E. F. Pywell, assignors to Automatic Railway Mail Pouch Company, Washington, D. C. Apparatus for delivering mail from cars	698,167	Feb. 11	1792	391	98	1189
Slaughter, Richard O. (See Ramage and Slaughter.)						
Slavicek, Victor, Vienna, Austria-Hungary. Fractional condenser	696,200	Mar. 25	3595	789	98	2495
Sleeper, Frank R., *et al.* (See Lottridge, George W., assignor.)						
Slick, Edwin E., Braddock, Pa. Means for ejecting metal pigs from their molds	691,977	Jan. 28	2042	434	98	692
Sloss, James W., Birmingham, Ala. Calculating-machine	694,897	Mar. 4	1076	237	98	1989
Slough, Elmer J., Peoria, Ill. Hay-machine	696,207	Mar. 25	3598	789 790	98	2495
Sly, Marcus L., Medina, N. Y. Treating iron scrap	695,177	Mar. 11	1612	.....	98	2070
Small, Benjamin W., West Somerville, assignor of one-half to J. F. Adams, Watertown, Mass. Device for drawing tendons from the legs of poultry	692,214	Jan. 28	2488	787	98	772
Smalley, William H., Yonkers, N. Y. Fastening device for can-covers	695,656	Mar. 18	2479	563	98	2207
Smart, Walter J. (See Barton, William A., assignor.)						
Smart, Walter J., Brooklyn, assignor to Firm of J. Williams, New York, N. Y. Gas-burner	690,471	Jan. 7	173	35	98	38
Smart, Walter J., Brooklyn, assignor to Firm of J. Williams, New York, N. Y. Lamp	694,435	Mar. 4	190	42	98	1758
Smead, Isaac D., Cincinnati, Ohio. Combined crematory and heating system	691,228	Jan. 14	1806	410 411	98	992
Smead, Isaac D., Cincinnati, Ohio. Hot-water heating system	694,206	Feb. 25	3808	840	98	1640
Smedley, Frederic G., New York, N. Y. Foot-rest	692,080	Jan. 28	2046	784	98	793
Smeeton, Richard J., assignor to Whitehead & Hoag Company, Newark, N. J. Tape-holder	694,229	Feb. 25	4086	910	98	1699
Smiley, William H. (See Burt, William J., assignor.)						
Smith, Allison D., Edinburgh, Scotland. Vehicle-wheel	690,531	Jan. 7	317	63	98	69
Smith, Amos, Vienna Crossroads, Ohio. Grain-drill	694,499	Mar. 4	292	67	98	1774
Smith and Anthony Company. (See Anthony, Edgar W., assignor.)						
Smith and Anthony Company. (See Barber, William M., assignor.)						
Smith, Andrew C., Los Angeles, Cal. Combined set-square and bevel	698,075	Feb. 11	1580	344 345	98	1150
Smith, Arthur P. and H., Springfield, Mass. Condenser or exhaust tube for steam-engines	691,978	Jan. 28	2043	434	98	694
Smith, Benjamin F., assignor of one-half to C. G. Smith, Somerville, Mass. Sand-trap for Artesian or driven wells	695,962	Mar. 25	3603	660	98	2388
Smith, Birger, St. Paul, Minn. Stipple matrix-plate	694,115	Feb. 25	2681	601	98	1605
Smith, Charles B. (See Wescott and Smith.)						
Smith, Charles G. (See Smith, Benjamin F., assignor.)						
Smith, Charles M. (See McCoy, Henry L., assignor.)						
Smith, Charles W., Columbus, Ohio. Identity-indicating device	395,584	Mar. 18	2350	588	98	2040
Smith, Cyrus E., assignor of one-half to E. Shove, Fall River, Mass. Locking device for stripping-brush in revolving-flat cards	692,727	Feb. 4	896	204 205	98	992
Smith, Cyrus E., assignor of one-half to E. Shore, Fall River, Mass. Electric trolley	695,953	Mar. 25	3609	661	98	2388
Smith, Daniel, Griffin Corners, N. Y. Game apparatus	694,799	Mar. 4	895	199	98	1901

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Smith, Daniel D. (See Titus, Burt, and Smith.)	693,168	Feb. 11	1785	391	98	1190
Smith, De Calvus, Colebrook, Ohio. Hose-bridge	695,002	Mar. 11	1276	381	98	2000
Smith, De Wane B., Deerfield, N. Y. Bicycle-pump	693,748	Feb. 18	2904	638	98	1443
Smith, Edward F., Bradford, Pa. Apparatus for leaching tanbark	693,749	Feb. 18	2905	639	98	1443
Smith, Edward F., Bradford, Pa. Apparatus for leaching tanbark	694,116	Feb. 25	3622	801	98	1605
Smith, Edward P., Springfield, Mass. Device for supporting rolls in developing-trays	693,750	Feb. 18	2905	639	98	1443
Smith, Edward W., assignor to Electric Storage Battery Company, Philadelphia, Pa. Apparatus for preparing material for use in storage batteries	692,374	Feb. 4	275	66	98	856
Smith, Eldridge J., Washington, D. C., assignor to Perfect Jar Cap Company, Alexandria, Va. Jar cap or closure	690,472	Jan. 7	173	36, 37	98	38
Smith, Elmer S., Boundbrook, and H. Giles, South Boundbrook, assignors to Ideal Cash Register Company, New Boundbrook, N. J. Cash-register	695,954	Mar. 25	3011	691	98	2368
Smith, Fannie S., Kansas City, Mo. Wire-fastener	694,207	Feb. 25	3804	841	98	1641
Smith, Finley M., Salubria, Idaho. Brake mechanism	690,898	Jan. 7	1002	236	98	210
Smith, Frances C., assignor of one-fourth to A. I. Grant, Atlanta, Ga. Extensible corset.						
Smith, Frank S., *et al.* (See Wilcox, Elmer A., assignor.)	695,801	Mar. 18	2894	656, 657	98	2352
Smith, Gary B., assignor of two-thirds to J. H. Colwell and W. H. Elliott, Cleveland, Ohio. Valve for steam-engines						
Smith, George A., *et al.* (See Colman, Charles, assignor.)	692,081	Jan. 28	2250	734	98	734
Smith, George A., Alberni, Canada. Lamp-burner	695,501	Mar. 18	2170	490	98	2303
Smith, George L., Good Ground, N. Y. Butter-cutting machine	695,955	Mar. 25	3012	681	98	2368
Smith, George W., Dallas, Tex. Bicycle	693,915	Feb. 25	3235	713	98	1527
Smith, Godfrey L., Newport News, Va. Compound lumber or structure	693,170	Feb. 11	1790	393	98	1191
Smith, Hansen. (See Petre, Douglas A., assignor.)						
Smith, Harper F., Philadelphia, Pa. Fluid-pressure regulator	693,169	Feb. 11	1787	392	98	1190
Smith, Harry B., *et al.* (See Smith, Philip S., assignor.)	694,496	Mar. 4	191	42	98	1753
Smith, Harry B., New York, N. Y. Blank for paper boxes	694,437	Mar. 4	193	42, 43	98	1753
Smith, Harry B., Brooklyn, N. Y. Corner-stay for paper boxes	691,816	Jan. 28	2702	622	98	656
Smith, Harry S., Pittsburg, Pa., assignor to Victor Rubber Company, Springfield, Ohio. Apparatus for rolling channel-irons	692,932	Feb. 11	1304	285, 286	98	1095
Smith, Harry W. (See Hamblin, Stephen M., assignor.)	692,984	Feb. 11	1314	287	98	1096
Smith, Harry W., North Grafton, Mass. Filling-carrier for looms	691,979	Jan. 28	2044	635	98	884
Smith, Harry W., North Grafton, Mass. Electric filling-changing mechanism for looms	692,924	Feb. 11	1291	268	98	1093
Smith, Harry W., North Grafton, Mass. Weft-replenishing mechanism for looms	692,925	Feb. 11	1292	284	98	1093
Smith, Harry W., Worcester, Mass. Electric-circuit closer for looms	692,926	Feb. 11	1295	284	98	1093
Smith, Harry W., Worcester, Mass. Electric-circuit closer for looms	692,927	Feb. 11	1296	284	98	1093
Smith, Harry W., Worcester, Mass. Electric-circuit closer for looms	692,928	Feb. 11	1298	284	98	1093
Smith, Harry W., Worcester, Mass. Electric-circuit closer for looms	692,929	Feb. 11	1299	285	98	1093
Smith, Harry W., Worcester, Mass. Electric-circuit closer for looms	692,930	Feb. 11	1301	285	98	1094
Smith, Harry W., Worcester, Mass. Electric-circuit closer for looms	692,931	Feb. 11	1302	285	98	1094
Smith, Harry W., Worcester, Mass. Electric-circuit closer for looms	692,933	Feb. 11	1309	286, 287	98	1096
Smith, Harry W., Worcester, Mass. Weft-replenishing mechanism for looms	692,935	Feb. 11	1319	288	98	1097
Smith, Harry W., Grafton, Mass. Weft-replenishing mechanism for looms	691,192	Jan. 14	1533	346	98	334
Smith, Henry, and G. N. Lemmon, Englewood, N. J. Carpenter's square	696,110	Mar. 25	3333	751	98	2456
Smith, Henry C., Cambridge, assignor to Smith-Warren Company, Boston, Mass. Metal window-sash						
Smith, Hinsdale. (See Smith, Arthur P. and H.)	690,782	Jan. 7	804	178	98	169
Smith, James G., Covington, Ky., assignor to Hildenbrandt's Automatic Hinge Company, Cincinnati, Ohio. Hinge	691,498	Jan. 21	2143	481	98	482
Smith, James M., Newark, N. J., assignor to J. Walrath, Racine, Wis. Electric igniting device for explosive-engines	694,208	Feb. 25	3805	841	98	1641
Smith, Jay H., Rochester, N. Y. Expansible tree-protector	691,817	Jan. 28	2764	622	98	627
Smith, John A., Baltimore, Md., assignor to Smith Lyrophone Company. Friction-clutch.						
Smith, John G., Denver, Colo., assignor of one-half to F. M. Irish. Celery-harvesting implement	690,899	Jan. 7	1003	237	98	210
Smith, John L., and R. Bedford, Jr., Eaglescliff, assignors of one-third to South Durham Steel and Iron Company, Limited, Stockton-on-Tees, England. Open-hearth steel process	691,297	Jan. 14	1736	395	98	577
	694,209	Feb. 25	3809	842	98	1641
Smith, John M., Atlanta, Ga. Vehicle	692,935	Feb. 11	1323	288, 289	98	1098
Smith, John T., Heron Lake, Minn. Machine for treating flax	691,618	Jan. 28	2765	623	98	627
Smith, Joseph W., Westminster, Md. Silo	690,694	Jan. 7	492	107	98	105
Smith, Lucius A., Topeka, Kans. Hernial truss	691,733	Jan. 21	2570	575	98	570
Smith, Luther D., assignor to Ideal Register Co., Detroit, Mich. Hot-air register						
Smith Lyrophone Company. (See Smith, John A., assignor.)						
Smith, M. H., *et al.* (See Colman, Charles, assignor.)	694,438	Mar. 4	195	43	93	1754
Smith, Martin L., Elwell, Iowa. Foldable table-spread support	690,580	Jan. 7	315	63	98	68
Smith, Nellie F. (See Hurd, Charles L., assignor.)	695,344	Mar. 11	1909	425	98	2129
Smith, Perry C., Indianapolis, Ind. Gage	691,329	Jan. 14	1809	411, 412, 413, 414, 415	98	392
Smith, Peter J., Idaho Springs, Colo. Ore-car						
Smith, Philip S., assignor of three-fourths to H. B. Smith, Brooklyn, N. Y., J. S. Stokes, Moorestown, N. J., and W. S. Smith, Pawtucket, R. I. Box-covering machine						
Smith, Robert, and H. W. Leonhard, assignors of one-third to E. Dankhof, St. Louis, Mo. Fender	692,187	Jan. 28	3420	774	98	759
Smith, Robert F. W., assignor to Electric Ozone Syndicate, Limited, London, England. Ozonizer for wounds, &c	695,657	Mar. 18	2481	563	98	2357
Smith, Robert F. W., assignor to Electric Ozone Syndicate, Limited, London, England. Ozone-inhaler	695,658	Mar. 18	2482	563, 564	98	2357
Smith, Samuel. (See Beal and Smith.)	694,330	Feb. 25	4090	910	98	1602
Smith, Solomon, assignor of two-thirds to J. J. Lightcap and J. E. Albright, Ravenna, Ohio. Machine for forming ball-shaped or spherical bodies	692,987	Feb. 11	1328	289	98	1099
Smith & Sons Manufacturing Company. (See Livengood, Winfield S., assignor.)	690,783	Jan. 7	805	178	98	170
Smith, Stansbury J., Pine Bluff, Ark. Freight-car door	695,502	Mar. 18	2179	490, 491	98	2303
Smith, Thomas L., Milwaukee, Wis. Mixing-machine						
Smith, Thomas T., near Warrenton, Va. Automatic pan-lifter						
Smith, W. T., *et al.* (See Fulghum, Fredrick A., assignor.)						
Smith-Warren Company. (See Smith, Henry C., assignor.)						
Smith-Watson Manufacturing Company. (See Paynter and Watson, assignors.)	696,356	Mar. 25	3847	855	98	2561
Smith, William H., Eureka, Ill. Seeder						

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Smith, William T., Philadelphia, Pa. Woven pile fabric	691,198	Jan. 14	1535	346	98	235
Smith, Winfield S., *et al.* (See Smith, Philip S., assignor.)						
Smoot, B. (See Harris, Franklin P., assignor.)						
Smyth Manufacturing Company. (See Jacobs, Arthur I., assignor.)						
Smyth, William H., Berkeley, and K. I. Faust, assignors to Faust Monugraph Company, San Francisco, Cal. Monugraph	691,013	Jan. 14	1294	276 277	98	270
Snedden, Richard, Cleveland, Ohio. Machine for cutting confectioneries	691,490	Jan. 21	2148	489	98	488
Sneddon, James P., Barberton, Ohio, assignor to Stirling Company, Chicago, Ill. Ignition-arch	690,473	Jan. 7	181	37	98	39
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Apparatus for forming hollow or tubular articles of irregular shape	698,171	Feb. 11	1794	398	98	1198
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Forming hollow or tubular articles of irregular shape	698,172	Feb. 11	1797	398	98	1198
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Apparatus for shaping hollow or tubular articles of irregular shape	698,173	Feb. 11	1799	394	98	1198
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Forming hollow or tubular articles	698,174	Feb. 11	1802	394	98	1194
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Apparatus for forming hollow or tubular articles	698,175	Feb. 11	1804	394	98	1194
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Wrought-iron header	698,176	Feb. 11	1807	394	98	1195
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Apparatus for flanging holes in tubular articles	698,177	Feb. 11	1809	395	98	1195
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Apparatus for forming hollow or tubular articles of irregular shape	698,178	Feb. 11	1812	395 396	98	1196
Sneddon, James P., Barberton, Ohio, assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Shaping wrought-metal tubular articles of irregular shape	698,179	Feb. 11	1816	396	98	1196
Snell, Oscar, assignor of one-half to A. E. Keith, Chicago, Ill. Moving-picture machine	695,008	Mar. 11	1278	281 282	98	2000
Snethen, Jacob F., Humboldt, Nebr. Hay-fork	692,489	Feb. 4	467	109	98	894
Snider, Charles A, Jersey City, N. J. Nozzle	692,375	Feb. 4	276	67	98	836
Snider, Jay J., Xenia, Ohio. Ore-separator	691,819	Jan. 28	2705	633	98	627
Snigo, John A., Pittsburg, Pa. Ice-cream freezer	690,528	Jan. 7	318	68	98	69
Snodgrass, Henry F., Wheeling, W. Va. Sham pillow	696,454	Feb. 18	2345	513	98	1393
Snook, Simon M., Scranton, Pa. Folding table	691,194	Jan. 14	1535	347	98	235
Snyder, Charles H., Lansing, Mich. Water-purifier	691,260	Jan. 28	2366	646	98	649
Snyder, Ephraim H., Hagerstown, Md. Device for handling, draining, and displaying fish	691,918	Jan. 28	2282	661	98	668
Snyder, Frank, assignor to Hunter Arms Company, Fulton, N. Y. Breech-loading firearm	694,331	Feb. 25	4091	910	98	1698
Snyder, Frank, assignor to Hunter Arms Co., Fulton, N. Y. Gun-lock	695,242	Mar. 11	1727	393	98	2008
Snyder, Max, Beatty, Pa. Boiler-tube cleaner	690,474	Jan. 7	183	37	98	40
Snyder, Ward B., Freneau, N. J., assignor of one-half to H. T. Andrews, New York, N. Y. Handle for driving-reins, &c	698,166	Jan. 28	3380	706	98	751
Snyder, William D., Rives, Ohio. Coupling for well-drilling tools	695,659	Mar. 18	2488	564	98	2287
Snyder, William R., Puyallup, Wash. Gate	690,607	Jan. 7	574	125	98	123
Société Anonyme des Etablissements Weyher et Richemond. (See Richemond, Pierre, assignor.)						
Société Chimique des Usines du Rhône, anciennement Gilliard, P. Monnet et Cartier. (See Koetschet, Joseph, assignor.)						
Société D'Espine Achard et Cie. (See D'Espine, Charles, assignor.)						
Société Francaise du "Musicographe Reveillé," (Société Anonyme.) (See Réveillé, André, assignor.)						
Société Generale de Frenis Lipkowski. (See Lipkowski, Joseph, assignor.)						
Soderlund, Gustive A., Somerville, assignor of two-thirds to N. J. and O. L. Soderlund, Medford, Mass. Combination-faucet	698,315	Feb. 11	2008	452	98	1950
Soderlund, Nils J., *et al.* (See Soderlund, Gustive A., assignor.)						
Soderlund, Oscar L., *et al.* (See Soderlund, Gustive A., assignor.)						
Soehren, John H., and C. J. Rohlf, Everly, Iowa. Attachment for stoves	698,751	Feb. 18	2907	639	98	1442
Soellner, Herman F. C., Brooklyn, N. Y. Mixing-pump	694,210	Feb. 25	3811	842	98	1648
Soesbe, Harry E. (See Cook, Walter K., assignor.)						
Sohlberg, Robert, *et al.* (See Darwin, Frank L., assignor.)						
Solberg, Christopher, Eden Valley, Minn. Tire-heating device	692,376	Feb. 4	278	67	98	836
Soley, Frank, assignor to Miller Lock Company, Philadelphia, Pa. Padlock	695,345	Mar. 11	1910	425	98	2130
Soley, Frank, assignor to Miller Lock Company, Philadelphia, Pa. Padlock	695,346	Mar. 11	1911	426	98	2130
Soley, Frank, assignor to Miller Lock Company, Philadelphia, Pa. Padlock	695,347	Mar. 11	1913	426	98	2130
Soley, William H., Philadelphia, Pa., assignor of one-half to T. H. Dallett & Company. Pneumatic tool	692,709	Feb. 4	1089	234	98	1008
Solomiac, Emile, Paris, France. Boiler	695,956	Mar. 25	3013	681 682 683	98	2289
Solomon, David W., Arlington, Wash. Combined saw jointer and gage	690,668	Jan. 7	576	125	98	123
Solomon, Simon W., Ainsworth, Nebr. Cultivator blade and standard attachment	695,178	Mar. 11	1613	357	98	2070
Somers, David and O., and C. Powers, Ossian, Ind. Corn-planter	691,196	Jan. 14	1537	347	98	235
Somers, Oral. (See Somers and Powers.)						
Sommer, Karl F. F. G., Hamburg, Germany. Rapid tanning process	694,084	Feb. 25	3498	.....	98	1578
Sonander, Andrew, assignor to Foos Gas Engine Company, Springfield, Ohio. Governor for gas-engines	692,062	Jan. 28	2351	734	98	794
Sonneborn, Mary C., Laporte, Ind. Washboiler attachment	695,786	Mar. 18	2656	603	98	2301
Sontag, John M., St. Charles, Ill. Brooder	690,895	Jan. 7	975	231	98	105
Soper, Lewis N., Guelph, Canada. Piano-action	690,784	Jan. 7	810	179	98	171
Sorensen, Peter, assignor to J. and J. Jones, Jr., Brooklyn, N. Y. Electric time-switch mechanism	691,014	Jan. 14	1268	277	98	271
Sorg, Oscar E., assignor of nine-tenths to H. Koons, Buffalo, N. Y. Coin-controlled liquid-vending machine	690,475	Jan. 7	187	38	98	41
Sorg, Oscar E., assignor of nine-tenths to H. Koons, Buffalo, N. Y. Fraud-preventing device for coin-controlled apparatus	690,476	Jan. 7	191	38, 39	98	41
Sosna, Leopold R., assignor of one-half to R. J. Sosna, Philadelphia, Pa. Saw	690,785	Jan. 7	812	179	98	171
Sosna, Rudolph J. (See Sosna, Leopold R., assignor.)						
Souhami, Leonard J. C., London, England. Belt-and-pulley gearing	694,211	Feb. 25	3512	842	98	1648
South Bend Iron Works. (See Davis, Calvin R., assignor.)						
South Durham Steel and Iron Company. (See Smith and Bedford, assignors.)						
Southwark Foundry & Machine Company. (See Lindroth, Carl O., assignor.)						
Southworth, Sidney, Charlotte, Mich. Threshing-machine	698,180	Feb. 11	1819	396	98	1197

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Sox, David A., Haralson, Ga. Ironing-table	694,800	Mar. 4	897	199	98	1902
Spahn, Rudolph, assignor to A. Stenger, Brooklyn, N. Y. Bung	690,786	Jan. 7	812	179	98	172
Spalding, Samuel J., Canton, Ohio, assignor of one-third to I. N. Willard, Syracuse, N. Y. Electromedical belt	691,880	Jan. 28	2768	622	98	668
Spangler, John H., Crafton, Pa. Independent operating means for electric switches	690,787	Jan. 7	813	179 180	98	173
Spangler, John H., and R. Herman, Crafton, Pa. Operating mechanism for electric switches	690,886	Jan. 7	976	221 222	98	905
Spaulding, Edgar A., Phœnix, Ariz. Ter. Harness-saddle	691,015	Jan. 14	1230	277	98	272
Spaulding, James M., Syracuse, N. Y. Rail-fastener	694,667	Mar. 4	675	147	98	1855
Spear, Frank N., Los Angeles, Cal. Fuel-feeder for furnaces. (Reissue)	11,964	Jan. 28	3501	792	98	776
Spear, Henry, Richmond, Va. Traveler's lock	692,083	Jan. 28	3252	734	98	794
Speer, Edward D. and H. N., New York, N. Y. Conduit for electric wires	693,916	Feb. 25	2237	713	98	1528
Speer, Horace N. (See Speer, Edward D. and H. N.)	692,377	Feb. 4	280	68	98	857
Speer, Isaac N., St. Louis, Mo. Filter	695,004	Mar. 11	1983	282 283	98	2001
Speer, Noah Q., Pittsburg, Pa. Sand-drier	692,800	Feb. 4	1041	234	98	1039
Speirs, Albert S., New York, N. Y. Tobacco-pipe cleaner	695,957	Mar. 25	3015	683	98	2389
Spence, Charles H., St. Paul, Minn. Self-registering conveyer-chute	696,906	Mar. 25	3582	790 791	98	2496
Spencer, Alexander, London, England. Piston-valve	690,887	Jan. 7	979	222 223	98	906
Spencer, Charles R., Baltimore, Md., assignor to W. D. Colt, Washington, D. C. Cigarette-machine	691,196	Jan. 14	1540	348 349	98	896
Spencer, Charles R., Baltimore, Md., and L. P. Whitaker, assignors to Pneumatic Tobacco Stemmer Company, Washington, D. C. Tobacco-stemming machine	693,181	Feb. 11	1820	396 397	98	1197
Spencer, John L., Elmira Heights, assignor of one-half to L. Tabor, Elmira, N. Y. Motor-vehicle frame	694,801	Mar. 4	898	200	98	1902
Spencer, Sidney G., Shreveport, La. Tag-fastener	693,782	Feb. 18	2908	669	98	1444
Spencer, William, Jr., Schenectady, N. Y. Electric coil	693,533	Feb. 18	2496	548	98	1359
Sperling, Henry, Jersey City, N. J. Fire-escape						
Sperry, Elmer A. (See Ramage, Alexander S., assignor.)						
Sperry, Elmer A., Cleveland, Ohio, assignor to National Battery Company, Cleveland, Ohio, and Jersey City, N. J. Envelop for battery-electrodes	696,209	Mar. 25	3534	791	98	2496
Sperry, Erwin S., Bridgeport, Conn. Improving castings of alloys containing copper and zinc	694,688	Mar. 4	678	.....	98	1853
Sperry, Herbert B., Springfield, Ohio, assignor to Warder, Bushnell & Glessner Company, Springfield, Ohio, and Chicago, Ill. Grain-binder	690,477	Jan. 7	193	39	98	42
Spiegel, William G., assignor of one-half to Aeolian Company, New York, N. Y. Musical instrument	695,958	Mar. 25	3017	683 684	98	2389
Spietschka, Vinzenz, Louisville, Ohio. Tank-wagon for delivering fermented liquids	691,980	Jan. 28	3049	685	98	685
Spike, William D. C., and J. T. Jones, Tacoma, Wash. Roasting, smelting, and matting furnace	693,076	Feb. 11	1563	345	98	1151
Spink, Edward J., Davenport, Iowa. Extension-table	694,459	Mar. 4	196	43	98	1754
Spinney, Henry C., Lynn, Mass., assignor to General Electric Company. Electric-arc lamp	691,881	Jan. 28	2770	624	98	628
Spiral Belt Separator Co. (See Jessup, Robert W., assignor.)						
Sponsel, Charles W., Hartford, Conn. Power mechanism	695,005	Mar. 11	1254	283	98	2001
Sponseller, John E., and G. Fenno, Hoisington, Kans. Air-chamber for pumps	696,277	Mar. 25	3663	819	98	2523
Sporleder, Michael, Colorado City, Colo. Watchcase-pendant	691,412	Jan. 21	1995	447	98	450
Sprague, Abraham L., Milton, Mass., assignor to Sprague Car Appliance Company, Portland, Me. Car-track-sanding device	692,988	Feb. 11	1330	289 290	98	1100
Sprague Car Appliance Company. (See Sprague, Abraham L., assignor.)						
Sprague, George F., Gettysburg, Pa., assignor of one-half to S. H. Gariss, Port Jervis, N. Y. Bow-facing oar	695,094	Jan. 28	3254	735	98	734
Sprague, Ira B., Everett, Wash. Preserving wood	694,212	Feb. 25	2818	643	98	1649
Sprague, Lowren. (See Patrick and Sprague.)						
Spring, Daniel T., and A. Long, Wheeling, W. Va. Fire-alarm appliance	691,197	Jan. 14	1545	349	98	337
Spring, Napoleon C., Winsted, Conn., assignor to C. H. McCarty and A. K. Alford. Shoe-polishing apparatus	693,987	Feb. 25	3389	745	98	1558
Springborn, Erich, London, England. Manufacture of artificial fuel	690,888	Jan. 7	988	.....	98	906
Springer, Calvin J., Somerville, Mass. Electrical distributer	693,355	Feb. 11	2146	471 472	98	1307
Springer, John D. (See Joyner and Springer.)						
Springfield Engine Stop Company. (See Miller, Thomas D., assignor.)						
Springfield Metallic Casket Company. (See Hiser, Daniel B., assignor.)						
Sprong, Severn D., Metuchen, N. J. Telephone repeater or relay	692,553	Feb. 4	598	139	98	919
Spurlin, Green F., Camden, Ala. Ballast conveyer and leveler	690,788	Jan. 7	815	180	98	172
Squier, Fred K., *et al.* (See Moon, Herman, assignor.)						
St. Hilaire, Camille, Wilson, Mich. Self-leveling and adjustable berth, &c., for ships	694,214	Feb. 25	3815	843 844	98	1643
St. John, Thomas H. (See Sammons, Hugh G., assignor.)						
Stabile, Gioacchino. (See Sala and Stabile.)						
Staff, Peter N., Terre Haute, Ind. Mirror-frame	693,077	Feb. 11	1584	345	98	1151
Stafford, George W., Providence, and S. M. Hamblin, Central Falls, R. I. Spinning-spindle	693,179	Mar. 11	1618	358	98	2070
Stafsing, Frans B., Stockholm, and C. Egnér, Klippan, Sweden. Telephone system	693,356	Feb. 11	2150	472	98	1208
Staguhn, Martin, Milwaukee, Wis. Plow	694,689	Mar. 4	679	148	98	1855
Stahley, John H., New York, N. Y. Electric junction or outlet box	695,243	Mar. 11	1729	383	98	2094
Stainbrook, James H., assignor of one-half to M. L. Reid, Kansas City, Mo. Fire-ladder	692,728	Feb. 4	898	205	98	982
Stair, Burton A., assignor of one-half to A. B. Bohon, Harrisonville, Mo. Strainer for down-spouts	694,440	Mar. 4	198	44	98	1755
Stair Lift Company. (See Dodge, James M., assignor.)						
Staley, Charles, Sterling, Ill. Toe-weight	694,586	Mar. 4	476	103	98	1814
Staley, Harrison L., Martinsville, Ind. Gearing for washing-machines	695,244	Mar. 11	1731	384	98	2094
Stall & Dean Manufacturing Company. (See Price, Walter H., assignor.)						
Standard Advertising Co. (See Strope, Ben B., assignor.)						
Standard Coupler Company. (See Gallagher, Richard D., Jr., assignor.)						
Standard Fan Company. (See Weyant, Thomas R., assignor.)						
Standard Machine Company. (See Houseman, Harry A., assignor.)						
Standard Oiled Clothing Co. (See Emanuel, Samuel H., assignor.)						
Standard Optical Company. (See Bowker, Long, and Howland, assignors.)						
Standard Optical Company. (See Wilhelm, Louis, assignor.)						
Standard Power Company. (See Griffen, John D., assignor.)						
Standard Power Company. (See Mott, Samuel D., assignor.)						
Standard Rivet Company. (See Barber, Everett A., assignor.)						
Standard Sanitary Mfg. Co. (See Glackin, Peter F., assignor.)						
Standard Tool Company. (See Parpart, Otto A., assignor.)						
Standard Varnish Works. (See Rosenberg, Herman, assignor.)	694,500	Mar. 4	394	88	98	1774
Stanfield, Jasper H., Muskegon, Mich. Music-rack						

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Stanger, Johann J., Ulm, Germany. Chair for therapeutic purposes	692,554	Feb. 4	505	139 140	98	919
Stanley Electric Manufacturing Company. (See Henry, John C., assignor.)						
Stanley, John C. W., London, England. Drier for cotton or other materials	696,455	Feb. 18	2546	515	98	1398
Stanley, John C. W., London, England. Apparatus for expressing moisture from brewers' grain, &c	696,585	Mar. 18	2353	533	98	2541
Stanley Rule & Level Company. (See Richards, Henry, assignor.)						
Stannard, Harry W., *et al.* (See Grant, Max, assignor.)						
Stansel, Alonzo, Yorkville, Ill. Mail-box	693,917	Feb. 25	3239	713 714	98	1598
Stansfield, John W., Hartlepool, England. Feed-water heater and condenser	692,878	Feb. 4	281	68	98	857
Stanton, Clarence W. (See Jincks and Stanton.)						
Stanton, Lafayette J., Millbrook, Mich. Spring-tooth for harrows	692,969	Feb. 11	1332	290	98	1100
Staples & Hanford Company. (See Kuersten, Hugo R., assignor.)						
Star Brass Manufacturing Company. (See Bosworth, Charles B., assignor.)						
Stare, Elias A., Waukesha, Wis. Corn-cutter	692,940	Feb. 11	1328	290	98	1100
Stark, J. Carroll, Hamilton, Ill. Land-roller	694,213	Feb. 25	2514	543	98	1642
Stark, Truman E., Naperville, Ill. Portable display device	694,690	Mar. 4	681	148	98	1855
Starrett, George W., Columbus, Ohio. Fruit-clipper	693,753	Feb. 18	2909	640	98	1444
Starrett, Laroy S., assignor to L. S. Starrett Company, Athol, Mass. Tool-holding device	692,215	Jan. 28	3453	757	98	773
Starsky, Benjamin F. (See Bushnell and Starsky.)						
Stauss, Carl W., Berlin, Germany. Furnace	695,508	Mar. 18	2173	491	98	2206
Sté. Ame. des Anciens Etablissements Panhard et Levassor. (See Krebs, Arthur C., assignor.)						
Stearns, Albert, Syracuse, N. Y. Automatic package-feeding attachment	696,111	Mar. 25	3336	752	98	2457
Stearns, Albert, Syracuse, N. Y. Wrapping-machine	696,112	Mar. 25	3336	753 753	98	2457
Stearns, Christopher C., assignor of one-third to J. H. Stimson, Denver, Colo. Cash-register	694,085	Feb. 25	2490	708	98	1579
Stearns & Co., E. C. (See Potter, William M., assignor.)						
Stearns, Wesley R., Portland, Oreg. Electric signal mechanism for overhead-trolley systems	692,095	Jan. 28	2355	735	98	725
Stearns, William F., Cambridge, and W. L. Haines, Boston, Mass., assignors, by mesne assignments, to Punctnot Tire Company, Camden, N. J., and Philadelphia, Pa. Pneumatic tire	693,818	Feb. 18	2098	609	98	1468
Stebler, Fred. (See Ruggles, Henry B., assignor.)						
Steckenreiter, John F., Chicago, Ill. Attaching device for drill-braces	690,669	Jan. 7	377	126	98	123
Steedman, Edwin H., St. Louis, Mo. Inserted saw-tooth	692,490	Feb. 4	469	109	98	894
Steele & Company, H. H. (See Steele, Henry H., assignor.)						
Steele, Henry H., assignor to H. H. Steele & Company, Gloversville, N. Y. Glove	695,586	Mar. 18	2355	534	98	2942
Steen, Schraeder. (See Wheatley and Steen.)						
Steffen, John B. (See La Coursiere and Steffen.)						
Steffen, Peter, *et al.* (See Yancey, Christopher C., assignor.)						
Steiger, Jacob, London, England. Manufacture of cement	694,808	Mar. 4	899	.....	98	1902
Stein, Emil G., Pittsburg, Pa. Compound rail	693,754	Feb. 18	2911	640	98	1444
Steiner, Edmund U., Brooklyn, N. Y. Walking doll	695,121	Mar. 11	1512	326	98	2047
Steiner, Robert, New Orleans, La., assignor to Union Oil Refining & Fuel Company, Jefferson County, Tex. Making artificial fuel	695,848	Mar. 11	1915	.....	98	2130
Steinhauer, Peter, St. Louis, Mo. Automobile driving-gear	696,210	Mar. 25	3336	791 792	98	2497
Steinl, George, New York, N. Y. Chimney	693,755	Feb. 18	2912	640	98	1444
Steinmetz, Conrad P., assignor of one-half to A. Boynton, Mitchell, S. D. Washing-machine	692,216	Jan. 28	3484	757	98	773
Steinweg, Carl, Lüdenscheid, Germany. Forming bodies by electrodeposition	693,918	Feb. 25	2941	714	98	1598
Steitz, John L., Chicago, Ill. Pipe-cleaner	695,767	Mar. 18	2557	604	98	2202
Stell, Alfred and G., Steeton, and J. Stell, Keighley, England. Doffing apparatus for spinning machinery	692,491	Feb. 4	470	110 111	98	895
Stell, George. (See Stell, Alfred, G., and J.)						
Stell, John. (See Stell, Alfred, G., and J.)						
Stelter, Francis C. W., Long Island City, N. Y. Calendar	690,670	Jan. 7	380	126	98	124
Stelzer, Gustav A. (See Hamberger and Stelzer.)						
Stenersen, Rudolph, assignor of two-thirds to C. J. Lundman and C. F. Norlin, Brooklyn, N. Y. Generating motive power	691,500	Jan. 21	2149	482	98	488
Stenger, Andrew. (See Spahn, Rudolph, assignor.)						
Stenson, Samuel, *et al.* (See Hancock, Henry J., assignor.)						
Stephans, Jacob, Pawtucket, R. I. Bolt-pointing machine	691,198	Jan. 14	1547	349 350	98	337
Stephans, Jacob, Pawtucket, R. I. Nut-tapping machine	691,199	Jan. 14	1549	350 351	98	338
Stephens, Benjamin F., Reeves, Tex. Rail-joint	693,919	Feb. 25	2942	714	98	1598
Stephenson, John W., Toledo, assignor to National Malleable Castings Company, Cleveland, Ohio. Car-axle box	692,086	Jan. 28	2353	736	98	725
Stephenson, Levi T., assignor of one-half to W. P. Dunlavey and J. P. Dunlavy, Trinidad, Colo. Nut-lock	690,900	Jan. 7	1004	227	98	211
Stephenson, Levi T., assignor of one-half to J. N. Turner and R. J. Williams, Trinidad, Colo. Acetylene-gas generator	694,587	Mar. 4	477	103 104	98	1614
Stephenson, William, Morris, Canada. Scraper for seed-drills	691,016	Jan. 14	1231	278	98	278
Sterlingworth Railway Supply Company. (See Canfield, Lewis T., assignor.)						
Stern, Philip K., New York, N. Y. Motor-vehicle running-gear	695,959	Mar. 25	3019	684 685	98	2300
Sterrett, Frank O., Henry, Ill. Pump for handling heavy oils	693,920	Feb. 25	2944	714	98	1599
Sterzing, Albert A. E., New York, N. Y. Transmitting electric currents	691,396	Jan. 14	1736	396	98	377
Stevens Air Brake Company. (See Stevens, Willie J., assignor.)						
Stevens, Benjamin A., Toledo, Ohio. Fastening device for refrigerator-doors	694,691	Mar. 4	668	148	98	1856
Stevens, Edmund R. (See Carpenter, Stevens, and Tenney.)						
Stevens, Egbert, Chicago, Ill. Wind-shield for cycles	695,960	Mar. 25	3024	685	98	2301
Stevens, Harold H., Los Angeles, Cal. Jar cover and fastener	696,118	Mar. 25	3342	758	98	2456
Stevens, John W., St. Paul, Minn. Seal for seal-locks	695,416	Mar. 11	2098	455	98	2156
Stevens, Joshua S., Chicago, Ill. Ball-playing device	691,399	Jan. 14	1741	396	98	377
Stevens, Mott T., Wahpeton, N. D. Acetylene-gas generator	693,078	Feb. 11	1585	346	98	1151
Stevens, Nathan P., Concord, N. H. Boiler	691,200	Jan. 14	1551	351	98	338
Stevens, Omar. (See Kirkwood, Joel, assignor.)						
Stevens, Willie J., assignor to Stevens Air Brake Company, Skowhegan, Me. Car-brake	696,114	Mar. 25	3343	753 754	98	2456
Stevenson, Robert H., Jr., Western Springs, Ill. Alarm attachment for incubators	695,945	Mar. 11	1734	384	98	2095
Stevenson, Thomas M., *et al.* (See Wynn, John P., assignor.)						
Steward, John F., Chicago, Ill. Grain-divider for harvesting-machines	694,441	Mar. 4	200	44	98	1755

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Stewart, Austin H., Nashville, Tenn. Conductor-carrier	695,504	Mar. 18	2176	491	98	2304
Stewart Hartshorn Company. (See Hartshorn, Edmund F., assignor.)						
Stewart, John E. (See Lyle and Stewart.)						
Stewart, Omert M., Pittsburg, Pa. Rail-joint	695,768	Mar. 18	2659	604	98	2302
Stewart, Otis H., Middleport, Ohio. Cabinet for sheet-music	690,478	Jan. 7	196	39	98	43
Stewart, Samuel B., Jr., Schenectady, N. Y., assignor to General Electric Company. Signal system for electric railways	695,122	Mar. 11	1518	336	98	2047
Stewart, William G., Philadelphia, Pa., assignor to Espen, Stewart and Loeb, Limited. Knitting-machine	694,086	Feb. 25	3498	769	98	1579
Stewart, William J., Lynnville, Tenn. Garden-plow	692,941	Feb. 11	1335	291	98	1100
Stickney, Bernham C., Elizabeth, assignor to Union Typewriter Company, Jersey City, N. J. Type-writing machine	694,117	Feb. 25	3024	802	98	1605
Stickney, Henry R., Portland, Me. Can-filling machine	693,921	Feb. 25	3246	715	98	1529
Stiefel, Henry C., Pittsburg, Pa. Flat-iron	692,555	Feb. 4	590	140	98	919
Stier, Henry S., St. Louis, Mo. Car-brake	691,201	Jan. 14	1553	352	98	339
Stillman, Oscar B., New York, N. Y. Conveying apparatus	696,115	Mar. 25	3344	754	98	2456
Stimpson, Edward S. (See Draper and Stimpson.)						
Stimpson, Edward S., assignor to Draper Company, Hopedale, Mass. Loom-temple	692,087	Jan. 28	3259	737	98	725
Stimpson, Edward S., assignor to Draper Company, Hopedale, Mass. Self-threading loom-shuttle	692,801	Feb. 4	1043	234	98	1009
Stimpson, Edwin B., Brooklyn, N. Y. Punching and eyeleting machine	696,211	Mar. 25	3542	792, 793	98	2498
Stimpson, William H., Boston, Mass. Heater for curling-tongs, &c	692,087	Jan. 28	3155	712	98	705
Stimson, John H. (See Stearns, Christopher C., assignor.)						
Stine, Joseph, Saybrook, Ill. Attachment for cultivators	692,729	Feb. 4	900	205, 206	98	983
Stiner, Clarence M., New York, N. Y. Coin-operated hair-brush	695,505	Mar. 18	2178	492	98	2304
Stirckler, John D., assignor of two-thirds to W. P. Stratton and C. J. Groves, Boston, Mass. Lacing stud or hook	695,961	Mar. 25	3094	686	98	2391
Stire, Peter C., Seymour, Iowa. Semismokeless powder	691,919	Jan. 28	2934	.....	98	662
Stirling Company. (See Sneddon, James P., assignor.)						
Stirling Company. (See Sweet, Fred D., assignor.)						
Stock, James W., Nottingham, England. Draft apparatus for furnaces of steam-boilers or the like	691,672	Jan. 21	2464	552	98	546
Stockdale, James E., Sheldon, Mo. Capping or decapping machine for cartridge-shells	692,730	Feb. 4	902	206	98	983
Stocker, Johannes, and H. Zander, Berlin, Germany. Insulating substance and manufacturing same	695,557	Mar. 18	2356	.....	98	2242
Stockton, Albert F., Chillicothe, Mo. Ribbon-holder	691,678	Jan. 21	2465	559	98	548
Stoddard Manufacturing Company. (See Brown, Arthur F., assignor.)						
Stokes, J. Stogdell, *et al.* (See Smith, Philip S., assignor.)						
Stoll, Math, and J. W. Ruck, Pittsburg, Pa. Trolley	695,506	Mar. 18	2179	492	98	2304
Stollewerk, Christian, Aix-la-Chapelle, Germany. Organ	691,501	Jan. 21	2151	482, 483	98	484
Stoltz, Valentine, Montrose, Minn. Draft-generator for threshing-machine engines	690,759	Jan. 7	517	180	98	173
Stone, Clarence, Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, New York, N. Y. Mechanical movement	692,379	Feb. 4	282	59	98	857
Stone, Clarence, Philadelphia, Pa., assignor to Adams Top Cutting Machine Company, New York, N. Y. Feeding device for fabric-cutting machines	693,922	Feb. 25	3248	715	98	1580
Stone, Daniel S., *et al.* (See Holland, Joseph R., assignor.)						
Stone, David F. (See Lammadin and Stone.)						
Stone, George C., Jersey City, N. J., assignor to New Jersey Zinc Company. Apparatus for cooling and absorbing sulfuric anhydrid	695,180	Mar. 11	1615	358	98	2070
Stone, Heman W., Jr., Morris, Minn. Belt-tightening tool	693,188	Feb. 11	1821	397	98	1197
Stone, Nahum I. (See Powers, James, assignor.)						
Stone, Rudolph, Catawba, Wis. Meat-tenderer	690,533	Jan. 7	518	64	98	60
Stonedahl, Alfred N., Portwing, Wis. Culinary article	696,278	Mar. 25	3655	819, 820	98	2523
Stoneman, Orville A., assignor of one-half to M. J. W. White, Norfolk, Va. Trunk-strap	693,079	Feb. 11	1589	346	98	1152
Stonemetz, John H., Brooklyn, assignor, by mesne assignments, to Campbell Printing Press & Manufacturing Company, New York, N. Y. Printing-press	693,183	Feb. 11	1824	397, 398	98	1198
Stoner, William H., Rockford, assignor of one-half to L. E. King, Filley, Nebr. Corn-husker	692,066	Jan. 28	3260	737	98	725
Stones, William G., Blackburn, England. Fuel-feeding attachment for furnaces	691,981	Jan. 28	3052	685	98	685
Storer, Norman W., Edgewood Park, Pa., assignor to Westinghouse Electric & Manufacturing Company. System of electrical distribution	695,962	Mar. 25	3036	686	98	2301
Storey, John. (See Berry, Edwin, assignor.)						
Storie, Ole O., Tacoma, Wash. Self-grinding valve	695,588	Mar. 18	2357	534	98	2242
Storie, Ole O., Tacoma, Wash. Valve	695,589	Mar. 18	2358	534	98	2242
Storm, Edwin R., assignor of one-half to G. A. Annable, New York, N. Y. Electric switch	690,479	Jan. 7	196	40	98	45
Storr, David C., New York, N. Y. Couch-bedstead	693,923	Feb. 25	3249	715	98	1530
Stoughton, Joseph M. (See Hess and Stoughton.)						
Stout, R. Paul. (See Collins, Harry R., assignor.)						
Stout, Robert P. (See Meigs and Stout.)						
Stout, William H. A., assignor of one-half to H. S. Belber, Philadelphia, Pa. Trunk	695,246	Mar. 11	1735	384	98	2095
Stoutenborough, Xenophon. (See Howard, Frank W., assignor.)						
Stover Manufacturing Company. (See Held, August S., assignor.)						
Stover Manufacturing Company. (See Ziegler, Oscar J., assignor.)						
Stowell, Byron F., Springfield, Mass. Steam-engine	695,006	Mar. 11	1289	283, 284	98	2002
Strang, Frank D., Cleveland, Ohio. Jeweler's mold	695,507	Mar. 18	2180	492	98	2304
Strattner, Frederick, Salisbury, Md. Device for filling cans	690,790	Jan. 7	518	180, 181	98	173
Stratton, Charles H., Muncie, Ind. Shifting-seat vehicle	694,087	Feb. 25	3495	770	98	1580
Stratton, William H., Hartford, Conn. Automatic sprinkler	693,994	Feb. 25	3251	716	98	1580
Stratton, William P., *et al.* (See Stirckler, John D., assignor.)						
Strauch, Peter D., New York, N. Y. Upright-piano action	694,118	Feb. 25	3531	802	98	1607
Straus, Elise, assignor to H. S. Morris, Vineland, N. J. Making flour from sweet potatoes	696,086	Mar. 25	3270	740	98	2441
Strebel, Louis, and C. W. Williams, assignors to Century Stopper Company, New York N. Y. Bottle-filling machine	695,247	Mar. 11	1736	384, 385	98	2095
Street, George E. J., Kingston, England. Illuminating compound	695,123	Mar. 11	1517	.....	98	2048
Street, James A. (See Garrett, William T., assignor.)						
Streeter, Alfred L., Chicago, Ill. Brake-shoe	695,948	Mar. 11	1740	395	98	2096
Streeter, Alfred L., Chicago, Ill. Brake-shoe	695,419	Mar. 11	2029	456	98	2156
Strehli, Joseph H., Cincinnati, Ohio. Smoke-consuming device	690,071	Jan. 7	502	125	98	124

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Streich, Frank, and C. L. Ruehs, assignors to S. Karpen and Bros., Chicago, Ill. Automatic carving-machine	606,392	Mar. 25	2909	866 867 868	98	2571
Streit, Charles F., Cincinnati, Ohio. Combined dresser and bed	606,456	Feb. 18	2848	514	98	1228
Stricker, Paul. (See Bruun and Stricker.)						
Strickland, Edwin S., Boundbrook, N. J. Motor-cycle	606,942	Feb. 11	1596	991	98	1101
Strickler, Alvin S. and W. H., Keokuk, Iowa. Carpet-rack	606,457	Feb. 18	2850	514	98	1229
Strickler, Alvin S. and W. H., Keokuk, Iowa. Carpet-rack	606,458	Feb. 18	2851	515	98	1229
Strickler, William H. (See Strickler, Alvin S. and W. H.)						
Strittmatter, Boniface, Carroll Township, Pa. Automatic cut-off for mill-power	604,808	Mar. 4	900	800	98	1902
Stroh, Henry P., and J. Hutchison, Sanborn, N. D. Stone-puller	691,081	Jan. 14	1341	808	98	894
Stromberg, John, Phœnix, Ariz. Ter. Micrometer-gage	604,804	Mar. 4	901	900	98	1903
Stromborg, Fritz O., Pittsburg, Pa. Feed-table for sheet-rolls	605,249	Mar. 11	1742	895 896	98	2006
Stromdahl, Andrew, Manchester, N. H. Automatic hammer	604,898	Mar. 4	1077	898	98	1989
Strömqvist, Emely S., Everett, Mass. Curtain-pole	605,279	Mar. 25	2060	880	98	2588
Strope, Ben B., assignor to Standard Advertising Co., Coshocton, Ohio. Drinking-cup	602,802	Feb. 4	1045	834 835	98	1009
Stroup, Samuel, Lincoln, Nebr. Corn-sheller	606,060	Feb. 11	1591	847	98	1158
Strub, Albert, Beaverfalls, Pa. Locking device for glass-molds	602,088	Jan. 28	8156	713	98	705
Strubler, Charles G., Elkhart, Ind. Scale	600,480	Jan. 7	900	40	98	44
Strunk, Charles, *et al.* (See Williams, William H., assignor.)						
Strutt, Charles, and O. A. Hockey, London, England. Water-level indicator	605,007	Mar. 11	1292	294 295	98	2002
Stryk, Emmy von. (See Stryk, Jenny von and E. von.)						
Stryk, Jenny von and E. von, Arras, assignors to L. A. Perschke, St. Petersburg, Russia. Device for cleaning and disinfecting the seats in toilet-rooms	604,119	Feb. 25	2032	809	98	1605
Stuart, Edwin T., Ottawa, assignor of one-half to J. Q. Blodgett, Laharpe, Kans. Vermin-destroying nest-egg	605,302	Mar. 18	2197	557	98	2352
Stubbs, William E, Chester, Pa. Puzzle device	604,088	Feb. 25	2498	770	98	1580
Stuck, Frederick J., *et al.* (See Bosworth, Daniel P., assignor.)	605,008	Mar. 11	1298	295	98	2003
Stuckwisch, Rudolph, Indianapolis, Ind. Planter	605,268	Mar. 25	2039	886	98	2391
Studer, Simon J., Warrington, England. Straight fullway valve	601,413	Jan. 21	1995	.....	98	450
Stukes, John M., San Antonio, Tex. Packing compound for eggs, &c	604,599	Mar. 4	1082	.....	98	1941
Stukes, John M., Snyder, assignor to J. S. Winfield, Gatesville, Tex. Egg-preserving compound						
Stull, Emmett W. (See Garrett and Stull.)						
Stump, Abraham L., and F. Brucker, assignors to Shelby Spring Hinge Company, Shelby, Ohio. Spring-hinge	605,134	Mar. 11	1517	296	98	2048
Stumpf, Leo, Covina, assignor to W. W. Sweeney Co., Los Angeles, Cal. Stump-socket for artificial limbs	602,806	Feb. 4	1046	835	98	1010
Sturgeon, John C. and R. A., Erie, Pa. Dumping-car	600,685	Jan. 7	494	107 108	98	104
Sturgeon, Ralph A. (See Sturgeon, John C. and R. A.)						
Sturges, James D., Chicago, Ill. Cock for gas-fixtures	601,502	Jan. 21	2154	492	98	494
Sturgis, Nelson H., Guthrie, Okla. Ter. Suspension-bridge	601,982	Jan. 28	2053	895	98	686
Stürler, Adriaan L. de, Overveen, near Haarlem, Netherlands. Preserving fruits, &c	604,201	Feb. 25	2070	.....	98	1079
Sturm, Henri, Paris, France. Furnace	605,064	Mar. 11	1429	315 316	98	2002
Sturtevant, Charles A., Plainfield, N. J., assignor to Welvant Manufacturing Company, New York, N. Y. Paper-feeding machine	604,089	Feb. 25	2499	771 772	98	1580
Sturtevant, Thoma J. (See Sturtevant, Thomas L. and T. J.)						
Sturtevant, Thomas L., Quincy, and T. J. Sturtevant, Newton Center, Mass. Crushing-mill	600,534	Jan. 7	320	64	98	69
Stutz, Eugene E., Middlebury, Ind. Thresher-tank	601,920	Jan. 28	2004	661	98	688
Stutzman, Otto, Fort Adams, Miss. Ball-bearing box	601,302	Jan. 14	1554	358	98	330
Stuurman, John H. G., Brooklyn, assignor of one-half to H. A. and J. Groen, New York, N. Y. Diamond-cutting machine	602,880	Feb. 4	884	69,70	98	852
Stuurman, John H. G., Brooklyn, assignor of one-half to H. A. and J. Groen, New York, N. Y. Cutting diamonds	604,215	Feb. 25	2016	844	98	1643
Submerged Electric Motor Company. (See Hatch, Tracy B., assignor.)						
Suchorzynski, Anton von, and M. Kohl, Breslau, Germany. Artificial ear-drum	602,556	Feb. 4	597	140	98	280
Suder, Henry, Chicago, Ill. Combination apparatus for heavy gymnastics	604,442	Mar. 4	901	44	98	1785
Sue, Henry, Paris, France. Apparatus for charging liquids with carbonic-acid gas	605,125	Mar. 11	1580	337	98	2049
Sues, Otto L., Sioux Falls, S. D. Cuspidor	601,414	Jan. 21	1995	447	98	450
Sullivan, James, New York, N. Y. Machine for cutting patterns	601,206	Jan. 14	1555	358	98	329
Sullivan Machinery Company. (See Holdsworth, Fred D., assignor.)	601,883	Jan. 28	2775	694	98	689
Sumlin, George S. and W. D., Wilmington, N. C. Railway-gate	602,678	Feb. 18	2771	610	98	1415
Sumlin, William D. (See Sumlin, George S. and W. D.)						
Summers, John T., assignor of one-half to G. C. Meakim, Laurelhill, N. Y. Work-support	600,672	Jan. 7	588	.....	98	194
Summers, Samuel L., Philadelphia, Pa. Bismuth oxyiodid methylene digallate and making same	600,673	Jan. 7	584	.....	98	194
Summers, Samuel L., Philadelphia, Pa. Making methylene digallate of bismuth oxyiodids						
Sumner and Goodwin Company. (See Curtis, Nelson, assignor.)						
Sumner, Harry W., assignor to Lunkenheimer Company, Cincinnati, Ohio. Power-transmitting mechanism	604,692	Mar. 4	884	149	98	1858
Sundh, August, Yonkers, assignor to Electrite Company, New York, N. Y. Snap-switch	602,217	Jan. 28	2485	788	98	778
Sundh, August, Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J. Controlling apparatus for elevators or hoists	601,824	Jan. 28	2776	695	98	629
Sundh, August, Yonkers, N. Y., assignor to Otis Elevator Company, East Orange, N. J. Electropneumatic control system for elevators	602,184	Feb. 11	1887	898	98	1198
Sundt, Oscar, assignor to Garrett Cromwell Engineering Company, Cleveland, Ohio. Charging-buggy	604,289	Feb. 25	4095	911	98	1698
Sunshine Water Heater Co. (See Baker, Milton M., assignor.)						
Superior Drill Company. (See Packham and Oates, assignors.)						
Superior Drill Company. (See Patric, Charles E., assignor.)						
Surtin, John H., assignor of one-half to E. Butler, Jr., St. Louis, Mo. Car-fender	600,674	Jan. 7	585	127	98	195
Sutcliffe, Horace H., Philadelphia, Pa. Leno-selvage motion	601,204	Jan. 14	1556	353	98	889
Sutherland, James M. (See Mason, Benjamin W., assignor.)						
Sutherland, Stephen M., trustee. (See Morley, Albert, assignor.)	605,643	Mar. 18	2937	699	98	2238
Sutton, Jesse L., Brimfield, Ill. Draft-equalizer	602,459	Feb. 18	2362	515	98	1229
Sutton, William S., Belvidere, Ill. Fish-reel	602,261	Feb. 4	896	70	98	856
Swafield, Charles T., Elkhart, Ind. Clamp	605,009	Mar. 11	1296	296	98	2003
Swaggart, George W., *et al.* (See Dent, Frank W., assignor.)						
Swan, Andrew, Rhinelander, Wis. Photographic retouching-tool						

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Swan, James, Seymour, Conn. Tool-box	695,660	Mar. 18	2485	564	98	2207
Swan, Willis A., Providence, R. I. Free-piston explosive-engine	692,218	Jan. 28	3488	789, 790	98	778
Swaney, Fletcher D., Kansas City, Kans., assignor to J. A. Ritzler, Kansas City, Mo. Self-closing fireproof window	690,585	Jan. 7	322	65	98	70
Swank, Peter L., Conemaugh, Pa. Switch-throwing device	693,185	Feb. 11	1837	399	98	1201
Swanney, John F., Jersey City, N. J. Bookbinding	691,983	Jan. 28	3057	686	98	686
Swanson, Alexander, *et al.* (See Johnson, Alfred, assignor.)						
Swedish-American Telephone Company. (See Overshiner, Elsworth B., assignor.)						
Sweeney, Edward J., *et al.* (See Martin, William, assignor.)						
Sweeney, Henry G., Chicago, Ill. Coin-controlled apparatus	694,698	Mar. 4	686	149, 150	98	1856
Sweet, Alonzo L., Norwich, Conn. Machine for finishing knife-blades	693,756	Feb. 18	2912	640, 641	98	1444
Sweet, Benjamin W., Denver, Colo., assignor to J. P. Underwood, Chicago, Ill. Gold-separating machine	690,791	Jan. 7	820	181	98	178
Sweet, Fred D., Pittsburg, Pa., assignor, by mesne assignments, to Stirling Company, Jersey City, N. J. Mandrel for shaping hollow or tubular wrought-metal articles	693,186	Feb. 11	1880	399	98	1201
Sweet, Frederick D., Elyria, Ohio. Explosive-engine	690,481	Jan. 7	203	41	98	44
Sweet, George C., assignor to Norwich Nickel & Brass Company, Norwich, Conn. Display-stand for foot-gear	694,694	Mar. 4	689	150	98	1857
Swenson, John A., San Francisco, Cal. Mining-dredge	692,557	Feb. 4	598	140, 141	98	920
Swenson, Paul, Minneapolis, Minn. Friction-clutch for traction-engines	690,586	Jan. 7	324	65	98	70
Swett, William E., *et al.* (See Wilcox, Joseph R., assignor.)						
Swift, Frank E., Washington, Iowa. Brick and kiln furnace	695,590	Mar. 18	2359	534, 535	98	2242
Swinburne, James, and E. A. Ashcroft, London, England. Extraction of metals from sulfid ores by treatment with chlorid or sulfur and electrolysis	691,822	Jan. 28	2772	694	98	688
Swinburne, James, and E. A. Ashcroft, London, England. Extracting metals from sulfid ores	695,126	Mar. 11	1522	337	98	2049
Swindell, James D., Pittsburg, Pa. Conveyer for rolling-mills	695,181	Mar. 11	1616	358	98	2070
Swindell, James D., Pittsburg, Pa. Puddling-furnace	695,182	Mar. 11	1617	358, 359	98	2071
Swindlehurst, Albert, Montreal, Canada. Paper-guide for type-writers	691,508	Jan. 21	2155	483	98	484
Swineheart, Marion W. (See Zent, Benjamin F., assignor.)						
Swinnerton, Thomas N., St. Paul, Minn. Decorative artwork and producing same	695,010	Mar. 11	1298	286	98	2008
Swinton, Thomas M., East St. Kilda, Victoria. Combined manger and hay-rack for stables	692,382	Feb. 4	287	70	98	559
Swisher, Joseph, Diamond, Ind. Oil-can	692,089	Jan. 28	3263	757	98	736
Swoboda, August, and H. Rothe, Berlin, Germany. Machine for bending sheet-metal plates	691,905	Jan. 14	1557	353, 354	98	340
Swope, Abraham B., Fostoria, Ohio. Combined feed trough and rack	693,925	Feb. 25	3259	716	98	1530
Swoveriand, Levi, Waupecong, Ind. Fence-post anchor	692,731	Feb. 4	903	205	98	984
Synnestvedt, Paul, Glenview, Ill. Vehicle-driving mechanism	693,574	Feb. 18	2585	571, 572	98	1376
Syracuse Faucet and Valve Company. (See Marscher, Arthur H., assignor.)						
Syverson, Albert and C., Pelican Rapids, Minn. Comb-cleaner	694,040	Feb. 25	3506	772	98	1581
Syverson, Cornelius. (See Syverson, Albert and C.)						
Szabó, Basil V., Chicago, Ill. Rotary motor	694,333	Feb. 25	4096	911, 912, 918	98	1693
Tabor, Le Roy. (See Spencer, John L., assignor.)						
Tabulating Machine Company. (See Hollerith, Herman, assignor.)						
Tackless Shoe Machinery Company. (See Chamberlin, Richard H., assignor.)						
Tadini, Gerome F., New York, N. Y. Motor-vehicle	691,306	Jan. 14	1559	354	98	340
Taggart, Rollin C., Toledo, Ohio. Display-rack for hats	695,964	Mar. 25	3029	686	98	2252
Taisey, Fred R., assignor to Taisey Pneumatic Service Company, Indianapolis, Ind. Despatch-tube	690,675	Jan. 7	586	127	98	125
Taisey Pneumatic Service Company. (See Taisey, Fred R., assignor.)						
Tait, George F., McDonald, Pa. Tubing-protector for oil-wells	690,676	Jan. 7	587	127	98	125
Takaba, Shiro, Boston, Mass. Lamp-shade	693,460	Feb. 18	2854	515	98	1320
Talbert, Lindley A., assignor of one-fourth to W. A. Moore, Indianapolis, Ind. Suspenders	694,334	Feb. 25	4102	913	98	1694
Taliaferro, Thomas W., Omaha, Nebr. Trimming-table	692,732	Feb. 4	904	207	98	984
Tanner, Lewis B., Seattle, Wash. Sluice-box	695,085	Mar. 11	1434	316	98	2038
Tansley, Clinton A., assignor of one-half to C. H. Greene, Fort Plain, N. Y. Oar-lock	695,011	Mar. 11	1299	286	98	2004
Taplin, Alden B., Keene, N. H. Loose-reed motion for looms	695,212	Mar. 25	3544	793	98	2498
Tappe, August C., Cincinnati, Ohio. Hoof-pad	690,482	Jan. 7	206	41	98	45
Tarnowsky, Jacques de, *et al.* (See Law, Prentis E., assignor.)						
Tarzian, Megurdich. (See Tarzian, Peter and M.)						
Tarzian, Peter and M., Paterson, N. J. Bicycle	692,383	Feb. 4	288	70	98	859
Tatum, Watson. (See Moore and Tatum.)						
Tauber, Hans P., Brooklyn, N. Y. Float-gage	695,280	Mar. 25	3607	820	98	2504
Taussig, John H., assignor to United Gas Improvement Company, Philadelphia, Pa. Apparatus for cleaning stand-pipes of gas-retorts	694,443	Mar. 4	304	45	98	1756
Tauveron, Jean B., New York, N. Y. Sanitary shield for telephone-transmitters	694,041	Feb. 25	3507	772	98	1581
Taylor, Andrew M., Port Ewen, N. Y. Station-indicator	692,733	Feb. 4	905	207	98	984
Taylor, Clarence W., Sioux City, Iowa. Bunsen burner	690,792	Jan. 7	822	182	98	174
Taylor, David H. (See Blevins and Taylor.)						
Taylor, David L., Chicago, Ill. Combined request and mailing sheet	690,793	Jan. 7	824	182	98	174
Taylor, Eugene W., Spokane, Wash. Trolley for electric cars	693,988	Feb. 25	3391	746	98	1556
Taylor, Frank B. (See Salisbury, Edgar E., assignor.)						
Taylor, Frank L., and E. C. Tolman, Orange, Mass. Wall-protecting device	695,965	Mar. 25	3030	667	98	2252
Taylor, Henry G., Seattle, Wash. Thill-tug	693,081	Feb. 11	1593	347	98	1153
Taylor, Henry H., Bridgeport, Conn. Stocking-supporter	695,349	Mar. 11	1916	426	98	2130
Taylor Iron and Steel Co. (See Mason, Volney W., Jr., assignor.)						
Taylor, John W. (See Van Dyke, Thomas H., assignor.)						
Taylor, Joseph R. (See Ward, Dell, assignor.)						
Taylor, Leslie B., Selly Oak, England. Compound bullet	693,584	Feb. 18	2497	548	98	1360
Taylor, Minor W., assignor of one-half to O. R. Taylor, Waterloo, Iowa. Lubricating device	692,566	Feb. 4	600	141, 142	98	920
Taylor, Olin R. (See Taylor, Minor W., assignor.)						
Taylor, Thomas D., Providence, R. I. Deposit-credit book	692,384	Feb. 4	289	71	98	859
Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Changeable combination key-lock	690,537	Jan. 7	326	66	98	79

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Taylor, Warren H., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Door-check	696,116	Mar. 25	3343	754, 755	98	2459
Taylor, William, assignor to Electric Storage Battery Company, Philadelphia, Pa. Storage battery	693,757	Feb. 18	2919	562	98	1445
Taylor, William H., Narragansett Pier, R. I. Cooking-boiler	694,805	Mar. 4	902	201	98	1902
Te Brake, Garret J., Milwaukee, Wis. Ash-sifter	695,250	Mar. 11	1745	296	98	2097
Teel, Jesse V., Whitesville, Ky. Hand-planter	691,984	Jan. 28	3058	687	98	687
Telfer, John C., assignor to Telfer Manufacturing Co., Kansas City, Mo. Gang lacing device	695,012	Mar. 11	1800	886	98	2004
Telfer Manufacturing Co. (See Telfer, John C., assignor.)						
Templar, Edward J., Chicago, Ill. Display-card support	692,385	Feb. 4	290	71	98	859
Temple, Arthur S., trustee. (See Fordyce, Edmond A., assignor.)						
Temple, Robert, assignor to American Expansion Pulley Company, Denver, Colo. Expansible pulley	692,219	Jan. 28	3408	790	98	774
Ten Broeke, Herman W., Milwaukee, Wis. Bridge-guard	692,386	Feb. 4	291	71	98	860
Ten Brook, Helen M., Syracuse, N. Y. Bustle	695,420	Mar. 11	2061	456	98	2156
Tenney, Charles K. (See Carpenter, Stevens, and Tenney.)						
Terrell, Frank L., Swanton, Nebr. Combined door buffer and catch	693,187	Feb. 11	1842	399	98	1908
Terrell, Ozias I., assignor of one-half to D. W. Fishell, Chicago, Ill. Sign for street-lamps	690,901	Jan. 7	1006	227	98	211
Terry, Coleman A. (See Davis and Terry.)						
Terry, William, Oakland, Cal. Rock-drill chuck	691,985	Jan. 28	3059	687	98	687
Tessier, Joseph. (See Tessier, Louis and J.)						
Tessier, Louis and J., Fitchburg, Mass. Cuspidor holder and cleaner	691,415	Jan. 21	1996	448	98	450
Teter-Heany Developing Company. (See Heany, John A., assignor.)						
Textile Machinery Improvement Company. (See Lemyre, Joseph E., assignor.)						
Thacher, Edwin, New York, N. Y. Material of construction	691,416	Jan. 21	1998	448	98	450
Thacher, Edwin, New York, N. Y. Pile for wharves, &c	691,417	Jan. 21	1999	448	98	451
Thacher, Edwin, New York, N. Y. Composite pile	691,418	Jan. 21	2000	449	98	451
Thayer, Horace N., Erie, Pa. Umbrella-support	693,758	Feb. 18	2280	642	98	1446
Thayer, Lester, Peoria, Ill. Incandescent lamp	695,844	Mar. 18	2809	639	98	2383
Thede, Peter F., assignor to General Pneumatic Company, Chicago, Ill. Apparatus for converting, storing, and utilizing wind-power	690,794	Jan. 7	897	192	98	174
Theibault, Albert K., Chicago, Ill. Caliper-gage	695,661	Mar. 18	2486	565	98	2268
Thenan, Charles J., and W. A. Nourse, Lansing, Mich. Coin-controlled striking-machine	694,585	Feb. 25	4103	918	98	1694
Theobald, Jean G., assignor to Frank M. Whiting and Company, North Attleboro, Mass. Candelabrum	690,536	Jan. 7	388	66	98	71
	695,350	Mar. 11	1917	425, 427	98	2131
Theuerkauf, Albert, Dusseldorf, Germany. Pipe-bending machine						
Thiébaux, Felix. (See Canapie and Thiébaux.)						
Thies, J. H. (See Bailey, Alva S., assignor.)						
Thomas, Almer, Northeast, Pa., assignor to A. B. Chapman, Silvercreek, N. Y. Machine for hulling green peas	693,986	Feb. 25	3954	716, 717	98	1531
Thomas and Betts. (See Thomas, Robert M., assignor.)						
Thomas, Cora M., Farmington, N. H. Cleaning device for bottles or the like	693,674	Feb. 18	2772	610	98	1416
Thomas, D. P. (See Cranston, Edmund W., assignor.)						
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Haul-up-chain unloader for sawmills	690,677	Jan. 7	588	127, 128	98	125
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Double-cutting band-saw	690,678	Jan. 7	589	128	98	125
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Reciprocating lumber-mover for sawmills	690,679	Jan. 7	590	128, 129	98	125
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Resawing device	693,188	Feb. 11	1844	399, 400	98	1902
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Band-mill	693,257	Feb. 11	2110	462, 463	98	1950
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Lumber-conveyer for double-cutting band-mills	693,680	Feb. 18	2994	594, 595	98	1899
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Lumber-conveyer for double-cutting band-mills	693,809	Feb. 18	3008	665	98	1464
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Lumber-conveyer for sawmills	694,696	Mar. 4	698	151	98	1957
Thomas, Edwin E., St. Paul, assignor of one-half to Union Iron Works, Minneapolis, Minn. Guide-operating means for band-saw mills	694,697	Mar. 4	695	151, 152	98	1958
Thomas, Edwin E., St. Paul, and J. E. Lockwood, Minneapolis, Minn. Means for automatically controlling sawmill-carriages	693,689	Feb. 18	2990	594	98	1898
Thomas, Eliza R., St. Johns, Mich. Pie-lifter	695,906	Mar. 25	3981	687	98	2302
Thomas, Frank E., Battlecreek, Mich. Baker's-oven-furnace hood	691,674	Jan. 21	2465	552	98	548
Thomas, Frank W., Toledo, Ohio. Journal box and bearing	690,488	Jan. 7	208	41	98	45
Thomas, Frank W., Toledo, Ohio. Roller-bearing	690,484	Jan. 7	210	42	98	46
Thomas, George B., assignor to Perkins Electric Switch Manufacturing Company, Hartford, Conn. Electrical connector	696,213	Mar. 25	3547	795	98	2499
Thomas Manufacturing Company. (See Lutz, Daniel, assignor.)						
Thomas, Robert J. (See Campbell, Loudoun, assignor.)						
Thomas, Robert M., assignor to Thomas and Betts, New York, N. Y. Outlet member for electrical conduits	694,806	Mar. 4	909	201	98	1903
	694,698	Mar. 4	696	152	98	1959
Thomas, William, Washington, D. C. Tube-coating machine	692,943	Feb. 11	1339	291	98	1101
Thompson, Charles S., Elizabeth, N. J. Bicycle-gearing						
Thompson, David O. (See Shortley and Thompson.)						
Thompson, Francis E., and F. N. Young, assignors to Moxie Nerve Food Company of New England, Boston, Mass. Registering-faucet for syrup-bottles	691,881	Jan. 28	2971	646, 647	98	650
Thompson, George M., Philadelphia, Pa. Sparking igniter for explosive-engines	692,734	Feb. 4	907	207	98	984
Thompson, James R., Portland, Oreg. Combined electric switch and spark-blow-out mechanism	692,735	Feb. 4	908	208	98	984
Thompson, John. (See Ariens and Thompson.)						
Thompson, John S. W. (See Blevney, John C., assignor.)						
Thompson, Joseph, Manchester, England. Apparatus for measuring air-currents	691,092	Jan. 14	1342	305	98	294
Thompson, Oscar, assignor of one-half to J. A. Baldridge, Vincennes, Ind. Wire-fence reel	695,351	Mar. 11	1918	427	98	2131
Thompson, Oscar, and J. A. Baldridge, Vincennes, Ind. Wire-fence reel	695,352	Mar. 11	1919	428	98	2131
Thompson, Richard H. (See Jarvis, Harold, assignor.)						
Thompson, Rolland. (See Finn, William A., assignor.)						
Thompson, William D., *et al.* (See Ross, Delmar C., assignor.)						
Thompson, William J., and P. Becker, New York, N. Y. Type-writer	696,304	Mar. 25	3711	829, 830	98	2533

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Thomson, Alexander, College Hill, Ohio. Paper-coating process	695,189	Feb. 11	1847	.....	98	1303
Thomson, Elihu. (See Lemp, Hermann, assignor.)						
Thomson, Elihu. (See Persson, Otto F., assignor.)						
Thomson, Elihu, Swampscott, Mass. Gas or oil internal-combustion engine	691,017	Jan. 14	1332	278	98	273
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company. Manufacture of electrical condensers	691,675	Jan. 21	2467	553	98	548
Thomson, Elihu, Lynn, Mass., and E. J. Houston, Philadelphia, Pa. Electric-lighting system	695,870	Mar. 18	3858	648	98	2344
Thomson, Elihu, Swampscott, and J. G. Callan, Lynn, Mass., assignors to General Electric Company. Insulated conductor	695,127	Mar. 11	1524	337	98	2050
Thomson, Judson L., Clayton, N. Y. Rivet-clenching cap	693,338	Feb. 11	2114	463	98	1251
Thomson, Robert W., Lynn, Mass., assignor, by mesne assignments, to Philadelphia Barring Machine Company, Camden, N. J. Thread-cutter for sewing-machines	691,676	Jan. 21	2469	553	98	549
Thomson, William, Netherhall, Scotland. Apparatus for indicating and recording electric pressure and current	696,117	Mar. 25	3346	755	98	2459
Thornburgh, William. (See McIntosh and Thornburgh.)						
Thorne, John M., Williams, Ariz. Ter. Felly and tire brace	692,944	Feb. 11	1342	292	98	1102
Thorpe, James, Sheffield, England. Window, panel, or other sliding frame	692,089	Jan. 28	3158	713	98	705
Thorsen, Theodore M., Philadelphia, Pa. Automatic firearm	696,118	Mar. 25	3347	755	98	2459
Thresher, Edward E., Kalamazoo, Mich. Indestructible bird-target	694,216	Feb. 25	3818	844, 845	98	1643
Thron, Heinrich, assignor to Vereinigte Chininfabriken Zimmer & Co., Frankfort-on-the-Main, Germany. Anisic-acid ethers of the cinchona alkaloids	695,501	Mar. 18	2361	.....	98	2243
Throop, Charles E. (See Freeman and Throop.)						
Thuillier, Georges, Norgent-en-Bassigny, France. Hand-shears for cutting metals or other hard materials in sheets	693,575	Feb. 18	2587	572	98	1377
Thurman, John S., St. Louis, Mo. Blast-nozzle	695,967	Mar. 25	3031	667	98	2302
Thurmond, Thomas D., Forsyth, Ga., assignor of three-fourths to J. M. Harrison and W. H. Thurmond. Trace-carrier	694,336	Feb. 25	4105	914	98	1695
Thurmond, William, Hillsboro, N. Mex. Ter., assignor of five-twelfths to W. E. Nelson and C. H. Jones, Denver, Colo. Ore-concentrator	694,444	Mar. 4	205	45	98	1756
Thurmond, William H., *et al.* (See Thurmond, Thomas D., assignor.)						
Thwaite, Benjamin H., Westminster, assignor to Blast Furnace Power Syndicate, Limited, London and Westminster, England. Apparatus for cooling and cleansing blast-furnace gases	690,795	Jan. 7	898	182	98	175
Tibbals, Horace W. (See Fairchild, Oren J., assignor.)						
Tibbetts, Edward E. (See Tibbetts, Seth H., assignor.)						
Tibbetts, Seth H., assignor of one-half to E. E. Tibbetts, Groveton, N. H. Screen for paper-pulp	694,900	Mar. 4	1062	236	98	1941
Tice, William, New York, N. Y. Incandescent gas-lamp	694,695	Mar. 4	691	150	98	1857
Tichenor, Fred E., Mukwonago, Wis. Milk-can-loading device	691,625	Jan. 28	2780	625	98	630
Tichon, Joseph E., and H. S. Foster, New Bedford, Mass. Doffing-machine for ring-spinning frames	691,677	Jan. 21	2472	553, 554	98	549
Tiedemann, Herman, Pittsburg, Pa. Rail-joint	691,207	Jan. 14	1561	355	98	340
Tilden, Craig L., and E. J. Bender, Minneapolis, Minn. Machine for molding popcorn-balls	693,631	Feb. 18	2696	595, 596	98	1400
Till, Thomas, *et al.* (See Rowley, Wilfrid B., assignor.)						
Tillberg, Charles F., Kensington, and R. A. Barbieri, Port Richmond, Pa. Device for preventing theft or tampering with milk cans, bottles, or the like	693,461	Feb. 18	2355	516	98	1330
Tilton, Ralph, assignor to J. A. Barnes, New York, N. Y. Figure toy	693,339	Feb. 11	2115	468	98	1261
Tilyou, George C., Coney Island, N. Y. Amusement device. (Reissue)	11,977	Mar. 25	3941	873	98	2579
Tim & Co. (See Penkert, Max, assignor.)						
Timberlake, Paul J., Jackson, Mich. Vehicle-dashboard frame	692,945	Feb. 11	1343	293	98	1103
Timberlake, Paul J., Jackson, Mich. Vehicle-dashboard frame	692,946	Feb. 11	1346	293	98	1103
Timmons, Elmer J., Cincinnati, Ohio. Swinging shelf for desks, &c.	694,445	Mar. 4	208	46	98	1707
Tincher, Thomas L., Chicago, Ill. Lid attachment for tea-kettles	695,808	Mar. 18	2899	657	98	2353
Tingley, George H., assignor to United States Cigar Manufacturing Company, Providence, R. I. Cigar-bunching machine	693,535	Feb. 18	2498	549, 550	98	1300
Tinsley, Constance R., New York, N. Y. Device for teaching music	692,736	Feb. 4	910	208	98	995
Tirard, Clement M., Paris, France. Hat-pouncing machine	691,018	Jan. 14	1327	279, 280	98	273
Titcomb, George E., assignor of one-half to McMyler Manufacturing Company, Cleveland, Ohio. Hoisting and conveying apparatus	695,592	Mar. 18	2362	535, 536	98	2243
Titsworth, Dock L. M., Rosenberg, Tex. Fence	691,504	Jan. 21	2157	483	98	484
Titsworth, Richard. (See Keller and Titsworth.)						
Titus, G. M., *et al.* (See Boos, Joseph B., assignor.)						
Titus, John, Oyster Bay, and W. Titus, Old Westbury, N. Y. Apparatus for cooling and ventilating	690,485	Jan. 7	211	42	98	46
Titus, John C., Marion, Ohio. Combined carbureter and gasolene-regulator	693,462	Feb. 18	2357	516	98	1330
Titus, John, T. W. Burt, and D. D. Smith, Oyster Bay, N. Y., assignors to Oyster Bay Engine Company. Reversing apparatus for propeller-shafts	691,300	Jan. 14	1743	396	98	378
Titus, William. (See Titus, John and W.)						
Tkatsch, Akim. (See Julius and Tkatsch.)						
Toback, Leopold, Union Hill, N. J., assignor to Water Overflow Preventive Company of New York. Valve-lock	691,986	Jan. 28	3060	687	98	687
Tobey, Fred W., assignor to Globe-Wernicke Company, Cincinnati, Ohio. Perforator	693,092	Feb. 11	1594	347, 348	98	1153
Tobey, Fred W., assignor to Globe-Wernicke Company, Cincinnati, Ohio. Door-operating device	693,675	Feb. 18	2778	610	98	1416
Tobey, William L., Winthrop, Mass. Boiler-feeder for motor-vehicles	693,190	Feb. 11	1848	400	98	1203
Todd, Cyrus W., Orwell, Vt. Ax-helve grip	693,462	Feb. 18	2358	516	98	1331
Todd, George M., assignor to New Domestic Sewing Machine Company, Newark, N. J. Feeding mechanism for sewing-machines	690,680	Jan. 7	593	129	98	127
Todd, Harry M., *et al.* (See Dugins, William F., assignor.)						
Todd, Henry B., Meriden, Conn. Static electric machine	692,737	Feb. 4	912	208	98	995
Toedt, Frederick W., Hamburg, Iowa. Compound explosive-engine	691,083	Jan. 14	1343	304	98	295
Toedt, Frederick W., Hamburg, Iowa. Compound explosive-engine	691,084	Jan. 14	1346	304	98	295
Tolman, Charles. (See Freymann and Tolman.)						
Tolman, Edwin C. (See Taylor and Tolman.)						
Toltz, Max, St. Paul, Minn., and A. Lipschutz, St. Louis, Mo. Locomotive ash-pan	695,968	Mar. 25	3032	687, 688	98	2309
Toltz, Max, and L. W. Hill, St. Paul, Minn. Railway-car	696,150	Mar. 25	3480	769, 770	98	2476
Tomlinson, Thomas, Bray, Ireland. Apparatus for the vaporization, combustion, and utilization of hydrocarbon oils	690,486	Jan. 7	213	42, 43	98	47
Tompkins, Harry S., Newark, N. J. Burner for lamps	693,464	Feb. 18	2360	517	98	1331

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tönjes, Carl, Delmenhorst, Germany. Apparatus for producing color patterns in linoleum or like materials	696,759	Feb. 18	2021	642	98	1446
Toole, Augustus H., assignor of one-half to C. A. Burton, Chicago, Ill. Paper sheet	696,261	Mar. 25	3068	820	98	2324
Torbensen, Viggo V., Bloomfield, N. J. Changeable-speed gearing	696,804	Mar. 18	2900	657 658	98	2353
Torbensen, Viggo V., Bloomfield, N. J. Motor-vehicle	695,805	Mar. 18	2902	658	98	2353
Tornell, Reinhold V. (See Sjoo and Tornell.)						
Tourgon, Joseph B., Bagnols-sur-Cèze, France. Tire for vehicles	698,068	Feb. 11	1595	348	98	1154
Tournier, Julius C., Schenectady, N. Y., assignor to General Electric Company. Lamp-socket	690,487	Jan. 7	216	43	98	47
Towers, William, New Britain, Conn. Brick-edger	694,120	Feb. 25	3633	803	98	1008
Towle, Felix S., Hackensack, N. J. Copy-holder	694,446	Mar. 4	210	46	98	1757
Towne, Albert L., and E. F. Clough, Fresno, Cal. Acetylene-gas generator	692,738	Feb. 4	914	209	98	985
Townsend, David C., New York, N. Y. Diamond	698,084	Feb. 11	1595	348	98	1154
Tractor Truck and General Power Co. (See Hunter, Rudolph M., assignor.)						
Traeger, Henry, Auburn, Wash. Jointer for plows	696,370	Mar. 25	3986	862	98	2567
Tralls, Leberecht, Charlottenburg, assignor to E. Burmeister, Hamburg, Germany. Purifying sewage	698,316	Feb. 11	2070	.....	98	1250
Trammel, John W., *et al.* (See Webber, Frank L., assignor.)	690,796	Jan. 7	829	183	98	175
Trammell, George W., and W. McDuffie, Rome, Ga. Drier	692,789	Feb. 4	916	209	98	986
Tranter, William J., Tipton, England. Brush-handle holder	695,969	Mar. 25	3085	698	98	2393
Traylor, Bruce W., Denver, Colo. Concentrator	694,501	Mar. 4	296	68	98	1775
Treadway, Paca H., Dardanelle, Ark. Apparatus for preserving eggs	698,465	Feb. 18	2261	517	98	1551
Treadwell, Lee, Portsmouth, N. H. Machine for delivering comminuted solids						
Treece, William C. (See Abbott, Nathan M., assignor.)	698,559	Feb. 4	905	142	98	921
Treichel, Gustave W., Chestnut Hill, Pa. Puzzle	694,502	Mar. 4	297	68, 69	98	1775
Tremblay, Joseph, assignor to Tremblay & Lymburner, St. Cunegonde, Canada. Valve.						
Tremblay & Lymburner. (See Tremblay, Joseph, assignor.)						
Tresenreuter, Gustav, assignor to Firm of Arth and Fricke, Berlin, Germany. Regulating device for gas or vapor stoves	691,019	Jan. 14	1259	280	98	273
Trethewey, Samuel, Pittsburg, Pa. Piston	695,085	Feb. 11	1597	348	98	1154
Trevor, Francis N. (See Trevor, William W. and F. N.)						
Trevor, William W. and F. N., Lockport, N. Y. Sawing-machine	696,119	Mar. 25	3051	756	98	2460
Tripp, Chrestus A. (See Sauvage, William H., assignor.)						
Tripp, Jacob W., New York, N. Y., assignor to H. B. Newhall, Plainfield, N. J. Catch for fire-doors	696,214	Mar. 25	3548	793 794	98	2499
Trolley, Isaac, Grantham, England, assignor to Piano Manufacturing Company, Chicago, Ill. Deck for grain-binders	696,151	Mar. 25	3482	770	98	2477
Trowbridge, Frank C. (See Passage, Hiram H., assignor.)						
Troxler, Laurence E., assignor of one-half to C. G., Jr., and O. H. Schaefer, Louisville, Ky. Rotary motor	695,895	Mar. 18	2904	658 659	98	2353
Truax, George E., Denver, Colo. Draw-bar for ore-cars	698,810	Feb. 18	3009	666	98	1464
Trudelle, Benjamin C., Bay City, Mich. Winter-velocipede	691,826	Jan. 28	2782	625	98	650
True, Amos T., Strong, Me. Machine for making skewers	691,987	Jan. 28	3062	687 688	98	697
Truffault, Jules M. M., Paris, France, assignor of fifty-one one-hundredths to E. V. Hartford, Orange, N. J. Frictional retarding means for spring-vehicles	695,508	Mar. 18	2182	492 493	98	2205
Trumbull, Rollin H., Chicago, Ill. Interchangeable panoramic camera	691,020	Jan. 14	1240	280 281	98	274
Trump, Edward N., Syracuse, N. Y. Coke-handling apparatus	695,970	Mar. 25	3087	699	98	2398
Trussell, Emory A., assignor to Sieber & Trussell Manufacturing Company, St. Louis, Mo. Temporary binder	698,086	Feb. 11	1599	349	98	1154
Truxall, Ephraim, Pittsburg, Pa. Foot-guard	692,169	Jan. 28	3381	766	98	751
Tschantre, Ernest L., New York, N. Y. Animal-trap	691,301	Jan. 14	1745	397	98	378
Tucker, Charles F., Hartford, Conn. Oil-hole cover or cup	698,927	Feb. 25	3256	717	98	1581
Tucker, George, San Francisco, Cal. Beam-compasses	691,827	Jan. 28	2783	625	98	651
Tucker, John R. (See Himrod, Tucker, and Hinckley.)						
Tudor, Wilbur H. (See Border, Rupert L., assignor.)	691,021	Jan. 14	1243	281	98	274
Tuller, Henry C., Philadelphia, Pa. Attachment for siphons	698,340	Feb. 11	2116	464 465	98	1261
Tullock, Alonzo J., Leavenworth, Kans., R. Modjeski, Chicago, and B. B. Carter, Hinsdale, Ill. Adjustable incline or transfer	690,539	Jan. 7	830	66, 67	98	71
Tunis, Howard H., Windsor Hills, Md. Single-track railway	691,022	Jan. 14	1244	281	98	274
Tunis, Robert W. (See Watson, Peter B., assignor.)						
Tunnicliff, John C., assignor to D. M. Sechler Carriage Company, Moline, Ill. Cultivator.						
Tunstead, Charles F. (See Baker, William H., assignor.)						
Turck, Fenton B., Chicago, Ill., assignor, by mesne assignments, to Personal Hygiene Company. Electric massage apparatus	695,971	Mar. 25	3040	690	98	2304
Turk, Albert R., and B. G. Merrill, Chicago, Ill. Carbon copying-book	691,506	Jan. 21	1159	484	98	485
Turnbull, John, Dundee, Scotland. Clutch	695,760	Mar. 18	2900	604 605	98	2302
Turner, Edward F., Brockton, Mass. Gage for sewing-machines	695,979	Mar. 25	3042	690	98	2305
Turner, George S., Beaverfalls, Pa. Vehicle-wheel	692,090	Jan. 28	2808	737	98	726
Turner, George T., *et al.* (See Rhodes, Wesley, assignor.)						
Turner, James R., Wentworth Location, N. H. Tool for rossing and peeling pulp-timber	695,353	Mar. 11	1980	428	98	2181
Turner, Jenney A., Norfolk, Va. Neckwear	691,208	Jan. 14	1562	355	98	541
Turner, John N., *et al.* (See Stephenson, Levi T., assignor.)						
Turner, Peter F., Chicago, Ill. Utilizing the intestines of hogs	691,505	Jan. 21	2158	484	98	485
Turner Tanning Machinery Company. (See Ballard, Harrie A., assignor.)						
Turner Tanning Machinery Company. (See Ballard and Copeland, assignors.)						
Turner Tanning Machinery Company. (See Chain and Copeland, assignors.)						
Turner Tanning Machinery Company. (See Chain and Turner, assignors.)						
Turner, William B. (See Chain and Turner.)						
Turney Drier Company. (See Geiger and Turney, assignors.)						
Turney, James A., Toledo, Ohio. Labeling-machine	692,492	Feb. 4	474	111	98	805
Turney, James A., Toledo, Ohio. Burial-casket	692,804	Feb. 4	1047	235	98	1010
Turney, John E. (See Geiger and Turney.)						
Turnipseed, Arthur L., and S. T. Williams, Memphis, Tenn. Means for attaching draft-timbers	691,085	Jan. 14	1247	304	98	396
Tuttle, Charles B., assignor to Tuttle & Clark, Detroit, Mich. Horse-boot	694,340	Feb. 25	4112	915	98	1697
Tuttle & Clark. (See Tuttle, Charles B., assignor.)						
Tuttle, Josiah S., and C. L. Cookson, assignors to T. C. Bradley, Kansas City, Mo. Self-feeder for baling-presses	698,947	Feb. 11	1549	996	98	1108
Tweedale, William, and W. L. Harvey, Chicago, Ill. Apparatus for drying grain	691,209	Jan. 14	1562	355	98	541
Tyden, Emil, Hastings, Mich. Table	698,357	Feb. 11	2151	472	98	1268
Tyden, Emil, Hastings, Mich. Pipe-joint lock	696,359	Mar. 25	3092	809	98	2375

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tyler, Abel D., Jr., Brockton, Mass., assignor, by mesne assignments, to Mawhinney Last Company. Boot-treeing machine	693,466	Feb. 18	2868	517, 518	98	1382
Tyler, Hiram. (See Ohmer, Tyler, and Breidenbach.)						
Tyler, James M., Bay St. Louis, Miss. Air-blast apparatus	694,588	Mar. 4	480	104	98	1815
Tyler, Melvin H., Muncie, Ind. Bicycle-support	696,152	Mar. 25	3438	770	98	2477
Tyler, Walter L., *et al.* (See Lindstrom, Nils O., assignor.)						
Tyms, John C., Garfield, N. J. Bleaching-keir	692,091	Jan. 28	3263	738	98	727
Tynen, Jeremiah D., Spooner, Wis. Cigar	694,217	Feb. 25	3819	845	98	1643
U. S. Long Distance Automobile Company (See Riotte, Carl C. and E. A., assignors.)						
Uchermann, Karl, Christiania, Norway. Coin-freed telephone apparatus	695,013	Mar. 11	1301	287, 288	98	2004
Uckotter, Herman H., Cincinnati, Ohio. Apparatus for making designs in cakes of soap	692,493	Feb. 4	476	112	98	896
Uhlmann, Charles R., Peoria, Ill. Brush	692,387	Feb. 4	294	72	98	860
Ulett, George, Waltham, Mass. Spinning-top	693,928	Feb. 25	3257	717	98	1532
Ulke, Titus, Sault Ste. Marie, Canada. Refining composite metals	694,699	Mar. 4	697		98	1859
Ulmer, Melchior, New York, N. Y. Toy bowling-alley	693,191	Feb. 11	1851	401	98	1204
Underhill, Arthur J., assignor to Cluett, Peabody & Co., Troy, N. Y. Collar-shaper	691,023	Jan. 14	1245	281, 282	98	275
Underwood, J. Platt. (See Sweet, Benjamin W., assignor.)						
Underwood, Robert L., and I. C. Butterfield, assignors to R. E. Crocker and F. J. Sibley, Fostoria, Ohio. Railway-tie plate	691,938	Jan. 28	3063	668	98	688
Union Iron Works. (See Thomas, Edwin E., assignor.)						
Union Metallic Cartridge Company. (See Lammadin and Stone, assignors.)						
Union Oil Refining & Fuel Company. (See Steiner, Robert, assignor.)						
Union Scale and Manufacturing Company. (See Hoepner, George, assignor.)						
Union Special Sewing Machine Company. (See Onderdonk, Lansing, assignor.)						
Union Special Sewing Machine Company. (See Patterson, James L., assignor.)						
Union Special Sewing Machine Company. (See Woodward, Russel G., assignor.)						
Union Stop and Signal Company. (See Hart, Orlando W., assignor.)						
Union Switch and Signal Company. (See Miles, Henry D., assignor.)						
Union Typewriter Company. (See Burridge, Lee S., assignor.)						
Union Typewriter Company. (See Chapin, Murray H., assignor.)						
Union Typewriter Company. (See Stickney, Burnham C., assignor.)						
United Engineering and Foundry Company. (See Bray, Thomas J., Jr., assignor.)						
United Gas Improvement Company. (See Taussig, John H., assignor.)						
United Indurated Fibre Company. (See Peterson, Jesse, assignor.)						
United Shoe Machinery Company. (See Casgrain, Louis A., assignor.)						
United Shoe Machinery Company. (See Freeman, Edwin T., assignor.) (Reissue.)						
United Shoe Machinery Company. (See Mayo, Benjamin F., assignor.)						
United Shoe Machinery Company. (See Raymond, Freeborn F., 2d, assignor.)						
United Shoe Machinery Company. (See Scott, Jacob R., assignor.)						
United States Battery Company. (See Bugg, Owen T., Jr., assignor.)						
United States Battery Company. (See Holderrieth, Charles H., assignor.)						
United States Braid Machine Manufacturing Company. (See Diss, Albert B., assignor.)						
United States Cigar Manufacturing Company. (See Tingley, George H., assignor.)						
United States Fender Company. (See Weiss, William F., assignor.)						
United States Metallic Packing Company. (See Longstreth and King, assignors.)						
Universal Centrifugal Dryer Company. (See Seidner, Jonas J., assignor.)						
Universal Winding Company. (See Morse, Alfred B., assignor.)						
Universal Winding Company. (See Wardwell, Simon W., assignor.)						
Upham, James B., Malden, Mass. Pocket-knife	692,092	Jan. 28	3266	736	98	727
Upson Nut Company. (See Johnson, Charles A., assignor.)						
Upton, Colcord, Beverly, Mass., assignor to Upton Machine Company. Friction-clutch	691,507	Jan. 21	2161	484	98	485
Upton, Colcord, Beverly, Mass., assignor to Upton Machine Company. Variable-speed gearing	691,508	Jan. 21	2163	484, 485	98	486
Upton, Frank B., assignor of one-half to E. C. Hanpeter, St. Louis, Mo. Paint-dipping tank	696,282	Mar. 25	3670	821	98	2594
Upton Machine Company. (See Upton, Colcord, assignor.)						
Urban, Johann. (See Fremery and Urban.)						
Uytenbogaart, Johannes W. H., Utrecht, Netherlands. Socket for incandescent electric lamps	693,087	Feb. 11	1601	349	98	1155
V. L. Ney Company. (See Ney, Jacob, assignor.)						
Vail, Morrison H., Chicago, Ill. Construction for buildings having circular or regular shaped roofs converging in one point	693,999	Feb. 25	3399	747	98	1560
Vail, Ralph E., Mount Vernon, Ohio. Expansion-joint	690,797	Jan. 7	831	183	98	176
Valentine, Harry J., Hempstead, assignor to W. Vogel & Brothers, New York, N. Y. Coin-deposit bank	695,845	Mar. 18	2811	640	98	2288
Valerius, Theodore L., Fort Atkinson, Wis., assignor to Creamery Package Manufacturing Company, Chicago, Ill. Bottle filling and capping machine	690,488	Jan. 7	818	43, 44	98	47
Valley, John N., Jersey City, N. J. Elevated railway	691,086	Jan. 14	1249	304, 305	98	296
Van Auken, Horace W., Philadelphia, Pa. Rotary engine	690,798	Jan. 7	832	184	98	176
Van Auken, Sidney, Saginaw, Mich. Nailing implement	692,740	Feb. 4	916	500	98	986
Van Brunt, Willard A., Horicon, Wis. Seeding-machine	695,509	Mar. 18	2183	493	98	2205
Van Dam, Eduard. (See Boisselot, Jean B., assignor.)						
Van den Heuvel, Mathias, Gangelt, near Geilenkirchen, Germany. Machine for making straw bottle-covers	692,669	Feb. 4	788	179, 180	98	959
Van Derbeck, Stephen G. (See Rennie and Van Derbeck.)						
Van Doorn, Frank E. (See Gardner and Van Doorn.)						
Van Dyke, Thomas H., Kansas City, Mo., assignor of one-third to J. W. Taylor, Kansas City, Kans. Air-brake system	692,948	Feb. 11	1351	294	98	1108
Van Eman, William W., *et al.* (See Moon, Herman, assignor.)						
Van Everen, Horace, trustee. (See Foster, Rolon E., assignor.)						
Van Hagen, Isaac, Chicago, Ill. Manufacture of metallic bedsteads	695,846	Mar. 18	2813	640	98	2284
Van Horn, Charles R., Detroit, Mich. Vehicle-wheel	693,929	Feb. 25	3259	717, 718	98	1532
Van Horn, Charles R., assignor to Hall & Munson Co., Bay Mills, Mich. Saw-guide	694,337	Feb. 25	4107	914	98	1695
Van Horn, Charles R., assignor to Hall and Munson Co., Bay Mills, Mich. Saw-guide	694,338	Feb. 25	4109	914	98	1696
Van Houten, Frank H., assignor to Dutchess Tool Company, Fishkill-on-the-Hudson, N. Y. Oven-door	694,700	Mar. 4	700	152, 153	98	1659
Van Houten, William, Sycamore, and S. F. Prevatt, Nashville, Ga. Rice hulling and polishing machine	693,980	Feb. 25	3261	718	98	1533
Van Kannel, Theophilus, New York, N. Y. Amusement or illusion apparatus	694,447	Mar. 4	811	46, 47	98	1757
Van Leer, John S., assignor of one-half to J. W. Howard, St. Louis, Mo. Trolley	694,218	Feb. 25	3230	645	98	1648
Van Nette, Wesley, Poplar, Ohio. Musical instrument	694,569	Mar. 4	488	104, 105	98	1815

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Van Praag, Leonidas A., New York, N. Y. Finger-tip attachment for glove sewing machines	690,682	Jan. 7	596	130 131	98	128
Van Valkenburg, Charles J. (See Van Valkenburg, Randall T. and C. J.)						
Van Valkenburg, Randall T., Newcastle, Pa., and C. J. Van Valkenburg, Manchester, Mich.; said C. J. Van Valkenburg assignor to W. E. Crichton, Laporte, Ind. Fire-extinguisher	695,847	Mar. 18	2814	640	98	2334
Van Wormer, Joseph L. (See Padon, John S., assignor.)	691,676	Jan. 21	2474	554	98	550
Vandall, Cleophas, Eveleth, Minn. Pipe-jointer	690,681	Jan. 7	595	129 130	98	127
Vander Made, Paul R., Breukelen, Netherlands. Apparatus for carbureting air	690,489	Jan. 7	223	44	98	46
Vander Wee, George R., New York, N. Y. Tracing and cutting implement	694,807	Mar. 4	904	201	98	1906
Vanderburg, Robert B., Los Angeles, assignor of one-half to A. W. Johnson, Longbeach, Cal. Saucepan	696,120	Mar. 25	3854	756	98	2461
Vanderpool, Clarence R., Grand Rapids, Mich. Dental gage	691,419	Jan. 21	2001	449	98	451
Vandervoort, Addison, Belleville, Canada. Lawn-sprinkler	692,949	Feb. 11	1353	294	98	1104
Vannoy, Robert, Manchester, Tenn. Ironing-table	694,808	Mar. 4	905	201 202	98	1903
Vanstone, Samuel, assignor to Patent Development Company, Providence, R. I. Forging-machine	694,701	Mar. 4	701	153	98	1859
Vantyle, Elmer D. and O. V., Lebanon, Ind. Animal-trap	694,448	Mar. 4	213	47	98	1758
Vantyle, Omer V. (See Vantyle, Elmer D. and O. V.)						
Vardell, Arthur A., Dallas, Tex. Bale-band applying and tightening device	694,708	Mar. 4	703	153	98	1860
Vauclain, Samuel M., Jr. (See Howe and Vauclain.)						
Vauclain, Samuel M., assignor to Burnham, Williams & Company, Philadelphia, Pa. Compound engine and valve therefor	696,293	Mar. 25	3671	821	98	2635
Vauclain, Samuel M., Philadelphia, Pa., assignor to Burnham, Williams and Company. Locomotive	691,087	Jan. 14	1850	305	98	206
Vaughan, David F., Haddonfield, N. J. Railway-spike	694,181	Feb. 25	3535	803	98	1603
Vaughan, Harland, Springfield, Mass. Shuffle-board	691,490	Jan. 21	2004	449	98	453
Vaughan, Henry H., Chicago, Ill., assignor to Ridgely and Johnson Tool Company. Motor-fluid-operated tool	693,368	Feb. 4	296	72	98	880
Vaughan, Henry H., Chicago, Ill., assignor to Ridgely and Johnson Tool Company. Motive-fluid-operated tool	693,494	Feb. 4	479	112	98	898
Vaughan, James M., Owensboro, Ky. Tobacco-press	695,770	Mar. 18	2661	605	98	2308
Vaughn, Charles P., Peabody, Mass., assignor to Vaughn Machine Company, of West Virginia. Leather-working machine						
Vaughn Machine Company. (See Jones, Albert F., assignor.)						
Vaughn Machine Company. (See Vaughn, Charles P., assignor.)						
Vegetol Company. (See Fletcher, Mordecai H., assignor.)						
Vendredy, Henry. (See Vrard, Vendredy, Duitte, and Gauthier.)						
Venuleth, Wilhelm, Darmstadt, Germany. Apparatus for concentrating liquids	691,210	Jan. 14	1564	355	98	341
Vereinigte Chininfabriken Zimmer & Co. (See Thron, Heinrich, assignor.)						
Vereinigte Maschinenfabrik Augsburg und Maschinenbaugesellschaft Nürnberg, A.-G., Firm of. (See Carstanjen, Max, assignor.)						
Vérel, Alphonso A., Glasgow, Scotland. Wheel	695,848	Mar. 18	2816	640 641	98	2335
Vermont Farm Machine Company. (See Kimball, Perley L., assignor.)						
Vernon, William H., Wakefield, England. Economizer	694,300	Mar. 4	497	105 106	98	1817
Verrill, Elgin C., Cape Elizabeth, Me. Last	696,215	Mar. 25	3550	794	98	2499
Vestal, Warner L., San Bernardino, Cal. Rural-delivery mail-box	694,219	Feb. 25	3531	845 846	98	1644
Vickers, Albert, assignor to Vickers, Sons & Maxim, Limited, Westminster, England. Automatic gun	690,799	Jan. 7	553	184 185	98	176
Vickers, George M., Jr., Philadelphia, Pa. Truck	693,399	Feb. 4	298	73	98	881
Vickers, Sons & Maxim. (See Dawson and Buckham, assignors.)						
Vickers, Sons & Maxim. (See Vickers, Albert, assignor.)						
Victor Rubber Company. (See Smith, Harry S., assignor.)						
Victor Rubber Company. (See Webb, John G., assignor.)						
Vidal, Juan B., Havana, Cuba. Type-writer	695,951	Mar. 11	1747	386	98	2097
Viele, Ransom D., E. M. Walker, Troy, and T. D. Robinson, Albany, N. Y.; said Viele and Walker assignors of one-sixth to said Robinson. Folding-machine for collar-blanks, &c.	693,981	Feb. 25	3364	719 720	98	1553
Vining, Robert W., Ealing, assignor to Auto-Postergraph Syndicate, Limited, London, England. Advertising device	693,950	Feb. 11	1355	294 295	98	1104
Virtue, John A., Delphos, Kans. Steam-engine	695,510	Mar. 18	2185	493 494	98	2206
Vivarttas, William O., Weehawken, assignor to H. B. Smith Machine Company, Smithville, N. J. Planing-machine	693,576	Feb. 18	2588	572 573	98	1377
Vivinus, Alexis, Brussels, Belgium. Universal joint	693,577	Feb. 18	2590	573	98	1378
Vivinus, Alexis E., Brussels, Belgium. Clutch	696,254	Mar. 25	3672	821	98	2635
Voet, Cornelius, Harlem, Netherlands. Apparatus for supplying air to steam-generator furnaces	691,679	Jan. 21	2476	555	98	550
Vogel & Brothers, William. (See Valentine, Harry J., assignor.)						
Vogel, Eugene W., assignor to D. S. Wegg, Chicago, Ill. Battery chute or well	691,094	Jan. 14	1247	282 283	98	275
Vogt, Adolf. (See Bachmann and Vogt.)						
Vogt, George, assignor of one-half to E. O. Ebersole, Corbin, Ky. Displacing device for use on railways	695,662	Mar. 18	2488	555	98	2305
Vogt, Phillip W., St. Louis, Mo. Air-brake	695,771	Mar. 18	2654	606	98	2308
Voight, Henry G., assignor to Russell and Erwin Manufacturing Company, New Britain, Conn. Padlock	694,703	Mar. 4	704	154	98	1860
Voight, Henry G., assignor to Russell and Erwin Manufacturing Company, New Britain, Conn. Meat-cutter	694,704	Mar. 4	705	154	98	1860
Voigt, Otto H. C., Lübeck, Germany. Label-holder for bottles, &c.	694,809	Mar. 4	905	202	98	1903
Voigtmann, Frank, and S. H. Pomeroy, Chicago, Ill. Fireproof window	691,211	Jan. 14	1565	356	98	341
Voland, Francisque. (See Franc and Voland.)						
Volkmann, August. (See Schmidt, William A., assignor.)						
Volkmar, Henry G., New York, N. Y. Pavement	693,198	Feb. 11	1353	401	98	1304
Votey, Edwin S., Summit, N. J., assignor to Aeolian Company, New York, N. Y. Key-board playing attachment for musical instruments	696,216	Mar. 25	3552	794	98	2500
Vrard, Edouard M. and M., Neuilly-sur-Seine, H. Vendredy, Puteaux, P. Duitte, Paris, and H. Gauthier, Neuilly-sur-Seine, France, assignors to C. L. Hyde, New York, N. Y., and E. M. Vrard, Neuilly-sur-Seine, France. Speed-changing gear	696,265	Mar. 25	3673	822	98	2635
Vrard, Maurice. (See Vrard, Vendredy, Duitte, and Gauthier.)						
Vreeland, Cornelius D., Chicago Heights, Ill. Pigment	691,421	Jan. 21	2005	.....	98	452
Vreeland, Cornelius D., Chicago Heights, Ill. Pigment and paint composition	691,422	Jan. 21	2006	.....	98	452

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Vreeland, Cornelius D., Upper Montclair, N. J. Pigment	691,423	Jan. 21	2007	.....	98	452
Vroom, Robert C., San Diego, Cal. Bread-toaster	694,042	Feb. 25	3509	772	98	1561
W. F. Brothers Company. (See Brothers, William F., assignor.)						
W. G. Armstrong, Whitworth & Company. (See Brankston, Ralph T., assignor.)						
W. S. Nott Company. (See Braucht, Roy L., assignor.)						
W. S. Nott Company. (See Caldwell, John, assignor.)						
W. W. Sweeney Co. (See Seeley, James E., assignor.)						
W. W. Sweeney Co. (See Stumpf, Leo, assignor.)						
Wackerhagen, Edward, Fort Lee, N. J. Loom	691,088	Jan. 14	1351	305	98	297
Waclark Wire Company. (See De Lamarter and Wallace, assignors.)						
Waddell, George F., Anaconda, Mont. Trommel	691,025	Jan. 14	1349	286	98	275
Waddell, Montgomery, New York, N. Y. Lifting-bridge	698,467	Feb. 18	2372	519	98	1535
Wade, Oliver H. (See Reed, Marshall, assignor.)						
Wade, William H., *et al.* (See Grant, Max, assignor.)						
Wadkin, Joseph W. (See Jarvis, Wadkin, and King.)						
Wadsworth, Frank L. O., Williams Bay, Wis., assignor to W. A. Bond, trustee, Chicago, Ill. Illuminating structure	698,098	Feb. 11	1602	349	98	1155
Waggoner, Edward P., Syracuse, N. Y., assignor to A. A. Griffing Iron Company, Jersey City, N. J. Separator	692,390	Feb. 4	299	73	98	861
Wagner, Anton, Manville, R. I. Valve	692,391	Feb. 4	302	73	98	862
Wagner, Chapin, Indianapolis, Ind. Plow	698,468	Feb. 18	2374	519	98	1534
Wagner, Charles, and W. Wendtland, New York, N. Y. Mantle-trimmer	695,354	Mar. 11	1921	426	98	2188
Wagner, F. W., *et al.* (See Kerstetter, James L., assignor.)						
Wagner, Walter, Berwyn, Ill. Water-filter	690,540	Jan. 7	331	67	98	71
Wagner, Walter, Berwyn, Ill. Filter-strainer	690,541	Jan. 7	331	67	98	72
Wagner, William H., and G. H. Santers, Albany, Wis. Tobacco-case	698,469	Feb. 18	2376	520	98	1534
Wahlen, Gustavus A. N., Detroit, Mich. Bearing for scale-pivots	695,973	Mar. 25	3043	600	98	2295
Wahlen, Peter G., Cologne-Ehrenfeld, Germany. Stiffener for ladies' clothing	698,982	Feb. 25	2271	790	98	1534
Wahman, Ernest S., and H. A. Rehberg, assignors to H. E. Nichols, O. D. W. and C. W. Inman, Beloit, Wis. Peg-cutter	692,220	Jan. 28	3495	790	98	775
Wait, Henry H., Chicago, Ill. Conductor for electromagnetic induction apparatus	698,578	Feb. 18	2591	578	98	1576
Wait, Henry H., assignor to Western Electric Company, Chicago, Ill. Winding for dynamo-electric machines	698,579	Feb. 18	2598	574	98	1576
Walbridge, William D. (See Hugentobler, Emil M., assignor.)						
Walden, Charles H. (See Perry, Frank J. A., assignor.)						
Waldmire, Henry W., Philadelphia, Pa. Ventilator	698,198	Feb. 11	1857	401	98	1205
Waldo, Rufus W., and A. G. Bonham, King City, Mo. Windmill cut-off	692,392	Feb. 4	303	73	98	862
Waldron, Frederick A., Stamford, Conn. Motor-vehicle	696,121	Mar. 25	3355	757	98	9461
Waldron, Harry L., Providence, assignor of one-half to W. H. Crowninshield and C. H. Lawton, Pawtucket, R. I. Combined visor and eye-shield	694,449	Mar. 4	815	48	98	1758
Walker, Edward M. (See Viele, Walker, and Robinson.)						
Walker, Edwin, Erie, Pa. Bottle-tap	698,951	Feb. 11	1857	395	98	1104
Walker, Edwin, Erie, Pa. Cigar-tip cutter	694,591	Mar. 4	489	105	98	1917
Walker, Elmer, River Point, R. I., and F. E. Walker, Boston, Mass. Registering directory or indicator for offices	691,989	Jan. 28	3064	698	98	668
Walker, Frank E. (See Walker, Elmer and F. E.)						
Walker, George. (See Carnes, John W., assignor.)						
Walker, George A., assignor to Creamery Package Manufacturing Company, Chicago, Ill. Rotary pump	698,470	Feb. 18	2377	520	98	1335
	698,700	Feb. 18	2992	642 643	98	1447
Walker, Ira B., Etna, Cal. Butter-cutter	695,897	Mar. 18	2906	659	98	2354
Walker, James A., assignor of one-half to C. W. Weaver, Rockford, Ill. Windmill-regulator	698,341	Feb. 11	2120	465	98	1268
Walker, John B., assignor of two-fifths to E. F. Nordman and O. E. Randle, Bessemer, Ala. Hand-oiler	691,828	Jan. 28	2784	626	98	651
Walker, Oakley S., Worcester, Mass. Magnetic chuck	698,471	Feb. 18	2379	521	98	1335
Walker, Oakley S., Worcester, Mass. Grinding-machine						
Wall, John C., and M. E. Schedlbauer, Jr., assignors to Ring Frame Thread Protector Company, Amsterdam, N. Y. Protector for ring-spinning frames	695,676	Mar. 18	2908	651	98	2346
Wall, Julius, Berlin, Germany. Automatic releasing mechanism for phonographs, &c.	694,705	Mar. 4	707	154 155	98	1861
Wall, Patrick, and B. W. Moore, Allegheny, Pa.; said Moore assignor to said Wall. Oil-can	696,384	Mar. 25	3024	669	98	2575
Wallace, Charles, assignor to New Era Machinery Company, Denver, Colo. Pulverizing-mill	698,089	Feb. 11	1605	349 350	98	1155
	690,902	Jan. 7	1009	227	98	211
Wallace, David T., Chicago, Ill. Nut-lock						
Wallace, Frederick W. (See De Lamarter and Wallace.)						
Wallace, Samuel A. (See Hammond, Leander W., assignor.)						
Wallace, William C., assignor of one-half to John Brown & Company, Limited, Sheffield, England. Furnace for water-tube steam-boilers	691,089	Jan. 14	1352	306 307	98	297
Waller, William A. C., assignor to Acton Concrete Partition Company, Limited, London, England. Block or tile for partitions, walls, &c.	690,811	Jan. 7	857	188	98	180
Wallerstein, Max, and H. H. Freund, New York, N. Y. Apparatus for aerating wort and improving the quality of yeast	692,170	Jan. 28	3068	766	98	751
Wallerstein, Max, and H. H. Freund, New York, N. Y. Apparatus for mixing wort and yeast and aerating them	695,974	Mar. 25	3045	690	98	2296
Wallmann Engine Company. (See Wallmann, Henning F., assignor.)						
Wallmann, Henning F., Chicago, Ill., assignor to Wallmann Engine Company. Internal-combustion oil-engine	690,542	Jan. 7	332	68	98	72
Wallmann, Henning F., Chicago, Ill., assignor to Wallmann Engine Company. Air-exhausting apparatus	692,741	Feb. 4	918	210	98	988
Walrath, Jesse. (See Smith, James M., assignor.)						
Walrath, Jesse, Racine, Wis. Igniter-controlling mechanism for explosive-engines	691,509	Jan. 21	2166	485	98	487
Walsh, James, Jr., Philadelphia, Pa. Stop-valve	694,706	Mar. 4	708	155	98	1861
Walsh, Patrick W., Butte, Mont. Wrench	692,742	Feb. 4	921	210	98	987
Walsh, Thomas, Lowell, Mass. Apparatus for steaming fabrics, &c.	692,171	Jan. 28	3084	767 768	98	752
Walters, Edward E., assignor of one-half to B. A. Mink, Lehighton, Pa. Stove	698,761	Feb. 18	2994	642	98	1447
Walters, Edward E., assignor of two-fifths to B. A. Mink, Lehighton, Pa. Adjustable electric-light support	694,810	Mar. 4	907	902	98	1904
Walters, George W., London, Canada. Renewable-seat valve	690,490	Jan. 7	235	45	98	49
Walther, Arthur C., Brooklyn, N. Y. Battery-end-cell switch-indicator	690,800	Jan. 7	837	185	98	176
Walworth & Neville Manufacturing Company. (See Neville, Wilkinson D., assignor.)						
Wands, John C., St. Louis, Mo. Roller side bearing	694,503	Mar. 4	901	69	98	1775
Wands, John C., St. Louis, Mo. Side bearing for railway-cars	694,504	Mar. 4	905	69, 70	98	1777
Wands, John C., St. Louis, Mo. Roller side bearing	694,505	Mar. 4	909	70	98	1778

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Wands, John C., St. Louis, Mo. Side bearing	694,506	Mar. 4	811	70	98	1778
Wands, John C., St. Louis, Mo. Roller side bearing	695,849	Mar. 18	2817	641	98	2335
Wands, John C., St. Louis, Mo. Side bearing for railway-cars	696,885	Mar. 25	3085	889	98	2575
Wands, John C., and F. R. Cornwall, St. Louis, Mo.; said Cornwall assignor to Chicago Railway Equipment Company, Chicago, Ill. Side bearing for railway-cars	695,286	Mar. 25	3675	822	98	2596
Ward, Dell, assignor of one-half to J. R. Taylor, Grand Rapids, Mich. Flash-light gas-burner	695,014	Mar. 11	1304	288	98	2005
Ward, George R., New York, N. Y., assignor to C. F. Coburn, Boston, Mass. Bag-machine	690,491	Jan. 7	226	45, 46	98	49
Ward, James, Delaval, assignor to International Oil Furnace Company, Limited, Scotswood Road, Delaval, near Newcastle-on-the-Tyne, county of Northumberland, England. Portable furnace	695,015	Mar. 11	1305	289	98	2005
Ward, James, assignor to International Oil Furnace Company, Limited, Newcastle-upon-Tyne, England. Furnace	695,975	Mar. 25	3047	691	98	2396
Ward, Neil, Lonsdale, R. I., assignor to Draper Company, Hopedale, Mass. Filling-replenishing loom	691,734	Jan. 21	2574	577	98	571
Ward, Richard, assignor to L. G. Bloomingdale, New York, N. Y. Bracket for supporting awning-rods	691,086	Jan. 14	1851	288	98	276
Ward, Richard B., assignor of one-third to N. L. Camp, San Marcos, Tex. Hinge-gainer	695,355	Mar. 11	1925	429	98	2132
Ward, William J., Pittsburg, Pa. Rail-joint	691,680	Jan. 21	2477	555	98	551
Ward, William J., Pittsburg, Pa. Car-fender	698,708	Feb. 18	2925	644	98	1447
Warder, Bushnell & Glessner Company. (See Myers, William D., assignor.)						
Warder, Bushnell & Glessner Company. (See Sperry, Herbert B., assignor.)						
Wardwell, Frank A., Methuen, Mass. Loom-picker	691,212	Jan. 14	1569	356	98	349
Wardwell, Simon W., Providence, R. I., assignor to Universal Winding Company, Portland, Me. Machine for winding composite cops	690,498	Jan. 7	220	46, 47, 48, 49	98	50
Wardwell, Simon W., Providence, R. I., assignor to Universal Winding Company, Portland, Me. Cop-tube carrier	690,498	Jan. 7	242	49	98	58
Wardwell, Simon W., Providence, R. I., assignor to Universal Winding Company, Portland, Me. Expansion-pulley	690,494	Jan. 7	244	50	98	58
Ware, Henry M., Lexington, Ky. Valve	695,016	Mar. 11	1305	289	98	2006
Waring, Edward M., Brooklyn, N. Y. Long-knife cloth-cutting machine	691,000	Jan. 14	1554	307	98	897
Waring, William. (See Salisbury, Herbert L., assignor.)						
Warlich, Oscar, Chicago, assignor to F. W. Peterson, Zion City, Ill. Garment-supporter	695,511	Mar. 18	2185	494	98	2206
Warner, George W., Beatrice, Nebr. Window-cleaner	695,188	Mar. 11	1619	359	98	2071
Warner, James H. (See Moyle, Richard L., assignor.)						
Warner, John F., Boston, Mass. Hair-drier	696,122	Mar. 25	3256	737	98	2461
Warner, Maggie, Chicago, Ill. Strainer	695,598	Mar. 18	2307	536	98	2344
Warner, Morris L. and W. D., Hudson, Mich. Gas-separator	698,768	Feb. 18	2926	644	98	1448
Warner & Swasey Company. (See Fecker, Gottlieb, assignor.)						
Warner, Willard D. (See Warner, Morris L. and W. D.)						
Warr, George C., London, and W. T. Wright, Wraysbury, England. Obtaining edible vegetable oil	692,743	Feb. 4	992	.....	98	987
Warren, Alfred N., Toledo, Ohio. Carton spice-cabinet	691,990	Jan. 28	2065	688	98	999
Warren, Frederick J., Newton, Mass. Pavement	695,421	Mar. 11	2083	456	98	2156
Warren, Frederick J., Newton, Mass. Bituminous street-pavement	695,422	Mar. 11	2084	456	98	2156
Warren, Frederick J., Newton, Mass. Street-pavement	695,423	Mar. 11	2085	457	98	2157
Warren, Matthew M., and M. M. Altare, Pence Spring, W. Va. Railway cattle-guard	696,153	Mar. 25	3454	770	98	2477
Warren Webster and Company. (See Osbourn, Millard P., assignor.)						
Warstler, Levi, Louisville, assignor of one-half to A. J. Merley, Osnaburg, Ohio. Device for ornamenting faces of tile	692,744	Feb. 4	993	210	98	987
Warwick, George T., Springfield, Mass. Machine for making metallic spokes, &c	698,848	Feb. 11	2121	465, 466	98	1992
Warwick, George T., assignor of one-half to G. M. Hendee, Springfield, Mass. Coaster and brake mechanism for cycles	698,472	Feb. 18	2882	521, 522	98	1336
Washburn, Burton A., Wickliffe, Ky. Medicine-applicator	695,356	Mar. 11	1925	429	98	2133
Washburn, Charles I., executor. (See Washburn, George W.)						
Washburn, George W., deceased, New York, N. Y.; C. I. Washburn, executor. Jewelry-securer	698,764	Feb. 18	2928	644	98	1448
Washburn, Henry L., New York, assignor to W. R. Moore, Eden, N. Y. Door-bell	692,221	Jan. 28	2497	791	98	775
Washburn, Morgan, New York, N. Y. Transfer-ticket	698,765	Feb. 18	2929	644	98	1448
Washburne, Ansel L. (See Hesse, Gustaf E., assignor.)						
Water Overflow Preventive Company of New York. (See Toback, Leopold, assignor.)						
Waterbury Mfg. Co. (See Perkins, Walter H., assignor.)						
Waterman, Frank D., executor. (See Gilbert, Frederick, assignor.)						
Waterman, Lewis E., assignor to Emerson Manufacturing Company, Rockford, Ill. Disk plow	692,805	Feb. 4	1049	236	98	1010
Waterman, Lewis E., assignor to Emerson Manufacturing Company, Rockford, Ill. Sand-box for wheels	692,806	Feb. 4	1050	236	98	1010
Watkins, James T., assignor of one-half to W. W. Moody, Jefferson City, Tenn. Laundry bracket or clamp	694,302	Feb. 25	2971	664	98	1676
Watkins, Orla H., assignor, by mesne assignments, to J. K. Milner, Clinton, Iowa. Insect-guard	694,901	Mar. 4	1084	239	98	1941
Watkins, William D., assignor of one-half to J. W. Bolster, San Jose, Cal. Telephone-selecting device	695,976	Mar. 25	3048	691, 692	98	2397
Watson, Benjamin, Eden, N. Y. Mail-bag catcher	695,252	Mar. 11	1748	387	98	2007
Watson, David S., assignor to Watson Wagon Company, Canastota, N. Y. Dumping-wagon	691,330	Jan. 14	1889	415, 416, 417	98	401
Watson, Frank C. (See Paynter and Watson.)						
Watson, John, Brooklyn, N. Y., assignor to Empire Machine Corporation. Machine for justifying type	695,017	Mar. 11	1305	289	98	2006
Watson, Peter B., assignor of one-half to R. W. Tunis, Philadelphia, Pa. Electromagnetic engine	695,258	Mar. 11	1750	387	98	2008
Watson, Thomas, Bridge of Weir, assignor to E. S. Coats, Paisley, Scotland. Cop-building mechanism for spinning and doubling machinery	691,991	Jan. 28	2066	689	98	688
Watson, Thomas, Bridge of Weir, assignor to E. S. Coats, Paisley, Scotland. Drag device for spinning machinery	691,992	Jan. 28	2069	690	98	689
Watson Wagon Company. (See Watson, David S., assignor.)						
Watson, William D., Chicago, Ill. Window	692,560	Feb. 4	606	142, 143	98	992
Watters, John H., Anniston, Ala. Track-sanding device	691,998	Jan. 28	2071	690	98	689
Wattie, William, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Straw matting	698,090	Feb. 11	1804	350	98	1155

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Wattie, William, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Loom for making straw matting	693,091	Feb. 11	1607	350	98	1155
Watts, James F., Wadsworth, Ohio. Corner-joint for vehicle-bodies	691,027	Jan. 14	1252	283	98	976
Watts, John T., Crookston, Minn. Mechanical movement for converting motion	691,511	Jan. 21	2171	495	98	488
Watz, Charles, New York, N. Y. Vegetable-cutter	694,598	Mar. 4	492	107	98	1517
Waugh, James M., Chicago, Ill. Draw-bar draft-rigging for car-couplings	690,683	Jan. 7	599	131	98	128
Waugh, James M., Chicago, Ill. Draft-rigging for railway-cars	690,684	Jan. 7	603	131	98	129
Way, Frank. (See Damerell, Henry, assignor.)						
Wayne Chemical Company. (See Humphreys, Frederick W., assignor.)						
Wear, Frank, Medford, Mass. Safety-tread	695,018	Mar. 11	1309	289	98	2005
Weatherhead, Albert J. and E. H., Cleveland, Ohio. Brass-founder's melting-furnace	691,213	Jan. 14	1570	357	98	342
Weatherhead, Edward H. (See Weatherhead, Albert J. and E. H.)						
Weatherly, Sidney M., New York, N. Y. Block or base for holding plates from which printed impressions may be taken	695,977	Mar. 25	3052	692	98	2397
Weaver, Charles W. (See Walker, James A., assignor.)						
Weaver, George L., *et al.* (See Bartley, Milton, assignor.) (Reissue.)						
Webb Folding Box Company. (See Webb, Zaida B., assignor.)						
Webb, Henry C., Smethwick, England. Inlaying of wood	691,214	Jan. 14	1571	357	98	342
Webb, James H., Ada, Ind. Ter. Broom-head	690,495	Jan. 7	246	50	98	54
Webb, John G., assignor to Victor Rubber Company, Springfield, Ohio. Rubber-tire equipment for vehicle-wheels	691,028	Jan. 14	1254	284	98	276
	693,953	Feb. 25	3271	720	98	1534
Webb, John R., Newport, W. Va. Match-safe						
Webb, John W. (See Wilson, Allen F., assignor.)						
Webb, Zaida B., Whippany, assignor to Webb Folding Box Company, Newark, N. J. Folding box	690,496	Jan. 7	248	50	98	54
Webb, Zaida B., Whippany, assignor to Webb Folding Box Company, Newark, N. J. Folding box	690,497	Jan. 7	249	50	98	54
Webb, Zaida B., Whippany, assignor to Webb Folding Box Company, Newark, N. J. Folding box	690,498	Jan. 7	250	51	98	54
Webb, Zaida B., Whippany, assignor to Webb Folding Box Company, Newark, N. J. Folding box	692,561	Feb. 4	607	143	98	922
Webb, Zaida B., Whippany, assignor to Webb Folding Box Company, Newark, N. J. Folding box	692,562	Feb. 4	608	143	98	922
Webb, Zaida B., Whippany, assignor to Webb Folding Box Company, Newark, N. J. Folding box	692,563	Feb. 4	609	143	98	922
Webb, Zaida B., Whippany, assignor to Webb Folding Box Company, Newark, N. J. Folding box	692,564	Feb. 4	610	144	98	923
	692,093	Jan. 28	3267	738	98	727
Webber, Frank I., Oxford, Nebr. Pipe-wrench	691,904	Jan. 28	3078	690	98	689
Webber, Frank I., assignor of three-fourths to J. W. Trammel, G. H. Christ, and N. A. Pettygrove, Oxford, Nebr. Well-screen						
Weber, Adam, Newark, N. J., assignor to J. K. Osborn Manufacturing Company. Chatelaine-frame and lock or catch therefor	692,807	Feb. 4	1050	236	98	1010
	691,029	Jan. 14	1255	284	98	276
Weber, Edward, Hamilton, Ohio. Collar turner and edger	693,194	Feb. 11	1859	402	98	1905
Weber, Emil, and F. C. Frey, Baker City, Oreg. Snap-hook	693,766	Feb. 18	2080	545	98	1448
Weber, George J., Kansas City, Kans. Apparatus for converting fuel into power	691,995	Jan. 28	3074	691	98	690
Weber, Valentin, Princeville, Ill. Fare-register						
Weber, Wilhelm, Stolberg II, assignor to Chemische Fabrik Rhenania, Aachen, Germany. Aseptic preparation from pancreas and producing same	691,681	Jan. 21	2478	.....	98	551
Weber, Wilhelm, Stolberg II, assignor to Chemische Fabrik Rhenania, Aachen, Germany. Pancreas preparation and producing same	695,254	Mar. 11	1753	.....	98	2008
Weber, William E. (See Fullard, William, assignor.)						
Webster, Camp & Lane Machine Company. (See Hulett, George H., assignor.)						
Webster, Glenn C., Warren, Ohio. Former for filaments for incandescent electric lamps	694,220	Feb. 25	3883	847	98	1644
Webster, James. (See Bryan, Clarence H., assignor.)	694,122	Feb. 25	3635	808	98	1608
Weddell, Oliver S., McKeesport, Pa. Rail-joint						
Weddell, Robert. (See Rohrbacher and Weddell.)						
Weder, Paul J., assignor to Sharp & Smith, Chicago, Ill. Veterinary mouth-speculum	692,565	Feb. 4	611	144	98	923
Wedgeworth, Ross. (See McLemore, Walter S., assignor.)	692,094	Jan. 28	3268	739	98	728
Weeber, Christian F., Albany, N. Y. Muffler for explosive-engines						
Wegg, David S. (See Holdridge, Clarence A., assignor.)						
Wegg, David S. (See Jones, Willis S., assignor.)						
Wegg, David S. (See Vogel, Eugene W., assignor.)						
Weidenfeld, Frank, Richmond, Va. Eyeglass-frame	691,996	Jan. 28	3079	692	98	690
Weidig, Henry P., Newark, N. J. Surgical dressing	696,123	Mar. 25	3357	.....	98	2402
Weightman, William H., New York, N. Y. Air-supply to liquid vaporizing, cooling, and aerating apparatus	693,195	Feb. 11	1860	402	98	1905
Weibermiller, Frederick, *et al.* (See Darwin, Frank L., assignor.)						
Weil, Emanuel L., and T. W. Evans, New Orleans, La. Acetylene-gas generator	693,745	Feb. 4	994	210, 211	98	987
Weimar, Fred, Chicago, assignor of two-thirds to T. D. Hewitt, Freeport, and S. A. French, Chicago, Ill. Calipers	691,662	Jan. 21	2479	555	98	551
Weimar, Fred, assignor of two-thirds to S. A. French, Chicago, and T. D. Hewitt, Freeport, Ill. Compressed-air drill	692,393	Feb. 4	994	74	98	863
Weinberg, Arthur, and R. Herz, assignors to L. Cassella & Co., Frankfort-on-the-Main, Germany. Blue sulfur dye and making same	693,682	Feb. 18	2700	.....	98	1401
Weinberg, Arthur, and R. Herz, assignors to L. Cassella & Co., Frankfort-on-the-Main, Germany. Making blue sulfur dye	693,683	Feb. 18	2702	.....	98	1401
Weinel, Frederick E., assignor of one-half to W. E. Raub, Apollo, Pa. Automatic electric signal	691,668	Jan. 21	2480	555, 556	98	551
	696,287	Mar. 25	3677	822, 823	98	2527
Weingaertner, Albert, St. Louis, Mo. Revolving window-sash	696,217	Mar. 25	3553	795	98	2500
Weinrich, Moriz, Yonkers, N. Y. Apparatus for purifying massé-cuite	695,512	Mar. 18	2187	494	98	2206
Weir Stove Company. (See Wilbur, George E., assignor.)						
Weir, William S., Monmouth, Ill. Oil-can	695,663	Mar. 18	2489	565	98	2208
Weirich, James E., Toledo, Ohio. Portable flag-signal standard						
Weis, Joseph B., and L. C. Anderson, Franklin, Ohio. Apparatus for saturating liquids with gases	694,081	Feb. 25	3569	788	98	1594
Weiss, Ludwig. (See Pfeifer, Max, assignor.)						
Weiss, William F., Camden, N. J., assignor to United States Fender Company. Car-fender	691,889	Jan. 28	2787	626	98	631
Weitz, George G., Medford, assignor to himself, F. K. Young and M. P. Curran, trustees, Boston, Mass. Electric hose-signal system	696,098	Feb. 11	1809	351	98	1156
	691,215	Jan. 14	1572	357	98	343
Welch, John F., Braman, Okla. Ter. Feed device for threshing-machines						
Welch, Winston L. (See Click, John J., assignor.)						
Welden, Reuben H. (See Conway, George O. S., assignor.)						
Welin, Peter, assignor to T. P. Brown, Worcester, Mass. Music-roll for automatic musical instruments	694,450	Mar. 4	217	48	98	1759

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Wellman, Charles H. (See Wellman and Seaver.)						
Wellman, Harlan P., Ashland, Ky., assignor to General Electric Company. Electric-railway system	690,499	Jan. 7	251	51	98	55
Wellman, Samuel T. and C. H., and J. W. Seaver, Cleveland, Ohio. Combined charging and discharging device for coke-ovens	692,746	Feb. 4	927	211, 212	98	968
Wells, Almon V., Washington, D. C. Loose-leaf ledger	693,767	Feb. 18	2988	645	98	1440
Wells, Charles M., assignor of one-half to M. A. Bragg, Eolia, Mo. Combined corn-drill and manure-distributer	692,282	Jan. 28	3498	791	98	775
Wells, Francis M., *et al.* (See Beach, Isaac D., assignor.)	691,424	Jan. 21	2008	450	98	452
Wells, Frederic E., Greenfield, Mass. Motor	693,317	Feb. 11	2071	458	98	1250
Wells, George, Montreal, Canada. Automatic chromatrope						
Wells, George E. (See Schwedtmann and Wells.)						
Wells, George W., trustee. (See English, Analdo M., assignor.)						
Wells, Stephen M., Jr., Bristol, assignor to Greystone Manufacturing Company, Greystone, Conn. Halter-chain	690,801	Jan. 7	889	185	98	177
Welsbach Light Company. (See Farraday and Goss, assignors.)						
Welsbach Light Company. (See Jost, John F. W., assignor.)						
Welton, Frank R., Detroit, Mich. Planter	695,128	Mar. 11	1526	336	98	2050
Welton, William H. H., Akron, assignor of one-half to F. Kirk, Chagrin Falls, Ohio. Switch-throwing device	692,747	Feb. 4	929	212	98	988
Welvant Manufacturing Company. (See Sturtevant, Charles A., assignor.)						
Wemmer, William N., Trenton, N. J. Safety-valve	692,808	Feb. 4	1051	236	98	1011
Wendling-Hoch Adding Machine Company. (See Hoch, Adam, assignor.)						
Wendtland, Wilhelm. (See Wagner and Wendtland.)						
Wernecke, Eugen, Gerstewitz, near Weissenfels, Germany. Filter-press	691,080	Jan. 14	1250	284, 285	98	277
Werner, Albert, Liberty, N. Y. Portable dark room	694,221	Feb. 25	3024	847	98	1644
Wertenbruch, Franz, Glasgow, Scotland. Weighing-machine	694,222	Feb. 25	3026	847, 848	98	1645
Werthner, Christian, assignor to Gendron Manufacturing Company, Limited, Toronto, Canada. Knockdown wicker chair	691,216	Jan. 14	1574	358	98	343
Wescott, James M., Hornellsville, and C. B. Smith, Prattsburg, N. Y. Automatic safety gas-valve	692,172	Jan. 28	3387	768	98	758
Wesley, John A. B., Gawler, South Australia. Concentrating-table	692,495	Feb. 4	480	112, 113	98	897
Wessells, Samuel, Peekskill, N. Y. Shelf for cash-registers	693,478	Feb. 18	2986	668	98	1337
West, Allen L., Cuba, Ohio. Portable cable-anchor fence	691,425	Jan. 21	2010	450	98	453
West Boylston Manufacturing Company. (See Fitts, William B., assignor.)						
West, James Dalston, assignor of two-thirds to H. J. W. Raphael, Shepherds Bush, county of Middlesex, and H. L. Ettinghausen, London, England. Apparatus for determining and marking focal center of spherical lenses	691,217	Jan. 14	1575	358, 359	98	344
West, James Dalston, assignor of two-thirds to H. J. W. Raphael, Shepherds Bush, county of Middlesex, and H. L. Ettinghausen, London, England. Apparatus for attaching holding devices to lenses while such lenses are being shaped and edged	691,218	Jan. 14	1576	359	98	344
West, James Dalston, assignor of two-thirds to H. J. W. Raphael, Shepherds Bush, county of Middlesex, and H. L. Ettinghausen, London, England. Machine for forming and finishing edges of lenses	691,219	Jan. 14	1578	359, 360	98	344
West, James Dalston, assignor of two-thirds to H. J. W. Raphael, Shepherds Bush, county of Middlesex, and H. L. Ettinghausen, London, England. Apparatus for cutting elliptical or other shaped lenses accurately in relation to their focal centers while being cut	691,220	Jan. 14	1582	361	98	345
West, Timothy C., Richmond, Va. Return-envelop	690,500	Jan. 7	258	52	98	57
Westdal, Stephen T. (See Green, Charles D., assignor.)						
Westerby, Thomas, and W. G. Crosthwaite, Leeds, England. Boiler or other furnace grate	693,634	Feb. 18	2702	596	98	1408
Western Electric Company. (See Dean, William W., assignor.)						
Western Electric Company. (See McBerty, Frank R., assignor.)						
Western Electric Company. (See Wait, Henry H., assignor.)						
Western Wheeled Scraper Company. (See McKnight, Thomas R., assignor.)						
Westinghouse Air Brake Company. (See Mason, Harry R., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Conrad, Frank, assignor.)						
Westinghouse Electric & Manufacturing Company. (See Peck, John S., assignor.)						
Westinghouse Electric & Manufacturing Company. (See Storer, Norman W., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Lamme, Benjamin G., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Short, Sidney H., assignor.)						
Westinghouse, George. (See Beebe, Murray C., assignor.)						
Westinghouse, George. (See Hanks, Marshall W., assignor.)						
Westinghouse, George. (See Knox, William J., assignor.)						
Westinghouse, George. (See Potter, Henry N., assignor.)						
Westinghouse Machine Company. (See Robinson, Cyrus, assignor.)						
Westlake, Charles T., Granite, Ill. Car-transom	692,566	Feb. 4	613	144	98	968
Westlake, Charles T., Granite, Ill. Swinging spring-seat for car-bolsters	692,567	Feb. 4	614	144, 145	98	968
Westlake, Charles T., Granite, Ill. Car-bolster	692,568	Feb. 4	615	145	98	984
Westlake, Charles T., St. Louis, Mo. Car-bolster	692,569	Feb. 4	616	145	98	984
Westlake, Henricus W., Los Angeles, Cal. Vaginal irrigator	693,358	Feb. 11	2153	473	98	1288
Weston, Austin M., Kansas City, Mo. Lister-cultivator	693,474	Feb. 18	2987	592	98	1337
Weston Paper and Manufacturing Company. (See Davis, John N., assignor.)						
Weston, William W., Weston, S. C. Hay-press	692,969	Feb. 11	1958	995	98	1105
Westphal, Peter J., Holyoke, Mass. Thread-winding machine	693,196	Feb. 11	1962	402	98	1205
Wetherell, Mary E., Boston, assignor to S. H. Sawyer, Wellfleet, Mass. Bustle and hip extension	692,095	Jan. 28	3369	779	98	736
Weyant, Thomas R., Brooklyn, assignor to Standard Fan Company, New York, N. Y. Fan	691,426	Jan. 21	2019	450, 451	98	453
Weyer, Wm. S. (See Gould, William J., assignor.)						
Whalley, Luke, Watertown, N. Y. Circulating-box for pulp-screens	694,707	Mar. 4	710	155	98	1261
Wheatley, Frederick L., Gleasonton, and S. Steen, Medixrun, Pa. End-gate	691,031	Jan. 14	1359	335	98	277
Wheaton, Carl M., Newton, Mass. Friction-clutch	691,291	Jan. 14	1589	361	98	345
Wheeler, Charles A., Harlesden, England. Washing apparatus for railway or tramway carriages	695,255	Mar. 11	1754	387, 388	98	2096
Wheeler, Charles H., and F. W. Kremer; said Wheeler assignor to India Rubber Company, Akron, Ohio. Mold for curing tires	696,134	Mar. 25	3357	757	98	2462
Wheeler, James F., Perry Township, assignor of one-half to A. Boice, Indianapolis, Ind. Buncher attachment for mowers	693,098	Feb. 11	1611	351, 352	98	1156
Wheeler, Robert L., assignor of one-half to G. E. Poplett, Peoria, Ill. Corner-shield	695,184	Mar. 11	1690	380	98	2071

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Wheeler, Seth, Albany, N. Y. Expansion-bolt	691,921	Jan. 28	2036	662	98	662
Wheeler & Wilson Manufacturing Company. (See Dial and Dimond, assignors.)						
Wheeler & Wilson Manufacturing Company. (See Dimond and Dial, assignors.)						
Wheeler & Wilson Manufacturing Company. (See Ostrom, Freeland W., assignor.)	695,513	Mar. 18	2188	494	98	2206
Wheelwright, Thomas S., Highland Park, Ill. Seal-lock	695,772	Mar. 18	2205	606	98	2304
Whelan, James W. (See Donohue, James S., assignor.)						
Whikehart, John, Zanesville, Ohio. Carpet-stretcher	696,125	Mar. 25	2358	758	98	2462
Whitaker, Lewis E., Sussex, N. J. Cloth or sponge holder	692,748	Feb. 4	980	212	98	988
Whitaker, Louis P. (See Spencer and Whitaker.)						
White, Alfred J., Akron, Ohio. Guard for power-driven wood-jointers	695,773	Mar. 18	2366	606, 607, 608	98	2304
White, Bruce C., Pittsburg, Pa. Molding-machine						
White, Charles B. (See White, Franklin, assignor.)						
White, Clarence O., assignor of one-half to E. J. Kimball, Minneapolis, Minn. Vaporizer for explosive-engines	694,708	Mar. 4	710	156	98	1861
White, Franklin, assignor of one-half to C. B. White, Landover, Md. Knockdown chair	693,197	Feb. 11	1864	403	98	1206
White, Franklin R., assignor to Patent Button Company, Waterbury, Conn. Fastener	691,222	Jan. 14	1587	362	98	346
White, Franklin R., assignor to Patent Button Company, Waterbury, Conn. Fastener	692,959	Feb. 11	1861	296	98	1105
White, Georgia, *et al.* (See White, Nathan, assignor.)						
White, Henry A., Chicago, Ill., assignor to Pfaudler Vacuum Fermentation Company, Rochester, N. Y. Apparatus for racking carbonated beverages	691,997	Jan. 28	3080	692, 693	98	690
White, Henry C. (See Alexander and White.)						
White, James L., West Superior, assignor to J. L. White Furnace Company, Milwaukee, Wis. Grate	692,809	Feb. 4	1062	237	98	1011
White, Joseph A. (See Moore and White.)	695,019	Mar. 11	1810	290	98	2006
White, Louise S., Eskridge, Kans. Garment-hanger						
White, Matthew J. W. (See Stoneman, Orville A., assignor.)						
White, Nathan, assignor to G. White, Pasadena, and S. Rousseau, Sierraville, Cal. Power-transmitter and speed-controller	692,749	Feb. 4	931	212	98	989
White, Paul H., assignor to White Steam Wagon Company, Indianapolis, Ind. Steering-gear	690,802	Jan. 7	840	186	98	177
White, Paul H., assignor to White Steam Wagon Company, Indianapolis, Ind. Frame for vehicles	696,268	Mar. 25	3079	823	98	2527
White, Robert E., Duluth, Minn. Means for retaining and releasing loads on logging-cars	695,357	Mar. 11	1926	429	98	2135
White, Samuel A., Boston, Mass. Color-holder	692,040	Jan. 28	3150	713	98	706
White Sewing Machine Company. (See Cheshire, Edward, assignor.)						
White Sewing Machine Company. (See Grothe, William, assignor.)						
White Steam Wagon Company. (See White, Paul H., assignor.)						
White, Thomas B., Warsaw, Mo. Inscription-frame for monuments	695,774	Mar. 18	2678	606	98	2306
White, Thomas E., Rochester, N. Y. Tobacco-pipe	695,185	Mar. 11	1621	360	98	2072
White, William, Jr. (See Collin, Simon C., assignor.)	695,256	Mar. 11	1755	.....	98	2090
White, William, Jr., Pittsburg, Pa. Manufacture of steel						
Whitehead, Christopher. (See Monroe, William E., assignor.)						
Whitehead & Hoag Company. (See Sims, Richard, assignor.)						
Whitehead & Hoag Company. (See Smeeton, Richard J., assignor.)	690,803	Jan. 7	841	186	98	177
Whitehead, John F., New Brighton, Pa. Hanger for brooms or the like	692,394	Feb. 4	805	74	98	963
Whitehill, David B., North Clarendon, Pa. Stop-cock	696,218	Mar. 25	3555	795, 796	98	2500
Whitehurst, John T., and F. W. Wild, Jr., Baltimore, Md. Labeling-machine						
Whitely Exerciser Company. (See Schneider, Franklin, assignor.)						
Whitely, Isaac H., and J. R. Yocom, Hope, Ark. Churn-shield	691,223	Jan. 14	1588	362	98	346
Whitely, William N., Springfield, Ohio. Grain-binding harvesting-machine	696,126	Mar. 25	2359	758	98	2462
Whitely, William N. and William N., Jr., Springfield, Ohio. Bicycle handle-bar	691,830	Jan. 28	2788	626	98	632
Whitely, William N. and William N., Jr., Springfield, Ohio. Roller-bearing	691,922	Jan. 28	2987	662	98	668
Whiter, Charles Y., Steubenville, Ohio. Drapery-hanger	691,684	Jan. 21	2482	556	98	552
Whitfield Company. (See Schneider, William, assignor.)						
Whitford, Albert P., *et al.* (See Law, Prentis E., assignor.)						
Whiting, James A., Boston, Mass. Type-cleaning device for type-writing machines	692,954	Feb. 11	1862	295	98	1106
Whiting, Paul, East Las Vegas, N. Mex. Ter. Safety-valve	694,811	Mar. 4	909	203, 203	98	1904
Whiting, Richard R., Cincinnati, Ohio. View outfit	695,978	Mar. 25	3053	692	98	2397
Whitlock, Myron J., Ansonia, Conn. Calendering-machine	691,923	Jan. 28	2940	662, 663	98	663
Whitlock, Myron J., Ansonia, Conn. Calendering-machine	692,570	Feb. 4	617	145	98	924
Whitmore, Frank L., Belvedere, England. Friction-brake	691,513	Jan. 21	2174	486, 487	98	488
Whitney, Charles B., Chicopee Falls, Mass. Punching-bag	695,186	Mar. 11	1622	360	98	2072
Whitney, Charles B., Chicopee Falls, Mass. Punching-bag apparatus	695,187	Mar. 11	1624	360, 361	98	2072
Whitney, Frank, Minnetka, Ill. Roller-bearing	690,696	Jan. 7	498	108	98	107
Whitney, George E., Boston, Mass., assignor to Whitney Motor Wagon Company, Kittery, Me. Pump	691,512	Jan. 21	2172	486	98	488
Whitney Motor Wagon Company. (See Whitney, George E., assignor.)						
Whitney, Truman W., *et al.* (See Priest, Louis, assignor.)						
Whitney, William O., Glens Falls, N. Y. Propeller	691,514	Jan. 21	2177	487	98	489
Whiton, Morris F., Hingham, Mass. Rail-bond	692,395	Feb. 4	808	74	98	864
Whittaker, Matthew H., Salford, England, assignor to Mergenthaler Linotype Company, New York, N. Y. Linotype-machine	691,685	Jan. 21	2483	556, 557	98	552
Whittall, Matthew J. (See Harding, Walter R., assignor.)						
Whittemore, Zenas, Morton, Pa. Street-sweeper	693,475	Feb. 18	2391	528	98	1338
Whittier, Rinaldo A. (See Fassett and Whittier.)						
Whyte, James M., Parkers Landing, Pa. Combined trace holder and protector	691,924	Jan. 28	2944	663	98	664
Wichmann, Georg, and M. Gabler, assignors to Chemische Fabrik auf Actien, (vorm. E. Schering,) Berlin, Germany. Salt of hexamethylentetramin and quinic acid and making same	690,804	Jan. 7	843	.....	98	177
Wickes, Robert O., Troy, N. Y. System for distributing merchandise	690,627	Jan. 7	500	108	98	107
Wideman, Gustavus, assignor to Wilcox Manufacturing Company, Aurora, Ill. Carrier-track	693,984	Feb. 25	3273	790	98	1534
Wideman, Gustavus, assignor to Wilcox Manufacturing Company, Aurora, Ill. Shaft-bearing	694,043	Feb. 25	3510	773	98	1582
Wideman, Gustavus, assignor to Wilcox Manufacturing Company, Aurora, Ill. Door-hanger	694,044	Feb. 25	3511	773	98	1582
Widmer, Jakob, Zurich, Switzerland. Portable cooking apparatus	695,979	Mar. 25	3056	693	98	2398
Wieburg, Frank L., Lindstrom, Minn. Measuring tank and pump	691,515	Jan. 21	2179	488	98	489
Wiedemann, Joseph A., Eldorado, Kans. Watchmaker's tool	691,516	Jan. 21	2180	488	98	489

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wiederhold, Oscar, Bloomfield, N. J. Machine for saturating mantle materials	696,357	Mar. 25	3849	836	98	2561
Wieman, Fred W., Lawrence, Kans. Fire-hose nozzle	692,571	Feb. 4	619	146	98	984
Wiens, Adolph R., Milwaukee, Wis. Brush	691,022	Jan. 14	1360	286	98	277
Wieser, Joseph, Brooklyn, assignor of one-half to K. Fink, New York, N. Y. Pneumatic motor	695,198	Feb. 11	1805	403	98	1206
Wiggins, Frederick A., Salem, Oreg. Camera	693,768	Feb. 18	2936	646	98	1449
Wilber, Isaac L., Boston, Mass. Identifying device	692,173	Jan. 28	3390	768	98	753
Wilbur, George E., assignor to Weir Stove Company, Taunton, Mass. Cooking stove or range	691,068	Jan. 14	1201	286	98	278
Wilcomb, Frank, Norristown, Pa. Splicing mechanism for knitting-machines	691,686	Jan. 21	2495	557	98	558
Wilcox, Camden L., West Williamsfield, Ohio. Evaporator	696,154	Mar. 25	3435	771	98	2478
Wilcox, Edwin T., Berea, Ohio. Nut-lock	692,572	Feb. 4	622	146	98	985
Wilcox, Edwin T., Berea, Ohio. Nut-lock	692,573	Feb. 4	623	147	98	925
Wilcox, Elmer A., assignor to A. P. Kastler and F. S. Smith, Chicago, Ill. Soda-water apparatus	692,955	Feb. 11	1364	297	98	1106
Wilcox, George, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J. Securing heads to cans	695,514	Mar. 18	2190	495	98	2306
Wilcox, George, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J. Can-fusing machine	695,515	Mar. 18	2193	495, 496	98	2307
Wilcox, George, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J. Can-dipping machine	695,516	Mar. 18	2195	496, 497, 498, 499	98	2308
Wilcox, George, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J. Side-seaming metal cans	695,517	Mar. 18	2202	499	98	2310
Wilcox, George, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J. Can-soldering machine	695,518	Mar. 18	2203	499	98	2310
Wilcox, George, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J. Solder-charged can-body and sheet-metal blank	695,519	Mar. 18	2204	500	98	2310
Wilcox, George, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J. Machine for applying solder to sheet-metal blanks	695,520	Mar. 18	2206	500, 501	98	2311
Wilcox, George, Los Angeles, Cal., assignor to American Can Company, Jersey City, N. J. Apparatus for side-seaming metal cans	695,521	Mar. 18	2211	501	98	2312
Wilcox, Jerry, Schuyler, Nebr. End-gate	692,574	Feb. 4	624	147	98	925
Wilcox, Joseph R., assignor to M. L. Wilcox, D. Farquharson, and W. E. Swett, San Francisco, Cal. Wave-motor	692,396	Feb. 4	309	75	98	864
Wilcox Manufacturing Company. (See Wideman, Gustavus, assignor.)						
Wilcox, Matilda L., *et al.* (See Wilcox, Joseph R., assignor.)						
Wilcox, Theodore B., Newark, N. J., assignor, by mesne assignments, to Aladdin Manufacturing Company. Gas-igniter	694,902	Mar. 4	1085	230	98	1942
Wild, Frederick W., Jr. (See Whitehurst and Wild.)						
Wild, Frederick W., Jr., Baltimore, Md. Boxing-machine	690,806	Jan. 7	843	186, 187	98	177
Wilde, Daniel, Washington, Iowa. Grain-weigher	693,199	Feb. 11	1867	404	98	1207
Wilder, Julius P., assignor of one-half to F. C. Hill, Willis, Kans. Door-securer	692,575	Feb. 4	625	147	98	926
Wilder, William H., Gardner, Mass. Wick-tube	693,476	Feb. 18	2892	623	98	1329
Wiles, Thomas S., Albany, N. Y. Drier	692,750	Feb. 4	934	213	98	990
Wilford, Edward B. (See Schramm and Wilford.)						
Wilharms, Adolph J. (See Wilharms, Edwin C. and A. J.)						
Wilharms, Edwin C. and A. J., Greenleaf, Wis. Pneumatic feed-conveyer for feed-cutters	691,034	Jan. 14	1263	266	98	978
Wilhelm, Louis, Southbridge, Mass., assignor to Standard Optical Company, Geneva, N. Y. Machine for drilling lenses	696,960	Mar. 25	3057	698	98	2298
Wilkens, John D., assignor of one-half to R. W. Creuzbaur, New York, N. Y. Counterbalance for lift-bridges, &c	691,035	Jan. 14	1264	287	98	278
Wilkin, Frank P., Salt Lake City, Utah. Store-goods lifter	693,200	Feb. 11	1869	404	98	1207
Wilkin, Theodore S., Milwaukee, Wis. Log-turner	691,517	Jan. 21	2181	486	98	429
Wilkin, Theodore S., Milwaukee, Wis. Band-saw wheel	696,257	Mar. 11	1756	389	98	2099
Wilkins, Fred B., Woonsocket, R. I. Warp stop-motion for narrow-ware looms	696,961	Mar. 25	3059	698	98	2298
Wilkins, Fred B., Woonsocket, R. I. Weft stop-motion for narrow-ware looms	696,962	Mar. 25	3060	694	98	2299
Wilkins, Fred B., Woonsocket, R. I. Warp-beam support for narrow-ware looms	696,963	Mar. 25	3062	694	98	2299
Wilkins, John F., assignor of one-half to J. S. Land, Norfolk, Va. Invalid bed-rest	691,224	Jan. 14	1589	302	98	346
Wilkins, Monroe P., New York, N. Y., and H. C. Aspinwall, Pompton Lakes, N. J., assignors to Laflin & Rand Powder Company, New York, N. Y. Powder-granulating machine	695,129	Mar. 11	1598	338	98	2051
Wilkinson, Charles H., Huddersfield, England. Non-slipping wearing tread or covering	692,397	Feb. 4	312	75	98	864
Wilkinson, John, Syracuse, N. Y. Vehicle-frame	691,831	Jan. 28	2790	627	98	632
Wilkinson, Milton E., Groveton, N. H. Screen-plate fastener	695,522	Mar. 18	2213	502	98	2212
Willard, Charles A., St. Louis, Mo. Safety attachment for cars	693,935	Feb. 25	3274	721	98	1535
Willard, Isaac N. (See Spalding, Samuel J., assignor.)						
Willemain, Paul, Mulhouse, Germany. Building containing acetylene-gas-generating apparatus	696,219	Mar. 25	3557	796	98	2501
Williams, Allen G., assignor to Maryland Shoe Machinery Company, Baltimore, Md. Machine for inserting protectors in heels and soles of shoes	696,999	Mar. 25	3080	823, 824	98	2527
Williams, Charles E., Brooklyn, N. Y., assignor to American Can Company, Jersey City, N. J., and New York, N. Y. Securing swivel-plates to perforated covers	695,424	Mar. 11	2087	457	98	2157
Williams, Charles F., Anderson, Ind. Door-securer	694,812	Mar. 4	910	202	98	1904
Williams, Charles W. (See Strebel and Williams.)						
Williams, Firm of John. (See Smart, Walter J., assignor.)						
Williams, Frank T., assignor to Edward Miller & Company, Meriden, Conn. Oil-lamp burner	691,882	Jan. 28	2791	627, 628	98	633
Williams, George, Cleveland, Ohio. Hook and lock for iron bedsteads	691,427	Jan. 21	2016	451	98	455
Williams, George M., Baltimore, Md., assignor to American Tobacco Company, New York, N. Y. Cigar-mold	694,507	Mar. 4	312	70	98	1779
Williams, George M., Baltimore, Md., assignor to American Tobacco Company, New York, N. Y. Cigar-mold	694,508	Mar. 4	314	71	98	1779
Williams, George T., Denver, Colo. Sheet-metal covering for roofs or other surfaces and fastening device therefor	695,523	Mar. 18	2215	502	98	2212
Williams, Henry A., Quincy, assignor to Putnam Nail Company, Boston, Mass. Machine for forging horseshoe-nails or other articles	696,984	Mar. 25	3063	694, 695	98	2300
Williams, Henry M. (See Burger, Franz, assignor.)						
Williams, Henry M. (See Burger and Williams.)						
Williams, Isaac N., Sullivan, Ind. Guard attachment for dental engines	696,155	Mar. 25	3429	771	98	2478
Williams, John, Belvidere, Ill. Fire-escape	695,775	Mar. 18	2660	608, 609	98	2307

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Williams, John, Oakland, assignor to Security Coin Box Company, San Francisco, Cal. Coin-holder	690,806	Jan. 7	847	187	98	176
Williams, John B. (See Cooper, James F., assignor.)						
Williams, John E. (See Akers and Richards, assignors.)						
Williams, John R., Linneus, Mo. Excavator	695,080	Mar. 11	1311	290	98	2007
Williams, Louis N. D. (See Scott, Robert W., assignor.)						
Williams, Richard J., *et al.* (See Stephenson, Levi T., assignor.)						
Williams, Sidney T. (See Turnipseed and Williams.)						
Williams, White & Co. (See Yeakley, Melvin A., assignor.)						
Williams, William, Teller, Colo. Combined dinner-pail and lantern	691,086	Jan. 14	1269	287	98	280
Williams, William F., London, England. Elastic tire	694,223	Feb. 25	3329	848	98	1645
Williams, William F., London, England. Means for securing elastic tires to wheels	695,776	Mar. 18	2681	609	98	2207
Williams, William H., assignor of two-thirds to J. O. Owens and C Strunk, Slateford, Pa. Mail-pouch fastener	692,898	Feb. 4	313	75	98	864
Williamson, Alexander D., Coleraine, Ireland. Gas-purifier	692,899	Feb. 4	314	76	98	865
Williamson, Daniel A., Tyrone, Pa. Shoe-lacing machine	692,956	Feb. 11	1365	297	98	1105
Williamson, Henry C., and H. Price, Michigan City, Ind. Dump-car	690,501	Jan. 7	260	52,53	98	57
Williamson, William C., Chicago, Ill. Roaster and trusser	691,883	Jan. 28	2793	628	98	633
Willis, George M., Chicago, Ill. Storage-battery separator	693,676	Feb. 18	2775	611	98	1416
Willis, John, assignor of one-half to L. A. Etherington, Philadelphia, Pa. Loom	693,677	Feb. 18	2777	611	98	1417
Willis, Robert H., Chicago, Ill. Adhesive cement and making same	694,045	Feb. 25	3512	.....	98	1592
Willis, Robert H., Chicago, Ill. Pulley-covering	694,046	Feb. 25	3513	773	98	1592
Willison, John, Derby, England, assignor to National Malleable Castings Company, Cleveland, Ohio. Appliance for uncoupling railway-cars	695,386	Mar. 25	3029	670	98	2577
Willson, William R., Baker City, Oreg. Lamp	695,985	Mar. 25	3067	695	98	2400
Wilmarth & Morman Co. (See Riddernof, Cornell, assignor.)						
Wilsey, William H., Sioux City, Iowa. Safety device for elevators	693,936	Feb. 25	3275	721	98	1585
Wilson, Addison, Lowell, Mass. Coin-controlled strength-testing machine	692,958	Feb. 11	1370	298	98	1107
Wilson, Adoniram J., Westfield, N. J., and W. W. Salmon, Chicago, Ill. Electric signaling system	692,959	Feb. 11	1372	298	98	1107
Wilson, Alexander T., Chicago, Ill. Nut-lock	696,280	Mar. 25	3084	824	98	2588
Wilson, Allen F., assignor of one-half of J. W. Webb, Clayton, N. J. Implement for finishing necks and lips of bottles	692,957	Feb. 11	1369	298	98	1107
Wilson, Charles E., St. Louis, Mo. Ditching and dredging machine	695,958	Mar. 11	1758	389 390	98	2099
Wilson, Frank G., Ithaca, N. Y. Machine for grinding lenses	691,285	Jan. 14	1290	362 363	98	347
Wilson, George M., Sault Ste. Marie, Canada. Machine for producing chlorin gas and caustic soda from common salt	693,678	Feb. 18	2780	612	98	1417
Wilson, George P., *et al.* (See Rhodes, Wesley, assignor.)						
Wilson, James M., assignor to Electric Sparking and Illuminating Company, Limited, Battlecreek, Mich. Magneto-electric generator	695,858	Mar. 11	1998	430	98	2138
Wilson, James S. (See Brown, Charles N., assignor.)						
Wilson, John A., Des Moines, Iowa. Folding buggy-top	690,543	Jan. 7	235	68	98	72
Wilson, John F., Jetmore, Kans. Automobile-lock	693,901	Feb. 11	1870	404 405	98	1207
Wilson, Joseph A., Westfield, N. J., assignor to Hall Signal Company. Signal and signaling-circuit	693,094	Feb. 11	1613	358 359	98	1157
Wilson, Joseph H., Buffalo, N. Y., assignor to Acme White Lead and Color Works, Detroit, Mich. Paint-dip for wheels	695,986	Mar. 25	3069	696	98	2400
Wilson, Robert B., Woodhaven, N. Y. Capsule	691,087	Jan. 21	2489	558	98	553
Wilson, Thomas, Sunderland, England. Means for disengaging and replacing the supports of boats on ships, &c	693,400	Feb. 4	315	75	98	865
Wimberly, S. J. (See Miller, Thomas O., assignor.)						
Winchell, Edwin H., Chicago, Ill., assignor of one-half to C. W. Farrington, Duluth, Minn. Capo tasto	693,751	Feb. 4	987	213	98	990
Winchester, Benjamin T., Baltimore, Md. Hypodermic syringe	694,810	Mar. 4	911	208	98	1904
Winchester Repeating Arms Co. (See Bennett and Mason, assignors.)						
Winchester Repeating Arms Co. (See Johnson, Thomas C., assignor.)						
Winckfield, George W., assignor of one-half to H. H. and E. Hoyt, Oakland, Cal. Game.	694,509	Mar. 4	315	71	98	1779
Winckler, Richard P., Latonia, Ky. Bookbinding	694,598	Mar. 4	494	107	98	1818
Winfield, John S. (See Stukes, John M., assignor.)						
Wing, Herbert H., Buffalo, N. Y. Making hydrogen sulfid	690,502	Jan. 7	262	53	98	56
Wing, Herbert H., New Brighton, N. Y. Making magnesium sulfite	690,503	Jan. 7	267	54	98	56
Winger, F. W., *et al.* (See Kerscetter, James L., assignor.)						
Winger, William D. (See Climenson and Winger.)						
Wingerter, William, Halo, Ohio. Water-tube boiler	693,987	Feb. 25	3279	721	98	1585
Winget, Marion A., Columbus, Ohio. Machine for molding concrete bodies	694,123	Feb. 25	3536	803 804	98	1609
Winkley, Erastus E., Lynn, Mass., assignor to Goodyear Shoe Machinery Company, Portland, Me. Sole-leveling machine	693,401	Feb. 4	316	76, 77	98	866
Winslow, Francis A., Chicago, Ill. Door closer and check	695,987	Mar. 25	3071	696	98	2401
Winsper, Samuel F., administrator. (See McCarthy, James W.)						
Winter, Josef L., Hamburg, Germany. Matrix	691,295	Jan. 28	2946	.....	98	664
Winter, Robert, Hanover, Germany. Stove	691,668	Jan. 21	2491	556	98	558
Winter, Salomon, *et al.* (See Nossian, Wilhelm, assignor.)						
Winter, William A. H., Bancroft, Nebr. Display-rack	694,124	Feb. 25	3538	804	98	1609
Winters, Randolph A., Atwood, Kans. Fence-wire tightener	696,991	Mar. 25	3085	824	98	2528
Wintner, Louis. (See Ball and Wintner.)						
Wirt, Paul E., Bloomsburg, Pa. Spring attachment for articles of wear, &c	693,041	Jan. 28	3109	714	98	706
Wirt, Paul E., Bloomsburg, Pa. Spring attachment for articles of wear, &c	693,042	Jan. 28	3164	714 715	98	706
Wirt, Paul E., Bloomsburg, Pa. Spring attachment for articles of wear, &c	693,096	Jan. 28	3270	739 240	98	728
Wisborg, Anders P., Leanna, Kans. Hedge-trimmer	695,259	Mar. 11	1760	390	98	2100
Wise, Frances J. (See Leonard, Chester S., assignor.)						
Wise, Solomon F., Philadelphia, Pa., assignor to H. B. Smith Machine Company. Gage for setting cutter-heads	691,331	Jan. 14	1845	417	98	408
Wise, Solomon F., Philadelphia, Pa., assignor to H. B. Smith Machine Company. Double-spindle drawer-pull boring-machine	694,510	Mar. 4	816	71	98	1779
Withers, Charles A. (See Nichols, Frank L., assignor.)						
Witt, George E., Fresno, Cal. Crude-oil burner	693,936	Feb. 25	3270	721	98	1585
Witt, Henry G., Grafton, Iowa. Wireless corn-planter	693,409	Feb. 4	319	77, 78	98	866
Witte, Alexis, Brooklyn, N. Y. Razor-gage	693,570	Feb. 4	627	147	98	926
Witte, Frederick W., Chelmsford, England. Shaft hanger and bearing	695,096	Mar. 11	1427	316 317	98	2032

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Wittman, Max G., Jonesboro, Ark. Piano-pedal	693,477	Feb. 18	2393	594	98	1339
Wittmann, Rudolf, Brooklyn, N. Y. Cycle	693,202	Feb. 11	1872	405	98	1208
Wittstein, Charles T., assignor to Schrader-Wittstein Company, Chicago, Ill. Setting for finger-rings or other articles of jewelry	694,594	Mar. 4	496	107	98	1818
Wittstein, Charles T., assignor to Schrader-Wittstein Company, Chicago, Ill. Finger-ring	694,595	Mar. 4	497	108	98	1818
Witzenmann, Emil, Pforzheim, Germany. Armor or sheathing for electric conductors	693,980	Feb. 11	1876	998	98	1108
Wode, Adam, Jr. (See Fenton and Wode.)						
Woehrmann, Camillo von. (See Muenger, Fredrick, assignor.)						
Woerner, Robert, Mannheim, Germany. Apparatus for pressing cigars	694,082	Feb. 25	2570	788	98	1595
Wohl, Alfred, Charlottenburg, and A. Kollrepp, Berlin, Germany. Recovering sugar	695,702	Mar. 18	2555	.....	98	2280
Woittequand, Charles, Charleville, France. Mounting for electric bells	694,511	Mar. 4	818	73	98	1780
Wolcott, Clarence, and P. Ma Girl, Bloomington, Ill. Metallic culvert	691,986	Jan. 28	2946	662	98	664
Wolcott, Darwin S., trustee. (See Cosgrave, Sylvester A., assignor.)						
Wolf, Alfred, Paris, France. Compound for protecting and indurating porous materials	693,961	Feb. 11	1877	.....	98	1109
Wolf, Benedict T., Chicago, Ill. Toy savings-bank	690,544	Jan. 7	337	69	98	73
Wolf, H. O. (See Dodson, Roy, assignor.)						
Wolf, Henry. (See Hornung and Wolf.)						
Wolfe, Jacob C., New York, N. Y. Device for transferring checks, tickets, &c	693,577	Feb. 4	687	148	98	995
Wolfe, Jacob S., and L. K. Englert, West Catasauqua, Pa. Alloy	694,294	Feb. 25	2050	.....	98	1646
Wolfe, Philip W., Dover, N. J. Scoop	695,359	Mar. 11	1980	630	98	2134
Wolff, Carl, New York, N. Y. Burner	695,650	Mar. 18	2819	641	98	2335
Wolff, Frank C., Lajunta, Colo. Scissors-gage	693,578	Feb. 4	684	149	98	998
Wolffgang, Emilie, Berlin, Germany. Combined wardrobe and traveling-trunk	691,518	Jan. 21	2182	488 489	98	490
Wolford, James O., Columbus, Ohio. Nut-lock	694,126	Feb. 25	2089	804	98	1609
Wolhaupter, Benjamin, Chicago, Ill. Rail-joint	691,027	Jan. 14	1270	287 288	98	290
Wolhaupter, Benjamin, Chicago, Ill. Railway-tie plate	691,262	Jan. 14	1345	417	98	408
Wollensak, Andrew, Rochester, N. Y. Photographic shutter	691,689	Jan. 21	2491	558 559	98	554
Wood, Frank W., Indianapolis, Ind. Rivet-making machine	694 596	Mar. 4	498	108	98	1818
Wood, George. (See Page and Wood.)						
Wood, Guilford S., *et al.* (See Dearing, David M., assignor.)						
Wood, Henry A. W., assignor to Campbell Printing Press & Manufacturing Company, New York, N. Y. Printing-machine	693,203	Feb. 11	1873	405 406	98	1208
Wood, Henry A. W., assignor to Campbell Printing Press & Manufacturing Company, New York, N. Y. Impression mechanism for printing-presses	693,204	Feb. 11	1879	406	98	1209
Wood, Henry A. W., assignor to Campbell Printing Press & Manufacturing Company, New York, N. Y. Printing-machine	694,507	Mar. 4	499	108	98	1819
Wood, James R., Glasgow, Scotland. Spirit-level	692,097	Jan. 28	3273	740	98	729
Wood, Rosebert A., Pridemore, Va. Indicator	691,998	Jan. 28	3084	693	98	691
Wood, W. W. (See Anderson, Charles W., assignor.)						
Woodbridge, Jonathan E., Schenectady, N. Y., assignor to General Electric Company. Synchronizing alternators	691,534	Jan. 28	2794	628	98	633
Woodbury, Daniel C. (See Davis and Woodbury.)						
Woodbury, Stephen W., Newton Highlands, Mass. Collar	692,098	Jan. 28	3274	740	98	729
Woodell, Enoch C., Highpoint, N. C. Electric generator	695,524	Mar. 18	2816	562	98	2318
Woodeson, William A., assignor to Clarke, Chapman and Company, Limited, Gateshead, England. Steam-actuated valve for engines and motors	694,709	Mar. 4	712	156 157	98	1802
Woodhouse, Thomas, Leadville, Colo. Claw-bar	696,298	Mar. 25	3086	695	98	2089
Woodley, Thomas E. (See Blodgett, William A., assignor.)						
Woodmansee, Clay G., assignor of one-half to R. C. Hamlin, Los Angeles, Cal. Blowpipe-torch	692,758	Feb. 4	988	213	98	990
Woods, Alexander F., Murphy, Iowa. Apparatus for loading manure, &c., on wagons	693,769	Feb. 18	2989	646	98	1450
Woods, Edwin S., Chicago, Ill. Draft-rigging for railway-cars	691,088	Jan. 14	1275	256	98	281
Woods, Granville T., Parkridge, assignor, by mesne assignments, to H. W. Leonard, East Orange, N. J. Controlling electric motors or other electrical translating devices	690,807	Jan. 7	849	187	98	178
Woods, Granville T., Parkridge, assignor, by mesne assignments, to H. W. Leonard, East Orange, N. J. Controlling electric motors or other electrical translating devices	690,808	Jan. 7	850	187	98	179
Woods, Granville T., assignor to H. W. Leonard, New York, N. Y. Apparatus for controlling electric motors or other electrical translating devices	690,809	Jan. 7	852	188	98	179
Woods, Granville T., assignor to H. W. Leonard, New York, N. Y. Apparatus for controlling electric motors or other electrical translating devices	690,810	Jan. 7	855	188	98	180
Woods, Granville T., New York, N. Y., assignor to General Electric Company. Electric railway	695,268	Mar. 25	3072	696	98	2401
Woods, John M., and J. R. Crumplar, Cordele, Ga. Folding ironing-table	695,851	Mar. 18	2859	641	98	2336
Woodside, Edward F., Pelzer, S. C. Game-board	693,478	Feb. 18	2895	594	98	1339
Woodward, George. (See Seltzer, Cyrus J., assignor.)						
Woodward, James W., assignor of one-half to J. A. Bailey, Lewiston, Idaho. Plow	694,225	Feb. 25	2030	849	98	1646
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Company, Chicago, Ill. Stripper-plate for sewing-machines	690,812	Jan. 7	858	189	98	181
Woody, Edward G., New York, N. Y. Stamp-pad	695,877	Mar. 18	2869	651	98	2347
Wool, Theodore J., *et al.* (See Love, Samuel, assignor.)						
Wooley, Thomas A., and H. Fox, Hamilton, Canada. Machine for shocking grain	694,512	Mar. 4	819	72, 73	98	1780
Woolley, Leonidas G., Kenton, Ohio. Telephone and fire-alarm signal	695,260	Mar. 11	1761	190	98	2100
Woolley, Leonidas G., Kenton, Ohio, assignor to Magneto Electric Company, Incorporated, New York, N. Y. Fire-alarm-telegraph repeater	695,777	Mar. 18	2082	909	98	2207
Worf, Wilhelm, Gross St. Florian, Austria-Hungary. Transportable ice-case	691,089	Jan. 14	1276	288 289	98	282
Working, John C., Denver, Colo., assignor, by mesne assignments, to Furmidge Spring Wheel Company. Pierre, S. D. Hub	691,735	Jan. 21	2575	577	98	571
Worth, William O., Chicago, Ill., assignor of two-thirds to W. R. Donaldson, Louisville, Ky., and H. W. Kellogg, Battlecreek, Mich. Hydraulic motor or pump and reversing-valve therefor	690,813	Jan. 7	859	189 190	98	181
Worth, William O., and W. R. Donaldson, Chicago, Ill., assignors of one-third to H. W. Kellogg, Battlecreek, Mich. Cooling or condensing coil	692,968	Feb. 11	1878	999	98	1109
Worthington, Charles C., Irvington, N. Y. Steam pumping-engine	690,545	Jan. 7	339	69	98	73
Worthington, Charles C., Irvington, N. Y. Cylinder-charging valve for pumps	693,479	Feb. 18	2896	594	98	1339
Worthington, Charles C., Irvington, N. Y. Pumping apparatus	694,513	Mar. 4	820	73, 74	98	1782
Worthington, Charles C., Irvington, N. Y. Valve-movement for steam-engines	695,091	Mar. 11	1818	291 292	98	2007
Worthington, Charles C., Dunnfield, N. J. Duplex steam-pump or other duplex steam-engine	695,989	Mar. 25	3074	697	98	2402
Worthington, Charles C., Dunfield, N. J., and L. R. Alberger, New York, N. Y. Condenser system	693,810	Feb. 4	1064	227	98	1011

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Worthington, George G. (See McDonald and Worthington.)						
Wotton Electric & Manufacturing Company. (See Wotton, James A., assignor.)						
Wotton, James A., Atlanta, Ga., assignor to Wotton Electric & Manufacturing Company. Electric gong	692,579	Feb. 4	634	149	98	998
Wotton, James A., Atlanta, Ga., assignor to Wotton Electric & Manufacturing Company. Annunciator	692,580	Feb. 4	637	149	98	998
Wovries, Otto C., assignor of one-half to E. Borderwisch, Dayton, Ohio. Speed-regulator for explosive-engines	695,261	Mar. 11	1764	391	98	2101
Wright, Charles M., Anderson, Ind. Voting-machine	692,581	Feb. 4	639	150, 151	98	999
Wright, Clarence A., Keene, N. H. Quoit	692,903	Feb. 11	1379	299	98	1109
Wright, Flint W., Worcester, Mass. Cash-register	692,905	Feb. 11	1882	407, 408	98	1210
Wright, Francis C., Cavespring, Ga. Window-screen attachment	692,403	Feb. 4	321	75	98	855
Wright, Frank H. (See Leland, Edwin A., assignor.)						
Wright, James E., and L. J. Edwards, Omaha, Nebr. Rural-delivery mail-box	693,770	Feb. 18	2940	646, 647	98	1450
Wright, James M., Bloomington, assignor to H. Blakely, Indianapolis, and J. M. Wright, Bloomington, Ind. Chemical roofing material	691,882	Jan. 28	2872	.....	98	650
Wright, Jefferson M., *et al.* (See Wright, James M., assignor.)						
Wright, John A., Irwin, and W. F. O'Neill, Wilkinsburg, Pa. Knife-switch	695,188	Mar. 11	1686	361	98	2073
Wright, Richard H. (See Landfear, William R., assignor.)						
Wright, Rosalie, *et al.* (See Bennett, Charles R., assignor.)						
Wright, Samuel H., Bear Grove Township, Ill. Wire-stretcher	692,758	Feb. 4	989	214	98	990
Wright, William, New York, N. Y. Stamp-affixing device	693,480	Feb. 18	2598	524	98	1389
Wright, William J., assignor to J. S. Scully, Pittsburg, Pa. Woven-wire bag	692,404	Feb. 4	322	78	98	866
Wright, William J., assignor to J. S. Scully, Pittsburg, Pa. Woven-wire bag	692,405	Feb. 4	323	78	98	867
Wright, William J., assignor to J. S. Scully, Pittsburg, Pa. Woven-wire bag	692,406	Feb. 4	324	79	98	867
Wright, William J., assignor to J. S. Scully, Pittsburg, Pa. Weaving wire	692,407	Feb. 4	326	79	98	867
Wright, William J., assignor to J. S. Scully, Pittsburg, Pa. Apparatus for weaving wire	692,408	Feb. 4	327	79	98	867
Wright, William T. (See Warr and Wright.)						
Wroe, Hiram A., Austin, Tex. Snap	691,690	Jan. 21	2497	559	98	555
Wuest, Frederick, Lawrenceburg, Ind. Window shade or curtain hanger	695,525	Mar. 18	2217	502	98	2213
Wuhrmann, Emil, Zurich, Switzerland. Wood-cutting machine	691,498	Jan. 21	2018	451	98	455
Wulff, Frank, Colusa, Cal. Screw-joint fastener for drill-rods, &c	694,514	Mar. 4	334	74	98	1783
Wulkan, Heinrich, Sianje, Austria-Hungary. Obtaining starch and zein	696,156	Mar. 25	3439	.....	98	2478
Wullen, Charles. (See Wullen, George F., assignor.)						
Wullen, George F., assignor to C. Wullen, Buffalo, N. Y. Upholstered furniture	696,298	Mar. 25	3687	895	98	2629
Wurster, Casimir, London, England. Hopper for refining-engines	690,504	Jan. 7	270	54	98	59
Wurster, Casimir, London, England. Machine for tearing up paper, paper-pulp, and paper-stock	690,505	Jan. 7	270	54	98	59
	690,506	Jan. 7	271	55	98	59
Wurster, Casimir, London, England. Pulping-machine	695,778	Mar. 18	2685	.....	98	2308
Wurster, Casimir, London, England. Sizing paper	693,206	Feb. 11	1897	408	98	1210
Wyckoff, Homer W., Chicago, Ill. Wire-connector	691,691	Jan. 21	2498	559	98	555
Wyman, Adolphus F., New Bedford, Mass. Coaster-brake for bicycles						
Wyman, Horace, assignor to Crompton & Knowles Loom Works, Worcester, Mass. Warp stop-motion for looms	694,068	Feb. 25	3571	789	98	1595
Wyman, Horace B., Leominster, Mass., assignor to Oil Saving Manufacturing Company, Portland, Me. Oil-filter	691,885	Jan. 28	2796	628	98	634
Wyman, Jasper. (See Foster, Albion W., assignor.)						
Wynn, John P., Beechcreek, assignor of one-half to J. A. Bickford and T. M. Stevenson, Lockhaven, Pa. Device for emptying clay-pans	694,908	Mar. 4	1087	239	98	1949
Wyse, Roddy W., *et al.* (See Siebenhaar, Otto W., assignor.)						
Yager, Newton T., Louisville, Ky. Dental instrument	692,582	Feb. 4	647	151, 152	98	981
Yale, Charles A., assignor to Yale Wonder Clock Company, Burlington, Vt. Vending mechanism for coin-controlled apparatus	692,964	Feb. 11	1379	299, 300	98	1109
Yale, Charles A., assignor to Yale Wonder Clock Company, Burlington, Vt. Motor for coin-controlled apparatus	692,965	Feb. 11	1381	300	98	1109
Yale, Charles A., assignor to Yale Wonder Clock Company, Burlington, Vt. Contact-disk for coin-controlled apparatus	692,966	Feb. 11	1384	300	98	1110
Yale & Towne Manufacturing Company. (See Mix, Edward H., assignor.)						
Yale & Towne Manufacturing Company. (See Taylor, Warren H., assignor.)						
Yale Wonder Clock Company. (See Yale, Charles A., assignor.)						
Yancey, Christopher C., assignor of two-thirds to P. Steffen and F. J. Hatz, Yankton, S. D. Coin-controlled muscle-tester	694,226	Feb. 25	3333	849	98	1646
Yarnall, Vernon H., New York, N. Y. Conduit	695,594	Mar. 18	2968	537	98	2344
Yeakley, Melvin A., Cleveland, Ohio, assignor to Williams, White & Co., Moline, Ill. Pneumatic hammer	693,989	Feb. 25	3280	722	98	1586
Yetman, Charles E., Oakpark, Ill. Telegraphic transmitter	692,967	Feb. 11	1385	301, 302	98	1110
Yocom, John R. (See Whitely and Yocom.)						
Yonge, Chandler I., assignor of two-thirds to J. C. Griswell and T. Lesley, Tampa, Fla. Bench-vise	693,811	Feb. 18	3010	666	98	1465
Yost, Charles H., Jr. (See Binder, Gottlieb, assignor.)						
Yost Typewriter Company. (See Challinger, Joseph, assignor.)						
Youlten, William, Westminster, England. Sighting device for firearms	694,904	Mar. 4	1088	240	98	1942
Young, Charles W. (See Olora, Morris, assignor.)						
Young, Francis L., London, England, assignor to Aeolian Company, New York, N. Y. Controller for mechanical musical instruments	692,968	Feb. 11	1391	302	98	1111
Young, Francis L., London, England, assignor to Aeolian Company, New York, N. Y. Device for marking perforated music-sheets with a line indicating an effect to be produced	692,969	Feb. 11	1392	302	98	1111
Young, Franklin K., *et al.*, trustees. (See Weitz, George G., assignor.)						
Young, Franklin K., Boston, Mass. Firearm	691,040	Jan. 14	1277	289, 290	98	282
Young, Freeman N. (See Thompson and Young.)						
Young, McClintock, assignor to Young and Robinson, Frederick, Md. Hackling-machine	696,127	Mar. 25	3364	759	98	2464
Young and Robinson. (See Young, McClintock, assignor.)						
Young, William P., Woonsocket, R. I., assignor to American Knitting Machine Company, Philadelphia, Pa. Yarn-changing mechanism for circular-knitting machines	694,515	Mar. 4	335	74, 75	98	1783
	693,580	Feb. 18	2595	574	98	1378
Young, William R., Brooklyn, N. Y. Rock-crusher	692,099	Jan. 28	2375	740, 741	98	729
Younghusband, Samuel S., Darlington, England. Slide-valve gear for engines	694,905	Mar. 4	1091	241	98	1943
Yundt, Samuel G., and W. J. Nolen, Milwaukee, Wis. Stereotype-plate holder	692,970	Feb. 11	1393	303	98	1112
Zaehringer, William, New Orleans, La. Billiard-cue						

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Zander, Hermann. (See Stocker and Zander.)						
Zander, John, Mortonpark, Ill. Gas-governor	691,429	Jan. 21	2019	451	98	455
Zangenberg, Anton E., assignor to M. S. Newcorn, New York, N. Y. Fish-trap	690,507	Jan. 7	273	55	98	59
Zanner, Adolf, Brussels, Belgium. Apparatus for concentrating sulfuric acid	693,635	Feb. 18	2704	597	98	1402
Zastrow, August, Lyons, Kans. Hoisting-derrick and hoisting mechanism	693,940	Feb. 25	2994	723	98	1536
Zaum, Emil. (See Schmitz, Joseph, assignor.)						
Zeal, Giles H., London, England. Maximum thermometer	695,962	Mar. 11	1767	891	98	2101
Zeinwoldt, John A., Bodafors, Sweden. Platform rocking-chair	695,708	Mar. 18	2557	578	98	2290
Zelly, John, Eaton, Ohio. Interchangeable watch movement and pendant	695,859	Mar. 18	2821	642	98	2336
Zent, Benjamin F., Laud, Ind., assignor of one-half to M. W. Swineheart. Farm-fence	694,084	Feb. 25	3573	789 790	98	1595
Ziegler, George H., Philadelphia, Pa., assignor to American Type Founders' Company, Newark, N. J. Matrix-carrier for type-casting machines	691,286	Jan. 14	1504	363 364	98	347
Ziegler, Oscar J., assignor to Stover Manufacturing Company, Freeport, Ill. Wind-wheel	693,481	Feb. 18	2999	525	98	1340
Zilles, Hans, Mannheim, assignor to Hoffnungsthaler Papierfabrik A. & R. Geldmacher, Hoffnungsthal, Germany. Manufacture of wool-paper	693,941	Feb. 25	3987	.....	98	1537
Zimmermann, Franz E., New York, N. Y. Woodworking-machine	693,583	Feb. 4	649	152 153	98	981
Zingg, Ella K., administratrix. (See Zingg, Herman.)						
Zingg, Herman, deceased; E. K. Zingg, Great Valley, administratrix, assignor of one-half to M. C. Fitts, Salamanca, N. Y. Paint-oil	694,085	Feb. 25	3575	.....	98	1595
Zirkle, Charles M., Richmond, Va. Sash-fastener	692,100	Jan. 28	3277	741	98	729
Zoder, George W., Boyce, La. Press-box	695,990	Mar. 25	3076	697	98	2402
Zoder, George W., and W. P. Hayne, Boyce, La. Press for oleaginous substances	691,420	Jan. 21	2021	452	98	456
Zoeller, Theodore J., Nashville, Tenn. Electric signaling and circuit-controlling apparatus	695,991	Mar. 25	3076	697	98	2402
Zucker, Otto, Loschwitz, near Dresden, Germany. Cutting-machine	691,883	Jan. 28	2873	647	98	650
Zura, Josef B., Berlin, Germany. Mechanism for admitting or shutting off steam for rotary motors	691,041	Jan. 14	1280	290	98	288
Zweck, John L., Chicago, Ill. Photographic flash-light lamp	690,508	Jan. 7	274	55	98	60
Zweigbergk, Thorsten von, Preston, England. Controlling system	691,692	Jan. 21	2499	559 560	98	555
Zweigbergk, Thorsten von, Preston, England. Spark-interrupter	691,693	Jan. 21	2504	560 561	98	557
Zwickel, Conrad, and L. P. Grunbaum, Boise, Idaho; said Zwickel assignor to said Grunbaum. Non-removable bung	691,227	Jan. 14	1505	364	98	348
Zwicker, August, Rusk, Tex. Knife	694,814	Mar. 4	912	203 204	98	1905

ALPHABETICAL LIST OF PATENTEES OF DESIGNS.

Name, residence, and design.	No.	Date.	Official Gazette. Volume.	Page.
Ahrenfeldt, Charles J., New York, N. Y. Plate or similar article	35,781	Mar. 4	98	1956
Ahrenfeldt, Charles J., New York, N. Y. Plate or similar article	35,799	Mar. 11	98	2160
Alexander Smith & Sons Carpet Company. (See Vredenburgh, John S., assignor.)				
Altman, Henry J., New York, N. Y. Playing-card box	35,750	Feb. 18	98	1473
American Type Founders' Company. (See Ihlenburg, Herman, assignor.)				
American Type Founders' Company. (See Phinney, Joseph W., assignor.)				
Apple, Vincent G., Dayton, Ohio. Casing for dynamo-electric machines	35,619	Jan. 28	98	778
Aronson, Louis V., Newark, N. J. Clock-case	35,796	Mar. 11	98	2160
Aronson, Louis V., Newark, N. J. Clock-case	35,797	Mar. 11	98	2160
Aronson, Louis V., Newark, N. J. Clock-case	35,798	Mar. 11	98	2160
Aronson, Louis V., Newark, N. J. Clock-case	35,817	Mar. 18	98	2354
Atherton, Abel T., Bayside, R. I. Grid-bar for cotton openers and lappers	35,719	Feb. 11	98	1272
Auer, George, Toledo, Ohio. Side-wall register	35,789	Mar. 4	98	1958
Auer, George, Toledo, Ohio. Side-wall register	35,790	Mar. 4	98	1958
Ayvad, Hachig A., Hoboken, N. J. Life-preserver body	35,550	Jan. 7	98	215
Bailey, Charles J., Newton, Mass. Massage-roller	35,655	Feb. 4	98	1014
Baker, James H., Allegheny, Pa. Brake-rod end	35,622	Jan. 28	98	779
Baker, Stephen D., assignor to Peck Bros. & Co., New Haven, Conn. Siphon-jet slop-sink	35,801	Mar. 11	98	2161
Baker, Stephen D., assignor to Peck Bros. & Co., New Haven, Conn. Siphon-jet slop-sink	35,802	Mar. 11	98	2161
Baker, Stephen D., assignor to Peck Bros. & Co., New Haven, Conn. Siphon-jet slop-sink	35,803	Mar. 11	98	2161
Barbour, Samuel L. (See Goetze, Emil, assignor.)				
Barcalo, Edward J., Buffalo, N. Y. Frame for bed ends	35,727	Feb. 11	98	1273
Beck, George, Eldred, assignor to Enterprise Gas Stove Manufacturing Company, New York, N. Y. Radiator-top	35,628	Jan. 28	98	780
Belko, Frederick W., Model City, N. Y. Frame for fruit-parers	35,550	Jan. 7	98	217
Bennett, Charles A., Taunton, Mass. Handle for spoons, forks, or similar articles	35,555	Jan. 7	98	216
Bennett, Ernest H., East Orange, N. J., assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	35,631	Jan. 28	98	781
Bennett, Ernest H., East Orange, N. J., assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	35,632	Jan. 28	98	781
Bentley, Charles E., New York, N. Y. Pillow-top	35,593	Jan. 21	98	574
Bentley, Charles E., New York, N. Y. Pillow-top	35,594	Jan. 21	98	574
Bentley, Charles E., New York, N. Y. Pillow-top	35,595	Jan. 21	98	574
Bentley, Charles E., New York, N. Y. Pillow-top	35,596	Jan. 21	98	574
Bentley, Charles E., New York, N. Y. Pillow-top	35,597	Jan. 21	98	574
Bentley, Charles E., New York, N. Y. Pillow-top	35,598	Jan. 21	98	574
Bentley, Charles E., New York, N. Y. Pillow-top	35,599	Jan. 21	98	575
Bentley, Charles E., New York, N. Y. Pillow-top	35,600	Jan. 21	98	575
Bentley, Charles E., New York, N. Y. Pillow-top	35,601	Jan. 21	98	575
Bentley, Charles E., New York, N. Y. Pillow-top	35,602	Jan. 21	98	575
Bentley, Charles E., New York, N. Y. Pillow-top	35,603	Jan. 21	98	575
Bentley, Charles E., New York, N. Y. Pillow-top	35,604	Jan. 21	98	575
Bentley, Charles E., New York, N. Y. Pillow-top	35,605	Jan. 21	98	576
Bentley, Charles E., New York, N. Y. Pillow-facing	35,606	Jan. 21	98	576
Black, Starr & Frost. (See Graff, Charles, assignor.)				
Bomenblit, Frank M., and D. Pink, Newark, N. J. Sideboard ornament	35,586	Jan. 14	98	410
Bracken, Julia M., Chicago, Ill., assignor to Oneida Community, Ltd., Kenwood, N. Y. Handle for spoons or similar articles	35,607	Jan. 28	98	776
Brewington, Henry S., Baltimore, Md. Securing-bar for trousers-clasps	35,547	Jan. 7	98	215
Bromham, William W., assignor to M. T. Goldsmith, New York, N. Y. Brush or mirror back	35,608	Jan. 28	98	777
Bromley & Sons, John. (See Bennett, Ernest H., assignor.)				
Bromley & Sons, John. (See Petzold, Adolph, assignor.)				
Brown, Garrett, Denver, Colo. Pincushion	35,578	Jan. 14	98	406
Buck, John A., and G. Hassler, New York, N. Y. Horseshoe-pad	35,621	Jan. 28	98	779
Burch, Julian A., and L. E. Lee, Chicago, Ill. Garbage-can	35,729	Feb. 11	98	1273
Burke, James. (See Dredge and Burke.)				
Busky, John S., New York, N. Y. Shoe-sole	35,569	Jan. 7	98	219
Busky, John S., Brooklyn, N. Y. Shoe-sole	35,630	Jan. 28	98	781
Busky, John S., Brooklyn, N. Y. Shoe-shank	35,709	Feb. 11	98	1270
Calleson, Christian A., New York, and M. Calleson, Brooklyn, N. Y. Supporting-frame for ice-cutters and ice-cream freezers	35,645	Jan. 28	98	783
Calleson, Martin. (See Calleson, Christian A. and M.)				
Campbell, John, New York, N. Y. Hoof-pad	35,693	Feb. 4	98	1021
Campbell, Thomas, Irwin, Pa. Belt-holder	35,751	Feb. 18	98	1473
Canedy, Albert E., assignor to Canedy Otto Manufacturing Company, Chicago Heights, Ill. Blower and gear casing	35,671	Feb. 4	98	1017
Canedy Otto Manufacturing Company. (See Canedy, Albert E., assignor.)				
Capital Iron Works. (See Harrison, John N., assignor.)				
Carlson, William E., assignor to William B. Durgin Company, Concord, N. H. Ornamental dish	35,771	Feb. 25	98	1697
Case, Frank E., Canton, Ohio. Dental-instrument cabinet	35,776	Feb. 25	98	1698
Chance Brothers and Co. (See Woodward, Thomas J., assignor.)				
Church, Lee O., Verne, Ind. Dressing-case	35,674	Feb. 4	98	1017
Clark, Allison N., Plainville, Conn. Manicure-blade	35,746	Feb. 18	98	1473
Clark, Charles W., Ardmore, Pa. Chair	35,779	Feb. 25	98	1698
Clarke, Richard T., Columbus, Ohio. Button-engaging attachment for shirt-waists	35,705	Feb. 11	98	1969
Cliff, George H., Philadelphia, Pa., assignor to De Long Hook and Eye Company. Eye for garment-fasteners	35,639	Jan. 28	98	782
Climer, Laura A., Chicago, Ill. Fruit-jar clamp	35,614	Jan. 28	98	777
Cochrane Manufacturing Company. (See Mason, Alphonse, assignor.)				
Codman, William C., assignor to Gorham Manufacturing Company, Providence, R. I. Handle for spoons, forks, or similar articles	35,556	Jan. 7	98	216
Codman, William C., assignor to Gorham Manufacturing Company, Providence, R. I. Handle for spoons, forks, or similar articles	35,760	Mar. 4	98	1956
Cohen, Ovid, New Haven, Conn. Badge	35,825	Mar. 25	98	2579

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Comstock, Henry W., Boston, Mass. Tobacco-pipe	35,637	Jan. 28	98	782
Cooper, Jason W., St. Paul, Minn. Wrapping-paper	35,673	Feb. 4	98	1017
Covert Manufacturing Company. (See Grigg, Joseph, assignor.)				
Cowen, Abraham W., New York, N. Y. Necktie	35,662	Feb. 4	98	1015
Crippen, Henry D. (See Maxwell, George S., assignor.)				
Davenport, Frank W., Providence, R. I. Record-sheet	35,717	Feb. 11	98	1271
David, Harry. (See David, Mesrope, Z., H., and P.)				
David, Mesrope, Z., H., and P., Brockton, Mass. Chisel, nail-puller, and hammer	35,652	Feb. 4	98	1013
David, Mesrope, Z., H., and P., Brockton, Mass. Limb-cutter or branch-trimmer and hatchet	35,720	Feb. 11	98	1273
David, Paul. (See David, Mesrope, Z., H., and P.)				
David, Zakar. (See David, Mesrope, Z., H., and P.)				
De Long, Frank E., Philadelphia, Pa., assignor to De Long Hook and Eye Company. Eye for garment-fasteners	35,640	Jan. 28	98	782
De Long Hook and Eye Company. (See Cliff, George H., assignor.)				
De Long Hook and Eye Company. (See De Long, Frank E., assignor.)				
De Long Hook and Eye Company. (See Richardson, Thomas D., assignor.)				
De Moss, Peter O., Moro, Oreg. Member for sack-supports	35,680	Feb. 4	98	1018
Depollier, Charles L., assignor to Dubois Watch-Case Company, Brooklyn, N. Y. Watchcase	35,740	Feb. 18	98	1471
Desormoux, Charles, Cleveland, Ohio. Urinal	35,617	Jan. 28	98	778
Detroit Motor Works. (See Hardy, Roy E., assignor.)				
Dietz, Francis G., New York, N. Y. Garment-supporter	35,548	Jan. 7	98	215
Dietz, Francis G., New York, N. Y. Garment-supporter	35,612	Jan. 28	98	777
Dietz, Francis G., New York, N. Y. Garment-supporter	35,613	Jan. 28	98	777
Donnell, John T., St. Louis, Mo. Souvenir hat-pin	35,661	Feb. 4	98	1015
Doran, Robert L., assignor of three-fourths to J. S. Knight, J. H. T. Martin, Chicago, Ill., and M. C. McGannon, Nashville, Tenn. Gas-lamp	35,787	Mar. 4	98	1957
Doran, Robert L., assignor of three-fourths to J. S. Knight, J. H. T. Martin, Chicago, Ill., and M. C. McGannon, Nashville, Tenn. Gas-lamp	35,788	Mar. 4	98	1958
Drain, William J., Jr., Philadelphia, Pa. Jewelry-display stand	35,748	Feb. 18	98	1473
Drake, Chester T., Chicago, Ill. Mixer-blade	35,664	Feb. 4	98	1015
Dredge, Joseph F., and J. Burke, Racine, Wis. Rub-iron or fender for vehicles	35,567	Jan. 7	98	216
Dresser, Solomon R., Bradford, Pa. Clamping-ring for pipe-couplings	35,618	Jan. 28	98	778
Drueding, Charles C., Philadelphia, Pa. Watch-bag	35,591	Jan. 21	98	573
Dubé, Arthur, Fall River, Mass. Loom-fork	35,651	Feb. 4	98	1013
Dubois Watch-Case Company. (See Depollier, Charles L., assignor.)				
Ebsen, Henry L., Hoboken, assignor to James Reilly Repair and Supply Company, Jersey City, N. J. Interior frame for filters	35,722	Feb. 11	98	1273
Eiseman, Max, *et al.* (See Krause, Hugo C., assignor.)				
Eiseman, Nathan, *et al.* (See Krause, Hugo C., assignor.)				
Enterprise Gas Stove Manufacturing Company. (See Beck, George, assignor.)				
Estes, John W., St. Louis, Mo. Table	35,728	Feb. 11	98	1273
Eustis, John P., Newtonville, Mass. Drainer for dishes	35,670	Feb. 4	98	1016
Eustis, John P., Newtonville, Mass. Receptacle	35,676	Feb. 4	98	1018
Farrell, James P., Jr., *et al.* (See Flindt, Carl J. H., assignor.)				
Fitch, Frank E., Rochester, assignor of two-thirds to H. V. Hoag, Jr., Smithville Flats, and J. H. Fitch, Rochester, N. Y. Vending-machine case	35,703	Feb. 4	98	1022
Fitch, Joseph H., *et al.* (See Fitch, Frank E., assignor.)				
Flindt, Carl J. H., assignor of two-thirds to J. P. Farrell, Jr., and E. McMurray, Brooklyn, N. Y. Vessel's hull	35,590	Jan. 14	98	410
Forgach, George, Glenlyon, Pa. Drinking vessel	35,557	Jan. 7	98	216
Fox, Ivan, Lansdowne, Pa. Nosepiece for spectacles or eyeglasses	35,551	Jan. 7	98	216
Fox, Ivan, Lansdowne, Pa. Nosepiece for spectacles or eyeglasses	35,552	Jan. 7	98	216
Fox, Ivan, Lansdowne, Pa. Nosepiece for spectacles or eyeglasses	35,553	Jan. 7	98	216
Freeman, Frank A., Philadelphia, Pa. Hose-supporter	35,752	Feb. 18	98	1473
Friedman, Aron, Chicago, Ill. Dial	35,641	Jan. 28	98	782
Gaisman, Henry J., New York, N. Y. Waist-belt	35,707	Feb. 11	98	1270
Gale, John D. (See Gibson, William, Jr., assignor.)				
Geiges, Alexander, assignor to R. Wallace & Sons Mfg. Co., Wallingford, Conn. Back for brushes, mirrors, or similar articles	35,770	Feb. 25	98	1697
Gibson, William, Jr., Wolseley, assignor of one-half to J. D. Gale, Whitewood, Canada. Plow-share-lay	35,566	Jan. 7	98	218
Godfrey, Robert, Cambridge, Mass. Wall-tie	35,565	Jan. 7	98	218
Goetze, Emil, Wallingford, assignor to S. L. Barbour, Hartford, Conn. Candlestick	35,786	Mar. 4	98	1957
Goldsmith, Marcus T. (See Bromham, William W., assignor.)				
Goldsmith, Marcus T. (See Keller, Sidney A., assignor.)				
Goldsmith, Marcus T., New York, N. Y. Alphabet	35,642	Jan. 28	98	782
Goldsmith, Marcus T., New York, N. Y. Alphabet	35,643	Jan. 28	98	783
Goldsmith, Marcus T., New York, N. Y. Alphabet	35,644	Jan. 28	98	783
Gorham Manufacturing Company. (See Codman, William C., assignor.)				
Gorham Manufacturing Company. (See Osborne, Frank N., assignor.)				
Graff, Charles, New York, N. Y., assignor to Black, Starr & Frost. Cup	35,785	Mar. 4	98	1957
Grigg, Joseph, Colonie, assignor to Covert Manufacturing Company, Watervliet, N. Y. Keeper for hooks	35,658	Feb. 4	98	1014
Hahn, Charles H., New Haven, Conn. Melon and pie knife	35,626	Jan. 28	98	782
Hardy, Roy E., assignor to Detroit Motor Works, Detroit, Mich. Engine frame or casing	35,633	Jan. 28	98	779
Harrison, John N., Ottawa, assignor to Capital Iron Works, Topeka, Kans. Metallic curb	35,760	Feb. 18	98	1474
Hart, Gerald W., West Hartford, assignor to Hart Manufacturing Company, Hartford, Conn. Switch contact member	35,630	Jan. 28	98	779
Hart, Howard S., New Britain, Conn. Top plate for registers, ventilators, or similar articles	35,588	Jan. 14	98	409
Hart Manufacturing Company. (See Hart, Gerald W., assignor.)				
Hassler, George. (See Buck and Hassler.)				
Hathaway, Wick, Madison, Ohio. Butter-knife	35,554	Jan. 7	98	216
Hathaway, Wick, Madison, Ohio. Box-opener	35,561	Jan. 7	98	217
Haviland, Charles E., Limoges, France. Plate or similar article	35,782	Mar. 4	98	1956
Haviland, Charles E., Limoges, France. Covered dish or similar article	35,783	Mar. 4	98	1956
Haviland, Charles E., Limoges, France. Teapot or similar article	35,784	Mar. 4	98	1957
Hawks, William, Chicago, Ill. Lamp-fixture	35,581	Jan. 14	98	408
Herbert, Henry J., assignor to United States Chemico Wood Company, Detroit, Mich. Mirror-frame	35,575	Jan. 14	98	407
Herbert, Henry J., assignor to United States Chemico Wood Company, Detroit, Mich. Brush back and handle	35,576	Jan. 14	98	408
Hoag, Herman V., Jr., *et al.* (See Fitch, Frank E., assignor.)				
Hollister, Frank B., Mount Morris, N. Y. Game-board	35,791	Mar. 4	98	1958
Homan Silver Plate Company. (See Leavenworth, Seth H., assignor.)				
Hull, Scott H., Oskaloosa, Iowa. Halter-loop	35,694	Feb. 4	98	1021
Hunter, Andrew, San Francisco, Cal. Hose-supporter	35,549	Jan. 7	98	215

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Ihlenburg, Herman, Philadelphia, Pa., assignor to American Type Founders' Company, Newark, N. J. Font of printing-type	35,777	Feb. 25	98	1698
Ithaca Wall Paper Mills. (See McManus, Nicholas A., assignor.)	35,577	Jan. 14	98	408
Jacobson, Nels, Riblake, Wis. Penholder	35,723	Feb. 11	98	1273
James Reilly Repair and Supply Company. (See Ebsen, Henry L., assignor.)	35,568	Jan. 7	98	216
Jamison, Robert D., Detroit, Mich. Lamp-chimney	35,562	Jan. 7	98	217
Jaques, Charles E., Oakpark, Ill. Advertising puzzle-sheet	35,679	Feb. 4	98	1018
Jeavons, William R., Cleveland, Ohio. Bowl for hydrocarbon-burners	35,682	Feb. 4	98	1021
Jeavons, William R., Cleveland, Ohio. Connecting member for hydrocarbon-stoves	35,646	Jan. 28	98	786
Jeavons, William R., Cleveland, Ohio. Bowl-support for hydrocarbon-burners				
Johnson, Frederick I., assignor to M. E. Johnson, Fitchburg, Mass. Cylinder-cover for firearms				
Johnson, Mary E. (See Johnson, Frederick I., assignor.)				
Joseph Seymour Manufacturing Company. (See Wilson, Frederick G., assignor.)				
Kaiser, Joseph W., *et al.* (See Krause, Hugo C., assignor.)				
Karpen & Bros., S. (See Olsson, Axel E., assignor.)	35,650	Feb. 4	98	1013
Keiner, Henry A., Brooklyn, assignor to E. C. Seaman, New York, N. Y. Handle	35,747	Feb. 18	98	1472
Keller, Sidney A., assignor to M. T. Goldsmith, New York, N. Y. Purse-top or similar article	3,558	Jan. 7	98	217
Kiefer, Karl, Cincinnati, Ohio. Bottle	35,667	Feb. 4	98	1016
Kiefer, Karl, Cincinnati, Ohio. Bottle	35,658	Feb. 4	98	1013
Kirstein, Henry E., Rochester, N. Y. Eyeglass or pince-nez spring				
Knight, James S., *et al.* (See Doran, Robert L., assignor.)				
Kohlhepp, Robert A., Wallingford, assignor to Landers, Frary and Clark, New Britain, Conn. Ferrule	35,818	Mar. 18	98	2354
Kohlhepp, Robert A., Wallingford, assignor to Landers, Frary and Clark, New Britain, Conn. Ferrule	35,819	Mar. 18	98	2354
Kohlhepp, Robert A., Wallingford, assignor to Landers, Frary and Clark, New Britain, Conn. Ferrule	35,820	Mar. 18	98	2354
Krause, Hugo C., assignor of three-fourths to M. and N. Eiseman and J. W. Kaiser, Chicago, Ill. Belt	35,767	Feb. 18	98	1476
Kundtz, Theodor, Lakewood, Ohio. Drawer for cabinets	35,624	Jan. 28	98	779
Kundtz, Theodor, Lakewood, Ohio. Sewing-machine cabinet	35,625	Jan. 28	98	780
Kundtz, Theodor, Lakewood, Ohio. Sewing-machine cabinet	35,626	Jan. 28	98	780
Kundtz, Theodor, Lakewood, Ohio. Drawer for cabinets	35,731	Feb. 11	98	1274
Kundtz, Theodor, Lakewood, Ohio. Sewing-machine cabinet	35,732	Feb. 11	98	1274
Kundtz, Theodor, Lakewood, Ohio. Top for sewing-machine cabinets	35,733	Feb 11	98	1274
Kundtz, Theodor, Lakewood, Ohio. Drawer for sewing-machine cabinets	35,804	Mar. 11	98	2162
Kundtz, Theodor. Lakewood, Ohio. Drawer for sewing-machine cabinets	35,805	Mar. 11	98	2162
Landers, Frary and Clark. (See Kohlhepp, Robert A., assignor.)				
Landers, Frary & Clark. (See Smith, Charles F., assignor.)				
Leavenworth, Seth H., assignor to Homan Silver Plate Company, Cincinnati, Ohio. Coffee-pot or similar vessel	35,800	Mar. 11	98	2161
Lee, Lester E. (See Burch and Lee.)				
Lehman, Otto A., Hoboken, N. J. Apparel-belt	35,792	Mar. 4	98	1958
Lehman, Otto A., Hoboken, N. J. Apparel-belt	35,793	Mar. 4	98	1959
Lehman, Otto A., Hoboken, N. J. Apparel-belt	35,794	Mar. 4	98	1959
Lehman, Otto A., Hoboken, N. J. Apparel-belt	35,823	Mar. 18	98	2355
Lehman, Otto A., Hoboken, N. J. Apparel-belt	35,824	Mar. 18	98	2355
Lehman, Otto A., Hoboken, N. J. Apparel-belt	35,611	Jan. 28	98	777
Leib, Charles, Philadelphia, Pa. Hook for garments	35,657	Feb. 4	98	1014
Leib, Charles, Philadelphia, Pa. Hook for garments	35,658	Feb. 4	98	1014
Leib, Charles, Philadelphia, Pa. Garment-eye	35,765	Feb. 18	98	1475
Lewenthal, Isaac, assignor to Royal Metal Manufacturing Company, New York, N. Y. Belt				
Lewenthal, Isaac, assignor to Royal Metal Manufacturing Company, New York, N. Y. Belt-body or similar article	35,766	Feb. 18	98	1476
Lind, Charles W., and C. N. Silver, Beloit, Wis. Flower-stand	35,627	Jan. 28	98	780
Linotype Company. (See Nadall, Berne, assignor.)	35,706	Feb. 11	98	1270
Luce, Franklin A., Chicago, Ill. Apparel-belt				
Martin, J. H. Talbot, *et al.* (See Doran, Robert L., assignor.)				
Mason, Alphonse, Boston, assignor to Cochrane Manufacturing Company, East Dedham, Mass. Carpet	35,815	Mar. 11	98	2163
Mason, Alphonse, Boston, assignor to Cochrane Manufacturing Company, East Dedham, Mass. Carpet	35,816	Mar. 11	98	2163
Mathias, Theodore N., Milwaukee, Wis. Rein-support	35,761	Feb. 18	98	1475
Maxwell, George S., Jersey City, N. J., assignor of one-half to H. D. Crippen, New York, N. Y. Support for punching-bags	35,678	Feb. 4	98	1018
McGannon, Matthew C., *et al.* (See Doran, Robert L., assignor.)				
McManus, Nicholas A., New York, N. Y., assignor to Ithaca Wall Paper Mills. Wall-paper	35,735	Feb 11	98	1275
McManus, Nicholas A., New York, N. Y., assignor to Ithaca Wall Paper Mills. Wall-paper	35,736	Feb. 11	98	1275
McManus, Nicholas A., New York, N. Y., assignor to Ithaca Wall Paper Mills. Wall-paper	35,737	Feb. 11	98	1275
McMurray, Edmund, *et al.* (See Flindt, Carl J. H., assignor.)				
Meinecke, Christian W., Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Hot-water-bag closure	35,580	Jan. 14	98	408
Meinecke, Christian W., Jersey City, N. J., assignor to Meinecke & Co., New York, N. Y. Cushion	35,654	Feb. 4	98	1014
Meinecke & Co. (See Meinecke, Christian W., assignor.)	35,758	Feb. 18	98	1474
Moffitt, William H., Lexington, N. C. Butcher's tool	35,660	Feb 4	98	1014
Mundheim, Samuel, New York, N. Y. Hat	35,592	Jan. 21	98	573
Murdock, George F., Wellsville, Ohio. Shingle	35,616	Jan. 28	98	778
Mygatt, Otis A., New York, N. Y. Reflector for artificial lights	35,682	Feb. 4	98	1019
Mygatt, Otis A., New York, N. Y. Reflector for artificial lights	35,683	Feb. 4	98	1019
Mygatt, Otis A., New York, N. Y. Reflector for artificial lights	35,684	Feb. 4	98	1019
Mygatt, Otis A., New York, N. Y. Reflector for artificial lights	35,755	Feb. 18	98	1473
Mygatt, Otis A., New York, N. Y. Reflector for artificial lights	35,756	Feb. 18	98	1474
Mygatt, Otis A., New York, N. Y. Reflector for artificial lights	35,757	Feb. 18	98	1474
Nadall, Berne, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type	35,711	Feb. 11	98	1270
Nadall, Berne, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments	35,807	Mar. 11	98	2162
Nadall, Berne, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments	35,808	Mar. 11	98	2162
Nadall, Berne, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments	35,809	Mar. 11	98	2162
Nadall, Berne, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments	35,810	Mar. 11	98	2163
Nadall, Berne, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments	35,811	Mar. 11	98	2163

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Nadall, Berne, Kingston-upon-Thames, assignor to Linotype Company, Limited, London, England. Font of type ornaments	35,812	Mar. 11	98	2163
New Century Hook and Eyelet Company. (See Poalk, James L., assignor.)				
Olsson, Axel E., assignor to S. Karpen & Bros., Chicago, Ill. Leg for couches	35,726	Feb. 11	98	1275
Ondrak, Caroline C., New York, N. Y. Lady's skirt	35,579	Jan. 14	98	408
Oneida Community. (See Bracken, Julia M., assignor.)				
Onerbacker, Joseph P., Louisville, Ky. Stove-door	35,582	Jan. 14	98	409
Orenshaw, George, West Philadelphia, Pa. Newspaper-holder	35,585	Jan. 14	98	409
Osborne, Frank N., New York, N. Y., assignor to Gorham Manufacturing Company, Providence, R. I. Handle for spoons, forks, or similar articles	35,649	Feb. 4	98	1013
Oswald, Julius A., Crawfordsville, Ind. Souvenir-spoon	35,573	Jan. 14	98	407
Palmer, Isaac E., Middletown, Conn. Hammock fabric	35,753	Feb. 18	98	1478
Pankratz, John, Kansas City, Mo. Threshing-machine-cylinder tool	35,721	Feb. 11	98	1272
Peck Bros. & Co. (See Baker, Stephen D., assignor.)				
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	35,587	Jan. 14	98	410
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	35,588	Jan. 14	98	410
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	35,633	Jan. 28	98	781
Petzold, Adolph, assignor to J. Bromley & Sons, Philadelphia, Pa. Rug	35,634	Jan. 28	98	781
Petzold, Adolph, Philadelphia, Pa., assignor to J. Bromley & Sons. Rug	35,778	Feb. 25	98	1698
Phinney, Joseph W., Medford, Mass., assignor to American Type Founders' Company, New York, N. Y. Font of type	35,712	Feb. 11	98	1271
Pick, Albert, Chicago, Ill. Stem-glass	35,828	Mar. 25	98	2580
Pilling, Charles J., Lansdown, assignor to G. P. Pilling & Son, Philadelphia, Pa. Blank for specula	35,714	Feb. 11	98	1271
Pilling, Charles J., Lansdown, assignor to G. P. Pilling & Son, Philadelphia, Pa. Blank for speculum-blades	35,715	Feb. 11	98	1271
Pilling, Charles J., Lansdown, assignor to G. P. Pilling & Son, Philadelphia, Pa. Blank for speculum-blades	35,716	Feb. 11	98	1271
Pilling & Son, George P. (See Pilling, Charles J., assignor.)				
Pink, David. (See Bomenblit and Pink.)				
Poalk, James L., Merchantville, assignor to New Century Hook and Eyelet Company, Camden, N. J. Lace-fastener	35,690	Feb. 4	98	1020
Pollard, Collingwood, Bradford, England. Kindling-block	35,685	Feb. 4	98	1019
Pollard, Collingwood, Bradford, England. Kindling-block	35,686	Feb. 4	98	1020
Prahar, Louis B., Brooklyn, N. Y. Back for brushes or similar articles	35,609	Jan. 28	98	777
Proulx, Harmoney W., Holyoke, Mass. Shoe-store seat	35,725	Feb. 11	98	1273
Putnam, Charles F., Fitchburg, Mass. Vehicle-body	35,739	Feb. 11	98	1275
R. Wallace & Sons Mfg. Co. (See Geiges, Alexander, assignor.)				
R. Wallace & Sons Mfg. Co. (See Wallace, Henry L., assignor.)				
Reid, Josephine A., Muscogee, Ind. Ter. Kitchen-cabinet	35,584	Jan. 14	98	409
Richards, William P., Union City, Tenn. Surgical rubber pad	35,749	Feb. 18	98	1473
Richardson, Thomas D., Philadelphia, Pa., assignor to De Long Hook and Eye Company. Eye for garment-fasteners	35,608	Jan. 28	98	782
Ritz, August N., Milwaukee, Wis. Paste-jar	35,669	Feb. 4	98	1016
Robin, Joseph T., New York, N. Y. Show-case	35,675	Feb. 4	98	1017
Roblin, John S., Detroit, Mich. Pail-cover	35,560	Jan. 7	98	217
Rogers, Frank J., Diagonal, Iowa. Harness-pad	35,695	Feb. 4	98	1021
Rogers, Winfield S., Keene, N. H. Vehicle-body	35,763	Feb. 18	98	1475
Rosenheimer, Julius T., New York, N. Y. Needle-case	35,704	Feb. 11	98	1269
Royal Metal Manufacturing Company. (See Lewenthal, Isaac, assignor.)				
Russell, Edgar A., Wallingford, Conn. Condiment-cup	35,822	Mar. 18	98	2355
Sanders, Louis, Brooklyn, N. Y. Belt	35,570	Jan. 7	98	219
Scheer, Christian, Tiffin, Ohio. Clock-shelf and sewing-cabinet	35,734	Feb. 11	98	1274
Schiffer, Walter A., New York, N. Y. Advertising-card or similar article	35,677	Feb. 4	98	1018
Schimmel, Magnus, St. Louis, Mo. Ring	35,795	Mar. 11	98	2159
Schrader-Wittstein Company. (See Wittstein, Alfred H., assignor.)				
Schrader-Wittstein Company. (See Wittstein, Charles T., assignor.)				
Schumacher, Gustav, Chicago, Ill. Metal-framed rocking-chair	35,681	Feb. 4	98	1018
Schwarz, William J., Brooklyn, N. Y. Gas-stove	35,738	Feb. 11	98	1275
Seaman, Elizabeth C. (See Keiner, Henry A., assignor.)				
Sherman, John J., Jr., Chicago, Ill. Game-board	35,718	Feb. 11	98	1271
Silver, Charles N. (See Lind and Silver.)				
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Ferrule	35,663	Feb. 4	98	1015
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Knife-handle	35,826	Mar. 25	98	2579
Smith, Charles F., assignor to Landers, Frary & Clark, New Britain, Conn. Knife-handle	35,827	Mar. 25	98	2580
Smith, William T., Philadelphia, Pa. Fringe	35,813	Mar. 11	98	2163
Smith, William T., Philadelphia, Pa. Fringe	35,814	Mar. 11	98	2163
Smithers, Joseph G., Dekalb Junction, N. Y. Protector for beehives	35,700	Feb. 4	98	1022
Standard Sanitary Manufacturing Company. (See Torrance, Francis J., assignor.)				
Stecher, Frank A., assignor to Stecher Lithographic Company, Rochester, N. Y. Paper-box blank	35,615	Jan. 28	98	778
Stecher Lithographic Company. (See Stecher, Frank A., assignor.)				
Steele, Harvey R., Punxsutawney, Pa. Stick-pin blank	35,768	Feb. 25	98	1697
Stein, Benjamin, New York, N. Y. Suspender-yoke	35,687	Feb. 4	98	1020
Stetson, James B., San Francisco, and W. J. Thomas, Sausalito, Cal. Locomotive-body	35,806	Mar. 11	98	2162
Stickley, Gustave, Syracuse, N. Y. Screw	35,710	Feb. 11	98	1270
Stites, Townsend, assignor to Welsbach Light Company, Gloucester City, N. J. Bunsen-burner mixing-tube	35,754	Feb. 18	98	1473
Stockton, Robert S., Golden, Colo. Badge	35,689	Feb. 4	98	1020
Streeter, Alfred L., Chicago, Ill. Fan-casing	35,562	Jan. 7	98	217
Streeter, Alfred L., Chicago, Ill. Fan-casing	35,564	Jan. 7	98	217
Taussig, Rudolph J., San Francisco, Cal. Bottle	35,668	Feb. 4	98	1016
Thielke, Ferdinand, Brooklyn, N. Y. Handle for button-hooks or similar articles	35,574	Jan. 14	98	407
Thomas, William J. (See Stetson and Thomas.)				
Torrance, Francis J., assignor to Standard Sanitary Manufacturing Company, Allegheny, Pa. Lavatory	35,730	Feb. 11	98	1274
Trinchard, Louis F., New Orleans, La. Corn-holder	35,699	Feb. 4	98	1022
Turner, George T., Philadelphia, Pa. Automobile-frame	35,713	Feb. 11	98	1271
Underwood, William E., Gainesville, Tex. Spur-body	35,696	Feb. 4	98	1021
Underwood, William E., Gainesville, Tex. Spur-body	35,697	Feb. 4	98	1021
United States Chemico Wood Company. (See Herbert, Henry J., assignor.)				
Van Orden, John M., Newark, N. J. Corset	35,572	Jan. 7	98	219
Vernon, James B., Paola, Kans. Dental-instrument holder	35,610	Jan. 28	98	777
Vredenburgh, John S., assignor to Alexander Smith & Sons Carpet Company, Yonkers, N. Y. Carpet	35,685	Jan. 28	98	781
Wade, Linda R., St. Louis, Mo. Bust-pad	35,666	Feb. 4	98	1015

Alphabetical list of patentees of designs, January to March, inclusive—Continued.

Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Wagner, Bernard P., Sidney, Ohio. Vessel	35,759	Feb. 18	98	1474
Walker, Janet G., Liverpool, England. Tray or holder for soap	35,734	Feb. 11	98	1273
Wallace, Henry L., assignor to R. Wallace & Sons Mfg. Co., Wallingford, Conn. Handle for spoons, forks, or similar articles	35,647	Feb. 4	98	1012
Wallace, Henry L., assignor to R. Wallace & Sons Mfg. Co., Wallingford, Conn. Handle for spoons, forks, or similar articles	35,648	Feb. 4	98	1013
Walter, Bernhard C., Norfolk, Nebr. Vehicle-body	35,698	Feb. 4	98	1022
Warren, John D., Chicago, Ill. Cabinet	35,701	Feb. 4	98	1022
Washington, Thomas C., Brookland, D. C. Puzzle-board	35,764	Feb. 18	98	1475
Watts, David H., Jr., Philadelphia, Pa. Tile	35,691	Feb. 4	98	1020
Weeks, Hubbard F., Freehold, N. J. Axle-center and fifth-wheel plate	35,589	Jan. 14	98	410
Weeks, Lewis D., Santa Margarita, Cal. Egg-case filler	35,672	Feb. 4	98	1017
Welch, James E., Burdickville, Mich. Monument	35,688	Feb. 4	98	1020
Wells, George W., Southbridge, Mass. Cylinder-lens	35,769	Feb. 25	98	1697
Welsbach Light Company. (See Stites, Townsend, assignor.)	35,708	Feb. 11	98	1270
Wensch, Minna, Brooklyn, N. Y. Bandage	35,708	Feb. 11	98	1269
Wilburn, Minnie C., Denver, Colo. Medal	35,571	Jan. 7	98	219
Wilentshik, Bernhard, New York, N. Y. Belt	35,821	Mar. 18	98	2355
William B. Durgin Company. (See Carlson, William E., assignor.)	35,629	Jan. 28	98	730
Wilson, Frederick G., assignor to Joseph Seymour Manufacturing Company, Syracuse, N. Y. Handle for spoons or similar articles	35,741	Feb. 18	98	1471
Witman, John A., Columbus, Ohio. Gas heating-stove	35,742	Feb. 18	98	1472
Wittstein, Alfred H., assignor to Schrader-Wittstein Company, Chicago, Ill. Solitaire-gem setting	35,743	Feb. 18	98	1472
Wittstein, Charles T., assignor to Schrader-Wittstein Company, Chicago, Ill. Solitaire-gem-setting finger-ring	35,744	Feb. 18	98	1472
Wittstein, Charles T., assignor to Schrader-Wittstein Company, Chicago, Ill. Solitaire-gem-setting finger-ring	35,745	Feb. 18	98	1472
Wittstein, Charles T., assignor to Schrader-Wittstein Company, Chicago, Ill. Solitaire-gem-setting finger-ring	35,665	Feb. 4	98	1015
Woodbury, George E., Charlotte, Mich. Trace-holder	35,762	Feb. 18	98	1475
Woodford, Romanta D., Cortland, N. Y. Brace for carriage running-gear	35,772	Feb. 25	98	1697
Woodward, Thomas J., Birmingham, assignor to Chance Brothers and Co., Limited, West Smethwick, England. Ornamental tile	35,773	Feb. 25	98	1697
Woodward, Thomas J., Birmingham, assignor to Chance Brothers and Co., Limited, West Smethwick, England. Ornamental tile	35,774	Feb. 25	98	1698
Woodward, Thomas J., Birmingham, assignor to Chance Brothers and Co., Limited, West Smethwick, England. Ornamental tile	35,775	Feb. 25	98	1698
Ziegler, Alfred M., Boston, Mass. Garment-grip	35,650	Feb. 4	98	1014

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ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
A. C. Lawrence Leather Co., Boston, Mass. Leather	37,682	Jan. 28	98	785
A. C. Lawrence Leather Co., Boston, Mass. Leather	37,683	Jan. 28	98	785
Abt, Louis W., Chicago, Ill. Remedy for certain named diseases	37,746	Feb. 4	98	1086
Actien-Gesellschaft für Anilin-Fabrikation, Berlin, Germany. Certain named chemical substances and preparations	37,733	Feb. 4	98	1025
Actien-Gesellschaft für Anilin-Fabrikation, Berlin, Germany. Certain named chemical substances and preparations	37,734	Feb. 4	98	1025
Actien-Gesellschaft für Anilin-Fabrikation, Berlin, Germany. Photographic plates and films	37,916	Mar. 11	98	2164
Alart and McGuire, New York, N. Y. Pickled olives	37,729	Feb. 4	98	1025
Alaska Packers Association, San Francisco, Cal. Canned salmon	37,728	Feb. 4	98	1025
Allen & Hanburys, Limited, London, England. Certain named medicine	37,961	Mar. 18	98	2357
Alpers, William C., New York, N. Y. Certain named medicine	37,641	Jan. 14	98	411
American Optical Co., Southbridge, Mass. Spectacles and eyeglasses	37,633	Jan. 14	98	411
American Optical Co., Southbridge, Mass. Eyeglass and spectacle frames or mountings	37,755	Feb. 4	98	1027
American Optical Co., Southbridge, Mass. Eyeglass and spectacle frames or mountings	37,756	Feb. 4	98	1027
American Optical Co., Southbridge, Mass. Eyeglass and spectacle frames or mountings	37,757	Feb. 4	98	1027
Amulet Chemical Co., New York, N. Y. Neckbands and teething-bands	37,686	Jan. 28	98	786
Aquarama Company, New York, N. Y. Hydraulic roundabouts	37,831	Feb. 18	98	1480
Aquarama Company, New York, N. Y. Hydraulic roundabouts	37,832	Feb. 18	98	1480
Archer Starch Co., Chicago, Ill. Corn-starch, laundry-starch, and mill-starch	37,646	Jan. 14	98	412
Armstrong, Christopher G., Chelmsford, Mass., and Sussex, New Brunswick. Sweet non-alcoholic beverages	37,900	Mar. 4	98	1962
Asbestos Manufacturing Co., Philadelphia, Pa. Certain named covering material	37,639	Jan. 14	98	411
Ayres, Sallie P., Washington, D. C. Breakfast-food	37,850	Feb. 25	98	1700
B. Muratti, Sons & Co., Limited, Manchester, England. Smoking-tobacco, cigars, cheroots, and cigarettes	37,718	Feb. 4	98	1024
Baer, Louis, New York, N. Y. Certain named fur neckwear	37,634	Jan. 14	98	411
Balsam Medicinal Co., Sylva, N. C. Blood, liver, and kidney remedies	37,863	Feb. 25	98	1701
Bawo & Dotter, New York, N. Y. Clock movements and cases and chime devices	37,694	Jan. 28	98	787
Baxley, Andrew J., Dallas, Tex. Blood specific	37,864	Feb. 25	98	1701
Beiser, Rufus W., Brooklyn, N. Y. Toys and display-trays or carriers for toys	37,804	Feb. 18	98	1477
Bell & Bogart Soap Co., New York, N. Y. Soap	37,648	Jan. 14	98	412
Bendiner & Schlesinger, New York, N. Y. Tonic and restorative medicines	37,856	Feb. 25	98	1701
Bentley & Olmsted Company, Des Moines, Iowa. Men's, women's, boys', and misses' shoes	37,887	Mar. 4	98	1960
Berry, Alfred H., Portland, Me. Ladies' boots and shoes	37,710	Feb. 4	98	1023
Bestor, Owen B., administrator. (See Draper, Oscar M.)	37,905	Mar. 4	98	1963
Big Four Oil Company, Beaumont, Tex. Fuel and illuminating-oil	37,925	Mar. 11	98	2165
Bilbo, John C., Laurel, Tex. Remedies for the cure of rheumatism	37,644	Jan. 14	98	412
Bill, Bell & Co., Ogdensburg, N. Y. Flour	37,788	Feb. 11	98	1277
Bird & Co., J. A. & W., Boston, Mass. Roofing-felt	37,823	Feb. 18	98	1479
Bissell Carpet Sweeper Co., Grand Rapids, Mich. Carpet-sweepers	37,824	Feb. 18	98	1479
Bissell Carpet Sweeper Co., Grand Rapids, Mich. Carpet-sweepers	37,769	Feb. 4	98	1028
Boomer Coal & Coke Co., Columbus, Ohio. Coal	37,753	Feb. 4	98	1027
Borne Scrymser Company, Elizabeth, N. J., and New York, N. Y. Lubricating-oil	37,741	Feb. 4	98	1026
Bossard-Lemaire, Paris, France. Hygienic cream or paste for the skin	37,716	Feb. 4	98	1024
Bowers Rubber Co., San Francisco, Cal. Rubber hose, belting, and packing	37,717	Feb. 4	98	1024
Bowers Rubber Co., San Francisco, Cal. Rubber hose, belting, and packing	37,715	Feb. 4	98	1024
Broderick & Nearey, New York, N. Y. Imitation leather	37,788	Feb. 11	98	1277
Bromo Chemical Company, Salt Lake City, Utah. Remedies for la grippe, colds, and headache	37,783	Feb. 11	98	1277
Brown, Harrington, Los Angeles, Cal. Asphaltum	37,852	Feb. 25	98	1700
Buchanan, James, London, England. Whisky	37,853	Feb. 25	98	1700
Buchanan, James, London, England, and Glasgow, Leith, and Glenlivet, Scotland. Whisky	37,962	Mar. 18	98	2356
Bull, Benjamin S., Minneapolis, Minn. Wheat-flour	37,821	Feb. 18	98	1479
Burtis, George H., Worcester, Mass. Artificial lures	37,964	Mar. 25	98	2582
Bushnell, Alvah, Philadelphia, Pa. Substitute for paper	37,854	Feb. 25	98	1700
Caldwell, John, New York, N. Y. Scotch whisky	37,855	Feb. 25	98	1700
Caldwell, John, New York, N. Y. Scotch whisky	37,701	Jan. 28	98	788
Cameron, Julia E., New York, N. Y. Steam-pumps	37,798	Feb. 11	98	1278
Carey, Henry D., New York, N. Y. Type-writers	37,882	Mar. 4	98	1960
Cattaraugus Cutlery Co., Little Valley, N. Y. Flat tableware	37,826	Feb. 18	98	1479
Celler Filter Werke, Gesellschaft mit Beschränkter Haftung, Celle, Germany. Portable and stationary filters	37,935	Mar. 11	98	2166
Chapin-Sacks Mfg. Co., Washington, D. C. Butter	37,616	Jan. 7	98	221
Chase, Rolla M., Bethel, Vt. Dandruff cure and a hair-tonic	37,736	Feb. 4	98	1025
Chemische Fabrik auf Actien, vorm. E. Schering, Berlin, Germany. Mercury preparations	37,744	Feb. 4	98	1026
Chemische Fabrik Rhenania, Aachen, Germany. Medical preparations for wounds and certain named diseases	37,979	Mar. 25	98	2581
Chemung Spring Water Company, Chemung, N. Y. Drinking-waters	37,865	Feb. 25	98	1701
Chester Kent & Co., Boston, Mass. Laxatives	37,705	Feb. 4	98	1023
Chicago-Rockford Hosiery Co., Kenosha, Wis. Underwear, excepting therefrom corsets and waists	37,759	Feb. 4	98	1027
Chinn-Beretta Optical Co., San Francisco, Sacramento, Stockton, and Oakland, Cal. Lenses	37,924	Mar. 11	98	2165
Clark, Henry S., New York, N. Y. Antiblennorrhagic	37,888	Mar. 4	98	1961
Clements, Alfred, Philadelphia, Pa. Photographic card-mounts	37,607	Jan. 7	98	220
Clerihew, A. M. and A. E., Minneapolis, Minn. Shirt-waists and wrappers for women	37,767	Feb. 4	98	1028
Cleveland Twist Drill Co., Cleveland, Ohio. Certain named tools	37,617	Jan. 7	98	221
Coe, Clarke E., Memphis, Tenn. Syrups, sugar, and molasses	37,787	Feb. 4	98	1035
Columbia Chemical Company, Denver, Colo. Certain named antiseptic poultice	37,797	Feb. 11	98	1278
Columbian Stock Food Co., Detroit, Mich. Animal-food	37,876	Feb. 25	98	1702
Columbus Forge & Iron Co., Columbus, Ohio. Certain named blacksmiths' tools	37,606	Jan. 7	98	220
Compañia General de Tabacos de Filipinas, Barcelona, Spain. Woven, knit, dyed, or printed fabrics and yarns				

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Compañia General de Tabacos de Filipinas, Barcelona, Spain. Woven, knit, dyed, or printed fabrics and yarns	37,609	Jan. 7	98	220
Compañia General de Tabacos de Filipinas, Barcelona, Spain. Woven, knit, dyed, or printed fabrics and yarns	37,703	Feb. 4	98	1023
Consolidated Hoof Pad Company, New York, N. Y. Horseshoe-pads	37,942	Mar. 11	98	2167
Cough Checker Manufacturing Company, Newburgh, N. Y. Cough-medicine	37,894	Mar. 4	98	1961
Crane, Z. & W. M., Dalton, Mass. Writing-paper and envelops	37,838	Feb. 25	98	1699
Criterion Publication Co., New York, N. Y. Periodicals	37,983	Mar. 25	98	2582
Crowley, John A., Hydepark, Mass. Certain named beverages	37,954	Mar. 18	98	2357
Curtis & Son Company, Portland, Me. Chewing-gum	37,620	Jan. 7	98	221
Davis Gasoline Engine Works Co., Waterloo, Iowa. Gasolene-engines	37,631	Jan. 7	98	223
Dennerline, William A., Aurora, Ind. Combined pedestal, book-rack, and music-cabinet	37,696	Jan. 28	98	787
Dennett Surpassing Coffee Co., New York, N. Y. Coffee	37,618	Jan. 7	98	221
Desnoyers Shoe Company, St. Louis, Mo. Boots and shoes	37,610	Jan. 7	98	220
Diamond Ink Company, Milwaukee, Wis. Inks and writing fluids	37,957	Mar. 18	98	2357
Dieter & Co., A. A., Boston, Mass. Stiffeners for flexible goods	37,849	Feb. 25	98	1700
Dios Tejada, Juan de, Havana, Cuba. Acetylene-gas generators	37,879	Feb. 25	98	1702
Dolan Mercantile Company, Atchison, Kans. Certain named groceries	37,936	Mar. 11	98	2167
Dominion Drug Company, Limited, Hamilton, Canada. Certain named medicinal preparation	37,615	Jan. 7	98	221
Douglass, Isaac W., Michigantown, Ind. Tonics	37,857	Feb. 25	98	1700
Dowd & Co., J. C., New York, N. Y. Articles made of enameled wood and composition	37,990	Mar. 25	98	2582
Draper & Maynard Company, Plymouth, N. H. Certain named sporting goods	37,630	Jan. 14	98	412
Draper, Oscar M., deceased; O. B. Bestor, North Attleboro, Mass., administrator. Ornamental chains and parts thereof and attachments therefor	37,918	Mar. 11	98	2164
Dressler & Co., C. L., Chicago, Ill. Certain named books	37,803	Feb. 18	98	1477
Duluth Brewing & Malting Co., Duluth, Minn. Malt extract, beer, ale, and porter	37,977	Mar. 25	98	2581
Duluth Brewing & Malting Co., Duluth, Minn. Lager-beer, ale, porter, and malt extract	37,978	Mar. 25	98	2581
Dunbar Company, Boston, Mass. Preparation for effecting the combustion of fire-wood	37,906	Mar. 4	98	1963
E. Kirstein Sons Co., Rochester, N. Y. Eyeglasses and parts thereof	37,702	Jan. 28	98	785
Eastern Shore of Virginia Produce Exchange, Onley, Va. Irish and sweet potatoes	37,974	Mar. 25	98	2581
Eberle & Cie., J. N., Augsburg, Germany. Saws and springs	37,833	Feb. 18	98	1480
Eddystone Manufacturing Company, Philadelphia, Pa. Textile fabrics	37,638	Jan. 14	98	411
Elder & Jenks, Philadelphia, Pa. Brushes	37,921	Mar. 11	98	2165
Empire Liniment M'f'g Co., Bridgetown, Canada. Liniment	37,982	Mar. 25	98	2581
Erie Exploration Company, New York, N. Y. Electric-current regulators and controllers	37,700	Jan. 28	98	787
Essex Foundry, Newark, N. J. Sanitary castings	37,835	Feb. 18	98	1480
Estes, Webster C., New York, N. Y. Smalt	37,908	Mar. 4	98	1963
Estes, Webster C., New York, N. Y. Smalt	37,909	Mar. 4	98	1963
Eucryl, Limited, Hull, England. Soap	37,731	Feb. 4	98	1025
Eucryl, Limited, Hull, England. Disinfectants, anticorrosives, antiseptics, and deodorizers	37,738	Feb. 4	98	1026
Eucryl, Limited, Hull, England. Certain named toilet preparations	37,739	Feb. 4	98	1026
Eucryl, Limited, Hull, England. Certain named medical compounds	37,745	Feb. 4	98	1026
Excelsior Water Mill Co., Burlington, Kans. Wheat-flour	37,953	Mar. 18	98	2356
F. S. Webster Co., Boston, Mass.; New York, N. Y.; Chicago, Ill., and London, England. Certain named stationery and type-writing supplies	37,761	Feb. 4	98	1028
Farbenfabriken of Elberfeld Co., New York, N. Y. Photographic developers	37,752	Feb. 4	98	1027
Farbenfabriken of Elberfeld Co., New York, N. Y. Disinfectant and preservative	37,869	Feb. 25	98	1701
Farmers Feed Company of New Jersey, New York, N. Y. Dried brewers' grains	37,975	Mar. 25	98	2581
Ferguson & Co., Alex., Glasgow, Scotland. Whisky	37,856	Feb. 25	98	1700
Flint Woolen Mills Co., Flint, Mich. Waterproof cloth	37,946	Mar. 18	98	2356
Florence Manufacturing Co., Northampton, Mass.; New York, N. Y., and Chicago, Ill. Brushes	37,989	Mar. 25	98	2582
Fowler, William M., New York, N. Y. Bottle-filling machines	37,973	Mar. 18	98	2358
Frank Jones Brewing Co., Limited, London, England, and Boston, Mass. Ale	37,816	Feb. 18	98	1478
Friedman Bros. Shoe Co., St. Louis, Mo. Boots and shoes	37,915	Mar. 11	98	2164
Fuld, William, Baltimore, Md. Game-boards	37,805	Feb. 18	98	1477
Fuld, William, Baltimore, Md. Parlor-game	37,806	Feb. 18	98	1477
Gage Brothers & Company, Chicago, Ill. Certain named millinery goods	37,653	Jan. 21	98	577
Gaggin, Joseph J., New York, N. Y. Boots and shoes	37,636	Jan. 14	98	411
Geber Drug Company of Baltimore City, Baltimore, Md. Liniment, salve, and ointment	37,663	Jan. 21	98	578
Geo. W. Pitkin Company, Chicago, Ill. Paints for exterior and interior finishing	37,873	Feb. 25	98	1702
George H. West Shoe Co., Philadelphia, Pa. Shoes	37,847	Feb. 25	98	1700
Gerstendörfer Bros., New York, N. Y. Certain named painters' supplies	37,945	Mar. 11	98	2166
Gill Brothers Company, Steubenville, Ohio. Glass lamp-chimneys, glass reflectors, and glass lantern-globes	37,875	Feb. 25	98	1702
Goldman Brothers, St. Louis, Mo. Certain named furniture and household goods	37,695	Jan. 28	98	787
Goodell-Pratt Company, Greenfield, Mass. Hacksaws and butcher-saws	37,668	Jan. 21	98	578
Goodman Bros., New York, N. Y. Hosiery and gloves	37,776	Feb. 11	98	1276
Gorham Mfg. Co., Providence, R. I. Electroplated metal ware	37,939	Mar. 11	98	2167
Grant, John G., Hampstead, England. Tobacco, cigars, and cigarettes	37,796	Feb. 11	98	1278
Greacen, Thomas E., New York, N. Y. Shoes for men, women, and children	37,659	Jan. 21	98	577
Greene Shoe Co., Kansas City, Mo. Boots and shoes	37,846	Feb. 25	98	1699
Gregg, Cecil D., St. Louis, Mo. Tea and coffee	37,795	Feb. 11	98	1278
Hall, James B., Cleveland, Ohio. Paint-oils	37,903	Mar. 4	98	1962
Hall, William A., Bellows Falls, Vt., and New York, N. Y. Paint-powder	37,993	Mar. 25	98	2583
Hamburger & Co., New York, N. Y. Dolls	37,632	Jan. 14	98	411
Hammer Dry Plate Co., St. Louis, Mo. Dry-plates employed in photographic art	37,697	Jan. 28	98	787
Hemingway, Robert B., Montowese, Conn. Spring-water	37,990	Mar. 25	98	2581
Henis Fruit Press Co., New York, N. Y. Fruit-presses	37,651	Jan. 14	98	412
Henry Milward & Sons, Limited, Redditch, England. Fish-hooks	37,911	Mar. 4	98	1963
Henry Milward & Sons, Limited, Redditch, England. Fish-hooks	37,912	Mar. 4	98	1964
Herb, Joseph, West Superior, Wis. Tonic and medicinal food	37,850	Feb. 25	98	1701
Hilbert Brothers, San Francisco, Cal. Whiskies	37,704	Feb. 11	98	1278
Hilfer Co., Louis, St. Louis, Mo. Matches	37,998	Mar. 11	98	2167
Hoffstadt, Oscar, New York, N. Y. Woolen cloth known as kersey	37,674	Jan. 28	98	784
Holland, Rose M., London, England. Certain named toilet articles and preparations	37,647	Jan. 14	98	412
Holmes, William H., Aurora, Ill. Butter	37,730	Feb. 4	98	1035
Howley, Haviland & Dresser, New York, N. Y. Sheet-music	37,694	Jan. 28	98	786
Hub Gore Makers, Boston, Mass. Boots, shoes, and slippers	37,679	Jan. 28	98	785
Hubbert, Mirona B., Syracuse, N. Y. Certain named toilet preparations and soap	37,785	Feb. 11	98	1277
Hudnut, Richard, New York, N. Y. Perfumes	37,922	Mar. 11	98	2165
Hudnut, Richard, New York, N. Y. Perfumes	37,959	Mar. 18	98	2357
Huenefeld, Ernst H., Cincinnati, Ohio. Washing-machines	37,698	Feb. 18	98	1479
Huenefeld, Ernst H., Cincinnati, Ohio. Washing-machines	37,992	Mar. 25	98	2582
Hugh Smith, Newark, N. J. Patent and enameled leather	37,848	Feb. 25	98	1700
Hupp, Robert C., 3d, Detroit, Mich. Face-cream	37,891	Mar. 4	98	1961
Hurlbut, Mortimer J. E., Chicago, Ill. Mechanical respiratory devices	37,870	Feb. 25	98	1702

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
I. B. Kleinert Rubber Co., New York, N. Y. Dress-shields	37,606	Jan. 7	98	220
Innes & Grieve, Limited, Edinburgh, Scotland. Scotch whisky	37,722	Feb. 4	98	1024
Innes & Grieve, Limited, Edinburgh, Scotland. Irish whisky	37,723	Feb. 4	98	1024
International Textbook Company, Scranton, Pa. Phonographic language-lesson records	37,985	Mar. 25	98	2582
International Water-Proofing Co., Chicago, Ill. Waterproof cloths, silks, and other textile fabrics	37,673	Jan. 28	98	784
Int'l Acheson Graphite Company, Niagara Falls, N. Y. Graphite and carbon and graphite and carbonaceous products	37,907	Mar. 4	98	1963
Iroquois Knitting Mills, Philadelphia, Pa. Underwear	37,656	Jan. 21	98	577
J. & J. Cash, Ltd., Coventry, England, and New York, N. Y. Neckwear	37,919	Mar. 11	98	2164
J. J. Hockenjos Company, Newark, N. J. Certain named surface-finishing materials	37,751	Feb. 4	98	1027
J. K. Orr Shoe Co., Atlanta, Ga. Men's and boys' shoes	37,780	Feb. 11	98	1277
J. K. Orr Shoe Co., Atlanta, Ga. Ladies' and misses' shoes	37,914	Mar. 11	98	2164
Job, Maison, Pierre B., Perpignan, France. Cigarette-papers	37,640	Jan. 14	98	411
John A. Casey Company, New York, N. Y. Mixed turpentine	37,873	Feb. 25	98	1702
Johns, Samuel L., McSherrystown, Pa. Cigars	37,643	Jan. 14	98	412
Jones and Jones, Atlanta, Ga. Remedy for certain named diseases	37,747	Feb. 4	98	1026
Kahn, Henry, San Francisco, Cal. Certain named optical goods	37,758	Feb. 4	98	1027
Kaye & Einstein, New York, N. Y. Coats	37,986	Mar. 25	98	2582
Kennedy & Kennedy, Johnstown, N. Y. Hair and scalp tonic	37,742	Feb. 4	98	1026
Klaas, Max, New York, N. Y. Certain named cutlery and hardware and surgical instruments	37,829	Feb. 18	98	1480
Klaas, Max, New York, N. Y. Certain named cutlery and hardware and surgical instruments	37,830	Feb. 18	98	1480
Kline, Urias B., Reamstown, Pa. Remedy for certain named diseases	37,790	Feb. 11	98	1278
Knothe, Adolph C., New York, N. Y. Suspenders	37,987	Mar. 25	98	2582
Knowles, Charles S., Boston, Mass. Electrical glassware	37,874	Feb. 25	98	1702
Kops Bros., New York, N. Y. Corsets	37,841	Feb. 25	98	1699
Kovacic, Rudolph F., Allegheny, Pa. Remedy for certain named diseases	37,789	Feb. 11	98	1277
Kyles, John C., Coffee Springs, Ala. Remedy for certain named diseases	37,791	Feb. 11	98	1278
L. E. Waterman Company, New York, N. Y. Fountain-pens	37,762	Feb. 4	98	1028
Lamson Brothers, Toledo, Ohio. Flannels	37,885	Mar. 4	98	1960
Lautaro Nitrate Company, Limited, London, England. Refined nitrate for fertilizing purposes	37,871	Feb. 25	98	1702
Lawrence, Gustav T., New York, N. Y. Butter, cheese, and eggs	37,899	Mar. 4	98	1962
Ledwith, John J., Newark, N. J. Proprietary medicines	37,786	Feb. 11	98	1277
Ledwith, John J., Newark, N. J. Proprietary medicines	37,787	Feb. 11	98	1277
Leigh, Charles N., New York, N. Y. Remedy for colds in tablet or pill form	37,893	Mar. 4	98	1961
Levy, Louis D., New York, N. Y. Trousers	37,802	Feb. 18	98	1477
Liberty Silk Co., New York, N. Y. Dress-silks	37,840	Feb. 25	98	1699
Lichtenstein, Max, Jerome, Ariz. Ter. Remedy for certain named diseases	37,614	Jan. 7	98	221
Liebig Extract Company, New York, N. Y. Beef extracts	37,660	Jan. 21	98	578
Lincoln Waterproof Cloth Co., Boundbrook, N. J. Waterproof fabric for roofing and belting	37,781	Feb. 11	98	1277
Lindner-Shoe Co., Carlisle, Pa. Ladies' shoes	37,845	Feb. 25	98	1699
Link Belt Machinery Co., Chicago, Ill. Chain belts	37,877	Feb. 25	98	1702
Listman Mill Company, La Crosse, Wis. Wheat-flour	37,809	Feb. 18	98	1478
Listman Mill Company, La Crosse, Wis. Wheat-flour	37,810	Feb. 18	98	1478
Loeser & Co., F., Brooklyn, N. Y. Ladies' boots and shoes	37,711	Feb. 4	98	1023
Lundquist, Immanuel, New York, N. Y. Atomizers and orthopedic apparatus	37,889	Mar. 4	98	1961
M. B. Nash Tobacco Co., Paducah, Ky. Plug, roll, twist, and granulated tobacco	37,956	Mar. 18	98	2357
Maltine Company, Brooklyn, N. Y. Medicinal preparations containing malt extract	37,793	Feb. 11	98	1278
Manhattan Electrical Supply Company, New York, N. Y. Certain named batteries and electrical appliances	37,629	Jan. 7	98	222
Maroosis, Peter S., Minneapolis, Minn. Chewing-candy	37,688	Jan. 28	98	786
Mason, Albert G., Chicago, Ill. Sewing-machines and attachments	37,910	Mar. 4	98	1963
May Pants Co., Mayfield, Ky. Men's and boys' trousers, overalls, jumpers, and shirts	37,949	Mar. 18	98	2356
Mayer & Loewenstein, New York, N. Y. Japan	37,944	Mar. 11	98	2168
Mayes, Hugh, Princeton, Ky. Remedy for a certain named disease	37,819	Feb. 18	98	1478
Mazawattee Tea Co., Ld., London, England. Tea, coffee, cocoa, and chocolate	37,815	Feb. 18	98	1478
McGaw & Co., Geo. K., Baltimore, Md. Tea	37,933	Mar. 11	98	2166
McGaw & Co., Geo. K., Baltimore, Md. Tea	37,934	Mar. 11	98	2166
McKee & Company, Charles W., Chicago, Ill. Blood medicine	37,749	Feb. 4	98	1026
McKinney Bread Co., St. Louis, Mo. Bread, cakes, pies, and crackers	37,690	Jan. 28	98	786
Melchers, Edward, Toledo, Ohio. Certain named shower and bathing apparatus	37,652	Jan. 14	98	412
Mellin's Food Company of North America, Portland, Me., and Boston, Mass. Certain prepared foods	37,689	Jan. 28	98	786
Metallschlauchfabrik Pforzheim, (vorm. Hch. Witzenmann,) G. M. B. H., Pforzheim, Germany. Flexible metal pipes	37,825	Feb. 18	98	1479
Michau & Co., Th., Paris, France, and New York, N. Y. Silk-warp fabrics for dress goods and linings	37,801	Feb. 18	98	1477
Mistrot, Felix E., Galveston, Tex. Shoes	37,658	Jan. 21	98	577
Mistrot, Felix E., Galveston, Tex. Shoes	37,712	Feb. 4	98	1023
Mistrot, Felix E., Galveston, Tex. Shoes	37,713	Feb. 4	98	1023
Morehouse Manufacturing Co., Savannah, Ga. Baking-powder	37,691	Jan. 28	98	786
Morel Bros., Cobbett & Son, Ltd., London, England. Apricot-brandy	37,724	Feb. 4	98	1024
Munyon's Homœopathic Home Remedy Co., Philadelphia, Pa. Stomach-bitters	37,980	Mar. 11	98	2166
Myers, John F., San Francisco, Cal. Stove-polish	37,692	Jan. 28	98	786
Mygatt, Otis A., New York, N. Y. Vases, urns, dishes, lamps, and pressed ware generally	37,765	Feb. 4	98	1028
Mygatt, Otis A., New York, N. Y. Lamp shades and reflectors	37,766	Feb. 4	98	1028
Naamlooze Vennootschap Eau de Cologne Fabriek Voorheen J. C. Boldoot, Amsterdam, Netherlands. Eau-de-cologne, soaps, waters, and lotions for toilet purposes	37,923	Mar. 11	98	2165
Nachtigall & Co., Simon, New York, N. Y. Cotton piece goods	37,706	Feb. 4	98	1023
Nashawannuck Manufacturing Company, Easthampton, Mass., and New York, N. Y. Suspenders	37,843	Feb. 25	98	1699
National Starch Company, New York, N. Y. Corn-oil, corn-oil cake, and meal, including germ-meal	37,812	Feb. 18	98	1478
National Starch Company, New York, N. Y. Gluten feed	37,813	Feb. 18	98	1478
National Starch Company, New York, N. Y. Meal, including gluten-meal	37,814	Feb. 18	98	1478
National Starch Company, New York, N. Y. Gluten-meal	37,937	Mar. 11	98	2167
Natural Food Company, Niagara Falls, N. Y. Shredded-wheat biscuit	37,726	Feb. 4	98	1025
Nedo Company, Washington, D. C. Tooth brush and powder cabinets	37,991	Mar. 25	98	2582
New York Belting and Packing Co., L't'd, New York, N. Y. Rubber hose, belting, packing, and gaskets	37,627	Jan. 7	98	222
New York Belting & Packing Co., Ltd., New York, N. Y. Vehicle-tires	37,834	Feb. 18	98	1480
Newhall, Henry B., New York, N. Y. Expansion-bolts, screws, and expansion-shields	37,630	Jan. 7	98	222
Norden, Hermann, New York, N. Y. Sheetings	37,675	Jan. 28	98	784
Norden, Hermann, New York, N. Y. Sheetings	37,773	Feb. 11	98	1276
Norden, Hermann, New York, N. Y. Sheetings	37,920	Mar. 11	98	2164
Norden, Hermann, New York, N. Y. Sheetings and drills	37,948	Mar. 18	98	2356
Norfolk Silk Co., Paterson, N. J., and Norfolk, Va. Dress-silks	37,672	Jan. 28	98	784

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Norwood, Richard B., Plainfield, N. J. Insect-exterminators in liquid form	37,784	Feb. 11	98	1277
Novelty Stamping Co., Bellaire, Ohio. Enamel-coated metal articles	37,961	Mar. 18	98	2356
Oppenheim, Oberndorf & Co., Baltimore, Md. Overshirts	37,655	Jan. 21	98	577
Oriental Tea & Coffee Co., Galveston, Tex. Coffee	37,795	Feb. 4	98	1094
Ottens, Henry H., Philadelphia, Pa. Coatings for chocolate and confectionery	37,807	Feb. 18	98	1477
Ottens, Henry H., Philadelphia, Pa. Certain named confectionery and bakers' supplies	37,896	Mar. 4	98	1902
Ottens, Henry H., Philadelphia, Pa. Filling for certain confectionery and articles of food	37,897	Mar. 4	98	1902
Ozo Remedy Company, New Brighton, Pa. Remedy for diseases of the mouth and throat	37,818	Feb. 18	98	1476
Page, Ralph H., Detroit, Mich. Antiseptics	37,837	Feb. 25	98	1701
Page, Ralph H., Detroit, Mich. Antiseptics	37,838	Feb. 25	98	1701
Parker, Holmes & Co., Boston, Mass. Certain named footwear	37,680	Jan. 28	98	785
Parker Novelty Company, New York, N. Y. Metallic fasteners	37,657	Jan. 21	98	576
Parker Novelty Company, New York, N. Y. Garment-fasteners	37,773	Feb. 11	98	1276
Parker Pen Company, Janesville, Wis. Fountain-pens	37,670	Jan. 28	98	784
Peacock Chemical Co., St. Louis, Mo. Certain named medicine	37,832	Feb. 25	98	1701
Perfumol Company, Battlecreek, Mich. Breath-perfume	37,960	Mar. 18	98	2356
Perkins, Alfred P., New York, N. Y. Swings and chairs	37,972	Mar. 18	98	2358
Perkins, Robert A., Kountze, Tex. Hair-restoratives	37,611	Jan. 7	98	220
Philadelphia Watch-Case Co., Riverside, N. J. Watches, watchcases, and watch-movements	37,771	Feb. 11	98	1276
Phoenix Paint and Varnish Company, Philadelphia, Pa. Paints and enamels	37,649	Jan. 14	98	412
Pilling & Madeley, Philadelphia, Pa. Hosiery	37,650	Jan. 14	98	411
Pilling & Madeley, Philadelphia, Pa. Hosiery	37,777	Feb. 11	98	1276
Poke Root and Burdock Medicine Co., Columbus, Ohio. Blood remedy	37,936	Mar. 11	98	2165
Potter Drug & Chemical Corporation, Boston, Mass. Resolvent pills	37,880	Feb. 18	98	1479
Present, David, New York, N. Y. Trousers	37,778	Feb. 11	98	1276
Quinn, Edward J., Washington, D. C. Whisky	37,817	Feb. 18	98	1476
R. G. Marcy Mfg. Co., Bluffton, Ind. Windmills, pumps, towers, tanks, and cylinders	37,800	Feb. 11	98	1278
Racine Malleable & Wrought Iron Co., Racine, Wis. Certain named hardware articles and metal manufactures	37,941	Mar. 11	98	2167
Randall Synthetical Coal Co., Boston, Mass. Artificial fuel	37,882	Feb. 18	98	1479
Rathbun, Charles B., Nutley, N. J. Enameled leather	37,687	Jan. 14	98	411
Rea, William D., Minneapolis, Minn. Liquid laxatives	37,959	Mar. 11	98	2166
Regent Shirt Co., Chicago, Ill. Shirts, collars, cuffs, and drawers	37,896	Mar. 4	98	1960
Rezo Remedy Co., Iowa City, Iowa. Certain named toilet articles and preparations	37,740	Feb. 4	98	1096
Richardson Shoe Company, Menominee, Mich. Shoes	37,991	Mar. 25	98	2562
Riverside Metal Company, Riverside, N. J. Certain named metal	37,994	Mar. 25	98	2563
Robin Hood Powder Company, Swanton, Vt. Certain named ammunition and explosives	37,954	Mar. 18	98	2357
Robins, A. H., Richmond, Va. Tablets for certain named diseases	37,991	Mar. 25	98	2561
Roessler & Hasslacher Chemical Co., New York, N. Y., and Perth Amboy, N. J. Oxid of tin	37,739	Feb. 4	98	1095
Romero, Benigno, Las Vegas, N. Mex. Ter. Remedy for certain named diseases	37,618	Jan. 7	98	221
Rosenberg & Sons, B., New Orleans, La. Boots and shoes	37,681	Jan. 28	98	785
Royal Baking Powder Co., Jersey City, N. J. Cream of tartar	37,851	Feb. 25	98	1700
Royal Worcester Corset Co., Worcester, Mass. Corsets	37,775	Feb. 11	98	1276
Runskool Metal Co., Portland, Me. White or Babbitt metal	37,940	Mar. 11	98	2167
Russegger, Bernhard, New York, N. Y. Sensitized photographic papers	37,837	Feb. 25	98	1699
Russegger, Bernhard, New York, N. Y. Sensitized photographic papers	37,917	Mar. 11	98	2164
Ruy Lopez Ca., New York, N. Y. Cigars, cheroots, cigarros, and cigarettes	37,931	Mar. 11	98	2166
S. Anargyros, New York, N. Y. Cigarettes	37,621	Jan. 7	98	221
S. Anargyros, New York, N. Y. Cigarettes	37,622	Jan. 7	98	221
S. Anargyros, New York, N. Y. Cigarettes	37,623	Jan. 7	98	221
S. Anargyros, New York, N. Y. Cigarettes	37,624	Jan. 7	98	222
S. Anargyros, New York, N. Y. Cigarettes	37,625	Jan. 7	98	222
S. Anargyros, New York, N. Y. Cigarettes	37,626	Jan. 7	98	222
Safety Explosive Company, New York, N. Y. Explosives	37,943	Mar. 11	98	2167
Sahlin Corset Co., Chicago, Ill. Waists	37,774	Feb. 11	98	1276
Samuels, Morton, Baltimore, Md. Boots and shoes	37,779	Feb. 11	98	1277
Sauer, Arthur, Zwingenberg, Germany. Condensed milk or milk-preserve	37,645	Jan. 14	98	412
Schwarz, Jacob, Mount Pleasant, Pa. Medical composition for external application	37,806	Feb. 25	98	1701
Seaboard Paint Company, New York, N. Y. Paints, varnishes, and cements	37,768	Feb. 4	98	1093
Seaboard Paint Company, New York, N. Y. Paint	37,902	Mar. 4	98	1962
Seacoast Packing Co., Chicago, Ill., and Eastport, Me. Preserved fish	37,808	Feb. 18	98	1477
Seana Mfg. Co., Brooklyn, N. Y. Medicated-cotton toothache cures	37,892	Mar. 4	98	1961
Shaw, James, New York, N. Y. Sauces, ketchups, relishes, pickles, chow-chow, and condiments	37,898	Mar. 4	98	1962
Smith, Hugh, Newark, N. J. Patent and enameled leather	37,714	Feb. 4	98	1094
Smithers, John H., St. Louis, Mo. Cleaning fluids and compounds in concentrated form	37,962	Mar. 18	98	2357
Solinger & Co., J., Providence, R. I. Gold-plated and cheap grades of jewelry	37,770	Feb. 11	98	1276
Springlock Spring Bed Co., Newburgh, N. Y. Furniture springwork	37,881	Feb. 25	98	1702
Standard Clothing Co., Boston, Mass. Coats, trousers, and waistcoats	37,654	Jan. 21	98	577
Staples & Hanford Co., Newburgh, N. Y. Furniture springwork	37,890	Feb. 25	98	1702
Steinhardt & Bro., A., New York, N. Y. Hose-supporters	37,844	Feb. 25	98	1699
Stern & Heller, Cleveland, Ohio. Certain named chemical compounds	37,735	Feb. 4	98	1095
Still, Allen H., New York, N. Y. Tonic, antiperiodic, and antipyretic preparation	37,860	Feb. 25	98	1701
Still, Allen H., New York, N. Y. Sedative compound	37,927	Mar. 11	98	2165
Still, Allen H., New York, N. Y. Laxative and diuretic compound	37,928	Mar. 11	98	2165
Stillwell Light Company, Camden, N. J., and Philadelphia, Pa. Incandescent mantles for gas or vapor burners	37,799	Feb. 11	98	1278
Stillwell Light Company, Camden, N. J., and Philadelphia, Pa. Incandescent mantles for gas or vapor burners	37,913	Mar. 4	98	1964
Sumner & Goodwin Company, Boston, Mass. Certain named sanitary appliances	37,827	Feb. 18	98	1479
Syndicate Trading Co., New York, N. Y. Boots and shoes	37,960	Mar. 18	98	2356
Tar-Ben Medicine Co., Newark, N. J. Cough medicines	37,861	Feb. 25	98	1701
Thompson, William B., Butte, Mont. Remedies for coughs and colds	37,642	Jan. 14	98	411
Tisdall, Joseph H., Philadelphia, Pa. Writing fluids and inks	37,766	Feb. 4	98	1092
Triner, Joseph, Chicago, Ill. Tonic	37,760	Feb. 4	98	1027
Troy Chemical Co., Troy, N. Y. Spavin cure	37,895	Mar. 4	98	1961
"Trybol" Actienges. f. Fabrik u. Vertrieb hyg.-med. Präparate Schaffhausen, Schaffhausen, Switzerland. Certain named toilet preparation	37,956	Mar. 18	98	2357
Tyer Rubber Co., Andover, Mass. Syringes	37,665	Jan. 21	98	578
Typewriter Cushion Key Co., Newark, N. J. Type-writer ribbons, carbon-papers, stamp-ribbons, and type-writer oil	37,671	Jan. 28	98	784
Typewriter Cushion Key Co., Newark, N. J. Certain named type-writing supplies	37,760	Feb. 4	98	1027
United States Brewing Company of Chicago, Chicago, Ill. Beer	37,619	Jan. 7	98	221
United States Watch Co., Riverside, N. J., and Waltham, Mass. Watches, watchcases, and watch-movements	37,886	Feb. 25	98	1699
Universal Tobacco Company, New York, N. Y. Cigarettes, cigars, and smoking and chewing tobacco	37,719	Feb. 4	98	1094

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Universal Tobacco Company, New York, N. Y. Cigarettes, cigars, and smoking and chewing tobacco	37,720	Feb. 4	98	1024
Universal Tobacco Company, New York, N. Y. Cigarettes, cigars, and smoking and chewing tobacco	37,721	Feb. 4	98	1024
Valentiner & Schwarz, Leipsic-Plagwitz, Germany. Remedy for wounds, burns, and other injuries to the skin	37,612	Jan. 7	98	220
Valier & Spies Milling Co., Marine, Ill. Wheat-flour	37,727	Feb. 4	98	1025
Vallet-Rogez, François P., Roubaix, France. Combustible agglomerations for use as fuel	37,628	Jan. 7	98	222
Valvoline Oil Company, Edgewater, N. J., and New York, N. Y. Lubricating-oils	37,754	Feb. 4	98	1027
Vandenbroeck & Cie., Brussels, Belgium. Absorbent wadding	37,963	Mar. 18	98	2357
Vandergrift Mfg. Co., Jamestown, N. Y. Hand washing-machines	37,878	Feb. 25	98	1702
Vary, Clarence G., Battlecreek, Mich. Cereal food	37,811	Feb. 18	98	1478
Vereinigte Chininfabriken Zimmer & Co., Ges. mit Beschränkter Haftung, Frankfort-on-the-Main, Germany. Quinate of lithium	37,664	Jan. 21	98	576
Virol, Limited, London, England. Red bone, marrow, and malt extract	37,976	Mar. 25	98	2561
Voss Brothers Manufacturing Company, Davenport, Iowa. Washing-machines	37,669	Jan. 21	98	578
Walter Baker & Co., Ltd., Boston, Mass. Chocolate, broma, and cocoa preparations	37,982	Mar. 11	98	2166
Ward, Frank W., Memphis, Tenn. Cod-liver oil	37,792	Feb. 11	98	1278
Ware Mfg. Co., Camden, N. J. Suspensory bandages	37,685	Jan. 28	98	785
Waring, Vechten, New York, N. Y. Pictures	37,889	Feb. 25	98	1699
Warren Brothers Company, Boston, Mass. Bituminous composition or cement	37,995	Mar. 18	98	2358
Warren Brothers Company, Boston, Mass. Bituminous composition or cement	37,996	Mar. 18	98	2358
Warren Brothers Company, Boston, Mass. Bituminous composition or cement	37,997	Mar. 18	98	2358
Warren Brothers Company, Boston, Mass. Bituminous composition or cement	37,998	Mar. 18	98	2358
Warren Brothers Company, Boston, Mass. Bituminous composition or cement	37,999	Mar. 18	98	2358
Warren Brothers Company, Boston, Mass. Bituminous composition or cement	37,970	Mar. 18	98	2358
Warren Brothers Company, Boston, Mass. Bituminous composition or cement	37,971	Mar. 18	98	2358
Weingarten Bros., New York, N. Y. Corsets	37,842	Feb. 25	98	1699
Wells-Whitehead Tobacco Co., Wilson, N. C. Cigarettes	37,955	Mar. 18	98	2357
Wheeler, Samuel B., North Plainfield, N. J. Remedy for certain named diseases	37,748	Feb. 4	98	1026
Willard Chemical Co., Malden, Mass. Medicated soap	37,890	Mar. 4	98	1961
William S. Hills Co., Boston, Mass. Flour	37,661	Jan. 21	98	578
Williams, Adam C., Ravenna, Ohio. Toy banks	37,685	Jan. 28	98	787
Willis, Grinnell, New York, N. Y. Bleached and unbleached cotton goods	37,888	Mar. 4	98	1960
Willis, Grinnell, New York, N. Y. Certain named fabrics	37,947	Mar. 18	98	2356
Wisner & Co., Wm. H., New York, N. Y. Cotton-flannels	37,657	Jan. 21	98	577
Wisner & Co., Wm. H., New York, N. Y. Sheetings	37,676	Jan. 28	98	785
Wisner & Co., Wm. H., New York, N. Y. Sheetings	37,677	Jan. 28	98	785
Wisner & Co., Wm. H., New York, N. Y. Sheetings	37,678	Jan. 28	98	785
Wisner & Co., Wm. H., New York, N. Y. Sheetings	37,884	Mar. 4	98	1960
Wm. J. Lemp Brewing Co., St. Louis, Mo. Beer	37,901	Mar. 4	98	1962
Wm. S. Cooper Brass Works, Philadelphia, Pa. Compression cocks, valves, and spigots	37,995	Mar. 25	98	2562
Wood, Albert F., Detroit, Mich. Soap and certain named toilet preparations	37,662	Jan. 21	98	578
Woodhouse Excelsior Manufacturing Company, Philadelphia, Pa. Linseed-oil for painters' use	37,904	Mar. 4	98	1963
Worst, Elmore J., Ashland, Ohio. Medicators, inhalers, respirators, and similar surgical appliances	37,666	Jan. 21	98	578
Yale & Towne Manufacturing Company, Stamford and Branford, Conn.; New York, N. Y.; Boston, Mass.; Philadelphia, Pa.; Chicago, Ill., and San Francisco, Cal. Knobs and knob-spindles	37,698	Jan. 28	98	787
Yale & Towne Manufacturing Company, Stamford and Branford, Conn.; New York, N. Y.; Boston, Mass.; Philadelphia, Pa.; Chicago, Ill., and San Francisco, Cal. Chain-blocks	37,699	Jan. 28	98	787
Young, Albert J., Milwaukee, Wis. Medical tablets as a laxative or cathartic	37,743	Feb. 4	98	1026

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ALPHABETICAL LIST OF REGISTRANTS OF LABELS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Aceton Medical Co., Mystic, Conn. "Aceton." (For a Medicine)	8,915	Jan. 21	98	579
Akins & Sons, William, Graysville, Ga. "Akins Dropsy Cure." (For Dropsy Cure)	8,969	Feb. 11	98	1279
American Hulled Bean Company, Limited, Battlecreek, Mich. "American Hulled Beans." (For a Food Preparation)	9,025	Mar. 18	98	2359
American Lithographic Company, New York, N. Y. "La Clarina." (For Cigars)	9,000	Mar. 4	98	1965
American Lithographic Company, New York, N. Y. "King's Banner." (For Cigars)	9,001	Mar. 4	98	1965
Andrew Lohr Bottling Co., Cairo, Ill. "Aperient Elk Splits." (For Beverages)	8,977	Feb. 18	98	1481
Armstrong & Co., Toledo, Ohio. "Kennel Club." (For Whisky)	8,998	Mar. 4	98	1965
Artesian Mfg. & Bottling Co., Waco, Tex. "Celery Champagne." (For a Beverage)	9,035	Mar. 25	98	2583
Artesian Mfg. & Bottling Co., Waco, Tex. "Celery Champagne." (For a Beverage)	9,036	Mar. 25	98	2583
B. & W. Co., Fort Wayne, Ind. "Mineral Dandruff Cure." (For Dandruff Cure)	9,041	Mar. 25	98	2583
Ballowitz, William C., Chicago, Ill. "Belgian Hair Grower." (For Hair-Tonic)	9,015	Mar. 11	98	2169
Barrett & Barrett, Chicago, Ill. "Malt Myrrh." (For Malt Tonic Liquor)	9,021	Mar. 11	98	2169
Bauernfeind, Ed. de, and C. Biesse, Jacksonville, Ill. "Busy Bee." (For Cigars)	8,976	Feb. 18	98	1481
Berger, Isaac. (See Greenberg, Berger, and Waldmann.)				
Biesse, Charles. (See Bauernfeind and Biesse.)				
Bourke, Oliver W., Blue Island, Ill. "O. W. Bourke's Lot Syndicate Forms." (For Printed Forms)	9,029	Mar. 18	98	2359
Brachvogel, Robert A., Chicago, Ill. "Nix-e Wont Tell." (For a Breath-Perfume)	9,038	Mar. 25	98	2583
California Mercantile Co., Oakland, Cal. "Cream Syrup." (For Syrup)	8,836	Jun. 14	98	413
Carter's Ink Company, Boston, Mass. "Carter's National Bank Ink." (For Ink)	8,970	Feb. 18	98	1481
Caswell, Massey & Company, New York, N. Y. "Coronation Violet." (For Perfume)	8,891	Jan. 14	98	413
Childs Drug Co., Lexington, Ky. "Harifoam Vegetable Shampoo Tonic and Dandruff Cure." (For Tonic and Dandruff Cure)	8,964	Feb. 11	98	1279
Cole & Wiggins, Marblehead, Mass. "Ursus Shoe." (For Shoes)	8,940	Feb. 4	98	1029
Commercial Travelers & Farmers National Food Co., Ltd., Battlecreek, Mich. "Grape Sugar Flakes." (For Cereal Food)	8,988	Feb. 25	98	1703
Cook & Bernheimer Co., New York, N. Y. "Joke Whiskey." (For Whisky)	8,999	Mar. 4	98	1965
Cook, E. J., Sterling, Ill. "The Prophet." (For Cigars)	8,929	Jan. 28	98	789
De Grath, A. B., Brooklyn, N. Y. "De Grath's Liniment." (For a Liniment)	8,869	Jan. 7	98	223
Dean, Charles W., Chardon, Ohio. "Eu-Cal-Hydra." (For an Ointment)	9,014	Mar. 11	98	2169
Dennis, S. A., Los Angeles, Cal. "Pacific Oil Compound." (For an Oil Compound)	8,911	Jan. 21	98	579
Dietz, Conrad, Cincinnati, Ohio. "Boss." (For Washing-Machines)	9,045	Mar. 25	98	2583
Dixon, Bartlett Co., Baltimore, Md. "Overland Shoe." (For Shoes)	9,009	Mar. 11	98	2169
Drury, Patrick J. (See Power and Drury.)				
Engler & Co., H., Keywest, Fla. "McKinley's Favorite." (For Cigars)	9,002	Mar. 4	98	1965
Gibboney, John F., Richmond, Va. "Antigia." (For Medicine)	8,929	Feb. 11	98	1279
Gibson Canning Co., Gibson City, Ill. "Yendik Beans." (For Canned Beans)	9,022	Mar. 18	98	2359
Gimbel Brothers, Philadelphia, Pa. "System Lenox." (For Garments)	8,980	Feb. 25	98	1703
Glens Falls Portland Cement Co., Glens Falls, N. Y. "Adirondack." (For Cement)	9,005	Mar. 4	98	1965
Glens Falls Portland Cement Co., Glens Falls, N. Y. "Invicta." (For Cement)	9,006	Mar. 4	98	1965
Glens Falls Portland Cement Co., Glens Falls, N. Y. "Iron Clad." (For Cement)	9,007	Mar. 4	98	1965
Greenberg, Herman, I. Berger, and L. Waldmann, New York, N. Y. "The American Corset Waists." (For Corset-Waists)	9,008	Mar. 11	98	2169
Grigga, Cooper & Co., St. Paul, Minn. "Home Brand." (For Canned Salmon)	8,953	Feb. 11	98	1279
Grigga, Cooper & Co., St. Paul, Minn. "Home Brand." (For Canned Lobster)	8,954	Feb. 11	98	1279
Grigga, Cooper & Co., St. Paul, Minn. "Home Brand." (For Baked Beans)	8,989	Feb. 25	98	1703
Grigga, Cooper & Co., St. Paul, Minn. "Home Brand." (For Asparagus)	8,990	Feb. 25	98	1703
Grigga, Cooper & Co., St. Paul, Minn. "Home Brand." (For Soda)	8,991	Feb. 25	98	1703
Grigga, Cooper & Co., St. Paul, Minn. "Home Brand." (For Maple-Syrup)	8,992	Feb. 25	98	1703
Grigga, Cooper & Co., St. Paul, Minn. "Home Brand." (For Olive-Oil)	8,993	Feb. 25	98	1703
Grosse, Guy E., Santa Rosa, Cal. "Rincon Heights Virgin Olive Oil." (For Olive-Oil)	8,926	Jan. 28	98	789
Guislin, A. J., New York, N. Y. "Arbellot & Cie. Cognac." (For Cognac)	9,026	Mar. 18	98	2359
H. A. Meldrum Company, Buffalo, N. Y. "Victor Silk." (For Silk)	8,930	Jan. 28	98	789
H. B. Claflin Company, New York, N. Y. "Blue Lion 36-Inch Percale." (For Percale)	8,981	Feb. 25	98	1703
H. B. Claflin Company, New York, N. Y. "Red Lion 36-Inch Percale." (For Percale)	8,982	Feb. 25	98	1703
Handley, William L., Lowell, Ind. "Champion Stock Food." (For Stock-Food)	8,927	Jan. 28	98	789
Heineman, Herman, New York, N. Y. "White Cross." (For Vaccination-Shields)	8,936	Jan. 28	98	789
Hellman & Co., A. M., St. Louis, Mo. "Kudros." (For a Beverage)	8,939	Feb. 11	98	1279
Herlihy, James A., Chillicothe, Ohio. "Fontaine de Jouvence, (Fountain of Youth.)" (For a Toilet Preparation)	8,944	Feb. 4	98	1029
Herrmann, Lorenz P., New York, N. Y. "Pat Rooney, Chip of the Old Block Cigars." (For Cigars)	8,947	Feb. 4	98	1029
Heydt Bakery Company, St. Louis, Mo. "World's Fair Bread." (For Bread)	8,866	Jan. 14	98	413
Higgins, Charles D., Greensboro, N. C. "Tar Heel Tonic and Blood Purifier." (For Medicine)	8,966	Feb. 11	98	1279
Hilfer, Louis, St. Louis, Mo. "Trunk Matches." (For Matches)	9,010	Mar. 11	98	2169
Hires Condensed Milk Company, Malvern and Philadelphia, Pa. "Essex Brand Condensed Milk." (For Condensed Milk)	8,956	Feb. 11	98	1279
Holden, George B., Haverhill, Mass. "Dermicure." (For a Medicine)	8,917	Jan. 21	98	579
Hottenstein & Co., R. L., Philadelphia, Pa. "I Wash the Old Way; I Use the I V Washing Tablets." (For Washing-Tablets)	9,016	Mar. 11	98	2169
Hughens, W. C., Atlanta, Ga. "W. C. Hughens Electric Fluid." (For a Medicine)	9,043	Mar. 25	98	2583
Hulbert, Arthur G., Chicago, Ill. "Kol-Saver." (For a Chemical Compound)	8,924	Jan. 28	98	789
Hussey, John W., New York, N. Y. "Becleaner." (For Washing-Powder)	8,951	Feb. 4	98	1029
International Acheson Graphite Co., Niagara Falls, N. Y. "Acheson Graphite." (For Graphite)	9,004	Mar. 4	98	1965
International Textbook Co., Scranton, Pa. "Phonographic Language Lesson." (For Phonographic Records)	8,887	Jan. 7	98	223
James McIntosh Company, Minneapolis, Minn. "Cupid's." (For Chocolates and Bonbons)	8,946	Feb. 4	98	1029
Johnson, Charles W., New York, N. Y. "The Cardinal Kidney Cure and Tonic." (For a Medicine)	9,013	Mar. 11	98	2169
Khasan, Naum, New York, N. Y. "Khasan's Roachynee." (For an Insect-Powder)	8,908	Jan. 14	98	413
Kleine, Henry, Chicago, Ill. "Eagle Brand." (For Shoe-Polish)	8,945	Feb. 4	98	1029

Alphabetical list of registrants of labels, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Knight, Alexander, Watertown, N. Y. "Knight's Consumption, Bronchitis, Asthma Cure." (For Medicine)	8,971	Feb. 18	98	1481
Koch Co., Edwin, Saginaw, Mich. "Heart Food." (For a Breakfast Product)	8,897	Jan. 14	98	413
Kopp, Robert, New York, N. Y. "Official Fire Insurance Record Watchman's Improved Time Detector." (For Dials and Time-Detectors)	9,044	Mar. 25	98	2583
Lambert Good Food Co., Ltd., Marshall, Mich. "Malted Toast." (For a Food Product)	9,030	Mar. 25	98	2583
Lambert Good Food & Machinery Co., Ltd., Marshall, Mich. "Toasted Manna." (For Food Product)	8,907	Jan. 21	98	579
Lee Broom & Duster Co., Davenport, Iowa. "Lee Broom." (For Brooms)	8,988	Feb. 4	98	1029
Lever Brothers, Limited, Port Sunlight, county of Chester, England. "Lifebuoy Soap." (For Soap)	8,910	Jan. 21	98	579
Lever Brothers, Limited, Port Sunlight, England. "Sunlight Soap." (For Soap)	8,994	Feb. 25	98	1703
Lexington Toy Bird Co., Lexington, Ky. "Directions." (For Toy Birds)	8,979	Feb. 25	98	1703
Lidwell Gum Co., Kansas City, Mo. "Malt Pepsin." (For Chewing-Gum)	8,955	Feb. 11	98	1279
Liebenthal Bros. & Co., Cleveland, Ohio. "Napoleon French Limburger." (For Limburger Cheese)	8,909	Jan. 21	98	570
Lincoln Chemical Co., Milwaukee, Wis. "Formo Dyspepsia Tablets." (For Dyspepsia-Tablets)	8,901	Jan. 14	98	413
Lindqvist & Co., B., Chicago, Ill. "Caloric Punsch." (For Punch)	8,978	Feb. 18	98	1481
Long, David D., Oswego, N. Y. "Ox Heart." (For Candy)	8,892	Jan. 14	98	413
Malt-Too Flake Food Co., Ltd., Battlecreek, Mich. "Malt-Too." (For a Food Preparation)	8,974	Feb. 18	98	1481
Marshall, John, San Francisco, Cal. "Royal Welsh Sauce." (For Sauce)	9,011	Mar. 11	98	2169
Mayer, Ernest. (See Mayer, Joseph and E.)				
Mayer, Joseph and E., Beaverfalls, Pa. "Gold Lustre." (For Gold Luster)	8,941	Feb. 4	98	1029
Michigan Milling Co., Ann Arbor, Mich. "Hygeia Flour." (For Flour)	8,906	Jan. 21	98	579
Michigan Milling Co., Ann Arbor, Mich. "Snow Queen." (For Flour)	9,031	Mar. 25	98	2583
Michigan Milling Co., Ann Arbor, Mich. "Ann Arbor Patent." (For Flour)	9,032	Mar. 25	98	2583
Milliken, Tomlinson Co., Portland, Me. "Superba." (For Blueberries)	8,894	Jan. 14	98	413
Milliken, Tomlinson Co., Portland, Me. "Cartland's Orange Formosa." (For Tea)	8,997	Mar. 4	98	1965
Milnes, Harrison L., Coldwater, Mich. "Cream of Oats." (For a Cereal Product)	9,034	Mar. 18	98	2359
Moise & Co., Walter, Omaha, Nebr. "Revivor Bitters." (For Bitters)	8,900	Jan. 14	98	413
Morris Oatmeal Co., Morris, Ill. "Tiger Rolled White Oats." (For Rolled Oats)	8,898	Jan. 14	98	413
Mraxay, John, Philadelphia, Pa. "Karlsbader Hair Regenerator." (For a Hair-Regenerator)	8,965	Feb. 11	98	1279
Mueller & Co., C. F., Jersey City, N. J. "Animals." (For Macaroni)	8,973	Feb. 18	98	1481
National Label Co., Cincinnati, Ohio. "Canby, Ach and Canby's Peerless One Spoon Baking Powder." (For a Baking-Powder)	8,888	Jan. 28	98	789
Nature's Breakfast Food Co., Minneapolis, Minn. "Nature's Breakfast Food." (For a Wheat Food)	8,908	Jan. 21	98	579
Nelson & Co., J. C., Manistee, Mich. "Dermacura." (For a Medicine)	8,942	Feb. 4	98	1029
Newlin, Isaac, New York, N. Y. "400 Coffee." (For Coffee)	9,054	Mar. 25	98	2583
Oppenheim, Moses, New York, N. Y. "Good Luck Shoe." (For Shoes)	8,939	Feb. 4	98	1029
Patton Bros., Catlettsburg, Ky. "Dr. Ling's Lemon Cough Remedy." (For a Medicine)	8,916	Jan. 21	98	579
Perfumol Company, Battlecreek, Mich. "Perfumol." (For Breath-Perfume)	8,975	Feb. 18	98	1481
Periberg, Edward, Jersey City, N. J. "Eagle Shoes." (For Shoes)	8,919	Jan. 28	98	789
Peterson, Frank W., Minneapolis, Minn. "Sapphine Toilet Cream." (For Toilet Cream)	9,039	Mar. 25	98	2583
Power, Vincent W., and P. J. Drury, Washington, D. C. "Grid Iron Club Rye Whiskey." (For Rye Whisky)	8,961	Feb. 11	98	1279
Real Food Co., Ltd., Battlecreek, Mich. "Per-fo." (For a Food Preparation)	8,927	Jan. 28	98	789
Rio Grande Medicine Company, San Antonio, Tex. "Siempra Viva." (For a Medicinal Preparation)	8,967	Feb. 11	98	1279
Roberts, Leslie M., New York, N. Y. "Devonshire Relish." (For a Table-Sauce)	8,895	Jan. 14	98	413
Robinson, Thomas A., North Baltimore, Ohio. "Cannon Ball." (For Cigars)	8,921	Jan. 28	98	789
Roewekamp Bros., Oshkosh, Wis. "Split Rock." (For Mineral-Spring Water)	8,958	Feb. 11	98	1279
Ruppe, B., Albuquerque, N. Mex. Ter. "Farrar's Hygienic Protective Powder" (For a Protective Powder)	8,903	Jan. 14	98	413
Sanchez, Rodriguez & Co., Seattle, Wash. "Juan de Fuca." (For Cigars)	8,899	Jan. 14	98	413
Schertz, Christian, New Orleans, La. "Tabasco Pepper." (For Extract of Tabasco Pepper)	8,898	Jan. 7	98	223
Schmidt & Co., New York, N. Y. "Scare Crow." (For Cigars)	8,980	Jan. 28	98	789
Schmidt & Co., New York, N. Y. "Judge Wilson." (For Cigars)	8,981	Jan. 28	98	789
Schmidt & Co., New York, N. Y. "Puritan." (For Cigars)	8,982	Jan. 28	98	789
Schmidt & Co., New York, N. Y. "True Stock." (For Cigars)	8,983	Jan. 28	98	789
Schmidt & Co., New York, N. Y. "Adeva." (For Cigars)	8,984	Jan. 28	98	789
Schmidt & Co., New York, N. Y. "Proof Mark." (For Cigars)	8,962	Feb. 11	98	1279
Schmidt & Co., New York, N. Y. "Marca Vuelta." (For Cigars)	8,985	Feb. 25	98	1703
Schmidt & Co., New York, N. Y. "Johnie Bird." (For Cigars)	8,986	Feb. 25	98	1703
Schmidt & Co., New York, N. Y. "La Rosa De Juncos." (For Cigars)	9,019	Mar. 11	98	2169
Schulte, Anthony, New York, N. Y. "La Nueva Bolsa." (For Cigars)	9,037	Mar. 18	98	2359
Schulze Baking Co., Chicago, Ill. "Butter Nut Bread." (For Bread)	8,918	Jan. 21	98	579
Schwencke, Kirk & Co., New York, N. Y. "Eagle India Ink." (For Ink)	8,913	Jan. 21	98	579
Shanafelt, Fred P., Canton, Ohio. "Shanafelt's Flavors." (For Flavors)	9,033	Mar. 25	98	2583
Sheldon, Ralph, Baldwinsville, N. Y. "Sheldon's Criterion." (For Cigars)	8,922	Jan. 28	98	789
Sheppey, Marshall, Toledo, Ohio. "Indian Coffee." (For Coffee)	8,948	Feb. 4	98	1029
Sheppey, Marshall, Toledo, Ohio. "Rising Sun Coffee." (For Coffee)	8,949	Feb. 4	98	1029
Sheppey, Marshall, Toledo, Ohio. "Rising Sun." (For Baking-Powder)	8,950	Feb. 4	98	1029
Sheppey, Marshall, Toledo, Ohio. "Empire Rolled White Oats." (For Rolled Oats)	8,952	Feb. 4	98	1029
Smith, Louise D., New York, N. Y. "The Etenheim Sauce." (For a Sauce)	8,925	Jan. 28	98	789
Smith, Nora E., Battlecreek, Mich. "Vis Vitae." (For a Hair-Restorative)	8,963	Feb. 11	98	1279
Sommer, H., Quakertown, Pa. "Keystone Maid." (For Cigars)	8,904	Jan. 21	98	572
Sommer, H., Quakertown, Pa. "La Vitalia." (For Cigars)	8,905	Jan. 21	98	579
Sopura Co., Boston, Mass. "Sopura Dentifrice." (For Tooth-Powder)	8,915	Jan. 21	98	579
Spangler, Daniel, Red Lion, Pa. "Uncle John." (For Cigars)	9,010	Mar. 11	98	2169
Springer, C. F., Mineralpoint, Wis. "Red Trunk." (For Cigars)	9,027	Mar. 25	98	2583
Stahlberg, J. W., St. Louis, Mo. "The Appetine Stomach Tablet." (For Stomach-Tablets)	8,953	Feb. 25	98	1703
Stanley Rule & Level Co., New Britain, Conn. "Bailey." (For Planes)	8,920	Jan. 7	98	223
Stecher Lithographic Co., Rochester, N. Y. "El Timonel." (For Cigars)	9,008	Mar. 4	98	1965
T. A. Snider Preserve Company, Cincinnati, Ohio. "Snider's Oyster Cocktail Sauce." (For Oyster-Cocktail Sauce)	9,012	Mar. 11	98	2169
Tasse, Gustave, Montreal, Canada. "Vigorine." (For Pills)	8,943	Feb. 4	98	1029
Tissera, V. L., Chicago, Ill. "Tissera's Tea-Bu-Ets." (For Compressed Teas)	8,957	Feb. 11	98	1279
Titzell, Frank C., Chicago, Ill. "Anti-Whoop." (For a Medicine)	8,914	Jan. 21	98	579
Townsend, Henry A., Salem, Oreg. "Liberty Brand." (For Dried Prunes)	9,033	Mar. 18	98	2359
Upmann & Wilcox, Chicago, Ill. "Yankee Flyer." (For Cigars)	8,923	Jan. 28	98	789
Van Winkle, J. W., Chicago, Ill. "Chlorothol." (For Anodyne)	8,964	Feb. 25	98	1703
Voorhees, C. D., Sonestown, Pa. "Dys-Pip-Cide." (For a Medical Compound)	8,972	Feb. 18	98	1481
Waldmann, Louis. (See Greenberg, Berger, and Waldmann.)				
Walker, Herbert, Chicago, Ill. "Derma Detergent." (For a Complexion Preparation)	9,038	Mar. 18	98	2359
Wallman, Alice A., New York, N. Y. "Magasin De Modes." (For Pattern-Hats)	8,995	Mar. 4	98	1659

Alphabetical list of registrants of labels, January to March, inclusive—Continued.

Name, residence, and title	No.	Date.	Official Gazette. Vol.	Page.
Weber Varnish Company, Washington, D. C. "Weber's Varnish." (For Varnish)	9,017	Mar. 11	98	2169
Wehsberg, Max, Buffalo, N. Y. "Steeplechase." (For Whisky)	8,960	Feb. 11	98	1279
Werner Bros., Boston, Mass. "Silver Label." (For Machine-Twist)	8,996	Mar. 4	98	1965
Western Pharmacal Company, Omaha, Nebr. "Dr. Westmal's Coldoids." (For a Medicine)	8,935	Jan. 28	98	789
Whegn Food Company, York, Pa. "Whegn." (For Food Made from Wheat)	8,987	Feb. 25	98	1703
Williams, James, Lynn, Mass. "The Jay Williams Rheumatic Plaster." (For Plasters)	9,042	Mar. 25	98	2583
Wood, Albert F., Detroit, Mich. "Satin-Skin Cream." (For a Cosmetic Cream)	9,040	Mar. 25	98	2583
Woodman, Charles H., Malden, Mass. "The Two-Bite." (For Chewing-Gum)	9,018	Mar. 11	98	2169

PRINTS.

Name, residence, and title	No.	Date.	Official Gazette. Volume.	Page.
Armour & Co., Chicago, Ill. "Armour's Star." (For Cured Meats)	465	Feb. 11	98	1279
Bordens Condensed Milk Co., New York, N. Y. "Has No Equal." (For Condensed Milk)	474	Mar. 11	98	2169
Both, William C., Chicago, Ill. "Clothing." (For Clothing)	468	Feb. 18	98	1481
Both, Wm. C., Chicago, Ill. "Clothing." (For Clothing)	473	Mar. 11	98	2169
Davidyan, Nathaniel K., Philadelphia, Pa. "Oriental Rug Weaving." (For Rugs and Carpets)	468	Feb. 11	98	1279
Dougherty & Co., H. L., Philadelphia, Pa. "Dougherty's Sterilized Hair Mattresses." (For Mattresses)	457	Jan. 28	98	789
Durand, Alexander, Bay City, Mich. "American Garment Cleaning Company." (For Cleaned Garments)	450	Jan. 14	98	413
Gayoso Oil Works, Memphis, Tenn. "Gayoso Brand." (For Cotton-Seed Oil and Cotton-Seed Meal)	456	Jan. 28	98	789
Gem Distributing Co., Davenport, Iowa. "Dr. Dick's Pecan Oil." (For Medicine)	459	Feb. 4	98	1029
Goodspeed Mfg. Company, Ann Arbor, Mich. "Priscilla." (For Skirt-Fasteners)	469	Feb. 18	98	1481
Green & Sons, Robt. M., Philadelphia, Pa. "Solid Steel." (For Steel Soda-Water Tanks)	458	Jan. 28	98	789
Heller & Benson, Chicago, Ill. "Trustworthy Tailoring." (For Tailor-Made Garments)	472	Mar. 11	98	2169
Hoyt and Co., E. W., Lowell, Mass. "Hoyt's 5¢. Cologne." (For Cologne)	463	Feb. 11	98	1279
Hoyt and Co., E. W., Lowell, Mass. "Hoyt's 10¢. Cologne." (For Cologne)	464	Feb. 11	98	1279
Jameson, M. C., St. Louis, Mo. "I do Love a Domestic." (For Sewing-Machines)	451	Jan. 14	98	413
Kettertinus Litho. M'f'g Co., Philadelphia, Pa. "Hasn't Scratched Yet." (For a Cleaning Material)	449	Jan. 14	98	413
Lexington Toy Bird Co., Lexington, Ky. "The Boy and the Flying Bird." (For a Toy Flying-Bird)	478	Mar. 25	98	2583
Liebig Extract Company, New York, N. Y. "Liebig's." (For Beef-Tea)	466	Feb. 11	98	1279
Mann & Sons, J., Baltimore, Md. "High Grade Perfect Fitting." (For Clothing)	477	Mar. 18	98	2359
McCormick Harvesting Machine Company, Chicago, Ill. "McCormick." (For Harvesting-Machines)	460	Feb. 4	98	1029
McCormick Harvesting Machine Company, Chicago, Ill. "McCormick." (For Harvesting-Machines)	461	Feb. 4	98	1029
Meyers Brothers Drug Co., St. Louis, Mo. "St. Louis Souvenir Playing Cards." (For Playing-Cards)	445	Jan. 7	98	223
National Starch Company, New York, N. Y. "Balanced Rations for Feeding Beet Pulp." (For Feeds and Feeding Stuffs)	467	Feb. 11	98	1279
New York Consolidated Card Co., New York, N. Y. "Vestibule Limited." (For Playing-Cards)	454	Jan. 21	98	579
Pratt Food Co., Philadelphia, Pa. "Pratts Official Chart Different Breeds of Horses." (For a Food)	475	Mar. 11	98	2169
T. B. Dunn Co., Rochester, N. Y. "Sen Sen." (For Sen-Sen Products)	471	Mar. 4	98	1965
United States Playing Card Co., Cincinnati, Ohio. "Napoleon Back, No. 606, Congress Playing Cards." (For Playing-Cards)	446	Jan. 14	98	413
United States Playing Card Co., Cincinnati, Ohio. "Martha Washington Back, No. 606, Congress Playing Cards." (For Playing-Cards)	447	Jan. 14	98	413
United States Playing Card Co., Cincinnati, Ohio. "Josephine Back, No. 606, Congress Playing Cards." (For Playing-Cards)	448	Jan. 14	98	413
United States Playing Card Co., Cincinnati, Ohio. "The Minuet Back No. 606 Congress Playing Cards." (For Playing-Cards)	452	Jan. 21	98	579
United States Playing Card Co., Cincinnati, Ohio. "The Hunt Back No. 606 Congress Playing Cards." (For Playing-Cards)	453	Jan. 21	98	579
United States Playing Card Co., Cincinnati, Ohio. "The Hawaiian Souvenir Playing Cards." (For Playing-Cards)	455	Jan. 21	98	579
Vogt, Gustave, Limoges, France. "Fine and Choice French China Ware." (For Chinaware)	476	Mar. 18	98	2359
White Top Champagne Co., Pultney, N. Y. "A Winning Pair." (For Wine)	470	Feb. 25	98	1703

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Volume.	Page.
Baker, Malcolm H., New York, N. Y.; disclaimer filed by assignee. Method of regulating electric circuits	684,165	Feb. 14, 1902	98	1490
Baker, Malcolm H., New York, N. Y.; disclaimer filed by assignee. Regulating device for arc-lamp circuits	684,340	Feb. 14, 1902	98	1489
Baur, Albert, Gispersleben, near Erfurt, Germany; disclaimer filed by assignee. Artificial musk	451,847	Feb. 21, 1902	98	1712
Harkness, Charles A., Providence, R. I.; disclaimer filed by assignees. Elevator	553,157	Jan. 2, 1902	98	1
Kull, Albert L., Camden, N. J.; disclaimer filed by patentee. Speed-regulator for explosive-engines	690,448	Mar. 15, 1902	98	2367
Pickett, Arthur B., Union City, Ohio; disclaimer filed by assignee. Bowling-ball	673,688	Jan. 8, 1902	98	231
Tillinghast, Pardon W., Providence, R. I.; disclaimer filed by assignee. Pneumatic tire	497,971	Jan. 8, 1902	98	231

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Accounts. System of keeping	E. R. Edwards	690,708	Jan. 7	659	144, 145	98	139
Acetone. Making	J. L. Hawliczek	690,724	Jan. 7	708	156	98	149
Acid. Apparatus for concentrating sulfuric	A. Zanner	693,635	Feb. 18	2704	597	98	1408
Acid ethers of the cinchona alkaloids. Anisic-	H. Thron	695,591	Mar. 18	2361	.....	98	2243
Acidyl derivative of unsymmetrical acetonalkamins and making same.	C. Harries	692,056	Feb. 4	771	.....	98	957
Acidyl dialkylrhodamin and making same	C. Hoffmann	694,149	Feb. 25	3079	.....	98	1617
Adding-machine	W. A. Lanckton	695,217	Mar. 11	1689	375	98	2085
Adding-machine	A. Hoch	696,173	Mar. 25	3468	777, 778	98	2484
Adding-machine duplicate printing mechanism	D. E. Felt	693,958	Feb. 25	3315	728, 729	98	1543
Addressing-machine	M. P. Kenna	696,054	Mar. 25	3905	724	98	2429
Adhesive	W. A. Hall	695,926	Mar. 25	2964	.....	98	2379
Adhesive fastener	A. Haberstroh	693,514	Feb. 18	2456	538	98	1351
Adhesive material to paper. Machine for applying	C. W. Hobbs	694,749	Mar. 4	791	176	98	1879
Adjustable bracket	P. H. Gardner and F. E. Van Doorn	693,127	Feb. 11	1694	370	98	1173
Adjustable screen	W. N. Rumely	694,496	Mar. 4	289	66	98	1773
Adjustable stand for mirrors, tables, &c	H. A. Seymoure	696,951	Mar. 25	3007	690	98	2388
Adjustable stand or support	G. L. Marsolais	694,401	Mar. 4	127	28	98	1739
Advertisement-displaying apparatus	H. W. Chinnery	691,840	Jan. 28	2806	630	98	535
Advertising-blotter. Postal	W. C. Lyne	695,617	Mar. 18	2414	546	98	2253
Advertising device	A. C. Huckstepp	691,708	Jan. 21	2518	563, 564	98	560
Advertising device	R. W. Vining	692,950	Feb. 11	1835	294, 295	98	1104
Advertising novelty	J. L. Kellogg	695,059	Mar. 11	1389	305	98	2028
Advertising purposes. Moving model for	E. J. Bourke	692,504	Feb. 4	668	160	98	959
Advertising street and station indicator	J. H. Shepard	692,923	Feb. 11	1289	283	98	1092
Aerated-liquid-dispensing apparatus	W. Hucks, Jr	695,314	Mar. 11	1865	415	98	2120
Aerated liquids on draft. Apparatus for supplying	S. A. Jackson and L. Lang	692,262	Feb. 4	134	31	98	826
Aerating wort and improving the quality of yeast. Apparatus for	M. Wallerstein and H. H. Freund	692,170	Jan. 28	3383	766	98	751
Aerator. Milk-	L. E. Morgal	694,296	Feb. 25	3962	883	98	1974
Aerator. Milk-	G. W. Look	695,570	Mar. 18	2331	527	98	2226
Aging apparatus	J. C. Hebden	694,640	Mar. 4	581	128	98	1886
Agricultural implement	E. G. Bowman	694,088	Feb. 25	3579	791	98	1596
Agricultural-machine steering device	C. F. Grohmann	694,010	Feb. 25	3435	757	98	1567
Agricultural machinery	J. Clark	693,999	Feb. 25	3415	752	98	1563
Air and explosive engine. Combined	R. Lundell	691,788	Jan. 28	2707	608, 609	98	616
Air and gas mixing and supplying apparatus	G. H. Burrows	694,611	Mar 4	533	116	98	1826
Air-blast apparatus	J. M. Tyler	694,588	Mar. 4	490	104	98	1815
Air-brake	C. A. Seley	694,328	Feb. 25	4085	909	98	1691
Air-brake	P. W. Vogt	695,771	Mar. 18	2664	606	98	2208
Air-brake-operating mechanism. Compressed-	J. Lipkowski	695,874	Feb. 25	3147	696	98	1510
Air-brake system	T. H. Van Dyke	692,948	Feb. 11	1351	294	98	1102
Air-brake system	A. Brüggemann	694,525	Mar. 4	368	81	98	1791
Air-compressing apparatus	J. H. Burdick	692,424	Feb. 4	353	87	98	873
Air-compressing apparatus	S. P. Howe and S. M. Vauclain, Jr	694,280	Feb. 25	3936	876	98	1606
Air-compressor	D. O'Connell	694,895	Mar. 4	1056	234	98	1935
Air compressor and cooler	O. P. Ostergren	694,259	Feb. 25	3967	883	98	1675
Air-conducting pipe	F. Line	696,059	Mar. 25	3215	726	98	2431
Air-conducting tube	F. Line	690,744	Jan. 7	741	164	98	156
Air-currents. Apparatus for measuring	J. Thompson	691,082	Jan. 14	1342	303	98	294
Air-exhausting apparatus	H. F. Wallmann	692,741	Feb. 4	918	210	98	966
Air. Generation of power from compressed	F. M. Leavitt	693,871	Feb. 25	3139	695	98	1509
Air-lock	D. E. Moran	694,978	Mar. 11	1243	271	98	1903
Air of rooms. Device for removing noxious impurities from the	C. Breuer	693,688	Feb. 18	2707	597	98	1403
Air. Propulsion of torpedoes, &c., by compressed	F. M. Leavitt	695,872	Feb. 25	3143	695	98	1509
Air-ship	C. M. Richmond	695,580	Mar. 18	2345	532	98	2229
Air-ship propeller-blade	F. W. Dufwa	694,356	Mar. 4	28	5	98	1718
Air, vacuum, or steam brakes. Hose-coupling for	J. D. Roberts and F. Kestler	695,689	Mar. 18	2800	638	98	2331
Air-vent	A. Roesch	695,943	Mar. 25	3002	679	98	2386
Alarm: *See* Burglar-alarm. Burglar and fire alarm. Fire-alarm. Low-water alarm. Overflow-alarm. Thermo-electric alarm.							
Alarm device	J. A. Roy	695,256	Mar. 11	1721	381	98	2092
Alimentary extracts. Preparing	E. C L. Kressel	694,102	Feb. 25	3602	.....	98	1601
Alimentary product and making same	E. W. Ayres	693,485	Feb. 18	2406	.....	98	1341
Alkaline alginates. Manufacture of	T. Ingham	695,209	Mar. 11	1674	.....	98	2063
Alkaline cyanids. Apparatus for obtaining	G. Craig	695,057	Mar. 11	1348	297	98	2014

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Alkaline salts. Apparatus for the electrolytic decomposition of	J. D. Gilmour	695,302	Mar. 11	1951	412	98	2117
Alloy	G. W. Gesner	692,198	Jan. 28	9440	.....	98	784
Alloy	J. S. Wolfe and L. K. Englert	694,294	Feb. 25	9820	.....	98	1646
Alloys. Making	E. Keller	696,944	Mar. 25	2600	.....	98	2509
Aluminium hydrate. Making	H. W. Jordan	691,470	Jan. 21	2096	.....	98	471
Aluminous ores. Purifying	D. A. Péniakoff	695,702	Mar. 18	2651	.....	98	2201
Amalgamating-machine	G. C. Scott	694,112	Feb. 25	3615	800	98	1608
Amalgamating-machine	G. C. Scott	694,203	Feb. 25	3794	839	98	1629
Amalgamating-machine	G. C. Scott	694,204	Feb. 25	3795	839	98	1630
Amalgamating-machine	J. W. R. Laxton	692,315	Feb. 4	170	39	98	883
Amalgamator	J. R. Sawyer	694,201	Feb. 25	3791	838	98	1628
Amalgamator	M. Lasswell	694,290	Feb. 25	3958	880	98	1672
Amalgamator. Fine-gold	M. A. Crane	696,822	Feb. 18	3096	670 671	98	1469
Ambulance-coach	A. Eichengrün and K. Demeler	696,020	Mar. 25	3140	.....	98	2415
Amidoöxybenzyl compound and making same	W. Rhodes	696,336	Feb. 11	2109	488	98	1259
Ammunition-case	G. C. Tilyou. (Reissue)	11,977	Mar. 25	3941	878	98	2579
Amusement device	T. Van Kannel	694,447	Mar. 4	211	46, 47	98	1757
Amusement or illusion apparatus	J. P. Biddle	696,581	Feb. 18	2597	574	98	1879
Amusing apparatus	J. Eynon	695,711	Mar. 18	2665	580	98	1988
Anchor	R. R. F. Ruud	696,071	Feb. 11	1878	343	98	1149
Angling apparatus	J. T. Horris	694,979	Feb. 25	3085	676	98	1665
Animal-tie	E. L. Tschantre	691,301	Jan. 14	1745	397	98	378
Animal-trap	K. W. Carlgren	691,325	Jan. 14	1850	419	98	404
Animal-trap	J. W. Hawkins	696,012	Feb. 11	1460	317	98	1126
Animal-trap	E. D. and O. V. Vantyle	694,701	Mar. 4	701	153	98	1850
Animal-trap	G. Brown	695,905	Mar. 25	2930	653	98	2378
Animal-trap	F. Danner	694,054	Feb. 25	3527	776	98	1586
Annealing-furnace	M. Lehman	692,867	Feb. 11	1158	257	98	1060
Announcer. Electric	J. A. Wotton	692,580	Feb. 4	627	149	98	988
Annunciator	E. B. Overshiner	692,471	Feb. 4	486	108	98	888
Annunciator. Electric	M. Goldberg	694,785	Mar. 4	776	173	98	1875
Ant-trap. Furniture	M. M. Millis	692,326	Feb. 4	198	44	98	889
Anticribbing device	T. P. Farmer	696,322	Mar. 25	3180	842 843	98	2549
Antislipping device	J. Keller and R. Titsworth	692,859	Feb. 11	1155	254	98	1056
Aparejo	S. E. Creasey	692,882	Feb. 11	1096	245	98	1046
Aquarium-jardinière	L. and A. Privat	694,190	Feb. 25	3774	834 835	98	1635
Arc-lighting system for alternating currents	L. Lane	698,280	Feb. 11	2009	437	98	1287
Arch	K. S. Riser	694,198	Feb. 25	3780	836	98	1636
Arch construction. Rib for concrete-	B. K. Jamison	690,961	Jan. 14	1121	254 255	98	250
Armor-plates. Manufacture or treatment of	B. K. Jamison	690,962	Jan. 14	1124	.....	98	251
Armor-plates. Treatment of	W. Weber	691,681	Jan. 21	2478	.....	98	551
Aseptic preparation from pancreas and producing same.	H. I. Schanck	694,997	Mar. 11	1935	877	98	1998
Asparagus-buncher	C. J. Seltzer	692,721	Feb. 4	889	903	98	981
Atomizer	C. J. Seltzer	692,722	Feb. 4	890	903	98	981
Atomizer	C. J. Seltzer	692,495	Feb. 4	461	107	98	898
Atomizer and nebulizer	C. J. Seltzer	692,552	Feb. 4	501	129	98	918
Atomizer and nebulizer. Combined	C. J. Seltzer	692,798	Feb. 4	1008	253	98	1006
Atomizer and nebulizer tip	J. Robertson	694,666	Mar. 4	632	130	98	1846
Atomizer-pump	W. A. Barton	696,156	Mar. 25	3441	772	98	2478
Atomizing apparatus	A. G. House	690,420	Jan. 7	88	18	98	20
Auricular instruments. Transmitting and receiving tube for	T. F. Schirmer	690,465	Jan. 7	151	32	98	34
Autographic register	M. A. Beck	690,552	Jan. 7	355	72	98	77
Automatic brake	W. H. Stratton	695,934	Feb. 25	3351	716	98	1580
Automatic sprinkler	G. O. Draper	692,591	Feb. 18	2619	578	98	1383
Automobile	K. Schiller	691,078	Jan. 14	1337	302	98	294
Automobile car	J. G. MacPherson	694,055	Feb. 25	3540	780 781	98	1598
Automobile controller mechanism	P. Steinhauer	696,210	Mar. 25	3586	791 798	98	2497
Automobile driving-gear	H. Lemp	692,874	Feb. 11	1174	260 261	98	1066
Automobile. Electric	J. F. Wilson	698,201	Feb. 11	1870	404 405	98	1907
Automobile-lock	O. F. Persson	691,807	Jan. 28	2743	619	98	1066
Automobile-seat	H. Lemp	692,877	Feb. 11	1184	268	98	1066
Automobile steering-check	J. Barsaleaux and R. C. Hall	691,519	Jan. 21	2184	459	98	490
Automobile steering-gear	H. Lemp	692,879	Feb. 11	1185	263	98	1069
Automobile steering mechanism	H. Lemp	692,870	Feb. 11	1161	258 259	98	1063
Automobile-vehicle controller	H. Lemp	692,866	Feb. 11	1153	257 258	98	1061
Automobile-vehicle steering mechanism	E. Ehlermann	691,525	Jan. 21	2204	495	98	494
Autotype-plates. Manufacturing	J. S. Padon	695,895	Mar. 18	2684	654	98	2260
Awl. Sewing-	C. H. Hansen	690,650	Jan. 7	543	118	98	116
Awning	E. F. Hartshorn	698,010	Feb. 11	1457	316 317	98	1195
Awning	F. J. Hage, Sr	698,129	Feb. 11	1695	871	98	1174
Awning	O. R. Olson	696,378	Mar. 25	3902	885	98	2570
Awning	L. S. Sharps	695,240	Mar. 11	1734	382	98	2028
Awning and window-shade. Combined	R. Ward	691,086	Jan. 14	1251	268	98	276
Awning-rod bracket	L. Johnsen	695,461	Mar. 18	2104	474	98	2159
Ax-handle clamp	R. H. Carter	695,669	Mar. 18	2497	567	98	2370
Ax-head and handle therefor	C. W. Todd	698,408	Feb. 18	2259	516	98	1931
Ax-helve grip	F. Reese	695,081	Mar. 11	1498	313	98	2081
Axle	M. A. Perrigo	691,174	Jan. 14	1504	339	98	389
Axle-box	J. L. Petithomme	691,175	Jan. 14	1505	339	98	389
Axle box. Car-	J. W. Stephenson	692,026	Jan. 28	2358	726	98	735
Axle box. Car-	D. M. Little	691,908	Jan. 28	2216	656	98	656
Axle for automobiles or other power-vehicles	W. Angle	691,909	Jan. 28	2095	696	98	691
Axle-gage							

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Axle journal-box. Car-	W. E. Sanders	694,995	Mar. 11	1255	276, 277	98	1008
Axle-shaping machine	G. A. Ensign	690,709	Jan. 7	662	145, 146, 147	98	189
Axle-skein	E. Good	694,631	Mar. 4	562	123	98	1881
Axle-spindle cutter	S. Davis	691,845	Jan. 28	2815	631, 632	98	687
Axle-springs to vehicle-frames. Means for attaching	W. A. Maybach	691,156	Jan. 14	1468	333	98	330
Axle. Vehicle-	J. H. Bowling	694,940	Mar. 11	1160	254	98	1970
Axle-wrench	G. P. Hall	691,856	Jan. 28	2832	636	98	541
Baby-jumper	J. H. Crutchfield	692,505	Feb. 4	499	117	98	900
Back-pedaling brake	R. M. Keating	691,147	Jan. 14	1449	330	98	317
Badge or button	J. Frame	694,849	Mar. 4	988	218	98	1921
Bag: *See* Feed-bag. Golf-bag. Laundry-bag. Punching-bag. Traveling-bag. Wire bag.							
Bag-fastener	W. A. Finn	695,148	Mar. 11	1553	346	98	2060
Bag-holder	W. Y. Elliott	691,120	Jan. 14	1399	318	98	306
Bag-lock	W. A. Finn	693,251	Feb. 11	1960	426	98	1227
Bag-machine	G. R. Ward	690,491	Jan. 7	296	45, 46	98	49
Bag-making machine	D. J. Mullen	692,695	Feb. 4	848	192, 193, 194	98	973
Bag or satchel lighting device	W. W. McCormick	690,753	Jan. 7	753	167	98	159
Bag-stringing-machine knotting mechanism	J. V. Richardson	693,622	Feb. 18	2075	590, 591	98	1295
Bags. Making and filling	A. M. Bates	693,880	Feb. 18	3033	670	98	1466
Bags, papers, &c. Machine for forming knotted loops on	W. Busch	692,764	Feb. 4	963	217, 218, 219	98	994
Bail-ears on sheet-metal vessels. Forming	C. G. Hornung and H. Wolf	694,644	Mar. 4	586	129	98	1836
Baking-pan	I. H. Jones	692,448	Feb. 4	399	96	98	881
Baking-pan	F. Hall	694,745	Mar. 4	787	175	98	1878
Baking-powder	J. A. Just	692,451	Feb. 4	402	------	98	881
Baking-powder	J. A. Just	692,452	Feb. 4	403	------	98	881
Baking-powder	J. A. Just	692,453	Feb. 4	404	------	98	881
Balcony. Window-	D. Butler	693,371	Feb. 18	2186	480	98	1295
Bale-band applying and tightening device	A. A. Vardell	694,448	Mar. 4	913	47	98	1758
Bale of hay, &c	G. A. Lowry	691,954	Jan. 28	3005	674	98	670
Bale-tie	W. A. Kilmer	695,213	Mar. 11	1683	373	98	2084
Bale-tie	W. A. Kilmer	695,214	Mar. 11	1683	373	98	2084
Bale-tie tool	W. J. English and L. Alexander	694,952	Mar. 11	1185	259	98	1980
Bales containing wool, &c. Fastening for hoop-irons for securing	G. R. Robertson	691,915	Jan. 28	2980	660	98	661
Bales of fibrous or other materials. Forming	G. A. Lowry	691,953	Jan. 28	3002	674	98	670
Baling-machine	O. S. Lee	694,166	Feb. 25	3723	821, 822, 823, 824	98	1626
Baling-press	I. V. Jones	691,387	Jan. 21	1952	436	98	441
Baling-press	W. Miller	693,729	Feb. 18	2873	632, 633	98	1436
Baling-press	W. S. McLemore	693,982	Feb. 25	3383	743, 744	98	1556
Baling-press self-feeder	J. S. Tuttle and C. L. Cookson	692,947	Feb. 11	1349	293	98	1103
Ball: *See* Game-ball. Golf-ball. Playing-ball.							
Ball players. Head-harness for foot-	G. L. Pierce	694,986	Mar. 11	1253	274	98	1995
Ball-playing device	J. S. Stevens	691,299	Jan. 14	1741	396	98	377
Ball-shaped or spherical bodies. Machine for forming	S. Smith	694,330	Feb. 25	4090	910	98	1628
Balls. Manufacture of playing-	E. Kempshall	695,367	Mar. 18	2847	646	98	2343
Balls. Manufacture of playing-	F. H. Richards	696,352	Mar. 25	3831	854	98	2558
Ballast conveyer and leveler	G. F. Spurlin	690,788	Jan. 7	815	180	98	178
Ballast-dressing mechanism	V. Berford	695,530	Mar. 18	2832	505	98	2216
Ballot-box	C. D. Green	694,548	Mar. 4	408	88	98	1799
Banana-shipping case	F. Schmitz	694,998	Mar. 11	1270	278	98	1999
Bananas, &c. Device for transporting	R. R. Blandy	691,596	Jan. 21	2192	492	98	492
Band-brake. Double-acting	A. La France	693,650	Feb. 18	2789	605	98	1409
Band-mill	E. E. Thomas	693,337	Feb. 11	2110	462, 463	98	1269
Bandage-case. Reversible	S. Bottomley	692,503	Feb. 4	496	116	98	900
Bandage. Water-	C. H. Jones	691,270	Jan. 14	1678	382	98	365
Bandbox-stay	S. Mundheim	696,182	Mar. 25	3489	781	98	2427
Bank. Coin-deposit	H. J. Valentine	695,845	Mar. 18	2811	640	98	2333
Bank. Savings-	A. C. Reichel	693,741	Feb. 18	2891	656	98	1440
Bar-fixture	W. E. Poate	692,706	Feb. 4	869	198	98	977
Bar-fixture with soda-water-dispensing apparatus provided with syrup-cans	J. C. Johnson	691,386	Jan. 21	1950	439	98	440
Bars, &c., with a covering of extruded material. Apparatus for providing	D. J. Jarvis, J. W. Wadkin, and T. S. King	692,295	Feb. 4	137	32, 33	98	827
Barker. Pneumatic	C. R. Kline and J. Keller	693,184	Jan. 28	3415	773	98	758
Barley and malt. Testing	W. H. Prinz	694,788	Mar. 4	864	191	98	1894
Barley-bearder and cereal-polisher	M. Hansen	693,011	Jan. 28	3108	697	98	695
Barrel-closure	P. Mink	694,171	Feb. 25	3742	836	98	1628
Barrel-machine	A. C. Luyckx	694,167	Feb. 25	3734	835	98	1627
Barrel tilting holder	J. Elliott	693,434	Feb. 4	873	91	98	876
Barrel-tongs	C. M. Baldwin	693,097	Feb. 11	1693	354	98	1159
Basin. Portable wash-	J. J. Kellogg	693,549	Feb. 18	2585	556	98	1365
Basket	T. J. Langston	694,289	Feb. 25	3950	890	98	1671

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Basket-blank-weaving machine	R. and W. F. Goddard	691,621	Jan. 21	2366	532 533	98	326
Basket-making machine	O. Schleicher	693,911	Feb. 25	3208	711	98	1526
Bath-cabinet. Convertible horizontal and vertical	C. M. Robinson	695,083	Mar. 11	1481	314 315	98	2032
Bath-tub	H. Gossmann	693,701	Feb. 18	2884	681	98	1425
Bath-tubs, &c. Lifter and carrier for	C. Müller	693,300	Feb. 11	2044	446	98	1244
Batteries. Apparatus for preparing material for use in storage	E. W. Smith	693,750	Feb. 18	2906	630	98	1443
Battery: *See* Electric battery. Secondary battery. Galvanic battery. Storage battery. Primary battery.							
Battery-charging apparatus	M. R. Hutchison	691,144	Jan. 14	1444	328	98	316
Battery chute or well	E. W. Vogel	691,024	Jan. 14	1247	282 283	98	275
Battery-end-cell switch-indicator	A. C. Walther	690,800	Jan. 7	837	185	98	176
Battery plate. Secondary-	B. Kuettner	690,589	Jan. 7	423	91	98	92
Battery plate. Secondary-	W. L. Silvey	693,453	Feb. 18	2844	518	98	1327
Battery separator. Storage-	G. M. Willis	693,676	Feb. 18	2775	611	98	1416
Battery systems of distribution. Automatic regulator for storage-	C. H. Holderrieth	693,863	Feb. 25	3128	693	98	1507
Battery zinc element. Primary-	H. J. Brewer	694,089	Feb. 25	3581	791	98	1507
Beam. Sheet-metal I-	E. Molloy	693,560	Feb. 18	2540	559 560	98	1368
Bean-separator	W. F. Pillmore and D. Anderegg	696,189	Mar. 25	3499	788	98	2499
Bearing. Antifriction-	W. J. Brewer	694,608	Mar. 4	528	115	98	1525
Bearing. Ball-	F. Hansen	692,135	Jan. 28	3334	755	98	742
Bearing. Ball-	D. Lutz	693,291	Feb. 11	2030	442	98	1241
Bearing. Ball-	F. Erdsiek	693,815	Feb. 18	3020	667	98	1466
Bearing box. Ball-	O. Stutzman	691,202	Jan. 14	1554	352	98	339
Bearing. Electric-motor-shaft	S. H. Short	690,467	Jan. 7	153	32	98	34
Bearing for bicycles, &c. Spring-	F. L. Koehler	696,103	Mar. 25	3316	747 748	98	2453
Bearing for crank-shafts, &c. Roller-	G. H. Reynolds	691,487	Jan. 21	2123	476	98	477
Bearing for journals, shafts, or rotating columns	G. J. Capewell	692,992	Feb. 11	1418	308	98	1116
Bearing. Roller-	F. W. Thomas	690,484	Jan. 7	210	42	98	46
Bearing. Roller-	F. Whitney	690,695	Jan. 7	498	108	98	107
Bearing. Roller-	J. A. Perkins	691,173	Jan. 14	1501	339	98	328
Bearing. Roller-	W. N. and W. N. Whitely, Jr.	691,922	Jan. 28	2937	662	98	663
Bearing. Roller side	J. C. Wands	694,503	Mar. 4	301	69	98	1775
Bearing. Roller side	J. C. Wands	694,505	Mar. 4	309	70	98	1776
Bearing. Roller side	C. F. Huntoon	694,549	Mar. 4	414	90	98	1800
Bearing. Roller side	J. C. Wands	695,849	Mar. 18	2817	641	98	2305
Bearing. Shaft-	G. Wideman	694,043	Feb. 25	3510	778	98	1582
Bearing. Shaft thrust-	S. M Fulton and A. T. Ames	695,807	Mar. 18	2743	625	98	2310
Bearing. Side	J. C. Wands	694,506	Mar. 4	311	70	98	1778
Bearing slide. Ball-	C. C. Protheroe	694,028	Feb. 25	3471	765	98	1575
Bearing. Wheel-	I. Besly	690,916	Jan. 14	1083	233	98	233
Bed	W. D. Olney	694,183	Feb. 25	3764	831 832	98	1632
Bed and invalid-chair. Combined spring-	J. H. T. Edwards	690,844	Jan. 7	908	203	98	192
Bed-bottom	O. G. Franks	693,594	Feb. 18	2625	579 580	98	1384
Bed-bottom attachment	J. Hoey	696,239	Mar. 25	3549	803	98	2507
Bed-brace	J. L. Peacock	690,998	Jan. 14	1185	268	98	268
Bed-canopy	V. M. Brown	692,419	Feb. 4	343	85	98	871
Bed. Couch-	J. A. Hutchison and E. R. Leighton	692,140	Jan. 28	3344	757	98	744
Bed. Folding	L. N. Bachand	693,211	Feb. 11	1899	411	98	1214
Bed. Knockdown	W. W. Locher	695,890	Mar. 18	2767	631	98	2524
Bed or seat bottom. Spring	E. E. Eyster	695,636	Mar. 18	2445	553	98	2259
Bed-rail fastener	A. E. Jacobson	696,374	Mar. 25	3896	864	98	2569
Bed-rest. Invalid	J. F. Wilkins	691,224	Jan. 14	1569	362	98	346
Bed-spring	A. Guay	695,607	Mar. 18	2394	542	98	2249
Bed-spring	F. Moehle	695,752	Mar. 18	2637	599	98	2297
Bedstead	R. Fleck	694,361	Mar. 4	34	8	98	1719
Bedstead-brace	I. W. Campbell	691,352	Jan. 21	1992	424	98	427
Bedstead clamp. Metal-	W. A. Morrison and F. L. Bryant	693,562	Feb. 18	2547	551	98	1370
Bedstead. Couch-	D. C. Storr	693,923	Feb. 25	3249	715	98	1530
Bedstead fastener. Metallic-	W. A. Lipphard	693,326	Feb. 11	2094	458	98	1255
Bedstead hook and lock. Iron	G. Williams	691,427	Jan. 21	2016	451	98	455
Bedsteads. Manufacture of metallic	I. Van Hagen	695,846	Mar. 18	2812	640	98	2334
Beehive wintering-case	M. Hemple	692,784	Feb. 4	1000	226	98	1001
Beer. Apparatus for converting wort into	O. Selg and C. Guntrum	694,585	Mar. 4	475	105	98	1814
Beer. Converting wort into	O. Selg and C. Guntrum	694,584	Mar. 4	473	102	98	1814
Beer vats and pipes. Cleaning	S. A. Sjoo and R. V. Tornell	691,671	Jan. 21	2462		98	548
Beet-blocker	W. W. Bartlett	691,579	Jan. 21	2383	512 513	98	510
Bell	C. L. Newton	695,829	Mar. 18	2786	635	98	2328
Bell. Alarm-	A. G. Nelson	691,961	Jan. 28	3016	677	98	879
Bell. Alarm or call	J. O. Lippincott	691,064	Jan. 14	1319	298	98	290
Bell. Door-	H. L. Washburn	692,221	Jan. 28	3497	791	98	775
Bell mounting. Electric-	C. Woittequand	694,511	Mar. 4	318	72	98	1780
Belt	J. Loeffelholz	690,868	Jan. 7	987	210	98	197
Belt	B. Kronthal	694,590	Mar. 4	106	24	98	1735
Belt	M. C. Garland	695,549	Mar. 18	2672	515	98	2223
Belt-and-pulley gearing	L. J. C. Souhami	694,211	Feb. 25	3313	642	98	1648
Belt. Electromedical	S. J. Spalding	691,880	Jan. 28	2708	623	98	628
Belt-fastener	C. Farez	690,938	Jan. 14	1074	241	98	240
Belt-folding machine	B. O. Hale	694,099	Feb. 25	3595	795	98	1600
Belt-gearing	W. Newman	694,175	Feb. 25	3747	827 828	98	1629
Belt-holder and skirt-support	T. F. McEvilly	691,656	Jan. 21	2439	546	98	541
Belt holding or attaching device	H. Parkes	693,058	Feb. 11	1549	338	98	1144
Belt-shifter	F. Hirsch	693,969	Feb. 25	3541	784	98	1548

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page
Belt-tightening tool	H. W. Stone, Jr	693,182	Feb. 11	1821	397	98	1197
Belts. Adjustable coupling for sewing-machine or other round	D. H. Abney	691,884	Jan. 28	2874	647	98	651
Belts. Adjustable coupling for sewing-machine or other round	D. H. Abney	691,885	Jan. 28	2876	647	98	651
Belts upon pulleys. Device for throwing heavy	T. A. Crowner	692,833	Feb. 11	1097	245	98	1049
Bench: *See* Work-bench.							
Berth, &c., for ships. Self-leveling and adjustable	C. St. Hilaire	694,214	Feb. 25	3815	843, 844	98	1643
Beton strengthened by metal. System of construction with	H. Henkel	693,906	Feb. 25	3835	782, 783	98	1547
Bevel	N. B. Norfolk	691,726	Jan. 21	3563	574	98	560
Bevel	C. F. Mueller	695,110	Mar. 11	1477	329	98	2041
Beverage-dispensing apparatus	H. Schepke	691,296	Jan. 14	1790	394	98	376
Bicycle	H. Jarvis	690,733	Jan. 7	721	159	98	151
Bicycle	P. and M. Tarzian	693,383	Feb. 4	388	70	98	859
Bicycle	A. G. Anderson	693,811	Feb. 11	1061	238	98	1041
Bicycle	A. P. Morrow	693,299	Feb. 11	2043	445	98	1944
Bicycle	A. N. Miller	695,164	Mar. 11	1591	353	98	2065
Bicycle	G. W. Smith	695,955	Mar. 25	3012	651	98	2388
Bicycle	N. E. Brown	696,310	Mar. 25	3744	837	98	2541
Bicycle	A. P. Christiansen	691,597	Jan. 21	2319	521	98	517
Bicycle attachment	H. Simmons	692,725	Feb. 4	894	204	98	982
Bicycle attachment	J. C. Grout	692,849	Feb. 11	1123	251	98	1054
Bicycle attachment	R. Kaucher	694,388	Mar. 4	103	24	98	1734
Bicycle attachment	A. F. Wyman	691,891	Jan. 21	2498	559	98	555
Bicycle coaster-brake	G. R. C. Davis	693,379	Feb. 18	2201	483	98	1298
Bicycle-coupling	J. Baker	693,214	Feb. 11	1903	412	98	1215
Bicycle driving mechanism	H. F. Maynes	695,349	Mar. 25	3324	853	98	2257
Bicycle-gear. Changeable	C. S. Thompson	692,943	Feb. 11	1339	291	98	1101
Bicycle-gearing	W. N. and W. N. Whitely, Jr	691,880	Jan. 28	2788	626	98	633
Bicycle handle-bar	O. H. Hansen	691,374	Jan. 21	1927	433	98	435
Bicycle-lock	W. H. Niemeyer	692,538	Feb. 4	573	134	98	915
Bicycle-lock	A. G. Jackson	691,864	Jan. 28	2843	640	98	644
Bicycle luggage-carrier	R. M. Keating	695,503	Mar. 18	2306	521, 522	98	2231
Bicycle-motor	V. E. Rumbarger	693,159	Feb. 11	1771	399	98	1187
Bicycle parts and securing same. Means for expanding the tubes of	W. T. Johnson	691,906	Jan. 28	2914	657	98	658
Bicycle propulsion	D. B. Smith	695,002	Mar. 11	1276	281	98	2000
Bicycle-pump	J. N. Hatch	695,551	Mar. 18	2280	515	98	2225
Bicycle-pump coupling	G. A. Meighan	694,875	Mar. 4	1089	230	98	1932
Bicycle-saddle	H. Jarvis	690,734	Jan. 7	724	160	98	152
Bicycle-seat	J. England and M. Hutchinson	694,539	Mar. 4	396	87	98	1795
Bicycle seat-post	V. M. Gabrielle	690,718	Jan. 7	695	152	98	147
Bicycle-support	H. Burnet	693,370	Feb. 18	2185	480	98	1295
Bicycle-support	M. H. Tyler	696,152	Mar. 25	3433	770	98	2477
Bicycle-support	C. H. Morgan	694,022	Feb. 25	3455	763	98	1571
Billet-heating furnace	C. M. Anderson	693,679	Feb. 18	2782	612	98	1417
Billiard and dining table. Combined	W. Zachringer	692,970	Feb. 11	1393	308	98	1112
Billiard-cue	W. C. Rood	694,423	Mar. 4	168	37	98	1748
Billiard-cue	S. Ruhland	690,617	Jan. 7	475	103	98	102
Billiard-cue bridge	F. L. Robinson	690,613	Jan. 7	468	101	98	101
Billiard-cue tip	E. A. Folsom	693,254	Feb. 11	1965	427	98	1228
Billiard-cue tip	T. R. Palmer	692,899	Feb. 11	1941	275	98	1090
Billiard-table cushion	W. L. Dethloff	691,452	Jan. 21	2066	462	98	465
Billiard table. Pool-	H. H. Hoffmann	690,859	Jan. 7	981	208, 209	98	196
Binder	H. E. Dade	691,844	Jan. 28	2812	631	98	637
Binder	A. O. Kittredge	693,139	Feb. 11	1717	376	98	1178
Binder and transfer-cover for contents. Post-	H. M. Huntington	695,558	Mar. 18	2293	518	98	2228
Binder. Hand-	H. W. Glascock	691,901	Jan. 28	2906	654	98	656
Binder-reel. Folding	E. A. Johnston	690,964	Jan. 14	1126	255	98	251
Binder. Self-	C. K. and C. A. Reed	692,545	Feb. 4	583	137	98	917
Binder. Temporary	E. A. Trussell	693,086	Feb. 11	1599	349	98	1154
Binder. Temporary	C. F. Mohrhoff	693,616	Feb. 18	2662	588	98	1392
Binder title-plate	H. T. Adams and O. Kellner	692,584	Feb. 4	552	153	98	932
Binding. Metal ring for temporary	A. S. Kronold	690,442	Jan. 7	106	23	98	25
Binding or edge-protector and making same. Skirt	S. L. Summers	690,672	Jan. 7	583	------	98	124
Bismuth oxyiodid methylene digallate and making same.	S. L. Summers	690,673	Jan. 7	584	------	98	124
Bismuth oxyiodids. Making methylene digallate of	F. H. Davis and C. A. Terry	693,117	Feb. 11	1678	365	98	1170
Bit	R. A. Shafer	693,914	Feb. 25	3284	718	98	1587
Bit	J. K. Ritchey	692,354	Feb. 4	242	58	98	849
Blackboard	W. F. Huckel	696,048	Mar. 25	3197	722	98	2427
Blacking kit. Shoe-	F. Gibberd	690,850	Jan. 7	917	204, 205	98	193
Blacking or coloring boots or shoes. Device for	J. H. Dailey	691,534	Jan. 21	2203	495	98	494
Blanket	C. I. Rader	695,866	Mar. 18	2286	654	98	2250
Blast-furnace	T. F. Durham	691,367	Jan. 21	1917	431	98	433
Blasting-cartridge. Safety	J. C. Tyms	692,091	Jan. 28	3263	788	98	727
Bleaching-kedr	L. B. Gaylor	692,261	Feb. 4	89	20	98	817
Blind-fastener	W. Martin	693,726	Feb. 18	2869	632	98	1435
Blind fastener. Window-	W. F. Dugins	695,094	Mar. 11	1450	321	98	2035
Blind-roller	R. G. Coveney	691,005	Jan. 21	2332	523	98	520
Blind. Venetian or like							
Block: *See* Building-block. Die-block. Fire-lighter block. Meat-cutting block. Pulley-block.							
Block	P. J. Macdonald	691,558	Jan. 21	2241	505	98	502
Block or tile for partitions, walls, &c	W. A. C. Waller	690,811	Jan. 7	857	188	98	150
Bloom-perforating apparatus	J. Fritz	695,716	Mar. 18	2571	582	98	2234
Blowpipe-torch	C. G. Woodmansee	692,752	Feb. 4	939	213	98	990

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g	Official Gazette. Vol.	Official Gazette. Page.
Board: *See* Cloth-board. Drafting-board. Game-board. Ironing-board. Lap-board. Plaster-board. Scoop-board. Shuffle-board. Washboard.							
Boat	W. C. McElheny	696,758	Mar. 18	2644	601	98	2899
Boat	A. Dominick and L. Krebs	696,917	Mar. 25	2953	668	98	2977
Boat adapted to be propelled on land or in water	S. T. Brittain	693,298	Feb. 11	1988	418	98	1219
Boat hoisting or lowering apparatus	H. A. Mallon	695,067	Mar. 11	1408	939	98	2036
Boat. Life-	A. Anrep	690,695	Jan. 7	607	132	98	199
Boat. Life-	R. D. Mayo	690,909	Jan. 7	1081	230	98	813
Boat. Life-	C. Dickenson	696,694	Mar. 18	2442	558	98	2806
Boat or vessel. Submarine	J. P. Holland	694,154	Feb. 25	3696	817	98	1681
Boat. Screw-propelled	H. T. Gay	691,258	Jan. 14	1657	377	98	351
Boat. Submarine	L. A. Carpenter and S. Mahony	691,353	Jan. 21	1883	424	98	427
Boat. Submarine	J. P. Holland	694,643	Mar. 4	585	129	98	1686
Boat. Submarine	S. Lake	695,215	Mar. 11	1694	374	98	2004
Boats. Automatic diving mechanism for submarine	J. P. Holland	698,272	Feb. 11	1994	434	98	1284
Boats. Means for automatically ballasting submarine	J. P. Holland	694,153	Feb. 25	3696	817	98	1680
Boats on ships, &c. Means for disengaging and replacing the supports of	T. Wilson	692,400	Feb. 4	315	76	98	865
Bobbin-holder	T. J. Murdock	691,162	Jan. 14	1479	335	98	383
Bobbin-holder	O. M. Rolfe	696,062	Mar. 25	3958	786	98	2439
Bobbin-holder. Spindle	W. E. Bass and A. C. Chase	694,604	Mar. 4	533	113	98	1684
Bobbin-spindle	T. W. Cocker	695,912	Mar. 25	3940	666	98	2375
Boiler: *See* Cooking-boiler. Engine-boiler. Heating-boiler. Locomotive-boiler. Range-boiler. Steam-boiler. Tubular boiler. Water-tube boiler.							
Boiler	C. J. Cronin	690,701	Jan. 7	646	141	98	135
Boiler	R. L. Morgan	690,981	Jan. 14	1166	264	98	259
Boiler	N. P. Stevens	691,200	Jan. 14	1551	351	98	336
Boiler	G. E. Blake and C. M. Bell	691,712	Jan. 21	2530	566	98	568
Boiler	C. F. Lape	695,614	Mar. 18	2407	545	98	2251
Boiler	E. Solomiac	695,956	Mar. 25	3013	681, 682, 683	98	2869
Boiler-cleaner	D. N. Baxter	692,599	Feb. 4	680	158	98	986
Boiler-cleaner	J. H. Connolly	695,034	Mar. 11	1344	296	98	2013
Boiler-flue. Removable	G. W. Middleton	693,298	Feb. 11	2042	445	98	1243
Boiler fuel-controller. Steam-	H. K. Clover	692,192	Jan. 28	3429	776	98	751
Boiler furnace. Steam-	T. G. Macy	691,398	Jan. 21	1973	442	98	446
Boiler furnace. Steam-	J. J. Le Duc	691,641	Jan. 21	2405	541	98	595
Boiler furnace. Water-tube steam-	W. C. Wallace	691,089	Jan. 14	1352	306, 307	98	907
Boiler-setting	G. L. Norrman	690,870	Jan. 7	947	212	98	199
Boiler-tube cleaner	M. Snyder	690,474	Jan. 7	183	37	98	40
Boiler-tube cleaner	F. W. Pätz	695,077	Mar. 11	1494	312	98	2080
Boiler-tube cutter	G. A. Beland	695,597	Mar. 18	2373	536	98	2345
Boiler-tubes, &c. Implement for cleaning	W. Lombardo	691,475	Jan. 21	2103	472	98	472
Boiler water-circulating system. Steam-	J. E. Cavanagh	695,088	Mar. 11	1439	317, 318	98	2062
Boilers. Apparatus for supplying water to steam-	H. A. Fleuss	690,941	Jan. 14	1077	242	98	941
Boilers. Assembling-frame for steam-	E. J. Pennington	694,413	Mar. 4	151	34	98	1745
Bolster frame. Sham-	L. Gully	691,134	Jan. 14	1427	323	98	813
Bolster spreader. Sham roll-	J. David	691,119	Jan. 14	1398	316	98	806
Bolt: *See* Door-bolt. Expansion-bolt.							
Bolt	A. Hayes	691,705	Jan. 28	2063	467	98	607
Bolt cutter and trimmer	J. Candlish	694,329	Mar. 4	942	210	98	1912
Bolt-cutting machine	A. W. Epright	692,258	Feb. 4	77	16, 17, 18, 19	98	815
Bolt-heading machine safety device	J. R. Blakeslee	690,919	Jan. 14	1042	234, 235	98	884
Bolt-holder	H. C. Carter	696,006	Mar. 25	3105	703	98	2407
Bolt pointing and threading machine	C. A. Johnson	691,316	Jan. 14	1728	406	98	887
Bolt-pointing machine	J. Stephans	691,196	Jan. 14	1547	349, 350	98	837
Bolts, rivets, &c. Device for severing	F. A. Carter	692,231	Feb. 11	1987	419	98	1230
Bolting-cloth cleaner	G. W. Combs	692,881	Feb. 11	1994	445	98	1043
Bonding-pin and making same	C. A. Holdridge	691,515	Jan. 14	1779	405	98	886
Book	S. S. Hookland	693,393	Feb. 18	2288	488	98	1304
Book. Carbon copying-	A. R. Turk and B. G. Merrill	691,506	Jan. 21	2159	494	98	485
Book-cover. Detachable	G. A. Roedde	691,731	Jan. 21	2566	576	98	570
Book-cover fastener. Supplemental	F. R. Derrick	694,841	Mar. 4	958	213	98	1916
Book. Deposit-credit	T. D. Taylor	693,384	Feb. 4	289	71	98	859
Book for drapers, tailors, or others. Manifold counter check or sales	J. S. Holmes	693,290	Feb. 4	131	31	98	685
Book-holder	E. W. Murphy	694,490	Mar. 4	283	64	98	1772
Book. Manifold	A. Levison	694,106	Feb. 25	3902	797	98	1601
Book-rest	J. R. Hill	695,810	Mar. 18	2747	627	98	2287
Books. Machine for casing-in	A. I. Jacobs	690,939	Jan. 14	1113	251, 252, 253	98	946
Bookbinding	J. F. Swanney	691,968	Jan. 28	2057	466	98	666
Bookbinding	R. P. Winckler	694,593	Mar. 4	494	107	98	1818
Boot or like stretching and molding device	E. Salutrynski	691,076	Jan. 14	1385	301	98	888
Boot or shoe	C. Peters	691,391	Jan. 14	1785	398	98	875
Boot or shoe	E. Roche. (Reissue)	11,997	Feb. 11	2156	473	98	1909

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Boot or shoe tree	H. A. Ballard	691,304	Jan. 14	1753	399, 400	98	380
Boot or shoe tree	H. A. Ballard and W. A. Copeland	691,305	Jan. 14	1757	400, 401	98	381
Boot or shoe treeing machine	H. A. Ballard	691,576	Jan. 21	2274	511, 512	98	509
Boot or shoe treeing machine	W. A. Copeland, G. Jones, and H. A. Ballard	691,602	Jan. 21	2329	523	98	519
Boot-treeing machine	A. D. Tyler, Jr	693,466	Feb. 18	2363	517, 518	98	1332
Boring apparatus	F. Holbrook	691,629	Jan. 21	2289	537	98	531
Boring holes in rock, &c	F. H. Davis	694,534	Mar. 4	388	85	98	1795
Boring holes in rock, &c. Apparatus for	F. H. Davis	694,535	Mar. 4	389	85	98	1795
Boring-machine	R. W. Rowley	693,743	Feb. 18	2396	637	98	1441
Boring-machine, Double-spindle drawer-pull	S. F. Wise	694,510	Mar. 4	516	71	98	1779
Boring-machine, Horizontal	G. A. Ensign	691,121	Jan. 14	1400	318, 319	98	306
Bottle	A. Maaké	692,321	Feb. 4	186	43	98	838
Bottle-capping machine	R. Flanigan	694,144	Feb. 25	3669	811, 812	98	1615
Bottle-cleaning machine	A. Goetz	694,371	Mar. 4	61	15	98	1734
Bottle-cleaning machine	A. Goetz	694,372	Mar. 4	65	15	98	1735
Bottle-closure	J. Schies	693,161	Feb. 11	1774	389	98	1187
Bottle cork, Non-refillable	J. B. Goodman	692,948	Feb. 11	1121	230	98	1054
Bottle-covers, Machine for making straw	M. van Jen Heuvel	692,662	Feb. 4	783	170, 180	98	960
Bottle filling and capping machine	T. L. Valerius	690,488	Jan. 7	218	42, 44	98	47
Bottle-filling machine	L. Strebel and C. W. Williams	695,947	Mar. 11	1736	384, 385	98	2551
Bottle, Infant's feeding	F. R. Graham-Yooll	696,388	Mar. 25	2791	845	98	2551
Bottle, Mucilage	J. C. Carpenter	692,237	Feb. 4	38	8	98	806
Bottle necks and lips, Implement for finishing	A. F. Wilson	692,957	Feb. 11	1369	298	98	1107
Bottle, Non-refillable	O. E. Blaine	690,681	Jan. 7	508	111	98	109
Bottle, Non-refillable	J. S. Bromhead	691,108	Jan. 14	1382	314	98	308
Bottle, Non-refillable	S. Love	691,152	Jan. 14	1457	332	98	318
Bottle, Non-refillable	W. C. Leak	691,553	Jan. 21	2231	502	98	500
Bottle, Non-refillable	A. C. C. Liardet	692,205	Jan. 28	3455	781	98	767
Bottle, Non-refillable	E. A. Johnson and G. M. Roberts	692,520	Feb. 4	539	127	98	908
Bottle, Non-refillable	C. Carr	692,766	Feb. 4	969	219	98	995
Bottle, Non-refillable	E. T. Evans	692,772	Feb. 4	978	221, 222	98	997
Bottle, Non-refillable	C. F. Heath	693,601	Feb. 18	2640	593	98	1338
Bottle, Non-refillable	A. E. Gibson	695,044	Mar. 11	1365	300	98	2018
Bottle, Non-refillable	J. R. Latham	695,817	Mar. 18	2762	630	98	2323
Bottle, Non-refillable	J. M. Sheppard, Jr	695,975	Mar. 25	3060	818	98	2522
Bottle-rinsing machine	G. Doherty	695,446	Mar. 18	2077	468, 469	98	2184
Bottle stopper	H. S. Brewington	691,107	Jan. 14	1381	314	98	302
Bottle-stopper	J. A. Moller, Jr	692,058	Jan. 28	3300	722	98	714
Bottle-stopper	G. Rouse	692,359	Feb. 4	251	61	98	850
Bottle-stopper	J. A. Hayes	694,013	Feb. 25	3443	760	98	1569
Bottle-stopper	J. and J. A. Butkus	694,131	Feb. 25	3648	806	98	1611
Bottle-stopper	H. Pennie	692,702	Feb. 4	863	197	98	976
Bottle-stopper fastener	J. W. Calef	693,634	Feb. 25	3067	677	98	1495
Bottle stopper, Non-refillable	W. H. Perkins	693,486	Feb. 18	2806	505	98	1320
Bottle stopper, Water	J. and J. A. Butkus	694,132	Feb. 25	3649	807	98	1611
Bottle-stoppering machine	H. B. Kent	690,787	Jan. 7	729	161	98	154
Bottle top, Tooth-powder	W. M. Phelan	694,416	Mar. 4	157	35	98	1746
Bottle washer and rinser	W. B. Cobb	690,563	Jan. 7	376	77	98	81
Bottle-washing machine	S. Lippert and C. W. Hottman	691,642	Jan. 21	2407	541, 542	98	536
Bottle-washing machine	C. A. Cole	693,580	Feb. 18	2614	577, 578	98	1332
Bottle-washing machine	C. M. Thomas	693,674	Feb. 18	2772	610	98	1416
Bottles, &c. Cleaning device for	W. M. Phelan	694,415	Mar. 4	155	35	98	1745
Bottling-table	C. Potter	693,150	Feb. 11	1748	383	98	1182
Bouquet holder, Buttonhole	E. S. Chase	696,361	Mar. 25	3871	860	98	2564
Bow-tying device	J. S. Craig	695,068	Mar. 11	1351	296	98	2015
Bowl, Wash	E. Reisky	695,694	Mar. 18	2424	548	98	2255
Bowling-alley							
Box, See Axle-box. Ballot-box. Bread or cake box. Candy-box. Cash-box. Cheese-box. Display-box. Foldable box. Folding box. Hop-drying box. Journal-box. Letter-box. Mail-box. Match-box. Miter-box. Packing-box. Paper box. Shipping-box. Sluice-box. Spring-lid box. Tool-box. Train-order box. Trinket-box.							
Box	A. Flaskamp	692,259	Feb. 4	86	19, 20	98	816
Box	J. T. Ferres	695,200	Mar. 11	1647	366	98	2078
Box	F. H. Houghland	695,557	Mar. 18	2393	518	98	2295
Box	A. F. Mack	695,618	Mar. 18	2415	546, 547	98	2303
Box	J. E. Faris	695,677	Mar. 18	2515	570	98	2273
Box-covering machine	P. S. Smith	691,329	Jan. 14	1800	411, 412, 413, 414, 415	98	302
Box-fastener	A. C. Brenckle and W. A. Anger	693,489	Feb. 18	2413	527	98	1342
Box-fastener	A. C. Brenckle and W. A. Anger	693,490	Feb. 18	2413	527	98	1342
Box-fastener	C. M. Johnson	693,607	Feb. 18	2651	595	98	1890

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g	Official Gazette. Vol.	Official Gazette. Page.
Box-fastener	C. M. Johnson	694,480	Mar. 4	255	50	98	1708
Box-fastener	T. G. Mandt	695,400	Mar. 11	2014	402	98	2153
Box for containing eggs, &c.	R. Baker	694,520	Mar. 4	856	78	98	1789
Box-hinging machine	D. L. Hill	693,519	Feb. 18	2463	540, 541	98	1353
Box-machine	C. W. Gay	695,301	Mar. 11	1845	411, 412	98	2116
Box-making machine. Automatic	J. H. Clark and A. Mayer	693,180	Jan. 28	3402	770, 771, 772	98	755
Box material. Machine for impressing	J. R. Ripley	694,992	Mar. 11	1960	275	98	1996
Box-stapling machine	P. F. Lindt	693,892	Feb. 11	1196	265, 266, 267	98	1070
Box-stapling machine	J. Schmidt, Jr	694,081	Feb. 25	3479	766, 767	98	1577
Box-staying machine	R. Partzsch	694,663	Mar. 4	686	136	98	1845
Boxes, &c. System of jointing for joining up	C. D'Espine	691,049	Jan. 14	1297	294	98	296
Boxing-machine	F. W. Wild, Jr.	690,805	Jan. 7	843	186, 187	98	177
Brace: See Rail-brace.	S. W. Patterson	696,075	Mar. 25	3246	734	98	2436
Brace and suspenders. Combined	J. Kun	690,590	Jan. 7	424	91	98	92
Bracelet. Elastic chain							
Bracket: See Adjustable bracket. Awning-rod bracket. Laundry-bracket. Scaffold-bracket. Shade-bracket. Shade and curtain bracket. Shade-roller bracket. Shelf-bracket. Staging-bracket.							
Braiding-carrier	A. B. Diss	694,586	Mar. 4	390	86	98	1795
Braiding-machine	F. Meyer	695,469	Mar. 18	2119	477	98	2198
Braiding-machine	A. B. Diss	695,601	Mar. 18	2378	538, 539	98	2246
Braiding-machine	J. Lundgren	695,746	Mar. 18	2623	596	98	2294
Braiding-machine	A. B. Diss	696,094	Mar. 25	3293	742, 743	98	2448
Brake: See Air-brake. Automatic brake. Back-pedaling brake. Band-brake. Bicycle coaster-brake. Car-brake. Coaster-brake. Cord and pulley brake. Electric brake. Engine-brake. Fluid-pressure brake. Friction-brake. Pawl-and-ratchet brake. Vehicle-brake. Wagon-brake.							
Brake	T. G. Blatch	690,692	Jan. 7	622	136	98	132
Brake	J. D. Edwards	691,848	Jan. 28	2820	638	98	638
Brake	A. H. Raymond	694,785	Mar. 4	875	198	98	1997
Brake-beam	J. H. Baker	690,547	Jan. 7	348	70	98	75
Brake-beam	J. H. Baker	690,548	Jan. 7	349	70, 71	98	75
Brake-beam	J. H. Baker	690,824	Jan. 7	880	194	98	186
Brake-beam	J. H. Baker	690,825	Jan. 7	882	195	98	186
Brake-beam	J. H. Baker	690,826	Jan. 7	884	195	98	187
Brake-beam	J. H. Baker	691,095	Jan. 14	1362	309	98	299
Brake-beam	J. H. Baker	691,096	Jan. 14	1364	309	98	299
Brake-beam	J. H. Baker	690,745	Jan. 7	742	165	98	156
Brake-block for vehicles. Adjustable	N. Liston	693,452	Feb. 18	2242	512	98	1387
Brake-cylinders. Automatic release for	G. B. Sewell	695,547	Mar. 18	2267	512	98	2222
Brake-head	J. Farley	694,207	Feb. 25	2804	641	98	1641
Brake mechanism	F. M. Smith	695,130	Mar. 11	1530	339	98	2051
Brake mechanism	W. S. Adams	695,131	Mar. 11	1534	339, 340	98	2052
Brake mechanism	W. S. Adams	695,361	Mar. 11	1932	431	98	2134
Brake mechanism. Automatic	W. H. Campbell	696,312	Mar. 25	3751	838, 839	98	2542
Brake-shoe	C. J. Gulden	691,988	Jan. 28	2974	669	98	669
Brake-shoe	A. L. Streeter	695,248	Mar. 11	1740	385	98	2096
Brake-shoe	A. L. Streeter	695,419	Mar. 11	2029	456	98	2156
Brake-shoes. Automatic means for regulating	W. H. Sauvage	693,806	Feb. 18	2304	664	98	1463
Brake systems. Automatic retaining-valve for use in automatic fluid-pressure	H. E. Parsons and H. C. Derr	696,264	Mar. 25	3641	814	98	2518
Brake-wheel	M. Z. Sims	694,686	Mar. 4	673	147	98	1854
Brakes. Truck-machine for automatically applying	B. C. Rowell	695,650	Mar. 18	2471	561	98	2265
Branding animals or packages. Apparatus for	G. Renner and W. H. Boyens	690,771	Jan. 7	788	178	98	165
Branding-chute	J. Honeycutt	693,798	Feb. 18	2084	459	98	1459
Branding-iron. Self-heating	M. A. Lowe	690,971	Jan. 14	1141	259	98	354
Bread, &c., and making same	R. Musorofiti	692,889	Feb. 11	1292		98	1076
Bread or cake box	J. Powers	690,874	Jan. 7	959	214	98	300
Breast-strap slide	T. Huberdeau	691,630	Jan. 21	2391	537	98	532
Breech-closure	H. J. Perry	693,900	Feb. 25	3211	708	98	1523
Brewers' grain, &c. Apparatus for expressing moisture from	J. C. W. Stanley	695,585	Mar. 18	2353	533	98	2341
Brewer's vat	W. Griesser	694,267	Feb. 25	2913	668, 669	98	1662
Brick and kiln furnace	F. E. Swift	695,590	Mar. 18	2360	534, 535	98	2242
Brick-drier	J. W. Aregood	693,359	Feb. 18	2159	474, 475	98	1289
Brick-drier	J. P. B. Fiske	696,096	Mar. 25	3161	712	98	2420
Brick-edger	W. Towers	694,120	Feb. 25	2633	603	98	1608
Brick for building arches	E. Böttger	693,826	Feb. 25	2655	673	98	1492

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Brick for track paving and fastening purposes.	W. H. Nelson	690,968	Jan. 14	1175	266	98	961
Paving-							
Brick-kiln	J. P. B. Fiske	693,252	Feb. 11	1961	426	98	1227
Brick-kiln	J. Cicotte	694,316	Feb. 25	4069	902	98	1685
Brick-machine	D. A. Lee and F. Giessner	694,394	Mar. 4	112	25, 26	95	1795
Brick-making machinery	H. Hanni	690,857	Jan. 7	926	206 207	98	195
Brick-making press	J. E. Grinder	694,009	Feb. 25	3434	756	98	1567
Brick-mold	J. Creager	692,006	Jan. 28	3094	696	98	693
Brick mold. Paving-	W. H. Nelson	690,967	Jan. 14	1173	265	98	961
Brick-pressing-machine die	K. Riedel and H. Schiegner	692,553	Feb. 4	241	57	98	849
Bridge. Bascule-	C. F. Hall	694,744	Mar. 4	785	174 175	98	1877
Bridge-guard	H. W. Ten Broeke	692,386	Feb. 4	291	71	98	860
Bridge. Lifting-	M. Waddell	693,467	Feb. 18	2372	519	98	1333
Bridge. Suspension-	N. H. Sturgis	691,982	Jan. 28	3053	696	98	686
Bridle-blind	E. L. Sipe	692,726	Feb. 4	896	204	98	982
Bridle crown-piece	A. E. Pollard	692,707	Feb. 4	870	199	98	977
Briquet manufacture	T. Ingham	695,210	Mar. 11	1675	.....	98	2082
Broiler	E. A. Leland	693,725	Feb. 18	2868	631	98	1435
Broiler	J. P. Faivre	695,096	Mar. 11	1453	332	98	2036
Broiler. Revolving	P. Pooley	694,889	Mar. 4	1063	235	98	1937
Bronzing-machine	G. Klaiber	695,157	Mar. 11	1578	350	98	2063
Brooder	J. M. Sontag	690,895	Jan. 7	975	221	98	206
Broom	W. H. O'Keefe	690,871	Jan. 7	948	212	98	199
Broom attachment	M. B. Hughen	693,710	Feb. 18	2841	626	98	1429
Broom-bridle	A. P. Longdon	696,375	Mar. 25	3898	865	98	2569
Broom. Brush-	A. Baldwin	692,592	Feb. 4	669	156	98	935
Broom-covers. Woven fabric for	W. B. Fittz	691,459	Jan. 21	2051	465	98	468
Broom, &c., hanger	J. F. Whitehead	690,803	Jan. 7	841	185	98	177
Broom-head	J. H. Webb	690,495	Jan. 7	246	50	98	54
Broom-head	H. W. Judevine	690,736	Jan. 7	727	160	98	153
Broom-holder	C. K. Rehrig	692,905	Feb. 11	1252	277	98	1082
Brush	A. R. Wiens	691,082	Jan. 14	1260	285	98	277
Brush	C. R. Uhlmann	692,387	Feb. 4	204	72	98	860
Brush and soap holder. Combined	G. F. Salisbury	692,484	Feb. 4	460	107	98	892
Brush. Coin-operated hair-	C. M. Stiner	695,505	Mar. 18	2178	492	98	2304
Brush-handle holder	W. J. Tranter	692,739	Feb. 4	916	209	98	986
Brush or broom	A. Baldwin	692,593	Feb. 4	671	156	98	936
Brushes. Making	J. F. Mumford	696,104	Mar. 25	3323	750	98	2454
Bubble-blowing device	P. D. Horton	693,395	Feb. 18	2230	489	98	1304
Buckle	J. H. Hart	694,379	Mar. 4	80	18	98	1728
Buckle. Back-band	D. T. Bryan	694,727	Mar. 4	749	167	98	1870
Buckle. Dip-waist-belt	E. R. Lowry	695,940	Mar. 25	2989	675	98	2384
Buckle frame. Lock-	M. W. Lynch	695,405	Mar. 11	2008	450	98	2151
Buckle. Lock-	M. W. Lynch	695,404	Mar. 11	2007	450	98	2151
Buckle. Trace-	S. Boyer	693,827	Feb. 25	3056	674	98	1498
Buffing-machine	M. H. Ballard	690,548	Jan. 7	351	70, 71	98	76
Buffing-machine	J. M. Sellmayer	693,912	Feb. 25	3230	712	98	1595
Buggy-step	J. G. Rehkopf	691,872	Jan. 28	2854	643	98	646
Buggy-top. Folding	J. A. Wilson	690,543	Jan. 7	335	68	98	72
Buggy-top support	E. E Boxley and J. Holmes	694,243	Feb. 25	3857	855	98	1652
Building-block for flues	E. L. Moore	695,822	Mar. 18	2770	632	98	2325
Building construction	C. M. Carnahan	693,494	Feb. 18	2418	528 529	98	1343
Building construction	A. Goodman	695,718	Mar. 18	2574	582	98	2284
Building material	M. W. Marsden	696,062	Mar. 25	3220	727	98	2431
Building-support	M. H. Callahan	692,179	Jan. 28	3401	770	98	755
Buildings having circular or regular shaped roofs converging in one point. Construction for	M. H. Vail	693,969	Feb. 25	3399	747	98	1560
Bullet. Compound	L. B. Taylor	693,534	Feb. 18	2497	548	98	1360
Bung	R. Spahn	690,786	Jan. 7	812	179	98	172
Bung	S. Schlangen	693,314	Feb. 11	2066	452	98	1249
Bung	F. Kellers	693,608	Feb. 18	2652	585	98	1390
Bung. Non-removable	C. Zwickel and L. P. Grunbaum	691,227	Jan. 14	1505	364	98	348
Bunsen burner	C. W. Taylor	690,792	Jan. 7	822	182	98	174
Burglar-alarm	W. H. Reiff	690,997	Jan. 14	1194	270	98	265
Burglar-alarm and door-check. Combined	C. H. Hawkinson	694,380	Mar. 4	81	19	98	1728
Burglar-alarm. Electric	H. C. and W. G. Roome	693,067	Feb. 11	1560	341	98	1146
Burglar-alarm. Electrical	H. C. and W. G. Roome	693,068	Feb. 11	1564	341	98	1147
Burglar-alarm fly-screen	D. S. Hill	695,049	Mar. 11	1373	301	98	2020
Burglar and fire alarm	R. Barrett	694,456	Mar. 4	229	50	98	1761
Burial-casket	J. A. Turney	692,804	Feb. 4	1047	235	98	1010
Burner:							
See Bunsen burner. Gas-burner. Gas or vapor burner. Gasolene-burner. Hydrocarbon-burner. Illuminating and heating burner. Oil-burner. Vapor-burner.							
Burner	C. Wolff	695,850	Mar. 18	2819	641	98	2335
Bushing. Bung-hole	N. H. Medbery	694,769	Mar. 4	843	195	98	1890
Bustle	H. M. Ten Brook	695,420	Mar. 11	2031	466	98	2156
Bustle and hip extension	M. E. Wetherell	692,095	Jan. 28	3269	739	98	728
Butter-cutter	I. B. Walker	693,760	Feb. 18	2922	642 643	98	1447
Butter-cutting machine	G. L. Smith	695,501	Mar. 18	2170	490	98	2208
Butter-tub, &c	H. W. Beidsmeier	693,217	Feb. 11	1906	413	98	1215
Button	A. A. Richmond	691,178	Jan. 14	1509	340	98	830
Button	J. Gump	694,636	Mar. 4	574	126	98	1834
Button. Collar-	E. W. Cranston	693,689	Feb. 18	2807	617	98	1422
Button-making machine	W. A. Pendry	693,565	Feb. 18	2550	560 561 564 565 566	98	1370
Button. Metallic garment-	G. J. Capewell	691,743	Jan. 28	2619	587	98	506

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Button or catch for coat-collars	J. A. Linderman	694,104	Feb. 25	3608	797	98	1601
Button or stud. Attaching	C. H. Schopbach	690,666	Jan. 7	573	125	98	123
Button-setting machine	G. A. Mosher	693,048	Feb. 11	1597	333, 334	98	1141
Button. Tufting	F. Marggraff	695,468	Mar. 18	2119	477	98	2192
Buttonhole-cutter	P. Olsen	692,027	Jan. 28	3134	706	98	700
Buttonhole-stitching machine	W. W. Dixon	695,089	Mar. 11	1358	298	98	2015
Cabinet. Carton spice	A. N. Warren	691,990	Jan. 28	3065	688	98	686
Cabinet. Tooth brush and powder	C. T. Price	692,708	Feb. 4	871	199	98	977
Cable-hanger. Aerial	G J. Knittle	692,529	Feb. 4	558	131	98	913
Cable-hanging hook	C. P. Seyler and P. H. Auxer	694,677	Mar. 4	655	148	98	1860
Cableway	W. F. Brothers	691,235	Jan. 14	1615	369	98	352
Caddy. Base-delivery	G Bernhard	694,237	Feb. 25	3845	862	98	1648
Caisson air-lock	J. F. O'Rourke	691,069	Jan. 14	1325	299	98	296
Caisson for subaqueous work	C. Blagburn	694,989	Mar. 11	1159	253	98	1971
Cake-pan	E. E. and A. M. Schaumloeffel	692,919	Feb. 11	1284	282	98	1091
Calcining lime, &c	F E. Eldred	692,257	Feb. 4	74	16	98	814
Calculating device	A. L. Butt	690,924	Jan. 14	1051	235, 237	98	296
Calculating-machine	J. W. Sloss	694,897	Mar. 4	1076	237	98	1939
Calculating-machine	F. L. Fleishman	695,099	Mar. 11	1456	323	98	2008
Calculator	A. T. Beauregard	693,774	Feb. 18	2946	648, 649	98	1451
Calendar	F. C. W. Stelter	690,670	Jan. 7	580	126	98	124
Calendar	H. W. McAll	694,881	Mar. 4	1050	233	98	1934
Calendar. Combined week-note and day block	M. Hamburger and A. J. Birkholz	696,098	Mar. 25	3306	745	98	2452
Calender-roll cleanser	J. Frossard	693,853	Feb. 25	3110	689	98	1508
Calendering-machine	M. J. Whitlock	691,923	Jan. 28	2940	662, 663	98	663
Calendering-machine	M. J. Whitlock	692,570	Feb. 4	617	145	98	924
Calendering-machine	P. M. Matthew	695,107	Mar. 11	1472	328	98	2039
Caliper-gage	A. K. Theibault	695,661	Mar. 18	2486	565	98	2368
Calipers	F. Weimar	691,682	Jan. 21	2479	555	98	551
Calipers	H. Bube	693,538	Feb. 18	2507	551	98	1361
Calipers	A. R. Ohlman	695,114	Mar. 11	1484	331	98	2043
Calipers	G. Knapp	695,565	Mar. 18	2517	594	98	2224
Calipering device. Sheet	T. C. Dexter	690,703	Jan. 7	653	143	98	136
Call apparatus. Electric	C. Shore	690,623	Jan. 7	490	108	98	105
Call. Electric	J. Salmon	694,792	Mar. 4	886	196, 197	98	1899
Cam mechanism. Variable	T. M. North	694,570	Mar. 4	457	98, 99	98	1810
Cam. Stamp-battery	C. C. Rueger	692,483	Feb. 4	458	106	98	898
Camera	F. A. Wiggins	693,768	Feb. 18	2986	646	98	1449
Camera	D. H. Houston	694,920	Mar. 4	1124	247	98	1949
Camera focusing device. Photographic	F. A. Brownell	692,610	Feb. 4	697	162	98	941
Camera. Folding panoramic	D. H. Houston	694,929	Mar. 4	1137	249	98	1953
Camera. Folding roll-holding	D. H. Houston	694,925	Mar. 4	1131	248	98	1951
Camera. Folding roll-holding photographic	D. H. Houston	694,928	Mar. 4	1136	249	98	1952
Camera folding support	D. H. Houston	694,862	Mar. 4	1008	222	98	1923
Camera. Interchangeable panoramic	R. H. Trumbull	691,020	Jan. 14	1240	280, 281	98	274
Camera multiplying attachment	W. L. Root	695,626	Mar. 18	2430	549	98	2256
Camera. Panoramic	M. L. Akers and W. L. Richards	694,516	Mar. 4	338	75, 76	98	1784
Camera panoramic attachment	H. L. Fisher	690,570	Jan. 7	396	80	98	84
Camera. Panoramic photographic	D. H. Houston	694,923	Mar. 4	1129	248	98	1951
Camera. Photographic	F. A. Brownell	691,592	Jan. 21	2309	519, 520	98	515
Camera. Photographic	F. H. Sanderson	694,080	Feb. 25	3568	787, 788	98	1594
Camera. Photographic	J. A. P. Prieur and L. J. M. Dubois	694,373	Mar. 4	402	99, 100	98	1811
Camera. Photographic	E. D. Bartlett	695,527	Mar. 18	2333	503, 504	98	2215
Camera. Photographic	W. D. Macdonald	695,690	Mar. 18	2533	573, 574	98	2276
Camera. Roll-holding	D. H. Houston	694,919	Mar. 4	1122	247	98	1949
Camera. Roll-holding	D. H. Houston	694,924	Mar. 4	1130	248	98	1951
Camera. Roll-holding photographic	D. H. Houston	694,922	Mar. 4	1127	248	98	1950
Camera shutter. Photographic	F. A. Brownell	693,583	Feb. 18	2599	575	98	1379
Camera shutter-tripper	R. Faries	690,989	Jan. 14	1074	242	98	241
Camera. Swing-back photographic	V. Odquist	694,181	Feb. 25	3761	830, 831	98	1628
Cameras. Paper-holder for enlarging	G. B. Hutchings	693,714	Feb. 18	2946	627	98	1430
Can: *See* Cooling-can. Milk-can. Key-opening can. Oil-can.							
Can	M. Grant	695,879	Mar. 18	2573	651	98	2347
Can-body and sheet-metal blank. Solder-charged	G. Wilcox	695,519	Mar. 18	2204	500	98	2210
Can-body blank	J. Lee	695,402	Mar. 18	2104	474	98	2189
Can-body-flanging machine	J. G. Hodgson	693,017	Feb. 11	1467	279, 280	98	1128
Can-body-making machine	G. F. Leiger	693,325	Feb. 11	2086	457, 458	98	1254
Can-cover-fastening device	W. H. Smalley	695,656	Mar. 18	2479	563	98	2267
Can-dipping machine	G. Wilcox	695,516	Mar. 18	2195	496, 497, 498, 499	98	2218
Can-filling device	F. Strattner	690,790	Jan. 7	618	180, 181	98	173
Can-filling machine	H. R. Stickney	693,921	Feb. 25	3846	715	98	1529
Can-filling machine	C. H. Ayars	695,365	Mar. 11	1944	425	98	2137
Can-fusing machine	G. Wilcox	695,515	Mar. 18	2193	495, 496	98	2207
Can-heading machine. Adjustable square	W. Rubin and L. C. Sharp	692,912	Feb. 11	1268	279, 280	98	1084

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Can-heading machine. Automatic	A. W. Livingston	690,598	Jan. 7	427	92	98	98
Can-heads. Securing	G. Wilcox	695,514	Mar. 18	2190	496	98	2805
Can-holder	J. B. Erwin	693,253	Feb. 11	2144	470	98	1267
Can-loading device. Milk-	F. E. Tichenor	691,825	Jan. 28	2780	695	98	680
Can lock. Milk-	J. Rittenhouse	692,477	Feb. 4	449	105	98	890
Can-opener	G. W. Gomber	690,418	Jan. 7	53	18	98	14
Can-opener	P. E. Law	691,867	Jan. 28	2846	641	98	645
Can-opener	C. Sands	692,918	Feb. 11	1263	281	98	1090
Can-opener	D. M. Hayworth	695,048	Mar. 11	1872	401	98	2019
Can-opener	C. W. Hunter	695,055	Mar. 11	1883	303	98	2022
Can-opener	B. R. Bacon	692,045	Jan. 28	3175	716	98	709
Can or bottle opener	F. Kaeser	693,029	Feb. 11	1484	324, 325	98	1131
Can-polishing machine	R. Nelson	695,828	Mar. 18	2780	634, 635	98	2227
Can-scrubbing apparatus. Milk-	C. W. Nicklaus	694,177	Feb. 25	3751	829	98	1630
Can-straightener	C. F. Tillberg and R. A. Barbieri	693,461	Feb. 18	2355	516	98	1330
Cans, bottles, &c. Device for preventing theft or tampering with milk	J. R. Cuykendall	695,196	Mar. 11	1641	354, 355	98	2076
Canning. Apparatus for preparing corn for	W. H. Fredericks	696,081	Mar. 25	3169	714, 715	98	2421
Canning device	J. Guidinger	695,608	Mar. 18	2398	542, 543	98	2250
Canceler. Stamp-	J. G. Theobald	690,538	Jan. 7	328	55	98	71
Candelabrum	W. H. Day	694,093	Feb. 25	3568	793, 794	98	1598
Candle-making machine	W. H. Lease	695,741	Mar. 18	2616	594	98	2293
Candy-box	S. A. M. Khan	690,655	Jan. 7	554	130	98	119
Cane	A. Horner	694,548	Mar. 4	412	90	98	1800
Cane-loader	G. O. Redpath	693,346	Feb. 4	288	55	98	846
Cane or ratan fabrics. Weaving and completing	W. H. Adams	692,585	Feb. 4	653	153, 154	98	982
Cane-stubble cleaner	G. A. Babbitt	694,232	Feb. 25	3636	650	98	1647
Canopy	B. J. Olding	691,964	Jan. 28	3026	690	98	660
Canopy for tricycles, &c	T. J. Durrett, Sr	692,641	Feb. 4	746	172	98	952
Canopy-support	A. E. Morse	690,962	Jan. 14	1167	264	98	359
Cap	D. Lichtenstein	693,613	Feb. 18	2658	595	98	1391
Cap	M. Davis	692,249	Feb. 4	51	13	98	811
Cap. Apparel-	L. J. Borie	694,458	Mar. 4	232	51	98	1761
Capping-machine. Electromagnetic	E. H. Winchell	692,751	Feb. 4	987	213	98	990
Capo tasto	R. B. Wilson	691,687	Jan. 21	2469	558	98	563
Capsule	A. E. Brethour	693,687	Feb. 18	2705	597	98	1402
Capsules, wafers, &c. Filler for	A. Heiden	693,182	Feb. 11	1706	372, 373	98	1175
Car	P. M. Kling	693,611	Feb. 18	2655	595	98	1391
Car	M. B. Schaffer	693,160	Feb. 11	1773	389	98	1187
Car body-bolster. Railway-	C. T. Westlake	692,568	Feb. 4	615	145	98	984
Car-bolster	C. T. Westlake	692,569	Feb. 4	616	145	98	984
Car-bolster	R. V. Sage	692,914	Feb. 11	1225	280	98	1085
Car-bolster	F. S. Ingoldsby and J. R. Bowling	694,895	Mar. 4	96	21	98	1732
Car bolster. Railway-	C. T. Westlake	692,567	Feb. 4	614	144, 145	98	983
Car-bolster swinging spring-seat	S. H. Pocock	690,769	Jan. 7	777	172, 173	98	164
Car-brake	H. S. Stier	691,901	Jan. 14	1553	352	98	339
Car-brake	W. J. Stevens	696,114	Mar. 25	3343	753, 754	98	2458
Car-brake	J. W. Puckett	694,191	Feb. 25	3775	855	98	1635
Car-brake stand	R. Bischoff	692,046	Jan. 28	3176	716	98	709
Car brake. Street-	A. M. Acklin	690,814	Jan. 7	864	190	98	182
Car-checking device	J. A. Brill	691,251	Jan. 21	1878	423, 424	98	425
Car. Convertible	H. S. Hart	691,187	Jan. 14	1488	394, 395, 396	98	313
Car. Convertible dump-	L. N. Singin	690,470	Jan. 7	169	35	98	87
Car-coupling	J. M. Clark	690,560	Jan. 7	309	75	98	80
Car-coupling	G. S. Holmes	690,954	Jan. 14	1101	248	98	946
Car-coupling	C. A. McKerahan	692,063	Jan. 28	3808	794	98	716
Car-coupling	H. S. Hallwood	692,442	Feb. 4	897	94	98	879
Car-coupling	P. T. Handigan	693,850	Feb. 11	1194	251	98	1054
Car-coupling	W. E. Coffin	693,238	Feb. 11	1941	423	98	1223
Car-coupling	S. P. Moulton	693,788	Feb. 18	2681	634	98	1488
Car-coupling	P. Brown	693,998	Feb. 25	3413	751, 752	98	1563
Car-coupling	J. D. Hoover	695,058	Mar. 11	1890	398, 399	98	2021
Car-coupling	W. H. Cordill	695,280	Mar. 11	1796	400, 401	98	2107
Car-coupling	J. C. Leidy	695,615	Mar. 18	2408	546	98	2351
Car-coupling	S. C. Mason	695,619	Mar. 18	2418	547	98	2353
Car-coupling	E. Grafstrom	695,683	Mar. 18	2523	571	98	2274
Car-coupling	C. Altman	695,704	Mar. 18	2567	578	98	2361
Car-coupling	J. M. Waugh	690,688	Jan. 7	599	131	98	198
Car-coupling draw-bar draft-rigging	F. L. Nichols	695,168	Mar. 11	1596	354, 355	98	2066
Car deflector and ventilator. Passenger-	H. J. Rhodes	695,836	Mar. 18	2796	637	98	2430
Car-door	S. A. Crone	694,462	Mar. 4	227	52	98	1763
Car door and locking device therefor. Grain-	C. R. Doe	693,691	Feb. 18	2610	616	98	1423
Car-door fastener	S. J. Smith	692,987	Feb. 11	1328	289	98	1099
Car door. Freight-	J. Flesher	691,755	Jan. 28	3648	593	98	803
Car door. Grain-	J. Montgomery	693,979	Feb. 25	3375	741	98	1555
Car door. Grain-	A. Miller	695,165	Mar. 11	1592	363	98	2086
Car door. Hopper-	R. V. Sage	693,910	Feb. 25	3326	711	98	1585
Car-door lock	C. W. Booth	696,089	Mar. 25	3371	740	98	1641

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Car draft-rigging	W. H. Emerick	693,643	Feb. 18	2715	599	98	1404
Car draft-rigging. Railway-	J. M. Waugh	690,684	Jan. 7	603	131	98	129
Car draft-rigging. Railway-	E. S. Woods	691,038	Jan. 14	1275	288	98	281
Car draft-rigging. Railway-	D. C. Ross	692,074	Jan. 28	3238	729	98	780
Car draw-bar. Ore-	G. E. Truax	693,810	Feb. 18	3009	666	98	1464
Car. Dump-	H. C. Williamson and H. Pries	690,501	Jan. 7	260	58,55	98	57
Car. Dumping-	J. C. and R. A. Sturgeon	690,625	Jan. 7	494	107, 108	98	106
Car. Dumping-	J. D. Shanahan	691,814	Jan. 28	2758	621, 622	98	626
Car. Dumping-	G. I. King	693,457	Feb. 4	410	98	98	892
Car. Dumping-	H. S. Hart	693,858	Feb. 25	3120	691	98	1505
Car. Dumping-	F. C. Dunham	695,803	Mar. 18	2736	622	98	2318
Car-emptying mechanism	J. M. Riddle	690,577	Jan. 7	959	215, 216	98	302
Car. Express-	J. E. Porter	694,494	Mar. 4	287	65, 66	98	1773
Car-fender	J. H. Surtin	690,674	Jan. 7	585	127	98	125
Car-fender	E. W. Jeter	691,315	Jan. 14	1781	405	98	386
Car-fender	W. F. Weiss	691,589	Jan. 28	2787	626	98	631
Car-fender	C. M. Moore	692,691	Feb. 4	844	191	98	972
Car-fender	W. J. Ward	693,762	Feb. 18	2925	644	98	1447
Car-fender	J. J. McGarity and G. R. Hopf	694,863	Mar. 4	1054	233	98	1935
Car fender. Street-	A. Fischer	693,960	Feb. 25	3319	730	98	1544
Car. Freight-	F. P. Butts	694,052	Feb. 25	3524	775, 776	98	1585
Car-gate. Folding	N. H. Colwell	692,985	Feb. 11	1423	309	98	1117
Car gate. Folding railway-	N. H. Colwell	693,786	Feb. 18	2963	654	98	1455
Car. Gondola freight-	T. J. Newberry and J. V. Ericson	695,623	Mar. 18	3122	548	98	2254
Car grain-door. Freight-	F. H. Jones	692,522	Feb. 4	544	128	98	909
Car-haul	A. M. Acklin	692,696	Feb. 4	483	113	98	897
Car-haul	A. M. Acklin	693,463	Feb. 18	2402	525	98	1340
Car-haul	A. M. Acklin	694,047	Feb. 25	3514	773	98	1582
Car life-saver. Automatic motor-	G. O. S. Conway	691,239	Feb. 11	1941	423	98	1223
Car life-saving device. Street-	W. H. Martin	696,248	Mar. 25	3615	808	98	2512
Car. Low-side gondola	G. I. King	691,637	Jan. 21	2400	539, 540	98	534
Car. Metal	A. B. Bellows	694,715	Mar. 4	724	159, 160	98	1864
Car. Metal freight-	L. T. Canfield	690,559	Jan. 7	308	74	98	80
Car. Mining-	J. McAlister	696,070	Mar. 25	3239	722	98	2435
Car. Ore-	P. J. Smith	695,344	Mar. 11	1908	425	98	2129
Car. Passenger-	T. O. Potter	696,190	Mar. 25	3500	784	98	2489
Car. Railway-	M. Toltz and L. W. Hill	696,150	Mar. 25	3480	769, 770	98	2476
Car-record device	J. R. Cavanagh, J. B. Hannan, and J. D. Clarke.	692,116	Jan. 28	3297	746	98	735
Car roller-bearing	J. B. Christopher	694,909	Mar. 4	1008	242	98	1944
Car safety attachment	C. A. Willard	693,985	Feb. 25	3274	721	98	1535
Car-seat	H. S. Hale	691,873	Jan. 21	1986	433	98	435
Car-seat	H. S. Hale	692,133	Jan. 28	3330	754, 755	98	741
Car-seat	T. Finney	695,098	Mar. 11	1456	323	98	2086
Car-seat	G. W. Dryer	696,095	Mar. 25	3300	743	98	2450
Car side bearing. Railway-	F. K. Fassett	691,099	Jan. 21	2512	562	98	559
Car side bearing. Railway-	F. R. Cornwall	694,461	Mar. 4	235	52	98	1768
Car side bearing. Railway-	J. C. Wands	694,504	Mar. 4	305	69, 70	98	1777
Car side bearing. Railway-	J. C. Wands and F. R. Cornwall	696,286	Mar. 25	3675	822	98	2526
Car side bearing. Railway-	J. C. Wands	696,385	Mar. 25	3925	869	98	2575
Car side bearing. Railway-	D. P. Bosworth	696,388	Mar. 25	3932	871	98	2577
Car-spring. Pneumatic	P. Herpolsheimer	691,862	Jan. 28	2839	636	98	643
Car stake-pocket. Cane-	J. A. Low	695,065	Mar. 11	1404	308	98	2026
Car. Steel	A. B. Bellows	693,218	Feb. 11	1908	414	98	1216
Car-step. Folding	A. D. Coon	691,895	Jan. 28	2898	656	98	655
Car-transom	C. T. Westlake	692,566	Feb. 4	613	144	98	923
Car-uncoupling appliance. Railway-	J. Willison	696,386	Mar. 25	3929	870	98	2577
Car-vestibule diaphragm	J. H. Donaldson and H. H. Schroyer	695,918	Mar. 25	2953	669	98	2377
Car-wheel bearing	M. B. Schaffer and C. H. Howard	696,085	Mar. 25	3263	737	98	2440
Car-wheel. Composite	M. G. Keeran	690,967	Jan. 14	1134	257	98	253
Cars. Compensating gear-wheel for motor-	G. Burger	692,177	Jan. 28	3397	769	98	754
Cars. Means for driving generators placed upon cars by power taken from the	J. L. Creveling	691,359	Jan. 21	1908	428	98	431
Cars, &c. Means for propelling	E. Hayward	691,625	Jan. 21	2376	535	98	598
Cars on overhead electric railways. Means for regulating speed of	H. M. Harding	692,196	Jan. 28	3336	755	98	742
Caramel cutting and wrapping machine	H. Y. Armstrong	691,737	Jan. 28	2590	580, 581, 582, 583, 584	98	589
Carbon-feeding device	C. E. Chapin and W. E. Patchin	693,495	Feb. 18	2420	529	98	1344
Carbonometer	E. S. Downs	690,409	Jan. 7	99	10	98	11
Carbureter	O. A. Lane and H. A. Davenport	690,444	Jan. 7	109	24	98	25
Carbureter	F. L. Martenette	691,955	Jan. 28	3007	674	98	676
Carbureter	H. J. Doolan	692,255	Feb. 4	71	15	98	813
Carbureter	F. S. and W. D. Jacks	692,518	Feb. 4	535	126	98	907
Carbureter	C. M. Kemp	692,860	Feb. 11	1137	254	98	1057
Carbureter	F. W. Jervis	693,278	Feb. 11	1907	435	98	1234
Carbureter	J. C. Titus	693,462	Feb. 18	2357	516	98	1380
Carbureter and gasolene-regulator. Combined	N. G. Harris	692,444	Feb. 4	394	95	98	880
Carbureter. Explosion-engine	A. F. Bardwell	693,773	Feb. 18	2945	648	98	1451
Carbureter. Explosive-engine	L. H. M. Sanson	694,110	Feb. 25	3613	799	98	1603
Carbureter. Explosive-engine	P. R. van der Made	690,661	Jan. 7	505	129, 130	98	127
Carbureting apparatus. Air-	J. Fillet	696,231	Mar. 25	3576	800	98	2504
Carbureting device for explosion-engines	E. O. Möckel	695,577	Mar. 18	2342	531	98	2239
Card-cleaning machine. Playing-	L. C. Schneider	691,916	Jan. 28	2781	660	98	662
Card-clothing							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Card-clothing	C. Mills and R. W. Hunton	693,817	Feb. 18	3024	660	98	1457
Card-punching machine. Jacquard-	V. Royle	691,978	Jan. 28	3028	688	98	688
Cards. Locking device for stripping-brush in revolving-flat	C. E. Smith	692,727	Feb. 4	896	204, 205	98	982
Cards. Machine for lacing jacquard-	V. Royle	690,615	Jan. 7	471	102	98	101
Carding-machine	C. H. Potter	695,834	Mar. 18	2794	637	98	2330
Carousel. Marine	H. C. Richardson	693,153	Feb. 11	1760	386	98	1184
Carpet-cleaning apparatus	A. Lotz	695,162	Mar. 11	1587	352	98	2065
Carpet-fastener	H. C. Roemer	693,567	Feb. 18	2505	586	98	1372
Carpet-rack	A. S. and W. H. Strickler	693,457	Feb. 18	2350	514	98	1329
Carpet-rack	A. S. and W. H. Strickler	693,458	Feb. 18	2351	515	98	1329
Carpet-rag looper	V. E. Richardson	695,837	Mar. 18	2797	637	98	2330
Carpet-stretcher	J. B. Russel	695,495	Mar. 18	2160	487	98	2201
Carpet-stretcher	J. Whitehart	695,772	Mar. 18	2665	606	98	2304
Carpet-sweeper	T. H. Bedell	695,434	Mar. 18	2052	461	98	2179
Carpet. Woven pile	W. Benham	691,899	Jan. 28	2891	651	98	653
Carriage and sleigh. Combined baby	D. MacKenzie	692,464	Feb. 4	424	100	98	858
Carriage clutch adjustment. Motor-	D. F. Graham	693,963	Feb. 25	3326	731	98	1546
Carriage-door lock	A. Ochsner	695,335	Mar. 11	1894	421	98	2126
Carriage emergency-brake. Horseless-	W. D. Goold	696,283	Mar. 25	3579	801	98	2505
Carriage-gear	A. B. Bryant	693,586	Feb. 18	2607	576	98	1381
Carriage. Motor-	C. Gouchon	694,470	Mar. 4	250	56	98	1765
Carriage steering-gear. Motor-	F. A. Fox and D. F. Graham	695,962	Feb. 25	3324	730	98	1545
Carrier: *See* Cartridge-carrier. Mail and parcel carrier. Music-carrier. Trace-carrier.							
Carrier-track	G. Wideman	693,934	Feb. 25	3273	720	98	1534
Cart. Manure-distributing	J. R. Faulk	693,695	Feb. 18	3216	619	98	1424
Cart or car discharging device	W. Nossian	691,167	Jan. 14	1493	337	98	326
Cartridge	H. Maxim	694,295	Feb. 25	3960	882	98	1673
Cartridge	C. A. Bailey	694,718	Mar. 4	718	158	98	1863
Cartridge	G. O. Hawk	695,809	Mar. 18	2747	626	98	2320
Cartridge	C. A. Bailey	695,996	Mar. 25	3095	700	98	2404
Cartridge	H. Angell and T. Berntson	696,295	Mar. 25	3692	826	98	2580
Cartridge	A. Meyer	691,403	Jan. 21	1981	444	98	448
Cartridge-belt	G. Migliardi	695,576	Mar. 18	2340	530, 531	98	2238
Cartridge-box	E. T. Gibson	693,004	Feb. 11	1450	315	98	1123
Cartridge-carrier	R. W. Scott	694,675	Mar. 4	650	142	98	1849
Cartridge. Gun-	R. W. Scott	694,894	Mar. 4	1069	237	98	1988
Cartridge. Gun-	R. W. Scott	694,895	Mar. 4	1072	237	98	1988
Cartridge. Gun-	R. W. Scott	694,896	Mar. 4	1073	237	98	1989
Cartridge-loading machine	T. and W. H. Nichol	695,075	Mar. 11	1418	311, 312	98	2029
Cartridge-shell	G. Lammadin and D. F. Stone	692,154	Jan. 28	3364	761	98	748
Cartridge-shells. Capping or decapping machine for	J. E. Stockdale	692,730	Feb. 4	902	206	98	983
Carving-machine	J. B. Robin	692,356	Feb. 4	246	59, 60	98	850
Carving-machine	E. T. Brannan	692,977	Feb. 11	1410	306	98	1115
Carving-machine. Automatic	F. Streich and C. L. Ruehs	696,382	Mar. 25	3909	866, 867, 868	98	2371
Cascade-tumble	R. J. Carson and E. D. Cundell	695,444	Mar. 18	2074	468	98	2184
Case: *See* Ammunition-case. Bandage-case. Dental instrument case. Display-case. Dress-case. File-case. Folding case. Glove-case. Ice-case. Show-case. Tobacco-case. Toilet-case.							
Case and box machine	J. K. Ashley	695,364	Mar. 11	1941	432, 433	98	2137
Casein and making same. Adhesive	J. A. Just	692,450	Feb. 4	401	.....	98	881
Casein and producing same. Insoluble	H. V. Dunham	695,198	Mar. 11	1644	.....	98	2077
Case for plats, maps, &c.	C. E. McClintock	691,288	Jan. 14	1722	392	98	374
Casein phosphate. Making	J. A. Just	692,454	Feb. 4	405	.....	98	881
Casein solution	W. A. Hall	695,927	Mar. 25	2964	.....	98	2380
Cash-box	W. Knehans and F. Püschel	692,151	Jan. 28	3359	760, 761	98	746
Cash-box	J. J. Peetz	694,887	Mar. 4	1061	234	98	1936
Cash-register	E. S. Smith and H. Giles	690,472	Jan. 7	173	36, 37	98	38
Cash-register	F. H. Bickford	690,554	Jan. 7	359	73	98	78
Cash-register	J. P. Cleal	690,561	Jan. 7	371	75, 76	98	80
Cash-register	J. P. Cleal	690,562	Jan. 7	374	77	98	81
Cash-register	F. W. Wright	693,205	Feb. 11	1882	407, 408	98	1210
Cash-register	J. P. Cleal	693,498	Feb. 18	2425	530	98	1345
Cash-register	J. P. Cleal	693,499	Feb. 18	2430	531, 532	98	1346
Cash-register	H. Hahn	693,816	Feb. 18	3021	667, 668	98	1467
Cash-register	C. C. Stearns	694,035	Feb. 25	3490	758	98	1579
Cash-register	N. Collins	694,252	Feb. 25	3871	858, 859, 860	98	1655
Cash-register	W. J. Carroll	694,527	Mar. 4	371	82	98	1791
Cash-register	J. P. Cleal	694,729	Mar. 4	751	167, 168, 169	98	1870
Cash-register	G. H. Guest	694,853	Mar. 4	991	220	98	1923
Cash-register	W. Heinitz	695,151	Mar. 11	1567	347, 348	98	2061
Cash-register	T. Carney	696,284	Mar. 25	3563	798	98	2502
Cash-register shelf	S. Wessells	693,473	Feb. 18	2386	522	98	1337

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Cask-handling device	F. L. Lumbert	692,806	Jan. 28	3457	781	98	768
Cask-making machine	O. Poland	695,230	Mar. 11	1718	379, 380	98	2000
Cask-support	W. Griesser	694,286	Feb. 25	3012	1006	98	1662
Casket ornament	E. R. Sargent	691,038	Jan. 14	1203	278	98	266
Caster. Ball-	C. W. Corey	692,632	Feb. 4	731	160	98	950
Caster-socket	W. Livingstone	696,875	Feb. 25	3150	696	98	1510
Casting apparatus. Lead-	C. Potter	694,418	Mar. 4	160	36	98	1747
Casting-cores. Machine for making cylindrical	G. J. Hoskins	696,045	Mar. 25	3190	780	98	2426
Casting-mold	J. J. Carroll	694,315	Feb. 25	4056	908	98	1685
Casting-mold	S. Michailoff	694,566	Mar. 4	452	97	98	1809
Castings. Apparatus for marking	J. J. Carroll	691,442	Jan. 21	2046	458	98	461
Castings. Metal-mold for forming	W. R. Clark, H. and W. G. Bosworth.	695,090	Mar. 11	1442	280	98	2084
Castings. Metal-mold for forming	W. R. Clark, H. and W. G. Bosworth.	695,091	Mar. 11	1444	280	98	2084
Castings of alloys containing copper and zinc. Improving	E. S. Sperry	694,088	Mar. 4	678	.....	98	1655
Ceiling	J. Freckmann	690,646	Jan. 7	389	116, 117	98	115
Ceilings and walls. Construction of	A. Rincklake	698,905	Feb. 25	3016	710	98	1594
Cellulose lakes and making same	M. C. L. Althausse	692,775	Feb. 4	981	.....	98	998
Cellulose. Making acetyl-	M. C. L. Althausse	692,497	Feb. 4	485	.....	98	898
Cellulose. Manufacture of threads, &c., from	M. Fremery and J. Urban	691,257	Jan. 14	1656	.....	98	261
Cement and making same. Adhesive	R. H. Willis	694,045	Feb. 25	3019	.....	98	1588
Cement clinker or other granular materials. Apparatus for cooling	C. L. Galschiöt	694,998	Mar. 11	1199	288	98	1988
Cement. Composition of matter for	J. D. MacDonell	691,397	Jan. 21	1973	.....	98	446
Cement-gravel crusher and separator	C. H. Ohm	695,076	Mar. 11	1422	312	98	2060
Cement. Manufacture of	J. Steiger	694,808	Mar. 4	899	.....	98	1908
Cement. Strengthened cast	J. Daime	690,840	Jan. 7	908	200, 201	98	191
Centrifugal machine	W. P. Lafferty	695,158	Mar. 11	1579	351	98	2068
Centrifugal machine	J. J. Berrigan	696,120	Mar. 25	3370	761	98	2465
Ceramic-ware kiln	W. E. Rivers	698,155	Feb. 11	1702	387	98	1185
Chafe-iron. Antifriction	J. B. Gaston	698,699	Feb. 18	2821	630	98	1420
Chafe-iron. Roller	T. H. Brady	695,631	Mar. 18	2439	550	98	2257
Chaffer or sieve. Adjustable	F. Hixson	694,148	Feb. 25	3077	813, 814	98	1616
Chain. Conveyer-	G. W. Cross	694,583	Mar. 4	386	85	98	1794
Chain. Drive-	C. W. Levalley	694,870	Mar. 4	1080	238	98	1980
Chain. Endless conveyer-	J. Dick	690,394	Jan. 14	1059	240	98	240
Chain. Halter-	S. M. Wells, Jr.	690,801	Jan. 7	889	185	98	177
Chain-jack	H. S. Phillips	698,668	Feb. 18	2759	608	98	1413
Chain or guard. Watch	J. J. Rice	698,547	Feb. 4	987	188	98	916
Chair: See Folding chair. Hand-propelled chair. Knockdown chair. Railway-coach chair. Reclining-chair. Rocking-chair. Swinging chair. Theater-chair.							
Chair	R. Rodgers	698,333	Feb. 11	2063	455, 456	98	1252
Chair	O. L. Beardsley	694,457	Mar. 4	221	50, 51	98	1761
Chair foot-rest attachment	W. A. Eddy	694,598	Mar. 4	394	86	98	1795
Chair for therapeutic purposes	J. J. Stanger	698,554	Feb. 4	995	139, 140	98	919
Chair-truck	R. and F. E. Bigelow	695,368	Mar. 11	1950	454	98	2139
Chair wheel attachment. Child's high-	I. M. Clark	691,582	Jan. 21	2200	494	98	498
Chairs, cradles, &c. Attachment for	L. M. Sartain	694,496	Mar. 4	176	38	98	1750
Charging-buggy	O. Sundt	694,388	Feb. 25	4095	911	98	1688
Chatelaine-bag hook	M. T. Goldsmith	698,264	Feb. 11	1988	431	98	1231
Chatelaine-catch	J. E. Ortner	691,566	Jan. 21	2253	507	98	504
Chatelaine-frame and lock or catch therefor	A. Weber	692,807	Feb. 4	1050	236	98	1010
Chatelaine-holder	T. H. Fishel	690,569	Jan. 7	386	79	98	84
Chatelaine-hook	L. B. Prahar	695,759	Feb. 18	2889	635	98	1440
Check-hook	S. F. Hall	695,890	Mar. 18	2874	652	98	2348
Checks, tickets, &c. Device for transferring	J. C. Wolfe	692,577	Feb. 4	927	148	98	996
Checkrein-holder	W. Gates	692,122	Jan. 28	3389	754	98	741
Checkrein-hook	G. W. Begole	691,836	Jan. 28	2798	629	98	634
Cheese-box	D. M. Robins	693,566	Feb. 18	2564	566	98	1872
Cheese-box	W. A. Simister	694,798	Mar. 4	895	199	98	1901
Cheese-cutter	A. McIntosh	698,424	Feb. 18	2286	501	98	1316
Cheese-press	M. McKinnon	690,965	Jan. 14	1170	265	98	360
Cherry-stoner	C. P. Mosher	690,968	Jan. 14	1168	264	98	359
Chests and ranges. Locking device for mess-	G. B. Donavin	692,699	Feb. 4	744	172	98	952
Chimney	J. B. Kenison, M. F. Burk, and J. A. Perkins.	692,304	Feb. 4	149	35	98	829
Chimney	G. Steinl	698,755	Feb. 18	2912	640	98	1444
Chimney-cap	A. T. Cox	695,951	Feb. 25	2806	798	98	1541
Chimney-cap	C. J. Quinn	695,170	Mar. 11	1608	355	98	2068
Chimney-thimble	C. F. Schroth	690,778	Jan. 7	791	178	98	167
Chimney-top. Adjustable	C. E. Burress	698,550	Feb. 18	2508	551	98	1361
Chloranisidin	P. Julius and F. M. Jahrmarkt	695,812	Mar. 18	2750	.....	98	2321
Chlorates and perchlorates. Electrolytic manufacture of	P. L. E. Lederlin	698,065	Feb. 11	1499	.....	98	1185
Chlorin and alkaline hydrates electrolytically. Production of	E. D. Chaplin and H. G. Halloran	695,033	Mar. 11	1842	295	98	2018
Chocolate-coating machine	J. L. Dern	691,610	Jan. 21	2346	527, 528	98	521
Chopper: See Cotton-chopper. Meat-chopper. Plant-chopper.							
Chromatrope. Automatic	G. Wells	698,317	Feb. 11	2071	453	98	1250
Chuck	Z. T. Furbish	698,356	Feb. 11	1968	428	98	1229
Chuck. Drill-	J. A. Craig	691,449	Jan. 21	2056	460	98	463

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Chuck. Drill	A. S. Davis	692,988	Feb. 11	1427	310	98	1118
Chuck. Magnetic	O. S. Walker	691,828	Jan. 28	2784	626	98	531
Chuck. Nail	J. A. Milliken	691,725	Jan. 21	2557	572	98	568
Chuck operating device	J. C. Potter and J. Johnston	694,189	Feb. 25	3773	834	98	1634
Chuck. Rock-drill	W. Terry	691,985	Jan. 28	3050	687	98	697
Chuck. Rock-drill	R. H. Hamill	695,388	Mar. 11	1979	443	98	2145
Chum feeding machine	F. E. Forster	695,921	Mar. 25	2957	670	98	2378
Churn	J. S. Fitzhugh	692,182	Jan. 28	3412	773	98	758
Churn	S. P. A. Andersson	694,126	Feb. 25	3640	805	98	1609
Churn	N. Boren	695,190	Mar. 11	1628	361	98	2073
Churn	T. C. Kitchen	695,936	Mar. 25	2982	674	98	2383
Churn	C. Highers	696,042	Mar. 25	3186	719	98	2425
Churn	I. H. Whitely and J. R. Yocom	691,223	Jan. 14	1588	362	98	346
Churn-shield	C. Law	691,279	Jan. 14	1695	385	98	368
Chute	W. L. McCabe	695,329	Mar. 11	1886	419, 420	98	2124
Chute	J. C. Kimsey	691,149	Jan. 14	1453	331	98	318
Chute for buildings. Dust	H. Bender	692,228	Feb. 4	10	2, 3	98	800
Cider and fruit press	J. D. Tynen	694,217	Feb. 25	3819	845	98	1643
Cigar	F. R. Diaz	695,672	Mar. 18	2501	568	98	2270
Cigar box opening implement	E. Pisko	693,439	Feb. 18	2309	506	98	1321
Cigar-bunch-shaping device	A. Gordon	693,265	Feb. 11	1983	431	98	1232
Cigar bunching machine	G. H. Tingley	693,585	Feb. 18	2498	549, 550	98	1360
Cigar-bunching machine	M. M. Gardner	694,625	Mar. 4	549	120, 121	98	1829
Cigar bunching machine	P. H. Fratz	696,252	Mar. 25	3578	800, 801	98	2505
Cigar-bunching machine	L. Muller	692,026	Jan. 28	3132	705	98	700
Cigar-holder	J. M. Althouse	694,311	Feb. 25	4052	900	98	1684
Cigar-lighter. Electric	H. A. Schneekloth	693,626	Feb. 18	2682	592, 593	98	1396
Cigar-machine	G. M. Williams	694,507	Mar. 4	312	70	98	1779
Cigar mold	G. M. Williams	694,508	Mar. 4	314	71	98	1779
Cigar mold	B. Rapaport	693,621	Feb. 18	2673	590	98	1395
Cigar or cigarette pocket-case	R. Woerner	694,092	Feb. 25	3570	788	98	1595
Cigar pressing apparatus	E. Walker	694,591	Mar. 4	489	106	98	1817
Cigar tip cutter	C. and L. J. Du Brul	694,259	Feb. 25	3894	864	98	1658
Cigar wrapper cutter	G. H. Follows	693,253	Feb. 11	1963	426, 427	98	1228
Cigar-wrapper-cutting machine	J. J. Ryan	693,669	Feb. 18	2760	608	98	1413
Cigar wrapping machine	C. R. Spencer	690,887	Jan. 7	979	222, 223	98	206
Cigarette-machine	H. E. Grabau	692,270	Feb. 4	101	23, 24, 25	98	819
Cigarette making machine	G. H. Cressler	695,914	Mar. 25	2944	667	98	2376
Cigarette or cigar pocket-case	W. R. Landfear	692,789	Feb. 4	1011	229, 230	98	1004
Cigarette-packing machine	G. A. Hagelberg and L. Lindelöf	695,640	Mar. 18	2451	555, 556	98	2260
Cigarette-tubes. Machine for filling paper	S. L. Langdon	693,281	Feb. 11	2010	437	98	1237
Cinder or spark arrester	H. Schmidt and W. Haensch	691,411	Jan. 21	1992	446, 447	98	450
Cinematograph	F. Alberini, C. Anchise, and L. Ganucci-Cancellieri.	690,815	Jan. 7	866	190, 191	98	183
Cinematographic apparatus	A. Rosenberg	691,493	Jan. 21	2134	478, 479	98	480
Cinematographic apparatus	G. Fuchs	692,437	Feb. 4	378	------	98	877
Cinnamyl-quinin and making same. Hydrochlorid of	F. A. Merrick and J. D. Forrer	693,416	Feb. 18	2273	497, 498	98	1313
Circuit-breaker	C. C. Badeau	695,134	Mar. 11	1544	342	98	2055
Circuit breaker	C. Reynolds	692,475	Feb. 4	446	104	98	890
Circuit-breaker. Automatic	A. R. Luschka	690,973	Jan. 14	1145	259	98	255
Circuit-breaker. Rotary	A. J. Higgs	696,172	Mar. 25	3467	777	98	2484
Circuit-breaking device	D. L. Demorest	696,319	Mar. 25	3775	841	98	2548
Circuit-closer. Time	G. W. Gillespie	693,202	Feb. 11	1977	430	98	1231
Circuit-closing mechanism. Self-adjusting electro-magnetic	R. E. Leve	691,557	Jan. 21	2238	504	98	501
Circuit making and breaking handle	A. de Khotinsky	696,144	Mar. 25	3420	768	98	2475
Circuit tester	C. H. Asling	691,230	Jan. 14	1602	366	98	349
Cistern device. Automatic	S. L. Dunlap	695,804	Mar. 18	2737	624	98	2318
Cisterns. Form or pattern for cement	C. T. Swaffield	692,381	Feb. 4	286	70	98	858
Clamp: *See* Ax-handle clamp. Bedstead-clamp. Hose-coupling clamp. Rail-joint clamp. Saw-clamp. Wringer-clamp.	B. Holland	695,686	Mar. 18	2528	572	98	2275
Clamp	H. O. Evans	694,953	Mar. 11	1186	259	98	1980
Clamp for filing shaft-keys	L. Litty	694,871	Mar. 4	1033	228, 229	98	1931
Clamping device	F. W. Dittler	691,365	Jan. 21	1913	430	98	433
Clarifier	W. Meinl	691,646	Jan. 21	2413	543	98	537
Clarifying fecal matter. Apparatus for	N. Crane	690,904	Jan. 7	1010	228	98	212
Clarinet	A. Brassington	693,779	Feb. 18	2955	651	98	1453
Clasp: *See* Garment-clasp. Garment-supporter clasp. Hair-clasp. Handle-clasp. Pocket-clasp. Suspension-clasp.	T. Woodhouse	696,292	Mar. 25	3685	825	98	2528
Clasp	W. B. Rowley	692,361	Feb. 4	255	61	98	851
Claw-bar	W. L. McCarel	696,377	Mar. 25	3602	865	98	2570
Claw-bar							
Clay, &c. Apparatus for molding hollow articles in							
Clay conduits. Die for making multiple-orificed							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clay-mixer	D. Appleby, Jr	692,774	Feb. 4	990	222	98	997
Clay-pan-emptying device	J. P. Wynn	694,903	Mar. 4	1087	239	98	1942
Cleaner:							
See Boiler-cleaner.							
See Boiler-tube cleaner.							
See Bolting-cloth cleaner.							
See Cane-stubble cleaner.							
See Comb-cleaner.							
See Cotton-cleaner.							
See Flue-cleaner.							
See Glove-cleaner.							
See Grain-cleaner.							
See Gun-cleaner.							
See Headlight-cleaner.							
See Pipe-cleaner.							
See Tobacco-pipe cleaner.							
See Window-cleaner.							
Cleaning and polishing composition	P. Levi	693,556	Feb. 18	2532	.....	98	1366
Cleaning implement	H. G. Huntington	695,315	Mar. 11	1866	415	98	2120
Clevis	B. Gotter	691,902	Jan. 28	2907	655	98	657
Clevis	W. L. Hudson	695,643	Mar. 18	2460	558	98	2202
Clip:							
See Detector-bar clip.							
See Pencil-clip.							
See Slide-loop clip.							
See Whiffletree-clip.							
Clipper, Horse-	M. Bohnert	693,223	Feb. 11	1915	416	98	1217
Clock	G. W. Adams	691,887	Jan. 28	2879	648	98	652
Clock, Automatic call-bell	W. A. Hirschfield	693,647	Feb. 18	2723	601	98	1406
Clock, Electric	W. W. Frantz	691,256	Jan. 14	1654	377	98	360
Clock, Electric	F. Frick	692,054	Jan. 28	3190	720	98	711
Clock, Electric	M. Fischer	692,509	Feb. 4	505	118	98	902
Clock, Electric	M. Hoeft	696,238	Mar. 25	3587	803	98	2506
Clock, Geographical	C. E. Davis	693,814	Feb. 18	3019	667	98	1466
Clock, Geographical	C. E. Davis	693,963	Feb. 25	3308	727	98	1541
Clock, Geographical	A. J. Day	694,256	Feb. 25	3889	861, 862, 863	98	1658
Clock, Self-winding electric	M. Hoeft and E. Schultz	694,546	Mar. 4	408	89	98	1799
Clod-fender	E. B. Shambaugh	695,000	Mar. 11	1274	281	98	1999
Cloth-board, Registering	J. W. Currier	694,001	Feb. 25	3419	753	98	1564
Cloth-cutting machine, Long-knife	E. M. Waring	691,090	Jan. 14	1354	307	98	227
Cloth holding and shipping board	J. Lonke	695,062	Mar. 11	1295	306	98	2024
Cloth, Means for cutting corduroy	M. G. Chace	692,504	Feb. 4	406	116	98	900
Cloth or sponge holder	L. E. Whitaker	696,125	Mar. 25	3358	758	98	2402
Clothes-drier	D. T. Brown	695,585	Mar. 18	2242	506	98	2218
Clothes-drier	T. M. Anderson	696,128	Mar. 25	3365	759	98	2464
Clothes-drier, Collapsible wall	H. Dickson	695,379	Mar. 11	1967	440	98	2142
Clothes-hanging apparatus	M. H. Gornston	696,234	Mar. 25	3581	802	98	2505
Clothes-horse	S. G. MacMillan	694,766	Mar. 4	838	184, 185	98	1889
Clothes-line and detachable support	H. R. Johnson	693,401	Feb. 18	2248	492	98	1308
Clothes-line apparatus	H. Perdreaux	694,414	Mar. 4	152	84	98	1745
Clothes-line attachment	J. Johnson	695,397	Mar. 11	1997	447	98	2149
Clothes-line fastener	F. Rauh	694,891	Mar. 4	1065	236	98	1937
Clothes-line, Pinless	B. W. Knight	692,308	Feb. 4	158	37	98	831
Clothes-line reel	P. Krex	690,588	Jan. 7	422	90	98	92
Clothes-line supporting and operating apparatus	C. J. Lantz	692,864	Feb. 11	1149	256	98	1060
Clothes-line tightener and adjuster	D. T. Blevins and D. H. Taylor	690,890	Jan. 7	985	223	98	207
Clothes-pin	A. K. and J. Bradley	692,233	Feb. 4	21	5	98	802
Clothes-rack	S. East	691,368	Jan. 21	1919	431	98	434
Clutch	H. Moon	691,320	Jan. 14	1794	407	98	360
Clutch	C. Johnson	691,548	Jan. 21	2223	500	98	498
Clutch	H. Bardsley	693,318	Feb. 11	2073	453	98	1250
Clutch	H. I. Illingworth	694,550	Mar. 4	416	90, 91	98	1801
Clutch	J. MacCallum, Jr.	695,407	Mar. 11	2011	451	98	2152
Clutch	J. Turnbull	696,769	Mar. 18	2660	604, 605	98	2302
Clutch	A. E. Vivinus	696,284	Mar. 25	3672	821	98	2525
Clutch	G. S. and J. J. Huff	690,583	Jan. 7	412	85, 86	98	90
Clutch, Automatic	A. C. Krebs	693,551	Feb. 18	2727	556	98	1365
Clutch, Cone-	J. W. Fries	692,130	Jan. 28	3395	754	98	739
Clutch for driving machinery	C. M. Wheaton	691,221	Jan. 14	1502	361	98	345
Clutch, Friction-	C. Ridderhof	691,488	Jan. 21	2186	476	98	478
Clutch, Friction-	C. Upton	691,507	Jan. 21	2161	484	98	486
Clutch, Friction-	J. A. Smith	691,817	Jan. 28	2764	622	98	627
Clutch, Friction-	G. H. Farman	693,507	Feb. 18	2446	536	98	1349
Clutch, Friction-	F. G. Hampson	694,270	Feb. 25	3917	870	98	1658
Clutch, Friction-	J. Harrington	694,472	Mar. 4	252	56	98	1765
Clutch mechanism	J. Harding, Jr	693,271	Feb. 11	1993	433	98	1234
Clutch mechanism	C. M. Day	693,954	Feb. 25	3309	727	98	1541
Clutch mechanism	C. M. Day	693,955	Feb. 25	3311	728	98	1542
Clutch, Reversing-	C. R. Alsop	692,754	Feb. 4	940	214	98	991
Clutch, Traction-engine friction-	P. Swenson	690,536	Jan. 7	324	66	98	70
Coach-equalizing suspender	W. N. Best	694,346	Mar. 4	11	3	98	1715
Coal heater, Slack-	E. B. Gosline	693,700	Feb. 18	2823	680, 681	98	1425
Coal-stamping machine	R. Kuhn	695,507	Mar. 18	2385	595, 596	98	2235
Coal-washer and ore-concentrator	A. C. Campbell	695,790	Mar. 18	2708	615, 616	98	2312
Coaster-brake	C. Glover	691,541	Jan. 21	2214	498	98	490
Coaster-brake	C. Hanrott and H. O. Seyd	695,695	Mar. 18	2586	572	98	2274
Coaster-brake, &c	C. Glover	696,096	Mar. 25	3178	717	98	2424
Coasting and brake mechanism	G. J. Gastonguay	692,131	Jan. 28	3327	754	98	740
Coating preparation	H. A. Bentley	690,915	Jan. 14	1085	252	98	233
Cock for water-heaters, Combined gas and water	W. B. Folger	690,413	Jan. 7	44	11	98	12
Cock, Gas-fixture	J. D. Sturges	691,502	Jan. 21	2154	488	98	484
Cock, Stop-	D. B. Whitehill	692,304	Feb. 4	305	74	98	803
Cock, Stop and waste	E. Munger	694,880	Mar. 4	1050	232	98	1934
Cock, Waste-	H. H. Butler and W. A. Dailey	696,091	Mar. 25	3276	741	98	2443
Coffee and tea pot, Combination	W. Rohrbacher and R. Weddell	695,173	Mar. 11	1607	356	98	2069
Coffee-hulling machine	A. H. Hopkins	690,429	Jan. 7	81	17, 18	98	20
Coffee or tea pot	S. J. Freeman	691,052	Jan. 14	1300	295	98	296

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Coffee or tea pot attachment	W. R. Montgomery	693,418	Feb. 18	2277	499	98	1314
Coffee-pot	J. E. Bickel	692,761	Feb. 4	959	217	98	994
Coffee-roaster	E. Linaberry	693,873	Feb. 25	3145	696	98	1510
Coffee substitutes. Obtaining	H. S. Maxim	693,662	Feb. 18	2742	605	98	1410
Coffee, tea, &c. Means for maintaining in heated condition decoctions of	E. Boyes	695,141	Mar. 11	1551	344	98	2057
Coherer	H. Shoemaker	691,815	Jan. 28	2761	622	98	696
Coin-actuated mechanism for newspaper-delivery boxes.	W. S. Conner	693,640	Feb. 18	2709	598	98	1402
Coin-assorter	K. J. Ramspeck	695,080	Mar. 11	1427	318	98	2081
Coin card or mailer	L. R. Lindley	691,950	Jan. 28	3000	673	98	675
Coin-controlled apparatus	J. H. Champ	691,746	Jan. 28	2624	588 589	98	599
Coin-controlled apparatus. Brake mechanism for	H. G. Sweeney	694,698	Mar. 4	686	149 150	98	1856
Coin-controlled apparatus	B. F. Fowler	695,922	Mar. 25	2959	670	98	2378
Coin-controlled apparatus	G. W. Rowse	691,161	Jan. 14	1513	341 342	98	330
Coin-controlled-apparatus contact-disk	C. A. Yale	692,966	Feb. 11	1384	300	98	1110
Coin-controlled apparatus. Fraud-preventing device for	O. E. Sorg	690,476	Jan. 7	191	38, 39	98	41
Coin-controlled-apparatus motor	C. A. Yale	692,965	Feb. 11	1381	300	98	1109
Coin-controlled mechanism	A. C. Roebuck and F. McMillan	693,157	Feb. 11	1765	388	98	1155
Coin counting, registering, and wrapping machine	C. S. Batdorf	691,435	Jan. 21	2032	455 456	98	458
Coin-holder	J. Williams	690,806	Jan. 7	847	187	98	178
Coin-holder	T. O. Miller	693,047	Feb. 11	1526	332	98	1140
Coin-operated machine	C. L. Hurd	694,282	Feb. 25	3938	877	98	1669
Coin or metal detector	F. E. J. Litot and A. Mayer	692,318	Feb. 4	179	41	98	836
Coin-receptacle	F. H. Haley	693,515	Feb. 18	2457	539	98	1351
Coin-receptacle safety device	A. C. Rogers	696,194	Mar. 25	3504	785 786	98	2490
Coin weighing and counting machine	C. W. Reeves	690,876	Jan. 7	966	215	98	201
Coke-handling apparatus	E. N. Trump	695,970	Mar. 25	3037	689	98	2398
Coke-making plant	W. Kennedy	691,148	Jan. 14	1451	330 331	98	317
Coke-oven	R. D. Martin	690,748	Jan. 7	745	166	98	157
Coke-ovens. Combined charging and discharging device for	S. T. and C. H. Wellman and J. W. Seaver.	692,746	Feb. 4	927	211 212	98	988
Colander	M. C. Jenkins	692,896	Feb. 4	138	33	98	827
Collapsible seat	A. E. Brockett	695,426	Mar. 11	2039	457	98	2157
Collar	S. W. Woodbury	692,098	Jan. 28	3274	740	98	729
Collar attachment	G. A. Redhead	693,442	Feb. 18	2312	507	98	1322
Collar-blanks, &c. Folding-machine for	R. D. Viele, E. M. Walker, and T. D. Robinson.	693,931	Feb. 25	3264	719 720	98	1533
Collar-blanks, &c. Machine for folding	W. W. and W. L. Dixon	694,844	Mar. 4	963	215 216	98	1916
Collar-blocking machine. Horse-	R. Dodson	694,733	Mar. 4	765	170	98	1873
Collar. Horse-	H. J. Breeze	690,632	Jan. 7	509	111	98	109
Collar. Horse-	F. Maussner	691,560	Jan. 21	2242	505	98	503
Collar. Pneumatic horse-	C. S. Boehm	694,399	Feb. 25	4111	914	98	1696
Collar-shaper	A. J. Underhill	691,022	Jan. 14	1245	281 282	98	275
Collar stuffing. Horse-	B. H. Rueter	694,198	Feb. 25	3788	837	98	1638
Collar sweat-pad. Horse-	W. H. Osmer	691,729	Jan. 21	2564	575	98	569
Collar turner and edger	E. Weber	691,029	Jan. 14	1255	284	98	276
Collating-machine	T. C. Dexter	691,983	Jan. 28	2958	666 667	98	667
Collisions at sea. Apparatus for preventing	N. Gherassimoff	693,855	Feb. 25	3112	689 690	98	1504
Color and making same. Ferro-chrome	A. Haagen	693,703	Feb. 18	2927	.....	98	1496
Color-holder	S. A. White	692,040	Jan. 28	3159	713	98	706
Coloring-tool	H. Schickler	691,184	Jan. 14	1520	348	98	332
Colter-fastening device. Plow-	C. C. Chappel	694,351	Mar. 4	18	4	98	1716
Column. Built-up	W. M. Peard	696,188	Mar. 25	3498	783	98	2488
Columns. Compo cap for mantel-	E. S. Kennedy	691,635	Jan. 21	2398	539	98	534
Columns. Forming compo caps for	E. S. Kennedy	691,704	Jan. 21	2519	564	98	560
Columns. Mold for compo caps for mantel-	E. S. Kennedy	691,636	Jan. 21	2399	539	98	534
Comb: *See* Currycomb.	E. B. Kingman	691,946	Jan. 28	2990	672	98	673
Comb	E. T. Robinson	691,873	Jan. 28	2855	643	98	646
Comb and brush. Combined	H. Heas	691,378	Jan. 21	1935	435	98	437
Comb-cleaner	A. and C. Syverson	694,040	Feb. 25	3506	772	98	1581
Comb-cleaner	G. O. Redpath	692,347	Feb. 4	230	55	98	845
Comb for spacing the mesh of woven fabrics	C. Bensinger. (Reissue)	11,976	Mar. 25	3989	872	98	2579
Combs. Manufacturing celluloid	C. J. Barnes	690,698	Jan. 7	615	134 135	98	130
Combination-wrench	C. E. Geiger and J. E. Turney	695,878	Mar. 18	2870	651	98	2347
Comminuting-machine	J. B. Frost	690,415	Jan. 7	47	12	98	13
Commode	J. H. Prentice	694,890	Mar. 4	1064	235	98	1937
Commode stand and seat. Folding	C. G. Curtis	690,516	Jan. 7	289	58	98	63
Commutator-brush	E. Batault	691,789	Jan. 28	2612	585	98	597
Commutator. Electrical	A. F. Petch	691,869	Jan. 28	2850	642	98	645
Commutator-forming apparatus	G. Tucker	691,827	Jan. 28	2783	625	98	631
Compasses. Beam-	E. C. Hegan	695,309	Mar. 11	1859	414	98	2119
Composite material	G. Kelly	696,343	Mar. 25	3812	850	98	2555
Composite material	H. A. Hughes, Jr.	691,883	Jan. 21	1941	.....	98	488
Composition of matter	F. Jones and C. L. Pennell	695,780	Mar. 18	2599	.....	98	2289
Composition of matter	S. M. Vauclain	694,702	Mar. 4	708	153	98	1850
Compound engine and valve therefor	W. Schneider	690,620	Jan. 7	486	105	98	104
Compound engine. Telescopic	F. Weimar	692,393	Feb. 4	304	74	98	863
Compressed-air drill	F. W. Parsons	693,434	Feb. 18	2303	504	98	1320
Compressor	J. A. B. Wesley	692,495	Feb. 4	480	112 113	98	897
Concentrating-table	B. W. Traylor	695,969	Mar. 25	3035	688	98	2398
Concentrator							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs	Official Gazette. Vol.	Official Gazette. Page.
Concentrator	J. A. Lehrritter	696,058	Mar. 25	3212	726	98	2430
Concrete-body-molding machine	M. A. Winget	694,123	Feb. 25	3036	803, 804	98	1608
Concrete construction	E. L. Ransome	694,580	Mar. 4	470	101	98	1813
Concrete construction. Reinforced	E. L. Ransome	694,577	Mar. 4	467	100	98	1812
Concrete. Coupling metal bars in reinforced	E. L. Ransome	694,576	Mar. 4	467	100	98	1812
Concrete joint	E. L. Ransome	694,578	Mar. 4	469	.....	98	1812
Concrete-mixer	E. L. Ransome	694,575	Mar. 4	465	100	98	1812
Concrete preparing and laying machine	J. T. Dempsey	693,844	Feb. 25	3095	684	98	1500
Condenser and water-heater. Tubular	C. P. Horton	690,729	Jan. 7	715	156	98	150
Condenser. Fractional	V. Slavíček	696,206	Mar. 25	3526	789	98	2495
Condenser or exhaust tube for steam-engines	A. P. and H. Smith	691,978	Jan. 28	3043	684	98	684
Condenser. Steam-	W. E. Pardridge	691,170	Jan. 14	1497	338	98	327
Condenser system	C. C. Worthington and L. R. Alberger.	692,810	Feb. 4	1054	257	98	1011
Condensing-coil	A. Siebert	694,707	Mar. 4	894	198, 199	98	1901
Conductor-carrier	A. H. Stewart	695,504	Mar. 18	2176	491	98	2204
Conductor for electromagnetic induction apparatus	H. H. Wait	693,578	Feb. 18	2501	573	98	1578
Conductors. Manufacturing contact-pieces between first and second class	W. Boehm	695,600	Mar. 18	2377	.....	98	2345
Conduit	P. A. McGeorge	695,478	Mar. 18	2130	480	98	2195
Conduit	V. H. Yarnall	695,594	Mar. 18	2368	537	98	2244
Conduit and conductor	P. A. McGeorge	696,072	Mar. 25	3241	733	98	2435
Conduit-bushing	H. Ill	693,398	Feb. 18	2240	491	98	1306
Confectionery-cutting machine	R. Snedden	691,499	Jan. 21	2148	482	98	483
Confectionery-machine	W. S. Dillon	695,801	Mar. 18	2731	622	98	2317
Confections. Making frozen	P. Marine	692,323	Feb. 4	189	43	98	889
Connecting device	J. R. Carter	694,459	Mar. 4	283	51	98	1762
Consecutive-view apparatus	W. K.-L. Dickson	695,916	Mar. 25	2951	668	98	2377
Control system. Multiple	H. W. Leonard	696,247	Mar. 25	3605	807, 808	98	2510
Controlling actions at a distance. Apparatus for	J. Gardner	693,597	Feb. 18	2682	580, 581	98	1387
Controlling device	W. H. Paine	691,968	Jan. 28	3031	681	98	681
Controlling system	T. von Zweigbergk	691,692	Jan. 21	2499	559, 560	98	555
Converter	J. S. Klein	695,737	Mar. 18	2511	592	98	2292
Conveyer	A. J. Frith	690,518	Jan. 7	291	58, 59, 60	98	63
Conveyer	J. Roger	696,273	Mar. 25	3656	818	98	2521
Conveyer apparatus	G. S. Baker	694,519	Mar. 4	347	76, 77	98	1795
Conveyer-bucket	L. A. Brigel, Jr	694,245	Feb. 25	3861	856	98	1653
Conveyer-chute. Self-registering	C. H. Spence	695,957	Mar. 25	3015	683	98	2389
Conveyer system	M. Garland	690,943	Jan. 14	1081	243	98	242
Conveyer system	E. W. McKenna	694,067	Feb. 25	3543	781	98	1569
Conveying apparatus	T. S. Miller	691,911	Jan. 28	2981	658, 659	98	660
Conveying apparatus	J. G. Delaney and T. S. Miller	694,355	Mar. 4	26	6	98	1718
Conveying apparatus	O. B. Stillman	696,115	Mar. 25	3344	754	98	2458
Cooker. Steam-	A. B. Hower	691,380	Jan. 21	1996	435	98	497
Cooker. Steam-	F. W. Carson	694,943	Mar. 11	1166	255	98	1978
Cooking apparatus. Portable	J. Widmer	695,979	Mar. 25	3056	693	98	2398
Cooking-boiler	W. H. Taylor	694,805	Mar. 4	992	201	98	1902
Cooking, desiccating, or seasoning purposes. Apparatus for	H. Higgins	692,516	Feb. 4	582	125	98	905
Cooking utensil	E. S. Oliver	690,760	Jan. 7	763	170	98	161
Cooking utensil	M. A. K. C. Lambert	692,313	Feb. 4	166	39	98	883
Cooler: *See* Liquid-cooler. Milk-cooler. Water-cooler.							
Cooling and ventilating apparatus	J. and W. Titus	690,485	Jan. 7	211	42	98	46
Cooling-can	E. S. Cushman. (Reissue)	11,906	Feb. 4	1058	237	98	1012
Cooling coil and tank	J. Levey	691,786	Jan. 28	2704	606	98	516
Cooling or condensing coil	W. O. Worth and W. R. Donaldson	692,962	Feb. 11	1378	299	98	1109
Cooling or refrigerating apparatus	G. Allegretti	692,044	Jan. 28	3170	715, 716	98	707
Cooling safe or chamber	R. Menz	691,401	Jan. 21	1978	443, 444	98	447
Coop. Poultry-	J. V. Mitchell	694,976	Mar. 11	1235	270	98	1991
Cop-tube carrier	S. W. Wardwell	690,493	Jan. 7	242	49	98	53
Coping. Grave sectional	E. T. Owen	691,169	Jan. 14	1496	338	98	827
Coping tool or chisel	E. Beam	695,783	Mar. 18	2695	612	98	2310
Copper. Hardening	C. Renstrom	696,271	Mar. 25	3254	.....	98	2321
Copper ores. Treating	W. J. Knox	692,310	Feb. 4	160	38	98	881
Copy-holder	F. S. Towle	694,446	Mar. 4	210	46	98	1757
Copying apparatus. Autographic	L. Martin	692,324	Feb. 4	190	43, 44	98	889
Cord and pulley brake	D. D. Nugent	692,540	Feb. 4	577	135	98	915
Cord or rope machine	T. W. Norman	693,887	Feb. 25	3176	702	98	1515
Cord or rope making machine	T. W. Norman	691,798	Jan. 28	2728	614, 615, 616, 617	98	630
Cork-disk-cutting machine	R. S. Anderson	691,432	Jan. 21	2039	454	98	457
Cork-extractor	G. C. Ferguson	694,466	Mar. 4	340	55	98	1764
Cork-extractor	F. Riolet	695,295	Mar. 11	1720	381	98	2091
Corn. Apparatus for separating silk from green	E. Houston	694,017	Feb. 25	3449	761	98	1570
Corn-binder packer-arms. Means for preventing clogging of	J. B. Shaw	695,208	Mar. 25	3528	798	98	2494
Corn-cutter	E. A. Stare	692,940	Feb. 11	1853	390	98	1100
Corn-drill and manure-distributer. Combined	C. M. Wells	692,282	Jan. 28	3498	791	98	775
Corn from the cob. Machine for cutting green	C. M. Fenton and A. Wode, Jr	695,806	Mar. 18	2740	624, 625	98	2319
Corn-holder	C. R. Lemon	693,284	Feb. 11	2014	438	98	1299
Corn-husker	W. H. Stoner	692,088	Jan. 28	3260	757	98	736

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Corn-husking machine	R. C. Johnson	695,561	Mar. 18	2296	519, 520, 521	98	2228
Corn-popper	T. G. Melish	694,657	Mar. 4	615	134	98	1843
Corn-sheller	S. Stroup	693,080	Feb. 11	1591	347	98	1153
Corn-sheller feed-drag	W. C. Rowe	694,667	Mar. 4	633	138, 139	98	1846
Corn-silking machine	J. H. Magee	691,707	Jan. 21	2523	565	98	561
Cornstalk-cutter	B. C. Roberts	695,581	Mar. 18	2347	532	98	2240
Corns. Protector-pad for	S. A. Level	694,762	Mar. 4	621	132	98	1836
Corner-shield	R. L. Wheeler	695,184	Mar. 11	1620	360	98	2071
Corset	D. Kops	694,160	Feb. 25	3711	819	98	1823
Corset	D. Kops	694,161	Feb. 25	3713	820	98	1624
Corset	A. E. Decker	696,227	Mar. 25	3570	799	98	2503
Corset	C. H. Schopbach	690,665	Jan. 7	571	124	98	122
Corset. Apparel-	F. C. Smith	690,898	Jan. 7	1002	226	98	210
Corset. Extensible	S. Kops	690,740	Jan. 7	734	162	98	154
Corset-shaping machine	E. B. Clifton	694,353	Mar. 4	21	5	98	1717
Cot and stretcher. Convertible	R. S. Pickering	691,730	Jan. 21	2505	575	98	569
Cotter-pin	N. W. Kirkpatrick and M. Henry	692,528	Feb. 4	554	130, 131	98	911
Cotter-pin-making machine	G. Berringer	691,102	Jan. 14	1371	311	98	300
Cotton-chopper	A. L. Hockett	694,474	Mar. 4	254	57	98	1766
Cotton-chopper	J. T. James	694,479	Mar. 4	263	59	98	1768
Cotton-chopper	A. D. Ezzell	696,321	Mar. 25	3779	842	98	2548
Cotton-chopper	R. F. Lowrey	696,348	Mar. 25	3825	852	98	2557
Cotton-chopper	W. C. Elsey	694,055	Feb. 25	3528	777	98	1586
Cotton chopper and cultivator	J. M. Bass, Sr.	692,227	Feb. 4	7	2	98	800
Cotton chopper and cultivator. Combined	A. L. Hockett	694,475	Mar. 4	255	57, 58	98	1766
Cotton-chopper scraper attachment	J. T., W. R., and G. B. Rodgers	690,614	Jan. 7	469	101, 102	98	101
Cotton-cleaner	S. D. Murray	695,825	Mar. 18	2773	633	98	2325
Cotton-gin feeder	P. Kolb	691,865	Jan. 28	2844	640	98	644
Cotton. Machine for handling lint-	L. C. Le Count	695,818	Mar. 18	2764	630	98	2323
Couch or other receptacle. Wardrobe sofa-	H. Parker	693,894	Feb. 25	3196	705	98	1520
Couch-roll	B. B. Farnham	694,954	Mar. 11	1187	260	98	1981
Couch-roll	H. R. Heal	690,424	Jan. 7	71	16	98	18
Counter	J. S. Huey	691,142	Jan. 14	1441	328	98	315
Counter	H. Hollerith	695,933	Mar. 25	2974	673	98	2381
Counter. Electrically-actuated	J. D. Wilkens	691,035	Jan. 14	1264	287	98	278
Counterbalance for lift-bridges, &c							
Coupling: *See* Bicycle-coupling. Bicycle-pump coupling. Car-coupling. Hose or pipe coupling. Pilot-coupling. Pipe-coupling. Railway-carriage coupling. Reach-coupling. Shaft-coupling. Strap-coupling. Thill-coupling. Thill or pole coupling.							
Coupling	J. L. Frazier	693,595	Feb. 18	2629	580	98	1386
Coupling device	M. A. Brown	691,109	Jan. 14	1383	315	98	303
Coupling-frame	S. C. Rock	691,179	Jan. 14	1510	340	98	330
Cover reciprocating and oscillating mechanism. Vessel-	J. Gibson	693,258	Feb. 11	1971	428	98	1230
Cover-retaining device for pots or kettles	C. D. Brown	690,828	Jan. 7	888	196	98	188
Covers. Securing swivel-plates to perforated	C. E. Williams	695,424	Mar. 11	2037	457	98	2157
Crane	S. L. Batzel	692,596	Feb. 4	676	157	98	937
Crane for handling lumber, &c	H. Brooke	690,513	Jan. 7	283	57	98	62
Crank-pin-connection take-up device	J. E. Johnson	693,402	Feb. 18	2248	492	98	1308
Crate	A. von Schluembach	694,794	Mar. 4	890	197	98	1900
Crate. Banana-	C. A. Doud	694,845	Mar. 4	972	216	98	1919
Crate for bananas. Shipping-	T. J. Lowther	690,657	Jan. 7	557	121	98	119
Crate for bottles or carboys. Swinging	E. G. Howe	693,020	Feb. 11	1471	321	98	1129
Crate for rolls	J. F. Budke	693,104	Feb. 11	1647	359	98	1163
Crate. Fruit-	H. T. Miller	695,471	Mar. 18	2122	478	98	2198
Crate or box	E. E. Johnston	696,243	Mar. 25	3599	805	98	2509
Crayon. Fountain-	J. F. Kasnicka	692,524	Feb. 4	548	128	98	910
Cream-separator	W. J. Gould	693,512	Feb. 18	2453	538	98	1351
Crematory and heating system. Combined	I. D. Smead	691,328	Jan. 14	1806	410, 411	98	392
Creosoting wood, &c	C. S. Friedman	693,697	Feb. 18	2819	.....	98	1425
Crusher: *See* Cement-gravel crusher. Ore-crusher. Rock-crusher. Stone-crusher.							
Crushing-machine	M. G. Bunnell	691,593	Jan. 21	2312	520	98	516
Crushing-mill	T. L. and T. J. Sturtevant	690,534	Jan. 7	320	64	98	69
Cue. Game-	A. J. Gray	690,945	Jan. 14	1085	244	98	243
Cuff-holder	M. S. Goldman	694,739	Mar. 4	777	172	98	1876
Culinary article	A. N. Stonedahl	696,278	Mar. 25	3665	819, 820	98	2528
Cultivator	P. J. Nelson	690,758	Jan. 7	760	169	98	161
Cultivator	J. C. Tunnicliff	691,022	Jan. 14	1244	281	98	274
Cultivator	S. L. Allen	692,410	Feb. 4	530	80	98	868
Cultivator	G. W. Henry	692,660	Feb. 4	781	178	98	959
Cultivator	R. H. Avery	694,819	Mar. 4	921	205, 206	98	1907
Cultivator	J. Stine	692,729	Feb. 4	900	205, 206	98	963
Cultivator attachment	S. W. Solomon	695,178	Mar. 11	1613	357	98	2020
Cultivator blade and standard attachment	A. M. Weston	693,474	Feb. 18	2387	522	98	1337
Cultivator. Lister-	M. Collins	692,880	Feb. 11	1092	244	98	1048
Cultivator or harrow	W. Harstick	690,948	Jan. 14	1090	245	98	244
Cultivator or plow replanting attachment	H. M. Phillips	694,417	Mar. 4	160	36	98	1746
Cultivator-shovel	I. S. Perkins	695,078	Mar. 11	1425	312	98	2020
Cultivator standard or shank	M. L. Ball	693,080	Feb. 18	2783	612	98	1418
Cultivator. Straddle-row	S. F. Hughes	692,517	Feb. 4	534	126	98	906
Cultivator treadle-guide							

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Culvert. Metallic	C. Wolcott and P. Ma Girl	691,926	Jan. 28	2946	663	98	664
Culvert. Sectional	F. A. Sicklesteel	694,796	Mar. 4	868	198	98	1901
Cup:							
See Drinking-cup. Oil-feed cup. Oil-cup.							
Curb and gutter. Combined	S. B. Morss	691,794	Jan. 28	2718	611	98	618
Curling-tongs, &c. Heater for	W. H. Stimpson	692,087	Jan. 28	3155	712	98	705
Current-limiting device	S. L. G. Knox	696,055	Mar. 25	3208	725	98	2429
Current motor. Alternating-	D. E. Coulson	692,121	Jan. 28	3287	749	98	735
Current motor. Alternating-	B. G. Lamme	695,938	Mar. 25	2985	675	98	2384
Current-motor meter. Alternating-	H. Brockelt	693,491	Feb. 18	3414	528	98	1343
Currents. Apparatus for determining the frequency of alternating	H. S. Carr	691,441	Jan. 21	2044	458	98	461
Currents. Instrument for indicating the phase and frequency relations of alternating	F. Conrad	695,913	Mar. 25	2941	666 667	98	2375
Currycomb	S. B. Felty	690,712	Jan. 7	669	148	98	141
Currycomb	J. E. Gilbert	693,259	Feb. 11	1972	429	98	1230
Currycomb	R. T. Gillespie	693,260	Feb. 11	1974	429	98	1230
Curtain	L. S. Burrows	693,107	Feb. 11	1655	360	98	1165
Curtain and shade holder	G. Palmblad	692,472	Feb. 4	441	103	98	888
Curtain-fixture	M. Jolliffe	690,437	Jan. 7	97	21	98	23
Curtain-fixture	O. L. Schanbacher	690,881	Jan. 7	968	219	98	203
Curtain-fixture	C. A. Obenchain	691,799	Jan. 28	2734	617	98	621
Curtain-fixture	W. E. Matthews	693,296	Feb. 11	2039	445	98	1245
Curtain-fixture	C. E. Baur	696,308	Mar. 25	3709	829	98	2532
Curtain-holder and pole-ring	E. Marsky	691,155	Jan. 14	1461	333	98	320
Curtain-holding device. Spring-actuated	J. H. Milans	690,980	Jan. 14	1164	263	98	258
Curtain or shade holding fixture	J. H. Milans	695,692	Mar. 18	2539	574	98	2277
Curtain-pole	A. M. H. Culp	691,605	Jan. 21	2335	525	98	520
Curtain-pole	J. Jacoby	693,715	Feb. 18	2847	627	98	1430
Curtain-pole	D. L. Altman	694,710	Mar. 4	715	157	98	1902
Curtain-pole	E. S. Strömqvist	696,279	Mar. 25	3066	820	98	2523
Curtain-pole ring	A. Hothan	695,313	Mar. 11	1864	415	98	2120
Curtain-stretcher easel-leg	C. G. Carlson and W. A. Mayr	692,826	Feb. 11	1084	243	98	1046
Cushion:							
See Valve air-cushion.							
Cuspidor	O. L. Sues	691,414	Jan. 21	1995	447	98	450
Cuspidor holder and cleaner	L. and J. Tessier	691,415	Jan. 21	1996	448	98	450
Cut-off. Down-spout	M. C. Harrison	693,009	Feb. 11	1456	316	98	1125
Cut-off. Variable	A. D. and J. H. Gillett	694,057	Feb. 25	3532	778	98	1587
Cut-out. Automatic	A. A. Seeley and C. Silet	695,497	Mar. 18	2162	488 489	98	2201
Cutter:							
See Axle-spindle cutter. Boiler-tube cutter. Bolt-cutter. Butter-cutter. Buttonhole-cutter. Cheese-cutter. Cigar-tip cutter. Corn-cutter. Cornstalk-cutter. Fruit or vegetable cutter. Gear-cutter. Groove-cutter. Meat-cutter. Nail-cutter. Paper-cutter. Peg-cutter. Pipe-cutter. Rotary cutter. Spoke-cutter. Thread-cutter. Vegetable-cutter. Washer and gasket cutter. Wedge-cutter.							
Cutter-head	G. Johnson, Jr	691,269	Jan. 14	1677	382	98	365
Cutter-head	S. M. Langston	692,155	Jan. 28	3305	702	98	748
Cutter-head. Expansible	E. S. Shimer	691,191	Jan. 14	1532	346	98	334
Cutter-head extension	C. E. Hawley	694,060	Feb. 25	3535	779	98	1589
Cutter-head-setting gage	S. F. Wise	691,331	Jan. 14	1843	417	98	408
Cutting apparatus	G. H. Peterson	690,767	Jan. 7	772	172	98	163
Cutting edges, &c. Means for preserving and rendering sharp	O. Newhouse	693,146	Feb. 11	1743	382	98	1192
Cutting irregular surfaces. Machine for	A. Johnston	694,386	Mar. 4	99	22	98	1734
Cutting-machine	O. Zucker	691,893	Jan. 28	2873	647	98	650
Cutting-machine	E. H. Kimball	693,404	Feb. 18	2252	493	98	1909
Cutting mechanism	F. Herb	690,521	Jan. 7	304	60	98	66
Cutting-tool. Pneumatic	J. W. Birkenstock	691,334	Jan. 14	1848	418	98	404
Cycle	A. Sharp	692,078	Jan. 28	3240	732 733	98	722
Cycle	R. Wittmann	693,202	Feb. 11	1872	405	98	1208
Cycle coaster and brake mechanism	G. T. Warwick	693,472	Feb. 18	2382	521 522	98	1336
Cycle driving mechanism	J. W. Edblad	690,411	Jan. 7	43	11	98	12
Cycle frame. Motor-	V. H. Bendix	696,001	Mar. 25	3094	701	98	2405
Cycle. Motor-	H. H. Peirce	690,602	Jan. 7	452	97	98	97
Cycle. Motor-	E. S. Strickland	692,942	Feb. 11	1336	291	98	1101
Cycle-saddle	W. Brampton	695,142	Mar. 11	1553	344	98	2058
Cycle. Separable and reversible	F. Ishöy	693,521	Feb. 18	2473	542	98	1355
Cycle-stand	C. W. L. Schmidt	694,089	Feb. 25	3479	766	98	1575
Cycle. Water-	S. R. Perry	691,805	Jan. 28	2789	618	98	622
Cycle wind-shield	E. Stevens	695,960	Mar. 25	3024	685	98	2291
Cyclometer and register mechanism	L. J. Burdick	695,536	Mar. 18	2343	506 507	98	2216
Damper	J. W. Anderson	691,786	Jan. 28	2587	580	98	589
Damper-locking means	J. Schuessler	691,009	Jan. 14	1216	308	98	269
Damper mechanism. Time	S. S. Colt	690,637	Jan. 7	517	118	98	111
Damper regulator. Stove-	B. J. Casterline	694,460	Mar. 4	294	52	98	1762
Dandy-roll	F. H. Bills	694,717	Mar. 4	787	161	98	1905
Dark room. Portable	A. Werner	694,221	Feb. 25	3334	847	98	1644
Dashboard frame. Vehicle-	P. J. Timberlake	692,945	Feb. 11	1345	292	98	1102
Dashboard frame. Vehicle-	P. J. Timberlake	692,946	Feb. 11	1346	293	98	1102
Dauber for holding and applying paste or liquid substances.	Q. G. Parvin	693,305	Feb. 11	2053	449	98	1945
Decorative artwork and producing same	T. N. Swinnerton	695,010	Mar. 11	1298	286	98	2003
Decoy	J. Coudon	694,782	Mar. 4	764	170	98	1878

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Delinting-machine	J. Kasmeier	691,272	Jan. 14	1682	382, 383	98	366
Delivering comminuted solids. Machine for	L. Treadwell	693,465	Feb. 18	2361	517	98	1331
Dental-chair back-rest	G. Sibley	694,683	Mar. 4	669	146	98	1853
Dental-chair head-rest	G. Sibley	694,684	Mar. 4	670	146	98	1854
Dental-device holder	J. A. Mead	694,021	Feb. 25	3454	762	98	1571
Dental-engine chip-blowing attachment	W. W. Burgin	694,586	Mar. 4	369	81	98	1791
Dental-engine guard attachment	I. N. Williams	696,155	Mar. 25	3438	771	98	2478
Dental-engine handpiece	F. W. Dean	691,753	Jan. 28	2643	592	98	602
Dental floss-holder	A. Baumeister	691,581	Jan. 21	2287	514	98	511
Dental floss-holder	J. W. Cowan	695,092	Mar. 11	1447	321	98	2034
Dental gage	C. R. Vanderpool	696,120	Mar. 25	3354	756	98	2461
Dental instrument	W. E. Harper	691,763	Jan. 28	2659	596	98	606
Dental instrument	N. T. Yager	692,582	Feb. 4	647	151, 152	98	981
Dental-instrument case	A., J., and H. Aderer	691,695	Jan. 21	2507	561	98	557
Dental lamp	H. J. Jaeger	692,294	Feb. 4	136	32	98	827
Dental mandrel	B. Rubinson	692,713	Feb. 4	879	200	98	979
Dental mouth prop and mirror	W. Hare	692,281	Feb. 4	119	28	98	823
Dental-plate air-chambers. Former for	L. Arndt	691,092	Jan. 14	1358	308	98	298
Dental pliers	A., J., and H. Aderer	691,694	Jan. 21	2506	561	98	557
Dentifrice	M. H. Fletcher	693,349	Feb. 11	2139	------	98	1266
Denture. Artificial	A. F. Cogswell	695,796	Mar. 18	2725	621	98	2315
Derailing device	S. W. Hayes and T. E. Lutz	693,544	Feb. 18	2515	554	98	1363
Derrick	C. A. Bills	691,349	Jan. 21	1875	422, 423	98	424
Derrick and hoisting mechanism. Hoisting-	A. Zastrow	693,940	Feb. 25	3284	723	98	1536
Designator or enumerator	N. L. Collamer and W. F. Mahony	694,730	Mar. 4	759	169	98	1872
Desk furniture	E. Oldenbusch	693,426	Feb. 18	2291	502	98	1317
Desk-leaf support	J. F. Dietz	695,545	Mar. 18	2263	512	98	2222
Desk-support	E. J. Gulick	692,273	Feb. 4	107	25	98	820
Desk. Table-	V. M. Arana	695,132	Mar. 11	1539	340	98	2054
Despatch systems and especially to receiving apparatus for intermediate stations. General class of tubular	B. H. Blood	693,366	Feb. 18	2176	478	98	1292
Despatch-tube	F. R. Taisey	690,675	Jan. 7	586	127	98	125
Detachable handle for cooking vessels	F. Dronne	691,050	Jan. 14	1298	294	98	286
Detector: *See* Fire-detector. Gas-detector.	W. H. B. Lavarack	691,640	Jan. 21	2404	541	98	535
Detector-bar clip and link	D. Roose-Jones	692,358	Feb. 4	250	------	98	850
Detergent	F. N. Pease and M. E. McDonnell	690,458	Jan. 7	137	------	98	81
Detergent and making same	E. P. Smith	694,116	Feb. 25	3622	801	98	1605
Developing-trays. Device for supporting rolls in	P. Magnier and P. A. Brangier	695,573	Mar. 18	2334	528	98	2237
Dextrine, glucose, and alcohol. Converting wood, wood shavings, &c., into	W. H. Newby	695,074	Mar. 11	1418	311	98	2029
Dial. Three-handed	D. C. Townsend	693,084	Feb. 11	1596	348	98	1154
Diamond	J. H. G. Stuurman	692,380	Feb. 4	284	69,70	98	858
Diamond-cutting machine	J. H. G. Stuurman	694,215	Feb. 25	3816	844	98	1643
Diamonds. Cutting	A. Rogers	691,666	Jan. 21	2451	550	98	545
Die: *See* Wire-cutting die.	J. Dewes	695,544	Mar. 18	2262	511	98	2221
Die	A. A. Dickson	692,992	Feb. 11	1434	311	98	1119
Die	E. Sandstrom	691,292	Jan. 14	1727	393, 394	98	375
Die-block	E. and F. E. Walker	691,989	Jan. 28	3064	688	98	688
Digger: *See* Post-hole digger.	A. Dierkes	691,453	Jan. 21	2068	465	98	465
Digging machine. Root-	E. Shaw	693,746	Feb. 18	2901	638	98	1442
Directory or indicator for offices. Registering	C. B. Knott	695,400	Mar. 11	2000	447, 448	98	2150
Dish-washer	L. S. Shear	693,572	Feb. 18	2575	569, 570, 571	98	1374
Dish-washing machine	A. W. Nelson	696,105	Mar. 25	3325	------	98	2454
Dish-washing machine	W. E. Sewell	694,676	Mar. 4	653	143	98	1850
Dishes or trays. Machine for making	W. Martin	690,867	Jan. 7	942	------	98	198
Disinfectant	W. Martin	690,866	Jan. 7	941	210	98	198
Disinfecting-cabinet for barbers' use, &c	E. F. Carr	692,618	Feb. 4	713	165	98	945
Disinfecting compound	J. H. Louder	690,864	Jan. 7	939	210	98	197
Disinfecting sewer-vaults. Apparatus for	A. M. Owens	691,800	Jan. 28	2735	617	98	821
Display-box	A. L. Johnson	696,341	Mar. 25	3810	849	98	2554
Display-box and support for neckties	E. J. Templar	692,385	Feb. 4	290	71	98	859
Display-cabinet	C. S. Morris	695,326	Mar. 11	1882	419	98	2123
Display-cabinet	T. E. Stark	694,690	Mar. 4	681	148	98	1855
Display-card support	G. W. Barnett	692,500	Feb. 4	491	115	98	809
Display case. Sample-	W. A. H. Winter	694,124	Feb. 25	3638	804	98	1609
Display device. Portable	C. E. Perrin	691,484	Jan. 21	2119	475	98	476
Display-rack	R. C. Taggart	695,964	Mar. 25	3029	686	98	2392
Display-rack	G. C. Sweet	694,694	Mar. 4	689	150	98	1857
Display-rack. Adjustable	C. T. Childers	693,497	Feb. 18	2423	529, 530	98	1344
Display-rack for hats	C. Olsen	695,831	Mar. 18	2790	635, 636	98	2329
Display-stand for foot-gear	J. W. Morgan	695,473	Mar. 18	2123	478	98	2193
Display-stand. Revolving	F. Ames	691,431	Jan. 21	2024	452, 453, 454	98	457
Displaying apparatus. Sample-	J. S. Roake	690,611	Jan. 7	464	100	98	100
Displaying merchandise. Cabinet for	I. H. Jewell	692,788	Feb. 4	1007	328	98	1003
Displaying samples of carpet, &c. Apparatus for	J. A. Dubbs	694,621	Mar. 4	545	119	98	1929
Distilling apparatus	J. A. Dubbs	694,622	Mar. 4	546	119	98	1929
Distilling apparatus	K. G. Barkhausen	690,390	Jan. 7	12	3	98	6
Distilling oil	S. D. McGuire	690,893	Jan. 7	903	225	98	908
Distilling oil							
Distributing-tank							
Ditch-roller							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ditching and dredging machine	C. E. Wilson	695,258	Mar. 11	1738	389, 390	98	2099
Ditching-machine	D. J. Hoffman and J. W. Helm	691,141	Jan. 14	1440	327	98	315
Doll. Walking	E. U. Steiner	695,121	Mar. 11	1512	336	98	2047
Door	C. H. Pope	693,440	Feb. 18	2310	500	98	1321
Door attachment. Screen-	M. Rommel	692,711	Feb. 4	976	200	98	978
Door-bolt	F. Pilling	691,870	Jan. 28	2051	542	98	646
Door buffer and catch. Combined	F. L. Terrell	693,187	Feb. 11	1842	399	98	1202
Door catch and lock	R. C. Secker	695,888	Mar. 18	2889	655	98	2351
Door-check	F. J. Miller	690,600	Jan. 7	451	96	98	97
Door-check	J. Horsfield	693,081	Feb. 11	1479	322	98	1129
Door-check	W. H. Taylor	696,116	Mar. 25	3345	754, 755	98	2459
Door check and closer. Combined	E. Cliff	693,598	Feb. 18	2609	577	98	1381
Door-checking device. Sliding-	W. H. Cook	695,085	Mar. 11	1546	296	98	2014
Door closer and check	F. A. Winslow	695,987	Mar. 25	3071	696	98	2401
Door fastener. Screen-	W. B. Cochrane	692,119	Jan. 28	3301	747	98	734
Door-hanger	J. H. Cook	692,241	Feb. 4	44	10	98	807
Door-hanger	G. Wideman	694,044	Feb. 25	3511	773	98	1582
Door-hanger	M. E. Kanaly	695,057	Mar. 11	1585	304	98	2022
Door-hanger	A. S. Hook	696,142	Mar. 25	3415	767	98	2474
Door-holder	A. J. Rosentreter	693,568	Feb. 18	2506	567	98	1372
Door-jamb, gate-post, &c	J. Bremner	692,607	Feb. 4	691	161	98	940
Door-mat	C. Kuhn	694,554	Mar. 4	429	92	98	1803
Door opener or closer	W. H. Cook	695,086	Mar. 11	1347	296, 297	98	2014
Door-operating device	F. W. Tobey	693,675	Feb. 18	2773	610	98	1416
Door-securer	J. P. Wilder	692,575	Feb. 4	625	147	98	926
Door-securer	E. P. Raether	693,740	Feb. 18	2890	636	98	1440
Door-securer	C. F. Williams	694,812	Mar. 4	910	208	98	1904
Door-spring	W. Hargrove	693,389	Feb. 18	2250	487	98	1302
Door-stop	W. V. Bléha	690,555	Jan. 7	362	73	98	79
Door-stop	A. S. Martin	692,667	Feb. 4	838	190	98	971
Door stop and lock. Combined	G. H. Sawin	691,008	Jan. 14	1304	272	98	267
Door-strip	J. W. Housberg	695,064	Mar. 11	1382	303	98	2021
Door. Warehouse-	W. A. Cross	693,962	Feb. 25	3306	727	98	1541
Doubling and shearing apparatus	C. W. Bray	695,873	Mar. 18	2864	649, 650	98	2345
Douche-bench	T. F. McCullough	692,061	Jan. 28	3305	723	98	715
Dough-dividing machine	J. E. and C. E. Pointon	692,473	Feb. 4	443	103	98	869
Dough for bread. Making	W. S. and C. I. Corby	691,749	Jan. 28	2634	.....	98	601
Draft and buffing rigging	R. D. Gallagher, Jr	692,653	Feb. 4	764	175	98	956
Draft and buffing rigging	R. D. Gallagher, Jr	693,596	Feb. 18	2631	580	98	1386
Draft-controller. Automatic	C. T. Pfeiffer	693,437	Feb. 18	2307	505	98	1320
Draft-equalizer	G. A. F. Labudde, Jr	691,785	Jan. 28	2703	607	98	615
Draft-equalizer	J. J. Cox	693,840	Feb. 25	3078	679	98	1497
Draft-equalizer	A. Cogswell	694,000	Feb. 25	3417	753	98	1563
Draft-equalizer	J. L. Sutton	695,843	Mar. 18	2807	639	98	2332
Draft-equalizer	J. C. and J. Bell	695,855	Mar. 18	2830	643	98	2337
Draft-equalizer	H. Hendricks	696,333	Mar. 25	3800	847	98	2556
Draft-rigging	L. A. Hoerr	692,200	Jan. 28	3441	779	98	764
Draft-rigging	C. A. Fernald and G. Galley	693,250	Feb. 11	1959	426	98	1227
Draft-rigging	W. M. Piper	693,331	Feb. 11	2104	460	98	1257
Draft-rigging	W. M. Piper	693,332	Feb. 11	2104	460	98	1256
Draft-rigging	W. M. Piper	693,333	Feb. 11	2105	461	98	1258
Draft-rigging	W. M. Piper	693,334	Feb. 11	2106	461	98	1256
Draft-rigging	W. M. Piper	693,335	Feb. 11	2108	461, 462	98	1259
Draft-rigging attachment. Tandem	T. L. McKeen	696,184	Mar. 25	3490	782	98	2457
Draft-timbers. Means for attaching	A. L. Turnipseed and S. T. Williams	691,086	Jan. 14	1347	304	98	296
Draft-tube. Double-stream	F. D. Green	696,329	Mar. 25	3792	845	98	2551
Drafting apparatus	H. S. Lydick	695,747	Mar. 18	2629	597	98	2295
Drafting-board and T-square attachment	A. Klitsche	694,389	Mar. 4	104	24	98	1735
Drag-bar pressure-regulator	C. H. Pelton	693,307	Feb. 11	2055	450	98	1246
Drain hopper. Slop-	H. H. Kendrick	693,972	Feb. 25	3346	736	98	1549
Drain-repairing apparatus	G. Rose	694,196	Feb. 25	3785	837	98	1637
Drapery-hanger	C. Y. Whiter	691,684	Jan. 21	2482	556	98	552
Draw-bar and coupling	J. E. Liddle	692,156	Jan. 28	3366	762	98	748
Draw-bar-mounting device	A. Kipp	691,947	Jan. 28	2991	672	98	674
Drawer-opening device	C. H. Bakeman	695,432	Mar. 18	2050	461	98	2179
Drawing machine. Railway-head or other similar fiber-	A. W. Mathewson	690,596	Jan. 7	435	93, 94, 95	98	95
Dredge. Hydraulic	L. W. Bates	692,973	Feb. 11	1401	303, 304	98	1113
Dredge. Mining-	J. A. Swenson	692,557	Feb. 4	598	140, 141	98	920
Dredge mouthpiece. Suction-	L. W. Bates	692,815	Feb. 11	1066	239	98	1042
Dredge or grapple	A. Beckers	692,417	Feb. 4	340	84	98	870
Dredger excavating mechanism	R. H. Postlethwaite	692,090	Jan. 28	3136	706, 707	98	701
Dress and skirt adjuster	T. Bamford	693,361	Feb. 18	2163	475	98	1290
Dress-case. Traveler's	C. B. French	695,202	Mar. 11	1649	357	98	2078
Dress-fitting stand	E. Kunst	691,062	Jan. 14	1316	297	98	289
Dress-holder	M. L. Gumaer	692,274	Feb. 4	108	26	98	820
Dress-shield	M. B. Gault	690,719	Jan. 7	696	152	98	147
Dress-shield	G. B. M. Seager	692,367	Feb. 4	266	64	98	854
Dresser and bed. Combined	C. F. Streit	693,456	Feb. 18	2348	514	98	1329
Dressing. Bar-	A. L. Eaton	691,985	Jan. 28	2954	667	98	668
Dressing for fish, &c	H. K. MacGregor	691,154	Jan. 14	1461	.....	98	320
Drier:							
See Brick-drier.	Lead-drier.						
Clothes-drier.	Sand-drier.						
Fruit-drier.	Steam-drier.						
Hair-drier.							
Drier	G. W. Trammell and W. McDuffie	690,796	Jan. 7	829	183	98	715

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Drier	T. S. Wiles	692,750	Feb. 4	934	213	98	990
Drier	C. H. Casper	693,232	Feb. 11	1931	419, 420	98	1221
Drier for cotton or other materials	J. C. W. Stanley	693,455	Feb. 18	2346	513	98	1328
Dry-kiln	J. J. Curran	691,606	Jan. 21	2396	525	98	521
Drying-cylinder	R. U. Chadwick	693,233	Feb. 11	1933	420	98	1221
Drying-cylinder	E. Fues	695,041	Mar. 11	1361	299	98	2017
Drill: *See* Compressed-air drill. Corn-drill. Grain-drill. Pneumatic drill. Rock-drill. Well-drill.							
Drill	W. M. Potter	691,486	Jan. 21	2121	476	98	476
Drill	R. Binnie	694,822	Mar. 4	982	207	98	1909
Drill	R. Binnie	694,823	Mar. 4	983	207, 208	98	1910
Drill and fertilizer-distributer	C. W. Love	693,527	Feb. 18	2484	545	98	1357
Drill-braces. Attaching device for	J. F. Steckenreiter	690,669	Jan. 7	577	126	98	123
Drill drag-bar	W. Fetzer	695,718	Mar. 18	2567	581	98	2283
Drill-rods, &c. Screw-joint fastener for	F. Wulff	694,514	Mar. 4	334	74	98	1783
Drill-socket	O. A. Parpart	690,764	Jan. 7	769	171	98	162
Drill support. Hand-	F. P. Shek	693,166	Feb. 11	1782	390	98	1189
Drilling-machine	A. S. Jones	690,965	Jan. 14	1128	255, 256	98	251
Drilling-machine. Automatic	D. Ramsay	694,784	Mar. 4	870	192, 193	98	1896
Drilling-machine drift-pin	F. Muenger	693,049	Feb. 11	1584	334	98	1142
Drilling, milling, and tapping machine. Turret	A. D. Quint	694,783	Mar. 4	865	191, 192	98	1894
Drinking-cup	B. B. Strope	692,802	Feb. 4	1045	234, 235	98	1009
Drinking-cup and shaving-mug. Combined traveler's	F. Finley	693,959	Feb. 25	3318	729	98	1544
Drinking-fountain for fowls	W. H. Busch	690,831	Jan. 7	892	197	98	189
Drop-light	J. Gardner	696,364	Mar. 25	3874	851	98	2565
Dumb waiter	H. A. Pool	696,268	Mar. 25	3849	817	98	2520
Dump-shovel. Hand	J. Felton	694,263	Feb. 25	3043	966	98	1660
Dust-collector	O. Porbeck	691,485	Jan. 21	2120	475	98	476
Dust-collector tubes. Support for	O. E. McMeans	690,455	Jan. 7	132	28	98	30
Dust-pan and broom-holder. Combined	J. H. Ormsby	691,965	Jan. 28	3027	690	98	681
Duster for cleaning walls, &c	G. M. Bell	693,100	Feb. 11	1630	356	98	1160
Dye and making same. Black sulfur	J. Abel and F. Kalkow	692,174	Jan. 28	3391	------	98	753
Dye and making same. Black sulfur	F. Reubold	695,835	Mar. 18	2795	------	98	2330
Dye and making same. Blue sulfur	A. Weinberg and R. Herz	693,632	Feb. 18	2700	------	98	1401
Dye and making same. Blue sulfur	J. Abel. (Reissue)	11,973	Mar. 4	1148	------	98	1955
Dye and making same. Diazo	P. Julius and A. Tkatsch	692,675	Feb. 4	816	------	98	967
Dye and making same. Disazo wool	P. Julius and F. Günther	692,676	Feb. 4	817	------	98	967
Dye and making same. Disazo wool	K. Schirmacher	693,670	Feb. 18	2762	------	98	1413
Dye and making same. Orange-red	F. Scholl	695,238	Mar. 11	1723	------	98	2092
Dye and making same. Sulfur	A. Bonati	695,533	Mar. 18	2240	------	98	2218
Dye and making same. Sulfur	A. Bonati	695,534	Mar. 18	2241	------	98	2218
Dye. Blue sulfonated	R. Bohn	692,762	Feb. 4	960	------	98	994
Dye. Making blue sulfur	A. Weinberg and R. Herz	693,633	Feb. 18	2702	------	98	1401
Dye. Red azo	P. Julius and F. Günther	695,811	Mar. 18	2749	------	98	2321
Dyes Making phthalein	J. J. Brack	695,441	Mar. 18	2167	------	98	2182
Dyeing apparatus	J. Rhodes	693,443	Feb. 18	2314	507	98	1322
Dyeing apparatus	J. Hussong	695,727	Mar. 18	2568	587	98	2288
Dyeing, &c. Apparatus for	J. A. Sackville	693,446	Feb. 18	2335	510	98	1336
Dyeing sulfur colors	A. Kertesz	693,653	Feb. 18	2731	------	98	1407
Dynamo-spools. Connector for	H. G. Reist	696,080	Mar. 25	3252	736	98	2438
Dynamos from car-axles. Means for driving	J. L. Creveling. (Reissue)	11,961	Jan. 21	2577	577, 578	98	572
Dynamos from car-axles. Means for driving	J. L. Creveling	691,358	Jan. 21	1901	427	98	439
Ear-drum. Artificial	A. von Suchorzynski and M. Kohl	692,556	Feb. 4	597	140	98	920
Ear-protector	E. E. Kistler	694,159	Feb. 25	3710	819	98	1628
Easel	E. Oldenbusch	693,427	Feb. 18	2292	502	98	1317
Easel	C. P. Mueller	694,979	Mar. 11	1244	272	98	1063
Easel-back	H. W. Johns	692,857	Feb. 11	1183	253	98	1056
Easement and point-protector. Combined	C. O. Anderson	696,220	Mar. 25	3558	796	98	2501
Eaves-trough	J. C. Carr	691,744	Jan. 28	2620	587	98	598
Eaves-trough hanger	C. E. Brown	693,493	Feb. 18	2416	528	98	1343
Eaves-troughs. Making	A. Neracher	692,331	Feb. 4	200	47	98	840
Economizer	W. H. Vernon	694,500	Mar. 4	487	105, 106	98	1817
Educational appliance	L. C. Levy	690,446	Jan. 7	113	25	98	26
Educational appliance	W. A. Proctor	690,664	Jan. 7	569	124	98	122
Educational appliance	A. M. Catlin	691,113	Jan. 14	1388	316	98	304
Educational appliance	C. Kolshorn	692,019	Jan. 28	3121	703	98	698
Egg-beater	E. R. Roberts	692,479	Feb. 4	452	105	98	891
Egg contents. Preserving	J. Fordred	692,268	Feb. 4	99	------	98	819
Egg-opener	W. A. Kendrick	691,389	Jan. 21	1957	439	98	442
Egg-opener	H. S. Dotts	696,016	Mar. 25	3135	707	98	2414
Egg-preserving apparatus	H. Glacken	693,598	Feb. 18	2636	581	98	1397
Egg-preserving apparatus	P. H. Treadway	694,501	Mar. 4	296	68	98	1775
Egg-preserving compound	J. M. Stukes	694,899	Mar. 4	1082	------	98	1941
Egg. Vermin-destroying nest	E. T. Stuart	695,892	Mar. 18	2897	557	98	2352
Elastic joint	C. La Dow	691,571	Jan. 21	2261	508, 509	98	506
Electric accumulator	C. P. Elieson and V. de Bobinsky	692,433	Feb. 4	871	91	98	876
Electric battery	A. de Dion and G. Bouton	691,611	Jan. 21	2350	528	98	523
Electric brake	F. E. Case	695,144	Mar. 11	1554	345	98	2058
Electric carriers. Reversing device for overhead	A. S. Clift	692,118	Jan. 28	3300	747	98	754
Electric-circuit controller	C. J. Coleman	693,110	Feb. 11	1664	362	98	1167
Electric circuits. Apparatus for the prevention of sparking and arcing in	H. H. Dow	692,432	Feb. 4	368	91	98	876
Electric coil	W. Spencer, Jr	693,752	Feb. 18	2908	639	98	1444

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electric conductor and resistance support	H. W. Leonard	691,949	Jan. 28	2903	673	98	674
Electric conductors. Armor or sheathing for	E. Witzenmann	692,960	Feb. 11	1376	296	98	1106
Electric conductors. Suspension-clamp for	S. S. Leonard	693,410	Feb. 18	2360	495	98	1310
Electric contact device	N. C. Cotabish	695,861	Mar. 18	2838	644	98	2340
Electric contact or current-taking device	E. Greil and E. Audiger. (Reissue)	11,968	Feb. 18	3038	671	98	1469
Electric contact or current-taking device	E. Greil and E. Audiger. (Reissue)	11,969	Feb. 18	3040	671	98	1470
Electric contact or current-taking device	E. Greil and E. Audiger. (Reissue)	11,970	Feb. 18	3042	672	98	1470
Electric controller	W. B. Potter	691,909	Jan. 28	2746	620	98	628
Electric controller	A. C. Eastwood	695,791	Feb. 18	2971	656	98	1456
Electric-current generating and distributing system. Alternating-	B. G. Lamme	695,987	Mar. 25	2984	674	98	2383
Electric-current induction-machine. Alternating-	E. Danielson	694,092	Feb. 25	3586	793	98	1508
Electric-current induction-motors. Device for starting alternating-	K. A. Lindström	694,105	Feb. 25	3604	797 798	98	1601
Electric currents. Electromagnetic regulator for	J. D. Ihlder	693,023	Feb. 11	1474	322	98	1129
Electric currents. Transmitting	A. A. E. Sterzing	691,298	Jan. 14	1738	396	98	377
Electric cut-out	H. E. Leppert	691,394	Jan. 21	1969	441	98	445
Electric elevator	N. O. Lindstrom	693,038	Feb. 11	1505	328	98	1196
Electric generator	E. C. Woodell	695,524	Mar. 18	2216	502	98	2213
Electric heater	J. F. Bachmann and A. Vogt	692,413	Feb. 4	335	81	98	839
Electric-light support. Adjustable	E. E. Walters	694,810	Mar. 4	907	202	98	1904
Electric lighting	P. C. Hewitt	690,953	Jan. 14	1100	246	98	246
Electric-lighting system	E. Thomson and E. J. Houston	695,870	Mar. 18	2858	648	98	2344
Electric lock	R. Herman	695,734	Mar. 18	2587	585	98	2287
Electric machine. Dynamo-	C. P. E. Schneider	694,909	Mar. 11	1271	278 279 280	98	1999
Electric machine or motor. Dynamo-	W. R. V. Marshall	694,293	Feb. 25	3957	881	98	1673
Electric-machine regulator. Dynamo-	C. M. Green	690,420	Jan. 7	56	13	98	15
Electric machine. Static	H. B. Todd	692,737	Feb. 4	912	208	98	985
Electric machines. Winding for dynamo-	H. H. Wait	693,579	Feb. 18	2593	574	98	1378
Electric meter	G. H. Meeker	690,450	Jan. 7	121	36	98	28
Electric meter	C. T. Claypoole	693,688	Feb. 18	2805	617	98	1422
Electric meter	C. T. Claypool	694,852	Mar. 4	947	211	98	1913
Electric meter	T. Bruger	695,143	Mar. 11	1553	344	98	2058
Electric meter. Alternating-current	E. Batault	693,537	Feb. 18	2504	551	98	1361
Electric motor	F. A. Pocock and C. W. Kennedy	694,075	Feb. 25	3558	785 786	98	1592
Electric motor	T. B. Hatch	694,639	Mar. 4	579	127	98	1835
Electric-motor controller	R. H. Read	695,118	Mar. 11	1502	334	98	2045
Electric-motor controller	E. F. Dutton	696,017	Mar. 25	3137	707	98	2414
Electric-motor-controlling apparatus	W. J. Richards	692,352	Feb. 4	297	57	98	848
Electric-motor-controlling apparatus	F. F. Brush	692,779	Feb. 4	997	224	98	999
Electric-motor switch mechanism	A. W. Schramm	691,187	Jan. 14	1522	343 344	98	332
Electric motors. Means for regulating	A. W. Schramm	691,188	Jan. 14	1527	345	98	333
Electric motors or other electrical translating devices. Apparatus for controlling	G. T. Woods	690,809	Jan. 7	852	188	98	179
Electric motors or other electrical translating devices. Apparatus for controlling	G. T. Woods	690,810	Jan. 7	855	189	98	180
Electric motors or other electrical translating devices. Controlling	G. T. Woods	690,807	Jan. 7	849	187	98	178
Electric motors or other electrical translating devices. Controlling	G. T. Woods	690,808	Jan. 7	850	187	98	179
Electric or other motors. Means for controlling	E. R. Gill	694,369	Mar. 4	47	12	98	1721
Electric pressure and current. Apparatus for indicating and recording	W. Thomson	696,117	Mar. 25	3346	755	98	2439
Electric protective device	W. P. Hardy	694,855	Mar. 4	997	221	98	1923
Electric signal	C. Budke, Jr	692,423	Feb. 4	352	86	98	872
Electric signal. Automatic	F. E. Weinel	691,685	Jan. 21	2480	555 556	98	551
Electric switch	E. R. Storm	690,479	Jan. 7	198	40	98	43
Electric switch	E. M. Hewlett	691,766	Jan. 28	2564	597	98	607
Electric switch	J. D. Clay and F. A. La Roche	692,427	Feb. 4	360	88	98	874
Electric switch	H. J. Cogswell	692,429	Feb. 4	364	89, 90	98	875
Electric switch	J. and J. Jones, Jr	693,275	Feb. 11	2000	425	98	1235
Electric switch	H. P. Ball and L. Wintner	693,686	Feb. 18	2705	597	98	1402
Electric switch	T. H. Brady	693,995	Feb. 25	3408	750	98	1562
Electric switch	R. C. Moore	694,977	Mar. 11	1236	271	98	1991
Electric switch	C. D. Haskins	695,150	Mar. 11	1566	347	98	2060
Electric switch	N. Marshall	696,179	Mar. 25	3482	780	98	2486
Electric switch	N. Marshall	696,180	Mar. 25	3484	780	98	2486
Electric switch	J. R. Thompson	692,735	Feb. 4	908	208	98	984
Electric switch and spark-blow-out mechanism. Combined	C. F. Butte	692,005	Jan. 28	3093	695	98	695
Electric switch. Automatic	J. H. Spangler	690,787	Jan. 7	813	179 180	98	172
Electric switches. Independent operating means for	W. J. Carter	690,833	Jan. 7	894	198	98	189
Electric time-switch	B. Cruvellier	691,360	Jan. 21	1906	428 429	98	432
Electric traction	E. Cantono	692,236	Feb. 4	36	8	98	806
Electric traction. Electromechanical device for	C. M. J. (dit Claudius) Limb	691,473	Jan. 21	2099	470 471	98	472
Electric-traction system	F. R. M. Cutcheon	693,841	Feb. 25	3079	679	98	1497
Electric-transformer current-regulator	E. D. and H. N. Speer	693,916	Feb. 25	3257	713	98	1529
Electric-wire conduit	S. Gleizes	696,169	Mar. 25	3463	776	98	2483
Electrical circuits. Device for closing and interrupting	J. Coates	691,600	Jan. 21	2323	522	98	516
Electrical condensers. Manufacture of	E. Thomson	691,675	Jan. 21	2467	553	98	548
Electrical condensers. Manufacture of	T. J. Donovan and E. G. Alderson	695,868	Mar. 18	2841	645	98	2340
Electrical conductors. Junction-sleeve for	R. M. Thomas	694,806	Mar. 4	903	201	98	1908
Electrical conduits. Outlet member for	C. H. McEvoy	692,890	Feb. 11	1222	270	98	1076
Electrical connecting-cord	G. B. Thomas	696,213	Mar. 25	3547	793	98	2199
Electrical connector	W. J. Gavigan	696,257	Feb. 11	1960	428	98	1229
Electrical device for the treatment of diseases	C. J. Springer	693,355	Feb. 11	2146	471 472	98	1267
Electrical distributer							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Electrical-distribution system	E. B. W. Reichel	692,348	Feb. 4	232	56	98	846
Electrical-distribution system	J. S. Peck	695,944	Mar. 25	2994	677	98	2385
Electrical-distribution system	N. W. Storer	695,962	Mar. 25	3026	686	98	2391
Electrical generating-machine	J. N. Phifer	692,901	Feb. 11	1245	276	98	1081
Electrical machines. Winding for	B. G. Lamme	692,022	Jan. 28	8127	704	98	699
Electrical press	O. Kammerer	696,053	Mar. 25	3203	734	98	2428
Electrical switch	C. J. Kintner	691,780	Jan. 28	2691	604	98	614
Electrical switch	R. L. Border	695,440	Mar. 18	2065	465, 466	98	2182
Electrical switch mechanism	H. Krantz	693,550	Feb. 18	2536	556	98	1365
Electrical-transmission system	F. Bedell	695,529	Mar. 18	2228	504	98	2215
Electrically-heated apparatus	V. Monath	693,144	Feb. 11	1725	378	98	1179
Electrically-operated switch	E. V. R. Ketchum	695,563	Mar. 18	2308	522	98	2231
Electricity-meter. Electrolytic	C. O. Bastian	693,216	Feb. 11	1906	413	98	1215
Electrode envelop. Battery-	E. A. Sperry	696,209	Mar. 25	3534	791	98	2496
Electrode for accumulators with constant electrolyte. Positive	E. W. Jungner	692,296	Feb. 4	141	.....	98	827
Electrode for purifying liquids by electrolysis	W. R. Chipman	694,983	Mar. 4	1145	.....	98	1954
Electrode. Secondary-battery	A. H. Bainville	696,157	Mar 25	3440	772	98	2478
Electrodeposition. Forming bodies by	C. Steinweg	693,918	Feb. 25	3241	714	98	1528
Electrolytic cell	E. A. Le Sueur	692,531	Feb. 4	562	132	98	913
Electrolytic process	J. Meurant	694,658	Mar. 4	617	.....	98	1843
Electrolytic solution	O. Meyer	691,158	Jan. 14	1468	.....	98	320
Electromagnet apparatus	D. Perret	694,778	Mar. 4	857	189	98	1893
Electromagnetic apparatus	F. B. Cook	695,589	Mar. 18	2253	509	98	2220
Electromagnetic engine	P. B. Watson	695,253	Mar. 11	1750	387	98	2098
Electromotive force. Regulation of rotary-converter.	B. G. Lamme	692,021	Jan. 28	8125	704	98	699
Elevating and controlling mechanism	J. F. Hardy	694,637	Mar. 4	575	126, 127	98	1894
Elevator: *See* Electric elevator. Hay-elevator. Inclined elevator. Mining-elevator. Water-elevator.							
Elevator	E. R. Gill	690,944	Jan. 14	1068	244	98	242
Elevator	F. E. Herdman	692,286	Feb. 4	125	29, 30	98	824
Elevator	F. Heizer	694,964	Mar. 11	1211	264, 265	98	1985
Elevator	W. J. O'Byrne	695,334	Mar. 11	1893	421	98	2125
Elevator and carrier	J. M. Applegate	694,818	Mar. 4	920	205	98	1906
Elevator apparatus	C. Köttgen	691,276	Jan. 14	1289	384	98	367
Elevator-car braking mechanism	O. M. Fritsch	691,617	Jan. 21	2350	531	98	524
Elevator-closing device	W. A. Robinson	693,444	Feb. 18	2314	508	98	1322
Elevator-door	J. Mathews	690,749	Jan. 7	746	166	98	157
Elevator-doors. Means for operating	C. W. Kirsch	692,306	Feb. 4	153	36	98	830
Elevator for granular substances	P. Bédarrides	692,106	Jan. 28	3282	742, 743	98	730
Elevator-gear	W. M. Bainbridge	693,212	Feb. 11	1901	412	98	1214
Elevator-hoisting motors. Controlling mechanism for	H. Rowntree	693,908	Feb. 25	3223	710	98	1525
Elevator or hoist controlling apparatus	A. Sundh	691,824	Jan. 28	2776	625	98	629
Elevator safety appliance	G. Hall	691,310	Jan. 14	1774	403, 404	98	385
Elevator safety attachment	G. F. Joyce	693,027	Feb. 11	1481	324	98	1131
Elevator safety device	H. Rowntree	693,907	Feb. 25	3220	710	98	1524
Elevator safety device	W. H. Wilsey	693,936	Feb. 25	3276	721	98	1535
Elevators. Automatic control system for	B. N. Jones	694,158	Feb. 25	3705	818	98	1622
Elevators. Automatic slack-cable stop mechanism for power-	G. E. Anderson	696,221	Mar. 25	3559	797	98	2501
Elevators. Electropneumatic control system for	A. Sundh	693,184	Feb. 11	1827	398	98	1198
Ellipsograph	O. H. Bonner	695,857	Mar. 18	2982	643	98	2388
Ellipsograph	A. E. Hotchkiss	696,046	Mar. 25	3191	720, 721	98	2426
Embossing and printing machine	P. V. Avril	690,822	Jan. 7	877	198	98	185
Embossing-machine	F. J. Albrecht	690,816	Jan. 7	868	191	98	183
Embossing-machine	F. H. Bancroft	693,362	Feb. 18	2164	476	98	1290
Embossing-press	S. Curtis	695,542	Mar. 18	2257	510, 511	98	2220
Embroidery or ornamental-stitch machine. Automatic	W. N. Parkes	693,666	Feb. 18	2750	606, 607	98	1411
Enameling metal ware	W. Jankowsky	691,268	Jan. 14	1674	381	98	365
End-gate	F. L. Wheatley and S. Steen	691,081	Jan. 14	1259	285	98	277
End-gate	J. Wilcox	693,574	Feb. 4	624	147	98	925
End-gate	C. F. Hupfer	696,340	Mar. 25	3809	849	98	2354
End-gate fastener	W. B. and E. A. Nichols and F. X. Schad.	691,480	Jan. 21	2109	473	98	473
Engine: *See* Air and explosive engine. Compound engine. Electromagnetic engine. Explosive-engine. Fire-engine. Fluid-pressure engine. Gas-engine. Gas, gasolene, or inflammable-vapor engine. Gas or oil engine. Hoisting-engine. Hydrocarbon-engine. Oil-engine. Pulp-refining engine. Pumping-engine. Reciprocating engine. Rotary engine. Rotary explosive-engine. Rotary fluid-engine. Rotary steam-engine. Steam-engine. Toy engine. Traction-engine. Turbine engine.							
Engine	J. C. Blevney	690,511	Jan. 7	278	56	98	60
Engine	W. Scantlebury, Sr	691,005	Jan. 14	1206	273	98	367
Engine	H. H. Buffum	693,782	Feb. 18	2958	652	98	1454
Engine	A. A. and W. L. Darby	695,798	Mar. 18	2728	622	98	2316
Engine	H. N. Motsinger	695,824	Mar. 18	2772	632, 633	98	2325

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Engine-bearing and adjusting means therefor	C. Robinson	691,490	Jan. 21	2130	477	98	478
Engine-boiler	G. E. Hesse	690,426	Jan. 7	74	16	98	19
Engine-brake	E. Y. Moore	694,408	Mar. 4	130	29	98	1740
Engine cross-head	F. D. Holdsworth	692,287	Feb. 4	128	30	98	834
Engine cross-head	F. D. Holdsworth	692,288	Feb. 4	129	30	98	835
Engine cut-off gear. Steam-	W. D. Hooker	692,785	Feb. 4	1001	227	98	1008
Engine igniter. Explosive-	J. T. Metcalfe	691,561	Jan. 21	2243	505, 506	98	508
Engine indicator. Steam-	W. H. Harrison	692,657	Feb. 4	774	177	98	966
Engine indicator. Steam-	A. F. Nagle	695,227	Mar. 11	1707	378	98	2069
Engine indicators. Card for steam-	C. B. Bosworth	691,588	Jan. 21	2302	518	98	514
Engine muffler. Explosive-	C. F. Weeber	692,094	Jan. 28	3268	739	98	728
Engine muffler. Gasolene-	G. L. Reenstierna	692,211	Jan. 28	3474	786	98	770
Engine reversing-gear	G. H. Ebel	695,675	Mar. 18	2509	569, 570	98	2271
Engine-shaft	J. L. Clayland	690,835	Jan. 7	897	199	98	190
Engine speed-regulator. Explosive-	A. L. Kull	690,443	Jan. 7	107	23, 24	98	25
Engine speed-regulator. Explosive-	O. C. Wovries	695,861	Mar. 11	1764	391	98	2101
Engine steering apparatus. Traction-	F. Koons	695,401	Mar. 11	2008	449	98	2150
Engine stop mechanism	T. D. Millea	694,877	Mar. 4	1042	230, 231	98	1009
Engine tender. Traction-	U. A. Shirey	693,074	Feb. 11	1378	344	98	1150
Engine vaporizer. Explosive-	C. O. White	694,708	Mar. 4	710	156	98	1861
Engine vaporizer. Hydrocarbon-	A. Krastin	695,060	Mar. 11	1391	305	98	2088
Engines. Automatic regulator for marine	D. Mahoney	692,161	Jan. 28	3373	763, 764	98	749
Engines. Circuit-breaker for electric igniters for explosive-	F. E. Canda	693,372	Feb. 18	2188	480	98	1295
Engines. Draft-generator for threshing-machine	V. Stoltz	690,789	Jan. 7	817	180	98	173
Engines. Electric igniter for gas-	F. Burger	694,250	Feb. 25	3867	857	98	1654
Engines. Electric igniter for gas	V. G. Apple	696,298	Mar. 25	3699	827	98	2531
Engines. Electric igniting apparatus for explosive-	S. F. Neill	694,409	Mar. 4	144	32, 33	98	1743
Engines. Electric igniting device for explosion-	V. G. Apple	696,297	Mar. 25	3697	827	98	2531
Engines. Electric igniting device for explosive-	J. M. Smith	691,498	Jan. 21	2142	481	98	488
Engines. Igniter-controlling mechanism for explosive-	J. Walrath	691,509	Jan. 21	2166	485	98	497
Engines. Igniting apparatus for internal-combustion	G. B. and E. W. Petter	694,186	Feb. 25	3769	832, 833	98	1633
Engines. Liquid-fuel feed for explosive-	A. W. Olds	690,989	Jan. 14	1178	266, 267	98	261
Engines. Oil atomizer and mixer for vapor-	A. D. Page and G. Wood	696,187	Mar. 25	3496	783	98	2488
Engines. Sparking igniter for combustible-vapor	D. P. Clark	692,625	Feb. 4	720	167	98	947
Engines. Sparking igniter for explosive-	G. M. Thompson	692,754	Feb. 4	907	207	98	984
Engines. Sparking igniter for explosive-gas	F. A. Seitz	696,201	Mar. 25	3519	788	98	2496
Engraving-machine	J. H. Martin	695,069	Mar. 11	1410	309, 310	98	2027
Entasisograph	G. Kimbrell	692,147	Jan. 28	3353	759	98	745
Envelop-blanks. Paper sheet for	J. Logan	693,412	Feb. 18	2293	495	98	1311
Envelop. Compartment-	B. F. Johnson	693,649	Feb. 18	2725	601	98	1406
Envelop. Duplex	A. B. Cowles	696,225	Mar. 25	3506	798	98	2502
Envelop-fastening device	F. T. Fernandez	693,696	Feb. 18	2818	619	98	1494
Envelop for holding samples of dress goods	L. Lyon	695,821	Mar. 18	2770	631	98	2394
Envelop gumming and folding machine	T. B. Kendell	692,016	Jan. 28	3111	699	98	696
Envelop-machine	E. Ermold	692,051	Jan. 28	3186	718, 719	98	711
Envelop. Mailing-	A. Haberstroh	693,704	Feb. 18	2829	632	98	1488
Envelop-opener	T. Anderson	694,817	Mar. 4	919	205	98	1906
Envelop pocket attachment	G. P. Herndon	691,767	Jan. 28	2366	508	98	608
Envelop. Return-	T. C. West	690,500	Jan. 7	258	52	98	57
Envelop. Twin	J. Sallade	693,624	Feb. 18	2579	591	98	1396
Escutcheon-plate	J. B. Miller	695,472	Mar. 18	2123	478	98	2198
Espagnolette-lock	J. Meier	695,620	Mar. 18	2418	547	98	2354
Etchings. Reproducing colored original	B. Mannfeld	690,974	Jan. 14	1146		98	255
Evaporating apparatus	J. Mecredy	692,465	Feb. 4	426	100, 101	98	886
Evaporating-pans. Transfer and hinge for	G. A. King	694,874	Mar. 4	1087	229, 230	98	1981
Evaporator	C. L. Wilcox	696,154	Mar. 25	3435	771	98	2478
Evener for gang-plows. Four-horse	J. W. Brown and G. Elick	694,610	Mar. 4	522	116	98	1836
Evener. Four-horse	A. Crosser	692,967	Feb. 11	1496	310	98	1118
Excavating-machine	J. D. Blalock	694,240	Feb. 25	3850	853, 854	98	1650
Excavating mechanism	C. W. Bradshaw	694,244	Feb. 25	3858	855, 856	98	1658
Excavator	W. S. McKinney	692,892	Feb. 11	1229	971	98	1076
Excavator	W. M. Gross	693,366	Feb. 11	1965	431, 432	98	1232
Excavator	J. R. Williams	695,090	Mar. 11	1311	290	98	2007
Excelsior-making machine	J. R. Bate	691,583	Jan. 21	2188	490, 491	98	491
Exercising apparatus	F. Schneider	691,225	Jan. 14	1733	595	98	377
Exercising-machine	A. de Clairmont	695,538	Mar. 18	2252	509	98	2319
Expansion-bolt	S. Wheeler	691,921	Jan. 28	2986	662	98	668
Expansion-bolt	D. W. Bennett	694,345	Mar. 4	9	3	98	1714
Expansion-joint	R. E. Vail	690,797	Jan. 7	831	183	98	175
Explosive-engine	F. D. Sweet	690,481	Jan. 7	205	41	98	44
Explosive-engine	W. J. Pugh	692,071	Jan. 28	3221	727, 728	98	718
Explosive-engine	W., S., and C. Hibbard	694,016	Feb. 25	3448	761	98	1570
Explosive-engine	W. F. Davis	694,948	Mar. 11	1172	256, 257	98	1978
Explosive-engine	W. L. Judson	695,781	Mar. 18	2600	588, 589, 590	98	2289
Explosive-engine. Compound	F. W. Toedt	691,083	Jan. 14	1343	304	98	235
Explosive-engine. Compound	F. W. Toedt	691,084	Jan. 14	1346	304	98	235

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Explosive-engine. Free-piston	W. A. Swan	692,218	Jan. 28	3488	789, 790	98	773
Explosive-engine. Revolving-cylinder	J. D. McFarland, Jr	696,251	Mar. 25	3629	809	98	2513
Explosive fluids. Apparatus for preventing explosions in vessels containing	R. Scheuffgen	695,237	Mar. 11	1722	381	98	2028
Explosive-motors. Cooling	T. Myers	693,529	Feb. 18	2487	546	98	1357
Explosives. Producing	J. Bonnet	695,667	Mar. 18	2495		98	2269
Expressing-press	W. H. Silver	696,204	Mar. 25	3525	789	98	2494
Extension-table	J. Cornell	690,401	Jan. 7	28	6	98	9
Extension-table	E. J. Spink	694,439	Mar. 4	196	43	98	1754
Extension-table. Self-contained	F. E. Allen	695,992	Mar. 25	3078	698, 699	98	2402
Extractor: *See* Cork-extractor. Spike-extractor.							
Eyeglass-frame	F. Weidenfeld	691,996	Jan. 28	3079	692	98	690
Eyeglasses	L. F. Adt	691,345	Jan. 21	1870	421	98	423
Eyeglasses	L. M. Phillips	692,069	Jan. 28	3219	727	98	718
Eyelet	R. L. Ellery	691,850	Jan. 28	2824	633	98	639
Eyeleting-machine	E. L. Sibley	691,012	Jan. 14	1223	276	98	270
Fabric: *See* Knitted pile fabric. Pile fabric.							
Fabric	J. Philipps, H. Lebel, and R. Grimoin-Sanson.	692,029	Jan. 28	3135	.....	98	701
Fabric	J. Mugnier	692,467	Feb. 4	431	101	98	887
Fabric	J. A. Heany	695,103	Mar. 11	1463	325, 326	98	2038
Fabric-cutting machine	J. A. Heany	695,553	Mar. 18	2282	516	98	2225
Fabric-cutting machine	C. Stone	693,922	Feb. 25	3248	715	98	1530
Fabric-cutting-machine feeding device	J. D. Graber	691,462	Jan. 21	2054	.....	98	469
Fabric-stiffening composition	M. Longden	695,403	Mar. 11	2006	450	98	2151
Face-protector	T. R. Weyant	691,426	Jan. 21	2012	450, 451	98	453
Fan	W. J. H. Jones	696,052	Mar. 25	3201	723	98	2428
Fan. Electric	A. G. Critchfield	692,490	Feb. 4	365	90	98	875
Fan or blast regulator	S. C. Davidson	691,609	Jan. 21	2044	527	98	522
Fan or pump. Rotary	N. M. Powell	696,191	Mar. 25	3501	784	98	2489
Fan turn-table. Motor	O. Kuntzen	691,639	Jan. 21	2403	540	98	535
Fare-indicator	V. Weber	691,905	Jan. 28	3074	691	98	690
Fare-register	C. E. Gierding	692,513	Feb. 4	522	123, 124	98	904
Fare-register	J. F. Ohmer, H. Tyler, and W. F. Breidenbach.	694,322	Feb. 25	4067	905, 906	98	1667
Fare-register	H. Hart	695,550	Mar. 18	2273	513, 514, 515	98	2224
Fare-register	W. M. Kelch	694,483	Mar. 4	208	60, 61	98	1769
Fare register and recorder	D. M. Cox	695,633	Mar. 18	2441	551, 552	98	2258
Farm or yard gate	F. R. White	691,222	Jan. 14	1587	362	98	346
Fastener	F. R. White	692,953	Feb. 11	1361	296	98	1105
Fastener	G. W. McGill	691,164	Jan. 14	1482	335, 336	98	324
Fastening device	G. W. McGill	691,165	Jan. 14	1487	336	98	325
Fastening device	C. R. Schlieper	695,628	Mar. 18	2435	550	98	2257
Fastening device	L. A. Casgrain	693,686	Feb. 18	2793	615, 616	98	1420
Fastening-inserting machine	L. A. Casgrain	691,354	Jan. 21	1885	425	98	428
Fastenings. Machine for inserting metallic	A. Huck	693,865	Feb. 25	3132	693	98	1507
Faucet	J. E. O'Lally	695,697	Mar. 18	2548	577	98	2279
Faucet	N. Curtis	696,135	Mar. 25	3386	763	98	2468
Faucet	E. A. Pohlman	691,569	Jan. 21	2258	508	98	505
Faucet and valve	G. A. Soderlund	693,315	Feb. 11	2068	452	98	1250
Faucet. Combination	W. I. Fielding	696,280	Mar. 25	3576	800	98	2504
Faucet connection	F. E. Thompson and F. N. Young	691,881	Jan. 28	2871	646, 647	98	650
Faucet for syrup-bottles. Registering	W. Goebel	696,327	Mar. 25	3789	845	98	2550
Faucet. Measuring	A. Clarkson	693,839	Feb. 25	3077	678	98	1496
Faucet or cock	J. W. Lyon	692,024	Jan. 28	3130	705	98	700
Faucet. Self-closing	G. L. Dale	695,286	Mar. 11	1819	404	98	2111
Feed-bag	E. C. and A. J. Wilharms	691,034	Jan. 14	1263	286	98	278
Feed-cutters. Pneumatic feed-conveyer for	W. B. Campbell	691,439	Jan. 21	2042	457	98	461
Feed-distributer	G. Hoepner	691,627	Jan. 21	2285	536	98	530
Feed-regulating apparatus. Automatic	E. Ording	690,456	Jan. 7	133	28, 29	98	30
Feed roll	C. W. H. Blood	696,307	Mar. 25	3739	835, 836	98	2540
Feed-rolls	A. B. Swope	693,925	Feb. 25	3252	716	98	1530
Feed trough and rack. Combined	F. B. Matthews	695,320	Mar. 11	1871	416, 417	98	2121
Feed-water heater	J. W. Stansfield	692,378	Feb. 4	281	58	98	857
Feed-water heater and condenser	T. Gunning	693,268	Feb. 11	1989	432	98	1243
Feed-water heater and purifier	J. W. Pearce	694,571	Mar. 4	459	99	98	1811
Feed-water purifier	T. W. Moran	695,325	Mar. 11	1878	418	98	2123
Feed-water regulator and high or low water alarm for steam-boilers.	F. Leadbeater	690,445	Jan. 7	111	24	98	26
Feeder. Automatic boiler	C. W. Hunt	690,957	Jan. 14	1108	250	98	248
Feeder. Boiler	W. L. Tobey	693,190	Feb. 11	1848	400	98	1203
Feeder for motor-vehicles. Boiler	H. L. McCoy	690,891	Jan. 7	086	224	98	207
Feeder or elevator. Automatic	W. D. Labadie	693,552	Feb. 18	2528	557	98	1366
Feeder. Steam-boiler compound	C. Reiser	692,073	Jan. 28	3226	728, 729	98	719
Feeding and cleaning attachment. Boiler	N. Curtis	696,226	Mar. 25	3567	799	98	2503
Feeding device. Automatic boiler	F. L. Cross	690,703	Jan. 7	647	141, 142	98	137
Feeding-machine	A. C. Roebuck and F. McMillan	693,158	Feb. 11	1769	388	98	1186
Feeding mechanism. Rotary	S. L. Lamoreux	693,279	Feb. 11	2007	436	98	1236
Feeding-rack							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Felly and tire brace	J. M. Thorne	692,944	Feb. 11	1342	292	98	1102
Fence	D. L. M. Titsworth	691,504	Jan. 21	2157	483	98	494
Fence	F. Lichtfeldt	692,461	Feb. 4	450	99	98	885
Fence	T. F. De Witt	692,901	Feb. 11	1433	311	98	1119
Fence. Farm-	B. F. Zent	694,084	Feb. 25	3573	789 790	98	1595
Fence for chicken-closures. Portable	G. C. Lathrop	694,761	Mar. 4	821	181	98	1895
Fence-jack	L. C. Kelly and C. E. Amspacher	695,734	Mar. 18	2005	591	98	2291
Fence machine. Wire-	H. Martin	694,768	Mar. 4	842	186	98	1890
Fence. Portable cable-anchor	A. L. West	691,425	Jan. 21	2010	450	98	453
Fence-post	J. Pegg	693,061	Feb. 11	1551	338	98	1145
Fence-post	J. J. Boyle	693,582	Feb. 18	2268	575	98	1379
Fence-post	E. M. Bunce	693,947	Feb. 25	3004	725	98	1599
Fence-post anchor	L. Swoverland	692,731	Feb. 4	903	200	98	984
Fence post and brace	L. L. Leslie	693,285	Feb. 11	2015	439	98	1236
Fence-post. Iron	P. Borchers	695,439	Mar. 18	2065	465	98	2162
Fence reel. Wire-	O. Thompson	695,351	Mar. 11	1918	427	98	2131
Fence reel. Wire-	O. Thompson and J. A. Baldridge	695,352	Mar. 11	1919	428	98	2131
Fence tool. Wire-	J. O. Berry	693,818	Feb. 11	1071	241	98	1043
Fence. Wire	C. T. Brown	690,514	Jan. 7	284	57	98	69
Fence-wire tightener	R. A. Winters	696,291	Mar. 25	3665	824	98	2529
Fender: *See* Car-fender. Clod-fender.							
Fender	R. Smith and H. W. Leonhard	693,187	Jan. 28	3490	774	98	759
Fertilizer-distributer	J. S. Kemp	695,912	Mar. 11	1676	372 373	98	2083
Fertilizer, seed, and grain distributer	T. C. Sargeant	692,715	Feb. 4	882	201	98	979
Fiber from stalks. Machine for separating	S. B. Allison	690,817	Jan. 7	860	192	98	184
Fiber. Machine for making wood	G. E. Le Clair	692,208	Jan. 28	3451	780	98	786
Fiber-ware, &c. Indurating	J. Peterson	696,379	Mar. 25	3803		98	2570
Fifth-wheel	S. E. Bangs	696,300	Mar. 25	3703	828	98	2538
Filaments for incandescent electric lamps. Former for	G. C. Webster	694,220	Feb. 25	3823	847	98	1644
File	L. C. McNeal	690,869	Jan. 7	943	211	98	196
File and copy-holder. Combined letter-	W. M. Barger and F. J. Birss	692,971	Feb. 11	1397	305	98	1112
File. Book-	T. A. King	695,814	Mar. 18	2754	627	98	2328
File-cabinet	D. E. Hunter	696,049	Mar. 25	3197	722	98	2457
File. Card-index	W. D. and J. D. Kelly	693,525	Feb. 4	549	129	98	910
File-case	J. A. Hoffman and W. R. Magie	691,628	Jan. 21	2387	537	98	531
File. Letter-	F. McIntyre	693,301	Feb. 11	2046	446	98	1244
File. Newspaper-	W. L. Lambkin	692,153	Jan. 28	3361	761	98	747
File or rasp cutting machine	J. Greene	691,622	Jan. 21	2371	533 534	98	527
File. Paper-	S. F. Beckwith	694,235	Feb. 25	3843	852	98	1648
Filing device for bank-checks, &c	J. H. Rand	691,177	Jan. 14	1508	340	98	229
Filter	C. S. Parker	690,457	Jan. 7	134	29	98	31
Filter	E. M. Knight	690,324	Jan. 7	307	61	98	67
Filter	I. N. Speer	692,377	Feb. 4	280	68	98	857
Filter	C. E. Chamberland	695,375	Mar. 11	1961	438	98	2141
Filter	A. Johnson	696,241	Mar. 25	3596	804 805	98	2508
Filter. Metallurgical	F. H. Long	691,706	Jan. 21	2522	565	98	560
Filter. Oil-	H. B. Wyman	691,835	Jan. 28	2796	626	98	634
Filter. Oil-	H. Sims	694,434	Mar. 4	199	42	98	1753
Filter-press	E. Wernecke	691,080	Jan. 14	1256	284 285	98	277
Filter-strainer	W. Wagner	690,541	Jan. 7	331	67	98	72
Filter. Water-	W. Wagner	690,540	Jan. 7	331	67	98	71
Filtering and regulating device	M. M. Brophy	691,529	Jan. 21	2196	493	98	498
Finger-ring	C. T. Wittstein	694,595	Mar. 4	497	108	98	1818
Fire-alarm apparatus	L. Campbell	692,765	Feb. 4	965	219	98	994
Fire-alarm appliance	D. T. Spring and A. Long	691,197	Jan. 14	1545	349	98	337
Fire-alarm. Explosive	C. E. Buell	693,229	Feb. 11	1924	418	98	1219
Fire-alarm-telegraph repeater	L. G. Woolley	695,777	Mar. 18	2692	600	98	2307
Fire-alarms. Circuit-maker for electric	F. W. Jordan	695,398	Mar. 11	1998	447	98	2149
Firearm	F. K. Young	691,040	Jan. 14	1277	289 290	98	282
Firearm	H. H. Passage	695,485	Mar. 18	2141	483	98	2197
Firearm	H. Angell and T. Berntson	696,294	Mar. 25	3690	825 826	98	2529
Firearm	O. C. Cullen	696,318	Mar. 25	3774	841	98	2547
Firearm. Automatic	R. H. Kjellman and G. L. Andersson	690,739	Jan. 7	732	161 162	98	154
Firearm. Automatic	T. C. Johnson	694,157	Feb. 25	3703	818	98	1622
Firearm. Automatic	T. G. Bennett and W. Mason	695,784	Mar. 18	2690	612 613 614	98	2310
Firearm. Automatic	T. M. Thorsen	696,118	Mar. 25	3347	755	98	2459
Firearm. Breech-loading	D. Hug	691,056	Jan. 14	1304	296	98	287
Firearm. Breech-loading	F. Snyder	694,331	Feb. 25	4091	910	98	1692
Firearm. Breech-loading	M. C. Lisle	695,819	Mar. 18	2705	631	98	2324
Firearm. Magazine-	J. B. Mahana	695,574	Mar. 18	2335	529 530	98	2237
Firearm. Magazine-	S. A. Huntley	695,892	Mar. 18	2877	652 653	98	2348
Firearm-magazine. Registering	A. J. Northcraft	693,665	Feb. 18	2749	606	98	1411
Firearm. Recoil-operated	G. A. Horne	690,955	Jan. 14	1102	249	98	246
Firearm-sight	F. J. Choles	691,242	Jan. 14	1525	371	98	354
Firearm sighting device	W. Youlten	694,904	Mar. 4	1088	240	98	1743
Fire-cracker	A. Delgrande	692,769	Feb. 4	972	220	98	996
Fire-cracker-loading machine	C. B. Bidwell	691,103	Jan. 14	1373	311 312 313	98	301
Fire detector and alarm	F. G. Gaschlin	693,003	Feb. 11	1449	315	98	1125
Fire-door	H. R. Rose	695,175	Mar. 11	1610	357	98	2069

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Fire-door catch	J. W. Tripp	696,214	Mar. 25	3548	793, 794	98	2499
Fire-engine. Stationary chemical	R. B. Sigafoos	692,724	Feb. 4	803	204	98	982
Fire-escape	T. G. Joyce	691,775	Jan. 28	2680	600, 601	98	611
Fire-escape	H. Behrens	691,928	Jan. 28	2950	664	98	665
Fire-escape	R. Barclay	692,191	Jan. 28	3427	776	98	761
Fire-escape	G. Loewenstein	692,684	Feb. 4	833	188, 189	98	970
Fire-escape	T. G. Goodfellow	692,847	Feb. 11	1119	250	98	1053
Fire-escape	A. H. Andrews	693,095	Feb. 11	1619	353, 354	98	1158
Fire-escape	H. Sperling	693,533	Feb. 18	2496	548	98	1359
Fire-escape	J. W. Groff	693,646	Feb. 18	2721	600	98	1405
Fire-escape	J. Frenzel	694,145	Feb. 25	3672	812	98	1616
Fire-escape	F. Kaschewitz and P. Barthel	694,866	Mar. 4	1016	224	98	1927
Fire-escape	J. C. Sharp	695,001	Mar. 11	1275	281	98	1999
Fire-escape	F. Bielhen	695,140	Mar. 11	1550	343	98	2057
Fire-escape	J. Williams	695,775	Mar. 18	2580	608, 609	98	2307
Fire-escape	J. W. Schumacher	696,149	Mar. 25	3430	769	98	2476
Fire-escape and convertible scaffolding. Telescopic	W. E. Monroe	694,771	Mar. 4	846	187	98	1890
Fire-escape tower. Portable	P. MacRae	693,877	Feb. 25	3153	697, 698	98	1511
Fire-extinguisher	J. H. Britton	690,556	Jan. 7	863	74	98	79
Fire-extinguisher	C. F. Brigham	690,633	Jan. 7	510	111	98	110
Fire-extinguisher	R. T. and C. J. Van Valkenburg	695,847	Mar. 18	2814	640	98	2334
Fire-extinguisher. Automatic	H. K. Milner	691,283	Jan. 14	1710	387	98	372
Fire-extinguisher. Automatic	F. Grinnell	691,760	Jan. 28	2655	594	98	605
Fire-extinguishing apparatus	M. H. Hart	691,859	Jan. 28	2936	637	98	642
Fire-extinguishing-system alarm	F. Gray	693,322	Feb. 11	2061	455	98	1252
Fire-harness	F. Holbrook	696,175	Mar. 25	3477	778	98	2485
Fire-hose nozzle	F. W. Wieman	692,571	Feb. 4	619	146	98	924
Fire-kindler	C. Pollard	694,027	Feb. 25	3471	765	98	1575
Fire-lighter block	C. Pollard	696,267	Mar. 25	3648	816	98	2520
Fireplace-heater	T. B. Jackson	694,155	Feb. 25	3700	817	98	1621
Fireplace or hearth. Domestic	W. H. Haslam	696,040	Mar. 25	3184	719	98	2425
Fireproof construction	W. Orr	693,429	Feb. 18	2294	503	98	1317
Fireproof construction	P. F. Brandstedt	694,720	Mar. 4	732	162	98	1866
Fireproof covering for frame structures	R. Heilmann	695,722	Mar. 18	2579	583	98	2285
Fireproof floor	O. Hoff	691,466	Jan. 21	2089	468	98	470
Fireproof floor	G. Knoche	692,309	Feb. 4	159	37, 38	98	831
Fireproof flooring	J. B. Hinchman	694,881	Mar. 4	82	19	98	1728
Fireproof grain-bin	F. R. McQueen	692,894	Feb. 11	1233	272, 273	98	1078
Fireproof shutter	J. E. Guild	691,761	Jan. 28	2656	594, 595	98	605
Fireproof window	L. D. Biersach	690,892	Jan. 7	15	3	98	6
Fireproof window	F. Voigtmann and S. H. Pomeroy	691,211	Jan. 14	1565	356	98	341
Fireproof window. Self-closing	F. D. Swaney	690,535	Jan. 7	332	65	98	70
Fireproofed wood and making same	J. L. Ferrell	695,678	Mar. 18	2516	.....	98	2278
Fireproofing compound and making same	J. L. Ferrell	695,679	Mar. 18	2517	.....	98	2278
Fireproofing preservatives, &c. Impregnating wood with	J. L. Ferrell	695,450	Mar. 18	2362	470	98	2166
Fireproofing wood	K. Rücker	691,812	Jan. 28	2755	.....	98	625
Fire-resisting partition, wall, &c	W. Seefels	694,563	Mar. 4	472	102	98	1813
Fires. Cellar-pipe for extinguishing	M. H. Hart	691,858	Jan. 28	2834	637	98	641
Fish-cutting table	E. M. Lawrence	692,866	Feb. 11	1151	257	98	1060
Fish handling, draining, and displaying device	E. H. Snyder	691,918	Jan. 28	2933	661	98	662
Fish-hook	J. B. Hall	693,269	Feb. 11	1990	433	98	1233
Fish-hook	B. Edgar	696,018	Mar. 25	3138	708	98	2414
Fish-hook. Trap	G. H. Doering	696,013	Mar. 25	3129	706	98	2412
Fish-plates in the process of manufacture. Apparatus for cooling	R. B. Charlton	691,855	Jan. 21	1895	426	98	429
Fish-reel	W. S. Sutton	693,459	Feb. 18	2352	515	98	1329
Fish-trap	A. E. Zangenberg	690,507	Jan. 7	273	55	98	59
Fish-trap	E. W. Livermore	692,057	Jan. 28	3199	722	98	714
Fishing-float	A. N. Pacetty	691,407	Jan. 21	1987	445	98	449
Fishing-reel	F. J. Rabbeth	691,073	Jan. 14	1331	300	98	292
Fishing-rod	B. Lyon	692,884	Feb. 11	1212	269	98	1074
Flash-lamp	A. R. Farmer	693,694	Feb. 18	2815	619	98	1424
Flash-light cartridge	K. Rendschmidt	696,270	Mar. 25	3053	.....	98	2521
Flash-light gas-burner	D. Ward	695,014	Mar. 11	1304	288	98	2005
Flash-light lamp. Photographic	J. L. Zweck	690,508	Jan. 7	274	55	98	60
Flashing apparatus. Revolving group	A. Brebner	695,371	Mar. 11	1957	430	98	2140
Flat-iron	H. C. Stiefel	692,556	Feb. 4	506	140	98	919
Flax-treating machine	J. T. Smith	692,986	Feb. 11	1323	288, 289	98	1008
Flier	F. A. Meller	694,876	Mar. 4	1041	230	98	1932
Flier	J. J. McOaker	694,884	Mar. 4	1055	233	98	1935
Float-gage	H. P. Tauber	696,280	Mar. 25	3057	820	98	2524
Float. Glass	J. M. Burr	691,580	Jan. 21	2197	494	98	493
Float-stringer	W. T. Jones	692,671	Feb. 4	811	183	98	965
Floats for steam or water traps. Forming	W. F. Patton	691,803	Jan. 28	2758	618	98	621
Flood-gate dam or weir	M. Carstanjen	692,619	Feb. 4	714	165	98	945
Floor and ceiling construction	J. Schratwieser	690,621	Jan. 7	489	105	98	105
Floor-cloth. Machinery for use in the manufacture of mosaic or inlaid	E. Batten	694,283	Feb. 25	3839	851	98	1647
Floor. Concrete	P. V. Parsy	692,541	Feb. 4	579	135	98	916
Floor construction	J. W. Rapp	690,600	Jan. 7	468	99, 100	98	99
Floor-covering	M. Barnett	691,434	Jan. 21	2082	455	98	458
Floor-covering. Elastic	J. Coomber	692,242	Feb. 4	46	10	98	808
Floor-treating machine	F. Raasch and J. W. Krueger	694,077	Feb. 25	3564	786	98	1594
Floor washing, scrubbing, and cleansing apparatus	J. E. Gee	695,043	Mar. 11	1364	300	98	2015

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Floors, &c. Machinery for the manufacture of coverings for	W. F. Graham	691,251	Jan. 14	1600	378	98	302
Flooring-set	J. D. Murphy	695,284	Mar. 11	1708	377, 378	98	2088
Flour. Aging and bleaching	J. and S. Andrews	693,207	Feb. 11	1890	408	98	1211
Flour from sweet potatoes. Making	E. Straus	696,088	Mar. 25	3270	740	98	2441
Flour screen or bolter brush	J. G. Peterson	690,994	Jan. 14	1187	260	98	253
Flow-preventer	N. Carter	692,620	Feb. 4	716	165	98	946
Flue-cleaner	A. A. Hull	691,057	Jan. 14	1307	296	98	248
Flue-cleaner	C. S. Goodfellow	691,718	Jan. 21	2540	568	98	564
Flue for conducting fumes	C. M. Johnson	691,773	Jan. 28	2678	600	98	611
Fluid-pressure brake. Automatic	W. H. Clarke	693,949	Feb. 25	2300	725	98	1589
Fluid-pressure engine	C. Robinson	695,947	Mar. 25	2908	678, 679	98	2886
Fluid-pressure regulator	H. F. Smith	693,170	Feb. 11	1790	392	98	1191
Fluid-reservoirs. Safety device for use in filling	J. F. Hardy	695,929	Mar. 25	2966	671, 672	98	2380
Fluid under pressure. Means for transmitting	W. S. Halsey	693,516	Feb. 18	2458	589	98	1352
Fluids. Apparatus for electrically dispersing	J. F. Cooley	692,681	Feb. 4	727	168	98	948
Fluorin-producing apparatus	M. Meslans	692,688	Feb. 4	889	190	98	971
Flush tank and valve	J. F. Rodgers	692,797	Feb. 4	1096	253	98	1008
Flushing apparatus	J. Burgum	692,611	Feb. 4	702	162, 163	98	943
Flushing apparatus	P. F. Glackin	694,629	Mar. 4	559	122	98	1831
Flushing-tank. Automatic	P. F. Glackin	694,627	Mar. 4	556	122	98	1830
Flushing-tank handle or pull	O. Bernz	692,107	Jan. 28	2288	743	98	731
Fly-killer	I. H. Ames	695,189	Mar. 11	1627	361	98	2073
Fly-paper. Sticky	E. F. Baker	693,536	Feb. 18	2508	551	98	1360
Fly-screen	F. D. Bentley	692,501	Feb. 4	496	115	98	899
Fly-trap	Z. E. Drake and J. C. Semple	690,566	Jan. 7	382	79	98	83
Fly-wheel	C. Robinson	691,491	Jan. 21	2131	477	98	479
Flying-machine wing	W. J. Bell	693,943	Feb. 25	3286	723	98	1537
Fodder-shredder head	A. W. Berger	692,601	Feb. 4	682	159	98	958
Foldable box	C. B. Proctor	692,070	Jan. 28	3219	727	98	718
Folding and wrapping machine	S. Elliott	696,021	Mar. 25	3141	708, 709, 710	98	2415
Folding box	J. J. McCormick	690,454	Jan. 7	131	28	98	30
Folding box	Z. B. Webb	690,496	Jan. 7	248	50	98	54
Folding box	Z. B. Webb	690,497	Jan. 7	249	50	98	54
Folding box	Z. B. Webb	690,498	Jan. 7	250	51	98	54
Folding box	J. T. Ferres	691,458	Jan. 21	2080	466	98	468
Folding box	Z. B. Webb	692,561	Feb. 4	607	143	98	922
Folding box	Z. B. Webb	692,562	Feb. 4	608	143	98	922
Folding box	Z. B. Webb	692,563	Feb. 4	609	143	98	923
Folding box	Z. B. Webb	692,564	Feb. 4	610	144	98	923
Folding box	J. F. McGowan	695,073	Mar. 11	1417	311	98	2029
Folding box	C. F. Keller	695,211	Mar. 11	1676	372	98	2082
Folding box	A. McDonald	693,981	Feb. 25	3380	743	98	1556
Folding case or crate	F. D. La Coursiere and J. B. Steffen	694,163	Feb. 25	3716	820	98	1624
Folding chair	S. M. Snook	691,194	Jan. 14	1535	347	98	335
Folding table	C. A. Batchelder	690,689	Jan. 7	618	135	98	131
Follower. Hinged split	W. J. Howard	692,667	Feb. 4	800	.....	98	963
Food products and preparing same	E. Truxall	692,169	Jan. 28	3381	766	98	751
Foot-guard	G. P. Clark	692,626	Feb. 4	722	167	98	947
Foot-propelling device	F. G. Smedley	692,080	Jan. 28	3248	734	98	728
Foot-rest	J. T. Cole	690,886	Jan. 7	808	190	98	190
Foot-warmer	W. Jochimsen	693,400	Feb. 18	2245	492	98	1307
Footwear. Extension-	W. E. Canedy	693,838	Feb. 25	3070	678	98	1496
Forge chimney. Blacksmith's-	E. P. Alexander	692,587	Feb. 4	658	154, 155	98	983
Forging axes, &c. Press for	H. A. Williams	695,964	Mar. 25	3063	604, 605	98	2389
Forging horseshoe-nails, &c. Machine for	S. Vanstone	694,808	Mar. 4	905	201, 202	98	1908
Forging-machine	N. Schietkiewics	695,583	Mar. 18	2349	533	98	2240
Fork: *See* Hay-fork. Sheaf-fork.	F. W. Darlington	690,405	Jan. 7	33	8	98	10
Foundations. Preparing	E. Oldenbusch	695,229	Mar. 11	1712	379	98	2090
Fountain: *See* Drinking-fountain. Water-fountain. Soda-water fountain.	J. H. Killion	694,755	Mar. 4	801	178	98	1861
Fountain	F. L. Whitmore	691,513	Jan. 21	2174	486, 487	98	488
Frame: *See* Quilting-frame. Spool-holding frame.	H. B. Ruggles	692,362	Feb. 4	256	62	98	852
Frame	G. W. Starrett	693,753	Feb. 18	2900	640	98	1444
Framing or other purposes. Ornamental stock for	W. A. Cates	690,834	Jan. 7	896	198, 199	98	189
Friction-brake	J. D. Carter	691,595	Jan. 21	2316	521	98	517
Fruit-brusher	J. A. Donald and H. L. Bussey	691,366	Jan. 21	1916	430	98	420
Fruit-clipper	T. Drynan	690,567	Jan. 7	268	79	98	88
Fruit-drier	I. Beck	693,775	Feb. 18	2948	649	98	1451
Fruit-gatherer	H. Ellsworth	693,836	Feb. 11	1104	247	98	1050
Fruit-jar and cover	E. Harter	691,376	Jan. 21	1961	434	98	436
Fruit or flower picker	M. L. Bratton	693,605	Feb. 4	686	160	98	940
Fruit or vegetable cutter	F. A. Reynolds	695,233	Mar. 11	1715	380	98	2090
Fruit-picker	R. C. Carpenter	691,337	Jan. 14	1855	419	98	405
Fruit-picking sack	R. C. Carpenter	691,336	Jan. 14	1852	419	98	404
Fuel compressor. Artificial-	R. Steiner	695,348	Mar. 11	1915	.....	98	2120
Fuel-feed. Burner	E. Springborn	690,868	Jan. 7	962	.....	98	206
Fuel-feeding apparatus. Fine-	W. A. Hesse	690,576	Jan. 7	397	82	98	86
Fuel. Feeding fine							
Fuel. Making artificial							
Fuel. Manufacture of artificial							
Funnel attachment							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Furnace: *See* Annealing-furnace. Billet-heating furnace. Blast-furnace. Boiler-furnace. Brick and kiln furnace. Glass-pot furnace. Heating-furnace. Hot-air furnace. Ingot-heating furnace. Liquid-heating furnace. Melting-furnace. Ore-roasting furnace. Portable furnace. Puddling-furnace. Puddling or boiling furnace. Roasting-furnace. Roasting, smelting, and matting furnace. Smelting-furnace. Smoke-burning furnace. Smoke-consuming furnace. Zinc-furnace.							
Furnace	E. Bennis	691,100	Jan. 14	1868	{310 311}	98	900
Furnace	J. G. Geiges	692,439	Feb. 4	379	93	98	878
Furnace	T. V. Allis	693,771	Feb. 18	2943	647	98	1450
Furnace	S. T. Bleyer	694,241	Feb. 25	3852	854	98	1650
Furnace	H. Sturm	695,084	Mar. 11	1482	{315 316}	98	2082
Furnace	C. W. Stauss	695,508	Mar. 18	2173	491	98	2303
Furnace	A. J. F. Miller	695,750	Mar. 18	2686	598	98	2297
Furnace	J. Ward	695,975	Mar. 25	3047	691	98	2396
Furnace	B. A. Franklin	695,604	Mar. 18	2384	540	98	2247
Furnace-charging apparatus	D. Baker	696,129	Mar. 25	3367	760	98	2464
Furnace-charging mechanism. Blast-	A. B. Neumann	692,698	Feb. 4	855	{195 196}	98	974
Furnace-feeding mechanism. Blast-	S. C. Collin	692,240	Feb. 4	42	9, 10	98	807
Furnace flue connection	E. M. Hugentobler	690,451	Jan. 7	84	18, 19	98	21
Furnace for burning bituminous coal	E. M. Hugentobler	690,452	Jan. 7	89	20	98	22
Furnace for burning bituminous coal	F. L. Bartlett	692,973	Feb. 11	1400	308	98	1113
Furnace for refining lead and zinc fume	F. N. Spear. (Reissue)	11,964	Jan. 28	3501	792	98	776
Furnace fuel-feeder	W. G. Stones	691,961	Jan. 28	3052	695	98	695
Furnace fuel-feeding attachment	F. Burger and H. M. Williams	693,829	Feb. 25	3060	675	98	1403
Furnace fuel-feeding mechanism	F. Girtanner	692,963	Feb. 4	90	21, 22	98	817
Furnace grate and stoker	R. Mitchell	693,880	Feb. 25	3164	699	98	1513
Furnace grate. Boiler-	T. Westerby and W. G. Crosthwaite	693,634	Feb. 18	2702	596	98	1402
Furnace grate. Boiler or other	J. C. McDonald and M. Brennan	695,757	Mar. 18	2642	600	98	2299
Furnace-grate-raking device	R. S. Pollard	694,998	Mar. 11	1255	274	98	1995
Furnace snort-valves. Device for operating blast-	G. G. Crawford	693,240	Feb. 11	1945	423	98	1224
Furnace-valve and dust-catcher	L. Lincoln	691,474	Jan. 21	2101	{471 472}	98	472
Furnaces. Apparatus for controlling iron in blast-	C. Voet	691,679	Jan. 21	2476	555	98	550
Furnaces. Apparatus for supplying air to steam-generator	E. Bennis	691,232	Jan. 14	1604	367	98	350
Furnaces. Apparatus for supplying fuel to	D. H. Darrin and E. McLean	690,931	Jan. 14	1065	{239 240}	98	239
Furnaces. Automatic heat-controller for steam-boiler	W. J. Foster	696,234	Mar. 25	3784	843	98	2549
Furnaces. Circulating water through the twyers and coolers of blast-	T. V Allis	693,819	Feb. 18	3081	669	98	1468
Furnaces. Feeding packs of thin metal strips from heating-	J. W. Stock	691,672	Jan. 21	2464	552	98	548
Furnaces of steam-boilers, &c. Draft apparatus for	J. A. Dyblie	691,251	Jan. 14	1689	{374 375}	98	357
Furnaces. Reversing-valve for heating-	M. and J. Haut	696,286	Mar. 25	3583	802	98	2506
Furniture. Combination	F. L. Forster	692,058	Jan. 28	3189	720	98	711
Furniture-joint. Knockdown or separable	G. F. Wullen	696,293	Mar. 25	3687	825	98	2529
Furniture. Upholstered	N. Harris and J. Bray	694,271	Feb. 25	3918	870	98	1646
Fuse. Blasting-	C. J. Dorsey	694,912	Mar. 4	1104	248	98	1945
Fuse cut-out. Plural-							
Gage: *See* Axle-gage. Caliper-gage. Cutter-head-setting gage. Dental gage. Float-gage. Micrometer-gage. Razor-gage. Scissors-gage. Sewing-machine gage. Shingle-gage. Siding-gage.							
Gage	P. C. Smith	690,580	Jan. 7	315	63	98	68
Gage	C. M. Sears	693,744	Feb. 18	2898	687	98	1441
Galter	W. Lanz	694,164	Feb. 25	3719	821	98	1625
Galvanic battery	W. Erny	690,710	Jan. 7	667	147	98	140
Galvanic battery or pile	C. J. Reed and M. T. Morrill	690,770	Jan. 7	779	173	98	165
Galvanic battery. Reversible	T. A. Edison	692,507	Feb. 4	502	{117 118}	98	901
Game	J. D. Canale	692,617	Feb. 4	711	165	98	945
Game	G. W. Winckfield	694,509	Mar. 4	315	71	98	1779
Game	E. E. Graves	695,386	Mar. 11	1976	{442 443}	98	2145
Game	F. F. Esser	695,919	Mar. 25	2954	669	98	2378
Game	E. Loyer	695,572	Mar. 18	2333	528	98	2237
Game and library table	D. Smith	694,799	Mar. 4	896	199	98	1901
Game apparatus	R. J. Graham	695,303	Mar. 11	1553	412	98	2117
Game apparatus	W. H. Atwood	695,451	Mar. 18	2049	461	98	2179
Game apparatus	W. H. Hoyt	690,861	Jan. 7	936	209	98	197
Game-ball	W. H. Hoyt	696,153	Mar. 11	1573	349	98	2062
Game-ball and making same	E. F. Woodside	693,478	Feb. 18	2396	524	98	1339
Game-board	E. Lasker	690,656	Jan. 7	555	121	98	119
Game device	H. B. Sabin	695,949	Mar. 25	3008	679	98	2387
Game or other board folding support	R. F. Downey	693,382	Feb. 18	2205	484	98	1290
Game-table	R. F. Downey	694,463	Mar. 4	240	52	98	1768
Game-table cushion	P. F. De Ford	693,821	Feb. 18	3085	670	98	1469
Games of chance. Device for playing	H. P. Berck	695,425	Mar. 11	2028	457	98	2156
Garbage or ash cans. Tipping shelf for the preservation of							
Garment-clasp	B. F. Orewiler	690,990	Jan. 14	1180	267	98	962

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Garment-closure	C. B. Howd	695,395	Mar. 11	1908	446	98	2148
Garment-fastener	I. S. Pierce	695,341	Mar. 11	1908	424	98	2128
Garment-fastener	M. E. Dunn and O. B. Henderson	696,298	Mar. 25	3571	799	98	2506
Garment-fitter	E. P. Follett	692,510	Feb. 4	506	118 119	98	902
Garment-hanger	M. H. Bushnell and B. F. Starsky	692,112	Jan. 28	2291	745	98	732
Garment-hanger	L. S. White	695,019	Mar. 11	1310	290	98	2005
Garment-hanger	B. F. Carey	696,005	Mar. 25	3104	708	98	2407
Garment-hanger	W. D. Ashworth	691,578	Jan. 21	2270	510	98	508
Garment-stretcher	H. Anderson	692,101	Jan. 28	2277	741	98	729
Garment-stretcher	W. J. Grotenhuis	695,924	Mar. 25	2951	670	98	2379
Garment-stretcher	W. F. Pardee and E. Bloomer	693,618	Feb. 18	2064	588	98	1393
Garment-support	E. W. Carter	690,635	Jan. 7	513	112	98	110
Garment-supporter	J. S. Dorsey	692,122	Feb. 11	1657	397	98	1171
Garment-supporter	S. S. Conant	694,253	Feb. 25	3397	860	98	1657
Garment-supporter	O. Warlich	695,511	Mar. 18	2186	494	98	2306
Garment-supporter	J. B. Mahana and A. I. Robbins	692,160	Jan. 28	3371	763	98	749
Garment-supporter clasp	S. S. Singer	696,395	Mar. 25	3526	789	98	2494
Garment-supporter clasp	G. M. Wilson	693,678	Feb. 18	2780	612	98	1417
Gas and caustic soda from common salt. Machine for producing chlorin	G. F. Jaubert	691,058	Jan. 14	1908	.....	98	296
Gas and producing same. Pastil for making oxygen	I. L. Neely	690,986	Jan. 14	1171	365	98	360
Gas and water separator	J. S. McGinn	692,891	Feb. 11	1224	270 271	98	1076
Gas apparatus. Acetylene	F. Logan	692,685	Feb. 4	855	189	98	970
Gas apparatus air-pump	H. Sue	695,125	Mar. 11	1580	337	98	2049
Gas. Apparatus for charging liquids with carbonic-acid	R. Dempster	692,771	Feb. 4	975	220 221	98	996
Gas. Apparatus for the manufacture of illuminating	C. W. Isbell	693,137	Feb. 11	1713	375	98	1177
Gas. Apparatus for the manufacture of illuminating	W. J. Smart	690,471	Jan. 7	172	36	98	38
Gas-burner	E. J. Dolan	692,254	Feb. 4	69	15	98	813
Gas-burner	J. Crane, Jr	693,590	Feb. 18	2516	578	98	1393
Gas-burner	H. S. Campbell	693,599	Feb. 25	3072	678	98	1495
Gas-burner	P. Kries	694,287	Feb. 25	3047	679	98	1671
Gas-burner	B. M. Hanna	694,746	Mar. 4	788	173	98	1878
Gas-burner. Bunsen	P. H. McDermott	695,111	Mar. 11	1478	329	98	2041
Gas-burner controller	C. A. Bluhm	694,824	Mar. 4	985	208	98	1910
Gas-burner. Incandescent	A. P. Griffin	692,441	Feb. 4	385	93	98	878
Gas-burner mantle-holder	C. A. Haas	690,573	Jan. 7	398	81	98	85
Gas-burner pressure-regulator. Automatic	W. and I. Glou	693,352	Feb. 11	2143	470	98	1266
Gas-burner. Self-closing	M. C. Gilbert	695,637	Mar. 18	2446	553	98	2259
Gas-burner valve	M. I. Cohen	695,797	Mar. 18	2795	621	98	2315
Gas-burner valve-locking mechanism	F. Quatram	690,606	Jan. 7	457	98	98	98
Gas-burners. Mantle-holder for incandescent	O. Freymann and C. Tolman	692,007	Jan. 28	3006	696	98	698
Gas-detector	C. Robinson	691,489	Jan. 21	2128	476 477	98	478
Gas-engine	H. Junkers	694,552	Mar. 4	436	92	98	1802
Gas engine	S. A. Freeman and C. E. Throop	694,735	Mar. 4	770	171	98	1874
Gas-engine	A. W. Clayden	694,090	Feb. 25	3592	792 793	98	1597
Gas, gasolene, or inflammable-vapor engine	P. Willemain	696,219	Mar. 25	3557	796	98	2501
Gas-generating apparatus. Building containing acetylene	R. A. Kummer	694,288	Feb. 25	3049	879	98	1671
Gas-generator	J. J. Hendler	690,425	Jan. 7	78	16	98	18
Gas generator. Acetylene	J. H. Ross	690,773	Jan. 7	784	174	98	166
Gas generator. Acetylene	W. W. Cozins	691,357	Jan. 21	1899	427	98	480
Gas generator. Acetylene	K. G. Gustafsson	691,855	Jan. 28	2951	640	98	641
Gas generator. Acetylene	E. Björnrud	691,890	Jan. 28	2992	651	98	654
Gas generator. Acetylene	A. Myers	691,959	Jan. 28	3012	676	98	678
Gas generator. Acetylene	H. L. Salisbury	692,213	Jan. 28	3479	786 787	98	772
Gas generator. Acetylene	G. W. Collin	692,239	Feb. 4	40	9	98	807
Gas generator. Acetylene	C. W. Caldwell	693,614	Feb. 4	706	163 164	98	944
Gas generator. Acetylene	E. N. Dickerson	692,698	Feb. 4	741	171	98	951
Gas generator. Acetylene	A. L. Towne and E. F. Clough	692,738	Feb. 4	914	209	98	985
Gas generator. Acetylene	E. L. Weil and T. W. Evans	692,745	Feb. 4	924	210 211	98	987
Gas generator. Acetylene	M. T. Stevens	693,078	Feb. 11	1585	346	98	1151
Gas generator. Acetylene	A. C. Einstein	693,248	Feb. 11	1957	425	98	1227
Gas generator. Acetylene	E. F. Mackusick	693,293	Feb. 11	2004	443 444	98	1242
Gas generator. Acetylene	L. T. Stephenson	694,567	Mar. 4	477	103 104	98	1814
Gas generator. Acetylene	J. Harris	694,916	Mar. 4	1114	245 246	98	1948
Gas generator. Acetylene	J. E. Reynolds	695,233	Mar. 11	1717	380	98	2091
Gas generator. Acetylene	M. J. Erk	696,229	Mar. 25	3573	900	98	2508
Gas generators. Carbid-cartridge for acetylene	E. F. Mackusick	692,322	Feb. 4	187	43	98	838
Gas-governor	J. Zander	691,429	Jan. 21	2019	451	98	455
Gas-holder	E. F. Mackusick	693,292	Feb. 11	2081	442 443	98	1241
Gas-igniter	T. B. Wilcox	694,902	Mar. 4	1085	239	98	1942
Gas-ignition device. Automatic	P. Lehmann	691,280	Jan. 14	1696	396	98	369
Gas-lighter	R. E. Jähnig	695,728	Mar. 18	2595	587	98	2289
Gas-lighter. Electric	C. A. E. Ruebel	696,106	Mar. 25	3330	751	98	2455
Gas-lighting device	A. Bachner	692,589	Feb. 4	662	155	98	984
Gas-mantle. Incandescent	K. V. Moran	692,692	Feb. 4	845	192	98	973
Gas. Manufacturing	L. G. Harris	693,008	Feb. 11	1455	316	98	1195
Gas or fluid check. Adjustable	H. C. Danforth	693,116	Feb. 11	1677	364	98	1169
Gas or oil engine. Internal-combustion	E. Thomson	691,017	Jan. 14	1222	278	98	273
Gas or other burners. Apparatus for supplying air or other combustion-supporting substance to	T. J. Litle, Jr	692,083	Feb. 4	880	198	98	969
Gas or vapor burner	H. H. Lytle	696,061	Mar. 25	3219	727	98	2431

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Dr'g.	Official Gazette. Vol.	Page.
Gas or vapor burner and stove. Hydrocarbon	D. W. Bowman and J. N. Clouse	692,110	Jan. 28	3366	744	98	728
Gas proportioning and mixing apparatus	H. Pettibone	696,107	Mar. 25	3327	750	98	2455
Gas-purifier	A. D. Williamson	692,399	Feb. 4	314	76	98	885
Gas-purifier	J. S. Donohue	695,875	Mar. 18	2937	650	98	2346
Gas-regulator	F. Schick	691,186	Jan. 14	1592	343	98	339
Gas-retort stand-pipes. Apparatus for cleaning	J. H. Taussig	694,443	Mar. 4	304	45	98	1756
Gas-retort stopper. Inclined-	A. F. P. Hayman	691,940	Jan. 28	2976	669	98	670
Gas-separator	M. L. and W. D. Warner	693,763	Feb. 18	2926	644	98	1448
Gas-separator for digesters	C. W. Mills	691,958	Jan. 28	3011	676	98	677
Gas-valve. Automatic	C. Koshalko	691,784	Jan. 28	2702	607	98	615
Gas-valve. Automatic safety	J. M. Wescott and C. B. Smith	692,172	Jan. 28	3357	758	98	752
Gases. Apparatus for cooling and cleaning blast-furnace	B. H. Thwaite	690,796	Jan. 7	828	182	98	175
Gases. Apparatus for saturating liquids with	J. B. Weis and L. C. Anderson	694,081	Feb. 25	3569	788	98	1594
Gasket	J. W. McAuliffe	696,188	Mar. 25	3490	781	98	2457
Gasolene-burner	W. C. Rand	690,608	Jan. 7	459	99	98	99
Gate: *See* Car-gate. Mine-gate. End-gate. Road-gate. Farm or yard gate. Railway-gate. Flood-gate.							
Gate	W. R. Snyder	690,667	Jan. 7	574	125	98	123
Gate	A. J. and W. H. Russell	691,409	Jan. 21	1989	446	98	449
Gate	A. Clay	693,785	Feb. 18	2962	653	98	1454
Gate	T. L. Patrick and L. Sprague	693,898	Feb. 25	3205	707	98	1592
Gate	J. Fusselman	695,101	Mar. 11	1460	324	98	2087
Gate	R. H. Berkstresser	695,581	Mar. 18	2285	505	98	2216
Gate	P. C. Forrester	695,714	Mar. 18	2568	581	98	2283
Gate	J. R. Clark	696,168	Mar. 25	3452	773	98	2481
Gate	J. T. Newdigate	696,256	Mar. 25	3628	811	98	2515
Gate	A. Edwards	692,996	Feb. 11	1440	312	98	1121
Gate fastener. Wire-	A. Sharp	692,077	Jan. 28	3236	731, 732	98	728
Gear. Continuously-variable-speed	E. G. Ashley	691,738	Jan. 28	2598	584, 585	98	592
Gear-cutter	C. M. Leech and S. D. Evans	691,151	Jan. 14	1455	332	98	318
Gear. Driving-	F. Frigerio	691,538	Jan. 21	2211	497	98	495
Gear for belted machines. Driving-	G. E. McElroy	694,407	Mar. 4	196	50	98	1741
Gear. Speed-changing	E. M. and M. Vrard, H. Vendredy, P. Duitte, and H. Gauthier.	696,285	Mar. 25	3673	822	98	2525
Gear. Speed-changing	H. Rose	694,197	Feb. 25	3786	837	98	1637
Gear. Transforming-	A. Gray	694,959	Mar. 11	1201	263	98	1983
Gear. Variable-speed	A. T. Brown	691,591	Jan. 21	2306	519	98	514
Gearing	L. Jones, Jr.	691,634	Jan. 21	2295	538	98	533
Gearing	A. T. Brown	694,724	Mar. 4	740	164	98	1969
Gearing	V. V. Torbensen	695,894	Mar. 18	2900	657, 658	98	2353
Gearing. Changeable-speed	G. Silvestri	690,684	Jan. 7	973	220, 221	98	205
Gearing. Frictional	G. F. Conner	692,120	Jan. 28	3302	748, 749	98	734
Gearing. Reversible variable-speed	C. Upton	691,506	Jan. 21	2163	484, 485	98	485
Gearing. Variable-speed							
Generator: *See* Electric generator. Steam-generator. Gas-generator. Magneto-electric generator.							
Girth	R. L. Owens	696,259	Mar. 25	3632	812	98	2516
Glass: *See* Mixing-glass.							
Glass and making same. Art	G. E. Corner	696,392	Mar. 25	3938	872	98	2579
Glass. Apparatus for delivering melted	C. W. Foster	691,371	Jan. 21	1924	432	98	434
Glass articles. Manufacture of hollow	P. T. Sievert	694,685	Mar. 4	672	147	98	1854
Glass-blowing machine	E. B. Ball	692,813	Feb. 11	1063	238	98	1041
Glass bottles. Finishing-mold for making	L. Grote	691,463	Jan. 21	2085	467	98	469
Glass. Chipping	J. L. Dawes and W. F. Hull	693,243	Feb. 11	1963	------	98	1226
Glass, &c. Decorating	H. L. von Bonhorst	690,889	Jan. 7	984	------	98	207
Glass-delivering apparatus	W. D. Keyes	695,156	Mar. 11	1577	350	98	2063
Glass flattening and annealing apparatus	J. A. Anderson and C. M. Hollingsworth.	694,711	Mar. 4	715	157, 158	98	1863
Glass for making prismatic windows. Making sheets or panes of prismatic	G. K. Cummings	695,283	Mar. 11	1612	402	98	2110
Glass in shapes. Means for pressing, perforating, and cutting	A. J. Nash	696,254	Mar. 25	3624	810	98	2515
Glass. Machine for making prismatic	G. K. Cummings	695,281	Mar. 11	1606	401	98	2109
Glass. Machine for making prismatic	G. K. Cummings	695,282	Mar. 11	1609	401, 402	98	2109
Glass-mold-locking device	A. Strub	692,038	Jan. 28	3158	715	98	705
Glass-pot furnace	H. L. Dixon	691,250	Jan. 14	1637	373	98	356
Glass-working machine	I. W. Colburn	696,007	Mar. 25	3105	703, 704	98	2407
Glass-working machine	I. W. Colburn	696,008	Mar. 25	3115	704, 705	98	2410
Glassware-forming machine	J. Haley and H. H. Bridgwater	693,130	Feb. 11	1699	371, 372	98	1174
Glassware. Manufacture of handled	H. Bastow	695,782	Mar. 18	2694	512	98	2310
Glazier's tool	G. W. Hamilton	693,518	Feb. 18	2462	540	98	1353
Glazing-bar	D. J. Jarvis, J. W. Wadkin, and T. S. King.	690,732	Jan. 7	790	159	98	151
Globe-holder	G. Gray	690,419	Jan. 7	55	13	98	15
Glove	O. R. Baird	693,294	Feb. 4	2	1	98	799
Glove	H. H. Steele	695,586	Mar. 18	2855	534	98	2242
Glove-case	N. Fancher	690,937	Jan. 14	1073	241	98	240
Glove cleaner and making same. Kid-	H. Gottschalk	693,010	Jan. 28	3108	697	98	695
Glove-fastener	W. B. Murphy	691,653	Jan. 21	2425	545	98	540
Glove-fastener	W. B. Murphy	691,709	Jan. 21	2527	566	98	561

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gloves, &c. Fastener for	W. P. Devine	691,308	Jan. 14	1772	408	98	384
Gluing-machine	G. W. Fassett and R. A. Whittier	690,847	Jan. 7	911	203, 204	98	193
Gluten tailings. Utilizing	E. Gudeman	695,780	Mar. 18	2577		98	2365
Gold-bearing material. Concentrator for	G. G. Sale	694,199	Feb. 25	3789	838	98	1539
Gold-dredgers. Auxiliary cutter for	R. H. Postlethwaite	696,078	Mar. 25	3949	735	98	2457
Gold from refractory ores. Recovering	H. R. Cassel	694,349	Mar. 4	16	4	98	1716
Gold-separating machine	B. W. Sweet	690,791	Jan. 7	890	181	98	173
Gold-separator	A. L. Dana	694,255	Feb. 25	3888	861	98	1657
Golf-bag	R. W. Owen	693,422	Feb. 18	2301	503	98	1319
Golf-ball	E. Kempshall	695,866	Mar. 18	3945	646	98	2341
Golf-ball	F. H. Richards	696,353	Mar. 25	3865	854	98	2559
Golf-ball	E. Kempshall	696,365	Mar. 25	3876	861	98	2565
Golf-ball	E. Kempshall	696,366	Mar. 25	3878	861	98	2565
Golf-ball	E. Kempshall	696,367	Mar. 25	3880	862	98	2566
Golf-ball	E. Kempshall	696,369	Mar. 25	3884	862	98	2566
Golf-balls. Manufacture of	E. Kempshall	695,813	Mar. 18	2751	627	98	2321
Golf-balls. Manufacture of	F. H. Richards	696,354	Mar. 25	3841	854, 855	98	2560
Golf-balls. Manufacture of	E. Kempshall	696,366	Mar. 25	3882	862	98	2566
Golf-club	H. B. Febiger	690,940	Jan. 14	1076	242	98	241
Golf-club	W. M. Ransom	690,996	Jan. 14	1192	270	98	264
Golf-club	C. R. Parmele	695,579	Mar. 18	2344	531	98	2229
Golf-register	W. D. Rennie and S. G. Van Derbeek.	692,906	Feb. 11	1253	278	98	1062
Gong	A. F. Kleinschmidt	692,149	Jan. 28	3356	760	98	746
Gong. Electric	J. A. Wotton	692,579	Feb. 4	634	149	98	928
Governing device for engines, &c	J. and H. McLaren	692,893	Feb. 11	1231	271, 272	98	1078
Governor	J. N. McNeal	692,330	Feb. 4	199	47	98	840
Governor. Gas-engine	A. Sonander	692,083	Jan. 28	3251	734	98	724
Grader	J. Bagley	695,781	Mar. 18	2693	612	98	2369
Grader and scraper. Combined road	S. O. Hays	694,903	Mar. 11	1289	264	98	1985
Grading and ditching machine	W. H. Morenus	690,451	Jan. 7	125	26, 27	98	28
Grading-machine	T. R. McKnight	694,661	Mar. 4	621	134, 135	98	1844
Grafting implement	D. A. Manuel	690,865	Jan. 7	940	210	98	197
Grain-binder	H. B. Sperry	690,477	Jan. 7	193	39	98	42
Grain-binder deck	I. Trolley	696,151	Mar. 25	3432	770	98	2477
Grain-binding machine	M. Kane	690,439	Jan. 7	100	22	98	24
Grain-cleaner	A. D. and G. L. Francoeur	694,540	Mar. 4	397	87, 88	98	1706
Grain-drill	F. R. Packham and G. P. Oates	691,322	Jan. 14	1797	408	98	390
Grain-drill	A. Smith	694,499	Mar. 4	293	67	98	1774
Grain-drill	A. Armitage	694,508	Mar. 4	503	109, 110	98	1819
Grain-drill	W. G. Bolus	695,786	Mar. 18	2702	614	98	2311
Grain-drill, disk, and hoe	C. W. Love	693,526	Feb. 18	2483	545	98	1356
Grain-drill distributer	C. E. Patric	691,483	Jan. 21	2116	474, 475	98	475
Grain-drill feed mechanism	F. J. Noechel	694,069	Feb. 25	3546	782	98	1500
Grain-drill feed-regulating device	R. H. Schlachter	692,717	Feb. 4	884	202	98	980
Grain. Drying	V. Lapp	690,592	Jan. 7	426	91	98	93
Grain-drying apparatus	W. Tweedale and W. L. Harvey	691,209	Jan. 14	1562	355	98	341
Grain-elevator distributing-spout	J. J. Gerber. (Reissue)	11,971	Feb. 18	3043	672	98	1470
Grain or seed separating device	J. E. Hill and W. W. Brower	696,336	Mar. 25	3804	848	98	2553
Grain-screen	J. Sacora	693,447	Feb. 18	2337	511	98	1326
Grain-separator	W. J. Kerr	692,145	Jan. 28	3351	758, 759	98	745
Grain-shocking machine	T. A. Wooley and H. Fox	694,512	Mar. 4	319	72, 73	98	1780
Grain-shocks, &c. Cover for	V. Martin	691,318	Jan. 14	1791	407	98	388
Grain-tube cup	W. C. Renaker	694,419	Mar. 4	162	36	98	1747
Gramophone	E. Berliner	692,502	Feb. 4	494	116	98	899
Granite. Artificial	M. Arnn	691,711	Jan. 21	2529		98	562
Graphophone, phonograph, &c	W. C. Runge	692,363	Feb. 4	258	62	98	852
Graphophone winding attachment	W. E. Dyre	692,783	Feb. 4	997	226	98	1001
Grapple	M. H. Callahan	692,113	Jan. 28	3293	745	98	732
Grass-uprooter	D. N. Phillips	690,461	Jan. 7	142	30, 31	98	32
Grate	G. Saylor	691,004	Jan. 14	1205	273	98	267
Grate	J. L. White	692,809	Feb. 4	1052	237	98	1011
Grate	F. Burger	693,828	Feb. 25	3057	674	98	1409
Grate-bar	J. Barker	694,601	Mar. 4	511	111	98	1821
Grate. Heating	J. A. Rose and W. P. Brockschmidt	695,840	Mar. 18	2803	638	98	2332
Grease-containing material. Treating	J. J. Seldner	692,922	Feb. 11	1287	283	98	1091
Greenhouse valley-gutter	E. Hippard	696,043	Mar. 25	3188	719	98	2426
Grinder. Mowing-machine-knife	F. G. Greene	694,376	Mar. 4	74	17	98	1727
Grinding apparatus	G. S. Baker	692,414	Feb. 4	337	81, 82	98	860
Grinding-machine	E. Rivett	690,999	Jan. 14	1197	271	98	265
Grinding-machine	O. S. Walker	693,471	Feb. 18	2579	521	98	1335
Grinding-machine	C. R. Gabriel	696,034	Mar. 25	3175	716	98	2423
Grinding machine. Cutlery	A. Johnston	694,387	Mar. 4	101	22, 23	98	1734
Grinding machine. Drill	C. A. Chandler	690,398	Jan. 7	23	5	98	8
Grinding-machine safety stop-motion	M. P. Fillingham	694,096	Feb. 25	3591	794, 795	98	1599
Grinding-mill. Ball	P. T. Lindhard	694,974	Mar. 11	1222	269, 270	98	1000
Grinding or crushing head	V. W. Mason, Jr	692,886	Feb. 11	1215	269	98	1074
Grinding or polishing apparatus	H. Cavicchi	692,425	Feb. 4	356	87	98	873
Grinding or polishing attachment	W. E. Parker	692,335	Feb. 4	297	50	98	842
Grinding or polishing cone	H. C. Miller, Jr	691,066	Jan. 14	1330	298	98	220
Grindstone. Portable	C. H. Ferguson	693,598	Feb. 18	2622	579	98	1364
Grip. Adjustable	C. F. Lufkin	693,413	Feb. 18	2934	495, 496	98	1311
Groove-cutter	H. W. A. Fette	693,508	Feb. 18	2447	536	98	1349
Gun. Air	W. R. Benjamin	693,823	Feb. 25	3047	673	98	1491
Gun. Air	W. R. Benjamin	695,025	Mar. 11	1329	293	98	2010
Gun and cartridge carrier. Combined	B. Rumsey	695,176	Mar. 11	1611	357	98	2069

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gun. Automatic	A. Vickers	690,799	Jan. 7	833	184, 185	98	176
Gun. Automatic	A. Burgess	693,105	Feb. 11	1649	360	98	1164
Gun. Automatic	A. Burgess	693,106	Feb. 11	1653	360	98	1164
Gun. Automatic	L. V. Benét and H. A. Mercié	696,806	Mar. 25	3723	831, 832, 833, 834, 835	98	2536
Gun-barrel	W. F. Cole	694,883	Mar. 4	948	211	98	1913
Gun. Breech-loading	G. S. Lewis	694,654	Mar. 4	604	132	98	1840
Gun. Breech-loading	J. F. Meigs and S. A. S. Hammar	696,063	Mar. 25	3221	728, 729	98	2432
Gun breech mechanism	A. W. Schwarzlose	693,221	Feb. 11	1287	282	98	1091
Gun carriage or mount	J. F. Meigs and R. P. Stout	696,064	Mar. 25	3226	729, 730	98	2433
Gun-cleaner	A. W. Bishop	690,393	Jan. 7	16	4	98	7
Gun. Concealed-hammer breakdown	C. P. Clément	693,639	Feb. 18	2708	598	98	1406
Gun ejector. Breakdown	E. H. Elder	690,568	Jan. 7	384	79	98	83
Gun fluid-brake	O. Behnke	695,854	Mar. 18	2828	642	98	2337
Gun-lock	F. Snyder	695,242	Mar. 11	1727	383	98	2093
Gun-mount	S. N. McClean	691,912	Jan. 28	2924	659	98	660
Gun-mounting	R. T. Brankston	695,087	Mar. 11	1438	317	98	2093
Gun-mounting. Telescope	H. L. De Zeng, Jr	691,248	Jan. 14	1635	373	98	356
Gun. Rapid-fire	G. J. Boehm	694,606	Mar. 4	525	114	98	1824
Gun recoil-check	S. N. McClean	691,913	Jan. 28	2925	659	98	661
Gun. Repeating	B. R. Harrington	693,965	Feb. 25	3330	731, 732	98	1546
Guns. Ammunition conveyer or rammer for	J. Becker	691,584	Jan. 21	2292	515, 516, 517	98	512
Guns. Ammunition conveyer or rammer for	G. A. Schoeller	696,087	Mar. 25	3365	738, 739	98	2441
Guns. Cartridge-carrier mechanism for automatic	F. M. Garland	693,386	Feb. 18	2212	485, 486	98	1301
Guns. Firing multishot	R. W. Scott	694,674	Mar. 4	647	142	98	1849
Guns. Means for effecting noiseless discharge of	J. E. Bissell	692,819	Feb. 11	1072	241	98	1043
Guncotton-press	A. Hollings	690,728	Jan. 7	714	158	98	150
Gutta-percha or the like from leaves or twigs containing it. Extracting	G. Mitchell	695,751	Mar. 18	2637	.....	98	2297
Gymnastics. Combination apparatus for heavy	H. Suder	694,442	Mar. 4	901	44	98	1755
Hackling-machine	M. Young	696,127	Mar. 25	3364	759	98	2464
Hair-clasp	J. Machado	694,984	Mar. 4	1146	251	98	1955
Hair-drier	J. F. Warner	696,122	Mar. 25	3356	757	98	2461
Hair-drying apparatus	A. Bausen	692,105	Jan. 28	3281	742	98	730
Hair-fastener	J. Leick	691,555	Jan. 21	2234	502	98	501
Hair-picker	F. Nacke	693,802	Feb. 18	2992	661	98	1460
Halter	G. P. Cooley	694,531	Mar. 4	884	84	98	1794
Hammer. Automatic	A. Stromdahl	694,898	Mar. 4	1077	238	98	1939
Hammer. Pneumatic	M. A. Yeakle	693,939	Feb. 25	3280	722	98	1536
Hammer. Pneumatic	C. H. Johnson	695,396	Mar. 11	1996	446	98	2149
Hammer. Power	A. W. Johnson	693,324	Feb. 11	2085	456	98	1253
Hammock	I. E. Palmer	693,564	Feb. 18	2549	561	98	1370
Hammock	Z. L. Chadbourne	695,082	Mar. 11	1841	295	98	2013
Hammock	Z. L. Chadbourne	695,374	Mar. 11	1960	438	98	2141
Hammock hanger-eye	Z. L. Chadbourne	695,372	Mar. 11	1958	437	98	2141
Hammock pillow attachment	I. E. Palmer	694,070	Feb. 25	3549	782	98	1591
Hammock-spreader	I. E. Palmer	694,071	Feb. 25	3550	783	98	1591
Hammock spreader-clip	I. E. Palmer	693,563	Feb. 18	2548	561	98	1370
Hammock-support	I. E. Palmer	691,070	Jan. 14	1827	800	98	292
Handcuff	F. A. Headson	691,941	Jan. 28	2976	669	98	670
Hand-press	J. Murdock, Jr	693,050	Feb. 11	1535	334	98	1149
Hand-propelled chair	N. A. Sawyer	692,096	Jan. 28	3153	712	98	704
Hand-rake	D. B. Simpson	693,986	Feb. 25	3389	745	98	1557
Hand-shears for cutting metals or other hard materials in sheets	G. Thuillier	693,573	Feb. 18	2567	572	98	1377
Handle: *See* Detachable handle. Flushing-tank handle. Saw-handle. Tool-handle. Umbrella-handle. Vessel-handle. Wrench-handle.							
Handle	E. Seybold and C. E. Mountford	690,622	Jan. 7	489	106	98	105
Handle	E. Seybold and C. E. Mountford	692,486	Feb. 4	463	107	98	893
Handle-bar for cycles, &c	F. Sadler	690,464	Jan. 7	150	31	98	84
Handle-clasp	C. W. Blue	695,599	Mar. 18	2576	538	98	2246
Handle-fastener	L. Herrman	691,377	Jan. 21	1983	435	98	437
Handles of brooms, hoes, &c. Attachment for	E. Dillingham	695,197	Mar. 11	1643	365	98	2077
Hanger: *See* Cable-hanger. Door-hanger. Drapery-hanger. Eaves-trough hanger. Garment-hanger. Lamp-hanger. Shade and curtain hanger.							
Hanger	H. C. Clayton	691,114	Jan. 14	1391	316	98	805
Harness	F. J. Schenk	692,716	Feb. 4	883	202	98	980
Harness attachment	J. F. McCormick	696,071	Mar. 25	3240	733	98	2435
Harness safety attachment	M. A. Dunn	690,642	Jan. 7	529	115	98	113
Harrow	G. H. Pounder	692,342	Feb. 4	217	52	98	844
Harrow	J. and F. Furrer	693,698	Feb. 18	2620	620	98	1435
Harrow	J. B. Morrison	693,883	Feb. 25	3166	700	98	1513
Harrow	C. S. Sharp	694,113	Feb. 25	3617	800	98	1604
Harrow and cultivator. Reversible rotary	M. Schichtl	694,429	Mar. 4	189	39, 40	98	1751
Harrow, cultivator, and plow. Combined	A. L. Blackwell	691,741	Jan. 28	2616	566	98	597
Harrow. Disk	F. R. Packham and G. P. Oates	693,891	Feb. 25	3188	704	98	1518
Harrow-disk journal	O. E. Johnston	693,867	Feb. 25	3185	694	98	1506

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs	Official Gazette. Vol.	Official Gazette. Page.
Harrow. Riding-	J. Francoeur	693,851	Feb. 25	3107	687, 688	98	1502
Harrow. Riding-	B. Alsup	694,451	Mar. 4	218	48, 49	98	1750
Harrow. Spike-tooth	T. D. Jones	691,388	Jan. 21	1956	470	98	442
Harrow-tooth	A. H. Schaffer	690,776	Jan. 7	789	175	98	166
Harrow-tooth fastening	S. D. Poole	691,660	Jan. 21	2433	547	98	542
Harrow-tooth. Spring	L. J. Stanton	692,939	Feb. 11	1332	250	98	1100
Harvester	E. Domiby	691,846	Jan. 28	2817	632	98	658
Harvester. Beet-	M. W. Palmer	695,262	Mar. 25	3696	812, 813	98	2517
Harvester. Corn-	V. Degenhard	690,841	Jan. 7	904	201, 202	98	191
Harvester. Corn-	C. Colahan	691,748	Jan. 28	2632	599	98	601
Harvester. Corn-	A. V. Kiser	691,782	Jan. 28	2698	606, 607	98	615
Harvester. Corn-	A. W. Richards	693,066	Feb. 11	1557	340, 341	98	1146
Harvester. Corn-	S. C. Anderson	695,023	Mar. 11	1821	292	98	2009
Harvester. Corn-	J. L. Locke	696,347	Mar. 25	3819	851, 852	98	2556
Harvester. Cotton-	P. P. and P. F. Haertl	691,702	Jan. 28	2058	505, 506	98	605
Harvester cutting apparatus. Starting mechanism for	B. F. Boydston	696,370	Mar. 11	1955	436	98	2140
Harvester. Pea-	S. E. Kierolf	692,456	Feb. 4	407	97, 98	98	892
Harvester stubble-cutter attachment. Corn-	J. Chamberlin	692,621	Feb. 4	717	166	98	946
Harvesting implement. Celery-	J. G. Smith	690,899	Jan. 7	1003	227	98	210
Harvesting-machine. Grain-binding	W. N. Whitely	696,196	Mar. 25	3350	758	98	2462
Harvesting-machine grain-divider	J. F. Steward	694,441	Mar. 4	200	44	98	1755
Harvesting-machine needle. Self-binding	B. C. Caudry and C. F. Deplanty	691,240	Jan. 14	1620	370	98	353
Harvesting onion sets, &c. Machine for	J. W. Jefferson	694,284	Feb. 25	3042	678	98	1669
Hat-curling machine	W. J. McGall	692,537	Feb. 4	571	134	98	914
Hat-curling machine	L. R. Heim	695,368	Mar. 11	1969	445	98	2147
Hat-fastener	E. Hart	691,624	Jan. 21	2376	535	98	528
Hat for firemen, &c	J. L. Maitland	694,168	Feb. 25	3736	825	98	1627
Hat. Miner's	A. Harris	691,023	Jan. 21	2375	534	98	528
Hat-pouncing machine	C. M. Tirard	691,018	Jan. 14	1237	279, 280	98	373
Hat-pressing machine	C. H. Klinger and J. J. Reynolds	694,756	Mar. 4	803	178, 179	98	1881
Hat tip or lining	C. F. Beatty	695,853	Mar. 18	2827	642	98	2337
Hatch-cover	W. W. Dawley	691,752	Jan. 28	2642	592	98	602
Hay-bagging machine	H. Paddock	693,147	Feb. 11	1744	392	98	1182
Hay-distributer	N. C. Miller	691,406	Jan. 21	1983	445	98	448
Hay-elevator	J. Ney	690,660	Jan. 7	562	122	98	121
Hay elevator and distributer	W. A. Pierce	695,079	Mar. 11	1426	313	98	2051
Hay-fork	J. F. Snethen	692,469	Feb. 4	467	109	98	894
Hay-loading apparatus	E. H. Nicholson	691,659	Jan. 21	2432	547	98	541
Hay-loading apparatus	F. S. Church	691,714	Jan. 21	2533	567	98	563
Hay-machine	E. J. Slough	696,207	Mar. 25	3528	789, 790	98	2495
Hay-press	W. W. Weston	692,952	Feb. 11	1358	295	98	1105
Hay-press	K. K. Gittings	694,626	Mar. 4	553	121	98	1880
Hay-press	S. B. Moore and W. Tatum	695,109	Mar. 11	1475	329	98	2040
Hay-press	E. B. Ramage and R. O. Slaughter	695,764	Mar. 18	2653	603	98	2301
Hay-press. Automatic	F. S. Buchanan	694,827	Mar. 4	941	209	98	1912
Hay-rack	F. E. Bright	691,527	Jan. 21	2193	492, 493	98	492
Hay-rake	W. S. Livengood	694,558	Mar. 4	435	94	98	1805
Hay-rake	W. S. Livengood	694,559	Mar. 4	436	94	98	1805
Hay-rake. Horse	A. F. Brown	694,051	Feb. 25	3323	775	98	1585
Hay-rake. Horse	W. A. Cavett	694,831	Mar. 4	946	210, 211	98	1913
Hay-rake. Side-delivery	C. W. Baird	694,344	Mar. 4	7	3	98	1714
Hay-rake. Sulky	A. R. Black	694,719	Mar. 4	730	161, 162	98	1886
Head-rest	W. N. Greer and H. Harris	691,854	Jan. 28	2830	640	98	641
Header. Wrought-iron	J. P. Sneddon	693,176	Feb. 11	1807	394	98	1195
Headlight cleaner. Locomotive-	D. H. Foreman	693,319	Feb. 11	2074	453, 454	98	1251
Heat-radiating device	W. Diebel	695,674	Mar. 18	2507	569	98	2271
Heater: *See* Coal-heater. Electric heater. Feed-water heater. Fireplace-heater. Hot-water heater. Tank-heater. Tool-heater. Water-heater.							
Heater, cooler, and storage-basket. Combined	N. F. Boniface	692,109	Jan. 28	3287	744	98	731
Heating and cooking shelf. Portable	A. W. Newell	694,174	Feb. 25	3746	827	98	1629
Heating and ventilating apparatus	J. M. Miller	692,164	Jan. 28	3376	764, 765	98	750
Heating apparatus	J. A. Dezell	690,704	Jan. 7	655	143	98	138
Heating apparatus. Hot-water-appliance	C. W. McCutchen	692,469	Feb. 4	434	102	98	887
Heating apparatus. Solar	M. de la Garza	696,336	Mar. 25	3787	844	98	2550
Heating appliance. Electrical	J. F. Bachmann and A. Vogt	695,995	Mar. 25	3684	700	98	2403
Heating boiler. Steam or water	J. Kuen and H. F. Hodges	693,870	Feb. 25	3138	694, 695	98	1508
Heating device. Electric	E. Kastner	694,018	Feb. 25	3451	702	98	1570
Heating-furnace	S. Diescher	693,190	Feb. 11	1668	866, 867	98	1170
Heating granular substances. Apparatus for	C. Greene and W. M. Dollar	692,199	Jan. 28	3440	778	98	754
Heating material	H. Campbell	693,835	Feb. 25	3070	677	98	1495
Heating system. Hot-water	I. D. Smead	694,206	Feb. 25	3802	840	98	1640
Heating systems. Valve device for steam-	J. A. Serrell and J. A. Donnelly	696,202	Mar. 25	3522	788	98	2494
Hedge-trimmer	A. P. Wisborg	695,259	Mar. 11	1760	390	98	2100
Heel and bottom finishing machine	W. A. Blodgett	691,104	Jan. 14	1377	312	98	302
Heel. Boot or shoe	T H. Mayo	691,910	Jan. 28	2919	656	98	659

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Heel-breast-concaving machine	J. G. Buzzell	696,883	Feb. 25	3065	677	98	1494
Heel cushion. Shoe-	L. Schwarz	690,779	Jan. 7	791	176	98	167
Heel. Detachable shoe-	V. A. Fabrycki	692,198	Jan. 28	3322	753	98	739
Heel for boots or shoes. Detachable	M. L. Hansen	691,357	Jan. 28	2683	636	98	641
Heel-nailing machine	B. F. Mayo	694,656	Mar. 4	606	133	98	1840
Heel-nailing machine	F. F. Raymond, 2d	694,665	Mar. 4	630	137 138	98	1846
Heels and soles. Machine for inserting protectors in shoe	A. G. Williams	696,280	Mar. 25	3680	823 824	98	2527
Hexamethylentetramin and quinic acid and making same. Salt of	G. Wichmann and M. Gabler	690,804	Jan. 7	843	.....	98	177
Hide-coloring apparatus	A. Rigaud	691,075	Jan. 14	1334	301	98	293
Hinge	J. G. Smith	690,782	Jan. 7	804	178	98	169
Hinge	J. C. Gillispie	691,620	Jan. 21	2364	532	98	525
Hinge	F. L. Barnick	692,175	Jan. 28	3392	768	98	753
Hinge	C. M. Johnson	693,546	Feb. 18	2521	555	98	1354
Hinge	R. Frank	695,453	Mar. 18	2090	471	98	2187
Hinge	C. H. Foster	696,027	Mar. 25	3163	713	98	2420
Hinge	C. H. Foster	696,028	Mar. 25	3164	713	98	2421
Hinge	F. W. L. Schafer	691,077	Jan. 14	1337	302	98	293
Hinge. Butt-	C. Evans	695,602	Mar. 18	2383	539	98	2247
Hinge. Closet-seat	G. H. Schiek	694,670	Mar. 4	639	140	98	1848
Hinge. Detachable spring-	R. J. Irving	693,971	Feb. 25	3345	735	98	1549
Hinge device	C. H. Foster	696,029	Mar. 25	3166	714	98	2421
Hinge. Door-	W. L. Selleck	694,432	Mar. 4	186	41	98	1752
Hinge for supporting and operating doors	R. B. Ward	695,355	Mar. 11	1923	429	98	2132
Hinge-gainer	W. M. Gamble	691,757	Jan. 28	2650	593	98	604
Hinge. Leaf-	W. S. Daniels	692,633	Feb. 4	732	169	98	950
Hinge-pin	M. A. D. Kincaid	691,551	Jan. 21	2229	501	98	490
Hinge. Spring-	M. C. Bersted	691,838	Jan. 28	2801	629 630	98	685
Hinge. Spring-	A. S. Held	694,278	Feb. 25	3920	871	98	1864
Hinge. Spring-	A. L. Stump and F. Brucker	695,124	Mar. 11	1517	336	98	2048
Hinge. Spring-	A. J. Rosentreter	695,494	Mar. 18	2155	487	98	2200
Hinge. Spring-	J. Bardsley	695,526	Mar. 18	2218	503	98	2213
Hinge. Spring-	E. Bommer	695,666	Mar. 18	2493	566	98	2269
Hinge. Spring-	E. Bommer	695,706	Mar. 18	2559	579	98	2281
Hinge. Spring-	P. F. Glackin	694,628	Mar. 4	557	122	98	1831
Hinge. Water-closet-seat	J. W. Evans	694,465	Mar. 4	245	55	98	1764
Hitching device	D. T. Granbery	694,375	Mar. 4	72	17	98	1795
Hitching device. Horse-	S. McIntyre	690,892	Jan. 7	991	224 225	98	208
Hitching or unhitching device. Horse	P. F. Turner	691,505	Jan. 21	2158	484	98	485
Hog-intestines. Utilizing	D. E. Rowland	690,774	Jan. 7	785	174	98	169
Hoist	D. H. Morgan	693,881	Feb. 25	3165	699	98	1513
Hoist	H. F. Hodges	695,050	Mar. 11	1375	302	98	2130
Hoist and conveyer	W. S. Halsey	693,517	Feb. 18	2400	539	98	1352
Hoist. Pneumatic	E. L. Ransome	694,579	Mar. 4	469	101	98	1812
Hoist. Self-dumping	H. H. Guffin	694,378	Mar. 4	76	17, 18	98	1727
Hoisting and conveying apparatus	G. E. Titcomb	695,592	Mar. 18	2962	535 536	98	2243
Hoisting and conveying apparatus	G. D. Johnstone	694,551	Mar. 4	423	91	98	1902
Hoisting and dumping apparatus. Tramway for	M. W. Cox	694,091	Feb. 25	3595	793	98	1597
Hoisting apparatus	C. Campbell	692,780	Feb. 4	990	224 225	98	900
Hoisting-engine	F. V. Nielsen	695,830	Mar. 18	2788	635	98	2330
Hoisting-gear	E. Y. Moore	696,161	Mar. 25	3486	780 781	98	2486
Hoisting system	J. C. Joyce	692,674	Feb. 4	815	184	98	966
Holdback	A. Raudnitz	693,055	Feb. 11	1556	340	98	1146
Holder. Safety-	T. B. Sauer	694,996	Mar. 11	1268	277	98	1998
Holdfast	J. P. Sneddon	693,175	Feb. 11	1804	394	98	1194
Hollow or tubular articles. Apparatus for forming	J. P. Sneddon	693,174	Feb. 11	1802	394	98	1194
Hollow or tubular articles. Forming	J. P. Sneddon	693,171	Feb. 11	1794	393	98	1193
Hollow or tubular articles of irregular shape. Apparatus for forming	J. P. Sneddon	693,178	Feb. 11	1812	395 396	98	1195
Hollow or tubular articles of irregular shape. Apparatus for forming	J. P. Sneddon	693,173	Feb. 11	1799	394	98	1193
Hollow or tubular articles of irregular shape. Apparatus for shaping	J. P. Sneddon	693,172	Feb. 11	1797	393	98	1193
Hollow or tubular articles of irregular shape Forming	W. J. McCaslin	695,380	Mar. 11	1887	420	98	2124
Hominy huller and washer	A. C. Tappe	690,482	Jan. 7	206	41	98	45
Hoof-pad	J. Campbell	691,111	Jan. 14	1385	315	98	303
Hoof-pad	W. J. Kent	692,305	Feb. 4	150	35, 36	98	329
Hoof-pad	A. R. Corrington	695,540	Mar. 18	2255	509	98	2220
Hoof-trimmer	H. Huffstickler	696,177	Mar. 25	3480	779	98	2485
Hoof-trimmer							
Hook: See Bedstead-hook. Cable-hanging hook. Chatelaine-hook. Chatelaine-bag hook. Check-hook. Checkrein-hook. Fish-hook. Lacing-hook. Snap-hook. Trace-hook.							
Hook	C. B. Johnson	695,560	Mar. 18	2295	519	98	2228
Hook and eye	A. K. Phillips	690,598	Jan. 7	313	62	98	68
Hook and eye	F. H. Gorrell	691,701	Jan. 21	2516	563	98	559
Hook and eye	W. P. Conery	692,630	Feb. 4	726	168	98	948
Hook and eye	A. McNicol	694,777	Mar. 4	856	199	98	1892
Hook and eye	T. Pedersen	690,765	Jan. 7	770	171	98	168
Hook and eye. Safety	B. G. Jayne	695,460	Mar. 18	2108	474	98	2189
Hoop for barrels, &c	C. Hummel	691,769	Jan. 28	2670	598	98	606
Hoop-tightening device	J. W. Seavey	693,168	Feb. 11	1778	390	98	1188
Hop-drying box	C. Wurster	690,504	Jan. 7	270	54	98	59
Hopper for refining-engines	C. B. Tuttle	694,340	Feb. 25	4112	915	98	1607
Horse-boot	A. P. Hansen	695,390	Mar. 11	1961	444	98	2145
Horse-checking device							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
				Spec.	Dr'g.	Vol.	Page.
Horse-detacher	J. H. Rodgers	692,357	Feb. 4	949	60	98	850
Horse-detacher and brake. Combined vehicle	J. Chial	692,767	Feb. 4	970	220	98	995
Horses from vehicles. Device for clearing	L. L. and J. W. Fox	694,368	Mar. 4	36	8	98	1719
Horseshoe	J. M. Myers	690,984	Jan. 14	1169	264	98	895
Horseshoe	T. F. Kenney	691,300	Jan. 21	1958	439	98	442
Horseshoe	J. R. Holland	694,917	Mar. 4	1116	246	98	1948
Horseshoe	B. F. Locraft	696,060	Mar. 25	2316	727	98	2431
Horseshoe	B. McKenzie	694,776	Mar. 4	955	198	98	1892
Horseshoe-calk	M. J. Sinnott	692,578	Feb. 18	2583	571	98	1376
Horseshoe. Elastic-tread	O. W. Siebenhaar	694,205	Feb. 25	3797	839 840	98	1630
Horseshoe-machine	E. Ogbin	691,482	Jan. 21	2115	474	98	475
Horseshoe. Nailless	M. Goldberg	693,263	Feb. 11	1981	430	98	1231
Horseshoe. Nailless	H. D. Alexander and H. C. White	693,943	Feb. 25	3287	728	98	1537
Horseshoe. Soft-tread	D. Cruise	693,541	Feb. 18	2511	553	98	1309
Horseshoe. Spring-heeled	S. Jannus	691,385	Jan. 21	1949	437	98	440
Horseshoes. Device for altering the shape of	J. P. Daggett and H. Hestand	695,285	Mar. 11	1818	403	98	2111
Horseshoeing-rasp	D. Smith	693,168	Feb. 11	1785	391	98	1190
Hose-bridge	E. E. Grove	696,068	Mar. 25	3181	717	98	2434
Hose connection	O. Iversen	693,084	Feb. 11	1475	328	98	1120
Hose-coupling clamp	J. H. Brown	693,781	Feb. 18	2957	652	98	1453
Hose-coupling dust-guard	W. C. Anderson	690,819	Jan. 7	872	192	98	184
Hose member	J. E. Garrison	694,365	Mar. 4	38	9	98	1720
Hose-nozzle	F. Holbrook	696,174	Mar. 25	3476	778	98	2485
Hose-nozzle	G. L. Gay	691,758	Jan. 28	2651	594	98	894
Hose-nozzle sprinkling attachment	L. Moyle	692,795	Feb. 4	1084	232	98	1007
Hose or pipe coupling	G. G. Weits	693,092	Feb. 11	1609	351	98	1156
Hose-signal system. Electric	J. B. Carolin	691,440	Jan. 21	2043	458	98	461
Hose-supporter	H. E. McKechney	690,754	Jan. 7	754	168	98	159
Hose-terminal	H. W. Colby	691,446	Jan. 21	2051	459	98	462
Hose-thimble expander	H. W. Baker	691,094	Jan. 14	1361	308 309	98	298
Hot-air furnace	L. Patric	692,336	Feb. 4	208	50	98	842
Hot-air furnace	L. D. Smith	691,733	Jan. 21	2570	576	98	570
Hot-air register	F. Robbin	690,612	Jan. 7	466	101	98	100
Hot-water heater	J. D. McLinden	692,329	Feb. 4	197	47	98	840
Hot-water heater	W. C. Loney	694,291	Feb. 25	3955	880	98	1672
Hotel-register							
House:							
See Poultry-house.							
Hub	J. C. Working	691,735	Jan. 21	2575	577	98	571
Hub	T. G. Mandt	694,292	Feb. 25	3956	880	98	1673
Hub brake. Wheel-	C. Glover and N. W. Haskins	692,207	Feb. 4	98	23	98	818
Hub. Metallic wheel-	W. H. Cullers, Sr	696,347	Feb. 11	2133	468	98	1265
Hub. Vehicle-wheel	J. S. Layton	695,569	Mar. 18	2530	527	98	2236
Hub. Wheel-	P. M. and J. P. Gundlach	693,267	Feb. 11	1988	432	98	1232
Hubs. Machine for forming spoke-holes in	E. Einfeldt	690,906	Jan. 7	1017	229	98	212
Huller:							
See Hominy-huller. Pea-huller.							
Hulling-machine	J. E. Sanders	695,120	Mar. 11	1510	335	98	2047
Hydrant	D. F. O'Brien	694,180	Feb. 25	3757	830	98	1631
Hydrant	D. F. O'Brien	694,298	Feb. 25	3965	883	98	1674
Hydrant	H. Denney	695,147	Mar. 11	1560	346	98	2059
Hydrant-cap	J. P. Mern	694,170	Feb. 25	3740	826	98	1628
Hydraulic motor or pump and reversing-valve therefor.	W. O. Worth	690,813	Jan. 7	859	189 190	98	181
Hydraulic press	F. E. Keyes	690,966	Jan. 14	1135	257	98	258
Hydraulic press	F. Dahl	696,010	Mar. 25	3123	705	98	2411
Hydrocarbon apparatus	D. F. O'Brien	694,179	Feb. 25	3753	829 830	98	1630
Hydrocarbon-burner	S. E. Farraday and J. H. Goss	692,899	Feb. 11	1105	247	98	1050
Hydrocarbon-burner	G. A. Bonelli	693,295	Feb. 11	1918	417	98	1217
Hydrocarbon-burner	J. M. and L. P. Beech	693,682	Feb. 18	2786	618	98	1418
Hydrocarbon-burner	S. D. Mott	695,223	Mar. 11	1702	377	98	2085
Hydrocarbon composition	B. B. Clawson	692,627	Feb. 4	723		98	947
Hydrocarbon-engine	A. D. Richardson	690,610	Jan. 7	463	100	98	99
Hydrocarbon in portable reservoirs. Means for producing pressure on the	J. G. Branch	694,305	Feb. 25	3974	885	98	1677
Hydrocarbon-motors. Electromagnetic regulator for admission-valves of	A. C. Krebs	691,638	Jan. 21	2402	540	98	534
Hydrogen dioxid. Making	P. L. Hulin	692,189	Jan. 28	3648		98	744
Hydrogen sulfid. Making	H. H. Wing	690,508	Jan. 7	262	58	98	58
Hydrosulfites. Making	M. Bazlen	692,760	Feb. 4	957		98	994
Ice blocks. Apparatus for manufacturing	G. F. Buckingham	695,907	Mar. 25	2963	664	98	2374
Ice-case. Transportable	W. Worf	691,089	Jan. 14	1976	298 299	98	262
Ice-conveyer gallery. Sectional	T. M. Lynch and V. Huey	695,466	Mar. 18	2113	476	98	2191
Ice-cream disher	W. G. Bahl	693,360	Feb. 18	2162	475	98	1260
Ice-cream freezer	J. A. Snigo	690,582	Jan. 7	318	63	98	69
Ice-cream freezer	E. R. Morse	692,059	Jan. 28	3302	722	98	714
Ice-cream freezer	E. R. Schlick	692,551	Feb. 4	590	136	98	916
Ice-cream freezer	B. Kuhl	694,973	Mar. 11	1231	269	98	1990
Ice holder. Crushed-	J. S. Callen	696,169	Mar. 25	3450	773	98	2481
Ice into cubes or blocks. Machine for sawing	J. S. Duncan	694,260	Feb. 25	3898	865	98	1660
Ice-machine	T. H. Butler and O. Hammond	691,228	Jan. 14	1619	370	98	358
Ice-making apparatus	J. Humes	690,956	Jan. 14	1106	250	98	247
Ice-pick	W. G. Browne	690,889	Jan. 7	889	197	98	198
Identifying device	I. L. Wilber	692,173	Jan. 28	3390	768	98	755
Identity-indicating device	C. W. Smith	695,584	Mar. 18	2350	533	98	2240
Igniter	C. C. and E. A. Riotte	696,147	Mar. 25	3427	769	98	2476
Igniter. Electric	C. C. Reid	694,991	Mar. 11	1250	275	98	1996
Igniter for motors. Electric	W. A. Maybach	695,321	Mar. 11	1873	417	98	2123
Igniting-plug	I. H. Davis and E. D. Mellen	690,640	Jan. 7	525	115	98	112
Ignition-arch	J. P. Sneddon	690,473	Jan. 7	181	37	98	39
Ignition-plug for explosive-motors	J. B. Boisselot	692,975	Feb. 11	1404	304	98	1114
Illuminating and heating burner. Combination	V. K. Coffill	690,700	Jan. 7	645	141	98	136
Illuminating compound	G. E. J. Street	695,193	Mar. 11	1517		98	2048

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Illuminating structure	F. L. O. Wadsworth	693,068	Feb. 11	1602	349	98	1155
Incandescent lighting device	M. D. Hooker and W. H. Birchmore	690,578	Jan. 7	403	83	98	87
Incandescent-mantle support	J. F. Bredow	694,347	Mar. 4	12	3	98	1715
Incandescent mantles. Means for transporting	J. F. Bredow	691,889	Jan. 28	2804	630	98	685
Incline or transfer. Adjustable	A. J. Tullock, R. Modjeski, and B. B. Carter.	693,340	Feb. 11	2116	464 / 465	98	1961
Inclined elevator	J. W. Reno	696,198	Mar. 25	3503	755	98	2489
Incubator	V. S. Bell	691,857	Jan. 28	2799	629	98	834
Incubator	W. P. Hall	692,277	Feb. 4	113	25, 27	98	822
Incubator alarm attachment	R. H. Stevenson, Jr	695,245	Mar. 11	1734	384	98	2095
Indented and perforated material	H. Parker	691,804	Jan. 28	2789	618	98	621
Index and stencil-frame. Combined card-	J. S. Duncan	692,995	Feb. 11	1439	312	98	1121
Index. Ledger-	S. McMillen	695,226	Mar. 11	1706	378	98	2089
Indexes and printing-plates. Holder for card-	J. S. Duncan	692,994	Feb. 11	1437	312	98	1120
Indicator: *See* Engine-indicator. Fare-indicator. Load-indicator. Range-indicator. Revolving indicator. Station-indicator. Water-level indicator.							
Indicator	R. A. Wood	691,998	Jan. 28	2084	698	98	691
Indigo paste	P. Seidel	692,720	Feb. 4	868		98	981
Inflatable article	C. W. Curlin	691,118	Jan. 14	1306	317 / 318	98	305
Ingot. Compound	S. A. Cosgrave	694,618	Mar. 4	541	118	98	1898
Ingot-heating furnace	V. E. Edwards and P. B. Morgan	691,849	Jan. 28	2821	633	98	639
Ingot or billet heating furnace	J. B. Nau	694,569	Mar. 4	455	98	98	1810
Ingots and mold therefor. Manufacture of compound	S. A. Cosgrave	694,781	Mar. 4	763	169	98	1872
Inhaler. Ozone-	R. F. W. Smith	695,658	Mar. 18	2482	563 / 564	98	2267
Injector	W. D. Labadie	693,553	Feb. 18	2580	557	98	1366
Injector. Needle-valve	V. Gretter	693,645	Feb. 18	2719	600	98	1405
Ink. Copying-	E. P. Lawton	690,822	Jan. 7	987		98	197
Inkstand	L. I. Perry	690,796	Jan. 7	771	171	98	163
Inkstand	J. L. Kerstetter	691,721	Jan. 21	2545	570	98	565
Inkstand	J. V. La Grange	695,402	Mar. 11	2004	449	98	2131
Ink-well	L. M. Dyer and A. B. Colhoun	690,643	Jan. 7	890	116	98	118
Ink-well	G. Doherty	690,843	Jan. 7	907	202	98	198
Inking-ribbon spools. Box for	M. H. Chapin	696,132	Mar. 25	3373	761	98	2466
Insect-destroyer	D. J. Manning	691,909	Jan. 28	2918	658	98	659
Insect-destroyer	R. A. McCrone	694,682	Mar. 4	1052	233	98	1994
Insect-destroying apparatus	R. Joost and B. T. George	692,672	Feb. 4	812	184	98	966
Insect-guard	O. H. Watkins	694,901	Mar. 4	1084	239	98	1941
Insect parasites from vines or plants. Machine for removing	J. Brakeley	695,275	Mar. 11	1784	395 / 396	98	2105
Insect-powder. Device for smokelessly heating	J. C. Searle	692,075	Jan. 28	2220	729	98	790
Insecticide-distributer	A. S. Lee	691,948	Jan. 28	2991	672 / 673	98	674
Instep-arch supporter	G. N. Phelps	693,338	Feb. 4	212	51	98	843
Insufflator	E. C. Campbell	693,587	Feb. 18	2608	576	98	1381
Insulated conductor	E. Thomson and J. G. Callan	695,127	Mar. 11	1524	337	98	2050
Insulated joint for electrical conductors	E. W. Batchelor	695,705	Mar. 18	2558	579	98	2281
Insulating and packing material and manufacturing same.	M. Raphael and L. Elias	691,871	Jan. 28	2852	642	98	646
Insulating compound	H. N. Potter	694,989	Mar. 11	1257		98	1906
Insulating-conduit for conductors of electric tramways.	P. C. Seguy	691,495	Jan. 21	2135	479	98	480
Insulating covering material for electric cables, conductors, &c.	G. E. Heyl-Dia	692,013	Jan. 28	3105	697	98	695
Insulating material. Covering electric conductors with	G. E. Heyl-Dia	692,012	Jan. 28	3104	697	98	695
Insulating substance and manufacturing same	J. Stocker and H. Zander	695,587	Mar. 18	2856		98	2242
Insulation	W. S. Moody	691,796	Jan. 28	2717	610	98	518
Insulator for electric railways. Third-rail	C. M. Hobbs	693,608	Feb. 18	2642	583	98	1389
Iodin preparations. Manufacturing	M. Cohn	694,945	Mar. 11	1169		98	1978
Iron: *See* Branding-iron. Chafe-iron. Flat-iron. Sad-iron. Smoothing-iron.							
Iron and iron alloys. Manufacturing	F. C. Crean	695,670	Mar. 18	2498	567	98	2270
Iron. Manufacture of pig-	J. A. Potter	693,082	Feb. 11	1552	339	98	1145
Iron scrap. Treating	M. L. Sly	695,177	Mar. 11	1612		98	2070
Ironing-board	G. Dawe	690,982	Jan. 14	1067	240	98	239
Ironing-board	T. D. Montague	695,894	Mar. 11	1678	418	98	2122
Ironing-board support	A. J. Poehner	694,779	Mar. 4	858	189	98	1898
Ironing-machine	W. H. Dunn and D. McCurdy	691,755	Jan. 28	2647	592	98	603
Ironing-machine	C. W. Anderson	694,906	Mar. 4	1092	241	98	1943
Ironing-machine	D. H. Benjamin	695,901	Mar. 25	2916	660 / 661	98	2271
Ironing-table	R. Vannoy	692,949	Feb. 11	1353	294	98	1104
Ironing-table	J. J. Click	692,984	Feb. 11	1423	309	98	1117
Ironing-table	E. Fisk	694,360	Mar. 4	33	7	98	1719
Ironing-table	D. A. Sox	694,800	Mar. 4	897	199	98	1908
Ironing-table. Folding	J. M. Woods and J. R. Crumplar	695,851	Mar. 18	2830	641	98	2236
Jack: *See* Chain-jack. Fence-jack. Lifting-jack. Pipe-jack. Pumping-jack. Railway-track jack.							
Jacquard-machine driving mechanism	J. Dean	691,362	Jan. 21	1909	429	98	431
Jar: *See* Fruit-jar. Preserve-jar.							
Jar cap or closure	E. J. Smith	692,374	Feb. 4	275	66	98	856
Jar-closure	R. H. Austin	691,606	Jan. 21	2008	561	98	556
Jar cover and fastener	H. H. Stevens	696,113	Mar. 25	3342	753	98	2459
Jar holder. Fruit-	E. Himmelman	694,747	Mar. 4	789	175	98	1878
Jar or bottle closure	H. A. Hughes, Jr	691,382	Jan. 21	1939	437	98	438

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Jar-top wrench. Fruit-	E. Himmelman	694,748	Mar. 4	790	176	98	1878
Jeweler's mold	F. D. Strang	695,507	Mar. 18	2180	492	98	2204
Jewelry-securer	G. W. Washburn	698,764	Feb. 18	2928	644	98	1448
Jewelry. Setting for finger-rings or other articles of	C. T. Wittstein	694,594	Mar. 4	496	107	98	1818
Joint: *See* Concrete joint. Elastic joint. Expansion-joint. Furniture-joint. Insulated joint. Knee-joint. Pipe-joint. Rail-joint. Railway-joint. Railway-rail joint. Roof-joint. Universal joint. Water-joint.							
Journal-bearing. Antifriction	W. J. Brewer	694,607	Mar. 4	527	114, 115	98	1885
Journal-bearing-molding machine	F. J. Lass	695,740	Mar. 18	2014	593, 594	98	2298
Journal-box	G. S. Marshall	690,975	Jan. 14	1147	200	98	255
Journal-box	W. E. Sharp	698,073	Feb. 11	1576	343, 344	98	1149
Journal-box	G. W. Lewis	698,411	Feb. 18	2261	495	98	1311
Journal-box	P. Brown	698,997	Feb. 25	3410	750, 751	98	1562
Journal-box	R. C. Enyart	694,358	Mar. 4	30	7	98	1718
Journal-box	F. W. Thomas	690,488	Jan. 7	908	41	98	45
Journal box and bearing	F. B. Harrison	693,284	Feb. 4	122	28	98	823
Journal-box dust-guard	M. Owens	692,884	Feb. 4	206	50	98	841
Journal-box. Dust-proof	J. H. Stahley	695,943	Mar. 11	1729	383	98	2094
Junction or outlet box. Electric	E. Norton	691,166	Jan. 14	1491	336	98	826
Keg for white lead or other heavy materials. Metallic	W. S. Palmer	691,801	Jan. 28	2736	617	98	621
Kettle or dish scraper or cleaner	F. E. Brown	690,396	Jan. 7	21	5	98	7
Key: *See* Operator's key.	C. J. Schumacher	692,167	Jan. 28	3379	766	98	751
Key-holder	L. Lacroix and H. Brisselet	695,318	Mar. 11	1870	416	98	2121
Key-holder	C. F. Keller	691,273	Jan. 14	1684	388	98	366
Keyhole-guard	E. A. Judd	698,028	Feb. 11	1486	324	98	1131
Keyless lock	A. F. Corbin	698,114	Feb. 11	1675	364	98	1159
Keyless lock	W. H. Taylor	690,537	Jan. 7	326	66	98	70
Keyless lock	B. H. Larkin	698,282	Feb. 11	2011	437, 438	98	1237
Key-lock. Changeable-combination	C. S. Champion	698,373	Feb. 18	2189	481	98	1296
Key-opening can. Vacuum-sealed and seamed	E. C. Brice	695,904	Mar. 25	2925	662, 663	98	2372
Key-operated machine	R. F. Phillips	692,339	Feb. 4	212	51	98	848
Kiln: *See* Brick-kiln. Ceramic-ware kiln. Dry-kiln. Lime, cement, or like kiln. Limekiln. Malt-kiln.	L. E. Granichstaedten	698,856	Feb. 25	3118	691	98	1505
Kiln for burning bricks, &c	H. C. Needham	694,491	Mar. 4	288	65	98	1772
Kiln for drying green sand cores	A. M. Schiele	694,798	Mar. 4	690	197	98	1900
Kinematograph	S. W. Fletcher	692,998	Feb. 11	1442	313	98	1121
Kitchen implement. Combination	H. R. Saunders	691,875	Jan. 28	2857	648	98	647
Kitchen-rack	G. W. Greenwood	696,285	Mar. 25	3582	802	98	2505
Kite attachment	J. E. Carlson	690,927	Jan. 14	1058	238	98	238
Kite. Musical	E. Hemstrom	691,861	Jan. 28	2838	628	98	643
Knee-joint or hinge connection	A. Zwicker	694,814	Mar. 4	912	203, 204	98	1905
Knife: *See* Manicure-knife. Pocket-knife.	A. L. Sweet	695,756	Feb. 18	2912	640, 641	98	1444
Knife	A. Perdriel	692,542	Feb. 4	579	135	98	912
Knife	W. L. Iwan	696,050	Mar. 25	3198	722	98	2427
Knife	G. F. Bell	692,816	Feb. 11	1067	240	98	1046
Knife-blade-finishing machine	J. A. Wright and W. F. O'Neill	695,188	Mar. 11	1626	361	98	2073
Knife for cutting asparagus, &c	L. A. Désy	692,195	Jan. 28	3434	777, 778	98	702
Knife for cutting hay, cane, &c	G. A. Leighton	698,400	Feb. 18	2250	494	98	1310
Knife for cutting ropes used in boring Artesian or oil wells.	C. J. Appleton	691,898	Jan. 28	2931	646, 649, 650, 651	98	659
Knife-switch	W. G. Stewart	694,086	Feb. 25	3498	709	98	1579
Knitting-machine	R. Rohleder	694,195	Feb. 25	3782	886	98	1837
Knitting-machine attachment	H. A. Houseman	694,382	Mar. 4	84	19, 20	98	1729
Knitting machine. Circular-	F. Wilcomb	691,686	Jan. 21	2485	557	98	552
Knitting-machine splicing mechanism	G. W. Ruth	690,775	Jan. 7	787	175	98	166
Knitting-machine tension device	W. D. and L. C. Huse	696,897	Feb. 18	2230	490, 491	98	1805
Knitting-machine tucking and welting attachment	W. P. Young	694,515	Mar. 4	995	74, 75	98	1783
Knitting-machine yarn-changing mechanism. Circular-	C. Glover	692,265	Feb. 4	96	22	98	818
Knob attachment	C. Glover	692,266	Feb. 4	97	23	98	818
Knob attachment	W. Scharnweber	692,550	Feb. 4	589	128	98	916
Knob attachment	F. White	698,197	Feb. 11	1654	403	98	1206
Knockdown chair	O. H. C. Voigt	694,509	Mar. 4	906	202	98	1908
Label-holder for bottles, &c	J. W. Butterfield and B. C. Schmitt	696,852	Feb. 25	3003	676	98	1494
Labels. Machine for applying paste to	E. N. Gilfillan and E. T. McKaig	692,055	Jan. 28	3198	720, 721	98	713
Labeling-machine	J. A. Turney	692,492	Feb. 4	474	111	98	895
Labeling-machine	E. N. Gilfillan and E. T. McKaig	694,915	Mar. 4	1109	245	98	1946
Labeling-machine							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Labeling-machine	J. T. Whitehurst and F. W. Wild, Jr.	696,218	Mar. 25	3555	795, 796	98	2500
Lace fastener. Shoe-	E. E. Frutchey	691,128	Jan. 14	1419	322	98	810
Lace holder. Shoe-	J. A. Leslie	694,653	Mar. 4	602	132	98	1840
Lace-rack	M. M. Savlan	694,428	Mar. 4	181	39	98	1751
Laces, &c. Machine for manufacturing shoe-	H. S. Pullman	690,995	Jan. 14	1188	209	98	263
Lacer. Shoe-	W. Freck	691,853	Jan. 28	2820	638, 639	98	640
Lacing device. Gang	J. C. Telfer	695,012	Mar. 11	1800	286	98	2004
Lacing-hook	F. J. A. Perry	690,993	Jan. 14	1186	268	98	263
Lacing-hook	F. H. Rees. (Reissue)	11,972	Feb. 18	3045	672	98	1471
Lacing-hook-setting-machine separator and stop	J. Pierce	692,340	Feb. 4	214	51	98	843
Lacing machine. Shoe-	D. A. Williamson	692,956	Feb. 11	1365	297	98	1106
Lacing-strip	O. A. Albrecht	695,362	Mar. 11	1937	431	98	2136
Lacing stud or hook	J. D. Stirckler	695,961	Mar. 25	3024	686	98	2391
Ladder. Aerial	F. S. Seagrave	691,878	Jan. 28	2866	645, 646	98	649
Ladder. Aerial	F. S. Seagrave	691,879	Jan. 28	2867	646	98	649
Ladder and escape. Fire	P. Bastianello	692,104	Jan. 28	3280	742	98	730
Ladder and shelf combined. Step-	C. E. Page	693,892	Feb. 25	3189	704	98	1518
Ladder. Extension-	P. Pirsch	690,462	Jan. 7	146	31	98	88
Ladder. Fire-	J. H. Stainbrook	692,728	Feb. 4	898	205	98	982
Ladder lock. Automatic extension-	L. Ferguson	691,051	Jan. 14	1299	294	98	286
Ladle	T. H. Nance	692,697	Feb. 4	853	195	98	974
Ladle	F. Baldt	694,937	Mar. 11	1157	253	98	1976
Lamp	W. J. Smart	694,435	Mar. 4	190	42	98	1753
Lamp	W. R. Willson	695,985	Mar. 25	3067	695	98	2400
Lamp. Acetylene-gas-generating	E. M. Rosenbluth	693,069	Feb. 11	1568	342	98	1147
Lamp-burner	G. A. Smith	692,061	Jan. 28	3250	734	98	724
Lamp-burner	W. A. Penfield	692,701	Feb. 4	862	197	98	976
Lamp-burner	J. Gregory	693,006	Feb. 11	1452	315	98	1124
Lamp-burner	H. S. Tompkins	693,464	Feb. 18	2260	517	98	1831
Lamp-burner attachment	H. L. Hills	694,858	Mar. 4	1003	222	98	1925
Lamp burner. Oil-	F. T. Williams	691,832	Jan. 28	2791	627, 628	98	633
Lamp. Carriage-	E. M. Rosenbluth	693,070	Feb. 11	1570	342	98	1148
Lamp. Cluster incandescent gas-	S. Joseph	692,449	Feb. 4	400	96	98	881
Lamp. Electric	W. McConnell	695,756	Mar. 18	2641	600	98	2299
Lamp. Electric-arc	S. H. Johnson	691,549	Jan. 21	2224	500, 501	98	498
Lamp. Electric-arc	H. C. Spinney	691,621	Jan. 28	2770	624	98	628
Lamp. Electric-arc	H. Etheridge	691,851	Jan. 28	2825	633, 634	98	639
Lamp. Electric-arc	S. M. Meyer	693,041	Feb. 11	1511	329	98	1137
Lamp. Electric-arc	S. M. Meyer	693,663	Feb. 18	2746	606	98	1410
Lamp. Electric-arc	J. A. Heany	693,705	Feb. 18	2830	623	98	1426
Lamp. Electric-arc	J. A. Heany	693,706	Feb. 18	2832	624	98	1427
Lamp. Electric-arc	M. S. Okun	694,410	Mar. 4	147	33	98	1744
Lamp. Electric glower-	H. N. Potter	696,380	Mar. 25	3904	866	98	2571
Lamp. Gas arc-	J. K. Russell and W. F. Clausen	691,001	Jan. 14	1202	272	98	266
Lamp glowers. Making electric-	M. W. Hanks	690,856	Jan. 7	924	206	98	195
Lamp-hanger	H. J. Harrison	695,308	Mar. 11	1859	413	98	2118
Lamp heater-wire support and making same. Electric-	H. N. Potter	695,946	Mar. 25	2996	678	98	2385
Lamp. Hydrocarbon-	S. B. Morse	691,068	Jan. 14	1323	290	98	291
Lamp. Incandescent	H. Garwood	692,260	Feb. 4	88	20	98	817
Lamp. Incandescent	H. Boehm	693,222	Feb. 11	1914	416	98	1217
Lamp. Incandescent	E. McOuat	694,068	Feb. 25	3545	782	98	1590
Lamp. Incandescent	L. Thayer	695,844	Mar. 18	2809	639	98	2333
Lamp. Incandescent	P. M. J. Juge and A. E. Grisel	696,100	Mar. 25	3308	745	98	2452
Lamp. Incandescent electrode vapor electric	P. C. Hewitt	690,952	Jan. 14	1098	247	98	245
Lamp. Incandescent gas-	W. Tice	694,695	Mar. 4	691	150	98	1857
Lamp or oil-heater burners. Wick-stop for	W. A. Penfield	691,710	Jan. 21	2528	566	98	561
Lamp-shade	S. Takaba	693,460	Feb. 18	2354	515	98	1330
Lamp-socket	J. C. Tournier	690,487	Jan. 7	216	43	98	47
Lamp-socket	H. P. Clausen	690,928	Jan. 14	1060	238	98	238
Lamp socket. Electric-	S. A. Koltonski	692,458	Feb. 4	413	98	98	883
Lamp socket. Electric-	J. D. Pierce	693,788	Feb. 18	2888	635	98	1440
Lamp socket. Incandescent-	N. Marshall	690,976	Jan. 14	1149	260	98	256
Lamp socket. Incandescent-	H. T. Paiste	696,261	Mar. 25	3035	512	98	2517
Lamp socket. Incandescent-electric-	A. McKenzie	691,563	Jan. 21	2246	506	98	503
Lamp socket. Incandescent electric-	J. W. H. Uytenbogaart	693,087	Feb. 11	1601	349	98	1155
Lamp sockets. Insulating lining for incandescent-	H. T. Paiste	692,700	Feb. 4	861	197	98	975
Lamp. Street-	F. A. R. Adam	691,886	Jan. 28	2877	548	98	651
Lamp support. Incandescent-	F. W. Morse	695,646	Mar. 18	2466	559	98	2264
Lamps. Automatic lighter or extinguisher for gas-	N. H. Shaw	691,917	Jan. 28	2931	660, 661	98	662
Lamps connected in series. System of distribution for electric	M. C. Beebe	695,900	Mar. 25	2915	660	98	2370
Lamps. Gas-detecting attachment for miners' safety-	M. D. Mackie	692,885	Feb. 11	1213	269	98	1074
Lamps having incandescent mantles. Burner for oil-	L. C. Nielsen	692,470	Feb. 4	436	102	98	888
Lamps. Removable heater for electric	M. W. Hanks	695,928	Mar. 25	2965	671	98	2380
Land-roller	J. C. Stark	694,213	Feb. 25	3814	843	98	1642
Lantern-slide-moving device. Automatic	W. Fredrick	695,548	Mar. 18	2968	513	98	2228
Lap-board	W. R. Hoffmann	695,044	Mar. 25	3189	720	98	2426
Lapping-machine	W. I. Lewis	695,160	Mar. 11	1583	352	98	2064
Last	J. C. Iredale	692,447	Feb. 4	397	96	98	880
Last	E. S. Morton	694,659	Mar. 4	619	134	98	1843
Last	E. C. Verrill	696,215	Mar. 25	3550	794	98	2499
Last	C. B. Kosters	696,246	Mar. 25	3608	806	98	2510
Last. Darning-	A. E. Macdonald	694,562	Mar. 4	440	95	98	1806
Last-trimming machine	B. Gallagher	692,844	Feb. 11	1111	249	98	1092
Lasting-machine	R. H. Chamberlin	696,687	Feb. 18	2902	616, 617	98	1422

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lasting-machine	M. F. Kelley	698,730	Feb. 18	2832	628, 629	98	1431
Latch	G. E. Ballard	691,590	Jan. 21	2185	490	98	490
Latch	C. P. Howard	696,176	Mar. 25	3478	779	98	2485
Latch. Door-	C. B. Livingston	692,463	Feb. 4	423	100	98	895
Latch. Door-	I. D. Beach	695,267	Mar. 11	1778	398	98	1103
Latch. Door thumb-	H. Chesher	692,827	Feb. 11	1086	243	98	1046
Latch-operating device. Door-	T. G. Leslie	695,319	Mar. 11	1871	416	98	2121
Lath for plastering-foundations	J. John	690,435	Jan. 7	94	21	98	33
Lathe attachment for cutting spirals	E. Rivett	692,063	Jan. 28	3143	709	98	706
Lathe attachment for relieving the teeth of cutters	F. W. Parker	690,763	Jan. 7	767	171	98	169
Lathe for turning irregular forms	W. L. Cole	696,093	Mar. 25	3276	741, 742	98	2443
Lathe. Multiple-spindle	F. Hirsch	694,277	Feb. 25	3025	873, 874, 875	98	1665
Lathe-tool	W. F. Koeller and H. Dyer	693,974	Feb. 25	3349	736	98	1550
Lathe work. Multiple gage for	E. J. Bowers	696,809	Mar. 25	3743	886, 887	98	2541
Lathes. Automatic reversing tapping attachment for	A. Klein	693,655	Feb. 18	2733	608	98	1408
Laundry-bag	G. H. Grant	690,854	Jan. 7	921	206	98	194
Laundry bracket or clamp	J. T. Watkins	694,302	Feb. 25	3071	884	98	1676
Laundry-machine	D. W. Keith	693,080	Feb. 11	1487	325	98	1132
Lawn-sprinkler	H. Papenfus	690,763	Jan. 7	766	170	98	169
Lawn-sprinkler	A. Vandervoort	691,419	Jan. 21	2001	449	98	451
Lawn-sprinkler. Traveling	A. Munch	693,421	Feb. 18	2281	500	98	1314
Lawn-trimmer	W. H. Moss	695,166	Mar. 11	1768	354	98	2066
Lead. Apparatus for manufacturing white	F. J. Corbett	694,139	Feb. 25	3060	809	98	1613
Lead drier. White-	T. E. Kearns	693,869	Feb. 25	3137	694	98	1508
Lead from lead ores. Obtaining metallic	A. Germot	690,520	Jan. 7	308	.....	98	66
Lead. Manufacturing white	F. J. Corbett	694,138	Feb. 25	3057	809	98	1613
Leaf-turner	W. J. Brashears	690,395	Jan. 7	18	4	98	7
Leather and producing it. Imitation	H. Rosenberg	695,627	Mar. 18	2434	.....	98	2256
Leather articles. Machine for buffing	J. R. Scott	694,431	Mar. 4	184	40, 41	98	1758
Leather-coloring machine	W. H. Moore	693,561	Feb. 18	2541	560, 561	98	1360
Leather-stretching device	J. Caldwell	690,807	Jan. 7	21	5	98	6
Leather-stretching device	J. Caldwell	692,615	Feb. 4	709	164	98	944
Leather-stretching-machine clamp	R. L. Braucht	691,106	Jan. 14	1379	314	98	303
Leather-treating machine	H. A. Ballard and W. A. Copeland	691,303	Jan. 14	1750	398, 399	98	379
Leather-working machine	H. A. Ballard	691,302	Jan. 14	1746	397	98	378
Leather-working machine	E. E. Chain and W. B. Turner	691,306	Jan. 14	1764	401, 402	98	383
Leather-working machine	E. E. Chain and W. A. Copeland	691,307	Jan. 14	1768	402, 403	98	383
Leather-working machine	A. F. Jones	695,739	Mar. 18	2596	598	98	2280
Leather-working machine	C. P. Vaughn	696,770	Mar. 18	2661	605	98	2302
Ledger. Loose-leaf	A. V. Wells	693,767	Feb. 18	2963	645	98	1449
Leg. Artificial	J. A. Peer	694,325	Feb. 25	4074	907	98	1669
Leg-guard	J. Mitchell	693,730	Feb. 18	2977	633	98	1436
Leno-selvage motion	H. H. Sutcliffe	691,204	Jan. 14	1556	353	98	339
Lens-cutting machine	G. W. Fowle	696,168	Mar. 25	3461	775	98	2488
Lens-drilling machine	W. Bowker, E. M. Long, and C. W. Howland.	695,902	Mar. 25	3919	661, 662	98	2371
Lens-drilling machine	L. Wilhelm	695,990	Mar. 25	3957	698	98	2398
Lens-grinding machine	F. G. Wilson	691,225	Jan. 14	1590	362, 363	98	347
Lens system	E. F. Grün	695,606	Mar. 18	2396	541, 542	98	2249
Lenses accurately in relation to their focal center while being cut. Apparatus for cutting elliptical or other shaped	J. West	691,220	Jan. 14	1582	361	98	345
Lenses. Apparatus for determining and marking focal center of spherical	J. West	691,217	Jan. 14	1575	358, 359	98	344
Lenses. Machine for forming and finishing edges of	J. West	691,219	Jan. 14	1578	359, 360	98	344
Lenses while such lenses are being shaped and edged. Apparatus for attaching holding devices to	J. West	691,218	Jan. 14	1576	359	98	344
Letter-box	H. Hettinger	692,852	Feb. 11	1127	252	98	1055
Letters. Apparatus for automatically insuring, registering, and franking	A. Franc and F. Voland	692,512	Feb. 4	512	120, 121, 122	98	908
Level and plumb	J. V. Janin	691,146	Jan. 14	1448	329, 330	98	316
Level. Spirit-	D. Lesh	691,063	Jan. 14	1317	296	98	290
Level. Spirit-	J. H. Jackson	691,631	Jan. 21	2202	537	98	523
Level. Spirit-	J. R. Wood	692,097	Jan. 28	3273	740	98	739
Leveling and measuring the grade of surfaces. Apparatus for	W. F. Cook	695,145	Mar. 11	1557	345	98	2059
Leveling-machine	J. J. Heys	693,016	Feb. 11	1486	319	98	1127
Leveling-rod. Engineer's	J. H. Beckley	695,528	Mar. 18	2228	504	98	2215
Life-preserver	C. Gore	691,341	Jan. 14	1663	420	98	407
Life-preserver	G. Hamberger and G. A. Stelzer	692,278	Feb. 4	115	27	98	893
Life-saving apparatus	I. W. Maccolini	691,153	Jan. 14	1460	332	98	319
Life-saving suit	H. M. Brand	693,995	Feb. 25	3409	750	98	1523
Lifter: *See* Pan-lifter. Pie-lifter. Potato-lifter. Store-goods lifter.							
Lifting and conveying apparatus	C. F. Nickey	691,962	Jan. 28	3017	677, 678, 679	98	678
Lifting-jack	H. McDermid	692,536	Feb. 4	569	154	98	914
Lifting-jack	J. H. Koons	695,816	Mar. 11	1867	415	98	2120
Light and mirror. Combined	G. J. Paynter and F. C. Watson	695,338	Mar. 11	1807	428	98	2127

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'ss	Official Gazette. Vol.	Official Gazette. Page.
Lighting device	B. S. Philbrook	691,071	Jan. 14	1328	300	98	292
Lightning-conductor	A. Lelong	693,555	Feb. 18	2532	558	98	1366
Lightning-conductor anchor-fastener	C. Bajohr	693,213	Feb. 11	1902	412	98	1214
Limb. Artificial	J. F. Rowley	692,360	Feb. 4	253	61	98	851
Limb. Artificial	J. E. Seeley	692,719	Feb. 4	897	203	98	981
Limb stump-socket. Artificial	L. Stumpf	692,803	Feb. 4	1046	235	98	1010
Lime, cement, or like kiln	I. Isserlis	691,145	Jan. 14	1446	329	98	816
Limekiln	W. Gleason	693,599	Feb. 18	2637	581, 582	98	1388
Lining material	C. S. Bird	694,522	Mar. 4	358	78	98	1789
Link. Detachable	W. H. Baker	691,433	Jan. 21	2030	455	98	458
Linoleum, &c. Apparatus for producing color patterns in	C. Tönjes	693,759	Feb. 18	2921	642	98	1446
Linoleum. Manufacture of inlaid	K. Klie and O. Poppe	692,677	Feb. 4	818	.....	98	967
Linotype	D. F. Daley	694,141	Feb. 25	3004	810	98	1614
Linotype justifying device	J. R. Rogers	694,788	Mar. 4	881	195	98	1998
Linotype-machine	P. T. Dodge	690,707	Jan. 7	657	144	98	139
Linotype-machine	M. H. Whittaker	691,685	Jan. 21	2483	556, 557	98	552
Linotype-machine matrix	J. R. Rogers	694,789	Mar. 4	883	196	98	1999
Linotype or other metal-casting machines. Adjustable mold for	M. P. Freebey	692,183	Jan. 28	3413	773	98	758
Linotypes. Means for producing fudge or late-news	R. C. Elliott and C. Holliwell	691,615	Jan. 21	2355	529, 530	98	524
Liquid. Apparatus for delivering equal quantities of	A. Musciacco	692,328	Feb. 4	195	45, 46	98	840
Liquid-concentrating apparatus	W. Venuleth	691,210	Jan. 14	1564	355	98	341
Liquid-cooler	P. J. Doyle	691,613	Jan. 21	2353	529	98	523
Liquid-cooling device	B. W. Mason	691,790	Jan. 28	2714	609	98	617
Liquid-dispensing apparatus	W. E. Gallagher	692,438	Feb. 4	378	92	98	877
Liquid-dispensing apparatus	W. and W. Hucks, Jr	694,646	Mar. 4	589	130	98	1837
Liquid-elevating system	D. P. Burdon	693,813	Feb. 18	3014	666, 667	98	1465
Liquid-heating furnace	D. Laird	691,866	Jan. 28	2845	640, 641	98	644
Liquid-holder. Fountain	M. Pfeifer	695,945	Mar. 25	2996	677	98	2385
Liquid-meter	W. G. Kent	693,082	Feb. 11	1490	326	98	1133
Liquid-separator	C. J. Jeppesen	691,469	Jan. 21	2094	469	98	471
Liquid-separator. Centrifugal	P. M. Sharples	690,883	Jan. 7	971	220	98	204
Liquid-separators. Liner for centrifugal	N. W. Gales	694,736	Mar. 4	772	172	98	1875
Liquids. Apparatus for storing, measuring, and delivering aerated	F. G. Pirie and F. Sharman	694,187	Feb. 25	3770	833	98	1634
Liquor from diffusion vessels. Drawing off and measuring	K. Sedlaczek	696,200	Mar. 25	3518	788	98	2493
Lithographic process	C. H. Prinke	694,574	Mar. 4	463	.....	98	1811
Load-indicator	M. F. Sinclair	695,890	Mar. 18	2893	656	98	2351
Loading manure, &c., on wagons. Apparatus for	A. F. Woods	693,769	Feb. 18	2989	646	98	1450
Loading or unloading apparatus	J. T. Dempsey	693,845	Feb. 25	3097	685	98	1500
Loading or unloading bulk cargoes. Apparatus for	A. W. Robertson	692,355	Feb. 4	243	58, 59	98	849
Lock: *See* Air-lock, Automobile-lock, Bag-lock, Bicycle-lock, Caisson air-lock, Can-lock, Car-door lock, Carriage-door lock, Electric lock, Espagnolette-lock, Key-lock, Keyless lock, Ladder-lock, Oar-lock, Padlock, Pipe-joint lock, Quoin-lock, Sash-lock, Seal-lock, Traveler's lock, Valve-lock.							
Lock	A. R. Fergusson	691,124	Jan. 14	1406	321	98	307
Lock	A. R. Fergusson	691,125	Jan. 14	1411	321	98	309
Lock	E. F. Rogers	691,180	Jan. 14	1512	340	98	330
Lock	C. D. Logan	692,792	Feb. 4	1019	230	98	1005
Lock	F. A. Hickson	693,602	Feb. 18	2941	583	98	1388
Lock	O. Katzenberger	693,719	Feb. 18	2950	628	98	1431
Lock	R. H. Hearn	695,642	Mar. 18	2458	558	98	2262
Lock and latch. Combined	M. C. Patrick	692,068	Jan. 28	3216	726, 727	98	717
Lock-cylinder	E. H. Mix	696,067	Mar. 25	3231	731	98	2434
Lock or clutch for sectional cases	F. L. Forster	692,052	Jan. 28	3188	720	98	711
Locking mechanism for safes or vaults. Duplex	H. D. Hibbard	691,942	Jan. 28	2978	670	98	670
Locket. Combination puzzle	A. D. Fisher	692,650	Feb. 4	758	174	98	955
Locomotive	L. Atwood	693,209	Feb. 11	1196	410	98	1213
Locomotive	S. M. Vauclain	695,283	Mar. 25	3071	821	98	2525
Locomotive ash-pan	H. L. Browder	690,827	Jan. 7	886	196	98	187
Locomotive ash-pan	M. Toltz and A. Lipschutz	695,968	Mar. 25	3092	687, 688	98	2392
Locomotive-boiler	C. W. Newton	692,896	Feb. 11	1286	273, 274	98	1079
Locomotive-boiler	S. S. Riegel	694,786	Mar. 4	876	194	98	1897
Locomotive front-end-coupling gear	J. F. Dunn	695,291	Mar. 11	1880	407	98	2113
Locomotive-pilot and car-coupling therefor	E. Grafstrom	695,684	Mar. 18	2594	571, 572	98	2274
Locomotive-springs. Spring-hanger for underhung	H. A. Gillis	690,851	Jan. 7	918	205	98	194
Log-turner	T. S. Wilkin	691,517	Jan. 21	2131	468	98	489
Logging-cars. Means for retaining and releasing loads on	R. E. White	695,357	Mar. 11	1986	429	98	2133
Loom	E. Wackerhagen	691,088	Jan. 14	1351	305	98	297
Loom	W. Fischer, Jr	691,370	Jan. 21	1993	432	98	434
Loom	H. Bardsley	691,578	Jan. 21	2281	512	98	510
Loom	C. F. Roper	692,911	Feb. 11	1259	279	98	1083
Loom	J. Willis	693,677	Feb. 18	2777	611	98	1417
Loom	E. Nierhaus and P. Kaiser	694,108	Feb. 25	3610	798, 799	98	1602

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Loom	C. J. Nauen	695,682	Mar. 18	2490	548	98	2254
Loom bobbin-holder. Circular-	C. N. Brown	694,128	Feb. 25	3543	805	98	1610
Loom detector mechanism. Weft-replenishing-	W. H. Baker and F. E. Kip	692,591	Feb. 4	666	156	98	985
Loom electric filling-changing mechanism	F. M. Armstrong and J. A. Clark	695,363	Mar. 11	1938	432	98	2138
Loom electrical weft-indicator mechanism	S. M. Hamblin	694,961	Mar. 11	1904	363	98	1984
Loom filling-carrier	H. W. Smith	691,816	Jan. 28	2762	622	98	696
Loom. Filling-replenishing	J. C. Edwards	692,456	Jan. 21	2072	464	98	466
Loom. Filling-replenishing	J. Northrop	691,462	Jan. 21	2111	474	98	474
Loom. Filling-replenishing	N. Ward	691,734	Jan. 21	2574	577	98	571
Loom filling-replenishing mechanism	C. H. Draper and E. S. Stimpson	695,040	Mar. 11	1388	298 929	98	2016
Loom filling-replenishing mechanism	J. A. G. Goulet	695,045	Mar. 11	1866	309	98	2018
Loom. Filling-supplying	A. M. Marcoux	693,558	Feb. 18	2537	559	98	1367
Loom for making straw matting	W. Wattie	693,091	Feb. 11	1607	350	98	1765
Loom. Hammock-	Z. L. Chadbourne	695,792	Mar. 18	2714	617 618 619 620	98	2314
Loom harness-operating mechanism	W. R. Harding	693,796	Feb. 18	2981	658 659	98	1458
Loom-heddle	C. F. Roper	696,094	Mar. 25	3261	737	98	2440
Loom jacquard mechanism	R. Chwalla	693,540	Feb. 18	2509	552 553	98	1362
Loom loose-reed motion	A. B. Taplin	696,212	Mar. 25	3544	733	98	2498
Loom pattern mechanism	E. W. Davenport and H. Bardsley	691,608	Jan. 21	2340	526	98	521
Loom-picker	F. A. Wardwell	691,312	Jan. 14	1569	356	98	342
Loom picker-motion	D. Durkin	693,598	Feb. 18	2921	579	98	1394
Loom-picker. Pneumatic	J. von Miniszewski	691,736	Jan. 21	2558	572 573	98	568
Loom picker-stick connection	E. Cheverette	694,352	Mar. 4	20	5	98	1716
Loom shedding mechanism	J. W. Platt	690,873	Jan. 7	950	213 214	98	200
Loom shedding mechanism	B. Hilbert	695,609	Mar. 18	2400	543	98	2250
Loom shedding-motion	W. C. Asimos	690,388	Jan. 7	7	2	98	4
Loom-shuttle	H. Bardsley	691,577	Jan. 21	2279	512	98	509
Loom-shuttle	E. W. Davenport and H. Bardsley	691,607	Jan. 21	2338	526	98	521
Loom shuttle-box-operating mechanism	H. Bardsley	693,681	Feb. 18	2784	613	98	1418
Loom-shuttle-checking means	C. H. Draper	692,835	Feb. 11	1099	246	98	1049
Loom-shuttle. Self-threading	E. S. Stimpson	692,801	Feb. 4	1043	234	98	1009
Loom-shuttle tension device	H. K. Seitz and C. H. Hannigan	693,164	Feb. 11	1779	390	98	1189
Loom stop-motion	N. and G. Fortier	694,362	Mar. 4	35	8	98	1719
Loom. Swivel-	R. Atherton	691,987	Jan. 28	2948	663 664	98	665
Loom take-up mechanism	Z. L. Chadbourne	695,373	Mar. 11	1959	437 438	98	2141
Loom-temple	E. S. Stimpson	692,087	Jan. 28	2259	737	98	725
Loom warp-beam support. Narrow-ware-	F. B. Wilkins	695,983	Mar. 25	3062	694	98	2399
Loom warp stop-motion	J. Coldwell and C. G. Gildard	690,636	Jan. 7	514	112	98	110
Loom warp stop-motion	J. V. and E. Cunniff	691,533	Jan. 21	2301	495	98	494
Loom warp stop-motion	J. E. Lemyre	692,316	Feb. 4	172	40	98	834
Loom warp stop-motion	J. V. and E. Cunniff	692,431	Feb. 4	367	90	98	875
Loom warp stop-motion	H. Wyman	694,088	Feb. 25	3571	789	98	1595
Loom warp stop-motion	F. B. Wilkins	695,981	Mar. 25	3059	693	98	2398
Loom warp stop-motion. Narrow-ware-	D. W. Denny	693,501	Feb. 18	2435	532	98	1347
Loom weft-fork clearer	W. W. Harrison and J. Holt	691,375	Jan. 21	1930	434	98	496
Loom weft-motion. Haircloth-	H. I. Harriman	692,136	Jan. 28	3337	756 757	98	743
Loom. Weft-replenishing	C. and G. Brun	691,043	Jan. 14	1293	291	98	293
Loom weft-replenishing mechanism	W. H. Baker and F. E. Kip	692,590	Feb. 4	663	155	98	984
Loom weft-replenishing mechanism	H. W. Smith	692,933	Feb. 11	1309	286 287	98	1096
Loom weft-replenishing mechanism	H. W. Smith	692,934	Feb. 11	1314	287	98	1096
Loom weft-replenishing mechanism	H. W. Smith	692,935	Feb. 11	1319	288	98	1097
Loom weft-replenishing mechanism	F. O'Donnell	695,696	Mar. 18	2546	576	98	2278
Loom weft stop-motion. Narrow-ware-	F. B. Wilkins	695,982	Mar. 25	3060	694	98	2399
Looms. Appliance for beating up the weft in	H. Panitschek and C. Herold	696,263	Mar. 25	3639	814	98	2518
Looms. Electric-circuit closer for	H. W. Smith	691,979	Jan. 28	3044	685	98	684
Looms. Electric-circuit closer for	H. W. Smith	692,924	Feb. 11	1291	283	98	1092
Looms. Electric-circuit closer for	H. W. Smith	692,925	Feb. 11	1293	284	98	1092
Looms. Electric-circuit closer for	H. W. Smith	692,926	Feb. 11	1295	284	98	1093
Looms. Electric-circuit closer for	H. W. Smith	692,927	Feb. 11	1296	284	98	1093
Looms. Electric-circuit closer for	H. W. Smith	692,928	Feb. 11	1298	284	98	1093
Looms. Electric-circuit closer for	H. W. Smith	692,929	Feb. 11	1299	285	98	1093
Looms. Electric-circuit closer for	H. W. Smith	692,930	Feb. 11	1301	285	98	1094
Looms. Electric-circuit closer for	H. W. Smith	692,931	Feb. 11	1302	285	98	1094
Looms. Electric filling-changing mechanism for	H. W. Smith	692,932	Feb. 11	1304	285 286	98	1095
Looms. Electromechanical controlling mechanism for	J. C. Edwards	690,644	Jan. 7	532	116	98	114
Low-water alarm	C. H. Shuttleworth	692,488	Feb. 4	465	109	98	893
Lubricant holder. Non-fluid-	G. W. Brown	694,609	Mar. 4	530	115	98	1625
Lubricating apparatus	H. Hamelle	691,905	Jan. 28	2913	657	98	658
Lubricating apparatus	W. J. Ruff	696,197	Mar. 25	3510	787	98	2491
Lubricating device	M. W. Taylor	692,558	Feb. 4	600	141 142	98	930
Lubricating-pump	J. F. McCanna	691,478	Jan. 21	2106	473	98	473
Lubricating steam-turbines, &c	A. C. E. Rateau and G. Sautter	691,914	Jan. 28	2927	650 660	98	651
Lubricator: *See* Piston-lubricator.							
Lubricator	H. Ritter	691,570	Jan. 21	2360	508	98	505
Lubricator	T. S. James	691,632	Jan. 21	2398	538	98	538
Lubricator	B. T. McCanna and T. A. Delaney	694,406	Mar. 4	135	30	98	1741
Lubricator	G. Fisher	695,603	Mar. 18	2283	509	98	2247
Luggage-rack	H. Clark	690,699	Jan. 7	643	140	98	130

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lumber-conveyer for double-cutting band-mills	E. E. Thomas	693,630	Feb. 18	2094	594, 595	98	1399
Lumber-conveyer for double-cutting band-mills	E. E. Thomas	693,809	Feb. 18	3008	665	98	1464
Lumber jointing and sizing machine	R. S. Hill	691,267	Jan. 14	1669	380, 381	98	364
Lumber or structure. Compound	G. L. Smith	693,915	Feb. 25	3295	718	98	1527
Lung-tester. Dummy	E. and U. S. De Moulin	692,251	Feb. 4	64	14	98	812
Machine-tool feed mechanism	H. B. Binase	695,665	Mar. 18	2492	566	98	2269
Machine-tools. Device for adjusting the work on	H. Hess	693,015	Feb. 11	1464	318	98	1127
Magnesia compound	E. Rueff	694,424	Mar. 4	169	------	98	1749
Magnesium sulfite. Making	H. H. Wing	690,503	Jan. 7	267	54	98	58
Magnet for dynamo-electric machines or electric motors. Field-	R. Lundell	695,163	Mar. 11	1589	353	98	2065
Magnetic separator	F. A. M. Schiechel	691,007	Jan. 14	1211	274	98	208
Magnetic separator	G. Gröndal	691,262	Jan. 14	1662	378	98	362
Magneto-electric generator	J. M. Wilson	695,358	Mar. 11	1928	430	98	2133
Magneto-electric machine	F. R. Simms and R. Bosch	690,469	Jan. 7	168	35	98	87
Mail and parcel carrier	H. O. Harden	692,443	Feb. 4	388	94, 95	98	879
Mail-bag catcher	B. Watson	695,252	Mar. 11	1748	387	98	2097
Mail-bag catching and delivering device	C. R. Bennett	694,908	Mar. 4	1096	242	98	1944
Mail-bag catching and delivering mechanism	G. R. Moore	691,235	Jan. 14	1714	388, 389	98	373
Mail-bag crane	C. J. Nordvall	696,257	Mar. 25	3680	811	98	2516
Mail-bag gripping and delivering device	S. R. Patten	693,899	Feb. 25	3307	707, 708	98	1522
Mail-box	A. M. Burnham	692,178	Jan. 28	3399	769, 770	98	755
Mail-box	J. M. Ball	692,814	Feb. 11	1065	289	98	1041
Mail-box	A. Stansel	693,917	Feb. 25	3239	713, 714	98	1523
Mail-box	M. M. Conklin	694,053	Feb. 25	3536	776	98	1585
Mail-box	J. E. Wright and L. J. Edwards	693,770	Feb. 18	2940	646, 647	98	1450
Mail-box. Rural-delivery	W. L. Vestal	694,219	Feb. 25	3821	845, 846	98	1644
Mail-box. Rural-delivery	J. F. Mills, Jr., and C. Fremd, Jr	694,878	Mar. 4	1045	232	98	1093
Mail catcher and deliverer	R. L. Slagle and E. F. Pywell	693,167	Feb. 11	1783	391	98	1189
Mail from cars. Apparatus for delivering	E. Cheshire	690,695	Jan. 7	626	137	98	132
Mail-marking machine	E. Cheshire	690,696	Jan. 7	630	137, 138, 139	98	133
Mail-marking machine	E. Cheshire	690,697	Jan. 7	636	139, 140	98	134
Mail-marking machine	C. V. Fyke	690,942	Jan. 14	1079	242	98	242
Mail-marking machine	J. H. Barr and C. V. Fyke	692,176	Jan. 28	3394	769	98	754
Mail-marking machine	J. Geary	694,007	Feb. 25	3438	754, 755	98	1506
Mail-marking machine	J. French	694,850	Mar. 4	983	218, 219	98	1021
Mail-pouch fastener	W. H. Williams	692,398	Feb. 4	313	75	98	864
Mailing-package	O. Marsteller	690,977	Jan. 14	1153	260	98	256
Malt-drum	F. Knüttel	691,471	Jan 21	2096	469	98	471
Malt-kiln	J. F. Dornfeld	693,121	Feb. 11	1684	367	98	1171
Malt liquors. Manufacture of	J. Schneible	694,671	Mar. 4	640	140	98	1848
Malting rice	E. C. Schrottky	693,569	Feb. 18	2568	567	98	1373
Mandolin. Self-playing	A. I. Mitchell	693,417	Feb. 18	2276	498	98	1313
Mandrel for shaping hollow or tubular wrought-metal articles.	F. D. Sweet	693,186	Feb. 11	1939	399	98	1201
Manger and hay-rack for stables. Combined	T. M. Swinton	692,382	Feb. 4	287	70	98	859
Manhole-casing	C. F. Bingham	692,231	Feb. 4	19	5	98	801
Manhole-cover	F. Barker	694,455	Mar. 4	2298	50	98	1761
Manicure-knife	W. S. Reed	695,342	Mar. 11	1908	424	98	2128
Mantle materials. Machine for saturating	O. Wiederhold	696,357	Mar. 25	3849	856	98	2561
Mantle-support	J. F. W. Jost	696,178	Mar. 25	3481	779	98	2486
Mantle-trimmer	C. Wagner and W. Wendtland	695,354	Mar. 11	1921	428	98	2132
Marker for agricultural machines. Row-	F. L. Block	691,486	Jan. 21	2089	456, 457	98	460
Marking-pin	L. J. Davis	691,361	Jan. 21	1908	429	98	481
Massage apparatus. Electric	F. B. Turck	695,971	Mar. 25	3940	690	98	2394
Massage device	C. I. Proben and G. Fischer, Jr	693,064	Feb. 11	1555	340	98	1145
Massage-roller. Electric	W. B. Preston	693,063	Feb. 11	1554	339	98	1145
Massaging instrument	H. E. Law	696,345	Mar. 25	3816	851	98	2555
Masse-cuite-purifying apparatus	M. Weinrich	696,217	Mar. 25	3553	795	98	2500
Mast or flagstaff truck	S. H. M. Seib	691,976	Jan. 28	3041	684	98	683
Mat: *See* Door-mat. Press-mat.	A. Baumgarten	690,551	Jan. 7	353	72	98	77
Mat	C. Schaer	691,183	Jan. 14	1519	342	98	332
Match-box	G. Law	692,723	Feb. 18	2858	630	98	1433
Match-box	J. T. Matthews	694,169	Feb. 25	3738	825	98	1628
Match-box	K. Halfacre	694,471	Mar. 4	251	56	98	1765
Match-box	F. H. Grothe	691,372	Jan. 21	1925	433	98	435
Match-box and cigar-cutter. Combined	J. Dellinger	695,800	Mar. 18	2731	622	98	2317
Match-box. Collapsible	W. H. Burden	695,799	Mar. 18	2706	615	98	2312
Match delivering and igniting device	J. Dela Mar	690,905	Jan. 7	1012	228, 229	98	212
Match-making machine	E. H. Eisenhart	692,126	Jan. 28	3314	751, 752	98	737
Match-making machine	E. M. Lockwood, Jr	695,219	Mar. 11	1698	375	98	2086
Match-making machinery. Splint-frame for	J. R. Webb	693,933	Feb. 25	3571	790	98	1534
Match-safe	O. B. Hughes	696,337	Mar. 25	3905	848	98	2553
Match-safe and cigar-lighter. Unitary	E. Thacher	691,416	Jan. 21	1998	448	98	450
Material of construction	J. L. Winter	691,925	Jan. 28	2946	------	98	664
Matrix	B. Smith	694,115	Feb. 25	3621	801	98	1008
Matrix-plate. Stipple	W. Wattie	693,090	Feb. 11	1604	350	98	1155
Matting. Straw	F. Plettenberg	692,705	Feb. 4	867	198	98	976
Mattress							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mattress. Spring-wire	C. H. Closterman	694,614	Mar. 4	536	117	98	1827
Mattress stretcher. Wire	J. Hoey	693,018	Feb. 11	1469	321	98	1128
Measure and sterilizer. Combination liquid	J. C. F. McGriff	695,167	Mar. 11	1594	354	98	2056
Measure reel. Tape-	V. G. Hills and J. E. Chapson	692,665	Feb. 4	707	181	98	962
Measurer. Lumber-	B. G. Moss	694,405	Mar. 4	193	29	98	1740
Measuring and cutting device for spool-cabinets. Thread	J. Drover	694,950	Mar. 11	1179	258	98	1980
Measuring and recording oscillating movements of bodies. Apparatus for	M. Arndt	693,990	Feb. 25	3401	747, 748	98	1500
Measuring and registering device. Liquid	G. M. Marshall	695,691	Mar. 18	2586	574	98	2277
Measuring device	F. S. Baldwin	692,756	Feb. 4	946	214, 215	98	901
Measuring device. Liquid-	C. Dyer	690,996	Jan. 14	1071	241	98	340
Measuring instrument	P. E. Shaw	693,628	Feb. 18	2687	593	98	1397
Measuring instrument. Electrical	F. A. La Roche	691,393	Jan. 21	1968	441	98	443
Measuring machine. Cloth or paper	J. H. Nieman	694,988	Mar. 11	1250	273	98	1994
Measuring-machine for plastic material	F. J. G. Rainbow	692,908	Feb. 11	1348	276, 277	98	1092
Measuring tank and pump	F. L. Wieburg	691,515	Jan. 21	2179	486	98	489
Measuring-weir	H. A. Icke	695,459	Mar. 18	2100	473	98	2189
Meat-chopper	J. Emig	694,951	Mar. 11	1184	259	98	1990
Meat-cutter	H. G. Voight	694,704	Mar. 4	705	154	98	1860
Meat-cutting block	M. T. Sharp	693,627	Feb. 18	2685	593	98	1397
Meat-cutting machine	L. Ballbach	692,594	Feb. 4	673	157	98	936
Meat, &c. Means for extracting juice from raw	H. Bremer	692,823	Feb. 11	1076	242	98	1044
Meat-tenderer	R. Stone	690,533	Jan. 7	318	64	98	69
Mechanical movement	E. A. Mainguet	691,644	Jan. 21	2410	542	98	536
Mechanical movement	C. Stone	692,379	Feb. 4	882	69	98	857
Mechanical movement	H. McCornack	692,696	Feb. 4	951	195	98	973
Mechanical movement	C. Dietz	693,998	Feb. 11	1435	311, 312	98	1120
Medicating water. Tank for	C. W. Perkins	691,390	Jan. 14	1725	392	98	375
Medicine-applicator	B. A. Washburn	695,356	Mar. 11	1925	439	98	2133
Medicine-carrier	J. Schaffer	693,166	Jan. 28	3379	765	98	751
Melting-furnace	J. Essner and E. Laurans	692,435	Feb. 4	878	92	98	870
Melting-furnace. Brass-founder's	A. J. and E. H. Weatherhead	691,213	Jan. 14	1570	357	98	342
Memorandum clip-board	R. B. Dickey	690,842	Jan. 7	905	202	98	192
Menugraph	W. H. Smyth and K. I. Faust	691,013	Jan. 14	1234	276, 277	98	270
Mercerizing apparatus	A. Römer	694,109	Feb. 25	3611	799	98	1602
Merchandise. System for distributing	R. O. Wickes	690,627	Jan. 7	500	108	98	107
Merry-go-round	W. F. Mangels	693,295	Feb. 11	2088	444	98	1243
Metal and the manufacture thereof. Covered strip of soft	I. W. Heysinger	690,427	Jan. 7	77	17	98	19
Metal bars. Rosette for forming crossed joints for	M. Mendel	690,598	Jan. 7	449	95, 96	98	96
Metal blanks. Machine for forming, shaping, hardening, and tempering	E. E. Fay	691,258	Jan. 14	1646	376	98	350
Metal. Covering textile porous material with	J. A. Daly	694,946	Mar. 11	1170	.....	98	1978
Metal cutting, punching, and shaping machine	F. Bowen	691,234	Jan. 14	1607	367, 368	98	350
Metal cylinders, &c. Manufacture of welded plate-	T. F. Rowland	694,994	Mar. 11	1292	276	98	1997
Metal-founding	J. Gilson	696,085	Mar. 25	3177	716, 717	98	2423
Metal into molds. Apparatus for pouring	J. V. Coleman	691,244	Jan. 14	1625	371, 372	98	364
Metal pigs from their molds. Means for ejecting	E. E. Slick	691,977	Jan. 28	3042	694	98	693
Metal-treating apparatus	G. C. Carson	694,348	Mar. 4	15	4	98	1716
Metal tubes. Making	E. Emerson	695,635	Mar. 18	2444	558	98	2259
Metal-working apparatus. Electric	G. D. Burton	696,004	Mar. 25	3100	702	98	2407
Metals from sulfid ores by treatment with chlorid or sulfur and electrolysis. Extraction of	J. Swinburne and E. A. Ashcroft	691,822	Jan. 28	2772	624	98	628
Metals from sulfid ores. Extracting	J. Swinburne and E. A. Ashcroft	695,126	Mar. 11	1762	337	98	2049
Metals. Producing	G. H. Clamer	696,092	Mar. 25	3277	.....	98	2443
Metals. Refining composite	T. Ulke	694,699	Mar. 4	697	.....	98	1859
Metallic particles from paper, &c. Burning	G. H. Davis	693,854	Feb. 11	1097	246	98	1049
Metallic particles from strips or webs. Apparatus for removing	G. H. Davis	692,989	Feb. 11	1429	319	98	1118
Metallic tie and rail-clamp. Combined	W. M. Gilpin	694,737	Mar. 4	774	172	98	1875
Metallic tie and rail-fastener	M. Berringer	694,716	Mar. 4	726	161	98	1865
Metallic tie and rail fastener	J. Brookes	695,192	Mar. 11	1831	392	98	2074
Metallurgical process	E. G. Acheson	693,492	Feb. 18	2400	.....	98	1340
Meter: *See* Current-motor meter. Electric meter. Electricity-meter. Liquid-meter. Water-meter.							
Micrometer-gage	J. Stromberg	694,804	Mar. 4	901	200	98	1902
Milk-can	C. H. Bagley	691,093	Jan. 14	1359	308	98	598
Milk-can	C. J. Nordin	692,066	Jan. 28	3213	725, 726	98	717
Milk-can	G. Rothenhausler	692,548	Feb. 4	589	138	98	918
Milk cooler and aerator	F. M. Reynolds	695,171	Mar. 11	1805	356	98	2068
Milk. Producing dry condensed	W. A. Hall	694,100	Feb. 25	3599	.....	98	1600
Milker. Cow-	A. A. and H. A. Ewald	693,850	Feb. 25	3106	697	98	1502
Mill: *See* Band-mill. Crushing-mill. Grinding-mill. Pulverizing-mill. Rolling-mill. Sawmill. Windmill.							
Mill	W. E. Copenhaver	692,343	Feb. 4	47	10	98	808
Mill-power. Automatic cut-off for	B. Strittmatter	694,808	Mar. 4	900	200	98	1902
Mill speeding attachment	J. W. Cushing	693,643	Feb. 18	2714	599	98	1404
Mine-gate	N. K. Bowman	695,858	Mar. 18	2883	643, 644	98	2336
Mine-timber	D. W. Brunton	692,111	Jan. 28	3080	744, 745	98	732
Mines. Car-dump for elevators in	J. Moses	693,868	Feb. 11	1221	270	98	1075

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Mines. Electric apparatus for exploding	S. Evershed	694,914	Mar. 4	1107	244	98	1946
Mines, &c. Raising or lowering apparatus for	D. Davy	695,287	Mar. 11	1821	404, 405	98	2111
Miner's safety loading-tool	A. V. Des Moineaux	692,637	Feb. 4	740	171	98	951
Miner's squib	F. H. and E. Gross	693,964	Feb. 25	3329	731	98	1545
Mining-elevator	H. W. Davis	694,002	Feb. 25	3420	753	98	1564
Minerals by selective action of oils. Apparatus for separating	A. S. Elmore	692,643	Feb. 4	748	173	98	953
Mirror-frame	P. N. Staff	693,077	Feb. 11	1584	345	98	1151
Mirror. Mouth-	W. E. Knight	693,140	Feb. 11	1720	376	98	1178
Miter-box	J. M. Kelly	692,302	Feb. 4	147	34	98	828
Miter-machine	W. J. Parsons	694,323	Feb. 25	4072	906	98	1668
Mitten	W. L. Pollard	694,188	Feb. 25	3771	833, 834	98	1634
Mixer: *See* Clay-mixer. Concrete-mixer.							
Mixer and kneader	L. Cohnhoff	691,115	Jan. 14	1393	316, 317	98	304
Mixing-glass. Bar-	H. Morgan	693,732	Feb. 18	2980	634	98	1438
Mixing-machine	T. L. Smith	690,783	Jan. 7	805	178	98	170
Mixing or spraying device	C. C. and E. A. Riotte	696,146	Mar. 25	3424	769	98	2475
Moistening and applying gummed paper. Device for	A. Hoffmann	691,379	Jan. 21	1985	435	98	437
Mold: *See* Brick-mold. Soap-mold. Casting-mold. Tire-curing mold. Cigar-mold. Type-mold. Jeweler's mold.							
Mold-making machine. Sand-	H. E. Pridmore	693,441	Feb. 18	2311	507	98	1321
Molding-apparatus sprue	C. R. Davis	695,548	Mar. 18	2260	511	98	2221
Molding-machine	B. C. White	695,778	Mar. 18	2666	606, 607, 608	98	2304
Molding-machine. Continuous	B. Fletcher	690,716	Jan. 7	692	151	98	146
Molding-machine sprue-pin	C. B. Davis	695,146	Mar. 11	1559	345	98	2059
Monorailway	L. Beecher	695,187	Mar. 11	1547	342	98	2055
Monument inscription-frame	T. B. White	695,774	Mar. 18	2678	608	98	2306
Mop and brush holding means. Combined	P. Schmidt	693,671	Feb. 18	2763	609	98	1413
Mop-head	H. S. Brewington	694,886	Mar. 4	940	209	98	1911
Mop-head	J. C. Look	695,063	Mar. 11	1397	306	98	2034
Mop-holder	I. N. Anderson	693,772	Feb. 18	2944	648	98	1451
Mop-wringer	W. Geddes	694,469	Mar. 4	249	56	98	1765
Mop-wringer	A. H. Allison	694,517	Mar. 4	345	76	98	1785
Motion-checking device	H. Lemp	692,871	Feb. 11	1168	259	98	1064
Motion-checking device	H. Lemp	692,875	Feb. 11	1178	261, 262	98	1066
Motion-checking device	H. Lemp	692,876	Feb. 11	1181	262	98	1067
Motion-checking devices. Mechanism for operating	O. F. Persson	692,900	Feb. 11	1242	275	98	1080
Motion-converting mechanism	J. H. Baker	691,697	Jan. 21	2509	562	98	558
Motion. Mechanical movement for converting	J. T. Watts	691,511	Jan. 21	2171	486	98	488
Motive-power apparatus	J. Hofmann	694,642	Mar. 4	583	128	98	1836
Motive power. Generating	R. Stenersen	691,500	Jan. 21	2149	482	98	488
Motor: *See* Bicycle-motor. Pump-motor. Current-motor. Rotary motor. Electric motor. Tool-motor. Hydraulic motor. Wave-motor. Pneumatic motor. Wave or tide motor.							
Motor	F. E. Wells	691,424	Jan. 21	2008	450	98	452
Motor	D. Hurst	692,668	Feb. 4	801	182	98	963
Motor feed-regulator	W. E. Gibbs	691,259	Jan. 14	1658	377	98	361
Motor-gearing	W. E. Canedy	693,887	Feb. 25	3074	678	98	1496
Motor or engine	A. E. Olney	694,182	Feb. 25	3763	831	98	1682
Mower buncher attachment	J. F. Wheeler	693,093	Feb. 11	1611	351, 352	98	1156
Mower grass-catcher attachment. Lawn-	O. Hoffmann	692,445	Feb. 4	395	95	98	880
Mower or reaper cutting apparatus	W. M. Goehrend	691,461	Jan. 21	2083	466	98	468
Mowing-machine	A. Von Loeper	693,287	Feb. 11	2018	440	98	1239
Mowing-machines. Means for adjusting finger-bars of	W. D. Myers	690,452	Jan. 7	127	27	98	29
Muscle-tester. Coin-controlled	C. C. Yancey	694,286	Feb. 25	3832	849	98	1646
Music cabinet. Sheet-	O. H. Stewart	690,478	Jan. 7	196	39	98	43
Music carrier. Sheet-	R. L. Mattoch	693,878	Feb. 25	3159	698	98	1512
Music-holder	G. Burt	692,612	Feb. 4	704	163	98	943
Music-leaf turner	J. Lombardero	692,220	Feb. 4	184	42	98	887
Music-leaf turner	C. H. Dascomb	694,839	Mar. 4	956	213	98	1915
Music-rack	J. H. Stanfield	694,500	Mar. 4	204	68	98	1774
Music rack and turner	G. P. Benton	692,229	Feb. 4	16	4	98	801
Music-roll for automatic musical instruments	P. Welin	694,450	Mar. 4	217	48	98	1759
Music-roller-actuating mechanism	F. Engelhardt	691,898	Jan. 28	2902	653	98	656
Music-sheets with a line indicating an effect to be produced. Device for marking perforated	F. L. Young	692,959	Feb. 11	1392	302	98	1111
Musical instrument	W. Van Nette	694,589	Mar. 4	482	104, 105	98	1815
Musical instrument	W. G. Spiegel	695,958	Mar. 25	3017	683, 684	98	2389
Musical instrument. Automatic	J. McTammany	692,907	Jan. 28	3458	781, 782	98	769
Musical-instrument controller. Mechanical-	F. L. Young	692,968	Feb. 11	1591	302	98	1111
Musical-instrument keyboard playing attachment	E. S. Votey	696,216	Mar. 25	3558	794	98	2500
Musical instrument. Mechanical	J. McTammany	692,906	Jan. 28	3462	783	98	769
Musical instrument. Stringed	F. A. Porter	690,463	Jan. 7	148	31	98	33
Musical stringed instrument	G. H. Davis	692,948	Feb. 4	57	13	98	810
Muzzle. Cattle-	A. F. Hendricks and C. A. Logwood	692,659	Feb. 4	779	178	98	959

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Muzzle. Horse-	H. Bark	691,097	Jan. 14	1365	310	98	299
Nail-cabinet. Self-handling	J. D. Leen	693,595	Feb. 18	2481	544	98	1356
Nail cutter and file	E. Forquignon	691,126	Jan. 14	1416	321	98	810
Nailing apparatus	P. R. Glass	695,865	Mar. 11	1974	442	98	2144
Nailing device	H. von Kalinowski	694,649	Mar. 4	595	131	98	1838
Nailing implement	S. Van Auken	692,740	Feb. 4	916	209	98	986
Nailing-machine	E. T. Freeman. (Reissue)	11,962	Jan. 21	2579	578 579	98	572
Nailing-machine	P. R. Glass	695,428	Mar. 11	2041	458	98	2158
Nasal distender	W. Moores	690,587	Jan. 7	312	69	98	68
Nebulizer	H. Goltermann	694,080	Mar. 4	561	122	98	1831
Necktie-fastener	E. Kiene	692,146	Jan. 28	3352	759	98	745
Necktie-holder	Z. Guzik	691,543	Jan. 21	2217	499	98	497
Neckwear	J. A. Turner	691,208	Jan. 14	1562	355	98	341
Neckwear	S. Fleisch	696,363	Mar. 25	2873	651	98	2564
Neckwear fastener and shield	W. H. Hart, Jr	694,272	Feb. 25	3919	870 871	98	1664
Needle-holder	G. Ermold	695,292	Mar. 11	1831	407	98	2113
Needle. Tape-	C. L. Hughes	694,281	Feb. 25	3987	876	98	1669
Needle. Tape-	J. and H. N. Brown	695,788	Mar. 18	2706	615	98	2312
Needle. Tape-	E. B. Noyes	696,185	Mar. 25	3492	782	98	2488
Needle-tempering apparatus	J. Funken	696,083	Mar. 25	3174	716	98	2423
Needle-threading device	A. Olson	694,984	Mar. 11	1951	213	98	1994
Negatives. Device for enlarging	G. B. Hutchings	693,713	Feb. 18	2844	627	98	1429
Nest. Poultry-	G. C. Lathrop	694,759	Mar. 4	816	181	98	1885
Net. Dip-	S. W. Higgins	691,465	Jan. 21	2088	467	98	469
Newspaper-holder	J. Conzett	690,887	Jan. 7	900	199	98	190
Nippers	G. J. Capewell	690,925	Jan. 14	1053	237	98	257
Niter-oven	A. P. O'Brien	694,094	Feb. 25	3459	763	98	1572
Nitrocellulose	D. Bachrach	692,102	Jan. 28	3278	------	98	780
Nitro compounds. Reducing	H. Gerresheim	691,132	Jan. 14	1425	------	98	312
Noria	D. Hutton	690,584	Jan. 7	415	86	98	90
Nozzle	C. A. Snider	692,375	Feb. 4	276	67	98	856
Nozzle. Blast-	J. S. Thurman	695,967	Mar. 25	3081	687	98	2392
Numbering-machine	J. H. Reinhardt	692,072	Jan. 28	3223	728	98	719
Numbering-machine	J. F. McNutt	694,408	Mar. 4	137	30 31 32	98	1741
Numbering-machine	S. R. Shoup	694,682	Mar. 4	664	145 146	98	1853
Nut. Cap-	A. G. Anderson	692,812	Feb. 11	1062	228	98	1041
Nut-lock	P. S. Eklund	690,846	Jan. 7	910	208	98	192
Nut-lock	L. T. Stephenson	690,900	Jan. 7	1004	227	98	211
Nut-lock	D. T. Wallace	690,902	Jan. 7	1008	227	98	211
Nut-lock	M. Bartley. (Reissue)	11,963	Jan. 28	3500	791 792	98	776
Nut-lock	E. T. Wilcox	692,572	Feb. 4	622	145	98	925
Nut-lock	E. T. Wilcox	692,573	Feb. 4	623	147	98	925
Nut-lock	F. W. Rieck and E. W. Euge	693,154	Feb. 11	1761	397	98	1184
Nut-lock	T. M. Price	693,805	Feb. 18	3008	664	98	1463
Nut-lock	J. O. Wolford	694,125	Feb. 25	3539	804	98	1609
Nut-lock	J. W. Norman	694,178	Feb. 25	3752	829	98	1630
Nut-lock	E. F. Briggs	694,246	Feb. 25	3862	856	98	1653
Nut-lock	C. S. Pruden	695,480	Mar. 18	2146	484 485	98	2198
Nut-lock	H. J. Mertz	695,941	Mar. 25	2990	675	98	2384
Nut-lock	A. T. Wilson	696,290	Mar. 25	3664	834	98	2528
Nut-lock	J. C. Culbertson	696,317	Mar. 25	3773	841	98	2547
Nut-lock	L. B. Gray	695,304	Mar. 11	1855	412	98	2118
Nut. Lock-	M. Conrad	693,111	Feb. 11	1667	363	98	1168
Nut-locking device. Axle-	J. Stephans	691,199	Jan. 14	1549	350 351	98	838
Nut-tapping machine	M. R. Nolan	695,760	Mar. 18	2646	601 602	98	2300
Nut-tapping machine	W. F. Hamilton	695,047	Mar. 11	1870	301	98	2019
Nut-wrench	O. B. Shedd	691,080	Jan. 14	1340	303	98	294
Oar. Bow-facing	G. F. Sprague	692,084	Jan. 28	3254	735	98	734
Oar. Bow-facing	C. A. Tansley	695,011	Mar. 11	1299	295	98	2004
Oar-lock	J. Greth	691,719	Jan. 21	2541	569	98	564
Observatory. Balloon-	F. W. Parfitt	694,966	Mar. 4	1058	234	98	1936
Oil and air regulator. Automatic	B. G. Devoe and C. W. Dailey	695,502	Feb. 18	2436	532 533	98	1347
Oil-burner	G. E. Witt	693,938	Feb. 25	3279	721	98	1536
Oil burner. Crude-	J. Swisher	692,089	Jan. 28	3262	737	98	736
Oil-can	W. S. Weir	695,512	Mar. 18	2187	494	98	2200
Oil-can	P. Wall and B. W. Moore	695,384	Mar. 25	3024	869	98	2575
Oil-can	W. G. Montgomery	692,186	Jan. 28	3419	774	98	759
Oil-cup. Crank-pin	F. E. Bocorselski	694,605	Mar. 4	524	114	98	1934
Oil-cup. Shaft-bearing	H. F. Wallmann	690,542	Jan. 7	332	68	98	72
Oil-engine. Internal-combustion	E. L. Johnson	691,342	Jan. 14	1854	420	98	407
Oil. Extracting cotton-seed	G. A. Nauffts	693,734	Feb. 18	2882	684	98	1438
Oil-feed cup. Automatic	J. McFarlane and D. C. Reinohl	695,474	Mar. 18	2124	479	98	2193
Oil from cotton-seed. Extracting	M. E. Donally	696,014	Mar. 25	3138	707	98	2413
Oil-quenching apparatus	C. F. Tucker	693,927	Feb. 25	3256	717	98	1531
Oil-hole cover or cup	G. C. Warr and W. T. Wright	692,743	Feb. 4	922	------	98	987
Oil. Obtaining edible vegetable	H. Zingg	694,085	Feb. 25	3575	------	98	1595
Oil. Paint-	A. E. Barnhart	692,758	Feb. 4	953	216	98	992
Oil-sand flooder	T. Tomlinson	690,486	Jan. 7	213	42, 43	98	47
Oils. Apparatus for the vaporization, combustion, and utilization of hydrocarbon	F. Linde	692,157	Jan. 28	3367	------	98	748
Oils. Refining	J. N. Harris	692,298	Feb. 4	121	28	98	823
Oils. Refining	J. B. Walker	693,341	Feb. 11	2130	455	98	1392
Oiler. Hand-	W. G. Clements	691,338	Jan. 14	1858	419	98	406
Oiler. Saw-	A. Carliss	692,825	Feb. 11	1081	243	98	1045
Operator's key	E. W. Beebe	695,998	Mar. 25	3068	700	98	2404
Optometer	C. Froude	695,382	Mar. 11	1970	441	98	2143
Orchard-heating device							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Ordnance. Elevating and sight-adjusting gear for	H. H. Grenfell	693,702	Feb. 18	2825	621, 622	98	1426
Ordnance. Means for positioning and firing heavy	T. M. Foote	691,254	Jan. 14	1648	376, 377	98	359
Ordnance. Obturator for breech-loading	A. T. Dawson and G. T. Buckham	695,799	Mar. 18	2729	622	98	2116
Ordnance-primer	C. von Görtz	694,265	Feb. 25	3911	868	98	1662
Ore-concentrating machine	W. McDermott and F. E. Elmore	695,695	Mar. 18	2544	575, 576	98	2278
Ore-concentrator	W. G. Dodd	694,005	Feb. 25	3425	754	98	1565
Ore-concentrator	W. Thurmond	694,444	Mar. 4	205	45	98	1756
Ore-concentrator	L. Look	695,064	Mar. 11	1307	306, 307, 308	98	2025
Ore-crusher	E. E. Hanna	691,135	Jan. 14	1429	324	98	312
Ore crushing and pulverizing machinery	A. M. Beam	691,582	Jan. 21	2288	514	98	511
Ore or pulp sampler	W. G. Dodd	693,690	Feb. 18	2806	617, 618	98	1422
Ore-pulp distributer	F. W. Sherman	695,654	Mar. 18	2479	562	98	2266
Ore-roaster. Gravimetric	J. A. Ogden	691,868	Jan. 28	2848	641	98	645
Ore-roasting furnace	J. P. Cappeau	691,112	Jan. 14	1386	315, 316	98	308
Ore-sampler	C. R. Foster and W. Coolidge	694,734	Mar. 4	767	171	98	1873
Ore-separating machine	J. C. Hoefer	693,709	Feb. 18	2889	625, 626	98	1428
Ore-separator	J. J. Snider	691,819	Jan. 28	2766	623	98	627
Ores. Reducing	H. Niewerth	692,539	Feb. 4	574	134, 135	98	915
Ores. Reducing carbonaceous	R. McKnight	693,992	Feb. 25	3381	743	98	1556
Ores. Separating	O. Frölich, M. Huth, and A. Edelmann.	692,008	Jan. 28	3099	.....	98	694
Ores. Separation of the constituents of complex sulfid	M. M. Haff	695,806	Mar. 11	1857	.....	98	2118
Ores. Treating	E. B. Parnell	693,148	Feb. 11	1745	.....	98	1182
Ores, &c. Treating	J. A. Potter	693,313	Feb. 11	2064	451, 452	98	1249
Organ	L. D. Hickman	690,726	Jan. 7	711	157	98	150
Organ	C. Stollewerk	691,501	Jan. 21	2151	482, 483	98	494
Organs. Apparatus for controlling the wind supply and pressure in	J. R. C. Gale	691,900	Jan. 28	2905	654	98	656
Ornamental and advertising articles. Making	W. Schanz	692,549	Feb. 4	589	.....	98	918
Ornamental structures. Device for forming	L. B. Christopherson	691,598	Jan. 21	2320	522	98	518
Orthotoluenesulfochlorid. Separating	A. Baur	692,598	Feb. 4	679	.....	98	987
Oven-door	F. H. Van Houten	694,700	Mar. 4	700	152, 153	98	1859
Oven-furnace hood. Baker's	F. E. Thomas	691,674	Jan. 21	2465	552	98	548
Oven illuminator. Baker's	J. Faulds	693,385	Feb. 18	2210	485	98	1309
Overalls	S. Klavinsky	693,276	Feb. 11	2008	435	98	1286
Overflow-alarm	A. Nicolet	693,495	Feb. 18	2388	501, 502	98	1316
Overhead switch	W. L. Clark	695,277	Mar. 11	1788	397, 398	98	2106
Oysters. Hammer and rake for culling	J. W. Russell	695,651	Mar. 18	2472	561	98	2265
Ozonizer for wounds, &c	R. F. W. Smith	695,657	Mar. 18	2481	563	98	2267
Package	C. S. Bird and J. B. Hanscom	694,304	Feb. 25	3973	895	98	1676
Package-feeding attachment. Automatic	A. Stearns	696,111	Mar. 25	3336	752	98	2457
Package for tooth-powder, &c	M. H. Fletcher	693,352	Feb. 11	2140	470	98	1956
Package. Shipping	J. T. Ferres	695,201	Mar. 11	1648	366	98	2078
Packing-box	M. Herz	694,275	Feb. 25	3923	872	98	1665
Packing-box. Equable safety	J. A. Keller	695,668	Mar. 18	2530	573	98	2275
Packing box. Garment	C. R. Murphy	692,534	Feb. 4	567	133	98	913
Packing-box. Safety	J. A. Keller	693,652	Feb. 18	2780	602	98	1407
Packing compound for eggs, &c	J. M. Stukes	691,418	Jan. 21	1995	.....	98	450
Packing device. Piston-rod	T. G. Saxton	691,813	Jan. 28	2756	621	98	625
Packing for piston-rods. Metallic	C. Longstreth and C. W. G. King	694,764	Mar. 4	826	183	98	1886
Packing granular material. Mechanism for	E. L. Bracy	691,930	Jan. 28	2854	665	98	666
Packing-machine	C. O. Ericson	691,537	Jan. 21	2309	496, 497	98	495
Packing. Machine for cutting material into strips for the manufacture of piston-	H. Dods	691,612	Jan. 21	2351	528	98	523
Packing. Machine for forming ring	O. J. Garlock	695,605	Mar. 18	2387	540, 541	98	2248
Packing. Metallic	J. C. Miller	693,046	Feb. 11	1524	382	98	1140
Packing or displaying articles	E. H. Schmidt	693,450	Feb. 18	2340	511, 512	98	1327
Packing or gasket	F. W. Roller	695,174	Mar. 11	1658	356	98	2069
Packing. Piston-rod or other similar	N. O. Cronwall	695,195	Mar. 11	1640	354	98	2076
Packing-rings. Automatic machine for making	E. G. Newell	693,886	Feb. 25	3174	701, 702	98	1515
Packing. Rod	T. H. Butler and O. Hammond	691,893	Jan. 28	2896	652	98	654
Packing sweepers, &c. Device for	T. H. Bedell	695,436	Mar. 18	2054	462	98	2180
Packing-tube. Rolling	A. Sharp	691,190	Jan. 14	1531	345	98	334
Pad: *See* Collar sweat-pad. Shirt-bosom pad. Hoof-pad.							
Padlock	H. G. Voight	694,708	Mar. 4	704	154	98	1860
Padlock	J. J. Cotter	694,837	Mar. 4	954	212	98	1915
Padlock	F. Soley	695,345	Mar. 11	1910	425	98	2130
Padlock	F. Soley	695,346	Mar. 11	1911	426	98	2130
Padlock	F. Soley	695,347	Mar. 11	1913	426	98	2130
Padlock for securing coats, &c., to wardrobe-hooks	L. Hülzer and R. Kemper	695,458	Mar. 18	2009	473	98	2189
Pail and lantern. Combined dinner	W. Williams	691,036	Jan. 14	1283	297	98	280
Pail burner attachment. Dinner	S. H. Gartrell	690,519	Jan. 7	901	60	98	66
Pail. Lunch	P. Quarelli	691,668	Jan. 21	2437	548	98	543
Paint-dip for wheels	J. H. Wilson	695,986	Mar. 25	3069	690	98	2400
Paint-dipping tank	F. B. Upton	696,282	Mar. 25	3670	821	98	2594

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Painting apparatus	E. Grill	696,331	Mar. 25	2797	846, 847	98	2558
Painting machine. Can-	A. T. Shortley and D. O. Thompson	692,079	Jan. 28	2243	783	98	722
Pan: *See* Baking-pan. Cake-pan. Roasting-pan. Saucepan.							
Pan-lifter. Automatic	T. T. Smith	695,502	Mar. 18	2172	490, 491	98	2203
Pancreas preparation and producing same	W. Weber	695,254	Mar. 11	1758		98	2068
Pants or overalls	H. S. Lanier	694,556	Mar. 4	481	98	98	1804
Paper	C. S. Bird	696,131	Mar. 25	2372	761	98	2466
Paper and making same. Testing-	K. Dieterich	691,349	Jan. 14	1696		98	356
Paper-bag machine	G. C. Nelson	691,706	Jan. 28	2719	611, 612	98	618
Paper box	C. H. Goodnow	695,204	Mar. 11	1667	370	98	2081
Paper box	C. H. Goodnow	695,205	Mar. 11	1668	370	98	2081
Paper-box blank	H. B. Smith	698,169	Feb. 11	1787	392	98	1190
Paper-box-blank feeder and folding mechanism	G. M. Griswold	694,635	Mar. 4	570	124, 125, 126	98	1883
Paper-box blanks. Machine for making	J. C. Blevney	695,029	Mar. 11	1337	294, 295	98	2012
Paper-box corner-stay	H. B. Smith	694,436	Mar. 4	191	42	98	1752
Paper box. Folding	M. Herre	690,575	Jan. 7	306	81	98	86
Paper box. Folding	M. J. Kane	692,301	Feb. 4	145	34	98	828
Paper box. Knockdown	I. H. Rice	691,972	Jan. 28	2037	693	98	682
Paper-box machine	A. Birnie and C. W. Gay	695,369	Mar. 11	1951	435	98	2139
Paper box or carton	A. Birnie and C. W. Gay	695,373	Mar. 11	1780	394	98	2104
Paper-box stacker and drier	G. M. Griswold	694,634	Mar. 4	566	123, 124	98	1882
Paper. Centrifugal sizing apparatus to sizing wood-pulp or similar materials for the manufacture of	H. Schiller	690,777	Jan. 7	790	175	98	167
Paper-coating process	A. Thomson	698,189	Feb. 11	1847		98	1908
Paper-corrugating apparatus	J. T. Ferris	690,713	Jan. 7	670	148	98	141
Paper-cutter	W. H. Lamont	693,660	Feb. 18	2741	605	98	1409
Paper-cutting machine	L. Dudásch	693,508	Feb. 18	2457	533	98	1347
Paper-dampening machine	C. A. Lang	695,216	Mar. 11	1695	374	98	2095
Paper-drying machine	W. M. Barber	690,629	Jan. 7	502	109	98	107
Paper-fastener	R. McMahon	695,302	Feb. 11	2046	446	98	1944
Paper-feeding machine	C. A. Sturtevant	694,089	Feb. 25	3499	771, 772	98	1580
Paper-feeding machine	F. Schilz	695,381	Mar. 25	3906	866	98	2571
Paper-folding machine	H. H. Cummings	691,731	Jan. 28	2640	591	98	602
Paper for stereotype-matrices. Machine for preparing	R. M. Severs	695,289	Mar. 11	1723	392	98	2002
Paper-holding structure	U. G. Hillman	698,708	Feb. 18	2838	625	98	1428
Paper. Machine for making compound	C. P. Brown	695,787	Mar. 18	2704	614, 615	98	2312
Paper-machine sizing apparatus	A. E. Füllner	694,146	Feb. 25	3074	812, 813	98	1616
Paper-making machine	C. H. Atkins	690,696	Jan. 7	610	133	98	129
Paper-making machine	C. E. Barrett and J. E. Horne	691,333	Jan. 14	1846	418	98	403
Paper-making machine	A. Aldrich	691,372	Jan. 21	2268	510	98	507
Paper-making machine	H. Parker	698,354	Feb. 11	2146	471	98	1207
Paper-making machine	H. Parker	698,895	Feb. 25	3200	706	98	1521
Paper-making machine	H. Parker	698,897	Feb. 25	3204	706	98	1522
Paper-making machine	T. H. Savery	694,427	Mar. 4	177	89	98	1750
Paper-making machine	J. W. Moore and J. A. White	694,772	Mar. 4	848	187	98	1891
Paper-making machine	J. W. Moore and J. A. White	695,753	Mar. 18	2638	599	98	2297
Paper-making machine. Fourdrinier	W. M. and T. M. Gilbert and W. C. Nash.	694,368	Mar. 4	45	11, 12	98	1721
Paper-making-machine wire or felt guide	W. E. Sheehan	691,011	Jan. 14	1822	276	98	270
Paper-making machinery. Roller for	H. Zilles	698,941	Feb. 25	3287		98	1537
Paper. Manufacture of wool-	P. Grabler	690,853	Jan. 7	959	295	98	194
Paper-marker	W. B. Browning	694,725	Mar. 4	744	164, 165	98	1869
Paper or strawboard boxes. Machine for cutting blanks for	F. Schilz	691,294	Jan. 14	1732	704	98	376
Paper package. Toilet-	J. N. Davis	692,990	Feb. 11	1432	310, 311	98	1119
Paper pail	J. Hess	690,951	Jan. 14	1096	247	98	245
Paper pail covers or circulars. Manufacturing lace-	C. Wurster	690,506	Jan. 7	270	54	98	59
Paper, paper-pulp, and paper-stock. Machine for tearing up	S. Field	692,647	Feb. 4	734	174	98	954
Paper paster and trimmer. Wall-	A. Åberg	691,091	Jan. 14	1856	307, 308	98	297
Paper-pulp. Apparatus for purifying	H. Schaaf	691,975	Jan. 28	2040	684	98	693
Paper-pulp-discharge valve	S. H. Tibbetts	694,900	Mar. 4	1082	298	98	1941
Paper-pulp screen	D. Sharpe	694,678	Mar. 4	656	143, 144	98	1851
Paper-pulp screen apparatus	J. Sinclair	696,276	Mar. 25	3662	819	98	2522
Paper-roll	F. G. J. Post	695,498	Mar. 18	2145	484	98	2108
Paper roll. Copying-	A. H. Toole	696,281	Mar. 25	3668	820	98	2524
Paper sheet	H. F. Chappell	694,598	Mar. 4	750		98	1870
Paper-size. Rosin-soap for	C. Wurster	695,778	Mar. 18	2695		98	2306
Paper. Sizing	H. Denney	692,636	Feb. 4	737	170, 171	98	950
Paper tubes. Machinery for making	A. D. Little	691,951	Jan. 28	2001		98	676
Paper. Water and grease proof	A. D. Little	691,952	Jan. 28	2002		98	676
Paper. Waxed	A. Burson	695,860	Mar. 18	2836	544	98	2339
Papers, envelops, &c. Holder for	W. H. Boutell	698,778	Feb. 18	2951	650, 651	98	1458
Paring and coring machine	T. K. Hastings	691,544	Jan. 21	2219	499	98	497
Passe-partout	E. L. Bailey	692,108	Jan. 28	2279	741	98	780
Paste-bucket and stand therefor	A. W. Foster	691,700	Jan. 21	2515	563	98	559
Pasting-machine	J. Sullivan	691,208	Jan. 14	1555	352	98	339
Pattern-cutting machine	H. G. Volkmar	696,195	Feb. 11	1858	401	98	1204
Pavement							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pavement	F. J. Warren	695,421	Mar. 11	2033	456	98	2156
Pavement. Bituminous street-	F. J. Warren	695,422	Mar. 11	2034	456	98	2156
Pavement. Illuminated area-spanning	P. M. Bruner	693,585	Feb. 18	2004	576	98	1360
Pavement. Street-	F. J. Warren	695,423	Mar. 11	2036	457	98	2157
Pawl-and-ratchet brake	E. Canaple and F. Thiébaux	694,251	Feb. 25	3869	858	98	1655
Pawl-and-ratchet mechanism	R. F. Barker	693,344	Feb. 11	2127	467	98	1264
Pea-huller	J. M. Sanders	693,072	Feb. 11	1574	343	98	1149
Pea-hulling machine. Green-	A. Thomas	693,926	Feb. 25	3254	716 / 717	98	1531
Peanuts. Salting	H. D. Moyer	692,327	Feb. 4	194	45	98	839
Pedometer	E. Kuhn	694,652	Mar. 4	601	132	98	1539
Peg-cutter	E. S. Wahman and H. A. Rehberg	692,220	Jan. 28	3495	790	98	775
Peg-making machine. Shoe-	J. Lewis	692,317	Feb. 4	178	40, 41	98	836
Pen	A. Breitfeld	692,606	Feb. 4	690	160	98	940
Pen. Fountain-	W. W. Sanford	691,974	Jan. 28	3039	688	98	688
Pen. Fountain-	L. M. Bryan	692,049	Jan. 28	3179	717	98	709
Penholder	C. W. Barkley	691,098	Jan. 14	1366	310	98	300
Penholder	S. W. Durham	691,614	Jan. 21	2354	529	98	534
Pen. Safety fountain-	F. Gilbert	692,009	Jan. 28	3101	696	98	694
Pencil	B. T. Mulligan	694,879	Mar. 4	1048	232	98	1933
Pencil-clip and calendar. Combined	T. Griffin	692,514	Feb. 4	529	124	98	905
Pencil-clip and calendar. Combined	T. Griffin	694,098	Feb. 25	3595	795	98	1600
Pencil-holder	J. W. Pearson	691,172	Jan. 14	1500	338	98	328
Pencil. Magazine lead-	B. B. Goldsmith	692,440	Feb. 4	380	93	98	878
Pencil-sharpener	A. T. Fox	691,127	Jan. 14	1417	322	98	310
Pencil-sharpener. Automatic	C. S. Cox	691,117	Jan. 14	1395	317	98	305
Percolator	J. C. Seney	693,913	Feb. 25	3233	712	98	1527
Perforator	F. W. Tobey	693,082	Feb. 11	1594	347 / 348	98	1153
Pharmaceutical implement	M. F. Rochester	693,156	Feb. 11	1764	388	98	1185
Phonograph apparatus	A. B. Robinson	691,000	Jan. 14	1200	271	98	966
Phonograph or graphophone horn	J. W. Henderson	690,858	Jan. 7	981	208	98	196
Phonograph or graphophone record-cylinders. Carrier or holder for	C. J. Kintner	691,779	Jan. 28	2690	604	98	613
Phonograph-record case. Revolving	E. L. Appleby	692,411	Feb. 4	322	80, 81	98	869
Phonograph repeating mechanism	J. J. Billing	695,272	Mar. 11	1779	393	98	2108
Phonographs. Apparatus for manufacturing duplicate sound-record cylinders for	A. N. Petit	692,337	Feb. 4	210	50	98	842
Phonographs, &c. Automatic releasing mechanism for	J. Wall	694,705	Mar. 4	707	154 / 155	98	1861
Phonographic-record seal	A. Clark	692,633	Feb. 4	719	166	98	946
Phonographic-record seal	A. Clark	692,634	Feb. 4	720	166	98	947
Photographic package	F. W. Humphreys	693,136	Feb. 11	1713	374	98	1177
Photographic pictures. Developing	A. Eichengrün and K. Demeler	696,019	Mar. 25	3139	------	98	2415
Photographic plates. Bronzing	C. P. H. Ahrle	694,227	Feb. 25	3833	------	98	1646
Photographic retouching-tool	A. Swan	695,009	Mar. 11	1296	286	98	2003
Photographic-roll holder	D. H. Houston	694,980	Mar. 4	1139	250	98	1953
Photographic-roll holder	C. P. Goerz	695,639	Mar. 18	2449	554 / 555	98	2259
Photographic-roll holder. Daylight-loading	D. H. Houston	694,921	Mar. 4	1126	247	98	1950
Photographic-roll holder. Daylight-loading	D. H. Houston	694,926	Mar. 4	1133	249	98	1951
Photographic-roll holder. Daylight-loading	D. H. Houston	694,927	Mar. 4	1134	249	98	1952
Photographic screen or canopy	H. C. Moore	694,179	Feb. 25	3743	826 / 827	98	1629
Photographic shutter	J. G. Siegrist	691,497	Jan. 21	2141	480 / 481	98	481
Photographic shutter	A. Wollensak	691,669	Jan. 21	2491	558 / 559	98	554
Photographic shutter	R. Klein	695,564	Mar. 18	2311	528	98	2238
Photographic stand	H. D. Farquhar	693,792	Feb. 18	2973	656 / 657	98	1457
Photographs. Device for grouping	G. G. Rodman	696,272	Mar. 25	3655	818	98	2581
Photographs, pictures, &c. Stand or frame for	W. Guttenberg	690,572	Jan. 7	392	80	98	85
Photography. Shutter for color	J. M. Frachebourg	694,364	Mar. 4	87	9	98	1719
Physician's-table tray-support	W. H. Kersey	692,861	Feb. 11	1144	255	98	1059
Piano	F. V. Neuville	693,885	Feb. 25	3173	697	98	1514
Piano-action	L. N. Soper	690,784	Jan. 7	810	179	98	171
Piano-action	E. M. Hamilton	693,131	Feb. 11	1701	372	98	1174
Piano-action. Upright-	P. D. Strauch	694,118	Feb. 25	3831	802	98	1607
Piano-hammer-voicing device	H. E. Finney	696,025	Mar. 25	3158	712	98	2419
Piano-pedal	M. G. Wittman	693,477	Feb. 18	2393	524	98	1339
Piano-player	J. Courville	695,862	Mar. 18	2840	645	98	2340
Piano-player. Automatic	J. Sampere	690,618	Jan. 7	476	103 / 104	98	102
Piano-players. Governing device for pneumatic	T. P. Brown	692,978	Feb. 11	1411	306	98	1115
Pick, &c	L. Mathias and E. L. Ray	691,559	Jan. 21	2241	505	98	502
Pick, &c. Prospector's	F. S. Goldsmith	691,309	Jan. 14	1773	403	98	894
Picker: *See* Fruit-picker. Hair-picker. Fruit or flower picker. Loom-picker							
Picture	L. Husson	692,291	Feb. 4	133	31	98	836
Picture. Automatic moving shadow-	F. W. Osborn	693,430	Feb. 18	2297	508	98	1318
Picture machine. Moving-	O. Snell	695,003	Mar. 11	1276	281 / 282	98	2000
Picture-mount and portfolio therefor	M. W. McDonald	696,058	Feb. 11	1539	335	98	1142
Pictures. Making	B. Hawley	691,186	Jan. 14	1435	326	98	914
Pie-lifter	E. R. Thomas	695,966	Mar. 25	3031	667	98	2302
Pier for the support of bridges	G. Pascale	693,059	Feb. 11	1550	338	98	1145
Pigment	C. D. Vreeland	691,421	Jan. 21	2005	------	98	452
Pigment	C. D. Vreeland	691,422	Jan. 21	2007	------	98	452
Pigment	C. D. Vreeland	691,423	Jan. 21	2006	------	98	452
Pigment and paint composition	A. S. Ramage	691,294	Jan. 14	1800	400	98	399
Pigment and the production thereof from ferrous liquors	E. Thacher	691,418	Jan. 21	2000	449	98	451
Pile. Composite	J. Grapengeter	696,600	Feb. 18	2639	582	98	1382
Pile-driver. Steam							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pile fabric. Woven	A. F. McCollum	690,912	Jan. 7	1029	231	98	215
Pile fabric. Woven	W. T. Smith	691,193	Jan. 14	1535	346	98	535
Pile fabric. Woven	T. B. Dornan	695,015	Mar. 25	2133	707	98	2413
Pile for wharves, &c	E. Thacher	691,417	Jan. 21	1999	448	98	451
Piling	A. B. Clark	693,235	Feb. 11	1686	421	98	1222
Piling-machine	D. J. Brophy	693,103	Feb. 11	1634	357, 358, 359	98	1161
Pillow or cushion. Sofa	C. E. Bentley	690,914	Jan. 14	1033	232	98	233
Pillow. Sham	H. F. Snodgrass	693,454	Feb. 18	2345	515	98	1328
Pillow-sham holder	I. Hebert	695,555	Mar. 18	2290	517	98	2227
Pillow-sham holder. Portable	G. P. Coleman	692,238	Feb. 4	89	9	98	806
Pilot coupling and buffer. Combined	W. H. Lewis and C. A. Seley	691,472	Jan. 21	1097	469, 470	98	471
Pin: *See* Clothes-pin. Hinge-pin. Marking-pin. Rolling-pin. Safety-pin.							
Pin-sticking machine. Safety	W. D. Middlebrook	693,978	Feb. 25	3370	739, 740, 741	98	1554
Pincers or squeezing device	A. Geering	692,262	Feb. 4	90	21	98	817
Pipe: *See* Air-conducting pipe. Stand-pipe. Stovepipe. Tobacco pipe.							
Pipe-bending machine	A. Theuerkauf	695,350	Mar. 11	1917	425, 427	98	2131
Pipe clean-out. Drain or soil	J. Crawford	694,140	Feb. 25	3663	810	98	1614
Pipe-cleaner	J. L. Steitz	695,767	Mar. 18	2657	604	98	2302
Pipe-collar	E. J. Mallen	694,873	Mar. 4	1036	229	98	1031
Pipe connection	A. W. Cram	691,246	Jan. 14	1659	372	98	355
Pipe-coupling	A. E. Dart	690,517	Jan. 7	291	58	98	68
Pipe-coupling	A. Barr	691,346	Jan. 21	1872	422	98	424
Pipe-coupling	O. Eisenhuth	692,642	Feb. 4	747	173	98	953
Pipe-coupling	J. E. Forsyth	692,851	Feb. 4	761	175	98	955
Pipe-coupling	J. Burke	693,830	Feb. 25	3061	675	98	1493
Pipe-coupling	W. M. Pearce	694,072	Feb. 25	3551	783	98	1591
Pipe-coupling	A. Y. Robertson	694,422	Mar. 4	165	37	98	1748
Pipe-coupling	C. J. MacClain and S. S. Colvin	695,066	Mar. 11	1405	308	98	2026
Pipe-coupling	H. O. Mooney	695,071	Mar. 11	1414	310	98	2028
Pipe-coupling	J. E. Forsyth	692,511	Feb. 4	508	119	98	902
Pipe coupling. Train	J. E. Forsyth	693,125	Feb. 11	1689	368, 369	98	1172
Pipe coupling. Train	G. Mitchell	691,649	Jan. 21	2418	544	98	538
Pipe-cutter	R. J. O'Neill and T. Byrne	695,488	Mar. 18	2136	482	98	2196
Pipe-cutter	H. E. Boyd	694,523	Mar. 4	359	79	98	1789
Pipe-cutting machine. Rotary	H. E. Boyd	694,524	Mar. 4	364	80	98	1790
Pipe-cutting machine. Rotary	C. A. Dies	691,454	Jan. 21	2069	463	98	466
Pipe-fittings. Manufacture of	L. G. Duer	695,380	Mar. 11	1968	440	98	2145
Pipe-holder and cigar-tray. Combined	G. J. Maas	694,890	Mar. 4	124	28	98	1759
Pipe-jack	H. Brooke	693,867	Feb. 18	2181	479	98	1994
Pipe-joint	E. F. Osborne	696,105	Mar. 25	3325	750	98	2575
Pipe-joint	E. Tyden	696,388	Mar. 25	3922	869	98	1687
Pipe-joint lock	T. W. Moran	694,321	Feb. 25	4065	904	98	550
Pipe-joint. Pivot	C. Vandall	691,678	Jan. 21	2474	554	98	2195
Pipe-jointer	G. Nordstrom	695,490	Mar. 18	2133	481	98	2196
Pipe-machine	J. H. Martin and D. Ormand	695,748	Mar. 18	2633	597, 598	98	2296
Pipe-making machine	J. H. Martin and D. Ormand	695,749	Mar. 18	2634	598	98	2297
Pipe-making machine	W. S. Corbin	696,316	Mar. 25	3771	840	98	2547
Pipe or main	L. Albertson	695,052	Mar. 11	1821	292	98	2009
Pipe or rod fitting	W. B. Choate	695,234	Feb. 11	1985	420	98	1222
Pipe thimble or insulator	R. F. Lindsay	692,881	Feb. 11	1195	265	98	1070
Pipe-union	F. I. Webber	692,093	Jan. 28	3357	738	98	727
Pipe-wrench	M. G. Lewis	695,463	Mar. 18	2106	474	98	2190
Pipe-wrench	W. D. Huntoon	695,589	Mar. 25	3809	849	98	2554
Pipe-wrench	G. E. Mittinger, Jr	695,223	Mar. 11	1875	418	98	2122
Pipes. Cleansing	O. T. Hungerford	695,726	Mar. 18	2502	586	98	2288
Pipes, rods, electric-line conductors, &c. Covering for	H. Comer	694,580	Mar. 4	363	84	98	1794
Pipette	S. Trethewey	693,085	Feb. 11	1597	348	98	1154
Piston	A. F. Ritchie	694,078	Feb. 25	3565	787	98	1594
Piston and piston-rod	J. C. Blevney	690,510	Jan. 7	277	56	98	60
Piston lubricator. Steam-engine	E. Berry	693,777	Feb. 18	2950	650	98	1459
Piston. Steam or other	P. D. Jones	691,059	Jan. 14	1309	296	98	1998
Pitman	G. W. Romaine	695,624	Feb. 18	2678	591	98	1895
Placket-closer	A. W. Chambers	691,241	Jan. 14	1622	370	98	354
Plaiting apparatus	C. A. and S. A. Reynolds	695,092	Mar. 11	1430	314	98	2031
Plaiting apparatus	E. W. Silsby	690,781	Jan. 7	794	176, 177	98	167
Plaiting-machine	H. Richards	696,081	Mar. 25	3958	786	98	2439
Plane	A. S. Brower	695,668	Mar. 18	2496	566	98	2299
Plane. Core-box	E. C. Mershon	695,569	Feb. 18	2589	589	98	1868
Planer-bed	W. O. Vivarttas	693,576	Feb. 18	2688	572, 573	98	1877
Planing-machine	C. W. H. Blood	694,314	Feb. 25	4056	901, 902	98	1666
Planing-machine	B. Heywood	695,961	Mar. 25	3971	672	98	2281
Planing-machine knife-grinding attachment	A. H. Meade	691,382	Jan. 14	1709	387	98	378
Plant chopper and thinner	A. Espinosa	692,196	Jan. 28	3439	778	98	753
Plant-thinner	R. R. Parker	695,484	Mar. 18	2139	493	98	2197
Plants. Means for growing and transplanting	M. B. Gooing	694,362	Mar. 4	990	219	98	1922
Planter	R. Stuckwisch	695,008	Mar. 11	1259	285	98	2008
Planter	F. R. Welton	695,128	Mar. 11	1595	338	98	2050
Planter	R. M. Aldridge	693,586	Feb. 4	655	154	98	953
Planter and fertilizer-distributer. Corn and cotton	R. S. Kirkpatrick	693,791	Feb. 18	2954	630	98	1432
Planter check-row attachment. Corn							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Planter. Corn-	D. and O. Somers and C. Powers	691,195	Jan. 14	1537	347	98	335
Planter. Corn-	S. McNaghten	691,321	Jan. 14	1796	408	98	389
Planter. Corn-	L. P. Booe	692,232	Feb. 4	20	5	98	802
Planter. Corn-	G. E. Gedge	695,042	Mar. 11	1362	299	98	2017
Planter. Corn-	B. Cole	695,279	Mar. 11	1795	398	98	2107
Planter. Corn-	F. C. Harwood, G. E. Gedge, and P. T. J. Monson.	695,391	Mar. 11	1962	444, 445	98	2146
Planter. Corn-	J. L. Bradshaw	695,442	Mar. 18	2068	466, 467	98	2182
Planter. Corn-	F. Kostlau	695,612	Mar. 18	2404	544, 545	98	2351
Planter. Corn-	C. L. Ferriott	692,646	Feb. 4	753	173	98	954
Planter. Corn or cotton	J. L. Boyd and J. Gillis	693,683	Feb. 18	2788	614	98	1419
Planter. Corn or cotton	J. L. Ashurst	692,000	Jan. 28	3087	694	98	692
Planter furrow-opener	J. V. Teel	691,984	Jan. 28	3058	687	98	687
Planter. Hand-	C. C. Ross	692,482	Feb. 4	457	106	98	992
Planter. Hand-	L. J. Lindsay	695,218	Mar. 11	1691	375	98	2086
Planter marker. Corn-	W. H. Ledbetter	693,724	Feb. 18	2859	630, 631	98	1433
Planter. Seed-	H. G. Witt	692,402	Feb. 4	319	77, 78	98	866
Planter. Wireless corn-	M. Joyner and J. D. Springer	694,285	Feb. 25	3944	878, 879	98	1670
Planters. Cotton-planting attachment for corn-	C. L. Jervis	693,716	Feb. 18	2848	627	98	1430
Planting apparatus. Potato or seed	J. Schratwieser	694,111	Feb. 25	3614	799	98	1603
Plaster-board	H. L. Carter	695,081	Mar. 11	1340	------	98	2012
Plaster. Elastic	W. Borrowe and J. Lumley	692,778	Feb. 4	985	223	98	998
Plastic materials. Machine for molding	C. P. Goerz	695,698	Mar. 18	2448	554	98	2259
Plate-holder. Magazine	F. Gehre	692,197	Jan. 28	3439	------	98	764
Plates or tiles. Manufacturing							
Platform: *See* Window-platform.							
Playing-ball	F. H. Richards	696,351	Mar. 25	3828	853	98	2558
Pleasure device	W. R. Inshaw	690,434	Jan. 7	94	20	98	23
Pliers and tongs. Smith's	G. F. Budach	694,828	Mar. 4	943	209	98	1912
Pliers. Bending and cutting	S. M. Decker	690,988	Jan. 14	1069	240	98	239
Plow	W. R. Oyler	690,761	Jan. 7	764	170	98	161
Plow	R. Herrling	691,464	Jan. 21	2087	467	98	469
Plow	F. L. Ezell	692,127	Jan. 28	3321	752	98	739
Plow	W. H. C. Schubert	693,451	Feb. 18	2341	512	98	1327
Plow	C. Wagner	693,468	Feb. 18	2374	519	98	1334
Plow	J. A. Ross	694,079	Feb. 25	3567	787	98	1594
Plow	J. W. Woodward	694,225	Feb. 25	3830	849	98	1646
Plow	O. W. and M. L. Budd	694,249	Feb. 25	3866	857	98	1654
Plow	G. A. Kelly	694,553	Mar. 4	427	92	98	1803
Plow	A. Schulz	694,672	Mar. 4	642	141	98	1848
Plow	M. Staguhn	694,689	Mar. 4	679	148	98	1855
Plow	G. A. Kelly	694,931	Mar. 4	1141	250	98	1954
Plow	J. Schofield	695,950	Mar. 25	3004	680	98	2387
Plow	C. K. Johnson	696,242	Mar. 25	3506	805	98	2509
Plow	W. F. Nabours	696,253	Mar. 25	3624	810	98	2514
Plow	J. H. Powell	691,323	Jan. 14	1799	409	98	390
Plow-bar. Adjustable	M. T. Hancock	692,655	Feb. 4	769	176, 177	98	957
Plow. Convertible disk	J. Y. Reynoulds	692,908	Feb. 11	1255	278	98	1083
Plow. Cultivating-	J. A. D. and J. C. Sheffield	695,499	Mar. 18	2168	489	98	2202
Plow. Cultivator-	R. S. Bonner	690,921	Jan. 14	1045	235	98	235
Plow cultivator attachment	A. S. Bailey	692,190	Jan. 28	3425	775	98	760
Plow. Disk	L. E. Waterman	692,805	Feb. 4	1049	236	98	1010
Plow. Disk	H. Bryan	696,260	Mar. 25	3933	871	98	2577
Plow. Gang-	W. J. Stewart	692,941	Feb. 11	1295	291	98	1100
Plow. Garden-	H. Traeger	696,370	Mar. 25	3886	862	98	2567
Plow-jointer	E. J. Couch	692,986	Feb. 11	1425	309	98	1117
Plow. Reversible	W. B. Michael	693,042	Feb. 11	1514	329, 330	98	1137
Plow scraper. Reversible-disk-	J. Buchanan	695,906	Mar. 25	2981	668	98	2378
Plow. Wheel-	C. F. Howes	693,864	Feb. 25	3130	693	98	1507
Plug. Attachment-	J. I. Ayer	695,366	Mar. 11	1946	454	98	2138
Plug-switch. Combination	S. Saxe	695,765	Mar. 18	2655	------	98	2301
Plumping and tanning process	A. W. Pearsall	690,894	Jan. 7	905	225	98	209
Pneumatic-despatch-tube carrier	A. W. Pearsall	694 324	Feb. 25	4073	907	98	1689
Pneumatic-despatch-tube receiver	E. A. Fordyce	691,936	Jan. 28	2965	667, 668	98	668
Pneumatic-despatch-tube system	T. Bemis	696,305	Mar. 25	3716	880, 881	98	2534
Pneumatic-despatch-tube system	T. Barrow	694,714	Mar. 4	730	158, 159	98	1803
Pneumatic drill	J. T. McGrath	694,981	Mar. 11	1247	272	98	1993
Pneumatic drill	C. L. Davis	692,194	Jan. 28	3432	777	98	761
Pneumatic motor	C. R. Kline and J. Keller	692,202	Jan. 28	3449	780	98	765
Pneumatic motor	J. Wieser	693,198	Feb. 11	1865	403	98	1206
Pneumatic motor	J. W. Birkenstock	696,387	Mar. 25	3930	870, 871	98	2577
Pneumatic motor	J. W. Keeney	692,015	Jan. 28	3108	698	98	696
Pneumatic switch and signal	N. D. Hopkinson	692,446	Feb. 4	396	95	98	880
Pneumatic-tube protector	M. Scheuer	693,449	Feb. 18	2339	511	98	1325
Pocket-book. Combination	A. J. Martin	691,956	Jan. 28	3008	675	98	677
Pocket-book protector	J. A. Skaer	694,498	Mar. 4	292	67	98	1774
Pocket-clasp	J. B. Upham	692,092	Jan. 28	3266	738	98	727
Pocket-knife	A. Braun	693,780	Feb. 18	2595	651	98	1453
Pocket-protector	E. B. Brown	693,368	Feb. 18	2183	479	98	1294
Pocket. Safety-	B. F. Proffitt	690,875	Jan. 7	966	215	98	901
Poke. Animal-	C. W. Ford	692,188	Jan. 28	3421	774	98	759
Poke. Animal-	C. H. McBroom	695,328	Mar. 11	1885	419	98	2124
Poke. Animal-	W. E. Owens	693,433	Feb. 18	2302	504	98	1320
Pole-climber	G. R. Dodd	695,290	Mar. 11	1829	407	98	2113
Pole-hoister	J. W. Birkenstock	691,740	Jan. 28	2614	585	98	597
Polishing-tool. Pneumatic	C. L. Tilden and E. J. Bender	693,631	Feb. 18	2606	595, 596	98	1400
Popcorn-balls. Machine for molding							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Pork-loining machine	A. M. Burleson	692,824	Feb. 11	1078	242 243	98	1045
Porous materials. Compound for protecting and indurating	A. Wolf	692,961	Feb. 11	1377		98	1109
Portable furnace	J. Ward	695,015	Mar. 11	1305	269	98	2035
Post: *See* Fence-post.							
Post-hole digger	R. L. Leaverton	693,801	Feb. 18	2990	661	98	1460
Post-securing device	W. Newman	691,656	Jan. 21	2431	547	98	541
Pot: *See* Coffee-pot. Tea and coffee pot. Coffee or tea pot.							
Potato-bug gatherer	M. Ortenblad	696,256	Mar. 25	3651	811	98	2516
Potato-lifter	J. T. Craig	691,843	Jan. 28	2810	651	98	636
Pouch-making machine	C. Millhiser and C. L. A. Doeppe	692,887	Feb. 11	1215	269 270	98	1074
Pouch-making machine	C. Millhiser and C. L. A. Doeppe	693,045	Feb. 11	1519	331 332	98	1139
Poultry. Device for drawing tendons from the legs of	B. W. Small	692,214	Jan. 28	3482	787	98	772
Poultry. Drip, grit, and feed device for	G. C. Lathrop	694,760	Mar. 4	819	181	98	1885
Poultry-house. Portable	G. C. Lathrop	693,283	Feb. 11	2013	438	98	1238
Powder-cans. Detachable spout for	L. J. Grove	690,571	Jan. 7	391	80	98	85
Powder-granulating machine	M. P. Wilkins and H. C. Aspinwall	695,129	Mar. 11	1524	338	98	2051
Powder. Gun-	F. W. Jones	692,143	Jan. 28	3348	758	98	745
Powder. Gun-	F. W. Jones	695,547	Feb. 18	2522	555	98	1364
Powder. Semismokeless	P. C. Stire	691,919	Jan. 28	2964		98	662
Powder. Treating gun-	F. W. Jones	692,142	Jan. 28	3346		98	744
Powder. Treating gun-	F. W. Jones	693,548	Feb. 18	2523		98	1364
Power: *See* Motive power. Windmill-power.							
Power. Apparatus for converting fuel into	G. J. Weber	693,766	Feb. 18	2980	645	98	1446
Power from volatile liquids. System of obtaining	J. Bruun and P. Stricker	695,859	Mar. 18	2836	644	98	2039
Power mechanism	C. W. Sponsel	695,005	Mar. 11	1284	283	98	2001
Power-regulators. Automatic actuator for	E. R. Gill	694,370	Mar. 4	50	12 13 14 86	98	1722
Power-transmission device	W. L. Judson	690,585	Jan. 7	416	87 88	98	91
Power-transmission mechanism. Variable-speed	W. L. Judson	690,586	Jan. 7	419	88, 89	98	91
Power-transmitter and speed-controller	N. White	692,749	Feb. 4	981	212	98	989
Power. Transmitting	J. H. Barnard	696,301	Mar. 25	3703	828 829	98	2532
Power-transmitting and braking device	J. C. Blevney	693,365	Feb. 18	2174	477 478	98	1292
Power-transmitting device	I. H. Davis	690,641	Jan. 7	527	115	98	113
Power-transmitting device	R. B. Mann	691,789	Jan. 28	2710	609	98	617
Power-transmitting mechanism	W. H. Lucas	693,290	Feb. 11	2029	442	98	1240
Power-transmitting mechanism	H. W. Sumner	694,692	Mar. 4	684	149	98	1856
Precious metals from ores. Cyanid process of extracting	B. W. Begeer	694,521	Mar. 4	356	78	98	1789
Precious metals from refractory ores. Apparatus for recovering	H. R. Cassel	694,350	Mar. 4	17	4	98	1716
Precious metals from their ores. Cyanid process of extracting	E. Schilz	696,274	Mar. 25	3658		98	2522
Precious metals from their ores. Extracting	H. Davis	692,634	Feb. 4	733		98	950
Preserve-boxes. Filling	E. Besse and L. Lubin	695,271	Mar. 11	1777	398	98	2108
Preserve-jar	S. Oakman	693,056	Feb. 11	1546	337	98	1144
Preserving apparatus. Food-	M. D. Ellis	694,261	Feb. 25	3201	865	98	1660
Preserving fruits, &c	A. L. de Stürler	694,301	Feb. 25	3270		98	1678
Preserving fruits or vegetables. Apparatus for	K. M. Keiser	695,732	Mar. 18	2504	591	98	2290
Preserving organic substances	A. Mészáros	691,402	Jan. 21	1980	444	98	447
Press: *See* Baling-press. Guncotton-press. Brick-making press. Hand-press. Cheese-press. Hay-press. Cider and fruit press. Hydraulic press. Electrical press. Printing-press. Embossing-press. Pulp-press. Expressing-press. Screw-press. Filter-press. Seal-press. Tobacco-press.							
Press-box	G. W. Zoder	695,990	Mar. 25	3076	697	98	2402
Press for oleaginous substances	G. W. Zoder and W. P. Hayne	691,430	Jan. 21	2031	452	98	456
Press-mat	C. G. Baumgarten	695,266	Mar. 11	1779	392	98	2108
Presses. Automatic stop mechanism for screw-	L. A. Shannon	692,723	Feb. 4	891	203	98	981
Pressure-regulator. Automatic	A. S. Comstock	690,515	Jan. 7	287	57, 58	98	68
Primary battery	J. W. Frees	693,001	Feb. 11	1446	314	98	1122
Printed impressions may be taken. Block or base for holding plates from which	S. M. Weatherly	695,977	Mar. 25	3052	693	98	2298
Printer's chase. Separable or sectional	W. H. Padgett, Jr	691,957	Jan. 28	3080	680	98	661
Printer's galley	M. J. McHugh	691,657	Jan. 21	2430	546	98	541
Printer's quoin	W. H. Lynchard	692,023	Jan. 28	3128	705	98	699
Printer's quoin	F. J. Beck	694,318	Feb. 25	4055	901	98	1684
Printers' rollers. Machine for cleaning	S. Crump	696,134	Mar. 25	3377	762 763	98	2407
Printer's scale and gage	J. L. Dodd	691,715	Jan. 21	2535	566	98	568
Printing and embossing press. Plate-	W. Fullard	695,854	Mar. 18	2843	645	98	2341
Printing and embossing press. Plate-	W. Fullard	695,855	Mar. 18	2844	646	98	2341
Printing attachment. Roll-paper	B. Ring	695,416	Mar. 11	2027	455	98	2155
Printing-bars. Machine for producing	E. V. Beals	696,260	Mar. 25	3654	857 858 859 860	98	2522
Printing carpets, mats, &c. Apparatus for	A. F. Lundeberg	690,746	Jan. 7	743	165	98	156
Printing-films. Adjustable holder for	J. A. Sauter	690,619	Jan. 7	483	104	98	108

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Printing. Imitating beige or vigoreux by	L. Hirsch	694,860	Mar. 4	1004	222	98	1025
Printing in a plurality of colors. Machine for	E. Lambert	695,816	Mar. 18	2759	628, 629, 630	98	2323
Printing-machine	H. A. W. Wood	693,308	Feb. 11	1578	405, 406	98	1208
Printing-machine	H. A. W. Wood	694,597	Mar. 4	499	108	98	1819
Printing-machine wiping device	W. Fullard	693,510	Feb. 18	2449	537	98	1350
Printing-machines. Mechanical movement and bed-motion for cylinder	E. F. Leilich	692,679	Feb. 4	821	185, 186	98	967
Printing-machines. Sheet-delivery mechanism for	C. P. Cottrell	690,638	Jan. 7	580	113, 114	98	112
Printing on inner or outer surfaces of cones, cylinders, &c. Stamp for	C. H. Callahan	692,616	Feb. 4	710	164	98	945
Printing. Plate-	A. Reid	692,351	Feb. 4	236	56	98	848
Printing-press	E. Fischer	692,508	Feb. 4	504	118	98	901
Printing-press	J. H. Stonemetz	693,183	Feb. 11	1824	397, 398	98	1196
Printing-press	A. E. Dowell	694,846	Mar. 4	973	217	98	1919
Printing-press	C. G. Mortimer	696,145	Mar. 25	3423	768	98	2475
Printing-press	R. Naumann	692,065	Jan. 28	3212	725	98	716
Printing-press attachment	A. Reid	692,350	Feb. 4	235	56	98	847
Printing-press attachment. Plate-	R. Miehle	693,043	Feb. 11	1515	350	98	1138
Printing-press fly-finger	H. A. W. Wood	693,204	Feb. 11	1879	405	98	1209
Printing-press impression mechanism	E. F. Hanson	692,515	Feb. 4	530	124, 125	98	905
Printing-press numbering attachment	R. Miehle	693,044	Feb. 11	1516	330, 331	98	1138
Printing-press offset mechanism	A. O. Hayes and E. C. Hemphill	691,860	Jan. 28	2357	638	98	642
Printing-press perforating attachment	T. M. North	695,414	Mar. 11	2019	454	98	2154
Printing-press plate-clamping device	J. H. Schussler	690,895	Jan. 7	906	225, 226	98	309
Printing-press rolls. Means for inking	M. A. Droitcour and G. F. Kalkhoff	693,124	Jan. 28	3310	750, 751	98	736
Printing-press sheeting attachment	A. J. Hood	691,863	Jan. 28	2340	638, 639	98	643
Printing-press tinting and delivery attachment	C. E. Neubauer	693,329	Feb. 11	2099	459	98	1257
Projectile	J. B. Semple	694,082	Feb. 25	3484	768	98	1578
Projectile	J. J. McIntyre	695,578	Mar. 18	2343	531	98	2239
Projectile	L. Julig	693,718	Feb. 18	2849	628	98	1430
Projectile and fuse	W. O. Whitney	691,514	Jan. 21	2177	487	98	489
Propeller	B. T. Herold	694,274	Feb. 25	3922	872	98	1665
Propeller. Bouyant	G. W. Gardiner	695,717	Mar. 18	2573	582	98	2284
Propeller-gear	B. Cannon	695,276	Mar. 11	1785	396	98	2105
Propeller. Marine	F. C. Metz	691,792	Jan. 28	2716	610	98	618
Propeller. Screw-	J. Titus, T. W. Burt, and D. D. Smith.	691,300	Jan. 14	1743	396	98	378
Propeller-shaft-reversing apparatus	D. H. Rohwedder	692,910	Feb. 11	1258	279	98	1063
Propeller. Vessel-	L. W. Hammond	695,389	Mar. 11	1980	443	98	2145
Propeller-wheel	J. J. Astor	690,821	Jan. 7	875	193	98	185
Propulsion. Marine	I. M. Chase	692,117	Jan. 28	3296	747	98	784
Propulsion. Marine	F. C. Homer	691,314	Jan. 14	1790	405	98	386
Propulsion of ships	C. M. McCormick	692,060	Jan. 28	3208	723	98	715
Protractor. Navigating-	J. P. M. Joseph	692,673	Feb. 4	813	184	98	966
Pruner	C. W. Reed and J. Hakel	691,811	Jan. 28	2758	621	98	625
Pruning-shears	J. D. Swindell	695,182	Mar. 11	1617	358, 359	98	2071
Puddling-furnace	W. Kent	694,970	Mar. 11	1228	268	98	1989
Puddling or boiling furnace. Reverberatory	H. Hubbell	693,799	Feb. 18	2986	660	98	1459
Pull-socket							
Puller: See Spike-puller. Stone-puller. Stump-puller. Tack or nail puller.							
Pulley	H. H. Boyce	693,945	Feb. 25	3291	724	98	1538
Pulley and adjusting mechanism therefor. Adjustable	C. E. Holmes	695,089	Mar. 11	1378	303, 303	98	2021
Pulley-block	J. B. Roney	691,492	Jan. 21	2153	478	98	479
Pulley-covering	R. H. Willis	694,046	Feb. 25	3513	773	98	1588
Pulley. Expansible	R. Temple	692,219	Jan. 28	3403	750	98	774
Pulley. Expansion-	S. W. Wardwell	690,494	Jan. 7	244	50	98	53
Pulley. Expansion-	P. Jacobsen	693,545	Feb. 18	2518	554, 555	98	1364
Pulley for signal-wires, &c	S. T. Dutton	695,361	Mar. 11	1969	441	98	2143
Pulley-rims. Roll for curving sheet-metal	T. Corscaden	694,910	Mar. 4	1100	243	98	1944
Pulley. Sash-	A. Johnston	694,482	Mar. 4	957	60	98	1769
Pulley. Sheet-metal	C. H. Bicalky	691,989	Jan. 28	2951	664	98	695
Pulling-over machine	A. F. Preston	693,690	Feb. 18	2668	589, 590	98	1394
Pulp and paper making machine	H. Parker	693,896	Feb. 25	3203	706	98	1521
Pulp. Apparatus for separating clean from refuse chips in the manufacture of wood-	T. P. Burgess	693,684	Feb. 18	2790	614	98	1419
Pulp-compressing apparatus. Collapsible mandrel for	G. E. Shaw	693,571	Feb. 18	2573	568	98	1374
Pulp-compression apparatus	G. E. Shaw	693,570	Feb. 18	2570	567	98	1373
Pulp into sheets. Forming wood-	J. S. Hughes	691,771	Jan. 28	2676	599	98	610
Pulp. Machine for the manufacture of sheets, boards, or tubes from	F. E. Keyes	692,862	Feb. 11	1145	255, 256	98	1059
Pulp press. Wood-	J. S. Hughes	691,770	Jan. 28	2671	599	98	609
Pulp-refining engine	G. A. Clark	696,314	Mar. 25	3769	840	98	2546
Pulp-screen	O. H. Moore	695,754	Mar. 18	2639	599, 600	98	2298
Pulp-screen. Centrifugal	J. H. Baker, G. F. Shevlin, and F. H. Baker.	693,215	Feb. 11	1904	413	98	1215
Pulp-screen circulating-box	L. Whalley	694,707	Mar. 4	710	155	98	1861
Pulp-timber. Tool for rossing and peeling	J. R. Turner	695,353	Mar. 11	1920	426	98	2131
Pulping-machine	C. Wurster	690,506	Jan. 7	271	55	98	59
Pulverizer	H. Arfens and J. Thompson	695,094	Mar. 11	1898	393	98	2010

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Invention.	Name.	No.	Date.	Monthly volume		Official Gazette.	
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Pulverizing apparatus	W. F. McClellan	691,103	Jan. 14	1480	335	98	333
Pulverizing-mill	C. Wallace	696,089	Feb. 11	1808	349 350	98	1155
Pump	G. E. Whitney	691,513	Jan. 21	2172	486	98	488
Pump	R. Morrill	691,658	Jan. 21	2423	544	98	530
Pump	H. S. Clark	693,235	Feb. 11	1989	421	98	1333
Pump	C. H. Atkins	695,132	Mar. 11	1540	340 341	98	2054
Pump	G. W. Eddy	695,199	Mar. 11	1645	366	98	2077
Pump. Air-	J. Robertson	695,492	Mar. 18	2155	486	98	2300
Pump. Air-	J. E. Lambert	695,613	Mar. 18	2406	545	98	2351
Pump. Air-	J. E. Sponseller and G. Fenno	696,377	Mar. 25	3063	819	98	2523
Pump air-chamber	J. Edwards	693,247	Feb. 11	1956	425	98	1336
Pump bushing. Centrifugal-	A. T. Ames and S. M. Fulton	695,871	Mar. 18	2960	648 649	98	2345
Pump. Centrifugal	F. W. Howard	694,045	Mar. 4	587	120	98	1337
Pump for fluid-tanks	F. O. Sterrett	696,980	Feb. 25	3244	714	98	1589
Pump for handling heavy oils	P. A. Myers	691,054	Jan. 21	2426	545 546	98	540
Pump. Force-	C. B. Lakenan	695,815	Mar. 18	2755	608	98	2322
Pump. Hydraulic	H. F. C. Soeliner	694,210	Feb. 25	2511	542	98	1042
Pump. Mixing-	G. W. Cook	691,447	Jan. 21	2353	490	98	462
Pump-motor	W. A. Maybach	693,737	Feb. 18	2670	632	98	1435
Pump. Oil-	J. B. Miller	691,957	Jan. 28	3009	675 676	98	677
Pump-operating mechanism	J. Kirkwood	693,609	Feb. 18	2653	595	98	1390
Pump or force-blast blower. Rotary	W. Hoekstra	694,278	Feb. 25	3004	675 676	98	1668
Pump-rod ejector	G. A. Walker	693,470	Feb. 18	2577	590	98	1335
Pump. Rotary	A. Abendroth	691,343	Jan. 21	1967	431	98	423
Pump. Steam-	F. Freyhold	693,126	Feb. 11	1692	369	98	1172
Pump. Steam-	J. H. Fox and C. M. Lowther	693,542	Feb. 18	2518	553	98	1562
Pumps. Automatic shut-off for electric	C. C. Worthington	693,479	Feb. 18	2396	524	98	1339
Pumps. Cylinder-charging valve for	G. A. Farwell	691,123	Jan. 14	1404	320	98	307
Pumping and dredging apparatus	C. C. Worthington	694,513	Mar. 4	328	73, 74	98	1788
Pumping apparatus	J. J. Delaney	695,288	Mar. 11	1826	405 406	98	2112
Pumping-engine	G. de Laval and G. P. Aborn	690,909	Jan. 14	1136	257 258	98	253
Pumping-engine. Compensating high-duty	C. C. Worthington	690,545	Jan. 7	330	69	98	73
Pumping-engine. Steam	T. W. Hullinger	696,336	Mar. 25	3807	848 849	98	2554
Pumping-jack	L. L. Foss	695,690	Mar. 18	2519	570	98	2273
Punch	J. C. Burgess	691,922	Jan. 28	2957	666	98	667
Punch. Cold-iron	T. F. Philippi	693,310	Feb. 11	2061	450	98	1348
Punch. Shear-	E. B. Stimpson	696,211	Mar. 25	3542	792 793	98	2496
Punching and eyeleting machine	C. B. Whitney	695,186	Mar. 11	1622	360	98	2072
Punching-bag	C. B. Whitney	695,187	Mar. 11	1624	360 361	98	2072
Punching-bag apparatus	F. F. Cumms	692,122	Jan. 28	3308	749 750	98	736
Punching-machine	C. Berst	691,587	Jan. 21	2399	518	98	513
Punching-register	H. Laughlin, Jr., and D. Schuyler	694,341	Feb. 25	4113	915	98	1697
Push-button for locks, &c	M. Guett	690,946	Jan. 14	1088	245	98	243
Push-button switch	H. J. Rosevelt	696,148	Mar. 25	3429		98	2476
Putty	G. W. Treichel	692,559	Feb. 4	605	142	98	981
Puzzle	A. G. Hanson	695,455	Mar. 18	2093	472	98	2197
Puzzle	W. E. Stubbs	694,038	Feb. 25	3498	770	98	1580
Puzzle device	A. Delgrande	692,770	Feb. 4	974		98	996
Pyrotechnic compound	C. Fitzgerald	696,328	Mar. 25	3782	843	98	2549
Quicksilver-separating and continuous ore-furnace	B. F. Murray	695,413	Mar. 11	2018	453	98	2153
Quilting-frame	D. H. Fox	695,452	Mar. 18	2087	471	98	2186
Quilting-frame	F. Hofmann. (Reissue)	11,960	Jan. 7	1030		98	215
Quinin salicylic ether	G. F. Peck	690,911	Jan. 7	1028	231	98	215
Quoin-lock	C. A. Wright	692,963	Feb. 11	1379	299	98	1109
Quoit							
Rack: *See* Carpet-rack. Clothes-rack. Display-rack. Feeding-rack. Hay-rack. Kitchen-rack. Lace-rack. Luggage-rack. Music-rack.							
Racking apparatus. Carbonated-beverage	H. A. White	691,907	Jan. 28	3090	692 693	98	690
Racking apparatus. Liquid	R. H. Salmons	694,668	Mar. 4	636	139	98	1847
Radiator air-valve	F. W. Leuthesser	695,616	Mar. 18	2411	546	98	2252
Radiator attachment	G. W. Nistle	691,796	Jan. 28	2781	612	98	819
Radiator or heating-stove. Hot-water	J. W. Ewart	696,096	Mar. 25	3302	743	98	2451
Radiator. Sheet-metal	J. D. Karnaghan	692,300	Feb. 4	144	34	98	898
Radiator. Sheet-metal	C. E. Safford	692,365	Feb. 4	261	63	98	853
Radiator. Steam-	J. T. Hope	692,854	Feb. 11	1129	252	98	1055
Radiator valve. Hot-water-	C. A. Granton	695,046	Mar. 11	1369	301	98	2019
Rail	L. Beecher	695,139	Mar. 11	1548	343	98	2056
Rail-bond	M. F. Whiton	692,395	Feb. 4	806	74	98	804
Rail-brace	J. Jensen	695,610	Mar. 18	2402	544	98	2250
Rail. Compound	E. G. Stein	692,754	Feb. 18	2911	640	98	1444
Rail connection and crossing. Interlocking	H. B. Nichols	694,982	Mar. 11	1949	273	98	1994
Rail-fastener	J. M. Spaulding	694,687	Mar. 4	675	147	98	1855
Rail-fastener	E. W. Hogan	694,750	Mar. 4	798	176 177	98	1879
Rail-fastener	W. McWillie	695,112	Mar. 11	1480	330	98	2041
Rail frog. Continuous-	H. R. Collins	692,589	Feb. 11	1098	244	98	1047
Rail-joint	J. I. Hickman and A. Borrow	690,428	Jan. 7	80	17	98	80
Rail-joint	B. Wolhaupter	691,087	Jan. 14	1270	287 288	98	283
Rail-joint	H. Tiedemann	691,207	Jan. 14	1561	335	98	340

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rail-joint	S. Blair	691,585	Jan. 21	2191	491	98	492
Rail-joint	W. J. Ward	691,680	Jan. 21	2477	535	98	551
Rail-joint	W. H. F. Raifsnyder	692,344	Feb. 4	224	54	98	845
Rail-joint	H. T. Densmore	693,788	Feb. 18	2906	655	98	1455
Rail-joint	W. H. Shipe and J. P. Gleeson	693,806	Feb. 18	3006	665	98	1454
Rail-joint	A. Barr	693,812	Feb. 18	3012	666	98	1465
Rail-joint	B. F. Stephens	693,919	Feb. 25	3242	714	98	1828
Rail-joint	O. S. Weddell	694,122	Feb. 25	3635	808	98	1009
Rail-joint	J. L. Campbell	694,134	Feb. 25	3658	807	98	1612
Rail-joint	J. W. Kennedy	694,754	Mar. 4	800	177	98	1851
Rail-joint	B. Barnett	694,988	Mar. 11	1158	253	98	1976
Rail-joint	J. Diehl	694,949	Mar. 11	1177	258	98	1979
Rail-joint	J. H. Roberts	694,993	Mar. 11	1261	276	98	1997
Rail-joint	M. W. Mayer	695,221	Mar. 11	1699	377	98	2087
Rail-joint	O. M. Stewart	695,768	Mar. 18	2659	604	98	2302
Rail-joint	J. M. Bebout	694,086	Feb. 25	3575	790	98	1595
Rail-joint and fish-plate. Boltless	W. S. Jones	690,966	Jan. 14	1131	256	98	252
Rail-joint clamp	J. T. Blake	690,918	Jan. 14	1041	234	98	234
Rail-joint connection	A. Kreps	692,152	Jan. 28	3360	761	98	747
Rail-joint. Detachable-key	J. S. McAwley	690,751	Jan. 7	750	167	98	158
Rail tie and fastener. Steel	S. W. Huff	693,396	Feb. 18	2231	{489 490}	98	1305
Railway appliance. Automatic	P. J. Moran	695,883	Mar. 18	2771	632	98	2335
Railway bed or tie	B. C. Rowell	695,648	Mar. 18	2489	560	98	2264
Railway block system	G. Laczay	693,658	Feb. 18	2738	604	98	1408
Railway-carriage coupling. Automatic	C. Banovits	695,595	Mar. 18	2369	537	98	2345
Railway-carriage couplings. Engaging or disengaging device for automatic	V. S. Klick	694,972	Mar. 11	1230	268	98	1990
Railway cattle-guard	M. M. Warren and M. M. Altare	696,153	Mar. 25	3434	770	98	2477
Railway cattle-guard	H. A. Forbes	695,297	Mar. 11	1840	410	98	2115
Railway chair and rail	H. C. Orr and G. Mathews	692,332	Feb. 4	201	48	98	841
Railway-coach chair. Convertible	H. C. Orr and G. Mathews	692,333	Feb. 4	203	48, 49	98	841
Railway-coach chair. Reversible	G. del Monaco	692,533	Feb. 4	565	132	98	913
Railway collisions. Electric signaling device for preventing	D. S. Bergin	692,974	Feb. 11	1403	304	98	1113
Railway. Combined underground and overhead electric	W. M. Hickok	694,276	Feb. 25	3024	872	98	1665
Railway construction	F. P. Derr	693,244	Feb. 11	1953	424	98	1226
Railway construction. Electric	J. L. Crandall	690,402	Jan. 7	30	7	98	9
Railway cradle. Marine	J. H. Higgins	695,457	Mar. 18	2096	473	98	2188
Railway-crossing	W. R. Macklind	696,376	Mar. 25	3899	865	98	2569
Railway-crossing	H. D. Miles	692,690	Feb. 4	842	191	98	972
Railway devices. Motor for	F. M. Ashley	690,386	Jan. 7	4	1	98	4
Railway. Electric	F. M. Ashley	690,387	Jan. 7	5	2	98	4
Railway. Electric	G. Davis	690,406	Jan. 7	26	9	98	10
Railway. Electric	G. T. Woods	696,968	Mar. 25	3072	696	98	2401
Railway. Electric	E. W. Farnham	696,023	Mar. 25	3148	{710 711}	98	2416
Railway. Electric	E. W. Farnham	696,024	Mar. 25	3151	{711 712}	98	2417
Railway electric signaling apparatus	W. Hume	693,590	Feb. 18	2471	542	98	1354
Railway electric system	D. S. Bergin	692,817	Feb. 11	1068	240	98	1042
Railway. Elevated	J. N. Valley	691,096	Jan. 14	1349	{304 305}	98	296
Railway-gate	G. S. and W. D. Sumlin	691,822	Jan. 28	2775	624	98	639
Railway-gate	W. W. and J. W. Allen	694,815	Mar. 4	913	204	98	1905
Railway-gates. Electrical operating apparatus for	H. C. Lavery	693,973	Feb. 25	3350	{736 737 738}	98	1550
Railway-joint	J. L. Mayes	694,655	Mar. 4	695	183	98	1840
Railway. Marine	J. L. Crandall	694,911	Mar. 4	1103	243	98	1945
Railway. Overhead-trolley electric	B. D. Gilson	693,351	Feb. 11	2141	470	98	1266
Railway-rail	G. A. Case	692,115	Jan. 28	3296	746	98	733
Railway-rail. Hardened	W. E. Coyan	694,538	Mar. 4	955	212	98	1915
Railway-rail joint	F. Bain	690,823	Jan. 7	878	194	98	186
Railway-rail joint	C. E. Bentley	691,347	Jan. 21	1872	422	98	424
Railway-rails, frog and switch rails, &c. Cushion for	A. B. Gombar	695,429	Mar. 11	2043	458	98	2158
Railway. Sectional-conductor electric	K. Hora	693,394	Feb. 18	2229	489	98	1304
Railway-signal	B. W. McDowell	693,883	Feb. 25	3168	700	98	1514
Railway-signal	J. H. Clark	695,794	Mar. 18	2721	{620 621}	98	2315
Railway-signal	E. McMahon	695,827	Mar. 18	2778	634	98	2326
Railway signal apparatus	S. F. Clouser	693,376	Feb. 18	2196	482	98	1298
Railway signal system. Electric	S. B. Stewart, Jr	695,122	Mar. 11	1513	336	98	2047
Railway signaling device	G. G. Ritchie	694,893	Mar. 4	1068	236	98	1936
Railway signaling. Electric	O. W. Hart	695,456	Mar. 18	2094	472	98	2188
Railway signaling system. Electric	W. W. Salmon	692,916	Feb. 11	1275	281	98	1088
Railway. Single-track	H. H. Tunis	690,539	Jan. 7	330	66, 67	98	71
Railway-sleeper made of metal and wood	N. Devaux and H. Richard	695,671	Mar. 18	2500	{567 568}	98	2270
Railway-spike	D. F. Vaughan	691,087	Jan. 14	1350	305	98	296
Railway structures. Device for reducing the noise in elevated-	H. G. Farr	694,359	Mar. 4	32	7	98	1719
Railway-switch	E. B. Green	690,421	Jan. 7	69	14	98	16
Railway-switch	G. E. Haynes	691,720	Jan. 21	2542	{569 570}	98	864
Railway-switch	C. A. Egger	692,125	Jan. 28	3313	751	98	737
Railway-switch	F. L. Darwin	692,247	Feb. 4	54	12	98	810
Railway-switch	M. S. Farmer	693,554	Feb. 18	2306	485	98	1900
Railway-switch	D. J. Griffiths, H. W. Hitzrot, and C. W. Mower.	694,056	Feb. 25	3533	{778 779}	98	1567
Railway-switch	H. K. J. Manger	694,563	Mar. 4	441	96, 96	98	1906
Railway-switch	G. G. Guenther	694,742	Mar. 4	760	173	98	1577
Railway-switch	D. T. Granbery	692,271	Feb. 4	104	25	98	880
Railway-switch and mechanism for operating it	C. Schwarz and W. H. Drittler	691,010	Jan. 14	1218	303	98	299
Railway-switch. Automatic							

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Invention.	Name.	No.	Date.	Monthly volume.		Official Gazette.	
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Railway-switch. Electrically-controlled	R. V. Cheatham	696,318	Mar. 25	3763	839, 840	98	2545
Railway switch. Street-	W. J. Bell	693,944	Feb. 25	3289	734	98	1536
Railway-switch. Three-way	W. F. Bossert	690,922	Jan. 14	1047	236	98	225
Railway switches. Device for operating street-	W. E. Schilling and O. M. Ridgway	691,006	Jan. 14	1214	303	98	268
Railway-switches. Electrical operation and control of	T. Ducousso and F. Rodary	694,847	Mar. 4	977	217	98	1080
Railway-switches. Mechanism for automatically operating	C. J. Kintner	691,781	Jan. 28	2694	605, 606	98	614
Railway system. Electric-	H. P. Wellman	690,499	Jan. 7	251	51	98	55
Railway system. Electric-	W. B. Potter	691,810	Jan. 28	2749	620, 621	98	694
Railway system. Electric-	B. E. Osborn	692,898	Feb. 11	1239	274	98	1079
Railway system. Electric-	J. Ryan	694,425	Mar. 4	170	38	98	1740
Railway T-rails. Grooved rail appliance for street-	H. C. Phelps	690,608	Jan. 7	454	97	98	97
Railway-tie	J. P. Bickerstaff	690,691	Jan. 7	621	135	98	131
Railway-tie	J. J. Ridgway	690,998	Jan. 14	1195	270	98	265
Railway-tie	J. H. Bender	691,586	Jan. 21	2298	517	98	518
Railway-tie	J. H. Gleason	692,264	Feb. 4	94	22	98	818
Railway-tie	C. De Cew	694,257	Feb. 25	3892	863	98	1058
Railway-tie and means for securing the rails thereto. Metallic	C. Rabert	692,902	Feb. 11	1247	276	98	1081
Railway-tie and rail-fastening. Metallic	D. J. Meyer	692,689	Feb. 4	841	191	98	972
Railway-tie. Metal	W. V. Beal and S. Smith	692,600	Feb. 4	681	158	98	938
Railway-tie. Metallic	W. H. Meiser	691,647	Jan. 21	2414	543	98	537
Railway-tie. Metallic	L. T. Sheffield	692,372	Feb. 4	272	66	98	855
Railway-tie. Metallic	A. P. Bamberger	694,600	Mar. 4	509	110, 111	98	1821
Railway-tie plate	V. E. Barnes	695,438	Mar. 18	2051	461	98	2179
Railway-tie plate	W. S. Jones	691,317	Jan. 14	1790	407	98	386
Railway-tie plate	B. Wolhaupter	691,382	Jan. 14	1845	417	98	408
Railway-tie plate	R. L. Underwood and I. C. Butterfield.	691,966	Jan. 28	3063	689	98	998
Railway-tie-securing device	A. B. Allen	694,343	Mar. 4	5	2	98	1713
Railway-tie. Steel	I. Dinger	690,705	Jan. 7	655	143	98	138
Railway-track	G. S. Kendall	694,484	Mar. 4	271	61	98	1770
Railway-track adjuster	R. Baggaley	692,498	Feb. 4	486	113	98	998
Railway-track and car-truck	G. Meader	690,597	Jan. 7	448	96	98	90
Railway-track jack	H. Hale and S. J. Bartlett	690,423	Jan. 7	69	15	98	17
Railway-track-laying machine	H. Mann	694,564	Mar. 4	444	96	98	1807
Railway-track structure	E. B. Entwisle	691,616	Jan. 21	2357	530	98	594
Railway-track structure	V. Angerer and E. Samuel	693,210	Feb. 11	1898	410	98	1213
Railway-track structure	C. H. Krauss	694,102	Feb. 25	3715	820	98	1624
Railway-track structure	H. B. Nichols	694,176	Feb. 25	3749	828, 829	98	1630
Railway, tramway, &c.	J. Brown	694,129	Feb. 25	3644	806	98	1610
Railway turn-table	P. Johnson	692,521	Feb. 4	540	127	98	908
Railway-vehicle life-guard	G. Kirby	690,738	Jan. 7	731	161	98	154
Railway-vehicles. Means for providing brakes to	J. Bowman	695,274	Mar. 11	1782	395	98	2104
Railways. Automatic audible signaling on	J. Goode	694,008	Feb. 25	3432	755, 756	98	1566
Railways. Collector for surface-contact	W. B. Potter	691,808	Jan. 28	2744	619, 620	98	682
Railways. Displacing device for use on	G. Vogt	695,662	Mar. 18	2488	565	98	2268
Railways or vehicles. Controller for electric	J. C. Henry	696,237	Mar. 25	3585	803	98	2506
Railways. Signaling system for single-track	W. W. Salmon	692,915	Feb. 11	1269	281	98	1064
Rake: *See* Hand-rake. Hay-rake.							
Rake attachment	O. Benson	695,139	Mar. 11	1549	343	98	2037
Rake attachment. Horse-	M. Jewell	695,985	Mar. 25	2981	674	98	2384
Ram	D. J. Morgan	696,008	Mar. 25	3223	731, 732	98	2434
Rammer	A. E. Hammer	692,290	Feb. 4	117	27	98	822
Range-boiler	A. C. Badger	690,928	Jan. 7	501	108	98	107
Range. Cooking-	A. H. Garrison	692,654	Feb. 4	706	176	98	956
Range-finder	C. Davis	691,247	Jan. 14	1631	372, 373	98	355
Range-indicator	A. Le Blanc	691,742	Jan. 28	2617	586	98	509
Ratan-dividing machine	H. W. Larsson	694,757	Mar. 4	805	179, 180	98	1988
Ratan-dividing machine	H. W. Larsson	694,758	Mar. 4	805	180, 181	98	1663
Ratan-strip-trimming machine	H. W. Larsson	694,808	Mar. 4	1019	224, 225, 226, 227	98	1928
Ratan strips. Machine for longitudinally dividing	H. W. Larsson	694,860	Mar. 4	1094	227, 228	98	1929
Ratchet-wrench	W. T. Garrett	690,647	Jan. 7	599	117	98	115
Razor	G. W. Korn	696,594	Feb. 18	2480	544	98	1356
Razor-gage	A. Witte	692,576	Feb. 4	627	147	98	986
Razor-hones. Automatic oscillating skid or support for	T. Anderson	694,229	Feb. 25	3635	849, 850	98	1646
Razor. Safety-	A. L. Silberstein	690,780	Jan. 7	708	176	98	167
Razor. Safety-	F. J. Halbekann	690,947	Jan. 14	1090	245	98	243
Razor. Safety-	J. H. Becker	693,998	Feb. 25	3604	749	98	1561
Razor. Safety-	F., R., and O. Kampfe	694,650	Mar. 4	597	131	98	1839
Reach-coupling	T. G. Mandt	692,168	Jan. 28	3375	764	98	750
Reamer	W. Jackmond	695,559	Mar. 18	2294	518	98	2226
Recessing-machine	R. S. Brown	692,234	Feb. 4	23	5, 6, 7	98	808
Reciprocating engine	C. C. Protheroe	694,076	Feb. 25	3560	786	98	1593
Reclining-chair	F. Rose	695,498	Mar. 18	2154	486	98	2000
Recorder: *See* Speed-recorder. Time-recorder.							
Recording system	R. and W. H. Davis and D. C. Woodbury.	691,450	Jan. 21	2057	460, 461	98	464

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Rectal instrument	S. L. Kistler	694,971	Mar. 11	1229	268	98	1900
Reel: *See* Binder-reel. Clothes-line reel. Fence-reel. Fish-reel. Fishing-reel. Measure-reel. Twine-reel.							
Reel and barrel-carrier. Combined	W. E. Shaver	696,241	Mar. 11	1736	382	98	2098
Reeling mechanism	C. E. Pope	692,474	Feb. 4	444	104	98	889
Reflector	J. L. Creveling	691,048	Jan. 14	1295	293, 294	98	285
Refrigerating-chamber	J. Crabtree	696,183	Mar 25	3375	762	98	2466
Refrigerator-door-fastening device	B. A. Stevens	694,691	Mar. 4	683	148	98	1856
Register: *See* Autographic register. Cash-register. Fare-register. Golf-register. Hot-air register. Hotel-register. Punching-register. Sample-register.							
Register	H. W. Howe	693,604	Feb. 18	2044	553	98	1389
Register top plate	D. G. Clark	690,698	Jan. 7	642	140	98	135
Registering apparatus. Autographic	J. S. Ferguson	691,852	Jan. 28	2287	634, 635	98	640
Regulator: *See* Damper-regulator. Electric-machine regulator. Engine speed-regulator. Feed-water regulator. Fluid-pressure regulator. Gas-regulator. Motor feed-regulator. Oil and air regulator. Pressure-regulator. Speed-regulator. Steam-pressure regulator. Windmill-regulator.							
Rein-guard	G. W. Hinman	695,938	Mar. 25	2973	673	98	2381
Rein-holder	N. J. Barud and W. H. Busse	692,416	Feb. 4	340	84	98	870
Reins, &c. Handle for driving-	W. B. Snyder	692,168	Jan. 28	3380	766	98	751
Releasing mechanism. Time	S. S. Colt	691,047	Jan. 14	1291	293	98	285
Releasing-trap	G. N. Portman	693,901	Feb. 25	3212	708, 709	98	1523
Rendering-tank	W. C. Marshall	690,525	Jan. 7	309	61, 62	98	67
Repair-tool	F. Hoover	691,055	Jan. 14	1303	295	98	287
Request and mailing sheet. Combined	D. L. Taylor	690,798	Jan. 7	824	182	98	174
Resawing device	E. E. Thomas	693,188	Feb. 11	1844	399, 400	98	1202
Resawing-machine. Band	F. H. Clement	692,428	Feb. 4	362	89	98	874
Resins, oils, or fats. Refining	F. Arledter	696,222	Mar. 25	3560	797	98	2501
Resistance-coil	A. C. Eastwood	693,692	Feb. 18	2812	618	98	1423
Respiratory apparatus	E. Giersberg	693,795	Feb. 18	2980	658	98	1458
Reversing mechanism	W. Nahrwolt	692,895	Feb. 11	1234	273	98	1079
Reversing mechanism	C. S. Labofish	693,407	Feb. 18	2256	494	98	1309
Reversing mechanism	C. E. Rains	693,904	Feb. 25	3216	710	98	1524
Revolver finger-guard	A. A. Kemp	694,909	Mar. 11	1226	268	98	1900
Revolving indicator	J. W. Cap	695,908	Mar. 25	2934	664, 665	98	2374
Revolving screen	V. W. Mason, Jr	694,565	Mar. 4	449	96, 97	98	1808
Rheostat for electric motors. Starting-	F. Mackintosh	690,448	Jan. 7	118	25	98	27
Rheostat for use in electric-motor circuits. Automatically-controlled	H. L. Miller	696,065	Mar. 25	3229	730	98	2433
Ribbon-holder	A. F. Stockton	691,678	Jan. 21	2465	552	98	548
Rice hulling and polishing machine	W. Van Houten and S. F. Prevatt	693,990	Feb. 25	3261	718	98	1533
Ridge-breaker	R. Baldridge	693,486	Feb. 18	2408	526	98	1341
Riding-habit	J. A. Ondrak	693,498	Feb. 18	2293	509	98	1317
Rifle. Magazine-	T. A. Fidjeland	691,369	Jan. 21	1920	431, 432	98	434
Rim-opener	N. Axlund	694,518	Mar. 4	346	76	98	1786
Ring: *See* Curtain-pole ring. Finger-ring.							
Rivet cap. Tubular-	W. P. Bartel	695,265	Mar. 11	1771	392	98	2102
Rivet-clenching cap	J. L. Thomson	693,338	Feb. 11	2114	463	98	1661
Rivet-making machine	F. W. Wood	694,596	Mar. 4	498	106	98	1818
Riveter. Pneumatic	C. B. Richards	695,415	Mar. 11	2021	454	98	2154
Riveting-machine	W. S. McKinney	690,755	Jan. 7	755	168	98	159
Road-gate. Automatic	J. E. De Lamar	691,363	Jan. 21	1910	429	98	482
Roadway	F. A. Malette	691,708	Jan. 21	2595	565	98	561
Roaster: *See* Coffee roaster. Ore-roaster.							
Roaster and trusser	W. C. Williamson	691,883	Jan. 28	2736	608	98	633
Roasting-furnace	W. A. Lorenz	691,787	Jan. 28	2705	606	98	616
Roasting-pan	J. Herbe	690,574	Jan. 7	295	81	98	86
Roasting, smelting, and matting furnace	W. D. C. Spike and J. T. Jones	693,076	Feb. 11	1583	345	98	1151
Robe. Invalid's	A. Schermerhorn	695,496	Mar. 18	2160	486	98	2301
Rock-breaker	G. Lowry	693,286	Feb. 11	2080	440, 441	98	1289
Rock-crusher	W. R. Young	693,580	Feb. 18	2595	574	98	1575
Rock-drill	A. C. Bates	690,650	Jan. 7	505	110	98	108
Rock-drill	A. M. Ballou	690,687	Jan. 7	614	134	98	130
Rock-drill	H. Leineweber	691,556	Jan. 21	2235	503, 504	98	501
Rock-drill	H. Aylmer	692,755	Feb. 4	945	214	98	991
Rock-drill. Interchangeable-bit	A. J. Gates and T. W. Capen	691,389	Jan. 14	1859	419	98	406
Rock or ore breaker	J. A. Zeinwoldt	695,703	Mar. 18	2557	578	98	2289
Rocking-chair. Platform	W. D. De Lamarter and F. W. Wallace.	694,003	Feb. 25	3421	773	98	1584
Rod-coiling apparatus	J. O. Dauphin	694,840	Mar. 4	957	213	98	1916
Rod-swab	G. Engel	692,997	Feb. 11	1441	313	98	1121
Rods or shafts in place and for permitting ready removal of same. Device for securing	G. A. Gerdtzen	696,188	Mar. 25	3394	764, 765	98	2470
Roll							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Roll feed-table. Sheet-	F. O. Stromborg	695,249	Mar. 11	1742	385 386	98	3703
Roll-polishing apparatus	D. R. Ferguson and G. W. Nimon	692,189	Jan. 28	1334	759	98	759
Rolls, cakes, &c. Machine for making	M. Korth	690,741	Jan. 7	736	162 163	98	155
Roller: See Blind-roller. Land-roller. Ditch-roller. Massage-roller.							
Roller-screen	M. F. Hutchison	696,373	Mar. 25	3894	884	98	2593
Rolling apparatus. Metal-	J. Morgan	691,159	Jan. 14	1468	333	98	321
Rolling channel-irons. Apparatus for	H. S. Smith	694,437	Mar. 4	193	42, 43	98	1758
Rolling direct from fluid metal. Apparatus for continuous	C. W. Bildt	690,917	Jan. 14	1037	233 234	98	234
Rolling metal forms. Machine for	C. F. Brooker	694,788	Mar. 4	736	163	98	1867
Rolling metal ingots into thin plates or sheets	E. Norton	691,565	Jan. 21	2250	507	98	503
Rolling-mill	J. Kennedy	696,081	Feb. 11	1490	335	98	1132
Rolling-mill	Z. W. Onions	694,025	Feb. 25	3461	783	98	1573
Rolling-mill conveyer	J. D. Swindell	695,161	Mar. 11	1616	358	98	2070
Rolling-mill-shaft coupling	J. R. George and V. E. Edwards	691,759	Jan. 28	2353	504	98	604
Rolling-pin	G. J. Miller	695,411	Mar. 11	2016	453	98	2158
Rolling-pin, potato-masher, and biscuit-cutter. Combined	H. L. Meyer	694,066	Feb. 25	3542	781	98	1569
Rolling seamless tubes. Mill for	W. H. Robbins, J. J. Bye, and A. E. Jones.	692,478	Feb. 4	450	105	98	490
Rolling solid or hollow bodies. Apparatus for	J. Giesholdt	691,340	Jan. 21	2213	497 498	98	406
Rolling-stock	J. A. Burns	695,708	Mar. 18	2568	579 580	98	2281
Roof-framing tool	E. G. Pettit	695,339	Mar. 11	1899	483	98	2127
Roof-joint	C. A. Granton	696,139	Mar. 25	3397	765	98	2471
Roofs or other surfaces and fastening device therefor. Sheet-metal covering for	G. T. Williams	695,582	Mar. 18	2215	508	98	2213
Roofing material	F. S. Miller	690,596	Jan. 7	311	68	98	68
Roofing material. Chemical	J. M. Wright	691,882	Jan. 28	2872	.....	98	650
Rope-grip	H. M. Sackett	694,089	Feb. 25	3475	766	98	1576
Rope-making machine	T. W. Norman	691,797	Jan. 28	2723	612 613 614	98	619
Rotary cutter	H. A. Hannum	691,989	Jan. 28	2975	669	98	670
Rotary cutter	A. J. Norris	695,113	Mar. 11	1468	330	98	2042
Rotary-cutter holder	C. G. Belmer	695,630	Mar. 18	2437	550	98	2257
Rotary-cutter or pinking machine	T. F. Hagerty	691,702	Jan. 21	2517	563	98	559
Rotary engine	H. W. Van Auken	690,798	Jan. 7	832	184	98	176
Rotary engine	C. Crook, Jr	691,604	Jan. 21	2333	524	98	520
Rotary engine	G. F. Sage	692,212	Jan. 28	3476	786	98	771
Rotary engine	G. P. Nielsen	693,055	Feb. 11	1543	336 337	98	1143
Rotary engine	D. M. Dearing	693,348	Feb. 11	2134	469	98	1265
Rotary engine	E. R. Hyde	694,101	Feb. 25	3800	797	98	1601
Rotary engine	T. J. Masters	694,294	Feb. 25	3958	881	98	1673
Rotary engine	R. W. Barton	694,603	Mar. 4	519	113	98	1822
Rotary engine	H. Liethegener and A. Klemm	694,763	Mar. 4	823	182	98	1886
Rotary engine	J. B. Eidel, Jr., and G. Hartmann	695,095	Mar. 11	1451	321 322	98	2036
Rotary engine	A. E. Fish	695,296	Mar. 11	1838	409	98	2115
Rotary engine	J. H. Houseman	696,047	Mar. 25	3194	721 722	98	2427
Rotary explosive-engine	C. F. Lembke	694,557	Mar. 4	432	93	98	1804
Rotary fluid-engine	J. F. Cooley	693,950	Feb. 25	3302	725	98	1540
Rotary furnace	C. Groll	694,268	Feb. 25	3915	869	98	1663
Rotary motor	B. V. Szabó	694,353	Feb. 25	4000	911 912 913	98	1693
Rotary motor	L. E. Troxler	695,896	Mar. 18	2904	658 659	98	2353
Rotary steam-engine	F. G. Kennedy	696,245	Mar. 25	3801	806	98	2509
Roundabout	C. W. Hinchcliffe	693,968	Feb. 25	3339	734	98	1548
Routing-machine	W. S. Richards	695,343	Mar. 11	1906	424 425	98	2129
Routing machine. Cylinder-	V. Royle	695,119	Mar. 11	1505	335	98	2046
Rove-stop mechanism	J. Fraser	695,100	Mar. 11	1459	324	98	2037
Rowlock. Ball-bearing	T. H. Garrett, Jr	692,845	Feb. 11	1117	250	98	1053
Rubber belts. Apparatus for stretching and vulcanizing a plurality of	D. R. Bowen and C. T. Ericsson	694,087	Feb. 25	3576	790 791	98	1596
Rubber from vulcanized-rubber waste. Reclaiming	R. B. Price	693,151	Feb. 11	1749	383	98	1182
Rubber glove	J. Pfeiffer, Jr	692,703	Feb. 4	865	197	98	976
Rubber glove	J. Pfeiffer	692,704	Feb. 4	866	198	98	976
Rubber tread	R. E. Foster	695,298	Mar. 11	1840	410	98	2115
Rudder attachment	E. G. Gaillac	694,468	Mar. 4	248	55	98	1705
Rug or garment fastener	W. S. Richardson	695,887	Mar. 18	2868	655	98	2351
Rule. Slide-	J. H. C. Dennert	694,258	Feb. 25	3894	863	98	1658
Ruler. Flexible	F. G. Hunt	694,061	Feb. 25	3537	779	98	1588
Ruler. Parallel-	J. Page	694,185	Feb. 25	3767	832	98	1633
Ruler. Parallel extensible	F. A. Morley	692,794	Feb. 4	1033	232	98	1007
Ruling plain paper. Pen or pencil attachment for spacing lines in	E. Krauss	695,738	Mar. 18	2612	593	98	2203
Sack-holder	P. W. Erickson	690,412	Jan. 7	44	11	98	13
Sack-holder	H. M. Lillo and O. A. Giere	695,644	Mar. 18	2461	558	98	2268
Sack. Ore or grain	W. R. Morris	695,693	Mar. 18	2541	575	98	2277
Sad-iron	A. Luethi	690,972	Jan. 14	1144	259	98	254
Sad-iron	A. Luethi	693,876	Feb. 25	3152	697	98	1511
Sad-iron. Gas-heated	D. R. Blair	695,598	Mar. 18	2274	538	98	2245
Saddle. Harness-	E. A. Spaulding	691,015	Jan. 14	1230	277	98	272
Saddle. Harness-	C. F. Brooks	694,723	Mar. 4	729	164	98	1868
Safe	H. C. Lowrie	693,142	Feb. 11	1721	377	98	1178

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Safe and vault	N. M. Abbott	696,360	Mar. 11	1980	430, 431	98	2134
Safe-door	A. Gustafson	693,857	Feb. 25	3119	691	98	1505
Safe. Screw-door	J. B. Boos	695,191	Mar. 11	1629	362	98	2074
Safety-pin	M. Berube	694,238	Feb. 25	2846	853	98	1540
Salt and making same. Triple	E. Courant	693,378	Feb. 18	2201		98	1298
Salt-cellar	C. W. Morris	692,466	Feb. 4	429	101	98	887
Salt cellar or dredge	E. J. Gilmore	693,005	Feb. 11	1451	315	98	1124
Sample-register	P. Olsson	695,582	Mar. 18	2791	686	98	2329
Sand-drier	C. Lindstrom	692,791	Feb. 4	1017	280	98	1005
Sand-drier	N. Q. Speer	695,004	Mar. 11	1983	282, 283	98	2001
Sap-spout	D. Rudd	695,841	Mar. 18	2804	689	98	2328
Sash-fastener	J. A. Kemp	690,440	Jan. 7	104	23	98	24
Sash-fastener	E. A. Bronson	692,047	Jan 28	3178	717	98	709
Sash-fastener	C. M. Zirkle	692,100	Jan. 28	3277	741	98	739
Sash-fastener	W. W. Battles	694,234	Feb. 25	3842	851	98	1648
Sash-fastener	W. Carrick	694,612	Mar. 4	534	116	98	1827
Sash-fastener	A. C. Hendricks	694,856	Mar. 4	999	221	98	1934
Sash-fastener	W. R. Abrams	695,263	Mar. 11	1708	391	98	2108
Sash-fastener	B. Murphy	695,327	Mar. 11	1883	419	98	2123
Sash-fastener	C. Mauldin	692,025	Jan. 28	3131	705	98	700
Sash fastener. Storm-	R. B. Maloon	692,582	Feb. 4	564	132	98	913
Sash-holder	G. W. Anderson	694,816	Mar. 4	917	205	98	1906
Sash-lock	H. H. Kendrick	695,736	Mar. 18	2610	592	98	2291
Sash-lock	T. Berquist	691,348	Jan. 21	1873	422	98	494
Sash lock and lift	H. C. Smith	696,110	Mar. 25	3383	751	98	2456
Sash. Metal window-	J. G. Linkert	695,161	Mar. 11	1585	352	98	2065
Sash ratchet and pivot. Combined	A. Weingaertner	696,267	Mar. 25	3077	822, 823	98	2527
Sash. Revolving window-	J. O'Donnell	695,073	Mar. 25	3343	784	98	2436
Sash stop and fastener	E. A. Bronson	692,048	Jan. 28	3178	717	98	709
Sash-supporter	R. B. Vanderburg	694,807	Mar. 4	904	201	98	1903
Saucepan	I. I. Newfield	691,479	Jan. 21	2109	478	98	478
Sauer-kraut, &c. Follower for packing	L. R. Sosna	690,785	Jan. 7	812	179	98	171
Saw	R. E. Poindexter	693,312	Feb. 11	2063	451	98	1249
Saw	A. Peres	696,965	Mar. 25	3644	814, 815	98	2519
Saw adapted especially for felling trees and cutting them up.	M. Jincks and C. W. Stanton	691,633	Jan. 21	2393	536	98	532
Sawbuck	A. T. Binkerd	694,718	Mar. 4	729	161	98	1895
Saw-clamp	E. E. Thomas	690,678	Jan. 7	589	128	98	126
Saw. Double-cutting band-	H. F. Noyes	693,985	Feb. 25	3395	744, 745	98	1557
Saw-filing machine	J. W. Manering	691,309	Jan. 21	1975	442	98	446
Saw-guide	C. R. Van Horn	694,337	Feb. 25	4107	914	98	1695
Saw-guide	C. R. Van Horn	694,338	Feb. 25	4109	914	98	1696
Saw-guide	W. C. Buell	691,237	Jan. 14	1618	369	98	353
Saw. Hand-	G. R. Hawkins	695,392	Mar. 11	1988	445	98	2147
Saw-handle	E. L. Laherty	694,555	Mar. 4	430	93	98	1803
Saw-handle. Detachable	D. W. Solomon	690,668	Jan. 7	576	125	98	123
Saw jointer and gage. Combined	J. B. Reichenbach	692,349	Feb. 4	233	56	98	847
Saw-mandrel	E. E. Thomas and J. E. Lockwood	693,629	Feb. 18	2690	594	98	1398
Sawmill-carriages. Means for automatically controlling	E. E. Thomas	694,696	Mar. 4	698	151	98	1857
Sawmill lumber-conveyer	E. Carney	695,194	Mar. 11	1659	364	98	2076
Sawmill. Portable	M. F. Johnston	693,297	Feb. 4	189	83	98	887
Sawmill set-works	E. E. Thomas	694,697	Mar. 4	695	151, 152	98	1858
Saw mills. Guide-operating means for band-	E. E. Thomas	690,677	Jan. 7	588	127, 128	98	125
Sawmills. Haul-up-chain unloader for	E. E. Thomas	690,679	Jan. 7	590	128, 129	98	126
Sawmills. Reciprocating lumber-mover for	L. H. Price	691,078	Jan. 14	1330	300	98	298
Saw-set	J. G. Baker	692,225	Feb. 4	3	1	98	709
Saw-set	J. G. Baker	692,226	Feb. 4	5	1	98	800
Saw-set	M. N. Du Bois	694,142	Feb. 25	3665	810	98	1614
Saw-set	C. A. Baggs and A. B. Cummin	695,135	Mar. 11	1545	342	98	2056
Saw-set	A. B. Edmonds	698,504	Feb. 18	2440	554	98	1348
Saw set, gage, swage, and jointer. Combined	J. Houf	693,970	Feb. 25	3342	734, 735	98	1548
Saw-setting machine	N. Kall	692,901	Jan. 28	3444	779, 780	98	765
Saw-sharpener	R. P. Phelps	693,667	Feb. 18	2756	608	98	1412
Saw-sharpening machine	A. O. Patenaude, C. J. and J. A. Anderson.	693,060	Feb. 11	1551	338	98	1145
Saw straightening and tensioning hammer	E. H. Steedman	692,490	Feb. 4	469	109	98	894
Saw-tooth. Inserted	T. S. Wilkin	695,257	Mar. 11	1756	389	98	2099
Saw wheel. Band-	E. G. Herbert	691,189	Jan. 14	1436	326, 327	98	314
Sawing-machine	W. W. and F. N. Trevor	696,119	Mar. 25	3351	756	98	2480
Sawing-machine	S. R. Owen	692,699	Feb. 4	859	196	98	975
Sawing machine. Miter-	W. E. Arnold	694,290	Feb. 25	3836	850	98	1647
Scaffold-bracket	C. G. Strubler	690,480	Jan. 7	200	40	98	44
Scale	J. S. Cortelyou	691,750	Jan. 28	3036	590, 591	98	601
Scale	L. Botz	692,880	Feb. 11	1072	241	98	1043
Scale	W. F. Hummer	694,647	Mar. 4	591	130	98	1838
Scale. Automatic computing-	M. A. Dees	696,843	Feb. 25	3096	680, 683, 684	98	1498
Scale. Computing-	M. F. Knox	693,523	Feb. 18	2476	544	98	1355
Scale computing-poise	W. H. Prinz	694,781	Mar. 4	862	190	98	1894
Scale for maltsters. Test-	W. Buschmann	691,110	Jan. 14	1325	315	98	308
Scale. Liquid-	G. A. N. Wahlen	695,978	Mar. 25	3043	690	98	2286
Scale-pivot bearing	A. Doering	693,847	Feb. 25	3101	686	98	1801
Scale. Platform-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Scale. Price-	M. A. Dees	693,842	Feb. 25	3080	679, 680, 681	98	1497
Scale. Specific-gravity	R. J. Bogue	691,457	Jan. 21	2040	457	98	493
Scissors-gage	F. C. Wolff	692,578	Feb. 4	634	149	98	988
Scoop	H. H. Hodell	690,522	Jan. 7	305	60	98	67
Scoop	P. W. Wolfe	695,359	Mar. 11	1930	430	98	2134
Scoop-board	M. W. Heyenga	693,134	Feb. 11	1710	374	98	1176
Scraper	D. E. Preston and W. H. Atkinson	695,331	Mar. 11	1714	380	98	2090
Scraper. Wheeled	W. S. Livengood	694,560	Mar. 4	437	94	98	1805
Scraper. Wheeled	W. S. Livengood	694,561	Mar. 4	438	95	98	1806
Screen: See Adjustable screen. Burglar-alarm fly-screen. Fly-screen. Grain-screen. Paper-pulp screen. Photographic screen. Pulp-screen. Revolving screen. Roller-screen. Well-screen. Window-screen.							
Screen	F. M. Kepler	692,455	Feb. 4	406	97	98	882
Screen	E. J. McCarty	696,250	Mar. 25	2618	609	98	2513
Screen and chute. Combined	G. Holmes	693,019	Feb. 11	1470	321	98	1128
Screen-frame. Adjustable metallic	M. Messer	690,599	Jan. 7	450	96	98	96
Screen-plate fastener	M. E. Wilkinson	695,582	Mar. 18	2213	502	98	2212
Screw-cutting die-head	P. F. Maines	693,567	Feb. 18	2583	556, 559	98	1807
Screw-driver, &c	W. W. Fairchild	693,123	Feb. 11	1668	368	98	1171
Screw-driver	T. A. Farrell	694,848	Mar. 4	980	218	98	1991
Screw. Jack-	G. L. and S. W. M. Kollock	691,061	Jan. 14	1315	297	98	289
Screw-press	L. M. Hosea	694,861	Mar. 4	1006	223	98	1995
Screw-press. Hand and power	E. A. Muller	693,980	Feb. 25	2377	743	98	1555
Screw. Take-down	T. C. Johnson	694,156	Feb. 25	2708	817	98	1681
Scrubbing-machine	J. A. Nelson	695,479	Mar. 18	2131	480	98	2195
Scythe-snath-bending machine	G. M. Fenn	695,295	Mar. 11	1835	409	98	2115
Seal. Car-	W. D. Doremus	691,716	Jan. 21	2537	568	98	503
Seal. Car-	C. S. Ellis	692,586	Feb. 11	1100	246	98	1049
Seal for jugs or bottles	J. P. Dant	695,709	Mar. 18	2568	580	98	2282
Seal for seal-locks	J. W. Stevens	695,418	Mar. 11	2038	455	98	2156
Seal-lock	T. S. Wheelwright	695,513	Mar. 18	2188	494	98	2306
Seal-press	A. B. Schofield	691,079	Jan. 14	1339	303	98	294
Seal-press	A. Krah	693,612	Feb. 18	2656	586	98	1391
Seal. Shackle-	A. B. Schofield	690,466	Jan. 7	152	33	98	34
Seal. Snap-	E. J. Brooks	696,009	Mar. 25	3095	701, 702	98	2406
Seal. Snap-	E. J. Brooks	696,008	Mar. 25	3096	702	98	2406
Sealed receptacle	H. C. Osborn	695,698	Mar. 18	2549	577	98	2279
Sealer and stamp-affixer. Automatic envelop-	L. Madas	695,408	Mar. 11	2013	451, 452	98	2153
Sealing machine. Envelop-	A. Heydrich	694,966	Mar. 11	1220	966, 967	98	1988
Seaming and edge-rolling machine. Combined double-	B. H. Larkin	693,800	Feb. 18	2988	660	98	1460
Seaming machine. Automatic double-	E. Norton and J. G. Hodgson	693,308	Feb. 11	2048	446, 447, 448	98	1945
Seaming machine. Double-	J. G. Hodgson	693,135	Feb. 11	1712	374	98	1177
Seaming metal cans. Apparatus for side-	G. Wilcox	695,521	Mar. 18	2211	501	98	2212
Seaming metal cans. Side-	G. Wilcox	695,517	Mar. 18	2208	499	98	2210
Seams of sheet-metal can-bodies. Machine for automatically sweating or uniting without solder the side	E. Norton and A. P. Kennedy	693,804	Feb. 18	3000	663, 664	98	1462
Seat: See Car-seat. Collapsible seat. Spring-seat. Vehicle-seat. Wagon-seat.							
Seat	F. H. Janson	692,141	Jan. 28	3545	757, 758	98	744
Seat	L. Janson	694,283	Feb. 25	3040	677	98	1609
Seat-spider	H. W. Bolens	693,824	Feb. 25	3052	673	98	1492
Seat-spider	H. W. Bolens	693,825	Feb. 25	3053	673	98	1492
Secondary battery	R. H. Hassler	696,171	Mar. 25	3466	776	98	2484
Seed-drill scraper	W. Stephenson	691,016	Jan. 14	1321	278	98	272
Seed. Hulling cotton-	J. McFarlane and D. C. Reinohl	695,475	Mar. 18	2126	479	98	2194
Seed. Hulling cotton-	J. McFarlane	695,476	Mar. 18	2127	479	98	2194
Seed kernels from their hulls and lint. Means for separating cotton-	J. McFarlane and D. C. Reinohl	695,477	Mar. 18	2128	479	98	2194
Seed. Removing fiber from cotton	J. J. Green	695,305	Mar. 11	1856	413	98	2118
Seeder	W. H. Smith	696,356	Mar. 25	3047	655	98	2561
Seeding-machine	W. T. M. Brunnemer	693,584	Feb. 18	2602	575, 576	98	1380
Seeding-machine	V. Korejs and J. Khebl	693,723	Feb. 18	2856	689, 690	98	1432
Seeding-machine	W. A. Van Brunt	696,509	Mar. 18	2158	498	98	2305
Selector	K. Himrod, J. R. Tucker, and C. C. Hinckley.	690,577	Jan. 7	309	88, 89	98	87
Separator: See Battery-separator. Bean-separator. Cream-separator. Gas-separator. Gas and water separator. Gold-separator. Grain-separator. Liquid-separator. Magnetic separator. Ore-separator. Steam-separator.							
Separator	C. H. Scott	691,876	Jan. 28	3558	644	98	647
Separator	C. H. Scott	691,877	Jan. 28	3558	644, 645	98	646
Separator	E. P. Waggoner	693,290	Feb. 4	399	73	98	861
Separator	R. W. Jessup	693,095	Feb. 11	1476	323	98	1130

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr's.	Official Gazette. Vol.	Official Gazette. Page.
Separator	R. W. Jessup	693,026	Feb. 11	1478	823	98	1180
Separator-bowl cover	P. L. Kimball	692,526	Feb. 4	551	129	98	910
Separator for ore, coal, &c	J. N. Rice	694,420	Mar. 4	162	36, 37	98	1747
Separator-sieve	D. Lippy	692,682	Feb. 4	829	187	98	969
Setting instrument	M. Chamberlain	695,793	Mar. 18	2720	620	98	2315
Setting-tool	J. Kydd	693,406	Feb. 18	2254	488	98	1309
Sewage. Purifying	L. Tralls	693,316	Feb. 11	2070	------	98	1250
Sewed articles. Seam for	J. L. Patterson	691,568	Jan. 21	2257	508	98	505
Sewer-inlet	W. H. Garrett and H. C. Pauly	693,511	Feb. 18	2452	538	98	1351
Sewer-trap	H. L. Behrens	692,418	Feb. 4	342	85	98	871
Sewing and cutting machine. Buttonhole	F. W. Ostrom	692,209	Jan. 28	3465	783, 784, 785	98	769
Sewing looped fabrics. Machine for	G. Keyser	692,017	Jan. 28	3114	700	98	627
Sewing-machine adjustable trimming attachment	H. A. Klemm	693,657	Feb. 18	2736	604	98	1408
Sewing machine. Button-	F. T. Leilich	692,680	Feb. 4	825	186, 187	98	968
Sewing machine. Buttonhole-	F. W. Ostrom	692,210	Jan. 28	3471	785	98	770
Sewing machine. Buttonhole-	J. Reece	692,904	Feb. 11	1250	277	98	1083
Sewing machine. Buttonhole-	J. T. Hogan	694,150	Feb. 25	3680	814, 815	98	1617
Sewing machine. Buttonhole-	J. T. Hogan	694,151	Feb. 25	3680	815, 816	98	1619
Sewing-machine cloth-presser	G. H. Dimond and W. F. Dial	696,012	Mar. 25	3127	706	98	2412
Sewing-machine. Cylinder	L. Onderdonk	695,481	Mar. 18	2135	481, 482	98	2106
Sewing machine. Eyelet-	W. U. and J. R. U. Morton	696,069	Mar. 25	3237	732	98	2435
Sewing-machine fan attachment	G. Geer	691,840	Jan. 14	1861	420	98	406
Sewing-machine feed mechanism	H. A. Klemm	693,656	Feb. 18	2735	603	98	1408
Sewing-machine feed mechanism	W. Grothe	696,089	Mar. 25	3182	718, 719	98	2425
Sewing-machine feeding mechanism	G. M. Todd	690,680	Jan. 7	593	129	98	127
Sewing-machine feeding mechanism	W. C. Free	693,852	Feb. 25	3109	688, 689	98	1508
Sewing-machine feeding mechanism	F. O. Berg	695,269	Mar. 11	1775	393	98	2103
Sewing-machine folding-guide	J. L. Patterson	691,567	Jan. 21	2256	507	98	504
Sewing-machine for felling	W. Arbetter	690,385	Jan. 7	1	1	98	3
Sewing-machine gage	G. Goulson	694,532	Mar. 4	503	123	98	1332
Sewing-machine gage	E. F. Turner	695,972	Mar. 25	3042	690	98	2305
Sewing-machine guide. Straw-braid-	J. F. Hamilton	692,279	Feb. 4	116	27	98	822
Sewing-machine hemmer	A. H. Devoe	691,754	Jan. 28	2645	592	98	608
Sewing-machine loop-taker mechanism	W. Grothe	690,722	Jan. 7	706	156	98	149
Sewing-machine. Needle-feed chain-stitch	H. J. Hancock	691,311	Jan. 14	1776	404	98	385
Sewing-machine plaiting apparatus	F. L. Koehler	696,101	Mar. 25	3300	745, 746, 747	98	2459
Sewing-machine shuttle	V. Royle	690,616	Jan. 7	475	103	98	101
Sewing-machine shuttle-driving mechanism	W. C. Free	692,842	Feb. 11	1109	248	98	1051
Sewing-machine stripper-plate	R. G. Woodward	690,812	Jan. 7	858	189	98	181
Sewing-machine table. Folding	A. Morley	693,419	Feb. 18	2279	499	98	1314
Sewing-machine take-up	W. F. Dial and G. H. Dimond	695,915	Mar. 25	2945	667, 668	98	2376
Sewing-machine tension device	R. Pierpont	695,486	Mar. 18	2142	484	98	2197
Sewing-machine thread-cutter	R. W. Thomson	691,676	Jan. 21	2469	553	98	549
Sewing-machine thread-guiding attachment	C. Reinhold	691,408	Jan. 21	1988	446	98	449
Sewing-machine treadle rocker attachment	F. P. Harris	695,881	Mar. 18	2675	652	98	2348
Sewing-machine tucker	R. J. Kelley	695,785	Mar. 18	2608	591	98	2291
Sewing-machine tucking-guide	R. C. Johnson	690,785	Jan. 7	726	160	98	153
Sewing-machine tucking-guide	C. H. Lewis	691,705	Jan. 21	2521	564	98	560
Sewing-machine work-gage	H. A. Klemm	692,150	Jan. 28	3358	760	98	746
Sewing machines. Finger-tip attachment for glove-	L. A. Van Praag	690,682	Jan. 7	596	130, 131	98	128
Sewing shank-eyed buttons. Machine for	J. Mathison	690,978	Jan. 14	1154	261, 262, 263	98	257
Shackle. Emergency-	E. F. Diamond	696,136	Mar. 25	3388	764	98	2469
Shade	W. A. Haywood	690,725	Jan. 7	710	157	98	149
Shade and awning. Convertible window	R. O. Bolles	695,850	Mar. 18	2931	648	98	2338
Shade and curtain bracket. Window	T. H. Kenvin	692,144	Jan. 28	3349	758	98	745
Shade and curtain fixture. Adjustable	C. S. Myers	695,694	Mar. 18	2542	575	98	2278
Shade and curtain hanger	J. Pfeifer	693,619	Feb. 18	2666	589	98	1393
Shade-bracket. Adjustable	E. Chamberlin	696,390	Mar. 25	3235	872	98	2578
Shade guide for shade-rollers. Window-	H. P. Gross	696,087	Mar. 25	3180	717	98	2424
Shade or curtain hanger. Window	F. Wuest	695,525	Mar. 18	2217	502	98	2213
Shade-roller bracket	F. Auer	694,049	Feb. 25	3520	774, 775	98	1584
Shade-roller bracket-support	J. Renner	690,529	Jan. 7	814	68	98	68
Shades. Holding-fixture for spring-actuated	J. H. Milans	693,664	Feb. 18	2747	606	98	1410
Shaft attachment. Vehicle-	D. J. Jones	691,774	Jan. 28	2579	600	98	611
Shaft construction	G. J. Maas	694,397	Mar. 4	120	27	98	1738
Shaft construction	G. J. Maas	694,398	Mar. 4	121	27	98	1738
Shaft-coupling	J. Kennedy	691,274	Jan. 14	1687	384	98	367
Shaft-coupling	J. J. Cowell	691,448	Jan. 21	2054	460	98	463
Shaft-coupling	C. Comstock	692,768	Feb. 4	971	220	98	996
Shaft hanger and bearing	F. W. Witte	695,086	Mar. 11	1437	316, 317	98	2062
Shafting safety device	W. Francis	695,923	Mar. 25	2960	670	98	2370
Sharpener. Knife or scissors	C. A. Payne	691,171	Jan. 14	1498	338	98	227
Sharpener. Lawn-mower	W. H. Gilbert	692,846	Feb. 11	1118	250	98	1053
Sharpening device. Grinding-plate-	R. H. Foos and W. E. Copenhaver	694,053	Feb. 25	3530	777, 778	98	1586
Sharpening machine. Drill-bit-	T. H. Proske	692,706	Feb. 4	1085	288, 289	98	1006
Shaving-cup soap-holder	U. G. Crampton	695,008	Mar. 11	1449	321	98	2083
Shavings. Apparatus for the production of spirally-wound	C. Etsold	691,122	Jan. 14	1406	319, 320	98	207

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Sheaf-fork	G. Hall and M. T. Bedford	692,134	Jan. 28	8334	735	98	742
Shears: *See* Hand-shears. Pruning-shears.							
Sheet-delivery apparatus	G. P. Fenner	692,840	Feb. 11	1106	247	98	1051
Sheet-metal-corrugating machine	T. Bailey	696,259	Mar. 25	3953	857	98	2562
Sheet-metal drawing-die	J. N. Reynolds	694,926	Mar. 4	1096	256	98	1237
Sheet-metal elbow	O. H. Lawrence	691,150	Jan. 14	1454	331	98	318
Sheet metal. Machine for dovetail-corrugating	T. Bailey	696,358	Mar. 25	3951	856	98	2562
Sheet-metal plates. Machine for bending	A. Swoboda and H. Rothe	691,206	Jan. 14	1557	353 354	98	340
Sheets from a pile. Apparatus for lifting off and removing	I. Orloff	696,186	Mar. 25	3493	782 783	98	2488
Shelf-bracket	C. F. Kade	692,858	Feb. 11	1135	253	98	1056
Shelf for desks, &c. Swinging	E. J. Timmons	694,445	Mar. 4	209	46	98	1757
Sheller: *See* Corn-sheller.							
Shingle-dipping tank	I. Harvey	694,059	Feb. 25	3534	779	98	1567
Shingle-gage	F. L. Nelson	693,054	Feb. 11	1542	336	98	1143
Shingle-packer	F. Campbell	693,783	Feb. 18	2960	652 653	98	1454
Ship	J. K. Leedy	696,103	Mar. 25	3880	749	98	2454
Ship windlasses and capstans. Mechanism for operating	F. N. Connet	694,616	Mar. 4	538	117 118	98	1897
Ships. Apparatus for raising sunken	M. Bourhanovsky and A. de Kowanko.	691,718	Jan. 21	2532	567	98	562
Ships' bottoms. Apparatus for cleaning	R. S. Culpepper	693,242	Feb. 11	1951	434	98	1225
Ships. Means for guiding and propelling steam-	L. Sher	694,433	Mar. 4	187	41	98	1759
Shipper mechanism	J. McCaffrey	691,960	Jan. 28	3014	677	98	679
Shipper mechanism	J. McCaffrey	692,468	Feb. 4	432	101	98	987
Shipping-box	A. E. Piper	693,311	Feb. 11	2052	451	98	1248
Shirt	S. Butz	694,133	Feb. 25	3552	807	98	1612
Shirt	J. T. Shipley	695,629	Mar. 18	2436	550	98	2257
Shirt and collar	W. C. Cox	694,582	Mar. 4	395	85	98	1794
Shirt-bosom pad	L. M. Bryan	693,220	Feb. 11	1919	417	98	1218
Shirt-folding machine	M. Peukert	694,074	Feb. 25	3556	784 785	98	1592
Shocking attachment. Wagon	M. Bruner	694,726	Mar. 4	747	166	98	1870
Shoe	M. J. Moloney	691,284	Jan. 14	1712	388	98	373
Shoe	H. P. Fouque	696,030	Mar. 25	3157	714	98	2421
Shoe cleaning and polishing machine	E. C. McKee and T. Matheny	693,531	Feb. 18	2491	547	98	1359
Shoe-cleaning machine	W. Richardson	693,742	Feb. 18	2895	637	98	1441
Shoe-hook-setting machine	E. L. Pupke	692,343	Feb. 4	220	58, 54	98	844
Shoe. Marsh-	W. D. Kelsey	694,019	Feb. 25	3452	762	98	1570
Shoe or boot	H. E. Lockett	694,872	Mar. 4	1095	239	98	1931
Shoe-polisher	W. R. Derr	693,245	Feb. 11	1954	434	98	1220
Shoe-polishing apparatus	N. C. Spring	693,987	Feb. 25	3380	745	98	1558
Shoe-tree	G. F. Dunn	693,848	Feb. 25	3103	695	98	1501
Shooting-gallery	W. F. Loss and J. F. Blake	691,643	Jan. 21	2409	542	98	596
Shovel: *See* Dump-shovel.							
Show-card pin-fastener	L. Lemos	694,063	Feb. 25	3530	780	98	1598
Show-case	L. J. Johnson	692,670	Feb. 4	810	183	98	965
Show-case	F. Pollard	694,987	Mar. 11	1254	274	98	1995
Show-case	M. A. Heimann	696,041	Mar. 25	3185	719	98	2425
Show-case	A. Reinle	696,289	Mar. 25	3652		98	2521
Show-case fastener. Glass-	P. Olsen	693,736	Feb. 18	2885	635	98	1439
Show-tray	T. S. Coffin	690,399	Jan. 7	26	6	98	5
Shuffle-board	H. Vaughan	694,121	Feb. 25	3625	808	98	1606
Shutter-holder	E. C. S. Marshall	694,975	Mar. 11	1284	270	98	1991
Shuttle-driving mechanism	W. C. Free	692,843	Feb. 11	1110	248	98	1051
Sidewalk covering or protector	W. A. Schmidt	696,199	Mar. 25	3516	787	98	2492
Siding-gage	L. P. A. Nelson	694,023	Feb. 25	3457	768	98	1572
Sieve. Adjustable	F. Hixson	695,104	Mar. 11	1467	326	98	2039
Sifter. Ash-	M. E. Barbour	691,522	Jan. 21	2187	490	98	491
Sifter. Ash-	G. J. Te Brake	695,250	Mar. 11	1745	386	98	2097
Sifter. Ash-	W. T. Lamm	696,056	Mar. 25	3210	725	98	2430
Sifter. Flour-	T. G. Melish	695,575	Mar. 18	2338	530	98	2238
Sifters. Cloth-cleaning attachment for gyratory	T. Scott	695,842	Mar. 18	2806	639	98	2532
Sifting pulverized ores, &c. Apparatus for	W. Jamieson and F. J. Odling	690,731	Jan. 7	718	158 159	98	151
Sign. Electrically-illuminated	J. H. Goehst	690,649	Jan. 7	542	117 118	98	116
Sign. Street-lamp	O. I. Terrell	690,901	Jan. 7	1006	227	98	211
Sign. Vibrating	E. B. Lydick	692,686	Feb. 4	886	190	98	971
Signal: *See* Electric signal. Railway-signal. Telephone and fire-alarm signal.							
Signal and signaling-circuit	J. A. Wilson	693,094	Feb. 11	1618	352 353	98	1157
Signal-operating apparatus	C. W. Coleman	693,109	Feb. 11	1657	361 362	98	1165
Signal-recording mechanism	G. J. Schoeffel and H. W. Aylward	694,327	Feb. 25	4080	908 909	98	1600
Signal standard. Portable flag-	J. E. Weirich	696,663	Mar. 18	3489	565	98	2268
Signal system	E. Peterson	693,308	Feb. 11	2056	450	98	1247
Signals automatically at level crossings, &c. Means for operating	L. Sémat	695,498	Mar. 18	2166	499	98	2282
Signaling and circuit-controlling apparatus. Electric	T. J. Zoeller	696,901	Mar. 25	3076	697	98	2402
Signaling apparatus	H. H. Grenfell	696,330	Mar. 25	3794	845 846	98	2551
Signaling apparatus. Electric	F. B. Herzog	693,013	Feb. 11	1462	317	98	1126
Signaling apparatus. Electric	F. B. Herzog	693,014	Feb. 11	1463	318	98	1126
Signaling apparatus. Electric	F. B. Herzog	695,390	Feb. 18	2229	487 488	98	1908
Signaling apparatus. Electric	F. B. Herzog	696,140	Mar. 25	3899	765 766	98	2471

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Signaling apparatus. Electric	F. B. Herzog	696,372	Mar. 25	3889	863, 864	98	2567
Signaling mechanism	R. Herman	695,723	Mar. 18	3580	583, 584, 585	98	2285
Signaling system. Electric	W. W. Salmon	692,917	Feb. 11	1275	281	98	1089
Signaling system. Electric	A. J. Wilson and W. W. Salmon	692,959	Feb. 11	1372	298	98	1107
Signalphone. Automatic gravity-	E. E. Salisbury	696,198	Mar. 25	3513	787	98	2491
Silk-reeling machine. Hot-air	J. P. Evertz	691,457	Jan. 21	2078	464, 465	98	467
Silo	J. W. Smith	691,818	Jan. 28	2765	623	98	627
Silo	G. H. Greenfield	694,377	Mar. 4	75	17	98	1727
Singletree attachment	J. Hafer, Sr	694,544	Mar. 4	406	89	98	1798
Singletree attachment	J. Hafer, Sr	694,545	Mar. 4	407	89	98	1798
Singletree end iron	P. H. De Rochemont	695,289	Mar. 11	1828	405	98	2113
Sink garbage-holding attachment	C. E. Cox	690,838	Jan. 7	901	200	98	190
Siphon	D. A. Kreider	695,739	Mar. 18	2515	593	98	2293
Siphon attachment	H. C. Tuller	691,021	Jan. 14	1243	281	98	274
Siphon cleaning or polishing apparatus	S. Munckton	695,755	Mar. 18	2541	600	98	2293
Skate	O. W. Everett	690,711	Jan. 7	668	148	98	141
Skewer-making machine	A. T. True	691,987	Jan. 28	3002	687, 688	98	687
Skiascope	K. A. Mott	696,350	Mar. 25	3826	853	98	2558
Skid	L. D. Junkins	692,299	Feb. 4	142	34	98	838
Skipping-rope. Musical	C. W. Edwards	693,698	Feb. 18	2814	618	98	1424
Skirt-elevator. Lady's	G. V. Egan	696,546	Mar. 18	2295	512	98	2223
Skylight	C. Rupp	691,666	Jan. 21	2459	551	98	547
Slat-and-wire fabric. Machine for making	J. Reif, Jr	693,152	Feb. 11	1751	384, 385, 386	98	1183
Slate	W. F. Hahn	693,366	Feb. 18	2219	487	98	1308
Sled-runner	G. Johnson	694,753	Mar. 4	709	177	98	1881
Sleigh. Bob-	H. Korte	695,317	Mar. 11	1809	416	98	2121
Slicing-machine	S. Drury	692,640	Feb. 4	745	172	98	952
Slide-loop clip	I. Goures	691,133	Jan. 14	1426	323	98	312
Sling-lock trip	J. Ney	690,659	Jan. 7	561	122	98	120
Slotting machine. Blank-	E. C. Henn	694,965	Mar. 11	1214	265, 266	98	1096
Sluice-box	L. B. Tanner	695,095	Mar. 11	1434	316	98	2032
Sluice-gate-operating mechanism	W. J. Ritchie	695,888	Mar. 18	2708	637, 638	98	2280
Smelting-furnace	H. E. Auman	692,776	Feb. 4	983	223	98	998
Smelting furnace. Copper-	G. Mitchell	691,648	Jan. 21	2417	543	98	536
Smelting-furnace. Reverberatory	F. Nevegold	695,868	Mar. 18	2851	647	98	2343
Smelting zinc	S. Davies	694,947	Mar. 11	1171	256	98	1978
Smoke-burning furnace	J. E. Cavanagh	695,089	Mar. 11	1441	319	98	2084
Smoke-consumer	J. W. Jackson	695,155	Mar. 11	1576	350	98	2063
Smoke-consuming device	J. H. Strehli	690,671	Jan. 7	582	125	98	124
Smoke-consuming furnace	G. S. and J. J. Huff	690,580	Jan. 7	406	84	98	88
Smoke-consuming furnace	J. J. and G. S. Huff	690,581	Jan. 7	408	84, 85	98	89
Smoke-consuming furnace	H. G. Cox	692,782	Feb. 4	996	225	98	1000
Smoke-preventer. Automatic	R. W. Cavenaugh	693,948	Feb. 25	3296	725, 726	98	1539
Smoke-preventing and fuel-saving device for boiler or other furnaces.	G. Gregory	694,147	Feb. 25	3675	813	98	1616
Smoke-preventing device	G. M. Conway	693,112	Feb. 11	1670	363	98	1166
Smoothing-iron. Vapor-heated	W. Mitchell	694,770	Mar. 4	844	186, 187	98	1520
Smut-machine	A. Coleman	690,565	Jan. 7	380	78	98	82
Snap	H. A. Wroe	691,690	Jan. 21	2497	559	98	555
Snap-hook	W. A. Schleicher	691,185	Jan. 14	1521	343	98	332
Snap-hook	A. K. Lovell	691,396	Jan. 21	1972	442	98	446
Snap-hook	H. Sexton	691,609	Jan. 21	2461	551	98	548
Snap-hook	E. Weber and F. C. Frey	693,194	Feb. 11	1859	402	98	1205
Snap-hook	J. Candlish	690,832	Jan. 7	893	198	98	180
Snap-hook. Combined bridle and halter	W. L. Peterson	695,699	Mar. 18	2550	577	98	2279
Snap. Plow-line	A. Sundh	692,217	Jan. 28	3485	788	98	773
Snap-switch	G. Kovacs	690,742	Jan. 7	738	163	98	155
Snow-melter for railway-switches	H. H. Uckotter	692,493	Feb. 4	476	112	98	896
Soap. Apparatus for making designs in cakes of	W. E. Robinson	692,481	Feb. 4	456	106	98	892
Soap cake	W. Berry	695,026	Mar. 11	1331	293	98	2010
Soap cakes. Apparatus for inserting floats in	W. Berry	695,027	Mar. 11	1333	294	98	2011
Soap-mold	W. Berry	695,028	Mar. 11	1334	294	98	2011
Soap-mold	J. C. Johnson	690,436	Jan. 7	96	21	98	23
Soda-fountain apparatus and syrup-drawing can therefor.	E. A. Wilcox	692,955	Feb. 11	1364	297	98	1106
Soda-water apparatus	P. De Lacy	695,874	Mar. 18	2866	650	98	2346
Soda-water fountain	W. C. Alpers	692,588	Feb. 4	661		98	934
Sodium sulfoguaiacolate and making same	G. Wilcox	695,520	Mar. 18	2206	500, 501	98	2211
Solder to sheet-metal blanks. Machine for applying	W. E. Crane and E. T. Holton	693,500	Feb. 18	2433	532	98	1347
Soldering device	A. W. Livingston	692,319	Feb. 4	182	41, 42	98	837
Soldering-machine	G. Wilcox	695,518	Mar. 18	2203	499	98	2210
Soldering machine. Can-	E. Norton	693,808	Feb. 18	2296	661, 662	98	1461
Soldering or uniting seams of sheet-metal cans. Machine for	F. E. Roach	695,625	Mar. 18	2425	549	98	2285
Soldering pliers. Crown-	G. L. Preble	693,902	Feb. 25	3213	709	98	1523
Sole chamfering and feather-edging machine	G. H. Gifford	694,367	Mar. 4	43	11	98	1721
Sole-laying-machine pressing-form	E. E. Winkley	692,401	Feb. 4	816	76, 77	98	866
Sole-leveling machine	T. Boyd	693,488	Feb. 18	2410	526, 527	98	1343
Sound and ventilating auditoriums. Means for reflecting and distributing	J. F. Luscomb	695,883	Mar. 18	2882	653	98	2349
Sound-producing instruments. Means for regulating the tension of diaphragms of	T. B. Lambert	695,159	Mar. 11	1582	351	98	2064
Sound-reproducing apparatus	G. F. Moore, Jr	692,165	Jan. 28	3377	765	98	750
Spark-arrester	W. P. Allen and J. E. H. Browne	694,228	Feb. 25	3834	849	98	1646
Spark-arrester							

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Spark-interrupter	T. von Zweigbergk	691,693	Jan. 21	2504	560, 561	98	557
Sparking-coil	M. H. Moffett	690,750	Jan. 7	748	167	98	158
Speaking-tube for trains	S. S. Boyd	694,825	Mar. 4	938	208	98	1911
Speaking-tube terminal	J. O. Brown	690,557	Jan. 7	364	74	98	79
Spectacle-bow	G. Gordon	692,269	Feb. 4	100	23	98	819
Spectacle or eyeglass nosepiece	I. Fox	695,681	Mar. 18	2520	571	98	2273
Speculum. Vaginal	A. J. Bearer	696,345	Feb. 11	2128	466	98	1264
Speed and reversing mechanism. Differential	W. Diebel	695,673	Mar. 18	2503	568, 569	98	2271
Speed changing and reversing mechanism	W. P. Norton	691,968	Jan. 28	3023	679, 680	98	680
Speed driving mechanism. Variable	R. M. Head	692,658	Feb. 4	777	177, 178	98	958
Speed recorder and register for vehicles	C. Francke and H. Schwabacher	698,798	Feb. 18	2975	657, 658	98	1457
Speed-recording apparatus	R. W. Eaton	694,918	Mar. 4	1106	244	98	1946
Speed-regulator	N. Lombard	695,464	Mar. 18	2108	475	98	2190
Spike	S. H. Bracey	692,763	Feb. 4	982	217	98	994
Spike-extractor	J. W. Pitts	695,487	Mar. 18	2144	484	98	2198
Spike holder and puller	W. E. Sewell	692,369	Feb. 4	269	65	98	854
Spike-puller and car-mover. Combined	G. Grazier	692,272	Feb. 4	106	25	98	820
Spindle: *See* Bobbin-spindle. Wagon-spindle. Spinning-spindle.							
Spinning and doubling machinery. Cop-building mechanism for	T. Watson	691,991	Jan. 28	3066	690	98	688
Spinning-frame protector. Ring-	J. C. Wall and M. E. Schedlbauer, Jr.	695,876	Mar. 18	2968	651	98	2346
Spinning frames. Doffing-machine for ring-	J. E. Tichon and H. S. Foster	691,677	Jan. 21	2472	553, 554	98	549
Spinning-machine roll	J. B. Hudson	692,855	Feb. 11	1131	252	98	1055
Spinning-machine yarn or thread guide	J. W. McCarthy	694,506	Mar. 4	454	97	98	1809
Spinning-machinery doffing apparatus	A., G., and J. Stell	692,491	Feb. 4	470	110, 111	98	895
Spinning-machinery drag device	T. Watson	691,992	Jan. 28	3069	690	98	689
Spinning or twisting frame	L. W. Campbell	690,694	Jan. 7	625	150	98	132
Spinning or twisting machine	L. W. Campbell	690,634	Jan. 7	511	111	98	110
Spinning or twisting machine tension-regulator	A. C. Butler	691,594	Jan. 21	2314	521	98	516
Spinning-ring	D. Harrington	693,797	Feb. 18	2982	659	98	1459
Spinning-spindle	G. W. Stafford and S. M. Hamblin	695,179	Mar. 11	1613	358	98	2070
Spittoon-guard	C. Hagen	698,007	Feb. 11	1454	316	98	1124
Splinters, &c. Machine for catching	A. Aberg	691,344	Jan. 21	1869	421	98	423
Spoke and felly fastener	J. S. Davis	692,128	Jan. 28	3310	730	98	736
Spoke cutter and beveler	W. H. Exley	695,449	Mar. 18	2081	470	98	2185
Spoke end piece. Wheel-	G. S. Brantingham	692,821	Feb. 11	1073	241	98	1043
Spoke-throating machine	C. Seymour	692,076	Jan. 28	3230	729, 730, 731	98	720
Spokes, &c. Machine for making metallic	G. T. Warwick	693,342	Feb. 11	2121	465, 466	98	1302
Spool-holding frame	P. D. Morton	691,287	Jan. 14	1720	391	98	374
Sprayer	R. Morrill	691,651	Jan. 21	2420	544	98	589
Spraying device	C. T. Childers	693,496	Feb. 18	2422	529	98	1344
Spraying device	C. E. Lanstrum	696,057	Mar. 25	3211	725	98	2430
Spraying-machine	G. A. Metcalf and R. K. Hall	694,106	Feb. 25	3006	708	98	1601
Spring: *See* Bed-spring. Vehicle-spring. Car-spring. Vehicle truss-rod spring. Door-spring.							
Spring attachment for articles of wear, &c	P. E. Wirt	692,041	Jan. 28	3160	714	98	706
Spring attachment for articles of wear, &c	P. E. Wirt	692,042	Jan. 28	3164	714, 715	98	706
Spring attachment for articles of wear, &c	P. E. Wirt	692,096	Jan. 28	3270	739, 740	98	728
Spring for pillows, cushions, &c	J. H. Masland	691,065	Jan. 14	1319	298	98	290
Spring-lid box	A. M. English	694,357	Mar. 4	29	7	98	1718
Spring-motors. Automatic winding mechanism for	R. H. Sears	690,882	Jan. 7	969	220	98	204
Spring-seat	W. A. Murray	692,535	Feb. 4	568	133	98	914
Spring-wirework	H. R. Kuersten	694,391	Mar. 4	107	24	98	1735
Sprinkler: *See* Automatic sprinkler. Lawn-sprinkler.							
Sprocket-wheels. Casting	C. W. Levalley	694,395	Mar. 4	114	25	98	1737
Spur. Riding-	J. G. Ridings	694,421	Mar. 4	164	37	98	1747
Square and bevel. Combined set-	A. C. Smith	693,073	Feb. 11	1580	344, 345	98	1150
Square. Carpenter's	H. Smith and G. N. Lemmon	691,192	Jan. 14	1533	346	98	334
Square. Center-	K. O. Muehlberg	694,774	Mar. 4	851	188	98	1892
Squeezer	J. Coomber	694,617	Mar. 4	340	118	98	1828
Stacker. Straw-	M. Heineke	691,265	Jan. 14	1666	379	98	803
Stacker. Wind-	E. A. Darst	692,246	Feb. 4	52	11	98	809
Stage purposes. Property quadruped for	A. Braatz	695,908	Mar. 25	2924	662	98	2372
Staging bracket or support	H. B. Cramer	693,641	Feb. 18	2713	598	98	1404
Stair-lift	J. M. Dodge	698,789	Feb. 18	2968	655	98	1455
Stamp-affixing device	W. Wright	693,480	Feb. 18	2898	594	98	1339
Stamp carrier and applier. Postage-	J. H. Lasserot	691,277	Jan. 14	1691	395	98	399
Stamp. Hand-	A. L. Edgarton	694,318	Feb. 25	4051	908	98	1686
Stamp-pad	E. G. Woody	695,877	Mar. 18	2869	651	98	2347
Stamp. Time-	C. S. Moseley	690,910	Jan. 7	1025	231	98	214
Stamp with changeable face	W. T. Cressler	692,545	Feb. 4	49	11	98	809
Stamping-machine	W. Kraemer	692,530	Feb. 4	559	131, 132	98	912
Stamping or embossing machine die-carrier	A. G. Brewer	694,127	Feb. 25	3041	805	98	1609

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stand: *See* Adjustable stand. Dress-fitting stand. Display-stand. Photographic stand.							
Stand	W. C. Krick	694,867	Mar. 4	1018	224	98	1925
Stand	C. Gulland	696,225	Mar. 25	2063	671	98	2379
Stand-pipe	E. A. Barber	692,757	Feb. 4	948	215, 216	98	992
Stapling-machine	H. Wulkan	696,156	Mar. 25	3439	.....	98	2478
Starch and sein. Obtaining	J. Baldner	694,454	Mar. 4	226	50	98	1760
Starting mechanism	A. M. Taylor	692,733	Feb. 4	905	207	98	984
Station-indicator	A. Cope	693,377	Feb. 18	2196	482, 483	98	1293
Station-indicator	J. S. Miller	694,320	Feb. 25	4064	204	98	1687
Stave-column	W. H. Hines	691,140	Jan. 14	1439	327	98	315
Stave-drying apparatus	H. U. Palmer	693,803	Feb. 25	3190	704, 705	98	1518
Stave-jointing machine	A. A. Dieter	694,619	Mar. 4	543	118	98	1828
Stay. Dress-	W. J. Baker	692,415	Feb. 4	339	83	98	870
Steam. Apparatus for separating grease from	B. F. Jackson	690,730	Jan. 7	716	158	98	151
Steam-boiler	F. Burger and H. M. Williams	691,044	Jan. 14	1285	291, 292	98	283
Steam-boiler	F. G. and F. H. Bates	691,580	Jan. 21	2285	513	98	510
Steam-boiler	B. A. Keeler and R. D. Fildes	691,907	Jan. 28	2915	657	98	656
Steam-boiler	J. H. McDonald and G. G. Worthington.	692,062	Jan. 28	3206	723, 724	98	715
Steam-boiler	E. J. Pennington	694,493	Mar. 4	285	65	98	1773
Steam-boiler	C. B. Rearick. (Reissue)	11,974	Mar. 4	1149	251	98	1955
Steam-boiler	G. Raissle	696,079	Mar. 25	3250	785, 786	98	2437
Steam-boiler	C. Holly	696,240	Mar. 25	3590	804	98	2507
Steam-boiler	F. D. Althause	694,048	Feb. 25	3518	774	98	1564
Steam-boiler. Multitubular	C. B. Rearick	695,869	Mar. 18	2856	647, 648	98	2344
Steam-boiler. Water-tube	F. B. Giesler	694,866	Mar. 4	40	9, 10	98	1730
Steam-drier. Rotary	R. T. Abell	691,228	Jan. 14	1597	364, 365	98	348
Steam-engine	J. G. A. Kitchen	692,307	Feb. 4	156	36, 37	98	890
Steam-engine	F. J. E. Johansson	693,522	Feb. 18	2474	542, 543	98	1355
Steam-engine, &c	B. F. Stowell	695,006	Mar. 11	1280	283, 284	98	2002
Steam-engine	K. Fitzpatrick	695,451	Mar. 18	2065	470, 471	98	2185
Steam-engine	J. A. Virtue	695,510	Mar. 18	2185	493, 494	98	2306
Steam-engine. Compound	J. E. Sague	692,084	Jan. 28	3146	709, 710, 711	98	708
Steam-engine. Compound	J. E. Sague	692,085	Jan. 28	3150	711, 712	98	704
Steam-engine. Duplex steam-pump or other duplex	C. C. Worthington	695,989	Mar. 25	3074	697	98	2402
Steam-engine. Oscillating-piston	J. G. Lepper	694,485	Mar. 4	272	61, 62	98	1770
Steam for rotary motors. Mechanism for admitting or shutting off	J. B. Zura	691,041	Jan. 14	1280	290	98	282
Steam-generating plants. Heater and separator for	J. Angell	696,296	Mar. 25	3094	826, 827	98	2530
Steam-generator	W. Morgans	691,286	Jan. 14	1716	389, 390, 391	98	373
Steam-generator	G. H. Rheutan	692,081	Jan. 28	3139	707, 708	98	701
Steam-generator	G. H. Rheutan	692,082	Jan. 28	3141	708, 709	98	702
Steam-generator	C. H. Fox	692,436	Feb. 4	375	92	98	977
Steam-generator	H. Bédet	694,236	Feb. 25	3844	852	98	1648
Steam-generator	H. P. J. Earnshaw	696,165	Mar. 25	3454	774	98	2468
Steam-lines. Water-outlet for	J. F. Logue and J. K. Gano	691,595	Jan. 21	1971	441	98	445
Steam-plant drainage system	J. Angell	690,546	Jan. 7	843	69, 70	98	74
Steam-pressure regulator. Automatic	D. P. Blount	693,221	Feb. 11	1913	416	98	1217
Steam-reheater. Electric	G. Griesche	695,906	Mar. 11	1670	371	98	2081
Steam-separator	D. E. Austin	690,389	Jan. 7	11	3	98	6
Steam-separator	C. M. Baum	692,597	Feb. 4	678	158	98	957
Steam set-works	C. S. Prescott	694,780	Mar. 4	860	189, 190	98	1893
Steam-trap	R. J. Flinn	693,961	Feb. 25	3321	720	98	1544
Steamer and inhaler. Combined face-	H. C. Karpenstein	696,342	Mar. 25	3511	850	98	2554
Steaming fabrics, &c. Apparatus for	T. Walsh	692,171	Jan. 28	3384	767, 768	98	732
Steel by the open-hearth process. Manufacture of	W. B. Hughes	694,752	Mar. 4	796	.....	98	1880
Steel construction	H. C. Clark	691,581	Jan. 21	2198	494	98	498
Steel construction	H. C. Clark	691,599	Jan. 21	2329	522	98	518
Steel. Manufacture of	W. White, Jr	695,256	Mar. 11	1755	.....	98	2099
Steel. Manufacturing	T. Andrew and T. K. Bellis	695,264	Mar. 11	1770	.....	98	2108
Steel. Preparing solutions for the treatment of	B. K. Jamison	690,963	Jan. 14	1135	.....	98	251
Steel process. Open-hearth	J. L. Smith and R. Bedford, Jr	691,297	Jan. 14	1786	396	98	377
Steel trap	E. Lewis	690,970	Jan. 14	1140	258	98	254
Steering-gear	P. H. White	690,802	Jan. 7	840	186	98	177
Steering-gear	R. E. Sack	694,791	Mar. 4	885	196	98	1899
Stencil-sheet cutting and printing machine	W. S. Pain	690,991	Jan. 14	1152	257, 258	98	269
Step	C. H. Lemon	693,037	Feb. 11	1508	333	98	1135
Stereotype-matrices with musical notes, &c. Apparatus for impressing	A. Réveillé	691,971	Jan. 28	3084	681, 682, 683	98	682
Stereotype-plate-cutting machine	W. P. Nisbett and P. Andrews	694,297	Feb. 25	3968	863	98	1674
Stereotype-plate holder	S. G. Yundt and W. J. Nolen	694,905	Mar. 4	1091	241	98	1943

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Stethoscope	R. C. M. Bowles	693,487	Feb. 18	2409	326	98	1341
Stiffener for ladies' clothing	P. G. Wahlen	693,932	Feb. 25	3271	720	98	1534
Stitch-separating machine	J. B. Hadaway	690,429	Jan. 7	63	14, 15	98	17
Stitch-separating machine	J. B. Hadaway	691,908	Jan. 28	2908	655, 656	98	657
Stocking	J. Shelton	691,327	Jan. 14	1805	410	98	891
Stocking-knee protector	I. Cozzens	693,115	Feb. 11	1676	364	98	1169
Stocking-supporter	H. H. Taylor	695,349	Mar. 11	1916	426	98	2130
Stoker. Mechanical	G. S. and J. J. Huff	690,582	Jan. 7	410	85	98	89
Stoker. Mechanical	J. W. Kincaid	691,391	Jan 21	1959	439, 440	98	443
Stoker. Mechanical	T. N. Harrison	691,704	Jan. 28	2660	596, 597	98	606
Stone and manufacturing same. Artificial	F. M. Emerson	692,644	Feb. 4	749	.....	98	953
Stone-crusher	G. Lowry	693,289	Feb. 11	2025	441, 442	98	1240
Stone grinding and polishing machine	I. N. Rogers	696,195	Mar. 25	3507	786	98	3490
Stone-lifting machine	F. A. Fulghum	693,002	Feb. 11	1447	313	98	1123
Stone-molding machine. Artificial	N. F. Palmer	694,985	Mar. 11	1252	273, 274	98	1905
Stone-molding machine. Artificial	N. F. Palmer	695,483	Mar. 18	2138	483	98	2196
Stone-puller	H. P. Stroh and J. Hutchison	691,081	Jan. 14	1341	303	98	294
Stone-ripping machine	M. J. O'Connor	693,617	Feb. 18	2663	588	98	1393
Stone-saw	J. Peckover	693,306	Feb. 11	2054	449	98	1246
Stone tank. Artificial	C. I. Huxley	695,697	Mar. 18	2529	573	98	2275
Stones, tiles, &c. Manufacture of artificial	E. Rott	693,906	Feb. 25	3219	.....	98	1524
Stool-back	G. L. Case	693,685	Feb. 18	2702	615	98	1419
Stool. Bookkeeper's	S. S. Bryan	691,981	Jan. 28	2956	665	98	667
Stool. Folding	S. S. Brechbiel	692,822	Feb. 11	1075	242	98	1044
Stool. Military	H. Ecker	692,506	Feb. 4	500	117	98	901
Stopper: *See* Bottle-stopper.							
Stopper or closure	L. H. Abbee and S. A. Sewall	694,932	Mar. 4	1144	250	98	1954
Storage apparatus	C. Piez and R. H. Beaumont	696,266	Mar. 25	3646	815, 816	98	2519
Storage battery	W. Taylor	693,757	Feb. 18	2919	642	98	1446
Storage battery	J. B. Entz	695,710	Mar. 18	2564	580	98	2282
Storage battery. Electrical	O. T. Bugg, Jr	695,707	Mar. 18	2560	579	98	2281
Store-goods lifter	F. P. Wilkin	693,200	Feb. 11	1869	404	98	1207
Stove	G. M. Cocke	690,564	Jan. 7	378	78	98	82
Stove	R. Winter	691,688	Jan. 21	2491	559	98	553
Stove	W. Heuermann	693,707	Feb. 18	2836	625	98	1428
Stove	E. E. Walters	693,781	Feb. 18	2954	643	98	1447
Stove	H. H. Holden	693,962	Feb. 25	3127	692	98	1507
Stove	H. E. Atteberry	694,712	Mar. 4	717	158	98	1803
Stove	J. T. Lesher	695,744	Mar. 18	2620	595	98	2294
Stove	J. H. Soehren and C. J. Rohlf	693,751	Feb. 18	2907	639	98	1443
Stove attachment	A. H. Coombs	691,356	Jan 21	1893	426	98	450
Stove burner attachment. Gas	T. Morrison	691,476	Jan. 21	2103	472	98	472
Stove chimney-valve. Hot-blast	G. Hersh	692,661	Feb. 4	782	178	98	959
Stove-grate	C. C. Pfeiffer	693,438	Feb. 18	2998	505	98	1321
Stove. Heating	J. L. Bangley	695,872	Mar. 18	2862	640	98	2345
Stove. Heating	C. W. A. Koelkebeck	692,678	Feb. 4	819	184, 185	98	967
Stove. Hot-blast	N. F. Seat	692,718	Feb. 4	895	202	98	980
Stove. Knockdown	J. W. Noxon	695,755	Feb. 18	2983	634	98	1439
Stove. Magazine heating	G. E. Wilbur	691,083	Jan. 14	1261	286	98	278
Stove or range. Cooking	E. W. Anthony	693,096	Feb. 11	1622	354	98	1159
Stove or range. Cooking	E. W. Anthony	693,343	Feb. 11	2124	467	98	1263
Stove or range. Cooking	J. H. Lauterman	692,865	Feb. 11	1150	256	98	1060
Stovepipe	A. G. Scherer	696,096	Mar. 25	3264	738	98	2441
Stovepiping. Sheet-metal	G. Tresenreuter	691,019	Jan. 14	1239	280	98	273
Stove-regulating device. Gas or vapor	A. T. Matthews	691,319	Jan. 14	1792	407	98	390
Stove-urn	J. P. Newbold	694,173	Feb. 25	3745	827	98	1629
Stove. Vapor	S. B. Keffer	693,403	Feb. 18	2250	493	98	1308
Stove. Vapor-burning	C. H. Björckner	695,437	Mar. 18	2955	462	98	2180
Stoves. Air mixer and heater for gas-burners for blast-furnace	J. R. McCoy	693,423	Feb. 18	2284	501	98	1315
Stoves. Heat radiating and tempering screen-drum for	M. Warner	695,593	Mar. 18	2367	536	98	2244
Strainer	J. Burger and C. C. Kemp	693,493	Feb. 18	2417	528	98	1343
Strainer and filter. Rain-water	B. A. Stair	694,440	Mar. 4	198	44	98	1755
Strainer. Down-spout							
Strap: *See* Trunk-strap.							
Strap-coupling	W. H. Mallinson	693,294	Feb. 11	2087	444	98	1242
Street-sweeper	D. D. Hitchings	690,727	Jan. 7	712	157	98	150
Street-sweeper	Z. Whittemore	693,475	Feb. 18	2391	533	98	1338
Street-sweeping machine	W. G. Dingle	694,620	Mar. 4	544	119	98	1888
Street-sweeping-machine brushes. Machine for making	G. Binder	692,230	Feb. 4	18	4	98	801
Strength-testing machine. Coin-controlled	A. Wilson	693,968	Feb. 11	1370	298	98	1107
Stretcher. Collapsible	K. Freuler	694,097	Feb. 25	3594	795	98	1599
Striking-bag	W. H. Price	690,605	Jan. 7	456	98	98	98
Striking-bag adjusting device	W. C. Rastetter	694,664	Mar. 4	629	136	98	1842
Striking-machine. Coin-controlled	C. J. Thenan and W. A. Nourse	694,335	Feb. 25	4108	913	98	1694
Stripping-plate	E. H. Mumford	694,489	Mar. 4	280	64	98	1771
Structural support	E. Fenton	692,841	Feb. 11	1108	247	98	1051
Stud member	M. D. Shipman	692,373	Feb. 4	374	66	98	855
Stud setting and extracting tool	L. H. Morgan	691,406	Jan. 21	1986	445	98	449
Studding or partition. Metal	P. Brandstedt	694,721	Mar. 4	734	162	98	1867
Stuffing-boxes. Automatic tightener for	B. J. Shaw	692,371	Feb. 4	371	65	98	855
Stump-puller	M. W. Mashburn	691,645	Jan. 21	2412	542	98	537
Submarine deposits. Apparatus for raising	J. Mangold and G. A. Schlinsock	695,068	Mar. 11	1409	309	98	2027
Submarine permanent way	K. Leps	694,496	Mar. 4	373	69	98	1770
Sugar. Converting cellulose into	A. Classen	695,795	Mar. 18	2794	.....	98	2315

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page
Sugar. Dissolving low-grade	M. Lambert	692,020	Jan. 28	3124	703, 704	98	699
Sugar-drying apparatus	F. Mahoudeau	694,707	Mar. 4	840	185, 186	98	1899
Sugar. Manufacturing	J. H. Lavollay and G. E. Bourgoin	696,408	Feb. 18	2268	404	98	1310
Sugar. Recovering	A. Wohl and A. Kollrepp	695,702	Mar. 18	2555		98	2280
Sugar-washing machine	L. Fuchs	691,899	Jan. 28	2903	054	98	656
Sulfinid and making same. Substituted	J. Koetschet	692,863	Feb. 11	1148		98	1059
Sulfuric anhydrid. Apparatus for cooling and absorbing	G. C. Stone	695,180	Mar. 11	1615	358	98	2070
Sulfuric anhydrid. Apparatus for making	R. Knietsch	692,018	Jan. 28	3116	701, 702, 708	98	697
Surface-checking device	T. C. Page	692,028	Jan. 28	3135	706	98	700
Surface for preventing slipping and resisting wear	T. P. Farmer	696,368	Mar. 25	3871	860	98	2564
Surgeons' use. Sterilizer for	C. E. Norton	690,759	Jan. 7	761	169, 170	98	161
Surgical dressing	H. P. Weidig	696,123	Mar. 25	3357		98	2462
Surgical ligatures. Preparing and inclosing	R. W. Johnson	693,138	Feb. 11	1716	375	98	1177
Surgical use. Scarificator for	L. G. Langstaff	693,554	Feb. 18	2531	557	98	1366
Suspender and garment clamp	L. Lemos	694,064	Feb. 25	3539	780	98	1588
Suspender attachment	P. J. Bloom	692,608	Feb. 4	697	159	98	939
Suspender-end	J. S. Sherer	695,701	Mar. 18	2554	578	98	2280
Suspender-fastener	A. S. Henshaw	694,857	Mar. 4	1002	221	98	1924
Suspender-link	B. J. Balliett	692,595	Feb. 4	675	157	98	936
Suspenders	R. P. Robinson	694,194	Feb. 25	3781	836	98	1636
Suspenders	L. A. Talbert	694,334	Feb. 25	4102	913	98	1694
Suspenders	M. Barnett	695,899	Mar. 25	2914	660	98	2370
Suspenders	S. W. Patterson	696,076	Mar. 25	3247	735	98	2437
Suspenders and belt. Interchangeable	H. J. Bloomer	693,101	Feb. 11	1631	356, 357	98	1160
Suspension-clasp	M. Rubin	696,196	Mar. 25	3509	786	98	2491
Suspensory	J. U. Adams	692,043	Jan. 28	3093	715	98	707
Swage and casing-spear. Combined	E. North	695,169	Mar. 11	1600	355	98	2067
Swimmer's appliance	H. Pratt	690,663	Jan. 7	568	124	98	122
Swimming appliance	F. Minkus	693,615	Feb. 18	2661	587	98	1392
Swing	W. Merker	693,040	Feb. 11	1510	328, 329	98	1137
Swing	C. O. Lyman	695,465	Mar. 18	2111	475, 476	98	2190
Swing	C. A. Salzman	696,355	Mar. 25	3846	855	98	2561
Swing. Horizontal	C. A. Schindler, Jr	691,494	Jan. 21	2138	479	98	480
Swinging chair	T. M. McKee and S. H. Saffell	695,225	Mar. 11	1704	378	98	2088
Switch: *See* Electric switch; Electrical switch; Electrically-operated switch; Knife-switch; Overhead switch; Plug-switch; Pneumatic switch; Push-button switch; Railway-switch; Snap-switch; Telephone-switch; Tramway-switch.							
Switch-controller. Automatic	W. A. N. Dorland	692,060	Jan. 28	3182	717, 718	98	710
Switch locking device. Motor-reversing	F. W. Garrett and E. W. Stull	691,618	Jan. 21	2061	551	98	525
Switch mechanism. Electric time-	P. Sorensen	691,014	Jan. 14	1928	277	98	271
Switch-operating device	E. L. Pence	690,459	Jan. 7	138	29	98	31
Switch-operating device. Automatic	G. G. Guenther	694,741	Mar. 4	779	173	98	1876
Switch-operating mechanism	J. Eisele	694,006	Feb. 25	3427	754	98	1565
Switch-operating mechanism. Electric-	J. H. Spangler and R. Herman	690,886	Jan. 7	976	221, 222	98	305
Switch, outlet, and receptacle box	M. Robinson	691,874	Jan. 28	2856	643	98	647
Switch-throwing device	W. H. H. Welton	692,747	Feb. 4	929	212	98	988
Switch-throwing device	P. L. Swank	693,185	Feb. 11	1837	399	98	1201
Switching mechanism	G. L. Mansfield	695,467	Mar. 18	2114	476	98	2191
Synchronizing alternators	J. E. Woodbridge	691,884	Jan. 28	2794	628	98	633
Syringe	Y. M. Milam	695,470	Mar. 18	2120	477	98	2193
Syringe holder. Fountain-	G. Schirmer	692,920	Feb. 11	1985	282	98	1091
Syringe. Hot-air	A. W. Schramm and E. B. Wilford	693,162	Feb. 11	1775	389	98	1187
Syringe. Hypodermic	B. T. Winchester	694,813	Mar. 4	911	203	98	1904
Syringe. Vaginal	R. H. Eddy and J. B. Johnston	691,698	Jan. 21	2511	562	98	558
Syringe. Vaginal	A. R. Gordon	694,541	Mar. 4	899	88	98	1797
Table: *See* Billiard-table; Billiard and dining table; Bottling-table; Concentrating-table; Extension-table; Fish-cutting-table; Folding table; Game-table; Game and library table; Ironing-table; Sewing-machine table; Tipping-table; Trimming-table.							
Table	C. F. Laib	692,312	Feb. 4	165	38	98	832
Table	E. Tyden	693,357	Feb. 11	2151	472	98	1998
Table or desk for holding dies	H. B. Hollis	695,051	Mar. 11	1877	502	98	2020
Table-spread support. Foldable	M. L. Smith	694,488	Mar. 4	195	48	98	1754
Tablet-making machine	S. C. Gurley	694,743	Mar. 4	782	173, 174	98	1877
Tabulating-machine	D. E. Felt	694,955	Mar. 11	1188	260, 261	98	1981
Tack-driving mechanism	P. R. Glass	695,884	Mar. 11	1972	441, 442	98	2144
Tack or nail puller	E. Hanner	694,854	Mar. 4	995	221	98	1923
Tacking-tool. Hand	A. Hebert	695,554	Mar. 18	2284	517	98	2226
Tag-fastener	S. G. Spencer	694,801	Mar. 4	898	200	98	1902
Tag. Price-	S. Dancyger	690,404	Jan. 7	33	7	98	10
Tag. Shipping-	T. Matheny	694,402	Mar. 4	129	26	98	1789
Tags. Machine for making metal	F. C. Crowe	693,941	Feb. 11	1947	433, 434	98	1224

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tailings. Apparatus for handling	H. W. Blaisdell	692,108	Jan. 28	2285	743	98	731
Talking or sound recording and reproducing machine.	J. E. Alexander	692,409	Feb. 4	288	79, 80	98	868
Tanbark-leaching apparatus	E. F. Smith	693,748	Feb. 18	2904	638	98	1443
Tanbark-leaching apparatus	E. F. Smith	693,749	Feb. 18	2905	639	98	1443
Tank: *See* Distributing-tank. Flush-tank. Flushing-tank. Measuring-tank. Paint-dipping tank. Rendering-tank. Shingle-dipping tank. Stone tank. Thresher-tank.							
Tank	G. Becking	691,585	Jan. 21	2297	517	98	512
Tank-heater and feed-cooker	E. Paulson	695,948	Mar. 25	2998	677	98	2385
Tanks. Automatic signal apparatus for liquid-holding	J. E. Johnson	692,650	Feb. 18	2736	601, 602	98	1405
Tanning process. Rapid	K. F. F. G. Sommer	694,084	Feb. 25	3488		98	1578
Tap. Ale-cask	J. Kenney	694,296	Feb. 25	3945	879	98	1670
Tap. Bottle-	E. Walker	692,951	Feb. 11	1357	295	98	1104
Tape-holder	R. Sims	690,897	Jan. 7	1001	286	98	210
Tape-holder	R. J. Smeeton	694,329	Feb. 25	4088	910	98	1692
Tar, &c. Production of solid materials from	C. Dörr	691,984	Jan. 28	2961		98	686
Target	X. Reichlin	694,581	Mar. 4	471	101	98	1813
Target. Indestructible bird-	E. E. Thresher	694,216	Feb. 25	3818	844, 845	98	1642
Tea-kettle lid attachment	T. L. Tincher	695,898	Mar. 18	2899	657	98	2353
Tea-leaves. Withering	C. U. Shepard	694,795	Mar. 4	891	198	98	1900
Teaching apparatus. Telegraphy-	C. E. Egan	695,447	Mar. 18	2978	469	98	2185
Teaching device. Music-	C. R. Tinsley	692,786	Feb. 4	910	208	98	985
Teaching type-writing. Automatic keyboard for	J. Challinger	694,944	Mar. 11	1168	255	98	1978
Teeth. Mount for diatoric	H. M. Justi	691,550	Jan. 21	2288	501	98	499
Telegraph	F. E. d'Humy	695,605	Feb. 18	2547	584	98	1889
Telegraph apparatus. Electric-	P. Picard	691,176	Jan. 14	1506	339	98	339
Telegraph. Automatic	A. C. Gilmore	695,908	Mar. 11	1650	367, 368, 369, 370	98	2078
Telegraph circuit. Multiplex-	L. A. McCarthy	693,590	Feb. 18	2489	546	98	1557
Telegraph-poles. Machine for shaping cross-arms of	W. D. Neville	696,255	Mar. 25	3696	810	98	2515
Telegraph. Printing-	L. Cerebotani	695,537	Mar. 18	2947	507, 508, 509	98	2219
Telegraph. Signal-	E. and E. J. Lavens	695,566	Mar. 18	2986	526, 527	98	2236
Telegraph system. Synchronous	H. A. Rowland	691,667	Jan. 21	2452	550	98	545
Telegraphic transmitter	C. E. Yetman	692,907	Feb. 11	1395	301, 302	98	1110
Telegraphy	J. P. Gorton	694,542	Mar. 4	401	86	98	1797
Telegraphy. Transmitter for Morse alphabet and printing	L. Cerebotani	692,426	Feb. 4	357	87, 88	98	874
Telephone and fire-alarm signal	L. G. Woolley	695,260	Mar. 11	1761	290	98	2100
Telephone apparatus. Coin-freed	K. Uchermann	695,013	Mar. 11	1801	287, 288	98	2004
Telephone attachment	H. I. Hauxhurst	690,651	Jan. 7	547	119	98	117
Telephone-circuit	W. K. Cook	691,245	Jan. 14	1087	373	98	355
Telephone. Coin-controlled	S. P. Grey	694,960	Mar. 11	1822	263	98	1988
Telephone-exchange	N. H. Holland	694,918	Mar. 4	1117	246, 247	98	1948
Telephone-exchange signal system	W. S. Paca	694,662	Mar. 4	688	185	98	1544
Telephone-exchange switchboard system	W. S. Paca	693,889	Feb. 25	3188	703	98	1517
Telephone-exchange system	W. S. Paca	693,890	Feb. 25	3186	702	98	1517
Telephone-line calling apparatus	W. W. Dean	692,250	Feb. 4	62	14	98	811
Telephone-lines. Service-meter for	F. R. McBerty	690,453	Jan. 7	129	27	98	29
Telephone-lines. Switching mechanism for interconnecting	A. K. Andriano	693,189	Jan. 28	3428	775	98	760
Telephone or telegraph circuits. Transfer-board for	A. B. Chance	693,784	Feb. 18	2961	653	98	1454
Telephone-receiver	J. G. Nolen	692,807	Feb. 11	1227	274	98	1079
Telephone-receiver support	G. M. Beerbower	695,268	Mar. 11	1774	392	98	2102
Telephone repeater or relay	S. D. Sprong	693,553	Feb. 4	598	139	98	919
Telephone-selecting device	W. D. Watkins	695,976	Mar. 25	3048	691, 692	98	2297
Telephone substation-registering system	J. D. Hobbs	695,105	Mar. 11	1468	337	98	2039
Telephone switch and lock-out mechanism for interconnecting lines. Individual	A. K. Andriano and H. Herbstritt	691,299	Jan. 14	1598	355, 356	98	348
Telephone-switchboards. Self-ejecting plug for	C. F. Butte	692,004	Jan. 28	3092	695	98	692
Telephone system	F. E. Mayberry	691,281	Jan. 14	1598	395, 397	98	989
Telephone system	G. Ritter	691,664	Jan. 21	2441	549	98	543
Telephone system	G. Ritter	691,665	Jan. 21	2446	549, 550	98	544
Telephone system	F. B. Stafsing and C. Egnér	693,856	Feb. 11	2150	472	98	1268
Telephone system. Automatic	J. J. Brownrigg and J. K. Norstrom.	696,161	Mar. 25	3447	773	98	2480
Telephone-transmitter sanitary shield	J. B. Tauveron	694,041	Feb. 25	3507	772	98	1581
Telephones, &c. Adjustable support for	W. E. Blodgett	696,160	Mar. 25	3446	772	98	2480
Telephony	I. Kitsee	691,060	Jan. 14	1310	296	98	298
Telescope	G. Fecker	695,712	Mar. 18	2956	581	98	2288
Tenon-cutting machine	D. Lynn	690,447	Jan. 7	117	25	98	27
Testing translucent substances by colors. Instrument for	J. F. Graae	696,371	Mar. 25	3487	803	98	2507
Tether	H. J. Davis	695,497	Mar. 11	2040	436	98	2157
Theater-chair	M. Reed	694,990	Mar. 11	1977	275	98	1995
Therapeutic application of smoke. Device for	P. J. Schreiber	691,782	Jan. 21	2567	575	98	570
Thermo-electric alarm	H. Black	694,289	Feb. 25	3847	853	98	1649
Thermometer. Maximum	G. H. Zeal	695,263	Mar. 11	1767	391	98	2101

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Thermometer. Oven-	G. J. Day	693,118	Feb. 11	1679	385	98	1170
Thermometer. Oven-	C. E. Evans	695,298	Mar. 11	1882	408	98	2114
Thermostat	G. R. Sherman	695,655	Mar. 18	2479	562	98	2266
Thill-coupling	W. L. Bodman	691,891	Jan. 28	2895	651	98	654
Thill-coupling	C. C. Bradley	694,050	Feb. 25	3522	775	98	1554
Thill-coupling	M. Olora	694,411	Mar. 4	148	33	98	1744
Thill-coupling	G. H. Fernald	695,097	Mar. 11	1454	323	98	2036
Thill-coupling	G. H. Fernald	695,920	Mar. 25	2956	669	98	2378
Thill-coupling	C. E. Cain	695,080	Mar. 11	1339	295	98	2012
Thill or pole coupling	J. H. Kessler	690,587	Jan. 7	421	90	98	98
Thill-support	R. T. Gillespie	693,261	Feb. 11	1975	429	98	1230
Thill-support	C. P. McKim	691,299	Jan. 14	1724	392	98	375
Thread-cutter	J. F. Cordes	690,400	Jan. 7	27	5	98	9
Thread-cutting attachment for spools	H. W. Oster	694,412	Mar. 4	149	33, 34	98	1744
Thread-cutting machine	J. Metcalfe and T. Bell	695,322	Mar. 11	1875	417	98	2122
Thread-holder	D. Gamble	693,854	Feb. 25	3112	689	98	1503
Thread-holder for spools	J. E. Baines	696,299	Mar. 25	3706	827	98	2531
Threading-tool	E. E. Stutz	691,920	Jan. 28	2894	661	98	668
Thresher-tank	J. A. Beam	690,690	Jan. 7	519	135	98	131
Threshing-machine	G. F. Conner	691,116	Jan. 14	1294	317	98	805
Threshing-machine	E. W. Flagg. (Reissue)	11,965	Feb. 4	1056	237	98	1012
Threshing-machine	S. Southworth	693,180	Feb. 11	1819	396	98	1197
Threshing-machine	J. E. and F. L. Elder	693,505	Feb. 18	2442	534, 535	98	1348
Threshing-machine	W. H. Conover and J. W. Miles	693,787	Feb. 18	2964	654, 655	98	1455
Threshing-machine attachment	R. Schroeder	694,480	Mar. 4	183	40	98	1752
Threshing-machine band-cutting and feeding device	W. D. Lindsay	693,976	Feb. 25	3366	739	98	1553
Threshing-machine feed device	J. F. Welch	691,215	Jan. 14	1572	357	98	343
Threshing-machine tooth	G. F. Conner	691,841	Jan. 28	2898	650	98	636
Ticket-dater	S. F. Haskins	692,285	Feb. 4	123	29	98	824
Ticket issuing, printing, and recording machine	W. I. Ohmer and J. Leitschuh	695,115	Mar. 11	1487	331, 332, 333	98	2043
Ticket issuing, printing, and recording machine	W. I. Ohmer and J. Leitschuh	695,116	Mar. 11	1488	333, 334	98	2044
Ticket. Transfer-	M. Washburn	693,765	Feb. 18	2929	644	98	1448
Tickets or checks. Means for delivering and registering	A. Marsh	693,414	Feb. 18	2906	496, 497	98	1312
Tie: *See* Animal-tie. Bale-tie. Metallic tie. Rail-tie. Railway-tie.							
Tile-faced surface and constructing same	W. P. Meeker	691,791	Jan. 28	2715	610	98	618
Tile-faces. Device for ornamenting	L. Warstler	692,744	Feb. 4	923	210	98	987
Tile floor	R. L. Moyle	695,621	Mar. 18	2419	547	98	2254
Tile for floors. Combination-	R. L. Moyle	695,647	Mar. 18	2468	559	98	2264
Tile. Glazing	H. C. Mueller and K. Langenbeck	693,420	Feb. 18	2280	499	98	1314
Tile. Roofing-	J. W. Carnes	691,289	Jan. 14	1619	370	98	353
Tile. Roofing-	N. Monshausen	691,650	Jan. 21	2419	544	98	535
Time-recorder	S. Bower	690,394	Jan. 7	17	4	98	7
Time-recorder	W. P. Gurr	694,012	Feb. 25	3488	758, 759, 760	98	1568
Time-recorder. Workman's	H. Dyson	691,259	Jan. 14	1643	375, 376	98	358
Time-recorder. Workman's	W. H. Bundy	695,193	Mar. 11	1882	362, 363	98	2074
Tin and lead oxids. Making	C. S. Lomax	695,999	Mar. 25	2987	675	98	2384
Tin. Regaining	P. Bergsöe	691,101	Jan. 14	1370	.....	98	300
Tipping-table	P. Droesbout and J. M. Clark	696,164	Mar. 25	3453	774	98	2481
Tire	M. E. Brooke	691,589	Jan. 21	2303	519	98	514
Tire	A. von Beust and F. M. Potter	694,821	Mar. 4	931	207	98	1909
Tire-adjusting device	W. Gussenhoven	692,276	Feb. 4	111	26	98	821
Tire-clamping device	W. Gussenhoven	692,275	Feb. 4	109	26	98	820
Tire-clamping device. Vehicle-wheel-	J. D. Prescott	694,326	Feb. 25	4079	908	98	1690
Tire construction	J. C. Cole	696,391	Mar. 25	3937	872	98	2578
Tire-curing mold	C. H. Wheeler and F. W. Kremer	696,124	Mar. 25	3357	757	98	2462
Tire. Cushion-	C. Hird	695,394	Mar. 11	1992	446	98	2148
Tire. Elastic	J. Baier and E. Clark	691,574	Jan. 21	2271	510	98	508
Tire. Elastic	W. F. Williams	694,223	Feb. 25	3829	848	98	1645
Tire ends together. Apparatus for bringing rubber-	F. W. Kinney and R. B. Price	692,527	Feb. 4	552	120	98	910
Tire equipment for vehicle-wheels. Rubber-	J. G. Webb	691,028	Jan. 14	1254	284	98	276
Tire-heating device	C. Solberg	692,376	Feb. 4	279	67	98	856
Tire-inflater	J. H. Champ	691,745	Jan. 28	2621	587, 588	98	598
Tire-inflater	J. H. Champ	691,747	Jan. 28	2623	589, 590	98	600
Tire-inflating device. Vehicle-	M. M. Sinnott	693,747	Feb. 18	2903	638	98	1442
Tire. Pneumatic	A. Ducasble	690,935	Jan. 14	1070	241	98	340
Tire. Pneumatic	F. J. Seddon	692,368	Feb. 4	287	65	98	854
Tire. Pneumatic	W. F. Stearns and W. L. Haines	693,818	Feb. 18	3028	669	98	1468
Tire protector. Pneumatic-	C. G. Dinsmore	690,706	Jan. 7	656	144	98	138
Tire. Rubber	A. S. Krotz	692,056	Jan. 28	3198	721	98	713
Tire. Rubber	A. S. Krotz	692,311	Feb. 4	164	38	98	882
Tire. Rubber	C. A. Maynard	692,325	Feb. 4	192	44	98	839
Tire. Rubber	C. H. Bryan	692,980	Feb. 11	1414	307	98	1116
Tire. Rubber vehicle-	R. B. Price	690,604	Jan. 7	455	98	98	98
Tire-setting machine	J. M. Decker	693,635	Feb. 4	784	169, 170	98	950
Tire-setting machine	H. T. Henderson	695,206	Mar. 11	1672	372	98	2092
Tire-setting machines. Device for bringing together the ends of solid-rubber tires in	J. A. Burrows	693,831	Feb. 25	3002	670	98	1494
Tire-shrinking machine. Cold-	S. N. House	690,523	Jan. 7	305	61	98	67

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Tire-valve cap	G. H. F. Schrader	691,296	Jan. 14	1735	395	98	577
Tire valve. Pneumatic-	C. R. Barrett and E. C. Phillips	693,991	Feb. 25	3403	748	98	1561
Tire valve. Pneumatic-	W. D. Hart	694,638	Mar. 4	578	127	98	1885
Tire. Vehicle-	W. M. Peck	690,872	Jan. 7	948	212 213	98	199
Tire. Vehicle-	J. B. Tourgon	693,063	Feb. 11	1595	348	98	1154
Tire. Vehicle-	J. F. Lober	693,661	Feb. 18	2742	605	98	1409
Tire. Vehicle resilient	F. Clouth	692,628	Feb. 4	724	167	98	947
Tire. Vehicle-wheel	J. Ludwig	690,908	Jan. 7	1020	230	98	213
Tires. Composition for repairing bicycle-	O. J. Campbell and J. B. Beam	690,903	Jan. 7	1010	.....	98	212
Tires. Device for automatically inflating pneumatic	G. O. Morris	690,601	Jan. 7	451	97	98	97
Tires to wheels. Apparatus for securing rubber	G. Meyer	693,879	Feb. 25	3160	690	98	1512
Tires to wheels. Means for securing elastic	W. F. Williams	695,776	Mar. 18	3681	809	98	2307
Toaster	B. K. Schmertz	691,410	Jan. 21	1901	446	98	449
Toaster. Bread-	R. C. Vroom	694,042	Feb. 25	3509	772	98	1581
Tobacco-case	W. H. Wagner and G. H. Santers	693,469	Feb. 18	2976	630	98	1334
Tobacco-cutting machine	F. L. Lorden	695,571	Mar. 18	3332	727	98	2287
Tobacco drying and cooling system	W. E. Martin	691,723	Jan. 21	2551	571 572	98	566
Tobacco drying, cooling, and ordering machine	J. D. Goodwin	693,387	Feb. 18	2215	486 487	98	1301
Tobacco-drying system	W. E. Martin	691,722	Jan. 21	2546	570 571	98	565
Tobacco-pipe	T. Duggan	693,790	Feb. 18	2970	656	98	1456
Tobacco-pipe	P. M. Olson	693,888	Feb. 25	3183	702	98	1517
Tobacco-pipe	T. E. White	695,185	Mar. 11	1621	360	98	2072
Tobacco-pipe	J. F. Forth	690,717	Jan. 7	694	152	98	147
Tobacco-pipe cleaner	A. S. Speirs	692,800	Feb. 4	1041	234	98	1009
Tobacco-pipe cleaner	J. M. Vaughan	692,494	Feb. 4	479	112	98	696
Tobacco-press	A. Leblanc	696,346	Mar. 25	3818	851	98	2556
Tobacco-smoking device	C. R. Spencer and L. P. Whitaker	691,196	Jan. 14	1540	348 349	98	226
Tobacco-stemming machine	A. J. Bush	694,130	Feb. 25	3546	806	98	1610
Tobacco-stemming machine	J. G. Havens	694,962	Mar. 11	1207	264	98	1984
Tobacco-stemming rolls	C. F. Moore	695,412	Mar. 11	2017	458	98	2153
Tobacco-truck	C. Staley	694,586	Mar. 4	476	108	98	1814
Toe-weight	A. Semonite	694,497	Mar. 4	390	67	98	1774
Toilet-case	J. C. Fleming	690,848	Jan. 7	914	.....	98	193
Toilet cream	T. O. Holland	692,853	Feb. 11	1128	252	98	1055
Toilet outfit	J. and E. von Stryk	694,119	Feb. 25	3632	802	98	1608
Toilet-rooms. Device for cleaning and disinfecting the seats in	W. Hopkie	690,860	Jan. 7	985	209	98	197
Tongs	M. Quinn	694,495	Mar. 4	288	66	98	1773
Tongs	E. O. Jolley	693,808	Feb. 25	3136	694	98	1506
Tool	D. E. Frederiksen	690,414	Jan. 7	46	12	98	12
Tool-box	J. Swan	695,660	Mar. 18	3485	564	98	2257
Tool-box	J. Mueller	691,562	Jan. 21	2245	506	98	502
Tool-handle	F. Richardson	692,476	Feb. 4	448	104	98	800
Tool-heater	A. H. and J. A. Bedworth	693,346	Feb. 11	2130	468	98	1264
Tool-holder	C. H. Jenkins	693,399	Feb. 18	2344	491	98	1307
Tool-holder	L. S. Starrett	692,215	Jan. 28	3483	787	98	773
Tool-holding device	H. H. Vaughan	693,366	Feb. 4	296	72	98	960
Tool. Motive-fluid-operated	C. B. Albree	695,664	Mar. 18	2490	565 566	98	2269
Tool-motor	H. H. Vaughan	691,420	Jan. 21	2004	449	98	452
Tool. Motor-fluid-operated	W. H. Soley	692,799	Feb. 4	1039	254	98	1008
Tool. Pneumatic	F. D. Chambers	691,596	Jan. 21	2317	521	98	517
Tool. Rotary	M. W. Hollingsworth	695,099	Mar. 25	3307	745	98	2452
Tooth. Artificial	E. Nagy	693,884	Feb. 25	3170	700	98	1514
Tooth-crown and making same. Artificial	W. Reinhard	695,491	Mar. 18	2152	486	98	2190
Toothpick-package	A. W. Morgan	693,398	Feb. 11	2096	470	98	1256
Top. Flying	G. V. Sanborn	693,448	Feb. 18	2338	511	98	1320
Top. Spinning-	G. Ulett	693,958	Feb. 25	3257	717	98	1532
Top. Spinning-	J. J. Hennessy	695,930	Mar. 25	2970	672	98	2281
Top. Spinning-	T. J. Moriarty	691,160	Jan. 14	1470	333 334	98	321
Torpedo-boat	E. A. Schooley	691,326	Jan. 14	1804	409	98	391
Torpedo. Railway-	F. H. Davis. (Reissue)	11,975	Mar. 11	2047	459 460	98	2159
Tower	C. Gordon	690,852	Jan. 7	919	205	98	194
Toy	J. H. Bowes	691,105	Jan. 14	1379	314	98	302
Toy	H. T. Gay	691,181	Jan. 14	1494	338	98	312
Toy	E. Hill	691,266	Jan. 14	1667	380	98	363
Toy	H. G. Sammons	691,325	Jan. 14	1808	409	98	391
Toy	S. G. Leyson	695,699	Mar. 18	2531	573	98	2275
Toy	C. W. Ritter	695,700	Mar. 18	2551	577 578	98	2279
Toy	O. H. James	696,051	Mar. 25	3200	723	98	2428
Toy	G. W. Melville	693,297	Feb. 11	2040	445	98	1243
Toy. Aerial	G. Sheler	695,553	Mar. 18	2478	562	98	2266
Toy animal	J. G. Mayes, H. F. King, and F. S. Mayes.	693,528	Feb. 18	2486	545	98	1357
Toy bank	S. Bristow	692,508	Feb. 4	691	161	98	940
Toy boomerang	H. J. Bayard	695,596	Mar. 18	2373	537	98	2245
Toy bow	M. Ulmer	693,191	Feb. 11	1951	401	98	1204
Toy bowling-alley	F. Partsch	690,661	Jan. 7	565	123	98	121
Toy. Coin-operated mechanical	W. R. Reppell	693,907	Feb. 11	1954	378	98	1088
Toy. Dancing	W. L. Morgan	692,694	Feb. 4	847	192	98	978
Toy. Detonating	H. Greinert	694,633	Mar. 4	563	123	98	1824
Toy. Detonating	J. F. Cooper	696,315	Mar. 25	3770	840	98	2546
Toy engine	R. Tilton	693,339	Feb. 11	2115	469	98	1261
Toy. Figure	L. B. Matteson and M. P. McArthur.	693,327	Feb. 11	2095	450	98	1255
Toy. Flying	D. P. Clark	693,374	Feb. 18	2193	481	98	1297
Toy. Locomotive							

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Toy. Locomotive	D. P. Clark	693,375	Feb. 18	2195	481, 482	98	1207
Toy. Mechanical	A. J. Keck	695,058	Mar. 11	1887	304, 305	98	2092
Toy. Optical	W. Jinkings	694,967	Mar. 11	1222	267	98	1068
Toy paddle	W. L. Morgan	692,608	Feb. 4	846	192	98	973
Toy pistol	M. Lehr	692,460	Feb. 4	418	99	98	884
Toy savings-bank	B. T. Wolf	690,544	Jan. 7	337	69	98	73
Toy. Wheeled	M. Flick	692,999	Feb. 11	1444	313	98	1122
Trace-carrier	T. D. Thurmond	694,336	Feb. 25	4105	914	98	1695
Trace-carrier	C. Harrell	696,332	Mar. 25	3799	847	98	2552
Trace catch and holder	C. H. Blanchard	695,785	Mar. 18	2701	514	98	2311
Trace-fastener	L. C. Balinger	691,575	Jan. 21	2273	511	98	508
Trace-fastener	W. Freeland	695,299	Mar. 11	1842	410	98	2115
Trace holder and protector. Combined	J. M. Whyte	691,924	Jan. 28	2944	663	98	664
Trace-hook	W. W. Jaques	695,056	Mar. 11	1384	304	98	2022
Trace-support	H. Brooks	691,590	Jan. 21	2303	519	98	514
Tracing and cutting implement	G. R. Vander Wee	690,489	Jan. 7	222	44	98	48
Track-cleaning device	F. Hedley	693,859	Feb. 25	3122	692	98	1505
Track-sander	N. B. Dodge	692,253	Feb. 4	68	15	98	813
Track-sanding appliance	J. Gapp	695,800	Mar. 11	1843	410	98	2115
Track-sanding device	J. H. Watters	691,998	Jan. 28	3071	690	98	689
Track-sanding device. Car-	A. L. Sprague	692,928	Feb. 11	1330	289, 290	98	1100
Traction-engine	B. Holt	694,476	Mar. 4	256	58	98	1766
Traction-engine	T. G. Paulson	695,337	Mar. 11	1896	422	98	2125
Traction. Magnetic	S. A. Gibbs	695,883	Mar. 11	1971	441	98	2143
Traction road. Electric	L. Dion	694,317	Feb. 25	4090	902, 903	98	1686
Traction-road. Electric	L. Dion	694,843	Mar. 4	902	214	98	1916
Traction-wheel	B. Beskow	694,308	Feb. 25	3972	884, 885	98	1676
Train-indicating apparatus	B. C. Rowell	695,649	Mar. 18	2470	560	98	2264
Train-order box	I. G. Hoag	692,666	Feb. 4	790	181	98	992
Train-order-delivering device	H. E. Andress	694,453	Mar. 4	225	49	98	1760
Train-robber-intercepting apparatus. Automatic	J. S. Johnson	693,651	Feb. 18	2727	602	98	1406
Tramway life-saving mechanism	W., T. W. H., and P. C. Philipson	695,340	Mar. 11	1900	423, 424	98	2128
Tramway. Portable	J. H. Gardner	694,851	Mar. 4	988	219	98	1922
Tramway-switch	L. H. Bayne	692,759	Feb. 4	955	216	98	993
Tramways or railways. Subterranean current transmission for electric	A. Hrebicek	691,381	Jan. 21	1988	436	98	438
Transformer	F. Schwedtmann and G. E. Wells	694,673	Mar. 4	645	141, 142	98	1849
Transformer. Rotary	R. E. Ball	693,098	Feb. 11	1624	355	98	1159
Transit apparatus. Tubular	B. H. Blood	690,920	Jan. 14	1043	235	98	234
Trap: *See* Animal-trap. Ant-trap. Fish-trap. Fly-trap. Releasing-trap. Sewer-trap. Steam-trap. Steel trap.							
Trap	R. G. McAuley	690,658	Jan. 7	558	121	98	120
Trap	W. J. Holland	693,891	Feb. 18	2225	488	98	1808
Trap	E. W. Shepherd	694,880	Mar. 4	651	144	98	1852
Traveler	A. Lonergan	690,594	Jan. 7	431	93	98	94
Traveler's lock	H. Spear	692,068	Jan. 28	3252	734	98	724
Traveling-bag	C. L. Gilbert	695,149	Mar. 11	1564	346	98	2060
Traveling-bag. Telescopic	E. U. Phillips	693,737	Feb. 18	2886	635	98	1440
Tread. Metallic stair-	F. M. Mahony	693,143	Feb. 11	1794	378	98	1179
Tread or covering. Non-slipping wearing	C. H. Wilkinson	692,397	Feb. 4	312	75	98	864
Tread. Safety-	F. Wear	695,018	Mar. 11	1309	289	98	2005
Tree-protector. Expansible	J. H. Smith	694,208	Feb. 25	3805	841	98	1641
Tree stand or support	C. Kachold	694,865	Mar. 4	1015	223	98	1997
Tree-support	T. P. Brown	694,247	Feb. 25	3863	856	98	1653
Tree-transplanter	G. G. Guenther	694,740	Mar. 4	778	173	98	1876
Trees. Apparatus for transplanting and transporting	J. M. Ralston	690,607	Jan. 7	457	98, 99	98	98
Trees. Protecting	T. J. Hubbell	691,546	Jan. 21	2221	490	98	498
Trestle. Knockdown	H. E. Hersh	695,310	Mar. 11	1860	414	98	2119
Trimethyl hexahydroöxybenzylanilin and making same.	G. Merling	691,157	Jan. 14	1463	.....	98	330
Trimmer: *See* Hedge-trimmer. Hoof-trimmer. Lawn-trimmer. Mantle-trimmer.							
Trimming-table	T. W. Taliaferro	692,732	Feb. 4	904	207	98	984
Trinket-box	A. P. Pichereau	695,768	Mar. 18	2653	608	98	2301
Tripod. Camera-	B. Forester	696,167	Mar. 25	3460	775	98	2482
Trolley	J. S. Van Leer	694,218	Feb. 25	3880	845	98	1643
Trolley	M. Stoll and J. W. Ruck	695,506	Mar. 18	2179	492	98	2204
Trolley and track wires for suspended-cable roads. Support for	H. M. Harding	692,187	Jan. 28	3336	755	98	742
Trolley-arms. Sleet-cleaning device for	M. M. Nash	690,757	Jan. 7	759	169	98	160
Trolley-cord take-up device	S. J. Buckland	692,421	Feb. 4	346	85, 86	98	871
Trolley. Electric	C. E. Smith	695,963	Mar. 25	3009	681	98	2398
Trolley. Electric-car	E. W. Taylor	693,998	Feb. 25	3391	746	98	1558
Trolley. Electric-crane	M. A. Beck	690,558	Jan. 7	357	73	98	77
Trolley-harp	F. P. Crockett and O. P. Johnson	690,689	Jan. 7	524	114	98	112
Trolley-harp	A. Johnson	692,519	Feb. 4	538	126	98	907
Trolley harp and wheel	W. A. Heller	692,851	Feb. 11	1126	251	98	1055
Trolley-head	D. A. Petre	693,809	Feb. 11	2069	459	98	1249
Trolley-hoisting block	J. H. Cook	694,586	Mar. 4	962	212	98	1914
Trolley-pole base	J. D. Buckley and E. H. Phinney	691,286	Jan. 14	1617	360	98	358
Trolley-pole-controlling device for cars or vehicles	W. H. Kilbourn	691,275	Jan. 14	1608	884	98	357
Trolley-pole support	F. H. Lippincott	694,090	Feb. 25	3453	762	98	1571

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Trolley poles and ropes. Water shed or deflector for	S. J. Buckland	692,422	Feb. 4	351	86	98	872
Trolley-stand	O. F. Lidke	692,790	Feb. 4	1016	230	98	1094
Trolley-stand	H. Holland	694,152	Feb. 25	3694	816	98	1620
Trolley-support	R. Lynn	695,406	Mar. 11	2008	450	98	8151
Trolley systems. Electric signal mechanism for overhead-	W. R. Stearns	692,085	Jan. 28	2255	735	98	735
Trolley-tender	A. W. Ham	691,263	Jan. 14	1663	378 / 379	98	262
Trolley-tender	A. W. Ham	691,264	Jan. 14	1664	379	98	263
Trolley-track sound-deadening device. Metallic	A. A. Coburn	692,629	Feb. 4	725	168	98	948
Trolley-wheel retainer	A. D. Barton	695,997	Mar. 25	3087	700	98	2404
Trolley-wire bracket	S. Leonard	692,681	Feb. 4	898	187	98	969
Trolley-wire ice-cutter	A. Ambuhl	690,818	Jan. 7	871	192	98	184
Trommel	G. F. Waddell	691,035	Jan. 14	1249	288	98	275
Trough: *See* Eaves-trough. Feed-trough.							
Trousers	I. E. Mayer	692,728	Feb. 18	2972	682	98	1436
Trousers appliance. Man's	E. D. Rodgers	695,172	Mar. 11	1805	356	98	2099
Trousers-creasing device	W. W. Fulton	691,460	Jan. 21	2082	466	98	466
Trousers-leg-protecting attachment	B. F. Salmon	694,200	Feb. 25	3790	888	98	1639
Trowel	W. E. Coyan	690,839	Jan. 7	902	200	98	191
Trowel. Plastering-	P. S. Miller	696,066	Mar. 25	3331	731	98	2433
Truck	J. A. Martin	690,449	Jan. 7	119	26	98	27
Truck	G. M. Vickers, Jr	692,369	Feb. 4	298	72	98	861
Truck	E. S. Perkins	695,833	Mar. 18	2798	636	98	2330
Truck	C. T. Godard	691,542	Jan. 21	2217	498	98	497
Truck. Baggage-	A. B. Bellows	693,220	Feb. 11	1912	415	98	1216
Truck-bolster	S. A. Crone	690,408	Jan. 7	81	7	98	9
Truck. Car-	W. S. G. Baker	692,490	Feb. 4	488	114 / 115	98	998
Truck. Car-	P. M. Kling	693,610	Feb. 18	2654	586 / 588	98	1390
Truck. Car-	S. W. McMunn	693,984	Feb. 25	3284	744	98	1557
Truck. Car-	W. T. Shryock	694,114	Feb. 25	3519	801	98	1604
Truck. Car-	J. F. Hobbs	694,478	Mar. 4	202	57	98	1786
Truck. Car-	C. M. Carnahan	694,942	Mar. 11	1164	254 / 255	98	1977
Truck. Casket-	D. B. Hiser	693,860	Feb. 25	3124	692	98	1506
Truck-frame	A. B. Bellows	693,219	Feb. 11	1911	415	98	1216
Truck. Hand-	E. J. Murphy	693,422	Feb. 18	2263	500	98	1315
Truck. Radial car-	W. Robinson	694,787	Mar. 4	878	194 / 195	98	1897
Truck. Railway-car	F. F. Shaffer	693,679	Feb. 18	2755	609	98	1414
Truck. Stove-	W. T. Buck	694,248	Feb. 25	3365	857	98	1654
Truck tie-bar. Car-	S. Otis	694,492	Mar. 4	285	65	98	1772
Trunk	W. H. A. Stout	695,346	Mar. 11	1735	384	98	2095
Trunk	A. King	695,611	Mar. 18	2403	544	98	2351
Trunk caster-support	C. H. Kurz	693,084	Feb. 11	1688	397	98	1134
Trunk. Cleansing-	F. H. L. James	690,652	Jan. 7	550	119	98	117
Trunk for cotton or other pickers. Cleansing-	F. H. L. James	690,653	Jan. 7	551	119	98	118
Trunk for cotton or other pickers. Cleansing-	F. H. L. James	690,654	Jan. 7	553	120	98	118
Trunk or bale rope attachment	L. S. Ford	690,645	Jan. 7	537	116	98	115
Trunk-strap	O. A. Stoneman	693,079	Feb. 11	1589	346	98	1152
Trunk. Transformable	F. E. Knight	693,973	Feb. 25	3348	736	98	1550
Trunk-tray fixture	D. Goldsmith	693,543	Feb. 18	2514	554	98	1388
Truss. Hernial	L. A. Smith	690,624	Jan. 7	492	107	98	105
Truss. Hernial	R. Hummel	691,143	Jan. 14	1448	325	98	315
Truss. Hernial	A. Hunter	694,606	Feb. 18	2650	584	98	1780
Truss. Hernial	R. Arnhold	694,509	Mar. 4	508	110	98	1661
Truss. Hernial	D. E. Huffman	694,751	Mar. 4	795	177	98	1879
Truss. Hernial	J. A. Corbett	695,377	Mar. 11	1964	439	98	2142
Truss. Pile-	C. W. Langridge	691,392	Jan. 21	1962	440	98	443
Tub: *See* Bath-tub. Butter-tub.							
Tube: *See* Air-conducting tube. Despatch-tube. Packing-tube. Wick-tube.							
Tube-boring-out apparatus	J. Roan	690,878	Jan. 7	960	216 / 217	98	209
Tube-coating machine	W. Thomas	694,698	Mar. 4	696	152	98	1858
Tube-mill guiding device	W. Dicks	693,381	Feb. 18	2204	484	98	1270
Tubes. Drawing	S. E. Diescher	693,119	Feb. 11	1681	365 / 366	98	1170
Tubes. Machinery for producing seamless metallic	F. J. McIntosh and W. Thornburgh	693,053	Feb. 11	1589	345 / 346	98	1143
Tubes, &c. Manufacture of seamless and weldless	B. F. McTear	691,727	Jan. 21	2060	573 / 574	98	596
Tubing. Flexible metallic	F. G. Frankenberg	693,000	Feb. 11	1445	314	98	1122
Tubular articles Apparatus for flanging holes in	J. P. Sneddon	693,177	Feb. 11	1839	395	98	1195
Tubular articles of irregular shape. Shaping wrought-metal	J. P. Sneddon	693,179	Feb. 11	1616	396	98	1196
Tubular boiler	W. B. McCord	690,758	Jan. 7	758	167	98	156
Tucker	C. F. and M. T. Goforth	694,373	Mar. 4	67	16	98	1725
Tufting apparatus	S. Karpen	691,271	Jan. 14	1680	362	98	366
Tug attachment. Shaft-	A. S. Bailey	691,231	Jan. 14	1608	346	98	340
Tug. Thill-	H. G. Taylor	693,081	Feb. 11	1593	347	98	1133
Tumbling-box	W. F. Patton	691,808	Jan. 28	2737	618	98	681
Tumbling-machine	M. Griswold, Jr	695,109	Mar. 11	1462	324 / 325	98	2087
Tuning device for stringed instruments	E. C. Lane	694,392	Mar. 4	109	25	98	1738
Tunnel	C. M. Jacobs	690,960	Jan. 14	1119	254	98	202
Turbine. Elastic-fluid	H. McCornack	694,980	Mar. 11	1945	373	98	1958
Turbine engine	H. H. Boyce	693,946	Feb. 25	3299	734 / 735	98	1589

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Turbine. Water-meter	J. Schmitz	693,807	Feb. 18	3005	664	98	1468
Turn-table	C. M. Hampson	695,307	Mar. 11	1858	413	98	2118
Turning irregular forms. Machine for	A. Lehmann	695,743	Mar. 18	2518	594	98	2293
Tweezers. Watchmaker's	C. A. Bassett	696,302	Mar. 25	3708	889	98	2532
Twine-holder	C. J. Lippold	693,141	Feb. 11	1730	377	98	1178
Twine-holder	G. E. Ernst	693,849	Feb. 25	3104	686	98	1503
Twine-reel	J. H. Holbrook	691,943	Jan. 28	2984	671	98	672
Twisting machine. Warp-	W. E. Krey and A. Duppler	695,566	Mar. 18	2319	524, 525	98	2234
Twyer	G. Doan	694,004	Feb. 25	3422	754	98	1565
Tympan. Running or shifting	H. F. Bechman	694,907	Mar. 4	1094	242	98	1943
Type-bar. Composite	L. A. Brott	694,308	Feb. 25	4047	899	98	1683
Type-bars. Production of	L. A. Brott	694,309	Feb. 25	4048	900	98	1683
Type casting and composing apparatus	H. J. S. Gilbert-Stringer	690,720	Jan. 7	097	152, 153, 154, 155	98	147
Type-casting-machine matrix-carrier	G. H. Ziegler	691,226	Jan. 14	1594	363, 364	98	347
Type-channel holder	A. A. Low and J. Breakey	694,488	Mar. 4	279	63	98	1771
Type-cleaning device	J. T. Cawthorn	694,136	Feb. 25	3655	808	98	1612
Type-containing channel	L. K. Johnson and A. A. Low	694,481	Mar. 4	266	60	98	1769
Type-distributing apparatus	A. A. Low and J. Breakey	692,863	Feb. 11	1211	268	98	1073
Type-justifying machine	F. McClintock	693,145	Feb. 11	1726	378, 379, 380, 381	98	1179
Type-justifying machine	J. Watson	695,017	Mar. 11	1308	289	98	2006
Type-line composing and casting device	Z. Halacinski	694,269	Feb. 25	3916	870	98	1663
Type-magazine	L. A. Brott	694,310	Feb. 25	4049	900	98	1683
Type-mold	H. J. S. Gilbert-Stringer	691,619	Jan. 21	2362	531, 532	98	525
Type-setting machine	A. V. Ruckmich	693,445	Feb. 18	2316	508, 509, 510	98	1223
Type-setting or linotype machines, mechanism of. Composing	A. Bean	691,583	Jan. 21	2289	514, 515	98	511
Type-writer	C. E. Peterson	690,460	Jan. 7	140	30	98	32
Type-writer	T. Consentino and F. Palumbo	691,601	Jan. 21	2326	522, 523	98	519
Type-writer	J. C. Lotterhand	692,798	Feb. 4	1021	231, 232	98	1005
Type-writer	F. H. Armstrong	693,208	Feb. 11	1891	408, 409, 410	98	1211
Type-writer	F. Lambert	693,278	Feb. 11	2005	436	98	1236
Type-writer	E. R. Pastre	693,435	Feb. 18	2304	504	98	1820
Type-writer	J. S. Du Bois	694,464	Mar. 4	342	53, 54	98	1764
Type-writer	J. B. Vidal	695,251	Mar. 11	1747	386	98	2097
Type-writer	N. L. Anderson	695,779	Mar. 18	2086	610, 611	98	2308
Type-writer	W. Erwin	696,166	Mar. 25	2458	775	98	2482
Type-writer	W. J. Thompson and P. Becker	696,304	Mar. 25	3711	829, 830	98	2533
Type-writer alinement mechanism	C. Sears	691,189	Jan. 14	1538	345	98	333
Type-writer copy-holding device	E. W. Forney	693,124	Feb. 11	1690	368	98	1172
Type-writer keyboard	F. Lambert	693,277	Feb. 11	2004	436	98	1236
Type-writer pad	R. E. Revalk	690,772	Jan. 7	781	173	98	165
Type-writer paper-guide	A. Swindlehurst	691,503	Jan. 21	2155	483	98	484
Type-writer ribbon-feed mechanism	W. J. Kauffman	691,778	Jan. 28	2689	603, 604	98	613
Type-writer support for desks, &c	J. W. Frizzell	692,632	Feb. 4	762	175	98	955
Type-writer table. Book-	F. W. Hillard	695,725	Mar. 18	2589	585, 586	98	2287
Type-writer tabulating attachment	J. A. Garland, Jr	691,130	Jan. 14	1421	322, 323	98	311
Type-writer tabulating-scale	C. L. Dahlberg	691,806	Jan. 28	2809	653	98	655
Type-writing machine	R. J. Fisher	690,714	Jan. 7	674	148, 149, 150	98	143
Type-writing machine	R. J. Fisher	690,715	Jan. 7	690	150, 151	98	146
Type-writing machine	W. J. Kauffman	691,776	Jan. 28	2683	601, 602	98	611
Type-writing machine	W. J. Kauffman	691,777	Jan. 28	2697	602, 603	98	612
Type-writing machine	C. D. Shaeffer	692,370	Feb. 4	270	65	98	955
Type-writing machine	F. W. Hillard	692,664	Feb. 4	780	180, 181	98	961
Type-writing machine	T. L. Knapp	693,033	Feb. 11	1492	326, 327	98	1133
Type-writing machine	C. E. Peterson	694,073	Feb. 25	3552	783, 784	98	1591
Type-writing machine	B. C. Stickney	694,117	Feb. 25	3624	802	98	1605
Type-writing machine	P. T. Dodge	694,537	Mar. 4	392	86	98	1796
Type-writing machine	W. J. Barron	694,602	Mar. 4	512	111, 112	98	1822
Type-writing machine	R. Beger	695,999	Mar. 25	3092	701	98	2405
Type-writing machine	J. Felbel and C. Gabrielson	696,137	Mar. 25	3389	764	98	2469
Type-writing-machine adding attachment	A. Hoch	696,141	Mar. 25	3404	766, 767	98	2472
Type-writing-machine paper-guide	T. Oliver	693,057	Feb. 11	1547	337	98	1144
Type-writing-machine ribbon mechanism	L. S. Burridge	692,235	Feb. 4	33	7, 8	98	805
Type-writing-machine type-cleaning device	J. A. Whiting	692,954	Feb. 11	1362	296	98	1105
Type-writing or other like machine	M. C. Cornell	694,354	Mar. 4	92	5, 6	98	1717

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Types and type-bars. Machine for the production of.	L. A. Brott	694,306	Feb. 25	3976	886, 887, 888, 889, 890, 891, 891, 892, 893, 894, 895, 896, 897, 898, 899	98	1677
Types and type-bars. Machine for the production of.	L. A. Brott	694,307	Feb. 25	4007	895, 896, 897, 898, 899	98	1681
Umbrella	H. Keller and F. J. Gallagher	695,733	Mar. 18	3905	891	98	2290
Umbrella-gear	S. S. Fretz	691,063	Jan. 14	1301	895	98	986
Umbrella-gear	S. S. Fretz	694,957	Mar. 11	1198	902	98	1082
Umbrella-handle. Detachable	F. C. Hull	693,712	Feb. 18	2843	686	98	1429
Umbrella-runner	S. J. Evans	694,623	Mar. 4	547	119	98	1089
Umbrella-runner	S. J. Evans	694,624	Mar. 4	548	120	98	1089
Umbrella-stick	F. C. Hull	693,711	Feb. 18	2842	695	98	1429
Umbrella-support	H. N. Thayer	693,758	Feb. 18	2880	642	98	1446
Umbrella-support	A. J. Pfluger	694,895	Mar. 4	1062	334	98	1986
Umbrella-tip	W. S. Seymour	693,745	Feb. 18	2899	638	98	1442
Underreamer	P. H. Mack	694,400	Mar. 4	125	28	98	1739
Universal joint	A. Vivinus	693,577	Feb. 18	2590	573	98	1378
Unloading apparatus	M. Parker	691,969	Jan. 28	3033	681	98	682
Unloading apparatus	G. H. Hulett	694,383	Mar. 4	92	20, 21	98	1731
Upholstery	A. Freschl	693,644	Feb. 18	2717	599	98	1405
Upholstery apparatus	A. Freschl	691,937	Jan. 28	2971	668	98	669
Upholstery work. Spring-	C. S. Ellis	692,837	Feb. 11	1102	246	98	1050
Upper-folding machine	Q. W. and I. E. Booth	695,436	Mar. 18	3056	462, 463, 464, 465	98	2180
Vaccination-shield	J. C. Peacock	695,761	Mar. 18	3950	602	98	2300
Vaccine-shield	G. M. Beringer	695,270	Mar. 11	1776	393	98	2102
Vaginal irrigator	H. W. Westlake	693,356	Feb. 11	2153	473	98	1368
Valve	A. H. Marscher	691,400	Jan. 21	1976	443	98	446
Valve	R. M. Dixon	692,252	Feb. 4	66	14	98	813
Valve	C. A. Jacoby	692,293	Feb. 4	135	32	98	886
Valve	A. Wagner	692,391	Feb. 4	302	73	98	909
Valve	F. Gray	693,381	Feb. 11	2079	454	98	1259
Valve	F. E. Howland	694,477	Mar. 4	250	58	98	1767
Valve	J. Tremblay	694,502	Mar. 4	297	68, 69	98	1775
Valve	H. M. Ware	695,016	Mar. 11	1306	289	98	2006
Valve	P. Richemond	695,234	Mar. 11	1719	381	98	2091
Valve	N. Obolenskŭ	695,333	Mar. 11	1892	421	98	2125
Valve	O. O. Storle	695,589	Mar. 18	2358	534	98	2342
Valve	C. O. Lindroth	693,614	Feb. 18	2859	587	98	1398
Valve-actuating means for blowing-engines	J. W. Cregar	696,009	Mar. 25	3023	705	98	2411
Valve air-cushion	M. P. Osbourn	693,431	Feb. 18	2298	508	98	1318
Valve. Air-relief	F. Gray	693,380	Feb. 11	2076	454	98	1251
Valve and alarm	F. Hennebŏhle	693,133	Feb. 11	1708	378	98	1176
Valve. Automatic duplex check and stop	O. J. Fairchild	695,676	Mar. 18	3513	570	98	2272
Valve. Automatic flushing-	W. S. Montgomery	691,067	Jan. 14	1321	299	98	290
Valve. Automatic relief and condenser	A. Metz	690,979	Jan. 14	1163	263	98	1341
Valve. Balanced puppet-	R. L. Ambrose	693,484	Feb. 18	2405	525	98	1391
Valve-balancing device	W. L. Morris	694,773	Mar. 4	850	188	98	2142
Valve. Blow-off	W. B. Cowles	695,378	Mar. 11	1966	440	98	2272
Valve. Check-	S. Munson	691,161	Jan. 14	1478	334	98	155
Valve. Compound-engine	J. La Burt	690,743	Jan. 7	739	164	98	155
Valve. Cut-off	A. J. Murphy	691,477	Jan. 21	2104	473	98	472
Valve device	J. A. Serrell	694,033	Feb. 25	3496	768	98	1578
Valve device or fitting	P. Evans	695,294	Mar. 11	1883	408	98	2114
Valve. Dry-pipe	C. C. Cecil	691,444	Jan. 21	2049	459	98	402
Valve. Float-	H. R. Mason	693,415	Feb. 18	2269	497	98	1312
Valve. Fluid-pressure signal-	F. W. Meyer	694,107	Feb. 25	3608	798	98	1698
Valve. Flushing-	B. L. and W. P. Brinton	691,042	Jan. 14	1292	291	98	283
Valve for air-compressors. Piston-	W. A. Woodeson	694,709	Mar. 4	712	156, 157	98	1672
Valve for engines and motors. Steam-actuated	D. Lemley	696,036	Feb. 11	1502	327	98	1135
Valve. Gate-	H. Damerell	695,445	Mar. 18	2075	468	98	2184
Valve-gear	O. Jackson	691,384	Jan. 21	1943	437	98	439
Valve-gear. Engine	F. D. Holdsworth	692,289	Feb. 4	130	30	98	825
Valve-gear. Engine	R. O. Hood	694,547	Mar. 4	411	89	98	1799
Valve-gear. Engine	S. S. Younghusband	692,090	Jan. 28	3975	740, 741	98	729
Valve gear. Engine slide-	L. A. Lang	695,061	Mar. 11	1898	306	98	2023
Valve-gear for controlling motors	M. McClure	693,051	Feb. 11	1537	334	98	1142
Valve-gear link	C. W. Freeman	695,454	Mar. 18	2090	472	98	2187
Valve-gear. Steam-engine	W. N. Rumely	692,913	Feb. 11	1284	280	98	1094
Valve-gearing	A. Henning	693,967	Feb. 25	3336	733	98	1547
Valve-grinding mechanism	L. Toback	691,986	Jan. 28	3060	667	98	687
Valve-lock	E. G. Shortt	690,468	Jan. 7	156	63, 64, 65	98	35
Valve mechanism. Air-brake	H. A. Jensenius	692,669	Feb. 4	808	182, 183	98	965
Valve mechanism. Duplex-engine	C. S. Leonard	692,204	Jan. 28	3452	781	98	767
Valve mechanism. Reversing-	C. C. Worthington	695,021	Mar. 11	1818	291, 292	98	2007
Valve-movement. Steam-engine	A. Spencer	695,306	Mar. 25	3082	790, 791	98	2498
Valve. Piston-							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette Vol.	Official Gazette Page.
Valve. Relief-	W. J. Goyne	694,874	Mar. 4	69	16	98	1726
Valve. Renewable-seat	G. W. Walters	690,490	Jan. 7	225	45	98	49
Valve-reseating device	J. C. Langlois	692,459	Feb. 4	417	99	98	884
Valve. Reversing-	C. R. Kline and J. Keller	692,185	Jan. 28	3418	774	98	759
Valve. Safety-	W. N. Wemmer	692,808	Feb. 4	1051	256	98	1011
Valve. Safety-	P. Whiting	694,811	Mar. 4	909	202, 203	98	1904
Valve. Safety-	J. E. Osmer	696,074	Mar. 25	3244	754	98	2426
Valve. Safety-	W. J. Jackman	692,856	Feb. 11	1132	253	98	1056
Valve. Self-cleaning needle-	O. O. Storie	695,588	Mar. 18	2357	534	98	2243
Valve. Self-grinding	C. Gulland	692,518	Feb. 18	2455	538	98	1351
Valve. Steam-boiler safety-	G. B. Smith	695,891	Mar. 18	2894	656, 657	98	2362
Valve. Steam-engine	J. Walsh, Jr	694,706	Mar. 4	708	155	98	1861
Valve. Stop-	S. J. Studer	695,968	Mar. 25	3028	686	98	2391
Valve. Straight fullway	O. H. Castle	691,443	Jan. 21	2047	458	98	461
Valve. Suction-	F. W. Robertshaw	692,480	Feb. 4	453	106	98	891
Valve. Water-heater controlling and reversing	W. E. Clark	692,988	Feb. 11	1420	309	98	1116
Valve. Water-tank-supply	F. W. Rogler	690,879	Jan. 7	961	217	98	202
Valves for pumps, &c. Arrangement of	J. S. Sherman and G. H. Harms	695,889	Mar. 18	2891	655, 656	98	2351
Vapor-burner	F. Jacobson	691,772	Jan. 28	2677	600	98	610
Vaporizer	J. R. Sheldon	694,679	Mar. 4	659	144	98	1852
Vaporizer	H. R. Sheppard	694,681	Mar. 4	662	144, 145	98	1852
Vaporizing and igniting device for gas or explosion motors.	W. G. Lyle and J. E. Stewart	694,396	Mar. 4	116	26, 27	98	1737
Vaporizing apparatus. Liquid-	W. H. Weightman	696,195	Feb. 11	1960	402	98	1205
Vaporizing, cooling, and aerating apparatus. Air-supply to liquid	R. O. Hood	691,944	Jan. 28	2986	671	98	672
Vaporizing system. Fluid-							
Vat:							
See Brewer's vat.							
Vault. Burial-	G. B. Okey	693,304	Feb. 11	2050	448, 449	98	1245
Vault. Burial-	C. A. Reed	696,192	Mar. 25	3502	785	98	2480
Vault. Portable burial-	G. B. Okey	692,067	Jan. 28	3215	726	98	717
Vegetable-cutter	H. Boos	690,512	Jan. 7	282	57	98	61
Vegetable-cutter	C. Watz	694,592	Mar. 4	492	107	98	1817
Vehicle	J. M. Smith	694,209	Feb. 25	3809	842	98	1641
Vehicle attachment	W. P. Lee	695,742	Mar. 18	2617	594	98	2293
Vehicle-body corner-joint	J. F. Watts	691,027	Jan. 14	1252	263	98	276
Vehicle-body. Metallic	H. F. Eastman	691,455	Jan. 21	2070	463, 464	98	466
Vehicle-box	L. Priest	691,661	Jan. 21	2435	548	98	542
Vehicle-brake	G. L. Blair	692,777	Feb. 4	994	223	98	998
Vehicle-brake	H. Lemp	692,872	Feb. 11	1171	259, 260	98	1055
Vehicle-brake	H. Lemp	692,878	Feb. 11	1187	263	98	1056
Vehicle-brake	G. H. de Berly and E. G. Rassinier	693,776	Feb. 18	2949	649, 650	98	1451
Vehicle-brake	J. W. Packard and W. A. Hatcher	694,184	Feb. 25	3766	832	98	1633
Vehicle-brake	J. B. Picking	696,077	Mar. 25	3248	735	98	2417
Vehicle brake mechanism	G. F. Moore	693,781	Feb. 18	2879	633	98	1498
Vehicle brake mechanism	A. L. Larson	694,398	Mar. 4	110	25	98	1726
Vehicle brake mechanism. Motor-	W. B. Mason	691,734	Jan. 21	2555	572	98	567
Vehicle-brake. Safety	L. H. Best	696,159	Mar. 25	3445	772	98	2479
Vehicle braking mechanism	G. and A. E. Jennings	694,863	Mar. 4	1009	223	98	1926
Vehicle controlling mechanism. Motor-	J. F. McNutt	690,756	Jan. 7	757	168, 169	98	160
Vehicle draft attachment	H. Kugler	694,651	Mar. 4	599	132	98	1839
Vehicle-drag	M. Leatherman	691,554	Jan. 21	2282	502	98	500
Vehicle driving-gear. Motor-	A. Govan	695,808	Mar. 18	2744	606	98	2320
Vehicle-driving mechanism	P. Synnestvedt	693,574	Feb. 18	2585	571, 572	98	1876
Vehicle driving mechanism. Motor-	L. Créanche	695,541	Mar. 18	2956	510	98	2220
Vehicle-frame	J. Wilkinson	691,881	Jan. 28	2790	627	98	632
Vehicle-frame	P. H. White	696,286	Mar. 25	3679	823	98	2527
Vehicle frame. Motor-	R. O. Hood	691,945	Jan. 28	2988	671, 672	98	673
Vehicle frame. Motor-	J. L. Spencer	693,181	Feb. 11	1890	396, 397	98	1197
Vehicle-gear	W. L. Marshall	693,977	Feb. 25	3369	739	98	1554
Vehicle. Motor-	W. J. Burt	690,880	Jan. 7	890	197	98	188
Vehicle. Motor-	A. B. Fowler	690,849	Jan. 7	915	204	98	198
Vehicle. Motor-	G. F. Tadini	691,206	Jan. 14	1553	354	98	340
Vehicle. Motor-	J. F. McNutt	692,064	Jan. 28	3210	725	98	716
Vehicle. Motor-	W. Bowker, Sr	693,102	Feb. 11	1638	357	98	1161
Vehicle. Motor-	L. J. Dirand	695,802	Mar. 18	2733	623	98	2317
Vehicle. Motor-	V. V. Torbensen	695,895	Mar. 18	2902	658	98	2358
Vehicle. Motor-	F. A. Waldron	696,121	Mar. 25	3355	757	98	2461
Vehicle. Motor-	R. M. Hunter	696,142	Mar. 25	3416	768	98	2474
Vehicle motors. Support for self-propelled-	H. Lemp	692,880	Feb. 11	1192	264, 265	98	1069
Vehicle mud-guard	T. Cochrane	691,445	Jan. 21	2050	459	98	462
Vehicle propulsion mechanism	F. Duquemin	693,956	Feb. 25	3313	728	98	1543
Vehicle running and steering gear. Motor-	W. Bowker, Sr	693,994	Feb. 25	3407	749	98	1561
Vehicle running-gear	M. Bruner	690,928	Jan. 14	1050	236	98	236
Vehicle running-gear. Motor-	J. D. Griffen	695,207	Mar. 11	1071	371	98	2081
Vehicle running-gear. Motor-	P. K. Stern	695,959	Mar. 25	3019	684, 685	98	2390
Vehicle-seat	O. F. Persson	691,806	Jan. 28	2741	619	98	622
Vehicle-seat	J. B. Connor	691,842	Jan. 28	2809	631	98	636
Vehicle-seat. Folding	C. F. Kimball	693,654	Feb. 18	2732	608	98	1407
Vehicle. Self-propelled	C. E. Calloch	693,981	Feb. 11	1416	305, 306	98	1116
Vehicle. Shifting-seat	C. H. Stratton	694,067	Feb. 25	3495	770	98	1580

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle splinter-bar	A. Kuszmink	693,405	Feb. 18	2954	408	98	1309
Vehicle-spring	Z. T. Bush	692,618	Feb. 4	705	168	98	944
Vehicle. Spring-motor	C. A. Haas	695,480	Mar. 11	2044	459	98	2159
Vehicle steering apparatus. Self-propelled	J. F. Hurtig	694,478	Mar. 4	861	59	98	1799
Vehicle steering device. Motor-	O. F. Persson	695,380	Feb. 11	2100	459 460	98	1257
Vehicle steering mechanism	H. Lemp	692,869	Feb. 11	1159	258	98	1069
Vehicle steering mechanism	H. Lemp	692,873	Feb. 11	1172	260	98	1065
Vehicle steering mechanism. Motor-	F. R. Hiester	691,054	Jan. 14	1308	295	98	957
Vehicle steering mechanism. Motor-	C. W. Hunt	694,364	Mar. 4	95	21	98	1738
Vehicle steering mechanism. Motor-	L. P. Mooers	695,228	Mar. 11	1700	377	98	2067
Vehicle-step	J. M. Peyton and T. W. Luttrell	694,572	Mar. 4	450	99	98	1811
Vehicle storm-curtain	W. M. Norment	695,528	Mar. 11	1950	430	98	2125
Vehicle-tops. Means for raising or lowering	D. Elwell	696,038	Mar. 25	3147	710	98	3416
Vehicle truss-rod spring	T. G. Mandt	692,168	Jan. 28	2874	784	98	750
Vehicle-wheel	A. D. Smith	690,581	Jan. 7	317	61	98	69
Vehicle-wheel	G. S. Turner	692,090	Jan. 28	2868	737	98	726
Vehicle-wheel	C. Dégrange	693,360	Feb. 18	2808	488 484	98	1990
Vehicle-wheel	C. B. Van Horn	693,989	Feb. 25	3259	717 718	98	1589
Vehicle-wheel	W. C. Rastetter	694,192	Feb. 25	3779	885	98	1695
Vehicle-wheel	H. Edenborough	695,805	Mar. 18	2789	694	98	2319
Vehicle-wheel	W. F. Masters	696,949	Mar. 25	3617	859	98	2518
Vehicle-wheel	C. Howells	691,467	Jan. 21	2090	499	98	470
Vehicle wheel and tire	G. W. Pitt and E. Martin	692,841	Feb. 4	216	58	98	844
Vehicle wheel and tire	J. M. M. Truffault	695,508	Mar. 18	2182	498 498	98	2305
Vehicles. Frictional retarding means for spring-	A. de Dion and G. Bouton	694,842	Mar. 4	969	213 214	98	1916
Vehicles. Variable-speed and gear-reversing mechanism for motor road-	C. Glover	695,622	Mar. 18	2621	571	98	2279
Velocipede-bearing	J. R. Moore	694,567	Mar. 4	453	97	98	1809
Velocipede-frame	C. Gorneman	693,128	Feb. 11	1696	370	98	1173
Velocipede. Railway-	M. F. McCormick	695,886	Mar. 18	2775	633	98	2336
Velocipede. Railway-	B. C. Trudelle	691,626	Jan. 28	2782	625	98	630
Velocipede. Winter-	A. Gibbs	694,964	Feb. 25	3005	866 867	98	1661
Velocipedes. Utilizing power in	S. Newman and M. Borsodi	691,564	Jan. 21	2047	506	98	508
Vending apparatus. Coin-controlled	G. L. W. Johnson	694,968	Mar. 11	1222	267	98	1999
Vending-machine	B. M. Davis	696,011	Mar. 25	3128	705 706	98	2411
Vending-machine. Automatic	A. C. Carey	690,926	Jan. 14	1054	237 238	98	237
Vending-machine. Coin-controlled	O. E. Sorg	690,475	Jan. 7	187	88	98	41
Vending machine. Coin-controlled liquid-	C. L. Hurd	690,433	Jan. 7	91	20	98	22
Vending-machine. Coin-operated	C. L. Hurd	692,786	Feb. 4	1008	227 228	98	1002
Vending-machine. Coin-operated	H. H. Pulver	693,532	Feb. 18	2498	547	98	1858
Vending-machines, &c. Receptacle or casing for	C. A. Yale	692,954	Feb. 11	1879	299 300	98	1109
Vending mechanism for coin-controlled apparatus	J. C. Roberts	692,909	Feb. 11	1257	278	98	1083
Veneer for use in the manufacture of boxes, &c	J. A. Hart	691,812	Jan. 14	1777	404 405	98	325
Ventilating apparatus	W. H. and J. F. Jordan	694,648	Mar. 4	598	131	98	1838
Ventilating apparatus	J. Horsfield	693,022	Feb. 11	1473	322	98	1129
Ventilator	H. W. Waldmire	693,193	Feb. 11	1957	401	98	1305
Ventilator	J. Graham	696,097	Mar. 25	3203	744	98	2451
Vessel. Automatically-propelled multiple-hull	P. Lindemeyr	692,462	Feb. 4	422	99	98	885
Vessel-cap	R. B. King	690,441	Jan. 7	105	23	98	25
Vessel closure. Metallic-	A. R. Pritchard	691,970	Jan. 28	3083	681	98	692
Vessel-handle	H. Maxim	695,108	Mar. 11	1472	328 329	98	2040
Vessel. War	C. E. Delanoy	691,451	Jan. 21	2062	461 462	98	466
Vessels. Apparatus for indicating, recording, and integrating the speed of	J. Barker	692,001	Jan. 28	3068	694	98	699
Vessels. Apparatus for raising sunken	F. G. Nielsen	695,331	Mar. 11	1989	420	98	2125
Vessels. Apparatus for raising sunken	T. T. McNish	695,759	Mar. 18	2544	601	98	2290
Vessels. Closing containing	P. J. Weder	692,565	Feb. 4	611	144	98	933
Veterinary mouth-speculum	R. H. Fox	691,265	Jan. 14	1654		98	860
Veterinary remedy	R. R. Whiting	695,978	Mar. 25	3053	692	98	2297
View outfit	A. Hurley	696,648	Feb. 18	2734	601	98	1403
Violins, &c. Bridge for	W. P. Phenix	696,149	Feb. 11	1746	392 393	98	1162
Vise	C. I. Yonge	696,811	Feb. 18	2010	666	98	1465
Vise. Bench-	H. L. Waldron	694,449	Mar. 4	215	48	98	1758
Vizor and eye-shield. Combined	W. M. Johnson	696,274	Feb. 11	1999	435	98	1235
Voltaic cell	A. J. Roth	690,980	Jan. 7	963	218 219	98	906
Voting-machine	C. M. Wright	692,581	Feb. 4	689	150 151	98	929
Voting-machine	F. M. Boring and L. P. Chitwood	692,976	Feb. 11	1404	804 805 806	98	1114
Voting-machine	L. W. Luellen	696,069	Feb. 11	1508	288	98	1135
Voting-machine	H. A. Adams	694,342	Mar. 4	1	1, 2	98	1713
Voting-machine	H. B. Cary	694,528	Mar. 4	377	88, 89	98	1798
Voting-machine	L. W. Luellen	694,705	Mar. 4	895	183 184	98	1887
Voting-machine	S. D. Carpenter, E. R. Stevens, and C. K. Tenney.	694,880	Mar. 4	945	210	98	1912
Vulcanizer	C. P. Fritz	696,715	Mar. 18	2559	581 582	98	2288
Wagon-bolster stake	A. B. Eisaman	690,845	Jan. 7	909	203	98	102
Wagon-box	Z. Z. Campbell	694,941	Mar. 11	1152	254	98	1977
Wagon-box	R. W. Henson	696,384	Mar. 25	2801	847	98	2553
Wagon-brake	J. H. Jenner	691,547	Jan. 21	2093	500	98	498

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wagon-brake	T. Callister	692,114	Jan. 28	3294	745, 746	98	733
Wagon-brake	C. H. Gunn	696,170	Mar. 25	3464	776	98	2483
Wagon-brake. Automatic	T. N. Black	690,509	Jan. 7	276	55, 56	98	60
Wagon-brake ratchet	J. J. Shipley	691,670	Jan. 21	2461	551	98	548
Wagon. Delivery	T. H. Price	692,543	Feb. 4	561	136	98	916
Wagon. Dumping	D. S. Watson	691,330	Jan. 14	1899	415, 416, 417	98	401
Wagon. Dumping	J. N. Dixon	693,846	Feb. 11	1955	425	98	1226
Wagon for delivering fermented liquids. Tank	V. Spietschka	691,980	Jan. 28	2049	685	98	685
Wagon-gear	J. Austin	695,780	Mar. 18	2692	611	98	2309
Wagon-lock	C. S. Dobbins	690,408	Jan. 7	38	10	98	11
Wagon. Sand	S. W. Albertson	690,913	Jan. 14	1031	232	98	233
Wagon-seat	W. J. Holland	693,392	Feb. 18	2226	488	98	1504
Wagon-spindle	C. Putman	693,903	Feb. 25	2215	709	98	1524
Waistband	A. Bernstein	694,820	Mar. 4	930	206	98	1909
Waistband-adjuster	W. S. Evans	693,949	Feb. 11	1956	425	98	1227
Waistband for pants. Supplemental	S. Schelinsky	691,005	Jan. 14	1210	274	98	268
Waist. Child's	F. A. Platz	690,768	Jan. 7	775	172	98	164
Waist-shaping means	M. J. Hennessy	694,641	Mar. 4	582	128	98	1835
Waist, skirt, and belt holder	L. A. Emery	693,383	Feb. 18	2207	484, 485	98	1300
Wall-protecting device	F. L. Taylor and E. C. Tolman	695,965	Mar. 25	3090	687	98	2393
Wall. Tile	J. L. Record	692,544	Feb. 4	582	136, 137	98	916
Wardrobe and traveling-trunk. Combined	E. Wolffgang	691,518	Jan. 21	2162	488, 489	98	490
Warp-stop-motion apparatus	J. A. Lamb	690,591	Jan. 7	425	91	98	92
Warp-stop-motion mechanism	C. F. Roper	696,068	Mar. 25	3259	727	98	2440
Warp-threads. Device for correcting improper registry of party-colored	H. Hardwick	691,186	Jan. 14	1430	323	98	313
Washboard	P. J. Collmann	690,980	Jan. 14	1064	239	98	239
Washboard	M. E. Bingaman	693,364	Feb. 18	2173	477	98	1293
Washboard	J. T. Sargent	694,669	Mar. 4	638	140	98	1847
Washboard	J. A. Russell	694,790	Mar. 4	864	196	98	1899
Washboard	P. J. Joecken	694,864	Mar. 4	1014	223	98	1927
Washboard	W. H. Maney	695,410	Mar. 11	2015	453	98	2153
Washboiler attachment	M. C. Sonneborn	695,766	Mar. 18	2656	603	98	2301
Washer: *See* Bottle-washer. Window-washer. Dish-washer.							
Washer and gasket cutter	J. A. Rose	692,712	Feb. 4	878	200	98	979
Washing apparatus for railway or tramway carriages.	C. A. Wheeler	695,255	Mar. 11	1754	387, 388	98	2098
Washing-machine	G. B. Dowswell	690,410	Jan. 7	42	10	98	12
Washing-machine	O. L. Johnson	690,907	Jan. 7	1019	229	98	213
Washing-machine	D. W. Bovee	691,233	Jan. 14	1606	367	98	350
Washing-machine	D. W. Hughes and W. T. S. Barnes	691,468	Jan. 21	2092	468	98	470
Washing-machine	C. A. Coffin	691,894	Jan. 28	2397	652	98	655
Washing-machine	C. P. Steinmetz	692,216	Jan. 28	3484	787	98	778
Washing-machine	J. M. Rauhoff	692,345	Feb. 4	225	54	98	845
Washing-machine	S. Fry	693,255	Feb. 11	1966	427	98	1229
Washing-machine	H. P. Dennis, A. D. Potter, and J. H. Ellis.	693,846	Feb. 25	3099	685	98	1501
Washing-machine	J. H. Ellis	694,143	Feb. 25	3667	811	98	1614
Washing-machine	W. B. Simpson	695,500	Mar. 18	2169	490	98	2208
Washing-machine	J. E. Hausfeld and J. R. Carter	695,552	Mar. 18	2280	515	98	2225
Washing-machine	S. Herr	695,556	Mar. 18	2291	517	98	2227
Washing-machine	A. A. Casler	695,909	Mar. 25	2937	665	98	2375
Washing-machine	A. A. Casler	695,910	Mar. 25	2938	665	98	2375
Washing-machine	A. A. Casler	695,911	Mar. 25	2939	666	98	2375
Washing-machine bearing	H. L. Staley	695,244	Mar. 11	1731	394	98	2094
Washing-machine gearing	H. P. Gross, Jr	695,387	Mar. 11	1978	443	98	2145
Washstand-fastening	J. Barrett	690,550	Jan. 7	352	72	98	76
Washstand-fixture	J. J. Hickey	695,312	Mar. 11	1902	414	98	2119
Waste-water receptacle and connection	J. J. Hickey	695,311	Mar. 11	1861	414	98	2119
Waste-water receptacle and discharge-trap for ice-boxes, &c.	C. W. Butts	690,558	Jan. 7	366	74	98	90
Watchcase-pendant	M. Sporleder	691,412	Jan. 21	1998	447	98	450
Watchcase-pendant	W. D. Clement	690,999	Jan. 14	1062	238, 239	98	238
Watchmakers' lathes. Tail-stock for	J. A. Wiedemann	691,516	Jan. 21	2180	488	98	489
Watchmaker's tool	S. W. Christine	692,622	Feb. 4	718	166	98	946
Watchmaker's tool	J. Zelly	695,852	Mar. 18	2821	642	98	2336
Watch movement and pendant. Interchangeable	F. Leach	694,165	Feb. 25	3780	821	98	1685
Watch-movement holder	J. J. Higgins	692,663	Feb. 4	788	180	98	960
Watch-movements. Device for cleaning	S. Goldfaden	690,781	Jan. 7	703	155	98	148
Watch. Stop	W. E. Hinsdale	691,768	Jan. 28	2607	598	98	608
Water-closet	A. G. Alexander	695,898	Mar. 25	2909	660	98	2369
Water-closet valve	T. F. McEvilly	691,655	Jan. 21	2499	546	98	540
Water-cooler	H. B. Schmidt	693,695	Feb. 18	2679	591, 592	98	1396
Water cooling and condensing tower	C. A. Falk	693,506	Feb. 18	2444	535	98	1349
Water-cooling apparatus	J. L. Latta and J. A. Martin	691,278	Jan. 14	1693	385	98	308
Water-elevator. Compressed-air	G. D. Buchanan	695,633	Mar. 18	2439	551	98	2358
Water-elevator. Compressed-air	S. S. Shears	690,896	Jan. 7	999	226	98	210
Water fountain and cooler. Sanitary	E. F. Cox and G. Blass	692,944	Feb. 4	48	11	98	805
Water-heater	E. J. Muller	694,060	Mar. 4	620	134	98	1844
Water-heater	M. M. Baker	695,126	Mar. 11	1546	342	98	2056
Water-heater. Solar	M. M. Brophy	691,528	Jan. 21	2194	498	98	498
Water-heater. Steam	J. Murray	694,775	Mar. 4	853	188	98	1899
Water-heating apparatus	M. Garvey	691,589	Jan. 21	2212	497	98	496
Water-joint	C. Strutt and O. A. Hockey	695,007	Mar. 11	1992	284, 285	98	2002
Water-level indicator	D. V. Hallbergh	691,904	Jan. 28	2912	657	98	657
Water-meter							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'gs.	Official Gazette. Vol.	Official Gazette. Page.
Waterproof garment	S. H. Emanuel	694,262	Feb. 25	3902	865, 866	98	1060
Waterproof. Treating materials to render them	A. H. Hipple	694,859	Mar. 4	1004		98	1225
Waterproofing fabrics	J. Menzies	690,868	Jan. 7	942		98	198
Water-purifier	C. H. Snyder	691,860	Jan. 28	2868	646	98	649
Water purifier and filter. Portable	C. E. Holland	691,545	Jan. 21	2230	499	98	497
Water. Purifying	C. O. Brueckner	692,979	Feb. 11	1413		98	1115
Water-purifying apparatus	I. P. Kinsey	695,399	Mar. 11	1999	447	98	2149
Water supply and cooling apparatus	F. G. Kammerer	692,583	Feb. 4	546	128	98	909
Water-supplying device or the like	J. Bayard	695,367	Mar. 11	1949	434	98	2128
Water-tube boiler	J. A. Anderson	692,228	Feb. 4	1	1	98	720
Water-tube boiler	W. Wingerter	693,987	Feb. 25	3279	721	98	1535
Water-tube boiler	F. G. Hampson	695,641	Mar. 18	2454	556, 557	98	2260
Water-wheel. Current	P. H. Russell	692,364	Feb. 4	260	63	98	853
Water-wheel governor. Electromechanical	L. Lyndon	695,220	Mar. 11	1694	376	98	2096
Wave-motor	J. R. Wilcox	692,396	Feb. 4	309	75	98	864
Wave-motor	W. S. Bryant	692,420	Feb. 4	345	95	98	871
Wave-motor	R. H. Hannah	693,270	Feb. 11	1693	433	98	1284
Wave-motor	W. S. Bryant	693,369	Feb. 18	2184	480	98	1294
Wave or tide motor	W. Borchert	694,242	Feb. 25	3866	854, 855	98	1651
Wax from bituminous brown coal. Manufacturing mineral	E. von Boyen	690,693	Jan. 7	623	136	98	139
Weaner. Stock-	A. M. Shannon and W. Bobbitt	693,165	Feb. 11	1781	390	98	1189
Weather-board marker	A. C. Maeder	690,595	Jan. 7	432	93	98	94
Weather-strip	G. W. Golden	690,417	Jan. 7	52	12	98	14
Weather-strip	C. W. Gautschi	690,648	Jan. 7	541	117	98	115
Weather-strip	P. D. Jones	692,014	Jan. 28	3107	698	98	695
Weather-strip	J. Cook	692,181	Jan. 28	3410	772	98	757
Weather-strip	D. H. Burkey	693,230	Feb. 11	1926	419	98	1220
Weather-strip	F. M. Cannon	694,135	Feb. 25	3854	807	98	1619
Weather-strip	F. E. Allen	695,993	Mar. 25	3092	699	98	2402
Weather-strip	B. F. Higgins	695,235	Mar. 25	3803	848	98	2553
Weather-strip	H. E. Kenny	694,062	Feb. 25	3538	780	98	1586
Weather-strip and guide for windows	Z. L. Chadbourne	695,791	Mar. 18	2711	616, 617	98	2313
Weaving-machine	H. Rösgen	695,582	Mar. 18	2348	532	98	2240
Weaving pile fabrics	W. Pangrac	695,336	Mar. 11	1895	422	98	2126
Wedge-cutter	V. Berford	693,363	Feb. 18	2168	477	98	1291
Weed-cutting and ballast-dressing apparatus	W. D. Lloyd	693,295	Feb. 11	2015	439, 440	98	1238
Weeder	A. Johnson	693,717	Feb. 18	2349	528	98	1430
Weeder	V. H. Hallock	695,721	Mar. 18	2578	582	98	2285
Weeder	A. F. Fischer and H. Cordes	692,648	Feb. 4	756	174	98	954
Weeder and thinner	A. T. Fischer	692,649	Feb. 4	759	174	98	954
Weeder and thinner	D. Wilde	693,199	Feb. 11	1867	404	98	1207
Weigher. Grain-	W. Greene and S. Chisholm	690,855	Jan. 7	922	206	98	194
Weighing and recording apparatus	W. F. Brothers	691,438	Jan. 21	2041	457	98	460
Weighing-machine	C. O. Ericson	691,536	Jan. 21	2206	496	98	495
Weighing-machine	F. Wertenbruch	694,222	Feb. 25	3826	847, 848	98	1645
Weighing-machine. Automatic	A. Arthur	690,580	Jan. 7	873	193	98	185
Weighing-machine. Automatic	W. Brough	692,609	Feb. 4	694	161	98	941
Weighing-machine. Automatic	G. W. Lottridge	694,487	Mar. 4	274	63	98	1770
Weighing-machine. Automatic	T. C. Baker	694,985	Mar. 11	1153	252	98	1975
Weighing-machine. Automatic	T. C. Baker	694,986	Mar. 11	1156	252, 253	98	1975
Weighing machine. Liquid-	W. W. George	695,794	Feb. 18	2978	658	98	1456
Welding apparatus. Tube-	T. J. Bray, Jr.	691,350	Jan. 21	1877	423	98	635
Welding. Electric	R. M. Hunter	690,958	Jan. 14	1109	250	98	348
Welding machine. Link-	W. Scrimgeour, Jr., and J. Bunte	692,366	Feb. 4	255	64	98	854
Welding-machine. Portable electric	H. E. Meyers	691,404	Jan. 21	1982	444	98	648
Well casing-head. Oil-	J. W. Frye	691,120	Jan. 14	1420	322	98	310
Well drill. Deep-	J. W. Livermore	695,745	Mar. 18	2682	595	98	2394
Well drilling and pumping rigs. Lift for	M. B. McManus	696,252	Mar. 25	3023	669	98	2514
Well-drilling-tool coupling	W. D. Snyder	695,659	Mar. 18	2483	564	98	2267
Well-screen	F. I. Webber	691,994	Jan. 28	3073	690	98	689
Well-tubing protector. Oil-	G. F. Tait	690,676	Jan. 7	587	127	98	125
Wells by percussion. Apparatus for boring	A. Fauck, Jr	692,645	Feb. 4	751	173	98	953
Wells from fires. Appliance for protecting oil-	J. M. Cochran	695,278	Mar. 11	1798	398	98	2107
Wells. Sand-trap for Artesian or driven	B. F. Smith	695,958	Mar. 25	3008	680	98	2388
Wheat. Machine for separating cockle from	W. W. Climenson and W. D. Winger	691,045	Jan. 14	1987	292	98	284
Wheat-scouring machine	G. Lützenburger	695,106	Mar. 11	1470	327	98	2009
Wheel: *See* Brake-wheel, Car-wheel, Fifth-wheel, Fly-wheel, Propeller-wheel, Saw-wheel, Traction-wheel, Vehicle-wheel, Water-wheel, Wind-wheel.							
Wheel	S. Furmidge	691,717	Jan. 21	2538	569	98	563
Wheel	O. Congelton	692,193	Jan. 28	3421	776	98	761
Wheel	J. Edwards	692,256	Feb. 4	73	16	98	814
Wheel	C. H. Bicalky	692,692	Feb. 4	662	150	98	938
Wheel	F. J. Ranford	692,710	Feb. 4	878	199	98	978
Wheel	F. M. Hawk	693,011	Feb. 11	1450	317	98	1125
Wheel	J. T. Ashley	694,231	Feb. 25	3837	850	98	1647
Wheel	G. E. Evans	695,448	Mar. 18	2079	469	98	2105
Wheel	C. H. Bicalky	695,532	Mar. 18	2336	505, 506	98	2217
Wheel	A. A. Vérel	695,848	Mar. 18	2816	640, 641	98	2335
Wheel	C. L. Horack	695,984	Mar. 25	2979	674	98	2382
Wheel	J. S. and J. C. Clawson	693,237	Feb. 11	1940	421	98	1228
Wheel-attaching device	T. Quinn	691,663	Jan. 21	2426	549	98	543
Wheel-controlling mechanism	A. M. Beebe	691,099	Jan. 14	1367	310	98	300
Wheel-fastener							

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wheel or pulley	J. M. Dodge	696,320	Mar. 25	3777	842	98	2548
Wheel sand-box	L. E. Waterman	693,806	Feb. 4	1050	236	98	1010
Whiffletree-clip	J. Curry	694,254	Feb. 25	3887	890	98	1657
Whiffletree connection	A. H. Shuel	691,496	Jan. 21	2140	479	98	491
Whiffletree construction	C. E. Dupont and A. Sills	691,897	Jan. 28	2900	653	98	655
Whip-socket	J. M. Groff and E. P. Coulter	695,719	Mar. 18	2575	583	98	2286
Wick. Lamp-	E. S. Macfie	690,747	Jan. 7	744	165	98	157
Wick-tube	W. H. Wilder	693,476	Feb. 18	2392	528	98	1288
Wicker chair. Knockdown	C. Werthner	691,216	Jan. 14	1574	358	98	343
Wind instrument	J. P. Koch	691,783	Jan. 28	2699	607	98	615
Wind-power. Apparatus for converting, storing, and utilizing	P. F. Thede	690,794	Jan. 7	827	182	98	174
Wind-wheel	O. J. Ziegler	693,481	Feb. 18	2399	525	98	1340
Winding composite cops. Machine for	S. W. Wardwell	690,492	Jan. 7	230	46, 47, 48, 49	98	50
Winding-machine	A. B. Morse	695,645	Mar. 18	2463	558, 559	98	2203
Winding machine. Thread-	P. J. Westphal	693,196	Feb. 11	1962	402	98	1205
Winding mechanism	T. P. Brown	696,020	Mar. 25	3273	740	98	2462
Windlass and capstan and means for driving same	J. R. Andrews	695,994	Mar. 25	3083	699	98	2408
Windmill	A. H. Hau	690,950	Jan. 14	1093	247	98	244
Windmill	W. G. Bird	691,524	Jan. 21	2190	491	98	491
Windmill	J. C. Sala and G. Stabile	692,714	Feb. 4	880	201	98	979
Windmill	E. Plagmann	694,300	Feb. 25	3968	884	98	1676
Windmill	S. E. Burke	695,443	Mar. 18	2070	467	98	2183
Windmill	R. W. Waldo and A. G. Bonham	692,392	Feb. 4	303	73	98	868
Windmill cut-off	C. S. Beggs	696,000	Mar. 25	3093	701	98	2405
Windmill-gear	C. Oberlander	691,168	Jan. 14	1494	337	98	327
Windmill-power	G. S. Long	692,158	Jan. 28	3368	762	98	748
Windmill-regulator	J. A. Walker	695,897	Mar. 18	2906	659	98	2354
Windmill-regulator	E. A. Sanders	691,182	Jan. 14	1518	342	98	331
Window	J. Lyes	692,159	Jan. 28	3370	763	98	749
Window	W. D. Watson	692,560	Feb. 4	606	142, 143	98	922
Window attachment for protecting food	A. Boller	693,224	Feb. 11	1916	417	98	1217
Window-balance	F. W. G. Boettcher	696,308	Mar. 25	3741	836	98	2540
Window-cleaner	E. A. and G. M. Mealey	695,070	Mar. 11	1413	310	98	2023
Window-cleaner	G. W. Warner	695,183	Mar. 11	1619	359	98	2071
Window-frame	F. N. Boyce	692,008	Jan. 28	3090	694, 695	98	692
Window-guard	R. Bruning	696,223	Mar. 25	3562	798	98	2503
Window guard and shade attachment	T. Euphrat	693,957	Feb. 25	3314	728	98	1543
Window, panel, or other sliding frame	J. Thorpe	692,039	Jan. 28	3158	713	98	705
Window-platform	H. S. Howard	690,579	Jan. 7	405	84	98	88
Window-screen	S. W. Benson	693,998	Feb. 25	3405	748, 749	98	1561
Window-screen	E. L. Lloyd	694,319	Feb. 25	4062	905	98	1686
Window-screen. Adjustable metallic	T. J. Perrin	690,662	Jan. 7	593	123, 124	98	122
Window-screen attachment	F. C. Wright	692,403	Feb. 4	321	78	98	866
Window-screen. Sliding	J. B. Feather	694,095	Feb. 25	3590	794	98	1598
Window. Ventilating-	E. A. Giesser	691,260	Jan. 14	1659	378	98	361
Window-washer	B. L. Cohn	694,615	Mar. 4	537	117	98	1527
Windows. Making prismatic	G. K. Cummings	695,284	Mar. 11	1815	408	98	2110
Wire bag. Woven-	W. J. Wright	692,404	Feb. 4	322	78	98	866
Wire bag. Woven-	W. J. Wright	692,405	Feb. 4	323	78	98	867
Wire bag. Woven-	W. J. Wright	692,406	Feb. 4	324	79	98	867
Wire bars by electrodeposition. Apparatus for the manufacture of compound	R. D. Sanders	696,109	Mar. 25	3339	751	98	2456
Wire-cloth. Reed for looms for weaving	F. S. Gable	696,335	Mar. 25	3795	844	98	2550
Wire-connector	H. W. Wyckoff	693,206	Feb. 11	1887	408	98	1210
Wire crossings. Hand-machine for casting balls upon	J. Harris	690,723	Jan. 7	707	156	98	149
Wire-cutting die	R. A. Breul	691,892	Jan. 28	2895	652	98	654
Wire-drawing machine	M. Reid	695,490	Mar. 18	2148	485, 486	98	2198
Wire-fastener	F. S. Smith	695,954	Mar. 25	3011	681	98	2388
Wire from one reel to another while same is being polished. Apparatus for winding	A. Guimond	694,011	Feb. 25	3436	757, 758	98	1567
Wire-grip	W. C. Jones	690,438	Jan. 7	99	21, 22	98	24
Wire-grip	F. T. Page	696,260	Mar. 25	3634	812	98	2517
Wire machine	A. Landgreen	692,314	Feb. 4	169	39	98	888
Wire. Machine for handling barbed	J. Moore	694,404	Mar. 4	132	29	98	1740
Wire-rod-straightening machine	G. de Laval and C. W. Chisholm	696,344	Mar. 25	3814	850, 851	98	2555
Wire-rope machine	E. P. Frederick	693,509	Feb. 18	2448	536, 537	98	1350
Wire-stretcher	L. J. Bandemer	691,521	Jan. 21	2186	490	98	491
Wire-stretcher	S. H. Dunlap	691,847	Jan. 28	2818	632	98	638
Wire-stretcher	S. H. Wright	692,753	Feb. 4	989	214	98	990
Wire-stretcher	W. Z. Brannon	693,227	Feb. 11	1921	417	98	1218
Wire stretcher and reeling machine	G. S. and W. D. Austin	692,412	Feb. 4	333	81	98	869
Wire. Weaving	W. J. Wright	692,407	Feb. 4	326	79	98	867
Wire-weaving apparatus	W. J. Wright	692,408	Feb. 4	327	79	98	867
Wire-weaving machine	W. W. McCallip	695,942	Mar. 25	2990	676	98	2384
Wireworking-tool	B. O. Hargrove	692,282	Feb. 4	120	28	98	823
Wires and stays together. Means for fastening	C. Colman	692,781	Feb. 4	995	225	98	1000
Wires or bars to pieces of metal. Plug or bush for connecting	E. A. Richardson	694,582	Mar. 4	471	101	98	1613
Wires together. Clip for securing	E. M. Hulse and A. F. Schramm	693,866	Feb. 25	3134	693	98	1509
Wood by fire. Ornamenting	M. Schirm	695,417	Mar. 11	2028	455	98	2186
Wood. Charring-tool for ornamenting	J. P. Müller	695,884	Mar. 18	2883	653	98	2350
Wood-cutting machine	E. Wuhrmann	691,428	Jan. 21	2018	451	98	455
Wood. Impregnating	J. L. Ferrell	694,956	Mar. 11	1195	282	98	1989

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wood impregnating and seasoning apparatus	H. Higgins	695,152	Mar. 11	1570	348, 349	98	2062
Wood. Inlaying of	H. C. Webb	691,214	Jan. 14	1571	207	98	342
Wood-jointers. Guard for power-driven	A. J. White	692,748	Feb. 4	980	212	98	988
Wood-pipe machine	A. Anderson	694,462	Mar. 4	221	49	98	1750
Wood. Preserving	I. B. Sprague	694,212	Feb. 25	3813	843	98	1642
Wood. Producing artificial	E. Helbing	694,014	Feb. 25	3444		98	1569
Woodworker's scraper	J. A. Olson	695,117	Mar. 11	1501	334	98	2045
Woodworking-machine	T. Shurmer	692,487	Feb. 4	464	108, 109	98	898
Woodworking-machine	F. E. Zimmermann	692,582	Feb. 4	649	152, 153	98	931
Woodworking-machine	J. R. Oakley	695,238	Mar. 11	1711	379	98	2089
Woodworking-machine guard	A. Cook	694,584	Mar. 4	950	211	98	1914
Woodworking-machine guard	A. Cook	694,585	Mar. 4	951	212	98	1914
Woodworking-machine safety device	T. B. Rice, Jr.	691,074	Jan. 14	1333	201	98	298
Wool-cleaning machine	F. G. Sargent	695,652	Mar. 18	2473	561, 562	98	2365
Work-bench. Portable	D. F. Barber	694,312	Feb. 25	4053	901	98	1684
Work conveying and presenting mechanism	R. B. Fuller	690,416	Jan. 7	49	12	98	13
Work conveying and presenting mechanism	R. B. Fuller	694,467	Mar. 4	247	55	98	1764
Work-holder	N. P. Denckla	691,364	Jan. 21	1912	430	98	432
Work-support	J. T. Summers	693,673	Feb. 18	2771	610	98	1415
Wort and yeast and aerating them. Apparatus for mixing	M. Wallerstein and H. H. Freund	695,974	Mar. 25	3045	690	98	2296
Wrapping-machine	A. Bayler	693,099	Feb. 11	1625	355, 356	98	1160
Wrapping-machine	A. Stearns	696,112	Mar. 25	3338	752, 753	98	2457
Wrapping machine. Package-	J. T. Pedersen	694,096	Feb. 25	3402	764, 765	98	1573
Wrench: *See* Axle-wrench. Combination-wrench. Jar-top wrench. Nut-wrench. Pipe-wrench. Ratchet-wrench.							
Wrench	F. P. Bates	690,391	Jan. 7	13	3	98	6
Wrench	F. W. Dent	690,407	Jan. 7	37	9	98	11
Wrench	W. H. Landor	691,552	Jan. 21	2230	501	98	499
Wrench	R. B. Blackburn	692,002	Jan. 28	3089	694	98	692
Wrench	G. W. Price	692,709	Feb. 4	872	199	98	977
Wrench	P. W. Walsh	692,742	Feb. 4	921	210	98	987
Wrench	J. M. Clark and J. C. Crume	693,628	Feb. 11	1087	244	98	1046
Wrench	J. H. Hobson	693,861	Feb. 25	3195	692	98	1506
Wrench	F. Mossberg	695,072	Mar. 11	1416	310	98	2029
Wrench	F. L. Coes	691,046	Jan. 14	1290	292	98	284
Wrench-handle	F. L. Coes	691,343	Jan. 14	1624	371	98	354
Wrench-handle	F. L. Coes	693,108	Feb. 11	1656	361	98	1165
Wrench-handles. Construction of							
Wringer: *See* Mop-wringer.							
Wringer	J. M. Cook	693,113	Feb. 11	1673	364	98	1169
Wringer attachment	J. Reid and L. M. Hooper	692,546	Feb. 4	595	137	98	917
Wringer-clamp	T. H. Bedell	695,436	Mar. 18	2053	462	98	2179
Wrinkle-removing device	J. E. Kendall	693,303	Feb. 4	148	35	98	889
Writing-machine	E. B. Hess and J. M. Stoughton	691,626	Jan. 21	2378	535, 536	98	698
Writing-machine	E. B. Hess	694,015	Feb. 25	3444	760, 761	98	1569
X-ray machine. Coin-controlled	J. M. Hunter	695,154	Mar. 11	1574	349, 350	98	2068
Yarn, &c. Machine for oxidizing	J. W. Fries	695,032	Mar. 25	3170	715	98	2422
Yoke fastener. Neck-	C. M. Schanz	694,202	Feb. 25	3792	838	98	1689
Yoke. Neck-	J. J. M. Burnette	696,311	Mar. 25	3746	837, 838	98	2541
Zein. Extracting	T. B. Osborne and R. W. Cornelison	691,966	Jan. 28	3028		98	681
Zinc-dust. Production of	G. G. Convers and A. B. de Saulles	695,876	Mar. 11	1962	438, 439	98	2141
Zinc from sulfid ores. Recovering	H. F. Kirkpatrick-Picard	692,148	Jan. 28	3355		98	745
Zinc-furnace	G. G. Convers and A. B. de Saulles	694,187	Feb. 25	3656	808	98	1613
Zither	C. E. Fiedler	692,773	Feb. 4	980	222	98	997
Zither	E. Christian	694,380	Mar. 4	382	84	98	1794
Zither support and sounding device	J. A. Duerst	694,094	Feb. 25	3599	794	98	1598

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Advertising-card or similar article	W. A. Schiffer	35,677	Feb. 4	98	1018
Advertising puzzle-sheet	C. E. Jaques	35,568	Jan. 7	98	218
Alphabet	M. T. Goldsmith	35,642	Jan. 28	98	782
Alphabet	M. T. Goldsmith	35,643	Jan. 28	98	783
Alphabet	M. T. Goldsmith	35,644	Jan. 28	98	783
Automobile-frame	G. T. Turner	35,713	Feb. 11	98	1271
Axle-center and fifth-wheel plate	H. F. Weeks	35,580	Jan. 14	98	410
Badge	R. S. Stockton	35,689	Feb. 4	98	1020
Badge	O. Cohen	35,825	Mar. 25	98	2370
Bandage	M. Wensch	35,708	Feb. 11	98	1270
Bed-end frame	E. J. Barcalo	35,727	Feb. 11	98	1273
Beehive-protector	J. G. Smithers	35,700	Feb. 4	98	1023
Belt	L. Sanders	35,570	Jan. 7	98	219
Belt	B. Wilentshik	35,571	Jan. 7	98	219
Belt	I. Lewenthal	35,765	Feb. 18	98	1475
Belt	H. C. Krause	35,767	Feb. 18	98	1476
Belt	F. A. Luce	35,706	Feb. 11	98	1270
Belt. Apparel-	O. A. Lehman	35,792	Mar. 4	98	1958
Belt. Apparel-	O. A. Lehman	35,793	Mar. 4	98	1959
Belt. Apparel-	O. A. Lehman	35,794	Mar. 4	98	1959
Belt. Apparel-	O. A. Lehman	35,822	Mar. 18	98	2355
Belt. Apparel-	O. A. Lehman	35,824	Mar. 18	98	2355
Belt. Apparel-	I. Lewenthal	35,766	Feb. 18	98	1476
Belt-body or similar article	T. Campbell	35,751	Feb. 18	98	1473
Belt-holder	H. J. Gaisman	35,707	Feb. 11	98	1270
Belt. Waist-	A. E. Canedy	35,671	Feb. 4	98	1017
Blower and gear casing	K. Kiefer	35,558	Jan. 7	98	217
Bottle	K. Kiefer	35,667	Feb. 4	98	1016
Bottle	R. J. Taussig	35,668	Feb. 4	98	1016
Bottle	F. A. Stecher	35,615	Jan. 28	98	778
Box blank. Paper-	W. Hathaway	35,561	Jan. 7	98	217
Box-opener	J. H. Baker	35,622	Jan. 28	98	779
Brake-rod end	H. J. Herbert	35,576	Jan. 14	98	408
Brush back and handle	W. W. Bromham	35,608	Jan. 28	98	777
Brush or mirror back	L. B. Prahar	35,609	Jan. 28	98	777
Brushes, &c. Back for	A. Geiges	35,770	Feb. 25	98	1697
Brushes, mirrors, &c. Back for	T. Stites	35,754	Feb. 18	98	1473
Bunsen-burner mixing-tube	W. R. Jeavons	35,563	Jan. 7	98	217
Burners. Bowl for hydrocarbon-	L. R. Wade	35,666	Feb. 4	98	1015
Bust-pad	W. H. Moffitt	35,758	Feb. 18	98	1474
Butcher's tool	F. Thielke	35,574	Jan. 14	98	407
Button-hooks, &c. Handle for	J. D. Warren	35,701	Feb. 4	98	1022
Cabinet	J. A. Reid	35,594	Jan. 14	98	409
Cabinet. Kitchen-	J. A. Burch and L. E. Lee	35,729	Feb. 11	98	1273
Can. Garbage-	E. Goetze	35,786	Mar. 4	98	1957
Candlestick	H. J. Altman	35,750	Feb. 18	98	1473
Card box. Playing-	J. S. Vredenburgh	35,595	Jan. 28	98	781
Carpet	A. Mason	35,815	Mar. 11	98	2162
Carpet	A. Mason	35,816	Mar. 11	98	2162
Carpet	R. D. Woodford	35,762	Feb. 18	98	1475
Carriage-running-gear brace	C. W. Clark	35,779	Feb. 25	98	1698
Chair	G. Schumacher	35,681	Feb. 4	98	1018
Chair. Metal-framed rocking-	M., Z., H., and P. David	35,652	Feb. 4	98	1013
Chisel, nail-puller, and hammer	L. V. Aronson	35,796	Mar. 11	98	2160
Clock-case	L. V. Aronson	35,797	Mar. 11	98	2160
Clock-case	L. V. Aronson	35,798	Mar. 11	98	2160
Clock-case	L. V. Aronson	35,817	Mar. 18	98	2354
Clock-case	S. H. Leavenworth	35,800	Mar. 11	98	2161
Coffee-pot, &c.	E. A. Russell	35,823	Mar. 18	98	2355
Condiment-cup	L. F. Trinchard	35,699	Feb. 4	98	1023
Corn-holder	J. M. Van Orden	35,572	Jan. 7	98	219
Corset	A. T. Atherton	35,719	Feb. 11	98	1272
Cotton openers and lappers. Grid-bar for	A. E. Olsson	35,726	Feb. 11	98	1273
Couch-leg	C. Graff	35,785	Mar. 4	98	1957
Cup	J. N. Harrison	35,760	Feb. 18	98	1474
Curb. Metallic	C. W. Meinecke	35,654	Feb. 4	98	1014
Cushion	F. E. Case	35,776	Feb. 25	98	1698
Dental-instrument cabinet	J. B. Vernon	35,610	Jan. 28	98	777
Dental-instrument holder	A. Friedman	35,641	Jan. 28	98	782
Dial	C. E. Haviland	35,783	Mar. 4	98	1956
Dish, &c. Covered	J. P. Eustis	35,670	Feb. 4	98	1016
Dish-drainer	W. E. Carlson	35,771	Feb. 25	98	1697
Dish. Ornamental	W. J. Drain, Jr	35,748	Feb. 18	98	1473
Display stand. Jewelry-	T. Kundtz	35,624	Jan. 28	98	779
Drawer. Cabinet-	T. Kundtz	35,731	Feb. 11	98	1274
Drawer. Cabinet-	L. O. Church	35,674	Feb. 4	98	1017
Dressing-case	G. Forgach	35,557	Jan. 7	98	216
Drinking vessel	L. D. Weeks	35,672	Feb. 4	98	1017
Egg-case filler	V. G. Apple	35,619	Jan. 28	98	778
Electric-machine casing. Dynamo-					

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Engine frame or casing	R. E. Hardy	35,623	Jan. 28	98	779
Eye for garment-fasteners	T. D. Richardson	35,638	Jan. 28	98	782
Eye for garment-fasteners	G. H. Cliff	35,639	Jan. 28	98	782
Eye for garment-fasteners	F. E. De Long	35,640	Jan. 28	98	782
Eye. Garment-	C. Leib	35,658	Feb. 4	98	1014
Eyeglass or pince-nez spring	H. E. Kirstein	35,653	Feb. 4	98	1013
Fan-casing	A. L. Streeter	35,563	Jan. 7	98	217
Fan-casing	A. L. Streeter	35,564	Jan. 7	98	217
Ferrule	C. F. Smith	35,663	Feb. 4	98	1015
Ferrule	R. A. Kohlhepp	35,818	Mar. 18	98	2354
Ferrule	R. A. Kohlhepp	35,819	Mar. 18	98	2354
Ferrule	R. A. Kohlhepp	35,820	Mar. 18	98	2354
Filter-frame. Interior	H. L. Ebsen	35,722	Feb. 11	98	1272
Firearm cylinder-cover	F. I. Johnson	35,646	Jan. 28	98	783
Flower-stand	C. W. Lind and C. N. Silver	35,627	Jan. 28	98	780
Fringe	W. T. Smith	35,813	Mar. 11	98	2163
Fringe	W. T. Smith	35,814	Mar. 11	98	2163
Fringe	J. J. Sherman, Jr	35,718	Feb. 11	98	1271
Game-board	F. B. Hollister	35,791	Mar. 4	98	1958
Game-board	A. M. Ziegler	35,659	Feb. 4	98	1014
Garment-grip	F. G. Dietz	35,548	Jan. 7	98	215
Garment-supporter	F. G. Dietz	35,612	Jan. 28	98	777
Garment-supporter	F. G. Dietz	35,613	Jan. 28	98	777
Garment-supporter	C. T. Wittstein	35,742	Feb. 18	98	1472
Gem-setting finger-ring. Solitaire-	C. T. Wittstein	35,743	Feb. 18	98	1472
Gem-setting finger-ring. Solitaire-	C. T. Wittstein	35,744	Feb. 18	98	1472
Gem-setting finger-ring. Solitaire-	C. T. Wittstein	35,745	Feb. 18	98	1473
Gem setting. Solitaire-	A. H. Wittstein	35,741	Feb. 18	98	1471
Glass. Stem-	A. Pick	35,828	Mar. 25	98	2580
Halter-loop	S. H. Hull	35,694	Feb. 4	98	1021
Hammock fabric	I. E. Palmer	35,753	Feb. 18	98	1473
Handle	H. A. Keiner	35,650	Feb. 4	98	1013
Harness-pad	F. J. Rogers	35,695	Feb. 4	98	1021
Hat	S. Mundheim	35,660	Feb. 4	98	1014
Hoof-pad	J. Campbell	35,693	Feb. 4	98	1021
Hook. Garment-	C. Leib	35,611	Jan. 28	98	777
Hook. Garment-	C. Leib	35,657	Feb. 4	98	1014
Hook-keeper	J. Grigg	35,656	Feb. 4	98	1014
Horseshoe-pad	J. A. Buck and G. Hassler	35,621	Jan. 28	98	779
Hose-supporter	A. Hunter	35,549	Jan. 7	98	215
Hose-supporter	F. A. Freeman	35,758	Feb. 18	98	1473
Hot-water-bag closure	C. W. Meinecke	35,580	Jan. 14	98	408
Hydrocarbon-burner bowl-support	W. R. Jeavons	35,698	Feb. 4	98	1021
Ice-cutters and ice-cream freezers. Supporting-frame for	C. A. and M. Calleson	35,645	Jan. 28	98	783
Jar clamp. Fruit-	L. A. Climer	35,614	Jan. 28	98	777
Jar. Paste-	A. N. Ritz	35,669	Feb. 4	98	1016
Kindling-block	C. Pollard	35,695	Feb. 4	98	1019
Kindling-block	C. Pollard	35,696	Feb. 4	98	1020
Knife. Butter-	W. Hathaway	35,554	Jan. 7	98	216
Knife-handle	C. F. Smith	35,826	Mar. 25	98	2579
Knife-handle	C. F. Smith	35,827	Mar. 25	98	2580
Knife. Melon and pie	C. H. Hahn	35,636	Jan. 28	98	782
Lace-fastener	J. L. Poalk	35,690	Feb. 4	98	1020
Lamp-chimney	R. D. Jamison	35,723	Feb. 11	98	1272
Lamp-fixture	W. Hawks	35,581	Jan. 14	98	408
Lamp. Gas-	R. L. Doran	35,787	Mar. 4	98	1957
Lamp. Gas-	R. L. Doran	35,788	Mar. 4	98	1958
Lavatory	F. J. Torrance	35,730	Feb. 11	98	1274
Lens. Cylinder-	G. W. Wells	35,760	Feb. 25	98	1697
Life-preserver body	H. A. Ayvad	35,550	Jan. 7	98	215
Limb-cutter or branch-trimmer and hatchet	M., Z., H., and P. David	35,720	Feb. 11	98	1272
Locomotive-body	J. B. Stetson and W. J. Thomas	35,806	Mar. 11	98	2162
Loom-fork	A. Dubé	35,651	Feb. 4	98	1013
Manicure-blade	A. N. Clark	35,746	Feb. 18	98	1472
Massage-roller	C. J. Bailey	35,655	Feb. 4	98	1014
Medal	M. C. Wilburn	35,703	Feb. 11	98	1269
Mirror-frame	H. J. Herbert	35,573	Jan. 14	98	407
Mixer-blade	C. T. Drake	35,664	Feb. 4	98	1015
Monument	J. E. Welch	35,698	Feb. 4	98	1020
Necktie	A. W. Cowen	35,662	Feb. 4	98	1015
Needle-case	J. T. Rosenheimer	35,704	Feb. 11	98	1269
Newspaper-holder	G. Orenshaw	35,585	Jan. 14	98	409
Pail-cover	J. S. Roblin	35,561	Jan. 7	98	217
Paper. Wall-	N. A. McManus	35,735	Feb. 11	98	1275
Paper. Wall-	N. A. McManus	35,736	Feb. 11	98	1275
Paper. Wall-	N. A. McManus	35,737	Feb. 11	98	1275
Paper. Wrapping-	J. W. Cooper	35,673	Feb. 4	98	1017
Parer frame. Fruit-	F. W. Belko	35,559	Jan. 7	98	217
Penholder	N. Jacobson	35,577	Jan. 14	98	408
Pillow-facing	C. E. Bentley	35,606	Jan. 21	98	576
Pillow-top	C. E. Bentley	35,593	Jan. 21	98	574
Pillow-top	C. E. Bentley	35,594	Jan. 21	98	574
Pillow-top	C. E. Bentley	35,595	Jan. 21	98	574
Pillow-top	C. E. Bentley	35,596	Jan. 21	98	574
Pillow-top	C. E. Bentley	35,597	Jan. 21	98	574
Pillow-top	C. E. Bentley	35,598	Jan. 21	98	574
Pillow-top	C. E. Bentley	35,599	Jan. 21	98	575
Pillow-top	C. E. Bentley	35,600	Jan. 21	98	575
Pillow-top	C. E. Bentley	35,601	Jan. 21	98	575
Pillow-top	C. E. Bentley	35,602	Jan. 21	98	575
Pillow-top	C. E. Bentley	35,603	Jan. 21	98	575
Pillow-top	C. E. Bentley	35,604	Jan. 21	98	575
Pillow-top	C. E. Bentley	35,605	Jan. 21	98	576
Pin blank. Stick-	H. R. Steele	35,768	Feb. 25	98	1697
Pincushion	G. Brown	35,578	Jan. 14	98	408

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Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Pin. Souvenir hat-	J. T. Donnell	35,661	Feb. 4	98	1015
Pipe-coupling clamping-ring	S. R. Dresser	35,618	Jan. 28	98	778
Pipe. Tobacco-	H. W. Comstock	35,637	Jan. 28	98	782
Plate, &c	C. J. Ahrenfeldt	35,781	Mar. 4	98	1956
Plate, &c	C. E. Haviland	35,782	Mar. 4	98	1956
Plate, &c	C. J. Ahrenfeldt	35,799	Mar. 11	98	2160
Plowshare-lay	W. Gibson, Jr	35,566	Jan. 7	98	218
Punching-bag support	G. S. Maxwell	35,678	Feb. 4	98	1018
Purse-top or similar article	S. A. Keller	35,747	Feb. 18	98	1472
Puzzle-board	T. C. Washington	35,764	Feb. 18	98	1475
Radiator-top	G. Beck	35,628	Jan. 28	98	780
Receptacle	J. P. Eustis	35,676	Feb. 4	98	1018
Record-sheet	F. W. Davenport	35,717	Feb. 11	98	1271
Reflector for artificial lights	O. A. Mygatt	35,616	Jan. 28	98	778
Reflector for artificial lights	O. A. Mygatt	35,682	Feb. 4	98	1019
Reflector for artificial lights	O. A. Mygatt	35,683	Feb. 4	98	1019
Reflector for artificial lights	O. A. Mygatt	35,684	Feb. 4	98	1019
Reflector for artificial lights	O. A. Mygatt	35,755	Feb. 18	98	1475
Reflector for artificial lights	O. A. Mygatt	35,756	Feb. 18	98	1474
Reflector for artificial lights	O. A. Mygatt	35,757	Feb. 18	98	1474
Reflector for artificial lights	G. Auer	35,789	Mar. 4	98	1958
Register. Side-wall	G. Auer	35,790	Mar. 4	98	1958
Register. Side-wall	H. S. Hart	35,583	Jan. 14	98	409
Registers, ventilators, &c. Top plate for	T. N. Mathias	35,761	Feb. 18	98	1475
Rein-support	M. Schimmel	35,795	Mar. 11	98	2159
Ring	A. Petzold	35,587	Jan. 14	98	410
Rug	A. Petzold	35,588	Jan. 14	98	410
Rug	E. H. Bennett	35,631	Jan. 28	98	781
Rug	E. H. Bennett	35,632	Jan. 28	98	781
Rug	A. Petzold	35,633	Jan. 28	98	781
Rug	A. Petzold	35,634	Jan. 28	98	781
Rug	P. O. De Moss	35,778	Feb. 25	98	1698
Sack-support member	G. Stickley	35,680	Feb. 4	98	1018
Screw	T. Kundtz	35,710	Feb. 11	98	1270
Sewing-machine cabinet	T. Kundtz	35,625	Jan. 28	98	780
Sewing-machine cabinet	T. Kundtz	35,626	Jan. 28	98	780
Sewing-machine cabinet	T. Kundtz	35,732	Feb. 11	98	1274
Sewing-machine-cabinet drawer	T. Kundtz	35,804	Mar. 11	98	2163
Sewing-machine-cabinet drawer	T. Kundtz	35,805	Mar. 11	98	2163
Sewing-machine-cabinet top	T. Kundtz	35,733	Feb. 11	98	1274
Shelf and sewing-cabinet. Clock-	C. Scheer	35,734	Feb. 11	98	1274
Shingle	G. F. Murdock	35,592	Jan. 21	98	573
Shirt-waist-button-engaging attachment	R. T. Clarke	35,705	Feb. 11	98	1269
Shoe-shank	J. S. Busky	35,709	Feb. 11	98	1270
Shoe-sole	J. S. Busky	35,569	Jan. 7	98	219
Shoe-store seat	H. W. Proulx	35,725	Feb. 11	98	1273
Show-case	J. T. Robin	35,675	Feb. 4	98	1017
Sideboard ornament	F. M. Bomenblit and D. Pink	35,586	Jan. 14	98	410
Sink. Siphon-jet stop-	S. D. Baker	35,801	Mar. 11	98	2161
Sink. Siphon-jet stop-	S. D. Baker	35,802	Mar. 11	98	2161
Sink. Siphon-jet stop-	S. D. Baker	35,803	Mar. 11	98	2161
Skirt. Lady's	C. C. Ondrak	35,579	Jan. 14	98	408
Soap tray or holder	J. G. Walker	35,724	Feb. 11	98	1272
Sole. Shoe-	J. S. Busky	35,630	Jan. 28	98	781
Spectacles or eyeglasses. Nosepiece for	I. Fox	35,551	Jan. 7	98	216
Spectacles or eyeglasses. Nosepiece for	I. Fox	35,552	Jan. 7	98	216
Spectacles or eyeglasses. Nosepiece for	I. Fox	35,553	Jan. 7	98	216
Speculum-blade blank	C. J. Pilling	35,715	Feb. 11	98	1271
Speculum-blade blank	C. J. Pilling	35,716	Feb. 11	98	1271
Speculum-blank	C. J. Pilling	35,714	Feb. 11	98	1271
Spoon. Souvenir-	J. A. Oswald	35,573	Jan. 14	98	407
Spoons, forks, &c. Handle for	H. L. Wallace	35,647	Feb. 4	98	1012
Spoons, forks, &c. Handle for	H. L. Wallace	35,648	Feb. 4	98	1013
Spoons, forks, &c. Handle for	F. N. Osborne	35,649	Feb. 4	98	1013
Spoons, forks, &c. Handle for	W. C. Codman	35,780	Mar. 4	98	1956
Spoons, forks, or similar articles. Handle for	C. A. Bennett	35,555	Jan. 7	98	216
Spoons, forks, or similar articles. Handle for	W. C. Codman	35,556	Jan. 7	98	216
Spoons, &c. Handle for	J. M. Bracken	35,607	Jan. 28	98	776
Spoons, &c. Handle for	F. G. Wilson	35,821	Mar. 18	98	2355
Spur-body	W. E. Underwood	35,696	Feb. 4	98	1021
Spur-body	W. E. Underwood	35,697	Feb. 4	98	1021
Stove-door	J. P. Onerbacker	35,582	Jan. 14	98	409
Stove. Gas-	W. J. Schwarz	35,738	Feb. 11	98	1275
Stove. Gas heating-	J. A. Witman	35,620	Jan. 28	98	780
Stoves. Connecting member for hydrocarbon-	W. R. Jeavons	35,679	Feb. 4	98	1018
Surgical rubber pad	W. P. Richards	35,749	Feb. 18	98	1473
Suspender-yoke	B. Stein	35,687	Feb. 4	98	1020
Switch contact member	G. W. Hart	35,620	Jan. 28	98	779
Table	J. W. Estes	35,728	Feb. 11	98	1273
Teapot, &c	C. E. Haviland	35,794	Mar. 4	98	1957
Threshing-machine-cylinder tool	J. Pankratz	35,721	Feb. 11	98	1272
Tile	D. H. Watts, Jr	35,691	Feb. 4	98	1020
Tile. Ornamental	T. J. Woodward	35,772	Feb. 25	98	1697
Tile. Ornamental	T. J. Woodward	35,773	Feb. 25	98	1697
Tile. Ornamental	T. J. Woodward	35,774	Feb. 25	98	1698
Tile. Ornamental	T. J. Woodward	35,775	Feb. 25	98	1698
Trace-holder	G. E. Woodbury	35,665	Feb. 4	98	1015
Trousers-clasp securing-bar	H. S. Brewington	35,547	Jan. 7	98	215
Type. Font of	B. Nadall	35,711	Feb. 11	98	1270
Type. Font of	J. W. Phinney	35,712	Feb. 11	98	1271
Type. Font of printing-	H. Ihlenburg	35,777	Feb. 25	98	1698
Type ornaments. Font of	B. Nadall	35,807	Mar. 11	98	2162
Type ornaments. Font of	B. Nadall	35,808	Mar. 11	98	2162
Type ornaments. Font of	B. Nadall	35,809	Mar. 11	98	2162
Type ornaments. Font of	B. Nadall	35,810	Mar. 11	98	2163

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Type ornaments. Font of	B. Nadall	35,811	Mar. 11	98	2163
Type ornaments. Font of	B. Nadall	35,812	Mar. 11	98	2163
Urinal	C. Desormoux	35,617	Jan. 28	98	778
Vehicle-body	B. C. Walter	35,698	Feb. 4	98	1082
Vehicle-body	C. F. Putnam	35,739	Feb. 11	98	1275
Vehicle-body	W. S. Rogers	35,763	Feb. 18	98	1475
Vehicle rub-iron or fender	J. F. Dredge and J. Burke	35,567	Jan. 7	98	218
Vending-machine case	F. E. Fitch	35,702	Feb. 4	98	1082
Vessel	B. P. Wagner	35,759	Feb. 18	98	1474
Vessel's hull	C. J. H. Flindt	35,590	Jan. 14	98	410
Wall-tie	R. Godfrey	35,565	Jan. 7	98	218
Watch-bag	C. C. Drueding	35,591	Jan. 21	98	573
Watchcase	C. L. Depollier	35,740	Feb. 18	98	1471

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Absorbent-wadding	Vandenbroeck & Cie	37,963	Mar. 18	98	2357
Ale	Frank Jones Brewing Co	37,816	Feb. 18	98	1476
Ammunition and explosives. Certain named	Robin Hood Powder Company	37,964	Mar. 18	98	2357
Antiblennorrhagic	H. S. Clark	37,924	Mar. 11	98	2165
Antiseptic poultice. Certain named	Columbia Chemical Company	37,737	Feb. 4	98	1025
Antiseptics	R. H. Page	37,867	Feb. 25	98	1701
Antiseptics	R. H. Page	37,868	Feb. 25	98	1701
Asphaltum	H. Brown	37,783	Feb. 11	98	1277
Atomizers and orthopædic apparatus	I. Lundquist	37,859	Mar. 4	98	1961
Baking-powder	Morehouse Manufacturing Co	37,691	Jan. 28	98	786
Bandages. Suspensory	Ware Mfg. Co	37,685	Jan. 28	98	785
Batteries and electrical appliances. Certain named	Manhattan Electrical Supply Company.	37,629	Jan. 7	98	223
Beef extracts	Liebig Extract Company	37,660	Jan. 21	98	578
Beer	United States Brewing Company of Chicago.	37,619	Jan. 7	98	221
Beer	Wm. J. Lemp Brewing Co	37,901	Mar. 4	98	1962
Beer, ale, porter, and malt extract. Lager	Duluth Brewing & Malting Co	37,978	Mar. 25	98	2581
Belts. Chain	Link Belt Machinery Co	37,877	Feb. 25	98	1702
Beverages. Certain named	J. A. Crowley	37,954	Mar. 18	98	2357
Beverages. Sweet non-alcoholic	C. G. Armstrong	37,900	Mar. 4	98	1962
Biscuit. Shredded-wheat	Natural Food Company	37,736	Feb. 4	98	1025
Bitters. Stomach	Munyon's Homœopathic Home Remedy Co.	37,980	Mar. 11	98	2166
Bituminous composition or cement	Warren Brothers Company	37,965	Mar. 18	98	2358
Bituminous composition or cement	Warren Brothers Company	37,966	Mar. 18	98	2358
Bituminous composition or cement	Warren Brothers Company	37,967	Mar. 18	98	2358
Bituminous composition or cement	Warren Brothers Company	37,968	Mar. 18	98	2358
Bituminous composition or cement	Warren Brothers Company	37,969	Mar. 18	98	2358
Bituminous composition or cement	Warren Brothers Company	37,970	Mar. 18	98	2358
Bituminous composition or cement	Warren Brothers Company	37,971	Mar. 18	98	2358
Blacksmiths' tools. Certain named	Columbus Forge & Iron Co	37,876	Feb. 25	98	1702
Blood specific	A. J. Baxley	37,864	Feb. 25	98	1701
Bolts, screws, and expansion-shields. Expansion	H. B. Newhall	37,680	Jan. 7	98	222
Books. Certain named	C. L. Dressler & Co	37,808	Feb. 18	98	1477
Boots and shoes	Desnoyers Shoe Company	37,610	Jan. 7	98	220
Boots and shoes	J. J. Gaggin	37,696	Jan. 14	98	411
Boots and shoes	B. Rosenberg & Sons	37,681	Jan. 28	98	785
Boots and shoes	M. Samuels	37,779	Feb. 11	98	1277
Boots and shoes	Greene Shoe Co	37,846	Feb. 25	98	1699
Boots and shoes	Friedman Bros. Shoe Co	37,915	Mar. 11	98	2164
Boots and shoes	Syndicate Trading Co	37,950	Mar. 18	98	2356
Boots and shoes	A. H. Berry	37,710	Feb. 4	98	1023
Boots and shoes. Ladies'	F. Loeser & Co	37,711	Feb. 4	98	1023
Boots and shoes. Ladies'	Hub Gore Makers	37,679	Jan. 28	98	785
Boots, shoes, and slippers	W. M. Fowler	37,973	Mar. 18	98	2358
Bottle-filling machines	Morel Bros. Cobbett & Son	37,734	Feb. 4	98	1024
Brandy. Apricot	McKinney Bread Co	37,690	Jan. 28	98	786
Bread, cakes, pies, and crackers	Farmers Feed Company of New Jersey.	37,975	Mar. 25	98	2581
Brewers' grains. Dried	Elder & Jenks	37,921	Mar. 11	98	2165
Brushes	Florence Manufacturing Co	37,969	Mar. 25	98	2582
Brushes	W. H. Holmes	37,730	Feb. 4	98	1025
Butter	Chapin-Sacks Mfg. Co	37,935	Mar. 11	98	2166
Butter	G. T. Lawrence	37,899	Mar. 4	98	1962
Butter, cheese, and eggs	Nedo Company	37,991	Mar. 25	98	2582
Cabinets. Tooth brush and powder	P. S. Maroosis	37,688	Jan. 28	98	786
Candy. Chewing	Alaska Packers Association	37,728	Feb. 4	98	1025
Canned salmon	Bissell Carpet Sweeper Co	37,823	Feb. 18	98	1479
Carpet-sweepers	Bissell Carpet Sweeper Co	37,824	Feb. 18	98	1479
Carpet-sweepers	Essex Foundry	37,825	Feb. 18	98	1480
Castings. Sanitary	Yale & Towne Manufacturing Company.	37,699	Jan. 28	98	787
Chain-blocks	O. M. Draper	37,916	Mar. 11	98	2164
Chains and parts thereof and attachments therefor. Ornamental	Stern & Heller	37,735	Feb. 4	98	1025
Chemical compounds. Certain named	Actien-Gesellschaft für Anilin-Fabrikation.	37,733	Feb. 4	98	1025
Chemical substances and preparations. Certain named	Actien-Gesellschaft für Anilin-Fabrikation.	37,734	Feb. 4	98	1025
Chocolate and confectionery. Coatings for	H. H. Ottens	37,807	Feb. 18	98	1477
Chocolate, broma, and cocoa preparations	Walter Baker & Co	37,962	Mar. 11	98	2165
Cigarette-papers	Maison P. B. Job	37,640	Jan. 14	98	411
Cigarettes	S. Anargyros	37,621	Jan. 7	98	221
Cigarettes	S. Anargyros	37,622	Jan. 7	98	221
Cigarettes	S. Anargyros	37,623	Jan. 7	98	221
Cigarettes	S. Anargyros	37,624	Jan. 7	98	221
Cigarettes	S. Anargyros	37,625	Jan. 7	98	221
Cigarettes	S. Anargyros	37,626	Jan. 7	98	221
Cigarettes	Wells-Whitehead Tobacco Co	37,955	Mar. 18	98	2357
Cigarettes, cigars, and smoking and chewing tobacco	Universal Tobacco Company	37,719	Feb. 4	98	1024
Cigarettes, cigars, and smoking and chewing tobacco	Universal Tobacco Company	37,720	Feb. 4	98	1024

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cigarettes, cigars, and smoking and chewing tobacco	Universal Tobacco Company	37,731	Feb. 4	98	1024
Cigars	S. L. Johns	37,643	Jan. 14	98	411
Cigars, cheroots, cigarros, and cigarettes	R. Lopez Ca	37,931	Mar. 11	98	2166
Cleaning fluids and compounds in concentrated form	J. H. Smithers	37,969	Mar. 18	98	2357
Clock movements and cases and chime devices	Bawo & Dotter	37,694	Jan. 28	98	787
Cloth known as kersey. Woolen	O. Hoffstadt	37,674	Jan. 28	98	784
Coal	Boomer Coal & Coke Co	37,769	Feb. 4	98	1028
Coats	Kaye & Einstein	37,995	Mar. 25	98	2582
Coats, trousers, and waistcoats	Standard Clothing Co	37,654	Jan. 21	98	577
Cocks, valves, and spigots. Compression	Wm. S. Cooper Brass Works	37,995	Mar. 25	98	2582
Coffee	Dennett Surpassing Coffee Co	37,618	Jan. 7	98	221
Coffee	Oriental Tea & Coffee Co	37,735	Feb. 4	98	1024
Confectionery and articles of food. Filling for certain	H. H. Ottens	37,897	Mar. 4	98	1962
Confectionery and bakers' supplies. Certain named	H. H. Ottens	37,896	Mar. 4	98	1962
Corn-oil, corn-oil cake, and meal, including germ-meal	National Starch Company	37,812	Feb. 18	98	1478
Corsets	Royal Worcester Corset Co	37,775	Feb. 11	98	1276
Corsets	Kops Bros	37,841	Feb. 25	98	1699
Corsets	Weingarten Bros	37,842	Feb. 25	98	1699
Cotton-flannels	W. H. Wisner & Co	37,657	Jan. 21	98	77
Cotton goods. Bleached and unbleached	G. Willis	37,993	Mar. 4	98	1960
Cotton piece goods	S. Nachtigall & Co	37,706	Feb. 4	98	1025
Covering material. Certain named	Asbestos Manufacturing Co	37,639	Jan. 14	98	411
Cream of tartar	Royal Baking Powder Co	37,851	Feb. 25	98	1700
Cutlery and hardware and surgical instruments. Certain named	M. Klaas	37,829	Feb. 18	98	1480
Cutlery and hardware and surgical instruments. Certain named	M. Klaas	37,830	Feb. 18	98	1480
Dandruff cure and hair-tonic	R. M. Chase	37,616	Jan. 7	98	221
Disinfectant and preservative	Farbenfabriken of Elberfeld Co	37,869	Feb. 25	98	1701
Disinfectants, anticorrosives, antiseptics, and deodorizers	Eucryl, Limited	37,738	Feb. 4	98	1026
Dolls	Hamburger & Co	37,632	Jan. 14	98	411
Dress-shields	I. B. Kleinert Rubber Co	37,606	Jan. 7	98	220
Eau-de-cologne, soaps, waters, and lotions for toilet purposes.	Naamlooze Vennootschap Eau de Cologne Fabriek Voorheen J. C. Boldoot.	37,923	Mar. 11	98	2165
Electric-current regulators and controllers	Erie Exploration Company	37,700	Jan. 28	98	787
Engines. Gasolene	Davis Gasoline Engine Works Co	37,631	Jan. 7	98	222
Explosives	Safety Explosive Company	37,943	Mar. 11	98	2167
Eyeglass and spectacle frames or mountings	American Optical Co	37,755	Feb. 4	98	1027
Eyeglass and spectacle frames or mountings	American Optical Co	37,756	Feb. 4	98	1027
Eyeglass and spectacle frames or mountings	American Optical Co	37,757	Feb. 4	98	1027
Eyeglasses and parts thereof	E. Kirstein Sons Co	37,702	Jan. 28	98	788
Fabrics and yarns. Woven, knit, dyed, or printed	Compañia General de Tabacos de Filipinas.	37,608	Jan. 7	98	220
Fabrics and yarns. Woven, knit, dyed, or printed	Compañia General de Tabacos de Filipinas.	37,609	Jan. 7	98	220
Fabrics and yarns. Woven, knit, dyed, or printed	Compañia General de Tabacos de Filipinas.	37,708	Feb. 4	98	1025
Fabrics. Certain named	G. Willis	37,947	Mar. 18	98	2356
Fabrics. Textile	Eddystone Manufacturing Company.	37,638	Jan. 14	98	411
Face-cream	R. C. Hupp, 2d	37,891	Mar. 4	98	1961
Fasteners. Metallic	Parker Novelty Company	37,667	Jan. 21	98	578
Feed. Gluten	National Starch Company	37,813	Feb. 18	98	1478
Fertilizing purposes. Refined nitrate for	Lautaro Nitrate Company	37,871	Feb. 25	98	1702
Filters. Portable and stationary	Celler Filter Werke, Gesellschaft mit Beschränkter Haftung.	37,826	Feb. 18	98	1479
Fish-hooks	Henry Milward & Sons	37,911	Mar. 4	98	1963
Fish-hooks	Henry Milward & Sons	37,912	Mar. 4	98	1964
Fish. Preserved	Seacoast Packing Co	37,808	Feb. 18	98	1477
Flannels	Lamson Brothers	37,995	Mar. 4	98	1960
Flour	Bill, Bell & Co	37,644	Jan. 14	98	412
Flour	William S. Hills Co	37,661	Jan. 21	98	578
Flour. Wheat	Valier & Spies Milling Co	37,727	Feb. 4	98	1025
Flour. Wheat	Listman Mill Company	37,809	Feb. 18	98	1478
Flour. Wheat	Listman Mill Company	37,810	Feb. 18	98	1478
Flour. Wheat	B. S. Bull	37,952	Mar. 18	98	2356
Flour. Wheat	Excelsior Water Mill Co	37,953	Mar. 18	98	2356
Food. Animal	Columbian Stock Food Co	37,797	Feb. 11	98	1279
Food. Breakfast	S. P. Ayres	37,850	Feb. 25	98	1700
Food. Cereal	C. G. Vary	37,811	Feb. 18	98	1478
Foods. Certain prepared	Mellin's Food Company	37,689	Jan. 28	98	788
Footwear. Certain named	Parker, Holmes & Co	37,690	Jan. 28	98	785
Fuel. Artificial	Randall Synthetical Coal Co	37,822	Feb. 18	98	1479
Fuel. Combustible agglomerations for use as	F. P. Vallet-Rogez	37,628	Jan. 7	98	222
Fur neckwear. Certain named	L. Baer	37,634	Jan. 14	98	411
Furniture and household goods. Certain named	Goldman Brothers	37,695	Jan. 28	98	787
Furniture springwork	Staples & Hanford Co	37,880	Feb. 25	98	1702
Furniture springwork	Springlock Spring Bed Co	37,881	Feb. 25	98	1702
Game-boards	W. Fuld	37,805	Feb. 18	98	1477
Game. Parlor	W. Fuld	37,806	Feb. 18	98	1477
Garment-fasteners	Parker Novelty Company	37,772	Feb. 11	98	1276
Gas generators. Acetylene	J. de Dios Tejada	37,879	Feb. 25	98	1702
Gas or vapor burners. Incandescent mantles for	Stillwell Light Company	37,799	Feb. 11	98	1279
Gas or vapor burners. Incandescent mantles for	Stillwell Light Company	37,913	Mar. 4	98	1964
Glass lamp-chimneys, reflectors, and lantern-globes	Gill Brothers Company	37,875	Feb. 25	98	1702
Glassware. Electrical	C. S. Knowles	37,874	Feb. 25	98	1702
Gluten-meal	National Starch Company	37,957	Mar. 11	98	2167
Graphite and carbon and graphite and carbonaceous products.	Int'l Acheson Graphite Company	37,907	Mar. 4	98	1963
Groceries. Certain named	Dolan Mercantile Company	37,986	Mar. 11	98	2167
Gum. Chewing	Curtis & Son Company	37,630	Jan. 7	98	221
Hair and scalp tonic	Kennedy & Kennedy	37,742	Feb. 4	98	1026
Hair-restoratives	R. A. Perkins	37,611	Jan. 7	98	220
Hardware articles and metal manufactures. Certain named	Racine Malleable & Wrought Iron Co.	37,941	Mar. 11	98	2167
Horseshoe-pads	Consolidated Hoof Pad Company	37,942	Mar. 11	98	2167

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Hose-supporters	A. Steinhardt & Bro	37,844	Feb. 25	98	1699
Hosiery	Pilling & Madeley	37,635	Jan. 14	98	411
Hosiery	Pilling & Madeley	37,777	Feb. 11	98	1276
Hosiery and gloves	Goodman Bros	37,776	Feb. 11	98	1276
Hygienic cream or paste for the skin	Boesard-Lemaire	37,741	Feb. 4	98	1026
Inks and writing fluids	Diamond Ink Company	37,957	Mar. 18	98	2357
Insect-exterminators in liquid form	R. B. Norwood	37,784	Feb. 11	98	1277
Japan	Mayer & Loewenstein	37,944	Mar. 11	98	2168
Jewelry. Gold-plated and cheap grades of	J. Solinger & Co	37,770	Feb. 11	98	1276
Knobs and knob-spindles	Yale & Towne Manufacturing Company.	37,693	Jan. 28	98	787
Lamp shades and reflectors	O. A. Mygatt	37,766	Feb. 4	98	1028
Laxative and diuretic compound	A. H. Still	37,928	Mar. 11	98	2165
Laxatives	Chester Kent & Co	37,865	Feb. 25	98	1701
Laxatives. Liquid	W. D. Rea	37,929	Mar. 11	98	2166
Leather	A. C. Lawrence Leather Co	37,682	Jan. 28	98	785
Leather	A. C. Lawrence Leather Co	37,683	Jan. 28	98	785
Leather. Enameled	C. B. Rathbun	37,637	Jan. 14	98	411
Leather. Imitation	Broderick & Nearey	37,715	Feb. 4	98	1024
Leather. Patent and enameled	H. Smith	37,714	Feb. 4	98	1024
Leather. Patent and enameled	Hugh Smith	37,848	Feb. 25	98	1700
Lenses	Chinn-Beretta Optical Co	37,750	Feb. 4	98	1027
Liniment	Empire Liniment M'f'g Co	37,962	Mar. 25	98	2581
Liniment, salve, and ointments	Geber Drug Company of Baltimore City.	37,663	Jan. 21	98	578
Lures. Artificial	G. H. Burtis	37,921	Feb. 18	98	1479
Malt extract, beer, ale, and porter	Duluth Brewing & Malting Co	37,977	Mar. 25	98	2581
Matches	L. Hilfer Co	37,988	Mar. 11	98	2167
Meal, including gluten-meal	National Starch Company	37,814	Feb. 18	98	1478
Medical composition for external application	J. Schwarz	37,866	Feb. 25	98	1701
Medical compounds. Certain named	Eucryl, Limited	37,745	Feb. 4	98	1026
Medical preparations for wounds and certain named diseases	Chemische Fabrik Rhenania	37,744	Feb. 4	98	1026
Medical tablets as a laxitive or cathartic	A. J. Young	37,743	Feb. 4	98	1026
Medicated-cotton toothache cures	Seana Mfg. Co	37,892	Mar. 4	98	1961
Medicated soap	Willard Chemical Co	37,890	Mar. 4	98	1961
Medicators, inhalers, respirators, and similar surgical appliances.	E. J. Worst	37,666	Jan. 21	98	578
Medicinal preparation. Certain named	Dominion Drug Company	37,615	Jan. 7	98	221
Medicinal preparations containing malt extract	Maltine Company	37,793	Feb. 11	98	1278
Medicine. Blood	C. W. McKee & Company	37,749	Feb. 4	98	1026
Medicine. Certain named	W. C. Alpers	37,641	Jan. 14	98	411
Medicine. Certain named	Peacock Chemical Co	37,862	Feb. 25	98	1701
Medicine. Certain named	Allen & Hanburys	37,961	Mar. 18	98	2357
Medicine. Cough	Cough Checker Manufacturing Company.	37,894	Mar. 4	98	1961
Medicines. Cough	Tar-Ben Medicine Co	37,861	Feb. 25	98	1701
Medicines. Proprietary	J. J. Ledwith	37,786	Feb. 11	98	1277
Medicines. Proprietary	J. J. Ledwith	37,787	Feb. 11	98	1277
Mercury preparations	Chemische Fabrik auf Actien, vorm. E. Schering.	37,736	Feb. 4	98	1025
Metal articles. Enamel-coated	Novelty Stamping Co	37,951	Mar. 18	98	2356
Metal. Certain named	Riverside Metal Company	37,994	Mar. 25	98	2582
Metal pipes. Flexible	Metallschlauchfabrik Pforzheim, (vorm. Hch. Witzenmann,) G. M. B. H.	37,825	Feb. 18	98	1479
Metal ware. Electroplated	Gorham Mfg. Co	37,939	Mar. 11	98	2167
Metal. White or Babbitt	Runskool Metal Co	37,940	Mar. 11	98	2167
Milk or milk-preserve. Condensed	A. Sauer	37,645	Jan. 14	98	412
Millinery goods. Certain named	Gage Brothers & Company	37,653	Jan. 21	98	577
Music. Sheet	Howley, Haviland & Dresser	37,684	Jan. 28	98	786
Neckbands and teething-bands	Amulet Chemical Co	37,686	Jan. 28	98	786
Neckwear	J. & J. Cash	37,919	Mar. 11	98	2164
Oil. Cod-liver	F. W. Ward	37,792	Feb. 11	98	1278
Oil for painters' use. Linseed	Woodhouse Excelsior Manufacturing Company.	37,904	Mar. 4	98	1963
Oil. Fuel and illuminating	Big Four Oil Company	37,905	Mar. 4	98	1963
Oil. Lubricating	Borne Scrymser Company	37,753	Feb. 4	98	1027
Oils. Lubricating	Valvoline Oil Company	37,754	Feb. 4	98	1027
Oils. Paint	J. B. Hall	37,903	Mar. 11	98	1962
Olives. Pickled	Alart and McGuire	37,729	Feb. 4	98	1025
Optical goods. Certain named	H. Kahn	37,758	Feb. 4	98	1027
Overshirts	Oppenheim, Oberndorf & Co	37,655	Jan. 21	98	577
Paint	Seaboard Paint Company	37,902	Mar. 4	98	1962
Paint-powder	W. A. Hall	37,993	Mar. 25	98	2582
Paints and enamels	Phoenix Paint and Varnish Company.	37,649	Jan. 14	98	412
Paints for exterior and interior finishing	Geo. W. Pitkin Company	37,873	Feb. 25	98	1702
Paints, varnishes, and cements	Seaboard Paint Company	37,768	Feb. 4	98	1028
Painters' supplies. Certain named	Gerstendörfer Bros	37,945	Mar. 11	98	2168
Paper and envelops. Writing	Z. & W. M. Crane	37,838	Feb. 25	98	1699
Paper substitute	A. Bushnell	37,984	Mar. 25	98	2582
Papers. Sensitized photographic	B. Russegger	37,837	Feb. 25	98	1699
Papers. Sensitized photographic	B. Russegger	37,917	Mar. 11	98	2164
Pedestal, book-rack, and music-cabinet. Combined	W. A. Dennerline	37,696	Jan. 28	98	787
Pens. Fountain	Parker Pen Company	37,670	Jan. 28	98	784
Pens. Fountain	L. E. Waterman Company	37,762	Feb. 4	98	1028
Perfume. Breath	Perfumol Company	37,960	Mar. 18	98	2357
Perfumes	R. Hudnut	37,922	Mar. 11	98	2165
Perfumes	R. Hudnut	37,959	Mar. 18	98	2357
Periodicals	Criterion Publication Co	37,983	Mar. 25	98	2582
Phonographic language-lesson records	International Textbook Company	37,985	Mar. 25	98	2582
Photographic art. Dry plates employed in the	Hammer Dry Plate Co	37,697	Jan. 28	98	787
Photographic card-mounts	A. Clements	37,888	Mar. 4	98	1961
Photographic developers	Farbenfabriken of Elberfeld Co	37,752	Feb. 4	98	1027
Photographic plates and films	Actien-Gesellschaft für Anilin-Fabrikation.	37,916	Mar. 11	98	2164
Pictures	V. Waring	37,859	Feb. 25	98	1699

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Pills. Resolvent	Potter Drug & Chemical Corporation.	37,890	Feb. 18	98	1479
Potatoes. Irish and sweet	Eastern Shore of Virginia Produce Exchange.	37,974	Mar. 25	98	2581
Presses. Fruit-	Henis Fruit Press Co.	37,651	Jan. 14	98	413
Pumps. Steam-	J. E. Cameron	37,701	Jan. 28	98	786
Quinate of lithium	Vereinigte Chininfabriken Zimmer & Co., Ges. mit Beschränkter Haftung.	37,664	Jan. 21	98	578
Red bone, marrow, and malt extract	Virol, Limited	37,976	Mar. 25	98	2581
Remedies. Blood, liver, and kidney	Balsam Medicinal Co.	37,868	Feb. 25	98	1701
Remedies for coughs and colds	W. B. Thompson	37,642	Jan. 14	98	411
Remedies for la grippe, colds, and headache	Bromo Chemical Company	37,788	Feb. 11	98	1277
Remedies for the cure of rheumatism	J. C. Bilbo	37,985	Mar. 11	98	2165
Remedy. Blood	Poke Root and Burdock Medicine Co.	37,986	Mar. 11	98	2165
Remedy for a certain named disease	H. Mayes	37,819	Feb. 18	98	1478
Remedy for certain named diseases	B. Romero	37,613	Jan. 7	98	221
Remedy for certain named diseases	M. Lichtenstein	37,614	Jan. 7	98	221
Remedy for certain named diseases	L. W. Abt	37,746	Feb. 4	98	1035
Remedy for certain named diseases	Jones and Jones	37,747	Feb. 4	98	1035
Remedy for certain named diseases	S. B. Wheeler	37,748	Feb. 4	98	1035
Remedy for certain named diseases	R. F. Kovacic	37,789	Feb. 11	98	1277
Remedy for certain named diseases	U. B. Kline	37,790	Feb. 11	98	1278
Remedy for certain named diseases	J. C. Kyles	37,791	Feb. 11	98	1278
Remedy for certain named diseases	C. N. Leigh	37,898	Mar. 4	98	1961
Remedy for colds in tablet or pill form	Ozo Remedy Company	37,818	Feb. 18	98	1478
Remedy for diseases of the mouth and throat	Valentiner & Schwarz	37,613	Jan. 7	98	220
Remedy for wounds, burns, and other injuries to the skin	M. J. E. Huribut	37,870	Feb. 25	98	1702
Respiratory devices. Mechanical	Lincoln Waterproof Cloth Co.	37,781	Feb. 11	98	1277
Roofing and belting. Waterproof fabric for	J. A. & W. Bird & Co	37,782	Feb. 11	98	1277
Roofing-felt	Aquarama Company	37,831	Feb. 18	98	1480
Roundabouts. Hydraulic	Aquarama Company	37,832	Feb. 18	98	1480
Roundabouts. Hydraulic	Bowers Rubber Co	37,716	Feb. 4	98	1034
Rubber hose, belting, and packing	Bowers Rubber Co	37,717	Feb. 4	98	1034
Rubber hose, belting, and packing	New York Belting and Packing Co.	37,627	Jan. 7	98	222
Rubber hose, belting, packing, and gaskets	Sumner & Goodwin Company	37,887	Feb. 18	98	1479
Sanitary appliances. Certain named	J. Shaw	37,896	Mar. 4	98	1962
Sauces, ketchups, relishes, pickles, chow-chow, and condiments.	J. N. Eberle & Cie	37,838	Feb. 18	98	1480
Saws and springs	Goodell-Pratt Company	37,666	Jan. 21	98	578
Saws. Hack and butcher	A. H. Still	37,987	Mar. 11	98	2165
Sedative compound	A. G. Mason	37,910	Mar. 4	98	1963
Sewing-machines and attachments	H. Norden	37,675	Jan. 28	98	784
Sheetings	W. H. Wisner & Co	37,676	Jan. 28	98	785
Sheetings	W. H. Wisner & Co	37,677	Jan. 28	98	785
Sheetings	W. H. Wisner & Co	37,678	Jan. 28	98	785
Sheetings	H. Norden	37,773	Feb. 11	98	1276
Sheetings	W. H. Wisner & Co	37,884	Mar. 4	98	1960
Sheetings	H. Norden	37,980	Mar. 11	98	2164
Sheetings	H. Norden	37,948	Mar. 18	98	2356
Sheetings and drills	A. M. & A. E. Clerihew	37,607	Jan. 7	98	220
Shirt-waists and wrappers for women	Regent Shirt Co.	37,886	Mar. 4	98	1960
Shirts, collars, cuffs, and drawers	F. E. Mistrot	37,658	Jan. 21	98	577
Shoes	F. E. Mistrot	37,712	Feb. 4	98	1034
Shoes	F. E. Mistrot	37,713	Feb. 4	98	1034
Shoes	George H. West Shoe Co.	37,847	Feb. 25	98	1700
Shoes	Richardson Shoe Company	37,966	Mar. 25	98	2582
Shoes	T. E. Greacen	37,650	Jan. 21	98	577
Shoes for men, women, and children	Lindner-Shoe Co	37,845	Feb. 25	98	1699
Shoes. Ladies'	J. K. Orr Shoe Co	37,914	Mar. 11	98	2164
Shoes. Ladies' and misses'	J. K. Orr Shoe Co	37,780	Feb. 11	98	1277
Shoes. Men's and boys'	Bentley & Olmsted Company	37,887	Mar. 4	98	1960
Shoes. Men's, women's, boys', and misses'	E. Mulchers	37,652	Jan. 14	98	412
Shower and bathing apparatus. Certain named	T. Michau & Co	37,801	Feb. 18	98	1477
Silk-warp fabrics for dress goods and linings	Norfolk Silk Co	37,672	Jan. 28	98	784
Silks. Dress-	Liberty Silk Co.	37,840	Feb. 25	98	1699
Silks. Dress-	W. C. Estes	37,908	Mar. 4	98	1963
Smalt	W. C. Estes	37,909	Mar. 4	98	1963
Smalt	Bell & Bogart Soap Co	37,648	Jan. 14	98	412
Soap	Eucryl, Limited	37,731	Feb. 4	98	1025
Soap	A. F. Wood	37,662	Jan. 21	98	578
Soap and certain named toilet preparations	Troy Chemical Co	37,895	Mar. 4	98	1961
Spavin cure	American Optical Co.	37,653	Jan. 14	98	411
Spectacles and eyeglasses	Draper & Maynard Company	37,650	Jan. 14	98	412
Sporting goods. Certain named	Archer Starch Co	37,646	Jan. 14	98	412
Starch. Corn, laundry, and mill	F. S. Webster Co	37,761	Feb. 4	98	1028
Stationery and type-writing supplies. Certain named	A. A. Dieter & Co	37,849	Feb. 25	98	1700
Stiffeners for flexible goods	J. F. Myers	37,692	Jan. 28	98	786
Stove-polish	J. J. Hockenjos Company	37,751	Feb. 4	98	1027
Surface-finishing materials. Certain named	Nashawannuck Manufacturing Company.	37,843	Feb. 25	98	1699
Suspenders	A. C. Knothe	37,967	Mar. 25	98	2582
Suspenders	A. P. Perkins	37,972	Mar. 18	98	2356
Swings and chairs	Tyer Rubber Co.	37,665	Jan. 21	98	578
Syringes	C. E. Coe	37,617	Jan. 7	98	221
Syrups, sugar, and molasses	A. H. Robins	37,961	Mar. 25	98	2581
Tablets for certain named diseases	Cattaraugus Cutlery Co	37,892	Mar. 4	98	1960
Tableware. Flat	Geo. K. McGaw & Co.	37,982	Mar. 11	98	2165
Tea	Geo. K. McGaw & Co.	37,984	Mar. 11	98	2165
Tea	C. D. Gregg	37,795	Feb. 11	98	1279
Tea and coffee	Mazawattee Tea Co	37,815	Feb. 18	98	1478
Tea, coffee, cocoa, and chocolate	Roessler & Hasslacher Chemical Co	37,732	Feb. 4	98	1025
Tin oxid	New York Belting & Packing Co.	37,834	Feb. 18	98	1480
Tires. Vehicle-	J. G. Grant	37,796	Feb. 11	98	1279
Tobacco, cigars, and cigarettes	B. Muratti, Sons & Co.	37,718	Feb. 4	98	1034
Tobacco, cigars, cheroots, and cigarettes. Smoking-	M. B. Nash Tobacco Co.	37,956	Mar. 18	98	2357
Tobacco. Plug, roll, twist, and granulated					

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Toilet articles and preparations. Certain named	R. M. Holland	37,647	Jan. 14	98	412
Toilet articles and preparations. Certain named	Rezo Remedy Co	37,740	Feb. 4	98	1026
Toilet preparations	Eucryl, Limited	37,789	Feb. 4	98	1026
Toilet preparations and soap. Certain named	M. B. Hubbert	37,785	Feb. 11	98	1277
Toilet preparations. Certain named	"Trybol" Actienges. f. Fabrik u. Vertrieb hyg.-med. Präparate Schaffhausen.	37,958	Mar. 18	98	2357
Tonic	J. Triner	37,750	Feb. 4	98	1027
Tonic and medicinal food	J. Herb	37,859	Feb. 25	98	1701
Tonic and restorative medicines	Bendiner & Schlesinger	37,858	Feb. 25	98	1701
Tonic, antiperiodic, and antipyretic preparation	A. H. Still	37,860	Feb. 25	98	1701
Tonics	I. W. Douglass	37,857	Feb. 25	98	1700
Tools. Certain named	Cleveland Twist Drill Co	37,767	Feb. 4	98	1028
Toy banks	A. C. Williams	37,698	Jan. 28	98	787
Toys and display-trays or carriers for toys	R. W. Beiser	37,804	Feb. 18	98	1477
Trousers	D. Present	37,778	Feb. 11	98	1276
Trousers	L. D. Levy	37,803	Feb. 18	98	1477
Trousers, overalls, jumpers, and shirts. Men's and boys'	May Pants Co	37,949	Mar. 18	98	2356
Turpentine. Mixed	John A. Casey Company	37,872	Feb. 25	98	1702
Type-writer ribbons, carbon-papers, stamp-ribbons, and type-writer oil.	Typewriter Cushion Key Co	37,671	Jan. 28	98	784
Type-writers	H. D. Carey	37,798	Feb. 11	98	1278
Type-writing supplies. Certain named	Typewriter Cushion Key Co	37,760	Feb. 4	98	1027
Underwear	Iroquois Knitting Mills	37,655	Jan. 21	98	577
Underwear, excepting therefrom corsets and waists	Chicago-Rockford Hosiery Co	37,705	Feb. 4	98	1028
Vases, urns, dishes, lamps, and pressed ware generally	O. A. Mygatt	37,765	Feb. 4	98	1028
Waists	Sahlin Corset Co	37,774	Feb. 11	98	1276
Washing-machines	Voss Brothers Manufacturing Company.	37,669	Jan. 21	98	578
Washing-machines	E. H. Huenefeld	37,826	Feb. 18	98	1479
Washing-machines	E. Huenefeld	37,992	Mar. 25	98	2582
Washing-machines. Hand	Vandergrift Mfg. Co	37,878	Feb. 25	98	1702
Watches, watchcases, and watch-movements	Philadelphia Watch-Case Co	37,771	Feb. 11	98	1276
Watches, watchcases, and watch-movements	United States Watch Co	37,896	Feb. 25	98	1699
Waterproof cloth	Flint Woolen Mills Co	37,946	Mar. 18	98	2356
Waterproof cloths, silks, and other textile fabrics	International Water-Proofing Co	37,673	Jan. 28	98	784
Water. Spring-	R. B. Hemingway	37,980	Mar. 25	98	2581
Waters. Drinking-	Chemung Spring Water Company	37,979	Mar. 25	98	2581
Whiskies	Hilbert Brothers	37,794	Feb. 11	98	1278
Whisky	E. J. Quinn	37,817	Feb. 18	98	1478
Whisky	J. Buchanan	37,852	Feb. 25	98	1700
Whisky	J. Buchanan	37,853	Feb. 25	98	1700
Whisky	A. Ferguson & Co	37,856	Feb. 25	98	1700
Whisky	Innes & Grieve	37,723	Feb. 4	98	1024
Whisky. Irish	Innes & Grieve	37,722	Feb. 4	98	1024
Whisky. Scotch	J. Caldwell	37,854	Feb. 25	98	1700
Whisky. Scotch	J. Caldwell	37,855	Feb. 25	98	1700
Whisky. Scotch	R. G. Marcy Mfg. Co	37,800	Feb. 11	98	1278
Windmills, pumps, towers, tanks, and cylinders	Dunbar Company	37,906	Mar. 4	98	1963
Wood. Preparation for effecting the combustion of fire-	J. C. Dowd & Co	37,990	Mar. 25	98	2582
Wood and composition. Articles made of enameled	J. H. Tisdall	37,763	Feb. 4	98	1028
Writing fluids and inks					

ALPHABETICAL LIST OF LABELS.

Title.	Name.	No.	Date.	Official Gazette.	
				Volume.	Page.
"Aceton." (For a Medicine)	Aceton Medical Co	8,915	Jan. 21	98	579
"Acheson Graphite." (For Graphite)	International Acheson Graphite Co	9,004	Mar. 4	98	1965
"Adeva." (For Cigars)	Schmidt & Co	8,934	Jan. 28	98	789
"Adirondack." (For Cement)	Glens Falls Portland Cement Co	9,005	Mar. 4	98	1965
"Akins Dropsy Cure." (For Dropsy Cure)	W. Akins & Sons	8,969	Feb. 11	98	1279
"American Hulled Beans." (For a Food Preparation)	American Hulled Bean Company	9,025	Mar. 18	98	2359
"Animals." (For Macaroni)	C. F. Mueller & Co	8,973	Feb. 18	98	1481
"Ann Arbor Patent." (For Flour)	Michigan Milling Co	9,032	Mar. 25	98	2583
"Anti-Whoop." (For a Medicine)	F. C. Titzell	8,914	Jan. 21	98	579
"Antigia." (For Medicine)	J. F. Gibboney	8,968	Feb. 11	98	1279
"Aperient Elk Splits." (For Beverages)	Andrew Lohr Bottling Co	8,977	Feb. 18	98	1481
"Arbellot & Cie. Cognac." (For Cognac)	A. J. Guialin	9,026	Mar. 18	98	2359
"Bailey." (For Planes)	Stanley Rule & Level Co	8,890	Jan. 7	98	223
"Becleaner." (For Washing-Powder)	J. W. Hussey	8,951	Feb. 4	98	1029
"Belgian Hair Grower." (For Hair-Tonic)	W. C. Ballowitz	9,015	Mar. 11	98	2169
"Blue Lion 36-Inch Percale." (For Percale)	H. B. Claflin Company	8,981	Feb. 25	98	1708
"Boss." (For Washing-Machines)	C. Dietz	9,045	Mar. 25	98	2583
"Busy Bee." (For Cigars)	E. de Bauernfeind and C. Blesse	8,976	Feb. 18	98	1481
"Butter Nut Bread." (For Bread)	Schulze Baking Co	8,918	Jan. 21	98	579
"Caloric Punsch." (For Punch)	B. Lindqvist & Co	8,978	Feb. 18	98	1481
"Canby, Ach and Canby's Peerless One Spoon Baking Powder." (For Baking-Powder.)	National Label Co	8,928	Jan. 28	98	789
"Cannon Ball." (For Cigars)	T. A. Robinson	8,921	Jan. 28	98	789
"Carter's National Bank Ink." (For Ink)	Carter's Ink Company	8,970	Feb. 18	98	1481
"Cartland's Orange Formosa." (For Tea)	Milliken, Tomlinson Co	8,997	Mar. 4	98	1965
"Celery Champagne." (For a Beverage)	Artesian Mfg. & Bottling Co	9,035	Mar. 25	98	2583
"Celery Champagne." (For a Beverage)	Artesian Mfg. & Bottling Co	9,036	Mar. 25	98	2583
"Champion Stock Food." (For Stock-Food)	W. L. Handley	8,937	Jan. 28	98	789
"Chlorothol." (For Anodyne)	J. W. Van Winkle	8,984	Feb. 25	98	1708
"Coronation Violet." (For Perfume)	Caswell, Massey & Company	8,891	Jan. 14	98	413
"Cream of Oats." (For a Cereal Product)	H. L. Milnes	9,034	Mar. 18	98	2359
"Cream Syrup." (For Syrup)	California Mercantile Co	8,893	Jan. 14	98	413
"Cupid's." (For Chocolates and Bonbons)	James McIntosh Company	8,946	Feb. 4	98	1029
"De Grath's Liniment." (For a Liniment)	A. B. De Grath	8,889	Jan. 7	98	223
"Derma Detergent." (For a Complexion Preparation)	H. Walker	9,028	Mar. 18	98	2359
"Dermacura." (For a Medicine)	J. C. Nelson & Co	8,942	Feb. 4	98	1029
"Dermicure." (For a Medicine)	G. B. Holden	8,917	Jan. 21	98	579
"Devonshire Relish." (For a Table-Sauce)	L. M. Roberts	8,895	Jan. 14	98	413
"Diections." (For Toy Bird)	Lexington Toy Bird Co	8,979	Feb. 25	98	1708
"Dr. Ling's Lemon Cough Remedy." (For a Medicine)	Patton Bros	8,916	Jan. 21	98	579
"Dr. Westmal's Coldoids." (For a Medicine)	Western Pharmacal Company	8,935	Jan. 28	98	789
"Dys-Pep-Cide." (For a Medical Compound)	C. D. Voorhees	8,972	Feb. 18	98	1481
"Eagle Brand." (For Shoe-Polish)	H. Kleine	8,945	Feb. 4	98	1029
"Eagle India Ink." (For Ink)	Schwencke, Kirk & Co	8,912	Jan. 21	98	579
"Eagle Shoes." (For Shoes)	E. Perlberg	8,919	Jan. 28	98	789
"El Timonel." (For Cigars)	Stecher Lithographic Co	9,008	Mar. 4	98	1965
"Empire Rolled White Oats." (For Rolled Oats)	M. Sheppey	8,952	Feb. 4	98	1029
"Essex Brand Condensed Milk." (For Condensed Milk)	Hires Condensed Milk Company	8,956	Feb. 11	98	1279
"Eu-Cal-Hydra." (For an Ointment)	C. W. Dean	9,014	Mar. 11	98	2169
"Farrar's Hygienic Protective Powder." (For a Protective Powder.)	B. Ruppe	8,902	Jan. 14	98	413
"Fontaine de Jouvence, (Fountain of Youth.)" (For a Toilet Preparation.)	J. A. Herlihy	8,944	Feb. 4	98	1029
"Formo Dyspepsia Tablets." (For Dyspepsia-Tablets)	Lincoln Chemical Co	8,901	Jan. 14	98	413
"400 Coffee." (For Coffee)	I. Newlin	9,034	Mar. 25	98	2583
"Gold Lustre." (For Gold Luster)	J. and E. Mayer	8,941	Feb. 4	98	1029
"Good Luck Shoe." (For Shoes)	M. Oppenheim	8,939	Feb. 4	98	1029
"Grape Sugar Flakes." (For Cereal Food)	Commercial Travelers & Farmers National Food Co.	8,988	Feb. 25	98	1708
"Grid Iron Club Rye Whiskey." (For Rye Whisky)	V. W. Power and P. J. Drury	8,961	Feb. 11	98	1279
"Harifoam Vegetable Shampoo Tonic and Dandruff Cure." (For Tonic and Dandruff Cure.)	Childs Drug Co	8,964	Feb. 11	98	1279
"Heart Food." (For a Breakfast Product)	E. Koch Co	8,897	Jan. 14	98	413
"Home Brand." (For Canned Salmon)	Griggs, Cooper & Co	8,953	Feb. 11	98	1279
"Home Brand." (For Canned Lobster)	Griggs, Cooper & Co	8,954	Feb. 11	98	1279
"Home Brand." (For Asparagus)	Griggs, Cooper & Co	8,990	Feb. 25	98	1708
"Home Brand." (For Baked Beans)	Griggs, Cooper & Co	8,989	Feb. 25	98	1708
"Home Brand." (For Maple-Sugar)	Griggs, Cooper & Co	8,992	Feb. 25	98	1708
"Home Brand." (For Olive-Oil)	Griggs, Cooper & Co	8,993	Feb. 25	98	1708
"Home Brand." (For Soda)	Griggs, Cooper & Co	8,991	Feb. 25	98	1708
"Hygeia Flour." (For Flour)	Michigan Milling Co	8,906	Jan. 21	98	579
"I Wash the Old Way; I Use the I V Washing Tablets." (For Washing-Tablets.)	R. L. Hottenstein & Co	9,016	Mar. 11	98	2169
"Indian Coffee." (For Coffee)	M. Sheppey	8,948	Feb. 4	98	1029
"Invicta." (For Cement)	Glens Falls Portland Cement Co	9,006	Mar. 4	98	1965
"Iron Clad." (For Cement)	Glens Falls Portland Cement Co	9,007	Mar. 4	98	1965
"Juan de Fuca." (For Cigars)	Sanchez, Rodriguez & Co	8,899	Jan. 14	98	413
"Johnie Bird." (For Cigars)	Schmidt & Co	8,986	Feb. 25	98	1708
"Joke Whiskey." (For Whisky)	Cook & Bernheimer Co	8,999	Mar. 4	98	1965
"Judge Wilson." (For Cigars)	Schmidt & Co	8,931	Jan. 28	98	789
"Karlsbader Hair Regenerator." (For a Hair-Regenerator)	J. Mrazay	8,965	Feb. 11	98	1279
"Kennel Club." (For Whisky)	Armstrong & Co	8,998	Mar. 4	98	1965

Alphabetical list of labels, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
"Keystone Maid." (For Cigars)	H. Sommer	8,904	Jan. 21	98	579
"Khasan's Roschynee." (For an Insect-Powder)	M. Khasan	8,908	Jan. 14	98	413
"King's Banner." (For Cigars)	American Lithographic Company	9,001	Mar. 4	98	1965
"Knight's Consumption, Bronchitis, Asthma Cure." (For Medicine.)	A. Knight	8,971	Feb. 18	98	1481
"Kol-Saver." (For a Chemical Compound)	A. G. Hulbert	8,924	Jan. 28	98	789
"Kudros." (For a Beverage)	A. M. Hellman & Co	8,959	Feb. 11	98	1279
"La Clarina." (For Cigars)	American Lithographic Company	9,000	Mar. 4	98	1965
"La Nueva Bolsa." (For Cigars)	A. Schulte	9,027	Mar. 18	98	2359
"La Rosa De Juncos." (For Cigars)	Schmidt & Co	9,019	Mar. 11	98	2169
"La Vitalia." (For Cigars)	H. Sommer	8,905	Jan. 21	98	579
"Lee Broom." (For Brooms)	Lee Broom & Duster Co	8,988	Feb. 4	98	1029
"Liberty Brand." (For Dried Prunes)	H. A. Townsend	9,028	Mar. 18	98	2359
"Lifebuoy Soap." (For Soap)	Lever Brothers	8,910	Jan. 21	98	579
"Magasin De Modes." (For Pattern-Hats)	A. A. Wallman	8,995	Mar. 4	98	1965
"Malt Myrrh." (For Malt Tonic Liquor)	Barrett & Barrett	9,021	Mar. 11	98	2169
"Malt Pepsin." (For Chewing-Gum)	Lidwell Gum Co	8,955	Feb. 11	98	1279
"Malt-Too." (For a Food Preparation)	Malt-Too Flake Food Co	8,974	Feb. 18	98	1481
"Malted Toast." (For a Food Product)	Lambert Good Food Co	9,080	Mar. 25	98	2583
"Marca Vuelta." (For Cigars)	Schmidt & Co	8,985	Feb. 25	98	1703
"McKinley's Favorite." (For Cigars)	H. Engler & Co	9,002	Mar. 4	98	1965
"Mineral Dandruff Cure." (For Dandruff Cure)	B. & W. Co	9,041	Mar. 25	98	2583
"Napoleon French Limburger." (For Limburger Cheese)	Liebenthal Bros. & Co	8,909	Jan. 21	98	579
"Nature's Breakfast Food." (For a Wheat Food)	Nature's Breakfast Food Co	8,908	Jan. 21	98	579
"Nix-e Wont Tell." (For a Breath-Perfume)	R. A. Brachvogel	9,036	Mar. 25	98	2583
"O. W. Bourke's Lot Syndicate Forms." (For Printed Forms.)	O. W. Bourke	9,029	Mar. 18	98	2359
"Official Fire Insurance Record Watchman's Improved Time Detector." (For Dials and Time-Detectors.)	R. Kopp	9,044	Mar. 25	98	2583
"Overland Shoe." (For Shoes)	Dixon, Bartlett Co	9,009	Mar. 11	98	2169
"Ox Heart." (For Candy)	D. D. Long	8,892	Jan. 14	98	413
"Pacific Oil Compound." (For an Oil Compound)	S. A. Dennis	8,911	Jan. 21	98	579
"Pat Rooney, Chip of the Old Block Cigars." (For Cigars)	L. P. Herrmann	8,947	Feb. 4	98	1029
"Per-fo." (For a Food Preparation)	Real Food Co	8,927	Jan. 28	98	789
"Perfumol." (For Breath-Perfume)	Perfumol Company	8,975	Feb. 18	98	1481
"Phonographic Language Lesson." (For Phonographic Records.)	International Textbook Co	8,887	Jan. 7	98	223
"Proof Mark." (For Cigars)	Schmidt & Co	8,962	Feb. 11	98	1279
"Puritan." (For Cigars)	Schmidt & Co	8,982	Jan. 28	98	789
"Red Lion 36-Inch Percale." (For Percale)	H. B. Claflin Company	8,982	Feb. 25	98	1703
"Red Trunk." (For Cigars)	C. F. Springer	9,087	Mar. 25	98	2583
"Revivor Bitters." (For Bitters)	W. Moise & Co	8,900	Jan. 14	98	413
"Rincon Heights Virgin Olive Oil." (For Olive-Oil)	G. E. Grosse	8,926	Jan. 28	98	789
"Rising Sun." (For Baking-Powder)	M. Sheppey	8,950	Feb. 4	98	1029
"Rising Sun Coffee." (For Coffee)	M. Sheppey	8,949	Feb. 4	98	1029
"Royal Welsh Sauce." (For Sauce)	J. Marshall	9,011	Mar. 11	98	2169
"Sapphine Toilet Cream." (For Toilet Cream)	F. W. Peterson	9,089	Mar. 25	98	2583
"Satin-Skin Cream." (For a Cosmetic Cream)	A. F. Wood	9,040	Mar. 25	98	2583
"Scare Crow." (For Cigars)	Schmidt & Co	8,930	Jan. 28	98	789
"Shanafelt's Flavors." (For Flavors)	F. P. Shanafelt	9,083	Mar. 25	98	2583
"Sheldon's Criterion." (For Cigars)	R. Sheldon	8,922	Jan. 28	98	789
"Siempra Viva." (For a Medicinal Preparation)	Rio Grande Medicine Company	8,967	Feb. 11	98	1279
"Silver Label." (For Machine-Twist)	Werner Bros	8,996	Mar. 4	98	1965
"Snider's Oyster Cocktail Sauce." (For Oyster-Cocktail Sauce.)	T. A. Snider Preserve Company	9,012	Mar. 11	98	2169
"Snow Queen." (For Flour)	Michigan Milling Co	9,081	Mar. 25	98	2583
"Sopura Dentifrice." (For Tooth-Powder)	Sopura Co	8,913	Jan. 21	98	579
"Split Rock." (For Mineral-Spring Water)	Roewekamp Bros	8,958	Feb. 11	98	1279
"Steeplechase." (For Whisky)	M. Weisberg	8,960	Feb. 11	98	1279
"Sunlight Soap." (For Soap)	Lever Brothers	8,994	Feb. 25	98	1703
"Superba." (For Blueberries)	Milliken, Tomlinson Co	8,894	Jan. 14	98	413
"System Lenox." (For Garments)	Gimbel Brothers	8,980	Feb. 25	98	1703
"Tabasco Pepper." (For Extract of Tabasco Pepper)	C. Schertz	8,888	Jan. 7	98	223
"Tar Heel Tonic and Blood Purifier." (For Medicine)	C. D. Higgins	8,966	Feb. 11	98	1279
"The American Corset Waists." (For Corset-Waists)	H. Greenberg, I. Berger, and L. Waldmann.	9,008	Mar. 11	98	2169
"The Appetine Stomach Tablet." (For Stomach-Tablets)	J. W. Stahlberg	8,983	Feb. 25	98	1703
"The Cardinal Kidney Cure and Tonic." (For a Medicine)	C. W. Johnson	9,013	Mar. 11	98	2169
"The Etenheim Sauce." (For a Sauce)	L. D. Smith	8,925	Jan. 28	98	789
"The Jay Williams Rheumatic Plaster." (For Plasters)	J. Williams	9,042	Mar. 25	98	2583
"The Prophet." (For Cigars)	E. J. Cook	8,929	Jan. 28	98	789
"The Two-Bite." (For Chewing-Gum)	C. H. Woodman	9,018	Mar. 11	98	2169
"Tissera's Tea-Bu-Ets." (For Compressed Teas)	V. L. Tissera	8,957	Feb. 11	98	1279
"Tiger Rolled White Oats." (For Rolled Oats)	Morris Oatmeal Co	8,898	Jan. 14	98	413
"Toasted Manna." (For a Food Product)	Lambert Good Food & Machinery Co.	8,907	Jan. 21	98	579
"True Stock." (For Cigars)	Schmidt & Co	8,983	Jan. 28	98	789
"Trunk Matches." (For Matches)	L. Hilfer	9,010	Mar. 11	98	2169
"Uncle John." (For Cigars)	D. Spangler	9,090	Mar. 11	98	2169
"Ursus Shoe." (For Shoes)	Cole & Wiggins	8,940	Feb. 4	98	1029
"Victor Silk." (For Silk)	H. A. Meldrum Company	8,920	Jan. 28	98	789
"Vigorine." (For Pills)	G. Tasse	8,943	Feb. 4	98	1029
"Vis Vitae." (For a Hair-Restorative)	N. E. Smith	8,963	Feb. 11	98	1279
"W. C. Hughens Electric Fluid." (For a Medicine)	W. C. Hughens	9,043	Mar. 25	98	2583
"Weber's Varnish." (For Varnish)	Weber Varnish Company	9,017	Mar. 11	98	2169
"Whegn." (For Food Made from Wheat)	Whegn Food Company	8,987	Feb. 25	98	1703
"White Cross." (For Vaccination-Shields)	H. Heineman	8,936	Jan. 28	98	789
"World's Fair Bread." (For Bread)	Heydt Bakery Company	8,896	Jan. 14	98	413
"Yankee Flyer." (For Cigars)	Upmann & Wilcox	8,923	Jan. 28	98	789
"Yendik Beans." (For Canned Beans)	Gibson Canning Co	9,022	Mar. 18	98	2359

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"A Winning Pair." (For Wine)	White Top Champagne Co	470	Feb. 25	98	1708
"American Garment Cleaning Company." (For Cleaned Garments.)	A. Durand	450	Jan. 14	98	413
"Armour's Star." (For Cured Meats)	Armour & Co	465	Feb. 11	98	1279
"Balanced Rations for Feeding Beet Pulp." (For Feeds and Feeding Stuffs.)	National Starch Company	467	Feb. 11	98	1279
"Clothing." (For Clothing)	W. C. Both	468	Feb. 18	98	1481
"Clothing." (For Clothing)	W. C. Both	478	Mar. 11	98	2169
"Dougherty's Sterilized Hair Mattresses." (For Mattresses.)	Dougherty & Co	457	Jan. 28	98	789
"Dr. Dick's Pecan Oil." (For Medicine)	Gem Distributing Co	459	Feb. 4	98	1029
"Fine and Choice French China Ware." (For Chinaware)	G. Vogt	476	Mar. 18	98	2359
"Gayoso Brand." (For Cotton-Seed Oil and Cotton-Seed Meal.)	Gayoso Oil Works	456	Jan. 28	98	789
"Has No Equal." (For Condensed Milk)	Bordens Condensed Milk Co	474	Mar. 11	98	2169
"Hasn't Scratched Yet." (For a Cleaning Material)	Ketterlinus Litho. M'f'g Co	449	Jan. 14	98	413
"High Grade Perfect Fitting." (For Clothing)	J. Mann & Sons	477	Mar. 18	98	2359
"Hoyt's 5¢ Cologne." (For Cologne)	E. W. Hoyt and Co	463	Feb. 11	98	1279
"Hoyt's 10¢ Cologne." (For Cologne)	E. W. Hoyt and Co	464	Feb. 11	98	1279
"I do Love a Domestic." (For Sewing-Machines)	M. C. Jameson	451	Jan. 14	98	413
"Josephine Back, No. 606, Congress Playing Cards." (For Playing-Cards.)	United States Playing Card Co	448	Jan. 14	98	413
"Liebig's." (For Beef-Tea)	Liebig Extract Company	466	Feb. 11	98	1279
"Martha Washington Back. No. 606, Congress Playing Cards." (For Playing-Cards.)	United States Playing Card Co	447	Jan. 14	98	413
"McCormick." (For Harvesting-Machines)	McCormick Harvesting Machine Company.	460	Feb. 4	98	1029
"McCormick." (For Harvesting-Machines)	McCormick Harvesting Machine Company.	461	Feb. 4	98	1029
"Napoleon Back, No. 606, Congress Playing Cards." (For Playing-Cards.)	United States Playing Card Co	446	Jan. 14	98	413
"Oriental Rug Weaving." (For Rugs and Carpets)	N. K. Davidyan	462	Feb. 11	98	1279
"Pratts Official Chart Different Breeds of Horses." (For a Food.)	Pratt Food Co	475	Mar. 11	98	2169
"Priscilla." (For Skirt-Fasteners)	Goodspeed Mfg. Company	469	Feb. 18	98	1481
"Sen Sen." (For Sen-Sen Products)	T. B. Dunn Co	471	Mar. 4	98	1955
"Solid Steel." (For Steel Soda-Water Tanks)	R. M. Green & Sons	458	Jan. 28	98	789
"St. Louis Souvenir Playing Cards." (For Playing-Cards)	Meyers Brothers Drug Co	445	Jan. 7	98	223
"The Boy and the Flying Bird." (For a Toy Flying-Bird)	Lexington Toy Bird Co	478	Mar. 25	98	2583
"The Hawaiian Souvenir Playing Cards." (For Playing-Cards.)	United States Playing Card Co	455	Jan. 21	98	579
"The Hunt Back No. 606 Congress Playing Cards." (For Playing-Cards.)	United States Playing Card Co	458	Jan. 21	98	579
"The Minuet Back No. 606 Congress Playing Cards." (For Playing-Cards.)	United States Playing Card Co	452	Jan. 21	98	579
"Trustworthy Tailoring." (For Tailor-Made Garments)	Heller & Benson	473	Mar. 11	98	2169
"Vestibule Limited." (For Playing-Cards)	New York Consolidated Card Co	454	Jan. 21	98	579

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Volume.	Page.
Arc-lamp circuits. Regulating device for	M. H. Baker	684,340	Oct. 8, 1901	Feb. 14, 1902	98	1489
Artificial musk	A. Baur	451,847	May 5, 1891	Feb. 21, 1902	98	1712
Bowling-ball	A. B. Pickett	673,688	May 7, 1901	Jan. 2, 1902	98	231
Elevator	C. A. Harkness	553,157	Jan. 14, 1896	Jan. 2, 1902	98	1
Pneumatic tire	P. W. Tillinghast	497,971	May 23, 1893	Jan. 8, 1902	98	231
Regulating electric circuits. Method of	M. H. Baker	684,165	Oct. 8, 1901	Feb. 14, 1902	98	1490
Speed-regulator for explosive-engines	A. L. Kull	690,443	Jan. 7, 1902	Mar. 18, 1902	98	2367

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